

SAR TEST REPORT

REPORT NO.: SA990727C01

MODEL NO.: F-02C

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TESTED: Aug. 03 ~ Aug. 04, 2010

ISSUED: Aug. 17, 2010

APPLICANT: FUJITSU LIMITED

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1. CERTIFICATION

PRODUCT: Mobile phone
MODEL NO.: F-02C
BRAND: FOMA
APPLICANT: FUJITSU LIMITED
TESTED: Aug. 03 ~ Aug. 04, 2010
TEST SAMPLE: ENGINEERING SAMPLE
STANDARDS: FCC Part 2 (Section 2.1093)
FCC OET Bulletin 65, Supplement C (01-01)
RSS-102

The above equipment (model: F-02C) has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

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2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

EUT	Mobile phone	
MODEL NO.	F-02C	
POWER SUPPLY	3.7Vdc (Li-ion battery) 5.4Vdc (Adapter)	
MODULATION TYPE	For WCDMA 850: WCDMA (Band 5) / HSDPA / HSUPA For PCS 1900: GMSK	
FREQUENCY RANGE	824MHz ~ 849MHz ; 1850MHz ~ 1910MHz	
CHANNEL FREQUENCIES UNDER TEST AND ITS CONDUCTED OUTPUT POWER	WCDMA 850 band	
	23.698dBm / 826.4MHz for CH4132 23.700dBm / 836.4MHz for CH4182 23.302dBm / 846.6MHz for CH4233	
	HSDPA 850 band	
	22.801dBm / 826.4MHz for CH4132 22.814dBm / 836.4MHz for CH4182 22.431dBm / 846.6MHz for CH4233	
	HSUPA 850 band	
	23.181dBm / 826.4MHz for CH4132 23.194dBm / 836.4MHz for CH4182 22.811dBm / 846.6MHz for CH4233	
	PCS1900 band	
	29.598dBm / 1850.2MHz for CH512 29.598dBm / 1880.0MHz for CH661 29.599dBm / 1909.8MHz for CH810	
	GPRS 1900 TS1 band	
	29.581dBm / 1850.2MHz for CH512 29.579dBm / 1880.0MHz for CH661 29.585dBm / 1909.8MHz for CH810	
MAX. AVERAGE SAR (1g)	Head:	WCDMA 850 band: 0.834W/kg PCS1900 band: 0.552W/kg
	Body:	WCDMA 850 band: 0.369W/kg PCS1900 band: 0.206W/kg
ANTENNA GAIN	WCDMA 850 band: Integral antenna with 0dBi gain (EUT open) Integral antenna with -4dBi gain (EUT close) PCS1900 band: Integral antenna with 0dBi gain (EUT open) Integral antenna with -2dBi gain (EUT close)	
DATA CABLE	NA	
I/O PORTS	Refer to user's manual	
ACCESSORY DEVICES	Battery	

NOTE:

1. The EUT is powered by the following battery.

BATTERY	
BRAND	Fujitsu Limited
MODEL	F19
RATING	3.7Vdc, 830mAh

2. The following accessory is for support units only.

PRODUCT	BRAND	DESCRIPTION
Adapter	SMK	I/P: 100-240Vac, 0.12A, 50-60Hz O/P: 5.4Vdc, 700mA
USB cable	NA	0.8m non-shielded cable without core

3. Hardware version: V2.0.0
4. Software version: R06.1
5. IMEI Code: 352147040000054
6. The above EUT information was declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or User's Manual.

2.2 GENERAL DESCRIPTION OF APPLIED STANDARDS

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

FCC Part 2 (2.1093)

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

RSS-102

IEEE 1528-2003

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

2.3 GENERAL INFORMATION OF THE SAR SYSTEM

DASY5 (**Software 5.2 Build 162**) 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 from 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: ± 0.2 dB (30 MHz to 6 GHz)
DIRECTIVITY	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)
DYNAMIC RANGE	10 μ W/g to > 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 μ W/g)
DIMENSIONS	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm
APPLICATION	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%.

NOTE

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

TWIN SAM V4.0

CONSTRUCTION

The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528-2003, EN 62209-1 and IEC 62209. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents evaporation of the liquid. Reference markings on the phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points with the robot.

SHELL THICKNESS

$2 \pm 0.2\text{mm}$

FILLING VOLUME

Approx. 25liters

DIMENSIONS

Height: 810mm; Length: 1000mm; Width: 500mm

SYSTEM VALIDATION KITS:

CONSTRUCTION

Symmetrical dipole with I/4 balun enables measurement of feedpoint impedance with NWA matched for use near flat phantoms filled with brain simulating solutions. Includes distance holder and tripod adaptor

CALIBRATION

Calibrated SAR value for specified position and input power at the flat phantom in brain simulating solutions

FREQUENCY

835, 1900MHz

RETURN LOSS

> 20dB at specified validation position

POWER CAPABILITY

> 100W ($f < 1\text{GHz}$); > 40W ($f > 1\text{GHz}$)

OPTIONS

Dipoles for other frequencies or solutions and other calibration conditions upon request

DEVICE HOLDER FOR SAM TWIN PHANTOM

CONSTRUCTION

The device holder for the mobile phone device is designed to cope with different positions given in the standard. It has two scales for the device rotation (with respect to the body axis) and the device inclination (with respect to the line between the ear reference points). The rotation centers for both scales is the ear reference point (ERP). Thus the device needs no repositioning when changing the angles. The holder has been made out of low-loss POM material having the following dielectric parameters: relative permittivity $\varepsilon = 3$ and loss tangent $\delta = 0.02$. 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 200M Ω ; the inputs are symmetrical and floating. Common mode rejection is above 80 dB.

2.4 TEST EQUIPMENT

FOR SAR MEASUREMENT

ITEM	NAME	BRAND	TYPE	SERIES NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
1	SAM Phantom	S & P	QD000 P40 CA	TP-1485	NA	NA
2	Signal Generator	Agilent	E8257C	MY43320668	Feb. 23, 2010	Feb. 22, 2011
3	E-Field Probe	S & P	EX3DV3	3504	Jan. 26, 2010	Jan. 25, 2011
4	DAE	S & P	DAE	510	Dec. 16, 2009	Dec. 15, 2010
5	Robot Positioner	Staubli Unimation	NA	NA	NA	NA
6	Validation Dipole	S & P	D835V2	4d021	Apr. 29, 2010	Apr. 28, 2011
7	Validation Dipole	S & P	D1900V2	5d036	Feb. 23, 2010	Feb. 22, 2011

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

FOR TISSUE PROPERTY

ITEM	NAME	BRAND	TYPE	SERIES NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
1	Network Analyzer	Agilent	E8358A	US41480538	Dec. 03, 2009	Dec. 02, 2010
2	Dielectric Probe	Agilent	85070D	US01440176	NA	NA

NOTE:

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

2.5 GENERAL DESCRIPTION OF THE SPATIAL PEAK SAR EVALUATION

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

Probe parameters:	- Sensitivity	Norm _i , a _{i0} , a _{i1} , a _{i2}
	- Conversion factor	ConvF _i
	- Diode compression point	dcp _i
Device parameters:	- Frequency	F
	- Crest factor	Cf
Media parameters:	- Conductivity	σ
	- Density	ρ

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

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

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:

$$\text{E-fieldprobes: } E_i = \sqrt{\frac{V_i}{\text{Norm}_i \cdot \text{ConvF}}}$$

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

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

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

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

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

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

SAR	= local specific absorption rate in mW/g
E_{tot}	= total field strength in V/m
σ	= conductivity in [mho/m] or [Siemens/m]
ρ	= equivalent tissue density in g/cm ³

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

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

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

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

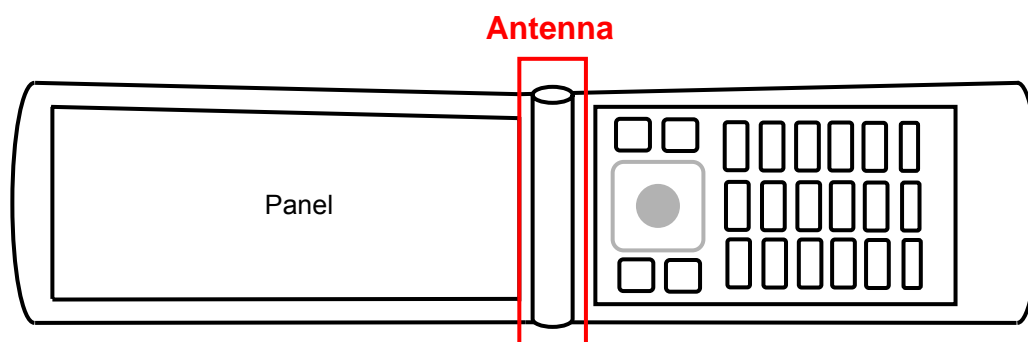
2.6 DESCRIPTION OF SUPPORT UNITS

NO.	PRODUCT	BRAND	MODEL NO.	SERIAL NO.
1	Universal Radio Communication Tester	R&S	CMU200	117260

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).

3. DESCRIPTION OF ANTENNA LOCATION



4. RECIPES FOR TISSUE SIMULATING LIQUIDS

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

The following are some common ingredients :

- **WATER-** Deionized water (pure H₂O), resistivity $\geq 16 \text{ M}\Omega\cdot\text{cm}$ - as basis for the liquid
- **SUGAR-** Refined sugar in crystals, as available in food shops - to reduce relative permittivity
- **SALT-** Pure NaCl - to increase conductivity
- **CELLULOSE-** Hydroxyethyl-cellulose, medium viscosity (75-125mPa.s, 2% in water, 20°C),
CAS # 54290 - to increase viscosity and to keep sugar in solution
- **PRESERVATIVE-** Preventol D-7 Bayer AG, D-51368 Leverkusen, CAS # 55965-84-9 - to prevent the spread of bacteria and molds
- **DGMBE-** Diethylenglycol-monobuthyl ether (DGMBE), Fluka Chemie GmbH, CAS # 112-34-5 - to reduce relative permittivity

THE RECIPES FOR 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°C	f = 835MHz $\epsilon = 41.5 \pm 5\%$ $\sigma = 0.97 \pm 5\% \text{ S/m}$	f = 835MHz $\epsilon = 55.0 \pm 5\%$ $\sigma = 1.05 \pm 5\% \text{ S/m}$

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°C	f= 1900MHz $\epsilon = 40.0 \pm 5\%$ $\sigma = 1.40 \pm 5\% \text{ S/m}$	f= 1900MHz $\epsilon = 53.3 \pm 5\%$ $\sigma = 1.52 \pm 5\% \text{ S/m}$

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 30min. warm up.
2. Mount dielectric probe kit so that interconnecting cable to Network Analyzer will not be moved during measurements or calibration.
3. Pour de-ionized water and measure water temperature ($\pm 1^\circ$).
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 $>8\text{mm}$ thickness $\epsilon' = 10.0$, $\epsilon'' = 0.0$). 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 $\sigma = \omega \epsilon_0 \epsilon'' = \epsilon'' f [\text{GHz}] / 18$.
8. Measure liquid shortly after calibration. Repeat calibration every hour.
9. Stir the liquid to be measured. Take a sample ($\sim 50\text{ml}$) with a syringe from the center of the liquid container.
10. Pour the liquid into a small glass flask. Hold the syringe at the bottom of the flask to avoid air bubbles.
11. Put the dielectric probe in the glass flask. Check that there are no air bubbles in front of the opening in the dielectric probe kit.
12. Perform measurements.
13. Adjust medium parameters in DASY5 for the frequencies necessary for the measurements ('Setup Config', select medium (e.g. Brain 900MHz) and press 'Option'-button.
14. Select the current medium for the frequency of the validation (e.g. Setup Medium Brain 900MHz).

FOR SIMULATING LIQUID

LIQUID TYPE		HSL-835			
SIMULATING LIQUID TEMP.		22.5			
TEST DATE		Aug. 03, 2010			
TESTED BY		Match Tsui			
FREQ. (MHz)	LIQUID PARAMETER	STANDARD VALUE	MEASUREMENT VALUE	ERROR PERCENTAGE (%)	LIMIT(%)
826.4	Permittivity (ϵ)	41.50	43.30	4.34	±5
835.0		41.50	43.30	4.34	
836.4		41.50	43.20	4.10	
846.6		41.50	43.10	3.86	
826.4	Conductivity (σ) S/m	0.90	0.88	-2.22	
835.0		0.90	0.89	-1.11	
836.4		0.90	0.89	-1.11	
846.6		0.91	0.90	-1.10	

LIQUID TYPE		MSL-835			
SIMULATING LIQUID TEMP.		22.5			
TEST DATE		Aug. 03, 2010			
TESTED BY		Match Tsui			
FREQ. (MHz)	LIQUID PARAMETER	STANDARD VALUE	MEASUREMENT VALUE	ERROR PERCENTAGE (%)	LIMIT(%)
826.4	Permittivity (ϵ)	55.00	54.40	-1.09	±5
835.0		55.20	54.40	-1.45	
836.4		55.20	54.40	-1.45	
846.6		55.20	54.20	-1.81	
826.4	Conductivity (σ) S/m	0.97	0.97	0.00	
835.0		0.97	0.97	0.00	
836.4		0.97	0.98	1.03	
846.6		0.98	0.98	0.00	



A D T

LIQUID TYPE		HSL-1900			
SIMULATING LIQUID TEMP.		22.9			
TEST DATE		Aug. 04, 2010			
TESTED BY		Match Tsui			
FREQ. (MHz)	LIQUID PARAMETER	STANDARD VALUE	MEASUREMENT VALUE	ERROR PERCENTAGE (%)	LIMIT(%)
1850.2	Permittivity (ϵ)	40.00	40.80	2.00	± 5
1880.0		40.00	40.70	1.75	
1900.0		40.00	40.60	1.50	
1909.8		40.00	40.60	1.50	
1850.2	Conductivity (σ) S/m	1.40	1.37	-2.14	
1880.0		1.40	1.40	0.00	
1900.0		1.40	1.41	0.71	
1909.8		1.40	1.44	2.86	

LIQUID TYPE		MSL-1900			
SIMULATING LIQUID TEMP.		23.0			
TEST DATE		Aug. 04, 2010			
TESTED BY		Match Tsui			
FREQ. (MHz)	LIQUID PARAMETER	STANDARD VALUE	MEASUREMENT VALUE	ERROR PERCENTAGE (%)	LIMIT(%)
1850.2	Permittivity (ϵ)	53.30	53.60	0.56	± 5
1880.0		53.30	53.50	0.38	
1900.0		53.30	53.40	0.19	
1909.8		53.30	53.40	0.19	
1850.2	Conductivity (σ) S/m	1.52	1.50	-1.32	
1880.0		1.52	1.54	1.32	
1900.0		1.52	1.55	1.97	
1909.8		1.52	1.58	3.95	

5. 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.

5.1 TEST PROCEDURE

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

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

3. The "Area Scan" job measures the SAR above the dipole on a plane parallel to the surface. It is used to locate the approximate location of the peak SAR. The proposed scan uses large grid spacing for faster measurement; due to the symmetric field, the peak detection is reliable. If a finer graphic is desired, the grid spacing can be reduced. Grid spacing and orientation have no influence on the SAR result.
4. The "Zoom Scan" job measures the field in a volume around the peak SAR value assessed in the previous "Area Scan" job (for more information see the application note on SAR evaluation).

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

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

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

5.2 VALIDATION RESULTS

SYSTEM VALIDATION TEST OF SIMULATING LIQUID					
FREQUENCY (MHz)	REQUIRED SAR (mW/g)	MEASURED SAR (mW/g)	DEVIATION (%)	SEPARATION DISTANCE	TESTED DATE
HSL835	2.37 (1g)	2.27	-4.22	15mm	Aug. 03, 2010
MSL835	2.52 (1g)	2.45	-2.78	15mm	Aug. 03, 2010
HSL1900	10.00 (1g)	9.86	-1.40	10mm	Aug. 04, 2010
MSL1900	10.30 (1g)	10.12	-1.75	10mm	Aug. 04, 2010
TESTED BY	Match Tsui.				

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

5.3 SYSTEM VALIDATION UNCERTAINTIES

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

Error Description	Tolerance (±%)	Probability Distribution	Divisor	(C _i)		Standard Uncertainty (±%)		(v _i)
				(1g)	(10g)	(1g)	(10g)	
Measurement System								
Probe Calibration	5.50	Normal	1	1	1	5.50	5.50	∞
Axial Isotropy	0.25	Rectangular	√3	0.7	0.7	0.10	0.10	∞
Hemispherical Isotropy	1.30	Rectangular	√3	0.7	0.7	0.53	0.53	∞
Boundary effects	1.00	Rectangular	√3	1	1	0.58	0.58	∞
Linearity	0.30	Rectangular	√3	1	1	0.17	0.17	∞
Detection Limits	1.00	Rectangular	√3	1	1	0.58	0.58	∞
Readout Electronics	0.30	Normal	1	1	1	0.30	0.30	∞
Response Time	0.80	Rectangular	√3	1	1	0.46	0.46	∞
Integration Time	2.60	Rectangular	√3	1	1	1.50	1.50	∞
RF Ambient Noise	3.00	Rectangular	√3	1	1	1.73	1.73	9
RF Ambient Reflections	3.00	Rectangular	√3	1	1	1.73	1.73	9
Probe Positioner	0.40	Rectangular	√3	1	1	0.23	0.23	∞
Probe Positioning	2.90	Rectangular	√3	1	1	1.67	1.67	∞
Post-processing	1.00	Rectangular	√3	1	1	0.58	0.58	∞
Test sample related								
Sample positioning	1.90	Normal	1	1	1	1.90	1.90	4
Device holder uncertainty	2.80	Normal	1	1	1	2.80	2.80	4
Output power variation-SAR drift measurement	4.50	Rectangular	√3	1	1	2.60	2.60	1
Dipole Related								
Dipole Axis to Liquid Distance	1.60	Rectangular	√3	1	1	0.92	0.92	4
Input Power Drift	1.11	Rectangular	√3	1	1	0.64	0.64	1
Phantom and Tissue parameters								
Phantom Uncertainty	4.00	Rectangular	√3	1	1	2.31	2.31	∞
Liquid Conductivity (target)	5.00	Rectangular	√3	0.64	0.43	1.85	1.24	∞
Liquid Conductivity (measurement)	3.95	Normal	1	0.64	0.43	2.53	1.70	9
Liquid Permittivity (target)	5.00	Rectangular	√3	0.6	0.49	1.73	1.41	∞
Liquid Permittivity (measurement)	4.34	Normal	1	0.6	0.49	2.60	2.13	9
Combined Standard Uncertainty						9.35	8.87	
Coverage Factor for 95%						Kp=2		
Expanded Uncertainty (K=2)						18.69	17.75	

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

6. TEST RESULTS

6.1 TEST PROCEDURES

The EUT 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 62209-1, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:

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

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

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

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

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

6.2 DESCRIPTION OF TEST CONDITION

TEST DATE	TISSUE TYPE / FREQ.	TEMPERATURE (°C)		HUMIDITY (%RH)	TESTED BY
		AIMBENT	LIQUID		
Aug. 03, 2010	HSL835	24.0	22.5	62	Match Tsui
Aug. 03, 2010	MSL835	24.1	22.5	62	Match Tsui
Aug. 04, 2010	HSL1900	23.5	22.9	62	Match Tsui
Aug. 04, 2010	MSL1900	22.0	23.0	62	Match Tsui

6.3 MEASURED SAR RESULT

SAR (1g)				
HEAD	RIGHT		LEFT	
CHANNEL	CHEEK (Body)	TILT	CHEEK	TILT
WCDMA 850				
CH 4132: 826.4MHz	0.641	0.167	0.499	0.174
CH 4182: 836.4MHz	0.834	0.108	0.587	0.177
CH 4233: 846.6MHz	0.723	0.173	0.545	0.180
GSM 1900				
CH 512: 1850.2MHz	0.510	0.275	0.462	0.238
CH 661: 1880.0MHz	0.534	0.293	0.467	0.248
CH 810: 1909.8MHz	0.552	0.312	0.489	0.271

NOTE:

1. In this testing, the limit for General Population Spatial Peak averaged over 1g, 1.6 W/kg, is applied.
2. Please see the Appendix A for the data.
3. The variation of the EUT conducted power measured before and after SAR testing should not over 5%.
4. SAR test of Right head cheek position is measured at body position instead of Right head cheek. Since the cube can not be scanned completely at Right head cheek. This method is accepted by FCC. Please refer to tracking no.:343451

SAR (1g)-15mm		
BODY		
CHANNEL	Front	Bottom
WCDMA 850		
CH 4132: 826.4MHz		0.252
CH 4182: 836.4MHz	0.159	0.193
CH 4233: 846.6MHz		0.369
WCDMA 850 HSDPA		
CH 4132: 826.4MHz		0.238
CH 4182: 836.4MHz	0.155	0.363
CH 4233: 846.6MHz		0.339
WCDMA 850 HSUPA		
CH 4132: 826.4MHz		0.257
CH 4182: 836.4MHz	0.158	0.174
CH 4233: 846.6MHz		0.329
GSM 1900		
CH 512: 1850.2MHz		0.193
CH 661: 1880.0MHz	0.074	0.205
CH 810: 1909.8MHz		0.206
GSM 1900 GPRS TS1		
CH 512: 1850.2MHz		0.187
CH 661: 1880.0MHz	0.095	0.197
CH 810: 1909.8MHz		0.194

NOTE:

1. In this testing, the limit for General Population Spatial Peak averaged over 1g, 1.6 W/kg, is applied.
2. Please see the Appendix A for the data.
3. The variation of the EUT conducted power measured before and after SAR testing should not over 5%.
4. Per DA-02-1438A1, when 1-g SAR for the middle channel is less than 0.8 W/kg, testing for the other channels is not required



6.4 SAR LIMITS

HUMAN EXPOSURE	SAR (W/kg)	
	(GENERAL POPULATION / UNCONTROLLED EXPOSURE ENVIRONMENT)	(OCCUPATIONAL / CONTROLLED EXPOSURE ENVIRONMENT)
Spatial Peak (averaged over 1 g)	1.6	8.0

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.

