SAR TEST REPORT

(PART 22/24)

REPORT NO.: SA990211L16-3

MODEL NO.: MC959B

RECEIVED: Feb. 11, 2010

TESTED: Mar. 13 ~ Mar. 17, 2010

ISSUED: Apr. 06, 2010

APPLICANT: Motorola, Inc.

ADDRESS: One Motorola Plaza, Holtsville, NY 11742-1300 USA

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:	Mobile Computer
MODEL:	MC959B
BRAND:	Motorola
APPLICANT:	Motorola, Inc.
TESTED:	Mar. 13 ~ Mar. 17, 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: MC959B) have 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:** Apr. 06, 2010
Pettie Chen / Specialist

TECHNICAL ACCEPTANCE : _____ , **DATE:** Apr. 06, 2010
Responsible for RF
Mason Chang / Engineer

APPROVED BY : _____ , **DATE:** Apr. 06, 2010
Gary Chang / Assistant Manager

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

EUT	Mobile Computer	
MODEL NO.	MC959B	
FCC ID	UZ7MC959B	
POWER SUPPLY	3.7Vdc (Li-ion battery) 5.4Vdc (Adapter)	
CLASSIFICATION	Portable device, production unit	
MODULATION TYPE	GMSK, 8PSK (for GPRS, E-GPRS) QPSK, OQPSK, HPSK (for CDMA) BPSK (for WCDMA)	
FREQUENCY RANGE	Tx Frequency: 824MHz ~ 849MHz 1850MHz ~ 1910MHz Rx Frequency: 869MHz ~ 894MHz 1930MHz ~ 1990MHz	
CHANNEL FREQUENCIES UNDER TEST AND ITS CONDUCTED OUTPUT POWER	Refer to item 5.2	
MAX. AVERAGE SAR (1g)	0.59W/kg	
ANTENNA TYPE	Monopole antenna	
MAX. ANTENNA GAIN	**850MHz:** -0.3dBi	**1900MHz:** 2.2dBi
DATA CABLE	Refer to NOTE as below	
I/O PORTS	Refer to user's manual	
ACCESSORY DEVICES	Battery	

NOTE:

1. The EUT is a Mobile Computer. The functions of EUT listed as below:

	REFERENCE REPORT
WLAN 802.11b/g	SA990211L16
WLAN 802.11a (5745~5825MHz)	
WLAN 802.11a (5180~5320MHz, 5500~5700MHz)	SA990211L16-1
BLUETOOTH	SA990211L16-2
GSM 850/CDMA 850/WCDMA 850	SA990211L16-3
PCS 1900/CDMA 1900/WCDMA 1900	

2. The models identified as below are identical to each other except of the following options:
   - Barcode reader: 1D laser scanner / 2D Imager

BRAND	MODEL	DESCRIPTION
Motorola	MC959B	Calculator Numeric
Motorola	MC959B	Telephony Numeric
Motorola	MC959B	Alpha Primary
Motorola	**MC959B**	**Alpha Numeric Wide**
**the worst case had been marked by boldface.		

3. The EUT had two lithium batteries listed as below:

Li-ion battery 1 (WITH LED)		**Li-ion battery 2 (WITHOUT LED)**	
BRAND:	MOTOROLA	**BRAND:**	MOTOROLA
MODEL:	82-111636-01	**MODEL:**	82-111636-01
RATING:	3.7Vdc, 4800mAh, 17.7Wh	**RATING:**	3.7Vdc, 4800mAh, 17.7Wh

   **Battery 1 was chosen as the representative for testing.
   *The applicant defined the normal working voltage of the battery is from 3.7Vdc to 4.2Vdc.

4. The communicated functions of EUT listed as below:

		PCS (850&1900MHz)	CDMA (850&1900MHz)	WCDMA (850&1900MHz)	
2G	**GPRS**	✓			**With 802.11a/b/g + Bluetooth + GPS functions**
	EDGE	✓			
3G	**CDMA**		✓		
	1*EVDO		✓		
	WCDMA			✓	
	Release 5 HSDPA			✓	

5. The following accessories are for optional units only.

PRODUCT	BRAND	MODEL	P/N	DESCRIPTION
USB charging Y cable	Motorola	-	25-116365-01R	1.8m shielded cable with one core
Headset	Motorola	-	50-11300-050R	0.8m non-shielded cable with one core
Adapter	HIPRO	HP-O2040D43	-	Input: 100-240Vac, 50-60Hz, 1.5A Output: 12Vdc, 3.33A, MAX 40W Power line: AC 1.7m non-shielded cable without core DC1.8m non-shielded cable with one core
Holster	Motorola	-	-	-

6. The EUT has no voice function.
7. Hardware version: SV
8. Software version: 05.02.20963
9. IMEI Code: 980030000037 000 ~ 980030000037 999.
10. 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 47 CFR 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 5.2 Build 157) 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 to > 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, CENELEC 50361 and IEC 62209. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents evaporation of the liquid. Reference markings on the phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points with the robot.
SHELL THICKNESS	2 ± 0.2 mm
FILLING VOLUME	Approx. 25 liters
DIMENSIONS	Height: 810 mm; Length: 1000 mm; Width: 500 mm

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	835, 1900
RETURN LOSS	> 20 dB at specified validation position
POWER CAPABILITY	> 100 W (f < 1GHz); > 40 W (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 GSM900/DCS1800/PCS1900 GSM/GPRS/CDMA 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 1 g and 10 g 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 1 g and 10 g.

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.

In the Area Scan, the gradient of the interpolation function is evaluated to find all the extreme of the SAR distribution. The uncertainty on the locations of the extreme is less than 1/20 of the grid size. Only local maximum within -2 dB of the global maximum are searched and passed for the Cube Scan measurement. In the Cube Scan, the interpolation function is used to extrapolate the Peak SAR from the lowest measurement points to the inner phantom surface (the extrapolation distance). The uncertainty increases with the extrapolation distance. To keep the uncertainty within 1% for the 1 g and 10 g cubes, the extrapolation distance should not be larger than 5mm.

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 together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.
1	Universal Radio Communication Tester	R&S	CMU200	104484

NO.	SIGNAL CABLE DESCRIPTION OF THE ABOVE SUPPORT UNITS
1	NA

NOTE: All power cords of the above support units are non shielded (1.8m).

4. DESCRIPTION OF TEST CONDITION

TEST DATE	TISSUE TYPE / FREQ.	TEST MODE	TEMPERATURE (°C)		HUMIDITY (%RH)	TESTED BY
			AIMBENT	LIQUID		
Mar. 17, 2010	MSL 835	1 ~ 10	23.2	22.0	65	James Fan
Mar. 13, 2010	MSL 1900	11~ 20	23.5	23.3	64	James Fan

5. TEST RESULTS

5.1 TEST PROCEDURES

The EUT (Mobile Computer) makes a call to the communication simulator station. Establish the simulation communication configuration rather the actual communication. Then the EUT could continuous the transmission mode. Adjust the PCL of the base station could controlled the EUT to transmitted the maximum output power. The base station also could control the transmission channel. 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 / EN 50361, 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 with 15mm x 15mm grid was performed for the highest spatial SAR location. Consist of 11 x 13 points while the scan size is the 150mm x 180mm. 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 4.0 mm and maintained at a constant distance of ±1.0 mm during a zoom scan to determine peak SAR locations. The distance is 4mm 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 9mm separation distance. The cube size is 7 x 7 x 7 points consist of 343 points and the grid space is 5mm.

The measurement time is 0.5 s 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 4mm 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 CONDUCTED POWER

850 BAND

CONDUCTED POWER (dBm)									
Channel	GPRS		EGPRS		EV-DO		CDMA	WCDMA	
	Time slot 1	Time slot 2	Time slot 1	Time slot 2	Rev. A	Rev. 0	TDSO SO32	WCDMA	HSDPA
Low	32.30	32.20	27.60	27.40	24.51	24.48	24.67	24.54	24.51
Mid	32.20	32.10	27.40	27.30	24.46	24.41	24.53	24.61	24.55
High	32.10	32.00	27.30	27.10	24.39	24.37	24.45	24.48	24.44

1900 BAND

CONDUCTED POWER (dBm)									
Channel	GPRS		EGPRS		EV-DO		CDMA	WCDMA	
	Time slot 1	Time slot 2	Time slot 1	Time slot 2	Rev. A	Rev. 0	TDSO SO32	WCDMA	HSDPA
Low	29.20	29.10	25.80	25.70	24.19	24.15	24.35	24.65	24.61
Mid	29.00	28.90	25.60	25.50	24.13	24.08	24.19	24.78	24.72
High	28.80	28.70	25.40	25.30	23.79	23.72	23.88	24.36	24.32

5.3 MEASURED SAR RESULTS

TEST POSITION: BODY / FRONT

BATTERY	KEYPAD	TEST MODE	CHAN.	FREQ. (MHz)	TX MODE	MEASURED 1g SAR (W/kg)
1 (with LED)	Alpha Numeric Wide	1	190	836.6	GPRS 850 TS2	0.429
2 (without LED)	Alpha Numeric Wide	2	190	836.6	GPRS 850 TS2	0.419
1 (with LED)	Alpha Primary	3	190	836.6	GPRS 850 TS2	0.414
1 (with LED)	Alpha Numeric Wide	4	190	836.6	GPRS 850 TS1	0.217
1 (with LED)	Alpha Numeric Wide	5	190	836.6	EGPRS 850 TS1	0.077
1 (with LED)	Alpha Numeric Wide	6	190	836.6	EGPRS 850 TS2	0.151
1 (with LED)	Alpha Numeric Wide	7	4182	836.4	WCDMA850	0.385
1 (with LED)	Alpha Numeric Wide	8	4182	836.4	HSDPA850	0.334
1 (with LED)	Alpha Numeric Wide	9	384	836.52	CDMA850	0.323
1 (with LED)	Alpha Numeric Wide	10	384	836.52	1xEVDO850 Rev 0	0.340
1 (with LED)	Alpha Numeric Wide	11	384	836.52	1xEVDO850 Rev A	0.338
1 (with LED)	Alpha Numeric Wide	12	661	1880	GPRS 1900 TS2	**0.592**
2 (without LED)	Alpha Numeric Wide	13	661	1880	GPRS 1900 TS2	0.448
1 (with LED)	Alpha Primary	14	661	1880	GPRS 1900 TS2	0.491
1 (with LED)	Alpha Numeric Wide	15	661	1880	GPRS 1900 TS1	0.267
1 (with LED)	Alpha Numeric Wide	16	661	1880	EGPRS 1900 TS1	0.215
1 (with LED)	Alpha Numeric Wide	17	661	1880	EGPRS 1900 TS2	0.428
1 (with LED)	Alpha Numeric Wide	18	9400	1880	WCDMA1900	0.464
1 (with LED)	Alpha Numeric Wide	19	9400	1880	HSDPA1900	0.448
1 (with LED)	Alpha Numeric Wide	20	600	1880	CDMA1900	0.498
1 (with LED)	Alpha Numeric Wide	21	600	1880	1xEVDO1900 Rev 0	0.479
1 (with LED)	Alpha Numeric Wide	22	600	1880	1xEVDO1900 Rev A	0.475

NOTE:

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

5.4 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.

5.5 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 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 (75-125 mPa.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 835MHz SIMULATING LIQUID TABLE

INGREDIENT	HEAD SIMULATING LIQUID 835MHz (HSL-835)	MUSCLE SIMULATING LIQUID 835MHz (MSL-835)
Water	40.28%	50.07%
Cellulose	02.41%	NA
Salt	01.38%	0.94%
Preventtol D-7	00.18%	0.09%
Sugar	57.97%	48.2%
Dielectric Parameters at 22℃	f = 835MHz ε= 41.5 ± 5% σ= 0.97 ± 5% S/m	f= 835MHz ε= 55.0 ± 5% σ= 1.05 ± 5% S/m

THE RECIPES FOR 1900MHz SIMULATING LIQUID TABLE

INGREDIENT	HEAD SIMULATING LIQUID 1900MHz (HSL-1900)	MUSCLE SIMULATING LIQUID 1900MHz (MSL-1900)
Water	55.24%	70.16%
DGMBE	44.45%	29.44%
Salt	0.306%	00.39%
Dielectric Parameters at 22℃	f= 1900MHz ε= 40.0 ± 5% σ= 1.40 ± 5% S/m	f= 1900MHz ε= 53.3 ± 5% σ= 1.52 ± 5% S/m

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 30 min. 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 900 MHz) and press ‘Option’-button.

