



UL Apex Co., Ltd.

Test report No. : 25KE0051-HO-3a
Page : 1 of 104
Issued date : August 9, 2005
Revised data : August 26, 2005
FCC ID : AK8PCG4F2L

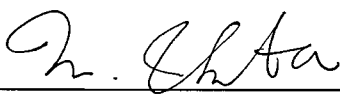
SAR TEST REPORT

Test Report No. : 25KE0051-HO-3a

Applicant : Sony Corporation
Type of Equipment : Personal Computer
Model No. : PCG-4F2L
FCC ID : AK8PCG4F2L
Test standard : FCC47CFR 2.1093
FCC OET Bulletin 65, Supplement C
Test Result : Complied (IEEE 802.11b/g+Bluetooth)
Max. SAR Measured : 0.413W/kg (Body, 2412MHz)

1. This test report shall not be reproduced except full or partial, without the written approval of UL Apex Co., Ltd.
2. The results in this report apply only to the sample tested.
3. This equipment is in compliance with the above standard. We hereby certify that the data contain a true representation of the SAR profile.
4. The test results in this test report are traceable to the national or international standards.

Date of test : July 13 and 14 2005

Tested by : 
Miyo Ikuta
EMC Services

Approved by : 
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MF060a (01.06.05)

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SECTION 1 : Client information

Company Name	Sony Corporation
Brand name	Sony
Address	6-7-35 Kitashinagawa Shinagawa-ku, Tokyo, 141-0001, Japan
Telephone Number	+81-3-5795-8702
Facsimile Number	+81-3-5795-8981
Contact Person	Takumi Ozawa

SECTION 2 : Equipment under test (E.U.T.)**2.1 Identification of E.U.T.**

Type of Equipment	Personal Computer
Model No.	PCG-4F2L
Serial No.	XTA40
Country of Manufacture	Japan
Rating	DC16.0 V , 4.0A (AC Adapter output)
Receipt Date of Sample	July 6, 2005
Condition of EUT	Engineering prototype (Not for sale: This sample is equivalent to mass-produced item)
Category Identified	Portable device

2.2 Product Description**Digital Specification**

Feature of EUT	Model No: PCG-4F2L (referred to as the EUT in this report) is the Personal Computer with Wireless LAN IEEE802.11b/g. and Bluetooth module. The Bluetooth module is granted by FCC/IC (FCC ID: CWTUGPZ6/IC No.: 1788F-UGPZ6).
Size	272*190*30 (W*L*H)
Operating temperature range	+5 to +35 deg. C.
Battery	Type : Li-ion Battery Model Name : VGP-BPxx Rating =7.4V : 7800mAh
Operation Clock	2462MHz, 1200MHz, 400MHz, 270MHz, 100MHz, 77.5MHz, 48MHz, 33MHz, 25MHz, 24.576MHz, 24MHz, 14.381MHz, 10MHz

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Radio Specification**Wireless LAN (IEEE802.11b/g)**

Equipment Type	Transceiver
Frequency band	2412-2462MHz
Channel spacing	5MHz
Type of Modulation	11b: DSSS 11g: OFDM
Antenna Type	lambda/4-Monopole Antenna
Antenna Connector Type	U.FL Compatible connector
Antenna Gain	Right: 2.63dBi Left: -0.81dBi
Max. Output Power	16.88dBm (Peak), 48.75mW
ITU code	G1D / D1D
Power Supply	DC 3.3V $\pm$ 10%

Bluetooth

Equipment Type	Transceiver
Frequency band	2402-2480MHz
Channel spacing	1MHz
Type of Modulation	FHSS
Antenna Type	lambda/4-Monopole Antenna
Antenna Connector Type	U.FL Compatible connector
Antenna Gain	1.5dBi
Max. Output Power	0.84dBm (Peak), 1.21mW
ITU code	F1D
Power Supply	DC3.3V $\pm$ 10%

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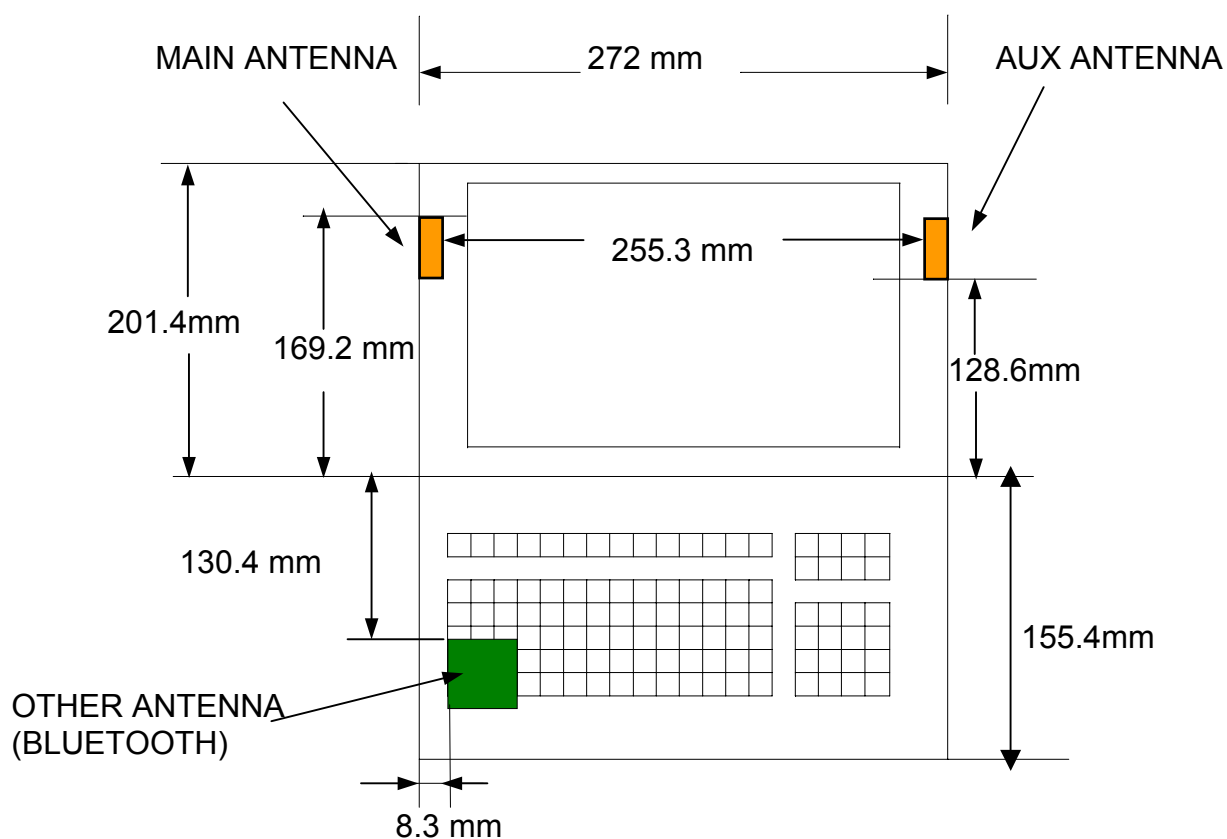
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2.3 Antenna Location

MAIN ANTENNA



AUX ANTENNA



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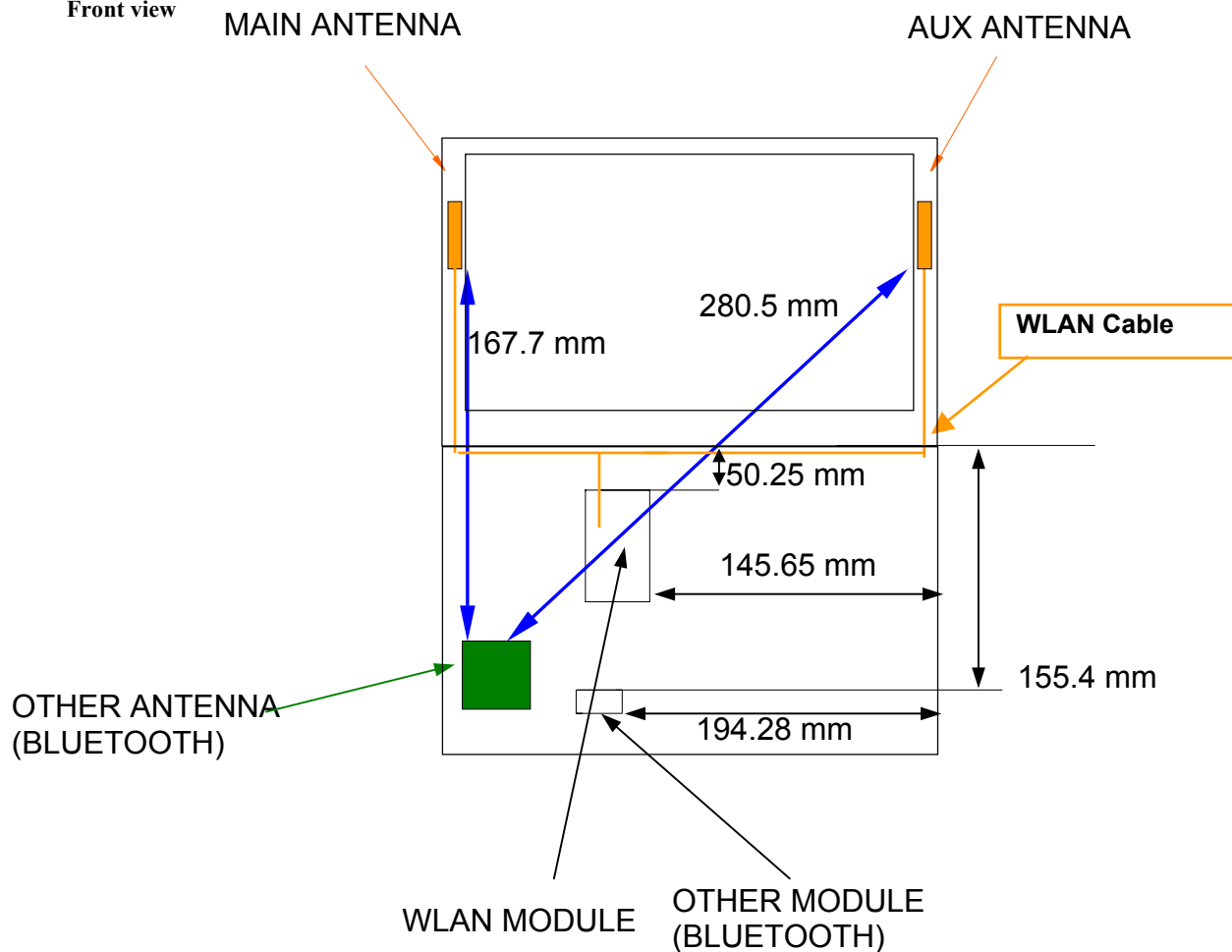
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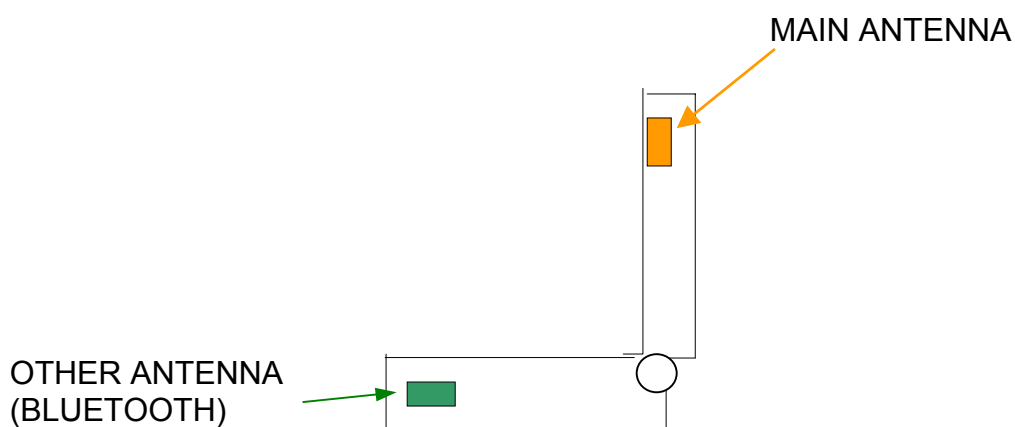
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Display opened
Front view



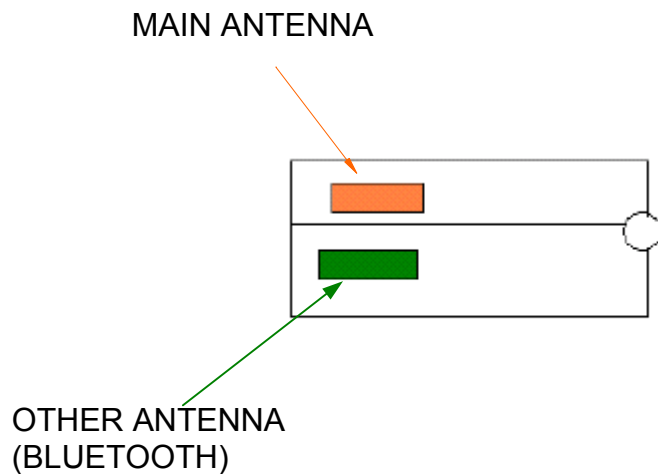
Side view



Display closed

This EUT keeps transmitting the state to close the display.

Side view



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SECTION 3 : Test standard information

3.1 Requirements for compliance testing defined by the FCC

The US Federal Communications Commission has released the report and order "Guidelines for Evaluating the Environmental Effects of RF Radiation", ET Docket No. 93-62 in August 1996. The order requires routine SAR evaluation prior to equipment authorization of portable transmitter devices, including portable telephones. For consumer products, the applicable limit is 1.6 mW/g for an uncontrolled environment and 8.0 mW/g for an occupational/controlled environment as recommended by the ANSI/IEEE standard C95.1-1992. According to the Supplement C of OET Bulletin 65 "Evaluating Compliance with FCC Guide-lines for Human Exposure to Radio frequency Electromagnetic Fields", released on Jun 29, 2001 by the FCC, the device should be evaluated at maximum output power (radiated from the antenna) under "worst-case" conditions for normal or intended use, incorporating normal antenna operating positions, device peak performance frequencies and positions for maximum RF energy coupling.

1 Specific Absorption Rate (SAR) is a measure of the rate of energy absorption due to exposure to an RF transmitting source (wireless portable device).

2 IEEE/ANSI Std. C95.1-1992 limits are used to determine compliance with FCC ET Docket 93-62.

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3.2 Exposure limit

(A) Limits for Occupational/Controlled Exposure (W/kg)

Spatial Average (averaged over the whole body)	Spatial Peak (averaged over any 1g of tissue)	Spatial Peak (hands/wrists/feet/ankles averaged over 10g)
0.4	8.0	20.0

(B) Limits for General population/Uncontrolled Exposure (W/kg)

Spatial Average (averaged over the whole body)	Spatial Peak (averaged over any 1g of tissue)	Spatial Peak (hands/wrists/feet/ankles averaged over 10g)
0.08	1.6	4.0

Occupational/Controlled Environments: are defined as locations where there is exposure that may be incurred by people who are aware of the potential for exposure, (i.e. as a result of employment or occupation).

General Population/Uncontrolled Environments: are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure.

NOTE:GENERAL POPULATION/UNCONTROLLED EXPOSURE SPATIAL PEAK(averaged over any 1g of tissue) LIMIT 1.6 W/kg

SECTION 4 : Test result

4.1 Colocation of SAR value

The distance of Main antenna in IEEE 802.11b/g transmission and Bluetooth antenna is within 20cm .
Therefore, as the worse case, the Max SAR value of EUT is a value in which the Max SAR values of IEEE 802.11b/g and Bluetooth are sumed up as shown below.

Max SAR value = Max SAR value (Main antenna in IEEE 802.11a/b/g) + Max SAR value (Bluetooth)

4.2 Result of Max SAR value

Max SAR Measured (IEEE 802.11b/g) *1*2: 0.413 W/kg (Aux antenna)

*1

The maximum SAR value of Aux antenna in IEEE 802.11b/g is larger than the value in which The maximum SAR value of Main antenna and The maximum SAR value of Bluetooth are added up.

*2

Reference result

0.392 W/kg (Main antenna)

=0.388 (Max SAR value (Main antenna in IEEE 802.11b/g)) + 0.00389 (Max SAR value (Bluetooth))

SECTION 5 : Operation of E.U.T. during testing

5.1 Operating modes

Operation Mode	This EUT has Wireless Lan module and Bluetooth module. The frequency band and the modulation used in this test are shown as a following. 1. IEEE 802.11b mode Frequency band : 2412-2462MHz Channel : 1ch(2412MHz), 6ch(2437MHz), 11ch(2462MHz) Modulation : DSSS (DBPSK, DQPSK, CCK) Crest factor : 1 2. IEEE 802.11g mode Frequency band : 2412-2462MHz Channel : 1ch(2412MHz), 6ch(2437MHz), 11ch(2462MHz) Modulation : OFDM (BPSK, QPSK, 16QAM, 64QAM) Crest factor : 1 3. Bluetooth mode Frequency band : 2402-2480MHz Channel : 1ch(2402MHz), 40ch(2441MHz), 79ch(2480MHz) Modulation : FHSS (GFSK Hopping ON/OFF)[DH5] Crest factor : 1
----------------	---

5.2 Measurement procedure

1. IEEE 802.11b (Main antenna)

The 11b (DSSS) test was performed in the CCK(11Mbps) modulation because it was the highest peak power and data rate.

Step1. The searching for the worst position

Step2. The changing to the Low and High channels

This test was performed at the worst conditions of Step1.

2. IEEE 802.11g (Main antenna)

Step3. The data rate in the higher peak power of each modulation was decided, then the worst modulation was searched in the SAR testing.

Step4. The searching for the worst position

This test was performed at the worst modulation of Step3.

Step5. The changing to the Low and High channels

This test was performed at the worst conditions of Step 3 and Step4.

3. IEEE 802.11b (Aux antenna)

The 11b (DSSS) test was performed in the CCK(11Mbps) modulation because it was the highest peak power and data rate.

Step6. The searching for the worst position

Step7. The changing to the Low and High channels

This test was performed at the worst conditions of Step6.

4. IEEE 802.11g (Aux antenna)

Step8. The data rate in the higher peak power of each modulation was decided, then the worst modulation was searched in the SAR testing.

Step9. The searching for the worst position

This test was performed at the worst modulation of Step8.

Step10. The changing to the Low and High channels

This test was performed at the worst conditions of Step 9.

5. Distance between EUT and SAM Twin Phantom

Step11. The position for the highest SAR value of this EUT was at "Right Back" position.

The measurement was performed with the distance, 5mm, 10mm and 15mm to check if the shortest distance (0mm) may not have the worst value at the conditions of the highest SAR value. As a result, the shortest distance (0mm) had the worst value.

5. Bluetooth

Step12. The searching for the worst position

Step13. The changing to the Low and High channels

This test was performed at the worst position of Step12.

Step14. The changing to the Hopping On

This test was performed at the worst position of Step12

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5.3 Test setup of EUT

When users operate or carry the EUT, it could be considered to touch or get close to their bodies. In order to assume this situation, we performed the test at the following positions. Please refer to "APPENDIX 1" for more details.

Main antenna

(1) Left Bottom :

The test was performed in touch with Left Bottom surface of the EUT to the flat section of SAM Twin phantom.

(2) Left Side :

The test was performed in touch with Left Side of the EUT to the flat section of SAM Twin phantom.

(3) Left Back :

The test was performed in touch with Left Back surface of the EUT to the flat section of SAM Twin phantom.

Aux antenna

(4) Right Bottom :

The test was performed in touch with Right Bottom surface of the EUT to the flat section of SAM Twin phantom.

(5) Right Side :

The test was performed in touch with Right Side of the EUT to the flat section of SAM Twin phantom.

(6) Right Back :

The test was performed in touch with rRight Back surface of the EUT to the flat section of SAM Twin phantom.

(7) Right Back (5mm) :

The measurement opened 5mm distance between EUT and SAM Twin Phantom.

(8) Right Back (10mm) :

The measurement opened 10mm distance between EUT and SAM Twin Phantom.

(9) Right Back (15mm) :

The measurement opened 15mm distance between EUT and SAM Twin Phantom.

Bluetooth antenna

(10) Bottom (Bluetooth) :

The test was performed in touch with Bottom surface of the EUT to the flat section of SAM Twin phantom.

(11) Keyboard Edge (Bluetooth) :

The test was performed in touch with Keyboard Edge of the EUT to the flat section of SAM Twin phantom.

(12) Keyboard Side (Bluetooth) :

The test was performed in touch with Keyboard Side of the EUT to the flat section of SAM Twin phantom.

*The test setup photograph is put on appendix 1.

SECTION 6 : Test surrounding

6.1 Measurement uncertainty

The uncertainty budget has been determined for the DASY4 measurement system according to SPEAG documents [6] and is given in the following Table.

Error Description	Uncertainty value $\pm$ %	Probability distribution	divisor	(ci) lg	Standard Uncertainty (lg)	vi or v _{eff}
Measurement System						
Probe calibration	± 4.8	Normal	1	1	± 4.8	∞
Axial isotropy of the probe	± 4.7	Rectangular	$\sqrt{3}$	$(1-c_p)^{1/2}$	± 1.9	∞
Spherical isotropy of the probe	± 9.6	Rectangular	$\sqrt{3}$	$(c_p)^{1/2}$	± 3.9	∞
Boundary effects	± 1.0	Rectangular	$\sqrt{3}$	1	± 0.6	∞
Probe linearity	± 4.7	Rectangular	$\sqrt{3}$	1	± 2.7	∞
Detection limit	± 1.0	Rectangular	$\sqrt{3}$	1	± 0.6	∞
Readout electronics	± 1.0	Normal	1	1	± 1.0	∞
Response time	± 0.8	Rectangular	$\sqrt{3}$	1	± 0.5	∞
Integration time	± 2.6	Rectangular	$\sqrt{3}$	1	± 1.5	∞
RF ambient conditions	± 3.0	Rectangular	$\sqrt{3}$	1	± 1.7	∞
Mech. constraints of robot	± 0.4	Rectangular	$\sqrt{3}$	1	± 0.2	∞
Probe positioning	± 2.9	Rectangular	$\sqrt{3}$	1	± 1.7	∞
Extrap. and integration	± 1.0	Rectangular	$\sqrt{3}$	1	± 0.6	∞
Test Sample Related						
Device positioning	± 2.9	Normal	1	1	± 2.9	34
Device holder uncertainty	± 3.6	Normal	1	1	± 3.6	17
Power drift	± 10.0	Rectangular	$\sqrt{3}$	1	± 5.8	∞
Phantom and Setup						
Phantom uncertainty	± 4.0	Rectangular	$\sqrt{3}$	1	± 2.3	∞
Liquid conductivity (target)	± 5.0	Rectangular	$\sqrt{3}$	0.64	± 1.8	∞
Liquid conductivity (meas.)	± 5.0	Normal	1	0.64	± 3.2	∞
Liquid permittivity (target)	± 5.0	Rectangular	$\sqrt{3}$	0.6	± 1.7	∞
Liquid permittivity (meas.)	± 5.0	Normal	1	0.6	± 3.0	∞
Combined Standard Uncertainty					± 12.057	
Expanded Uncertainty (k=2)					± 24.1	

The result of some test showed that the power drift has exceeded $\pm 5\%$. Therefore, the uncertainty of power drift expanded to $\pm 10\%$. However, the extended uncertainty (k= 2) of a test is less than $\pm 30\%$.

Please refer to APPENDIX 3 “3. Power drift measurement”.

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SECTION 7 : Confirmation before testing**7.1 Conducted power of Main Antenna Port**

[IEEE802.11b : Main Antenna (by the data rate)]						
Ch	Modulation (Data rate [bps])	S/A Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Converted [mW]
6	DBPSK (1Mbps)	2.51	1.09	9.91	13.51	22.44
6	DQPSK(2Mbps)	2.75	1.09	9.91	13.75	23.71
6	CCK(5.5Mbps)	3.96	1.09	9.91	14.96	31.33
6	CCK(11Mbps)	5.72	1.09	9.91	16.72	46.99

[IEEE802.11b: Main Antenna (11Mbps)]						
Ch	Freq. [MHz]	S/A Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Converted [mW]
1	2412	5.12	1.13	9.91	16.16	41.30
6	2437	5.72	1.09	9.91	16.72	46.99
11	2462	5.28	1.18	9.91	16.37	43.35

[IEEE802.11g : Main Antenna (by the data rate)]						
Ch	Modulation (Data rate [bps])	S/A Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Converted [mW]
6	BPSK (6Mbps)	3.81	1.09	9.91	14.81	30.27
6	BPSK (9Mbps)	3.86	1.09	9.91	14.86	30.62
6	QPSK (12Mbps)	4.10	1.09	9.91	15.10	32.36
6	QPSK (18Mbps)	3.97	1.09	9.91	14.97	31.41
6	16QAM(24Mbps)	4.40	1.09	9.91	15.40	34.67
6	16QAM(36Mbps)	4.31	1.09	9.91	15.31	33.96
6	64QAM(48Mbps)	4.37	1.09	9.91	15.37	34.43
6	64QAM(54Mbps)	4.47	1.09	9.91	15.47	35.24

[The worst data rate in 11g SAR result]

[IEEE802.11g :Main Antenna (9Mbps)]						
Ch	Freq. [MHz]	S/A Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Converted [mW]
1	2412	4.28	1.13	9.91	15.32	34.04
6	2437	3.98	1.09	9.91	14.98	31.48
11	2462	3.52	1.18	9.91	14.61	28.91

[IEEE802.11g: Main Antenna (54Mbps)]						
Ch	Freq. [MHz]	S/A Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Converted [mW]
1	2412	4.70	1.13	9.91	15.74	37.50
6	2437	4.47	1.09	9.91	15.47	35.24
11	2462	4.15	1.18	9.91	15.24	33.42

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7.2 Conducted power of Aux Antenna Port

[IEEE802.11b : Aux Antenna (by the data rate)]						
Ch	Modulation (Data rate [bps])	S/A Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Converted [mW]
6	DBPSK (1Mbps)	2.13	1.09	9.91	13.13	20.56
6	DQPSK(2Mbps)	2.21	1.09	9.91	13.21	20.94
6	CCK(5.5Mbps)	3.48	1.09	9.91	14.48	28.05
6	CCK(11Mbps)	5.31	1.09	9.91	16.31	42.76

[IEEE802.11b: Aux Antenna (11Mbps)]						
Ch	Freq. [MHz]	S/A Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Converted [mW]
1	2412	5.84	1.13	9.91	16.88	48.75
6	2437	5.31	1.09	9.91	16.31	42.76
11	2462	5.52	1.18	9.91	16.61	45.81

[IEEE802.11g : Aux Antenna (by the data rate)]						
Ch	Modulation (Data rate [bps])	S/A Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Converted [mW]
6	BPSK (6Mbps)	4.03	1.09	9.91	15.03	31.84
6	BPSK (9Mbps)	4.18	1.09	9.91	15.18	32.96
6	QPSK (12Mbps)	4.43	1.09	9.91	15.43	34.91
6	QPSK (18Mbps)	4.38	1.09	9.91	15.38	34.51
6	16QAM(24Mbps)	4.52	1.09	9.91	15.52	35.65
6	16QAM(36Mbps)	4.40	1.09	9.91	15.40	34.67
6	64QAM(48Mbps)	4.55	1.09	9.91	15.55	35.89
6	64QAM(54Mbps)	4.58	1.09	9.91	15.58	36.14

[The worst data rate in SAR result]

[IEEE802.11g : Aux Antenna (9Mbps)]						
Ch	Freq. [MHz]	S/A Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Converted [mW]
1	2412	4.43	1.13	9.91	15.47	35.24
6	2437	4.18	1.09	9.91	15.18	32.96
11	2462	3.83	1.18	9.91	14.92	31.05

[IEEE802.11g: Aux Antenna (54Mbps)]						
Ch	Freq. [MHz]	S/A Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Converted [mW]
1	2412	4.67	1.13	9.91	15.71	37.24
6	2437	4.58	1.09	9.91	15.58	36.14
11	2462	4.18	1.18	9.91	15.27	33.65

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7.3 Conducted power of Bluetooth Antenna Port

[Bluetooth]						
Ch	Freq. [MHz]	P/M Reading [dBm]	Cable Loss [dB]	Atten. [dB]	Result [dBm]	Converted [mW]
Low	2402	0.24	0.6	0.00	0.84	1.21
Mid	2442	-0.09	0.6	0.00	0.51	1.12
High	2480	-0.24	0.6	0.00	0.36	1.09
Hoping		0.11	0.6	0.00	0.71	1.18

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SECTION 8 : Measurement results

8.1 SAR Measurement results

8.1.1 Body 2450MHz SAR of Main Antenna

Liquid Depth (cm) : 15.0 Model : PCG-4F2L
Parameters : $\epsilon_r = 50.7$, $\sigma = 1.95$ Serial No. : XTA40
Ambient temperature (deg.c.) : 25.0 Modulation : DSSS, OFDM
Relative Humidity (%) : 58 Crest factor : 1

Date : July 13, 2005
Measured By : Miyo Ikuta

BODY SAR MEASUREMENT RESULTS OF MAIN ANTENNA										
Frequency			Modulation (Data rate[bps])	Phantom Section	EUT Set-up Conditions			Liquid Temp.[deg.c]		SAR(1g) [W/kg]
Mode	Channel	[MHz]			Antenna	Position	Separation [mm]	Before	After	Maximum value of multi-peak
1. IEEE 802.11b (Main antenna)										
11b	Step1. Position search									
	6	2437	CCK(11Mbps)	Flat	Main	Left Bottom	0	24.1	24.1	0.011
	6	2437	CCK(11Mbps)	Flat	Main	Left Side	0	24.3	24.3	0.154
	6	2437	CCK(11Mbps)	Flat	Main	Left Back	0	24.3	24.1	0.388
	Step2. Frequency Change									
	1	2412	CCK(11Mbps)	Flat	Main	Left Back	0	24.1	24.0	0.363
	11	2462	CCK(11Mbps)	Flat	Main	Left Back	0	24.0	23.9	0.221
2. IEEE 802.11g (Main antenna)										
11g	Step3. Modulation search									
	6	2437	BPSK(9Mbps)	Flat	Main	Left Back	0	23.9	23.9	0.185
	6	2437	QPSK(12Mbps)	Flat	Main	Left Back	0	23.9	23.7	0.167
	6	2437	16QAM(24Mbps)	Flat	Main	Left Back	0	23.7	23.5	0.153
	6	2437	64QAM(54Mbps)	Flat	Main	Left Back	0	23.5	23.5	0.138
	Step.4 Position search									
	6	2437	BPSK(9Mbps)	Flat	Main	Left Bottom	0	23.5	23.5	0.00717
	6	2437	BPSK(9Mbps)	Flat	Main	Left Side	0	23.5	23.5	0.093
	Step.5 Frequency Change									
	1	2412	BPSK(9Mbps)	Flat	Main	Left Back	0	23.5	23.5	0.259
	11	2462	BPSK(9Mbps)	Flat	Main	Left Back	0	23.5	23.5	0.095
ANSI / IEEE C95.1 1992 - SAFETY LIMIT Spatial Peak Uncontrolled Exposure / General Population								Body SAR: 1.6 W/kg (averaged over 1 gram)		

* The measurement data is put on appendix 3.

