



SAR TEST REPORT

Test Report No. : 29BE0211-HO-01-B-R3

Applicant : KYOCERA Corporation
Type of Equipment : iBurst User Terminal USB type
Model No. : UTU03-1890F-US-A
FCC ID : JOYIUU19AC
Test regulation : FCC47CFR 2.1093
FCC OET BULLETIN 65, SUPPLEMENT C
Test Result : Complied
Max. SAR Value : 1.01W/kg (Body 1909.6875MHz)

1. This test report shall not be reproduced in full or partial, without the written approval of UL Japan, Inc.
2. The results in this report apply only to the sample tested.
3. This sample tested is in compliance with the limits of the above regulation.
4. The test results in this test report are traceable to the national or international standards.
5. This test report must not be used by the customer to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.
6. Original test report number of this report is 29BE0211-HO-01-B.

Date of test:

November 12 to 13, 2008

Tested by:

Miyo Kishimoto
EMC Services

Approved by :

Tetsuo Maeno
Site Manager of EMC Services



NVLAP LAB CODE: 200572-0

This laboratory is accredited by the NVLAP LAB CODE 200572-0, U.S.A. The tests reported herein have been performed in accordance with its terms of accreditation.
*As for the range of Accreditation in NVLAP, you may refer to the WEB address, <http://uljapan.co.jp/emc/nvlap.htm>

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

MF060b (09.01.08)

CONTENTS	PAGE
SECTION 1: Customer information	3
SECTION 2: Equipment under test (E.U.T.)	3
2.1 Identification of E.U.T.	3
2.2 Product Description	4
SECTION 3 : Test standard information	5
3.1 Requirements for compliance testing defined by the FCC	5
3.2 Procedure and result	5
3.3 Exposure limit	6
3.4 Test Location	7
3.5 Confirmation before SAR testing	7
3.6 Confirmation after SAR testing	7
3.7 Measurement procedure	7
3.8 Test setup of EUT (Test of insert to the PC)	8
3.9 Test setup of EUT (Test of extension with USB cable)	9
SECTION 4 : Operation of E.U.T. during testing	10
4.1 Operating modes for SAR testing	10
SECTION 5 : Test surrounding	11
5.1 Measurement uncertainty	11
SECTION 6 : Confirmation before/after testing	12
6.1 Correlation of EMC power and SAR power	12
SECTION 7 : Measurement results	14
7.1 Body SAR (Insert to the PC)	14
7.2 Reference data Body SAR (Extension with USB cable)	15
APPENDIX 1 : Photographs of test setup	16
1. Photograph of EUT	17
2. Photograph of EUT inserted to the PC	22
3. Antenna (retracted / extended)	23
4. Information of host device	23
5. Photograph of test setup (Insert to the PC)	24
6. Photograph of test setup (Extension with USB cable)	36
7. Position of radiation pattern and device	46
APPENDIX 2 : SAR Measurement data	48
1. Evaluation procedure	49
2. Measurement data (Insert to the PC)	50
3. Reference data Measurement data (Extension with USB cable)	71
APPENDIX 3 : Test instruments	87
1. Equipment used	88
2. Dosimetry assessment setup	89
3. Configuration and peripherals	90
4. System components	91
5. Test system specifications	93
6. Simulated Tissues Liquid	94
7. Validation Measurement	95
8. System validation data	96
9. Validation uncertainty	97
10. Validation Measurement data	98
11. System Validation Dipole (D1800V2,S/N: 2d04)	100
12. Dosimetric E-Field Probe Calibration (EX3DV3,S/N: 3507)	109
13. References	118

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

SECTION 1: Customer information

Company Name : KYOCERA Corporation
Address : Yokohama Office
2-1-1 Kagahara, Tsuzuki-ku, Yokohama-shi, Kanagawa 224-8502, Japan
Telephone Number : +81-45-943-6189
Facsimile Number : +81-45-943-6172
Contact Person : Akira Namba

SECTION 2: Equipment under test (E.U.T.)

2.1 Identification of E.U.T.

Type of Equipment : iBurst User Terminal USB type
Model No. : UTU03-1890F-US-A
Serial No. : No.18
Rating : DC 5V (from USB interface)
(PC's input: AC 120V / 60Hz)
Receipt Date of Sample : October 3, 2008
Country of Manufacture : Japan
Condition of EUT : Engineering prototype
(Not for Sale: This sample is not mass-produced items.)
Modification of EUT : No Modification by the test lab

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

2.2 Product Description

Model No.: UTU03-1890F-US-A (referred to as the EUT in this report) is iBurst User Terminal USB type.

Equipment Type	: Transceiver
Frequency Range	: 1890MHz to 1910MHz
Frequency operation	: 1890.3125MHz to 1909.6875MHz
Type of modulation	: BPSK, BPSK+, QPSK, QPSK+, 8PSK, 8PSK+, 12QAM, 16QAM
Bandwidth	: 500kHz
Channel spacing	: 625kHz
Intermediate Frequency	: 340kHz
Antenna Type	: Extensible Helical Antenna
Antenna Gain	: 2.9dBi (max)
Other Clock Frequency	: 144MHz, 24MHz, 18MHz, 9MHz, 6MHz, 32.768kHz
Operating voltage (Inner)	: DC 5V
Temperature of operation	: 0 deg. C. to + 40 deg. C.

Modulation of iBurst USER TERMINAL USB TYPE (UTU) is max.16QAM (Up Link), a single carrier(no OFDM) and no MIMO, not 802.20. The expansion type of iBurst had been standardized as 625K-MC which one of 802.20 standard.

Detailed timeslot structure is shown below.

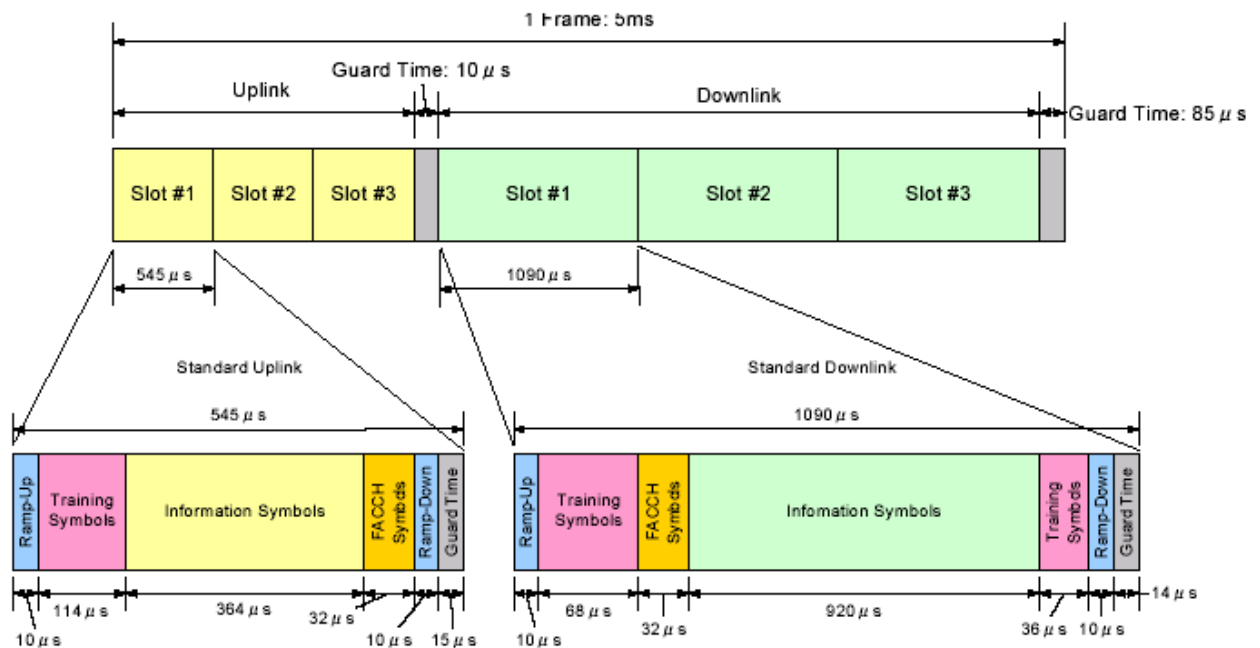


Figure 2 iBurst Timeslot Structure

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

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.

3.2 Procedure and result

Test configuration

The use of this EUT has the method of insertion in PC and the method of the extension with the USB cable. We performed the test by both configurations but the method of the extension with the USB cable is a reference data. Because USB cable bundled as EUT's accessories confirms to purpose there is no influence in SAR result of EUT.

Test result

The device test at 1890-1910MHz was used over +/- 50MHz frequency of the probe calibration frequency. Therefore, according to the KDB450824, the measured 1-g SAR be compensated with respect to +5% tolerances in ϵ_r and -5% tolerances in σ , computed according to valid SAR sensitivity data (below table), to reduce SAR underestimation and maintain conservativeness. Please refer to the probe calibration data for probe conversion factor, frequency response and probe calibration uncertainty.

SAR sensitivity to Small Change in Tissue Dielectric Properties

	ϵ_r	σ (S/m)	$\Delta SAR(\Delta \epsilon_r)$			$\Delta SAR(\Delta \sigma)$		
			Peak	1g	10g	Peak	1g	10g
300	45.3	0.87	-0.41	-0.33	-0.26	+0.48	+0.28	+0.09
450	43.5	0.87	-0.56	-0.46	-0.37	+0.67	+0.43	+0.22
800	41.5	0.90	-0.70	-0.57	-0.45	+0.86	+0.59	+0.35
900	41.5	0.97	-0.69	-0.55	-0.44	+0.86	+0.57	+0.32
1450	40.5	1.20	-0.73	-0.55	-0.42	+0.91	+0.55	+0.27
1800	40.0	1.40	-0.73	-0.52	-0.38	+0.92	+0.51	+0.21
1900	40.0	1.40	-0.73	-0.53	-0.39	+0.93	+0.51	+0.22
2000	40.0	1.40	-0.74	-0.53	-0.39	+0.94	+0.52	+0.22
2450	39.2	1.80	-0.74	-0.49	-0.34	+0.93	+0.41	+0.12
3000	38.5	2.40	-0.75	-0.45	-0.32	+0.90	+0.28	+0.02

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

In the case 1900MHz ,
 $\Delta 1g \text{ SAR}(\Delta\epsilon_r)$: -0.53, $\Delta 1g \text{ SAR}(\Delta\sigma)$: +0.51

Therefore,

Tested Max. SAR Value : 1.03W/kg

Computed SAR value according to valid SAR sensitivity data : 1.01W/kg

(Calculation: Computed SAR = Tested SAR + $\Delta 1g \text{ SAR}(\Delta\epsilon_r)$ + $\Delta 1g \text{ SAR}(\Delta\sigma)$ = 1.03 + (-0.53) + 0.51)

No.	Item	Test Procedure	Limit	Remarks	Exclusion	Result
1	Human Exposure	FCC OET BULLETIN 65, SUPPLEMENT C	FCC47CFR 2.1093	SAR Measurement	N/A	Complied Max.SAR = 1.01 W/kg (Body 1909.6875MHz)

Note: UL Japan, Inc. 's SAR Work Procedures QPM46 and QPM47

The 1-g SAR was <1.2W/kg for all configurations.

Therefore according to the KDB447498 D01, the EUT was approved for used in a single platform.

***single platform : Personal computer without co-location transmitter.**

3.3 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**

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

3.4 Test Location

*Shielded room for SAR testings

UL Japan, Inc. Head Office EMC Lab. *NVLAP Lab. code: 200572-0
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8116 Facsimile : +81 596 24 8124

3.5 Confirmation before SAR testing

Correlation of Output Power between EMC and SAR tests

It was checked that the antenna port power was correlated within 0~+5% (FCC requirements)

The result is shown in Section 6.1.1

- EIRP power at EMC test (November 7, 2008)
EMC power was measured for EMC test sample (S/N: No.18).
- EIRP power at SAR test (November 12, 2008)
SAR power was measured for SAR test sample (S/N: No.18).

Average power for SAR tests

It was checked that the antenna port average power for all modes having SAR test.

The result is shown in Section 6.1.3 and 6.1.4.

3.6 Confirmation after SAR testing

It was checked that the power drift is within $\pm 5\%$ in the evaluation procedure of SAR testing.

The result is shown in APPENDIX 2.

3.7 Measurement procedure

Step1. The data rate in the higher peak power of each modulation was decided, then worst modulation was searched in the SAR testing. (Only the method of insertion in PC)

Step2. The searching for the worst position
This test was performed at the worst position of Step 1.

Step3. Change to the Low and High channels
This test was performed at the position of a $1g\ SAR \geq 0.8W/kg$.

Step4. Change to the crest factor(PAR)
This results was corrected in the worst SAR and maximum PAR mode.

Change distance between EUT and SAM Twin Phantom

Step5. Change separation
The measurement was performed with the distance, 5mm and 10mm to check if the shortest distance may not have the worst value at the conditions of the highest SAR value.
(Only the method of insertion in PC)

Note: The radiated power was monitored by Spectrum Analyzer.

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

3.8 Test setup of EUT (Test of insert to the PC)

We performed the test at the following positions. Please refer to "APPENDIX 1" for more details.

(1) Rear (retracted):

The test was performed in touch to the flat section of SAM Twin phantom with bottom surface of PC with inserted EUT. Then the EUT was measured in the rear surface with retracted antenna.

(2) Rear (extended):

The test was performed in touch to the flat section of SAM Twin phantom with bottom surface of PC with inserted EUT. Then the EUT was measured in the rear surface with extended antenna.

(3) Front (retracted):

The test was performed in touch to the flat section of SAM Twin phantom with front surface of EUT inserted to the PC. Then the EUT was measured in the front surface with retracted antenna.

(4) Front (extended):

The test was performed in touch to the flat section of SAM Twin phantom with front surface of EUT inserted to the PC. Then the EUT was measured in the front surface with extended antenna.

(5) Left Side (retracted):

The test was performed in touch to the flat section of SAM Twin phantom with left side of EUT inserted to the PC. Then the EUT was measured in the left side edge with retracted antenna.

(6) Left Side (extended):

The test was performed in touch to the flat section of SAM Twin phantom with left side of EUT inserted to the PC. Then the EUT was measured in the left side edge with extended antenna.

(7) Right Side (retracted):

The test was performed in touch to the flat section of SAM Twin phantom with right side of EUT inserted to the PC. Then the EUT was measured in the right side edge with retracted antenna.

(8) Right Side (extended):

The test was performed in touch to the flat section of SAM Twin phantom with right side of EUT inserted to the PC. Then the EUT was measured in the right side edge with extended antenna.

(9) Top (retracted):

The test was performed in touch to the flat section of SAM Twin phantom with top of EUT inserted to the PC. Then the EUT was measured in the top with retracted antenna.

(10) Top (extended):

The test was performed in touch to the flat section of SAM Twin phantom with top of EUT inserted to the PC. Then the EUT was measured in the top with extended antenna.

(11) Rear 5mm(extended):

The measurement separated 5mm distance between the rear surface of EUT with extended antenna and flat section of SAM Twin Phantom.

(12) Rear 10mm(extended):

The measurement separated 10mm distance between the rear surface of EUT with extended antenna and flat section of SAM Twin Phantom.

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

3.9 Test setup of EUT (Test of extension with USB cable)

We performed the test at the following positions. Please refer to "APPENDIX 1" for more details.

The USB cable bundled as EUT's accessories confirms to purpose there is no influence in SAR result of EUT.

(13) Rear (retracted):

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

(14) Rear (extended):

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

(15) Front (retracted):

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

(16) Front (extended):

The test was performed in touch with front surface of the EUT with extended antenna to the flat section of SAM Twin phantom

(17) Left Side (retracted):

The test was performed in touch with left side edge of the EUT with retracted antenna to the flat section of SAM Twin phantom.

(18) Left Side (extended):

The test was performed in touch with left side edge of the EUT with extended antenna to the flat section of SAM Twin phantom

(19) Right Side (retracted):

The test was performed in touch with right side edge of the EUT with retracted antenna to the flat section of SAM Twin phantom.

(20) Right Side (extended):

The test was performed in touch with right side edge of the EUT with extended antenna to the flat section of SAM Twin phantom

(21) Top (retracted):

The test was performed in touch with top of the EUT with retracted antenna to the flat section of SAM Twin phantom.

(22) Top (extended):

The test was performed in touch with top of the EUT with extended antenna to the flat section of SAM Twin phantom

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

SECTION 4 : Operation of E.U.T. during testing

4.1 Operating modes for SAR testing

4.1.1 Setting of EUT

Tx frequency band : 1890MHz – 1910MHz
Channel : 0ch(1890.3125MHz),3ch(1899.6875MHz),7ch(1909.6875MHz)
Modulation : BPSK+,QPSK+,8PSK+,12QAM,16QAM (See **Note.1**)
Crest factor : 3.1 (See **Note.2**),5.2 (See**Note.3**),12.7(See **Note.3**)

Note1: Details of modulation

The data rate used in SAR test were decided the higher average power of each modulation. (BPSK,QPSK,8PSK,12QAM,16QAM) Refer to the section6.1.4.

Modulation Class	Method
Modulation 0	BPSK
Modulation 1	BPSK+
Modulation 2	QPSK
Modulation 3	QPSK+
Modulation 4	8PSK
Modulation 5	8PSK+
Modulation 6	12QAM
Modulation 7	16QAM

Note2: Duty factor and crest factor

The all SAR testing was used crest factor for duty cycle.

For all modulations, 1 data frame structure is 3 slots (545usec./slot) in 5msec in every time.

<Result of measurement>

Modulation	BPSK+	QPSK+	8PSK+	12QAM	16QAM
On time[ms]	1.635	1.635	1.635	1.632	1.601
1cycle[ms]	5.001	5.000	5.000	5.002	5.001
Duty factor	32.7	32.7	32.7	32.7	32.7
Crest factor	3.1	3.1	3.1	3.1	3.1

Duty factor[%] = On time / 1cycle *100

Crest factor = 100/ Duty factor

Note3: Details of crest factor (PAR)

The data of worst SAR result and maximum PAR was used for the following PAR value.

Method	Frequency[MHz]	PK Power[mW]	AVG Power[mW]	Crest factor (PAR)	NOTE
BPSK+	1899.6875	208.45	39.99	5.2	
QPSK+	1899.6875	258.23	32.36	8.0	
8PSK+	1899.6875	264.85	32.06	8.3	
12QAM	1899.6875	255.27	25.47	10.0	
16QAM	1899.6875	292.42	23.07	12.7	Maximum PAR
BPSK+	1890.3125	204.17	39.9	5.1	
BPSK+	1909.6875	210.86	41.11	5.1	Worst SAR result

Crest factor (PAR) = PK power / AVG power

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

SECTION 5 : Test surrounding

5.1 Measurement uncertainty

The uncertainty budget has been determined for the DASY4 measurement system according to the SPEAG documents[6][7] and is given in the following Table.

