SAR TEST REPORT

(Mobile Phone)

APPLICANT: HTC Corporation

ADDRESS: No. 23, Xinghua Rd., Taoyuan City, 330, Taiwan, R.O.C.

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:	Smart Phone
MODEL:	MAPL120
APPLICANT:	HTC Corporation
TESTED:	Apr. 09 ~ Apr. 14, 2009
TEST SAMPLE:	ENGINEERING SAMPLE
STANDARDS:	**FCC Part 2 (Section 2.1093)**
	FCC OET Bulletin 65, Supplement C (01-01)
	RSS-102

The above equipment (model: MAPL120) 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 : _Andrea Hsia_ , **DATE:** May 08, 2009

Andrea Hsia / Specialist

TECHNICAL ACCEPTANCE : _James Fan_ , **DATE:** May 08, 2009

Responsible for RF James Fan / Engineer

APPROVED BY : _Gary Chang_ , **DATE:** May 08, 2009

Gary Chang / Assistant Manager

2. GENERAL INFORMATION
2.1 GENERAL DESCRIPTION OF EUT

EUT	Smart Phone
MODEL NO.	MAPL120
FCC ID	NM8MAPL120
POWER SUPPLY	3.7Vdc from rechargeable lithium battery 5.0Vdc from power adapter 5.0Vdc from host equipment
CLASSIFICATION	Portable device, production unit
MODULATION TYPE	GMSK / 8PSK / BPSK
FREQUENCY RANGE	Tx Frequency: 824.2MHz ~ 848.8MHz (GSM band) 1850.2MHz ~ 1909.8MHz (WCDMA band) Rx Frequency: 869.2MHz ~ 893.8MHz (GSM band) 1930.2MHz ~ 1989.8MHz (WCDMA band)

CHANNEL FREQUENCIES UNDER TEST AND ITS CONDUCTED OUTPUT POWER	**GSM850 band:**	**WCDMA850 band:**
	1.879W / 836.6MHz for CH 190	0.216W / 836.5MHz for CH 4182
	PCS1900 band:	**WCDMA1900 band:**
	0.865W / 1880.0MHz for CH 661	0.201W / 1852.5MHz for CH 9262 0.205W / 1880.0MHz for CH 9400 0.195W / 1907.5MHz for CH 9538

MAX. AVERAGE SAR (1g)	**Head:**	**Body:**
	0.313W/kg (GSM850) 0.269W/kg (WCDMA850) 0.610W/kg (GSM1900) 1.260W/kg (WCDMA1900)	0.334W/kg (GSM850) 0.522W/kg (WCDMA850) 0.697W/kg (GSM1900) 0.530W/kg (WCDMA1900)

ANTENNA TYPE	PIFA antenna		
MAX. ANTENNA GAIN	**850MHz:** 0dBi	**1900MHz:** 0dBi	
DATA CABLE	Refer to NOTE as below		
I/O PORTS	Refer to user's manual		
ACCESSORY DEVICES	Battery		

NOTE:

1. The EUT is a Smart Phone. The functions of EUT listed as below:

	REFERENCE REPORT
GSM 850 / WCDMA 850 + PCS 1900 / WCDMA 1900	SA980303L04A-1
WLAN 802.11b/g	SA980303L04A
Bluetooth	SA980303L04A-2

2. The communicated functions of EUT listed as below:

		GSM 850MHz	PCS 1900MHz	WCDMA 850MHz	WCDMA 1900MHz	
2G	GSM	√	√			With 802.11b/g + Bluetooth + GPS functions
	GPRS	√	√			
	EDGE	√	√			
3G	HSDPA Release version: R5			√	√	

3. The EUT has following accessories.

PRODUCT	BRAND	MODEL	DESCRIPTION
Power Adapter	PHIHONG	PSAI05R-050Q	I/P: 100-240Vac, 50-60Hz, 0.3A O/P: 5Vdc, 1A
Battery	hTC	RHOD160	Rating: 3.7Vdc, 1500mAh, 5.55Whr P/N: 35H00123-00M Manufacturer: WELLDONE
			Rating: 3.7Vdc, 1500mAh, 5.55Whr P/N: 35H00123-01M Manufacturer: SIMPLO
			Rating: 3.7Vdc, 1500mAh, 5.55Whr P/N: 35H00123-02M Manufacturer: FORMOSA
USB cable	ACON MEC	DCU 200	1.25m shielded cable without core
Earphone	Corton Kingstate	HS S200	1.50m non-shielded cable without core

4. Hardware version: NA.

5. Software version: NA.

6. IMEI Code: 358993 02 0000000 ~ 358993 02 9999999.

7. 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 SAR MEASUREMENT CONDITIONS FOR WCDMA

The following procedures were followed according to FCC "SAR Measurement Procedure for 3G Devices", October 2007.

➤ **Output Power Verification**

Maximum output power is verified on the High, Middle and Low channels according to the procedures described in section 5.2 of 3GPP TS 34.121, using the appropriate RMC or AMR with TPC (transmit power control) set to all "1's" for WCDMA/HSDPA or applying the required inner loop power control procedures to maintain maximum output power while HSUPA is active. Results for all applicable physical channel configurations (DPCCH, DPDCHn and spreading codes, HSDPA, HSPA) should be tabulated in the SAR report. All configurations that are not supported by the DUT or cannot be measured due to technical or equipment limitations should be clearly identified.

➤ **Head SAR Measurement**

SAR for head exposure configurations in voice mode is measured using a 12.2 kbps RMC with TPC bits configured to all "1's". SAR in AMR configurations is not required when the maximum average output of each RF channel for 12.2 kbps AMR is less than $\frac{1}{4}$ dB higher than that measured in 12.2 kbps RMC. Otherwise, SAR is measured on the maximum output channel in 12.2 kbps AMR with a 3.4 kbps SRB (signaling radio bearer) using the exposure configuration that results in the highest SAR in 12.2 kbps RMC for that RF channel.

➤ Body SAR Measurements

SAR for body exposure configurations in voice and data modes is measured using a 12.2 kbps RMC with TPC bits configured to all "1's". SAR for other spreading codes and multiple DPDCHn, when supported by the DUT, are not required when the maximum average output of each RF channel, for each spreading code and DPDCHn configuration, are less than ¼ dB higher than those measured in 12.2 kbps RMC. Otherwise, SAR is measured on the maximum output channel with an applicable RMC configuration for the corresponding spreading code or DPDCHn using the exposure configuration that results in the highest SAR with 12.2 kbps RMC. When more than 2 DPDCHn are supported by the DUT, it may be necessary to configure additional DPDCHn for a DUT using FTM (Factory Test Mode) or other chipset based test approaches with parameters similar to those used in 384 kbps and 768 kbps RMC.

➤ Handsets with Release 5 HSDPA

Body SAR is not required for handsets with HSDPA capabilities when the maximum average output of each RF channel with HSDPA active is less than ¼ dB higher than that measured without HSDPA using 12.2 kbps RMC and the maximum SAR for 12.2 kbps RMC is ≤ 75% of the SAR limit. Otherwise, SAR is measured for HSDPA, using the additional body SAR procedures in the "Release 5 HSDPA Data Devices" section of this document, on the maximum output channel with the body exposure configuration that results in the highest SAR in 12.2 kbps RMC for that RF channel. Handsets with both HSDPA and HSUPA should be tested according to Release 6 HSPA test procedures.

2.3 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.

2.4 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 to > 6 GHz Linearity: $\pm$ 0.2 dB (30 MHz to 6 GHz)
DIRECTIVITY	$\pm$ 0.3 dB in HSL (rotation around probe axis) $\pm$ 0.5 dB in tissue material (rotation normal to probe axis)
DYNAMIC RANGE	10 μW/g to > 100 mW/g Linearity: $\pm$ 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.

2.5 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 (i = x, y, z) E-field Probes

$ConvF$ = 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.	CALIBRATED UNTIL
1	Universal Radio Communication Tester	R&S	CMU200	104484	Feb. 02, 2010

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).

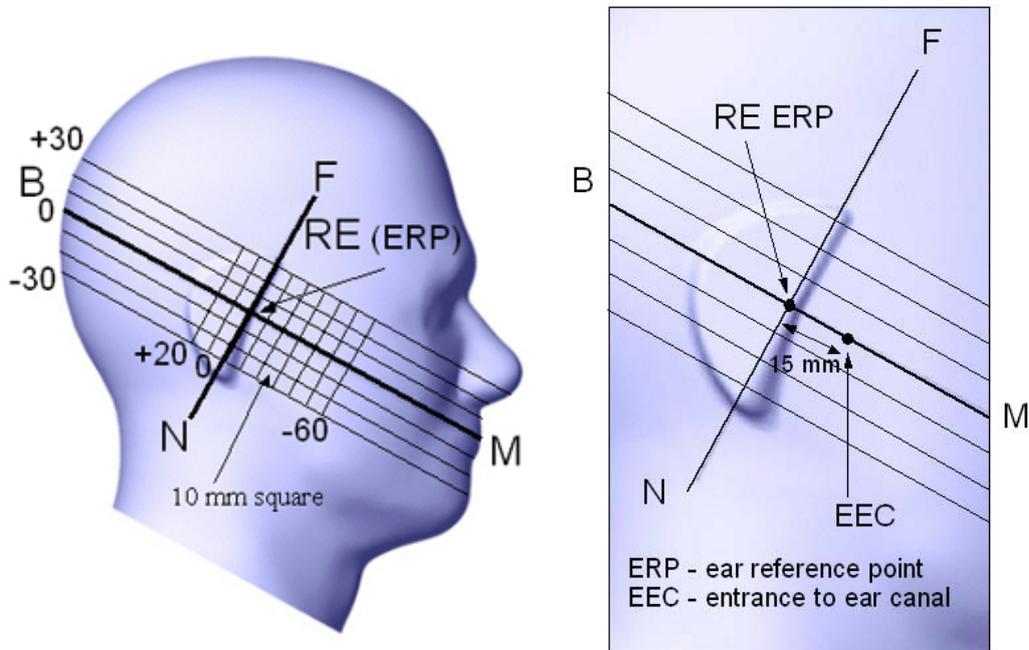# 4. DESCRIPTION OF TEST POSITION

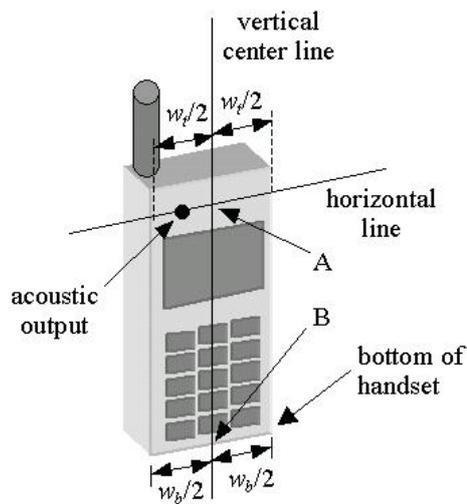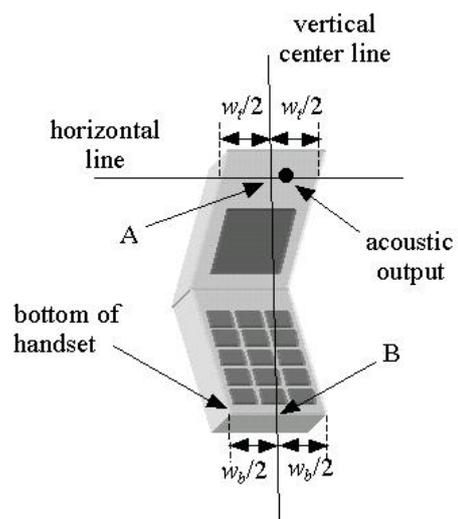## 4.1 DESCRIPTION OF TEST POSITION

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
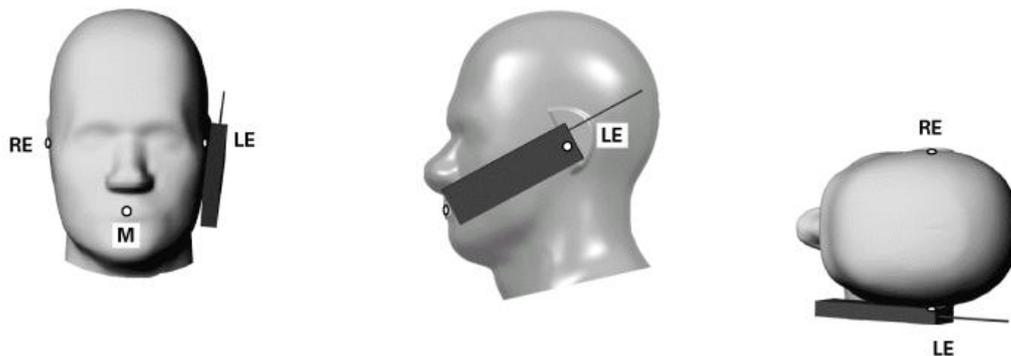
TOUCH/CHEEK POSITION FIGURE

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.
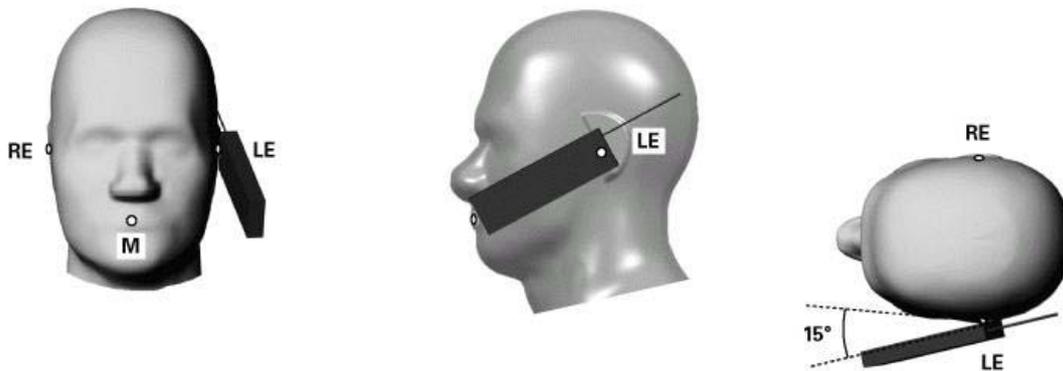
TILT POSITION FIGURE

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.

4.2   DESCRIPTION OF TEST MODE

TEST MODE	COMMUNICATION MODE	MODULATION TYPE	ASSESSMENT POSTITION	TESTED CHANNEL
1	GSM850	GMSK	A / Cheek	190
2		GMSK	A / Tilt	190
3		GMSK	B / Cheek	190
4		GMSK	B / Tilt	190
5		GMSK	C : Body / Front	190
6		GMSK	C : Body / Bottom	190
7	GPRS850 TS1	GMSK	C : Body / Front	190
8	GPRS850 TS1	GMSK	C : Body / Bottom	190
9	GPRS850 TS2	GMSK	C : Body / Front	190
10	GPRS850 TS2	GMSK	C : Body / Bottom	190
11	E-GPRS850 TS1	8PSK	C : Body / Front	190
12	E-GPRS850 TS1	8PSK	C : Body / Bottom	190
13	E-GPRS850 TS2	8PSK	C : Body / Front	190
14	E-GPRS850 TS2	8PSK	C : Body / Bottom	190
15	WCDMA850	BPSK	A / Cheek	4182
16		BPSK	A / Tilt	4182
17		BPSK	B / Cheek	4182
18		BPSK	B / Tilt	4182
19		BPSK	C : Body / Front	4182
20		BPSK	C : Body / Bottom	4182
21	HSDPA850	8PSK	C : Body / Front	4182
22	HSDPA850	8PSK	C : Body / Bottom	4182

TEST MODE	COMMUNICATION MODE	Modulation TYPE	ASSESSMENT POSTITION	Tested Channel
23	GSM1900	GMSK	A / Cheek	661
24		GMSK	A / Tilt	661
25		GMSK	B / Cheek	661
26		GMSK	B / Tilt	661
27		GMSK	C : Body / Front	661
28		GMSK	C : Body / Bottom	661
29	GPRS1900 TS1	GMSK	C : Body / Front	661
30	GPRS1900 TS1	GMSK	C : Body / Bottom	661
31	GPRS1900 TS2	GMSK	C : Body / Front	661
32	GPRS1900 TS2	GMSK	C : Body / Bottom	661
33	E-GPRS1900 TS1	8PSK	C : Body / Front	661
34	E-GPRS1900 TS1	8PSK	C : Body / Bottom	661
35	E-GPRS1900 TS2	8PSK	C : Body / Front	661
36	E-GPRS1900 TS2	8PSK	C : Body / Bottom	661
37	WCDMA1900	BPSK	A / Cheek	9262, 9400, 9538
38		BPSK	A / Tilt	9262, 9400, 9538
39		BPSK	B / Cheek	9400
40		BPSK	B / Tilt	9400
41		BPSK	C : Body / Front	9400
42		BPSK	C : Body / Bottom	9400
43	HSDPA1900	8PSK	C : Body / Front	9400
44	HSDPA1900	8PSK	C : Body / Bottom	9400
45	WCDMA1900	BPSK	A / Cheek	9400
46		BPSK	A / Cheek	9400

NOTE 1: Assessment position A: Right head position, B: Left head position, C: Body position; please refer to the test set up photo.

NOTE 2: Test mode 1~ 44 used Battery Manufactory: WELLDONE; test mode 45 used Battery Manufactory: FORMOSA and test mode 46 used Battery Manufactory: SIMPLO

4.3   SUMMARY OF TEST RESULTS

ITEM		1	2	3	4
PART OF ASSESSMENT		HEAD POSITION			
COMMUNICATION MODE		GSM850			
CHAN.	FREQ. (MHz)	MEASURED VALUE OF 1g SAR (W/kg)			
190	836.6 (Mid.)	0.280	0.188	**0.313**	0.203

ITEM		5	6	7	8	9	10	11	12	13	14
PART OF ASSESSMENT		BODY POSITION									
COMMUNICATION MODE		GSM850		GPRS850 TS1		GPRS850 TS2		E-GPRS850 TS1		E-GPRS850 TS2	
CHAN.	FREQ. (MHz)	MEASURED VALUE OF 1g SAR (W/kg)									
190	836.6 (Mid.)	0.108	0.184	0.108	0.163	0.229	**0.334**	0.108	0.163	0.218	0.333

ITEM		15	16	17	18
PART OF ASSESSMENT		HEAD POSITION			
COMMUNICATION MODE		WCDMA850			
CHAN.	FREQ. (MHz)	MEASURED VALUE OF 1g SAR (W/kg)			
4182	836.5 (Mid.)	0.250	0.167	**0.269**	0.177

ITEM		19	20	21	22
PART OF ASSESSMENT		BODY POSITION			
COMMUNICATION MODE		WCDMA850		HSDPA850	
CHAN.	FREQ. (MHz)	MEASURED VALUE OF 1g SAR (W/kg)			
4182	836.5 (Mid.)	0.333	**0.522**	0.220	0.345

NOTE: The worst value of each communication has been marked by boldface.

ITEM		23	24	25	26
PART OF ASSESSMENT		HEAD POSITION			
COMMUNICATION MODE		GSM1900			
CHAN.	FREQ. (MHz)	MEASURED VALUE OF 1g SAR (W/kg)			
661	1880.0 (Mid.)	**0.610**	0.363	0.336	0.249

ITEM		27	28	29	30	31	32	33	34	35	36
PART OF ASSESSMENT		BODY POSITION									
COMMUNICATION MODE		GSM1900		GPRS1900 TS1		GPRS1900 TS2		E-GPRS1900 TS1		E-GPRS1900 TS2	
CHAN.	FREQ. (MHz)	MEASURED VALUE OF 1g SAR (W/kg)									
661	1880.0 (Mid.)	0.300	0.326	0.291	0.340	0.582	**0.697**	0.203	0.230	0.406	0.460

ITEM		37	38	39	40
PART OF ASSESSMENT		HEAD POSITION			
COMMUNICATION MODE		WCDMA1900			
CHAN.	FREQ. (MHz)	MEASURED VALUE OF 1g SAR (W/kg)			
9262	1852.5 (Low)	1.180	0.739	-	-
9400	1880.0 (Mid.)	**1.260**	0.800	0.732	0.552
9539	1907.5 (High)	1.230	0.740	-	-

ITEM		41	42	43	44
PART OF ASSESSMENT		BODY POSITION			
COMMUNICATION MODE		WCDMA1900		HSDPA1900	
CHAN.	FREQ. (MHz)	MEASURED VALUE OF 1g SAR (W/kg)			
9400	1880.0 (Mid.)	0.438	**0.530**	0.380	0.435

ITEM		45	46
PART OF ASSESSMENT		HEAD POSITION	
COMMUNICATION MODE		WCDMA1900	
CHAN.	FREQ. (MHz)	MEASURED VALUE OF 1g SAR (W/kg)	
9400	1880.0 (Mid.)	1.170	1.140

NOTE: The worst value of each communication has been marked by boldface.

5. TEST RESULTS

5.1 TEST PROCEDURES

The EUT (Smart Phone) makes a phone 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 $\pm5\%$.

5.2 MEASURED SAR RESULTS

GSM850 BAND HEAD POSITION

ENVIRONMENTAL CONDITION	Air Temperature：23.1°C, Liquid Temperature：22.3°C Humidity：61%RH					
TESTED BY	Dylan Chiou			DATE		Apr. 13, 2009

CHAN.	FREQ. (MHz)	MODULATION TYPE	CONDUCTED POWER (W)		POWER DRIFT (%)	DEVICE TEST POSITION MODE	MEASURED 1g SAR (W/kg)
			BEGIN TEST	AFTER TEST			
190	836.6 (Mid.)	GMSK	1.879	1.816	-3.39	1	0.280
190	836.6 (Mid.)	GMSK	1.879	1.824	-2.95	2	0.188
190	836.6 (Mid.)	GMSK	1.879	1.820	-3.17	3	**0.313**
190	836.6 (Mid.)	GMSK	1.879	1.846	-1.60	4	0.203

NOTE:

1. Test configuration of each mode is described in section 4.2.

2. In this testing, the limit for General Population Spatial Peak averaged over **1g, 1.6W/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%.

GSM850/GPRS850 TS2/GPRS850 TS1/E-GPRS850 TS2/E-GPRS850 TS1 BAND BODY POSITION

ENVIRONMENTAL CONDITION	Air Temperature：23.2°C, Liquid Temperature：22.4°C Humidity：64%RH					
TESTED BY	Dylan Chiou			DATE		Apr. 14, 2009

CHAN.	FREQ. (MHz)	MODULATION TYPE	CONDUCTED POWER (W)		POWER DRIFT (%)	DEVICE TEST POSITION MODE	MEASURED 1g SAR (W/kg)
			BEGIN TEST	AFTER TEST			
190	836.6 (Mid.)	GMSK	1.879	1.866	-0.69	5	0.108
190	836.6 (Mid.)	GMSK	1.897	1.841	-2.05	6	0.184
190	836.6 (Mid.)	GMSK	1.795	1.782	-0.69	7	0.108
190	836.6 (Mid.)	GMSK	1.795	1.770	-1.37	8	0.163
190	836.6 (Mid.)	GMSK	1.791	1.770	-1.14	9	0.229
190	836.6 (Mid.)	GMSK	1.791	1.762	-1.60	10	**0.334**
190	836.6 (Mid.)	8PSK	1.484	0.475	-1.83	11	0.108
190	836.6 (Mid.)	8PSK	0.484	0.480	-0.92	12	0.163
190	836.6 (Mid.)	8PSK	0.472	0.468	-0.92	13	0.218
190	836.6 (Mid.)	8PSK	0.472	0.466	-1.37	14	0.333

NOTE:

1. Test configuration of each mode is described in section 4.2.

2. In this testing, the limit for General Population Spatial Peak averaged over **1g, 1.6W/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%.

WCDMA850 BAND POSITION

| ENVIRONMENTAL CONDITION | Air Temperature：23.1°C, Liquid Temperature：22.3°C
Humidity：61%RH | | | | | |
| TESTED BY | Dylan Chiou | | | DATE | | Apr. 13, 2009 |

CHAN.	FREQ. (MHz)	MODULATION TYPE	CONDUCTED POWER (W)		POWER DRIFT (%)	DEVICE TEST POSITION MODE	MEASURED 1g SAR (W/kg)
			BEGIN TEST	AFTER TEST			
4182	836.5 (Mid.)	BPSK	0.216	0.215	-0.46	15	0.250
4182	836.5 (Mid.)	BPSK	0.216	0.213	-1.51	16	0.167
4182	836.5 (Mid.)	BPSK	0.216	0.214	-1.05	17	**0.269**
4182	836.5 (Mid.)	BPSK	0.216	0.211	-2.44	18	0.177

NOTE:

1. Test configuration of each mode is described in section 4.2.

2. In this testing, the limit for General Population Spatial Peak averaged over **1g, 1.6W/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%.

WCDMA850/HSDPA850 BAND BODY POSITION

ENVIRONMENTAL CONDITION	Air Temperature：23.2°C, Liquid Temperature：22.4°C Humidity：64%RH					
TESTED BY	Dylan Chiou			DATE		Apr. 14, 2009

CHAN.	FREQ. (MHz)	MODULATION TYPE	CONDUCTED POWER (W)		POWER DRIFT (%)	DEVICE TEST POSITION MODE	MEASURED 1g SAR (W/kg)
			BEGIN TEST	AFTER TEST			
4182	836.5 (Mid.)	BPSK	0.216	0.212	-1.97	19	0.333
4182	836.5 (Mid.)	BPSK	0.216	0.215	-0.95	20	**0.522**
4182	836.5 (Mid.)	BPSK	0.200	0.195	-2.50	21	0.220
4182	836.5 (Mid.)	BPSK	0.200	0.197	-1.50	22	0.345

NOTE:

1. Test configuration of each mode is described in section 4.2.

2. In this testing, the limit for General Population Spatial Peak averaged over **1g, 1.6W/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%.

PCS1900 BAND HEAD POSITION

ENVIRONMENTAL CONDITION	Air Temperature：23.3°C, Liquid Temperature：22.6°C Humidity：63%RH					
TESTED BY	Dylan Chiou			DATE		Apr. 09, 2009

CHAN.	FREQ. (MHz)	MODULATION TYPE	CONDUCTED POWER (W)		POWER DRIFT (%)	DEVICE TEST POSITION MODE	MEASURED 1g SAR (W/kg)
			BEGIN TEST	AFTER TEST			
661	1880 (Mid.)	GMSK	0.865	0.857	-0.92	23	**0.610**
661	1880 (Mid.)	GMSK	0.865	0.861	-0.46	24	0.363
661	1880 (Mid.)	GMSK	0.865	0.855	-1.14	25	0.336
661	1880 (Mid.)	GMSK	0.865	0.859	-0.69	26	0.249

NOTE:

1.   Test configuration of each mode is described in section 4.2.

2.   In this testing, the limit for General Population Spatial Peak averaged over **1g, 1.6W/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%.

