SAR TEST REPORT (15.247)

REPORT NO.:	SA981021L04
MODEL NO.:	MC75A0
RECEIVED:	Oct. 21, 2009
TESTED:	Oct. 21 ~ Oct. 27, 2009
ISSUED:	Oct. 30, 2009

APPLICANT:	Symbol Technologies, Inc.
ADDRESS:	One Motorola Plaza, Holtsville, NY-11742-1300. U.S.A.

ISSUED BY:	Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
LAB ADDRESS:	No. 47, 14th Ling, Chia Pau Tsuen, Lin Kou Hsiang, Taipei Hsien 244, Taiwan, R.O.C.
TEST LOCATION:	No. 19, Hwa Ya 2nd Rd, Wen Hwa Tsuen, Kwei Shan Hsiang, Taoyuan Hsien 333, Taiwan, R.O.C.

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1. CERTIFICATION

PRODUCT:	EDA (Enterprise Digital Assistant)
MODEL NO.:	MC75A0
BRAND:	Symbol
APPLICANT:	Symbol Technologies, Inc.
TESTED:	Oct. 21 ~ Oct. 27, 2009
TEST SAMPLE:	ENGINEERING SAMPLE
STANDARDS:	**FCC Part 2 (Section 2.1093)** **FCC OET Bulletin 65, Supplement C (01-01)** **RSS-102**

The above equipment (model: MC75A0) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

PREPARED BY : Andrea Hsia , **DATE:** Oct. 30, 2009
Andrea Hsia / Specialist

TECHNICAL ACCEPTANCE : Long Chen , **DATE:** Oct. 30, 2009
Responsible for RF Long Chen / Senior Engineer

APPROVED BY : Gary Chang , **DATE:** Oct. 30, 2009
Gary Chang / Assistant Manager

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

EUT	EDA (Enterprise Digital Assistant)	
MODEL NO.	MC75A0	
FCC ID	H9PMC75A0	
IC ID	1549D-MC75A0	
POWER SUPPLY	3.7Vdc (Li-Lon battery) 5.4Vdc (Adapter)	
MODULATION TYPE	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK for OFDM	
MODULATION TECHNOLOGY	DSSS, OFDM	
TRANSFER RATE	802.11b:11.0/ 5.5/ 2.0/ 1.0Mbps 802.11g: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps 802.11a: 54.0/ 48.0/ 36.0/ 24.0/ 18.0/ 12.0/ 9.0/ 6.0Mbps	
OPERATING FREQUENCY	**2.4GHz:** 2412 ~ 2472MHz **5.0GHz:** 5745 ~ 5825MHz	
NUMBER OF CHANNEL	**2.4GHz:** 13 for 802.11b, 802.11g **5.0GHz:** 5 for 802.11a	
CHANNEL FREQUENCIES UNDER TEST AND ITS CONDUCTED OUTPUT POWER	**Main Antenna**	**Aux. Antenna**
	802.11b (PK Power)	**802.11b (PK Power)**
	17.1dBm / Ch1: 2412MHz 17.2dBm / Ch6: 2437MHz 16.9dBm / Ch11: 2462MHz 8.9dBm / Ch12: 2467MHz 3.1dBm / Ch13: 2472MHz	17.2dBm / Ch1: 2412MHz 17.5dBm / Ch6: 2437MHz 17.1dBm / Ch11: 2462MHz 9.1dBm / Ch12: 2467MHz 3.6dBm / Ch13: 2472MHz
	802.11g (PK Power)	**802.11g (PK Power)**
	21.4dBm / Ch1: 2412MHz 22.8dBm / Ch6: 2437MHz 21.6dBm / Ch11: 2462MHz 15.8dBm / Ch12: 2467MHz 7.3dBm / Ch13: 2472MHz	21.4dBm / Ch1: 2412MHz 22.9dBm / Ch6: 2437MHz 21.7dBm / Ch11: 2462MHz 16.1dBm / Ch12: 2467MHz 7.5dBm / Ch13: 2472MHz
	802.11a (PK Power)	**802.11a (PK Power)**
	21.5dBm / Ch149: 5745MHz 21.4dBm / Ch153: 5765MHz 21.3dBm / Ch157: 5785MHz 21.4dBm / Ch161: 5850MHz 21.6dBm / Ch165: 5825MHz	21.5dBm / Ch149: 5745MHz 21.6dBm / Ch153: 5765MHz 21.4dBm / Ch157: 5785MHz 21.5dBm / Ch161: 5850MHz 21.7dBm / Ch165: 5825MHz
AVERAGE SAR (1g)	**Head**	**Body:**
	2.4GHz: 0.5W/kg 5.0GHz: 1.5W/kg	2.4GHz: 0.1W/kg 5.0GHz: 0.4W/kg
ANTENNA TYPE	Refer to NOTE3 as below	
ANTENNA CONNECTOR	Refer to NOTE3 as below	
DATA CABLE	Refer to NOTE5 as below	
I/O PORTS	Refer to user's manual	

ACCESSORY DEVICES	Battery

NOTE:

1. The models identified as below are identical to each other except of the following options:
   - Keypad: Numeric / QWERTY
   - Barcode reader: 1D laser scanner / BB Imager

BRAND	MODEL	DESCRIPTION
Symbol	MC75A0	WLAN 1D Numeric
Symbol	**MC75A0**	**WLAN BB QWERTY**
**the worst case had been marked by boldface.		

2. The EUT uses the following Li-Lon batteries:

BATTERY 1 (1X)	
BRAND:	MOTOROLA
PART NUMBER:	82-71364-04 Rev A
RATING:	3.7Vdc, 1950mAh, 7.21Wh

BATTERY 2 (1.5X)	
BRAND:	MOTOROLA
PART NUMBER:	82-71364-05 Rev D
RATING:	3.7Vdc, 3600mAh, 13.3Wh

*Battery 2 was chosen as the representative for testing.

3. The EUT used two antennas listed as below:

ANTENNA ITEM	Antenna Type	Antenna Connecter	Antenna Gain (dBi)	
			2.4GHz	5.0GHz
Main Antenna	inverted F	IPEX	-4.39	2.05
Aux. Antenna	Planar inverted	IPEX	2.31	3.29

**For final tested, Aux. antenna was chosen for tested and presented in the test report.

4. The EUT is an EDA (Enterprise Digital Assistant). The functions of EUT listed as below:

	REFERENCE REPORT
WLAN 802.11b/g	SA981021L04
WLAN 802.11a (5745~5825 MHz)	
WLAN 802.11a (5180 ~ 5320MHz, 5500 ~ 5700MHz)	SA981021L04-1
Bluetooth	SA981021L04-2

5. The following accessories are for optional units only.

PRODUCT	BRAND	MODEL	DESCRIPTION
RS232 charging cable	Motorola	25-102776-01R	1.2m non-shielded cable with one core
USB charging cable	Motorola	25-102775-01R	1.5m shielded cable with one core
Headset	Motorola	50-11300-050R	VR10 headset 0.8m non-shielded cable with one core
Power Supply Adaptor	Motorola	EADP-16BB A	I/P: 100-240Vac, 50-60Hz, 0.4A O/P: 5.4Vdc, 3A 1.8m non-shielded cable without core
Fabric holster	Motorola	SG-MC7521215-01R	-
Ridged holster	Motorola	SG-MC7011110-02R	-

6. The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

2.2 GENERAL DESCRIPTION OF APPLIED STANDARDS

According to the specifications of the manufacturer, this product must comply with the requirements of the following standards:

FCC Part 2 (2.1093)

FCC OET Bulletin 65, Supplement C (01- 01)

RSS-102

IEEE 1528-2003

All test items have been performed and recorded as per the above standards.

2.3 GENERAL INOFRMATION OF THE SAR SYSTEM

DASY5 **(Software 5.0 Build 125)** consists of high precision robot, probe alignment sensor, phantom, robot controller, controlled measurement server and near-field probe. The robot includes six axes that can move to the precision position of the DASY5 software defined. The DASY5 software can define the area that is detected by the probe. The robot is connected to controlled box. Controlled measurement server is connected to the controlled robot box. The DAE includes amplifier, signal multiplexing, AD converter, offset measurement and surface detection. It is connected to the Electro-optical coupler (ECO). The ECO performs the conversion form the optical into digital electric signal of the DAE and transfers data to the PC.

EX3DV4 ISOTROPIC E-FIELD PROBE

CONSTRUCTION	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
FREQUENCY	10 MHz > 6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)
DIRECTIVITY	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)
DYNAMIC RANGE	10 μW/g to > 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 μW/g)
DIMENSIONS	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm
APPLICATION	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%.

NOTE

1. The Probe parameters have been calibrated by the SPEAG. Please reference “APPENDIX D” for the Calibration Certification Report.
2. For frequencies above 800MHz, calibration in a rectangular wave-guide is used, because wave-guide size is manageable.
3. For frequencies below 800MHz, temperature transfer calibration is used because the wave-guide size becomes relatively large.

TWIN SAM V4.0

CONSTRUCTION	The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528-2003, EN 62209-1 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 ± 0.2mm
FILLING VOLUME	Approx. 25liters
DIMENSIONS	Height: 810mm; Length: 1000mm; Width: 500mm

SYSTEM VALIDATION KITS:

CONSTRUCTION	Symmetrical dipole with I/4 balun enables measurement of feedpoint impedance with NWA matched for use near flat phantoms filled with brain simulating solutions. Includes distance holder and tripod adaptor
CALIBRATION	Calibrated SAR value for specified position and input power at the flat phantom in brain simulating solutions
FREQUENCY	2450MHz, 5800MHz
RETURN LOSS	> 20dB at specified validation position
POWER CAPABILITY	> 100W (f < 1GHz); > 40W (f > 1GHz)
OPTIONS	Dipoles for other frequencies or solutions and other calibration conditions upon request

DEVICE HOLDER FOR SAM TWIN PHANTOM

CONSTRUCTION	The device holder for the mobile phone device is designed to cope with different positions given in the standard. It has two scales for the device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear reference points). The rotation centers for both scales is the ear reference point (ERP). Thus the device needs no repositioning when changing the angles. The holder has been made out of low-loss POM material having the following dielectric parameters: relative permittivity ε =3 and loss tangent δ =0.02. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered. The device holder for the portable device makes up of the polyethylene foam. The dielectric parameters of material close to the dielectric parameters of the air.

DATA ACQUISITION ELECTRONICS

CONSTRUCTION

The data acquisition electronics (DAE3) consists of a highly sensitive electrometer grade preamplifier with auto-zeroing, a channel and gain-switching multiplex, a fast 16 bit AD converter and a command decoder and control logic unit. Transmission to the measurement server is accomplished through an optical downlink for data and status information as well as an optical uplink for commands and the clock. The mechanical probe is mounting device includes two different sensor systems for frontal and sideways probe contacts. They are used for mechanical surface detection and probe collision detection. The input impedance of the DAE3 box is 200MOhm; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

2.4 GENERAL DESCRIPTION OF THE SPATIAL PEAK SAR EVALUATION

The DASY5 post-processing software (SEMCAD) automatically executes the following procedures to calculate the field units from the micro-volt readings at the probe connector. The parameters used in the evaluation are stored in the configuration modules of the software:

Probe parameters:	- Sensitivity	$Norm_i$, a_{i0}, a_{i1}, a_{i2}
	- Conversion factor	$ConvF_i$
	- Diode compression point	dcp_i
Device parameters:	- Frequency	F
	- Crest factor	Cf
Media parameters:	- Conductivity	σ
	- Density	ρ

The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics. If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power. The formula for each channel can be given as:

$$V_i = U_i + U_i^2 \bullet \frac{cf}{dcp_i}$$

V_i	=compensated signal of channel i	(i = x, y, z)
U_i	=input signal of channel I	(i = x, y, z)
Cf	=crest factor of exciting field	(DASY parameter)
dcp_i	=diode compression point	(DASY parameter)

From the compensated input signals the primary field data for each channel can be evaluated:

$$\text{E-fieldprobes: } E_i = \sqrt{\frac{V_1}{Norm_i \cdot ConvF}}$$

$$\text{H-fieldprobes: } H_i = \sqrt{V_i} \cdot \frac{a_{i0} + a_{i1} f + a_{i2} f^2}{f}$$

V_i	=compensated signal of channel I	(i = x, y, z)
$Norm_i$	=sensor sensitivity of channel i μV/(V/m)2 for E-field Probes	(i = x, y, z)
ConvF	= sensitivity enhancement in solution	
a_{ij}	= sensor sensitivity factors for H-field probes	
F	= carrier frequency [GHz]	
E_i	= electric field strength of channel i in V/m	
H_i	= magnetic field strength of channel i in A/m	

The RSS value of the field components gives the total field strength (Hermitian magnitude):

$$E_{tot} = \sqrt{E_x^2 + E_y^2 + E_z^2}$$

The primary field data are used to calculate the derived field units.

$$SAR = E_{tot}^2 \cdot \frac{\sigma}{\rho \cdot 1'000}$$

SAR	= local specific absorption rate in mW/g
E_{tot}	= total field strength in V/m
σ	= conductivity in [mho/m] or [Siemens/m]
ρ	= equivalent tissue density in g/cm3

Note that the density is set to 1, to account for actual head tissue density rather than the density of the tissue simulating liquid. The entire evaluation of the spatial peak values is performed within the Post-processing engine (SEMCAD). The system always gives the maximum values for the 1g and 10g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages:

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

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

The maximum search is automatically performed after each area scan measurement. It is based on splines in two or three dimensions. The procedure can find the maximum for most SAR distributions even with relatively large grid spacing. After the area scanning measurement, the probe is automatically moved to a position at the interpolated maximum. The following scan can directly use this position for reference, e.g., for a finer resolution grid or the cube evaluations. The 1g and 10g peak evaluations are only available for the predefined cube 7 x 7 x 7 scans. The routines are verified and optimized for the grid dimensions used in these cube measurements. The measured volume of 30 x 30 x 30mm contains about 30g of tissue. The first procedure is an extrapolation (incl. boundary correction) to get the points between the lowest measured plane and the surface. The next step uses 3D interpolation to get all points within the measured volume in a 1mm grid (42875 points). In the last step, a 1g cube is placed numerically into the volume and its averaged SAR is calculated. This cube is the moved around until the highest averaged SAR is found. If the highest SAR is found at the edge of the measured volume, the system will issue a warning: higher SAR values might be found outside of the measured volume. In that case the cube measurement can be repeated, using the new interpolated maximum as the center.

3. DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit.

4. DESCRIPTION OF TEST MODES AND CONFIGURATIONS

4.1. DESCRIPTION OF TEST MODE

Test tool is CTxRxLocal provided by client. It can control EUT to transmit continuously at specific channel, output power level, data rates and 100 % duty signal.

“Per KDB 248277, for each frequency band, testing at higher data rates and higher order modulations is not required when the maximum average output power for each of these configurations is less than ¼ dB higher than those measured at the lowest data rate.”

Comparing output power of all modulations and data rates of each mode can find the lowest data rates has max output power. Therefore, EUT will set under lowest data rates to test.

“Per KDB 447498, when the SAR procedures require multiple channels to be tested and the 1-g SAR for the highest output channel is less than 0.8 W/kg and peak SAR is less than 1.6W/kg, where the transmission band corresponding to all channels is ≤ 100 MHz, testing for the other channels is not required.”

ITEM	TEST MODE	MODULATION	ASSESSMENT POSTITION	TESTED CHANNEL	TX ANTENNA
1	802.11b	DBPSK	A / Cheek with BB Imager	6	Main
2	802.11b	DBPSK	A / Tilt with BB Imager	6	Main
3	802.11b	DBPSK	B / Cheek with BB Imager	6	Main
4	802.11b	DBPSK	B / Tilt with BB Imager	6	Main
5	802.11g	BPSK	A / Cheek with BB Imager	6	Main
6	802.11g	BPSK	A / Tilt with BB Imager	6	Main
7	802.11g	BPSK	B / Cheek with BB Imager	6	Main
8	802.11g	BPSK	B / Tilt with BB Imager	6	Main
9	802.11g	BPSK	A / Cheek with BB Imager	6	Aux.
10	802.11b	DBPSK	C : Body / Front with Ridged Holster & BB Imager	6	Main
11	802.11g	BPSK	C : Body / Front with Ridged Holster& BB Imager	6	Main
12	802.11g	BPSK	C : Body / Front with Ridged Holster & BB Imager	6	Aux.
13	802.11g	BPSK	C : Body / Bottom with Fabric Holster& BB Imager	6	Main
14	802.11a	BPSK	A / Cheek with BB Imager	149, 153, 165	Main
15	802.11a	BPSK	A / Tilt with BB Imager	149, 153, 165	Main
16	802.11a	BPSK	B / Cheek with BB Imager	149, 153, 165	Main
17	802.11a	BPSK	B / Tilt with BB Imager	149, 153, 165	Main
18	802.11a	BPSK	C : Body / Front with Ridged Holster & BB Imager	165	Main
19	802.11b	DBPSK	A / Cheek with 1D laser scanner	6	Main
20	802.11a	BPSK	A / Cheek with 1D laser scanner	165	Main
21	802.11a	BPSK	B / Cheek with BB Imager & Thin Battery	165	Main

NOTE: Assessment position A: Right head position, B: Left head position, C: Body position; please refer to the test set up photo.

4.2. SUMMARY OF TEST RESULTS

ITEM		1	2	3	4	5	6	7	8
PART OF ASSESSMENT		HEAD POSITION							
TEST MODE		802.11b				802.11g			
CHAN.	FREQ. (MHz)	MEASURED VALUE OF 1g SAR (W/kg)							
6	2437 (Mid.)	0.395	0.240	0.403	0.277	0.435	0.277	**0.448**	0.357

NOTE: The worst value has been marked by boldface.

ITEM		9	10	11	12	13
PART OF ASSESSMENT		HEAD POSITION	BODY POSITION			
TEST MODE		802.11g	802.11b	802.11g		
CHAN.	FREQ. (MHz)	MEASURED VALUE OF 1g SAR (W/kg)				
6	2437 (Mid.)	0.033	0.071	**0.094**	0.068	0.047

NOTE: The worst value has been marked by boldface.

ITEM		14	15	16	17	18
PART OF ASSESSMENT		HEAD POSITION				BODY POSITION
TEST MODE		802.11a				
CHAN.	FREQ. (MHz)	MEASURED VALUE OF 1g SAR (W/kg)				
149	5745	1.100	1.030	1.400	1.190	-
153	5785	1.180	1.140	1.450	1.310	-
165	5825	1.250	1.180	**1.470**	1.390	**0.377**

NOTE: The worst value has been marked by boldface.

ITEM		19	ITEM		20	21
PART OF ASSESSMENT		HEAD POSITION				
TEST MODE		802.11b	TEST MODE		802.11a	
CHAN.	FREQ. (MHz)	MEASURED VALUE OF 1g SAR (W/kg)	CHAN.	FREQ. (MHz)	MEASURED VALUE OF 1g SAR (W/kg)	
6	2437 (Mid.)	0.382	165	5825	1.230	1.420

NOTE: The worst value has been marked by boldface.

5. TEST RESULTS

5.1 TEST PROCEDURES

Use the software to control the EUT channel and transmission power. Then record the conducted power before the testing. Place the EUT to the specific test location. After the testing, must writing down the conducted power of the EUT into the report. The SAR value was calculated via the 3D spline interpolation algorithm that has been implemented in the software of DASY5 SAR measurement system manufactured and calibrated by SPEAG. According to the IEEE 1528 standards, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:

- Power reference measurement
- Verification of the power reference measurement
- Area scan
- Zoom scan
- Power reference measurement

The area scan was performed for the highest spatial SAR location. The zoom scan with 30mm x 30mm x 30mm volume was performed for SAR value averaged over 1g and 10g spatial volumes.

In the zoom scan, the distance between the measurement point at the probe sensor location (geometric center behind the probe tip) and the phantom surface is 3mm and maintained at a constant distance of ±0.5mm during a zoom scan to determine peak SAR locations. The distance is 3mm between the first measurement point and the bottom surface of the phantom. The secondary measurement point to the bottom surface of the phantom is with 8mm separation distance. The cube size is 7 x 7 x 7 points consists of 343 points and the grid space is 5mm.

The measurement time is 0.5s at each point of the zoom scan. The probe boundary effect compensation shall be applied during the SAR test. Because of the tip of the probe to the Phantom surface separated distances are longer than half a tip probe diameter.

In the area scan, the separation distance is 3mm between the each measurement point and the phantom surface. The scan size shall be included the transmission portion of the EUT. The measurement time is the same as the zoom scan. At last the reference power drift shall be less than ±5%.

5.2 MEASURED SAR RESULTS

ENVIRONMENTAL CONDITION			Air Temperature：23.2°C, Liquid Temperature：22.9°C Humidity：64%RH			
TESTED BY			Dylan Chiou	DATE		Oct. 26, 2009
CHAN.	FREQ. (MHz)	TEST MODE	CONDUCTED POWER (dBm) BEGIN TEST	POWER DRIFT (%)	DEVICE TEST POSITION MODE	MEASURED 1g SAR (W/kg)
6	2437 (Mid.)	802.11b	17.2	-0.163	1	0.395
6	2437 (Mid.)	802.11b	17.2	0.051	2	0.240
6	2437 (Mid.)	802.11b	17.2	-0.021	3	0.403
6	2437 (Mid.)	802.11b	17.2	0.102	4	0.277
6	2437 (Mid.)	802.11g	22.8	-0.037	5	0.435
6	2437 (Mid.)	802.11g	22.8	0.054	6	0.277
6	2437 (Mid.)	802.11g	22.8	0.104	7	**0.448**
6	2437 (Mid.)	802.11g	22.8	0.069	8	0.357
6	2437 (Mid.)	802.11g	22.9	-0.085	9	0.033

NOTE:

1. Test configuration of each mode is described in section 4.1.
2. In this testing, the limit for General Population Spatial Peak averaged over 1g, **1.6 W/kg**, is applied.
3. Please see the Appendix A for the data.
4. The variation of the EUT conducted power measured before and after SAR testing should not over 5%.

ENVIRONMENTAL CONDITION	Air Temperature : 23.2°C, Liquid Temperature : 22.7°C Humidity : 62%RH		
TESTED BY	Dylan Chiou	DATE	Oct. 27, 2009

CHAN.	FREQ. (MHz)	TEST MODE	CONDUCTED POWER (dBm)	POWER DRIFT (%)	DEVICE TEST POSITION MODE	MEASURED 1g SAR (W/kg)
			BEGIN TEST			
6	2437 (Mid.)	802.11b	17.2	-0.159	10	0.071
6	2437 (Mid.)	802.11g	22.8	0.138	11	**0.094**
6	2437 (Mid.)	802.11g	22.9	-0.158	12	0.068
6	2437 (Mid.)	802.11g	22.8	-0.197	13	0.047

NOTE:

1. Test configuration of each mode is described in section 4.1.
2. In this testing, the limit for General Population Spatial Peak averaged over 1g, **1.6 W/kg**, is applied.
3. Please see the Appendix A for the data.
4. The variation of the EUT conducted power measured before and after SAR testing should not over 5%.

ENVIRONMENTAL CONDITION			Air Temperature：23.1°C, Liquid Temperature：22.6°C Humidity：61%RH			
TESTED BY			Dylan Chiou	DATE		Oct. 21, 2009
CHAN.	FREQ. (MHz)	TEST MODE	CONDUCTED POWER (dBm) BEGIN TEST	POWER DRIFT (%)	DEVICE TEST POSITION MODE	MEASURED 1g SAR (W/kg)
149	5745	802.11a	21.5	0.102	14	1.100
153	5785	802.11a	21.3	0.097	14	1.180
165	5825	802.11a	21.6	0.139	14	1.125

NOTE:

1. Test configuration of each mode is described in section 4.1.
2. In this testing, the limit for General Population Spatial Peak averaged over 1g, **1.6 W/kg**, is applied.
3. Please see the Appendix A for the data.
4. The variation of the EUT conducted power measured before and after SAR testing should not over 5%.

ENVIRONMENTAL CONDITION			Air Temperature：23.1°C, Liquid Temperature：22.7°C Humidity：63%RH			
TESTED BY			Dylan Chiou	DATE		Oct. 22, 2009
CHAN.	FREQ. (MHz)	TEST MODE	CONDUCTED POWER (dBm) BEGIN TEST	POWER DRIFT (%)	DEVICE TEST POSITION MODE	MEASURED 1g SAR (W/kg)
149	5745	802.11a	21.5	0.125	15	1.030
153	5785	802.11a	21.3	0.051	15	1.140
165	5825	802.11a	21.6	0.017	15	1.180

NOTE:

1. Test configuration of each mode is described in section 4.1.
2. In this testing, the limit for General Population Spatial Peak averaged over 1g, **1.6 W/kg**, is applied.
3. Please see the Appendix A for the data.
4. The variation of the EUT conducted power measured before and after SAR testing should not over 5%.

