

SAR TEST REPORT

HCT CO., LTD

EUT Type:	USB Modem		
FCC ID:	JYCRAY		
Model:	UML290	Trade Name	Pantech
Date of Issue:	Oct. 25, 2010		
Test report No.:	HCTA1010FS03		
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Testing has been carried out in accordance with:	RSS-102 Issue 4; Health Canada Safety Code 6 47CFR §2.1093 FCC OET Bulletin 65 (Edition 97-01), Supplement C (Edition 01-01) ANSI/ IEEE C95.1 – 1992 IEEE 1528-2003		
Test result:	The tested device complies with the requirements in respect of all parameters subject to the test. The test results and statements relate only to the items tested. The test report shall not be reproduced except in full, without written approval of the laboratory.		
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1. INTRODUCTION

The FCC has adopted the guidelines for evaluating the environmental effects of radio frequency radiation in ET Docket 93-62 on Aug. 6, 1996 to protect the public and workers from the potential hazards of RF emissions due to FCC-regulated portable devices.

The safety limits used for the environmental evaluation measurements are based on the criteria published by the American National Standards Institute (ANSI) for localized specific absorption rate (SAR) in IEEE/ANSI C95.1-1992 Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz. 1992 by the Institute of Electrical and Electronics Engineers, Inc., New York, New York 10017. The measurement procedure described in IEEE/ANSI C95.3-1992 Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave is used for guidance in measuring SAR due to the RF radiation exposure from the Equipment Under Test (EUT). These criteria for SAR evaluation are similar to those recommended by the National Council on Radiation Protection and Measurements (NCRP) in Biological Effects and Exposure Criteria for Radio frequency Electromagnetic Fields," NCRP Report No. 86 NCRP, 1986, Bethesda, MD 20814. SAR is a measure of the rate of energy absorption due to exposure to an RF transmitting source. SAR values have been related to threshold levels for potential biological hazards.

SAR Definition

Specific Absorption Rate (SAR) is defined as the time derivative of the incremental electromagnetic energy (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dV) of a given density (ρ). It is also defined as the rate of RF energy absorption per unit mass at a point in an absorbing body.

$$SAR = \frac{d}{dt} \left(\frac{dU}{dm} \right) = \frac{d}{dt} \left(\frac{dU}{\rho dV} \right)$$

Figure 2. SAR Mathematical Equation

SAR is expressed in units of Watts per Kilogram (W/kg).

$$SAR = \sigma E^2 / \rho$$

where:

σ	=	conductivity of the tissue-simulant material (S/m)
ρ	=	mass density of the tissue-simulant material (kg/m ³)
E	=	Total RMS electric field strength (V/m)

NOTE: The primary factors that control rate of energy absorption were found to be the wavelength of the incident field in relations to the dimensions and geometry of the irradiated organism, the orientation of the organism in relation to the polarity of field vectors, the presence of reflecting surfaces, and whether conductive contact is made by the organism with a ground plane.

2. DESCRIPTION OF DEVICE

Environmental evaluation measurements of specific absorption rate (SAR) distributions in emulated human head and body tissues exposed to radio frequency (RF) radiation from wireless portable devices for compliance with the rules and regulations of the U.S. Federal Communications Commission (FCC).

EUT Type	USB Modem		
FCC ID	JYCRAY	Model(s)	UML290
Trade Name	Pantech	Serial Number(s)	#1
Application Type	Certification		
Operation Band(s)	CDMA835/PCS1900/GSM850/GSM1900/WCDMA850/WCDMA1900/LTE		
Tx Frequency	824.70 - 848.31 MHz (CDMA835) 824.20 - 848.80 MHz (GSM850) 826.4 - 846.6 MHz (WCDMA850) 1 851.25 – 1 908.75 MHz (PCS CDMA) 1 850.20 – 1 909.80 MHz (GSM1900) 1 852.4 – 1 907.6 MHz (WCDMA1900) 777 – 787 MHz (LTE)		
Rx Frequency	869.70 - 893.31 MHz (CDMA) 869.20 - 893.80 MHz (GSM850) 871.4 - 891.6 (WCDMA850) 1 931.25 – 1 988.75 MHz (PCS CDMA) 1 930.20 – 1 989.80 MHz (GSM1900) 1 932.4 – 1 987.6 MHz (WCDMA1900) 746 – 756 MHz (LTE)		
FCC Classification	PCS Licensed Transmitter (PCB)		
Production Unit or Identical Prototype	Prototype		
Max. SAR	0.696 W/kg CDMA835 Body SAR 1.02 W/kg PCS1900 Body SAR 0.539 W/kg GSM850 Body SAR 1.03 W/kg GSM1900 Body SAR 0.569 W/kg WCDMA850 Body SAR 0.989 W/kg WCDMA1900 Body SAR 1.15 W/kg LTE Body SAR		
Date(s) of Tests	Sep.10, 2010/ Oct.4, 2010 ~ Oct.9, 2010/ Oct.19, 2010		
Antenna Type	Intenna		
Key function(s):	EVDO Rev.A, GPRS/EDGE Class12, HSDPA, HSUPA		

Characteristics and Capabilities for LTE

UE Category	3
Power Class	UE Power Class 3
Modulation	QPSK/16QAM
Channel Band width	10 MHz
Frequency Band	3GPP Band 13, UL(777MHz-787MHz), DL(746MHz-756MHz)
Voice & Data mode	Data Only
Reference	June 2010 Verizon Requirements, 3GPP TS 36.101 v9.4.0

Note;

This device is not support simultaneous transmission.

- UE Category: The field UE Category defines a combined uplink and downlink capability.

UE Category	Peak Data Rate (Mbps)	
	DL	UL
1	10	5
2	50	25
3	100	50
4	150	50
5	300	75

3. DESCRIPTION OF TEST EQUIPMENT

3.1 SAR MEASUREMENT SETUP

These measurements are performed using the DASY4 automated dosimetric assessment system. It is made by Schmid & Partner Engineering AG (SPEAG) in Zurich, Switzerland. It consists of high precision robotics system (Staubli), robot controller, Pentium III computer, near-field probe, probe alignment sensor, and the generic twin phantom containing the brain equivalent material. The robot is a six-axis industrial robot performing precise movements to position the probe to the location (points) of maximum electromagnetic field (EMF) (see Figure.3.1).

A cell controller system contains the power supply, robot controller, teach pendant (Joystick), and remote control, is used to drive the robot motors. The PC consists of the HP Pentium IV 3.0 GHz computer with Windows XP system and SAR Measurement Software DASY4, A/D interface card, monitor, mouse, and keyboard. The Staubli Robot is connected to the cell controller to allow software manipulation of the robot. A data acquisition electronic (DAE) circuit performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. is connected to the Electro-optical coupler (EOC). The EOC performs the conversion from the optical into digital electric signal of the DAE and transfers data to the PC plug-in card.

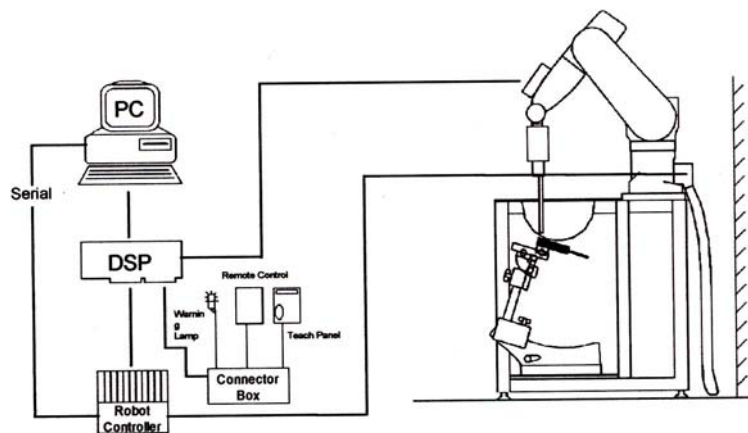


Figure 3.1 HCT SAR Lab. Test Measurement Set-up

The DAE4 consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the PC-card is accomplished through an optical downlink for data and status information and an optical uplink for commands and clock lines. The mechanical probe mounting device includes two different sensor systems for frontal and sidewise probe contacts. They are also used for mechanical surface detection and probe collision detection. The robot uses its own controller with a built in VME-bus computer. The system is described in detail in.

3.2 DASY E-FIELD PROBE SYSTEM

3.2.1 ES3DV6 Probe Specification

Construction	Symmetrical design with triangular core Built-in optical fiber for surface detection System Built-in shielding against static charges
Calibration	In air from 10 MHz to 2.5 GHz In brain and muscle simulating tissue at Frequencies of 450 MHz, 900 MHz and 1.8 GHz (accuracy: 8 %)
Frequency	10 MHz to > 6 GHz; Linearity: ± 0.2 dB (30 MHz to 3 GHz)
Directivity	± 0.2 dB in brain tissue (rotation around probe axis) ± 0.4 dB in brain tissue (rotation normal probe axis)
Dynamic	5 μ W/g to > 100 mW/g;
Range Linearity:	± 0.2 dB
Surface Detection	± 0.2 mm repeatability in air and clear liquids over diffuse reflecting surfaces.
Dimensions	Overall length: 330 mm Tip length: 16 mm Body diameter: 12 mm Tip diameter: 6.8 mm Distance from probe tip to dipole centers: 2.7 mm
Application	General dissymmetry up to 3 GHz Compliance tests of mobile phones Fast automatic scanning in arbitrary phantoms

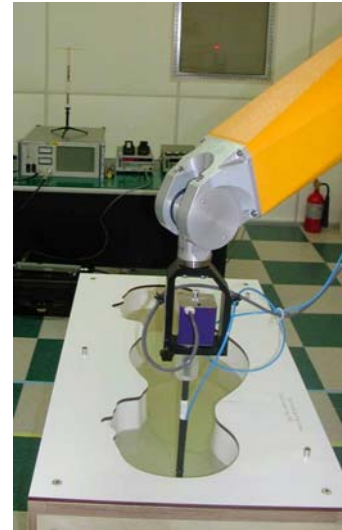


Figure 3.2 Photograph of the probe and the Phantom



Figure 3.3 ET3DV6 E-field Probe

The SAR measurements were conducted with the dosimetric probe ET3DV6, designed in the classical triangular configuration and optimized for dosimetric evaluation. The probe is constructed using the thick film technique; with printed resistive lines on ceramic substrates. The probe is equipped with an optical multifiber line ending at the front of the probe tip. It is connected to the EOC box on the robot arm and provides an automatic detection of the phantom surface. Half of the fibers are connected to a pulsed infrared transmitter, the other half to a synchronized receiver. As the probe approaches the surface, the reflection from the surface produces a coupling from the transmitting to the receiving fibers. This reflection increases first during the approach, reaches a maximum and then decreases. If the probe is flatly touching the surface, the coupling is zero. The distance of the coupling maximum to the surface is independent of the surface reflectivity and largely independent of the surface to probe angle. The DASY4 software reads the reflection during a software approach and looks for the maximum using a 2nd order fitting. The approach is stopped at reaching the maximum.

3.3 PROBE CALIBRATION PROCESS

3.3.1 E-Probe Calibration

Each probe is calibrated according to a dosimetric assessment procedure with an accuracy better than $\pm 10\%$. The spherical isotropy was evaluated with the proper procedure and found to be better than ± 0.25 dB. The sensitivity parameters (NormX, NormY, NormZ), the diode compression parameter (DCP) and the conversion factor (ConvF) of the probe is tested.

The free space E-field from amplified probe outputs is determined in a test chamber. This is performed in a TEM cell for frequencies below 1 GHz, and in a waveguide above 1 GHz for free space. For the free space calibration, the probe is placed in the volumetric center of the cavity and at the proper orientation with the field. The probe is then rotated 360 degrees.

E-field temperature correlation calibration is performed in a flat phantom filled with the appropriate simulated brain tissue. The measured free space E-field in the medium correlates to temperature rise in a dielectric medium. For temperature correlation calibration a RF transparent thermistor-based temperature probe is used in conjunction with the E-field probe.

$$SAR = C \frac{\Delta T}{\Delta t}$$

where:

Δt = exposure time (30 seconds),

C = heat capacity of tissue (brain or muscle),

ΔT = temperature increase due to RF exposure.

SAR is proportional to $\Delta T / \Delta t$, the initial rate of tissue heating, before thermal diffusion takes place. Now it's possible to quantify the electric field in the simulated tissue by equating the thermally derived SAR to the E-field;

$$SAR = \frac{|E|^2 \cdot \sigma}{\rho}$$

where:

σ = simulated tissue conductivity,

ρ = Tissue density (1.25 g/cm³ for brain tissue)

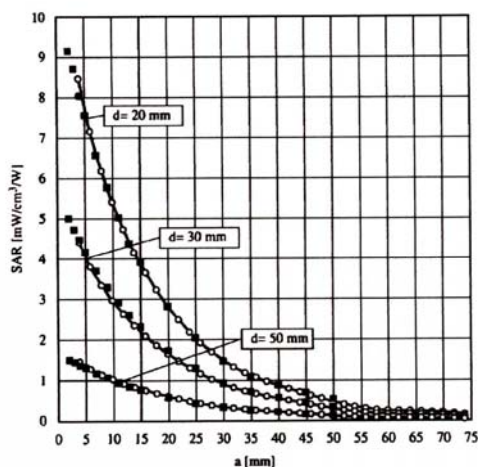


Figure 3.4 E-Field and Temperature measurements at 900 MHz

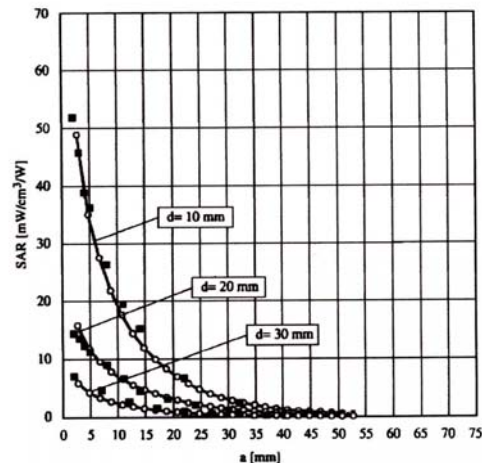


Figure 3.5 E-Field and temperature measurements at 1.8 GHz

3.3.2 Data Extrapolation

The DASY4 software automatically executes the following procedures to calculate the field units from the microvolt readings at the probe connector. 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 like below;

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

with 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:

E-field probes:

$$E_i = \sqrt{\frac{V_i}{Norm_i \cdot ConvF}}$$

with V_i = compensated signal of channel i (i = x,y,z)
 $Norm_i$ = sensor sensitivity of channel i (i = x,y,z)
 $\mu V/(V/m)^2$ for E-field probes
 $ConvF$ = sensitivity of enhancement in solution
 E_i = electric field strength of channel i in V/m

The RSS value of the field components gives the total field strength (Hermetian 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.

$$SAR = E_{tot}^2 \cdot \frac{\sigma}{\rho \cdot 1000}$$

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

The power flow density is calculated assuming the excitation field to be a free space field.

$$P_{free} = \frac{E_{tot}^2}{3770}$$

with P_{pwe} = equivalent power density of a plane wave in W/cm²
 E_{tot} = total electric field strength in V/m

3.4 SAM Phantom

The SAM Phantom is constructed of a fiberglass shell integrated in a wooden table. The shape of the shell is based on data from an anatomical study designed to determine the maximum exposure in at least 90 % of all users. 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 the 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 in the robot.

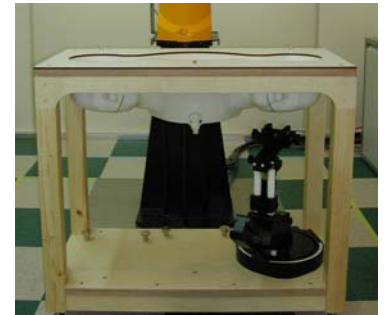


Figure 3.6 SAM Phantom

Shell Thickness	2.0 mm
Filling Volume	about 30 L
Dimensions	810 mm x 1 000 mm x 500 mm (H x L x W)

3.5 Device Holder for Transmitters

In combination with the SAM Phantom V 4.0, the Mounting Device (POM) enables the rotation of the mounted transmitter in spherical coordinates whereby the rotation points is the ear opening. The devices can be easily, accurately, and repeatably positioned according to the FCC and CENELEC specifications. The device holder can be locked at different phantom locations (left head, right head, flat phantom).

Note: A simulating human hand is not used due to the complex anatomical and geometrical structure of the hand that may produced infinite number of configurations. To produce the Worst-case condition (the hand absorbs antenna output power), the hand is omitted during the tests.



Figure 3.7 Device Holder

3.6 Brain & Muscle Simulating Mixture Characterization

The brain and muscle mixtures consist of a viscous gel using hydrox-ethyl cellulose (HEC) gelling agent and saline solution (see Table 3.1). Preservation with a bacteriacide is added and visual inspection is made to make sure air bubbles are not trapped during the mixing process. The mixture is calibrated to obtain proper dielectric constant (permittivity) and conductivity of the desired tissue. The mixture characterizations used for the brain and muscle tissue simulating liquids are according to the data by C. Gabriel and G. Hartsgrrove.

Ingredients (% by weight)	Frequency (MHz)										
	450		750	835		915		1 900		2 450	
Tissue Type	Head	Body	Body	Head	Body	Head	Body	Head	Body	Head	Body
Water	38.56	51.16	54.7	41.45	52.4	41.05	56.0	54.9	40.4	62.7	73.2
Salt (NaCl)	3.95	1.49	1.38	1.45	1.4	1.35	0.76	0.18	0.5	0.5	0.04
Sugar	56.32	46.78	42.8	56.0	45.0	56.5	41.76	0.0	58.0	0.0	0.0
HEC	0.98	0.52	1.0	1.0	1.0	1.0	1.21	0.0	1.0	0.0	0.0
Bactericide	0.19	0.05	0.1	0.1	0.1	0.1	0.27	0.0	0.1	0.0	0.0
Triton X-100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.8	0.0
DGBE	0.0	0.0	0.0	0.0	0.0	0.0	0.0	44.92	0.0	0.0	26.7

Salt:	99 % Pure Sodium Chloride	Sugar:	98 % Pure Sucrose
Water:	De-ionized, 16M resistivity	HEC:	Hydroxyethyl Cellulose
DGBE:	99 % Di(ethylene glycol) butyl ether,[2-(2-butoxyethoxy) ethanol]		
Triton X-100(ultra pure):	Polyethylene glycol mono[4-(1,1,3,3-tetramethylbutyl)phenyl] ether		

Table 3.1 Composition of the Tissue Equivalent Matter

3.7 SAR TEST EQUIPMENT

Manufacturer	Type / Model	S/N	Calib. Date	Calib.Interval	Calib.Due
SPEAG	SAM Phantom	-	N/A	N/A	N/A
Staubli	Robot RX90L	F01/5K09A1/A/01	N/A	N/A	N/A
Staubli	Robot ControllerCS7MB	F99/5A82A1/C/01	N/A	N/A	N/A
HP	Pavilion t000_puffer	KRJ51201TV	N/A	N/A	N/A
SPEAG	Light Alignment Sensor	265	N/A	N/A	N/A
Staubli	Teach Pendant (Joystick)	D221340.01	N/A	N/A	N/A
SPEAG	DAE3	466	July 21, 2010	Annual	July 21, 2011
SPEAG	E-Field Probe ET3DV6	1798	Feb. 23, 2010	Annual	Feb. 23, 2011
SPEAG	E-Field Probe ET3DV6	1630	May 25, 2010	Annual	May 25, 2011
SPEAG	E-Field Probe ES3DV3	3161	Mar 22, 2010	Annual	Mar 22, 2011
SPEAG	Validation Dipole D450V2	1007	July 15, 2010	Biennial	July 15, 2012
SPEAG	Validation Dipole D750V3	1014	July 21, 2010	Biennial	July 21, 2012
SPEAG	Validation Dipole D835V2	441	May 21, 2010	Annual	May 21, 2011
SPEAG	Validation Dipole D900V2	130	Aug. 23, 2010	Annual	Aug. 23, 2011
SPEAG	Validation Dipole D1800V2	2d006	Apr. 20, 2010	Biennial	Apr. 20, 2012
SPEAG	Validation Dipole D1900V2	5d032	July 16, 2010	Annual	July 16, 2011
SPEAG	Validation Dipole D2450V2	743	Aug. 25, 2010	Biennial	Aug. 27, 2012
Agilent	Power Meter(F) E4419B	MY41291386	Nov. 05, 2009	Annual	Nov. 05, 2010
Agilent	Power Sensor(G) 8481	MY41090870	Nov. 05, 2009	Annual	Nov. 05, 2010
HP	Dielectric Probe Kit 85070C	00721521	N/A	N/A	N/A
HP	Dual Directional Coupler	16072	Nov. 05, 2009	Annual	Nov. 05, 2010
R&S	Base Station CMU200	110740	July 26, 2010	Annual	July 26, 2011
Agilent	Base Station E5515C	GB44400269	Feb. 10, 2010	Annual	Feb. 10, 2011
HP	Signal Generator E4438C	MY42082646	Dec. 24, 2009	Annual	Dec. 24, 2010
HP	Network Analyzer 8753C	3310J01394	Dec. 04, 2009	Annual	Dec. 04, 2010
R&S	CMW500	100990	Aug.13, 2010	Annual	Aug.13, 2011

NOTE:

The E-field probe was calibrated by SPEAG, by the waveguide technique procedure. Dipole Validation measurement is performed by HCT Lab. before each test. The brain simulating material is calibrated by HCT using the dielectric probe system and network analyzer to determine the conductivity and permittivity (dielectric constant) of the brain-equivalent material.

4. SAR MEASUREMENT PROCEDURE

The evaluation was performed with the following procedure:

1. The SAR value at a fixed location above the ear point was measured and was used as a reference value for assessing the power drop.
2. The SAR distribution at the exposed side of the device was measured at a distance of 3.0 mm from the inner surface of the shell. The area covered the entire dimension of the device and the horizontal grid spacing was 15 mm x 15 mm. Based on this data, the area of the maximum absorption was determined by spline interpolation.
3. Around this point, a volume of 30 mm x 30 mm x 30 mm was assessed by measuring 7 x 7 x 7 points. On this basis of this data set, the spatial peak SAR value was evaluated with the following procedure:
 - a. The data at the surface were extrapolated, since the center of the dipoles is 2.7 mm away from the tip of the probe and the distance between the surface and the lowest measuring point is 1.2 mm. The extrapolation was based on a least square algorithm. A polynomial of the fourth order was calculated through the points in z-axes. This polynomial was then used to evaluate the points between the surface and the probe tip.
 - b. The maximum interpolated value was searched with a straight-forward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1 g or 10 g) were computed using the 3D-Spline interpolation algorithm. The 3D-spline is composed of three one-dimensional splines with the "Not a knot" condition (in x, y, and z directions. The volume was integrated with the trapezoidal algorithm. One thousand points (10 x 10 x 10) were interpolated to calculate the average.
 - c. All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.
4. The SAR value, at the same location as procedure #1, was re-measured. If the value changed by more than 5 %, the evaluation is repeated.

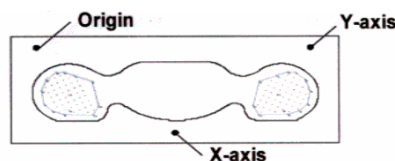


Figure 4.1 SAR Measurement Point in Area Scan

5. DESCRIPTION OF TEST POSITION

The device is a USB Dongle for Body SAR. In all cases SAR measurements are performed to investigate the worst-case positioning. Worstcase positioning is then documented and used to perform Body SAR testing.

5.1 Body Test Configurations

According to KDB 447498, the device that can be connected to a host through a cable must be tested with the device positioned in all applicable orientations against the flat phantom. And a separation distance ≤ 0.5 cm is required for USB-dongle transmitters.

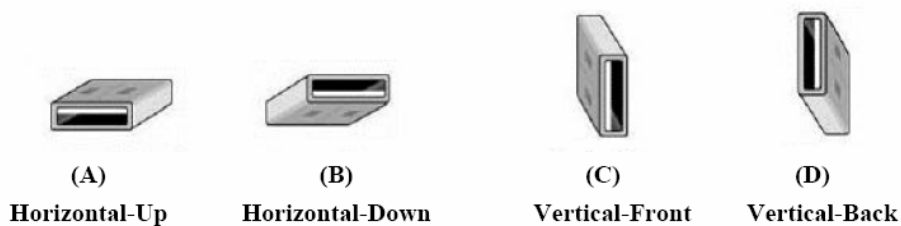


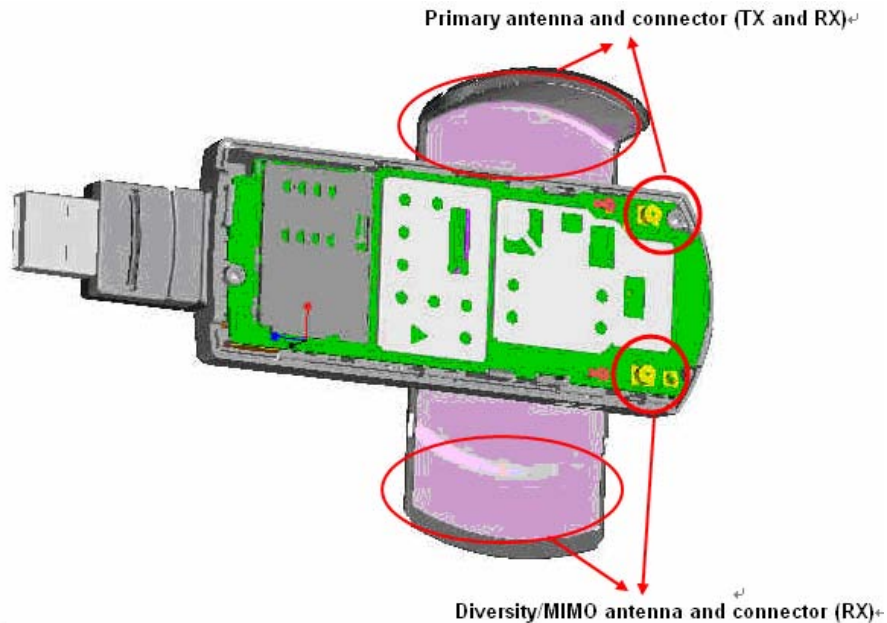
Figure 5.1 USB Connector Orientations Implemented on Laptop Computers

Therefore, the EUT was tested in following orientations;

- 1) **Configuration 1:** Front side of the EUT was tested with the **direct-connection** to the host device with **Horizontal-Up (A)**, and separation distance between EUT and Phantom is 5 mm.
- 2) **Configuration 2:** Back side of the EUT was connected to the host device with **Horizontal-Down (B)** using a **USB cable**, and separation distance between EUT and Phantom is 5 mm.
- 3) **Configuration 3:** Right side of the EUT was connected to the host device with **Vertical-Front (C)** using a **USB cable**, and separation distance between EUT and Phantom is 5 mm.
- 4) **Configuration 4:** Left side of the EUT was tested with the **direct-connection** to the host device with **Vertical-Back (D)**, and separation distance between EUT and Phantom is 5 mm.
- 5) **Configuration 5:** **Top** side of the EUT was tested with the **direct-connection** to the host device, and separation distance between EUT and Phantom is 5 mm.

Note;

This USB cable was used to operate this unit in the highest RF performance capability for SAR testing. It has a swivel Antenna. The device was positioned in accordance with KDB Inquiry 795339 during SAR testing.



Antenna Open Configuration;

Tip of the dongle SAR is not required since the antenna is not located near the tip.

Therefore, Vertical-Front, Vertical-Back, Horizontal-Up and Horizontal-Down position were measured.

Antenna Closed Configuration;

Vertical-Front, Vertical-Back, Horizontal-Up, Horizontal-Down position and Tip position were measured.

6. MEASUREMENT UNCERTAINTY

Error Description	Tol ($\pm$ %)	Prob. dist.	Div.	c_i	Standard Uncertainty ($\pm$ %)	v_{eff}
1. Measurement System						
Probe Calibration	5.50	N	1	1	5.50	∞
Axial Isotropy	4.70	R	1.73	0.7	1.90	∞
Hemispherical Isotropy	9.60	R	1.73	0.7	3.88	∞
Boundary Effects	1.00	R	1.73	1	0.58	∞
Linearity	4.70	R	1.73	1	2.71	∞
System Detection Limits	1.00	R	1.73	1	0.58	∞
Readout Electronics	0.30	N	1.00	1	0.30	∞
Response Time	0.8	R	1.73	1	0.46	∞
Integration Time	2.6	R	1.73	1	1.50	∞
RF Ambient Noise	3.00	R	1.73	1	1.73	∞
RF Ambient Reflection	3.00	R	1.73	1	1.73	∞
Probe Positioner	0.40	R	1.73	1	0.23	∞
Probe Positioning	2.90	R	1.73	1	1.67	∞
Max SAR Eval	1.00	R	1.73	1	0.58	∞
2. Test Sample Related						
Device Positioning	1.80	N	1.00	1	1.80	9
Device Holder	3.60	N	1.00	1	3.60	5
Power Drift	5.00	R	1.73	1	2.89	∞
3. Phantom and Setup						
Phantom Uncertainty	4.00	R	1.73	1	2.31	∞
Liquid Conductivity(target)	5.00	R	1.73	0.64	1.85	∞
Liquid Conductivity(meas.)	2.07	N	1	0.64	1.32	9
Liquid Permittivity(target)	5.00	R	1.73	0.6	1.73	∞
Liquid Permittivity(meas.)	5.02	N	1	0.6	3.01	9
Combine Standard Uncertainty					10.76	
Coverage Factor for 95 %					$k=2$	
Expanded STD Uncertainty					21.53	

Table 6.1 Uncertainty (800 MHz- 2450 MHz)

Error Description	Tol (± %)	Prob. dist.	Div.	C_i	Standard Uncertainty (± %)	v_{eff}
1. Measurement System						
Probe Calibration	7.00	N	1	1	7.00	∞
Axial Isotropy	4.70	R	1.73	0.7	1.90	∞
Hemispherical Isotropy	9.60	R	1.73	0.7	3.88	∞
Boundary Effects	1.00	R	1.73	1	0.58	∞
Linearity	4.70	R	1.73	1	2.71	∞
System Detection Limits	1.00	R	1.73	1	0.58	∞
Readout Electronics	0.30	N	1.00	1	0.30	∞
Response Time	0.8	R	1.73	1	0.46	∞
Integration Time	2.6	R	1.73	1	1.50	∞
RF Ambient Noise	3.00	R	1.73	1	1.73	∞
RF Ambient Reflection	3.00	R	1.73	1	1.73	∞
Probe Positioner	0.40	R	1.73	1	0.23	∞
Probe Positioning	2.90	R	1.73	1	1.67	∞
Max SAR Eval	1.00	R	1.73	1	0.58	∞
2. Test Sample Related						
Device Positioning	1.80	N	1.00	1	1.80	9
Device Holder	3.60	N	1.00	1	3.60	5
Power Drift	5.00	R	1.73	1	2.89	∞
3. Phantom and Setup						
Phantom Uncertainty	4.00	R	1.73	1	2.31	∞
Liquid Conductivity(target)	5.00	R	1.73	0.64	1.85	∞
Liquid Conductivity(meas.)	2.07	N	1	0.64	1.32	9
Liquid Permittivity(target)	5.00	R	1.73	0.6	1.73	∞
Liquid Permittivity(meas.)	5.02	N	1	0.6	3.01	9
Combine Standard Uncertainty					11.60	
Coverage Factor for 95 %					$k=2$	
Expanded STD Uncertainty					23.21	

Table 6.2 Uncertainty (750 MHz)

7. ANSI/ IEEE C95.1 - 1992 RF EXPOSURE LIMITS

HUMAN EXPOSURE	UNCONTROLLED ENVIRONMENT General Population (W/kg) or (mW/g)	CONTROLLED ENVIRONMENT Occupational (W/kg) or (mW/g)
SPATIAL PEAK SAR * (Brain)	1.60	8.00
SPATIAL AVERAGE SAR ** (Whole Body)	0.08	0.40
SPATIAL PEAK SAR *** (Hands / Feet / Ankle / Wrist)	4.00	20.00

Table 7.1 Safety Limits for Partial Body Exposure

NOTES:

* The Spatial Peak value of the SAR averaged over any 1 g of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

** The Spatial Average value of the SAR averaged over the whole-body.

*** The Spatial Peak value of the SAR averaged over any 10 g of tissue (defined as a tissue volume in the shape of a cube) and over the appropriate averaging time.

Uncontrolled Environments are defined as locations where there is the exposure of individuals who have no knowledge or control of their exposure.

Controlled Environments are defined as locations where there is exposure that may be incurred by persons who are aware of the potential for exposure, (i.e.as a result of employment or occupation).

8. SYSTEM VERIFICATION

8.1 Tissue Verification

Freq. [MHz]	Date	Liquid	Liquid Temp.[°C]	Parameters	Target Value	Measured Value	Deviation [%]	Limit [%]
750	Sep. 10, 2010	Body	21.1	ϵ_r	55.5	54.6	- 1.62	± 5
				σ	0.96	0.97	+ 1.04	± 5
835	Oct. 4, 2010	Body	21.1	ϵ_r	55.2	56.8	+ 2.90	± 5
				σ	0.97	0.98	+ 1.03	± 5
1 900	Oct. 5, 2010	Body	21.2	ϵ_r	53.3	54	+ 1.31	± 5
				σ	1.52	1.55	+ 1.97	± 5
835	Oct. 6, 2010	Body	21.3	ϵ_r	55.2	56.9	+ 3.08	± 5
				σ	0.97	0.984	+ 1.44	± 5
1 900	Oct. 7, 2010	Body	21.2	ϵ_r	53.3	53.5	+ 0.38	± 5
				σ	1.52	1.5	- 1.32	± 5
835	Oct. 8, 2010	Body	21.3	ϵ_r	55.2	56.9	+ 3.08	± 5
				σ	0.97	0.982	+ 1.24	± 5
1 900	Oct. 9, 2010	Body	21.2	ϵ_r	53.3	53.9	+ 1.13	± 5
				σ	1.52	1.55	+ 1.97	± 5
750	Oct. 19, 2010	Body	21.3	ϵ_r	55.5	54.6	- 1.62	± 5
				σ	0.96	0.973	+ 1.35	± 5

8.2 System Validation

Prior to assessment, the system is verified to the $\pm 10\%$ of the specifications at 750 MHz/ 835 MHz/1 900 MHz by using the system validation kit. (Graphic Plots Attached)

* Input Power: 100 mW

Freq. [MHz]	Date	Liquid	Liquid Temp. [°C]	SAR Average	Target Value (SPEAG) (mW/g)	* Measured Value (mW/g)	Deviation [%]	Limit [%]
750	Sep. 10, 2010	Body	21.1	1 g	8.8	0.898	+ 2.05	± 10
835	Oct. 4, 2010	Body	21.1	1 g	9.92	1.01	+ 1.81	± 10
1 900	Oct. 5, 2010	Body	21.2	1 g	41.5	4.17	+ 0.48	± 10
835	Oct. 6, 2010	Body	21.3	1 g	9.92	0.996	+ 0.40	± 10
1 900	Oct. 7, 2010	Body	21.2	1 g	41.5	4.25	+ 2.41	± 10
835	Oct. 8, 2010	Body	21.3	1 g	9.92	1.03	+ 3.83	± 10
1 900	Oct. 9, 2010	Body	21.2	1 g	41.5	4.28	+ 3.13	± 10
750	Oct. 19, 2010	Body	21.3	1 g	8.8	0.865	- 1.70	± 10

9. 3G MEASUREMENT PROCEDURES

9.1 Procedures Used To Establish Test Signal

The device was placed into a simulated call using a base station simulator in a shielded chamber. Such test signals offer a consistent means for testing SAR and are recommended for evaluating SAR. In order to verify that the device was tested and maintained at full power, this was configured with the base station simulator. The SAR measurement software calculates a reference point at the start and end of the test to check for power drifts. If conducted power deviations of more than 5% occurred, the tests were repeated.

9.2 SAR Measurement Conditions for CDMA2000

These procedures were followed according to FCC "SAR Measurement Procedures for 3G Devices", October, 2007.

9.2.1 Output Power Verification

Maximum output power is verified on the High, Middle and Low channels according to procedures in section 3.1.2.3.4 of 3GPP2 C.S0033-0/TIA-866 for Rev. 0 and section 4.3.4 of 3GPP2 C.S0033-A for Rev. A. For Rev. A, maximum output power for both Subtype 0/1 and subtype 2 Physical Layer configurations should be measured.

9.2.3 Body SAR Measurement

Body SAR is measured using Subtype 0/1 Physical Layer configurations for Rev.O. SAR for Subtype 2 Physical layer configurations is not required for Rev.A when the maximum average Output of each RF channels is less than that measured in Subtype 0/1 Physical layer Configurations. Otherwise, SAR is measured on the maximum output channel for Rev.A using The exposure configuration that results in the highest SAR for that RF channels in Rev.O.

9.3 SAR Measurement Conditions for HSPA Data Devices

The following procedures are applicable to HSPA(HSUPA/HSDPA) data devices operating Under 3 GPP Release 6.³⁴ Body exposure conditions generally apply to these devices, including Handsets and data modems operating in various electronic devices. HSUPA operates in Conjunction with WCDMA and HSDPA. SAR is initially measured in WCDMA test Configurations without HSPA. The default test configuration is to establish a radio link between the DUT and a communication test set to configure a 12.2 kbps RMC(reference measurement Channel) in test Loop Mode 1. SAR for HSPA is selectively measured with HS-DPCCH, E-DPCCH and E-DPDCH, all enabled, along with a 12.2 kbps RMC using the highest SAR Configuration in WCDMA with 12.2 kbps RMC only. An FRC is configured according to HS-DPCCH Sub-test 1 using H-set 1 and QPSK.³⁶ HSPA is configured according to E-DCH Sub-test 5 requirements. SAR for other HSPA sub-test configurations is also confirmed selectively

according to output power, exposure conditions and E-DCH UE Category. Maximum output power is verified according to procedures in applicable versions of 3GPP TS 34.121 and SAR must be measured according to these maximum output conditions. The UE Categories for HS-DPCCH and HSPA should be clearly identified in the SAR report. The following procedures are Applicable only if Maximum Power Reduction(MPR) is implemented according to Cubic Metric (CM) requirements.

9.3.1 Output Power Verification

Maximum output power is verified on the High, Middle and Low channels according to Release 6 procedures in section 5.2 of 3GPP TS 34.121, using the appropriate RMC, FRC and E-DCH configurations. When E-DCH is not active, TPC (transmit power control) is set to all “1’s”; otherwise, inner loop power control with power control algorithm 2 is required to maintain E-TFCI requirements. When HSPA is active output power for the applicable HSPA modes should be measured for E-DCH Sub-test 1-5.³⁸ Results for all applicable physical channel configurations (DPCCH, DPDCH and spreading codes, HS-DPCCH, E-DPCCH, E-DPDCH_k) should be tabulated in the SAR report. All configurations that are not supported by the DUT or cannot be measured due to technical or equipment limitations should be clearly identified.³⁹

9.3.2 Body SAR Measurement

SAR for body exposure configurations is measured using the 12.2 kbps RMC with the TPC bits all “1s”. SAR for other spreading codes and multiple DPDCH_n, when supported by the DUT, are not required when the maximum average output of each RF channel, for each spreading code and DPDCH_n configuration, are less than 1/4dB higher than those measured in 12.2 kbps RMC. Otherwise, SAR is measured on the maximum output channel with an applicable RMC configuration that results in the highest SAR with 12.2 kbps RMC.

In addition, body SAR is also measured for HSPA when the maximum average output of each RF channel with HSPA active is at least 1/4dB higher than that measured without HSPA using 12.2kbps RMC or the maximum SAR for 12.2 kbps RMC is above 75% of the SAR limit. Body SAR for HSPA is measured with E-DCH Sub-test 5, using H-Set 1 and QPSK for FRC and a 12.2 kbps body SAR configuration in 12.2 kbps RMC without HSPA. The 12.2 kbps RMC, FRC H-set 1 and E-DCH configurations for HSPA should be configured according to the β values indicated below.

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	$\beta_{hs}^{(1)}$	β_{ec}	β_{ed}	β_{ed} (SF)	β_{ed} (codes)	CM ⁽²⁾ (dB)	MPR (dB)	AG ⁽⁴⁾ Index	E-TFCI
1	11/15 ⁽³⁾	15/15 ⁽³⁾	64	11/15 ⁽³⁾	22/15	209/225	1039/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	$\beta_{ed1}: 47/15$ $\beta_{ed2}: 47/15$	4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15 ⁽⁴⁾	15/15 ⁽⁴⁾	64	15/15 ⁽⁴⁾	30/15	24/15	134/15	4	1	1.0	0.0	21	81

Note 1: Δ_{ACK} , Δ_{NACK} and $\Delta_{CQI} = 8 \Leftrightarrow A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15 * \beta_c$.

Note 2: CM = 1 for $\beta_c/\beta_d = 12/15$, $\beta_{hs}/\beta_c = 24/15$. For all other combinations of DPDCH, DPCCH, HS-DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.

Note 3: For subtest 1 the β_c/β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 10/15$ and $\beta_d = 15/15$.

Note 4: For subtest 5 the β_c/β_d ratio of 15/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to $\beta_c = 14/15$ and $\beta_d = 15/15$.

Note 5: Testing UE using E-DPDCH Physical Layer category 1 Sub-test 3 is not required according to TS 25.306 Table 5.1g.

Note 6: β_{ed} can not be set directly; it is set by Absolute Grant Value.

Average Output Power Measurement without USB cable for FCC ID: JYCRA Y

Band	Channel	SO2	SO2	SO55	SO55	TDSO	1xEvDO	1xEvDO	1xEvDO	1xEvDO
		RC1/1 (dBm)	RC3/3 (dBm)	RC1/1 (dBm)	RC3/3 (dBm)	SO32 (dBm)	Rev.0 (FTAP)	Rev.0 (RTAP)	Rev.A (FETAP)	Rev.A (RETAP)
CDMA	1013	23.92	23.91	23.92	23.93	23.92	23.82	23.72	23.72	23.72
	384	23.98	23.97	23.97	23.98	23.98	23.78	23.77	23.78	23.78
	777	23.98	23.98	24.08	24.08	24.08	23.88	23.88	23.78	23.68
PCS	25	24.05	24.05	24.05	24.05	23.95	23.75	23.85	23.85	23.85
	600	23.92	23.92	24.02	23.92	24.02	23.82	23.82	23.82	23.72
	1175	24.05	23.95	24.05	24.05	23.95	23.85	23.75	23.75	23.75

CDMA Conducted Powers

Band	Channel	GPRS Data				EDGE Data			
		GPRS 1 TX Slot (dBm)	GPRS 2 TX Slot (dBm)	GPRS 3 TX Slot (dBm)	GPRS 4 TX Slot (dBm)	EDGE 1 TX Slot (dBm)	EDGE 2 TX Slot (dBm)	EDGE 3 TX Slot (dBm)	EDGE 4 TX Slot (dBm)
GSM 850	128	32.7	29.5	26.4	25.0	26.0	22.1	21.0	20.2
	190	32.7	29.7	26.3	25.0	25.9	22.2	20.9	20.2
	251	32.8	29.8	26.3	25.0	25.8	21.9	21.0	20.1
GSM 1900	512	29.4	26.5	25.5	24.5	26.9	22.6	21.0	20.3
	661	29.4	26.3	25.5	24.4	26.8	22.6	21.0	20.3
	810	29.75	26.3	25.9	24.3	27.0	22.6	21.0	20.2

GSM Conducted Powers (GSM Device Class is B and Multislot Class is 12)

3GPP Release Version	Mode	3GPP 34.121 Subtest	Cellular Band [dBm]			PCS Band [dBm]			MPR
			4132	4183	4233	9262	9400	9538	
99	WCDMA	12.2 kbps RMC	23.03	23.08	23.02	23.24	23.10	23.24	-
5	HSDPA	Subtest 1	21.98	21.98	21.41	22.23	22.37	22.44	0
5		Subtest 2	22.12	22.27	21.56	22.44	22.39	22.50	0
5		Subtest 3	21.94	21.03	21.46	22.48	22.46	22.54	0.5
5		Subtest 4	21.61	22.04	21.53	22.46	21.48	22.52	0.5
6	HSUPA	Subtest 1	22.69	22.71	22.83	23.04	23.10	23.05	0
6		Subtest 2	20.56	20.33	20.67	21.07	20.93	21.00	2
6		Subtest 3	22.05	21.90	21.74	21.88	21.70	22.04	1
6		Subtest 4	20.95	20.46	20.54	21.20	20.92	21.03	2
6		Subtest 5	22.87	23.10	22.25	22.85	23.08	22.51	0

HSPA Conducted Powers

UL Frequency(MHz)	UL Channel	Modulation	Bandwidth	RB Size	Resource Block Offset	Maximum Average Power [dBm]	MPR
782	23230	QPSK	10MHz	1	0	23.12	0
782	23230	16QAM	10MHz	1	0	23.14	0
782	23230	QPSK	10MHz	1	49	23.03	0
782	23230	16QAM	10MHz	1	49	22.82	0
782	23230	QPSK	10MHz	25	12	21.90	1
782	23230	16QAM	10MHz	25	12	20.93	2
782	23230	QPSK	10MHz	50	0	21.34	2
782	23230	16QAM	10MHz	50	0	21.06	2

LTE Conducted Powers

Note;

The JYCRA Y developed base on MPR. The MPR is mandatory.

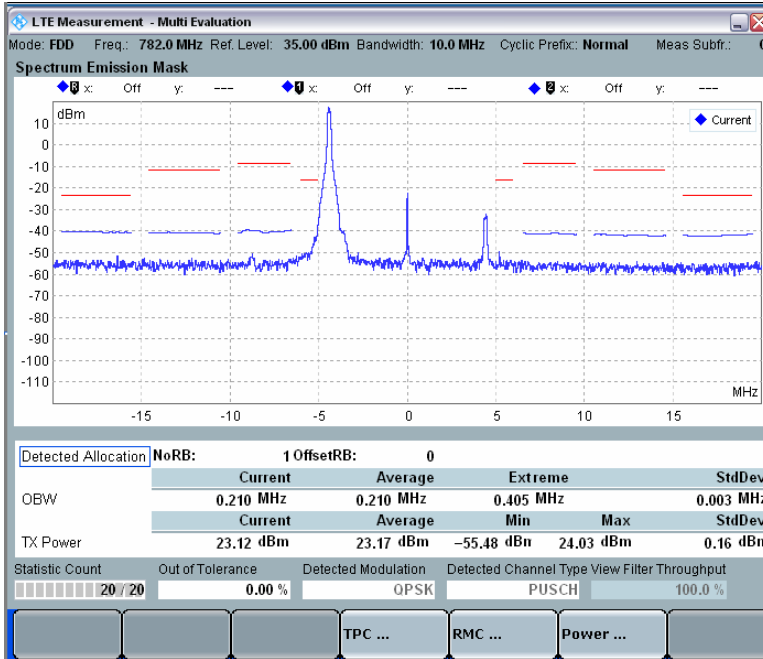
The device will not operate with any other MPR setting than that stated in the table as indicated.

SAR Testing was performed using a CMW500. UE transmits with maximum output power during SAR testing.

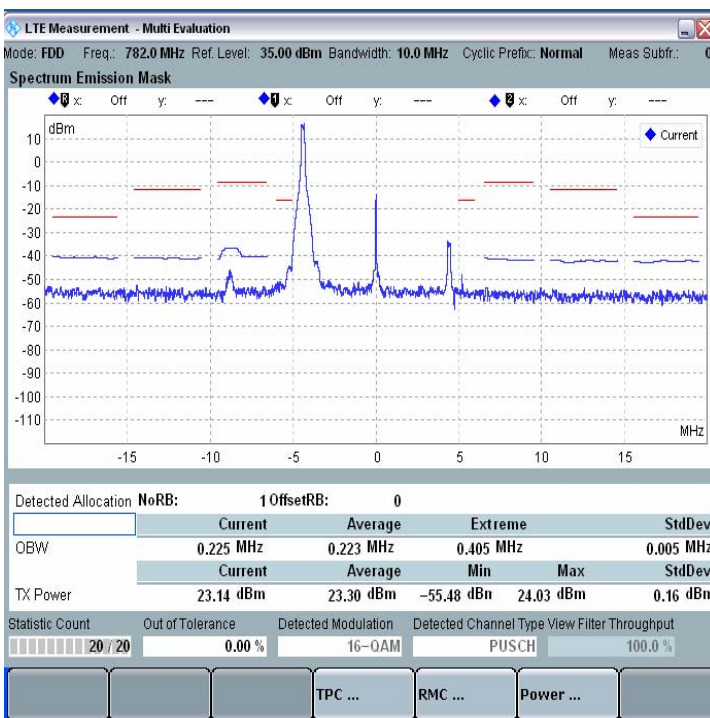
10. Plots

Following plots represent for each modulation.

