SAR TEST REPORT

HCT CO., LTD

EUT Type:	CDMA/GSM/WCDMA/LTE Data Dongle GPRS Class 12 and GPRS mode class B(GPRS and GSM, but not simultaneously)		
FCC ID:	JYCSPARKLE		
Model:	UML295	Trade Name	Pantech
Date of Issue:	Jul.12 , 2012		
Test report No.:	HCTA1207FS01		
Test Laboratory:	**HCT CO., LTD.** 105-1, Jangam-ri, Majang-myeon, Icheon-si,Gyeonggi-do,Korea 467-811 TEL: +82 31 645 6485 FAX: +82 31 645 6401		
Applicant :	**Pantech Co., Ltd.** Pantech Building, I-2, DMC, Sangam-dong, Mapo-gu,Seoul, Korea(ZIP :121-792) Tel: 82-2-2030-1319 Fax: 82-2-2030-2500		
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.		
Signature	Report prepared by : Young-Soo Jang Test Engineer of SAR Part	Approved by : Jae-Sang So Manager of SAR Part	

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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 (d*W*) absorbed by (dissipated in) an incremental mass (d*m*) contained in a volume element (d*V*) of a given density (*r*). 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	CDMA/GSM/WCDMA/LTE Data Dongle GPRS Class 12 and GPRS mode class B(GPRS and GSM, but not simultaneously)		
FCC ID	JYCSPARKLE	Model(s)	UML295
Trade Name	Pantech	Serial Number(s)	#1
Application Type	Certification		
Operation Band(s)	CDMA835/PCS1900/GSM850/GSM1900/WCDMA850/WCDMA1900/LTE Band(4/13)		
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 Band13)/ 1710-1755 MHz (LTE4)		
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 Band13)/ 2110-2155 MHz (LTE4)		
FCC Classification	PCS Licensed Transmitter (PCB)		
Production Unit	Prototype		
Max SAR	Band	1g SAR (W/kg) Body-worn	
	CDMA835	0.951	
	PCS1900	1.00	
	GSM850	1.16	
	GSM1900	0.778	
	WCDMA850	0.858	
	WCDMA1900	0.974	
	LTE 4	0.944	
	LTE 13	1.11	
Date(s) of Tests	Jun.28, 2012 ~ Jul.5 , 2012		
Antenna Type	Integral Antenna		
GPRS	Multislot Class: 12, Mode Class: B		

2.2 KDB 941225 LTE information

<table>
<tr><td>Frequency Range:</td><td>Band 13: 777 – 787 MHz
Band 4: 1710MHz-1755MHz</td></tr>
<tr><td>Channel Bandwidth:</td><td>5 MHz, 10 MHz</td></tr>
<tr><td>Channel Number & Frequency:</td><td>
<table>
<tr><th colspan="2">Band 13</th><th colspan="8">Band 4</th></tr>
<tr><th colspan="2">10 MHz</th><th colspan="2">5 MHz</th><th colspan="2">10 MHz</th><th colspan="2">15 MHz</th><th colspan="2">20 MHz</th></tr>
<tr><th>Ch.</th><th>Freq.(MHz)</th><th>Ch.</th><th>Freq.(MHz)</th><th>Ch.</th><th>Freq.(MHz)</th><th>Ch.</th><th>Freq.(MHz)</th><th>Ch.</th><th>Freq.(MHz)</th></tr>
<tr><td rowspan="3">23230</td><td rowspan="3">782</td><td>19975</td><td>1712.5</td><td>20000</td><td>1715</td><td>20025</td><td>1717.5</td><td>20050</td><td>1720</td></tr>
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</table>
</td></tr>
<tr><td>UE Category &</td><td>UE Category 3 QPSK, 16QAM</td></tr>
<tr><td>Power Class</td><td>UE Power Class 3</td></tr>
<tr><td>Description of the LTE Transmitter & antenna</td><td>This model have one Transmitter
-CDMA, GSM, WCDMA and LTE . It can not transmit simultaneously.</td></tr>
<tr><td>LTE voice/data requirements</td><td>Data Only,</td></tr>
<tr><td>Identify if MPR is</td><td>The EUT incorporates MPR as per 3GPP TS36.101.
The MPR is permanently built-in by design as a mandatory.
A-MPR is not implemented.
During SAR testing, A-MPR was disabled by setting NS=01 on the R&S CMW500.</td></tr>
<tr><td>Maximum average (dBm)</td><td>See section 9.4 RF output power measurements in the SAR report.</td></tr>
<tr><td>Identify all other U.S. wireless operating modes, device</td><td>- CDMA/835/1900, GSM850/1900, WCDMA850/1900 and LTE Band 13/4
:</td></tr>
<tr><td>Maximum average conducted output power for other wireless mode and frequency</td><td>See section 9 RF output power measurements in the SAR report.</td></tr>
<tr><td>Simultaneous</td><td>This device doesn't support simultaneous transmission.</td></tr>
<tr><td>Power reduction</td><td>This device doesn't implements power reduction.</td></tr>
<tr><td>Description of the</td><td>LTE SAR Testing was performed using a CMW500.</td></tr>
</table>

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.

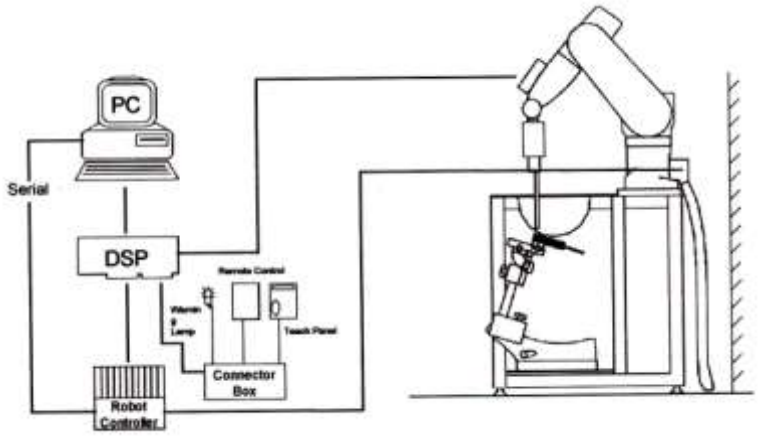


Figure 3.1 HCT SAR Lab. Test Measurement Set-up

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 ET3DV6 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 μW/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

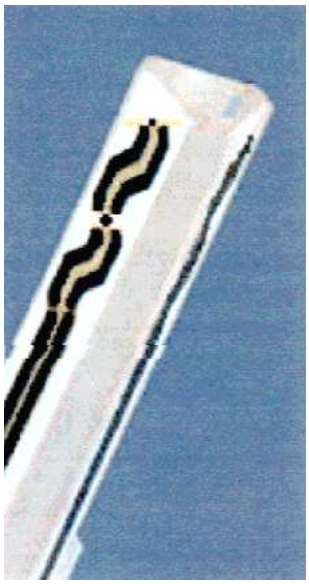


Figure 3.3 ET3DV6 E-field Probe

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 ± 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 bellow 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/cm^3 for brain tissue)

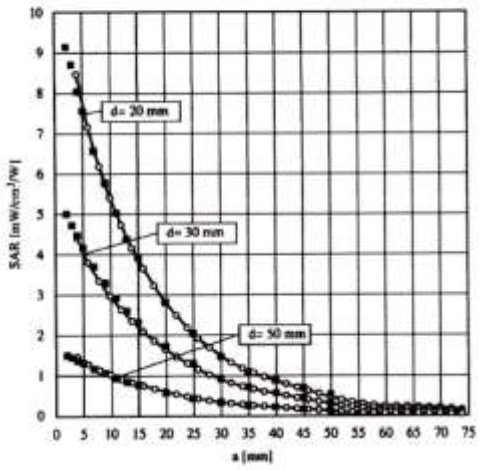


Figure 3.4 E-Field and Temperature measurements at 900 MHz

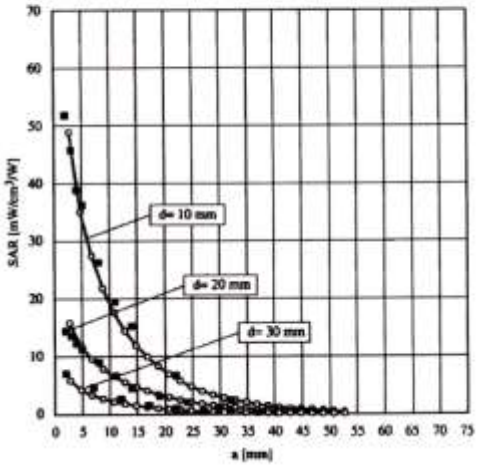


Figure 3.5 E-Field and temperature measurements at 1.8 GHz

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/cm^3

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

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

with P_{pwe} = equivalent power density of a plane wave in W/cm^2
E_{tot} = total electric field strength in V/m

3.4 SAM Phantom

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

Figure 3.6 SAM Phantom

Shell Thickness	2.0 mm
Filling Volume	about 25 L
Dimensions	1 000 mm x 500 mm (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 repeatable 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

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. Hartsgrove.

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	446	Sep. 27, 2011	Annual	Sep. 27, 2012
SPEAG	E-Field Probe ET3DV6	1630	Nov. 18, 2011	Annual	Nov. 18, 2012
SPEAG	Validation Dipole D750V3	1014	July 25, 2011	Annual	July 25, 2012
SPEAG	Validation Dipole D835V2	441	May 16, 2012	Annual	May 16, 2013
SPEAG	Validation Dipole D1800V2	2d006	Mar. 18, 2012	Annual	Mar. 18, 2013
SPEAG	Validation Dipole D1900V2	5d032	July 22, 2011	Annual	July 22, 2012
Agilent	Power Meter(F) E4419B	MY41291386	Nov. 04, 2011	Annual	Nov. 04, 2012
Agilent	Power Sensor(G) 8481	MY41090870	Nov. 04, 2011	Annual	Nov. 04, 2012
HP	Dielectric Probe Kit 85070C	00721521	N/A	N/A	N/A
HP	Dual Directional Coupler	16072	Nov. 04, 2011	Annual	Nov. 04, 2012
R&S	Base Station CMU200	110740	July 26, 2011	Annual	July 26, 2012
Agilent	Base Station E5515C	GB44400269	Feb. 10, 2012	Annual	Feb. 10, 2013
HP	Signal Generator E4438C	MY42082646	Nov. 11, 2011	Annual	Nov. 11, 2012
HP	Network Analyzer 8753ES	JP39240221	Apr. 3, 2012	Annual	Apr. 3, 2013
R&S	Base Station CMW500	101901	Aug.5,2011	Annual	Aug. 5,2012

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.

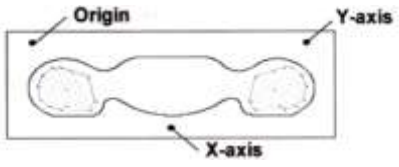


Figure 4.1 SAR Measurement Point in Area Scan

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.

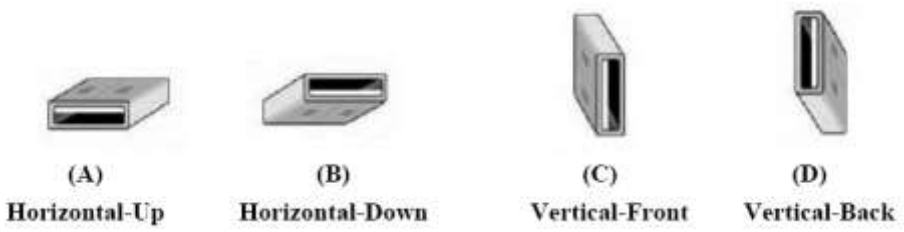


Figure 5.1 USB Connector Orientations Implemented on Laptop Computers

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.

6. MEASUREMENT UNCERTAINTY

Error Description	Tol (± %)	Prob. dist.	Div.	c_i	Standard Uncertainty (± %)	v_{eff}
1. Measurement System						
Probe Calibration	6.00	N	1	1	6.00	∞
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 Conditions	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	2.90	N	1.00	1	2.90	145
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 Permitivity(target)	5.00	R	1.73	0.6	1.73	∞
Liquid Permitivity(meas.)	5.02	N	1	0.6	3.01	9
Combind Standard Uncertainty					11.13	
Coverage Factor for 95 %					k=2	
Expanded STD Uncertainty					22.25	

Table 6.1 Uncertainty (750 MHz- 2450 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

Band	Date	Liquid	Liquid Temp.[°C]	Parameters	Target Value	Measured Value	Deviation [%]	Limit [%]
850 MHz	Jun.28 , 2012	Body	21.2	ε r	55.2	54.6	- 1.09	± 5
				σ	0.97	1.01	+ 4.12	± 5
1900MHz	Jul.1 , 2012	Body	21.2	ε r	53.3	51.9	- 2.63	± 5
				σ	1.52	1.52	0.00	± 5
LTE13 750 MHz	Jul.5 , 2012	Body	21.2	ε r	55.5	55.2	- 0.54	± 5
				σ	0.96	0.987	+ 2.81	± 5
LTE4 1750MHz	Jul.3 , 2012	Body	21.3	ε r	53.4	55.1	+ 3.18	± 5
				σ	1.49	1.51	+ 1.34	± 5

The dielectronic parameters of the liquids were measured prior to the SAR evaluation using an Agilent 85070C Dielectronic Probe Kit and Agilent Network Analyzer.

8.2 System Validation

Band	Probe (SN)	Dipole (SN)	Date	Liquid	Liquid Temp. [°C]	1 W Target SAR_{1g} (mW/g)	Measured SAR_{1g} (mW/g)	1 W Normalized SAR_{1g} (mW/g)	Deviation [%]	Limit [%]
850	1630	441	Jun.28 , 2012	Body	21.2	9.50	0.965	9.65	+ 1.58	± 10
1900		5d032	Jul.1 , 2012	Body	21.2	40.9	4.17	41.7	+ 1.96	± 10
LTE13		1014	Jul.5 , 2012	Body	21.2	8.87	0.876	8.76	- 1.24	± 10
LTE4		2d006	Jul.3 , 2012	Body	21.3	38.7	3.84	38.4	- 0.78	± 10

8.3 System Validation Procedure

SAR measurement was Prior to assessment, the system is verified to the ± 10 % of the specifications at target frequency by using the system validation kit. (Graphic Plots Attached)

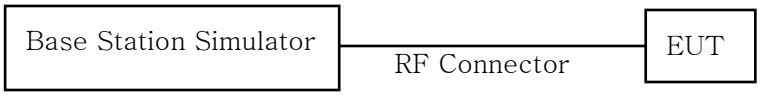
- Cabling the system, using the validation kit equipments.
- Generate about 100 mW Input Level from the Signal generator to the Dipole Antenna.
- Dipole Antenna was placed below the Flat phantom.
- The measured one-gram SAR at the surface of the phantom above the dipole feed-point should be within 10 % of the target reference value.
- The results are normalized to 1 W input power.

Note;
SAR Verification was performed according to the FCC KDB 450824.

9. RF CONDUCTED POWER MEASUREMENT

Power measurements were performed using a base station simulator under digital average power.
The handset 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 evaluation SAR
SAR measurements were taken with a fully charged battery. 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 then 5 % occurred, the tests were repeated.