ENVIRONMENTAL CONDITION			Air Temperature：23.3°C, Liquid Temperature：22.9°C Humidity：61%RH			
TESTED BY			Dylan Chiou	DATE		Oct. 23, 2009
CHAN.	FREQ. (MHz)	TEST MODE	CONDUCTED POWER (dBm) BEGIN TEST	POWER DRIFT (%)	DEVICE TEST POSITION MODE	MEASURED 1g SAR (W/kg)
149	5745	802.11a	21.5	-0.073	16	1.400
153	5785	802.11a	21.3	-0.024	16	1.450
165	5825	802.11a	21.6	0.029	16	**1.470**

NOTE:

1. Test configuration of each mode is described in section 4.1.
2. In this testing, the limit for General Population Spatial Peak averaged over 1g, **1.6 W/kg**, is applied.
3. Please see the Appendix A for the data.
4. The variation of the EUT conducted power measured before and after SAR testing should not over 5%.

ENVIRONMENTAL CONDITION			Air Temperature：23.0°C, Liquid Temperature：22.8°C Humidity：62%RH			
TESTED BY			Dylan Chiou	DATE		Oct. 24, 2009
CHAN.	FREQ. (MHz)	TEST MODE	CONDUCTED POWER (dBm) BEGIN TEST	POWER DRIFT (%)	DEVICE TEST POSITION MODE	MEASURED 1g SAR (W/kg)
149	5745	802.11a	21.5	-0.075	17	1.190
153	5785	802.11a	21.3	0.130	17	1.310
165	5825	802.11a	21.6	0.073	17	1.390

NOTE:

1. Test configuration of each mode is described in section 4.1.
2. In this testing, the limit for General Population Spatial Peak averaged over 1g, **1.6 W/kg**, is applied.
3. Please see the Appendix A for the data.
4. The variation of the EUT conducted power measured before and after SAR testing should not over 5%.

ENVIRONMENTAL CONDITION			Air Temperature：23.1°C, Liquid Temperature：22.8°C Humidity：63%RH			
TESTED BY			Dylan Chiou	DATE		Oct. 25, 2009
CHAN.	FREQ. (MHz)	TEST MODE	CONDUCTED POWER (dBm) BEGIN TEST	POWER DRIFT (%)	DEVICE TEST POSITION MODE	MEASURED 1g SAR (W/kg)
165	**5825**	**802.11a**	21.6	0.168	18	**0.377**

NOTE:

1. Test configuration of each mode is described in section 4.1.
2. In this testing, the limit for General Population Spatial Peak averaged over 1g, **1.6 W/kg**, is applied.
3. Please see the Appendix A for the data.
4. The variation of the EUT conducted power measured before and after SAR testing should not over 5%.

ENVIRONMENTAL CONDITION			Air Temperature：23.2°C, Liquid Temperature：22.9°C Humidity：64%RH			
TESTED BY			Dylan Chiou	DATE		Oct. 26, 2009
CHAN.	FREQ. (MHz)	TEST MODE	CONDUCTED POWER (dBm) BEGIN TEST	POWER DRIFT (%)	DEVICE TEST POSITION MODE	MEASURED 1g SAR (W/kg)
6	**2437**	**802.11b**	17.2	-0.163	19	0.382

NOTE:

1. Test configuration of each mode is described in section 4.1.
2. In this testing, the limit for General Population Spatial Peak averaged over 1g, **1.6 W/kg**, is applied.
3. Please see the Appendix A for the data.
4. The variation of the EUT conducted power measured before and after SAR testing should not over 5%.

ENVIRONMENTAL CONDITION			Air Temperature：23.1°C, Liquid Temperature：22.6°C Humidity：61%RH			
TESTED BY			Dylan Chiou	DATE		Oct. 21, 2009
CHAN.	FREQ. (MHz)	TEST MODE	CONDUCTED POWER (dBm) BEGIN TEST	POWER DRIFT (%)	DEVICE TEST POSITION MODE	MEASURED 1g SAR (W/kg)
165	5825	802.11a	21.6	0.129	20	1.230

NOTE:

1. Test configuration of each mode is described in section 4.1.
2. In this testing, the limit for General Population Spatial Peak averaged over 1g, **1.6 W/kg**, is applied.
3. Please see the Appendix A for the data.
4. The variation of the EUT conducted power measured before and after SAR testing should not over 5%.

ENVIRONMENTAL CONDITION			Air Temperature：23.3°C, Liquid Temperature：22.9°C Humidity：61%RH			
TESTED BY			Dylan Chiou	DATE		Oct. 23, 2009
CHAN.	FREQ. (MHz)	TEST MODE	CONDUCTED POWER (dBm) BEGIN TEST	POWER DRIFT (%)	DEVICE TEST POSITION MODE	MEASURED 1g SAR (W/kg)
165	5825	802.11a	21.6	0.029	21	1.420

NOTE:

1. Test configuration of each mode is described in section 4.1.
2. In this testing, the limit for General Population Spatial Peak averaged over 1g, **1.6 W/kg**, is applied.
3. Please see the Appendix A for the data.
4. The variation of the EUT conducted power measured before and after SAR testing should not over 5%.

5.3 SAR LIMITS

HUMAN EXPOSURE	SAR (W/kg)	
	(GENERAL POPULATION / UNCONTROLLED EXPOSURE ENVIRONMENT)	(OCCUPATIONAL / CONTROLLED EXPOSURE ENVIRONMENT)
Spatial Average (whole body)	0.08	0.4
Spatial Peak (averaged over 1 g)	**1.6**	8.0
Spatial Peak (hands / wrists / feet / ankles averaged over 10 g)	4.0	20.0

NOTE:

1. This limits accord to 47 CFR 2.1093 – Safety Limit.
2. The EUT property been complied with the partial body exposure limit under the general population environment.

5.4 RECIPES FOR TISSUE SIMULATING LIQUIDS

For the measurement of the field distribution inside the SAM phantom, the phantom must be filled with 25 litters of tissue simulation liquid.

The following ingredients are used：

- **WATER-** Deionized water (pure H20), resistivity _16 M - as basis for the liquid
- **SUGAR-** Refined sugar in crystals, as available in food shops - to reduce relative permittivity
- **SALT-** Pure NaCl - to increase conductivity
- **CELLULOSE-** Hydroxyethyl-cellulose, medium viscosity (75-125mPa.s, 2% in water, 20_C),

  CAS # 54290 - to increase viscosity and to keep sugar in solution
- **PRESERVATIVE-** Preventol D-7 Bayer AG, D-51368 Leverkusen, CAS # 55965-84-9 - to prevent the spread of bacteria and molds
- **DGMBE-** Diethylenglycol-monobuthyl ether (DGMBE), Fluka Chemie GmbH, CAS # 112-34-5 - to reduce relative permittivity

THE RECIPES FOR 2450MHz SIMULATING LIQUID TABLE

INGREDIENT	HEAD SIMULATING LIQUID 2450MHz (HSL-2450)	MUSCLE SIMULATING LIQUID 2450MHz (MSL-2450)
Water	45%	69.83%
DGMBE	55%	30.17%
Salt	NA	NA
Dielectric Parameters at 22℃	f= 2450MHz ε= 39.2 ± 5% σ= 1.80 ± 5% S/m	f= 2450MHz ε= 52.7 ± 5% σ= 1.95 ± 5% S/m

THE INFORMATION FOR 5GHz SIMULATING LIQUID

The 5GHz liquids was purchased from SPEAG.

Body liquid model: HSL 5800, P/N: SL AAH 5800 AA

Head liquid model: M 5800, P/N: SL AAM 580 AD

5GHz liquids contain the following ingredients:

Water 64 - 78%

Mineral Oil 11 - 18%

Emulsifiers 9 - 15%

Additives and Salt 2 - 3%

Testing the liquids using the Agilent Network Analyzer E8358A and Agilent Dielectric Probe Kit 85070D.The testing procedure is following as

1. Turn Network Analyzer on and allow at least 30min. warm up.
2. Mount dielectric probe kit so that interconnecting cable to Network Analyzer will not be moved during measurements or calibration.
3. Pour de-ionized water and measure water temperature (±1°).
4. Set water temperature in Agilent-Software (Calibration Setup).
5. Perform calibration.
6. Validate calibration with dielectric material of known properties (e.g. polished ceramic slab with >8mm thickness ε'=10.0, ε''=0.0). If measured parameters do not fit within tolerance, repeat calibration (±0.2 for ε': ±0.1 for ε'').
7. Conductivity can be calculated from ε'' by $\sigma = \omega \varepsilon_0 \varepsilon'' = \varepsilon'' f$ [GHz] / 18.
8. Measure liquid shortly after calibration. Repeat calibration every hour.
9. Stir the liquid to be measured. Take a sample (~ 50ml) with a syringe from the center of the liquid container.
10. Pour the liquid into a small glass flask. Hold the syringe at the bottom of the flask to avoid air bubbles.
11. Put the dielectric probe in the glass flask. Check that there are no air bubbles in front of the opening in the dielectric probe kit.
12. Perform measurements.
13. Adjust medium parameters in DASY5 for the frequencies necessary for the measurements (‘Setup Config’, select medium (e.g. Brain 900MHz) and press ‘Option’-button.
14. Select the current medium for the frequency of the validation (e.g. Setup Medium Brain 900MHz).

FOR 2.4GHz BAND SIMULATING LIQUID

TISSUE TYPE		HEAD		
LIQUID TYPE		HSL-2450		
SIMULATING LIQUID TEMP.		22.9		
TEST DATE		Oct. 26, 2009		
TESTED BY		Dylan Chiou		
FREQ. (MHz)	LIQUID PARAMETER	STANDARD VALUE	MEASUREMENT VALUE	ERROR PERCENTAGE (%)
2437.0	Permitivity (ε)	39.20	39.70	1.28
2450.0		39.20	39.60	1.02
2437.0	Conductivity (σ) S/m	1.79	1.81	1.12
2450.0		1.80	1.83	1.67
Dielectric Parameters Required at 22℃		f= 2450MHz ε= 52.7 ± 5% σ= 1.95 ± 5% S/m		

TISSUE TYPE		BODY		
LIQUID TYPE		MSL-2450		
SIMULATING LIQUID TEMP.		22.7		
TEST DATE		Oct. 27, 2009		
TESTED BY		Dylan Chiou		
FREQ. (MHz)	LIQUID PARAMETER	STANDARD VALUE	MEASUREMENT VALUE	ERROR PERCENTAGE (%)
2437.0	Permitivity (ε)	52.70	53.60	1.71
2450.0		52.70	53.50	1.52
2437.0	Conductivity (σ) S/m	1.94	1.97	1.55
2450.0		1.95	1.98	1.54
Dielectric Parameters Required at 22℃		f= 2450MHz ε= 52.7 ± 5% σ= 1.95 ± 5% S/m		

FOR WLAN 5GHz BAND SIMULATING LIQUID

TISSUE TYPE		HEAD		
LIQUID TYPE		HSL-5800		
SIMULATING LIQUID TEMP.		22.6		
TEST DATE		Oct. 21, 2009		
TESTED BY		Dylan Chiou		
FREQ. (MHz)	LIQUID PARAMETER	STANDARD VALUE	MEASUREMENT VALUE	ERROR PERCENTAGE (%)
5745.0	Permitivity (ε)	35.30	35.50	0.57
5785.0		35.30	35.50	0.57
5800.0		35.30	35.40	0.28
5825.0		35.30	35.40	0.28
5745.0	Conductivity (σ) S/m	5.21	5.28	1.34
5785.0		5.25	5.33	1.52
5800.0		5.27	5.35	1.52
5825.0		5.30	5.38	1.51
Dielectric Parameters Required at 22℃				

TISSUE TYPE		HEAD		
LIQUID TYPE		HSL-5800		
SIMULATING LIQUID TEMP.		22.7		
TEST DATE		Oct. 22, 2009		
TESTED BY		Dylan Chiou		
FREQ. (MHz)	LIQUID PARAMETER	STANDARD VALUE	MEASUREMENT VALUE	ERROR PERCENTAGE (%)
5745.0	Permitivity (ε)	35.30	35.50	0.57
5785.0		35.30	35.50	0.57
5800.0		35.30	35.50	0.57
5825.0		35.30	35.40	0.28
5745.0	Conductivity (σ) S/m	5.21	5.29	1.54
5785.0		5.25	5.33	1.52
5800.0		5.27	5.36	1.71
5825.0		5.30	5.38	1.51
Dielectric Parameters Required at 22℃				

TISSUE TYPE		HEAD		
LIQUID TYPE		HSL-5800		
SIMULATING LIQUID TEMP.		22.9		
TEST DATE		Oct. 23, 2009		
TESTED BY		Dylan Chiou		
FREQ. (MHz)	LIQUID PARAMETER	STANDARD VALUE	MEASUREMENT VALUE	ERROR PERCENTAGE (%)
5745.0	Permitivity (ε)	35.30	35.50	0.57
5785.0		35.30	35.50	0.57
5800.0		35.30	35.50	0.57
5825.0		35.30	35.40	0.28
5745.0	Conductivity (σ) S/m	5.21	5.29	1.54
5785.0		5.25	5.34	1.71
5800.0		5.27	5.36	1.71
5825.0		5.30	5.39	1.70
Dielectric Parameters Required at 22℃				

TISSUE TYPE		HEAD		
LIQUID TYPE		HSL-5800		
SIMULATING LIQUID TEMP.		22.8		
TEST DATE		Oct. 24, 2009		
TESTED BY		Dylan Chiou		
FREQ. (MHz)	LIQUID PARAMETER	STANDARD VALUE	MEASUREMENT VALUE	ERROR PERCENTAGE (%)
5745.0	Permitivity (ε)	35.30	35.50	0.57
5785.0		35.30	35.50	0.57
5800.0		35.30	35.50	0.57
5825.0		35.30	35.40	0.28
5745.0	Conductivity (σ) S/m	5.21	5.30	1.73
5785.0		5.25	5.35	1.90
5800.0		5.27	5.37	1.90
5825.0		5.30	5.40	1.89
Dielectric Parameters Required at 22℃				

TISSUE TYPE		BODY		
LIQUID TYPE		MSL-5800		
SIMULATING LIQUID TEMP.		22.8		
TEST DATE		Oct. 25, 2009		
TESTED BY		Dylan Chiou		
FREQ. (MHz)	LIQUID PARAMETER	STANDARD VALUE	MEASUREMENT VALUE	ERROR PERCENTAGE (%)
5800.0	Permitivity (ε)	48.20	49.10	1.87
5825.0		48.20	49.00	1.66
5800.0	Conductivity (σ) S/m	6.00	6.17	2.83
5825.0		6.03	6.20	2.82
Dielectric Parameters Required at 22℃				

5.5 TEST EQUIPMENT FOR TISSUE PROPERTY

ITEM	NAME	BRAND	TYPE	SERIES NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
1	Network Analyzer	Agilent	E8358A	US41480538	Nov. 27, 2008	Nov. 26, 2009
2	Dielectric Probe	Agilent	85070D	US01440176	NA	NA

NOTE:

1. Before starting, all test equipment shall be warmed up for 30min.
2. The tolerance (k=1) specified by Agilent for general dielectric measurements, deriving from inaccuracies in the calibration data, analyzer drift, and random errors, are usually ±2.5% and ±5% for measured permittivity and conductivity, respectively. However, the tolerances for the conductivity is smaller for material with large loss tangents, i.e., less than ±2.5% (k=1). It can be substantially smaller if more accurate methods are applied.

6. SYSTEM VALIDATION

The system validation was performed in the flat phantom with equipment listed in the following table. Since the SAR value is calculated from the measured electric field, dielectric constant and conductivity of the body tissue and the SAR is proportional to the square of the electric field. So, the SAR value will be also proportional to the RF power input to the system validation dipole under the same test environment. In our system validation test, 250mW RF input power was used.

6.1 TEST EQUIPMENT

ITEM	NAME	BRAND	TYPE	SERIES NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
1	SAM Phantom	S & P	QD000 P40 CA	TP-1150	NA	NA
2	Signal Generator	Agilent	E4438C	MY45092849	Nov. 19, 2008	Nov. 18, 2009
3	E-Field Probe	S & P	EX3DV4	3590	Apr. 28, 2009	Apr. 27, 2010
4	DAE	S & P	DAE	579	Jul. 17, 2009	Jul. 16, 2010
5	Robot Positioner	Staubli Unimation	NA	NA	NA	NA
6	Validation Dipole	S & P	D2450V2	716	Mar. 17, 2009	Mar. 16, 2010
7			D5GHzV2	1019	Feb. 20, 2009	Feb. 19, 2010

NOTE: Before starting the measurement, all test equipment shall be warmed up for 30min.

6.2 TEST PROCEDURE

Before the system performance check, we need only to tell the system which components (probe, medium, and device) are used for the system performance check; the system will take care of all parameters. The dipole must be placed beneath the flat section of the SAM Twin Phantom with the correct distance holder in place. The distance holder should touch the phantom surface with a light pressure at the reference marking (little cross) and be oriented parallel to the long side of the phantom. Accurate positioning is not necessary, since the system will search for the peak SAR location, except that the dipole arms should be parallel to the surface. The device holder for mobile phones can be left in place but should be rotated away from the dipole.

1. The ”Power Reference Measurement” and ”Power Drift Measurement” jobs are located at the beginning and end of the batch process. They measure the field drift at one single point in the liquid over the complete procedure. The indicated drift is mainly the variation of the amplifier output power. If it is too high (above ±0.1 dB), the system performance check should be repeated; some amplifiers have very high drift during warm-up. A stable amplifier gives drift results in the DASY system below ±0.02dB.

2. The ”Surface Check” job tests the optical surface detection system of the DASY system by repeatedly detecting the surface with the optical and mechanical surface detector and comparing the results. The output gives the detecting heights of both systems, the difference between the two systems and the standard deviation of the detection repeatability. Air bubbles or refraction in the liquid due to separation of the sugar-water mixture gives poor repeatability (above ±0.1mm). In that case it is better to abort the system performance check and stir the liquid.

3. The ”Area Scan” job measures the SAR above the dipole on a plane parallel to the surface. It is used to locate the approximate location of the peak SAR. The proposed scan uses large grid spacing for faster measurement; due to the symmetric field, the peak detection is reliable. If a finer graphic is desired, the grid spacing can be reduced. Grid spacing and orientation have no influence on the SAR result.

4. The ”Zoom Scan” job measures the field in a volume around the peak SAR value assessed in the previous ”Area Scan” job (for more information see the application note on SAR evaluation).

About the validation dipole positioning uncertainty, the constant and low loss dielectric spacer is used to establish the correct distance between the top surface of the dipole and the bottom surface of the phantom, the error component introduced by the uncertainty of the distance between the liquid (i.e., phantom shell) and the validation dipole in the DASY5 system is less than ±0.1mm.

$$SAR_{tolerance}[\%] = 100 \times (\frac{(a+d)^2}{a^2} - 1)$$

As the closest distance is 10mm, the resulting tolerance $SAR_{tolerance}$[%] is <2%.

6.3 VALIDATION RESULTS

SYSTEM VALIDATION TEST OF SIMULATING LIQUID					
FREQUENCY (MHz)	**REQUIRED SAR (mW/g)**	**MEASURED SAR (mW/g)**	**DEVIATION (%)**	**SEPARATION DISTANCE**	**TESTED DATE**
HSL2450	13.50 (1g)	13.20	-2.22	10mm	Oct. 26, 2009
MSL2450	13.30 (1g)	13.00	-2.26	10mm	Oct. 27, 2009
HSL5800	7.42 (1g)	7.46	0.54	10mm	Oct. 21, 2009
HSL5800	7.42 (1g)	7.20	-2.96	10mm	Oct. 22, 2009
HSL5800	7.42 (1g)	7.48	0.81	10mm	Oct. 23, 2009
HSL5800	7.42 (1g)	7.63	2.83	10mm	Oct. 24, 2009
MSL5800	7.31 (1g)	7.41	1.37	10mm	Oct. 25, 2009
TESTED BY	Dylan Chiou				

NOTE: Please see Appendix for the photo of system validation test.

6.4 SYSTEM VALIDATION UNCERTAINTIES

In the table below, the system validation uncertainty with respect to the analytically assessed SAR value of a dipole source as given in the IEEE 1528 standard is given. This uncertainty is smaller than the expected uncertainty for mobile phone measurements due to the simplified setup and the symmetric field distribution.

Error Description	Tolerance (±%)	Probability Distribution	Divisor	(C_i)		Standard Uncertainty (±%)		(v_i)
				(1g)	(10g)	(1g)	(10g)	
Measurement System								
Probe Calibration	6.55	Normal	1	1	1	6.55	6.55	∞
Axial Isotropy	4.70	Rectangular	√3	0.7	0.7	1.90	1.90	∞
Hemispherical Isotropy	9.60	Rectangular	√3	0.7	0.7	3.88	3.88	∞
Boundary effects	2.00	Rectangular	√3	1	1	1.15	1.15	∞
Linearity	4.70	Rectangular	√3	1	1	2.71	2.71	∞
System Detection Limits	1.00	Rectangular	√3	1	1	0.58	0.58	∞
Readout Electronics	0.30	Normal	1	1	1	0.30	0.30	∞
Response Time	0.80	Rectangular	√3	1	1	0.46	0.46	∞
Integration Time	2.60	Rectangular	√3	1	1	1.50	1.50	∞
RF Ambient Noise	3.00	Rectangular	√3	1	1	1.73	1.73	∞
RF Ambient Reflections	3.00	Rectangular	√3	1	1	1.73	1.73	∞
Probe Positioner	0.80	Rectangular	√3	1	1	0.46	0.46	∞
Probe Positioning	9.90	Rectangular	√3	1	1	5.72	5.72	∞
Max. SAR Eval.	4.00	Rectangular	√3	1	1	2.31	2.31	∞
Dipole Related								
Dipole Axis to Liquid Distance	2.00	Rectangular	√3	1	1	1.15	1.15	145
Input Power Drift	5.00	Rectangular	√3	1	1	2.89	2.89	∞
Phantom and Tissue parameters								
Phantom Uncertainty	4.00	Rectangular	√3	1	1	2.31	2.31	∞
Liquid Conductivity (target)	5.00	Rectangular	√3	0.64	0.43	1.85	1.24	∞
Liquid Conductivity (measurement)	3.48	Normal	1	0.64	0.43	2.23	1.50	∞
Liquid Permittivity (target)	5.00	Rectangular	√3	0.6	0.49	1.73	1.41	∞
Liquid Permittivity (measurement)	2.75	Normal	1	0.6	0.49	1.65	1.35	∞
Combined Standard Uncertainty						**12.10**	**11.83**	
Coverage Factor for 95%						**Kp=2**		
Expanded Uncertainty (K=2)						**24.20**	**23.66**	

7. MEASUREMENT SAR PROCEDURE UNCERTAINTIES

The assessment of spatial peak SAR of the hand handheld devices is according to IEEE 1528 / EN 62209-1. All testing situation shall be met below these requirements.

- The system is used by an experienced engineer who follows the manual and the guidelines taught during the training provided by SPEAG.
- The probe has been calibrated within the requested period and the stated uncertainty for the relevant frequency bands does not exceed 4.8% (k=1).
- The validation dipole has been calibrated within the requested period and the system performance check has been successful.
- The DAE unit has been calibrated within the within the requested period.
- The minimum distance between the probe sensor and inner phantom shell is selected to be between 4 and 5mm.
- The operational mode of the DUT is CW, CDMA, FDMA or TDMA (GSM, DCS, PCS, IS136 and PDC) and the measurement/integration time per point is >500 ms.
- The dielectric parameters of the liquid have been assessed using Agilent 85070D dielectric probe kit or a more accurate method.
- The dielectric parameters are within 5% of the target values.
- The DUT has been positioned as described in section 3.

7.1. PROBE CALIBRATION UNCERTAINTY

SPEAG conducts the probe calibration in compliance with international and national standards (e.g. IEEE 1528, EN 62209-1, IEC 62209, etc.) under ISO17025. The uncertainties are stated on the calibration certificate. For the most relevant frequency bands, these values do not exceed 4.8% (k=1). If evaluations of other bands are performed for which the uncertainty exceeds these values, the uncertainty tables given in the summary have to be revised accordingly.