PCS 1900/GPRS1900 TS2/GPRS1900 TS1/E-GPRS1900 TS2/E-GPRS1900 TS1 BAND BODY POSITION

ENVIRONMENTAL CONDITION	Air Temperature：23.3°C, Liquid Temperature：22.7°C Humidity：62%RH				
TESTED BY	Dylan Chiou		DATE		Apr. 10, 2009

CHAN.	FREQ. (MHz)	MODULATION TYPE	CONDUCTED POWER (W)		POWER DRIFT (%)	DEVICE TEST POSITION MODE	MEASURED 1g SAR (W/kg)
			BEGIN TEST	AFTER TEST			
661	1880 (Mid.)	GMSK	0.865	0.851	-1.60	27	0.300
661	1880 (Mid.)	GMSK	0.865	0.853	-1.37	28	0.326
661	1880 (Mid.)	GMSK	0.824	0.809	-1.83	29	0.291
661	1880 (Mid.)	GMSK	0.824	0.815	-1.14	30	0.340
661	1880 (Mid.)	GMSK	0.817	0.805	-1.37	31	0.582
661	1880 (Mid.)	GMSK	0.817	0.804	-1.60	32	**0.697**
661	1880 (Mid.)	8PSK	0.330	0.325	-1.60	33	0.203
661	1880 (Mid.)	8PSK	0.330	0.324	-1.83	34	0.230
661	1880 (Mid.)	8PSK	0.326	0.324	-0.46	35	0.406
661	1880 (Mid.)	8PSK	0.326	0.322	-1.14	36	0.460

NOTE:

1. Test configuration of each mode is described in section 4.2.

2. In this testing, the limit for General Population Spatial Peak averaged over **1g, 1.6W/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%.

WCDMA1900 BAND POSITION

ENVIRONMENTAL CONDITION	Air Temperature：23.3°C, Liquid Temperature：22.6°C Humidity：63%RH						
TESTED BY	Dylan Chiou			DATE		Apr. 09, 2009	

CHAN.	FREQ. (MHz)	MODULATION TYPE	CONDUCTED POWER (W)		POWER DRIFT (%)	DEVICE TEST POSITION MODE	MEASURED 1g SAR (W/kg)
			BEGIN TEST	AFTER TEST			
9262	1852.5 (Low)	BPSK	0.201	0.198	-1.49	37	1.180
9400	1880.0 (Mid.)	BPSK	0.205	0.201	-1.95	37	**1.260**
9538	1907.5 (High)	BPSK	0.195	0.192	-1.54	37	1.230
9262	1852.5 (Low)	BPSK	0.201	0.196	-2.49	38	0.739
9400	1880.0 (Mid.)	BPSK	0.205	0.202	-1.46	38	0.800
9538	1907.5 (High)	BPSK	0.195	0.191	-2.05	38	0.740
9400	1880.0 (Mid.)	BPSK	0.205	0.201	-1.95	39	0.732
9400	1880.0 (Mid.)	BPSK	0.205	0.203	-0.98	40	0.552

NOTE:

1. Test configuration of each mode is described in section 4.2.

2. In this testing, the limit for General Population Spatial Peak averaged over **1g, 1.6W/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%.

WCDMA1900/HSDPA1900 BAND BODY POSITION

ENVIRONMENTAL CONDITION	Air Temperature：23.3°C, Liquid Temperature：22.7°C Humidity：62%RH					
TESTED BY	Dylan Chiou			DATE		Apr. 10, 2009

CHAN.	FREQ. (MHz)	MODULATION TYPE	CONDUCTED POWER (W)		POWER DRIFT (%)	DEVICE TEST POSITION MODE	MEASURED 1g SAR (W/kg)
			BEGIN TEST	AFTER TEST			
9400	1880.0 (Mid.)	BPSK	0.205	0.200	-2.44	41	0.438
9400	1880.0 (Mid.)	BPSK	0.205	0.202	-1.46	42	**0.530**
9400	1880.0 (Mid.)	BPSK	0.188	0.184	-2.13	43	0.380
9400	1880.0 (Mid.)	BPSK	0.188	0.186	-1.06	44	0.435

NOTE:

1. Test configuration of each mode is described in section 4.2.

2. In this testing, the limit for General Population Spatial Peak averaged over **1g, 1.6W/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%.

WCDMA1900 BAND HAND POSITION

(COMPARE WITH OTHER 2 BATTERIES)

ENVIRONMENTAL CONDITION	Air Temperature：23.3°C, Liquid Temperature：22.6°C Humidity：63%RH						
TESTED BY	Dylan Chiou			**DATE**		Apr. 10, 2009	

CHAN.	FREQ. (MHz)	MODULATION TYPE	CONDUCTED POWER (W)		POWER DRIFT (%)	DEVICE TEST POSITION MODE	MEASURED 1g SAR (W/kg)
			BEGIN TEST	AFTER TEST			
9400	1880.0 (Mid.)	BPSK	0.205	0.201	-1.95	45	1.170
9400	1880.0 (Mid.)	BPSK	0.205	0.203	-0.98	46	1.140

NOTE:

1. Test configuration of each mode is described in section 4.2.

2. In this testing, the limit for General Population Spatial Peak averaged over **1g, 1.6W/kg**, is applied.

3. Please see the Appendix A for the data.

4. The variation of the EUT conducted power measured before and after SAR testing should not over 5%.

5.3 SAR LIMITS

HUMAN EXPOSURE	SAR (W/kg)	
	(General Population / Uncontrolled Exposure Environment)	(Occupational / controlled Exposure Environment)
Spatial Average (whole body)	0.08	0.4
Spatial Peak (averaged over 1 g)	**1.6**	8.0
Spatial Peak (hands/wrists/feet/ankles averaged over 10 g)	4.0	20.0

NOTE:

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

5.4 RECIPES FOR TISSUE SIMULATING LIQUIDS

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

The following ingredients are used：

- **WATER-** Deionized water (pure H20), resistivity _16 M - as basis for the liquid
- **SUGAR-** Refined sugar in crystals, as available in food shops - to reduce relative permittivity
- **SALT-** Pure NaCl - to increase conductivity
- **CELLULOSE-** Hydroxyethyl-cellulose, medium viscosity (75-125 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 $\varepsilon= 40.0 \pm 5\%$ $\sigma= 1.40 \pm 5\%$ S/m	f= 1900MHz $\varepsilon= 53.3 \pm 5\%$ $\sigma= 1.52 \pm 5\%$ 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 GSM850 & WCDMA850 BAND SIMULATING LIQUID

LIQUID TYPE		HSL-835		
SIMULATING LIQUID TEMP.		22.3		
TEST DATE		Apr. 13, 2009		
TESTED BY		Dylan Chiou		
FREQ. (MHz)	LIQUID PARAMETER	STANDARD VALUE	MEASUREMENT VALUE	ERROR PERCENTAGE (%)
835.0	Permitivity (ε)	41.50	43.20	4.10
836.5		41.50	43.20	4.10
836.6		41.50	43.20	4.10
835.0	Conductivity (σ) S/m	0.90	0.90	0.00
836.5		0.90	0.91	1.11
836.6		0.90	0.91	1.11
Dielectric Parameters Required at 22℃		f= 835MHz ε= 41.5 ± 5% σ= 0.97 ± 5% S/m		

LIQUID TYPE		MSL-835		
SIMULATING LIQUID TEMP.		22.4		
TEST DATE		Apr. 14, 2009		
TESTED BY		Dylan Chiou		
FREQ. (MHz)	LIQUID PARAMETER	STANDARD VALUE	MEASUREMENT VALUE	ERROR PERCENTAGE (%)
835.0	Permitivity (ε)	55.20	53.40	3.26
836.5		55.20	53.40	3.26
836.6		55.20	53.40	3.26
835.0	Conductivity (σ) S/m	0.97	0.97	0.00
836.5		0.97	0.97	0.00
836.6		0.97	0.97	0.0
Dielectric Parameters Required at 22℃		f= 835MHz ε= 55.0 ± 5% σ= 1.05 ± 5% S/m		

FOR PCS1900 & WCDMA1900 BAND SIMULATING LIQUID

LIQUID TYPE		HSL-1900		
SIMULATING LIQUID TEMP.		22.6		
TEST DATE		Apr. 09, 2009		
TESTED BY		Dylan Chiou		
FREQ. (MHz)	LIQUID PARAMETER	STANDARD VALUE	MEASUREMENT VALUE	ERROR PERCENTAGE (%)
1852.5	Permitivity (ε)	40.00	41.00	2.50
1880.0		40.00	40.90	2.25
1900.0		40.00	40.10	0.25
1907.5		40.00	40.10	0.25
1852.5	Conductivity (σ) S/m	1.40	1.39	0.71
1880.0		1.40	1.43	2.14
1900.0		1.40	1.46	4.29
1907.5		1.40	1.46	4.29
Dielectric Parameters Required at 22℃		f= 1900MHz ε= 40.0 ± 5% σ= 1.40 ± 5% S/m		

LIQUID TYPE		MSL-1900		
SIMULATING LIQUID TEMP.		22.7		
TEST DATE		Apr. 10, 2009		
TESTED BY		Dylan Chiou		
FREQ. (MHz)	LIQUID PARAMETER	STANDARD VALUE	MEASUREMENT VALUE	ERROR PERCENTAGE (%)
1852.5	Permitivity (ε)	53.30	53.30	0.00
1880.0		53.30	53.30	0.00
1900.0		53.30	53.20	0.19
1907.5		53.30	53.20	0.19
1852.5	Conductivity (σ) S/m	1.52	1.49	1.97
1880.0		1.52	1.53	0.66
1900.0		1.52	1.56	2.63
1907.5		1.52	1.57	3.29
Dielectric Parameters Required at 22℃		f= 1900MHz ε= 53.3 ± 5% σ= 1.52 ± 5% S/m		

5.5 TEST EQUIPMENT FOR TISSUE PROPERTY

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

NOTE:

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

6. SYSTEM VALIDATION

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

6.1 TEST EQUIPMENT

ITEM	NAME	BRAND	TYPE	SERIES NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
1	SAM Phantom	S & P	QD000 P40 CA	TP-1150	NA	NA
2	Signal Generator	Anritsu	68247B	984703	May 27, 2008	May 26, 2009
3	E-Field Probe	S & P	EX3DV3	3578	May 19, 2008	May 20, 2009
4	DAE	S & P	DAE	861	Sep. 23, 2008	Sep. 22, 2009
5	Robot Positioner	Staubli Unimation	NA	NA	NA	NA
6	Validation Dipole	S & P	D835V2	4d021	May 13, 2008	May 12, 2009
			D1900V2	5d036	Apr. 22, 2008	Apr. 21, 2009
7	Power Meter	Agilent	E4416A	GB41291763	Sep. 28, 2008	Sep. 29, 2009
8	Power Sensor	Agilent	E9327A	US40441181	Sep. 28, 2008	Sep. 29, 2009

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. The difference between the optical surface detection and the actual surface depends on the probe and is specified with each probe. (It does not depend on the surface reflectivity or the probe angle to the surface within ±30°.) However, varying breaking indices of different liquid compositions might also influence the distance. If the indicated difference varies from the actual setting, the probe parameter "optical surface

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
HSL 835	2.31 (1g)	2.17	-6.06	15mm	Apr. 13, 2009
MSL 835	2.34 (1g)	2.44	4.27	15mm	Apr. 14, 2009
HSL 1900	10.20 (1g)	10.10	-0.98	10mm	Apr. 09, 2009
MSL 1900	10.20 (1g)	9.75	-4.41	10mm	Apr. 10, 2009
TESTED BY	Dylan Chiou				

NOTE: Please sees 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	$\sqrt{3}$	0.7	0.7	1.90	1.90	∞
Hemispherical Isotropy	9.60	Rectangular	$\sqrt{3}$	0.7	0.7	3.88	3.88	∞
Boundary effects	1.00	Rectangular	$\sqrt{3}$	1	1	0.58	0.58	∞
Linearity	4.70	Rectangular	$\sqrt{3}$	1	1	2.71	2.71	∞
System Detection Limits	1.00	Rectangular	$\sqrt{3}$	1	1	0.58	0.58	∞
Readout Electronics	0.30	Normal	1	1	1	0.30	0.30	∞
Response Time	0.80	Rectangular	$\sqrt{3}$	1	1	0.46	0.46	∞
Integration Time	2.60	Rectangular	$\sqrt{3}$	1	1	1.50	1.50	∞
RF Ambient Noise	3.00	Rectangular	$\sqrt{3}$	1	1	1.73	1.73	∞
RF Ambient Reflections	3.00	Rectangular	$\sqrt{3}$	1	1	1.73	1.73	∞
Probe Positioner	0.40	Rectangular	$\sqrt{3}$	1	1	0.23	0.23	∞
Probe Positioning	2.90	Rectangular	$\sqrt{3}$	1	1	1.67	1.67	∞
Max. SAR Eval.	1.00	Rectangular	$\sqrt{3}$	1	1	0.58	0.58	∞
Dipole Related								
Dipole Axis to Liquid Distance	2.00	Rectangular	$\sqrt{3}$	1	1	1.15	1.15	145
Input Power Drift	5.00	Rectangular	$\sqrt{3}$	1	1	2.89	2.89	∞
Phantom and Tissue parameters								
Phantom Uncertainty	4.00	Rectangular	$\sqrt{3}$	1	1	2.31	2.31	∞
Liquid Conductivity (target)	5.00	Rectangular	$\sqrt{3}$	0.64	0.43	1.85	1.24	∞
Liquid Conductivity (measurement)	4.74	Normal	1	0.64	0.43	3.03	2.04	∞
Liquid Permittivity (target)	5.00	Rectangular	$\sqrt{3}$	0.6	0.49	1.73	1.41	∞
Liquid Permittivity (measurement)	4.57	Normal	1	0.6	0.49	2.74	2.24	∞
Combined Standard Uncertainty						10.34	9.82	
Coverage Factor for 95%						Kp=2		
Expanded Uncertainty (K=2)						20.67	19.64	

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

7. MEASUREMENT SAR PROCEDURE UNCERTAINTIES

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

- The system is used by an experienced engineer who follows the manual and the guidelines taught during the training provided by SPEAG.

- The probe has been calibrated within the requested period and the stated uncertainty for the relevant frequency bands does not exceed 4.8% (k=1).

- The validation dipole has been calibrated within the requested period and the system performance check has been successful.

- The DAE unit has been calibrated within the within the requested period.

- The minimum distance between the probe sensor and inner phantom shell is selected to be between 4 and 5mm.

- The operational mode of the DUT is CW, CDMA, FDMA or TDMA (GSM, DCS, PCS, IS136 and PDC) and the measurement/integration time per point is >500 ms.

- The dielectric parameters of the liquid have been assessed using Agilent 85070D dielectric probe kit or a more accurate method.

- The dielectric parameters are within 5% of the target values.

- The DUT has been positioned as described in section 3.

7.1 PROBE CALIBRATION UNCERTAINTY

SPEAG conducts the probe calibration in compliance with international and national standards (e.g. IEEE 1528, EN 50361, IEC 62209, etc.) under ISO17025. The uncertainties are stated on the calibration certificate. For the most relevant frequency bands, these values do not exceed 4.8% (k=1). If evaluations of other bands are performed for which the uncertainty exceeds these values, the uncertainty tables given in the summary have to be revised accordingly.

7.2 ISOTROPY UNCERTAINTY

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

7.3 BOUNDARY EFFECT UNCERTAINTY

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

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

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

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

7.4 PROBE LINEARITY UNCERTAINTY

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

7.5 READOUT ELECTRONICS UNCERTAINTY

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

7.6 RESPONSE TIME UNCERTAINTY

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

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

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

7.7 INTEGRATION TIME UNCERTAINTY

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

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

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

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

TABLE 7.1

7.8 PROBE POSITIONER MECHANICAL TOLERANCE

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

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

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

7.9 PROBE POSITIONING

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

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

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

7.10 PHANTOM UNCERTAINTY

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

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

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

7.11 DASY5 UNCERTAINTY BUDGET

Error Description	Tolerance (±%)	Probability Distribution	Divisor	(C_i)		Standard Uncertainty (±%)		(v_i)
				(1g)	(10g)	(1g)	(10g)	
Measurement Equipment								
Probe Calibration	5.50	Normal	1	1	1	5.50	5.50	∞
Axial Isotropy	4.70	Rectangular	$\sqrt{3}$	0.7	0.7	1.90	1.90	∞
Hemispherical Isotropy	9.60	Rectangular	$\sqrt{3}$	0.7	0.7	3.88	3.88	∞
Boundary effects	1.00	Rectangular	$\sqrt{3}$	1	1	0.58	0.58	∞
Linearity	4.70	Rectangular	$\sqrt{3}$	1	1	2.71	2.71	∞
System Detection Limits	1.00	Rectangular	$\sqrt{3}$	1	1	0.58	0.58	∞
Readout Electronics	0.30	Normal	1	1	1	0.30	0.30	∞
Response Time	0.80	Rectangular	$\sqrt{3}$	1	1	0.46	0.46	∞
Integration Time	2.60	Rectangular	$\sqrt{3}$	1	1	1.50	1.50	∞
RF Ambient Noise	3.00	Rectangular	$\sqrt{3}$	1	1	1.73	1.73	∞
RF Ambient Reflections	3.00	Rectangular	$\sqrt{3}$	1	1	1.73	1.73	∞
Probe Positioner	0.40	Rectangular	$\sqrt{3}$	1	1	0.23	0.23	∞
Probe Positioning	2.90	Rectangular	$\sqrt{3}$	1	1	1.67	1.67	∞
Max. SAR Eval.	1.00	Rectangular	$\sqrt{3}$	1	1	0.58	0.58	∞
Test Sample Related								
Device Positioning	0.89	Normal	1	1	1	0.89	0.89	9
Device Holder	3.60	Normal	1	1	1	3.60	3.60	5
Power Drift	5.00	Rectangular	$\sqrt{3}$	1	1	2.89	2.89	∞
Phantom and Tissue parameters								
Phantom Uncertainty	4.00	Rectangular	$\sqrt{3}$	1	1	2.31	2.31	∞
Liquid Conductivity (target)	5.00	Rectangular	$\sqrt{3}$	0.64	0.43	1.85	1.24	∞
Liquid Conductivity (measurement)	4.74	Normal	1	0.64	0.43	3.03	2.04	∞
Liquid Permittivity (target)	5.00	Rectangular	$\sqrt{3}$	0.6	0.49	1.73	1.41	∞
Liquid Permittivity (measurement)	4.57	Normal	1	0.6	0.49	2.74	2.24	∞
Combined Standard Uncertainty						10.92	10.43	
Coverage Factor for 95%						Kp=2		
Expanded Uncertainty (K=2)						21.84	20.86	

TABLE 7.2

The table 7.2: Worst-Case uncertainty budget for DASY5 assessed according to IEEE 1528. The budget is valid for the frequency range 300MHz ~ 3GHz and represents a worst-case analysis. For specific tests and configurations, the uncertainty could be considerable smaller.

8. INFORMATION ON THE TESTING LABORATORIES

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

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

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

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

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

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

Web Site: www.adt.com.tw

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

---THE END---

APPENDIX A: TEST DATA

Liquid Level Photo

Tissue HSL835MHz D=153mm
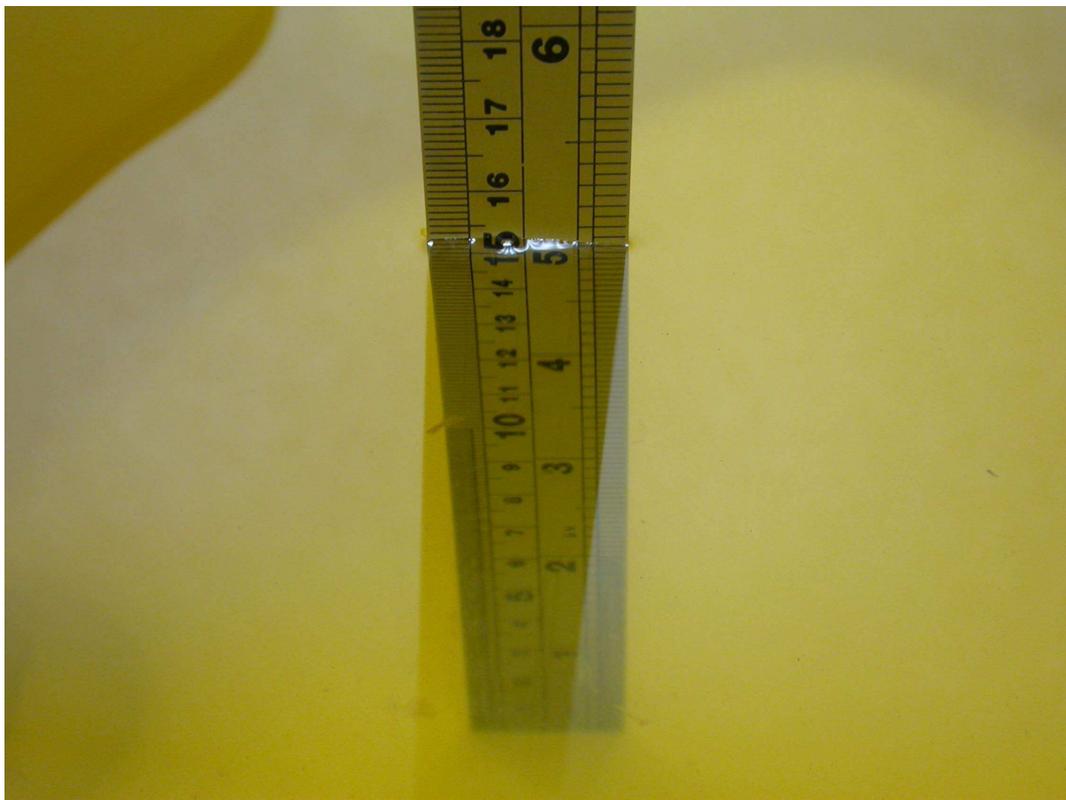
Tissue MSL835MHz D=152mm

Tissue HSL1900MHz D=151mm

Tissue HSL1900MHz D=154mm
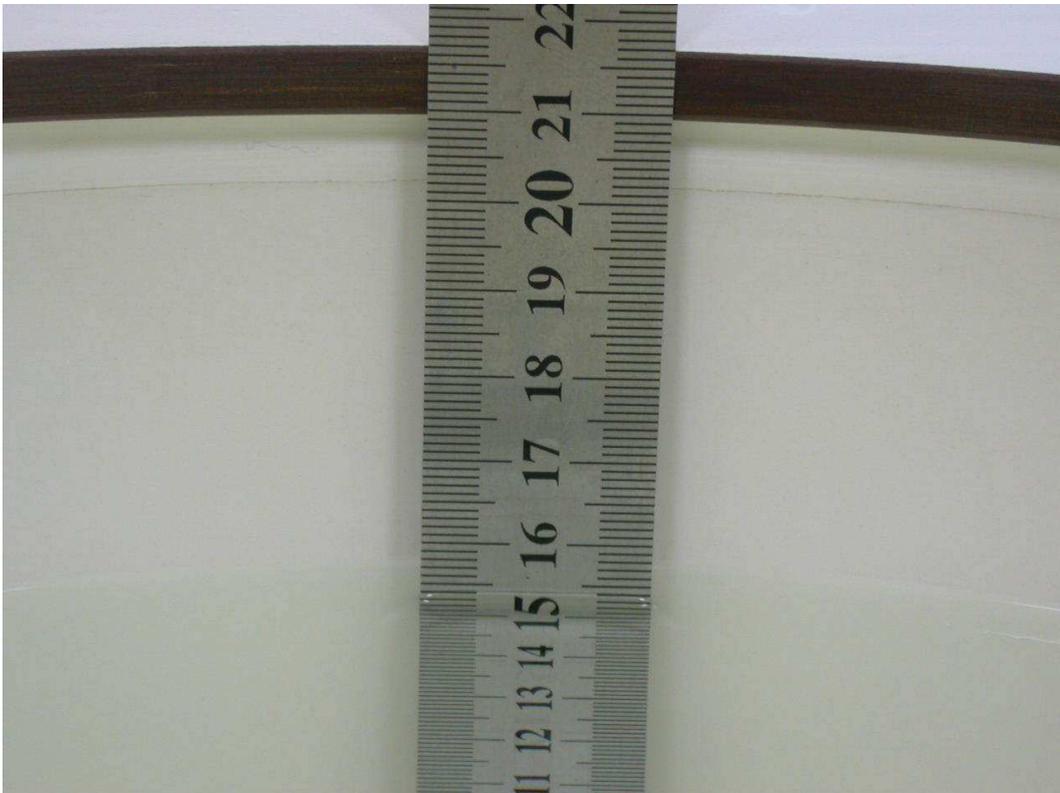
Test Laboratory: Bureau Veritas ADT

M01-Right Head Check GSM 850 Ch190

DUT: Smart Phone ; Type: NA MAPL120
Communication System: GSM 850 ; Frequency: 836.6 MHz ; Duty Cycle: 1:8.3
Medium: HSL850 Medium parameters used: f = 836.6 MHz; σ = 0.91 mho/m; ε_r = 43.2; ρ = 1000 kg/m^3
Phantom section: Right Section ; DUT test position : Cheek ; Modulation type: BPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(8.55, 8.55, 8.55) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125; SEMCAD X Version 13.4 Build 45

Touch position - Mid Channel 190/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.303 mW/g

Touch position - Mid Channel 190/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.3 V/m
Peak SAR (extrapolated) = 0.371 W/kg
SAR(1 g) = 0.280 mW/g; SAR(10 g) = 0.204 mW/g
Maximum value of SAR (measured) = 0.312 mW/g
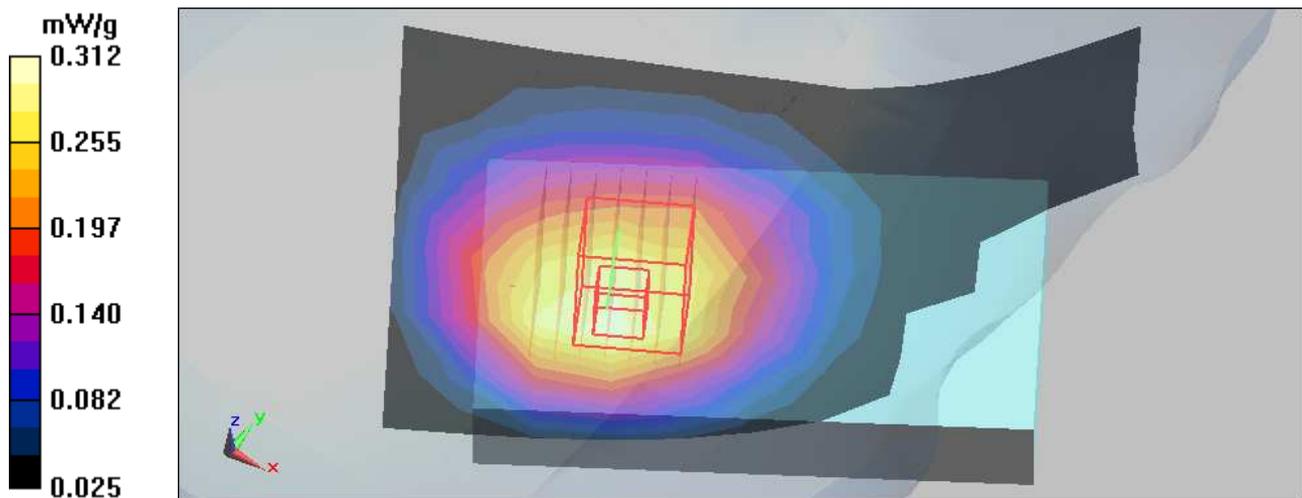
Test Laboratory: Bureau Veritas ADT

