SAR TEST REPORT

Equipment Under Test	Windows phone
Model Name	PI06100
Company Name	HTC Corporation
Company Address	No.23, Xinghua Rd., Taoyuan City, Taoyuan County 330, Taiwan
Date of Receipt	2011.07.19
Date of Test(s)	2011.08.20, 2011.08.21, 2011.08.23
Date of Issue	2011.09.09

Standards:

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

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

Remarks:

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

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.

Tested by : **Chris Tsung** Chris Tsung **Date** : **2011.09.09**
Engineer

Approved by : **Kelly Tsai** Kelly Tsai **Date** : **2011.09.09**
Supervisor

Revision Version

Report Number	Revision	Date	Memo
EN/2011/70009	00	2011/09/05	Initial creation of test report.
EN/2011/70009	01	2011/09/07	Modify 1st report
EN/2011/70009	02	2011/09/09	Modify 2nd report

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

Contents

1. General Information

1.1 Testing Laboratory

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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	HTC Corporation.
Company Address	No.23, Xinghua Rd., Taoyuan City, Taoyuan County 330, Taiwan
Contact Person	Vivian Hsieh
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1.3 Description of EUT

EUT Name	Windows phone
Brand Name	HTC
Model Name	PI06100
IMEI Code	35808704001450301

FCC ID	NM8PI06100			
Mode of Operation	GSM/GPRS/EDGE/WLAN802.11 b/g/n(20M) Bluetooth band			
Definition	Production unit			
Duty Cycle	GSM	GPRS/EDGE	WLAN802.11 b/g/n(H20)	Bluetooth
	1/8.3	1/2	1	1
TX Frequency Range (MHz)	GSM850	GSM1900	WLAN802.11 b/g/n(H20)	Bluetooth
	824.2-848.8	1850.2-1909.8	2412-2462	2402-2480
Channel Number (ARFCN)	GSM850	GSM1900	WLAN802.11 b/g/n(H20)	Bluetooth
	128-251	512- 810	1-11	0-78
VOIP Function	No			
Battery Type	3.7 V Lithium-Ion			
Antenna Type	Internal Antenna			
Max. SAR Measured (1 g)	**GSM850**			
	Head		Hotspot mode	
	0.248 mW/g At GSM 850 Right Head (Cheek Position)_251 Channel		**1.36 mW/g** Hotspot mode_Back side_ 128 channel(1DN_3UP)_ repeated with WTE Battery	
	GSM1900			
	Head		Hotspot mode	
	0.356 mW/g At GSM 1900 Right Head (Cheek Position)_512 channel		**1.1 mW/g** Hotspot mode_Body_Back side_661 channel(1DN_3UP)	

<table>
<tr><td rowspan="11">Max. SAR Measured (1 g)</td><td colspan="2">WLAN802.11 b</td></tr>
<tr><td>Head</td><td>Hotspot mode</td></tr>
<tr><td>0.131 mW/g
At WLAN802.11b Right Head (Cheek Position)_6 channel_repeated with WTE Battery</td><td>0.239 mW/g
Hotspot mode_Back side_6 channel_repeated with Merry headset</td></tr>
<tr><td colspan="2">DTM Mode (GSM 850)</td></tr>
<tr><td>Head</td><td>Hotspot mode</td></tr>
<tr><td>0.602 mW/g
At GSM 850 Right Head (Cheek Position)_251 Channel & GPRS 850(1DN_2UP)_128 channel</td><td>1.305 mW/g
Hotspot mode_Back side_ 128 channel (1DN_2UP) & GSM850_251 channel</td></tr>
<tr><td colspan="2">DTM Mode (GSM 1900)</td></tr>
<tr><td>Head</td><td>Hotspot mode</td></tr>
<tr><td>0.837 mW/g
At GSM 1900 Right Head (Cheek Position)_512 channel & GPRS 1900(1DN_2UP)_661 channe</td><td>1.01 mW/g
Hotspot mode_Body_Back side_661 channel (1DN_2UP) & GSM1900_512 channel</td></tr>
<tr><td colspan="2">Bluetooth</td></tr>
<tr><td colspan="2">Hotspot mode</td></tr>
<tr><td colspan="2">0.00375
(Hotspot mode_Bottom side_ 39 channel)</td></tr>
</table>

#. GSM/GPRS/EDGE conducted power table:

Burst average power				
EUT mode	**Frequency (MHz)**	**CH**	**Peak (dBm)**	**Avg. (dBm)**
GSM 850	824.2	128	34.10	33.30
	836.6	190	34.20	33.40
	848.8	251	34.20	33.50
The division factor compared to the number of TX time slot				
			1 TX time slot	
Division factor			-9.03	
Source-based time average power				
EUT mode	**Frequency (MHz)**	**CH**	**Peak (dBm)**	**Avg. (dBm)**
GSM 850	824.2	128	25.07	**24.27**
	836.6	190	25.17	**24.37**
	848.8	251	25.17	**24.47**

Burst average power										
			1Dn1UP Multi- class 8		1Dn2UP Multi- class 10		1Dn3UP Multi- class 11		1Dn4UP Multi- class 12	
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	33.60	33.00	33.30	32.70	33.90	33.20	29.10	29.70
	836.6	190	33.70	33.10	32.70	32.60	33.60	33.00	29.30	29.00
	848.8	251	33.70	33.10	32.80	32.30	33.60	32.90	29.40	29.10
The division factor compared to the number of TX time slot										
			1 TX time slot		2 TX time slot		3 TX time slot		4 TX time slot	
Division factor			-9.03		-6.02		-4.26		-3.01	
Source-based time average powe										
			1Dn1UP Multi- class 8		1Dn2UP Multi- class 10		1Dn3UP Multi- class 11		1Dn4UP Multi- class 12	
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	24.57	23.97	27.28	26.68	29.64	**28.94**	26.09	26.69
	836.6	190	24.67	24.07	26.68	26.58	29.34	**28.74**	26.29	25.99
	848.8	251	24.67	24.07	26.78	26.28	29.34	**28.64**	26.39	26.09

Burst average power										
			1Dn1UP Multi- class 8		1Dn2UP Multi- class 10		1Dn3UP Multi- class 11		1Dn4UP Multi- class 12	
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	29.80	26.40	28.50	25.20	28.50	25.30	28.30	25.00
	836.6	190	29.80	26.50	28.60	25.30	28.60	25.40	28.60	25.40
	848.8	251	29.80	26.60	28.70	25.40	28.60	25.40	28.70	25.40
The division factor compared to the number of TX time slot										
			1 TX time slot		2 TX time slot		3 TX time slot		4 TX time slot	
Division factor			-9.03		-6.02		-4.26		-3.01	
Source-based time average powe										
			1Dn1UP Multi- class 8		1Dn2UP Multi- class 10		1Dn3UP Multi- class 11		1Dn4UP Multi- class 12	
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	20.77	17.37	22.48	19.18	24.24	21.04	25.29	21.99
	836.6	190	20.77	17.47	22.58	19.28	24.34	21.14	25.59	22.39
	848.8	251	20.77	17.57	22.68	19.38	24.34	21.14	25.69	22.39

Burst average power				
EUT mode	**Frequency (MHz)**	**CH**	**Peak (dBm)**	**Avg. (dBm)**
GSM 1900	1850.2	512	31.20	30.90
	1880	661	31.00	30.60
	1909.8	810	30.60	30.30
The division factor compared to the number of TX time slot				
			1 TX time slot	
Division factor			-9.03	
Source-based time average power				
EUT mode	**Frequency (MHz)**	**CH**	**Peak (dBm)**	**Avg. (dBm)**
GSM 1900	1850.2	512	22.17	**21.87**
	1880	661	21.97	**21.57**
	1909.8	810	21.57	**21.27**

Burst average power										
			1Dn1UP Multi- class 8		1Dn2UP Multi- class 10		1Dn3UP Multi- class 11		1Dn4UP Multi- class 12	
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	30.70	30.30	30.30	30.00	30.50	30.20	26.30	26.10
	1880	661	30.50	30.20	30.20	29.80	30.20	29.90	26.10	25.90
	1909.8	810	30.60	30.20	29.90	29.60	30.10	29.90	26.10	25.80
The division factor compared to the number of TX time slot										
			1 TX time slot		2 TX time slot		3 TX time slot		4 TX time slot	
Division factor			-9.03		-6.02		-4.26		-3.01	
Source-based time average powe										
			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	21.67	21.27	24.28	23.98	26.24	**25.94**	23.29	23.09
	1880	661	21.47	21.17	24.18	23.78	25.94	**25.64**	23.09	22.89
	1909.8	810	21.57	21.17	23.88	23.58	25.84	**25.64**	23.09	22.79

Burst average power										
			1Dn1UP Multi- class 8		1Dn2UP Multi- class 10		1Dn3UP Multi- class 11		1Dn4UP Multi- class 12	
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	29.20	26.00	28.10	24.80	27.80	24.60	26.20	22.90
	1880	661	29.10	25.60	27.90	24.70	27.70	24.50	26.20	22.90
	1909.8	810	28.90	25.60	27.70	24.40	27.50	24.20	25.80	22.60
The division factor compared to the number of TX time slot										
			1 TX time slot		2 TX time slot		3 TX time slot		4TX time slot	
Division factor			-9.03		-6.02		-4.26		-3.01	
Source-based time average powe										
			1Dn1UP Multi- class 8		1Dn2UP Multi- class 10		1Dn3UP Multi- class 11		1Dn4UP Multi- class 12	
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	20.17	16.97	22.08	18.78	23.54	20.34	23.19	19.89
	1880	661	20.07	16.57	21.88	18.68	23.44	20.24	23.19	19.89
	1909.8	810	19.87	16.57	21.68	18.38	23.24	19.94	22.79	19.59

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

WLAN802.11 b(Mhz)	2412	2437	2462
Avg power (dbm)	18.58	18.74	18.79
WLAN802.11 g (Mhz)	2412	2437	2462
Avg power (dbm)	12.72	12.86	12.92
WLAN802.11 n(20M)	2412	2437	2462
Avg power (dbm)	12.67	12.74	12.83

DTM Mode :

DTM device class : B

DTM multislot class level : 11

Total number of time slot for GSM mode : 1 uplink ; 1 downlink

Total number of time slot for GPRS/EGPRS mode : mode on the multislot class 10 : 2 uplink ; 1 downlink

Burst average power				
EUT mode	**Frequency (MHz)**	**CH**	**Peak (dBm)**	**Avg. (dBm)**
GSM 850	824.2	128	34.10	33.30
	836.6	190	34.20	33.40
	848.8	251	34.20	33.50
The division factor compared to the number of TX time slot				
			1 TX time slot	
Division factor			-9.03	
Source-based time average power				
EUT mode	**Frequency (MHz)**	**CH**	**Peak (dBm)**	**Avg. (dBm)**
GSM 850	824.2	128	25.07	**24.27**
	836.6	190	25.17	**24.37**
	848.8	251	25.17	**24.47**

Burst average power										
			1Dn1UP Multi- class 8		1Dn2UP Multi- class 10		1Dn3UP Multi- class 11		1Dn4UP Multi- class 12	
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	33.60	33.00	33.30	32.70	33.90	33.20	29.10	29.70
	836.6	190	33.70	33.10	32.70	32.60	33.60	33.00	29.30	29.00
	848.8	251	33.70	33.10	32.80	32.30	33.60	32.90	29.40	29.10
The division factor compared to the number of TX time slot										
			1 TX time slot		2 TX time slot		3 TX time slot		4 TX time slot	
Division factor			-9.03		-6.02		-4.26		-3.01	
Source-based time average powe										
			1Dn1UP Multi- class 8		1Dn2UP Multi- class 10		1Dn3UP Multi- class 11		1Dn4UP Multi- class 12	
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	24.57	23.97	27.28	**26.68**	29.64	28.94	26.09	26.69
	836.6	190	24.67	24.07	26.68	**26.58**	29.34	28.74	26.29	25.99
	848.8	251	24.67	24.07	26.78	**26.28**	29.34	28.64	26.39	26.09

Burst average power										
			1Dn1UP Multi- class 8		1Dn2UP Multi- class 10		1Dn3UP Multi- class 11		1Dn4UP Multi- class 12	
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	29.80	26.40	28.50	25.20	28.50	25.30	28.30	25.00
	836.6	190	29.80	26.50	28.60	25.30	28.60	25.40	28.60	25.40
	848.8	251	29.80	26.60	28.70	25.40	28.60	25.40	28.70	25.40
The division factor compared to the number of TX time slot										
			1 TX time slot		2 TX time slot		3 TX time slot		4 TX time slot	
Division factor			-9.03		-6.02		-4.26		-3.01	
Source-based time average powe										
			1Dn1UP Multi- class 8		1Dn2UP Multi- class 10		1Dn3UP Multi- class 11		1Dn4UP Multi- class 12	
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	20.77	17.37	22.48	**19.18**	24.24	21.04	25.29	21.99
	836.6	190	20.77	17.47	22.58	**19.28**	24.34	21.14	25.59	22.39
	848.8	251	20.77	17.57	22.68	**19.38**	24.34	21.14	25.69	22.39

Burst average power				
EUT mode	**Frequency (MHz)**	**CH**	**Peak (dBm)**	**Avg. (dBm)**
GSM 1900	1850.2	512	31.20	30.90
	1880	661	31.00	30.60
	1909.8	810	30.60	30.30
The division factor compared to the number of TX time slot				
			1 TX time slot	
Division factor			-9.03	
Source-based time average power				
EUT mode	**Frequency (MHz)**	**CH**	**Peak (dBm)**	**Avg. (dBm)**
GSM 1900	1850.2	512	22.17	**21.87**
	1880	661	21.97	**21.57**
	1909.8	810	21.57	**21.27**

Burst average power										
			1Dn1UP Multi- class 8		1Dn2UP Multi- class 10		1Dn3UP Multi- class 11		1Dn4UP Multi- class 12	
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	30.70	30.30	30.30	30.00	30.50	30.20	26.30	26.10
	1880	661	30.50	30.20	30.20	29.80	30.20	29.90	26.10	25.90
	1909.8	810	30.60	30.20	29.90	29.60	30.10	29.90	26.10	25.80
The division factor compared to the number of TX time slot										
			1 TX time slot		2 TX time slot		3 TX time slot		4 TX time slot	
Division factor			-9.03		-6.02		-4.26		-3.01	
Source-based time average powe										
			1Dn1UP Multi- class 8		1Dn2UP Multi- class 10		1Dn3UP Multi- class 11		1Dn4UP Multi- class 12	
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	21.67	21.27	24.28	**23.98**	26.24	25.94	23.29	23.09
	1880	661	21.47	21.17	24.18	**23.78**	25.94	25.64	23.09	22.89
	1909.8	810	21.57	21.17	23.88	**23.58**	25.84	25.64	23.09	22.79

Burst average power										
			1Dn1UP Multi- class 8		1Dn2UP Multi- class 10		1Dn3UP Multi- class 11		1Dn4UP Multi- class 12	
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	29.20	26.00	28.10	24.80	27.80	24.60	26.20	22.90
	1880	661	29.10	25.60	27.90	24.70	27.70	24.50	26.20	22.90
	1909.8	810	28.90	25.60	27.70	24.40	27.50	24.20	25.80	22.60
The division factor compared to the number of TX time slot										
			1 TX time slot		2 TX time slot		3 TX time slot		4 TX time slot	
Division factor			-9.03		-6.02		-4.26		-3.01	
Source-based time average powe										
			1Dn1UP Multi- class 8		1Dn2UP Multi- class 10		1Dn3UP Multi- class 11		1Dn4UP Multi- class 12	
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	20.17	16.97	22.08	**18.78**	23.54	20.34	23.19	19.89
	1880	661	20.07	16.57	21.88	**18.68**	23.44	20.24	23.19	19.89
	1909.8	810	19.87	16.57	21.68	**18.38**	23.24	19.94	22.79	19.59

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, 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 conservative than Body worn accessory mode.)**

   Body SAR Test configurations:

   (1) Front side
   (2) Back side
   (3) Top side. (WWAN & WLAN antenna to user distance >25mm_No need SAR)
   (4) Bottom side.
   (5) Right side.
   (6) Left side.

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=1.91dBm)
7. According to KDB248227-SAR is not required for 802.11 g/HT20/HT40 channels when the maximum average output power is less than 1/4 dB higher than that measured on the corresponding 802.11b channels.
8. 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.
9. **Body (Hotsopt mode):**

   The highest 1-g SAR for WLAN is 0.239 W/kg (Hotspot mode_Back side) , the highest 1-g SAR for WWAN is 1.36W/kg(Body worn_Back side) and the highest 1-g SAR for Bluetooth is 0.00375 W/kg(Body worn_Bottom side). The sum of 1-g for simultaneous transmitting **WLAN and WWAN antenna pair** is 0.239+1.36 = 1.599 W/kg < 1.6 W/kg. The sum of 1-g for simultaneous transmitting **Bluetooth and WWAN antenna pair** is 0.00375+1.36 = 1.36275 W/kg < 1.6 W/kg. The sum of 1-g for simultaneous transmitting **WLAN and Bluetooth antenna pair** is 0.239+0.00375 = 0.24275 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 0.131W/kg and the highest 1-g SAR for WWAN is 0.837W/kg (DTM Head REC/GPRS1900). The sum of 1-g for simultaneous transmitting **WLAN and WWAN antenna pai**r is 0.131+0.837= 0.968 W/kg < 1.6 W/kg. According to KDB648474/ KDB447498 /KDB248227 Simultaneous SAR evaluation is not required.

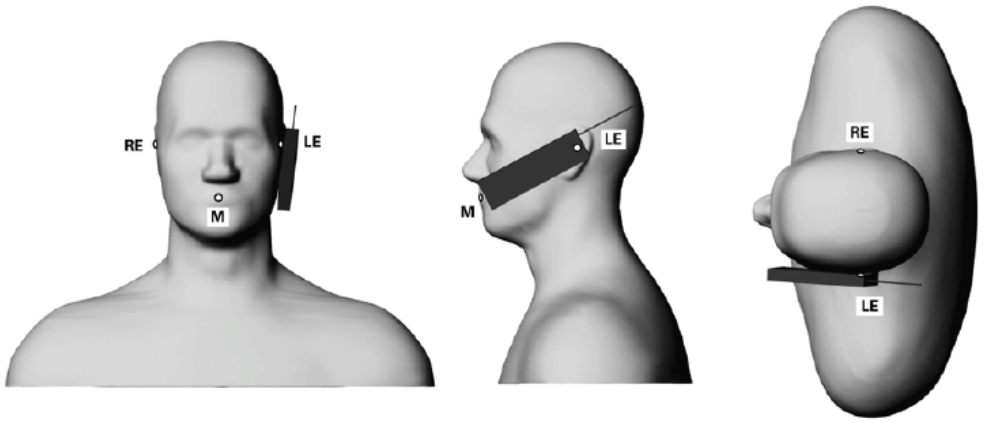
Additional configuration(Head):

11. For highest SAR configuration in this band repeated with WTE Battery.

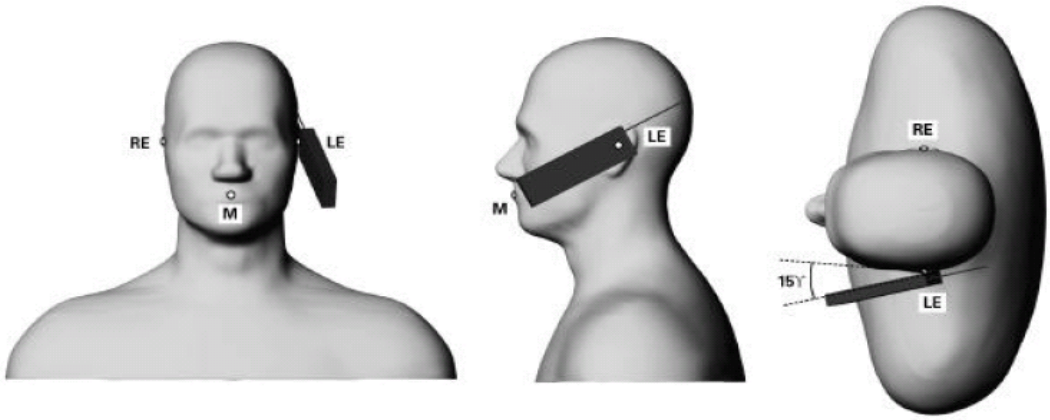
Additional configuration(Body):

12. For highest SAR configuration in this band repeated with Cotron Headset.
13. For highest SAR configuration in this band repeated with Foster Headset.
14. For highest SAR configuration in this band repeated with Merry Headset.
15. For highest SAR configuration in this band repeated with WTE Battery.

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.

1.7 Evaluation Procedures

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

1. The extraction of the measured data (grid and values) from the Zoom Scan.
2. The calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
3. The generation of a high-resolution mesh within the measured volume
4. The interpolation of all measured values from the measurement grid to the high-resolution grid
5. The extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
6. The calculation of the averaged SAR within masses of 1g and 10g.

The probe is calibrated at the center of the dipole sensors that is located 1 to 2.7mm away from the probe tip. During measurements, the probe stops shortly above the phantom surface, depending on the probe and the surface detecting system. Both distances are
included as parameters in the probe configuration file. The software always knows exactly how far away the measured point is from the surface. As the probe cannot directly measure at the surface, the values between the deepest measured point and the surface must be extrapolated. The angle between the probe axis and the surface normal line is less than 30 degree.

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

The maximum search is automatically performed after each area scan measurement. It is based on splines in two or three dimensions. The procedure can find the maximum 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 $SAR = \sigma (|Ei|^2)/ \rho$ where σ and ρ are the conductivity and mass density of the tissue-simulant.

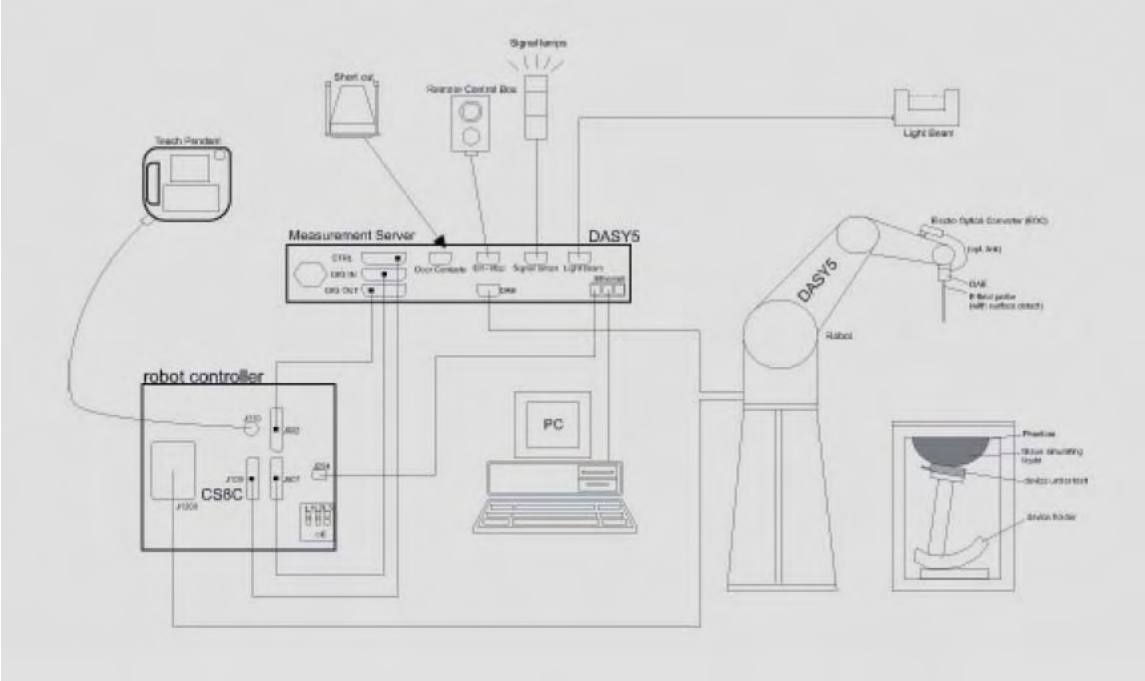


Fig.a The block diagram of SAR system

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

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

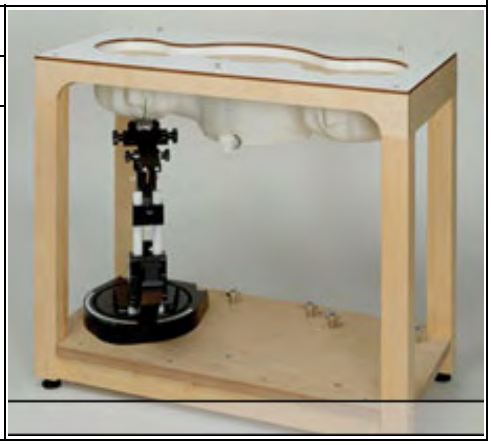
- A probe alignment unit which improves the (absolute) accuracy of the probe positioning.
  - A computer operating Windows 2000 or Windows XP.
  - DASY5 software.
- Remote control with teach pendant and additional circuitry for robot safety such as warning lamps, etc.
  - The SAM twin phantom enabling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

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 MSL850 /1900/2450 MHZ 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: 337 mm (Tip: 10 mm) Tip diameter: 2.5 mm (Body: 10 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%.	