7. INFORMATION ON THE TESTING LABORATORIES

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

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

Linko EMC/RF Lab:

Tel: 886-2-26052180

Fax: 886-2-26051924

Hsin Chu EMC/RF Lab:

Tel: 886-3-5935343

Fax: 886-3-5935342

Hwa Ya EMC/RF/Safety/Telecom Lab:

Tel: 886-3-3183232

Fax: 886-3-3185050

Web Site: www.adt.com.tw

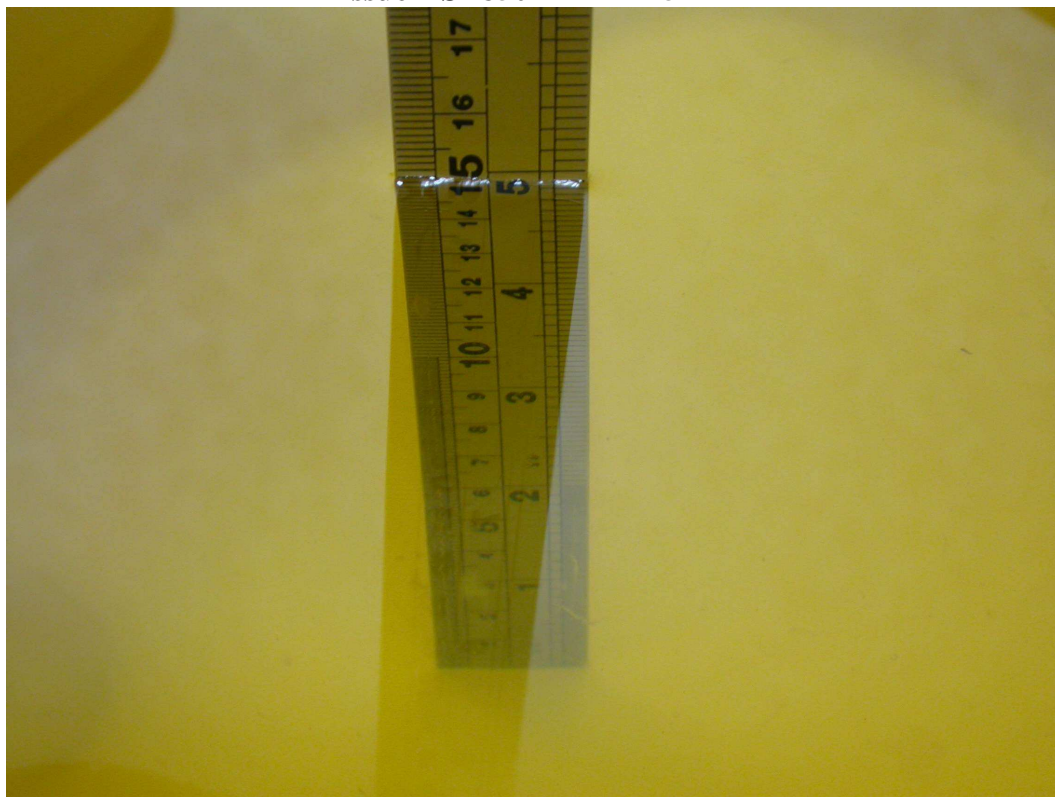
The address and road map of all our labs can be found in our web site also.

---END---

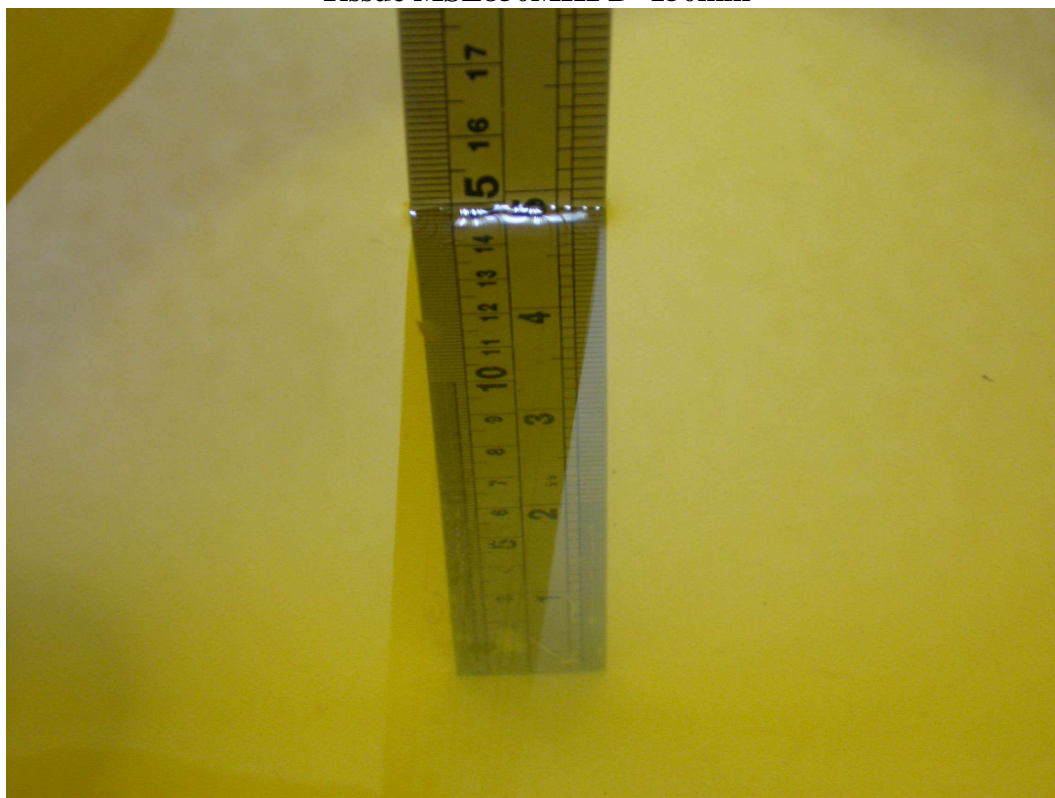
APPENDIX A: TEST DATA

Liquid Level Photo

Tissue HSL850MHz D=151mm



Tissue MSL850MHz D=150mm



Tissue HSL1900MHz D=152mm



Tissue MSL1900MHz D=151mm



Test Laboratory: Bureau Veritas ADT

WCDMA 850 Right head Cheek (Test at Flat Phantom)-Ch4132

DUT: Mobile Phone ; Type: F-02C

Communication System: WCDMA 850 ; Frequency: 826.4 MHz ; Duty Cycle: 1:1

Medium: HSL850 Medium parameters used: $f = 826.4$ MHz; $\sigma = 0.88$ mho/m; $\epsilon_r = 43.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: BPSK

Separation Distance : 7 mm (The front side of the EUT to the Phantom)

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(9.8, 9.8, 9.8); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

Low Channel/Area Scan (7x16x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.734 mW/g

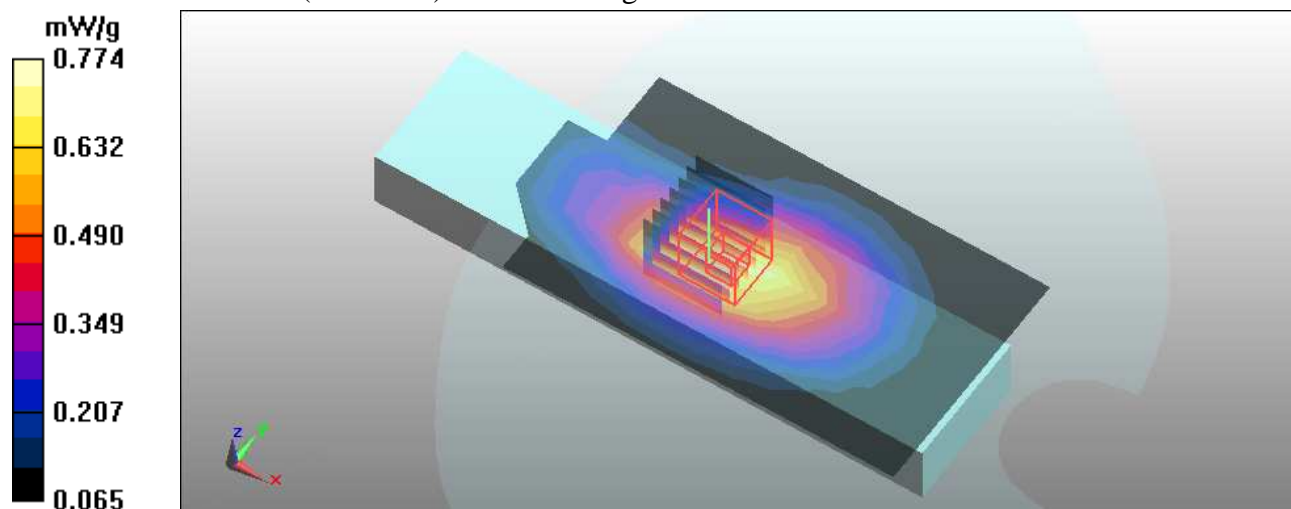
Low Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 24.8 V/m; Power Drift = 0.025 dB

Peak SAR (extrapolated) = 0.898 W/kg

SAR(1 g) = **0.641 mW/g**; SAR(10 g) = 0.442 mW/g

Maximum value of SAR (measured) = 0.774 mW/g



Test Laboratory: Bureau Veritas ADT

WCDMA 850 Right head Cheek (Test at Flat Phantom)-Ch4182

DUT: Mobile Phone ; Type: F-02C

Communication System: WCDMA 850 ; Frequency: 836.4 MHz ; Duty Cycle: 1:1

Medium: HSL850 Medium parameters used: $f = 836.4$ MHz; $\sigma = 0.89$ mho/m; $\epsilon_r = 43.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: BPSK

Separation Distance : 7 mm (The front side of the EUT to the Phantom)

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(9.8, 9.8, 9.8); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

Mid Channel/Area Scan (7x16x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.973 mW/g

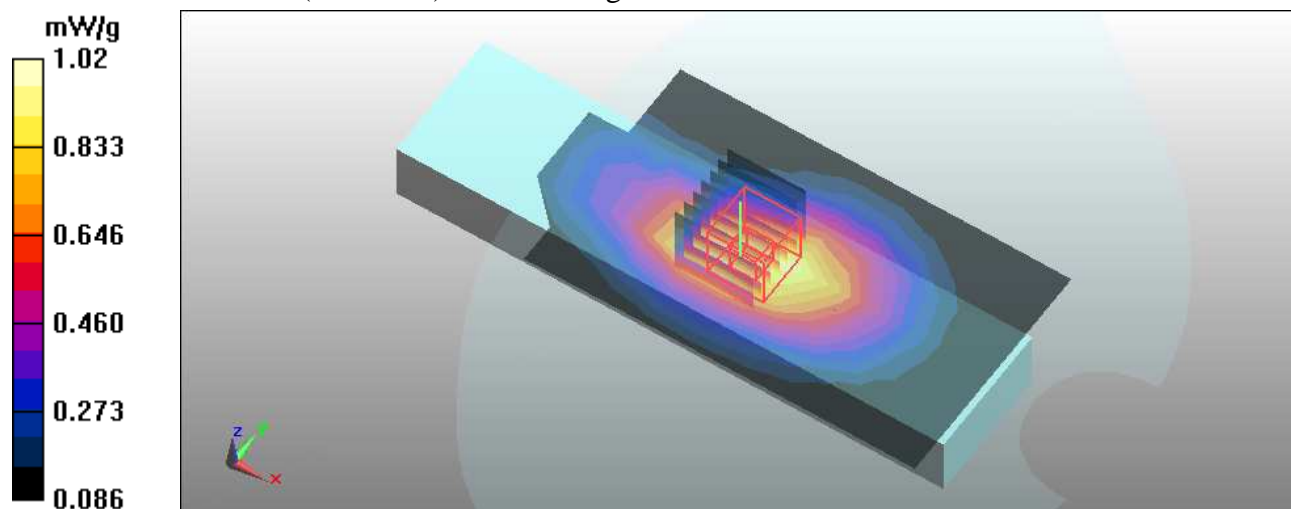
Mid Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 28 V/m; Power Drift = 0.052 dB

Peak SAR (extrapolated) = 1.17 W/kg

SAR(1 g) = 0.834 mW/g; SAR(10 g) = 0.577 mW/g

Maximum value of SAR (measured) = 1.02 mW/g



Test Laboratory: Bureau Veritas ADT

WCDMA 850 Right head Cheek (Test at Flat Phantom)-Ch4233

DUT: Mobile Phone ; Type: F-02C

Communication System: WCDMA 850 ; Frequency: 846.6 MHz ; Duty Cycle: 1:1

Medium: HSL850 Medium parameters used: $f = 846.6 \text{ MHz}$; $\sigma = 0.9 \text{ mho/m}$; $\epsilon_r = 43.1$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: BPSK

Separation Distance : 7 mm (The front side of the EUT to the Phantom)

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(9.8, 9.8, 9.8); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

Hight Channel/Area Scan (7x16x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.841 mW/g

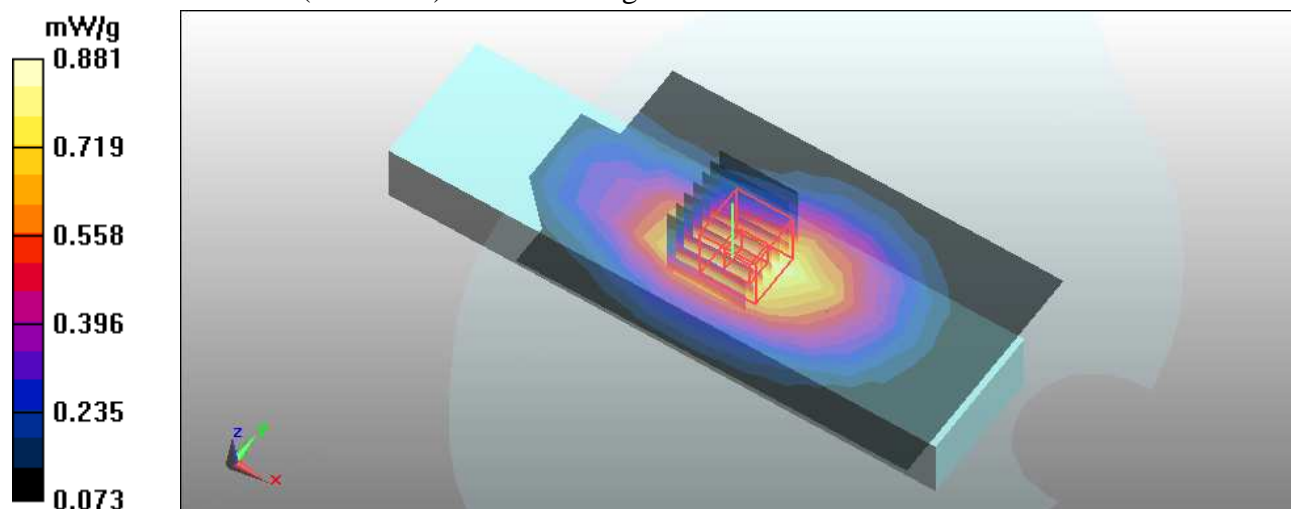
Hight Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 26.3 V/m; Power Drift = 0.046 dB

Peak SAR (extrapolated) = 1.02 W/kg

SAR(1 g) = **0.723 mW/g**; SAR(10 g) = 0.501 mW/g

Maximum value of SAR (measured) = 0.881 mW/g



Test Laboratory: Bureau Veritas ADT

WCDMA 850 Right head Tilt-Ch4132

DUT: Mobile Phone ; Type: F-02C

Communication System: WCDMA 850 ; Frequency: 826.4 MHz ; Duty Cycle: 1:1

Medium: HSL850 Medium parameters used: $f = 826.4$ MHz; $\sigma = 0.88$ mho/m; $\epsilon_r = 43.3$; $\rho = 1000$ kg/m³

Phantom section: Right Section ; DUT test position : Cheek ; Modulation type: BPSK

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(9.8, 9.8, 9.8); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

Low Channel/Area Scan (6x16x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.186 mW/g

Low Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.67 V/m; Power Drift = 0.000731 dB

Peak SAR (extrapolated) = 0.213 W/kg

SAR(1 g) = **0.167** mW/g; SAR(10 g) = 0.126 mW/g

Maximum value of SAR (measured) = 0.193 mW/g

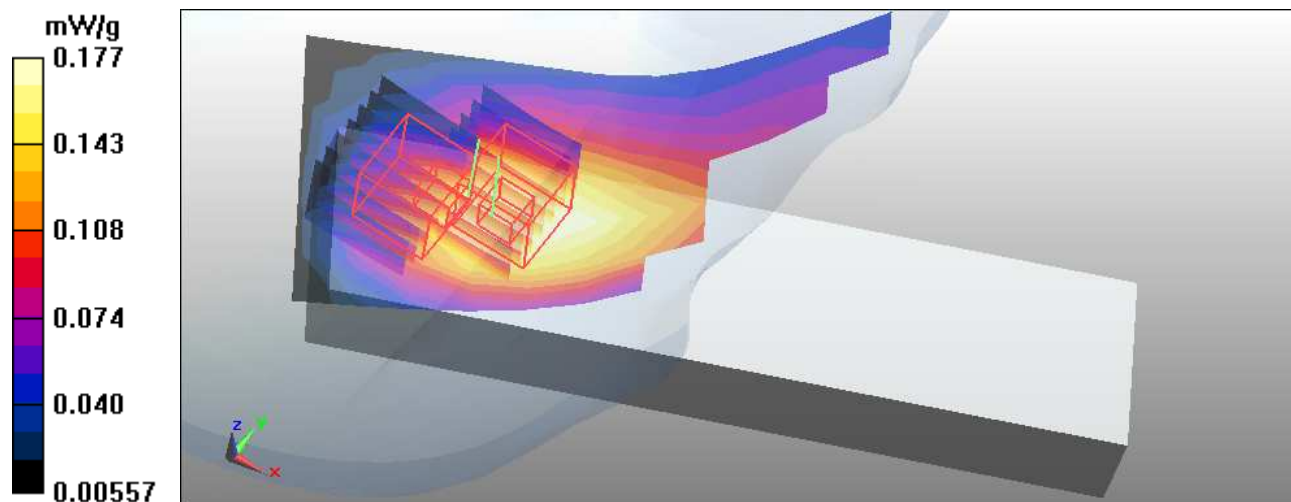
Low Channel/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.67 V/m; Power Drift = 0.000731 dB

Peak SAR (extrapolated) = 0.196 W/kg

SAR(1 g) = **0.135** mW/g; SAR(10 g) = 0.084 mW/g

Maximum value of SAR (measured) = 0.177 mW/g



Test Laboratory: Bureau Veritas ADT

WCDMA 850 Right head Tilt-Ch4182

DUT: Mobile Phone ; Type: F-02C

Communication System: WCDMA 850 ; Frequency: 836.4 MHz ; Duty Cycle: 1:1

Medium: HSL850 Medium parameters used: $f = 836.4$ MHz; $\sigma = 0.89$ mho/m; $\epsilon_r = 43.2$; $\rho = 1000$ kg/m³

Phantom section: Right Section ; DUT test position : Tilt ; Modulation type: BPSK

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(9.8, 9.8, 9.8); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

Mid Channel/Area Scan (6x16x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.121 mW/g

Mid Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.6 V/m; Power Drift = 0.133 dB

Peak SAR (extrapolated) = 0.138 W/kg

SAR(1 g) = **0.108 mW/g**; SAR(10 g) = 0.082 mW/g

Maximum value of SAR (measured) = 0.125 mW/g

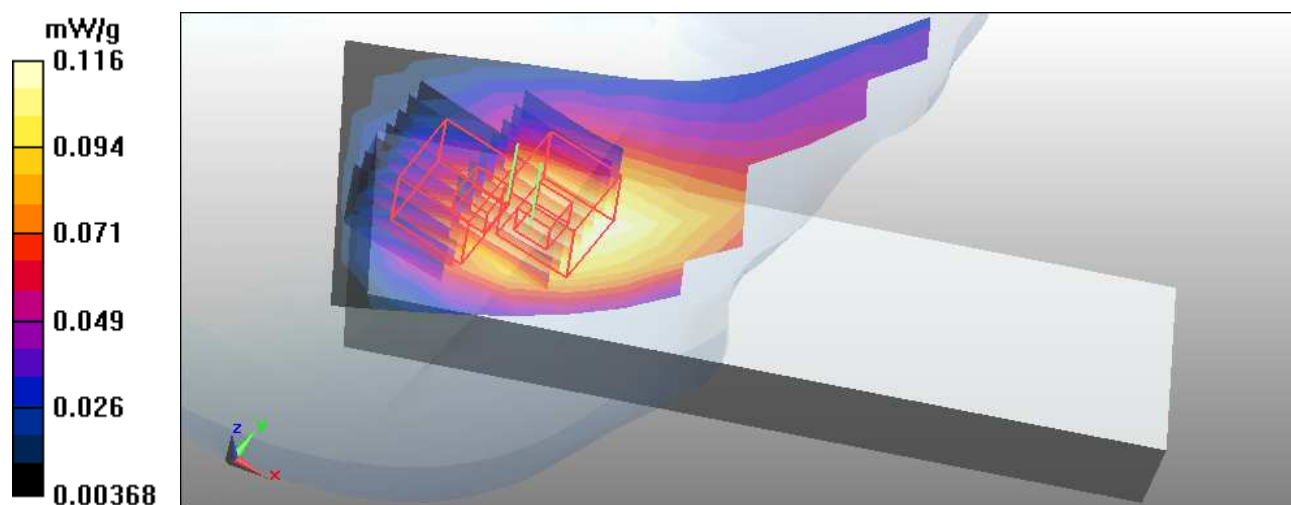
Mid Channel/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.6 V/m; Power Drift = 0.133 dB