7.2. ISOTROPY UNCERTAINTY

The axial isotropy tolerance accounts for probe rotation around its axis while the hemispherical isotropy error includes all probe orientations and field polarizations. These parameters are assessed by SPEAG during initial calibration. In 2001, SPEAG further tightened its quality controls and warrants that the maximal deviation from axial isotropy is ±0.20dB, while the maximum deviation of hemispherical isotropy is ±0.40dB, corresponding to ±4.7% and ±9.6%, respectively. A weighting factor of cp equal to 0.5 can be applied, since the axis of the probe deviates less than 30 degrees from the normal surface orientation.

7.3. BOUNDARY EFFECT UNCERTAINTY

The effect can be estimated according to the following error approximation formula

$$SAR_{tolerance}[\%] = SAR_{be}[\%] \times \frac{(d_{be} + d_{step})^2}{2d_{step}} \frac{e^{-\frac{d_{be}}{\delta/2}}}{\delta/2}$$

$$d_{be} + d_{step} < 10mm$$

The parameter d_{be} is the distance in mm between the surface and the closest measurement point used in the averaging process; d_{step} is the separation distance in mm between the first and second measurement points; δ is the minimum penetration depth in mm within the head tissue equivalent liquids (i.e., δ= 13.95mm at 3GHz); SAR_{be} is the deviation between the measured SAR value at the distance d_{be} from the boundary and the wave-guide analytical value SAR_{ref}.DASY5 applies a boundary effect compensation algorithm according to IEEE 1528, which is possible since the axis of the probe never deviates more than 30 degrees from the normal surface orientation. SAR_{be}[%] is assessed during the calibration process and SPEAG warrants that the uncertainty at distances larger than 4mm is always less than 1%.In summary, the worst case boundary effect SAR tolerance[%] for scanning distances larger than 4mm is < ± 0.8%.

7.4. PROBE LINEARITY UNCERTAINTY

Field probe linearity uncertainty includes errors from the assessment and compensation of the diode compression effects for CW and pulsed signals with known duty cycles. This error is assessed using the procedure described in IEEE 1528 / EN 62209-1. For SPEAG field probes, the measured difference between CW and pulsed signals, with pulse frequencies between 10Hz and 1kHz and duty cycles between 1 and 100, is < ±0.20dB (< ±4.7%).

7.5. READOUT ELECTRONICS UNCERTAINTY

All uncertainties related to the probe readout electronics (DAE unit), including the gain and linearity of the instrumentation amplifier, its loading effect on the probe, and accuracy of the signal conversion algorithm, have been assessed accordingly to IEEE 1528 / EN 62209-1.The combination (root-sum-square RSS method) of these components results in an overall maximum error of ±1.0%.

7.6. RESPONSE TIME UNCERTAINTY

The time response of the field probes is assessed by exposing the probe to a well-controlled electric field producing SAR larger than 2.0W/kg at the tissue medium surface. The signal response time is evaluated as the time required by the system to reach 90% of the expected final value after an on/of switch of the power source. Analytically, it can be expressed as:

$$SAR_{tolerance}[\%] = 100 \times \left(\frac{T_m}{T_m + \tau e^{-T_m/\tau} - \tau} - 1\right)$$

where Tm is 500 ms, i.e., the time between measurement samples, and $_T$ the time constant. The response time $_T$ of SPEAG's probes is <5ms. In the current implementation, DASY5 waits longer than 100 ms after having reached the grid point before starting a measurement, i.e., the response time uncertainty is negligible.

7.7. INTEGRATION TIME UNCERTAINTY

If the device under test does not emit a CW signal, the integration time applied to measure the electric field at a specific point may introduce additional uncertainties due to the discretization and can be assessed as follows

$$SAR_{tolerance}[\%] = 100 \times \sum_{allsub-frames} \frac{t_{frame}}{t_{integration}} \frac{slot_{idle}}{slot_{total}}$$

The tolerances for the different systems are given in Table 7.1, whereby the worst-case $SAR_{tolerance}$ is 2.6%.

System	$SAR_{tolerance}$ %
CW	0
CDMA*	0
WCDMA*	0
FDMA	0
IS-136	2.6
PDC	2.6
GSM/DCS/PCS	1.7
DECT	1.9
Worst-Case	2.6

TABLE 7.1

7.8. PROBE POSITIONER MECHANICAL TOLERANCE

The mechanical tolerance of the field probe positioner can introduce probe positioning uncertainties. The resulting SAR uncertainty is assessed by comparing the SAR obtained according to the specifications of the probe positioner with respect to the actual position defined by the geometric enter of the probe sensors. The tolerance is determined as:

$$SAR_{tolerance}[\%] = 100 \times \frac{d_{ph}}{\delta/2}$$

The specified repeatability of the RX robot family used in DASY5 systems is ±25µm. The absolute accuracy for short distance movements is better than ±0.1mm, i.e., the $SAR_{tolerance}$[%] is better than 1.5% (rectangular).

7.9. PROBE POSITIONING

The probe positioning procedures affect the tolerance of the separation distance between the probe tip and the phantom surface as:

$$SAR_{tolerance}[\%] = 100 \times \frac{d_{ph}}{\delta/2}$$

where d_{ph} is the maximum deviation of the distance between the probe tip and the phantom surface. The optical surface detection has a precision of better than 0.2mm, resulting in an $SAR_{tolerance}$[%] of <2.9% (rectangular distribution). Since the mechanical detection provides better accuracy, 2.9% is a worst-case figure for DASY5 system.

7.10. PHANTOM UNCERTAINTY

The SAR measurement uncertainty due to SPEAG phantom shell production tolerances has been evaluated using

$$SAR_{tolerance}[\%] \cong 100 \times \frac{2d}{a}, \qquad d << a$$

For a maximum deviation d of the inner and outer shell of the phantom from that specified in the CAD file of ±0.2mm, and a 10mm spacing a between source and tissue liquid, the calculated phantom uncertainty is ±4.0%.

7.11. DASY5 UNCERTAINTY BUDGET

Error Description	Tolerance (±%)	Probability Distribution	Divisor	(C_i)		Standard Uncertainty (±%)		(v_i)
				(1g)	(10g)	(1g)	(10g)	
Measurement Equipment								
Probe Calibration	6.55	Normal	1	1	1	6.55	6.55	∞
Axial Isotropy	4.70	Rectangular	√3	0.7	0.7	1.90	1.90	∞
Hemispherical Isotropy	9.60	Rectangular	√3	0.7	0.7	3.88	3.88	∞
Boundary effects	2.00	Rectangular	√3	1	1	1.15	1.15	∞
Linearity	4.70	Rectangular	√3	1	1	2.71	2.71	∞
System Detection Limits	1.00	Rectangular	√3	1	1	0.58	0.58	∞
Readout Electronics	0.30	Normal	1	1	1	0.30	0.30	∞
Response Time	0.80	Rectangular	√3	1	1	0.46	0.46	∞
Integration Time	2.60	Rectangular	√3	1	1	1.50	1.50	∞
RF Ambient Noise	3.00	Rectangular	√3	1	1	1.73	1.73	∞
RF Ambient Reflections	3.00	Rectangular	√3	1	1	1.73	1.73	∞
Probe Positioner	0.80	Rectangular	√3	1	1	0.46	0.46	∞
Probe Positioning	9.90	Rectangular	√3	1	1	5.72	5.72	∞
Max. SAR Eval.	4.00	Rectangular	√3	1	1	2.31	2.31	∞
Test Sample Related								
Device Positioning	0.89	Normal	1	1	1	0.89	0.89	9
Device Holder	3.60	Normal	1	1	1	3.60	3.60	5
Power Drift	5.00	Rectangular	√3	1	1	2.89	2.89	∞
Phantom and Tissue parameters								
Phantom Uncertainty	4.00	Rectangular	√3	1	1	2.31	2.31	∞
Liquid Conductivity (target)	5.00	Rectangular	√3	0.64	0.43	1.85	1.24	∞
Liquid Conductivity (measurement)	3.48	Normal	1	0.64	0.43	2.23	1.50	∞
Liquid Permittivity (target)	5.00	Rectangular	√3	0.6	0.49	1.73	1.41	∞
Liquid Permittivity (measurement)	2.75	Normal	1	0.6	0.49	1.65	1.35	∞
Combined Standard Uncertainty						**12.60**	**12.34**	
Coverage Factor for 95%						**Kp=2**		
Expanded Uncertainty (K=2)						**25.21**	**24.69**	

TABLE 7.2

8. INFORMATION ON THE TESTING LABORATORIES

We, Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch, were founded in 1988 to provide our best service in EMC, Radio, Telecom and Safety consultation. Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

USA	FCC, NVLAP
GERMANY	TUV Rheinland
JAPAN	VCCI
NORWAY	NEMKO
CANADA	INDUSTRY CANADA, CSA
R.O.C.	TAF, BSMI, NCC
NETHERLANDS	Telefication
SINGAPORE	GOST-ASIA (MOU)
RUSSIA	CERTIS (MOU)

Copies of accreditation certificates of our laboratories obtained from approval agencies can be downloaded from our web site: www.adt.com.tw/index.5/phtml. If you have any comments, please feel free to contact us at the following:

Linko EMC/RF Lab:
Tel: 886-2-26052180
Fax: 886-2-26051924

Hsin Chu EMC/RF Lab:
Tel: 886-3-5935343
Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety/Telecom Lab:
Tel: 886-3-3183232
Fax: 886-3-3185050

Web Site: www.adt.com.tw

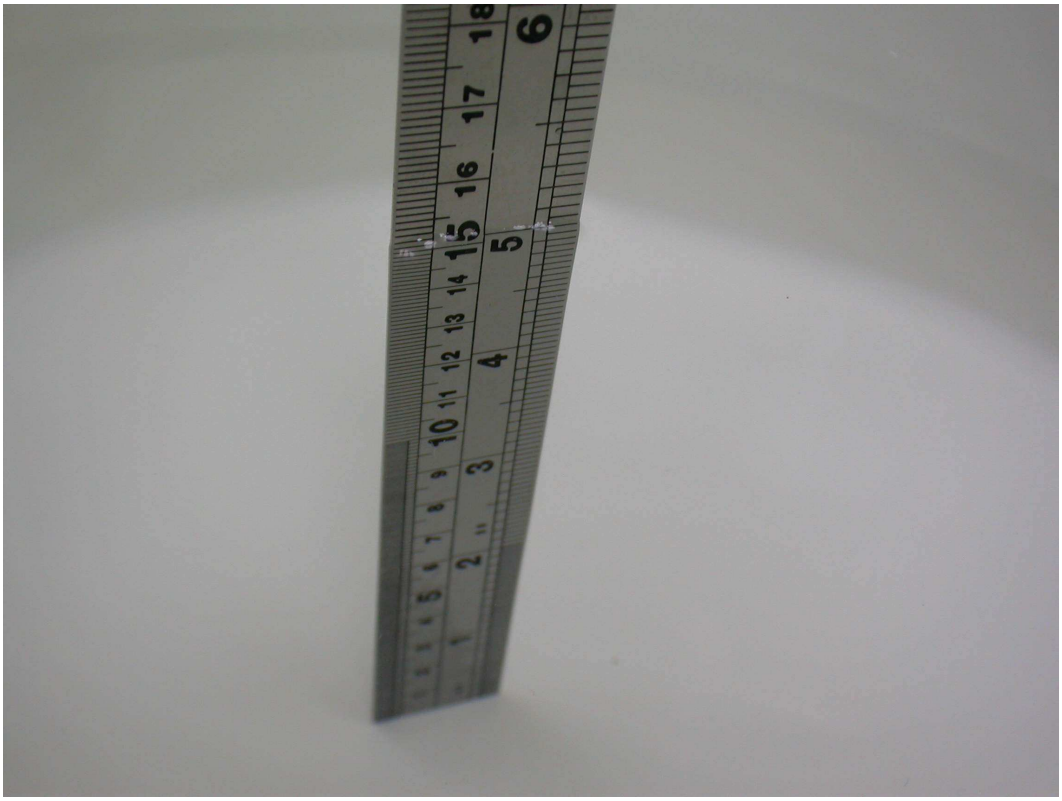
The address and road map of all our labs can be found in our web site also.