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: 850 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

1.10 SAR System Verification

The microwave circuit arrangement for system verification is sketched in Fig. b. The daily system accuracy verification occurs within the flat section of the SAM phantom. A SAR measurement was performed to see if the measured SAR was within +/- 5% from the target SAR values.

These tests were done at 850/1900/2450 MHz. The tests were conducted on the same days as the measurement of the DUT. The obtained results from the system accuracy verification are displayed in the table 1. During the tests, the ambient temperature of the laboratory was in the range 22.1°C, the relative humidity was in the range 62% and the liquid depth above the ear reference points was above 15 cm in all the cases. It is seen that the system is operating within its specification, as the results are within acceptable tolerance of the reference values.

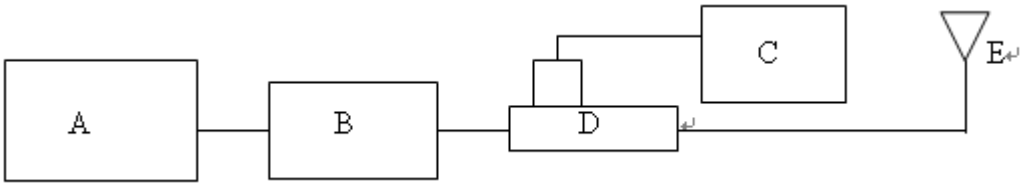
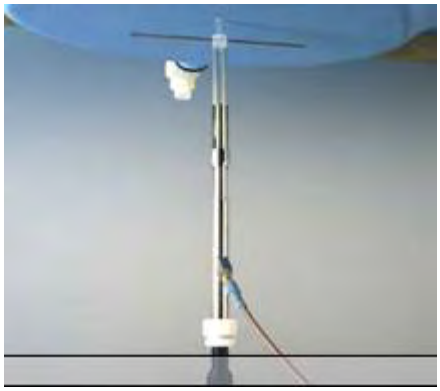


Fig.b The block diagram of system verification

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

Validation Kit	Frequency (MHz)	Target SAR (1g) (Pin=250mW)	Measured SAR (1g)	Measured Date
D835V2 S/N: 4d063	835 MHz (Head)	2.31 mW/g	2.34 mW/g	2011-08-20
D835V2 S/N: 4d063	835 MHz (Body)	2.43 mW/g	2.49 mW/g	2011-08-20
D1900V2 S/N: 5d027	1900 MHz (Head)	10.1 mW/g	9.7 mW/g	2011-08-21
D1900V2 S/N: 5d027	1900 MHz (Body)	9.93 mW/g	9.83 mW/g	2011-08-21
D2450V2 S/N: 727	2450 MHz (Head)	13.7 mW/g	13.6 mW/g	2011-08-23
D2450V2 S/N: 727	2450 MHz (Body)	12.7 mW/g	12.6 mW/g	2011-08-23

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) by using a procedure detailed in Section V.

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

Frequency (MHz)	Tissue type	Measurement date/ Limits	Dielectric Parameters		
			ρ	σ (S/m)	Simulated Tissue Temperature(°C)
850	Head	Measured, 2011-08-20	41.806	0.898	21.7
		Recommended Limits	38.38-42.42	0.84-0.92	20-24
850	Body	Measured, 2011-08-20	53.842	1.01	21.7
		Recommended Limits	51.21-56.60	0.95-1.05	20-24
1900	Head	Measured, 2011-08-21	39.216	1.419	21.7
		Recommended Limits	37.05-40.95	1.34-1.48	20-24
1900	Body	Measured, 2011-08-21	51.436	1.521	21.7
		Recommended Limits	48.55-53.66	1.44-1.60	20-24
2450	Head	Measured, 2011-08-23	37.268	1.788	21.7
		Recommended Limits	36.67-40.53	1.65-1.83	20-24
2450	Body	Measured, 2011-08-23	51.762	1.971	21.7
		Recommended Limits	48.07-53.13	1.81-2.01	20-24

Table 2. Dielectric Parameters of Tissue Simulant Fluid

The composition of the brain tissue simulating liquid:

Ingredient	850MHz (Head)	850MHz (Body)	1900MHz (Head)	1900MHz (Body)	2450MHz (Head)	2450MHz (Body)
DGMBE	X	X	444.52 g	300.67g	550ml	301.7ml
Water	532.98 g	631.68 g	552.42 g	716.56 g	450ml	698.3ml
Salt	18.3 g	11.72 g	3.06 g	4.0 g	X	X
Preventol D-7	2.4 g	1.2 g	X	X	X	X
Cellulose	3.2 g	X	X	X	X	X
Sugar	766.0 g	600 g	X	X	X	X
Total amount	1 L (1.0kg)	1 L (1.0kg)	1 L (1.0kg)	1 L (1.0kg)	1 L (1.0kg)	1 L (1.0kg)

Table 3. Recipes for tissue simulating liquid

1.12 Test Standards and Limits

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

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

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

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

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

Exceptions are the 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.

2. Summary of Results

GSM 850 MHZ

Right Head (Cheek Position)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
850 MHz	128	824.2	24.27 dBm	0.157	22.1	21.7
	190	836.6	24.37 dBm	0.209	22.1	21.7
	251	848.8	24.47 dBm	0.248	22.1	21.7
Left Head (Cheek Position)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
850 MHz	190	836.6	24.37 dBm	0.188	22.1	21.7
Right Head (15° Tilt Position)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
850 MHz	190	836.6	24.37 dBm	0.160	22.1	21.7
Left Head (15° Tilt Position)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
850 MHz	190	836.6	24.37 dBm	0.150	22.1	21.7

Hotspot mode_Front side (testing in GPRS mode: class 11_1Dn3UP)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
850 MHz	190	836.6	28.74 dBm	0.510	22.1	21.7
Hotspot mode_Back side (testing in GPRS mode: class 11_1Dn3UP)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
850 MHz	128	824.2	28.94 dBm	1.17	22.1	21.7
	190	836.6	28.74 dBm	1.14	22.1	21.7
	251	848.8	28.64 dBm	1.15	22.1	21.7

Hotspot mode_Back side (testing in GPRS mode)_repeated with Cotron headset						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
850 MHz	128	824.2	28.94 dBm	1.04	22.1	21.7
Hotspot mode_Back side (testing in GPRS mode)_repeated with Foster headset						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
850 MHz	128	824.2	28.94 dBm	1.1	22.1	21.7
Hotspot mode_Back side (testing in GPRS mode)_repeated with Merry headset						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
850 MHz	128	824.2	28.94 dBm	1.08	22.1	21.7
Hotspot mode_Back side (testing in GPRS mode)_repeated with WTE Battery						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
850 MHz	128	824.2	28.94 dBm	**1.36**	22.1	21.7
Hotspot mode_Bottom side (testing in GPRS mode: class 11_1Dn3UP)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
850 MHz	190	836.6	28.74 dBm	0.234	22.1	21.7
Hotspot mode_Right side (testing in GPRS mode: class 11_1Dn3UP)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
850 MHz	190	836.6	28.74 dBm	0.471	22.1	21.7
Hotspot mode_Left side (testing in GPRS mode: class 11_1Dn3UP)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
850 MHz	190	836.6	28.74 dBm	0.637	22.1	21.7

#. 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.

PCS 1900 MHZ

Right Head (Cheek Position)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
1900 MHz	512	1850.2	21.87 dBm	0.356	22.1	21.7
	661	1880	21.57 dBm	0.297	22.1	21.7
	810	1909.8	21.27 dBm	0.192	22.1	21.7
Right Head (Cheek Position)_repeated with WTE Battery						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
1900 MHz	512	1850.2	21.87 dBm	0.307	22.1	21.7
Left Head (Cheek Position)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
1900 MHz	661	1880	21.57 dBm	0.184	22.1	21.7
Right Head (15° Tilt Position)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
1900 MHz	661	1880	21.57 dBm	0.063	22.1	21.7
Left Head (15° Tilt Position)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
1900 MHz	661	1880	21.57 dBm	0.068	22.1	21.7

Hotspot mode_Front side (testing in GPRS mode: class 11_1Dn3UP)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
1900 MHz	661	1880	25.64 dBm	0.384	22.1	21.7
Hotspot mode_Back side (testing in GPRS mode: class 11_1Dn3UP)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
1900 MHz	512	1850.2	25.94 dBm	1	22.1	21.7
	661	1880	25.64 dBm	1.1	22.1	21.7
	810	1909.8	25.64 dBm	1.09	22.1	21.7
Hotspot mode_Bottom side (testing in GPRS mode: class 11_1Dn3UP)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
1900 MHz	661	1880	25.64 dBm	0.631	22.1	21.7
Hotspot mode_Right side (testing in GPRS mode: class 11_1Dn3UP)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
1900 MHz	661	1880	25.64 dBm	0.144	22.1	21.7
Hotspot mode_Left side (testing in GPRS mode: class 11_1Dn3UP)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
1900 MHz	661	1880	25.64 dBm	0.354	22.1	21.7

#. 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.

WLAN802.11 b

Right Head (Cheek Position)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
2450 MHz	1	2412	18.58 dBm	0.119	22.1	21.7
	6	2437	18.74 dBm	0.127	22.1	21.7
	11	2462	18.79 dBm	0.097	22.1	21.7
Right Head (Cheek Position)_repeated with WTE Battery						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
2450 MHz	6	2437	18.74 dBm	0.131	22.1	21.7
Left Head (Cheek Position)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
2450 MHz	6	2437	18.74 dBm	0.102	22.1	21.7
Right Head (15° Tilt Position)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
2450 MHz	6	2437	18.74 dBm	0.054	22.1	21.7
Left Head (15° Tilt Position)						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
2450 MHz	6	2437	18.74 dBm	0.037	22.1	21.7

Hotspot mode_Front side						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
2450 MHz	6	2437	18.74 dBm	0.069	22.1	21.7
Hotspot mode_Back side						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
2450 MHz	6	2437	18.74 dBm	0.208	22.1	21.7

Hotspot mode_Back side _repeated with Cotron headset						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
2450 MHz	6	2437	18.74 dBm	0.204	22.1	21.7
Hotspot mode_ Back side _repeated with Foster headset						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
2450 MHz	6	2437	18.74 dBm	0.203	22.1	21.7
Hotspot mode_ Back side _repeated with Merry headset						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
2450 MHz	6	2437	18.74 dBm	0.239	22.1	21.7
Hotspot mode_ Back side _repeated with WTE Battery						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
2450 MHz	6	2437	18.74 dBm	0.222	22.1	21.7
Hotspot mode_Bottom side						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
2450 MHz	6	2437	18.74 dBm	0.015	22.1	21.7
Hotspot mode_Right side						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
2450 MHz	6	2437	18.74 dBm	0.083	22.1	21.7
Hotspot mode_Left side						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
2450 MHz	6	2437	18.74 dBm	0.053	22.1	21.7

#. Using KDB248227-SAR is not required for 802.11 g/HT20 channels when the maximum average output power is less than 1/4 dB higher than that measured on the corresponding 802.11b channels.

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

Bluetooth

Hotspot mode_Front side						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
2450 MHz	39	2441	1.91dBm	0.00245	22.1	21.7
Hotspot mode_Back side						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
2450 MHz	39	2441	1.91dBm	0.00211	22.1	21.7
Hotspot mode_Bottom side						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
2450 MHz	39	2441	1.91dBm	0.00375	22.1	21.7
Hotspot mode_Right side						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
2450 MHz	39	2441	1.91dBm	0.00267	22.1	21.7
Hotspot mode_Left side						
Frequency	Channel	MHz	Conducted Output Power (Average)	Measured(W/kg) 1g	Amb. Temp[˚C]	Liquid Temp[˚C]
2450 MHz	39	2441	1.91dBm	0.00245	22.1	21.7

#. 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.

DTM Mode :

DTM device class : B

DTM multislot class level : 11

Total number of time slot for GSM mode : 1 uplink ; 1 downlink

Total number of time slot for GPRS/EGPRS mode : mode on the multislot class 10 : 2 uplink ; 1 downlink

DTM Head SAR_GSM_REC/GPRS850

Technology	Frequency	Channel	MHz	output power (Avg.)	Measured (W/kg) 1g	DTM SAR Value(W/kg)
GSM	850	251	848.8	24.47	0.248	**0.602**
GPRS(2 up/1 down)	850	128	824.2	26.68	0.354	(0.248+0.354)

DTM Head SAR_GSM_REC/EGPRS850

Technology	Frequency	channel	MHz	output power (Avg.)	Measured (W/kg) 1g	DTM SAR Value(W/kg)
GSM	850	251	848.8	24.47	0.248	**0.3463**
EGPRS(2 up/1 down)	850	128	824.2	19.18	0.098	(0.248+0.098)

DTM Head SAR_GSM_REC/GPRS1900

Technology	Frequency	channel	MHz	output power (Avg.)	Measured (W/kg) 1g	DTM SAR Value(W/kg)
GSM	1900	512	1850.2	21.87	0.356	**0.837**
GPRS(2 up/1 down)	1900	661	1880	23.78	0.481	(0.356+0.481)

DTM Head SAR_GSM_REC/EGPRS1900

Technology	Frequency	channel	MHz	output power (Avg.)	Measured (W/kg) 1g	DTM SAR Value(W/kg)
GSM	1900	512	1850.2	21.87	0.356	**0.516**
EGPRS(2 up/1 down)	1900	661	1880	18.68	0.16	(0.356+0.16)

DTM Body SAR_GSM/GPRS850_Back(10mm)

Technology	Frequency	channel	MHz	output power (Avg.)	Measured (W/kg) 1g	DTM SAR Value(W/kg)
GSM	850	251	848.8	24.47	0.488	**1.305**
GPRS(2 up/1 down)	850	128	824.2	26.68	0.817	(0.488+0.817)

DTM Body SAR_GSM/EGPRS850_Back(10mm)

Technology	Frequency	channel	MHz	output power (Avg.)	Measured (W/kg) 1g	DTM SAR Value(W/kg)
GSM	850	251	848.8	24.47	0.488	**0.696**
EGPRS(2 up/1 down)	850	128	824.2	19.18	0.208	(0.488+0.208)

DTM Body SAR_GSM/GPRS1900_ Back(10mm)

Technology	Frequency	channel	MHz	output power (Avg.)	Measured (W/kg) 1g	DTM SAR Value(W/kg)
GSM	1900	512	1850.2	21.87	0.362	**1.01**
GPRS(2 up/1 down)	1900	661	1880	23.78	0.648	(0.362+0.648)

DTM Body SAR_GSM/EGPRS1900_ Back(10mm)

Technology	Frequency	channel	MHz	output power (Avg.)	Measured (W/kg) 1g	DTM SAR Value(W/kg)
GSM	1900	512	1850.2	21.87	0.362	**0.553**
EGPRS(2 up/1 down)	1900	661	1880	18.68	0.191	(0.362+0.191)

The DTM SAR testing is referred as test guidance of KDB 941225 D04(Evaluating SAR for GSM/(E)GPRS Dual Transfer Mode)

SAR for DTM be evaluated by summing the single timeslot CS(GSM) and multislot PS SAR(GPRS/EGPRS)

3. Instruments List

Manufacturer	Device	Type	Serial number	Date of last calibration
Schmid & Partner Engineering AG	Dosimetric E-Field Probe	EX3DV4	3770	Apr.19.2011
Schmid & Partner Engineering AG	850 /1900 /2450 MHz System Validation Dipole	D835V2	4d063	May.25.2011
		D1900V2	5d027	Apr.19.2011
		D2450V2	727	Apr.19.2011
Schmid & Partner Engineering AG	Data acquisition Electronics	DAE4	856	May.18.2011
Schmid & Partner Engineering AG	Software	DASY 5 V5.0 Build 125	N/A	Calibration not required
Schmid & Partner Engineering AG	Phantom	SAM	N/A	Calibration not required
Agilent	Network Analyzer	8753D	3410A05662	Mar.16.2011
Agilent	Dielectric Probe Kit	85070D	US01440168	Calibration not required
Agilent	Dual-directional coupler	777D	50114	Aug.18.2011
		778D	50313	Jul.19.2011
Agilent	RF Signal Generator	8648D	3847M00432	Jun.01.2011
Agilent	Power Sensor	U2001B	MY48100169	Apr.28.2011
Agilent	Radio Communication Test	E5515c	GB44051912	JUL.27 .2010

4. Measurements

Date: 8/20/2011

RE Cheek_CH128

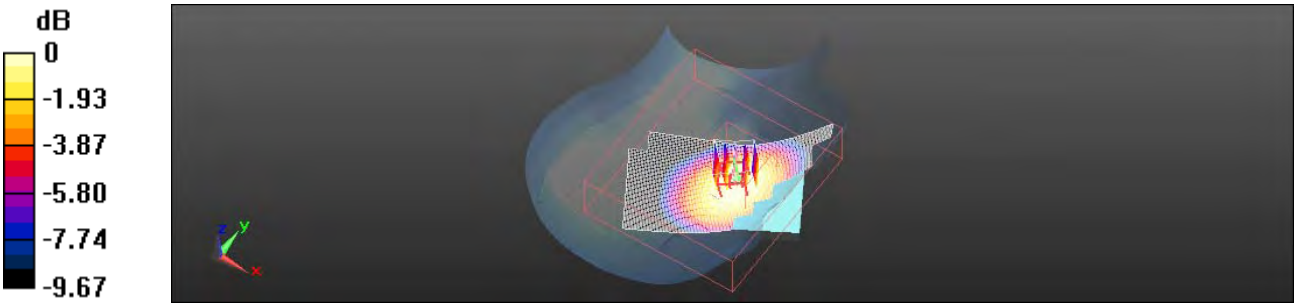
Communication System: Generic GSM; Frequency: 824.2 MHz
Medium parameters used: f = 824.2 MHz; σ = 0.886 mho/m; ε_r = 41.933; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.25, 9.25, 9.25); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Cheek/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.169 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.217 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.206 W/kg

SAR(1 g) = 0.157 mW/g; SAR(10 g) = 0.119 mW/g
Maximum value of SAR (measured) = 0.163 mW/g



0 dB = 0.160mW/g

Date: 8/20/2011

RE Cheek_CH190

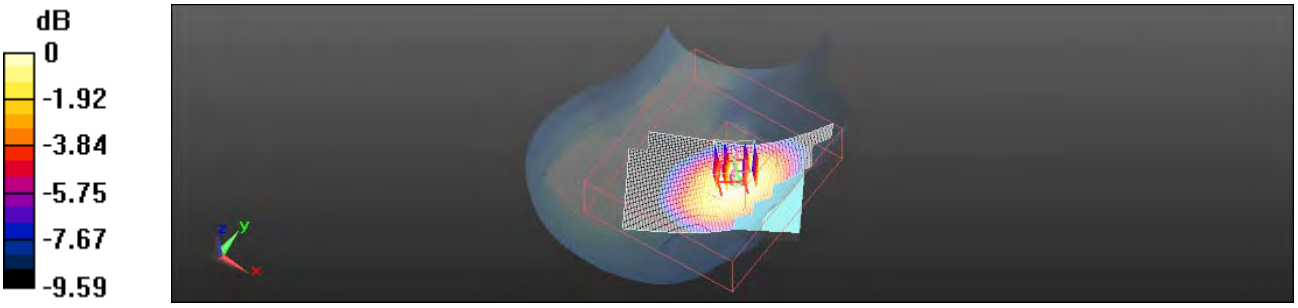
Communication System: Generic GSM; Frequency: 836.6 MHz
Medium parameters used: f = 837 MHz; σ = 0.9 mho/m; ε_r = 41.781; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.25, 9.25, 9.25); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Cheek/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.229 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.601 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 0.274 W/kg

SAR(1 g) = 0.209 mW/g; SAR(10 g) = 0.155 mW/g
Maximum value of SAR (measured) = 0.222 mW/g



0 dB = 0.220mW/g

Date: 8/20/2011

RE Cheek_CH251

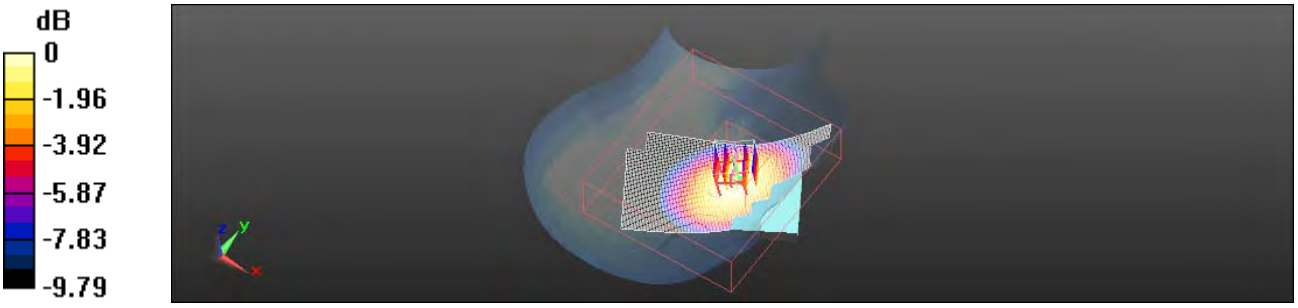
Communication System: Generic GSM; Frequency: 848.6 MHz
Medium parameters used: f = 849 MHz; σ = 0.911 mho/m; ε_r = 41.608; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.25, 9.25, 9.25); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Cheek/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.256 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.230 V/m; Power Drift = -0.0083 dB
Peak SAR (extrapolated) = 0.321 W/kg

SAR(1 g) = 0.248 mW/g; SAR(10 g) = 0.185 mW/g
Maximum value of SAR (measured) = 0.263 mW/g



0 dB = 0.260mW/g

Date: 8/20/2011

LE Cheek_CH190

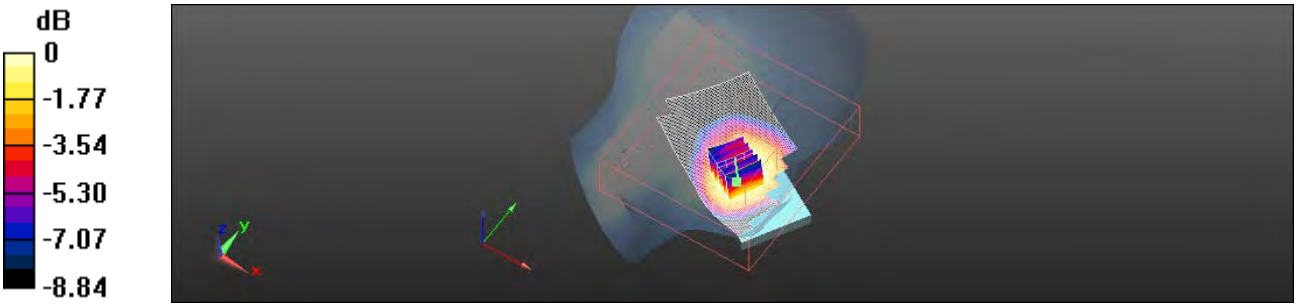
Communication System: Generic GSM; Frequency: 836.6 MHz
Medium parameters used: f = 837 MHz; σ = 0.9 mho/m; ε_r = 41.781; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.25, 9.25, 9.25); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/LE Cheek/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.205 mW/g

Configuration/LE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.066 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.234 W/kg

SAR(1 g) = 0.188 mW/g; SAR(10 g) = 0.144 mW/g
Maximum value of SAR (measured) = 0.196 mW/g



0 dB = 0.200mW/g

Date: 8/20/2011

RE Tilt_CH190

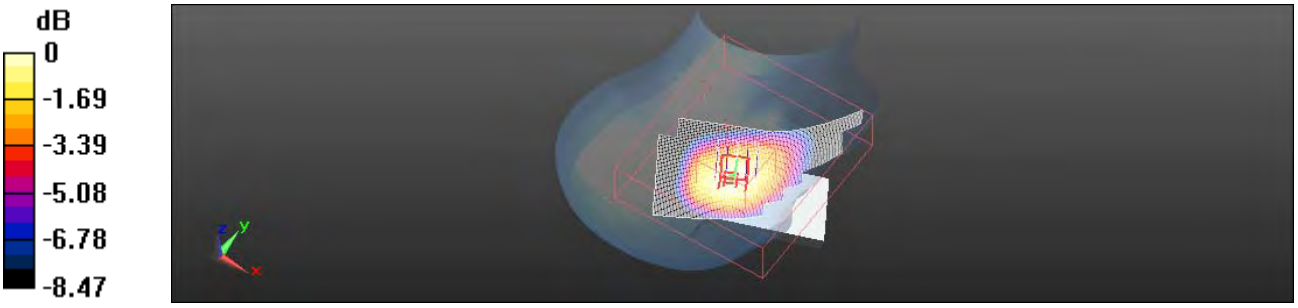
Communication System: Generic GSM; Frequency: 836.6 MHz
Medium parameters used: f = 837 MHz; σ = 0.9 mho/m; ε_r = 41.781; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.25, 9.25, 9.25); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Tilt/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.174 mW/g