Peak SAR (extrapolated) = 0.129 W/kg

SAR(1 g) = **0.088 mW/g**; SAR(10 g) = 0.054 mW/g

Maximum value of SAR (measured) = 0.116 mW/g



Test Laboratory: Bureau Veritas ADT

WCDMA 850 Right head Tilt-4233

DUT: Mobile Phone ; Type: F-02C

Communication System: WCDMA 850 ; Frequency: 846.6 MHz ; Duty Cycle: 1:1

Medium: HSL850 Medium parameters used: $f = 846.6$ MHz; $\sigma = 0.9$ mho/m; $\epsilon_r = 43.1$; $\rho = 1000$ kg/m³

Phantom section: Right Section ; DUT test position : Tilt ; Modulation type: BPSK

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(9.8, 9.8, 9.8); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

High Channel/Area Scan (6x16x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.196 mW/g

High Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.24 V/m; Power Drift = 0.143 dB

Peak SAR (extrapolated) = 0.220 W/kg

SAR(1 g) = **0.173 mW/g**; SAR(10 g) = 0.129 mW/g

Maximum value of SAR (measured) = 0.200 mW/g

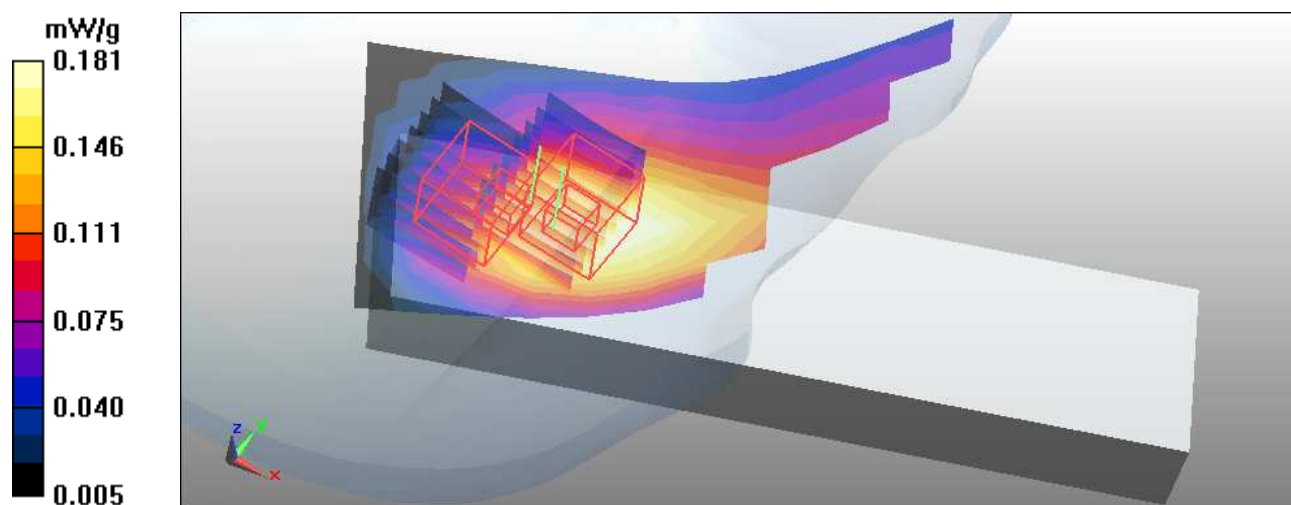
High Channel/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.24 V/m; Power Drift = 0.143 dB

Peak SAR (extrapolated) = 0.201 W/kg

SAR(1 g) = **0.138 mW/g**; SAR(10 g) = 0.084 mW/g

Maximum value of SAR (measured) = 0.181 mW/g



Test Laboratory: Bureau Veritas ADT

WCDMA 850 Left head Cheek-Ch4132

DUT: Mobile Phone ; Type: F-02C

Communication System: WCDMA 850 ; Frequency: 826.4 MHz ; Duty Cycle: 1:1

Medium: HSL850 Medium parameters used: $f = 826.4$ MHz; $\sigma = 0.88$ mho/m; $\epsilon_r = 43.3$; $\rho = 1000$ kg/m³

Phantom section: Left Section ; DUT test position : Cheek ; Modulation type: BPSK

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(9.8, 9.8, 9.8); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

Low Channel/Area Scan (6x16x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.556 mW/g

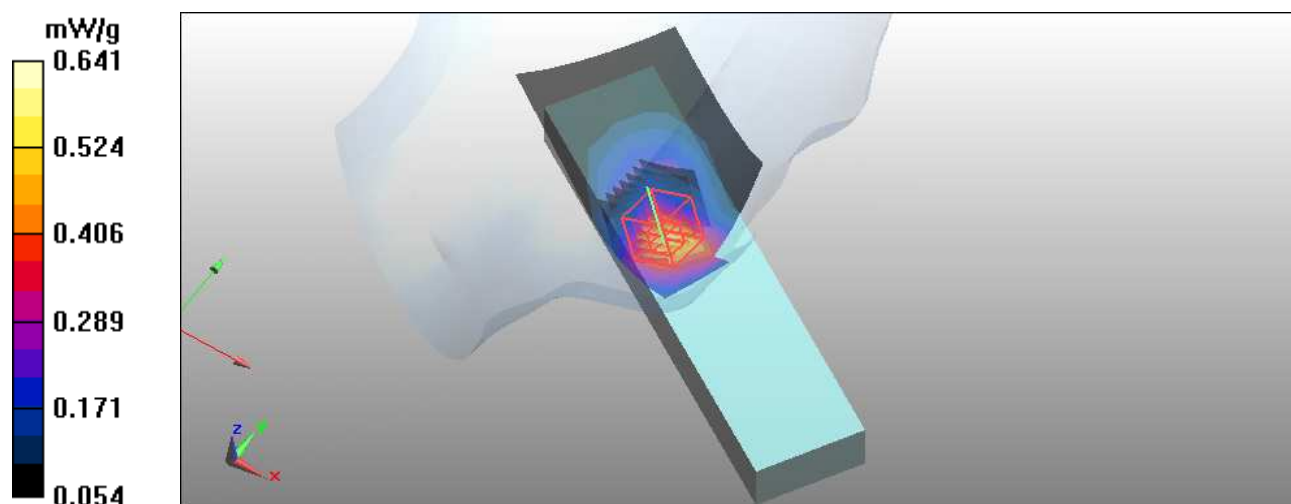
Low Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.89 V/m; Power Drift = 0.191 dB

Peak SAR (extrapolated) = 0.781 W/kg

SAR(1 g) = **0.499 mW/g**; SAR(10 g) = **0.322 mW/g**

Maximum value of SAR (measured) = 0.641 mW/g



Test Laboratory: Bureau Veritas ADT

WCDMA 850 Left head Cheek-Ch4182

DUT: Mobile Phone ; Type: F-02C

Communication System: WCDMA 850 ; Frequency: 836.4 MHz ; Duty Cycle: 1:1

Medium: HSL850 Medium parameters used: $f = 836.4$ MHz; $\sigma = 0.89$ mho/m; $\epsilon_r = 43.2$; $\rho = 1000$ kg/m³

Phantom section: Left Section ; DUT test position : Cheek ; Modulation type: BPSK

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(9.8, 9.8, 9.8); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

Mid Channel/Area Scan (6x16x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.659 mW/g

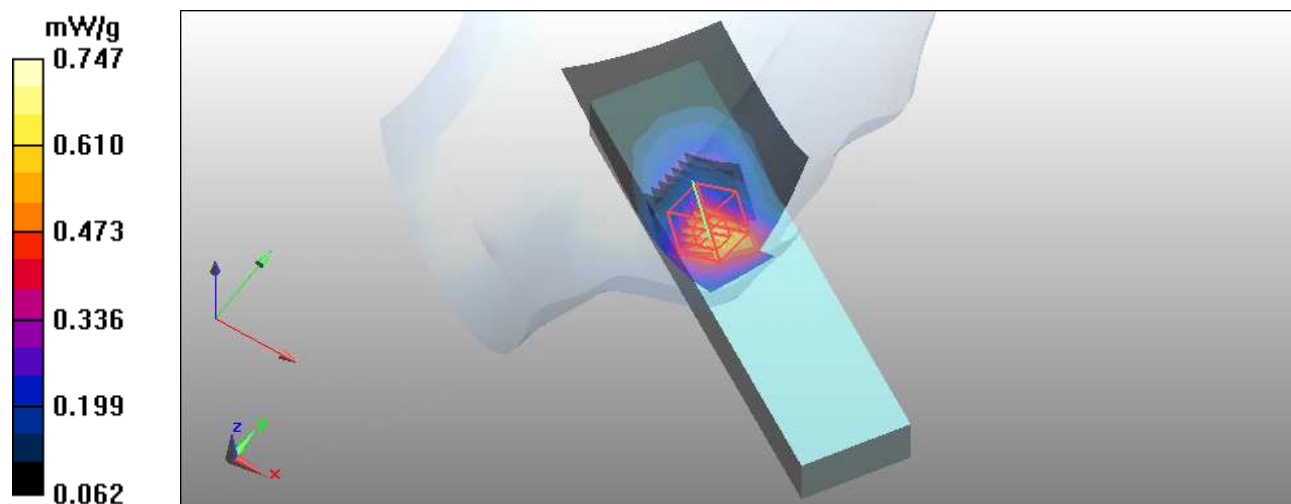
Mid Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.27 V/m; Power Drift = 0.181 dB

Peak SAR (extrapolated) = 0.910 W/kg

SAR(1 g) = **0.587 mW/g**; SAR(10 g) = 0.381 mW/g

Maximum value of SAR (measured) = 0.747 mW/g



Test Laboratory: Bureau Veritas ADT

WCDMA 850 Left head Cheek-Ch4233

DUT: Mobile Phone ; Type: F-02C

Communication System: WCDMA 850 ; Frequency: 846.6 MHz ; Duty Cycle: 1:1

Medium: HSL850 Medium parameters used: $f = 846.6 \text{ MHz}$; $\sigma = 0.9 \text{ mho/m}$; $\epsilon_r = 43.1$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section ; DUT test position : Cheek ; Modulation type: BPSK

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(9.8, 9.8, 9.8); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

High Channel/Area Scan (6x16x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 0.606 mW/g

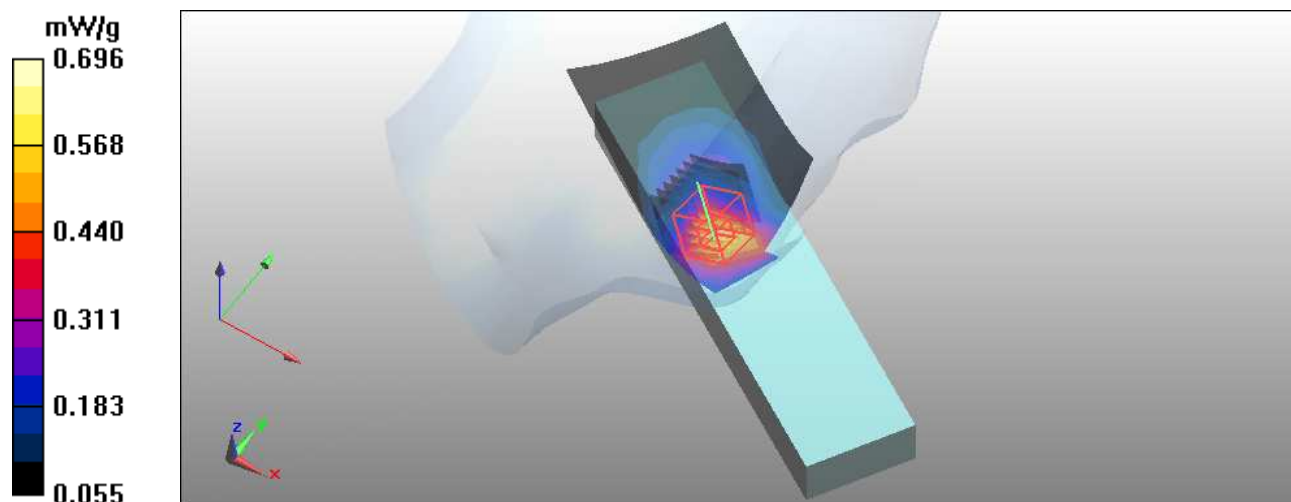
High Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 5.99 V/m ; Power Drift = 0.096 dB

Peak SAR (extrapolated) = 0.850 W/kg

SAR(1 g) = **0.545 mW/g** ; SAR(10 g) = 0.353 mW/g

Maximum value of SAR (measured) = 0.696 mW/g



Test Laboratory: Bureau Veritas ADT

WCDMA 850 Left head Tilt-Ch4132

DUT: Mobile Phone ; Type: F-02C

Communication System: WCDMA 850 ; Frequency: 826.4 MHz ; Duty Cycle: 1:1

Medium: HSL850 Medium parameters used: $f = 826.4$ MHz; $\sigma = 0.88$ mho/m; $\epsilon_r = 43.3$; $\rho = 1000$ kg/m³

Phantom section: Left Section ; DUT test position : Tilt ; Modulation type: BPSK

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(9.8, 9.8, 9.8); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

Low Channel/Area Scan (6x16x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.198 mW/g

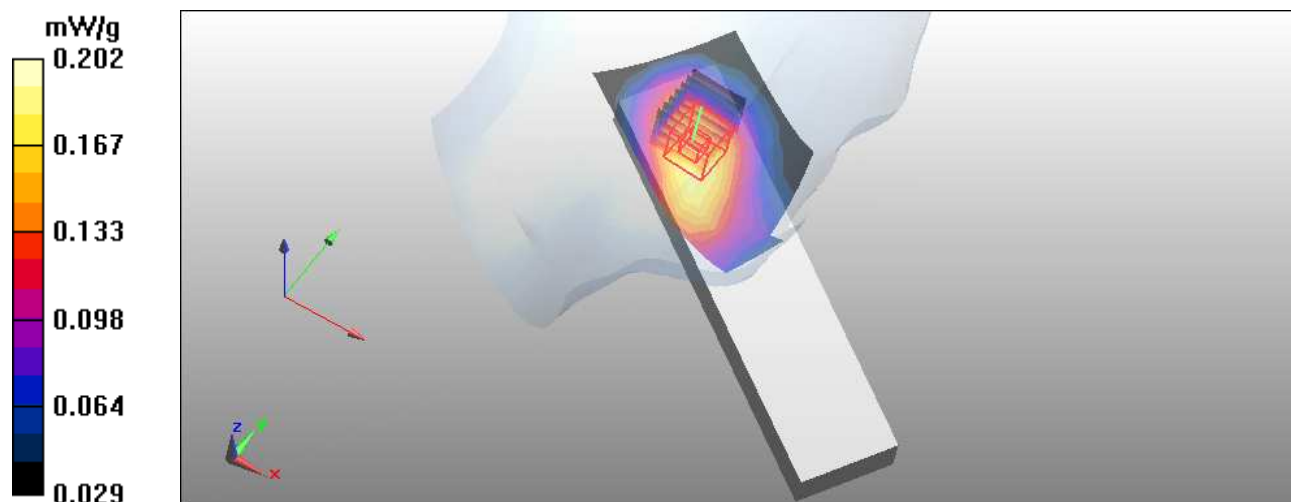
Low Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11 V/m; Power Drift = -0.108 dB

Peak SAR (extrapolated) = 0.222 W/kg

SAR(1 g) = **0.174 mW/g**; SAR(10 g) = 0.131 mW/g

Maximum value of SAR (measured) = 0.202 mW/g



Test Laboratory: Bureau Veritas ADT

WCDMA 850 Left head Tilt-Ch4182

DUT: Mobile Phone ; Type: F-02C

Communication System: WCDMA 850 ; Frequency: 836.4 MHz ; Duty Cycle: 1:1

Medium: HSL850 Medium parameters used: $f = 836.4$ MHz; $\sigma = 0.89$ mho/m; $\epsilon_r = 43.2$; $\rho = 1000$ kg/m³

Phantom section: Left Section ; DUT test position : Tilt ; Modulation type: BPSK

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(9.8, 9.8, 9.8); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

Mid Channel/Area Scan (6x16x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.203 mW/g

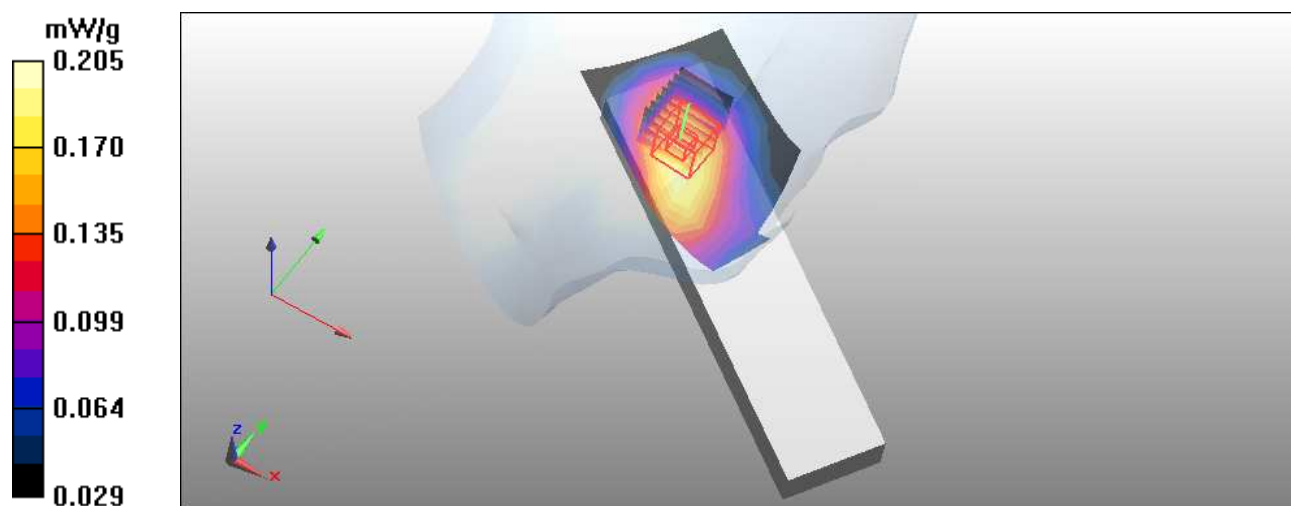
Mid Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.9 V/m; Power Drift = -0.022 dB

Peak SAR (extrapolated) = 0.226 W/kg

SAR(1 g) = **0.177 mW/g**; SAR(10 g) = 0.132 mW/g

Maximum value of SAR (measured) = 0.205 mW/g



Test Laboratory: Bureau Veritas ADT

WCDMA 850 Left head Tilt-Ch4233

DUT: Mobile Phone ; Type: F-02C

Communication System: WCDMA 850 ; Frequency: 846.6 MHz ; Duty Cycle: 1:1

Medium: HSL850 Medium parameters used: $f = 846.6 \text{ MHz}$; $\sigma = 0.9 \text{ mho/m}$; $\epsilon_r = 43.1$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section ; DUT test position : Tilt ; Modulation type: BPSK

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(9.8, 9.8, 9.8); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

High Channel/Area Scan (6x16x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 0.207 mW/g

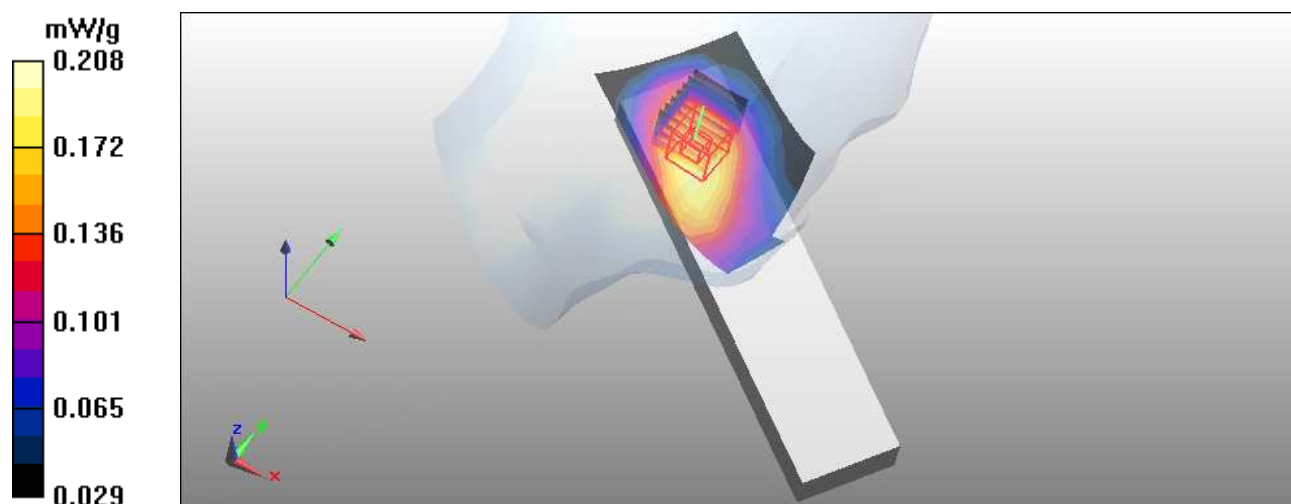
High Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 10.9 V/m ; Power Drift = 0.027 dB