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8.1.2 Body 2450MHz SAR of Aux Antenna

Liquid Depth (cm) : 15.0 Model : PCG-4F2L
Parameters : $\epsilon_r = 50.2$, $\sigma = 1.95$ Serial No. : XTA40
Ambient temperature (deg.c.) : 25.0 Modulation : DSSS, OFDM
Relative Humidity (%) : 63 Crest factor : 1

Date : July 14, 2005
Measured By : Miyo Ikuta

BODY SAR MEASUREMENT RESULTS OF AUX ANTENNA										
Frequency			Modulation (Data rate[bps])	Phantom Section	EUT Set-up Conditions			Liquid Temp.[deg.c]		SAR(1g) [W/kg]
Mode	Channel	[MHz]			Antenna	Position	Separation [mm]	Before	After	Maximum value of multi-peak
3. IEEE 802.11b (Aux antenna)										
11b	Step6. Position search									
	6	2437	CCK(11Mbps)	Flat	Aux	Right Bottom	0	24.0	24.0	0.00642
	6	2437	CCK(11Mbps)	Flat	Aux	Right Side	0	24.4	24.4	0.136
	6	2437	CCK(11Mbps)	Flat	Aux	Right Back	0	24.1	24.1	0.299
	Step7. Frequency Change									
	1	2412	CCK(11Mbps)	Flat	Aux	Right Back	0	24.2	24.3	0.413
	11	2462	CCK(11Mbps)	Flat	Aux	Right Back	0	24.4	24.5	0.272
4. IEEE 802.11g (Aux antenna)										
11g	Step8. Modulation search									
	6	2437	BPSK(9Mbps)	Flat	Aux	Right Back	0	24.6	24.5	0.193
	6	2437	QPSK(12Mbps)	Flat	Aux	Right Back	0	24.5	24.4	0.175
	6	2437	16QAM(24Mbps)	Flat	Aux	Right Back	0	24.4	24.4	0.172
	6	2437	64QAM(54Mbps)	Flat	Aux	Right Back	0	24.4	24.4	0.136
	Step9. Position search									
	6	2437	BPSK(9Mbps)	Flat	Aux	Right Bottom	0	24.3	24.3	0.00501
	6	2437	BPSK(9Mbps)	Flat	Aux	Right Side	0	24.3	24.4	0.083
	Step10. Frequency Change									
	1	2412	BPSK(9Mbps)	Flat	Aux	Right Back	0	24.4	24.4	0.207
	11	2462	BPSK(9Mbps)	Flat	Aux	Right Back	0	24.4	24.3	0.161
ANSI / IEEE C95.1 1992 - SAFETY LIMIT								Body SAR: 1.6 W/kg		
Spatial Peak Uncontrolled Exposure / General Population								(averaged over 1 gram)		

BODY SAR MEASUREMENT RESULTS OF										
Frequency			Modulation (Data rate[bps])	Phantom Section	EUT Set-up Conditions			Liquid Temp.[deg.c]		SAR(1g) [W/kg]
Mode	Channel	[MHz]			Antenna	Position	Separation [mm]	Before	After	Maximum value of multi-peak
5. Distance between EUT and SAM Twin Phantom										
11b	Step11. Separation Change									
	1	2412	CCK(11Mbps)	Flat	Aux	Right Back	5	24.3	24.3	0.174
	1	2412	CCK(11Mbps)	Flat	Aux	Right Back	10	24.3	24.3	0.080
	1	2412	CCK(11Mbps)	Flat	Aux	Right Back	15	24.3	24.3	0.024

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8.1.3 Body 2450MHz SAR of Bluetooth Antenna

Liquid Depth (cm) : 15.0 Model : PCG-4F2L
Parameters : $\epsilon_r = 50.7$, $\sigma = 1.95$ Serial No. : XTA40
Ambient temperature (deg.c.) : 25.0 Modulation : FHSS
Relative Humidity (%) : 58 Crest factor : 1

Date : July 13, 2005

Measured By : Miyo Ikuta

BODY SAR MEASUREMENT RESULTS OF BLUETOOTH										
Frequency			Modulation (Data rate[bps])	Phantom Section	EUT Set-up Conditions			Liquid Temp.[deg.c]		SAR(1g) [W/kg]
Mode	Channel	[MHz]			Antenna	Position	Separation [mm]	Before	After	Maximum value of multi-peak
6. Bluetooth										
BT	Step12. Position search									
	Mid	2441	GFSK	Flat	Bluetooth	Bottom	0	23.5	23.4	0.00288
	Mid	2441	GFSK	Flat	Bluetooth	Keyboard Edge	0	23.4	23.4	0.00310
	Mid	2441	GFSK	Flat	Bluetooth	Keyboard Side	0	23.4	23.4	0.00336
	Step13. Frequency Change									
	Low	2402	GFSK	Flat	Bluetooth	Keyboard Side	0	23.4	23.4	0.00389
	High	2480	GFSK	Flat	Bluetooth	Keyboard Side	0	23.4	23.4	0.00311
	Step14. Hopping ON									
	-	-	Hopping ON	Flat	Bluetooth	Keyboard Side	0	23.4	23.4	0.00306

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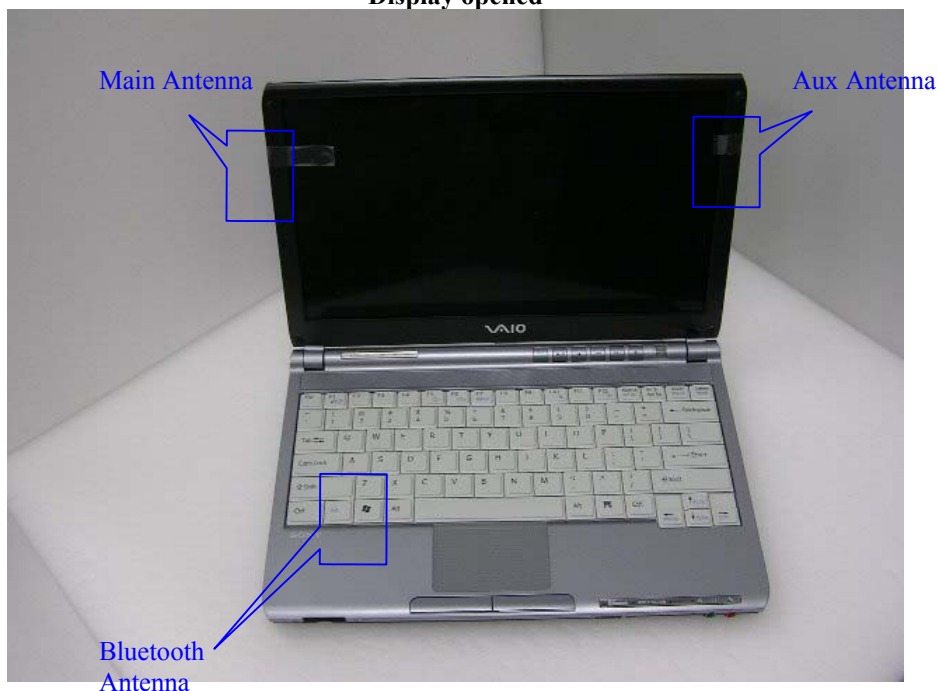
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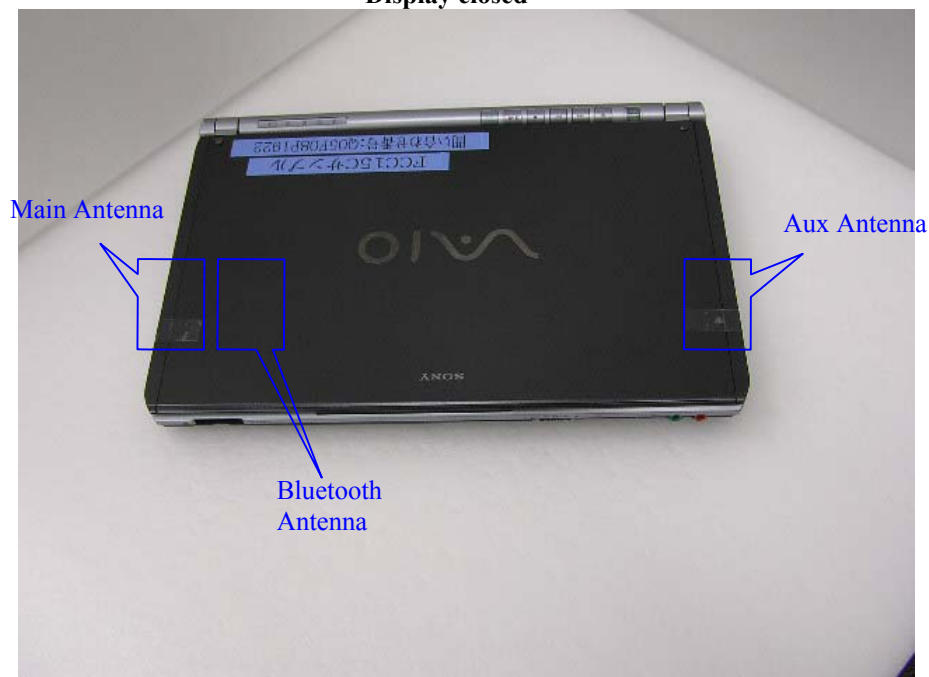
Facsimile: +81 596 24 8124

APPENDIX 1 : Photographs of test setup

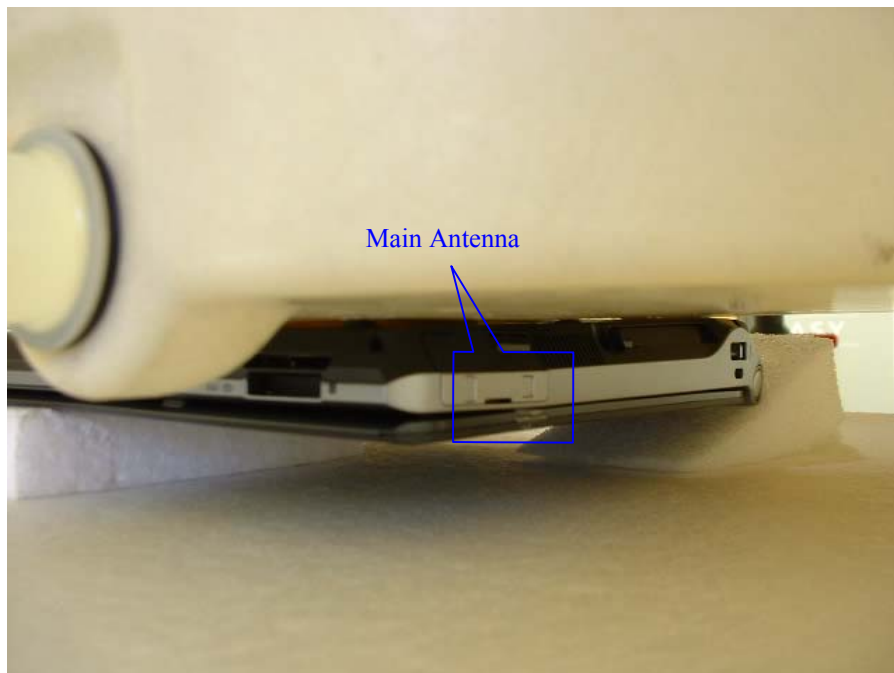
Display opened



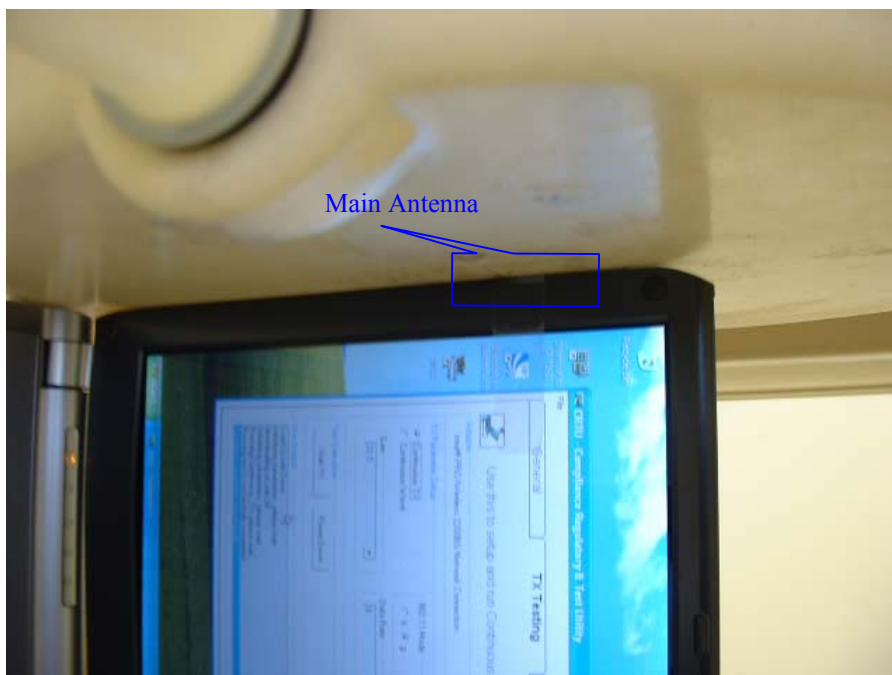
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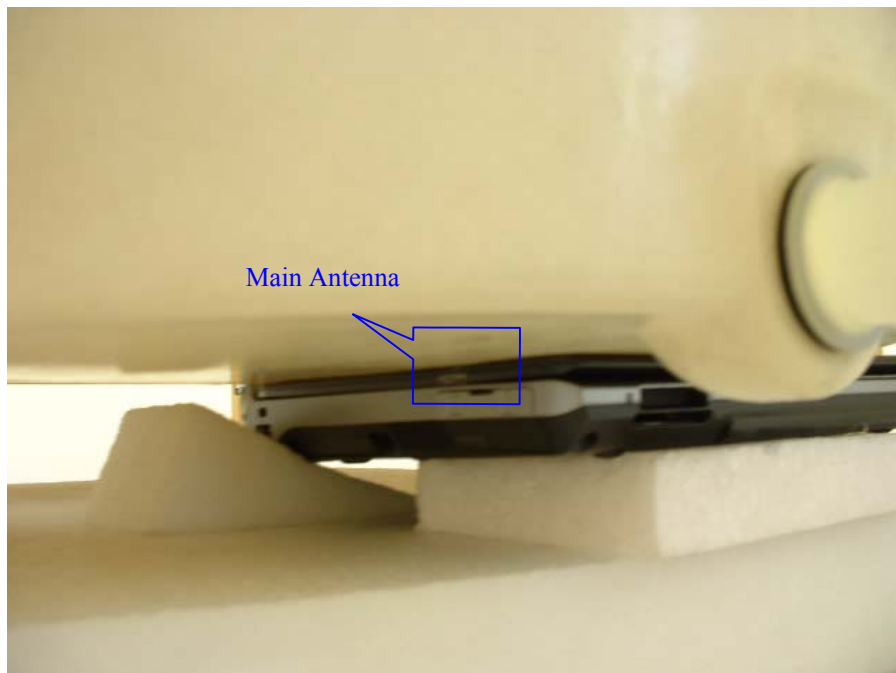
(1) Left Bottom



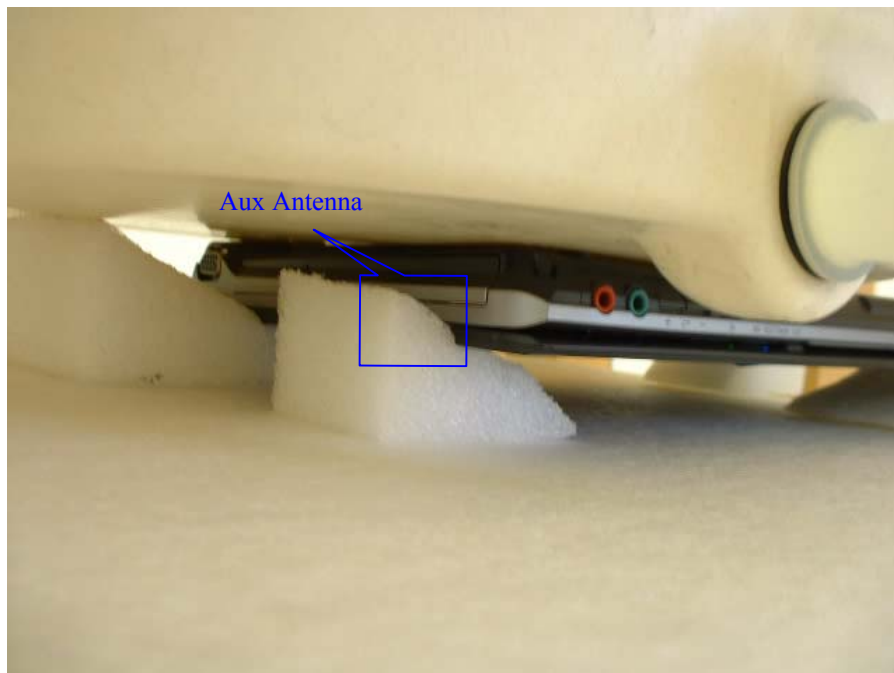
(2) Left Side



(3) Left Back



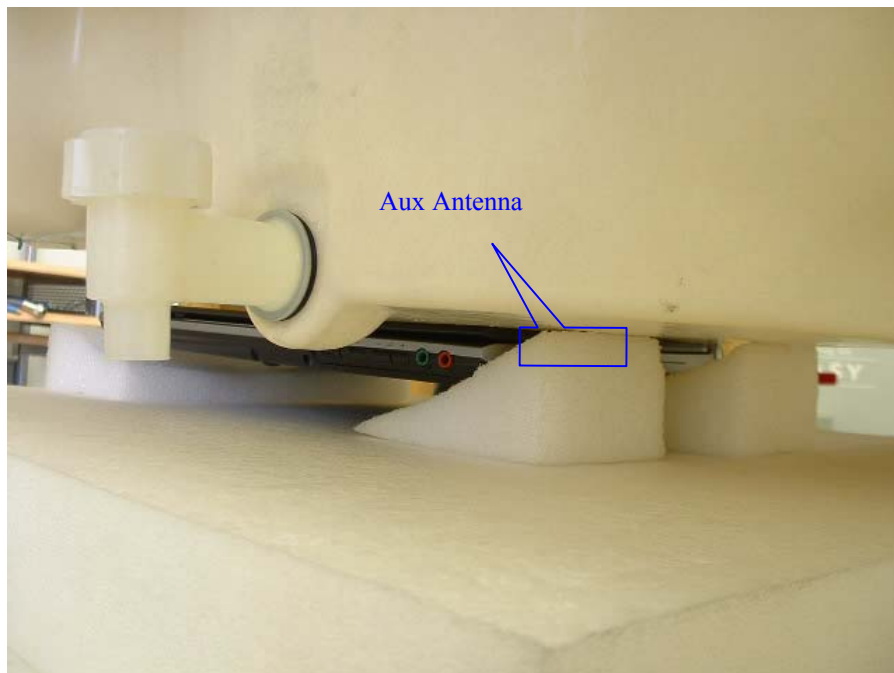
(4) Right Bottom



(5) Right Side



(6) Right Back



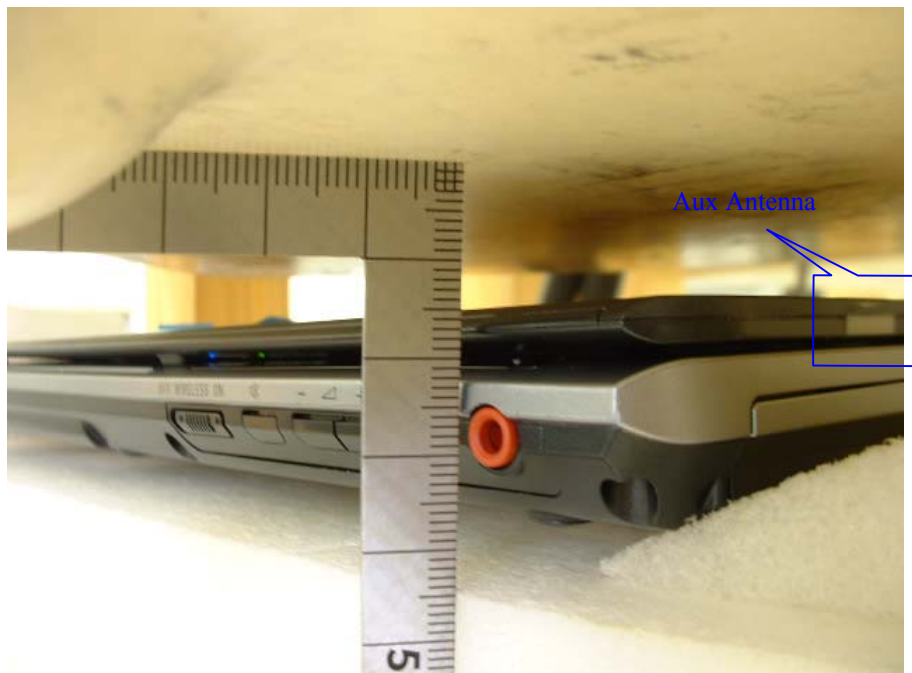
(7) Right Back (5mm)



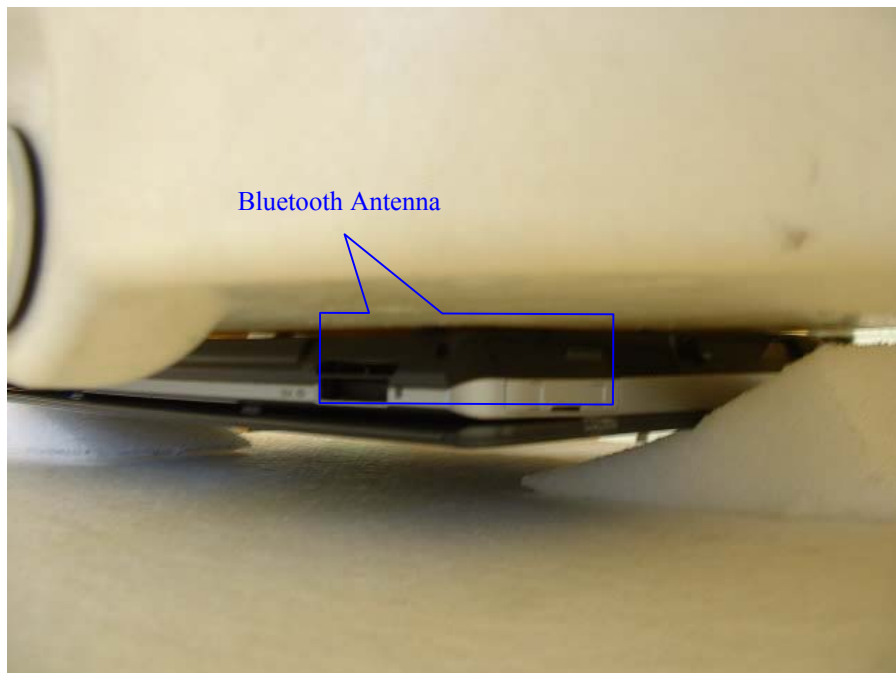
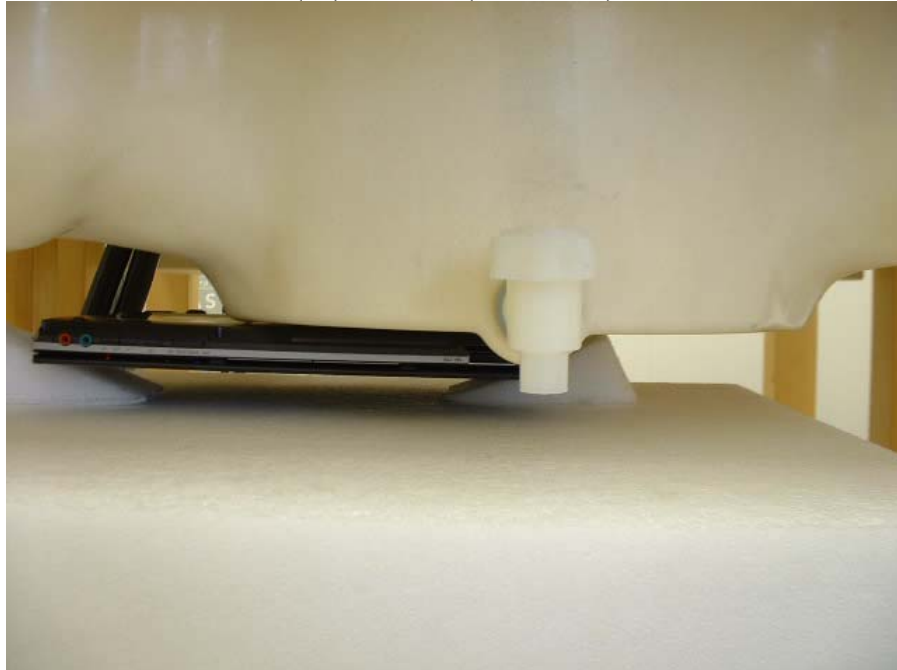
(8) Right Back (10mm)



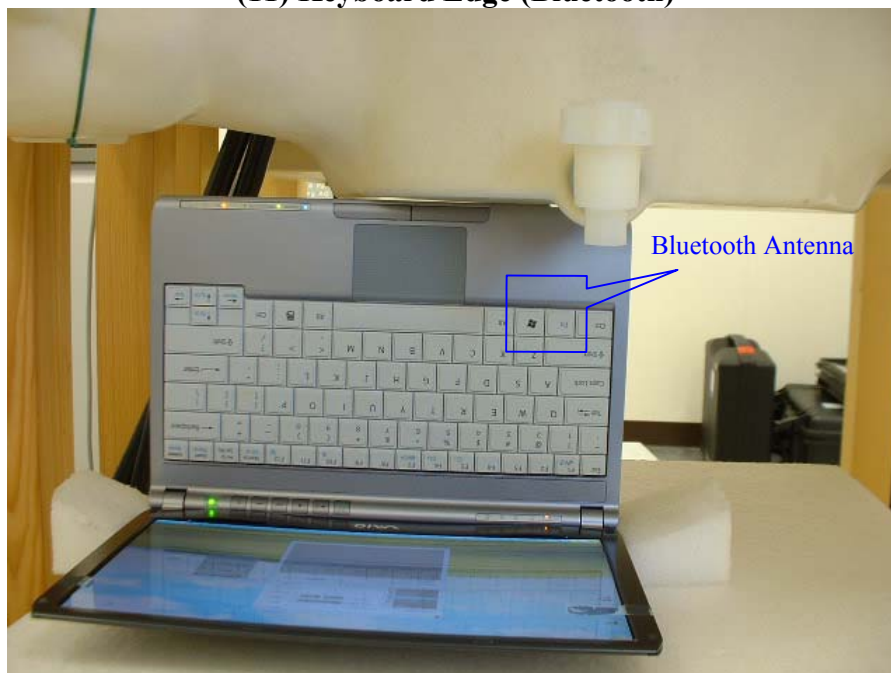
(9) Right Back (15mm)