---END---

APPENDIX A: TEST DATA

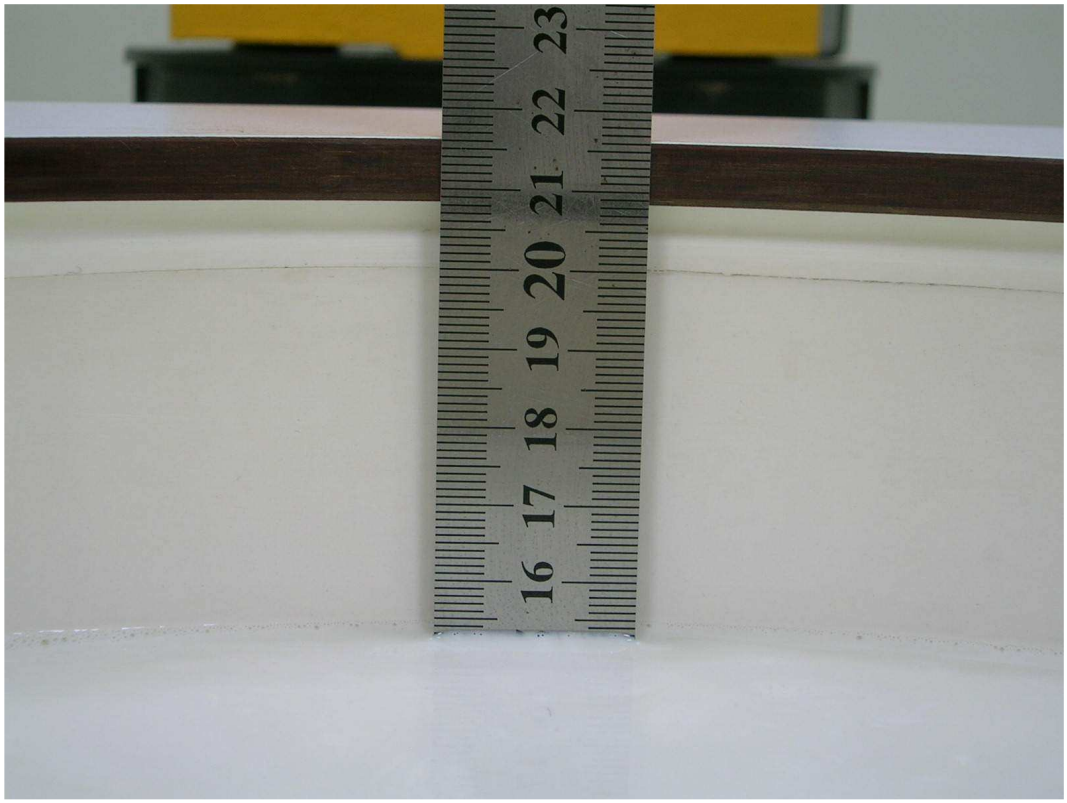
Liquid Level Photo

Tissue HSL2450MHz D=152mm

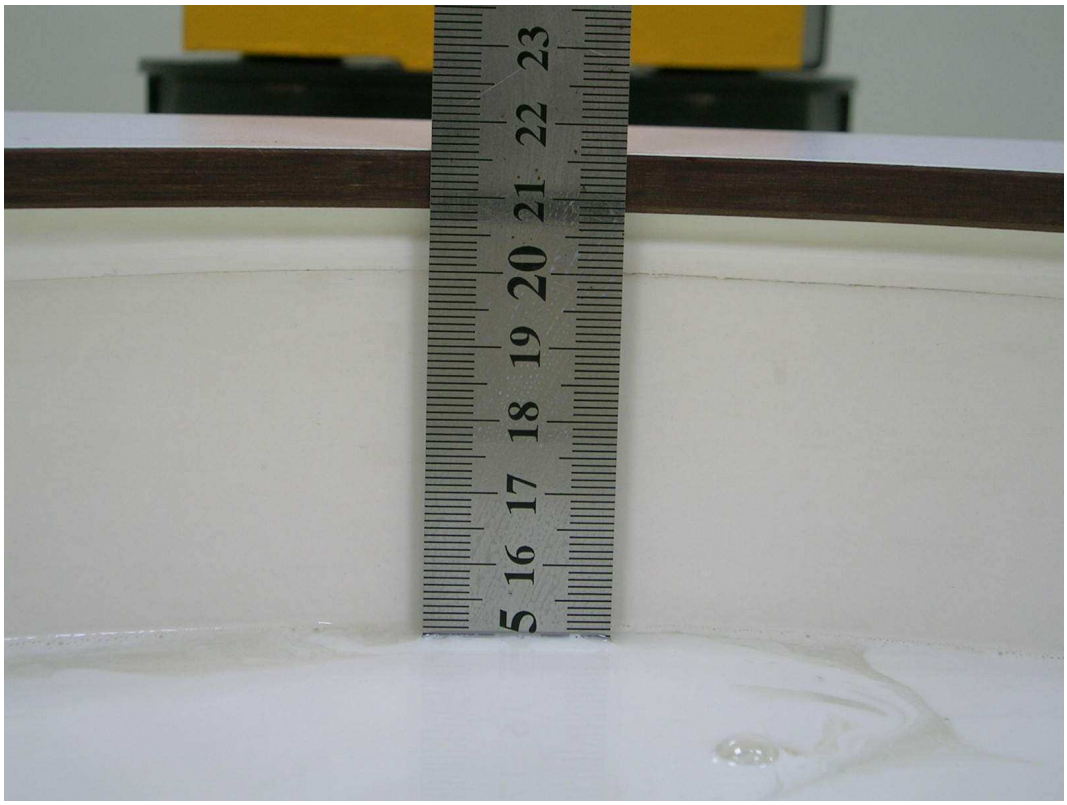


Tissue MSL2450MHz D=150mm

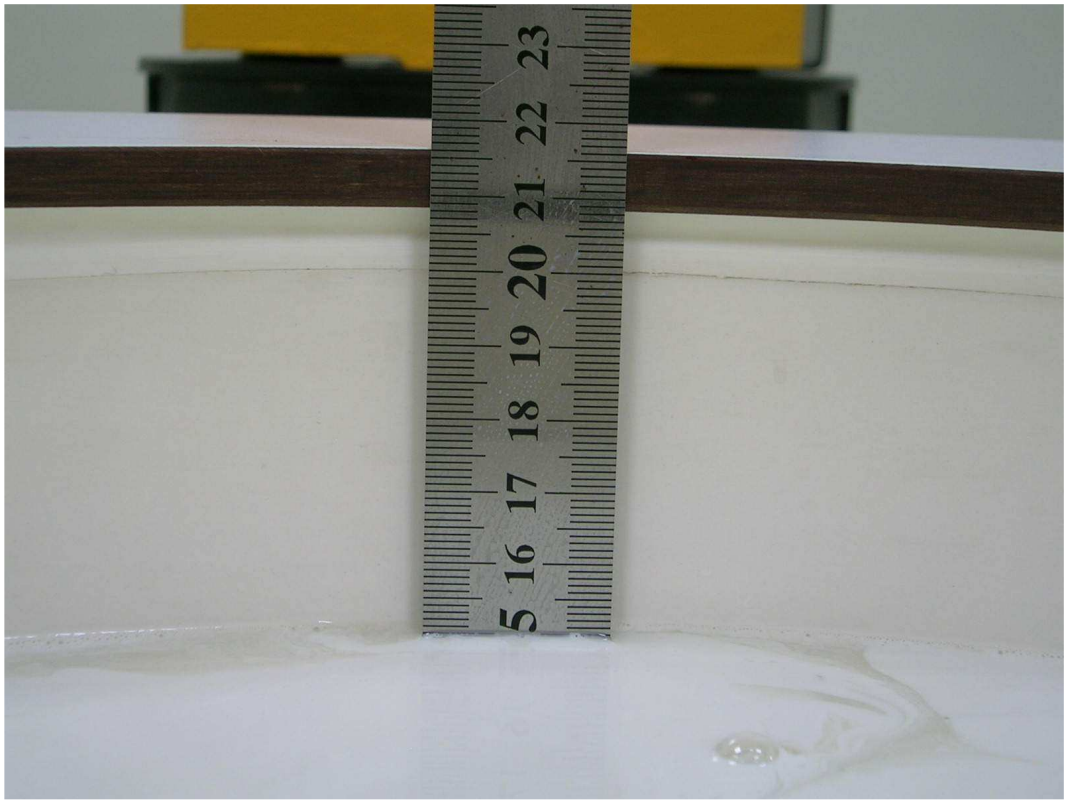
Tissue HSL5800MHz D=153mm



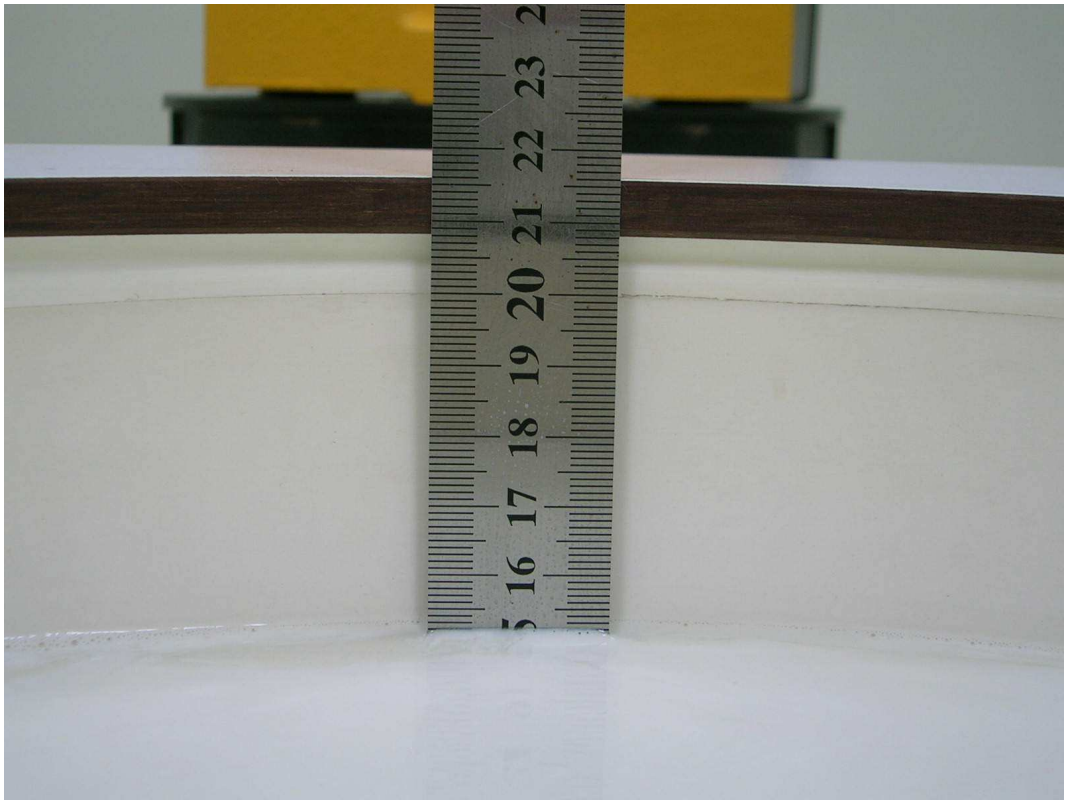
Tissue HSL5800MHz D=150mm



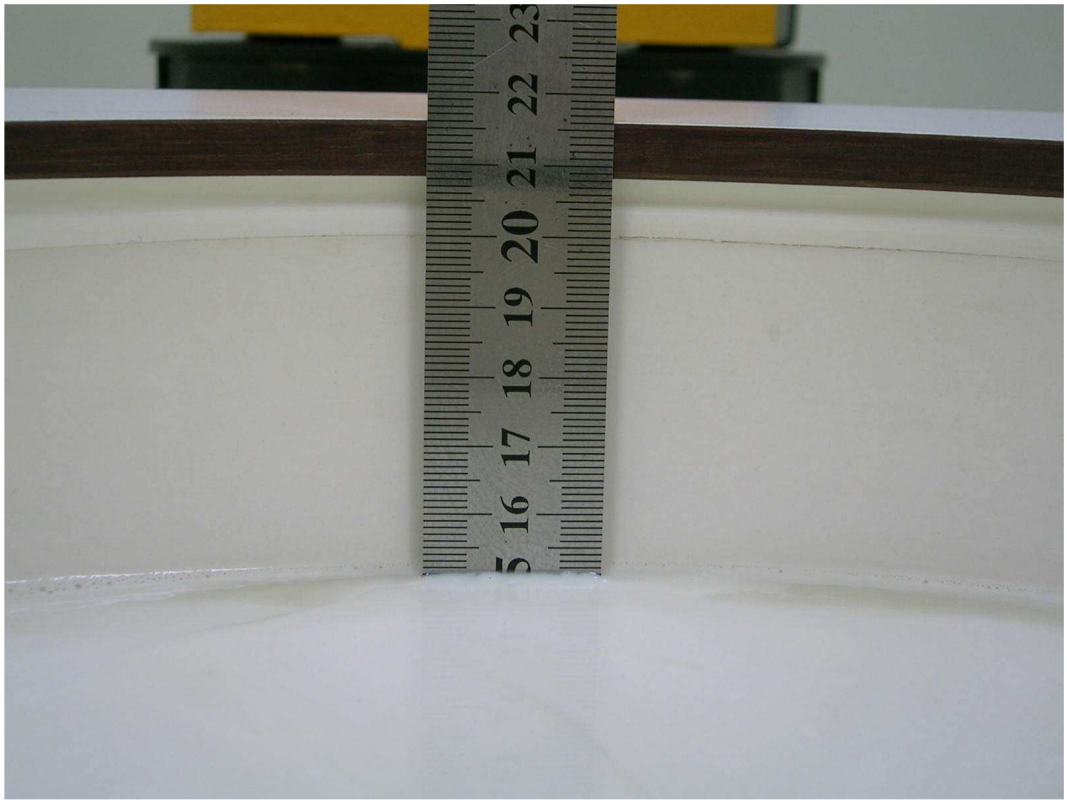
Tissue HSL5800MHz D=150mm



Tissue HSL5800MHz D=152mm



Tissue MSL5800MHz D=151mm



Date/Time: 2009/10/26 01:57:12

Test Laboratory: Bureau Veritas ADT

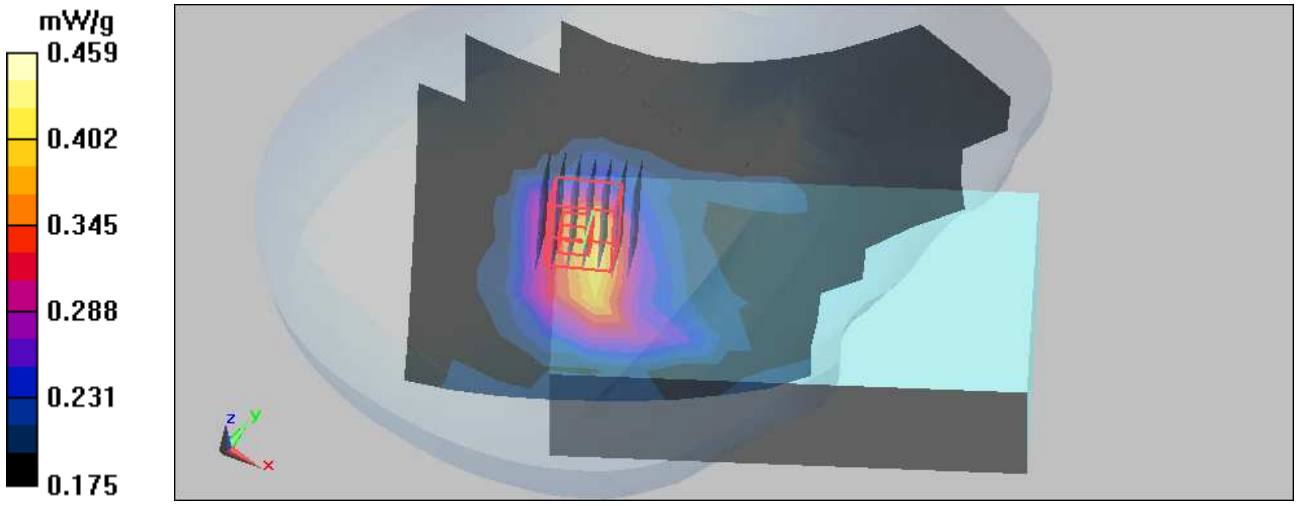
M01-2D Right Head Cheek 11B Ch6 / Main Ant

DUT: PDA ; Type: MC 75A0
Communication System: 802.11b ; Frequency: 2437 MHz ; Duty Cycle: 1:1
Medium: HSL2450 Medium parameters used: f = 2437 MHz; σ = 1.81 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3
Phantom section: Right Section ; DUT test position : Cheek ; Modulation type: DBPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(7.88, 7.88, 7.88) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2009/7/17
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Touch position - Mid. Channel 6/Area Scan (10x16x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.408 mW/g

Touch position - Mid. Channel 6/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.2 V/m; Power Drift = -0.163 dB
Peak SAR (extrapolated) = 0.784 W/kg
SAR(1 g) = 0.395 mW/g; SAR(10 g) = 0.273 mW/g
Maximum value of SAR (measured) = 0.459 mW/g



Date/Time: 2009/10/26 02:42:48

Test Laboratory: Bureau Veritas ADT

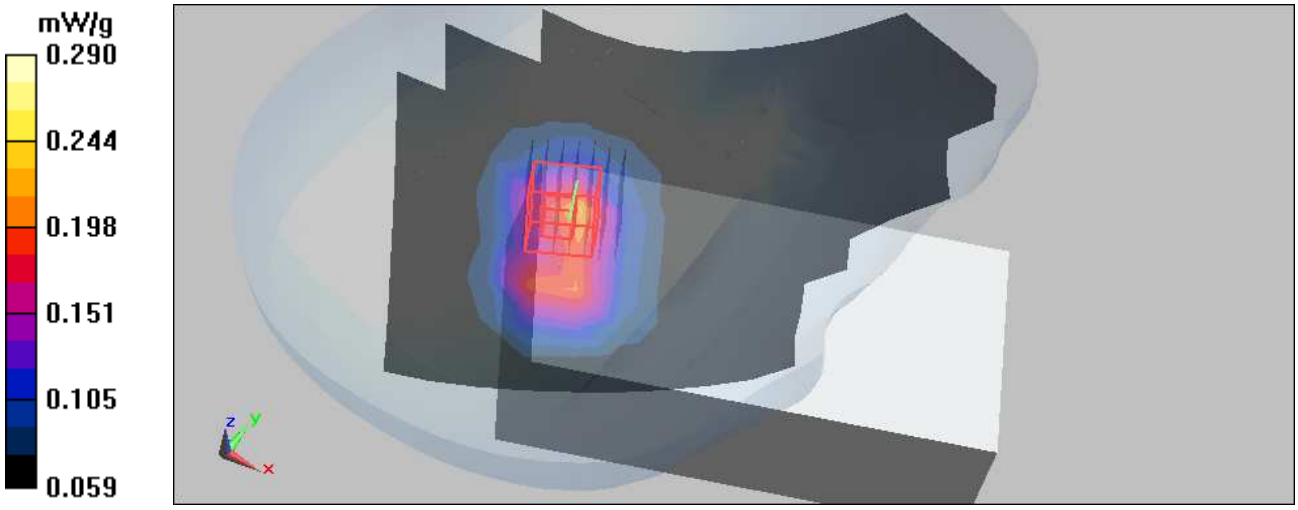
M02-2D Right Head Tilt 11B Ch6 / Main Ant

DUT: PDA ; Type: MC 75A0
Communication System: 802.11b ; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: HSL2450 Medium parameters used: f = 2437 MHz; σ = 1.81 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3
Phantom section: Right Section ; DUT test position : Tilt ; Modulation type: DBPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(7.88, 7.88, 7.88) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2009/7/17
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Tilt position - Mid. Channel 6/Area Scan (10x16x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.247 mW/g

Tilt position - Mid. Channel 6/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.4 V/m; Power Drift = 0.051 dB
Peak SAR (extrapolated) = 0.517 W/kg
SAR(1 g) = 0.240 mW/g; SAR(10 g) = 0.144 mW/g
Maximum value of SAR (measured) = 0.290 mW/g



Date/Time: 2009/10/26 03:20:26

Test Laboratory: Bureau Veritas ADT

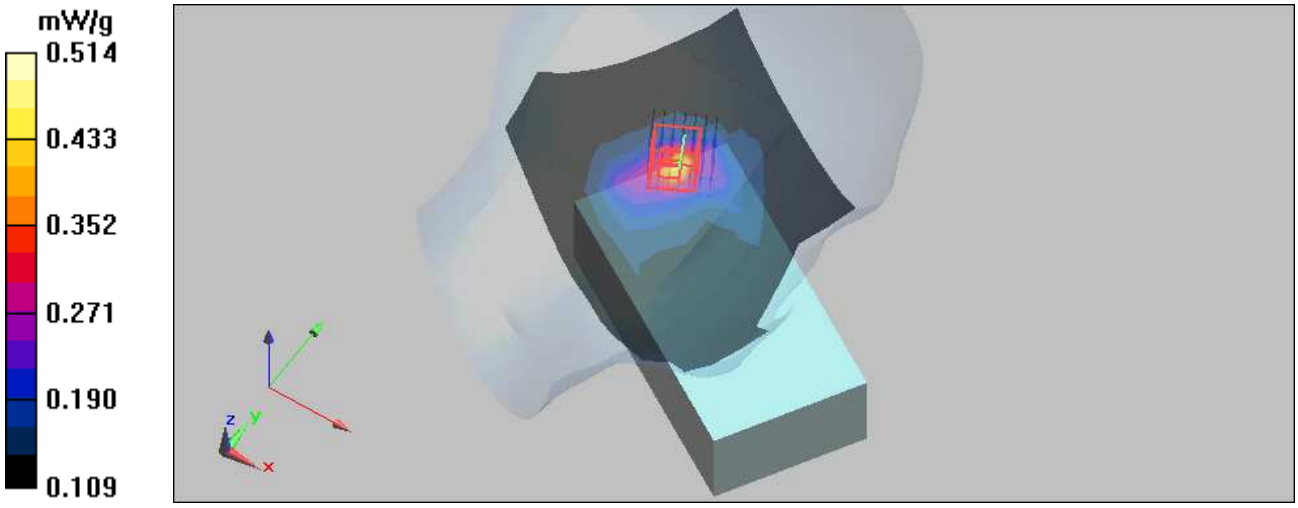
M03-2D Left Head Cheek 11B Ch6 / Main Ant

DUT: PDA ; Type: MC 75A0
Communication System: 802.11b ; Frequency: 2437 MHz ; Duty Cycle: 1:1
Medium: HSL2450 Medium parameters used: f = 2437 MHz; σ = 1.81 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3
Phantom section: Left Section ; DUT test position : Cheek ; Modulation type: DBPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(7.88, 7.88, 7.88) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2009/7/17
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Touch position - Mid. Channel 6/Area Scan (10x16x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.471 mW/g

Touch position - Mid. Channel 6/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.8 V/m; Power Drift = -0.021 dB
Peak SAR (extrapolated) = 0.837 W/kg
SAR(1 g) = 0.403 mW/g; SAR(10 g) = 0.238 mW/g
Maximum value of SAR (measured) = 0.514 mW/g



Date/Time: 2009/10/26 04:01:27

Test Laboratory: Bureau Veritas ADT

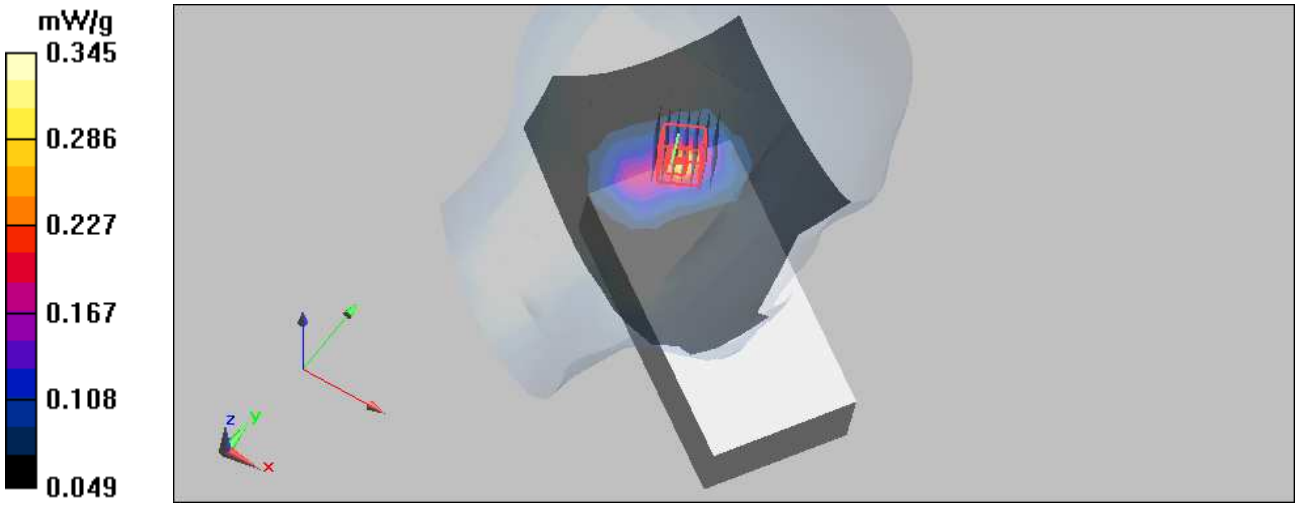
M04-2D Left Head Tilt 11B Ch6 / Main Ant

DUT: PDA ; Type: MC 75A0
Communication System: 802.11b ; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: HSL2450 Medium parameters used: f = 2437 MHz; σ = 1.81 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3
Phantom section: Left Section ; DUT test position : Tilt ; Modulation type: BPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(7.88, 7.88, 7.88) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2009/7/17
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Tilt position - Mid. Channel 6/Area Scan (10x16x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.329 mW/g

Tilt position - Mid. Channel 6/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.5 V/m; Power Drift = 0.102 dB
Peak SAR (extrapolated) = 0.580 W/kg
SAR(1 g) = 0.277 mW/g; SAR(10 g) = 0.152 mW/g
Maximum value of SAR (measured) = 0.345 mW/g



Date/Time: 2009/10/26 04:48:43

Test Laboratory: Bureau Veritas ADT

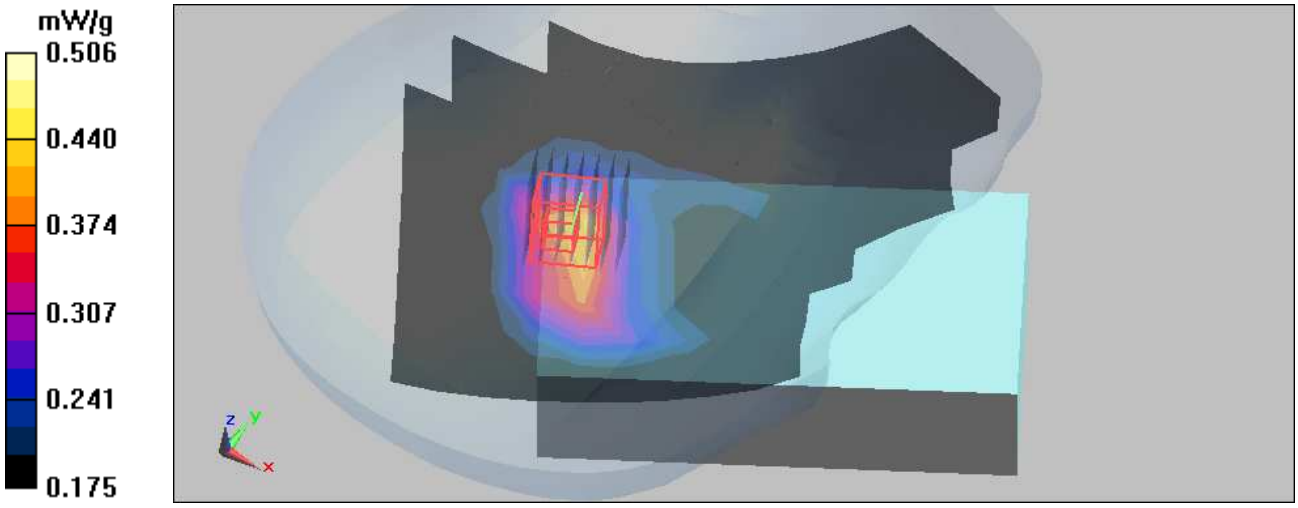
M05-2D Right Head Cheek 11G Ch6 / Main Ant

DUT: PDA ; Type: MC 75A0
Communication System: 802.11g ; Frequency: 2437 MHz ; Duty Cycle: 1:1
Medium: HSL2450 Medium parameters used: f = 2437 MHz; σ = 1.81 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3
Phantom section: Right Section ; DUT test position : Cheek ; Modulation type: BPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(7.88, 7.88, 7.88) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2009/7/17
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Touch position - Mid. Channel 6/Area Scan (10x16x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.422 mW/g

Touch position - Mid. Channel 6/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.5 V/m; Power Drift = -0.037 dB
Peak SAR (extrapolated) = 0.868 W/kg
SAR(1 g) = 0.435 mW/g; SAR(10 g) = 0.291 mW/g
Maximum value of SAR (measured) = 0.506 mW/g



Date/Time: 2009/10/26 05:32:28

Test Laboratory: Bureau Veritas ADT

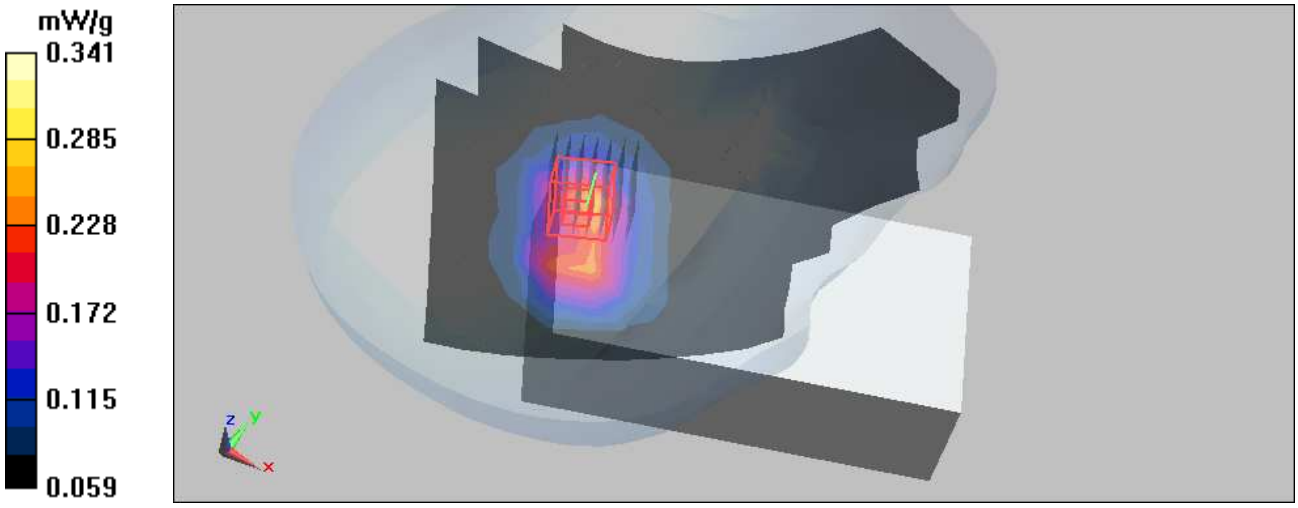
M06-2D Right Head Tilt 11G Ch6 / Main Ant

DUT: PDA ; Type: MC 75A0
Communication System: 802.11g ; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: HSL2450 Medium parameters used: f = 2437 MHz; σ = 1.81 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3
Phantom section: Right Section ; DUT test position : Tilt ; Modulation type: BPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(7.88, 7.88, 7.88) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2009/7/17
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Tilt position - Mid. Channel 6/Area Scan (10x16x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.298 mW/g

Tilt position - Mid. Channel 6/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.5 V/m; Power Drift = 0.054 dB
Peak SAR (extrapolated) = 0.579 W/kg
SAR(1 g) = 0.277 mW/g; SAR(10 g) = 0.161 mW/g
Maximum value of SAR (measured) = 0.341 mW/g



Date/Time: 2009/10/26 06:12:26

Test Laboratory: Bureau Veritas ADT

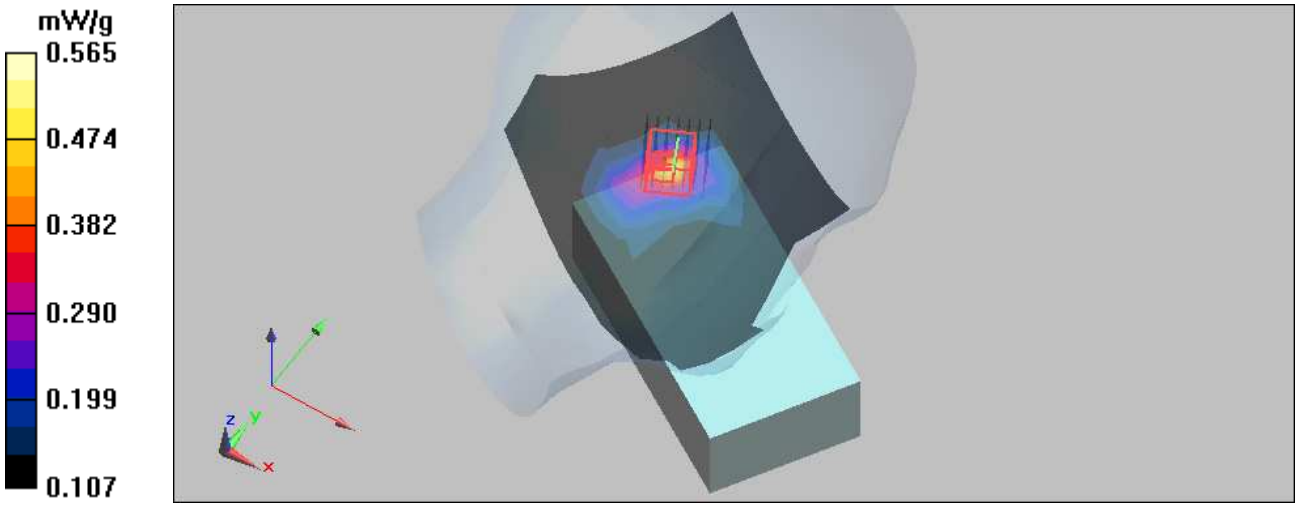
M07-2D Left Head Cheek 11G Ch6 / Main Ant

DUT: PDA ; Type: MC 75A0
Communication System: 802.11g ; Frequency: 2437 MHz ; Duty Cycle: 1:1
Medium: HSL2450 Medium parameters used: f = 2437 MHz; σ = 1.81 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3
Phantom section: Left Section ; DUT test position : Cheek ; Modulation type: BPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(7.88, 7.88, 7.88) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2009/7/17
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Touch position - Mid. Channel 6/Area Scan (10x16x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.515 mW/g

Touch position - Mid. Channel 6/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.9 V/m; Power Drift = 0.104 dB
Peak SAR (extrapolated) = 0.965 W/kg
SAR(1 g) = 0.448 mW/g; SAR(10 g) = 0.254 mW/g
Maximum value of SAR (measured) = 0.565 mW/g



Date/Time: 2009/10/26 07:48:13

Test Laboratory: Bureau Veritas ADT

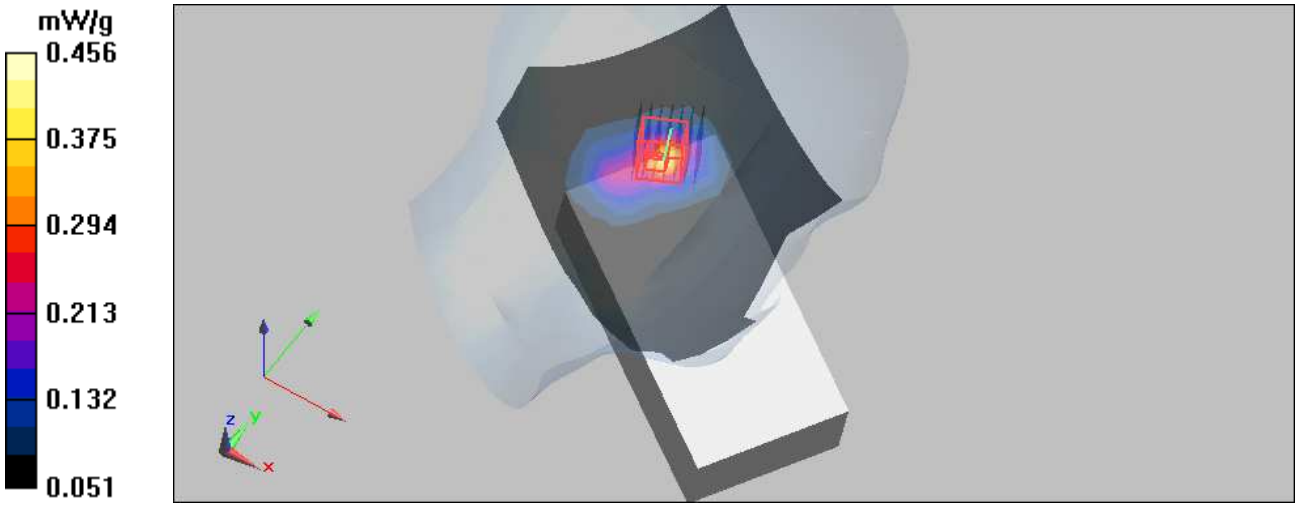
M08-2D Left Head Tilt 11G Ch6 / Main Ant