Error Description	Uncertainty value $\pm$ %	Probability distribution	divisor	(ci) lg	Standard Uncertainty (1g)	vi or v _{eff}
Measurement System						
Probe calibration	± 6.8	Normal	1	1	± 6.8	∞
Axial isotropy of the probe	± 4.7	Rectangular	$\sqrt{3}$	$(1-cp)^{1/2}$	± 1.9	∞
Spherical isotropy of the probe	± 9.6	Rectangular	$\sqrt{3}$	$(cp)^{1/2}$	± 3.9	∞
Boundary effects	± 2.0	Rectangular	$\sqrt{3}$	1	± 1.2	∞
Probe linearity	± 4.7	Rectangular	$\sqrt{3}$	1	± 2.7	∞
Detection limit	± 1.0	Rectangular	$\sqrt{3}$	1	± 0.6	∞
Readout electronics	± 0.3	Normal	1	1	± 0.3	∞
Response time	± 0.8	Rectangular	$\sqrt{3}$	1	± 0.5	∞
Integration time	± 2.6	Rectangular	$\sqrt{3}$	1	± 1.5	∞
RF ambient Noise	± 3.0	Rectangular	$\sqrt{3}$	1	± 1.7	∞
RF ambient Reflections	± 3.0	Rectangular	$\sqrt{3}$	1	± 1.7	∞
Probe Positioner	± 0.8	Rectangular	$\sqrt{3}$	1	± 0.5	∞
Probe positioning	± 9.9	Rectangular	$\sqrt{3}$	1	± 5.7	∞
Max.SAR Eval.	± 4.0	Rectangular	$\sqrt{3}$	1	± 2.3	∞
Test Sample Related						
Device positioning	± 2.9	Normal	1	1	± 2.9	35
Device holder uncertainty	± 3.6	Normal	1	1	± 3.6	21
Power drift	± 5.0	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	Rectangular	1	0.64	± 3.2	∞
Liquid permittivity (target)	± 5.0	Rectangular	$\sqrt{3}$	0.6	± 1.7	∞
Liquid permittivity (meas.)	± 5.0	Rectangular	1	0.6	± 3.0	∞
Combined Standard Uncertainty					± 14.360	
Expanded Uncertainty (k=2)					± 28.7	

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

SECTION 6 : Confirmation before/after testing

6.1 Correlation of EMC power and SAR power

6.1.1 EMC EIRP power

This data is reference data of EMC test. (Report No. 29BE0211-HO-A-R1)

Date of test: November 7, 2008

Modulation 7 (PK worst) (Gate on)							
Ch	Frequency [MHz]	P/M (PK) Reading [dBm]	Atten. [dB]	Cable Loss [dB]	Conducted Power Result [dBm]	Antenna Gain [dBi]	E.I.R.P. Result [dBm]
Low	1890.3125	4.45	19.94	0.00	24.39	2.90	27.29
Mid	1899.6875	4.72	19.94	0.00	24.66	2.90	27.56
High	1909.6875	4.62	19.95	0.00	24.57	2.90	27.47

Sample Calculation : E.I.R.P. Result = P/M (PK) Reading + Atten. + Cable Loss + Antenna Gain

Conducted Power Result = P/M (PK) Reading + Atten. + Cable Loss.

*The limit is rounded down to one decimal place.

*The test result is round off to one or two decimal places, so some differences might be observed.

6.1.2 SAR EIRP power

Date of test: November 12, 2008

Modulation 7 (PK worst) (Gate on)							
Ch	Frequency [MHz]	P/M (PK) Reading [dBm]	Atten. [dB]	Cable Loss [dB]	Conducted Power Result [dBm]	Antenna Gain [dBi]	E.I.R.P. Result [dBm]
Low	1890.3125	4.46	19.94	0.00	24.40	2.90	27.30
Mid	1899.6875	4.88	19.94	0.00	24.82	2.90	27.72
High	1909.6875	4.71	19.95	0.00	24.66	2.90	27.56

Sample Calculation : E.I.R.P. Result = P/M (PK) Reading + Atten. + Cable Loss + Antenna Gain

Conducted Power Result = P/M (PK) Reading + Atten. + Cable Loss.

*The limit is rounded down to one decimal place.

*The test result is round off to one or two decimal places, so some differences might be observed.

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

6.1.3 SAR Average power

Date of test: November 12, 2008

Modulation 7 (AVGworst) (Gate off)					
Ch	Frequency [MHz]	P/M (AVG) Reading [dBm]	Atten. [dB]	Cable Loss [dB]	Conducted Power Result [dBm]
Low	1890.3125	-6.57	19.94	0.00	13.37
Mid	1899.6875	-6.31	19.94	0.00	13.63
High	1909.6875	-6.39	19.95	0.00	13.56

Conducted Power Result = P/M (AVG) Reading + Atten. + Cable Loss.

*The limit is rounded down to one decimal place.

*The test result is round off to one or two decimal places, so some differences might be observed.

Modulation 1 (AVGworst) (Gate off)					
Ch	Frequency [MHz]	P/M (AVG) Reading [dBm]	Atten. [dB]	Cable Loss [dB]	Conducted Power Result [dBm]
Low	1890.3125	-3.93	19.94	0.00	16.01
Mid	1899.6875	-3.92	19.94	0.00	16.02
High	1909.6875	-3.81	19.95	0.00	16.14

Conducted Power Result = P/M (AVG) Reading + Atten. + Cable Loss.

*The limit is rounded down to one decimal place.

*The test result is round off to one or two decimal places, so some differences might be observed.

6.1.4 Reference data of SAR test (Data rate determination)

Date of test: November 7, 2008

(Reference data (Precheck))

(Gate off)						
Modulation		Frequency	P/M(AV) Reading	Atten.	Cable Loss	Result
		[MHz]	[dBm]	[dB]	[dB]	[dBm]
0	BPSK	1899.6875	-3.94	19.94	0.00	16.00
1	BPSK+	1899.6875	-3.92	19.94	0.00	16.02
2	QPSK	1899.6875	-4.98	19.94	0.00	14.96
3	QPSK+	1899.6875	-4.84	19.94	0.00	15.10
4	8PSK	1899.6875	-4.98	19.94	0.00	14.96
5	8PSK+	1899.6875	-4.88	19.94	0.00	15.06
6	12QAM	1899.6875	-5.88	19.94	0.00	14.06
7	16QAM	1899.6875	-6.31	19.94	0.00	13.63

Conducted Power Result = P/M (AVG) Reading + Atten. + Cable Loss.

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

SECTION 7 : Measurement results

7.1 Body SAR (Insert to the PC)

Liquid Depth (cm) : 15.0 Model : UTU03-1890F-US-A
Parameters : $\epsilon_r = 53.7, \sigma = 1.56$ Serial No. : No.18
Ambient temperature(deg.c.) : 24.5 Modulation : See to section 4.1
Relative Humidity (%) : 40 Crest factor : See to section 4.1
Date : November 12, 2008 Measured By : Miyo Kishimoto

Date: 11 November 12, 2008

Measured By: Moyo Kishimoto

SAR MEASUREMENT RESULT (Insert to the PC)									
Frequency		Modulation	Phantom Section	EUT Set-up Conditions			Liquid Temp.[deg.c]		SAR(1g) [W/kg]
Channel	[MHz]			Antenna	Position	Separation [mm]	Before	After	Maximum value of multi-peak
Step 1. Search for the worst modulation									
Mid	1899.6875	BPSK	Flat	retracted	Rear	0	23.5	23.5	0.806
Mid	1899.6875	QPSK	Flat	retracted	Rear	0	23.5	23.5	0.669
Mid	1899.6875	8PSK	Flat	retracted	Rear	0	23.5	23.5	0.693
Mid	1899.6875	12QAM	Flat	retracted	Rear	0	23.5	23.5	0.549
Mid	1899.6875	16QAM	Flat	retracted	Rear	0	23.5	23.5	0.493
Step 2. Search for the worst position									
Mid	1899.6875	BPSK	Flat	extended	Rear	0	23.5	23.5	0.937
Mid	1899.6875	BPSK	Flat	retracted	Front	0	23.5	23.5	0.491
Mid	1899.6875	BPSK	Flat	extended	Front	0	23.5	23.5	0.710
Mid	1899.6875	BPSK	Flat	retracted	Left Side	0	23.5	23.5	0.449
Mid	1899.6875	BPSK	Flat	extended	Left Side	0	23.5	23.5	0.683
Mid	1899.6875	BPSK	Flat	retracted	Right Side	0	23.5	23.5	0.617
Mid	1899.6875	BPSK	Flat	extended	Right Side	0	23.5	23.5	0.328
Mid	1899.6875	BPSK	Flat	retracted	Top	0	23.5	23.4	0.567
Mid	1899.6875	BPSK	Flat	extended	Top	0	23.4	23.1	0.082
Step 3. Change to the channels									
Low	1890.3125	BPSK	Flat	extended	Rear	0	23.1	23.1	0.932
High	1909.6875	BPSK	Flat	extended	Rear	0	23.1	23.1	0.987
Low	1890.3125	BPSK	Flat	retracted	Rear	0	23.0	23.0	0.856
High	1909.6875	BPSK	Flat	retracted	Rear	0	23.0	23.0	0.950
Step 4. Change to the Crest factor (PAR)									
High	1909.6875	BPSK	Flat	extended	Rear	0	23.1	23.1	1.03
Mid	1899.6875	16QAM	Flat	retracted	Rear	0	23.5	23.5	0.544

Liquid Depth (cm) : 15.0 Model : UTU03-1890F-US-A
Parameters : $\epsilon_r = 53.3, \sigma = 1.57$ Serial No. : No.18
Ambient temperature(deg.c.) : 24.5 Modulation : See to section 4.1
Relative Humidity (%) : 38 Crest factor : 3.1
Date : November 13, 2008 Measured By : Miyo Kishimoto

Date: 2023-11-15, 2000 Measured By: Mhyo Kishimoto

SAR MEASUREMENT RESULT (Insert to the PC)									
Frequency		Modulation	Phantom Section	EUT Set-up Conditions			Liquid Temp.[deg.c]		SAR(1g) [W/kg]
Ch	[MHz]			Antenna	Position	Separation [mm]	Before	After	Maximum value of multi-peak
Step 5. Change to the separation									
High	1909.6875	BPSK	Flat	extended	Rear	5	23.0	23.0	0.361
High	1909.6875	BPSK	Flat	extended	Rear	10	23.0	23.0	0.155

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

7.2 Reference data Body SAR (Extension with USB cable)

The USB cable bundled as EUT's accessories confirms to purpose there is no influence in SAR result of EUT.

Liquid Depth (cm)	: 15.0	Model	: UTU03-1890F-US-A
Parameters	: $\epsilon_r = 53.3, \sigma = 1.57$	Serial No.	: No.18
Ambient temperature(deg.c.)	: 24.5	Modulation	: See to section 4.1
Relative Humidity (%)	: 38	Crest factor	: 3.1
Date	: November 13, 2008	Measured By	: Miyo Kishimoto

REFERENCE DATA SAR MEASUREMENT RESULT (Extension with USB cable)									
Frequency		Modulation	Phantom Section	EUT Set-up Conditions			Liquid Temp.[deg.c]		SAR(1g) [W/kg]
Channel	[MHz]			Antenna	Position	Separation [mm]	Before	After	Maximum value of multi-peak
Step 2. Search for the worst position									
Mid	1899.6875	BPSK	Flat	retracted	Rear	0	23.0	23.0	0.845
Mid	1899.6875	BPSK	Flat	extended	Rear	0	23.0	23.0	0.914
Mid	1899.6875	BPSK	Flat	retracted	Front	0	23.0	23.2	0.640
Mid	1899.6875	BPSK	Flat	extended	Front	0	23.2	23.1	0.858
Mid	1899.6875	BPSK	Flat	retracted	Left Side	0	23.2	23.2	0.306
Mid	1899.6875	BPSK	Flat	extended	Left Side	0	23.2	23.2	0.592
Mid	1899.6875	BPSK	Flat	retracted	Right Side	0	23.2	23.2	0.675
Mid	1899.6875	BPSK	Flat	extended	Right Side	0	23.2	23.2	0.413
Mid	1899.6875	BPSK	Flat	retracted	Top	0	23.1	23.1	0.607
Mid	1899.6875	BPSK	Flat	extended	Top	0	23.1	23.2	0.083
Step 3. Change to the channels									
Low	1890.3125	BPSK	Flat	extended	Rear	0	23.2	23.2	0.931
High	1909.6875	BPSK	Flat	extended	Rear	0	23.2	23.2	0.971
Low	1890.3125	BPSK	Flat	retracted	Rear	0	23.2	23.2	0.811
High	1909.6875	BPSK	Flat	retracted	Rear	0	23.2	23.2	0.935
Low	1890.3125	BPSK	Flat	extended	Front	0	23.2	23.2	0.783
High	1909.6875	BPSK	Flat	extended	Front	0	23.2	23.2	0.946

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

Test report No. : 29BE0211-HO-01-B-R3
Page : 16 of 118
Issued date : October 23, 2008
Revised date : December 24, 2008
FCC ID : JOYIUU19AC

APPENDIX 1 : Photographs of test setup

UL Japan, Inc.
Head Office EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8116
Facsimile : +81 596 24 8124

1. Photograph of EUT

Top



Wireless LAN
Antenna

Right Side



Rear



Front



Left Side



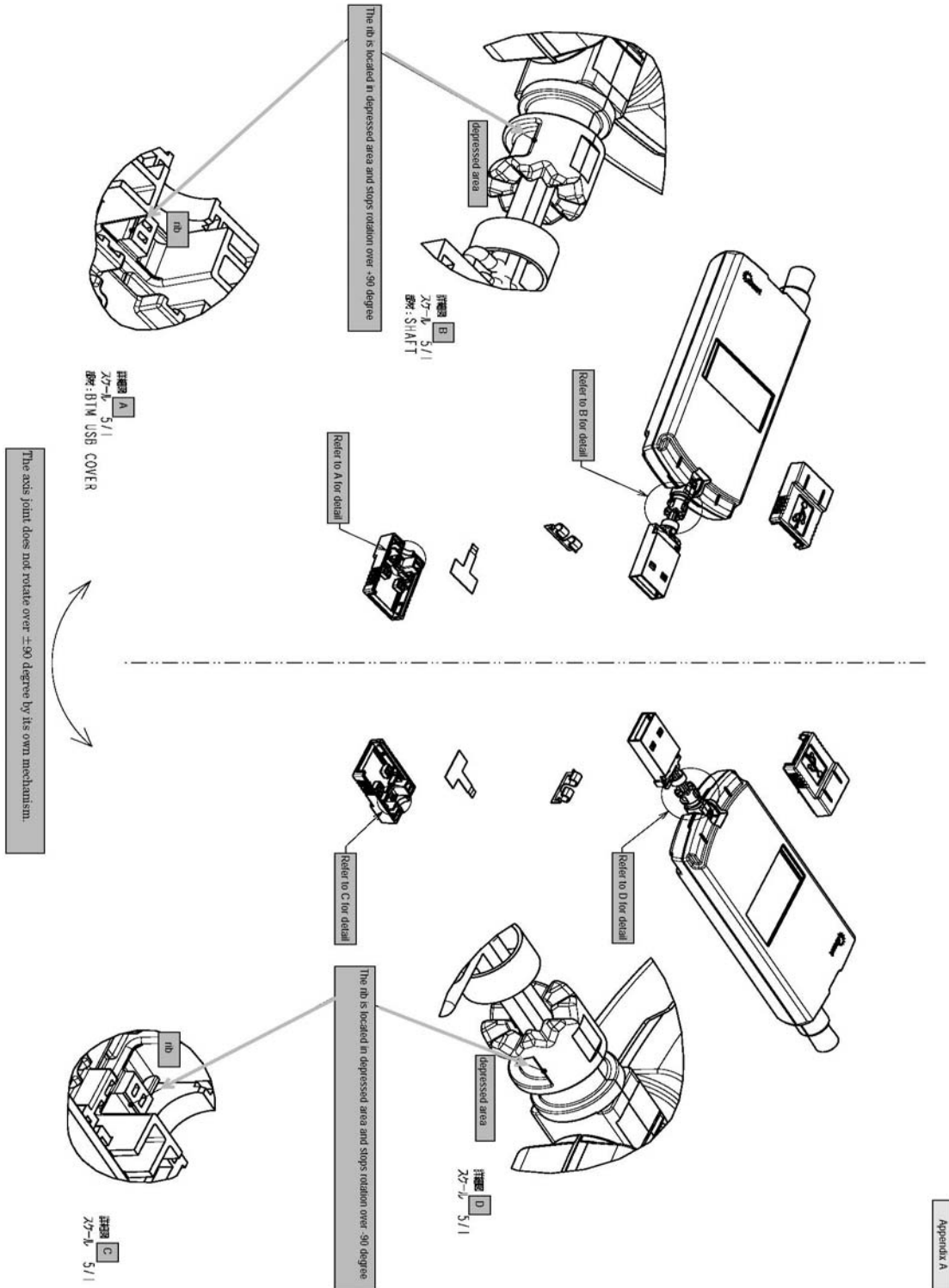
Swivel information of EUT

iBurst User Terminal USB type have two-axis joint.

These joints will allow the iBurst User Terminal USB type to rotate and swing up to ± 90 degree.

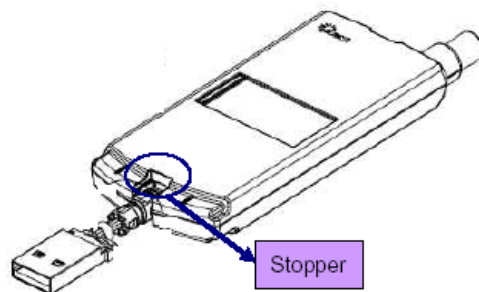


The axis joint inside the USB connector does not rotate over ± 90 degree by its own mechanism. Please refer next page for detail of mechanism

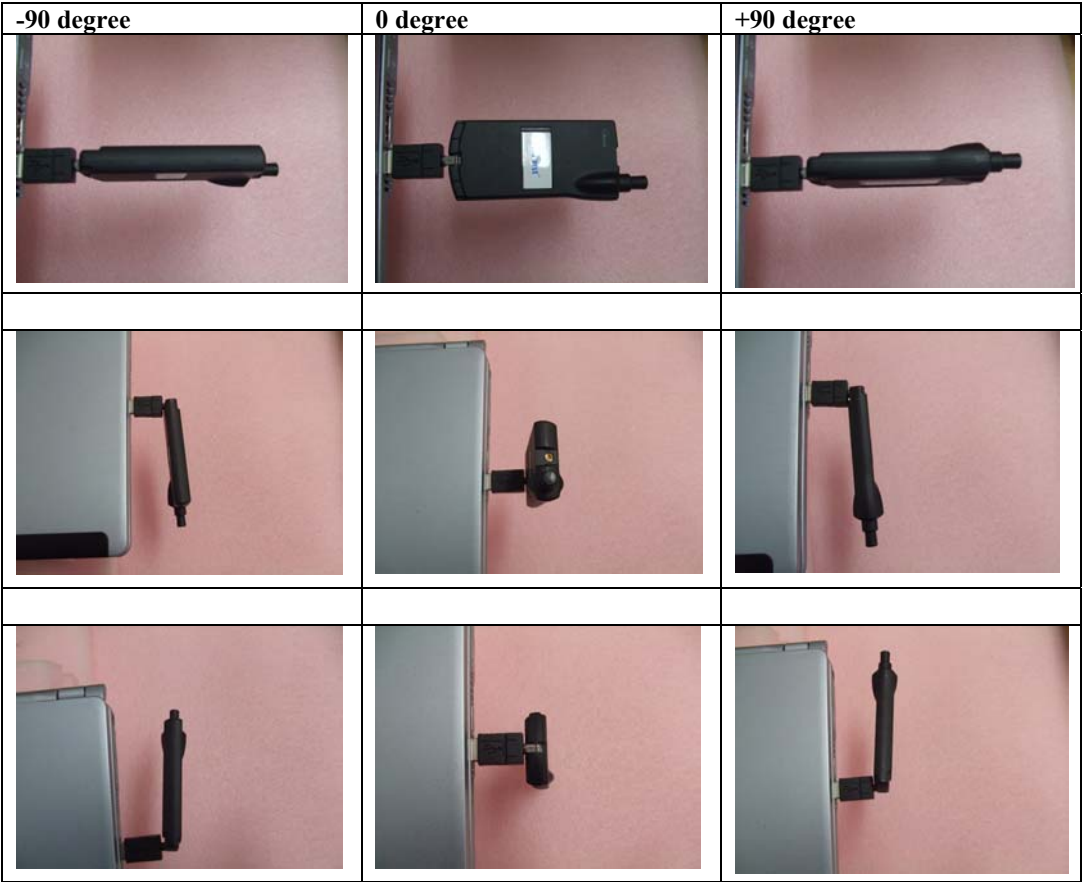




The axis joint inside the main body does not swing over ± 90 degree by its own mechanism as below.