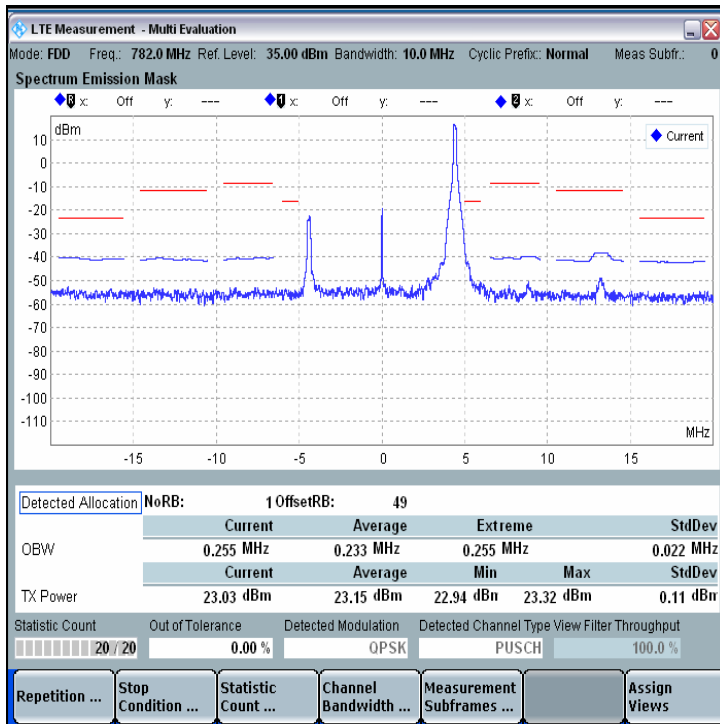
RB1, Offset0, QPSK Plot



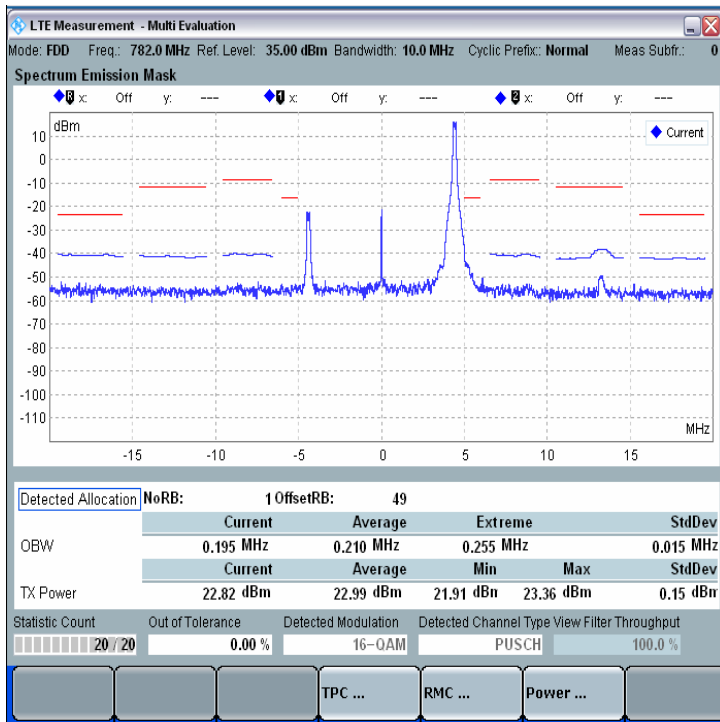
RB1, Offset0, 16QAM Plot



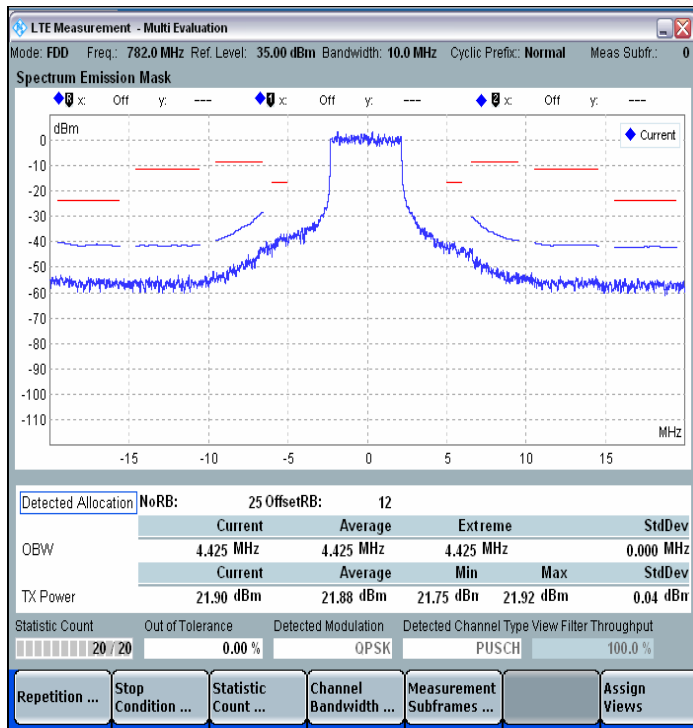
RB1, Offset49, QPSK Plot



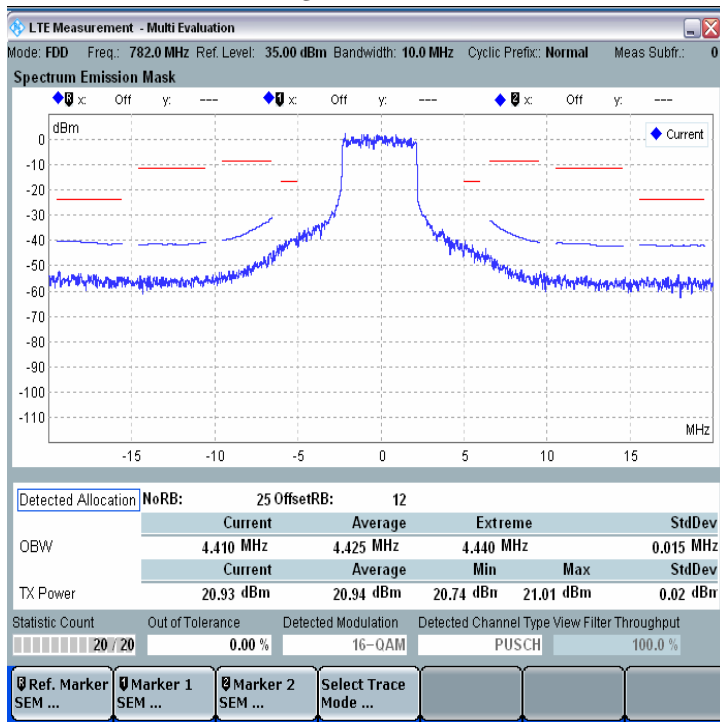
RB1, Offset49, 16QAM Plot



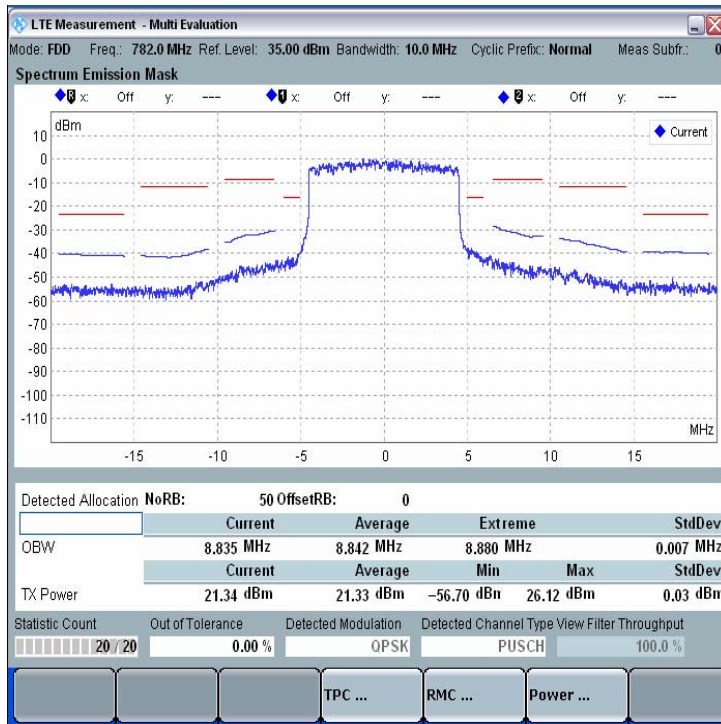
RB25, Offset12, QPSK Plot



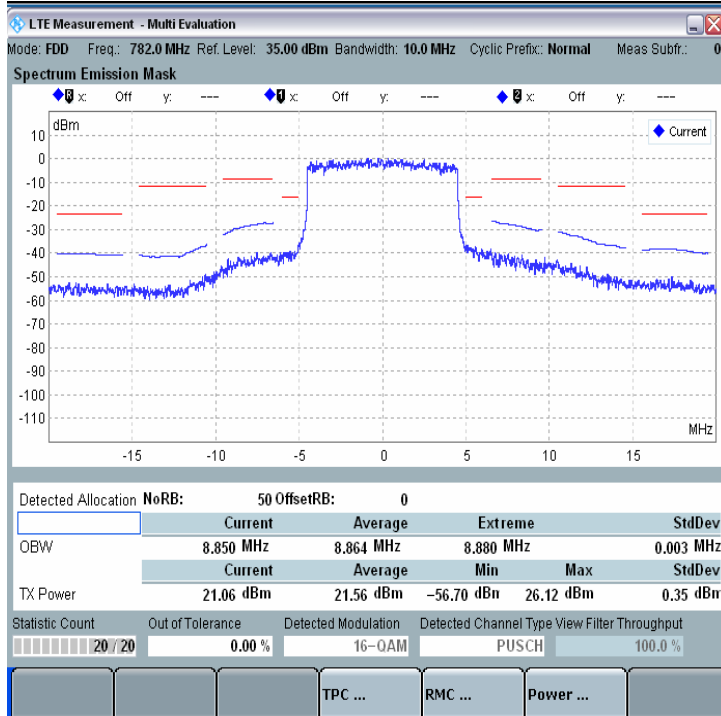
RB25, Offset12, 16QAM Plot



RB50, Offset0, QPSK Plot



RB50, Offset0, 16QAM Plot



11. SAR TEST DATA SUMMARY

11.1 Measurement Results (CDMA835 Body SAR)

Frequency		Modulation	Conducted Power (dBm)		Configuration	Configuration	Separation Distance	Antenna Type	SAR(mW/g)
MHz	Channel		Begin	End					
836.52	384 (Mid)	EVDO	23.77	23.90	Horizontal down	USB Cable	5 mm	Open	0.696
836.52	384 (Mid)	EVDO	23.77	23.77	Horizontal up	Laptop	5 mm	Open	0.399
836.52	384 (Mid)	EVDO	23.77	23.87	Vertical front	USB Cable	5 mm	Open	0.084
836.52	384 (Mid)	EVDO	23.77	23.80	Vertical back	Laptop	5 mm	Open	0.211
836.52	384 (Mid)	EVDO	23.77	23.77	Horizontal down	USB Cable	5 mm	Close	0.535
836.52	384 (Mid)	EVDO	23.77	23.73	Horizontal up	Laptop	5 mm	Close	0.132
836.52	384 (Mid)	EVDO	23.77	23.73	Vertical front	USB Cable	5 mm	Close	0.144
836.52	384 (Mid)	EVDO	23.77	23.72	Vertical back	Laptop	5 mm	Close	0.221
836.52	384 (Mid)	EVDO	23.77	23.93	Top	Laptop	5 mm	Close	0.242
ANSI/ IEEE C95.1 1992 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Body 1.6 W/kg (mW/g) Averaged over 1 gram		

NOTES:

- The test data reported are the worst-case SAR value with the body position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supplement C [July 2001].
- All modes of operation were investigated and the worst-case are reported.
- Measured Depth of Simulating Tissue is 15.0 cm $\pm$ 0.2 cm.
- Tissue parameters and temperatures are listed on the SAR plot.
- Power Supply Power supplied through host device (TOSHIBA)
- Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
- All side of the phone were tested and the worst-case side is reported.
- The EUT was fixed by using a Styrofoam to avoid perturbation due to the device holder clamps.
- EVDO Body SAR was tested under EVDO Rev.0 RTAP.
- Justification for test reduction: Mid channel only was tested when the SAR < 0.8 W/kg per KDB447498 1) e) i)

11.2 Measurement Results (PCS1900 Body SAR)

Frequency		Modulation	Conducted Power (dBm)		Configuration	Configuration	Separation Distance	Antenna Type	SAR(mW/g)
MHz	Channel		Begin	End					
1 851.25	25 (Low)	EVDO	23.85	23.75	Horizontal down	USB Cable	5 mm	Open	1.02
1 880.00	600 (Mid)	EVDO	23.82	24.01	Horizontal down	USB Cable	5 mm	Open	0.946
1 908.75	1175 (High)	EVDO	23.75	23.64	Horizontal down	USB Cable	5 mm	Open	0.865
1 880.00	600 (Mid)	EVDO	23.82	23.78	Horizontal up	Laptop	5 mm	Open	0.410
1 880.00	600 (Mid)	EVDO	23.82	23.84	Vertical front	USB Cable	5 mm	Open	0.039
1 880.00	600 (Mid)	EVDO	23.82	23.84	Vertical back	Laptop	5 mm	Open	0.241
1 880.00	600 (Mid)	EVDO	23.82	23.72	Horizontal down	USB Cable	5 mm	Close	0.734
1 880.00	600 (Mid)	EVDO	23.82	23.66	Horizontal up	Laptop	5 mm	Close	0.123
1 880.00	600 (Mid)	EVDO	23.82	23.82	Vertical front	USB Cable	5 mm	Close	0.149
1 880.00	600 (Mid)	EVDO	23.82	23.71	Vertical back	Laptop	5 mm	Close	0.034
1 880.00	600 (Mid)	EVDO	23.82	23.78	Top	Laptop	5 mm	Close	0.197
ANSI/ IEEE C95.1 1992 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Body 1.6 W/kg (mW/g) Averaged over 1 gram		

NOTES:

- The test data reported are the worst-case SAR value with the body position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supplement C [July 2001].
- All modes of operation were investigated and the worst-case are reported.
- Measured Depth of Simulating Tissue is 15.0 cm $\pm$ 0.2 cm.
- Tissue parameters and temperatures are listed on the SAR plot.
- Power Supply Power supplied through host device (TOSHIBA)
- Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
- All side of the phone were tested and the worst-case side is reported.
- The EUT was fixed by using a Styrofoam to avoid perturbation due to the device holder clamps.
- EVDO Body SAR was tested under EVDO Rev.0 RTAP.
- Justification for test reduction: Mid channel only was tested when the SAR < 0.8 W/kg per KDB447498 1) e) i)

11.3 Measurement Results (GSM850 Body SAR)

Frequency		Modulation	Conducted Power (dBm)		Configuration	Configuration	Separation Distance	Antenna Type	SAR(mW/g)
MHz	Channel		Begin	End					
836.6	190 (Mid)	GPRS 1Tx	32.7	32.58	Horizontal down	USB Cable	5 mm	Open	0.533
836.6	190 (Mid)	GPRS 2Tx	29.7	29.56	Horizontal down	USB Cable	5 mm	Open	0.517
836.6	190 (Mid)	GPRS 3Tx	26.3	26.42	Horizontal down	USB Cable	5 mm	Open	0.352
836.6	190 (Mid)	GPRS 4Tx	25.0	24.99	Horizontal down	USB Cable	5 mm	Open	0.373
836.6	190 (Mid)	GPRS 1Tx	32.7	32.69	Horizontal up	Laptop	5 mm	Open	0.393
836.6	190 (Mid)	GPRS 1Tx	32.7	32.56	Vertical front	USB Cable	5 mm	Open	0.069
836.6	190 (Mid)	GPRS 1Tx	32.7	32.81	Vertical back	Laptop	5 mm	Open	0.149
836.6	190 (Mid)	GPRS 1Tx	32.7	32.57	Horizontal down	USB Cable	5 mm	Close	0.508
836.6	190 (Mid)	GPRS 2Tx	29.7	29.54	Horizontal down	USB Cable	5 mm	Close	0.539
836.6	190 (Mid)	GPRS 3Tx	26.3	26.40	Horizontal down	USB Cable	5 mm	Close	0.353
836.6	190 (Mid)	GPRS 4Tx	25.0	24.98	Horizontal down	USB Cable	5 mm	Close	0.366
836.6	190 (Mid)	GPRS 2Tx	29.7	29.61	Horizontal up	Laptop	5 mm	Close	0.226
836.6	190 (Mid)	GPRS 2Tx	29.7	29.74	Vertical front	USB Cable	5 mm	Close	0.257
836.6	190 (Mid)	GPRS 2Tx	29.7	29.66	Vertical back	Laptop	5 mm	Close	0.315
836.6	190 (Mid)	GPRS 2Tx	29.7	29.56	Top	Laptop	5 mm	Close	0.199
ANSI/ IEEE C95.1 1992 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Body 1.6 W/kg (mW/g) Averaged over 1 gram		

NOTES:

- The test data reported are the worst-case SAR value with the body position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supplement C [July 2001].
- All modes of operation were investigated and the worst-case are reported.
- Measured Depth of Simulating Tissue is 15.0 cm ± 0.2 cm.
- Tissue parameters and temperatures are listed on the SAR plot.
- Power Supply Power supplied through host device (TOSHIBA)
- Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
- All side of the phone were tested and the worst-case side is reported.
- The EUT was fixed by using a Styrofoam to avoid perturbation due to the device holder clamps.
- Justification for test reduction: Mid channel only was tested when the SAR < 0.8 W/kg per KDB447498 1) e) i)

11.4 Measurement Results (GSM1900 Body SAR)

Frequency		Modulation	Conducted Power (dBm)		Configuration	Configuration	Separation Distance	Antenna Type	SAR(mW/g)
MHz	Channel		Begin	End					
1 880.0	661 (Mid)	GPRS 1Tx	29.4	29.30	Horizontal down	USB Cable	5 mm	Open	0.767
1 880.0	661 (Mid)	GPRS 2Tx	26.3	26.24	Horizontal down	USB Cable	5 mm	Open	0.704
1850.2	512 (Low)	GPRS 3Tx	25.5	25.63	Horizontal down	USB Cable	5 mm	Open	0.939
1 880.0	661 (Mid)	GPRS 3Tx	25.5	25.50	Horizontal down	USB Cable	5 mm	Open	0.943
1909.8	810 (High)	GPRS 3Tx	25.9	25.93	Horizontal down	USB Cable	5 mm	Open	0.741
1850.2	512 (Low)	GPRS 4Tx	24.5	24.66	Horizontal down	USB Cable	5 mm	Open	1.03
1 880.0	661 (Mid)	GPRS 4Tx	24.4	24.41	Horizontal down	USB Cable	5 mm	Open	0.964
1909.8	810 (High)	GPRS 4Tx	24.3	24.30	Horizontal down	USB Cable	5 mm	Open	0.997
1 880.0	661 (Mid)	GPRS 4Tx	24.4	24.58	Horizontal up	Laptop	5 mm	Open	0.322
1 880.0	661 (Mid)	GPRS 4Tx	24.4	24.53	Vertical front	USB Cable	5 mm	Open	0.035
1 880.0	661 (Mid)	GPRS 4Tx	24.4	24.50	Vertical back	Laptop	5 mm	Open	0.180
1 880.0	661 (Mid)	GPRS 1Tx	29.4	29.45	Horizontal down	USB Cable	5 mm	Close	0.412
1 880.0	661 (Mid)	GPRS 2Tx	26.3	26.20	Horizontal down	USB Cable	5 mm	Close	0.419
1 880.0	661 (Mid)	GPRS 3Tx	25.5	25.51	Horizontal down	USB Cable	5 mm	Close	0.566
1 880.0	661 (Mid)	GPRS 4Tx	24.4	24.41	Horizontal down	USB Cable	5 mm	Close	0.600
1 880.0	661 (Mid)	GPRS 4Tx	24.4	24.33	Horizontal up	Laptop	5 mm	Close	0.092
1 880.0	661 (Mid)	GPRS 4Tx	24.4	24.33	Vertical front	USB Cable	5 mm	Close	0.143
1 880.0	661 (Mid)	GPRS 4Tx	24.4	24.38	Vertical back	Laptop	5 mm	Close	0.033
1 880.0	661 (Mid)	GPRS 4Tx	24.4	24.36	Top	Laptop	5 mm	Close	0.216
ANSI/ IEEE C95.1 1992 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Body 1.6 W/kg (mW/g) Averaged over 1 gram		

NOTES:

- The test data reported are the worst-case SAR value with the body position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supplement C [July 2001].
- All modes of operation were investigated and the worst-case are reported.
- Measured Depth of Simulating Tissue is 15.0 cm $\pm$ 0.2 cm.
- Tissue parameters and temperatures are listed on the SAR plot.
- Power Supply Power supplied through host device (TOSHIBA)
- Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
- All side of the phone were tested and the worst-case side is reported.
- The EUT was fixed by using a Styrofoam to avoid perturbation due to the device holder clamps.
- Justification for test reduction: Mid channel only was tested when the SAR < 0.8 W/kg per KDB447498
- e) i)

11.5 Measurement Results (WCDMA850 Body SAR)

Frequency		Modulation	Conducted Power (dBm)		Configuration	Configuration	Separation Distance	Antenna Type	SAR(mW/g)
MHz	Channel		Begin	End					
836.6	4183 (Mid)	WCDMA850	23.08	23.08	Horizontal down	USB Cable	5 mm	Open	0.569
836.6	4183 (Mid)	WCDMA850	23.08	23.08	Horizontal up	Laptop	5 mm	Open	0.338
836.6	4183 (Mid)	WCDMA850	23.08	23.08	Vertical front	USB Cable	5 mm	Open	0.071
836.6	4183 (Mid)	WCDMA850	23.08	23.08	Vertical back	Laptop	5 mm	Open	0.184
836.6	4183 (Mid)	WCDMA850	23.08	23.08	Horizontal down	USB Cable	5 mm	Close	0.460
836.6	4183 (Mid)	WCDMA850	23.08	23.08	Horizontal up	Laptop	5 mm	Close	0.124
836.6	4183 (Mid)	WCDMA850	23.08	23.08	Vertical front	USB Cable	5 mm	Close	0.260
836.6	4183 (Mid)	WCDMA850	23.08	23.08	Vertical back	Laptop	5 mm	Close	0.252
836.6	4183 (Mid)	WCDMA850	23.08	23.08	Top	Laptop	5 mm	Close	0.233
ANSI/ IEEE C95.1 1992 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Body 1.6 W/kg (mW/g) Averaged over 1 gram		

NOTES:

- The test data reported are the worst-case SAR value with the body position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supplement C [July 2001].
- All modes of operation were investigated and the worst-case are reported.
- Measured Depth of Simulating Tissue is 15.0 cm $\pm$ 0.2 cm.
- Tissue parameters and temperatures are listed on the SAR plot.
- Power Supply Power supplied through host device (TOSHIBA)
- Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
- All side of the phone were tested and the worst-case side is reported.
- The EUT was fixed by using a Styrofoam to avoid perturbation due to the device holder clamps.
- WCDMA Mode was tested under RMC 12.2 kbps and HSPA Inactive.
- Justification for test reduction: Mid channel only was tested when the SAR < 0.8 W/kg per KDB447498 1) e) i)

11.6 Measurement Results (WCDMA1900 Body SAR)

Frequency		Modulation	Conducted Power (dBm)		Configuration	Configuration	Separation Distance	Antenna Type	SAR(mW/g)
MHz	Channel		Begin	End					
1 852.4	9262 (Low)	WCDMA1900	23.24	23.22	Horizontal down	USB Cable	5 mm	Open	0.989
1 880.0	9400 (Mid)	WCDMA1900	23.10	23.25	Horizontal down	USB Cable	5 mm	Open	0.955
1 907.6	9538 (High)	WCDMA1900	23.24	23.14	Horizontal down	USB Cable	5 mm	Open	0.897
1 880.0	9400 (Mid)	WCDMA1900	23.10	23.13	Horizontal up	Laptop	5 mm	Open	0.384
1 880.0	9400 (Mid)	WCDMA1900	23.10	23.02	Vertical front	USB Cable	5 mm	Open	0.042
1 880.0	9400 (Mid)	WCDMA1900	23.10	23.23	Vertical back	Laptop	5 mm	Open	0.218
1 880.0	9400 (Mid)	WCDMA1900	23.10	23.18	Horizontal down	USB Cable	5 mm	Close	0.661
1 880.0	9400 (Mid)	WCDMA1900	23.10	23.17	Horizontal up	Laptop	5 mm	Close	0.095
1 880.0	9400 (Mid)	WCDMA1900	23.10	23.13	Vertical front	USB Cable	5 mm	Close	0.148
1 880.0	9400 (Mid)	WCDMA1900	23.10	23.13	Vertical back	Laptop	5 mm	Close	0.032
1 880.0	9400 (Mid)	WCDMA1900	23.10	22.92	Top	Laptop	5 mm	Close	0.200
ANSI/ IEEE C95.1 1992 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Body 1.6 W/kg (mW/g) Averaged over 1 gram		

NOTES:

- The test data reported are the worst-case SAR value with the body position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supplement C [July 2001].
- All modes of operation were investigated and the worst-case are reported.
- Measured Depth of Simulating Tissue is 15.0 cm ± 0.2 cm.
- Tissue parameters and temperatures are listed on the SAR plot.
- Power Supply Power supplied through host device (TOSHIBA)
- Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
- All side of the phone were tested and the worst-case side is reported.
- The EUT was fixed by using a Styrofoam to avoid perturbation due to the device holder clamps.
- WCDMA Mode was tested under RMC 12.2 kbps and HSPA Inactive.
- Justification for test reduction: Mid channel only was tested when the SAR < 0.8 W/kg per KDB447498
1) e) i)

11.7 Measurement Results (LTE Body SAR)

Frequency		Modulation	Conducted Power (dBm)		Configuration	Configuration	RB Size	RB Offset	Separation Distance	Antenna Type	SAR (mW/g)	MPR
MH	Chann		Begin	End								
782	23230	16QAM	23.14	22.94	Horizontal down	USB Cable	1	0	5 mm	Open	1.15	0
782	23230	16QAM	22.82	22.83	Horizontal down	USB Cable	1	49	5 mm	Open	0.657	0
782	23230	16QAM	20.93	20.97	Horizontal down	USB Cable	25	12	5 mm	Open	0.627	2
782	23230	16QAM	21.06	21.02	Horizontal down	USB Cable	50	0	5 mm	Open	0.721	2
782	23230	QPSK	23.12	23.00	Horizontal down	USB Cable	1	0	5 mm	Open	1.1	0
782	23230	QPSK	23.03	23.08	Horizontal down	USB Cable	1	49	5 mm	Open	0.657	0
782	23230	QPSK	21.90	21.94	Horizontal down	USB Cable	25	12	5 mm	Open	0.625	1
782	23230	QPSK	21.34	21.26	Horizontal down	USB Cable	50	0	5 mm	Open	0.678	2
782	23230	16QAM	23.14	23.09	Horizontal up	Laptop	1	0	5 mm	Open	0.449	0
782	23230	16QAM	22.82	22.83	Horizontal up	Laptop	1	49	5 mm	Open	0.346	0
782	23230	QPSK	23.12	23.27	Horizontal up	Laptop	1	0	5 mm	Open	0.456	0
782	23230	QPSK	23.03	22.91	Horizontal up	Laptop	1	49	5 mm	Open	0.341	0
782	23230	16QAM	23.14	23.18	Vertical back	Laptop	1	0	5 mm	Open	0.193	0
782	23230	16QAM	22.82	22.96	Vertical back	Laptop	1	49	5 mm	Open	0.199	0
782	23230	QPSK	23.12	23.18	Vertical back	Laptop	1	0	5 mm	Open	0.185	0
782	23230	QPSK	23.03	23.03	Vertical back	Laptop	1	49	5 mm	Open	0.209	0
782	23230	16QAM	23.14	23.15	Vertical front	USB Cable	1	0	5 mm	Open	0.178	0
782	23230	16QAM	22.82	22.85	Vertical front	USB Cable	1	49	5 mm	Open	0.103	0
782	23230	QPSK	23.12	23.18	Vertical front	USB Cable	1	0	5 mm	Open	0.157	0
782	23230	QPSK	23.03	23.08	Vertical front	USB Cable	1	49	5 mm	Open	0.102	0
ANSI/ IEEE C95.1 1992 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population										Body 1.6 W/kg (mW/g) Averaged over 1 gram		

NOTES:

- The test data reported are the worst-case SAR value with the body position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supplement C [July 2001].
- All modes of operation were investigated and the worst-case are reported.
- Measured Depth of Simulating Tissue is 15.0 cm ± 0.2 cm.
- Tissue parameters and temperatures are listed on the SAR plot.
- Power Supply Power supplied through host device (TOSHIBA)
- Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
- All side of the phone were tested and the worst-case side is reported.
- The EUT was fixed by using a Styrofoam to avoid perturbation due to the device holder clamps.
- FCC LTE Interim SAR guidance was followed.
- Per KDB Inquiry 218759, the 1RB case was tested for all RB configurations, all modulations and all sides of the dongle since the output power was highest.

11.8 Measurement Results (LTE Body SAR)

Frequency		Modulation	Conducted Power (dBm)		Configuration	Configuration	RB Size	RB Offset	Separation Distance	Antenna Type	SAR (mW/g)	MPR
MH	Chann		Begin	End								
782	23230	16QAM	23.14	23.15	Horizontal down	USB Cable	1	0	5 mm	Close	0.378	0
782	23230	16QAM	22.82	22.90	Horizontal down	USB Cable	1	49	5 mm	Close	0.221	0
782	23230	QPSK	23.12	23.13	Horizontal down	USB Cable	1	0	5 mm	Close	0.361	0
782	23230	QPSK	23.03	23.09	Horizontal down	USB Cable	1	49	5 mm	Close	0.211	0
782	23230	16QAM	23.14	23.13	Horizontal up	Laptop	1	0	5 mm	Close	0.225	0
782	23230	16QAM	22.82	22.91	Horizontal up	Laptop	1	49	5 mm	Close	0.199	0
782	23230	QPSK	23.12	23.15	Horizontal up	Laptop	1	0	5 mm	Close	0.222	0
782	23230	QPSK	23.03	23.09	Horizontal up	Laptop	1	49	5 mm	Close	0.195	0
782	23230	16QAM	23.14	23.18	Vertical back	Laptop	1	0	5 mm	Close	0.217	0
782	23230	16QAM	22.82	22.85	Vertical back	Laptop	1	49	5 mm	Close	0.242	0
782	23230	QPSK	23.12	23.13	Vertical back	Laptop	1	0	5 mm	Close	0.216	0
782	23230	QPSK	23.03	23.05	Vertical back	Laptop	1	49	5 mm	Close	0.253	0
782	23230	16QAM	23.14	23.15	Vertical front	USB Cable	1	0	5 mm	Close	0.239	0
782	23230	16QAM	22.82	22.83	Vertical front	USB Cable	1	49	5 mm	Close	0.173	0
782	23230	QPSK	23.12	23.24	Vertical front	USB Cable	1	0	5 mm	Close	0.246	0
782	23230	QPSK	23.03	23.01	Vertical front	USB Cable	1	49	5 mm	Close	0.171	0
782	23230	16QAM	23.14	23.10	Top	Laptop	1	0	5 mm	Close	0.162	0
782	23230	16QAM	22.82	22.93	Top	Laptop	1	49	5 mm	Close	0.151	0
782	23230	QPSK	23.12	23.05	Top	Laptop	1	0	5 mm	Close	0.159	0
782	23230	QPSK	23.03	23.04	Top	Laptop	1	49	5 mm	Close	0.147	0
ANSI/ IEEE C95.1 1992 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population										Body 1.6 W/kg (mW/g) Averaged over 1 gram		

NOTES:

- The test data reported are the worst-case SAR value with the body position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supplement C [July 2001].
- All modes of operation were investigated and the worst-case are reported.
- Measured Depth of Simulating Tissue is 15.0 cm ± 0.2 cm.
- Tissue parameters and temperatures are listed on the SAR plot.
- Power Supply Power supplied through host device (TOSHIBA)
- Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
- All side of the phone were tested and the worst-case side is reported.
- The EUT was fixed by using a Styrofoam to avoid perturbation due to the device holder clamps.
- FCC LTE Interim SAR guidance was followed.
- Per KDB Inquiry 218759, the 1RB case was tested for all RB configurations, all modulations and all sides of the dongle since the output power was highest.

12. CONCLUSION

The SAR measurement indicates that the EUT complies with the RF radiation exposure limits of the ANSI/IEEE C95.1 1992.

These measurements are taken to simulate the RF effects exposure under worst-case conditions. Precise laboratory measures were taken to assure repeatability of the tests.

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Attachment 1. – SAR Test Plots

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.1 °C
Ambient Temperature: 21.3 °C
Test Date: Oct. 4, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: CDMA 835MHz FCC; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 836.52 \text{ MHz}$; $\sigma = 0.982 \text{ mho/m}$; $\epsilon_r = 56.8$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.17, 6.17, 6.17); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Body 384/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.723 mW/g

Body 384/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 21.5 V/m; Power Drift = 0.133 dB

Peak SAR (extrapolated) = 1.15 W/kg

SAR(1 g) = 0.696 mW/g; SAR(10 g) = 0.439 mW/g

Maximum value of SAR (measured) = 0.763 mW/g

Body 384/Zoom Scan (7x7x7)/Cube 1: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

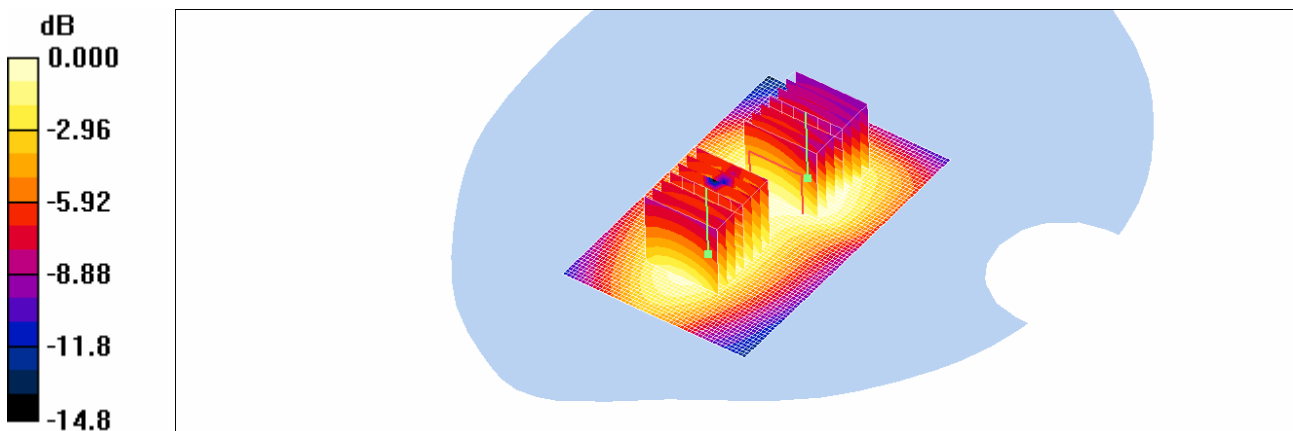
Reference Value = 21.5 V/m; Power Drift = 0.133 dB

Peak SAR (extrapolated) = 0.750 W/kg

SAR(1 g) = 0.558 mW/g; SAR(10 g) = 0.396 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

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



0 dB = 0.595mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.1 °C
Ambient Temperature: 21.3 °C
Test Date: Oct. 4, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: CDMA 835MHz FCC; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 836.52 \text{ MHz}$; $\sigma = 0.982 \text{ mho/m}$; $\epsilon_r = 56.8$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.17, 6.17, 6.17); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Body 384/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.431 mW/g

Body 384/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

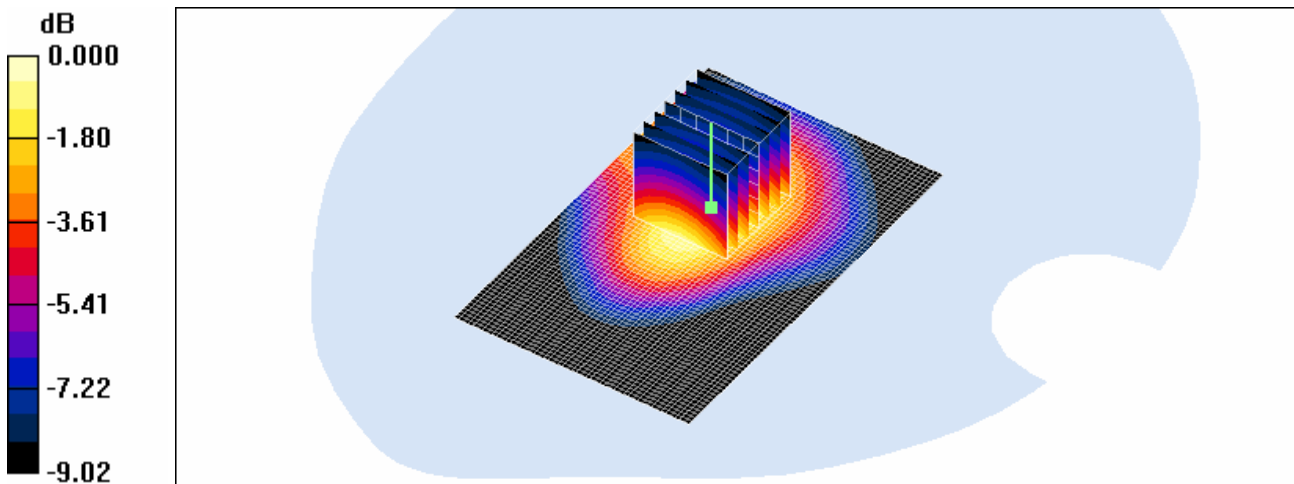
Reference Value = 16.8 V/m; Power Drift = -0.005 dB

Peak SAR (extrapolated) = 0.556 W/kg

SAR(1 g) = 0.399 mW/g; SAR(10 g) = 0.267 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.429 mW/g



0 dB = 0.429mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.1 °C
Ambient Temperature: 21.3 °C
Test Date: Oct. 4, 2010

DUT: UML290 Vertical: Type: Bar: Serial: #1

Communication System: CDMA 835MHz FCC; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 836.52 \text{ MHz}$; $\sigma = 0.982 \text{ mho/m}$; $\epsilon_r = 56.8$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.17, 6.17, 6.17); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Body 384/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.091 mW/g

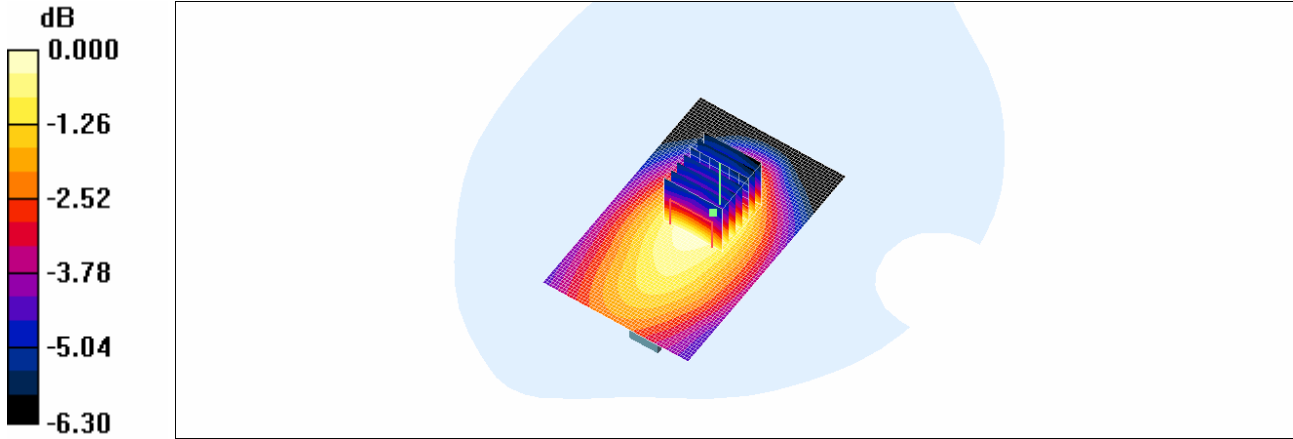
Body 384/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.88 V/m; Power Drift = 0.101 dB

Peak SAR (extrapolated) = 0.106 W/kg

SAR(1 g) = 0.084 mW/g; SAR(10 g) = 0.065 mW/g

Maximum value of SAR (measured) = 0.089 mW/g



0 dB = 0.089mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.1 °C
Ambient Temperature: 21.3 °C
Test Date: Oct. 4, 2010

DUT: UML290 Vertical; Type: Bar; Serial: #1

Communication System: CDMA 835MHz FCC; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 836.52 \text{ MHz}$; $\sigma = 0.982 \text{ mho/m}$; $\epsilon_r = 56.8$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.17, 6.17, 6.17); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Body 384/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

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

Body 384/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

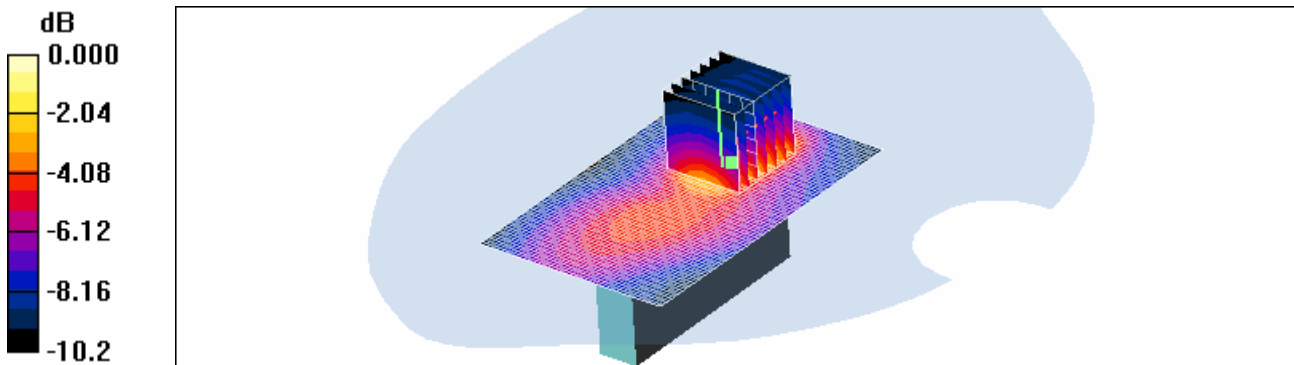
Reference Value = 11.6 V/m; Power Drift = 0.027 dB

Peak SAR (extrapolated) = 0.459 W/kg

SAR(1 g) = 0.211 mW/g; SAR(10 g) = 0.110 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.230 mW/g



0 dB = 0.230mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.1 °C
Ambient Temperature: 21.3 °C
Test Date: Oct. 4, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: CDMA 835MHz FCC; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 836.52 \text{ MHz}$; $\sigma = 0.982 \text{ mho/m}$; $\epsilon_r = 56.8$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.17, 6.17, 6.17); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Body 384/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.584 mW/g

Body 384/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

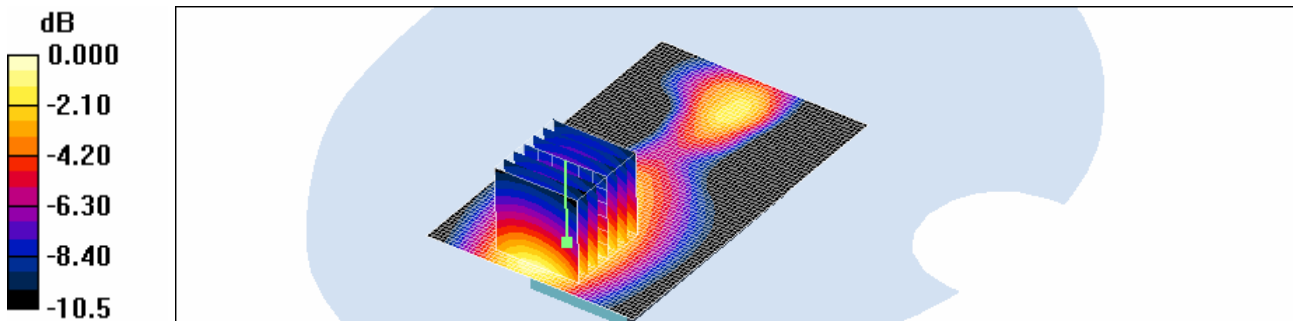
Reference Value = 20.7 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.760 W/kg

SAR(1 g) = 0.535 mW/g; SAR(10 g) = 0.355 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.575 mW/g



0 dB = 0.575mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.1 °C
Ambient Temperature: 21.3 °C
Test Date: Oct. 4, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: CDMA 835MHz FCC; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 836.52 \text{ MHz}$; $\sigma = 0.982 \text{ mho/m}$; $\epsilon_r = 56.8$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.17, 6.17, 6.17); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Body 384/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.144 mW/g

Body 384/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

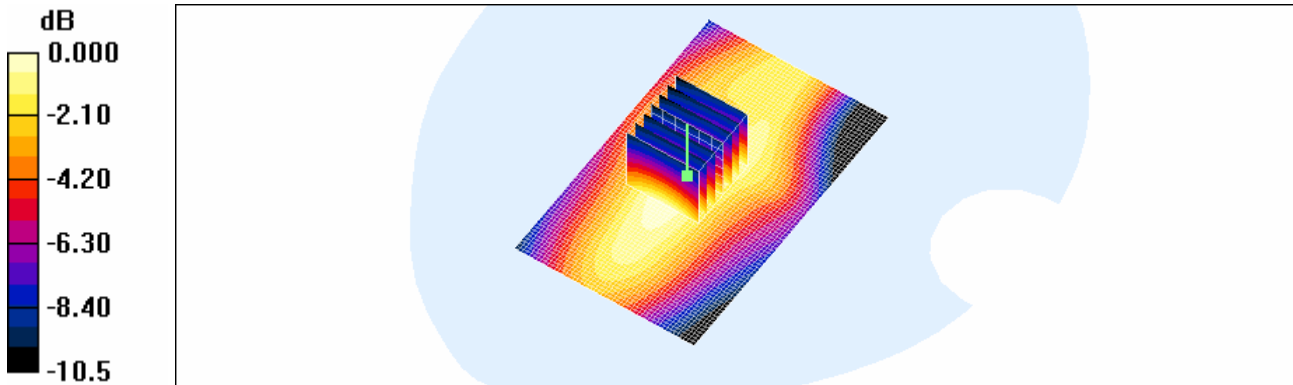
Reference Value = 8.65 V/m; Power Drift = 0.04 dB

Peak SAR (extrapolated) = 0.199 W/kg

SAR(1 g) = 0.132 mW/g; SAR(10 g) = 0.087 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.141 mW/g



0 dB = 0.141mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.1 °C
Ambient Temperature: 21.3 °C
Test Date: Oct. 4, 2010

DUT: UML290 Vertical; Type: Bar; Serial: #1

Communication System: CDMA 835MHz FCC; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 836.52 \text{ MHz}$; $\sigma = 0.982 \text{ mho/m}$; $\epsilon_r = 56.8$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.17, 6.17, 6.17); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Body 384/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.169 mW/g

Body 384/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

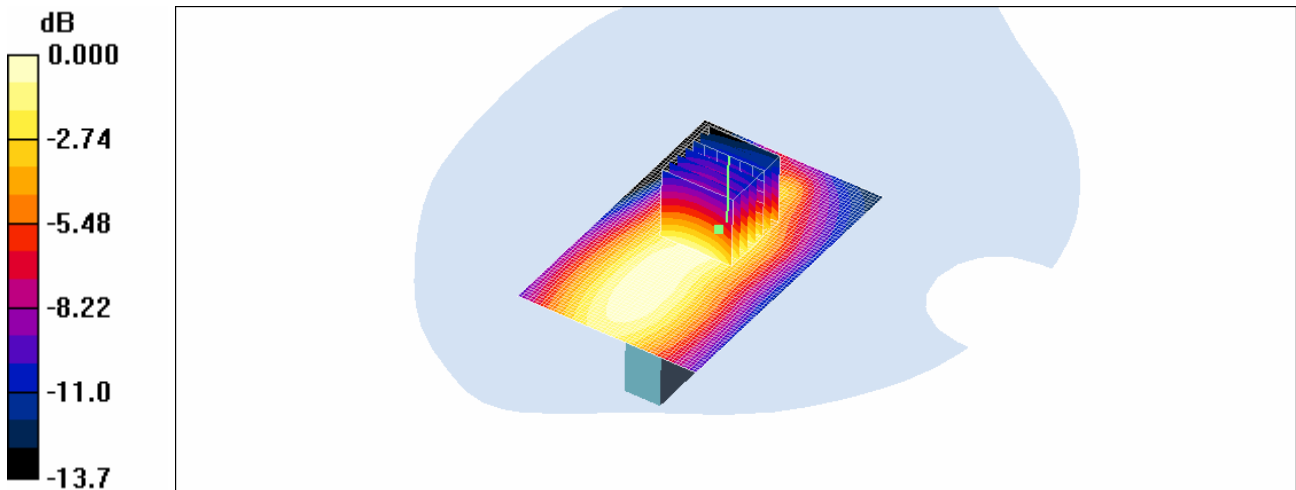
Reference Value = 7.76 V/m; Power Drift = -0.040 dB

Peak SAR (extrapolated) = 0.244 W/kg

SAR(1 g) = 0.144 mW/g; SAR(10 g) = 0.090 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.160 mW/g



0 dB = 0.160mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.1 °C
Ambient Temperature: 21.3 °C
Test Date: Oct. 4, 2010

