

SAR TEST REPORT

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

Equipment Under Test	Mobile Phone
Marketing Name	ST23a
Brand Name	SONY
Model No.	PM-0190-BV
Company Name	Sony Mobile Communications AB
Company Address	Nya Vattentorget 22188 Lund/SWEDEN
Standards	FCC- OET 65 supplement C, IEEE /ANSI C95.1 , C95.3, IEEE 1528, RSS-102
FCC ID	PY7PM-0190
IC ID	4170B-PM0190
Date of Receipt	Apr. 18, 2012
Date of Test(s)	May 07, 2012 ~ Jun. 22, 2012
Date of Issue	Aug. 01, 2012

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

Remarks:

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

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Signed for on the behalf of SGS

Engineer

Chris Tsung

Chris Tsung

Date: Aug. 01, 2012

Supervisor

Kelly Tsai

Kelly Tsai

Date: Aug. 01, 2012

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Version

Report Number	Revision	Date	Memo
EN/2012/40006	00	2012/07/12	Initial creation of test report.
EN/2012/40006	01	2012/07/13	1 st modification
EN/2012/40006	02	2012/07/13	2 nd modification
EN/2012/40006	03	2012/07/20	3 rd modification
EN/2012/40006	04	2012/07/24	4 th modification
EN/2012/40006	05	2012/07/26	5 th modification
EN/2012/40006	06	2012/07/27	6 th modification
EN/2012/40006	07	2012/08/01	7 th modification

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

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1. General Information

1.1 Testing Laboratory

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

1.2 Details of Applicant

Company Name	Sony Mobile Communications AB
Company Address	Nya Vattentornet 22188 Lund/SWEDEN
Contact Person	Mats Hansson
TEL	+46 10 8023357
Fax	+46 10 8002441
E-mail	Mats.Hansson@sonymobile.com

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1.3 Description of EUT

EUT Name	Mobile Phone			
Marketing Name	ST23a			
Brand Name	SONY			
Model No.	PM-0190-BV			
Hardware Version	A			
Software Version	2.3.J.3.8			
Serial No.	BX902WPBYW			
IMEI Code	004402145486233			
FCC ID	PY7PM-0190			
IC ID	4170B-PM0190			
Mode of Operation	<input checked="" type="checkbox"/> GSM	<input checked="" type="checkbox"/> GPRS	<input checked="" type="checkbox"/> EDGE <input checked="" type="checkbox"/> WCDMA	
	<input checked="" type="checkbox"/> WLAN802.11 b/g/n(20M)		<input checked="" type="checkbox"/> Bluetooth	
Duty Cycle	GSM	1/8.3		
	GPRS (multi class 12)	1/2 (1Dn4UP) 1/3 (1Dn3UP) 1/4 (1Dn2UP) 1/8.3(1Dn1UP)		
	EDGE (multi class 12)	1/2 (1Dn4UP) 1/3 (1Dn3UP) 1/4 (1Dn2UP) 1/8.3(1Dn1UP)		
	WCDMA	1		
	WLAN 802.11 b/g/n(20M)	1		
	Bluetooth	1		
TX Frequency Range (MHz)	GSM850	824.2	—	848.8
	GSM1900	1850.2	—	1909.8
	WCDMA Band II	1852.4	—	1907.6
	WCDMA Band V	826.4	—	846.6
	WLAN 802.11 b/g/n(20M)	2412	—	2462
	Bluetooth	2402	—	2480

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Channel Number (ARFCN)	GSM850		128	—	251
	GSM1900		512	—	810
	WCDMA Band II		9262	—	9538
	WCDMA Band V		4132	—	4233
	WLAN 802.11 b/g/n(20M)		1	—	11
	Bluetooth		0	—	78
Max. SAR Measured(1g) (Unit: W/Kg)	Head	GSM850	1.14	<input type="checkbox"/> Left <input checked="" type="checkbox"/> Right <input checked="" type="checkbox"/> Cheek <input type="checkbox"/> Tilt 251 Channel	
		GSM1900	1.01	<input checked="" type="checkbox"/> Left <input type="checkbox"/> Right <input checked="" type="checkbox"/> Cheek <input type="checkbox"/> Tilt 661 Channel	
		WCDMA Band II	1.25	<input checked="" type="checkbox"/> Left <input type="checkbox"/> Right <input checked="" type="checkbox"/> Cheek <input type="checkbox"/> Tilt 9538 Channel -with 2 nd battery	
		WCDMA Band V	0.97	<input type="checkbox"/> Left <input checked="" type="checkbox"/> Right <input checked="" type="checkbox"/> Cheek <input type="checkbox"/> Tilt 4233 Channel	
		WLAN802.11 b	0.419	<input checked="" type="checkbox"/> Left <input type="checkbox"/> Right <input checked="" type="checkbox"/> Cheek <input type="checkbox"/> Tilt 6 Channel -with memory card	
	Body worn (speech mode)	GSM 850	0.886	<input type="checkbox"/> Front <input checked="" type="checkbox"/> Back 251 Channel	
		GSM 1900	0.554	<input checked="" type="checkbox"/> Front <input type="checkbox"/> Back 661 Channel	
		WCDMA Band II	0.617	<input type="checkbox"/> Front <input checked="" type="checkbox"/> Back 9538 Channel	

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		WCDMA Band V	0.912	<input type="checkbox"/> Front <input checked="" type="checkbox"/> Back 4183 Channel
Max. SAR Measured(1 g) (Unit: W/Kg)	Hotspot mode	GSM850	1.36	<input type="checkbox"/> Front <input checked="" type="checkbox"/> Back <input type="checkbox"/> Bottom <input type="checkbox"/> Right <input type="checkbox"/> Left 128 Channel -with memory card
		GSM1900	0.92	<input type="checkbox"/> Front <input checked="" type="checkbox"/> Back <input type="checkbox"/> Bottom <input type="checkbox"/> Right <input type="checkbox"/> Left 810 Channel
		WCDMA Band II	0.99	<input checked="" type="checkbox"/> Front <input type="checkbox"/> Back <input type="checkbox"/> Bottom <input type="checkbox"/> Right <input type="checkbox"/> Left 9538 Channel
		WCDMA Band V	1.22	<input type="checkbox"/> Front <input checked="" type="checkbox"/> Back <input type="checkbox"/> Bottom <input type="checkbox"/> Right <input type="checkbox"/> Left 4233 Channel
		WLAN802.11 b	0.112	<input type="checkbox"/> Front <input type="checkbox"/> Back <input type="checkbox"/> Bottom <input checked="" type="checkbox"/> Right <input type="checkbox"/> Left 6 Channel -with headset

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#. Scaling SAR table:

Mode	Band	Channel	Power (dBm)	Target Power (dBm)	Scaling	Max. SAR Measured (1 g)(W/Kg)	Calculated SAR (1 g)(W/Kg)	
Head	GSM 850	251	34.4	34.4	0.00%	1.14	1.14	
	GSM 1900	661	31.7	31.7	0.00%	1.01	1.01	
	WCDMA Band II	9538	22.11	22.5	9.40%	1.25	1.37	
	WCDMA Band V	4233	24.26	24.5	5.68%	0.97	1.03	
Body	Body worn (speech mode)	GSM 850	251	34.4	34.4	0.00%	0.89	0.89
		GSM 1900	661	31.7	31.7	0.00%	0.55	0.55
		WCDMA Band II	9538	22.11	22.5	9.40%	0.62	0.67
		WCDMA Band V	4183	23.74	24.5	19.12%	0.91	1.09
	Hotspot mode	GPRS 850 1Dn4UP	128	28.5	28.5	0.00%	1.36	1.36
		GPRS1900 1Dn4UP	810	25.8	26	4.71%	0.92	0.96
		WCDMA Band II	9538	22.11	22.5	9.40%	0.99	1.08
		WCDMA Band V	4233	24.26	24.5	5.68%	1.22	1.29

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#. GSM/GPRS/EDGE conducted power table:

EUT mode	Frequency (MHz)	CH	Burst average power		Source-based time average power	
			Avg. (dBm)		Avg. (dBm)	
GSM 850 (GMSK)	824.2	128	34.30		25.27	
	836.6	190	34.40		25.37	
	848.8	251	34.40		25.37	
The division factor compared to the number of TX time slot						
Division factor			1 TX time slot			
			-9.03			

Burst average power						
EUT mode	Frequency (MHz)	CH	1Dn1UP	1Dn2UP	1Dn3UP	1Dn4UP
			Avg. (dBm)	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)
GPRS 850 (GMSK)	824.2	128	34.30	29.70	28.40	28.50
	836.6	190	34.40	29.60	28.40	28.50
	848.8	251	34.40	29.50	28.40	28.50
Source-based time average power						
GPRS 850 (GMSK)	824.2	128	25.27	23.68	24.14	25.49
	836.6	190	25.37	23.58	24.14	25.49
	848.8	251	25.37	23.48	24.14	25.49
The division factor compared to the number of TX time slot						
Division factor			1 TX time slot	2 TX time slot	3 TX time slot	4 TX time slot
			-9.03	-6.02	-4.26	-3.01

Burst average power						
EUT mode	Frequency (MHz)	CH	1Dn1UP	1Dn2UP	1Dn3UP	1Dn4UP
			Avg. (dBm)	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)
EDGE 850 (MCS 5)	824.2	128	27.30	27.30	27.20	27.10
	836.6	190	27.30	27.30	27.20	27.10
	848.8	251	27.20	27.20	27.10	27.00
Source-based time average power						
EDGE 850 (MCS 5)	824.2	128	18.27	21.28	22.94	24.09
	836.6	190	18.27	21.28	22.94	24.09
	848.8	251	18.17	21.18	22.84	23.99
The division factor compared to the number of TX time slot						
Division factor			1 TX time slot	2 TX time slot	3 TX time slot	4 TX time slot
			-9.03	-6.02	-4.26	-3.01

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Burst average power						
			1Dn1UP	1Dn2UP	1Dn3UP	1Dn4UP
EUT mode	Frequency (MHz)	CH	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)
EDGE 850 (MCS 4)	824.2	128	27.20	27.12	27.09	26.95
	836.6	190	27.23	27.18	27.10	27.01
	848.8	251	27.20	27.16	27.06	26.93
Source-based time average power						
EDGE 850 (MCS 4)	824.2	128	18.17	21.10	22.83	23.94
	836.6	190	18.20	21.16	22.84	24.00
	848.8	251	18.17	21.14	22.80	23.92
The division factor compared to the number of TX time slot						
Division factor			1 TX time slot	2 TX time slot	3 TX time slot	4 TX time slot
			-9.03	-6.02	-4.26	-3.01

Burst average power						
			1Dn1UP	1Dn2UP	1Dn3UP	1Dn4UP
EUT mode	Frequency (MHz)	CH	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)
EDGE 850 (MCS 9)	824.2	128	27.17	27.25	27.14	26.97
	836.6	190	27.24	27.29	27.12	27.07
	848.8	251	27.26	27.20	27.08	26.94
Source-based time average power						
EDGE 850 (MCS 9)	824.2	128	18.14	21.23	22.88	23.96
	836.6	190	18.21	21.27	22.86	24.06
	848.8	251	18.23	21.18	22.82	23.93
The division factor compared to the number of TX time slot						
Division factor			1 TX time slot	2 TX time slot	3 TX time slot	4 TX time slot
			-9.03	-6.02	-4.26	-3.01

EUT mode	Frequency (MHz)	CH	Burst average power	Source-based time average power
			Avg. (dBm)	Avg. (dBm)
GSM 1900 (GMSK)	1850.2	512	31.50	22.47
	1880	661	31.70	22.67
	1909.8	810	30.70	21.67
The division factor compared to the number of TX time slot				
Division factor			1 TX time slot	
			-9.03	

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Burst average power						
			1Dn1UP	1Dn2UP	1Dn3UP	1Dn4UP
EUT mode	Frequency (MHz)	CH	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)
GPRS 1900 (GMSK)	1850.2	512	31.60	28.90	27.90	26.80
	1880	661	31.20	28.40	27.40	26.40
	1909.8	810	30.40	27.90	26.80	25.80
Source-based time average power						
GPRS 1900 (GMSK)	1850.2	512	22.57	22.88	23.64	23.79
	1880	661	22.17	22.38	23.14	23.39
	1909.8	810	21.37	21.88	22.54	22.79
The division factor compared to the number of TX time slot						
Division factor			1 TX time slot	2 TX time slot	3 TX time slot	4 TX time slot
			-9.03	-6.02	-4.26	-3.01

Burst average power						
			1Dn1UP	1Dn2UP	1Dn3UP	1Dn4UP
EUT mode	Frequency (MHz)	CH	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)
EDGE 1900 (MCS 5)	1850.2	512	26.50	26.50	26.50	26.40
	1880	661	26.10	26.10	26.10	26.10
	1909.8	810	25.80	25.50	25.40	25.40
Source-based time average power						
EDGE 1900 (MCS 5)	1850.2	512	17.47	20.48	22.24	23.39
	1880	661	17.07	20.08	21.84	23.09
	1909.8	810	16.77	19.48	21.14	22.39
The division factor compared to the number of TX time slot						
Division factor			1 TX time slot	2 TX time slot	3 TX time slot	4 TX time slot
			-9.03	-6.02	-4.26	-3.01

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Burst average power						
			1Dn1UP	1Dn2UP	1Dn3UP	1Dn4UP
EUT mode	Frequency (MHz)	CH	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)
EDGE 1900 (MCS 4)	1850.2	512	26.62	26.59	26.58	26.24
	1880	661	26.51	26.49	26.46	26.02
	1909.8	810	26.26	26.24	26.19	25.47
Source-based time average power						
EDGE 1900 (MCS 4)	1850.2	512	17.59	20.57	22.32	23.23
	1880	661	17.48	20.47	22.20	23.01
	1909.8	810	17.23	20.22	21.93	22.46
The division factor compared to the number of TX time slot						
Division factor			1 TX time slot	2 TX time slot	3 TX time slot	4 TX time slot
			-9.03	-6.02	-4.26	-3.01

Burst average power						
			1Dn1UP	1Dn2UP	1Dn3UP	1Dn4UP
EUT mode	Frequency (MHz)	CH	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)	Avg. (dBm)
EDGE 1900 (MCS 9)	1850.2	512	26.59	25.78	25.66	25.64
	1880	661	26.50	25.62	25.62	25.53
	1909.8	810	26.24	25.40	25.27	25.31
Source-based time average power						
EDGE 1900 (MCS 9)	1850.2	512	17.56	19.76	21.40	22.63
	1880	661	17.47	19.60	21.36	22.52
	1909.8	810	17.21	19.38	21.01	22.30
The division factor compared to the number of TX time slot						
Division factor			1 TX time slot	2 TX time slot	3 TX time slot	4 TX time slot
			-9.03	-6.02	-4.26	-3.01

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

Band	CH	R99
		Avg.(dBm)
WCDMA Band II	9262	22.20
	9400	21.83
	9538	22.11

HSDPA_rel 6	SUB-TEST 1	SUB-TEST 2	SUB-TEST 3	SUB-TEST 4
CH	Avg.(dBm)	Avg.(dBm)	Avg.(dBm)	Avg.(dBm)
9262	22.37	22.08	21.89	21.96
9400	21.72	21.69	21.27	21.28
9538	21.97	21.96	21.44	21.56

SUB-TEST	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note 1, Note 2)	CM (dB) (Note 3)	MPR (dB) (Note 3)
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15	15/15	64	12/15	24/15	1.0	0.0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

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HSUPA_rel 6	SUB-TEST 1	SUB-TEST 2	SUB-TEST 3	SUB-TEST 4	SUB-TEST 5
CH	Avg.(dBm)	Avg.(dBm)	Avg.(dBm)	Avg.(dBm)	Avg.(dBm)
9262	22.12	20.17	21.18	20.3	22.01
9400	21.81	19.88	20.83	19.93	21.67
9538	22.05	20.09	21.13	20.13	21.96

SUB-TEST	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note1)	β_{ec}	β_{ed} (Note 5) (Note 6)	β_{ed} (SF)	β_{ed} (Codes)	CM (dB) (Note 2)	MPR (dB) (Note 2)	AG Index (Note 6)	E-TFCI
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/225	1309/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	β_{ed1} : 47/15 β_{ed2} : 47/15	4 4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15 (Note 4)	15/15 (Note 4)	64	15/15 (Note 4)	30/15	24/15	134/15	4	1	1.0	0.0	21	81

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

Band	CH	R99
		Avg.(dBm)
WCDMA Band V	4132	24.27
	4183	24.29
	4233	24.26

HSDPA_rel 6	SUB-TEST 1	SUB-TEST 2	SUB-TEST 3	SUB-TEST 4
CH	Avg.(dBm)	Avg.(dBm)	Avg.(dBm)	Avg.(dBm)
4132	24.06	24.2	23.6	23.65
4183	24.15	24.18	23.67	23.71
4233	24.38	24.13	23.89	23.95

SUB-TEST	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note 1, Note 2)	CM (dB) (Note 3)	MPR (dB) (Note 3)
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15	15/15	64	12/15	24/15	1.0	0.0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

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HSUPA_rel 6	SUB-TEST 1	SUB-TEST 2	SUB-TEST 3	SUB-TEST 4	SUB-TEST 5
CH	Avg.(dBm)	Avg.(dBm)	Avg.(dBm)	Avg.(dBm)	Avg.(dBm)
4132	24.23	22.29	23.27	22.34	24.09
4183	24.22	22.3	23.28	22.36	24.05
4233	24.18	22.22	23.26	22.3	24.07

SUB-TEST	β_c	β_d	β_d (SF)	β_c/β_d	β_{HS} (Note1)	β_{ec}	β_{ed} (Note 5) (Note 6)	β_{ed} (SF)	β_{ed} (Codes)	CM (dB) (Note 2)	MPR (dB) (Note 2)	AG Index (Note 6)	E-TFCI
1	11/15 (Note 3)	15/15 (Note 3)	64	11/15 (Note 3)	22/15	209/225	1309/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	β_{ed1} : 47/15 β_{ed2} : 47/15	4 4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15 (Note 4)	15/15 (Note 4)	64	15/15 (Note 4)	30/15	24/15	134/15	4	1	1.0	0.0	21	81

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

802.11 b		Average Power Output (dBm)			
CH	Frequency (MHz)	Data Rate (Mbps)			
		1	2	5.5	11
1	2412	14.29	14.24	14.2	14.14
6	2437	14.31	14.24	14.2	14.14
11	2462	15.25	15.15	15.09	14.99

802.11 g		Average Power Output (dBm)							
CH	Frequency (MHz)	Data Rate (Mbps)							
		6	9	12	18	24	36	48	54
1	2412	13.06	13.01	12.66	12.56	12.1	12.05	11.66	11.41
6	2437	13.36	13.3	12.85	12.65	12.35	12.15	11.87	11.59
11	2462	13.65	13.47	13.27	13.07	12.92	12.81	12.57	12.52

802.11n(20M)		Average Power Output (dBm)							
CH	Frequency (MHz)	Data Rate (Mbps)							
		6.5	13	19.5	26	39	52	58.5	65
1	2412	11.64	11.61	11.18	11.05	10.52	10.49	9.94	9.74
6	2437	11.49	11.37	11.00	10.90	10.37	10.31	9.80	9.69
11	2462	12.50	12.47	12.07	11.97	11.58	11.48	10.97	10.87

#. Bluetooth conducted power table:

Frequency (MHz)	Peak Power (dBm)		Average Power (dBm)	
	BDR	EDR	BDR	EDR
2402	9.7	10.17	8.47	6.48
2441	9.46	10.03	8.38	6.42
2480	9.26	9.3	8.11	6.29

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1.4 Test Environment

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

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

1.5 Operation Description

General:

1. The EUT is controlled by using a Radio Communication Tester (Agilent E5515C), and the communication between the EUT and the tester is established by air link.
2. Measurements are performed respectively on the lowest, middle and highest channels of the operating band(s). The EUT is set to maximum power level during all tests, and at the beginning of each test the battery is fully charged.
3. During the SAR testing, the DASY5 system checks power drift by comparing the e-field strength of one specific location measured at the beginning with that measured at the end of the SAR testing.
4. Testing Head SAR at lowest, middle and highest channel for all bands with Left Tilt /Left cheek/Right Tilt/Right cheek conditions.
5. Testing body-worn speech mode SAR by separating the EUT and the Phantom **15mm** distance when performing GSM850/1900/WCDMA Band II/Band V (Both Front side& back side)
6. Testing hotspot mode SAR by separating the EUT and the Phantom **10mm** distance.
 - #. The SAR testing for portable devices with wireless router capability is referred as test guidance of **KDB 941225 D06** (SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities).
 - #. The following procedures are applicable when the overall device length and width are $\geq 9\text{ cm} \times 5\text{ cm}$ respectively. A test separation of 10 mm is required. SAR must be measured for all sides and surfaces with a transmitting antenna located within 25 mm from that surface or edge, for the data modes, wireless technologies and frequency bands supporting hotspot mode.
 - # For GPRS body-worn (15mm separation): the testing device support mobile hotspot function, the separation distance is **10mm (No need to perform SAR**

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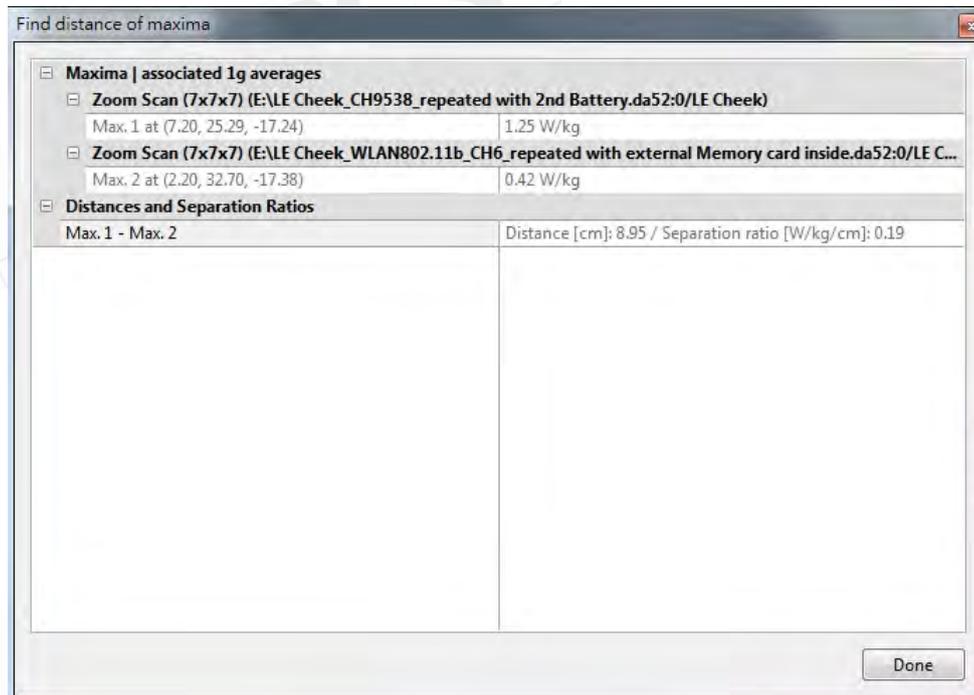
testing with Body worn accessory (15mm separation distance) due to the hotspot mode(10mm separation distance) is conservative than Body worn accessory mode.)

Test configurations:

- (1) Front side
 - (2) Back side
 - (3) Top side (WWAN antenna to edge distance >25mm_No SAR)
 - (4) Bottom side (WLAN antenna to edge distance >25mm_No SAR)
 - (5) Right side
 - (6) Left side (WLAN antenna to edge distance >25mm_No SAR)
7. When the maximum transmitter and antenna output power are $\leq 60/f(\text{GHz})$ (mW) SAR evaluation is typically not required for FCC or TCB approval
(Bluetooth average power= 8.47dBm)
8. According to **KDB248227**-SAR is not required for 802.11 g/HT20/HT40 channels when the maximum average output power is less than 0.25dB higher than that measured on the corresponding 802.11b channels.
9. Using **KDB941225 D01** to exclude SAR test requirements for HSPA modes due to the maximum average output power of HSPA active is less than 1/4 dB higher than that measured without HSPA using 12.2kbps RMC
10. For Head, The highest 1-g SAR for WLAN is 0.419 W/kg and the highest 1-g SAR for WWAN is 1.25 W/kg. The sum of 1-g for simultaneous transmitting WLAN and WWAN antenna pair is $0.419 + 1.25 = 1.669$ W/kg, **which higher than the limit 1.6W/kg**. By the way, the peak distance (hotspot to hotspot) for WLAN and WWAN AUX antenna is 8.95 cm , we calculate the peak location separation ratio of simultaneous transmitting antenna pair , the value is **0.186** with less than 0.3. **NO simultaneous transmission SAR evaluation is necessary.**

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11. For Body, The highest 1-g SAR for WLAN is 0.112 W/kg and the highest 1-g SAR for WWAN is 1.36 W/kg. The sum of 1-g for simultaneous transmitting WLAN and WWAN antenna pair is $0.112 + 1.36 = 1.472$ W/kg.

12. WLAN / WWAN – Antenna separation is $75.75\text{mm} > 5\text{cm}$, Sum of SAR is less than 1.6W/kg, hence no simultaneous SAR is needed.

Additional configuration(Head):

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

14. For highest SAR configuration in this band repeated with 2nd Battery (Supplier: Samsung)

Additional configuration(Body):

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

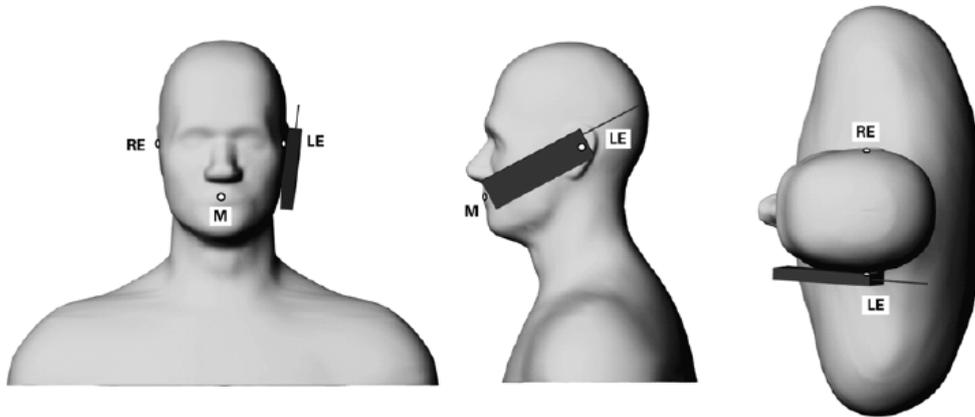
16. For highest SAR configuration in this band repeated with Headset.

17. For highest SAR configuration in this band repeated with 2nd Battery (Manufacture: Samsung).

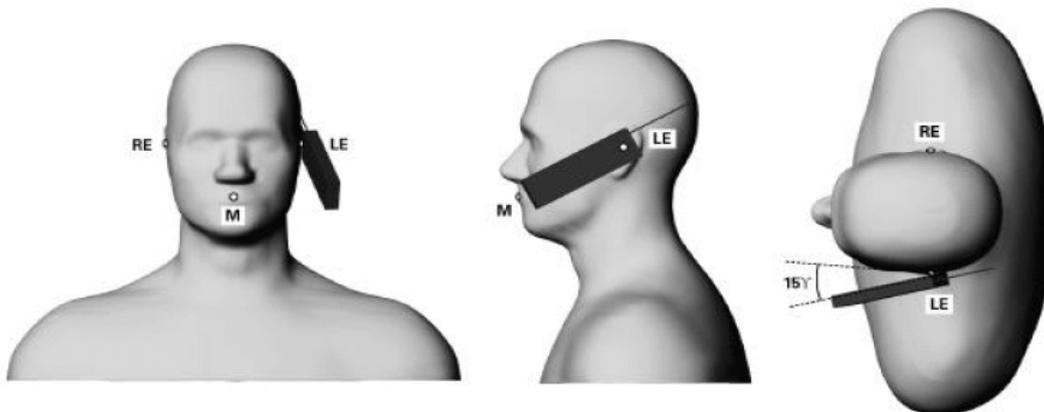
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1.6 Positioning Procedure



Phone position 1, "cheek" or "touch" position. The reference points for the right ear (RE), left ear (LE) and mouth (M), which define the reference plane for phone positioning.



Phone position 2, "tilted position." The reference points for the right ear (RE), left ear (LE) and mouth (M), which define the reference plane for phone positioning.

Cheek/Touch Position:

The handset was brought toward the mouth of the head phantom by pivoting against the ear reference point until any point of the mouthpiece or keypad touched the phantom.

Ear/Tilt Position:

With the phone aligned in the Cheek/Touch position, the handset was tilted away from the mouth with respect to the test device reference point by 15 degrees.

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1.7 Evaluation Procedures

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

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

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

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

The maximum search is automatically performed after each area scan measurement. It

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is based on splines in two or three dimensions. The procedure can find the maximum for most SAR distributions even with relatively large grid spacing. After the area scanning measurement, the probe is automatically moved to a position at the interpolated maximum. The following scan can directly use this position for reference, e.g., for a finer resolution grid or the cube evaluations. The 1g and 10g peak evaluations are only available for the predefined cube 7x7x7 scans.

The routines are verified and optimized for the grid dimensions used in these cube measurements. The measured volume of 30x30x30mm contains about 30g of tissue. The first procedure is an extrapolation (incl. Boundary correction) to get the points between the lowest measured plane and the surface. The next step uses 3D interpolation to get all points within the measured volume. In the last step, a 1g cube is placed numerically into the volume and its averaged SAR is calculated. This cube is moved around until the highest averaged SAR is found.

If the highest SAR is found at the edge of the measured volume, the system will issue a warning: higher SAR values might be found outside of the measured volume. In that case the cube measurement can be repeated, using the new interpolated maximum as the center.

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1.8 Probe Calibration Procedures

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

1.8.1 Transfer Calibration with Temperature Probes

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

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

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

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

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

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completely avoided, as the measured field itself destroys the thermal equilibrium in the liquid. With a careful setup these errors can be kept small.

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

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

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1.8.2 Calibration with Analytical Fields

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

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

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

References

- [1] N. Kuster, Q. Balzano, and J.C. Lin, Eds., *Mobile Communications Safety*, Chapman & Hall, London, 1997.
- [2] K. Meier, M. Burkhardt, T. Schmid, and N. Kuster, "Broadband calibration of E-field probes in lossy media", *IEEE Transactions on Microwave Theory and Techniques*, vol. 44, no. 10, pp. 1954-1962, Oct. 1996.
- [3] K. Jokela, P. Hyysalo, and L. Puranen, "Calibration of specific absorption rate (SAR) probes in waveguide at 900 MHz", *IEEE Transactions on Instrumentation and Measurements*, vol. 47, no. 2, pp. 432-438, Apr. 1998.

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collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.

- The Electro-optical converter (EOC) performs the conversion between optical and electrical of the signals for the digital communication to the DAE and for the analog signal from the optical surface detection. The EOC is connected to the measurement server.
- The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
- A probe alignment unit which improves the (absolute) accuracy of the probe positioning.
- A computer operating Windows XP.
- DASY52 software.
- Remote control with teach pendant and additional circuitry for robot safety such as warning lamps, etc.
- The SAM twin phantom enabling testing left-hand and right-hand usage.
- The device holder for handheld mobile phones.
- Tissue simulating liquid mixed according to the given recipes.
- Validation dipole kits allowing to validate the proper functioning of the system.

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1.10 System Components

EX3DV4 E-Field Probe

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

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SAM PHANTOM V4.0C

Construction:	<p>The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528-200X, CENELEC 50361 and IEC 62209.</p> <p>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.</p>	
Shell Thickness:	2 ± 0.2 mm	
Filling Volume:	Approx. 25 liters	
Dimensions:	Height: 810 mm; Length: 1000 mm; Width: 500 mm	

DEVICE HOLDER

Construction	<p>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).</p>	 <p style="text-align: center;">Device Holder</p>
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1.11 SAR System Verification

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

These tests were done at 835/1900/2450 MHz. The tests were conducted on the same days as the measurement of the DUT. The obtained results from the system accuracy verification are displayed in the table 1. During the tests, the ambient temperature of the laboratory was 21.7°C, the relative humidity was 62% and the liquid depth above the ear reference points was above 15 cm in all the cases. It is seen that the system is operating within its specification, as the results are within acceptable tolerance of the reference values.

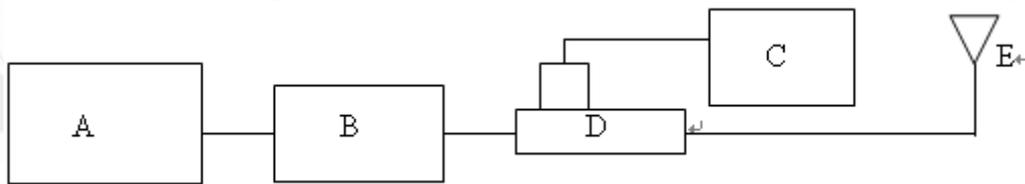
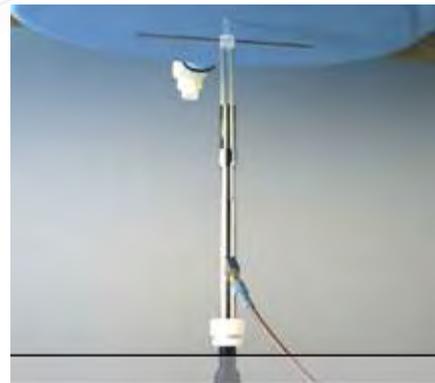


Fig.b The block diagram of system verification

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



Photograph of the dipole Antenna

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Validation Kit	S/N	Frequency (MHz)		Target SAR (1g) (Pin=250mW) (mW/g)	Measured SAR (1g)(mW/g)	Measured Date
D835V2	4d120	835	Head	2.3	2.41	May 07, 2012
			Body	2.43	2.43	May 07, 2012
D1900V2	5d027	1900	Head	9.43	9.25	May 12, 2012
			Body	10	10.1	May 12, 2012
D2450V2	727	2450	Head	12.8	13.4	May 07, 2012
			Body	12.7	12.3	May 12, 2012
D835V2	4d120	835	Body	2.43	2.51	Jun. 07, 2012
D1900V2	5d027	1900	Body	10	10.2	Jun. 07, 2012
D835V2	4d063	835	Body	2.46	2.57	Jun. 22, 2012
D1900V2	5d027	1900	Body	10	9.91	Jun. 22, 2012

Table 1. System validation (follow manufacture target value)

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1.12 Tissue Simulant Fluid for the Frequency Band

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

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

Frequency (MHz)	Tissue type	Dielectric Parameters		Recommended Limits	Measured	Measurement date		
850	Head	Verification	ρ	38.95-43.05	41.026	May 07, 2012		
			σ (S/m)	0.84-0.92	0.877			
		Test CH (L)_GSM	ρ	38.95-43.05	41.166			
			σ (S/m)	0.84-0.92	0.867			
		Test CH (M)_GSM	ρ	38.95-43.05	41.004			
			σ (S/m)	0.84-0.92	0.879			
		Test CH (H)_GSM	ρ	38.95-43.05	40.862			
			σ (S/m)	0.84-0.92	0.889			
		Test CH (L)_WCDMA	ρ	38.95-43.05	41.138			
			σ (S/m)	0.84-0.92	0.869			
		Test CH (M)_ WCDMA	ρ	38.95-43.05	41.004			
			σ (S/m)	0.84-0.92	0.879			
		Test CH (H)_ WCDMA	ρ	38.95-43.05	40.884			
			σ (S/m)	0.84-0.92	0.888			
		Simulated Tissue Temp.(°C)					20-24	21.7

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Frequency (MHz)	Tissue type	Dielectric Parameters		Recommended Limits	Measured	Measurement date
850	Body	Verification	ρ	51.11-56.49	52.142	May 07, 2012
			σ (S/m)	0.93-1.03	1.008	
		Test CH (L)_GSM	ρ	51.11-56.49	52.251	
			σ (S/m)	0.93-1.03	0.997	
		Test CH (M)_GSM	ρ	51.11-56.49	52.119	
			σ (S/m)	0.93-1.03	1.01	
		Test CH (H)_GSM	ρ	51.11-56.49	51.988	
			σ (S/m)	0.93-1.03	1.022	
		Test CH (L)_WCDMA	ρ	51.11-56.49	52.228	
			σ (S/m)	0.93-1.03	0.999	
		Test CH (M)_ WCDMA	ρ	51.11-56.49	52.119	
			σ (S/m)	0.93-1.03	1.01	
		Test CH (H)_ WCDMA	ρ	51.11-56.49	52.013	
			σ (S/m)	0.93-1.03	1.02	
Simulated Tissue Temp.(°C)		20-24	21.7			
1900	Head	Verification	ρ	38.76-42.84	37.219	May 12, 2012
			σ (S/m)	1.3-1.44	1.4	
		Test CH (L)_GSM	ρ	38.76-42.84	39.404	
			σ (S/m)	1.3-1.44	1.354	
		Test CH (M)_GSM	ρ	38.76-42.84	39.298	
			σ (S/m)	1.3-1.44	1.381	
		Test CH (H)_GSM	ρ	38.76-42.84	39.17	
			σ (S/m)	1.3-1.44	1.41	
		Test CH (L)_WCDMA	ρ	38.76-42.84	39.398	
			σ (S/m)	1.3-1.44	1.356	
		Test CH (M)_ WCDMA	ρ	38.76-42.84	39.298	
			σ (S/m)	1.3-1.44	1.381	
		Test CH (H)_ WCDMA	ρ	38.76-42.84	39.179	
			σ (S/m)	1.3-1.44	1.407	
Simulated Tissue Temp.(°C)		20-24	21.7			

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Frequency (MHz)	Tissue type	Dielectric Parameters		Recommended Limits	Measured	Measurement date
1900	Body	Verification	ρ	50.64-55.97	51.361	May 12, 2012
			σ (S/m)	1.43-1.59	1.522	
		Test CH (H)_WCDMA	ρ	50.64-55.97	52.171	
			σ (S/m)	1.43-1.59	1.511	
		Test CH (H)_WCDMA	ρ	50.64-55.97	51.813	
			σ (S/m)	1.43-1.59	1.509	
		Test CH (H)_WCDMA	ρ	50.64-55.97	51.234	
			σ (S/m)	1.43-1.59	1.534	
Simulated Tissue Temp.(°C)		20-24	21.7			
2450	Head	Verification	ρ	37.62-41.58	37.641	May 07, 2012
			σ (S/m)	1.72-1.9	1.809	
		Test CH (L)_WLAN	ρ	37.62-41.58	37.653	
			σ (S/m)	1.72-1.9	1.767	
		Test CH (M)_WLAN	ρ	37.62-41.58	37.652	
			σ (S/m)	1.72-1.9	1.797	
		Test CH (H)_WLAN	ρ	37.62-41.58	37.608	
			σ (S/m)	1.72-1.9	1.82	
Simulated Tissue Temp.(°C)		20-24	21.7			

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Frequency (MHz)	Tissue type	Dielectric Parameters		Recommended Limits	Measured	Measurement date
2450	Body	Verification	ρ	49.78-55.02	48.926	May 12, 2012
			σ (S/m)	1.88-2.08	1.867	
		Test CH (L)_WLAN	ρ	49.78-55.02	48.977	
			σ (S/m)	1.88-2.08	1.815	
		Test CH (M)_WLAN	ρ	49.78-55.02	48.949	
			σ (S/m)	1.88-2.08	1.851	
		Test CH (H)_WLAN	ρ	49.78-55.02	48.897	
			σ (S/m)	1.88-2.08	1.88	
Simulated Tissue Temp.(°C)		20-24	21.7			
850	Body	Verification	ρ	51.11-56.49	54.687	Jun. 07, 2012
			σ (S/m)	0.93-1.03	1.018	
		Test CH (L)_GSM	ρ	51.11-56.49	54.799	
			σ (S/m)	0.93-1.03	1.011	
		Test CH (M)_GSM	ρ	51.11-56.49	54.653	
			σ (S/m)	0.93-1.03	1.02	
		Test CH (H)_GSM	ρ	51.11-56.49	54.372	
			σ (S/m)	0.93-1.03	1.025	
		Test CH (L)_WCDMA	ρ	51.11-56.49	54.782	
			σ (S/m)	0.93-1.03	1.012	
		Test CH (M)_ WCDMA	ρ	51.11-56.49	54.653	
			σ (S/m)	0.93-1.03	1.02	
		Test CH (H)_ WCDMA	ρ	51.11-56.49	54.423	
			σ (S/m)	0.93-1.03	1.024	
Simulated Tissue Temp.(°C)		20-24	21.7			

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Frequency (MHz)	Tissue type	Dielectric Parameters		Recommended Limits	Measured	Measurement date
1900	Body	Verification	ρ	50.64-55.97	51.001	Jun. 07, 2012
			σ (S/m)	1.43-1.59	1.538	
		Test CH (L)_GSM	ρ	50.64-55.97	51.138	
			σ (S/m)	1.43-1.59	1.448	
		Test CH (M)_GSM	ρ	50.64-55.97	50.756	
			σ (S/m)	1.43-1.59	1.492	
		Test CH (H)_GSM	ρ	50.64-55.97	51.174	
			σ (S/m)	1.43-1.59	1.556	
		Test CH (L)_WCDMA	ρ	50.64-55.97	51.084	
			σ (S/m)	1.43-1.59	1.449	
Test CH (M)_WCDMA	ρ	50.64-55.97	50.756			
	σ (S/m)	1.43-1.59	1.492			
Test CH (H)_WCDMA	ρ	50.64-55.97	51.141			
	σ (S/m)	1.43-1.59	1.553			
Simulated Tissue Temp.(°C)				20-24	21.7	
850	Body	Verification	ρ	51.59-57.02	54.475	Jun. 22, 2012
			σ (S/m)	0.95-1.05	1.038	
		Test CH (L)_GSM	ρ	51.59-57.02	54.576	
			σ (S/m)	0.95-1.05	1.03	
Simulated Tissue Temp.(°C)				20-24	21.7	
1900	Body	Verification	ρ	50.64-55.97	52.475	Jun. 22, 2012
			σ (S/m)	1.43-1.59	1.491	
		Test CH (L)_GSM	ρ	50.64-55.97	52.793	
			σ (S/m)	1.43-1.59	1.458	
		Test CH (M)_GSM	ρ	50.64-55.97	52.588	
			σ (S/m)	1.43-1.59	1.47	
		Test CH (H)_GSM	ρ	50.64-55.97	52.442	
			σ (S/m)	1.43-1.59	1.504	
Simulated Tissue Temp.(°C)				20-24	21.7	

Table 2. Dielectric Parameters of Tissue Simulant Fluid

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The composition of the brain tissue simulating liquid:

Frequency (MHz)	Mode	Ingredient						Total amount
		DGMBE	Water	Salt	Preventol D-7	Cellulose	Sugar	
850	Head	—	532.98	18.3	2.4	3.2	766	1.0L(Kg)
	Body	—	631.68	11.72	1.2	—	600	1.0L(Kg)
1900	Head	444.52	552.42	3.06	—	—	—	1.0L(Kg)
	Body	300.67	716.56	4	—	—	—	1.0L(Kg)
2450	Head	550	450	—	—	—	—	1.0L(Kg)
	Body	301.7	698.3	—	—	—	—	1.0L(Kg)

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

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1.13 Test Standards and Limits

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

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

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

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

Occupational/Controlled limits apply when persons are exposed as a consequence of their employment provided these persons are fully aware of and exercise control over their exposure. Awareness of exposure can be accomplished by use of warning labels

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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.

