SAR TEST REPORT (15.247)

REPORT NO.: SA981105L04

MODEL NO.: MC75A6

RECEIVED: Nov. 06, 2009

TESTED: Apr. 15 ~ Apr. 21, 2010

ISSUED: Jun. 14, 2010

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.

TABLE OF CONTENTS

1. CERTIFICATION

PRODUCT:	EDA (Enterprise Digital Assistant)
MODEL NO.:	MC75A6
BRAND:	Symbol
APPLICANT:	Symbol Technologies, Inc.
TESTED:	Apr. 15 ~ Apr. 21, 2010
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: MC75A6) 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 : _____ , **DATE :** Jun. 14, 2010
Pettie Chen / Specialist

TECHNICAL ACCEPTANCE : _____ , **DATE :** Jun. 14, 2010
Responsible for RF
Mason Chang / Engineer

APPROVED BY : _____ , **DATE :** Jun. 14, 2010
Gary Chang / Assistant Manager

REVISED VERSION	REVISED DATE	DESCRIPTION
Ver. 1	Apr. 29, 2010	1. Reduce output power of WLAN. 2. TX diversity function is disabled by software. Only main antenna can transmit.
Ver. 2	Jun. 09, 2010	Modified the general information
Ver. 3	Jun. 14, 2010	Modified the type error
Ver. 4	Jun. 14, 2010	Modified the description about test report

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

EUT	EDA (Enterprise Digital Assistant)	
MODEL NO.	MC75A6	
FCC ID	H9PMC75A6	
POWER SUPPLY	3.7Vdc (Li-ion 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**	
	802.11b (PK Power)	**802.11b (AV Power)**
	16.9dBm / Ch1: 2412MHz 17.2dBm / Ch6: 2437MHz 16.8dBm / Ch11: 2462MHz 5.6dBm / Ch12: 2467MHz 2.8dBm / Ch13: 2472MHz	14.2dBm / Ch1: 2412MHz 14.2dBm / Ch6: 2437MHz 14.2dBm / Ch11: 2462MHz 3.1dBm / Ch12: 2467MHz 0.0dBm / Ch13: 2472MHz
	802.11g (PK Power)	**802.11g (AV Power)**
	21.1dBm / Ch1: 2412MHz 22.1dBm / Ch6: 2437MHz 21.0dBm / Ch11: 2462MHz 13.0dBm / Ch12: 2467MHz 10.6dBm / Ch13: 2472MHz	12.0dBm / Ch1: 2412MHz 15.2dBm / Ch6: 2437MHz 12.0dBm / Ch11: 2462MHz 3.0dBm / Ch12: 2467MHz 0.0dBm / Ch13: 2472MHz
	802.11a (PK Power)	**802.11a (AV Power)**
	19.9dBm / Ch149: 5745MHz 19.9dBm / Ch157: 5785MHz 20.1dBm / Ch165: 5825MHz	9.9dBm / Ch149: 5745MHz 9.9dBm / Ch157: 5785MHz 10.0dBm / Ch165: 5825MHz
MAXIMUM SAR (1g)	**Head**	**Body**
	2.4GHz: 0.3W/kg 5.0GHz: 0.4W/kg	2.4GHz: 0.03W/kg 5.0GHz: 0.02W/kg
ANTENNA TYPE	Refer to NOTE 4 as below	
ANTENNA CONNECTOR	Refer to NOTE 4 as below	

DATA CABLE	NA
I/O PORTS	Refer to user's manual
ACCESSORY DEVICES	Battery

NOTE:

1. The EUT is an EDA (Enterprise Digital Assistant). The test data are separated into following test reports:

	REFERENCE REPORT
SAR test report-247 2.4G WLAN	SA981105L04
SAR test report-247 5G WLAN	
SAR test report-407 5G WLAN	SA981105L04-1
SAR test report-247 BLUETOOTH	SA981105L04-2
SAR test report-GSM 850 / WCDMA 850	SA981105L04-3
SAR test report-GSM 1900 / WCDMA 1900	
SAR collocated report-WLAN 802.11a + MOBILE	SA981105L04-4
SAR collocated report-simultaneously Voice and data mode	SA981105L04-5
SAR collocated report- simultaneously WLAN 802.11 a + Voice and data mode	SA981105L04-6
SAR supplement report-preliminary and worst case finding supplement data	SA981105L04-7

2. 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	MC75A6	HSDPA 1D Numeric
Symbol	MC75A6	HSDPA 1D QWERTY
Symbol	MC75A6	HSDPA BB Numeric
Symbol	MC75A6	HSDPA BB QWERTY

3. The EUT uses the following Li-ion batteries:

BATTERY 1 (1.5X)	
BRAND:	MOTOROLA
PART NUMBER:	82-71364-05 Rev D
RATING:	3.7Vdc, 3600mAh, 13.3Wh

BATTERY 2 (2.5X)	
BRAND:	MOTOROLA
PART NUMBER:	82-71364-06 Rev C
RATING:	3.7Vdc, 4800mAh, 17.7Wh

*The EUT have been pre-tested and found "BB / QWERTY + 1.5X battery" was the worst case configuration for final test.

4. The EUT used two antennas listed as below:

ANTENNA ITEM	ANTENNA TYPE	TX/RX FUNCTION	ANTENNA CONNECTER	ANTENNA GAIN (dBi)	
				2.4GHz	5.0GHz
MAIN ANTENNA	inverted F	TX/RX	IPEX	-4.39	2.05
AUX. ANTENNA	Planar inverted	RX only	IPEX	2.31	3.29

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	Contain metal
Ridged holster	Motorola	SG-MC7011110-02R	Contain metal

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.

EX3DV3 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 l/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 TEST EQUIPMENT

FOR SAR MEASURENENT

ITEM	NAME	BRAND	TYPE	SERIES NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
1	SAM Phantom	S & P	QD000 P40 CA	TP-1485	NA	NA
2	Signal Generator	Anritsu	68247B	984703	May 21, 2009	May 20, 2010
3	E-Field Probe	S & P	EX3DV3	3504	Jan. 26, 2010	Jan. 25, 2011
4	DAE	S & P	DAE	510	Dec. 16, 2009	Dec. 15, 2010
5	Robot Positioner	Staubli Unimation	NA	NA	NA	NA
6	Validation Dipole	S & P	D2450V2	737	Feb. 19, 2010	Feb. 18, 2011
7			D5GHzV2	1018	Jan. 22, 2010	Jan. 21, 2011

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

FOR TISSUE PROPERTY

ITEM	NAME	BRAND	TYPE	SERIES NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
1	Network Analyzer	Agilent	E8358A	US41480538	Dec. 03, 2009	Dec. 02, 2010
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.

2.5 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 POSITION

4.1. DESCRIPTION OF TEST POSITION

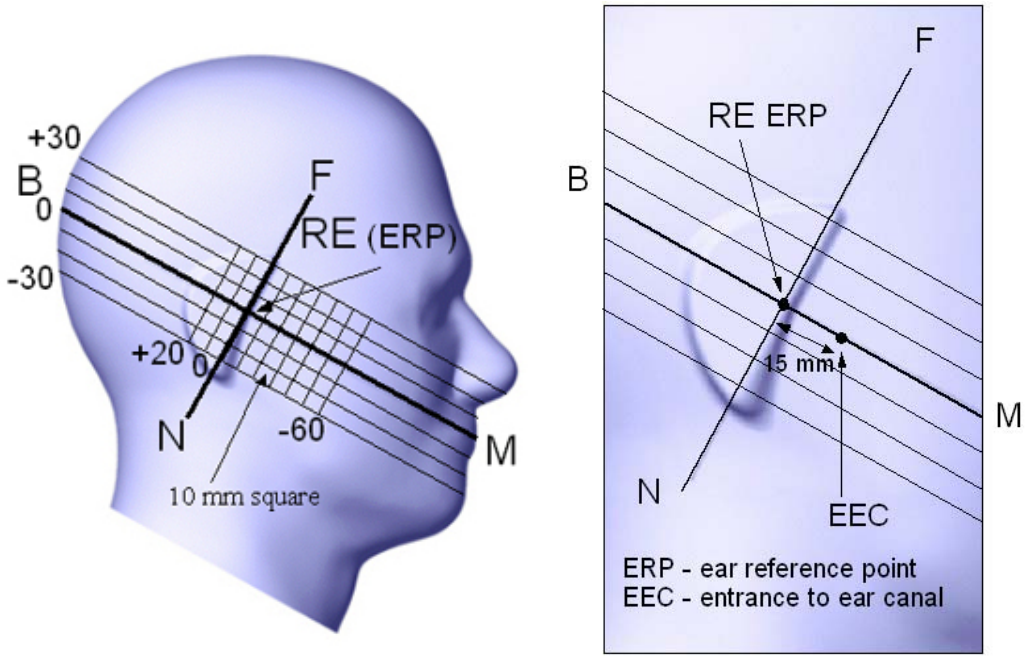


FIGURE 3.1

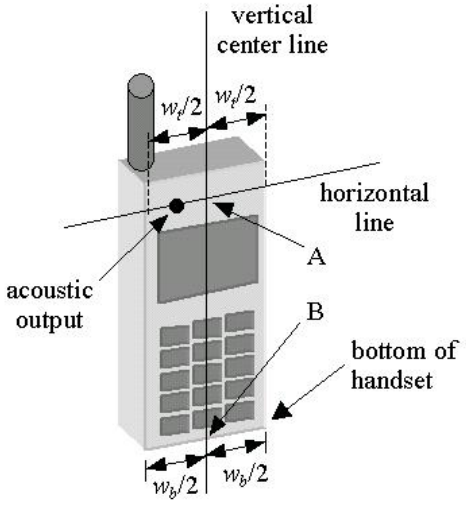


FIGURE 3.1a

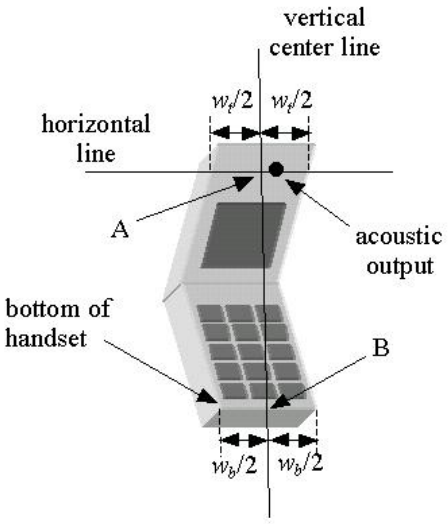
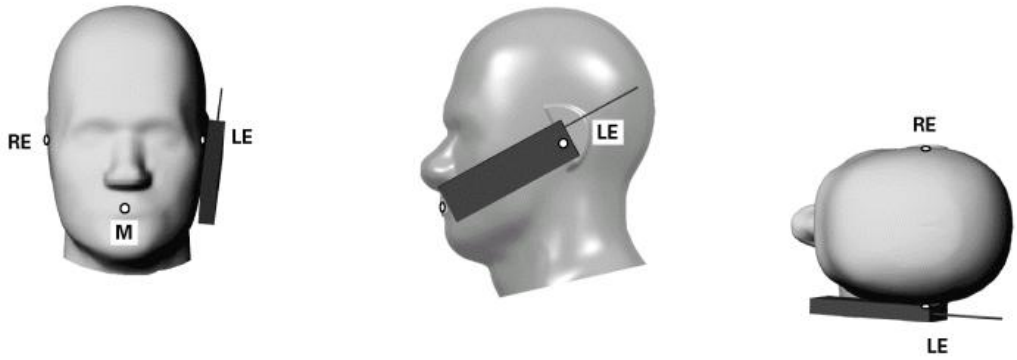


FIGURE 3.1b

4.1.1 TOUCH/CHEEK TEST POSITION

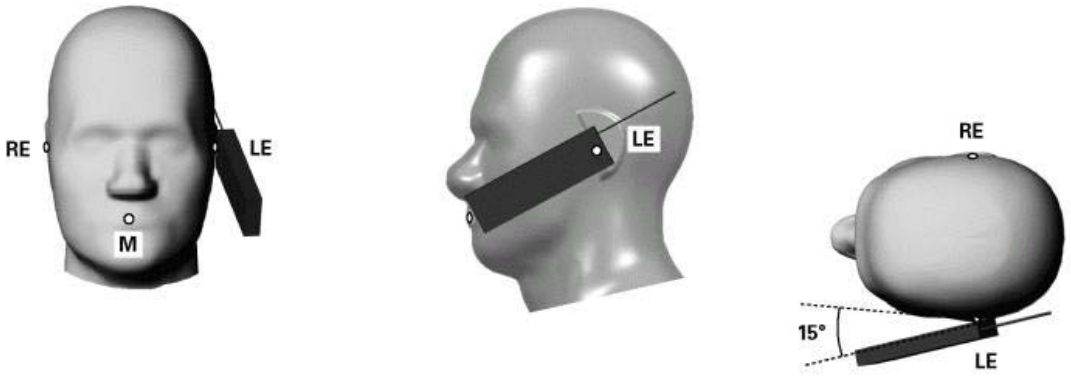
The head position in Figure 3.1, the ear reference points ERP are 15mm above entrance to ear canal along the B-M line. The line N-F (Neck-Front) is perpendicular to the B-M (Back Mouth) line. The handset device in Figure 3.1a and 3.1b,The vertical centerline pass through two points on the front side of handset: the midpoint of the width wt of the handset at the level of the acoustic output (point A) and the midpoint of the width Wb of the bottom of the handset (point B). The vertical centerline is perpendicular to the horizontal line and pass through the center of the acoustic output. The point A touches the ERP and the vertical centerline of the handset is parallel to the B-M line. While maintaining the point A contact with the ear(ERP), rotate the handset about the line NF until any point on handset is in contact with the cheek of the phantom



TOUCH/CHEEK POSITION FIGURE

4.1.2 TILT TEST POSITION

Adjust the device in the cheek position. While maintaining a point of the handset contact in the ear, move the bottom of the handset away from the mouth by an angle of 15 degrees.



TILT POSITION FIGURE

4.1.3 BODY-WORN CONFIGURATION

The handset device attached the belt clip or the holster. The keypad face of the handset is against with the bottom of the flat phantom face and the bottom of the keypad face contact to the bottom of the flat phantom.

When multiple accessories that do not contain metallic components are supplied with the device, the device may be tested with only the accessory that dictates the closest spacing to the body. When multiple accessories that contain metallic components are supplied with the device, the device must be tested with each accessory that contains a unique metallic component. If multiple accessories share an identical metallic component (e.g., the same metallic belt-clip used with different holsters with no other metallic components), only accessory that dictates the closest spacing to the body must be tested.