M02-Right Head Tilt GSM 850 Ch190

DUT: Smart Phone ; Type: NA MAPL120
Communication System: GSM 850 ; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
Medium: HSL850 Medium parameters used: f = 836.6 MHz; σ = 0.91 mho/m; ε_r = 43.2; ρ = 1000 kg/m^3
Phantom section: Right Section ; DUT test position : Tilt ; Modulation type: BPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(8.55, 8.55, 8.55) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125; SEMCAD X Version 13.2 Build 87

Tilt position - Mid Channel 190/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.203 mW/g

Tilt position - Mid Channel 190/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.3 V/m; Power Drift = 0.093 dB
Peak SAR (extrapolated) = 0.274 W/kg
SAR(1 g) = 0.188 mW/g; SAR(10 g) = 0.137 mW/g
Maximum value of SAR (measured) = 0.209 mW/g

A - 4
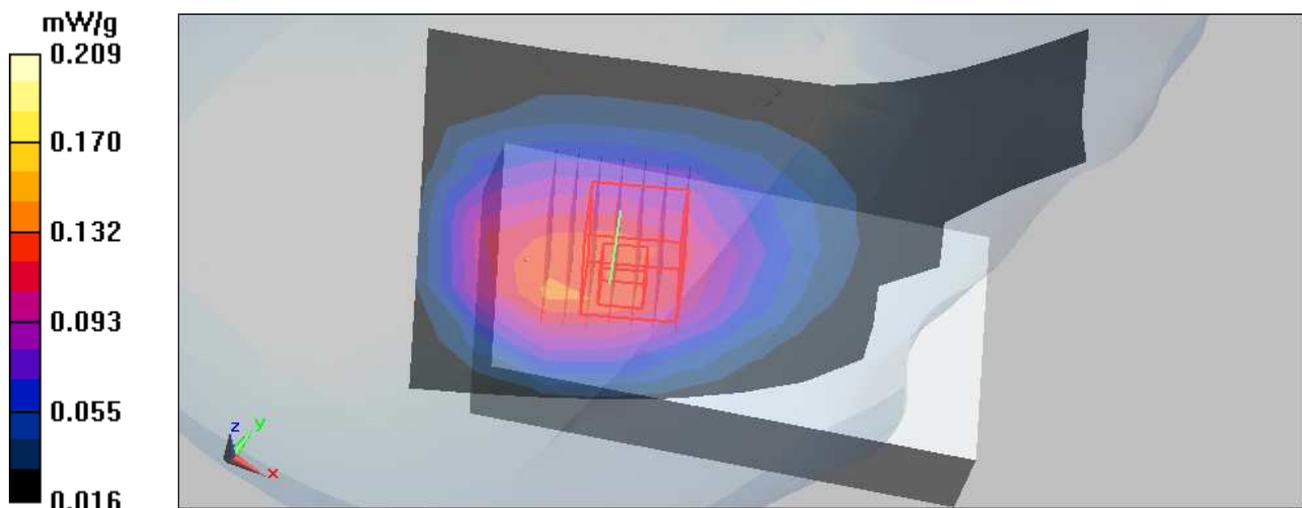
Test Laboratory: Bureau Veritas ADT

M03-Left Head Check GSM 850 Ch190

DUT: Smart Phone ; Type: NA MAPL120
Communication System: GSM 850 ; Frequency: 836.6 MHz ; Duty Cycle: 1:8.3
Medium: HSL850 Medium parameters used: f = 836.6 MHz; σ = 0.91 mho/m; ε_r = 43.2; ρ = 1000 kg/m^3
Phantom section: Left Section ; DUT test position : Cheek ; Modulation type: BPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(8.55, 8.55, 8.55) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125; SEMCAD X Version 13.4 Build 45

Touch position -Mid Channel 190/Area Scan (7x11x1): Measurement grid: dx=15mm,
dy=15mm
Maximum value of SAR (measured) = 0.339 mW/g

Touch position -Mid Channel 190/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.8 V/m
Peak SAR (extrapolated) = 0.405 W/kg
SAR(1 g) = 0.313 mW/g; SAR(10 g) = 0.216 mW/g
Maximum value of SAR (measured) = 0.349 mW/g
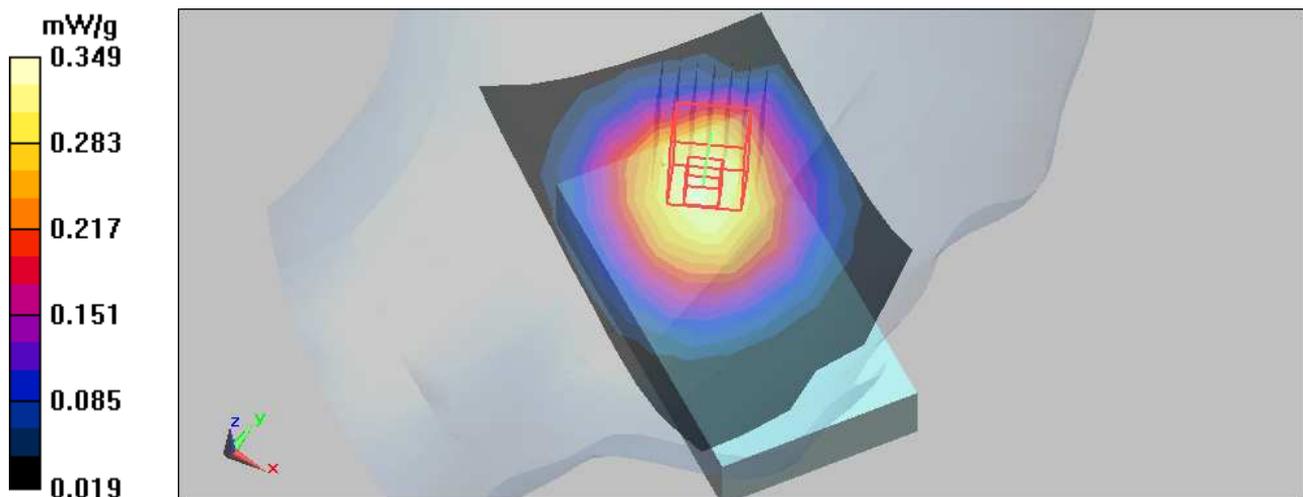
Test Laboratory: Bureau Veritas ADT

M04-Left Head Tilt GSM 850 Ch190

DUT: Smart Phone ; Type: NA MAPL120
Communication System: GSM 850 ; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
Medium: HSL850 Medium parameters used: f = 836.6 MHz; σ = 0.91 mho/m; ε_r = 43.2; ρ = 1000 kg/m^3
Phantom section: Left Section ; DUT test position : Tilt ; Modulation type: BPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(8.55, 8.55, 8.55) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125; SEMCAD X Version 13.4 Build 45

Tilt position - Mid Channel 190/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.225 mW/g

Tilt position - Mid Channel 190/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.5 V/m
Peak SAR (extrapolated) = 0.305 W/kg
SAR(1 g) = 0.203 mW/g; SAR(10 g) = 0.141 mW/g
Maximum value of SAR (measured) = 0.227 mW/g
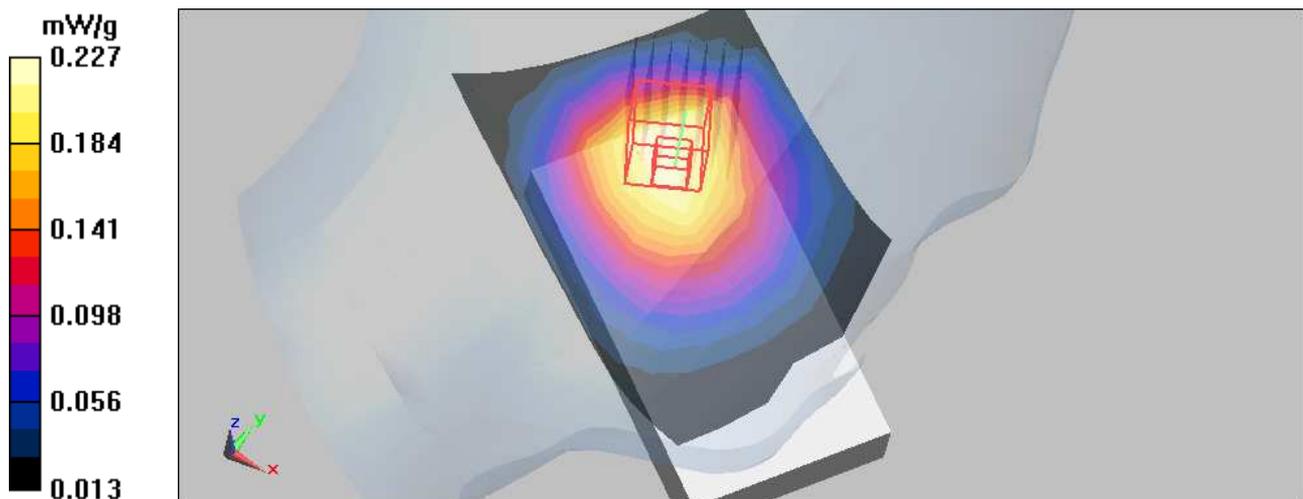
Test Laboratory: Bureau Veritas ADT

M05-Body Front GSM 850 Ch190

DUT: Smart Phone ; Type: NA MAPL120
Communication System: GSM 850 ; Frequency: 836.6 MHz ; Duty Cycle: 1:8.3 ; Modulation type: QPSK
Medium: MSL850 Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.97 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Separation distance : 0 mm (The tip side of the EUT to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(8.42, 8.42, 8.42) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125 ; SEMCAD X Version 13.2 Build 87

Mid. Channel 190/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.118 mW/g

Mid. Channel 190/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.3 V/m
Peak SAR (extrapolated) = 0.142 W/kg
SAR(1 g) = 0.108 mW/g; SAR(10 g) = 0.081 mW/g
Maximum value of SAR (measured) = 0.120 mW/g
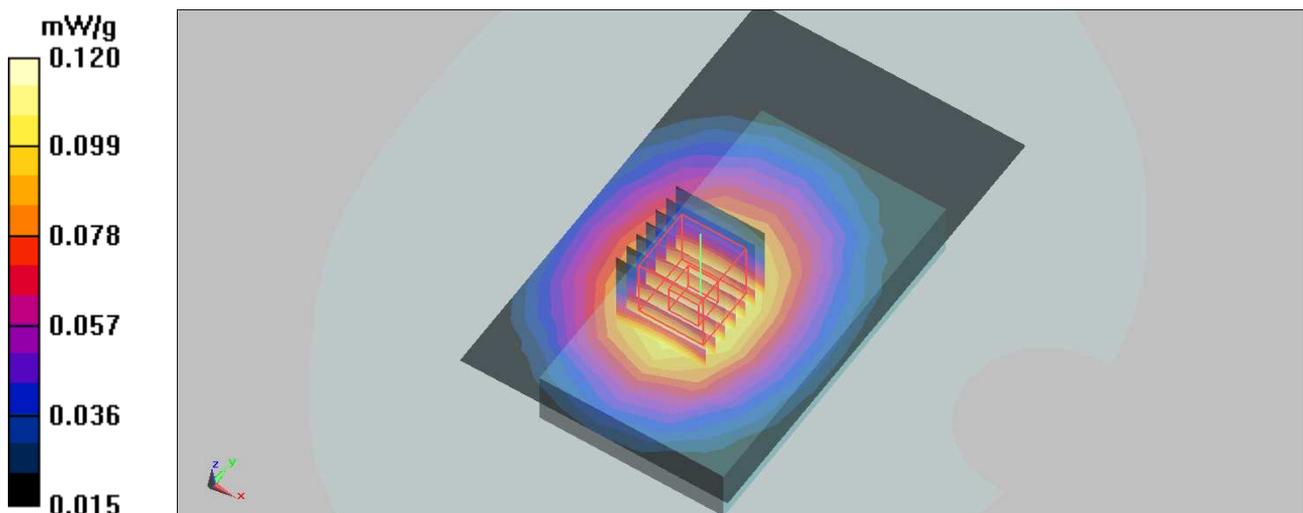
Test Laboratory: Bureau Veritas ADT

M06-Body Bottom GSM 850 Ch190

DUT: Smart Phone ; Type: NA MAPL120
Communication System: GSM 850 ; Frequency: 836.6 MHz ; Duty Cycle: 1:8.3 ; Modulation type: QPSK
Medium: MSL850 Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.97 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Separation distance : 0 mm (The tip side of the EUT to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(8.42, 8.42, 8.42) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125 ; SEMCAD X Version 13.2 Build 87

Mid. Channel 190/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.197 mW/g

Mid. Channel 190/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.8 V/m
Peak SAR (extrapolated) = 0.250 W/kg
SAR(1 g) = 0.184 mW/g; SAR(10 g) = 0.132 mW/g
Maximum value of SAR (measured) = 0.207 mW/g
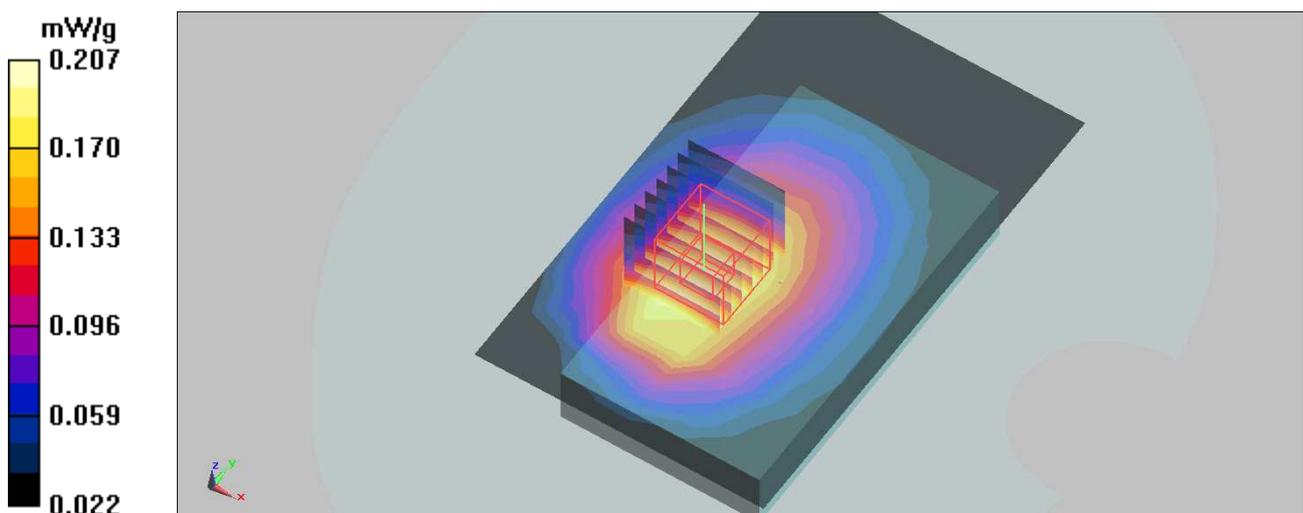
Test Laboratory: Bureau Veritas ADT

M07-Body Front GPRS 850 Ch190 TS1

DUT: Smart Phone ; Type: NA MAPL120
Communication System: GSM 850 ; Frequency: 836.6 MHz ; Duty Cycle: 1:8.3 ; Modulation type: QPSK
Medium: MSL850 Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.97 mho/m; ϵ_r = 53.4; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Separation distance : 0 mm (The tip side of the EUT to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(8.42, 8.42, 8.42) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125 ; SEMCAD X Version 13.2 Build 87

Mid. Channel 190/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.116 mW/g

Mid. Channel 190/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.4 V/m
Peak SAR (extrapolated) = 0.142 W/kg
SAR(1 g) = 0.108 mW/g; SAR(10 g) = 0.080 mW/g
Maximum value of SAR (measured) = 0.120 mW/g
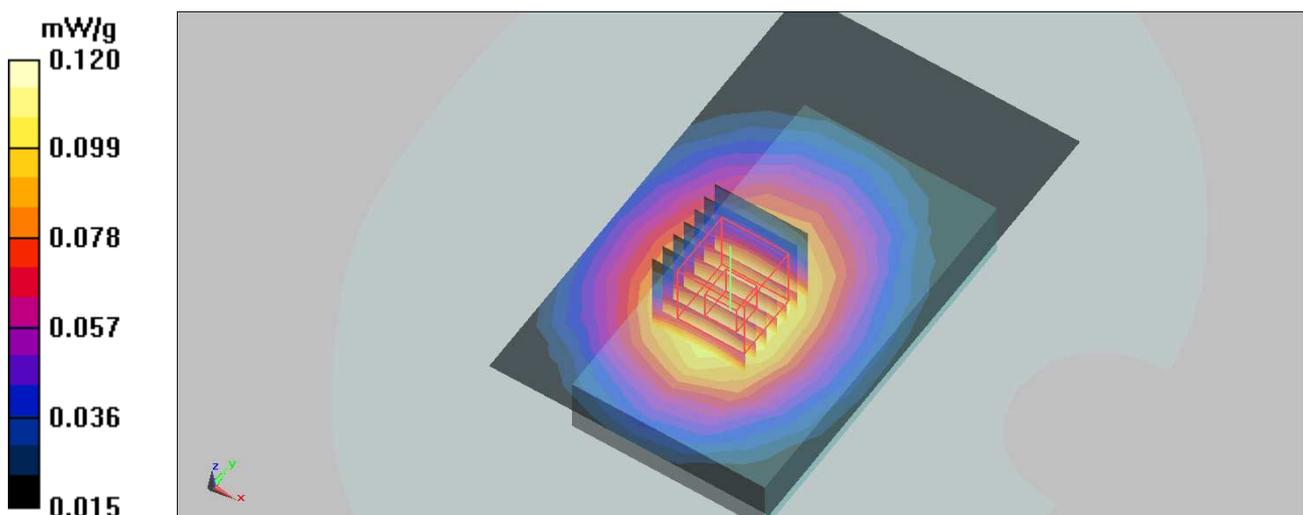
Test Laboratory: Bureau Veritas ADT

M08-Body Bottom GPRS 850 Ch190 TS1

DUT: Smart Phone ; Type: NA MAPL120
Communication System: GSM 850 ; Frequency: 836.6 MHz ; Duty Cycle: 1:8.3 ; Modulation
type: QPSK
Medium: MSL850 Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.97 mho/m; ε_r = 53.4; ρ
= 1000 kg/m^3
Phantom section: Flat Section ; Separation distance : 0 mm (The tip side of the EUT to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(8.42, 8.42, 8.42) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125 ; SEMCAD X Version 13.2 Build 87

Mid. Channel 190/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.173 mW/g

Mid. Channel 190/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm,
dz=5mm
Reference Value = 12.4 V/m
Peak SAR (extrapolated) = 0.217 W/kg
SAR(1 g) = 0.163 mW/g; SAR(10 g) = 0.118 mW/g
Maximum value of SAR (measured) = 0.182 mW/g
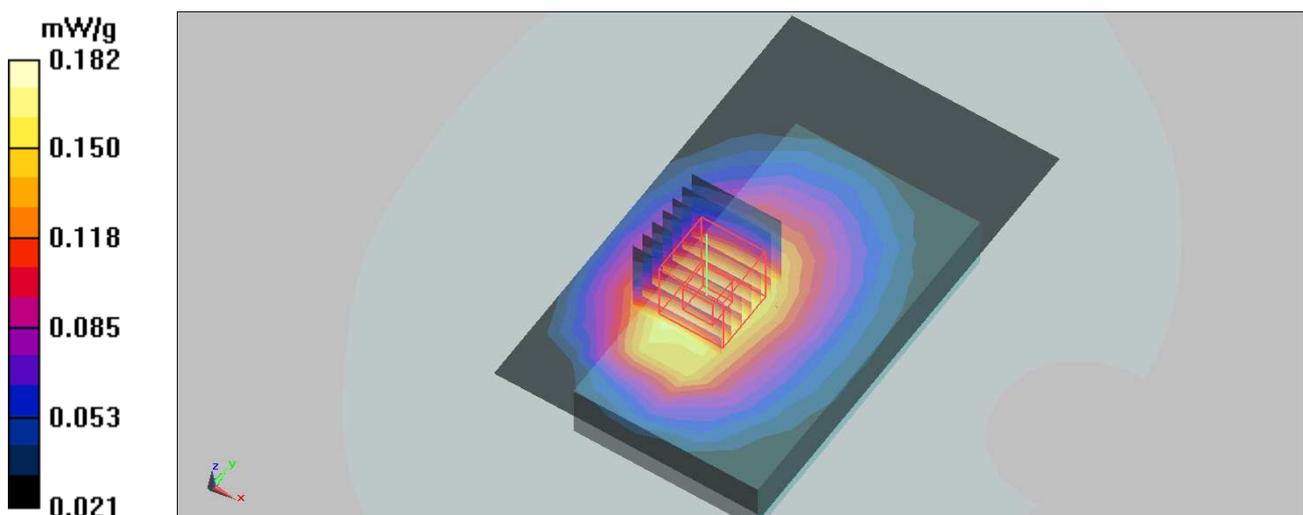
Test Laboratory: Bureau Veritas ADT

M09-Body Front GPRS 850 Ch190 TS2

DUT: Smart Phone ; Type: NA MAPL120
Communication System: GSM 850 ; Frequency: 836.6 MHz ; Duty Cycle: 1:8.3 ; Modulation type: QPSK
Medium: MSL850 Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.97 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Separation distance : 0 mm (The tip side of the EUT to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(8.42, 8.42, 8.42) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125 ; SEMCAD X Version 13.2 Build 87

Mid. Channel 190/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.253 mW/g

Mid. Channel 190/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.9 V/m
Peak SAR (extrapolated) = 0.301 W/kg
SAR(1 g) = 0.229 mW/g; SAR(10 g) = 0.169 mW/g
Maximum value of SAR (measured) = 0.254 mW/g
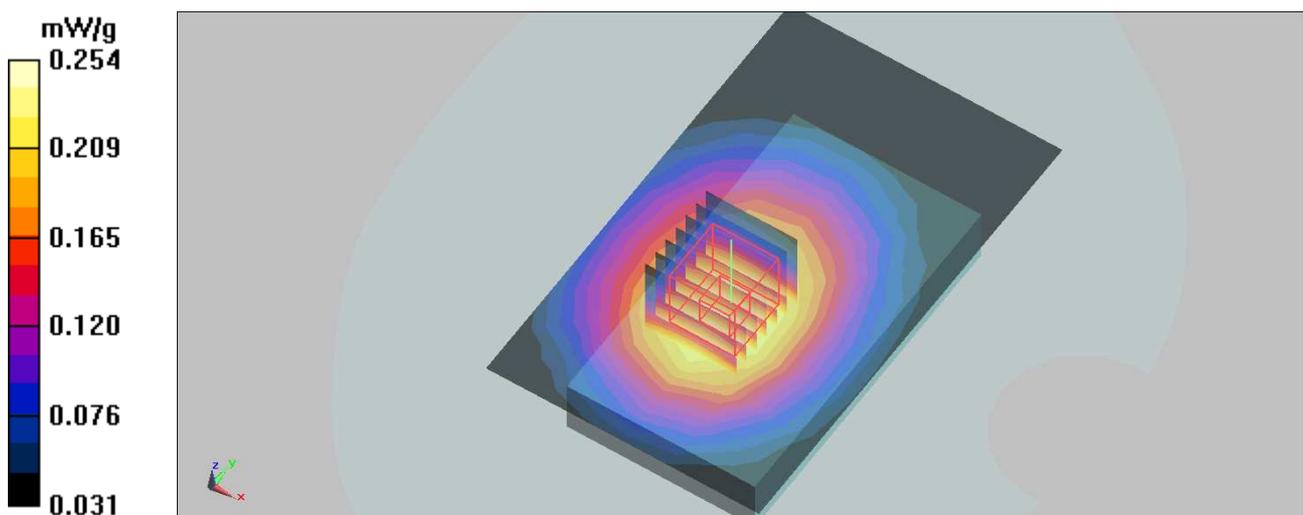
Test Laboratory: Bureau Veritas ADT

M10-Body Bottom GPRS 850 Ch190 TS2

DUT: Smart Phone ; Type: NA MAPL120
Communication System: GSM 850 ; Frequency: 836.6 MHz ; Duty Cycle: 1:8.3 ; Modulation type: QPSK
Medium: MSL850 Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.97 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Separation distance : 0 mm (The tip side of the EUT to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(8.42, 8.42, 8.42) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125 ; SEMCAD X Version 13.2 Build 87

Mid. Channel 190/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.356 mW/g

Mid. Channel 190/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.7 V/m
Peak SAR (extrapolated) = 0.453 W/kg
SAR(1 g) = 0.334 mW/g; SAR(10 g) = 0.239 mW/g
Maximum value of SAR (measured) = 0.374 mW/g
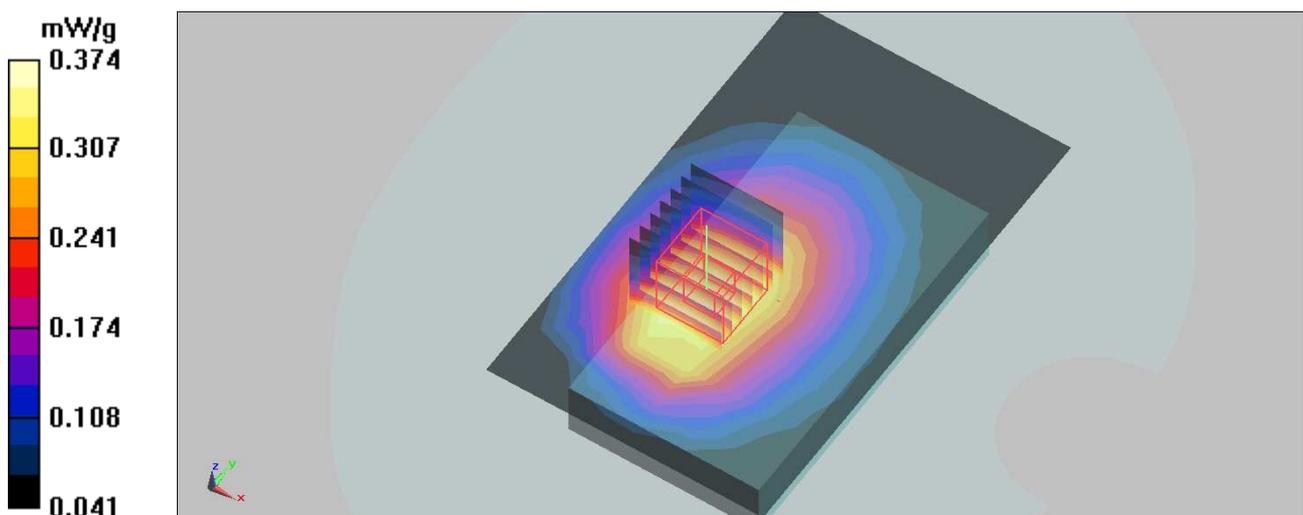
Test Laboratory: Bureau Veritas ADT