Conducted output power measurements were performed using a base station simulator under digital average power.



SAR Test for WWAN & LTE were performed with a base station simulator Agilent E5515C & CMW500. Communication between the device and the emulator was established by air link. Set base station emulator to allow DUT to radiate maximum output power during all tests.

9.1 SAR Measurement Conditions for 1x Ev-Do Devices

The handset 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 then 5% occurred, the tests were repeated.

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

9.1.1 1xEv-Do Data Devices

The following procedures apply to Access Terminals (AT) operating under CDMA 2000 High Rate packer Data, Rev.0 and Rev.A, 1x Ev-Do protocols. SAR for body exposure conditions are typically required devices with Ev-Do Capabilities, including handsets and data modems. operating in various electronic devices. When VOIP is available for Ev-Do devices to operate in configurations next to the ear, head exposure conditions are applicable. The default test configuration is to measure SAR with an established radio ling between the AT and a communication test set according to 3GPP2 Test Application Protocols(TAP), FTAT/RTAP for Rev.0 and FETAP/RETAP for Rev.A. The code channel power levels, RF channel output power (ALL Bits Up) and other operating parameters should be actively monitored and controlled by the communications test set during the SAR measurement. The use of FTM should be avoided. Maximum output power is verified according to procedures defined in 3 GPP2 C.S0033 and TIA-866, and SAR must be measured according to these maximum output conditions.

9.1.2 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 outpour for both Subtype 0/1 and subtype 2 Physical Layer configurations should be measured. The device operating configurations under TAP/ETAP should be documented in the test report; including power control, code channel and RF channel output power levels. The measurement results should be tabulated in the SAR report with any measurement difficulties and equipment limitations clearly identified.

9.1.3 SAR Measurements

SAR is measured using FTAP/RTAP and FETAP/RETAP respectively for Rev.0 and Rev.A device. The AT is Tested with a Reverse Data Channel rate of 153.6kbps in Subtype 0/1 and Subtype 2 Physical Layer configurations should be measured. The device operating configurations under TAP/ETAP should be documented in the test report; including power Control, code channel and RF channel output power levels, The measurement results should be tabulated in the SAR report with any measurement difficulties and equipment limitations clearly identified. 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.0. Head SAR is required for Ev-Do devices that support operations next to the ear; for example, with VOIP, using Subtype 2 Physical Layer configurations according to the required handset test configurations.

9.1.4 1x RTT Support

For Ev-Do device that also support 1xRTT voice and/or data operations ,SAR is not required for 1xRTT when the maximum average output of each channel is less than1/4dB higher than that measured in Subtype 0/1 Physical Layer configurations for Rev.0

9.2 CDMA2000 1xRTT

Agilent 8960 base station was used for output power verification.

Following is the detail set-up configuration.

Protocol Rev.> 6

Radio Config (RC): Body SAR in RC1 is not required when the maximum average output of each channel is less than 1/4 dB higher than that measured in RC3. Otherwise, SAR is measured on the maximum output channel in RC1; with Loopback Service Option SO55, at full rate, using the body exposure configuration that results in the highest SAR for that channel in RC3.

FCH SO: Body-Worn SAR was tested under RC3/SO32 with FCH Only since FCH+SCH modes are not greater than 0.25 dB of the FCH only mode per KDB publication 941225.

Traffic Data Rate > Full

Power: All Up bits

9.3 CDMA2000 1xEv-Do

Body SAR is measured using Subtype 0/1 Physical Layer configurations for Rev.0. 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.0.

9.3.1 EVDO Release 0 (RTAP)

Application Config > Enhanced Test Application Protocol > RTAP

RTAP Rate > 153.6 kbps

Protocol Rev > 0 (1x EVDO)

Power: All Up bits

9.3.2 EVDO Release 0 (FTAP)

Application Config > Enhanced Test Application Protocol > FTAP

RTAP Rate > 307.2 kbps

Protocol Rev > 0 (1x EVDO)

Power: All Up bits

9.3.3 EVDO Release A (RETAP)

Protocol Rev > A (1x EVDO A)

Application Config > Enhanced Test Application Protocol > RETAP

R-Data Pkt Size > 4096

Power: All Up bits

9.3.4 EVDO Release A (FETAP)

Protocol Rev > A (1x EVDO A)

Application Config > Enhanced Test Application Protocol > FETAP

F-Traffic Format > 4 (1024, 2, 128) Canonical (307.2k, QPSK)

Power: All Up bits

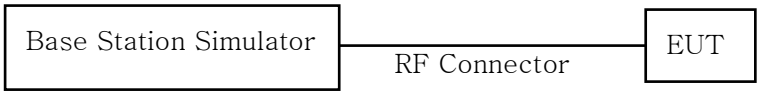
Maximum Average Output Power Measurement for FCC ID: JYCSPARKLE

Band	Channel	SO2	SO2	SO55	SO55	TDSO SO32	1xEvDO Rev.0	1xEvDO Rev.0	1xEvDO Rev.A	1xEvDO Rev.A
		RC1/1 (dBm)	RC3/3 (dBm)	RC1/1 (dBm)	RC3/3 (dBm)	RC3/3 (dBm)	(FTAP)	(RTAP)	(FETAP)	(RETAP)
CDMA	1013	23.98	23.98	23.95	24.00	23.98	23.98	23.98	24.06	24.03
	384	23.91	23.87	23.94	23.86	23.90	23.93	23.85	23.86	23.94
	777	23.88	23.82	23.89	23.85	23.83	23.93	23.84	23.94	23.88
PCS	25	23.94	23.91	23.96	23.94	23.88	24.80	24.79	24.74	24.83
	600	24.32	24.32	24.40	24.28	24.33	24.93	24.88	24.98	24.95
	1175	23.80	23.85	23.93	23.84	23.79	24.16	24.08	24.48	24.46

CDMA Avergae Conducted output powers (dBm)

9.2 GSM

Conducted output power measurements were performed using a base station simulator under digital average power.



SAR Test for WWAN were performed with a base station simulator Agilent E5515C. Communication between the device and the emulator was established by air link. Set base station emulator to allow DUT to radiate maximum output power during all tests. Please refer to the below worst case SAR operation setup.

- GSM voice: Head SAR
- GPRS Multi-slots : Body SAR with GPRS Multi-slot Class12 1Tx with CS 1 (GMSK)

Note;

CS1/MCS7 coding scheme was used in GPRS/EDGE output power measurements and SAR Testing, as a condition where GMSK/8PSK modulation was ensured. Investigation has shown that CS1 - CS4/ MCS5 – MCS9 settings do not have any impact on the output levels in the GPRS/EDGE modes.

GSM Conducted output powers (Burst-Average)

Band	Channel	Voice	GPRS(GMSK) Data – CS1				EDGE(8PSK) Data – MCS7			
		GSM (dBm)	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	32.70	32.69	28.60	26.46	25.41	26.69	24.65	23.19	21.97
	190	32.27	32.27	28.71	26.69	25.65	26.76	24.73	23.27	22.06
	251	32.28	32.28	28.57	26.77	25.68	26.64	24.61	23.16	21.92
GSM 1900	512	29.03	29.02	25.09	23.12	22.12	25.77	24.83	23.36	22.39
	661	29.06	29.06	25.05	23.21	22.15	25.77	24.82	23.36	22.38
	810	28.93	28.92	24.96	23.08	22.21	25.8	24.84	23.39	22.4

GSM Conducted output powers (Frame-Average)

Band	Channel	Voice	GPRS(GMSK) Data – CS1				EDGE(8PSK) Data – MCS7			
		GSM (dBm)	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	23.67	23.66	22.58	22.2	22.4	17.66	18.63	18.93	18.96
	190	23.24	23.24	22.69	22.43	22.64	17.73	18.71	19.01	19.05
	251	23.25	23.25	22.55	22.51	22.67	17.61	18.59	18.9	18.91
GSM 1900	512	20	19.99	19.07	18.86	19.11	16.74	18.81	19.1	19.38
	661	20.03	20.03	19.03	18.95	19.14	16.74	18.8	19.1	19.37
	810	19.9	19.89	18.94	18.82	19.2	16.77	18.82	19.13	19.39

Note:

Time slot average factor is as follows:

1 Tx slot = 9.03 dB, Frame-Average output power = Burst-Average output power – 9.03 dB

2 Tx slot = 6.02 dB, Frame-Average output power = Burst-Average output power – 6.02 dB

3 Tx slot = 4.26 dB, Frame-Average output power = Burst-Average output power – 4.26 dB

4 Tx slot = 3.01 dB, Frame-Average output power = Burst-Average output power – 3.01 dB

9.3 WCDMA

Body SAR is not required for handsets with HSDPA capabilities when the maximum average output of each RF channel with HSDPA active is less than ¼ dB higher than that measured without HSDPA using 12.2 kbps RMC and the maximum SAR for 12.2 kbps RMC is ≤ 75 % of the SAR limit. Otherwise, SAR is Measured for HSDPA, using an FRC with H-Set 1 in Sub-test 1 and a 12.2 kbps RMC configured in Test Loop Mode 1, using the highest body SAR configuration in 12.2 kbps RMC without HSDPA, on the maximum output channel with the body exposure configuration that results in the highest SAR in 12.2 kbps RMC for that RF channel.

9.2.1 Output Power Verification

Maximum output power is verified on the High, Middle and Low channels according to the general descriptions in section 5.2 of 3 GPP TS 34.121, using the appropriate RMC or AMR with TPC(transmit power control) set to all “1s”.

9.2.2 Head SAR Measurements

SAR for head exposure configurations is measured using the 12.2 kbps RMC with TPC bits configured to all “1s”. SAR in AMR configurations is not required when the maximum average output of each RF channel for 12.2 kbps AMR is less than ¼ dB higher than that measured in 12.2 kbps RMC. Otherwise, SAR is measured on the maximum output channel in 12.2 AMR with a 3.4 kbps SRB (signaling radio bearer using the exposure configuration that results in the highest SAR for that RF channel in 12.2 RMC.

9.2.3 Body SAR Measurement

SAR for body exposure configurations is measured using the 12.2 kbps RMC with the TPC bits all “1s”.

9.2.4 Handsets with Release 5 HSDPA

Body SAR is not required for handsets with HSDPA capabilities when the maximum average output of each RF channel with HSDPA active is less than ¼ dB higher than that measured without HSDPA using 12.2 kbps RMC and the maximum SAR for 12.2 kbps RMC is ≤ 75 % of the SAR limit. Otherwise, SAR is Measured for HSDPA, using an FRC with H-Set 1 in Sub-test 1 and a 12.2 kbps RMC configured in Test Loop Mode 1, using the highest body SAR configuration in 12.2 kbps RMC without HSDPA, on the maximum output channel with the body exposure configuration that results in the highest SAR in 12.2 kbps RMC for that RF channel.

Sub-Test 1 Setup for Release 5 HSDPA

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{hs} (1)	CM (dB)(2)
1	2/15	15/15	64	2/15	4/15	0.0
2	12/15(3)	15/15(3)	64	12/15(3)	24/15	1.0
3	15/15	8/15	64	15/8	30/15	1.5
4	15/15	4/15	64	15/4	30/15	1.5

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 β_c/β_d =12/15, β_{hs}/β_c=24/15.
Note 3: For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to β_c = 11/15 and β_d = 15/15.

9.2.5 Handsets with Release 6 HSPA (HSDPA/HSUPA)

Body SAR is not required for handsets with HSPA capabilities when the maximum average output of each RF channel with HSUPA/HSDPA active is less than ¼ dB higher than that measured without HSUPA/HSDPA using 12.2 kbps RMC and the maximum SAR for 12.2 kbps RMC is ≤ 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 RMC configured in Test Loop Mode 1 with power control algorithm 2, according to the highest body SAR configuration in 12.1 kbps RMC without HSPA. When VOIP is applicable for head exposure, SAR is not required when the maximum output of each RF channel with HSPA is less than ¼ dB higher than that measured using 12.2 kbps RMC; otherwise, the same HSPA configuration used for body measurement should be used to test for head exposure.

Sub-test	β_c	β_d	β_d (SF)	β_c/β_d	β_{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	β_{ed1}: 47/15 β_{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 Δ_{CQI} = 8 ⇔ $A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15 * \beta_c$.
Note 2: CM = 1 for β_c/β_d =12/15, β_{hs}/β_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 β_c = 10/15 and β_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 β_c = 14/15 and β_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.

3GPP Release Version	Mode	3GPP 34.121 Subtest	Cellular Band [dBm]						MPR Target
			4132	Power reduction (dB)	4183	Power reduction (dB)	4233	Power reduction (dB)	
99	WCDMA	12.2 kbps RMC	23.16	-	22.94	-	23.12	-	-
99	WCDMA	12.2 kbps AMR	23.12	-	22.96	-	23.08	-	-
5	HSDPA	Subtest 1	22.16	-	22.06	-	22.08	-	0
5		Subtest 2	22.14	0.02	21.99	0.07	22.13	-0.05	0
5		Subtest 3	21.7	0.46	21.62	0.44	21.6	0.48	0.5
5		Subtest 4	21.69	0.47	21.59	0.47	21.56	0.52	0.5
6	HSUPA	Subtest 1	22.65	-	22.49	-	22.52	-	0
6		Subtest 2	20.9	1.75	20.64	1.85	20.43	2.09	2
6		Subtest 3	21.62	1.03	21.53	0.96	21.54	0.98	1
6		Subtest 4	21.39	1.26	21.74	0.75	21.76	0.76	2
6		Subtest 5	22.52	0.13	22.26	0.23	22.51	0.01	0

3GPP Release Version	Mode	3GPP 34.121 Subtest	PCS Band [dBm]						MPR Target
			9262	Power reduction (dB)	9400	Power reduction (dB)	9538	Power reduction (dB)	
99	WCDMA	12.2 kbps RMC	22.65	-	22.37	-	22.2	-	-
99	WCDMA	12.2 kbps AMR	22.66	-	22.34	-	22.06	-	-
5	HSDPA	Subtest 1	21.59	-	21.54	-	21.33	-	0
5		Subtest 2	21.62	-0.03	21.53	0.01	21.17	0.16	0
5		Subtest 3	21.15	0.44	20.91	0.63	20.67	0.66	0.5
5		Subtest 4	21.17	0.42	20.93	0.61	20.6	0.73	0.5
6	HSUPA	Subtest 1	22.07	-	21.95	-	21.96	-	0
6		Subtest 2	20.01	2.06	19.93	2.02	20.16	1.8	2
6		Subtest 3	21.41	0.66	21.15	0.8	21.06	0.9	1
6		Subtest 4	21.29	0.78	20.97	0.98	21.04	0.92	2
6		Subtest 5	22.12	-0.05	21.95	0	21.97	-0.01	0

WCDMA Average Conducted output powers

9.4 LTE

SAR testing was performed according to the FCC KDB 941225 D05 publication.
The JYCSPARKLE 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.
A-MPR has been disabled for all SAR tests by setting NS=01 on the R&S CMW500.