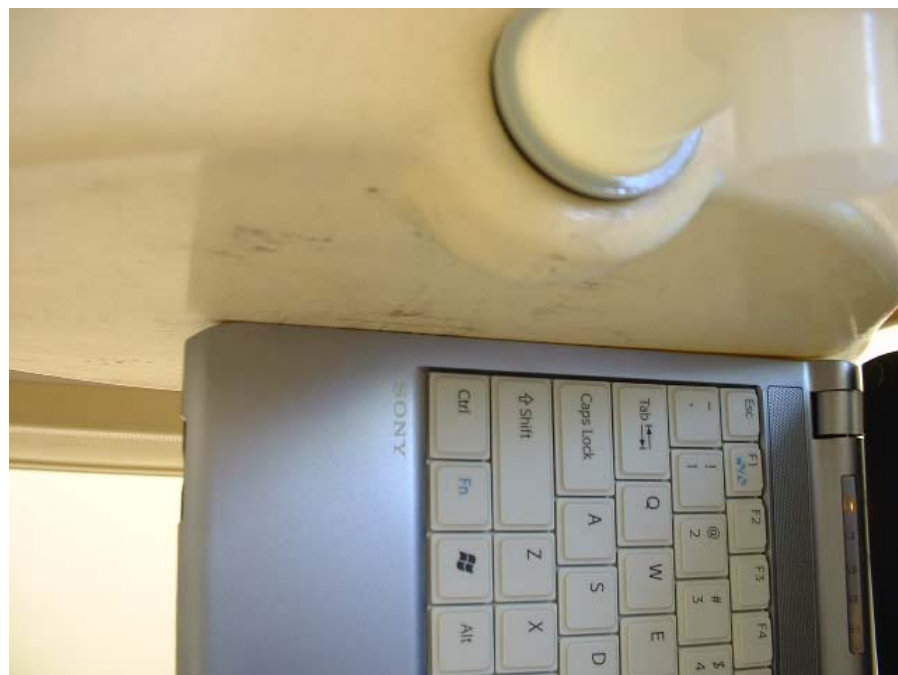
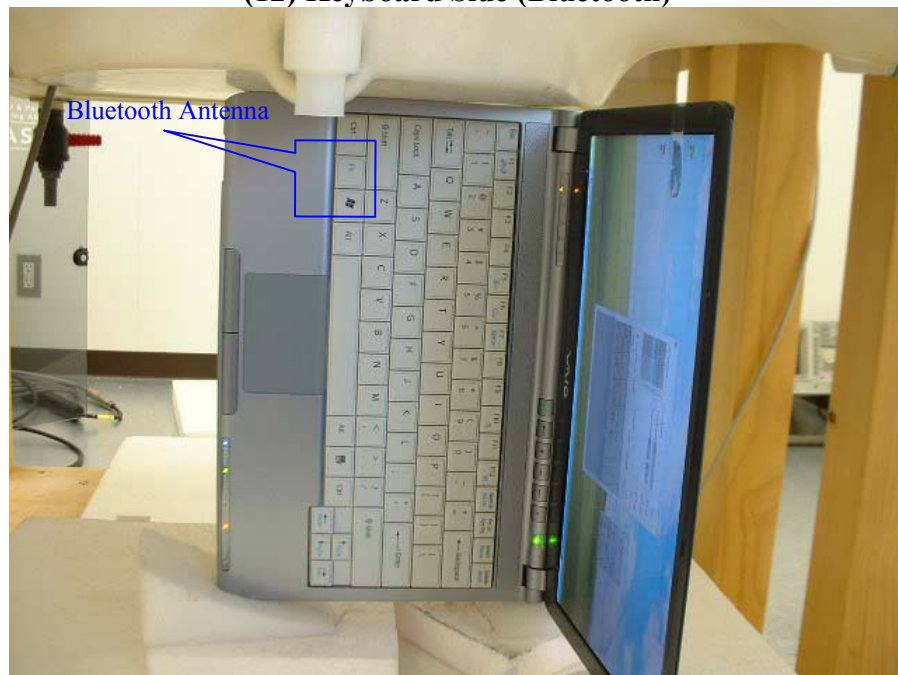
(10) Bottom (Bluetooth)



(11) Keyboard Edge (Bluetooth)



(12) Keyboard Side (Bluetooth)



APPENDIX 2 : Test instruments

Equipment & calibration information

1. Equipment used

Name of Equipment	Manufacture	Model number	Serial number	Calibration	
				Last Cal	due date
Power Meter	Agilent	E4417A	GB41290639	2004/11/09	2005/11/08
Power Sensor	Agilent	E9300B	US40010300	2004/11/15	2005/11/14
Power Sensor	Agilent	E9327A	US40440545	2004/11/23	2005/11/22
Spectrum Analyzer	Agilent	E4448A	MY44020357	2005/06/03	2006/06/02
S-Parameter Network Analyzer	Agilent	8753ES	US39174808	2003/10/23	2006/10/22
Signal Generator	Rohde&Schwarz	SML40	100023	2005/01/05	2006/01/04
RF Amplifier	TSJ	TCBP0206	1005	2005/02/24	2006/02/23
Dosimetric E-Field Probe	Schmid&Partner Engineering AG	ET3DV6	1684	2004/09/02	2005/09/01
Data Acquisition Electronics	Schmid&Partner Engineering AG	DAE3	516	2005/03/10	2006/03/09
Robot,SAM Phantom	Schmid&Partner Engineering AG	DASY4	I021834	N/A	N/A
Attenuator	Agilent	US40010300	08498-60012	2004/12/16	2005/12/15
2450MHz System Validation Dipole	Schmid&Partner Engineering AG	D2450V2	765	2004/11/15	2005/11/14
Dual Directional Coupler	N/A	Narda	03702	N/A	N/A
Head 2450MHz	N/A	N/A	N/A	N/A	N/A
Body 2450MHz	N/A	N/A	N/A	N/A	N/A
Ambient Noise <0.012W/kg	SAR room	-	-	2005/7/13 2005/7/14	-

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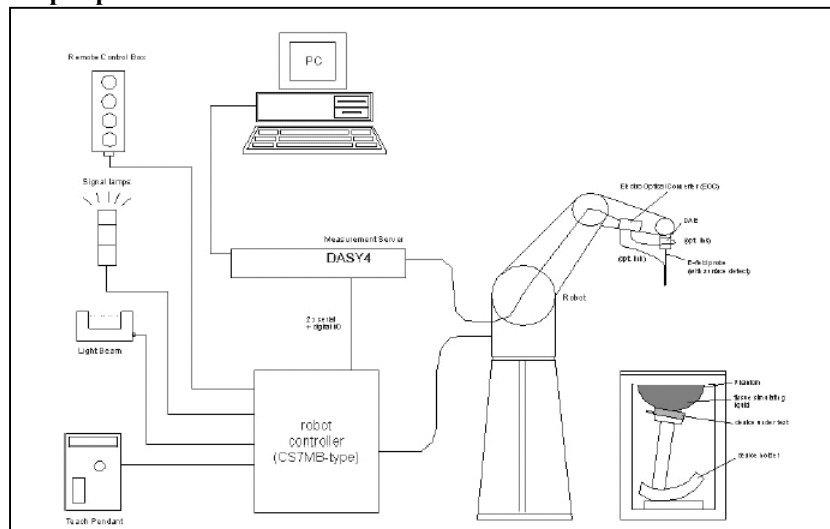
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2. Dosimetry assessment setup

These measurements were performed with the automated near-field scanning system DASY4 from Schmid & Partner Engineering AG (SPEAG). The system is based on a high precision robot (working range greater than 0.9 m), which positions the probes with a positional repeatability of better than ± 0.02 mm. Special E- and H-field probes have been developed for measurements close to material discontinuity, the sensors of which are directly loaded with a Schottky diode and connected via highly resistive lines to the data acquisition unit. The SAR measurements were conducted with the dosimetry probe ET3DV6, SN: 1684 (manufactured by SPEAG), designed in the classical triangular configuration and optimized for dosimetric evaluation. The probe has been calibrated according to the procedure described in [2] with accuracy of better than $\pm 10\%$. The spherical isotropy was evaluated with the procedure described in [3] and found to be better than ± 0.25 dB. The phantom used was the SAM Twin Phantom as described in FCC supplement C, IEEE P1528 and CENELEC EN50361.

3. Configuration and peripherals



The DASY4 system for performing compliance tests consist of the following items:

1. A standard high precision 6-axis robot (Stäubli RX family) with controller and software.
An arm extension for accommodating the data acquisition electronics (DAE).
2. A dosimetric probe, i.e., an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.
3. A data acquisition electronic (DAE), which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
4. 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.
5. 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.
6. A probe alignment unit which improves the (absolute) accuracy of the probe positioning.
7. A computer operating Windows 2000.
8. DASY4 software.
9. Remote control with teaches pendant and additional circuitry for robot safety such as warning lamps, etc.
10. The SAM twin phantom enabling testing left-hand and right-hand usage.
11. The device holder for handheld mobile phones.
12. Tissue simulating liquid mixed according to the given recipes.
13. Validation dipole kits allowing to validate the proper functioning of the system.

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4. System components

ET3DV6 Probe Specification

Construction:

Symmetrical design with triangular core
Built-in optical fiber for surface detection System
Built-in shielding against static charges
PEEK enclosure material (resistant to organic solvents, e.g., glycol ether)

Calibration:

Conversion Factors (CF) for
900MHz, 1800MHz and 2450MHz (Head and Body)

Frequency:

10 MHz to 3GHz; Linearity: ± 0.2 dB
(30 MHz to 3 GHz)

Directivity:

± 0.2 dB in brain tissue (rotation around probe axis)
 ± 0.4 dB in brain tissue (rotation normal probe axis)

Dynamic Range:

5 mW/g to > 100 mW/g; Linearity: ± 0.2 dB

Optical Surface Detection:

± 0.2 mm repeatability in air and clear liquids over diffuse reflecting surfaces.

Dimensions:

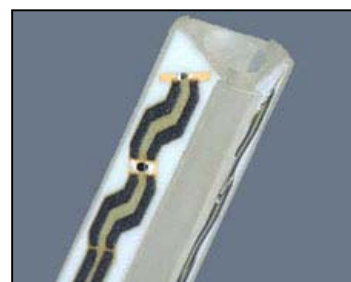
Overall length: 330 mm (Tip: 16 mm)
Tip length: 16 mm
Body diameter: 12 mm (Body: 12 mm)

Tip diameter: 6.8 mm

Distance from probe tip to dipole centers: 2.7 mm

Application:

General dosimetric up to 3 GHz
Compliance tests of mobile phones
Fast automatic scanning in arbitrary phantoms



ET3DV6 E-field Probe

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SAM Twin Phantom

Construction:

The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528-200X, CENELEC EN 50361 and IEC 62209. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents evaporation of the liquid. Reference markings on the phantom allow the complete setup by manually teaching three points with the robot.

Shell Thickness:

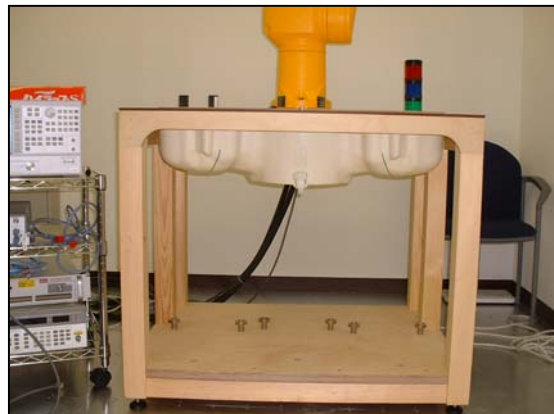
2 +/-0.2 mm

Filling Volume:

Approx. 25 liters

Dimensions:

(H x L x W): 810 x 1000 x 500 mm



SAM Twin Phantom

Device Holder for Transmitters

In combination with the SAM Twin Phantom V4.0, the Mounting Device enables the rotation of the mounted transmitter

in spherical coordinates whereby the rotation points is the ear opening. The devices can be easily, accurately, and repeatedly positioned according to the FCC and CENELEC specifications. The device holder can be locked at different phantom locations (left head, right head, flat phantom).

* Note: A simulating human hand is not used due to the complex anatomical and geometrical structure of the hand that may produced infinite number of configurations.

To produce the worst-case condition (the hand absorbs antenna output power), the hand is omitted during the tests.



Device Holder

Device holder couldn't be used at this SAR measurement.

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5. Test system specifications

Robot RX60L

Number of Axes	:	6
Payload	:	1.6 kg
Reach	:	800mm
Repeatability	:	+/-0.025mm
Control Unit	:	CS7M
Programming Language	:	V+
Manufacture	:	Stäubli Unimation Corp. Robot Model: RX60

DASY4 Measurement server

Features	:	166MHz low power Pentium MMX 32MB chipdisk and 64MB RAM Serial link to DAE (with watchdog supervision) 16 Bit A/D converter for surface detection system Two serial links to robot (one for real-time communication which is supervised by watchdog) Ethernet link to PC (with watchdog supervision) Emergency stop relay for robot safety chainTwo expansion slots for future applications
Manufacture	:	Schimid & Partner Engineering AG

Data Acquisition Electronic (DAE)

Features	:	Signal amplifier, multiplexer, A/D converter and control logic Serial optical link for communication with DASY4 embedded system (fully remote controlled) 2 step probe touch detector for mechanical surface detection and emergency robot stop (not in -R version)
Measurement Range	:	1 μ V to > 200 mV (16 bit resolution and two range settings: 4mV, 400mV)
Input Offset voltage	:	< 1 μ V (with auto zero)
Input Resistance	:	200 M Ω
Battery Power	:	> 10 h of operation (with two 9 V battery)
Dimension	:	60 x 60 x 68 mm
Manufacture	:	Schimid & Partner Engineering AG

Software

Item	:	Dosimetric Assesment System DASY4
Type No.	:	SD 000 401A, SD 000 402A
Software version No.	:	4.5
Manufacture / Origin	:	Schimid & Partner Engineering AG

E-Field Probe

Model	:	ET3DV6
Serial No.	:	1684
Construction	:	Triangular core fiber optic detection system
Frequency	:	10 MHz to 6 GHz
Linearity	:	+/-0.2 dB (30 MHz to 3 GHz)
Manufacture	:	Schimid & Partner Engineering AG

Phantom

Type	:	SAM Twin Phantom V4.0
Shell Material	:	Fiberglass
Thickness	:	2.0 +/-0.2 mm
Volume	:	Approx. 25 liters
Manufacture	:	Schimid & Partner Engineering AG

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6. Simulated Tissues Composition of 2450MHz

Ingredient	MIXTURE(%)	
	Head 2450MHz	Muscle 2450MHz
Water	45.0	69.83
DGMBE	55.0	30.2

Note:DGMBE(Diethylenglycol-monobuthyl ether)

7. Validation Measurement

Simulated tissue liquid parameter

7-a Simulated Tissue Liquid Parameter confirmation

The dielectric parameters were checked prior to assessment using the HP85070D dielectric probe kit.
The dielectric parameters measurement are reported in each correspondent section.

7-b Head 2450 MHz

Type of liquid : Head 2450 MHz
Ambient temperature (deg.c.) : 25.0(July 13 and July 14)
Relative Humidity (%) : 58(July 13), 63(July 14)
Liquid depth (cm) : 15.0

DIELECTRIC PARAMETERS MEASUREMENT RESULTS								
Date	Frequency	Liquid Temp [deg.c]		Parameters	Target Value	Measured	Deviation [%]	Limit [%]
		Before	After					
13-Jul	2450	24.2	24.2	Relative Permittivity ϵ_r	39.2	37.3	-4.8	+/-10
				Coductivity σ [mho/m]	1.80	1.85	2.8	+/-5
14-Jul	2450	24.0	24.0	Relative Permittivity ϵ_r	39.2	37.3	-4.8	+/-10
				Coductivity σ [mho/m]	1.80	1.85	2.8	+/-5

7-c Muscle 2450 MHz

Type of liquid : Muscle 2450 MHz
Ambient temperature (deg.c.) : 25.0(July 13 and July 14)
Relative Humidity (%) : 58(July 13), 63(July 14)
Liquid depth (cm) : 15.0

DIELECTRIC PARAMETERS MEASUREMENT RESULTS								
Date	Frequency	Liquid Temp [deg.c]		Parameters	Target Value	Measured	Deviation [%]	Limit [%]
		Before	After					
13-Jul	2450	24.3	24.3	Relative Permittivity ϵ_r	52.7	50.7	-3.8	+/-5
				Coductivity σ [mho/m]	1.95	1.95	0.0	+/-5
14-Jul	2450	24.0	24.0	Relative Permittivity ϵ_r	52.7	50.2	-4.7	+/-5
				Coductivity σ [mho/m]	1.95	1.95	0.0	+/-5

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8. System validation data

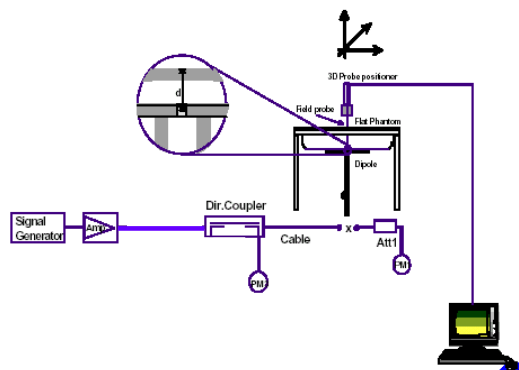
Prior to the assessment, the system validation kit was used to test whether the system was operating within its specifications of +/-10%. The validation results are in the table below. Please refer to APPENDIX3.

System validation of 2450MHz

Type of liquid	:	HEAD 2450MHz
Frequency	:	2450MHz
Ambient temperature (deg.c.)	:	25.0(July 13 and July 14)
Relative Humidity (%)	:	58(July 13), 63(July 14)
Dipole	:	D2450V2 SN:765
Power	:	250mW

SYSTEM PERFORMANCE CHECK										
Date	Liquid (HEAD 2450MHz)						System dipole validation target & measured			
	Liquid Temp [deg.c.]		Relative Permittivity εr		Conductivity σ [mho/m]		SAR 1g [W/kg]		Deviation [%]	Limit [%]
	Before	After	Target	Measured	Target	Measured	Target	Measured		
13-Jul	24.1	24.1	39.2	37.3	1.80	1.85	13.1	14.3	9.2	+/-10
14-Jul	24.0	24.0	39.2	37.3	1.80	1.85	13.1	14.3	9.2	+/-10

Note: Please refer to Attachment for the result representation in plot format



2450MHz System performance check setup

Test system for the system performance check setup diagram

9. Validation Measurement data

System Validation / Dipole 2450 MHz / Forward Conducted Power : 250mW

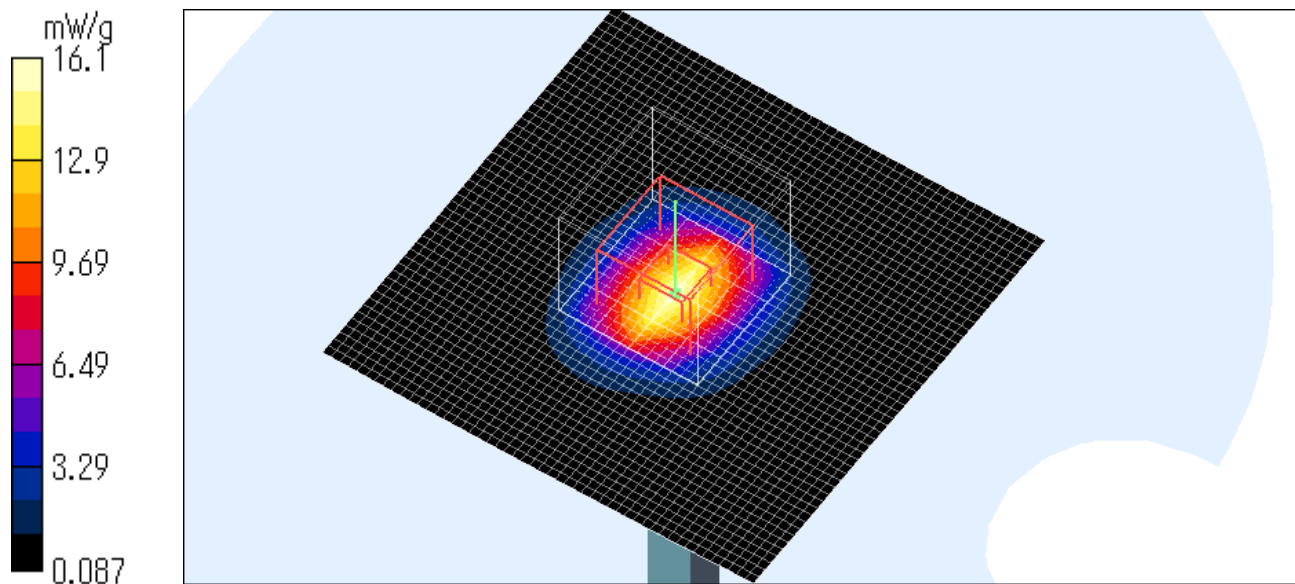
Dipole 2450 MHz; Type: D2450V2; Serial: SN:765
Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 2450$ MHz; $\sigma = 1.85$ mho/m; $\epsilon_r = 37.3$; $\rho = 1000$ kg/m³
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)
DASY4 Configuration:
Probe: ET3DV6 - SN1684; ConvF(4.39, 4.39, 4.39); Calibrated: 2004/09/02
Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
Electronics: DAE3 Sn516; Calibrated: 2005/03/10
Phantom: SAM 1196
Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Area Scan (51x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 22.6 mW/g

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 97.7 V/m; Power Drift = 0.032 dB
Peak SAR (extrapolated) = 29.6 W/kg

SAR(1 g) = 14.3 mW/g; SAR(10 g) = 6.67 mW/g
Maximum value of SAR (measured) = 16.1 mW/g

Test Date = 07/13/05
Ambient Temperature = 25.0 degree.C.
Liquid Temperature = Before 24.1 degree.C. , After 24.1 degree.C.



System Validation / Dipole 2450 MHz / Forward Conducted Power : 250mW

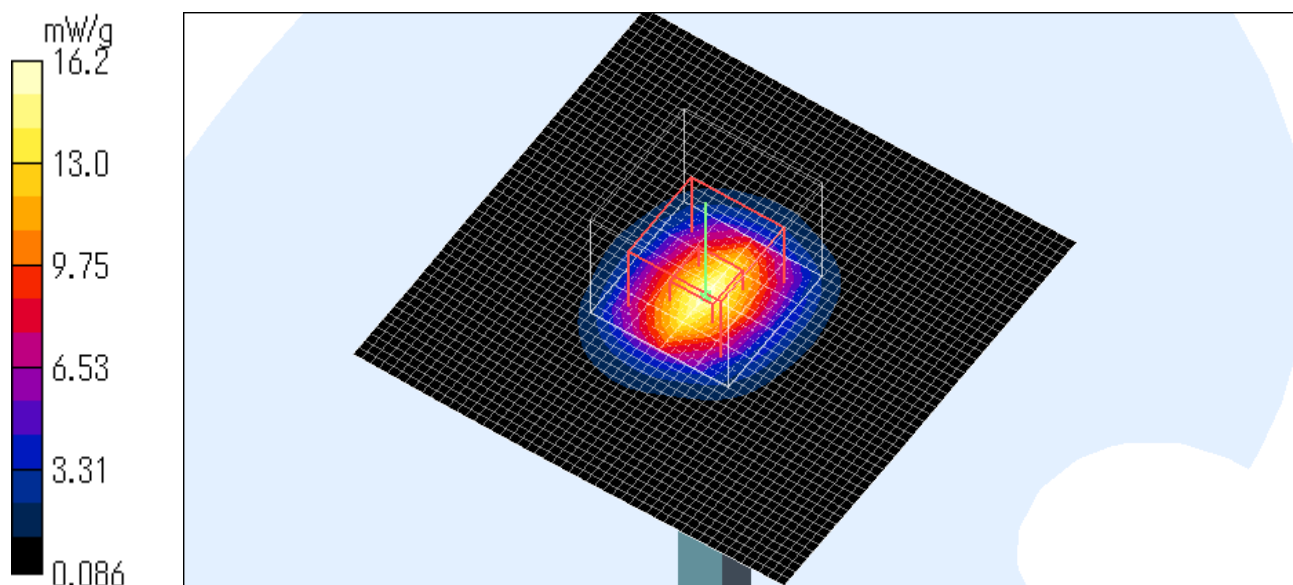
Dipole 2450 MHz; Type: D2450V2; Serial: SN:765
Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 2450$ MHz; $\sigma = 1.85$ mho/m; $\epsilon_r = 37.3$; $\rho = 1000$ kg/m³
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)
DASY4 Configuration:
Probe: ET3DV6 - SN1684; ConvF(4.39, 4.39, 4.39); Calibrated: 2004/09/02
Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)
Electronics: DAE3 Sn516; Calibrated: 2005/03/10
Phantom: SAM 1196
Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Area Scan (51x51x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 22.2 mW/g

Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 97.2 V/m; Power Drift = 0.032 dB
Peak SAR (extrapolated) = 29.8 W/kg

SAR(1 g) = 14.3 mW/g; SAR(10 g) = 6.6 mW/g
Maximum value of SAR (measured) = 16.2 mW/g

Test Date = 07/14/05
Ambient Temperature = 25.0 degree.C.
Liquid Temperature = Before 24.0 degree.C. , After 24.0degree.C.