The main body has the stopper on both sides and stops swing over ± 90 degrees.



2. Photograph of EUT inserted to the PC

Rear



Left Side



Right Side



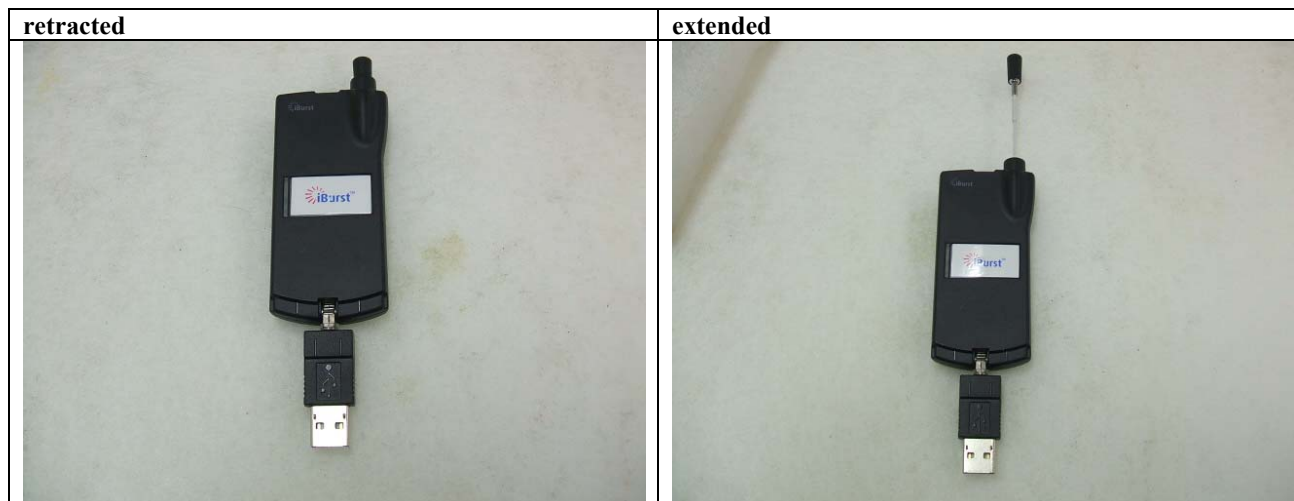
Top



Front



3. Antenna (retracted / extended)



4. Information of host device

Type of Equipment	Personal Computer
Model No	FMV-780MT5
Serial No.	R440146
Position of USB Port	
Distance between PC bottom and EUT	≤ 0.5cm

5. Photograph of test setup (Insert to the PC)

(1) Rear (retracted)



(2) Rear (extended)



(3) Front (retracted)



(4) Front (extended)



(5) Left Side(retracted)



(6) Left Side(extended)



(7) Right Side(retracted)



(8) Right Side(extended)



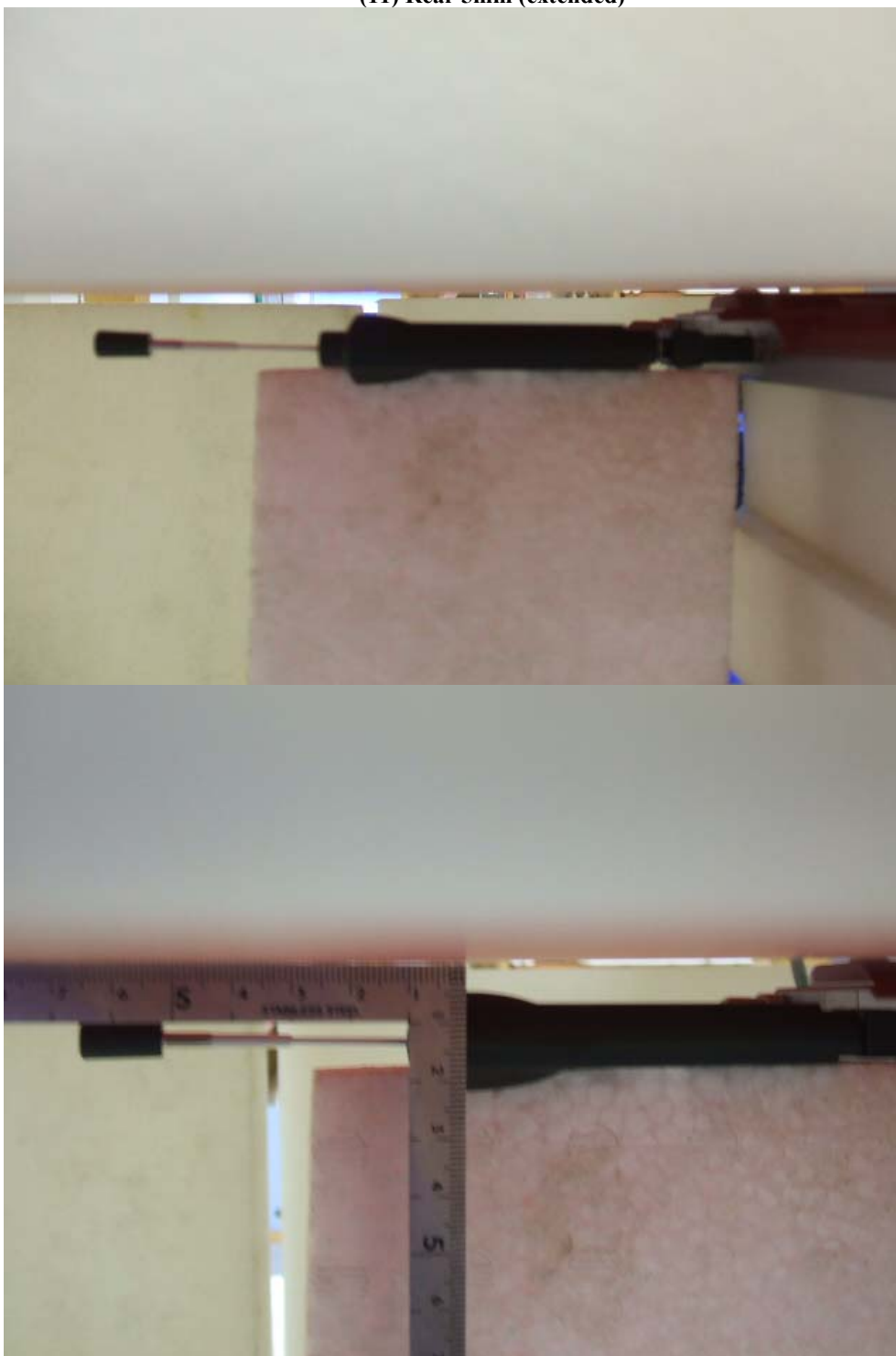
(9) Top(retracted)



(10) Top(extended)



(11) Rear 5mm (extended)

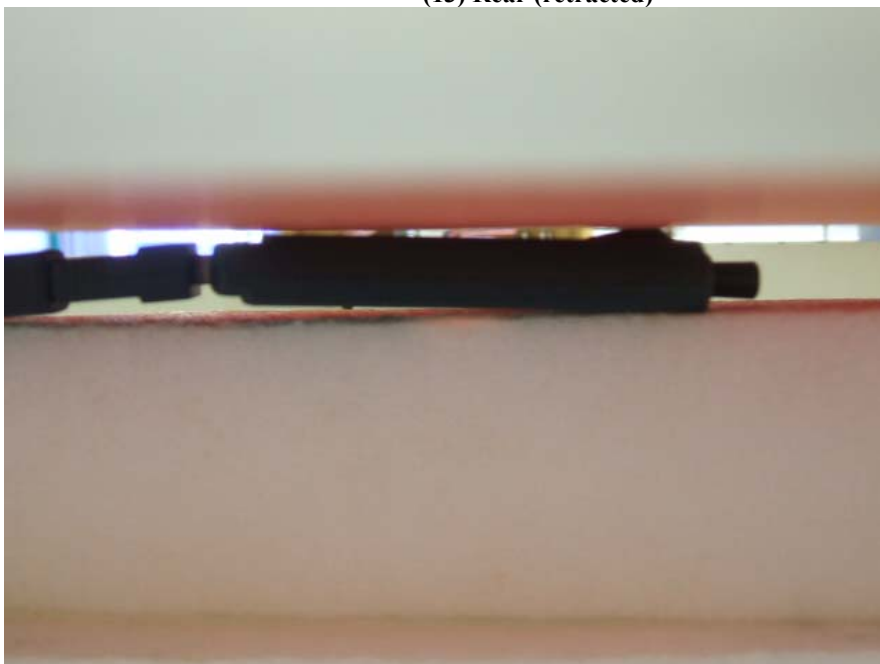


(12) Rear 10mm (extended)



6. Photograph of test setup (Extension with USB cable)

(13) Rear (retracted)



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

(14) Rear (extended)



(15) Front (retracted)



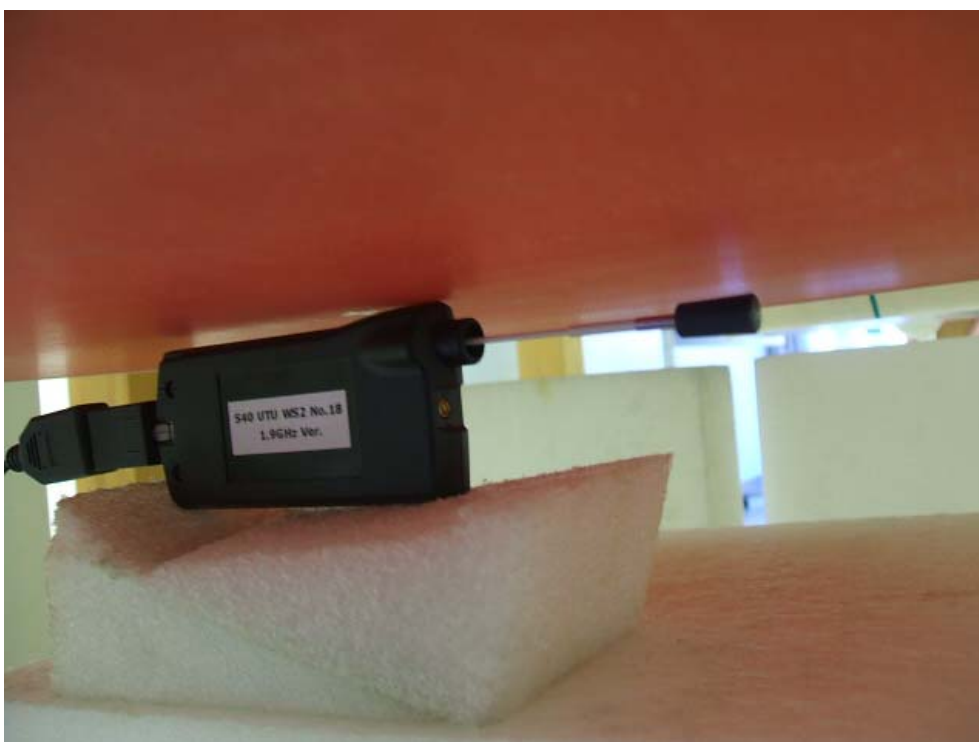
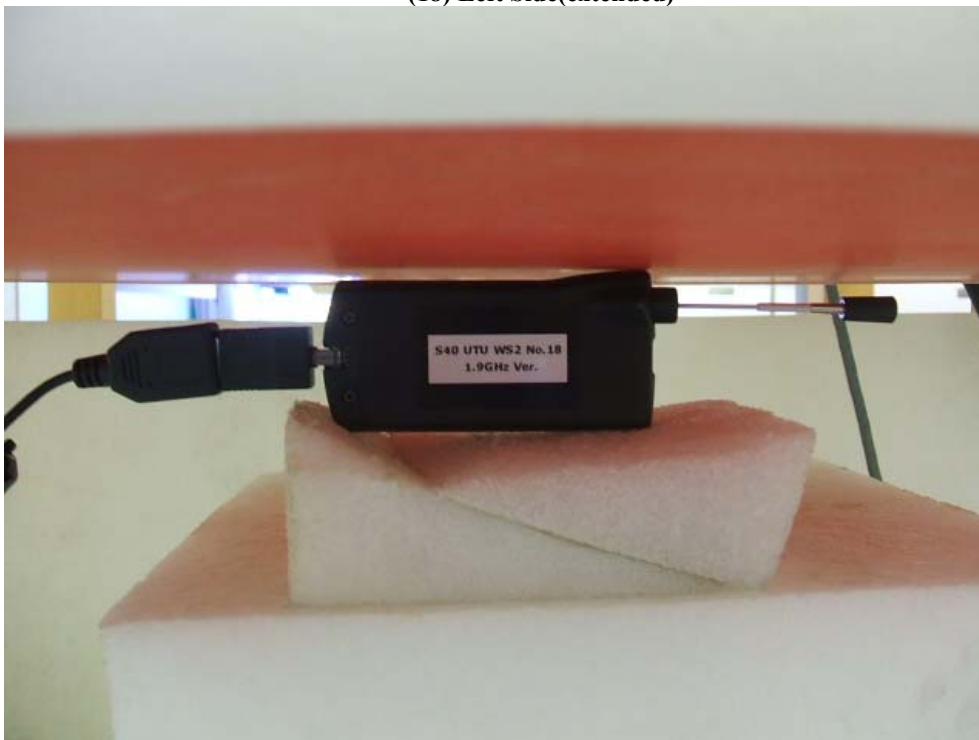
(16) Front(extended)



(17) Left Side(retracted)



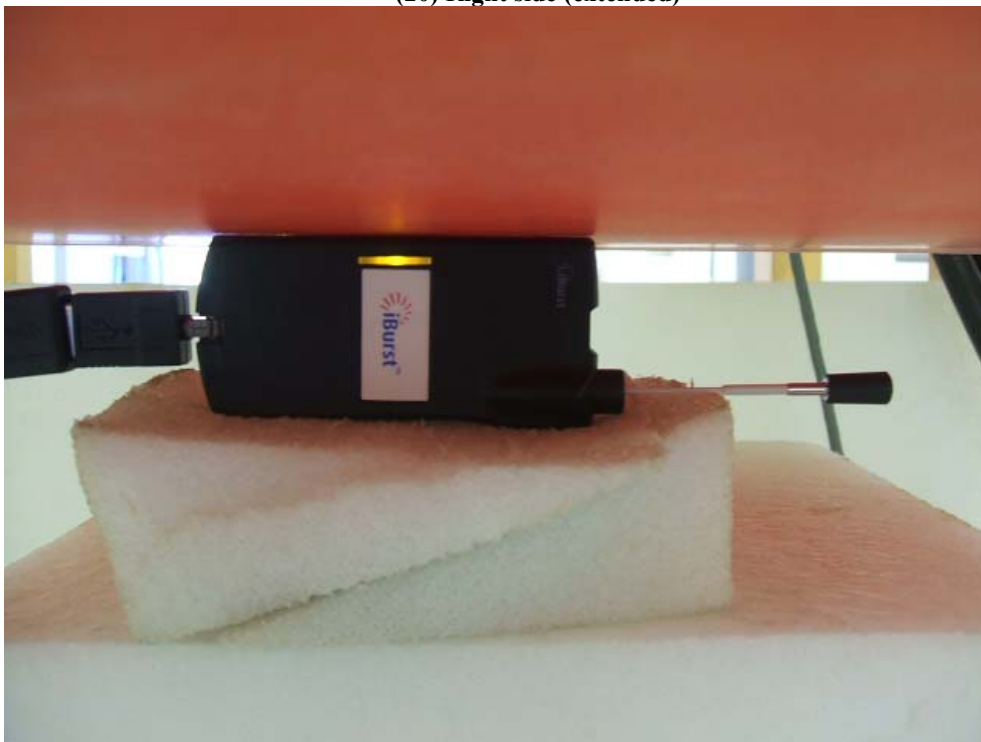
(18) Left Side(extended)



(19) Right side(retracted)



(20) Right side (extended)



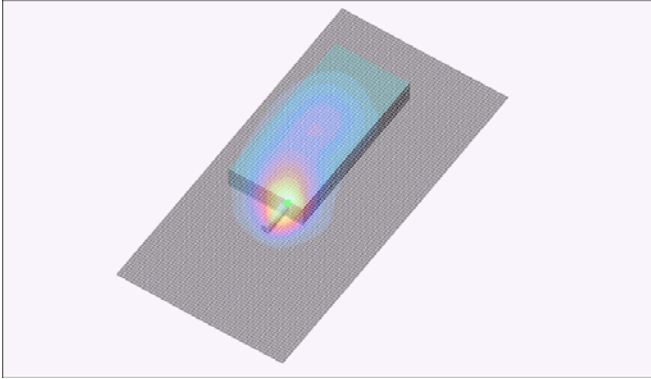
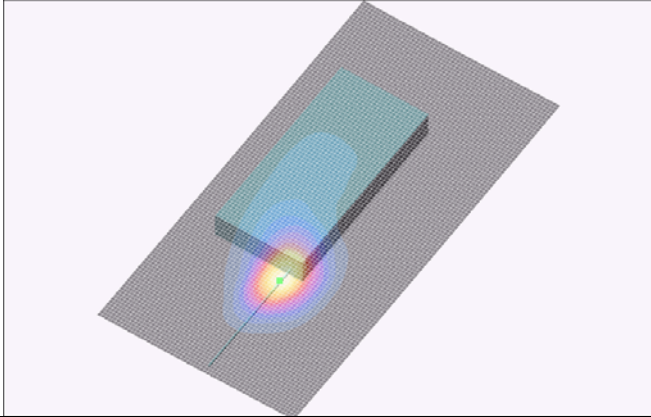
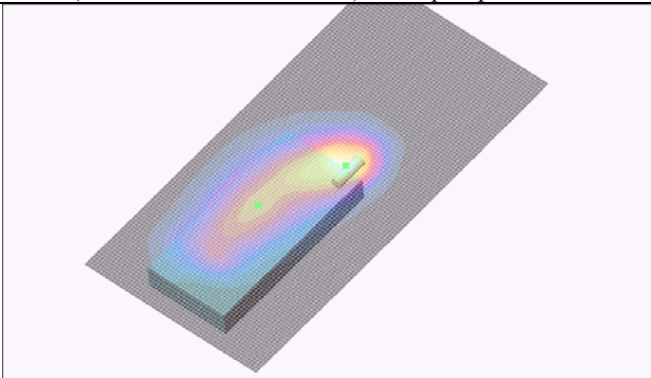
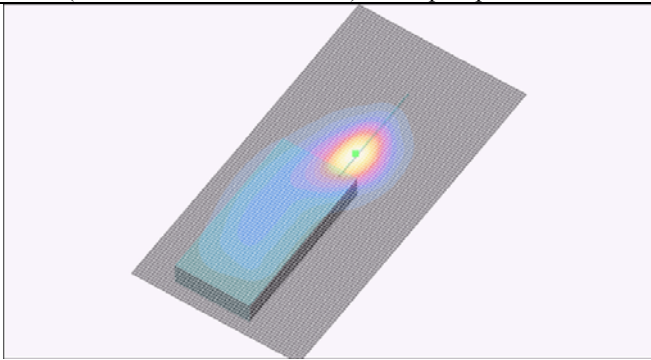
(21) Top(retracted)



(22) Top(extended)



7. Position of radiation pattern and device

Rear (retracted / Insert to the PC) SAR plot p50	Rear (extended / Insert to the PC) SAR plot p65
 A 3D SAR plot showing the radiation pattern for the rear of the device in a retracted state. The device is a rectangular block with a small protrusion. The SAR distribution is concentrated at the base of the protrusion, with a color gradient from blue (low) to red (high). A green dot marks the peak of the radiation.	 A 3D SAR plot showing the radiation pattern for the rear of the device in an extended state. The SAR distribution is concentrated at the base of the protrusion, with a color gradient from blue (low) to red (high). A green dot marks the peak of the radiation.
Front (retracted / Insert to the PC) SAR plot p56	Front (extended / Insert to the PC) SAR plot p57
 A 3D SAR plot showing the radiation pattern for the front of the device in a retracted state. The device is a rectangular block with a small protrusion. The SAR distribution is concentrated at the base of the protrusion, with a color gradient from blue (low) to red (high). A green dot marks the peak of the radiation.	 A 3D SAR plot showing the radiation pattern for the front of the device in an extended state. The SAR distribution is concentrated at the base of the protrusion, with a color gradient from blue (low) to red (high). A green dot marks the peak of the radiation.