5. 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 is a short description of some typical ingredients used in the Simulating Liquids :

- **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		Apr. 15, 2010		
TESTED BY		Dylan Chiou		
FREQ. (MHz)	LIQUID PARAMETER	STANDARD VALUE	MEASUREMENT VALUE	ERROR PERCENTAGE (%)
2412	Permitivity (ε)	39.30	39.90	1.53
2437		39.20	39.80	1.53
2450		39.20	39.70	1.28
2462		39.20	39.60	1.02
2412	Conductivity (σ) S/m	1.77	1.79	1.13
2437		1.79	1.82	1.68
2450		1.80	1.83	1.67
2462		1.81	1.84	1.66
Dielectric Parameters Required at 22℃		f= 2450MHz ε= 52.7 ± 5% σ= 1.95 ± 5% S/m		

TISSUE TYPE		HEAD		
LIQUID TYPE		HSL-2450		
SIMULATING LIQUID TEMP.		22.8		
TEST DATE		Apr. 21, 2010		
TESTED BY		Dylan Chiou		
FREQ. (MHz)	LIQUID PARAMETER	STANDARD VALUE	MEASUREMENT VALUE	ERROR PERCENTAGE (%)
2437	Permitivity (ε)	39.20	40.60	3.57
2450		39.20	40.50	3.32
2437	Conductivity (σ) S/m	1.79	1.86	3.91
2450		1.80	1.87	3.89
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.		22.6		
TEST DATE		Apr. 21, 2010		
TESTED BY		Dylan Chiou		
FREQ. (MHz)	LIQUID PARAMETER	STANDARD VALUE	MEASUREMENT VALUE	ERROR PERCENTAGE (%)
2437	Permitivity (ε)	52.70	53.90	2.28
2450		52.70	53.80	2.09
2437	Conductivity (σ) S/m	1.94	1.93	-0.52
2450		1.95	1.95	0.00
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.		23.0		
TEST DATE		Apr. 16, 2010		
TESTED BY		Dylan Chiou		
FREQ. (MHz)	LIQUID PARAMETER	STANDARD VALUE	MEASUREMENT VALUE	ERROR PERCENTAGE (%)
5800	Permitivity	35.30	35.90	1.70
5825	(ε)	35.30	35.90	1.70
5800	Conductivity	5.27	5.39	2.28
5825	(σ) S/m	5.30	5.42	2.26
Dielectric Parameters Required at 22℃				

TISSUE TYPE		HEAD		
LIQUID TYPE		HSL-5800		
SIMULATING LIQUID TEMP.		22.9		
TEST DATE		Apr. 17, 2010		
TESTED BY		Dylan Chiou		
FREQ. (MHz)	LIQUID PARAMETER	STANDARD VALUE	MEASUREMENT VALUE	ERROR PERCENTAGE (%)
5800	Permitivity	35.30	35.90	1.70
5825	(ε)	35.30	35.90	1.70
5800	Conductivity	5.27	5.39	2.28
5825	(σ) S/m	5.30	5.42	2.26
Dielectric Parameters Required at 22℃				

TISSUE TYPE		HEAD		
LIQUID TYPE		HSL-5800		
SIMULATING LIQUID TEMP.		22.5		
TEST DATE		Apr. 18, 2010		
TESTED BY		Dylan Chiou		
FREQ. (MHz)	LIQUID PARAMETER	STANDARD VALUE	MEASUREMENT VALUE	ERROR PERCENTAGE (%)
5800	Permitivity (ε)	35.30	35.50	0.57
5825		35.30	35.50	0.57
5800	Conductivity (σ) S/m	5.27	5.33	1.14
5825		5.30	5.36	1.13
Dielectric Parameters Required at 22℃				

TISSUE TYPE		HEAD		
LIQUID TYPE		HSL-5800		
SIMULATING LIQUID TEMP.		22.6		
TEST DATE		Apr. 19, 2010		
TESTED BY		Dylan Chiou		
FREQ. (MHz)	LIQUID PARAMETER	STANDARD VALUE	MEASUREMENT VALUE	ERROR PERCENTAGE (%)
5800	Permitivity (ε)	35.30	35.60	0.85
5825		35.30	35.60	0.85
5800	Conductivity (σ) S/m	5.27	5.36	1.71
5825		5.30	5.38	1.51
Dielectric Parameters Required at 22℃				

TISSUE TYPE		BODY		
LIQUID TYPE		MSL-5800		
SIMULATING LIQUID TEMP.		22.5		
TEST DATE		Apr. 20, 2010		
TESTED BY		Dylan Chiou		
FREQ. (MHz)	LIQUID PARAMETER	STANDARD VALUE	MEASUREMENT VALUE	ERROR PERCENTAGE (%)
5800.0	Permitivity (ε)	48.20	50.30	4.36
5825.0		48.20	50.30	4.36
5800.0	Conductivity (σ) S/m	6.00	6.25	4.17
5825.0		6.03	6.29	4.31
Dielectric Parameters Required at 22℃				

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 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%.

6.2 VALIDATION RESULTS

SYSTEM VALIDATION TEST OF SIMULATING LIQUID					
FREQUENCY (MHz)	**REQUIRED SAR (mW/g)**	**MEASURED SAR (mW/g)**	**DEVIATION (%)**	**SEPARATION DISTANCE**	**TESTED DATE**
HSL 2450	13.50 (1g)	13.80	2.22	10mm	Apr. 15, 2010
HSL 5800	7.78 (1g)	8.10	4.11	10mm	Apr. 16, 2010
HSL 5800	7.78 (1g)	8.03	3.21	10mm	Apr. 17, 2010
HSL 5800	7.78 (1g)	8.04	3.34	10mm	Apr. 18, 2010
HSL 5800	7.78 (1g)	8.15	4.76	10mm	Apr. 19, 2010
MSL 5800	7.54 (1g)	7.30	-3.18	10mm	Apr. 20, 2010
HSL 2450	13.50 (1g)	13.70	1.48	10mm	Apr. 21, 2010
MSL 2450	13.10 (1g)	12.20	-6.87	10mm	Apr. 21, 2010
TESTED BY	Dylan Chiou				

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

6.3 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	0.50	Rectangular	√3	0.7	0.7	0.20	0.20	∞
Hemispherical Isotropy	2.60	Rectangular	√3	0.7	0.7	1.05	1.05	∞
Boundary effects	1.00	Rectangular	√3	1	1	0.58	0.58	∞
Linearity	0.60	Rectangular	√3	1	1	0.35	0.35	∞
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)	4.31	Normal	1	0.64	0.43	2.76	1.85	∞
Liquid Permittivity (target)	5.00	Rectangular	√3	0.6	0.49	1.73	1.41	∞
Liquid Permittivity (measurement)	3.94	Normal	1	0.6	0.49	2.36	1.93	∞
Combined Standard Uncertainty						**11.23**	**10.83**	
Coverage Factor for 95%						**Kp=2**		
Expanded Uncertainty (K=2)						**22.47**	**21.66**	

7. TEST RESULTS

7.1 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%.

7.2 MEASURED SAR RESULTS

HEAD POSITION

Result for WLAN 2.4GHz band

Configuration: Barcode reader: BB Imager, 1.5x Battery

Stand-alone SAR (1g)				
HEAD	RIGHT		LEFT	
	CHEEK	TILT	CHEEK	TILT
802.11b				
Ch 6: 2437MHz	0.293	0.236	0.347	0.294
802.11g				
Ch 6: 2437MHz	0.259	0.222	0.349	0.284

Result for WLAN 5.0GHz band

Configuration: Barcode reader: BB Imager, 1.5x Battery

HEAD	RIGHT		LEFT	
	CHEEK	TILT	CHEEK	TILT
802.11a				
Ch 165: 5825MHz	0.358	0.358	0.367	0.38

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. Temperature of Liquid is 22±1°C
6. Per KDB 447498, when 1-g SAR for the highest output channel is less than 0.8 W/kg, testing for the other channels is not required.
7. The EUT have been pre-tested and found “BB / QWERTY + 1.5X battery” was the worst case configuration for final test

BODY POSITION

Result for WLAN 2.4GHz band

Configuration:

Front: Barcode reader: BB Imager, 1.5x Battery, Ridged holster, Headset
Bottom: Barcode reader: BB Imager, 1.5x Battery, Fabric holster, Headset

	BODY	
Mode	FRONT	BOTTOM
802.11b		
Ch 6: 2437MHz	0.022	0.00591
802.11g		
Ch 6: 2437MHz	0.028	0.00725

Result for WLAN 5.0GHz band

Configuration:

Front: Barcode reader: BB Imager, 1.5x Battery, Ridged holster, Headset
Bottom: Barcode reader: BB Imager, 1.5x Battery, Fabric holster, Headset

	BODY	
Mode	Front	Bottom
802.11a		
Ch 165: 5825MHz	0.023	0.00806

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. Temperature of Liquid is 22±1°C
6. Per KDB 447498, when 1-g SAR for the highest output channel is less than 0.8 W/kg, testing for the other channels is not required.
7. The EUT have been pre-tested and found “BB / QWERTY + 1.5X battery” was the worst case configuration for final test
8. For body position, the EUT front facing the phantom was tested with Ridged holster and the EUT bottom facing the phantom was tested with fabric holster. This is due to the facts that The correspond holster will limit the orientation of EUT when it is stored in the holster.

7.3 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.

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 according to ISO/IEC 17025.

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

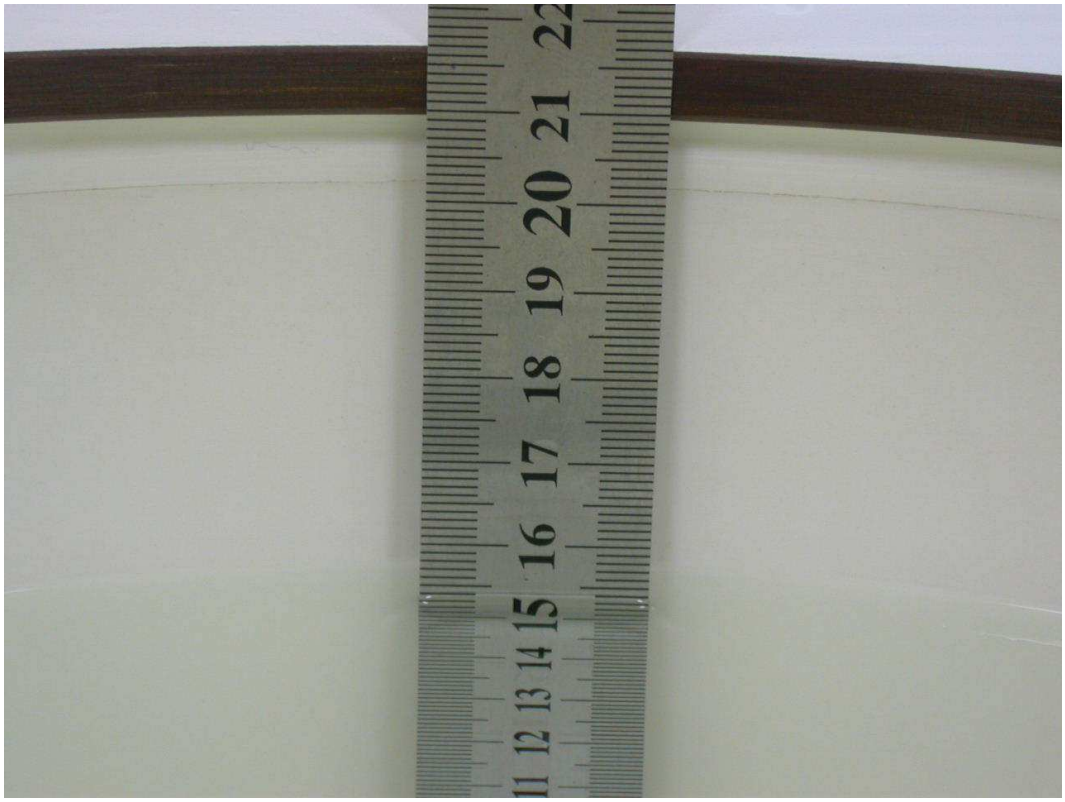
The address and road map of all our labs can be found in our web site also.