DUT: UML290 Vertical; Type: Bar; Serial: #1

Communication System: CDMA 835MHz FCC; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 836.52 \text{ MHz}$; $\sigma = 0.982 \text{ mho/m}$; $\epsilon_r = 56.8$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8
Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.17, 6.17, 6.17); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Body 384/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.233 mW/g

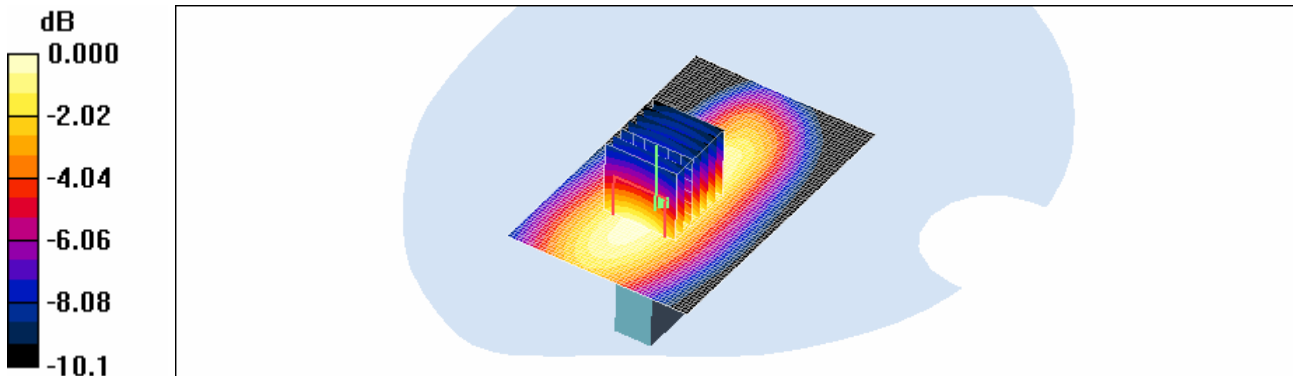
Body 384/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.5 V/m; Power Drift = -0.054 dB

Peak SAR (extrapolated) = 0.337 W/kg

SAR(1 g) = 0.221 mW/g; SAR(10 g) = 0.147 mW/g

Maximum value of SAR (measured) = 0.241 mW/g



0 dB = 0.241 mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.1 °C
Ambient Temperature: 21.3 °C
Test Date: Oct. 4, 2010

DUT: UML290 Top; Type: Bar; Serial: #1

Communication System: CDMA 835MHz FCC; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 836.52 \text{ MHz}$; $\sigma = 0.982 \text{ mho/m}$; $\epsilon_r = 56.8$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.17, 6.17, 6.17); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Body 384/Area Scan (61x51x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.302 mW/g

Body 384/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

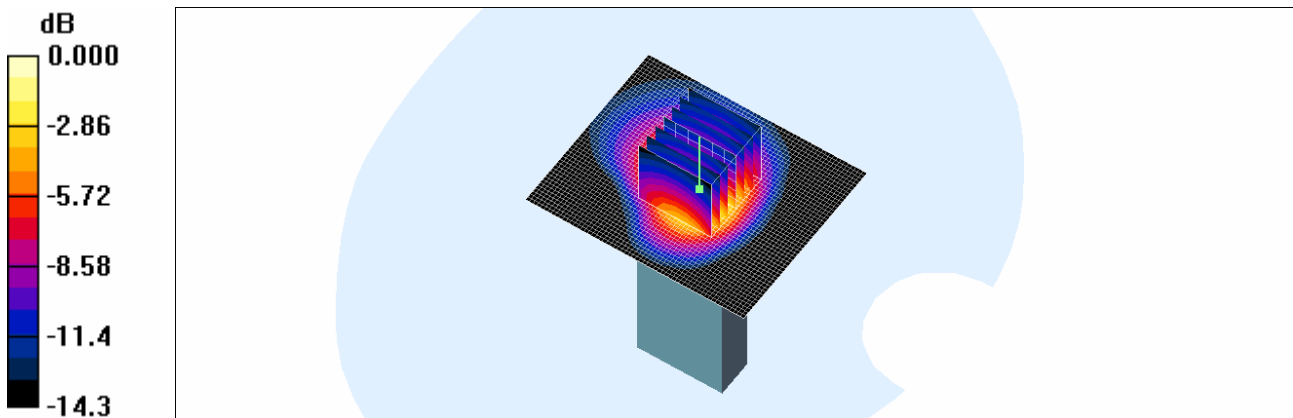
Reference Value = 16.9 V/m; Power Drift = 0.156 dB

Peak SAR (extrapolated) = 0.461 W/kg

SAR(1 g) = 0.242 mW/g; SAR(10 g) = 0.127 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.272 mW/g



0 dB = 0.272mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 5, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: PCS 1900; Frequency: 1851.25 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 1851.25$ MHz; $\sigma = 1.5$ mho/m; $\epsilon_r = 54.1$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 25/Area Scan (61x71x1): Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 1.25 mW/g

Body 25/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

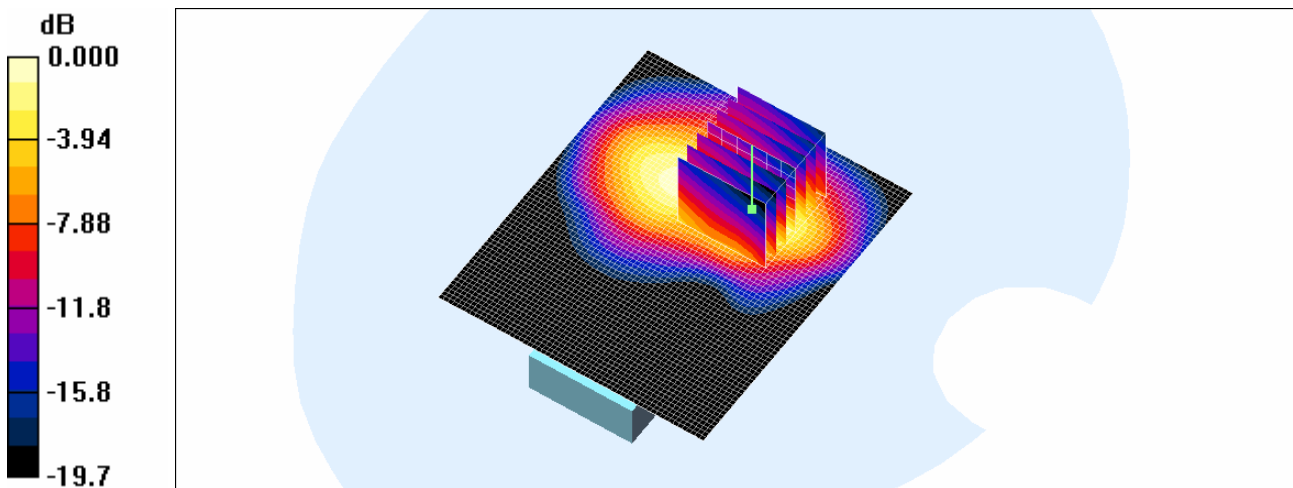
Reference Value = 28.8 V/m; Power Drift = -0.096 dB

Peak SAR (extrapolated) = 1.82 W/kg

SAR(1 g) = 1.02 mW/g; SAR(10 g) = 0.543 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 1.18 mW/g



0 dB = 1.18mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 5, 2010

DUT: UML290; Type: Bar; Serial: #1

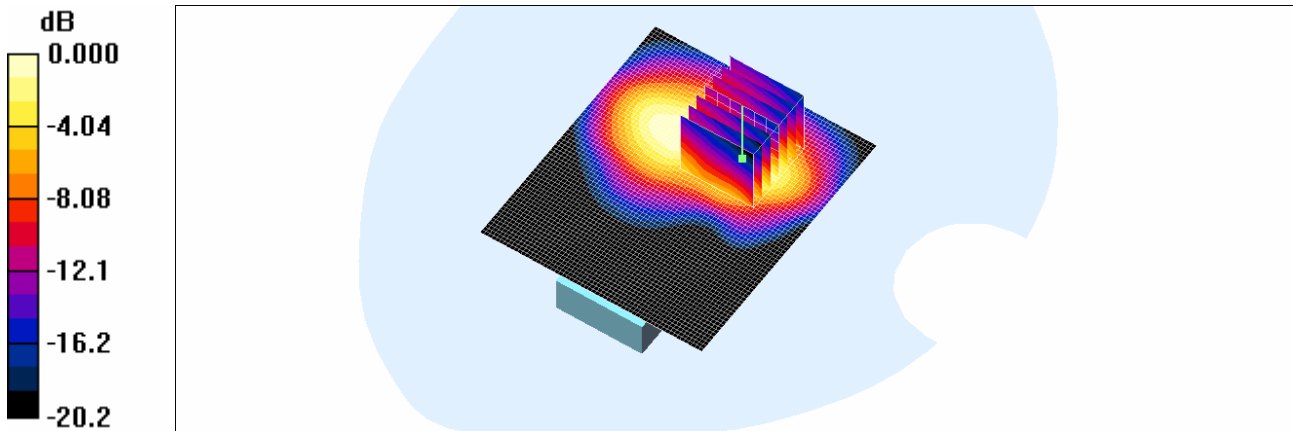
Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1880$ MHz; $\sigma = 1.53$ mho/m; $\epsilon_r = 54.1$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 600/Area Scan (61x71x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.14 mW/g

Body 600/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 26.6 V/m; Power Drift = 0.190 dB
Peak SAR (extrapolated) = 1.68 W/kg
SAR(1 g) = 0.946 mW/g; SAR(10 g) = 0.513 mW/g
Maximum value of SAR (measured) = 1.09 mW/g



0 dB = 1.09mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 5, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: PCS 1900; Frequency: 1908.75 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 1908.75 \text{ MHz}$; $\sigma = 1.55 \text{ mho/m}$; $\epsilon_r = 53.9$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 1175/Area Scan (61x71x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 1.06 mW/g

Body 1175/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 24.2 V/m; Power Drift = -0.106 dB

Peak SAR (extrapolated) = 1.57 W/kg

SAR(1 g) = 0.865 mW/g; SAR(10 g) = 0.435 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.978 mW/g

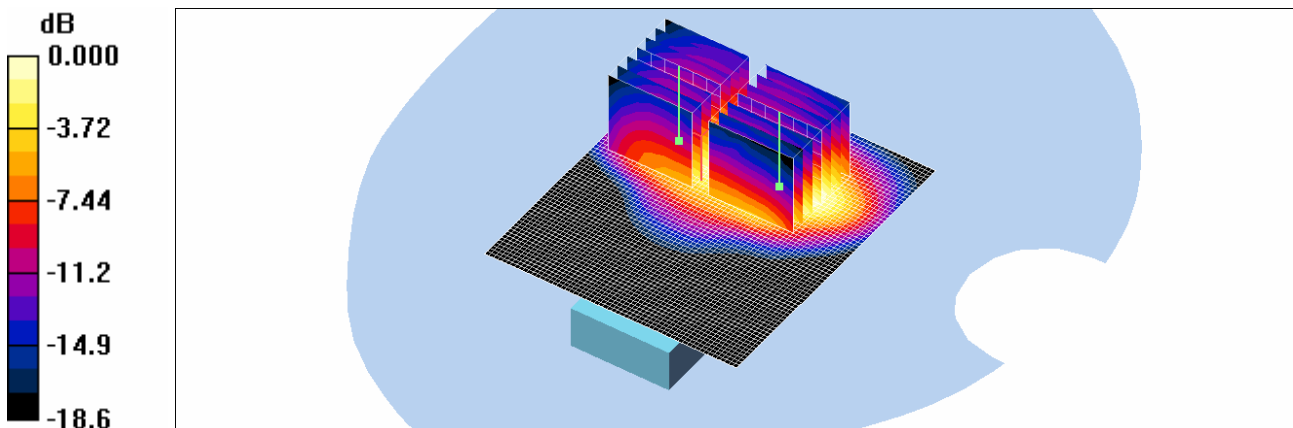
Body 1175/Zoom Scan (7x7x7)/Cube 1: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 24.2 V/m; Power Drift = -0.106 dB

Peak SAR (extrapolated) = 1.03 W/kg

SAR(1 g) = 0.638 mW/g; SAR(10 g) = 0.340 mW/g

Maximum value of SAR (measured) = 0.732 mW/g



0 dB = 0.732mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 5, 2010

DUT: UML290; Type: Bar; Serial: #1

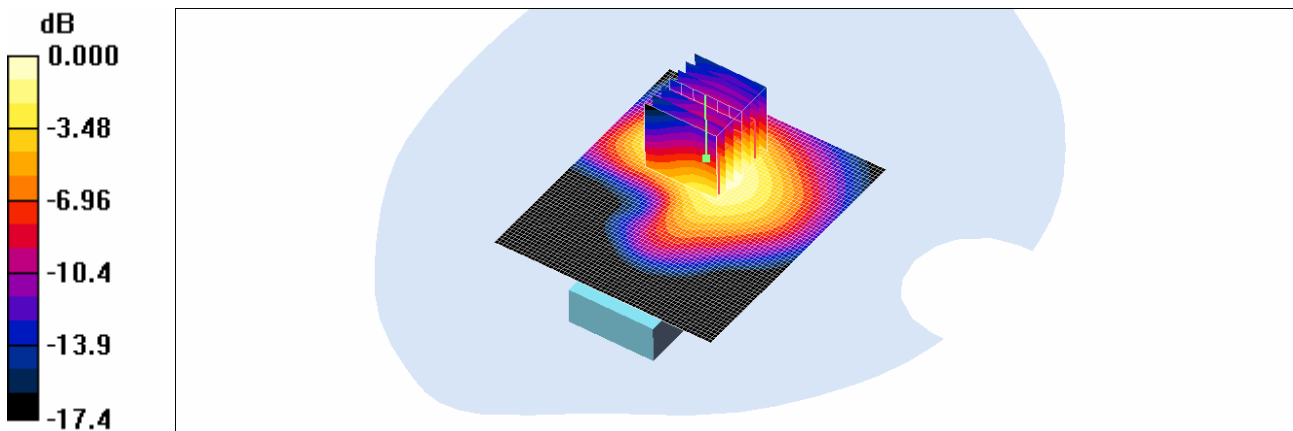
Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1880$ MHz; $\sigma = 1.53$ mho/m; $\epsilon_r = 54.1$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 600/Area Scan (61x71x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.454 mW/g

Body 600/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.7 V/m; Power Drift = -0.042 dB
Peak SAR (extrapolated) = 0.588 W/kg
SAR(1 g) = 0.410 mW/g; SAR(10 g) = 0.246 mW/g
Maximum value of SAR (measured) = 0.454 mW/g



0 dB = 0.454mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 5, 2010

DUT: UML290 Vertical; Type: Bar; Serial: #1

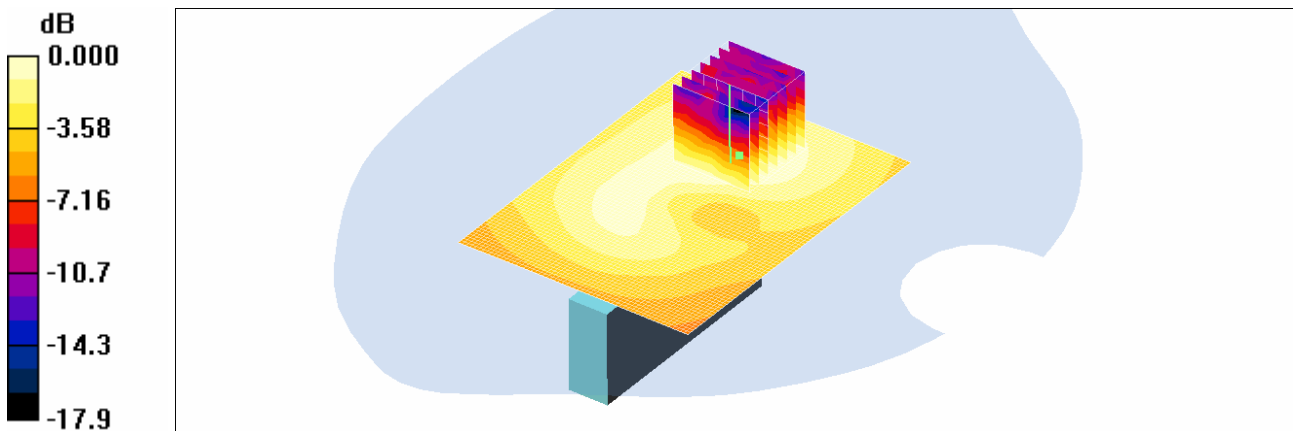
Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.53 \text{ mho/m}$; $\epsilon_r = 54.1$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 600/Area Scan (61x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.042 mW/g

Body 600/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
Reference Value = 5.42 V/m; Power Drift = 0.020 dB
Peak SAR (extrapolated) = 0.059 W/kg
SAR(1 g) = 0.039 mW/g; SAR(10 g) = 0.026 mW/g
Maximum value of SAR (measured) = 0.042 mW/g



0 dB = 0.042mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 5, 2010

DUT: UML290 Vertical; Type: Bar; Serial: #1

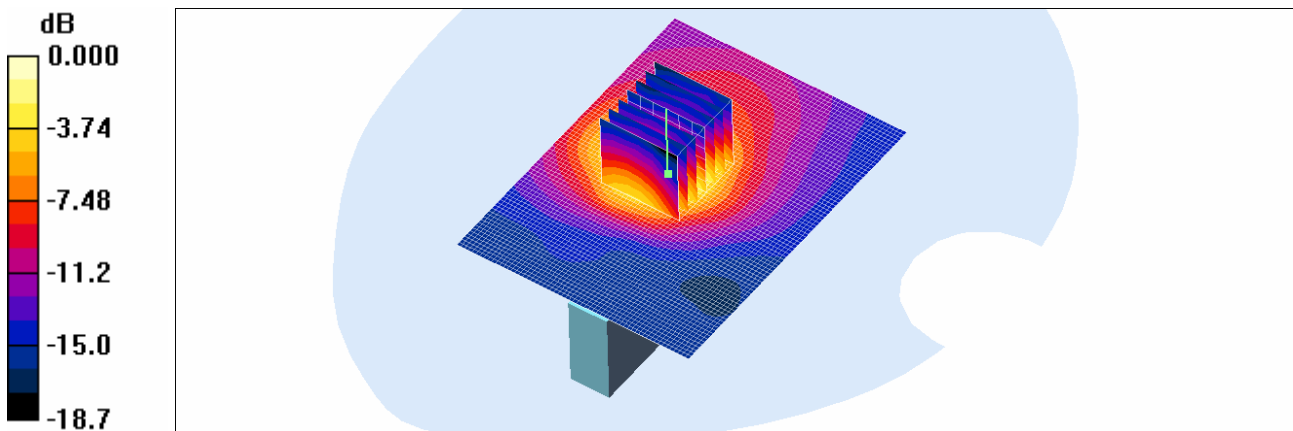
Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.53 \text{ mho/m}$; $\epsilon_r = 54.1$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 600/Area Scan (61x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.274 mW/g

Body 600/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
Reference Value = 8.40 V/m; Power Drift = 0.020 dB
Peak SAR (extrapolated) = 0.424 W/kg
SAR(1 g) = 0.241 mW/g; SAR(10 g) = 0.127 mW/g
Maximum value of SAR (measured) = 0.269 mW/g



0 dB = 0.269mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 5, 2010

DUT: UML290; Type: Bar; Serial: #1

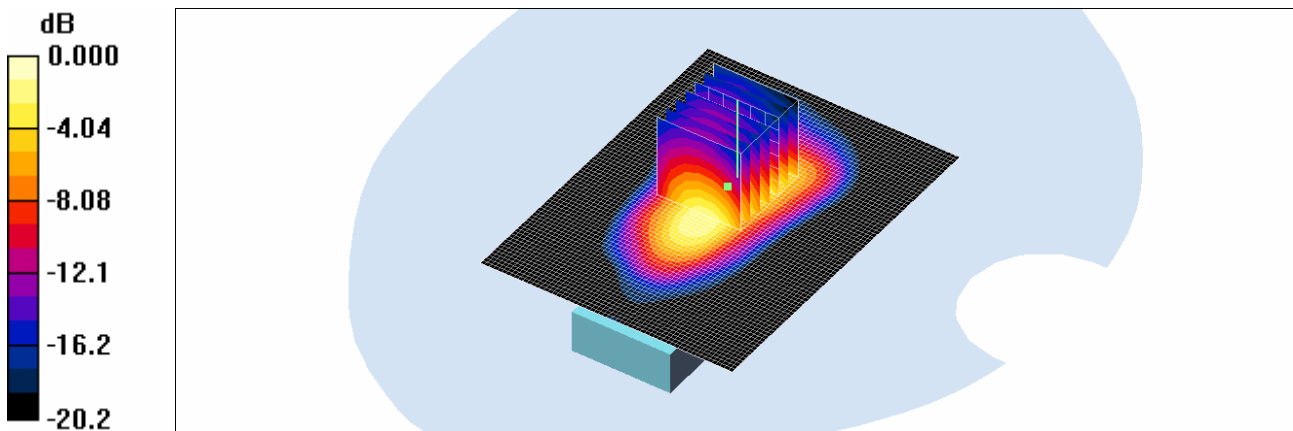
Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.53 \text{ mho/m}$; $\epsilon_r = 54.1$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 600/Area Scan (61x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.753 mW/g

Body 600/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
Reference Value = 20.2 V/m; Power Drift = 0.038 dB
Peak SAR (extrapolated) = 1.38 W/kg
SAR(1 g) = 0.734 mW/g; SAR(10 g) = 0.362 mW/g
Maximum value of SAR (measured) = 0.850 mW/g



0 dB = 0.850mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 5, 2010

DUT: UML290; Type: Bar; Serial: #1

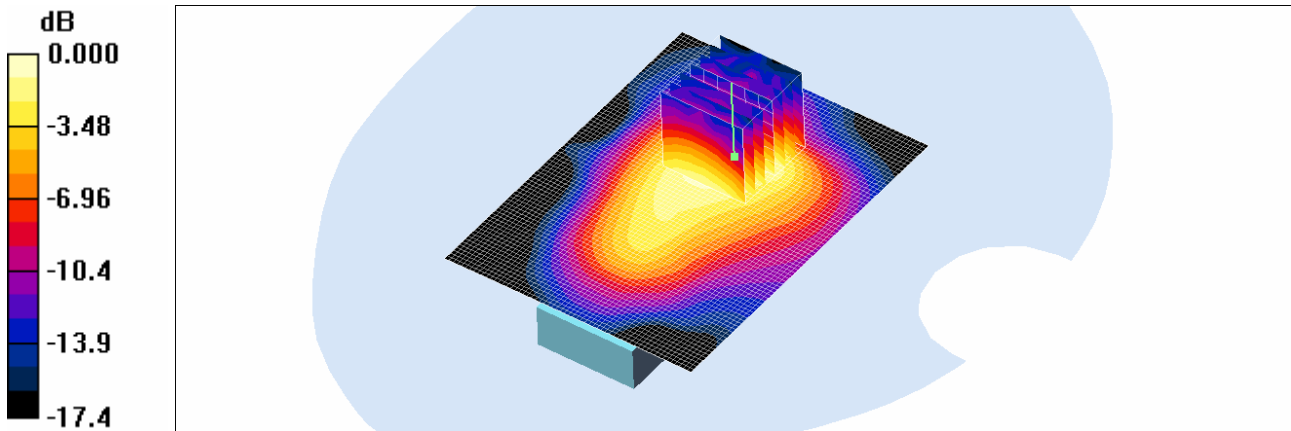
Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1880$ MHz; $\sigma = 1.53$ mho/m; $\epsilon_r = 54.1$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 600/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.158 mW/g

Body 600/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.2 V/m; Power Drift = -0.163 dB
Peak SAR (extrapolated) = 0.197 W/kg
SAR(1 g) = 0.123 mW/g; SAR(10 g) = 0.071 mW/g
Maximum value of SAR (measured) = 0.139 mW/g



0 dB = 0.139mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 5, 2010

DUT: UML290 Vertical; Type: Bar; Serial: #1

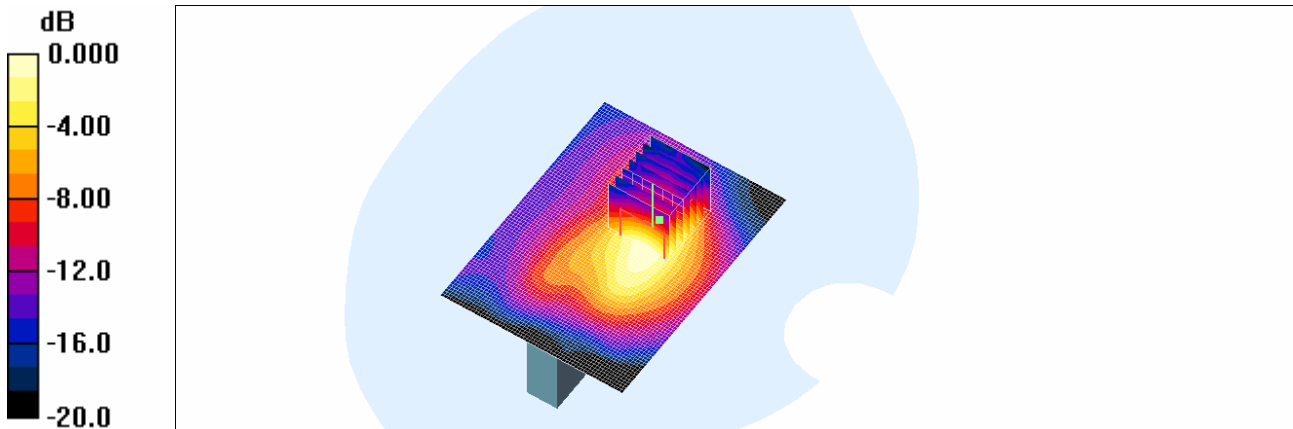
Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.53 \text{ mho/m}$; $\epsilon_r = 54.1$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 600/Area Scan (61x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.168 mW/g

Body 600/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
Reference Value = 9.59 V/m; Power Drift = -0.005 dB
Peak SAR (extrapolated) = 0.244 W/kg
SAR(1 g) = 0.149 mW/g; SAR(10 g) = 0.081 mW/g
Maximum value of SAR (measured) = 0.167 mW/g



0 dB = 0.167mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 5, 2010

DUT: UML290 Vertical; Type: Bar; Serial: #1

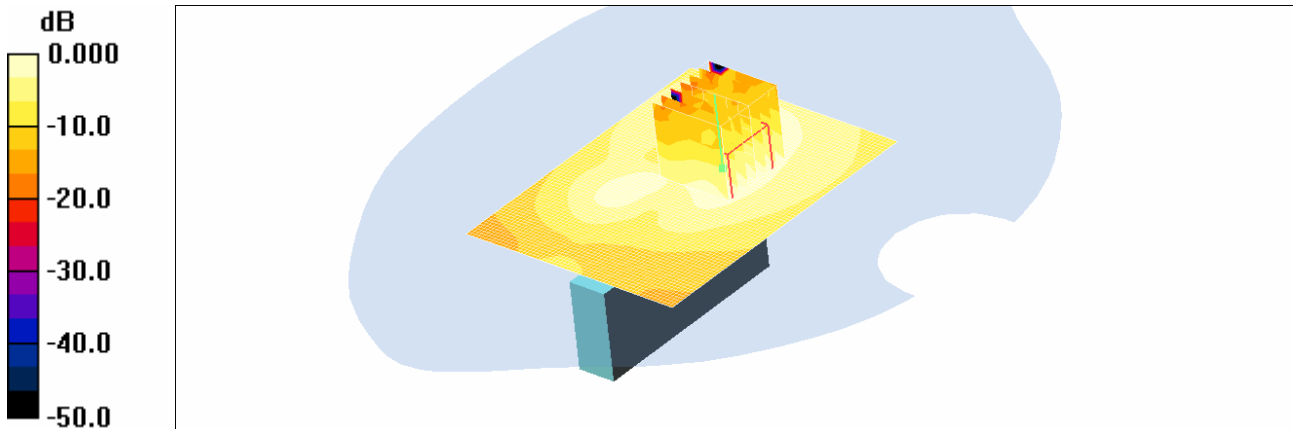
Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.53 \text{ mho/m}$; $\epsilon_r = 54.1$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 600/Area Scan (61x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.041 mW/g

Body 600/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
Reference Value = 5.11 V/m; Power Drift = -0.109 dB
Peak SAR (extrapolated) = 0.060 W/kg
SAR(1 g) = 0.034 mW/g; SAR(10 g) = 0.019 mW/g
Maximum value of SAR (measured) = 0.039 mW/g



0 dB = 0.039mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 5, 2010

DUT: UML290 Top; Type: Bar; Serial: #1

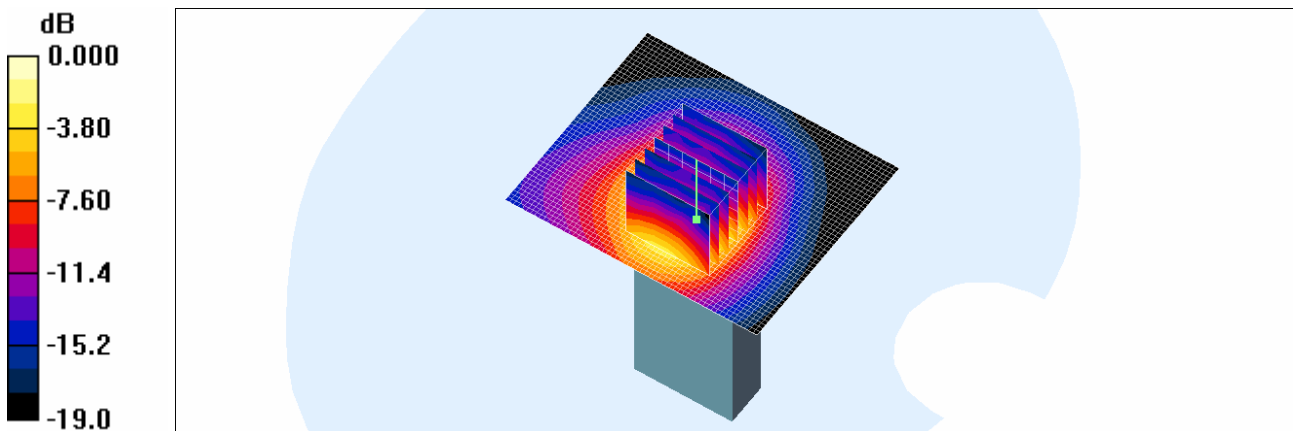
Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1880$ MHz; $\sigma = 1.53$ mho/m; $\epsilon_r = 54.1$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 600/Area Scan (61x51x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.235 mW/g

Body 600/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.1 V/m; Power Drift = 0.043 dB
Peak SAR (extrapolated) = 0.348 W/kg
SAR(1 g) = 0.197 mW/g; SAR(10 g) = 0.104 mW/g
Maximum value of SAR (measured) = 0.221 mW/g



0 dB = 0.221mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct. 6, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.984 \text{ mho/m}$; $\epsilon_r = 56.9$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.17, 6.17, 6.17); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Body 190/Area Scan (51x71x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.564 mW/g

Body 190/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 12.1 V/m; Power Drift = -0.119 dB

Peak SAR (extrapolated) = 0.710 W/kg

SAR(1 g) = 0.533 mW/g; SAR(10 g) = 0.377 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

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

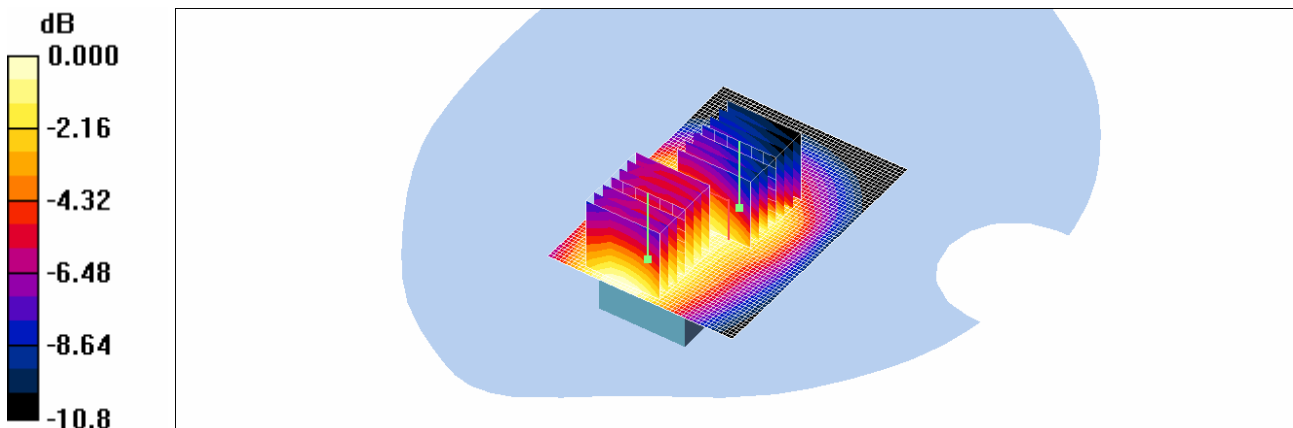
Body 190/Zoom Scan (7x7x7)/Cube 1: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 12.1 V/m; Power Drift = -0.119 dB

Peak SAR (extrapolated) = 0.779 W/kg

SAR(1 g) = 0.476 mW/g; SAR(10 g) = 0.329 mW/g

Maximum value of SAR (measured) = 0.511 mW/g



0 dB = 0.511mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct. 6, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:4.15
Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.984 \text{ mho/m}$; $\epsilon_r = 56.9$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.17, 6.17, 6.17); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Body 190/Area Scan (51x71x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.576 mW/g

Body 190/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 12.2 V/m; Power Drift = -0.141 dB

Peak SAR (extrapolated) = 0.839 W/kg

SAR(1 g) = 0.511 mW/g; SAR(10 g) = 0.352 mW/g

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

Body 190/Zoom Scan (7x7x7)/Cube 1: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

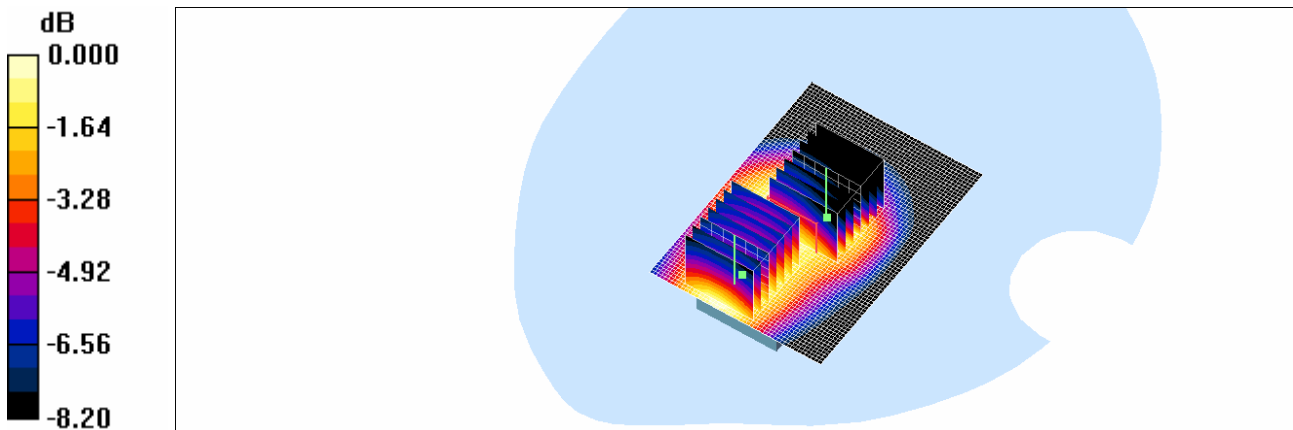
Reference Value = 12.2 V/m; Power Drift = -0.141 dB

Peak SAR (extrapolated) = 0.680 W/kg

SAR(1 g) = 0.517 mW/g; SAR(10 g) = 0.375 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.553 mW/g



0 dB = 0.553mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct. 6, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:2.77
Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.984 \text{ mho/m}$; $\epsilon_r = 56.9$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.17, 6.17, 6.17); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Body 190/Area Scan (51x71x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.437 mW/g

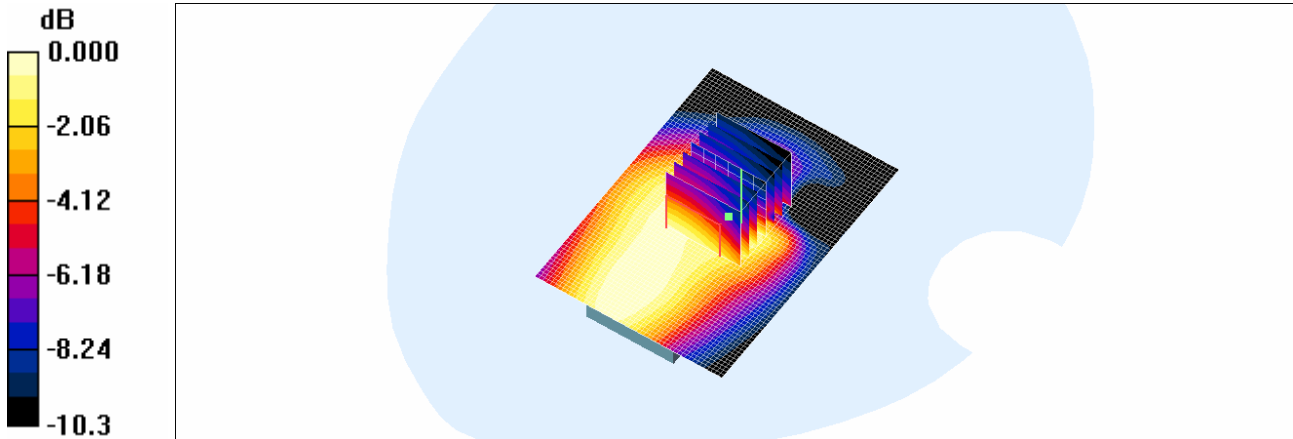
Body 190/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 10.3 V/m; Power Drift = 0.122 dB

Peak SAR (extrapolated) = 0.544 W/kg

SAR(1 g) = 0.352 mW/g; SAR(10 g) = 0.242 mW/g

Maximum value of SAR (measured) = 0.386 mW/g



0 dB = 0.386mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct. 6, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:2.075
Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.984$ mho/m; $\epsilon_r = 56.9$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.17, 6.17, 6.17); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Body 190/Area Scan (51x71x1): Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.412 mW/g

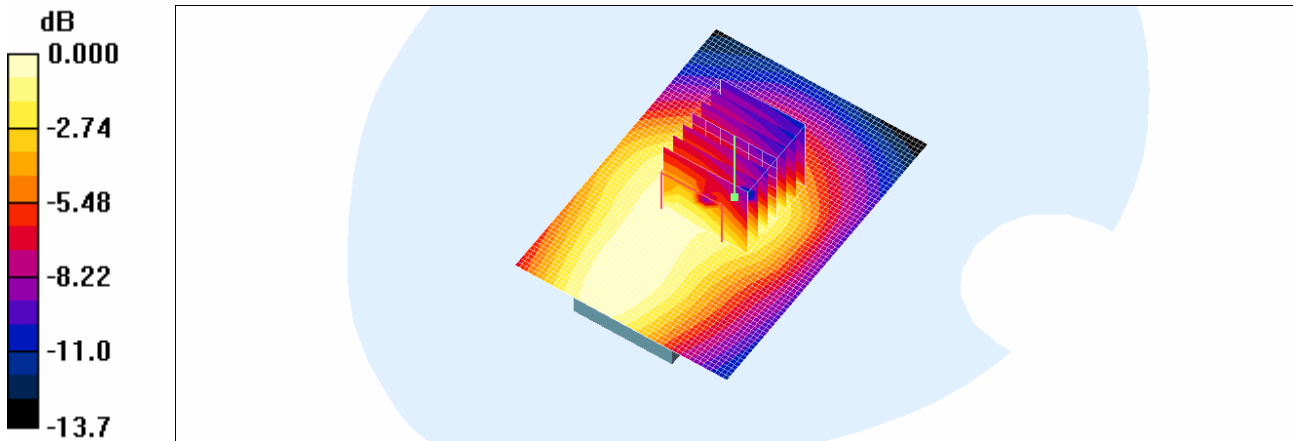
Body 190/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.7 V/m; Power Drift = -0.012 dB

Peak SAR (extrapolated) = 0.610 W/kg

SAR(1 g) = 0.373 mW/g; SAR(10 g) = 0.256 mW/g

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



0 dB = 0.406mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct. 6, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.984$ mho/m; $\epsilon_r = 56.9$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.17, 6.17, 6.17); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Body 190/Area Scan (51x71x1): Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.433 mW/g

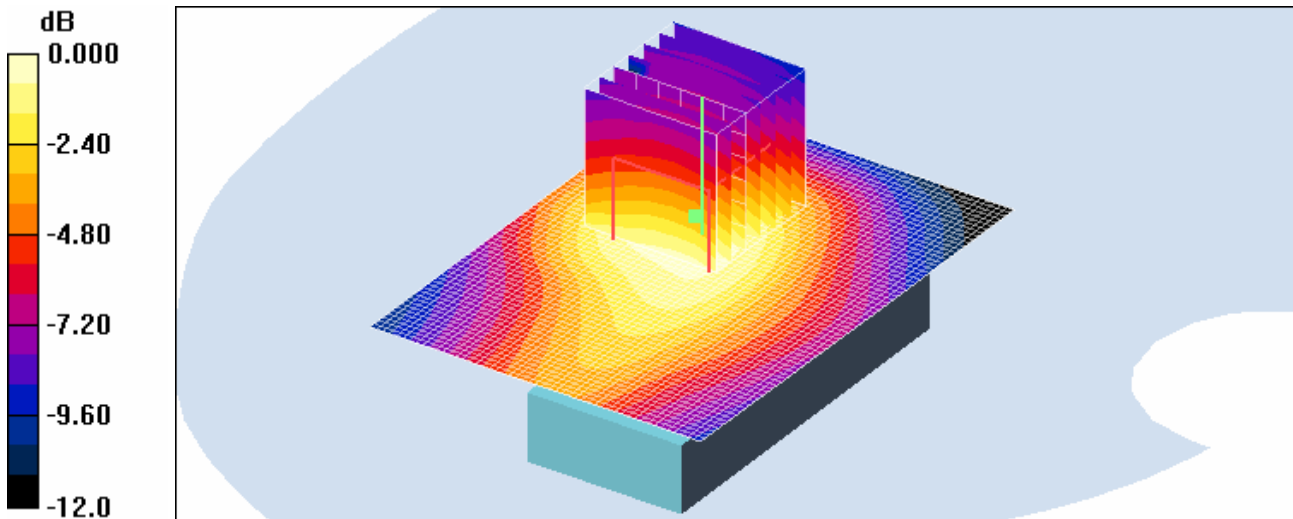
Body 190/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.4 V/m; Power Drift = -0.008 dB

Peak SAR (extrapolated) = 0.579 W/kg

SAR(1 g) = 0.393 mW/g; SAR(10 g) = 0.268 mW/g

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



0 dB = 0.423mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct. 6, 2010

DUT: UML290 Vertical; Type: Bar; Serial: #1

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.984 \text{ mho/m}$; $\epsilon_r = 56.9$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.17, 6.17, 6.17); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Body 190/Area Scan (51x71x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.079 mW/g

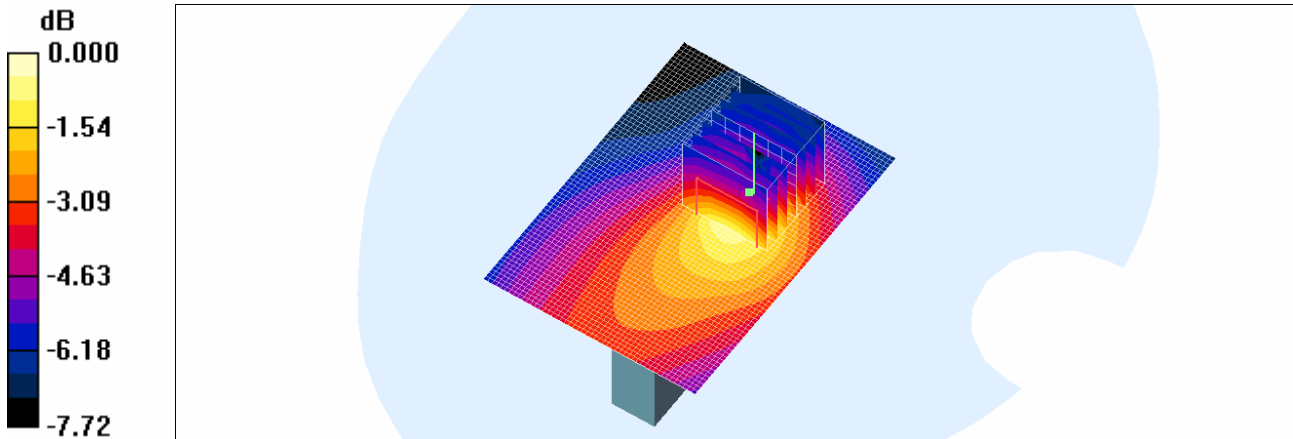
Body 190/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 7.38 V/m; Power Drift = -0.143 dB

Peak SAR (extrapolated) = 0.105 W/kg

SAR(1 g) = 0.069 mW/g; SAR(10 g) = 0.047 mW/g

Maximum value of SAR (measured) = 0.075 mW/g



0 dB = 0.075mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct. 6, 2010

DUT: UML290 Vertical; Type: Bar; Serial: #1

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.984 \text{ mho/m}$; $\epsilon_r = 56.9$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.17, 6.17, 6.17); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Body 190/Area Scan (51x71x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

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

Body 190/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

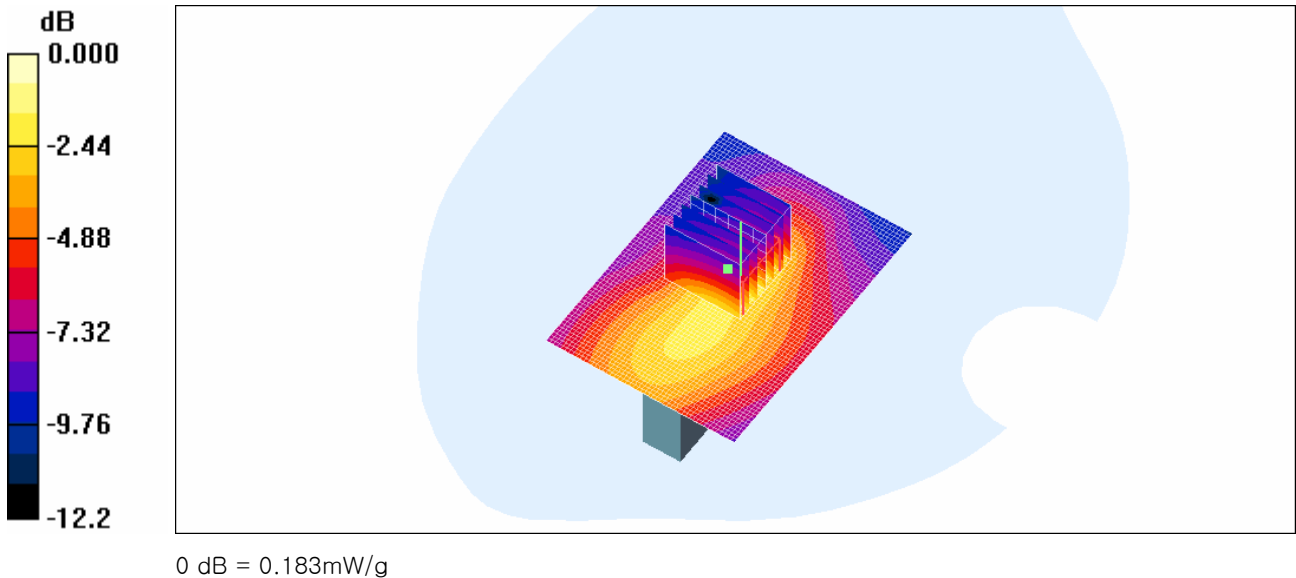
Reference Value = 8.56 V/m; Power Drift = 0.111 dB

Peak SAR (extrapolated) = 0.301 W/kg

SAR(1 g) = 0.149 mW/g; SAR(10 g) = 0.087 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.183 mW/g



Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct. 6, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.984 \text{ mho/m}$; $\epsilon_r = 56.9$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.17, 6.17, 6.17); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Body 190/Area Scan (51x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.555 mW/g