Test report No. : 25KE0051-HO-3a
Page : 47 of 104
Issued date : August 9, 2005
Revised data : August 26, 2005
FCC ID : AK8PCG4F2L

10. System Validation Dipole (D2450V2,S/N: 765)

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



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

Accredited by the Swiss Federal Office of Metrology and Accreditation
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 **MTT**

Certificate No: D2450V2-765_Nov04

CALIBRATION CERTIFICATE

Object **D2450V2 - SN: 765**

Calibration procedure(s) **QA CAL-05.v6
Calibration procedure for dipole validation kits**

Calibration date: **November 15, 2004**

Condition of the calibrated item **In Tolerance**

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

All calibrations have been conducted in the closed laboratory facility: environment temperature $(22 \pm 3)^\circ\text{C}$ and humidity $< 70\%$.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by: Certificate No.)	Scheduled Calibration
Power meter EPM E442	GB37480704	12-Oct-04 (METAS, No. 251-00412)	Oct-05
Power sensor HP 8481A	US37252783	12-Oct-04 (METAS, No. 251-00412)	Oct-05
Reference 20 dB Attenuator	SN: 5086 (20g)	10-Aug-04 (METAS, No 251-00402)	Aug-05
Reference 10 dB Attenuator	SN: 5047.2 (10r)	10-Aug-04 (METAS, No 251-00402)	Aug-05
Reference Probe ES3DV2	SN 3025	29-Oct-04 (SPEAG, No. ES3-3025_Oct04)	Oct-05
DAE4	SN 601	6-Nov-03 (SPEAG, No. DAE4-601_Jul04)	Jul-05
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (SPEAG, in house check Oct-03)	In house check: Oct-05
RF generator R&S SML-03	100695	27-Mar-02 (SPEAG, in house check Dec-03)	In house check: Dec-05
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (SPEAG, in house check Nov-03)	In house check: Nov-04

Calibrated by:	Name Mike Meili	Function Laboratory Technician	Signature
Approved by:	Name Katja Pokovic	Technical Manager	

Issued: November 17, 2004

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

Certificate No: D2450V2-765_Nov04

Page 1 of 9

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Head Office EMC Lab.
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S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Federal Office of Metrology and Accreditation
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:

- 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
- CENELEC EN 50361, "Basic standard for the measurement of Specific Absorption Rate related to human exposure to electromagnetic fields from mobile phones (300 MHz - 3 GHz), July 2001
- 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:

- DASY4 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	DASY4	V4.4
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Area Scan resolution	dx, dy = 15 mm	
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	(23.0 $\pm$ 0.2) °C	38.3 $\pm$ 8 %	1.86 mho/m $\pm$ 6 %
Head TSL temperature during test	(23.0 $\pm$ 0.2) °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	condition	
SAR measured	250 mW input power	13.5 mW / g
SAR normalized	normalized to 1W	54.0 mW / g
SAR for nominal Head TSL parameters ¹	normalized to 1W	52.7 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	6.15 mW / g
SAR normalized	normalized to 1W	24.6 mW / g
SAR for nominal Head TSL parameters ¹	normalized to 1W	24.0 mW / g $\pm$ 16.5 % (k=2)

¹ Correction to nominal TSL parameters according to d), chapter "SAR Sensitivities"

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	52.7	1.96 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	51.7 ± 6 %	1.96 mho/m ± 6 %
Body TSL temperature during test	(22.0 ± 0.2) °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	condition	
SAR measured	250 mW input power	13.3 mW / g
SAR normalized	normalized to 1W	53.2 mW / g
SAR for nominal Body TSL parameters ²	normalized to 1W	52.5 mW / g ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.12 mW / g
SAR normalized	normalized to 1W	24.5 mW / g
SAR for nominal Body TSL parameters ¹	normalized to 1W	24.1 mW / g ± 16.5 % (k=2)

² Correction to nominal TSL parameters according to d), chapter "SAR Sensitivities"

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	$52.7 \Omega + j4.6 \Omega$
Return Loss	-25.8 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	$48.9 \Omega + j6.3 \Omega$
Return Loss	-23.8 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.175 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 IDC-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	August 10, 2004

DASY4 Validation Report for Head TSL

Date/Time: 11/17/04 10:57:18

Test Laboratory: SPEAG, Zürich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN765

Communication System: CW-2450; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: HSL 2450 MHz;

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.86$ mho/m; $\epsilon_r = 38.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ES3DV2 - SN3025; ConvF(4.4, 4.4, 4.4); Calibrated: 29.10.2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 22.07.2004
- Phantom: Flat Phantom quarter size -SN:1001; Type: QD000P50AA; Serial: SN:1001
- Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Pin = 250 mW; d = 10 mm/Area Scan (81x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 15.6 mW/g

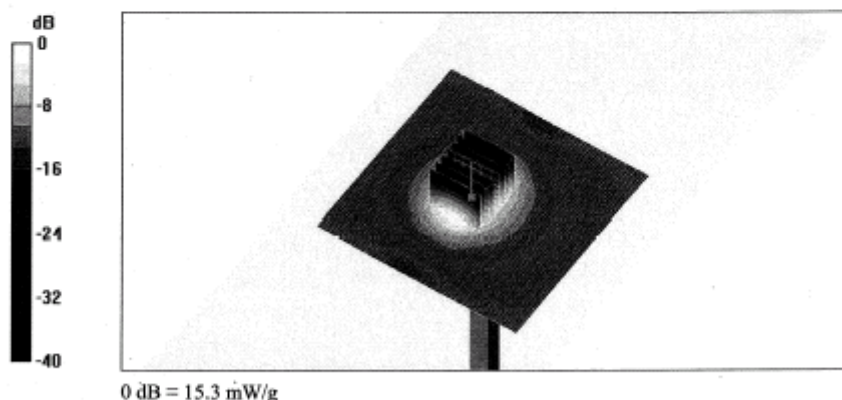
Pin = 250 mW; d = 10 mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 79.7 V/m; Power Drift = 0.2 dB

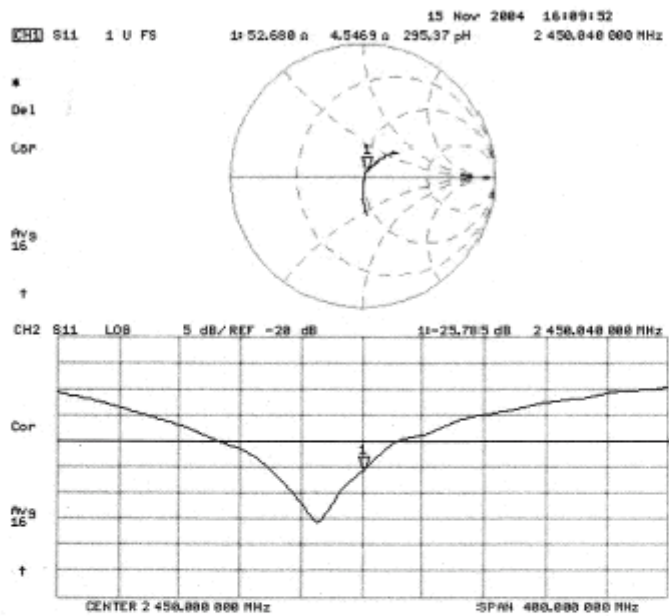
Peak SAR (extrapolated) = 29 W/kg

SAR(1 g) = 13.5 mW/g; SAR(10 g) = 6.15 mW/g

Maximum value of SAR (measured) = 15.3 mW/g



Impedance Measurement Plot for Head TSL



DASY4 Validation Report for Body TSL

Date/Time: 11/17/04 10:57:37

Test Laboratory: SPEAG, Zürich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN765

Communication System: CW-2450; Frequency: 2450 MHz; Duty Cycle: 1:1

Medium: MSL 2450 MHz;

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.96$ mho/m; $\epsilon_r = 51.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ES3DV2 - SN3025; ConvF(4.13, 4.13, 4.13); Calibrated: 29.10.2004
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 22.07.2004
- Phantom: SAM with CRP - TP1006; Type: SAM 4.0; Serial: TP:1006
- Measurement SW: DASY4, V4.4 Build 3; Postprocessing SW: SEMCAD, V1.8 Build 130

Pin = 250 mW; d = 10 mm/Area Scan (81x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 15.3 mW/g

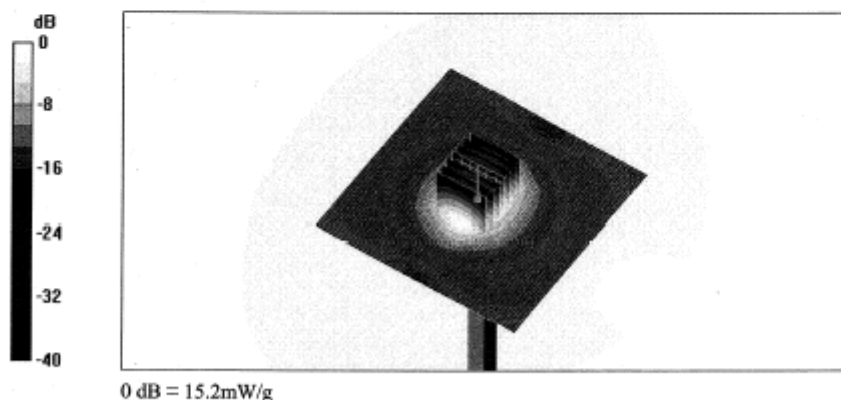
Pin = 250 mW; d = 10 mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 88.6 V/m; Power Drift = 0.1 dB

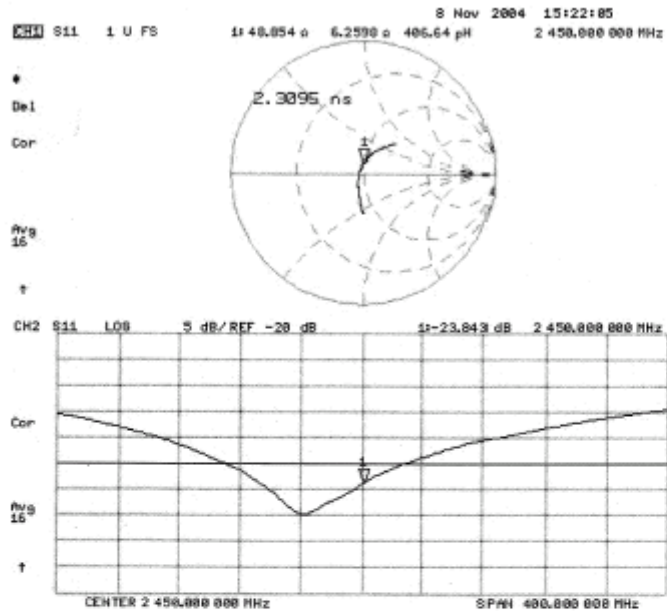
Peak SAR (extrapolated) = 27.4 W/kg

SAR(1 g) = 13.3 mW/g; SAR(10 g) = 6.12 mW/g

Maximum value of SAR (measured) = 15.2 mW/g



Impedance Measurement Plot for Body TSL



11. Dosimetric E-Field Probe Calibration (ET3DV6,S/N: 1684)

Schmid & Partner Engineering AG

s p e a g

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

IMPORTANT NOTICE

USAGE OF PROBES IN ORGANIC SOLVENTS

Diethylene Glycol Monobuthy Ether (the basis for liquids above 1 GHz), as many other organic solvents, is a very effective softener for synthetic materials. These solvents can cause irreparable damage to certain SPEAG products, except those which are explicitly declared as compliant with organic solvents.

Compatible Probes:

- ET3DV6
- ET3DV6R
- ES3DVx
- ER3DV6
- H3DV6

Important Note for ET3DV6 Probes:

The ET3DV6 probes shall not be exposed to solvents longer than necessary for the measurements and shall be cleaned daily after use with warm water and stored dry.

s p e a g

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info@speag.com, <http://www.speag.com>

Schmid & Partner Engineering AG

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

Client **UL A-Pex (MTT)**

CALIBRATION CERTIFICATE

Object(s) **ET3DV6 - SN.1684**

Calibration procedure(s) **QA CAL-01 V2**
Calibration procedure for dosimetric E-field probes

Calibration date: **September 2, 2004**

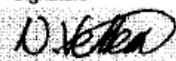
Condition of the calibrated item **In Tolerance (according to the specific calibration document)**

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 +/- 2 degrees Celsius and humidity < 75%.

Calibration Equipment used (M&TE critical for calibration)

Model Type	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter EPM E4419B	GB41293874	5-May-04 (METAS, No 251-00388)	May-05
Power sensor E4412A	MY41495277	5-May-04 (METAS, No 251-00388)	May-05
Reference 20 dB Attenuator	SN: 5086 (20b)	3-May-04 (METAS, No 251-00389)	May-05
Fluke Process Calibrator Type 702	SN: 6295803	8-Sep-03 (Sintrel SCS No. E030020)	Sep-04
Power sensor HP 8481A	MY41092180	18-Sep-02 (SPEAG, in house check Oct03)	In house check: Oct 05
RF generator HP 8684C	US3642U01700	4-Aug-99 (SPEAG, in house check Aug02)	In house check: Aug05
Network Analyzer HP 8753E	US37390585	18-Oct-01 (SPEAG, in house check Oct03)	In house check: Oct 05

Calibrated by: **Nico Vetterli** **Technician** **Signature** 

Approved by: **Kajsa Pokovic** **Laboratory Director** 

Date issued: September 2, 2004

This calibration certificate is issued as an intermediate solution until the accreditation process (based on ISO/IEC 17025 International Standard) for Calibration Laboratory of Schmid & Partner Engineering AG is completed.

Probe ET3DV6

SN:1684

Manufactured:	April 3, 2002
Last calibrated:	November 20, 2002
Recalibrated:	September 2, 2004

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

ET3DV6 SN:1684

September 2, 2004

DASY - Parameters of Probe: ET3DV6 SN:1684

Sensitivity in Free Space

Diode Compression^A

NormX	1.58 $\mu\text{V}/(\text{V}/\text{m})^2$	DCP X	96	mV
NormY	1.58 $\mu\text{V}/(\text{V}/\text{m})^2$	DCP Y	96	mV
NormZ	1.62 $\mu\text{V}/(\text{V}/\text{m})^2$	DCP Z	96	mV

Sensitivity in Tissue Simulating Liquid (Conversion Factors)

Please see Page 7.

Boundary Effect

Head 900 MHz Typical SAR gradient: 5 % per mm

Sensor Center to Phantom Surface Distance		3.7 mm	4.7 mm
SAR _{be} [%]	Without Correction Algorithm	7.2	3.6
SAR _{be} [%]	With Correction Algorithm	0.0	0.1

Head 1800 MHz Typical SAR gradient: 10 % per mm

Sensor Center to Phantom Surface Distance		3.7 mm	4.7 mm
SAR _{be} [%]	Without Correction Algorithm	11.6	8.2
SAR _{be} [%]	With Correction Algorithm	0.2	0.2

Sensor Offset

Probe Tip to Sensor Center	2.7 mm
Optical Surface Detection	in tolerance

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%.

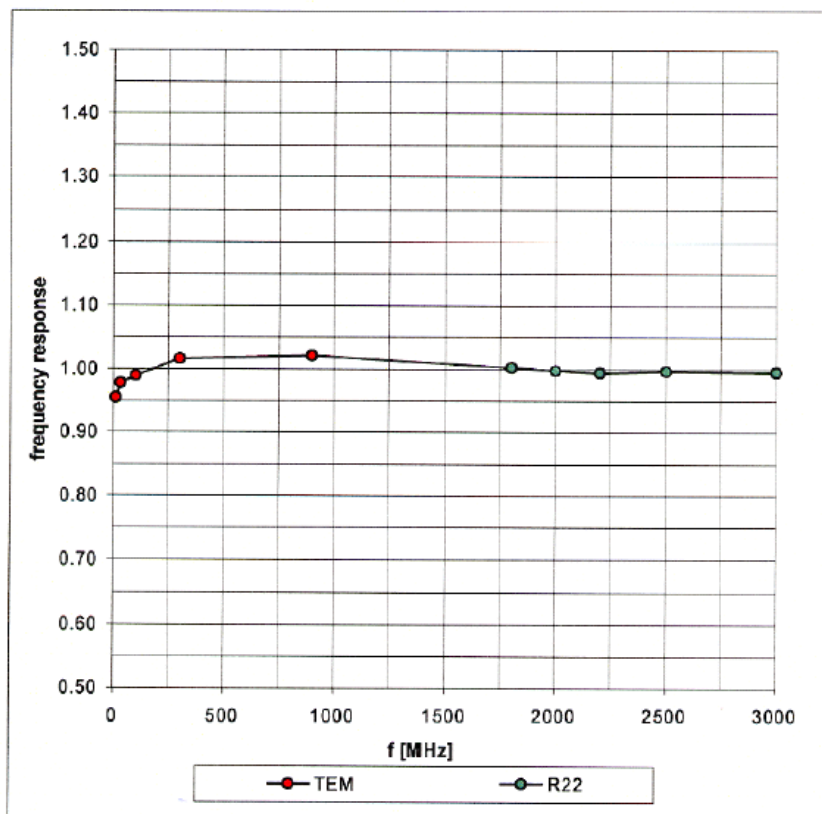
^A numerical linearization parameter; uncertainty not required

ET3DV6 SN:1684

September 2, 2004

Frequency Response of E-Field

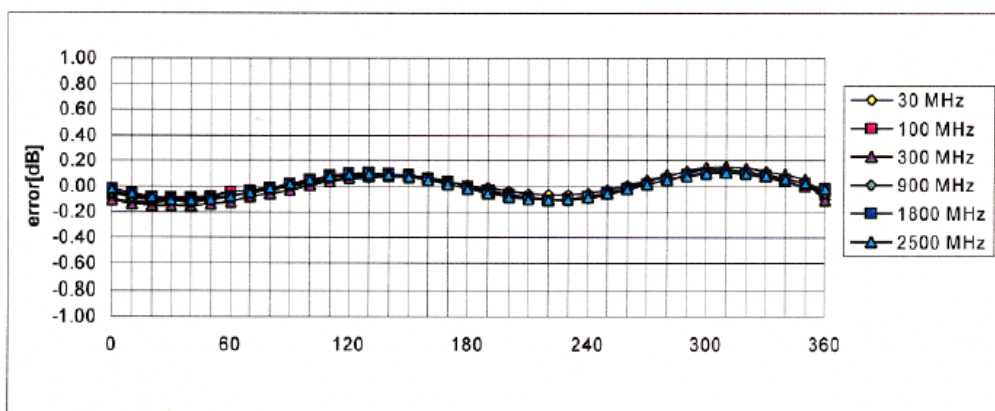
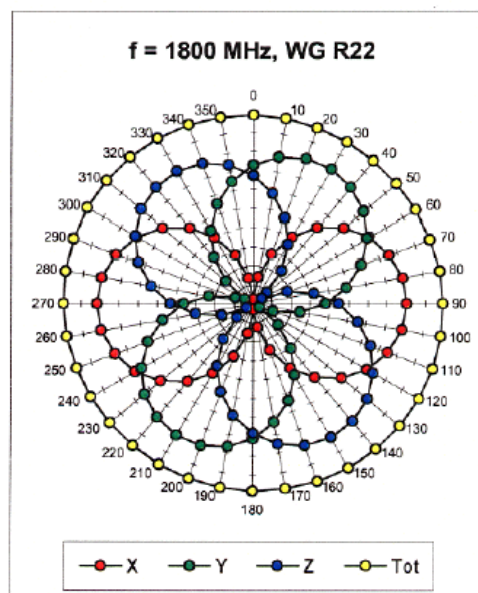
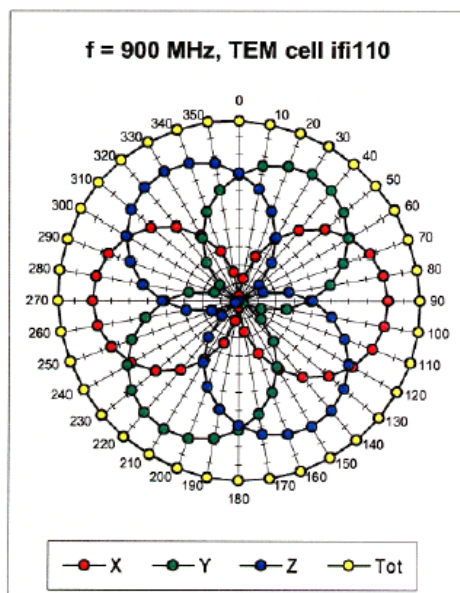
(TEM-Cell:ifi110, Waveguide R22)



ET3DV6 SN:1684

September 2, 2004

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

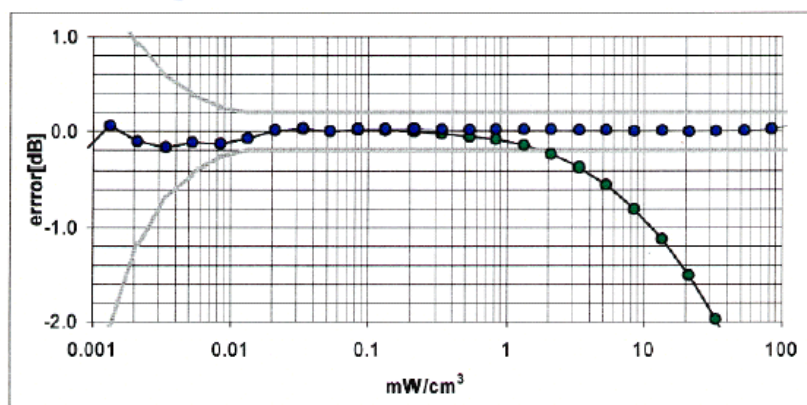
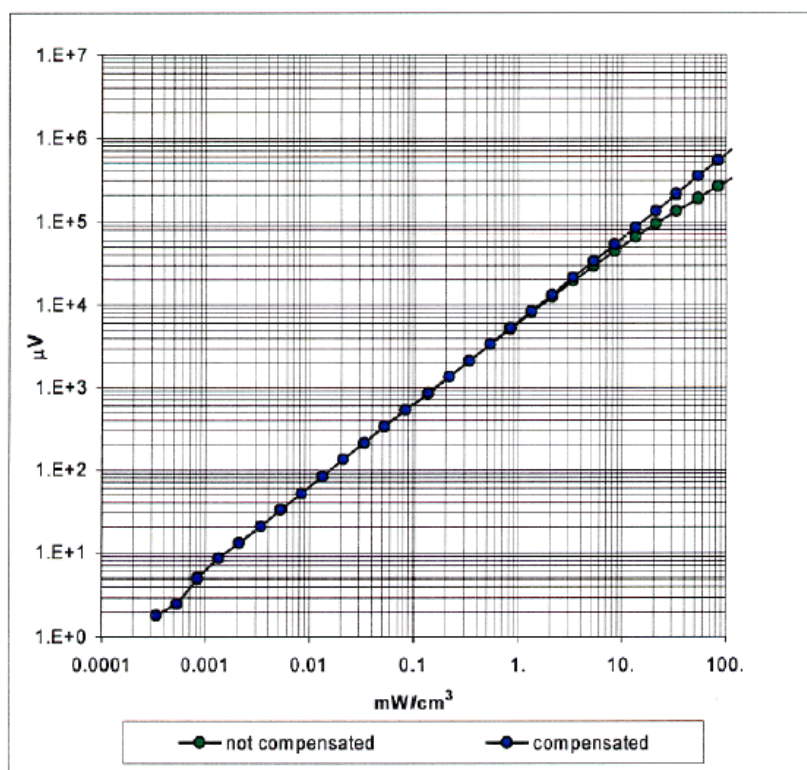


Axial Isotropy Error $< \pm 0.2$ dB

ET3DV6 SN:1684

September 2, 2004

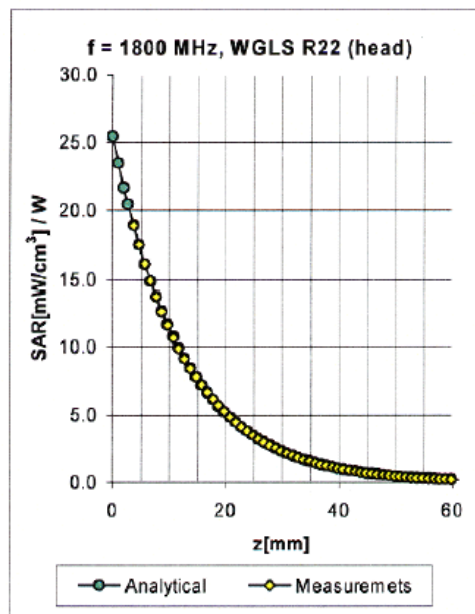
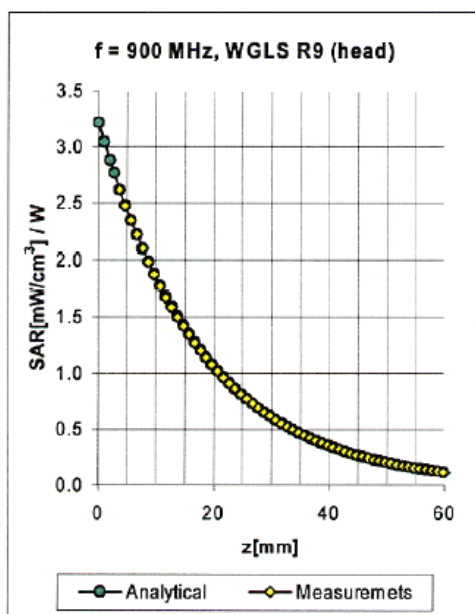
Dynamic Range f(SAR_{head}) (Waveguide R22)

**Probe Linearity Error < ± 0.2 dB**

ET3DV6 SN:1684

September 2, 2004

Conversion Factor Assessment



f [MHz]	Validity [MHz] ^B	Tissue	Permittivity	Conductivity	Alpha	Depth	ConvF	Uncertainty
900	800-1000	Head	41.5 ± 5%	0.97 ± 5%	0.72	1.56	6.75	± 11.3% (k=2)
1800	1710-1910	Head	40.0 ± 5%	1.40 ± 5%	0.40	2.81	5.27	± 11.7% (k=2)
2450	2400-2500	Head	39.2 ± 5%	1.80 ± 5%	0.77	2.07	4.39	± 9.7% (k=2)
900	800-1000	Body	55.0 ± 5%	1.05 ± 5%	0.40	2.32	6.28	± 11.3% (k=2)
1800	1710-1910	Body	53.3 ± 5%	1.52 ± 5%	0.47	3.00	4.57	± 11.7% (k=2)
2450	2400-2500	Body	52.7 ± 5%	1.95 ± 5%	0.82	1.85	4.14	± 9.7% (k=2)

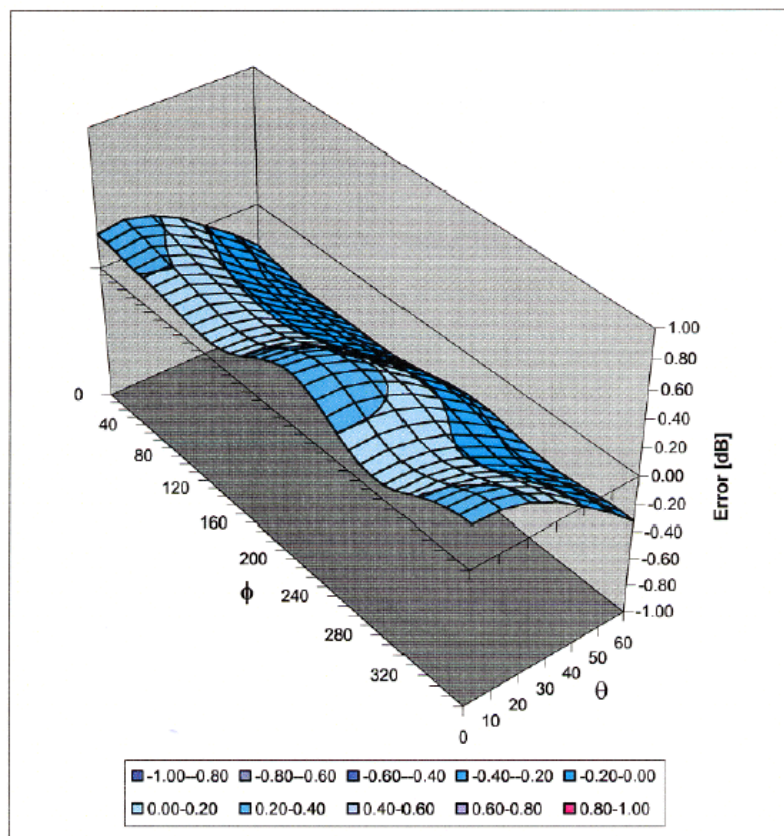
^B The total standard uncertainty is calculated as root-sum-square of standard uncertainty of the Conversion Factor at calibration frequency and the standard uncertainty for the indicated frequency band.

ET3DV6 SN:1684

September 2, 200

Deviation from Isotropy in HSL

Error (θ , ϕ), $f = 900$ MHz



Spherical Isotropy Error $< \pm 0.4$ dB

12. References

- [1] ANSI, ANSI/IEEE C95.1-1992: IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz, The Institute of Electrical and Electronics Engineers, Inc., New York, NY 10017, 1992.
- [2] Katja Pokovic, Thomas Schmid, and Niels Kuster, "Robust setup for precise calibration of E-field probes in tissue simulating liquids at mobile communications frequencies", in ICECOM '97, Dubrovnik, October 15-17, 1997, pp. 120-124.
- [3] Katja Pokovic, Thomas Schmid, and Niels Kuster, "E-field probe with improved isotropy in brain simulating liquids", in Proceedings of the ELMAR, Zadar, Croatia, 23-25 June, 1996, pp.172-175.
- [4] W. Gander, Computermathematik, Birkhaeuser, Basel, 1992.
- [5] W. H. Press, S. A. Teukolsky, W. T. Vetterling, and B. P. Flannery, Numerical Recipes in C, The Art of Scientific Computing, Second Edition, Cambridge University Press, 1992.
- [6] SPEAG documents Unsertainty document for DASY 4 System from SPEAG (Shimid & Partner Engineering AG).

APPENDIX 3 : SAR Measurement data

1. Evaluation procedure

The evaluation was performed with the following procedure:

Step 1: Measurement of the E-field at a fixed location above the ear point or central position of flat phantom was used as a reference value for assessing the power drop.

Step 2: The SAR distribution at the exposed side of head or body position was measured at a distance of each device from the inner surface of the shell. The area covered the entire dimension of the antenna of EUT and the horizontal grid spacing was 20 mm x 20 mm. Based on these data, the area of the maximum absorption was determined by spline interpolation.

Step 3: Around this point found in the Step 2 (area scan), a volume of 32 mm x 32 mm x 30 mm was assessed by measuring 5 x 5 x 7 points. And for any secondary peaks found in the Step2 which are within 2dB of maximum peak and not with this Step3 (Zoom scan) is repeated. On the basis of this data set, the spatial peak SAR value was evaluated under the following procedure:

(1). The data at the surface were extrapolated, since the center of the dipoles is 2.7 mm away from the tip of the probe and the distance between the surface and the lowest measuring point is 1.3 mm. The extrapolation was based on a least square algorithm [4]. A polynomial of the fourth order was calculated through the points in z-axes. This polynomial was then used to evaluate the points between the surface and the probe tip.

(2). The maximum interpolated value was searched with a straightforward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1 g or 10 g) were computed by the 3D-Spline interpolation algorithm. The 3D-Spline is composed of three one-dimensional splines with the "Not a knot"-condition (in x, y and z-directions) [4], [5]. The volume was integrated with the trapezoidal-algorithm. One thousand points (10 x 10 x 10) were interpolated to calculate the average.

(3). All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.

Step 4: Re-measurement of the E-field at the same location as in Step 1.

2. Measurement data

PCG-4F2L / Body / Left Bottom (Main antenna) / 2437 MHz / 11b(11Mbps)

Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 50.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

Probe: ET3DV6 - SN1684; ConvF(4.14, 4.14, 4.14); Calibrated: 2004/09/02

Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)

Electronics: DAE3 Sn516; Calibrated: 2005/03/10

Phantom: SAM 1196

Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Area Scan (81x81x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.011 mW/g

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

Reference Value = 1.92 V/m; Power Drift = -0.235 dB

Peak SAR (extrapolated) = 0.031 W/kg

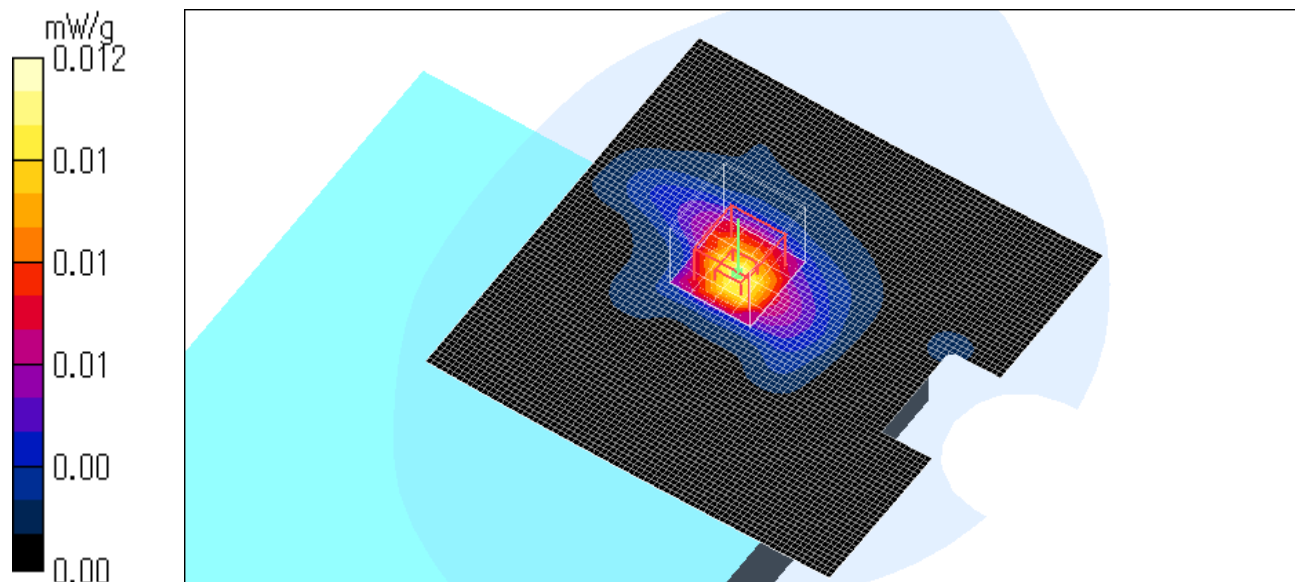
SAR(1 g) = 0.011 mW/g; SAR(10 g) = 0.0064 mW/g

Maximum value of SAR (measured) = 0.012 mW/g

Test Date = 07/13/05

Ambient Temperature = 25.0 degree.C.