Select the current medium for the frequency of the validation (e.g. Setup Medium Brain 900 MHz).

FOR 850 BAND SIMULATING LIQUID

LIQUID TYPE		MSL-835		
SIMULATING LIQUID TEMP.		22.0		
TEST DATE		Mar. 17, 2010		
TESTED BY		James Fan		
FREQ. (MHz)	**LIQUID PARAMETER**	**STANDARD VALUE**	**MEASUREMENT VALUE**	**ERROR PERCENTAGE (%)**
835.0	Permitivity (ε)	55.20	55.87	1.21
836.5		55.20	55.86	1.20
835.0	Conductivity (σ) S/m	0.97	0.96	-1.03
836.5		0.97	0.96	-1.03

FOR 1900 BAND SIMULATING LIQUID

LIQUID TYPE		MSL-1900		
SIMULATING LIQUID TEMP.		23.3		
TEST DATE		Mar. 13, 2010		
TESTED BY		James Fan		
FREQ. (MHz)	**LIQUID PARAMETER**	**STANDARD VALUE**	**MEASUREMENT VALUE**	**ERROR PERCENTAGE (%)**
1880.0	Permitivity (ε)	53.40	53.80	0.75
1900.0		53.30	53.90	1.13
1880.0	Conductivity (σ) S/m	1.49	1.55	4.03
1900.0		1.52	1.58	3.95

5.6 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. 26, 2009	Nov. 25, 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.

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	Anritsu	68247B	984703	May 21, 2009	May 20, 2010
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	D835V2	4d021	May 25, 2009	May 24, 2010
			D1900V2	5d022	Mar. 17, 2009	Mar. 16, 2010
7	Power Meter	Agilent	E4416A	GB41291763	Sep. 30, 2009	Sep. 29, 2010
8	Power Sensor	Agilent	E9327A	US40441181	Sep. 30, 2009	Sep. 29, 2010

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

6.2 TEST PROCEDURE

Before you start the system performance check, need only to tell the system with which components (probe, medium, and device) are performing the system performance check; the system will take care of all parameters. The dipole must be placed beneath the flat phantom 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 the EUT 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 ±0.02 dB.

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**
MSL 835	2.54 (1g)	2.62	3.15	15mm	Mar. 17, 2010
MSL 1900	10.20 (1g)	10.50	2.94	10mm	Mar. 13, 2010
TESTED BY	James Fan				

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	5.50	Normal	1	1	1	5.50	5.50	∞
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	1.00	Rectangular	√3	1	1	0.58	0.58	∞
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	0.40	Rectangular	√3	1	1	0.23	0.23	∞
Probe Positioning	2.90	Rectangular	√3	1	1	1.67	1.67	∞
Max. SAR Eval.	1.00	Rectangular	√3	1	1	0.58	0.58	∞
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)	4.51	Normal	1	0.64	0.43	2.89	1.94	∞
Liquid Permittivity (target)	5.00	Rectangular	√3	0.6	0.49	1.73	1.41	∞
Liquid Permittivity (measurement)	4.46	Normal	1	0.6	0.49	2.68	2.19	∞
Combined Standard Uncertainty						**10.28**	**9.79**	
Coverage Factor for 95%						**Kp=2**		
Expanded Uncertainty (K=2)						**20.55**	**19.57**	

NOTE: About the system validation uncertainty assessment, please reference the section 7.

7. 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

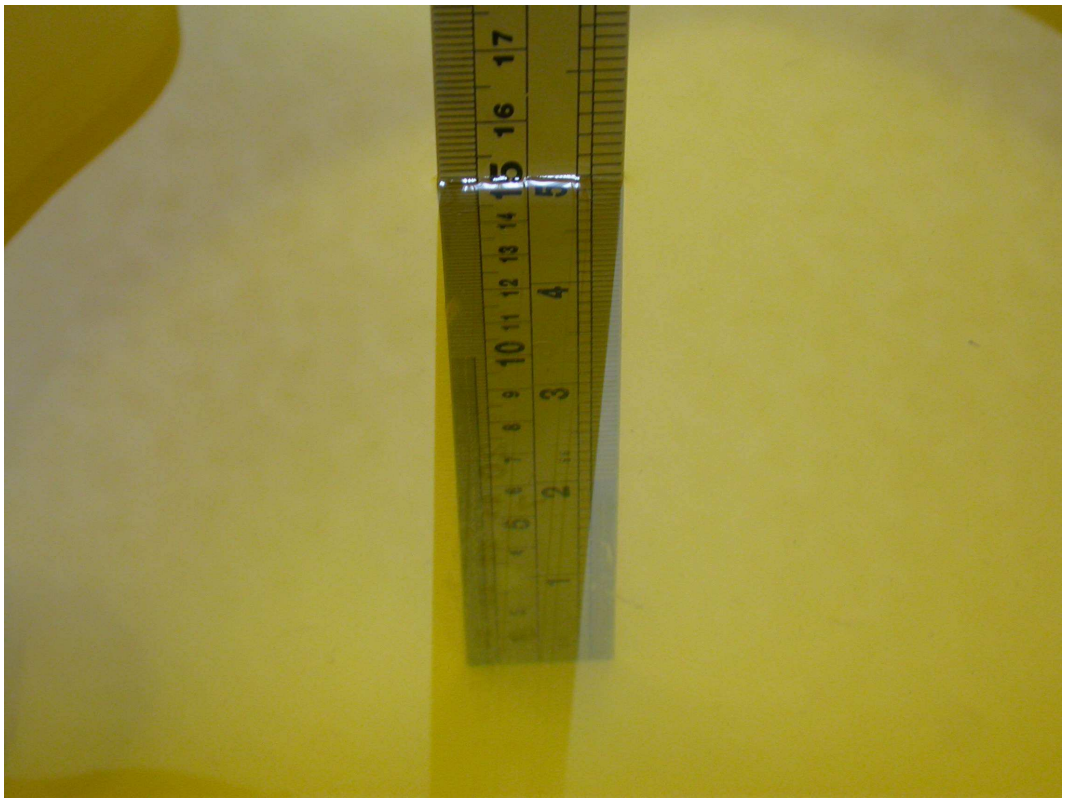
Web Site: www.adt.com.tw

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

APPENDIX A: TEST DATA

Liquid Level Photo

Tissue MSL835MHz D=152mm



Tissue MSL1900MHz D=152mm

Date/Time: 2010/3/17 02:13:21

Test Laboratory: Bureau Veritas ADT

M01-Body Front-GPRS 850 TS2-Ch190 /Battery 1 (with LED) /Keypad 2(Alpha Numeric Wide)

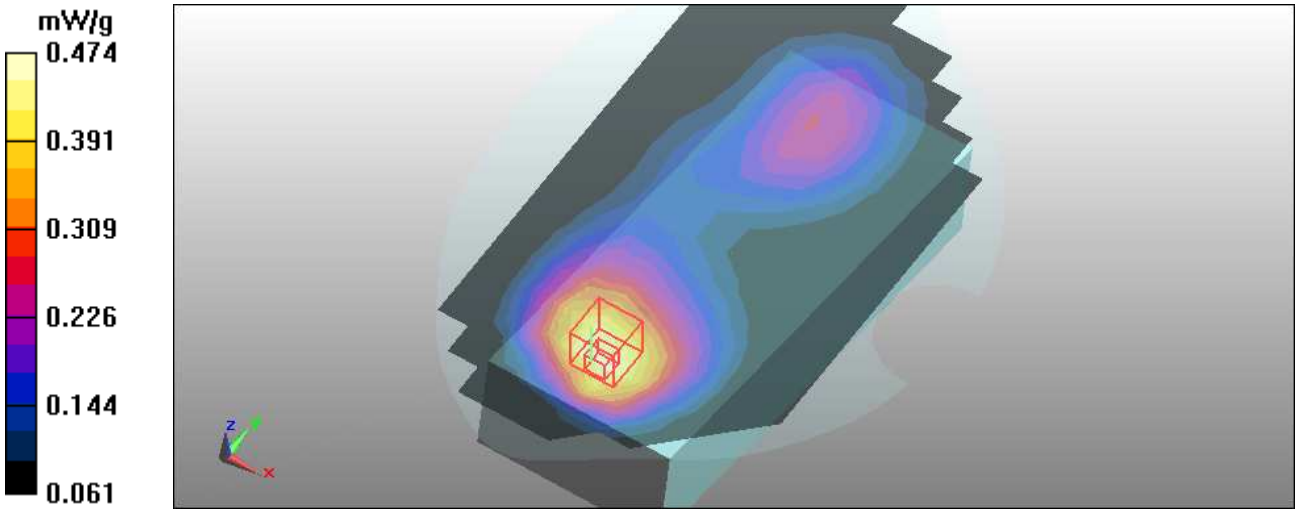
DUT: Mobile Computer ; Type: MC959B
Communication System: GPRS TS2 ; Frequency: 836.6 MHz ; Duty Cycle: 1:4.00037
Medium: MSL900 Medium parameters used (interpolated): f = 836.5MHz; σ = 0.96 mho/m; ε_r = 55.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: GMSK
Separation Distance : 0 mm (The Front side of the EUT with holster to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(9.93, 9.93, 9.93) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2010/1/22
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Mid Channel 190 /Area Scan (11x19x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.471 mW/g

Mid Channel 190 /Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 14.7 V/m; Power Drift = 0.017 dB
Peak SAR (extrapolated) = 0.562 W/kg
SAR(1 g) = 0.429 mW/g; SAR(10 g) = 0.317 mW/g
Maximum value of SAR (measured) = 0.474 mW/g



Date/Time: 2010/3/17 03:08:14

Test Laboratory: Bureau Veritas ADT

M02-Body Front-GPRS 850 TS2-Ch190 /Battery2 (without LED) /Keypad 2(Alpha Numeric Wide)

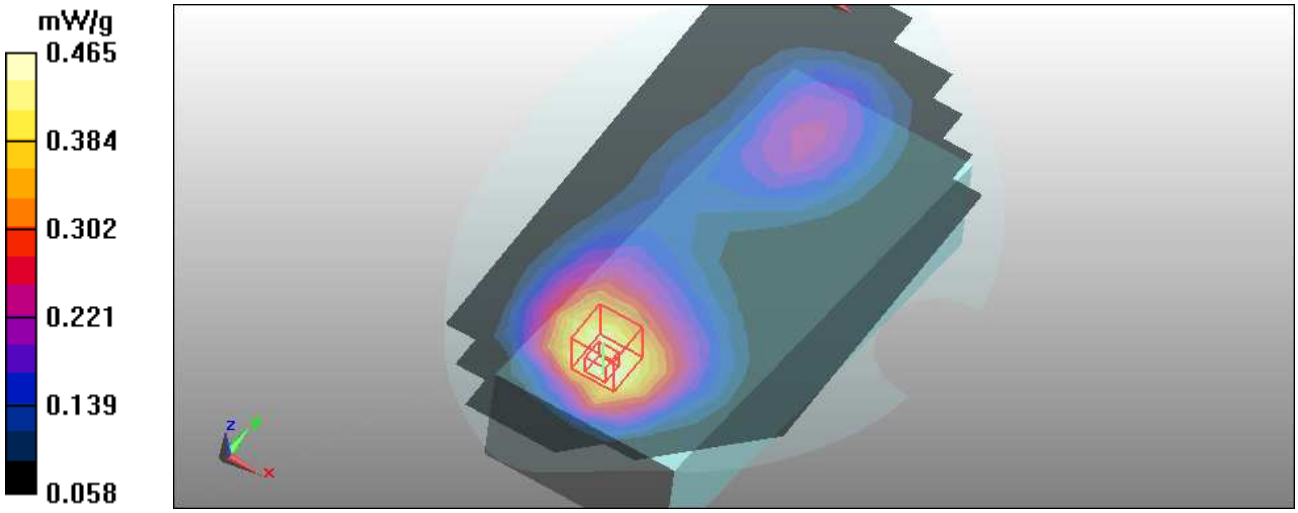
DUT: Mobile Computer ; Type: MC959B
Communication System: GPRS TS2 ; Frequency: 836.6 MHz ; Duty Cycle: 1:4.00037
Medium: MSL900 Medium parameters used (interpolated): f = 836.5 MHz; σ = 0.96 mho/m; ε_r = 55.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: GMSK
Separation Distance : 0 mm (The Front side of the EUT with holster to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(9.93, 9.93, 9.93) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2010/1/22
-Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Mid Channel 190 /Area Scan (11x19x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.453 mW/g