---END---

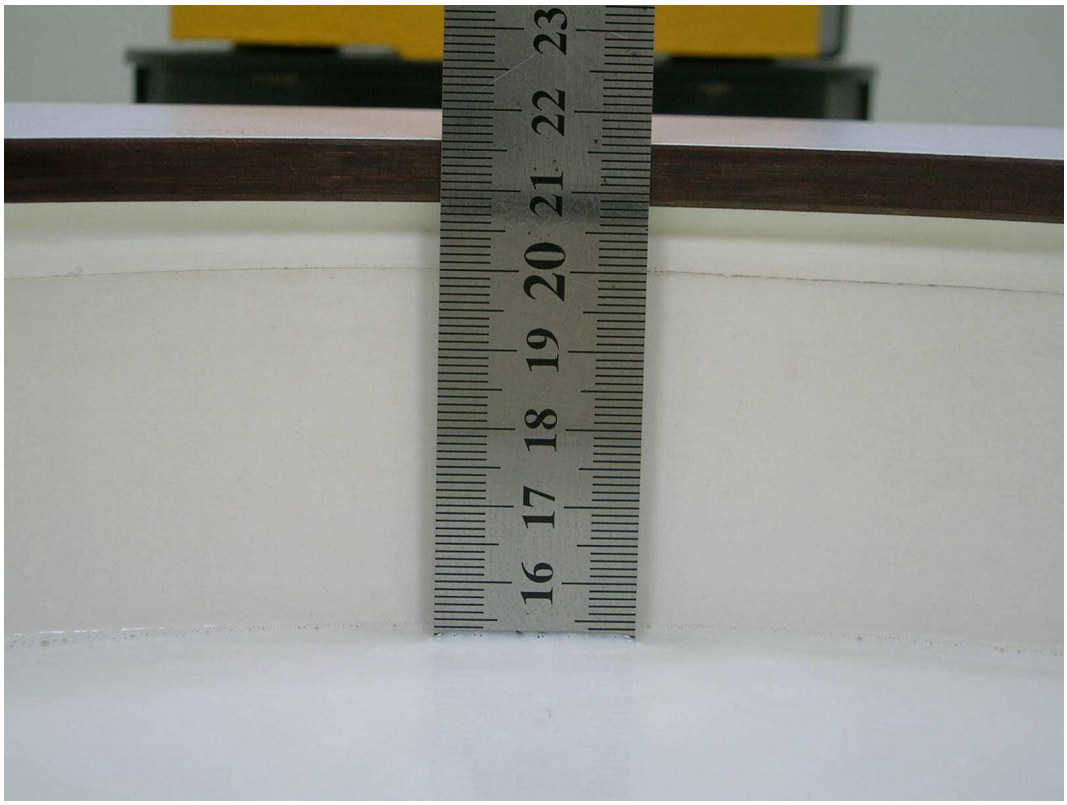
APPENDIX A: TEST DATA

Liquid Level Photo

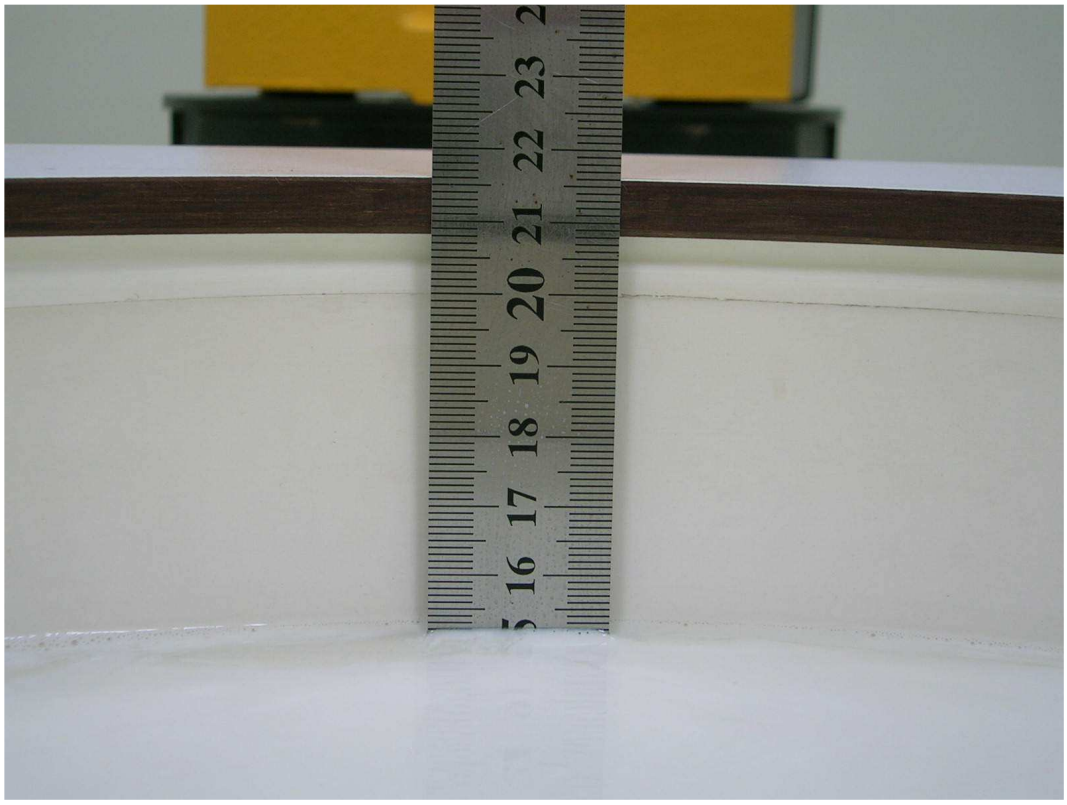
Tissue HSL2450MHz D=154mm - 4/15



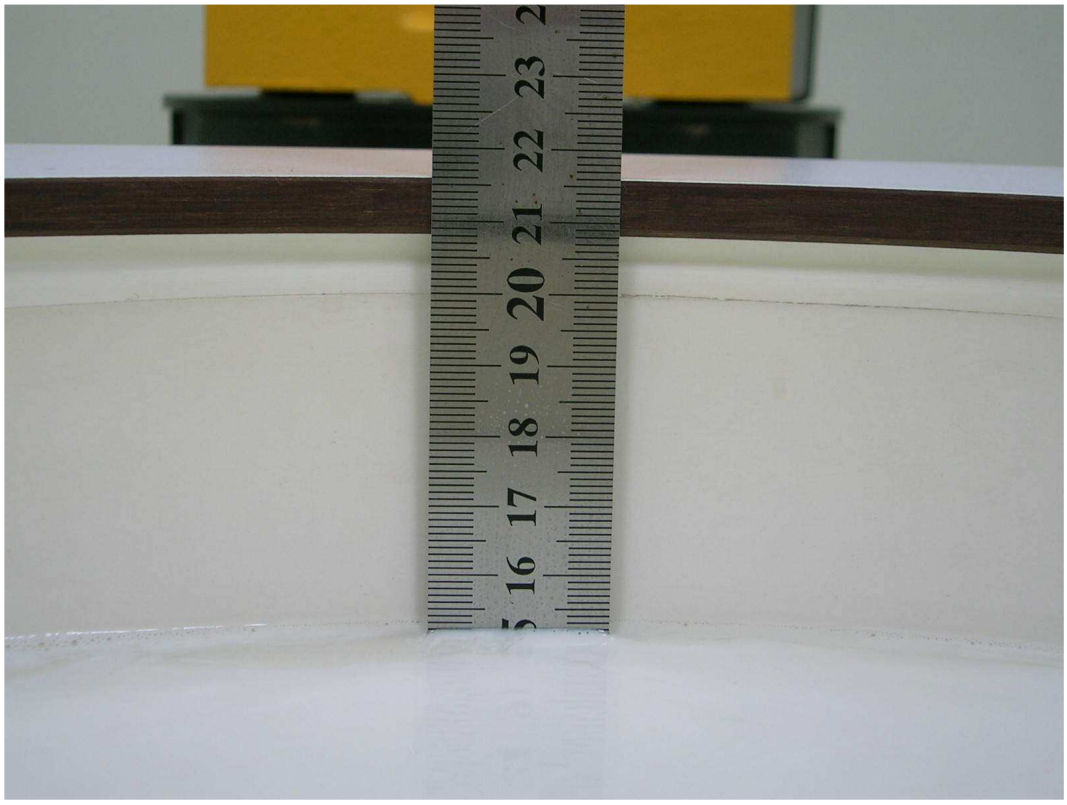
Tissue HSL5800MHz D=153mm - 4/16



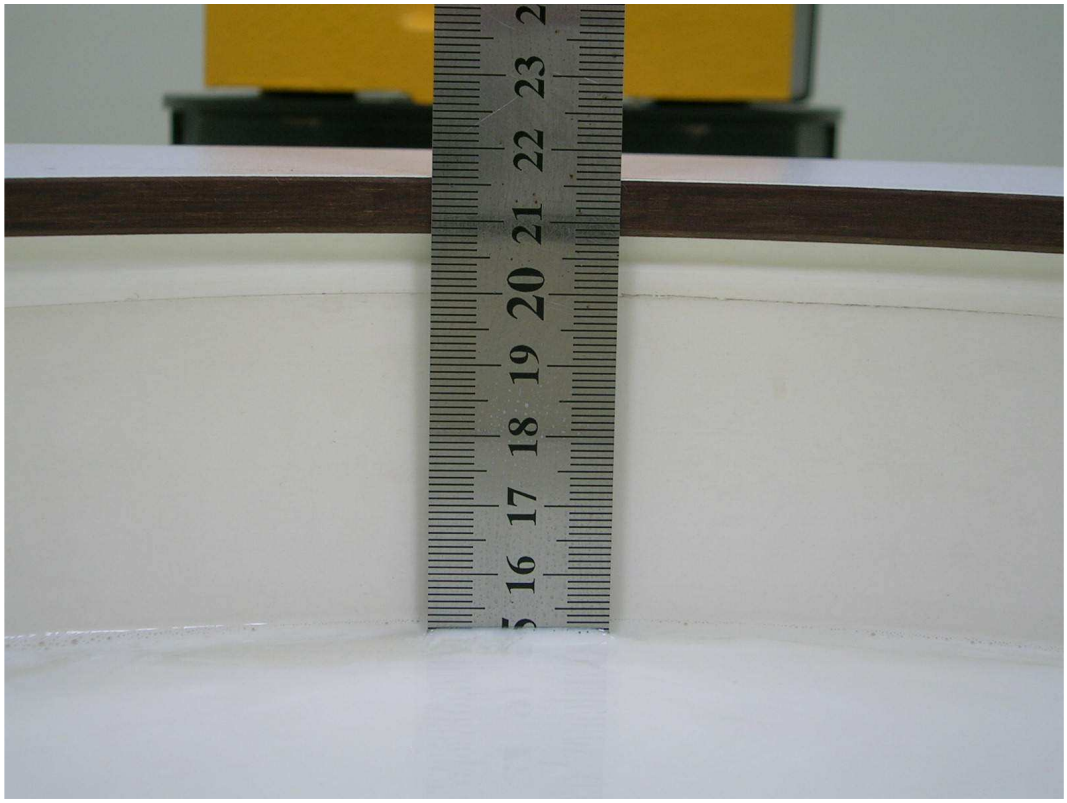
Tissue HSL5800MHz D=152mm - 4/17



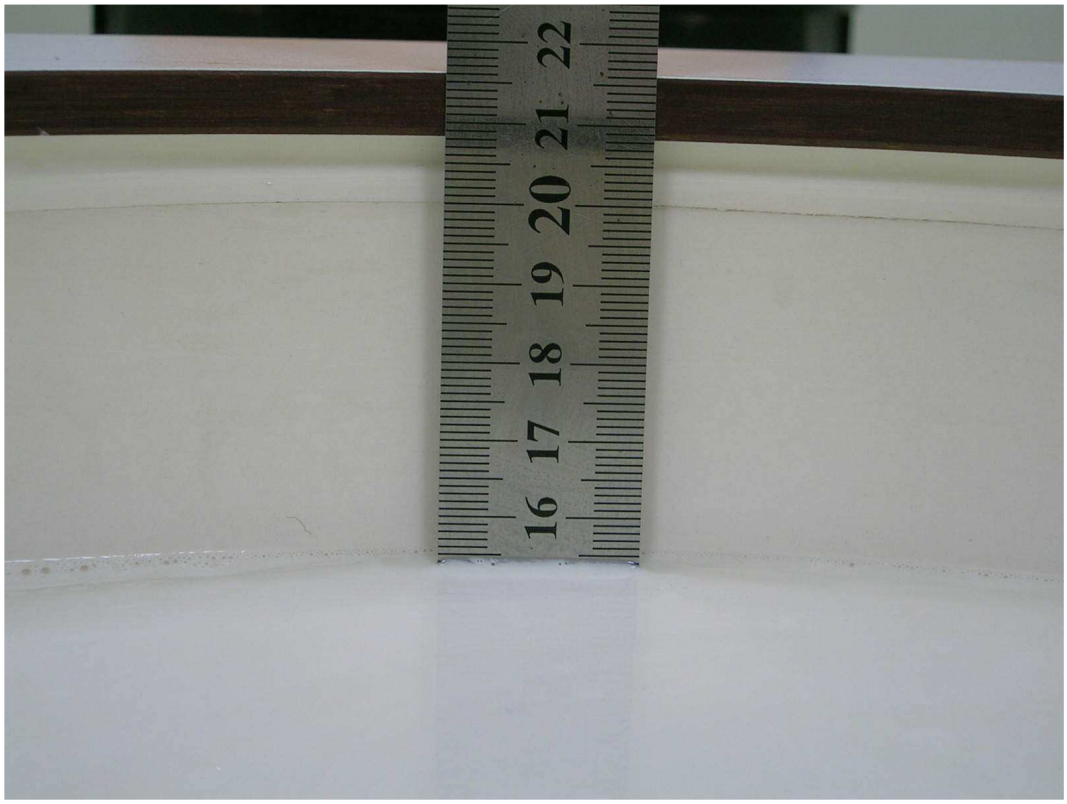
Tissue HSL5800MHz D=152mm - 4/18



Tissue HSL5800MHz D=152mm - 4/19



Tissue MSL5800MHz D=154mm - 4/20



Tissue HSL2450MHz D=150mm - 4/21

Tissue MSL2450MHz D=151mm - 4/21

Date/Time: 2010/4/21 06:51:56

Test Laboratory: Bureau Veritas ADT

M01-A6_2D-Right Head-Cheek-11B-Ch6 / 1.5x Batt

DUT: EDA ; Type: MC 75A6

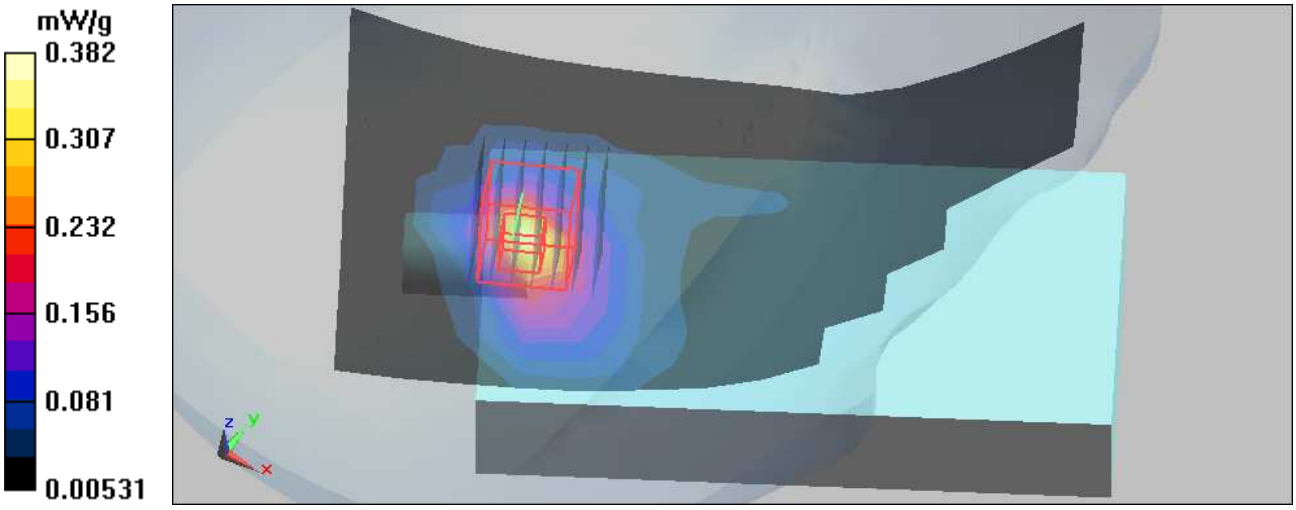
Communication System: 802.11b ; Frequency: 2437 MHz ; Duty Cycle: 1:1
Medium: HSL2450 Medium parameters used: f = 2437 MHz; σ = 1.86 mho/m; ε_r = 40.6; ρ = 1000 kg/m^3
Phantom section: Right Section ; DUT test position : Cheek ; Modulation type: DBPSK

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(7.77, 7.77, 7.77); Calibrated: 2010/1/26
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Touch Position – Mid Ch6 /Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.363 mW/g

Touch Position – Mid Ch6 /Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 14.8 V/m; Power Drift = -0.00113 dB
Peak SAR (extrapolated) = 0.665 W/kg
SAR(1 g) = 0.293 mW/g; SAR(10 g) = 0.129 mW/g
Maximum value of SAR (measured) = 0.382 mW/g



Date/Time: 2010/4/21 07:15:01

Test Laboratory: Bureau Veritas ADT

M02-A6_2D-Right Head-Tilt-11B-Ch6 / 1.5x Batt

DUT: EDA ; Type: MC 75A6

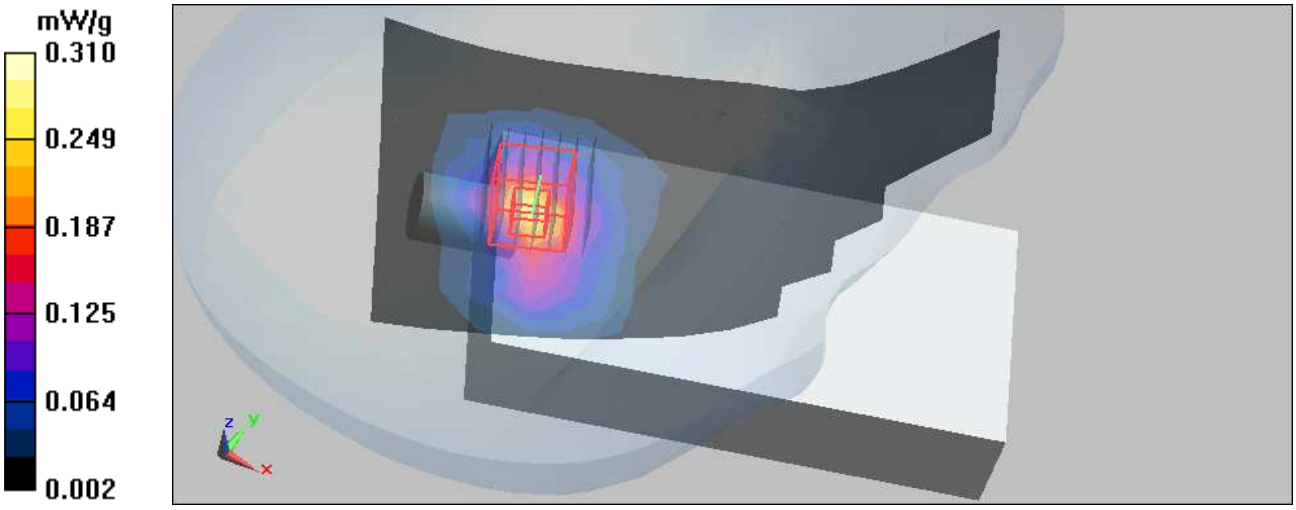
Communication System: 802.11b ; Frequency: 2437 MHz ; Duty Cycle: 1:1
Medium: HSL2450 Medium parameters used: f = 2437 MHz; σ = 1.86 mho/m; ε_r = 40.6; ρ = 1000 kg/m^3
Phantom section: Right Section ; DUT test position : Tilt ; Modulation type: DBPSK