Body 190/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

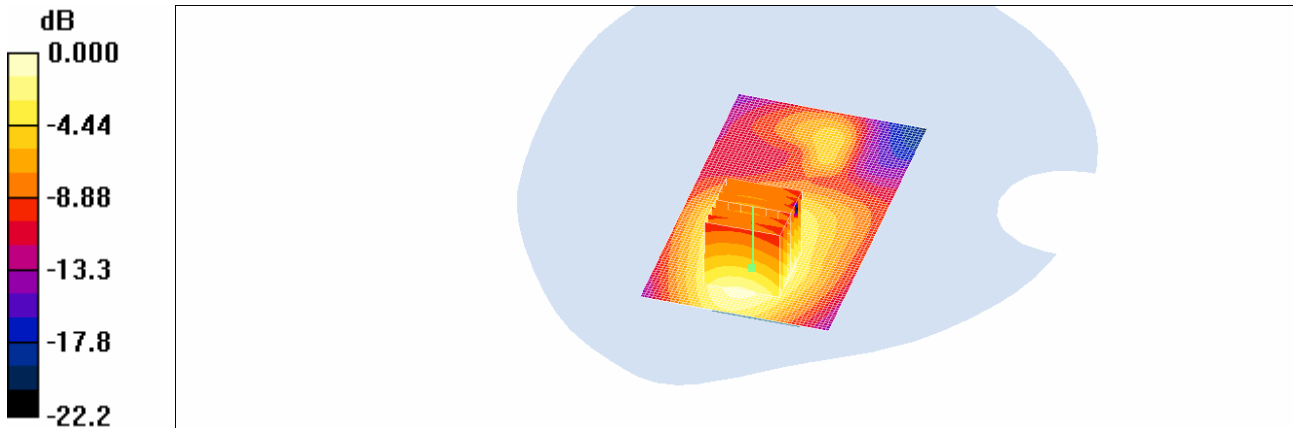
Reference Value = 12.9 V/m; Power Drift = -0.126 dB

Peak SAR (extrapolated) = 0.726 W/kg

SAR(1 g) = 0.508 mW/g; SAR(10 g) = 0.343 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.552 mW/g



0 dB = 0.552mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct. 6, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:4.15
Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.984$ mho/m; $\epsilon_r = 56.9$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.17, 6.17, 6.17); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Body 190/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.564 mW/g

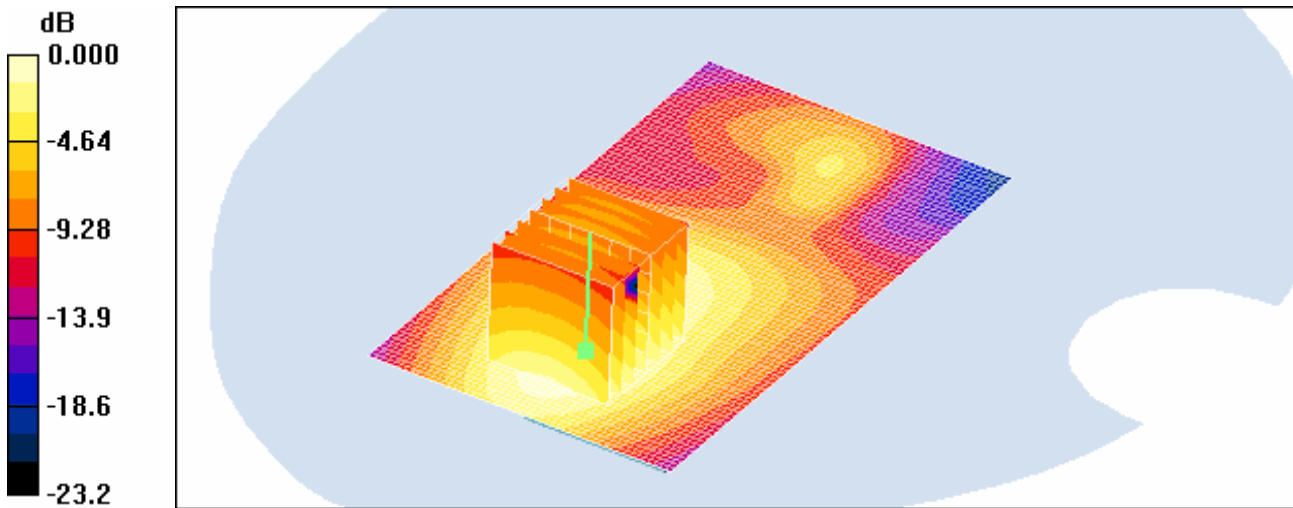
Body 190/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.0 V/m; Power Drift = -0.164 dB

Peak SAR (extrapolated) = 2.26 W/kg

SAR(1 g) = 0.539 mW/g; SAR(10 g) = 0.347 mW/g

Maximum value of SAR (measured) = 0.539 mW/g



0 dB = 0.539mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct. 6, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:2.77
Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.984 \text{ mho/m}$; $\epsilon_r = 56.9$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.17, 6.17, 6.17); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Body 190/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.402 mW/g

Body 190/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

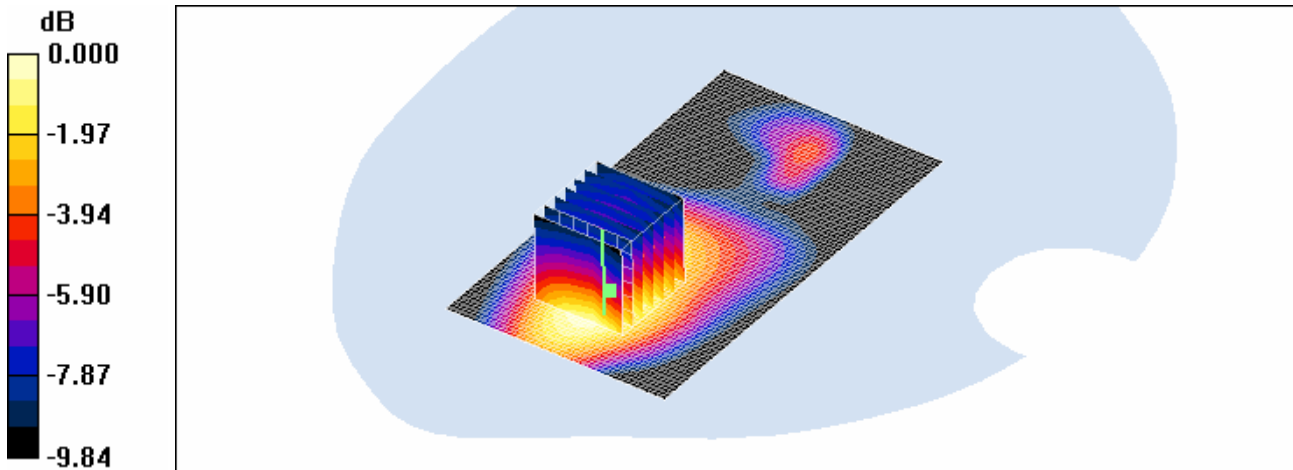
Reference Value = 11.8 V/m; Power Drift = -0.1 dB

Peak SAR (extrapolated) = 0.510 W/kg

SAR(1 g) = 0.353 mW/g; SAR(10 g) = 0.239 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.382 mW/g



0 dB = 0.382mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct. 6, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:2.075
Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.984$ mho/m; $\epsilon_r = 56.9$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.17, 6.17, 6.17); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Body 190/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.403 mW/g

Body 190/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

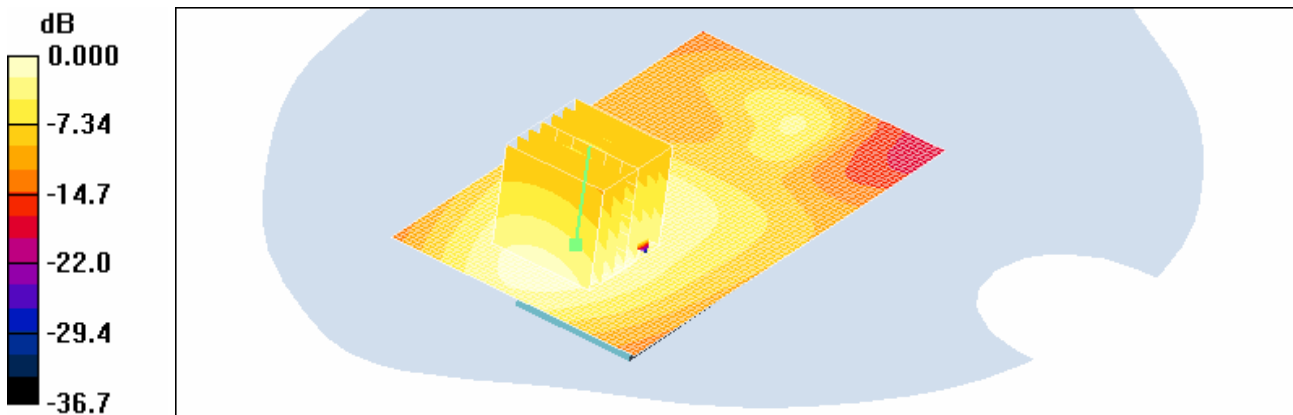
Reference Value = 11.5 V/m; Power Drift = -0.03 dB

Peak SAR (extrapolated) = 0.872 W/kg

SAR(1 g) = 0.366 mW/g; SAR(10 g) = 0.249 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

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



0 dB = 0.398mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct. 6, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:4.15
Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.984 \text{ mho/m}$; $\epsilon_r = 56.9$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.17, 6.17, 6.17); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Body 190/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.235 mW/g

Body 190/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

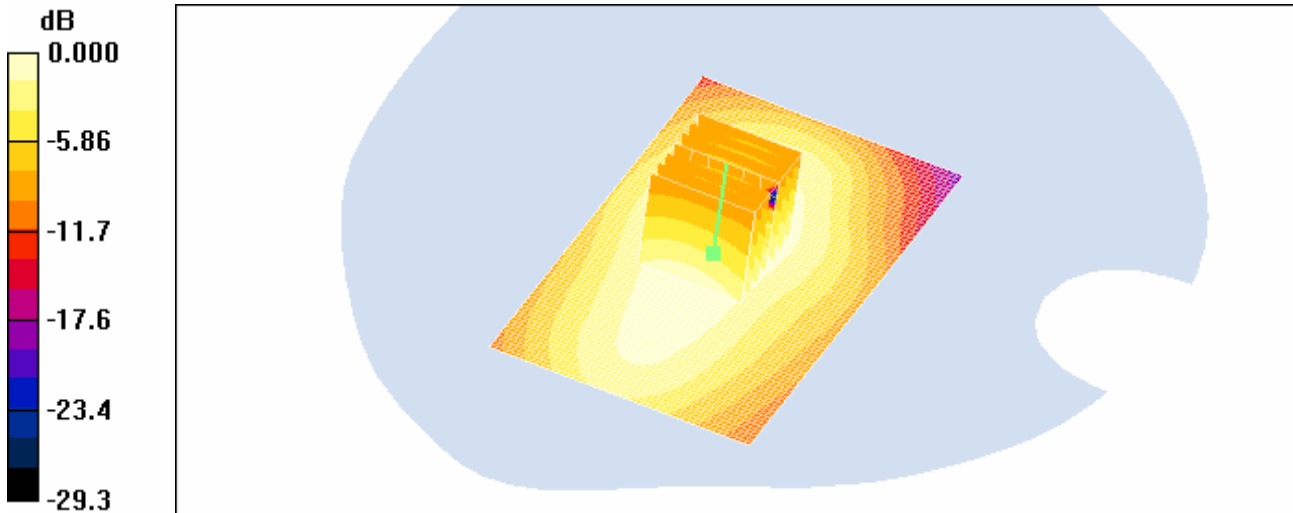
Reference Value = 13.3 V/m; Power Drift = -0.095 dB

Peak SAR (extrapolated) = 0.527 W/kg

SAR(1 g) = 0.226 mW/g; SAR(10 g) = 0.152 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.239 mW/g



0 dB = 0.239mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct. 6, 2010

DUT: UML290 Vertical; Type: Bar; Serial: #1

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:4.15
Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.984 \text{ mho/m}$; $\epsilon_r = 56.9$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.17, 6.17, 6.17); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Body 190/Area Scan (51x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

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

Body 190/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

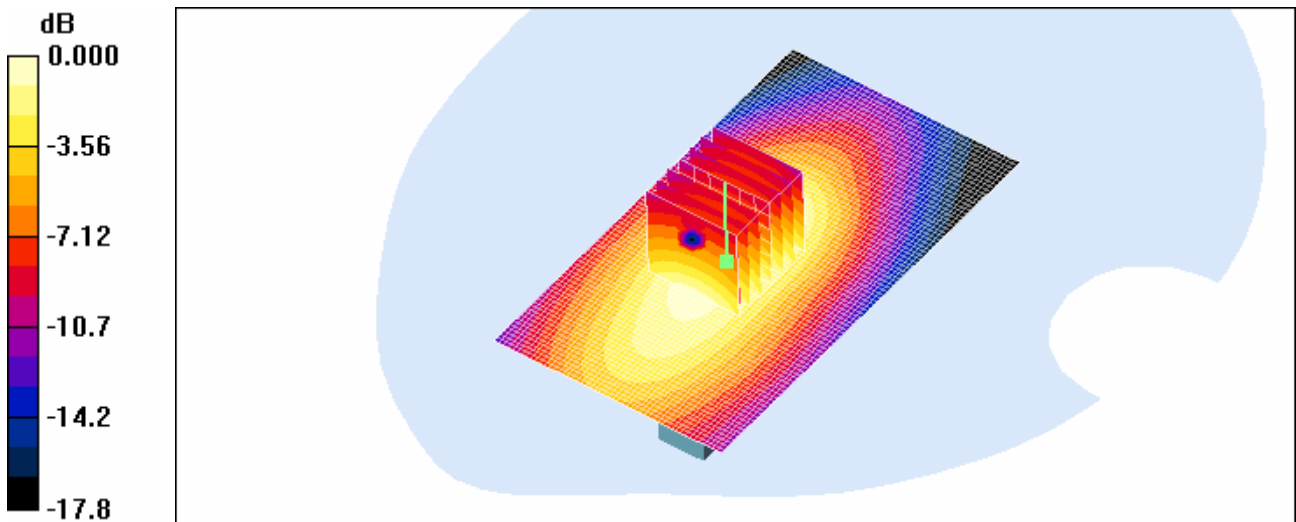
Reference Value = 8.46 V/m; Power Drift = 0.041 dB

Peak SAR (extrapolated) = 0.389 W/kg

SAR(1 g) = 0.257 mW/g; SAR(10 g) = 0.167 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.277 mW/g



0 dB = 0.277mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct. 6, 2010

DUT: UML290 Vertical; Type: Bar; Serial: #1

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:4.15
Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.984 \text{ mho/m}$; $\epsilon_r = 56.9$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.17, 6.17, 6.17); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Body 190/Area Scan (51x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.338 mW/g

Body 190/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

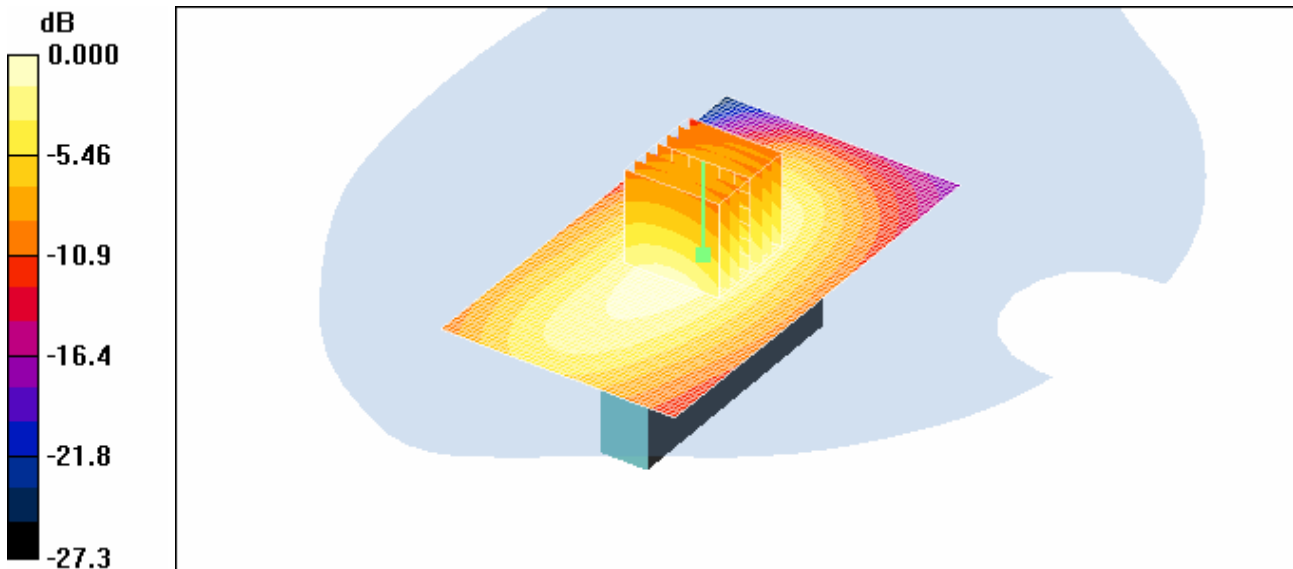
Reference Value = 13.1 V/m; Power Drift = -0.045 dB

Peak SAR (extrapolated) = 0.469 W/kg

SAR(1 g) = 0.315 mW/g; SAR(10 g) = 0.205 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

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



0 dB = 0.343mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct. 6, 2010

DUT: UML290 Top; Type: Bar; Serial: #1

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:4.15
Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.984$ mho/m; $\epsilon_r = 56.9$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.17, 6.17, 6.17); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Body 190/Area Scan (61x51x1): Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.252 mW/g

Body 190/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

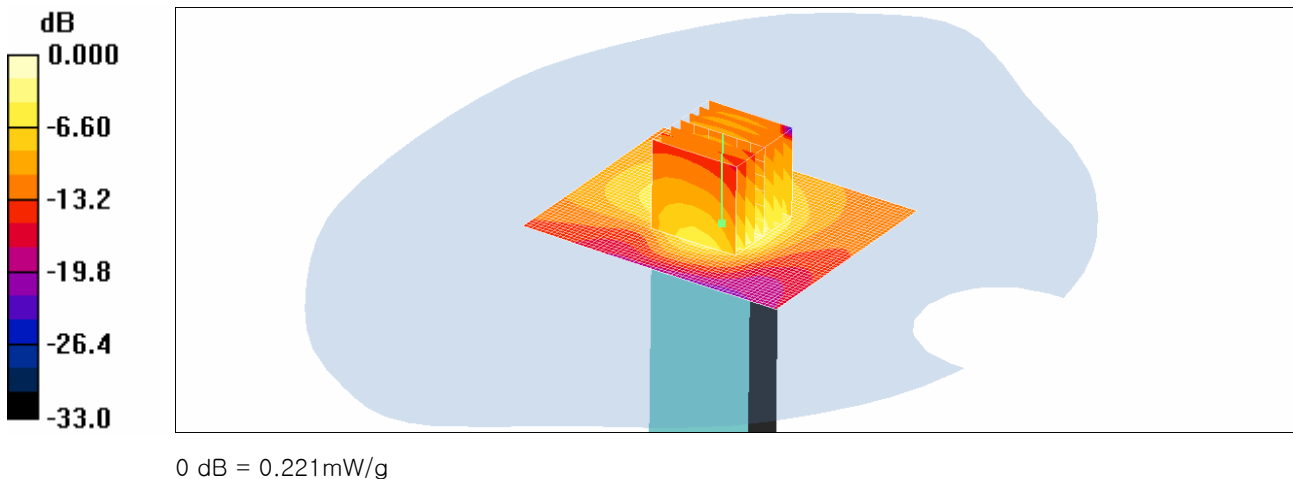
Reference Value = 15.5 V/m; Power Drift = -0.137 dB

Peak SAR (extrapolated) = 0.421 W/kg

SAR(1 g) = 0.199 mW/g; SAR(10 g) = 0.103 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.221 mW/g



Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 7, 2010

DUT: UML290; Type: Bar; Serial: #1

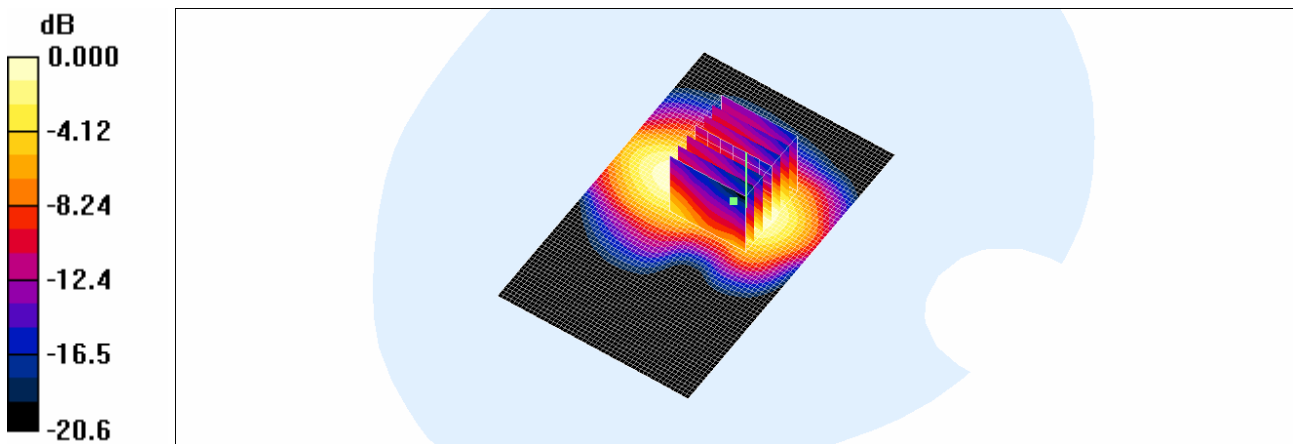
Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3
Medium parameters used: $f = 1880$ MHz; $\sigma = 1.47$ mho/m; $\epsilon_r = 53.7$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 661/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.881 mW/g

Body 661/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.0 V/m; Power Drift = -0.101 dB
Peak SAR (extrapolated) = 1.37 W/kg
SAR(1 g) = 0.767 mW/g; SAR(10 g) = 0.420 mW/g
Maximum value of SAR (measured) = 0.872 mW/g



0 dB = 0.872mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 7, 2010

DUT: UML290; Type: Bar; Serial: #1

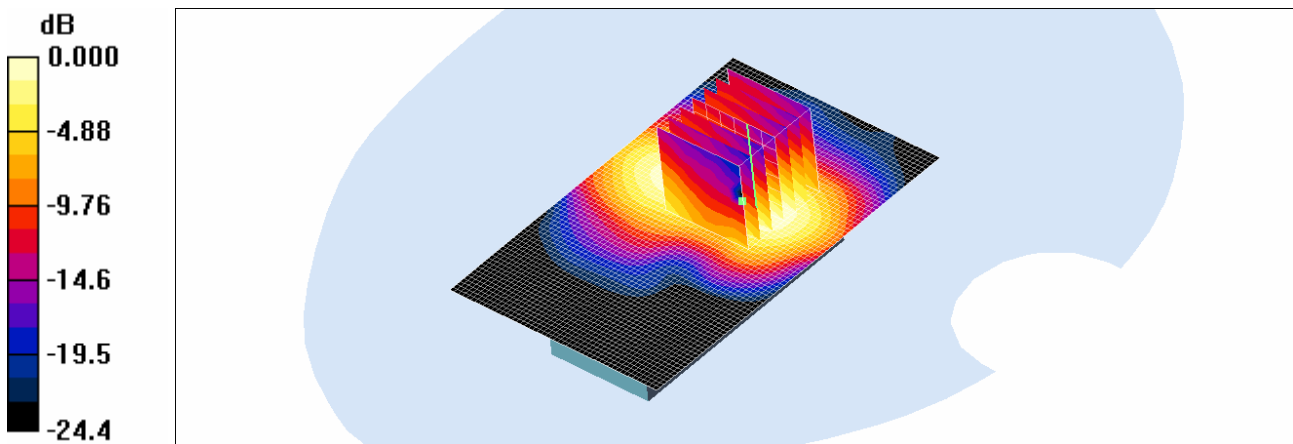
Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:4.15
Medium parameters used: $f = 1880$ MHz; $\sigma = 1.47$ mho/m; $\epsilon_r = 53.7$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 661/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.857 mW/g

Body 661/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.5 V/m; Power Drift = -0.062 dB
Peak SAR (extrapolated) = 2.27 W/kg
SAR(1 g) = 0.704 mW/g; SAR(10 g) = 0.385 mW/g
Maximum value of SAR (measured) = 0.788 mW/g



0 dB = 0.788mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 7, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: GSM 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:2.77
Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.45$ mho/m; $\epsilon_r = 53.9$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 512/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 1.09 mW/g

Body 512/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

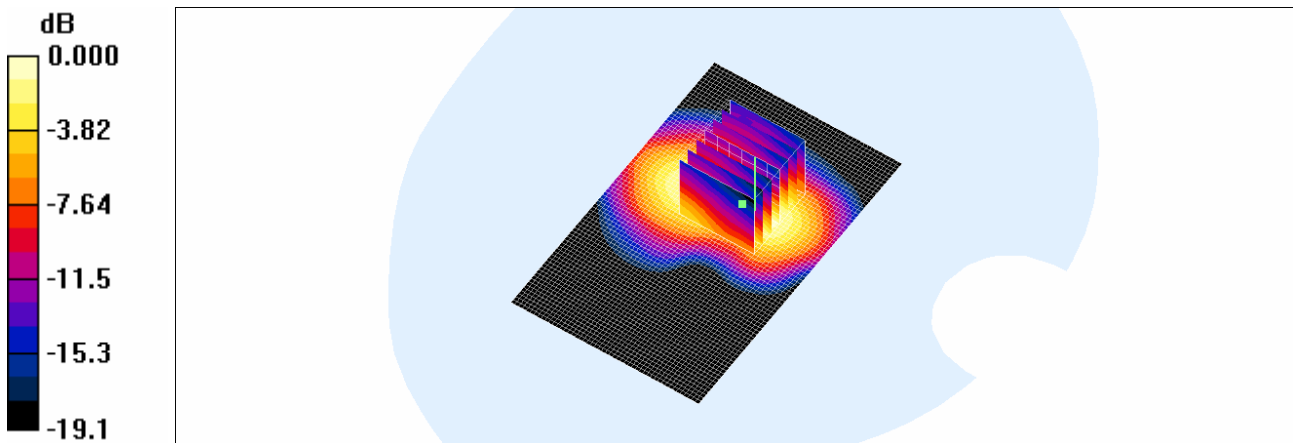
Reference Value = 15.5 V/m; Power Drift = 0.132 dB

Peak SAR (extrapolated) = 1.68 W/kg

SAR(1 g) = 0.939 mW/g; SAR(10 g) = 0.508 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 1.09 mW/g



0 dB = 1.09mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 7, 2010

DUT: UML290; Type: Bar; Serial: #1

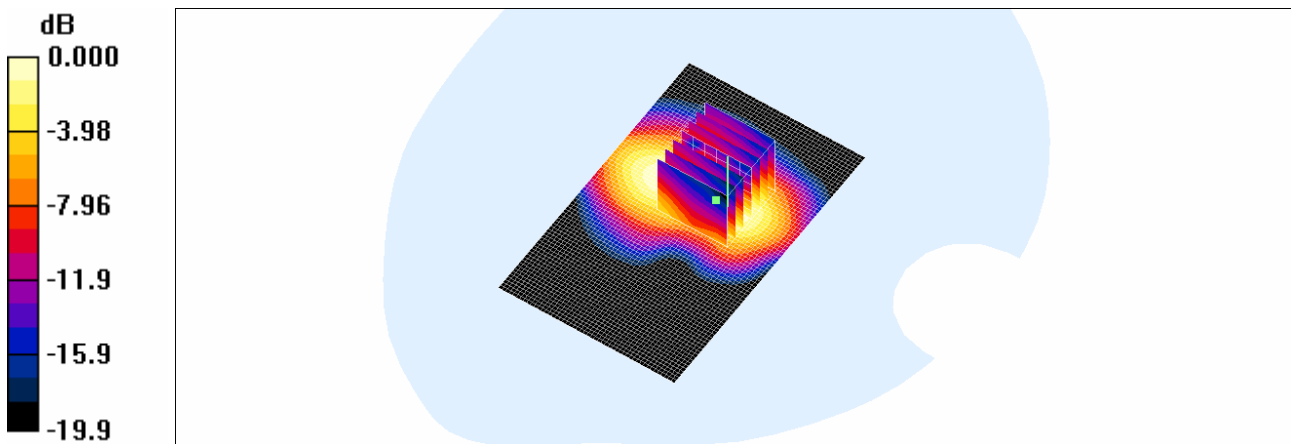
Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:2.77
Medium parameters used: $f = 1880$ MHz; $\sigma = 1.47$ mho/m; $\epsilon_r = 53.7$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 661/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.10 mW/g

Body 661/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.9 V/m; Power Drift = 0.003 dB
Peak SAR (extrapolated) = 1.71 W/kg
SAR(1 g) = 0.943 mW/g; SAR(10 g) = 0.515 mW/g
Maximum value of SAR (measured) = 1.09 mW/g



0 dB = 1.09mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 7, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: GSM 1900; Frequency: 1909.8 MHz; Duty Cycle: 1:2.77
Medium parameters used: $f = 1910$ MHz; $\sigma = 1.51$ mho/m; $\epsilon_r = 53.5$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

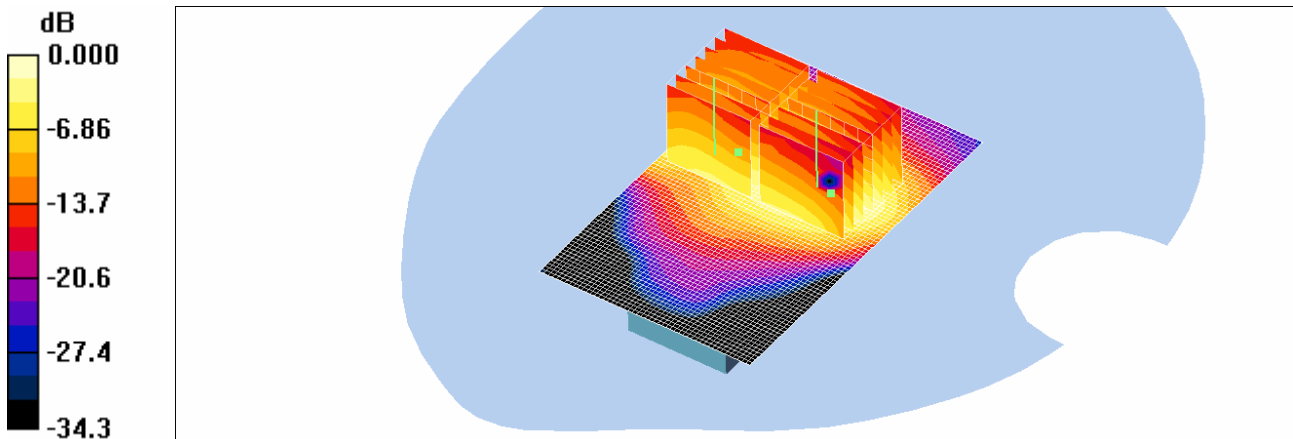
DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 810/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.832 mW/g

Body 810/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.5 V/m; Power Drift = 0.031 dB
Peak SAR (extrapolated) = 1.28 W/kg
SAR(1 g) = 0.741 mW/g; SAR(10 g) = 0.371 mW/g
Maximum value of SAR (measured) = 0.845 mW/g

Body 810/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.5 V/m; Power Drift = 0.031 dB
Peak SAR (extrapolated) = 1.62 W/kg
SAR(1 g) = 0.561 mW/g; SAR(10 g) = 0.300 mW/g
Maximum value of SAR (measured) = 0.636 mW/g



0 dB = 0.636mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 7, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: GSM 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:2.075
Medium parameters used (interpolated): $f = 1850.2 \text{ MHz}$; $\sigma = 1.45 \text{ mho/m}$; $\epsilon_r = 53.9$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 512/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 1.16 mW/g

Body 512/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

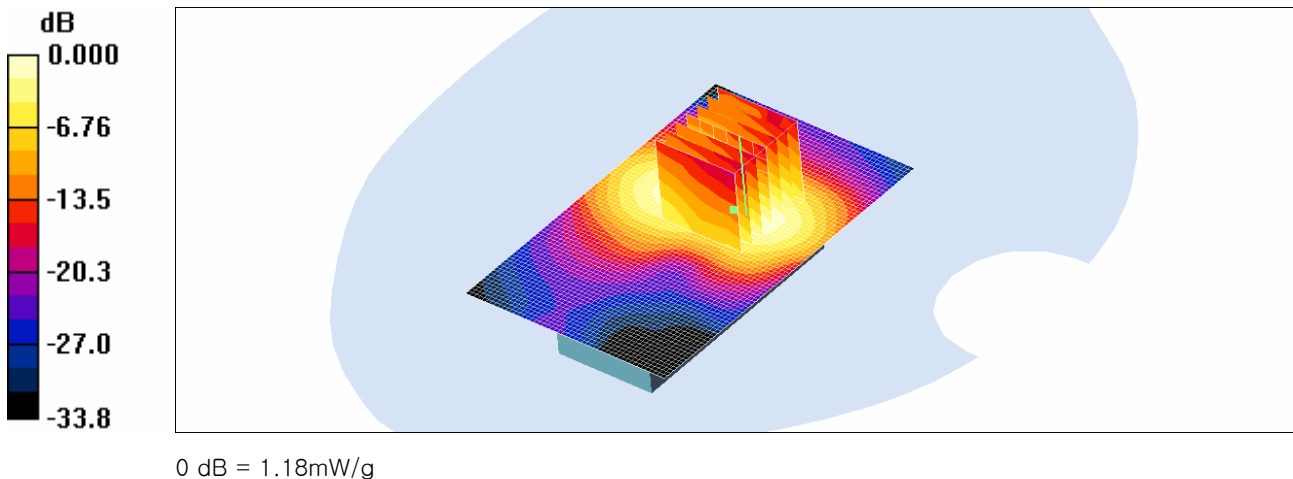
Reference Value = 15.1 V/m; Power Drift = 0.159 dB

Peak SAR (extrapolated) = 1.88 W/kg

SAR(1 g) = 1.03 mW/g; SAR(10 g) = 0.544 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 1.18 mW/g



Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 7, 2010

DUT: UML290; Type: Bar; Serial: #1

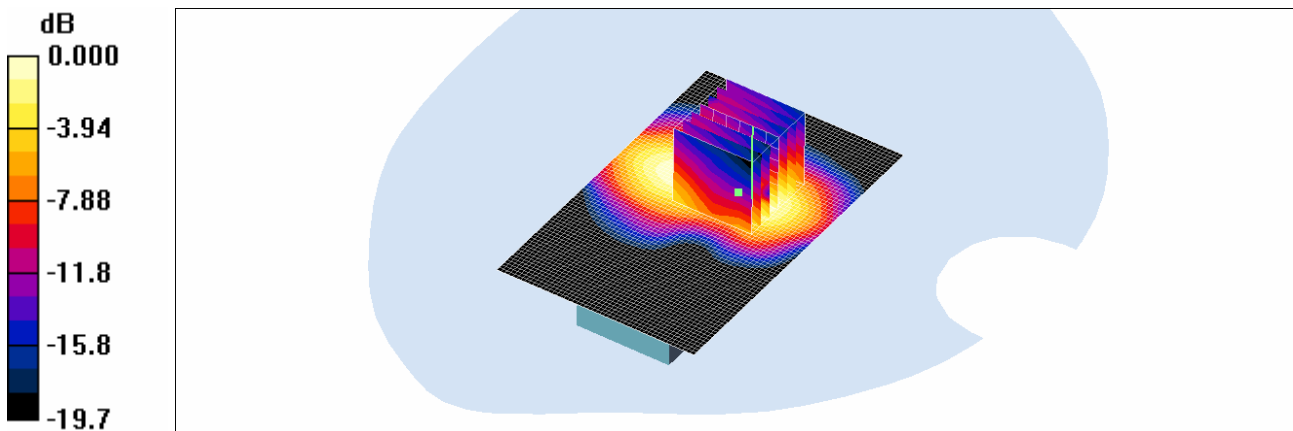
Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:2.075
Medium parameters used: $f = 1880$ MHz; $\sigma = 1.47$ mho/m; $\epsilon_r = 53.7$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 661/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.14 mW/g

Body 661/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.3 V/m; Power Drift = -0.010 dB
Peak SAR (extrapolated) = 1.69 W/kg
SAR(1 g) = 0.964 mW/g; SAR(10 g) = 0.524 mW/g
Maximum value of SAR (measured) = 1.12 mW/g



0 dB = 1.12mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 7, 2010

DUT: UML290; Type: Bar; Serial: #1

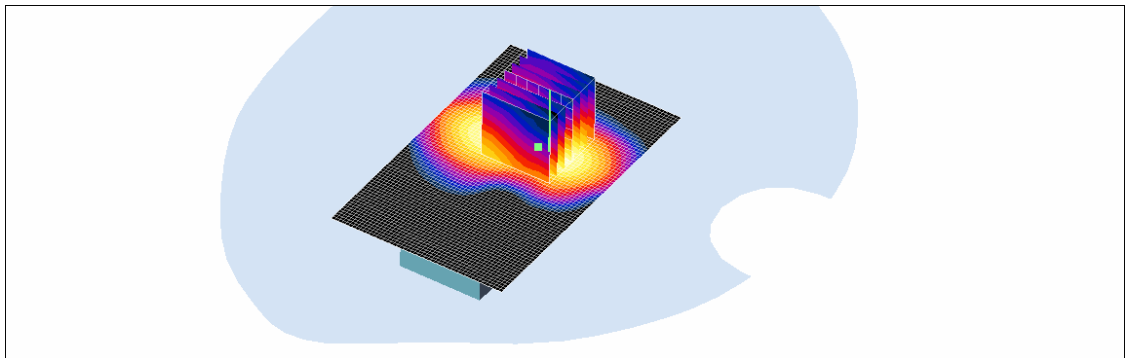
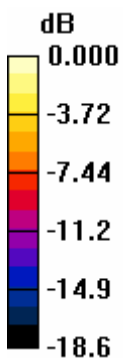
Communication System: GSM 1900; Frequency: 1909.8 MHz; Duty Cycle: 1:2.075
Medium parameters used: $f = 1910$ MHz; $\sigma = 1.51$ mho/m; $\epsilon_r = 53.5$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 810/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.22 mW/g

Body 810/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.0 V/m; Power Drift = -0.001 dB
Peak SAR (extrapolated) = 1.82 W/kg
SAR(1 g) = 0.997 mW/g; SAR(10 g) = 0.530 mW/g
Maximum value of SAR (measured) = 1.17 mW/g



0 dB = 1.17mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 7, 2010

DUT: UML290; Type: Bar; Serial: #1

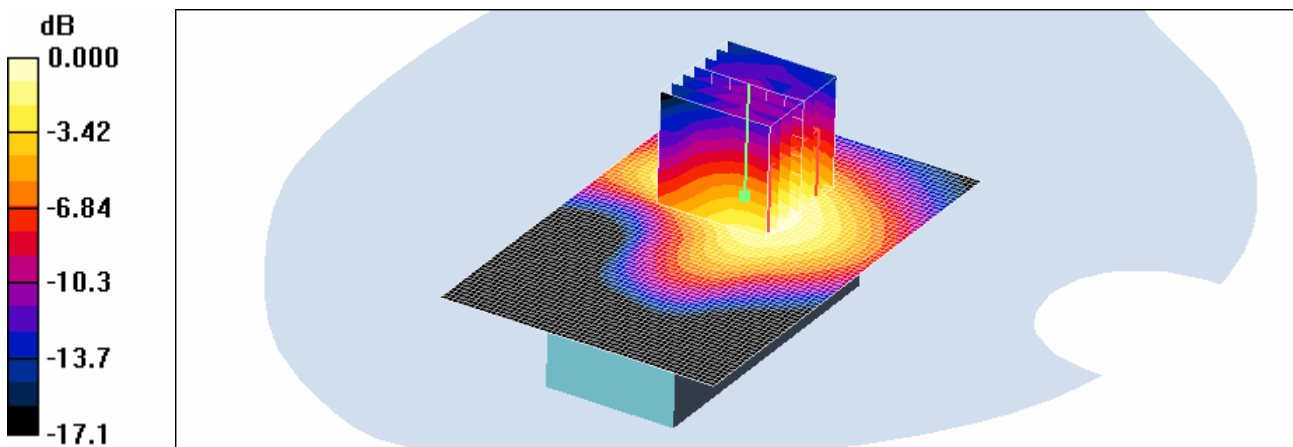
Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:2.075
Medium parameters used: $f = 1880$ MHz; $\sigma = 1.47$ mho/m; $\epsilon_r = 53.7$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 661/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.379 mW/g

Body 661/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.6 V/m; Power Drift = -0.180 dB
Peak SAR (extrapolated) = 0.456 W/kg
SAR(1 g) = 0.322 mW/g; SAR(10 g) = 0.197 mW/g
Maximum value of SAR (measured) = 0.358 mW/g



0 dB = 0.358mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 7, 2010

DUT: UML290 Vertical; Type: Bar; Serial: #1

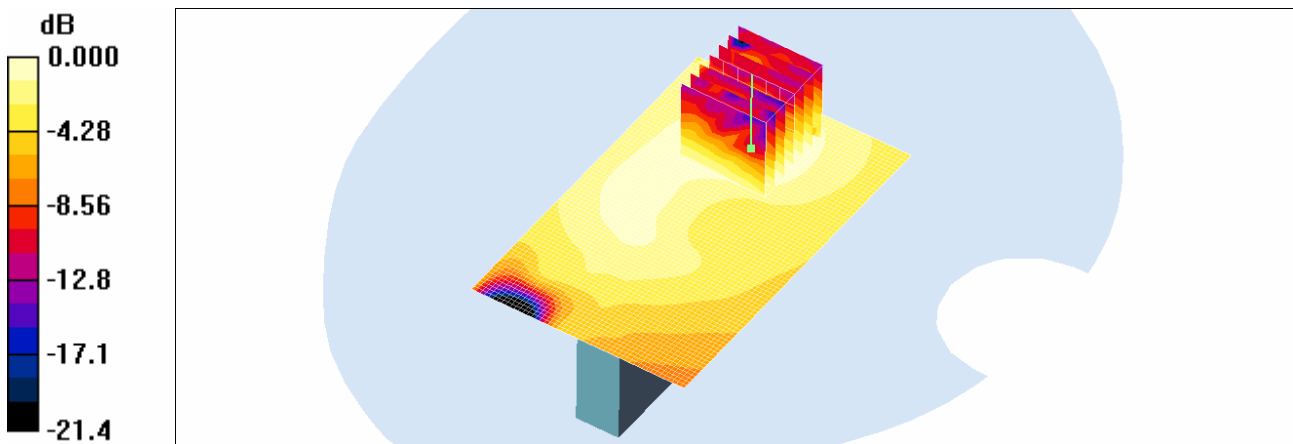
Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:2.075
Medium parameters used: $f = 1880$ MHz; $\sigma = 1.47$ mho/m; $\epsilon_r = 53.7$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 661/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.037 mW/g

Body 661/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.21 V/m; Power Drift = 0.125 dB
Peak SAR (extrapolated) = 0.052 W/kg
SAR(1 g) = 0.035 mW/g; SAR(10 g) = 0.023 mW/g
Maximum value of SAR (measured) = 0.038 mW/g



0 dB = 0.038mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 7, 2010

DUT: UML290 Vertical; Type: Bar; Serial: #1

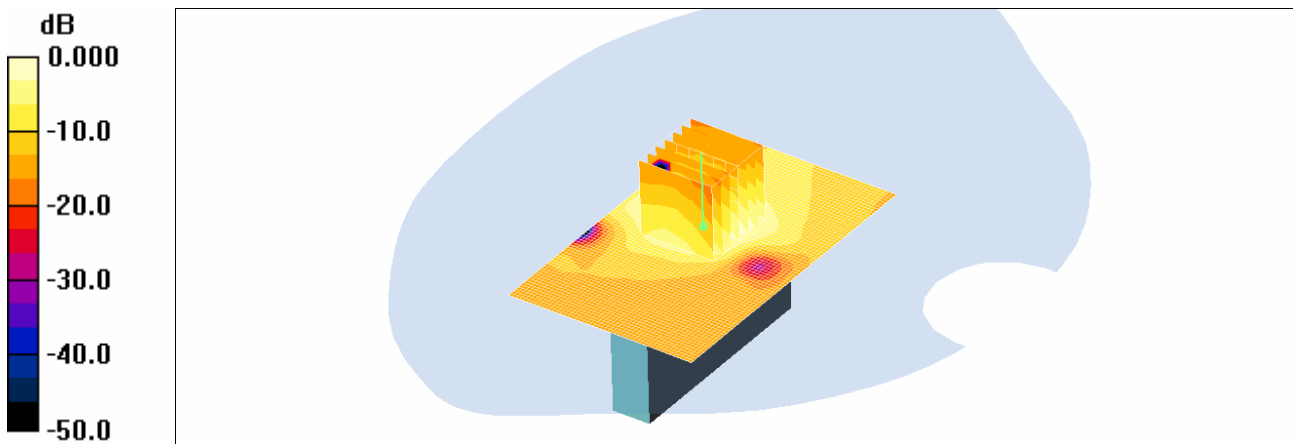
Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:2.075
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.47 \text{ mho/m}$; $\epsilon_r = 53.7$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 661/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.206 mW/g

Body 661/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
Reference Value = 6.64 V/m; Power Drift = 0.095 dB
Peak SAR (extrapolated) = 0.307 W/kg
SAR(1 g) = 0.180 mW/g; SAR(10 g) = 0.094 mW/g
Maximum value of SAR (measured) = 0.202 mW/g



0 dB = 0.202mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 7, 2010

DUT: UML290; Type: Bar; Serial: #1

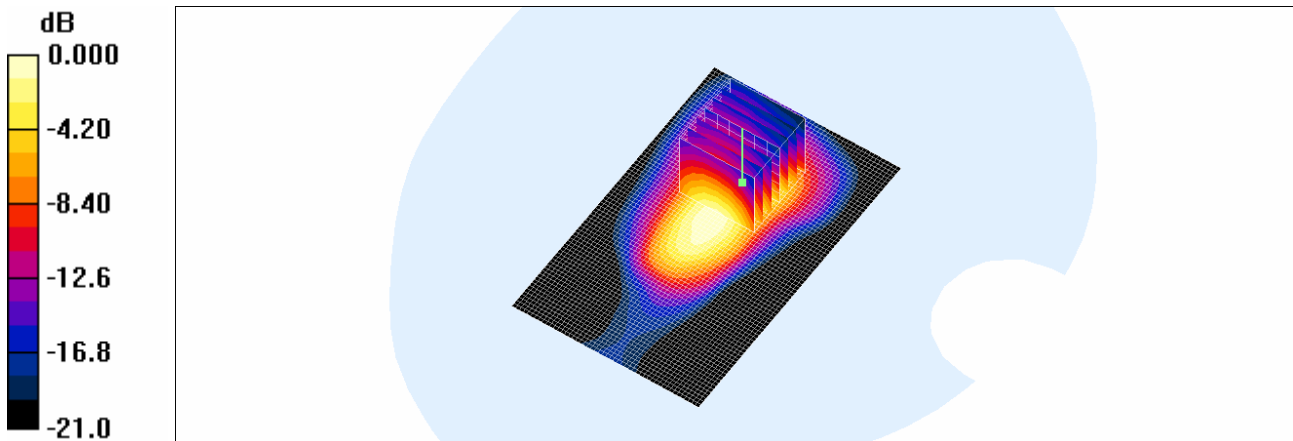
Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3
Medium parameters used: $f = 1880$ MHz; $\sigma = 1.47$ mho/m; $\epsilon_r = 53.7$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 661/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.535 mW/g

Body 661/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.5 V/m; Power Drift = -0.052 dB
Peak SAR (extrapolated) = 0.748 W/kg
SAR(1 g) = 0.412 mW/g; SAR(10 g) = 0.211 mW/g
Maximum value of SAR (measured) = 0.468 mW/g



0 dB = 0.468mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 7, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:4.15
Medium parameters used: $f = 1880$ MHz; $\sigma = 1.47$ mho/m; $\epsilon_r = 53.7$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

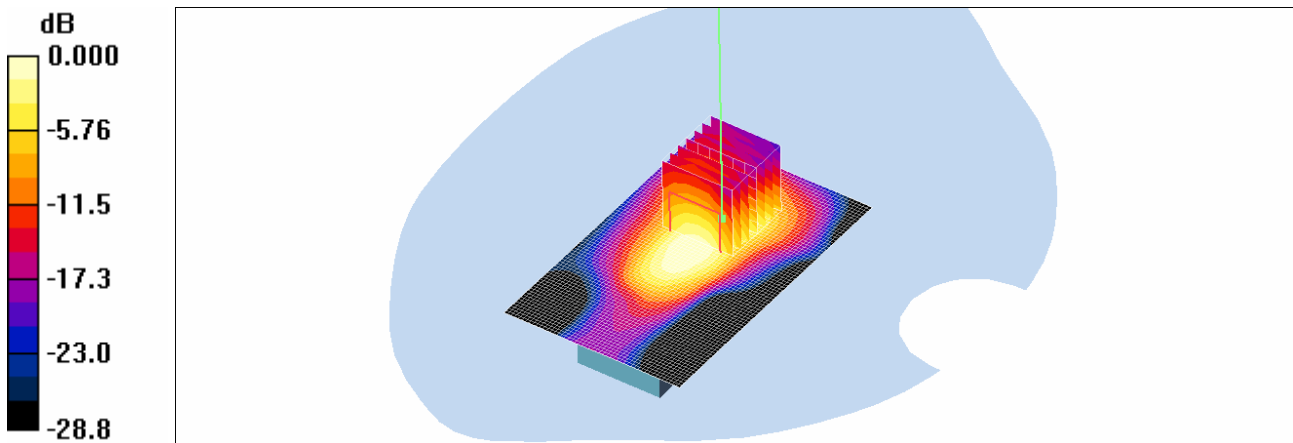
- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 0mm (Fix Surface) Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 661/Z Scan (1x1x31): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of SAR (measured) = 0.479 mW/g