B4 Low

Bandwidth	UL Channel	UL Freq.(MHz)	Modulation	RB Size	RB Offset	Max.Average Power (dBm)	Target MPR (dB)	Measured Power reduction (dB)
5 MHz	19975	1712.5	QPSK	1	0	23.96	0	0.03
				1	24	23.99	0	0.00
				12	6	22.97	1	1.02
				25	0	22.82	1	1.17
			16QAM	1	0	22.51	1	1.48
				1	24	22.62	1	1.37
				12	6	21.90	2	2.09
				25	0	21.85	2	2.14

B4 Middle

Bandwidth	UL Channel	UL Freq.(MHz)	Modulation	RB Size	RB Offset	Max.Average Power (dBm)	Target MPR (dB)	Measured Power reduction (dB)
5 MHz	20175	1732.5	QPSK	1	0	23.86	0	0.00
				1	24	23.74	0	0.12
				12	6	22.83	1	1.03
				25	0	22.70	1	1.16
			16QAM	1	0	22.65	1	1.21
				1	24	22.57	1	1.29
				12	6	21.70	2	2.16
				25	0	21.68	2	2.18

B4 High

Bandwidth	UL Channel	UL Freq.(MHz)	Modulation	RB Size	RB Offset	Max.Average Power (dBm)	Target MPR (dB)	Measured Power reduction (dB)
5 MHz	20375	1752.5	QPSK	1	0	23.65	0	0.24
				1	24	23.89	0	0.00
				12	6	22.73	1	1.16
				25	0	22.70	1	1.19
			16QAM	1	0	22.39	1	1.50
				1	24	22.69	1	1.20
				12	6	21.65	2	2.24
				25	0	21.73	2	2.16

B4 Low

Bandwidth	UL Channel	UL Freq.(MHz)	Modulation	RB Size	RB Offset	Max.Average Power (dBm)	Target MPR (dB)	Measured Power reduction (dB)
10 MHz	20000	1715	QPSK	1	0	23.76	0	0.16
				1	49	23.92	0	0.00
				25	12	22.80	1	1.12
				50	0	22.75	1	1.17
			16QAM	1	0	22.47	1	1.45
				1	49	22.62	1	1.30
				25	12	21.81	2	2.11
				50	0	21.78	2	2.14

B4 Middle

Bandwidth	UL Channel	UL Freq.(MHz)	Modulation	RB Size	RB Offset	Max.Average Power (dBm)	Target MPR (dB)	Measured Power reduction (dB)
10 MHz	20175	1732.5	QPSK	1	0	23.79	0	0.00
				1	49	23.69	0	0.10
				25	12	22.71	1	1.08
				50	0	22.73	1	1.06
			16QAM	1	0	22.45	1	1.34
				1	49	22.36	1	1.43
				25	12	21.75	2	2.04
				50	0	21.69	2	2.10

B4 High

Bandwidth	UL Channel	UL Freq.(MHz)	Modulation	RB Size	RB Offset	Max.Average Power (dBm)	Target MPR (dB)	Measured Power reduction (dB)
10 MHz	20350	1750	QPSK	1	0	23.54	0	0.02
				1	49	23.56	0	0.00
				25	12	22.30	1	1.26
				50	0	22.20	1	1.36
			16QAM	1	0	22.06	1	1.50
				1	49	22.24	1	1.32
				25	12	21.38	2	2.18
				50	0	21.18	2	2.38

B4 Low

Bandwidth	UL Channel	UL Freq.(MHz)	Modulation	RB Size	RB Offset	Max.Average Power (dBm)	Target MPR (dB)	Measured Power reduction (dB)
15 MHz	20025	1717.5	QPSK	1	0	23.99	0	0.00
				1	74	23.92	0	0.07
				36	18	22.80	1	1.19
				75	0	22.70	1	1.29
			16QAM	1	0	22.72	1	1.27
				1	74	22.67	1	1.32
				36	18	21.77	2	2.22
				75	0	21.72	2	2.27

B4 Middle

Bandwidth	UL Channel	UL Freq.(MHz)	Modulation	RB Size	RB Offset	Max.Average Power (dBm)	Target MPR (dB)	Measured Power reduction (dB)
15 MHz	20175	1732.5	QPSK	1	0	23.68	0	0.00
				1	74	23.67	0	0.01
				36	18	22.47	1	1.21
				75	0	22.48	1	1.20
			16QAM	1	0	22.51	1	1.17
				1	74	22.40	1	1.28
				36	18	21.46	2	2.22
				75	0	21.33	2	2.35

B4 High

Bandwidth	UL Channel	UL Freq.(MHz)	Modulation	RB Size	RB Offset	Max.Average Power (dBm)	Target MPR (dB)	Measured Power reduction (dB)
15 MHz	20325	1747.5	QPSK	1	0	23.60	0	0.10
				1	74	23.70	0	0.00
				36	18	22.32	1	1.38
				75	0	22.36	1	1.34
			16QAM	1	0	22.23	1	1.47
				1	74	22.57	1	1.13
				36	18	21.35	2	2.35
				75	0	21.33	2	2.37

B4 Low

Bandwidth	UL Channel	UL Freq.(MHz)	Modulation	RB Size	RB Offset	Max.Average Power (dBm)	Target MPR (dB)	Measured Power reduction (dB)
20 MHz	20050	1720	QPSK	1	0	23.90	0	0.03
				1	99	23.93	0	0.00
				50	25	22.74	1	1.19
				100	0	22.73	1	1.20
			16QAM	1	0	22.78	1	1.15
				1	99	22.72	1	1.21
				50	25	21.68	2	2.25
				100	0	21.74	2	2.19

B4 Middle

Bandwidth	UL Channel	UL Freq.(MHz)	Modulation	RB Size	RB Offset	Max.Average Power (dBm)	Target MPR (dB)	Measured Power reduction (dB)
20 MHz	20175	1732.5	QPSK	1	0	23.83	0	0.00
				1	99	23.53	0	0.30
				50	25	22.61	1	1.22
				100	0	22.59	1	1.24
			16QAM	1	0	22.78	1	1.05
				1	99	22.33	1	1.50
				50	25	21.55	2	2.28
				100	0	21.58	2	2.25

B4 High

Bandwidth	UL Channel	UL Freq.(MHz)	Modulation	RB Size	RB Offset	Max.Average Power (dBm)	Target MPR (dB)	Measured Power reduction (dB)
20 MHz	20300	1745.0	QPSK	1	0	23.63	0	0.00
				1	99	23.55	0	0.08
				50	25	22.23	1	1.40
				100	0	22.29	1	1.34
			16QAM	1	0	22.65	1	0.98
				1	99	22.60	1	1.03
				50	25	21.30	2	2.33
				100	0	21.38	2	2.25

Band 13

Bandwidth	UL Channel	UL Freq.(MHz)	Modulation	RB Size	RB Offset	Max.Average Power (dBm)	Target MPR (dB)	Measured Power reduction (dB)
10 MHz	23230	782	QPSK	1	0	23.10	0	0.05
				1	49	23.15	0	0.00
				25	12	21.69	1	1.46
				50	0	21.69	1	1.46
			16QAM	1	0	21.75	1	1.40
				1	49	21.76	1	1.39
				25	12	20.72	2	2.43
				50	0	20.68	2	2.47

Note;

The EUT enables maximum power reduction in accordance with 3GPP 36.101. The MPR settings are configured during the manufacture process and are not configurable by the network, carrier, or end user.

10. SAR TEST DATA SUMMARY

10.1 Measurement Results (CDMA835 Body SAR)

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	Configuration	Configuration	Separation Distance	SAR(mW/g)
MHz	ch.							
824.7	1013 (low)	EVDO	23.98	-0.087	Horizontal Down	Cable	5 mm	0.815
836.52	384 (Mid)	EVDO	23.93	0.109	Horizontal Down	Cable	5 mm	0.951
848.31	777 (High)	EVDO	23.93	0.183	Horizontal Down	Cable	5 mm	0.809
824.7	1013 (low)	EVDO	23.98	-0.079	Horizontal Up	Laptop	5 mm	0.643
836.52	384 (Mid)	EVDO	23.93	-0.058	Horizontal Up	Laptop	5 mm	0.809
848.31	777 (High)	EVDO	23.93	-0.088	Horizontal Up	Laptop	5 mm	0.897
836.52	384 (Mid)	EVDO	23.93	-0.034	Vertical front	Cable	5 mm	0.473
836.52	384 (Mid)	EVDO	23.93	-0.144	Vertical back	Laptop	5 mm	0.386
836.52	384 (Mid)	EVDO	23.93	-0.04	Top	Laptop	5 mm	0.314
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:

1 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].
2 All modes of operation were investigated and the worst-case are reported.
3 Measured Depth of Simulating Tissue is 15.0 cm ± 0.2 cm.
4 Tissue parameters and temperatures are listed on the SAR plot.
5 Power Supply Power supplied through host device (TOSHIBA)
6 Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
7 All side of the EUT were tested and the worst-case side is reported.
8 The EUT was fixed by using a Styrofoam to avoid perturbation due to the device holder clamps.
9 EVDO Body SAR was tested under EVDO Rev.0 RTAP.
10 Justification for reduced test configurations: per FCC/OET Supplement C (July, 2001), if the SAR measured at the middle channel for each test configuration (Left, right, cheek/touch, tilt/ear, extended and retracted) is at least 3.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s).

10.2 Measurement Results (PCS1900 Body SAR)

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	Configuration	Configuration	Separation Distance	SAR(mW/g)
MHz	ch.							
1 880.00	600 (Mid)	EVDO	24.88	-0.076	Horizontal Down	USB Cable	5 mm	0.483
1 851.25	25 (Low)	EVDO	24.79	-0.138	Horizontal Up	Laptop	5 mm	1.00
1 880.00	600 (Mid)	EVDO	24.88	-0.032	Horizontal Up	Laptop	5 mm	0.866
1 908.75	1175(High)	EVDO	24.08	-0.02	Horizontal Up	Laptop	5 mm	0.977
1 880.00	600 (Mid)	EVDO	24.88	-0.048	Vertical front	USB Cable	5 mm	0.321
1 880.00	600 (Mid)	EVDO	24.88	-0.042	Vertical back	Laptop	5 mm	0.793
1 880.00	600 (Mid)	EVDO	24.88	0.081	Top	USB Cable	5 mm	0.113
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:

1 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].
2 All modes of operation were investigated and the worst-case are reported.
3 Measured Depth of Simulating Tissue is 15.0 cm ± 0.2 cm.
4 Tissue parameters and temperatures are listed on the SAR plot.
5 Power Supply Power supplied through host device (TOSHIBA)
6 Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
7 All side of the EUT were tested and the worst-case side is reported.
8 The EUT was fixed by using a Styrofoam to avoid perturbation due to the device holder clamps.
9 EVDO Body SAR was tested under EVDO Rev.0 RTAP.
10 Justification for reduced test configurations: per FCC/OET Supplement C (July, 2001), if the SAR measured at the middle channel for each test configuration (Left, right, cheek/touch, tilt/ear, extended and retracted) is at least 3.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s).

10.3 Measurement Results (GSM850 Body SAR)

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	Configuration	Configuration	Separation Distance	SAR(mW/g)
MHz	ch.							
824.2	128 (Low)	GPRS 1Tx	32.69	-0.009	Horizontal Down	Cable	5 mm	1.11
836.6	190 (Mid)	GPRS 1Tx	32.27	-0.02	Horizontal Down	Cable	5 mm	1.13
848.8	251 (High)	GPRS 1Tx	32.28	-0.006	Horizontal Down	Cable	5 mm	1.16
824.2	128 (Low)	GPRS 1Tx	32.69	-0.006	Horizontal Up	Laptop	5 mm	0.833
836.6	190 (Mid)	GPRS 1Tx	32.27	-0.001	Horizontal Up	Laptop	5 mm	0.847
848.8	251 (High)	GPRS 1Tx	32.28	-0.013	Horizontal Up	Laptop	5 mm	0.717
836.6	190 (Mid)	GPRS 1Tx	32.27	0.03	Vertical front	Cable	5 mm	0.736
836.6	190 (Mid)	GPRS 1Tx	32.27	-0.062	Vertical back	Laptop	5 mm	0.520
836.6	190 (Mid)	GPRS 1Tx	32.27	-0.086	Top	Laptop	5 mm	0.312
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:

1 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].
2 All modes of operation were investigated and the worst-case are reported.
3 Measured Depth of Simulating Tissue is 15.0 cm ± 0.2 cm.
4 Tissue parameters and temperatures are listed on the SAR plot.
5 Power Supply Power supplied through host device (TOSHIBA)
6 Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
7 All side of the EUT were tested and the worst-case side is reported.
8 The EUT was fixed by using a Styrofoam to avoid perturbation due to the device holder clamps.
9 Justification for reduced test configurations: per FCC/OET Supplement C (July, 2001), if the SAR measured at the middle channel for each test configuration (Left, right, cheek/touch, tilt/ear, extended and retracted) is at least 3.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s).
10 For body SAR testing, the EUT was set in GPRS multi-slot class12 with 1uplink slots for GSM850 due to maximum source-based time-averaged output power.
According to the KDB 941225 D03 SAR test reduction GSM/GPRS/EDGE, the maximum output power configuration were chosen for Body SAR testing.

10.4 Measurement Results (GSM1900 Body SAR)

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	Configuration	Configuration	Separation Distance	SAR(mW/g)
MHz	ch.							
1 880.0	661 (Mid)	GPRS 1Tx	29.06	0.041	Horizontal up	Laptop	5 mm	0.506
1 880.0	661 (Mid)	GPRS 1Tx	29.06	0.031	Horizontal down	Cable	5 mm	0.778
1 880.0	661 (Mid)	GPRS 1Tx	29.06	0.130	Vertical front	Cable	5 mm	0.363
1 880.0	661 (Mid)	GPRS 1Tx	29.06	-0.085	Vertical back	Laptop	5 mm	0.443
1 880.0	661 (Mid)	GPRS 1Tx	29.06	0.094	Top	Laptop	5 mm	0.063
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:

1 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].
2 All modes of operation were investigated and the worst-case are reported.
3 Measured Depth of Simulating Tissue is 15.0 cm ± 0.2 cm.
4 Tissue parameters and temperatures are listed on the SAR plot.
5 Power Supply Power supplied through host device (TOSHIBA)
6 Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
7 All side of the EUT were tested and the worst-case side is reported.
8 The EUT was fixed by using a Styrofoam to avoid perturbation due to the device holder clamps.
9 Justification for reduced test configurations: per FCC/OET Supplement C (July, 2001), if the SAR measured at the middle channel for each test configuration (Left, right, cheek/touch, tilt/ear, extended and retracted) is at least 3.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s).
10 For body SAR testing, the EUT was set in GPRS multi-slot class12 with 1uplink slots for GSM1900 due to maximum source-based time-averaged output power.
According to the KDB 941225 D03 SAR test reduction GSM/GPRS/EDGE, the maximum output power configuration were chosen for Body SAR testing.