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2. Summary of Results

GSM 850 MHz

Band	Mode	EUT Position	Test Configuration	Averaged SAR over 1g (W/kg)			SAR Limit 1g (W/kg)
				CH 128	CH 190	CH 251	
				824.2 MHz	836.6 MHz	848.8 MHz	
				Source-based time average power (dBm) GSM			
				25.27	25.37	25.37	
				Source-based time average power (dBm) GPRS			
				25.49	25.49	25.49	
GSM850	GSM	Right	Cheek	1.07	1.04	1.14	1.6
			Tilt	—	0.685	—	1.6
		Left	Cheek	0.92	1.05	0.935	1.6
			Tilt	—	0.597	—	1.6
		Body worn (speech mode)	Front -with headset	—	0.385	—	1.6
			Back -with headset	0.846	0.811	0.886	1.6
	GPRS 1Dn4UP	Hotspot mode	Front	0.985	1	0.922	1.6
			Back	1.23	1.22	1.12	1.6
			- with Memory card	1.36	—	—	1.6
			- with Headset	1.29	—	—	1.6
			- with 2nd Battery	1.33	—	—	1.6
			Bottom	—	0.16	—	1.6
			Right	—	0.687	—	1.6
			Left	—	0.694	—	1.6

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

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GSM 1900 MHz

Band	Mode	EUT Position	Test Configuration	Averaged SAR over 1g (W/kg)			SAR Limit 1g (W/kg)
				CH 512	CH 661	CH 810	
				1850.2 MHz	1880 MHz	1909.8 MHz	
				Source-based time average power (dBm) GSM			
				22.47	22.67	21.67	
				Source-based time average power (dBm) GPRS			
				23.79	23.39	22.79	
GSM 1900	GSM	Right	Cheek	0.838	0.845	0.683	1.6
			Tilt	—	0.306	—	1.6
		Left	Cheek	0.936	1.01	0.911	1.6
			Tilt	—	0.294	—	1.6
		Body worn (speech mode)	Front -with headset	0.437	0.554	0.473	1.6
			Back -with headset	—	0.533	—	1.6
	GPRS 1Dn4UP	Hotspot mode	Front	0.858	0.887	0.905	1.6
			Back	0.875	0.909	0.92	1.6
			Bottom	—	0.676	—	1.6
			Right	—	0.196	—	1.6
Left			—	0.183	—	1.6	

Using KDB941225 D03 and KDB941225 D04 to exclude SAR test requirements for EDGE modes due to the source-based time-averaged output power for edge mode is lower than that in the GPRS mode.

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

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WCDMA Band II

Band	Mode	EUT Position	Test Configuration	Averaged SAR over 1g (W/kg)			SAR Limit 1g (W/kg)
				CH 9262	CH 9400	CH 9538	
				1852.4 MHz	1880 MHz	1907.6 MHz	
				R99 Average power (dBm)			
				22.2	21.83	22.11	
WCDMA Band II	R99	Right	Cheek	0.864	0.832	0.868	1.6
			Tilt	—	0.31	—	1.6
		Left	Cheek	1.14	1.13	1.21	1.6
			- with Memory card	—	—	1.17	1.6
			- with 2 nd Battery	—	—	1.25	1.6
			Tilt	—	0.323	—	1.6
			Body worn (speech mode)	Front -with headset	—	0.483	—
		Back -with headset		0.55	0.553	0.617	1.6
		Hotspot mode	Front	0.979	0.939	0.991	1.6
			Back	0.897	0.889	0.968	1.6
	Bottom		—	0.619	—	1.6	
	Right		—	0.237	—	1.6	
	Left		—	0.23	—	1.6	

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

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WCDMA Band V

Band	Mode	EUT Position	Test Configuration	Averaged SAR over 1g (W/kg)			SAR Limit 1g (W/kg)	
				CH 4132	CH 4183	CH 4233		
				826.4 MHz	836.6 MHz	846.6 MHz		
				R99 Average power (dBm)				
				24.27	24.29	24.26		
WCDMA Band V	R99	Right	Cheek	0.624	0.633	0.979	1.6	
			Tilt	—	0.377	—	1.6	
		Left	Cheek	—	0.619	—	1.6	
			Tilt	—	0.395	—	1.6	
		Body worn (speech mode)	Front -with headset	—	0.596	—	1.6	
			Back -with headset	0.88	0.912	0.852	1.6	
	Hotspot mode	Body worn	Front	0.913	0.916	0.943	1.6	
			Back	1.19	1.16	1.22	1.6	
			Bottom	—	0.141	—	1.6	
			Right	—	0.729	—	1.6	
Left			—	0.717	—	1.6		

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

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

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WLAN802.11 b

Band	EUT Position	Test Configuration	Averaged SAR over 1g (W/kg)			SAR Limit 1g (W/kg)	
			CH 1	CH 6	CH 11		
			2412 MHz	2437 MHz	2462 MHz		
			Average Power Output (dBm)				
			14.29	14.31	15.25		
WLAN 802.11 b	Right	Cheek	—	0.252	—	1.6	
		Tilt	—	0.251	—	1.6	
	Left	Cheek	0.389	0.415	0.392	1.6	
		- with Memory card	—	0.419	—	1.6	
		- with 2 nd Battery	—	0.402	—	1.6	
		Tilt	—	0.349	—	1.6	
	Hotspot mode	Front	—	0.07	—	1.6	
		Back	—	0.071	—	1.6	
		Top	—	0.058	—	1.6	
		Right	0.07	0.073	0.07	1.6	
		- with Memory card	—	0.064	—	1.6	
		- with headset	—	0.112	—	1.6	
			- with 2 nd Battery	—	0.072	—	1.6

Using KDB248227-SAR is not required for 802.11 g/HT20 channels when the maximum average output power is less than 0.25dB higher than that measured on the corresponding 802.11b channels.

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

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3. Instruments List

Device	Manufacturer	Type	Serial number	Date of last calibration	Date of next calibration
Dosimetric E-Field Probe	Schmid & Partner Engineering AG	EX3DV4	3770	Apr.27.2012	Apr.26.2013
835/1900/2450 MHz System Validation Dipole	Schmid & Partner Engineering AG	D835V2	4d120 4d063	Jul.19.2011 May.25.2012	Jul.18.2012 May.24.2013
		D1900V2	5d027	Apr.26.2012	Apr.25.2013
		D2450V2	727	Apr.25.2012	Apr.24.2013
Data acquisition Electronics	Schmid & Partner Engineering AG	DAE4	905	Jun.24.2011	Jun.23.2012
			856	May.30.2012	May.29.2013
Software	Schmid & Partner Engineering AG	DASY 52 V52.8	N/A	Calibration not required	Calibration not required
Phantom	Schmid & Partner Engineering AG	SAM	N/A	Calibration not required	Calibration not required
Network Analyzer	HP	8753D	3410A05547	Mar.15.2012	Mar.14.2013
Dielectric Probe Kit	HP	85070E	MY44300554	Calibration not required	Calibration not required
Dual-directional coupler	Agilent	772D	MY46151242	Jul.07.2011	Jul.06.2012
		778D	MY48220468	Mar.30.2012	Mar.29.2013
RF Signal Generator	Agilent	N5181A	MY50141235	Jan.06.2012	Jan.05.2013
Power meter	Agilent	E4417A	MY51410006	Oct.24.2011	Oct.23.2013
Radio Communication Test	Agilent	E5515C	GB44051912	Jul.26.2010	Jul.25.2012
TECPEL	Digital thermometer	DTM-303A	TP102616	Mar.08.2012	Mar.07.2013

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Device	Manufacturer	Type	Serial number	Date of last calibration	Date of next calibration
Spectrum Analyzer	Agilent	E4446A	MY51100003	Apr.15.2011	Apr.14.2013
Spectrum Analyzer	Agilent	E4440A	MY45304525	Mar.17.2012	Mar.16.2014
Power Sensor	Anritsu	ML2495A	1005007	Feb.08.2012	Feb.07.2014
Power Meter	Anritsu	MA2411B	917032	Feb.08.2012	Feb.07.2014

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4. Measurements

Date: 5/7/2012

RE Cheek_CH128

Communication System: GSM; Frequency: 824.2 MHz

Medium parameters used: $f = 824.2$ MHz; $\sigma = 0.867$ mho/m; $\epsilon_r = 41.166$; $\rho = 1000$ kg/m³

Phantom section: Right Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.62, 9.62, 9.62); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/RE Cheek/Area Scan (61x101x1): Measurement grid:

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

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

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

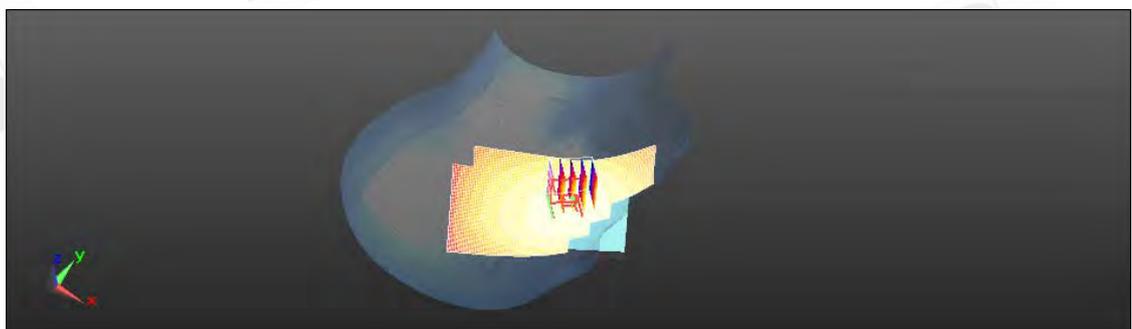
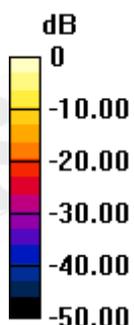
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 13.956 V/m; Power Drift = -0.12 dB

Peak SAR (extrapolated) = 1.346 mW/g

SAR(1 g) = 1.07 mW/g; SAR(10 g) = 0.784 mW/g

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



0 dB = 1.26 mW/g = 1.98 dB mW/g

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Date: 5/7/2012

RE Cheek_CH190

Communication System: GSM; Frequency: 836.6 MHz

Medium parameters used: $f = 837$ MHz; $\sigma = 0.879$ mho/m; $\epsilon_r = 41.004$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.62, 9.62, 9.62); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/RE Cheek/Area Scan (61x101x1): Measurement grid:

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

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

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

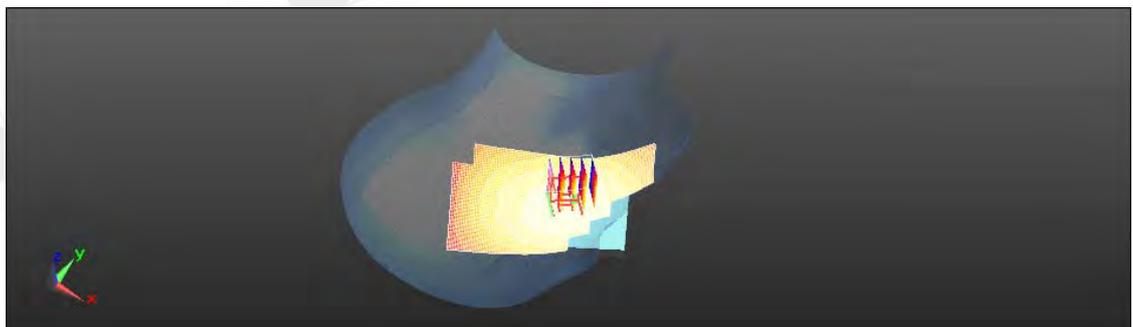
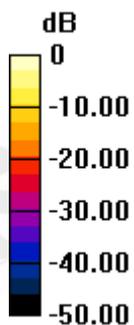
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 14.178 V/m; Power Drift = 0.14 dB

Peak SAR (extrapolated) = 1.311 mW/g

SAR(1 g) = 1.04 mW/g; SAR(10 g) = 0.756 mW/g

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



0 dB = 1.21 mW/g = 1.62 dB mW/g

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RE Cheek_CH251

Communication System: GSM; Frequency: 848.8 MHz

Medium parameters used: $f = 849$ MHz; $\sigma = 0.889$ mho/m; $\epsilon_r = 40.862$; $\rho = 1000$ kg/m³

Phantom section: Right Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.62, 9.62, 9.62); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/RE Cheek/Area Scan (61x101x1): Measurement grid:

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

Maximum value of SAR (interpolated) = 1.36 mW/g

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

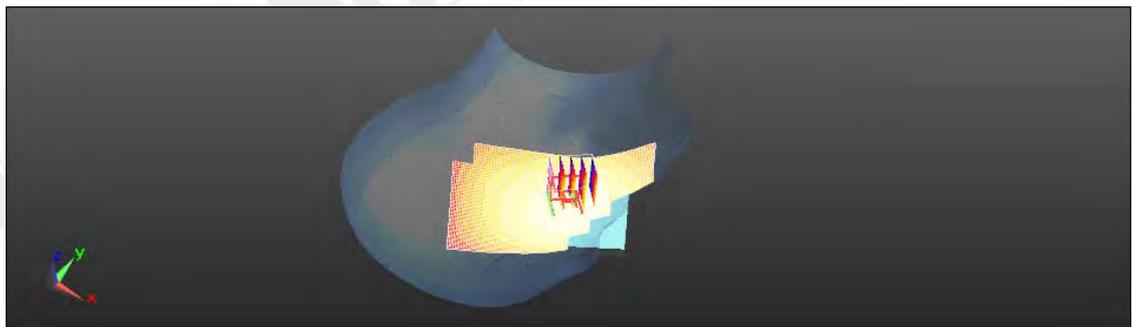
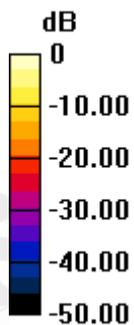
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 13.649 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.451 mW/g

SAR(1 g) = 1.14 mW/g; SAR(10 g) = 0.829 mW/g

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



0 dB = 1.36 mW/g = 2.70 dB mW/g

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RE Tilt_CH190

Communication System: GSM; Frequency: 836.6 MHz

Medium parameters used: $f = 837$ MHz; $\sigma = 0.879$ mho/m; $\epsilon_r = 41.004$; $\rho = 1000$ kg/m³

Phantom section: Right Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.62, 9.62, 9.62); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

Maximum value of SAR (interpolated) = 0.777 mW/g

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

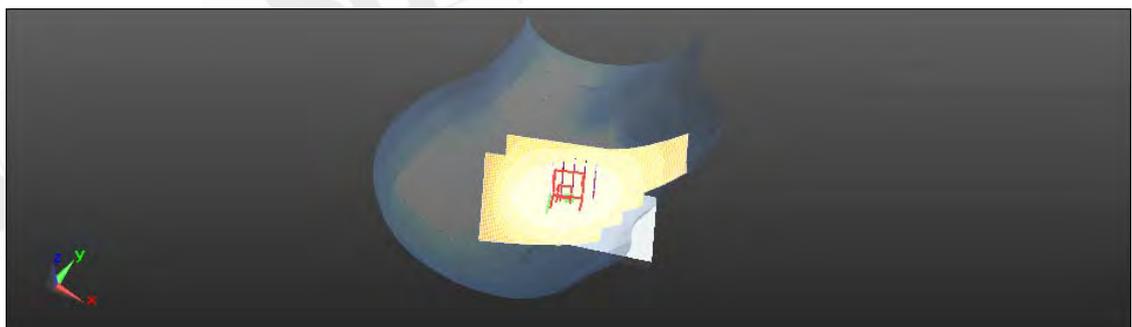
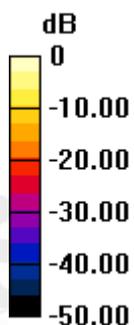
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 21.948 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.891 mW/g

SAR(1 g) = 0.685 mW/g; SAR(10 g) = 0.508 mW/g

Maximum value of SAR (measured) = 0.795 mW/g



0 dB = 0.777 mW/g = -2.20 dB mW/g

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LE Cheek_CH128

Communication System: GSM; Frequency: 824.2 MHz

Medium parameters used: $f = 824.2$ MHz; $\sigma = 0.867$ mho/m; $\epsilon_r = 41.166$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.62, 9.62, 9.62); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/LE Cheek/Area Scan (61x101x1): Measurement grid:

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

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

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

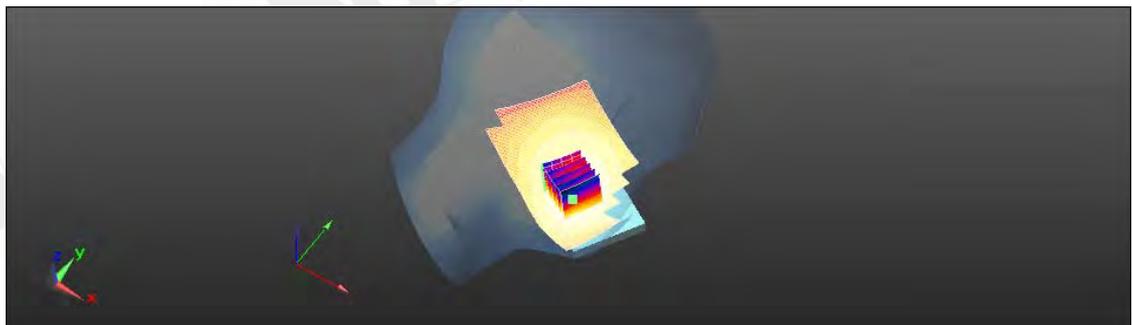
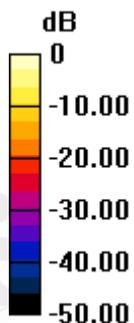
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 13.771 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 1.307 mW/g

SAR(1 g) = 0.920 mW/g; SAR(10 g) = 0.655 mW/g

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



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

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LE Cheek_CH190

Communication System: GSM; Frequency: 836.6 MHz

Medium parameters used: $f = 837$ MHz; $\sigma = 0.879$ mho/m; $\epsilon_r = 41.004$; $\rho = 1000$ kg/m³

Phantom section: Left Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.62, 9.62, 9.62); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/LE Cheek/Area Scan (61x101x1): Measurement grid:

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

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

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

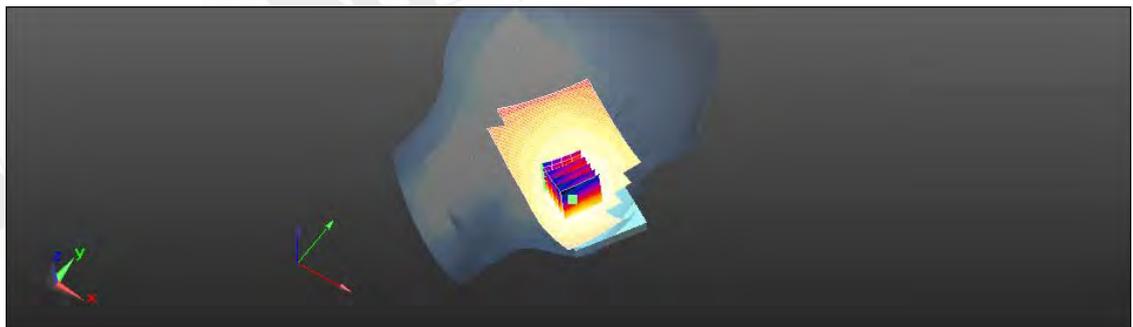
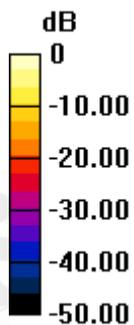
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 14.793 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 1.449 mW/g

SAR(1 g) = 1.05 mW/g; SAR(10 g) = 0.742 mW/g

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



0 dB = 1.32 mW/g = 2.42 dB mW/g

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LE Cheek_CH251

Communication System: GSM; Frequency: 848.8 MHz

Medium parameters used: $f = 849$ MHz; $\sigma = 0.889$ mho/m; $\epsilon_r = 40.862$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.62, 9.62, 9.62); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/LE Cheek/Area Scan (61x101x1): Measurement grid:

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

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

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

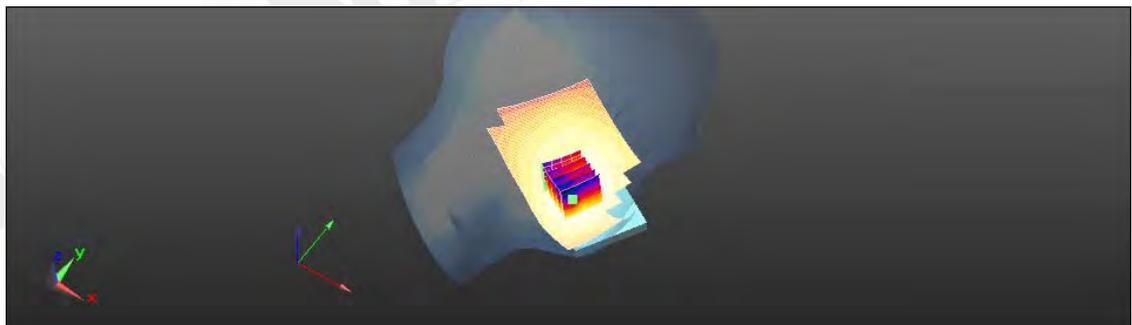
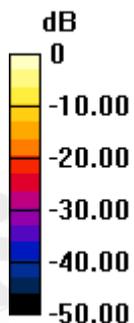
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 13.878 V/m; Power Drift = -0.19 dB

Peak SAR (extrapolated) = 1.316 mW/g

SAR(1 g) = 0.935 mW/g; SAR(10 g) = 0.657 mW/g

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



0 dB = 1.20 mW/g = 1.56 dB mW/g

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LE Tilt_CH190

Communication System: GSM; Frequency: 836.6 MHz

Medium parameters used: $f = 837$ MHz; $\sigma = 0.879$ mho/m; $\epsilon_r = 41.004$; $\rho = 1000$ kg/m³

Phantom section: Left Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.62, 9.62, 9.62); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

Maximum value of SAR (interpolated) = 0.718 mW/g

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

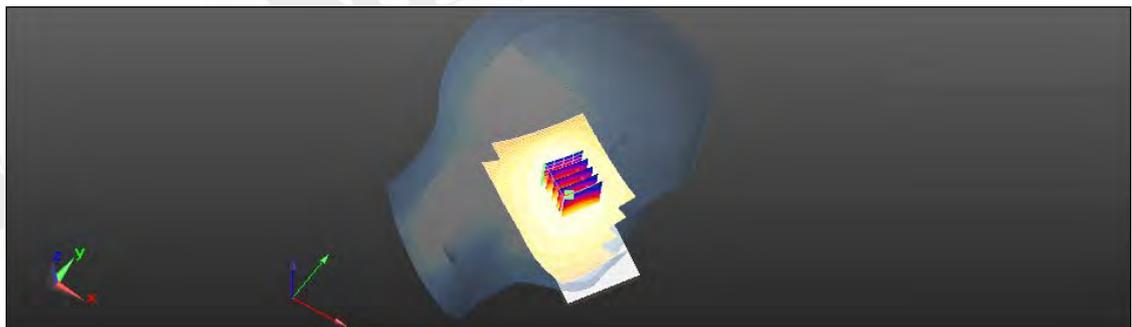
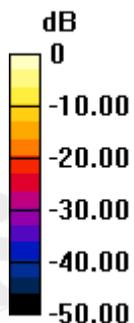
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 21.132 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.781 mW/g

SAR(1 g) = 0.597 mW/g; SAR(10 g) = 0.441 mW/g

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



0 dB = 0.718 mW/g = -2.88 dB mW/g

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Body_Speech mode_Front side_CH190_repeated with headset

Communication System: GSM; Frequency: 836.6 MHz

Medium parameters used: $f = 837$ MHz; $\sigma = 1.02$ mho/m; $\epsilon_r = 54.653$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

Maximum value of SAR (interpolated) = 0.467 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0:

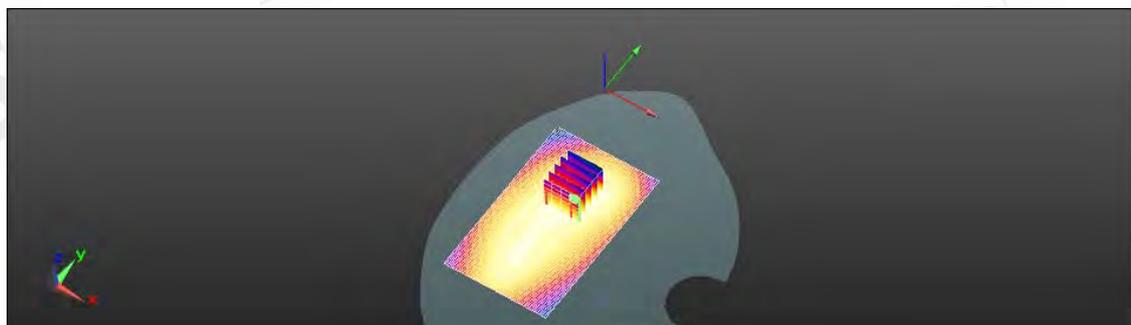
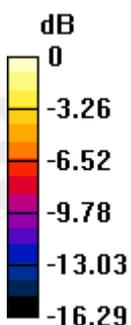
Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 13.661 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.516 mW/g

SAR(1 g) = 0.385 mW/g; SAR(10 g) = 0.278 mW/g

Maximum value of SAR (measured) = 0.459 mW/g



0 dB = 0.467 mW/g = -6.62 dB mW/g

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Date: 6/7/2012

Body_Speech mode_Back side_CH128_repeated with headset

Communication System: GSM; Frequency: 824.2 MHz

Medium parameters used (interpolated): $f = 824.2$ MHz; $\sigma = 1.011$ mho/m; $\epsilon_r = 54.799$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

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

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0:

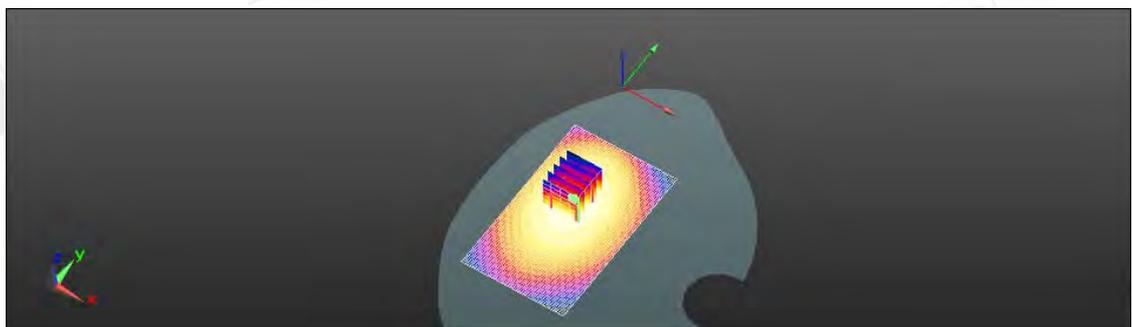
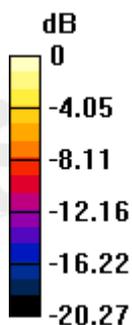
Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 18.766 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 1.112 mW/g

SAR(1 g) = 0.846 mW/g; SAR(10 g) = 0.617 mW/g

Maximum value of SAR (measured) = 0.990 mW/g



0 dB = 1.01 mW/g = 0.07 dB mW/g

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Date: 6/7/2012

Body_Speech mode_Back side_CH190_repeated with headset

Communication System: GSM; Frequency: 836.6 MHz

 Medium parameters used: $f = 837 \text{ MHz}$; $\sigma = 1.02 \text{ mho/m}$; $\epsilon_r = 54.653$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASYS5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

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

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0:

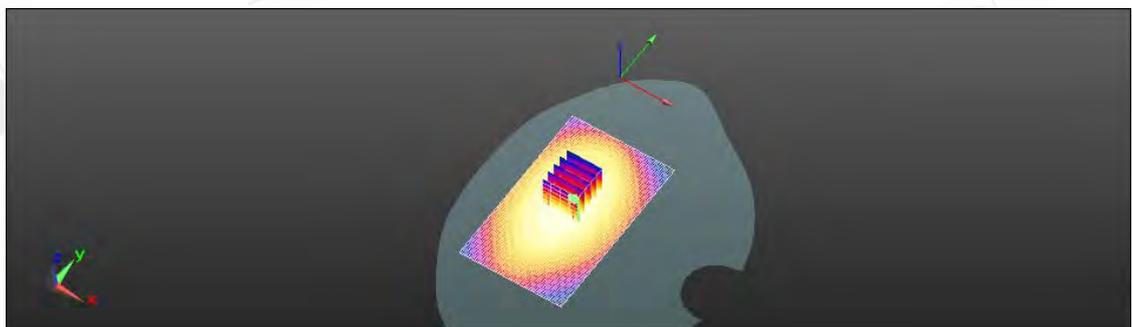
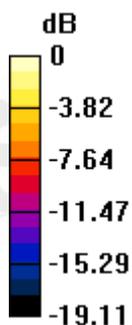
 Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 19.669 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 1.054 mW/g

SAR(1 g) = 0.811 mW/g; SAR(10 g) = 0.599 mW/g

Maximum value of SAR (measured) = 0.950 mW/g


 $0 \text{ dB} = 0.958 \text{ mW/g} = -0.37 \text{ dB mW/g}$

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Date: 6/7/2012

Body_Speech mode_Back side_CH251_repeated with headset

Communication System: GSM; Frequency: 848.8 MHz

Medium parameters used: $f = 849$ MHz; $\sigma = 1.025$ mho/m; $\epsilon_r = 54.372$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

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

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0:

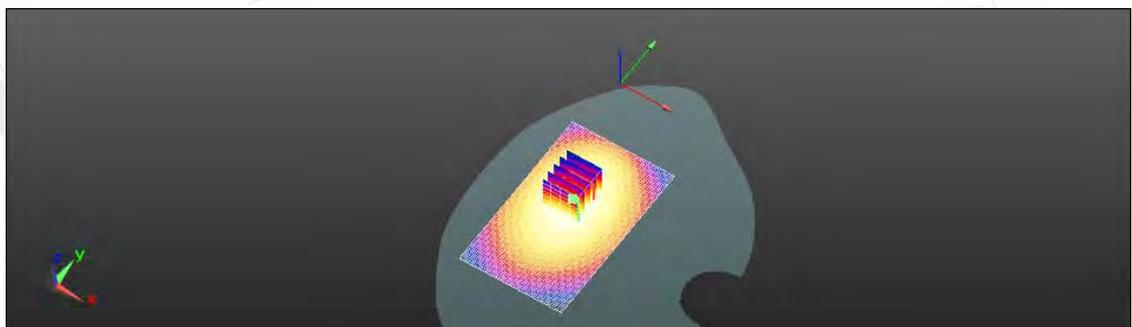
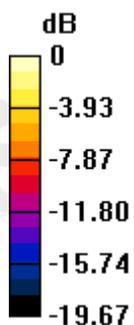
Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 20.454 V/m; Power Drift = -0.11 dB

Peak SAR (extrapolated) = 1.169 mW/g

SAR(1 g) = 0.886 mW/g; SAR(10 g) = 0.646 mW/g

Maximum value of SAR (measured) = 1.04 mW/g



0 dB = 1.05 mW/g = 0.40 dB mW/g

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Hotspot_Front side_CH128

Communication System: GPRS(Class 12); Frequency: 824.2 MHz

Medium parameters used: $f = 824.2$ MHz; $\sigma = 0.997$ mho/m; $\epsilon_r = 52.251$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

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

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

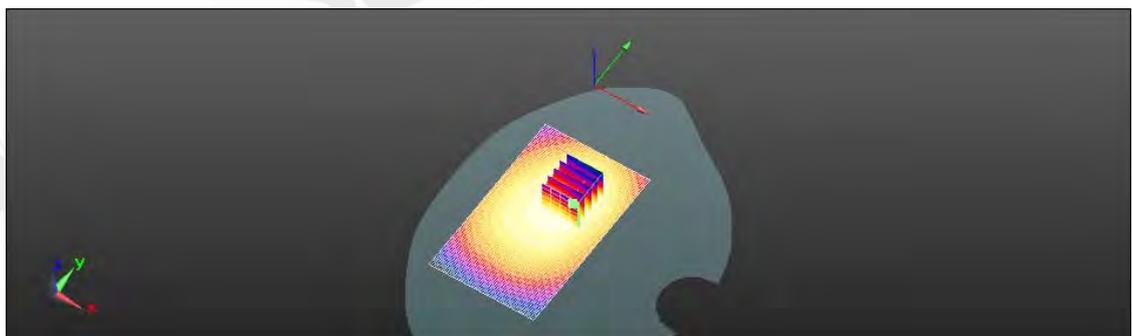
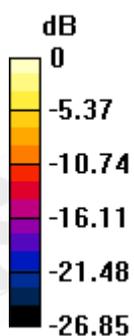
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 22.923 V/m; Power Drift = -0.17 dB

Peak SAR (extrapolated) = 1.417 mW/g

SAR(1 g) = 0.985 mW/g; SAR(10 g) = 0.676 mW/g

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



$$0 \text{ dB} = 1.27 \text{ mW/g} = 2.05 \text{ dB mW/g}$$

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Hotspot_Front side_CH190

Communication System: GPRS(Class 12); Frequency: 836.6 MHz

Medium parameters used: $f = 837$ MHz; $\sigma = 1.01$ mho/m; $\epsilon_r = 52.119$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

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

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

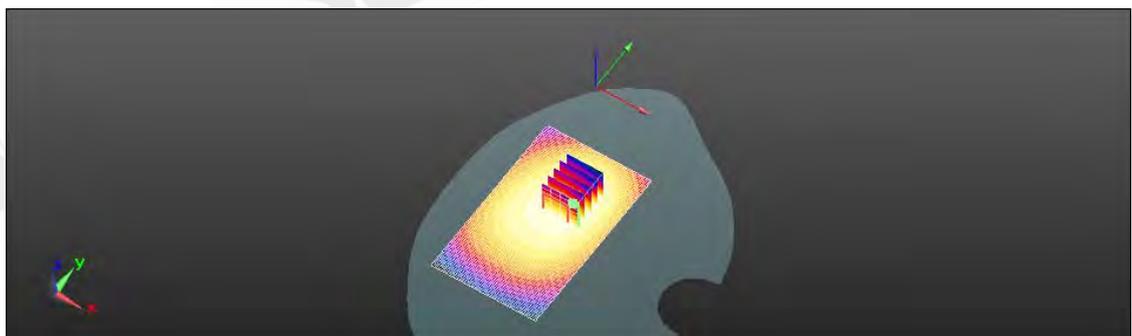
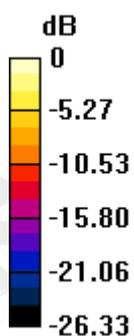
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 22.951 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 1.340 mW/g

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

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



$$0 \text{ dB} = 1.23 \text{ mW/g} = 1.83 \text{ dB mW/g}$$

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Hotspot_Front side_CH251

Communication System: GPRS(Class 12); Frequency: 848.8 MHz

Medium parameters used: $f = 849$ MHz; $\sigma = 1.022$ mho/m; $\epsilon_r = 51.988$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS2, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

Maximum value of SAR (interpolated) = 1.11 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

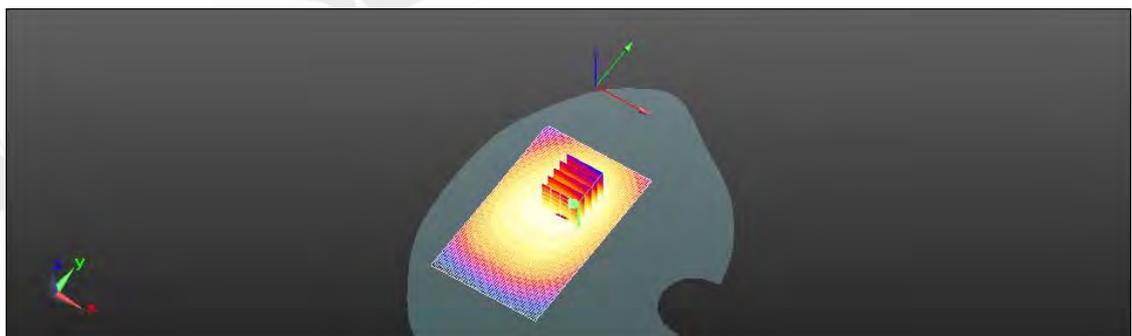
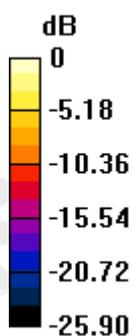
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 20.916 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 1.310 mW/g

SAR(1 g) = 0.922 mW/g; SAR(10 g) = 0.644 mW/g

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



0 dB = 1.11 mW/g = 0.94 dB mW/g

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Hotspot_Back side_CH128

Communication System: GPRS(Class 12); Frequency: 824.2 MHz

Medium parameters used: $f = 824.2$ MHz; $\sigma = 0.997$ mho/m; $\epsilon_r = 52.251$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

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

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

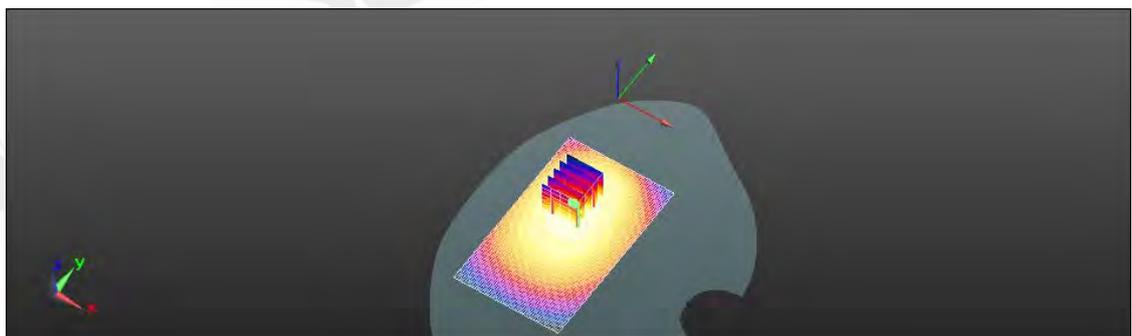
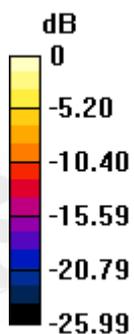
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 21.870 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.760 mW/g

SAR(1 g) = 1.23 mW/g; SAR(10 g) = 0.841 mW/g

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



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

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Hotspot_Back side_CH190

Communication System: GPRS(Class 12); Frequency: 836.6 MHz

Medium parameters used: $f = 837$ MHz; $\sigma = 1.01$ mho/m; $\epsilon_r = 52.119$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

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

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

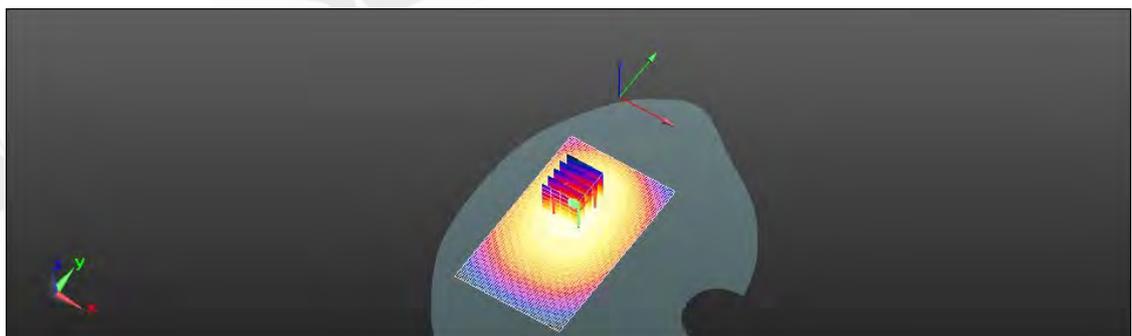
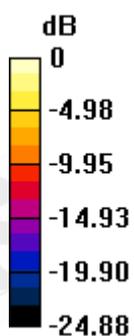
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 20.690 V/m; Power Drift = 0.18 dB

Peak SAR (extrapolated) = 1.683 mW/g

SAR(1 g) = 1.22 mW/g; SAR(10 g) = 0.863 mW/g

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



$$0 \text{ dB} = 1.42 \text{ mW/g} = 3.07 \text{ dB mW/g}$$

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Hotspot_Back side_CH251

Communication System: GPRS(Class 12); Frequency: 848.8 MHz

Medium parameters used: $f = 849$ MHz; $\sigma = 1.022$ mho/m; $\epsilon_r = 51.988$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

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

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

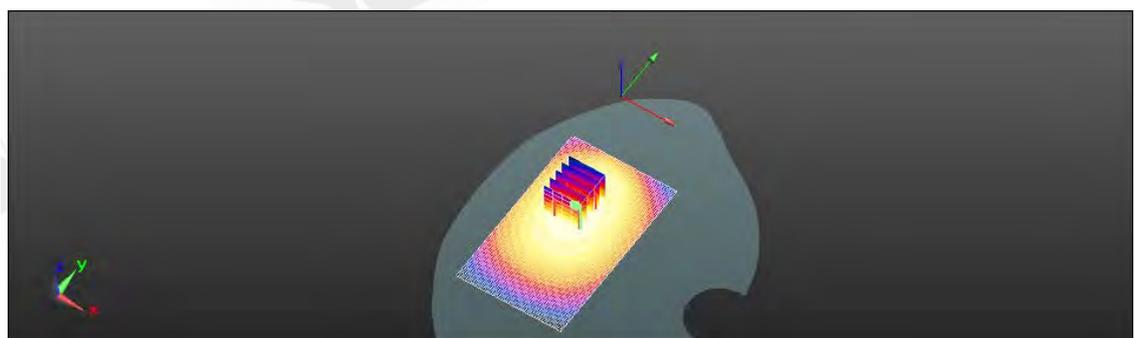
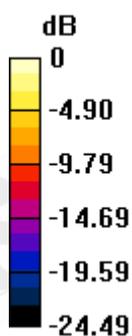
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 21.069 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 1.553 mW/g

SAR(1 g) = 1.12 mW/g; SAR(10 g) = 0.784 mW/g

Maximum value of SAR (measured) = 1.36 mW/g



$$0 \text{ dB} = 1.31 \text{ mW/g} = 2.32 \text{ dB mW/g}$$

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Hotspot_Back side_CH128_repeated with external Memory card inside

Communication System: GPRS(Class 12); Frequency: 824.2 MHz

Medium parameters used: $f = 824.2 \text{ MHz}$; $\sigma = 1.03 \text{ mho/m}$; $\epsilon_r = 54.576$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY5 Configuration:

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

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

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

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

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

Reference Value = 20.293 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 1.831 mW/g

SAR(1 g) = 1.36 mW/g; SAR(10 g) = 0.963 mW/g

Maximum value of SAR (measured) = 1.62 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 1:

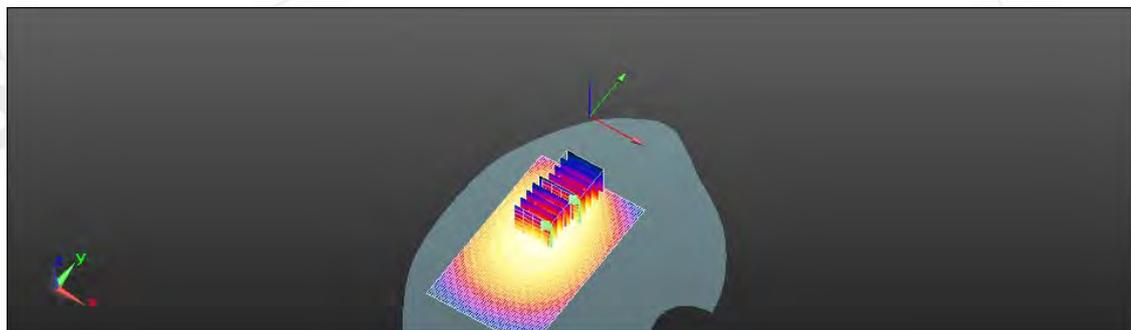
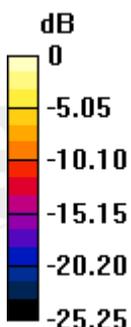
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 20.293 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 1.546 mW/g

