SAR TEST REPORT

Test Report No. : 31HE196-HO-G-R1

Applicant	:	**NEC CASIO Mobile Communications, Ltd.**
Type of Equipment	:	**Digital Portable Cellular Telephone**
Model No.	:	**KMP7N4Y1-1A**
FCC ID	:	**A98-PUL1905**
Test regulation	:	**FCC47CFR 2.1093** **FCC OET Bulletin 65, Supplement C (Edition 01-01)**
Test Result	:	**Complied**

Max SAR Measured

Head SAR		**Body-Worn SAR**	
GSM850	: 0.736W/kg	GSM850	: 0.437W/kg
PCS1900	: 0.493W/kg	PCS1900	: 0.388W/kg
WCDMA Vband	: 0.618W/kg	WCDMA Vband	: 0.479W/kg
WLAN	: 0.280W/kg	WLAN	: 0.079W/kg

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3. This sample tested is in compliance with the limits of the above regulation.
4. The test results in this report are traceable to the national or international standards.
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6 This report is a revised version of 31HE0196-HO-G. 31HE0196-HO-G.is replaced with this report.

Date of test: March 31 to April 6, 2011

Representative test engineer:

Hisayoshi Sato
Engineer of WiSE Japan,
UL Verification Service

Approved by :

Mitsuru Fujimura
Leader of WiSE Japan
UL Verification Service

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://www.ul.com/japan/jpn/pages/services/emc/about/mark1/index.jsp#nvlap

SECTION 1: Customer information

Company Name	:	NEC CASIO Mobile Communications, Ltd.
Address	:	1753 Shimonumabe, Nakahara-ku, Kawasaki, Kanagawa 211-8666 Japan
Telephone Number	:	+81-44-455-8045
Facsimile Number	:	+81-44-455-8025
Contact Person	:	Kazuhiro Kurihara

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

2.1 Identification of E.U.T.

Type of Equipment	:	Digital Portable Cellular Telephone
Model No.	:	KMP7N4Y1-1A
Serial No.	:	004401200680128
Rating	:	Li-ion Battery (Model No.: N28) DC 3.8V/ 1230mAh 4.7Wh
Option Battery	:	N/A
Accessory	:	N/A
Receipt Date of Sample	:	March 31, 2011
Country of Mass-production	:	Japan
Condition of EUT	:	Production prototype
Modification of EUT	:	No Modification by the test lab

2.2 Product description

Model No: KMP7N4Y1-1A, (referred to as the EUT in this report), is the Digital Portable Cellular Telephone.

Bluetooth (Ver.2.1 + EDR)

Equipment Type	Transceiver
Frequency of Operation	2402-2480MHz
Other Clock Frequency	19.2MHz
Type of Modulation	FHSS
Bandwidth & Channel spacing	1MHz & 1MHz
Antenna Connector Type	Integrated antenna

WLAN (IEEE802.11b/g/n (SISO/HT20))

Equipment Type	Transceiver
Frequency of Operation	2412-2462MHz
Other Clock Frequency	19.2MHz
Type of Modulation	DSSS, OFDM
Antenna Connector Type	Integrated antenna

GSM

Equipment Type	Transceiver
Frequency of Operation	[Up Link] GSM850: 824 – 849MHz PCS: 1850 – 1910MHz [Down Link] GSM850: 869 – 894MHz PCS: 1930 – 1990MHz
Other Clock Frequency	19.2MHz
Type of Modulation	GMSK
Channel spacing	200kHz
Antenna Connector Type	Integrated antenna

W-CDMA

Equipment Type	Transceiver
Frequency of Operation	[Up Link] Band V: 824 – 849MHz [Down Link] Band V: 869 – 894MHz
Other Clock Frequency	19.2MHz
Type of Modulation	HPSK
Channel spacing	5MHz
Antenna Connector Type	Integrated antenna

GPS

Equipment Type	Receiver
Receiver Type	Direct Downconversion
Frequency of Operation	1575.42MHz
Other Clock Frequency	19.2MHz
Antenna Connector Type	Integrated antenna

RFID

Equipment Type	Transceiver
Frequency of Operation	13.56MHz
Type of Modulation	ASK
Antenna Connector Type	Integrated antenna

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.

Supplement C (Edition 01-01) to OET Bulletin 65 (Edition 97-01):

Supplement C (Edition 01-01) - Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions
OET Bulletin 65 (Edition 97-01) - Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields

IEEE Std 1528-2003:

IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques Supplement C

In additions;

KDB 447498 D01(v04):	Mobile and Portable Device RF Exposure Procedures and Equipment Authorization Policies
KDB941225	SAR Measurement Procedures for 3G Devices
	3GPP R6 HSPA and R7 HSPA+ SAR Guidance
	Recommended SAR Test Reduction Procedures for GSM/GPRS/EDGE
KDB 248227 (rev.1.2):	SAR Measurement Procedures for 802.11a//b/g Transmitters

3.2 Procedure and result

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
Note: UL Japan, Inc. 's SAR Work Procedures 13-EM-W0429 and 13-EM-W0430						

1. Stand-alone SAR result

Head SAR

GSM850 : 0.736W/kg
PCS1900 : 0.493W/kg
WCDMA Vband : 0.618W/kg
WLAN : 0.280W/kg

Body-Worn SAR

GSM850 : 0.437W/kg
PCS1900 : 0.388W/kg
WCDMA Vband : 0.479W/kg
WLAN : 0.079W/kg

2. Simultaneous transmission SAR result

<Simultaneous Procedure>

This EUT has the unlicensed transmitter such as Wireless LAN (802.11b/g/n) & Bluetooth devices besides licensed transmitter (GSM/WCDMA), and the following simultaneous transmission is possible.

a) GSM/WCDMA + Wireless LAN
b) GSM/WCDMA + Bluetooth

*The antennas of Wireless LAN and Bluetooth are shared.

a) GSM/WCDMA + Wireless LAN

Step1. WCDMA/GSM antenna is >5cm form Wireless LAN antenna
Step2. Wireless LAN power > 2Pref (=60/$f_{[GHz]}$).
Step3. Stand-alone SAR for Wireless LAN
Step4. Simultaneous transmission is possible (GSM/WCDMA + Wireless LAN)
Step5. ∑1g SAR (GSM/WCDMA + Wireless LAN) < 1.6W/kg

Max. Head SAR value = Max. Head SAR value (GSM/WCDMA) + Max.Head SAR value (WLAN)
Max. Head SAR Measured (GSM/WCDMA + WLAN) : 1.016W/kg
=0.736(from GSM850) + 0.280 (WLAN)=1.016W/kg

Max. Body-worn SAR value = Max. Body-worn SAR value (GSM/WCDMA)
+ Max. Body-worn SAR value (WLAN)
Max. Body-worn SAR Measured (GSM/WCDMA + WLAN) :0.558W/kg
=0.479(from WCDMA V band) + 0.079 (WLAN)=0.558W/kg

Step.6. No simultaneous transmission SAR

b) GSM/WCDMA + Bluetooth

Step1. WCDMA/GSM antenna is >5cm form Wireless antenna
Step2. Bluetooth power < Pref (=1/2 *60/$f_{[GHz]}$).
Refer to the FCC15.247 test report (31HE0196-HO-B)
Max.Power (BT) :-3.45dBm (0.45mW)
Step3. No stand-alone SAR for Bluetooth
Step4. No simultaneous transmission SAR

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

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

Output power measurement
Maximum output power for GSM/WCDMA was verified on the high, middle and low channels according to the procedures described in section 5.2 of 3GPP TS 34.121 and "KDB 941225 document".
The WCDMA and HSPA modes of EUT were verified each channel and "sub-tests" according to Release-6 procedures in section5.2 of 3GPP TS 34.121.

Correlation of Output Power between EMC and SAR tests
It was checked that the antenna port power was correlated within 0~+5% (FCC requirements)

Wireless LAN power

- Power at EMC and SAR test on March 31.
  EMC power was measured for EMC test sample (S/N: 004401200680128).

GSM850/PCS1900 power/ WCDMA V power

- Power at EMC and SAR test on April 1.
  EMC power was measured for EMC test sample (S/N: 004401200680128).

3.6 Confirmation after SAR testing

It was checked that the power drift [W] is within +/-5%.The verification of power drift during the SAR test is that DASY4 system calculates the power drift by measureing the e-filed at the same location at beginning and the end of the scan measurement for each test position.

DASY4 system calucation Power drift value[dB] =20log(Ea)/(Eb)
Before SAR testing : Eb[V/m]
After SAR testing : Ea[V/m]

Limit of power drift[W] =+/-5%
X[dB]=10log[P]=10log(1.05/1)=10log(1.05)-10log(1)=0.212dB

from E-filed relations with power.
p=E^2/η=E^2/
Therefore, The correlation of power and the E-filed
XdB=10log(P)=10log(E)^2=20log(E)

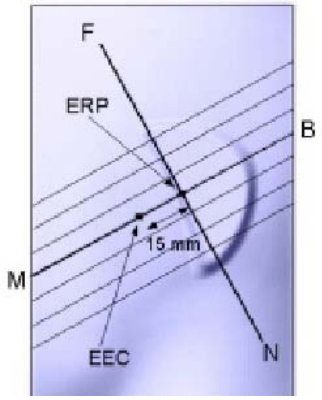
Therefore,
The calculated power drift of DASY5 System must be the less than +/-0.212dB.

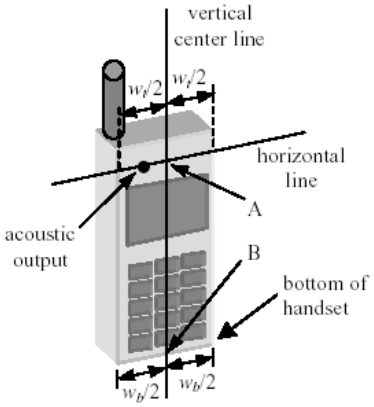
3.7 Description of the head test setup

According to the OET 65, and IEC62209-1 this EUT was tested on the "Cheek/Touch" and "Ear/Tilt" positions at the left head and right head section of the SAM phantom.

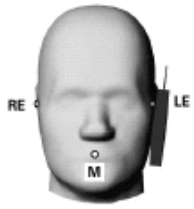
Initial ear position
A handset should be initially positioned with the earpiece region pressed against the ear spacer of a head phantom.

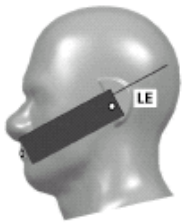
The device should be positioned parallel to the "N-F" line defined along the base of the ear spacer that contains the "ear reference point". The "test device reference point" is aligned to the "ear reference point" on the head phantom and the "vertical centerline" is aligned to the "phantom reference plane".

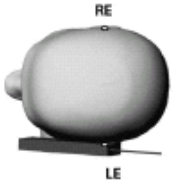




Cheek position
The device is brought toward the mouth of the head phantom by pivoting against the "ear reference point" or along the "N-F" line.
This test position is established:
i) When any point on the display, keypad or mouthpiece portions of the handset is in contact with the phantom.
ii) (or) When any portion of a foldout, sliding or similar keypad cover opened to its intended self-adjusting normal use position is in contact with the cheek or mouth of the phantom.

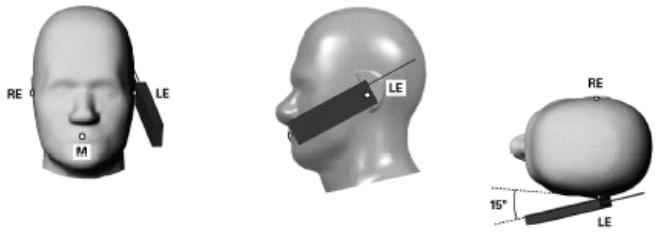






Tilt position

If the earpiece of the handset is not in full contact with the phantom's ear spacer and the peak SAR location for the "Cheek/Touch" position is located at the ear spacer region or corresponds to the earpiece region of the handset, the device should be returned to the "initial ear position" by rotating it away from the mouth until the earpiece is in full contact with the ear spacer. Otherwise the handset should be moved away from the cheek perpendicular to the line passes through both "ear reference points" for approximate 2-3 cm. While it is in this position, the handset is tilted away from the mouth with respect to the "test device reference point" by 15°. After the tilt, it is then moved back toward the head perpendicular to the line passes through both "ear reference points" until the device touches the phantom or the ear spacer. If the antenna touches the head first, the positioning process should be repeated with a tilt angle less than 15° so that the device and its antenna would touch the phantom simultaneously.



<Antenna position>

The antenna of this EUT was built-in antenna. Refer to the Appendix1.

3.8 Method of measurement (Head SAR)

<GSM mode>
Step1. The searching for the worst position

Step2. The changing to the Low and High channels
The test was performed at the worst position of Step1.

<WCDMA mode>
Step1. The searching for the worst position
The test was performed in the 12.2kbps RMC.

Step2. The changing to the Low and High channels
The test was performed at the worst position of Step1.

Note: For the SAR test for 12.2k bps AMR with a 3.4kbps SRB
The SAR is not required for handset with AMR mode because the maximum average output power with AMR is less than 1/4dB higher than that measured using 12.2kbps RMC.Refer to the result of power in the Section 6.

<Wireless LAN mode>
Step1. The searching for the worst position
The test was performed in the higher AVG power data rate (11b mode 5.5Mbps)

Step2. The changing to the lowest Data rate condition.(11b mode 1Mbps)
The test was performed at the worst position of Step1.

Step3. The changing to the Low and High channels
The test was performed at the worst condition of Step1 to Step.2.

Note: For the SAR for11g/n mode.The SAR is not required a 11g/n mode because the maximum average output power for 11g/n mode is less than 1/4dB higher than that measured in a 11b mode.
Refer to the result of power in the Section 6.

3.9 Description of the Body-worn setup

The tests were performed in the EUT with the earphone. (Refer to the Appendix1)

(1) Back (15mm) :
The measurement separated 15mm distance between the back face of EUT and flat section of Flat Phantom.

3.10 Method of measurement (Body-worn SAR)

<GSM mode>
Step1. The changing to the channels (Low, Mid, High)

Note: For the SAR test for the GPRS mode
The body SAR is not required for GPRS mode because the maximum average output power for GPRS mode is less than 1/4dB higher than that measured GSM mode.

<WCDMA mode>

Step1. The changing to the channels (Low, Mid, High)

Note: For the SAR test for the HSPA mode
The body SAR is not required for handset with HSPA(HSDPA/HSUPA) because the maximum average output power with HSPA active is less than 1/4dB higher than that measured without HSPA using 12.2kbps RMC.

<Wireless LAN mode>
Step1. The changing to the Data rate (11b mode 1Mbps and 11b mode5.5Mbps)

Step2. The changing to the Low and High channels
The test was performed at the worst condition of Step1.

Note: For the SAR for11g/n mode.The SAR is not required a 11g/n mode because the maximum average output power for 11g/n mode is less than 1/4dB higher than that measured in a 11b mode.
Refer to the result of power in the Section 6.

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

4.1 Operating modes

Communication link for GSM/WCDMA was set up with the Wireless Communications Test Set.
The EUT was command to operate at maximum transmit power.
The frequency band and the modulation used in this test are shown as a following.

1. GSM850 (Power level 5 / Multi-slot class 8)

Frequency band	: UP Link 824.2MHz – 848.8MHz / Down Link 869.2MHz – 893.8MHz
Channel	: 128ch(UP Link: 824.2MHz)
	190ch(UP Link: 836.6MHz)
	251ch(UP Link: 848.8MHz)
Modulation	: GSM
Crest factor (PAR)	: 8.3 (Tx 1slot)

2. PCS1900 (Power level 0 / Multi-slot class 8)

Frequency band	: UP Link 1850.2MHz – 1909.8MHz / Down Link 1930.2MHz – 1989.8MHz
Channel	: 512ch(UP Link: 1850.2MHz)
	661ch(UP Link: 1880.0MHz)
	810ch(UP Link: 1909.8MHz)
Modulation	: GSM
Crest factor	: 8.3 (Tx 1slot)

3. WCDMA V (TPC all ones)

Frequency band	: UP Link 826.4MHz – 846.6MHz / Down Link 871.4MHz – 891.6MHz
Channel(Up link)	: 4132ch(826.4MHz)
	4183ch(836.6MHz)
	4233ch(846.6MHz)
Modulation	: HPSK (HSDPA category 10 / HSUPA category 6)
Crest factor	: 1 (Duty 100%)

4. Wireless LAN

(i) 802.11b mode

Frequency band	: 2412MHz – 2462MHz
Channel	: 1ch(2412MHz)
	6ch(2437MHz)
	11ch(2462MHz)
Modulation	: DBPSK CCK (11b)
Crest factor	: 1 (Duty 100%)

SECTION 5 : Test surrounding

5.1 Measurement uncertainty

The uncertainty budget has been determined for the DASY5 measurement system according to the SPEAG documents[6] and is given in the following Table.

Error Description	Uncertainty value ± %	Probability distribution	divisor	(ci) 1g	Standard Uncertainty (1g)	vi or veff
Measurement System						
Probe calibration	±6.55	Normal	1	1	±6.55	∞
Axial isotropy of the probe	±4.7	Rectangular	√3	0.7	±1.9	∞
Spherical isotropy of the probe	±9.6	Rectangular	√3	0.7	±3.9	∞
Boundary effects	±2.0	Rectangular	√3	1	±1.2	∞
Probe linearity	±4.7	Rectangular	√3	1	±2.7	∞
Detection limit	±1.0	Rectangular	√3	1	±0.6	∞
Readout electronics	±0.3	Normal	1	1	±0.3	∞
Response time	±0.8	Rectangular	√3	1	±0.5	∞
Integration time	±2.6	Rectangular	√3	1	±1.5	∞
RF ambient Noise	±3.0	Rectangular	√3	1	±1.7	∞
RF ambient Reflections	±3.0	Rectangular	√3	1	±1.7	∞
Probe Positioner	±0.8	Rectangular	√3	1	±0.5	∞
Probe positioning	±9.9	Rectangular	√3	1	±5.7	∞
Max.SAR Eval.	±4.0	Rectangular	√3	1	±2.3	∞
Test Sample Related						
Device positioning	±2.9	Normal	1	1	±2.9	39
Device holder uncertainty	±3.6	Normal	1	1	±3.6	4
Power drift	±5.0	Rectangular	√3	1	±2.9	∞
Phantom and Setup						
Phantom uncertainty	±4.0	Rectangular	√3	1	±2.3	∞
Liquid conductivity (target)	±5.0	Rectangular	√3	0.64	±1.8	∞
Liquid conductivity (meas.)	±5.0	Rectangular	1	0.64	±3.2	∞
Liquid permittivity (target)	±5.0	Rectangular	√3	0.6	±1.7	∞
Liquid permittivity (meas.)	±5.0	Rectangular	1	0.6	±3.0	∞
Combined Standard Uncertainty					**±13.356**	
Expanded Uncertainty (k=2)					**±26.7**	

SECTION 6 : Confirmation before testing

6.1 Output Power Measurement results

<GSM 850>
This data is reference data of FCC Part22 test report. (Report No. 31HE0196-HO-E)
Date of test: April 1, 2011

This DATA is a result of execution in before SAR testing.

GSM850 SAR Power

Mode	Ch	Frequency [MHz]	P/M Reading [dBm] PK	P/M Reading [dBm] AVG	Atten. [dB]	Cable Loss [dB]	Result [dBm] PK	Result [dBm] AVG
GSM (GMSK/1slot)	Low	824.2	14.18	4.68	15.80	3.82	33.80	24.30
	Mid	836.6	14.07	4.62	15.82	3.83	33.72	24.27
	High	848.8	14.10	4.63	15.82	3.83	33.75	24.28
GPRS (GMSK/1slot)	Low	824.2	14.15	4.52	15.80	3.82	33.77	24.14
	Mid	836.6	14.04	4.36	15.82	3.83	33.69	24.01
	High	848.8	14.08	4.46	15.82	3.83	33.73	24.11

Results = P/M Reading + Atten.Loss + Cable Loss

<PCS1900>
This data is reference data of FCC Part 24 test report. (Report No. 31HE0196-HO-F)
Date of test: April 1, 2011

This DATA is a result of execution in before SAR testing.

PCS1900 SAR Power

Mode	Ch	Frequency [MHz]	P/M Reading [dBm] PK	P/M Reading [dBm] AVG	Atten. [dB]	Cable Loss [dB]	Result [dBm] PK	Result [dBm] AVG
GSM (GMSK/1slot)	Low	1850.2	7.83	-1.64	20.06	4.02	31.91	22.44
	Mid	1880.0	7.78	-1.73	20.06	4.08	31.92	22.41
	High	1909.8	7.61	-1.83	20.06	4.04	31.71	22.27
GPRS (GMSK/1slot)	Low	1850.2	7.61	-1.99	20.06	4.02	31.69	22.09
	Mid	1880.0	7.70	-1.99	20.06	4.08	31.84	22.15
	High	1909.8	7.55	-2.10	20.06	4.04	31.65	22.00

Results = P/M Reading + Atten.Loss + Cable Loss

<WCDMA V band>
SAR power is equal to DATAof FCC Part22 test report. (Report No. 31HE0196-HO-01-E)
Date of test: April 1, 2011

This DATA is a result of execution in before SAR testing.

WCDMA V band Power			
Mode	**Ch**	**Frequency [MHz]**	**Result (AVG) [dBm]**
RMC 12.2kbps	Low	826.4	23.94
	Mid	836.6	23.96
	High	846.6	23.85
AMR 12.2kbps with 3.4kbps SRB	Low	826.4	23.93
	Mid	836.6	23.93
	High	846.6	23.84
HSDPA Subtest 1	Low	826.4	23.76
	Mid	836.6	23.93
	High	846.6	23.74
HSDPA Subtest 2	Low	826.4	23.84
	Mid	836.6	23.95
	High	846.6	23.85
HSDPA Subtest 3	Low	826.4	23.31
	Mid	836.6	23.44
	High	846.6	23.31
HSDPA Subtest 4	Low	826.4	23.41
	Mid	836.6	23.35
	High	846.6	23.33
HSUPA Subtest 1	Low	826.4	23.06
	Mid	836.6	23.40
	High	846.6	23.44
HSUPA Subtest 2	Low	826.4	22.37
	Mid	836.6	21.90
	High	846.6	21.89
HSUPA Subtest 3	Low	826.4	22.55
	Mid	836.6	22.44
	High	846.6	22.48
HSUPA Subtest 4	Low	826.4	22.34
	Mid	836.6	22.65
	High	846.6	22.67
HSUPA Subtest 5	Low	826.4	23.02
	Mid	836.6	23.42
	High	846.6	23.42

MPR Explanation

The product implements an Enhanced MPR (E-MPR) software algorithm that also considers power compression (Scaling), a requirement per 3GPP 25.214 section 5.1.2.6, to generate a more accurate Cubic Metric (CM) value that is used to determine the magnitude of power reduction for HSPA signals. The Enhanced MPR solution can introduce a deviation of the actual observed power reduction from the MPR target values configured for a device.

In the power scaling process defined by 3GPP TS 25.214, the channel beta values are modified as the transmitted signal approaches maximum power to ensure that the transmit power does not exceed the maximum rated transmit power and is also compliant with emissions requirements. The power scaling process considers the software-defined MPR target values based on the CM for the signal to be transmitted to determine the required power reduction for a given signal. The actual CM value of the signal transmitted after power scaling, however, is often different from the estimated CM value used in the power reduction algorithm.

An accurate CM value is desirable as the goal of power reduction is to maintain compliance with emissions limits. By using a more accurate CM value, the E-MPR process minimizes the magnitudes of power reduction required to maintain emissions compliance whereas the legacy MPR software may incorporate a magnitude of power reduction that is higher than is required for emissions compliance.

The enhanced power reduction may result in around 1dB of variance from the MPR target values depending on HSPA channel configuration (e.g. 34.121 subtest) and characteristics of hardware RF design.

<Wireless LAN>
This data is reference data of FCC 15.247 test report. (Report No. 31HE0196-HO-A)
Date of test: March 31, 2011

This DATA is a result of execution in before SAR testing.

11b

[DATA rate Pre check]

Data Rate [Mbps]	Freq. [MHz]	P/M (PK) Reading [dBm]	P/M (AVG) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	PK Result [dBm]	PK Result [mW]	AVG Result [dBm]	AVG Result [mW]	
1	2412.0	4.36	1.80	0.78	10.07	15.21	33.19	12.65	18.41	
2	2412.0	4.44	1.86	0.78	10.07	15.29	33.81	12.71	18.66	
5.5	2412.0	4.58	2.27	0.78	10.07	15.43	34.91	13.12	20.51	
11	2412.0	4.70	1.99	0.78	10.07	15.55	35.89	12.84	19.23	

[DATA rate Pre check]

Data Rate [Mbps]	Freq. [MHz]	P/M (PK) Reading [dBm]	P/M (AVG) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	PK Result [dBm]	PK Result [mW]	AVG Result [dBm]	AVG Result [mW]	
1	2437.0	4.29	1.79	0.77	10.07	15.13	32.58	12.63	18.32	*SAR test mode
2	2437.0	4.36	1.80	0.77	10.07	15.20	33.11	12.64	18.37	
5.5	2437.0	4.53	2.21	0.77	10.07	15.37	34.43	13.05	20.18	*SAR test mode
11	2437.0	4.67	1.96	0.77	10.07	15.51	35.56	12.80	19.05	

[DATA rate Pre check]

Data Rate [Mbps]	Freq. [MHz]	P/M (PK) Reading [dBm]	P/M (AVG) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	PK Result [dBm]	PK Result [mW]	AVG Result [dBm]	AVG Result [mW]
1	2462.0	4.24	1.78	0.80	10.07	15.11	32.43	12.65	18.41
2	2462.0	4.31	1.81	0.80	10.07	15.18	32.96	12.68	18.54
5.5	2462.0	4.44	2.26	0.80	10.07	15.31	33.96	13.13	20.56
11	2462.0	4.58	1.98	0.80	10.07	15.45	35.08	12.85	19.28

Sample Calculation: Result = Reading Cable loss + Atten. Loss

11g

[DATA rate Pre check]

Data Rate [Mbps]	Freq. [MHz]	P/M (PK) Reading [dBm]	P/M (AVG) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	PK Result [dBm]	PK Result [mW]	AVG Result [dBm]	AVG Result [mW]
6	2412.0	6.33	-0.35	0.78	10.07	17.18	52.24	10.50	11.22
9	2412.0	6.31	-0.39	0.78	10.07	17.16	52.00	10.46	11.12
12	2412.0	6.38	-0.90	0.78	10.07	17.23	52.84	9.95	9.89
18	2412.0	6.21	-1.49	0.78	10.07	17.06	50.82	9.36	8.63
24	2412.0	6.13	-2.09	0.78	10.07	16.98	49.89	8.76	7.52
36	2412.0	5.85	-2.92	0.78	10.07	16.70	46.77	7.93	6.21
48	2412.0	5.67	-4.02	0.78	10.07	16.52	44.87	6.83	4.82
54	2412.0	5.25	-4.60	0.78	10.07	16.10	40.74	6.25	4.22

[DATA rate Pre check]

Data Rate [Mbps]	Freq. [MHz]	P/M (PK) Reading [dBm]	P/M (AVG) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	PK Result [dBm]	PK Result [mW]	AVG Result [dBm]	AVG Result [mW]
6	2437.0	6.41	-0.27	0.77	10.07	17.25	53.09	10.57	11.40
9	2437.0	6.31	-0.32	0.77	10.07	17.15	51.88	10.52	11.27
12	2437.0	6.50	-0.78	0.77	10.07	17.34	54.20	10.06	10.14
18	2437.0	6.32	-1.27	0.77	10.07	17.16	52.00	9.57	9.06
24	2437.0	6.24	-1.91	0.77	10.07	17.08	51.05	8.93	7.82
36	2437.0	6.15	-2.72	0.77	10.07	16.99	50.00	8.12	6.49
48	2437.0	5.90	-3.26	0.77	10.07	16.74	47.21	7.58	5.73
54	2437.0	5.49	-4.15	0.77	10.07	16.33	42.95	6.69	4.67

[DATA rate Pre check]

Data Rate [Mbps]	Freq. [MHz]	P/M (PK) Reading [dBm]	P/M (AVG) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	PK Result [dBm]	PK Result [mW]	AVG Result [dBm]	AVG Result [mW]
6	2462.0	6.13	-0.25	0.80	10.07	17.00	50.12	10.62	11.53
9	2462.0	6.11	-0.29	0.80	10.07	16.98	49.89	10.58	11.43
12	2462.0	6.22	-0.63	0.80	10.07	17.09	51.17	10.24	10.57
18	2462.0	6.08	-1.00	0.80	10.07	16.95	49.55	9.87	9.71
24	2462.0	6.02	-1.11	0.80	10.07	16.89	48.87	9.76	9.46
36	2462.0	5.93	-2.04	0.80	10.07	16.80	47.86	8.83	7.64
48	2462.0	5.80	-2.66	0.80	10.07	16.67	46.45	8.21	6.62
54	2462.0	5.34	-3.78	0.80	10.07	16.21	41.78	7.09	5.12

11n 20M Short GI(400ns)

[DATA rate Pre check]

Data Rate [MCS]	Freq. [MHz]	P/M (PK) Reading [dBm]	P/M (AVG) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	PK Result [dBm]	PK Result [mW]	AVG Result [dBm]	AVG Result [mW]
0	2412.0	6.50	-0.30	0.78	10.07	17.35	54.33	10.55	11.35
1	2412.0	6.39	-0.84	0.78	10.07	17.24	52.97	10.01	10.02
2	2412.0	6.32	-1.38	0.78	10.07	17.17	52.12	9.47	8.85
3	2412.0	6.22	-2.00	0.78	10.07	17.07	50.93	8.85	7.67
4	2412.0	5.98	-2.84	0.78	10.07	16.83	48.19	8.01	6.32
5	2412.0	5.61	-3.92	0.78	10.07	16.46	44.26	6.93	4.93
6	2412.0	5.37	-4.15	0.78	10.07	16.22	41.88	6.70	4.68
7	2412.0	4.20	-6.26	0.78	10.07	15.05	31.99	4.59	2.88

[DATA rate Pre check]

Data Rate [MCS]	Freq. [MHz]	P/M (PK) Reading [dBm]	P/M (AVG) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	PK Result [dBm]	PK Result [mW]	AVG Result [dBm]	AVG Result [mW]
0	2437.0	6.52	-0.16	0.77	10.07	17.36	54.45	10.68	11.69
1	2437.0	6.42	-0.67	0.77	10.07	17.26	53.21	10.17	10.40
2	2437.0	6.39	-1.15	0.77	10.07	17.23	52.84	9.69	9.31
3	2437.0	6.33	-1.81	0.77	10.07	17.17	52.12	9.03	8.00
4	2437.0	6.17	-2.61	0.77	10.07	17.01	50.23	8.23	6.65
5	2437.0	5.98	-3.15	0.77	10.07	16.82	48.08	7.69	5.87
6	2437.0	5.78	-3.69	0.77	10.07	16.62	45.92	7.15	5.19
7	2437.0	4.47	-5.93	0.77	10.07	15.31	33.96	4.91	3.10

[DATA rate Pre check]

Data Rate [MCS]	Freq. [MHz]	P/M (PK) Reading [dBm]	P/M (AVG) Reading [dBm]	Cable Loss [dB]	Atten. Loss [dB]	PK Result [dBm]	PK Result [mW]	AVG Result [dBm]	AVG Result [mW]
0	2462.0	6.32	-0.15	0.80	10.07	17.19	52.36	10.72	11.80
1	2462.0	6.26	-0.55	0.80	10.07	17.13	51.64	10.32	10.76
2	2462.0	6.13	-0.97	0.80	10.07	17.00	50.12	9.90	9.77
3	2462.0	5.99	-1.43	0.80	10.07	16.86	48.53	9.44	8.79
4	2462.0	5.96	-2.01	0.80	10.07	16.83	48.19	8.86	7.69
5	2462.0	5.78	-2.56	0.80	10.07	16.65	46.24	8.31	6.78
6	2462.0	5.57	-3.22	0.80	10.07	16.44	44.06	7.65	5.82
7	2462.0	4.68	-5.35	0.80	10.07	15.55	35.89	5.52	3.56

11n 20M Long GI(800ns)

[DATA rate Pre check]									
Data Rate	Freq.	P/M (PK) Reading	P/M (AVG) Reading	Cable Loss	Atten. Loss	PK Result		AVG Result	
[MCS]	[MHz]	[dBm]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]
0	2412.0	6.34	-0.33	0.78	10.07	17.19	52.36	10.52	11.27
1	2412.0	6.31	-0.87	0.78	10.07	17.16	52.00	9.98	9.95
2	2412.0	6.25	-1.39	0.78	10.07	17.10	51.29	9.46	8.83
3	2412.0	6.12	-2.05	0.78	10.07	16.97	49.77	8.80	7.59
4	2412.0	5.94	-2.84	0.78	10.07	16.79	47.75	8.01	6.32
5	2412.0	5.54	-3.93	0.78	10.07	16.39	43.55	6.92	4.92
6	2412.0	5.41	-4.21	0.78	10.07	16.26	42.27	6.64	4.61
7	2412.0	4.20	-6.27	0.78	10.07	15.05	31.99	4.58	2.87

[DATA rate Pre check]									
Data Rate	Freq.	P/M (PK) Reading	P/M (AVG) Reading	Cable Loss	Atten. Loss	PK Result		AVG Result	
[MCS]	[MHz]	[dBm]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]
0	2437.0	6.47	-0.22	0.77	10.07	17.31	53.83	10.62	11.53
1	2437.0	6.34	-0.67	0.77	10.07	17.18	52.24	10.17	10.40
2	2437.0	6.28	-1.20	0.77	10.07	17.12	51.52	9.64	9.20
3	2437.0	6.24	-1.83	0.77	10.07	17.08	51.05	9.01	7.96
4	2437.0	6.09	-2.63	0.77	10.07	16.93	49.32	8.21	6.62
5	2437.0	5.93	-3.17	0.77	10.07	16.77	47.53	7.67	5.85
6	2437.0	5.59	-3.70	0.77	10.07	16.43	43.95	7.14	5.18
7	2437.0	4.34	-5.95	0.77	10.07	15.18	32.96	4.89	3.08

[DATA rate Pre check]									
Data Rate	Freq.	P/M (PK) Reading	P/M (AVG) Reading	Cable Loss	Atten. Loss	PK Result		AVG Result	
[MCS]	[MHz]	[dBm]	[dBm]	[dB]	[dB]	[dBm]	[mW]	[dBm]	[mW]
0	2462.0	6.19	-0.23	0.80	10.07	17.06	50.82	10.64	11.59
1	2462.0	6.02	-0.62	0.80	10.07	16.89	48.87	10.25	10.59
2	2462.0	5.98	-1.02	0.80	10.07	16.85	48.42	9.85	9.66
3	2462.0	5.90	-1.49	0.80	10.07	16.77	47.53	9.38	8.67
4	2462.0	5.82	-2.03	0.80	10.07	16.69	46.67	8.84	7.66
5	2462.0	5.72	-2.63	0.80	10.07	16.59	45.60	8.24	6.67
6	2462.0	5.44	-3.25	0.80	10.07	16.31	42.76	7.62	5.78
7	2462.0	4.26	-5.39	0.80	10.07	15.13	32.58	5.48	3.53

Note: For the SAR for11g/n mode.The SAR is not required a 11g/n mode because the maximum average output power for 11g/n mode is less than 1/4dB higher than that measured in a 11b mode.
Refer to the result of power in the Section 6.