10.5 Measurement Results (WCDMA850 Body SAR)

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	Configuration	Configuration	Separation Distance	SAR(mW/g)
MHz	ch.							
826.4	4132(Low)	WCDMA850	23.16	0.032	Horizontal down	Cable	5 mm	0.728
836.6	4183 (Mid)	WCDMA850	22.94	-0.116	Horizontal down	Cable	5 mm	0.858
846.6	4233 (High)	WCDMA850	23.12	-0.015	Horizontal down	Cable	5 mm	0.763
836.6	4183 (Mid)	WCDMA850	22.94	-0.035	Horizontal Up	Laptop	5 mm	0.706
836.6	4183 (Mid)	WCDMA850	22.94	-0.078	Vertical front	Cable	5 mm	0.430
836.6	4183 (Mid)	WCDMA850	22.94	-0.186	Vertical back	Laptop	5 mm	0.360
836.6	4183 (Mid)	WCDMA850	22.94	0.069	Top	Laptop	5 mm	0.254
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:

1 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].
2 All modes of operation were investigated and the worst-case are reported.
3 Measured Depth of Simulating Tissue is 15.0 cm ± 0.2 cm.
4 Tissue parameters and temperatures are listed on the SAR plot.
5 Power Supply Power supplied through host device (TOSHIBA)
6 Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
7 All side of the EUT were tested and the worst-case side is reported.
8 The EUT was fixed by using a Styrofoam to avoid perturbation due to the device holder clamps.
9 WCDMA Mode was tested under RMC 12.2 kbps and HSPA Inactive.
10 Justification for reduced test configurations: per FCC/OET Supplement C (July, 2001), if the SAR measured at the middle channel for each test configuration (Left, right, cheek/touch, tilt/ear, extended and retracted) is at least 3.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s).

10.6 Measurement Results (WCDMA1900 Body SAR)

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	Configuration	Configuration	Separation Distance	SAR(mW/g)
MHz	ch.							
1 880.0	9400 (Mid)	WCDMA1900	22.37	-0.055	Horizontal down	Cable	5 mm	0.483
1 852.4	9262 (Low)	WCDMA1900	22.65	-0.018	Horizontal Up	Laptop	5 mm	0.974
1 880.0	9400 (Mid)	WCDMA1900	22.37	0.066	Horizontal Up	Laptop	5 mm	0.837
1 907.6	9538 (High)	WCDMA1900	22.20	-0.108	Horizontal Up	Laptop	5 mm	0.762
1 880.0	9400 (Mid)	WCDMA1900	22.65	-0.017	Vertical front	Cable	5 mm	0.287
1 880.0	9400 (Mid)	WCDMA1900	22.65	-0.130	Vertical back	Laptop	5 mm	0.562
1 880.0	9400 (Mid)	WCDMA1900	22.65	0.157	Top	Laptop	5 mm	0.105
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:

1 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].
2 All modes of operation were investigated and the worst-case are reported.
3 Measured Depth of Simulating Tissue is 15.0 cm ± 0.2 cm.
4 Tissue parameters and temperatures are listed on the SAR plot.
5 Power Supply Power supplied through host device (TOSHIBA)
6 Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
7 All side of the EUT were tested and the worst-case side is reported.
8 The EUT was fixed by using a Styrofoam to avoid perturbation due to the device holder clamps.
9 WCDMA Mode was tested under RMC 12.2 kbps and HSPA Inactive.
10 Justification for reduced test configurations: per FCC/OET Supplement C (July, 2001), if the SAR measured at the middle channel for each test configuration (Left, right, cheek/touch, tilt/ear, extended and retracted) is at least 3.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s).

10.7 Measurement Results (LTE Band13 10MHz SAR QPSK)

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	Configuration	Configuration	RB Size	RB Offset	Separation Distance	SAR (mW/g)	MPR
MH	ch.										
782	23230	QPSK	21.69	-0.062	Horizontal down	Cable	25	12	5 mm	0.638	1
		QPSK	23.10	-0.099	Horizontal down	Cable	1	0	5 mm	0.915	0
		QPSK	23.15	-0.01	Horizontal down	Cable	1	49	5 mm	0.917	0
		QPSK	21.69	0.003	Horizontal up	Laptop	25	12	5 mm	0.748	1
		QPSK	23.10	-0.129	Horizontal up	Laptop	1	0	5 mm	1.11	0
		QPSK	23.15	-0.04	Horizontal up	Laptop	1	49	5 mm	1.06	0
		QPSK	21.69	0.072	Vertical front	Cable	25	12	5 mm	0.611	1
		QPSK	23.10	-0.105	Vertical front	Cable	1	0	5 mm	0.812	0
		QPSK	23.15	-0.045	Vertical front	Cable	1	49	5 mm	0.794	0
		QPSK	21.69	-0.04	Vertical back	Laptop	25	12	5 mm	0.503	1
		QPSK	23.10	-0.036	Vertical back	Laptop	1	0	5 mm	0.703	0
		QPSK	23.15	-0.044	Vertical back	Laptop	1	49	5 mm	0.706	0
		QPSK	21.69	-0.067	Top	Laptop	25	12	5 mm	0.228	1
		QPSK	23.10	-0.012	Top	Laptop	1	0	5 mm	0.339	0
		QPSK	23.15	0.06	Top	Laptop	1	49	5 mm	0.332	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:

1 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].
2 All modes of operation were investigated and the worst-case are reported.
3 Measured Depth of Simulating Tissue is 15.0 cm ± 0.2 cm.
4 Tissue parameters and temperatures are listed on the SAR plot.
5 Power Supply Power supplied through host device (TOSHIBA)
6 Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
7 All side of the EUT were tested and the worst-case side is reported.
8 The EUT was fixed by using a Styrofoam to avoid perturbation due to the device holder clamps.
9 KDB 941225 D05 SAR for LTE Devices v01 was followed.
- QPSK with 50% RB is required for the largest channel Bandwidth.
- QPSK with 1 RB for both channel edges are required for the largest channel Bandwidth.
- 16QAM with 50% RB is required for the largest channel Bandwidth.
- 16QAM with 1 RB for both channel edges are required for the largest channel Bandwidth.
- 100% RB allocation is not required since SAR is not > 1.45 W/kg.
- The Low & High channel were not required for Band 5/4 since the power variation across all channels is 1/2 dB and SAR is ≤ 1.45 W/kg.

10.8 Measurement Results (LTE Band13 10MHz SAR 16QAM)

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	Configuration	Configuration	RB Size	RB Offset	Separation Distance	SAR (mW/g)	MPR
MH	ch.										
782	23230	16QAM	20.72	-0.068	Horizontal down	Cable	25	12	5 mm	0.515	2
		16QAM	21.75	0.094	Horizontal down	Cable	1	0	5 mm	0.734	1
		16QAM	21.76	0.061	Horizontal down	Cable	1	49	5 mm	0.745	1
		16QAM	20.72	0.029	Horizontal up	Laptop	25	12	5 mm	0.603	2
		16QAM	21.75	-0.069	Horizontal up	Laptop	1	0	5 mm	0.864	1
		16QAM	21.76	-0.002	Horizontal up	Laptop	1	49	5 mm	0.875	1
		16QAM	20.72	-0.001	Vertical front	Cable	25	12	5 mm	0.452	2
		16QAM	21.75	-0.028	Vertical front	Cable	1	0	5 mm	0.655	1
		16QAM	21.76	-0.072	Vertical front	Cable	1	49	5 mm	0.640	1
		16QAM	20.72	-0.028	Vertical back	Laptop	25	12	5 mm	0.395	2
		16QAM	21.75	0.023	Vertical back	Laptop	1	0	5 mm	0.560	1
		16QAM	21.76	0.101	Vertical back	Laptop	1	49	5 mm	0.551	1
		16QAM	20.72	0.035	Top	Laptop	25	12	5 mm	0.181	2
		16QAM	21.75	0.077	Top	Laptop	1	0	5 mm	0.275	1
		16QAM	21.76	0.083	Top	Laptop	1	49	5 mm	0.267	1
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:

1 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].
2 All modes of operation were investigated and the worst-case are reported.
3 Measured Depth of Simulating Tissue is 15.0 cm ± 0.2 cm.
4 Tissue parameters and temperatures are listed on the SAR plot.
5 Power Supply Power supplied through host device (TOSHIBA)
6 Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
7 All side of the EUT were tested and the worst-case side is reported.
8 The EUT was fixed by using a Styrofoam to avoid perturbation due to the device holder clamps.
9 KDB 941225 D05 SAR for LTE Devices v01 was followed.
- QPSK with 50% RB is required for the largest channel Bandwidth.
- QPSK with 1 RB for both channel edges are required for the largest channel Bandwidth.
- 16QAM with 50% RB is required for the largest channel Bandwidth.
- 16QAM with 1 RB for both channel edges are required for the largest channel Bandwidth.
- 100% RB allocation is not required since SAR is not > 1.45 W/kg.
- The Low & High channel were not required for Band 5/4 since the power variation across all channels is 1/2 dB and SAR is ≤ 1.45 W/kg.

10.9 Measurement Results (LTE Band4 20MHz SAR QPSK)

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	Configuration	Configuration	RB Size	RB Offset	Separation Distance	SAR (mW/g)	MPR
MHz	ch.										
1732.5	20175	QPSK	22.61	-0.01	Horizontal down	Cable	50	25	5 mm	0.592	1
		QPSK	23.83	-0.044	Horizontal down	Cable	1	0	5 mm	0.682	0
		QPSK	23.53	-0.005	Horizontal down	Cable	1	99	5 mm	0.680	0
		QPSK	22.61	-0.084	Horizontal up	Laptop	50	25	5 mm	0.792	1
		QPSK	23.83	-0.017	Horizontal up	Laptop	1	0	5 mm	0.913	0
		QPSK	23.53	0.038	Horizontal up	Laptop	1	99	5 mm	0.944	0
		QPSK	22.61	-0.102	Vertical front	Cable	50	25	5 mm	0.471	1
		QPSK	23.83	-0.031	Vertical front	Cable	1	0	5 mm	0.367	0
		QPSK	23.53	-0.013	Vertical front	Cable	1	99	5 mm	0.479	0
		QPSK	22.61	0.004	Vertical back	Laptop	50	25	5 mm	0.530	1
		QPSK	23.83	-0.148	Vertical back	Laptop	1	0	5 mm	0.489	0
		QPSK	23.53	-0.076	Vertical back	Laptop	1	99	5 mm	0.699	0
		QPSK	22.61	-0.054	Top	Laptop	50	25	5 mm	0.089	1
		QPSK	23.83	-0.049	Top	Laptop	1	0	5 mm	0.083	0
		QPSK	23.53	0.006	Top	Laptop	1	99	5 mm	0.105	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:

1 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].
2 All modes of operation were investigated and the worst-case are reported.
3 Measured Depth of Simulating Tissue is 15.0 cm ± 0.2 cm.
4 Tissue parameters and temperatures are listed on the SAR plot.
5 Power Supply Power supplied through host device (TOSHIBA)
6 Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
7 All side of the EUT were tested and the worst-case side is reported.
8 The EUT was fixed by using a Styrofoam to avoid perturbation due to the device holder clamps.
9 KDB 941225 D05 SAR for LTE Devices v01 was followed.
- QPSK with 50% RB is required for the largest channel Bandwidth.
- QPSK with 1 RB for both channel edges are required for the largest channel Bandwidth.
- 16QAM with 50% RB is required for the largest channel Bandwidth.
- 16QAM with 1 RB for both channel edges are required for the largest channel Bandwidth.
- 100% RB allocation is not required since SAR is not > 1.45 W/kg.
- The Low & High channel were not required for Band 5/4 since the power variation across all channels is 1/2 dB and SAR is ≤ 1.45 W/kg.

10.10 Measurement Results (LTE Band4 20MHz SAR 16QAM)

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	Configuration	Configuration	RB Size	RB Offset	Separation Distance	SAR (mW/g)	MPR
MHz	ch.										
1732.5	20175	16QAM	21.55	0.079	Horizontal down	Cable	50	25	5 mm	0.536	2
		16QAM	21.78	-0.096	Horizontal down	Cable	1	0	5 mm	0.541	1
		16QAM	22.35	0.08	Horizontal down	Cable	1	99	5 mm	0.608	1
		16QAM	21.55	0.039	Horizontal up	Laptop	50	25	5 mm	0.614	2
		16QAM	21.78	-0.126	Horizontal up	Laptop	1	0	5 mm	0.695	1
		16QAM	22.35	0.074	Horizontal up	Laptop	1	99	5 mm	0.822	1
		16QAM	21.55	-0.061	Vertical front	Cable	50	25	5 mm	0.344	2
		16QAM	21.78	0.049	Vertical front	Cable	1	0	5 mm	0.297	1
		16QAM	22.35	-0.123	Vertical front	Cable	1	99	5 mm	0.428	1
		16QAM	21.55	0.077	Vertical back	Laptop	50	25	5 mm	0.426	2
		16QAM	21.78	0.029	Vertical back	Laptop	1	0	5 mm	0.402	1
		16QAM	22.35	-0.087	Vertical back	Laptop	1	99	5 mm	0.543	1
		16QAM	21.55	-0.005	Top	Laptop	50	25	5 mm	0.070	2
		16QAM	21.78	0.083	Top	Laptop	1	0	5 mm	0.068	1
		16QAM	22.35	-0.020	Top	Laptop	1	99	5 mm	0.085	1
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:

1 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].
2 All modes of operation were investigated and the worst-case are reported.
3 Measured Depth of Simulating Tissue is 15.0 cm ± 0.2 cm.
4 Tissue parameters and temperatures are listed on the SAR plot.
5 Power Supply Power supplied through host device (TOSHIBA)
6 Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
7 All side of the EUT were tested and the worst-case side is reported.
8 The EUT was fixed by using a Styrofoam to avoid perturbation due to the device holder clamps.
9 KDB 941225 D05 SAR for LTE Devices v01 was followed.
- QPSK with 50% RB is required for the largest channel Bandwidth.
- QPSK with 1 RB for both channel edges are required for the largest channel Bandwidth.
- 16QAM with 50% RB is required for the largest channel Bandwidth.
- 16QAM with 1 RB for both channel edges are required for the largest channel Bandwidth.
- 100% RB allocation is not required since SAR is not > 1.45 W/kg.
- The Low & High channel were not required for Band 5/4 since the power variation across all channels is 1/2 dB and SAR is ≤ 1.45 W/kg.