Configuration/RE Tilt/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.709 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.200 W/kg

SAR(1 g) = 0.160 mW/g; SAR(10 g) = 0.121 mW/g
Maximum value of SAR (measured) = 0.166 mW/g



0 dB = 0.170mW/g

Date: 8/20/2011

LE Tilt_CH190

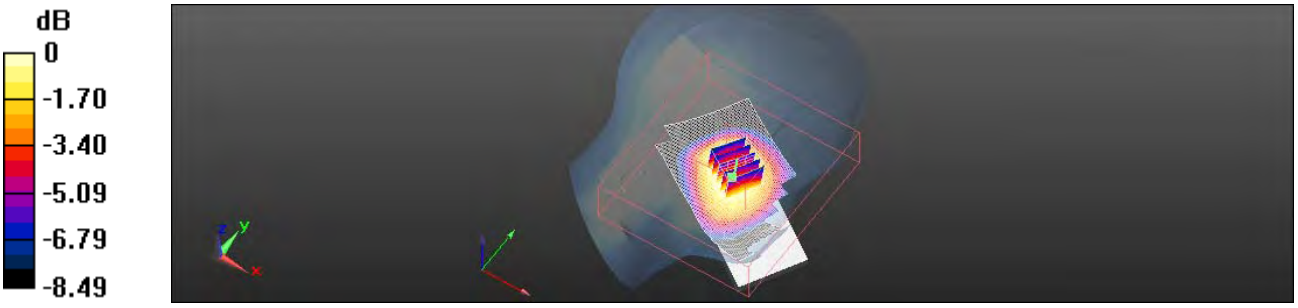
Communication System: Generic GSM; Frequency: 836.6 MHz
Medium parameters used: f = 837 MHz; σ = 0.9 mho/m; ε_r = 41.781; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.25, 9.25, 9.25); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/LE Cheek/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.170 mW/g

Configuration/LE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.143 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 0.186 W/kg

SAR(1 g) = 0.150 mW/g; SAR(10 g) = 0.114 mW/g
Maximum value of SAR (measured) = 0.156 mW/g



0 dB = 0.160mW/g

Date: 8/20/2011

Body_CH190_Front Side

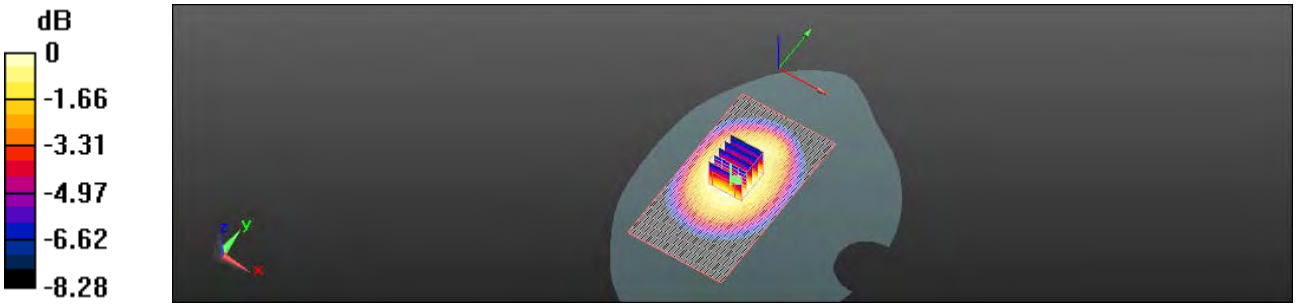
Communication System: GPRS(Class 11); Frequency: 836.6 MHz
Medium parameters used: f = 837 MHz; σ = 1.013 mho/m; ε_r = 53.819; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.3, 9.3, 9.3); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.557 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.023 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 0.636 W/kg

SAR(1 g) = 0.510 mW/g; SAR(10 g) = 0.385 mW/g
Maximum value of SAR (measured) = 0.547 mW/g



0 dB = 0.550mW/g

Date: 8/20/2011

Body_CH128_Back Side

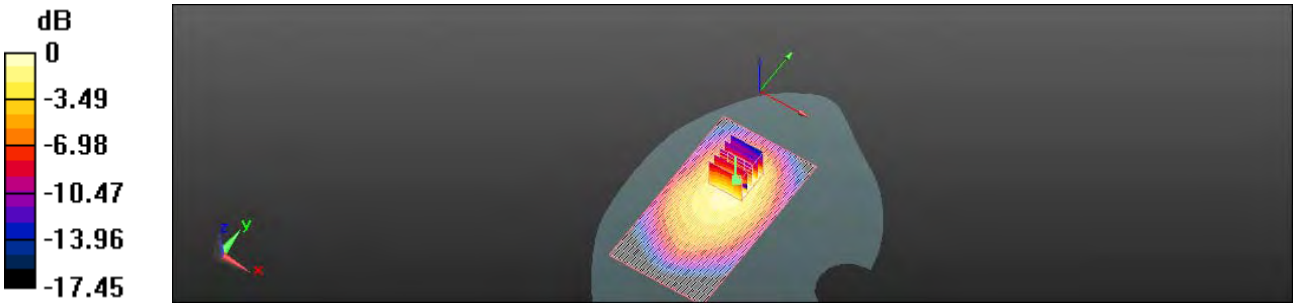
Communication System: GPRS(Class 11); Frequency: 824.2 MHz
Medium parameters used: f = 824.2 MHz; σ = 0.999 mho/m; ε_r = 53.947; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.3, 9.3, 9.3); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.257 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.012 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 1.964 W/kg

SAR(1 g) = 1.17 mW/g; SAR(10 g) = 0.704 mW/g
Maximum value of SAR (measured) = 1.316 mW/g



0 dB = 1.320mW/g

Date: 8/20/2011

Body_CH190_Back Side

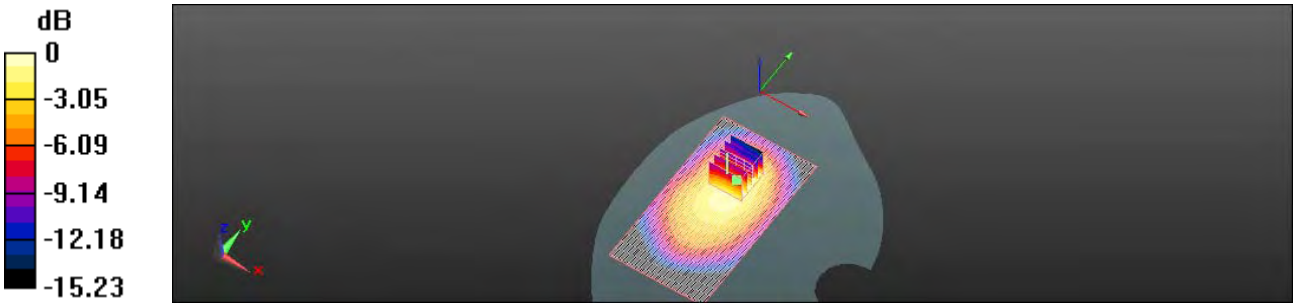
Communication System: GPRS(Class 11); Frequency: 836.6 MHz
Medium parameters used: f = 837 MHz; σ = 1.013 mho/m; ε_r = 53.819; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.3, 9.3, 9.3); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.245 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.711 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 1.972 W/kg

SAR(1 g) = 1.14 mW/g; SAR(10 g) = 0.706 mW/g
Maximum value of SAR (measured) = 1.230 mW/g



0 dB = 1.230mW/g

Date: 8/20/2011

Body_CH251_Back Side

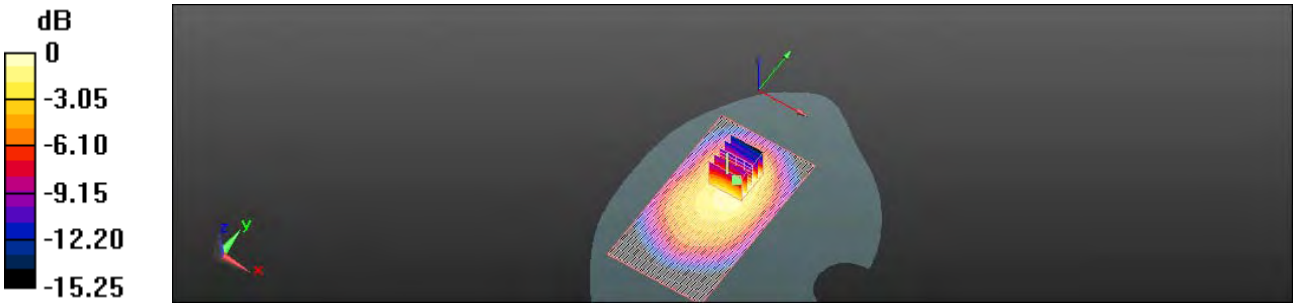
Communication System: GPRS(Class 11); Frequency: 848.8 MHz
Medium parameters used: f = 849 MHz; σ = 1.018 mho/m; ε_r = 53.71; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.3, 9.3, 9.3); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.226 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.828 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 1.995 W/kg

SAR(1 g) = 1.15 mW/g; SAR(10 g) = 0.687 mW/g
Maximum value of SAR (measured) = 1.275 mW/g



0 dB = 1.280mW/g

Date: 8/20/2011

Body_CH128_Back Side_repeated with Cotron headset

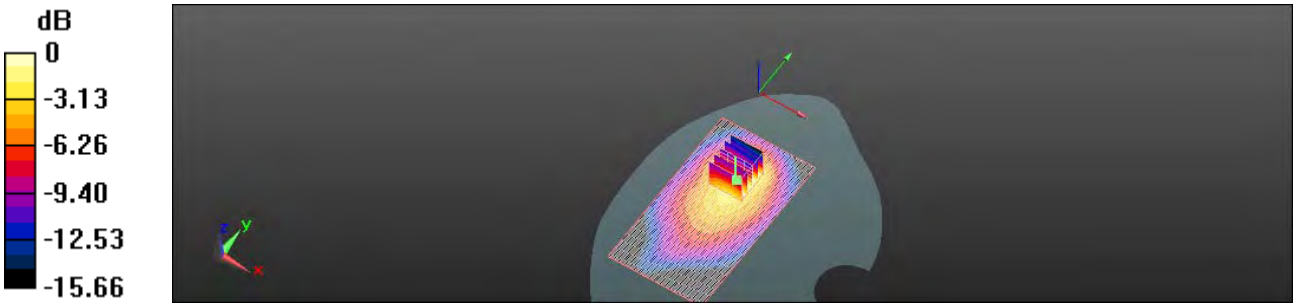
Communication System: GPRS(Class 11); Frequency: 824.2 MHz
Medium parameters used: f = 824.2 MHz; σ = 0.999 mho/m; ε_r = 53.947; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.3, 9.3, 9.3); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.229 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.909 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 1.862 W/kg

SAR(1 g) = 1.04 mW/g; SAR(10 g) = 0.597 mW/g
Maximum value of SAR (measured) = 1.175 mW/g



0 dB = 1.170mW/g

Date: 8/20/2011

Body_CH128_Back Side_repeated with Foster headset

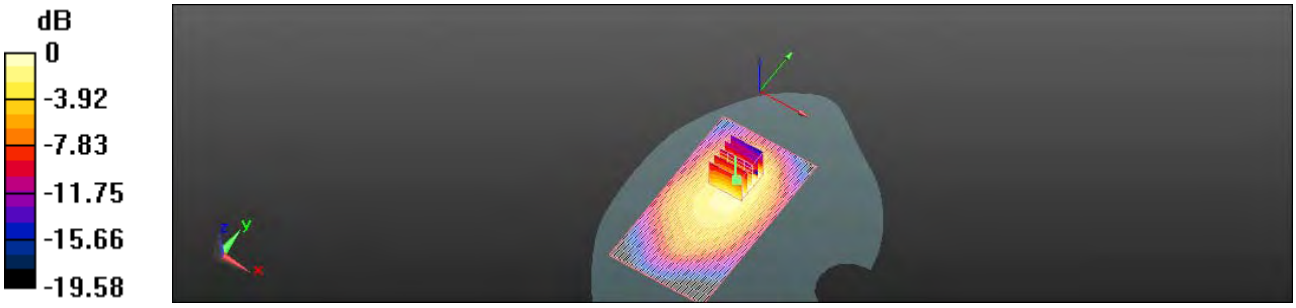
Communication System: GPRS(Class 11); Frequency: 824.2 MHz
Medium parameters used: f = 824.2 MHz; σ = 0.999 mho/m; ε_r = 53.947; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.3, 9.3, 9.3); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.239 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.603 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 1.832 W/kg

SAR(1 g) = 1.1 mW/g; SAR(10 g) = 0.648 mW/g
Maximum value of SAR (measured) = 1.223 mW/g



0 dB = 1.220mW/g

Date: 8/20/2011

Body_CH128_Back Side_repeated with Merry headset

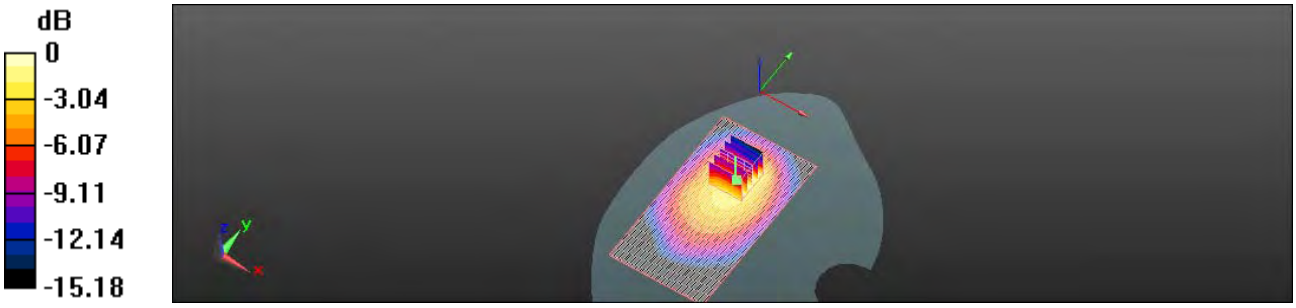
Communication System: GPRS(Class 11); Frequency: 824.2 MHz
Medium parameters used: f = 824.2 MHz; σ = 0.999 mho/m; ε_r = 53.947; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.3, 9.3, 9.3); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x111x1): 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 = 15.530 V/m; Power Drift = -0.09 dB
Peak SAR (extrapolated) = 1.866 W/kg

SAR(1 g) = 1.08 mW/g; SAR(10 g) = 0.638 mW/g
Maximum value of SAR (measured) = 1.189 mW/g



0 dB = 1.190mW/g

Date: 8/20/2011

Body_CH128_Back Side_repeated with WTE Battery

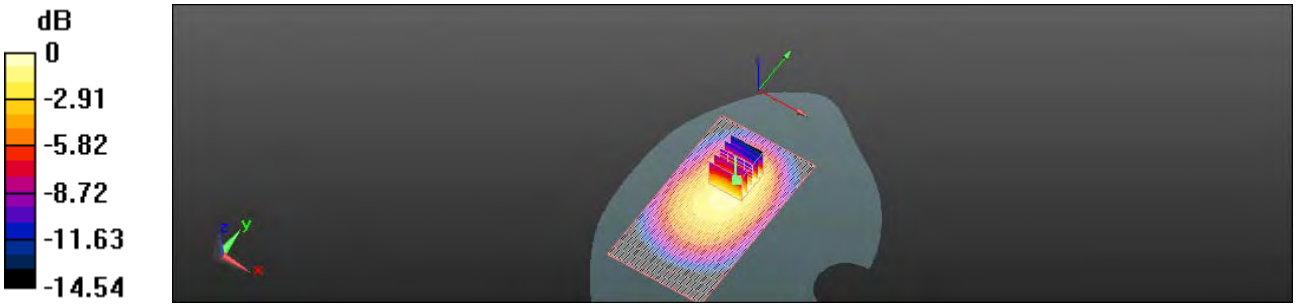
Communication System: GPRS(Class 11); Frequency: 824.2 MHz
Medium parameters used: f = 824.2 MHz; σ = 0.999 mho/m; ε_r = 53.947; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.3, 9.3, 9.3); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

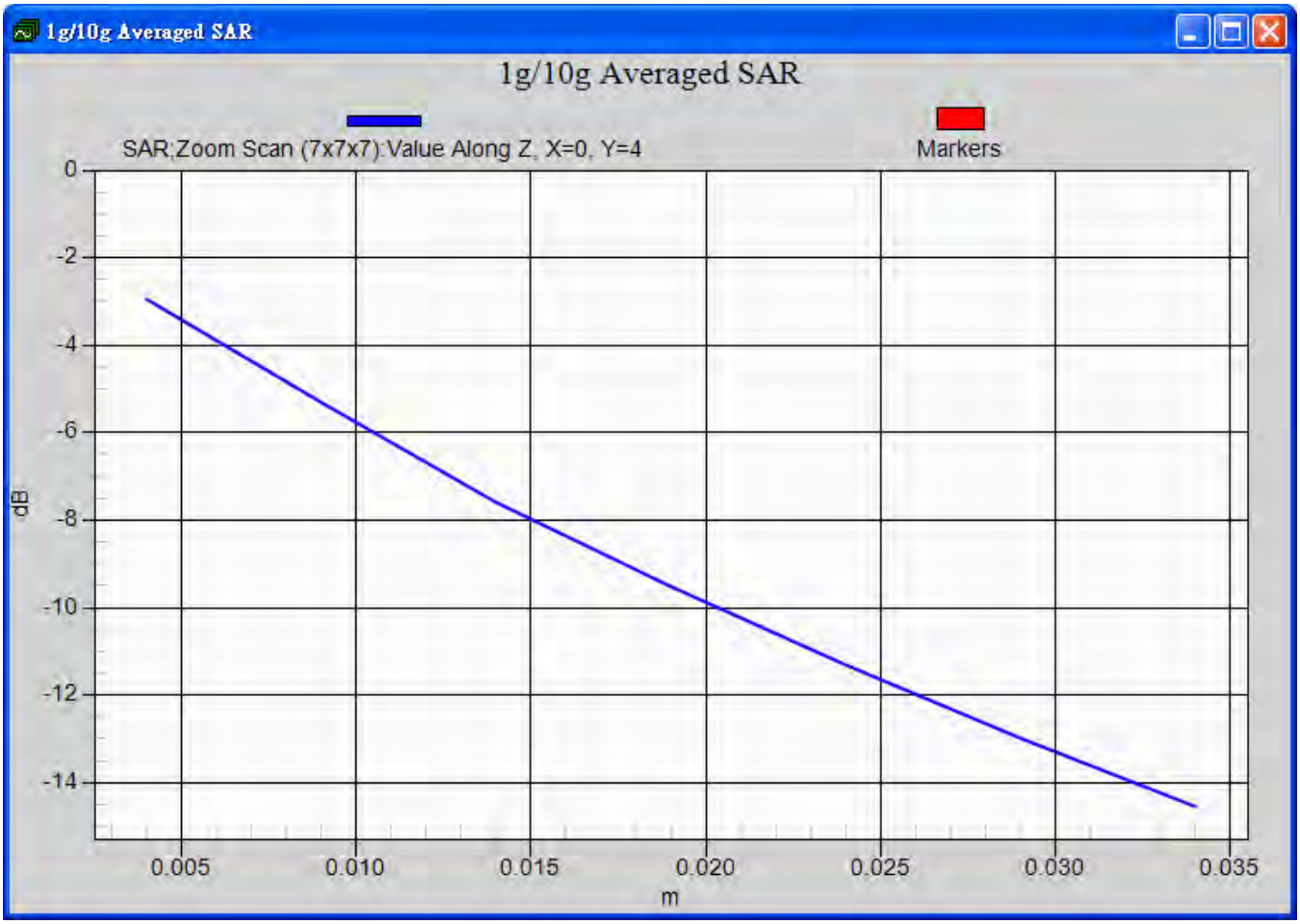
Configuration/Body/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.431 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.767 V/m; Power Drift = -0.16 dB
Peak SAR (extrapolated) = 2.349 W/kg

SAR(1 g) = 1.36 mW/g; SAR(10 g) = 0.814 mW/g
Maximum value of SAR (measured) = 1.466 mW/g



0 dB = 1.470mW/g



Date: 8/20/2011

Body_CH190_Bottom Side

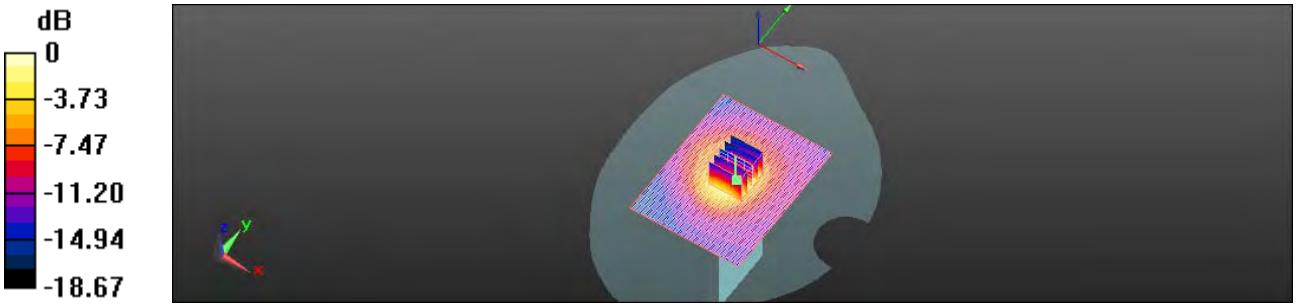
Communication System: GPRS(Class 11); Frequency: 836.6 MHz
Medium parameters used: f = 837 MHz; σ = 1.013 mho/m; ε_r = 53.819; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.3, 9.3, 9.3); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (71x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.235 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.826 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.505 W/kg

SAR(1 g) = 0.234 mW/g; SAR(10 g) = 0.115 mW/g
Maximum value of SAR (measured) = 0.266 mW/g



0 dB = 0.270mW/g

Date: 8/20/2011

Body_CH190_Right Side

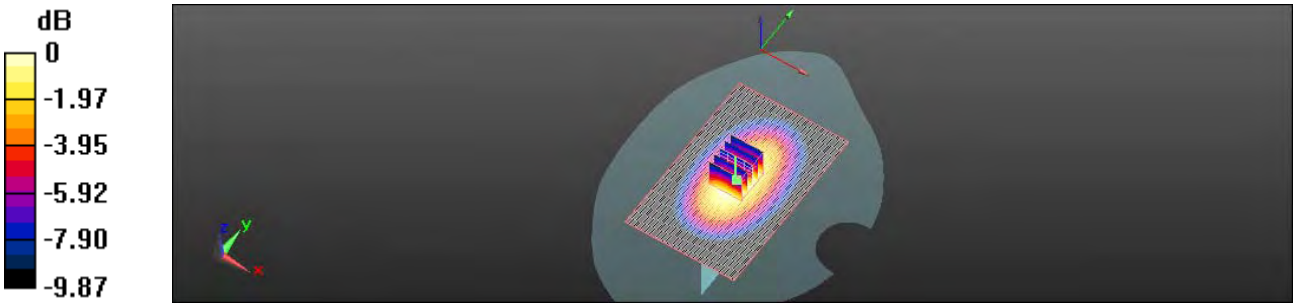
Communication System: GPRS(Class 11); Frequency: 836.6 MHz
Medium parameters used: f = 837 MHz; σ = 1.013 mho/m; ε_r = 53.819; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.3, 9.3, 9.3); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; 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) = 0.524 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.994 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 0.655 W/kg

SAR(1 g) = 0.471 mW/g; SAR(10 g) = 0.325 mW/g
Maximum value of SAR (measured) = 0.501 mW/g



0 dB = 0.500mW/g

Date: 8/20/2011

Body_CH190_Left Side

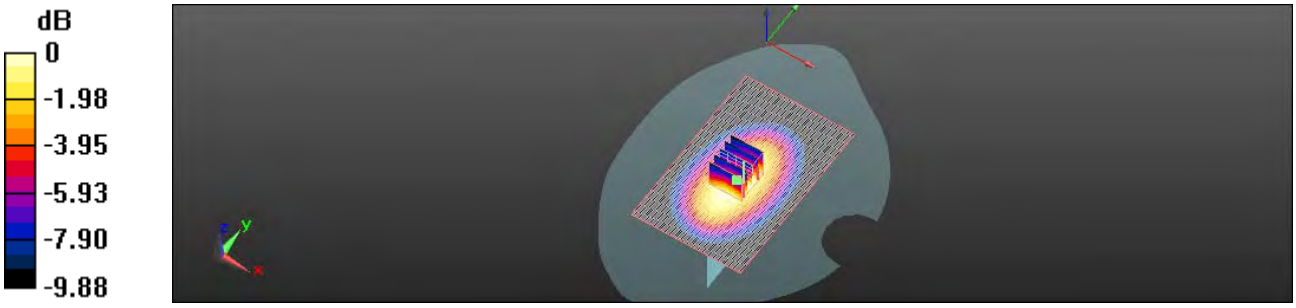
Communication System: GPRS(Class 11); Frequency: 836.6 MHz
Medium parameters used: f = 837 MHz; σ = 1.013 mho/m; ε_r = 53.819; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.3, 9.3, 9.3); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; 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) = 0.689 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 25.830 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 0.902 W/kg