SECTION 7 : Measurement results

7.1 Head GSM 850MHz SAR

Liquid Depth (cm)	:	**15.0**	Model	:	**KMP7N4Y1-1A**
Parameters	:	ε_r =**41.7**, σ =**0.91**	Serial No.	:	**004401200680128**
Ambient temperature (deg.c.)	:	**24.0**	Modulation	:	**GSM**
Relative Humidity (%)	:	**38**	Crest factor	:	**8.3**
Date	:	**April 4, 2011**	Measured By	:	**Hisayoshi Sato**

HEAD SAR MEASUREMENT RESULTS								
Frequency		Modulation	Phantom Section	EUT Set-up Conditions		Liquid Temp.[deg.c]		SAR(1g) [W/kg]
Channel	[MHz]			Antenna	Position	Before	After	Maximum of multi-peak
Step1. Position search								
Mid	836.6	GSM	Left	Fixed	Cheek	22.5	22.5	**0.675**
Mid	836.6	GSM	Left	Fixed	Tilt	22.5	22.5	**0.419**
Mid	836.6	GSM	Right	Fixed	Cheek	22.5	22.5	**0.665**
Mid	836.6	GSM	Right	Fixed	Tilt	22.5	22.5	**0.501**
Step 2. Change to the Low and High channels								
Low	824.2	GSM	Left	Fixed	Cheek	22.5	22.5	**0.722**
High	848.8	GSM	Left	Fixed	Cheek	22.5	22.5	**0.736**

7.2 Head PCS 1900MHz SAR

Liquid Depth (cm)	:	**15.0**	Model	:	**KMP7N4Y1-1A**
Parameters	:	ε_r =**39.2**, σ =**1.44**	Serial No.	:	**004401200680128**
Ambient temperature (deg.c.)	:	**24.2**	Modulation	:	**GSM**
Relative Humidity (%)	:	**41**	Crest factor	:	**8.3**
Date	:	**April 3, 2011**	Measured By	:	**Hisayoshi Sato**

HEAD SAR MEASUREMENT RESULTS								
Frequency		Modulation	Phantom Section	EUT Set-up Conditions		Liquid Temp.[deg.c]		SAR(1g) [W/kg]
Channel	[MHz]			Antenna	Position	Before	After	Maximum value of multi-peak
Step 1. Search for the worst position								
Mid	1880.0	GSM	Left	Fixed	Cheek	22.7	22.7	**0.206**
Mid	1880.0	GSM	Left	Fixed	Tilt	22.7	22.7	**0.073**
Mid	1880.0	GSM	Right	Fixed	Cheek	22.7	22.7	**0.493**
Mid	1880.0	GSM	Right	Fixed	Tilt	22.7	22.7	**0.100**
Step 2. Change to the Low and High channels								
Low	1850.2	GSM	Right	Fixed	Cheek	22.7	22.7	**0.393**
High	1909.8	GSM	Right	Fixed	Cheek	22.7	22.7	**0.390**

7.3 Head WCDMA V band SAR

Liquid Depth (cm)	:	**15.0**	Model	:	**KMP7N4Y1-1A**
Parameters	:	ε_r =**41.7**, σ =**0.91**	Serial No.	:	**004401200680128**
Ambient temperature (deg.c.)	:	**24.0**	Modulation	:	**HPSK**
Relative Humidity (%)	:	**38**	Crest factor	:	**1**
Date	:	**April 4, 2011**	Measured By	:	**Hisayoshi Sato**

HEAD SAR MEASUREMENT RESULTS								
Frequency		Mode	Phantom Section	EUT Set-up Conditions		Liquid Temp.[deg.c]		SAR(1g) [W/kg]
Channel	[MHz]			Antenna	Position	Before	After	Maximum of multi-peak
Step1. Position search								
Mid	836.6	RMC 12.2k	Left	Fixed	Cheek	22.7	22.7	**0.570**
Mid	836.6	RMC 12.2k	Left	Fixed	Tilt	22.7	22.7	**0.510**
Mid	836.6	RMC 12.2k	Right	Fixed	Cheek	22.7	22.7	**0.575**
Mid	836.6	RMC 12.2k	Right	Fixed	Tilt	22.7	22.7	**0.471**
Step 2. Change to the Low and High channels								
Low	826.4	RMC 12.2k	Right	Fixed	Cheek	22.7	22.7	**0.459**
High	846.6	RMC 12.2k	Right	Fixed	Cheek	22.7	22.7	**0.618**

Note: For the SAR test for 12.2k bps RMC with a 3.4kbps SRB
The SAR is not required for handset with AMR mode because the maximum average output power with AMR is less than 1/4dB higher than that measured using 12.2kbps RMC.Refer to the result of power in the Section 6.

7.4 Head WLAN SAR

Liquid Depth (cm)	:	**15.0**	Model	:	**KMP7N4Y1-1A**
Parameters	:	ε_r =**38.1**, σ =**1.87**	Serial No.	:	**004401200680128**
Ambient temperature (deg.c.)	:	**24.3**	Modulation	:	**DBPSK,CCK**
Relative Humidity (%)	:	**37**	Crest factor	:	**1**
Date	:	**April 1, 2011**	Measured By	:	**Hisayoshi Sato**

HEAD SAR MEASUREMENT RESULTS								
Frequency		Mode	Phantom Section	EUT Set-up Conditions		Liquid Temp.[deg.c]		SAR(1g) [W/kg]
Channel	[MHz]			Antenna	Position	Before	After	Maximum of multi-peak
Step1. Position search								
Mid	2437.0	CCK 5.5Mbps	Left	Fixed	Cheek	22.5	22.5	**0.220**
Mid	2437.0	CCK 5.5Mbps	Left	Fixed	Tilt	22.5	22.5	**0.055**
Mid	2437.0	CCK 5.5Mbps	Right	Fixed	Cheek	22.5	22.5	**0.280**
Mid	2437.0	CCK 5.5Mbps	Right	Fixed	Tilt	22.5	22.5	**0.103**
Step 2. Change to the datarate								
Mid	2437.0	DBPSK 1Mbps	Right	Fixed	Cheek	22.5	22.5	**0.279**
Step 3. Change to the Low and High channels								
Low	2412.0	CCK 5.5Mbps	Right	Fixed	Cheek	22.5	22.5	**0.204**
High	2462.0	CCK 5.5Mbps	Right	Fixed	Cheek	22.5	22.5	**0.275**

Note: For the SAR for11g/n mode.The SAR is not required a 11g/n mode because the maximum average output power for 11g/n mode is less than 1/4dB higher than that measured in a 11b mode.
Refer to the result of power in the Section 6.

7.5 Body-worn GSM 850MHz SAR

Liquid Depth (cm)	:	**15.0**	Model	:	**KMP7N4Y1-1A**
Parameters	:	ε_r =**55.9** σ =**0.97**	Serial No.	:	**004401200680128**
Ambient temperature (deg.c.)	:	**24.1**	Modulation	:	**GSM**
Relative Humidity (%)	:	**39**	Crest factor	:	**8.3**
Date	:	**April 6, 2011**	Measured By	:	**Hisayoshi Sato**

BODY SAR MEASUREMENT RESULTS									
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 of multi-peak
Low	824.2	GSM	Flat	Fixed	Back	15	23.0	23.0	**0.404**
Mid	836.6	GSM	Flat	Fixed	Back	15	23.0	23.0	**0.437**
High	848.8	GSM	Flat	Fixed	Back	15	23.0	23.0	**0.360**

Note: For the SAR test for the GPRS mode
The body SAR is not required for GPRS mode because the maximum average output power for GPRS mode is less than 1/4dB higher than that measured GSM mode.

7.6 Body-worn PCS 1900MHz SAR

Liquid Depth (cm)	:	**15.0**	Model	:	**KMP7N4Y1-1A**
Parameters	:	ε_r =**52.1**, σ =**1.57**	Serial No.	:	**004401200680128**
Ambient temperature (deg.c.)	:	**24.5**	Modulation	:	**GSM**
Relative Humidity (%)	:	**40**	Crest factor	:	**8.3**
Date	:	**March 31, 2011**	Measured By	:	**Hisayoshi Sato**

BODY SAR MEASUREMENT RESULTS									
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 of multi-peak
Low	1850.2	GSM	Flat	Fixed	Back	15	23.5	23.5	**0.365**
Mid	1880.0	GSM	Flat	Fixed	Back	15	23.5	23.5	**0.358**
High	1909.8	GSM	Flat	Fixed	Back	15	23.5	23.5	**0.388**

Note: For the SAR test for the GPRS mode
The body SAR is not required for GPRS mode because the maximum average output power for GPRS mode is less than 1/4dB higher than that measured GSM mode.

7.7 Body-worn WCDMA V band SAR

Liquid Depth (cm)	:	**15.0**	Model	:	**KMP7N4Y1-1A**
Parameters	:	**ε_r =55.9 σ =0.97**	Serial No.	:	**004401200680128**
Ambient temperature (deg.c.)	:	**24.1**	Modulation	:	**HPSK**
Relative Humidity (%)	:	**38**	Crest factor	:	**1**
Date	:	**April 6, 2011**	Measured By	:	**Hisayoshi Sato**

BODY SAR MEASUREMENT RESULTS									
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 of multi-peak
Low	826.4	RMC 12.2k	Flat	Fixed	Back	15	23.0	23.0	**0.346**
Mid	836.6	RMC 12.2k	Flat	Fixed	Back	15	23.0	23.0	**0.348**
High	846.6	RMC 12.2k	Flat	Fixed	Back	15	23.0	23.0	**0.479**

Note: For the SAR test for the HSPA mode
The body SAR is not required for handset with HSPA(HSDPA/HSUPA) because the maximum average output power with HSPA active is less than 1/4dB higher than that measured without HSPA using 12.2kbps RMC.

7.8 Body-worn WLAN SAR

Liquid Depth (cm)	:	**15.0**	Model	:	**KMP7N4Y1-1A**
Parameters	:	**ε_r =50.9 σ =2.01**	Serial No.	:	**004401200680128**
Ambient temperature (deg.c.)	:	**24.5**	Modulation	:	**DBPSK, CCK**
Relative Humidity (%)	:	**41**	Crest factor	:	**1**
Date	:	**March 31, 2011**	Measured By	:	**Hisayoshi Sato**

BODY SAR MEASUREMENT RESULTS									
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 of multi-peak
Step 1. Change to the data rate									
Mid	2437	CCK 5.5Mbps	Flat	Fixed	Back	15	23.5	23.5	**0.079**
Mid	2437	DBPSK 1Mbps	Flat	Fixed	Back	15	23.5	23.5	**0.057**
Step 2. Change to the Low and High channels									
Low	2412	CCK 5.5Mbps	Flat	Fixed	Back	15	23.5	23.5	**0.037**
High	2462	CCK 5.5Mbps	Flat	Fixed	Back	15	23.5	23.5	**0.052**

Note: For the SAR for11g/n mode.The SAR is not required a 11g/n mode because the maximum average output power for 11g/n mode is less than 1/4dB higher than that measured in a 11b mode.
Refer to the result of power in the Section 6.

APPENDIX 1 : Photographs of test setup

APPENDIX 2 : 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 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 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(EX3DV3) 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 (HEAD DATA)

i)GSM850

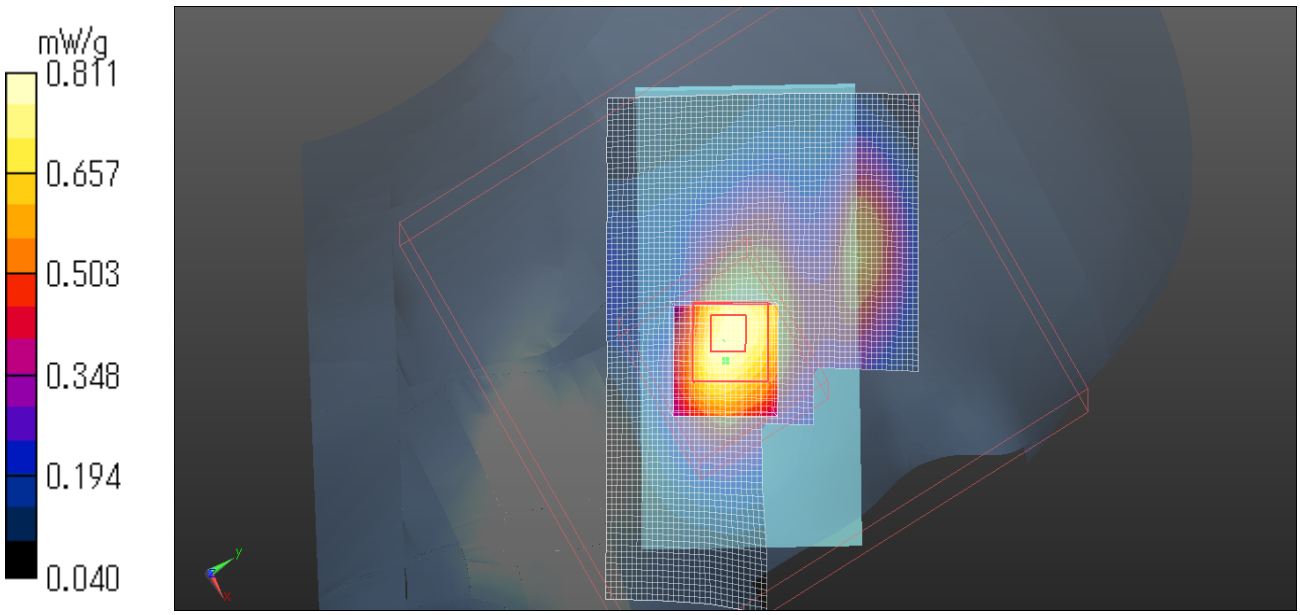
KMP7N4Y1-1A Head Left Touch GSM850 836.6MHz

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 835 MHz; σ = 0.91 mho/m; εr = 41.7; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:
Probe: EX3DV3 - SN3507; ConvF(10.35, 10.35, 10.35); Calibrated: 2011/03/16
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn539; Calibrated: 2010/09/13
Phantom: SAM with CRP; Type: SAM;
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Left-Hand-Side HSL/Touch Position - Mid/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.834 mW/g

Left-Hand-Side HSL/Touch Position - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.667 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 0.919 W/kg
SAR(1 g) = 0.675 mW/g; SAR(10 g) = 0.446 mW/g
Maximum value of SAR (measured) = 0.811 mW/g

Test Date = 04/04/2011
Ambient Temperature = 24.0 degree.c
Liquid Temperature = Before 22.5degree.C , After 22.5 degree.C



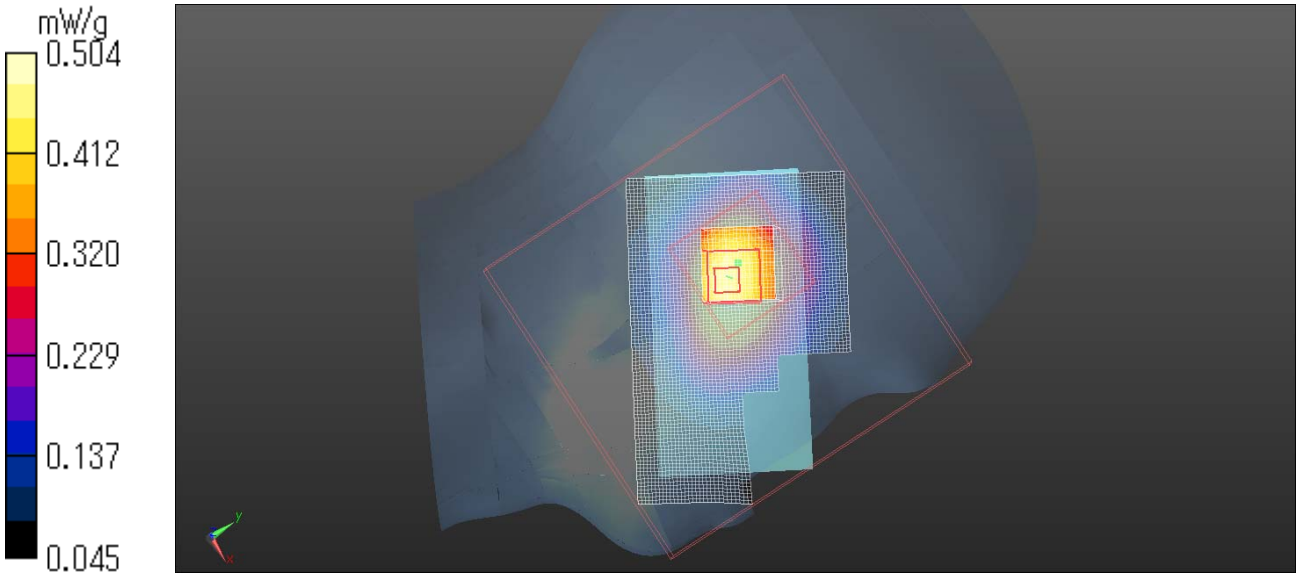
KMP7N4Y1-1A Head Left tilt GSM850 836.6MHz

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 835 MHz; σ = 0.91 mho/m; εr = 41.7; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:
Probe: EX3DV3 - SN3507; ConvF(10.35, 10.35, 10.35); Calibrated: 2011/03/16
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn539; Calibrated: 2010/09/13
Phantom: SAM with CRP; Type: SAM;
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Left-Hand-Side HSL/Tilt Position - Mid/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.469 mW/g

Left-Hand-Side HSL/Tilt Position - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.050 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.569 W/kg
SAR(1 g) = 0.419 mW/g; SAR(10 g) = 0.296 mW/g
Maximum value of SAR (measured) = 0.504 mW/g

Test Date = 04/04/2011
Ambient Temperature = 24.0 degree.c
Liquid Temperature = Before 22.5degree.C , After 22.5 degree.C



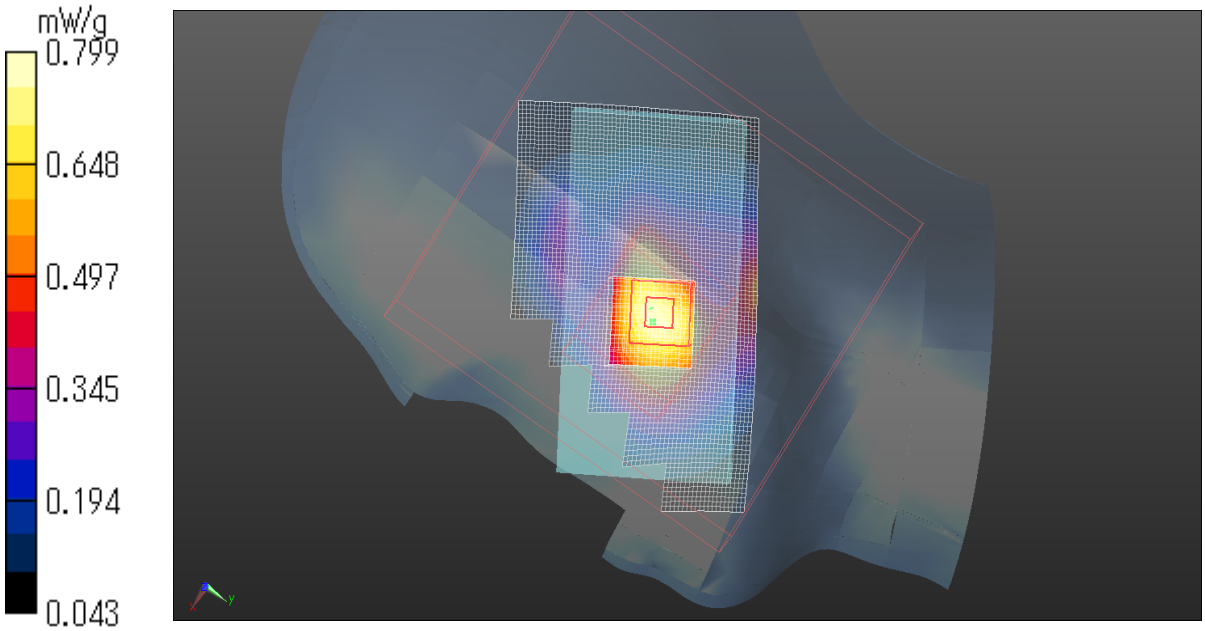
KMP7N4Y1-1A Head Right Touch GSM850 836.6MHz

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 835 MHz; σ = 0.91 mho/m; εr = 41.7; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:
Probe: EX3DV3 - SN3507; ConvF(10.35, 10.35, 10.35); Calibrated: 2011/03/16
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn539; Calibrated: 2010/09/13
Phantom: SAM with CRP; Type: SAM;
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Right-Hand-Side HSL/Touch Position - Mid/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.796 mW/g

Right-Hand-Side HSL/Touch Position - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.452 V/m; Power Drift = 0.14 dB
Peak SAR (extrapolated) = 0.889 W/kg
SAR(1 g) = 0.665 mW/g; SAR(10 g) = 0.457 mW/g
Maximum value of SAR (measured) = 0.799 mW/g

Test Date = 04/04/2011
Ambient Temperature = 24.0 degree.c
Liquid Temperature = Before 22.5degree.C , After 22.5 degree.C



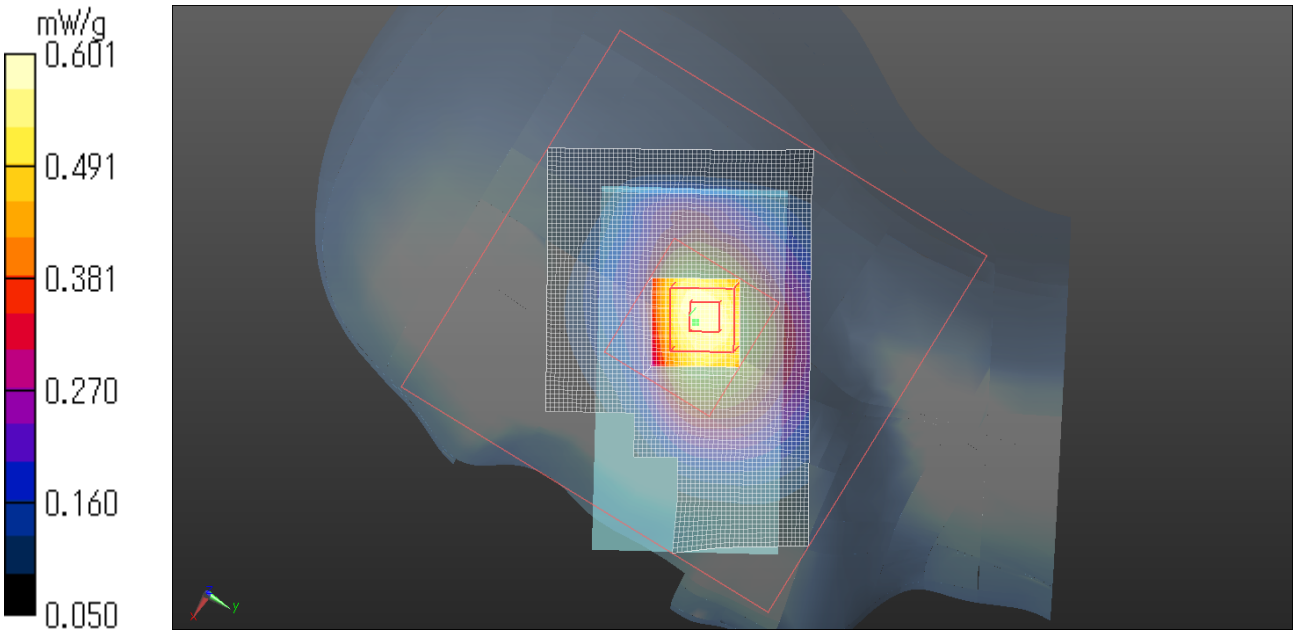
KMP7N4Y1-1A Head Right Tilt GSM850 836.6MHz

Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 835 MHz; σ = 0.91 mho/m; εr = 41.7; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:
Probe: EX3DV3 - SN3507; ConvF(10.35, 10.35, 10.35); Calibrated: 2011/03/16
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn539; Calibrated: 2010/09/13
Phantom: SAM with CRP; Type: SAM;
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Right-Hand-Side HSL/Tilt Position - Mid/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.627 mW/g

Right-Hand-Side HSL/Tilt Position - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.798 V/m; Power Drift = -0.18 dB
Peak SAR (extrapolated) = 0.681 W/kg
SAR(1 g) = 0.501 mW/g; SAR(10 g) = 0.352 mW/g
Maximum value of SAR (measured) = 0.601 mW/g

Test Date = 04/04/2011
Ambient Temperature = 24.0 degree.c
Liquid Temperature = Before 22.5degree.C , After 22.5 degree.C



KMP7N4Y1-1A Head Left Touch GSM850 824.2MHz

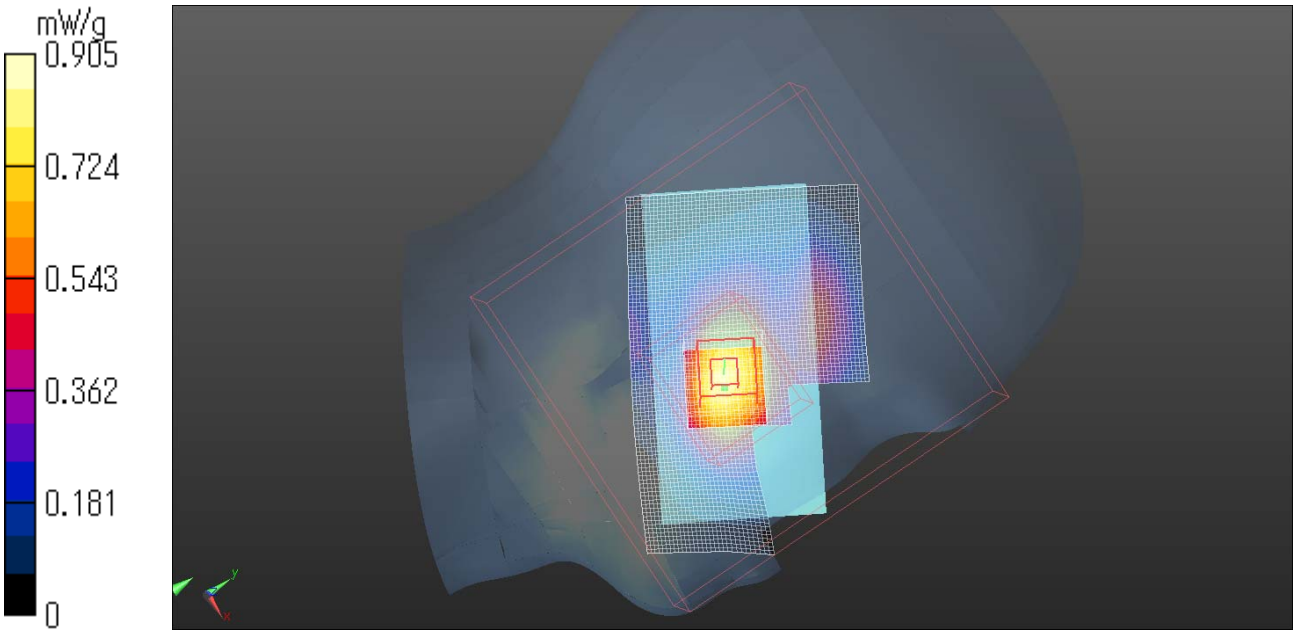
Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); 824.2 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 835 MHz; σ = 0.91 mho/m; εr = 41.7; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:
Probe: EX3DV3 - SN3507; ConvF(10.35, 10.35, 10.35); Calibrated: 2011/03/16
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn539; Calibrated: 2010/09/13
Phantom: SAM with CRP; Type: SAM;
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Left-Hand-Side HSL/Touch Position - Low/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.905 mW/g

Left-Hand-Side HSL/Touch Position - Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.047 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.959 W/kg

SAR(1 g) = 0.722 mW/g; SAR(10 g) = 0.485 mW/g
Maximum value of SAR (measured) = 0.859 mW/g

Test Date = 04/04/2011
Ambient Temperature = 24.0 degree.c
Liquid Temperature = Before 22.5degree.C , After 22.5 degree.C



KMP7N4Y1-1A Head Left Touch GSM850 848.6MHz

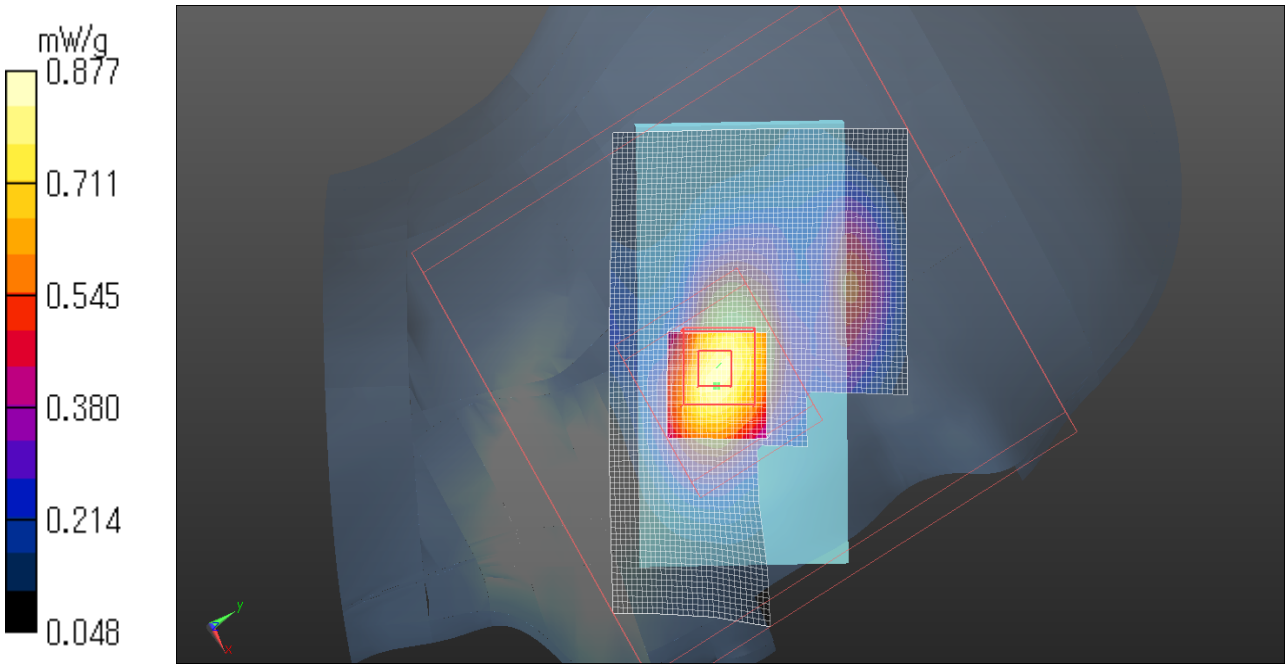
Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Frequency: 848.6 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 835 MHz; σ = 0.91 mho/m; εr = 41.7; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:
Probe: EX3DV3 - SN3507; ConvF(10.35, 10.35, 10.35); Calibrated: 2011/03/16
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn539; Calibrated: 2010/09/13
Phantom: SAM with CRP; Type: SAM;
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Left-Hand-Side HSL/Touch Position - High/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.877 mW/g