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(7.77, 7.77, 7.77); Calibrated: 2010/1/26
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Tilt Position – Mid Ch6 /Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.296 mW/g

Tilt Position – Mid Ch6 /Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 12.9 V/m; Power Drift = 0.060 dB
Peak SAR (extrapolated) = 0.512 W/kg
SAR(1 g) = 0.236 mW/g; SAR(10 g) = 0.107 mW/g
Maximum value of SAR (measured) = 0.310 mW/g



Date/Time: 2010/4/21 05:49:17

Test Laboratory: Bureau Veritas ADT

M03-A6_2D-Left Head-Cheek-11B-Ch6 / 1.5x Batt

DUT: EDA ; Type: MC 75A6

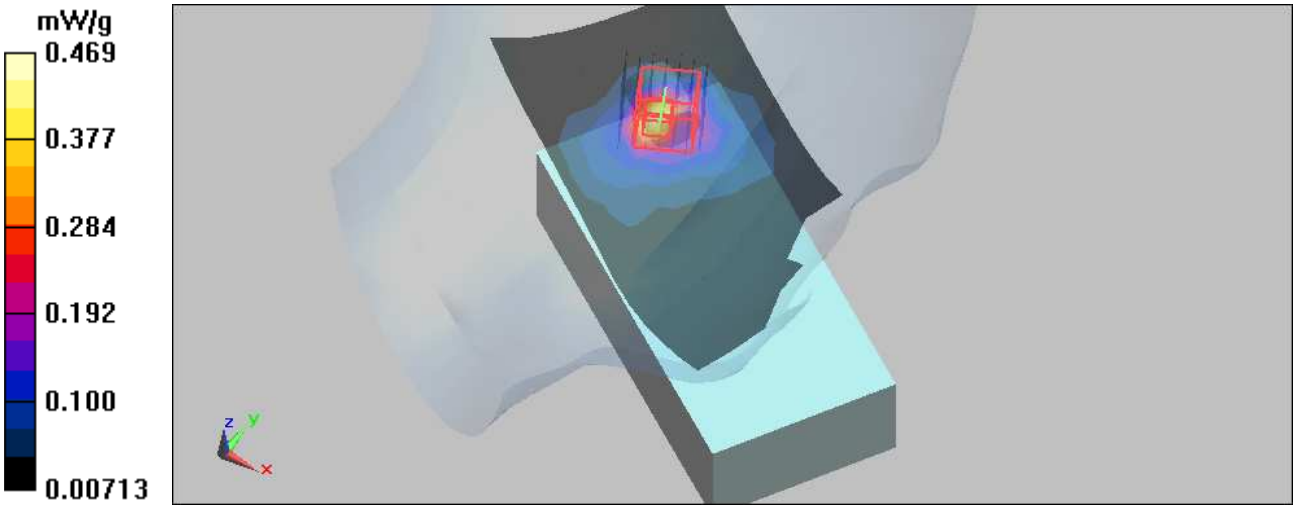
Communication System: 802.11b ; Frequency: 2437 MHz ; Duty Cycle: 1:1
Medium: HSL2450 Medium parameters used: f = 2437 MHz; σ = 1.86 mho/m; ε_r = 40.6; ρ = 1000 kg/m^3
Phantom section: Left Section ; DUT test position : Cheek ; Modulation type: DBPSK

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(7.77, 7.77, 7.77); Calibrated: 2010/1/26
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Touch Position – Mid Ch6 /Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.474 mW/g

Touch Position – Mid Ch6 /Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 14.6 V/m; Power Drift = 0.061 dB
Peak SAR (extrapolated) = 0.818 W/kg
SAR(1 g) = 0.347 mW/g; SAR(10 g) = 0.148 mW/g
Maximum value of SAR (measured) = 0.469 mW/g



Date/Time: 2010/4/21 06:12:11

Test Laboratory: Bureau Veritas ADT

M04-A6_2D-Left Head-Tilt-11B-Ch6 / 1.5x Batt

DUT: EDA ; Type: MC 75A6

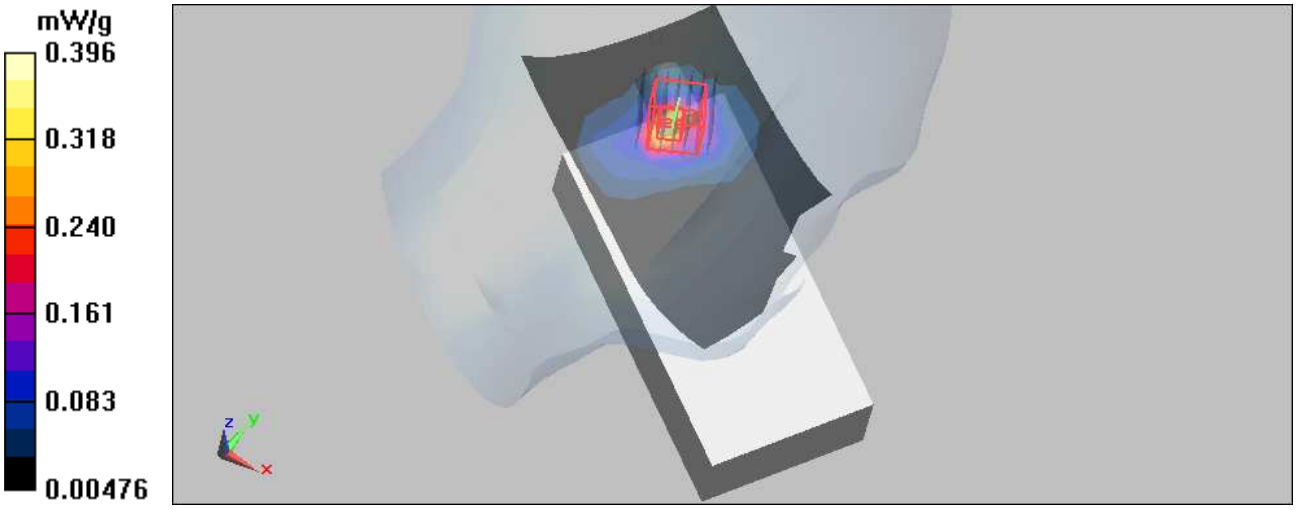
Communication System: 802.11b ; Frequency: 2437 MHz ; Duty Cycle: 1:1
Medium: HSL2450 Medium parameters used: f = 2437 MHz; σ = 1.86 mho/m; ε_r = 40.6; ρ = 1000 kg/m^3
Phantom section: Left Section ; DUT test position : Tilt ; Modulation type: DBPSK

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(7.77, 7.77, 7.77); Calibrated: 2010/1/26
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Tilt Position – Mid Ch6 /Area Scan (7x13x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.398 mW/g

Tilt Position – Mid Ch6 /Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 13.1 V/m; Power Drift = 0.00438 dB
Peak SAR (extrapolated) = 0.654 W/kg
SAR(1 g) = 0.294 mW/g; SAR(10 g) = 0.128 mW/g
Maximum value of SAR (measured) = 0.396 mW/g



Date/Time: 2010/4/15 05:26:49

Test Laboratory: Bureau Veritas ADT

M05-A6_2D-Right Head-Cheek-11g-Ch6 / 1.5x Batt

DUT: EDA ; Type: MC75A6

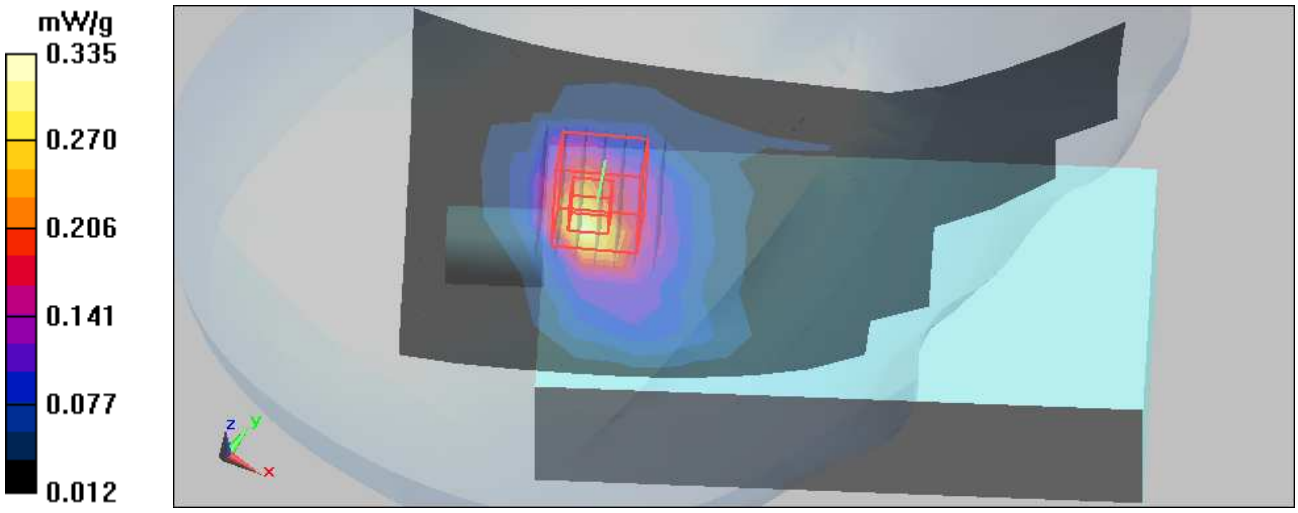
Communication System: WiFi ; Frequency: 2437 MHz ; Duty Cycle: 1:1
Medium: HSL2450 Medium parameters used: f = 2437 MHz; σ = 1.82 mho/m; ε_r = 39.8; ρ = 1000 kg/m^3
Phantom section: Right Section ; DUT test position : Cheek ; Modulation type: BPSK

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(7.77, 7.77, 7.77); Calibrated: 2010/1/26
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Touch Position - Mid Ch6/Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.324 mW/g

Touch Position - Mid Ch6/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 11.1 V/m; Power Drift = -0.030 dB
Peak SAR (extrapolated) = 0.570 W/kg
SAR(1 g) = 0.259 mW/g; SAR(10 g) = 0.118 mW/g
Maximum value of SAR (measured) = 0.335 mW/g



Date/Time: 2010/4/15 07:29:56

Test Laboratory: Bureau Veritas ADT

M06-A6_2D-Right Head-Tilt-11g-Ch6 / 1.5x Batt

DUT: EDA ; Type: MC75A6

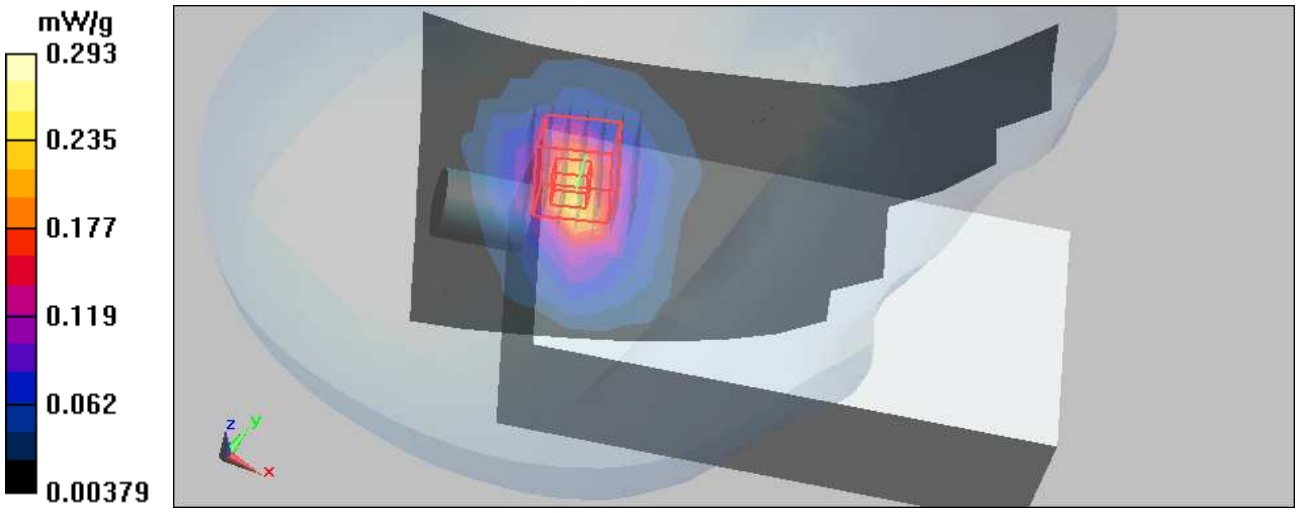
Communication System: WiFi ; Frequency: 2437 MHz ; Duty Cycle: 1:1
Medium: HSL2450 Medium parameters used: f = 2437 MHz; σ = 1.82 mho/m; ε_r = 39.8; ρ = 1000 kg/m^3
Phantom section: Right Section ; DUT test position : Tilt ; Modulation type: BPSK

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(7.77, 7.77, 7.77); Calibrated: 2010/1/26
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Tilt Position - Mid Ch6/Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.251 mW/g

Tilt Position - Mid Ch6/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 9.64 V/m; Power Drift = 0.027 dB
Peak SAR (extrapolated) = 0.471 W/kg
SAR(1 g) = 0.222 mW/g; SAR(10 g) = 0.101 mW/g
Maximum value of SAR (measured) = 0.293 mW/g



Date/Time: 2010/4/15 12:28:33

Test Laboratory: Bureau Veritas ADT

M07-A6_2D-Left Head-Cheek-11g-Ch6 / 1.5x Batt

DUT: EDA ; Type: MC75A6

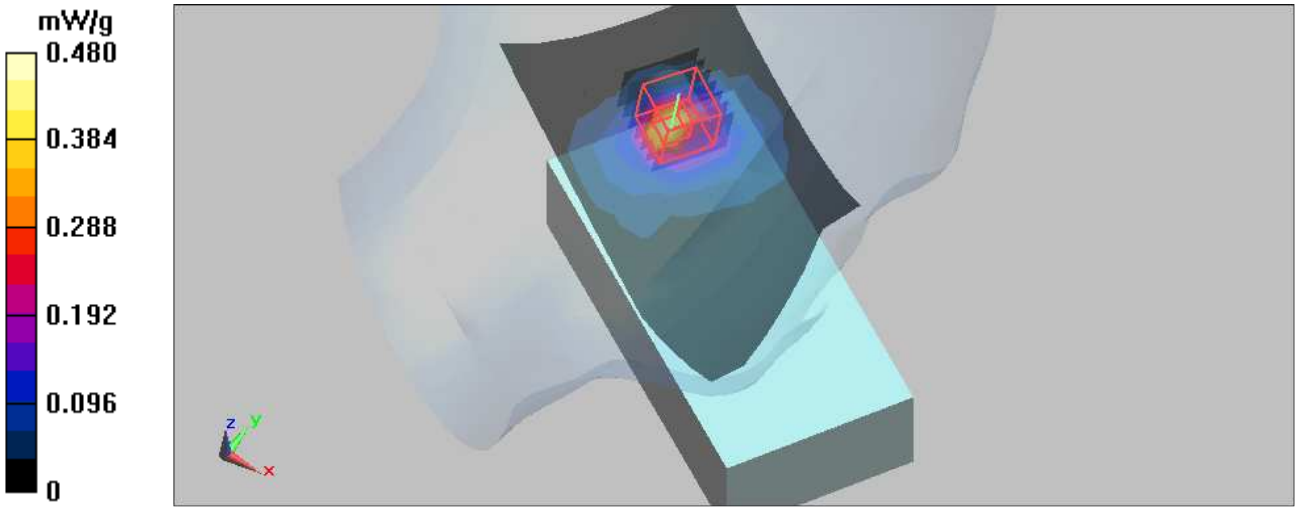
Communication System: WiFi ; Frequency: 2437 MHz ; Duty Cycle: 1:1
Medium: HSL2450 Medium parameters used : f = 2437 MHz; σ = 1.82 mho/m; εr = 39.8; ρ = 1000 kg/m^3
Phantom section: Left Section ; DUT test position : Cheek ; Modulation type: BPSK