SAR(1 g) = 0.637 mW/g; SAR(10 g) = 0.430 mW/g
Maximum value of SAR (measured) = 0.664 mW/g



0 dB = 0.660mW/g

Date: 8/21/2011

RE Cheek_CH512

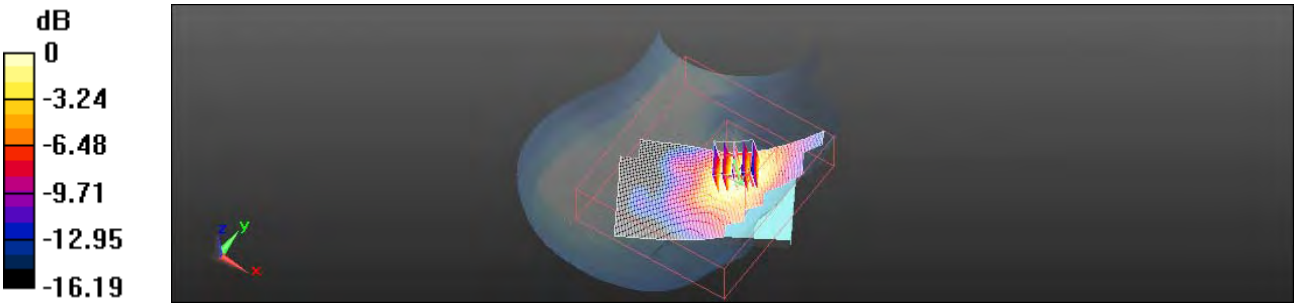
Communication System: Generic GSM; Frequency: 1850.2 MHz
Medium parameters used: f = 1850.2 MHz; σ = 1.37 mho/m; ε_r = 39.362; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.78, 7.78, 7.78); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

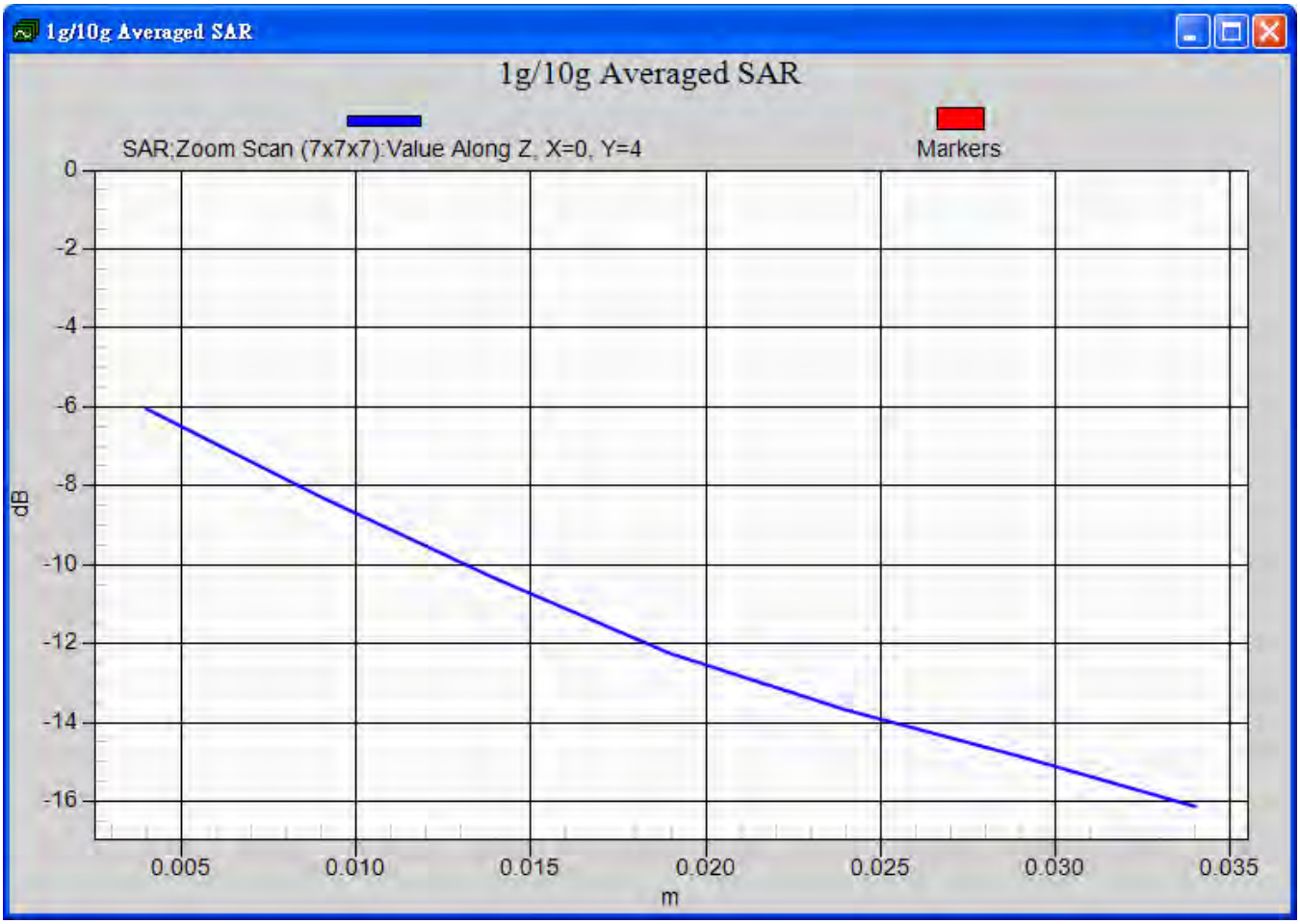
Configuration/RE Cheek/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.405 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.658 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.539 W/kg

SAR(1 g) = 0.356 mW/g; SAR(10 g) = 0.218 mW/g
Maximum value of SAR (measured) = 0.384 mW/g



0 dB = 0.380mW/g



Date: 8/21/2011

RE Cheek_CH661

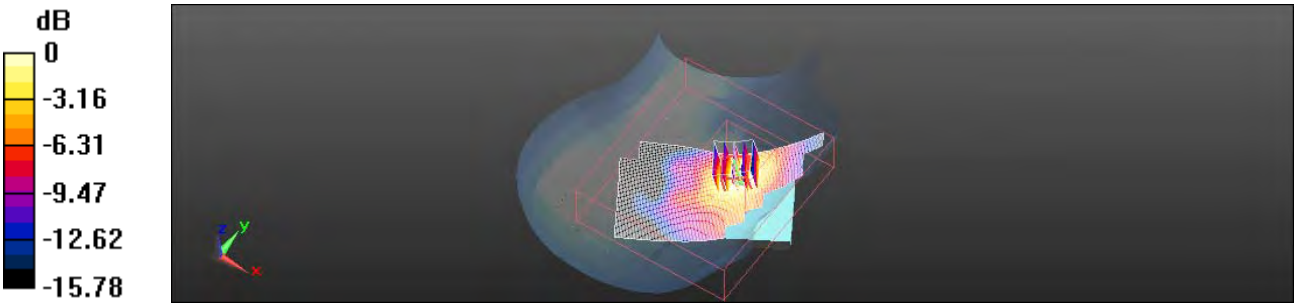
Communication System: Generic GSM; Frequency: 1880 MHz
Medium parameters used: f = 1880 MHz; σ = 1.399 mho/m; ε_r = 39.243; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.78, 7.78, 7.78); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Cheek/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.312 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.194 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 0.456 W/kg

SAR(1 g) = 0.297 mW/g; SAR(10 g) = 0.181 mW/g
Maximum value of SAR (measured) = 0.324 mW/g



0 dB = 0.320mW/g

Date: 8/21/2011

RE Cheek_CH810

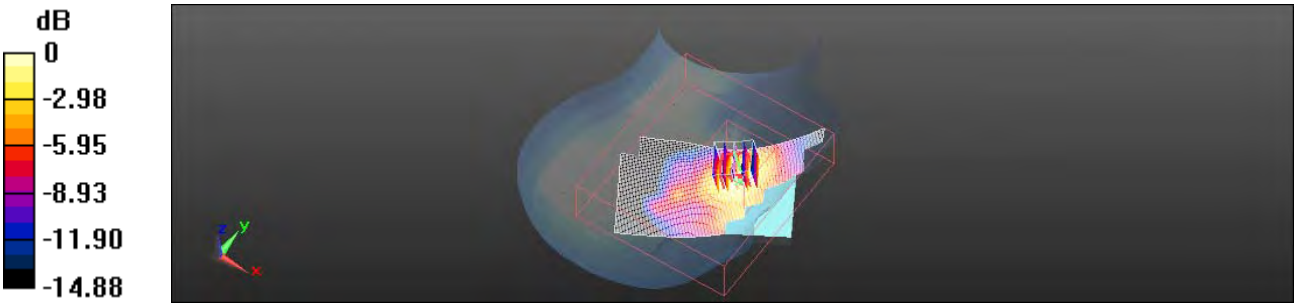
Communication System: Generic GSM; Frequency: 1909.8 MHz
Medium parameters used: f = 1910 MHz; σ = 1.428 mho/m; ε_r = 39.203; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.78, 7.78, 7.78); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Cheek/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.200 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.761 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 0.289 W/kg

SAR(1 g) = 0.192 mW/g; SAR(10 g) = 0.116 mW/g
Maximum value of SAR (measured) = 0.199 mW/g



0 dB = 0.200mW/g

Date: 8/21/2011

RE Cheek_CH512_repeated with WTE Battery

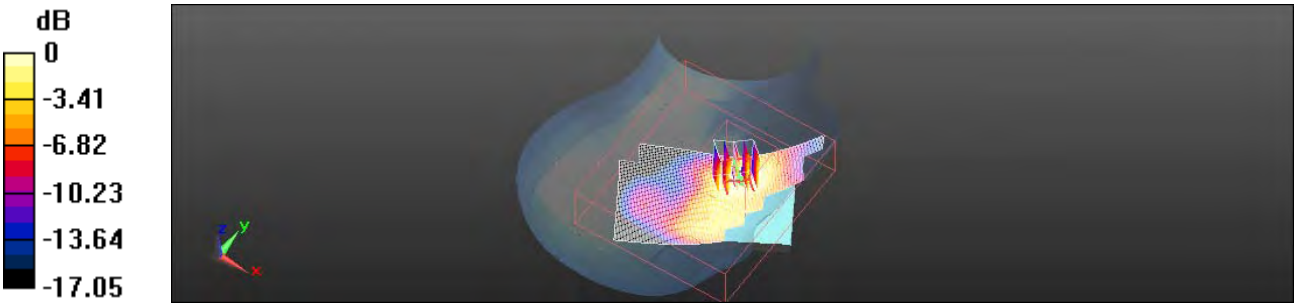
Communication System: Generic GSM; Frequency: 1850.2 MHz
Medium parameters used: f = 1850.2 MHz; σ = 1.37 mho/m; ε_r = 39.362; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.78, 7.78, 7.78); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Cheek/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.337 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.625 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 0.467 W/kg

SAR(1 g) = 0.307 mW/g; SAR(10 g) = 0.189 mW/g
Maximum value of SAR (measured) = 0.333 mW/g



0 dB = 0.330mW/g

Date: 8/21/2011

LE Cheek_CH661

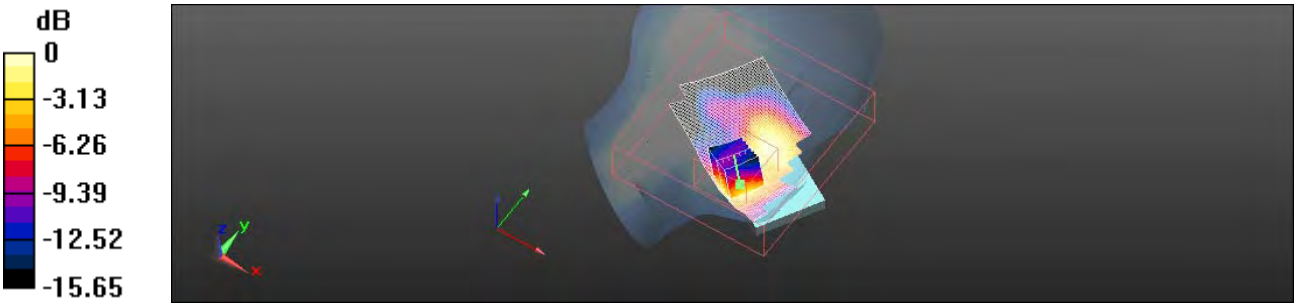
Communication System: Generic GSM; Frequency: 1880 MHz
Medium parameters used: f = 1880 MHz; σ = 1.399 mho/m; ε_r = 39.243; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.78, 7.78, 7.78); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/LE Cheek/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.201 mW/g

Configuration/LE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.943 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.275 W/kg

SAR(1 g) = 0.184 mW/g; SAR(10 g) = 0.116 mW/g
Maximum value of SAR (measured) = 0.198 mW/g



0 dB = 0.200mW/g

Date: 8/21/2011

RE Tilt_CH661

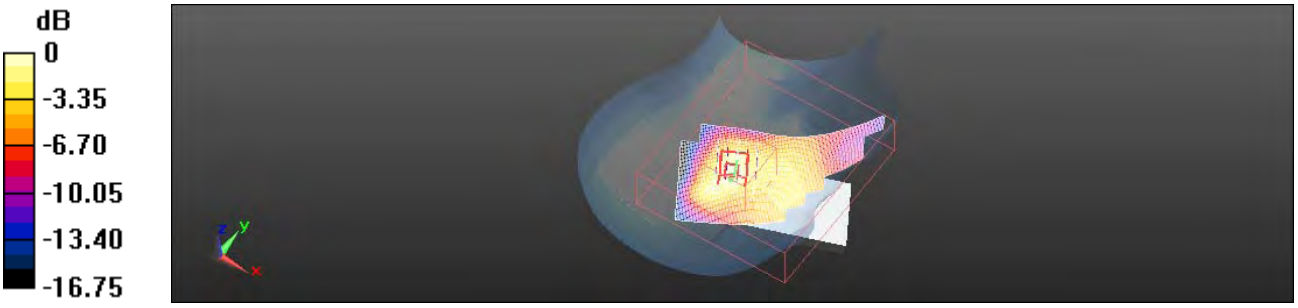
Communication System: Generic GSM; Frequency: 1880 MHz
Medium parameters used: f = 1880 MHz; σ = 1.399 mho/m; ε_r = 39.243; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.78, 7.78, 7.78); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Tilt/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.066 mW/g

Configuration/RE Tilt/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.798 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.106 W/kg

SAR(1 g) = 0.063 mW/g; SAR(10 g) = 0.037 mW/g
Maximum value of SAR (measured) = 0.067 mW/g



0 dB = 0.070mW/g

Date: 8/21/2011

LE Tilt_CH661

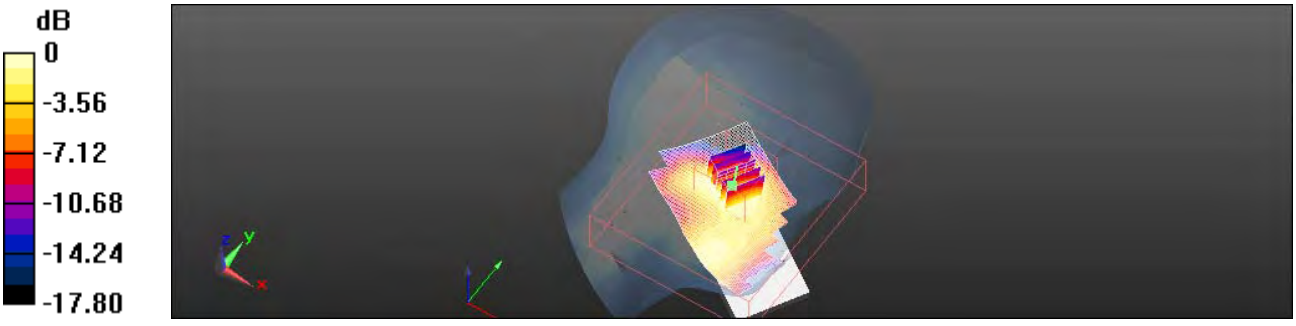
Communication System: Generic GSM; Frequency: 1880 MHz
Medium parameters used: f = 1880 MHz; σ = 1.399 mho/m; ε_r = 39.243; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.78, 7.78, 7.78); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/LE Tilt/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.078 mW/g

Configuration/LE Tilt/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.243 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 0.112 W/kg

SAR(1 g) = 0.068 mW/g; SAR(10 g) = 0.041 mW/g
Maximum value of SAR (measured) = 0.073 mW/g



0 dB = 0.070mW/g

Date: 8/21/2011

Body_CH661_Front Side

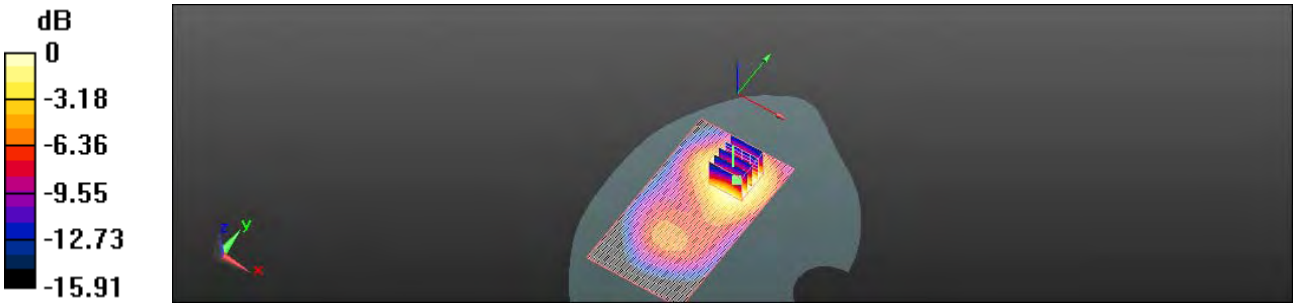
Communication System: GPRS(Class 11); Frequency: 1880 MHz
Medium parameters used: f = 1880 MHz; σ = 1.497 mho/m; ε_r = 51.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.51, 7.51, 7.51); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.436 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.751 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.653 W/kg

SAR(1 g) = 0.384 mW/g; SAR(10 g) = 0.228 mW/g
Maximum value of SAR (measured) = 0.406 mW/g



0 dB = 0.410mW/g

Date: 8/21/2011

Body_CH512_Back Side

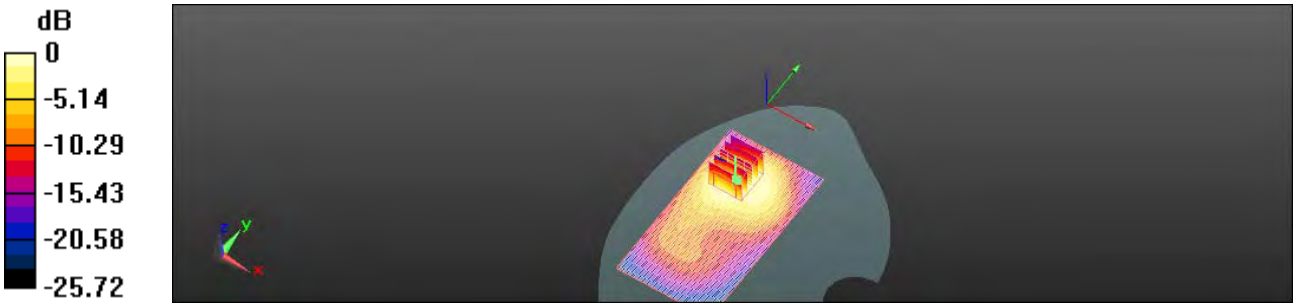
Communication System: GPRS(Class 11); Frequency: 1850.2 MHz
Medium parameters used: f = 1850.2 MHz; σ = 1.465 mho/m; ε_r = 51.568; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.51, 7.51, 7.51); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.130 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.359 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 1.795 W/kg

SAR(1 g) = 1 mW/g; SAR(10 g) = 0.547 mW/g
Maximum value of SAR (measured) = 1.094 mW/g



0 dB = 1.090mW/g

Date: 8/21/2011

Body_CH661_Back Side

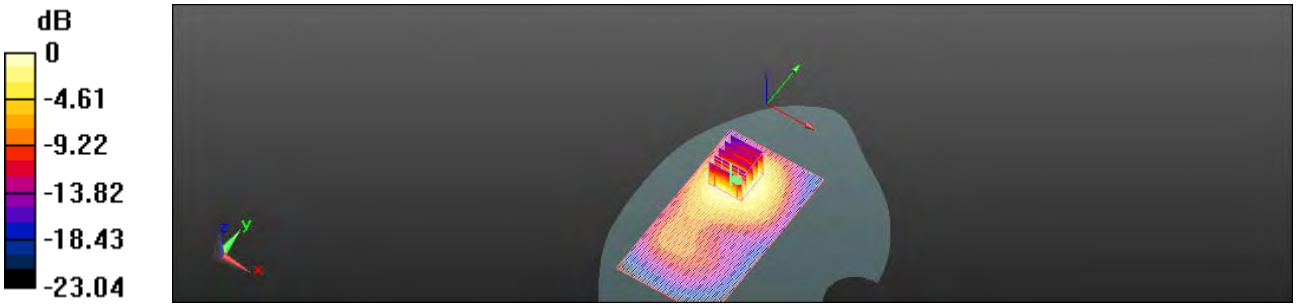
Communication System: GPRS(Class 11); Frequency: 1880 MHz
Medium parameters used: f = 1880 MHz; σ = 1.497 mho/m; ε_r = 51.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.51, 7.51, 7.51); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.283 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.141 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 1.966 W/kg

SAR(1 g) = 1.1 mW/g; SAR(10 g) = 0.620 mW/g
Maximum value of SAR (measured) = 1.188 mW/g



0 dB = 1.190mW/g

Date: 8/21/2011

Body_CH810_Back Side

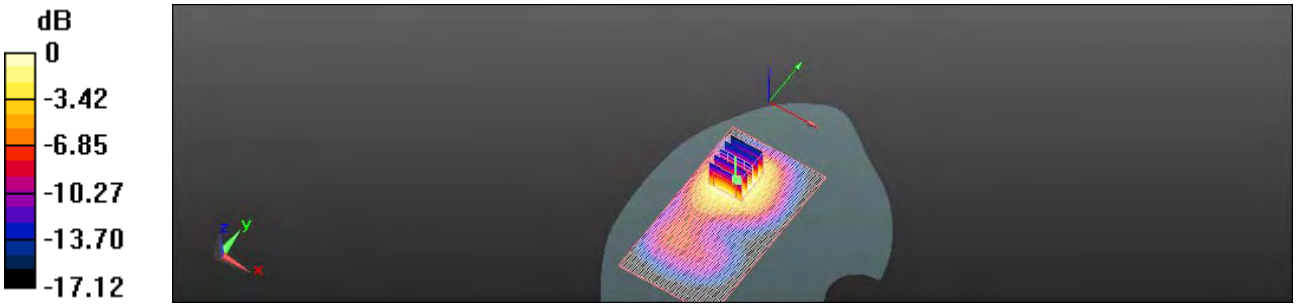
Communication System: GPRS(Class 11); Frequency: 1909.8 MHz
Medium parameters used: f = 1910 MHz; σ = 1.534 mho/m; ε_r = 51.402; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.51, 7.51, 7.51); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.236 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.396 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 1.941 W/kg

SAR(1 g) = 1.09 mW/g; SAR(10 g) = 0.630 mW/g
Maximum value of SAR (measured) = 1.171 mW/g



0 dB = 1.170mW/g

Date: 8/21/2011

Body_CH661_Bottom Side

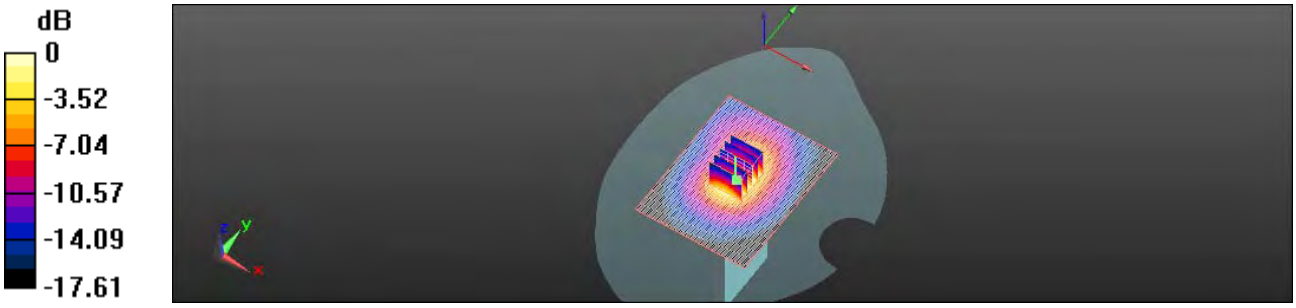
Communication System: GPRS(Class 11); Frequency: 1880 MHz
Medium parameters used: f = 1880 MHz; σ = 1.497 mho/m; ε_r = 51.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.51, 7.51, 7.51); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (71x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.706 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.699 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 1.099 W/kg