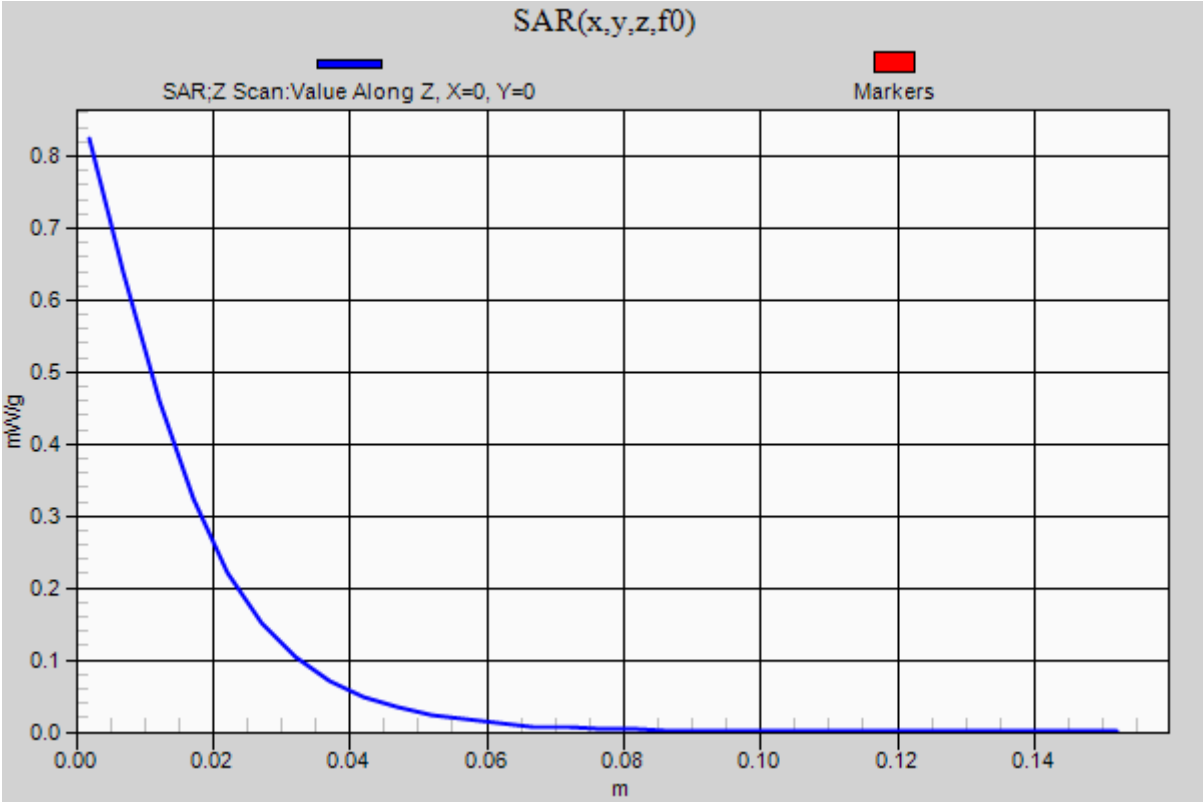
Left-Hand-Side HSL/Touch Position - High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.104 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 0.960 W/kg

SAR(1 g) = 0.736 mW/g; SAR(10 g) = 0.493 mW/g
Maximum value of SAR (measured) = 0.877 mW/g

Test Date = 04/04/2011
Ambient Temperature = 24.0 degree.c
Liquid Temperature = Before 22.5degree.C , After 22.5 degree.C



Z-axis scan at max SAR location
KMP7N4Y1-1A Head Left Touch GSM850 848.8MHz



ii)PCS1900

KMP7N4Y1-1A Head Left Touch PCS1900 1880MHz

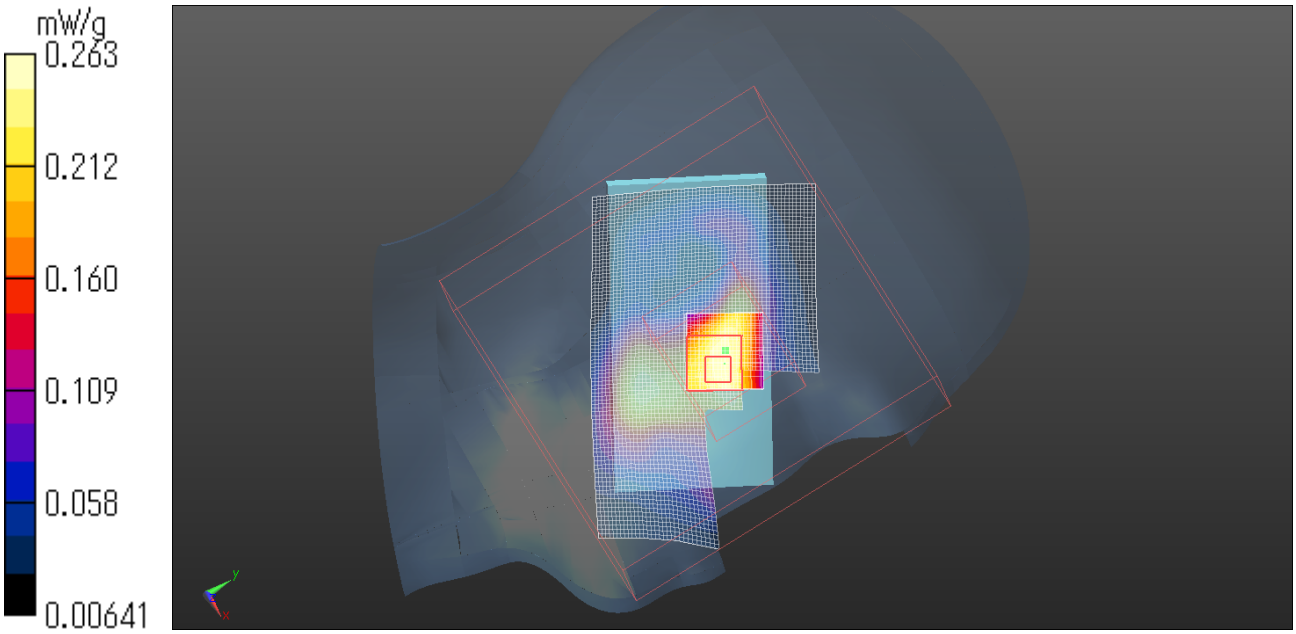
Communication System: Generic GSM; Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz); Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.44 mho/m; ε_r = 39.2; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:
Probe: EX3DV3 - SN3507; ConvF(8.78, 8.78, 8.78); Calibrated: 2011/03/16
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn539; Calibrated: 2010/09/13
Phantom: SAM with CRP; Type: SAM;
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Left-Hand-Side HSL/Touch Position - Mid/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.280 mW/g

Left-Hand-Side HSL/Touch Position - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.586 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 0.318 W/kg

SAR(1 g) = 0.206 mW/g; SAR(10 g) = 0.130 mW/g
Maximum value of SAR (measured) = 0.263 mW/g

Test Date = 04/03/2011
Ambient Temperature = 24.2 degree.c
Liquid Temperature = Before 22.7degree.C , After 22.7 degree.C



KMP7N4Y1-1A Head Left Tilt PCS1900 1880MHz

Communication System: Generic GSM; Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz); Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.44 mho/m; ε_r = 39.2; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

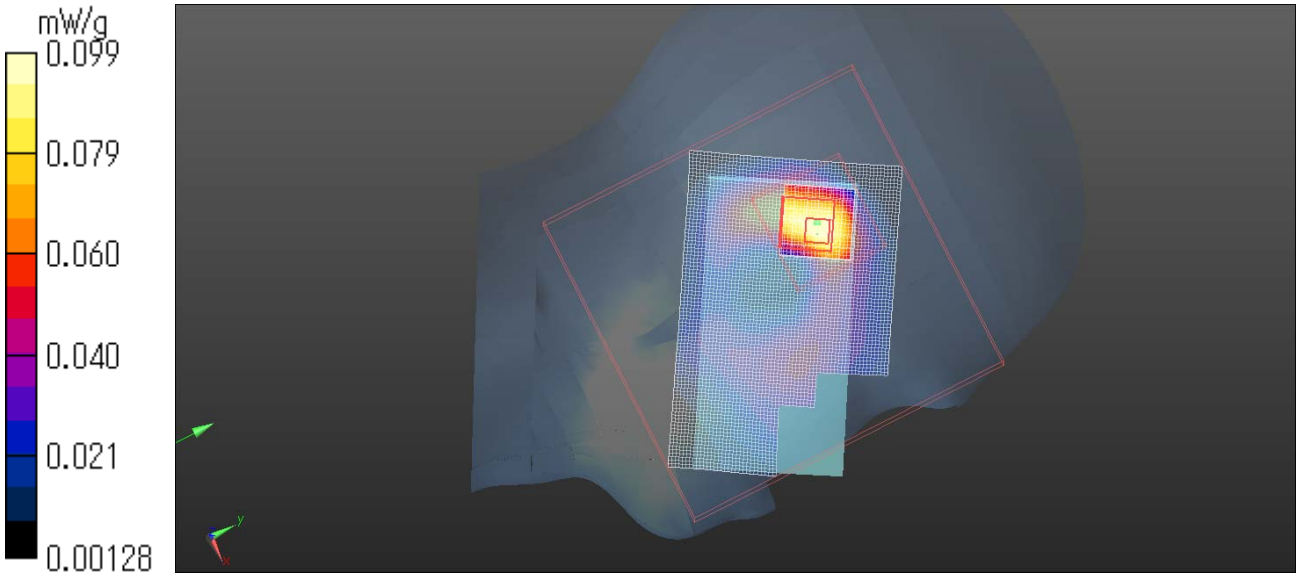
- Probe: EX3DV3 - SN3507; ConvF(8.78, 8.78, 8.78); Calibrated: 2011/03/16
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn539; Calibrated: 2010/09/13
- Phantom: SAM with CRP; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Left-Hand-Side HSL/Tilt Position - Mid/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.107 mW/g

Left-Hand-Side HSL/Tilt Position - Mid/Zoom Scan 2 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.300 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.126 W/kg

SAR(1 g) = 0.073 mW/g; SAR(10 g) = 0.044 mW/g
Maximum value of SAR (measured) = 0.099 mW/g

Test Date = 04/03/2011
Ambient Temperature = 24.2 degree.c
Liquid Temperature = Before 22.7degree.C , After 22.7 degree.C



KMP7N4Y1-1A Head Right Touch PCS1900 1880MHz

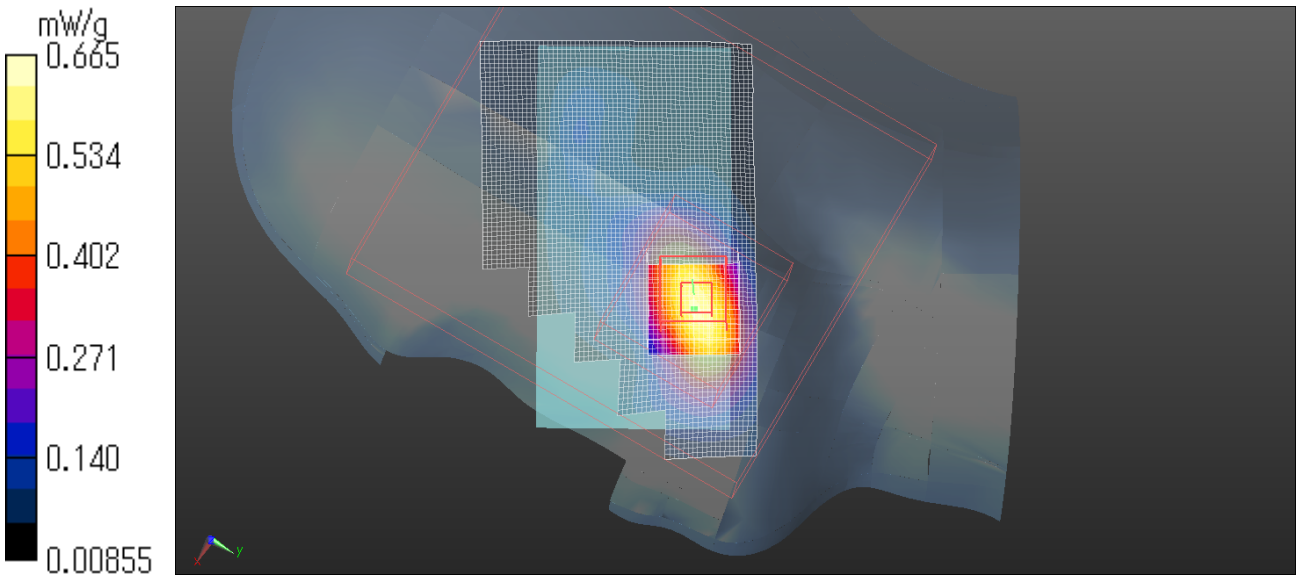
Communication System: Generic GSM; Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz); Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.44 mho/m; ε_r = 39.2; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV3 - SN3507; ConvF(8.78, 8.78, 8.78); Calibrated: 2011/03/16
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn539; Calibrated: 2010/09/13
- Phantom: SAM with CRP; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

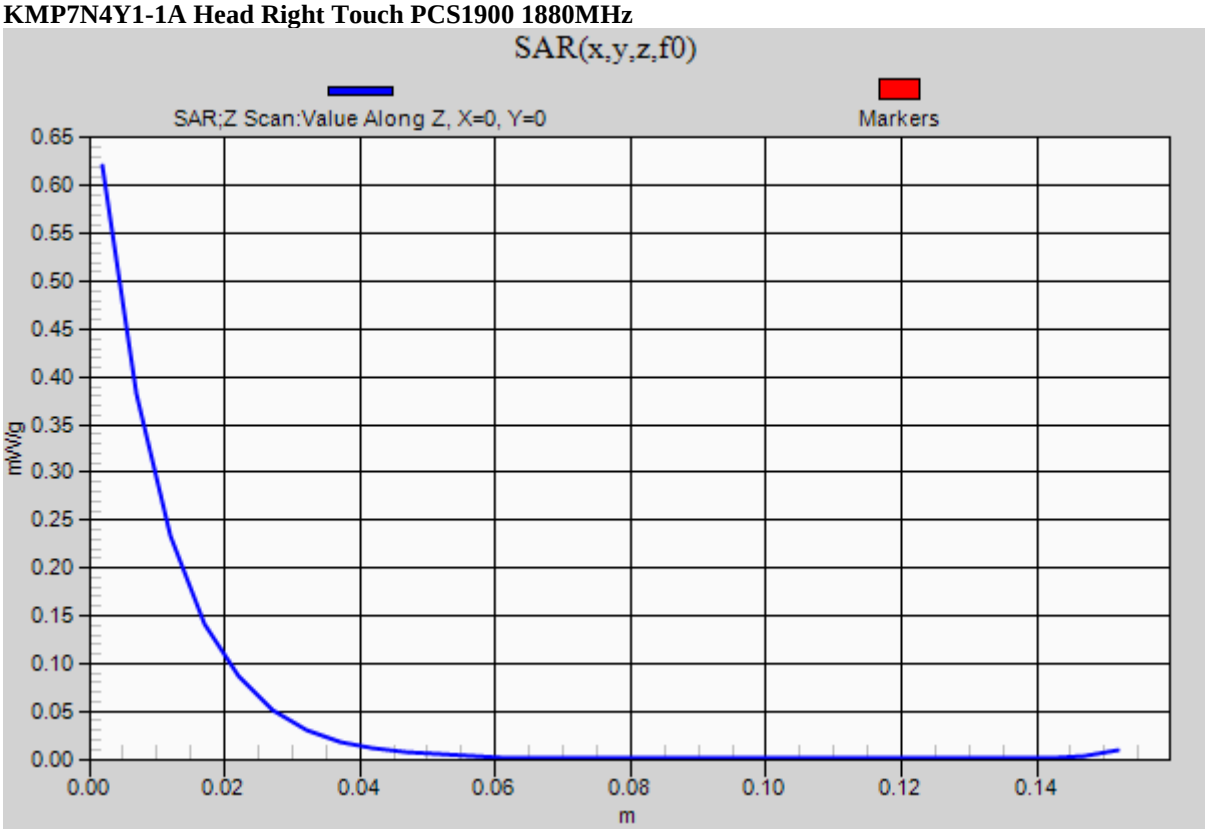
Right-Hand-Side HSL/Touch Position - Mid/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.631 mW/g

Right-Hand-Side HSL/Touch Position - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.266 V/m; Power Drift = 0.19 dB
Peak SAR (extrapolated) = 0.832 W/kg
SAR(1 g) = 0.493 mW/g; SAR(10 g) = 0.276 mW/g
Maximum value of SAR (measured) = 0.665 mW/g

Test Date = 04/03/2011
Ambient Temperature = 24.2 degree.c
Liquid Temperature = Before 22.7degree.C , After 22.7 degree.C



Z-axis scan at max SAR location
KMP7N4Y1-1A Head Right Touch PCS1900 1880MHz



KMP7N4Y1-1A Head Right Tilt PCS1900 1880MHz

Communication System: Generic GSM; Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz); Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.44 mho/m; ε_r = 39.2; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

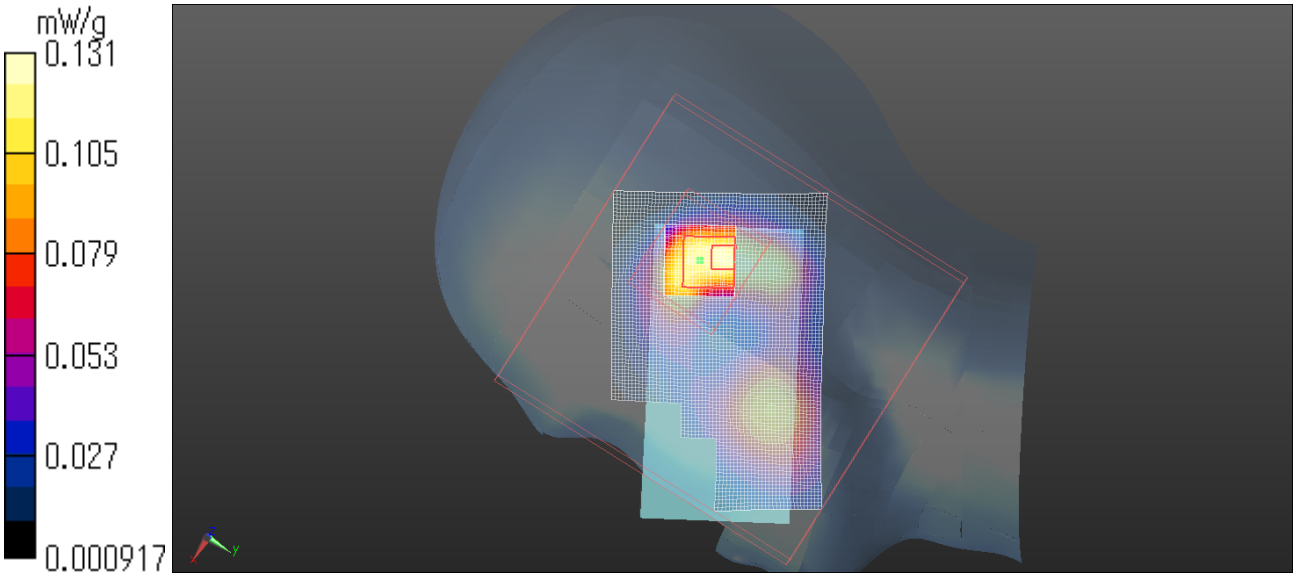
- Probe: EX3DV3 - SN3507; ConvF(8.78, 8.78, 8.78); Calibrated: 2011/03/16
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn539; Calibrated: 2010/09/13
- Phantom: SAM with CRP; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Right-Hand-Side HSL/Tilt Position - Mid/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.143 mW/g

Right-Hand-Side HSL/Tilt Position - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.826 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.164 W/kg

SAR(1 g) = 0.100 mW/g; SAR(10 g) = 0.062 mW/g
Maximum value of SAR (measured) = 0.131 mW/g

Test Date = 04/03/2011
Ambient Temperature = 24.0 degree.c
Liquid Temperature = Before 22.7degree.C , After 22.7 degree.C



KMP7N4Y1-1A Head Right Touch PCS1900 1850.2MHz

Communication System: Generic GSM; Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz); Frequency: 1850.2 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.44 mho/m; ε_r = 39.2; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

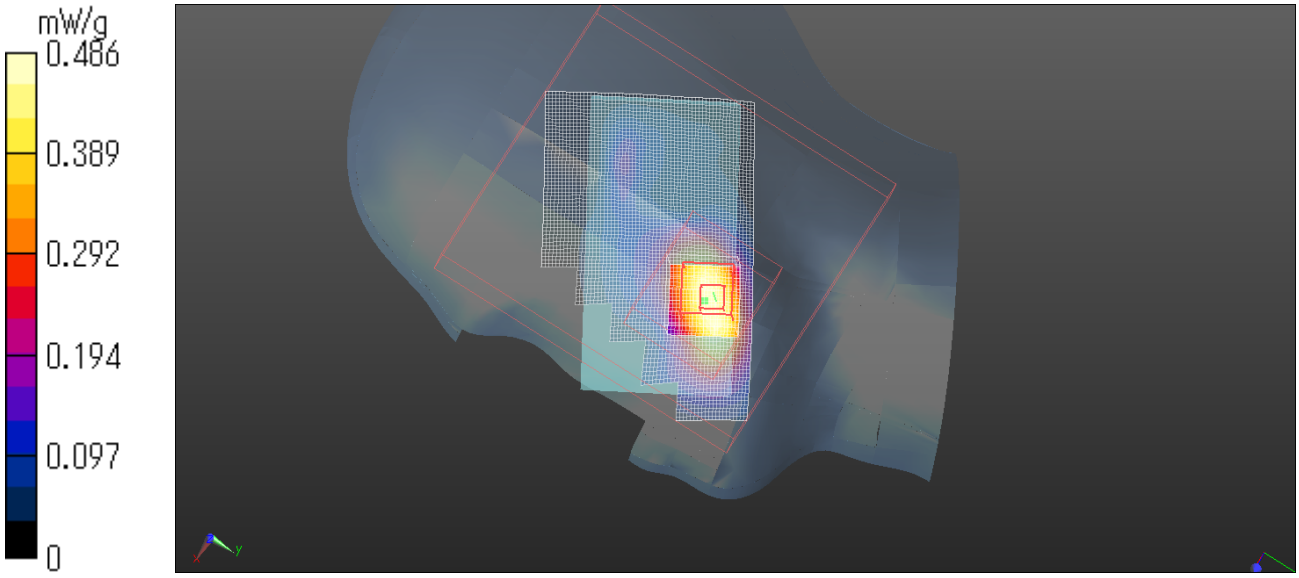
- Probe: EX3DV3 - SN3507; ConvF(8.78, 8.78, 8.78); Calibrated: 2011/03/16
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn539; Calibrated: 2010/09/13
- Phantom: SAM with CRP; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Right-Hand-Side HSL/Touch Position - Low/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.486 mW/g

Right-Hand-Side HSL/Touch Position - Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.336 V/m; Power Drift = 0.10 dB
Peak SAR (extrapolated) = 0.647 W/kg

SAR(1 g) = 0.393 mW/g; SAR(10 g) = 0.231 mW/g
Maximum value of SAR (measured) = 0.526 mW/g

Test Date = 04/03/2011
Ambient Temperature = 24.0 degree.c
Liquid Temperature = Before 22.7degree.C , After 22.7 degree.C



KMP7N4Y1-1A Head Right Touch PCS1900 1909.8MHz

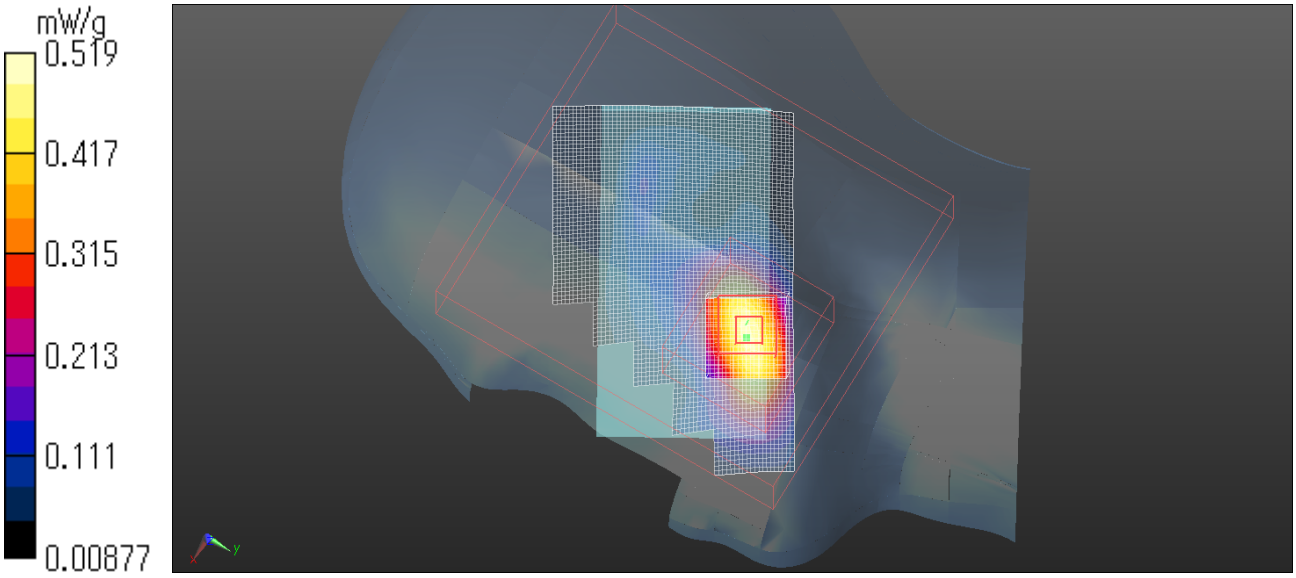
Communication System: Generic GSM; Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz); Frequency: 1909.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.44 mho/m; ε_r = 39.2; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:

- Probe: EX3DV3 - SN3507; ConvF(8.78, 8.78, 8.78); Calibrated: 2011/03/16
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn539; Calibrated: 2010/09/13
- Phantom: SAM with CRP; Type: SAM;
- Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Right-Hand-Side HSL/Touch Position - High/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.497 mW/g

Right-Hand-Side HSL/Touch Position - High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.434 V/m; Power Drift = 0.0013 dB
Peak SAR (extrapolated) = 0.640 W/kg
SAR(1 g) = 0.390 mW/g; SAR(10 g) = 0.228 mW/g
Maximum value of SAR (measured) = 0.519 mW/g

Test Date = 04/03/2011
Ambient Temperature = 24.0 degree.c
Liquid Temperature = Before 22.7degree.C , After 22.7 degree.C



iii)WCDMA V

KMP7N4Y1-1A Head Left Touch 12.2k RMC WCDMA V band 836.6MHz

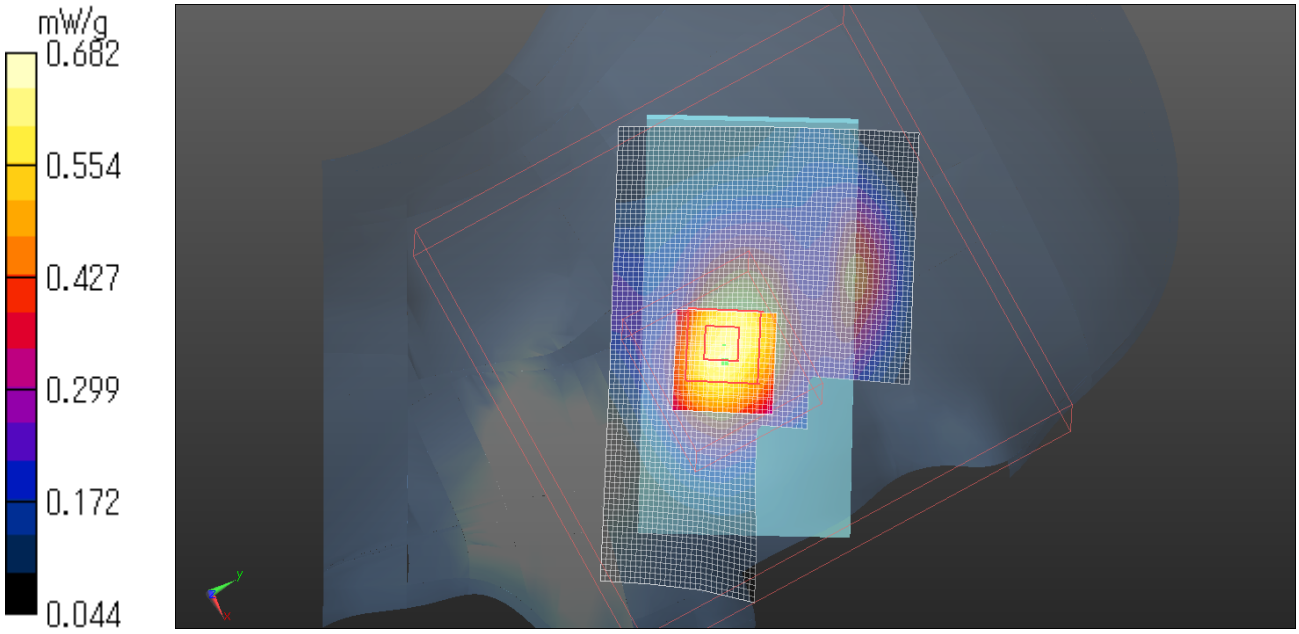
Communication System: WCDMA V 835M; Communication System Band: WCDMA V band; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.91 mho/m; ε_r = 41.7; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:
Probe: EX3DV3 - SN3507; ConvF(10.35, 10.35, 10.35); Calibrated: 2011/03/16
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn539; Calibrated: 2010/09/13
Phantom: SAM with CRP; Type: SAM;
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Left-Hand-Side HSL/Touch Position - Mid/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.647 mW/g

Left-Hand-Side HSL/Touch Position - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.319 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 0.759 W/kg

SAR(1 g) = 0.570 mW/g; SAR(10 g) = 0.380 mW/g
Maximum value of SAR (measured) = 0.682 mW/g

Test Date = 04/04/2011
Ambient Temperature = 24.0 degree.c
Liquid Temperature = Before 22.7degree.C , After 22.7 degree.C