Peak SAR (extrapolated) = 0.229 W/kg

SAR(1 g) = **0.180 mW/g** ; SAR(10 g) = 0.134 mW/g

Maximum value of SAR (measured) = 0.208 mW/g



Test Laboratory: Bureau Veritas ADT

WCDMA 850 Body Front-Ch4182

DUT: Mobile Phone ; Type: F-02C

Communication System: WCDMA 850 ; Frequency: 836.4 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

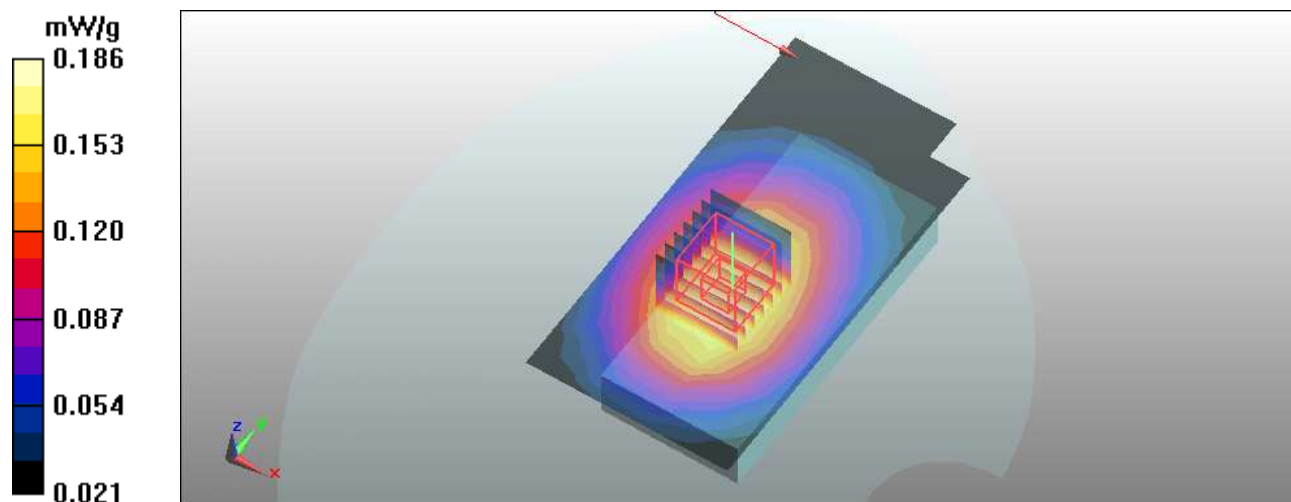
Medium: MSL850 Medium parameters used: $f = 836.4$ MHz; $\sigma = 0.98$ mho/m; $\epsilon_r = 54.4$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Separation distance : 15 mm (The front side of the EUT to the Phantom)

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(9.83, 9.83, 9.83); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

Mid Channel/Area Scan (6x11x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 0.178 mW/g

Mid Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.1 V/m; Power Drift = 0.097 dB
Peak SAR (extrapolated) = 0.208 W/kg
SAR(1 g) = 0.159 mW/g; SAR(10 g) = 0.117 mW/g
Maximum value of SAR (measured) = 0.186 mW/g



Test Laboratory: Bureau Veritas ADT

WCDMA 850 Body Bottom-Ch4132

DUT: Mobile Phone ; Type: F-02C

Communication System: WCDMA 850 ; Frequency: 826.4 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL850 Medium parameters used: $f = 826.4 \text{ MHz}$; $\sigma = 0.97 \text{ mho/m}$; $\epsilon_r = 54.4$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section ; Separation distance : 15 mm (The bottom side of the EUT to the Phantom)

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(9.83, 9.83, 9.83); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

Low Channel/Area Scan (6x11x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 0.315 mW/g

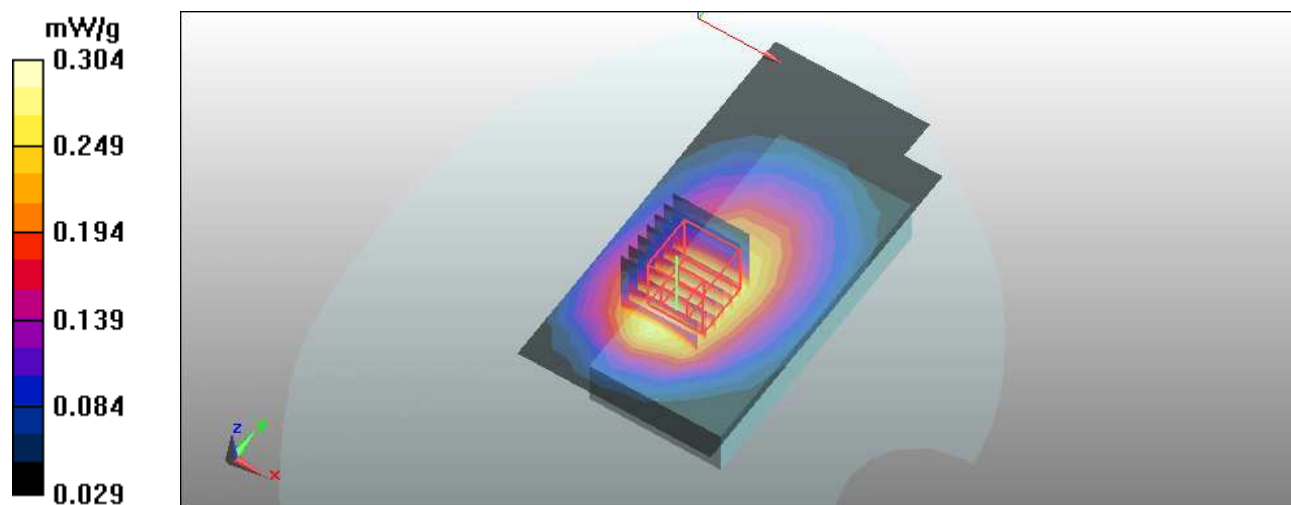
Low Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 12.6 V/m; Power Drift = -0.074 dB

Peak SAR (extrapolated) = 0.351 W/kg

SAR(1 g) = **0.252 mW/g**; SAR(10 g) = 0.179 mW/g

Maximum value of SAR (measured) = 0.304 mW/g



Test Laboratory: Bureau Veritas ADT

WCDMA 850 Body Bottom-Ch4182

DUT: Mobile Phone ; Type: F-02C

Communication System: WCDMA 850 ; Frequency: 836.4 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL850 Medium parameters used: $f = 836.4 \text{ MHz}$; $\sigma = 0.98 \text{ mho/m}$; $\epsilon_r = 54.4$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section ; Separation distance : 15 mm (The bottom side of the EUT to the Phantom)

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(9.83, 9.83, 9.83); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

Mid Channel/Area Scan (6x11x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 0.228 mW/g

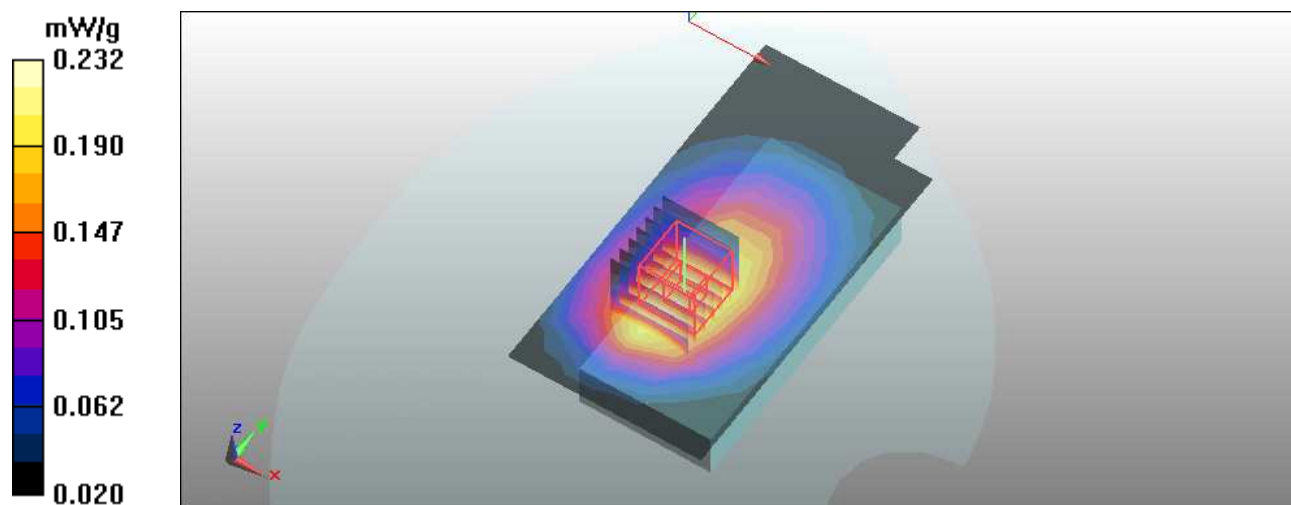
Mid Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 10.2 V/m; Power Drift = 0.172 dB

Peak SAR (extrapolated) = 0.264 W/kg

SAR(1 g) = **0.193 mW/g**; SAR(10 g) = 0.138 mW/g

Maximum value of SAR (measured) = 0.232 mW/g



Test Laboratory: Bureau Veritas ADT

WCDMA 850 Body Bottom-Ch4233

DUT: Mobile Phone ; Type: F-02C

Communication System: WCDMA 850 ; Frequency: 846.6 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL850 Medium parameters used: $f = 846.6 \text{ MHz}$; $\sigma = 0.98 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section ; Separation distance : 15 mm (The bottom side of the EUT to the Phantom)

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(9.83, 9.83, 9.83); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

High Channel/Area Scan (6x11x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 0.430 mW/g

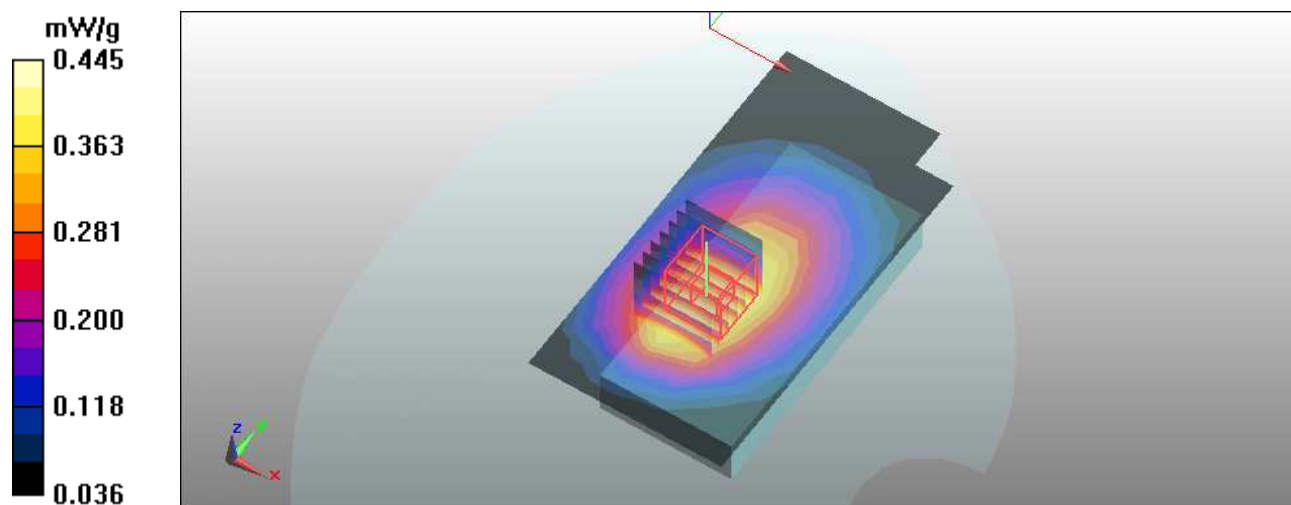
High Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 13.7 V/m; Power Drift = 0.046 dB

Peak SAR (extrapolated) = 0.506 W/kg

SAR(1 g) = **0.369 mW/g**; SAR(10 g) = 0.262 mW/g

Maximum value of SAR (measured) = 0.445 mW/g



Test Laboratory: Bureau Veritas ADT

WCDMA 850 HSDPA Body Front-Ch4182

DUT: Mobile Phone ; Type: F-02C

Communication System: WCDMA 850 ; Frequency: 836.4 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

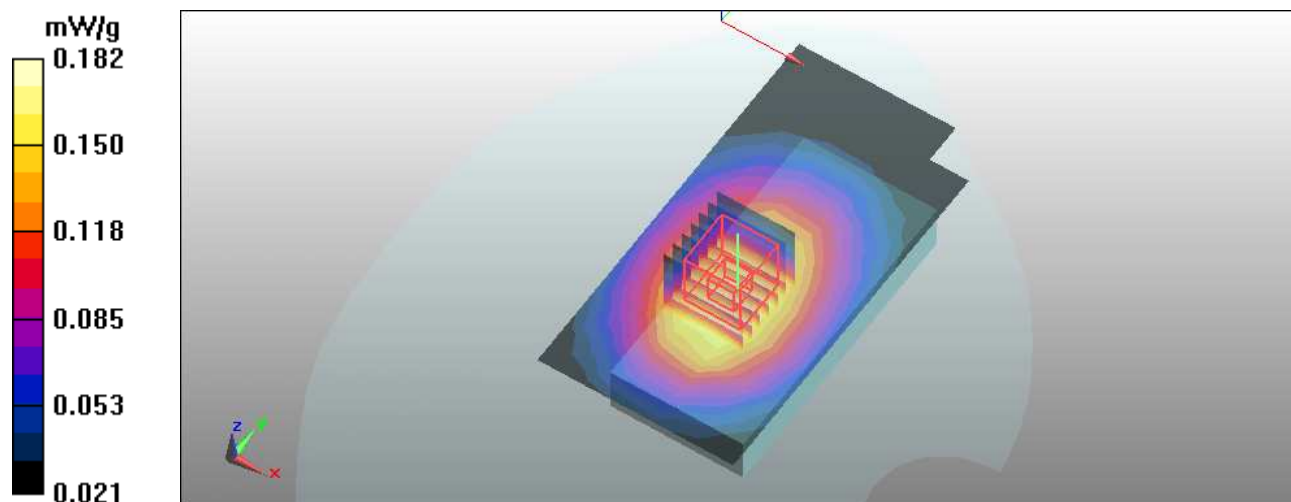
Medium: MSL850 Medium parameters used: $f = 836.4 \text{ MHz}$; $\sigma = 0.98 \text{ mho/m}$; $\epsilon_r = 54.4$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Separation distance : 15 mm (The front side of the EUT to the Phantom)

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(9.83, 9.83, 9.83); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

Mid Channel/Area Scan (6x11x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (measured) = 0.175 mW/g

Mid Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
Reference Value = 10.1 V/m; Power Drift = 0.097 dB
Peak SAR (extrapolated) = 0.203 W/kg
SAR(1 g) = 0.155 mW/g; SAR(10 g) = 0.115 mW/g
Maximum value of SAR (measured) = 0.182 mW/g



Test Laboratory: Bureau Veritas ADT

WCDMA 850 HSDPA Body Bottom-Ch512

DUT: Mobile Phone ; Type: F-02C

Communication System: WCDMA 850 ; Frequency: 826.4 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL850 Medium parameters used: $f = 826.4 \text{ MHz}$; $\sigma = 0.97 \text{ mho/m}$; $\epsilon_r = 54.4$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section ; Separation distance : 15 mm (The bottom side of the EUT to the Phantom)

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(9.83, 9.83, 9.83); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

Low Channel/Area Scan (6x11x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.287 mW/g

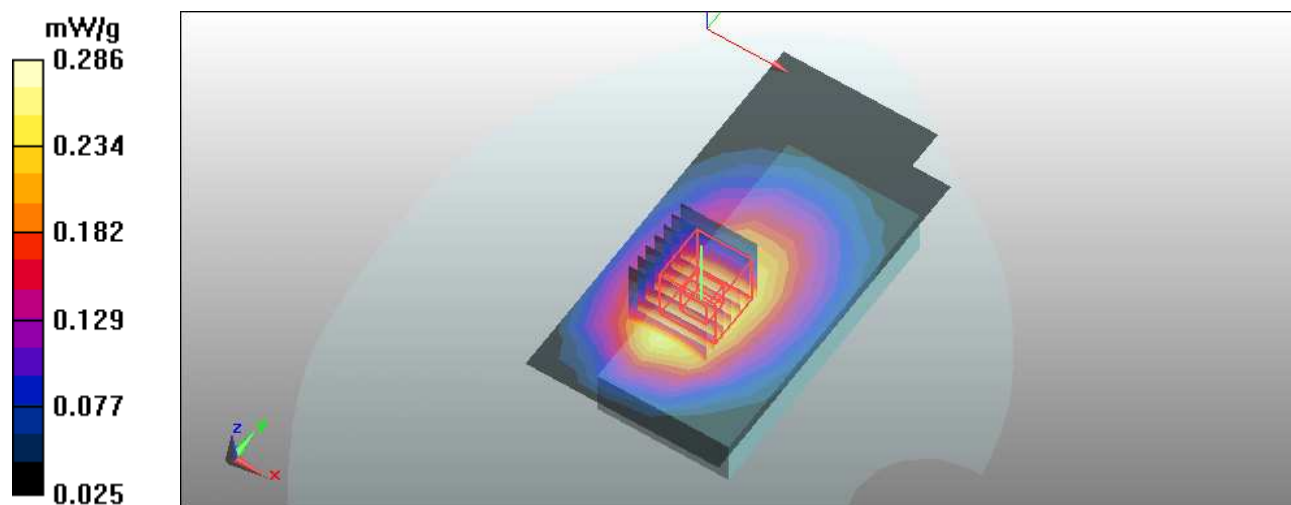
Low Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13 V/m; Power Drift = -0.104 dB

Peak SAR (extrapolated) = 0.325 W/kg

SAR(1 g) = **0.238 mW/g**; SAR(10 g) = 0.170 mW/g

Maximum value of SAR (measured) = 0.286 mW/g



Test Laboratory: Bureau Veritas ADT

WCDMA 850 HSDPA Body Bottom-Ch661

DUT: Mobile Phone ; Type: F-02C

Communication System: WCDMA 850 ; Frequency: 836.4 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL850 Medium parameters used: $f = 836.4 \text{ MHz}$; $\sigma = 0.98 \text{ mho/m}$; $\epsilon_r = 54.4$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section ; Separation distance : 15 mm (The bottom side of the EUT to the Phantom)

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(9.83, 9.83, 9.83); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

Mid Channel/Area Scan (6x11x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.423 mW/g

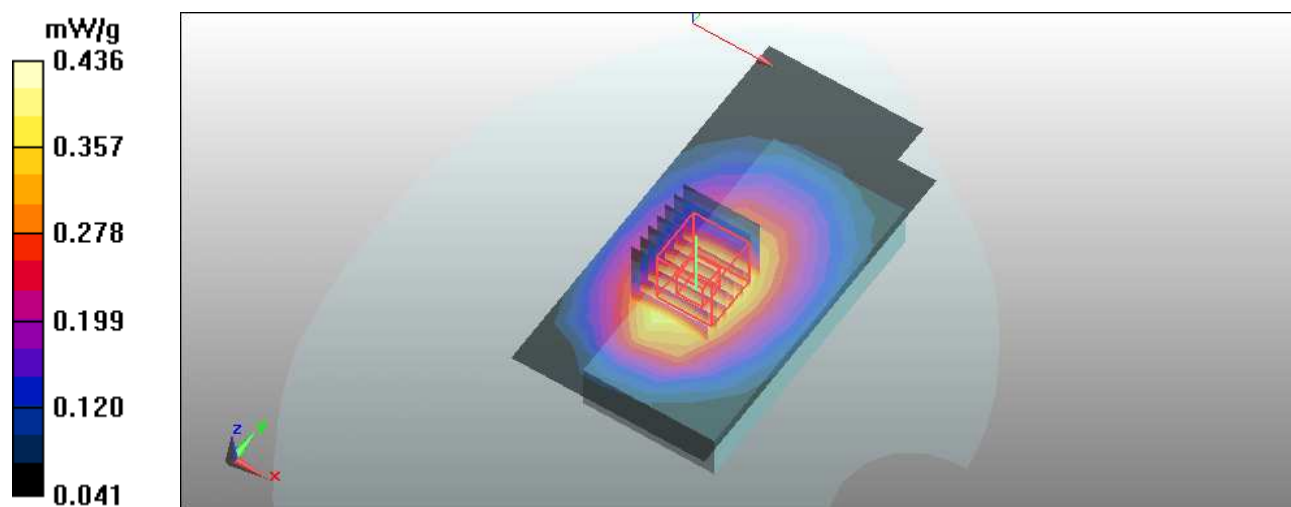
Mid Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.6 V/m; Power Drift = 0.055 dB

Peak SAR (extrapolated) = 0.495 W/kg

SAR(1 g) = **0.363 mW/g**; SAR(10 g) = 0.258 mW/g

Maximum value of SAR (measured) = 0.436 mW/g



Test Laboratory: Bureau Veritas ADT

WCDMA 850 HSDPA Body Bottom-Ch810

DUT: Mobile Phone ; Type: F-02C

Communication System: WCDMA 850 ; Frequency: 846.6 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL850 Medium parameters used: $f = 846.6 \text{ MHz}$; $\sigma = 0.98 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section ; Separation distance : 15 mm (The bottom side of the EUT to the Phantom)

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(9.83, 9.83, 9.83); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

High Channel/Area Scan (6x11x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.397 mW/g