11. 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:	CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Jun. 28, 2012
Separation Distance:	5 mm

DUT: UML295; Type: bar; Serial: #1

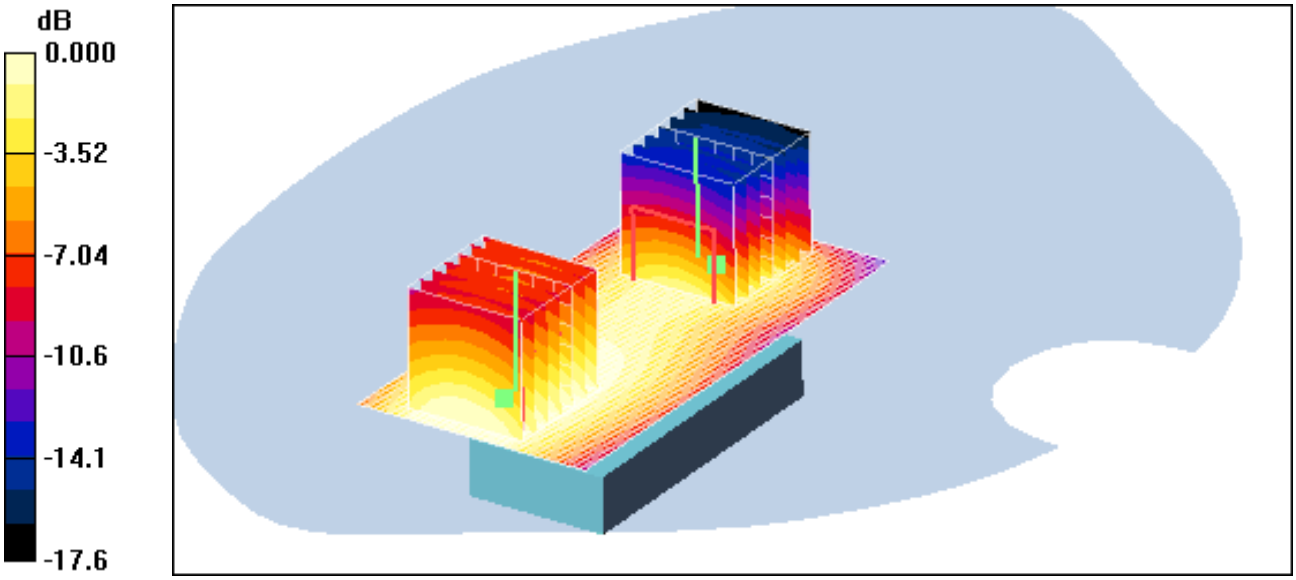
Communication System: CDMA 835MHz FCC; Frequency: 824.7 MHz;Duty Cycle: 1:1
Medium parameters used: f = 825 MHz; σ = 0.996 mho/m; ε_r = 54.7; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.27, 6.27, 6.27); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Down EVDO 1013/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.932 mW/g

Horizontal Down EVDO 1013/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 25.8 V/m; Power Drift = -0.087 dB
Peak SAR (extrapolated) = 1.25 W/kg
SAR(1 g) = 0.815 mW/g; SAR(10 g) = 0.518 mW/g
Maximum value of SAR (measured) = 0.886 mW/g

Horizontal Down EVDO 1013/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 25.8 V/m; Power Drift = -0.087 dB
Peak SAR (extrapolated) = 1.54 W/kg
SAR(1 g) = 0.552 mW/g; SAR(10 g) = 0.276 mW/g

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



0 dB = 0.595mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jun. 28, 2012
Separation Distance: 5 mm

DUT: UML295; 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; σ = 1.01 mho/m; ε_r = 54.6; ρ = 1000 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(6.27, 6.27, 6.27); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

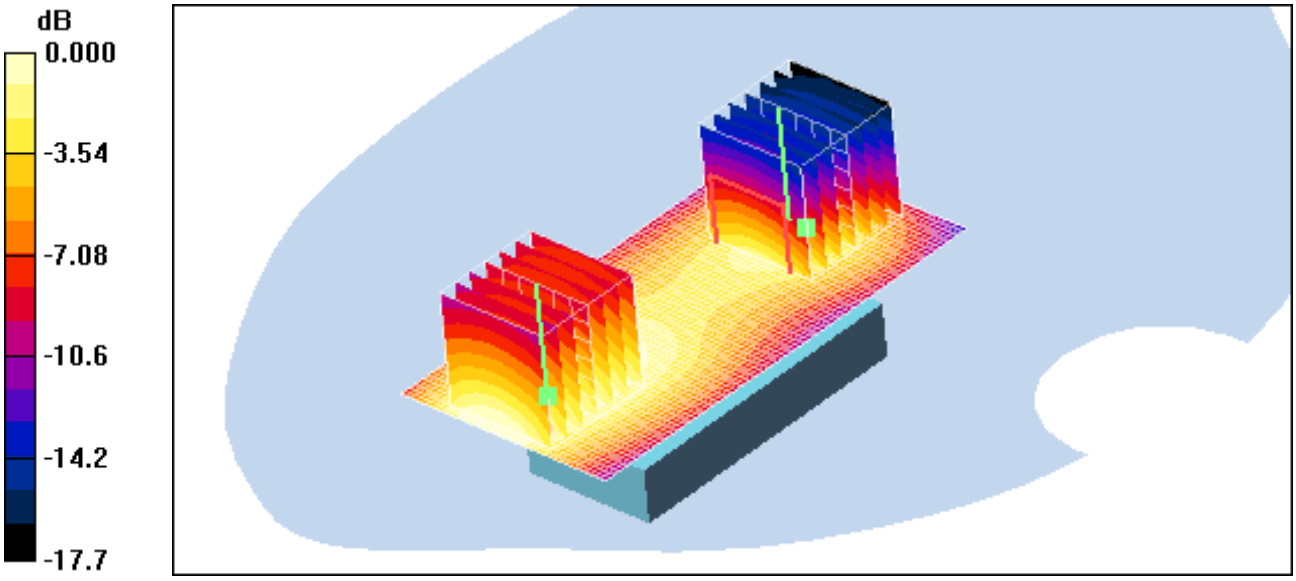
Horizontal Down EVDO 384/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 1.03 mW/g

Horizontal Down EVDO 384/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 28.5 V/m; Power Drift = 0.109 dB
Peak SAR (extrapolated) = 1.47 W/kg
SAR(1 g) = 0.951 mW/g; SAR(10 g) = 0.600 mW/g
Maximum value of SAR (measured) = 1.04 mW/g

Horizontal Down EVDO 384/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 28.5 V/m; Power Drift = 0.109 dB
Peak SAR (extrapolated) = 2.04 W/kg
SAR(1 g) = 0.722 mW/g; SAR(10 g) = 0.355 mW/g

Maximum value of SAR (measured) = 0.804 mW/g



0 dB = 0.804mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jun. 28, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

Communication System: CDMA 835MHz FCC; Frequency: 848.31 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 848.31 MHz; σ = 1.03 mho/m; ε_r = 54.4; ρ = 1000 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(6.27, 6.27, 6.27); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

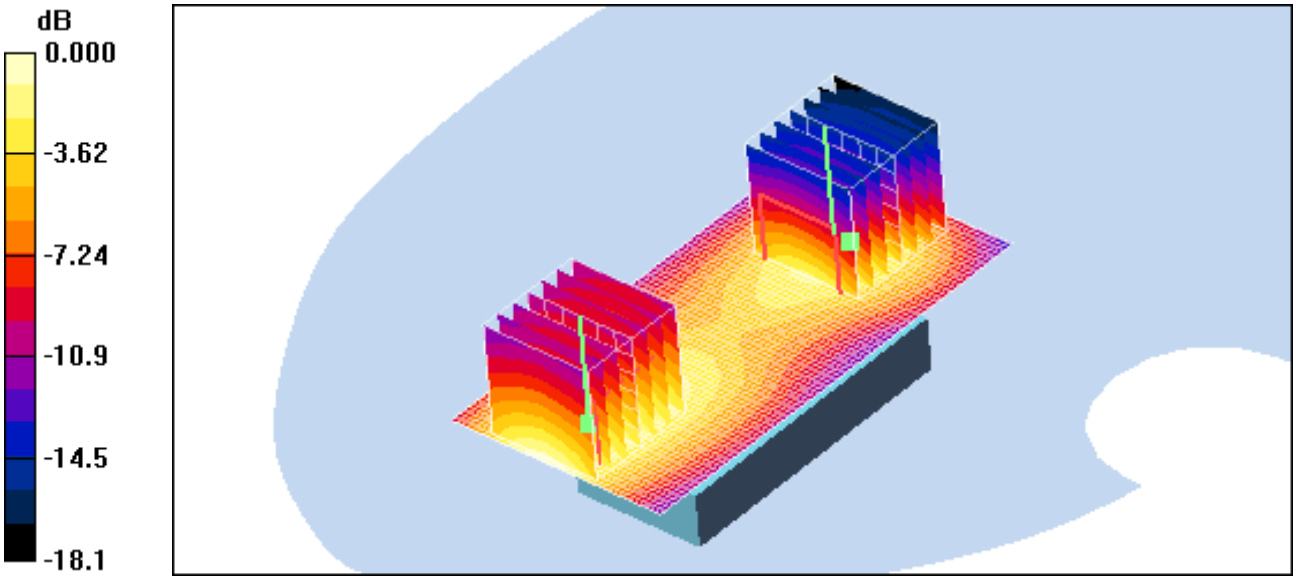
Horizontal Down EVDO 777/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.880 mW/g

Horizontal Down EVDO 777/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 28.9 V/m; Power Drift = 0.183 dB
Peak SAR (extrapolated) = 1.24 W/kg
SAR(1 g) = 0.809 mW/g; SAR(10 g) = 0.506 mW/g
Maximum value of SAR (measured) = 0.884 mW/g

Horizontal Down EVDO 777/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 28.9 V/m; Power Drift = 0.183 dB
Peak SAR (extrapolated) = 2.30 W/kg
SAR(1 g) = 0.783 mW/g; SAR(10 g) = 0.378 mW/g

Maximum value of SAR (measured) = 0.903 mW/g



0 dB = 0.903mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jun. 28, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1
Communication System: CDMA 835MHz FCC; Frequency: 824.7 MHz;Duty Cycle: 1:1
Medium parameters used: f = 825 MHz; σ = 0.996 mho/m; ε_r = 54.7; ρ = 1000 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(6.27, 6.27, 6.27); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

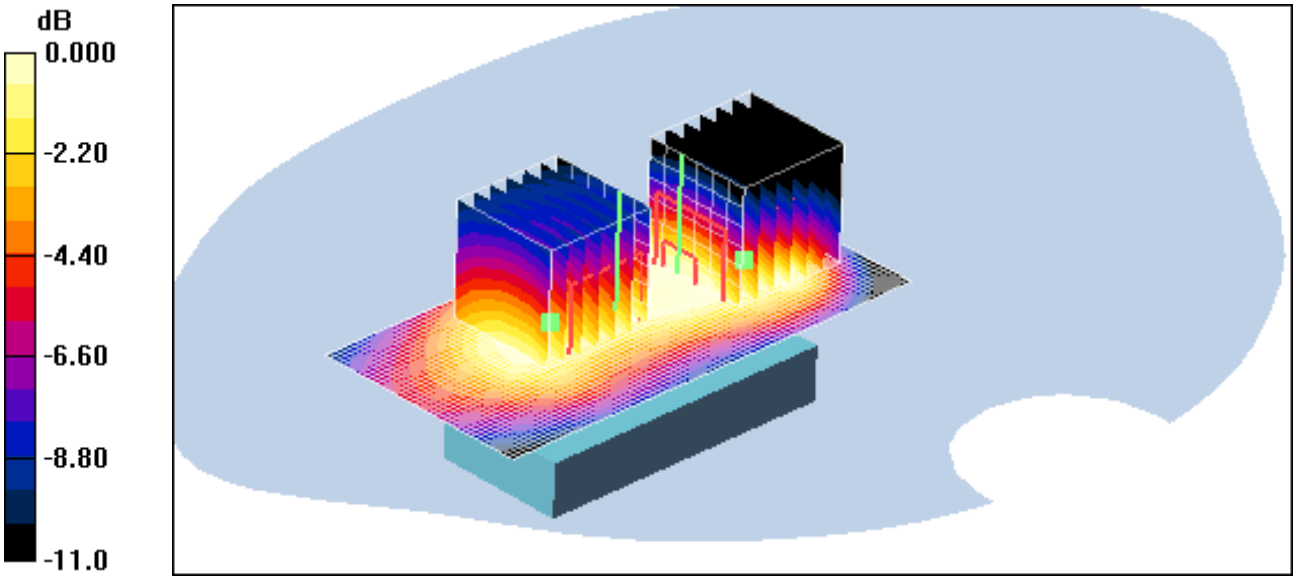
Horizontal Up EVDO 1013/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.744 mW/g

Horizontal Up EVDO 1013/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 26.5 V/m; Power Drift = -0.079 dB
Peak SAR (extrapolated) = 1.22 W/kg
SAR(1 g) = 0.643 mW/g; SAR(10 g) = 0.375 mW/g

Maximum value of SAR (measured) = 0.706 mW/g

Horizontal Up EVDO 1013/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 26.5 V/m; Power Drift = -0.079 dB
Peak SAR (extrapolated) = 0.761 W/kg
SAR(1 g) = 0.506 mW/g; SAR(10 g) = 0.339 mW/g

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



0 dB = 0.552mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jun. 28, 2012
Separation Distance: 5 mm

DUT: UML295; 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; σ = 1.01 mho/m; ε_r = 54.6; ρ = 1000 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(6.27, 6.27, 6.27); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

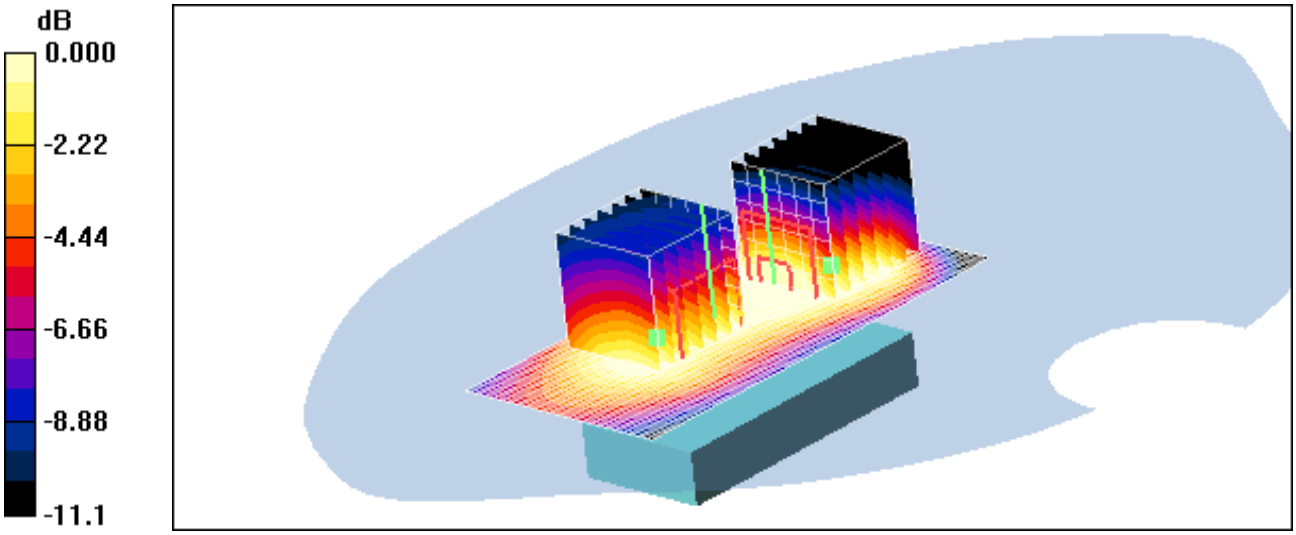
Horizontal Up EVDO 384/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.979 mW/g

Horizontal Up EVDO 384/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 31.4 V/m; Power Drift = -0.058 dB
Peak SAR (extrapolated) = 1.56 W/kg
SAR(1 g) = 0.809 mW/g; SAR(10 g) = 0.475 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.888 mW/g

Horizontal Up EVDO 384/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 31.4 V/m; Power Drift = -0.058 dB
Peak SAR (extrapolated) = 0.830 W/kg
SAR(1 g) = 0.544 mW/g; SAR(10 g) = 0.364 mW/g
Maximum value of SAR (measured) = 0.605 mW/g



0 dB = 0.605mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Jun. 28, 2012
Separation Distance:	5 mm