KMP7N4Y1-1A Head Left Tilt 12.2k RMC WCDMA V band 836.6MHz

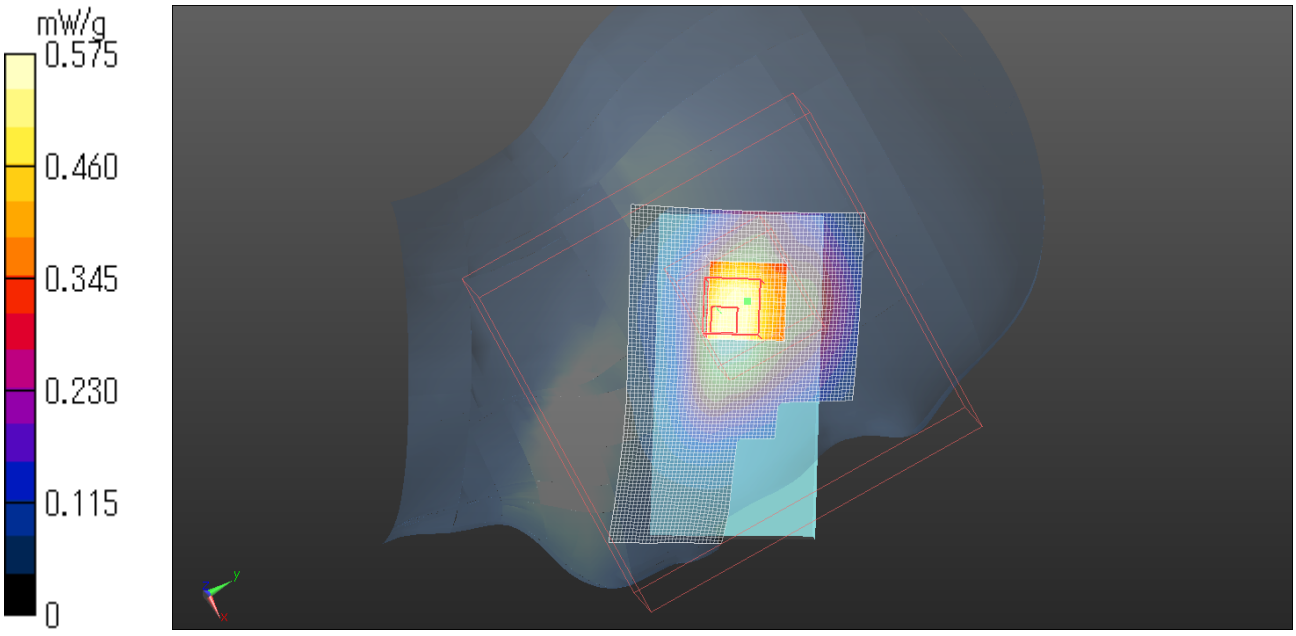
Communication System: WCDMA V 835M; Communication System Band: WCDMA V band; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.91 mho/m; ε_r = 41.7; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:
Probe: EX3DV3 - SN3507; ConvF(10.35, 10.35, 10.35); Calibrated: 2011/03/16
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn539; Calibrated: 2010/09/13
Phantom: SAM with CRP; Type: SAM;
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Left-Hand-Side HSL/Tilt Position - Mid/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.575 mW/g

Left-Hand-Side HSL/Tilt Position - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.796 V/m; Power Drift = -0.14 dB
Peak SAR (extrapolated) = 0.701 W/kg

SAR(1 g) = 0.510 mW/g; SAR(10 g) = 0.345 mW/g
Maximum value of SAR (measured) = 0.616 mW/g

Test Date = 04/04/2011
Ambient Temperature = 24.0 degree.c
Liquid Temperature = Before 22.7degree.C , After 22.7 degree.C



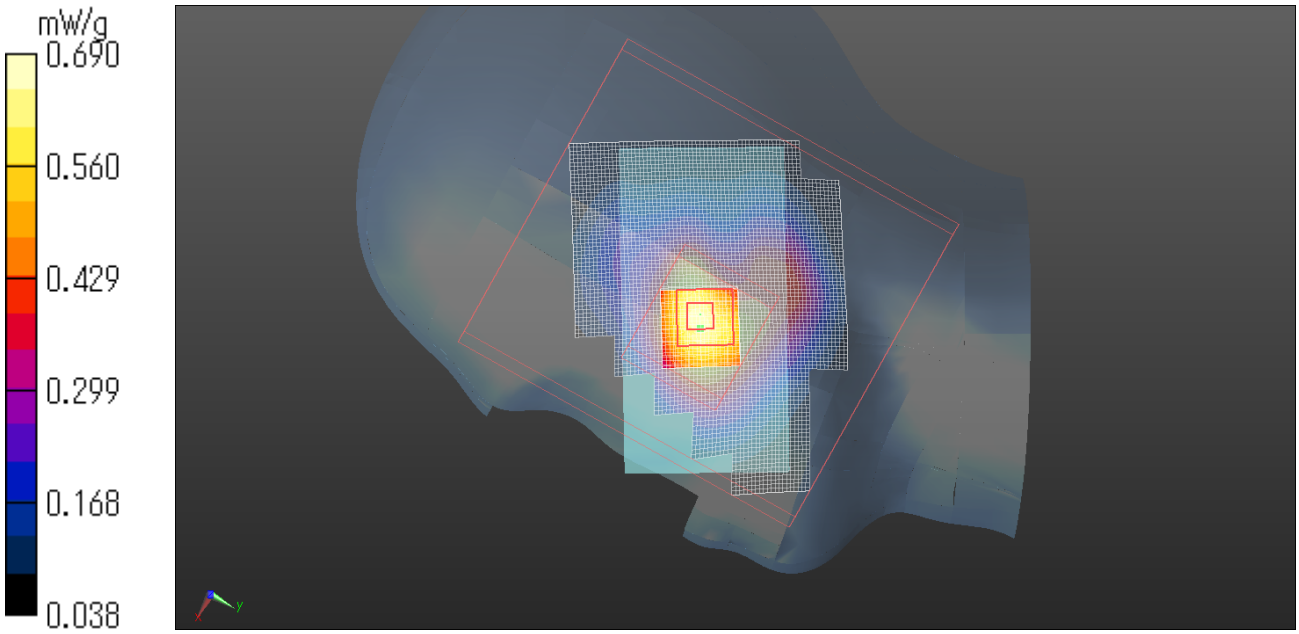
KMP7N4Y1-1A Head Right Touch 12.2k RMC WCDMA V band 836.6MHz

Communication System: WCDMA V 835M; Communication System Band: WCDMA V band; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.91 mho/m; ε_r = 41.7; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:
Probe: EX3DV3 - SN3507; ConvF(10.35, 10.35, 10.35); Calibrated: 2011/03/16
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn539; Calibrated: 2010/09/13
Phantom: SAM with CRP; Type: SAM;
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Right-Hand-Side HSL/Touch Position - Mid/Area Scan (71x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.683 mW/g

Right-Hand-Side HSL/Touch Position - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.887 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.764 W/kg
SAR(1 g) = 0.575 mW/g; SAR(10 g) = 0.390 mW/g
Maximum value of SAR (measured) = 0.690 mW/g

Test Date = 04/04/2011
Ambient Temperature = 24.0 degree.c
Liquid Temperature = Before 22.7degree.C , After 22.7 degree.C



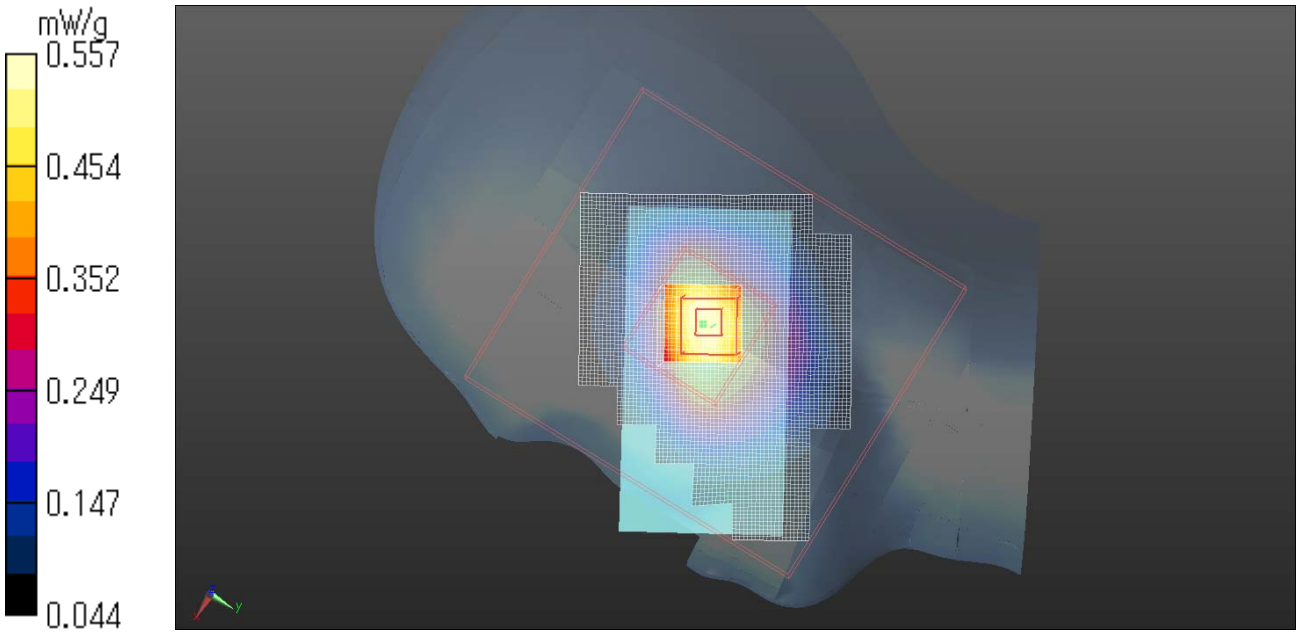
KMP7N4Y1-1A Head Right Tilt 12.2k RMC WCDMA V band 836.6MHz

Communication System: WCDMA V 835M; Communication System Band: WCDMA V band; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.91 mho/m; ε_r = 41.7; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:
Probe: EX3DV3 - SN3507; ConvF(10.35, 10.35, 10.35); Calibrated: 2011/03/16
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn539; Calibrated: 2010/09/13
Phantom: SAM with CRP; Type: SAM;
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Right-Hand-Side HSL/Tilt Position - Mid/Area Scan (71x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.576 mW/g

Right-Hand-Side HSL/Tilt Position - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.452 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.624 W/kg
SAR(1 g) = 0.471 mW/g; SAR(10 g) = 0.331 mW/g
Maximum value of SAR (measured) = 0.557 mW/g

Test Date = 04/04/2011
Ambient Temperature = 24.0 degree.c
Liquid Temperature = Before 22.7degree.C , After 22.7 degree.C



KMP7N4Y1-1A Head Right Touch 12.2k RMC WCDMA V band 826.4MHz

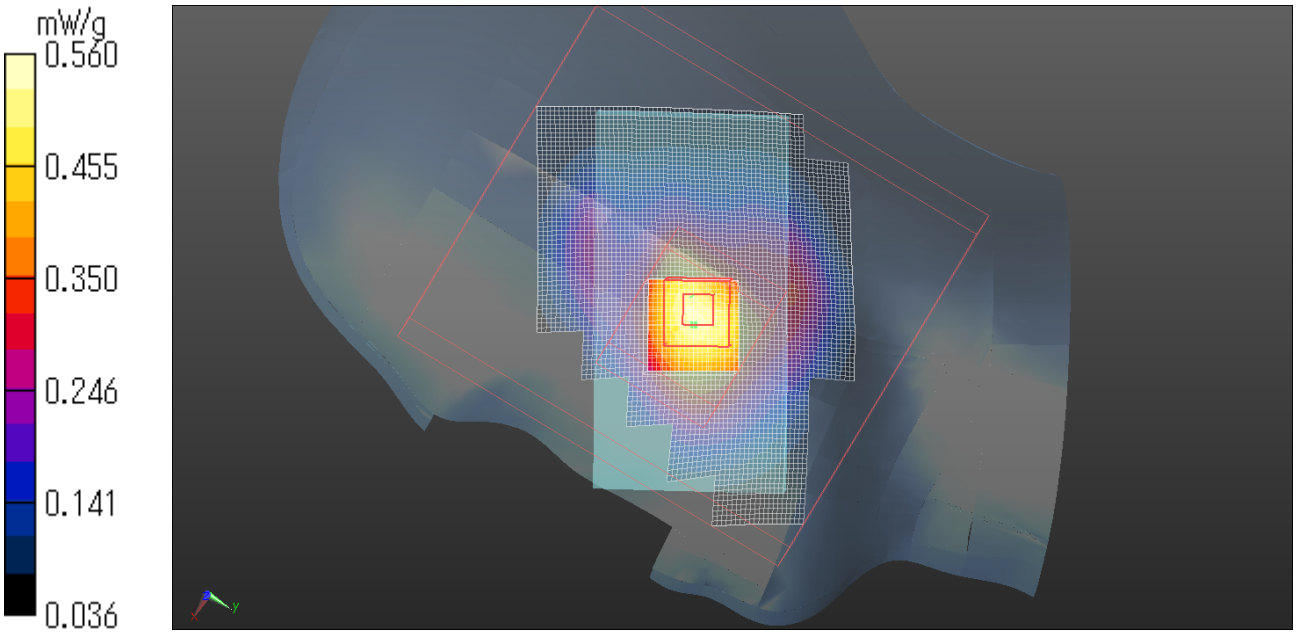
Communication System: WCDMA V 835M; Communication System Band: WCDMA V band; Frequency: 826.4 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.91 mho/m; ε_r = 41.7; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:
Probe: EX3DV3 - SN3507; ConvF(10.35, 10.35, 10.35); Calibrated: 2011/03/16
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn539; Calibrated: 2010/09/13
Phantom: SAM with CRP; Type: SAM;
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Right-Hand-Side HSL/Touch Position - Low/Area Scan (71x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.547 mW/g

Right-Hand-Side HSL/Touch Position - Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.441 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.628 W/kg

SAR(1 g) = 0.459 mW/g; SAR(10 g) = 0.314 mW/g
Maximum value of SAR (measured) = 0.560 mW/g

Test Date = 04/04/2011
Ambient Temperature = 24.0 degree.c
Liquid Temperature = Before 22.7degree.C , After 22.7 degree.C



KMP7N4Y1-1A Head Right Touch 12.2k RMC WCDMA V band 846.6MHz

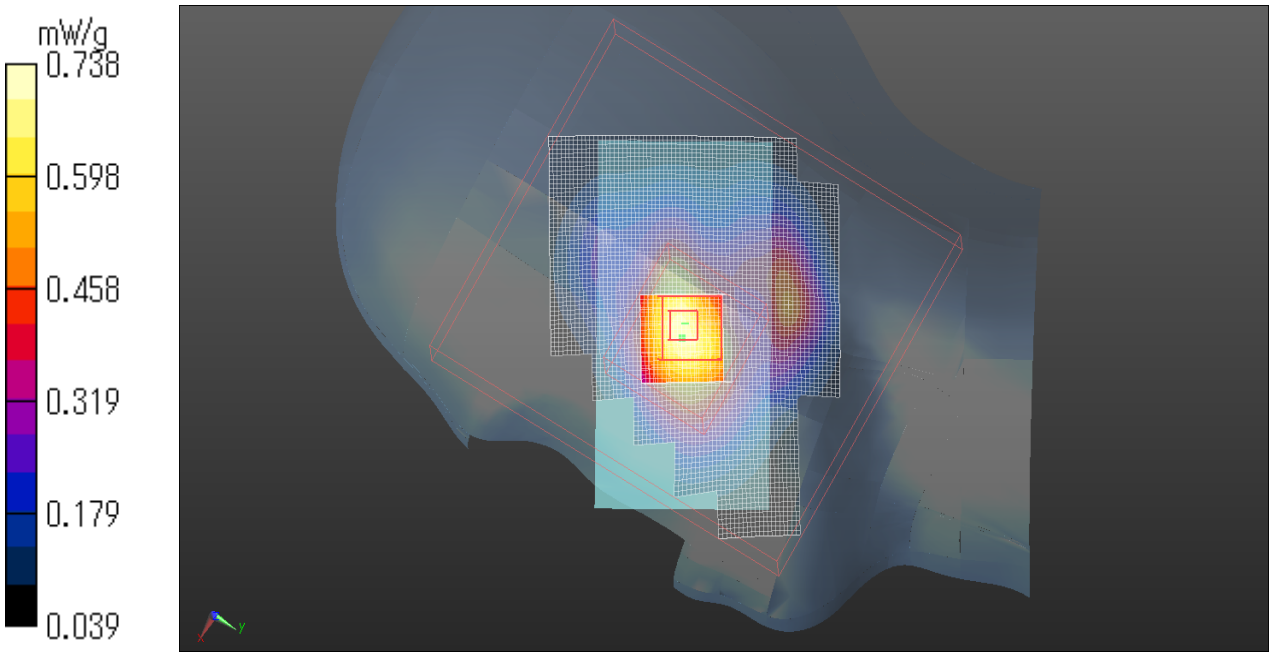
Communication System: WCDMA V 835M; Communication System Band: WCDMA V band; Frequency: 846.6 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.91 mho/m; ε_r = 41.7; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:
Probe: EX3DV3 - SN3507; ConvF(10.35, 10.35, 10.35); Calibrated: 2011/03/16
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn539; Calibrated: 2010/09/13
Phantom: SAM with CRP; Type: SAM;
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Right-Hand-Side HSL/Touch Position - High/Area Scan (71x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.730 mW/g

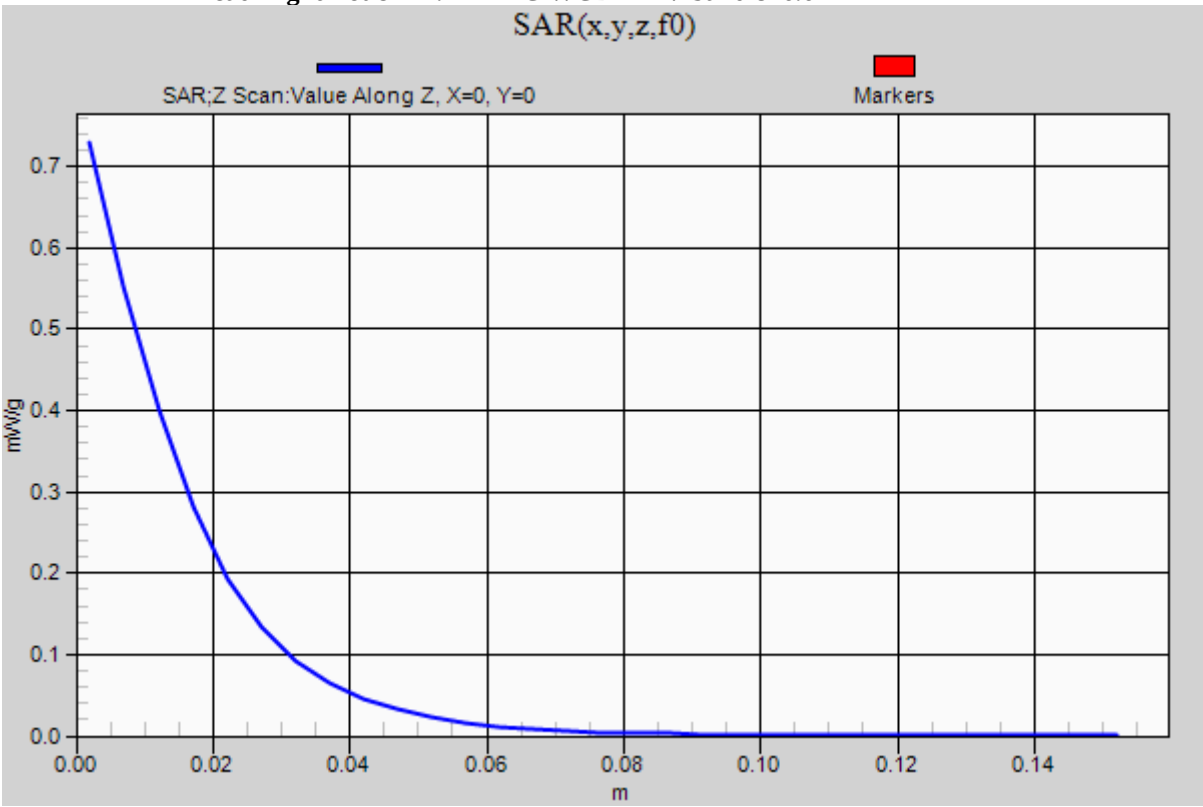
Right-Hand-Side HSL/Touch Position - High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.098 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 0.813 W/kg

SAR(1 g) = 0.618 mW/g; SAR(10 g) = 0.416 mW/g
Maximum value of SAR (measured) = 0.738 mW/g

Test Date = 04/04/2011
Ambient Temperature = 24.0 degree.c
Liquid Temperature = Before 22.7degree.C , After 22.7 degree.C



Z-axis scan at max SAR location
KMP7N4Y1-1A Head Right Touch 12.2k RMC WCDMA V band 846.6MHz



iV)WLAN

KMP7N4Y1-1A Head Left Touch WLAN 11b 5.5Mbps 2437MHz

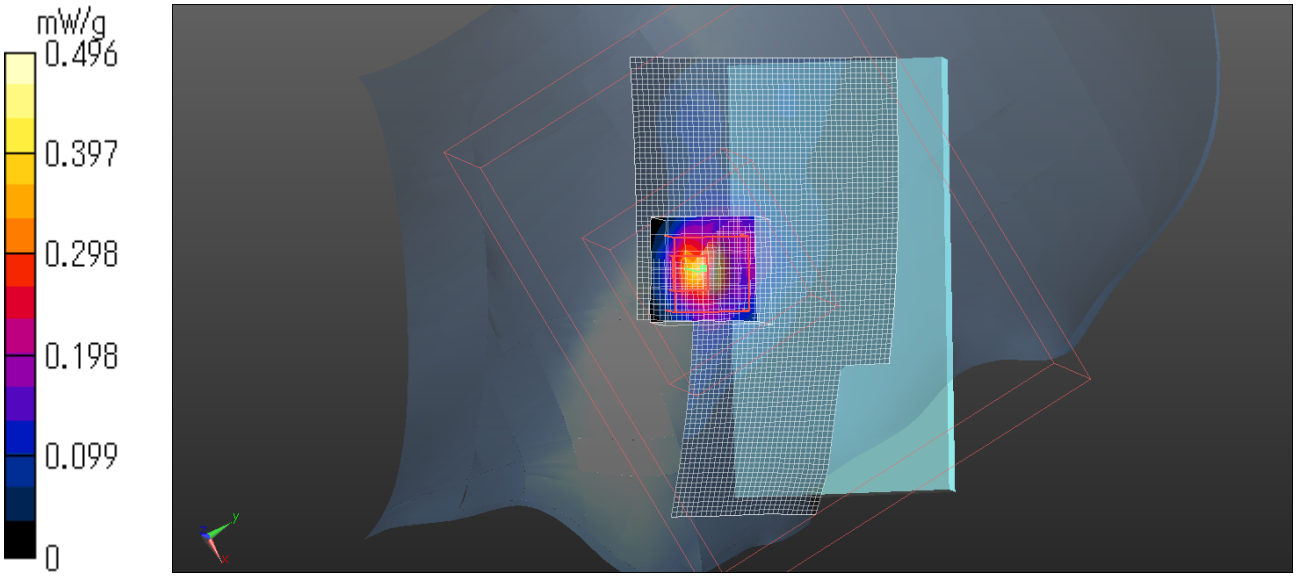
Communication System: CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2437 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.87 mho/m; ε_r = 38.1; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:
Probe: EX3DV3 - SN3507; ConvF(7.88, 7.88, 7.88); Calibrated: 2011/03/16
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn539; Calibrated: 2010/09/13
Phantom: SAM with CRP; Type: SAM;
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Left-Hand-Side HSL/Touch Position - Mid/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.496 mW/g

Left-Hand-Side HSL/Touch Position - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.077 V/m; Power Drift = -0.11 dB
Peak SAR (extrapolated) = 0.732 W/kg

SAR(1 g) = 0.220 mW/g; SAR(10 g) = 0.075 mW/g
Maximum value of SAR (measured) = 0.383 mW/g

Test Date = 04/01/2011
Ambient Temperature = 24.3 degree.c
Liquid Temperature = Before 22.5degree.C , After 22.5 degree.C



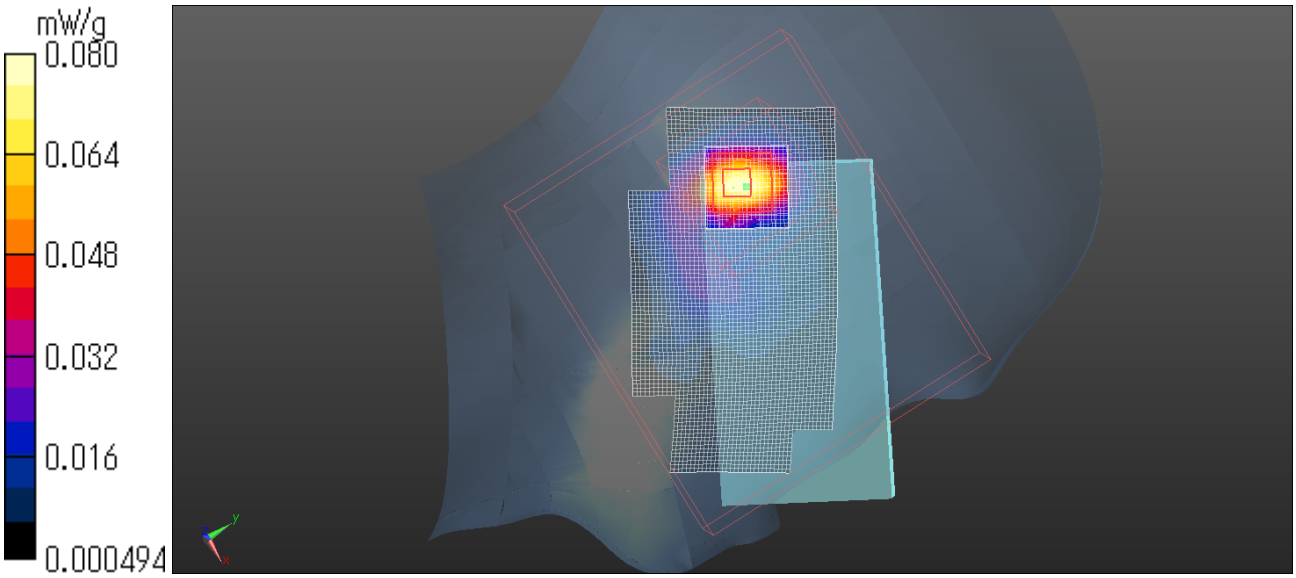
KMP7N4Y1-1A Head Left Tilt WLAN 11b 5.5Mbps 2437MHz
Communication System: CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2437 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.87 mho/m; ε_r = 38.1; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:
Probe: EX3DV3 - SN3507; ConvF(7.88, 7.88, 7.88); Calibrated: 2011/03/16
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn539; Calibrated: 2010/09/13
Phantom: SAM with CRP; Type: SAM;
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Left-Hand-Side HSL/Tilt Position - Mid/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.079 mW/g

Left-Hand-Side HSL/Tilt Position - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.536 V/m; Power Drift = 0.13 dB
Peak SAR (extrapolated) = 0.111 W/kg

SAR(1 g) = 0.055 mW/g; SAR(10 g) = 0.027 mW/g
Maximum value of SAR (measured) = 0.080 mW/g

Test Date = 04/01/2011
Ambient Temperature = 24.3 degree.c
Liquid Temperature = Before 22.5degree.C , After 22.5 degree.C



KMP7N4Y1-1A Head Right Touch WLAN 11b 5.5Mbps 2437MHz

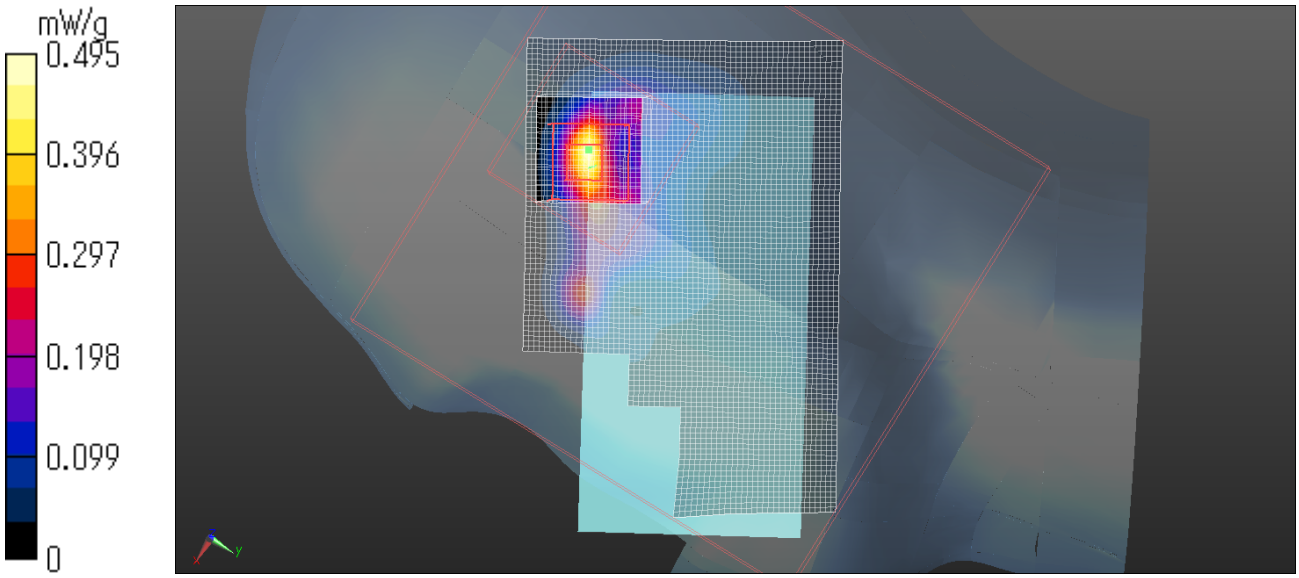
Communication System: CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2437 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.87 mho/m; ε_r = 38.1; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:
Probe: EX3DV3 - SN3507; ConvF(7.88, 7.88, 7.88); Calibrated: 2011/03/16
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn539; Calibrated: 2010/09/13
Phantom: SAM with CRP; Type: SAM;
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Right-Hand-Side HSL/Touch Position - Mid/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.495 mW/g

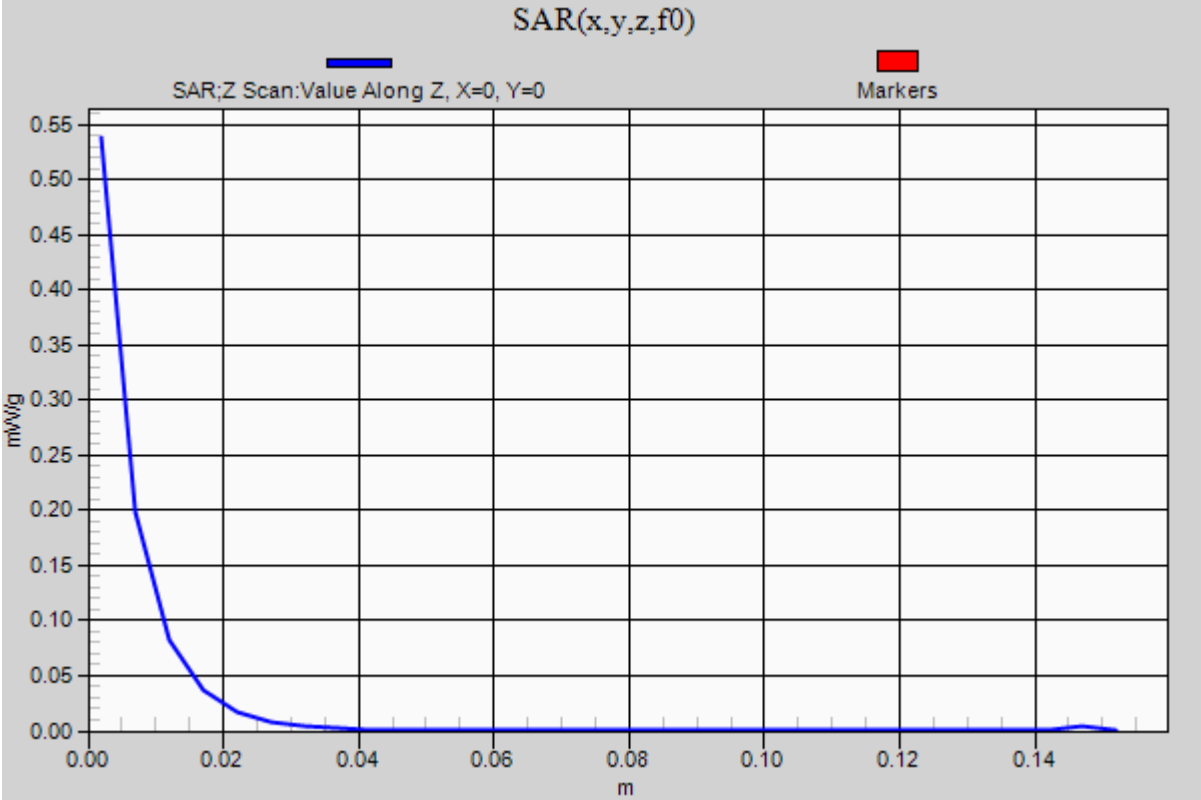
Right-Hand-Side HSL/Touch Position - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.597 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 0.815 W/kg