Body 661/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.617 mW/g

Body 661/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.7 V/m; Power Drift = -0.097 dB
Peak SAR (extrapolated) = 0.712 W/kg
SAR(1 g) = 0.419 mW/g; SAR(10 g) = 0.214 mW/g

Maximum value of SAR (measured) = 0.486 mW/g



Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 7, 2010

DUT: UML290; Type: Bar; Serial: #1

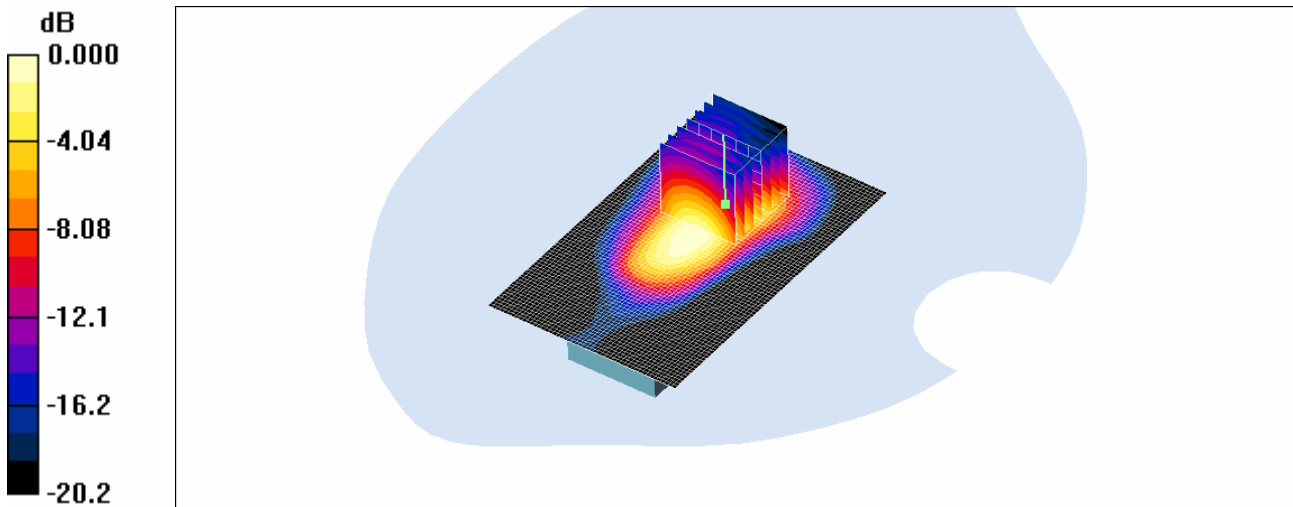
Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:2.77
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.47 \text{ mho/m}$; $\epsilon_r = 53.7$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 661/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.775 mW/g

Body 661/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
Reference Value = 19.6 V/m; Power Drift = 0.009 dB
Peak SAR (extrapolated) = 1.00 W/kg
SAR(1 g) = 0.566 mW/g; SAR(10 g) = 0.287 mW/g
Maximum value of SAR (measured) = 0.641 mW/g



0 dB = 0.641mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 7, 2010

DUT: UML290; Type: Bar; Serial: #1

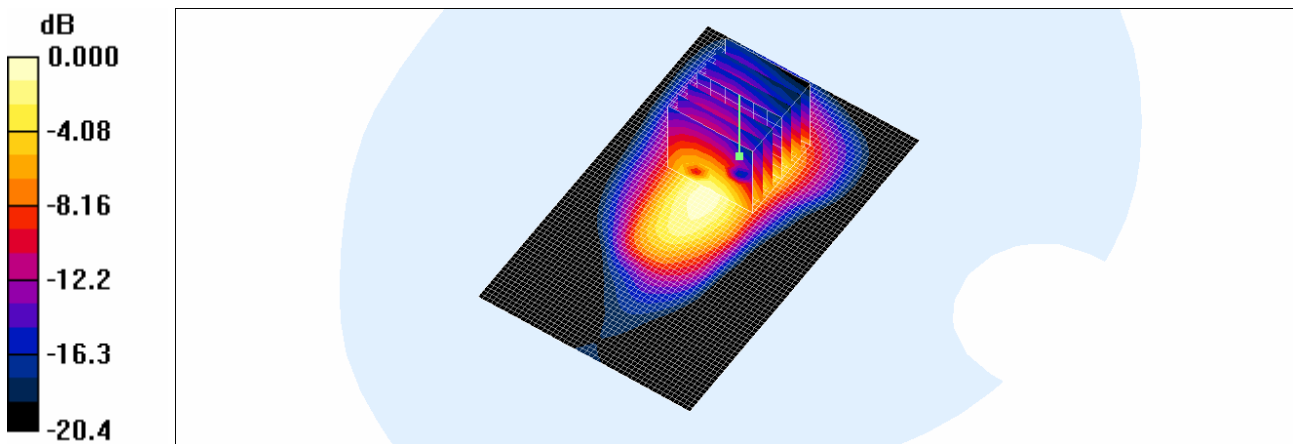
Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:2.075
Medium parameters used: $f = 1880$ MHz; $\sigma = 1.47$ mho/m; $\epsilon_r = 53.7$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 661/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.754 mW/g

Body 661/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 20.4 V/m; Power Drift = 0.010 dB
Peak SAR (extrapolated) = 1.07 W/kg
SAR(1 g) = 0.600 mW/g; SAR(10 g) = 0.304 mW/g
Maximum value of SAR (measured) = 0.680 mW/g



0 dB = 0.680mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 7, 2010

DUT: UML290; Type: Bar; Serial: #1

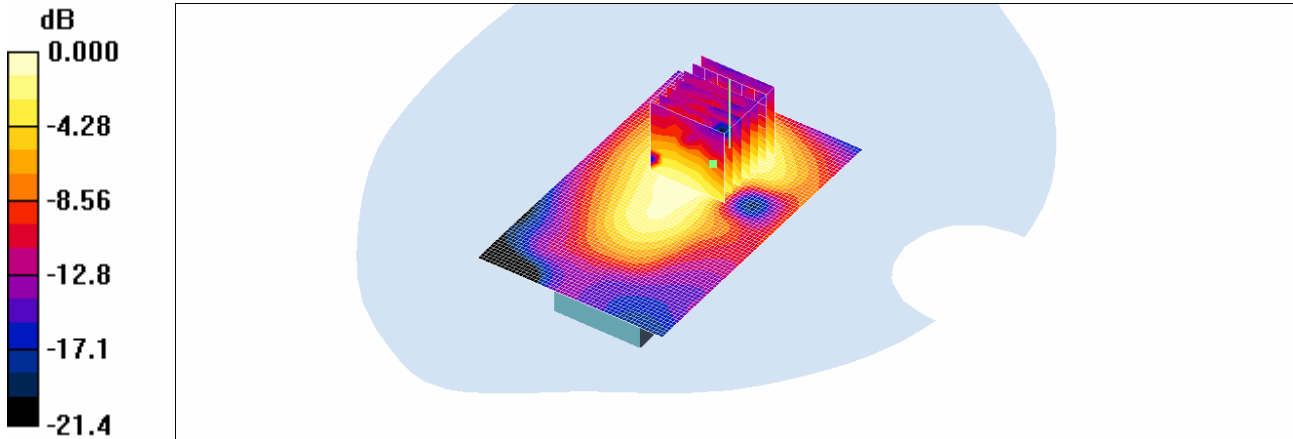
Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:2.075
Medium parameters used: $f = 1880$ MHz; $\sigma = 1.47$ mho/m; $\epsilon_r = 53.7$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 661/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.127 mW/g

Body 661/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.35 V/m; Power Drift = -0.066 dB
Peak SAR (extrapolated) = 0.155 W/kg
SAR(1 g) = 0.092 mW/g; SAR(10 g) = 0.055 mW/g
Maximum value of SAR (measured) = 0.102 mW/g



0 dB = 0.102mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 7, 2010

DUT: UML290 Vertical: Type: Bar: Serial: #1

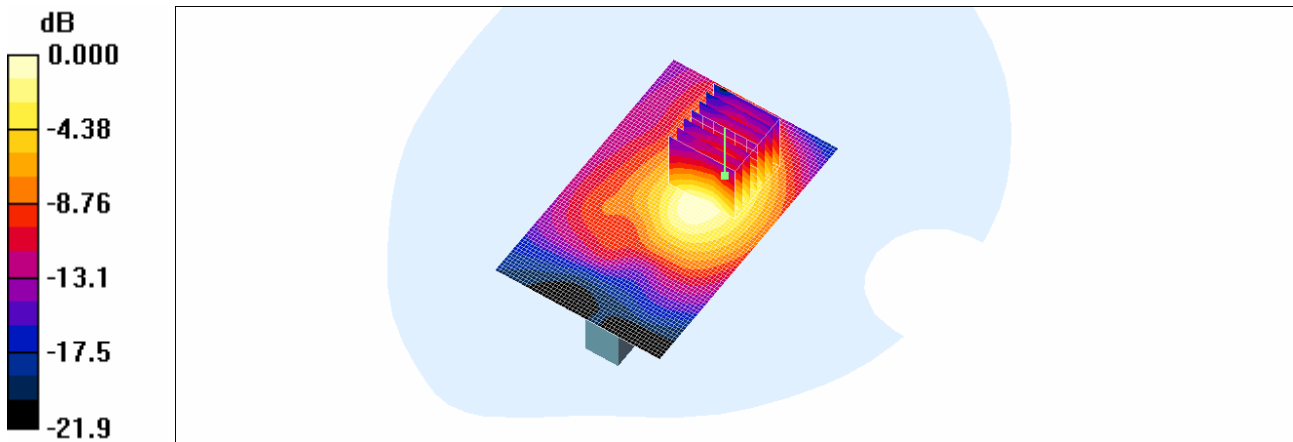
Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:2.075
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.47 \text{ mho/m}$; $\epsilon_r = 53.7$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 661/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.206 mW/g

Body 661/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
Reference Value = 9.59 V/m; Power Drift = -0.073 dB
Peak SAR (extrapolated) = 0.243 W/kg
SAR(1 g) = 0.143 mW/g; SAR(10 g) = 0.079 mW/g
Maximum value of SAR (measured) = 0.159 mW/g



0 dB = 0.159mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 7, 2010

DUT: UML290 Vertical: Type: Bar: Serial: #1

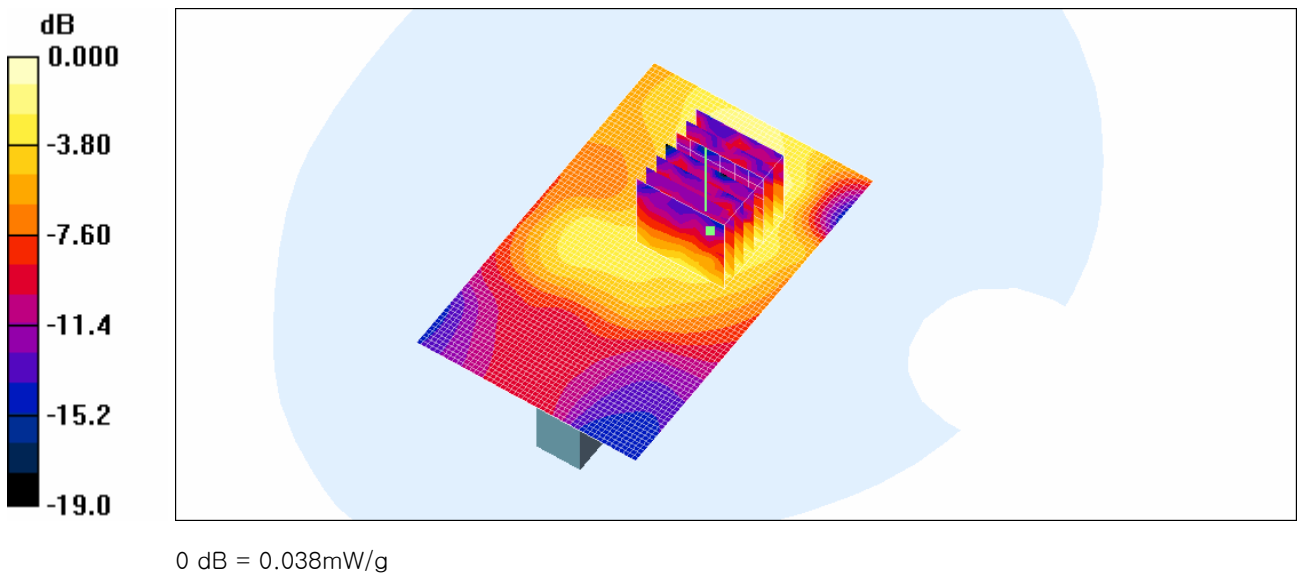
Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:2.075
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.47 \text{ mho/m}$; $\epsilon_r = 53.7$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 661/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.034 mW/g

Body 661/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
Reference Value = 4.97 V/m; Power Drift = -0.019 dB
Peak SAR (extrapolated) = 0.055 W/kg
SAR(1 g) = 0.033 mW/g; SAR(10 g) = 0.018 mW/g
Maximum value of SAR (measured) = 0.038 mW/g



Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 7, 2010

DUT: UML290 Top; Type: Bar; Serial: #1

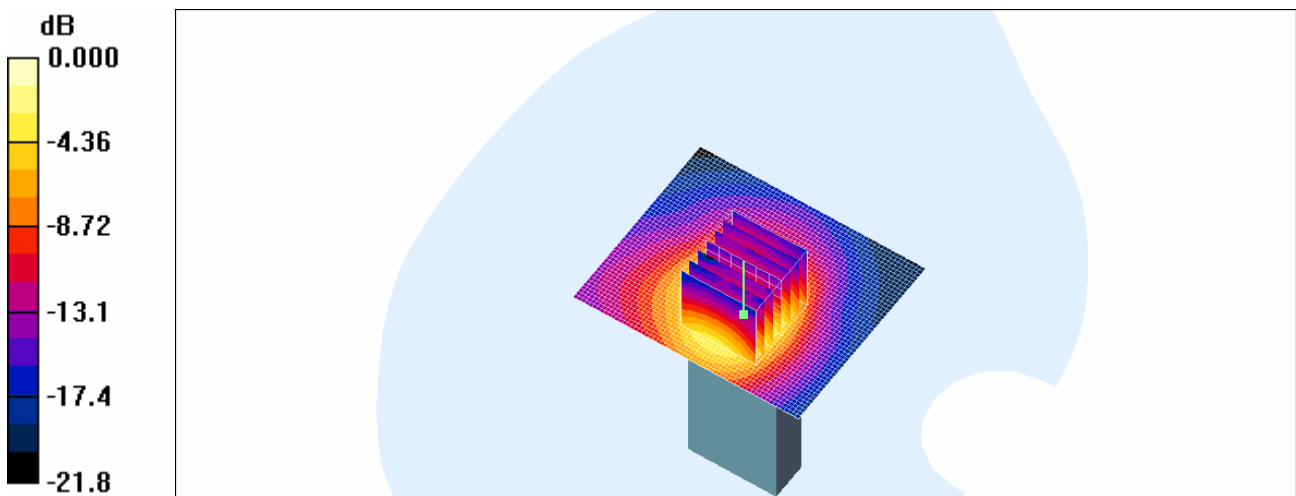
Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:2.075
Medium parameters used: $f = 1880$ MHz; $\sigma = 1.47$ mho/m; $\epsilon_r = 53.7$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 661/Area Scan (61x51x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.291 mW/g

Body 661/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.4 V/m; Power Drift = -0.039 dB
Peak SAR (extrapolated) = 0.373 W/kg
SAR(1 g) = 0.216 mW/g; SAR(10 g) = 0.115 mW/g
Maximum value of SAR (measured) = 0.243 mW/g



0 dB = 0.243mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct. 8, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: WCDMA850; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.984 \text{ mho/m}$; $\epsilon_r = 56.9$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.17, 6.17, 6.17); Calibrated: 2010-05-25
- Sensor-Surface: 0mm (Fix Surface) Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Body 4183/Z Scan (1x1x31): Measurement grid: $dx=20\text{mm}$, $dy=20\text{mm}$, $dz=5\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.594 mW/g

Body 4183/Area Scan (51x71x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.634 mW/g

Body 4183/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 14.4 V/m; Power Drift = -0.036 dB

Peak SAR (extrapolated) = 0.920 W/kg

SAR(1 g) = 0.569 mW/g; SAR(10 g) = 0.364 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.627 mW/g

Body 4183/Zoom Scan (7x7x7)/Cube 1: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

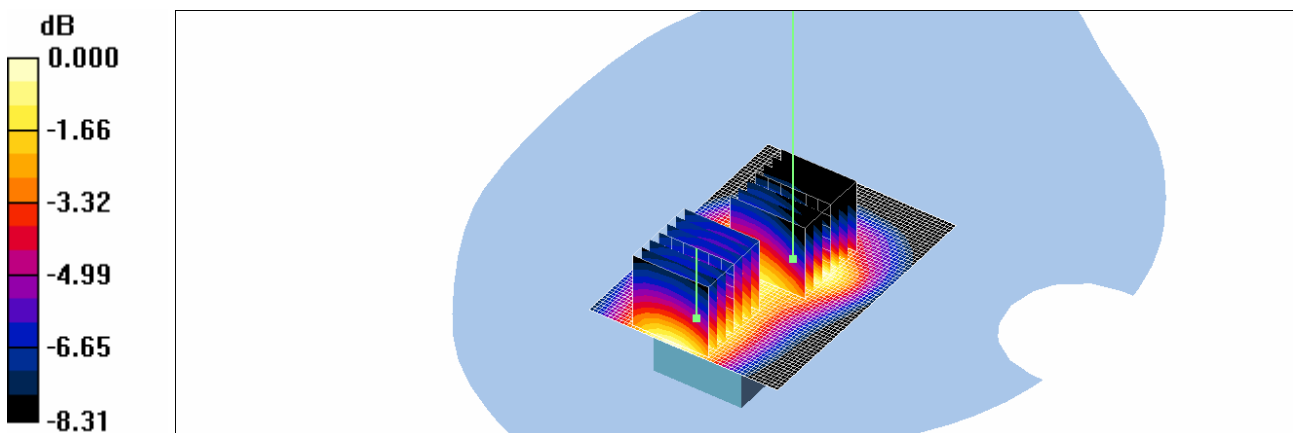
Reference Value = 14.4 V/m; Power Drift = -0.036 dB

Peak SAR (extrapolated) = 0.674 W/kg

SAR(1 g) = 0.503 mW/g; SAR(10 g) = 0.356 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.543 mW/g



0 dB = 0.543mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct. 8, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: WCDMA850; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.984 \text{ mho/m}$; $\epsilon_r = 56.9$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.17, 6.17, 6.17); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Body 4183/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.360 mW/g

Body 4183/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

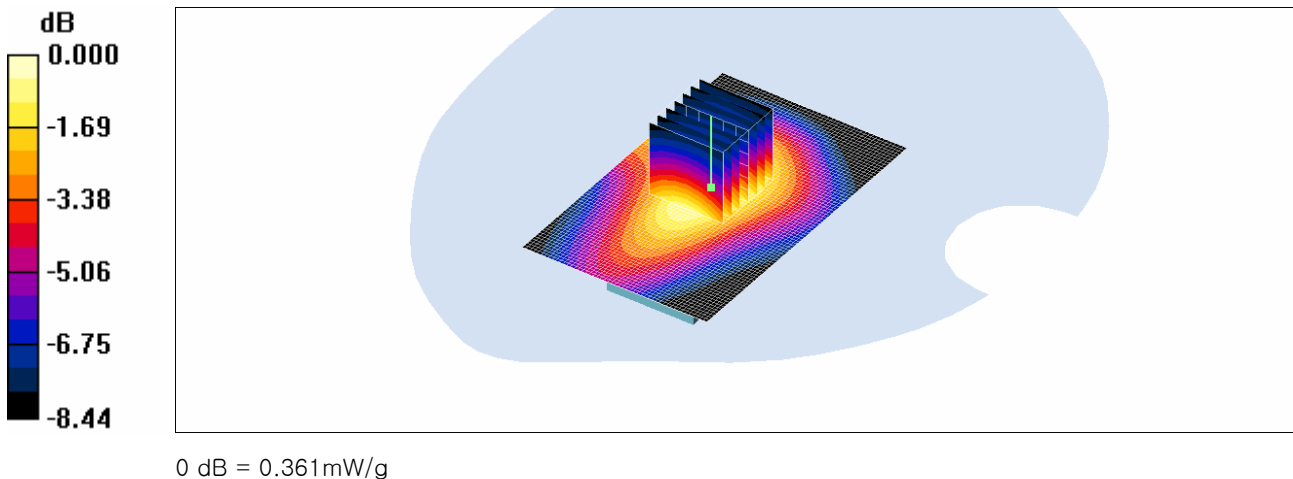
Reference Value = 14.0 V/m; Power Drift = 0.039 dB

Peak SAR (extrapolated) = 0.470 W/kg

SAR(1 g) = 0.338 mW/g; SAR(10 g) = 0.230 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.361 mW/g



Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct. 8, 2010

DUT: UML290 Vertical; Type: Bar; Serial: #1

Communication System: WCDMA850; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.984$ mho/m; $\epsilon_r = 56.9$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.17, 6.17, 6.17); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Body 4183/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.076 mW/g

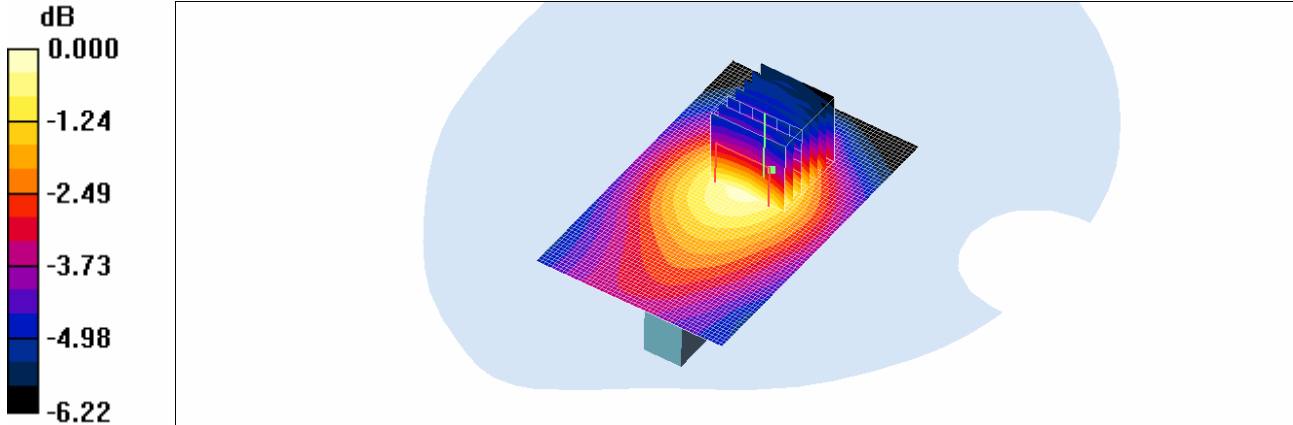
Body 4183/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.51 V/m; Power Drift = 0.004 dB

Peak SAR (extrapolated) = 0.091 W/kg

SAR(1 g) = 0.071 mW/g; SAR(10 g) = 0.054 mW/g

Maximum value of SAR (measured) = 0.076 mW/g



0 dB = 0.076mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct. 8, 2010

DUT: UML290 Vertical; Type: Bar; Serial: #1

Communication System: WCDMA850; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.984 \text{ mho/m}$; $\epsilon_r = 56.9$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.17, 6.17, 6.17); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Body 4183/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

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

Body 4183/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

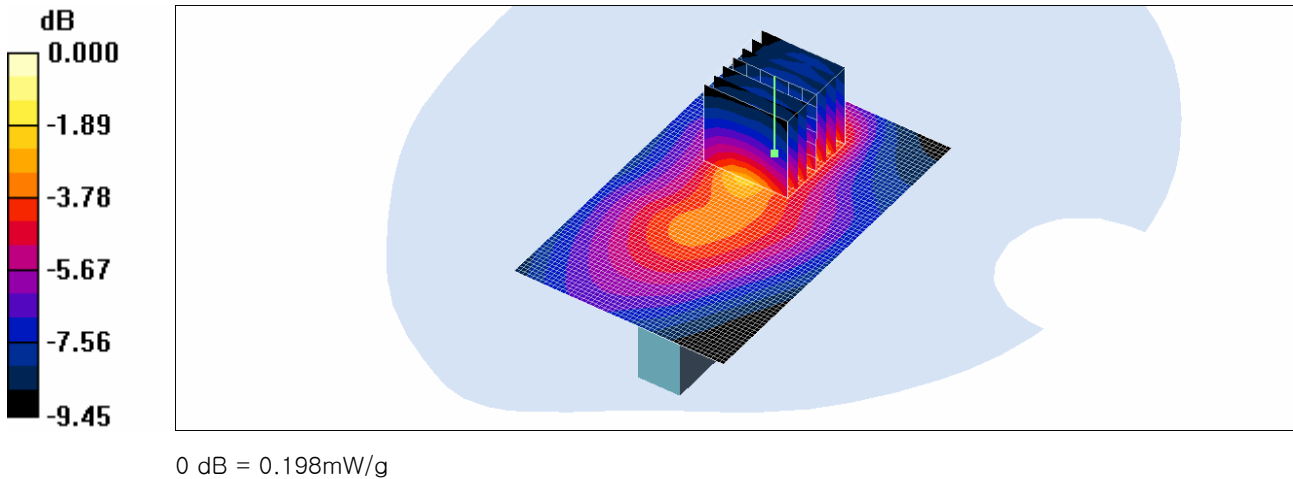
Reference Value = 13.1 V/m; Power Drift = -0.007 dB

Peak SAR (extrapolated) = 0.403 W/kg

SAR(1 g) = 0.184 mW/g; SAR(10 g) = 0.098 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

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



Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct. 8, 2010

DUT: UML290 Vertical; Type: Bar; Serial: #1

Communication System: WCDMA850; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.984$ mho/m; $\epsilon_r = 56.9$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.17, 6.17, 6.17); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Body 4183/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.504 mW/g

Body 4183/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

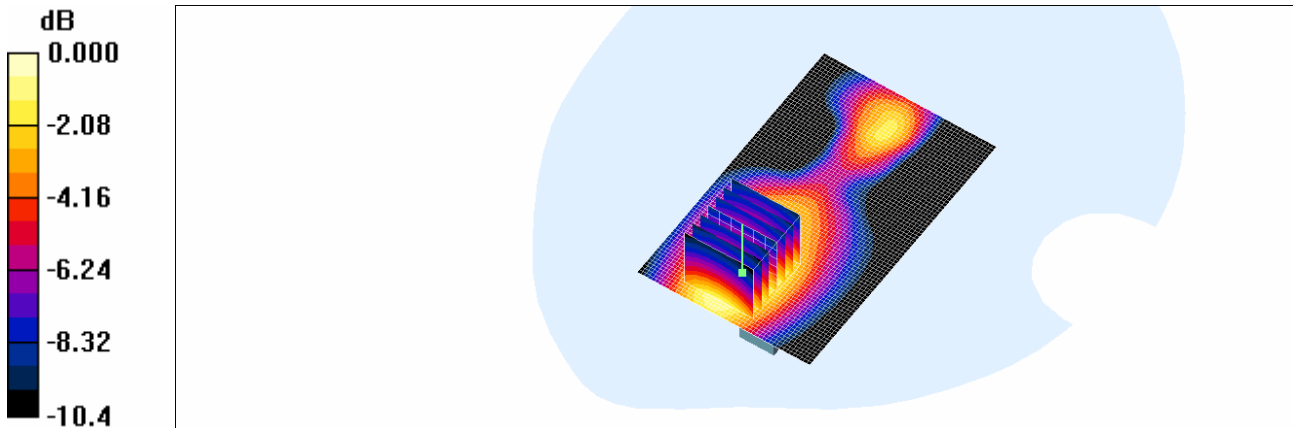
Reference Value = 17.8 V/m; Power Drift = 0.117 dB

Peak SAR (extrapolated) = 0.652 W/kg

SAR(1 g) = 0.460 mW/g; SAR(10 g) = 0.306 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.499 mW/g



0 dB = 0.499mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct. 8, 2010

DUT: UML290 Vertical; Type: Bar; Serial: #1

Communication System: WCDMA850; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.984$ mho/m; $\epsilon_r = 56.9$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.17, 6.17, 6.17); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Body 4183/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.130 mW/g

Body 4183/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

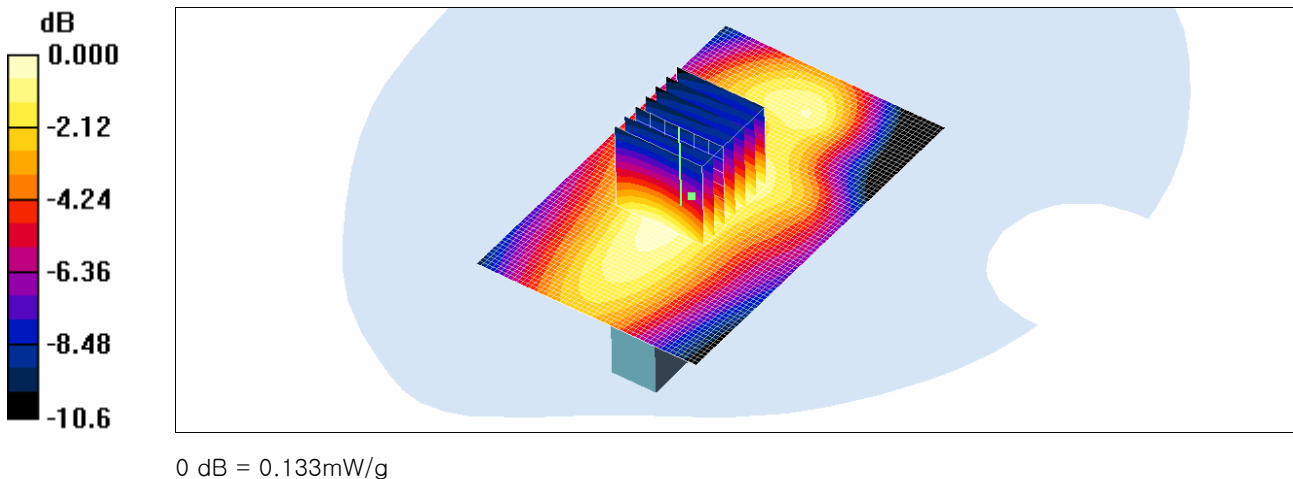
Reference Value = 9.68 V/m; Power Drift = -0.050 dB

Peak SAR (extrapolated) = 0.184 W/kg

SAR(1 g) = 0.124 mW/g; SAR(10 g) = 0.081 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.133 mW/g



Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct. 8, 2010

DUT: UML290 Vertical; Type: Bar; Serial: #1

Communication System: WCDMA850; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.984$ mho/m; $\epsilon_r = 56.9$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.17, 6.17, 6.17); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Body 4183/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

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

Body 4183/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

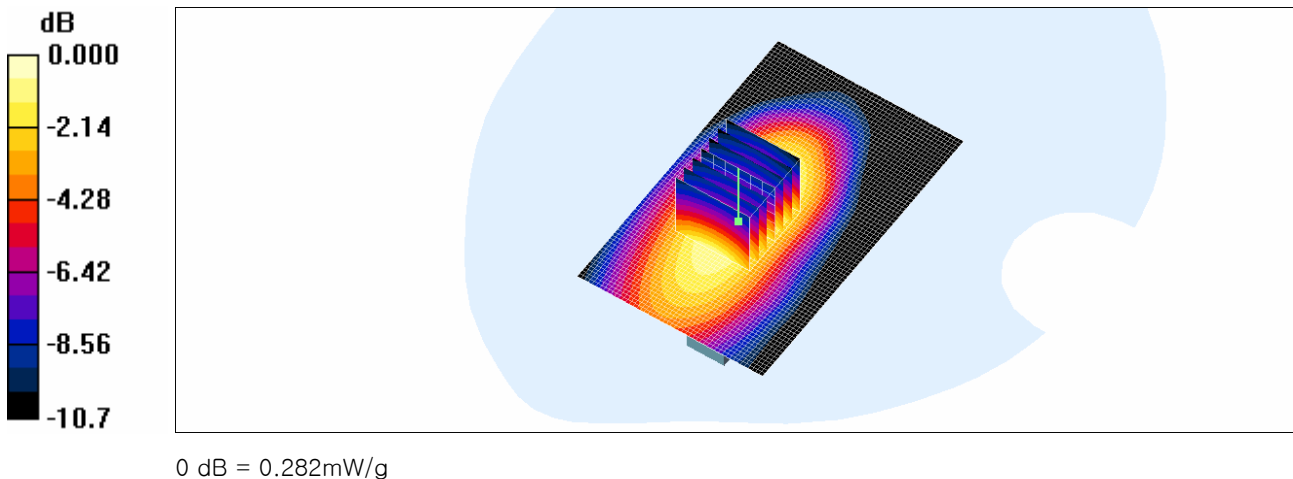
Reference Value = 8.44 V/m; Power Drift = -0.076 dB

Peak SAR (extrapolated) = 0.392 W/kg

SAR(1 g) = 0.260 mW/g; SAR(10 g) = 0.168 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.282 mW/g



Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct. 8, 2010

DUT: UML290 Vertical; Type: Bar; Serial: #1

Communication System: WCDMA850; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.984 \text{ mho/m}$; $\epsilon_r = 56.9$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.17, 6.17, 6.17); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Body 4183/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.272 mW/g

Body 4183/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

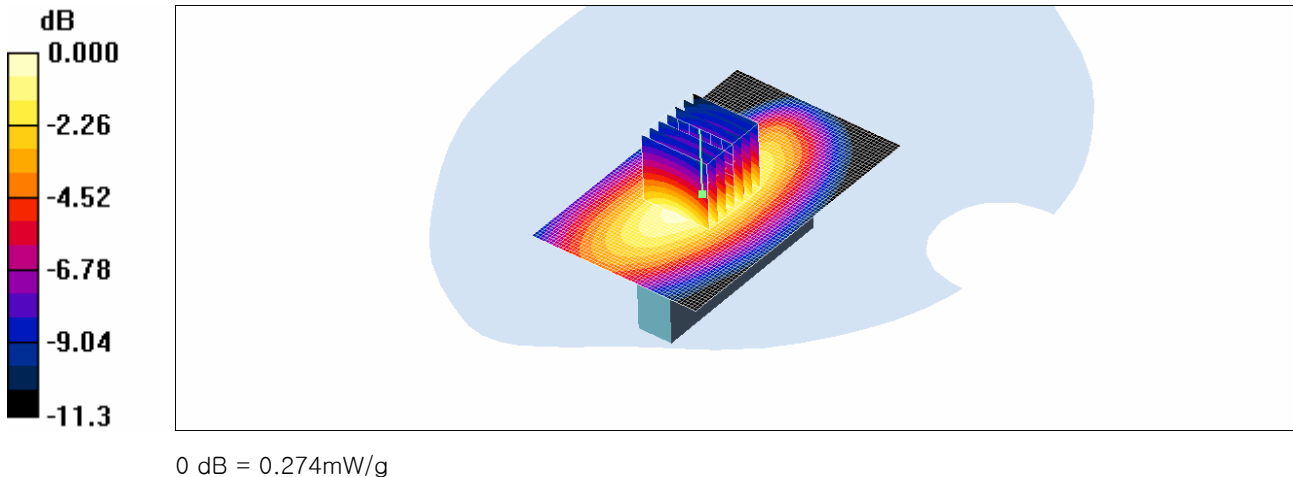
Reference Value = 13.7 V/m; Power Drift = -0.020 dB

Peak SAR (extrapolated) = 0.375 W/kg

SAR(1 g) = 0.252 mW/g; SAR(10 g) = 0.164 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

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



Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct. 8, 2010

DUT: UML290 Top; Type: Bar; Serial: #1

Communication System: WCDMA850; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.984 \text{ mho/m}$; $\epsilon_r = 56.9$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.17, 6.17, 6.17); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Body 4183/Area Scan (61x51x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.247 mW/g

Body 4183/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

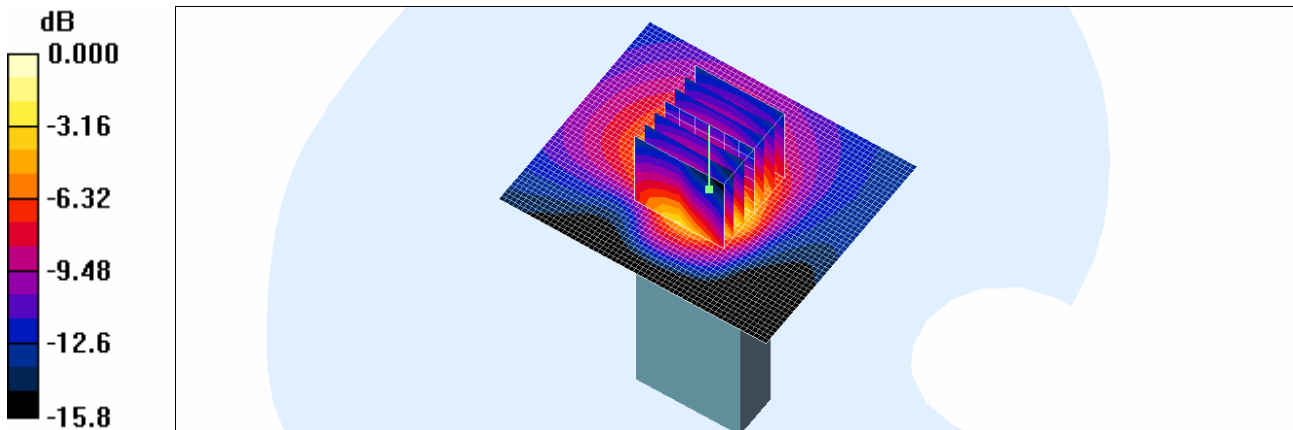
Reference Value = 15.1 V/m; Power Drift = 0.021 dB

Peak SAR (extrapolated) = 0.458 W/kg

SAR(1 g) = 0.233 mW/g; SAR(10 g) = 0.120 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.250 mW/g



Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 9, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: WCDMA1900(FCC); Frequency: 1852.4 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 1852.4 \text{ MHz}$; $\sigma = 1.5 \text{ mho/m}$; $\epsilon_r = 54$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 9262/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 1.14 mW/g

Body 9262/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

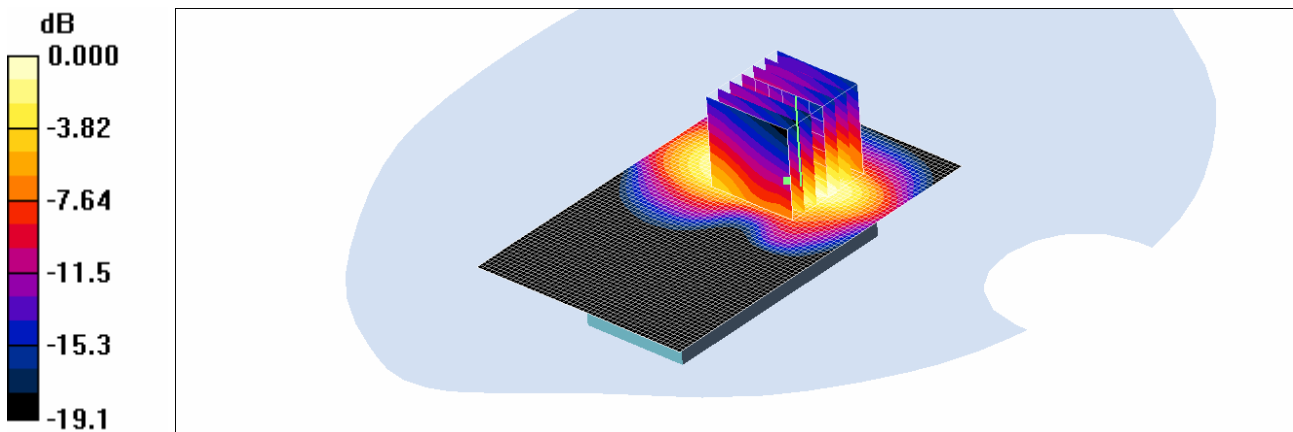
Reference Value = 17.5 V/m; Power Drift = -0.023 dB

Peak SAR (extrapolated) = 1.76 W/kg

SAR(1 g) = 0.989 mW/g; SAR(10 g) = 0.540 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 1.15 mW/g



0 dB = 1.15mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 9, 2010

DUT: UML290; Type: Bar; Serial: #1

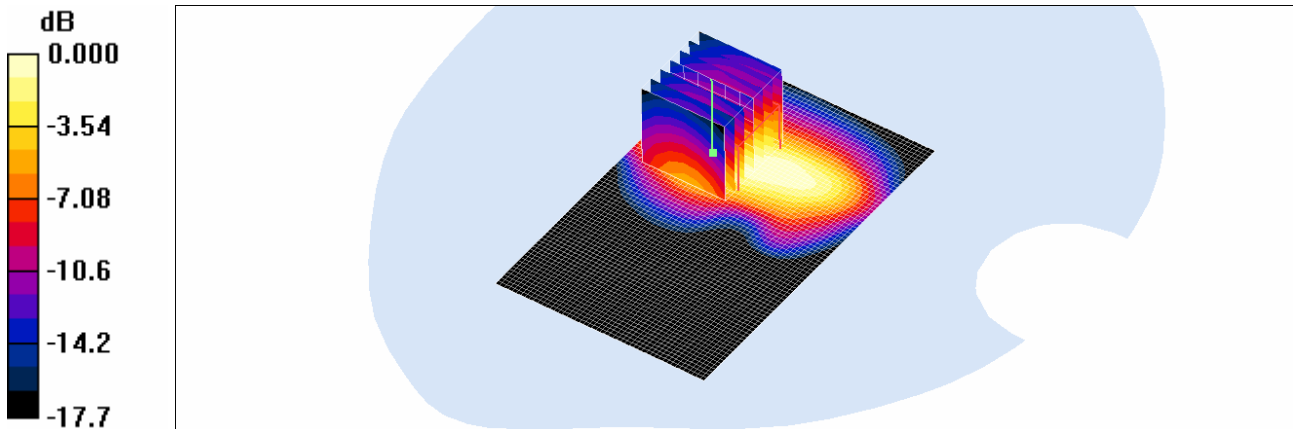
Communication System: WCDMA1900(FCC); Frequency: 1880 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1880$ MHz; $\sigma = 1.53$ mho/m; $\epsilon_r = 54$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 9400/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.09 mW/g

Body 9400/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.5 V/m; Power Drift = 0.151 dB
Peak SAR (extrapolated) = 1.49 W/kg
SAR(1 g) = 0.955 mW/g; SAR(10 g) = 0.540 mW/g
Maximum value of SAR (measured) = 1.09 mW/g



0 dB = 1.09mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 9, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: WCDMA1900(FCC); Frequency: 1907.6 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 1907.6 \text{ MHz}$; $\sigma = 1.55 \text{ mho/m}$; $\epsilon_r = 53.8$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 9538/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 1.01 mW/g

Body 9538/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 15.9 V/m; Power Drift = -0.102 dB

Peak SAR (extrapolated) = 1.54 W/kg

SAR(1 g) = 0.897 mW/g; SAR(10 g) = 0.456 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

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

Body 9538/Zoom Scan (7x7x7)/Cube 1: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

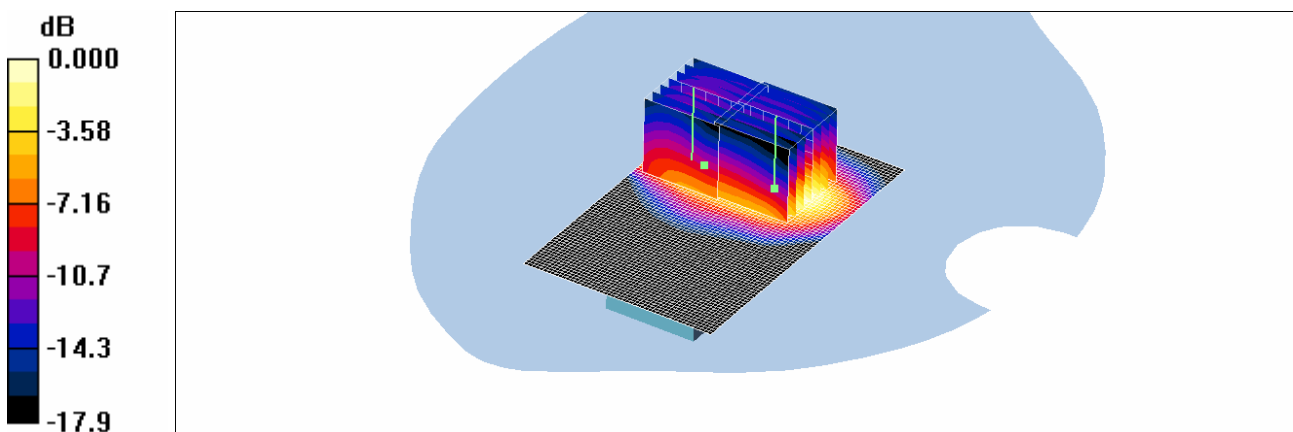
Reference Value = 15.9 V/m; Power Drift = -0.102 dB

Peak SAR (extrapolated) = 1.18 W/kg

SAR(1 g) = 0.728 mW/g; SAR(10 g) = 0.385 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.846 mW/g



Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 9, 2010

DUT: UML290; Type: Bar; Serial: #1

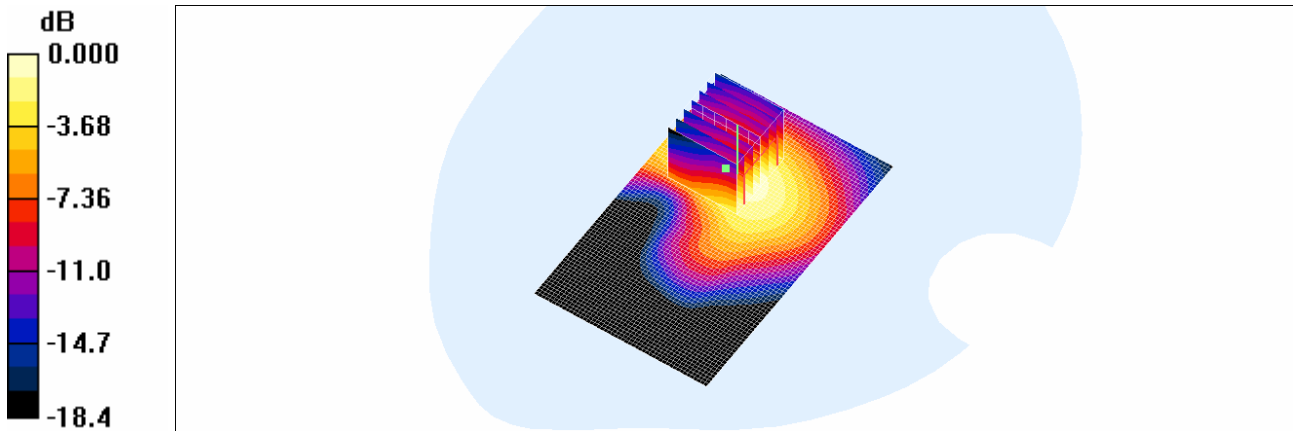
Communication System: WCDMA1900(FCC); Frequency: 1880 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1880$ MHz; $\sigma = 1.53$ mho/m; $\epsilon_r = 54$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 9400/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.428 mW/g

Body 9400/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.8 V/m; Power Drift = 0.029 dB
Peak SAR (extrapolated) = 0.566 W/kg
SAR(1 g) = 0.384 mW/g; SAR(10 g) = 0.227 mW/g
Maximum value of SAR (measured) = 0.417 mW/g



0 dB = 0.417mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 9, 2010

DUT: UML290 Vertical; Type: Bar; Serial: #1

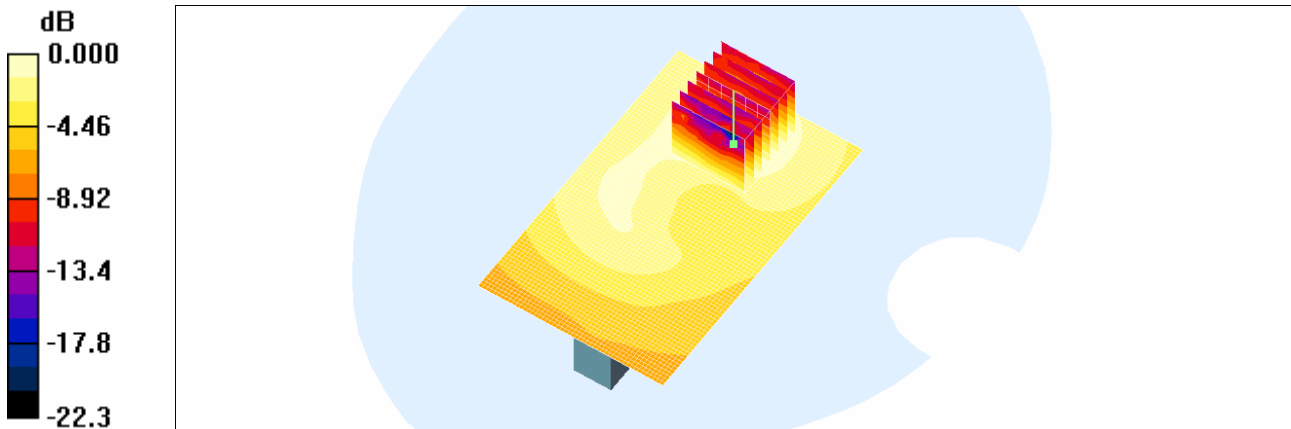
Communication System: WCDMA1900(FCC); Frequency: 1880 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1880$ MHz; $\sigma = 1.53$ mho/m; $\epsilon_r = 54$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 9400/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.046 mW/g