SAR(1 g) = 0.943 mW/g; SAR(10 g) = 0.587 mW/g

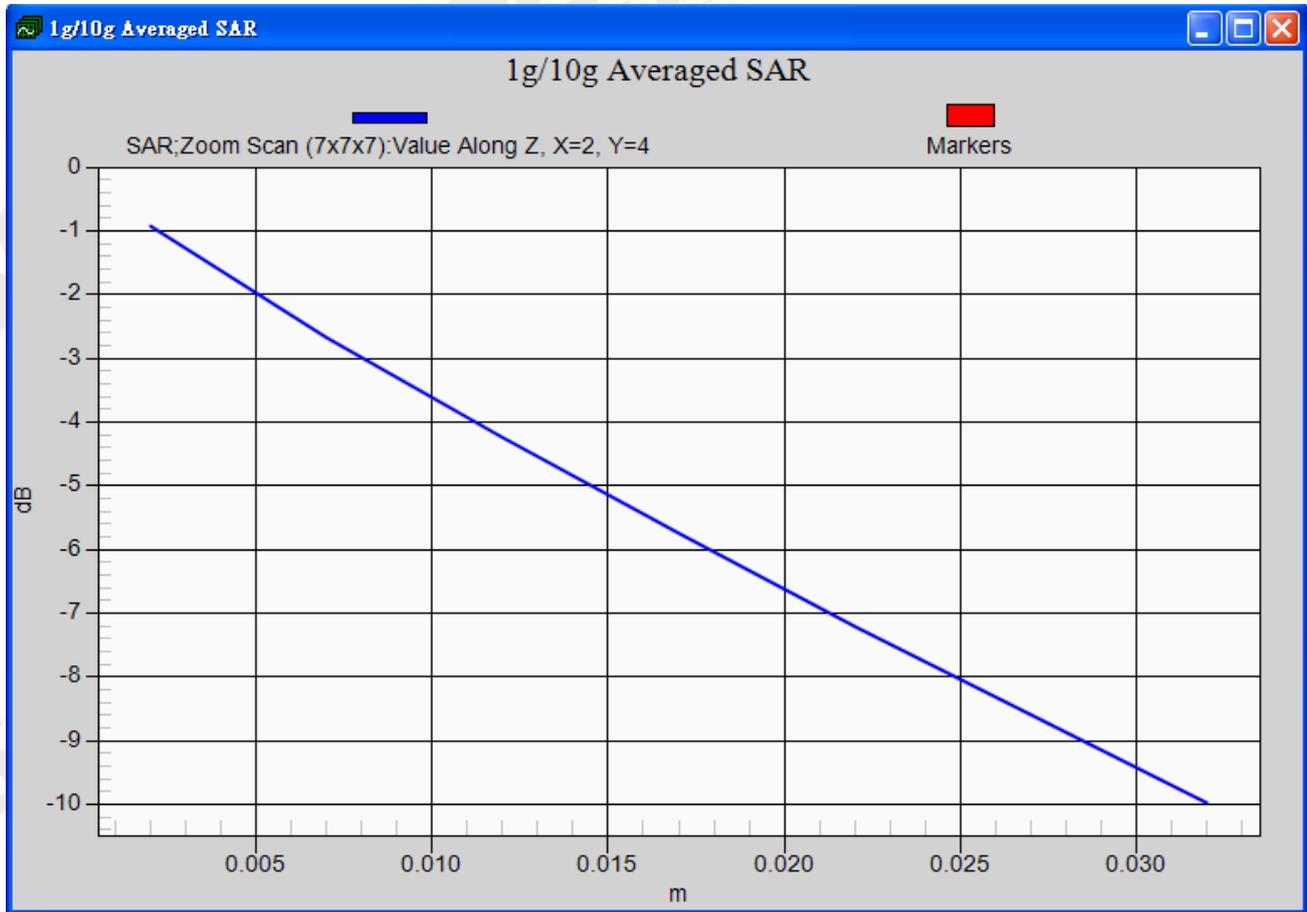
Maximum value of SAR (measured) = 1.30 mW/g



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

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Maxima
 Find secondary maxima dB,
 and with a peak SAR value greater than W/kg,
 and at least mm away from the global

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Hotspot_Back side_CH128_repeated with headset

Communication System: GPRS(Class 12); Frequency: 824.2 MHz

Medium parameters used: $f = 824.2$ MHz; $\sigma = 1.03$ mho/m; $\epsilon_r = 54.576$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

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

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

Maximum value of SAR (interpolated) = 1.64 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

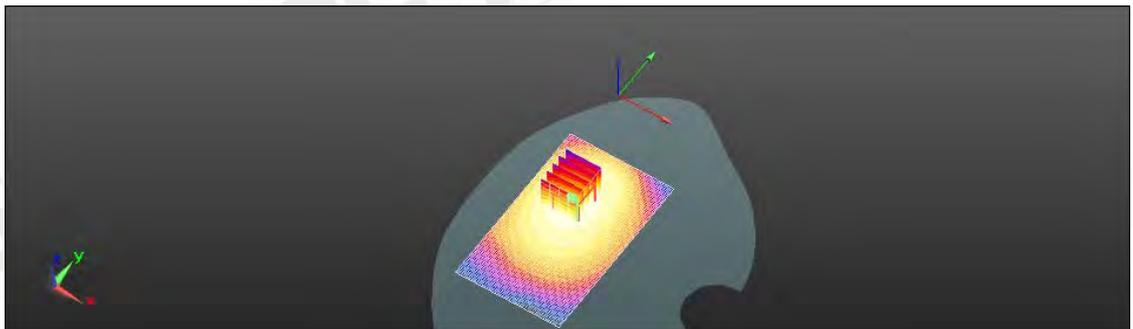
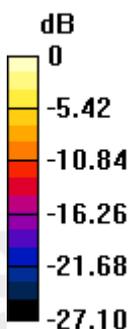
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 19.621 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 1.973 mW/g

SAR(1 g) = 1.29 mW/g; SAR(10 g) = 0.917 mW/g

Maximum value of SAR (measured) = 1.56 mW/g



0 dB = 1.64 mW/g = 4.32 dB mW/g

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Hotspot_Back side_CH128_repeated with 2nd Battery

Communication System: GPRS(Class 12); Frequency: 824.2 MHz

Medium parameters used: $f = 824.2$ MHz; $\sigma = 1.03$ mho/m; $\epsilon_r = 54.576$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

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

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

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

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

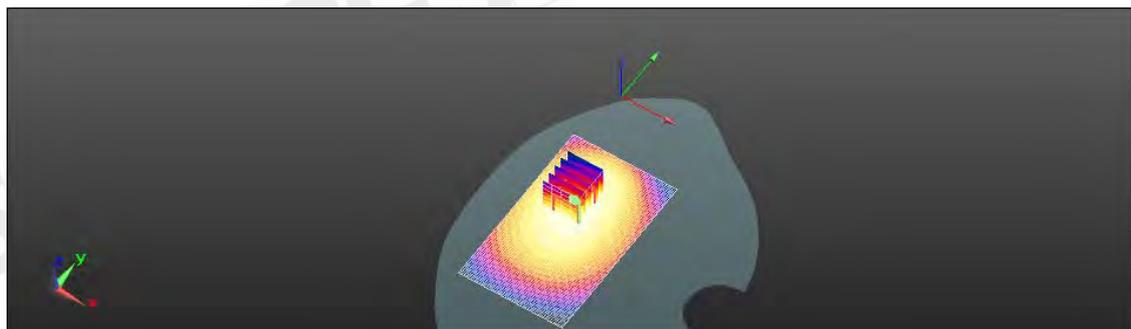
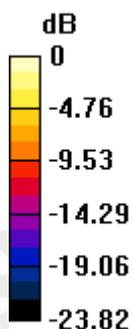
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 20.565 V/m; Power Drift = -0.11 dB

Peak SAR (extrapolated) = 1.811 mW/g

SAR(1 g) = 1.33 mW/g; SAR(10 g) = 0.952 mW/g

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



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

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Hotspot_Bottom side_CH190

Communication System: GPRS(Class 12); Frequency: 836.6 MHz

Medium parameters used: $f = 837$ MHz; $\sigma = 1.01$ mho/m; $\epsilon_r = 52.119$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS2, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

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

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

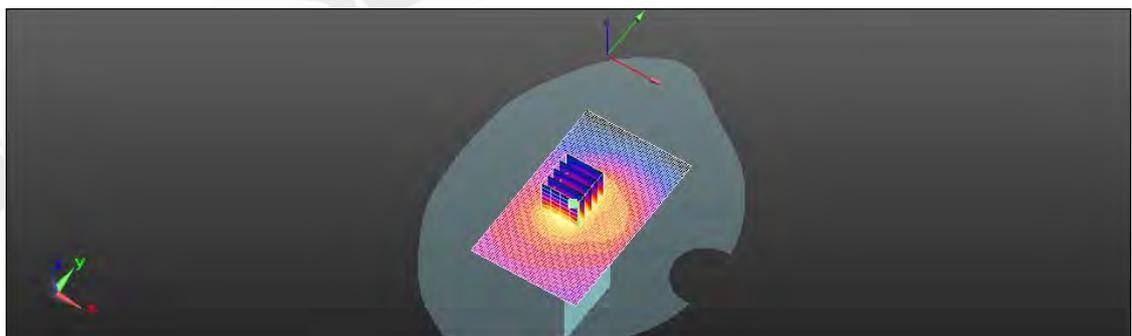
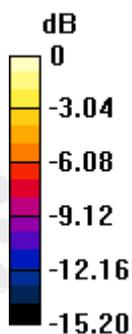
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.672 V/m; Power Drift = -0.16 dB

Peak SAR (extrapolated) = 0.301 mW/g

SAR(1 g) = 0.160 mW/g; SAR(10 g) = 0.086 mW/g

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



0 dB = 0.213 mW/g = -13.44 dB mW/g

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Hotspot_Right side_CH190

Communication System: GPRS(Class 12); Frequency: 836.6 MHz

Medium parameters used: $f = 837$ MHz; $\sigma = 1.01$ mho/m; $\epsilon_r = 52.119$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS2, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

Maximum value of SAR (interpolated) = 0.804 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

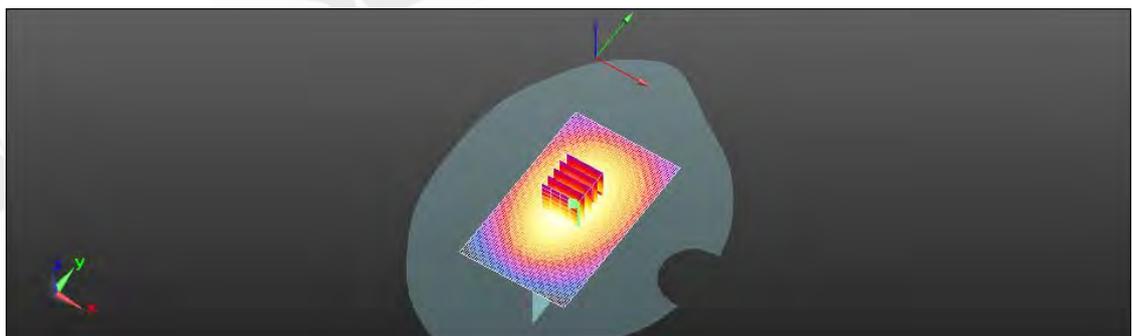
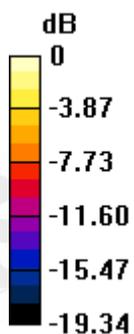
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 28.873 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 0.982 mW/g

SAR(1 g) = 0.687 mW/g; SAR(10 g) = 0.472 mW/g

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



0 dB = 0.804 mW/g = -1.89 dB mW/g

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Hotspot_Left side_CH190

Communication System: GPRS(Class 12); Frequency: 836.6 MHz

Medium parameters used: $f = 837$ MHz; $\sigma = 1.01$ mho/m; $\epsilon_r = 52.119$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

Maximum value of SAR (interpolated) = 0.861 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

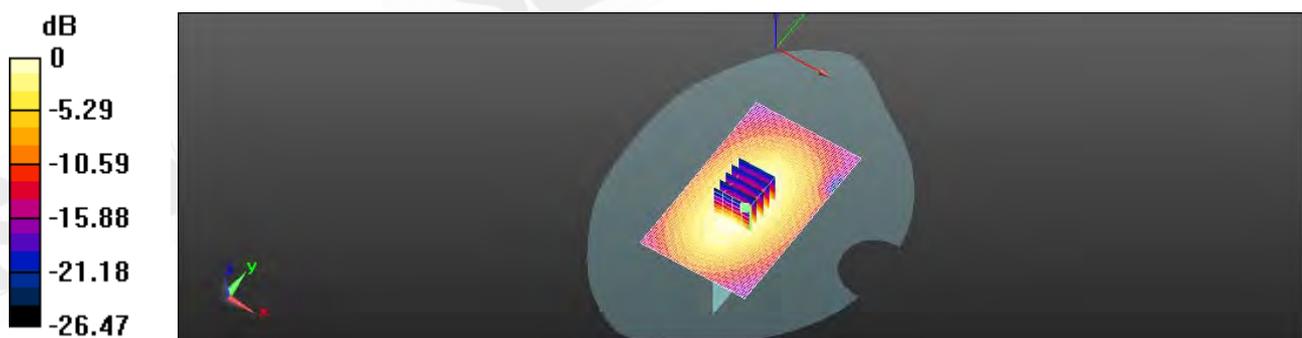
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 27.616 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 0.998 mW/g

SAR(1 g) = 0.694 mW/g; SAR(10 g) = 0.466 mW/g

Maximum value of SAR (measured) = 0.866 mW/g



0 dB = 0.861 mW/g = -1.30 dB mW/g

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RE Cheek_CH512

Communication System: GSM; Frequency: 1850.2 MHz

Medium parameters used: $f = 1850.2$ MHz; $\sigma = 1.354$ mho/m; $\epsilon_r = 39.404$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(8.35, 8.35, 8.35); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/RE Cheek/Area Scan (61x101x1): Measurement grid:

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

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

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

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

Reference Value = 11.237 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 1.288 mW/g

SAR(1 g) = 0.838 mW/g; SAR(10 g) = 0.498 mW/g

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

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

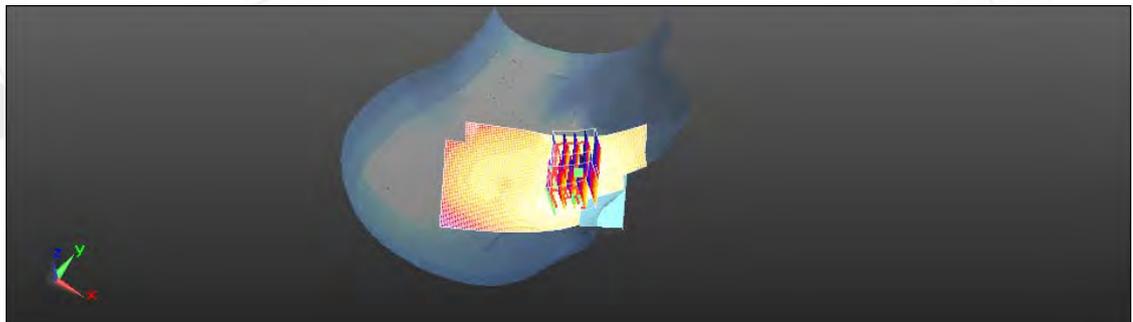
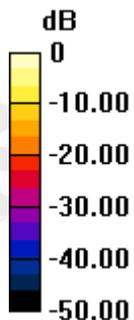
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 11.237 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 1.033 mW/g

SAR(1 g) = 0.701 mW/g; SAR(10 g) = 0.448 mW/g

Maximum value of SAR (measured) = 0.872 mW/g



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

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Maxima
Find secondary maxima dB,
and with a peak SAR value greater than W/kg,
and at least mm away from the global

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RE Cheek_CH661

Communication System: GSM; Frequency: 1880 MHz

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.381$ mho/m; $\epsilon_r = 39.298$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(8.35, 8.35, 8.35); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/RE Cheek/Area Scan (61x101x1): Measurement grid:

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

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

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

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

Reference Value = 11.410 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 1.321 mW/g

SAR(1 g) = 0.845 mW/g; SAR(10 g) = 0.496 mW/g

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

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

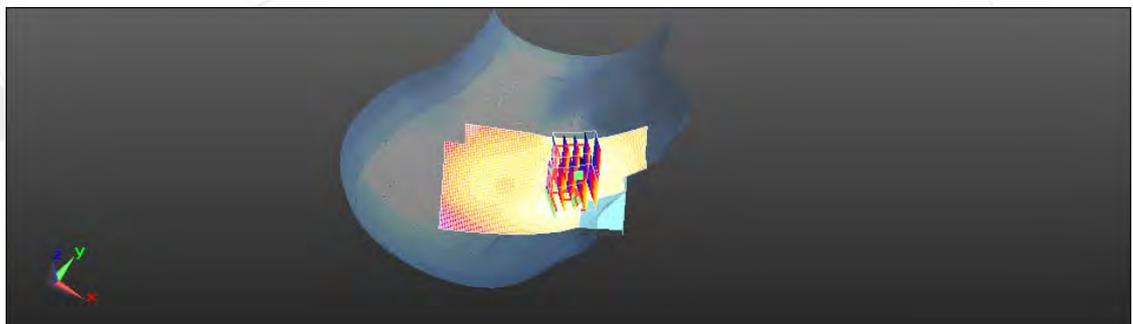
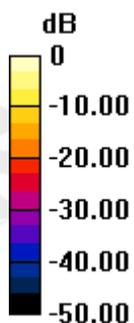
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 11.410 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 1.070 mW/g

SAR(1 g) = 0.726 mW/g; SAR(10 g) = 0.459 mW/g

Maximum value of SAR (measured) = 0.898 mW/g



0 dB = 1.07 mW/g = 0.61 dB mW/g

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Maxima
Find secondary maxima dB,
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and at least mm away from the global

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RE Cheek_CH810

Communication System: GSM; Frequency: 1909.8 MHz

Medium parameters used: $f = 1910$ MHz; $\sigma = 1.41$ mho/m; $\epsilon_r = 39.17$; $\rho = 1000$ kg/m³

Phantom section: Right Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(8.35, 8.35, 8.35); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/RE Cheek/Area Scan (61x101x1): Measurement grid:

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

Maximum value of SAR (interpolated) = 0.863 mW/g

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

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

Reference Value = 10.012 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 1.085 mW/g

SAR(1 g) = 0.683 mW/g; SAR(10 g) = 0.399 mW/g

Maximum value of SAR (measured) = 0.888 mW/g

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

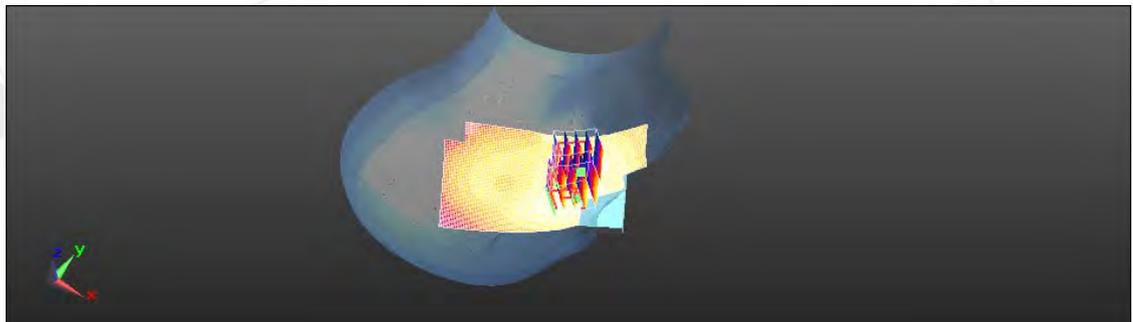
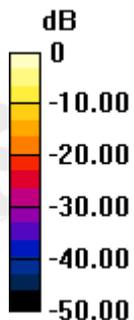
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 10.012 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.903 mW/g

SAR(1 g) = 0.606 mW/g; SAR(10 g) = 0.380 mW/g

Maximum value of SAR (measured) = 0.754 mW/g



0 dB = 0.863 mW/g = -1.28 dB mW/g

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Maxima
Find secondary maxima dB,
and with a peak SAR value greater than W/kg,
and at least mm away from the global

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RE Tilt_CH661

Communication System: GSM; Frequency: 1880 MHz

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.381$ mho/m; $\epsilon_r = 39.298$; $\rho = 1000$ kg/m³

Phantom section: Right Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(8.35, 8.35, 8.35); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

Maximum value of SAR (interpolated) = 0.422 mW/g

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

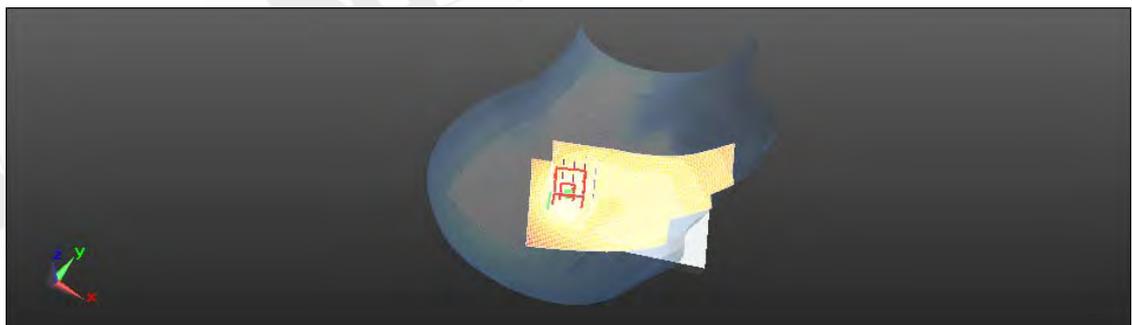
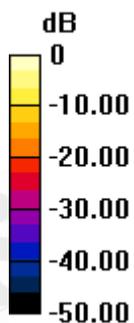
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 16.857 V/m; Power Drift = -0.08 dB

Peak SAR (extrapolated) = 0.499 mW/g

SAR(1 g) = 0.306 mW/g; SAR(10 g) = 0.173 mW/g

Maximum value of SAR (measured) = 0.397 mW/g



0 dB = 0.422 mW/g = -7.49 dB mW/g

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LE Cheek_CH512

Communication System: GSM; Frequency: 1850.2 MHz

Medium parameters used: $f = 1850.2$ MHz; $\sigma = 1.354$ mho/m; $\epsilon_r = 39.404$; $\rho = 1000$ kg/m³

Phantom section: Left Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(8.35, 8.35, 8.35); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/LE Cheek/Area Scan (61x101x1): Measurement grid:

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

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

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

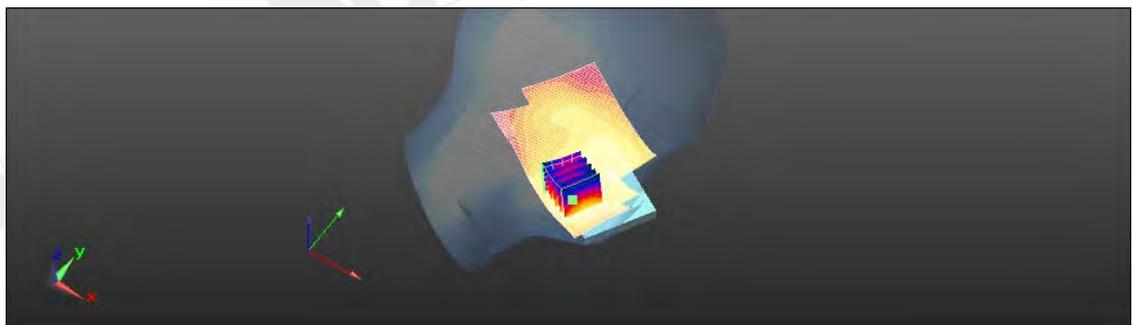
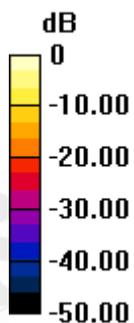
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 10.861 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 1.456 mW/g

SAR(1 g) = 0.936 mW/g; SAR(10 g) = 0.543 mW/g

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



0 dB = 1.26 mW/g = 1.98 dB mW/g

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LE Cheek_CH661

Communication System: GSM; Frequency: 1880 MHz

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.381$ mho/m; $\epsilon_r = 39.298$; $\rho = 1000$ kg/m³

Phantom section: Left Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(8.35, 8.35, 8.35); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/LE Cheek/Area Scan (61x101x1): Measurement grid:

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

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

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

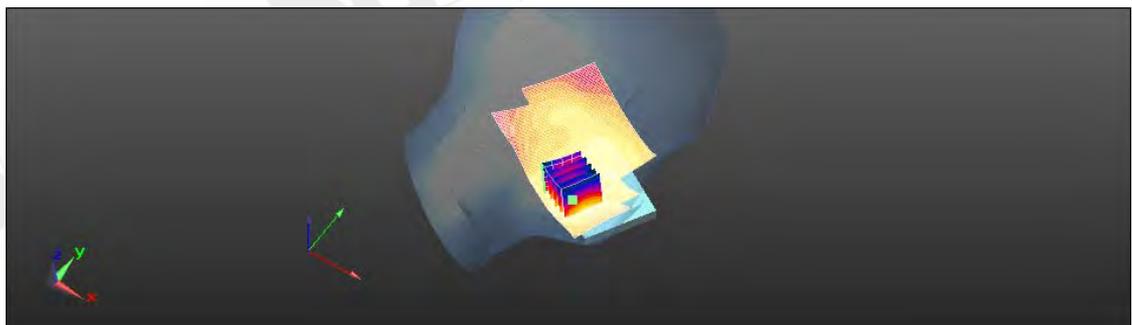
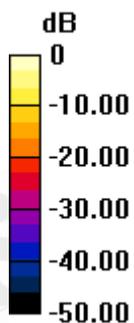
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 11.449 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 1.578 mW/g

SAR(1 g) = 1.01 mW/g; SAR(10 g) = 0.583 mW/g

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



0 dB = 1.35 mW/g = 2.60 dB mW/g

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LE Cheek_CH810

Communication System: GSM; Frequency: 1909.8 MHz

Medium parameters used: $f = 1910$ MHz; $\sigma = 1.41$ mho/m; $\epsilon_r = 39.17$; $\rho = 1000$ kg/m³

Phantom section: Left Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(8.35, 8.35, 8.35); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/LE Cheek/Area Scan (61x101x1): Measurement grid:

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

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

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

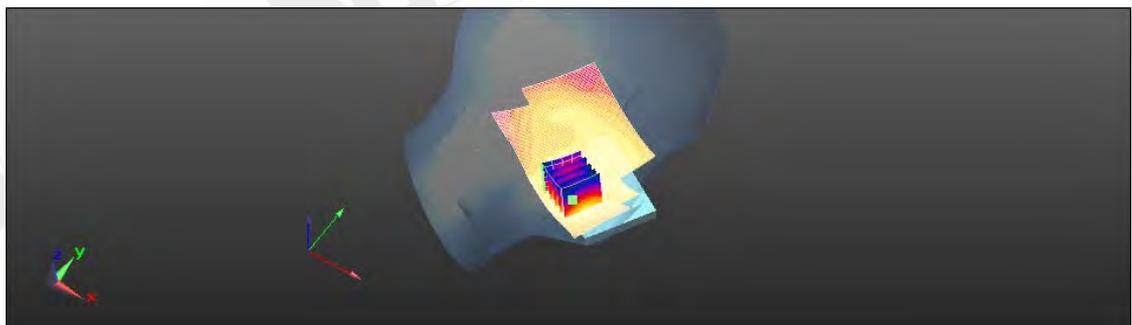
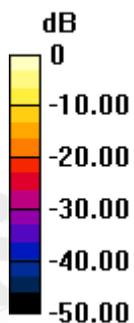
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 10.897 V/m; Power Drift = 0.00 dB

Peak SAR (extrapolated) = 1.442 mW/g

SAR(1 g) = 0.911 mW/g; SAR(10 g) = 0.521 mW/g

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



0 dB = 1.22 mW/g = 1.74 dB mW/g

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LE Tilt_CH661

Communication System: GSM; Frequency: 1880 MHz

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.381$ mho/m; $\epsilon_r = 39.298$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(8.35, 8.35, 8.35); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/LE Cheek/Area Scan (61x101x1): Measurement grid:

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

Maximum value of SAR (interpolated) = 0.453 mW/g

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

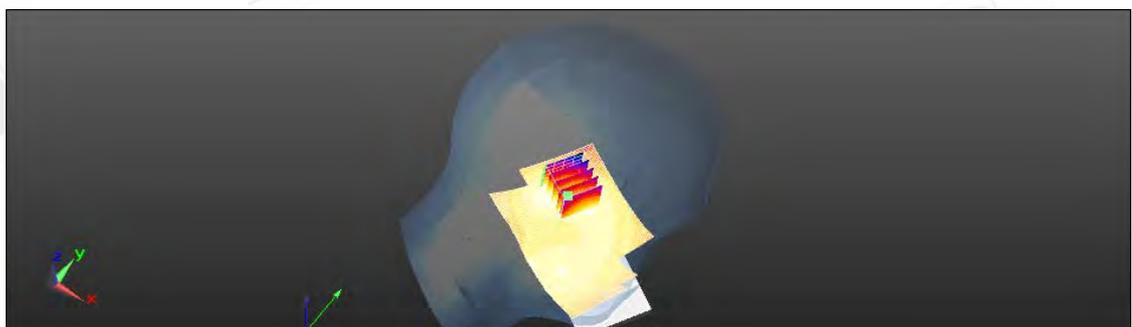
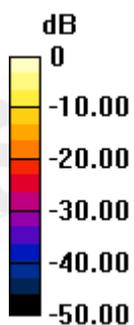
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 15.854 V/m; Power Drift = 0.14 dB

Peak SAR (extrapolated) = 0.485 mW/g

SAR(1 g) = 0.294 mW/g; SAR(10 g) = 0.170 mW/g

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



0 dB = 0.453 mW/g = -6.89 dB mW/g

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Date: 6/7/2012

Body_Speech mode_Front side_CH512_repeated with headset

Communication System: GSM; Frequency: 1850.2 MHz

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.448$ mho/m; $\epsilon_r = 51.138$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.53, 7.53, 7.53); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

Maximum value of SAR (interpolated) = 0.585 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0:

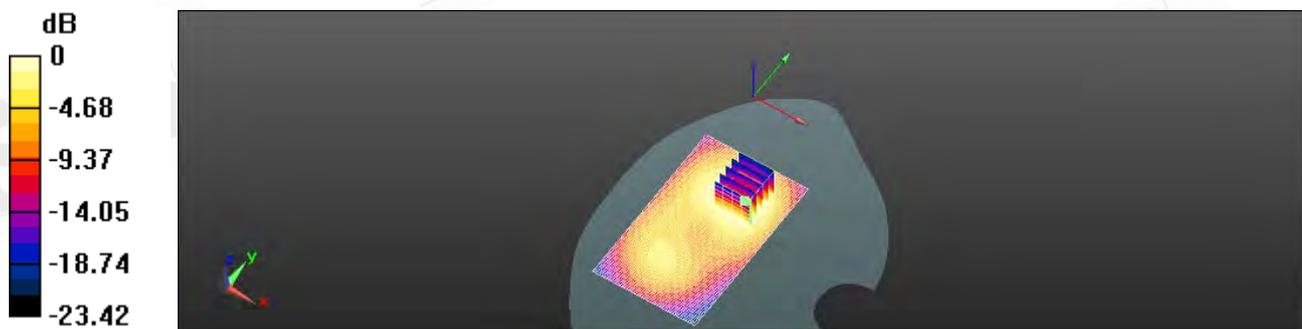
Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.714 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 0.678 mW/g

SAR(1 g) = 0.437 mW/g; SAR(10 g) = 0.270 mW/g

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



0 dB = 0.585 mW/g = -4.66 dB mW/g

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Date: 6/7/2012

Body_Speech mode_Front side_CH661_repeated with headset

Communication System: GSM; Frequency: 1880 MHz

Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.492 \text{ mho/m}$; $\epsilon_r = 50.756$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.53, 7.53, 7.53); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

Maximum value of SAR (interpolated) = 0.740 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0:

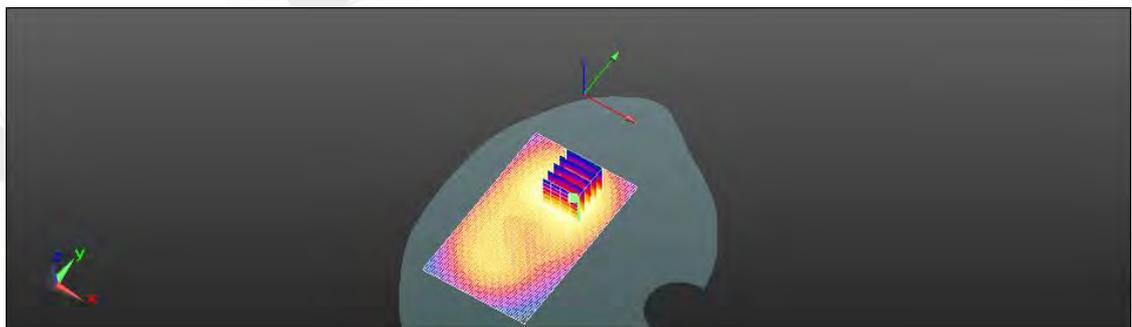
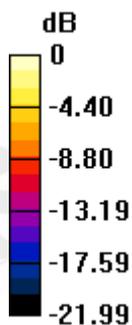
Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 10.509 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.861 mW/g

SAR(1 g) = 0.554 mW/g; SAR(10 g) = 0.342 mW/g

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



0 dB = 0.740 mW/g = -2.62 dB mW/g

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Date: 6/7/2012

Body_Speech mode_Front side_CH810_repeated with headset

Communication System: GSM; Frequency: 1909.8 MHz

 Medium parameters used: $f = 1910$ MHz; $\sigma = 1.556$ mho/m; $\epsilon_r = 51.174$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASYS5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.53, 7.53, 7.53); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

Maximum value of SAR (interpolated) = 0.633 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0:

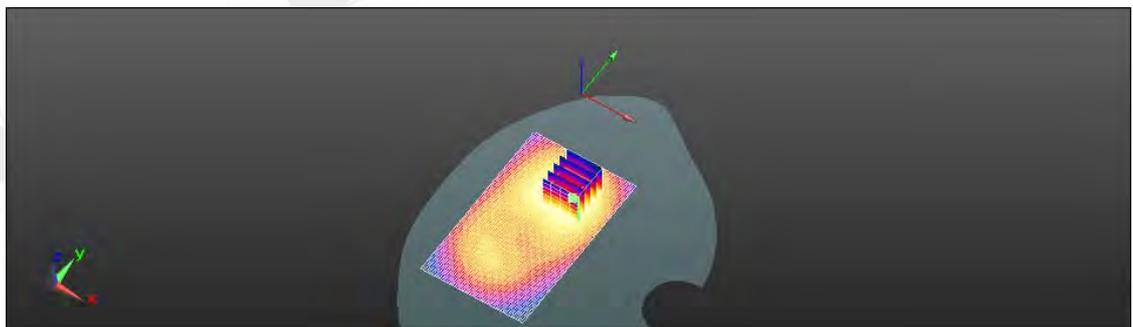
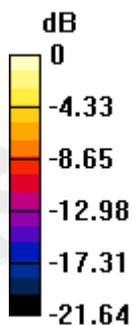
Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.971 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 0.748 mW/g

SAR(1 g) = 0.473 mW/g; SAR(10 g) = 0.289 mW/g

Maximum value of SAR (measured) = 0.605 mW/g



0 dB = 0.633 mW/g = -3.97 dB mW/g

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Date: 6/7/2012

Body_Speech mode_Back side_CH661_repeated with headset

Communication System: GSM; Frequency: 1880 MHz

Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.492 \text{ mho/m}$; $\epsilon_r = 50.756$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.53, 7.53, 7.53); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

Maximum value of SAR (interpolated) = 0.712 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0:

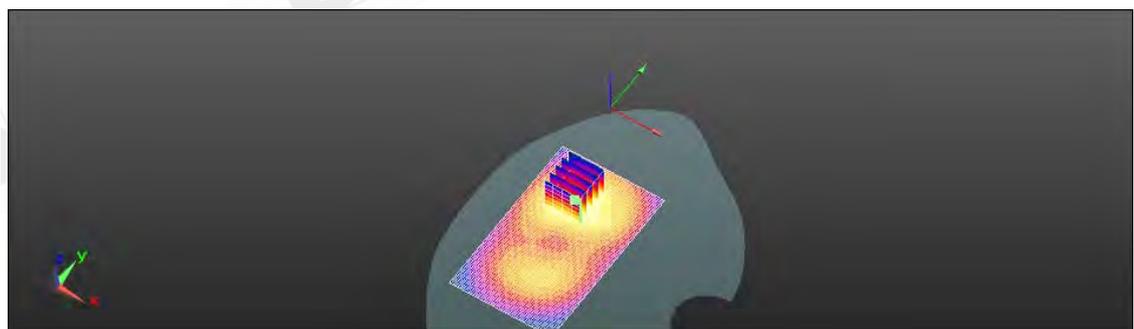
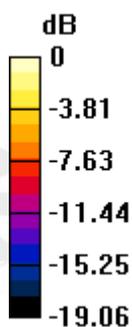
Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 8.970 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 0.829 mW/g

SAR(1 g) = 0.533 mW/g; SAR(10 g) = 0.325 mW/g

Maximum value of SAR (measured) = 0.690 mW/g



0 dB = 0.712 mW/g = -2.95 dB mW/g

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Hotspot_Front side_CH512

Communication System: GPRS(Class 12); Frequency: 1850.2 MHz

Medium parameters used : $f = 1850.2$ MHz; $\sigma = 1.458$ mho/m; $\epsilon_r = 52.793$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY5 Configuration:

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

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

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

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

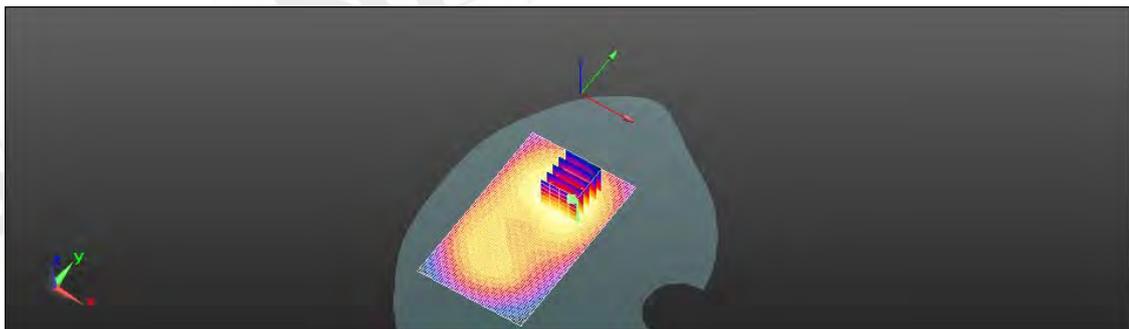
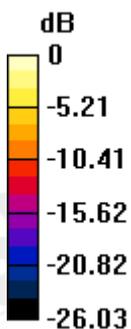
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.988 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 1.399 mW/g

SAR(1 g) = 0.858 mW/g; SAR(10 g) = 0.512 mW/g

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



0 dB = 1.13 mW/g = 1.06 dB mW/g

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Date: 6/22/2012

Hotspot_Front side_CH661

Communication System: GPRS(Class 12); Frequency: 1880 MHz

Medium parameters used : $f = 1880$ MHz; $\sigma = 1.47$ mho/m; $\epsilon_r = 52.588$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

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

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

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

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

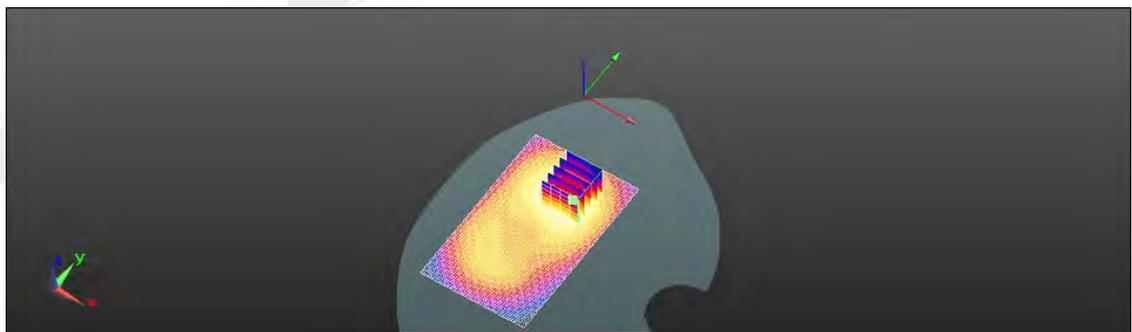
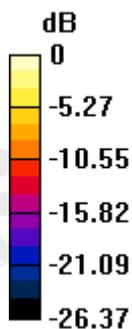
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.496 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 1.431 mW/g

SAR(1 g) = 0.887 mW/g; SAR(10 g) = 0.531 mW/g

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



0 dB = 1.20 mW/g = 1.62 dB mW/g

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Hotspot_Front side_CH810

Communication System: GPRS(Class 12); Frequency: 1909.8 MHz

Medium parameters used: $f = 1909.93$ MHz; $\sigma = 1.504$ mho/m; $\epsilon_r = 52.442$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY5 Configuration:

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

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

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

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

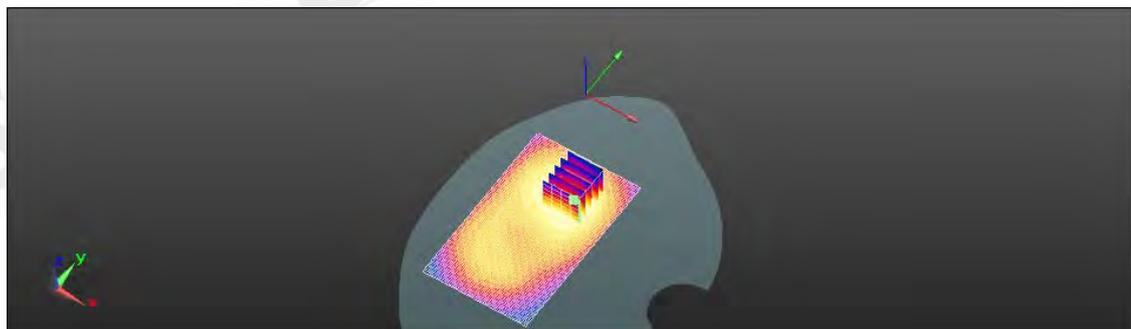
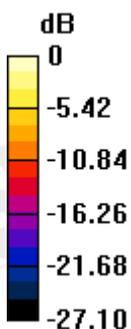
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.909 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 1.467 mW/g

SAR(1 g) = 0.905 mW/g; SAR(10 g) = 0.538 mW/g

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



0 dB = 1.14 mW/g = 1.11 dB mW/g

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Hotspot_Back side_CH512

Communication System: GPRS(Class 12); Frequency: 1850.2 MHz

Medium parameters used : $f = 1850.2$ MHz; $\sigma = 1.458$ mho/m; $\epsilon_r = 52.793$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

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

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

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

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

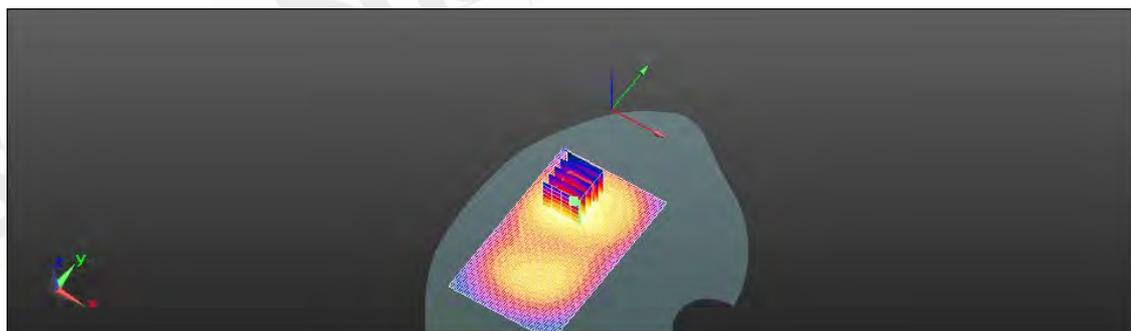
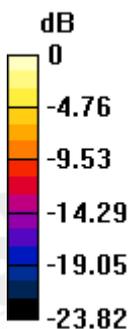
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.525 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 1.406 mW/g