Mid Channel 190 /Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 14.7 V/m; Power Drift = -0.139 dB
Peak SAR (extrapolated) = 0.556 W/kg
SAR(1 g) = 0.419 mW/g; SAR(10 g) = 0.309 mW/g
Maximum value of SAR (measured) = 0.465 mW/g



Date/Time: 2010/3/17 04:11:58

Test Laboratory: Bureau Veritas ADT

M03-Body Front-GPRS 850 TS2-Ch190 / Battery 1 (with LED) /Keypad 1(Alpha Primary)

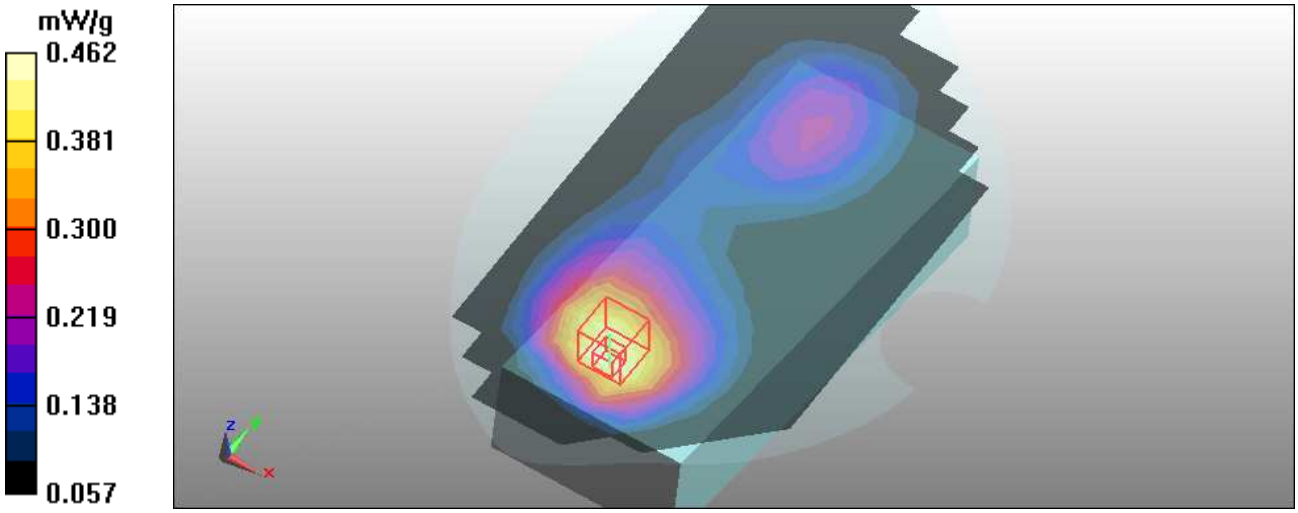
DUT: Mobile Computer ; Type: MC959B
Communication System: GPRS TS2 ; Frequency: 836.6 MHz ; Duty Cycle: 1:4.00037
Medium: MSL900 Medium parameters used (interpolated): f = 836.5 MHz; σ = 0.96 mho/m; ε_r = 55.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: GMSK
Separation Distance : 0 mm (The Front side of the EUT with holster to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(9.93, 9.93, 9.93) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2010/1/22
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Mid Channel 190 /Area Scan (11x19x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.450 mW/g

Mid Channel 190 /Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 14.5 V/m; Power Drift = -0.013 dB
Peak SAR (extrapolated) = 0.549 W/kg
SAR(1 g) = 0.414 mW/g; SAR(10 g) = 0.307 mW/g
Maximum value of SAR (measured) = 0.462 mW/g



Date/Time: 2010/3/17 05:16:42

Laboratory: Bureau Veritas ADT

M04-Body Front-GPRS 850 TS1-Ch190 / Battery 1 (with LED) /Keypad 2(Alpha Numeric Wide)

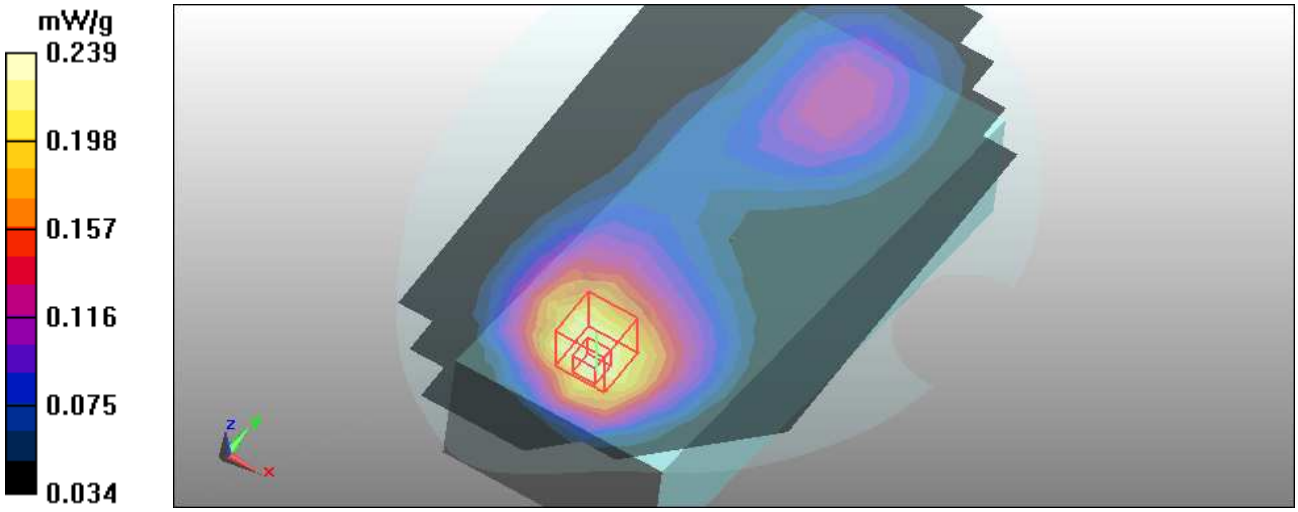
DUT: Mobile Computer ; Type: MC959B
Communication System: GSM_2G ; Frequency: 836.6 MHz ; Duty Cycle: 1:8.3
Medium: MSL900 Medium parameters used (interpolated): f = 836.5 MHz; σ = 0.96 mho/m; ε_r = 55.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: GMSK
Separation Distance : 0 mm (The Front side of the EUT with holster to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(9.93, 9.93, 9.93) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2010/1/22
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Mid Channel 190/Area Scan (11x19x1): Measurement grid: dx=15mm, dy=15mm

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

Mid Channel 190/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 10.8 V/m; Power Drift = 0.016 dB
Peak SAR (extrapolated) = 0.288 W/kg
SAR(1 g) = 0.217 mW/g; SAR(10 g) = 0.161 mW/g
Maximum value of SAR (measured) = 0.239 mW/g



Date/Time: 2010/3/17 06:12:36

Test Laboratory: Bureau Veritas ADT

M05-Body Front- EGPRS 850 TS1-Ch190 / Battery 1 (with LED) /Keypad 2(Alpha Numeric Wide)

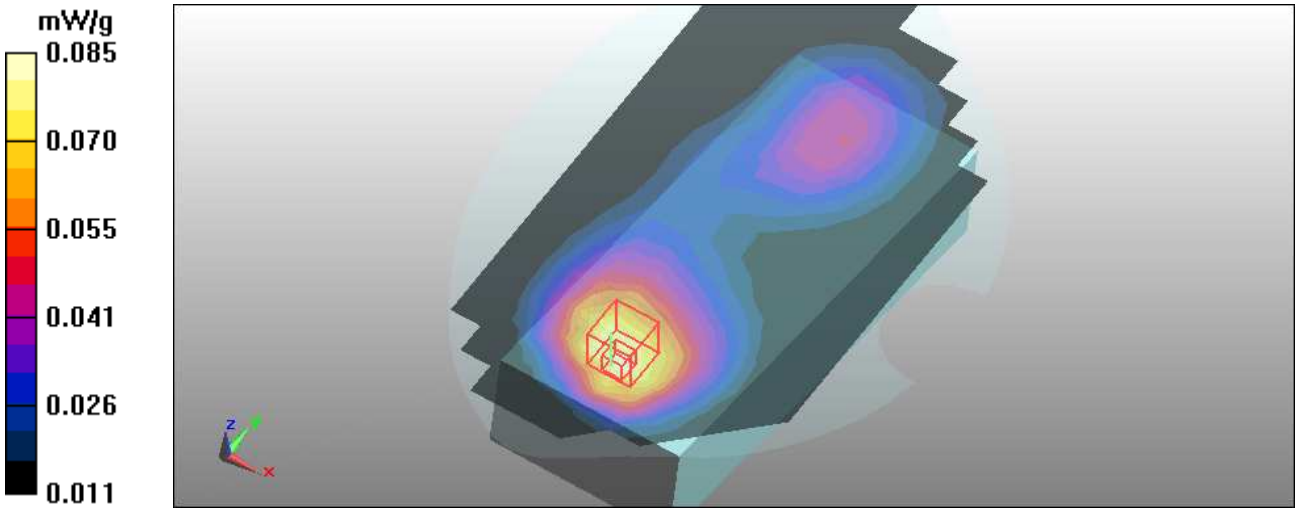
DUT: Mobile Computer ; Type: MC959B
Communication System: GSM_2G ; Frequency: 836.6MHz ; Duty Cycle: 1:8.3
Medium: MSL900 Medium parameters used (interpolated): f = 836.5 MHz; σ = 0.96 mho/m; ε_r = 55.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: 8PSK
Separation Distance : 0 mm (The Front side of the EUT with holster to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(9.93, 9.93, 9.93) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2010/1/22
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Mid Channel 190/Area Scan (11x19x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.084 mW/g

Mid Channel 190/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 6.42 V/m; Power Drift = 0.080 dB
Peak SAR (extrapolated) = 0.100 W/kg
SAR(1 g) = 0.077 mW/g; SAR(10 g) = 0.057 mW/g
Maximum value of SAR (measured) = 0.085 mW/g



Date/Time: 2010/3/17 07:16:00

Test Laboratory: Bureau Veritas ADT

M06-Body Front- EGPRS 850 TS2-Ch190 / Battery 1 (with LED) /Keypad 2(Alpha Numeric Wide)