SAR(1 g) = 0.631 mW/g; SAR(10 g) = 0.339 mW/g
Maximum value of SAR (measured) = 0.706 mW/g



0 dB = 0.710mW/g

Date: 8/21/2011

Body_CH661_Right Side

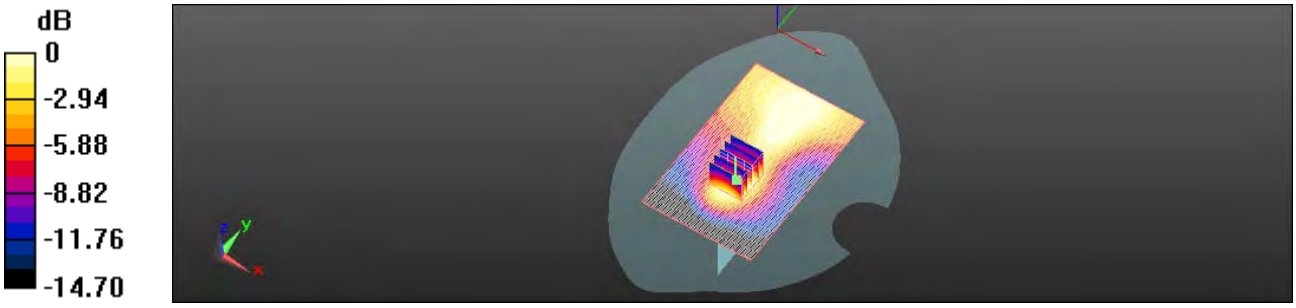
Communication System: GPRS(Class 11); Frequency: 1880 MHz
Medium parameters used: f = 1880 MHz; σ = 1.497 mho/m; ε_r = 51.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.51, 7.51, 7.51); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; 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) = 0.177 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.796 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.231 W/kg

SAR(1 g) = 0.144 mW/g; SAR(10 g) = 0.085 mW/g
Maximum value of SAR (measured) = 0.154 mW/g



0 dB = 0.150mW/g

Date: 8/21/2011

Body_CH661_Left Side

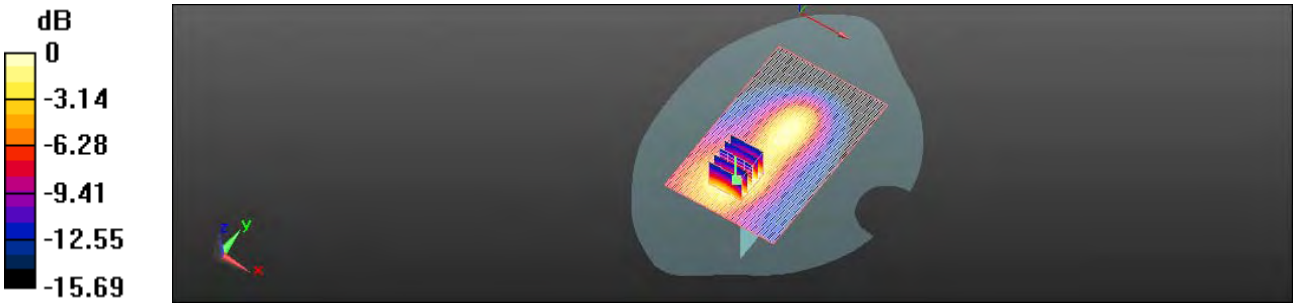
Communication System: GPRS(Class 11); Frequency: 1880 MHz
Medium parameters used: f = 1880 MHz; σ = 1.497 mho/m; ε_r = 51.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.51, 7.51, 7.51); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; 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) = 0.420 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.647 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 0.576 W/kg

SAR(1 g) = 0.354 mW/g; SAR(10 g) = 0.208 mW/g
Maximum value of SAR (measured) = 0.384 mW/g



0 dB = 0.380mW/g

Date: 8/23/2011

RE Cheek_WLAN802.11b_CH1

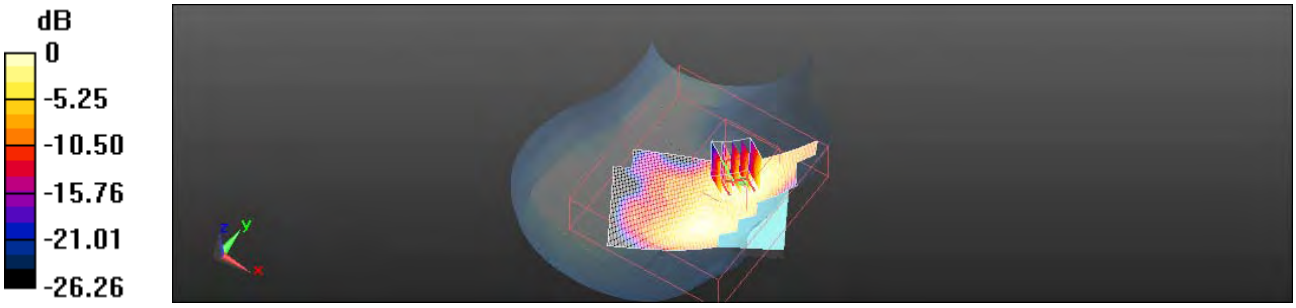
Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2412 MHz
Medium parameters used: f = 2412 MHz; σ = 1.736 mho/m; ε_r = 37.373; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.99, 6.99, 6.99); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Cheek/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.135 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.034 V/m; Power Drift = -0.20 dB
Peak SAR (extrapolated) = 0.235 W/kg

SAR(1 g) = 0.119 mW/g; SAR(10 g) = 0.063 mW/g
Maximum value of SAR (measured) = 0.134 mW/g



0 dB = 0.130mW/g

Date: 8/23/2011

RE Cheek_WLAN802.11b_CH6

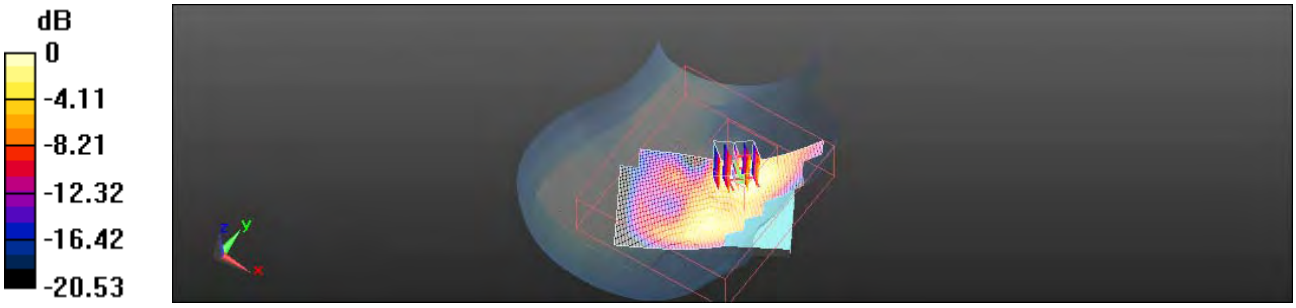
Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.772 mho/m; ε_r = 37.316; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.99, 6.99, 6.99); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Cheek/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.148 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.151 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 0.256 W/kg

SAR(1 g) = 0.127 mW/g; SAR(10 g) = 0.067 mW/g
Maximum value of SAR (measured) = 0.140 mW/g



0 dB = 0.140mW/g

Date: 8/23/2011

RE Cheek_WLAN802.11b_CH11

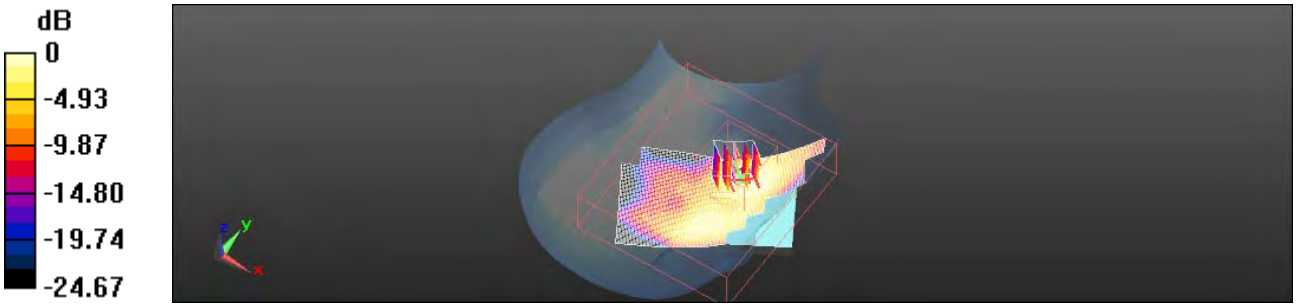
Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2462 MHz
Medium parameters used: f = 2462 MHz; σ = 1.802 mho/m; ε_r = 37.209; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.99, 6.99, 6.99); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Cheek/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.111 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.832 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 0.195 W/kg

SAR(1 g) = 0.097 mW/g; SAR(10 g) = 0.050 mW/g
Maximum value of SAR (measured) = 0.111 mW/g



0 dB = 0.110mW/g

Date: 8/23/2011

RE Cheek_WLAN802.11b_CH6_repeated with WTE Battery

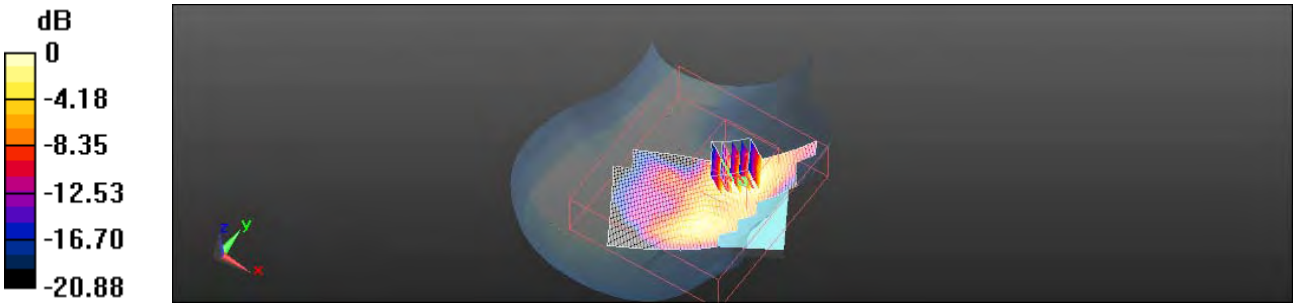
Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.772 mho/m; ε_r = 37.316; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.99, 6.99, 6.99); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Cheek/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.147 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.746 V/m; Power Drift = -0.13 dB
Peak SAR (extrapolated) = 0.266 W/kg

SAR(1 g) = 0.131 mW/g; SAR(10 g) = 0.066 mW/g
Maximum value of SAR (measured) = 0.144 mW/g



0 dB = 0.140mW/g

Date: 8/23/2011

LE Cheek_WLAN802.11b_CH6

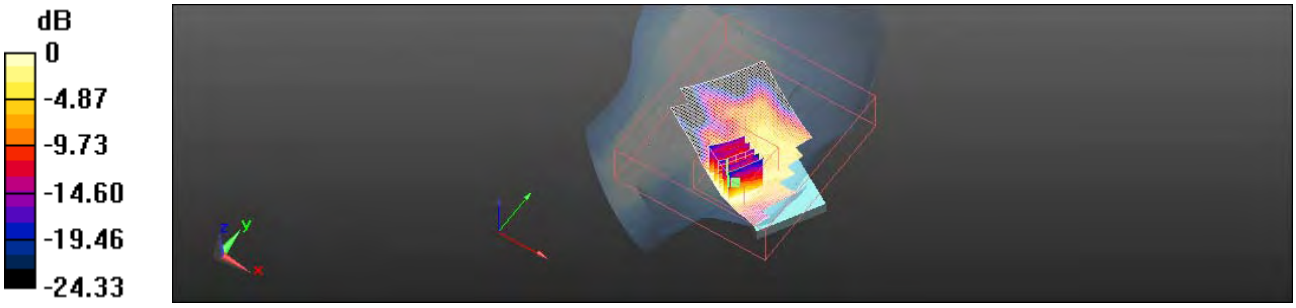
Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.772 mho/m; ε_r = 37.316; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.99, 6.99, 6.99); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/CE Tilt/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.114 mW/g

Configuration/CE Tilt/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.178 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.197 W/kg

SAR(1 g) = 0.102 mW/g; SAR(10 g) = 0.054 mW/g
Maximum value of SAR (measured) = 0.106 mW/g



0 dB = 0.110mW/g

Date: 8/23/2011

RE Tilt_WLAN802.11b_CH6

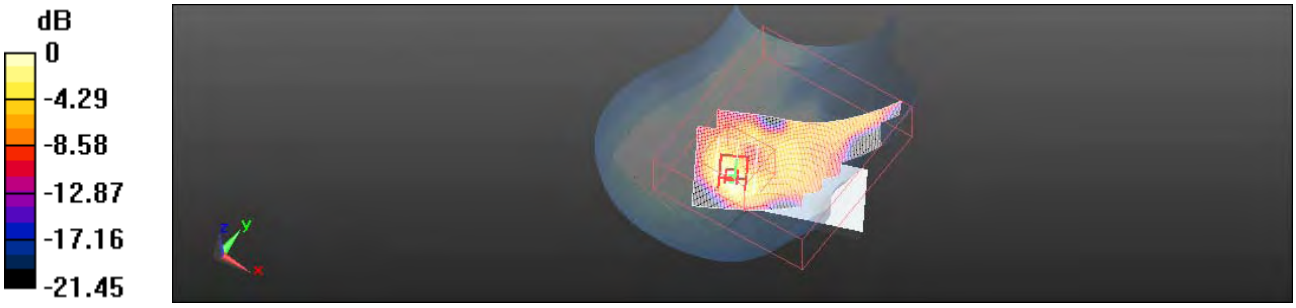
Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.772 mho/m; ε_r = 37.316; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.99, 6.99, 6.99); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Tilt/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.062 mW/g

Configuration/RE Tilt/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.414 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.109 W/kg

SAR(1 g) = 0.054 mW/g; SAR(10 g) = 0.026 mW/g
Maximum value of SAR (measured) = 0.057 mW/g



0 dB = 0.060mW/g

Date: 8/23/2011

LE Tilt_WLAN802.11b_CH6

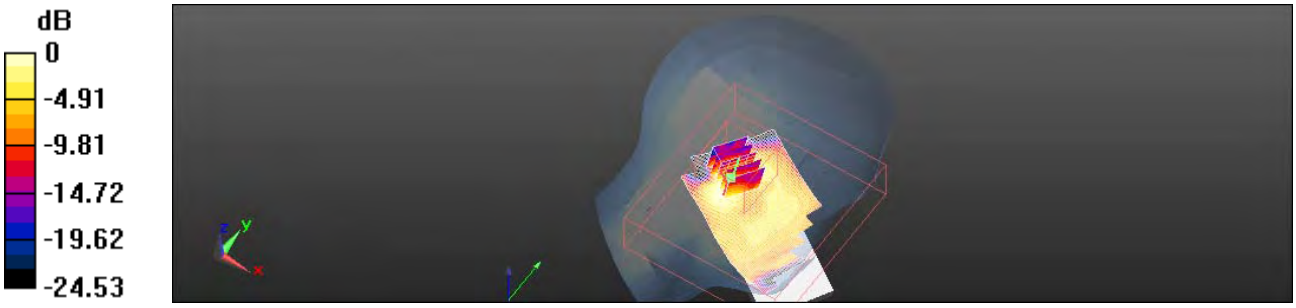
Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.772 mho/m; ε_r = 37.316; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.99, 6.99, 6.99); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/CE Tilt/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.057 mW/g

Configuration/CE Tilt/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.828 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 0.063 W/kg

SAR(1 g) = 0.037 mW/g; SAR(10 g) = 0.019 mW/g
Maximum value of SAR (measured) = 0.041 mW/g



0 dB = 0.040mW/g

Date: 8/23/2011

Body_WLAN802.11b_CH6_Front Side

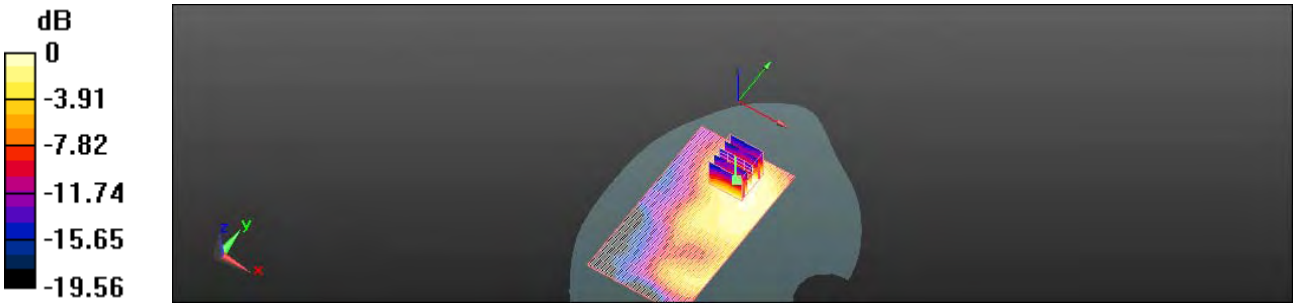
Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.952 mho/m; ε_r = 51.824; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.96, 6.96, 6.96); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.071 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.874 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.132 W/kg

SAR(1 g) = 0.069 mW/g; SAR(10 g) = 0.038 mW/g
Maximum value of SAR (measured) = 0.074 mW/g



0 dB = 0.070mW/g

Date: 8/23/2011

Body_WLAN802.11b_CH6_Back Side

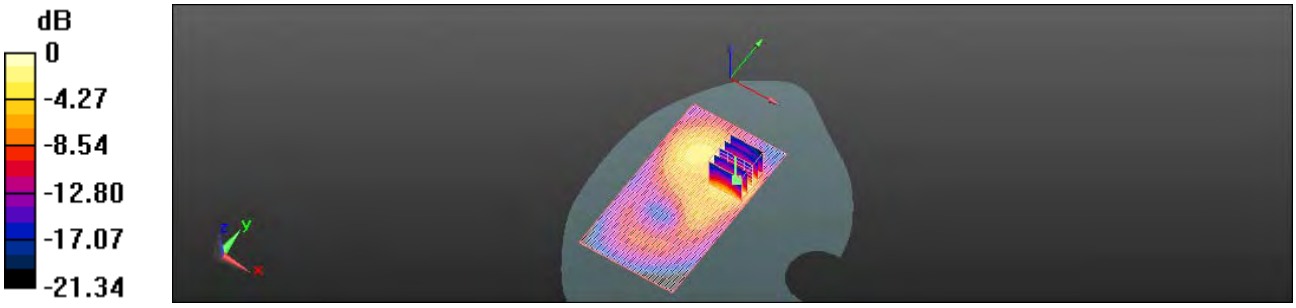
Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.952 mho/m; ε_r = 51.824; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.96, 6.96, 6.96); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.177 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.495 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.446 W/kg

SAR(1 g) = 0.208 mW/g; SAR(10 g) = 0.092 mW/g
Maximum value of SAR (measured) = 0.228 mW/g



0 dB = 0.230mW/g

Date: 8/23/2011

Body_WLAN802.11b_CH6_Back Side_repeated with Cotron headset

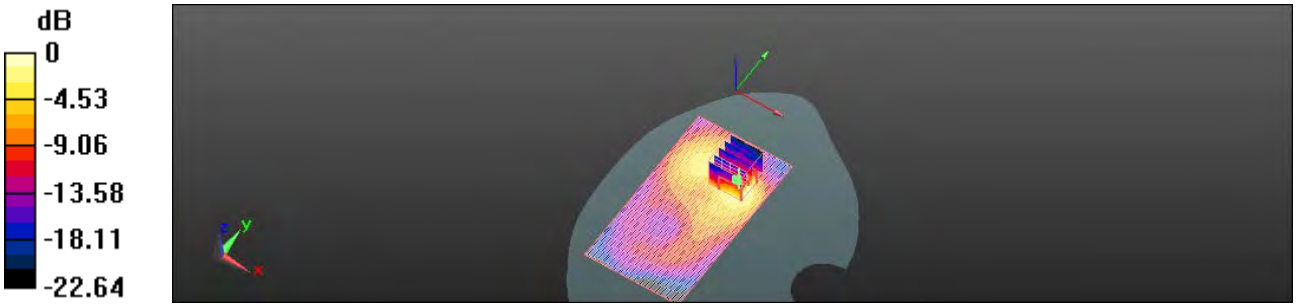
Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.952 mho/m; ε_r = 51.824; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.96, 6.96, 6.96); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.176 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.280 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.439 W/kg

SAR(1 g) = 0.204 mW/g; SAR(10 g) = 0.091 mW/g
Maximum value of SAR (measured) = 0.226 mW/g



0 dB = 0.230mW/g

Date: 8/23/2011

Body_WLAN802.11b_CH6_Back Side_repeated with Foster headset

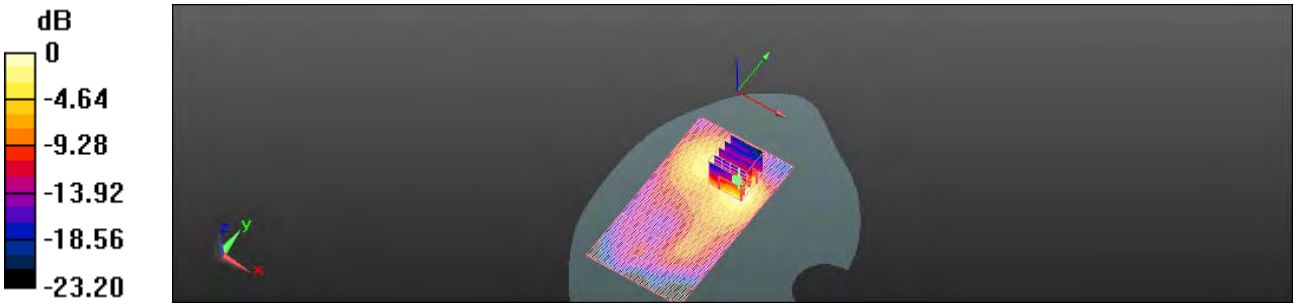
Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.952 mho/m; ε_r = 51.824; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.96, 6.96, 6.96); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.172 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.996 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.437 W/kg

SAR(1 g) = 0.203 mW/g; SAR(10 g) = 0.089 mW/g
Maximum value of SAR (measured) = 0.228 mW/g



0 dB = 0.230mW/g

Date: 8/23/2011

Body_WLAN802.11b_CH6_Back Side_repeated with Merry headset

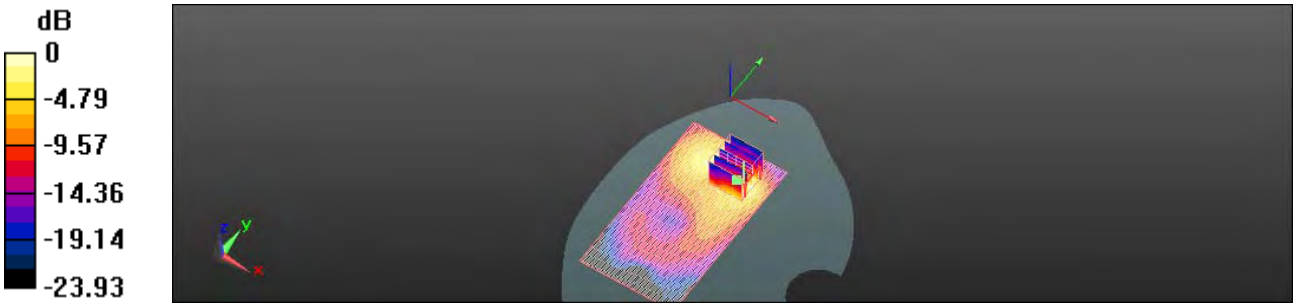
Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.952 mho/m; ε_r = 51.824; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.96, 6.96, 6.96); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.220 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.951 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 0.529 W/kg

SAR(1 g) = 0.239 mW/g; SAR(10 g) = 0.104 mW/g
Maximum value of SAR (measured) = 0.281 mW/g



0 dB = 0.280mW/g

Date: 8/23/2011

Body_WLAN802.11b_CH6_Back Side_repeated with WTE Battery

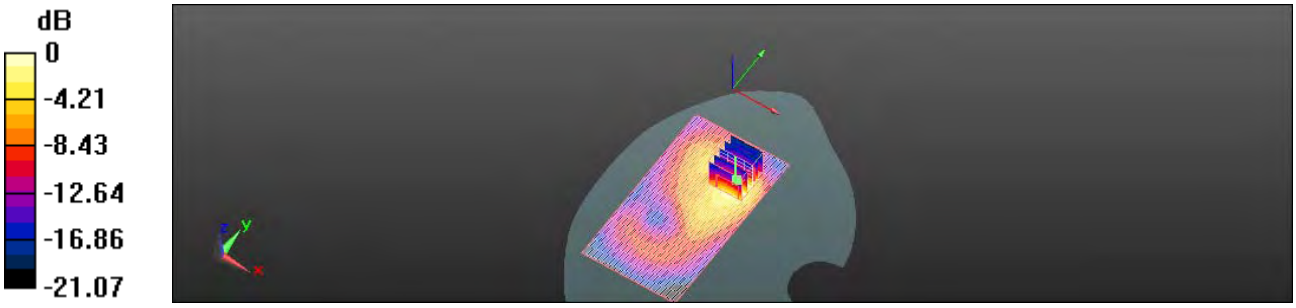
Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.952 mho/m; ε_r = 51.824; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.96, 6.96, 6.96); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.219 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.773 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.502 W/kg