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(7.77, 7.77, 7.77); Calibrated: 2010/1/26
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Touch Position - Mid Ch6/Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.480 mW/g

Touch Position - Mid Ch6/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 14.2 V/m; Power Drift = 0.087 dB
Peak SAR (extrapolated) = 0.815 W/kg
SAR(1 g) = 0.349 mW/g; SAR(10 g) = 0.151 mW/g
Maximum value of SAR (measured) = 0.473 mW/g



Date/Time: 2010/4/15 17:25:45

Test Laboratory: Bureau Veritas ADT

M08-A6_2D-Left Head-Tilt-11g-Ch6 / 1.5x Batt

DUT: EDA ; Type: MC75A6

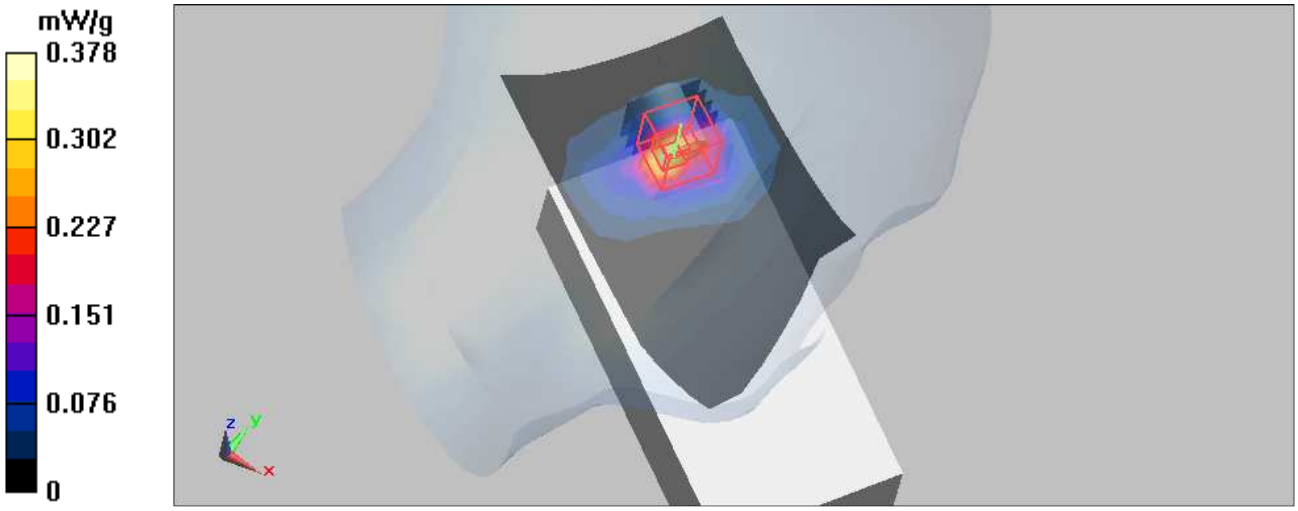
Communication System: WiFi ; Frequency: 2437 MHz ; Duty Cycle: 1:1
Medium: HSL2450 Medium parameters used : f = 2437 MHz; σ = 1.82 mho/m; εr = 39.8; ρ = 1000 kg/m^3
Phantom section: Left Section ; DUT test position : Tilt ; Modulation type: BPSK

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(7.77, 7.77, 7.77); Calibrated: 2010/1/26
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Tilt Position - Mid Ch6/Area Scan (7x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.378 mW/g

Tilt Position - Mid Ch6/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 12.5 V/m; Power Drift = 0.034 dB
Peak SAR (extrapolated) = 0.641 W/kg
SAR(1 g) = 0.284 mW/g; SAR(10 g) = 0.123 mW/g
Maximum value of SAR (measured) = 0.375 mW/g



Date/Time: 2010/4/21 05:31:13

Test Laboratory: Bureau Veritas ADT

M09-A6_2D-Body-11B-Ch6 / LCD Up / 1.5x Batt

DUT: EDA ; Type: MC 75A6

Communication System: 802.11b ; Frequency: 2437 MHz ; Duty Cycle: 1:1Medium: MSL2450 Medium parameters used: f = 2437 MHz; σ = 1.93 mho/m; εr = 53.9; ρ = 1000 kg/m^3 Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: DBPSK Separation Distance : 0 mm (The front side of the EUT with leather to the Phantom)

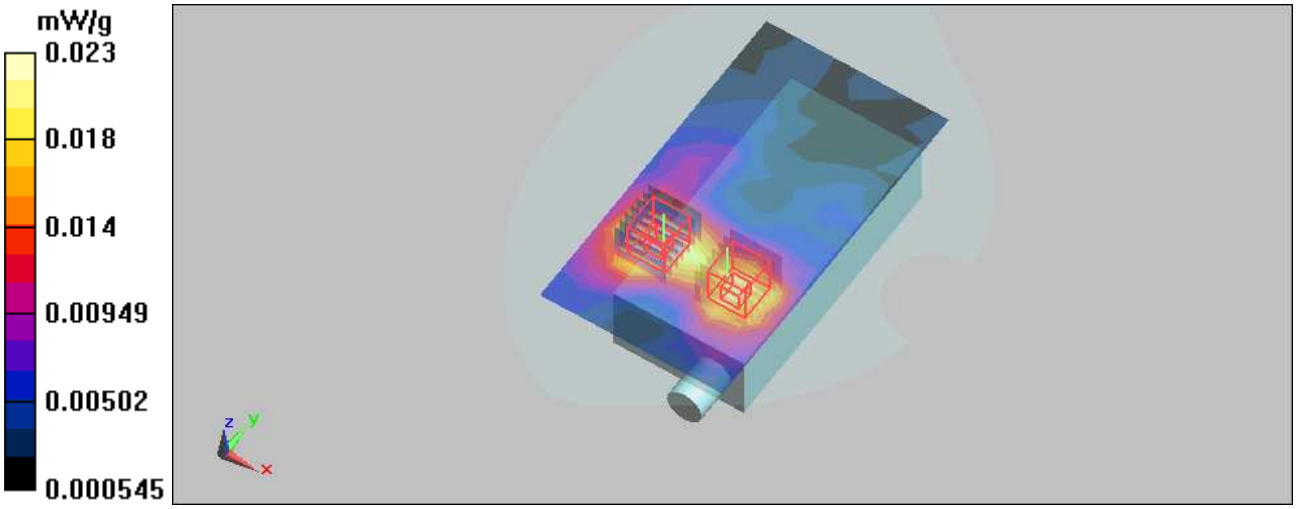
DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(7.91, 7.91, 7.91); Calibrated: 2010/1/26
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM ; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Flat Section Mid Ch6/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.023 mW/g

Flat Section Mid Ch6/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 1.29 V/m; Power Drift = 0.028 dB
Peak SAR (extrapolated) = 0.039 W/kg
SAR(1 g) = 0.022 mW/g; SAR(10 g) = 0.013 mW/g
Maximum value of SAR (measured) = 0.028 mW/g

Flat Section Mid Ch6/Zoom Scan (7x7x9)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 1.29 V/m; Power Drift = 0.028 dB
Peak SAR (extrapolated) = 0.035 W/kg
SAR(1 g) = 0.019 mW/g; SAR(10 g) = 0.011 mW/g



Date/Time: 2010/4/21 06:44:30

Test Laboratory: Bureau Veritas ADT

M10-A6_2D-Body-11B-Ch6 / LCD Down / 1.5x Batt

DUT: EDA ; Type: MC 75A6

Communication System: 802.11b ; Frequency: 2437 MHz ; Duty Cycle: 1:1Medium: MSL2450 Medium parameters used: f = 2437 MHz; σ = 1.93 mho/m; εr = 53.9; ρ = 1000 kg/m^3 Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: DBPSK Separation Distance : 0 mm (The Bottom side of the EUT with leather to the Phantom)

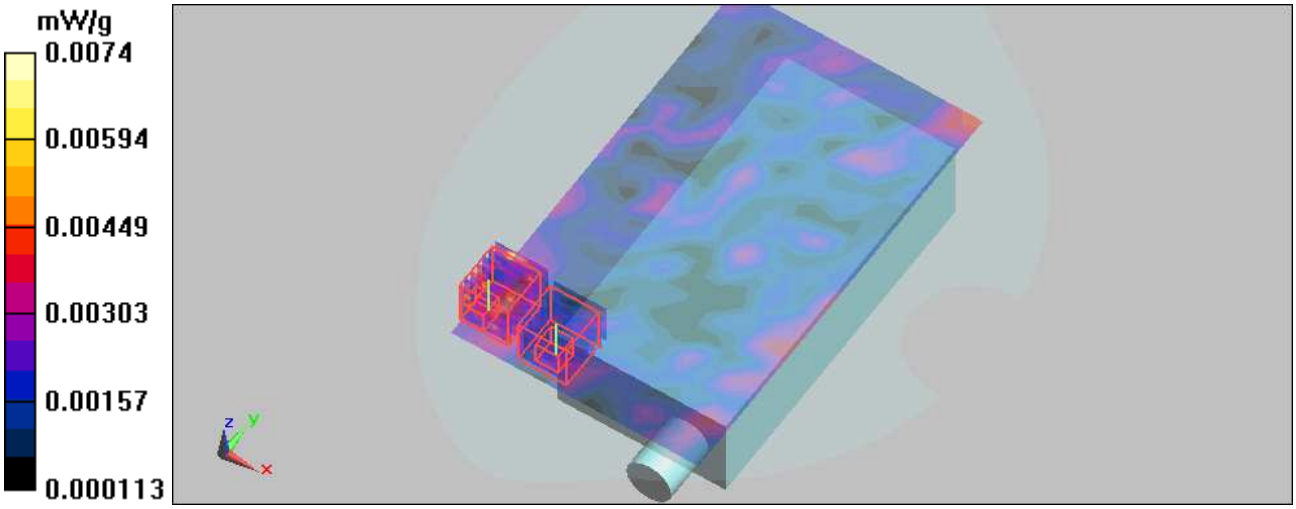
DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(7.91, 7.91, 7.91); Calibrated: 2010/1/26
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM ; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Flat Section Mid Ch6/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.00595 mW/g

Flat Section Mid Ch6/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 0.722 V/m; Power Drift = -0.145 dB
Peak SAR (extrapolated) = 0.013 W/kg
SAR(1 g) = 0.00169 mW/g; SAR(10 g) = 0.00106 mW/g
Maximum value of SAR (measured) = 0.00333 mW/g

Flat Section Mid Ch6/Zoom Scan (7x7x9)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 0.722 V/m; Power Drift = -0.145 dB
Peak SAR (extrapolated) = 0.053 W/kg
SAR(1 g) = 0.00591 mW/g; SAR(10 g) = 0.00246 mW/g
Maximum value of SAR (measured) = 0.0074 mW/g



Date/Time: 2010/4/21 07:58:46

Test Laboratory: Bureau Veritas ADT

M11-A6_2D-Body-11G-Ch6 / LCD Up / 1.5x Batt

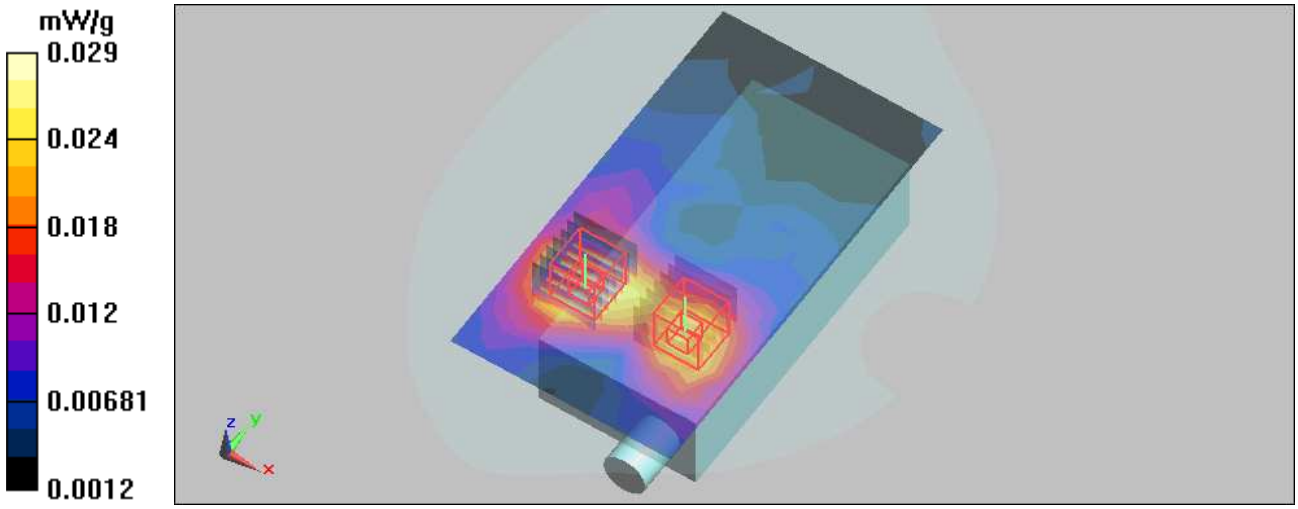
DUT: EDA ; Type: MC 75A6

Communication System: 802.11g ; Frequency: 2437 MHz ; Duty Cycle: 1:1
Medium: MSL2450 Medium parameters used: f = 2437 MHz; σ = 1.93 mho/m; εr = 53.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: BPSK Separation
Distance : 0 mm (The front side of the EUT with leather to the Phantom)

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(7.91, 7.91, 7.91); Calibrated: 2010/1/26
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM ; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Flat Section Mid Ch6/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.031 mW/g
Flat Section Mid Ch6/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 1.57 V/m; Power Drift = 0.182 dB
Peak SAR (extrapolated) = 0.054 W/kg
SAR(1 g) = 0.028 mW/g; SAR(10 g) = 0.016 mW/g
Maximum value of SAR (measured) = 0.034 mW/g
Flat Section Mid Ch6/Zoom Scan (7x7x9)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 1.57 V/m; Power Drift = 0.182 dB
Peak SAR (extrapolated) = 0.040 W/kg
SAR(1 g) = 0.023 mW/g; SAR(10 g) = 0.014 mW/g
Maximum value of SAR (measured) = 0.029 mW/g