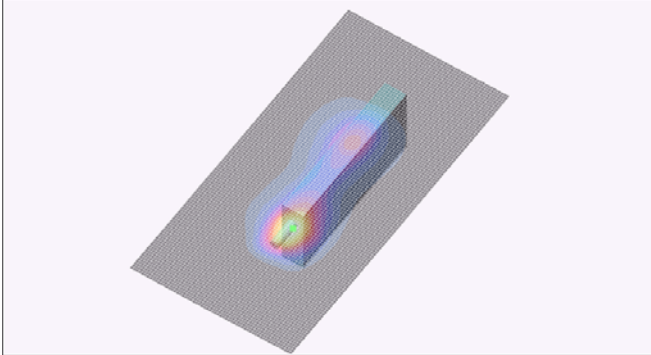
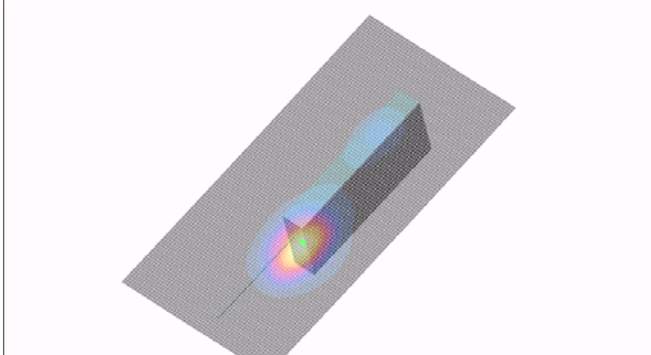
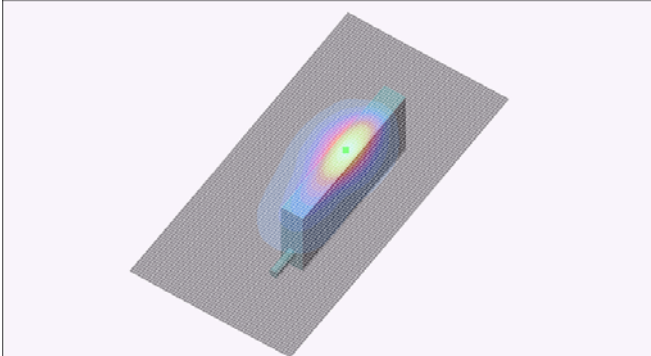
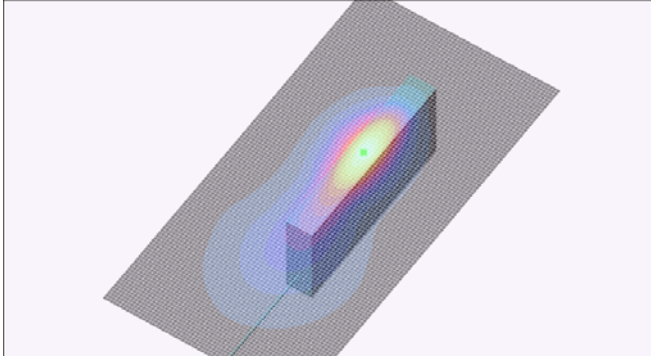
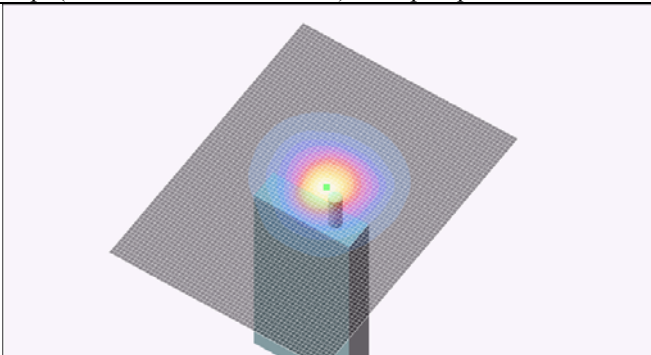
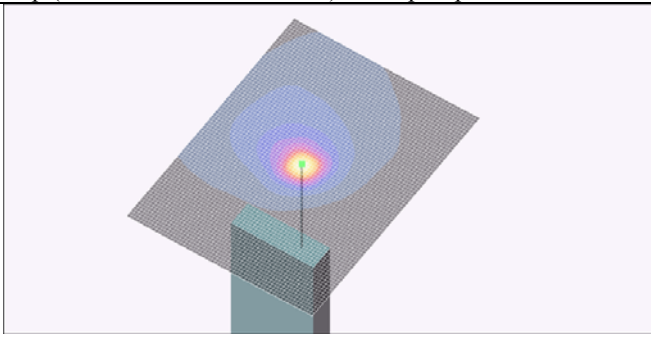
UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

Left side (retracted / Insert to the PC) SAR plot p58	Left side (extended / Insert to the PC) SAR plot p59
	
Right side (retracted / Insert to the PC) SAR plot p60	Right side (extended / Insert to the PC) SAR plot p61
	
Top (retracted / Insert to the PC) SAR plot p62	Top (extended / Insert to the PC) SAR plot p63
	

Test report No. : 29BE0211-HO-01-B-R3
Page : 48 of 118
Issued date : October 23, 2008
Revised date : December 24, 2008
FCC ID : JOYIUU19AC

APPENDIX 2 : SAR Measurement data

UL Japan, Inc.
Head Office EMC Lab.
4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN
Telephone : +81 596 24 8116
Facsimile : +81 596 24 8124

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 15 mm x 15 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 30mm x 30mm x 30mm was assessed by measuring 7 x 7 x 7 points. And for any secondary peaks found in the Step2 which are within 2dB of maximum peak (level more than ambient noise (≥ 0.012 W/kg)) 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 1mm 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.

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

2. Measurement data (Insert to the PC)

UTU03-1890F-US-A / Body / Rear (retracted)/ Mod.1 / 1899.6875MHz

Duty Cycle: 1:3.1

Medium: M1800 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.56$ mho/m; $\epsilon_r = 53.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3507; ConvF(8.82, 8.82, 8.82); Calibrated: 2008/01/25

- Sensor-Surface: 2mm (Mechanical Surface Detection)

- Phantom: Flat Phantom ELI4.0

- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Area Scan (61x121x1): Measurement grid: $dx=15$ mm, $dy=15$ mm

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

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 25.8 V/m; Power Drift = 0.201 dB

Peak SAR (extrapolated) = 1.50 W/kg

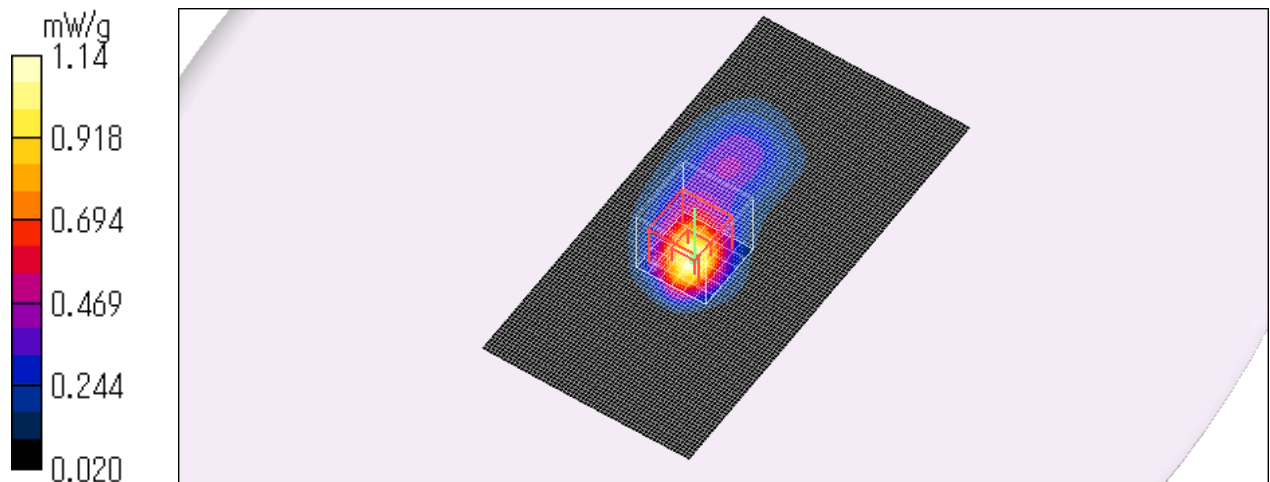
SAR(1 g) = 0.806 mW/g; SAR(10 g) = 0.422 mW/g

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

Test Date = 11/12/08

Ambient Temperature = 24.5 degree.c

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



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

UTU03-1890F-US-A / Body / Rear (retracted)/ Mod.3 / 1899.6875MHz

Duty Cycle: 1:3.1

Medium: M1800 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.56$ mho/m; $\epsilon_r = 53.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3507; ConvF(8.82, 8.82, 8.82); Calibrated: 2008/01/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Phantom: Flat Phantom ELI4.0
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.02 mW/g

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.0 V/m; Power Drift = -0.058 dB

Peak SAR (extrapolated) = 1.25 W/kg

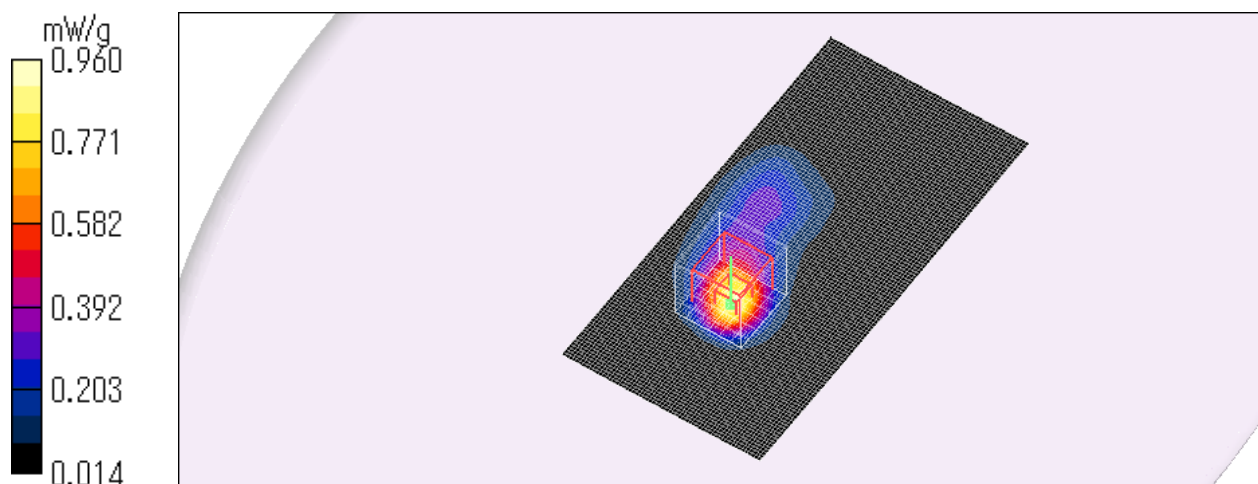
SAR(1 g) = 0.669 mW/g; SAR(10 g) = 0.348 mW/g

Maximum value of SAR (measured) = 0.960 mW/g

Test Date = 11/12/08

Ambient Temperature = 24.5 degree.c

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



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

UTU03-1890F-US-A / Body / Rear (retracted)/ Mod.5 / 1899.6875MHz

Duty Cycle: 1:3.1

Medium: M1800 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.56$ mho/m; $\epsilon_r = 53.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3507; ConvF(8.82, 8.82, 8.82); Calibrated: 2008/01/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Phantom: Flat Phantom ELI4.0
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm

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

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.6 V/m; Power Drift = -0.200 dB

Peak SAR (extrapolated) = 1.30 W/kg

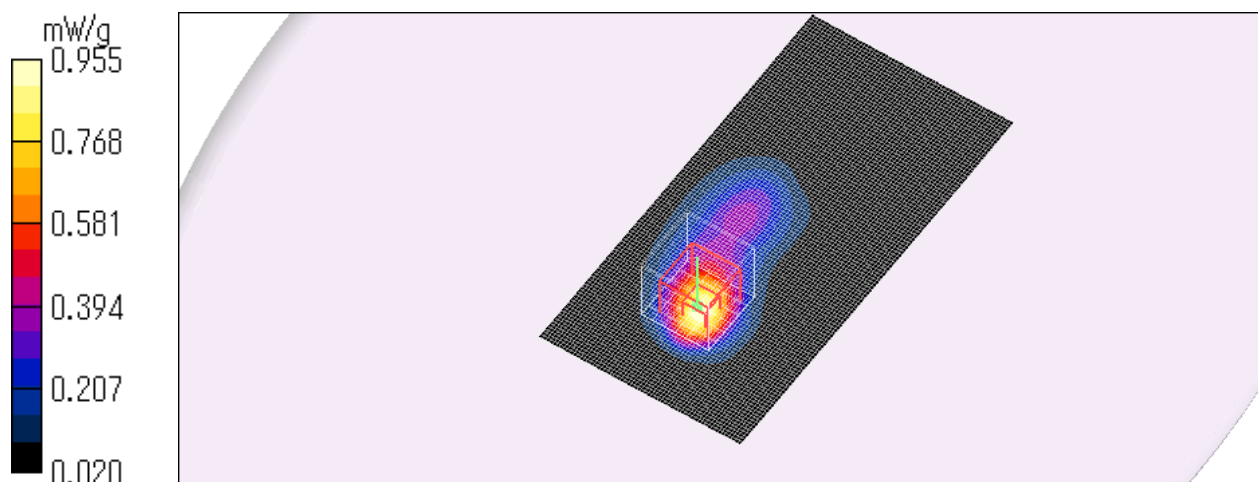
SAR(1 g) = 0.693 mW/g; SAR(10 g) = 0.361 mW/g

Maximum value of SAR (measured) = 0.955 mW/g

Test Date = 11/12/08

Ambient Temperature = 24.5 degree.c

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



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

UTU03-1890F-US-A / Body / Rear (retracted)/ Mod.6 / 1899.6875MHz

Duty Cycle: 1:3.1

Medium: M1800 Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.56 \text{ mho/m}$; $\epsilon_r = 53.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3507; ConvF(8.82, 8.82, 8.82); Calibrated: 2008/01/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Phantom: Flat Phantom ELI4.0
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Area Scan (61x121x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.915 mW/g

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 11.7 V/m; Power Drift = 0.023 dB

Peak SAR (extrapolated) = 1.03 W/kg

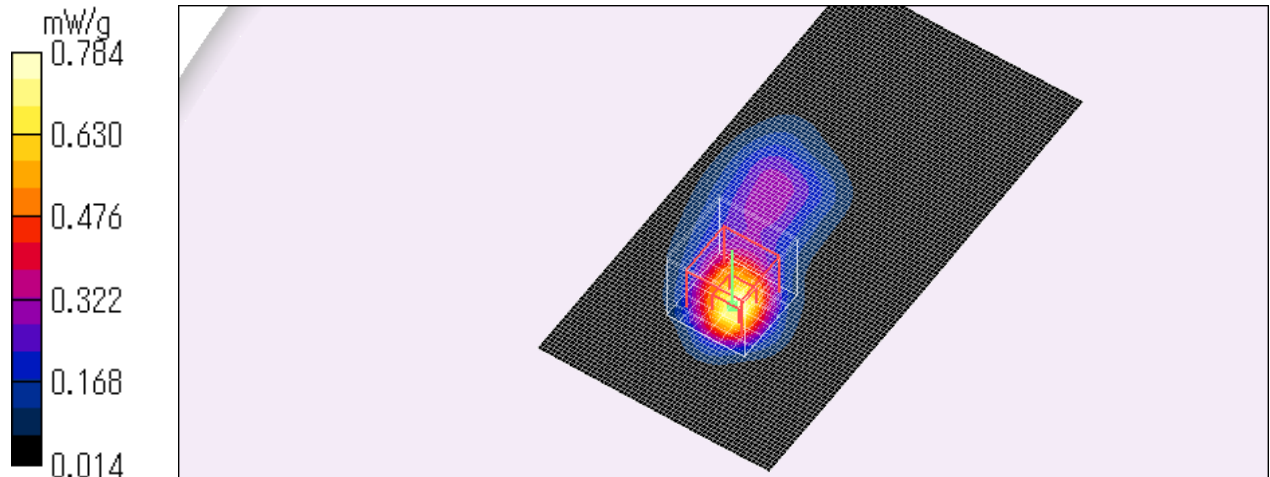
SAR(1 g) = 0.549 mW/g; SAR(10 g) = 0.286 mW/g

Maximum value of SAR (measured) = 0.784 mW/g

Test Date = 11/12/08

Ambient Temperature = 24.5 degree.c

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



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

UTU03-1890F-US-A / Body / Rear (retracted)/ Mod.7 / 1899.6875MHz

Duty Cycle: 1:3.1

Medium: M1800 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.56$ mho/m; $\epsilon_r = 53.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3507; ConvF(8.82, 8.82, 8.82); Calibrated: 2008/01/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Phantom: Flat Phantom ELI4.0
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm

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

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.3 V/m; Power Drift = -0.114 dB