DUT: PDA ; Type: MC 75A0
Communication System: 802.11g ; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium: HSL2450 Medium parameters used: f = 2437 MHz; σ = 1.81 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3
Phantom section: Left Section ; DUT test position : Tilt ; Modulation type: BPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(7.88, 7.88, 7.88) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2009/7/17
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Tilt position - Mid. Channel 6/Area Scan (10x16x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.437 mW/g

Tilt position - Mid. Channel 6/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.5 V/m; Power Drift = 0.069 dB
Peak SAR (extrapolated) = 0.762 W/kg
SAR(1 g) = 0.357 mW/g; SAR(10 g) = 0.186 mW/g
Maximum value of SAR (measured) = 0.456 mW/g



Date/Time: 2009/10/26 06:56:32

Test Laboratory: Bureau Veritas ADT

M09-2D Left Head Cheek 11G Ch6 / Aux Ant

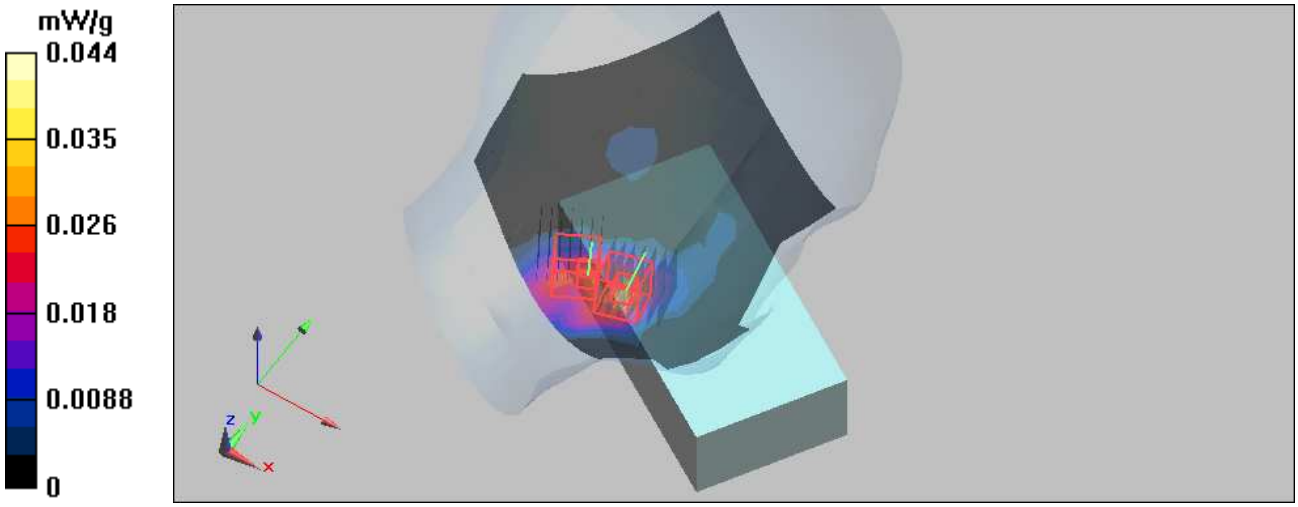
DUT: PDA ; Type: MC 75A0
Communication System: 802.11g ; Frequency: 2437 MHz ; Duty Cycle: 1:1
Medium: HSL2450 Medium parameters used: f = 2437 MHz; σ = 1.81 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3
Phantom section: Left Section ; DUT test position : Cheek ; Modulation type: BPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(7.88, 7.88, 7.88) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2009/7/17
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Touch position - Mid. Channel 6/Area Scan (11x16x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.042 mW/g

Touch position - Mid. Channel 6/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.51 V/m; Power Drift = -0.085 dB
Peak SAR (extrapolated) = 0.168 W/kg
SAR(1 g) = 0.033 mW/g; SAR(10 g) = 0.015 mW/g
Maximum value of SAR (measured) = 0.044 mW/g

Touch position - Mid. Channel 6/Zoom Scan (7x7x7) (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 1.51 V/m; Power Drift = -0.085 dB
Peak SAR (extrapolated) = 0.054 W/kg
SAR(1 g) = 0.025 mW/g; SAR(10 g) = 0.010 mW/g
Maximum value of SAR (measured) = 0.035 mW/g



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Test Laboratory: Bureau Veritas ADT

M10-2D Body Front (Hard Holster) 11B Ch6 / Main Ant

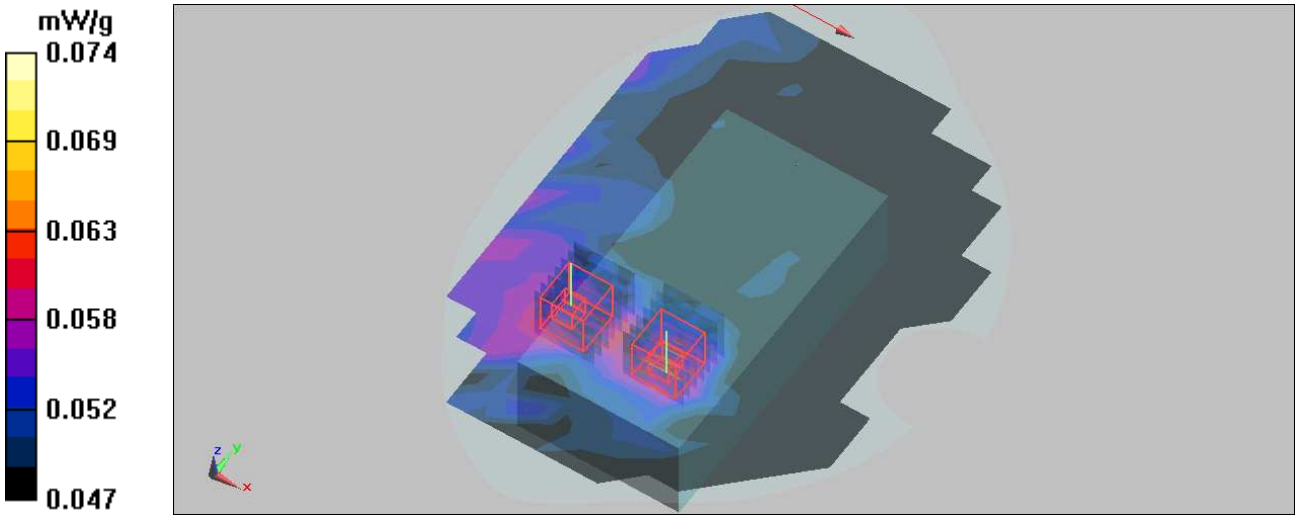
DUT: PDA ; Type: MC 75A0
Communication System: 802.11b ; Frequency: 2437 MHz ; Duty Cycle: 1:1 ; Modulation type: DBPSK
Medium: MSL2450 Medium parameters used: f = 2437 MHz; σ = 1.97 mho/m; ε_r = 53.6; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Separation distance : 25 mm (The Front side of the EUT to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(7.96, 7.96, 7.96) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2009/7/17
- Phantom: SAM with CRP ; Type: SAM ; Serial: TP-1485
- Measurement SW: DASY5, V5.0 Build 125 ; SEMCAD X Version 13.4 Build 125

Mid Channel 6/Area Scan (13x17x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.072 mW/g

Mid Channel 6/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.5 V/m; Power Drift = -0.159 dB
Peak SAR (extrapolated) = 0.097 W/kg
SAR(1 g) = 0.071 mW/g; SAR(10 g) = 0.062 mW/g
Maximum value of SAR (measured) = 0.078 mW/g

Mid Channel 6/Zoom Scan (7x7x7) (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.5 V/m; Power Drift = -0.159 dB
Peak SAR (extrapolated) = 0.118 W/kg
SAR(1 g) = 0.069 mW/g; SAR(10 g) = 0.061 mW/g
Maximum value of SAR (measured) = 0.074 mW/g



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Test Laboratory: Bureau Veritas ADT

M11-2D Body Front (Hard Holster) 11G Ch6 / Main Ant

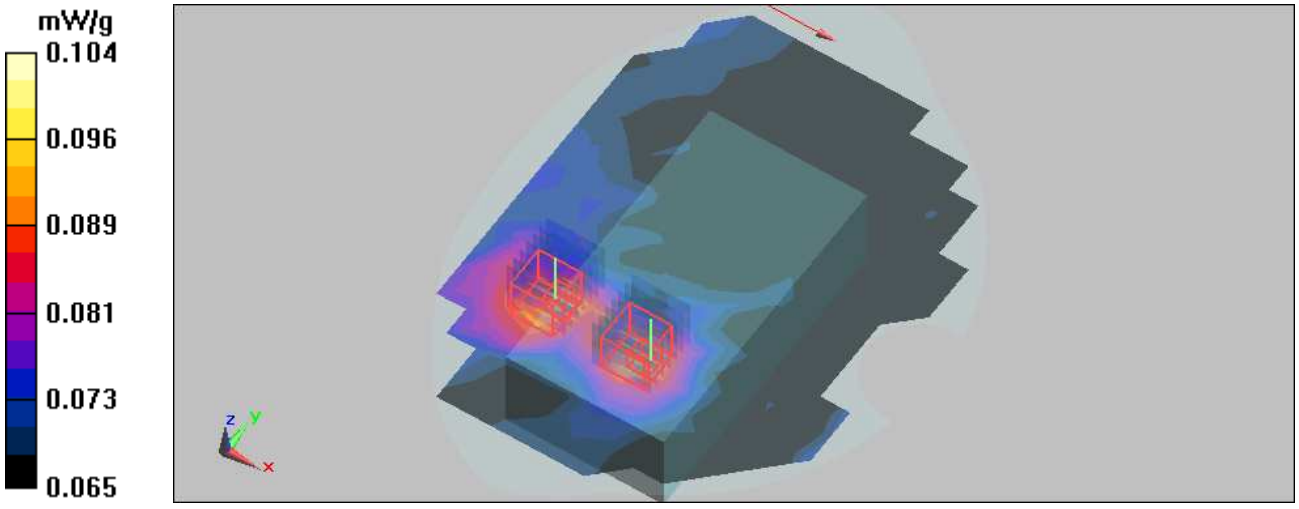
DUT: PDA ; Type: MC 75A0
Communication System: 802.11g ; Frequency: 2437 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL2450 Medium parameters used: f = 2437 MHz; σ = 1.97 mho/m; ε_r = 53.6; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Separation distance : 25 mm (The front side of the EUT to the Phantom)

DASY4 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(7.96, 7.96, 7.96) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2009/7/17
- Phantom: SAM with CRP ; Type: SAM ; Serial: TP-1485
- Measurement SW: DASY5, V5.0 Build 125 ; SEMCAD X Version 13.4 Build 125

Mid Channel 6/Area Scan (13x17x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.099 mW/g

Mid Channel 6/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.79 V/m; Power Drift = 0.138 dB
Peak SAR (extrapolated) = 0.135 W/kg
SAR(1 g) = 0.092 mW/g; SAR(10 g) = 0.080 mW/g
Maximum value of SAR (measured) = 0.100 mW/g

Mid Channel 6/Zoom Scan (7x7x7) (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.79 V/m; Power Drift = 0.138 dB
Peak SAR (extrapolated) = 0.146 W/kg
SAR(1 g) = 0.094 mW/g; SAR(10 g) = 0.083 mW/g
Maximum value of SAR (measured) = 0.104 mW/g



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Test Laboratory: Bureau Veritas ADT

M12-2D Body Front (Hard Holster) 11G Ch6 / Aux Ant

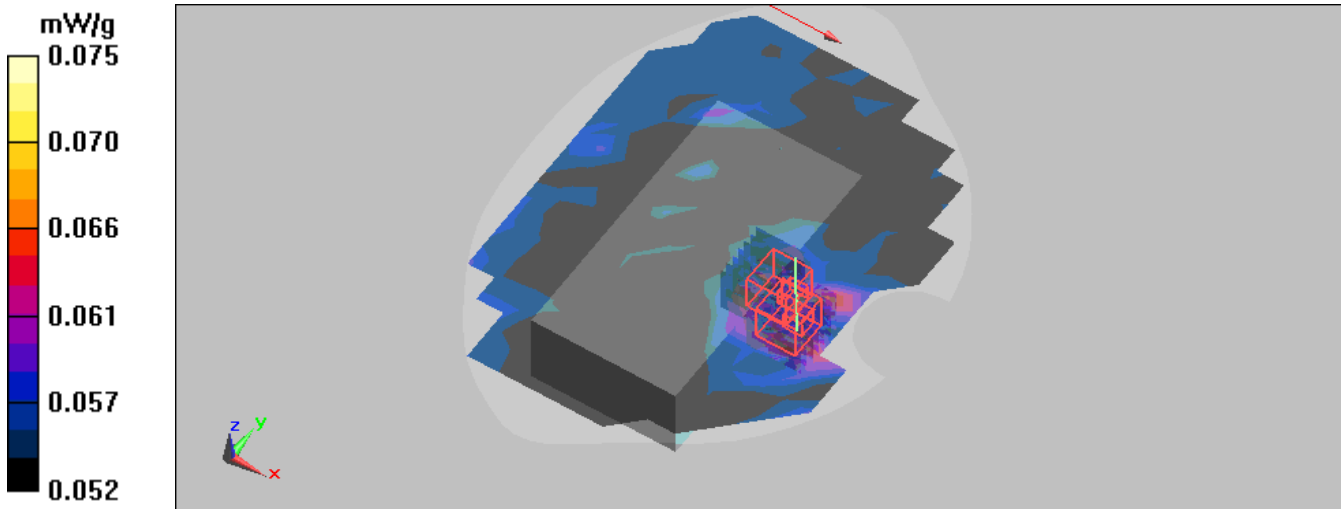
DUT: PDA ; Type: MC 75A0
Communication System: 802.11g ; Frequency: 2437 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL2450 Medium parameters used: f = 2437 MHz; σ = 1.97 mho/m; ε_r = 53.6; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Separation distance : 25 mm (The front side of the EUT to the Phantom)

DASY4 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(7.96, 7.96, 7.96) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2009/7/17
- Phantom: SAM with CRP ; Type: SAM ; Serial: TP-1485
- Measurement SW: DASY5, V5.0 Build 125 ; SEMCAD X Version 13.4 Build 125

Mid Channel 6/Area Scan (13x17x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.074 mW/g

Mid Channel 6/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.54 V/m; Power Drift = -0.158 dB
Peak SAR (extrapolated) = 0.077 W/kg
SAR(1 g) = 0.068 mW/g; SAR(10 g) = 0.064 mW/g
Maximum value of SAR (measured) = 0.075 mW/g

Mid Channel 6/Zoom Scan (7x7x7) (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.54 V/m; Power Drift = -0.158 dB
Peak SAR (extrapolated) = 0.082 W/kg
SAR(1 g) = 0.066 mW/g; SAR(10 g) = 0.062 mW/g
Maximum value of SAR (measured) = 0.073 mW/g



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Test Laboratory: Bureau Veritas ADT

M13-2D Body Bottom (Leather Holster) 11G Ch6 / Main Ant

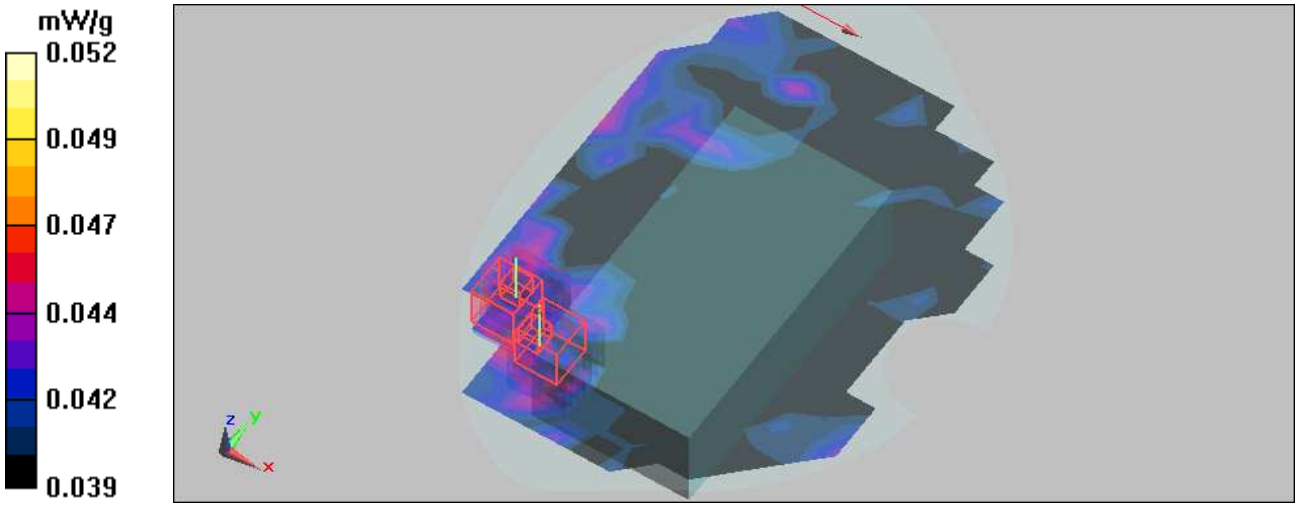
DUT: PDA ; Type: MC 75A0
Communication System: 802.11g ; Frequency: 2437 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL2450 Medium parameters used: f = 2437 MHz; σ = 1.97 mho/m; ε_r = 53.6; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Separation distance : 28 mm (The front side of the EUT to the Phantom)

DASY4 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(7.96, 7.96, 7.96) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2009/7/17
- Phantom: SAM with CRP ; Type: SAM ; Serial: TP-1485
- Measurement SW: DASY5, V5.0 Build 125 ; SEMCAD X Version 13.4 Build 125

Mid Channel 6/Area Scan (13x17x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.051 mW/g

Mid Channel 6/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.82 V/m; Power Drift = -0.197 dB
Peak SAR (extrapolated) = 0.055 W/kg
SAR(1 g) = 0.046 mW/g; SAR(10 g) = 0.045 mW/g
Maximum value of SAR (measured) = 0.053 mW/g

Mid Channel 6/Zoom Scan (7x7x7) (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.82 V/m; Power Drift = -0.197 dB
Peak SAR (extrapolated) = 0.084 W/kg
SAR(1 g) = 0.047 mW/g; SAR(10 g) = 0.046 mW/g
Maximum value of SAR (measured) = 0.052 mW/g



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Test Laboratory: Bureau Veritas ADT

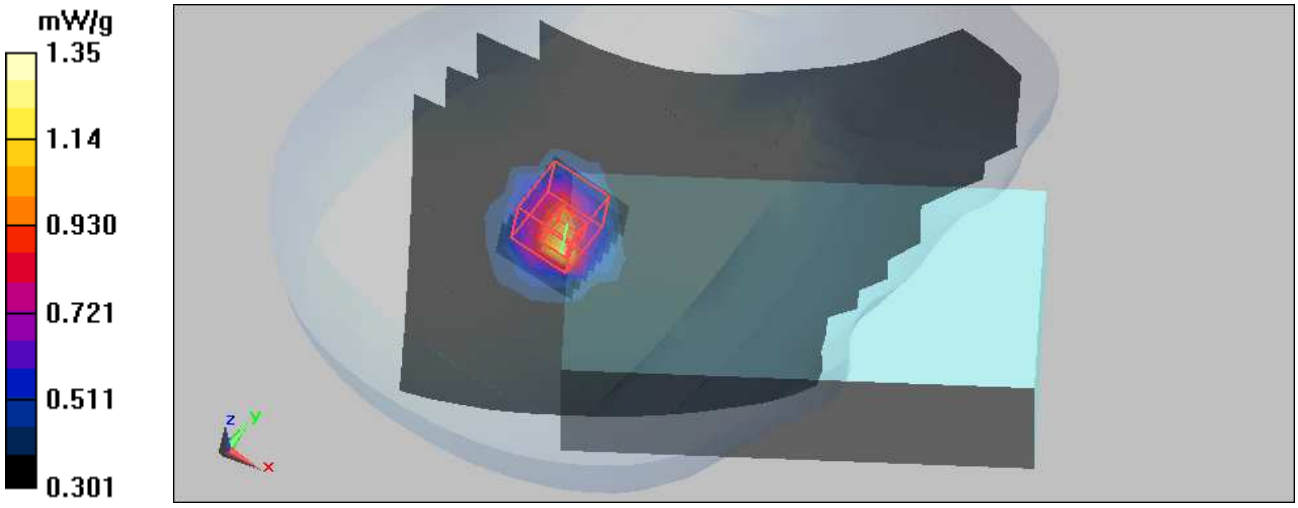
M14-2D Right Head Cheek 11A Ch149 / Main Ant

DUT: PDA ; Type: MC 75A0
Communication System: 802.11a ; Frequency: 5745 MHz ; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5745 MHz; σ = 5.28 mho/m; ε_r = 35.5; ρ = 1000 kg/m^3
Phantom section: Right Section ; DUT test position : Cheek ; Modulation type: BPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(4.6, 4.6, 4.6) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2009/7/17
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Touch Position - High Channel 149/Area Scan (15x23x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 1.25 mW/g

Touch Position - High Channel 149/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 11 V/m; Power Drift = 0.102 dB
Peak SAR (extrapolated) = 4.05 W/kg
SAR(1 g) = 1.1 mW/g; SAR(10 g) = 0.594 mW/g
Maximum value of SAR (measured) = 1.35 mW/g



Date/Time: 2009/10/21 15:42:33

Test Laboratory: Bureau Veritas ADT

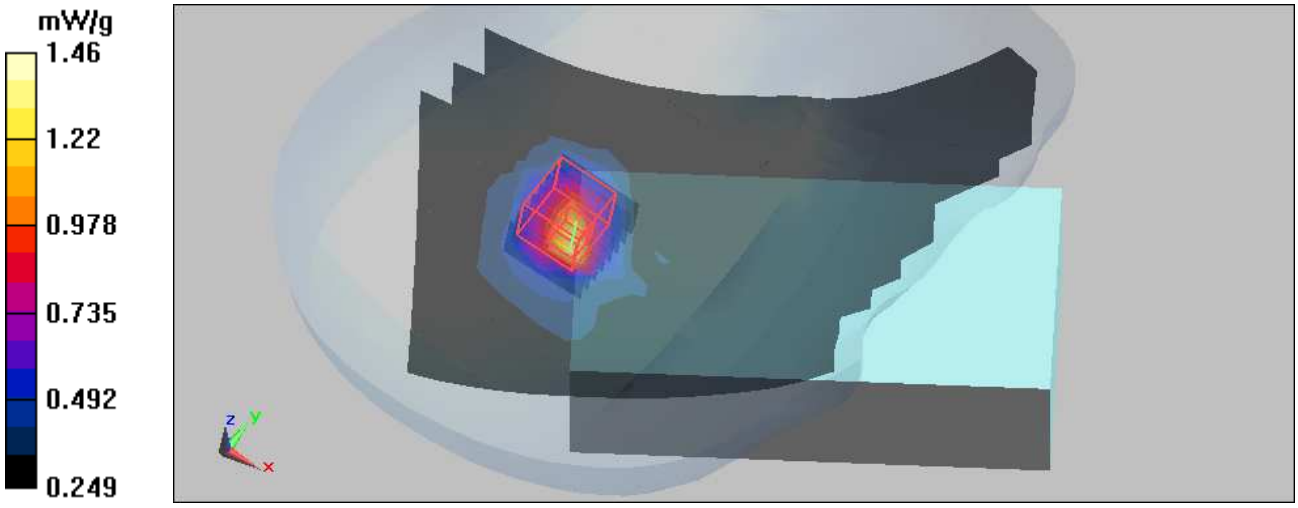
M14-2D Right Head Cheek 11A Ch157 / Main Ant

DUT: PDA ; Type: MC 75A0
Communication System: 802.11a ; Frequency: 5785 MHz ; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5785 MHz; σ = 5.33 mho/m; ε_r = 35.5; ρ = 1000 kg/m^3
Phantom section: Right Section ; DUT test position : Cheek ; Modulation type: BPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(4.6, 4.6, 4.6) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2009/7/17
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Touch Position - Mid Channel 157/Area Scan (13x23x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 1.37 mW/g