Date/Time: 2010/4/21 09:05:40

Test Laboratory: Bureau Veritas ADT

M12-A6_2D-Body-11G-Ch6 / LCD Down / 1.5x Batt

DUT: EDA ; Type: MC 75A6

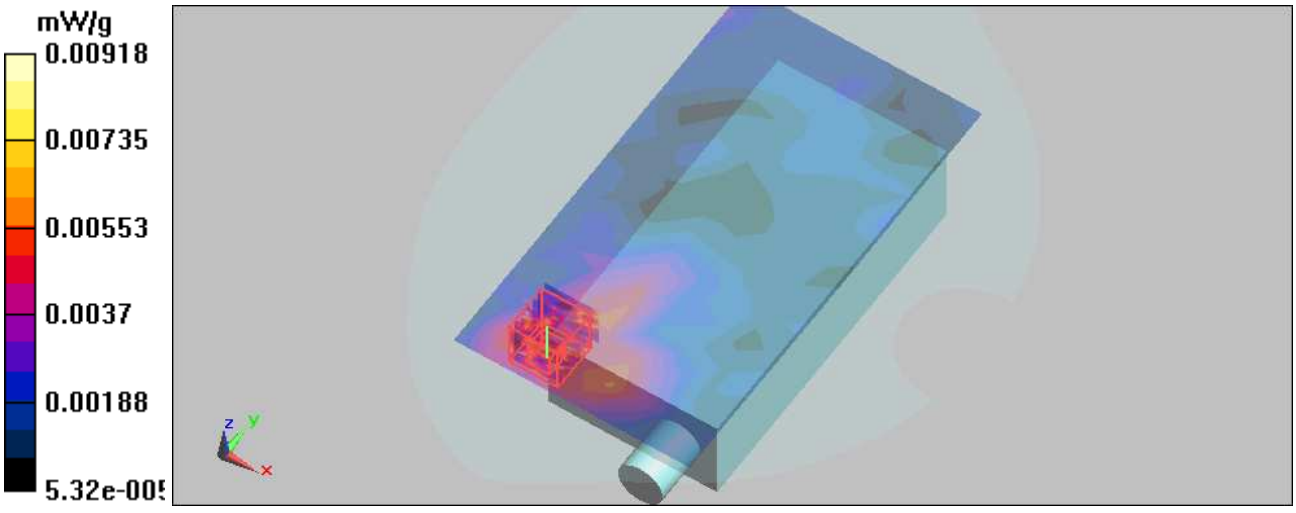
Communication System: 802.11g ; Frequency: 2437 MHz ; Duty Cycle: 1:1
Medium: MSL2450 Medium parameters used: f = 2437 MHz; σ = 1.93 mho/m; εr = 53.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: BPSK Separation
Distance : 0 mm (The Bottom side of the EUT with leather to the Phantom)

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(7.91, 7.91, 7.91); Calibrated: 2010/1/26
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM ; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Flat Section Mid Ch6/Area Scan (8x14x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.00831 mW/g

Flat Section Mid Ch6/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 0.825 V/m; Power Drift = 0.154 dB
Peak SAR (extrapolated) = 0.027 W/kg
SAR(1 g) = 0.00725 mW/g; SAR(10 g) = 0.00352 mW/g
Maximum value of SAR (measured) = 0.00918 mW/g



Date/Time: 2010/4/17 05:58:51

Test Laboratory: Bureau Veritas ADT

M13-A6_2D-Right Head-Cheek-11a-Ch165 / 1.5x Batt

DUT: EDA ; Type: MC75A6

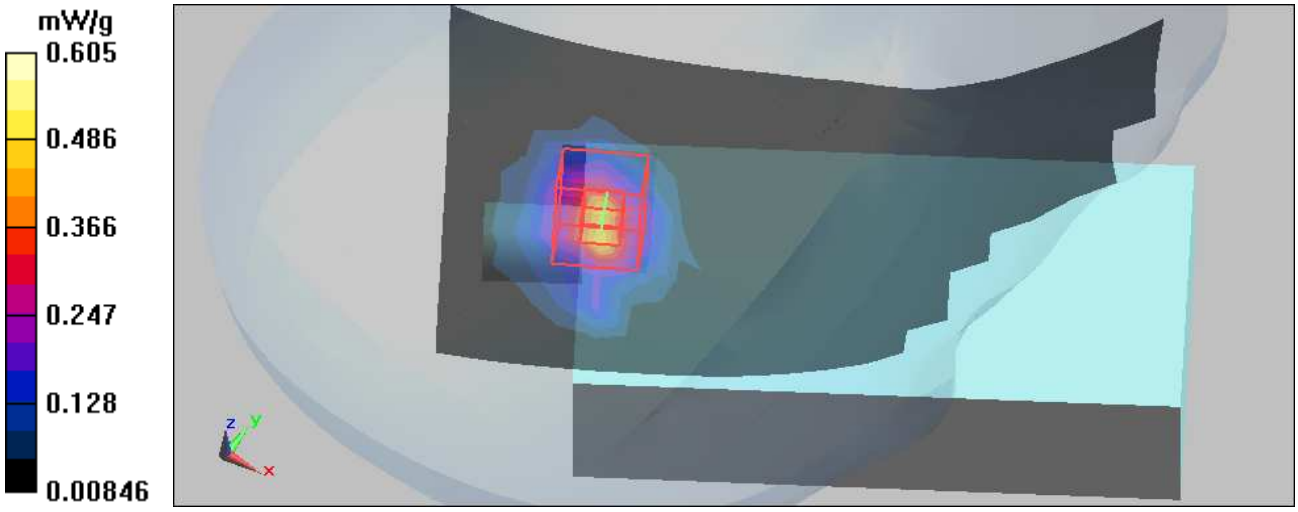
Communication System: WiFi ; Frequency: 5825 MHz ; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5825 MHz; σ = 5.42 mho/m; εr = 35.9; ρ = 1000 kg/m^3
Phantom section: Right Section ; DUT test position : Cheek ; Modulation type: BPSK

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(4.53, 4.53, 4.53); Calibrated: 2010/1/26
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Touch Position - Ch165/Area Scan (10x20x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.485 mW/g

Touch Position - Ch165/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 8.37 V/m; Power Drift = 0.149 dB
Peak SAR (extrapolated) = 1.4 W/kg
SAR(1 g) = 0.358 mW/g; SAR(10 g) = 0.122 mW/g
Maximum value of SAR (measured) = 0.605 mW/g



Date/Time: 2010/4/17 11:46:29

Test Laboratory: Bureau Veritas ADT

M14-A6_2D-Right Head-Tilt-11a-Ch165 / 1.5x Batt

DUT: EDA ; Type: MC75A6

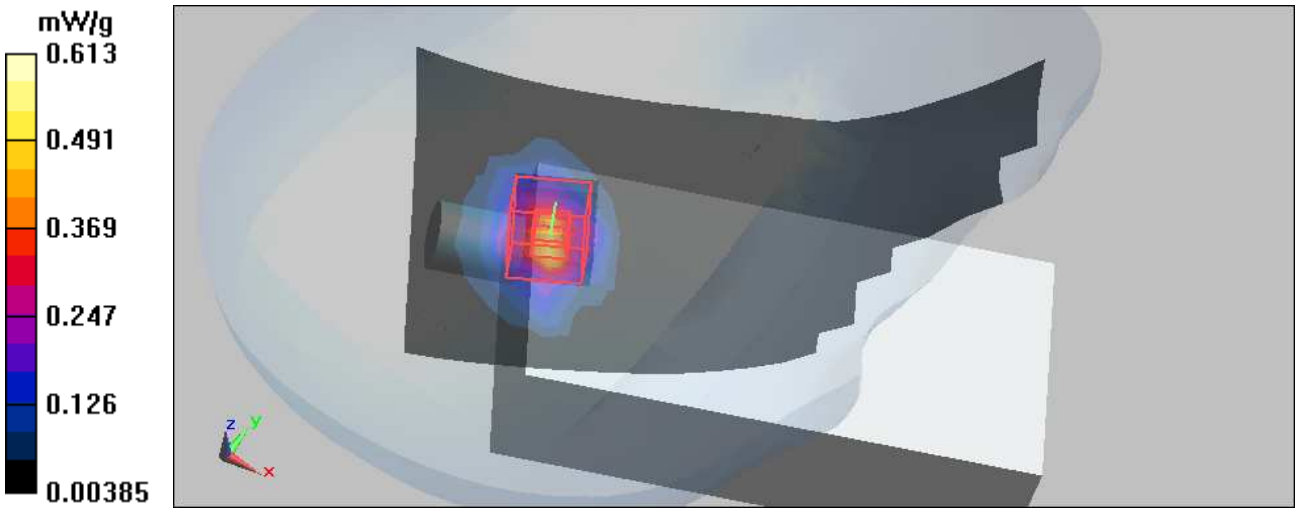
Communication System: WiFi ; Frequency: 5825 MHz ; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5825 MHz; σ = 5.42 mho/m; εr = 35.9; ρ = 1000 kg/m^3
Phantom section: Right Section ; DUT test position : Tilt ; Modulation type: BPSK

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(4.53, 4.53, 4.53); Calibrated: 2010/1/26
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Tilt Position - Ch165/Area Scan (10x20x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.517 mW/g

Tilt Position - Ch165/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 8.3 V/m; Power Drift = 0.042 dB
Peak SAR (extrapolated) = 1.33 W/kg
SAR(1 g) = 0.358 mW/g; SAR(10 g) = 0.116 mW/g
Maximum value of SAR (measured) = 0.613 mW/g



Date/Time: 2010/4/17 17:36:28

Test Laboratory: Bureau Veritas ADT

M15-A6_2D-Left Head-Cheek-11a-Ch165 / 1.5x Batt

DUT: EDA ; Type: MC75A6

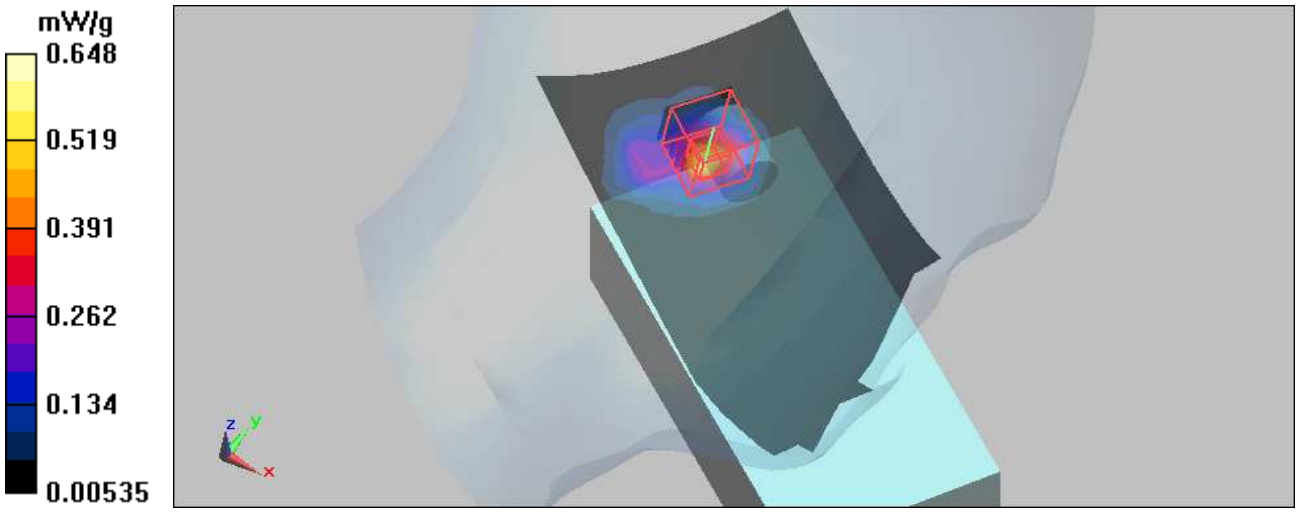
Communication System: WiFi ; Frequency: 5825 MHz ; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5825 MHz; σ = 5.42 mho/m; εr = 35.9; ρ = 1000 kg/m^3
Phantom section: Left Section ; DUT test position : Cheek ; Modulation type: BPSK

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(4.53, 4.53, 4.53); Calibrated: 2010/1/26
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Touch Position - Ch165/Area Scan (10x20x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.627 mW/g

Touch Position - Ch165/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 10.2 V/m; Power Drift = 0.118 dB
Peak SAR (extrapolated) = 1.42 W/kg
SAR(1 g) = 0.367 mW/g; SAR(10 g) = 0.120 mW/g
Maximum value of SAR (measured) = 0.648 mW/g



Date/Time: 2010/4/17 23:01:44

Test Laboratory: Bureau Veritas ADT

M16-A6_2D-Left Head-Tilt-11a-Ch165 / 1.5x Batt

DUT: EDA ; Type: MC75A6

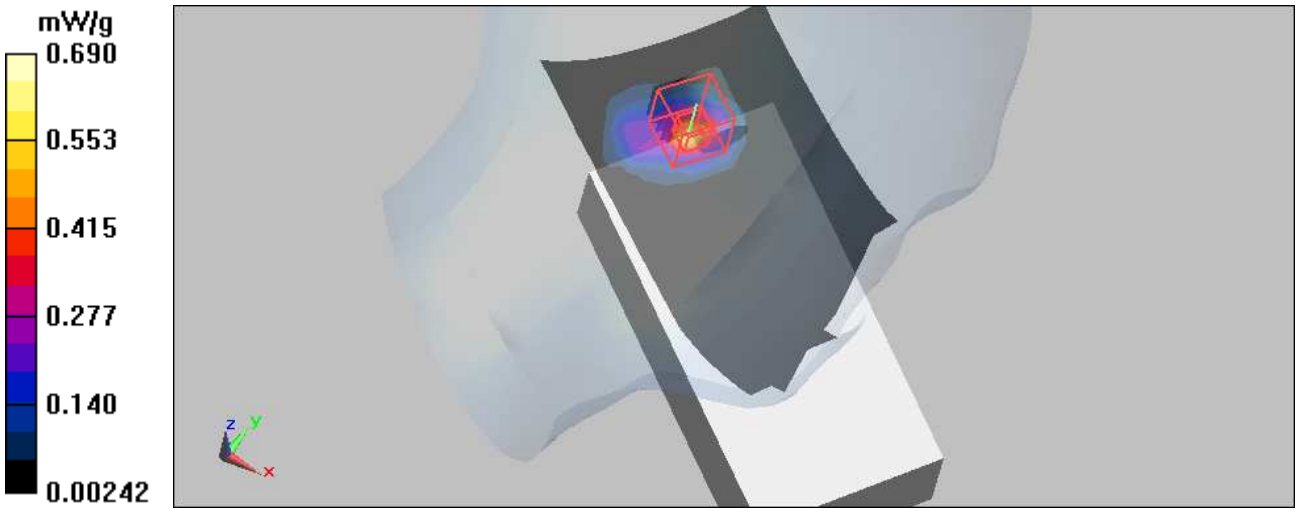
Communication System: WiFi ; Frequency: 5825 MHz ; Duty Cycle: 1:1
Medium: HSL5800 Medium parameters used: f = 5825 MHz; σ = 5.42 mho/m; εr = 35.9; ρ = 1000 kg/m^3
Phantom section: Left Section ; DUT test position : Tilt ; Modulation type: BPSK

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(4.53, 4.53, 4.53); Calibrated: 2010/1/26
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Tilt Position - Ch165/Area Scan (10x20x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.663 mW/g

Tilt Position - Ch165/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 10.3 V/m; Power Drift = 0.096 dB
Peak SAR (extrapolated) = 1.62 W/kg
SAR(1 g) = 0.38 mW/g; SAR(10 g) = 0.128 mW/g
Maximum value of SAR (measured) = 0.690 mW/g



Date/Time: 2010/4/20 07:35:23

Test Laboratory: Bureau Veritas ADT

M17-A6_2D-Body-11A-Ch165 / LCD Up / 1.5x Batt

DUT: EDA ; Type: MC 75A6

Communication System: 802.11a ; Frequency: 5825 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used : f = 5825 MHz; σ = 6.29 mho/m; ε_r = 50.3; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Separation distance : 0 mm (The front side of the EUT to the Phantom)