Peak SAR (extrapolated) = 0.929 W/kg

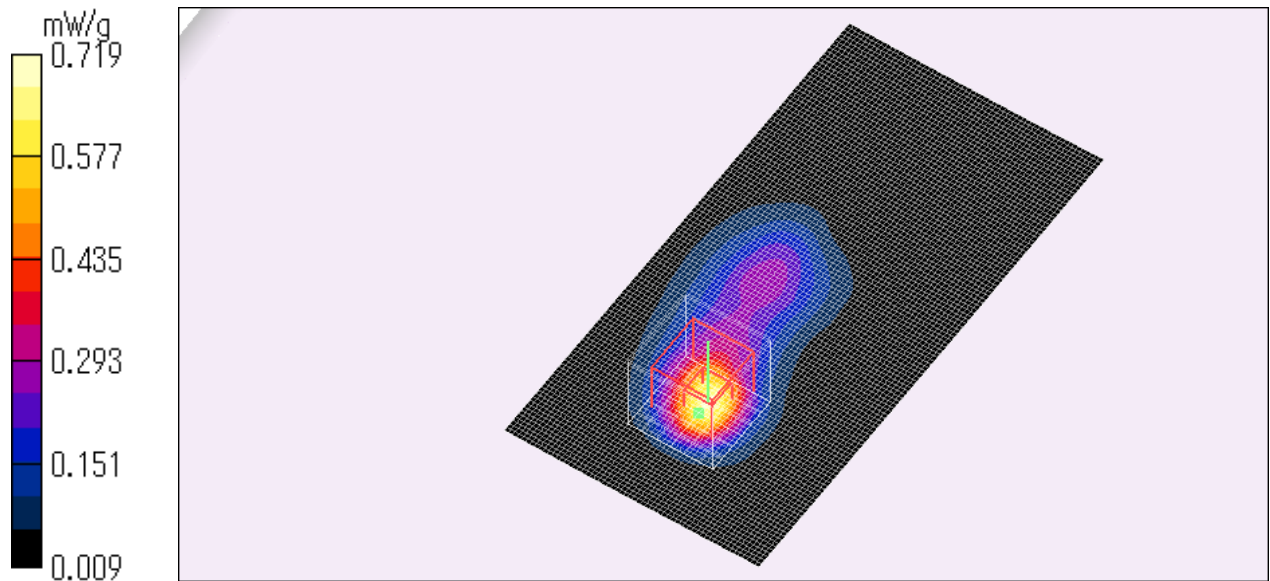
SAR(1 g) = 0.493 mW/g; SAR(10 g) = 0.251 mW/g

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

Test Date = 11/12/08

Ambient Temperature = 24.5 degree.c

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



<Change to the Crest factor (PAR)>

Duty Cycle: 1:12.7

Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.857 mW/g

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Peak SAR (extrapolated) = 1.09 W/kg

SAR(1 g) = 0.544 mW/g; SAR(10 g) = 0.267 mW/g

Maximum value of SAR (measured) = 0.816 mW/g

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

UTU03-1890F-US-A / Body / Rear (extended) Mod.1 / 1899.6875MHz

Duty Cycle: 1:3.1

Medium: M1800 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.56$ mho/m; $\epsilon_r = 53.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3507; ConvF(8.82, 8.82, 8.82); Calibrated: 2008/01/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Phantom: Flat Phantom ELI4.0
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.43 mW/g

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.5 V/m; Power Drift = -0.007 dB

Peak SAR (extrapolated) = 1.71 W/kg

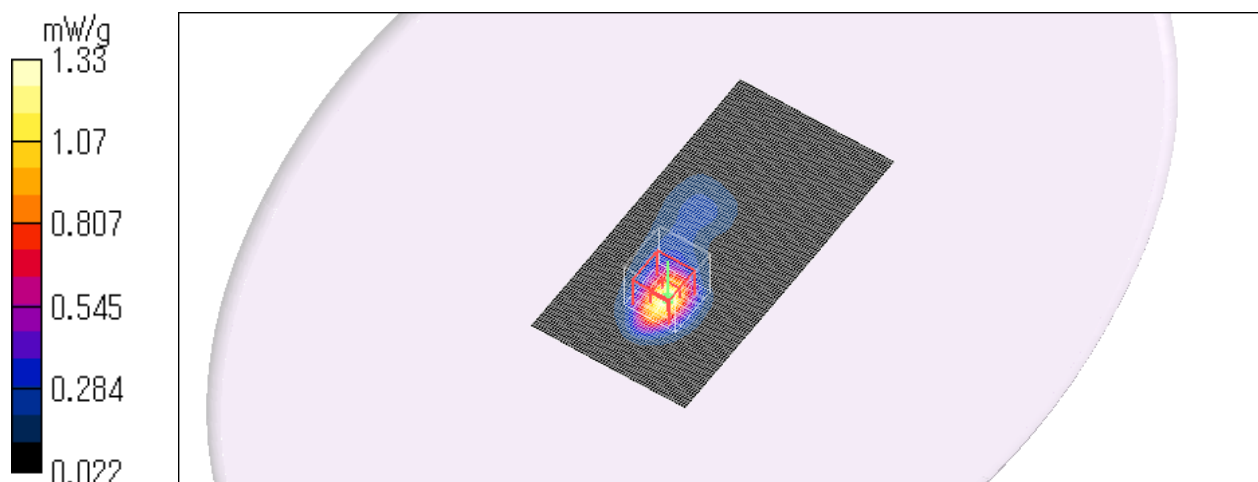
SAR(1 g) = 0.937 mW/g; SAR(10 g) = 0.485 mW/g

Maximum value of SAR (measured) = 1.33 mW/g

Test Date = 11/12/08

Ambient Temperature = 24.5 degree.c

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



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

UTU03-1890F-US-A / Body / Front (retracted)/ Mod.1 / 1899.6875MHz

Duty Cycle: 1:3.1

Medium: M1800 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.56$ mho/m; $\epsilon_r = 53.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3507; ConvF(8.82, 8.82, 8.82); Calibrated: 2008/01/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Phantom: Flat Phantom ELI4.0
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.773 mW/g

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 17.7 V/m; Power Drift = -0.162 dB

Peak SAR (extrapolated) = 0.892 W/kg

SAR(1 g) = 0.491 mW/g; SAR(10 g) = 0.278 mW/g

Maximum value of SAR (measured) = 0.689 mW/g

Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 17.7 V/m; Power Drift = -0.162 dB

Peak SAR (extrapolated) = 0.575 W/kg

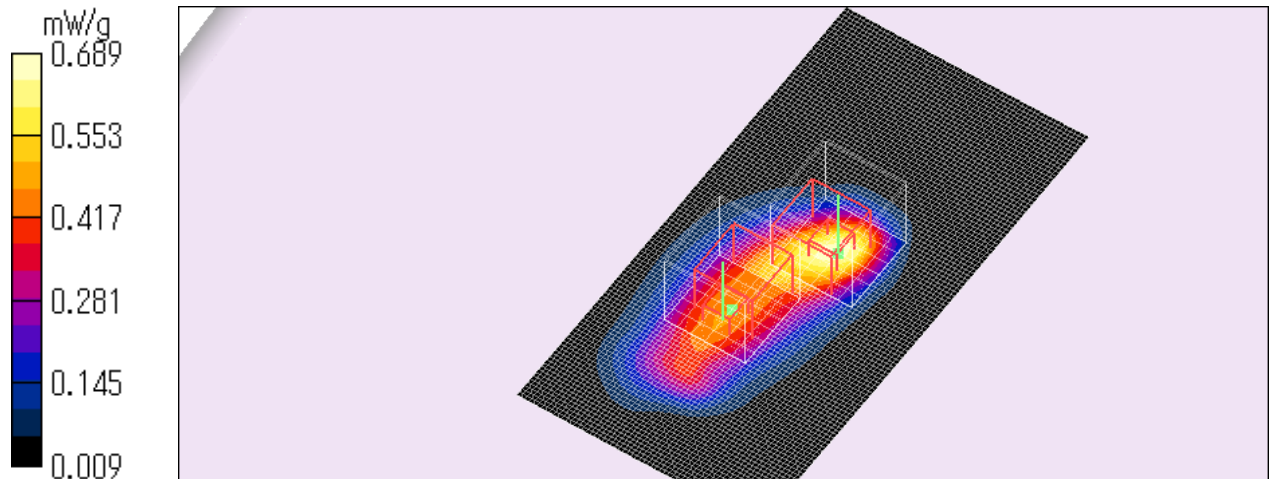
SAR(1 g) = 0.373 mW/g; SAR(10 g) = 0.237 mW/g

Maximum value of SAR (measured) = 0.485 mW/g

Test Date = 11/12/08

Ambient Temperature = 24.5 degree.c

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



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

UTU03-1890F-US-A / Body / Rear (extended)/ Mod.1 / 1899.6875MHz

Duty Cycle: 1:3.1

Medium: M1800 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.56$ mho/m; $\epsilon_r = 53.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3507; ConvF(8.82, 8.82, 8.82); Calibrated: 2008/01/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Phantom: Flat Phantom ELI4.0
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm

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

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.9 V/m; Power Drift = -0.025 dB

Peak SAR (extrapolated) = 1.31 W/kg

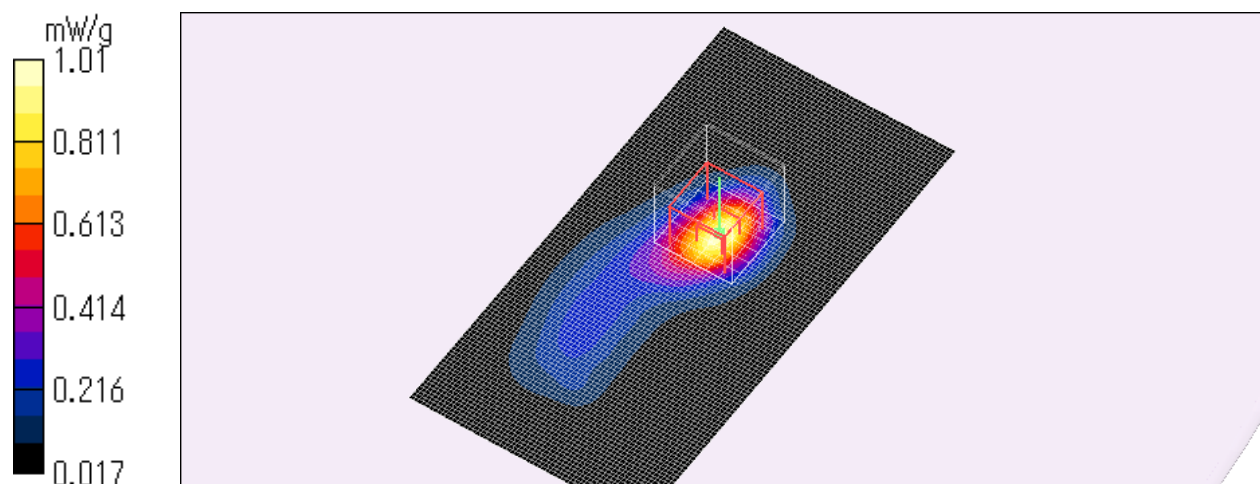
SAR(1 g) = 0.710 mW/g; SAR(10 g) = 0.369 mW/g

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

Test Date = 11/12/08

Ambient Temperature = 24.5 degree.c

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



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

UTU03-1890F-US-A / Body / Left side (retracted)/ Mod.1 / 1899.6875MHz

Duty Cycle: 1:3.1

Medium: M1800 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.56$ mho/m; $\epsilon_r = 53.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3507; ConvF(8.82, 8.82, 8.82); Calibrated: 2008/01/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Phantom: Flat Phantom ELI4.0
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.665 mW/g

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.1 V/m; Power Drift = -0.194 dB

Peak SAR (extrapolated) = 0.855 W/kg

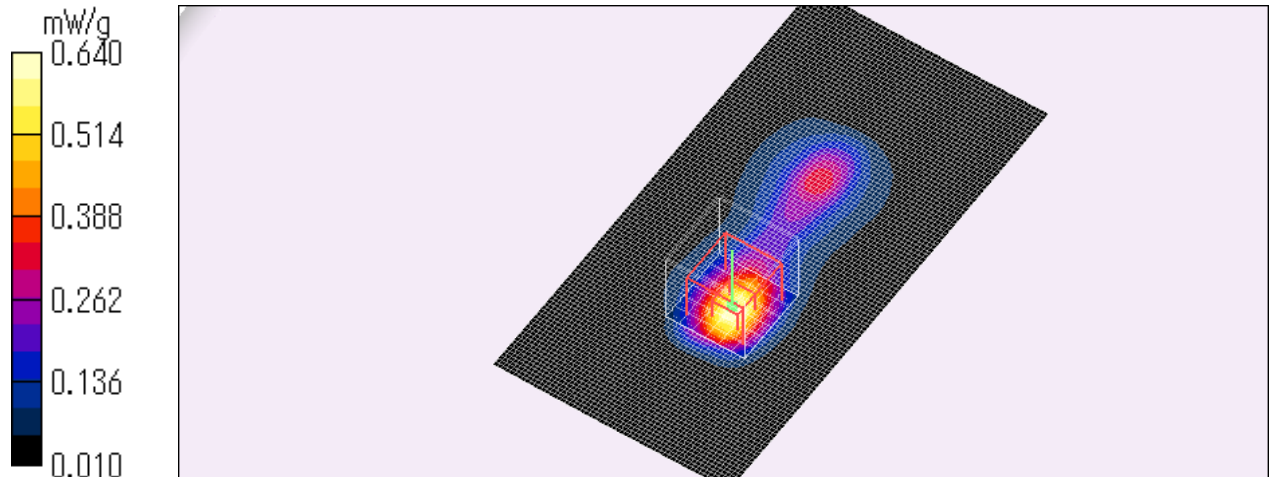
SAR(1 g) = 0.449 mW/g; SAR(10 g) = 0.225 mW/g

Maximum value of SAR (measured) = 0.640 mW/g

Test Date = 11/12/08

Ambient Temperature = 24.5 degree.c

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



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

UTU03-1890F-US-A / Body / Left side (extended)/ Mod.1 / 1899.6875MHz

Duty Cycle: 1:3.1

Medium: M1800 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.56$ mho/m; $\epsilon_r = 53.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3507; ConvF(8.82, 8.82, 8.82); Calibrated: 2008/01/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Phantom: Flat Phantom ELI4.0
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.03 mW/g

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.5 V/m; Power Drift = -0.136 dB

Peak SAR (extrapolated) = 1.26 W/kg

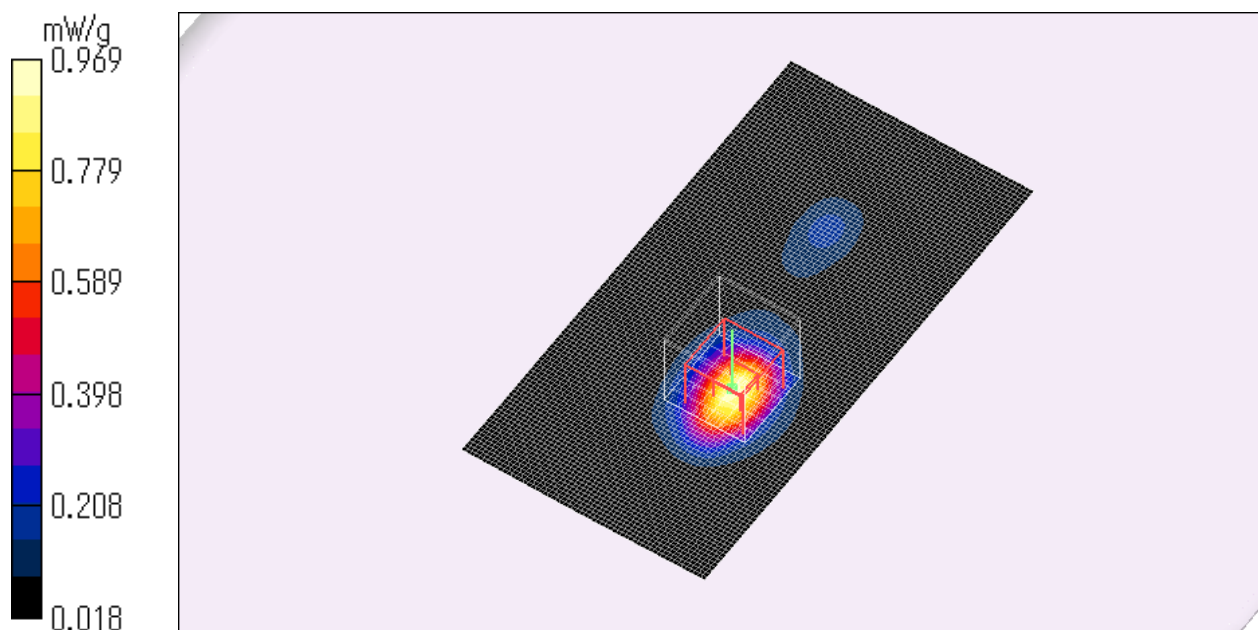
SAR(1 g) = 0.683 mW/g; SAR(10 g) = 0.350 mW/g

Maximum value of SAR (measured) = 0.969 mW/g

Test Date = 11/12/08

Ambient Temperature = 24.5 degree.c

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



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

UTU03-1890F-US-A / Body / Right side (retracted)/ Mod.1 / 1899.6875MHz

Duty Cycle: 1:3.1

Medium: M1800 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.56$ mho/m; $\epsilon_r = 53.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3507; ConvF(8.82, 8.82, 8.82); Calibrated: 2008/01/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Phantom: Flat Phantom ELI4.0
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.931 mW/g

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.0 V/m; Power Drift = -0.208 dB

Peak SAR (extrapolated) = 1.14 W/kg

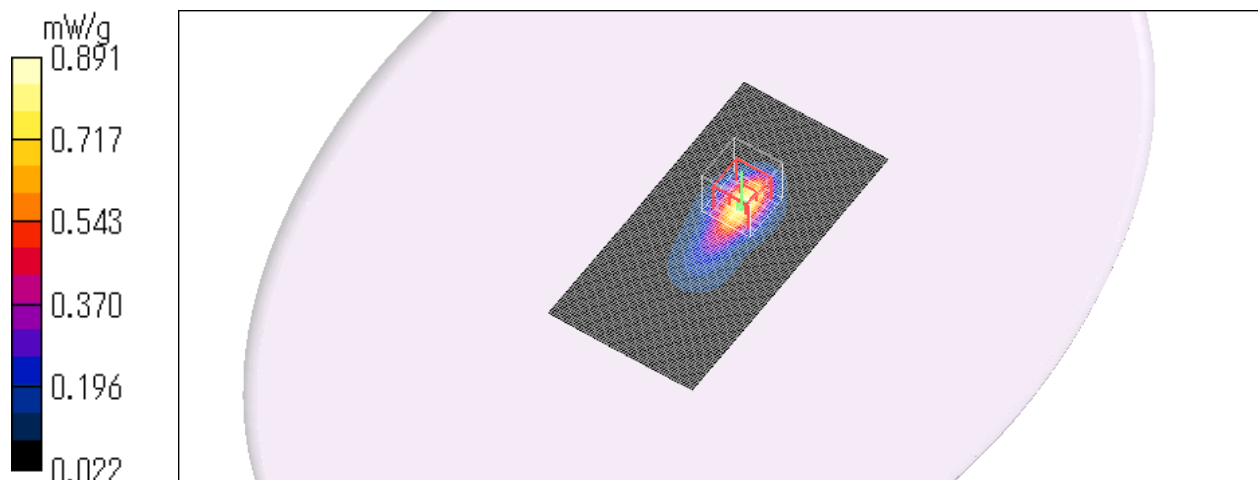
SAR(1 g) = 0.617 mW/g; SAR(10 g) = 0.325 mW/g