DUT: UML295; Type: bar; Serial: #1

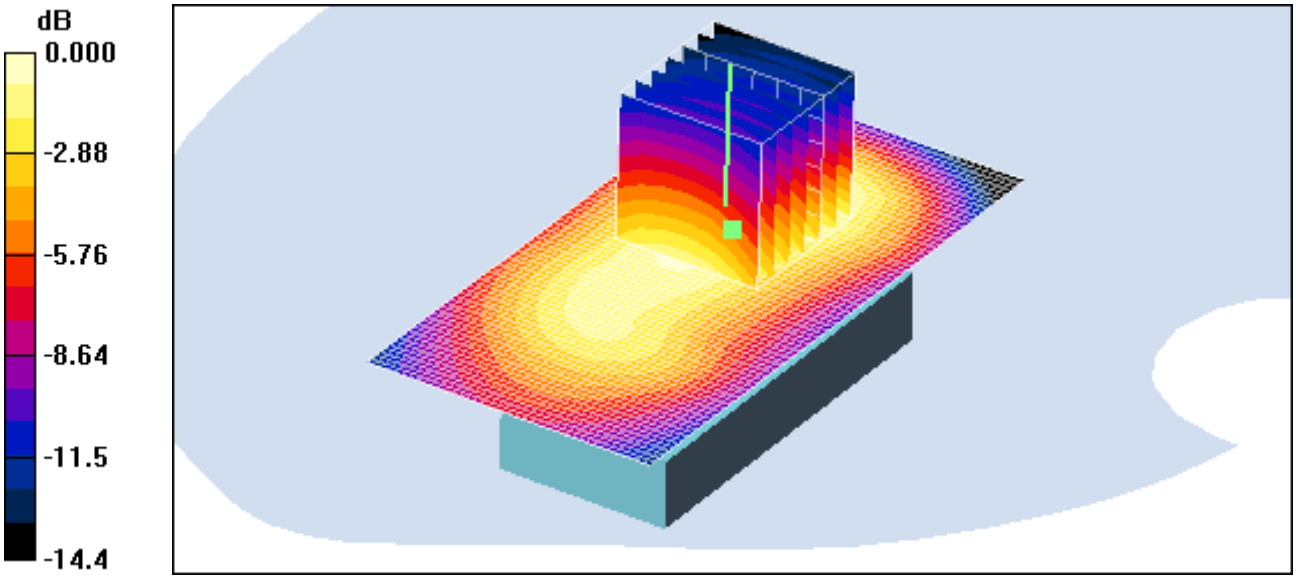
Communication System: CDMA 835MHz FCC; Frequency: 848.31 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 848.31 MHz; σ = 1.03 mho/m; ε_r = 54.4; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.27, 6.27, 6.27); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Up EVDO 777/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 1.01 mW/g

Horizontal Up EVDO 777/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 31.4 V/m; Power Drift = -0.088 dB
Peak SAR (extrapolated) = 1.58 W/kg
SAR(1 g) = 0.897 mW/g; SAR(10 g) = 0.540 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.974 mW/g



0 dB = 0.974mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Jun. 28, 2012
Separation Distance:	5 mm

DUT: UML295; Type: bar; Serial: #1

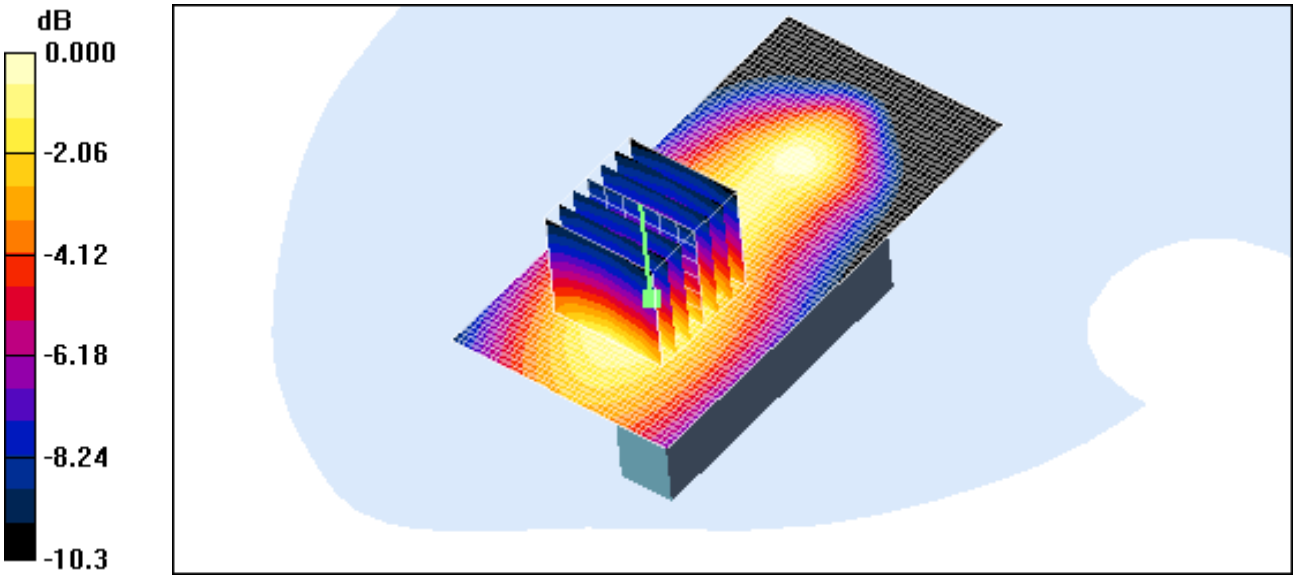
Communication System: CDMA 835MHz FCC; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.52 MHz; σ = 1.01 mho/m; ε_r = 54.6; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.27, 6.27, 6.27); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Vertical Front EVDO 384/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.546 mW/g

Vertical Front EVDO 384/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.9 V/m; Power Drift = -0.034 dB
Peak SAR (extrapolated) = 0.698 W/kg
SAR(1 g) = 0.473 mW/g; SAR(10 g) = 0.310 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.514 mW/g



0 dB = 0.514mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jun. 28, 2012
Separation Distance: 5 mm

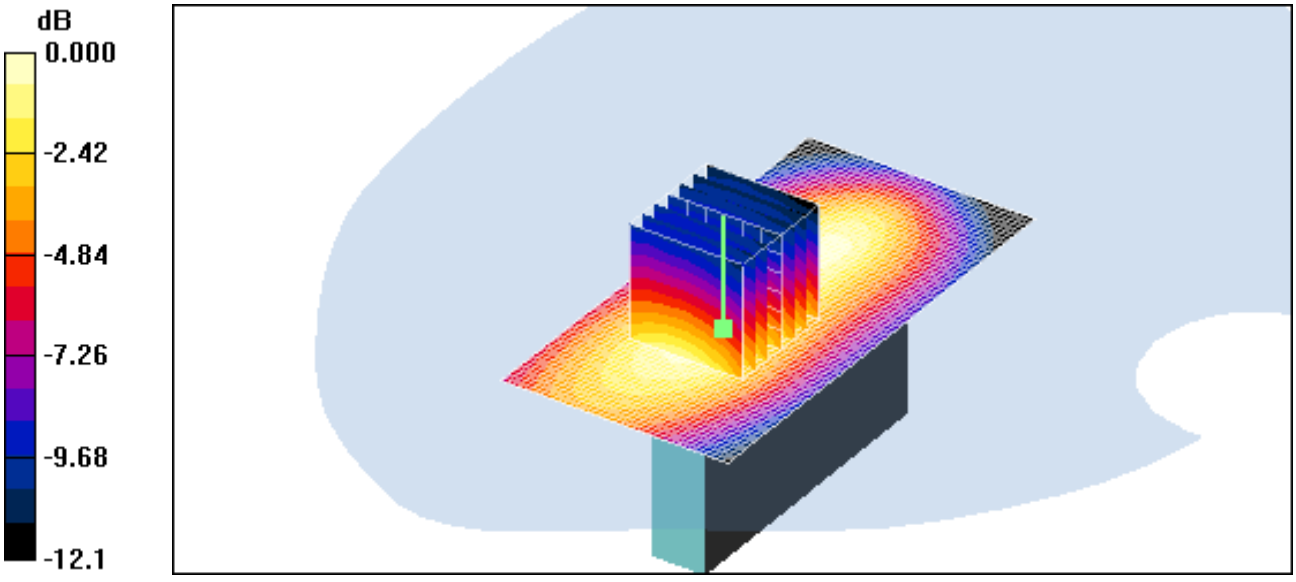
DUT: UML295; Type: bar; Serial: #1
Communication System: CDMA 835MHz FCC; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.52 MHz; σ = 1.01 mho/m; ε_r = 54.6; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.27, 6.27, 6.27); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Vertical Back EVDO 384/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.439 mW/g

Vertical Back EVDO 384/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.3 V/m; Power Drift = -0.144 dB
Peak SAR (extrapolated) = 0.648 W/kg
SAR(1 g) = 0.386 mW/g; SAR(10 g) = 0.236 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.421 mW/g



0 dB = 0.421mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Jun. 28, 2012
Separation Distance:	5 mm

DUT: UML295; Type: bar; Serial: #1

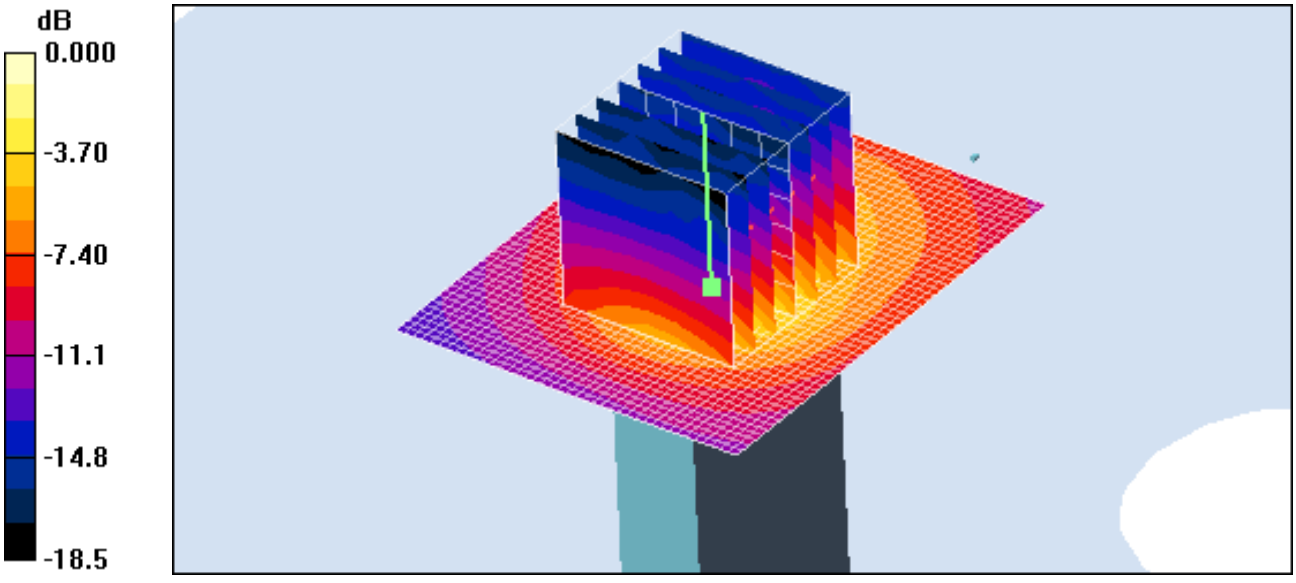
Communication System: CDMA 835MHz FCC; Frequency: 836.52 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.52 MHz; σ = 1.01 mho/m; ε_r = 54.6; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.27, 6.27, 6.27); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Body Top EVDO 384/Area Scan (41x51x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.348 mW/g

Body Top EVDO 384/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.2 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.04 W/kg
SAR(1 g) = 0.314 mW/g; SAR(10 g) = 0.132 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.337 mW/g



0 dB = 0.337mW/g

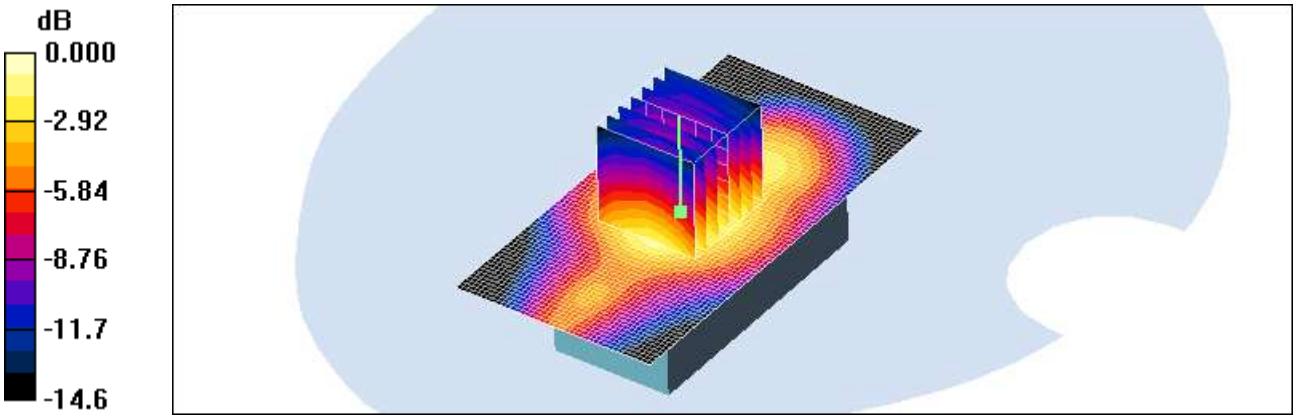
Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 1, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

Communication System: PCS 1900MHz FCC; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.5 mho/m; ε_r = 52.1; ρ = 1000 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Down EVDO 600/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.514 mW/g

Horizontal Down EVDO 600/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.2 V/m; Power Drift = -0.076 dB
Peak SAR (extrapolated) = 0.696 W/kg
SAR(1 g) = 0.483 mW/g; SAR(10 g) = 0.300 mW/g
Maximum value of SAR (measured) = 0.534 mW/g



0 dB = 0.534mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 1, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