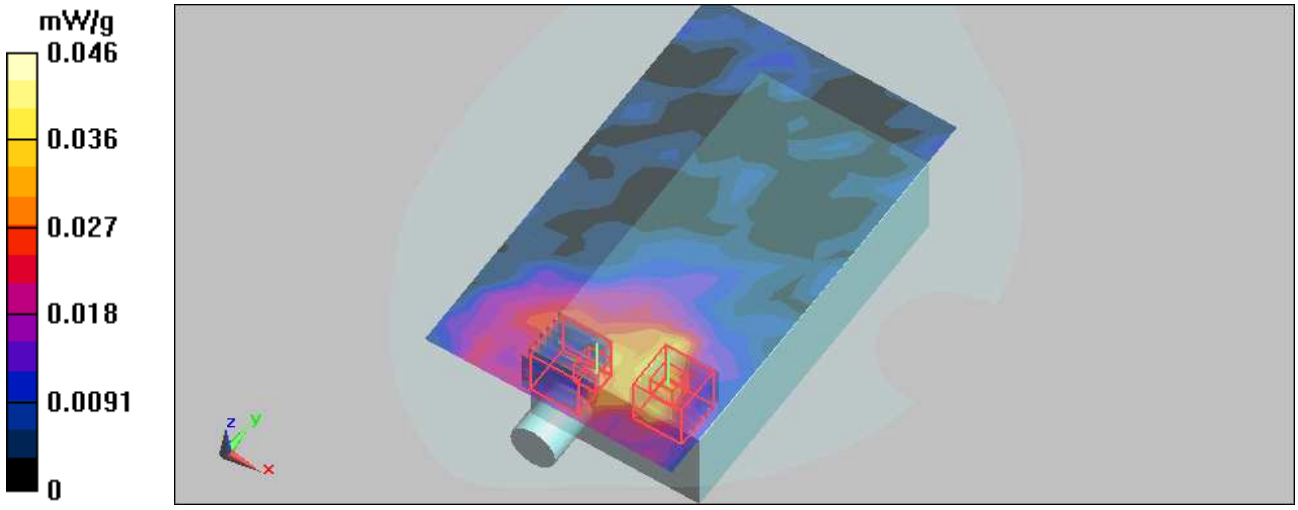
DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(3.95, 3.95, 3.95); Calibrated: 2010/1/26
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM ; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Flat Section Mid ch 165/Area Scan (12x20x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.041 mW/g

Flat Section Mid ch 165/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.677 V/m; Power Drift = 0.059 dB
Peak SAR (extrapolated) = 0.149 W/kg
SAR(1 g) = 0.023 mW/g; SAR(10 g) = 0.00759 mW/g
Maximum value of SAR (measured) = 0.046 mW/g

Flat Section Mid ch 165/Zoom Scan (7x7x9)/Cube 1: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.677 V/m; Power Drift = 0.059 dB
Peak SAR (extrapolated) = 0.104 W/kg
SAR(1 g) = 0.023 mW/g; SAR(10 g) = 0.011 mW/g
Maximum value of SAR (measured) = 0.039 mW/g



Date/Time: 2010/4/20 13:33:53

Test Laboratory: Bureau Veritas ADT

M18-A6_2D-Body-11A-Ch165 / LCD Down / 1.5x Batt

DUT: EDA ; Type: MC 75A6

Communication System: 802.11a ; Frequency: 5825 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK
Medium: MSL5800 Medium parameters used: f = 5825 MHz; σ = 6.29 mho/m; ε_r = 50.3; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Separation distance : 0 mm (The back side of the EUT to the Phantom)

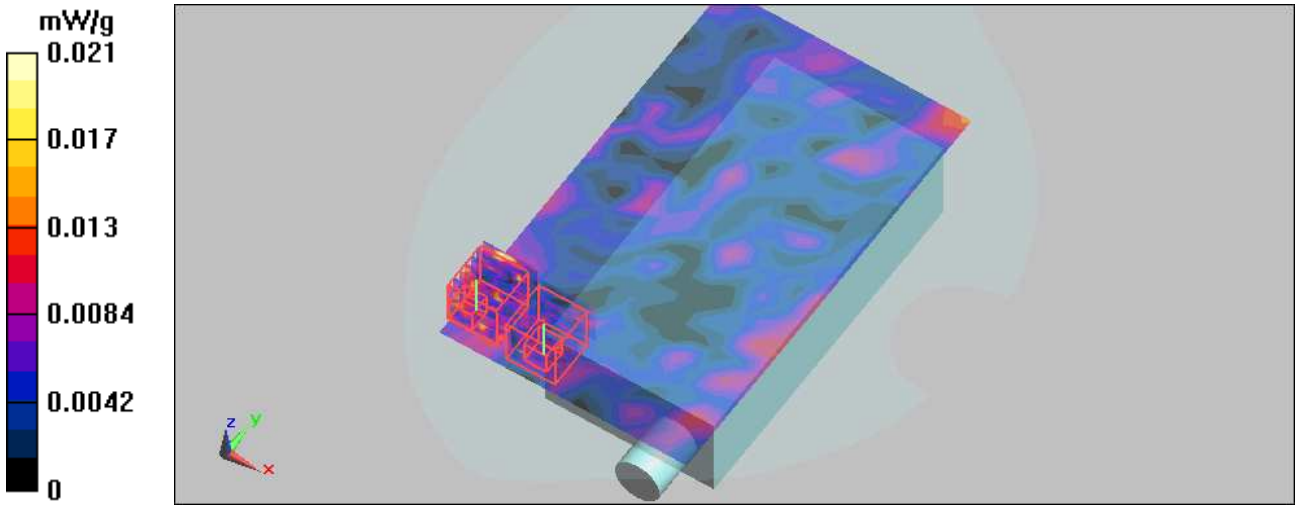
DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(3.95, 3.95, 3.95); Calibrated: 2010/1/26
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM ; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Flat Section Mid Ch165/Area Scan (12x20x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 0.015 mW/g

Flat Section Mid Ch165/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 1.1 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 0.060 W/kg
SAR(1 g) = 0.00309 mW/g; SAR(10 g) = 0.000962 mW/g
Maximum value of SAR (measured) = 0.020 mW/g

Flat Section Mid Ch165/Zoom Scan (7x7x9)/Cube 1: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 1.1 V/m; Power Drift = -0.15 dB
Peak SAR (extrapolated) = 0.054 W/kg
SAR(1 g) = 0.00806 mW/g; SAR(10 g) = 0.00368 mW/g
Maximum value of SAR (measured) = 0.021 mW/g



Date/Time: 2010/4/15 00:22:11

Test Laboratory: Bureau Veritas ADT

System PerformanceCheck-HSL2450 MHz 4-15

DUT: Dipole 2450 MHz ; Type: D2450V2 ; Serial: 737 ; Test Frequency: 2450 MHz

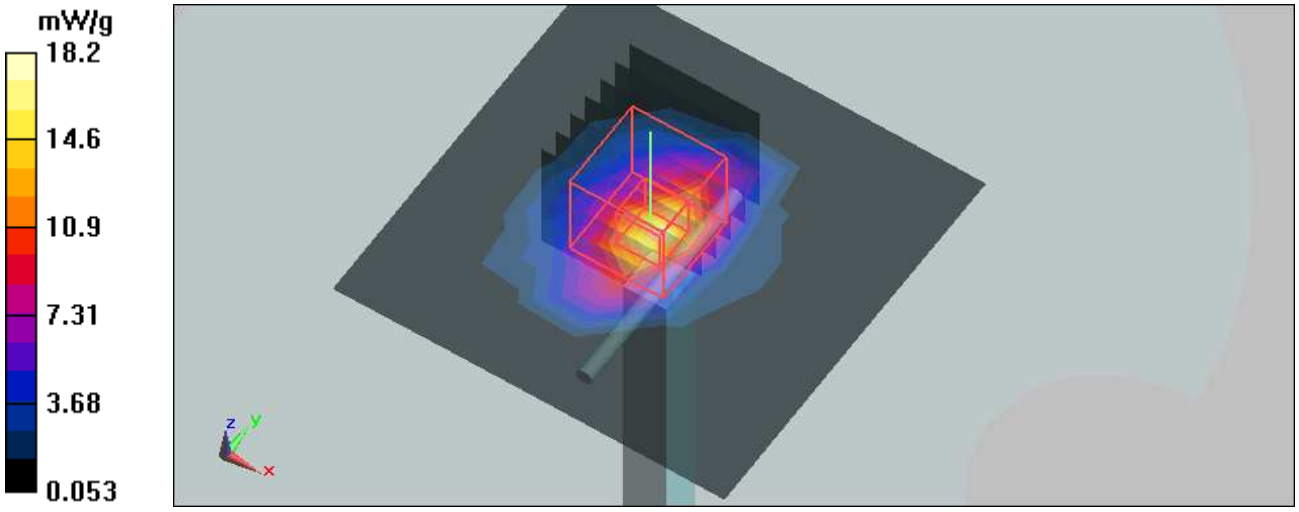
Communication System: CW ; Frequency: 2450 MHz; Duty Cycle: 1:1; Modulation type: CW
Medium: HSL2450;Medium parameters used: f = 2450 MHz; σ = 1.83 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3 ;
Liquid level : 154 mm
Phantom section: Flat Section ; Separation distance : 10 mm (The feetpoint of the dipole to the Phantom)Air temp. : 23.4 degrees ; Liquid temp. : 22.9 degrees

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(7.77, 7.77, 7.77); Calibrated: 2010/1/26
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

System Performance Check at Frequencies 2.45 GHz/d=10mm, Pin=250 mW, dist=3.0mm /Area Scan (7x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 17.6 mW/g

System Performance Check at Frequencies 2.45 GHz/d=10mm, Pin=250 mW, dist=3.0mm /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 98.2 V/m; Power Drift = 0.012 dB
Peak SAR (extrapolated) = 30.3 W/kg
SAR(1 g) = 13.8 mW/g; SAR(10 g) = 6.21 mW/g
Maximum value of SAR (measured) = 18.3 mW/g



Date/Time: 2010/4/16 01:23:29

Test Laboratory: Bureau Veritas ADT

System PerformanceCheck-HSL5800MHz 4-16

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

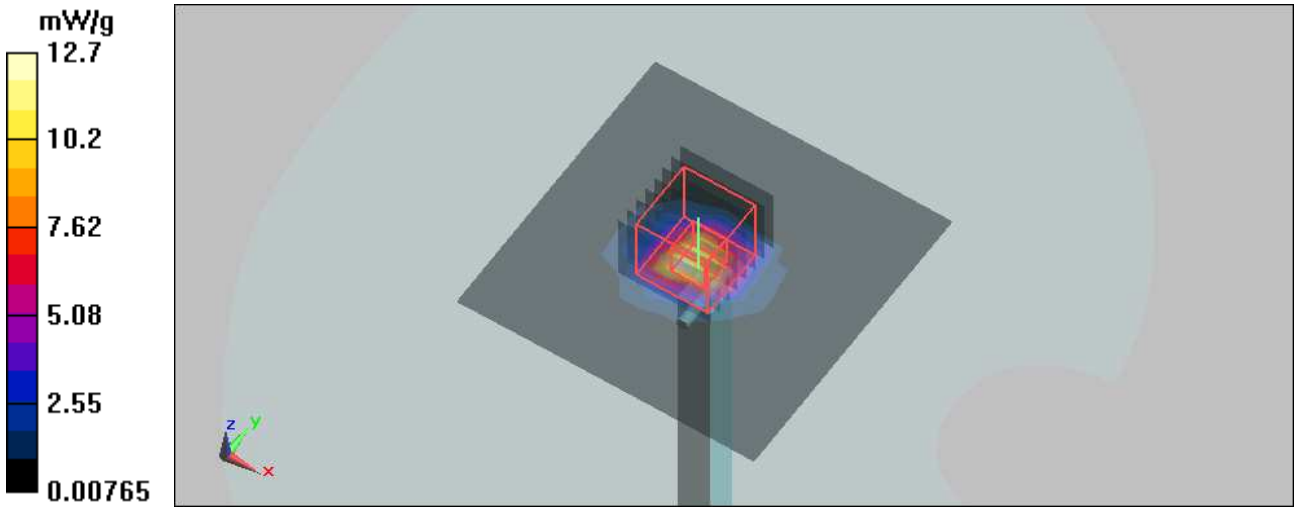
Communication System: CW-5GHz ; Frequency: 5800 MHz; Duty Cycle: 1:1; Modulation type: CW
Medium: HSL5800;Medium parameters used: f = 5800 MHz; σ = 5.39 mho/m; ε_r = 35.9; ρ = 1000 kg/m^3 ;
Liquid level : 153 mm
Phantom section: Flat Section ; Separation distance : 10 mm (The feetpoint of the dipole to the Phantom)Air temp. : 23.3 degrees ; Liquid temp. : 23.0 degrees

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(4.53, 4.53, 4.53); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

System Performance Check with D5GHzV2 Dipole (uniform grid)/d=10mm, Pin=100mW, f=5800 MHz/Area Scan (10x10x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 12.7 mW/g

System Performance Check with D5GHzV2 Dipole (uniform grid)/d=10mm, Pin=100mW, f=5800 MHz/Zoom Scan (4x4x2.5mm), dist=2mm (8x8x10)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 60.6 V/m; Power Drift = -0.014 dB
Peak SAR (extrapolated) = 35.6 W/kg
SAR(1 g) = 8.1 mW/g; SAR(10 g) = 2.29 mW/g
Maximum value of SAR (measured) = 16.1 mW/g



Date/Time: 2010/4/17 01:24:11

Test Laboratory: Bureau Veritas ADT

System PerformanceCheck- HSL5800MHz 4-17

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

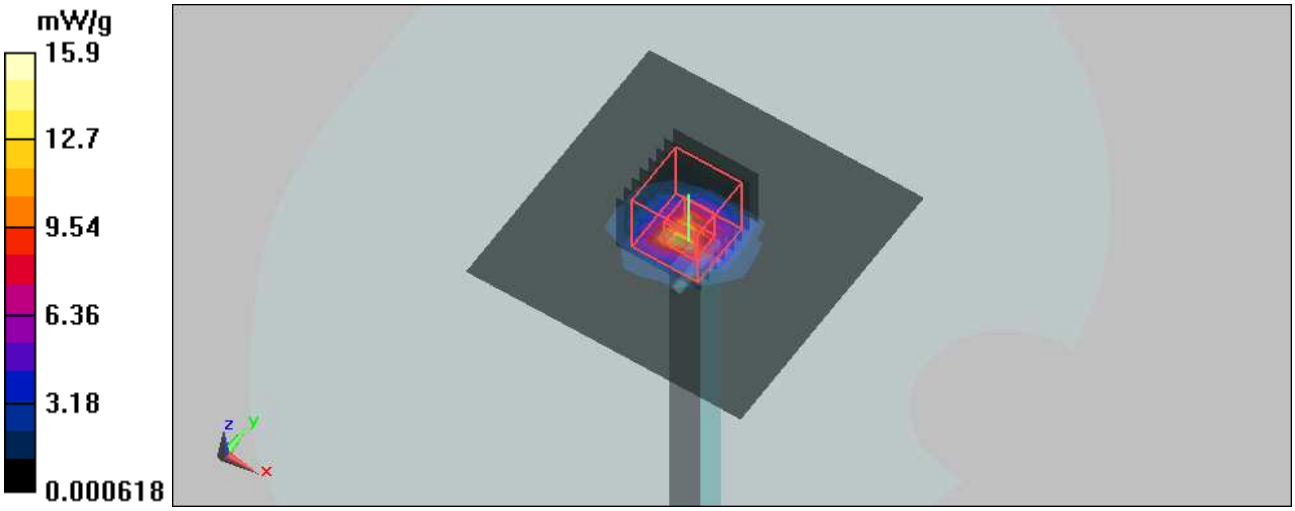
Communication System: CW-5GHz ; Frequency: 5800 MHz; Duty Cycle: 1:1; Modulation type: CW
Medium: HSL5800;Medium parameters used: f = 5800 MHz; σ = 5.39 mho/m; ε_r = 35.9; ρ = 1000 kg/m^3 ;
Liquid level : 152 mm
Phantom section: Flat Section ; Separation distance : 10 mm (The feetpoint of the dipole to the Phantom)Air temp. : 23.3 degrees ; Liquid temp. : 22.9 degrees