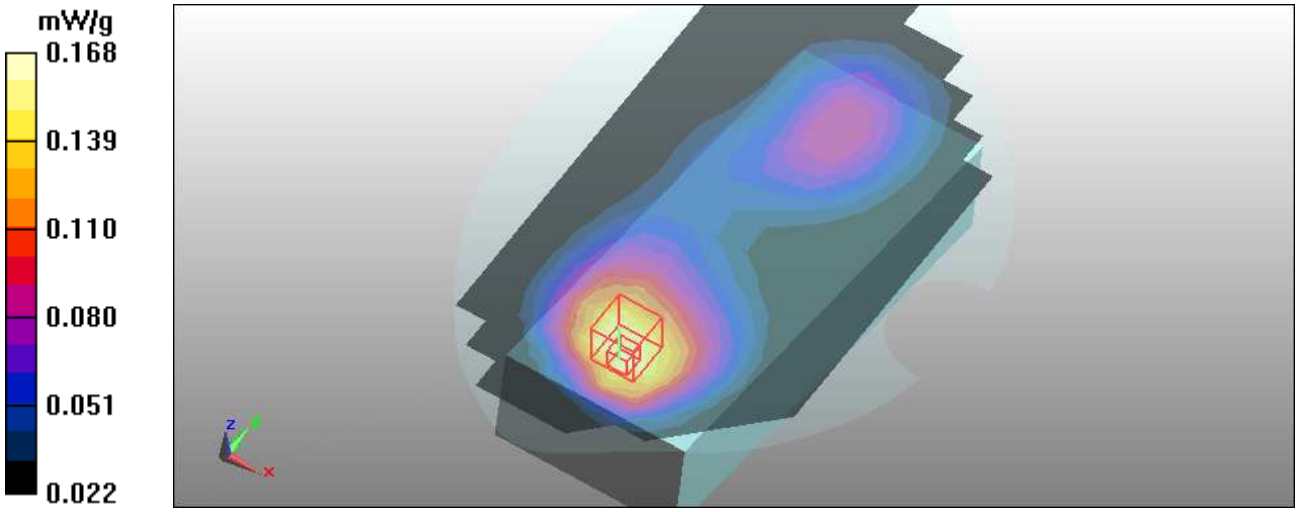
DUT: Mobile Computer ; Type: MC959B
Communication System: GPRS TS2 ; Frequency: 836.6 MHz ; Duty Cycle: 1:4
Medium: MSL900 Medium parameters used (interpolated): f = 836.5 MHz; σ = 0.96 mho/m; ε_r = 55.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: 8PSK
Separation Distance : 0 mm (The Front side of the EUT with holster to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(9.93, 9.93, 9.93) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2010/1/22
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Mid Channel 190/Area Scan (11x19x1): Measurement grid: dx=15mm, dy=15mm

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

Mid Channel 190/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 9.11 V/m; Power Drift = -0.054 dB
Peak SAR (extrapolated) = 0.198 W/kg
SAR(1 g) = 0.151 mW/g; SAR(10 g) = 0.112 mW/g
Maximum value of SAR (measured) = 0.168 mW/g



Date/Time: 2010/3/17 08:18:37

Test Laboratory: Bureau Veritas ADT

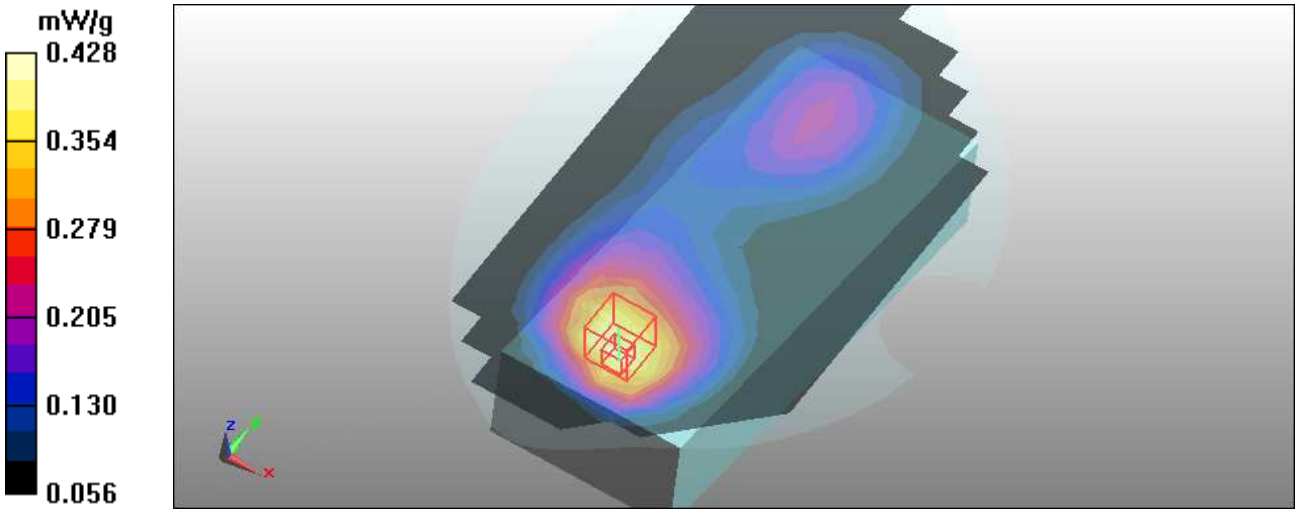
M07-Body Front-WCDMA850-Ch4182 / Battery 1 (with LED) /Keypad 2(Alpha Numeric Wide)

DUT: Mobile Computer ; Type: MC959B
Communication System: UMTS_3G ; Frequency: 836.4 MHz ; Duty Cycle: 1:1
Medium: MSL900 Medium parameters used (interpolated): f = 836.5 MHz; σ = 0.96 mho/m; ε_r = 55.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: GMSK / UL 2 time slots
Separation Distance : 0 mm (The Front side of the EUT with holster to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(9.93, 9.93, 9.93) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2010/1/22
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Mid Channel 4182/Area Scan (11x19x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.424 mW/g

Mid Channel 4182/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 13.8 V/m; Power Drift = 0.147 dB
Peak SAR (extrapolated) = 0.518 W/kg
SAR(1 g) = 0.385 mW/g; SAR(10 g) = 0.282 mW/g
Maximum value of SAR (measured) = 0.428 mW/g



Date/Time: 2010/3/17 09:16:24

Test Laboratory: Bureau Veritas ADT

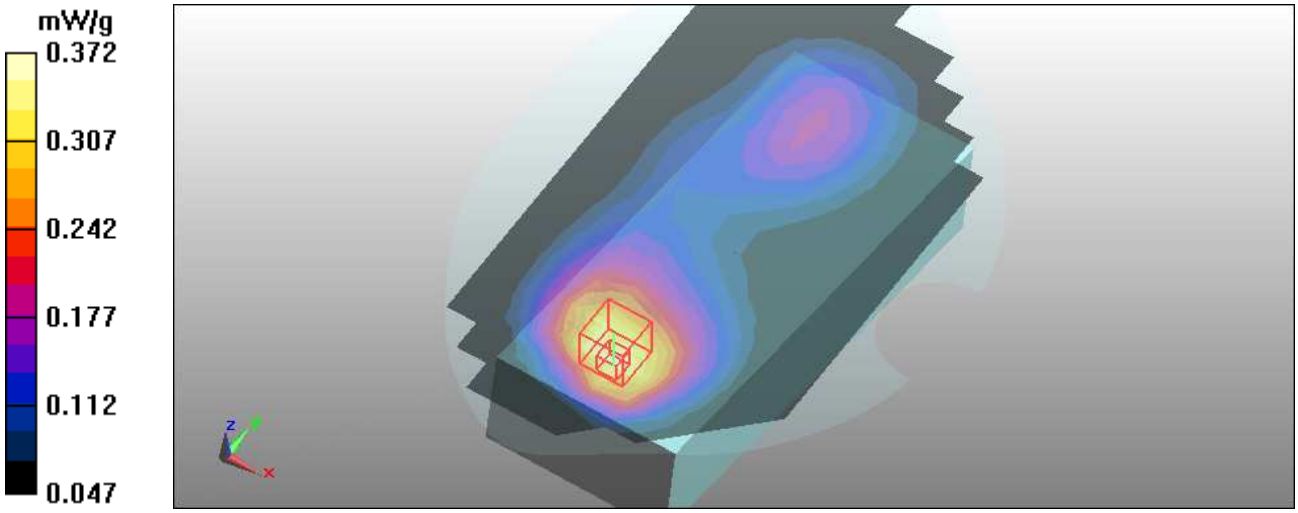
M08-Body Front-WCDMA850-HSDPA-Ch4182 / Battery 1 (with LED) /Keypad 2(Alpha Numeric Wide)

DUT: Mobile Computer ; Type: MC959B
Communication System: UMTS_3G ; Frequency: 836.4 MHz ; Duty Cycle: 1:1
Medium: MSL900 Medium parameters used (interpolated): f = 836.5 MHz; σ = 0.96 mho/m; ε_r = 55.9; 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 holster to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(9.93, 9.93, 9.93) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2010/1/22
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Mid Channel 4182 /Area Scan (11x19x1): Measurement grid: dx=15mm, dy=15mm. Maximum value of SAR (measured) = 0.366 mW/g

Mid Channel 4182 /Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 13 V/m; Power Drift = -0.058 dB
Peak SAR (extrapolated) = 0.449 W/kg
SAR(1 g) = 0.334 mW/g; SAR(10 g) = 0.245 mW/g
Maximum value of SAR (measured) = 0.372 mW/g



Date/Time: 2010/3/17 10:19:25

Test Laboratory: Bureau Veritas ADT

M09-Body Front-CDMA 850-Ch384 / Battery 1 (with LED) /Keypad 2(Alpha Numeric Wide)

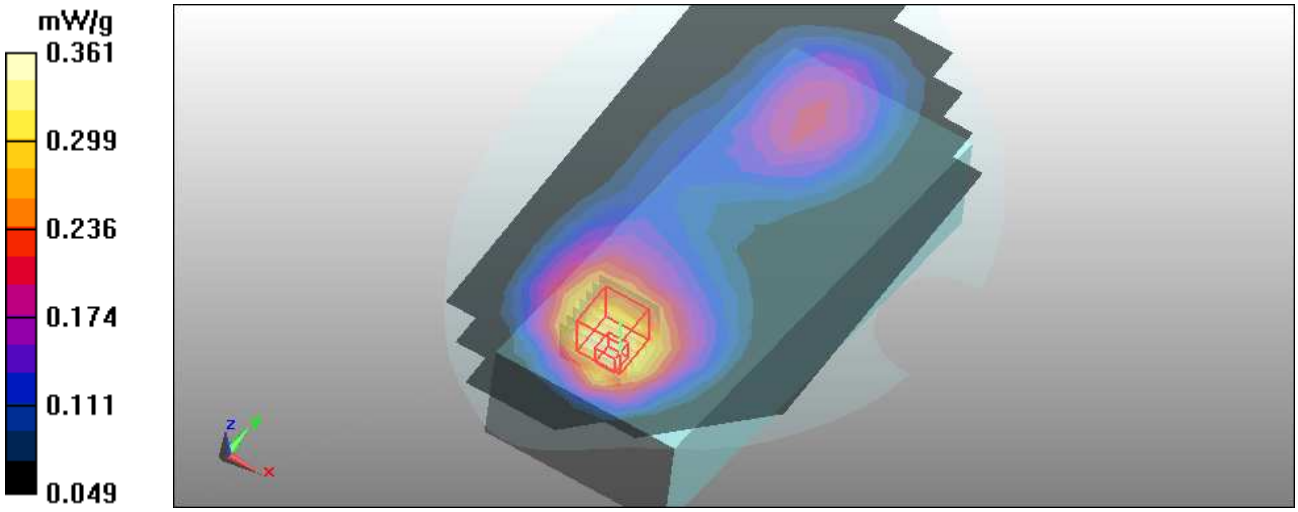
DUT: Mobile Computer ; Type: MC959B
Communication System: CDMA 1x ; Frequency: 836.52 MHz ; Duty Cycle: 1:1
Medium: MSL900 Medium parameters used (interpolated): f = 836.5 MHz; σ = 0.96 mho/m; ε_r = 55.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: OQPSK
Separation Distance : 0 mm (The Front side of the EUT with holster to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(9.93, 9.93, 9.93) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2010/1/22
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Mid. Channel 384/Area Scan (11x19x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.372 mW/g

Mid. Channel 384/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 13.2 V/m; Power Drift = 0.147 dB
Peak SAR (extrapolated) = 0.422 W/kg
SAR(1 g) = 0.323 mW/g; SAR(10 g) = 0.241 mW/g
Maximum value of SAR (measured) = 0.361 mW/g