M11-Body Front E-GPRS 850 Ch190 TS1

DUT: Smart Phone ; Type: NA MAPL120
Communication System: GSM 850 ; Frequency: 836.6 MHz ; Duty Cycle: 1:8.3 ; Modulation type: QPSK
Medium: MSL850 Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.97 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Separation distance : 0 mm (The tip side of the EUT to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(8.42, 8.42, 8.42) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125 ; SEMCAD X Version 13.2 Build 87

Mid. Channel 190/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.236 mW/g

**Mid. Channel 190/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.7 V/m
Peak SAR (extrapolated) = 0.141 W/kg
SAR(1 g) = 0.108 mW/g; SAR(10 g) = 0.081 mW/g
Maximum value of SAR (measured) = 0.120 mW/g
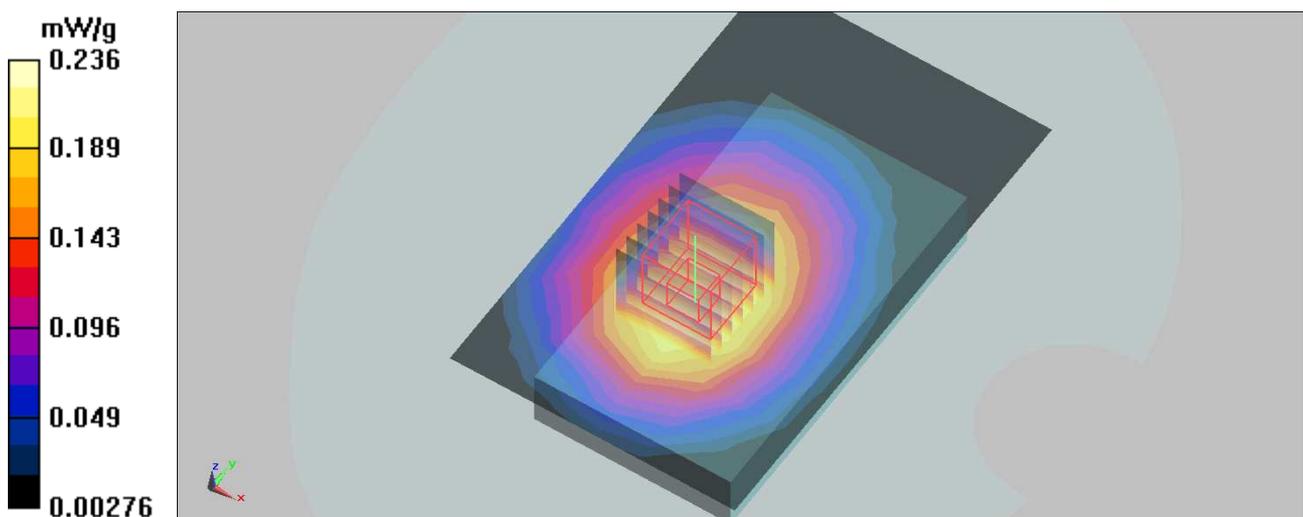
Test Laboratory: Bureau Veritas ADT

M12-Body Bottom E-GPRS 850 Ch190 TS1

DUT: Smart Phone ; Type: NA MAPL120
Communication System: GSM 850 ; Frequency: 836.6 MHz ; Duty Cycle: 1:8.3 ; Modulation
type: QPSK
Medium: MSL850 Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.97 mho/m; ε_r = 53.4; ρ
= 1000 kg/m^3
Phantom section: Flat Section ; Separation distance : 0 mm (The tip side of the EUT to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(8.42, 8.42, 8.42) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125 ; SEMCAD X Version 13.2 Build 87

Mid. Channel 190/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.173 mW/g

**Mid. Channel 190/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm,
dz=5mm
Reference Value = 12.3 V/m
Peak SAR (extrapolated) = 0.218 W/kg
SAR(1 g) = 0.163 mW/g; SAR(10 g) = 0.117 mW/g
Maximum value of SAR (measured) = 0.182 mW/g
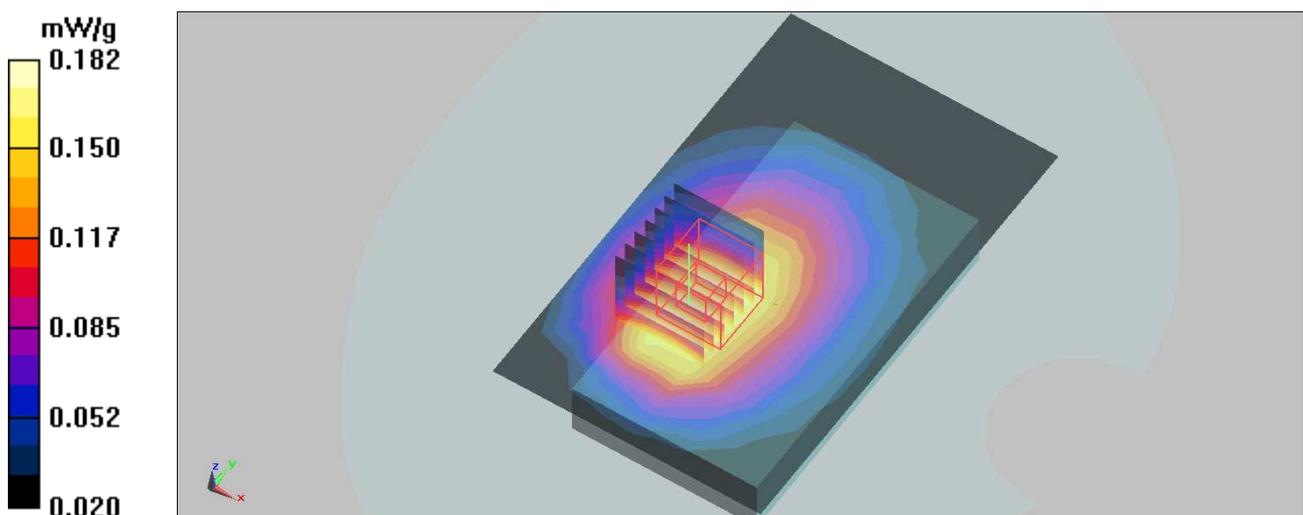
Test Laboratory: Bureau Veritas ADT

M13-Body Front E-GPRS 850 Ch190 TS2

DUT: Smart Phone ; Type: NA MAPL120
Communication System: GSM 850 ; Frequency: 836.6 MHz ; Duty Cycle: 1:8.3 ; Modulation
type: QPSK
Medium: MSL850 Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.97 mho/m; ε_r = 53.4; ρ
= 1000 kg/m³
Phantom section: Flat Section ; Separation distance : 0 mm (The tip side of the EUT to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(8.42, 8.42, 8.42) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125 ; SEMCAD X Version 13.2 Build 87

Mid. Channel 190/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.235 mW/g

**Mid. Channel 190/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm,
dz=5mm
Reference Value = 15 V/m
Peak SAR (extrapolated) = 0.285 W/kg
SAR(1 g) = 0.218 mW/g; SAR(10 g) = 0.162 mW/g
Maximum value of SAR (measured) = 0.242 mW/g
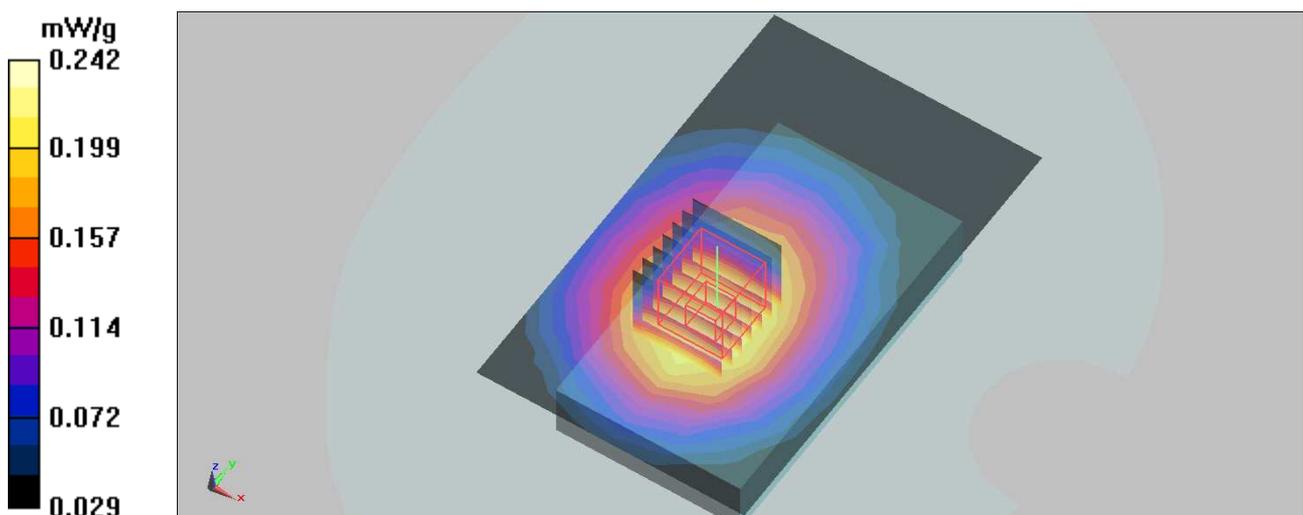
Test Laboratory: Bureau Veritas ADT

M14-Body Bottom E-GPRS 850 Ch190 TS2

DUT: Smart Phone ; Type: NA MAPL120
Communication System: GSM 850 ; Frequency: 836.6 MHz ; Duty Cycle: 1:8.3 ; Modulation type: QPSK
Medium: MSL850 Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.97 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Separation distance : 0 mm (The tip side of the EUT to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(8.42, 8.42, 8.42) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125 ; SEMCAD X Version 13.2 Build 87

Mid. Channel 190/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.353 mW/g

Mid. Channel 190/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.6 V/m
Peak SAR (extrapolated) = 0.455 W/kg
SAR(1 g) = 0.333 mW/g; SAR(10 g) = 0.238 mW/g
Maximum value of SAR (measured) = 0.376 mW/g
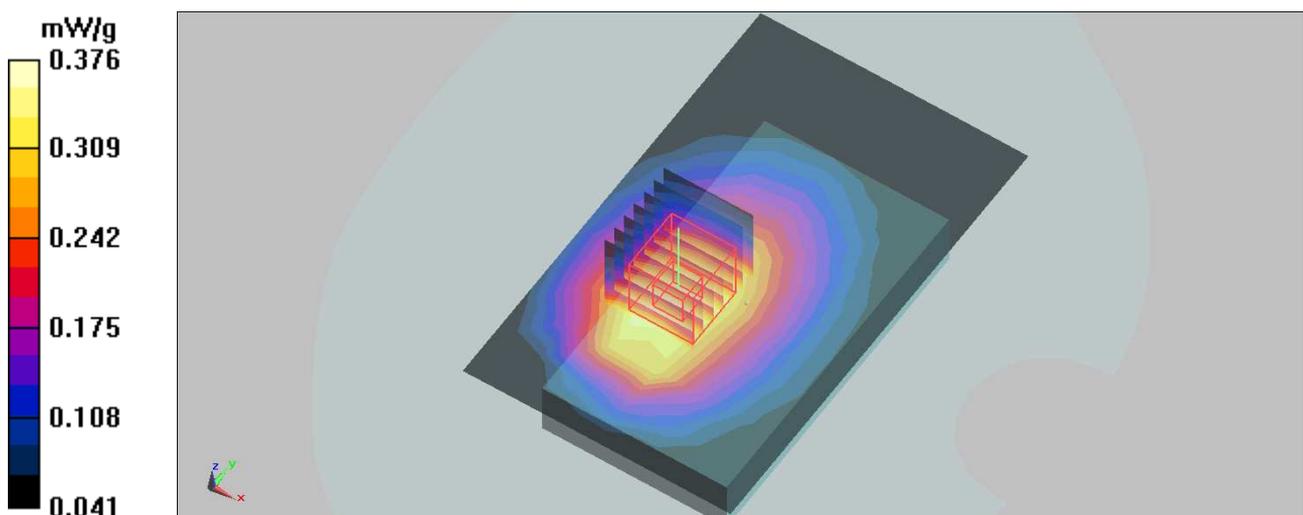
Test Laboratory: Bureau Veritas ADT
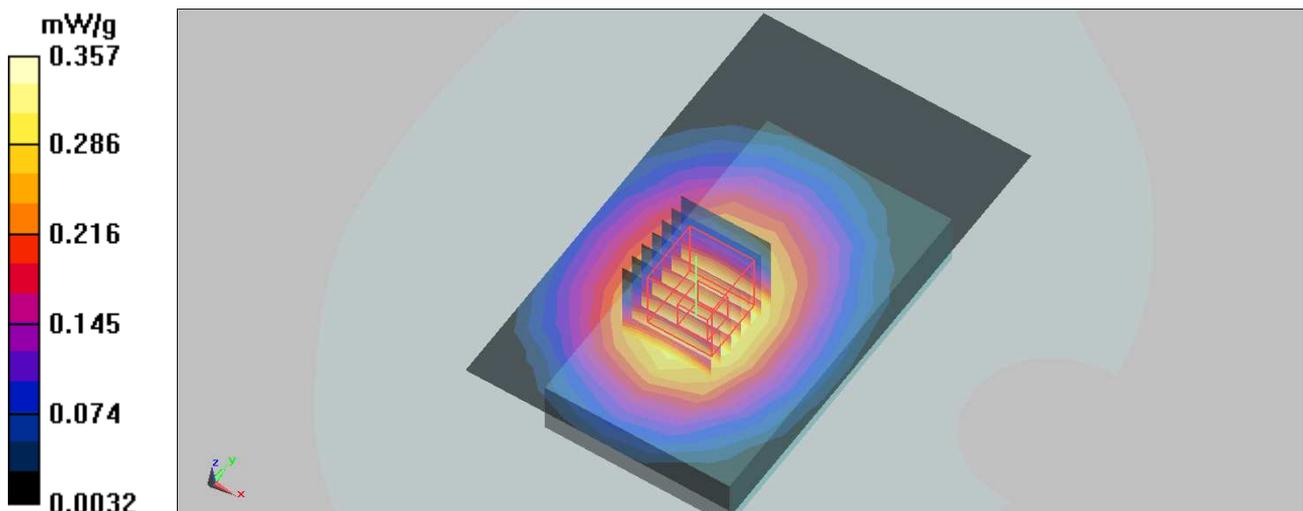
M15-Right Head Check WCDMA 850 Ch4182

DUT: Smart Phone ; Type: NA MAPL120
Communication System: WCDMA ; Frequency: 836.5 MHz ; Duty Cycle: 1:1
Medium: HSL850 Medium parameters used: f = 836.5 MHz; σ = 0.91 mho/m; ε_r = 43.2; ρ = 1000 kg/m^3
Phantom section: Right Section ; DUT test position : Cheek ; Modulation type: BPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(8.55, 8.55, 8.55) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125; SEMCAD X Version 13.2 Build 87

Touch position - Mid Channel 4182/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.264 mW/g

Touch position - Mid Channel 4182/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.5 V/m
Peak SAR (extrapolated) = 0.337 W/kg
SAR(1 g) = 0.250 mW/g; SAR(10 g) = 0.178 mW/g
Maximum value of SAR (measured) = 0.280 mW/g
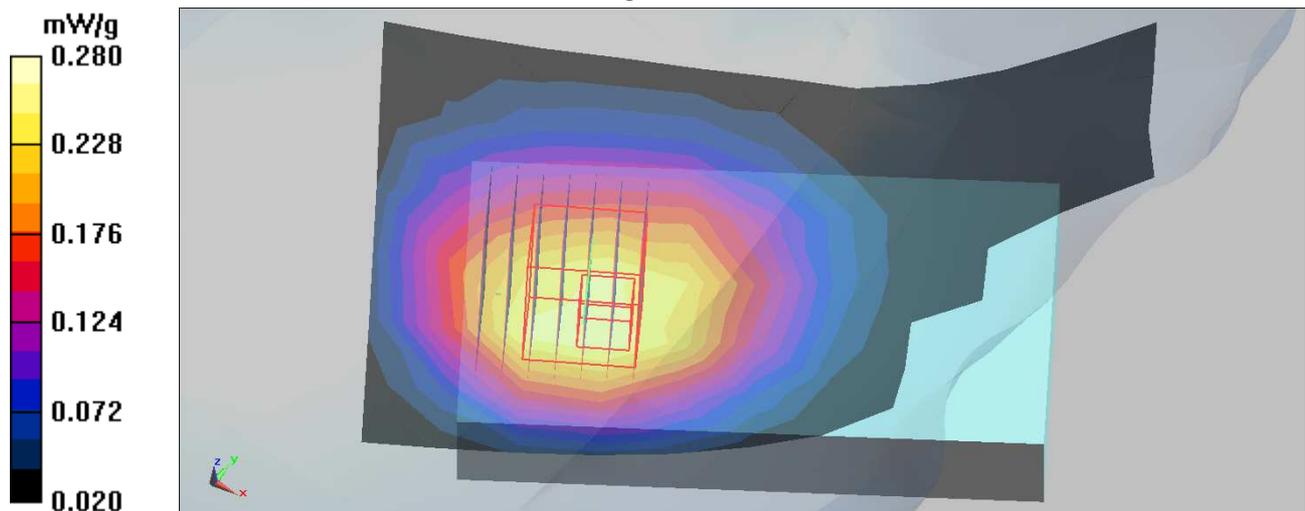
Test Laboratory: Bureau Veritas ADT
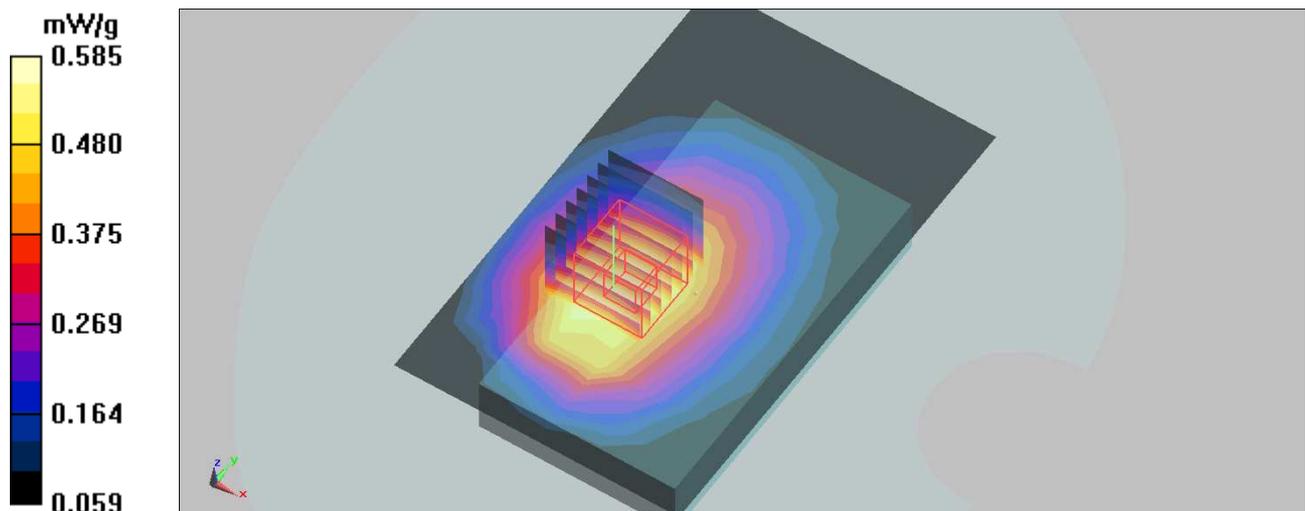
M16-Right Head Tilt WCDMA 850 Ch4182

DUT: Smart Phone ; Type: NA MAPL120
Communication System: WCDMA ; Frequency: 836.5 MHz; Duty Cycle: 1:1
Medium: HSL850 Medium parameters used: f = 836.5 MHz; σ = 0.91 mho/m; ε_r = 43.2; ρ = 1000 kg/m^3
Phantom section: Right Section ; DUT test position : Tilt ; Modulation type: BPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(8.55, 8.55, 8.55) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125; SEMCAD X Version 13.2 Build 87

Tilt position - Mid Channel 4182/Area Scan (7x11x1): Measurement grid: dx=15mm,
dy=15mm
Maximum value of SAR (measured) = 0.183 mW/g

Tilt position - Mid Channel 4182/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.6 V/m
Peak SAR (extrapolated) = 0.245 W/kg
SAR(1 g) = 0.167 mW/g; SAR(10 g) = 0.121 mW/g
Maximum value of SAR (measured) = 0.187 mW/g
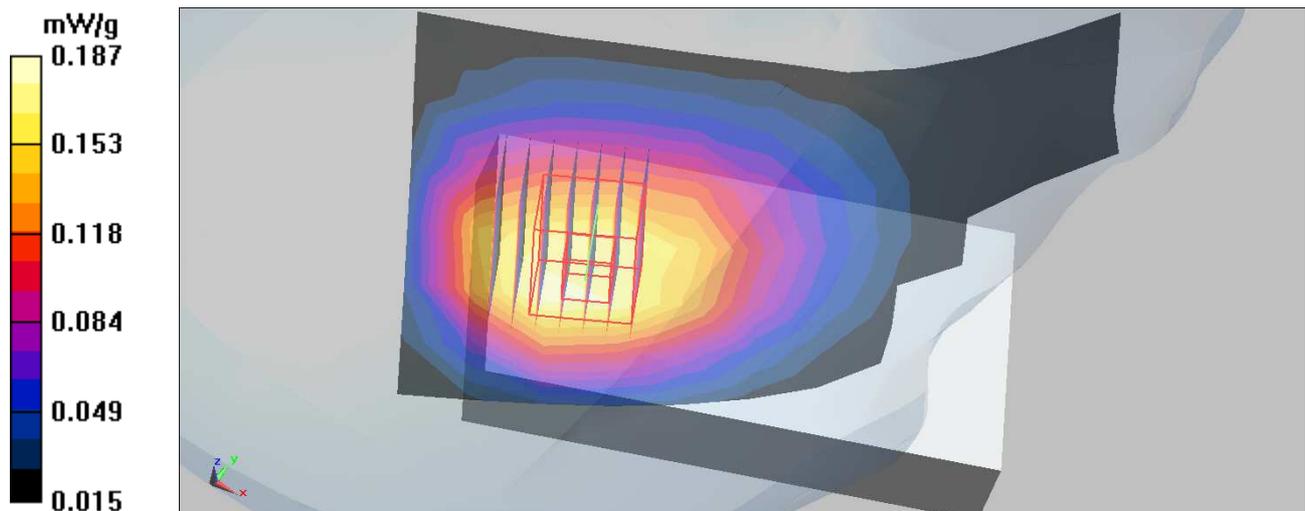
Test Laboratory: Bureau Veritas ADT
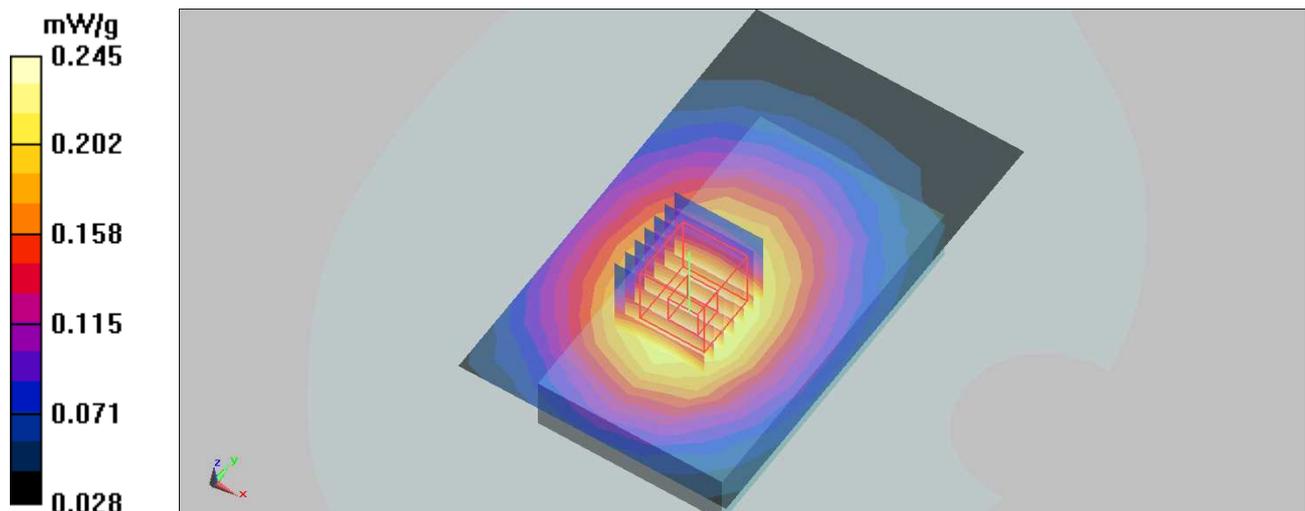
M17-Left Head Check WCDMA 850 Ch4182

DUT: Smart Phone ; Type: NA MAPL120
Communication System: WCDMA ; Frequency: 836.5 MHz ; Duty Cycle: 1:1
Medium: HSL850 Medium parameters used: f = 836.5 MHz; σ = 0.91 mho/m; ε_r = 43.2; ρ = 1000 kg/m^3
Phantom section: Left Section ; DUT test position : Cheek ; Modulation type: BPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(8.55, 8.55, 8.55) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125; SEMCAD X Version 13.2 Build 87

Touch position -Mid Channel 4182/Area Scan (7x11x1): Measurement grid: dx=15mm,
dy=15mm
Maximum value of SAR (measured) = 0.293 mW/g