SAR(1 g) = 0.875 mW/g; SAR(10 g) = 0.514 mW/g

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



0 dB = 1.21 mW/g = 1.68 dB mW/g

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Hotspot_Back side_CH661

Communication System: GPRS(Class 12); Frequency: 1880 MHz

Medium parameters used : $f = 1880$ MHz; $\sigma = 1.47$ mho/m; $\epsilon_r = 52.588$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

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

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

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

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

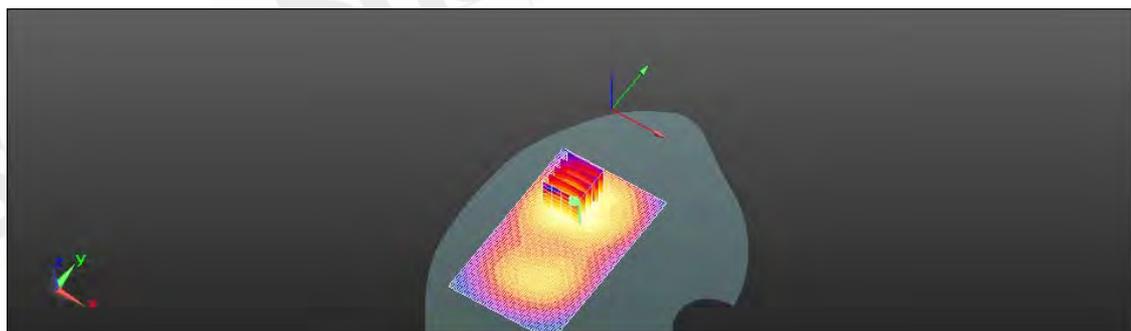
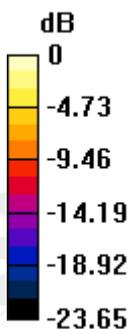
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.232 V/m; Power Drift = -0.10 dB

Peak SAR (extrapolated) = 1.456 mW/g

SAR(1 g) = 0.909 mW/g; SAR(10 g) = 0.536 mW/g

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



0 dB = 1.25 mW/g = 1.97 dB mW/g

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Hotspot_Back side_CH810

Communication System: GPRS(Class 12); Frequency: 1909.8 MHz

Medium parameters used: $f = 1909.93$ MHz; $\sigma = 1.504$ mho/m; $\epsilon_r = 52.442$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

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

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

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

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

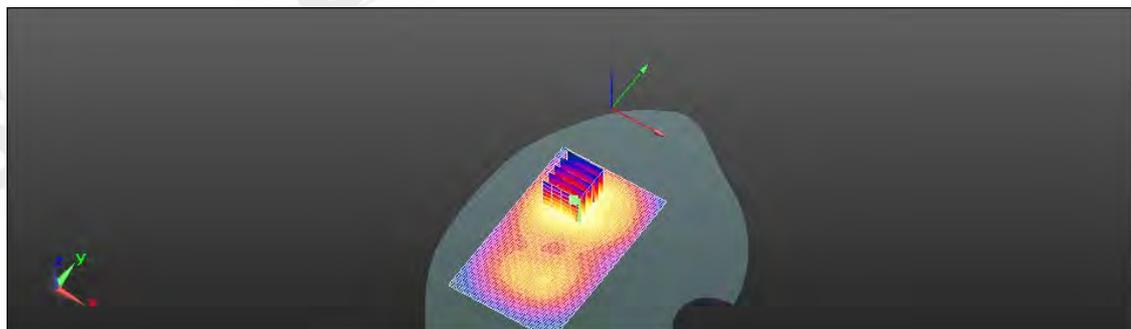
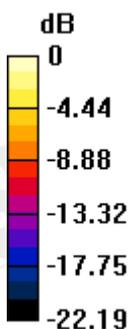
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.101 V/m; Power Drift = -0.13 dB

Peak SAR (extrapolated) = 1.410 mW/g

SAR(1 g) = 0.92 mW/g; SAR(10 g) = 0.534 mW/g

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



0 dB = 1.28 mW/g = 2.17 dB mW/g

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Hotspot_Bottom side_CH661

Communication System: GPRS(Class 12); Frequency: 1880 MHz

Medium parameters used : $f = 1880$ MHz; $\sigma = 1.47$ mho/m; $\epsilon_r = 52.588$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.53, 7.53, 7.53); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

Maximum value of SAR (interpolated) = 0.853 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

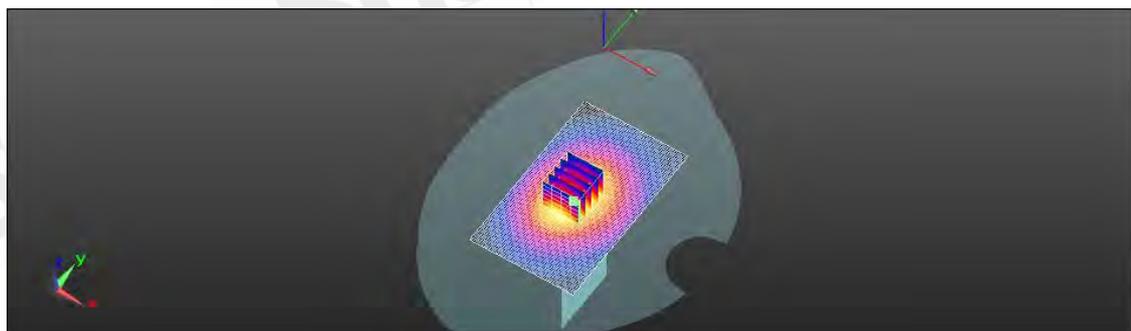
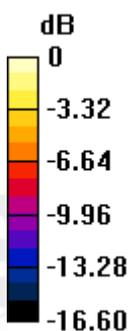
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 20.910 V/m; Power Drift = -0.05 dB

Peak SAR (extrapolated) = 1.081 mW/g

SAR(1 g) = 0.676 mW/g; SAR(10 g) = 0.376 mW/g

Maximum value of SAR (measured) = 0.907 mW/g



0 dB = 0.853 mW/g = -1.38 dB mW/g

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Hotspot_Right side_CH661

Communication System: GPRS(Class 12); Frequency: 1880 MHz

Medium parameters used : $f = 1880$ MHz; $\sigma = 1.47$ mho/m; $\epsilon_r = 52.588$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

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

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

Maximum value of SAR (interpolated) = 0.267 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

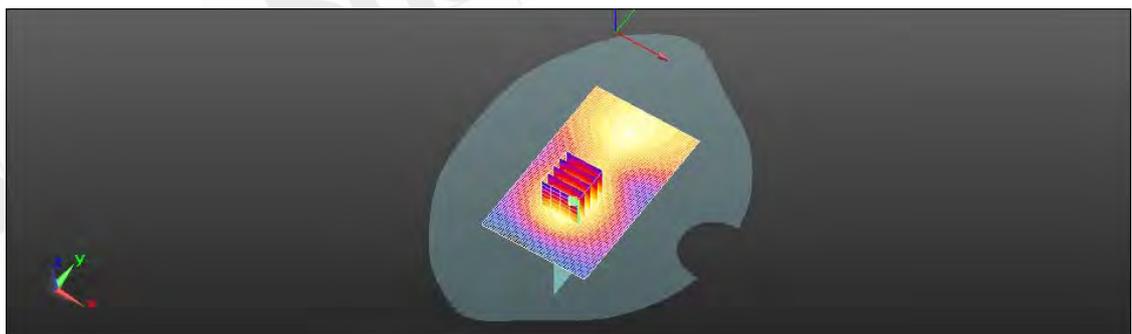
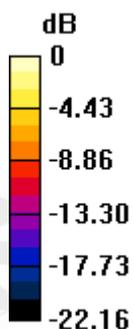
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.993 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.312 mW/g

SAR(1 g) = 0.196 mW/g; SAR(10 g) = 0.115 mW/g

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



0 dB = 0.267 mW/g = -11.49 dB mW/g

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Hotspot_Left side_CH661

Communication System: GPRS(Class 12); Frequency: 1880 MHz

Medium parameters used : $f = 1880$ MHz; $\sigma = 1.47$ mho/m; $\epsilon_r = 52.588$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.53, 7.53, 7.53); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

Maximum value of SAR (interpolated) = 0.248 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

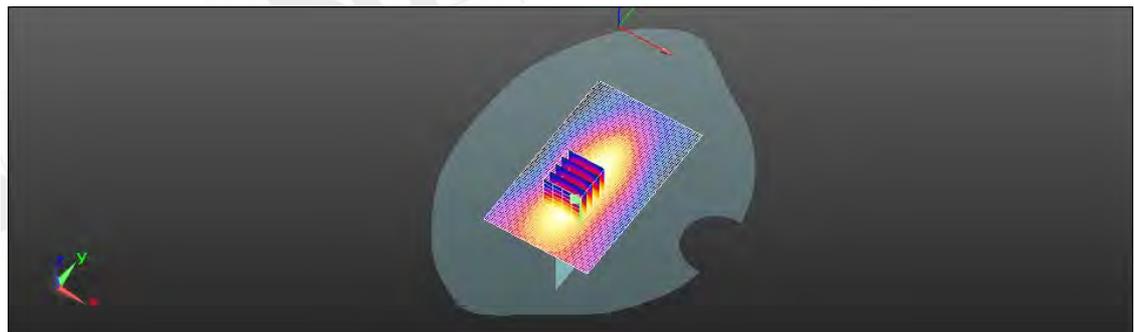
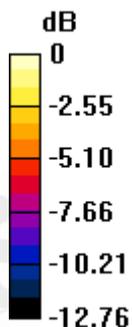
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.718 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 0.294 mW/g

SAR(1 g) = 0.183 mW/g; SAR(10 g) = 0.111 mW/g

Maximum value of SAR (measured) = 0.243 mW/g



0 dB = 0.248 mW/g = -12.10 dB mW/g

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RE Cheek_CH9262

Communication System: WCDMA; Frequency: 1852.4 MHz

Medium parameters used: $f = 1852.4$ MHz; $\sigma = 1.356$ mho/m; $\epsilon_r = 39.398$; $\rho = 1000$ kg/m³

Phantom section: Right Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(8.35, 8.35, 8.35); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/RE Cheek/Area Scan (61x101x1): Measurement grid:

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

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

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

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

Reference Value = 11.569 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 1.333 mW/g

SAR(1 g) = 0.864 mW/g; SAR(10 g) = 0.513 mW/g

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

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

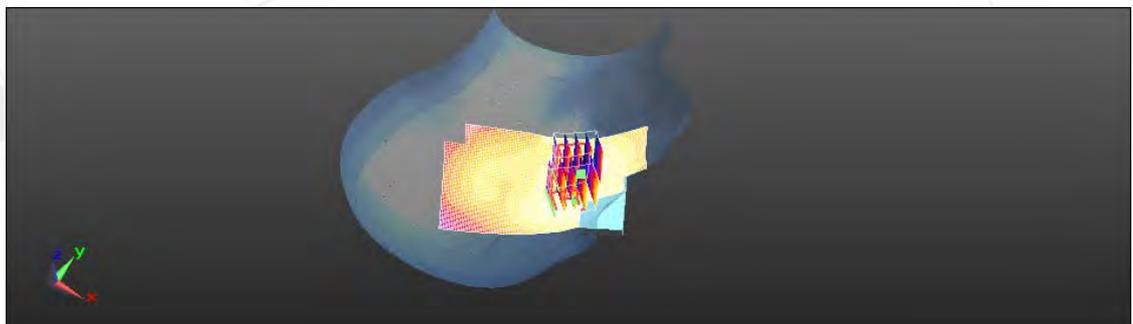
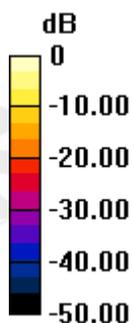
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 11.569 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 1.021 mW/g

SAR(1 g) = 0.694 mW/g; SAR(10 g) = 0.445 mW/g

Maximum value of SAR (measured) = 0.866 mW/g



0 dB = 1.09 mW/g = 0.77 dB mW/g

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Maxima
Find secondary maxima dB,
and with a peak SAR value greater than W/kg,
and at least mm away from the global

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RE Cheek_CH9400

Communication System: WCDMA; Frequency: 1880 MHz

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.381$ mho/m; $\epsilon_r = 39.298$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(8.35, 8.35, 8.35); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/RE Cheek/Area Scan (61x101x1): Measurement grid:

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

Maximum value of SAR (interpolated) = 1.04 mW/g

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

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

Reference Value = 11.518 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 1.294 mW/g

SAR(1 g) = 0.832 mW/g; SAR(10 g) = 0.492 mW/g

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

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

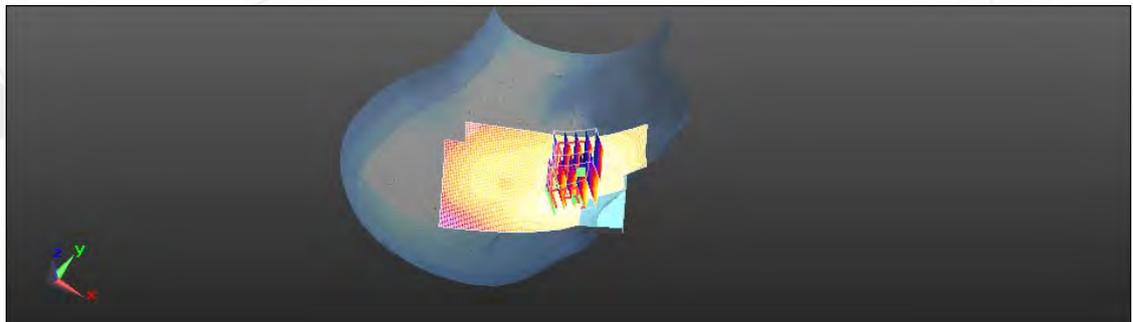
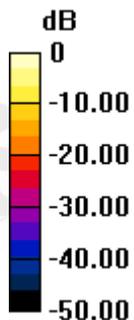
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 11.518 V/m; Power Drift = 0.10 dB

Peak SAR (extrapolated) = 1.014 mW/g

SAR(1 g) = 0.687 mW/g; SAR(10 g) = 0.439 mW/g

Maximum value of SAR (measured) = 0.858 mW/g



0 dB = 1.04 mW/g = 0.32 dB mW/g

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Maxima
Find secondary maxima dB,
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and at least mm away from the global

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RE Cheek_CH9538

Communication System: WCDMA; Frequency: 1907.6 MHz

Medium parameters used: $f = 1908$ MHz; $\sigma = 1.407$ mho/m; $\epsilon_r = 39.179$; $\rho = 1000$ kg/m³

Phantom section: Right Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(8.35, 8.35, 8.35); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/RE Cheek/Area Scan (61x101x1): Measurement grid:

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

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

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

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

Reference Value = 11.433 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 1.363 mW/g

SAR(1 g) = 0.868 mW/g; SAR(10 g) = 0.505 mW/g

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

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

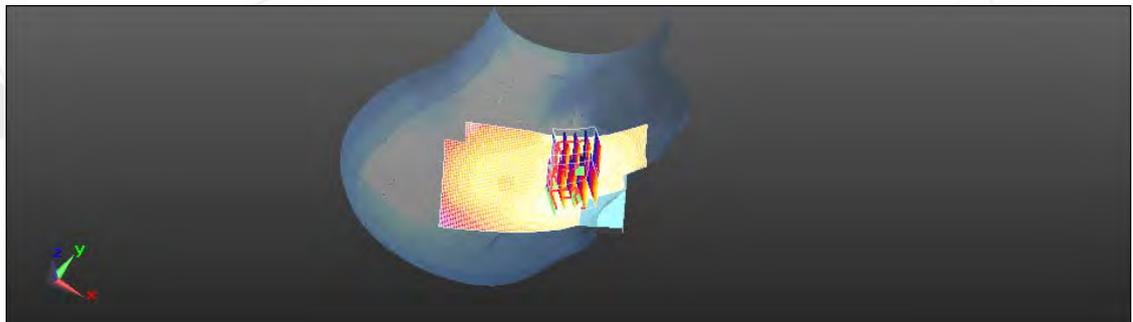
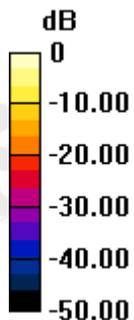
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 11.433 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 1.088 mW/g

SAR(1 g) = 0.736 mW/g; SAR(10 g) = 0.465 mW/g

Maximum value of SAR (measured) = 0.914 mW/g



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

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Maxima
Find secondary maxima dB,
and with a peak SAR value greater than W/kg,
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RE Tilt_CH9400

Communication System: WCDMA; Frequency: 1880 MHz

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.381$ mho/m; $\epsilon_r = 39.298$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(8.35, 8.35, 8.35); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

Maximum value of SAR (interpolated) = 0.433 mW/g

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

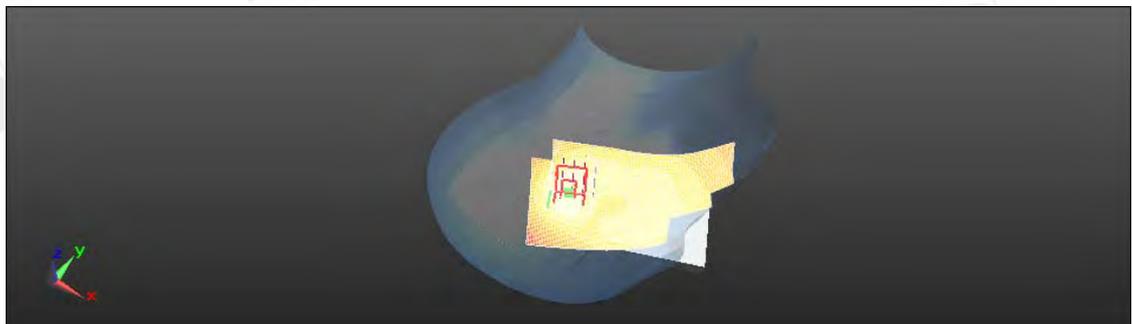
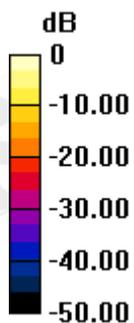
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 16.784 V/m; Power Drift = -0.02 dB

Peak SAR (extrapolated) = 0.500 mW/g

SAR(1 g) = 0.310 mW/g; SAR(10 g) = 0.176 mW/g

Maximum value of SAR (measured) = 0.408 mW/g



0 dB = 0.433 mW/g = -7.27 dB mW/g

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LE Cheek_CH9262

Communication System: WCDMA; Frequency: 1852.4 MHz

Medium parameters used: $f = 1852.4$ MHz; $\sigma = 1.356$ mho/m; $\epsilon_r = 39.398$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(8.35, 8.35, 8.35); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/LE Cheek/Area Scan (61x101x1): Measurement grid:

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

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

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

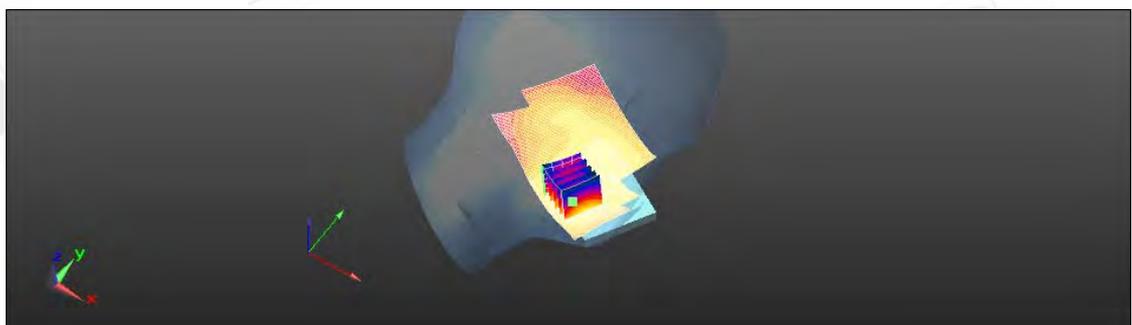
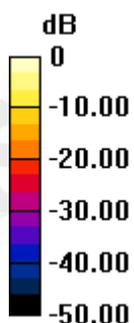
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 11.396 V/m; Power Drift = 0.17 dB

Peak SAR (extrapolated) = 1.790 mW/g

SAR(1 g) = 1.14 mW/g; SAR(10 g) = 0.659 mW/g

Maximum value of SAR (measured) = 1.50 mW/g



0 dB = 1.49 mW/g = 3.45 dB mW/g

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LE Cheek_CH9400

Communication System: WCDMA; Frequency: 1880 MHz

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.381$ mho/m; $\epsilon_r = 39.298$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(8.35, 8.35, 8.35); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/LE Cheek/Area Scan (61x101x1): Measurement grid:

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

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

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

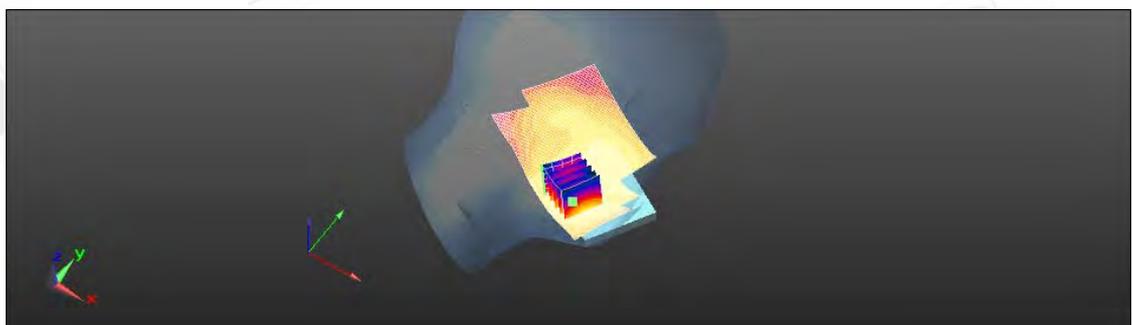
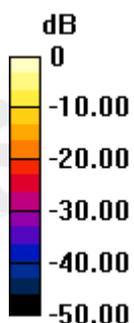
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 11.668 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 1.775 mW/g

SAR(1 g) = 1.13 mW/g; SAR(10 g) = 0.646 mW/g

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



0 dB = 1.49 mW/g = 3.46 dB mW/g

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LE Cheek_CH9538

Communication System: WCDMA; Frequency: 1907.6 MHz

Medium parameters used: $f = 1908$ MHz; $\sigma = 1.407$ mho/m; $\epsilon_r = 39.179$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(8.35, 8.35, 8.35); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/LE Cheek/Area Scan (61x101x1): Measurement grid:

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

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

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

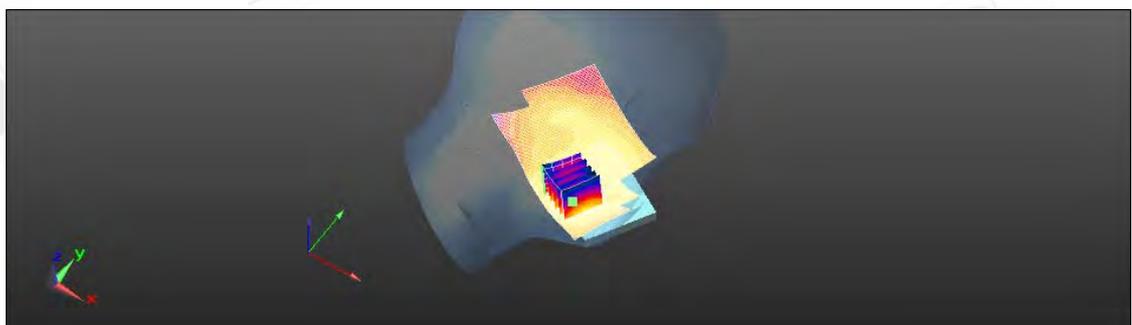
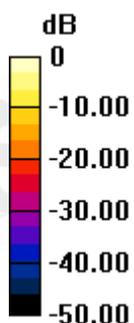
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 12.208 V/m; Power Drift = 0.08 dB

Peak SAR (extrapolated) = 1.910 mW/g

SAR(1 g) = 1.21 mW/g; SAR(10 g) = 0.689 mW/g

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



0 dB = 1.61 mW/g = 4.13 dB mW/g

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LE Cheek_CH9538_repeated with external Memory card inside

Communication System: WCDMA; Frequency: 1907.6 MHz

Medium parameters used: $f = 1908$ MHz; $\sigma = 1.407$ mho/m; $\epsilon_r = 39.179$; $\rho = 1000$ kg/m³

Phantom section: Left Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(8.35, 8.35, 8.35); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/LE Cheek/Area Scan (61x101x1): Measurement grid:

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

Maximum value of SAR (interpolated) = 1.46 mW/g

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

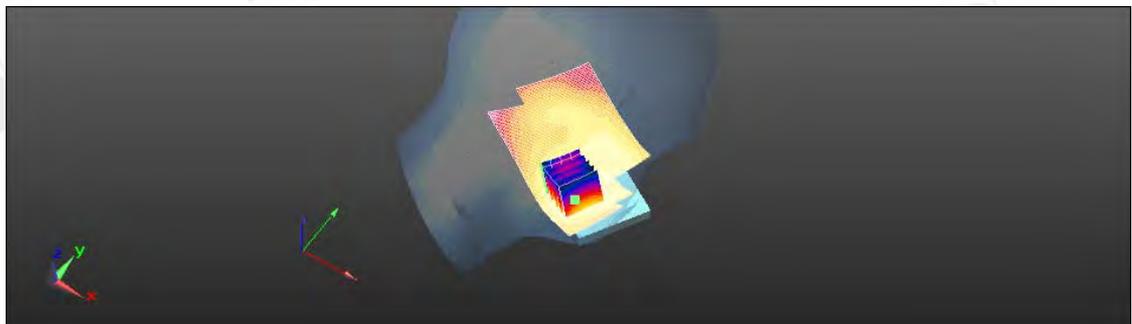
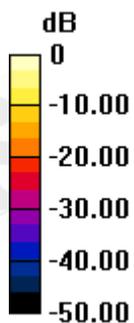
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 11.758 V/m; Power Drift = -0.04 dB

Peak SAR (extrapolated) = 1.852 mW/g

SAR(1 g) = 1.17 mW/g; SAR(10 g) = 0.674 mW/g

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



0 dB = 1.46 mW/g = 3.31 dB mW/g

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LE Cheek_CH9538_repeated with 2nd Battery

Communication System: WCDMA; Frequency: 1907.6 MHz

Medium parameters used: $f = 1908$ MHz; $\sigma = 1.407$ mho/m; $\epsilon_r = 39.179$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(8.35, 8.35, 8.35); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/LE Cheek/Area Scan (61x101x1): Measurement grid:

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

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

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

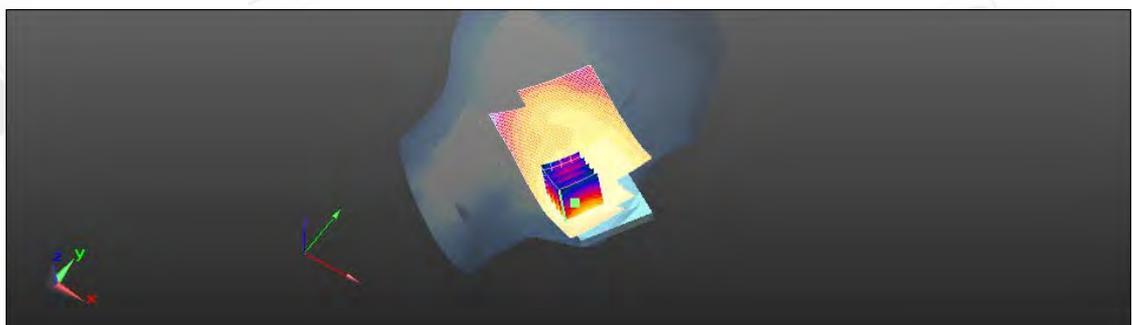
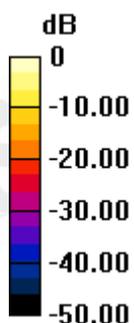
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 11.686 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 1.988 mW/g

SAR(1 g) = 1.25 mW/g; SAR(10 g) = 0.711 mW/g

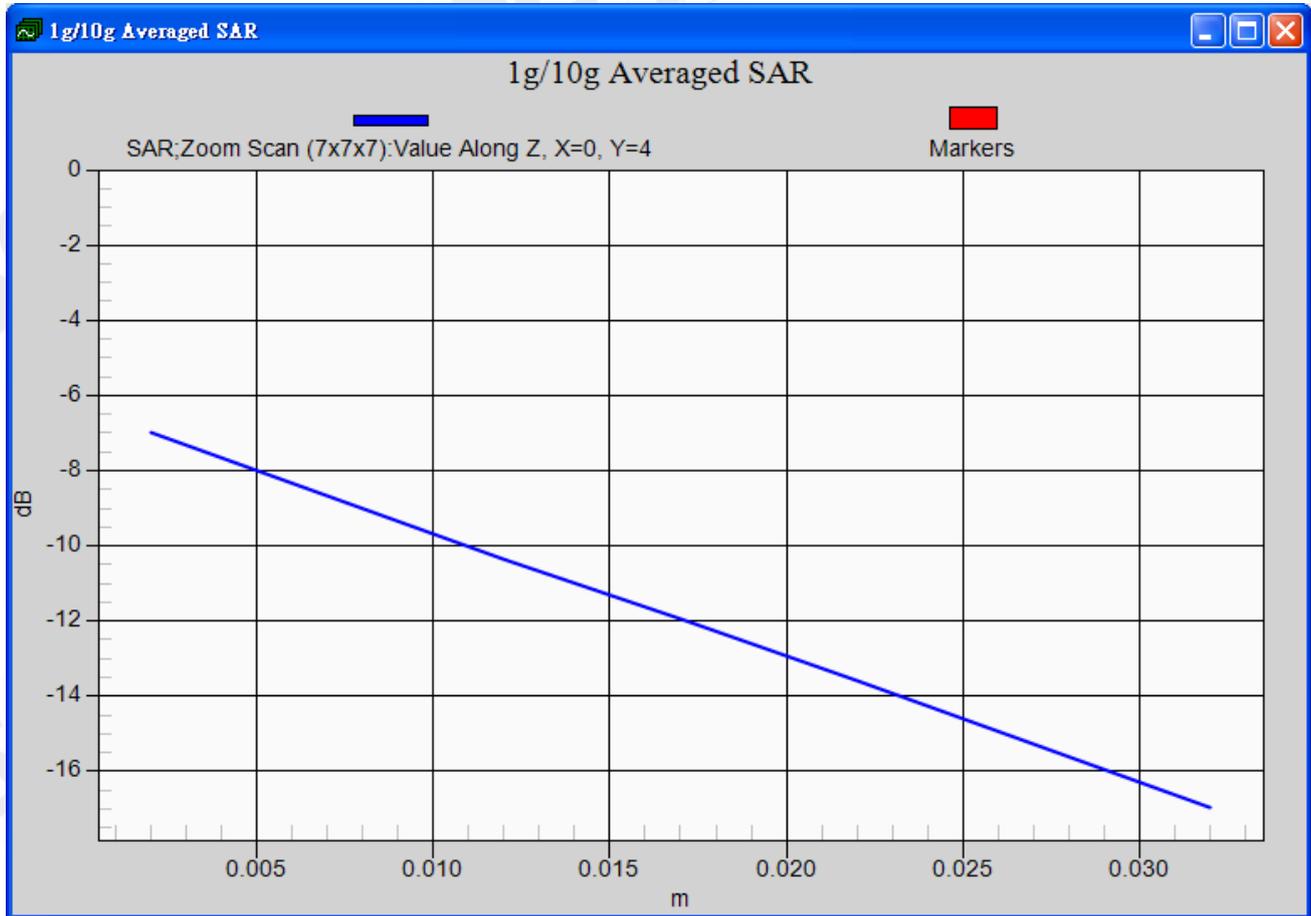
Maximum value of SAR (measured) = 1.63 mW/g



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

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LE Tilt_CH9400

Communication System: WCDMA; Frequency: 1880 MHz

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.381$ mho/m; $\epsilon_r = 39.298$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(8.35, 8.35, 8.35); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/LE Cheek/Area Scan (61x101x1): Measurement grid:

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

Maximum value of SAR (interpolated) = 0.476 mW/g

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

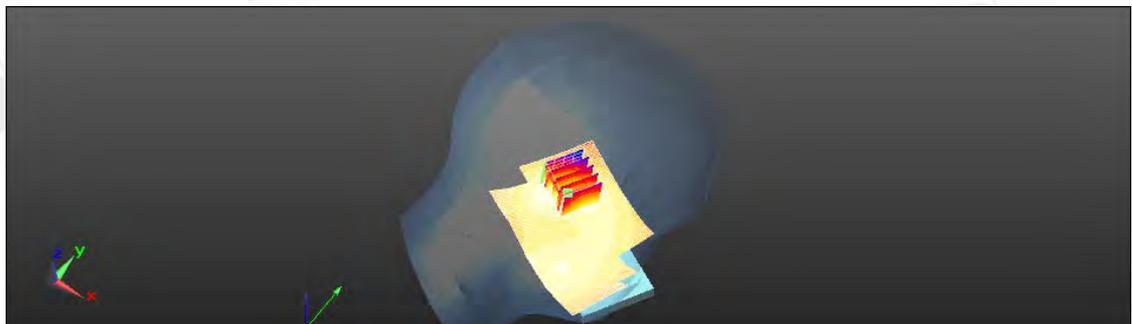
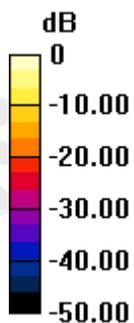
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 17.613 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.519 mW/g

SAR(1 g) = 0.323 mW/g; SAR(10 g) = 0.188 mW/g

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



0 dB = 0.476 mW/g = -6.44 dB mW/g

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Date: 6/7/2012

Body_Speech mode_Front side_CH9400_repeated with headset

Communication System: WCDMA; Frequency: 1880 MHz

 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.492$ mho/m; $\epsilon_r = 50.756$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASYS5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.53, 7.53, 7.53); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

Maximum value of SAR (interpolated) = 0.639 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0:

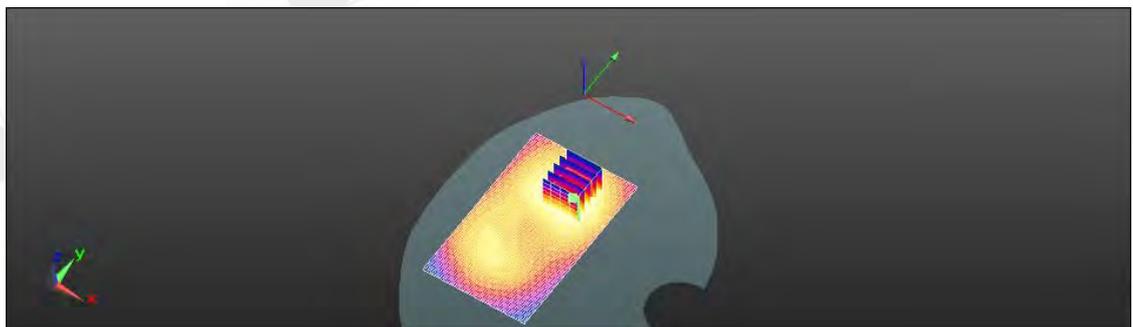
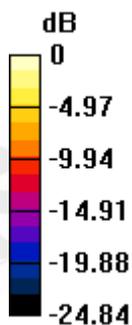
Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 9.063 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 0.752 mW/g

SAR(1 g) = 0.483 mW/g; SAR(10 g) = 0.298 mW/g

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



0 dB = 0.639 mW/g = -3.89 dB mW/g

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Date: 6/7/2012

Body_Speech mode_Back side_CH9262_repeated with headset

Communication System: WCDMA; Frequency: 1852.4 MHz

Medium parameters used (interpolated): $f = 1852.4$ MHz; $\sigma = 1.449$ mho/m; $\epsilon_r = 51.084$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.53, 7.53, 7.53); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

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

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0:

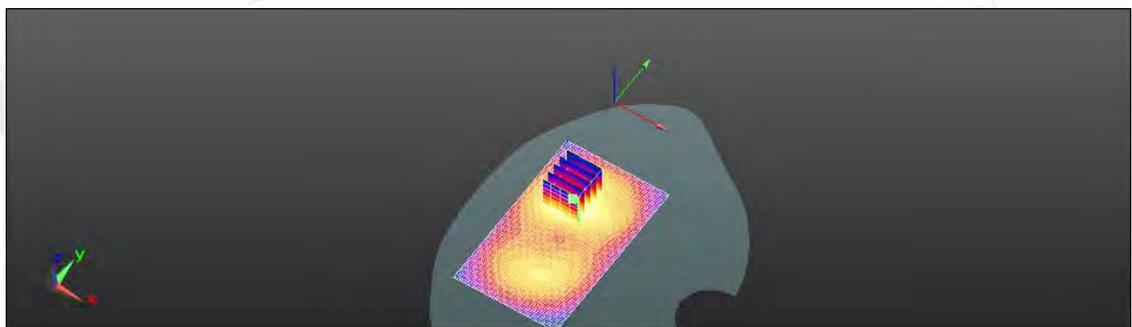
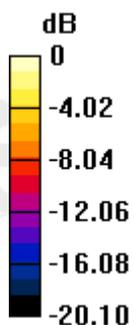
Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 8.960 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 0.859 mW/g

SAR(1 g) = 0.550 mW/g; SAR(10 g) = 0.332 mW/g

Maximum value of SAR (measured) = 0.716 mW/g



0 dB = 0.719 mW/g = -2.87 dB mW/g

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Date: 6/7/2012

Body_Speech mode_Back side_CH9400_repeated with headset

Communication System: WCDMA; Frequency: 1880 MHz

Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.492 \text{ mho/m}$; $\epsilon_r = 50.756$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.53, 7.53, 7.53); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

Maximum value of SAR (interpolated) = 0.723 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0:

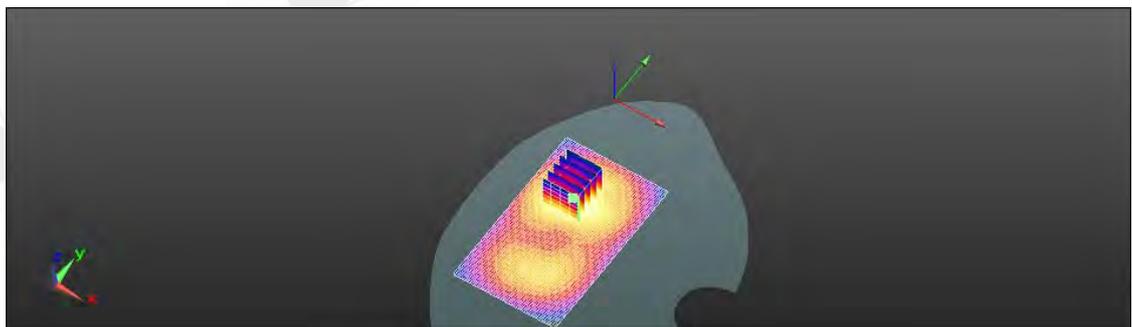
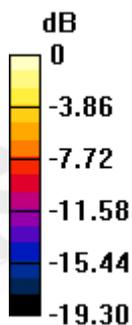
Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 8.343 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 0.867 mW/g

SAR(1 g) = 0.553 mW/g; SAR(10 g) = 0.335 mW/g

Maximum value of SAR (measured) = 0.721 mW/g



0 dB = 0.723 mW/g = -2.82 dB mW/g

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Date: 6/7/2012

Body_Speech mode_Back side_CH9538_repeated with headset

Communication System: WCDMA; Frequency: 1907.6 MHz

Medium parameters used: $f = 1908$ MHz; $\sigma = 1.553$ mho/m; $\epsilon_r = 51.141$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.53, 7.53, 7.53); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

Maximum value of SAR (interpolated) = 0.823 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0:

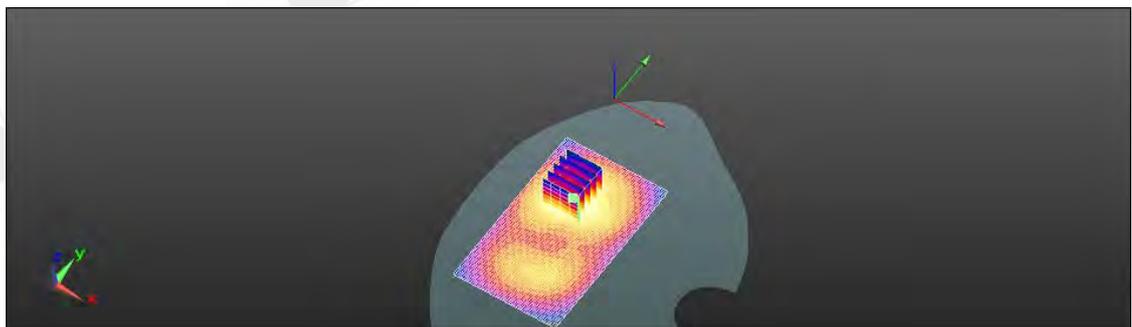
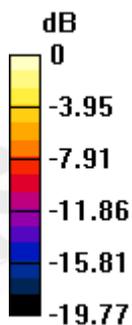
Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 8.407 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 0.974 mW/g

SAR(1 g) = 0.617 mW/g; SAR(10 g) = 0.374 mW/g

Maximum value of SAR (measured) = 0.807 mW/g



0 dB = 0.823 mW/g = -1.69 dB mW/g

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Hotspot_Front side_CH9262

Communication System: WCDMA; Frequency: 1852.4 MHz

Medium parameters used: $f = 1852.4$ MHz; $\sigma = 1.511$ mho/m; $\epsilon_r = 52.171$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.53, 7.53, 7.53); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

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

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

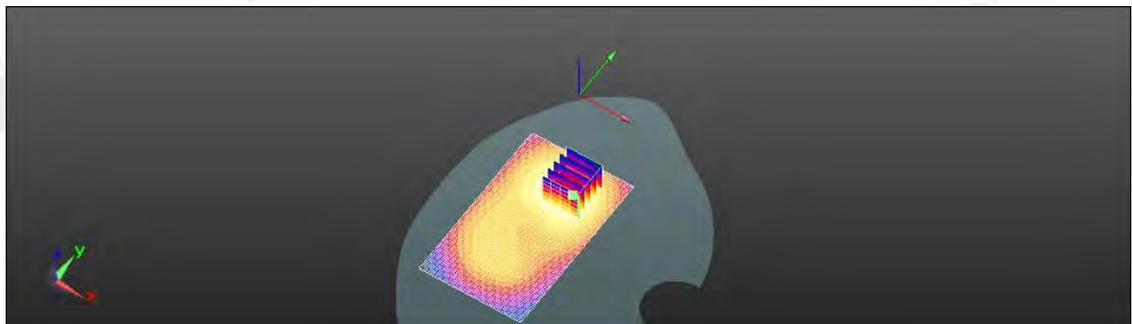
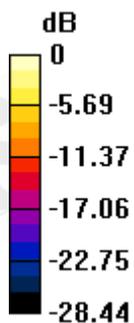
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.308 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 1.597 mW/g

SAR(1 g) = 0.979 mW/g; SAR(10 g) = 0.580 mW/g

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



0 dB = 1.37 mW/g = 2.76 dB mW/g

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Hotspot_Front side_CH9400

Communication System: WCDMA; Frequency: 1880 MHz

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.509$ mho/m; $\epsilon_r = 51.813$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.53, 7.53, 7.53); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