Body 9400/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.81 V/m; Power Drift = -0.081 dB
Peak SAR (extrapolated) = 0.063 W/kg
SAR(1 g) = 0.042 mW/g; SAR(10 g) = 0.027 mW/g
Maximum value of SAR (measured) = 0.046 mW/g



0 dB = 0.046mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 9, 2010

DUT: UML290 Vertical; Type: Bar; Serial: #1

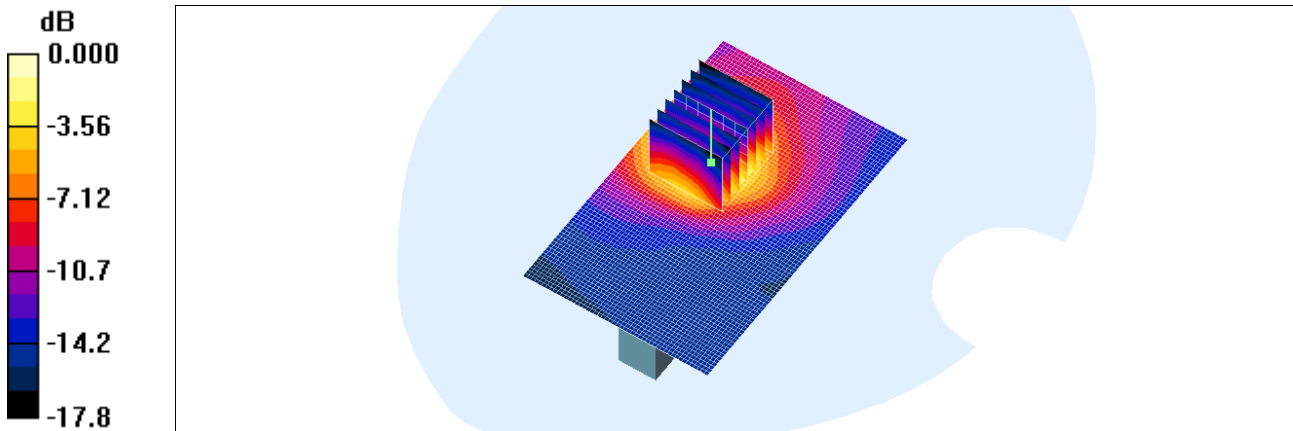
Communication System: WCDMA1900(FCC); Frequency: 1880 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1880$ MHz; $\sigma = 1.53$ mho/m; $\epsilon_r = 54$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 9400/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.264 mW/g

Body 9400/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.75 V/m; Power Drift = 0.128 dB
Peak SAR (extrapolated) = 0.386 W/kg
SAR(1 g) = 0.218 mW/g; SAR(10 g) = 0.113 mW/g
Maximum value of SAR (measured) = 0.245 mW/g



0 dB = 0.245mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 9, 2010

DUT: UML290; Type: Bar; Serial: #1

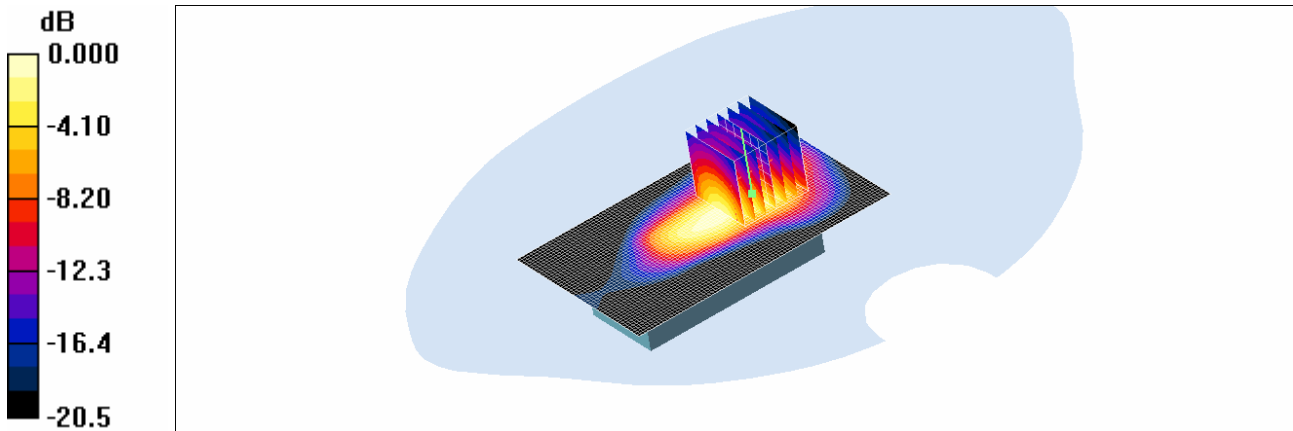
Communication System: WCDMA1900(FCC); Frequency: 1880 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1880$ MHz; $\sigma = 1.53$ mho/m; $\epsilon_r = 54$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 9400/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.850 mW/g

Body 9400/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 20.9 V/m; Power Drift = 0.082 dB
Peak SAR (extrapolated) = 1.20 W/kg
SAR(1 g) = 0.661 mW/g; SAR(10 g) = 0.331 mW/g
Maximum value of SAR (measured) = 0.755 mW/g



0 dB = 0.755mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 9, 2010

DUT: UML290; Type: Bar; Serial: #1

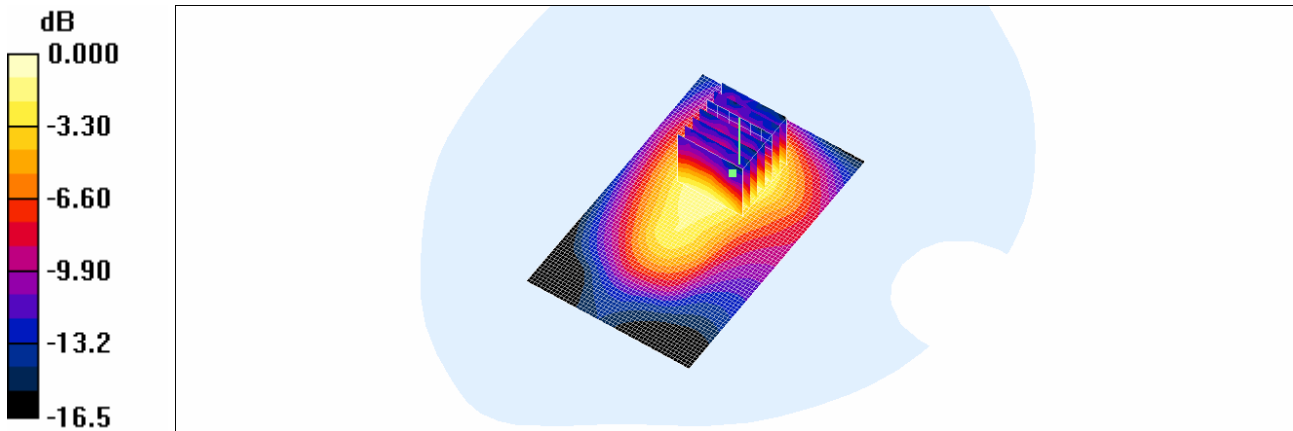
Communication System: WCDMA1900(FCC); Frequency: 1880 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1880$ MHz; $\sigma = 1.53$ mho/m; $\epsilon_r = 54$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 9400/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.100 mW/g

Body 9400/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.53 V/m; Power Drift = 0.068 dB
Peak SAR (extrapolated) = 0.153 W/kg
SAR(1 g) = 0.095 mW/g; SAR(10 g) = 0.056 mW/g
Maximum value of SAR (measured) = 0.104 mW/g



0 dB = 0.104mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 9, 2010

DUT: UML290 Vertical; Type: Bar; Serial: #1

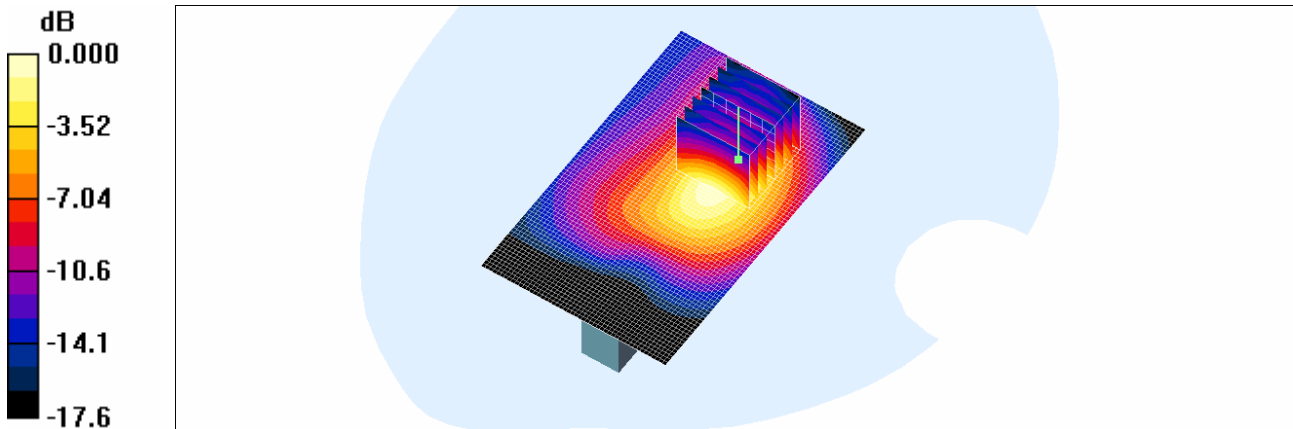
Communication System: WCDMA1900(FCC); Frequency: 1880 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1880$ MHz; $\sigma = 1.53$ mho/m; $\epsilon_r = 54$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 9400/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.177 mW/g

Body 9400/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.35 V/m; Power Drift = 0.029 dB
Peak SAR (extrapolated) = 0.244 W/kg
SAR(1 g) = 0.148 mW/g; SAR(10 g) = 0.081 mW/g
Maximum value of SAR (measured) = 0.165 mW/g



0 dB = 0.165mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 9, 2010

DUT: UML290 Vertical; Type: Bar; Serial: #1

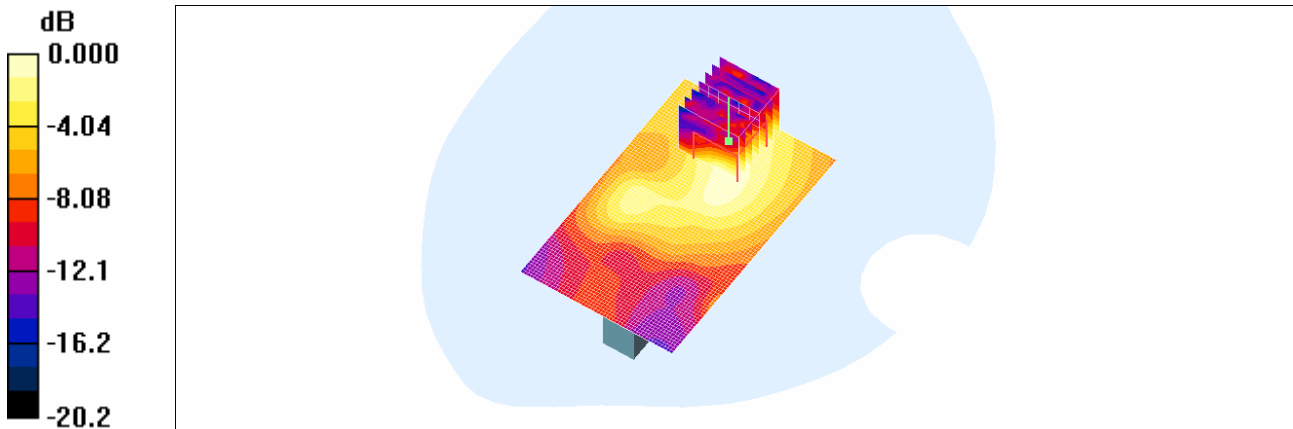
Communication System: WCDMA1900(FCC); Frequency: 1880 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.53 \text{ mho/m}$; $\epsilon_r = 54$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 9400/Area Scan (51x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.033 mW/g

Body 9400/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$
Reference Value = 4.89 V/m; Power Drift = 0.029 dB
Peak SAR (extrapolated) = 0.065 W/kg
SAR(1 g) = 0.032 mW/g; SAR(10 g) = 0.018 mW/g
Maximum value of SAR (measured) = 0.037 mW/g



0 dB = 0.037mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 9, 2010

DUT: UML290 Top; Type: Bar; Serial: #1

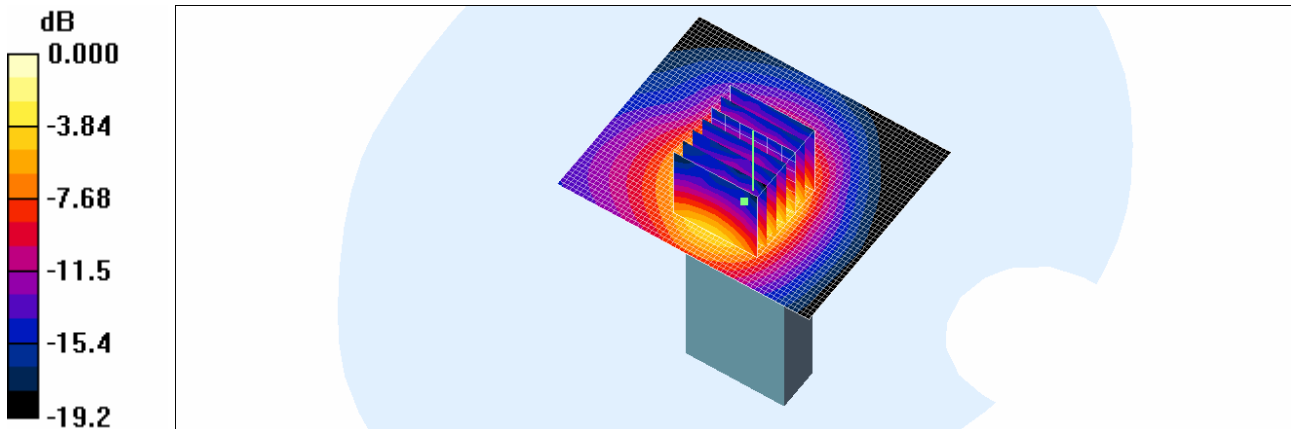
Communication System: WCDMA1900(FCC); Frequency: 1880 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1880$ MHz; $\sigma = 1.53$ mho/m; $\epsilon_r = 54$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 9400/Area Scan (61x51x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.228 mW/g

Body 9400/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.0 V/m; Power Drift = -0.178 dB
Peak SAR (extrapolated) = 0.347 W/kg
SAR(1 g) = 0.200 mW/g; SAR(10 g) = 0.105 mW/g
Maximum value of SAR (measured) = 0.223 mW/g



0 dB = 0.223mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.1 °C
Ambient Temperature: 21.3 °C
Test Date: Sep.10, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.3, 6.3, 6.3); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/900 MHz; Type: SAM

LTE750 23230/Area Scan (41x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 1.31 mW/g

LTE750 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

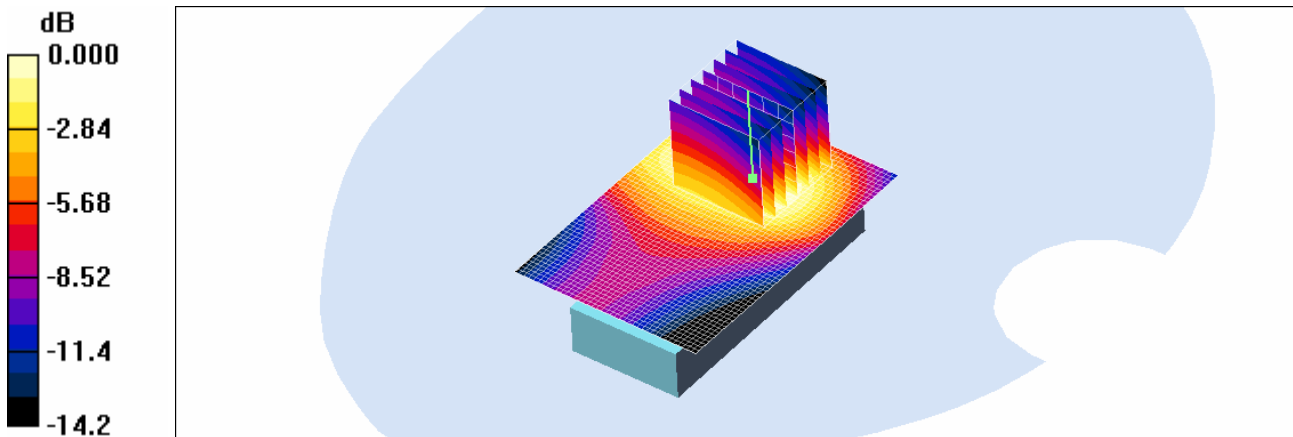
Reference Value = 29.6 V/m; Power Drift = -0.198 dB

Peak SAR (extrapolated) = 1.94 W/kg

SAR(1 g) = 1.15 mW/g; SAR(10 g) = 0.712 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 1.27 mW/g



0 dB = 1.27mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.1 °C
Ambient Temperature: 21.3 °C
Test Date: Sep.10, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.3, 6.3, 6.3); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/900 MHz; Type: SAM

LTE750 23230/Area Scan (41x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.721 mW/g

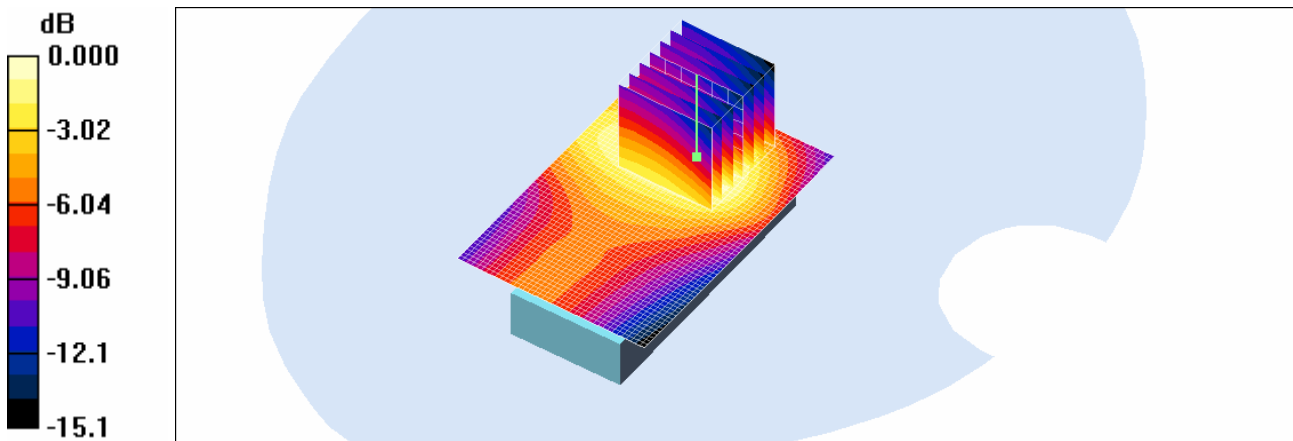
LTE750 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 22.1 V/m; Power Drift = 0.011 dB

Peak SAR (extrapolated) = 1.12 W/kg

SAR(1 g) = 0.657 mW/g; SAR(10 g) = 0.402 mW/g

Maximum value of SAR (measured) = 0.713 mW/g



0 dB = 0.713mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.1 °C
Ambient Temperature: 21.3 °C
Test Date: Sep.10, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.3, 6.3, 6.3); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/900 MHz; Type: SAM

LTE750 23230/Area Scan (41x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.687 mW/g

LTE750 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

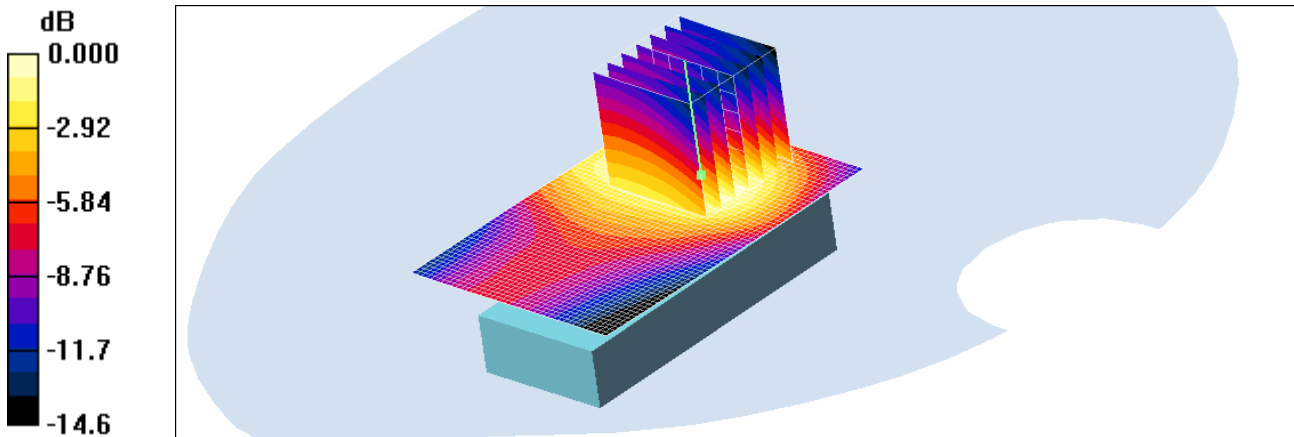
Reference Value = 21.2 V/m; Power Drift = 0.036 dB

Peak SAR (extrapolated) = 1.08 W/kg

SAR(1 g) = 0.627 mW/g; SAR(10 g) = 0.383 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

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



0 dB = 0.686mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.1 °C
Ambient Temperature: 21.3 °C
Test Date: Sep.10, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.3, 6.3, 6.3); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/900 MHz; Type: SAM

LTE750 23230/Area Scan (41x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 0.782 mW/g

LTE750 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

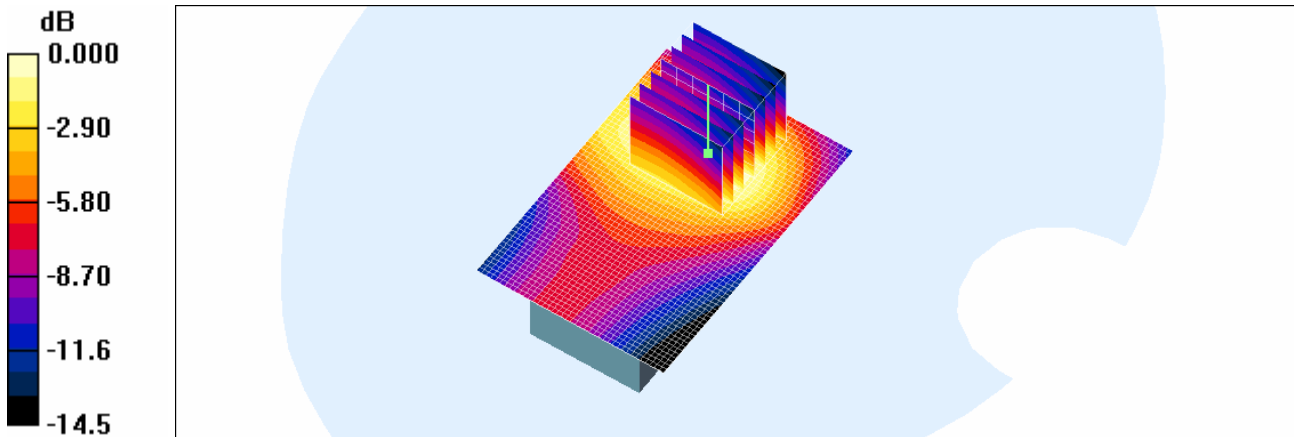
Reference Value = 23.0 V/m; Power Drift = -0.042 dB

Peak SAR (extrapolated) = 1.25 W/kg

SAR(1 g) = 0.721 mW/g; SAR(10 g) = 0.439 mW/g

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.791 mW/g



0 dB = 0.791mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.1 °C
Ambient Temperature: 21.3 °C
Test Date: Sep.10, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.3, 6.3, 6.3); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/900 MHz; Type: SAM

LTE750 23230/Area Scan (41x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 1.23 mW/g

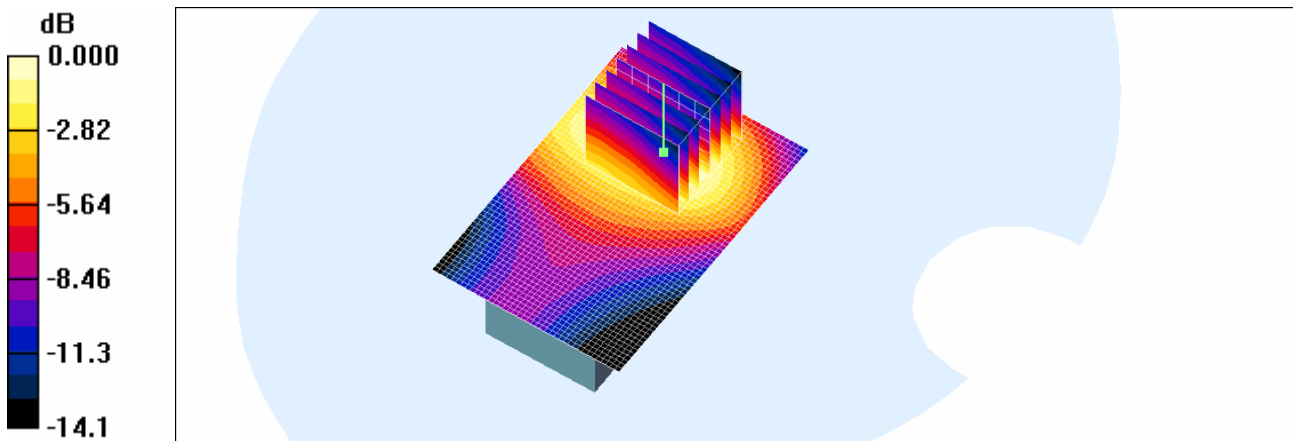
LTE750 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 28.7 V/m; Power Drift = -0.112 dB

Peak SAR (extrapolated) = 1.89 W/kg

SAR(1 g) = 1.1 mW/g; SAR(10 g) = 0.687 mW/g

Maximum value of SAR (measured) = 1.20 mW/g



0 dB = 1.20mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.1 °C
Ambient Temperature: 21.3 °C
Test Date: Sep.10, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.3, 6.3, 6.3); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/900 MHz; Type: SAM

LTE750 23230/Area Scan (41x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.715 mW/g

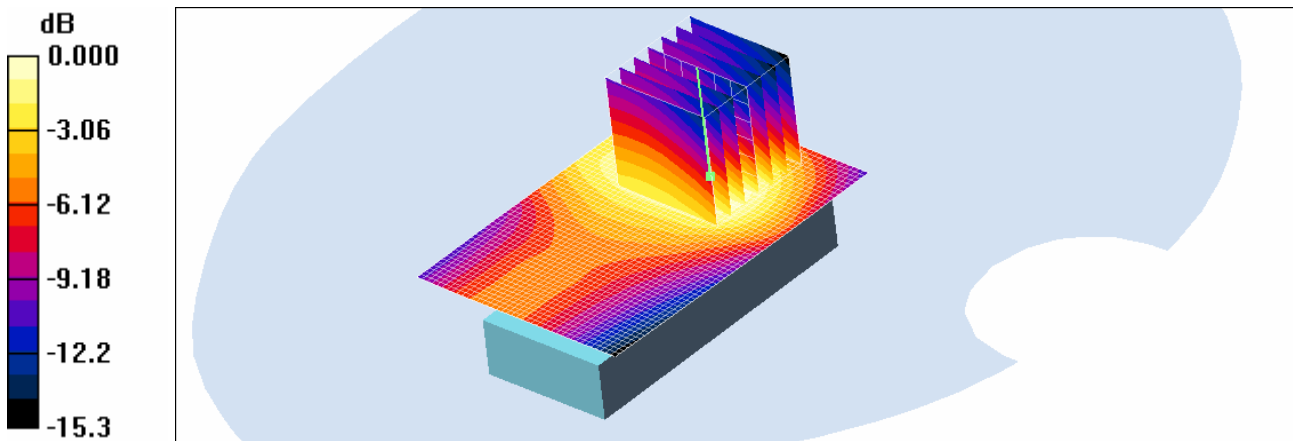
LTE750 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 21.8 V/m; Power Drift = 0.048 dB

Peak SAR (extrapolated) = 1.13 W/kg

SAR(1 g) = 0.657 mW/g; SAR(10 g) = 0.397 mW/g

Maximum value of SAR (measured) = 0.707 mW/g



0 dB = 0.707mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.1 °C
Ambient Temperature: 21.3 °C
Test Date: Sep.10, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.3, 6.3, 6.3); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/900 MHz; Type: SAM

LTE750 23230/Area Scan (41x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.680 mW/g

LTE750 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

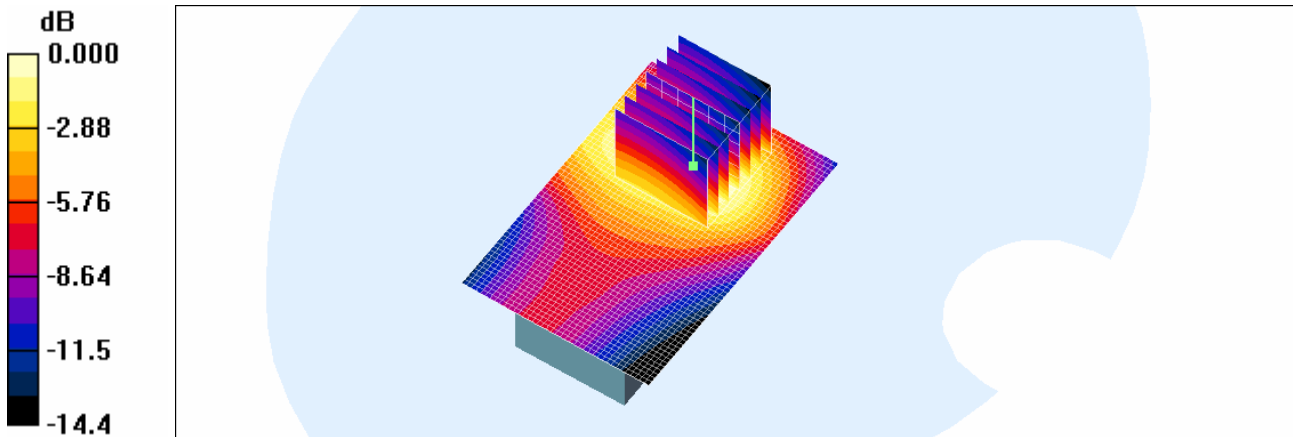
Reference Value = 21.4 V/m; Power Drift = 0.037 dB

Peak SAR (extrapolated) = 1.08 W/kg

SAR(1 g) = 0.625 mW/g; SAR(10 g) = 0.382 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.691 mW/g



0 dB = 0.691mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.1 °C
Ambient Temperature: 21.3 °C
Test Date: Sep.10, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.3, 6.3, 6.3); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/900 MHz; Type: SAM

LTE750 23230/Area Scan (41x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.749 mW/g

LTE750 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

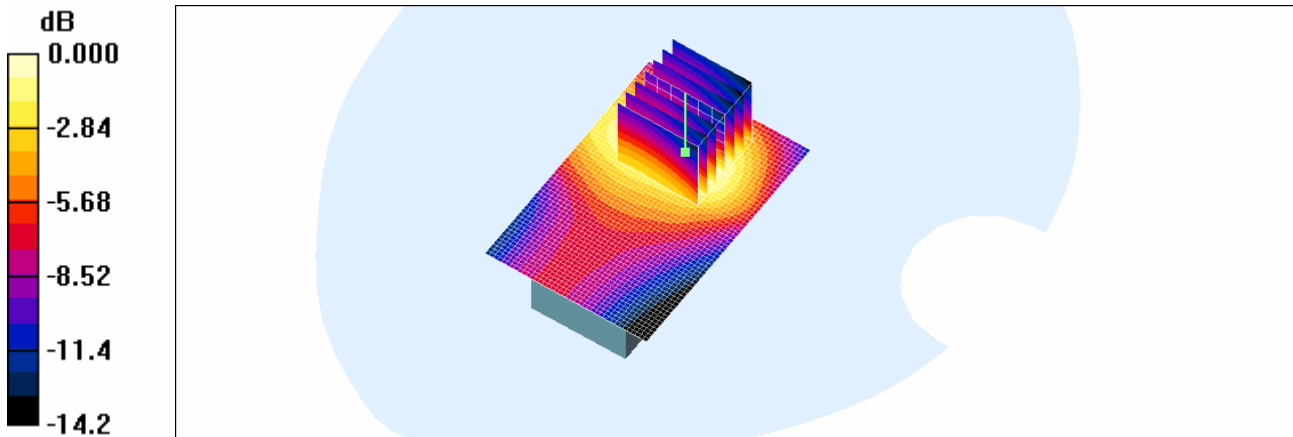
Reference Value = 22.5 V/m; Power Drift = -0.076 dB

Peak SAR (extrapolated) = 1.16 W/kg

SAR(1 g) = 0.678 mW/g; SAR(10 g) = 0.415 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.744 mW/g



0 dB = 0.744mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct.19, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.3, 6.3, 6.3); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

LTE750 23230/Area Scan (41x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.496 mW/g

LTE750 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

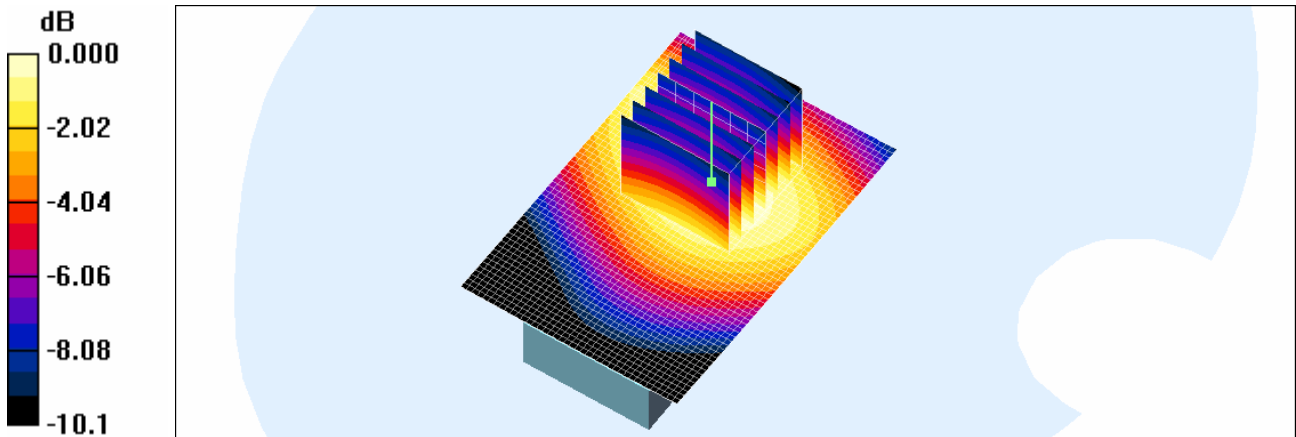
Reference Value = 16.9 V/m; Power Drift = -0.054 dB

Peak SAR (extrapolated) = 0.599 W/kg

SAR(1 g) = 0.449 mW/g; SAR(10 g) = 0.313 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.478 mW/g



0 dB = 0.478mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct.19, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.3, 6.3, 6.3); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

LTE750 23230/Area Scan (41x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.374 mW/g

LTE750 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

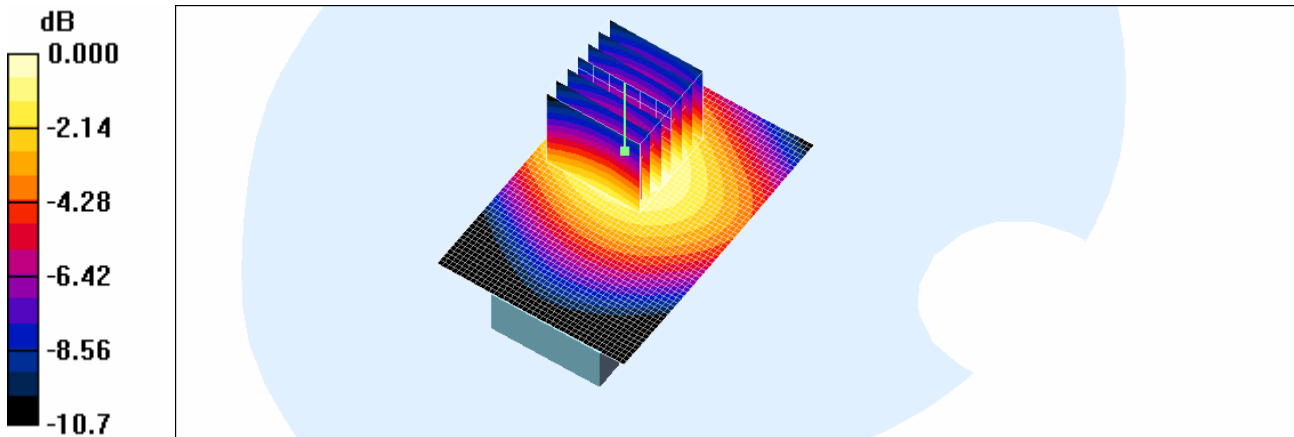
Reference Value = 14.2 V/m; Power Drift = 0.012 dB

Peak SAR (extrapolated) = 0.466 W/kg

SAR(1 g) = 0.346 mW/g; SAR(10 g) = 0.238 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.370 mW/g



0 dB = 0.370mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct.19, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.3, 6.3, 6.3); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

LTE750 23230/Area Scan (41x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.488 mW/g

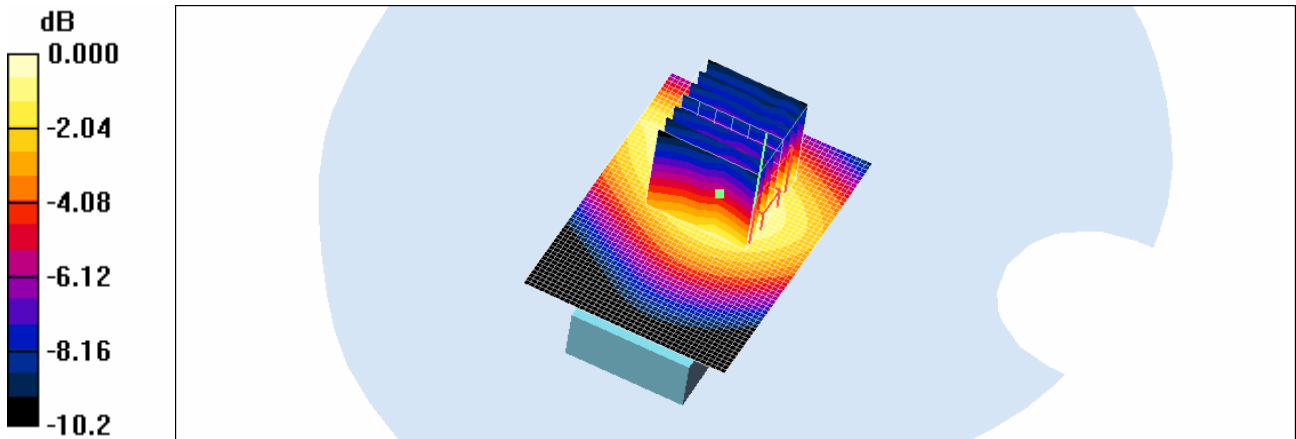
LTE750 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 17.1 V/m; Power Drift = 0.153 dB

Peak SAR (extrapolated) = 0.658 W/kg

SAR(1 g) = 0.456 mW/g; SAR(10 g) = 0.315 mW/g

Maximum value of SAR (measured) = 0.507 mW/g



0 dB = 0.507mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct.19, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.3, 6.3, 6.3); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

LTE750 23230/Area Scan (41x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.374 mW/g

LTE750 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

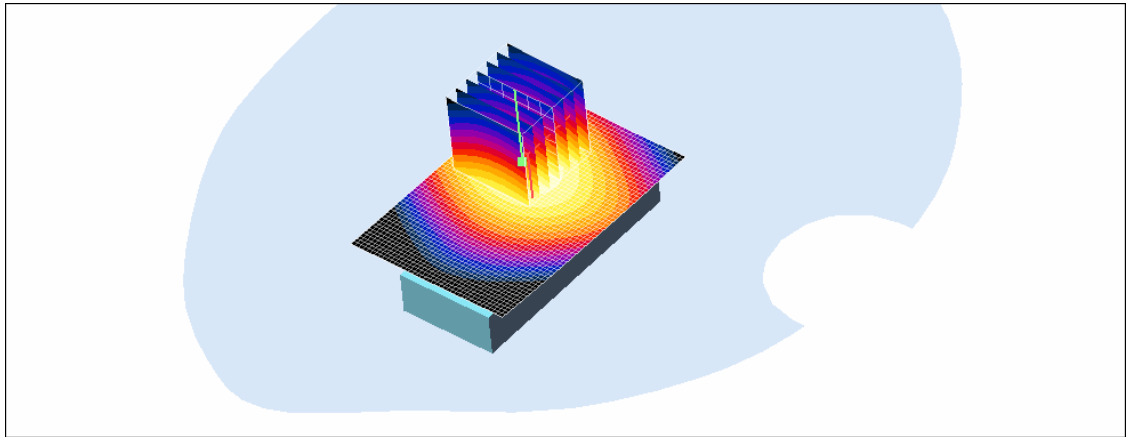
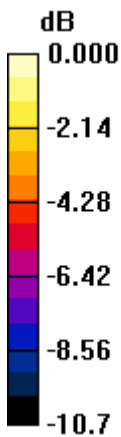
Reference Value = 14.2 V/m; Power Drift = -0.122 dB

Peak SAR (extrapolated) = 0.461 W/kg

SAR(1 g) = 0.341 mW/g; SAR(10 g) = 0.235 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.365 mW/g



0 dB = 0.365mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct.19, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.3, 6.3, 6.3); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

LTE 23230/Area Scan (41x71x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

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

LTE 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

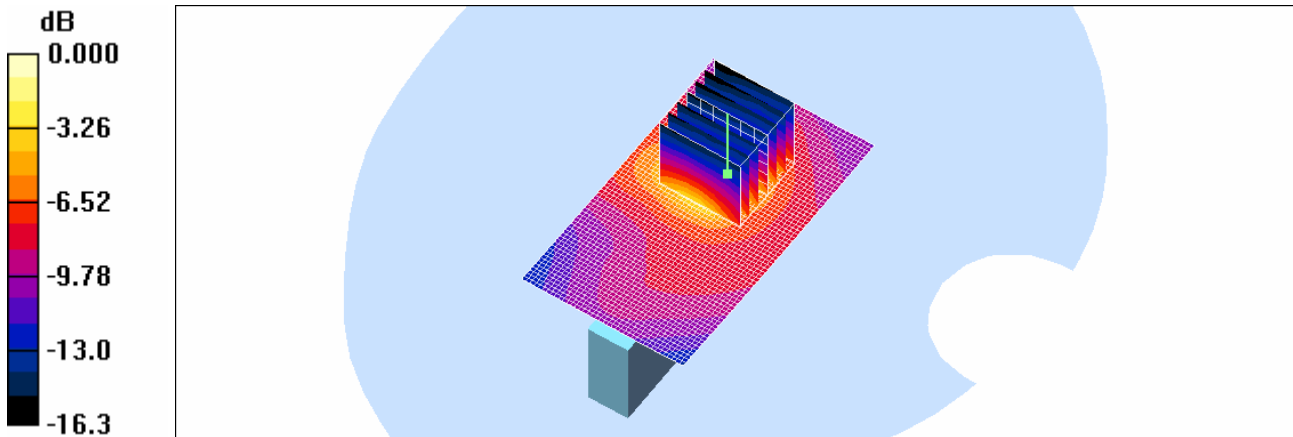
Reference Value = 13.8 V/m; Power Drift = 0.039 dB

Peak SAR (extrapolated) = 0.582 W/kg

SAR(1 g) = 0.193 mW/g; SAR(10 g) = 0.085 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.216 mW/g



0 dB = 0.216mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct.19, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.3, 6.3, 6.3); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

LTE 23230/Area Scan (41x71x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.209 mW/g

LTE 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

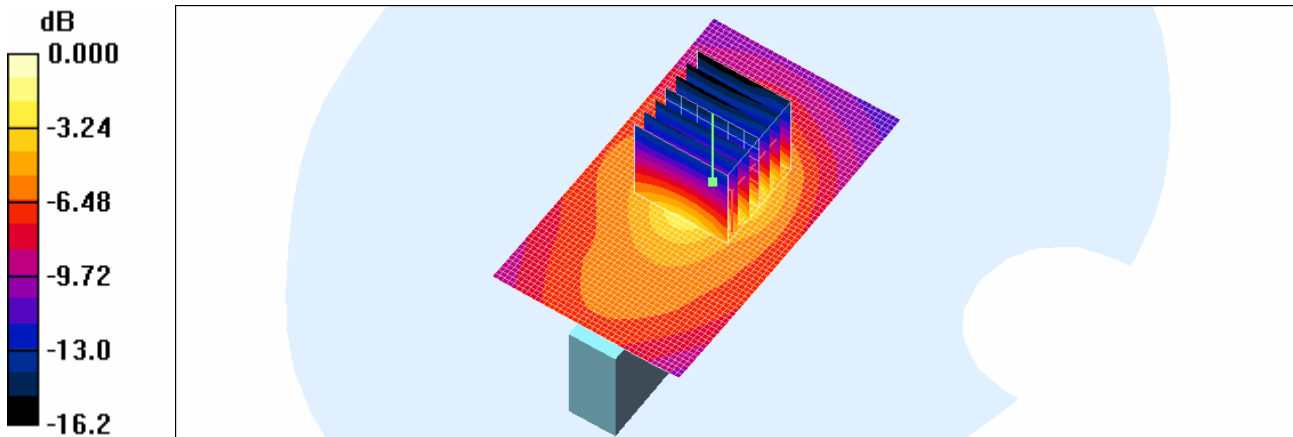
Reference Value = 11.0 V/m; Power Drift = 0.142 dB

Peak SAR (extrapolated) = 0.550 W/kg

SAR(1 g) = 0.199 mW/g; SAR(10 g) = 0.092 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

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



0 dB = 0.207mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct.19, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.3, 6.3, 6.3); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

LTE 23230/Area Scan (41x71x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.188 mW/g

LTE 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

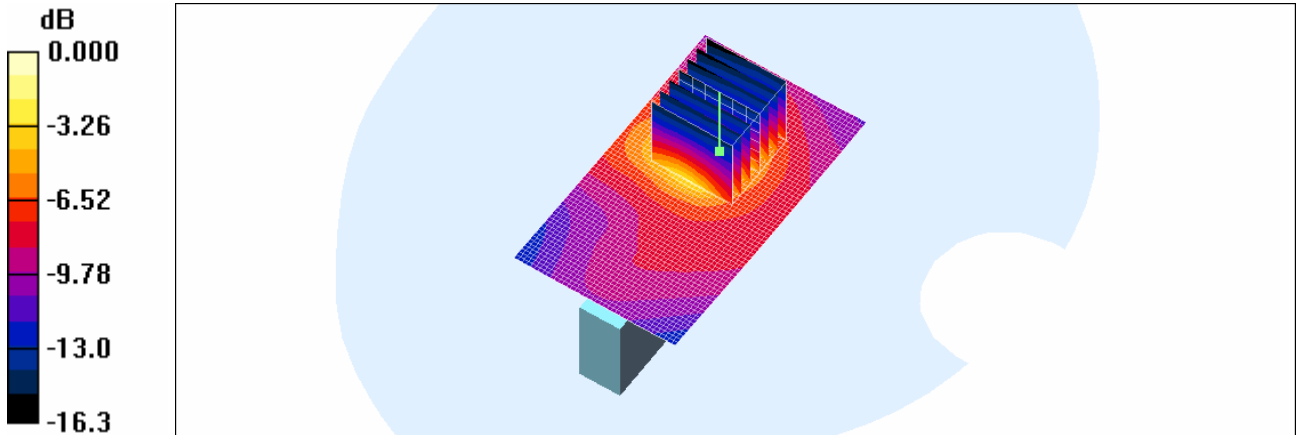
Reference Value = 13.6 V/m; Power Drift = 0.058 dB

Peak SAR (extrapolated) = 0.520 W/kg

SAR(1 g) = 0.185 mW/g; SAR(10 g) = 0.082 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.204 mW/g