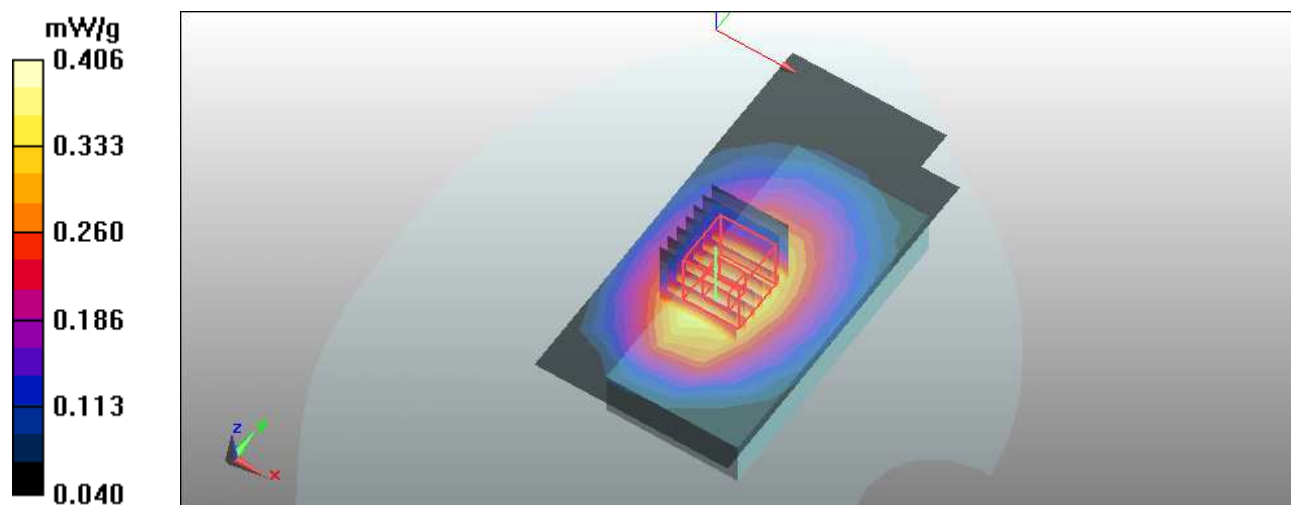
High Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13 V/m; Power Drift = 0.017 dB

Peak SAR (extrapolated) = 0.462 W/kg

SAR(1 g) = **0.339 mW/g**; SAR(10 g) = 0.241 mW/g

Maximum value of SAR (measured) = 0.406 mW/g



Test Laboratory: Bureau Veritas ADT

WCDMA 850 HSUPA Body Front-Ch4182

DUT: Mobile Phone ; Type: F-02C

Communication System: WCDMA 850 ; Frequency: 836.4 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

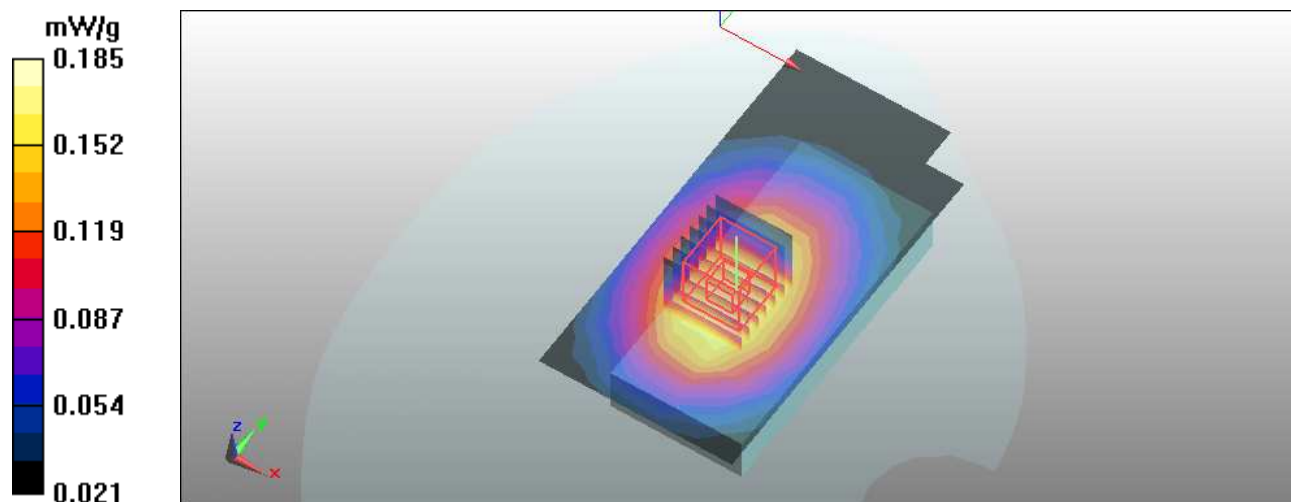
Medium: MSL850 Medium parameters used: $f = 836.4 \text{ MHz}$; $\sigma = 0.98 \text{ mho/m}$; $\epsilon_r = 54.4$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Separation distance : 15 mm (The front side of the EUT to the Phantom)

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(9.83, 9.83, 9.83); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

Mid Channel/Area Scan (6x11x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (measured) = 0.178 mW/g

Mid Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
Reference Value = 10.1 V/m; Power Drift = 0.0197 dB
Peak SAR (extrapolated) = 0.207 W/kg
SAR(1 g) = 0.158 mW/g; SAR(10 g) = 0.116 mW/g
Maximum value of SAR (measured) = 0.185 mW/g



Test Laboratory: Bureau Veritas ADT

WCDMA 850 HSUPA Body Bottom-Ch512

DUT: Mobile Phone ; Type: F-02C

Communication System: WCDMA 850 ; Frequency: 826.4 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL850 Medium parameters used: $f = 826.4 \text{ MHz}$; $\sigma = 0.97 \text{ mho/m}$; $\epsilon_r = 54.4$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section ; Separation distance : 15 mm (The bottom side of the EUT to the Phantom)

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(9.83, 9.83, 9.83); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

Low Channel/Area Scan (6x11x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.298 mW/g

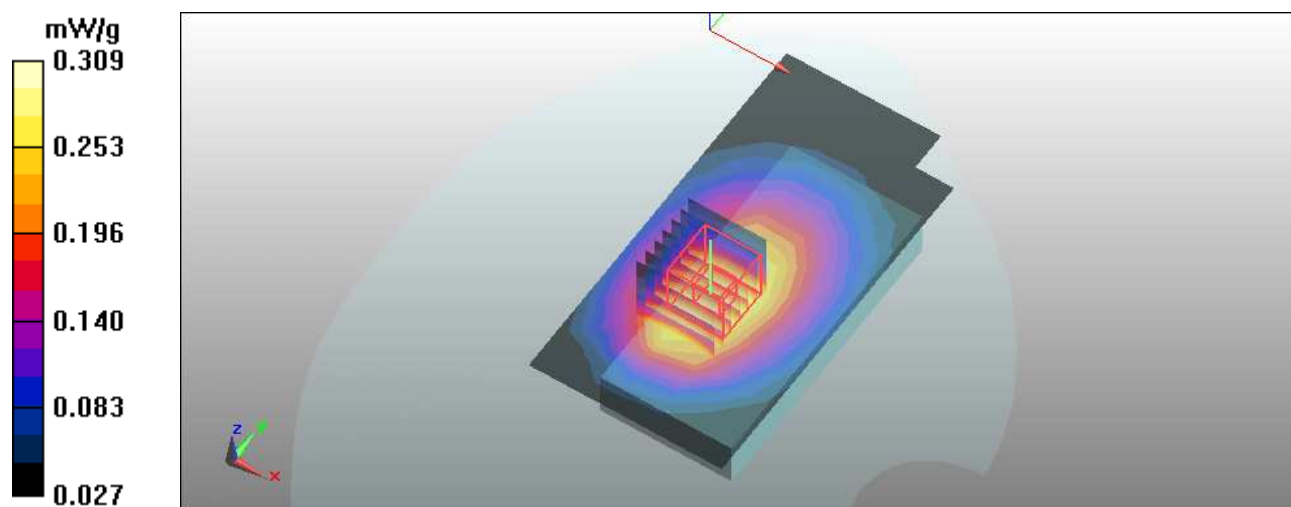
Low Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.6 V/m; Power Drift = 0.016 dB

Peak SAR (extrapolated) = 0.351 W/kg

SAR(1 g) = **0.257 mW/g**; SAR(10 g) = **0.184 mW/g**

Maximum value of SAR (measured) = 0.309 mW/g



Test Laboratory: Bureau Veritas ADT

WCDMA 850 HSUPA Body Bottom-Ch661

DUT: Mobile Phone ; Type: F-02C

Communication System: WCDMA 850 ; Frequency: 836.4 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL850 Medium parameters used: $f = 836.4 \text{ MHz}$; $\sigma = 0.98 \text{ mho/m}$; $\epsilon_r = 54.4$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section ; Separation distance : 15 mm (The bottom side of the EUT to the Phantom)

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(9.83, 9.83, 9.83); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

Mid Channel/Area Scan (6x11x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 0.201 mW/g

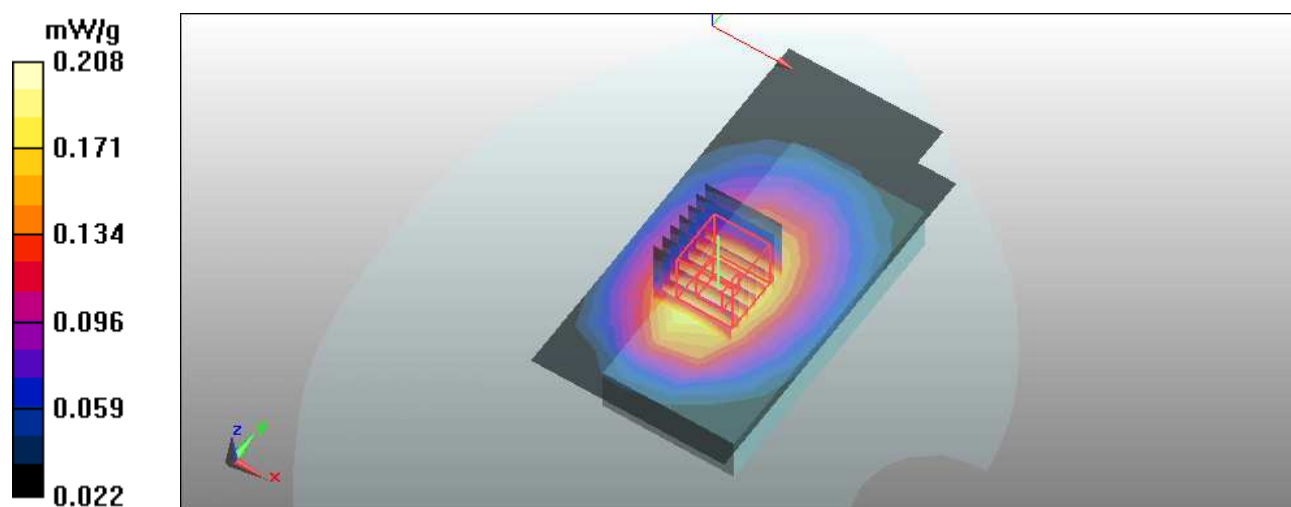
Mid Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 9.31 V/m; Power Drift = 0.087 dB

Peak SAR (extrapolated) = 0.237 W/kg

SAR(1 g) = 0.174 mW/g; SAR(10 g) = 0.124 mW/g

Maximum value of SAR (measured) = 0.208 mW/g



Test Laboratory: Bureau Veritas ADT

WCDMA 850 HSUPA Body Bottom-Ch810

DUT: Mobile Phone ; Type: F-02C

Communication System: WCDMA 850 ; Frequency: 846.6 MHz ; Duty Cycle: 1:1 ; Modulation type: BPSK

Medium: MSL850 Medium parameters used: $f = 846.6 \text{ MHz}$; $\sigma = 0.98 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section ; Separation distance : 15 mm (The bottom side of the EUT to the Phantom)

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(9.83, 9.83, 9.83); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

High Channel/Area Scan (6x11x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.384 mW/g

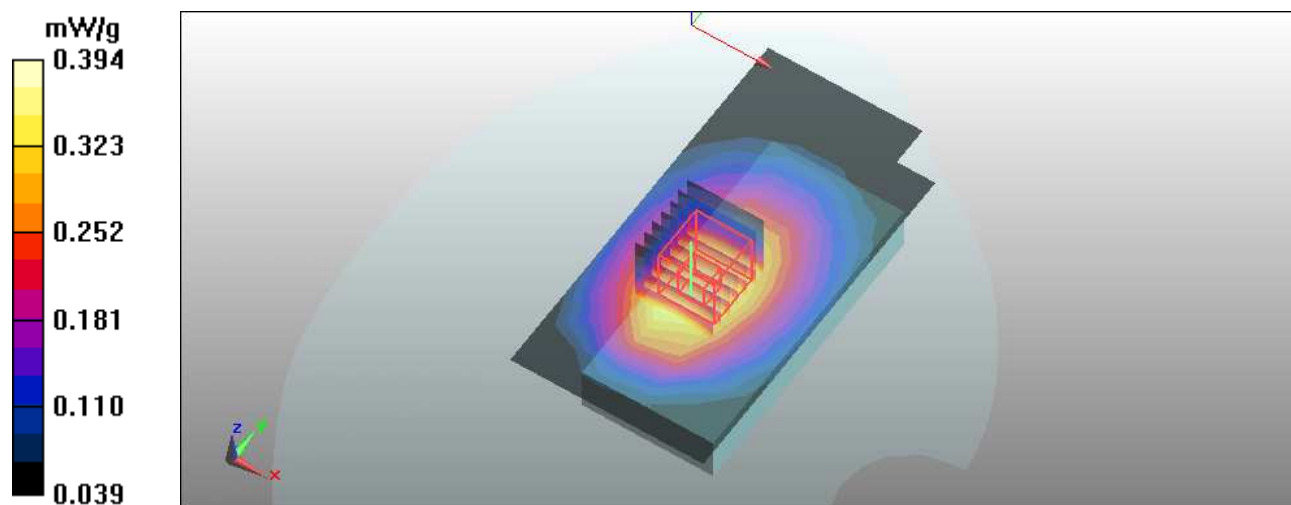
High Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.6 V/m; Power Drift = 0.053 dB

Peak SAR (extrapolated) = 0.449 W/kg

SAR(1 g) = **0.329 mW/g**; SAR(10 g) = 0.234 mW/g

Maximum value of SAR (measured) = 0.394 mW/g



Test Laboratory: Bureau Veritas ADT

GSM1900 Right head Cheek (Test at Flat Phantom)-Ch512

DUT: Mobile Phone ; Type: F-02C

Communication System: GSM 1900 ; Frequency: 1850.2 MHz ; Duty Cycle: 1:8.3

Medium: HSL1900 Medium parameters used: $f = 1850.2 \text{ MHz}$; $\sigma = 1.37 \text{ mho/m}$; $\epsilon_r = 40.8$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: GMSK

Separation Distance : 7 mm (The front side of the EUT to the Phantom)

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(8.2, 8.2, 8.2); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

Low Channel /Area Scan (7x16x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.607 mW/g

Low Channel /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.1 V/m; Power Drift = 0.162 dB

Peak SAR (extrapolated) = 0.849 W/kg

SAR(1 g) = **0.510 mW/g**; SAR(10 g) = **0.285 mW/g**

Maximum value of SAR (measured) = 0.686 mW/g

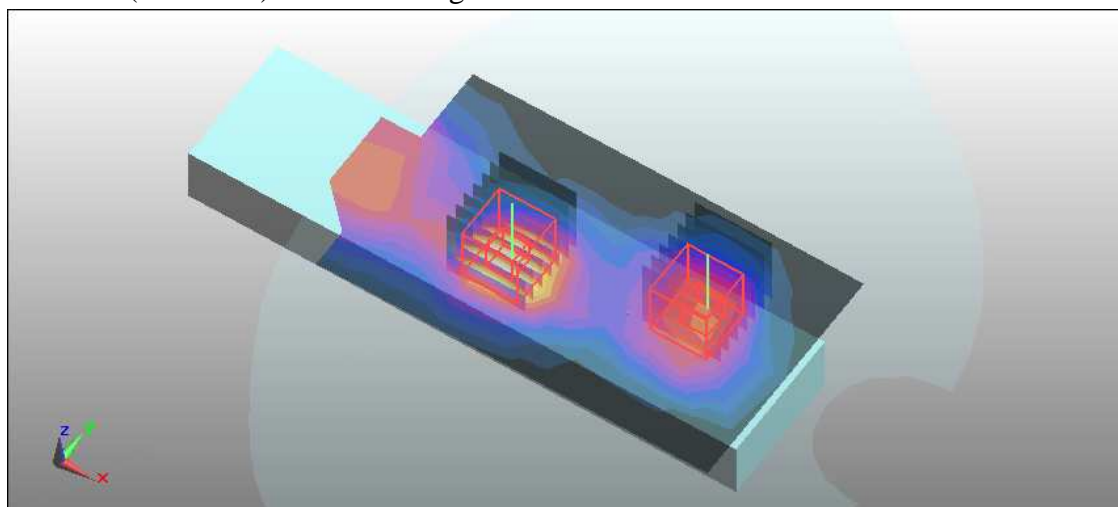
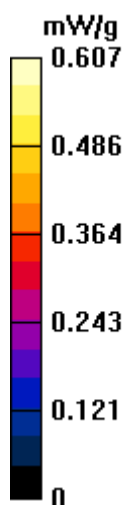
Low Channel 2/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.1 V/m; Power Drift = 0.162 dB

Peak SAR (extrapolated) = 0.470 W/kg

SAR(1 g) = **0.319 mW/g**; SAR(10 g) = **0.207 mW/g**

Maximum value of SAR (measured) = 0.399 mW/g



Test Laboratory: Bureau Veritas ADT

GSM1900 Right head Cheek (Test at Flat Phantom)-Ch661

DUT: Mobile Phone ; Type: F-02C

Communication System: GSM 1900 ; Frequency: 1880 MHz ; Duty Cycle: 1:8.3

Medium: HSL1900 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 40.7$; $\rho = 1000$ kg/m³

Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: GMSK

Separation Distance : 7 mm (The front side of the EUT to the Phantom)

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(8.2, 8.2, 8.2); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

Mid Channel/Area Scan (7x16x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.640 mW/g

Mid Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.4 V/m; Power Drift = -0.077 dB

Peak SAR (extrapolated) = 0.894 W/kg

SAR(1 g) = **0.534 mW/g**; SAR(10 g) = 0.298 mW/g

Maximum value of SAR (measured) = 0.725 mW/g

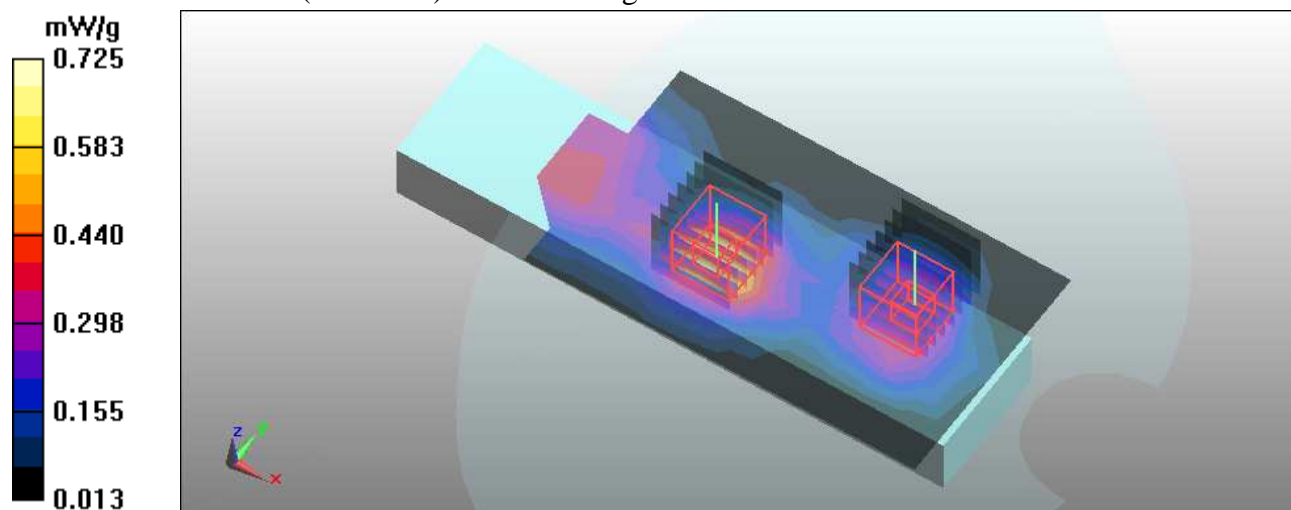
Mid Channel/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.4 V/m; Power Drift = -0.077 dB

Peak SAR (extrapolated) = 0.489 W/kg

SAR(1 g) = **0.331 mW/g**; SAR(10 g) = 0.212 mW/g

Maximum value of SAR (measured) = 0.417 mW/g



Test Laboratory: Bureau Veritas ADT

GSM1900 Right head Cheek (Test at Flat Phantom)-Ch810

DUT: Mobile Phone ; Type: F-02C

Communication System: GSM 1900 ; Frequency: 1909.8 MHz ; Duty Cycle: 1:8.3

Medium: HSL1900 Medium parameters used: $f = 1909.8 \text{ MHz}$; $\sigma = 1.44 \text{ mho/m}$; $\epsilon_r = 40.6$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section ; DUT test position : Body ; Modulation Type: GMSK

Separation Distance : 7 mm (The front side of the EUT to the Phantom)

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(8.2, 8.2, 8.2); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

High Channel/Area Scan (7x16x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.658 mW/g

High Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11 V/m; Power Drift = -0.118 dB