Liquid Temperature = Before 24.1 degree.C. , After 24.1 degree.C.



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PCG-4F2L / Body / Left Side (Main antenna) / 2437 MHz / 11b(11Mbps)

Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 50.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

Probe: ET3DV6 - SN1684; ConvF(4.14, 4.14, 4.14); Calibrated: 2004/09/02

Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)

Electronics: DAE3 Sn516; Calibrated: 2005/03/10

Phantom: SAM 1196

Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Area Scan (81x81x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.214 mW/g

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

Reference Value = 4.10 V/m; Power Drift = 0.230 dB

Peak SAR (extrapolated) = 0.450 W/kg

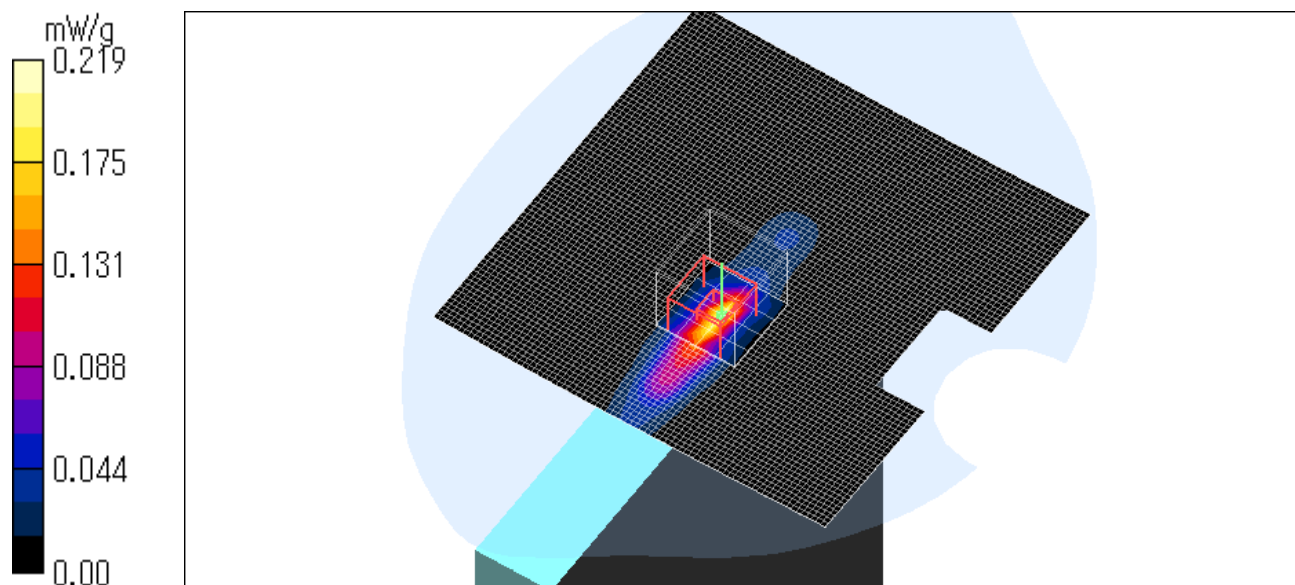
SAR(1 g) = 0.154 mW/g; SAR(10 g) = 0.057 mW/g

Maximum value of SAR (measured) = 0.219 mW/g

Test Date = 07/13/05

Ambient Temperature = 25.0 degree.C.

Liquid Temperature = Before 24.3 degree.C. , After 24.3 degree.C.



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PCG-4F2L / Body / Left Back (Main antenna) / 2437 MHz / 11b(11Mbps)

Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 50.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

Probe: ET3DV6 - SN1684; ConvF(4.14, 4.14, 4.14); Calibrated: 2004/09/02

Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)

Electronics: DAE3 Sn516; Calibrated: 2005/03/10

Phantom: SAM 1196

Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Area Scan (81x81x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.395 mW/g

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

Reference Value = 7.36 V/m; Power Drift = 0.052 dB

Peak SAR (extrapolated) = 1.26 W/kg

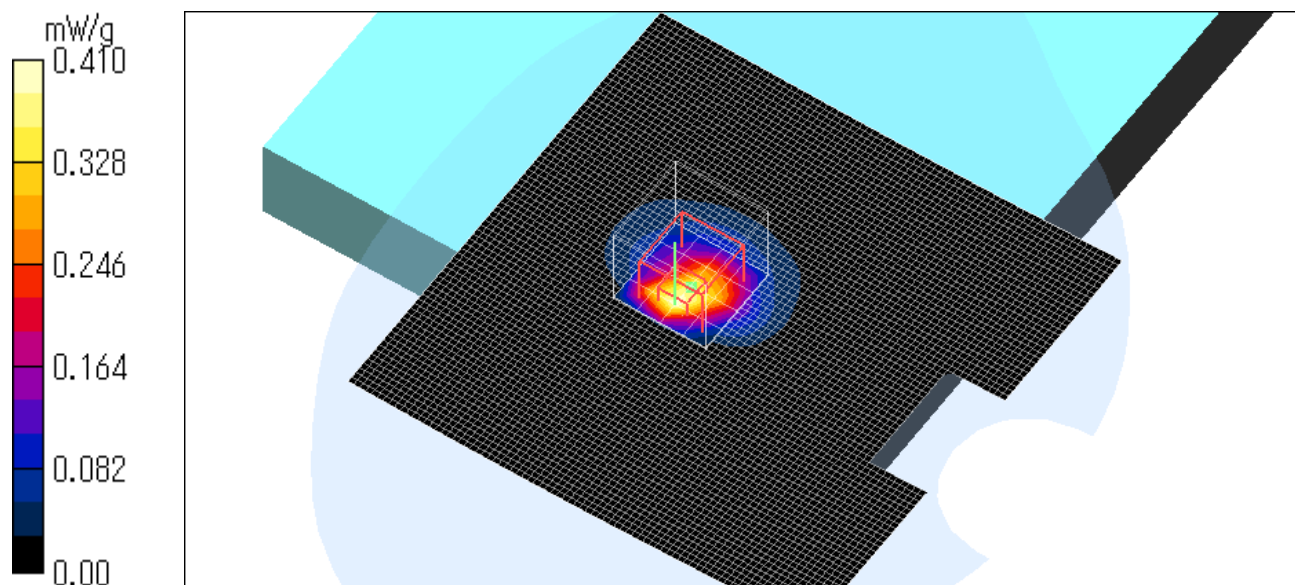
SAR(1 g) = 0.388 mW/g; SAR(10 g) = 0.162 mW/g

Maximum value of SAR (measured) = 0.410 mW/g

Test Date = 07/13/05

Ambient Temperature = 25.0 degree.C.

Liquid Temperature = Before 24.3 degree.C. , After 24.1 degree.C.



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PCG-4F2L / Body / Left Back (Main antenna) / 2412 MHz / 11b(11Mbps)

Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 50.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

Probe: ET3DV6 - SN1684; ConvF(4.14, 4.14, 4.14); Calibrated: 2004/09/02

Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)

Electronics: DAE3 Sn516; Calibrated: 2005/03/10

Phantom: SAM 1196

Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Area Scan (81x81x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.417 mW/g

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

Reference Value = 5.86 V/m; Power Drift = -0.244 dB

Peak SAR (extrapolated) = 1.26 W/kg

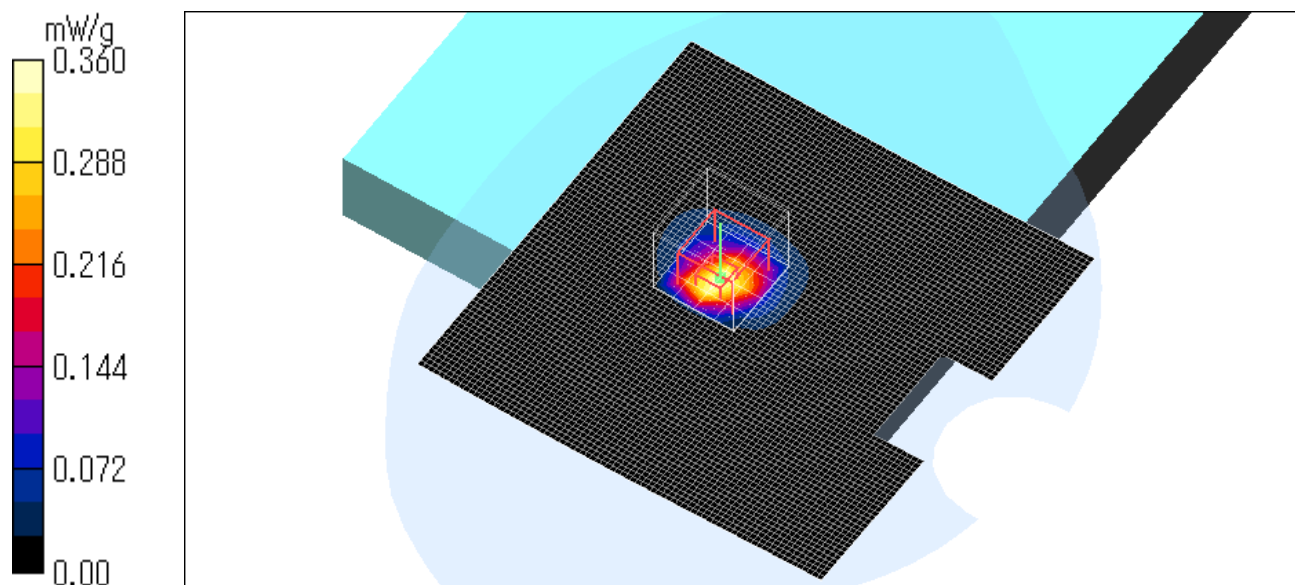
SAR(1 g) = 0.363 mW/g; SAR(10 g) = 0.147 mW/g

Maximum value of SAR (measured) = 0.360 mW/g

Test Date = 07/13/05

Ambient Temperature = 25.0 degree.C.

Liquid Temperature = Before 24.1 degree.C. , After 24.0 degree.C.



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PCG-4F2L / Body / Left Back (Main antenna) / 2462 MHz / 11b(11Mbps)

Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 50.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

Probe: ET3DV6 - SN1684; ConvF(4.14, 4.14, 4.14); Calibrated: 2004/09/02

Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)

Electronics: DAE3 Sn516; Calibrated: 2005/03/10

Phantom: SAM 1196

Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Area Scan (81x81x1): Measurement grid: dx=20mm, dy=20mm

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

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

Reference Value = 5.27 V/m; Power Drift = -0.295 dB

Peak SAR (extrapolated) = 0.654 W/kg

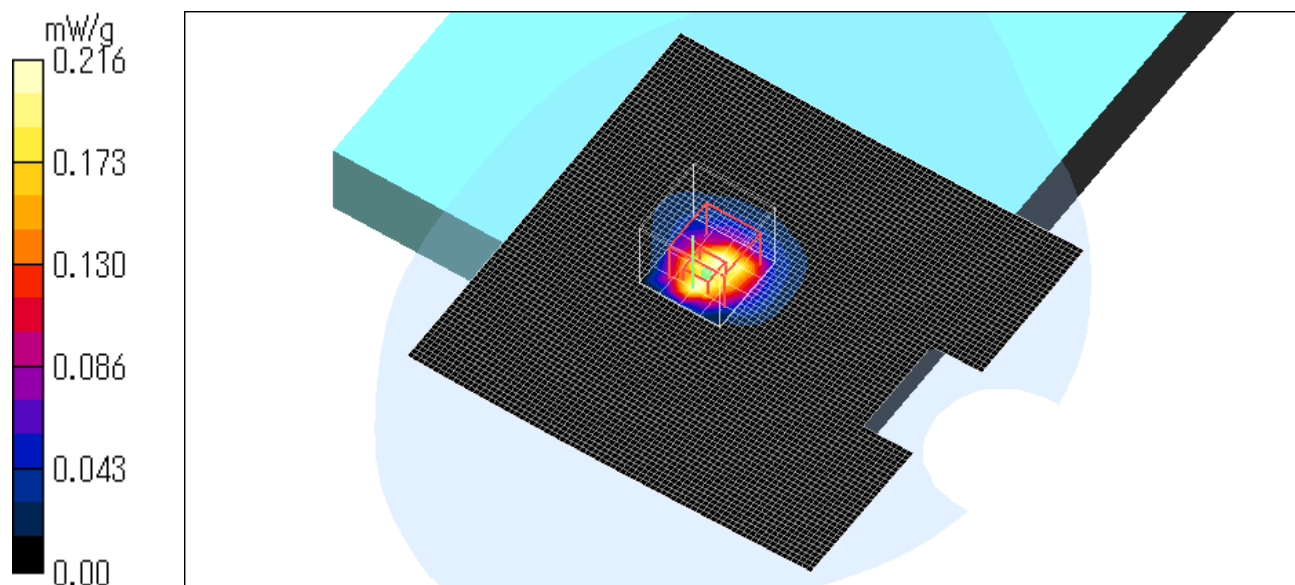
SAR(1 g) = 0.221 mW/g; SAR(10 g) = 0.099 mW/g

Maximum value of SAR (measured) = 0.216 mW/g

Test Date = 07/13/05

Ambient Temperature = 25.0 degree C.

Liquid Temperature = Before 24.0 degree C. , After 23.9 degree C.



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PCG-4F2L / Body / Left Back (Main antenna) / 2437 MHz / 11g(9Mbps)

Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 50.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

Probe: ET3DV6 - SN1684; ConvF(4.14, 4.14, 4.14); Calibrated: 2004/09/02

Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)

Electronics: DAE3 Sn516; Calibrated: 2005/03/10

Phantom: SAM 1196

Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Area Scan (81x81x1): Measurement grid: dx=20mm, dy=20mm

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

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

Reference Value = 3.17 V/m; Power Drift = -0.296 dB

Peak SAR (extrapolated) = 0.636 W/kg

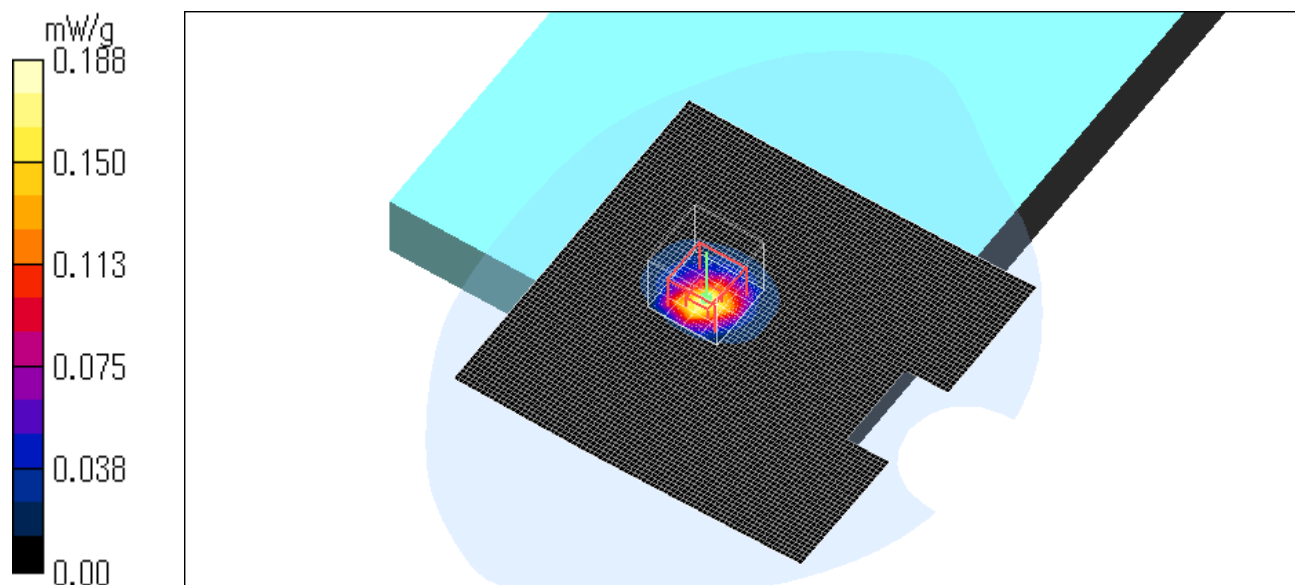
SAR(1 g) = 0.185 mW/g; SAR(10 g) = 0.074 mW/g

Maximum value of SAR (measured) = 0.188 mW/g

Test Date = 07/13/05

Ambient Temperature = 25.0 degree.C.

Liquid Temperature = Before 23.9 degree.C. , After 23.9 degree.C.



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PCG-4F2L / Body / Left Back (Main antenna) / 2437 MHz / 11g(12Mbps)

Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 50.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

Probe: ET3DV6 - SN1684; ConvF(4.14, 4.14, 4.14); Calibrated: 2004/09/02

Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)

Electronics: DAE3 Sn516; Calibrated: 2005/03/10

Phantom: SAM 1196

Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Area Scan (81x81x1): Measurement grid: dx=20mm, dy=20mm

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

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

Reference Value = 4.83 V/m; Power Drift = -0.022 dB

Peak SAR (extrapolated) = 0.582 W/kg

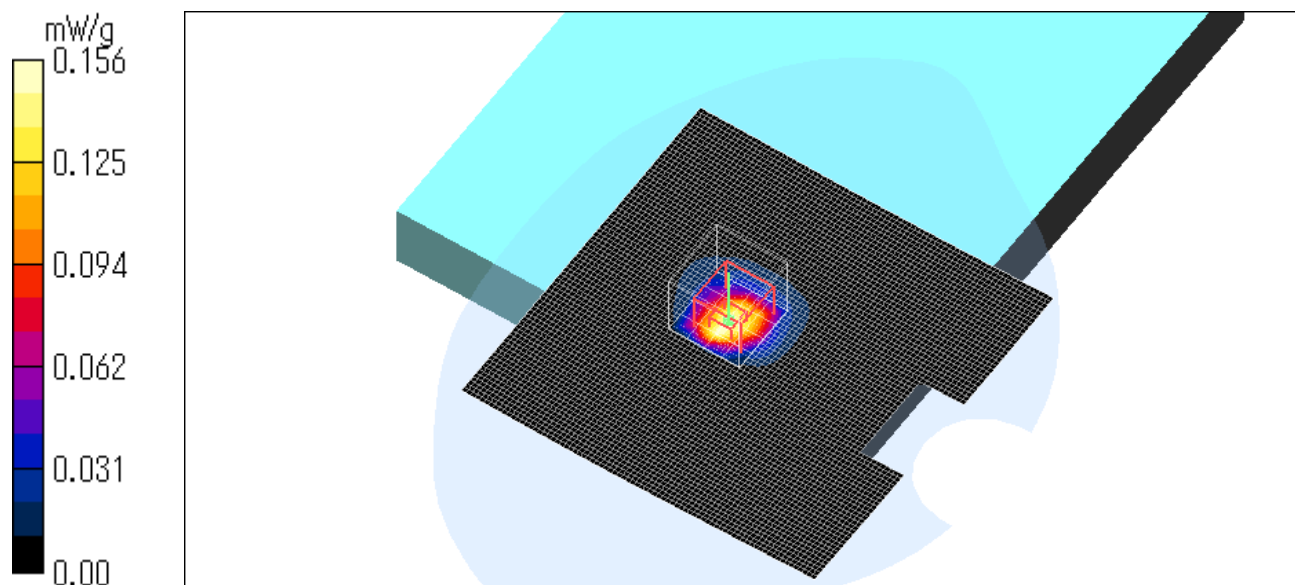
SAR(1 g) = 0.167 mW/g; SAR(10 g) = 0.069 mW/g

Maximum value of SAR (measured) = 0.156 mW/g

Test Date = 07/13/05

Ambient Temperature = 25.0 degree.C.

Liquid Temperature = Before 23.9 degree.C. , After 23.7 degree.C.



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PCG-4F2L / Body / Left Back (Main antenna) / 2437 MHz / 11g(24Mbps)

Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 50.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

Probe: ET3DV6 - SN1684; ConvF(4.14, 4.14, 4.14); Calibrated: 2004/09/02

Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)

Electronics: DAE3 Sn516; Calibrated: 2005/03/10

Phantom: SAM 1196

Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Area Scan (81x81x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.176 mW/g

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

Reference Value = 6.25 V/m; Power Drift = -0.151 dB

Peak SAR (extrapolated) = 0.487 W/kg

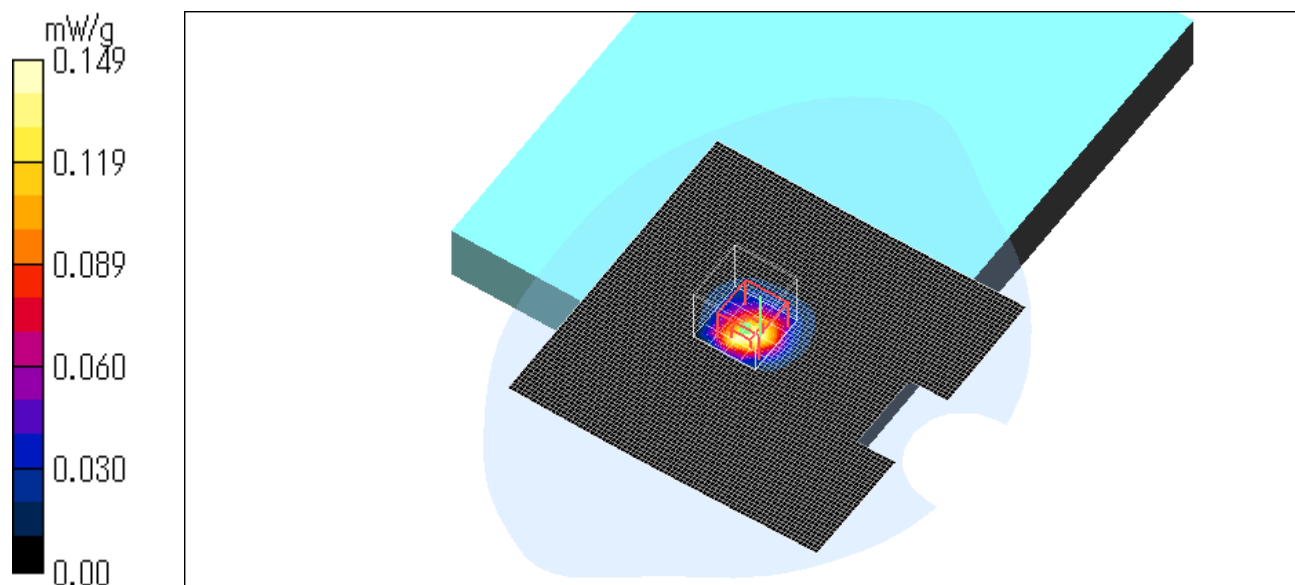
SAR(1 g) = 0.153 mW/g; SAR(10 g) = 0.064 mW/g

Maximum value of SAR (measured) = 0.149 mW/g

Test Date = 07/13/05

Ambient Temperature = 25.0 degree C.

Liquid Temperature = Before 23.7 degree C. , After 23.5 degree C.



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PCG-4F2L / Body / Left Back (Main antenna) / 2437 MHz / 11g(54Mbps)

Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 50.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DAS4 (High Precision Assessment)

DAS4 Configuration:

Probe: ET3DV6 - SN1684; ConvF(4.14, 4.14, 4.14); Calibrated: 2004/09/02

Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)

Electronics: DAE3 Sn516; Calibrated: 2005/03/10

Phantom: SAM 1196

Measurement SW: DAS4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Area Scan (81x81x1): Measurement grid: $dx=20$ mm, $dy=20$ mm

Maximum value of SAR (interpolated) = 0.187 mW/g

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

Reference Value = 3.97 V/m; Power Drift = 0.016 dB

Peak SAR (extrapolated) = 0.433 W/kg

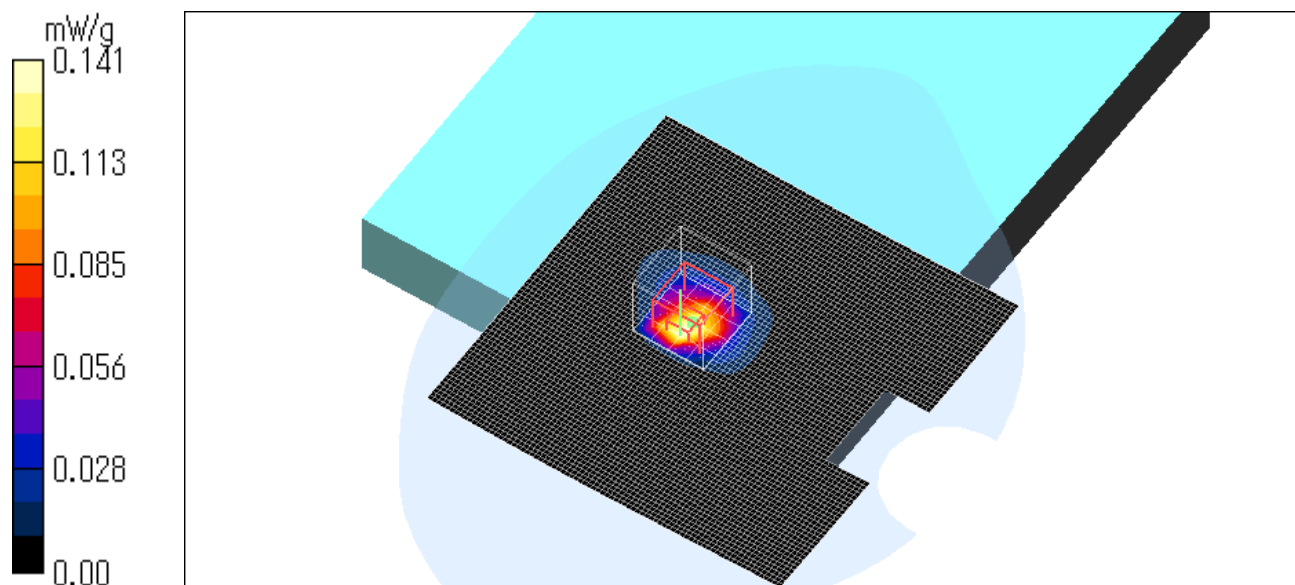
SAR(1 g) = 0.138 mW/g; SAR(10 g) = 0.058 mW/g

Maximum value of SAR (measured) = 0.141 mW/g

Test Date = 07/13/05

Ambient Temperature = 25.0 degree.C.

Liquid Temperature = Before 23.5 degree.C. , After 23.5degree.C.



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PCG-4F2L / Body / Left Bottom (Main antenna) / 2437 MHz / 11g(9Mbps)

Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 50.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

Probe: ET3DV6 - SN1684; ConvF(4.14, 4.14, 4.14); Calibrated: 2004/09/02

Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)

Electronics: DAE3 Sn516; Calibrated: 2005/03/10

Phantom: SAM 1196

Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Area Scan (81x81x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.01 mW/g

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

Reference Value = 2.05 V/m; Power Drift = -0.211 dB

Peak SAR (extrapolated) = 0.015 W/kg

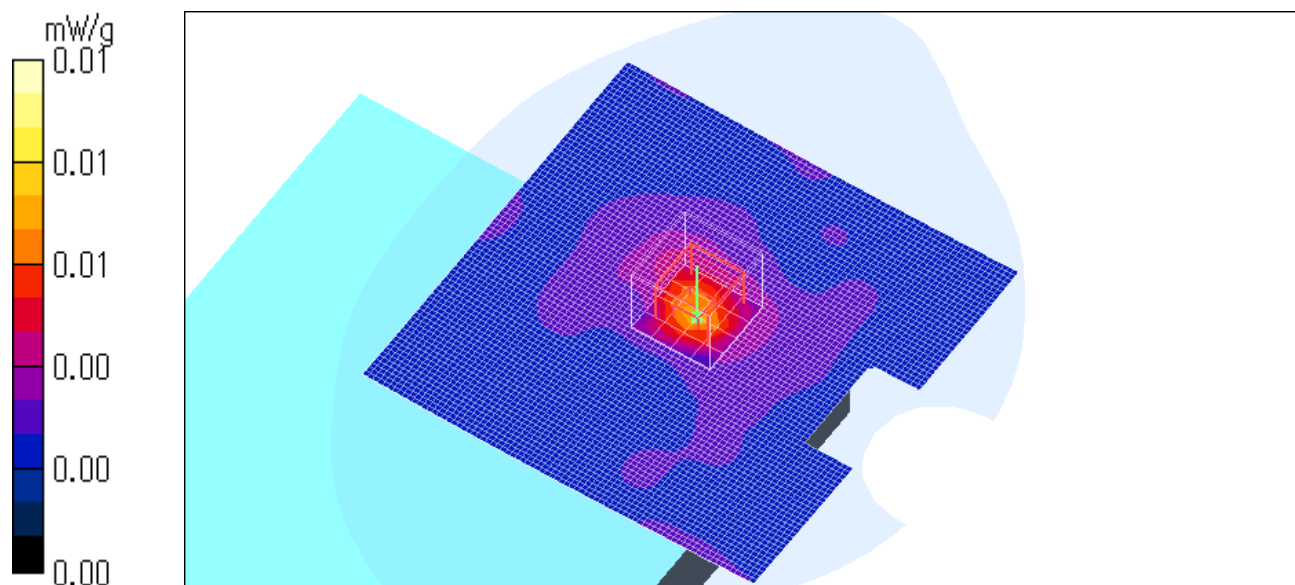
SAR(1 g) = 0.00717 mW/g; SAR(10 g) = 0.00475 mW/g

Maximum value of SAR (measured) = 0.01 mW/g

Test Date = 07/13/05

Ambient Temperature = 25.0 degree C.