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

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

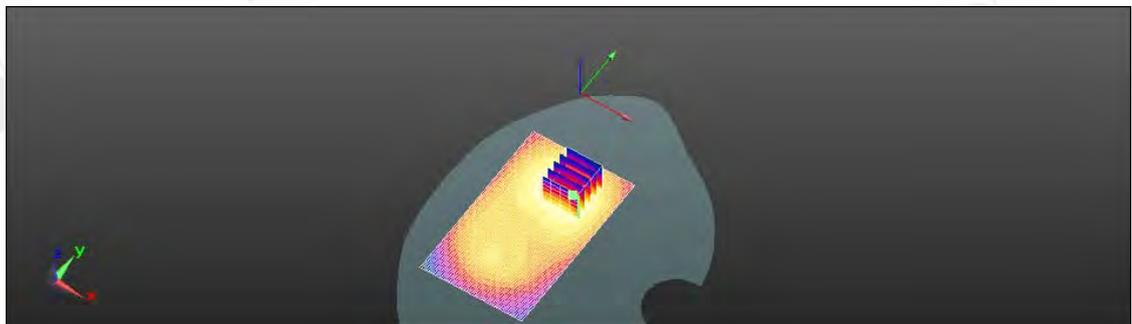
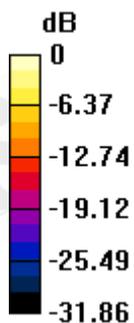
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.626 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 1.537 mW/g

SAR(1 g) = 0.939 mW/g; SAR(10 g) = 0.557 mW/g

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



0 dB = 1.30 mW/g = 2.26 dB mW/g

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Hotspot_Front side_CH9538

Communication System: WCDMA; Frequency: 1907.6 MHz

Medium parameters used: $f = 1908$ MHz; $\sigma = 1.534$ mho/m; $\epsilon_r = 51.234$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.53, 7.53, 7.53); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

Maximum value of SAR (interpolated) = 1.36 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

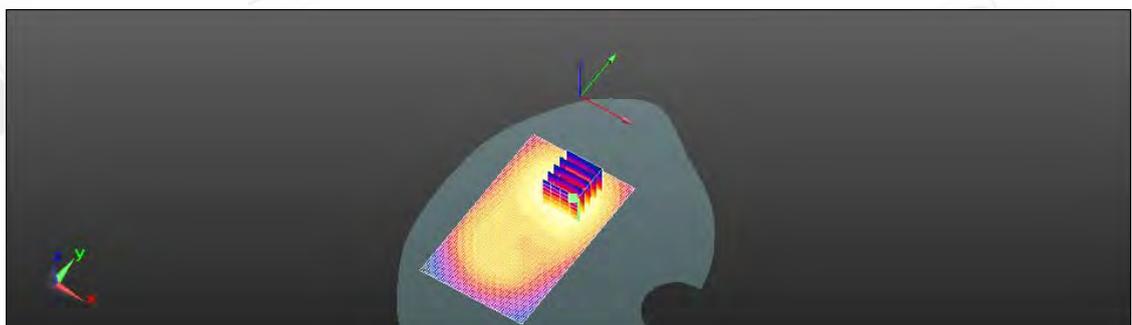
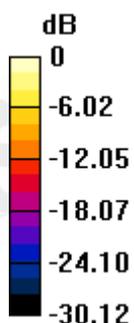
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.498 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 1.628 mW/g

SAR(1 g) = 0.991 mW/g; SAR(10 g) = 0.588 mW/g

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



0 dB = 1.36 mW/g = 2.67 dB mW/g

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Hotspot_Back side_CH9262

Communication System: WCDMA; Frequency: 1852.4 MHz

Medium parameters used: $f = 1852.4$ MHz; $\sigma = 1.511$ mho/m; $\epsilon_r = 52.171$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.53, 7.53, 7.53); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

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

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

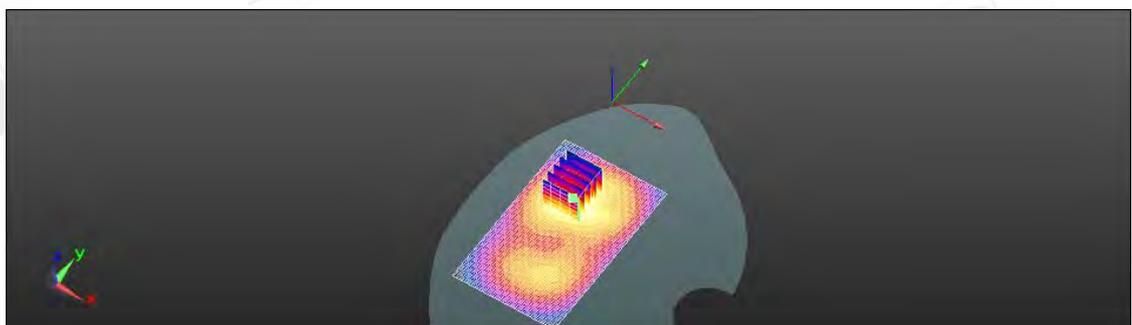
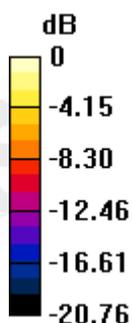
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.972 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 1.461 mW/g

SAR(1 g) = 0.897 mW/g; SAR(10 g) = 0.526 mW/g

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



0 dB = 1.21 mW/g = 1.63 dB mW/g

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Hotspot_Back side_CH9400

Communication System: WCDMA; Frequency: 1880 MHz

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.509$ mho/m; $\epsilon_r = 51.813$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.53, 7.53, 7.53); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

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

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

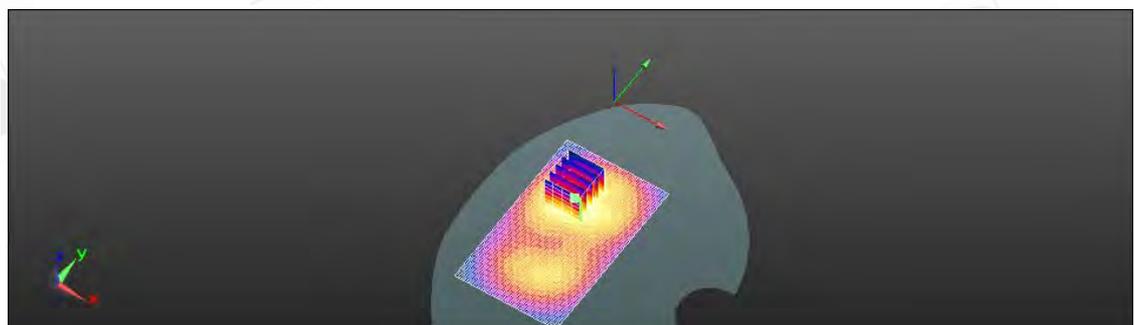
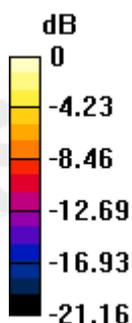
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.915 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 1.444 mW/g

SAR(1 g) = 0.889 mW/g; SAR(10 g) = 0.522 mW/g

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



0 dB = 1.20 mW/g = 1.57 dB mW/g

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Hotspot_Back side_CH9538

Communication System: WCDMA; Frequency: 1907.6 MHz

Medium parameters used: $f = 1908$ MHz; $\sigma = 1.534$ mho/m; $\epsilon_r = 51.234$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.53, 7.53, 7.53); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

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

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

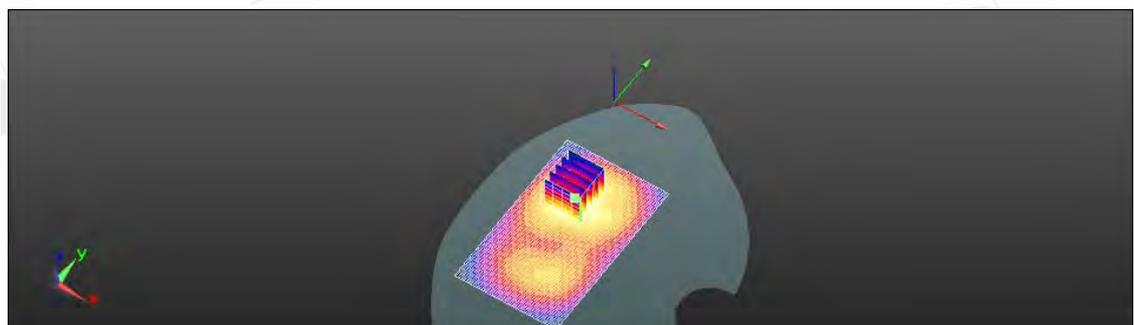
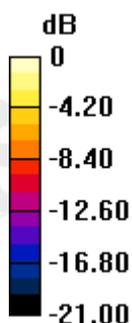
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.295 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 1.585 mW/g

SAR(1 g) = 0.968 mW/g; SAR(10 g) = 0.568 mW/g

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



0 dB = 1.31 mW/g = 2.37 dB mW/g

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Hotspot_Botton side_CH9400

Communication System: WCDMA; Frequency: 1880 MHz

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.509$ mho/m; $\epsilon_r = 51.813$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.53, 7.53, 7.53); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

Maximum value of SAR (interpolated) = 0.767 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

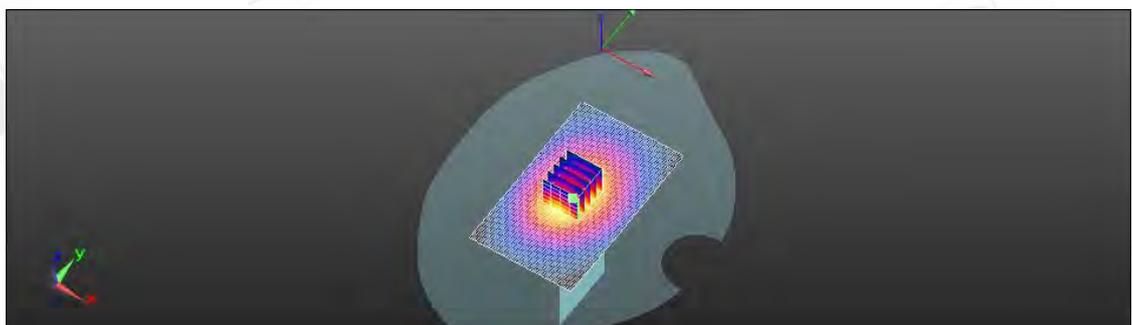
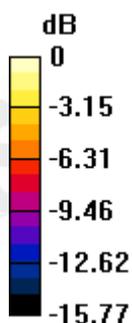
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 19.474 V/m; Power Drift = 0.16 dB

Peak SAR (extrapolated) = 1.018 mW/g

SAR(1 g) = 0.619 mW/g; SAR(10 g) = 0.338 mW/g

Maximum value of SAR (measured) = 0.847 mW/g



0 dB = 0.767 mW/g = -2.30 dB mW/g

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Hotspot_Right side_CH9400

Communication System: WCDMA; Frequency: 1880 MHz

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.509$ mho/m; $\epsilon_r = 51.813$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.53, 7.53, 7.53); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

Maximum value of SAR (interpolated) = 0.322 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

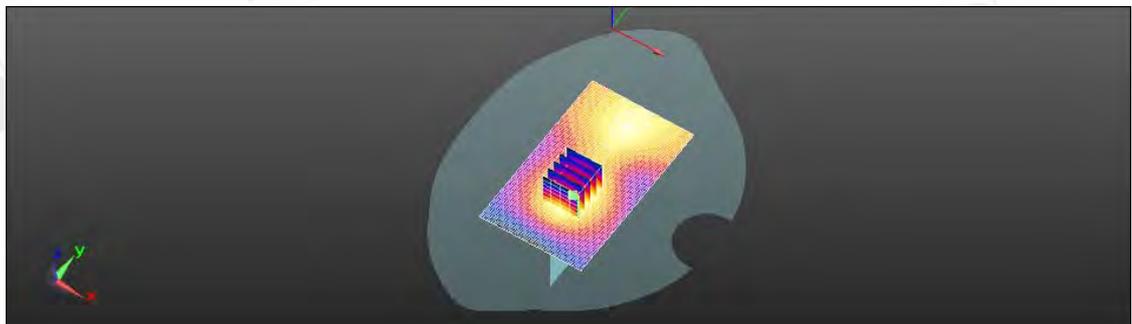
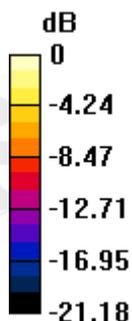
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.615 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 0.380 mW/g

SAR(1 g) = 0.237 mW/g; SAR(10 g) = 0.140 mW/g

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



0 dB = 0.322 mW/g = -9.83 dB mW/g

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Hotspot_Left side_CH9400

Communication System: WCDMA; Frequency: 1880 MHz

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.509$ mho/m; $\epsilon_r = 51.813$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.53, 7.53, 7.53); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

Maximum value of SAR (interpolated) = 0.310 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

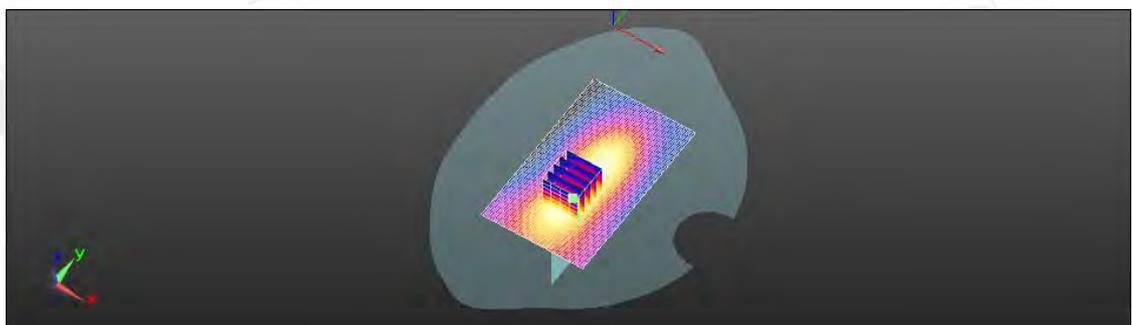
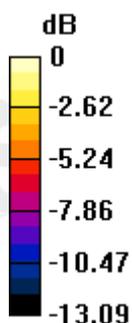
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 14.267 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.377 mW/g

SAR(1 g) = 0.230 mW/g; SAR(10 g) = 0.138 mW/g

Maximum value of SAR (measured) = 0.307 mW/g



0 dB = 0.310 mW/g = -10.18 dB mW/g

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RE Cheek_CH4132

Communication System: WCDMA; Frequency: 826.4 MHz

Medium parameters used: $f = 826.4$ MHz; $\sigma = 0.869$ mho/m; $\epsilon_r = 41.138$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.62, 9.62, 9.62); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/RE Cheek/Area Scan (61x101x1): Measurement grid:

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

Maximum value of SAR (interpolated) = 0.725 mW/g

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

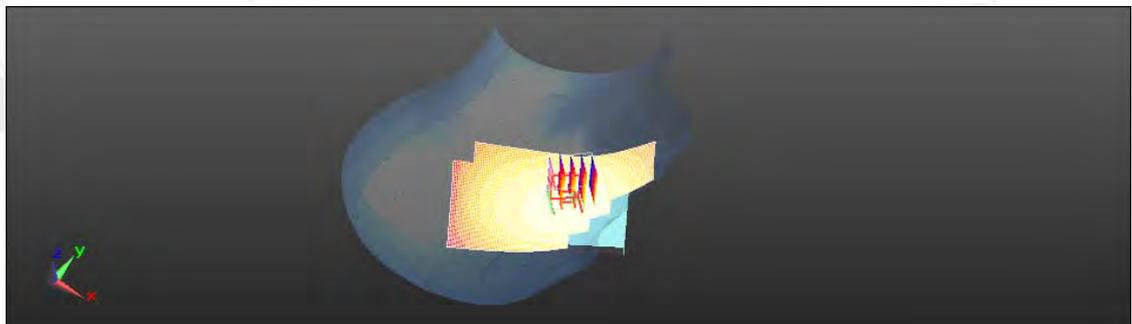
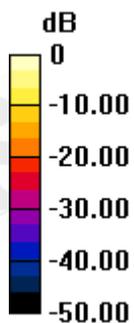
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 11.178 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.793 mW/g

SAR(1 g) = 0.624 mW/g; SAR(10 g) = 0.455 mW/g

Maximum value of SAR (measured) = 0.716 mW/g



0 dB = 0.725 mW/g = -2.80 dB mW/g

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RE Cheek_CH4183

Communication System: WCDMA; Frequency: 836.6 MHz

Medium parameters used: $f = 837$ MHz; $\sigma = 0.879$ mho/m; $\epsilon_r = 41.004$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.62, 9.62, 9.62); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/RE Cheek/Area Scan (61x101x1): Measurement grid:

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

Maximum value of SAR (interpolated) = 0.731 mW/g

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

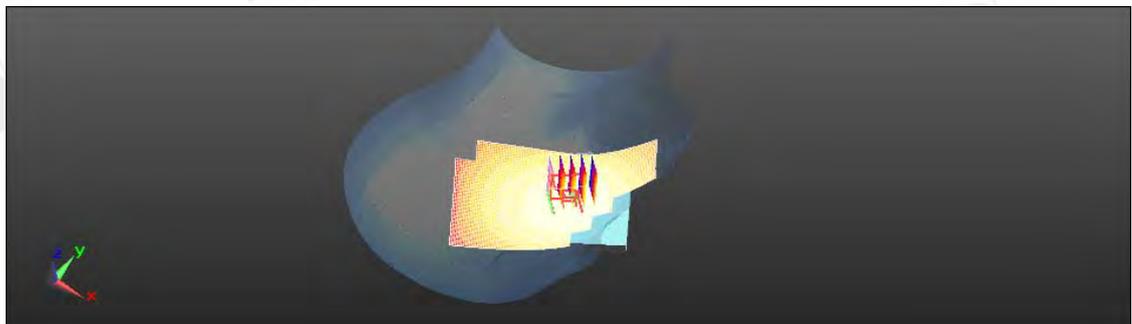
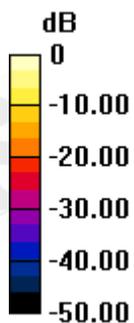
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 11.284 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 0.807 mW/g

SAR(1 g) = 0.633 mW/g; SAR(10 g) = 0.463 mW/g

Maximum value of SAR (measured) = 0.725 mW/g



0 dB = 0.731 mW/g = -2.72 dB mW/g

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RE Cheek_CH4233

Communication System: WCDMA; Frequency: 846.6 MHz

Medium parameters used: $f = 847$ MHz; $\sigma = 0.888$ mho/m; $\epsilon_r = 40.884$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.62, 9.62, 9.62); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/RE Cheek/Area Scan (61x101x1): Measurement grid:

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

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

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

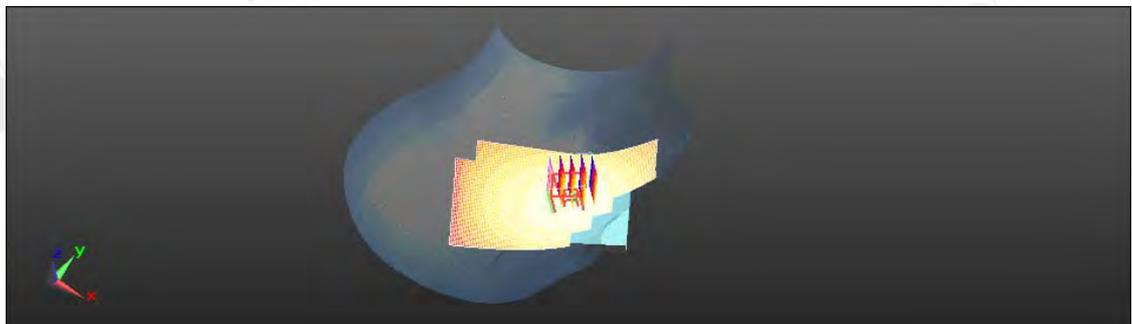
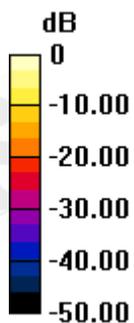
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 13.343 V/m; Power Drift = 0.14 dB

Peak SAR (extrapolated) = 1.241 mW/g

SAR(1 g) = 0.979 mW/g; SAR(10 g) = 0.713 mW/g

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



0 dB = 1.14 mW/g = 1.10 dB mW/g

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RE Tilt_CH4183

Communication System: WCDMA; Frequency: 836.6 MHz

Medium parameters used: $f = 837$ MHz; $\sigma = 0.879$ mho/m; $\epsilon_r = 41.004$; $\rho = 1000$ kg/m³

Phantom section: Right Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.62, 9.62, 9.62); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/RE Cheek/Area Scan (61x101x1): Measurement grid:

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

Maximum value of SAR (interpolated) = 0.436 mW/g

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

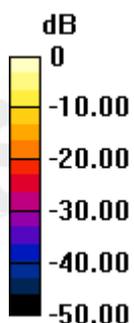
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 16.193 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 0.493 mW/g

SAR(1 g) = 0.377 mW/g; SAR(10 g) = 0.279 mW/g

Maximum value of SAR (measured) = 0.438 mW/g



0 dB = 0.436 mW/g = -7.20 dB mW/g

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LE Cheek_CH4183

Communication System: WCDMA; Frequency: 836.6 MHz

Medium parameters used: $f = 837$ MHz; $\sigma = 0.879$ mho/m; $\epsilon_r = 41.004$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.62, 9.62, 9.62); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/LE Cheek/Area Scan (61x101x1): Measurement grid:

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

Maximum value of SAR (interpolated) = 0.778 mW/g

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

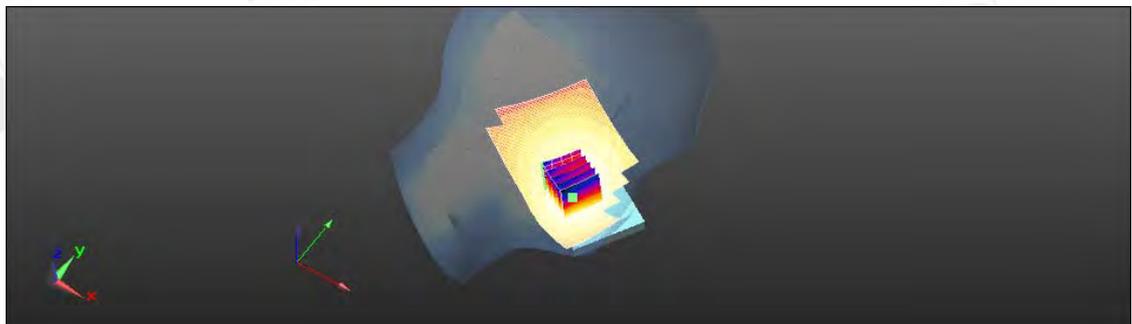
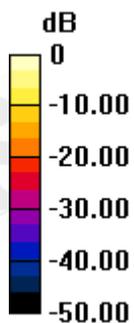
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 11.317 V/m; Power Drift = -0.16 dB

Peak SAR (extrapolated) = 0.898 mW/g

SAR(1 g) = 0.619 mW/g; SAR(10 g) = 0.441 mW/g

Maximum value of SAR (measured) = 0.747 mW/g



0 dB = 0.778 mW/g = -2.18 dB mW/g

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LE Tilt_CH4183

Communication System: WCDMA; Frequency: 836.6 MHz

Medium parameters used: $f = 837$ MHz; $\sigma = 0.879$ mho/m; $\epsilon_r = 41.004$; $\rho = 1000$ kg/m³

Phantom section: Left Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.62, 9.62, 9.62); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

Maximum value of SAR (interpolated) = 0.457 mW/g

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

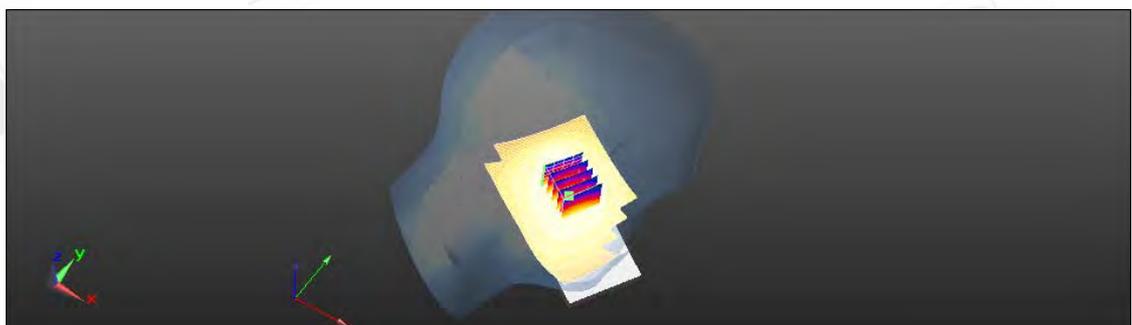
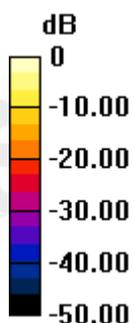
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 16.636 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.517 mW/g

SAR(1 g) = 0.395 mW/g; SAR(10 g) = 0.290 mW/g

Maximum value of SAR (measured) = 0.459 mW/g



0 dB = 0.457 mW/g = -6.80 dB mW/g

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Body_Speech mode_Front side_CH4183_repeated with headset

Communication System: WCDMA; Frequency: 836.6 MHz

Medium parameters used: $f = 837 \text{ MHz}$; $\sigma = 1.02 \text{ mho/m}$; $\epsilon_r = 54.653$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

Maximum value of SAR (interpolated) = 0.703 mW/g

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0:

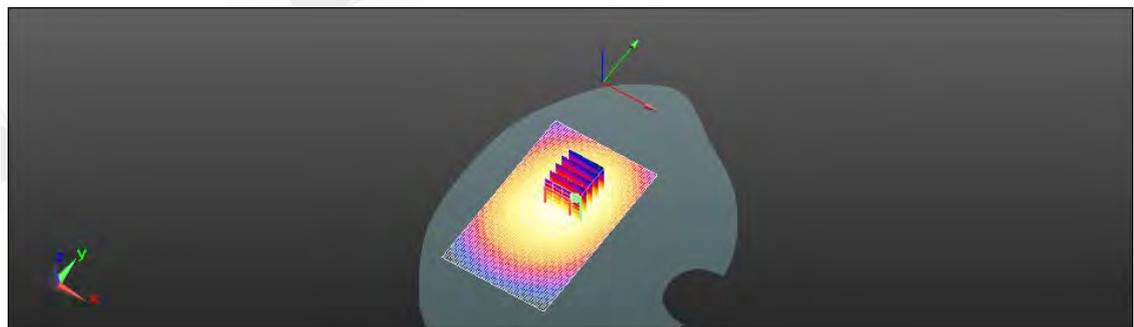
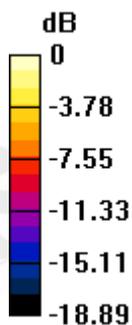
Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 17.867 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 0.780 mW/g

SAR(1 g) = 0.596 mW/g; SAR(10 g) = 0.437 mW/g

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



0 dB = 0.703 mW/g = -3.06 dB mW/g

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Date: 6/7/2012

Body_Speech mode_Back side_CH4132_repeated with headset

Communication System: WCDMA; Frequency: 826.4 MHz

Medium parameters used (interpolated): $f = 826.4 \text{ MHz}$; $\sigma = 1.012 \text{ mho/m}$; $\epsilon_r = 54.782$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

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

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0:

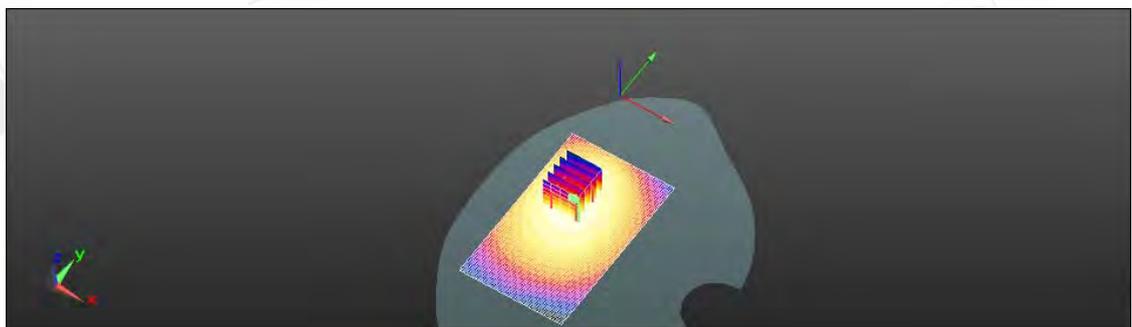
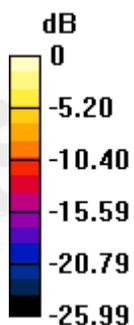
Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 16.964 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 1.198 mW/g

SAR(1 g) = 0.880 mW/g; SAR(10 g) = 0.626 mW/g

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



0 dB = 1.06 mW/g = 0.51 dB mW/g

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Date: 6/7/2012

Body_Speech mode_Back side_CH4183_repeated with headset

Communication System: WCDMA; Frequency: 836.6 MHz

 Medium parameters used: $f = 837$ MHz; $\sigma = 1.02$ mho/m; $\epsilon_r = 54.653$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASYS5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

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

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0:

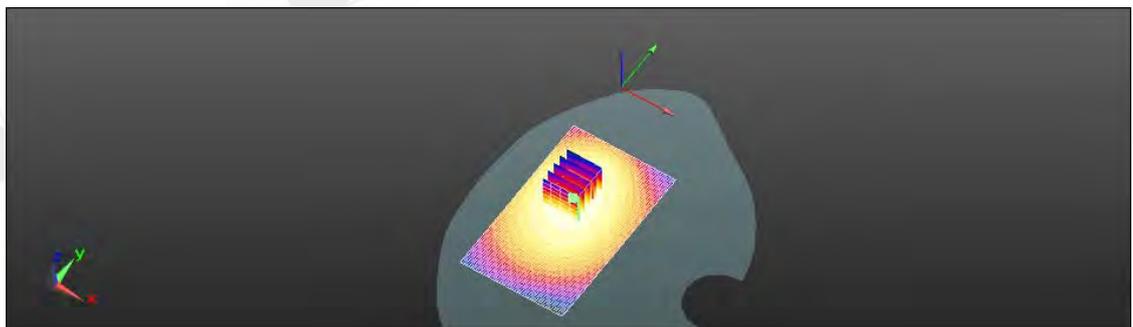
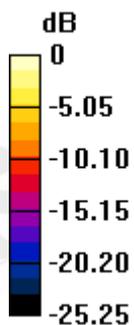
Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 18.662 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 1.225 mW/g

SAR(1 g) = 0.912 mW/g; SAR(10 g) = 0.657 mW/g

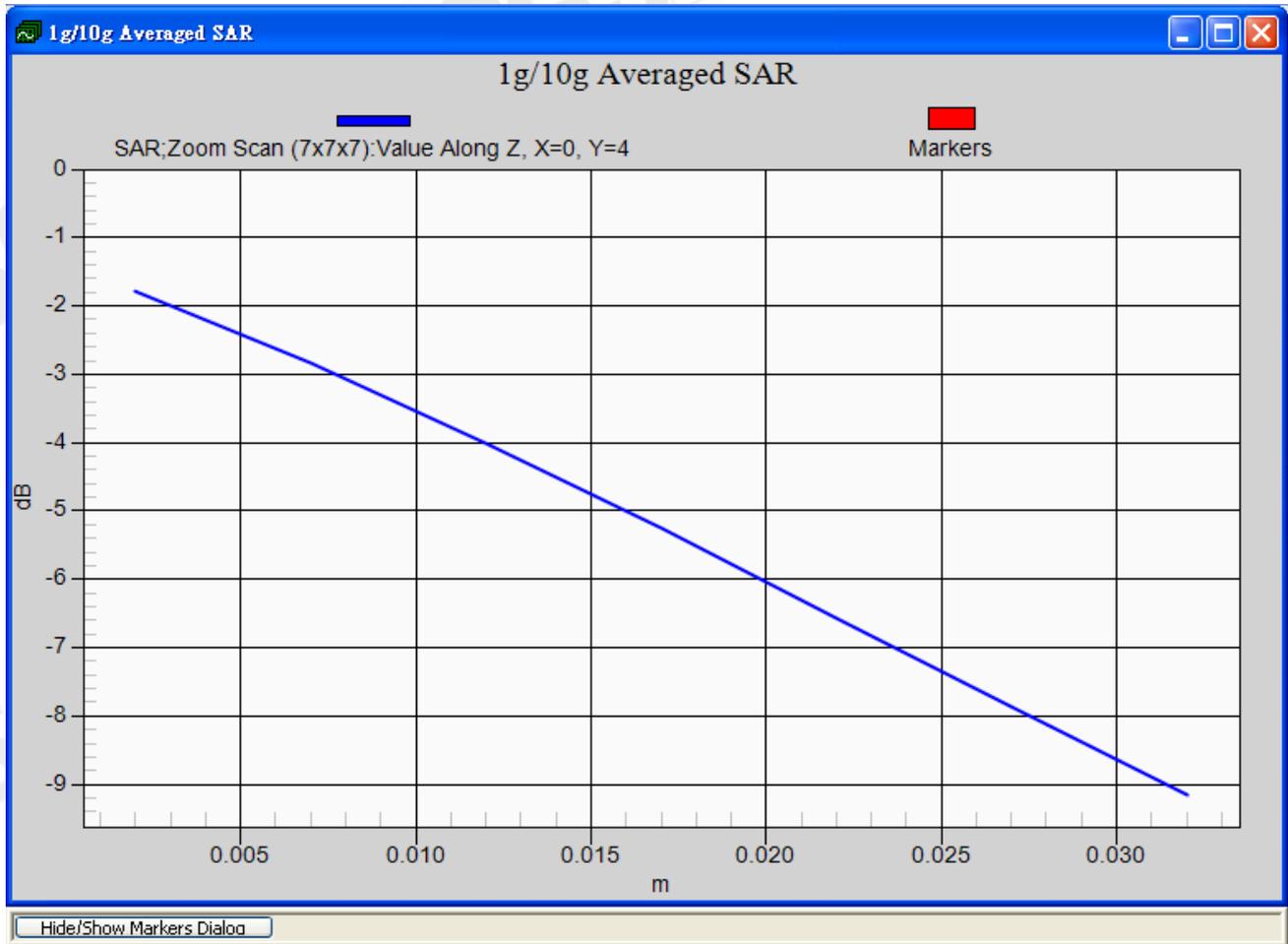
Maximum value of SAR (measured) = 1.09 mW/g



$$0 \text{ dB} = 1.08 \text{ mW/g} = 0.66 \text{ dB mW/g}$$

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Date: 6/7/2012

Body_Speech mode_Back side_CH4233_repeated with headset

Communication System: WCDMA; Frequency: 846.6 MHz

Medium parameters used: $f = 847$ MHz; $\sigma = 1.024$ mho/m; $\epsilon_r = 54.423$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

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

Configuration/Body/Zoom Scan (7x7x7) (5x5x7)/Cube 0:

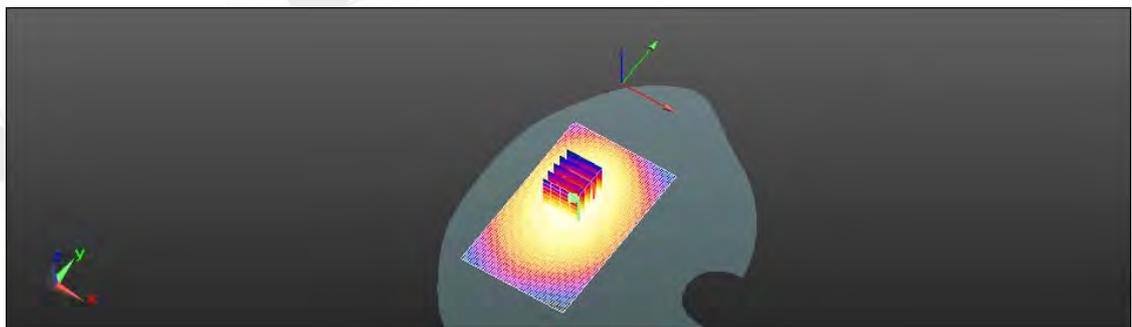
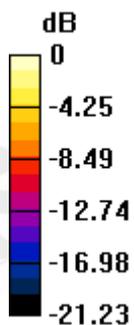
Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 19.164 V/m; Power Drift = 0.01 dB

Peak SAR (extrapolated) = 1.133 mW/g

SAR(1 g) = 0.852 mW/g; SAR(10 g) = 0.618 mW/g

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



0 dB = 1.00 mW/g = 0.02 dB mW/g

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Hotspot_Front side_CH4132

Communication System: WCDMA; Frequency: 826.4 MHz

Medium parameters used: $f = 826.4$ MHz; $\sigma = 0.999$ mho/m; $\epsilon_r = 52.228$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

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

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

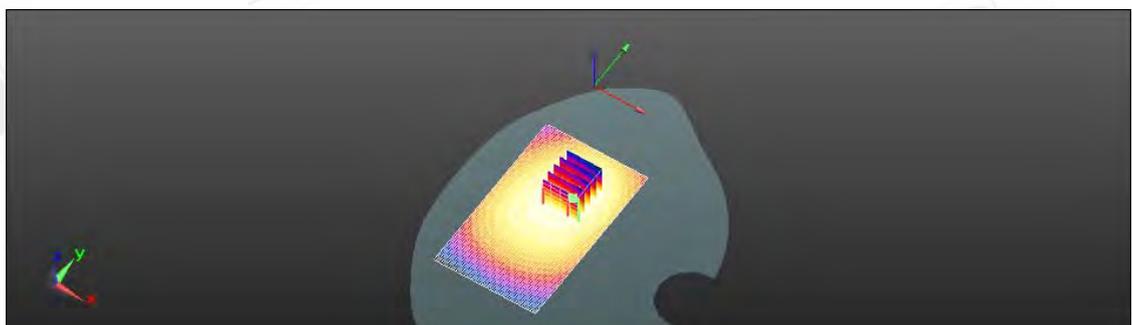
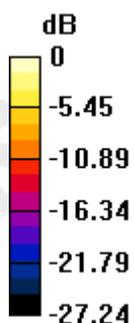
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 21.580 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 1.213 mW/g

SAR(1 g) = 0.913 mW/g; SAR(10 g) = 0.668 mW/g

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



0 dB = 1.07 mW/g = 0.57 dB mW/g

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Hotspot_Front side_CH4183

Communication System: WCDMA; Frequency: 836.6 MHz

Medium parameters used: $f = 837$ MHz; $\sigma = 1.01$ mho/m; $\epsilon_r = 52.119$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

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

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

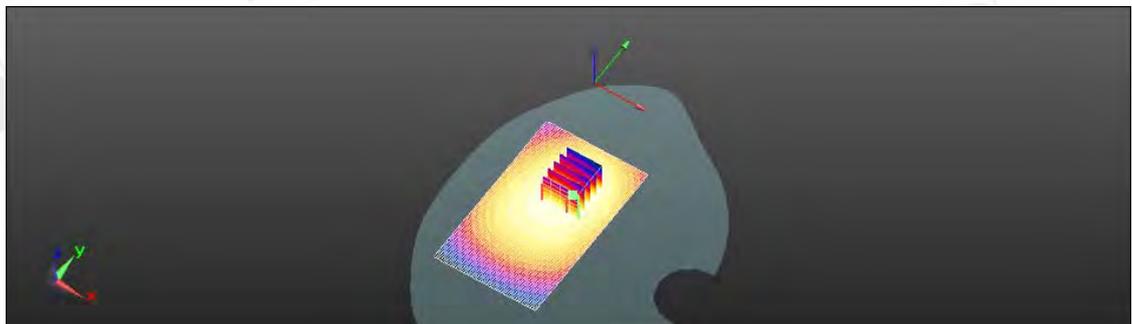
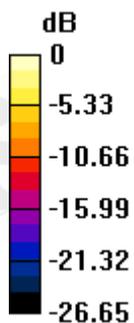
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 21.766 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 1.212 mW/g

SAR(1 g) = 0.916 mW/g; SAR(10 g) = 0.671 mW/g

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



0 dB = 1.09 mW/g = 0.77 dB mW/g

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Hotspot_Front side_CH4233

Communication System: WCDMA; Frequency: 846.6 MHz

Medium parameters used: $f = 847$ MHz; $\sigma = 1.02$ mho/m; $\epsilon_r = 52.013$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

Maximum value of SAR (interpolated) = 1.11 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

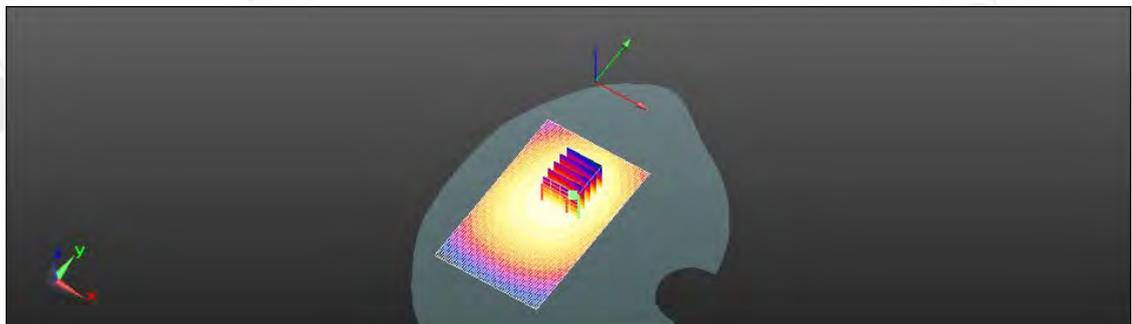
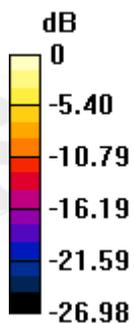
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 22.020 V/m; Power Drift = 0.06 dB

Peak SAR (extrapolated) = 1.240 mW/g

SAR(1 g) = 0.943 mW/g; SAR(10 g) = 0.692 mW/g

Maximum value of SAR (measured) = 1.11 mW/g



0 dB = 1.11 mW/g = 0.92 dB mW/g

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Hotspot_Back side_CH4132

Communication System: WCDMA; Frequency: 826.4 MHz

Medium parameters used: $f = 826.4$ MHz; $\sigma = 0.999$ mho/m; $\epsilon_r = 52.228$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

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

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

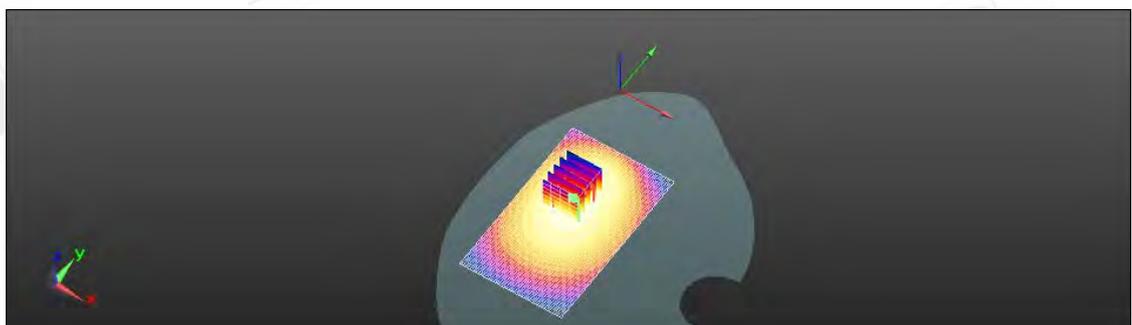
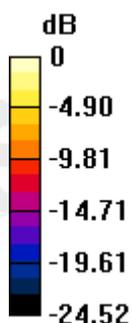
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 21.273 V/m; Power Drift = 0.12 dB

Peak SAR (extrapolated) = 1.631 mW/g

SAR(1 g) = 1.19 mW/g; SAR(10 g) = 0.850 mW/g

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



0 dB = 1.44 mW/g = 3.14 dB mW/g

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Hotspot_Back side_CH4183

Communication System: WCDMA; Frequency: 836.6 MHz

Medium parameters used: $f = 837$ MHz; $\sigma = 1.01$ mho/m; $\epsilon_r = 52.119$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