Peak SAR (extrapolated) = 0.932 W/kg

SAR(1 g) = **0.552 mW/g**; SAR(10 g) = **0.306 mW/g**

Maximum value of SAR (measured) = 0.746 mW/g

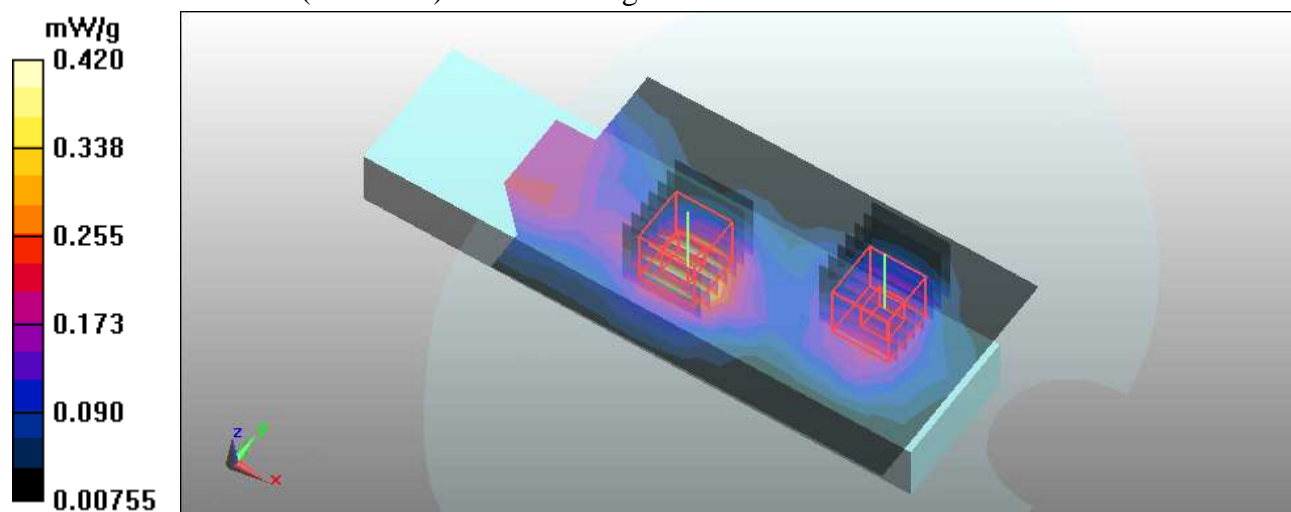
High Channel/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11 V/m; Power Drift = -0.118 dB

Peak SAR (extrapolated) = 0.494 W/kg

SAR(1 g) = **0.333 mW/g**; SAR(10 g) = **0.212 mW/g**

Maximum value of SAR (measured) = 0.420 mW/g



Test Laboratory: Bureau Veritas ADT

GSM1900 Right head Tilt-Ch512

DUT: Mobile Phone ; Type: F-02C

Communication System: GSM 1900 ; Frequency: 1850.2 MHz ; Duty Cycle: 1:8.3

Medium: HSL1900 Medium parameters used: $f = 1850.2$ MHz; $\sigma = 1.37$ mho/m; $\epsilon_r = 40.8$; $\rho = 1000$ kg/m³

Phantom section: Right Section ; DUT test position : Tilt ; Modulation type: GMSK

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(8.2, 8.2, 8.2); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

Low Channel/Area Scan (6x16x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.346 mW/g

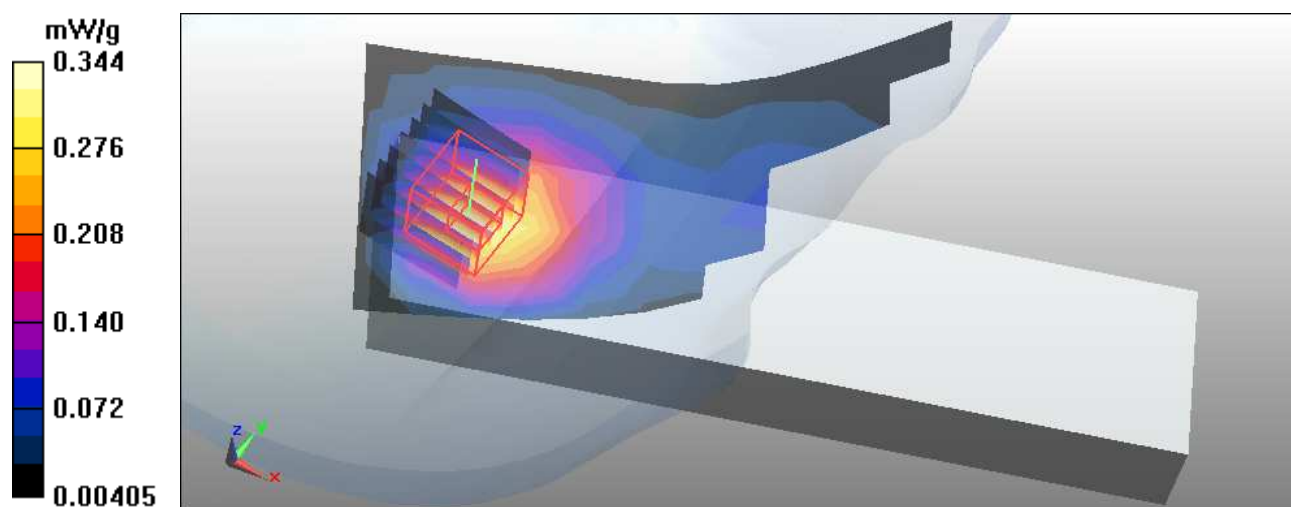
Low Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.7 V/m; Power Drift = -0.028 dB

Peak SAR (extrapolated) = 0.404 W/kg

SAR(1 g) = **0.275 mW/g**; SAR(10 g) = 0.166 mW/g

Maximum value of SAR (measured) = 0.344 mW/g



Test Laboratory: Bureau Veritas ADT

GSM1900 Right head Tilt-Ch661

DUT: Mobile Phone ; Type: F-02C

Communication System: GSM 1900 ; Frequency: 1880 MHz ; Duty Cycle: 1:8.3

Medium: HSL1900 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 40.7$; $\rho = 1000$ kg/m³

Phantom section: Right Section ; DUT test position : Tilt ; Modulation type: GMSK

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(8.2, 8.2, 8.2); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

Mid Channel/Area Scan (6x16x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.367 mW/g

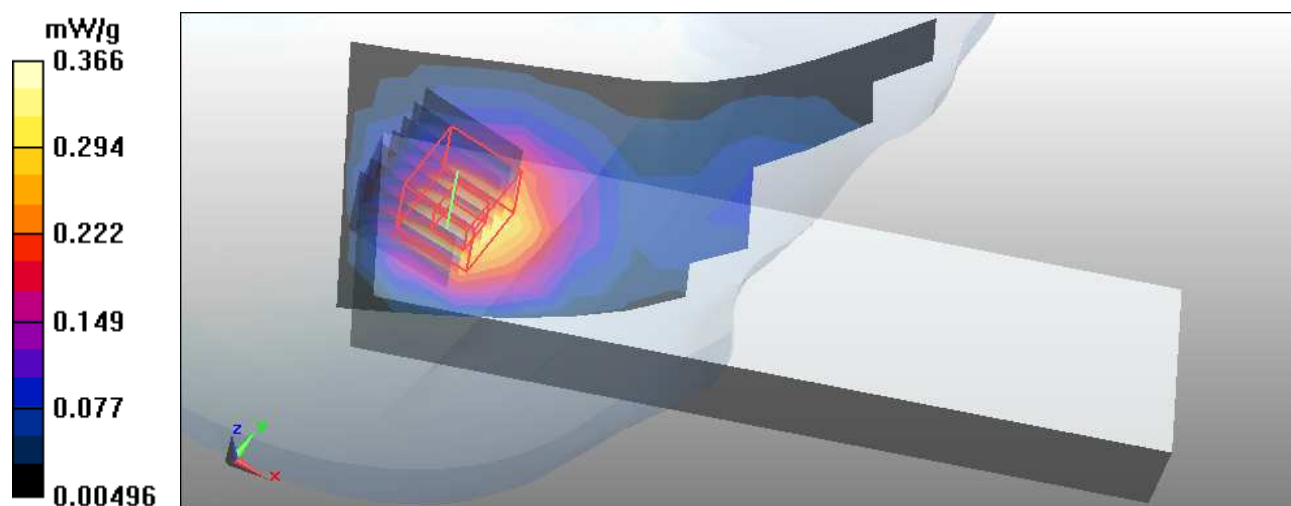
Mid Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.7 V/m; Power Drift = -0.017 dB

Peak SAR (extrapolated) = 0.432 W/kg

SAR(1 g) = **0.293 mW/g**; SAR(10 g) = **0.180 mW/g**

Maximum value of SAR (measured) = 0.366 mW/g



Test Laboratory: Bureau Veritas ADT

GSM1900 Right head Tilt-Ch810

DUT: Mobile Phone ; Type: F-02C

Communication System: GSM 1900 ; Frequency: 1909.8 MHz ; Duty Cycle: 1:8.3

Medium: HSL1900 Medium parameters used: $f = 1909.8 \text{ MHz}$; $\sigma = 1.44 \text{ mho/m}$; $\epsilon_r = 40.6$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Right Section ; DUT test position : Tilt ; Modulation type: GMSK

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(8.2, 8.2, 8.2); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

High Channel/Area Scan (6x16x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.398 mW/g

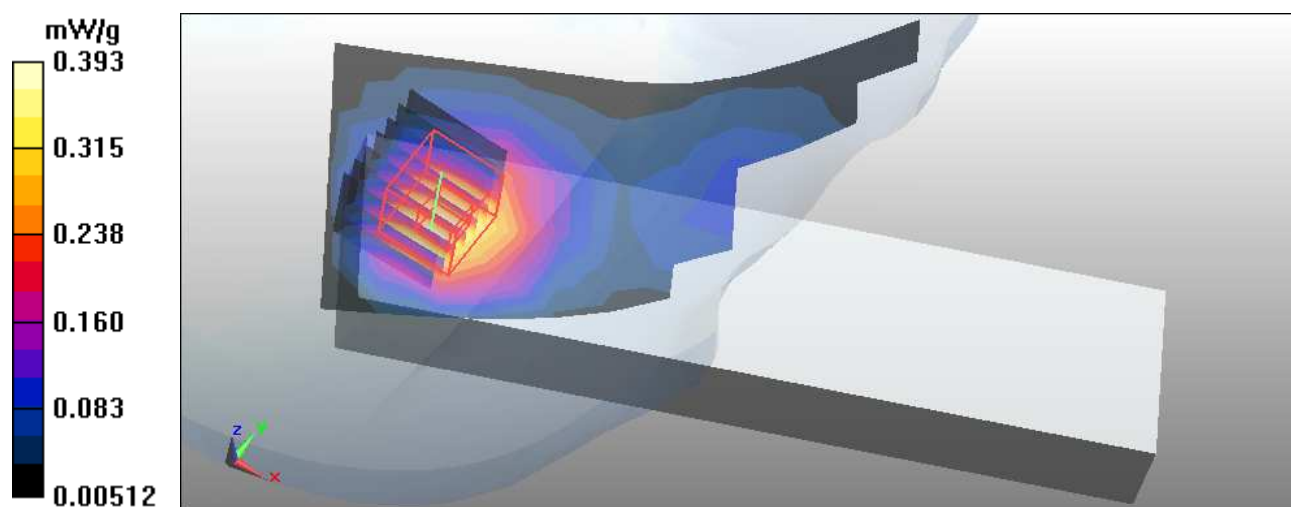
High Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.6 V/m; Power Drift = 0.182 dB

Peak SAR (extrapolated) = 0.459 W/kg

SAR(1 g) = **0.312 mW/g**; SAR(10 g) = 0.190 mW/g

Maximum value of SAR (measured) = 0.393 mW/g



Test Laboratory: Bureau Veritas ADT

GSM1900 Left head Cheek-Ch512

DUT: Mobile Phone ; Type: F-02C

Communication System: GSM 1900 ; Frequency: 1850.2 MHz ; Duty Cycle: 1:8.3

Medium: HSL1900 Medium parameters used: $f = 1850.2 \text{ MHz}$; $\sigma = 1.37 \text{ mho/m}$; $\epsilon_r = 40.8$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section ; DUT test position : Cheek ; Modulation type: GMSK

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(8.2, 8.2, 8.2); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

Low Channel/Area Scan (6x16x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 0.569 mW/g

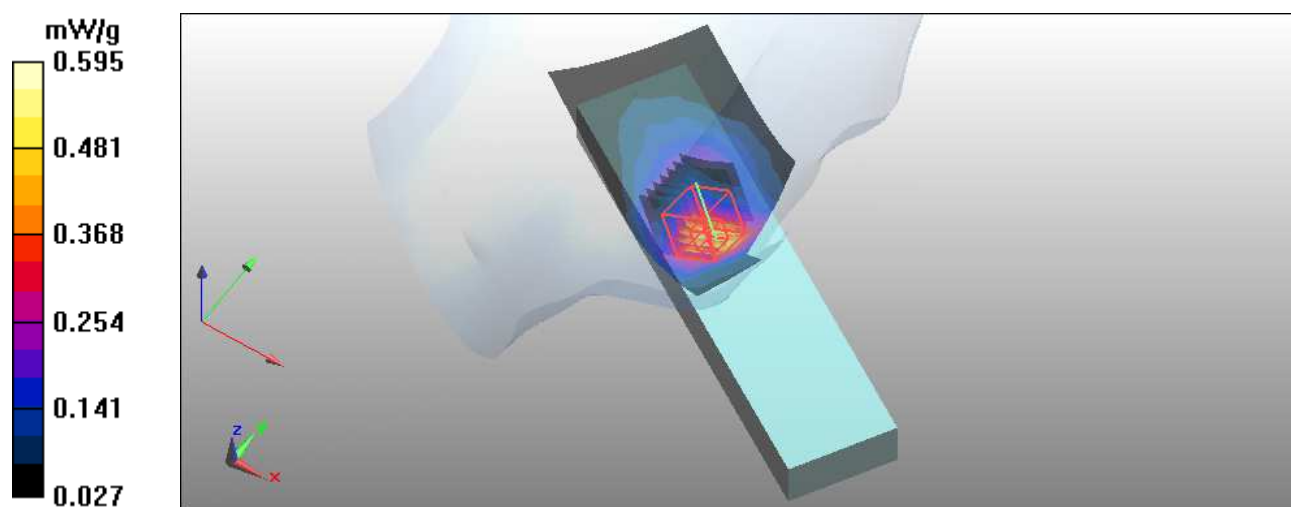
Low Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 5.36 V/m ; Power Drift = -0.180 dB

Peak SAR (extrapolated) = 0.701 W/kg

SAR(1 g) = **0.462 mW/g** ; SAR(10 g) = 0.276 mW/g

Maximum value of SAR (measured) = 0.595 mW/g



Test Laboratory: Bureau Veritas ADT

GSM1900 Left head Cheek-Ch661

DUT: Mobile Phone ; Type: F-02C

Communication System: GSM 1900 ; Frequency: 1880 MHz ; Duty Cycle: 1:8.3

Medium: HSL1900 Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.4 \text{ mho/m}$; $\epsilon_r = 40.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section ; DUT test position : Cheek ; Modulation type: GMSK

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(8.2, 8.2, 8.2); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

Mid Channel/Area Scan (6x16x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 0.568 mW/g

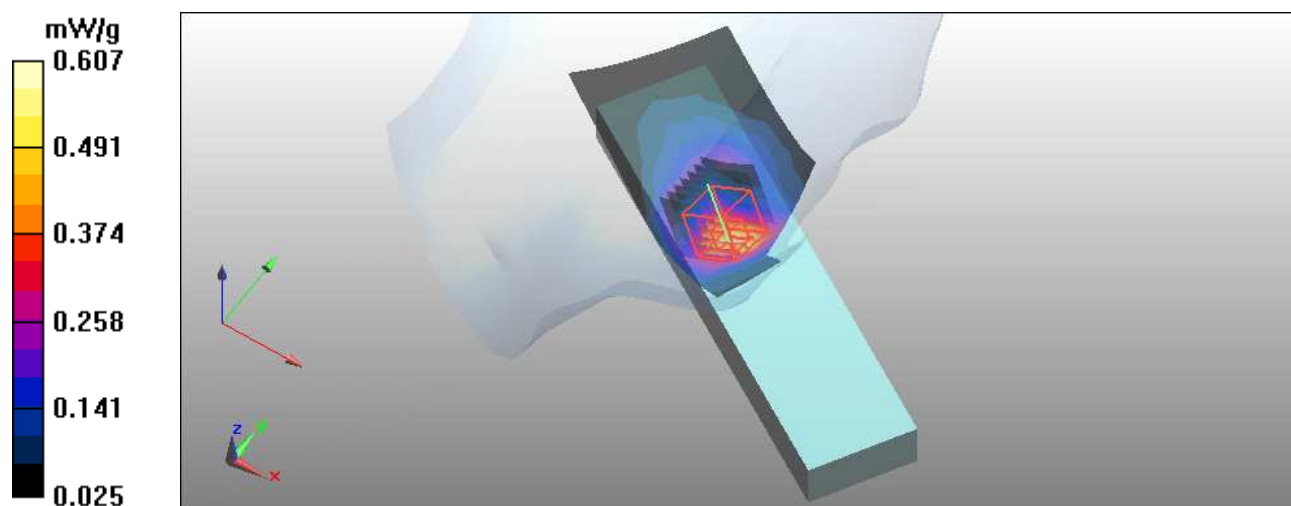
Mid Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 4.95 V/m ; Power Drift = 0.161 dB

Peak SAR (extrapolated) = 0.718 W/kg

SAR(1 g) = **0.467 mW/g** ; SAR(10 g) = 0.277 mW/g

Maximum value of SAR (measured) = 0.607 mW/g



Test Laboratory: Bureau Veritas ADT

GSM1900 Left head Cheek-Ch810

DUT: Mobile Phone ; Type: F-02C

Communication System: GSM 1900 ; Frequency: 1909.8 MHz ; Duty Cycle: 1:8.3

Medium: HSL1900 Medium parameters used: $f = 1909.8 \text{ MHz}$; $\sigma = 1.44 \text{ mho/m}$; $\epsilon_r = 40.6$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section ; DUT test position : Cheek ; Modulation type: GMSK

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(8.2, 8.2, 8.2); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

High Channel/Area Scan (6x16x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 0.602 mW/g

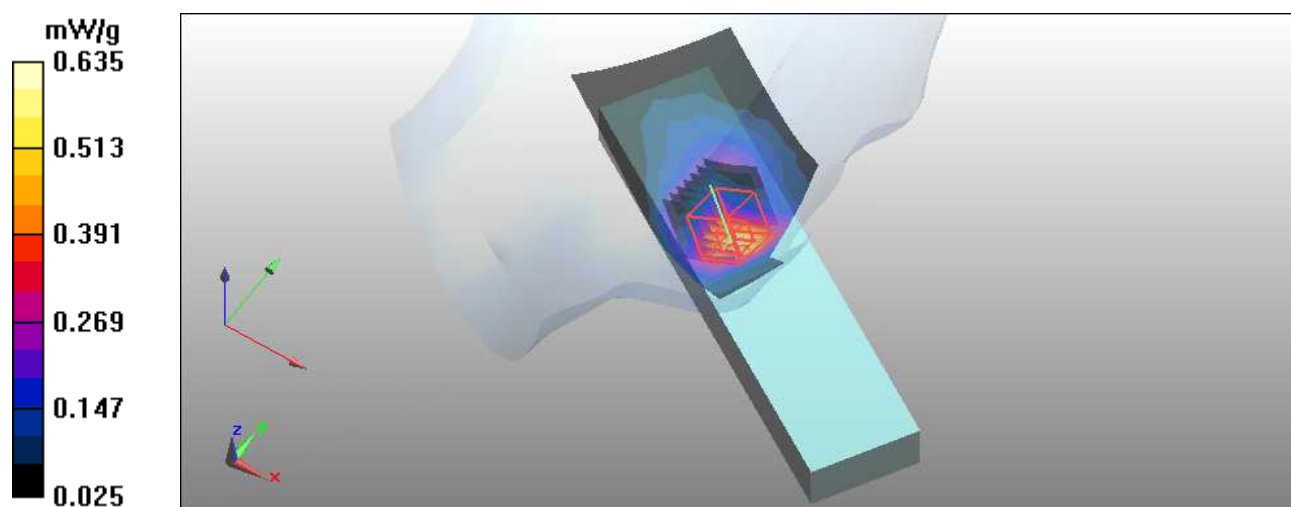
High Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 5.31 V/m; Power Drift = 0.183 dB

Peak SAR (extrapolated) = 0.761 W/kg

SAR(1 g) = **0.489 mW/g**; SAR(10 g) = 0.288 mW/g

Maximum value of SAR (measured) = 0.635 mW/g



Test Laboratory: Bureau Veritas ADT

GSM1900 Left head Tilt-Ch512

DUT: Mobile Phone ; Type: F-02C

Communication System: GSM 1900 ; Frequency: 1850.2 MHz ; Duty Cycle: 1:8.3

Medium: HSL1900 Medium parameters used: $f = 1850.2 \text{ MHz}$; $\sigma = 1.37 \text{ mho/m}$; $\epsilon_r = 40.8$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section ; DUT test position : Tilt ; Modulation type: GMSK

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(8.2, 8.2, 8.2); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

Low Channel/Area Scan (6x16x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.279 mW/g