Touch position -Mid Channel 4182/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.5 V/m
Peak SAR (extrapolated) = 0.346 W/kg
SAR(1 g) = 0.269 mW/g; SAR(10 g) = 0.187 mW/g
Maximum value of SAR (measured) = 0.298 mW/g
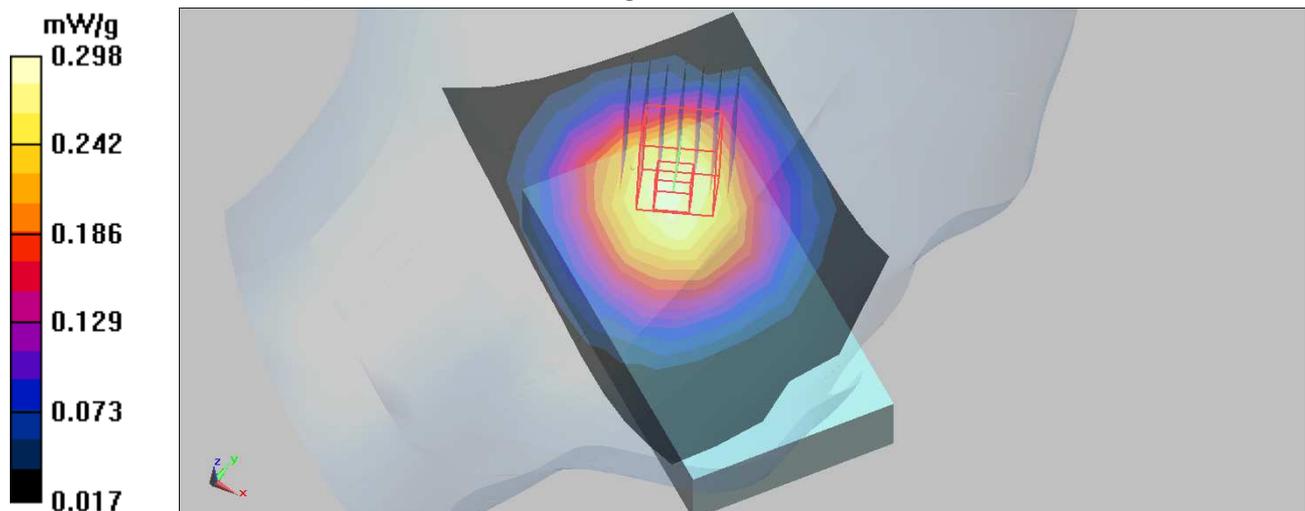
Test Laboratory: Bureau Veritas ADT

M18-Left Head Tilt WCDMA 850 Ch4182

DUT: Smart Phone ; Type: NA MAPL120
Communication System: WCDMA ; Frequency: 836.5 MHz; Duty Cycle: 1:1
Medium: HSL850 Medium parameters used: f = 836.5 MHz; σ = 0.91 mho/m; ε_r = 43.2; ρ = 1000 kg/m^3
Phantom section: Left Section ; DUT test position : Tilt ; Modulation type: BPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(8.55, 8.55, 8.55) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125; SEMCAD X Version 13.2 Build 87

Tilt position - Mid Channel 4182/Area Scan (7x11x1): Measurement grid: dx=15mm,
dy=15mm
Maximum value of SAR (measured) = 0.196 mW/g

**Tilt position - Mid Channel 4182/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.5 V/m
Peak SAR (extrapolated) = 0.268 W/kg
SAR(1 g) = 0.177 mW/g; SAR(10 g) = 0.125 mW/g
Maximum value of SAR (measured) = 0.198 mW/g
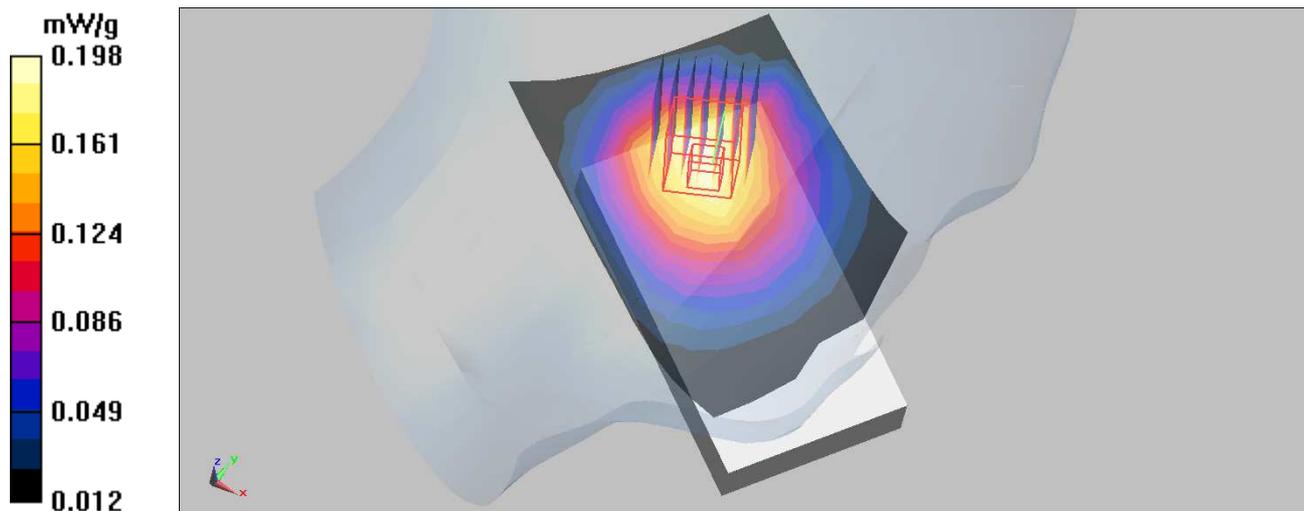
Test Laboratory: Bureau Veritas ADT

M19-Body Front WCDMA 850 Ch4182

DUT: Smart Phone ; Type: NA MAPL120
Communication System: WCDMA ; Frequency: 836.5 MHz ; Duty Cycle: 1:1 ; Modulation type: QPSK
Medium: MSL850 Medium parameters used: f = 836.5 MHz; σ = 0.97 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Separation distance : 0 mm (The tip side of the EUT to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(8.42, 8.42, 8.42) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125 ; SEMCAD X Version 13.2 Build 87

Mid. Channel 4182/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.357 mW/g

**Mid. Channel 4182/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm,
dz=5mm
Reference Value = 18 V/m
Peak SAR (extrapolated) = 0.439 W/kg
SAR(1 g) = 0.333 mW/g; SAR(10 g) = 0.248 mW/g
Maximum value of SAR (measured) = 0.371 mW/g

Test Laboratory: Bureau Veritas ADT

M20-Body Bottom WCDMA 850 Ch4182

DUT: Smart Phone ; Type: NA MAPL120
Communication System: WCDMA ; Frequency: 836.5 MHz ; Duty Cycle: 1:1 ; Modulation type: QPSK
Medium: MSL850 Medium parameters used: f = 836.5 MHz; σ = 0.97 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Separation distance : 0 mm (The tip side of the EUT to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(8.42, 8.42, 8.42) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125 ; SEMCAD X Version 13.2 Build 87

Mid. Channel 4182/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.553 mW/g

Mid. Channel 4182/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 21.8 V/m
Peak SAR (extrapolated) = 0.703 W/kg
SAR(1 g) = 0.522 mW/g; SAR(10 g) = 0.375 mW/g
Maximum value of SAR (measured) = 0.585 mW/g

Test Laboratory: Bureau Veritas ADT

M21-Body Front HSDPA 850 Ch4182

DUT: Smart Phone ; Type: NA MAPL120
Communication System: WCDMA ; Frequency: 836.5 MHz ; Duty Cycle: 1:1 ; Modulation type: QPSK
Medium: MSL850 Medium parameters used: f = 836.5 MHz; σ = 0.97 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Separation distance : 0 mm (The tip side of the EUT to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(8.42, 8.42, 8.42) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125 ; SEMCAD X Version 13.2 Build 87

Mid. Channel 4182/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.231 mW/g

**Mid. Channel 4182/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.6 V/m
Peak SAR (extrapolated) = 0.290 W/kg
SAR(1 g) = 0.220 mW/g; SAR(10 g) = 0.162 mW/g
Maximum value of SAR (measured) = 0.245 mW/g

Test Laboratory: Bureau Veritas ADT

M22-Body Bottom HSDPA 850 Ch4182

DUT: Smart Phone ; Type: NA MAPL120
Communication System: WCDMA ; Frequency: 836.5 MHz ; Duty Cycle: 1:1 ; Modulation type: QPSK
Medium: MSL850 Medium parameters used: f = 836.5 MHz; σ = 0.97 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Separation distance : 0 mm (The tip side of the EUT to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(8.42, 8.42, 8.42) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125 ; SEMCAD X Version 13.2 Build 87

Mid. Channel 4182/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.365 mW/g

Mid. Channel 4182/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.6 V/m
Peak SAR (extrapolated) = 0.465 W/kg
SAR(1 g) = 0.345 mW/g; SAR(10 g) = 0.249 mW/g
Maximum value of SAR (measured) = 0.389 mW/g
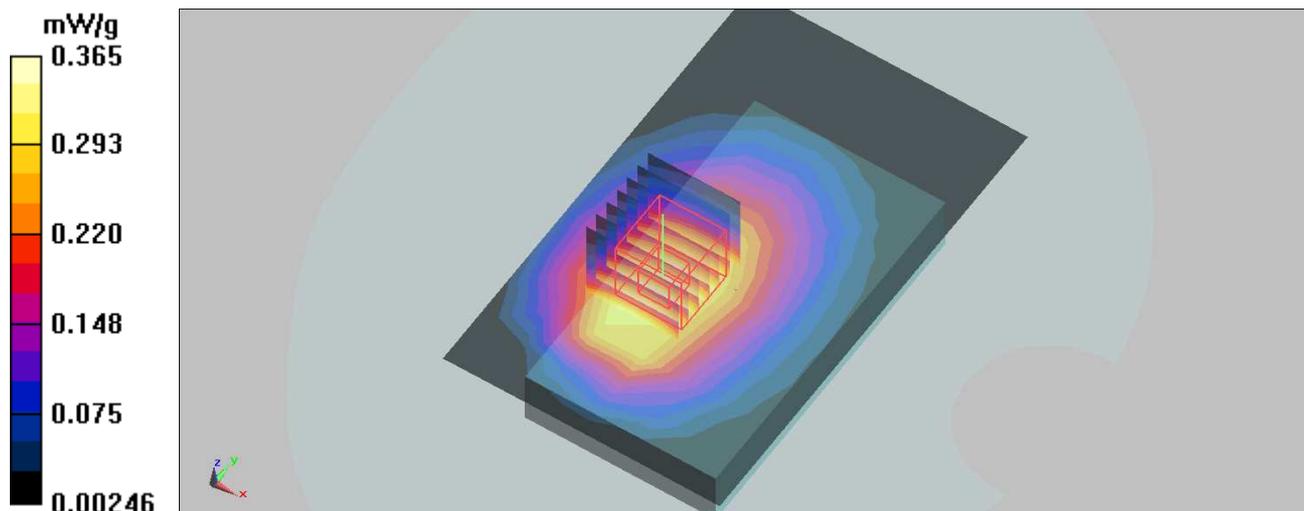
Test Laboratory: Bureau Veritas ADT

M23-Right Head Check PCS 1900 Ch661

DUT: Smart Phone ; Type: NA MAPL120
Communication System: DCS 1900 ; Frequency: 1880 MHz ; Duty Cycle: 1:8.3
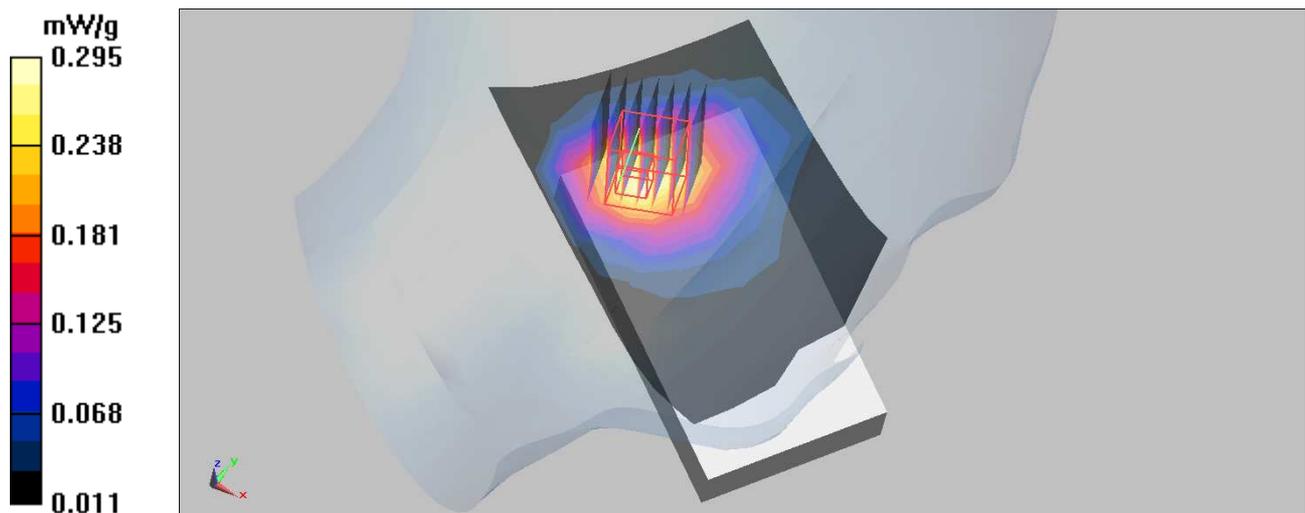Medium: HSL1900 Medium parameters used: f = 1880 MHz; σ = 1.43 mho/m; $ε_r$ = 40.9; ρ = 1000 kg/m^3
Phantom section: Right Section ; DUT test position : Cheek ; Modulation type: BPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(7.28, 7.28, 7.28) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125; SEMCAD X Version 13.2 Build 87

Touch position - Mid Channel 661/Area Scan (7x11x1): Measurement grid: dx=15mm,
dy=15mm
Maximum value of SAR (measured) = 0.593 mW/g

Touch position - Mid Channel 661/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.7 V/m
Peak SAR (extrapolated) = 1.18 W/kg
SAR(1 g) = 0.610 mW/g; SAR(10 g) = 0.318 mW/g
Maximum value of SAR (measured) = 0.780 mW/g
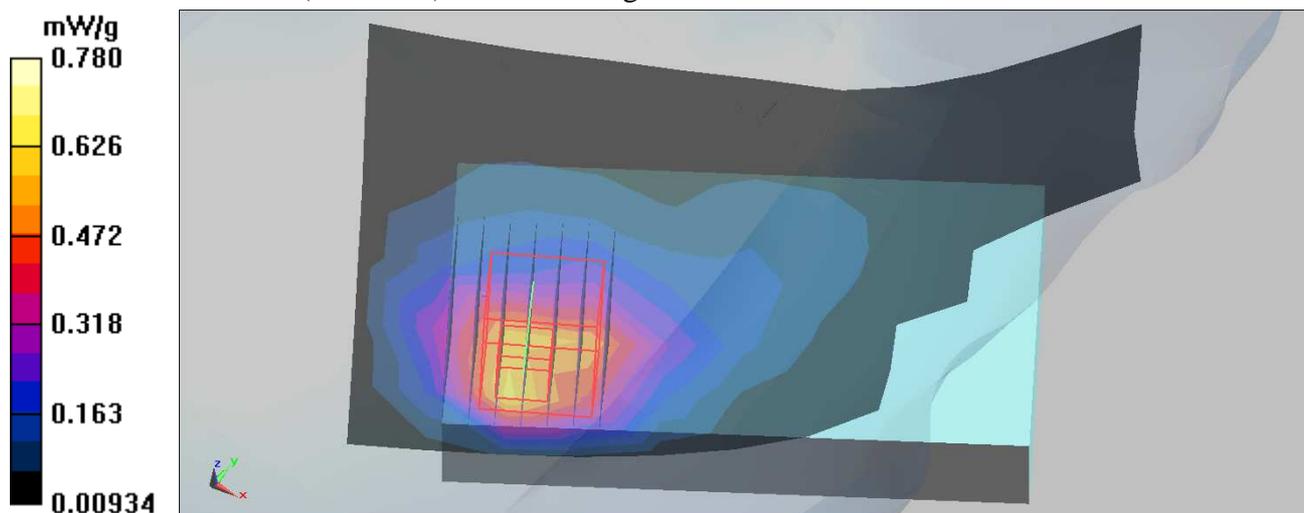
Test Laboratory: Bureau Veritas ADT

M24-Right Head Tilt PCS 1900 Ch661

DUT: Smart Phone ; Type: NA MAPL120
Communication System: DCS 1900 ; Frequency: 1880 MHz; Duty Cycle: 1:8.3
Medium: HSL1900 Medium parameters used: f = 1880 MHz; σ = 1.43 mho/m; $ε_r$ = 40.9; ρ = 1000 kg/m³
Phantom section: Right Section ; DUT test position : Tilt ; Modulation type: BPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(7.28, 7.28, 7.28) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125; SEMCAD X Version 13.2 Build 87

Tilt position - Mid Channel 661/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.391 mW/g

**Tilt position - Mid Channel 661/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.6 V/m
Peak SAR (extrapolated) = 0.679 W/kg
SAR(1 g) = 0.363 mW/g; SAR(10 g) = 0.200 mW/g
Maximum value of SAR (measured) = 0.449 mW/g
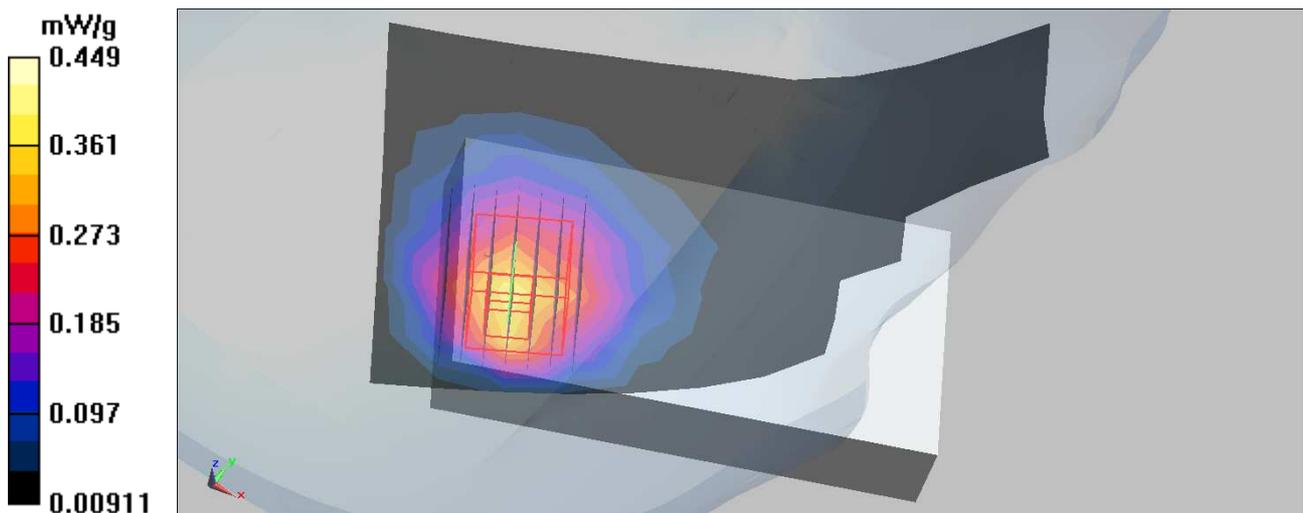
Test Laboratory: Bureau Veritas ADT

M25-Left Head Check PCS 1900 Ch661

DUT: Smart Phone ; Type: NA MAPL120
Communication System: DCS 1900 ; Frequency: 1880 MHz ; Duty Cycle: 1:8.3
Medium: HSL1900 Medium parameters used: f = 1880 MHz; σ = 1.43 mho/m; ε_r = 40.9; ρ = 1000 kg/m^3
Phantom section: Left Section ; DUT test position : Cheek ; Modulation type: BPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(7.28, 7.28, 7.28) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125; SEMCAD X Version 13.2 Build 87

Touch position -Mid Channel 661/Area Scan (7x11x1): Measurement grid: dx=15mm,
dy=15mm
Maximum value of SAR (measured) = 0.400 mW/g

Touch position -Mid Channel 661/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.3 V/m
Peak SAR (extrapolated) = 0.547 W/kg
SAR(1 g) = 0.336 mW/g; SAR(10 g) = 0.207 mW/g
Maximum value of SAR (measured) = 0.401 mW/g
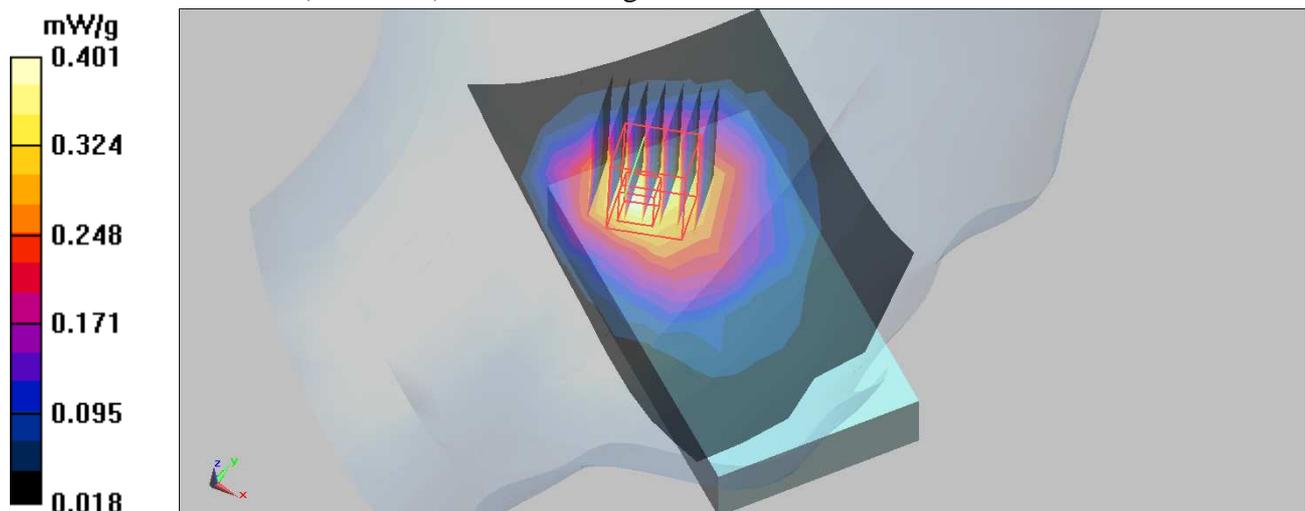
Test Laboratory: Bureau Veritas ADT

M26-Left Head Tilt PCS 1900 Ch661

DUT: Smart Phone ; Type: NA MAPL120
Communication System: DCS 1900 ; Frequency: 1880 MHz; Duty Cycle: 1:8.3
Medium: HSL1900 Medium parameters used: f = 1880 MHz; σ = 1.43 mho/m; ε_r = 40.9; ρ = 1000 kg/m^3
Phantom section: Left Section ; DUT test position : Tilt ; Modulation type: BPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(7.28, 7.28, 7.28) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125; SEMCAD X Version 13.2 Build 87

Tilt position - Mid Channel 661/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.285 mW/g

Tilt position - Mid Channel 661/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.3 V/m
Peak SAR (extrapolated) = 0.408 W/kg
SAR(1 g) = 0.249 mW/g; SAR(10 g) = 0.153 mW/g
Maximum value of SAR (measured) = 0.295 mW/g

Test Laboratory: Bureau Veritas ADT

M27-Body Front PCS 1900 Ch661

DUT: Smart Phone ; Type: NA MAPL120
Communication System: DCS 1900 ; Frequency: 1880 MHz ; Duty Cycle: 1:8.3 ; Modulation
type: QPSK
Medium: MSL1900 Medium parameters used: f = 1880 MHz; σ = 1.53 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3
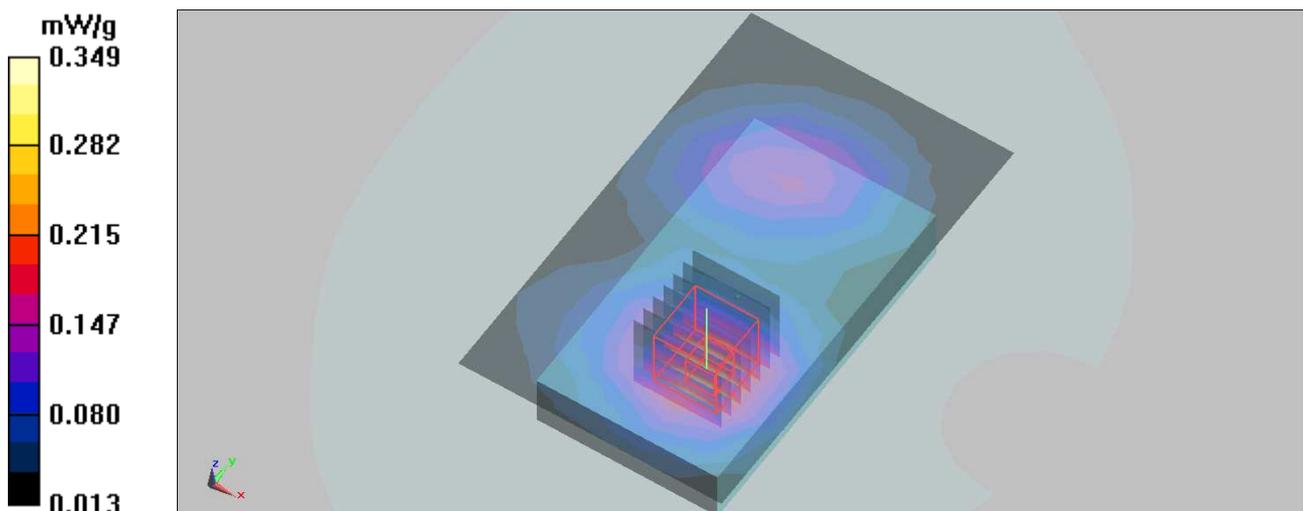Phantom section: Flat Section ; Separation distance : 0 mm (The tip side of the EUT to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(7.41, 7.41, 7.41) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125 ; SEMCAD X Version 13.2 Build 87

Mid. Channel 661 RF sample 2/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.332 mW/g

**Mid. Channel 661 RF sample 2/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.85 V/m
Peak SAR (extrapolated) = 0.489 W/kg
SAR(1 g) = 0.300 mW/g; SAR(10 g) = 0.181 mW/g
Maximum value of SAR (measured) = 0.357 mW/g
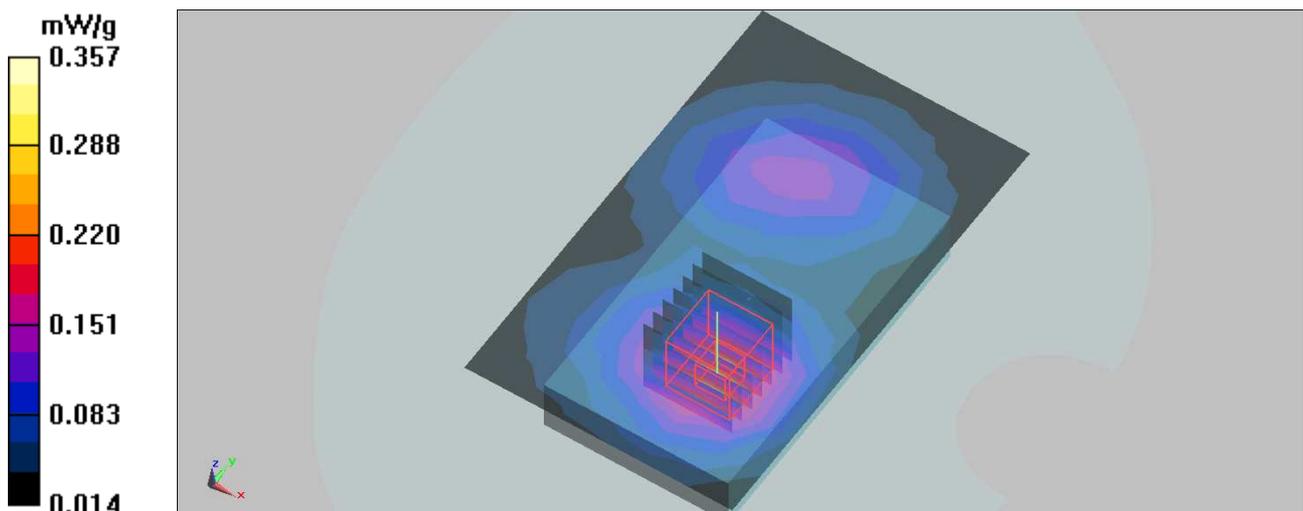
Test Laboratory: Bureau Veritas ADT