SAR(1 g) = 0.222 mW/g; SAR(10 g) = 0.101 mW/g
Maximum value of SAR (measured) = 0.239 mW/g



0 dB = 0.240mW/g

Date: 8/23/2011

Body_WLAN802.11b_CH6_Bottom Side

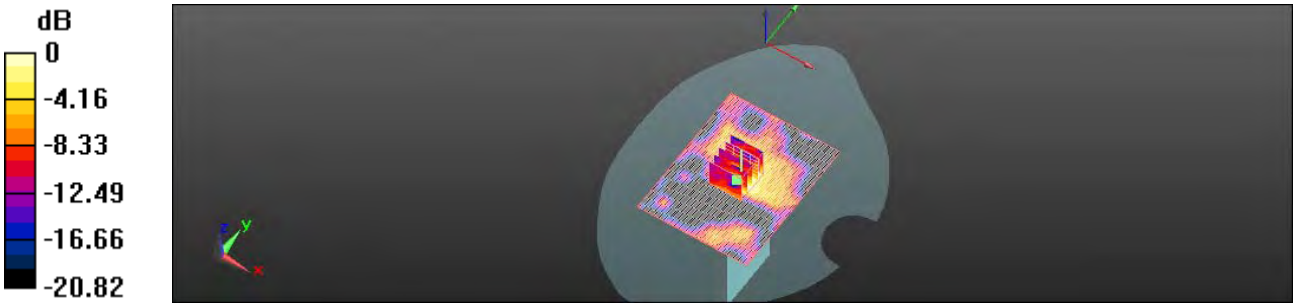
Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.952 mho/m; ε_r = 51.824; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.96, 6.96, 6.96); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (71x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.026 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.643 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 0.025 W/kg

SAR(1 g) = 0.015 mW/g; SAR(10 g) = 0.00832 mW/g
Maximum value of SAR (measured) = 0.017 mW/g



0 dB = 0.020mW/g

Date: 8/23/2011

Body_WLAN802.11b_CH6_Right Side

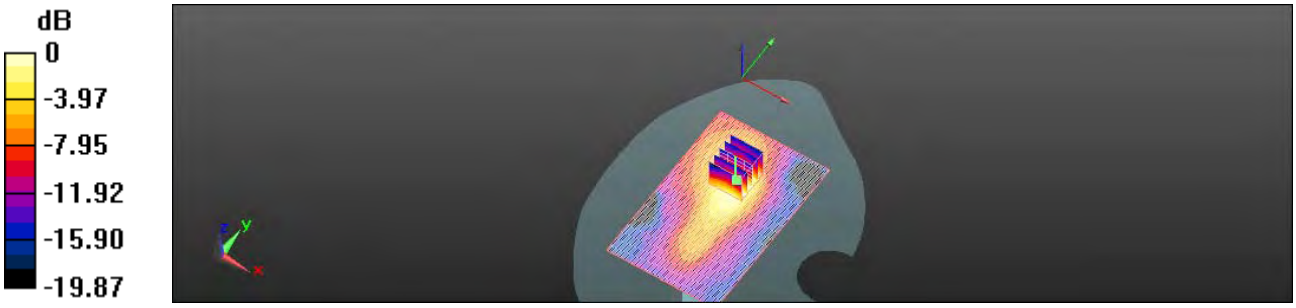
Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.952 mho/m; ε_r = 51.824; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.96, 6.96, 6.96); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; 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) = 0.091 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.376 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.151 W/kg

SAR(1 g) = 0.083 mW/g; SAR(10 g) = 0.045 mW/g
Maximum value of SAR (measured) = 0.089 mW/g



0 dB = 0.090mW/g

Date: 8/23/2011

Body_WLAN802.11b_CH6_Left Side

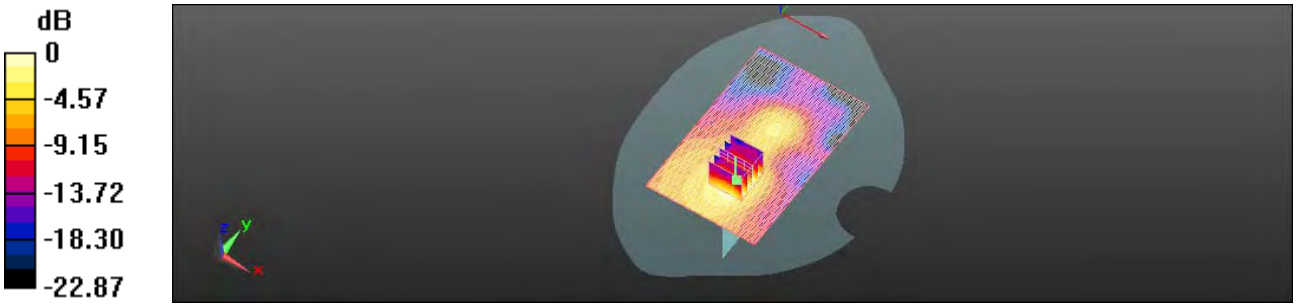
Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz
Medium parameters used: f = 2437 MHz; σ = 1.952 mho/m; ε_r = 51.824; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.96, 6.96, 6.96); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; 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) = 0.057 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.670 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.101 W/kg

SAR(1 g) = 0.053 mW/g; SAR(10 g) = 0.027 mW/g
Maximum value of SAR (measured) = 0.060 mW/g



0 dB = 0.060mW/g

Date: 8/23/2011

Body_Front side_Bluetooth_CH39

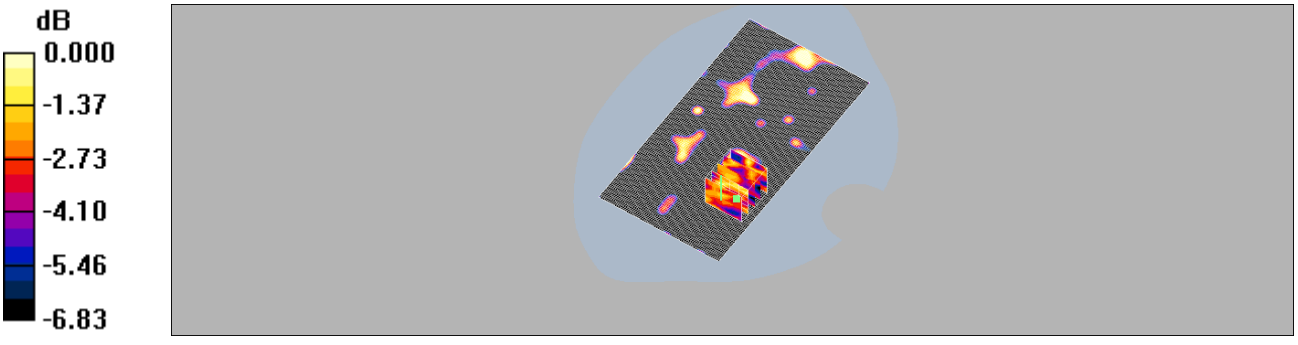
Communication System: Bluetooth; Frequency: 2441 MHz;Duty Cycle: 1:1
Medium: Muscle 2450 Medium parameters used: f = 2441 MHz; σ = 1.958 mho/m; εr = 51.81; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.96, 6.96, 6.96); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (71x131x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.010 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.20 V/m; Power Drift = -0.18 dB
Peak SAR (extrapolated) = 0.007 W/kg

SAR(1 g) = 0.00245 mW/g; SAR(10 g) = 0.00111 mW/g
Maximum value of SAR (measured) = 0.004 mW/g



0 dB = 0.004mW/g

Date: 8/23/2011

Body_Back side_Bluetooth_CH39

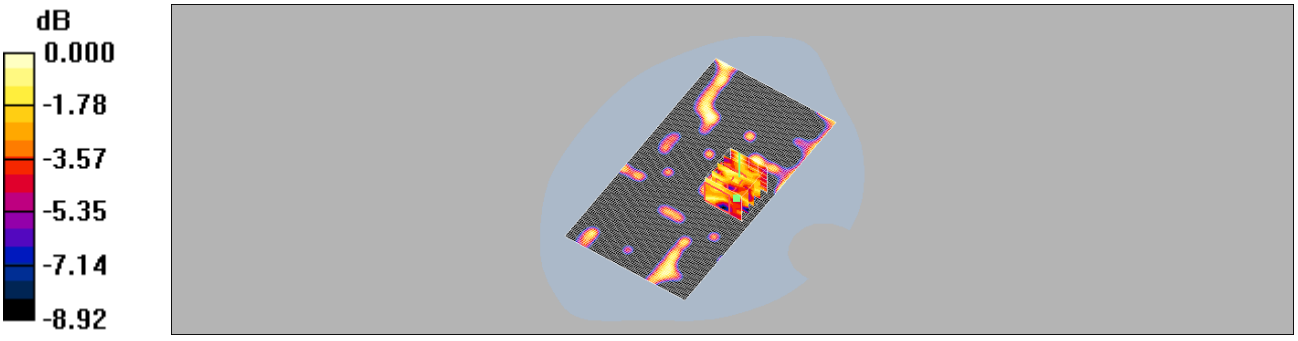
Communication System: Bluetooth; Frequency: 2441 MHz;Duty Cycle: 1:1
Medium: Muscle 2450 Medium parameters used: f = 2441 MHz; σ = 1.958 mho/m; εr = 51.81; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.96, 6.96, 6.96); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (71x131x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.011 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.11 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.005 W/kg

SAR(1 g) = 0.00211 mW/g; SAR(10 g) = 0.000917 mW/g
Maximum value of SAR (measured) = 0.004 mW/g



0 dB = 0.004mW/g

Date: 8/23/2011

Body_Bottom side_Bluetooth_CH39

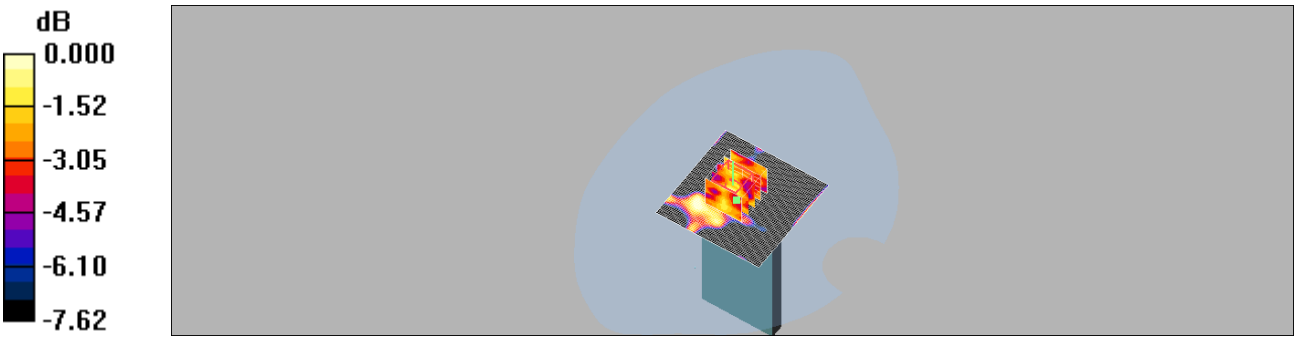
Communication System: Bluetooth; Frequency: 2441 MHz;Duty Cycle: 1:1
Medium: Muscle 2450 Medium parameters used: f = 2441 MHz; σ = 1.958 mho/m; εr = 51.81; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.96, 6.96, 6.96); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.007 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.31 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 0.015 W/kg

SAR(1 g) = 0.00375 mW/g; SAR(10 g) = 0.00184 mW/g
Maximum value of SAR (measured) = 0.005 mW/g



0 dB = 0.005mW/g

Date: 8/23/2011

Body_Right side_Bluetooth_CH39

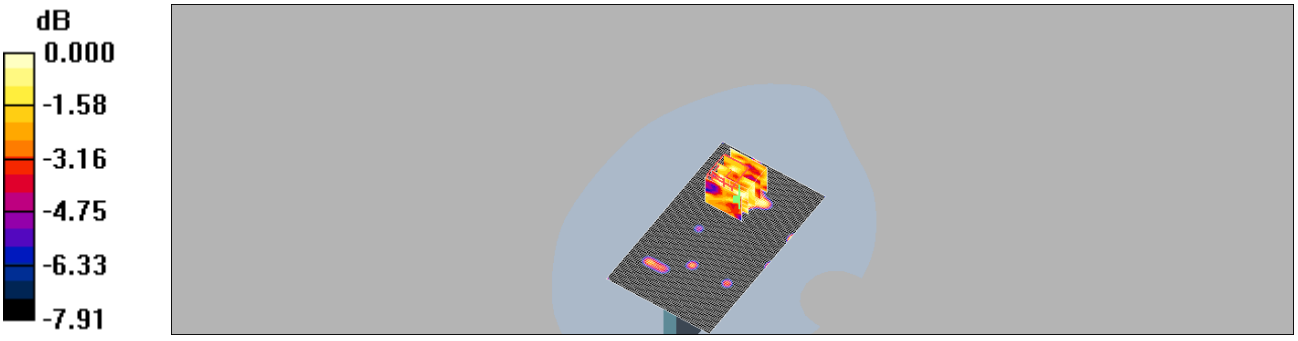
Communication System: Bluetooth; Frequency: 2441 MHz;Duty Cycle: 1:1
Medium: Muscle 2450 Medium parameters used: f = 2441 MHz; σ = 1.958 mho/m; εr = 51.81; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.96, 6.96, 6.96); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.011 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.980 V/m; Power Drift = -0.049 dB
Peak SAR (extrapolated) = 0.010 W/kg

SAR(1 g) = 0.00267 mW/g; SAR(10 g) = 0.00153 mW/g
Maximum value of SAR (measured) = 0.004 mW/g



0 dB = 0.004mW/g

Date: 8/23/2011

Body_Left side_Bluetooth_CH39

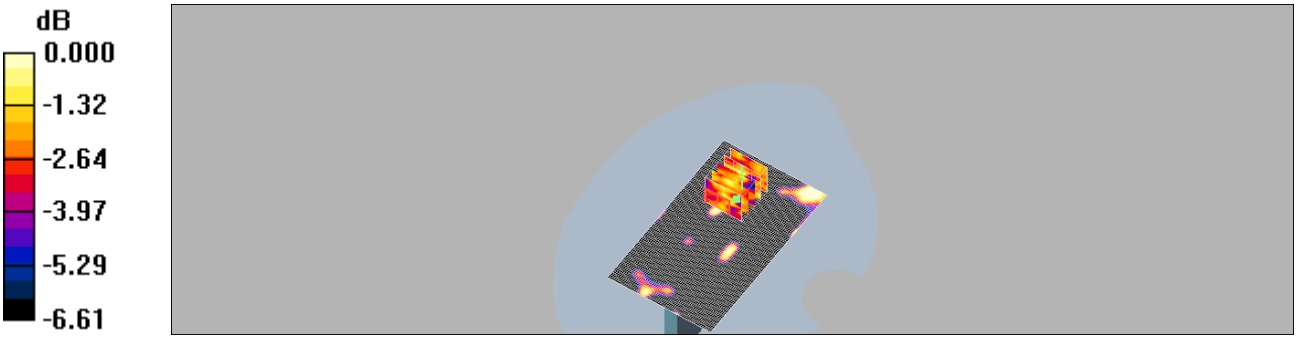
Communication System: Bluetooth; Frequency: 2441 MHz;Duty Cycle: 1:1
Medium: Muscle 2450 Medium parameters used: f = 2441 MHz; σ = 1.958 mho/m; εr = 51.81; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.96, 6.96, 6.96); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.009 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.27 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 0.004 W/kg

SAR(1 g) = 0.00245 mW/g; SAR(10 g) = 0.00101 mW/g
Maximum value of SAR (measured) = 0.004 mW/g



0 dB = 0.004mW/g

Date: 8/20/2011

RE Cheek_CH251_DTM

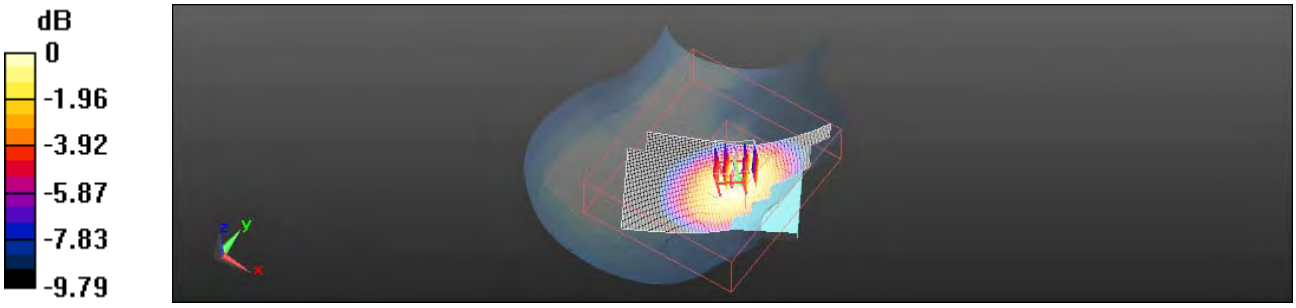
Communication System: Generic GSM; Frequency: 848.6 MHz
Medium parameters used: f = 849 MHz; σ = 0.911 mho/m; ε_r = 41.608; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.25, 9.25, 9.25); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Cheek/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.256 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.230 V/m; Power Drift = -0.0083 dB
Peak SAR (extrapolated) = 0.321 W/kg

SAR(1 g) = 0.248 mW/g; SAR(10 g) = 0.185 mW/g
Maximum value of SAR (measured) = 0.263 mW/g



0 dB = 0.260mW/g

Date: 8/20/2011

RE Cheek_CH128_GPRS_DTM

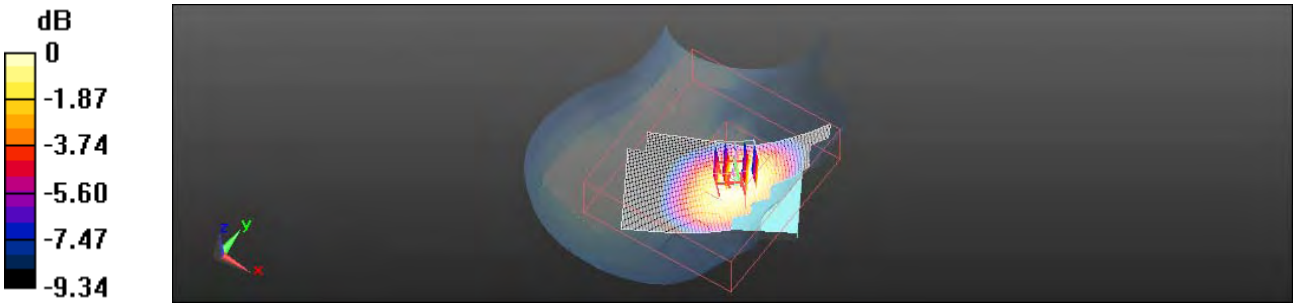
Communication System: GPRS(Class 10); Frequency: 824.2 MHz
Medium parameters used: f = 824.2 MHz; σ = 0.999 mho/m; ε_r = 53.947; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.3, 9.3, 9.3); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Cheek/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.387 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.911 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 0.463 W/kg

SAR(1 g) = 0.354 mW/g; SAR(10 g) = 0.265 mW/g
Maximum value of SAR (measured) = 0.371 mW/g



0 dB = 0.370mW/g

Date: 8/20/2011

RE Cheek_CH128_EGPRS_DTM

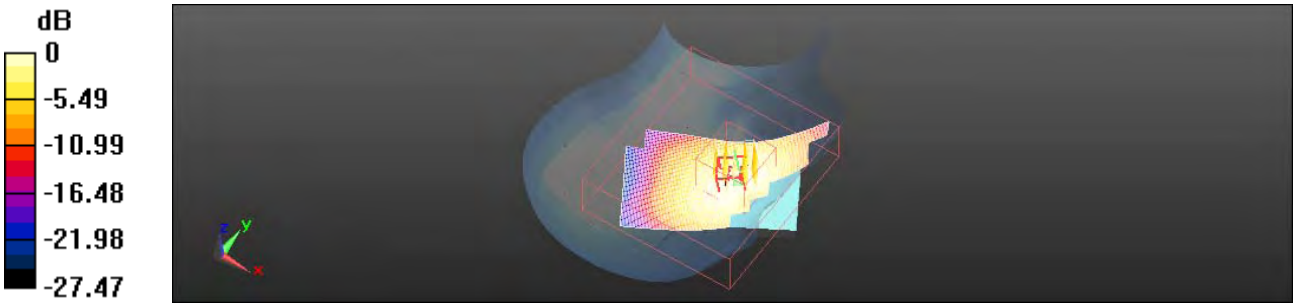
Communication System: GPRS(Class 10); Frequency: 824.2 MHz
Medium parameters used: f = 824.2 MHz; σ = 0.999 mho/m; ε_r = 53.947; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.3, 9.3, 9.3); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Cheek/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.104 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.337 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.130 W/kg

SAR(1 g) = 0.098 mW/g; SAR(10 g) = 0.073 mW/g
Maximum value of SAR (measured) = 0.102 mW/g



0 dB = 0.100mW/g

Date: 8/21/2011

RE Cheek_CH512_DTM

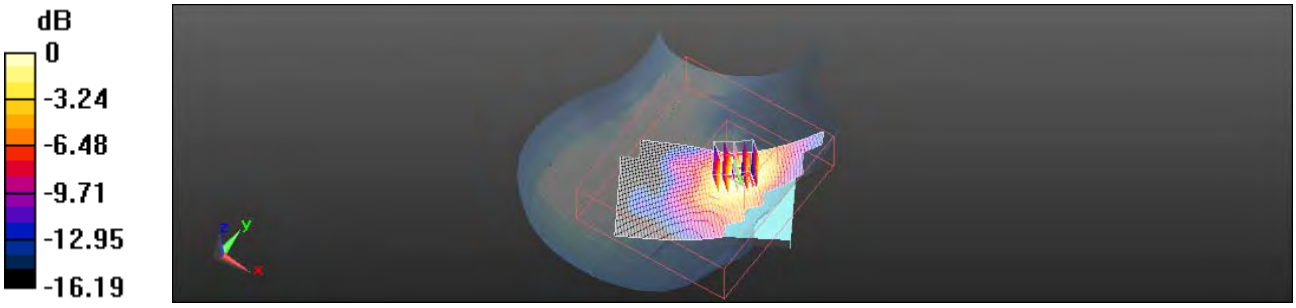
Communication System: Generic GSM; Frequency: 1850.2 MHz
Medium parameters used: f = 1850.2 MHz; σ = 1.37 mho/m; ε_r = 39.362; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.78, 7.78, 7.78); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Cheek/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.405 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.658 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.539 W/kg

SAR(1 g) = 0.356 mW/g; SAR(10 g) = 0.218 mW/g
Maximum value of SAR (measured) = 0.384 mW/g



0 dB = 0.380mW/g

Date: 8/21/2011

RE Cheek_CH661_GPRS_DTM

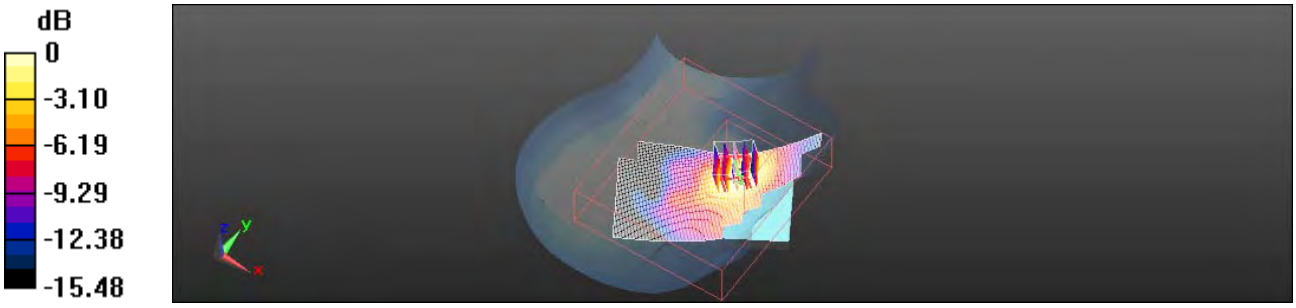
Communication System: GPRS(Class 10); Frequency: 1880 MHz
Medium parameters used: f = 1880 MHz; σ = 1.399 mho/m; ε_r = 39.243; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.51, 7.51, 7.51); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Cheek/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.525 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.067 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.730 W/kg