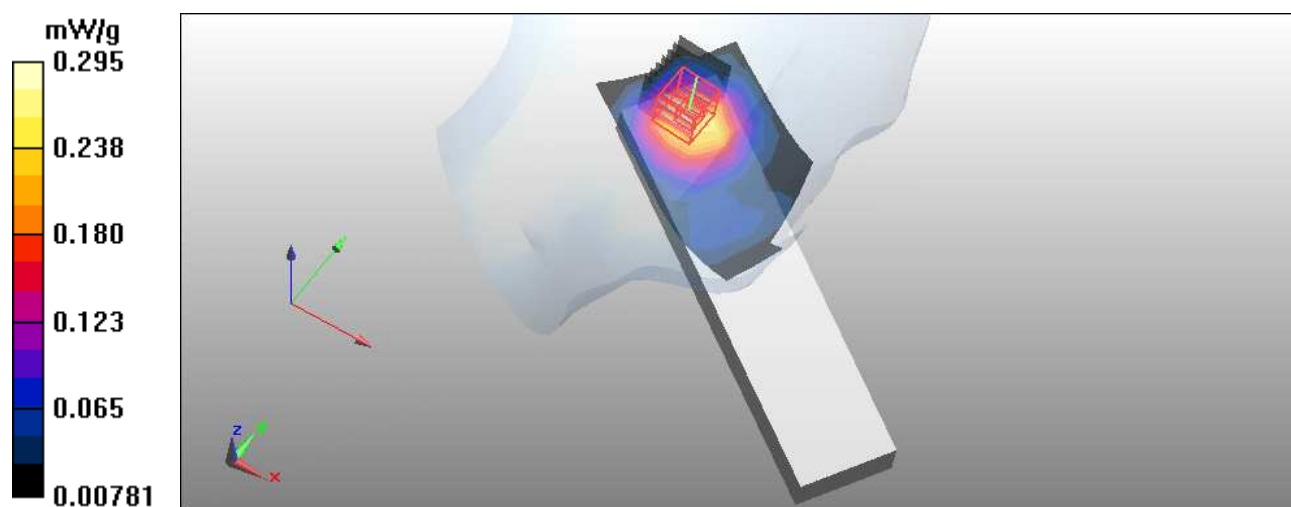
Low Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.7 V/m; Power Drift = -0.086 dB

Peak SAR (extrapolated) = 0.350 W/kg

SAR(1 g) = **0.238 mW/g**; SAR(10 g) = 0.149 mW/g

Maximum value of SAR (measured) = 0.295 mW/g



Test Laboratory: Bureau Veritas ADT

GSM1900 Left head Tilt-Ch661

DUT: Mobile Phone ; Type: F-02C

Communication System: GSM 1900 ; Frequency: 1880 MHz ; Duty Cycle: 1:8.3

Medium: HSL1900 Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.4 \text{ mho/m}$; $\epsilon_r = 40.7$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section ; DUT test position : Tilt ; Modulation type: GMSK

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(8.2, 8.2, 8.2); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

Mid Channel/Area Scan (6x16x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 0.295 mW/g

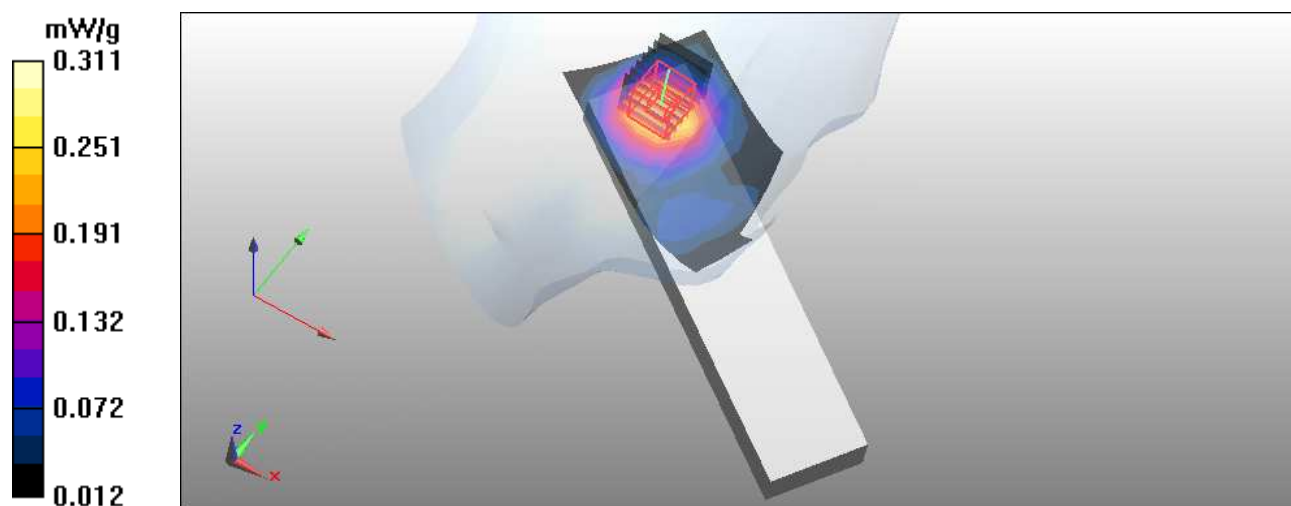
Mid Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 11.6 V/m; Power Drift = 0.033 dB

Peak SAR (extrapolated) = 0.364 W/kg

SAR(1 g) = **0.248 mW/g**; SAR(10 g) = 0.159 mW/g

Maximum value of SAR (measured) = 0.311 mW/g



Test Laboratory: Bureau Veritas ADT

GSM1900 Left head Tilt-Ch810

DUT: Mobile Phone ; Type: F-02C

Communication System: GSM 1900 ; Frequency: 1909.8 MHz ; Duty Cycle: 1:8.3

Medium: HSL1900 Medium parameters used: $f = 1909.8 \text{ MHz}$; $\sigma = 1.44 \text{ mho/m}$; $\epsilon_r = 40.6$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Left Section ; DUT test position : Tilt ; Modulation type: GMSK

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(8.2, 8.2, 8.2); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

High Channel/Area Scan (6x16x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 0.320 mW/g

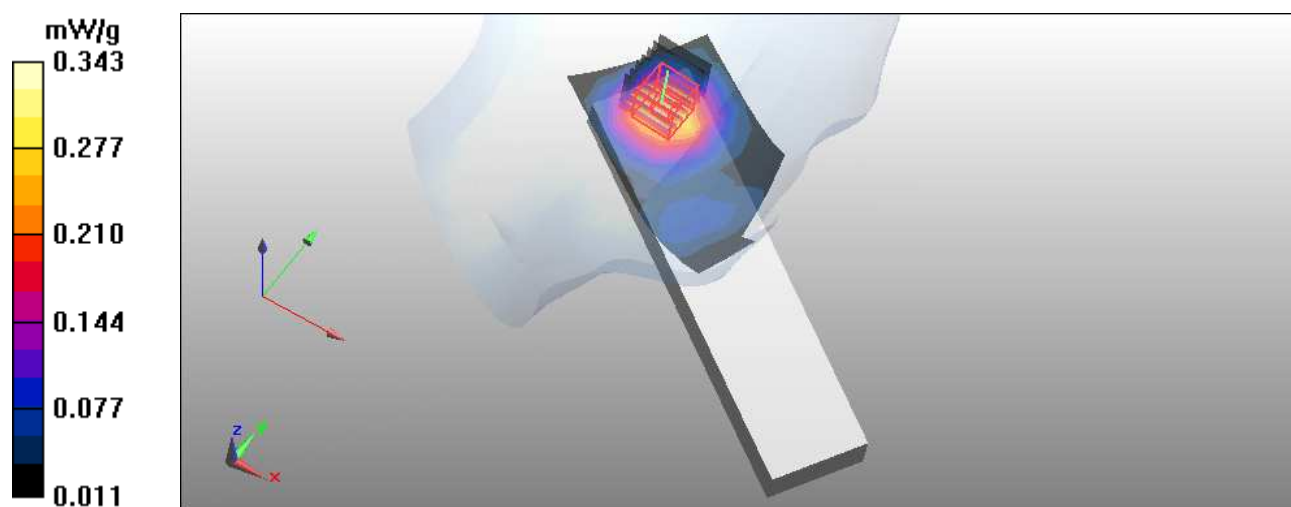
High Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 11.9 V/m ; Power Drift = 0.171 dB

Peak SAR (extrapolated) = 0.406 W/kg

SAR(1 g) = **0.271 mW/g** ; SAR(10 g) = 0.171 mW/g

Maximum value of SAR (measured) = 0.343 mW/g



Test Laboratory: Bureau Veritas ADT

GSM1900 Body Front-Ch661

DUT: Mobile Phone ; Type: F-02C

Communication System: GSM 1900 ; Frequency: 1880 MHz ; Duty Cycle: 1:8.3 ; Modulation type: GMSK

Medium: MSL1800 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.54$ mho/m; $\epsilon_r = 53.5$; $\rho = 1000$ kg/m³

Phantom section: Flat Section ; Separation distance : 15 mm (The front side of the EUT to the Phantom)

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(8.52, 8.52, 8.52); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

Mid Channel/Area Scan (6x11x1): Measurement grid: dx=15mm, dy=15mm

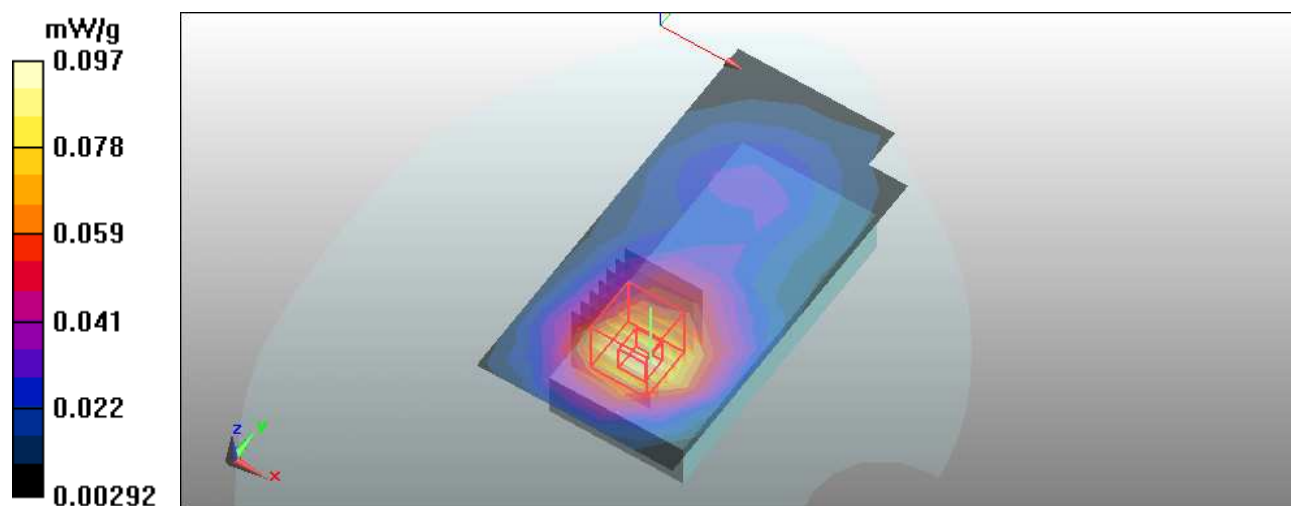
Maximum value of SAR (measured) = 0.097 mW/g

Mid Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 6.75 V/m; Power Drift = -0.023 dB

Peak SAR (extrapolated) = 0.120 W/kg

SAR(1 g) = **0.074** mW/g; SAR(10 g) = 0.045 mW/g



Test Laboratory: Bureau Veritas ADT

GSM1900 Body Bottom-512

DUT: Mobile Phone ; Type: F-02C

Communication System: GSM 1900 ; Frequency: 1850.2 MHz ; Duty Cycle: 1:8.3 ; Modulation type: GMSK

Medium: MSL1800 Medium parameters used: $f = 1850.2 \text{ MHz}$; $\sigma = 1.5 \text{ mho/m}$; $\epsilon_r = 53.6$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section ; Separation distance : 15 mm (The bottom side of the EUT to the Phantom)

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(8.52, 8.52, 8.52); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

Low Channel/Area Scan (6x11x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.243 mW/g

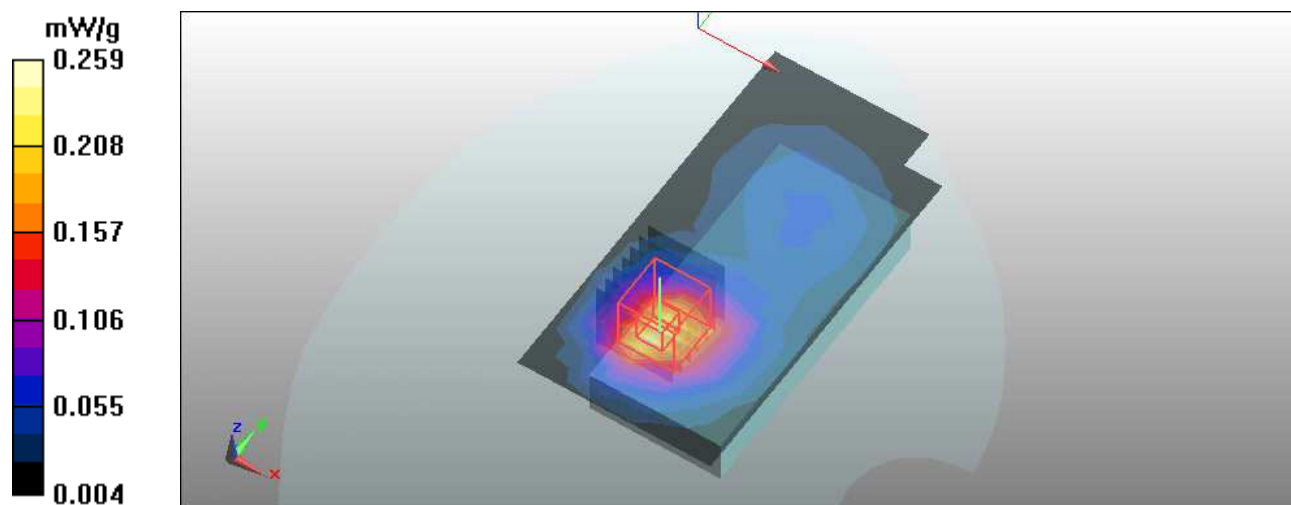
Low Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.43 V/m; Power Drift = 0.091 dB

Peak SAR (extrapolated) = 0.321 W/kg

SAR(1 g) = **0.193 mW/g**; SAR(10 g) = **0.109 mW/g**

Maximum value of SAR (measured) = 0.259 mW/g



Test Laboratory: Bureau Veritas ADT

GSM1900 Body Bottom-Ch661

DUT: Mobile Phone ; Type: F-02C

Communication System: GSM 1900 ; Frequency: 1880 MHz ; Duty Cycle: 1:8.3 ; Modulation type: GMSK

Medium: MSL1800 Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.54 \text{ mho/m}$; $\epsilon_r = 53.5$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section ; Separation distance : 15 mm (The bottom side of the EUT to the Phantom)

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(8.52, 8.52, 8.52); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

Mid Channel/Area Scan (6x11x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.257 mW/g

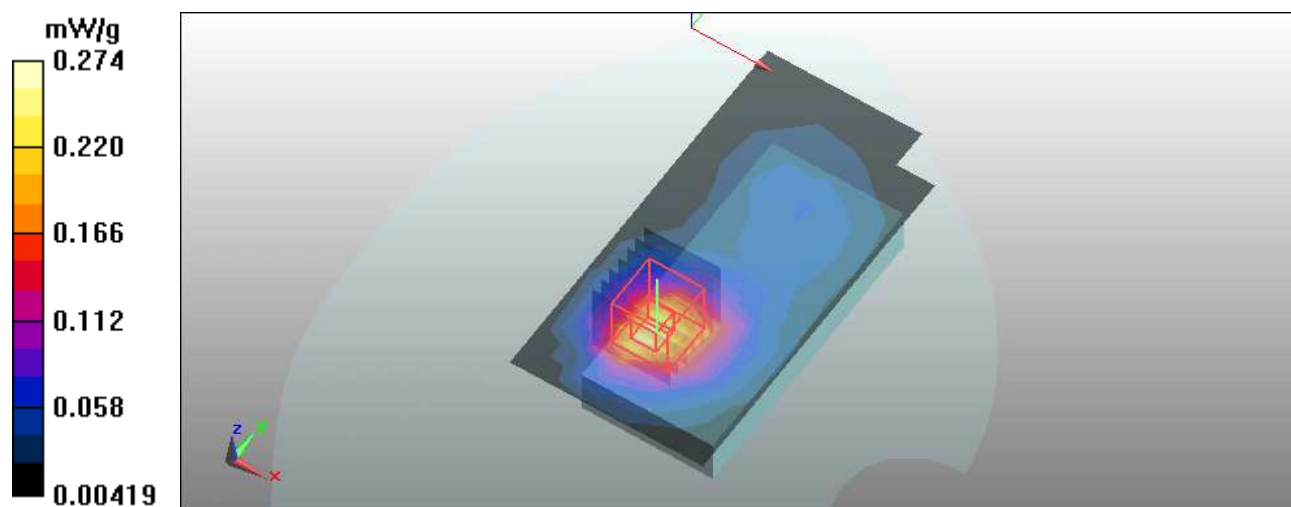
Mid Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.64 V/m; Power Drift = 0.068 dB

Peak SAR (extrapolated) = 0.342 W/kg

SAR(1 g) = **0.205 mW/g**; SAR(10 g) = 0.117 mW/g

Maximum value of SAR (measured) = 0.274 mW/g



Test Laboratory: Bureau Veritas ADT

GSM1900 Body Bottom-Ch810

DUT: Mobile Phone ; Type: F-02C

Communication System: GSM 1900 ; Frequency: 1909.8 MHz ; Duty Cycle: 1:8.3 ; Modulation type: GMSK

Medium: MSL1800 Medium parameters used: $f = 1909.8 \text{ MHz}$; $\sigma = 1.58 \text{ mho/m}$; $\epsilon_r = 53.4$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section ; Separation distance : 15 mm (The bottom side of the EUT to the Phantom)

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(8.52, 8.52, 8.52); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

High Channel/Area Scan (6x11x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.259 mW/g

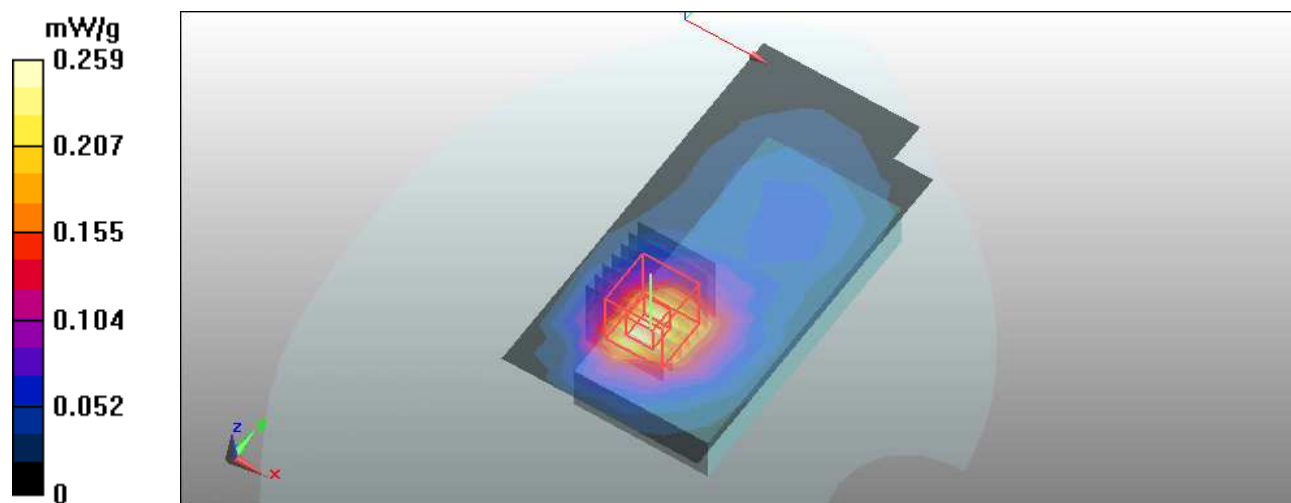
High Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.73 V/m; Power Drift = 0.059 dB

Peak SAR (extrapolated) = 0.344 W/kg

SAR(1 g) = 0.206 mW/g; SAR(10 g) = 0.117 mW/g

Maximum value of SAR (measured) = 0.276 mW/g



Test Laboratory: Bureau Veritas ADT

GPRS 1900 T1 Body Front-Ch661

DUT: Mobile Phone ; Type: F-02C

Communication System: GSM 1900 ; Frequency: 1880 MHz ; Duty Cycle: 1:8.3 ; Modulation type: GMSK

Medium: MSL1800 Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.54 \text{ mho/m}$; $\epsilon_r = 53.5$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section ; Separation distance : 15 mm (The front side of the EUT to the Phantom)

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(8.52, 8.52, 8.52); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

Mid Channel/Area Scan (6x11x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (measured) = 0.124 mW/g