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

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

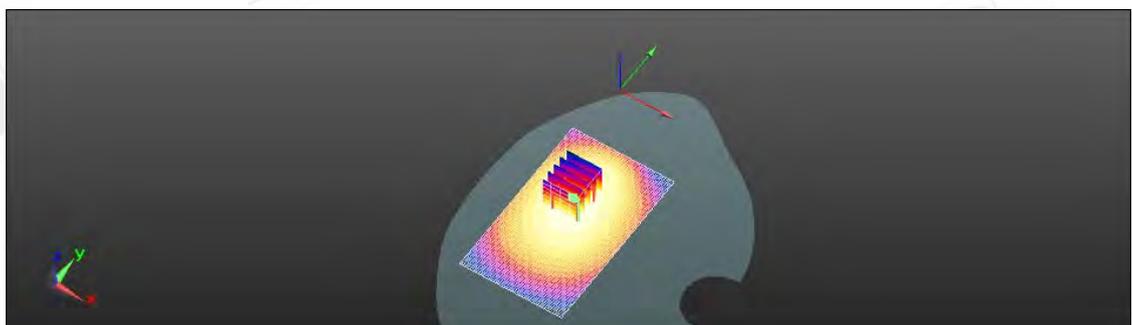
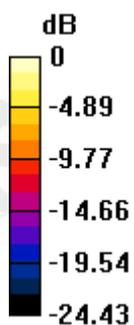
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 21.325 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 1.570 mW/g

SAR(1 g) = 1.16 mW/g; SAR(10 g) = 0.826 mW/g

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



0 dB = 1.37 mW/g = 2.73 dB mW/g

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Hotspot_Back side_CH4233

Communication System: WCDMA; Frequency: 846.6 MHz

Medium parameters used: $f = 847$ MHz; $\sigma = 1.02$ mho/m; $\epsilon_r = 52.013$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

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

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

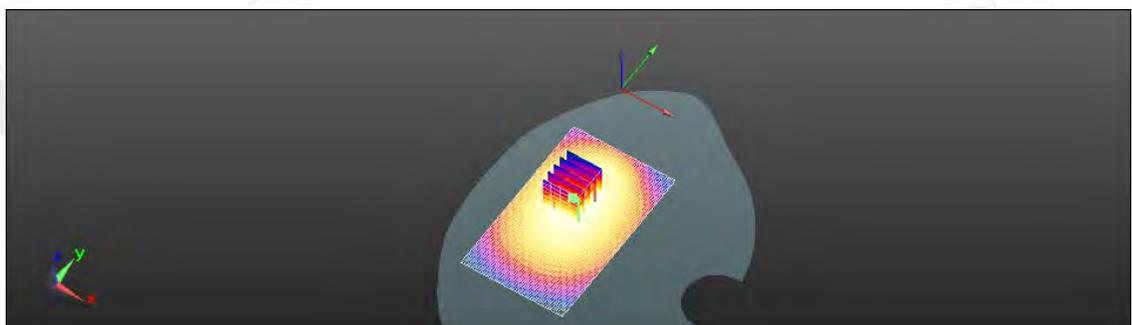
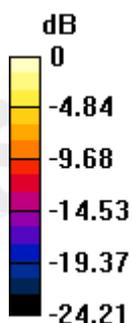
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 21.973 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 1.654 mW/g

SAR(1 g) = 1.22 mW/g; SAR(10 g) = 0.866 mW/g

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



$$0 \text{ dB} = 1.44 \text{ mW/g} = 3.16 \text{ dB mW/g}$$

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Hotspot_Botton side_CH4183

Communication System: WCDMA; Frequency: 836.6 MHz

Medium parameters used: $f = 837$ MHz; $\sigma = 1.01$ mho/m; $\epsilon_r = 52.119$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

Maximum value of SAR (interpolated) = 0.200 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

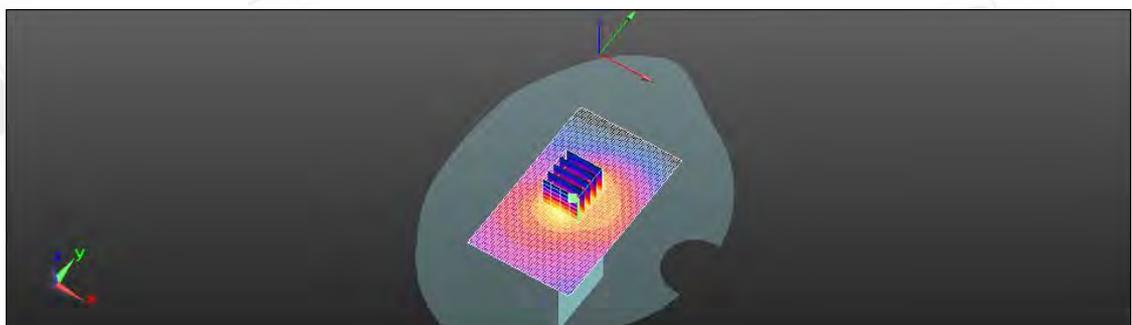
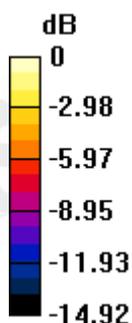
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.788 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.274 mW/g

SAR(1 g) = 0.141 mW/g; SAR(10 g) = 0.076 mW/g

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



0 dB = 0.200 mW/g = -14.00 dB mW/g

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Hotspot_Right side_CH4183

Communication System: WCDMA; Frequency: 836.6 MHz

Medium parameters used: $f = 837$ MHz; $\sigma = 1.01$ mho/m; $\epsilon_r = 52.119$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

Maximum value of SAR (interpolated) = 0.888 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

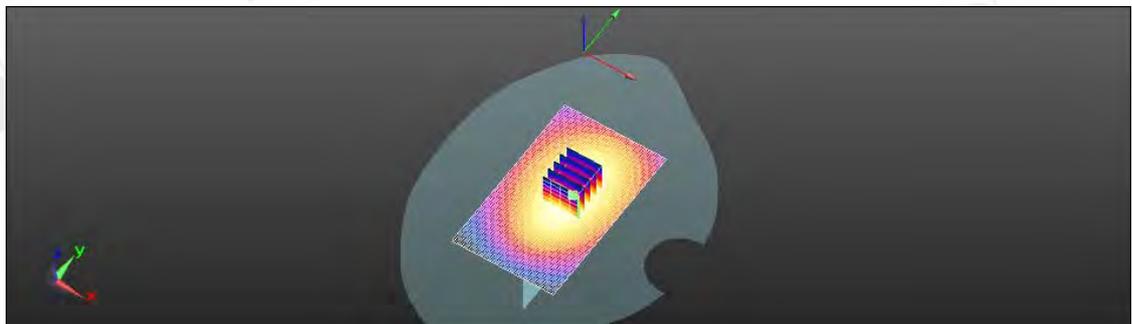
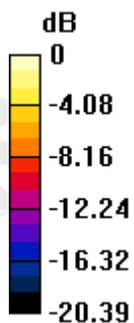
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 29.964 V/m; Power Drift = 0.02 dB

Peak SAR (extrapolated) = 1.037 mW/g

SAR(1 g) = 0.729 mW/g; SAR(10 g) = 0.501 mW/g

Maximum value of SAR (measured) = 0.900 mW/g



0 dB = 0.888 mW/g = -1.03 dB mW/g

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Hotspot_Left side_CH4183

Communication System: WCDMA; Frequency: 836.6 MHz

Medium parameters used: $f = 837$ MHz; $\sigma = 1.01$ mho/m; $\epsilon_r = 52.119$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

Maximum value of SAR (interpolated) = 0.882 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

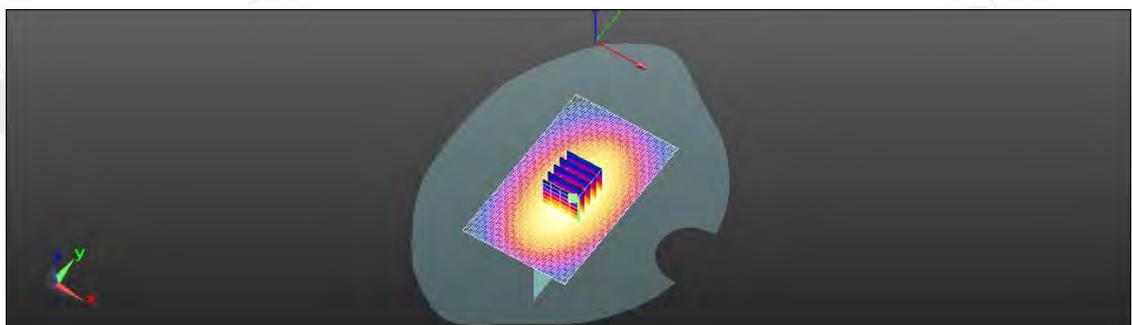
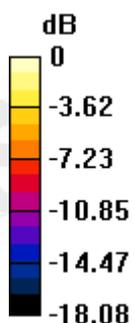
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 30.285 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 1.030 mW/g

SAR(1 g) = 0.717 mW/g; SAR(10 g) = 0.485 mW/g

Maximum value of SAR (measured) = 0.890 mW/g



0 dB = 0.882 mW/g = -1.09 dB mW/g

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Date: 5/7/2012

RE Cheek_WLAN802.11b_CH6

Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz

Medium parameters used: $f = 2437$ MHz; $\sigma = 1.797$ mho/m; $\epsilon_r = 37.652$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.17, 7.17, 7.17); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/RE Cheek/Area Scan (61x101x1): Measurement grid:

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

Maximum value of SAR (interpolated) = 0.353 mW/g

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

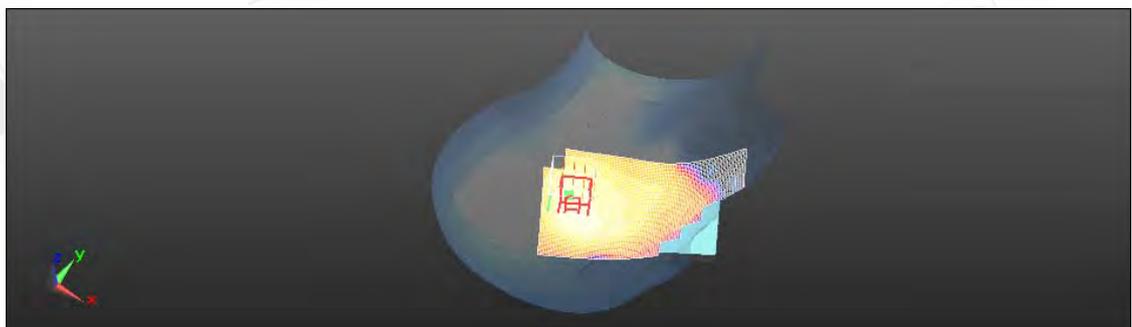
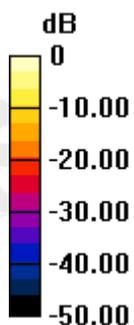
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 13.998 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.474 mW/g

SAR(1 g) = 0.252 mW/g; SAR(10 g) = 0.132 mW/g

Maximum value of SAR (measured) = 0.355 mW/g



0 dB = 0.353 mW/g = -9.05 dB mW/g

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Date: 5/7/2012

RE Tilt_WLAN802.11b_CH6

Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz

Medium parameters used: $f = 2437$ MHz; $\sigma = 1.797$ mho/m; $\epsilon_r = 37.652$; $\rho = 1000$ kg/m³

Phantom section: Right Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.17, 7.17, 7.17); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

Maximum value of SAR (interpolated) = 0.336 mW/g

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

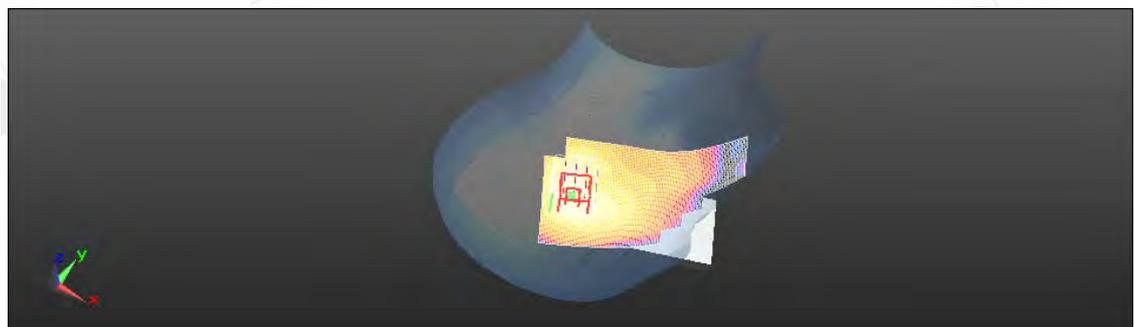
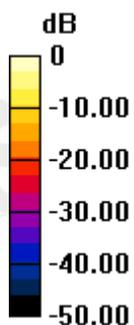
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.754 V/m; Power Drift = -0.09 dB

Peak SAR (extrapolated) = 0.462 mW/g

SAR(1 g) = 0.251 mW/g; SAR(10 g) = 0.128 mW/g

Maximum value of SAR (measured) = 0.348 mW/g



0 dB = 0.336 mW/g = -9.46 dB mW/g

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Date: 5/7/2012

LE Cheek_WLAN802.11b_CH1

Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2412 MHz

Medium parameters used: $f = 2412$ MHz; $\sigma = 1.767$ mho/m; $\epsilon_r = 37.653$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.17, 7.17, 7.17); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/LE Cheek/Area Scan (61x101x1): Measurement grid:

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

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

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

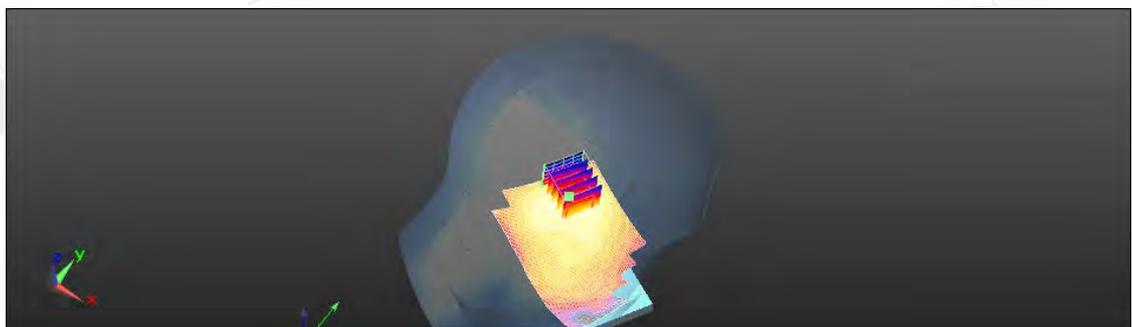
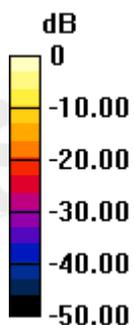
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 13.516 V/m; Power Drift = 0.09 dB

Peak SAR (extrapolated) = 0.920 mW/g

SAR(1 g) = 0.389 mW/g; SAR(10 g) = 0.178 mW/g

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



0 dB = 0.542 mW/g = -5.33 dB mW/g

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Date: 5/7/2012

LE Cheek_WLAN802.11b_CH6

Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz

Medium parameters used: $f = 2437$ MHz; $\sigma = 1.797$ mho/m; $\epsilon_r = 37.652$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.17, 7.17, 7.17); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/LE Cheek/Area Scan (61x101x1): Measurement grid:

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

Maximum value of SAR (interpolated) = 0.580 mW/g

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

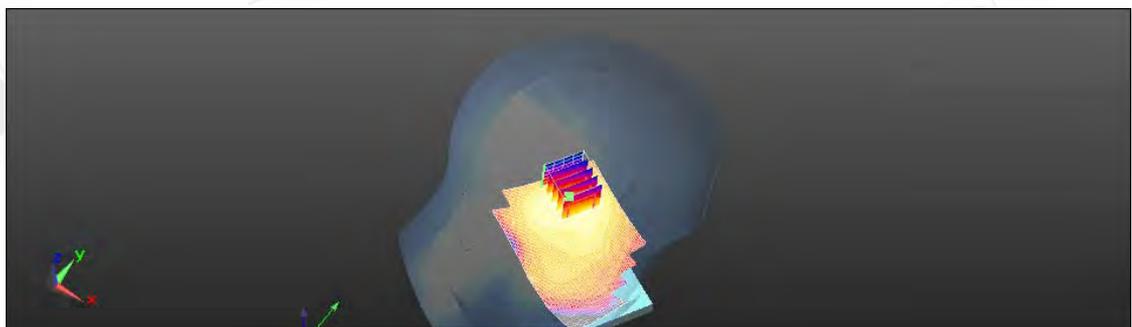
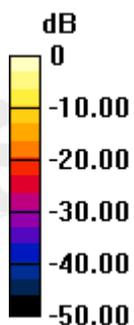
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 12.929 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 0.997 mW/g

SAR(1 g) = 0.415 mW/g; SAR(10 g) = 0.185 mW/g

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



0 dB = 0.580 mW/g = -4.74 dB mW/g

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Date: 5/7/2012

LE Cheek_WLAN802.11b_CH11

Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2462 MHz

Medium parameters used: $f = 2462$ MHz; $\sigma = 1.82$ mho/m; $\epsilon_r = 37.608$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.17, 7.17, 7.17); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/LE Cheek/Area Scan (61x101x1): Measurement grid:

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

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

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

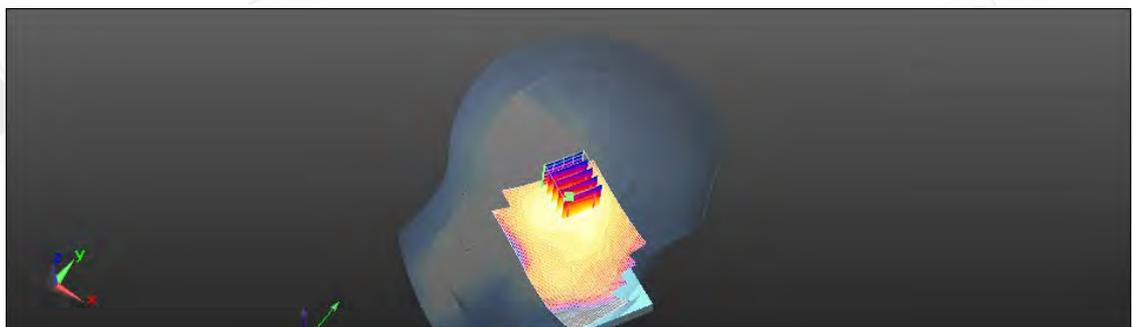
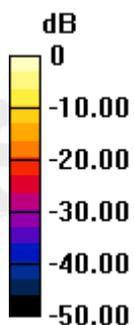
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 13.033 V/m; Power Drift = 0.15 dB

Peak SAR (extrapolated) = 0.943 mW/g

SAR(1 g) = 0.392 mW/g; SAR(10 g) = 0.176 mW/g

Maximum value of SAR (measured) = 0.636 mW/g



0 dB = 0.561 mW/g = -5.02 dB mW/g

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LE Cheek_WLAN802.11b_CH6_repeated with external Memory card inside

Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz

Medium parameters used: $f = 2437$ MHz; $\sigma = 1.797$ mho/m; $\epsilon_r = 37.652$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.17, 7.17, 7.17); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/LE Cheek/Area Scan (61x101x1): Measurement grid:

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

Maximum value of SAR (interpolated) = 0.572 mW/g

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

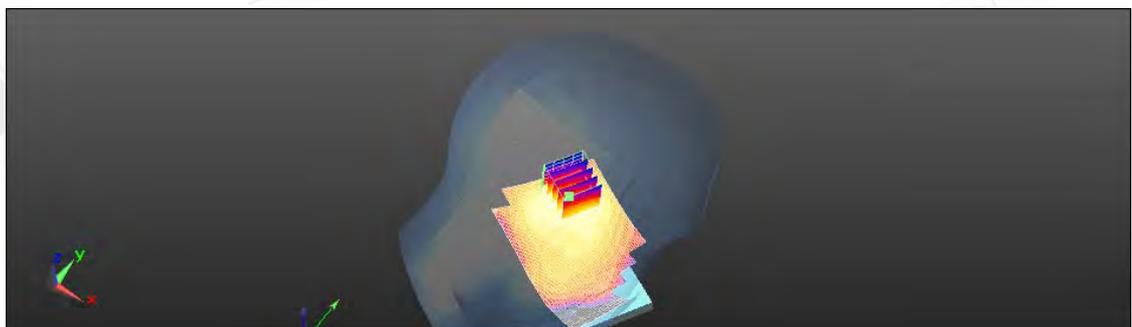
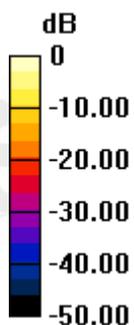
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 13.404 V/m; Power Drift = 0.19 dB

Peak SAR (extrapolated) = 1.004 mW/g

SAR(1 g) = 0.419 mW/g; SAR(10 g) = 0.186 mW/g

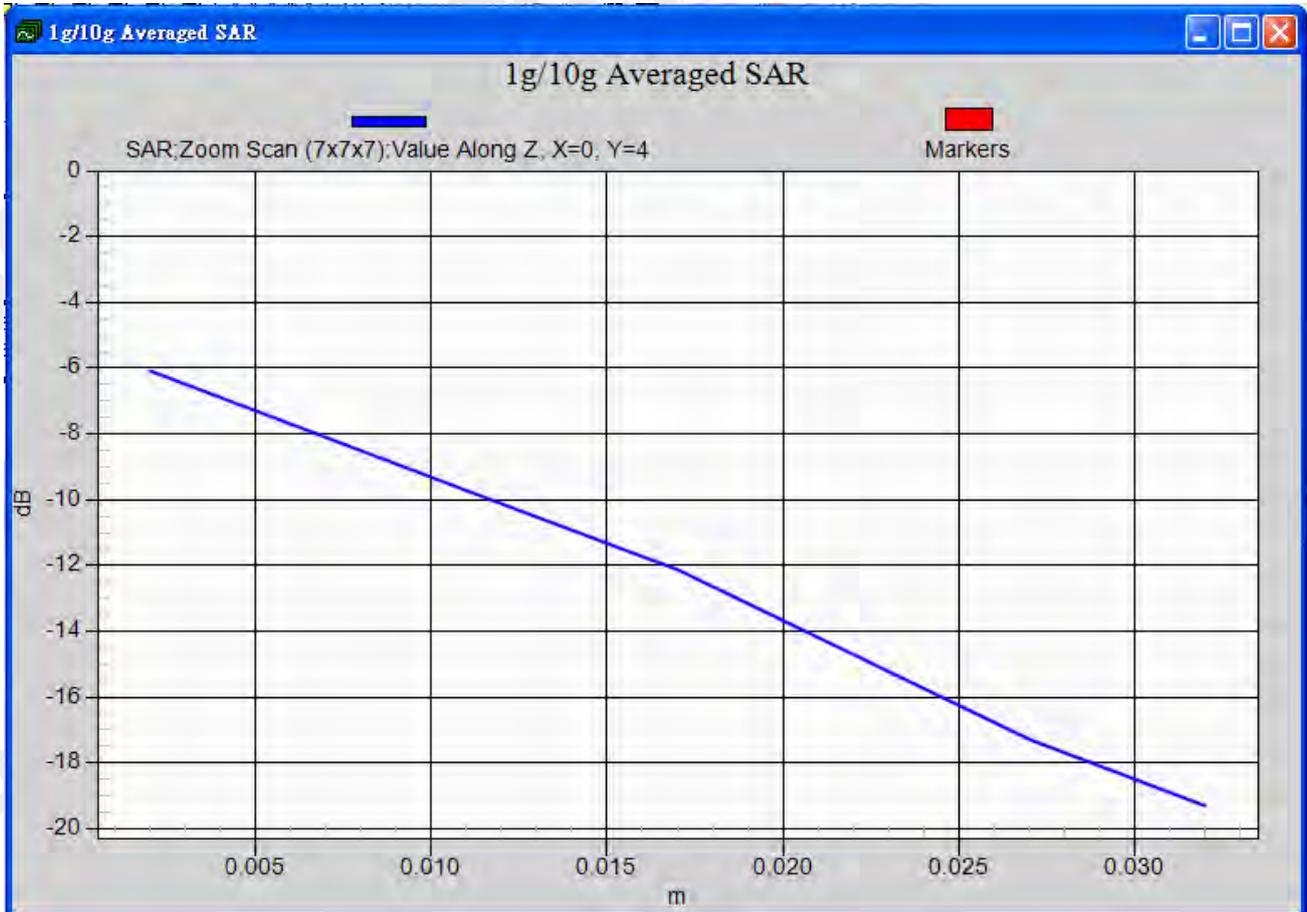
Maximum value of SAR (measured) = 0.678 mW/g



0 dB = 0.572 mW/g = -4.86 dB mW/g

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Date: 5/7/2012

LE Cheek_WLAN802.11b_CH6_repeated with 2nd Battery

Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz

Medium parameters used: $f = 2437$ MHz; $\sigma = 1.797$ mho/m; $\epsilon_r = 37.652$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.17, 7.17, 7.17); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/LE Cheek/Area Scan (61x101x1): Measurement grid:

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

Maximum value of SAR (interpolated) = 0.564 mW/g

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

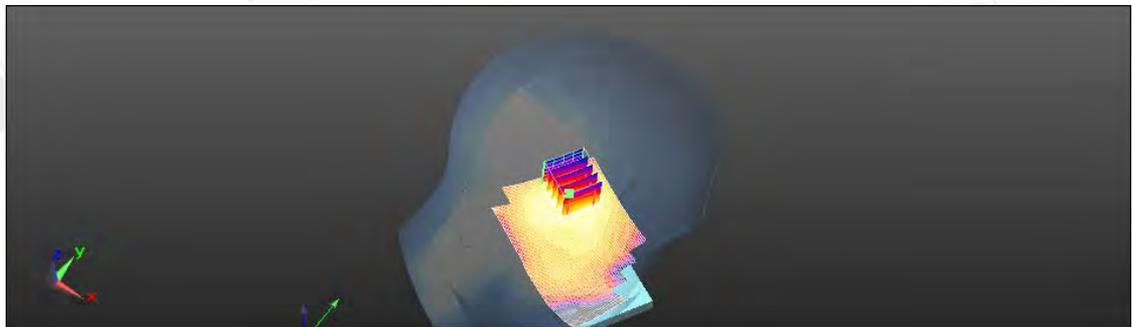
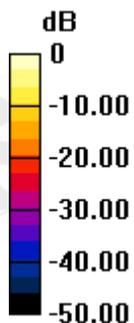
Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 13.286 V/m; Power Drift = 0.13 dB

Peak SAR (extrapolated) = 0.984 mW/g

SAR(1 g) = 0.402 mW/g; SAR(10 g) = 0.178 mW/g

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



0 dB = 0.564 mW/g = -4.97 dB mW/g

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Date: 5/7/2012

LE Tilt_WLAN802.11b_CH6

Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz

Medium parameters used: $f = 2437$ MHz; $\sigma = 1.797$ mho/m; $\epsilon_r = 37.652$; $\rho = 1000$ kg/m³

Phantom section: Left Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.17, 7.17, 7.17); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

Maximum value of SAR (interpolated) = 0.526 mW/g

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

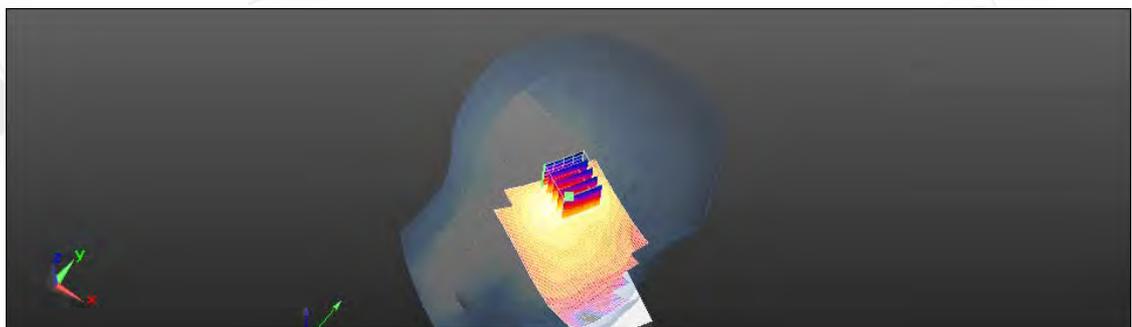
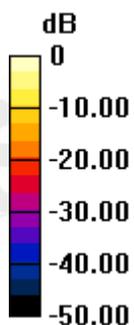
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.269 V/m; Power Drift = 0.11 dB

Peak SAR (extrapolated) = 0.854 mW/g

SAR(1 g) = 0.349 mW/g; SAR(10 g) = 0.151 mW/g

Maximum value of SAR (measured) = 0.562 mW/g



0 dB = 0.526 mW/g = -5.58 dB mW/g

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Date: 5/12/2012

Hotspot_Front side_WLAN802.11b_CH6

Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz

Medium parameters used: $f = 2437$ MHz; $\sigma = 1.851$ mho/m; $\epsilon_r = 48.949$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.15, 7.15, 7.15); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

Maximum value of SAR (interpolated) = 0.0951 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

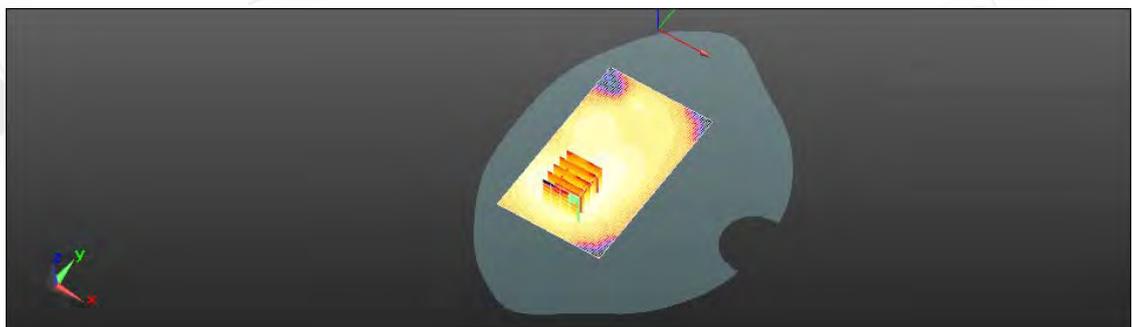
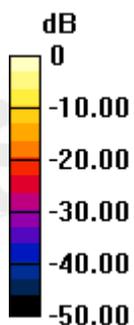
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 3.819 V/m; Power Drift = -0.10dB

Peak SAR (extrapolated) = 0.126 mW/g

SAR(1 g) = 0.070 mW/g; SAR(10 g) = 0.039 mW/g

Maximum value of SAR (measured) = 0.0951 mW/g



0 dB = 0.0951 mW/g = -20.44 dB mW/g

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Date: 5/12/2012

Hotspot_Back side_WLAN802.11b_CH6

Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz

Medium parameters used: $f = 2437$ MHz; $\sigma = 1.851$ mho/m; $\epsilon_r = 48.949$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.15, 7.15, 7.15); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

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

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

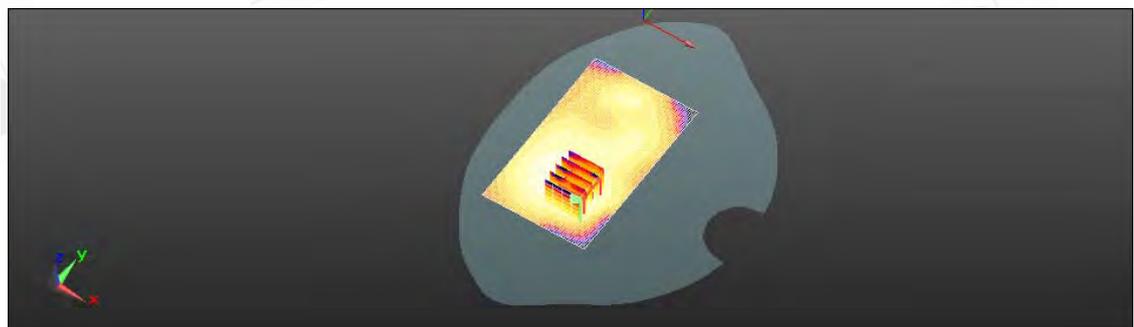
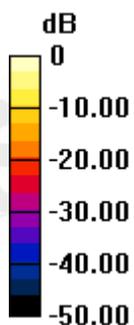
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 2.890 V/m; Power Drift = -0.12dB

Peak SAR (extrapolated) = 0.162 mW/g

SAR(1 g) = 0.071 mW/g; SAR(10 g) = 0.033 mW/g

Maximum value of SAR (measured) = 0.113 mW/g



0 dB = 0.107 mW/g = -19.43 dB mW/g

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Date: 5/12/2012

Hotspot_Top side_WLAN802.11b_CH6

Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz

Medium parameters used: $f = 2437$ MHz; $\sigma = 1.851$ mho/m; $\epsilon_r = 48.949$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.15, 7.15, 7.15); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

Maximum value of SAR (interpolated) = 0.0803 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

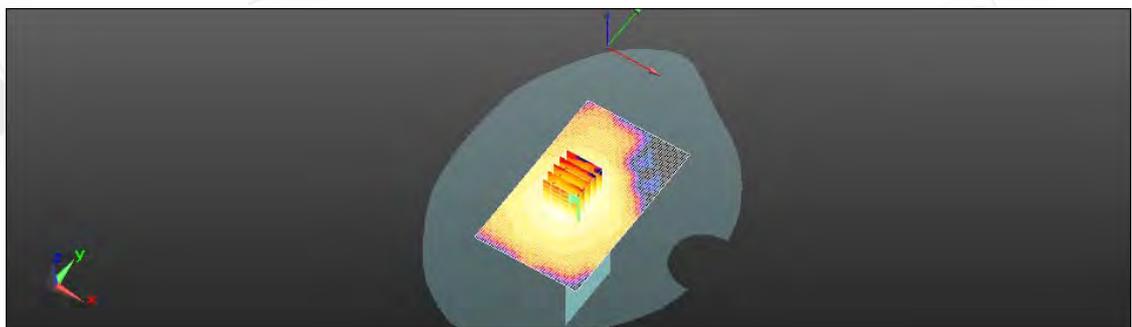
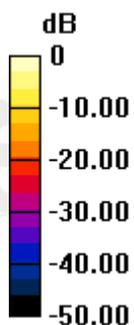
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.629 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 0.108 mW/g

SAR(1 g) = 0.058 mW/g; SAR(10 g) = 0.032 mW/g

Maximum value of SAR (measured) = 0.0818 mW/g



0 dB = 0.0803 mW/g = -21.90 dB mW/g

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Date: 5/12/2012

Hotspot_Right side_WLAN802.11b_CH1

Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2412 MHz

Medium parameters used: $f = 2412$ MHz; $\sigma = 1.815$ mho/m; $\epsilon_r = 48.977$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.15, 7.15, 7.15); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

Maximum value of SAR (interpolated) = 0.0999 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

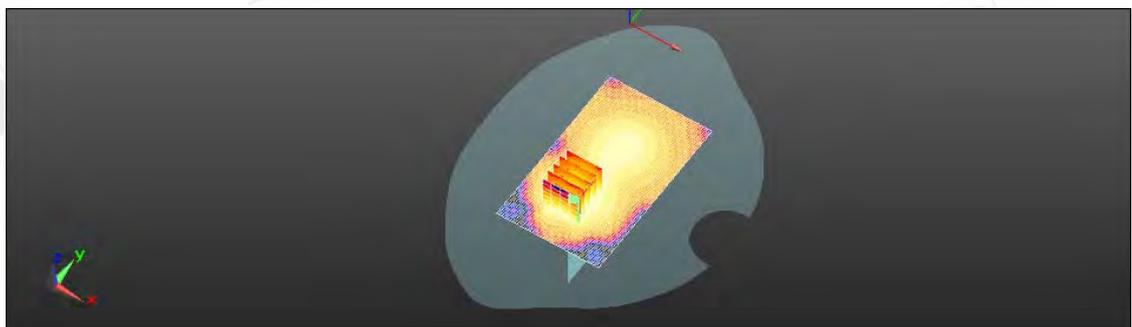
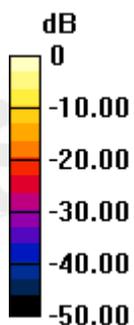
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 3.545 V/m; Power Drift = -0.14 dB

Peak SAR (extrapolated) = 0.140 mW/g

SAR(1 g) = 0.070 mW/g; SAR(10 g) = 0.034 mW/g

Maximum value of SAR (measured) = 0.104 mW/g



0 dB = 0.0999 mW/g = -20.01 dB mW/g

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Date: 5/12/2012

Hotspot_Right side_WLAN802.11b_CH6

Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz

Medium parameters used: $f = 2437$ MHz; $\sigma = 1.851$ mho/m; $\epsilon_r = 48.949$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.15, 7.15, 7.15); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

Maximum value of SAR (interpolated) = 0.113 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

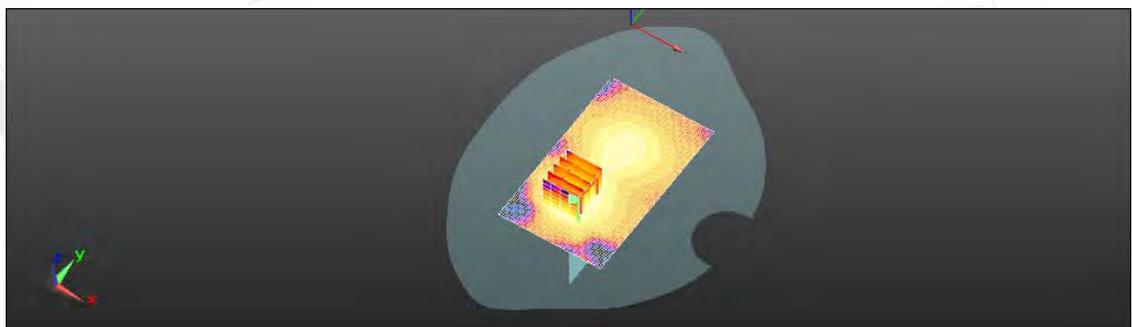
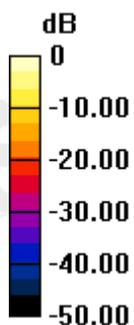
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 3.398 V/m; Power Drift = -0.10dB

Peak SAR (extrapolated) = 0.146 mW/g

SAR(1 g) = 0.073 mW/g; SAR(10 g) = 0.035 mW/g

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



0 dB = 0.113 mW/g = -18.93 dB mW/g

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Date: 5/12/2012

Hotspot_Right side_WLAN802.11b_CH11

Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2462 MHz

Medium parameters used: $f = 2462 \text{ MHz}$; $\sigma = 1.88 \text{ mho/m}$; $\epsilon_r = 48.897$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.15, 7.15, 7.15); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

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

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

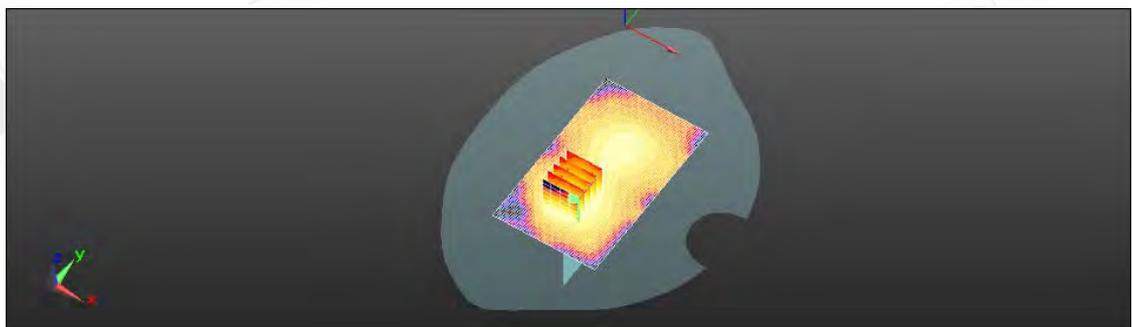
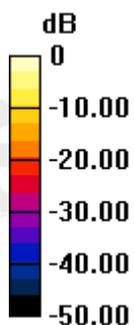
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 3.246 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 0.140 mW/g

SAR(1 g) = 0.070 mW/g; SAR(10 g) = 0.034 mW/g

Maximum value of SAR (measured) = 0.101 mW/g



0 dB = 0.102 mW/g = -19.83 dB mW/g

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Date: 5/12/2012

Hotspot_Right side_WLAN802.11b_CH6_repeated with external Memory card inside

Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz

Medium parameters used: $f = 2437 \text{ MHz}$; $\sigma = 1.851 \text{ mho/m}$; $\epsilon_r = 48.949$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.15, 7.15, 7.15); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

Maximum value of SAR (interpolated) = 0.0916 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

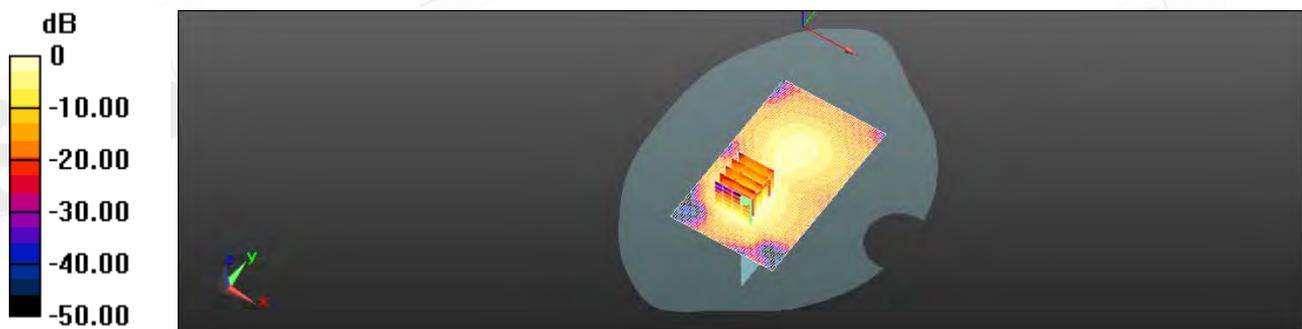
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 2.900 V/m; Power Drift = 0.14dB

Peak SAR (extrapolated) = 0.130 mW/g

SAR(1 g) = 0.064 mW/g; SAR(10 g) = 0.030 mW/g

Maximum value of SAR (measured) = 0.0945 mW/g



0 dB = 0.0916 mW/g = -20.76 dB mW/g

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Date: 5/12/2012

Hotspot_Right side_WLAN802.11b_CH6_repeated with headset

Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz

Medium parameters used: $f = 2437$ MHz; $\sigma = 1.851$ mho/m; $\epsilon_r = 48.949$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.15, 7.15, 7.15); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS2, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

Maximum value of SAR (interpolated) = 0.161 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

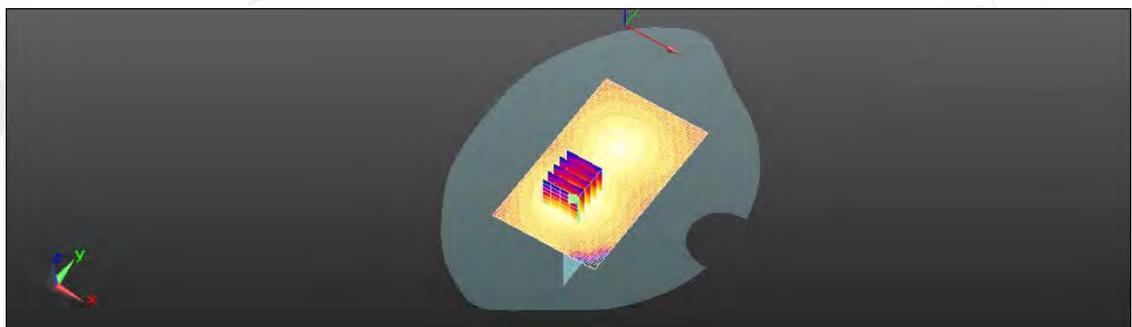
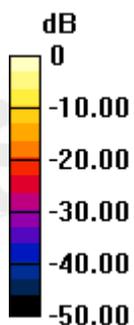
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.583 V/m; Power Drift = 0.07 dB