M28-Body Bottom PCS 1900 Ch661

DUT: Smart Phone ; Type: NA MAPL120
Communication System: DCS 1900 ; Frequency: 1880 MHz ; Duty Cycle: 1:8.3 ; Modulation
type: QPSK
Medium: MSL1900 Medium parameters used: f = 1880 MHz; σ = 1.53 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3
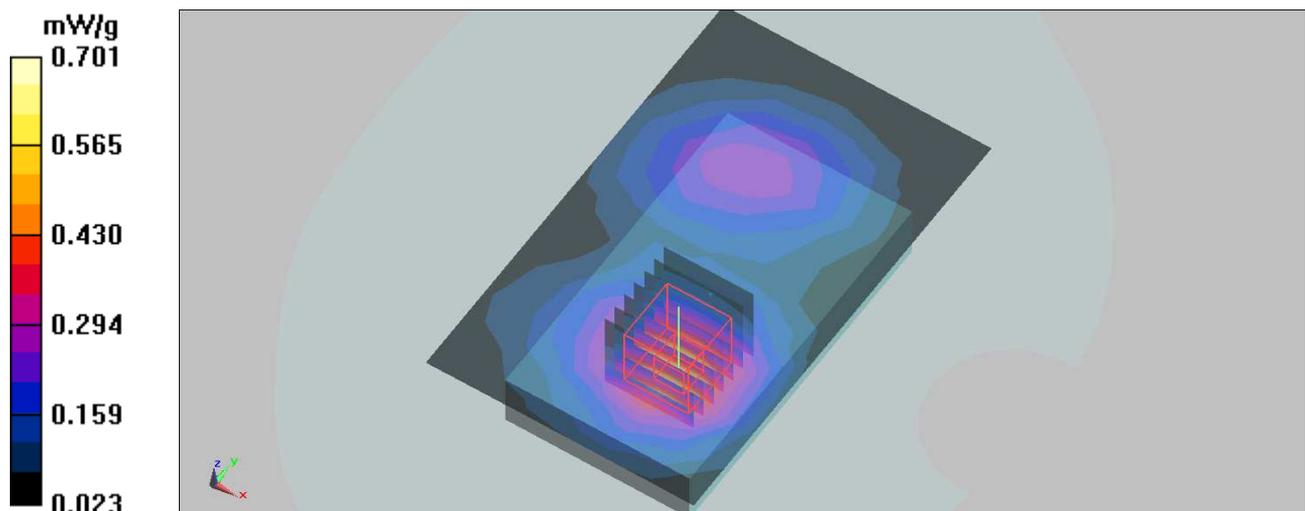Phantom section: Flat Section ; Separation distance : 0 mm (The tip side of the EUT to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(7.41, 7.41, 7.41) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125 ; SEMCAD X Version 13.2 Build 87

Mid. Channel 661 RF sample 2/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.338 mW/g

Mid. Channel 661 RF sample 2/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.03 V/m
Peak SAR (extrapolated) = 0.548 W/kg
SAR(1 g) = 0.326 mW/g; SAR(10 g) = 0.190 mW/g
Maximum value of SAR (measured) = 0.396 mW/g
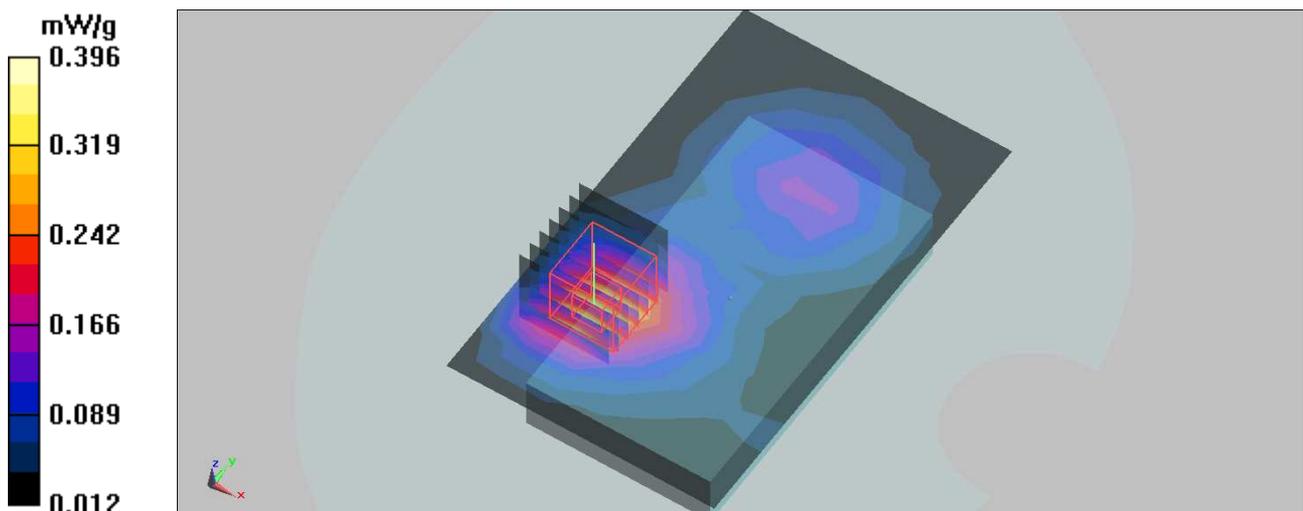
Test Laboratory: Bureau Veritas ADT

M29-Body Front GPRS 1900 Ch661 TS1

DUT: Smart Phone ; Type: NA MAPL120
Communication System: DCS 1900 ; Frequency: 1880 MHz ; Duty Cycle: 1:8.3 ; Modulation
type: QPSK
Medium: MSL1900 Medium parameters used: f = 1880 MHz; σ = 1.53 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3
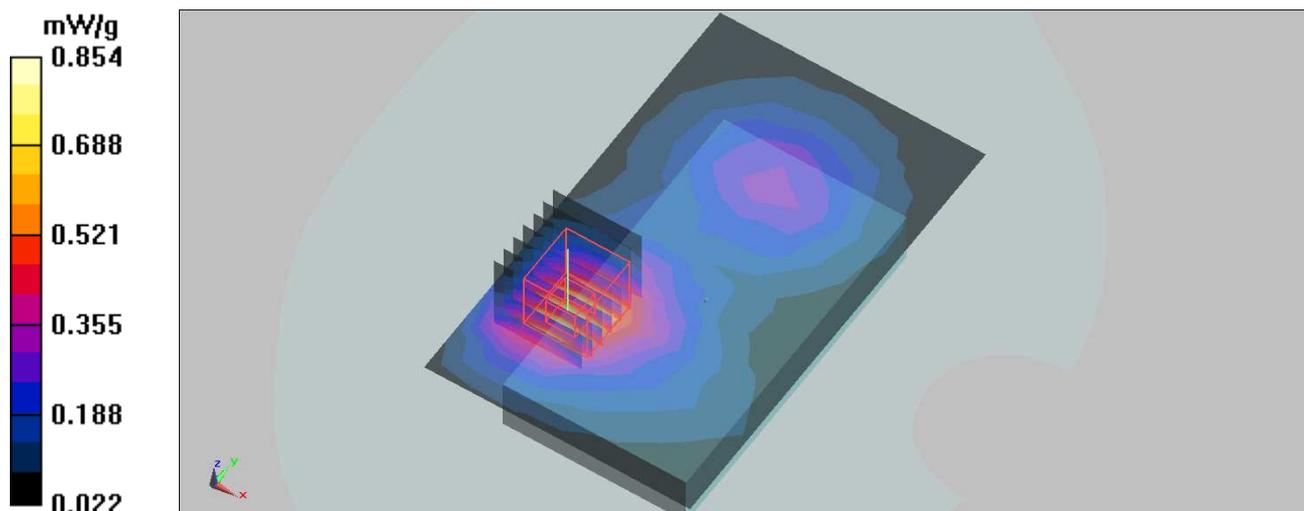Phantom section: Flat Section ; Separation distance : 0 mm (The tip side of the EUT to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(7.41, 7.41, 7.41) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125 ; SEMCAD X Version 13.2 Build 87

Mid. Channel 661 RF sample 2/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.325 mW/g

Mid. Channel 661 RF sample 2/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.63 V/m
Peak SAR (extrapolated) = 0.480 W/kg
SAR(1 g) = 0.291 mW/g; SAR(10 g) = 0.175 mW/g
Maximum value of SAR (measured) = 0.349 mW/g

Test Laboratory: Bureau Veritas ADT

M30-Body Bottom GPRS 1900 Ch661 TS1

DUT: Smart Phone ; Type: NA MAPL120
Communication System: DCS 1900 ; Frequency: 1880 MHz ; Duty Cycle: 1:8.3 ; Modulation type: QPSK
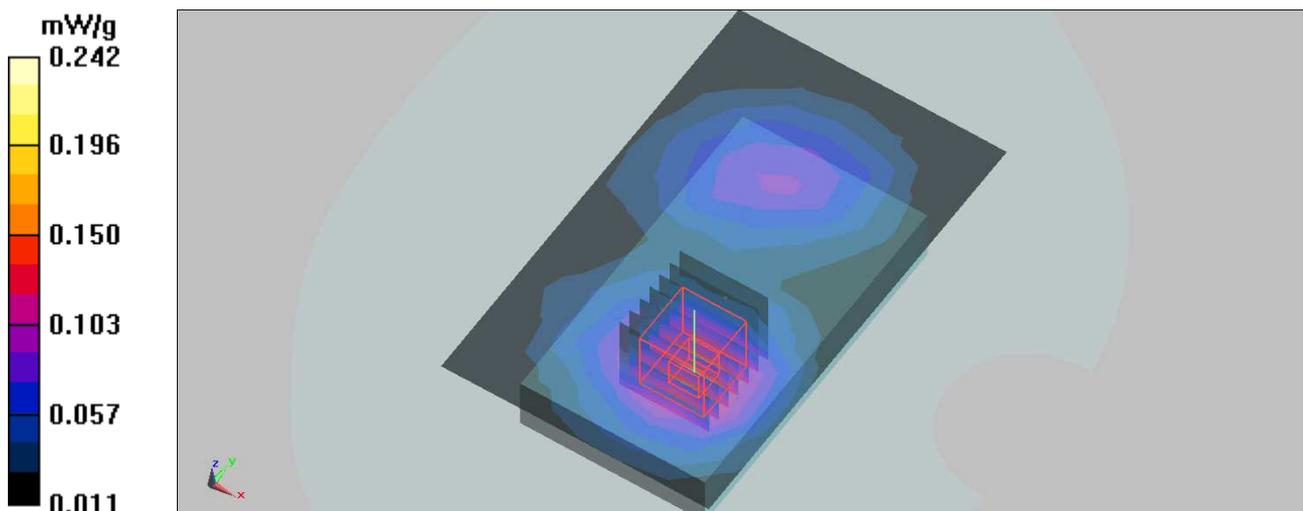Medium: MSL1900 Medium parameters used: f = 1880 MHz; σ = 1.53 mho/m; $ε_r$ = 53.3; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Separation distance : 0 mm (The tip side of the EUT to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(7.41, 7.41, 7.41) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125 ; SEMCAD X Version 13.2 Build 87

Mid. Channel 661 RF sample 2/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.354 mW/g

Mid. Channel 661 RF sample 2/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.14 V/m
Peak SAR (extrapolated) = 0.578 W/kg
SAR(1 g) = 0.340 mW/g; SAR(10 g) = 0.197 mW/g
Maximum value of SAR (measured) = 0.413 mW/g
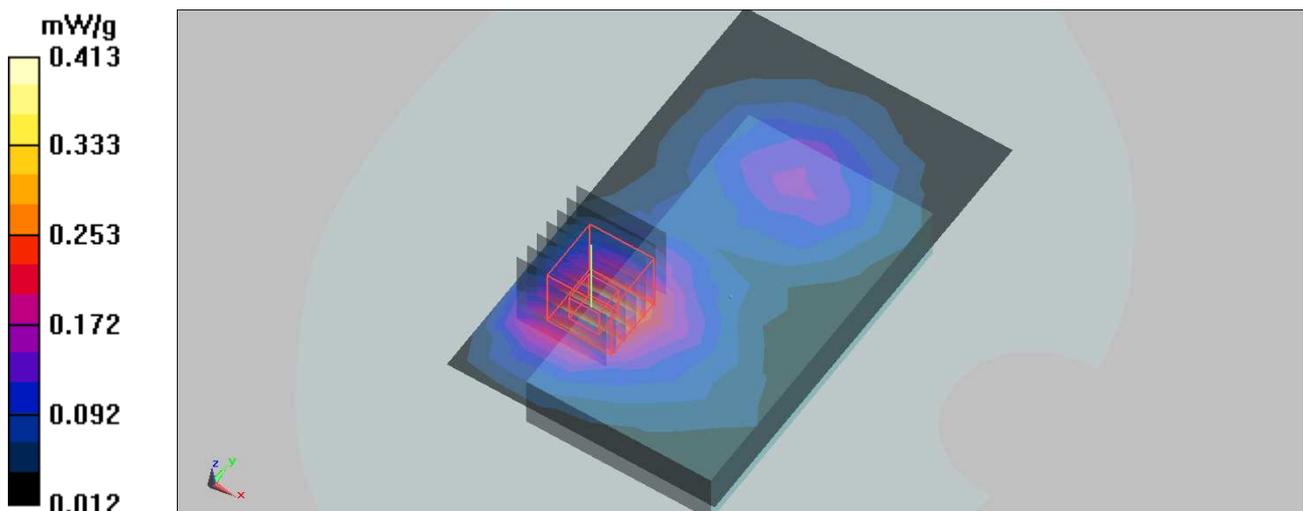
Test Laboratory: Bureau Veritas ADT

M31-Body Front GPRS 1900 Ch661 TS2

DUT: Smart Phone ; Type: NA MAPL120
Communication System: DCS 1900 ; Frequency: 1880 MHz ; Duty Cycle: 1:8.3 ; Modulation
type: QPSK
Medium: MSL1900 Medium parameters used: f = 1880 MHz; σ = 1.53 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Separation distance : 0 mm (The tip side of the EUT to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(7.41, 7.41, 7.41) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125 ; SEMCAD X Version 13.2 Build 87

Mid. Channel 661 RF sample 2/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.657 mW/g

Mid. Channel 661 RF sample 2/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.8 V/m
Peak SAR (extrapolated) = 0.965 W/kg
SAR(1 g) = 0.582 mW/g; SAR(10 g) = 0.347 mW/g
Maximum value of SAR (measured) = 0.701 mW/g

Test Laboratory: Bureau Veritas ADT

M32-Body Bottom GPRS 1900 Ch661 TS2

DUT: Smart Phone ; Type: NA MAPL120
Communication System: DCS 1900 ; Frequency: 1880 MHz ; Duty Cycle: 1:8.3 ; Modulation
type: QPSK
Medium: MSL1900 Medium parameters used: f = 1880 MHz; σ = 1.53 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Separation distance : 0 mm (The tip side of the EUT to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(7.41, 7.41, 7.41) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125 ; SEMCAD X Version 13.2 Build 87

Mid. Channel 661 RF sample 2/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.734 mW/g

**Mid. Channel 661 RF sample 2/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.2 V/m
Peak SAR (extrapolated) = 1.21 W/kg
SAR(1 g) = 0.697 mW/g; SAR(10 g) = 0.397 mW/g
Maximum value of SAR (measured) = 0.854 mW/g

Test Laboratory: Bureau Veritas ADT

M33-Body Front E-GPRS 1900 Ch661 TS1

DUT: Smart Phone ; Type: NA MAPL120
Communication System: DCS 1900 ; Frequency: 1880 MHz ; Duty Cycle: 1:8.3 ; Modulation
type: QPSK
Medium: MSL1900 Medium parameters used: f = 1880 MHz; σ = 1.53 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Separation distance : 0 mm (The tip side of the EUT to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(7.41, 7.41, 7.41) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125 ; SEMCAD X Version 13.2 Build 87

Mid. Channel 661 RF sample 2/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.226 mW/g

Mid. Channel 661 RF sample 2/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.46 V/m
Peak SAR (extrapolated) = 0.330 W/kg
SAR(1 g) = 0.203 mW/g; SAR(10 g) = 0.123 mW/g
Maximum value of SAR (measured) = 0.242 mW/g

Test Laboratory: Bureau Veritas ADT

M34-Body Bottom E-GPRS 1900 Ch661 TS1

DUT: Smart Phone ; Type: NA MAPL120
Communication System: DCS 1900 ; Frequency: 1880 MHz ; Duty Cycle: 1:8.3 ; Modulation type: QPSK
Medium: MSL1900 Medium parameters used: f = 1880 MHz; σ = 1.53 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3
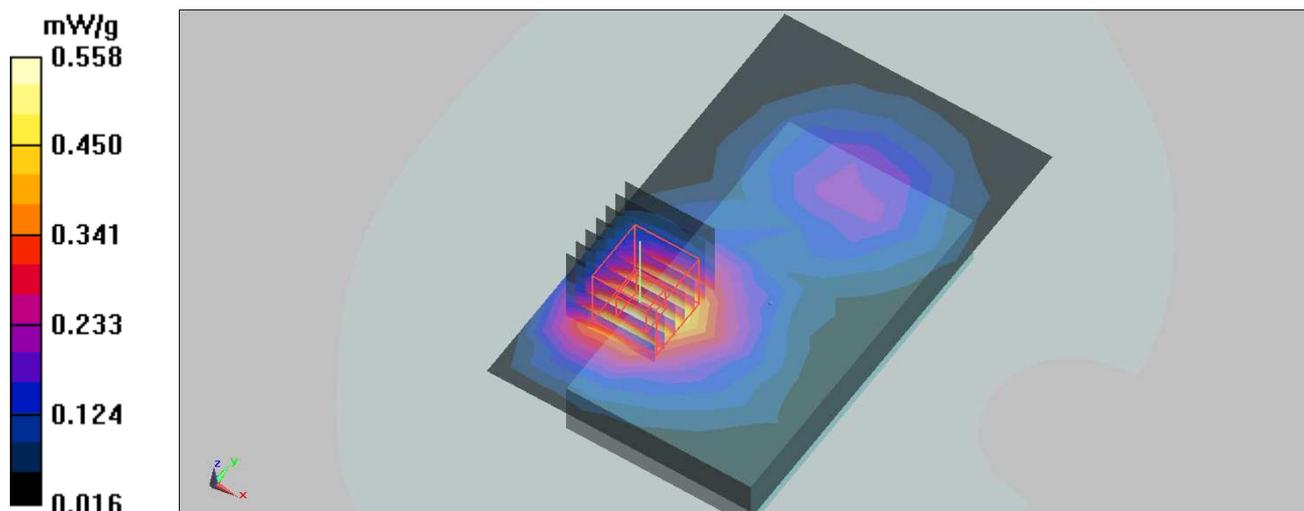Phantom section: Flat Section ; Separation distance : 0 mm (The tip side of the EUT to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(7.41, 7.41, 7.41) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125 ; SEMCAD X Version 13.2 Build 87

Mid. Channel 661 RF sample 2/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.237 mW/g

Mid. Channel 661 RF sample 2/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.91 V/m
Peak SAR (extrapolated) = 0.386 W/kg
SAR(1 g) = 0.230 mW/g; SAR(10 g) = 0.134 mW/g
Maximum value of SAR (measured) = 0.277 mW/g
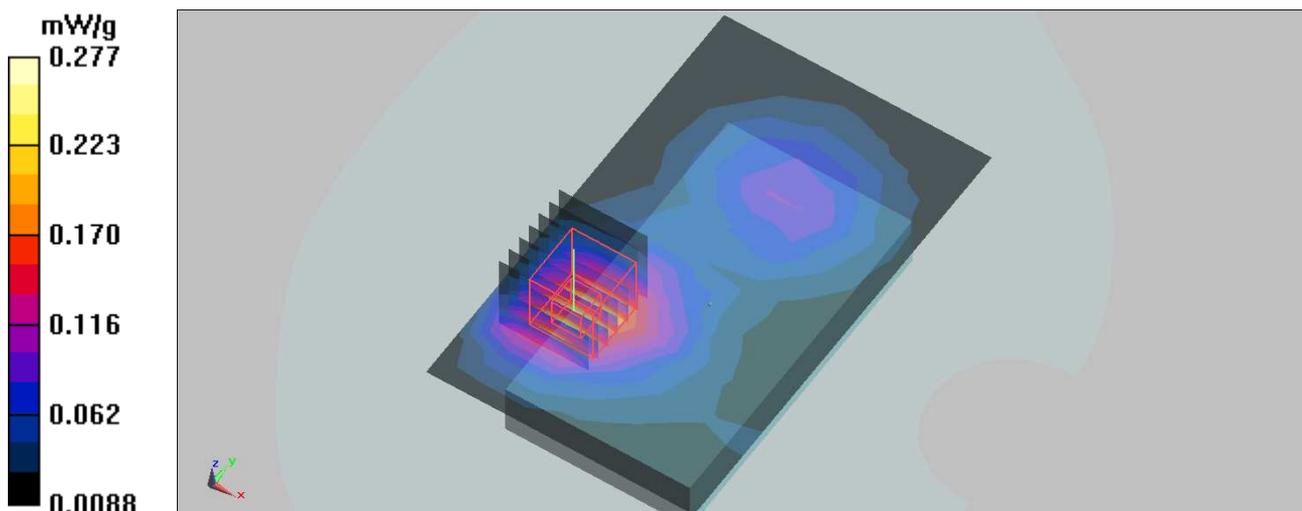
Test Laboratory: Bureau Veritas ADT

M35-Body Front E-GPRS 1900 Ch661 TS2

DUT: Smart Phone ; Type: NA MAPL120
Communication System: DCS 1900 ; Frequency: 1880 MHz ; Duty Cycle: 1:8.3 ; Modulation type: QPSK
Medium: MSL1900 Medium parameters used: f = 1880 MHz; σ = 1.53 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Separation distance : 0 mm (The tip side of the EUT to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(7.41, 7.41, 7.41) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125 ; SEMCAD X Version 13.2 Build 87

Mid. Channel 661 RF sample 2/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.457 mW/g

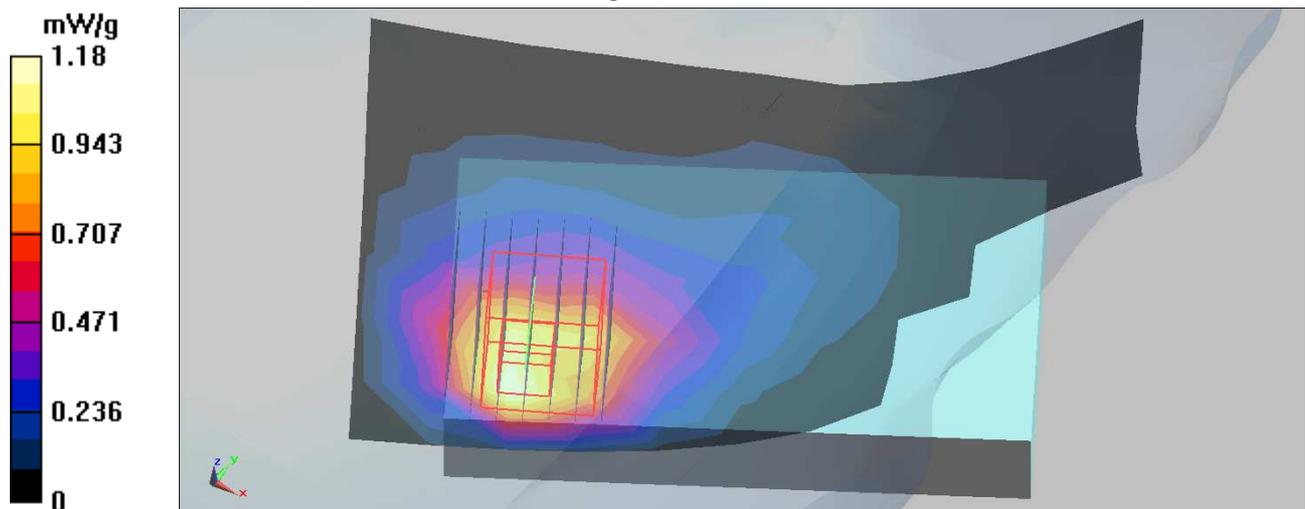**Mid. Channel 661 RF sample 2/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.05 V/m
Peak SAR (extrapolated) = 0.670 W/kg
SAR(1 g) = 0.406 mW/g; SAR(10 g) = 0.243 mW/g
Maximum value of SAR (measured) = 0.488 mW/g
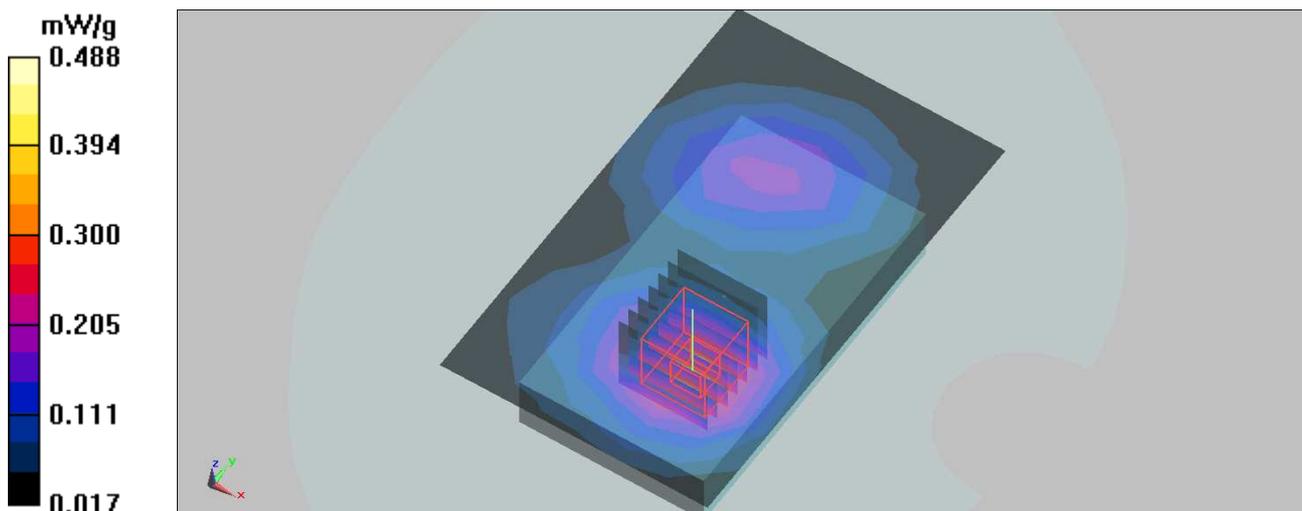
Test Laboratory: Bureau Veritas ADT