SAR(1 g) = 0.481 mW/g; SAR(10 g) = 0.291 mW/g
Maximum value of SAR (measured) = 0.528 mW/g



0 dB = 0.530mW/g

Date: 8/21/2011

RE Cheek_CH661_EGPRS_DTM

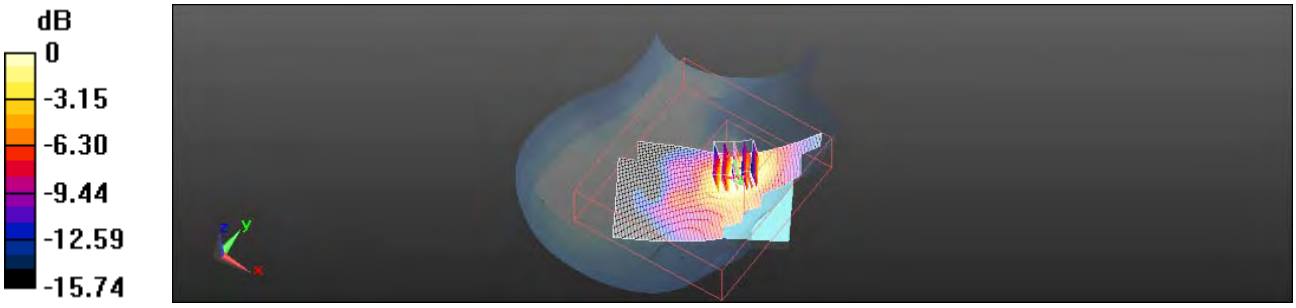
Communication System: GPRS(Class 10); Frequency: 1880 MHz
Medium parameters used: f = 1880 MHz; σ = 1.399 mho/m; ε_r = 39.243; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.51, 7.51, 7.51); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/RE Cheek/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.170 mW/g

Configuration/RE Cheek/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.224 V/m; Power Drift = 0.18 dB
Peak SAR (extrapolated) = 0.241 W/kg

SAR(1 g) = 0.160 mW/g; SAR(10 g) = 0.097 mW/g
Maximum value of SAR (measured) = 0.173 mW/g



0 dB = 0.170mW/g

Date: 8/20/2011

Body_CH128_Back Side_GSM_DTM

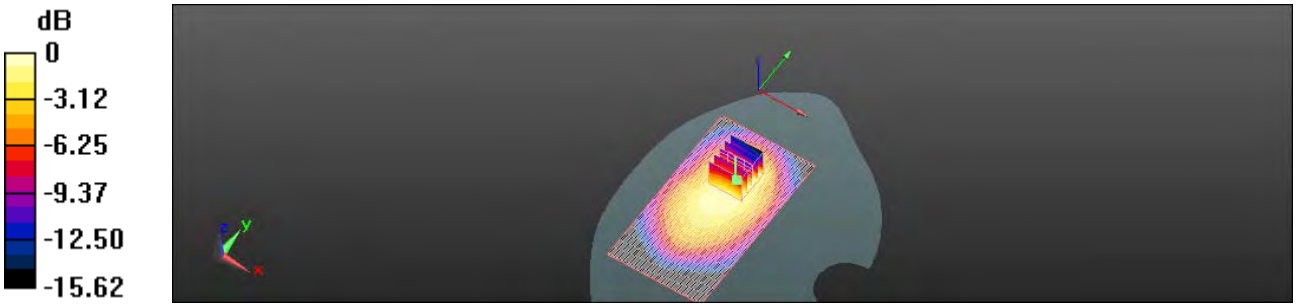
Communication System: Generic GSM; Frequency: 848.6 MHz
Medium parameters used: f = 849 MHz; σ = 1.018 mho/m; ε_r = 53.71; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.25, 9.25, 9.25); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.583 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.867 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.868 W/kg

SAR(1 g) = 0.488 mW/g; SAR(10 g) = 0.291 mW/g
Maximum value of SAR (measured) = 0.524 mW/g



0 dB = 0.520mW/g

Date: 8/20/2011

Body_CH128_Back Side_DTM

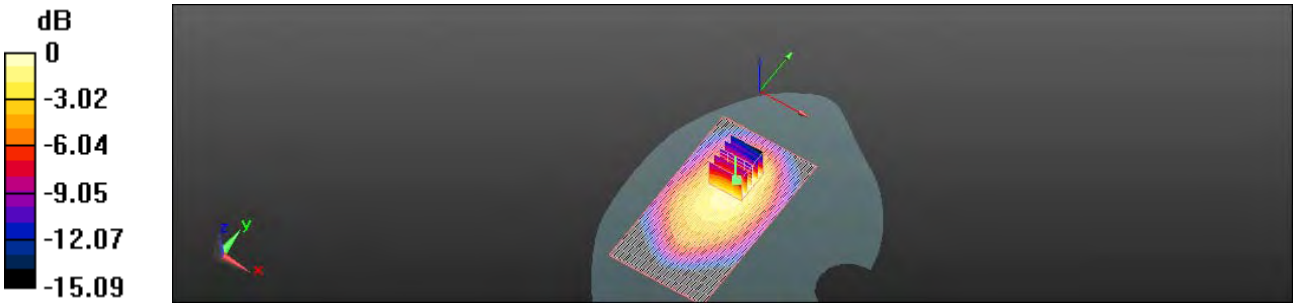
Communication System: GPRS(Class 10); Frequency: 824.2 MHz
Medium parameters used: f = 824.2 MHz; σ = 0.999 mho/m; ε_r = 53.947; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.3, 9.3, 9.3); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.910 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.285 V/m; Power Drift = -0.12 dB
Peak SAR (extrapolated) = 1.444 W/kg

SAR(1 g) = 0.817 mW/g; SAR(10 g) = 0.486 mW/g
Maximum value of SAR (measured) = 0.883 mW/g



0 dB = 0.880mW/g

Date: 8/20/2011

Body_CH128_Back Side_EGPRS_DTM

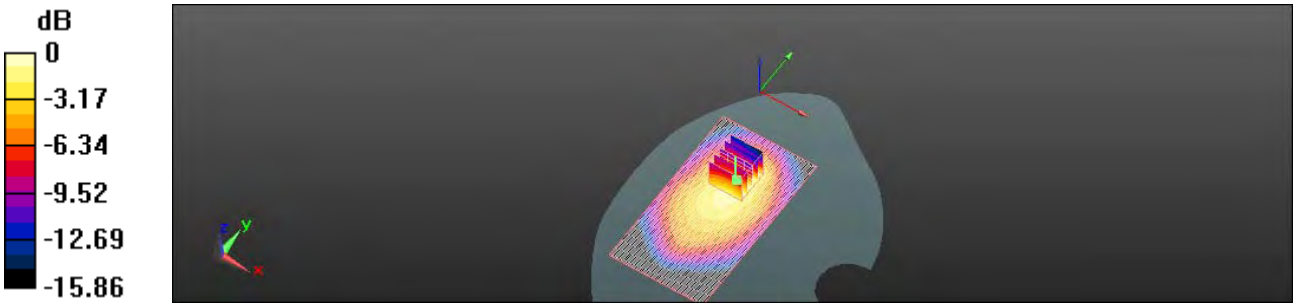
Communication System: GPRS(Class 10); Frequency: 824.2 MHz
Medium parameters used: f = 824.2 MHz; σ = 0.999 mho/m; ε_r = 53.947; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.3, 9.3, 9.3); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.224 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.561 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.362 W/kg

SAR(1 g) = 0.208 mW/g; SAR(10 g) = 0.123 mW/g
Maximum value of SAR (measured) = 0.226 mW/g



0 dB = 0.230mW/g

Date: 8/21/2011

Body_CH512_Back Side_GSM_DTM

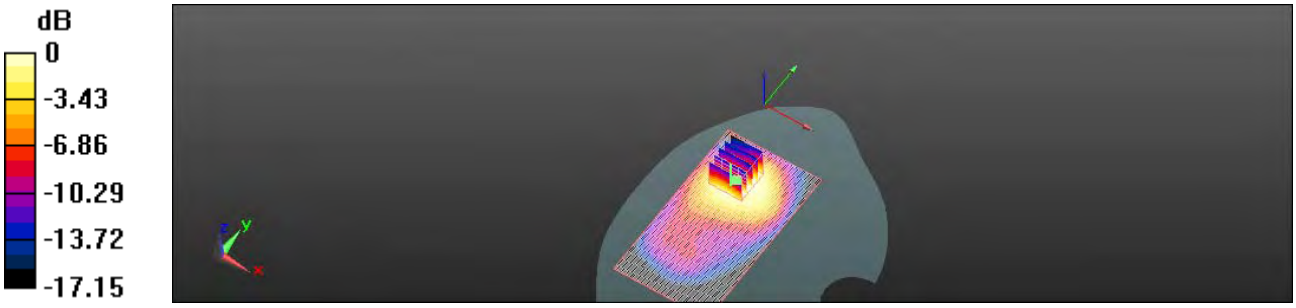
Communication System: Generic GSM; Frequency: 1850.2 MHz
Medium parameters used: f = 1850.2 MHz; σ = 1.465 mho/m; ε_r = 51.568; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.51, 7.51, 7.51); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.441 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.946 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.622 W/kg

SAR(1 g) = 0.362 mW/g; SAR(10 g) = 0.208 mW/g
Maximum value of SAR (measured) = 0.387 mW/g



0 dB = 0.390mW/g

Date: 8/21/2011

Body_CH661_Back Side_DTM

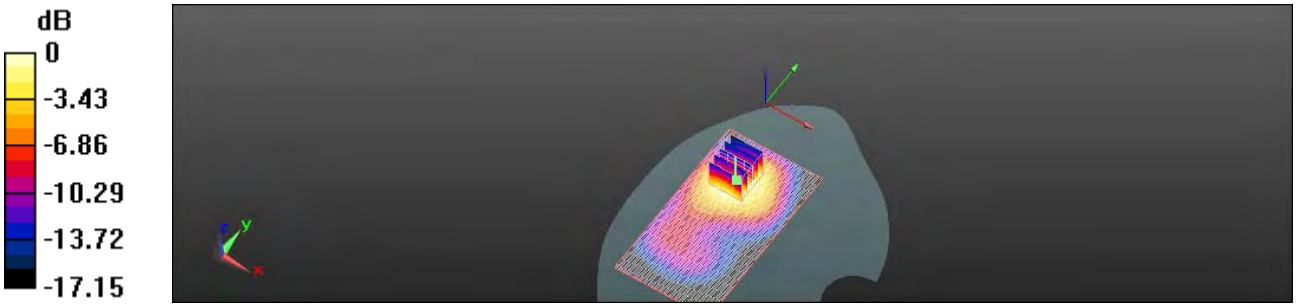
Communication System: GPRS(Class 10); Frequency: 1880 MHz
Medium parameters used: f = 1880 MHz; σ = 1.497 mho/m; ε_r = 51.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.51, 7.51, 7.51); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.749 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.070 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 1.158 W/kg

SAR(1 g) = 0.648 mW/g; SAR(10 g) = 0.365 mW/g
Maximum value of SAR (measured) = 0.688 mW/g



0 dB = 0.690mW/g

Date: 8/21/2011

Body_CH661_Back Side_EGPRS_DTM

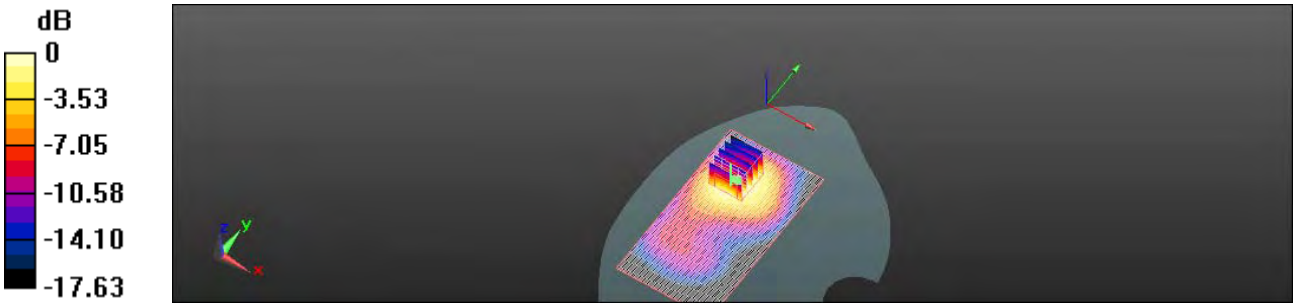
Communication System: GPRS(Class 10); Frequency: 1880 MHz
Medium parameters used: f = 1880 MHz; σ = 1.497 mho/m; ε_r = 51.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.51, 7.51, 7.51); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/Body/Area Scan (61x111x1): 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 = 2.121 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 0.332 W/kg
SAR(1 g) = 0.191 mW/g; SAR(10 g) = 0.108 mW/g
Maximum value of SAR (measured) = 0.213 mW/g



0 dB = 0.210mW/g

5. System Verification

Date: 8/20/2011

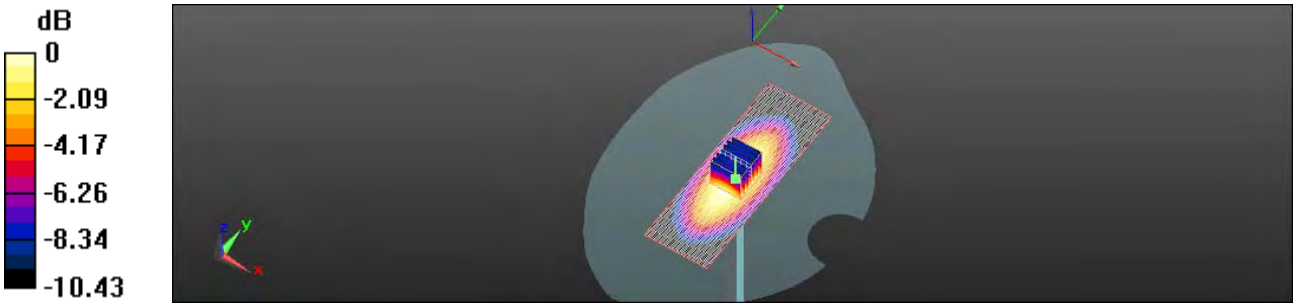
Communication System: CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 0.898 mho/m; ε_r = 41.806; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.25, 9.25, 9.25); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/d=15mm, Pin=250mW, dist=4mm: Measurement grid:
dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.468 mW/g

Configuration/d=15mm, Pin=250mW, dist=4mm: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 54.614 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 3.213 W/kg

SAR(1 g) = 2.34 mW/g; SAR(10 g) = 1.53 mW/g
Maximum value of SAR (measured) = 2.421 mW/g



0 dB = 2.420mW/g

Date: 8/20/2011

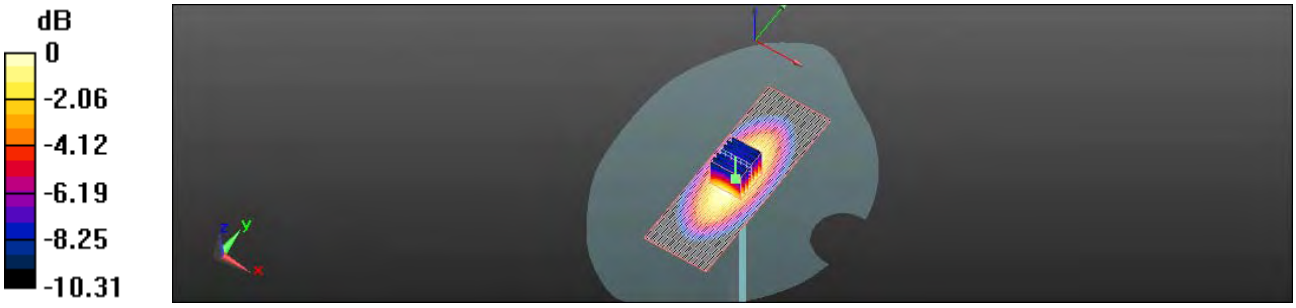
Communication System: CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 1.01 mho/m; ε_r = 53.842; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.3, 9.3, 9.3); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/d=15mm, Pin=250mW, dist=4mm: Measurement grid:
dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.682 mW/g

Configuration/d=15mm, Pin=250mW, dist=4mm: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 52.102 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 3.693 W/kg

SAR(1 g) = 2.49 mW/g; SAR(10 g) = 1.62 mW/g
Maximum value of SAR (measured) = 2.689 mW/g



0 dB = 2.690mW/g

Date: 8/21/2011

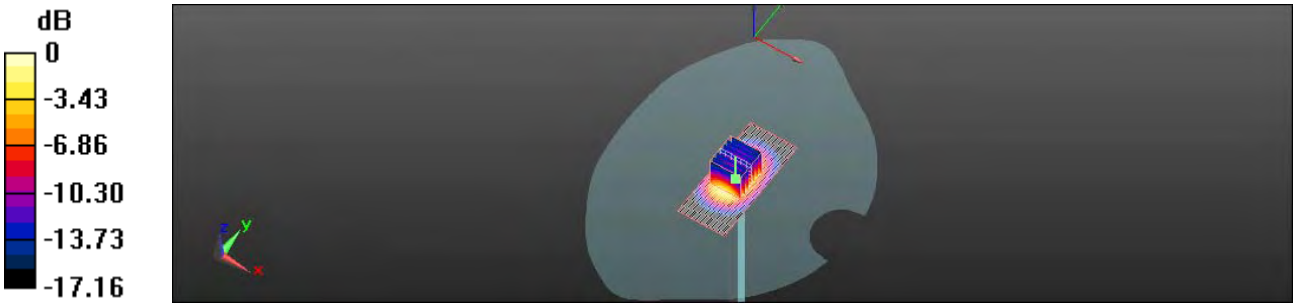
Communication System: CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.419 mho/m; ε_r = 39.216; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.78, 7.78, 7.78); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/d=10mm, Pin=250mW, dist=4mm: Measurement grid:
dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 11.789 mW/g

Configuration/d=10mm, Pin=250mW, dist=4mm: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 93.752 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 17.691 W/kg

SAR(1 g) = 9.7 mW/g; SAR(10 g) = 5.08 mW/g
Maximum value of SAR (measured) = 10.962 mW/g



0 dB = 10.960mW/g

Date: 8/21/2011

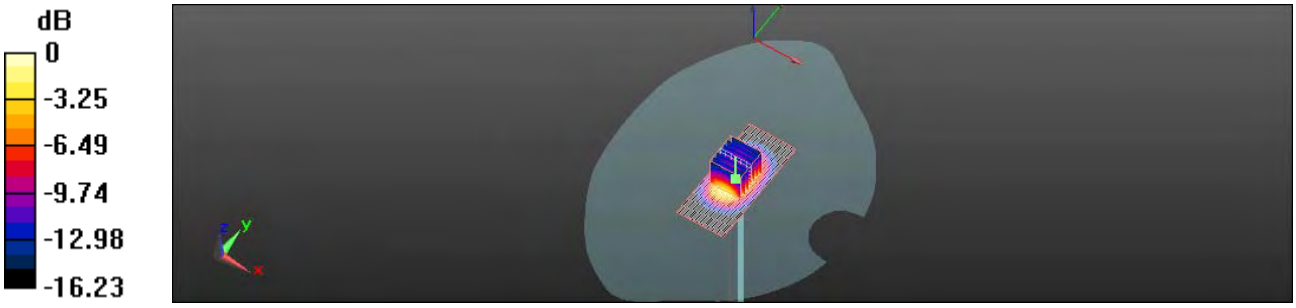
Communication System: CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.521 mho/m; ε_r = 51.436; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.51, 7.51, 7.51); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/d=10mm, Pin=250mW, dist=4mm: Measurement grid:
dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 12.098 mW/g

Configuration/d=10mm, Pin=250mW, dist=4mm: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 91.866 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 16.962 W/kg

SAR(1 g) = 9.83 mW/g; SAR(10 g) = 5.24 mW/g
Maximum value of SAR (measured) = 11.189 mW/g



0 dB = 11.190mW/g

Date: 8/23/2011

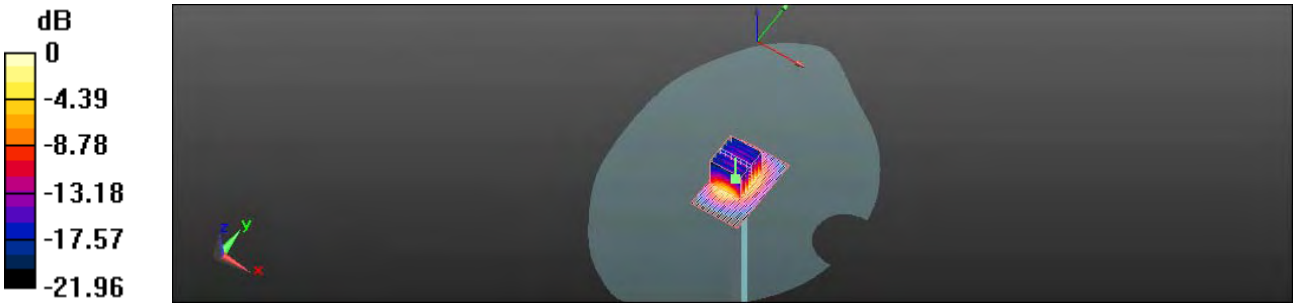
Communication System: CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.788 mho/m; ε_r = 37.268; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.99, 6.99, 6.99); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/d=10mm, Pin=250mW, dist=4mm: Measurement grid:
dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 18.362 mW/g

Configuration/d=10mm, Pin=250mW, dist=4mm: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 99.880 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 28.224 W/kg

SAR(1 g) = 13.6 mW/g; SAR(10 g) = 6.3 mW/g
Maximum value of SAR (measured) = 17.874 mW/g



0 dB = 17.870mW/g

Date: 8/23/2011

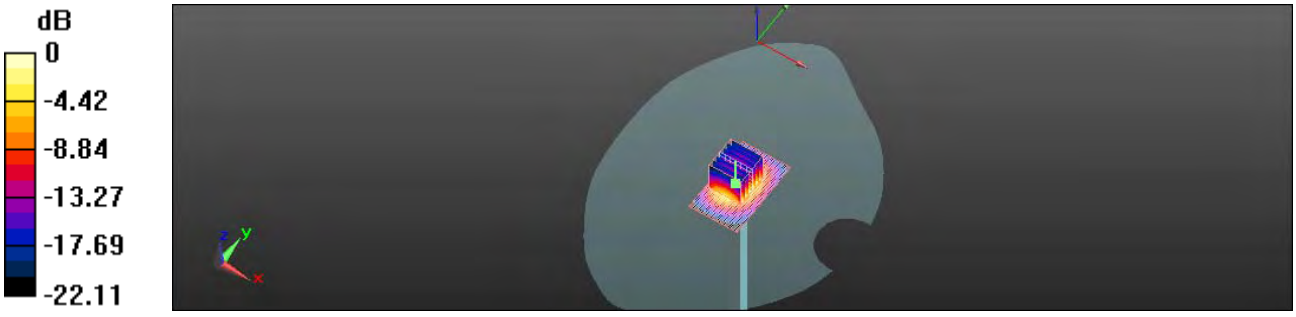
Communication System: CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.971 mho/m; ε_r = 51.762; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(6.96, 6.96, 6.96); Calibrated: 4/19/2011
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/18/2011
- Phantom: SAM1; Type: SAM
- Measurement SW: DASY52, Version 52.6 (2); SEMCAD X Version 14.4.5 (3634)

Configuration/d=10mm, Pin=250mW, dist=4mm: Measurement grid:
dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 16.297 mW/g

Configuration/d=10mm, Pin=250mW, dist=4mm: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 93.877 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 29.115 W/kg

SAR(1 g) = 12.6 mW/g; SAR(10 g) = 5.7 mW/g
Maximum value of SAR (measured) = 15.306 mW/g



0 dB = 15.310mW/g

6. DAE & Probe Calibration certificate

Calibration Laboratory of
Schmid & Partner
Engineering AG
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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

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

Certificate No: DAE4-856_May11 Page 1 of 5

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Schmid & Partner
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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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Certificate No: EX3-3770_Apr11 Page 1 of 11

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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.

Probe EX3DV4

SN:3770

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

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

EX3DV4– SN:3770 April 19, 2011

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.

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.

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

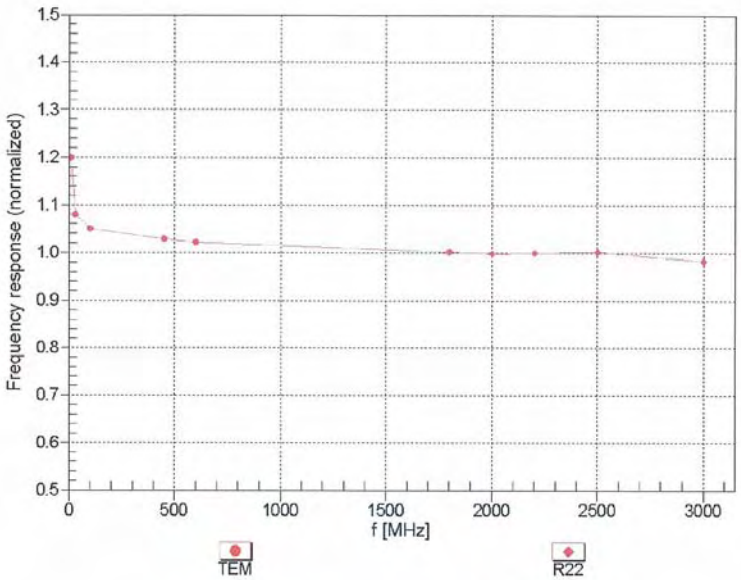
Calibration Parameter Determined in Body Tissue Simulating Media

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.