Date/Time: 2010/3/17 11:20:19

Test Laboratory: Bureau Veritas ADT

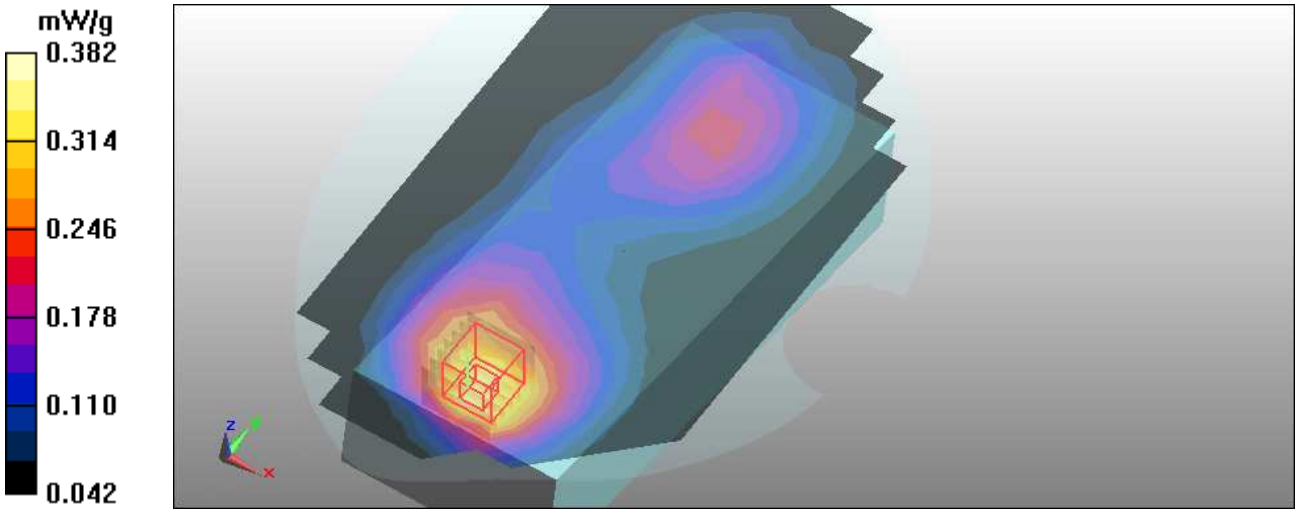
M10-Body Front- 1xEVDO 850 ReV0-Ch384 / Battery 1 (with LED) /Keypad 2(Alpha Numeric Wide)

DUT: Mobile Computer ; Type: MC959B
Communication System: CDMA 1x ; Frequency: 836.52 MHz ; Duty Cycle: 1:1
Medium: MSL900 Medium parameters used (interpolated): f = 836.5 MHz; σ = 0.96 mho/m; ε_r = 55.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: HPSK
Separation Distance : 0 mm (The Front side of the EUT with holster to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(9.93, 9.93, 9.93) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2010/1/22
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Mid. Channel 384/Area Scan (11x19x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.358 mW/g

Mid. Channel 384/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 19.2 V/m; Power Drift = 0.107 dB
Peak SAR (extrapolated) = 0.470 W/kg
SAR(1 g) = 0.340 mW/g; SAR(10 g) = 0.250 mW/g
Maximum value of SAR (measured) = 0.382 mW/g



Date/Time: 2010/3/17 12:25:06

Test Laboratory: Bureau Veritas ADT

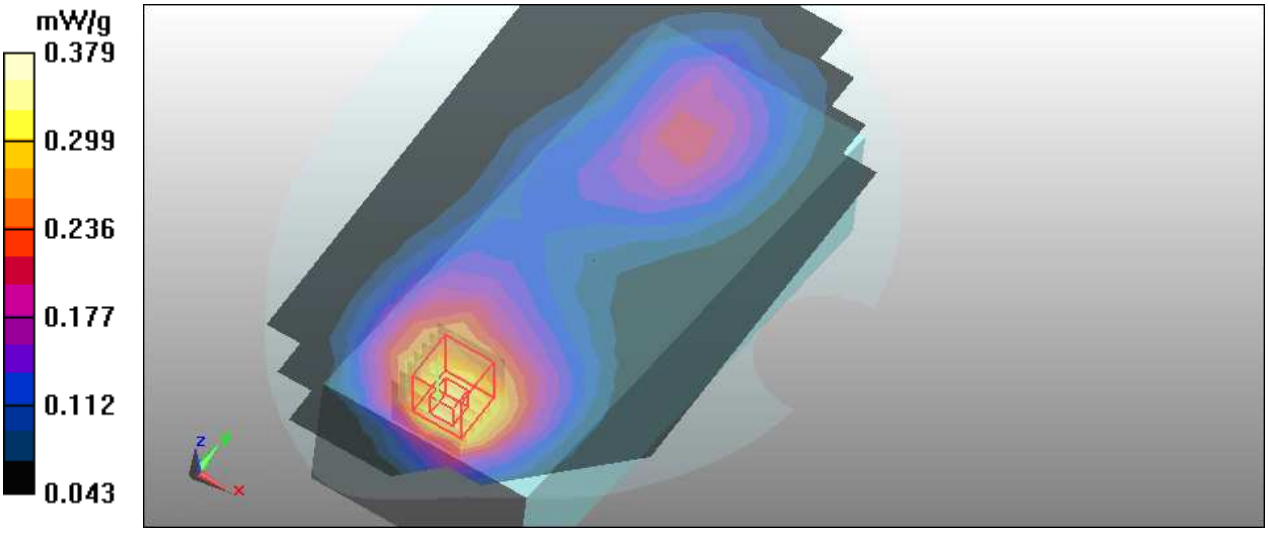
M11-Body Front-1xEVDO 850 RevA -Ch384 / Battery 1 (with LED) /Keypad 2(Alpha Numeric Wide)

DUT: Mobile Computer ; Type: MC959B
Communication System: CDMA 1x ; Frequency: 836.52 MHz ; Duty Cycle: 1:1
Medium: MSL900 Medium parameters used (interpolated): f = 836.5MHz; σ = 0.96 mho/m; ε_r = 55.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: HPSK
Separation Distance : 0 mm (The Front side of the EUT with holster to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(9.93, 9.93, 9.93) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2010/1/22
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Mid. Channel 384/Area Scan (11x19x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.351 mW/g

Mid. Channel 384/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 19.1 V/m; Power Drift = 0.121 dB
Peak SAR (extrapolated) = 0.468 W/kg
SAR(1 g) = 0.338 mW/g; SAR(10 g) = 0.249 mW/g
Maximum value of SAR (measured) = 0.379 mW/g



.Date/Time: 2010/3/13 12:27:26

Test Laboratory: Advance Data Technology

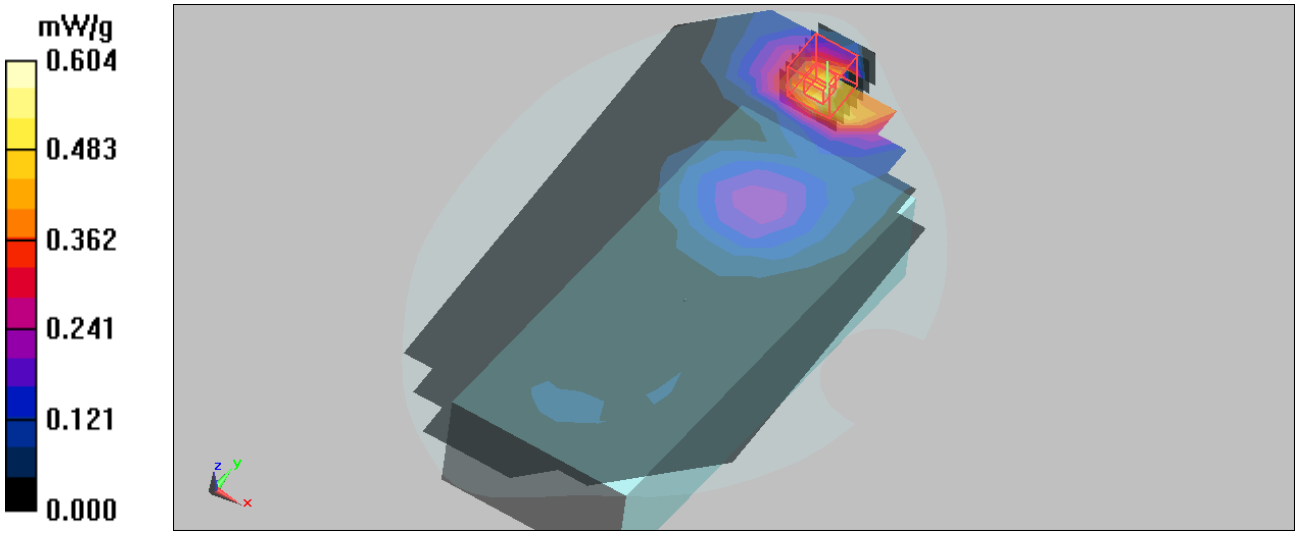
M12-Body Front-GPRS 1900 TS2-Ch661 / Battery 1 (with LED) /Keypad 2(Alpha Numeric Wide)

DUT: Mobile Computer ; Type: MC 9596(GOBI)
Communication System: PCS 1900 ; Frequency: 1880 MHz ; Duty Cycle: 1:8.3
Medium: MSL1900 Medium parameters used: f = 1880 MHz; σ = 1.55 mho/m; ε_r = 53.8; ρ = 1000 kg/m^3
Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: GMSK
Separation Distance : 0 mm (The front side of the EUT to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(8.39, 8.39, 8.39) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2010/1/22
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Mid Channel 661 /Area Scan (11x19x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.527 mW/g

Mid Channel 661 /Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 4.42 V/m; Power Drift = 0.048 dB
Peak SAR (extrapolated) = 2.06 W/kg
SAR(1 g) = 0.592 mW/g; SAR(10 g) = 0.232 mW/g
Maximum value of SAR (measured) = 0.604 mW/g



Date/Time: 2010/3/13 02:21:55

Test Laboratory: Advance Data Technology

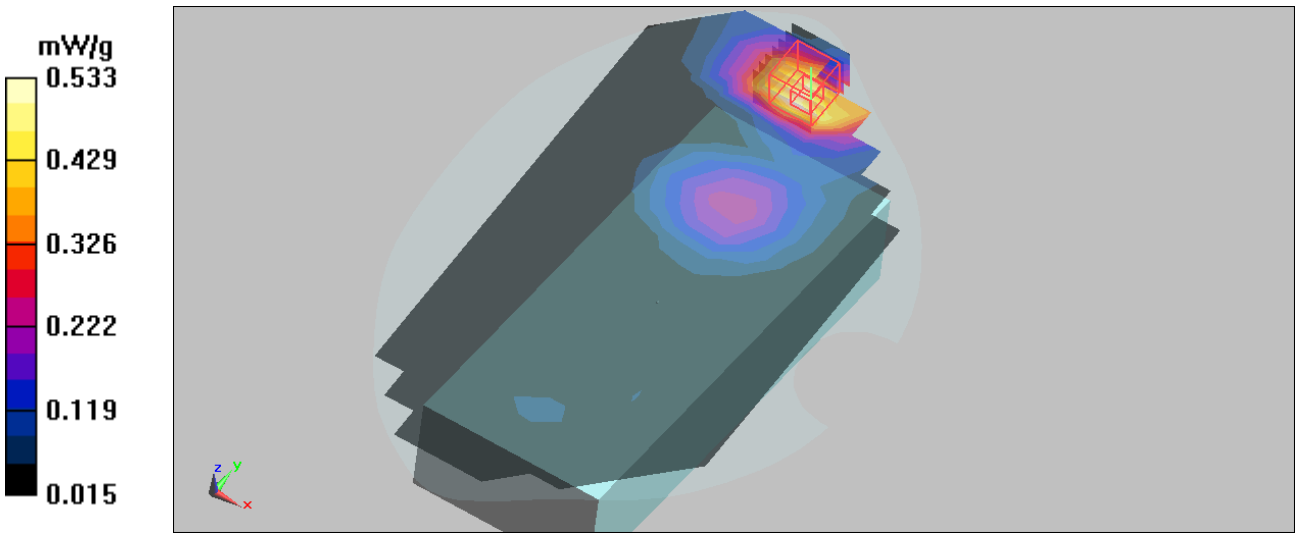
M13-Body Front-GPRS 1900 TS2-Ch661 /Battery2 (without LED) /Keypad 2(Alpha Numeric Wide)