0 dB = 0.204mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct.19, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.3, 6.3, 6.3); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

LTE 23230/Area Scan (41x71x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.221 mW/g

LTE 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

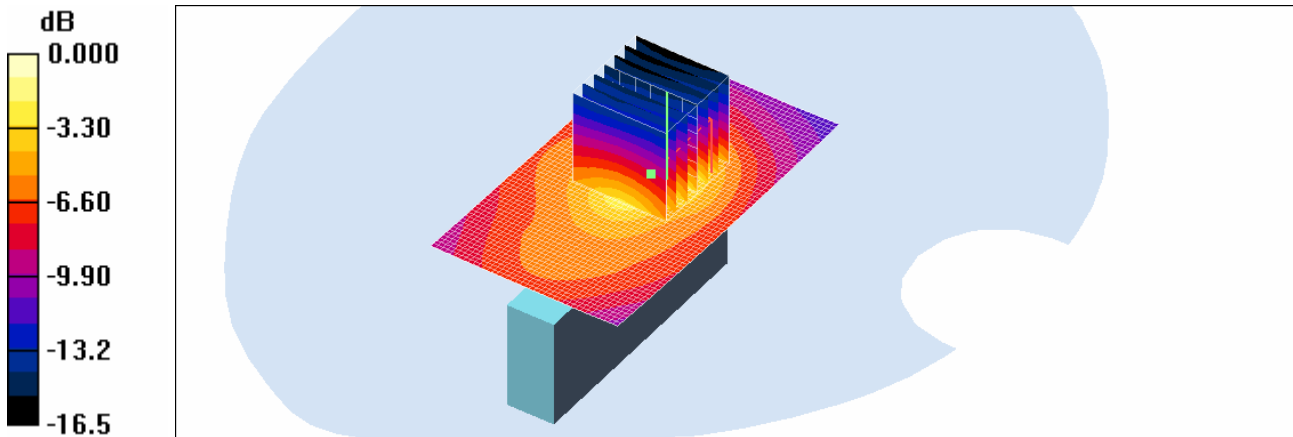
Reference Value = 11.3 V/m; Power Drift = -0.019 dB

Peak SAR (extrapolated) = 0.602 W/kg

SAR(1 g) = 0.209 mW/g; SAR(10 g) = 0.095 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.225 mW/g



0 dB = 0.225mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct.19, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.3, 6.3, 6.3); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

LTE 23230/Area Scan (41x71x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.168 mW/g

LTE 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

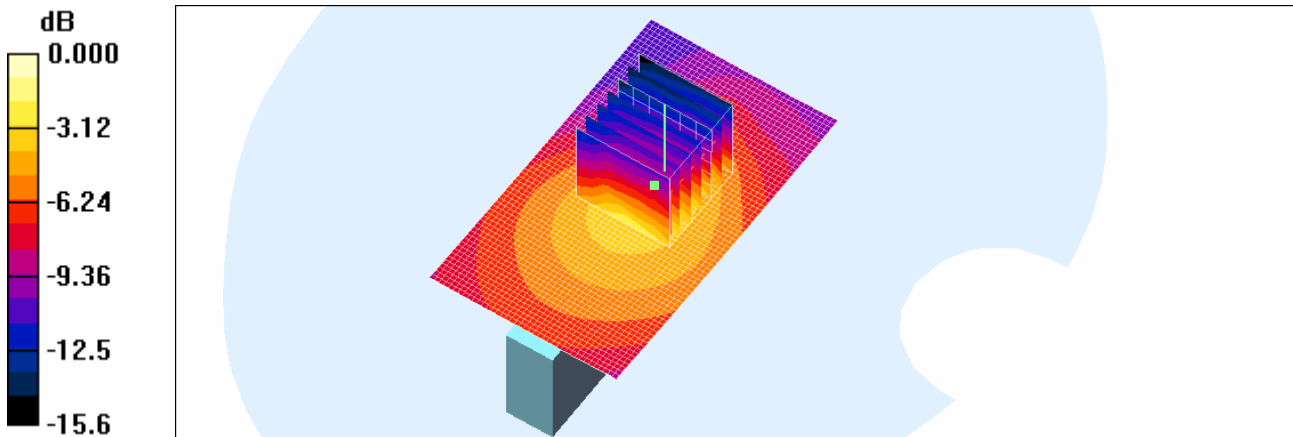
Reference Value = 11.8 V/m; Power Drift = 0.046 dB

Peak SAR (extrapolated) = 0.427 W/kg

SAR(1 g) = 0.178 mW/g; SAR(10 g) = 0.091 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

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



0 dB = 0.203mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct.19, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.3, 6.3, 6.3); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

LTE 23230/Area Scan (41x71x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.110 mW/g

LTE 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

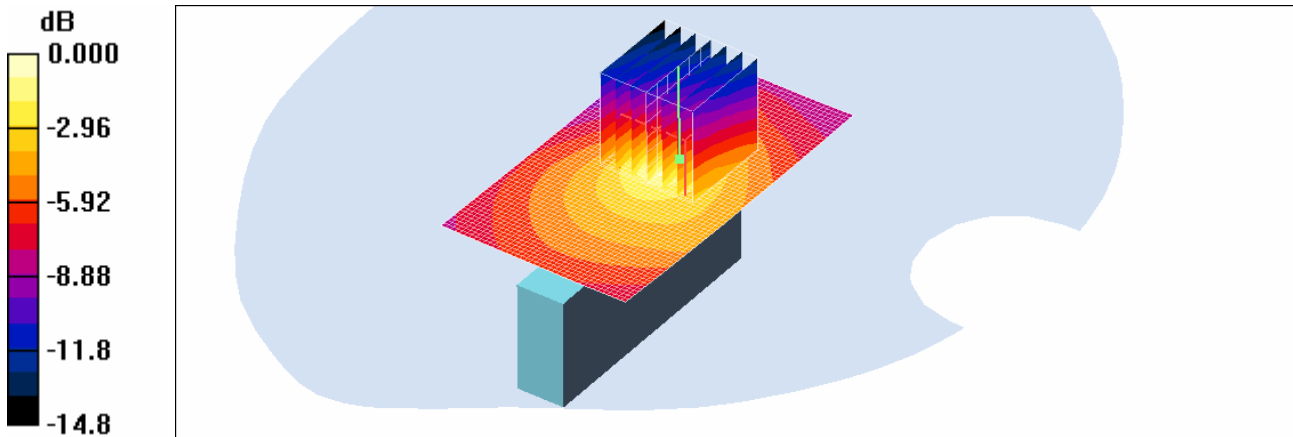
Reference Value = 9.68 V/m; Power Drift = 0.026 dB

Peak SAR (extrapolated) = 0.255 W/kg

SAR(1 g) = 0.103 mW/g; SAR(10 g) = 0.052 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.112 mW/g



0 dB = 0.112mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct.19, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.3, 6.3, 6.3); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

LTE 23230/Area Scan (41x71x1): Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.162 mW/g

LTE 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

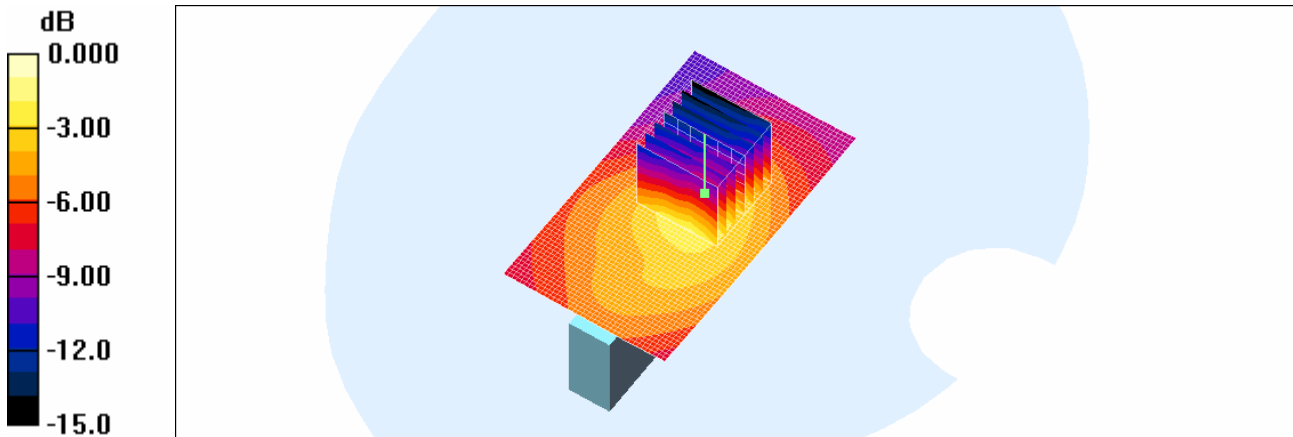
Reference Value = 12.0 V/m; Power Drift = 0.055 dB

Peak SAR (extrapolated) = 0.408 W/kg

SAR(1 g) = 0.157 mW/g; SAR(10 g) = 0.082 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.171 mW/g



0 dB = 0.171mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct.19, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.3, 6.3, 6.3); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

LTE 23230/Area Scan (41x71x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.110 mW/g

LTE 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

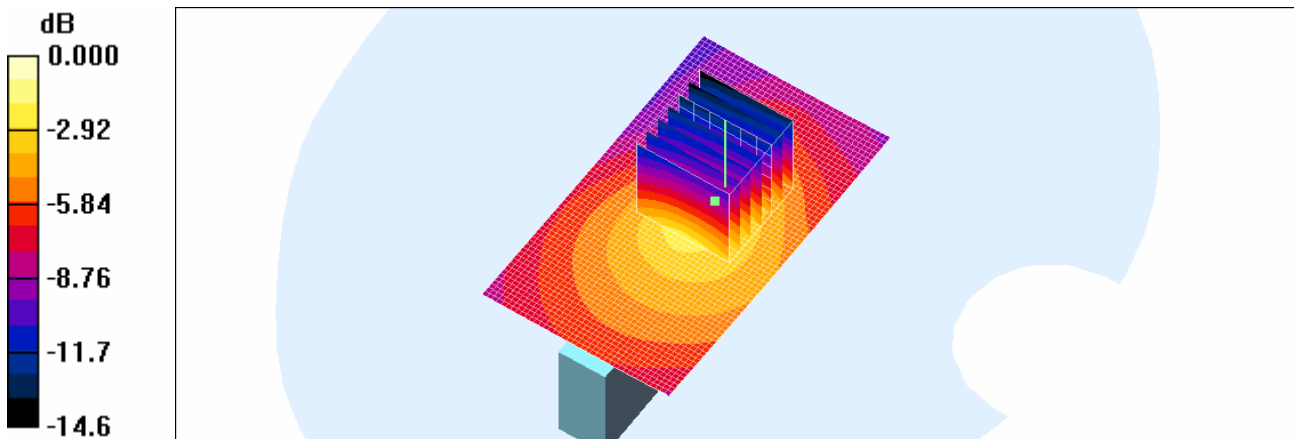
Reference Value = 9.99 V/m; Power Drift = -0.062 dB

Peak SAR (extrapolated) = 0.254 W/kg

SAR(1 g) = 0.102 mW/g; SAR(10 g) = 0.052 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.112 mW/g



0 dB = 0.112mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct.19, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.3, 6.3, 6.3); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/900 MHz; Type: SAM

LTE750 23230/Area Scan (41x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

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

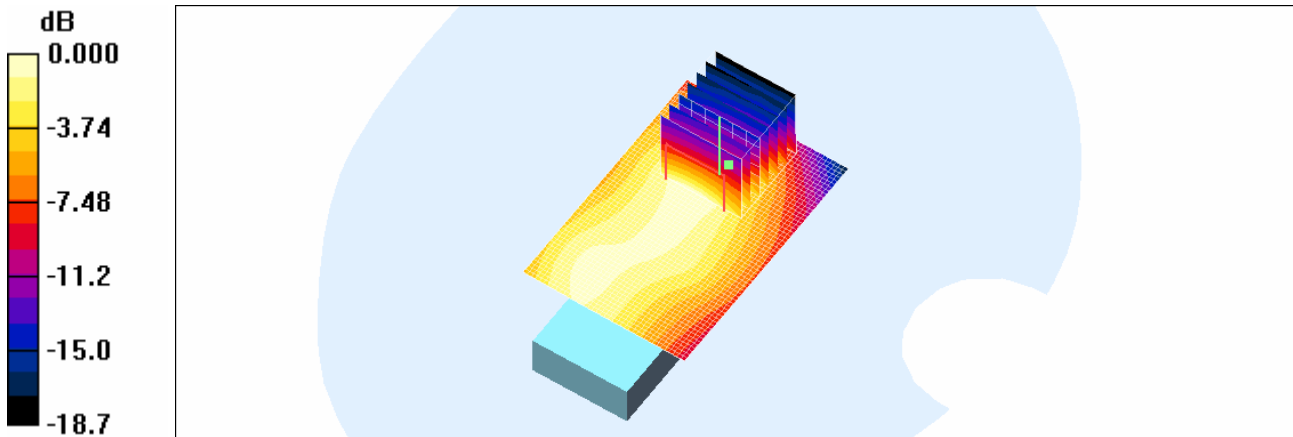
LTE750 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 18.8 V/m; Power Drift = 0.011 dB

Peak SAR (extrapolated) = 0.992 W/kg

SAR(1 g) = 0.378 mW/g; SAR(10 g) = 0.187 mW/g

Maximum value of SAR (measured) = 0.396 mW/g



0 dB = 0.396mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct.19, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.3, 6.3, 6.3); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/900 MHz; Type: SAM

LTE750 23230/Area Scan (41x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

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

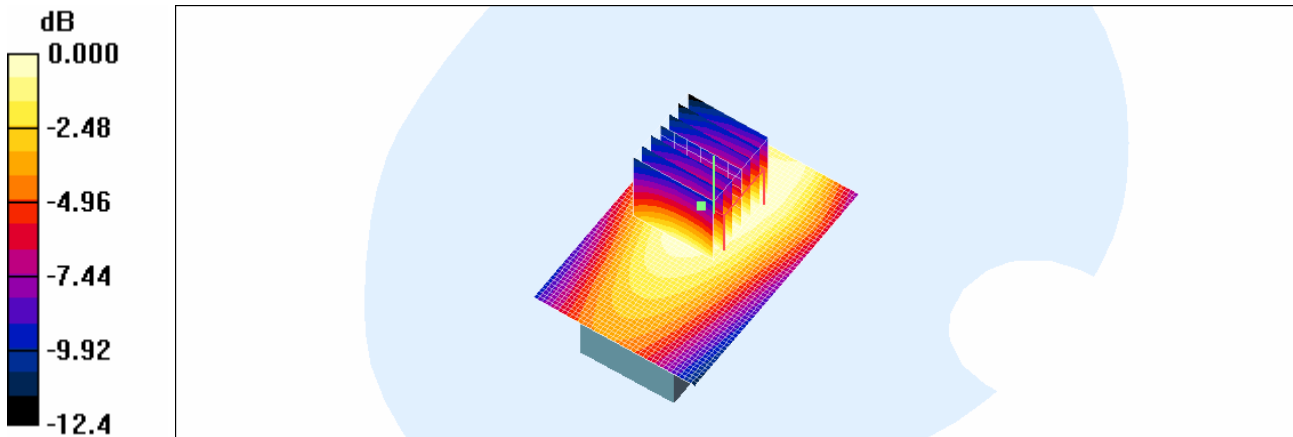
LTE750 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 14.1 V/m; Power Drift = 0.079 dB

Peak SAR (extrapolated) = 0.375 W/kg

SAR(1 g) = 0.221 mW/g; SAR(10 g) = 0.146 mW/g

Maximum value of SAR (measured) = 0.233 mW/g



0 dB = 0.233mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct.19, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.3, 6.3, 6.3); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/900 MHz; Type: SAM

LTE750 23230/Area Scan (41x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Info: Interpolated medium parameters used for SAR evaluation.

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

LTE750 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

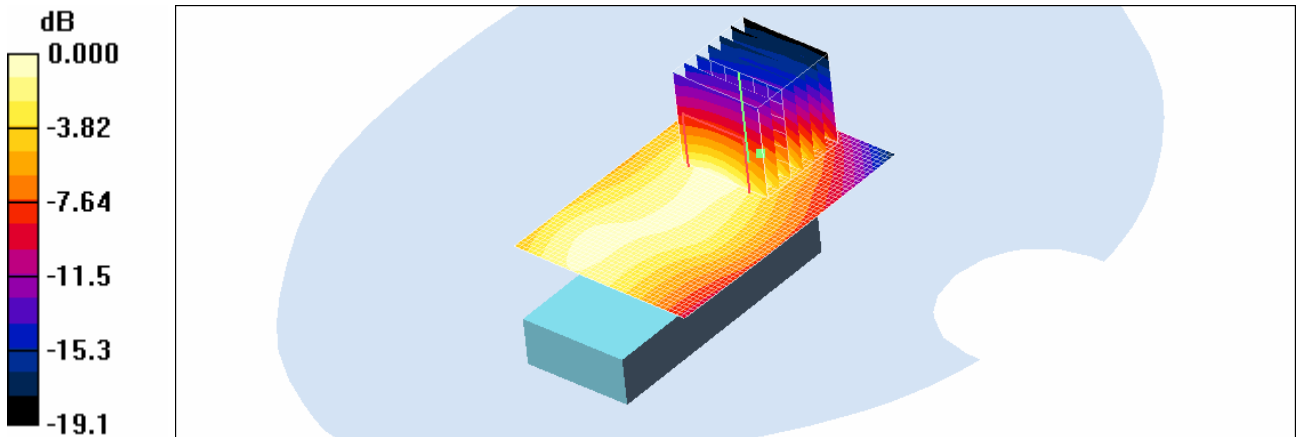
Reference Value = 18.2 V/m; Power Drift = 0.006 dB

Peak SAR (extrapolated) = 0.958 W/kg

SAR(1 g) = 0.361 mW/g; SAR(10 g) = 0.178 mW/g

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.380 mW/g



0 dB = 0.380mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct.19, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.3, 6.3, 6.3); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/900 MHz; Type: SAM

LTE750 23230/Area Scan (41x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 0.226 mW/g

LTE750 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

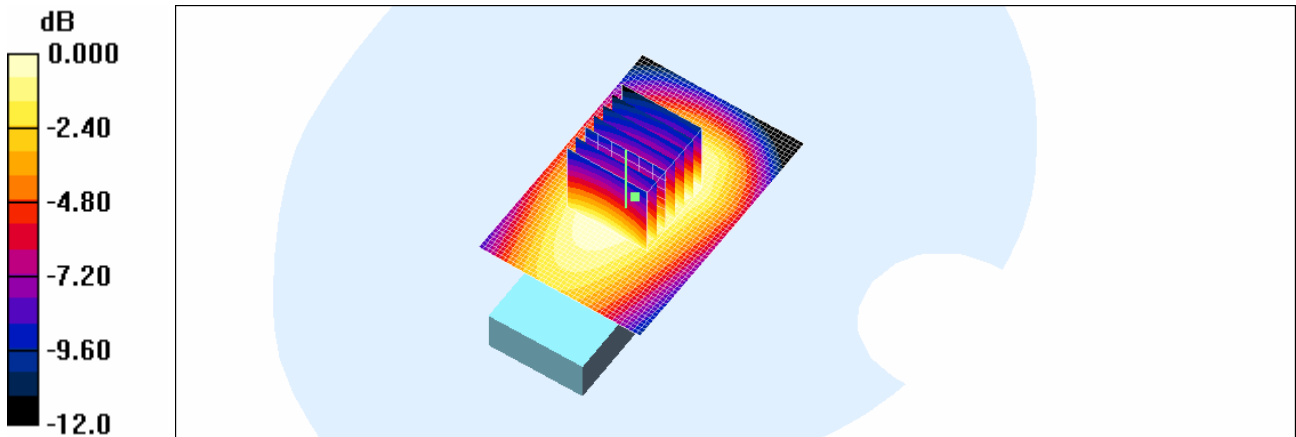
Reference Value = 13.7 V/m; Power Drift = 0.062 dB

Peak SAR (extrapolated) = 0.356 W/kg

SAR(1 g) = 0.211 mW/g; SAR(10 g) = 0.139 mW/g

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.221 mW/g



0 dB = 0.221mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct.19, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.3, 6.3, 6.3); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

LTE750 23230/Area Scan (41x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.247 mW/g

LTE750 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

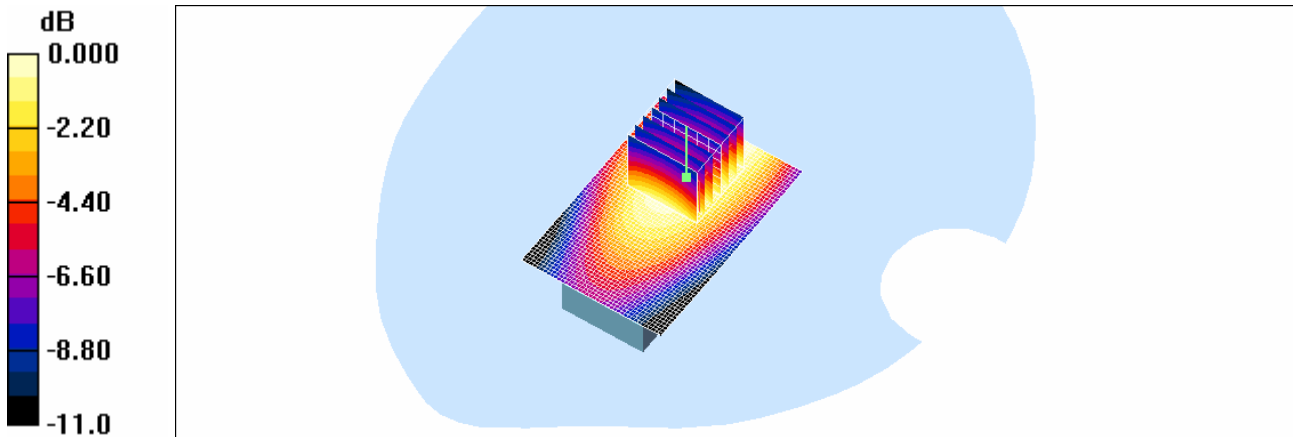
Reference Value = 15.5 V/m; Power Drift = -0.014 dB

Peak SAR (extrapolated) = 0.323 W/kg

SAR(1 g) = 0.225 mW/g; SAR(10 g) = 0.154 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.238 mW/g



0 dB = 0.238mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct.19, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.3, 6.3, 6.3); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

LTE750 23230/Area Scan (41x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.220 mW/g

LTE750 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

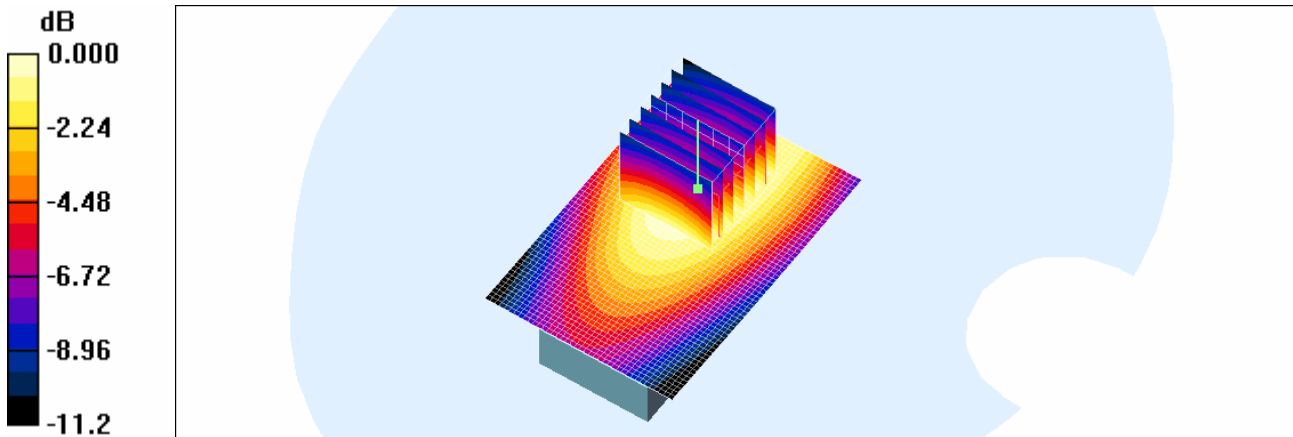
Reference Value = 14.3 V/m; Power Drift = 0.091 dB

Peak SAR (extrapolated) = 0.284 W/kg

SAR(1 g) = 0.199 mW/g; SAR(10 g) = 0.136 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.212 mW/g



0 dB = 0.212mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct.19, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.3, 6.3, 6.3); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

LTE750 23230/Area Scan (41x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.248 mW/g

LTE750 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

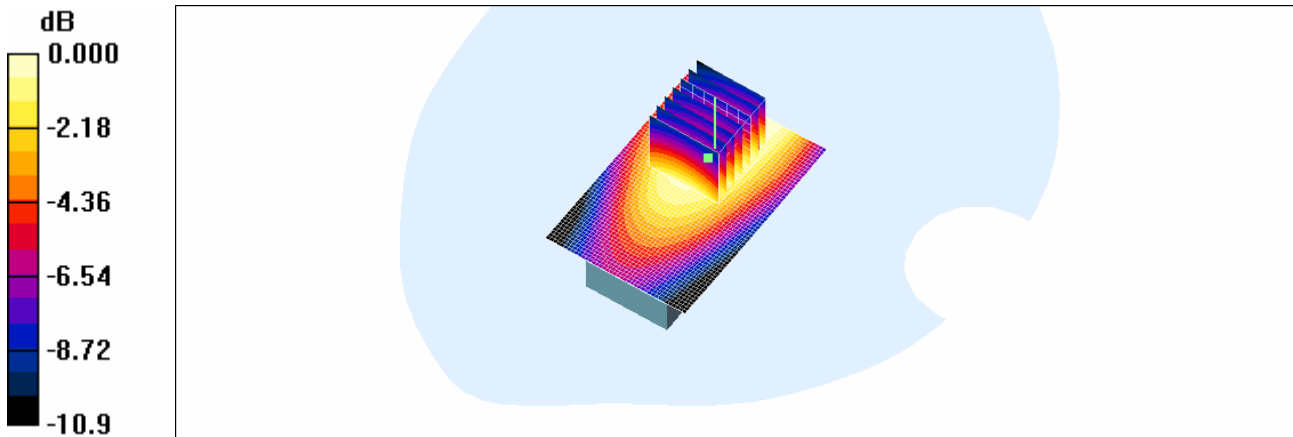
Reference Value = 15.5 V/m; Power Drift = 0.033 dB

Peak SAR (extrapolated) = 0.316 W/kg

SAR(1 g) = 0.222 mW/g; SAR(10 g) = 0.153 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.236 mW/g



0 dB = 0.236mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct.19, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.3, 6.3, 6.3); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

LTE750 23230/Area Scan (41x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.215 mW/g

LTE750 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

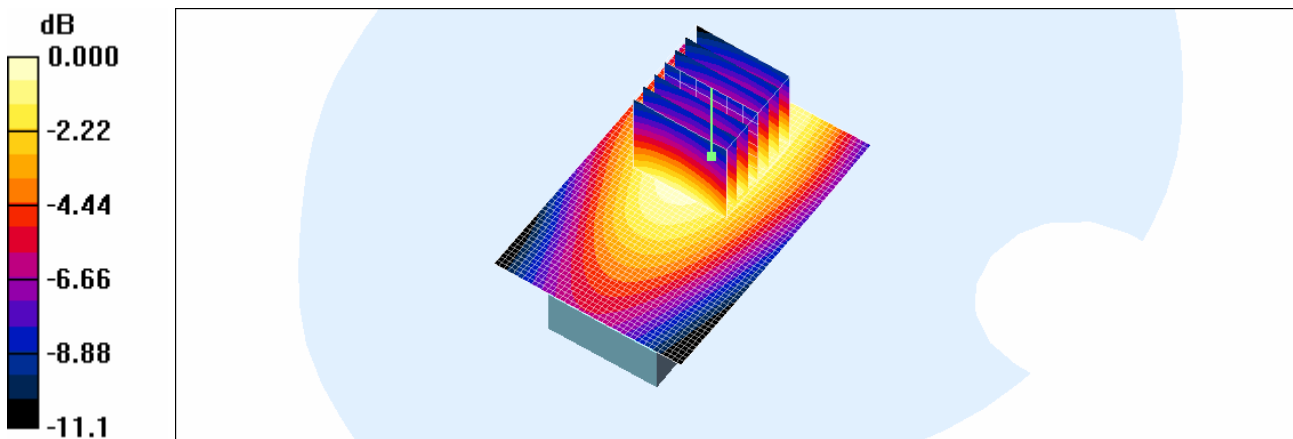
Reference Value = 14.2 V/m; Power Drift = 0.056 dB

Peak SAR (extrapolated) = 0.281 W/kg

SAR(1 g) = 0.195 mW/g; SAR(10 g) = 0.133 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.209 mW/g



0 dB = 0.209mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct.19, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.3, 6.3, 6.3); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

LTE 23230/Area Scan (41x71x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.235 mW/g

LTE 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

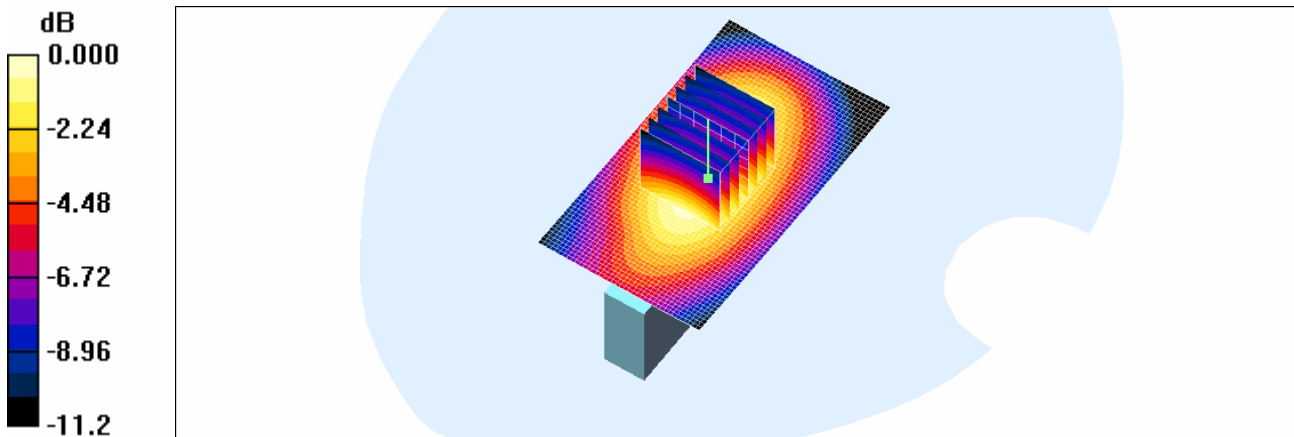
Reference Value = 13.6 V/m; Power Drift = 0.042 dB

Peak SAR (extrapolated) = 0.317 W/kg

SAR(1 g) = 0.217 mW/g; SAR(10 g) = 0.144 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.235 mW/g



0 dB = 0.235mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct.19, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.3, 6.3, 6.3); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

LTE 23230/Area Scan (41x71x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.262 mW/g

LTE 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

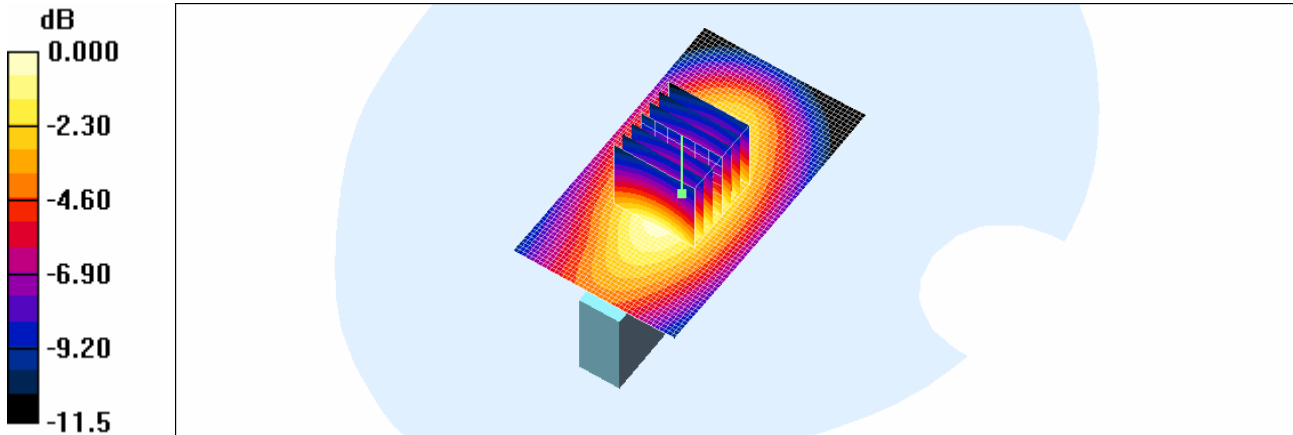
Reference Value = 13.7 V/m; Power Drift = 0.006 dB

Peak SAR (extrapolated) = 0.349 W/kg

SAR(1 g) = 0.242 mW/g; SAR(10 g) = 0.159 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

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



0 dB = 0.261mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct.19, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.3, 6.3, 6.3); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

LTE 23230/Area Scan (41x71x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

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

LTE 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

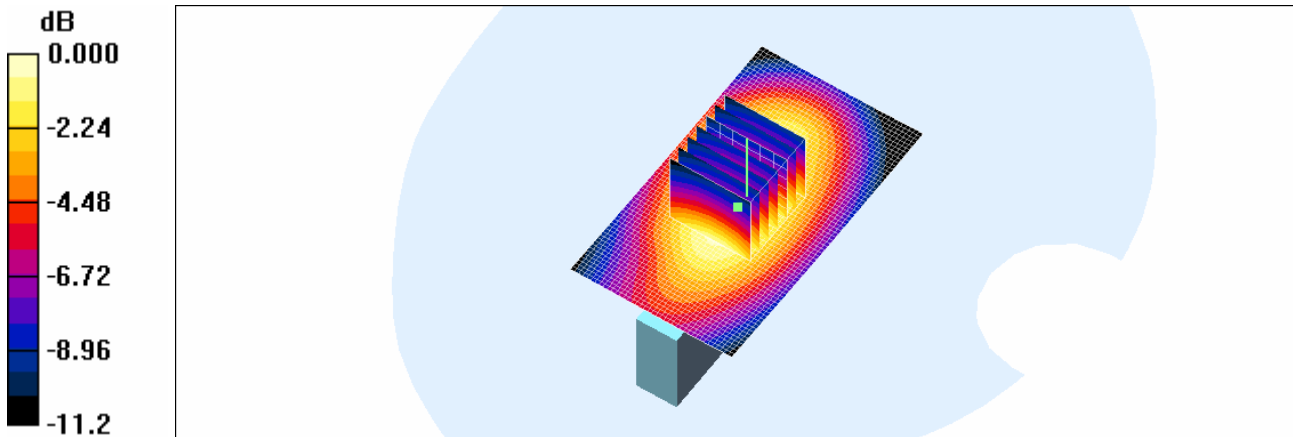
Reference Value = 13.6 V/m; Power Drift = 0.013 dB

Peak SAR (extrapolated) = 0.311 W/kg

SAR(1 g) = 0.216 mW/g; SAR(10 g) = 0.143 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

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



0 dB = 0.232mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct.19, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.3, 6.3, 6.3); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

LTE 23230/Area Scan (41x71x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.278 mW/g

LTE 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

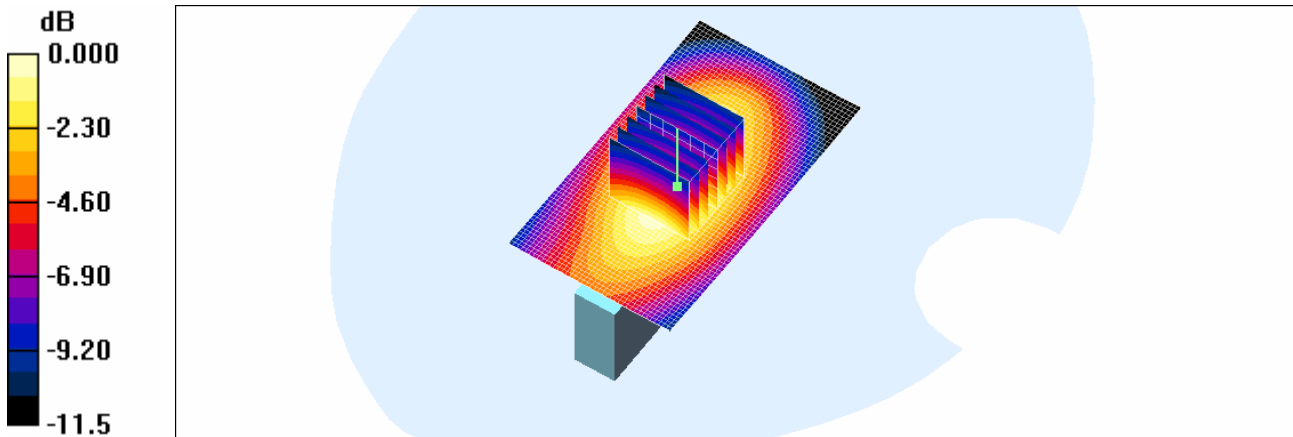
Reference Value = 14.3 V/m; Power Drift = 0.019 dB

Peak SAR (extrapolated) = 0.369 W/kg

SAR(1 g) = 0.253 mW/g; SAR(10 g) = 0.167 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.275 mW/g



0 dB = 0.275mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct.19, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.3, 6.3, 6.3); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

LTE 23230/Area Scan (41x71x1): Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.266 mW/g

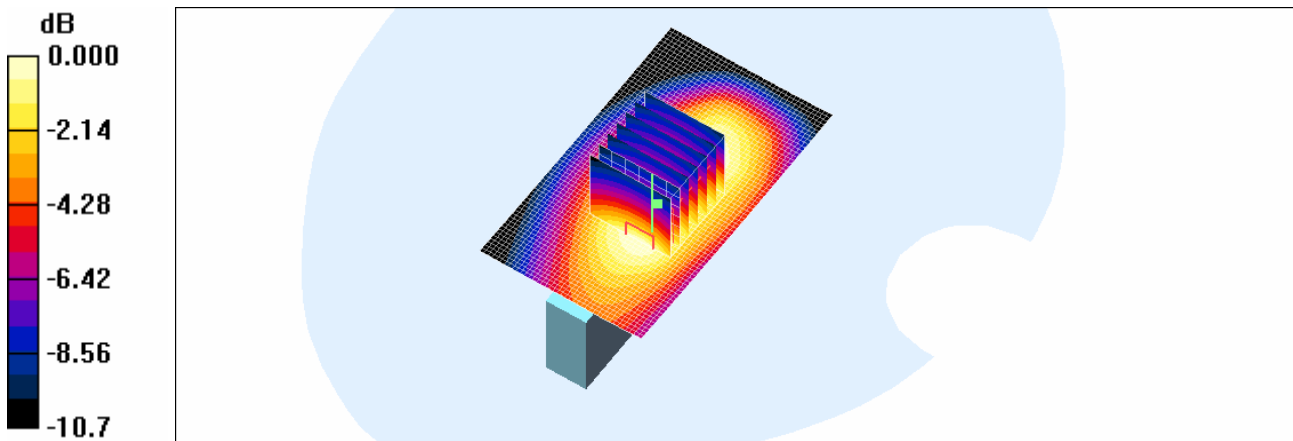
LTE 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 15.0 V/m; Power Drift = 0.005 dB

Peak SAR (extrapolated) = 0.376 W/kg

SAR(1 g) = 0.239 mW/g; SAR(10 g) = 0.159 mW/g

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



Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct.19, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.3, 6.3, 6.3); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

LTE 23230/Area Scan (41x71x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.191 mW/g

LTE 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

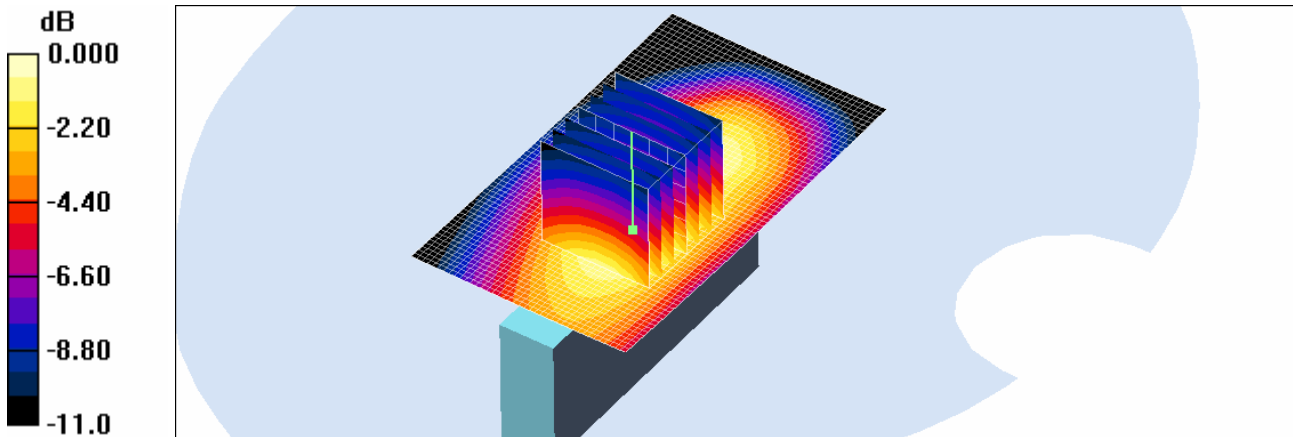
Reference Value = 12.1 V/m; Power Drift = 0.006 dB

Peak SAR (extrapolated) = 0.268 W/kg

SAR(1 g) = 0.173 mW/g; SAR(10 g) = 0.113 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.190 mW/g



0 dB = 0.190mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct.19, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.3, 6.3, 6.3); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

LTE 23230/Area Scan (41x71x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.275 mW/g

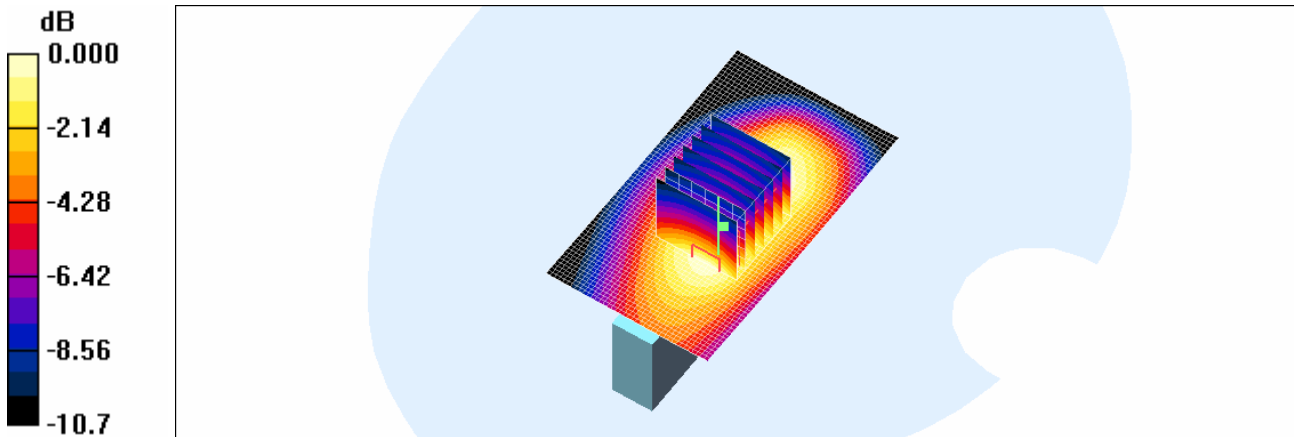
LTE 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 15.0 V/m; Power Drift = 0.119 dB

Peak SAR (extrapolated) = 0.393 W/kg

SAR(1 g) = 0.246 mW/g; SAR(10 g) = 0.164 mW/g

Maximum value of SAR (measured) = 0.266 mW/g



0 dB = 0.266mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct.19, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.3, 6.3, 6.3); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

LTE 23230/Area Scan (41x71x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.189 mW/g

LTE 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

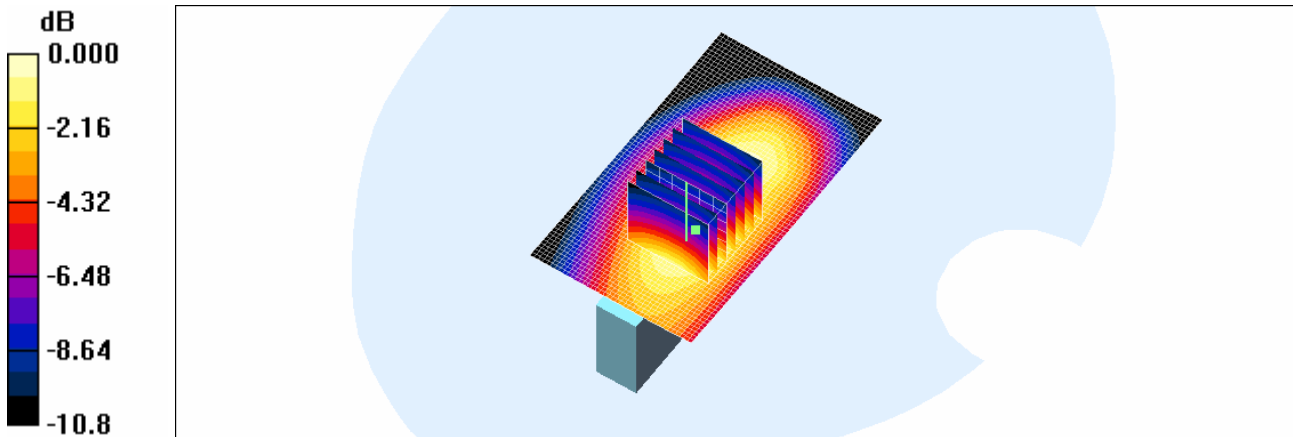
Reference Value = 12.0 V/m; Power Drift = -0.025 dB

Peak SAR (extrapolated) = 0.269 W/kg

SAR(1 g) = 0.171 mW/g; SAR(10 g) = 0.111 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.184 mW/g



0 dB = 0.184mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct.19, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.3, 6.3, 6.3); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

LTE Body 23230/Area Scan (41x41x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.172 mW/g

LTE Body 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

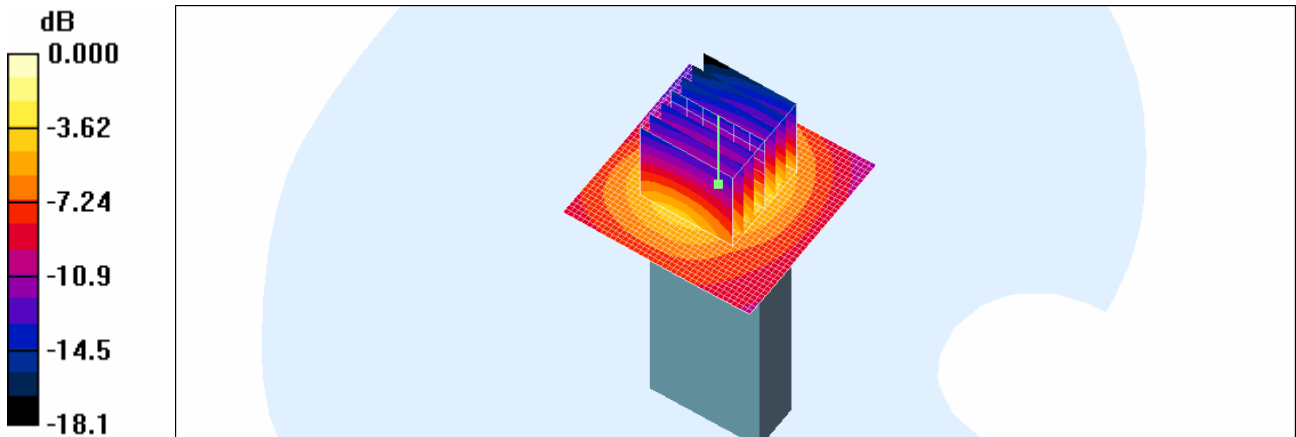
Reference Value = 13.8 V/m; Power Drift = -0.044 dB

Peak SAR (extrapolated) = 0.401 W/kg

SAR(1 g) = 0.162 mW/g; SAR(10 g) = 0.076 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.182 mW/g



0 dB = 0.182mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct.19, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.3, 6.3, 6.3); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

LTE Body 23230/Area Scan (41x41x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.158 mW/g