Peak SAR (extrapolated) = 0.215 mW/g

SAR(1 g) = 0.112 mW/g; SAR(10 g) = 0.056 mW/g

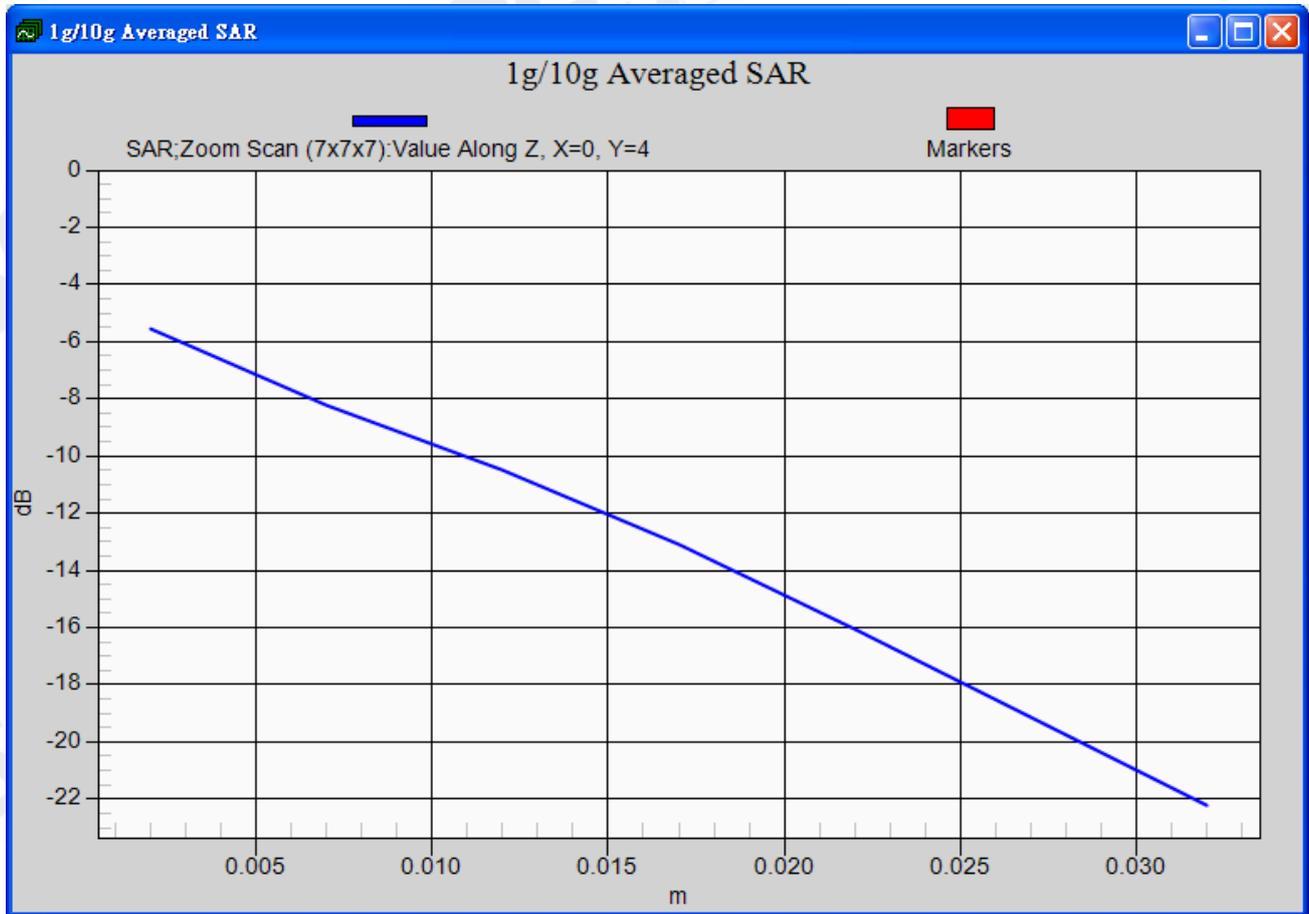
Maximum value of SAR (measured) = 0.159 mW/g



0 dB = 0.161 mW/g = -15.85 dB mW/g

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Date: 5/12/2012

Hotspot_Right side_WLAN802.11b_CH6_repeated with 2nd Battery

Communication System: WLAN802.11 b & g & n(20M)(40M); Frequency: 2437 MHz

Medium parameters used: $f = 2437$ MHz; $\sigma = 1.851$ mho/m; $\epsilon_r = 48.949$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.15, 7.15, 7.15); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

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

Maximum value of SAR (interpolated) = 0.111 mW/g

Configuration/Body/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

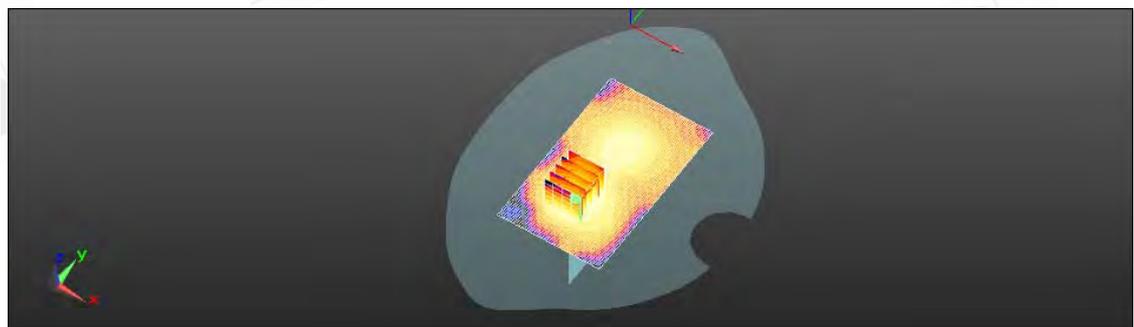
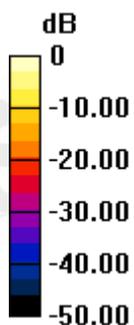
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 3.526 V/m; Power Drift = -0.10dB

Peak SAR (extrapolated) = 0.144 mW/g

SAR(1 g) = 0.072 mW/g; SAR(10 g) = 0.034 mW/g

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



0 dB = 0.111 mW/g = -19.09 dB mW/g

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5. System Verification

Date: 5/7/2012

Dipole 835 MHz (Head)

Communication System: CW; Frequency: 835 MHz

 Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.877 \text{ mho/m}$; $\epsilon_r = 41.026$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASYS5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.62, 9.62, 9.62); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/d=15mm, Pin=250mW, dist=2mm: Measurement grid:

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

Maximum value of SAR (interpolated) = 4.50 mW/g

Configuration/d=15mm, Pin=250mW, dist=2mm: Measurement grid:

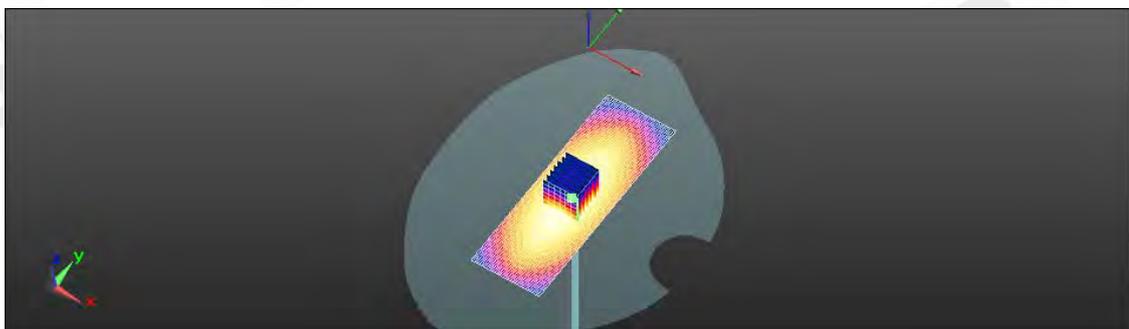
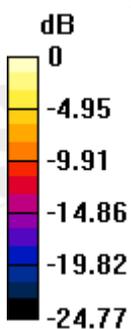
 $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 68.858 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 5.491 mW/g

SAR(1 g) = 2.41 mW/g; SAR(10 g) = 1.61 mW/g

Maximum value of SAR (measured) = 4.52 mW/g


 $0 \text{ dB} = 4.50 \text{ mW/g} = 13.07 \text{ dB mW/g}$

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Dipole 835 MHz (Body)

Communication System: CW; Frequency: 835 MHz

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 1.008 \text{ mho/m}$; $\epsilon_r = 52.142$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/d=15mm, Pin=250mW, dist=2mm: Measurement grid:

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

Maximum value of SAR (interpolated) = 3.05 mW/g

Configuration/d=15mm, Pin=250mW, dist=2mm: Measurement grid:

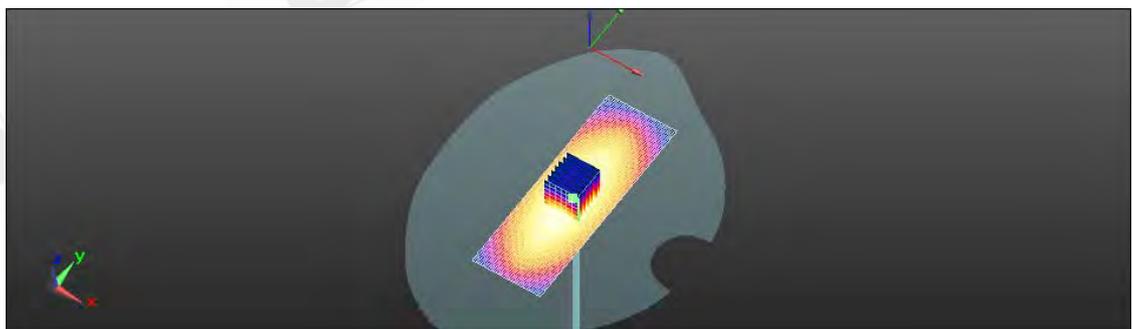
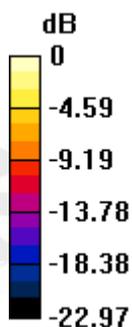
$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 56.407 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 3.573 mW/g

SAR(1 g) = 2.43 mW/g; SAR(10 g) = 1.6 mW/g

Maximum value of SAR (measured) = 3.06 mW/g



0 dB = 3.05 mW/g = 9.69 dB mW/g

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Dipole 1900 MHz (Head)

Communication System: CW; Frequency: 1900 MHz

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 37.219$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(8.35, 8.35, 8.35); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/d=10mm, Pin=250mW, dist=2mm: Measurement grid:

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

Maximum value of SAR (interpolated) = 13.3 mW/g

Configuration/d=10mm, Pin=250mW, dist=2mm: Measurement grid:

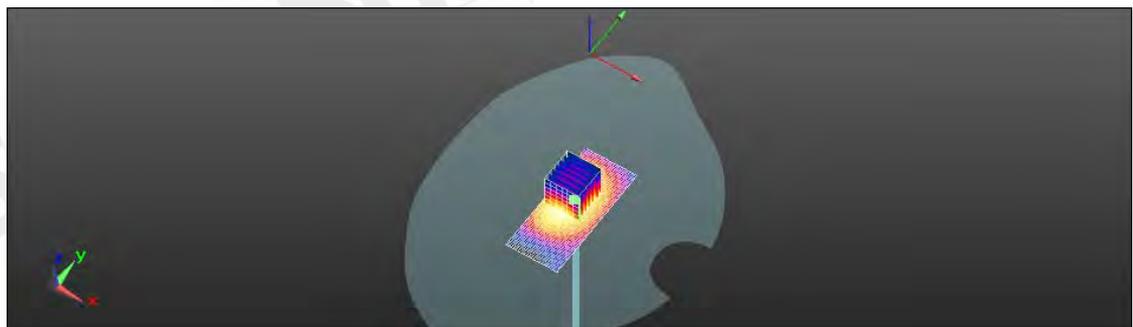
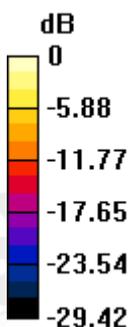
$dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 94.465 V/m; Power Drift = -0.16 dB

Peak SAR (extrapolated) = 16.586 mW/g

SAR(1 g) = 9.25 mW/g; SAR(10 g) = 4.86 mW/g

Maximum value of SAR (measured) = 10.3 mW/g



0 dB = 13.3 mW/g = 22.50 dB mW/g

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Date: 5/12/2012

Dipole 1900 MHz (Body)

Communication System: CW; Frequency: 1900 MHz

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.522$ mho/m; $\epsilon_r = 51.361$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.53, 7.53, 7.53); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/d=10mm, Pin=250mW, dist=2mm: Measurement grid:

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

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

Configuration/d=10mm, Pin=250mW, dist=2mm: Measurement grid:

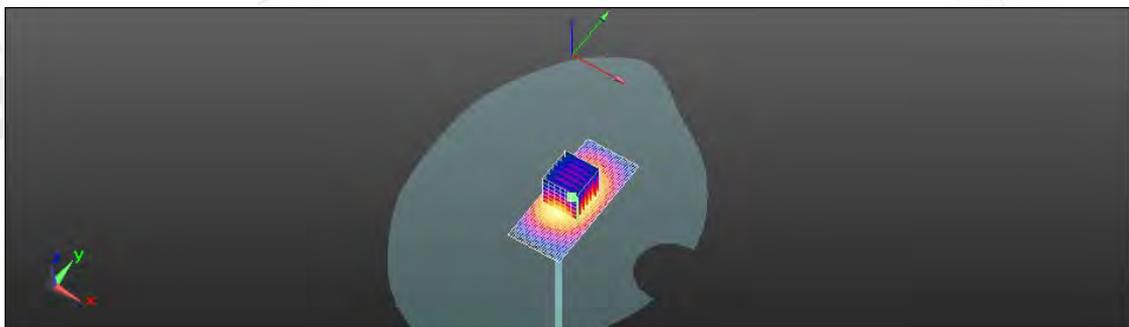
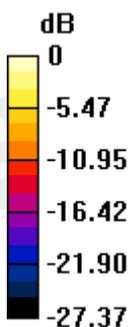
$dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 99.101 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 17.986 mW/g

SAR(1 g) = 10.1 mW/g; SAR(10 g) = 5.31 mW/g

Maximum value of SAR (measured) = 14.3 mW/g



0 dB = 15.1 mW/g = 23.57 dB mW/g

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Date: 5/7/2012

Dipole 2450 MHz (Head)

Communication System: CW; Frequency: 2450 MHz

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.809$ mho/m; $\epsilon_r = 37.641$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.17, 7.17, 7.17); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/d=10mm, Pin=250mW, dist=2mm: Measurement grid:

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

Maximum value of SAR (interpolated) = 21.3 mW/g

Configuration/d=10mm, Pin=250mW, dist=2mm: Measurement grid:

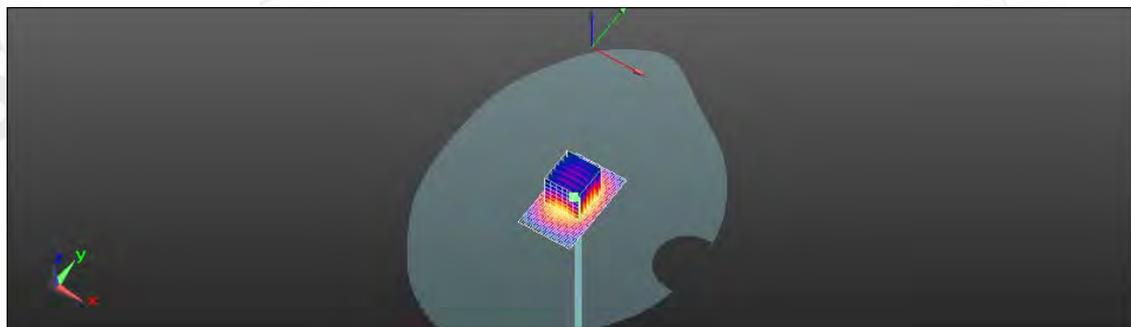
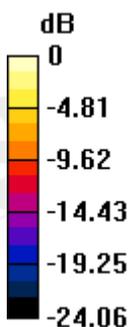
$dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 106.7 V/m; Power Drift = -0.19 dB

Peak SAR (extrapolated) = 27.673 mW/g

SAR(1 g) = 13.4 mW/g; SAR(10 g) = 6.15 mW/g

Maximum value of SAR (measured) = 20.4 mW/g



0 dB = 21.3 mW/g = 26.57 dB mW/g

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Date: 5/12/2012

Dipole 2450 MHz (Body)

Communication System: CW; Frequency: 2450 MHz

Medium parameters used: $f = 2450 \text{ MHz}$; $\sigma = 1.867 \text{ mho/m}$; $\epsilon_r = 48.926$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.15, 7.15, 7.15); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/d=10mm, Pin=250mW, dist=2mm: Measurement grid:

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

Maximum value of SAR (interpolated) = 19.9 mW/g

Configuration/d=10mm, Pin=250mW, dist=2mm: Measurement grid:

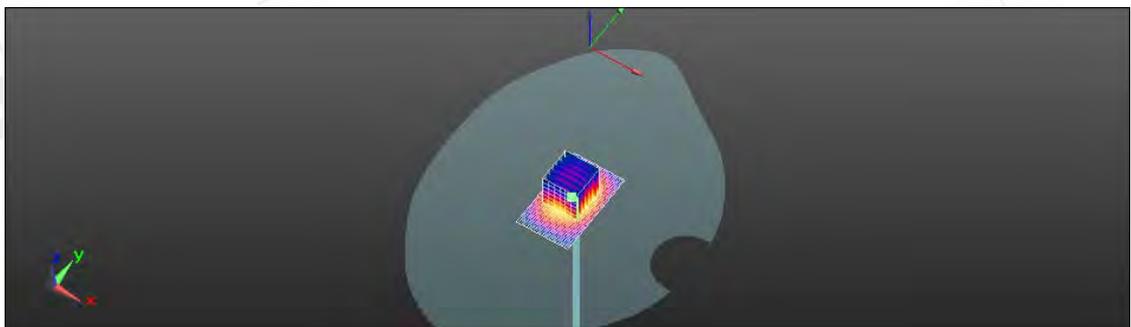
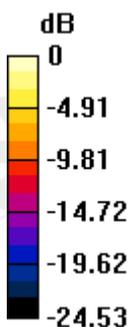
$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 100.6 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 25.540 mW/g

SAR(1 g) = 12.3 mW/g; SAR(10 g) = 5.64 mW/g

Maximum value of SAR (measured) = 18.5 mW/g



$0 \text{ dB} = 19.9 \text{ mW/g} = 25.98 \text{ dB mW/g}$

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Dipole 835 MHz (Body)

Communication System: CW; Frequency: 835 MHz

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 1.018 \text{ mho/m}$; $\epsilon_r = 54.687$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASY52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/d=15mm, Pin=250mW, dist=2mm: Measurement grid:

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

Maximum value of SAR (interpolated) = 3.14 mW/g

Configuration/d=15mm, Pin=250mW, dist=2mm: Measurement grid:

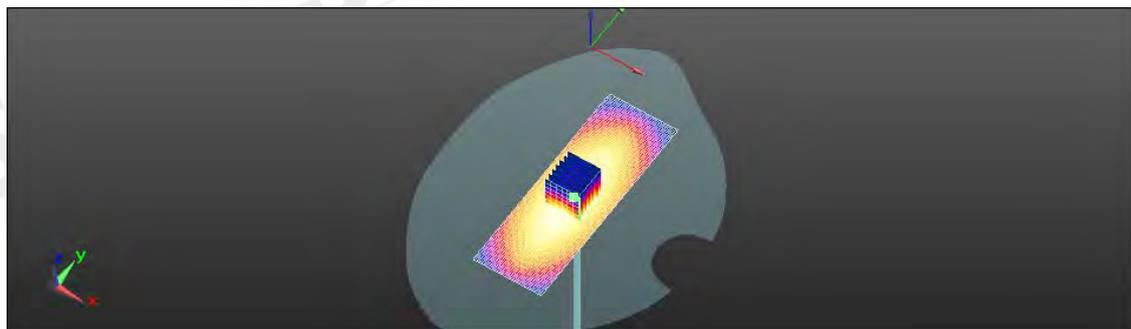
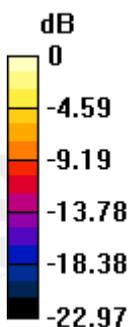
$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 56.407 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 3.681 mW/g

SAR(1 g) = 2.51 mW/g; SAR(10 g) = 1.65 mW/g

Maximum value of SAR (measured) = 3.15 mW/g



0 dB = 3.14 mW/g = 9.94 dB mW/g

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Dipole 1900 MHz (Body)

Communication System: CW; Frequency: 1900 MHz

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.538$ mho/m; $\epsilon_r = 51.001$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.53, 7.53, 7.53); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn905; Calibrated: 6/24/2011
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS2, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/d=10mm, Pin=250mW, dist=2mm: Measurement grid:

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

Maximum value of SAR (interpolated) = 15.2 mW/g

Configuration/d=10mm, Pin=250mW, dist=2mm: Measurement grid:

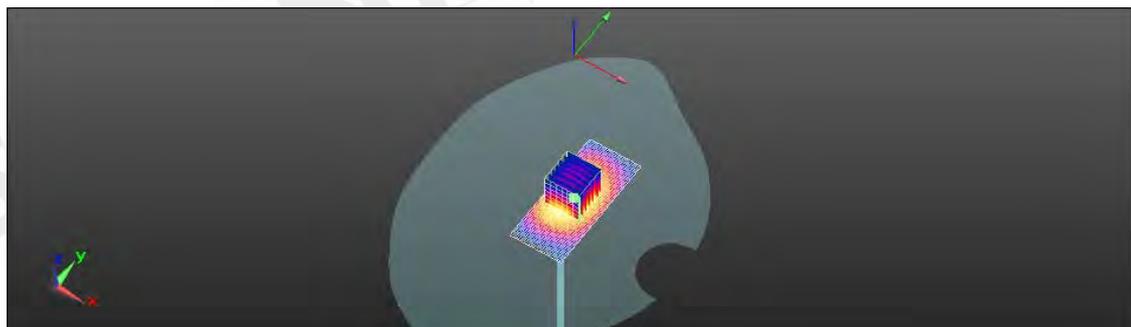
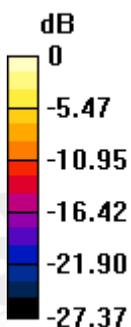
$dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 99.101 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 18.176 mW/g

SAR(1 g) = 10.2 mW/g; SAR(10 g) = 5.36 mW/g

Maximum value of SAR (measured) = 14.4 mW/g



0 dB = 15.2 mW/g = 23.66 dB mW/g

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Date: 6/22/2012

Dipole 835 MHz (Body)

Communication System: CW; Frequency: 835 MHz

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 1.038 \text{ mho/m}$; $\epsilon_r = 54.475$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(9.6, 9.6, 9.6); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/d=15mm, Pin=250mW, dist=2mm: Measurement grid:

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

Maximum value of SAR (interpolated) = 3.22 mW/g

Configuration/d=15mm, Pin=250mW, dist=2mm: Measurement grid:

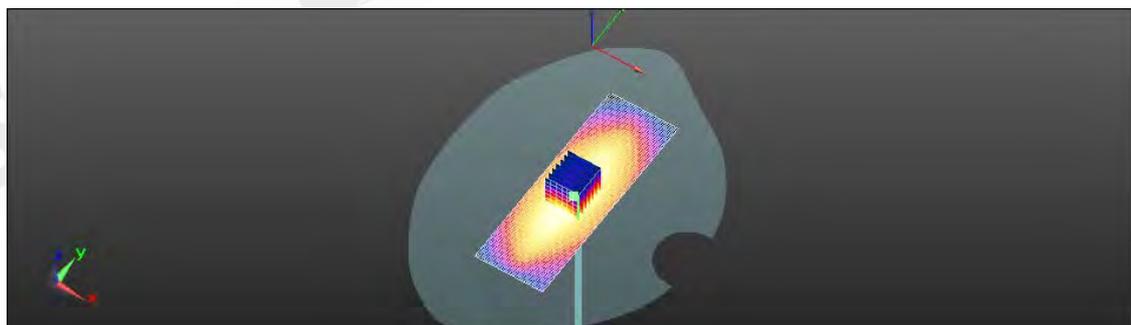
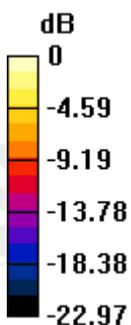
$dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 57.096 V/m; Power Drift = -0.07 dB

Peak SAR (extrapolated) = 3.764 mW/g

SAR(1 g) = 2.57 mW/g; SAR(10 g) = 1.69 mW/g

Maximum value of SAR (measured) = 3.23 mW/g



$$0 \text{ dB} = 3.22 \text{ mW/g} = 10.16 \text{ dB mW/g}$$

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Dipole 1900 MHz (Body)

Communication System: CW; Frequency: 1900 MHz

Medium parameters used (interpolated): $f = 1900$ MHz; $\sigma = 1.491$ mho/m; $\epsilon_r = 52.475$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: EX3DV4 - SN3770; ConvF(7.53, 7.53, 7.53); Calibrated: 4/27/2012;
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn856; Calibrated: 5/30/2012
- Phantom: SAM2; Type: SAM
- Measurement SW: DASYS52, Version 52.8 (1); SEMCAD X Version 14.6.5 (6469)

Configuration/d=10mm, Pin=250mW, dist=2mm: Measurement grid:

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

Maximum value of SAR (interpolated) = 14.8 mW/g

Configuration/d=10mm, Pin=250mW, dist=2mm: Measurement grid:

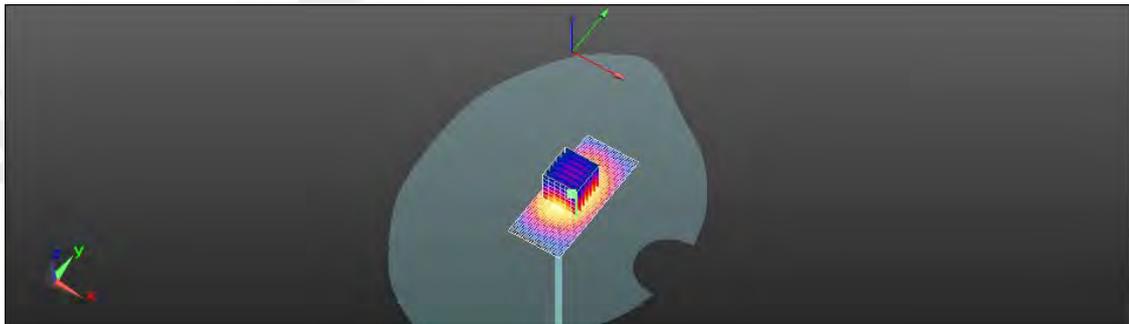
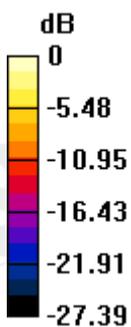
$dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 99.112 V/m; Power Drift = -0.06 dB

Peak SAR (extrapolated) = 17.634 mW/g

SAR(1 g) = 9.91 mW/g; SAR(10 g) = 5.2 mW/g

Maximum value of SAR (measured) = 14.0 mW/g



0 dB = 14.8 mW/g = 23.41 dB mW/g

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6. DAE & Probe Calibration Certificate

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Accreditation No.: **SCS 108**

Client **Auden**

Certificate No: **DAE4-905_Jun11**

CALIBRATION CERTIFICATE

Object: **DAE4 - SD 000 D04 BK - SN: 905**

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

Calibration date: **June 24, 2011**

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

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

Calibration Equipment used (M&TE critical for calibration)

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

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

Issued: June 24, 2011

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

Certificate No: DAE4-905_Jun11

Page 1 of 5

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Accreditation No.: **SCS 108**

Glossary

DAE data acquisition electronics
Connector angle information used in DASY system to align probe sensor X to the robot coordinate system.

Methods Applied and Interpretation of Parameters

- **DC Voltage Measurement:** Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- **Connector angle:** The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The following parameters as documented in the Appendix contain technical information as a result from the performance test and require no uncertainty.
 - **DC Voltage Measurement Linearity:** Verification of the Linearity at +10% and -10% of the nominal calibration voltage. Influence of offset voltage is included in this measurement.
 - **Common mode sensitivity:** Influence of a positive or negative common mode voltage on the differential measurement.
 - **Channel separation:** Influence of a voltage on the neighbor channels not subject to an input voltage.
 - **AD Converter Values with inputs shorted:** Values on the internal AD converter corresponding to zero input voltage
 - **Input Offset Measurement:** Output voltage and statistical results over a large number of zero voltage measurements.
 - **Input Offset Current:** Typical value for information; Maximum channel input offset current, not considering the input resistance.
 - **Input resistance:** Typical value for information; DAE input resistance at the connector, during internal auto-zeroing and during measurement.
 - **Low Battery Alarm Voltage:** Typical value for information. Below this voltage, a battery alarm signal is generated.
 - **Power consumption:** Typical value for information. Supply currents in various operating modes.

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DC Voltage Measurement

A/D - Converter Resolution nominal

High Range: 1LSB = 6.1 μ V, full range = -100...+300 mV
 Low Range: 1LSB = 61nV, full range = -1...+3mV

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors	X	Y	Z
High Range	404.723 \pm 0.1% (k=2)	405.276 \pm 0.1% (k=2)	404.851 \pm 0.1% (k=2)
Low Range	3.97979 \pm 0.7% (k=2)	4.00079 \pm 0.7% (k=2)	3.99604 \pm 0.7% (k=2)

Connector Angle

Connector Angle to be used in DASY system	270,5° \pm 1°
---	-----------------

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Appendix

1. DC Voltage Linearity

High Range	Reading (μV)	Difference (μV)	Error (%)
Channel X + Input	199999.3	-0.37	-0.00
Channel X + Input	20000.19	0.69	0.00
Channel X - Input	-19996.51	2.99	-0.01
Channel Y + Input	199999.5	1.19	0.00
Channel Y + Input	19998.36	-1.14	-0.01
Channel Y - Input	-19998.45	0.65	-0.00
Channel Z + Input	199996.8	-0.50	-0.00
Channel Z + Input	19998.70	-0.80	-0.00
Channel Z - Input	-19998.46	0.84	-0.00

Low Range	Reading (μV)	Difference (μV)	Error (%)
Channel X + Input	2000.5	0.40	0.02
Channel X + Input	200.95	1.05	0.53
Channel X - Input	-198.80	1.30	-0.65
Channel Y + Input	1999.8	0.03	0.00
Channel Y + Input	200.33	0.33	0.16
Channel Y - Input	-199.66	0.24	-0.12
Channel Z + Input	1999.6	-0.40	-0.02
Channel Z + Input	200.48	0.58	0.29
Channel Z - Input	-199.45	0.75	-0.37

2. Common mode sensitivity

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Common mode Input Voltage (mV)	High Range Average Reading (μV)	Low Range Average Reading (μV)
Channel X	200	9.95	8.16
	-200	-7.20	-8.32
Channel Y	200	8.57	8.27
	-200	-9.34	-9.57
Channel Z	200	2.10	1.81
	-200	-2.85	-3.06

3. Channel separation

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Input Voltage (mV)	Channel X (μV)	Channel Y (μV)	Channel Z (μV)
Channel X	200	-	4.23	1.16
Channel Y	200	3.16	-	6.20
Channel Z	200	1.04	-1.10	-

4. AD-Converter Values with inputs shorted

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	High Range (LSB)	Low Range (LSB)
Channel X	15901	16812
Channel Y	16152	15842
Channel Z	16382	17155

5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Input 10mV

	Average (μ V)	min. Offset (μ V)	max. Offset (μ V)	Std. Deviation (μ V)
Channel X	-0.02	-0.50	0.97	0.26
Channel Y	-0.92	-2.26	-0.45	0.25
Channel Z	-2.00	-3.19	-0.89	0.45

6. Input Offset Current

Nominal input circuitry offset current on all channels: <251A

7. Input Resistance (Typical values for information)

	Zeroing (kOhm)	Measuring (MOhm)
Channel X	200	200
Channel Y	200	200
Channel Z	200	200

8. Low Battery Alarm Voltage (Typical values for information)

Typical values	Alarm Level (VDC)
Supply (+ Vcc)	+7.9
Supply (- Vcc)	-7.5

9. Power Consumption (Typical values for information)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.01	+6	+14
Supply (- Vcc)	-0.01	-8	-9

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Accreditation No.: SCS 108

Client **SGS-TW (Auden)**

Certificate No: **DAE4-856_May12**

CALIBRATION CERTIFICATE

Object: **DAE4 - SD 000 D04 BJ - SN: 856**

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

Calibration date: **May 30, 2012**

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

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 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-11 (No:11450)	Sep-12
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Calibrator Box V2.1	SE UWS 053 AA 1001	05-Jan-12 (in house check)	In house check: Jan-13

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

Issued: May 30, 2012

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Certificate No: DAE4-856_May12

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Accreditation No.: **SCS 108**

Glossary

DAE data acquisition electronics
Connector angle information used in DASY system to align probe sensor X to the robot coordinate system.

Methods Applied and Interpretation of Parameters

- **DC Voltage Measurement:** Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
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- The following parameters as documented in the Appendix contain technical information as a result from the performance test and require no uncertainty.
 - **DC Voltage Measurement Linearity:** Verification of the Linearity at +10% and -10% of the nominal calibration voltage. Influence of offset voltage is included in this measurement.
 - **Common mode sensitivity:** Influence of a positive or negative common mode voltage on the differential measurement.
 - **Channel separation:** Influence of a voltage on the neighbor channels not subject to an input voltage.
 - **AD Converter Values with inputs shorted:** Values on the internal AD converter corresponding to zero input voltage
 - **Input Offset Measurement:** Output voltage and statistical results over a large number of zero voltage measurements.
 - **Input Offset Current:** Typical value for information; Maximum channel input offset current, not considering the input resistance.
 - **Input resistance:** Typical value for information: DAE input resistance at the connector, during internal auto-zeroing and during measurement.
 - **Low Battery Alarm Voltage:** Typical value for information. Below this voltage, a battery alarm signal is generated.
 - **Power consumption:** Typical value for information. Supply currents in various operating modes.

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DC Voltage Measurement

A/D - Converter Resolution nominal

High Range: 1LSB = 6.1 μ V full range = -100...+300 mV
 Low Range: 1LSB = 61nV full range = -1,.....+3mV

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors	X	Y	Z
High Range	404.685 \pm 0.1% (k=2)	405.499 \pm 0.1% (k=2)	405.499 \pm 0.1% (k=2)
Low Range	3.97256 \pm 0.7% (k=2)	3.99169 \pm 0.7% (k=2)	3.98202 \pm 0.7% (k=2)

Connector Angle

Connector Angle to be used in DASY system	53.0° \pm 1°
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Appendix

1. DC Voltage Linearity

High Range	Reading (μV)	Difference (μV)	Error (%)
Channel X + Input	199996.85	-0.01	-0.00
Channel X + Input	20002.52	2.06	0.01
Channel X - Input	-19995.75	4.64	-0.02
Channel Y + Input	199998.52	1.64	0.00
Channel Y + Input	19997.20	-3.27	-0.02
Channel Y - Input	-20001.37	-0.86	0.00
Channel Z + Input	199999.86	2.84	0.00
Channel Z + Input	19996.24	-4.21	-0.02
Channel Z - Input	-20002.54	-1.90	0.01

Low Range	Reading (μV)	Difference (μV)	Error (%)
Channel X + Input	2001.27	0.30	0.02
Channel X + Input	201.78	0.43	0.21
Channel X - Input	-198.03	0.56	-0.28
Channel Y + Input	2000.82	0.10	0.01
Channel Y + Input	200.11	-1.12	-0.56
Channel Y - Input	-200.32	-1.61	0.81
Channel Z + Input	2000.28	-0.51	-0.03
Channel Z + Input	200.93	-0.26	-0.13
Channel Z - Input	-199.20	-0.54	0.27

2. Common mode sensitivity

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Common mode Input Voltage (mV)	High Range Average Reading (μV)	Low Range Average Reading (μV)
Channel X	200	-12.26	-13.43
	-200	15.87	14.54
Channel Y	200	-18.88	-19.63
	-200	17.06	17.06
Channel Z	200	-22.77	-23.05
	-200	22.24	22.31

3. Channel separation

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Input Voltage (mV)	Channel X (μV)	Channel Y (μV)	Channel Z (μV)
Channel X	200	-	1.85	-1.89
Channel Y	200	7.33	-	3.16
Channel Z	200	9.36	4.70	-

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4. AD-Converter Values with inputs shorted

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	High Range (LSB)	Low Range (LSB)
Channel X	16570	16623
Channel Y	15794	16231
Channel Z	16304	16768

5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Input 10M Ω

	Average (μ V)	min. Offset (μ V)	max. Offset (μ V)	Std. Deviation (μ V)
Channel X	0.33	-0.82	1.16	0.35
Channel Y	-0.79	-2.36	0.43	0.51
Channel Z	-0.35	-1.45	1.04	0.51

6. Input Offset Current

Nominal Input circuitry offset current on all channels: <251A

7. Input Resistance (Typical values for information)

	Zeroing (kOhm)	Measuring (MOhm)
Channel X	200	200
Channel Y	200	200
Channel Z	200	200

8. Low Battery Alarm Voltage (Typical values for information)

Typical values	Alarm Level (VDC)
Supply (+ Vcc)	+7.9
Supply (- Vcc)	-7.6

9. Power Consumption (Typical values for information)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.01	-6	+14
Supply (- Vcc)	-0.01	-5	-9

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



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Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: **SCS 108**

Client **SGS-TW (Auden)**

Certificate No: **EX3-3770_Apr12**

CALIBRATION CERTIFICATE

Object: **EX3DV4 - SN:3770**

Calibration procedure(s): **QA CAL-01.v8, QA CAL-14.v3, QA CAL-23.v4, QA CAL-25.v4
Calibration procedure for dosimetric E-field probes**

Calibration date: **April 27, 2012**

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

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

Calibration Equipment used (M&TE critical for calibration)

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

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: April 28, 2012

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

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



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Accreditation No.: **SCS 108**

Glossary:

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

Calibration is Performed According to the Following Standards:

- 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:

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

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EX3DV4 – SN:3770

April 27, 2012

Probe EX3DV4

SN:3770

Manufactured: July 6, 2010
Calibrated: April 27, 2012

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

Certificate No: EX3-3770_Apr12

Page 3 of 11

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EX3DV4-- SN:3770

Apr 27, 2012

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

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm $(\mu V/(V/m)^2)^A$	0.31	0.60	0.40	$\pm 10.1\%$
DCP (mV) ^B	99.3	99.6	105.2	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dB	C dB	VR mV	Unc ^C (k=2)
0	CW	0.00	X	0.00	0.00	1.00	124.5	$\pm 2.5\%$
			Y	0.00	0.00	1.00	127.2	
			Z	0.00	0.00	1.00	138.4	

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

^A The uncertainties of NormX,Y,Z do not affect the E²-field uncertainty inside TSL (see Pages 5 and 6).

^B Numerical linearization parameter: uncertainty not required.

^C Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

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EX3DV4- SN:3770

April 27, 2012

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

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) ^c	Relative Permittivity ^a	Conductivity (S/m) ^a	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	41.9	0.89	9.95	9.95	9.95	0.16	1.71	± 12.0 %
835	41.5	0.90	9.62	9.62	9.62	0.30	0.90	± 12.0 %
900	41.5	0.97	9.49	9.49	9.49	0.25	1.03	± 12.0 %
1750	40.1	1.37	8.62	8.62	8.62	0.60	0.65	± 12.0 %
1900	40.0	1.40	8.35	8.35	8.35	0.34	0.92	± 12.0 %
2000	40.0	1.40	8.21	8.21	8.21	0.30	0.93	± 12.0 %
2300	39.5	1.67	7.64	7.64	7.64	0.41	0.75	± 12.0 %
2450	39.2	1.80	7.17	7.17	7.17	0.28	0.99	± 12.0 %
2600	39.0	1.96	6.95	6.95	6.95	0.24	1.17	± 12.0 %
5200	36.0	4.66	5.20	5.20	5.20	0.40	1.80	± 13.1 %
5300	35.9	4.76	4.96	4.96	4.96	0.40	1.80	± 13.1 %
5600	35.5	5.07	4.29	4.29	4.29	0.55	1.80	± 13.1 %
5800	35.3	5.27	4.55	4.55	4.55	0.5	1.80	± 13.1 %

^c Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

^a At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

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EX3DV4- SN:3770

April 27, 2012

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

Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) ^c	Relative Permittivity ^a	Conductivity (Sim) ^b	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	55.5	0.96	9.66	9.66	9.66	0.19	1.50	± 12.0 %
835	55.2	0.97	9.60	9.60	9.60	0.28	1.18	± 12.0 %
900	55.0	1.05	9.48	9.48	9.48	0.41	0.91	± 12.0 %
1750	53.4	1.49	7.90	7.90	7.90	0.40	0.92	± 12.0 %
1900	53.3	1.52	7.53	7.53	7.53	0.32	0.97	± 12.0 %
2000	53.3	1.52	7.64	7.64	7.64	0.43	0.86	± 12.0 %
2300	52.9	1.81	7.31	7.31	7.31	0.44	0.87	± 12.0 %
2450	52.7	1.95	7.15	7.15	7.15	0.73	0.63	± 12.0 %
2600	52.5	2.16	6.83	6.83	6.83	0.80	0.50	± 12.0 %
5200	49.0	5.30	4.32	4.32	4.32	0.55	1.90	± 13.1 %
5300	48.9	5.42	4.08	4.08	4.08	0.60	1.90	± 13.1 %
5600	48.5	5.77	3.57	3.57	3.57	0.65	1.90	± 13.1 %
5800	48.2	6.00	4.02	4.02	4.02	0.60	1.90	± 13.1 %

^b 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.