DUT: Mobile Computer ; Type: MC 9596(GOBI)
Communication System: PCS 1900 ; Frequency: 1880 MHz ; Duty Cycle: 1:8.3
Medium: MSL1900 Medium parameters used: f = 1880 MHz; σ = 1.55 mho/m; ε_r = 53.8; ρ = 1000 kg/m^3
Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: GMSK
Separation Distance : 0 mm (The front side of the EUT to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(8.39, 8.39, 8.39) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2010/1/22
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Mid Channel 661 /Area Scan (11x19x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.527 mW/g

Mid Channel 661 /Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 4.47 V/m; Power Drift = -0.139 dB
Peak SAR (extrapolated) = 0.697 W/kg
SAR(1 g) = 0.448 mW/g; SAR(10 g) = 0.265 mW/g
Maximum value of SAR (measured) = 0.533 mW/g



Date/Time: 2010/3/13 03:25:15

Test Laboratory: Advance Data Technology

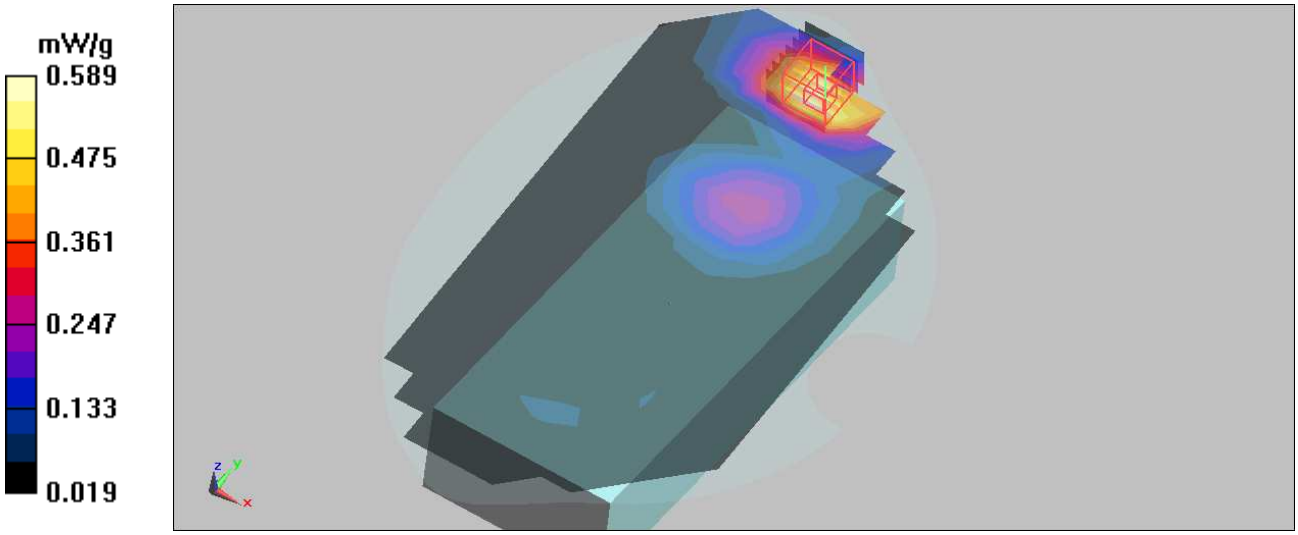
M14-Body Front-GPRS 1900 TS2-Ch661 / Battery 1 (with LED) /Keypad 1(Alpha Primary)

DUT: Mobile Computer ; Type: MC 9596(GOBI)
Communication System: PCS 1900 ; Frequency: 1880 MHz ; Duty Cycle: 1:8.3
Medium: MSL1900 Medium parameters used: f = 1880 MHz; σ = 1.55 mho/m; ε_r = 53.8; ρ = 1000 kg/m^3
Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: GMSK
Separation Distance : 0 mm (The front side of the EUT to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(8.39, 8.39, 8.39) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2010/1/22
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Mid Channel 661 /Area Scan (11x19x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.534 mW/g

Mid Channel 661 /Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 4.53 V/m; Power Drift = -0.152 dB
Peak SAR (extrapolated) = 0.780 W/kg
SAR(1 g) = 0.491 mW/g; SAR(10 g) = 0.289 mW/g
Maximum value of SAR (measured) = 0.589 mW/g



Date/Time: 2010/3/13 04:23:24

Test Laboratory: Advance Data Technology

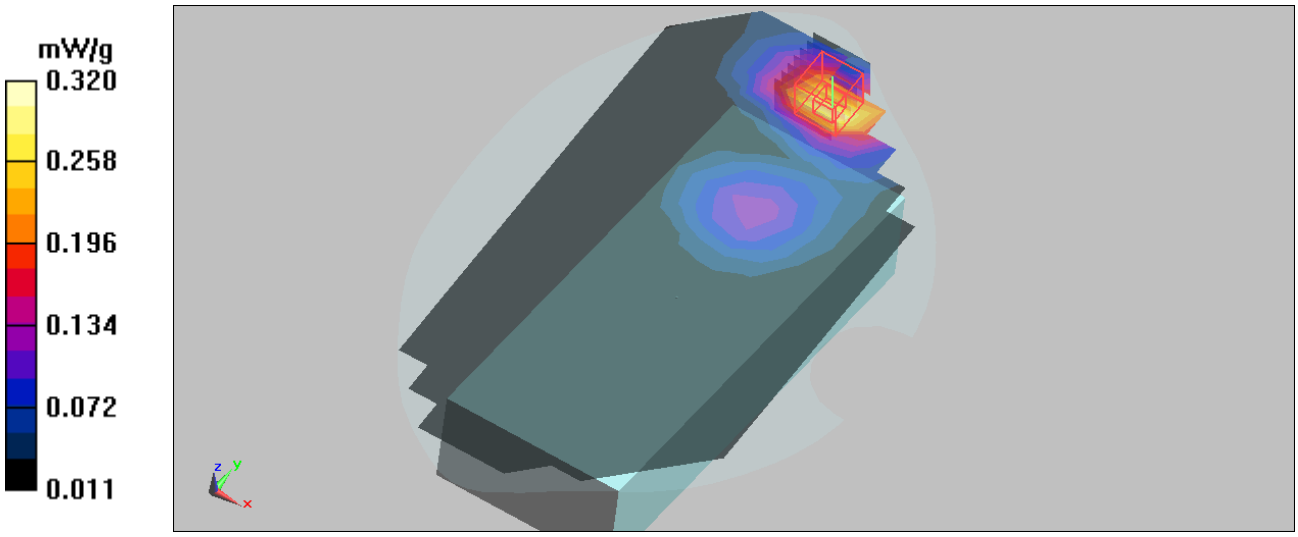
M15-Body Front-GPRS 1900 TS1-Ch661 / Battery 1 (with LED) /Keypad 2(Alpha Numeric Wide)

DUT: Mobile Computer ; Type: MC 9596(GOBI)
Communication System: PCS 1900 ; Frequency: 1880 MHz ; Duty Cycle: 1:8.3
Medium: MSL1900 Medium parameters used: f = 1880 MHz; σ = 1.55 mho/m; ε_r = 53.8; ρ = 1000 kg/m^3
Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: GMSK
Separation Distance : 0 mm (The front side of the EUT to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(8.39, 8.39, 8.39) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2010/1/22
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Mid Channel 190/Area Scan (11x19x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.298 mW/g

Mid Channel 190/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 3.26 V/m; Power Drift = -0.033 dB
Peak SAR (extrapolated) = 0.418 W/kg
SAR(1 g) = 0.267 mW/g; SAR(10 g) = 0.157 mW/g
Maximum value of SAR (measured) = 0.320 mW/g



Date/Time: 2010/3/13 05:25:47

Test Laboratory: Advance Data Technology

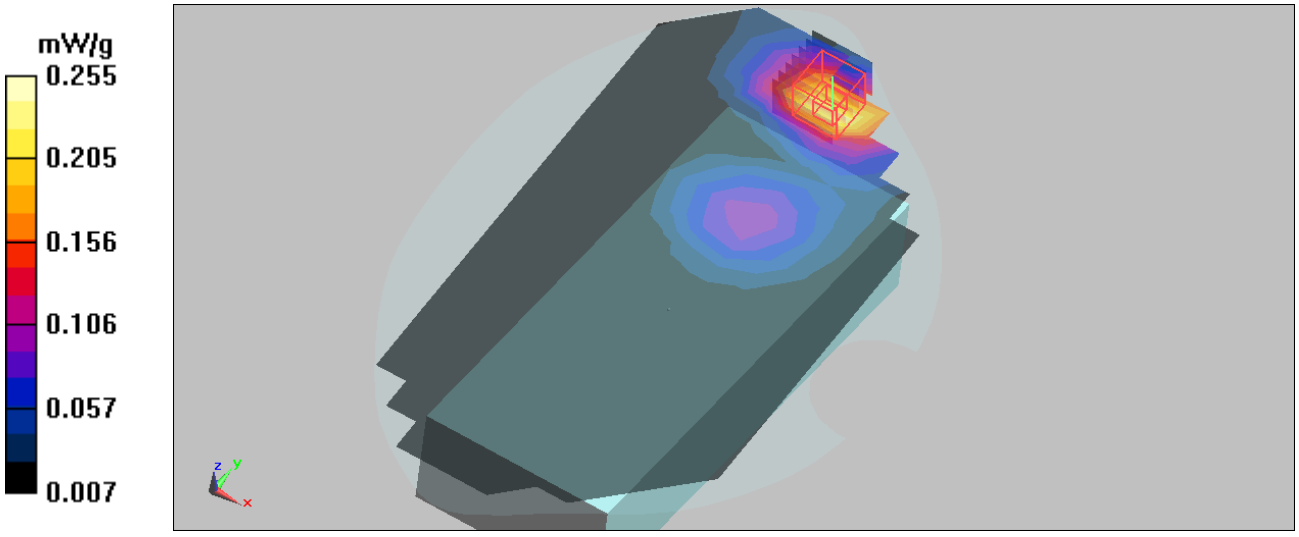
M16-Body Front- EGPRS 1900 TS1-Ch661 / Battery 1 (with LED) /Keypad 2(Alpha Numeric Wide)

DUT: Mobile Computer ; Type: MC 9596(GOBI)
Communication System: PCS 1900 ; Frequency: 1880 MHz ; Duty Cycle: 1:8.3
Medium: MSL1900 Medium parameters used: f = 1880 MHz; σ = 1.55 mho/m; ε_r = 53.8; ρ = 1000 kg/m^3
Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: GMSK
Separation Distance : 0 mm (The front side of the EUT to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(8.39, 8.39, 8.39) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2010/1/22
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Mid Channel 190/Area Scan (11x19x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.239 mW/g

Mid Channel 190/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 3.08 V/m; Power Drift = -0.118 dB
Peak SAR (extrapolated) = 0.333 W/kg
SAR(1 g) = 0.215 mW/g; SAR(10 g) = 0.127 mW/g
Maximum value of SAR (measured) = 0.255 mW/g