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

Test Date = 11/12/08

Ambient Temperature = 24.5 degree.c

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



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

UTU03-1890F-US-A / Body / Right side (extended)/ Mod.1 / 1899.6875MHz

Duty Cycle: 1:3.1

Medium: M1800 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.56$ mho/m; $\epsilon_r = 53.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3507; ConvF(8.82, 8.82, 8.82); Calibrated: 2008/01/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Phantom: Flat Phantom ELI4.0
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.491 mW/g

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.1 V/m; Power Drift = 0.193 dB

Peak SAR (extrapolated) = 0.608 W/kg

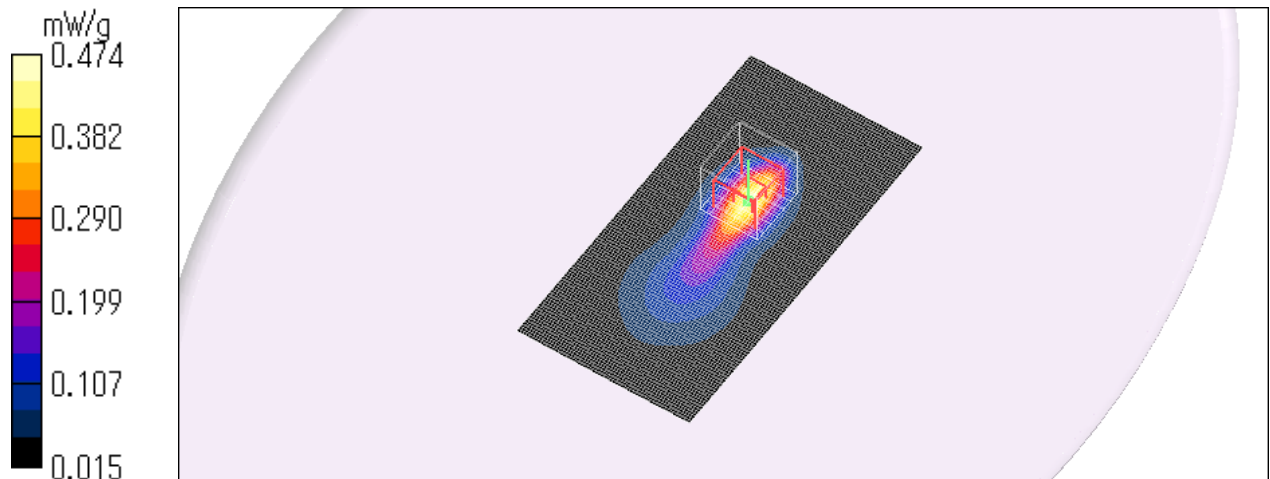
SAR(1 g) = 0.328 mW/g; SAR(10 g) = 0.175 mW/g

Maximum value of SAR (measured) = 0.474 mW/g

Test Date = 11/12/08

Ambient Temperature = 24.5 degree.c

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



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

UTU03-1890F-US-A / Body / Top (retracted)/ Mod.1 / 1899.6875MHz

Duty Cycle: 1:3.1

Medium: M1800 Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.56 \text{ mho/m}$; $\epsilon_r = 53.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3507; ConvF(8.82, 8.82, 8.82); Calibrated: 2008/01/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Phantom: Flat Phantom ELI4.0
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Area Scan (61x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.535 mW/g

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 14.3 V/m; Power Drift = -0.165 dB

Peak SAR (extrapolated) = 3.04 W/kg

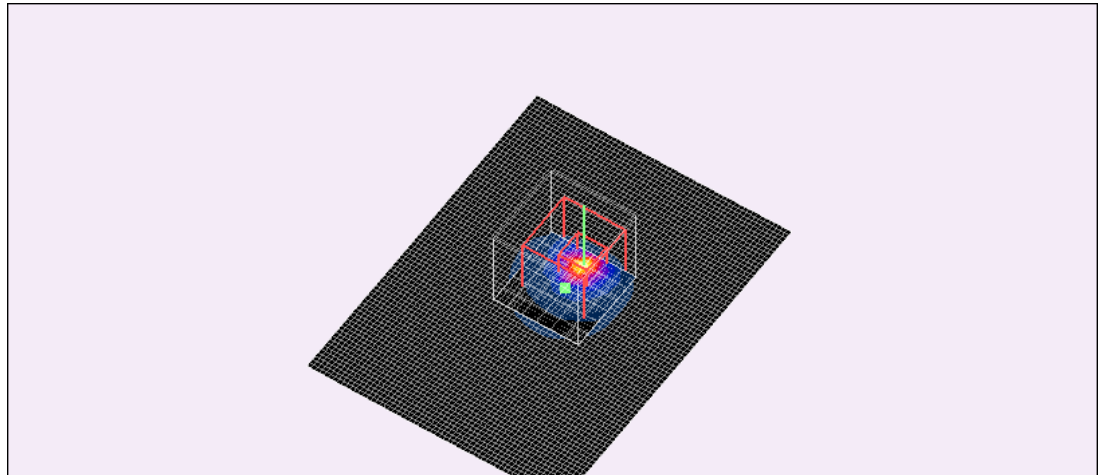
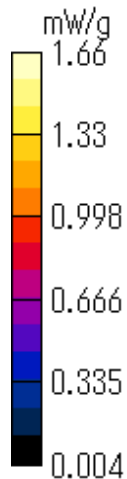
SAR(1 g) = 0.567 mW/g; SAR(10 g) = 0.174 mW/g

Maximum value of SAR (measured) = 1.66 mW/g

Test Date = 11/12/08

Ambient Temperature = 24.5 degree.c

Liquid Temperature = Before 23.5 degree.C , After 23.4 degree.C



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

UTU03-1890F-US-A / Body / Top (extended)/ Mod.1 / 1899.6875MHz

Duty Cycle: 1:3.1

Medium: M1800 Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.56 \text{ mho/m}$; $\epsilon_r = 53.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3507; ConvF(8.82, 8.82, 8.82); Calibrated: 2008/01/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Phantom: Flat Phantom ELI4.0
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Area Scan (61x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.145 mW/g

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 9.68 V/m; Power Drift = 0.148 dB

Peak SAR (extrapolated) = 0.380 W/kg

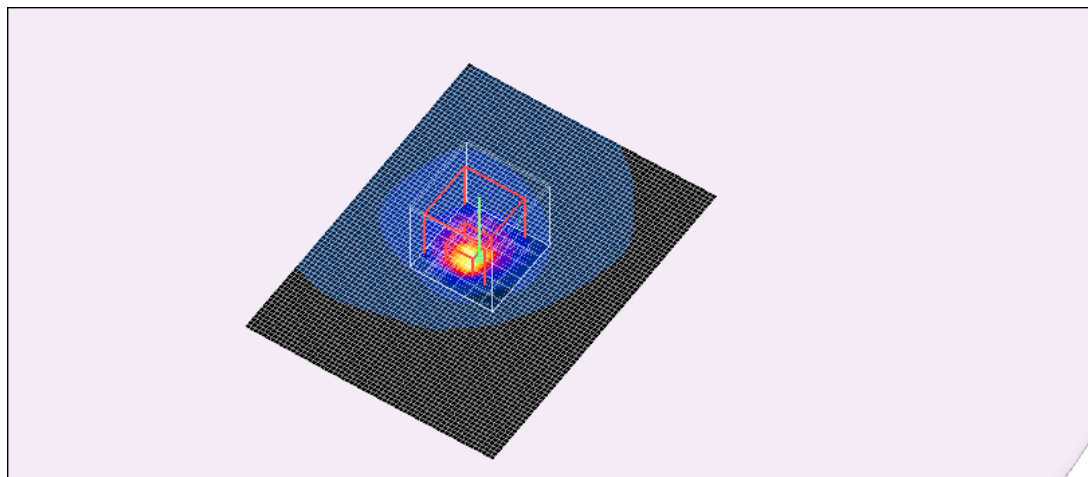
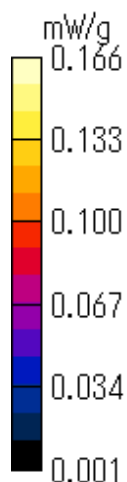
SAR(1 g) = 0.082 mW/g; SAR(10 g) = 0.031 mW/g

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

Test Date = 11/12/08

Ambient Temperature = 24.5 degree.c

Liquid Temperature = Before 23.4 degree.C , After 23.1 degree.C



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

UTU03-1890F-US-A / Body / Rear (extended)/ Mod.1 / 1890.3125MHz

Duty Cycle: 1:3.1

Medium: M1800 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.56$ mho/m; $\epsilon_r = 53.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3507; ConvF(8.82, 8.82, 8.82); Calibrated: 2008/01/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Phantom: Flat Phantom ELI4.0
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.41 mW/g

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 21.5 V/m; Power Drift = -0.017 dB

Peak SAR (extrapolated) = 1.76 W/kg

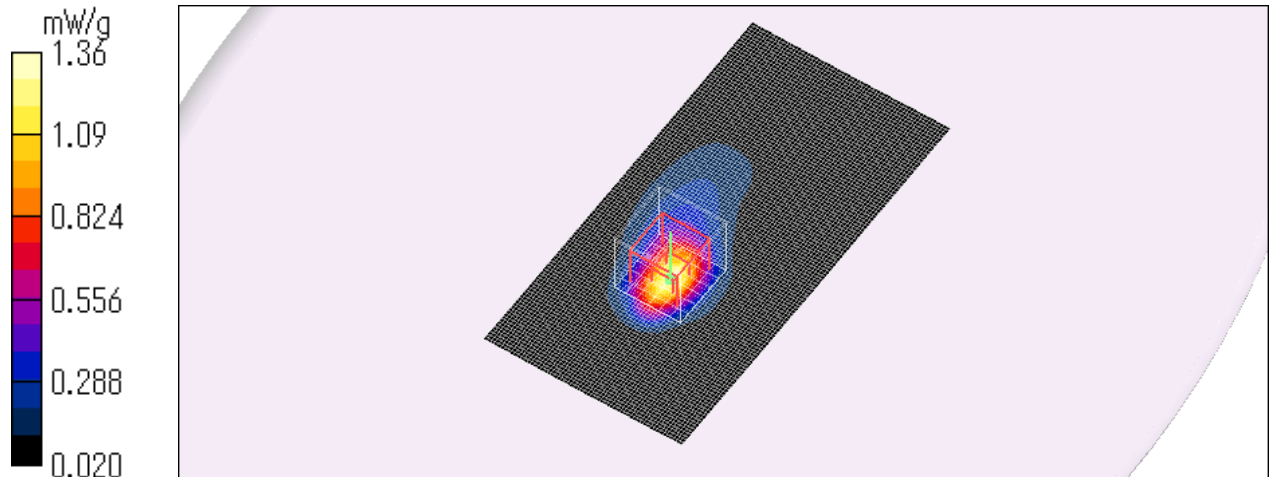
SAR(1 g) = 0.932 mW/g; SAR(10 g) = 0.475 mW/g

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

Test Date = 11/12/08

Ambient Temperature = 24.5 degree.c

Liquid Temperature = Before 23.1 degree.C , After 23.1 degree.C



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

UTU03-1890F-US-A / Body / Rear (extended)/ Mod.1 / 1909.6875MHz

Duty Cycle: 1:3.1

Medium: M1800 Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.56 \text{ mho/m}$; $\epsilon_r = 53.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3507; ConvF(8.82, 8.82, 8.82); Calibrated: 2008/01/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Phantom: Flat Phantom ELI4.0
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Area Scan (61x121x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 15.0 V/m; Power Drift = 0.002 dB

Peak SAR (extrapolated) = 1.85 W/kg

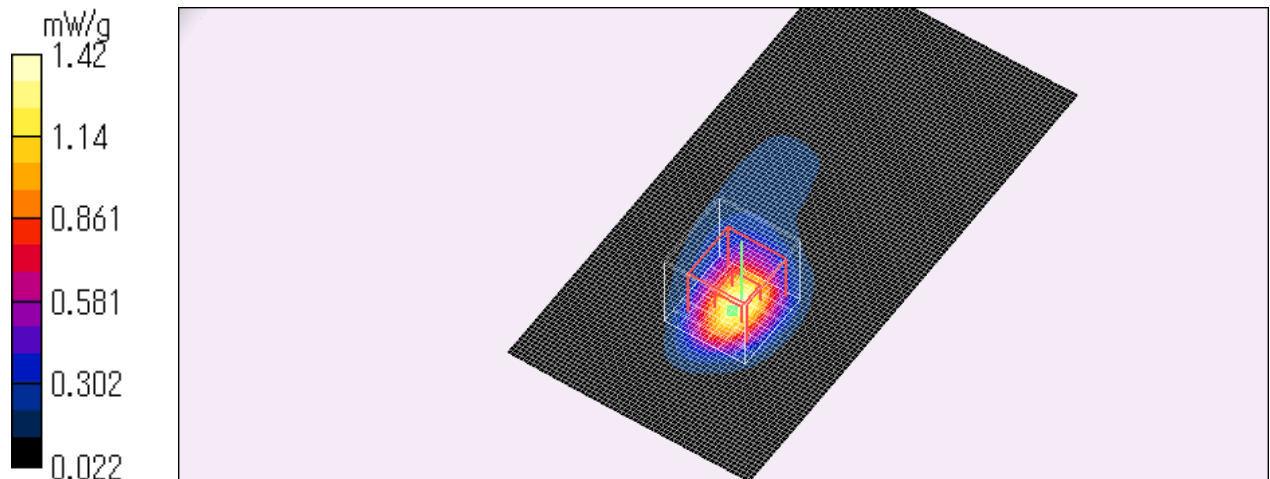
SAR(1 g) = 0.987 mW/g; SAR(10 g) = 0.502 mW/g

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

Test Date = 11/12/08

Ambient Temperature = 24.5 degree.c

Liquid Temperature = Before 23.1 degree.C , After 23.1 degree.C



<Change to the Crest factor (PAR)>

Duty Cycle: 1:5.1

Area Scan (61x121x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Peak SAR (extrapolated) = 1.96 W/kg

SAR(1 g) = 1.03 mW/g; SAR(10 g) = 0.516 mW/g

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

UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

Z-axis scan at max SAR location

UTU03-1890F-US-A / Body / Rear (extended)/ Mod.1 / 1909.6875MHz

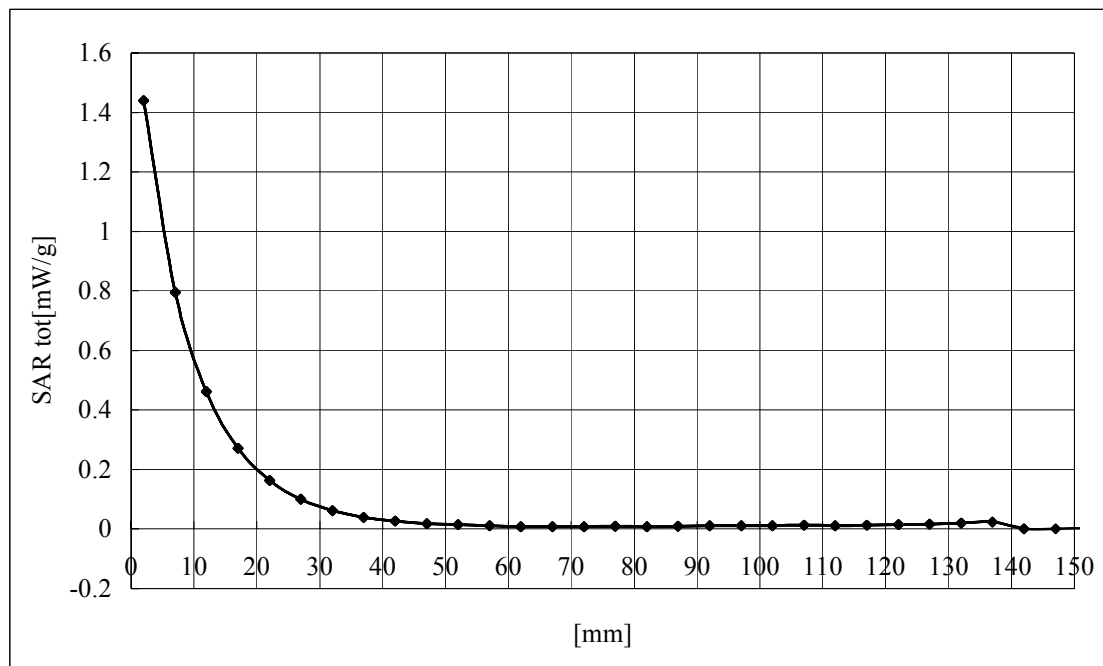
Duty Cycle: 1:3.1

Medium: M1800 Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.56 \text{ mho/m}$; $\epsilon_r = 53.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3507; ConvF(8.82, 8.82, 8.82); Calibrated: 2008/01/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Phantom: Flat Phantom ELI4.0
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

UTU03-1890F-US-A / Body / Rear (retracted)/ Mod.1 / 1890.3125MHz

Duty Cycle: 1:3:1

Medium: M1800 Medium parameters used: $f = 1800 \text{ MHz}$; $\sigma = 1.56 \text{ mho/m}$; $\epsilon_r = 53.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3507; ConvF(8.82, 8.82, 8.82); Calibrated: 2008/01/25

- Sensor-Surface: 2mm (Mechanical Surface Detection)

- Phantom: Flat Phantom ELI4.0

- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Area Scan (61x121x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 1.43 mW/g

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 15.1 V/m; Power Drift = -0.088 dB

Peak SAR (extrapolated) = 1.63 W/kg

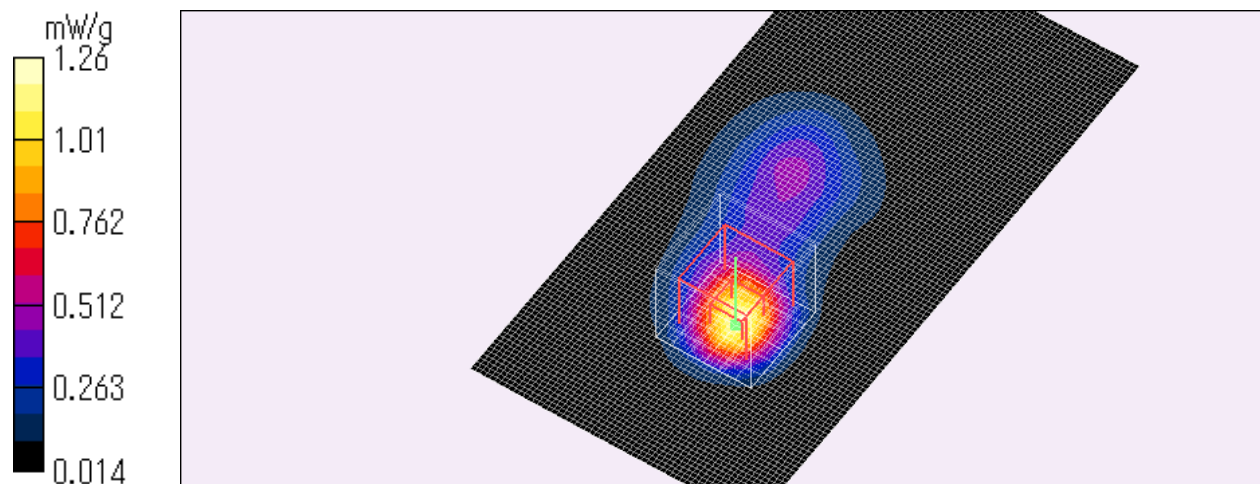
SAR(1 g) = 0.856 mW/g; SAR(10 g) = 0.429 mW/g