SAR(1 g) = 0.280 mW/g; SAR(10 g) = 0.099 mW/g
Maximum value of SAR (measured) = 0.536 mW/g

Test Date = 04/01/2011
Ambient Temperature = 24.3 degree.c
Liquid Temperature = Before 22.5degree.C , After 22.5 degree.C



Z-axis scan at max SAR location
KMP7N4Y1-1A Head Right Touch WLAN 11b 5.5Mbps 2437MHz



KMP7N4Y1-1A Head Right Tilt WLAN 11b 5.5Mbps 2437MHz

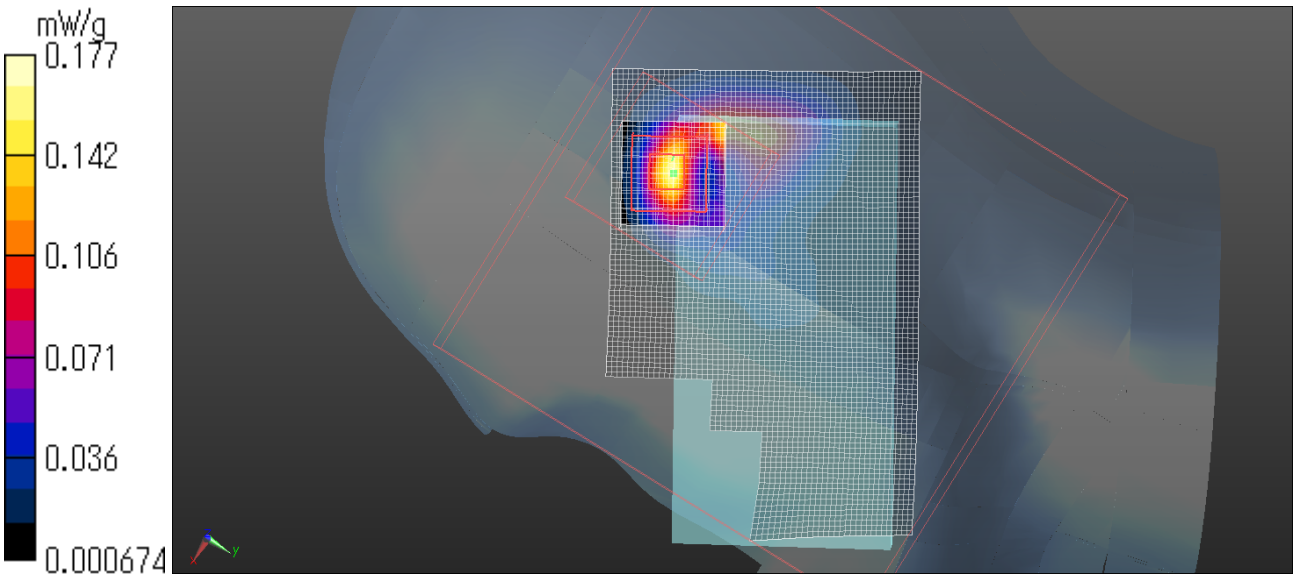
Communication System: CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2437 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.87 mho/m; ε_r = 38.1; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:
Probe: EX3DV3 - SN3507; ConvF(7.88, 7.88, 7.88); Calibrated: 2011/03/16
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn539; Calibrated: 2010/09/13
Phantom: SAM with CRP; Type: SAM;
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Right-Hand-Side HSL/Tilt Position - Mid/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.169 mW/g

Right-Hand-Side HSL/Tilt Position - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.576 V/m; Power Drift = -0.18 dB
Peak SAR (extrapolated) = 0.295 W/kg

SAR(1 g) = 0.103 mW/g; SAR(10 g) = 0.039 mW/g
Maximum value of SAR (measured) = 0.177 mW/g

Test Date = 04/01/2011
Ambient Temperature = 24.3 degree.c
Liquid Temperature = Before 22.5degree.C , After 22.5 degree.C



KMP7N4Y1-1A Head Right Touch WLAN 11b 1Mbps 2437MHz

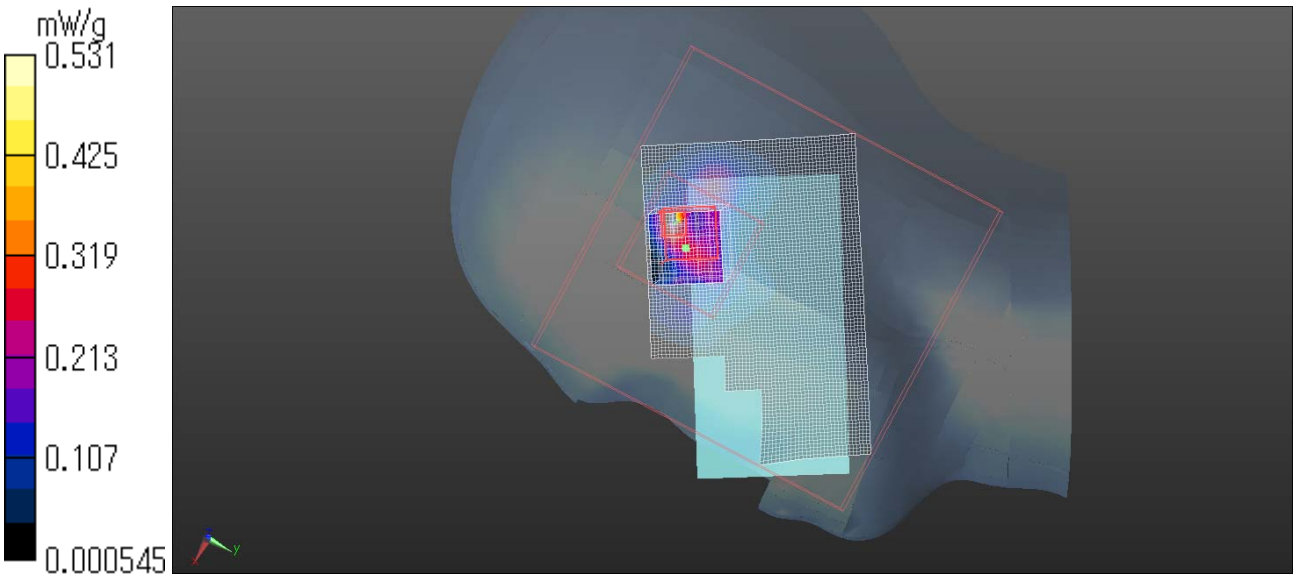
Communication System: CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2437 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.87 mho/m; ε_r = 38.1; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:
Probe: EX3DV3 - SN3507; ConvF(7.88, 7.88, 7.88); Calibrated: 2011/03/16
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn539; Calibrated: 2010/09/13
Phantom: SAM with CRP; Type: SAM;
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Right-Hand-Side HSL/Touch Position - Mid/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.286 mW/g

Right-Hand-Side HSL/Touch Position - Mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.225 V/m; Power Drift = -0.18 dB
Peak SAR (extrapolated) = 0.803 W/kg

SAR(1 g) = 0.279 mW/g; SAR(10 g) = 0.095 mW/g
Maximum value of SAR (measured) = 0.531 mW/g

Test Date = 04/01/2011
Ambient Temperature = 24.3 degree.c
Liquid Temperature = Before 22.5degree.C , After 22.5 degree.C



KMP7N4Y1-1A Head Right Touch WLAN 11b 5.5Mbps 2412MHz

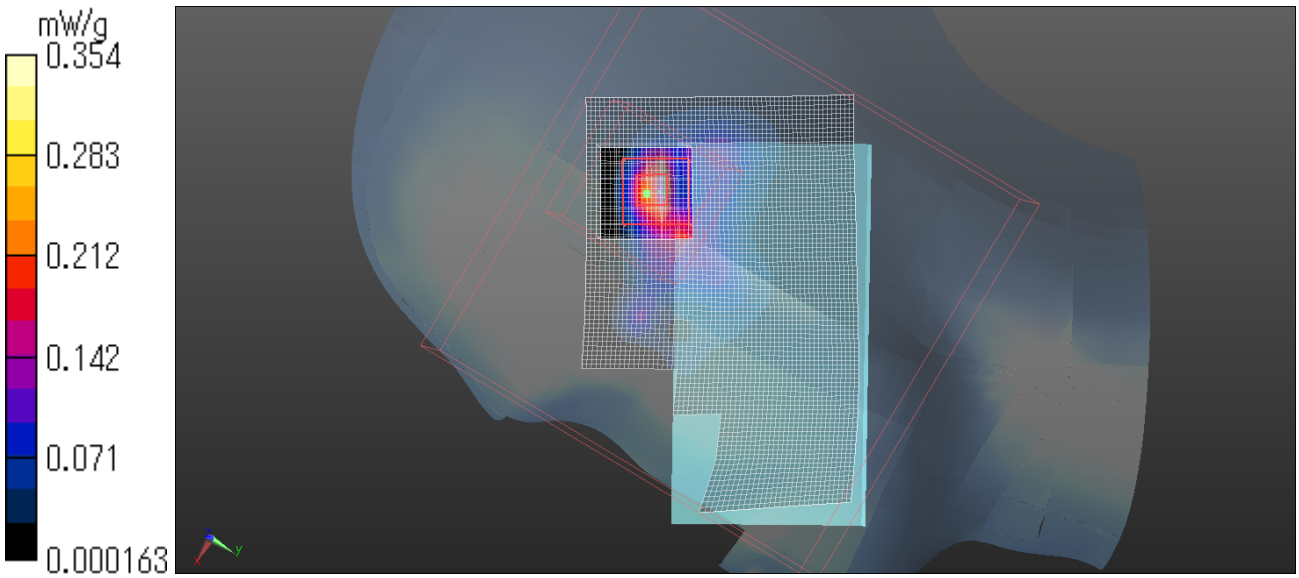
Communication System: CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2412 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.87 mho/m; ε_r = 38.1; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:
Probe: EX3DV3 - SN3507; ConvF(7.88, 7.88, 7.88); Calibrated: 2011/03/16
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn539; Calibrated: 2010/09/13
Phantom: SAM with CRP; Type: SAM;
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Right-Hand-Side HSL/Touch Position - Low/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.201 mW/g

Right-Hand-Side HSL/Touch Position - Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.377 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 0.583 W/kg

SAR(1 g) = 0.204 mW/g; SAR(10 g) = 0.074 mW/g
Maximum value of SAR (measured) = 0.354 mW/g

Test Date = 04/01/2011
Ambient Temperature = 24.3 degree.c
Liquid Temperature = Before 22.5degree.C , After 22.5 degree.C



KMP7N4Y1-1A Head Right Touch WLAN 11b 5.5Mbps 2462MHz

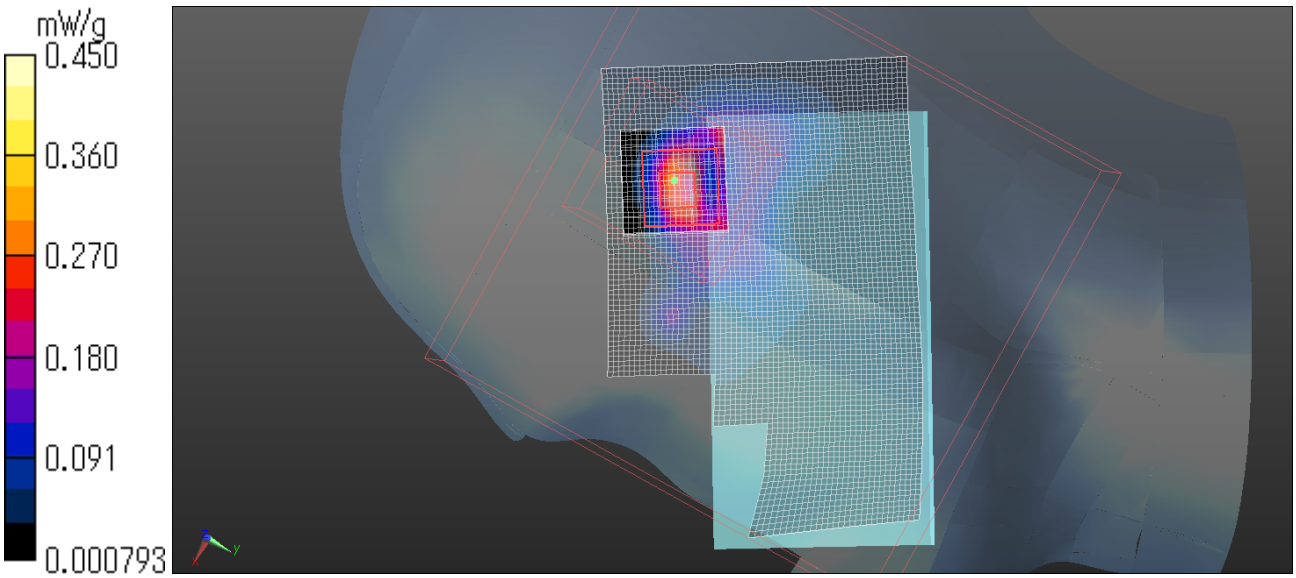
Communication System: CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.87 mho/m; ε_r = 38.1; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:
Probe: EX3DV3 - SN3507; ConvF(7.88, 7.88, 7.88); Calibrated: 2011/03/16
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn539; Calibrated: 2010/09/13
Phantom: SAM with CRP; Type: SAM;
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Right-Hand-Side HSL/Touch Position - High/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.251 mW/g

Right-Hand-Side HSL/Touch Position - High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.457 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.940 W/kg

SAR(1 g) = 0.275 mW/g; SAR(10 g) = 0.088 mW/g
Maximum value of SAR (measured) = 0.450 mW/g

Test Date = 04/01/2011
Ambient Temperature = 24.3 degree.c
Liquid Temperature = Before 22.5degree.C , After 22.5 degree.C



3. Measurement data (BODY DATA)

i)GSM850

KMP7N4Y1-1A Body Back 15mm GSM GSM850 824.2MHz

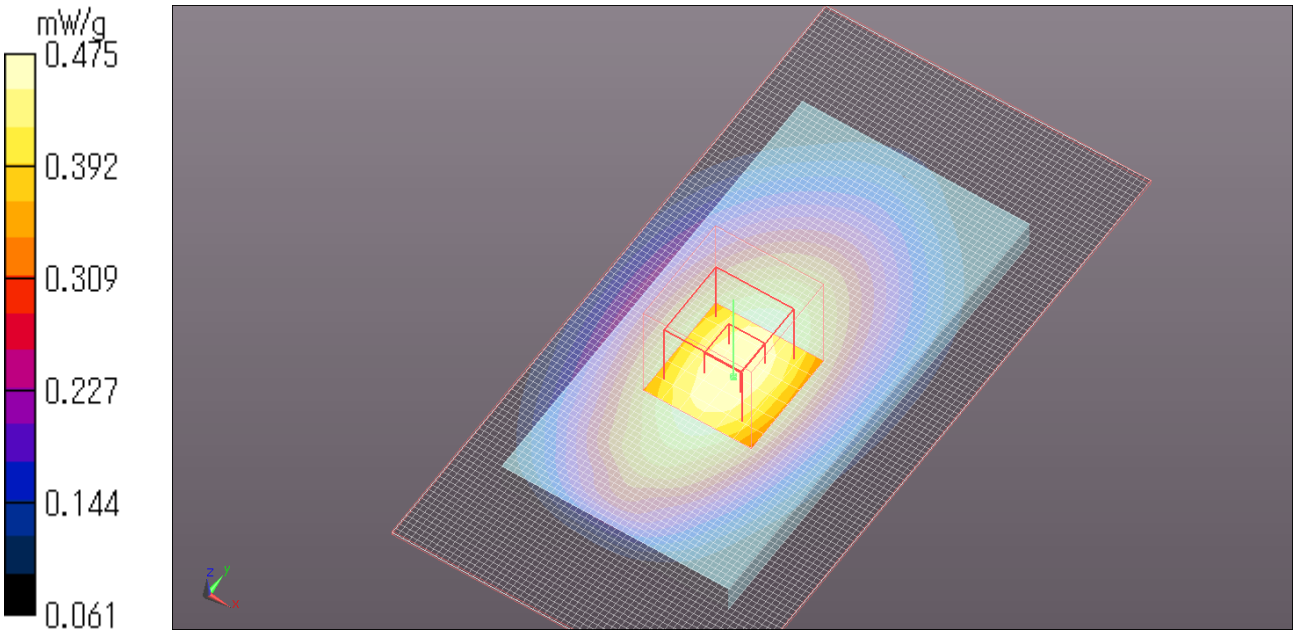
Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Frequency: 824.2 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 835 MHz; σ = 0.97 mho/m; ε_r = 55.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:
Probe: EX3DV3 - SN3507; ConvF(10.49, 10.49, 10.49); Calibrated: 2011/03/16
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn539; Calibrated: 2010/09/13
Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Flat-Section MSL/Flat Section 15mm/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.482 mW/g

Flat-Section MSL/Flat Section 15mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 22.481 V/m; Power Drift = -0.17 dB
Peak SAR (extrapolated) = 0.533 W/kg

SAR(1 g) = 0.404 mW/g; SAR(10 g) = 0.295 mW/g
Maximum value of SAR (measured) = 0.475 mW/g

Test Date = 04/06/2011
Ambient Temperature = 24.1 degree.c
Liquid Temperature = Before 23.0 degree.C , After 23.0 degree.C



KMP7N4Y1-1A Body Back 15mm GSM GSM850 836.6MHz

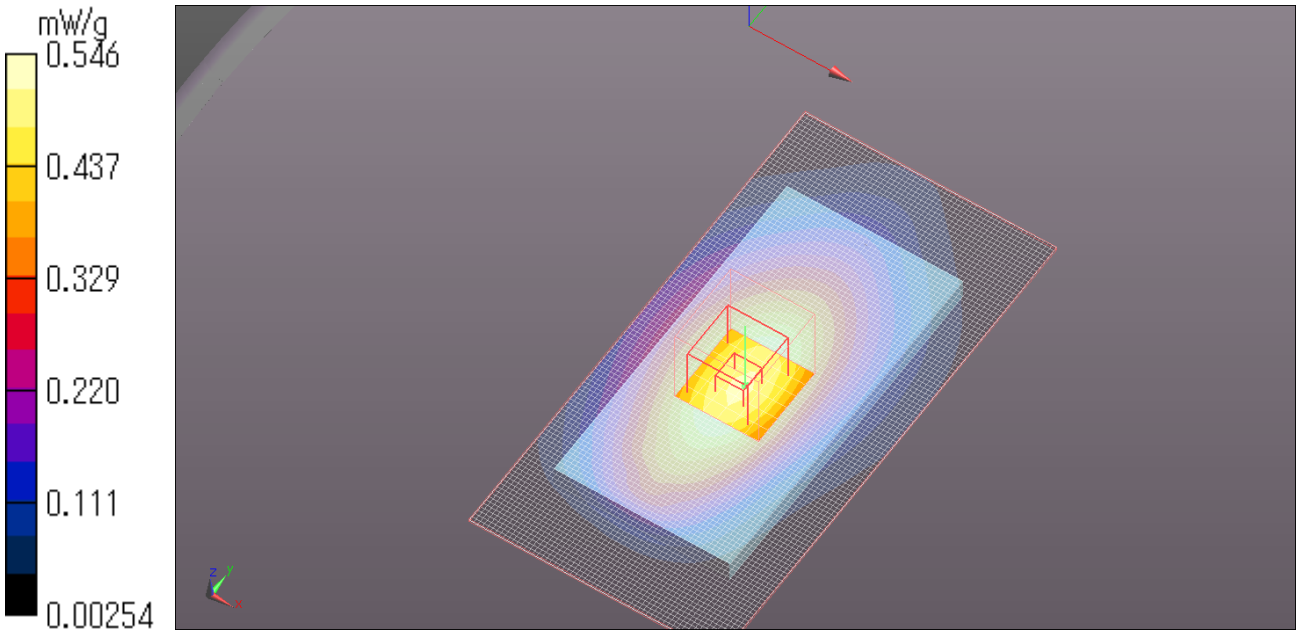
Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 835 MHz; σ = 0.97 mho/m; ε_r = 55.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:
Probe: EX3DV3 - SN3507; ConvF(10.49, 10.49, 10.49); Calibrated: 2011/03/16
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn539; Calibrated: 2010/09/13
Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Flat-Section MSL/Flat Section 15mm/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.546 mW/g

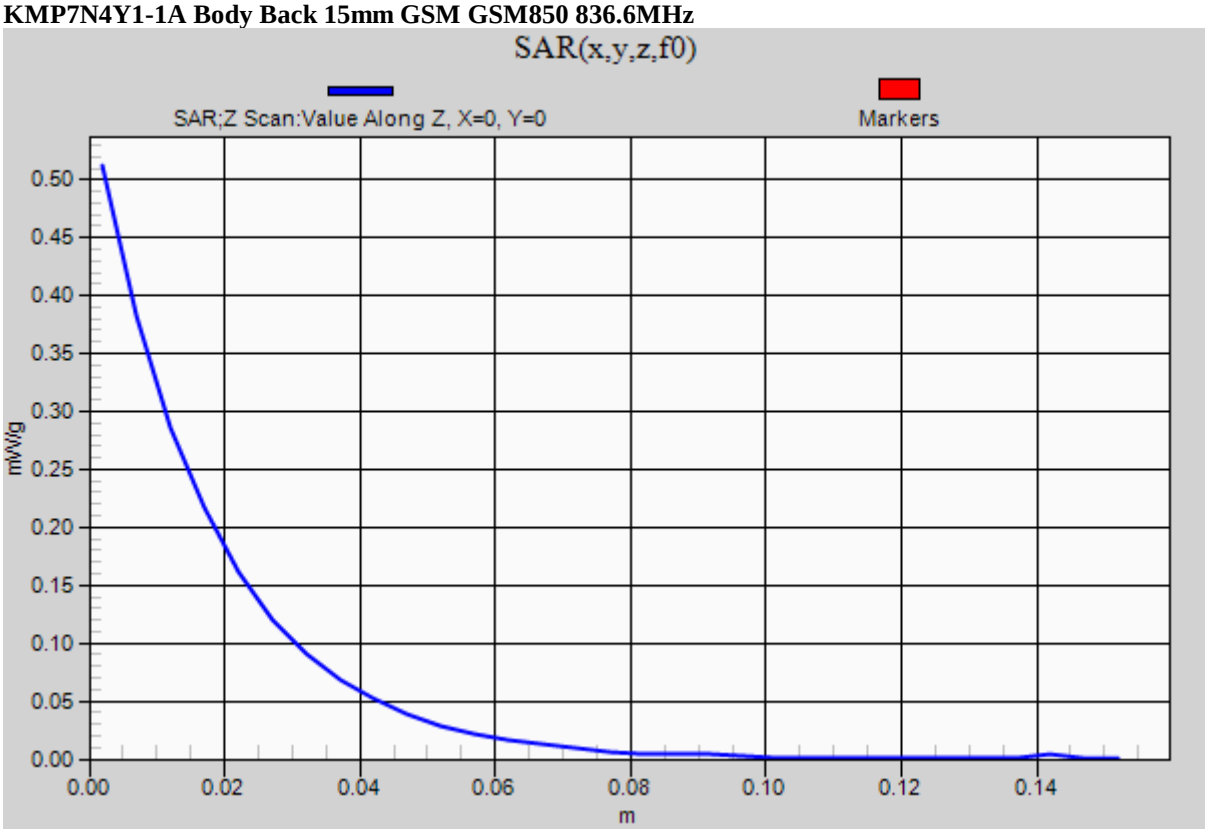
Flat-Section MSL/Flat Section 15mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 23.573 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 0.592 W/kg

SAR(1 g) = 0.437 mW/g; SAR(10 g) = 0.315 mW/g
Maximum value of SAR (measured) = 0.521 mW/g

Test Date = 04/06/2011
Ambient Temperature = 24.1 degree.c
Liquid Temperature = Before 23.0 degree.C , After 23.0 degree.C



Z-axis scan at max SAR location
KMP7N4Y1-1A Body Back 15mm GSM GSM850 836.6MHz



KMP7N4Y1-1A Body Back 15mm GSM GSM850 848.6MHz

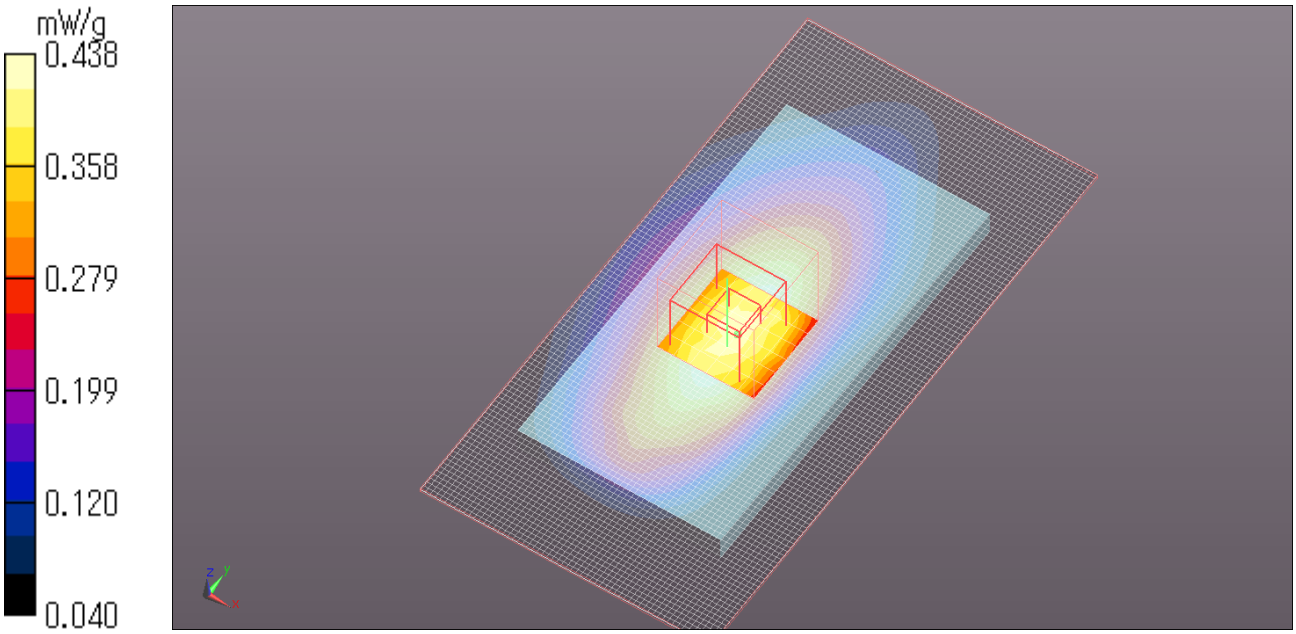
Communication System: Generic GSM; Communication System Band: GSM 850 (824.0 - 849.0 MHz); Frequency: 848.6 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 835 MHz; σ = 0.97 mho/m; ε_r = 55.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:
Probe: EX3DV3 - SN3507; ConvF(10.49, 10.49, 10.49); Calibrated: 2011/03/16
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn539; Calibrated: 2010/09/13
Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Flat-Section MSL/Flat Section 15mm/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.466 mW/g

Flat-Section MSL/Flat Section 15mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 21.074 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 0.498 W/kg

SAR(1 g) = 0.360 mW/g; SAR(10 g) = 0.253 mW/g
Maximum value of SAR (measured) = 0.438 mW/g

Test Date = 04/06/2011
Ambient Temperature = 24.1 degree.c
Liquid Temperature = Before 23.0 degree.C , After 23.0 degree.C



ii)PCS1900

KMP7N4Y1-1A Body Back 15mm GSM PCS1900 1850.2MHz

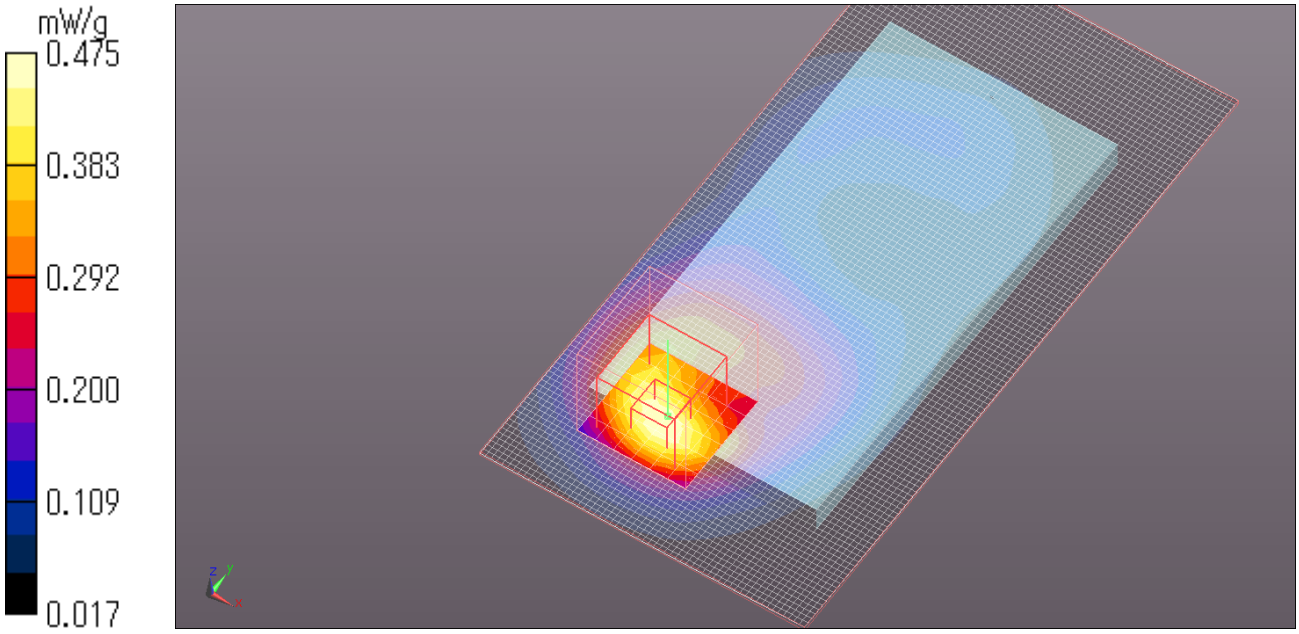
Communication System: Generic GSM; Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz); Frequency: 1850.2 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.57 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:
Probe: EX3DV3 - SN3507; ConvF(8.09, 8.09, 8.09); Calibrated: 2011/03/16
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE3 Sn509; Calibrated: 2010/07/07
Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Flat-Section MSL/Flat Section 15mm/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.509 mW/g

Flat-Section MSL/Flat Section 15mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.576 V/m; Power Drift = -0.16 dB
Peak SAR (extrapolated) = 0.585 W/kg

SAR(1 g) = 0.365 mW/g; SAR(10 g) = 0.214 mW/g
Maximum value of SAR (measured) = 0.475 mW/g

Test Date = 03/31/2011
Ambient Temperature = 24.5 degree.c
Liquid Temperature = Before 23.5 degree.C , After 23.5 degree.C