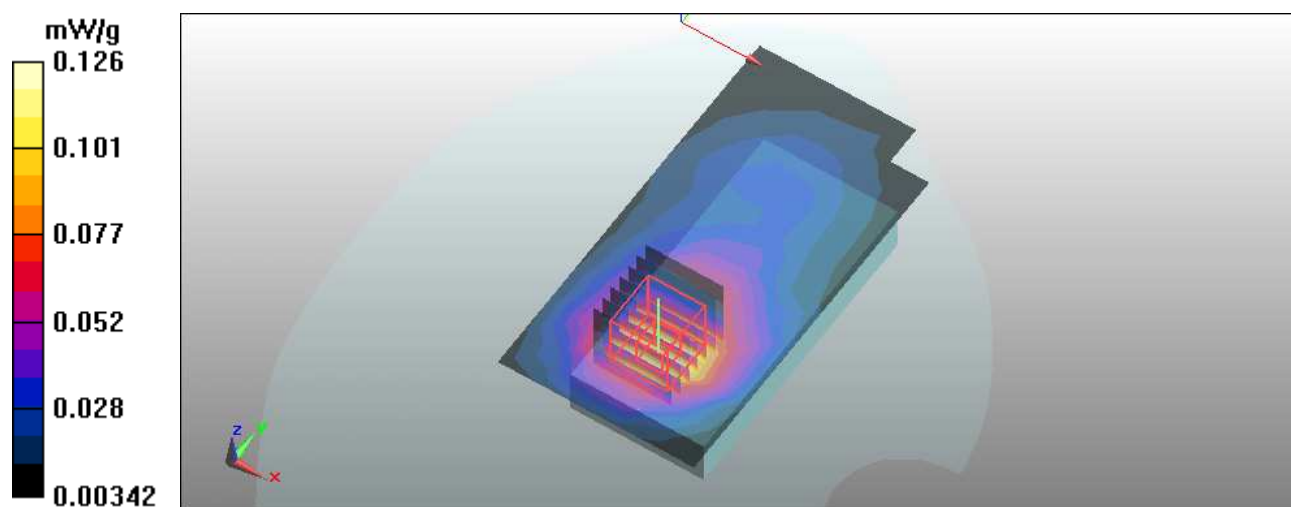
Mid Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 7.28 V/m; Power Drift = 0.024 dB

Peak SAR (extrapolated) = 0.156 W/kg

SAR(1 g) = **0.095 mW/g**; SAR(10 g) = 0.057 mW/g

Maximum value of SAR (measured) = 0.126 mW/g



Test Laboratory: Bureau Veritas ADT

GPRS 1900 T1 Body Bottom-Ch512

DUT: Mobile Phone ; Type: F-02C

Communication System: GSM 1900 ; Frequency: 1850.2 MHz ; Duty Cycle: 1:8.3 ; Modulation type: GMSK

Medium: MSL1800 Medium parameters used: $f = 1850.2 \text{ MHz}$; $\sigma = 1.5 \text{ mho/m}$; $\epsilon_r = 53.6$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section ; Separation distance : 15 mm (The bottom side of the EUT to the Phantom)

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(8.52, 8.52, 8.52); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

Low Channel/Area Scan (6x11x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.223 mW/g

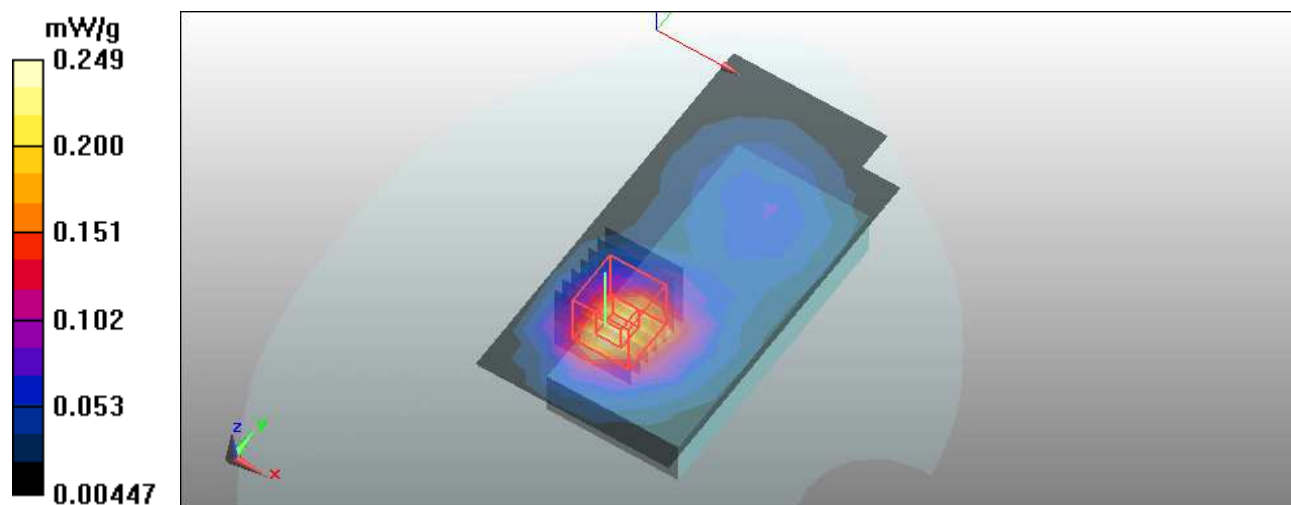
Low Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.86 V/m; Power Drift = 0.086 dB

Peak SAR (extrapolated) = 0.312 W/kg

SAR(1 g) = **0.187 mW/g**; SAR(10 g) = **0.107 mW/g**

Maximum value of SAR (measured) = 0.249 mW/g



Test Laboratory: Bureau Veritas ADT

GPRS 1900 T1 Body Bottom-Ch661

DUT: Mobile Phone ; Type: F-02C

Communication System: GSM 1900 ; Frequency: 1880 MHz ; Duty Cycle: 1:8.3 ; Modulation type: GMSK

Medium: MSL1800 Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.54 \text{ mho/m}$; $\epsilon_r = 53.5$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section ; Separation distance : 15 mm (The bottom side of the EUT to the Phantom)

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(8.52, 8.52, 8.52); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

Mid Channel/Area Scan (6x11x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.237 mW/g

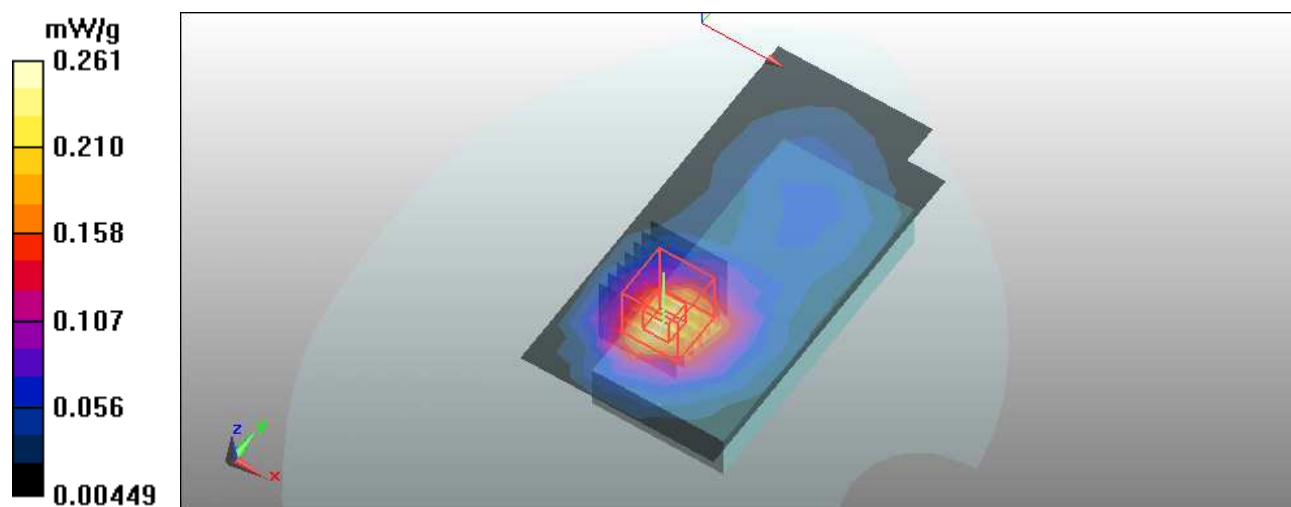
Mid Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.16 V/m; Power Drift = 0.035 dB

Peak SAR (extrapolated) = 0.325 W/kg

SAR(1 g) = **0.197 mW/g**; SAR(10 g) = 0.113 mW/g

Maximum value of SAR (measured) = 0.261 mW/g



Test Laboratory: Bureau Veritas ADT

GPRS 1900 T1 Body Bottom-Ch810

DUT: Mobile Phone ; Type: F-02C

Communication System: GSM 1900 ; Frequency: 1909.8 MHz ; Duty Cycle: 1:8.3 ; Modulation type: GMSK

Medium: MSL1800 Medium parameters used: $f = 1909.8 \text{ MHz}$; $\sigma = 1.58 \text{ mho/m}$; $\epsilon_r = 53.4$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section ; Separation distance : 15 mm (The bottom side of the EUT to the Phantom)

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(8.52, 8.52, 8.52); Calibrated: 2010/1/26
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

High Channel/Area Scan (6x11x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 0.237 mW/g

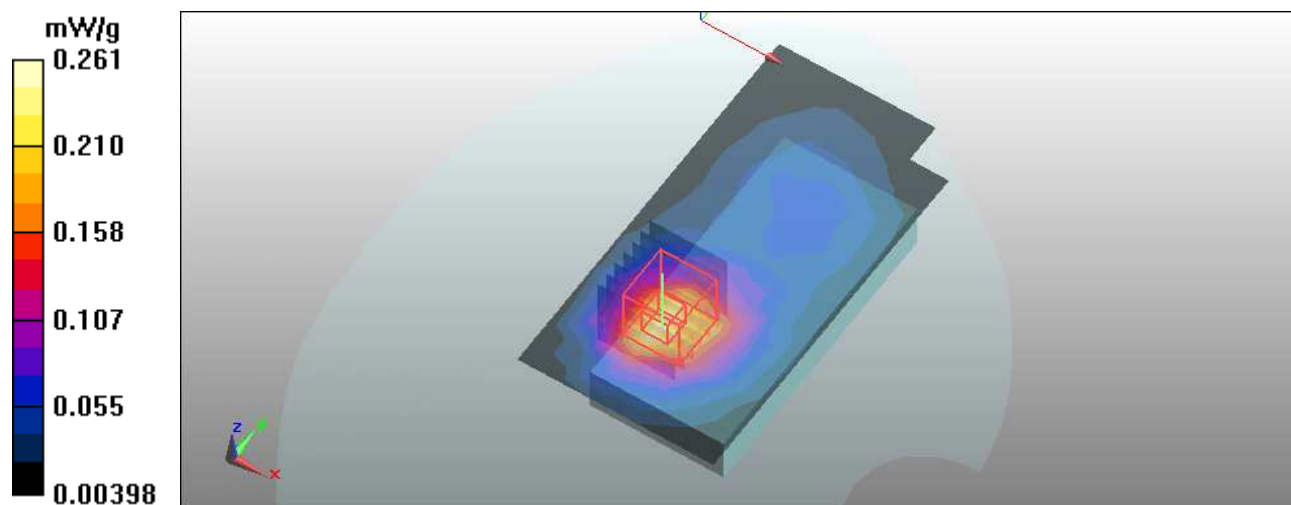
High Channel/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.22 V/m; Power Drift = -0.012 dB

Peak SAR (extrapolated) = 0.324 W/kg

SAR(1 g) = **0.194 mW/g**; SAR(10 g) = **0.111 mW/g**

Maximum value of SAR (measured) = 0.261 mW/g



Test Laboratory: Bureau Veritas ADT

System validation Check HSL850 835MHz

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

Communication System: CW ; Frequency: 835 MHz; Duty Cycle: 1:1; Modulation type: CW

Medium: HSL850; Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.89 \text{ mho/m}$; $\epsilon_r = 43.3$; $\rho = 1000 \text{ kg/m}^3$;

Liquid level : 151 mm

Phantom section: Flat Section ; Separation distance : 15 mm (The feetpoint of the dipole to the Phantom) Air temp. : 24 degrees ; Liquid temp. : 22.5 degrees

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(9.8, 9.8, 9.8); Calibrated: 2010/1/26
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

d=15mm, Pin=250 mW, dist=3.0mm (EX-Probe)/Area Scan (7x9x1): Measurement grid:

dx=15mm, dy=15mm

Maximum value of SAR (measured) = 2.21 mW/g

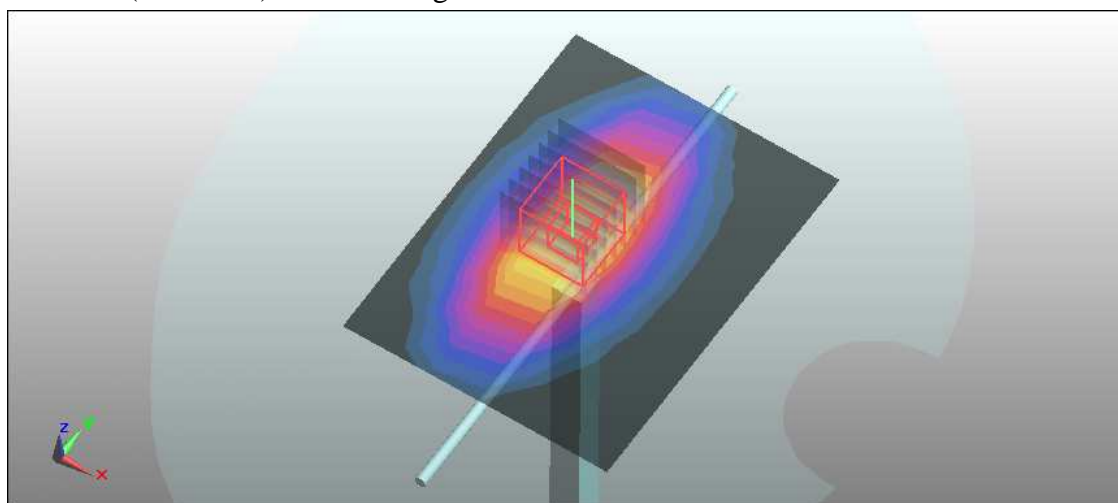
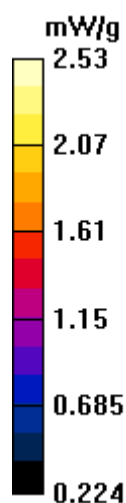
d=15mm, Pin=250 mW /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 48.3 V/m; Power Drift = -0.048 dB

Peak SAR (extrapolated) = 3.31 W/kg

SAR(1 g) = 2.27 mW/g; SAR(10 g) = 1.47 mW/g

Maximum value of SAR (measured) = 2.53 mW/g



Test Laboratory: Bureau Veritas ADT

System validation Check MSL850 835MHz

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

Communication System: CW ; Frequency: 835 MHz; Duty Cycle: 1:1; Modulation type: CW
Medium: MSL850; Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.97 \text{ mho/m}$; $\epsilon_r = 54.4$; $\rho = 1000 \text{ kg/m}^3$;
Liquid level : 150 mm
Phantom section: Flat Section ; Separation distance : 15 mm (The feetpoint of the dipole to the Phantom)
Air temp. : 24.1 degrees ; Liquid temp. : 22.5 degrees

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(9.83, 9.83, 9.83); Calibrated: 2010/1/26
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

d=15mm, Pin=250 mW /Area Scan (7x9x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 2.54 mW/g

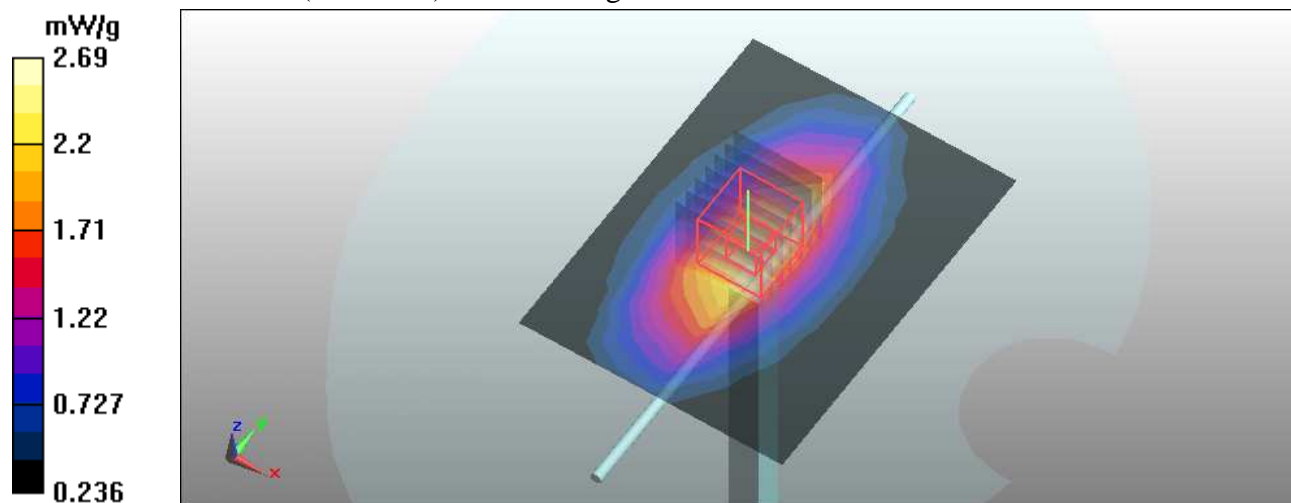
d=15mm, Pin=250 mW /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 47.3 V/m; Power Drift = 0.0068 dB

Peak SAR (extrapolated) = 3.48 W/kg

SAR(1 g) = 2.45 mW/g; SAR(10 g) = 1.59 mW/g

Maximum value of SAR (measured) = 2.69 mW/g



Test Laboratory: Bureau Veritas ADT

System validation Check HSL1900 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: $f = 1900 \text{ MHz}$; $\sigma = 1.41 \text{ mho/m}$; $\epsilon_r = 40.6$; $\rho = 1000 \text{ kg/m}^3$;

Liquid level : 152 mm

Phantom section: Flat Section ; Separation distance : 10 mm (The feetpoint of the dipole to the Phantom) Air temp. : 23.5 degrees ; Liquid temp. : 22.9 degrees

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(8.2, 8.2, 8.2); Calibrated: 2010/1/26
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

d=10mm, Pin=250 mW /Area Scan (7x7x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (measured) = 11.7 mW/g

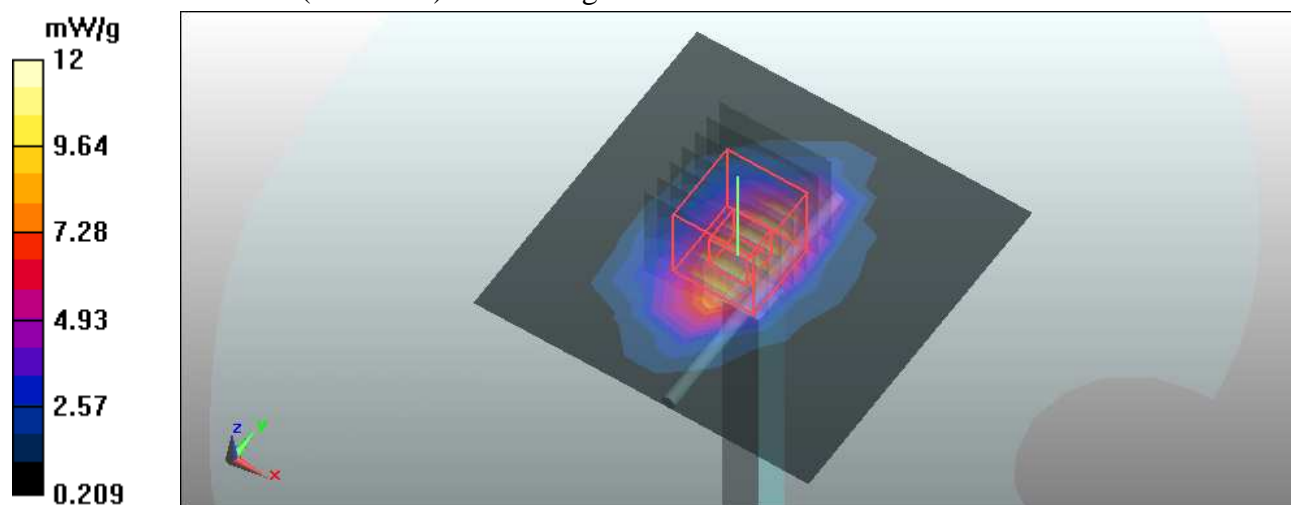
d=10mm, Pin=250 mW /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 93.7 V/m; Power Drift = -0.039 dB

Peak SAR (extrapolated) = 17.9 W/kg

SAR(1 g) = 9.86 mW/g; SAR(10 g) = 5.11 mW/g

Maximum value of SAR (measured) = 12 mW/g



Test Laboratory: Bureau Veritas ADT

System validation Check MSL1900 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: $f = 1900 \text{ MHz}$; $\sigma = 1.6 \text{ mho/m}$; $\epsilon_r = 53.2$; $\rho = 1000 \text{ kg/m}^3$;
Liquid level : 150 mm
Phantom section: Flat Section ; Separation distance : 10 mm (The feetpoint of the dipole to the Phantom)
Air temp. : 22 degrees ; Liquid temp. : 22.4 degrees

DASY5 Configuration:

- Probe: EX3DV3 - SN3504; ConvF(8.52, 8.52, 8.52); Calibrated: 2010/1/26
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn510; Calibrated: 2009/12/16
- Phantom: SAM with CRP; Type: SAM; Serial: TP-1485
- Measurement SW: DASY5, V5.2 Build 162; SEMCAD X Version 14.0 Build 61

d=10mm, Pin=250 mW /Area Scan (7x7x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (measured) = 11.6 mW/g

d=10mm, Pin=250 mW /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 92.2 V/m; Power Drift = 0.016 dB

Peak SAR (extrapolated) = 18.3 W/kg

SAR(1 g) = 10.12 mW/g; SAR(10 g) = 5.32 mW/g

Maximum value of SAR (measured) = 12.4 mW/g