Touch Position - Mid Channel 157/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 10.7 V/m; Power Drift = 0.097 dB
Peak SAR (extrapolated) = 4.97 W/kg
SAR(1 g) = 1.18 mW/g; SAR(10 g) = 0.601 mW/g
Maximum value of SAR (measured) = 1.46 mW/g



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Test Laboratory: Bureau Veritas ADT

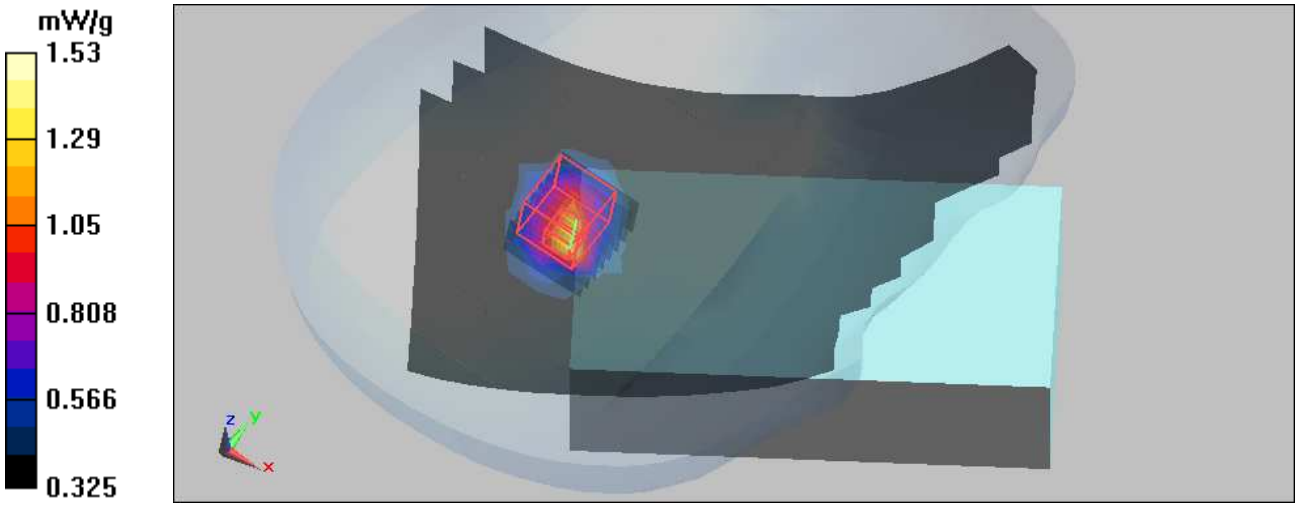
M14-2D Right Head Cheek 11A Ch165 / Main Ant

DUT: PDA ; Type: MC 75A0
Communication System: 802.11a ; Frequency: 5825 MHz ; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5825 MHz; σ = 5.38 mho/m; ε_r = 35.4; ρ = 1000 kg/m^3
Phantom section: Right Section ; DUT test position : Cheek ; Modulation type: BPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(4.6, 4.6, 4.6) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2009/7/17
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Touch Position - Mid Channel 165/Area Scan (13x23x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 1.38 mW/g

Touch Position - Mid Channel 165/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 10 V/m; Power Drift = 0.139 dB
Peak SAR (extrapolated) = 5.45 W/kg
SAR(1 g) = 1.25 mW/g; SAR(10 g) = 0.673 mW/g
Maximum value of SAR (measured) = 1.53 mW/g



Date/Time: 2009/10/22 10:53:14

Test Laboratory: Bureau Veritas ADT

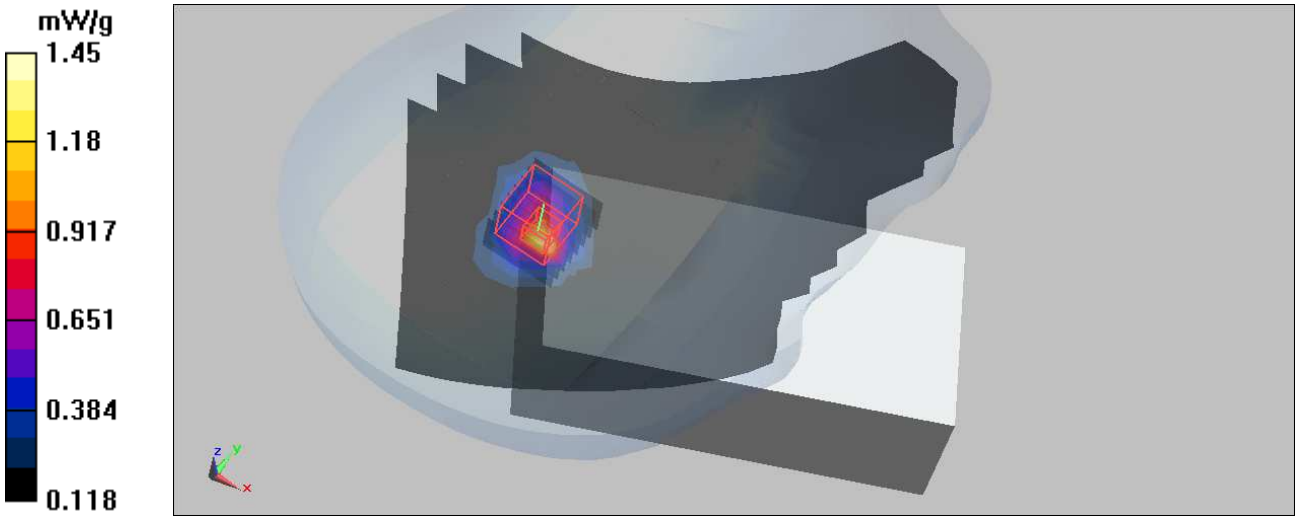
M15-2D Right Head Tilt 11A Ch149 / Main Ant

DUT: PDA ; Type: MC 75A0
Communication System: 802.11a ; Frequency: 5745 MHz; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5745 MHz; σ = 5.29 mho/m; ε_r = 35.5; ρ = 1000 kg/m^3
Phantom section: Right Section ; DUT test position : Tilt ; Modulation type: BPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(4.6, 4.6, 4.6) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2009/7/17
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Tilt Position - High Channel 149/Area Scan (15x23x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 1.4 mW/g

Tilt Position - High Channel 149/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 9.1 V/m; Power Drift = 0.125 dB
Peak SAR (extrapolated) = 3.69 W/kg
SAR(1 g) = 1.03 mW/g; SAR(10 g) = 0.420 mW/g
Maximum value of SAR (measured) = 1.45 mW/g



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Test Laboratory: Bureau Veritas ADT

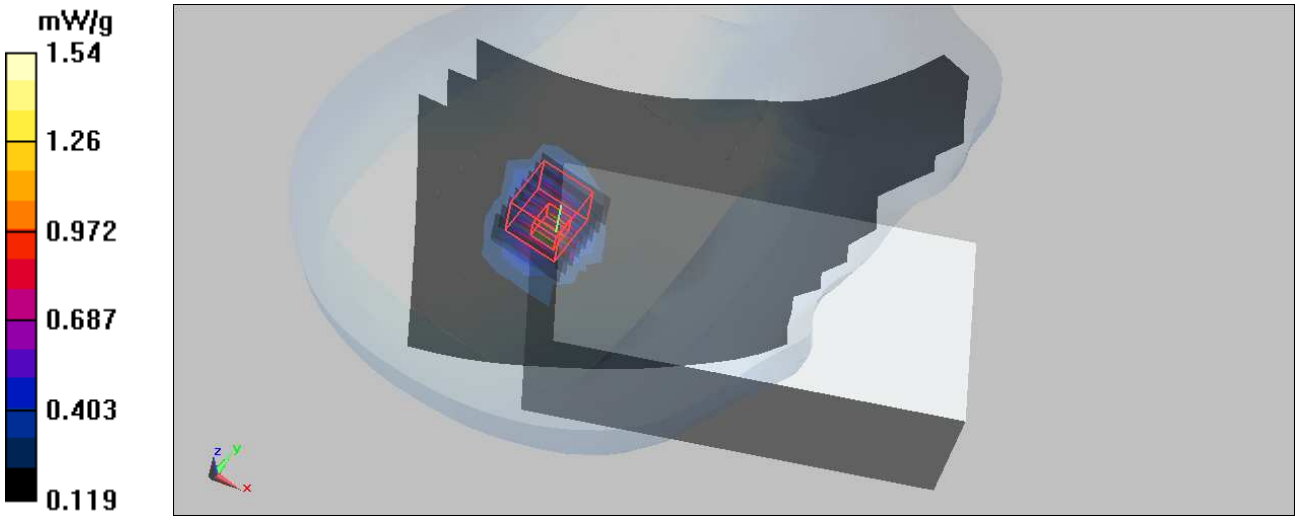
M15-2D Right Head Tilt 11A Ch157 / Main Ant

DUT: PDA ; Type: MC 75A0
Communication System: 802.11a ; Frequency: 5785 MHz; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5785 MHz; σ = 5.33 mho/m; ε_r = 35.5; ρ = 1000 kg/m^3
Phantom section: Right Section ; DUT test position : Tilt ; Modulation type: BPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(4.6, 4.6, 4.6) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2009/7/17
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Tilt Position - Mid Channel 157/Area Scan (13x23x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 1.55 mW/g

Tilt Position - Mid Channel 157/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 8.73 V/m; Power Drift = 0.051 dB
Peak SAR (extrapolated) = 4.53 W/kg
SAR(1 g) = 1.14 mW/g; SAR(10 g) = 0.447 mW/g
Maximum value of SAR (measured) = 1.54 mW/g



Date/Time: 2009/10/22 12:29:43

Test Laboratory: Bureau Veritas ADT

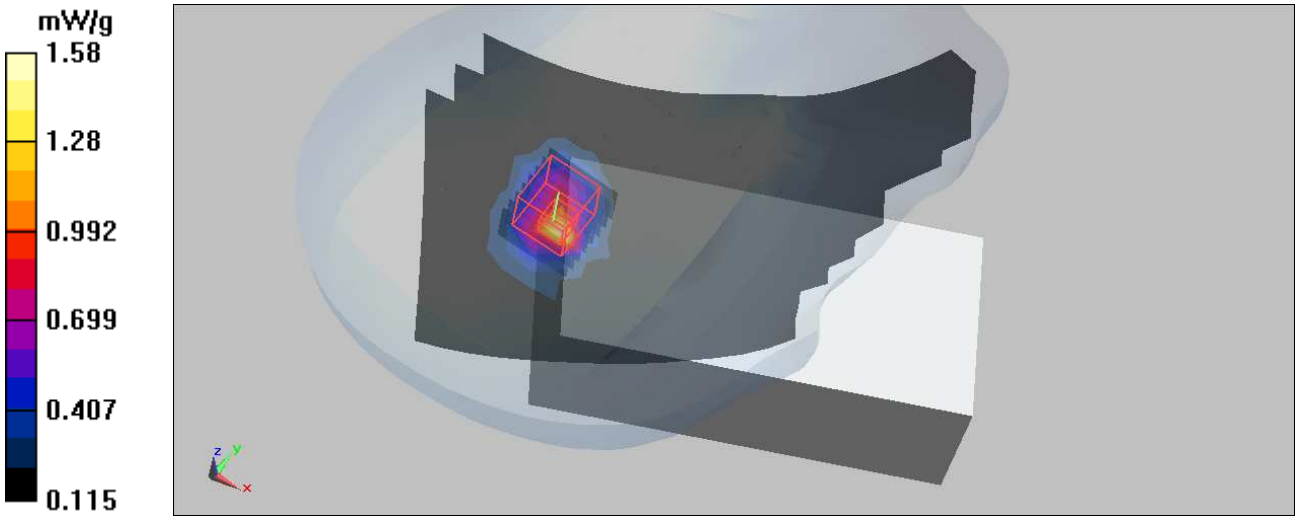
M15-2D Right Head Tilt 11A Ch165 / Main Ant

DUT: PDA ; Type: MC 75A0
Communication System: 802.11a ; Frequency: 5825 MHz; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5825 MHz; σ = 5.38 mho/m; ε_r = 35.4; ρ = 1000 kg/m^3
Phantom section: Right Section ; DUT test position : Tilt ; Modulation type: BPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(4.6, 4.6, 4.6) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2009/7/17
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Tilt Position - Mid Channel 165/Area Scan (13x23x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 1.57 mW/g

Tilt Position - Mid Channel 165/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 8.19 V/m; Power Drift = 0.017 dB
Peak SAR (extrapolated) = 4.93 W/kg
SAR(1 g) = 1.18 mW/g; SAR(10 g) = 0.457 mW/g
Maximum value of SAR (measured) = 1.58 mW/g



Date/Time: 2009/10/23 13:59:31

Test Laboratory: Bureau Veritas ADT

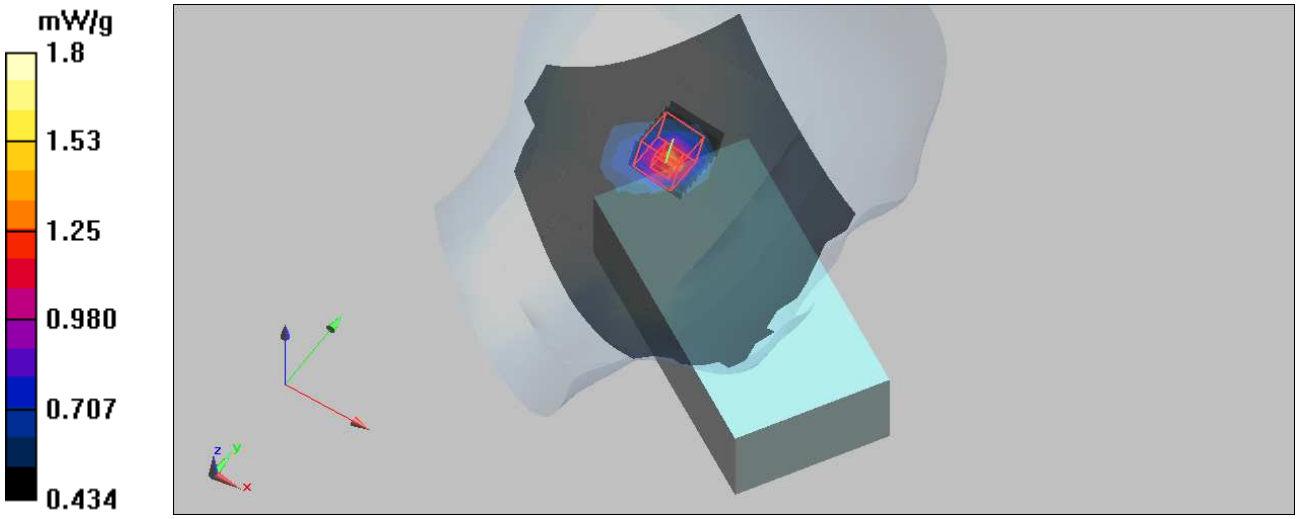
M16-2D Left Head Cheek 11A Ch149 / Main Ant

DUT: PDA ; Type: MC 75A0
Communication System: 802.11a ; Frequency: 5745 MHz ; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5745 MHz; σ = 5.29 mho/m; ε_r = 35.5; ρ = 1000 kg/m^3
Phantom section: Left Section ; DUT test position : Cheek ; Modulation type: BPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(4.6, 4.6, 4.6) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2009/7/17
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Touch Position - High Channel 149/Area Scan (15x23x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 1.36 mW/g

Touch Position - High Channel 149/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 17.1 V/m; Power Drift = -0.073 dB
Peak SAR (extrapolated) = 5.51 W/kg
SAR(1 g) = 1.4 mW/g; SAR(10 g) = 0.747 mW/g
Maximum value of SAR (measured) = 1.8 mW/g



Date/Time: 2009/10/23 14:56:54

Test Laboratory: Bureau Veritas ADT

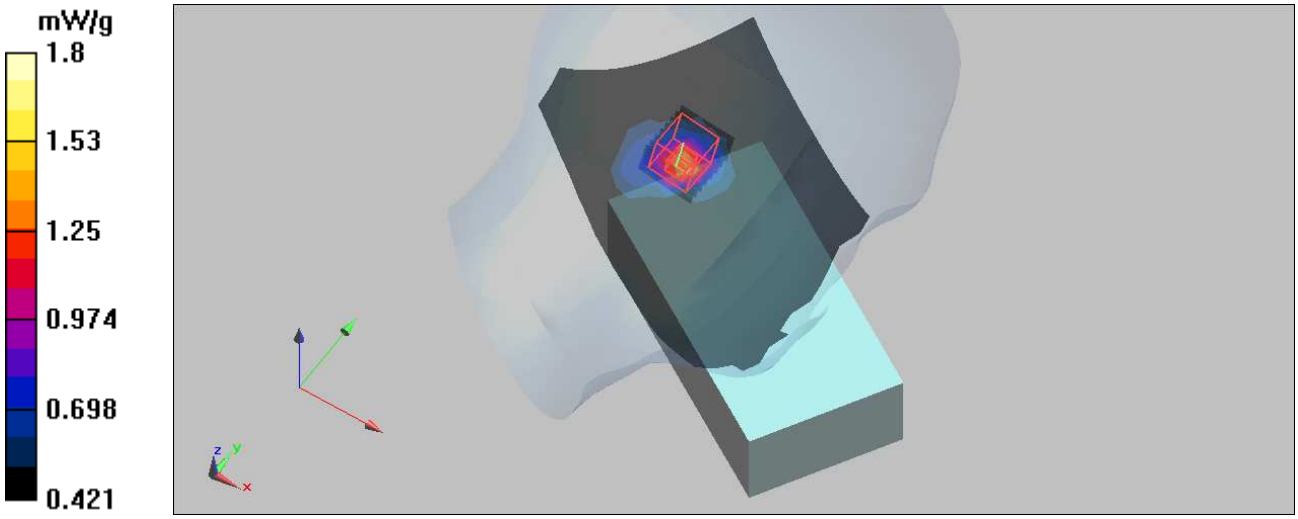
M16-2D Left Head Cheek 11A Ch157 / Main Ant

DUT: PDA ; Type: MC 75A0
Communication System: 802.11a ; Frequency: 5785 MHz ; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5785 MHz; σ = 5.34 mho/m; ε_r = 35.5; ρ = 1000 kg/m^3
Phantom section: Left Section ; DUT test position : Cheek ; Modulation type: BPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(4.6, 4.6, 4.6) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2009/7/17
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Touch Position - Mid Channel 157/Area Scan (13x23x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 1.41 mW/g

Touch Position - Mid Channel 157/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 17.4 V/m; Power Drift = -0.024 dB
Peak SAR (extrapolated) = 5.32 W/kg
SAR(1 g) = 1.45 mW/g; SAR(10 g) = 0.754 mW/g
Maximum value of SAR (measured) = 1.8 mW/g



Date/Time: 2009/10/23 15:52:31

Test Laboratory: Bureau Veritas ADT

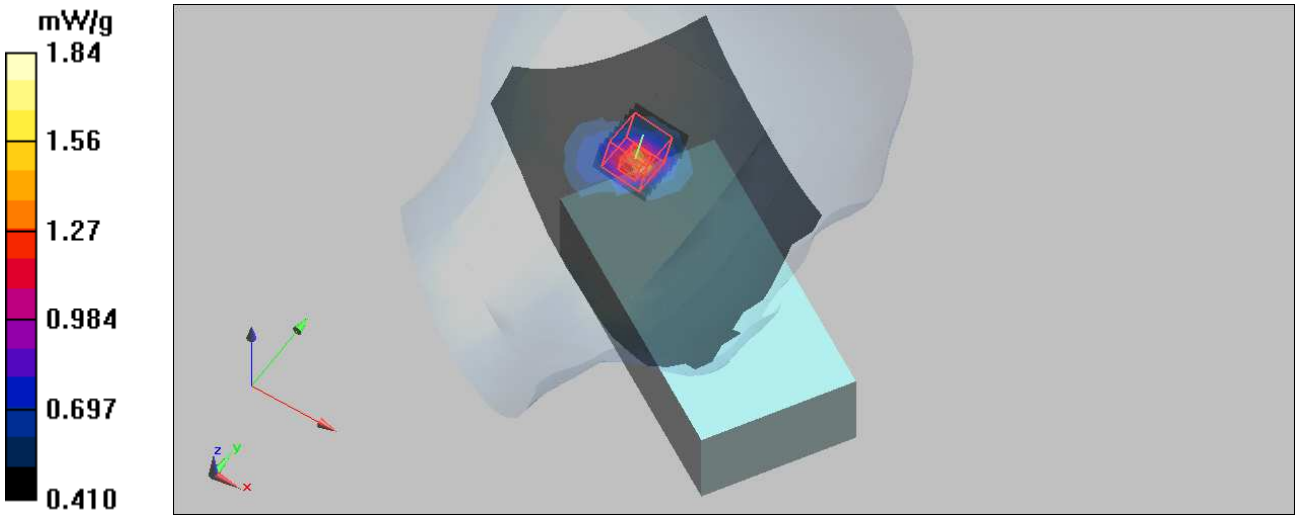
M16-2D Left Head Cheek 11A Ch165 / Main Ant

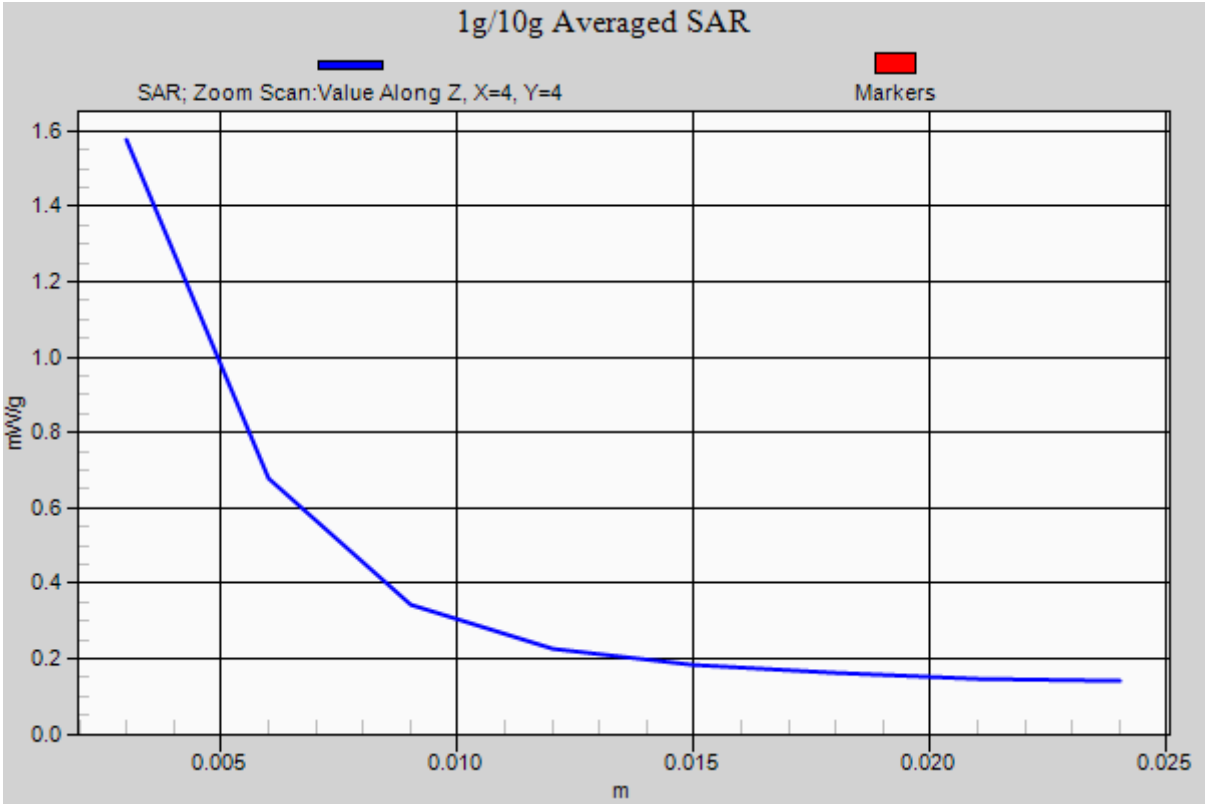
DUT: PDA ; Type: MC 75A0
Communication System: 802.11a ; Frequency: 5825 MHz ; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5825 MHz; σ = 5.39 mho/m; ε_r = 35.4; ρ = 1000 kg/m^3
Phantom section: Left Section ; DUT test position : Cheek ; Modulation type: BPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(4.6, 4.6, 4.6) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2009/7/17
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Touch Position - Mid Channel 165/Area Scan (13x23x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 1.46 mW/g