KMP7N4Y1-1A Body Back 15mm GSM PCS1900 1880MHz

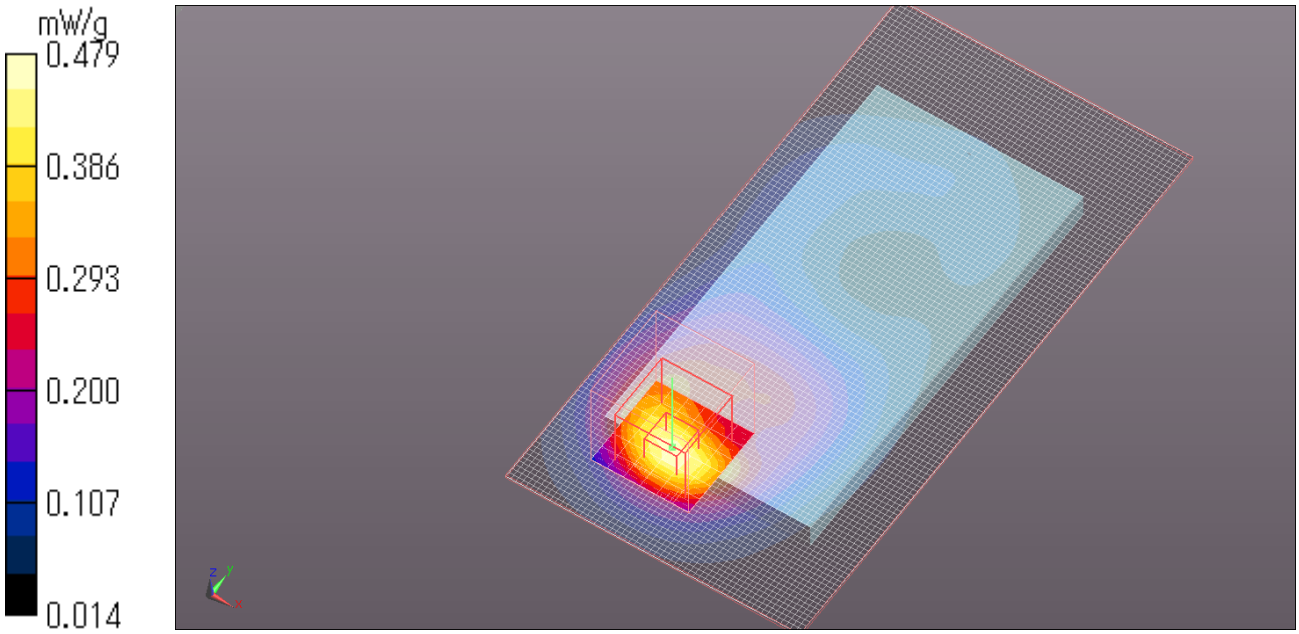
Communication System: Generic GSM; Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz); Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.57 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:
Probe: EX3DV3 - SN3507; ConvF(8.09, 8.09, 8.09); Calibrated: 2011/03/16
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE3 Sn509; Calibrated: 2010/07/07
Phantom: ELI 4.0; Type: QDOVA001BA;
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Flat-Section MSL/Flat Section 15mm/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.492 mW/g

Flat-Section MSL/Flat Section 15mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.294 V/m; Power Drift = -0.19 dB
Peak SAR (extrapolated) = 0.583 W/kg

SAR(1 g) = 0.358 mW/g; SAR(10 g) = 0.206 mW/g
Maximum value of SAR (measured) = 0.479 mW/g

Test Date = 03/31/2011
Ambient Temperature = 24.5 degree.c
Liquid Temperature = Before 23.5 degree.C , After 23.5 degree.C



KMP7N4Y1-1A Body Back 15mm GSM PCS1900 1909.8MHz

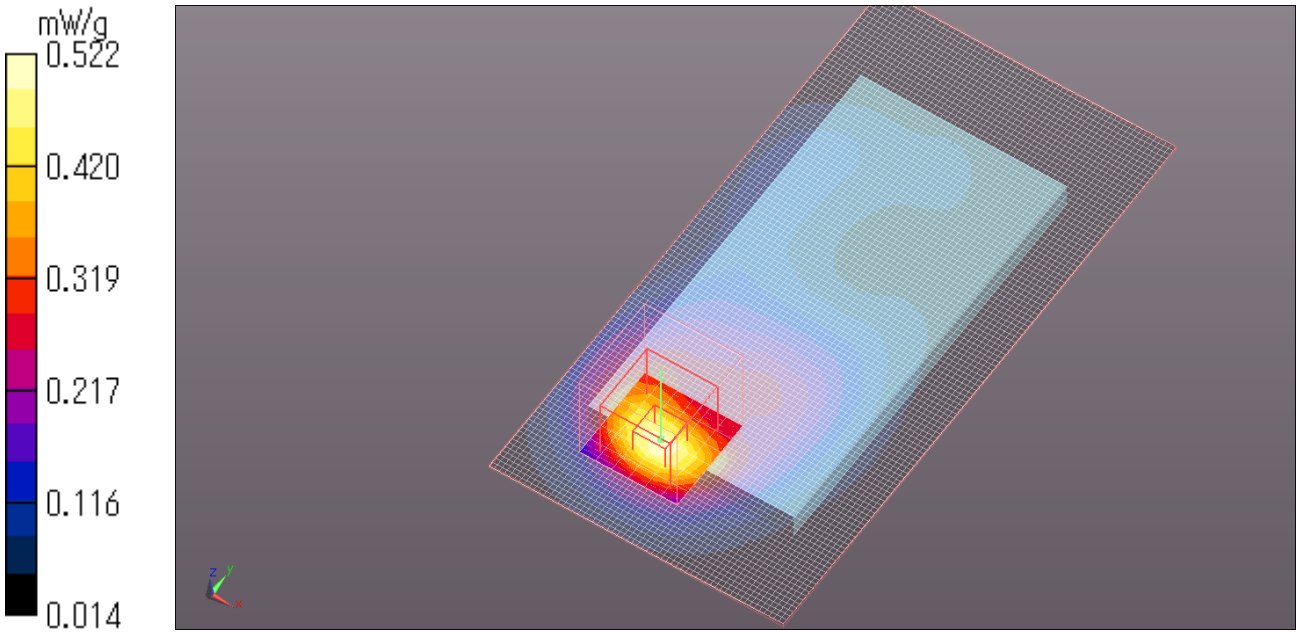
Communication System: Generic GSM; Communication System Band: PCS 1900 (1850.0 - 1910.0 MHz); Frequency: 1909.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.57 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:
Probe: EX3DV3 - SN3507; ConvF(8.09, 8.09, 8.09); Calibrated: 2011/03/16
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE3 Sn509; Calibrated: 2010/07/07
Phantom: ELI 4.0; Type: QDOVA001BA;
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Flat-Section MSL/Flat Section 15mm/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.540 mW/g

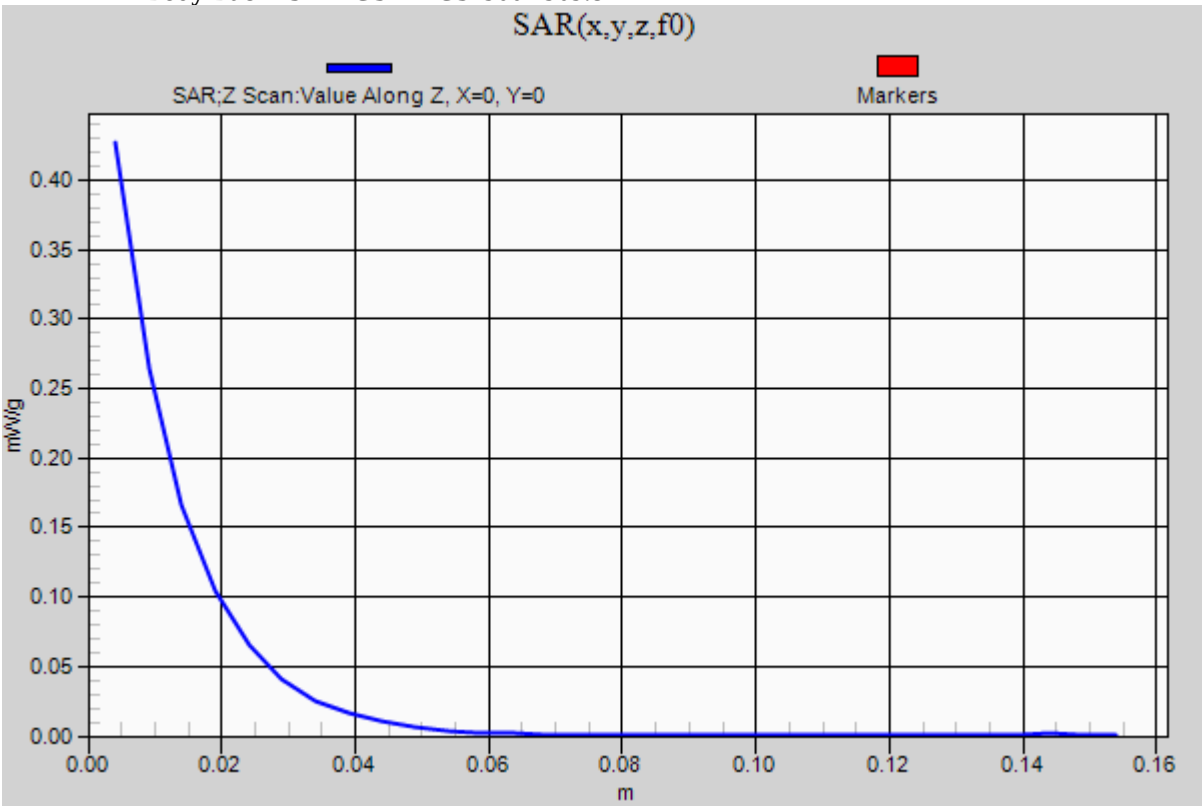
Flat-Section MSL/Flat Section 15mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.316 V/m; Power Drift = 0.16 dB
Peak SAR (extrapolated) = 0.643 W/kg

SAR(1 g) = 0.388 mW/g; SAR(10 g) = 0.221 mW/g
Maximum value of SAR (measured) = 0.522 mW/g

Test Date = 03/31/2011
Ambient Temperature = 24.5 degree.c
Liquid Temperature = Before 23.5 degree.C , After 23.5 degree.C



Z-axis scan at max SAR location
KMP7N4Y1-1A Body Back 15mm GSM PCS1900 1909.8MHz



iii)WCDMA V

KMP7N4Y1-1A Body Back 15mm 12.2k RMC WCDMA V 826.4MHz

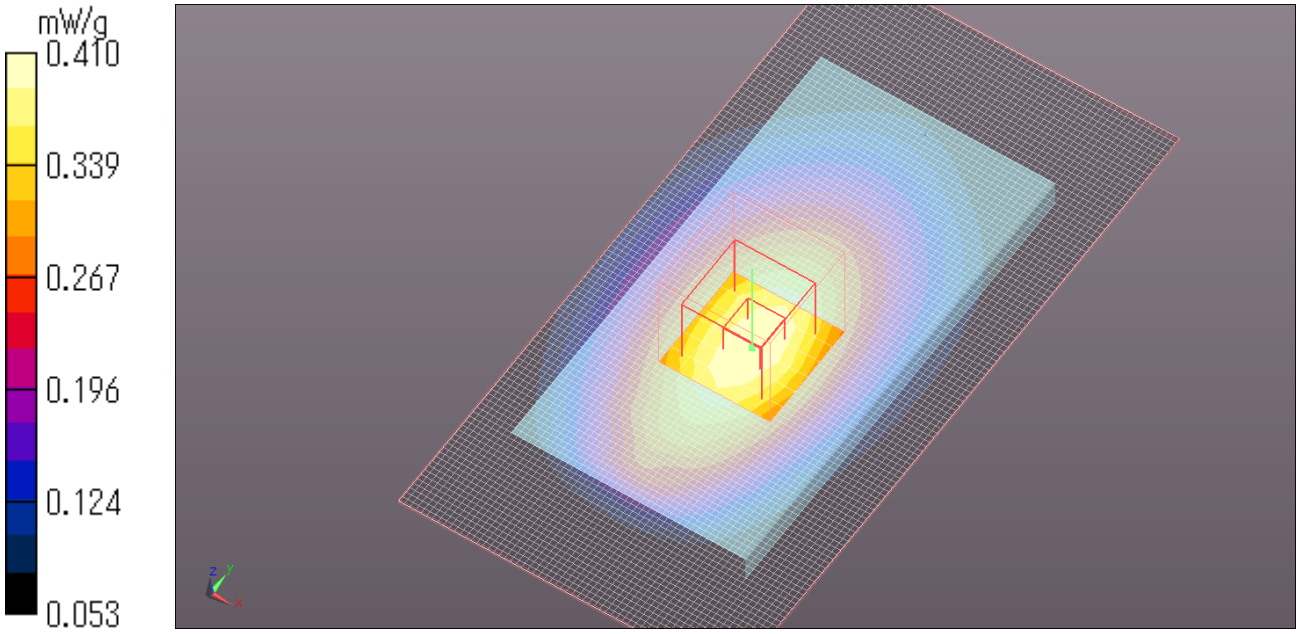
Communication System: WCDMA V 835M; Communication System Band: WCDMA V band; Frequency: 826.4 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.97 mho/m; ε_r = 55.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:
Probe: EX3DV3 - SN3507; ConvF(10.49, 10.49, 10.49); Calibrated: 2011/03/16
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn539; Calibrated: 2010/09/13
Phantom: ELI 4.0; Type: QDOVA001BA;
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Flat-Section MSL/Flat Section 15mm/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.402 mW/g

Flat-Section MSL/Flat Section 15mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 20.222 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 0.464 W/kg

SAR(1 g) = 0.346 mW/g; SAR(10 g) = 0.251 mW/g
Maximum value of SAR (measured) = 0.410 mW/g

Test Date = 04/06/2011
Ambient Temperature = 24.1 degree.c
Liquid Temperature = Before 23.0 degree.C , After 23.0 degree.C



KMP7N4Y1-1A Body Back 15mm 12.2k RMC WCDMA V 836.6MHz

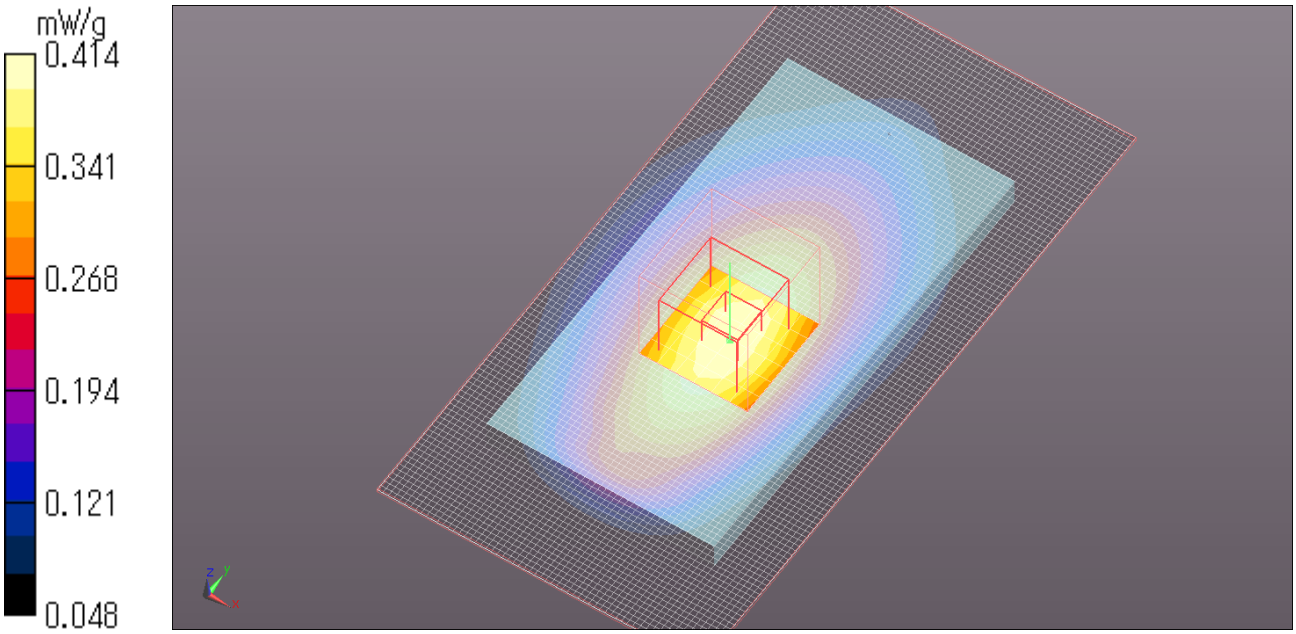
Communication System: WCDMA V 835M; Communication System Band: WCDMA V band; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.97 mho/m; ε_r = 55.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:
Probe: EX3DV3 - SN3507; ConvF(10.49, 10.49, 10.49); Calibrated: 2011/03/16
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn539; Calibrated: 2010/09/13
Phantom: ELI 4.0; Type: QDOVA001BA;
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Flat-Section MSL/Flat Section 15mm/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.399 mW/g

Flat-Section MSL/Flat Section 15mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 20.885 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 0.468 W/kg

SAR(1 g) = 0.348 mW/g; SAR(10 g) = 0.252 mW/g
Maximum value of SAR (measured) = 0.414 mW/g

Test Date = 04/06/2011
Ambient Temperature = 24.1 degree.c
Liquid Temperature = Before 23.0 degree.C , After 23.0 degree.C



KMP7N4Y1-1A Body Back 15mm 12.2k RMC WCDMA V 846.6MHz

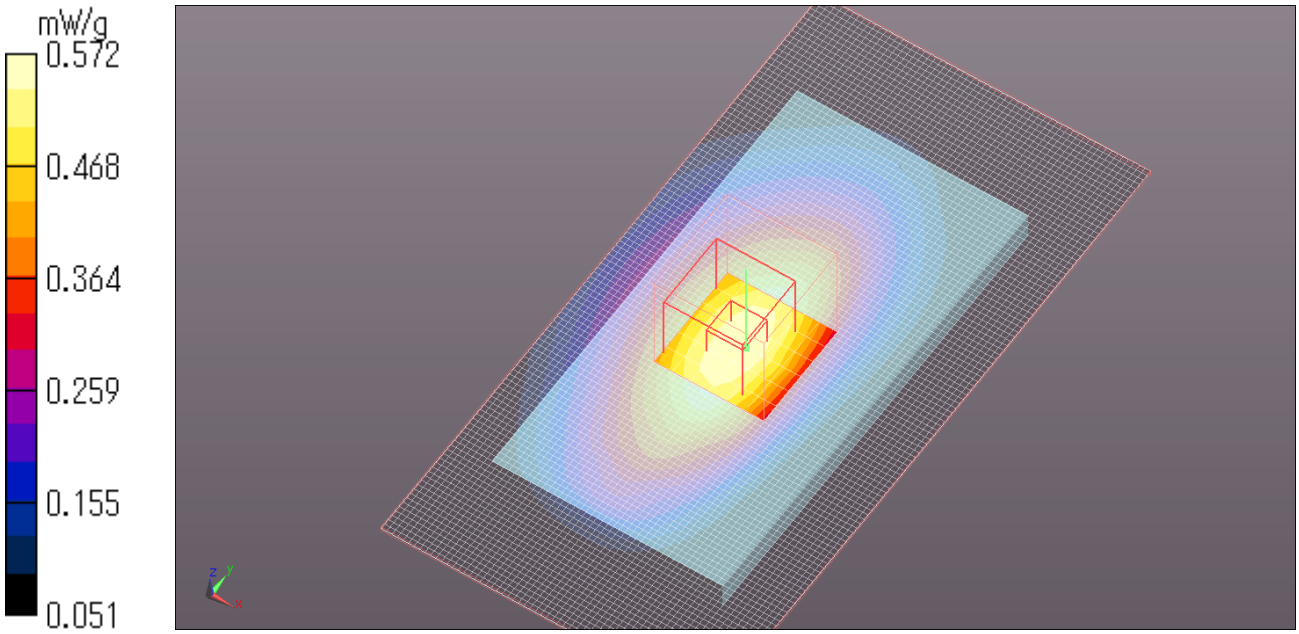
Communication System: WCDMA V 835M; Communication System Band: WCDMA V band; Frequency: 846.6 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.97 mho/m; ε_r = 55.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:
Probe: EX3DV3 - SN3507; ConvF(10.49, 10.49, 10.49); Calibrated: 2011/03/16
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn539; Calibrated: 2010/09/13
Phantom: ELI 4.0; Type: QDOVA001BA;
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Flat-Section MSL/Flat Section 15mm/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.593 mW/g

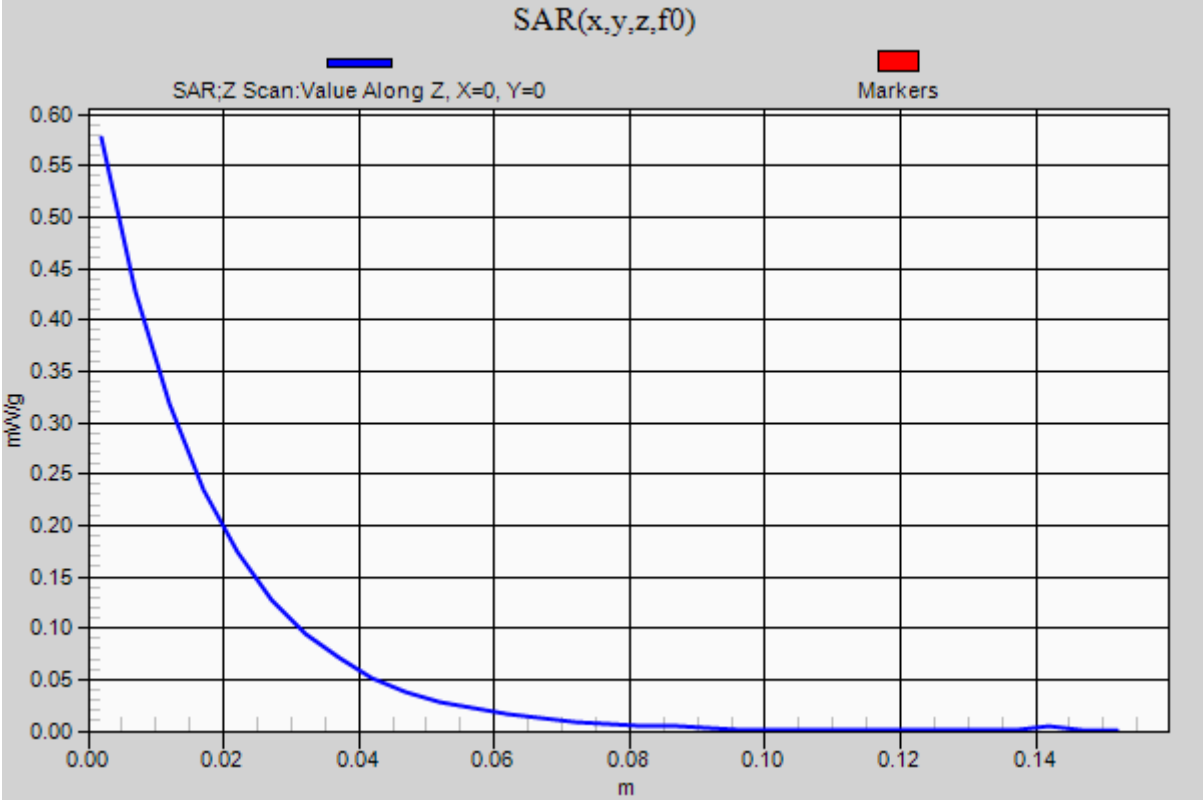
Flat-Section MSL/Flat Section 15mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.046 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.648 W/kg

SAR(1 g) = 0.479 mW/g; SAR(10 g) = 0.341 mW/g
Maximum value of SAR (measured) = 0.572 mW/g

Test Date = 04/06/2011
Ambient Temperature = 24.1 degree.c
Liquid Temperature = Before 23.0 degree.C , After 23.0 degree.C



Z-axis scan at max SAR location
KMP7N4Y1-1A Body Back 15mm 12.2k RMC WCDMA V 846.6MHz



iV)WLAN

KMP7N4Y1-1A Body Rear 15mm WLAN 11b 5.5Mbps 2437MHz

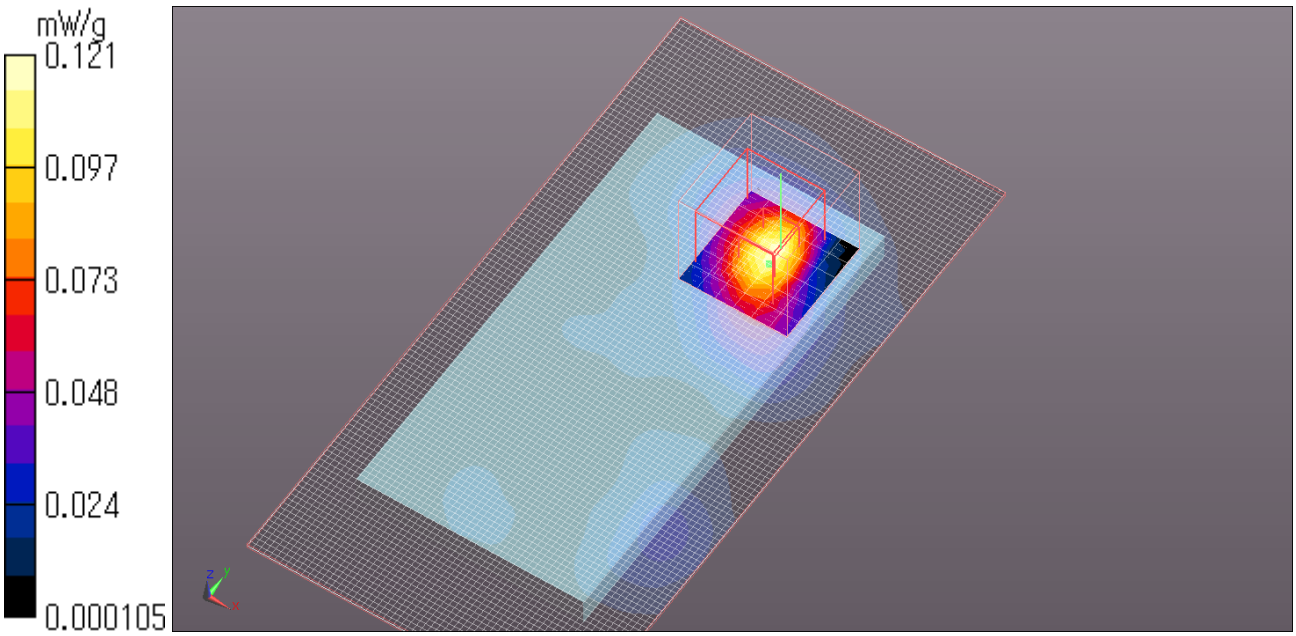
Communication System: CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2437 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 2.01 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:
Probe: EX3DV3 - SN3507; ConvF(7.61, 7.61, 7.61); Calibrated: 2011/03/16
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE3 Sn509; Calibrated: 2010/07/07
Phantom: ELI 4.0; Type: QDOVA001BA;
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Flat-Section MSL/Flat Section 15mm/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.106 mW/g

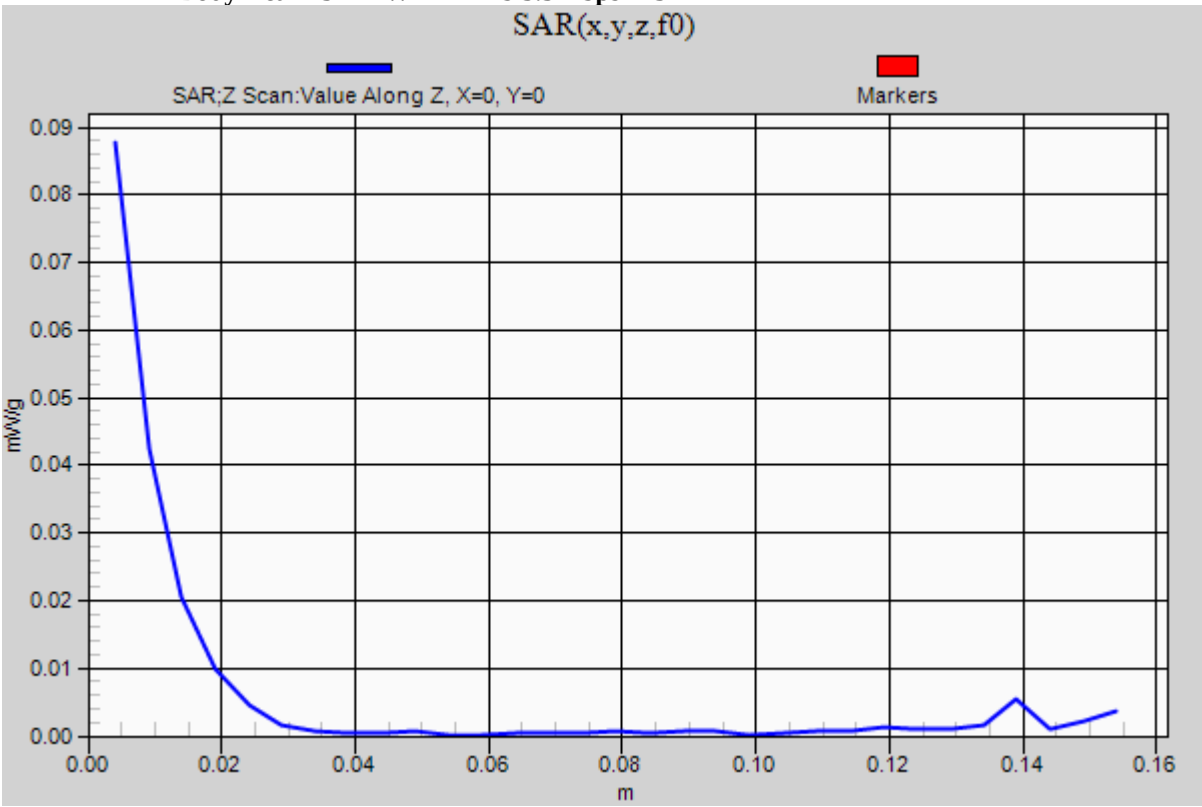
Flat-Section MSL/Flat Section 15mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.887 V/m; Power Drift = 0.15 dB
Peak SAR (extrapolated) = 0.175 W/kg

SAR(1 g) = 0.079 mW/g; SAR(10 g) = 0.035 mW/g
Maximum value of SAR (measured) = 0.121 mW/g

Test Date = 03/31/2011
Ambient Temperature = 24.5 degree.c
Liquid Temperature = Before 23.5 degree.C , After 23.5 degree.C



Z-axis scan at max SAR location
KMP7N4Y1-1A Body Rear 15mm WLAN 11b 5.5Mbps 2437MHz



KMP7N4Y1-1A Body Rear 15mm WLAN 11b 1Mbps 2437MHz

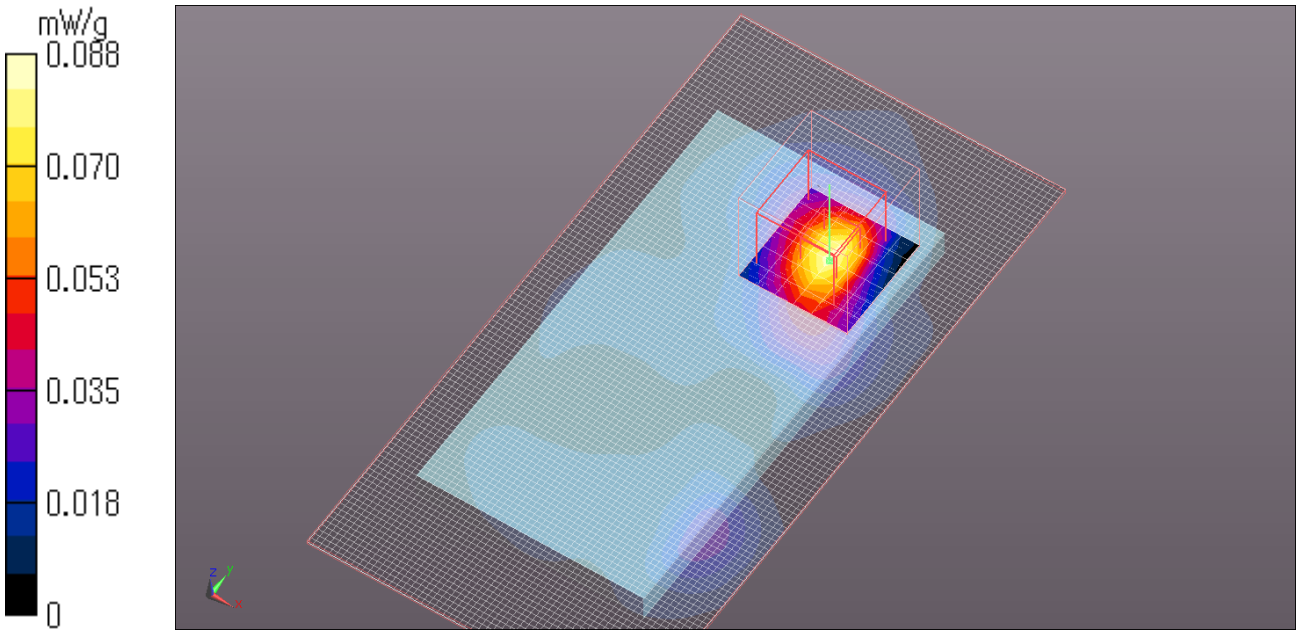
Communication System: CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2437 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 2.01 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:
Probe: EX3DV3 - SN3507; ConvF(7.61, 7.61, 7.61); Calibrated: 2011/03/16
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE3 Sn509; Calibrated: 2010/07/07
Phantom: ELI 4.0; Type: QDOVA001BA;
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Flat-Section MSL/Flat Section 15mm/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.085 mW/g