M36-Body Bottom E-GPRS 1900 Ch661 TS2

DUT: Smart Phone ; Type: NA MAPL120
Communication System: DCS 1900 ; Frequency: 1880 MHz ; Duty Cycle: 1:8.3 ; Modulation
type: QPSK
Medium: MSL1900 Medium parameters used: f = 1880 MHz; σ = 1.53 mho/m; ϵ_r = 53.3; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Separation distance : 0 mm (The tip side of the EUT to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(7.41, 7.41, 7.41) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125 ; SEMCAD X Version 13.2 Build 87

Mid. Channel 661 RF sample 2/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.481 mW/g

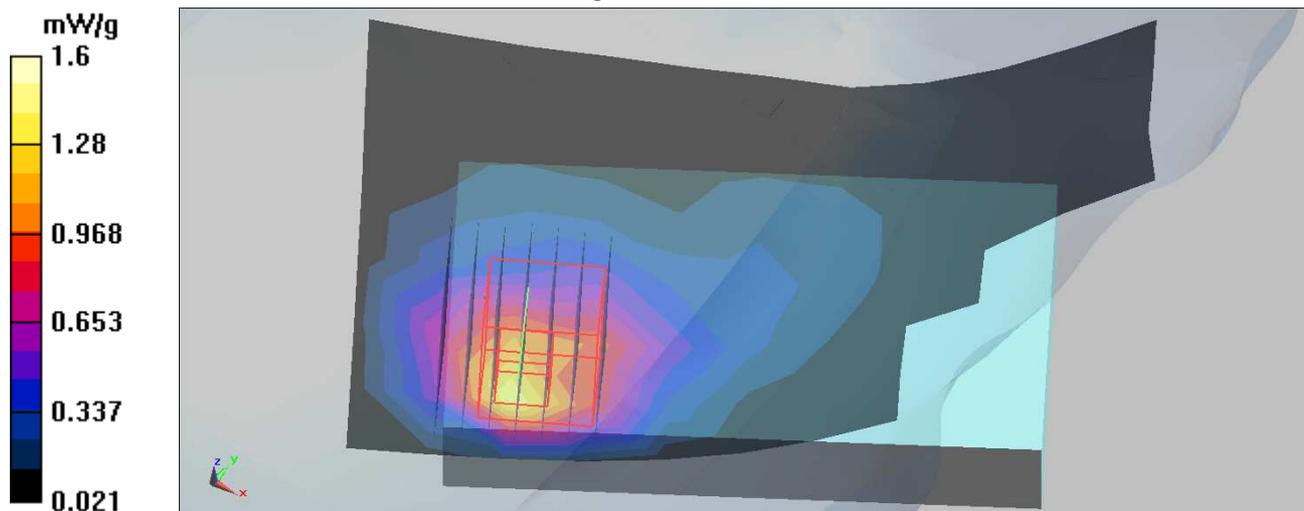**Mid. Channel 661 RF sample 2/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.36 V/m
Peak SAR (extrapolated) = 0.784 W/kg
SAR(1 g) = 0.460 mW/g; SAR(10 g) = 0.267 mW/g
Maximum value of SAR (measured) = 0.558 mW/g

Test Laboratory: Bureau Veritas ADT

M37-Right Head Check WCDMA 1900 Ch9262

DUT: Smart Phone ; Type: NA MAPL120
Communication System: WCDMA1900 ; Frequency: 1852.5 MHz ; Duty Cycle: 1:1
Medium: HSL1900 Medium parameters used: f = 1852.5 MHz; σ = 1.39 mho/m; ε_r = 41; ρ = 1000 kg/m^3
Phantom section: Right Section ; DUT test position : Cheek ; Modulation type: BPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(7.28, 7.28, 7.28) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125; SEMCAD X Version 13.2 Build 87

Touch position - Low Channel 9262/Area Scan (7x11x1): Measurement grid: dx=15mm,
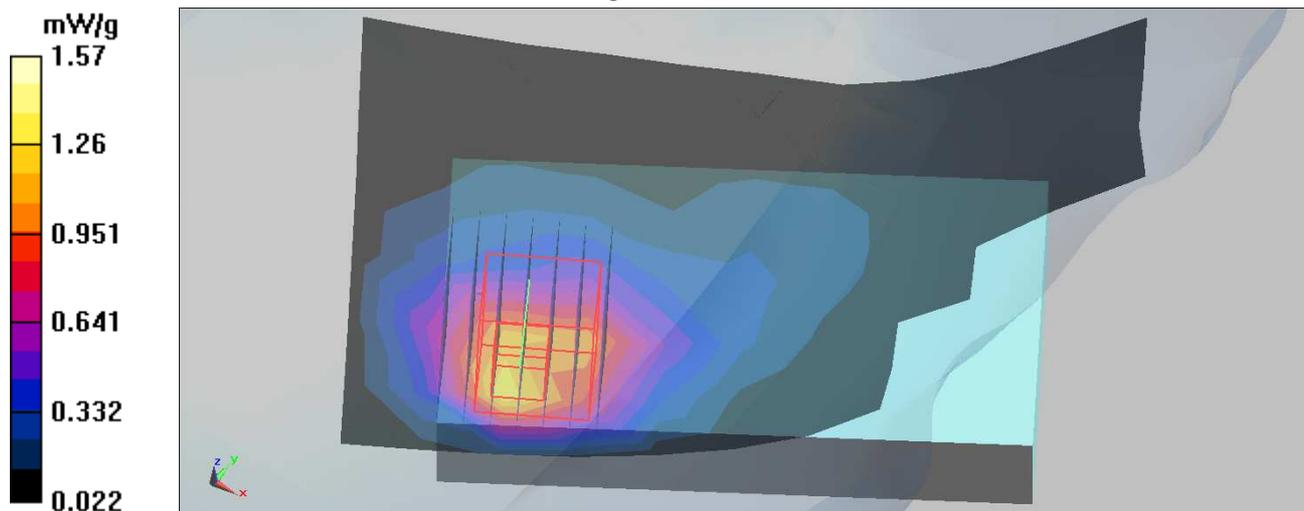dy=15mm
Maximum value of SAR (measured) = 1.18 mW/g

Touch position - Low Channel 9262/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.7 V/m
Peak SAR (extrapolated) = 2.3 W/kg
SAR(1 g) = 1.18 mW/g; SAR(10 g) = 0.615 mW/g
Maximum value of SAR (measured) = 1.52 mW/g

Test Laboratory: Bureau Veritas ADT

M37-Right Head Check WCDMA 1900 Ch9400

DUT: Smart Phone ; Type: NA MAPL120
Communication System: WCDMA1900 ; Frequency: 1880 MHz ; Duty Cycle: 1:1
Medium: HSL1900 Medium parameters used: f = 1880 MHz; σ = 1.43 mho/m; ε_r = 40.9; ρ = 1000 kg/m^3
Phantom section: Right Section ; DUT test position : Cheek ; Modulation type: BPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(7.28, 7.28, 7.28) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125; SEMCAD X Version 13.2 Build 87

Touch position - Mid Channel 9400/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 1.4 mW/g

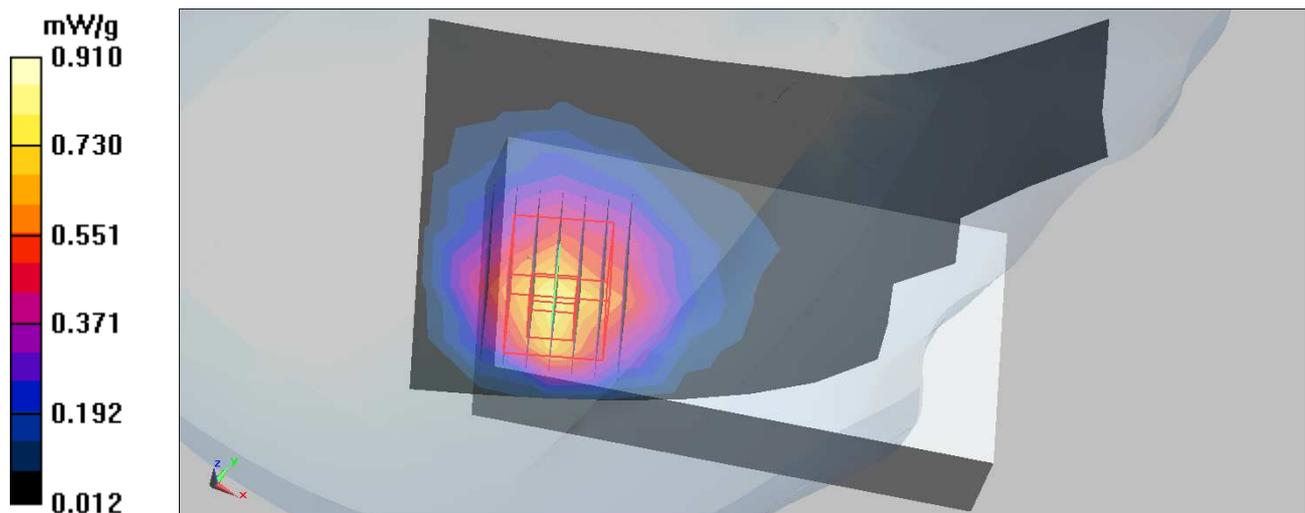**Touch position - Mid Channel 9400/Zoom Scan (7x7x7) (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.6 V/m
Peak SAR (extrapolated) = 2.49 W/kg
SAR(1 g) = 1.26 mW/g; SAR(10 g) = 0.651 mW/g
Maximum value of SAR (measured) = 1.6 mW/g

Test Laboratory: Bureau Veritas ADT

M37-Right Head Check WCDMA 1900 Ch9538

DUT: Smart Phone ; Type: NA MAPL120
Communication System: WCDMA1900 ; Frequency: 1907.5 MHz ; Duty Cycle: 1:1
Medium: HSL1900 Medium parameters used: f = 1907.5 MHz; σ = 1.46 mho/m; ε$_r$ = 40.1; ρ = 1000 kg/m^3
Phantom section: Right Section ; DUT test position : Cheek ; Modulation type: BPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(7.28, 7.28, 7.28) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125; SEMCAD X Version 13.2 Build 87

Touch position - High Channel 9538/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
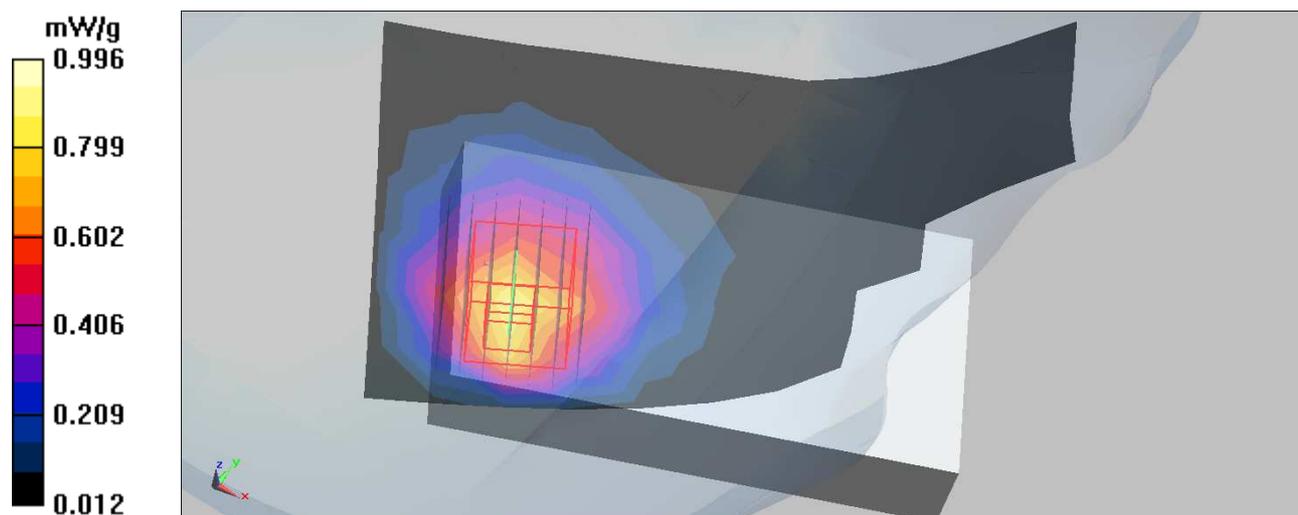Maximum value of SAR (measured) = 1.25 mW/g

Touch position - High Channel 9538/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.3 V/m
Peak SAR (extrapolated) = 2.44 W/kg
SAR(1 g) = 1.23 mW/g; SAR(10 g) = 0.638 mW/g
Maximum value of SAR (measured) = 1.57 mW/g

Test Laboratory: Bureau Veritas ADT

M38-Right Head Tilt WCDMA 1900 Ch9262

DUT: Smart Phone ; Type: NA MAPL120
Communication System: WCDMA1900 ; Frequency: 1852.5 MHz; Duty Cycle: 1:1
Medium: HSL1900 Medium parameters used: f = 1852.5 MHz; σ = 1.39 mho/m; ε_r = 41; ρ = 1000 kg/m³
Phantom section: Right Section ; DUT test position : Tilt ; Modulation type: BPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(7.28, 7.28, 7.28) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125; SEMCAD X Version 13.2 Build 87

Tilt position - Low Channel 9262/Area Scan (7x11x1): Measurement grid: dx=15mm,
dy=15mm
Maximum value of SAR (measured) = 0.816 mW/g

Tilt position - Low Channel 9262/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.4 V/m
Peak SAR (extrapolated) = 1.38 W/kg
SAR(1 g) = 0.739 mW/g; SAR(10 g) = 0.407 mW/g
Maximum value of SAR (measured) = 0.910 mW/g

Test Laboratory: Bureau Veritas ADT

M38-Right Head Tilt WCDMA 1900 Ch9400

DUT: Smart Phone ; Type: NA MAPL120
Communication System: WCDMA1900 ; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: HSL1900 Medium parameters used: f = 1880 MHz; σ = 1.43 mho/m; ε_r = 40.9; ρ = 1000 kg/m^3
Phantom section: Right Section ; DUT test position : Tilt ; Modulation type: BPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(7.28, 7.28, 7.28) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125; SEMCAD X Version 13.2 Build 87

Tilt position - Mid Channel 9400/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.886 mW/g

Tilt position - Mid Channel 9400/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.9 V/m
Peak SAR (extrapolated) = 1.52 W/kg
SAR(1 g) = 0.800 mW/g; SAR(10 g) = 0.437 mW/g
Maximum value of SAR (measured) = 0.996 mW/g

Test Laboratory: Bureau Veritas ADT

M38-Right Head Tilt WCDMA 1900 Ch9538

DUT: Smart Phone ; Type: NA MAPL120

Communication System: WCDMA1900 ; Frequency: 1907.5 MHz; Duty Cycle: 1:1
Medium: HSL1900 Medium parameters used: f = 1907.5 MHz; σ = 1.46 mho/m; ε_r = 40.1; ρ = 1000 kg/m³
Phantom section: Right Section ; DUT test position : Tilt ; Modulation type: BPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(7.28, 7.28, 7.28) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125; SEMCAD X Version 13.2 Build 87

Tilt position - High Channel 9538/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
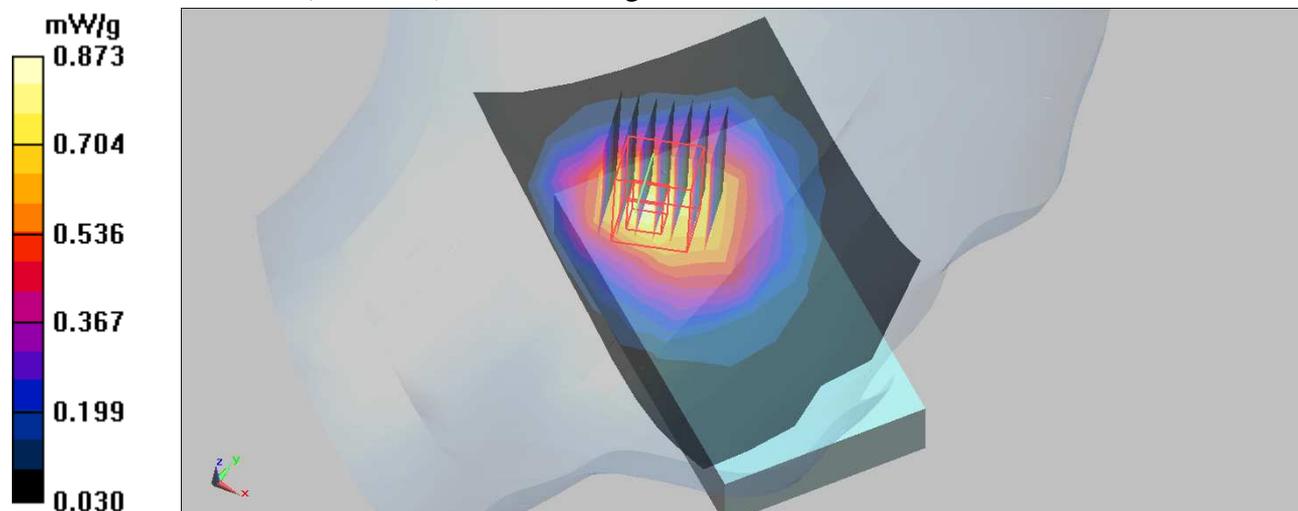Maximum value of SAR (measured) = 0.805 mW/g

Tilt position - High Channel 9538/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.2 V/m
Peak SAR (extrapolated) = 1.42 W/kg
SAR(1 g) = 0.740 mW/g; SAR(10 g) = 0.405 mW/g
Maximum value of SAR (measured) = 0.929 mW/g

A - 44
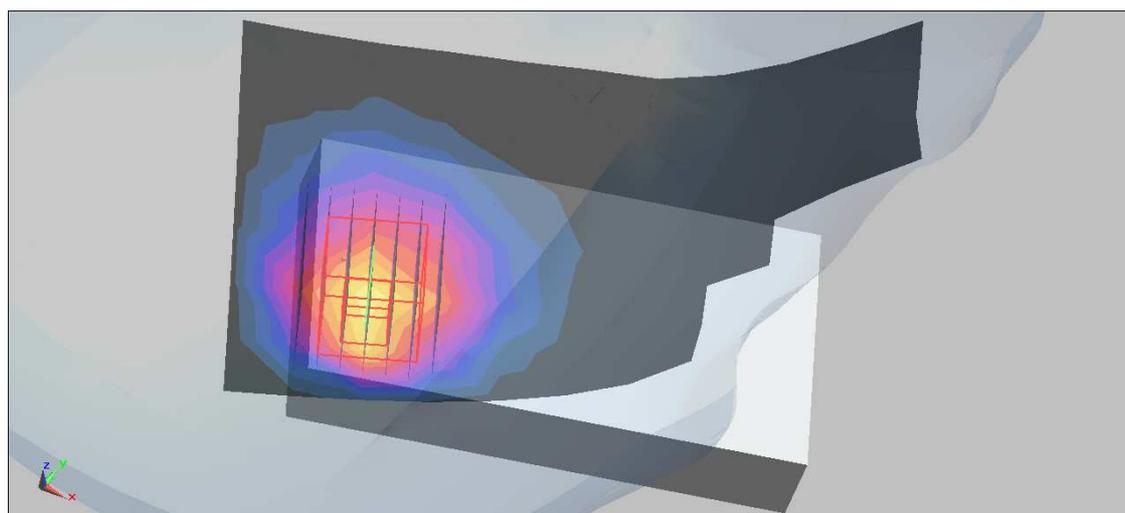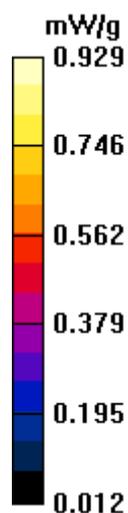
Test Laboratory: Bureau Veritas ADT

M39-Left Head Check WCDMA 1900 Ch9400

DUT: Smart Phone ; Type: NA MAPL120
Communication System: WCDMA1900 ; Frequency: 1880 MHz ; Duty Cycle: 1:1
Medium: HSL1900 Medium parameters used: f = 1880 MHz; σ = 1.43 mho/m; ε_r = 40.9; ρ = 1000 kg/m^3
Phantom section: Left Section ; DUT test position : Cheek ; Modulation type: BPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(7.28, 7.28, 7.28) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125; SEMCAD X Version 13.2 Build 87

Touch position -Mid Channel 9400/Area Scan (7x11x1): Measurement grid: dx=15mm,
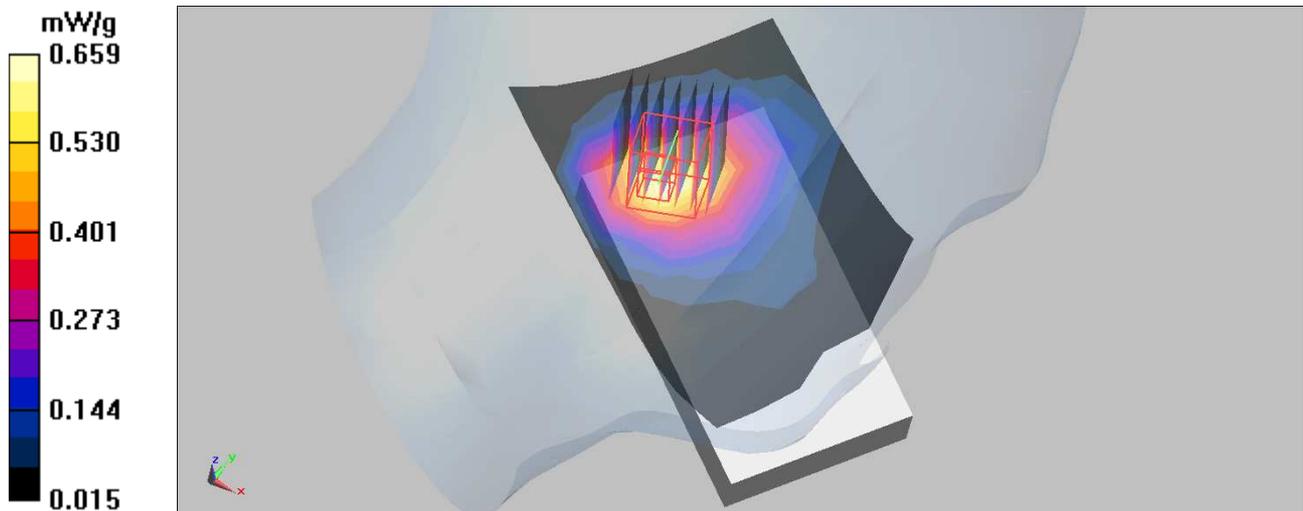dy=15mm
Maximum value of SAR (measured) = 0.846 mW/g

Touch position -Mid Channel 9400/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.4 V/m
Peak SAR (extrapolated) = 1.19 W/kg
SAR(1 g) = 0.732 mW/g; SAR(10 g) = 0.445 mW/g
Maximum value of SAR (measured) = 0.873 mW/g

M40-Left Head Tilt WCDMA 1900 Ch9400

DUT: Smart Phone ; Type: NA MAPL120
Communication System: WCDMA1900 ; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium: HSL1900 Medium parameters used: f = 1880 MHz; σ = 1.43 mho/m; ε_r = 40.9; ρ = 1000 kg/m^3
Phantom section: Left Section ; DUT test position : Tilt ; Modulation type: BPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(7.28, 7.28, 7.28) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125; SEMCAD X Version 13.2 Build 87

Tilt position - Mid Channel 9400/Area Scan (7x11x1): Measurement grid: dx=15mm,
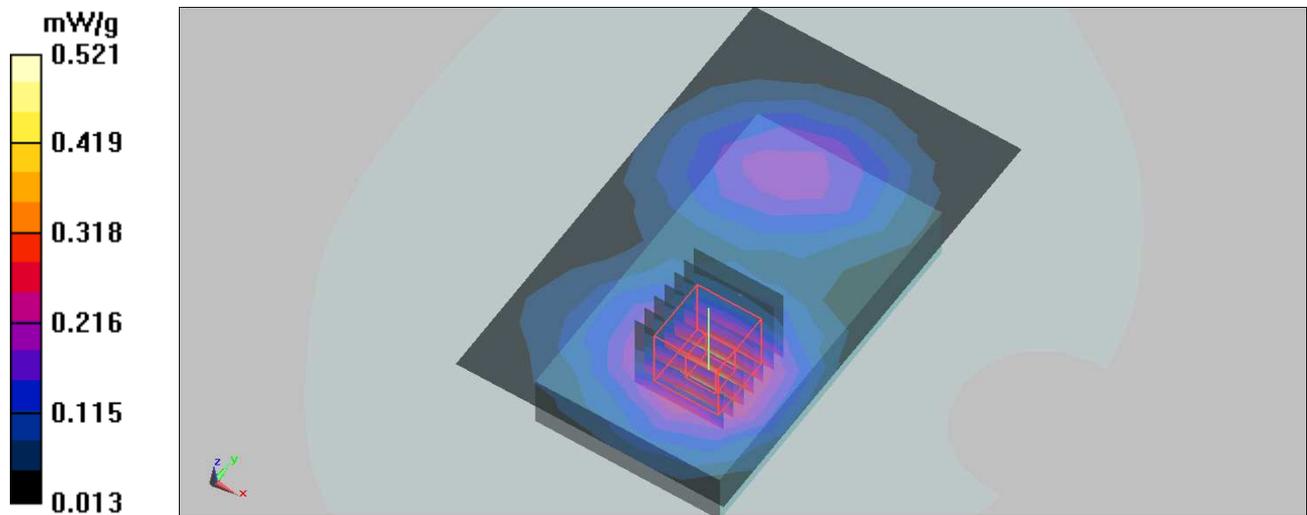dy=15mm
Maximum value of SAR (measured) = 0.640 mW/g

Tilt position - Mid Channel 9400/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.9 V/m
Peak SAR (extrapolated) = 0.909 W/kg
SAR(1 g) = 0.552 mW/g; SAR(10 g) = 0.335 mW/g
Maximum value of SAR (measured) = 0.659 mW/g

Date/Time: 2009/4/10 01:52:08

M41-Body Front WCDMA 1900 Ch9400

DUT: Smart Phone ; Type: NA MAPL120
Communication System: WCDMA1900 ; Frequency: 1880 MHz ; Duty Cycle: 1:1 ; Modulation type: QPSK
Medium: MSL1900 Medium parameters used: f = 1880 MHz; σ = 1.53 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Separation distance : 0 mm (The tip side of the EUT to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(7.41, 7.41, 7.41) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125 ; SEMCAD X Version 13.2 Build 87