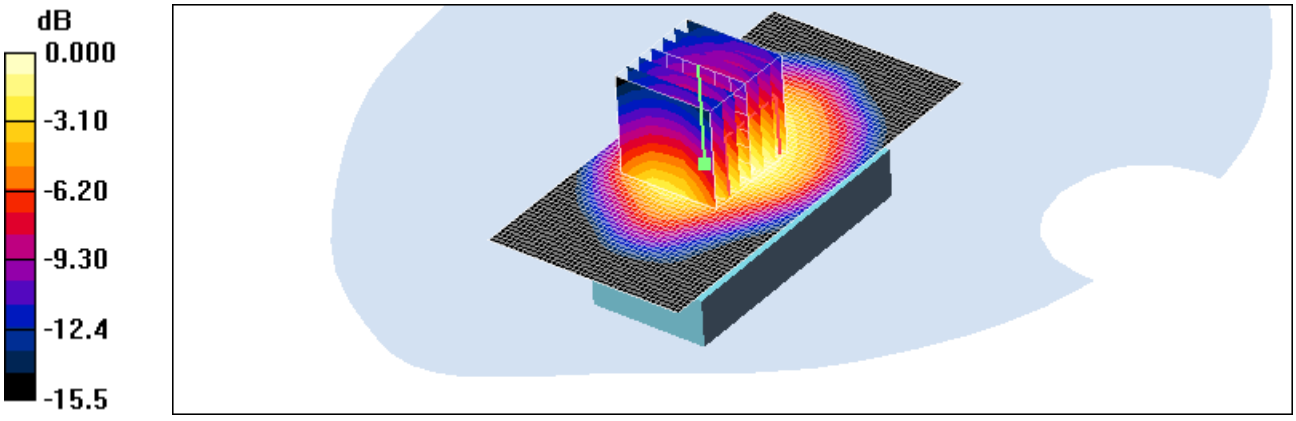
Communication System: PCS 1900MHz FCC; Frequency: 1851.25 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1851.25 MHz; σ = 1.47 mho/m; ε_r = 52.2; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Up EVDO 25/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 1.07 mW/g

Horizontal Up EVDO 25/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.9 V/m; Power Drift = -0.138 dB
Peak SAR (extrapolated) = 1.39 W/kg
SAR(1 g) = 1 mW/g; SAR(10 g) = 0.627 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.11 mW/g



0 dB = 1.11mW/g

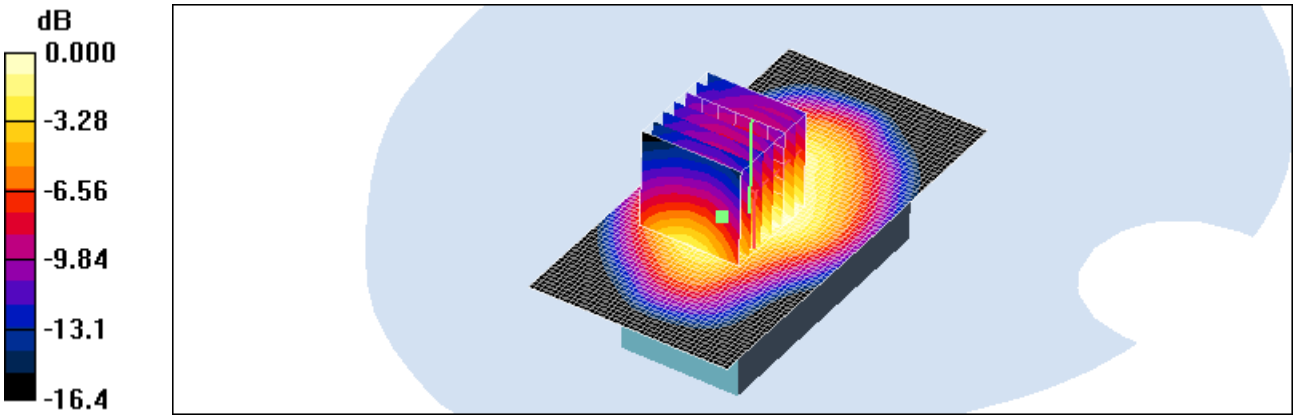
Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 1, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

Communication System: PCS 1900MHz FCC; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.5 mho/m; ε_r = 52.1; ρ = 1000 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Up EVDO 600/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.02 mW/g

Horizontal Up EVDO 600/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.2 V/m; Power Drift = -0.032 dB
Peak SAR (extrapolated) = 1.22 W/kg
SAR(1 g) = 0.866 mW/g; SAR(10 g) = 0.542 mW/g
Maximum value of SAR (measured) = 0.929 mW/g



0 dB = 0.929mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 1, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

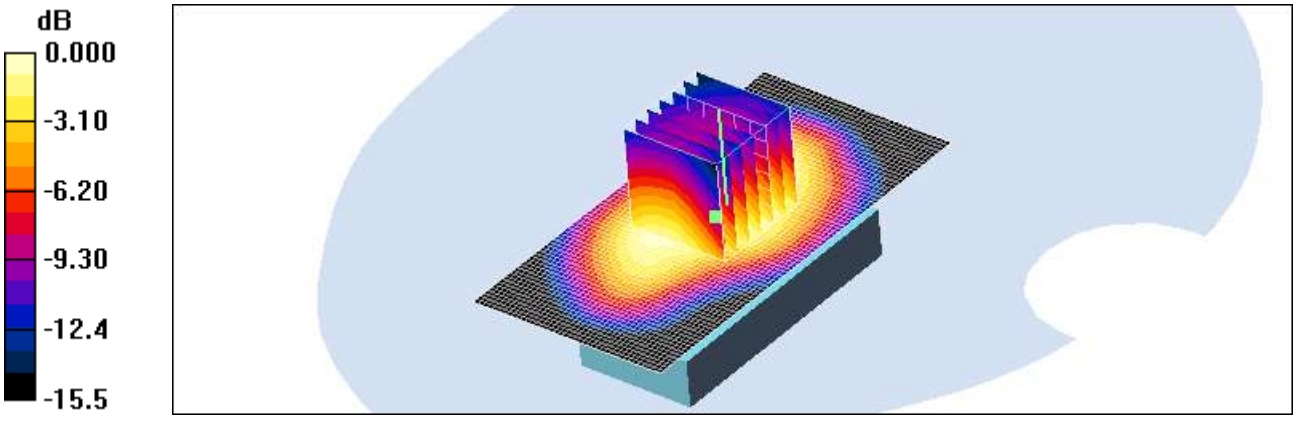
Communication System: PCS 1900MHz FCC; Frequency: 1908.75 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1908.75 MHz; σ = 1.54 mho/m; ε_r = 51.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Up EVDO 1175/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 1.09 mW/g

Horizontal Up EVDO 1175/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.6 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 1.40 W/kg
SAR(1 g) = 0.977 mW/g; SAR(10 g) = 0.621 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.07 mW/g



0 dB = 1.07mW/g

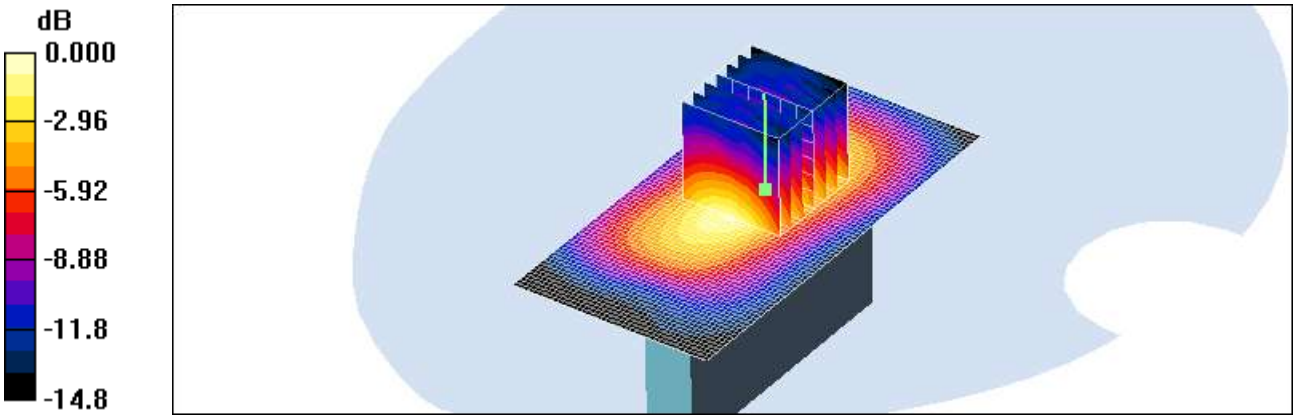
Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 1, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

Communication System: PCS 1900MHz FCC; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.5 mho/m; ε_r = 52.1; ρ = 1000 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Vertical Front EVDO 600/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.354 mW/g

Vertical Front EVDO 600/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.0 V/m; Power Drift = -0.048 dB
Peak SAR (extrapolated) = 0.536 W/kg
SAR(1 g) = 0.321 mW/g; SAR(10 g) = 0.183 mW/g
Maximum value of SAR (measured) = 0.356 mW/g



0 dB = 0.356mW/g

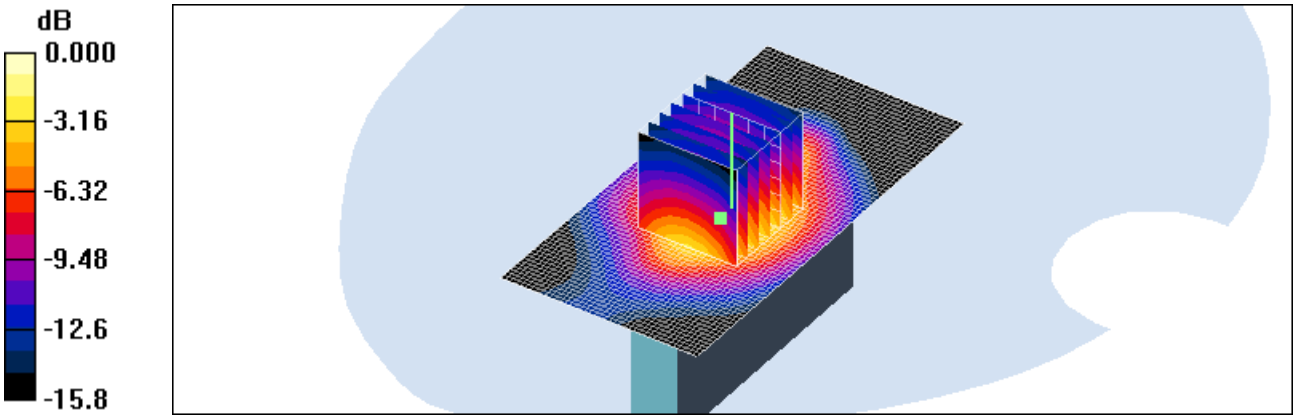
Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 1, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

Communication System: PCS 1900MHz FCC; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.5 mho/m; ε_r = 52.1; ρ = 1000 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Vertical Back EVDO 600/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.919 mW/g

Vertical Back EVDO 600/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.88 V/m; Power Drift = -0.042 dB
Peak SAR (extrapolated) = 1.28 W/kg
SAR(1 g) = 0.793 mW/g; SAR(10 g) = 0.444 mW/g
Maximum value of SAR (measured) = 0.881 mW/g



0 dB = 0.881mW/g

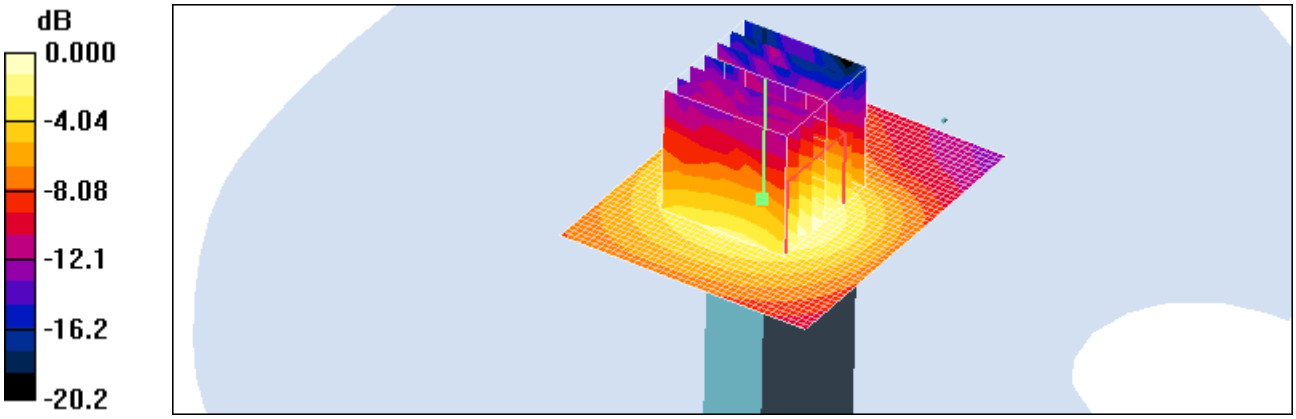
Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 1, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

Communication System: PCS 1900MHz FCC; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.5 mho/m; ε_r = 52.1; ρ = 1000 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Body Top EVDO 600/Area Scan (41x51x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.122 mW/g

Body Top EVDO 600/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.97 V/m; Power Drift = 0.081 dB
Peak SAR (extrapolated) = 0.218 W/kg
SAR(1 g) = 0.113 mW/g; SAR(10 g) = 0.062 mW/g
Maximum value of SAR (measured) = 0.122 mW/g



0 dB = 0.122mW/g

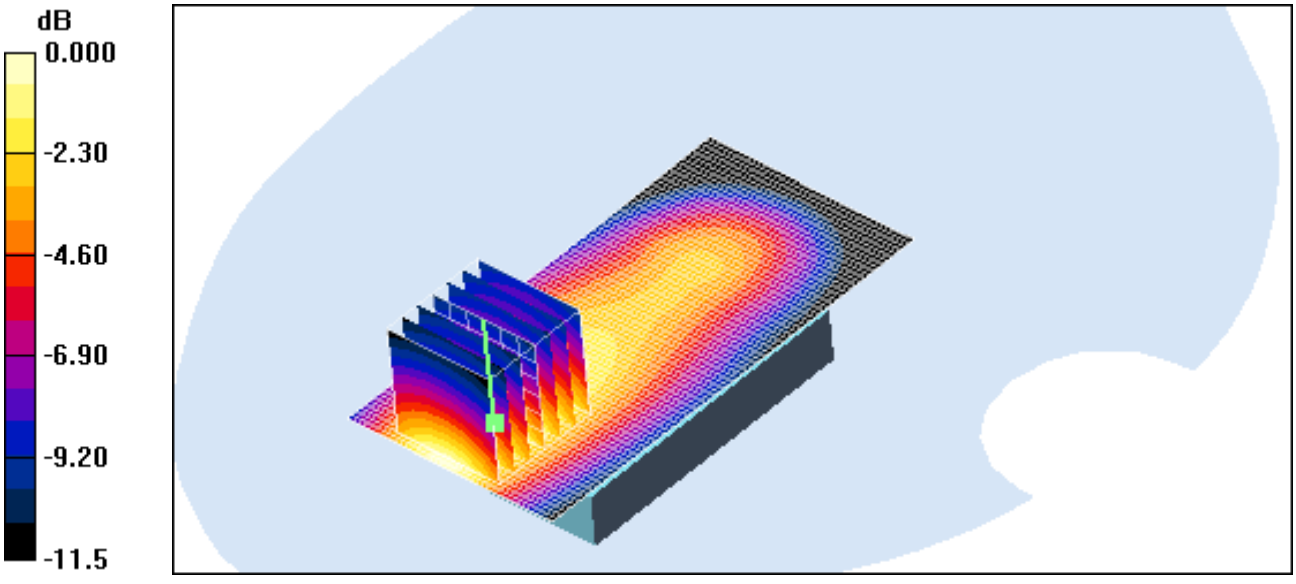
Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jun. 28, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

Communication System: GSM 850; Frequency: 824.2 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 825 MHz; σ = 0.996 mho/m; ε_r = 54.7; ρ = 1000 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(6.27, 6.27, 6.27); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Down 128 1TX/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.19 mW/g