Liquid Temperature = Before 23.5 degree C. , After 23.5degree C.



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PCG-4F2L / Body / Left Side (Main antenna) / 2437 MHz / 11g(9Mbps)

Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 50.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

Probe: ET3DV6 - SN1684; ConvF(4.14, 4.14, 4.14); Calibrated: 2004/09/02

Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)

Electronics: DAE3 Sn516; Calibrated: 2005/03/10

Phantom: SAM 1196

Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Area Scan (81x81x1): Measurement grid: $dx=20$ mm, $dy=20$ mm

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

Unnamed procedure/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 4.51 V/m; Power Drift = -0.048 dB

Peak SAR (extrapolated) = 0.251 W/kg

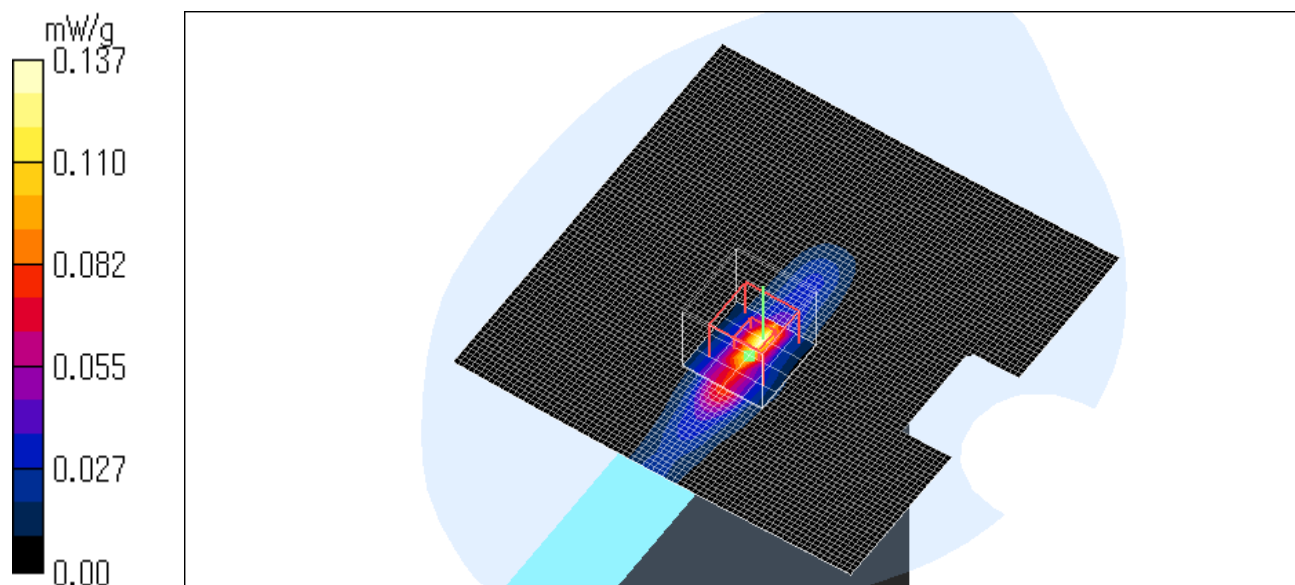
SAR(1 g) = 0.093 mW/g; SAR(10 g) = 0.035 mW/g

Maximum value of SAR (measured) = 0.137 mW/g

Test Date = 07/13/05

Ambient Temperature = 25.0 degree.C.

Liquid Temperature = Before 23.5 degree.C. , After 23.5degree.C.



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PCG-4F2L / Body / Left Back (Main antenna) / 2412 MHz / 11g(9Mbps)

Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 50.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS4 (High Precision Assessment)

DASY4 Configuration:

Probe: ET3DV6 - SN1684; ConvF(4.14, 4.14, 4.14); Calibrated: 2004/09/02

Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)

Electronics: DAE3 Sn516; Calibrated: 2005/03/10

Phantom: SAM 1196

Measurement SW: DASYS4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Area Scan (81x81x1): Measurement grid: dx=20mm, dy=20mm

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

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

Reference Value = 8.68 V/m; Power Drift = -0.066 dB

Peak SAR (extrapolated) = 0.827 W/kg

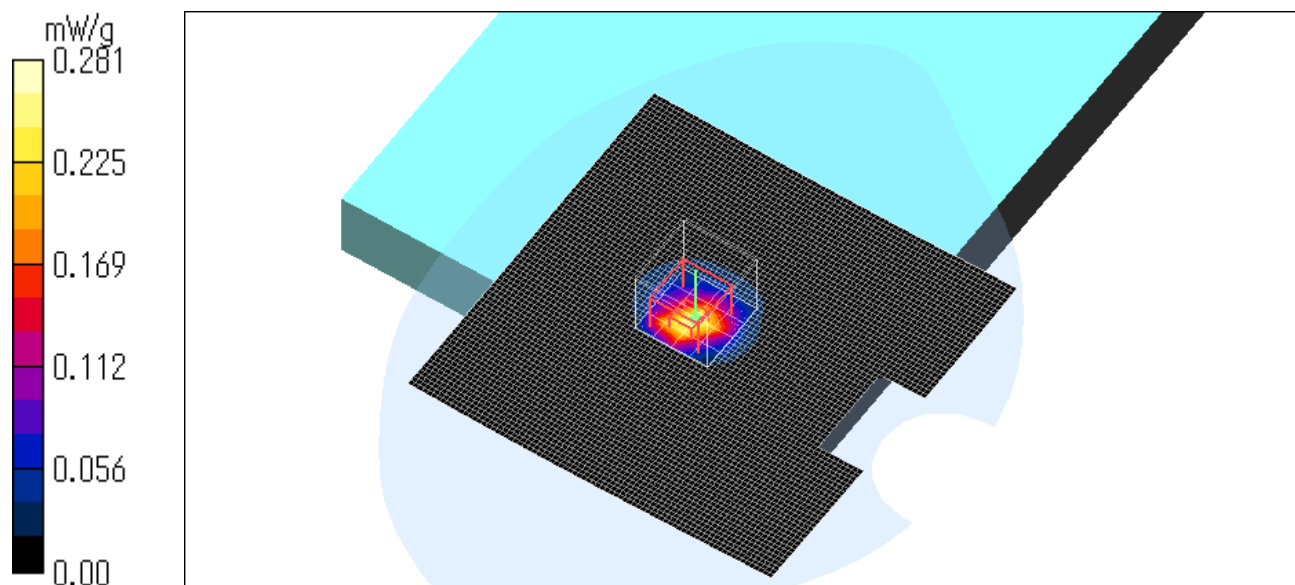
SAR(1 g) = 0.259 mW/g; SAR(10 g) = 0.105 mW/g

Maximum value of SAR (measured) = 0.281 mW/g

Test Date = 07/13/05

Ambient Temperature = 25.0 degree.C.

Liquid Temperature = Before 23.5 degree.C. , After 23.5degree.C.



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PCG-4F2L / Body / Left Back (Main antenna) / 2462 MHz / 11g(9Mbps)

Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 50.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS4 (High Precision Assessment)

DASY4 Configuration:

Probe: ET3DV6 - SN1684; ConvF(4.14, 4.14, 4.14); Calibrated: 2004/09/02

Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)

Electronics: DAE3 Sn516; Calibrated: 2005/03/10

Phantom: SAM 1196

Measurement SW: DASYS4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Area Scan (81x81x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.116 mW/g

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

Reference Value = 4.97 V/m; Power Drift = -0.085 dB

Peak SAR (extrapolated) = 0.293 W/kg

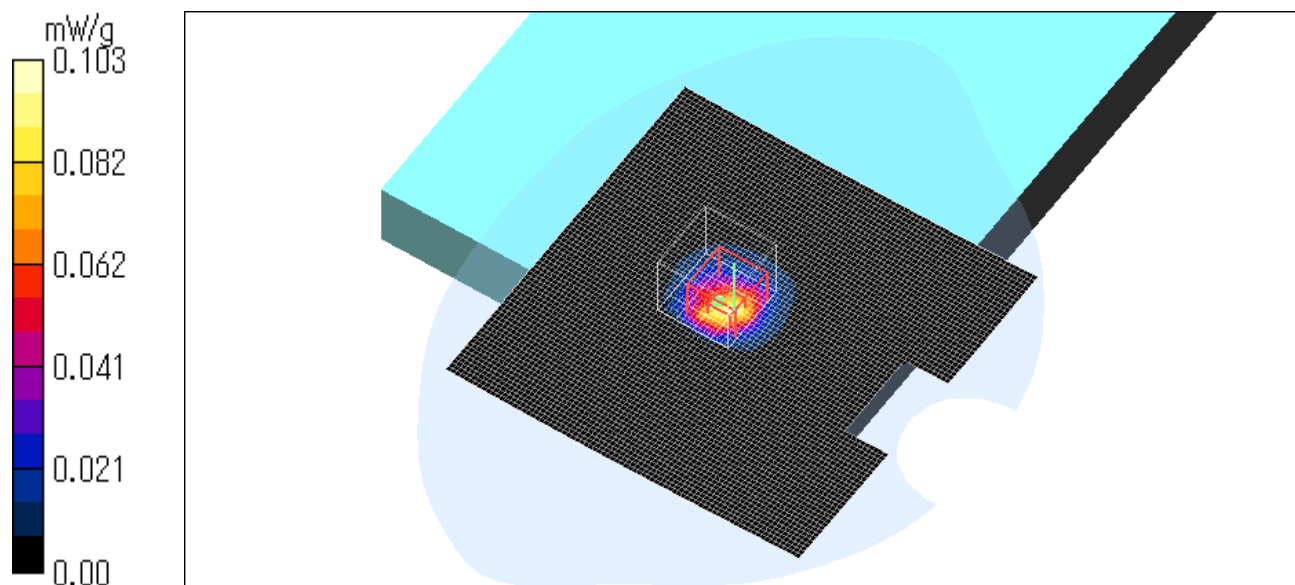
SAR(1 g) = 0.095 mW/g; SAR(10 g) = 0.039 mW/g

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

Test Date = 07/13/05

Ambient Temperature = 25.0 degree.C.

Liquid Temperature = Before 23.5 degree.C. , After 23.5 degree.C.



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PCG-4F2L / Body / Right Bottom (Aux antenna) / 2437 MHz / 11b(11Mbps)

Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 50.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

Probe: ET3DV6 - SN1684; ConvF(4.14, 4.14, 4.14); Calibrated: 2004/09/02

Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)

Electronics: DAE3 Sn516; Calibrated: 2005/03/10

Phantom: SAM 1196

Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Area Scan (81x91x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.01 mW/g

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

Reference Value = 1.24 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.017 W/kg

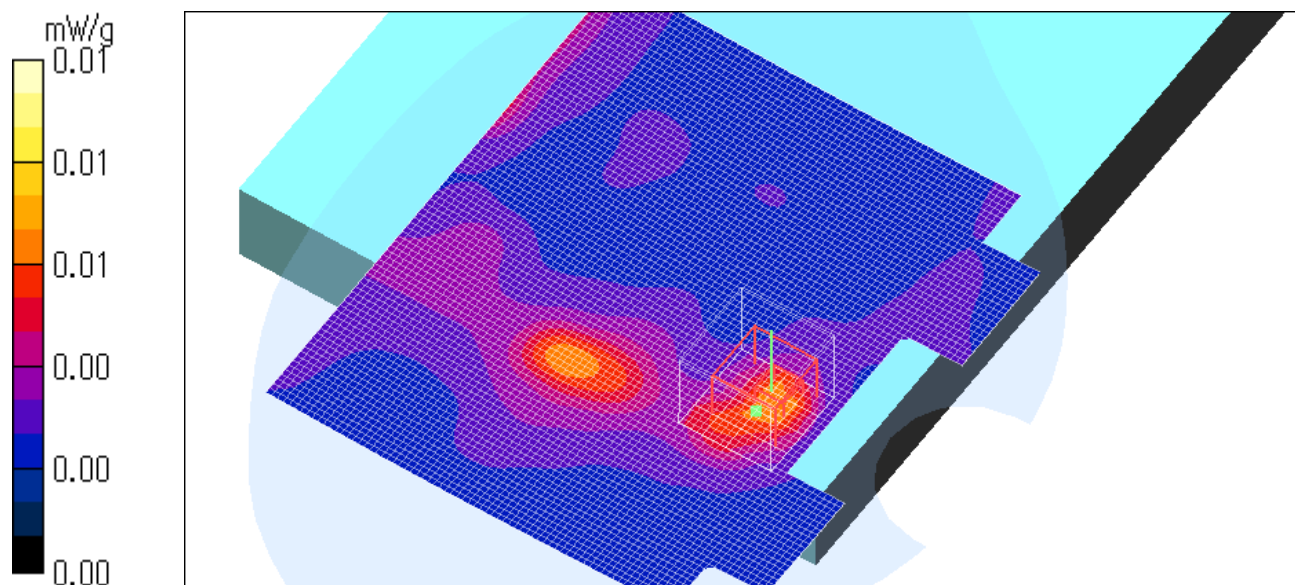
SAR(1 g) = 0.00642 mW/g; SAR(10 g) = 0.00428 mW/g

Maximum value of SAR (measured) = 0.01 mW/g

Test Date = 07/14/05

Ambient Temperature = 25.0 degree.C.

Liquid Temperature = Before 24.0 degree.C. , After 24.0degree.C.



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PCG-4F2L / Body / Right Side (Aux antenna) / 2437 MHz / 11b(11Mbps)

Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 50.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

Probe: ET3DV6 - SN1684; ConvF(4.14, 4.14, 4.14); Calibrated: 2004/09/02

Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)

Electronics: DAE3 Sn516; Calibrated: 2005/03/10

Phantom: SAM 1196

Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Area Scan (81x81x1): Measurement grid: dx=20mm, dy=20mm

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

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

Reference Value = 3.68 V/m; Power Drift = -0.115 dB

Peak SAR (extrapolated) = 0.449 W/kg

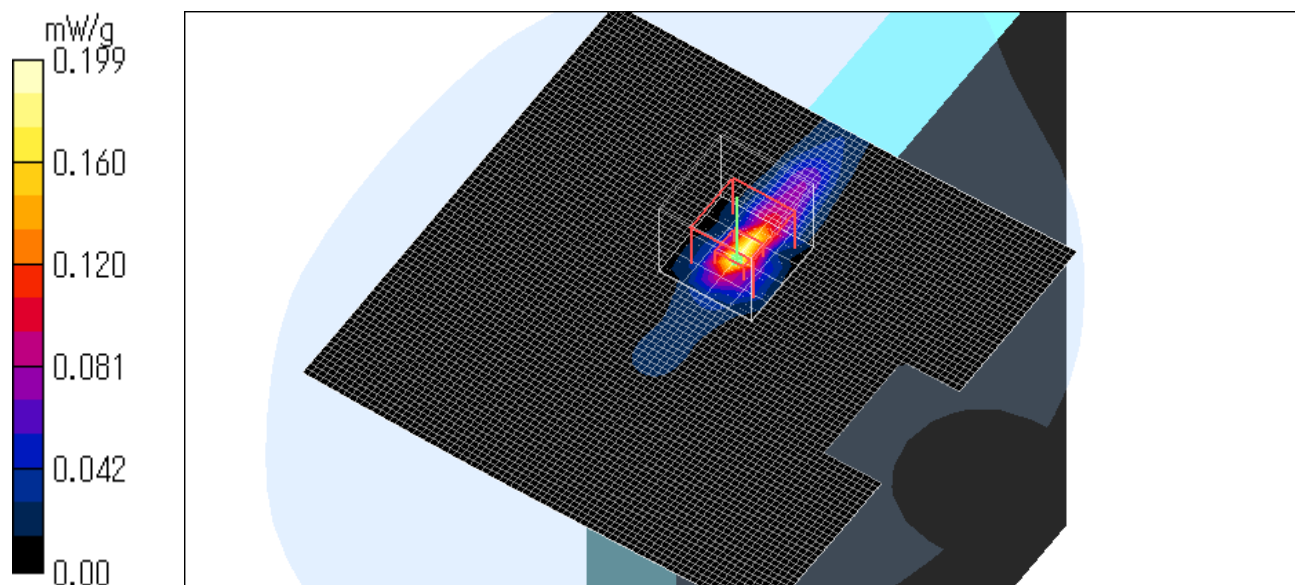
SAR(1 g) = 0.136 mW/g; SAR(10 g) = 0.046 mW/g

Maximum value of SAR (measured) = 0.199 mW/g

Test Date = 07/14/05

Ambient Temperature = 25.0 degree.C.

Liquid Temperature = Before 24.4 degree.C. , After 24.4 degree.C.



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PCG-4F2L / Body / Right Back (Aux antenna) / 2437 MHz / 11b(11Mbps)

Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 50.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

Probe: ET3DV6 - SN1684; ConvF(4.14, 4.14, 4.14); Calibrated: 2004/09/02

Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)

Electronics: DAE3 Sn516; Calibrated: 2005/03/10

Phantom: SAM 1196

Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Area Scan (81x81x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.280 mW/g

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

Reference Value = 3.29 V/m; Power Drift = -0.168 dB

Peak SAR (extrapolated) = 0.930 W/kg

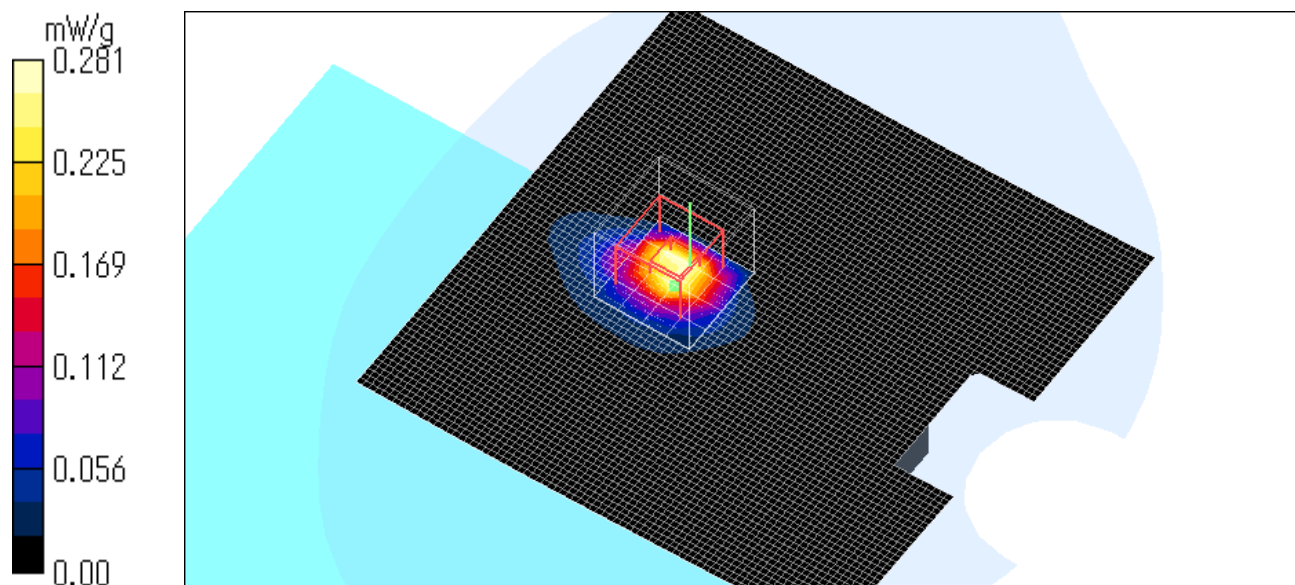
SAR(1 g) = 0.299 mW/g; SAR(10 g) = 0.118 mW/g

Maximum value of SAR (measured) = 0.281 mW/g

Test Date = 07/14/05

Ambient Temperature = 25.0 degree.C.

Liquid Temperature = Before 24.1 degree.C. , After 24.1 degree.C.



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PCG-4F2L / Body / Right Back (Aux antenna) / 2412 MHz / 11b(11Mbps)

Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 50.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

Probe: ET3DV6 - SN1684; ConvF(4.14, 4.14, 4.14); Calibrated: 2004/09/02

Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)

Electronics: DAE3 Sn516; Calibrated: 2005/03/10

Phantom: SAM 1196

Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Area Scan (81x81x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.495 mW/g

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

Reference Value = 5.81 V/m; Power Drift = -0.157 dB

Peak SAR (extrapolated) = 1.27 W/kg

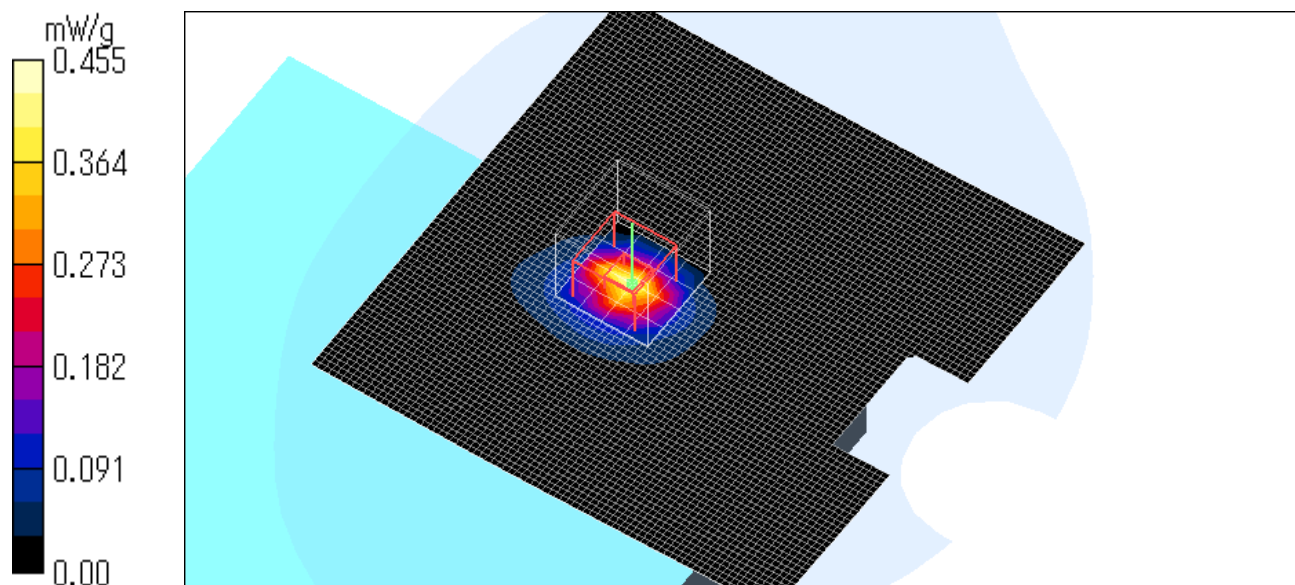
SAR(1 g) = 0.413 mW/g; SAR(10 g) = 0.162 mW/g

Maximum value of SAR (measured) = 0.455 mW/g

Test Date = 07/14/05

Ambient Temperature = 25.0 degree.C.

Liquid Temperature = Before 24.2 degree.C. , After 24.3 degree.C.



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Z-axis scan at max SAR location

PCG-4F2L / Body / Right Back (Aux antenna) / 2412 MHz / 11b(11Mbps)

Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 50.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

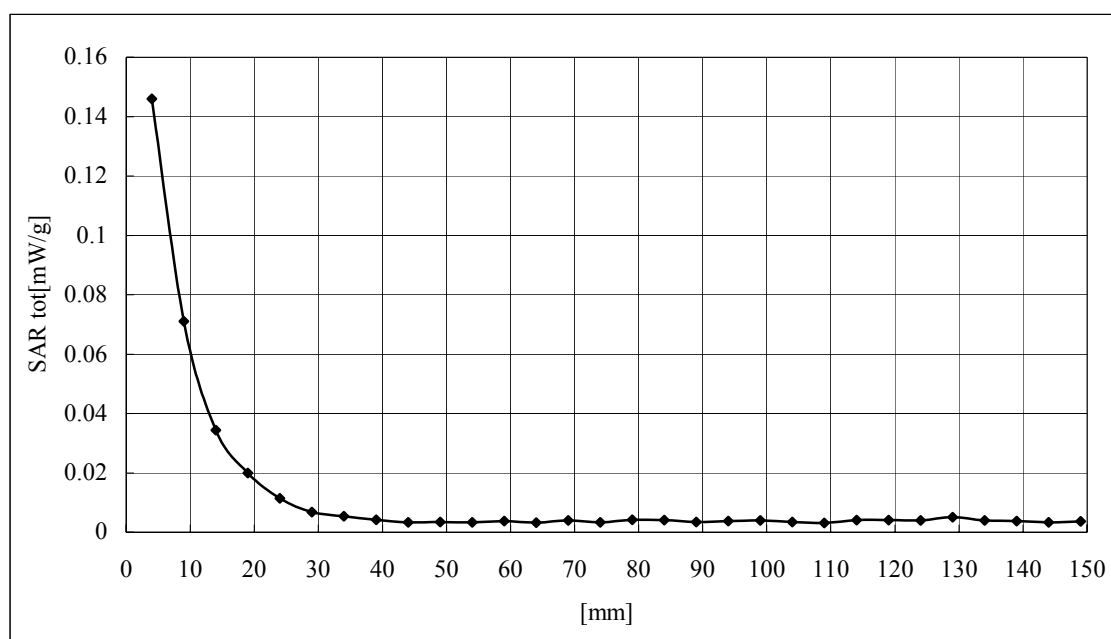
Probe: ET3DV6 - SN1684; ConvF(4.14, 4.14, 4.14); Calibrated: 2004/09/02

Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)

Electronics: DAE3 Sn516; Calibrated: 2005/03/10

Phantom: SAM 1196

Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145



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PCG-4F2L / Body / Right Back (Aux antenna) / 2462 MHz / 11b(11Mbps)

Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 50.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

Probe: ET3DV6 - SN1684; ConvF(4.14, 4.14, 4.14); Calibrated: 2004/09/02

Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)

Electronics: DAE3 Sn516; Calibrated: 2005/03/10

Phantom: SAM 1196

Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Area Scan (81x81x1): Measurement grid: dx=20mm, dy=20mm

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

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

Reference Value = 3.17 V/m; Power Drift = -0.113 dB

Peak SAR (extrapolated) = 0.802 W/kg

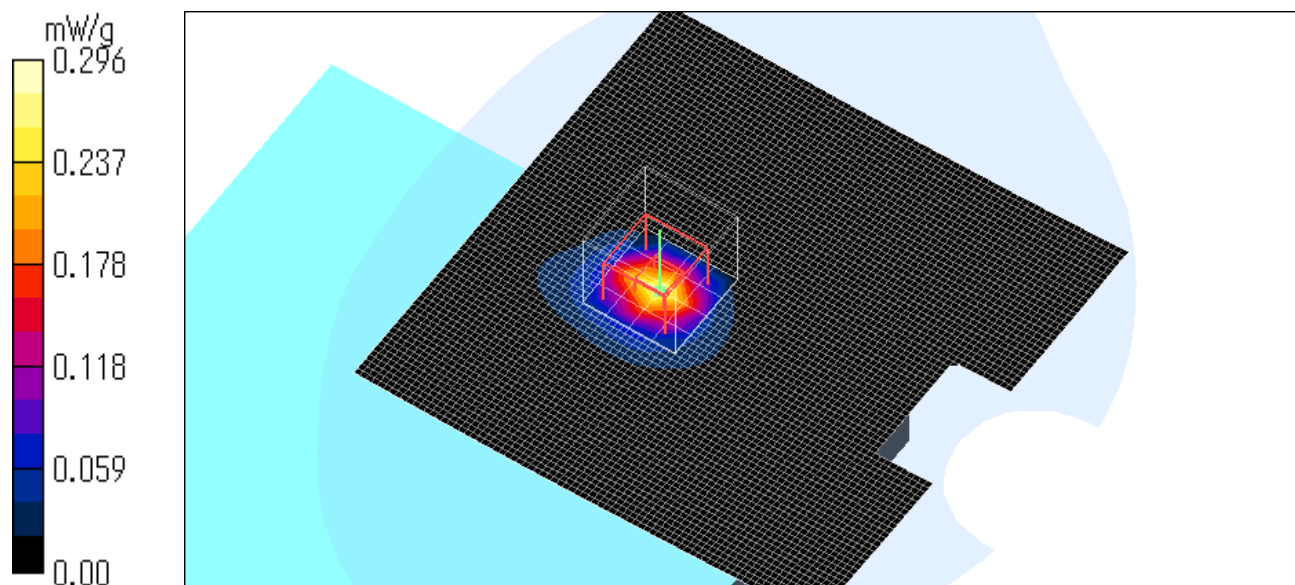
SAR(1 g) = 0.272 mW/g; SAR(10 g) = 0.110 mW/g

Maximum value of SAR (measured) = 0.296 mW/g

Test Date = 07/14/05

Ambient Temperature = 25.0 degree.C.