Touch Position - Mid Channel 165/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 17.7 V/m; Power Drift = 0.029 dB
Peak SAR (extrapolated) = 6.39 W/kg
SAR(1 g) = 1.47 mW/g; SAR(10 g) = 0.763 mW/g
Maximum value of SAR (measured) = 1.84 mW/g




1g/10g Averaged SAR
SAR; Zoom Scan:Value Along Z, X=4, Y=4
Markers
mW/g
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0.005
0.010
0.015
0.020
0.025
m

Date/Time: 2009/10/24 13:18:37

Test Laboratory: Bureau Veritas ADT

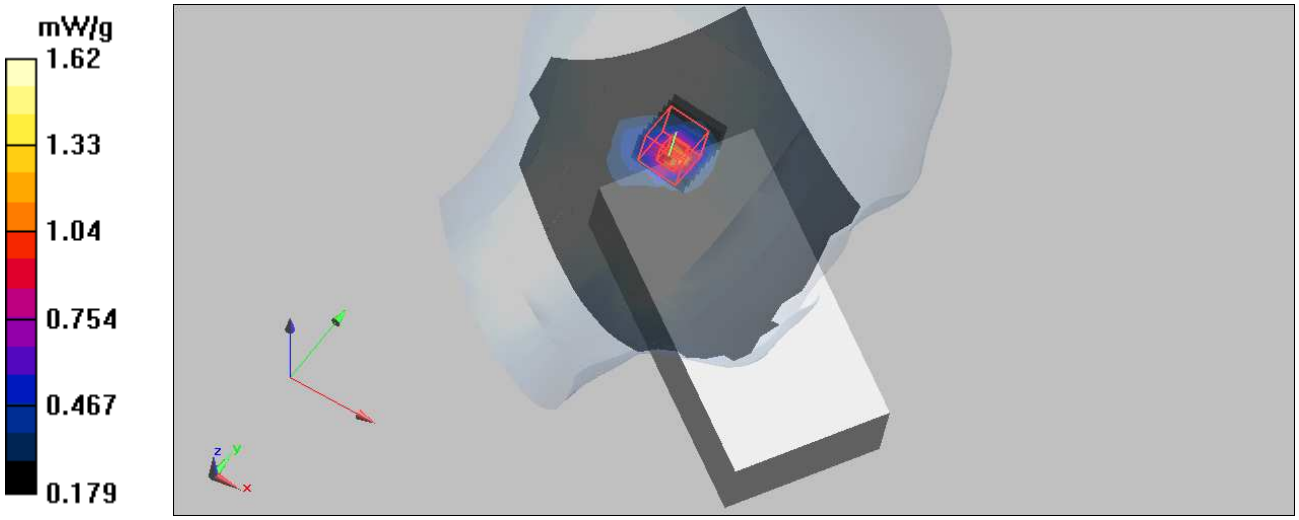
M17-2D Left Head Tilt 11A Ch149 / Main Ant

DUT: PDA ; Type: MC 75A0
Communication System: 802.11a ; Frequency: 5745 MHz; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5745 MHz; σ = 5.3 mho/m; ε_r = 35.5; ρ = 1000 kg/m^3
Phantom section: Left Section ; DUT test position : Tilt ; Modulation type: BPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(4.6, 4.6, 4.6) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2009/7/17
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Tilt Position - High Channel 149/Area Scan (15x23x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 1.24 mW/g

Tilt Position - High Channel 149/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 15.7 V/m; Power Drift = -0.075 dB
Peak SAR (extrapolated) = 4.63 W/kg
SAR(1 g) = 1.19 mW/g; SAR(10 g) = 0.494 mW/g
Maximum value of SAR (measured) = 1.62 mW/g



Date/Time: 2009/10/24 14:14:14

Test Laboratory: Bureau Veritas ADT

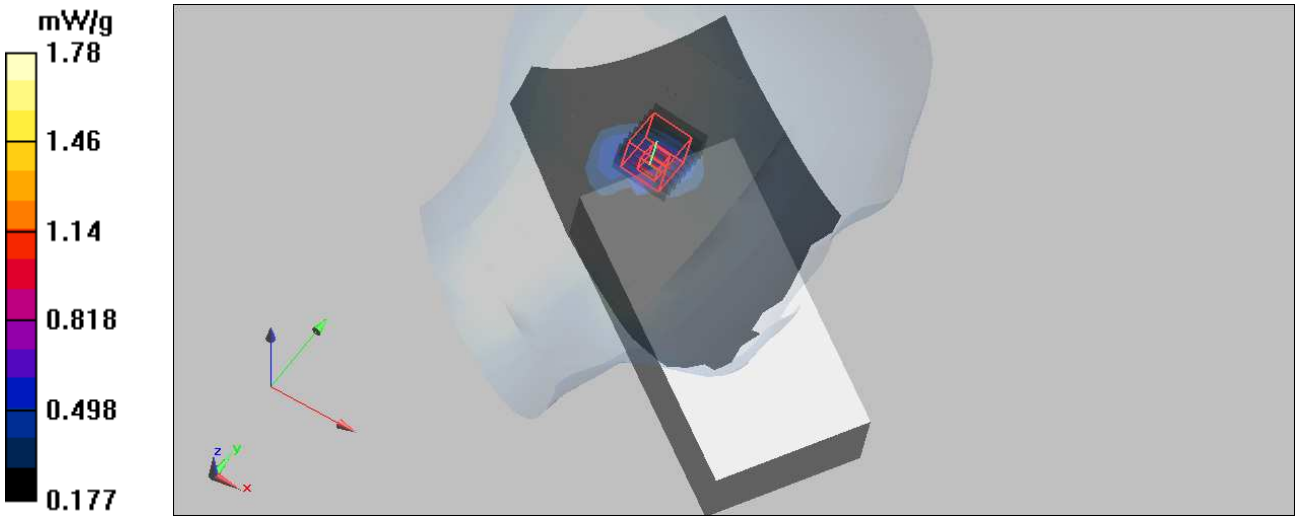
M17-2D Left Head Tilt 11A Ch157 / Main Ant

DUT: PDA ; Type: MC 75A0
Communication System: 802.11a ; Frequency: 5785 MHz; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5785 MHz; σ = 5.35 mho/m; ε_r = 35.5; ρ = 1000 kg/m^3
Phantom section: Left Section ; DUT test position : Tilt ; Modulation type: BPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(4.6, 4.6, 4.6) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2009/7/17
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Tilt Position - Mid Channel 157/Area Scan (13x23x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 1.36 mW/g

Tilt Position - Mid Channel 157/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 16.2 V/m; Power Drift = 0.130 dB
Peak SAR (extrapolated) = 5.03 W/kg
SAR(1 g) = 1.31 mW/g; SAR(10 g) = 0.530 mW/g
Maximum value of SAR (measured) = 1.78 mW/g



Date/Time: 2009/10/24 15:22:17

Test Laboratory: Bureau Veritas ADT

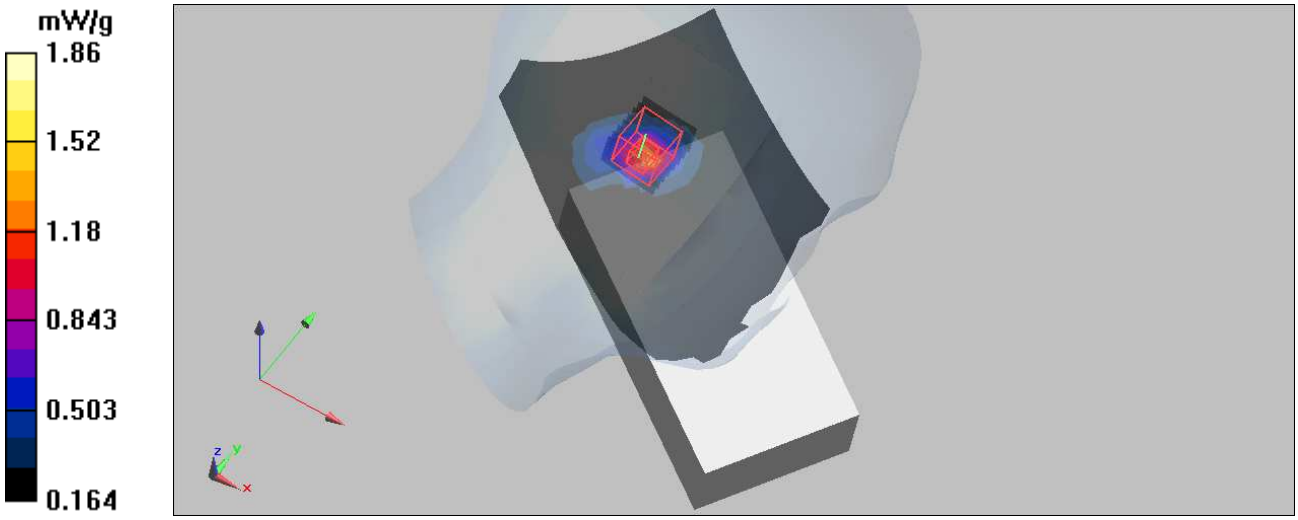
M17-2D Left Head Tilt 11A Ch165 / Main Ant

DUT: PDA ; Type: MC 75A0
Communication System: 802.11a ; Frequency: 5825 MHz; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5825 MHz; σ = 5.4 mho/m; ε_r = 35.4; ρ = 1000 kg/m^3
Phantom section: Left Section ; DUT test position : Tilt ; Modulation type: BPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(4.6, 4.6, 4.6) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2009/7/17
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Tilt Position - Mid Channel 165/Area Scan (13x23x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 1.44 mW/g

Tilt Position - Mid Channel 165/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 16.6 V/m; Power Drift = 0.073 dB
Peak SAR (extrapolated) = 5.68 W/kg
SAR(1 g) = 1.39 mW/g; SAR(10 g) = 0.558 mW/g
Maximum value of SAR (measured) = 1.86 mW/g



Date/Time: 2009/10/25 06:58:29

Test Laboratory: Bureau Veritas ADT

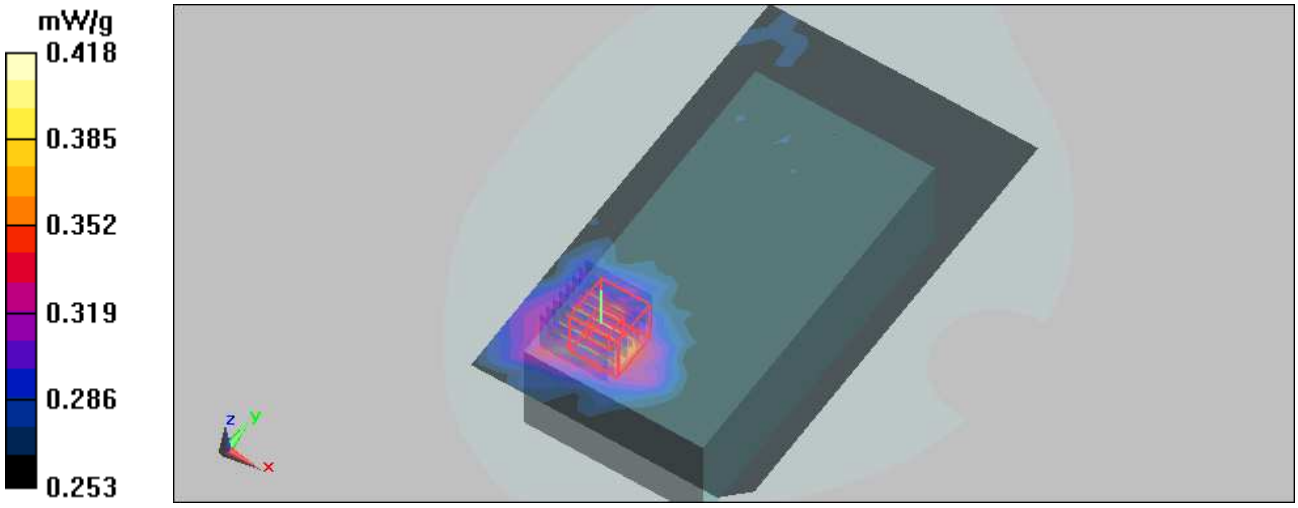
M18-2D Body Front (Hard Holster) 11A Ch165 / Main Ant

DUT: PDA ; Type: MC 75A0
Communication System: 802.11a ; Frequency: 5825 MHz ; Duty Cycle: 1:1
Medium: MSL5800 Medium parameters used: f = 5825 MHz; σ = 6.2 mho/m; ε_r = 49; ρ = 1000 kg/m^3
Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: BPSK
Separation Distance : 25 mm (The Front side of the EUT with Holster to the Phantom)

DASY4 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(4.62, 4.62, 4.62) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579 ; Calibrated: 2009/7/17
- Phantom: SAM with CRP ; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.0 Build 125 ; SEMCAD X Version 13.4 Build 125

BODY Position - Channel 165/Area Scan (13x21x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.416 mW/g

BODY Position - Channel 165/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 6.63 V/m; Power Drift = 0.168 dB
Peak SAR (extrapolated) = 0.716 W/kg
SAR(1 g) = 0.377 mW/g; SAR(10 g) = 0.325 mW/g.
Maximum value of SAR (measured) = 0.418 mW/g



Date/Time: 2009/10/26 01:15:12

Test Laboratory: Bureau Veritas ADT

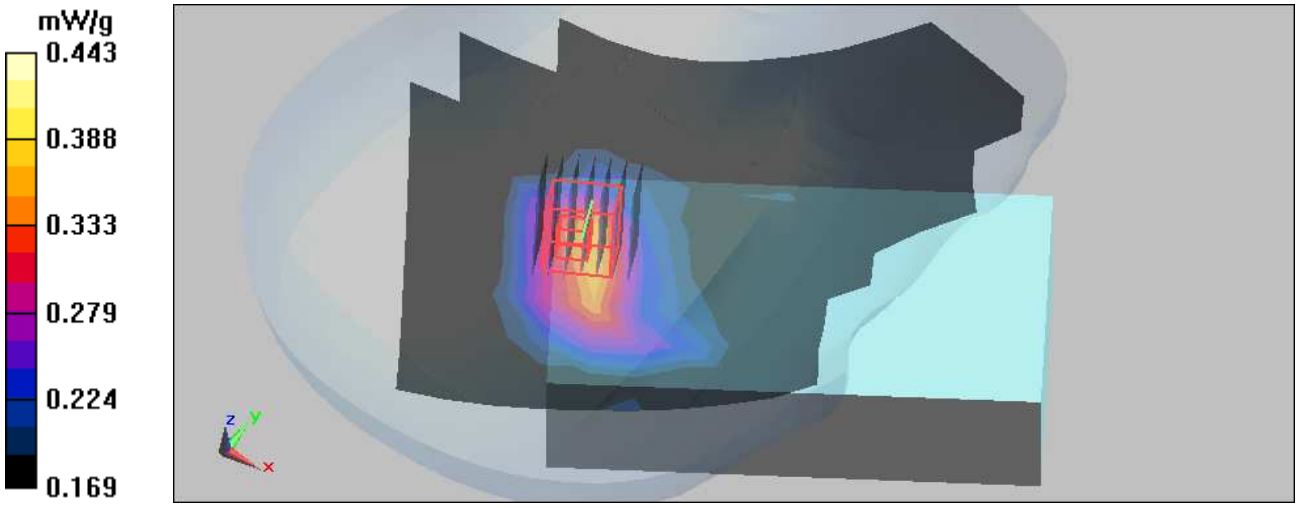
M19-1D Right Head Cheek 11B Ch6 / Main Ant

DUT: PDA ; Type: MC 75A0
Communication System: 802.11b ; Frequency: 2437 MHz ; Duty Cycle: 1:1
Medium: HSL2450 Medium parameters used: f = 2437 MHz; σ = 1.81 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3
Phantom section: Right Section ; DUT test position : Cheek ; Modulation type: DBPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(7.88, 7.88, 7.88) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2009/7/17
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Touch position - Mid. Channel 6/Area Scan (10x16x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.394 mW/g

Touch position - Mid. Channel 6/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.2 V/m; Power Drift = -0.163 dB
Peak SAR (extrapolated) = 0.758 W/kg
SAR(1 g) = 0.382 mW/g; SAR(10 g) = 0.264 mW/g
Maximum value of SAR (measured) = 0.443 mW/g



Date/Time: 2009/10/21 03:12:31

Test Laboratory: Bureau Veritas ADT

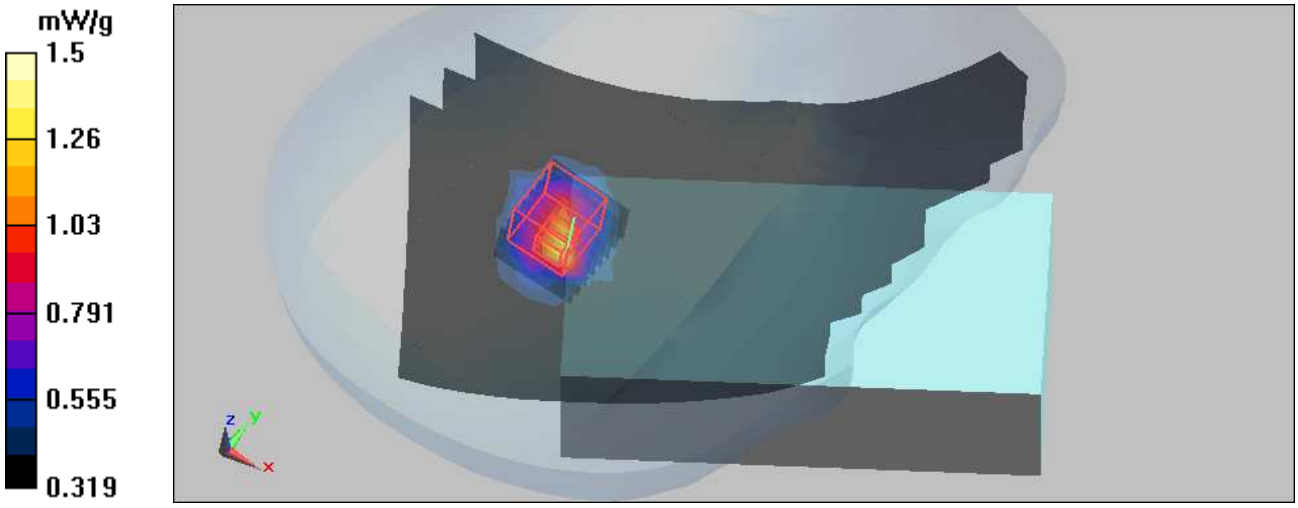
M20-1D Right Head Cheek 11A Ch165 / Main Ant

DUT: PDA ; Type: MC 75A0
Communication System: 802.11a ; Frequency: 5825 MHz ; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5825 MHz; σ = 5.38 mho/m; ε_r = 35.4; ρ = 1000 kg/m^3
Phantom section: Right Section ; DUT test position : Cheek ; Modulation type: BPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(4.6, 4.6, 4.6) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2009/7/17
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Touch Position - Mid Channel 165/Area Scan (13x23x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 1.36 mW/g

Touch Position - Mid Channel 165/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 10 V/m; Power Drift = 0.129 dB
Peak SAR (extrapolated) = 5.35 W/kg
SAR(1 g) = 1.23 mW/g; SAR(10 g) = 0.660 mW/g
Maximum value of SAR (measured) = 1.5 mW/g



Date/Time: 2009/10/23 17:12:31

Test Laboratory: Bureau Veritas ADT

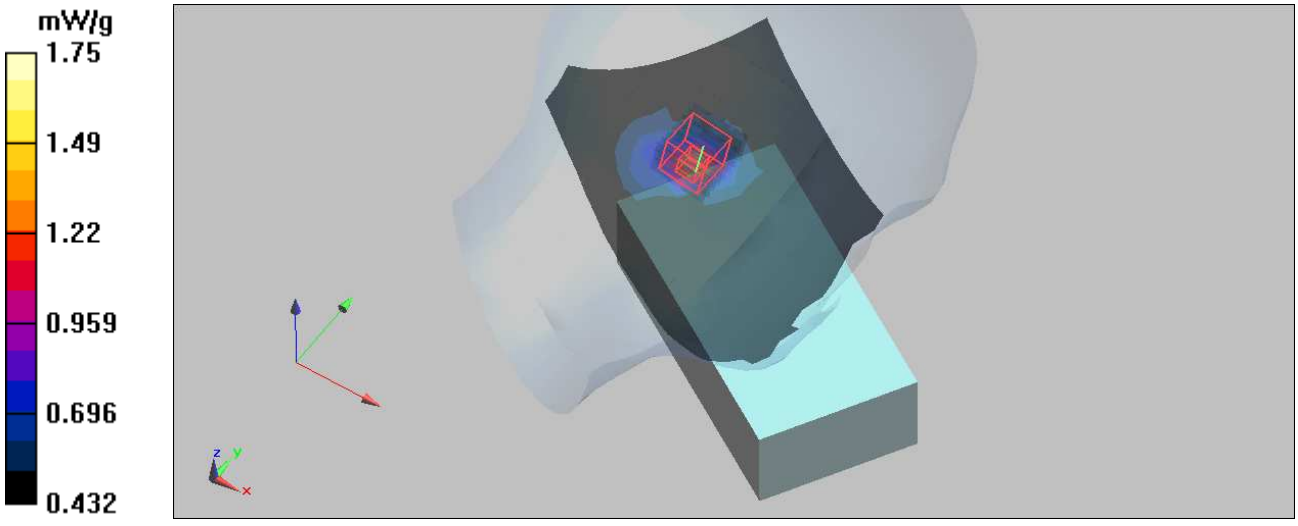
M21-2D Left Head Cheek 11A Ch165 / Main Ant /Thin Battery

DUT: PDA ; Type: MC 75A0
Communication System: 802.11a ; Frequency: 5825 MHz ; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5825 MHz; σ = 5.39 mho/m; ε_r = 35.4; ρ = 1000 kg/m^3
Phantom section: Left Section ; DUT test position : Cheek ; Modulation type: BPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(4.6, 4.6, 4.6) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2009/7/17
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

Touch Position - Mid Channel 165/Area Scan (13x23x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 1.42 mW/g

Touch Position - Mid Channel 165/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 16.5 V/m; Power Drift = 0.029 dB
Peak SAR (extrapolated) = 6.18 W/kg
SAR(1 g) = 1.42 mW/g; SAR(10 g) = 0.734 mW/g
Maximum value of SAR (measured) = 1.75 mW/g



Date/Time: 2009/10/26 00:38:35

Test Laboratory: Bureau Veritas ADT

System validation 2450MHz HSL

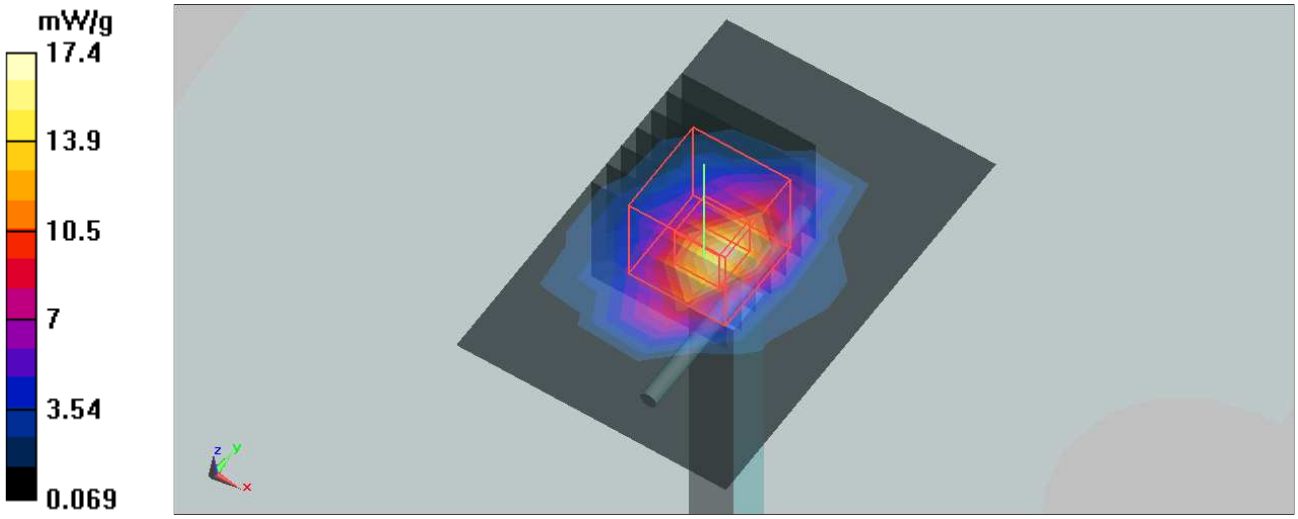
DUT: Dipole 2450 MHz ; Type: D2450V2 ; Serial: 716 ; Test Frequency: 2450 MHz