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

Test Date = 11/12/08

Ambient Temperature = 24.5 degree.c

Liquid Temperature = Before 23.0 degree.C , After 23.0 degree.C



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

UTU03-1890F-US-A / Body / Rear (retracted)/ Mod.1 / 1909.6875MHz

Duty Cycle: 1:3.1

Medium: M1800 Medium parameters used: $f = 1800 \text{ MHz}$; $\sigma = 1.56 \text{ mho/m}$; $\epsilon_r = 53.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3507; ConvF(8.82, 8.82, 8.82); Calibrated: 2008/01/25

- Sensor-Surface: 2mm (Mechanical Surface Detection)

- Phantom: Flat Phantom ELI4.0

- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Area Scan (61x121x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 13.6 V/m; Power Drift = 0.180 dB

Peak SAR (extrapolated) = 1.77 W/kg

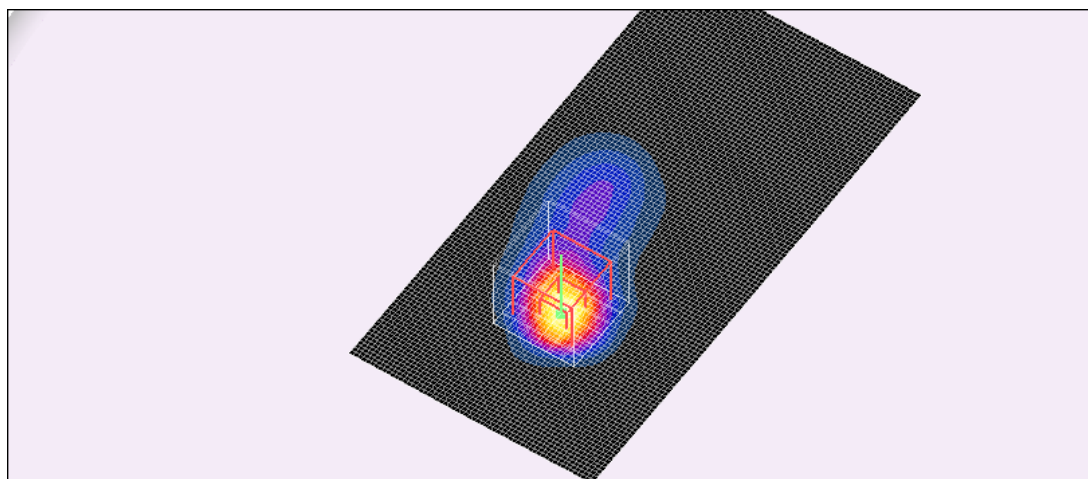
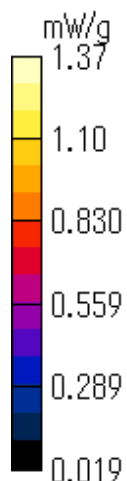
SAR(1 g) = 0.950 mW/g; SAR(10 g) = 0.485 mW/g

Maximum value of SAR (measured) = 1.37 mW/g

Test Date = 11/12/08

Ambient Temperature = 24.5 degree.c

Liquid Temperature = Before 23.0 degree.C , After 23.0 degree.C



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

UTU03-1890F-US-A / Body / Rear (extended) 5mm / Mod.1 / 1909.6875MHz

Duty Cycle: 1:3.1

Medium: M1800 Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.57 \text{ mho/m}$; $\epsilon_r = 53.3$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3507; ConvF(8.82, 8.82, 8.82); Calibrated: 2008/01/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Phantom: Flat Phantom ELI4.0
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Area Scan (61x121x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.522 mW/g

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 14.7 V/m; Power Drift = -0.012 dB

Peak SAR (extrapolated) = 0.625 W/kg

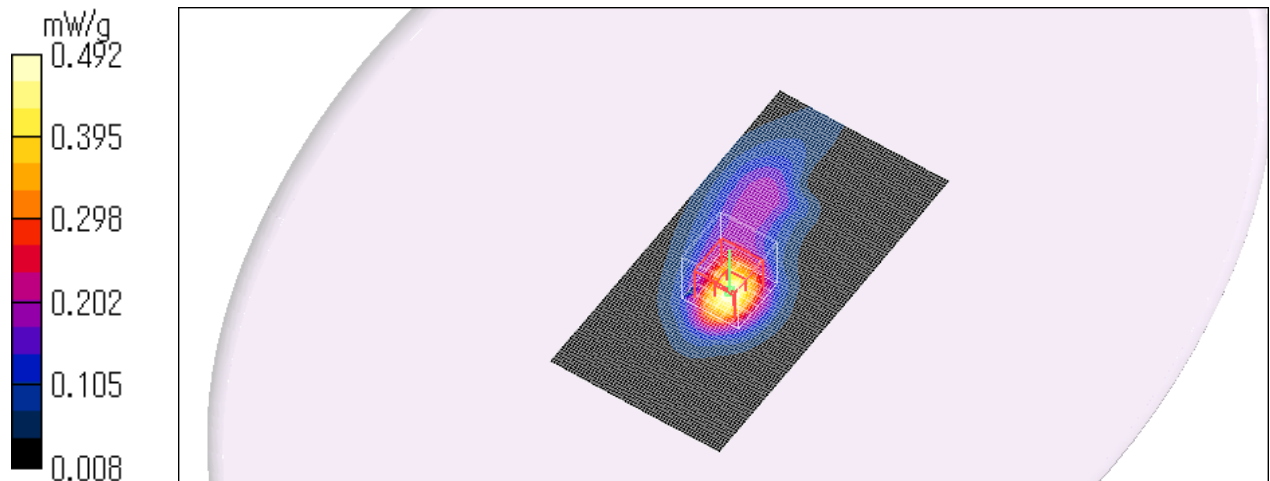
SAR(1 g) = 0.361 mW/g; SAR(10 g) = 0.202 mW/g

Maximum value of SAR (measured) = 0.492 mW/g

Test Date = 11/13/08

Ambient Temperature = 24.5 degree.c

Liquid Temperature = Before 23.0 degree.C , After 23.0 degree.C



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

UTU03-1890F-US-A / Body / Rear (extended) 10mm / Mod.1 / 1909.6875MHz

Duty Cycle: 1:3.1

Medium: M1800 Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.57 \text{ mho/m}$; $\epsilon_r = 53.3$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3507; ConvF(8.82, 8.82, 8.82); Calibrated: 2008/01/25
- Sensor-Surface: 2mm (Mechanical Surface Detection) Sensor-Surface: 4mm (Mechanical Surface Detection)
- Phantom: Flat Phantom ELI4.0
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Area Scan (61x121x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.215 mW/g

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 7.75 V/m ; Power Drift = 0.203 dB

Peak SAR (extrapolated) = 0.264 W/kg

SAR(1 g) = 0.155 mW/g ; SAR(10 g) = 0.090 mW/g

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

Zoom Scan (7x7x7)/Cube 1: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 7.75 V/m ; Power Drift = 0.203 dB

Peak SAR (extrapolated) = 0.308 W/kg

SAR(1 g) = 0.111 mW/g ; SAR(10 g) = 0.068 mW/g

Maximum value of SAR (measured) = 0.143 mW/g

Zoom Scan 2 (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 7.75 V/m ; Power Drift = 0.203 dB

Peak SAR (extrapolated) = 0.213 W/kg

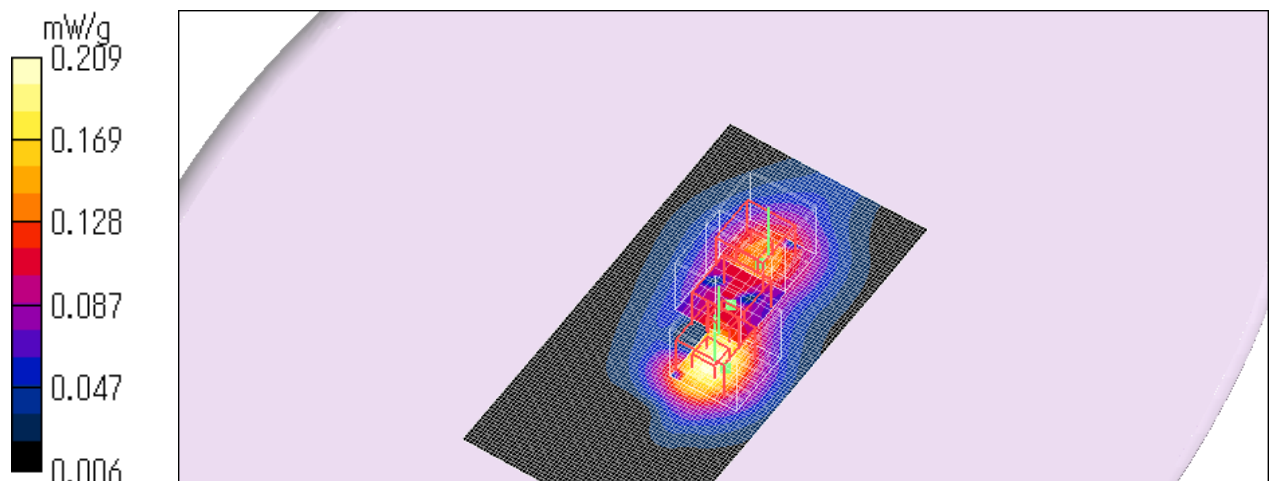
SAR(1 g) = 0.113 mW/g ; SAR(10 g) = 0.064 mW/g

Maximum value of SAR (measured) = 0.139 mW/g

Test Date = 11/13/08

Ambient Temperature = 24.5 degree.c

Liquid Temperature = Before 23.0 degree.C , After 23.0 degree.C



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

3. Reference data Measurement data (Extension with USB cable)

UTU03-1890F-US-A / Body / Rear (retracted)/ Mod.1 / 1899.6875MHz

Duty Cycle: 1:3.1

Medium: M1800 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 53.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3507; ConvF(8.82, 8.82, 8.82); Calibrated: 2008/01/25

- Sensor-Surface: 2mm (Mechanical Surface Detection)

- Phantom: Flat Phantom ELI4.0

- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Area Scan (61x121x1): Measurement grid: $dx=15$ mm, $dy=15$ mm

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

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 23.9 V/m; Power Drift = 0.140 dB

Peak SAR (extrapolated) = 1.61 W/kg

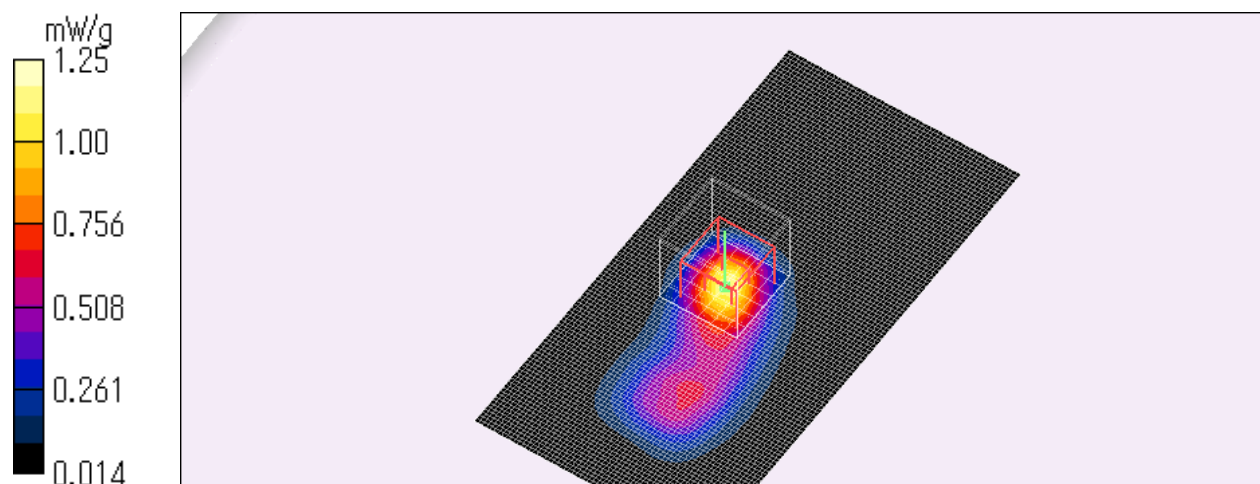
SAR(1 g) = 0.845 mW/g; SAR(10 g) = 0.432 mW/g

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

Test Date = 11/13/08

Ambient Temperature = 24.5 degree.c

Liquid Temperature = Before 23.0 degree.C , After 23.0 degree.C



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

UTU03-1890F-US-A / Body / Rear (extended)/ Mod.1 / 1899.6875MHz

Duty Cycle: 1:3.1

Medium: M1800 Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.57 \text{ mho/m}$; $\epsilon_r = 53.3$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3507; ConvF(8.82, 8.82, 8.82); Calibrated: 2008/01/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Phantom: Flat Phantom ELI4.0
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Area Scan (61x121x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

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

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 20.8 V/m; Power Drift = 0.190 dB

Peak SAR (extrapolated) = 1.50 W/kg

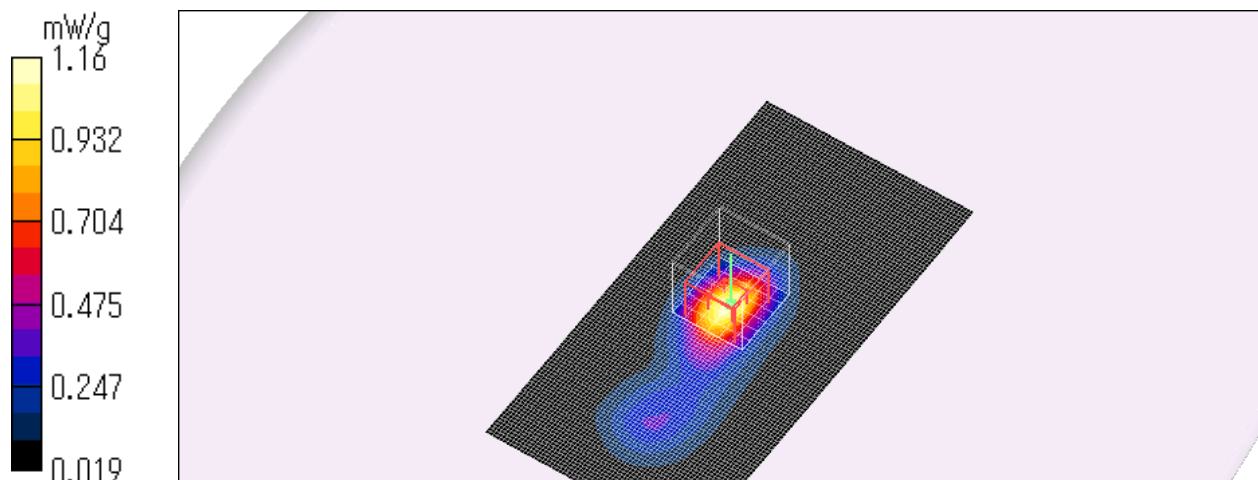
SAR(1 g) = 0.914 mW/g; SAR(10 g) = 0.421 mW/g

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

Test Date = 11/13/08

Ambient Temperature = 24.5 degree.c

Liquid Temperature = Before 23.0 degree.C , After 23.0 degree.C



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

UTU03-1890F-US-A / Body / Front (retracted)/ Mod.1 / 1899.6875MHz

Duty Cycle: 1:3.1

Medium: M1800 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 53.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3507; ConvF(8.82, 8.82, 8.82); Calibrated: 2008/01/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Phantom: Flat Phantom ELI4.0
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.852 mW/g

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.3 V/m; Power Drift = 0.182 dB

Peak SAR (extrapolated) = 1.07 W/kg

SAR(1 g) = 0.552 mW/g; SAR(10 g) = 0.283 mW/g

Maximum value of SAR (measured) = 0.783 mW/g

Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.3 V/m; Power Drift = 0.182 dB

Peak SAR (extrapolated) = 0.999 W/kg

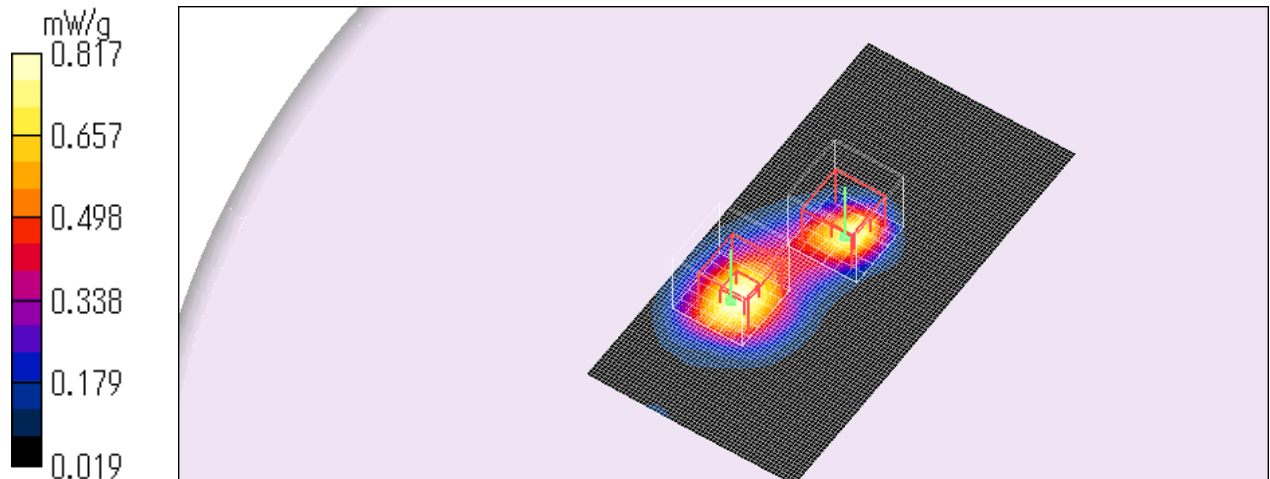
SAR(1 g) = 0.640 mW/g; SAR(10 g) = 0.379 mW/g

Maximum value of SAR (measured) = 0.817 mW/g

Test Date = 11/13/08

Ambient Temperature = 24.5 degree.c

Liquid Temperature = Before 23.0 degree.C , After 23.2 degree.C



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

UTU03-1890F-US-A / Body / Rear (extended)/ Mod.1 / 1899.6875MHz

Duty Cycle: 1:3.1

Medium: M1800 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 53.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3507; ConvF(8.82, 8.82, 8.82); Calibrated: 2008/01/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Phantom: Flat Phantom ELI4.0
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm

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

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.6 V/m; Power Drift = 0.133 dB