EX3DV4– SN:3770 April 19, 2011

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

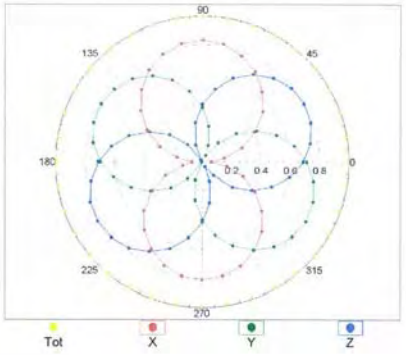


Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

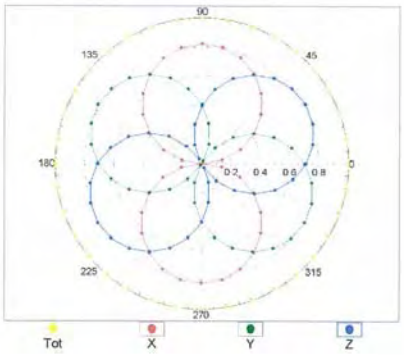
EX3DV4– SN:3770 April 19, 2011

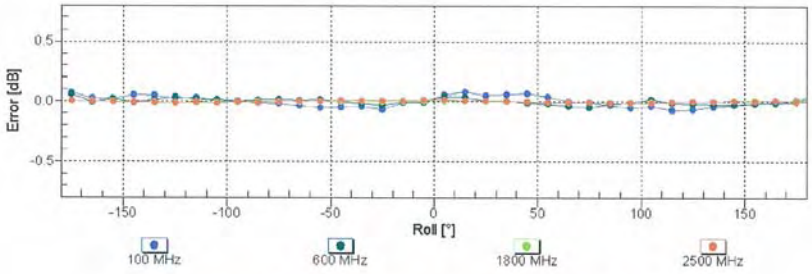
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



f=1800 MHz,R22





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

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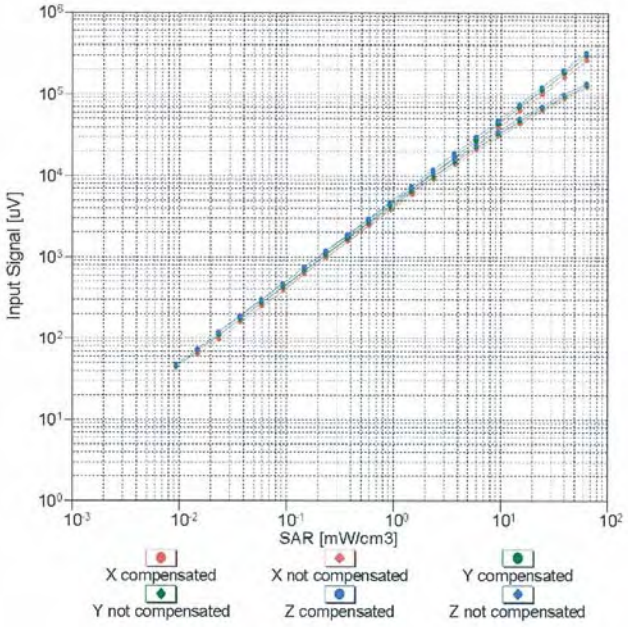
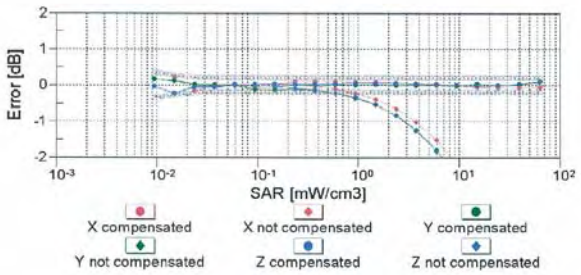
EX3DV4– SN:3770 April 19, 2011

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





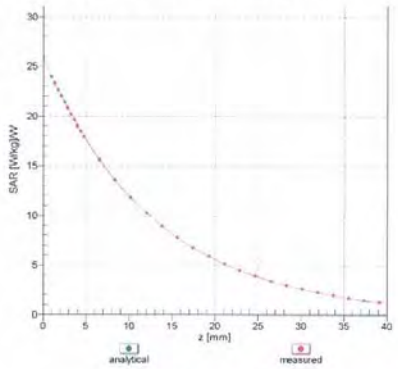
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Certificate No: EX3-3770_Apr11 Page 9 of 11

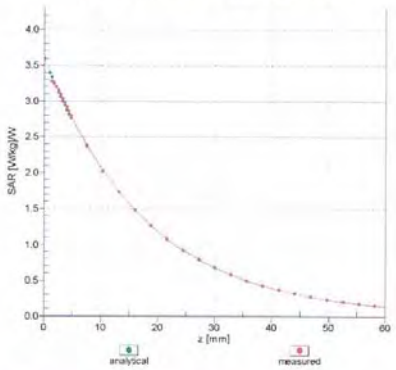
EX3DV4– SN:3770 April 19, 2011

Conversion Factor Assessment

f = 1750 MHz,WGLS R22 (H_convF)

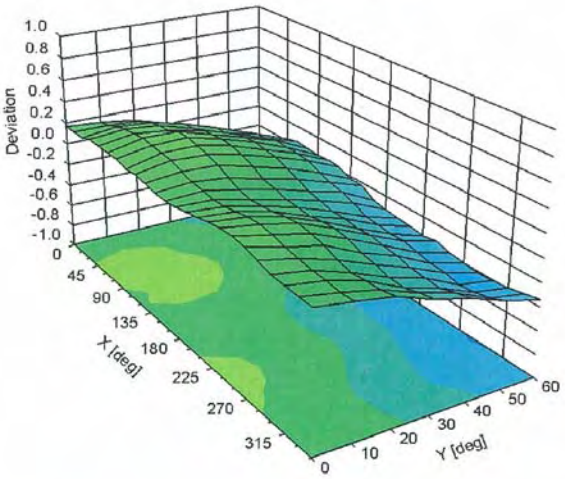


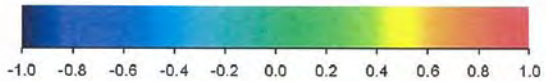
f = 900 MHz,WGLS R9 (H_convF)



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

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

7. Uncertainty Budget

DASY5 Uncertainty Budget
According to IEEE 1528 [1]

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

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

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
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Phone +41 1 245 9700, Fax +41 1 245 9779
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Doc No 881 – QD 000 P40 C – F Page 1 (1)

9. System Validation from Original equipment supplier

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

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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

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Certificate No: D835V2-4d063_May11 Page 1 of 8

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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**

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
c) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

Measurement Conditions

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

DASY Version	DASY5	V52.6.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	835 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.5	0.90 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	40.4 ± 6 %	0.88 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.31 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**9.34 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.52 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**6.13 mW /g ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	55.2	0.97 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	53.9 ± 6 %	1.00 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.43 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**9.45 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.60 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**6.27 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	53.4 Ω - 1.5 jΩ
Return Loss	- 28.9 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	48.7 Ω - 4.1 jΩ
Return Loss	- 27.3 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.426 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	November 27, 2006

DASY5 Validation Report for Head TSL

Date: 25.05.2011

Test Laboratory: SPEAG, Zurich, Switzerland

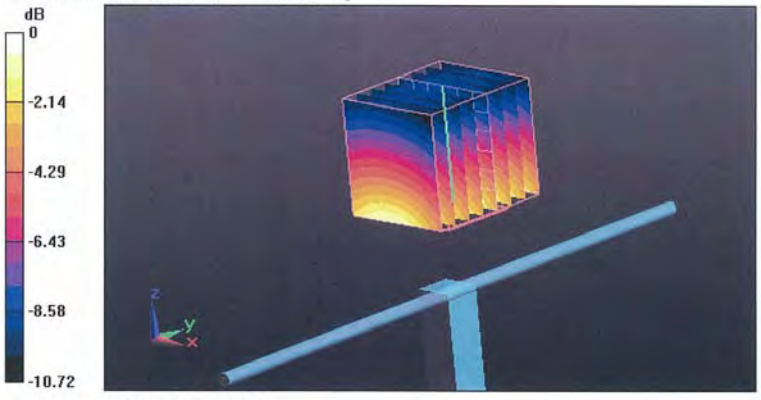
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d063

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:

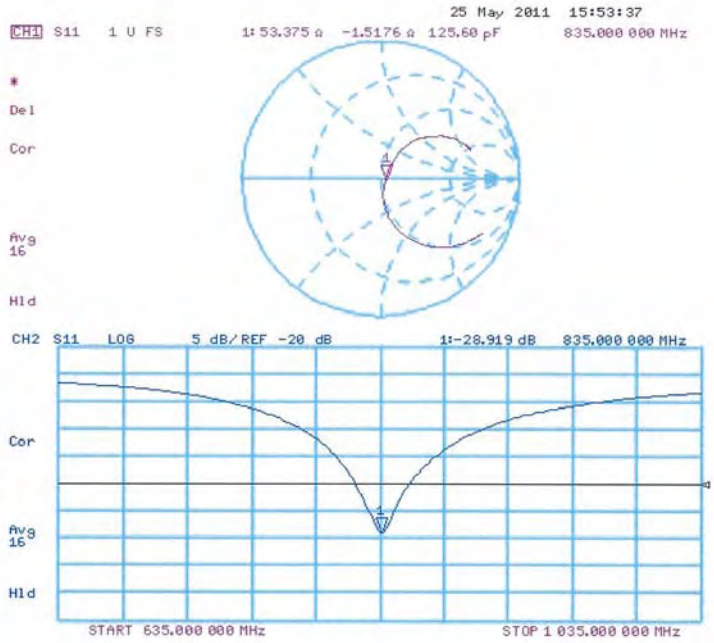
- Probe: ES3DV3 - SN3205; ConvF(6.07, 6.07, 6.07); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY52, V52.6.2 Build (424)
- Postprocessing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

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 25.05.2011

Test Laboratory: SPEAG, Zurich, Switzerland

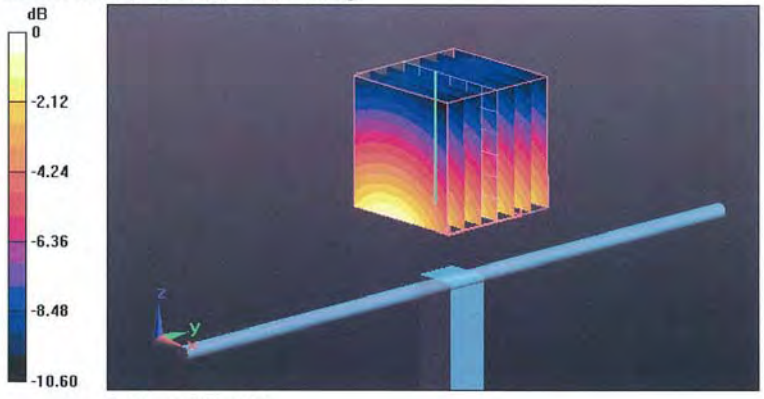
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d063

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:

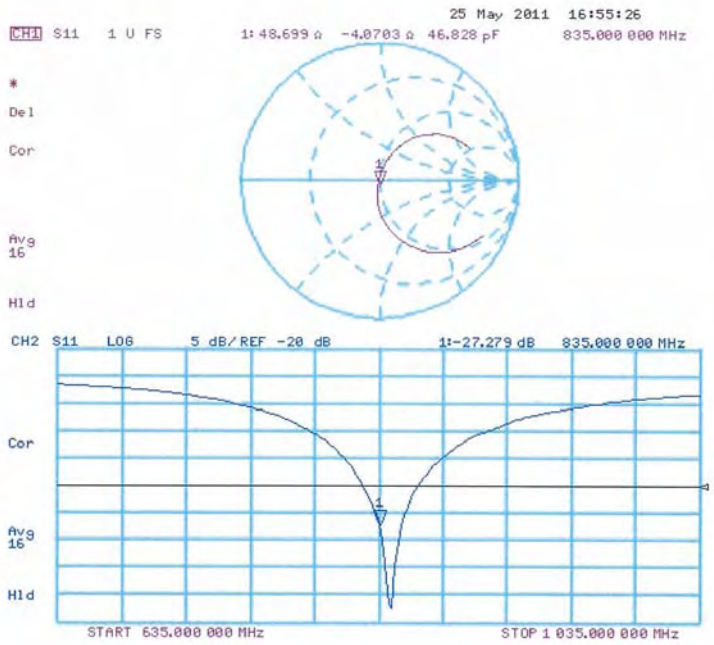
- Probe: ES3DV3 - SN3205; ConvF(6.02, 6.02, 6.02); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY52, V52.6.2 Build (424)
- Postprocessing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

Impedance Measurement Plot for Body TSL



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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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Certificate No: D1900V2-5d027_Apr11 Page 1 of 9

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Accreditation No.: SCS 108

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
c) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

Measurement Conditions

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

DASY Version	DASY5	V52.6.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1900 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	38.9 ± 6 %	1.41 mho/m ± 6 %
Head TSL temperature during test	(21.0 ± 0.2) °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	10.1 mW / g
SAR normalized	normalized to 1W	40.4 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**40.1 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.26 mW / g
SAR normalized	normalized to 1W	21.0 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**20.9 mW /g ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	53.3	1.52 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	51.1 ± 6 %	1.52 mho/m ± 6 %
Body TSL temperature during test	(21.8 ± 0.2) °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	9.93 mW / g
SAR normalized	normalized to 1W	39.7 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**39.4 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.18 mW / g
SAR normalized	normalized to 1W	20.7 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**20.6 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	51.8 Ω + 6.4 jΩ
Return Loss	- 23.7 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	48.1 Ω + 6.6 jΩ
Return Loss	- 23.1 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.194 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	December 17, 2002

DASY5 Validation Report for Head TSL

Date/Time: 18.04.2011 15:27:22

Test Laboratory: SPEAG, Zurich, Switzerland

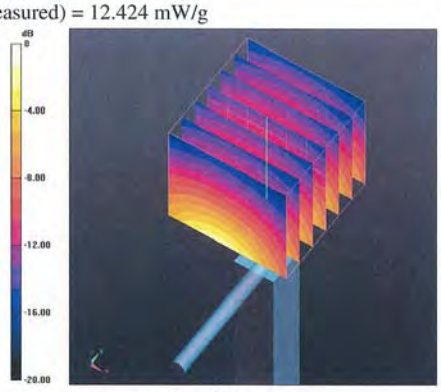
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d027

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:

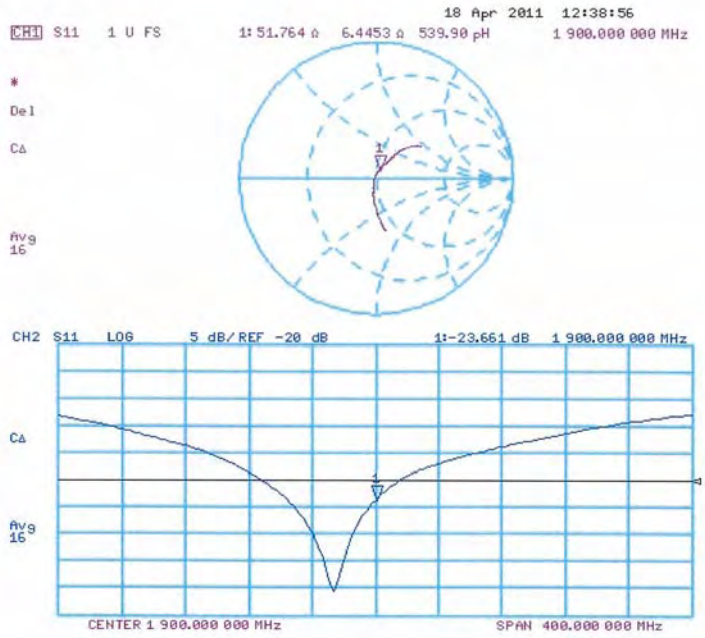
- Probe: ES3DV3 - SN3205; ConvF(5.09, 5.09, 5.09); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY52, V52.6.2 Build (424)
- Postprocessing 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

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date/Time: 19.04.2011 12:53:51

Test Laboratory: SPEAG, Zurich, Switzerland

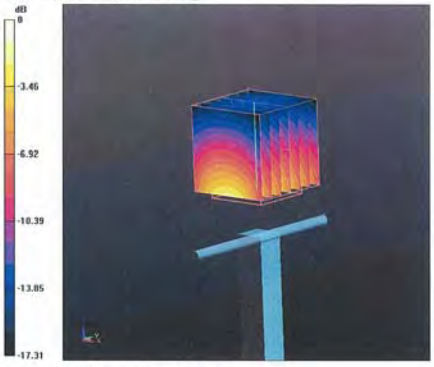
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d027

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:

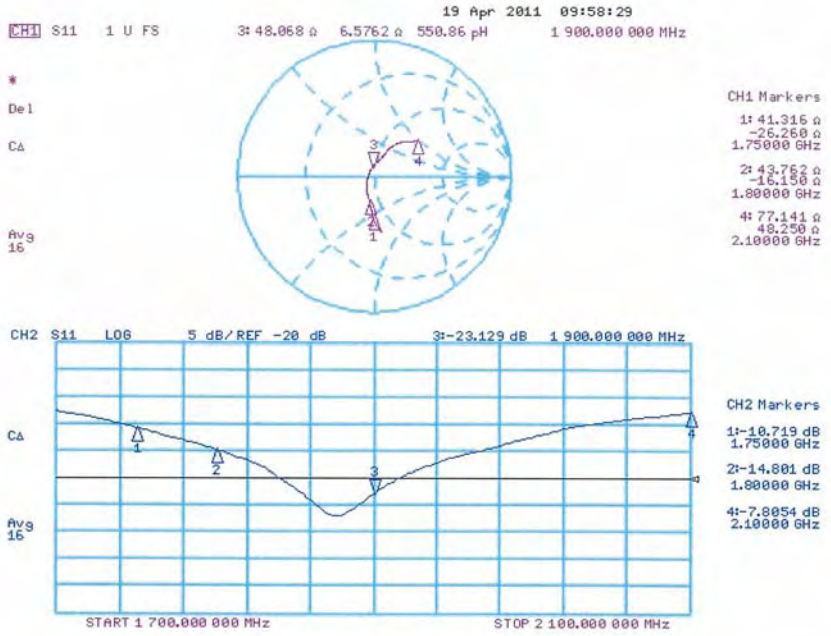
- Probe: ES3DV3 - SN3205; ConvF(4.59, 4.59, 4.59); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY52, V52.6.2 Build (424)
- Postprocessing 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

Impedance Measurement Plot for Body TSL



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

S Schweizerischer Kalibrierdienst
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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

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

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Accreditation No.: SCS 108

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
c) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

Measurement Conditions

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

DASY Version	DASY5	V52.6.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	38.7 ± 6 %	1.72 mho/m ± 6 %
Head TSL temperature during test	(21.0 ± 0.2) °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.7 mW / g
SAR normalized	normalized to 1W	54.8 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**55.8 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.39 mW / g
SAR normalized	normalized to 1W	25.6 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**25.7 mW /g ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	52.7	1.95 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	50.6 ± 6 %	1.91 mho/m ± 6 %
Body TSL temperature during test	(21.5 ± 0.2) °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	12.7 mW / g
SAR normalized	normalized to 1W	50.8 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**50.8 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.84 mW / g
SAR normalized	normalized to 1W	23.4 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**23.3 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	54.3 Ω + 2.0 jΩ
Return Loss	- 26.9 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	49.9 Ω + 3.7 jΩ
Return Loss	- 28.6 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.149 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	January 9, 2003

DASY5 Validation Report for Head TSL

Date/Time: 18.04.2011 16:55:19

Test Laboratory: SPEAG, Zurich, Switzerland

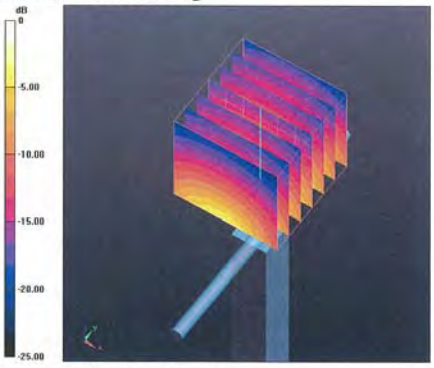
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:727

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:

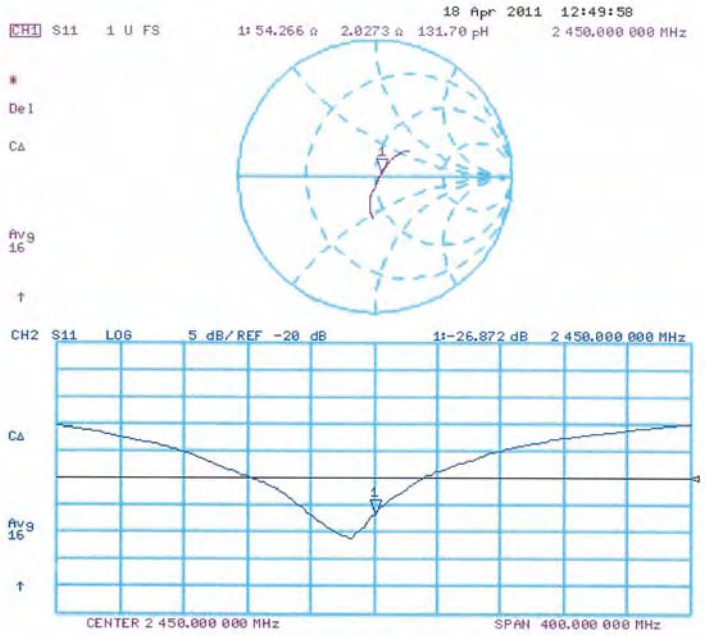
- Probe: ES3DV3 - SN3205; ConvF(4.53, 4.53, 4.53); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY52, V52.6.2 Build (424)
- Postprocessing 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

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date/Time: 19.04.2011 14:37:11

Test Laboratory: SPEAG, Zurich, Switzerland

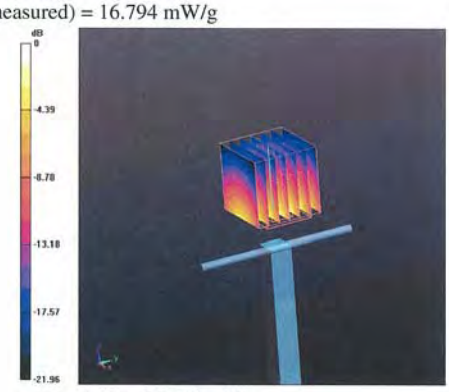
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:727

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)

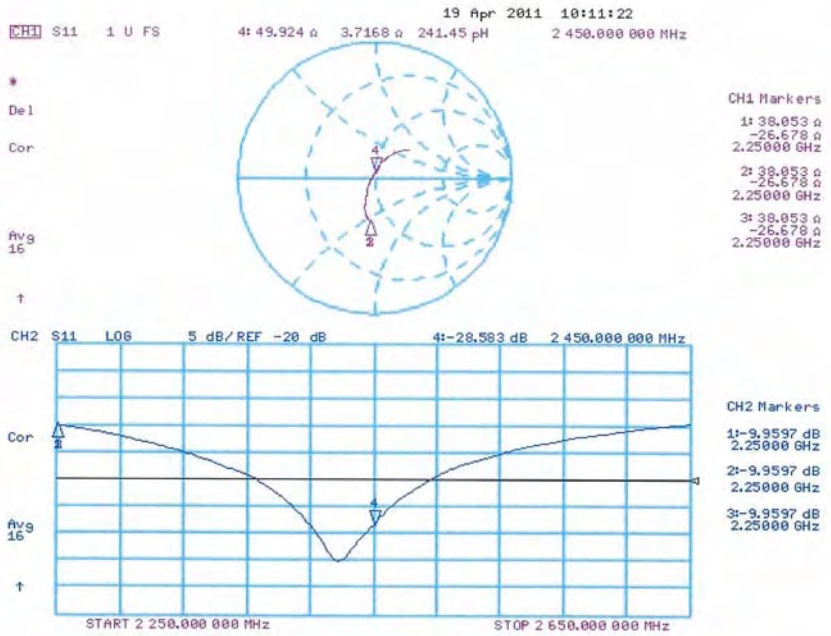
Pin=250 mW, Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 96.949 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 26.888 W/kg
SAR(1 g) = 12.7 mW/g; SAR(10 g) = 5.84 mW/g
Maximum value of SAR (measured) = 16.794 mW/g



0 dB = 16.790mW/g

Certificate No: D2450V2-727_Apr11 Page 8 of 9

Impedance Measurement Plot for Body TSL



End of 1st part of report