Communication System: CW ; Frequency: 2450 MHz; Duty Cycle: 1:1; Modulation type: CW
Medium: HSL2450;Medium parameters used: f = 2450 MHz; σ = 1.83 mho/m; ε_r = 39.6; ρ = 1000 kg/m^3 ;
Liquid level : 152 mm
Phantom section: Flat Section ; Separation distance : 10 mm (The feetpoint of the dipole to the Phantom)Air temp. : 23.2 degrees ; Liquid temp. : 22.9 degrees

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(7.88, 7.88, 7.88) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2009/7/17
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

d=10mm, Pin=250mW 2/Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 16.7 mW/g

d=10mm, Pin=250mW 2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 95.5 V/m; Power Drift = 0.084 dB
Peak SAR (extrapolated) = 29 W/kg
SAR(1 g) = 13.2 mW/g; SAR(10 g) = 5.92 mW/g
Maximum value of SAR (measured) = 17.4 mW/g



Date/Time: 2009/10/27 00:55:58

Test Laboratory: Bureau Veritas ADT

System validation 2450MHz MSL

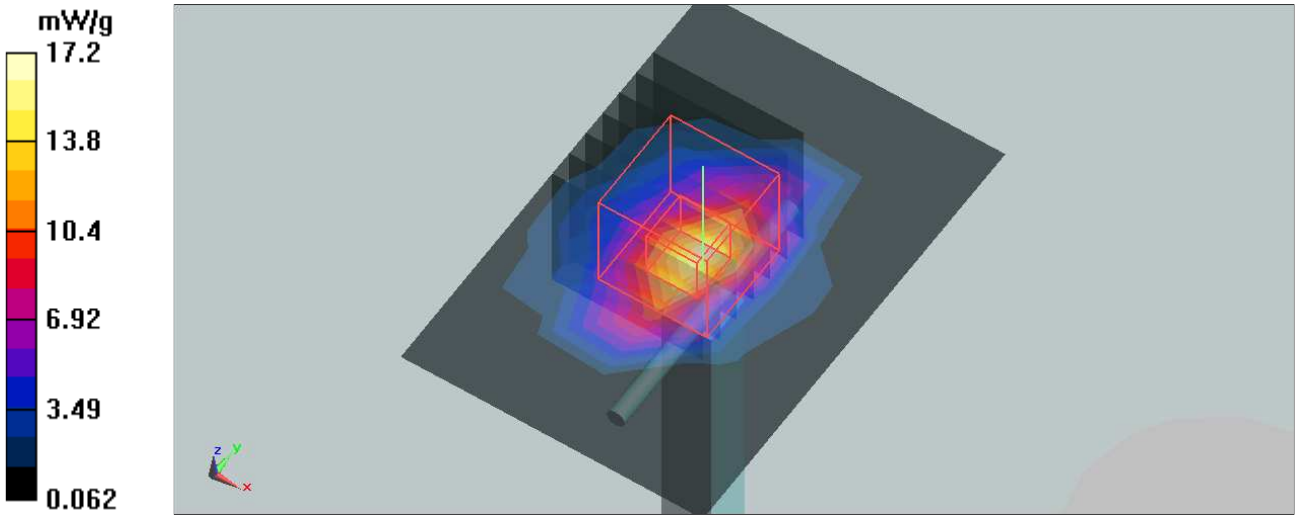
DUT: Dipole 2450 MHz ; Type: D2450V2 ; Serial: 716 ; Test Frequency: 2450 MHz

Communication System: CW ; Frequency: 2450 MHz; Duty Cycle: 1:1; Modulation type: CW
Medium: MSL2450;Medium parameters used: f = 2450 MHz; σ = 1.98 mho/m; ε_r = 53.5; ρ = 1000 kg/m^3 ; Liquid level : 150 mm
Phantom section: Flat Section ; Separation distance : 10 mm (The feetpoint of the dipole to the Phantom)Air temp. : 23.2 degrees ; Liquid temp. : 22.7 degrees

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(7.96, 7.96, 7.96) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2009/7/17
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

d=10mm, Pin=250mW 2/Area Scan (5x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 16.7 mW/g

d=10mm, Pin=250mW 2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 92.5 V/m; Power Drift = 0.0564 dB
Peak SAR (extrapolated) = 28.6 W/kg
SAR(1 g) = 13 mW/g; SAR(10 g) = 5.75 mW/g
Maximum value of SAR (measured) = 17.2 mW/g



Date/Time: 2009/10/21 01:34:13

Test Laboratory: Bureau Veritas ADT

System validation 5800MHz HSL

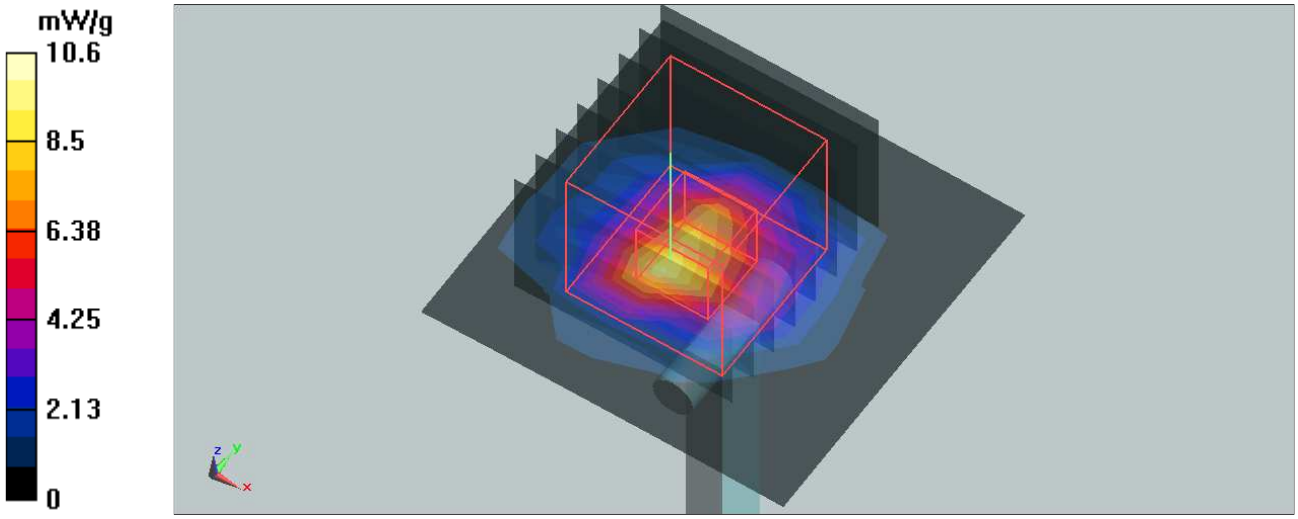
DUT: Dipole 5 GHz ; Type: D5GHzV2 ; Serial: 1019 ; Test Frequency: 5800 MHz

Communication System: CW ; Frequency: 5800 MHz; Duty Cycle: 1:1; Modulation type: CW
Medium: HSL5800;Medium parameters used: f = 5800 MHz; σ = 5.35 mho/m; ε_r = 35.4; ρ = 1000 kg/m^3 ;
Liquid level : 153 mm
Phantom section: Flat Section ; Separation distance : 10 mm (The feetpoint of the dipole to the Phantom)Air temp. : 23.1 degrees ; Liquid temp. : 22.6 degrees

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(4.6, 4.6, 4.6) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2009/7/17
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

f=5800, d=10mm, Pin=100mW/Area Scan (6x6x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 9.37 mW/g

f=5800, d=10mm, Pin=100mW/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 46.6 V/m; Power Drift = 0.078 dB
Peak SAR (extrapolated) = 31.2 W/kg
SAR(1 g) = 7.46 mW/g; SAR(10 g) = 2.07 mW/g
Maximum value of SAR (measured) = 10.6 mW/g



Date/Time: 2009/10/22 01:21:13

Test Laboratory: Bureau Veritas ADT

System validation 5800MHz HSL

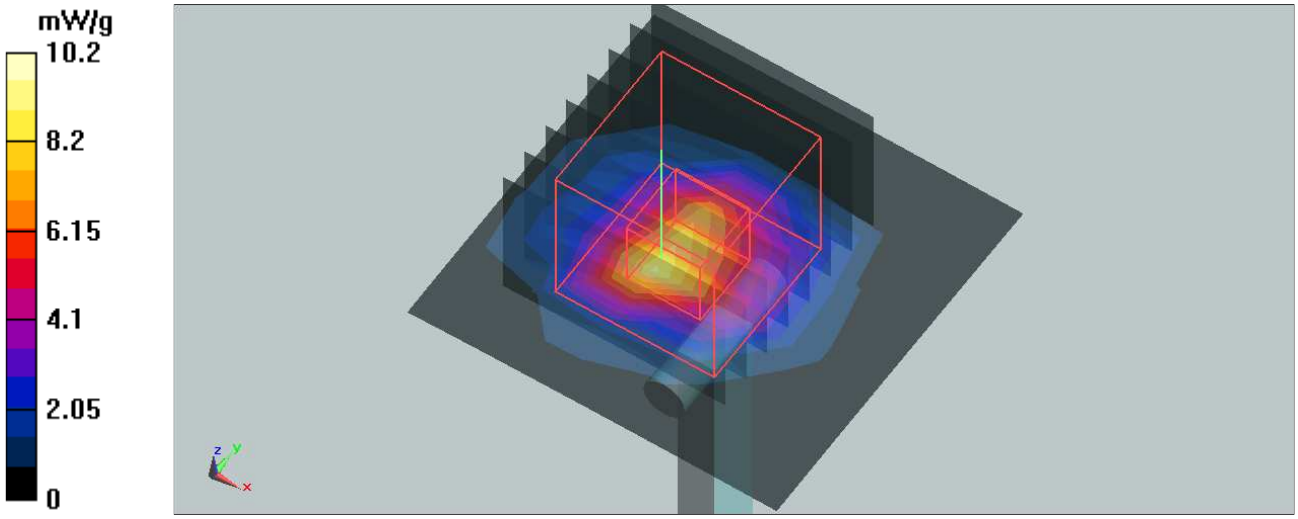
DUT: Dipole 5 GHz ; Type: D5GHzV2 ; Serial: 1018 ; Test Frequency: 5800 MHz

Communication System: CW ; Frequency: 5800 MHz; Duty Cycle: 1:1; Modulation type: CW
Medium: HSL5800;Medium parameters used: f = 5800 MHz; σ = 5.36 mho/m; ε_r = 35.5; ρ = 1000 kg/m^3 ;
Liquid level : 150 mm
Phantom section: Flat Section ; Separation distance : 10 mm (The feetpoint of the dipole to the Phantom)Air temp. : 23.2 degrees ; Liquid temp. : 22.0 degrees

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(4.6, 4.6, 4.6) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2009/7/17
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

f=5800, d=10mm, Pin=100mW/Area Scan (6x6x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 9.03 mW/g

f=5800, d=10mm, Pin=100mW/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 46.6 V/m; Power Drift = 0.078 dB
Peak SAR (extrapolated) = 30 W/kg
SAR(1 g) = 7.2 mW/g; SAR(10 g) = 1.99 mW/g
Maximum value of SAR (measured) = 10.2 mW/g



Date/Time: 2009/10/23 01:35:13

Test Laboratory: Bureau Veritas ADT

System validation 5800MHz HSL

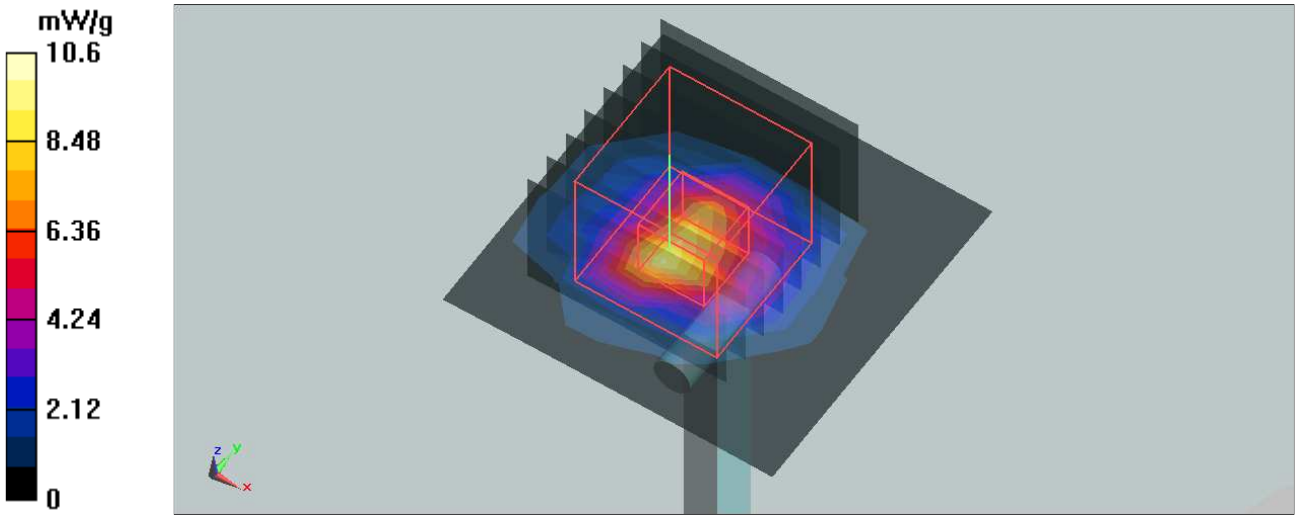
DUT: Dipole 5 GHz ; Type: D5GHzV2 ; Serial: 1019 ; Test Frequency: 5800 MHz

Communication System: CW ; Frequency: 5800 MHz; Duty Cycle: 1:1; Modulation type: CW
Medium: HSL5800;Medium parameters used: f = 5800 MHz; σ = 5.36 mho/m; ε_r = 35.5; ρ = 1000 kg/m^3 ;
Liquid level : 150 mm
Phantom section: Flat Section ; Separation distance : 10 mm (The feetpoint of the dipole to the Phantom)Air temp. : 23.3 degrees ; Liquid temp. : 22.9 degrees

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(4.6, 4.6, 4.6) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2009/7/17
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

f=5800, d=10mm, Pin=100mW/Area Scan (6x6x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 9.38 mW/g

f=5800, d=10mm, Pin=100mW/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 46.6 V/m; Power Drift = 0.078 dB
Peak SAR (extrapolated) = 31.2 W/kg
SAR(1 g) = 7.48 mW/g; SAR(10 g) = 2.07 mW/g
Maximum value of SAR (measured) = 10.6 mW/g



Date/Time: 2009/10/24 01:24:48

Test Laboratory: Bureau Veritas ADT

System validation 5800MHz HSL

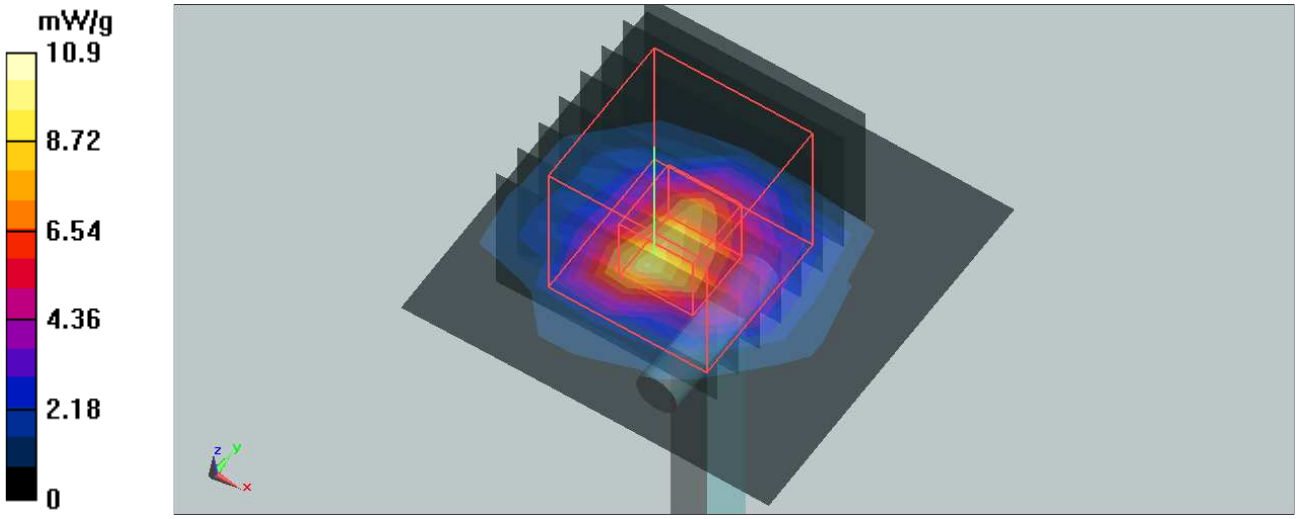
DUT: Dipole 5 GHz ; Type: D5GHzV2 ; Serial: 1018 ; Test Frequency: 5800 MHz

Communication System: CW ; Frequency: 5800 MHz; Duty Cycle: 1:1; Modulation type: CW
Medium: HSL5800;Medium parameters used: f = 5800 MHz; σ = 5.37 mho/m; ε_r = 35.5; ρ = 1000 kg/m^3 ;
Liquid level : 150 mm
Phantom section: Flat Section ; Separation distance : 10 mm (The feetpoint of the dipole to the Phantom)Air temp. : 23.2 degrees ; Liquid temp. : 22.0 degrees

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(4.6, 4.6, 4.6) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2009/7/17
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

f=5800, d=10mm, Pin=100mW/Area Scan (6x6x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 9.58 mW/g

f=5800, d=10mm, Pin=100mW/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 46.6 V/m; Power Drift = 0.078 dB
Peak SAR (extrapolated) = 31.9 W/kg
SAR(1 g) = 7.63 mW/g; SAR(10 g) = 2.11 mW/g
Maximum value of SAR (measured) = 10.9 mW/g



Date/Time: 2009/10/25 01:25:30

Test Laboratory: Bureau Veritas ADT

System validation 5800MHz MSL

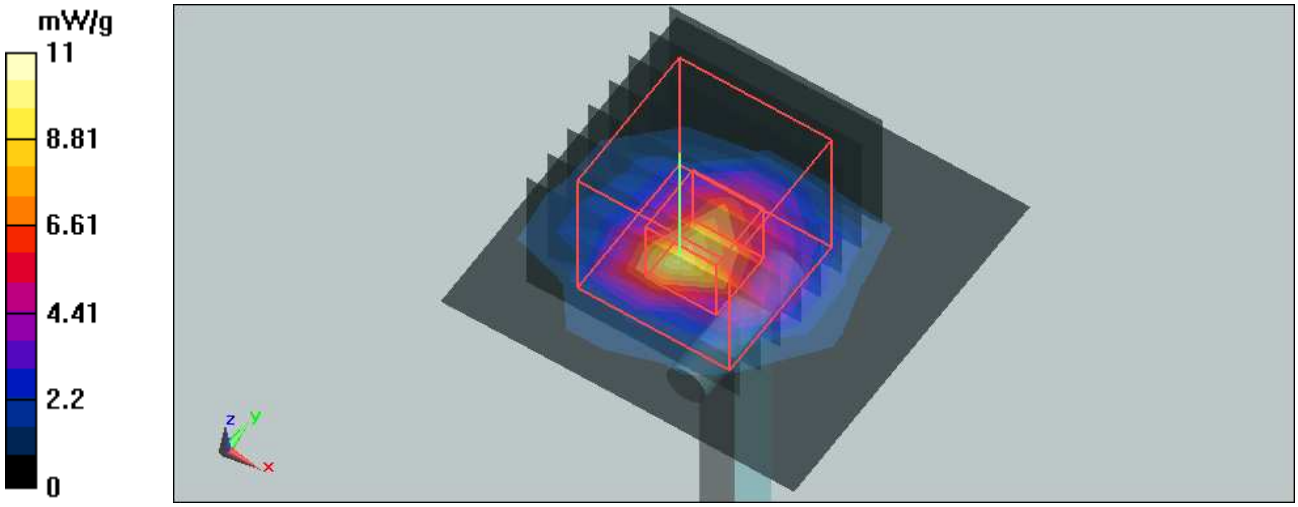
DUT: Dipole 5 GHz ; Type: D5GHzV2 ; Serial: 1019 ; Test Frequency: 5800 MHz

Communication System: CW ; Frequency: 5800 MHz; Duty Cycle: 1:1; Modulation type: CW
Medium: MSL5800;Medium parameters used: f = 5800 MHz; σ = 6.17 mho/m; ε_r = 49.1; ρ = 1000 kg/m^3 ; Liquid level : 151 mm
Phantom section: Flat Section ; Separation distance : 10 mm (The feetpoint of the dipole to the Phantom)Air temp. : 23.1 degrees ; Liquid temp. : 22.8 degrees

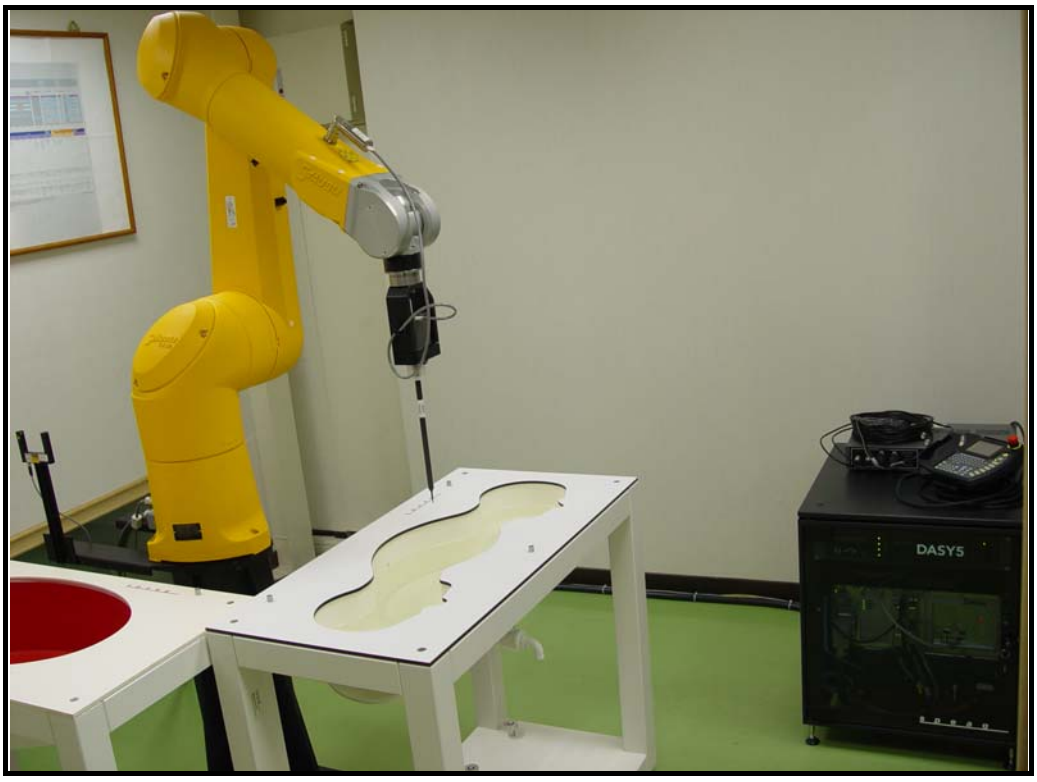
DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(4.62, 4.62, 4.62) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn579; Calibrated: 2009/7/17
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.0 Build 125; SEMCAD X Version 13.4 Build 125

f=5800, d=10mm, Pin=100mW/Area Scan (6x6x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 9.8 mW/g

f=5800, d=10mm, Pin=100mW/Zoom Scan (8x8x8)/Cube 0: Measurement grid: dx=4.3mm, dy=4.3mm, dz=3mm
Reference Value = 44.3 V/m; Power Drift = 0.052 dB
Peak SAR (extrapolated) = 29.3 W/kg
SAR(1 g) = 7.41 mW/g; SAR(10 g) = 2.03 mW/g
Maximum value of SAR (measured) = 11 mW/g



APPENDIX B: BV ADT SAR MEASUREMENT SYSTEM



APPENDIX C: PHOTOGRAPHS OF SYSTEM VALIDATION