Liquid Temperature = Before 24.4 degree.C. , After 24.5 degree.C.



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PCG-4F2L / Body / Right Back (Aux antenna) / 2437 MHz / 11g(9Mbps)

Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 50.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

Probe: ET3DV6 - SN1684; ConvF(4.14, 4.14, 4.14); Calibrated: 2004/09/02

Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)

Electronics: DAE3 Sn516; Calibrated: 2005/03/10

Phantom: SAM 1196

Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Area Scan (81x81x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.166 mW/g

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

Reference Value = 3.48 V/m; Power Drift = 0.299 dB

Peak SAR (extrapolated) = 0.571 W/kg

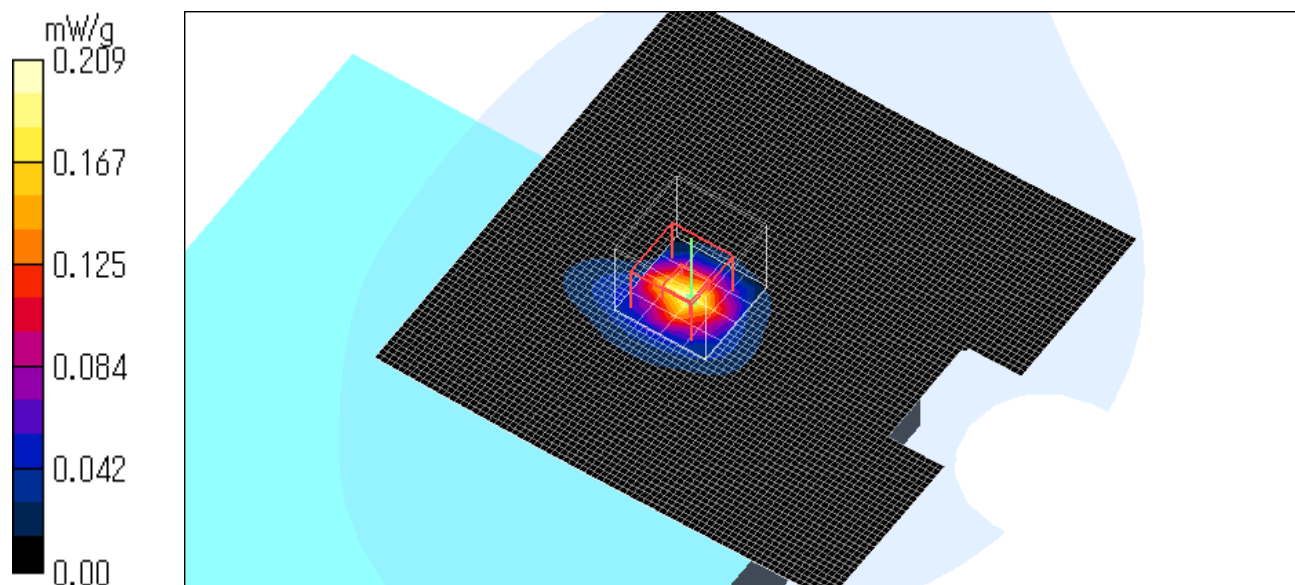
SAR(1 g) = 0.193 mW/g; SAR(10 g) = 0.078 mW/g

Maximum value of SAR (measured) = 0.209 mW/g

Test Date = 07/14/05

Ambient Temperature = 25.0 degree.C.

Liquid Temperature = Before 24.6 degree.C. , After 24.5 degree.C.



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PCG-4F2L / Body / Right Back (Aux antenna) / 2437 MHz / 11g(12Mbps)

Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 50.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

Probe: ET3DV6 - SN1684; ConvF(4.14, 4.14, 4.14); Calibrated: 2004/09/02

Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)

Electronics: DAE3 Sn516; Calibrated: 2005/03/10

Phantom: SAM 1196

Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Area Scan (81x81x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.210 mW/g

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

Reference Value = 7.02 V/m; Power Drift = 0.090 dB

Peak SAR (extrapolated) = 0.518 W/kg

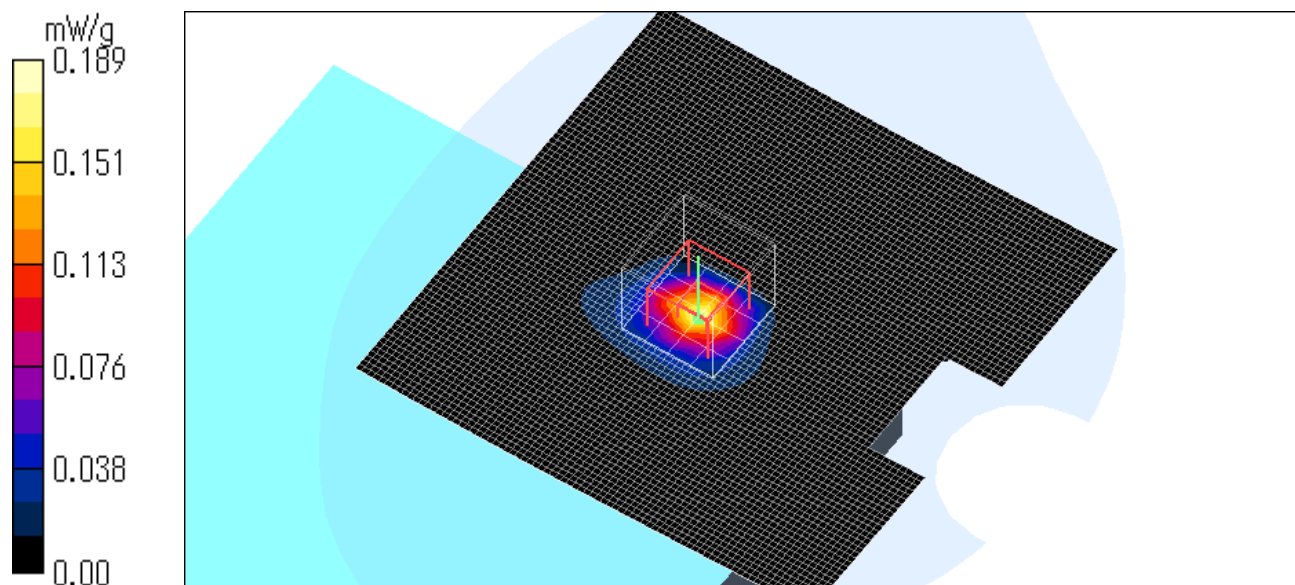
SAR(1 g) = 0.175 mW/g; SAR(10 g) = 0.070 mW/g

Maximum value of SAR (measured) = 0.189 mW/g

Test Date = 07/14/05

Ambient Temperature = 25.0 degree.C.

Liquid Temperature = Before 24.5 degree.C. , After 24.4 degree.C.



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PCG-4F2L / Body / Right Back (Aux antenna) / 2437 MHz / 11g(24Mbps)

Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 50.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASYS4 (High Precision Assessment)

DASY4 Configuration:

Probe: ET3DV6 - SN1684; ConvF(4.14, 4.14, 4.14); Calibrated: 2004/09/02

Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)Sensor-Surface: 0mm (Fix Surface)

Electronics: DAE3 Sn516; Calibrated: 2005/03/10

Phantom: SAM 1196

Measurement SW: DASYS4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Area Scan (81x81x1): Measurement grid: dx=20mm, dy=20mm

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

Z Scan 2 (1x1x40): Measurement grid: dx=20mm, dy=20mm, dz=5mm

Maximum value of SAR (interpolated) = 0.037 mW/g

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

Reference Value = 4.82 V/m; Power Drift = -0.022 dB

Peak SAR (extrapolated) = 0.560 W/kg

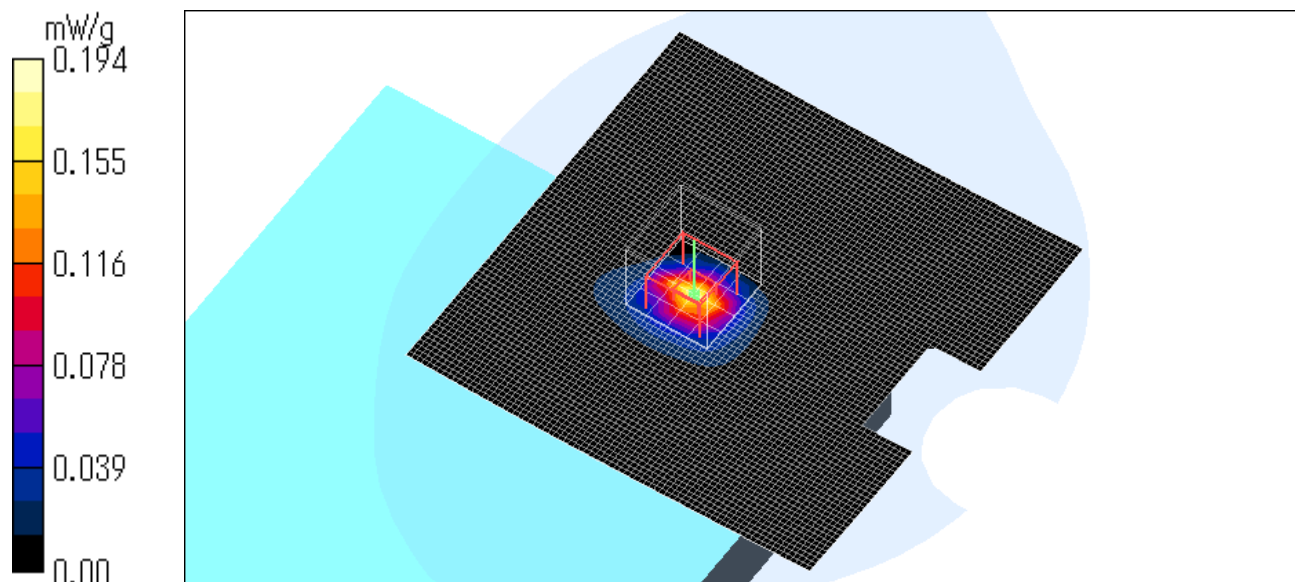
SAR(1 g) = 0.172 mW/g; SAR(10 g) = 0.066 mW/g

Maximum value of SAR (measured) = 0.194 mW/g

Test Date = 07/14/05

Ambient Temperature = 25.0 degree.C.

Liquid Temperature = Before 24.4 degree.C. , After 24.4 degree.C.



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PCG-4F2L / Body / Right Back (Aux antenna) / 2437 MHz / 11g(54Mbps)

Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 50.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

Probe: ET3DV6 - SN1684; ConvF(4.14, 4.14, 4.14); Calibrated: 2004/09/02

Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)

Electronics: DAE3 Sn516; Calibrated: 2005/03/10

Phantom: SAM 1196

Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Area Scan (81x81x1): Measurement grid: $dx=20$ mm, $dy=20$ mm

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

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

Reference Value = 3.45 V/m; Power Drift = -0.110 dB

Peak SAR (extrapolated) = 0.417 W/kg

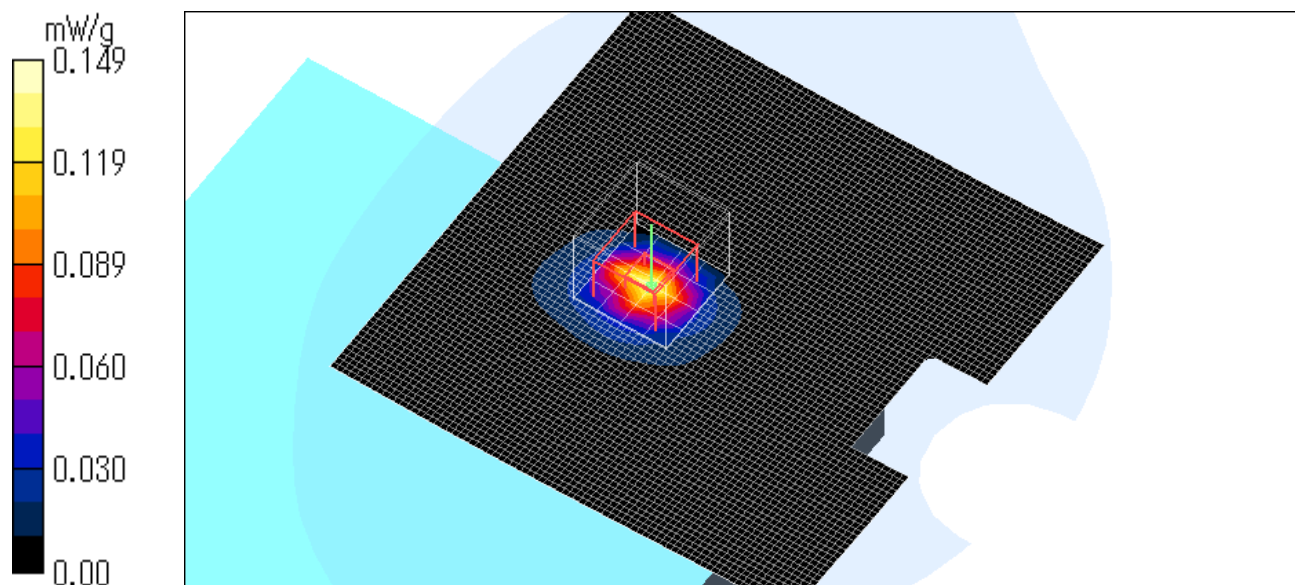
SAR(1 g) = 0.136 mW/g; SAR(10 g) = 0.054 mW/g

Maximum value of SAR (measured) = 0.149 mW/g

Test Date = 07/14/05

Ambient Temperature = 25.0 degree.C.

Liquid Temperature = Before 24.4 degree.C. , After 24.4 degree.C.



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PCG-4F2L / Body / Right Bottom (Aux antenna) / 2437 MHz / 11g(9Mbps)

Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 50.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

Probe: ET3DV6 - SN1684; ConvF(4.14, 4.14, 4.14); Calibrated: 2004/09/02

Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)

Electronics: DAE3 Sn516; Calibrated: 2005/03/10

Phantom: SAM 1196

Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Area Scan (81x91x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.00 mW/g

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

Reference Value = 1.36 V/m; Power Drift = -0.221 dB

Peak SAR (extrapolated) = 0.011 W/kg

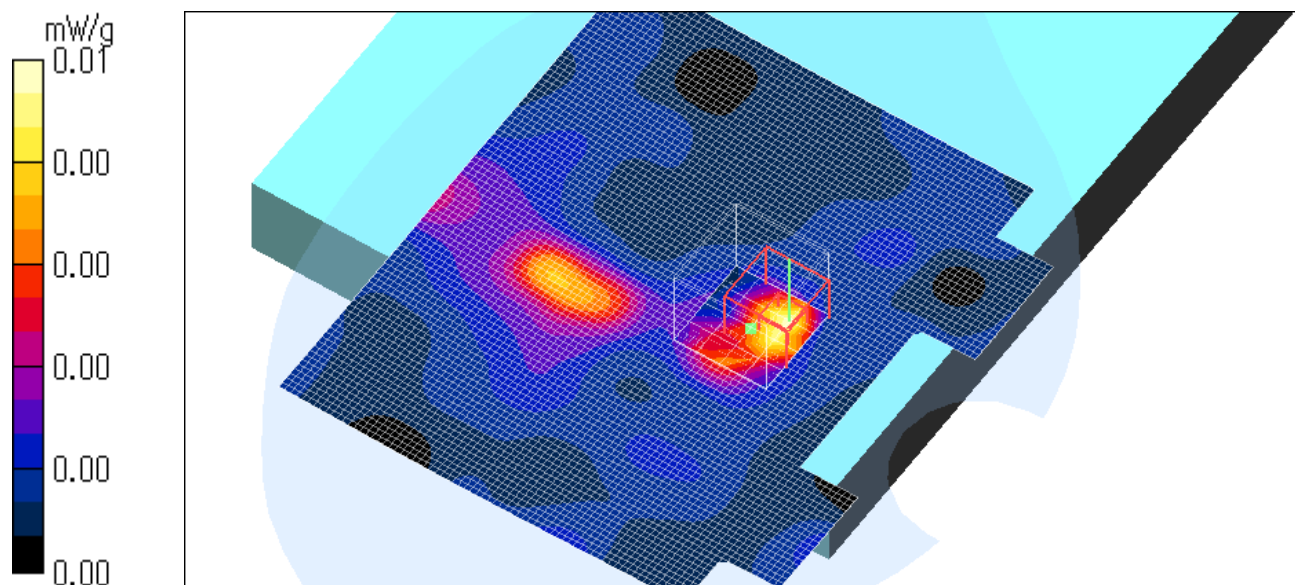
SAR(1 g) = 0.00501 mW/g; SAR(10 g) = 0.00369 mW/g

Maximum value of SAR (measured) = 0.01 mW/g

Test Date = 07/14/05

Ambient Temperature = 25.0 degree.C.

Liquid Temperature = Before 24.3 degree.C. , After 24.3 degree.C.



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PCG-4F2L / Body / Right Side (Aux antenna) / 2437 MHz / 11g(9Mbps)

Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 50.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

Probe: ET3DV6 - SN1684; ConvF(4.14, 4.14, 4.14); Calibrated: 2004/09/02

Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)

Electronics: DAE3 Sn516; Calibrated: 2005/03/10

Phantom: SAM 1196

Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Area Scan (81x81x1): Measurement grid: dx=20mm, dy=20mm

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

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

Reference Value = 2.86 V/m; Power Drift = -0.021 dB

Peak SAR (extrapolated) = 0.254 W/kg

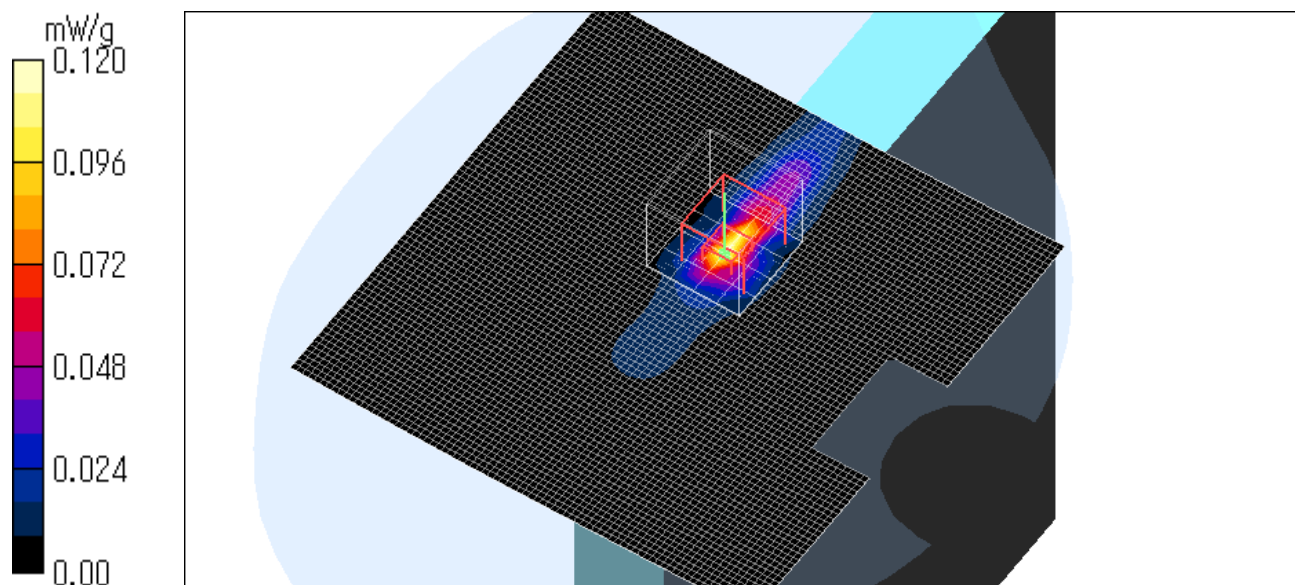
SAR(1 g) = 0.083 mW/g; SAR(10 g) = 0.029 mW/g

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

Test Date = 07/14/05

Ambient Temperature = 25.0 degree.C.

Liquid Temperature = Before 24.3 degree.C. , After 24.4 degree.C.



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PCG-4F2L / Body / Right Back (Aux antenna) / 2412 MHz / 11g(9Mbps)

Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 50.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

Probe: ET3DV6 - SN1684; ConvF(4.14, 4.14, 4.14); Calibrated: 2004/09/02

Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)

Electronics: DAE3 Sn516; Calibrated: 2005/03/10

Phantom: SAM 1196

Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Area Scan (81x81x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.240 mW/g

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

Reference Value = 6.58 V/m; Power Drift = -0.040 dB

Peak SAR (extrapolated) = 0.583 W/kg

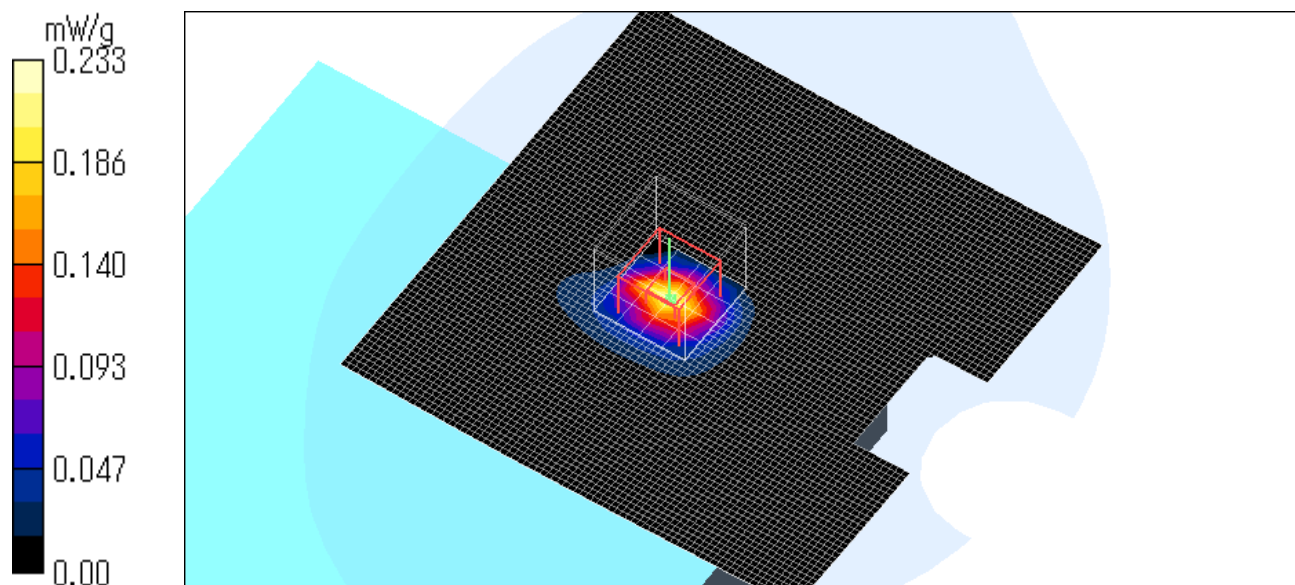
SAR(1 g) = 0.207 mW/g; SAR(10 g) = 0.083 mW/g

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

Test Date = 07/14/05

Ambient Temperature = 25.0 degree.C.

Liquid Temperature = Before 24.4 degree.C. , After 24.4 degree.C.



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PCG-4F2L / Body / Right Back (Aux antenna) / 2462 MHz / 11g(9Mbps)

Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 50.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

Probe: ET3DV6 - SN1684; ConvF(4.14, 4.14, 4.14); Calibrated: 2004/09/02

Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)

Electronics: DAE3 Sn516; Calibrated: 2005/03/10

Phantom: SAM 1196

Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Area Scan (81x81x1): Measurement grid: dx=20mm, dy=20mm

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

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

Reference Value = 4.02 V/m; Power Drift = -0.01 dB

Peak SAR (extrapolated) = 0.513 W/kg

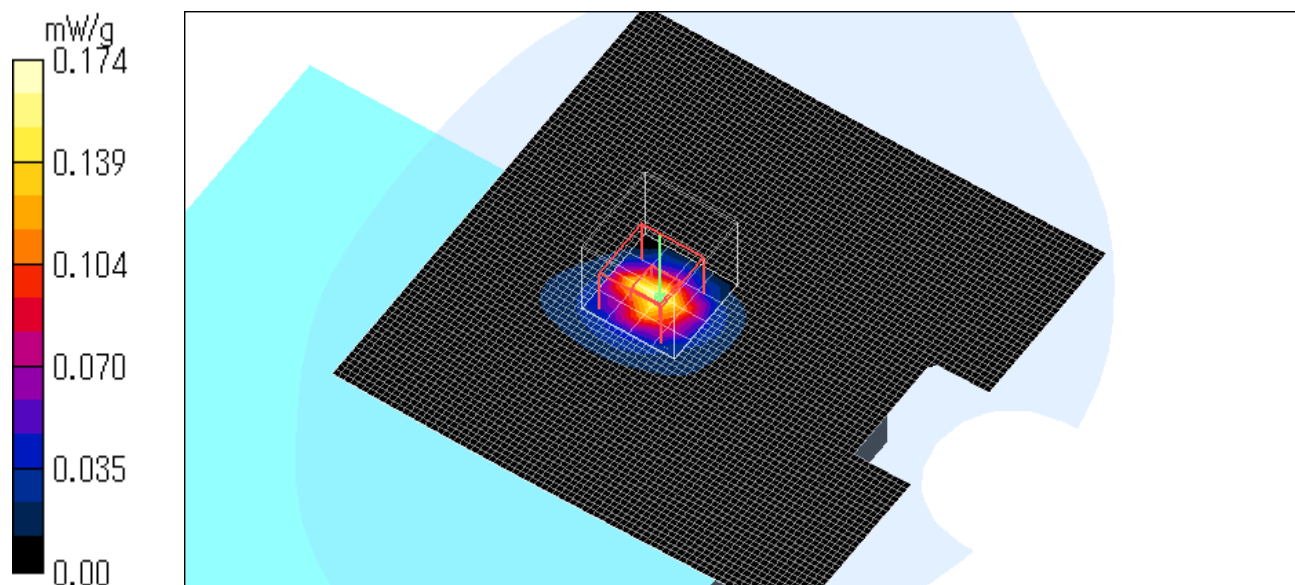
SAR(1 g) = 0.161 mW/g; SAR(10 g) = 0.062 mW/g

Maximum value of SAR (measured) = 0.174 mW/g

Test Date = 07/14/05

Ambient Temperature = 25.0 degree.C.

Liquid Temperature = Before 24.4 degree.C. , After 24.3degree.C.



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PCG-4F2L / Body / Right Back (Aux antenna) 5mm / 2412 MHz / 11b(11Mbps)

Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 50.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

Probe: ET3DV6 - SN1684; ConvF(4.14, 4.14, 4.14); Calibrated: 2004/09/02

Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)

Electronics: DAE3 Sn516; Calibrated: 2005/03/10

Phantom: SAM 1196

Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Area Scan (81x81x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.144 mW/g

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

Reference Value = 8.36 V/m; Power Drift = -0.109 dB

Peak SAR (extrapolated) = 0.429 W/kg

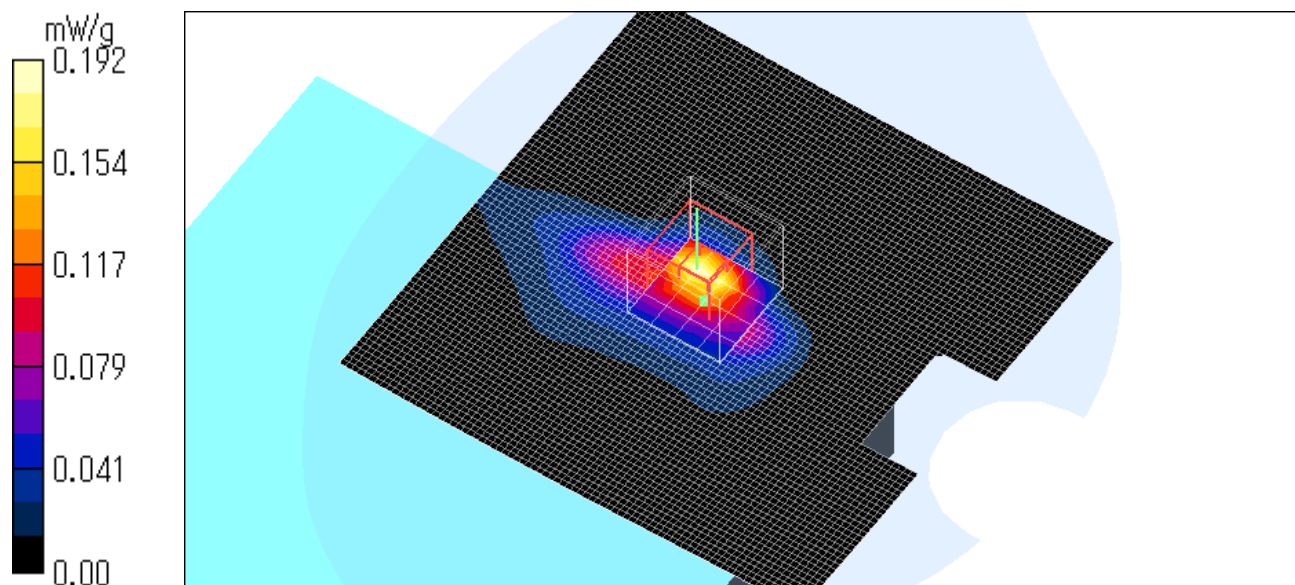
SAR(1 g) = 0.174 mW/g; SAR(10 g) = 0.081 mW/g

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

Test Date = 07/14/05

Ambient Temperature = 25.0 degree.C.