Date/Time: 2010/3/13 06:26:44

Test Laboratory: Advance Data Technology

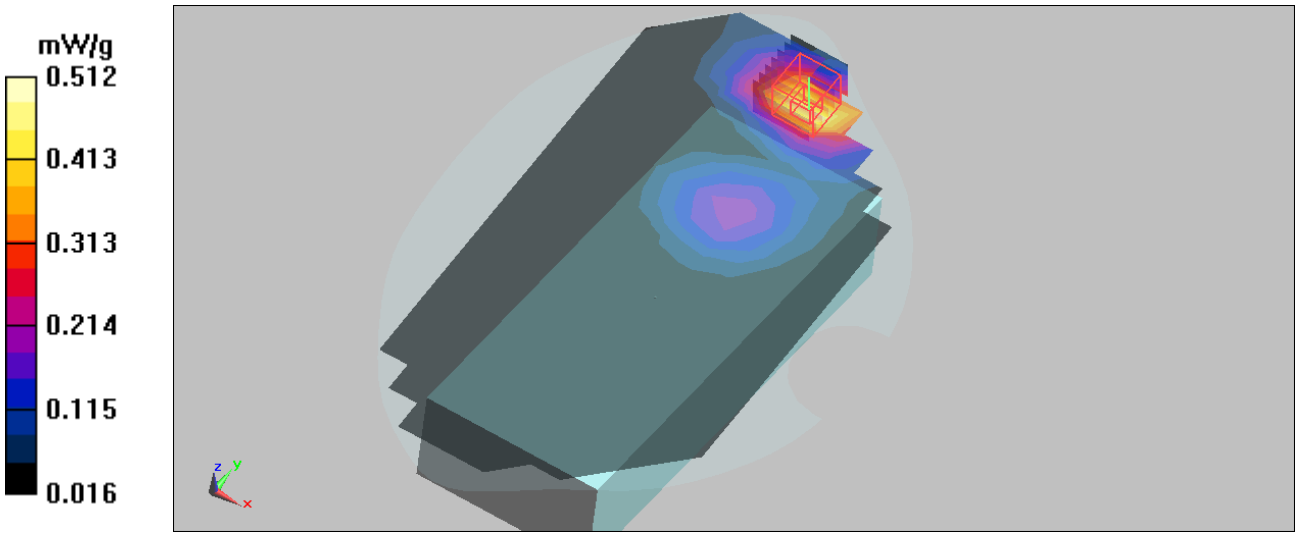
M17-Body Front- EGPRS 1900 TS2-Ch661 / Battery 1 (with LED) /Keypad 2(Alpha Numeric Wide)

DUT: Mobile Computer ; Type: MC 9596(GOBI)
Communication System: PCS 1900 ; Frequency: 1880 MHz ; Duty Cycle: 1:8.3
Medium: MSL1900 Medium parameters used: f = 1880 MHz; σ = 1.55 mho/m; ε_r = 53.8; ρ = 1000 kg/m^3
Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: GMSK
Separation Distance : 0 mm (The front side of the EUT to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(8.39, 8.39, 8.39) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2010/1/22
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Mid Channel 190/Area Scan (11x19x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.479 mW/g

Mid Channel 190/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 4.16 V/m; Power Drift = -0.167 dB
Peak SAR (extrapolated) = 0.668 W/kg
SAR(1 g) = 0.428 mW/g; SAR(10 g) = 0.250 mW/g
Maximum value of SAR (measured) = 0.512 mW/g



Date/Time: 2010/3/13 07:30:35

Test Laboratory: Bureau Veritas ADT

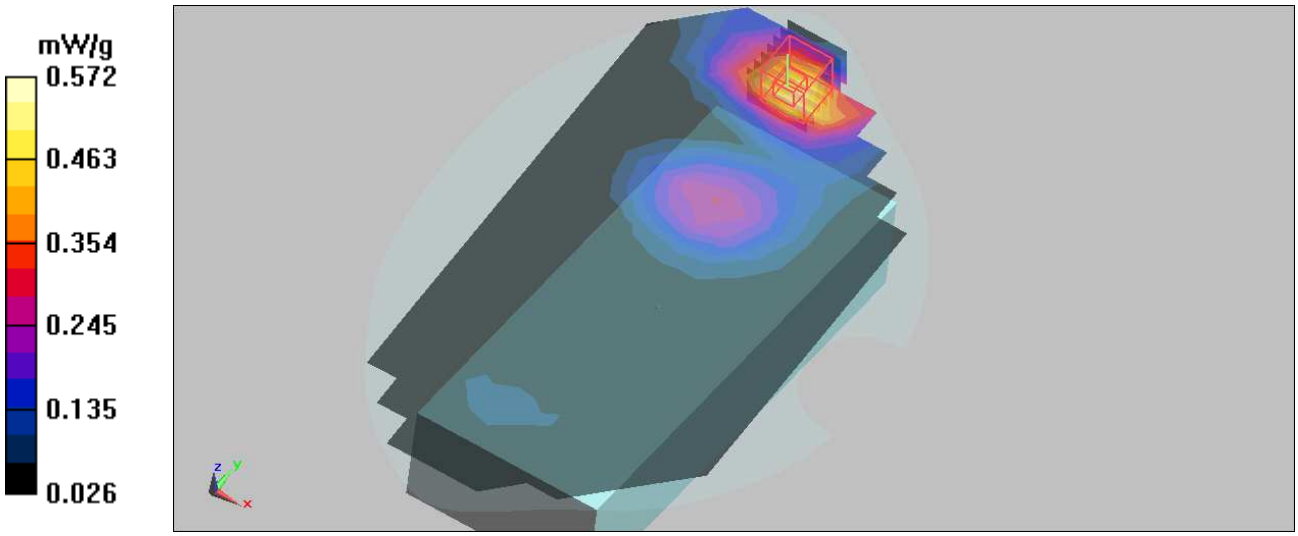
M18-Body Front-WCDMA 1900-Ch9400 / Battery 1 (with LED) /Keypad 2(Alpha Numeric Wide)

DUT: Mobile Computer ; Type: MC 9596(GOBI)
Communication System: WCDMA1900 ; Frequency: 1880 MHz ; Duty Cycle: 1:1
Medium: MSL1900 Medium parameters used: f = 1880 MHz; σ = 1.55 mho/m; ε_r = 53.8; ρ = 1000 kg/m^3
Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: GMSK
Separation Distance : 0 mm (The back side of the EUT to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(8.39, 8.39, 8.39) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2010/1/22
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Mid Channel 9400/Area Scan (11x19x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.541 mW/g

Mid Channel 9400/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 4.89 V/m; Power Drift = -0.128 dB
Peak SAR (extrapolated) = 0.778 W/kg
SAR(1 g) = 0.464 mW/g; SAR(10 g) = 0.284 mW/g
Maximum value of SAR (measured) = 0.572 mW/g



Date/Time: 2010/3/13 08:27:59

Test Laboratory: Bureau Veritas ADT

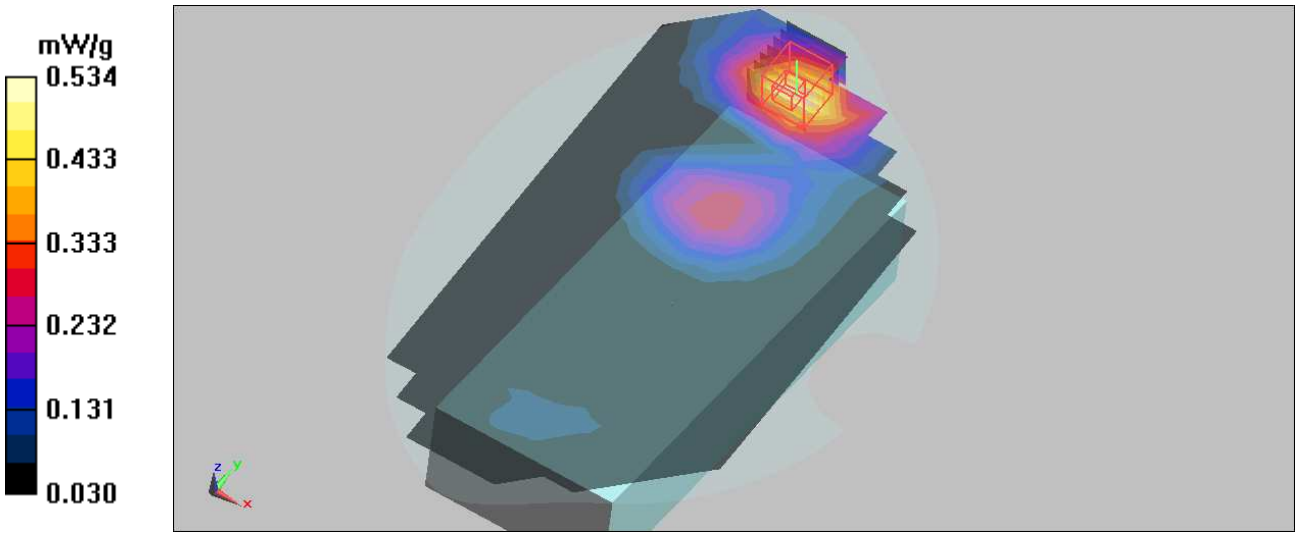
M19-Body Front-HSDPA 1900-Ch9400 / Battery 1 (with LED) /Keypad 2(Alpha Numeric Wide)

DUT: Mobile Computer ; Type: MC 9596(GOBI)
Communication System: WCDMA1900 ; Frequency: 1880 MHz ; Duty Cycle: 1:1
Medium: MSL1900 Medium parameters used: f = 1880 MHz; σ = 1.55 mho/m; ε_r = 53.8; ρ = 1000 kg/m^3
Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: BPSK
Separation Distance : 0 mm (The back side of the EUT to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(8.39, 8.39, 8.39) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2010/1/22
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Mid Channel 9400/Area Scan (11x19x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.515 mW/g

Mid Channel 9400/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 6.01 V/m; Power Drift = -0.137 dB
Peak SAR (extrapolated) = 0.709 W/kg
SAR(1 g) = 0.448 mW/g; SAR(10 g) = 0.275 mW/g
Maximum value of SAR (measured) = 0.534 mW/g



Date/Time: 2010/3/13 09:29:00

Test Laboratory: Bureau Veritas ADT

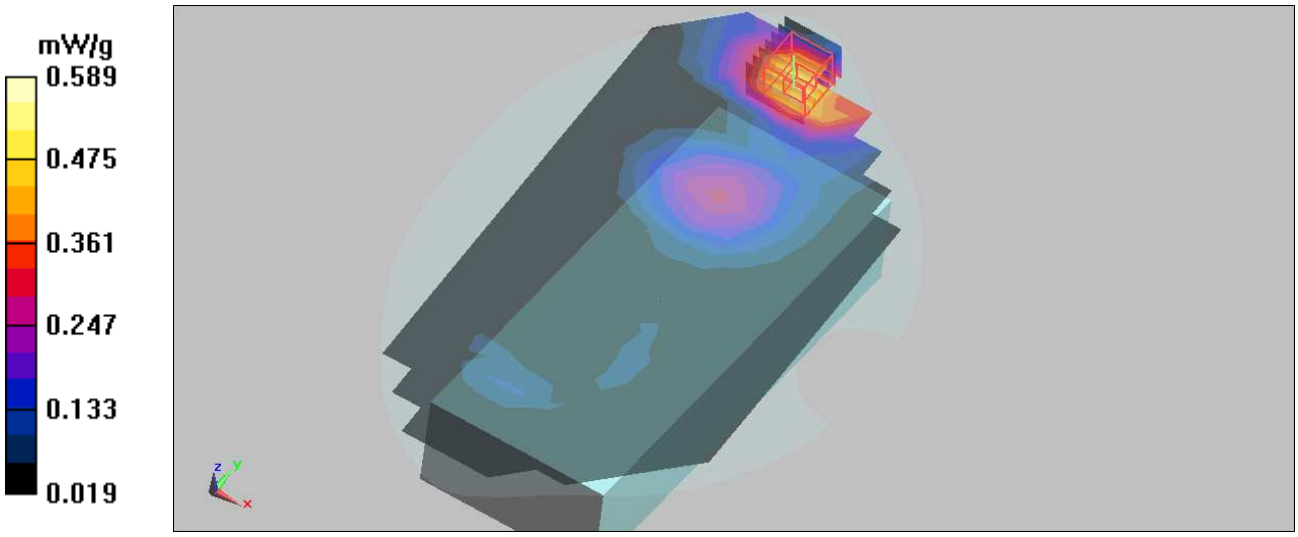
M20-Body Front-CDMA 1900-Ch600 / Battery 1 (with LED) /Keypad 2(Alpha Numeric Wide)