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(4.53, 4.53, 4.53); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

System Performance Check with D5GHzV2 Dipole (uniform grid)/d=10mm, Pin=100mW, f=5800 MHz/Area Scan (10x10x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 12.5 mW/g

System Performance Check with D5GHzV2 Dipole (uniform grid)/d=10mm, Pin=100mW, f=5800 MHz/Zoom Scan (4x4x2.5mm), dist=2mm (8x8x10)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 60.4 V/m; Power Drift = 0.079 dB
Peak SAR (extrapolated) = 34.2 W/kg
SAR(1 g) = 8.03 mW/g; SAR(10 g) = 2.28 mW/g
Maximum value of SAR (measured) = 15.9 mW/g



Date/Time: 2010/4/18 01:18:29

Test Laboratory: Bureau Veritas ADT

System PerformanceCheck- HSL 5800MHz 4-18

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

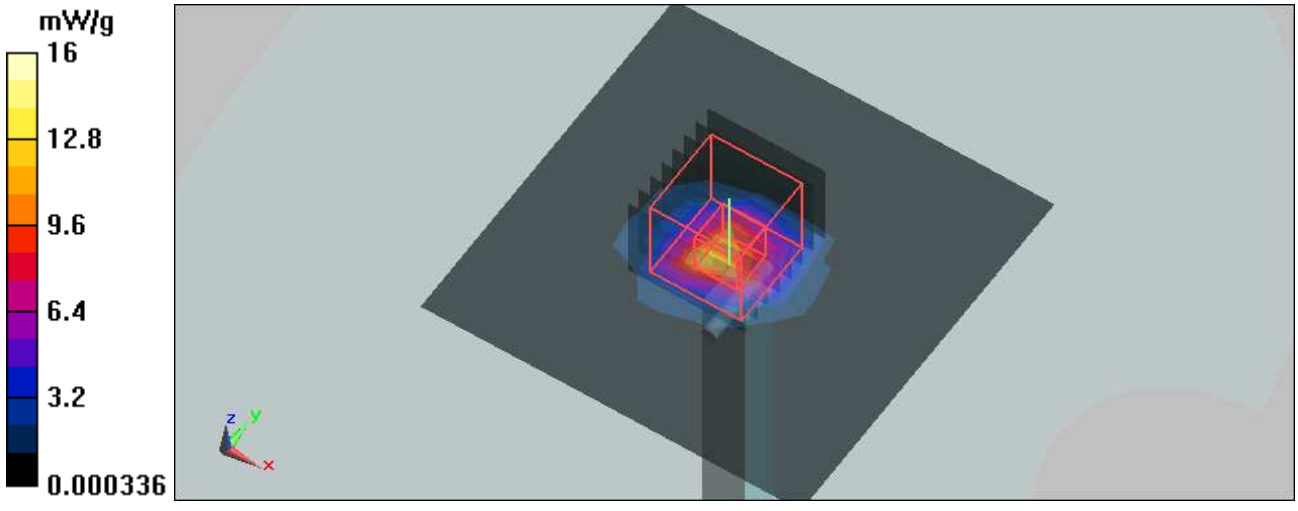
Communication System: CW-5GHz ; Frequency: 5800 MHz; Duty Cycle: 1:1; Modulation type: CW
Medium: HSL5800;Medium parameters used: f = 5800 MHz; σ = 5.33 mho/m; ε_r = 35.5; ρ = 1000 kg/m^3 ;
Liquid level : 152 mm
Phantom section: Flat Section ; Separation distance : 10 mm (The feetpoint of the dipole to the Phantom)Air temp. : 23.0 degrees ; Liquid temp. : 22.5 degrees

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(4.53, 4.53, 4.53); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

System Performance Check with D5GHzV2 Dipole (uniform grid)/d=10mm, Pin=100mW, f=5800 MHz/Area Scan (10x10x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 12.6 mW/g

System Performance Check with D5GHzV2 Dipole (uniform grid)/d=10mm, Pin=100mW, f=5800 MHz/Zoom Scan (4x4x2.5mm), dist=2mm (8x8x10)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 60.6 V/m; Power Drift = -0.023 dB
Peak SAR (extrapolated) = 35.4 W/kg
SAR(1 g) = 8.04 mW/g; SAR(10 g) = 2.28 mW/g
Maximum value of SAR (measured) = 16 mW/g



Date/Time: 2010/4/19 01:25:29

Test Laboratory: Bureau Veritas ADT

System Performance Check- HSL 5800MHz 4-19

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

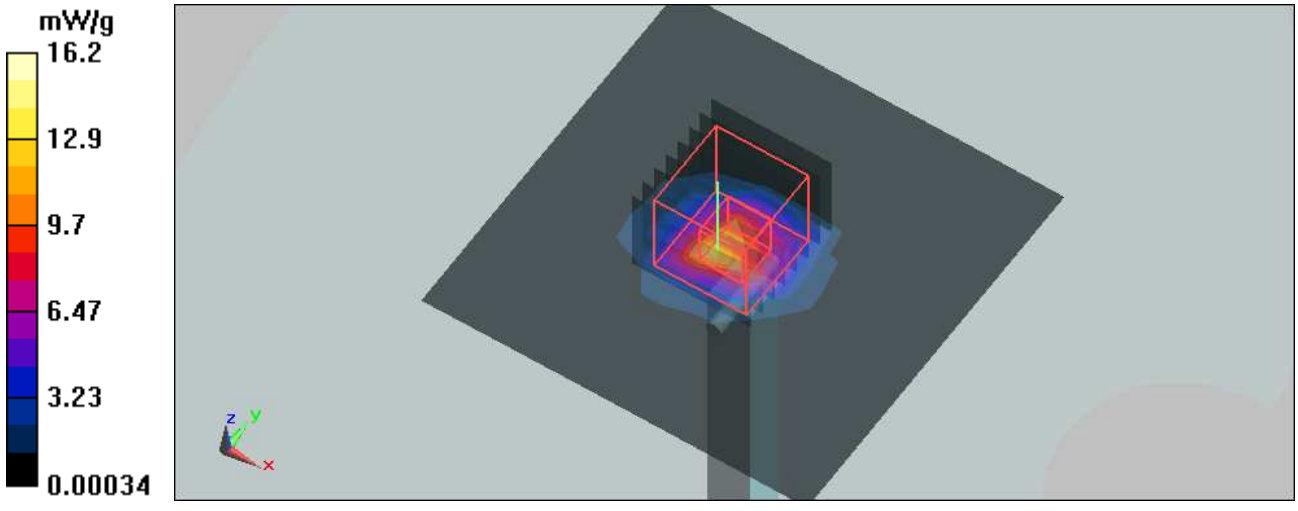
Communication System: CW-5GHz ; Frequency: 5800 MHz; Duty Cycle: 1:1; Modulation type: CW
Medium: HSL5800;Medium parameters used: f = 5800 MHz; σ = 5.36 mho/m; ε_r = 35.6; ρ = 1000 kg/m^3 ;
Liquid level : 152 mm
Phantom section: Flat Section ; Separation distance : 10 mm (The feetpoint of the dipole to the Phantom)Air temp. : 23.1 degrees ; Liquid temp. : 22.6 degrees

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(4.53, 4.53, 4.53); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

System Performance Check with D5GHzV2 Dipole (uniform grid)/d=10mm, Pin=100mW, f=5800 MHz/Area Scan (10x10x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 12.8 mW/g

System Performance Check with D5GHzV2 Dipole (uniform grid)/d=10mm, Pin=100mW, f=5800 MHz/Zoom Scan (4x4x2.5mm), dist=2mm (8x8x10)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 60.8 V/m; Power Drift = -0.011 dB
Peak SAR (extrapolated) = 35.8 W/kg
SAR(1 g) = 8.15 mW/g; SAR(10 g) = 2.31 mW/g
Maximum value of SAR (measured) = 16.2 mW/g



Date/Time: 2010/4/20 01:27:29

Test Laboratory: Bureau Veritas ADT

System Performance Check- MSL 5800MHz 4-20

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

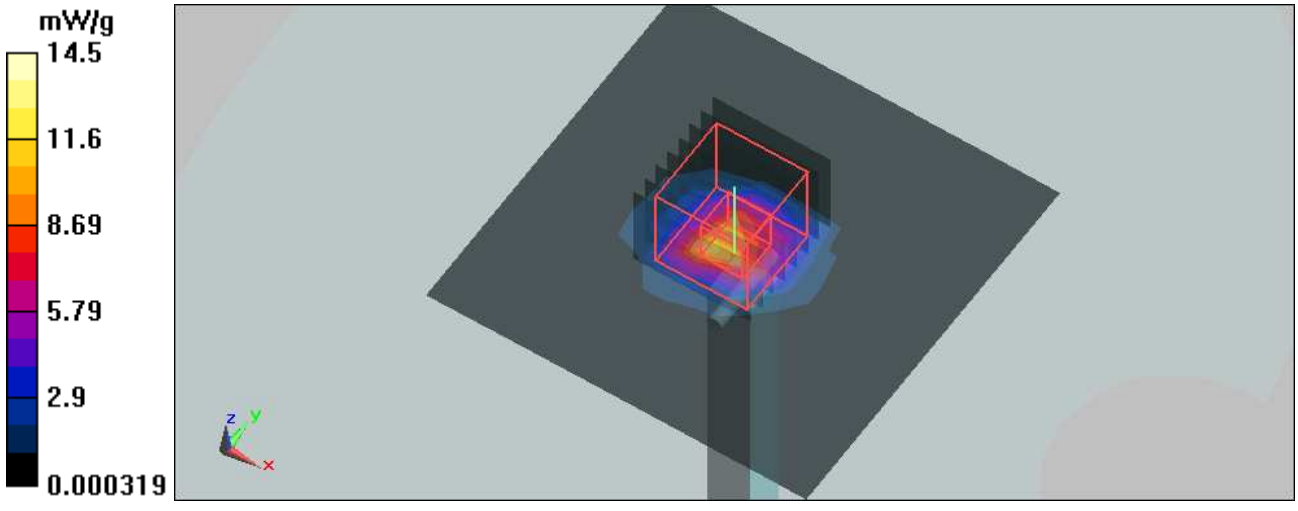
Communication System: CW-5GHz ; Frequency: 5800 MHz; Duty Cycle: 1:1; Modulation type: CW
Medium: MSL5800;Medium parameters used: f = 5800 MHz; σ = 6.25 mho/m; ε_r = 50.3; ρ = 1000 kg/m^3 ; Liquid level : 154 mm
Phantom section: Flat Section ; Separation distance : 10 mm (The feetpoint of the dipole to the Phantom)Air temp. : 23.0 degrees ; Liquid temp. : 22.5 degrees

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(3.95, 3.95, 3.95); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

System Performance Check with D5GHzV2 Dipole (uniform grid)/d=10mm, Pin=100mW, f=5800 MHz/Area Scan (10x10x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (measured) = 11.5 mW/g

System Performance Check with D5GHzV2 Dipole (uniform grid)/d=10mm, Pin=100mW, f=5800 MHz/Zoom Scan (4x4x2.5mm), dist=2mm (8x8x10)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 64.9 V/m; Power Drift = -0.014 dB
Peak SAR (extrapolated) = 30.2 W/kg
SAR(1 g) = 7.3 mW/g; SAR(10 g) = 2.07 mW/g
Maximum value of SAR (measured) = 14.5 mW/g



Date/Time: 2010/4/21 00:24:11

Test Laboratory: Bureau Veritas ADT

System Performance Check-HSL2450 4-21

DUT: Dipole 2450 MHz ; Type: D2450V2 ; Serial: 737 ; 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 = 1.87 mho/m; ε_r = 40.5; 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. : 22.8 degrees ; Liquid temp. : 22.5 degrees

DASY5 Configuration:

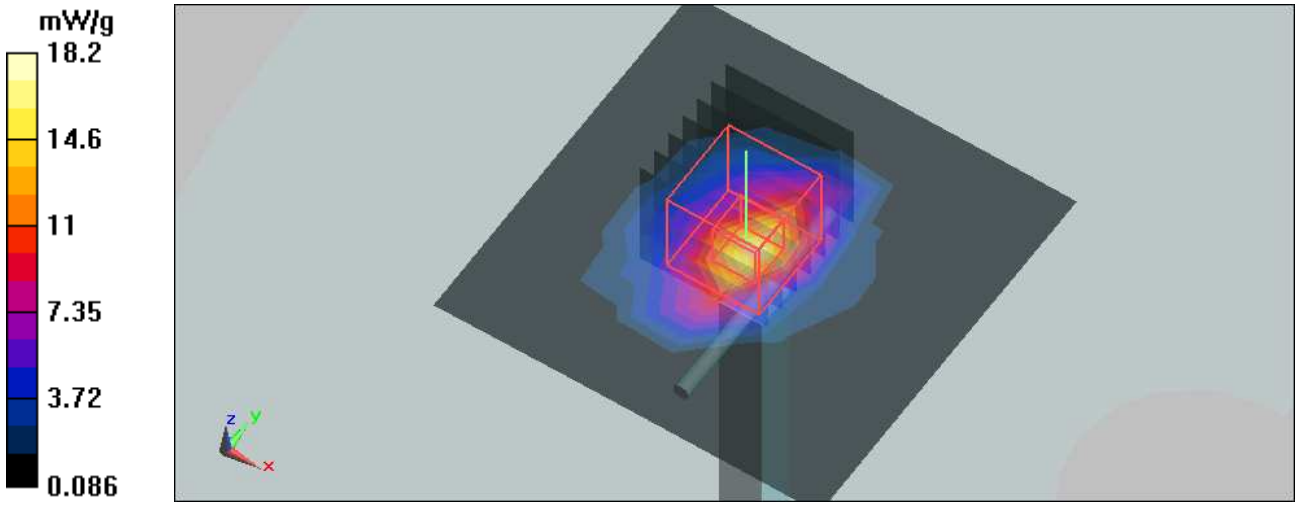
- Probe: EX3DV3 - SN3504; ConvF(7.77, 7.77, 7.77); Calibrated: 2010/1/26
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

System Performance Check/d=10mm, Pin=250 mW, dist=3.0mm/Area Scan (7x7x1):

Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 17.5 mW/g

System Performance Check/d=10mm, Pin=250 mW, dist=3.0mm/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 97.6 V/m; Power Drift = 0.0041 dB
Peak SAR (extrapolated) = 30 W/kg
SAR(1 g) = 13.7 mW/g; SAR(10 g) = 6.17 mW/g
Maximum value of SAR (measured) = 18.2 mW/g



Date/Time: 2010/4/21 04:26:25

Test Laboratory: Bureau Veritas ADT

System Performance Check -MSL 2450MHz 4-21

DUT: Dipole 2450 MHz ; Type: D2450V2 ; Serial: 737 ; 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 = 1.95 mho/m; ε_r = 53.8; 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. : 22.7 degrees ; Liquid temp. : 22.6 degrees

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(7.91, 7.91, 7.91); Calibrated: 2010/1/26
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

System Performance Check/d=10mm, Pin=250 mW, dist=3.0mm/Area Scan (7x7x1):

Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 15.9 mW/g

System Performance Check/d=10mm, Pin=250 mW, dist=3.0mm/Zoom Scan (7x7x7) (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 91.4 V/m; Power Drift = -0.193 dB
Peak SAR (extrapolated) = 26.8 W/kg
SAR(1 g) = 12.2 mW/g; SAR(10 g) = 5.55 mW/g
Maximum value of SAR (measured) = 15.8 mW/g