^c At frequencies below 3 GHz, the validity of tissue parameters (ϵ and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ϵ and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

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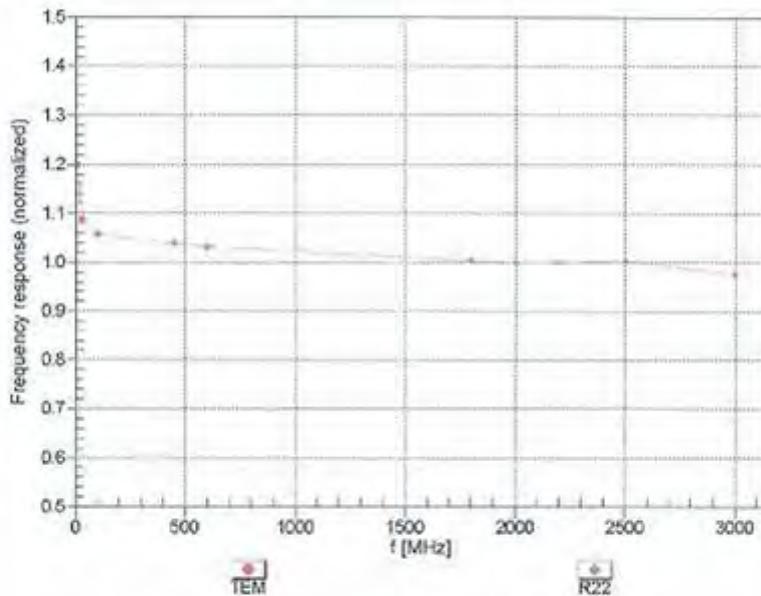
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EX3DV4- SN:3770

April 27, 2012

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



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

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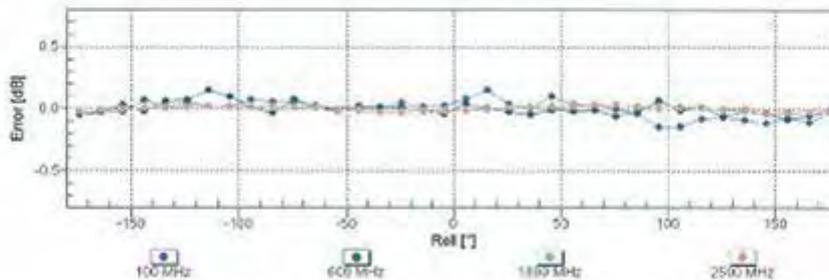
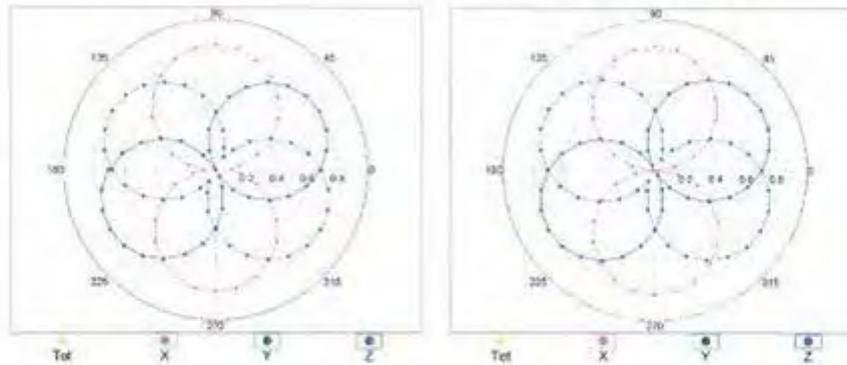
EX3DV4-- SN:3770

April 27, 2012

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

f=600 MHz, TEM

f=1800 MHz, R22



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

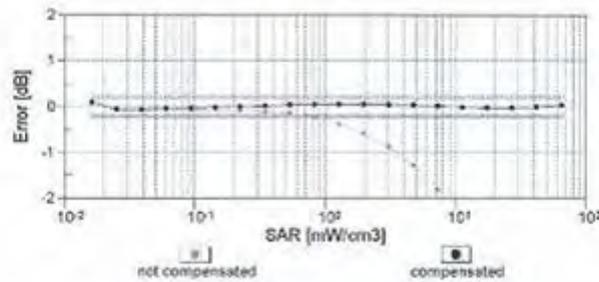
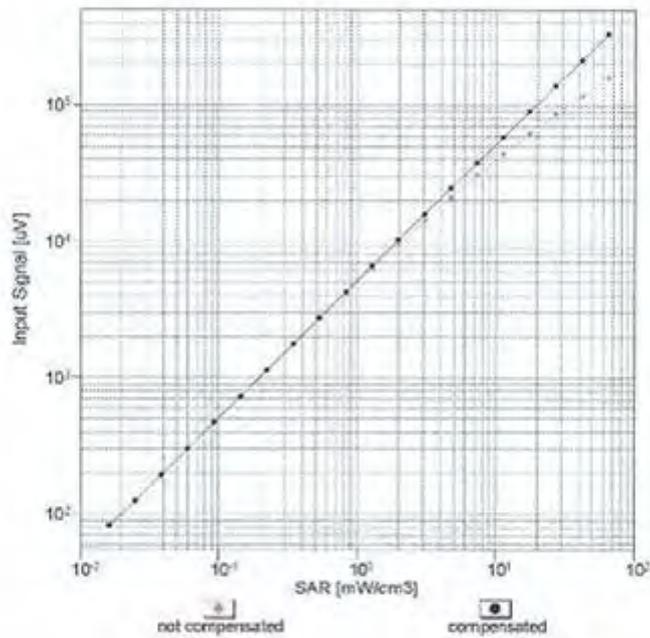
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EX3DV4- SN:3770

April 27, 2012

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



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

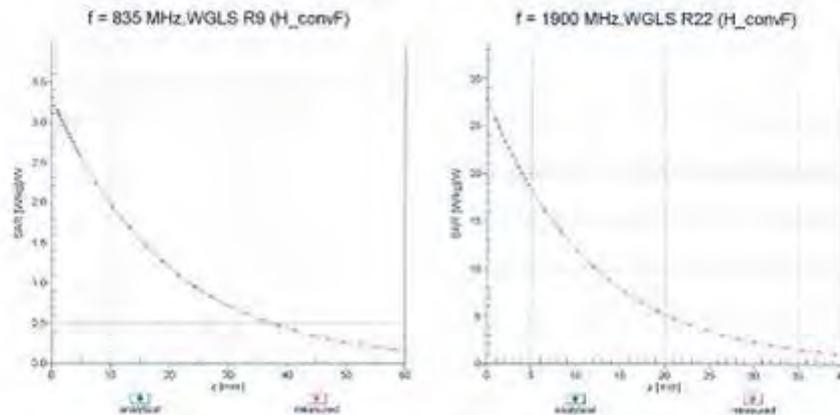
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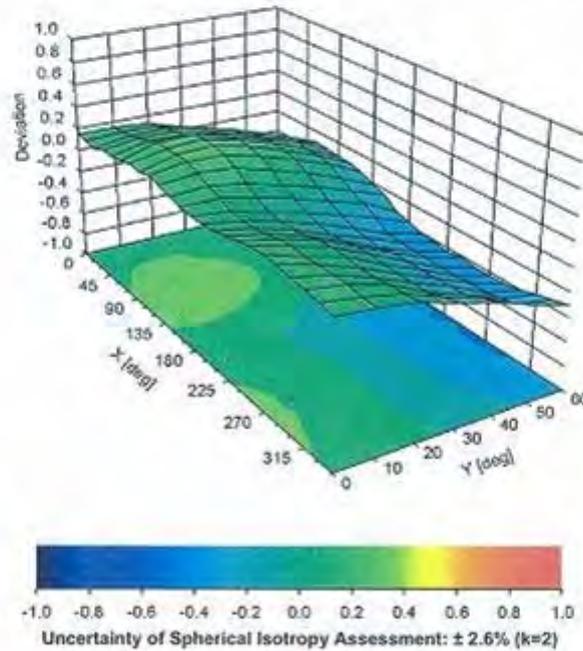
EX3DV4-SN:3770

April 27, 2012

Conversion Factor Assessment



Deviation from Isotropy in Liquid Error (ϕ , θ), $f = 900$ MHz



Certificate No: EX3-3770_Apr12

Page 10 of 11

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EX3DV4-SN:3770

April 27, 2012

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

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	145.8
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	2 mm

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7. Uncertainty Budget

 Measurement Uncertainty evaluation template for DUT SAR test
 IEEE 1528

A	c	D	e	f	g	h=c * f / e	i=c * g / e	k
Source of Uncertainty	Tolerance/ Uncertainty %	Probability Distribution	Div	ci (1g)	ci (10g)	Standard uncertainty	Standard uncertainty	vi, or Veff
Measurement system								
Probe calibration (under 2.6Ghz)	6.00%	N	1	1	1	6.00%	6.00%	∞
<i>Isotropy, Axial</i>	3.50%	R	$\sqrt{3}$	1	1	2.02%	2.02%	∞
<i>Isotropy, Hemispherical</i>	9.60%	R	$\sqrt{3}$	1	1	5.54%	5.54%	∞
Boundary Effect	1.00%	R	$\sqrt{3}$	1	1	0.58%	0.58%	∞
Linearity	4.70%	R	$\sqrt{3}$	1	1	2.71%	2.71%	∞
Detection Limits	1.00%	R	$\sqrt{3}$	1	1	0.58%	0.58%	∞
Readout Electronics	0.30%	N	1	1	1	0.30%	0.30%	∞
Response time	0.80%	R	$\sqrt{3}$	1	1	0.46%	0.46%	∞
Integration Time	2.60%	R	$\sqrt{3}$	1	1	1.50%	1.50%	∞
Measurement drift (class A evaluation)								
RF ambient condition - noise	3.00%	R	$\sqrt{3}$	1	1	1.73%	1.73%	∞
RF ambient conditions - reflections	3.00%	R	$\sqrt{3}$	1	1	1.73%	1.73%	∞
Probe positioner Mechanical restrictions	0.40%	R	$\sqrt{3}$	1	1	0.23%	0.23%	∞
Probe Positioning with respect to phantom shell	2.90%	R	$\sqrt{3}$	1	1	1.67%	1.67%	∞
Post-processing	1.00%	R	$\sqrt{3}$	1	1	0.58%	0.58%	∞
Max SAR Eval	1.00%	R	$\sqrt{3}$	1	1	0.58%	0.58%	∞
Test Sample related								
Test sample positioning	2.90%	N	1	1	1	2.90%	2.90%	M-1
Device Holder Uncertainty	3.60%	N	1	1	1	3.60%	3.60%	M-1
Drift of output power	5.00%	R	$\sqrt{3}$	1	1	2.89%	2.89%	∞
Phantom and Setup								
Phantom Uncertainty	4.00%	R	$\sqrt{3}$	1	1	2.31%	2.31%	∞
Liquid conductivity (meas.) Max at 1900 band	4.60%	N	1	0.64	0.43	2.94%	1.98%	M
Liquid permittivity (meas.) Max at 835 band	2.17%	N	1	0.6	0.49	1.30%	1.06%	M
Combined standard uncertainty		RSS				11.72%	11.49%	
Expanded uncertainty (95% confidence interval), K=2						23.44%	22.98%	

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8. Phantom Description

s p e a g

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

Certificate of Conformity / First Article Inspection

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

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

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

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

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

Date: 07.07.2005

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

Doc No: 881 - QD 000 P40 C - F Page: 1 (1)

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9. System Validation from Original Equipment Supplier

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



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

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

Accreditation No.: **SCS 108**

Client **Auden**

Certificate No: **D835V2-4d120_Jul11**

CALIBRATION CERTIFICATE			
Object	D835V2 - SN: 4d120		
Calibration procedure(s)	QA CAL-05.v8 Calibration procedure for dipole validation kits above 700 MHz		
Calibration date:	July 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: 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	04-Jul-11 (No. DAE4-601_Jul11)	Jul-12
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-10)	In house check: Oct-11
Calibrated by:	Name Claudio Leubler	Function Laboratory Technician	Signature
Approved by:	Name Katja Pokovic	Function Technical Manager	Signature
			Issued: July 19, 2011
This calibration certificate shall not be reproduced except in full without written approval of the laboratory.			

Certificate No: D835V2-4d120_Jul11

Page 1 of 8

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

Accreditation No.: **SCS 108**

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
- t) 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	41.0 ± 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	2.30 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	9.33 mW / g ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.51 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	6.11 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	53.8 ± 6 %	0.98 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	9.59 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	6.34 mW / g ± 16.5 % (k=2)

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.0 Ω - 3.4 jΩ
Return Loss	-28.3 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	47.7 Ω - 5.2 jΩ
Return Loss	-24.7 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.397 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	June 29, 2010

DASY5 Validation Report for Head TSL

Date: 18.07.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d120

Communication System: CW; Frequency: 835 MHz

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.88 \text{ mho/m}$; $\epsilon_r = 41$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.07, 6.07, 6.07); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: i001
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

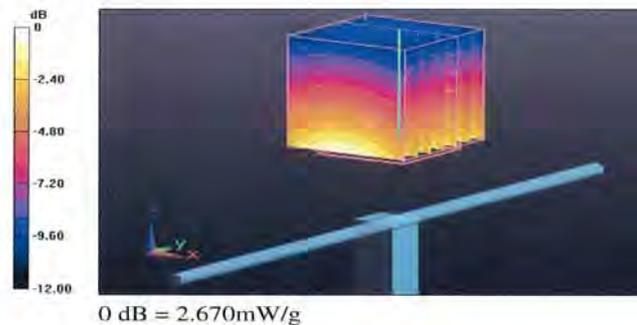
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 56.919 V/m; Power Drift = 0.04 dB

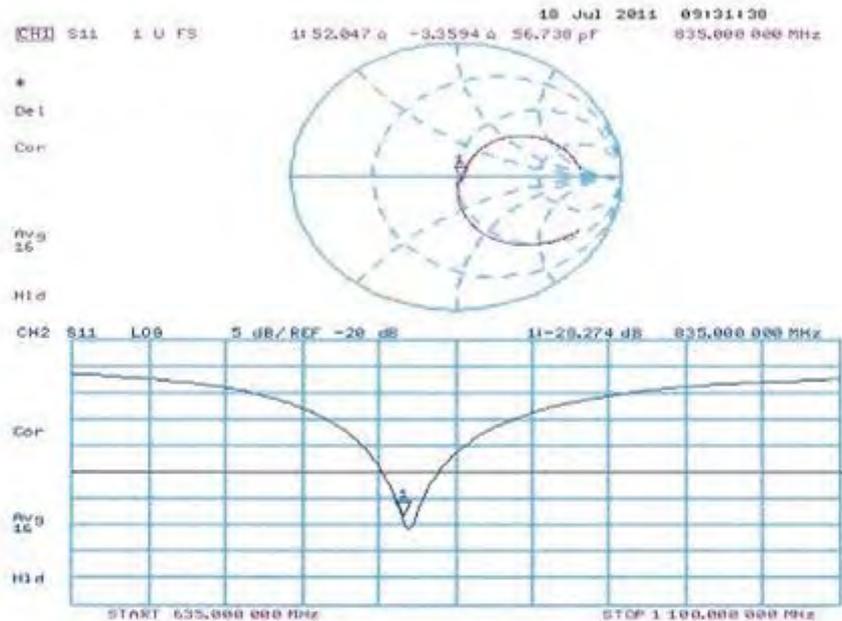
Peak SAR (extrapolated) = 3.366 W/kg

SAR(1 g) = 2.3 mW/g; SAR(10 g) = 1.51 mW/g

Maximum value of SAR (measured) = 2.672 mW/g



Impedance Measurement Plot for Head TSL



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DASY5 Validation Report for Body TSL

Date: 19.07.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d120

Communication System: CW; Frequency: 835 MHz

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.98 \text{ mho/m}$; $\epsilon_r = 53.8$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.02, 6.02, 6.02); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

Dipole Calibration for Body Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

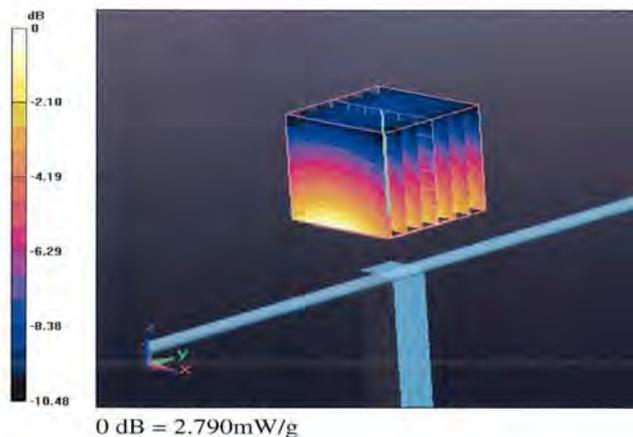
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 55.302 V/m; Power Drift = 0.01 dB

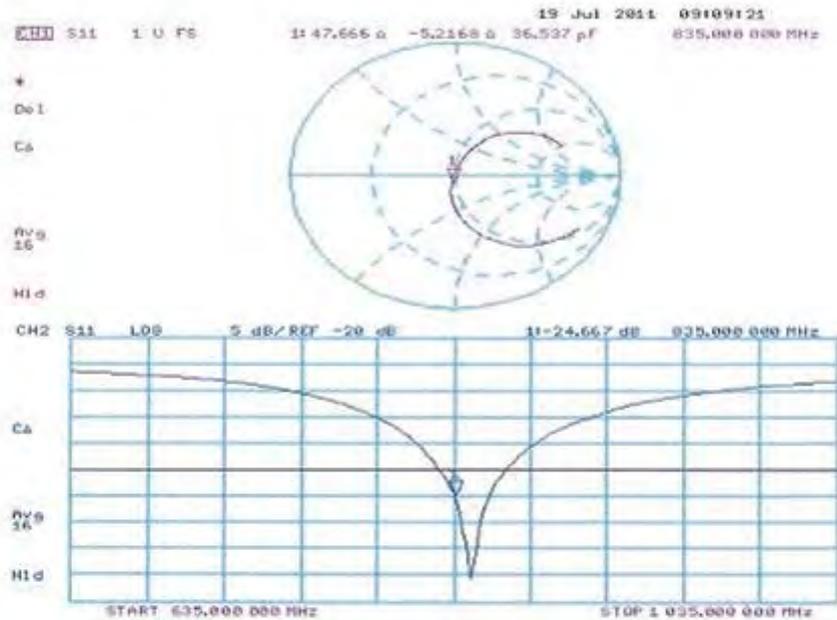
Peak SAR (extrapolated) = 3.528 W/kg

SAR(1 g) = 2.43 mW/g; SAR(10 g) = 1.6 mW/g

Maximum value of SAR (measured) = 2.787 mW/g



Impedance Measurement Plot for Body TSL



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Accreditation No.: **SCS 108**

Client **SGS-TW (Auden)**

Certificate No: **D835V2-4d063_May12**

CALIBRATION CERTIFICATE

Object: **D835V2 - SN: 4d063**

Calibration procedure(s): **QA CAL-05.v8
Calibration procedure for dipole validation kits above 700 MHz**

Calibration date: **May 25, 2012**

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	05-Oct-11 (No. 217-01451)	Oct-12
Power sensor HP 8481A	US37292783	05-Oct-11 (No. 217-01451)	Oct-12
Reference 20 dB Attenuator	SN: 5058 (20k)	27-Mar-12 (No. 217-01530)	Apr-13
Type-N mismatch combination	SN: 5047.2 / 06327	27-Mar-12 (No. 217-01533)	Apr-13
Reference Probe ES3DV3	SN: 3205	30-Dec-11 (No. ES3-3205_Dec11)	Dec-12
DAE4	SN: 601	04-Jul-11 (No. DAE4-601_Jul11)	Jul-12
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-11)	In house check: Oct-13
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-11)	In house check: Oct-13
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

	Name	Function	Signature
Calibrated by:	Israe El-Naouq	Laboratory Technician	<i>Israe El-Naouq</i>
Approved by:	Katja Pokovic	Technical Manager	<i>Katja Pokovic</i>

Issued: May 25, 2012

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

Certificate No: D835V2-4d063_May12

Page 1 of 8

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Accreditation No.: **SCS 108**

Glossary:

TSL issue 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.

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%.

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Measurement Conditions

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

DASY Version	DASY5	V52.8.1
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	40.6 ± 6 %	0.89 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	2.36 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	9.47 mW / g ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.54 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	6.18 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	54.3 ± 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	2.46 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	9.58 mW / g ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.62 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	6.35 mW / g ± 16.5 % (k=2)

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	53.6 Ω ± 0.3 jΩ
Return Loss	-29.1 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	48.0 Ω - 2.9 jΩ
Return Loss	-28.9 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.390 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. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

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: 25.05.2012

Test Laboratory: SPEAG, Zurich, Switzerland

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

Communication System: CW; Frequency: 835 MHz

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.89 \text{ mho/m}$; $\epsilon_r = 40.6$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.07, 6.07, 6.07); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm 2/Zoom Scan (7x7x7)/Cube 0:

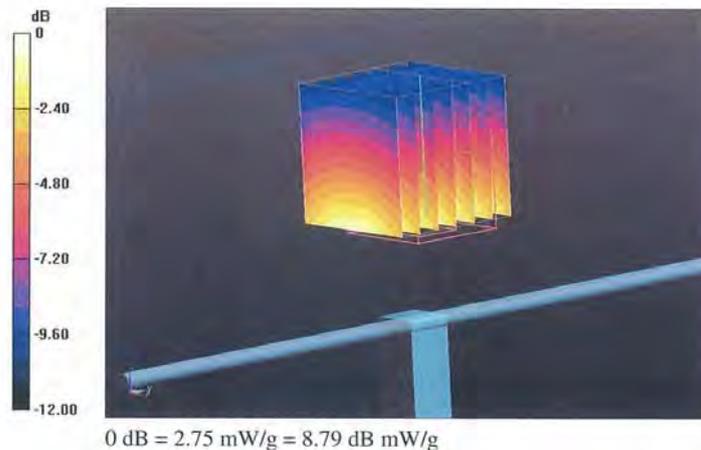
Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 57.199 V/m; Power Drift = -0.01 dB

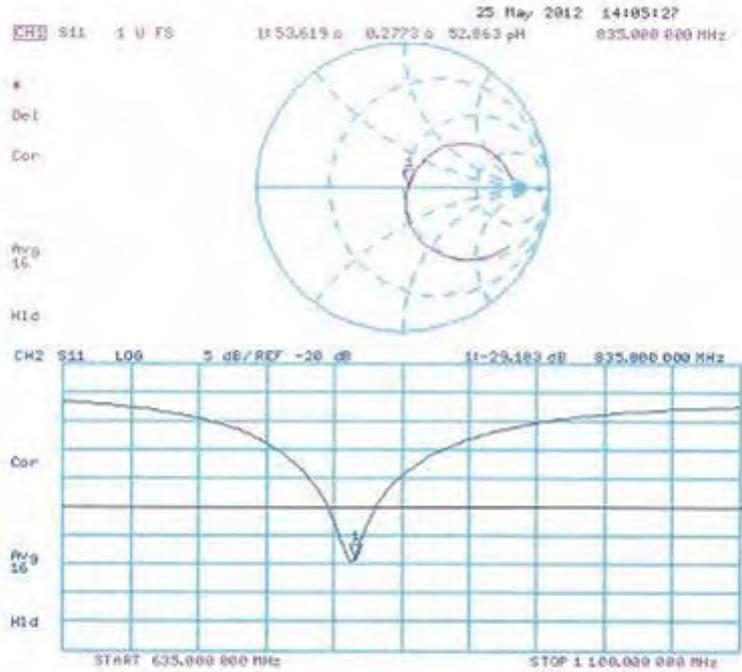
Peak SAR (extrapolated) = 3.481 mW/g

SAR(1 g) = 2.36 mW/g; SAR(10 g) = 1.54 mW/g

Maximum value of SAR (measured) = 2.75 mW/g



Impedance Measurement Plot for Head TSL



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DASY5 Validation Report for Body TSL

Date: 25.05.2012

Test Laboratory: SPEAG, Zurich, Switzerland

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

Communication System: CW; Frequency: 835 MHz

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.3$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.02, 6.02, 6.02); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

Dipole Calibration for Body Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

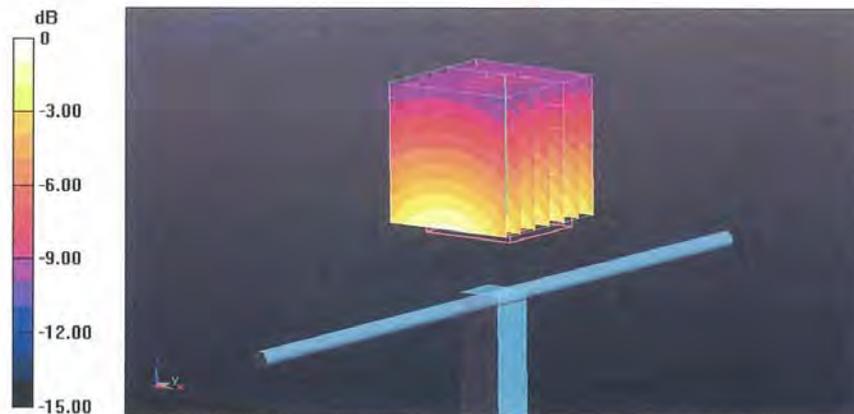
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 55.303 V/m; Power Drift = 0.03 dB

Peak SAR (extrapolated) = 3.569 mW/g

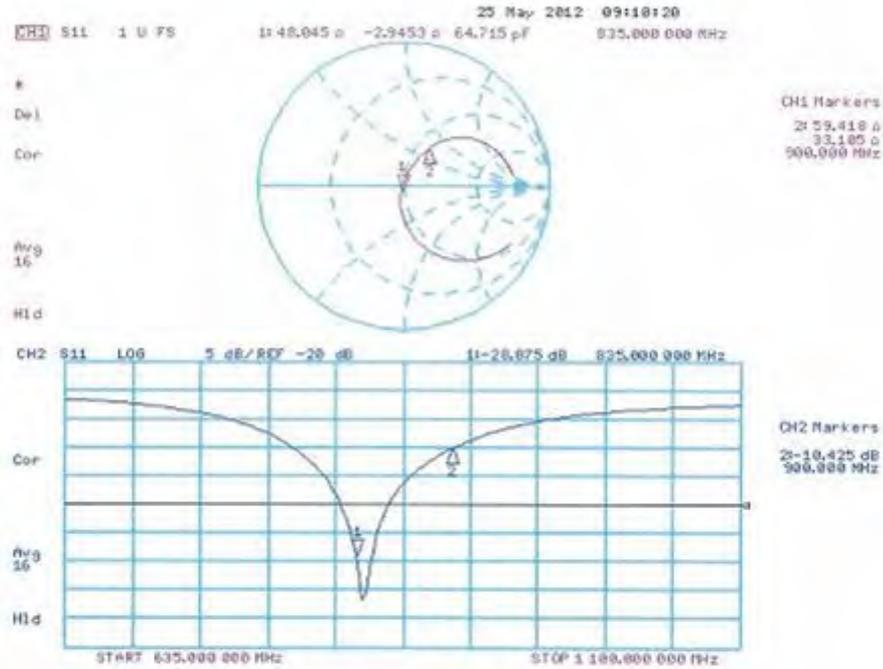
SAR(1 g) = 2.46 mW/g; SAR(10 g) = 1.62 mW/g

Maximum value of SAR (measured) = 2.87 mW/g



0 dB = 2.87 mW/g = 9.16 dB mW/g

Impedance Measurement Plot for Body TSL



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Accreditation No.: **SCS 108**

Client **SGS-TW (Auden)**

Certificate No: **D1900V2-5d027_Apr12**

CALIBRATION CERTIFICATE

Object: **D1900V2 - SN: 5d027**

Calibration procedure(s): **QA CAL-05.v8
Calibration procedure for dipole validation kits above 700 MHz**

Calibration date: **April 26, 2012**

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	05-Oct-11 (No. 217-01451)	Oct-12
Power sensor HP 8481A	US37292783	05-Oct-11 (No. 217-01451)	Oct-12
Reference 20 dB Attenuator	SN: 5058 (20k)	27-Mar-12 (No. 217-01530)	Apr-13
Type-N mismatch combination	SN: 5047.2 / 06327	27-Mar-12 (No. 217-01533)	Apr-13
Reference Probe ES3DV3	SN: 3205	30-Dec-11 (No. ES3-3205_Dec11)	Dec-12
DAE4	SN: 601	04-Jul-11 (No. DAE4-601_Jul11)	Jul-12
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-11)	In house check: Oct-13
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-11)	In house check: Oct-13
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

Calibrated by:	Name	Function	Signature
	Israa El-Naouq	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: April 26, 2012

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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.

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%.

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Measurement Conditions

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

DASY Version	DASY5	V52.8.1
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1900 MHz \pm 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 \pm 0.2) °C	40.8 \pm 6 %	1.37 mho/m \pm 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	9.43 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	38.4 mW / g \pm 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	4.96 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	20.1 mW / g \pm 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 \pm 0.2) °C	53.3 \pm 6 %	1.51 mho/m \pm 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	10.0 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	40.2 mW / g \pm 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.30 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	21.3 mW / g \pm 16.5 % (k=2)

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	$49.5 \Omega + 4.5 j\Omega$
Return Loss	-26.9 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	$46.2 \Omega + 4.5 j\Omega$
Return Loss	-24.3 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1,197 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. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

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: 26.04.2012

Test Laboratory: SPEAG, Zurich, Switzerland

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

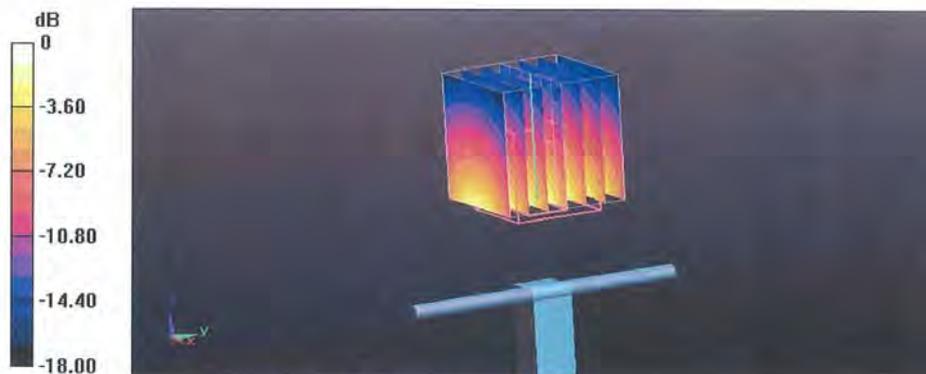
Communication System: CW; Frequency: 1900 MHz
 Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.37 \text{ mho/m}$; $\epsilon_r = 40.8$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section
 Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.01, 5.01, 5.01); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

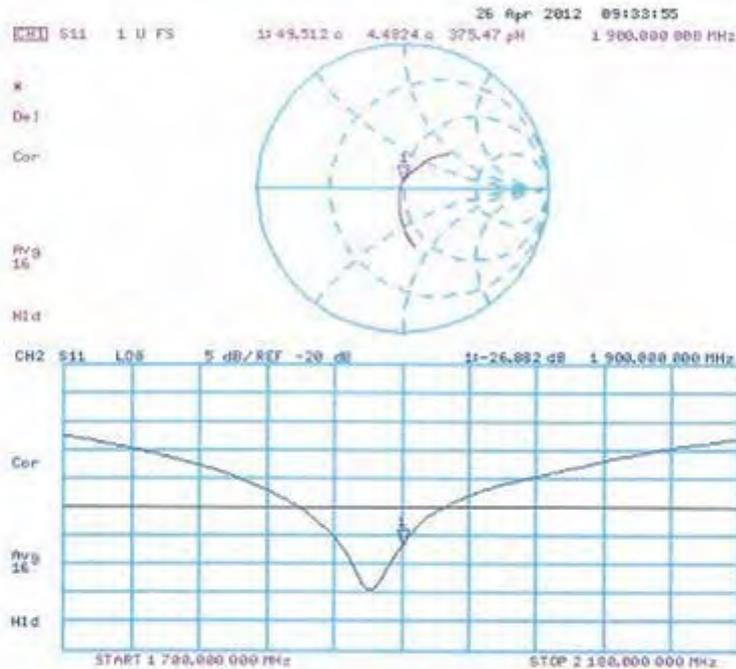
Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 96.127 V/m; Power Drift = 0.03 dB
 Peak SAR (extrapolated) = 16.890 mW/g
SAR(1 g) = 9.43 mW/g; SAR(10 g) = 4.96 mW/g
 Maximum value of SAR (measured) = 11.8 mW/g



0 dB = 11.8 mW/g = 21.44 dB mW/g

Impedance Measurement Plot for Head TSL



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DASY5 Validation Report for Body TSL

Date: 26.04.2012

Test Laboratory: SPEAG, Zurich, Switzerland

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

Communication System: CW; Frequency: 1900 MHz

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.51$ mho/m; $\epsilon_r = 53.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.62, 4.62, 4.62); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

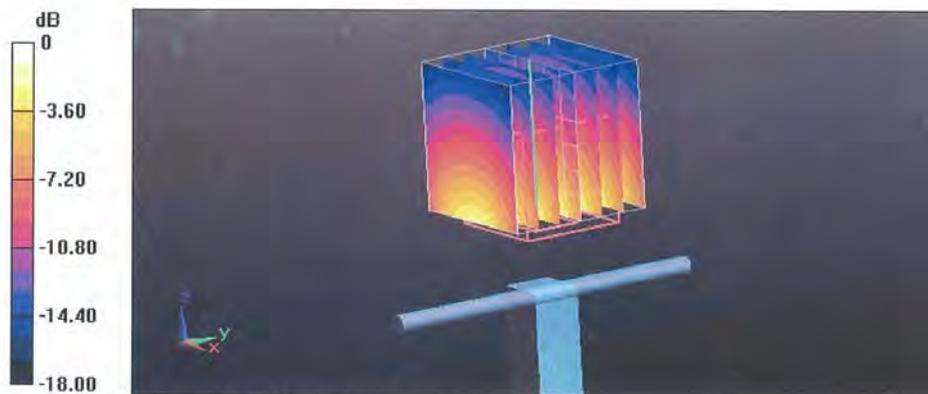
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 95.355 V/m; Power Drift = -0.00 dB

Peak SAR (extrapolated) = 17.593 mW/g

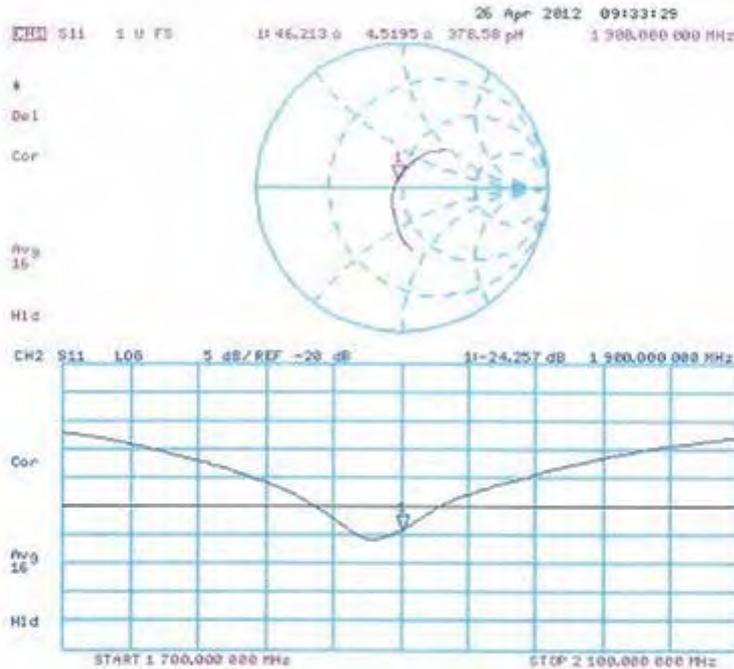
SAR(1 g) = 10 mW/g; SAR(10 g) = 5.3 mW/g

Maximum value of SAR (measured) = 12.7 mW/g



0 dB = 12.7 mW/g = 22.08 dB mW/g

Impedance Measurement Plot for Body TSL



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**Calibration Laboratory of
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Accreditation No.: **SCS 108**

Client **SGS-TW (Auden)**

Certificate No: **D2450V2-727_Apr12**

CALIBRATION CERTIFICATE

Object	D2450V2 - SN: 727																																														
Calibration procedure(s)	QA CAL-05.v8 Calibration procedure for dipole validation kits above 700 MHz																																														
Calibration date:	April 25, 2012																																														
<p>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.</p> <p>All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.</p> <p>Calibration Equipment used (M&TE critical for calibration)</p> <table border="1"> <thead> <tr> <th>Primary Standards</th> <th>ID #</th> <th>Cal Date (Certificate No.)</th> <th>Scheduled Calibration</th> </tr> </thead> <tbody> <tr> <td>Power meter EPM-442A</td> <td>GB37480704</td> <td>05-Oct-11 (No. 217-01451)</td> <td>Oct-12</td> </tr> <tr> <td>Power sensor HP 8481A</td> <td>US37292783</td> <td>05-Oct-11 (No. 217-01451)</td> <td>Oct-12</td> </tr> <tr> <td>Reference 20 dB Attenuator</td> <td>SN: 5058 (20k)</td> <td>27-Mar-12 (No. 217-01530)</td> <td>Apr-13</td> </tr> <tr> <td>Type-N mismatch combination</td> <td>SN: 5047.2 / 06327</td> <td>27-Mar-12 (No. 217-01533)</td> <td>Apr-13</td> </tr> <tr> <td>Reference Probe ES3DV3</td> <td>SN: 3205</td> <td>30-Dec-11 (No. ES3-3205_Dec11)</td> <td>Dec-12</td> </tr> <tr> <td>DAE4</td> <td>SN: 601</td> <td>04-Jul-11 (No. DAE4-601_Jul11)</td> <td>Jul-12</td> </tr> </tbody> </table> <table border="1"> <thead> <tr> <th>Secondary Standards</th> <th>ID #</th> <th>Check Date (in house)</th> <th>Scheduled Check</th> </tr> </thead> <tbody> <tr> <td>Power sensor HP 8481A</td> <td>MY41092317</td> <td>18-Oct-02 (in house check Oct-11)</td> <td>In house check: Oct-13</td> </tr> <tr> <td>RF generator R&S SMT-06</td> <td>100005</td> <td>04-Aug-99 (in house check Oct-11)</td> <td>In house check: Oct-13</td> </tr> <tr> <td>Network Analyzer HP 8753E</td> <td>US37390585 S4206</td> <td>18-Oct-01 (in house check Oct-11)</td> <td>In house check: Oct-12</td> </tr> </tbody> </table>				Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration	Power meter EPM-442A	GB37480704	05-Oct-11 (No. 217-01451)	Oct-12	Power sensor HP 8481A	US37292783	05-Oct-11 (No. 217-01451)	Oct-12	Reference 20 dB Attenuator	SN: 5058 (20k)	27-Mar-12 (No. 217-01530)	Apr-13	Type-N mismatch combination	SN: 5047.2 / 06327	27-Mar-12 (No. 217-01533)	Apr-13	Reference Probe ES3DV3	SN: 3205	30-Dec-11 (No. ES3-3205_Dec11)	Dec-12	DAE4	SN: 601	04-Jul-11 (No. DAE4-601_Jul11)	Jul-12	Secondary Standards	ID #	Check Date (in house)	Scheduled Check	Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-11)	In house check: Oct-13	RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-11)	In house check: Oct-13	Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-11)	In house check: Oct-12
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Calibrated by:	Name Jeton Kastrati	Function Laboratory Technician	Signature 																																												
Approved by:	Name Katja Pokovic	Function Technical Manager	Signature 																																												
			Issued: April 25, 2012																																												
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Certificate No: D2450V2-727_Apr12

Page 1 of 8

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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.

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%.

Measurement Conditions

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

DASY Version	DASY5	V52.8.1
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz \pm 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 \pm 0.2) °C	39.6 \pm 6 %	1.81 mho/m \pm 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	12.8 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	51.2 mW / g \pm 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.95 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	23.8 mW / g \pm 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 \pm 0.2) °C	52.4 \pm 6 %	1.98 mho/m \pm 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	12.7 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	50.4 mW / g \pm 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.92 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	23.6 mW / g \pm 16.5 % (k=2)

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	53.6 Ω + 2.8 j Ω
Return Loss	- 27.2 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	51.3 Ω + 3.9 j Ω
Return Loss	- 27.8 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. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

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 09, 2003

DASY5 Validation Report for Head TSL

Date: 25.04.2012

Test Laboratory: SPEAG, Zurich, Switzerland

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

Communication System: CW; Frequency: 2450 MHz

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

Phantom section: Flat Section

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

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.45, 4.45, 4.45); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

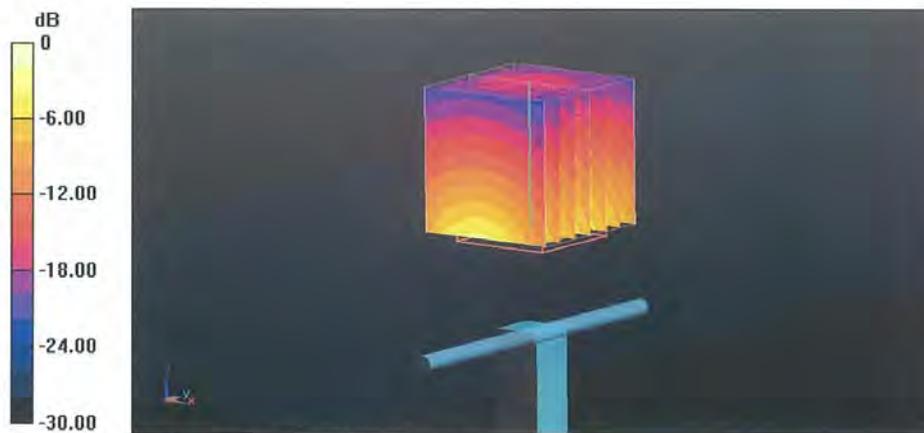
Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 98.712 V/m; Power Drift = 0.05 dB

Peak SAR (extrapolated) = 26.388 mW/g

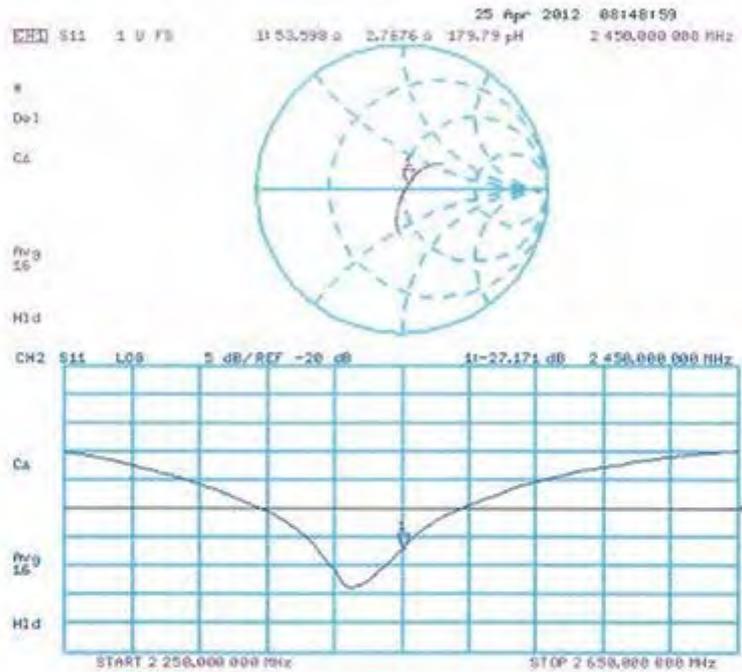
SAR(1 g) = 12.8 mW/g; SAR(10 g) = 5.95 mW/g

Maximum value of SAR (measured) = 16.4 mW/g



0 dB = 16.4 mW/g = 24.30 dB mW/g

Impedance Measurement Plot for Head TSL



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DASY5 Validation Report for Body TSL

Date: 25.04.2012

Test Laboratory: SPEAG, Zurich, Switzerland

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

Communication System: CW; Frequency: 2450 MHz
 Medium parameters used: $f = 2450 \text{ MHz}$; $\sigma = 1.98 \text{ mho/m}$; $\epsilon_r = 52.4$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section
 Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.26, 4.26, 4.26); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

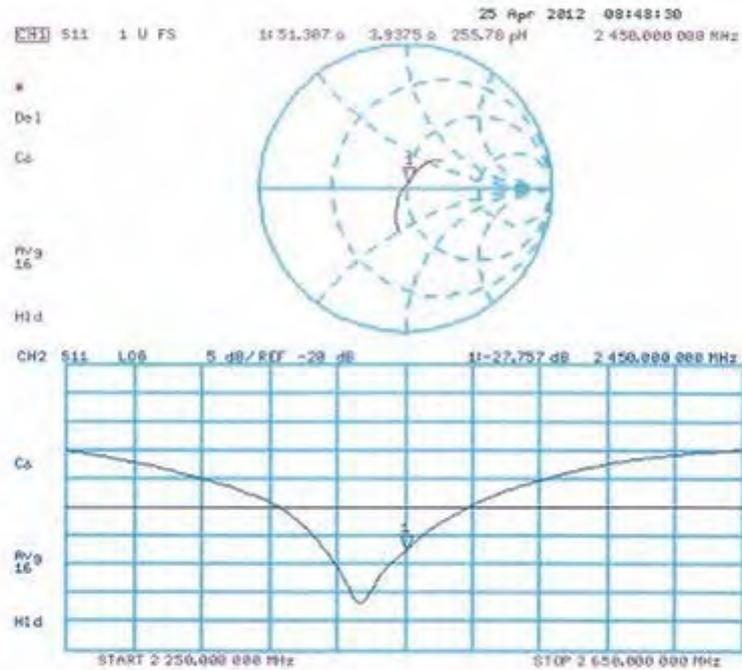
Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
 Reference Value = 95.136 V/m; Power Drift = 0.02 dB
 Peak SAR (extrapolated) = 25.811 mW/g
SAR(1 g) = 12.7 mW/g; SAR(10 g) = 5.92 mW/g
 Maximum value of SAR (measured) = 16.7 mW/g



0 dB = 16.7 mW/g = 24.45 dB mW/g

Impedance Measurement Plot for Body TSL



End of 1st part of report

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.
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