DUT: Mobile Computer ; Type: MC959B
Communication System: CDMA1900 ; Frequency: 1880 MHz ; Duty Cycle: 1:1
Medium: MSL1900 Medium parameters used: f = 1880 MHz; σ = 1.55 mho/m; ε_r = 53.8; ρ = 1000 kg/m^3
Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: OQPSK
Separation Distance : 0 mm (The back side of the EUT to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(8.39, 8.39, 8.39) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2010/1/22
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Mid Channel 600/Area Scan (11x19x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.522 mW/g

Mid Channel 600/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 4.88 V/m; Power Drift = 0.081 dB
Peak SAR (extrapolated) = 0.802 W/kg
SAR(1 g) = 0.498 mW/g; SAR(10 g) = 0.303 mW/g
Maximum value of SAR (measured) = 0.589 mW/g



Date/Time: 2010/3/13 10:55:19

Test Laboratory: Bureau Veritas ADT

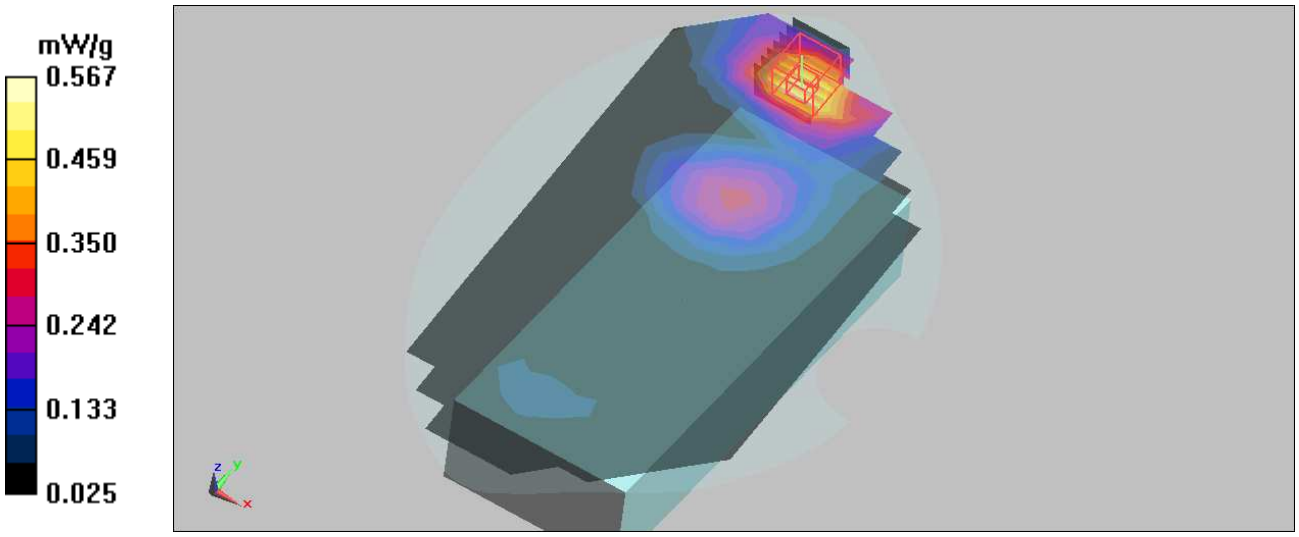
M21-Body Front-1xEVDO 1900 Rev0 -Ch600 / Battery 1 (with LED) /Keypad 2(Alpha Numeric Wide)

DUT: Mobile Computer ; Type: MC959B
Communication System: CDMA1900 ; Frequency: 1880 MHz ; Duty Cycle: 1:1
Medium: MSL1900 Medium parameters used: f = 1880 MHz; σ = 1.55 mho/m; ε_r = 53.8; ρ = 1000 kg/m^3
Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: HPSK
Separation Distance : 0 mm (The back side of the EUT to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(8.39, 8.39, 8.39) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2010/1/22
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Mid Channel 600/Area Scan (11x19x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.531 mW/g

Mid Channel 600/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 4.76 V/m; Power Drift = 0.143 dB
Peak SAR (extrapolated) = 0.748 W/kg
SAR(1 g) = 0.479 mW/g; SAR(10 g) = 0.297 mW/g
Maximum value of SAR (measured) = 0.567 mW/g



Date/Time: 2010/3/13 12:05:19

Test Laboratory: Bureau Veritas ADT

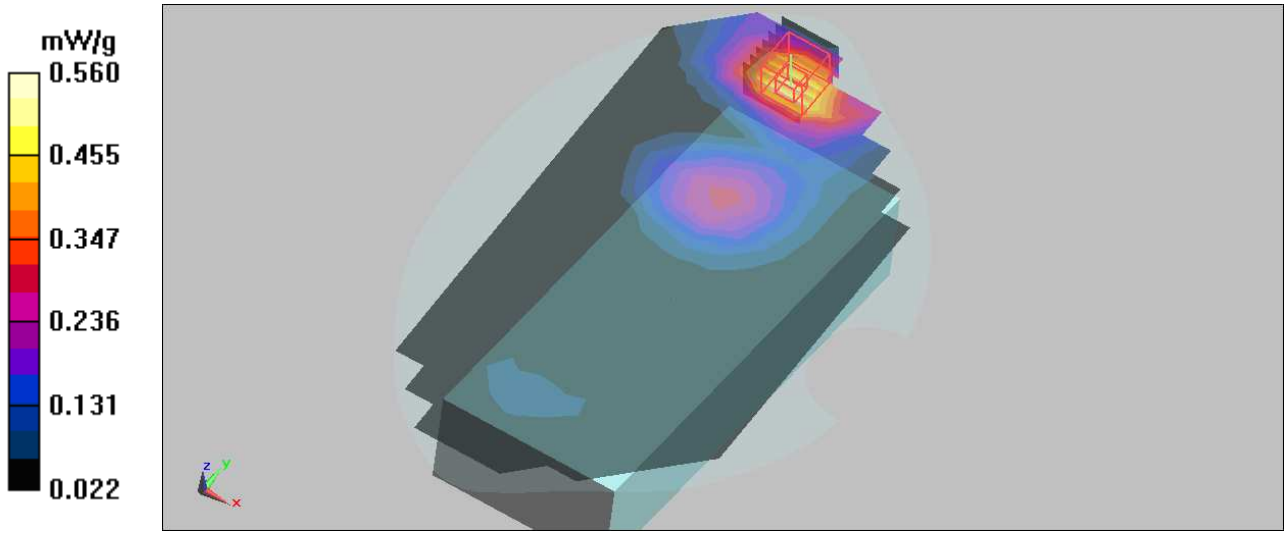
M22-Body Front-1xEVDO 1900 RevA-Ch600 / Battery 1 (with LED) /Keypad 2(Alpha Numeric Wide)

DUT: Mobile Computer ; Type: MC959B
Communication System: CDMA1900 ; Frequency: 1880 MHz ; Duty Cycle: 1:1
Medium: MSL1900 Medium parameters used: f = 1880 MHz; σ = 1.55 mho/m; ε_r = 53.8; ρ = 1000 kg/m^3
Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: HPSK
Separation Distance : 0 mm (The back side of the EUT to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(8.39, 8.39, 8.39) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2010/1/22
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

Mid Channel 600/Area Scan (11x19x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.527 mW/g

Mid Channel 600/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 4.71 V/m; Power Drift = 0.167 dB
Peak SAR (extrapolated) = 0.742 W/kg
SAR(1 g) = 0.475 mW/g; SAR(10 g) = 0.293mW/g
Maximum value of SAR (measured) = 0.560 mW/g



Date/Time: 2010/3/17 00:22:59

Test Laboratory: Bureau Veritas ADT

System Validation Check-MSL 835MHz

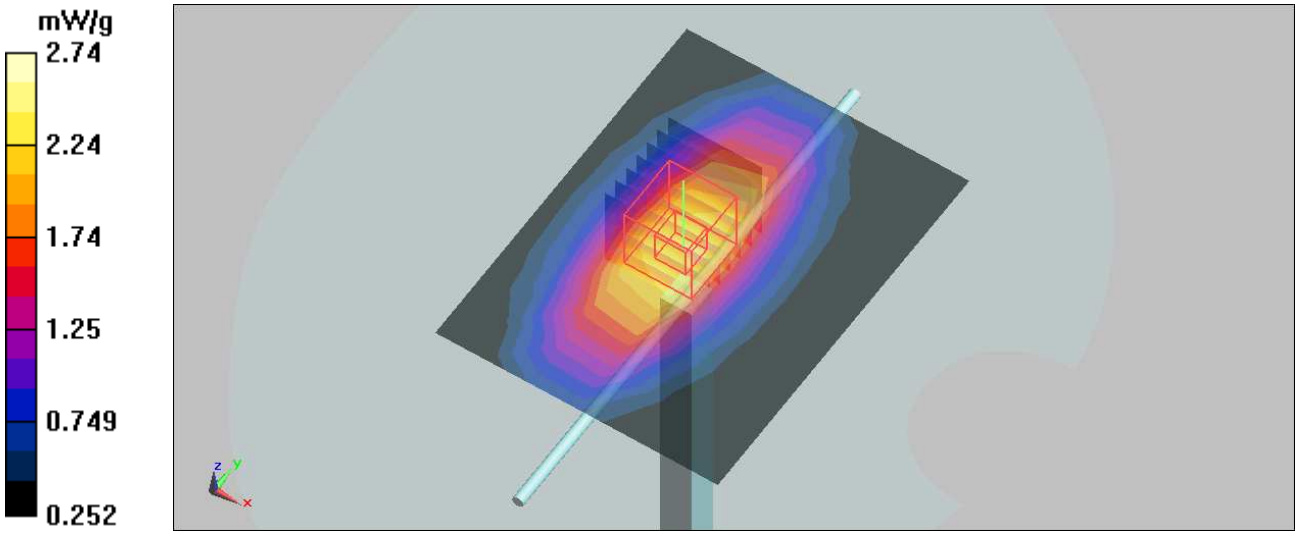
DUT: Dipole 835 MHz ; Type: D835V2 ; Serial: D835V2 - SN:4d021 ; Test Frequency: 835 MHz

Communication System: CW ; Frequency: 835 MHz; Duty Cycle: 1:1; Modulation type: CW
Medium: MSL850;Medium parameters used: f = 835 MHz; σ = 0.97 mho/m; ε_r = 54.5; 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. : 23.2 degrees ; Liquid temp. : 22.0 degrees

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(9.93, 9.93, 9.93) ; 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, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

d=15mm, Pin=250mW/Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.48 mW/g

d=15mm, Pin=250mW/Zoom Scan (7x7x9) /Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 54.5 V/m; Power Drift = -0.260 dB
Peak SAR (extrapolated) = 3.82 W/kg
SAR(1 g) = 2.62 mW/g; SAR(10 g) = 1.75 mW/g
Maximum value of SAR (measured) = 2.74 mW/g



Date/Time: 2010/3/13 01:15:20

Test Laboratory: Bureau Veritas ADT

System Validation Check-MSL 1900MHz

DUT: Dipole 1900 MHz ; Type: D1900V2 ; Serial: 5d022 ; Test Frequency: 1900 MHz

Communication System: CW ; Frequency: 1900 MHz; Duty Cycle: 1:1; Modulation type: CW
Medium: MSL1900;Medium parameters used: f = 1900 MHz; σ = 1.58 mho/m; ε_r = 53.9; 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. : 23.5 degrees ; Liquid temp. : 23.3 degrees

DASY5 Configuration:
- Probe: EX3DV4 - SN3590 ; ConvF(8.39, 8.39, 8.39) ; Calibrated: 2009/4/28
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2008/9/22
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 157; SEMCAD X Version 14.0 Build 57

d=10mm, Pin=250mW/Area Scan (7x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 13.3 mW/g

d=10mm, Pin=250mW/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 92.5 V/m; Power Drift = -0.009 dB
Peak SAR (extrapolated) = 19.4 W/kg
SAR(1 g) = 10.5 mW/g; SAR(10 g) = 5.42 mW/g
Maximum value of SAR (measured) = 13.4 mW/g