Peak SAR (extrapolated) = 1.61 W/kg

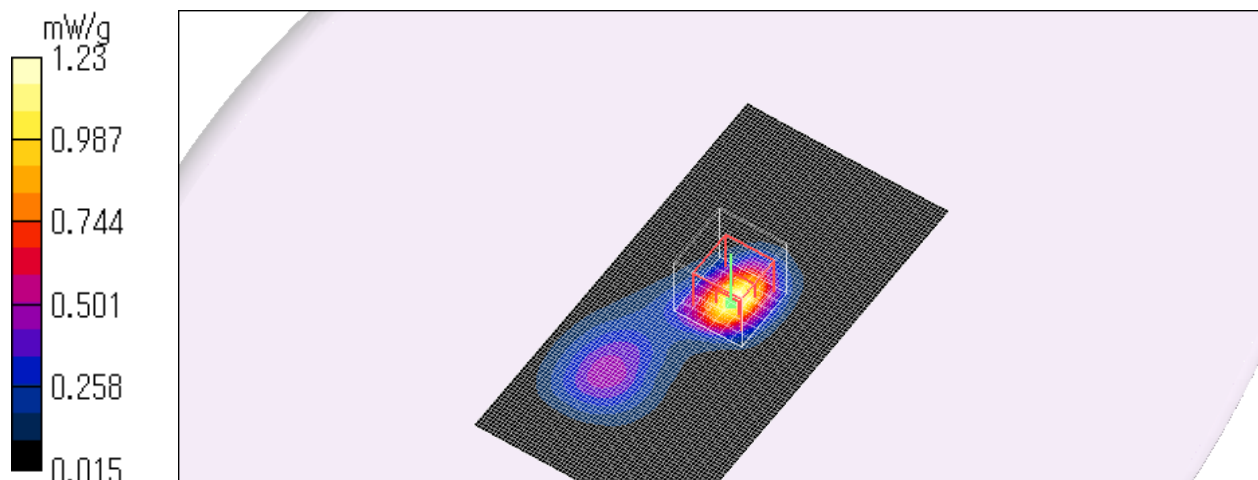
SAR(1 g) = 0.858 mW/g; SAR(10 g) = 0.433 mW/g

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

Test Date = 11/13/08

Ambient Temperature = 24.5 degree.c

Liquid Temperature = Before 23.2 degree.C , After 23.1 degree.C



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

UTU03-1890F-US-A / Body / Left side (retracted)/ Mod.1 / 1899.6875MHz

Duty Cycle: 1:3.1

Medium: M1800 Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.57 \text{ mho/m}$; $\epsilon_r = 53.3$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3507; ConvF(8.82, 8.82, 8.82); Calibrated: 2008/01/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Phantom: Flat Phantom ELI4.0
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Area Scan (51x121x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.524 mW/g

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 11.1 V/m; Power Drift = -0.024 dB

Peak SAR (extrapolated) = 0.611 W/kg

SAR(1 g) = 0.306 mW/g; SAR(10 g) = 0.142 mW/g

Maximum value of SAR (measured) = 0.462 mW/g

Zoom Scan (7x7x7)/Cube 1: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 11.1 V/m; Power Drift = -0.024 dB

Peak SAR (extrapolated) = 0.469 W/kg

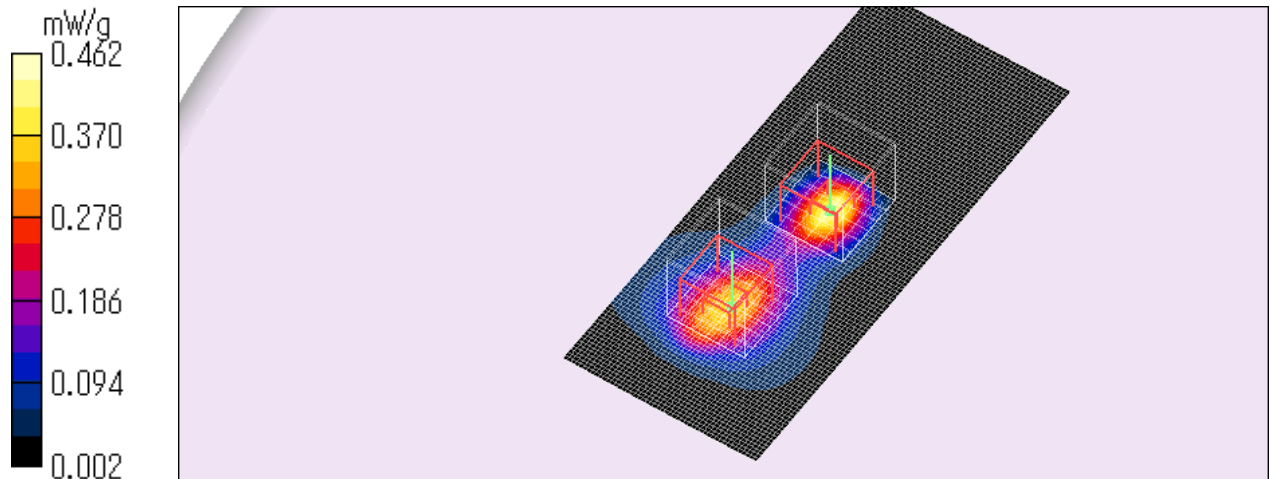
SAR(1 g) = 0.278 mW/g; SAR(10 g) = 0.158 mW/g

Maximum value of SAR (measured) = 0.375 mW/g

Test Date = 11/13/08

Ambient Temperature = 24.5 degree.c

Liquid Temperature = Before 23.2 degree.C , After 23.2 degree.C



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

UTU03-1890F-US-A / Body / Left side (extended)/ Mod.1 / 1899.6875MHz

Duty Cycle: 1:3.1

Medium: M1800 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 53.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3507; ConvF(8.82, 8.82, 8.82); Calibrated: 2008/01/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Phantom: Flat Phantom ELI4.0
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Area Scan (51x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.902 mW/g

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.91 V/m; Power Drift = 0.168 dB

Peak SAR (extrapolated) = 1.12 W/kg

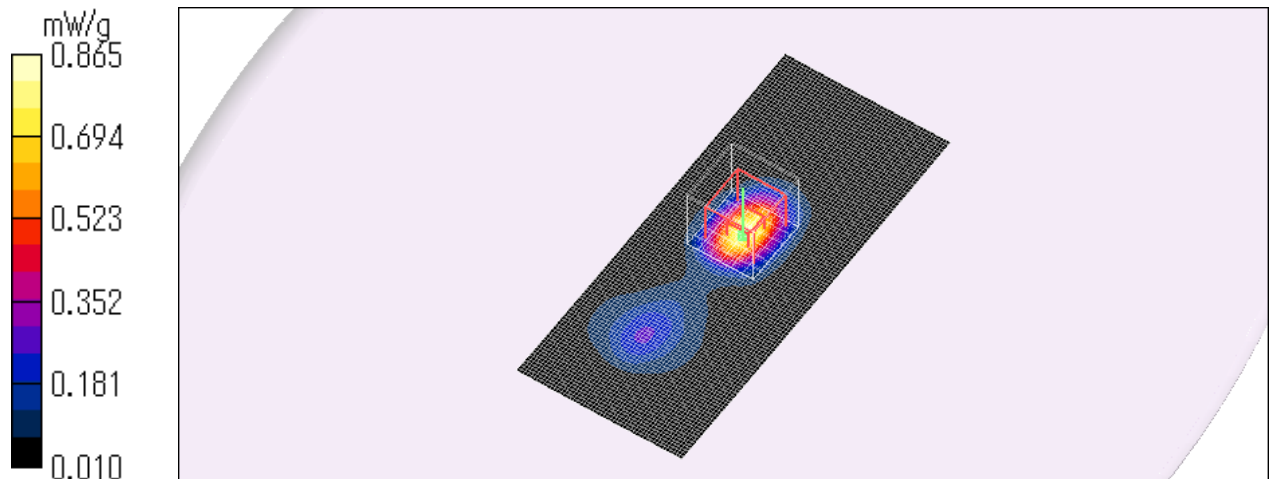
SAR(1 g) = 0.592 mW/g; SAR(10 g) = 0.292 mW/g

Maximum value of SAR (measured) = 0.865 mW/g

Test Date = 11/13/08

Ambient Temperature = 24.5 degree.c

Liquid Temperature = Before 23.2 degree.C , After 23.2 degree.C



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

UTU03-1890F-US-A / Body / Right side (retracted)/ Mod.1 / 1899.6875MHz

Duty Cycle: 1:3.1

Medium: M1800 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 53.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3507; ConvF(8.82, 8.82, 8.82); Calibrated: 2008/01/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Phantom: Flat Phantom ELI4.0
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Area Scan (51x121x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 1.02 mW/g

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.8 V/m; Power Drift = -0.030 dB

Peak SAR (extrapolated) = 1.26 W/kg

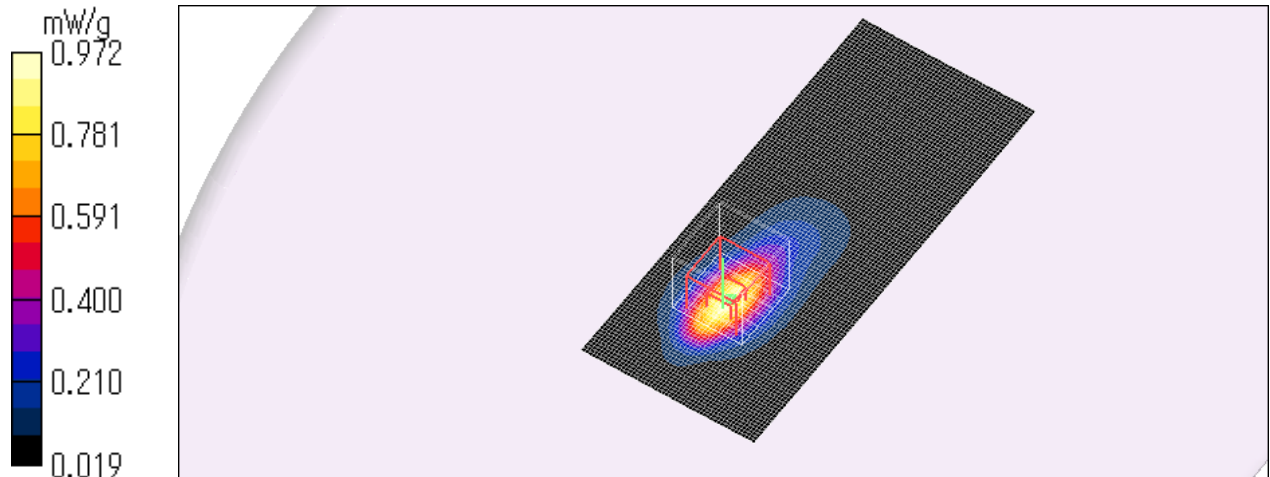
SAR(1 g) = 0.675 mW/g; SAR(10 g) = 0.351 mW/g

Maximum value of SAR (measured) = 0.972 mW/g

Test Date = 11/13/08

Ambient Temperature = 24.5 degree.c

Liquid Temperature = Before 23.2 degree.C , After 23.2 degree.C



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

UTU03-1890F-US-A / Body / Right side (extended)/ Mod.1 / 1899.6875MHz

Duty Cycle: 1:3.1

Medium: M1800 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 53.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3507; ConvF(8.82, 8.82, 8.82); Calibrated: 2008/01/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Phantom: Flat Phantom ELI4.0
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Area Scan (51x121x1): Measurement grid: dx=15mm, dy=15mm

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

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.1 V/m; Power Drift = 0.042 dB

Peak SAR (extrapolated) = 0.768 W/kg

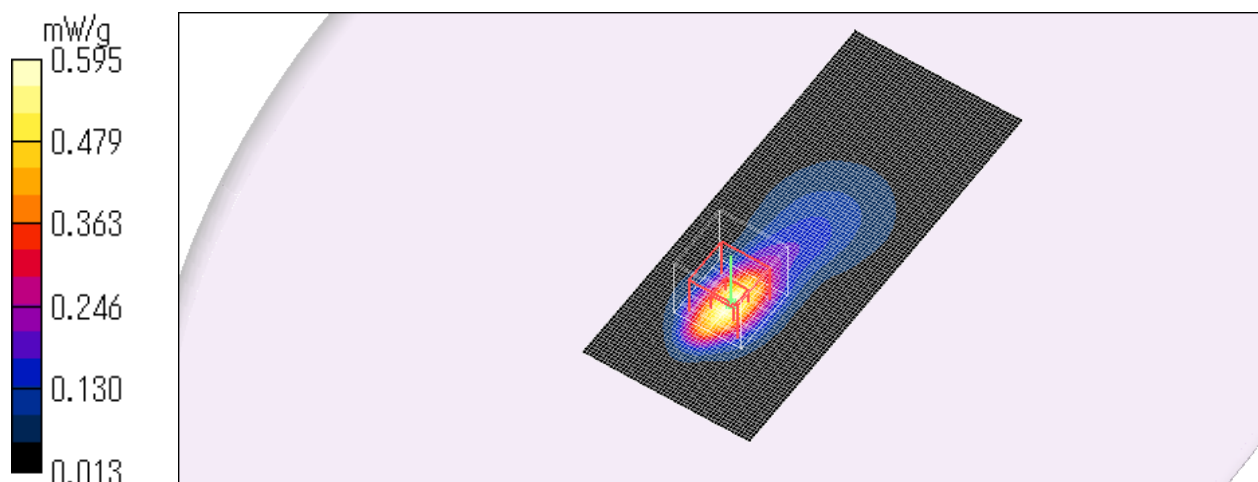
SAR(1 g) = 0.413 mW/g; SAR(10 g) = 0.216 mW/g

Maximum value of SAR (measured) = 0.595 mW/g

Test Date = 11/13/08

Ambient Temperature = 24.5 degree.c

Liquid Temperature = Before 23.2 degree.C , After 23.2 degree.C



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

UTU03-1890F-US-A / Body / Top (retracted)/ Mod.1 / 1899.6875MHz

Duty Cycle: 1:3.1

Medium: M1800 Medium parameters used: $f = 1900$ MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 53.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3507; ConvF(8.82, 8.82, 8.82); Calibrated: 2008/01/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Phantom: Flat Phantom ELI4.0
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Area Scan (51x51x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.551 mW/g

Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 31.8 V/m; Power Drift = 0.011 dB

Peak SAR (extrapolated) = 3.74 W/kg

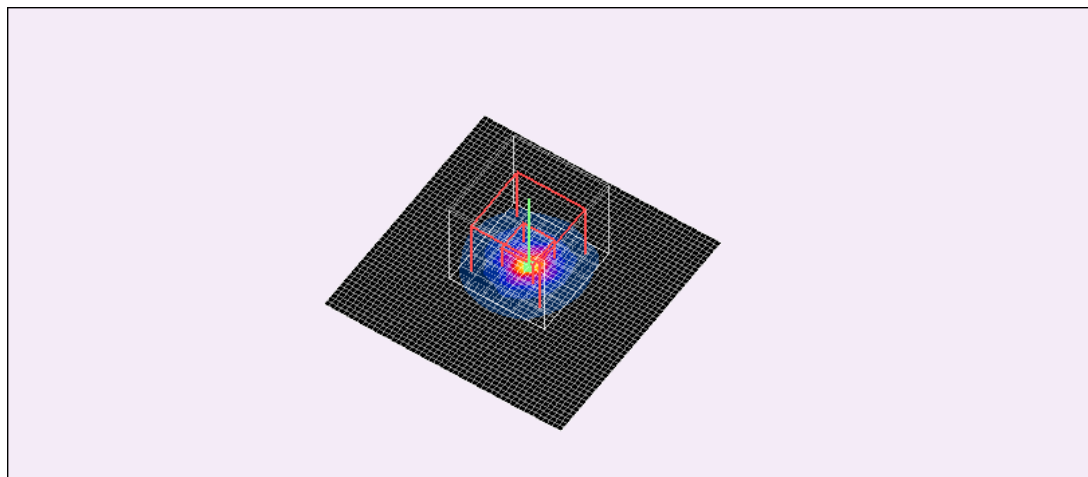
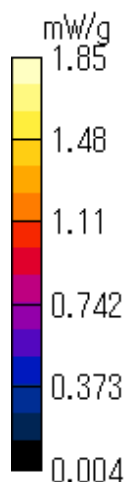
SAR(1 g) = 0.607 mW/g; SAR(10 g) = 0.197 mW/g

Maximum value of SAR (measured) = 1.85 mW/g

Test Date = 11/13/08

Ambient Temperature = 24.5 degree.c

Liquid Temperature = Before 23.1 degree.C , After 23.1 degree.C



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124

UTU03-1890F-US-A / Body / Top (extended)/ Mod.1 / 1899.6875MHz

Duty Cycle: 1:3.1

Medium: M1800 Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.57 \text{ mho/m}$; $\epsilon_r = 53.3$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: EX3DV3 - SN3507; ConvF(8.82, 8.82, 8.82); Calibrated: 2008/01/25
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Phantom: Flat Phantom ELI4.0
- Measurement SW: DASY4, V4.7 Build 55; Postprocessing SW: SEMCAD, V1.8 Build 176

Area Scan (51x51x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.080 mW/g

Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 9.84 V/m; Power Drift = -0.113 dB

Peak SAR (extrapolated) = 0.385 W/kg

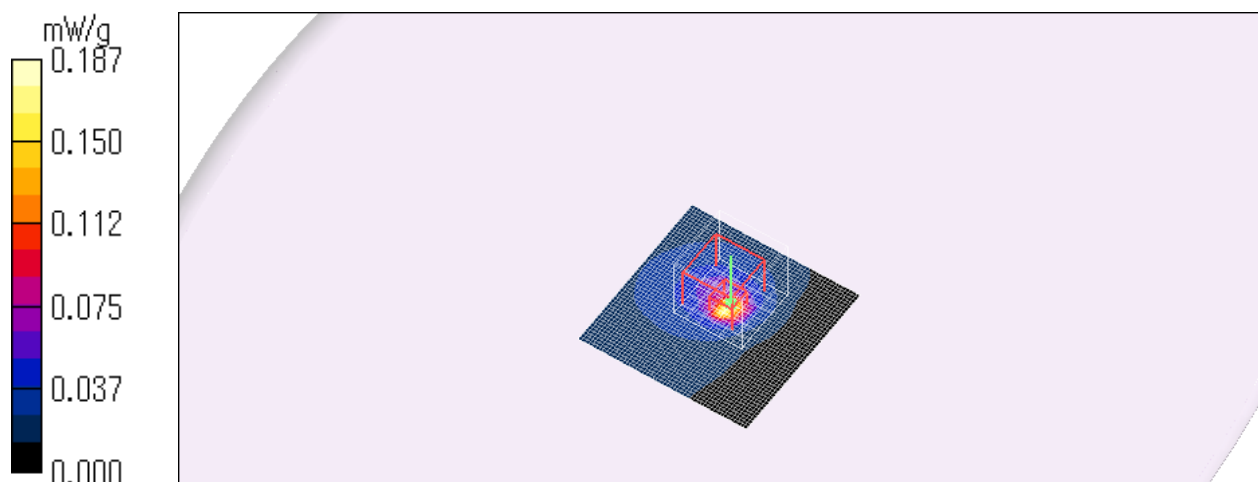
SAR(1 g) = 0.083 mW/g; SAR(10 g) = 0.032 mW/g

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

Test Date = 11/13/08

Ambient Temperature = 24.5 degree.c

Liquid Temperature = Before 23.1 degree.C , After 23.2 degree.C



UL Japan, Inc.

Head Office EMC Lab.

4383-326 Asama-cho, Ise-shi, Mie-ken 516-0021 JAPAN

Telephone : +81 596 24 8116

Facsimile : +81 596 24 8124