Flat-Section MSL/Flat Section 15mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.169 V/m; Power Drift = -0.183 dB
Peak SAR (extrapolated) = 0.122 W/kg

SAR(1 g) = 0.057 mW/g; SAR(10 g) = 0.025 mW/g
Maximum value of SAR (measured) = 0.088 mW/g

Test Date = 03/31/2011
Ambient Temperature = 24.5 degree.c
Liquid Temperature = Before 23.5 degree.C , After 23.5 degree.C



KMP7N4Y1-1A Body Rear 15mm WLAN 11b 5.5Mbps 2412MHz

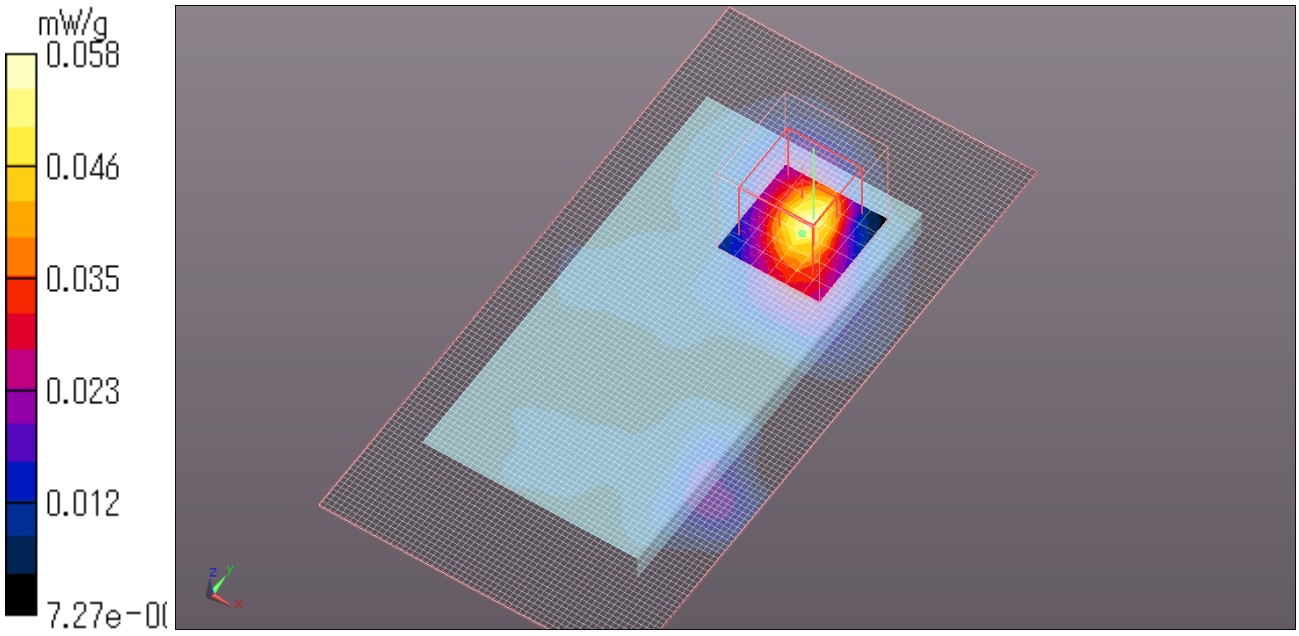
Communication System: CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2412 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 2.01 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:
Probe: EX3DV3 - SN3507; ConvF(7.61, 7.61, 7.61); Calibrated: 2011/03/16
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE3 Sn509; Calibrated: 2010/07/07
Phantom: ELI 4.0; Type: QDOVA001BA;
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Flat-Section MSL/Flat Section 15mm/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.046 mW/g

Flat-Section MSL/Flat Section 15mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.479 V/m; Power Drift = 0.17 dB
Peak SAR (extrapolated) = 0.079 W/kg

SAR(1 g) = 0.037 mW/g; SAR(10 g) = 0.017 mW/g
Maximum value of SAR (measured) = 0.058 mW/g

Test Date = 03/31/2011
Ambient Temperature = 24.5 degree.c
Liquid Temperature = Before 23.5 degree.C , After 23.5 degree.C



KMP7N4Y1-1A Body Rear 15mm WLAN 11b 5.5Mbps 2462MHz

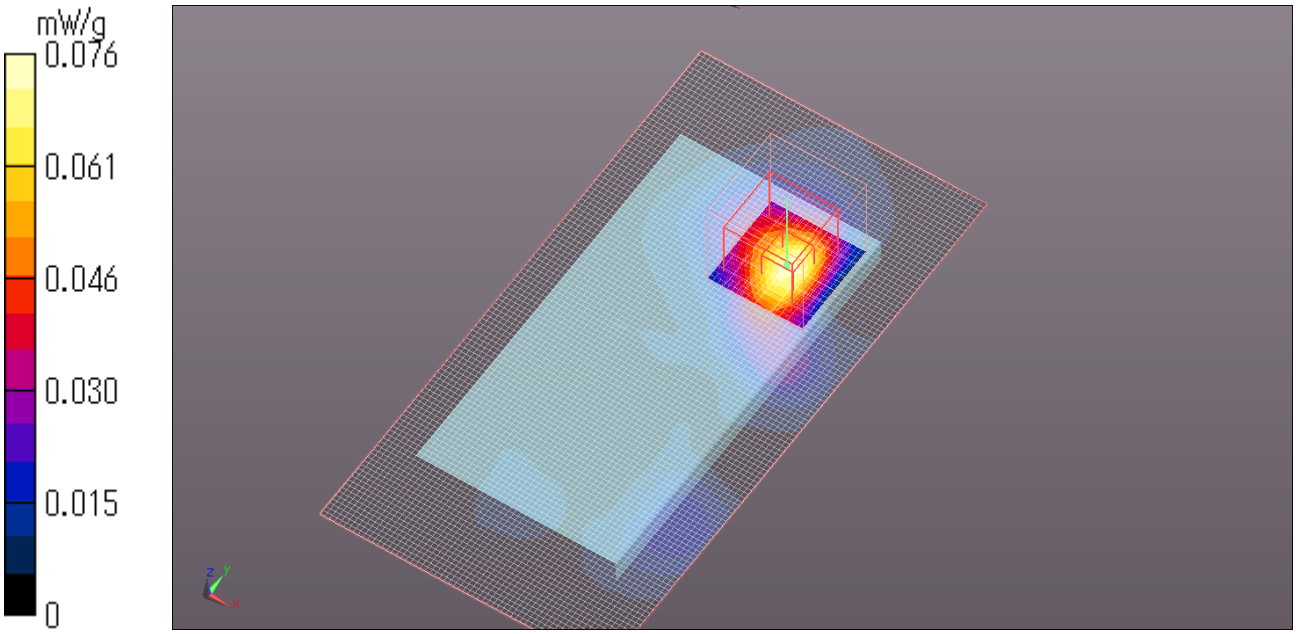
Communication System: CW; Communication System Band: D2450 (2450.0 MHz); Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 2.01 mho/m; ε_r = 50.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:
Probe: EX3DV3 - SN3507; ConvF(7.61, 7.61, 7.61); Calibrated: 2011/03/16
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE3 Sn509; Calibrated: 2010/07/07
Phantom: ELI 4.0; Type: QDOVA001BA;
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Flat-Section MSL/Flat Section 15mm/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.087 mW/g

Flat-Section MSL/Flat Section 15mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.413 V/m; Power Drift = 0.11 dB
Peak SAR (extrapolated) = 0.105 W/kg

SAR(1 g) = 0.052 mW/g; SAR(10 g) = 0.025 mW/g
Maximum value of SAR (measured) = 0.076 mW/g

Test Date = 03/31/2011
Ambient Temperature = 24.5 degree.c
Liquid Temperature = Before 23.5 degree.C , After 23.5 degree.C



APPENDIX 3 : Test instruments

1. Equipment used

Control No.	Instrument	Manufacturer	Model No	Serial No	Test Item	Calibration Date * Interval(month)
MURC-02	WirelessCommunication Test Set	Agilent	E5515C	GB47050683	Power measurement	2009/10/20 * 36
MPM-09	Power Meter	Anritsu	ML2495A	6K00003348	Power measurement	2010/09/10 * 12
MPSE-12	Power sensor	Anritsu	MA2411B	011598	Power measurement	2010/09/10 * 12
MAT-23	Attenuator(10dB) 1-18GHz	Orient Microwave	BX10-0476-00	-	Power measurement	2011/03/14 * 12
MOS-19	Thermo-Hygrometer	Custom	CTH-201	0001	Power measurement	2010/12/13 * 12
MURC-02	Wireless Communication Test Set	Agilent	E5515C	GB47050683	Power measurement	2009/10/20 * 36
MPM-08	Power Meter	Anritsu	ML2495A	6K00003338	Power measurement	2010/09/10 * 12
MPSE-11	Power sensor	Anritsu	MA2411B	011737	Power measurement	2010/09/10 * 12
MAT-20	Attenuator(10dB)(above 1GHz)	HIROSE ELECTRIC CO.,LTD.	AT-110	-	Power measurement	2011/01/06 * 12
MAT-22	Attenuator(10dB) 1-18GHz	Orient Microwave	BX10-0476-00	-	Power measurement	2011/03/14 * 12
MPSC-01	Power splitters/Combiners	Mini-Circuit	ZFSC-2-2500	0124	Power measurement	2010/09/17 * 12
MPM-01	Power Meter	Agilent	E4417A	GB41290639	SAR	2011/02/01 * 12
MPSE-01	Power Sensor	Agilent	E9300B	US40010300	SAR	2011/01/28 * 12
MPSE-03	Power sensor	Agilent	E9327A	US40440576	SAR	2011/02/02 * 12
MAT-15	Attenuator(30dB)	Agilent	8498A	US40010300	SAR	2011/02/16 * 12
MSG-10	Signal Generator	Agilent	N5181A	MY47421098	SAR	2010/09/08 * 12
MPA-12	MicroWave System Amplifier	Agilent	83017A	MY39500780	SAR	2011/03/10 * 12
MHDC-11	Dual Directional Coupler	Hewlett Packard	778D	16605	SAR	Pre Check
MNA-01	Network Analyzer	Agilent/HP	E8358A	US41080381	SAR	2010/08/19 * 12
MDPK-01	Dielectric probe kit	Agilent	85070D	702	SAR	2010/10/25 * 12
MNCK-01	Type N Calibration Kit	Agilent	85032F	MY41495257	SAR	2010/08/10 * 12
MPB-03	Dosimetric E-Field Probe	Schmid&Partner Engineering AG	EX3DV3	3507	SAR	2011/03/16 * 12
MDAE-01	Data Acquisition Electronics	Schmid&Partner Engineering AG	DAE3 V1	509	SAR	2010/07/07 * 12
MPF-02	2mmOval Flat Phantom ERI 4.0	Schmid&Partner Engineering AG	QD VA 001B (ERI4.0)	1045	SAR	Pre Check
COTS-MSAR-02	DASY5	Schmid&Partner Engineering AG	DASY52 V52.6	-	SAR	-
COTS-MSAR-02	S-Parameter Network Analyzer	Agilent	-	-	SAR	-
MDA-05	Dipole Antenna	Schmid&Partner Engineering AG	D900V2	155	SAR	2010/12/06 * 24
MDA-06	Dipole Antenna	Schmid&Partner Engineering AG	D1800V2	2d040	SAR	2010/12/09 * 24
MDA-07	Dipole Antenna	Schmid&Partner Engineering AG	D2450V2	713	SAR	2010/09/06 * 36
MPS-01	SAM Phantom	Schmid&Partner Engineering AG	SAM Twin Phantom V4.0	1196	SAR	Pre Check
MRENT-87	Data Acquisition Electronics	Schmid&Partner Engineering AG	DAE4	539	SAR	2010/09/13 * 12
MDH-01	Device holder	Schmid&Partner Engineering AG	Mounting device for transmitter	-	SAR	Pre Check
MOS-05	Thermo-Hygrometer	Custom	CTH-190	810201	SAR	2010/04/21 * 12
MOS-10	Digtal thermometer	HANNA	Checktemp-2	MOS-10	SAR	2010/08/02 * 12
MBM-13	Barometer	Sunoh	SBR121	837	SAR	2011/03/14 * 36
HSL/MSL900					Daily check	Target value ± 5%
HSL/MSL1800					Daily check	Target value ± 5%
HSL/MSL2450					Daily check	Target value ± 5%
SAR room					Daily check	

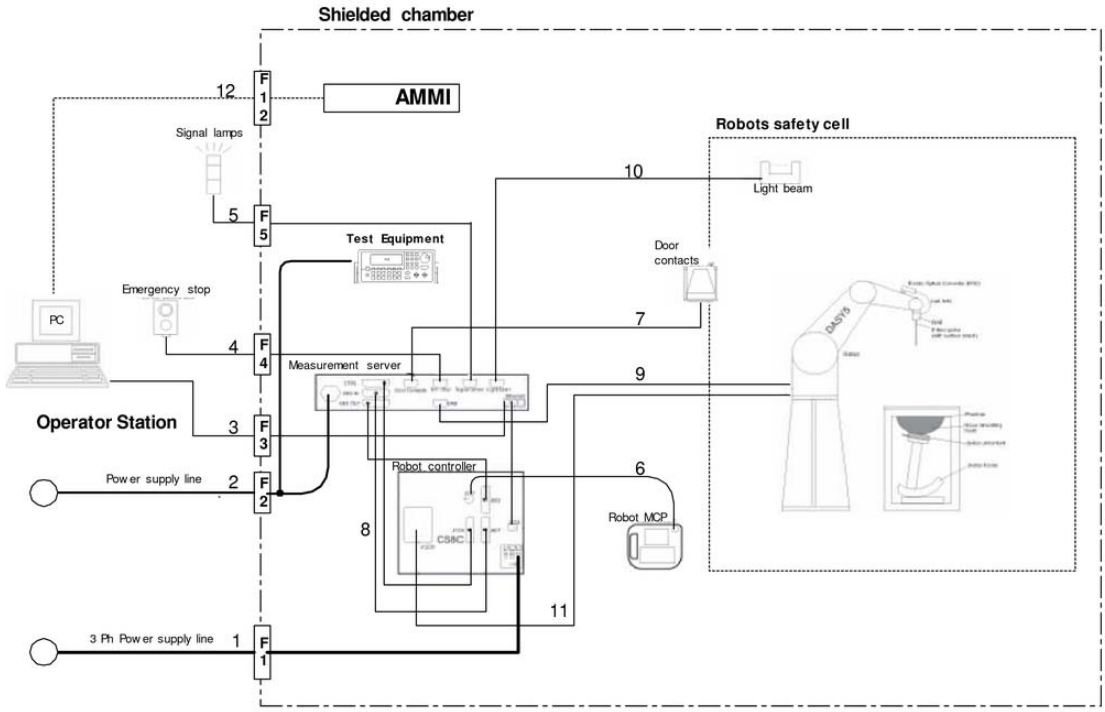
					Ambient Noise<0.012W/kg

The expiration date of the calibration is the end of the expired month.
As for some calibrations performed after the tested dates, those test equipment have been controlled by means of an unbroken chains of calibration

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 EX3DV3, SN: 3507 & ET3DV6 SN: 1741(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 +/-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 DASY5 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. An isotropic field probe optimized and calibrated for the targeted measurement.

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. The Light Beam used is for probe alignment. This improves the (absolute) accuracy of the probe positioning.

7. A computer running WinXP and the DASY5 software.

8. Remote control with teaches pendant and additional circuitry for robot safety such as warning lamps, etc.

9. The phantom, the device holder and other accessories according to the targeted measurement.

4. System components

EX3DV3 Probe Specification

Construction:
Symmetrical design with triangular core
Built-in shielding against static charges
PEEK enclosure material (resistant to organic solvents, e.g., glycol ether)

Calibration(S/N 3507):
Basic Broad Band Calibration in air : 10-3000 MHz
Conversion Factors(Head and Body): 450MHz,900 MHz,1810MHz,2000MHz,2450MHz
5.2GHz,5.3GHz,5.5GHz,5.6GHz,5.8GHz

Frequency:
10 MHz to > 6GHz; Linearity: +/-0.2 dB(30 MHz to 3 GHz)

Directivity:
+/-0.3 dB in HSL (rotation around probe axis)
+/-0.5 dB in tissue material (rotation normal probe axis)

Dynamic Range:
10uW/g to > 100 mW/g;Linearity: +/-0.2 dB(noise: typically < 1uW/g)

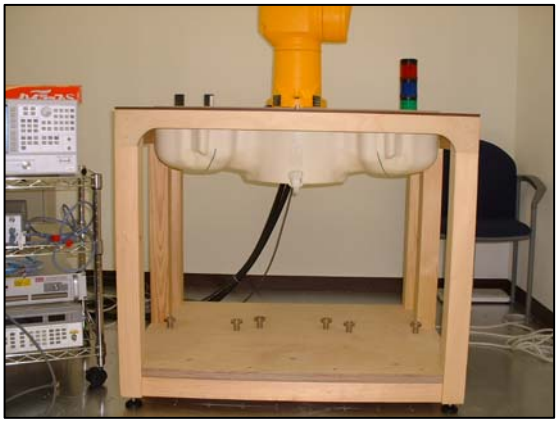
EX3DV3 E-field Probe

Dimensions:
Overall length: 330 mm (Tip: 20 mm)
Tip diameter: 2.5mm (Body: 12 mm)
Typical distance from probe tip to dipole centers: 1 mm

Application:
Highprecision dosimetric measurement in any exposure scenario
(e.g., very strong gradient fields).Only probe which enables compliance
testing for frequencies up to 6GHz with precision of better 30%.

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 of all predefined phantom positions and measurement grids by manually teaching three points with the robot.
Shell Thickness:
2 +/-0.2 mm
Filling Volume:
Approx. 25 liters
Dimensions:
(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

2mm Flat phantom ERI4.0

Description
Phantom for compliance testing of handheld and body-mounted wireless devices in the frequency range of 30 MHz to 6 GHz. ELI4 is fully compatible with the latest draft of the standard IEC 62209 Part II and all known tissue simulating liquids. ELI4 has been optimized regarding its performance and can be integrated into our standard phantom tables. A cover prevents evaporation of the liquid. Reference markings on the phantom allow installation of the complete setup, including all predefined phantom positions and measurement grids, by teaching three points. The phantom is supported by software version DASY4.5 and higher and is compatible with all SPEAG dosimetric probes and dipoles.

Shell Thickness
2.0 ± 0.2 mm (sagging: <1%)

Filling Volume
approx. 30 liters

Dimensions
Major ellipse axis: 600 mm
Minor axis: 400 mm

Compatibilities
- Standard: IEC 62209 Part II (Draft 0.9 and higher)
- Software release: DASY 4.5 or higher
- SPEAG standard phantom table
- all SPEAG dosimetric probes and dipoles

Device Holder
For this measurement, the urethane foam was used as device holder.

5. Test system specifications

Robot TX60L

Number of Axes	:	6
Nominal Load	:	2 kg
Maximum Load	:	5kg
Reach	:	920mm
Repeatability	:	+/-0.03mm
Control Unit	:	CS8c
Programming Language	:	VAL3
Weight	:	52.2kg
Manuafacture	:	Stäubli Unimation Corp. Robot Model: TX60L

DASY5 Measurement server

Features	:	Intel ULV Celeron 400MHz 128MB chip disk and 128MB RAM 16 Bit A/D converter for surface detection system Vacuum Fluorescent Display Robot Interface Serial link to DAE (with watchdog supervision) Door contact port (Possibility to connect a light curtain) Emergency stop port (to connect the remote control) Signal lamps port Light beam port Three Ethernet connection ports Two USB 2.0 Ports Two serial links Expansion port for future applications
Dimensions	:	(L x W x H)**:** 440 x 241 x 89 mm
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 DASY5 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 µV to > 200 mV (16 bit resolution and two range settings: 4mV, 400mV)
Input Offset voltage	:	< 1 µV (with auto zero)
Input Resistance	:	200 MΩ
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 DASY5
Type No.	:	SD 000 401A, SD 000 402A
Software version No.	:	DASY52, Version 52.6 (1)
Manufacture / Origin	:	Schimid & Partner Engineering AG

E-Field Probe

Model	:	EX3DV3
Serial No.	:	3507
Construction	:	Symmetrical design with triangular core
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

Type	:	2mm Flat phantom ERI4.0
Shell Thickness	:	2.0 ± 0.2 mm (sagging: <1%)
Filling Volume	:	approx. 30 liters
Dimensions	:	Major ellipse axis: 600 mm Minor axis: 400 mm
Manufacture	:	Schimid & Partner Engineering AG

6. 900MHz Simulated Tissues Composition

Ingredient	MiXTURE(%)	
	Head 900MHz	Muscle 900MHz
Water	40.3	50.75
Sugar	57.9	48.21
Cellulose	0.24	0.00
Salt	1.38	0.94
Preventol	0.18	0.10

7. 900MHz 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 900 MHz

Type of liquid : **Head 900 MHz**
Ambient temperature (deg.c.) : **24.0**
Relative Humidity (%) : **38**

DIELECTRIC PARAMETERS MEASUREMENT RESULTS								
Date	Frequency	Liquid Temp [deg.c]		Parameters	Target Value *1	Measured	Deviation [%]	Limit [%]
		Before	After					
4-Apr	835	22.5	22.5	Relative Permittivity εr	41.5	41.7	0.5	+/-5
				Coductivity σ [mho/m]	0.90	0.91	1.1	+/-5
4-Apr	900	22.5	22.5	Relative Permittivity εr	41.5	40.8	-1.7	+/-5
				Coductivity σ [mho/m]	0.97	0.95	-2.1	+/-5

*1 The target values is a parameter defined in FCC OET 65

DIELECTRIC PARAMETERS MEASUREMENT RESULTS								
Date	Frequency	Liquid Temp [deg.c]		Parameters	Target Value *2	Measured	Deviation [%]	Limit [%]
		Before	After					
4-Apr	900	22.5	22.5	Relative Permittivity εr	40.7	40.8	0.2	+/-10
				Coductivity σ [mho/m]	0.95	0.95	0.0	+/-10

*2 The target value is the calibrated dipole Head TSL parameters. (D900V2 SN:155)

7-c Muscle 900MHz

Type of liquid : **Muscle 900 MHz**
Ambient temperature (deg.c.) : **24.1**
Relative Humidity (%) : **39**

DIELECTRIC PARAMETERS MEASUREMENT RESULTS								
Date	Frequency	Liquid Temp [deg.c]		Parameters	Target Value*1	Measured	Deviation [%]	Limit [%]
		Before	After					
6-Apr	835	23.0	23.0	Relative Permittivity εr	55.2	55.9	1.3	+/-5
				Coductivity σ [mho/m]	0.97	0.97	0.0	+/-5
6-Apr	900	23.0	23.0	Relative Permittivity εr	55.0	55.6	1.1	+/-5
				Coductivity σ [mho/m]	1.05	1.05	0.0	+/-5

*1 The target values is a parameter defined in FCC OET 65

DIELECTRIC PARAMETERS MEASUREMENT RESULTS								
Date	Frequency	Liquid Temp [deg.c]		Parameters	Target Value*2	Measured	Deviation [%]	Limit [%]
		Before	After					
6-Apr	900	23.0	23.0	Relative Permittivity εr	53.6	55.6	3.7	+/-10
				Coductivity σ [mho/m]	1.05	1.05	0.0	+/-10

*2 The target value is the calibrated dipole Body TSL parameters. **(**D900V2 SN:155)

8. 900 and 835MHz 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.

8-a 900MHz System validation

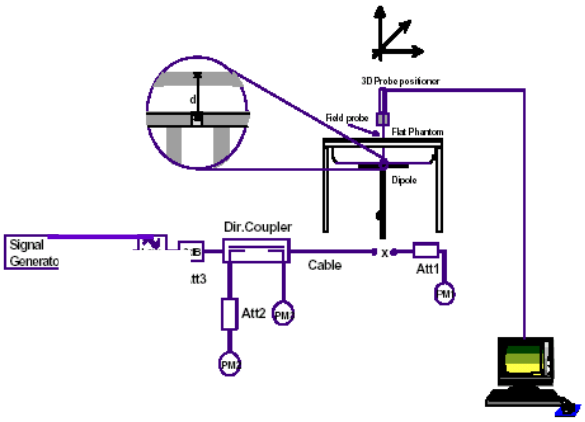
Frequency	:	**900MHz**
Liquid depth (cm)	:	**15.0**
Ambient temperature (deg.c.)	:	**24.0(1 Apr), 24.1(6 Apr)**
Relative Humidity (%)	:	**38(1 Apr), 39(6 Apr)**
Dipole	:	**D900V2 SN:155**
Power	:	**250mW**

SYSTEM PERFORMANCE CHECK											
Date	Liquid (900MHz)							System dipole validation target & measured			
	Type	Liquid Temp [deg.c.]		Relative Permittivity εr		Conductivity σ [mho/m]		SAR 1g [W/kg]		Deviation [%]	Limit [%]
		Before	After	Target*1	Measured	Target*1	Measured	Target*2	Measured		
4-Apr	Head	22.5	22.5	41.5	40.8	0.97	0.95	2.7	2.73	1.1	+/-10

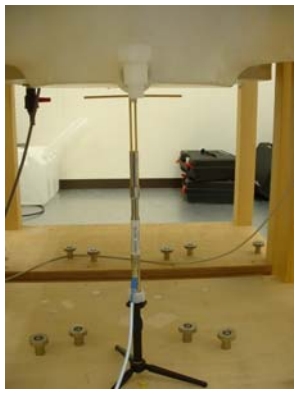
*1 The taget value is the parameter defined in FCC OET 65.
*2 Because the forward power of the dipole was checked with 250mW, the taget value is 1/4 values of the parameter defined in IEEE Standard 1528.

SYSTEM PERFORMANCE CHECK											
Date	Liquid (900MHz)							System dipole validation target & measured			
	Type	Liquid Temp [deg.c.]		Relative Permittivity εr		Conductivity σ [mho/m]		SAR 1g [W/kg]		Deviation [%]	Limit [%]
		Before	After	Target*1	Measured	Target*1	Measured	Target*2	Measured		
4-Apr	Head	22.5	22.5	40.7	40.8	0.95	0.95	2.73	2.73	0.0	+/-10
6-Apr	Body	23.5	23.5	53.6	55.6	1.05	1.05	2.73	2.73	0.0	+/-10

*1 The target value is the calibrated dipole Body TSL parameters. (D900V2 SN:155).
*2 The target value is a manufacturer calibrated dipole 1g SAR value. (D900V2 SN:155)
Note: Please refer to Attachment for the result representation in plot format



Test system for the system performance check setup diagram



900MHz System performance check setup

8-b 835MHz System validation

Frequency	:	**835MHz**
Liquid depth (cm)	:	**15.0**
Ambient temperature (deg.c.)	:	**24.0(1 Apr), 24.1(6 Apr)**
Relative Humidity (%)	:	**38(1 Apr), 39(6 Apr)**
Dipole	:	**D900V2 SN:155**
Power	:	**250mW**

SYSTEM PERFORMANCE CHECK											
Date	Liquid (835MHz)							System dipole validation target & measured			
	Type	Liquid Temp [deg.c.]		Relative Permittivity εr		Conductivity σ [mho/m]		SAR 1g [W/kg]		Deviation [%]	Limit [%]
		Before	After	Target*1	Measured	Target*1	Measured	Target*2	Measured		
4-Apr	Head	22.5	22.5	41.5	41.7	0.90	0.91	2.38	2.50	5.3	+/-10

*1 The taget value is the parameter defined in FCC OET 65.

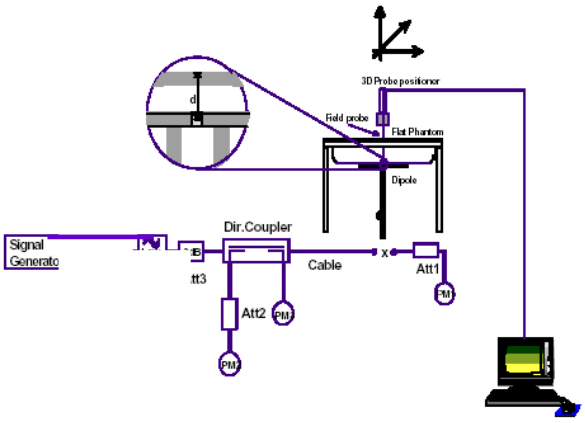
*2 Because the forward power of the dipole was checked with 250mW, the taget value is 1/4 values of the parameter defined in IEEE Standard 1528.

SYSTEM PERFORMANCE CHECK											
Date	Liquid (835MHz)							System dipole validation target & measured			
	Type	Liquid Temp [deg.c.]		Relative Permittivity εr		Conductivity σ [mho/m]		SAR 1g [W/kg]		Deviation [%]	Limit [%]
		Before	After	Target*1	Measured	Target*1	Measured	Target*2	Measured		
4-Apr	Head	22.5	22.5	40.7	41.7	0.95	0.91	2.73	2.50	-8.4	+/-10
6-Apr	Body	23.5	23.5	53.6	55.9	1.05	0.97	2.73	2.46	-9.9	+/-10

*1 The target value is the calibrated dipole Body TSL parameters. (D900V2 SN:155).