LTE Body 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

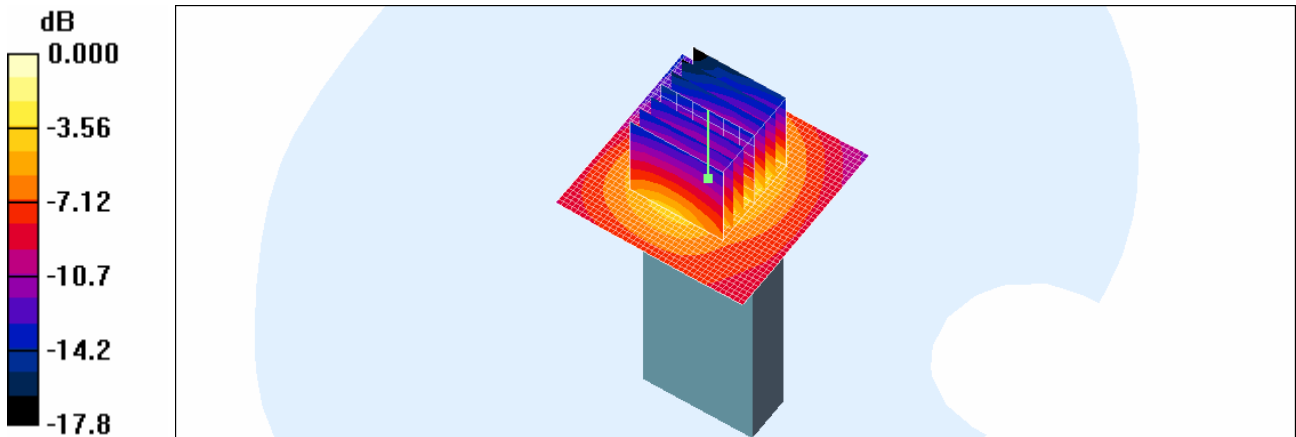
Reference Value = 12.9 V/m; Power Drift = 0.113 dB

Peak SAR (extrapolated) = 0.365 W/kg

SAR(1 g) = 0.151 mW/g; SAR(10 g) = 0.071 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.171 mW/g



0 dB = 0.171mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct.19, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.3, 6.3, 6.3); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

LTE Body 23230/Area Scan (41x41x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.169 mW/g

LTE Body 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

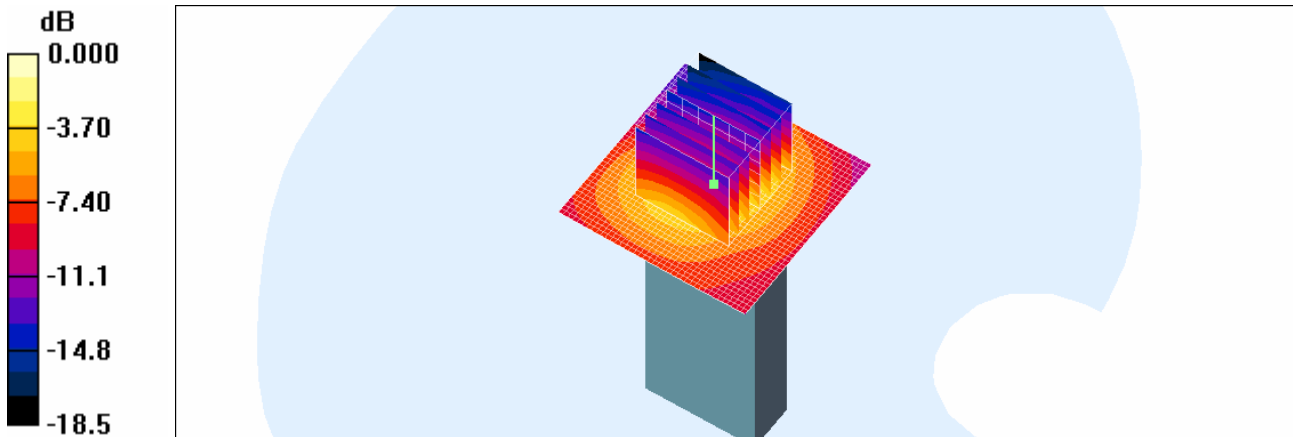
Reference Value = 13.4 V/m; Power Drift = -0.068 dB

Peak SAR (extrapolated) = 0.377 W/kg

SAR(1 g) = 0.159 mW/g; SAR(10 g) = 0.075 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

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



0 dB = 0.177mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct.19, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.3, 6.3, 6.3); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

LTE Body 23230/Area Scan (41x41x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.157 mW/g

LTE Body 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

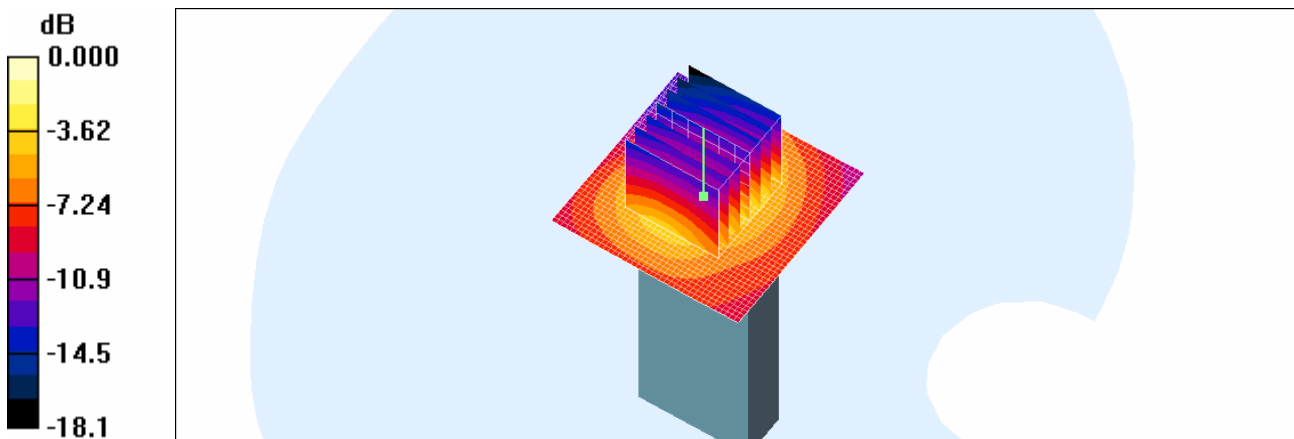
Reference Value = 13.0 V/m; Power Drift = 0.005 dB

Peak SAR (extrapolated) = 0.348 W/kg

SAR(1 g) = 0.147 mW/g; SAR(10 g) = 0.070 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.163 mW/g



0 dB = 0.163mW/g

Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.1 °C
Ambient Temperature: 21.3 °C
Test Date: Oct. 4, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: CDMA 835MHz FCC; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 836.52$ MHz; $\sigma = 0.982$ mho/m; $\epsilon_r = 56.8$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.17, 6.17, 6.17); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Body 384/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.723 mW/g

Body 384/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 21.5 V/m; Power Drift = 0.133 dB

Peak SAR (extrapolated) = 1.15 W/kg

SAR(1 g) = 0.696 mW/g; SAR(10 g) = 0.439 mW/g

Maximum value of SAR (measured) = 0.763 mW/g

Body 384/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

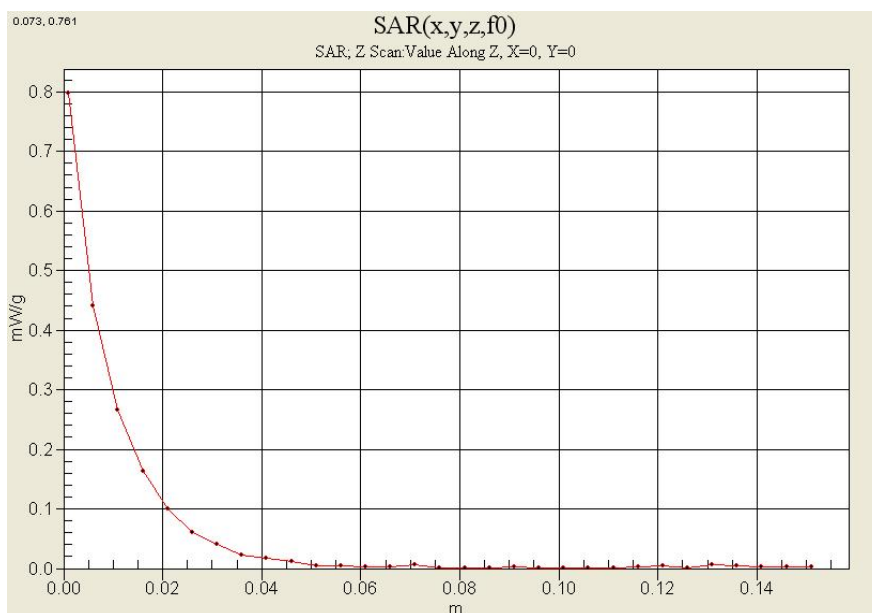
Reference Value = 21.5 V/m; Power Drift = 0.133 dB

Peak SAR (extrapolated) = 0.750 W/kg

SAR(1 g) = 0.558 mW/g; SAR(10 g) = 0.396 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

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



Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 5, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: PCS 1900; Frequency: 1851.25 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 1851.25 \text{ MHz}$; $\sigma = 1.5 \text{ mho/m}$; $\epsilon_r = 54.1$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 25/Area Scan (61x71x1): Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 1.25 mW/g

Body 25/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

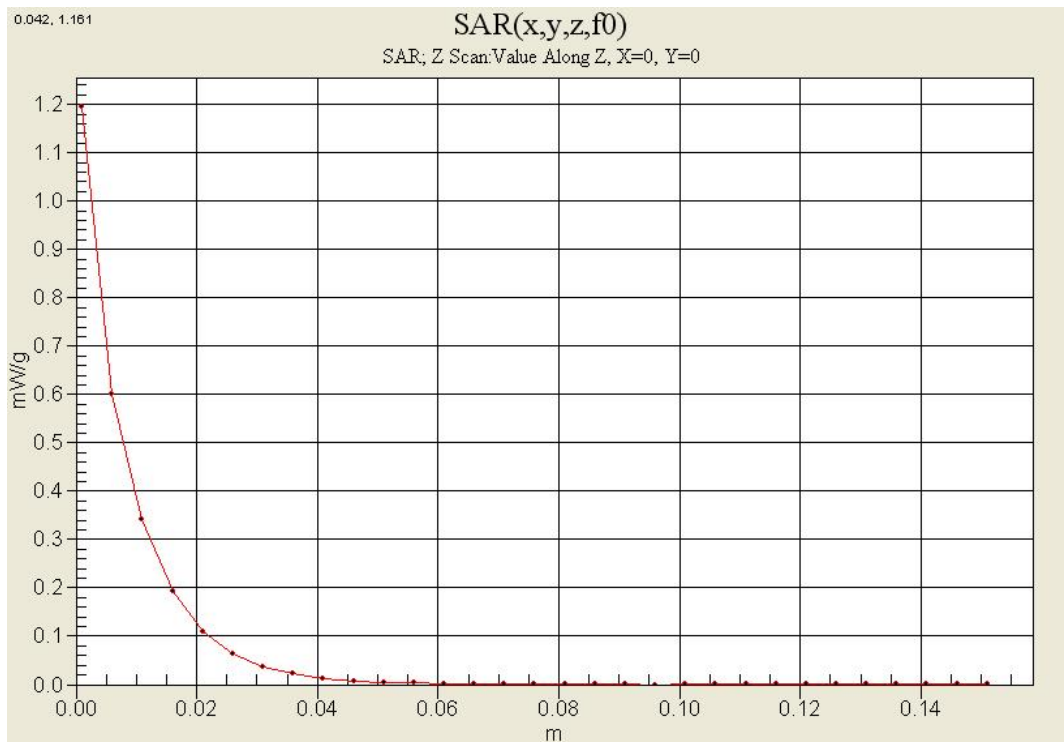
Reference Value = 28.8 V/m; Power Drift = -0.096 dB

Peak SAR (extrapolated) = 1.82 W/kg

SAR(1 g) = 1.02 mW/g; SAR(10 g) = 0.543 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 1.18 mW/g



Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct. 6, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:4.15
Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.984$ mho/m; $\epsilon_r = 56.9$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.17, 6.17, 6.17); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Body 190/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.564 mW/g

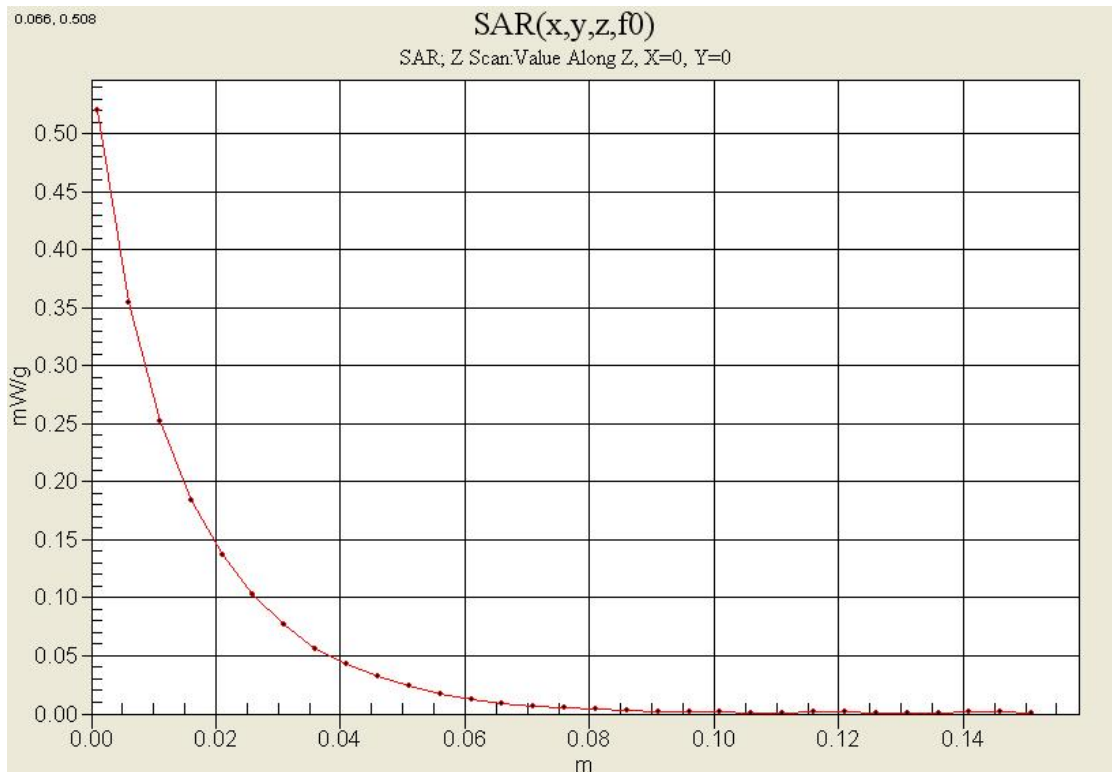
Body 190/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.0 V/m; Power Drift = -0.164 dB

Peak SAR (extrapolated) = 2.26 W/kg

SAR(1 g) = 0.539 mW/g; SAR(10 g) = 0.347 mW/g

Maximum value of SAR (measured) = 0.539 mW/g



Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 7, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: GSM 1900; Frequency: 1850.2 MHz; Duty Cycle: 1:2.075
Medium parameters used (interpolated): $f = 1850.2 \text{ MHz}$; $\sigma = 1.45 \text{ mho/m}$; $\epsilon_r = 53.9$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 512/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 1.16 mW/g

Body 512/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

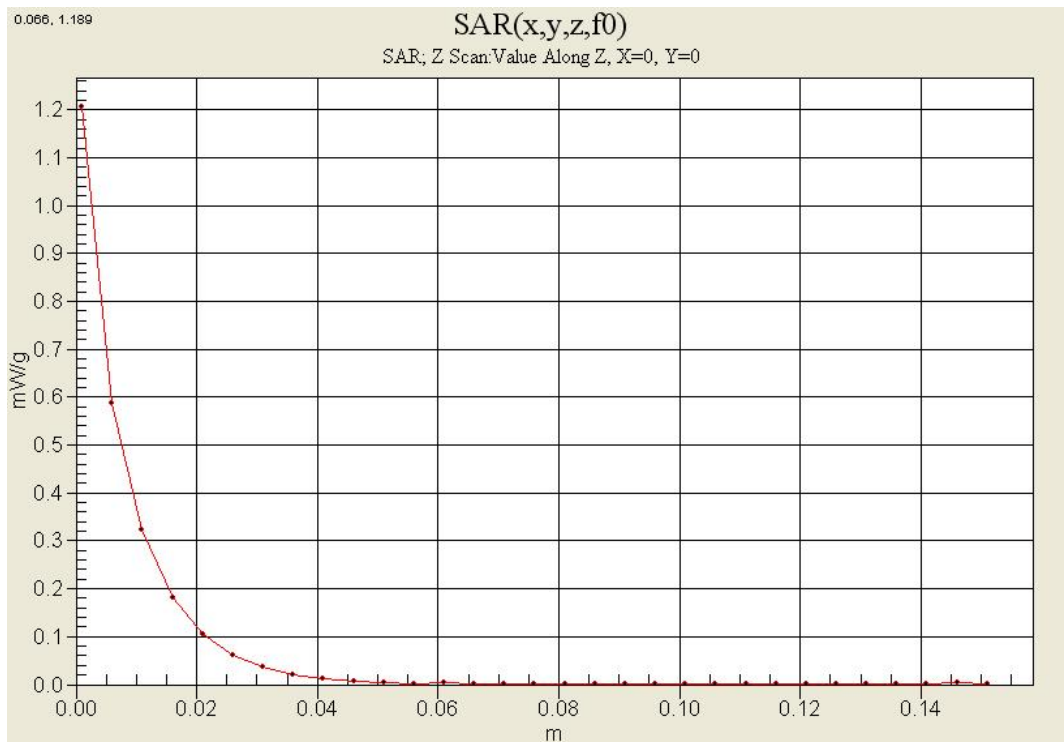
Reference Value = 15.1 V/m; Power Drift = 0.159 dB

Peak SAR (extrapolated) = 1.88 W/kg

SAR(1 g) = 1.03 mW/g; SAR(10 g) = 0.544 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 1.18 mW/g



Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: Oct. 8, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: WCDMA850; Frequency: 836.6 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.984$ mho/m; $\epsilon_r = 56.9$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.17, 6.17, 6.17); Calibrated: 2010-05-25
- Sensor-Surface: 0mm (Fix Surface) Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Body 4183/Z Scan (1x1x31): Measurement grid: dx=20mm, dy=20mm, dz=5mm
Maximum value of SAR (measured) = 0.594 mW/g

Body 4183/Area Scan (51x71x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.634 mW/g

Body 4183/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.4 V/m; Power Drift = -0.036 dB
Peak SAR (extrapolated) = 0.920 W/kg
SAR(1 g) = 0.569 mW/g; SAR(10 g) = 0.364 mW/g

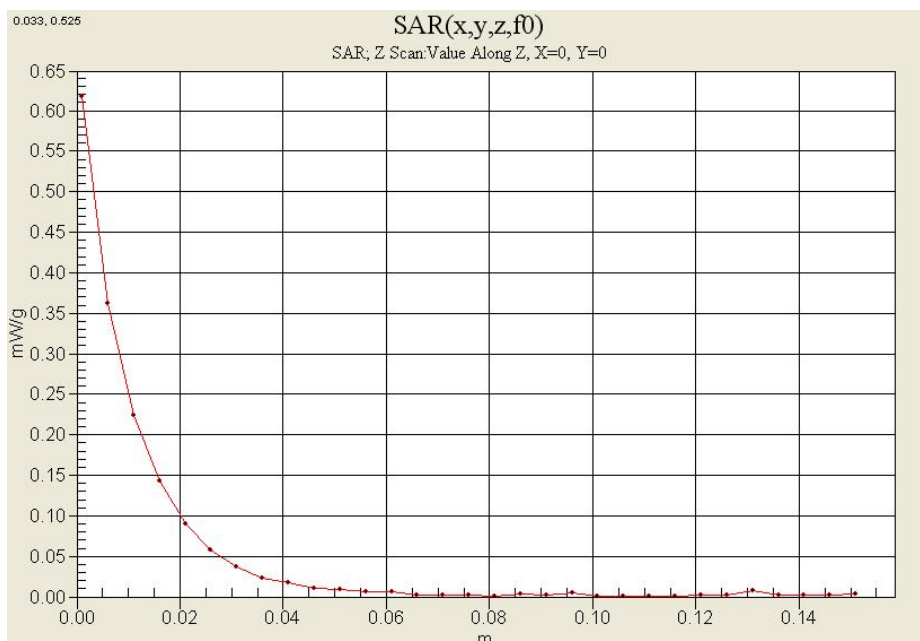
[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.627 mW/g

Body 4183/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.4 V/m; Power Drift = -0.036 dB
Peak SAR (extrapolated) = 0.674 W/kg
SAR(1 g) = 0.503 mW/g; SAR(10 g) = 0.356 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.543 mW/g



Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.2 °C
Ambient Temperature: 21.4 °C
Test Date: Oct. 9, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: WCDMA1900(FCC); Frequency: 1852.4 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 1852.4$ MHz; $\sigma = 1.5$ mho/m; $\epsilon_r = 54$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/1900 MHz; Type: SAM

Body 9262/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 1.14 mW/g

Body 9262/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

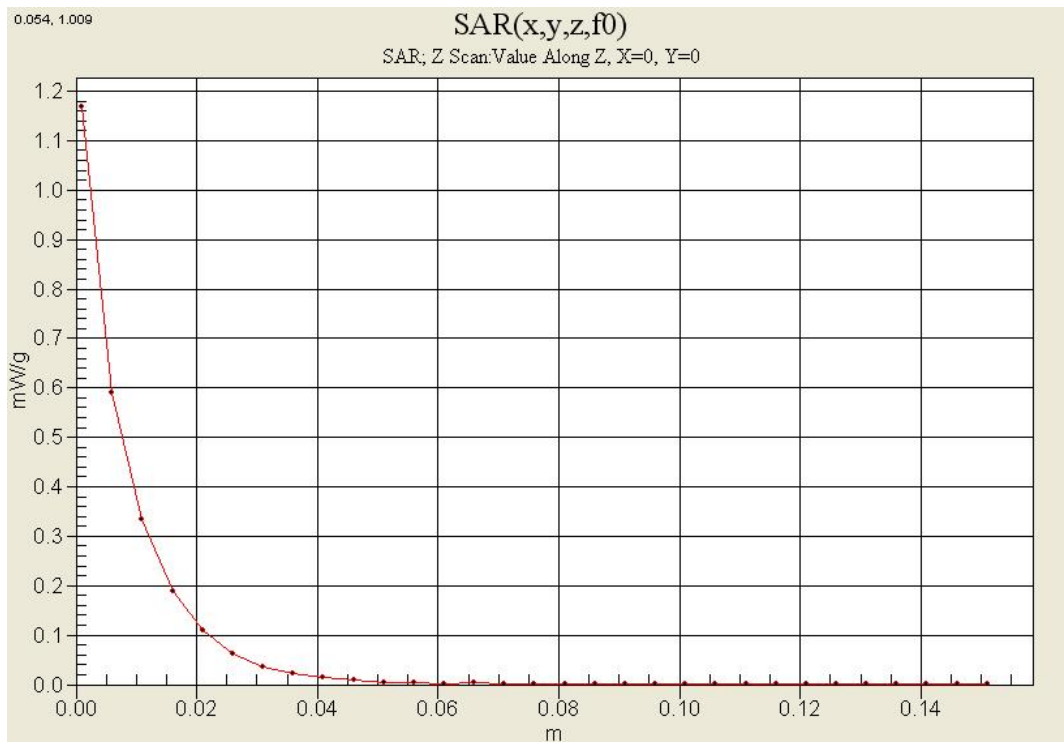
Reference Value = 17.5 V/m; Power Drift = -0.023 dB

Peak SAR (extrapolated) = 1.76 W/kg

SAR(1 g) = 0.989 mW/g; SAR(10 g) = 0.540 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 1.15 mW/g



Test Laboratory: HCT CO., LTD
EUT Type: USB Modem
Liquid Temperature: 21.1 °C
Ambient Temperature: 21.3 °C
Test Date: Sep.10, 2010

DUT: UML290; Type: Bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 782 \text{ MHz}$; $\sigma = 1 \text{ mho/m}$; $\epsilon_r = 54.2$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(6.3, 6.3, 6.3); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/900 MHz; Type: SAM

LTE750 23230/Area Scan (41x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 1.31 mW/g

LTE750 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

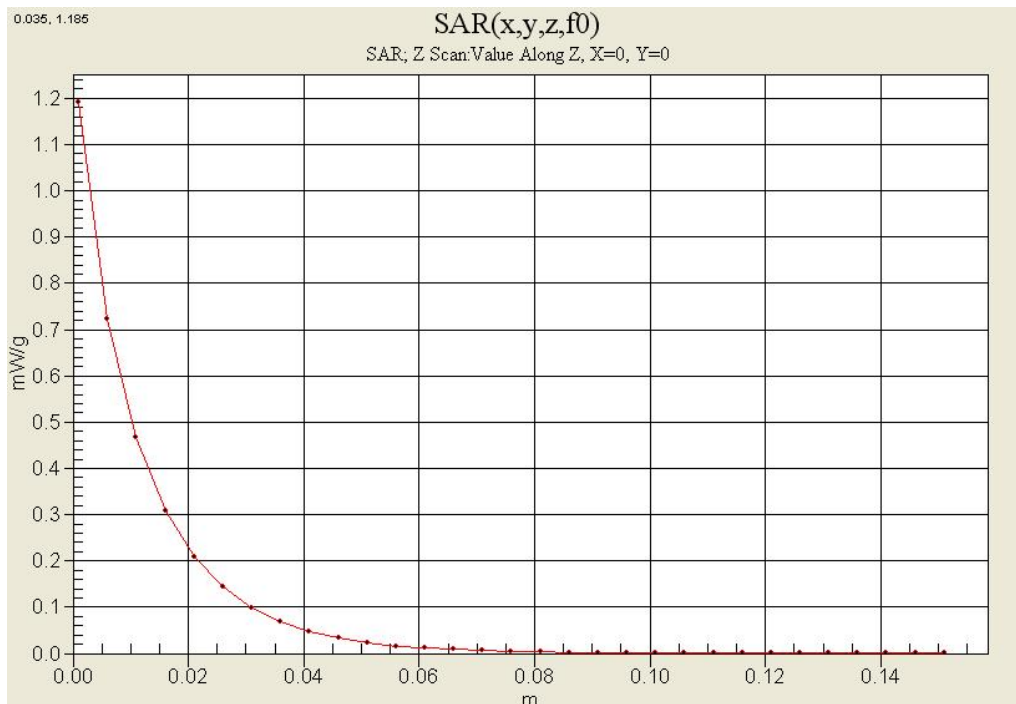
Reference Value = 29.6 V/m; Power Drift = -0.198 dB

Peak SAR (extrapolated) = 1.94 W/kg

SAR(1 g) = 1.15 mW/g; SAR(10 g) = 0.712 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 1.27 mW/g



Attachment 2. – Dipole Validation Plots

■ Validation Data (750 MHz Head)

Test Laboratory: HCT CO., LTD
Input Power 100 mW (20dBm)
Liquid Temp: 21.1 °C
Test Date: Sep.10, 2010

DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 – SN:1014

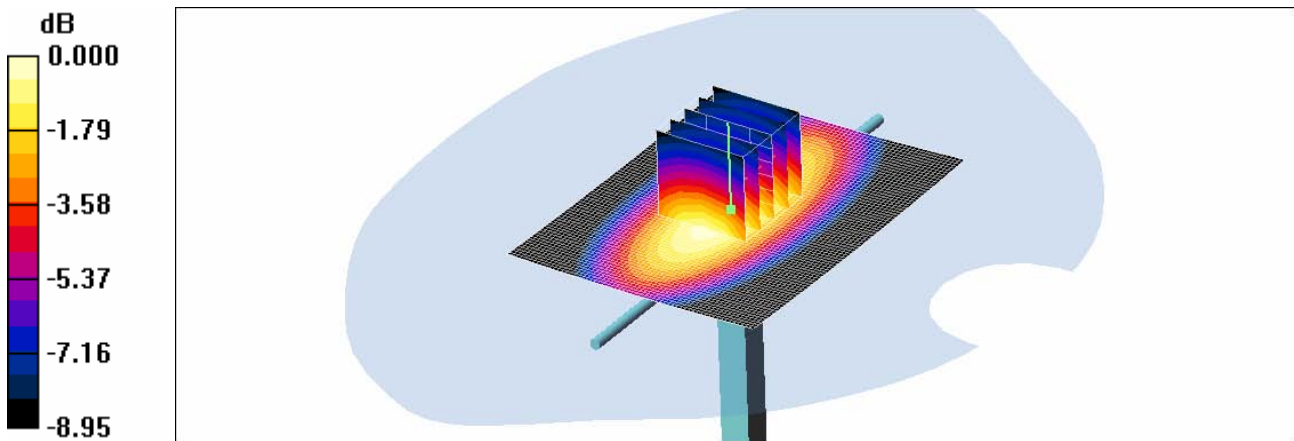
Communication System: CW; Frequency: 750 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 750 \text{ MHz}$; $\sigma = 0.97 \text{ mho/m}$; $\epsilon_r = 54.6$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 – SN1630; ConvF(6.3, 6.3, 6.3); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Validation 750 MHz/Area Scan (61x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.968 mW/g

Validation 750 MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 32.8 V/m; Power Drift = 0.028 dB
Peak SAR (extrapolated) = 1.12 W/kg
SAR(1 g) = 0.898 mW/g; SAR(10 g) = 0.631 mW/g
Maximum value of SAR (measured) = 0.965 mW/g



0 dB = 0.965mW/g

■ Validation Data (835 MHz Head)

Test Laboratory: HCT CO., LTD
Input Power 100 mW (20 dBm)
Liquid Temp: 21.1 °C
Test Date: Oct 04, 2010

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 – SN:441

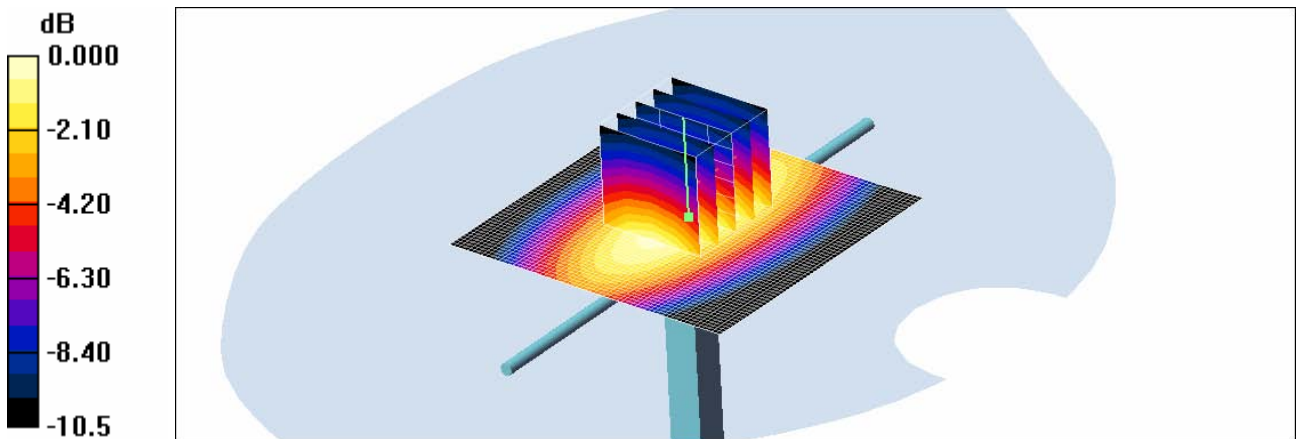
Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.98 \text{ mho/m}$; $\epsilon_r = 56.8$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 – SN1630; ConvF(6.17, 6.17, 6.17); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/900 MHz; Type: SAM

Validation 835MHz/Area Scan (61x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 1.09 mW/g

Validation 835MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 34.7 V/m; Power Drift = -0.052 dB
Peak SAR (extrapolated) = 1.45 W/kg
SAR(1 g) = 1.01 mW/g; SAR(10 g) = 0.662 mW/g
Maximum value of SAR (measured) = 1.09 mW/g



0 dB = 1.09mW/g

■ Validation Data (1900 MHz Head)

Test Laboratory: HCT CO., LTD
Input Power 100 mW (20 dBm)
Liquid Temp: 21.2 °C
Test Date: Oct.05, 2010

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d032

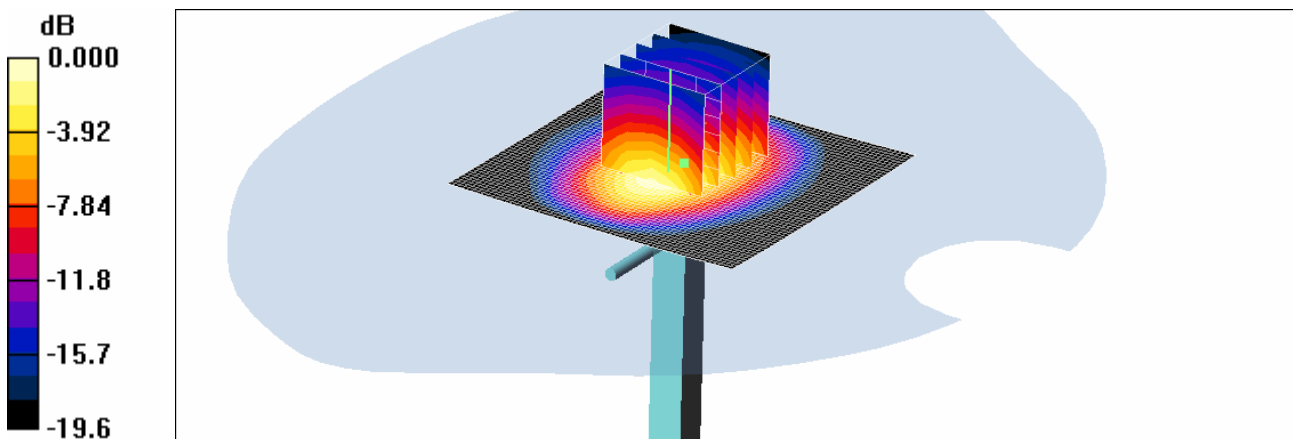
Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.55 \text{ mho/m}$; $\epsilon_r = 54$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Dipole 1900MHz Validation/Area Scan (61x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 4.89 mW/g

Dipole 1900MHz Validation/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 58.7 V/m; Power Drift = -0.014 dB
Peak SAR (extrapolated) = 6.66 W/kg
SAR(1 g) = 4.17 mW/g; SAR(10 g) = 2.19 mW/g
Maximum value of SAR (measured) = 4.75 mW/g



0 dB = 4.75mW/g

■ Validation Data (835 MHz Head)

Test Laboratory: HCT CO., LTD
Input Power 100 mW (20 dBm)
Liquid Temp: 21.3 °C
Test Date: Oct.06, 2010

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 – SN:441

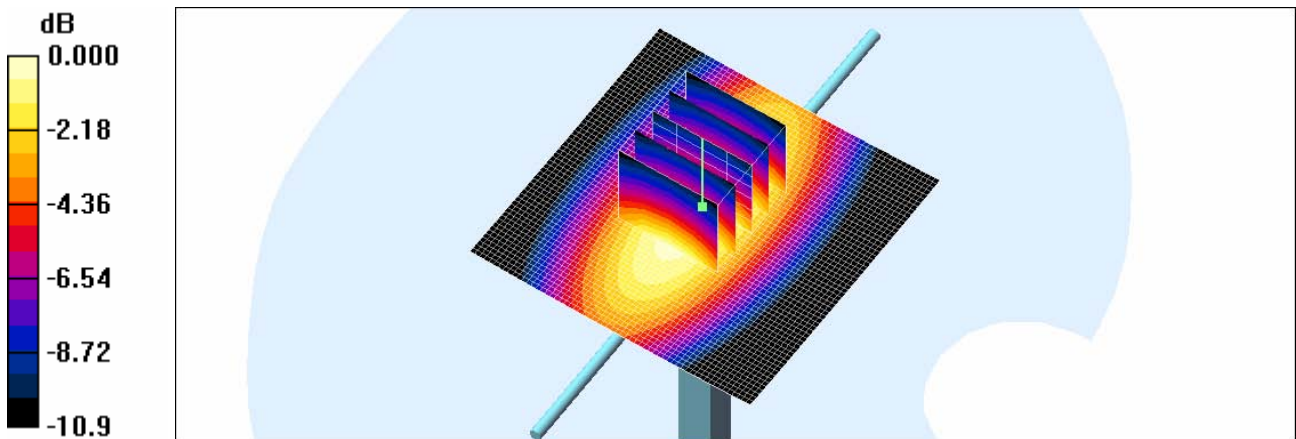
Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.984 \text{ mho/m}$; $\epsilon_r = 56.9$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 – SN1630; ConvF(6.17, 6.17, 6.17); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Validation 835MHz/Area Scan (61x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 1.09 mW/g

Validation 835MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 34.3 V/m; Power Drift = -0.025 dB
Peak SAR (extrapolated) = 1.46 W/kg
SAR(1 g) = 0.996 mW/g; SAR(10 g) = 0.641 mW/g
Maximum value of SAR (measured) = 1.09 mW/g



0 dB = 1.09mW/g

■ Validation Data (1900 MHz Head)

Test Laboratory: HCT CO., LTD
Input Power 100 mW (20 dBm)
Liquid Temp: 21.2 °C
Test Date: Oct. 07, 2010

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 – SN:5d032

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.5 \text{ mho/m}$; $\epsilon_r = 53.5$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

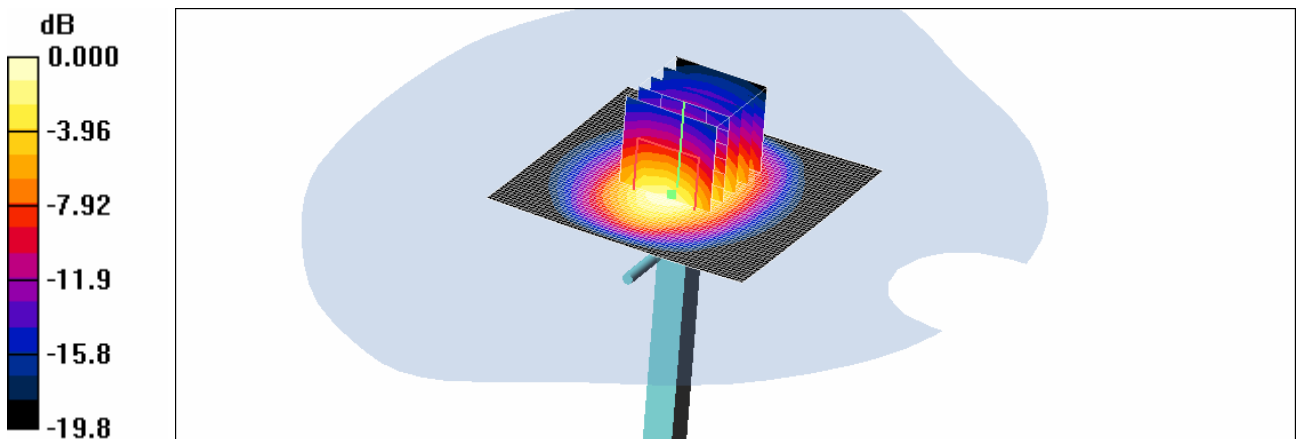
DASY4 Configuration:

- Probe: ET3DV6 – SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Dipole 1900MHz Validation/Area Scan (61x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 5.04 mW/g

Dipole 1900MHz Validation/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 63.3 V/m; Power Drift = -0.193 dB
Peak SAR (extrapolated) = 6.70 W/kg
SAR(1 g) = 4.25 mW/g; SAR(10 g) = 2.26 mW/g

Maximum value of SAR (measured) = 4.84 mW/g



0 dB = 4.84mW/g

■ Validation Data (835 MHz Head)

Test Laboratory: HCT CO., LTD
Input Power 100 mW (20 dBm)
Liquid Temp: 21.3 °C
Test Date: Oct.08, 2010

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 – SN:441

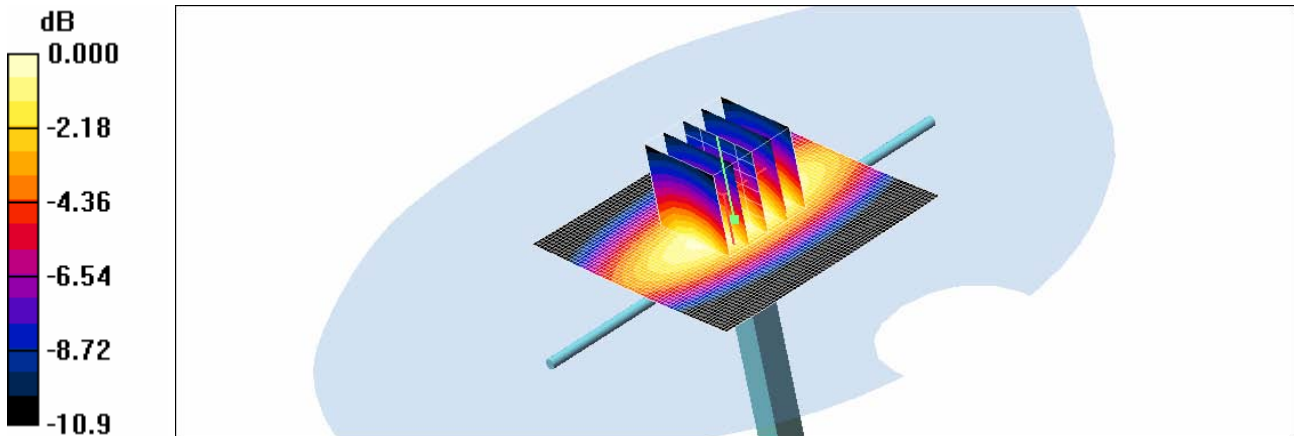
Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.982 \text{ mho/m}$; $\epsilon_r = 56.9$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 – SN1630; ConvF(6.17, 6.17, 6.17); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Validation 835MHz/Area Scan (61x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 1.13 mW/g

Validation 835MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 35.0 V/m; Power Drift = 0.005 dB
Peak SAR (extrapolated) = 1.51 W/kg
SAR(1 g) = 1.03 mW/g; SAR(10 g) = 0.668 mW/g
Maximum value of SAR (measured) = 1.13 mW/g



0 dB = 1.13mW/g

■ Validation Data (1900 MHz Head)

Test Laboratory: HCT CO., LTD
Input Power: 100 mW (20 dBm)
Liquid Temp: 21.2 °C
Test Date: Oct.09, 2010

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 – SN:5d032

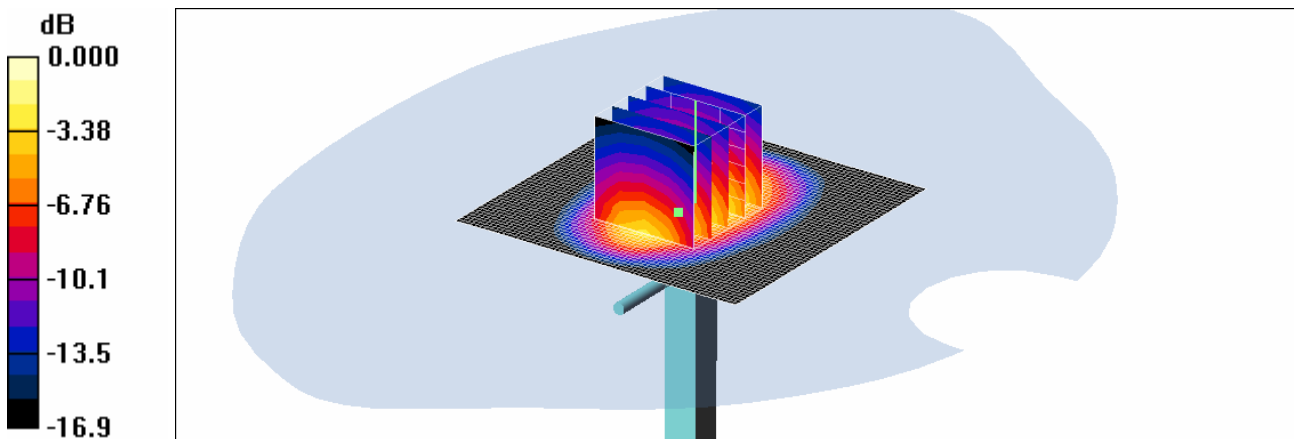
Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1900$ MHz; $\sigma = 1.55$ mho/m; $\epsilon_r = 53.9$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 – SN1630; ConvF(4.55, 4.55, 4.55); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 835/900 MHz; Type: SAM

Dipole 1900MHz Validation/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 5.11 mW/g

Dipole 1900MHz Validation/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 61.2 V/m; Power Drift = -0.026 dB
Peak SAR (extrapolated) = 6.39 W/kg
SAR(1 g) = 4.28 mW/g; SAR(10 g) = 2.38 mW/g
Maximum value of SAR (measured) = 4.80 mW/g



0 dB = 4.80mW/g

■ Validation Data (750 MHz Head)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.3 °C

Test Date: Oct.19, 2010

DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 – SN:1014

Communication System: CW; Frequency: 750 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 750 \text{ MHz}$; $\sigma = 0.973 \text{ mho/m}$; $\epsilon_r = 54.6$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ET3DV6 – SN1630; ConvF(6.3, 6.3, 6.3); Calibrated: 2010-05-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2010-07-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Validation 750 MHz/Area Scan (61x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 0.935 mW/g

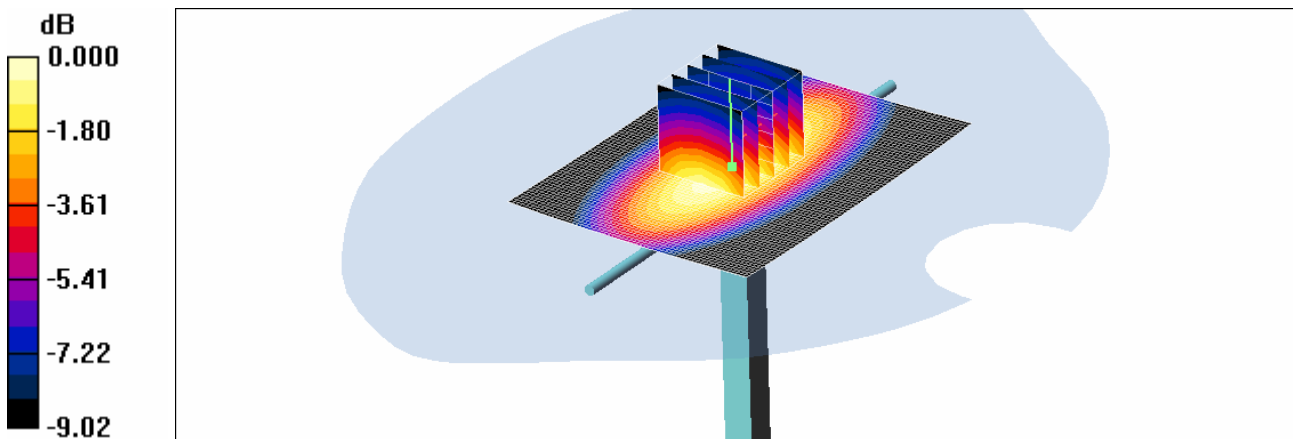
Validation 750 MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 32.2 V/m; Power Drift = -0.013 dB

Peak SAR (extrapolated) = 1.09 W/kg

SAR(1 g) = 0.865 mW/g; SAR(10 g) = 0.604 mW/g

Maximum value of SAR (measured) = 0.934 mW/g



0 dB = 0.934mW/g

■ Dielectric Parameter (750 MHz Body)

Title UML290
SubTitle 750 MHz
Test Date Sep. 10, 2010

Frequency	e'	e''
700000000.0000	55.3464	23.6953
705000000.0000	55.2586	23.6716
710000000.0000	55.2435	23.6128
715000000.0000	55.0886	23.6053
720000000.0000	55.0347	23.5350
725000000.0000	54.9481	23.4947
730000000.0000	54.9240	23.4905
735000000.0000	54.7926	23.3983
740000000.0000	54.7308	23.3642
745000000.0000	54.7195	23.3323
750000000.0000	54.6293	23.2420
755000000.0000	54.5603	23.3022
760000000.0000	54.4641	23.2574
765000000.0000	54.3801	23.1380
770000000.0000	54.3436	23.0868
775000000.0000	54.2096	23.0752
780000000.0000	54.1912	23.0014
785000000.0000	54.1671	23.0118
790000000.0000	54.0568	22.9704
795000000.0000	53.9957	22.8668
800000000.0000	53.9191	22.8156

■ Dielectric Parameter (835 MHz Body)

Title UML290
SubTitle CDMA835
Test Date Oct. 4, 2010

Frequency	e'	e''
800000000.0000	57.0284	21.3302
805000000.0000	56.9862	21.3157
810000000.0000	56.9694	21.2601
815000000.0000	56.9588	21.2565
820000000.0000	56.9768	21.2190
825000000.0000	56.8970	21.1848
830000000.0000	56.8732	21.1750
835000000.0000	56.8497	21.1063
840000000.0000	56.7808	21.1085
845000000.0000	56.7386	21.0511
850000000.0000	56.6868	20.9908
855000000.0000	56.6644	21.0040
860000000.0000	56.5787	20.9195
865000000.0000	56.4911	20.9305
870000000.0000	56.3990	20.8384
875000000.0000	56.3385	20.8220
880000000.0000	56.2713	20.8144
885000000.0000	56.1735	20.7594
890000000.0000	56.1499	20.8062
895000000.0000	56.0518	20.8053
900000000.0000	56.0493	20.7571