Mid. Channel 9400 RF sample 2/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
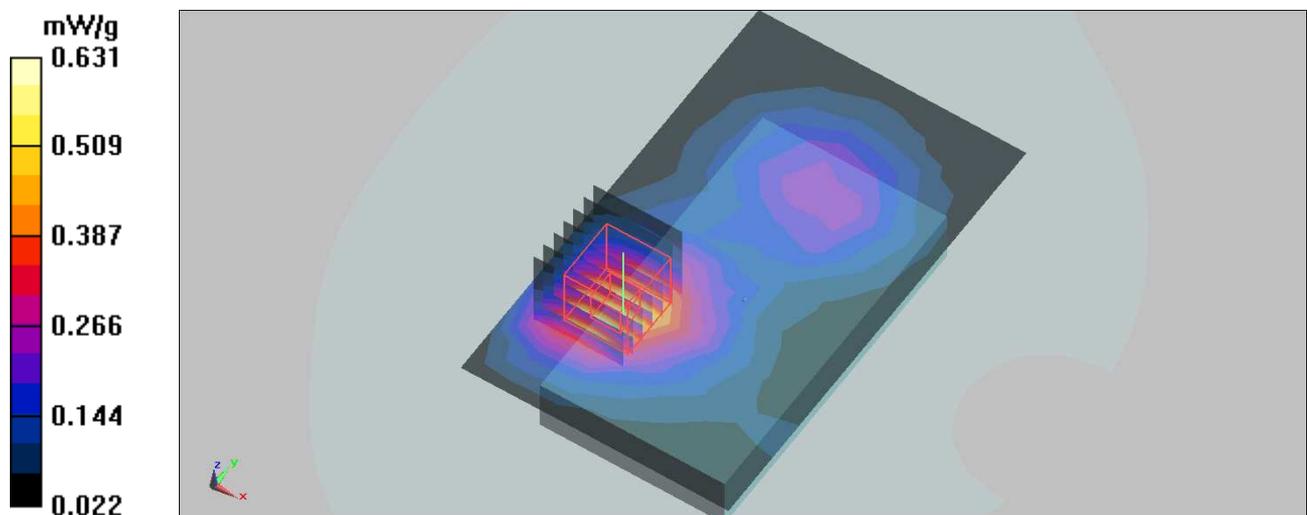Maximum value of SAR (measured) = 0.466 mW/g

Mid. Channel 9400 RF sample 2/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.11 V/m
Peak SAR (extrapolated) = 0.740 W/kg
SAR(1 g) = 0.438 mW/g; SAR(10 g) = 0.256 mW/g
Maximum value of SAR (measured) = 0.521 mW/g

M42-Body Bottom WCDMA 1900 Ch9400

DUT: Smart Phone ; Type: NA MAPL120
Communication System: WCDMA1900 ; Frequency: 1880 MHz ; Duty Cycle: 1:1 ; Modulation type: QPSK
Medium: MSL1900 Medium parameters used: f = 1880 MHz; σ = 1.53 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Separation distance : 0 mm (The tip side of the EUT to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(7.41, 7.41, 7.41) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125 ; SEMCAD X Version 13.2 Build 87

Mid. Channel 9400 RF sample 2/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.589 mW/g

Mid. Channel 9400 RF sample 2/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.4 V/m
Peak SAR (extrapolated) = 0.862 W/kg
SAR(1 g) = 0.530 mW/g; SAR(10 g) = 0.320 mW/g
Maximum value of SAR (measured) = 0.631 mW/g

M43-Body Front WCDMA 1900 Ch9400

DUT: Smart Phone ; Type: NA MAPL120
Communication System: WCDMA1900 ; Frequency: 1880 MHz ; Duty Cycle: 1:1 ; Modulation type: QPSK
Medium: MSL1900 Medium parameters used: f = 1880 MHz; σ = 1.53 mho/m; ε_r = 53.3; ρ = 1000 kg/m³
Phantom section: Flat Section ; Separation distance : 0 mm (The tip side of the EUT to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(7.41, 7.41, 7.41) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125 ; SEMCAD X Version 13.2 Build 87

Mid. Channel 9400 RF sample 2/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.416 mW/g

Mid. Channel 9400 RF sample 2/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.6 V/m
Peak SAR (extrapolated) = 0.617 W/kg
SAR(1 g) = 0.380 mW/g; SAR(10 g) = 0.229 mW/g
Maximum value of SAR (measured) = 0.455 mW/g
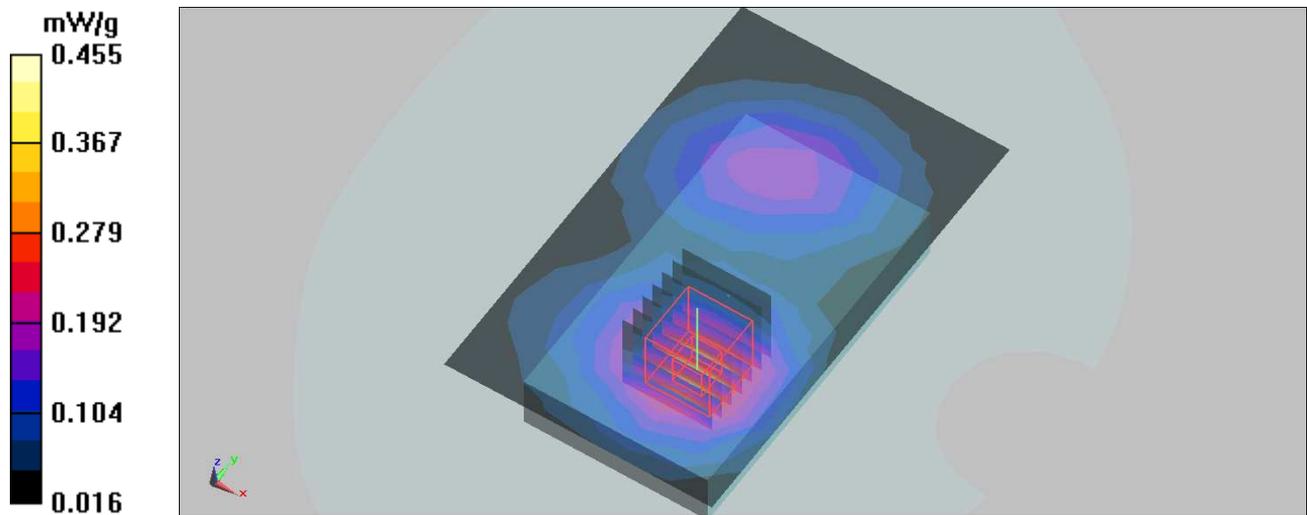
Date/Time: 2009/4/10 03:17:07

Test Laboratory: Bureau Veritas ADT

A - 49

M44-Body Bottom WCDMA 1900 Ch9400

DUT: Smart Phone ; Type: NA MAPL120
Communication System: WCDMA1900 ; Frequency: 1880 MHz ; Duty Cycle: 1:1 ; Modulation type: QPSK
Medium: MSL1900 Medium parameters used: f = 1880 MHz; σ = 1.53 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Separation distance : 0 mm (The tip side of the EUT to the Phantom)

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(7.41, 7.41, 7.41) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125 ; SEMCAD X Version 13.2 Build 87

Mid. Channel 9400 RF sample 2/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.450 mW/g

Mid. Channel 9400 RF sample 2/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.03 V/m
Peak SAR (extrapolated) = 0.729 W/kg
SAR(1 g) = 0.435 mW/g; SAR(10 g) = 0.253 mW/g
Maximum value of SAR (measured) = 0.527 mW/g
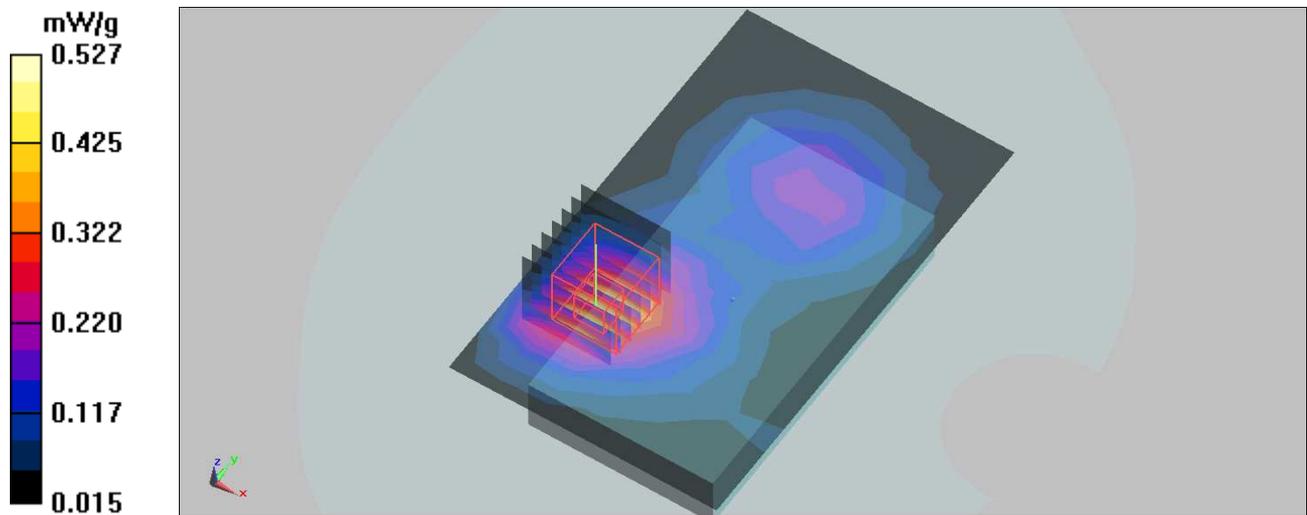
M45-Right Head Check WCDMA 1900 Ch9400 FORMOSA Battery

DUT: Smart Phone ; Type: NA MAPL120
Communication System: WCDMA1900 ; Frequency: 1880 MHz ; Duty Cycle: 1:1
Medium: HSL1900 Medium parameters used: f = 1880 MHz; σ = 1.43 mho/m; ε_r = 40.9; ρ = 1000 kg/m^3
Phantom section: Right Section ; DUT test position : Cheek ; Modulation type: BPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(7.28, 7.28, 7.28) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125 ; SEMCAD X Version 13.2 Build 87

Touch position - Mid Channel 9400/Area Scan (7x11x1): Measurement grid: dx=15mm,
dy=15mm
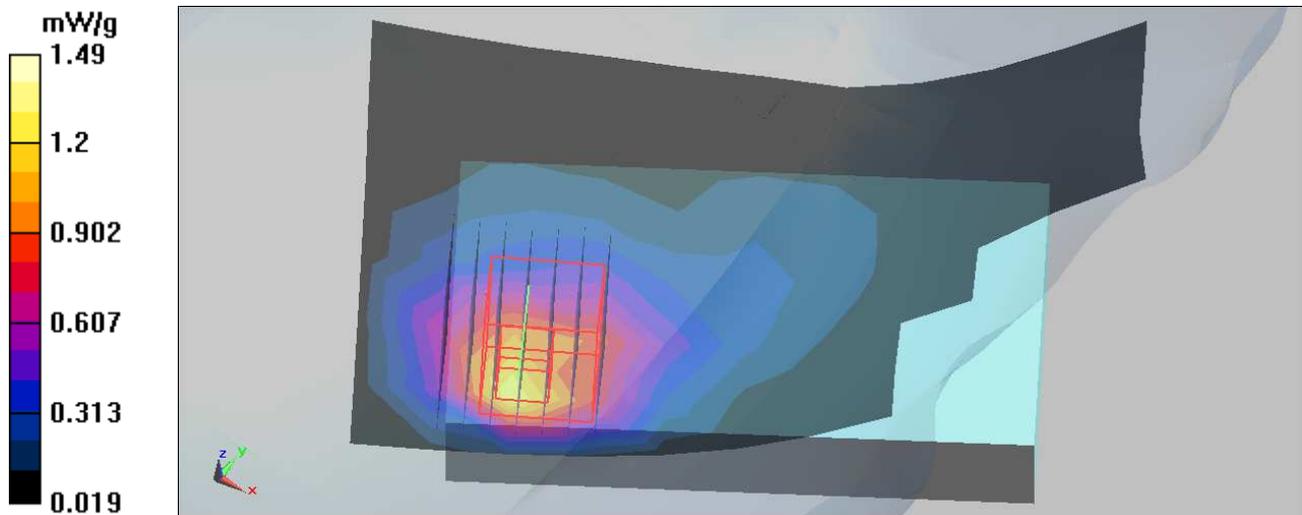Maximum value of SAR (measured) = 1.31 mW/g

Touch position - Mid Channel 9400/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid:
dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.6 V/m
Peak SAR (extrapolated) = 2.31 W/kg
SAR(1 g) = 1.17 mW/g; SAR(10 g) = 0.606 mW/g
Maximum value of SAR (measured) = 1.49 mW/g

Date/Time: 2009/4/9 03:59:30

Test Laboratory: Bureau Veritas ADT

M46-Right Head Check WCDMA 1900 Ch9400 SIMPLO Battery

DUT: Smart Phone ; Type: NA MAPL120
Communication System: WCDMA1900 ; Frequency: 1880 MHz ; Duty Cycle: 1:1
Medium: HSL1900 Medium parameters used: f = 1880 MHz; σ = 1.43 mho/m; ε_r = 40.9; ρ = 1000 kg/m^3
Phantom section: Right Section ; DUT test position : Cheek ; Modulation type: BPSK

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(7.28, 7.28, 7.28) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125 ; SEMCAD X Version 13.2 Build 87

Touch position - Low Channel 9262/Area Scan (7x11x1): Measurement grid: dx=15mm, dy=15mm
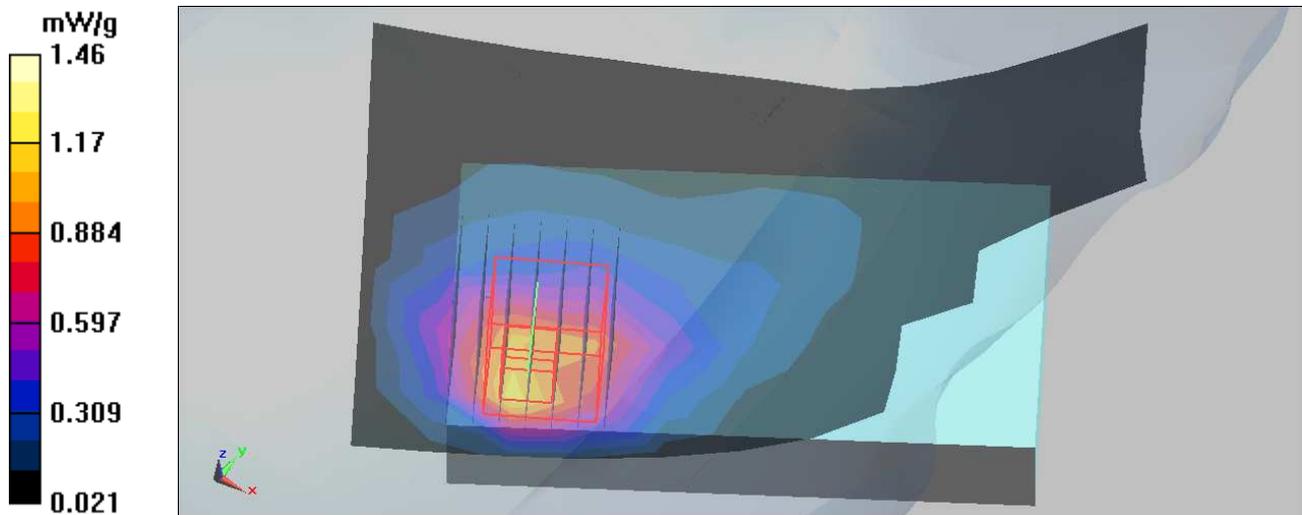Maximum value of SAR (measured) = 1.14 mW/g

Touch position - Low Channel 9262/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.8 V/m
Peak SAR (extrapolated) = 2.22 W/kg
SAR(1 g) = 1.14 mW/g; SAR(10 g) = 0.594 mW/g
Maximum value of SAR (measured) = 1.46 mW/g

Date/Time: 2009/4/13 09:18:07

Test Laboratory: Bureau Veritas ADT

System validation HSL 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: HSL835;Medium parameters used: f = 835 MHz; σ = 0.9 mho/m; ε_r = 43.2; ρ = 1000 kg/m^3 ;
Liquid level : 153 mm
Phantom section: Flat Section ; Separation distance : 15 mm (The feetpoint of the dipole to the
Phantom)Air temp. : 23.1 degrees ; Liquid temp. : 22.3 degrees

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(8.55, 8.55, 8.55) ; Calibrated: 2008/5/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2008/9/22
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.0 Build 125 ; SEMCAD X Version 13.2 Build 87

d=15mm, Pin=250mW 2 2/Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm
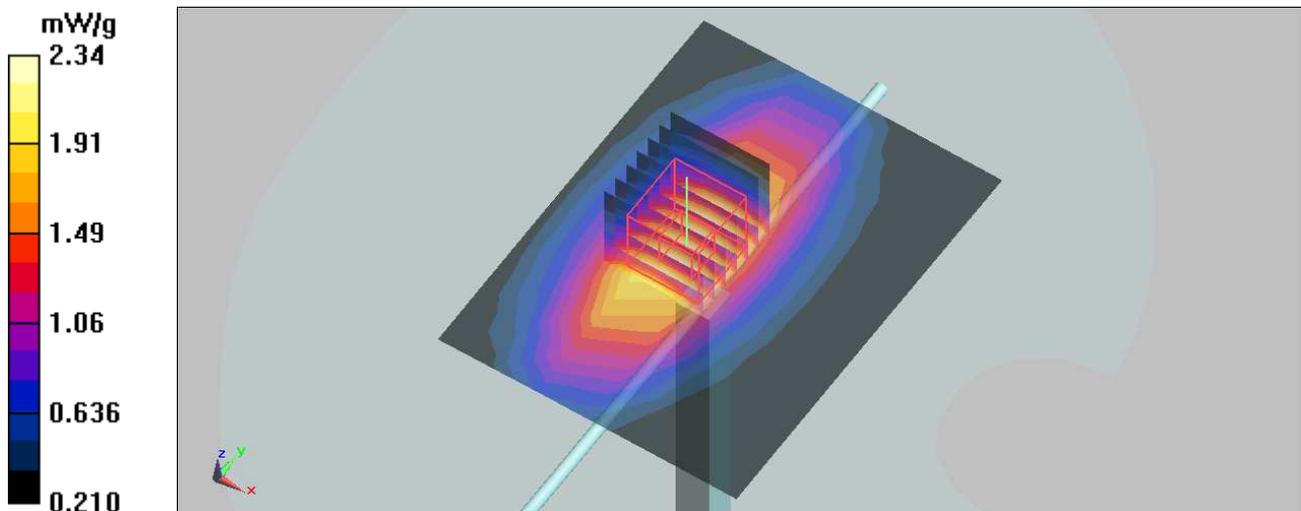Maximum value of SAR (measured) = 2.11 mW/g

d=15mm, Pin=250mW 2 2/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm,
dy=5mm, dz=5mm
Reference Value = 50.1 V/m; Power Drift = 0.035 dB
Peak SAR (extrapolated) = 3.3 W/kg
SAR(1 g) = 2.17 mW/g; SAR(10 g) = 1.41 mW/g
Maximum value of SAR (measured) = 2.34 mW/g

Test Laboratory: Bureau Veritas ADT

System validation 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 = 53.4; ρ = 1000 kg/m^3 ;
Liquid level : 152 mm
Phantom section: Flat Section ; Separation distance : 15 mm (The feetpoint of the dipole to the
Phantom)Air temp. : 23.2 degrees ; Liquid temp. : 22.4 degrees

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(8.42, 8.42, 8.42) ; Calibrated: 2008/5/20
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn861; Calibrated: 2008/9/22
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.0 Build 125 ; SEMCAD X Version 13.2 Build 87

d=15mm, Pin=250mW/Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm
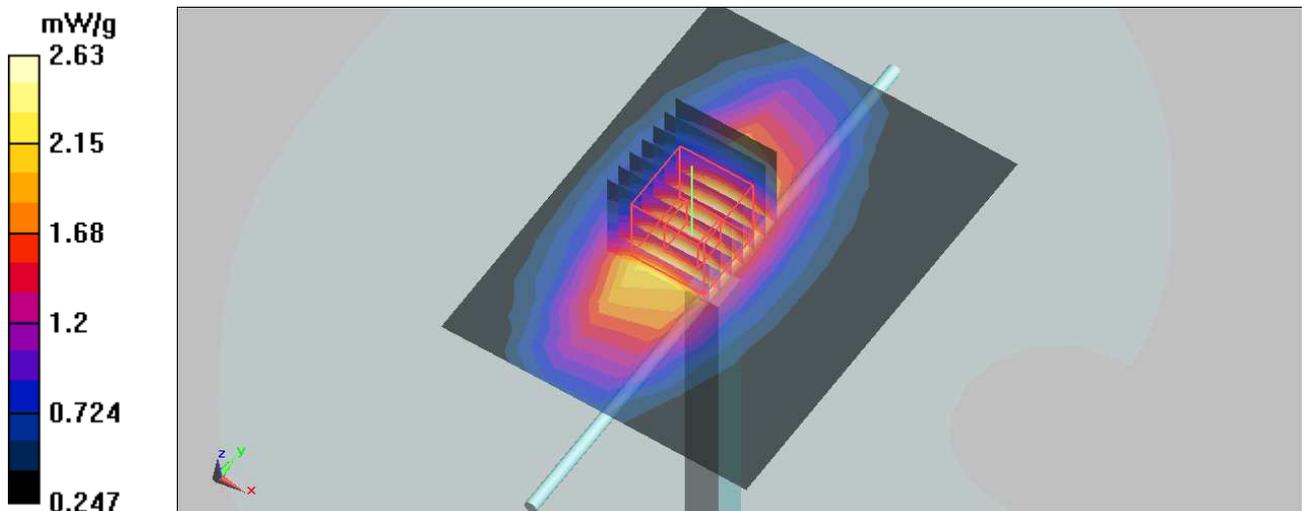Maximum value of SAR (measured) = 2.4 mW/g

d=15mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm,
dy=5mm, dz=5mm
Reference Value = 52.5 V/m; Power Drift = -0.253 dB
Peak SAR (extrapolated) = 3.67 W/kg
SAR(1 g) = 2.44 mW/g; SAR(10 g) = 1.59 mW/g
Maximum value of SAR (measured) = 2.63 mW/g

System validation HSL 1900MHz

DUT: Dipole 1900 MHz ; Type: D1900V2 ; Serial: 5d036 ; Test Frequency: 1900 MHz

Communication System: CW ; Frequency: 1900 MHz; Duty Cycle: 1:1; Modulation type: CW
Medium: HSL1900;Medium parameters used: f = 1900 MHz; σ = 1.46 mho/m; ε_r = 40.1; ρ = 1000 kg/m^3 ;
Liquid level : 151 mm
Phantom section: Flat Section ; Separation distance : 10 mm (The feetpoint of the dipole to the
Phantom)Air temp. : 23.3 degrees ; Liquid temp. : 22.6 degrees

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(7.28, 7.28, 7.28) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125 ; SEMCAD X Version 13.2 Build 87

d=10mm, Pin=250mW/Area Scan (7x7x1): Measurement grid: dx=15mm, dy=15mm
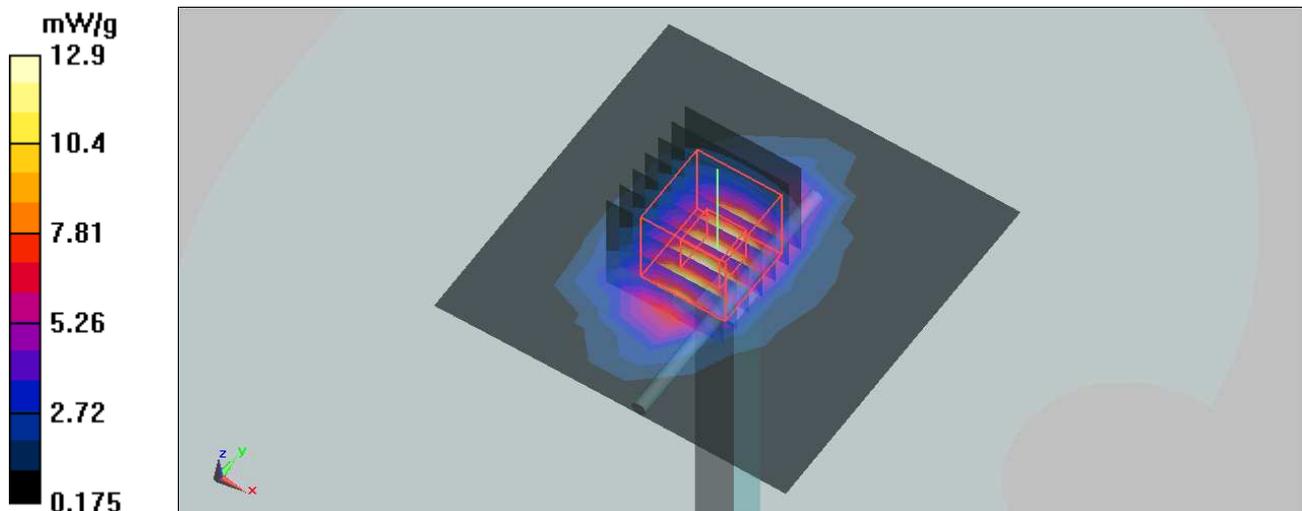Maximum value of SAR (measured) = 12 mW/g

d=10mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm,
dy=5mm, dz=5mm
Reference Value = 91.7 V/m; Power Drift = 0.022 dB
Peak SAR (extrapolated) = 19.3 W/kg
SAR(1 g) = 10.1 mW/g; SAR(10 g) = 5.17 mW/g
Maximum value of SAR (measured) = 12.9 mW/g

System validation MSL 1900MHz

DUT: Dipole 1900 MHz ; Type: D1900V2 ; Serial: 5d036 ; 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 = 1.56 mho/m; ε_r = 53.2; 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. : 23.3 degrees ; Liquid temp. : 22.7 degrees

DASY5 Configuration:
- Probe: EX3DV4 - SN3578 ; ConvF(7.41, 7.41, 7.41) ; Calibrated: 2008/5/20
- 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, V5.0 Build 125 ; SEMCAD X Version 13.2 Build 87

d=10mm, Pin=250mW 2/Area Scan (7x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 11.4 mW/g

d=10mm, Pin=250mW 2/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 85.8 V/m; Power Drift = 0.062 dB
Peak SAR (extrapolated) = 18.6 W/kg
SAR(1 g) = 9.75 mW/g; SAR(10 g) = 4.95 mW/g
Maximum value of SAR (measured) = 12.4 mW/g