*2 The target value is a manufacturer calibrated dipole 1g SAR value. (D900V2 SN:155)

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



Test system for the system performance check setup diagram

900MHz System performance check setup

9. 900MHz and 835MHz Validation Measurement data

Head / 900MHz System Validation / Forward Conducted Power : 250mW
Dipole 900 MHz; Type: D900V2; Serial: 155

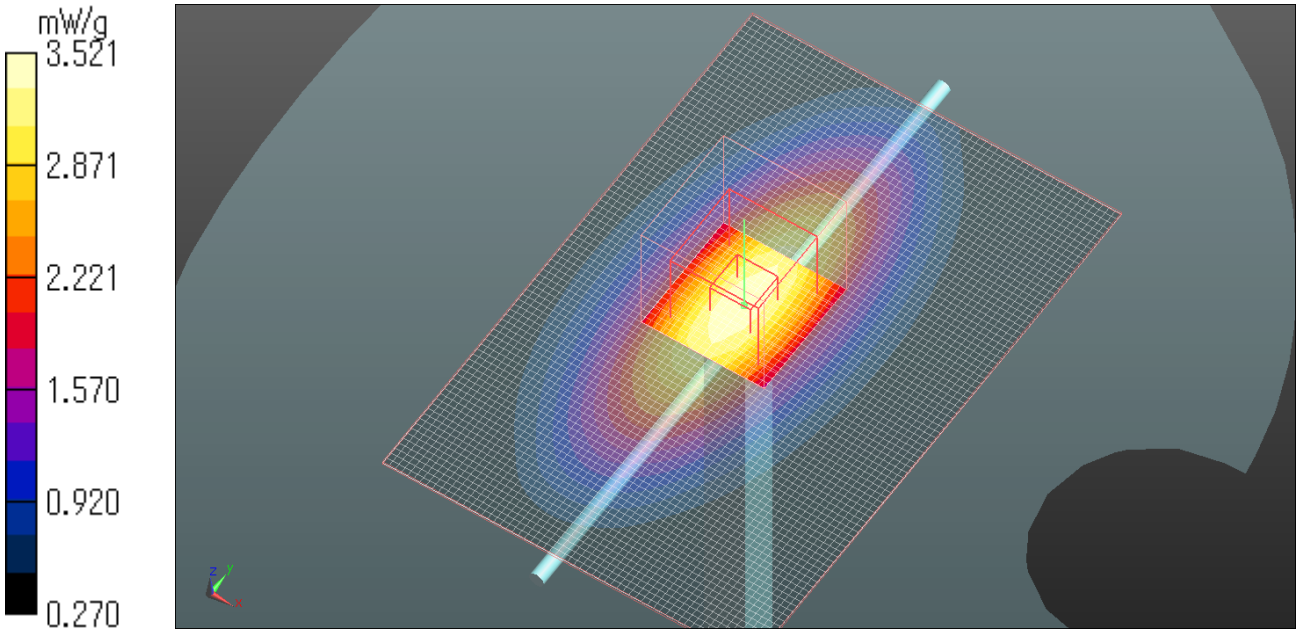
Communication System: CW; Communication System Band: D900 (900.0 MHz); Frequency: 900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 900 MHz; σ = 0.95 mho/m; ε_r = 40.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:
Probe: EX3DV3 - SN3507; ConvF(10.25, 10.25, 10.25); Calibrated: 2010/02/19
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn539; Calibrated: 2010/09/13
Phantom: SAM with CRP; Type: SAM;:
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

System Performance Check MSL/System Performance Check/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 3.503 mW/g

System Performance Check MSL/System Performance Check/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 61.761 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 4.260 W/kg

SAR(1 g) = 2.73 mW/g; SAR(10 g) = 1.75 mW/g
Maximum value of SAR (measured) = 3.521 mW/g

Test Date = 04/04/2011
Ambient Temperature = 24.0 degree.c
Liquid Temperature = Before 22.5degree.C , After 22.5 degree.C



Body / 900MHz System Validation / Forward Conducted Power : 250mW
Dipole 900 MHz; Type: D900V2; Serial: 155

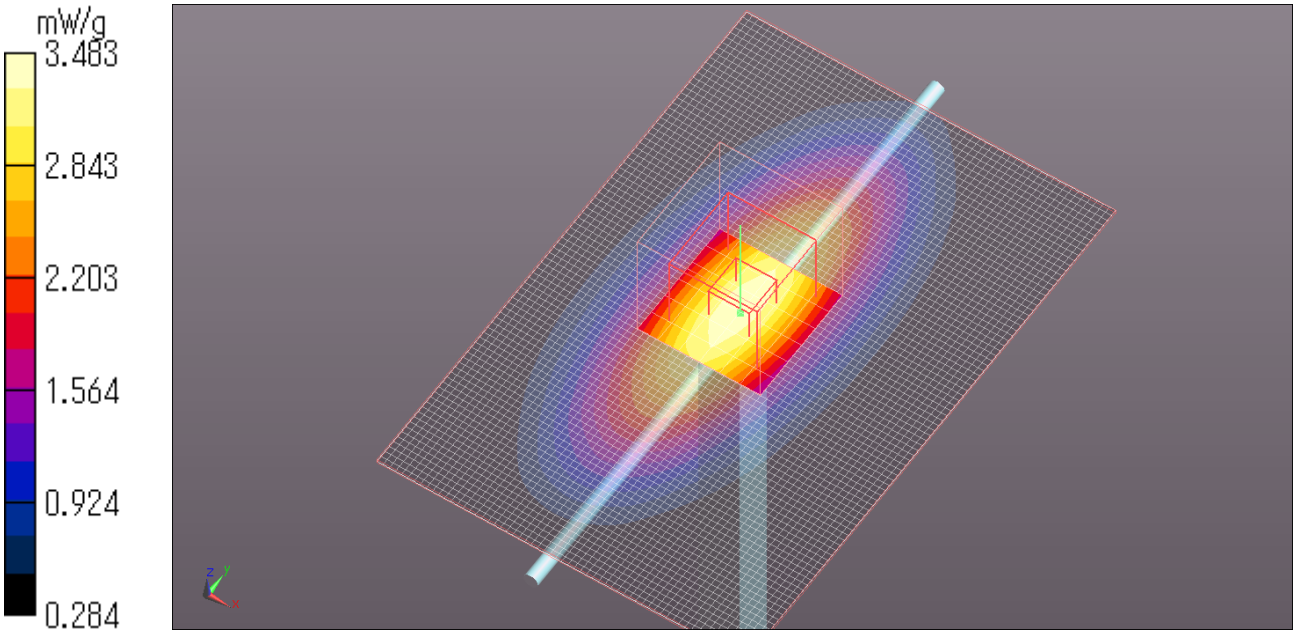
Communication System: CW; Communication System Band: D900 (900.0 MHz); Frequency: 900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 900 MHz; σ = 1.05 mho/m; ε_r = 55.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:
Probe: EX3DV3 - SN3507; ConvF(10.18, 10.18, 10.18); Calibrated: 2011/03/16
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn539; Calibrated: 2010/09/13
Phantom: ELI 4.0; Type: QDOVA001BA;
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Flat-Section MSL/Flat Section 15mm/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 3.493 mW/g

Flat-Section MSL/Flat Section 15mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 58.665 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 4.151 W/kg

SAR(1 g) = 2.73 mW/g; SAR(10 g) = 1.76 mW/g
Maximum value of SAR (measured) = 3.483 mW/g

Test Date = 04/06/2011
Ambient Temperature = 24.1 degree.c
Liquid Temperature = Before 23.0 degree.C , After 23.0 degree.C



Head / 835MHz System Validation / Forward Conducted Power : 250mW
Dipole 900 MHz; Type: D900V2; Serial: 155

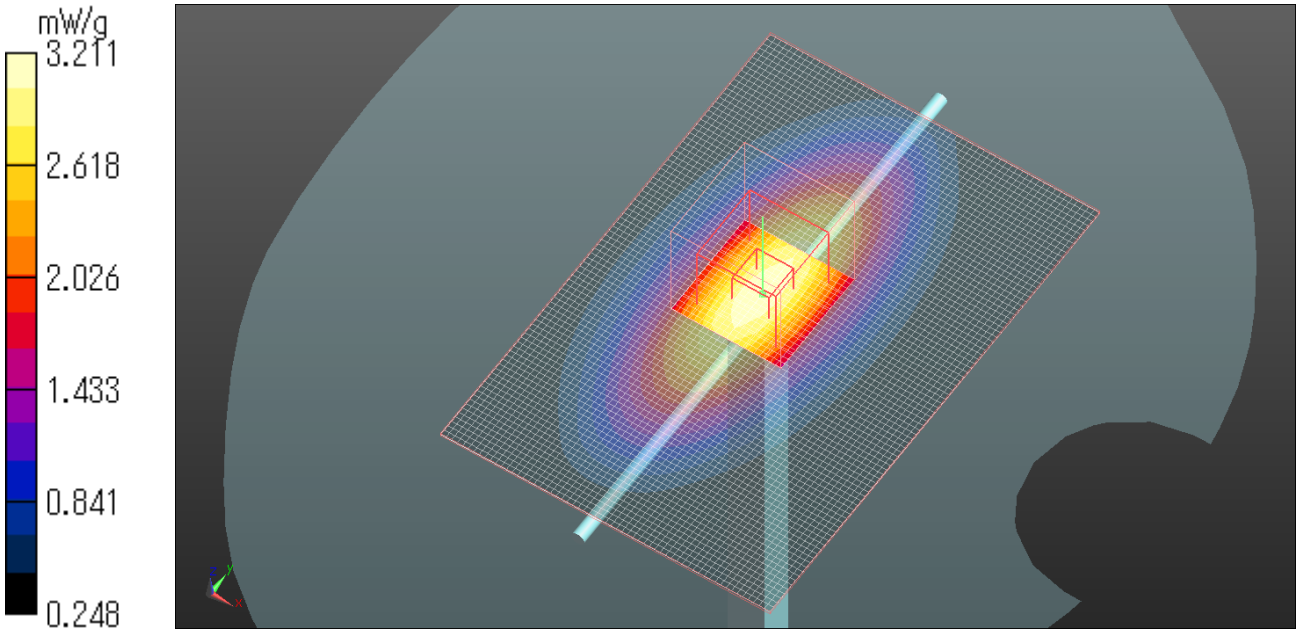
Communication System: CW; Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.91 mho/m; ε_r = 41.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:
Probe: EX3DV3 - SN3507; ConvF(10.59, 10.59, 10.59); Calibrated: 2010/02/19
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn539; Calibrated: 2010/09/13
Phantom: SAM with CRP; Type: SAM;
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

System Performance Check MSL/System Performance Check/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 3.194 mW/g

System Performance Check MSL/System Performance Check/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 60.762 V/m; Power Drift = -0.05 dB
Peak SAR (extrapolated) = 3.866 W/kg

SAR(1 g) = 2.5 mW/g; SAR(10 g) = 1.6 mW/g
Maximum value of SAR (measured) = 3.211 mW/g

Test Date = 04/04/2011
Ambient Temperature = 24.0 degree.c
Liquid Temperature = Before 22.5degree.C , After 22.5 degree.C



Body / 835MHz System Validation / Forward Conducted Power : 250mW
Dipole 835 MHz; Type: D900V2; Serial: 155

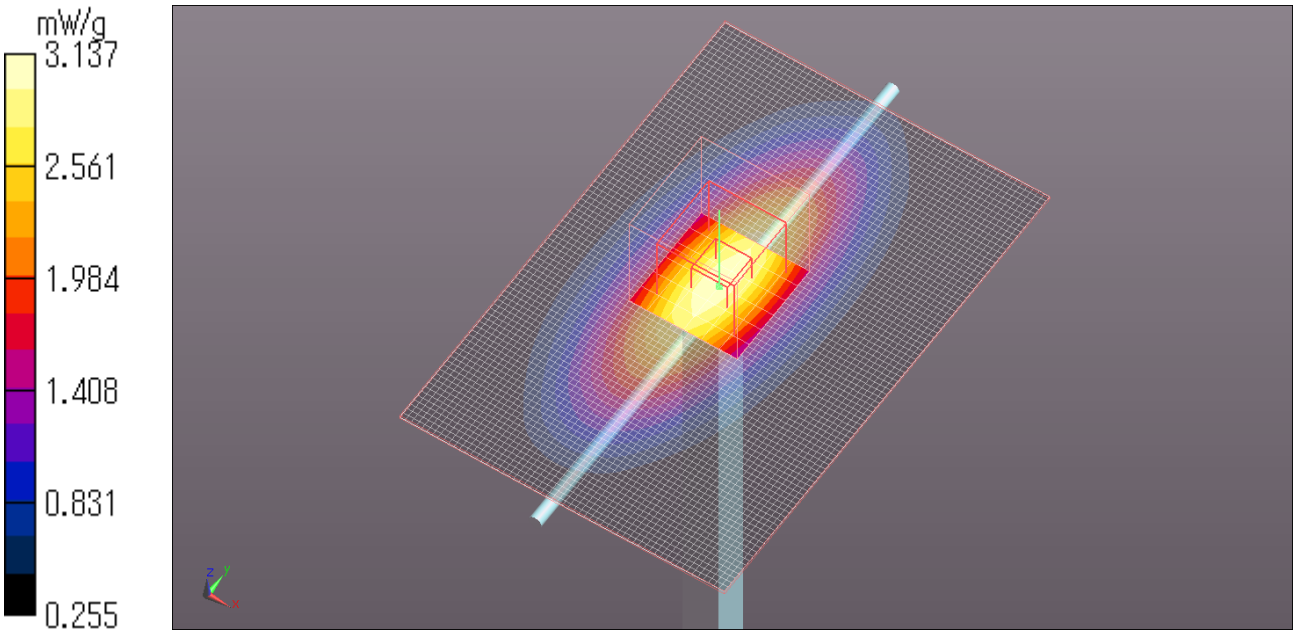
Communication System: CW; Communication System Band: D835 (835.0 MHz); Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.97 mho/m; ε_r = 55.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:
Probe: EX3DV3 - SN3507; ConvF(10.49, 10.49, 10.49); Calibrated: 2011/03/16
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn539; Calibrated: 2010/09/13
Phantom: ELI 4.0; Type: QDOVA001BA;
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

Flat-Section MSL/Flat Section 15mm/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 3.146 mW/g

Flat-Section MSL/Flat Section 15mm/Zoom Scan 2 (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 57.791 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 3.752 W/kg

SAR(1 g) = 2.46 mW/g; SAR(10 g) = 1.59 mW/g
Maximum value of SAR (measured) = 3.137 mW/g

Test Date = 04/06/2011
Ambient Temperature = 24.1 degree.c
Liquid Temperature = Before 23.0 degree.C , After 23.0 degree.C



10. 1800MHz Simulated Tissues Composition

Ingredient	MiXTURE(%)	
	Head 1800MHz	Muscle 1800MHz
Water	55.24	70.17
DGMBE	44.45	29.44
Salt	0.31	0.39

Note:DGMBE(Diethylenglycol-monobuthyl ether)

11. 1800MHz Validation Measurement

Simulated tissue liquid parameter

11-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.

11-b Head 1800MHz

Type of liquid : **Head 1800 MHz**
Ambient temperature (deg.c.) : **24.2**
Relative Humidity (%) : **41**

DIELECTRIC PARAMETERS MEASUREMENT RESULTS								
Date	Frequency	Liquid Temp [deg.c]		Parameters	Target Value *1	Measured	Deviation [%]	Limit [%]
		Before	After					
3-Apr	1800	22.7	22.7	Relative Permittivity εr	40.0	40.3	0.7	+/-5
				Coductivity σ [mho/m]	1.40	1.37	-2.1	+/-5
3-Apr	1880	22.7	22.7	Relative Permittivity εr	40.0	39.2	-2.0	+/-5
				Coductivity σ [mho/m]	1.40	1.44	2.9	+/-5

*1 The target values is a parameter defined in FCC OET 65.

DIELECTRIC PARAMETERS MEASUREMENT RESULTS								
Date	Frequency	Liquid Temp [deg.c]		Parameters	Target Value *2	Measured	Deviation [%]	Limit [%]
		Before	After					
3-Apr	1800	22.7	22.7	Relative Permittivity εr	39.7	40.3	1.5	+/-10
				Coductivity σ [mho/m]	1.34	1.37	2.2	+/-10

*2 The target value is the calibrated dipole Head TSL parameters. (D1800V2 SN:2d04)

11-c Muscle 1800MHz

Type of liquid : **Muscle 1800 MHz**
Ambient temperature (deg.c.) : **24.5**
Relative Humidity (%) : **40**

DIELECTRIC PARAMETERS MEASUREMENT RESULTS								
Date	Frequency	Liquid Temp [deg.c]		Parameters	Target Value *1	Measured	Deviation [%]	Limit [%]
		Before	After					
31-Mar	1800	23.5	23.5	Relative Permittivity εr	53.3	52.5	-1.5	+/-5
				Coductivity σ [mho/m]	1.52	1.52	0.0	+/-5
31-Mar	1880	23.5	23.5	Relative Permittivity εr	53.3	52.1	-2.3	+/-5
				Coductivity σ [mho/m]	1.52	1.57	3.3	+/-5

*1 The target values is a parameter defined in FCC OET 65

DIELECTRIC PARAMETERS MEASUREMENT RESULTS								
Date	Frequency	Liquid Temp [deg.c]		Parameters	Target Value *2	Measured	Deviation [%]	Limit [%]
		Before	After					
31-Mar	1800	23.5	23.5	Relative Permittivity εr	53.1	52.5	-1.1	+/-5
				Coductivity σ [mho/m]	1.45	1.52	4.8	+/-5

*2 The target value is the calibrated dipole Body TSL parameters. (D1800V2 SN:2d04)

12. 1800MHz and 1900MHz 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.

12-a 1800MHz System validation

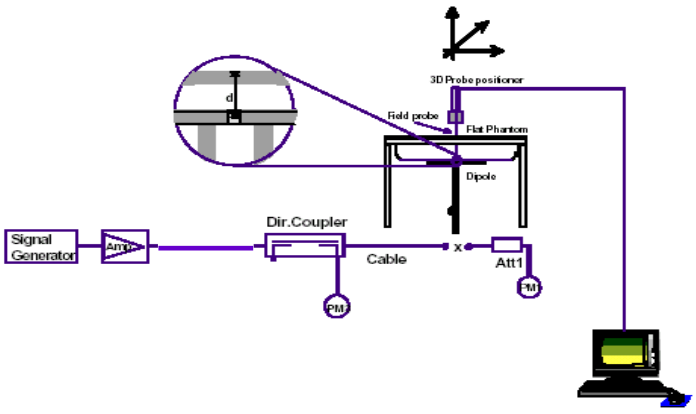
Frequency	:	**1800MHz**
Liquid depth (cm)	:	**15.0**
Ambient temperature (deg.c.)	:	**24.2(3-Apr) and 24.5(31-Mar)**
Relative Humidity (%)	:	**41(3-Apr), 40(31-Mar)**
Dipole	:	**D1800V2 SN:2d04**
Power	:	**250mW**

SYSTEM PERFORMANCE CHECK											
Date	Liquid (1800MHz)							System dipole validation target & measured			
	Type	Liquid Temp [deg.c.]		Relative Permittivity εr		Conductivity σ [mho/m]		SAR 1g [W/kg]		Deviation [%]	Limit [%]
		Before	After	Target*1	Measured	Target*1	Measured	Target*2	Measured		
3-Apr	Head	22.7	22.7	40.0	40.3	1.40	1.37	9.53	9.34	-2.0	+/-10

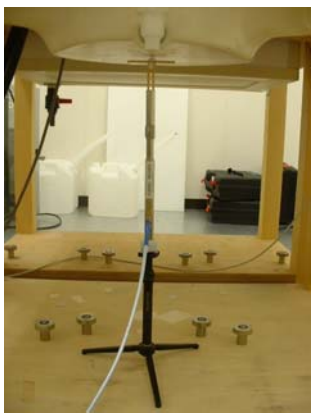
*1 The taget value is the parameter defined in FCC OET 65.
*2 Because the forward power of the dipole was checked with 250mW, the taget value is 1/4 values of the parameter defined in IEEE Standard 1528.

SYSTEM PERFORMANCE CHECK											
Date	Liquid (1800MHz)							System dipole validation target & measured			
	Type	Liquid Temp [deg.c.]		Relative Permittivity εr		Conductivity σ [mho/m]		SAR 1g [W/kg]		Deviation [%]	Limit [%]
		Before	After	Target	Measured	Target	Measured	Target*2	Measured		
3-Apr	Head	22.7	22.7	39.7	40.3	1.34	1.37	9.83	9.34	-5.0	+/-10
31-Mar	Body	23.5	23.5	53.1	52.5	1.45	1.52	9.60	8.71	-9.3	+/-10

*2 The target value is a manufacturer calibrated dipole 1g SAR value. (D1800V2 SN:214)
Note: Please refer to Attachment for the result representation in plot format



Test system for the system performance check setup diagram



1800MHz System performance check setup

12-b 1900MHz System validation

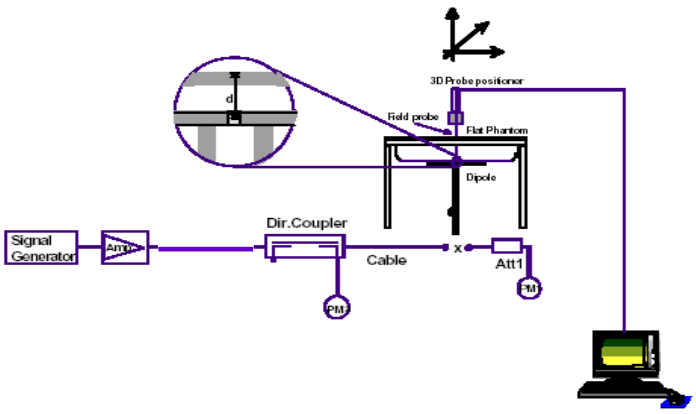
Frequency	:	**1900MHz**
Liquid depth (cm)	:	**15.0**
Ambient temperature (deg.c.)	:	**24.2(3-Apr) and 24.5(31-Mar)**
Relative Humidity (%)	:	**41(3-Apr), 40(31-Mar)**
Dipole	:	**D1800V2 SN:2d04**
Power	:	**250mW**

SYSTEM PERFORMANCE CHECK											
Date	Liquid (1900MHz)							System dipole validation target & measured			
	Type	Liquid Temp [deg.c.]		Relative Permittivity εr		Conductivity σ [mho/m]		SAR 1g [W/kg]		Deviation [%]	Limit [%]
		Before	After	Target*1	Measured	Target*1	Measured	Target*2	Measured		
3-Apr	Head	22.7	22.7	40.0	39.7	1.40	1.46	9.93	10.20	2.8	+/-10

*1 The taget value is the parameter defined in FCC OET 65.
*2 Because the forward power of the dipole was checked with 250mW, the taget value is 1/4 values of the parameter defined in IEEE Standard 1528.

SYSTEM PERFORMANCE CHECK											
Date	Liquid (1900MHz)							System dipole validation target & measured			
	Type	Liquid Temp [deg.c.]		Relative Permittivity εr		Conductivity σ [mho/m]		SAR 1g [W/kg]		Deviation [%]	Limit [%]
		Before	After	Target*1	Measured	Target*1	Measured	Target*2	Measured		
3-Apr	Head	22.7	22.7	39.7	39.7	1.34	1.46	9.83	10.20	3.8	+/-10
31-Mar	Body	23.5	23.5	53.1	52.0	1.45	1.58	9.60	9.28	-3.3	+/-10

*1 The target value is the calibrated dipole Body TSL parameters. (D1800V2 SN:214).
*2 The target value is a manufacturer calibrated dipole 1g SAR value. (D1800V2 SN:214)
Note: Please refer to Attachment for the result representation in plot format



Test system for the system performance check setup diagram

1800MHz System performance check setup

13. 1800MHz and 1900MHz Validation Measurement data

HEAD /1800MHz System Validation / Forward Conducted Power : 250mW

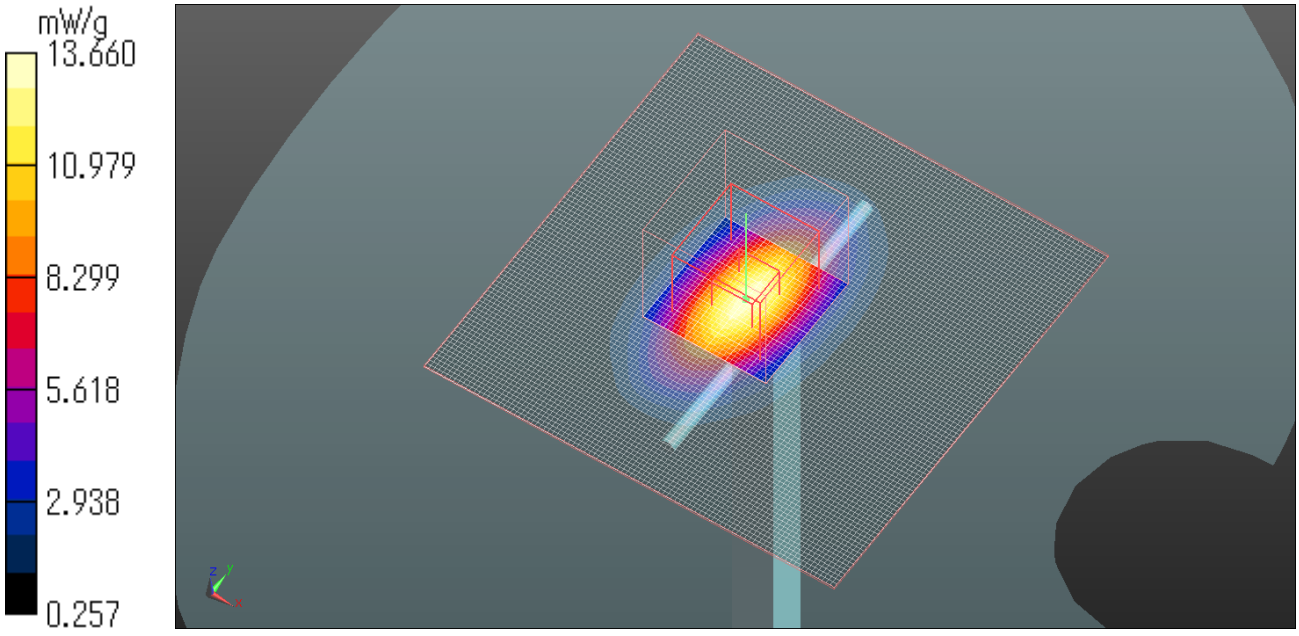
Dipole 1800 MHz; Type: D1800V2; Serial: 2d04
Communication System: CW; Communication System Band: D1800 (1800.0 MHz); Frequency: 1800 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1800 MHz; σ = 1.37 mho/m; ε_r = 40.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:
Probe: EX3DV3 - SN3507; ConvF(8.9, 8.9, 8.9); Calibrated: 2010/02/19
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn539; Calibrated: 2010/09/13
Phantom: SAM with CRP; Type: SAM; Serial:
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

System Performance Check MSL/System Performance Check/Area Scan (101x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 13.426 mW/g

System Performance Check MSL/System Performance Check/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 93.462 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 17.867 W/kg

SAR(1 g) = 9.34 mW/g; SAR(10 g) = 4.85 mW/g
Maximum value of SAR (measured) = 13.660 mW/g

Test Date = 04/03/2011
Ambient Temperature = 24.2 degree.c
Liquid Temperature = Before 22.7degree.C , After 22.7 degree.C



Body/ 1800MHz System Validation / Forward Conducted Power : 250mW

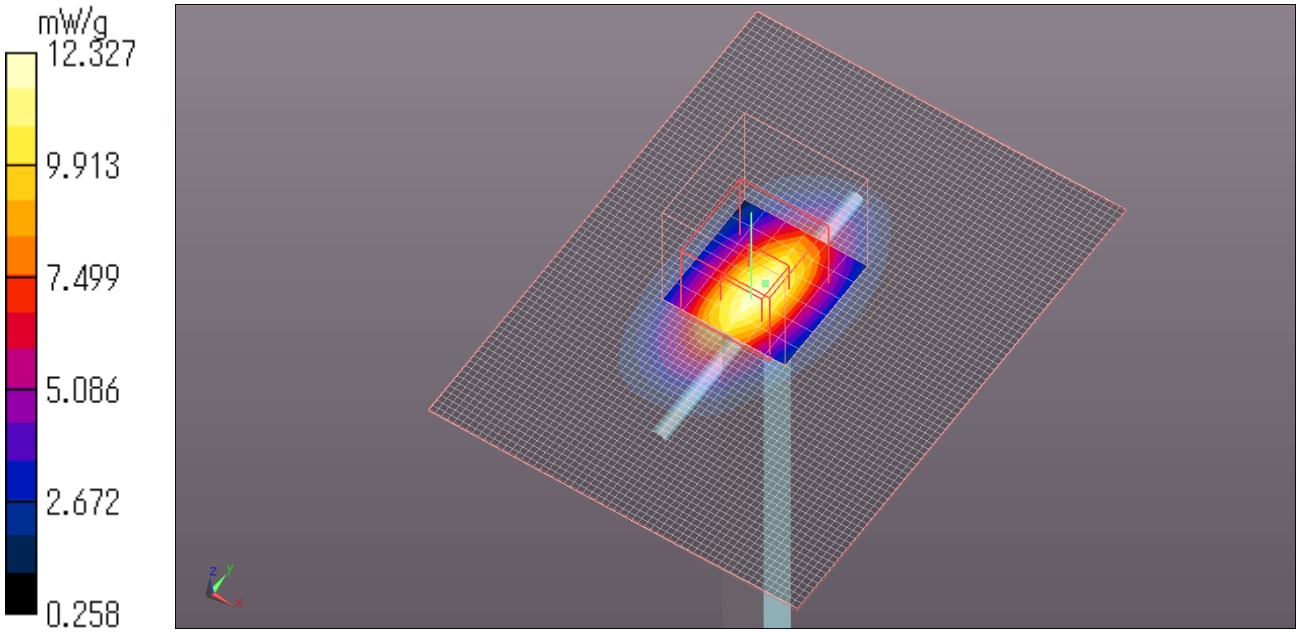
Dipole 1800 MHz; Type: D1800V2; Serial: 2d04
Communication System: CW; Communication System Band: D1800 (1800.0 MHz); Frequency: 1800 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1800 MHz; σ = 1.52 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:
Probe: EX3DV3 - SN3507; ConvF(8.25, 8.25, 8.25); Calibrated: 2011/03/16
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE3 Sn509; Calibrated: 2010/07/07
Phantom: ELI 4.0; Type: QDOVA001BA;
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

System Performance Check at Frequencies above 1 GHz/d=10mm, Pin=xx mW, dist=2.0mm (EX-Probe)/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 12.598 mW/g

System Performance Check at Frequencies above 1 GHz/d=10mm, Pin=xx mW, dist=2.0mm (EX-Probe)/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 90.877 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 15.461 W/kg

SAR(1 g) = 8.71 mW/g; SAR(10 g) = 4.63 mW/g
Maximum value of SAR (measured) = 12.327 mW/g

Test Date = 03/31/2011
Ambient Temperature = 24.5 degree.c
Liquid Temperature = Before 23.5 degree.C , After 23.5 degree.C



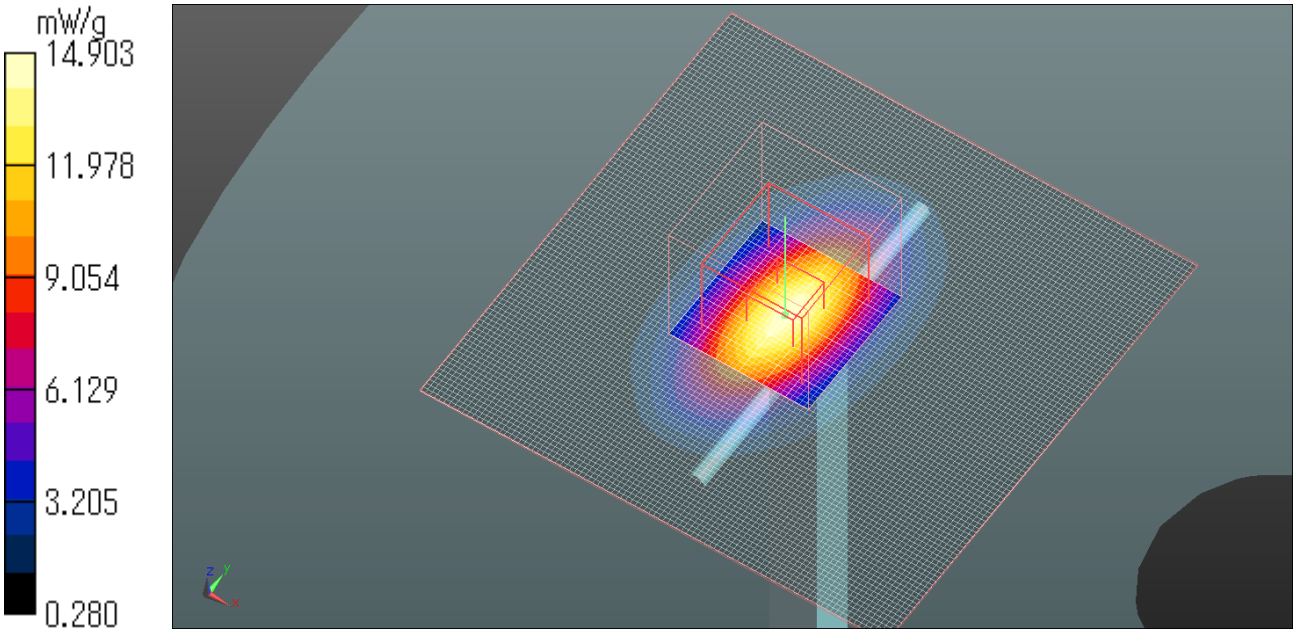
HEAD /1900MHz System Validation / Forward Conducted Power : 250mW
Dipole 1800 MHz; Type: D1800V2; Serial: 2d04
Communication System: CW; Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.46 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:
Probe: EX3DV3 - SN3507; ConvF(8.73, 8.73, 8.73); Calibrated: 2010/02/19
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE4 Sn539; Calibrated: 2010/09/13
Phantom: SAM with CRP; Type: SAM;:
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

System Performance Check MSL/System Performance Check/Area Scan (101x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 14.649 mW/g

System Performance Check MSL/System Performance Check/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 94.523 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 19.509 W/kg

SAR(1 g) = 10.2 mW/g; SAR(10 g) = 5.29 mW/g
Maximum value of SAR (measured) = 14.903 mW/g

Test Date = 04/03/2011
Ambient Temperature = 24.2 degree.c
Liquid Temperature = Before 22.7degree.C , After 22.7 degree.C



Body/ 1900MHz System Validation / Forward Conducted Power : 250mW

Dipole 1800 MHz; Type: D1800V2; Serial: 2d04
Communication System: CW; Communication System Band: D1900 (1900.0 MHz); Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.58 mho/m; ε_r = 52; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)
DASY5 Configuration:
Probe: EX3DV3 - SN3507; ConvF(8.09, 8.09, 8.09); Calibrated: 2011/03/16
Sensor-Surface: 2mm (Mechanical Surface Detection)
Electronics: DAE3 Sn509; Calibrated: 2010/07/07
Phantom: ELI 4.0; Type: QDOVA001BA;
Measurement SW: DASY52, Version 52.6 (1); SEMCAD X Version 14.4.2 (2595)

System Performance Check at Frequencies above 1 GHz/d=10mm, Pin=xx mW, dist=2.0mm (EX-Probe)/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 13.419 mW/g

System Performance Check at Frequencies above 1 GHz/d=10mm, Pin=xx mW, dist=2.0mm (EX-Probe)/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 91.923 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 16.492 W/kg

SAR(1 g) = 9.28 mW/g; SAR(10 g) = 4.93 mW/g
Maximum value of SAR (measured) = 13.131 mW/g

Test Date = 03/31/2011
Ambient Temperature = 24.5 degree.c
Liquid Temperature = Before 23.5 degree.C , After 23.5 degree.C