Liquid Temperature = Before 24.3 degree.C. , After 24.3 degree.C.



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PCG-4F2L / Body / Right Back (Aux antenna) 10mm / 2412 MHz / 11b(11Mbps)

Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 50.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

Probe: ET3DV6 - SN1684; ConvF(4.14, 4.14, 4.14); Calibrated: 2004/09/02

Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)

Electronics: DAE3 Sn516; Calibrated: 2005/03/10

Phantom: SAM 1196

Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Area Scan (81x81x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.078 mW/g

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

Reference Value = 6.56 V/m; Power Drift = -0.150 dB

Peak SAR (extrapolated) = 0.182 W/kg

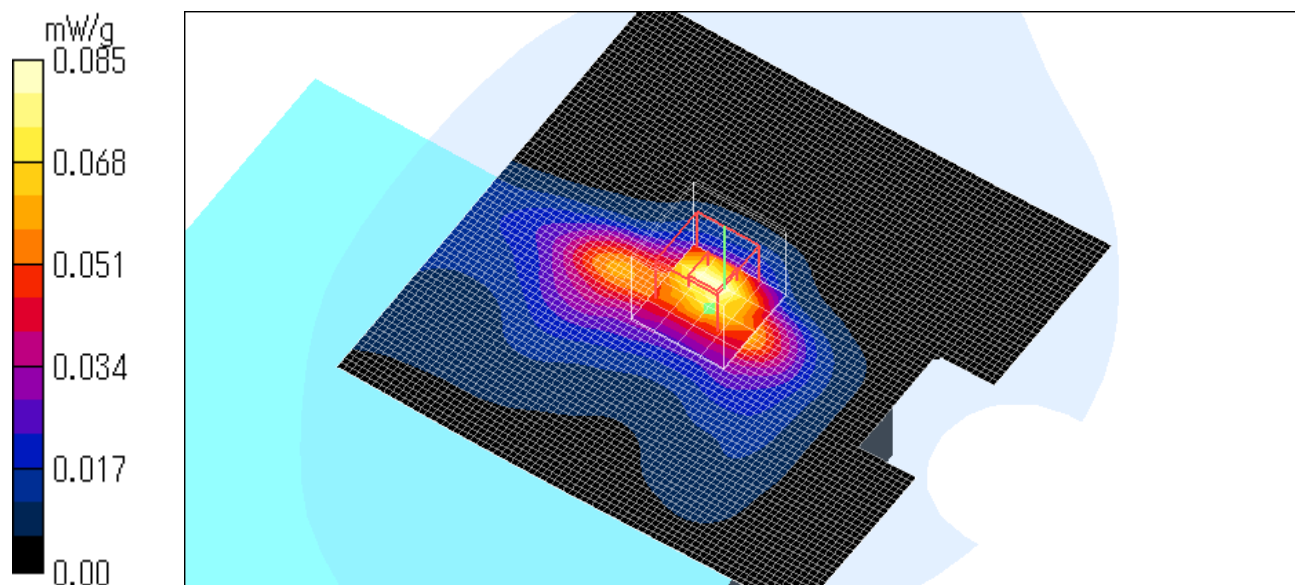
SAR(1 g) = 0.080 mW/g; SAR(10 g) = 0.041 mW/g

Maximum value of SAR (measured) = 0.085 mW/g

Test Date = 07/14/05

Ambient Temperature = 25.0 degree.C.

Liquid Temperature = Before 24.3 degree.C. , After 24.3 degree.C.



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PCG-4F2L / Body / Right Back (Aux antenna) 15mm / 2412 MHz / 11b(11Mbps)

Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 50.2$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

Probe: ET3DV6 - SN1684; ConvF(4.14, 4.14, 4.14); Calibrated: 2004/09/02

Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)

Electronics: DAE3 Sn516; Calibrated: 2005/03/10

Phantom: SAM 1196

Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Area Scan (81x81x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.030 mW/g

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

Reference Value = 3.78 V/m; Power Drift = -0.175 dB

Peak SAR (extrapolated) = 0.060 W/kg

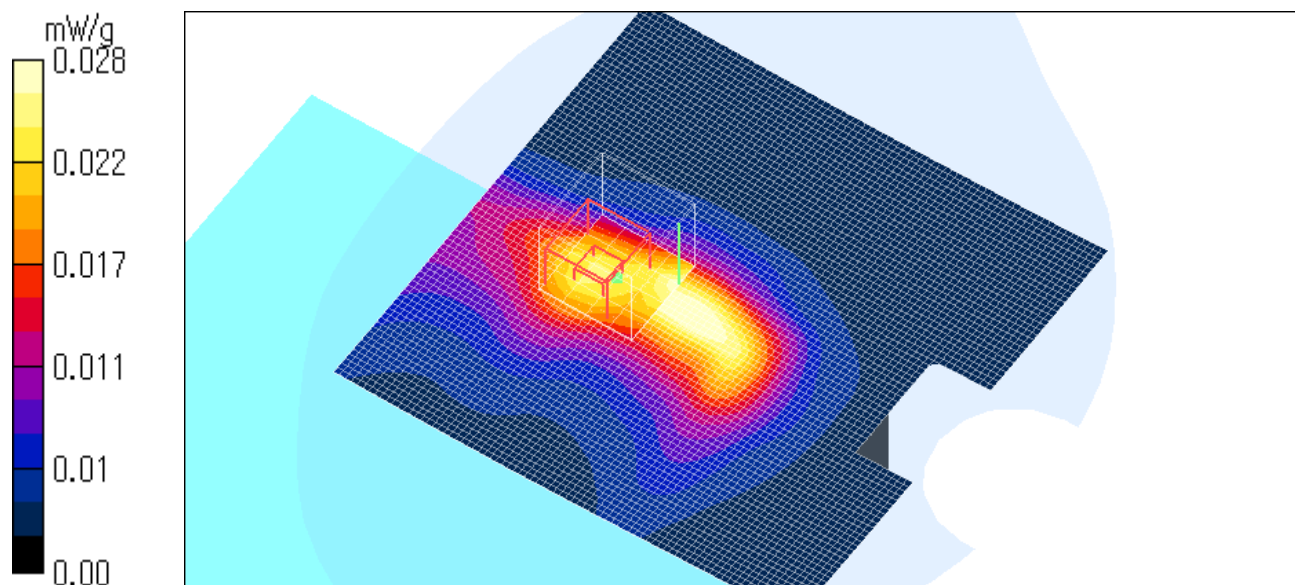
SAR(1 g) = 0.024 mW/g; SAR(10 g) = 0.015 mW/g

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

Test Date = 07/14/05

Ambient Temperature = 25.0 degree.C.

Liquid Temperature = Before 24.3 degree.C. , After 24.3 degree.C.



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PCG-4F2L / Body / Bottom (Bluetooth) / 2441MHz / Bluetooth Hopping OFF

Duty Cycle: 1:1

Medium parameters used: $f = 2450 \text{ MHz}$; $\sigma = 1.95 \text{ mho/m}$; $\epsilon_r = 50.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

Probe: ET3DV6 - SN1684; ConvF(4.14, 4.14, 4.14); Calibrated: 2004/09/02

Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)

Electronics: DAE3 Sn516; Calibrated: 2005/03/10

Phantom: SAM 1196

Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Area Scan (81x81x1): Measurement grid: $dx=20\text{mm}$, $dy=20\text{mm}$

Maximum value of SAR (interpolated) = 0.00 mW/g

Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 1.13 V/m; Power Drift = -0.016 dB

Peak SAR (extrapolated) = 0.00 W/kg

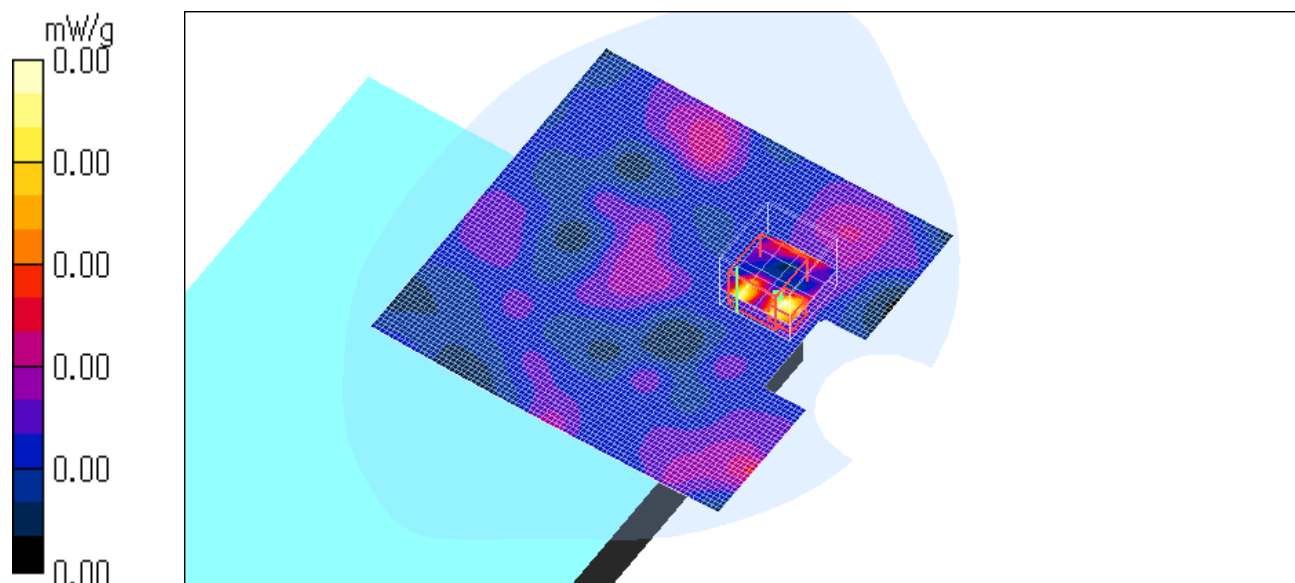
SAR(1 g) = 0.00288 mW/g; SAR(10 g) = 0.00245 mW/g

Maximum value of SAR (measured) = 0.00 mW/g

Test Date = 07/13/05

Ambient Temperature = 25.0 degree C.

Liquid Temperature = Before 23.4 degree C. , After 23.4 degree C.



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PCG-4F2L / Body / Keyboard Edge (BLuetooth) / 2441MHz / Bluetooth Hopping OFF

Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 50.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

Probe: ET3DV6 - SN1684; ConvF(4.14, 4.14, 4.14); Calibrated: 2004/09/02

Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)

Electronics: DAE3 Sn516; Calibrated: 2005/03/10

Phantom: SAM 1196

Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Area Scan (81x81x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.00 mW/g

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

Reference Value = 1.37 V/m; Power Drift = -0.265 dB

Peak SAR (extrapolated) = 0.00 W/kg

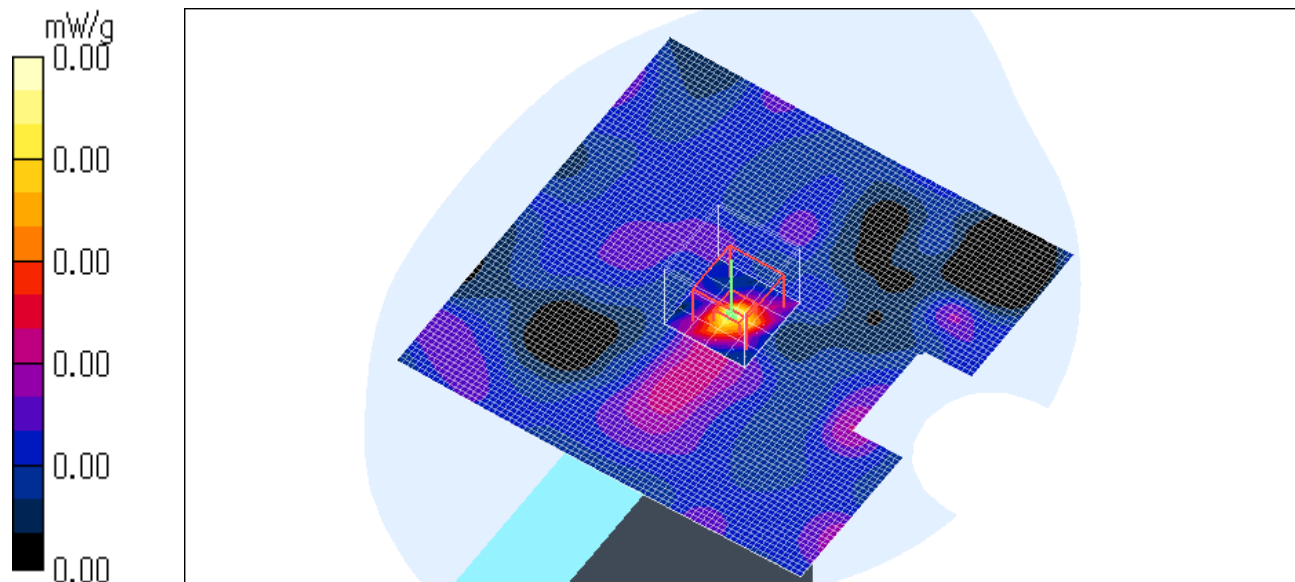
SAR(1 g) = 0.0031 mW/g; SAR(10 g) = 0.00269 mW/g

Maximum value of SAR (measured) = 0.00 mW/g

Test Date = 07/13/05

Ambient Temperature = 25.0 degree C.

Liquid Temperature = Before 23.4 degree C. , After 23.4 degree C.



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PCG-4F2L / Body / Keyboard Side (Bluetooth) / 2441MHz / Bluetooth Hopping OFF

Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 50.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

Probe: ET3DV6 - SN1684; ConvF(4.14, 4.14, 4.14); Calibrated: 2004/09/02

Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)

Electronics: DAE3 Sn516; Calibrated: 2005/03/10

Phantom: SAM 1196

Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Area Scan (81x81x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.00 mW/g

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

Reference Value = 1.15 V/m; Power Drift = 0.260 dB

Peak SAR (extrapolated) = 0.00 W/kg

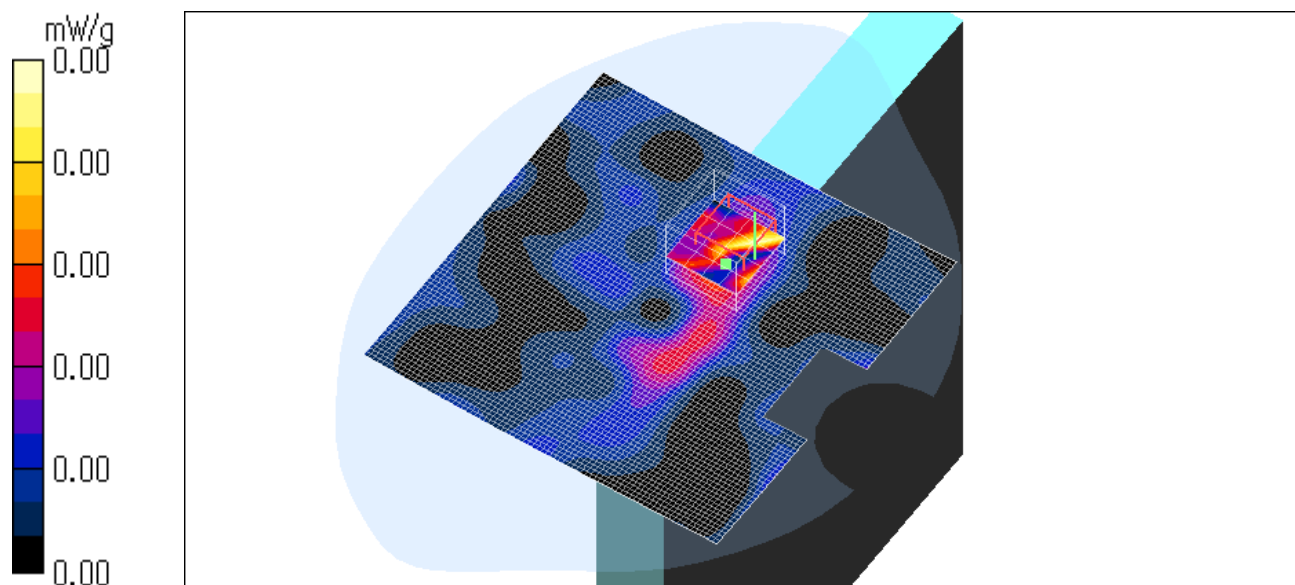
SAR(1 g) = 0.00336 mW/g; SAR(10 g) = 0.00282 mW/g

Maximum value of SAR (measured) = 0.00 mW/g

Test Date = 07/13/05

Ambient Temperature = 25.0 degree.C.

Liquid Temperature = Before 23.4 degree.C. , After 23.4 degree.C.



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PCG-4F2L / Body / Keyboard Side (Bluetooth) / 2402MHz / Bluetooth Hopping OFF

Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 50.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

Probe: ET3DV6 - SN1684; ConvF(4.14, 4.14, 4.14); Calibrated: 2004/09/02

Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)

Electronics: DAE3 Sn516; Calibrated: 2005/03/10

Phantom: SAM 1196

Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Area Scan (81x81x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.00 mW/g

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

Reference Value = 1.17 V/m; Power Drift = 0.079 dB

Peak SAR (extrapolated) = 0.010 W/kg

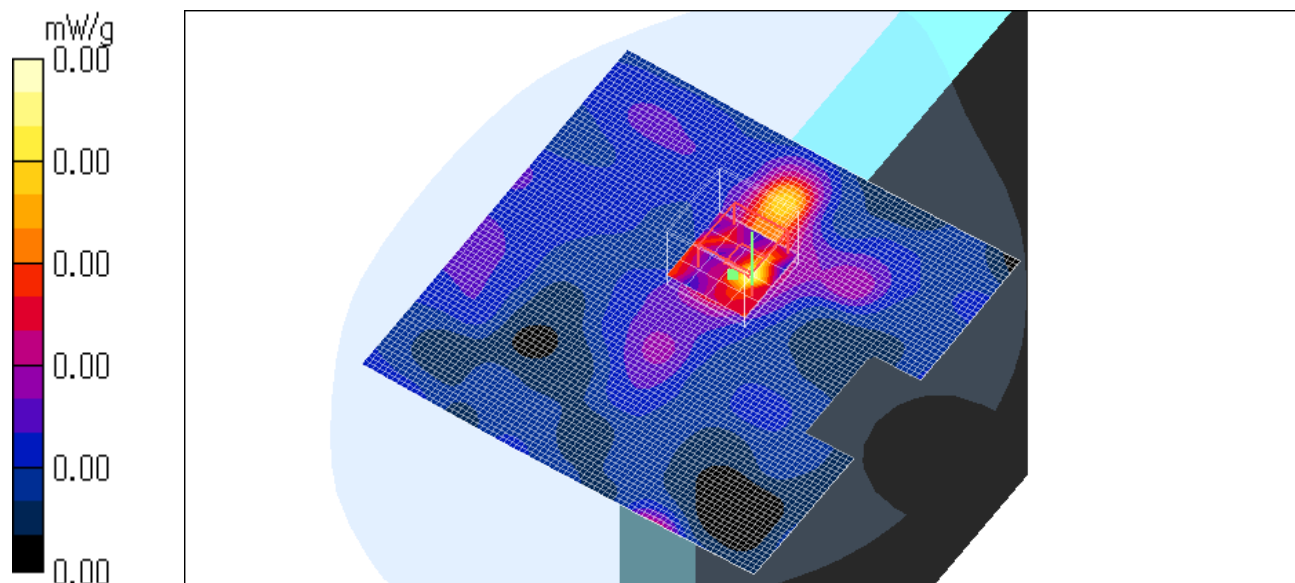
SAR(1 g) = 0.00389 mW/g; SAR(10 g) = 0.00304 mW/g

Maximum value of SAR (measured) = 0.00 mW/g

Test Date = 07/13/05

Ambient Temperature = 25.0 degree.C.

Liquid Temperature = Before 23.4 degree.C. , After 23.4 degree.C.



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PCG-4F2L / Body / Keyboard Side (Bluetooth) / 2480MHz / Bluetooth Hopping OFF

Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 50.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

Probe: ET3DV6 - SN1684; ConvF(4.14, 4.14, 4.14); Calibrated: 2004/09/02

Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)

Electronics: DAE3 Sn516; Calibrated: 2005/03/10

Phantom: SAM 1196

Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Area Scan (81x81x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.00 mW/g

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

Reference Value = 1.27 V/m; Power Drift = -0.254 dB

Peak SAR (extrapolated) = 0.00 W/kg

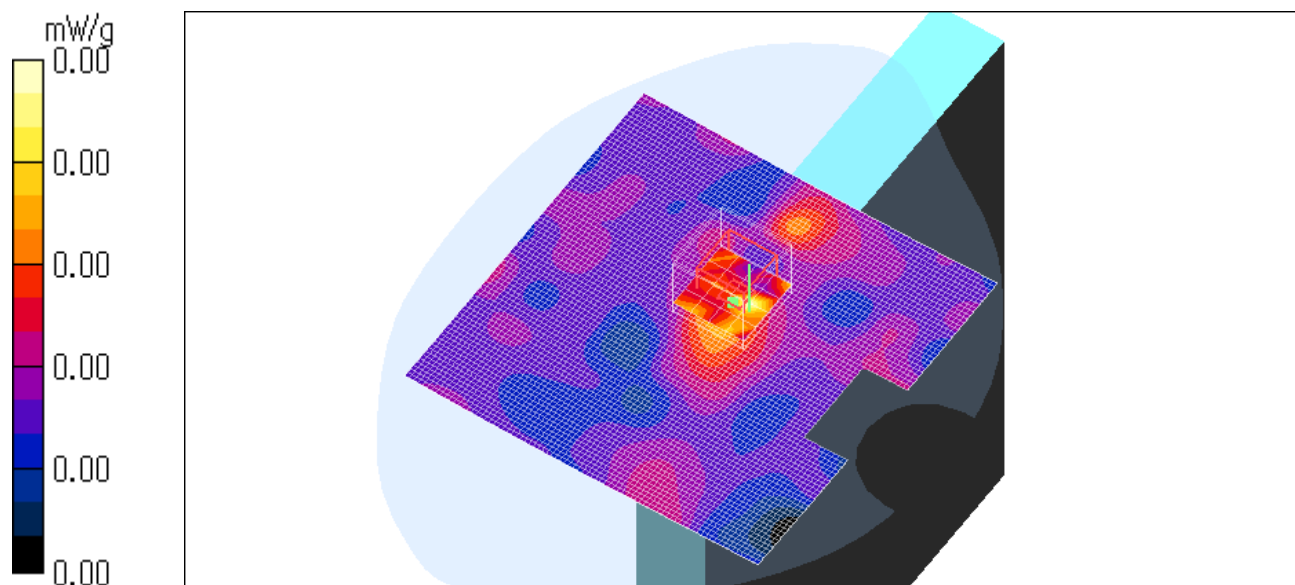
SAR(1 g) = 0.00311 mW/g; SAR(10 g) = 0.00271 mW/g

Maximum value of SAR (measured) = 0.00 mW/g

Test Date = 07/13/05

Ambient Temperature = 25.0 degree.C.

Liquid Temperature = Before 23.4 degree.C. , After 23.4 degree.C.



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PCG-4F2L / Body / Keyboard Side (Bluetooth) / Bluetooth Hopping ON

Duty Cycle: 1:1

Medium parameters used: $f = 2450$ MHz; $\sigma = 1.95$ mho/m; $\epsilon_r = 50.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

Probe: ET3DV6 - SN1684; ConvF(4.14, 4.14, 4.14); Calibrated: 2004/09/02

Sensor-Surface: 4mm (Mechanical And Optical Surface Detection)

Electronics: DAE3 Sn516; Calibrated: 2005/03/10

Phantom: SAM 1196

Measurement SW: DASY4, V4.5 Build 19; Postprocessing SW: SEMCAD, V1.8 Build 145

Area Scan (81x81x1): Measurement grid: dx=20mm, dy=20mm

Maximum value of SAR (interpolated) = 0.00 mW/g

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

Reference Value = 1.20 V/m; Power Drift = -0.203 dB

Peak SAR (extrapolated) = 0.00 W/kg

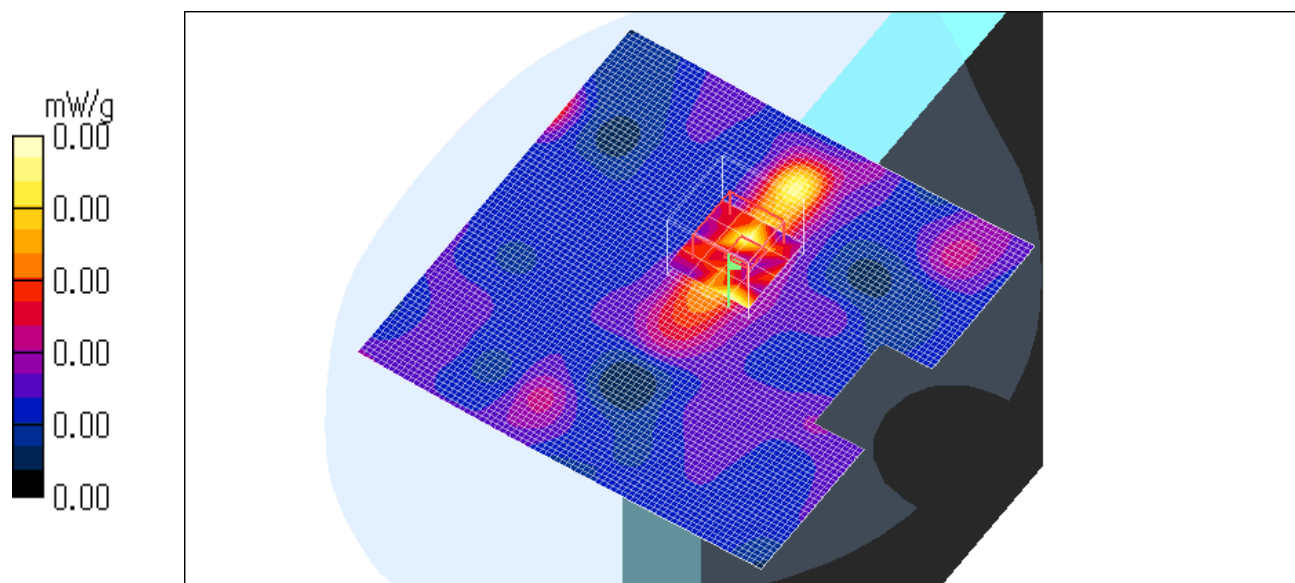
SAR(1 g) = 0.00306 mW/g; SAR(10 g) = 0.00274 mW/g

Maximum value of SAR (measured) = 0.00 mW/g

Test Date = 07/13/05

Ambient Temperature = 25.0 degree.C.

Liquid Temperature = Before 23.4 degree.C. , After 23.4 degree.C.



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3. Power drift measurement

The power drift was not within $\pm 5\%$ on SAR re-testing with full-charged battery.

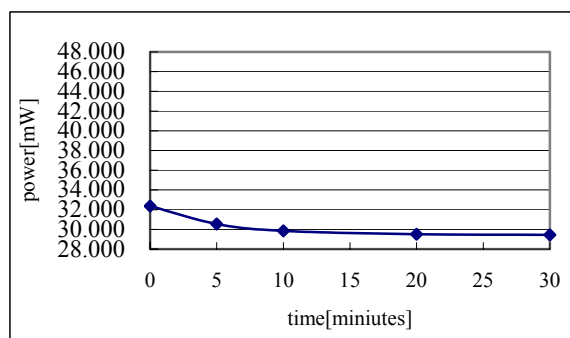
Therefore the conducted power was measured in elapsed time. The average power was measured under the condition of Max. power of IEEE802.11b/g and Bluetooth.

As a result, power changed by -9%. The result is shown in the following.

So the uncertainty of power drift was expanded to $\pm 10\%$.

2412 MHz(IEEE 802.11b) Average power

Time [Minutes]	Result [dBm]	Converted [mW]	Diviation [%]
0	15.10	32.359	-
5	14.85	30.549	-5.6
10	14.75	29.854	-7.7
20	14.70	29.512	-8.8
30	14.69	29.444	-9.0



2402 MHz(Bluetooth) Average power

Time [Minutes]	Result [dBm]	Converted [mW]	Diviation [%]
0	-8.14	0.153	-
5	-8.29	0.148	-3.4
10	-8.38	0.145	-5.4
20	-8.41	0.144	-6.0
30	-8.42	0.144	-6.2