Horizontal Down 128 1TX/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 23.1 V/m; Power Drift = -0.009 dB
Peak SAR (extrapolated) = 1.69 W/kg
SAR(1 g) = 1.11 mW/g; SAR(10 g) = 0.713 mW/g
Maximum value of SAR (measured) = 1.21 mW/g



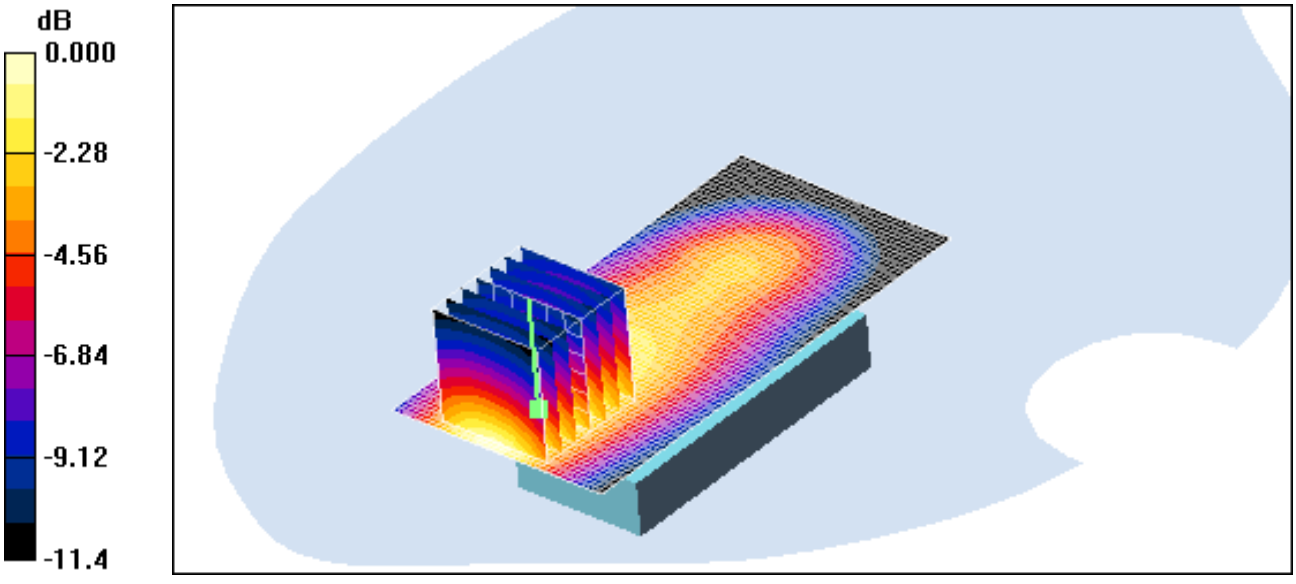
0 dB = 1.21mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jun. 28, 2012
Separation Distance: 5 mm

DUT: UML295; 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; σ = 1.01 mho/m; ε_r = 54.6; ρ = 1000 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(6.27, 6.27, 6.27); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Down 190 1TX/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 1.23 mW/g
Horizontal Down 190 1TX/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 23.2 V/m; Power Drift = -0.020 dB
Peak SAR (extrapolated) = 1.71 W/kg
SAR(1 g) = 1.13 mW/g; SAR(10 g) = 0.728 mW/g
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.23 mW/g



0 dB = 1.23mW/g

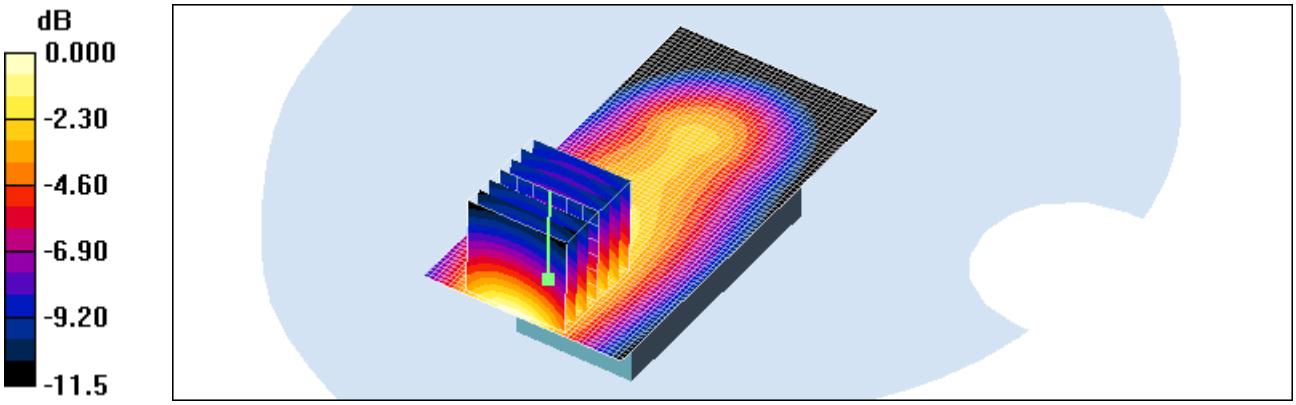
Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jun. 28, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

Communication System: GSM 850; Frequency: 848.8 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 848.8 MHz; σ = 1.03 mho/m; ε_r = 54.4; ρ = 1000 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(6.27, 6.27, 6.27); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Down 251 1TX/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.26 mW/g

Horizontal Down 251 1TX/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 22.1 V/m; Power Drift = -0.006 dB
Peak SAR (extrapolated) = 1.76 W/kg
SAR(1 g) = 1.16 mW/g; SAR(10 g) = 0.748 mW/g
Maximum value of SAR (measured) = 1.27 mW/g



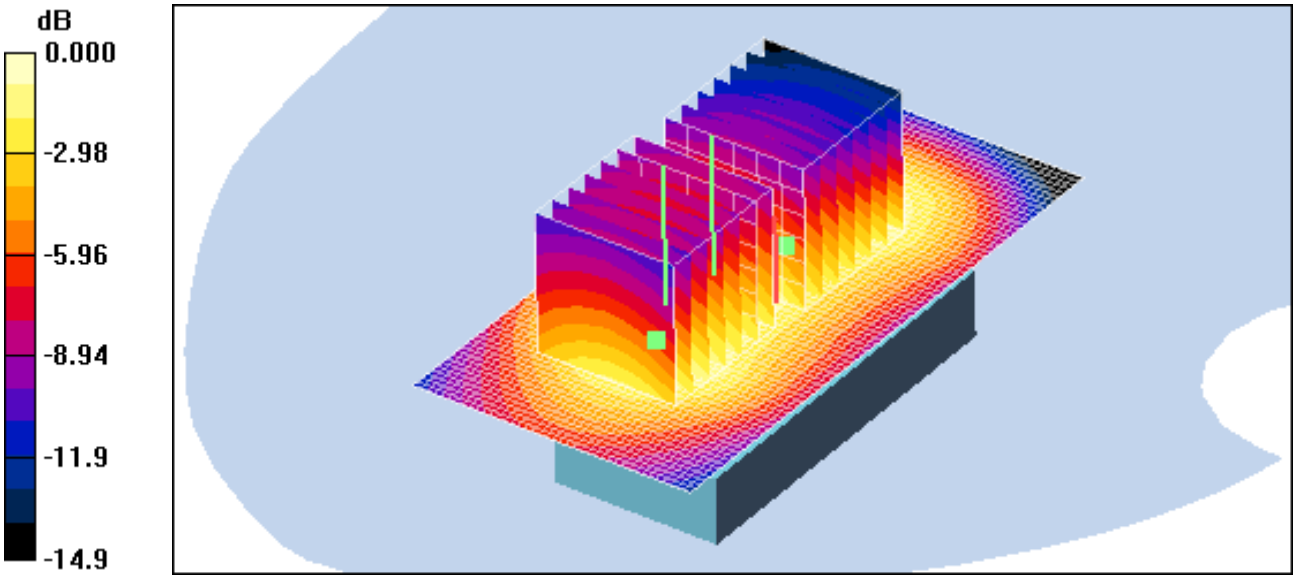
0 dB = 1.27mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jun. 28, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

Communication System: GSM 850; Frequency: 824.2 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 825 MHz; σ = 0.996 mho/m; ε_r = 54.7; ρ = 1000 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(6.27, 6.27, 6.27); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Up 128 1TX/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.935 mW/g
Horizontal Up 128 1TX/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 25.2 V/m; Power Drift = -0.006 dB
Peak SAR (extrapolated) = 1.23 W/kg
SAR(1 g) = 0.833 mW/g; SAR(10 g) = 0.553 mW/g
Maximum value of SAR (measured) = 0.892 mW/g
Horizontal Up 128 1TX/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 25.2 V/m; Power Drift = -0.006 dB
Peak SAR (extrapolated) = 1.26 W/kg
SAR(1 g) = 0.767 mW/g; SAR(10 g) = 0.503 mW/g
Maximum value of SAR (measured) = 0.838 mW/g



0 dB = 0.838mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jun. 28, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

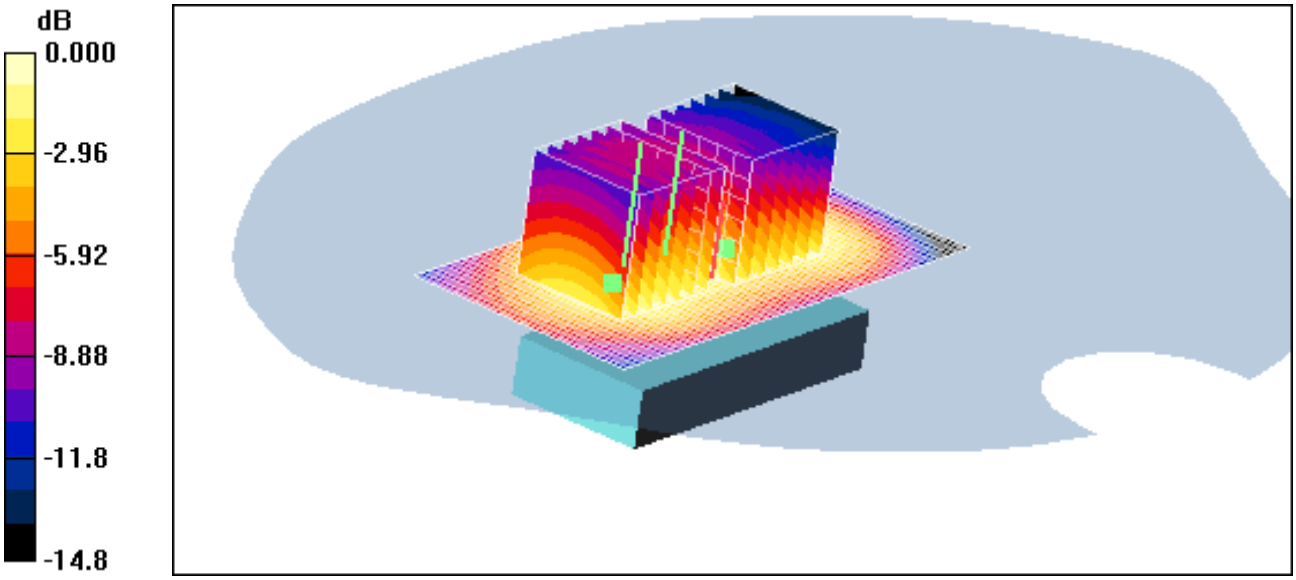
Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.01 mho/m; ε_r = 54.6; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.27, 6.27, 6.27); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Up 190 1TX/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.948 mW/g
Horizontal Up 190 1TX/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 25.3 V/m; Power Drift = -0.001 dB
Peak SAR (extrapolated) = 1.25 W/kg
SAR(1 g) = 0.847 mW/g; SAR(10 g) = 0.563 mW/g

Maximum value of SAR (measured) = 0.912 mW/g
Horizontal Up 190 1TX/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 25.3 V/m; Power Drift = -0.001 dB
Peak SAR (extrapolated) = 1.29 W/kg
SAR(1 g) = 0.782 mW/g; SAR(10 g) = 0.512 mW/g

Maximum value of SAR (measured) = 0.855 mW/g



0 dB = 0.855mW/g

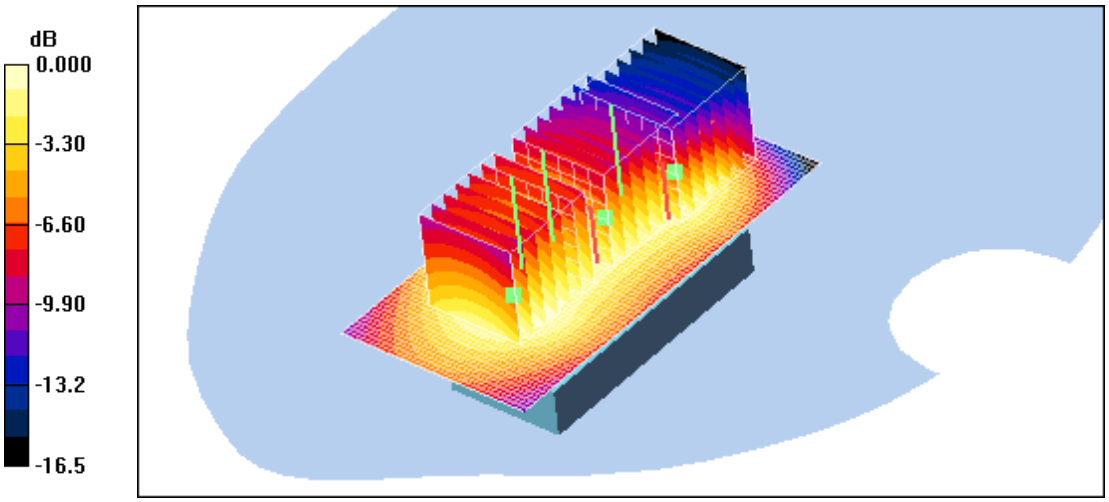
Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jun. 28, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

Communication System: GSM 850; Frequency: 849.8 MHz;Duty Cycle: 1:2.075
Medium parameters used: f = 850 MHz; σ = 1.03 mho/m; ε_r = 54.4; ρ = 1000 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(6.27, 6.27, 6.27); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Up 251 1TX/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.806 mW/g
Horizontal Up 251 1TX/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.0 V/m; Power Drift = -0.013 dB
Peak SAR (extrapolated) = 0.976 W/kg
SAR(1 g) = 0.717 mW/g; SAR(10 g) = 0.498 mW/g
Maximum value of SAR (measured) = 0.772 mW/g

Horizontal Up 251 1TX/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.0 V/m; Power Drift = -0.013 dB
Peak SAR (extrapolated) = 0.990 W/kg
SAR(1 g) = 0.653 mW/g; SAR(10 g) = 0.443 mW/g
Maximum value of SAR (measured) = 0.705 mW/g
Horizontal Up 251 1TX/Zoom Scan (7x7x7)/Cube 2: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.0 V/m; Power Drift = -0.013 dB
Peak SAR (extrapolated) = 1.01 W/kg
SAR(1 g) = 0.574 mW/g; SAR(10 g) = 0.340 mW/g.
Maximum value of SAR (measured) = 0.670 mW/g



0 dB = 0.670mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jun. 28, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

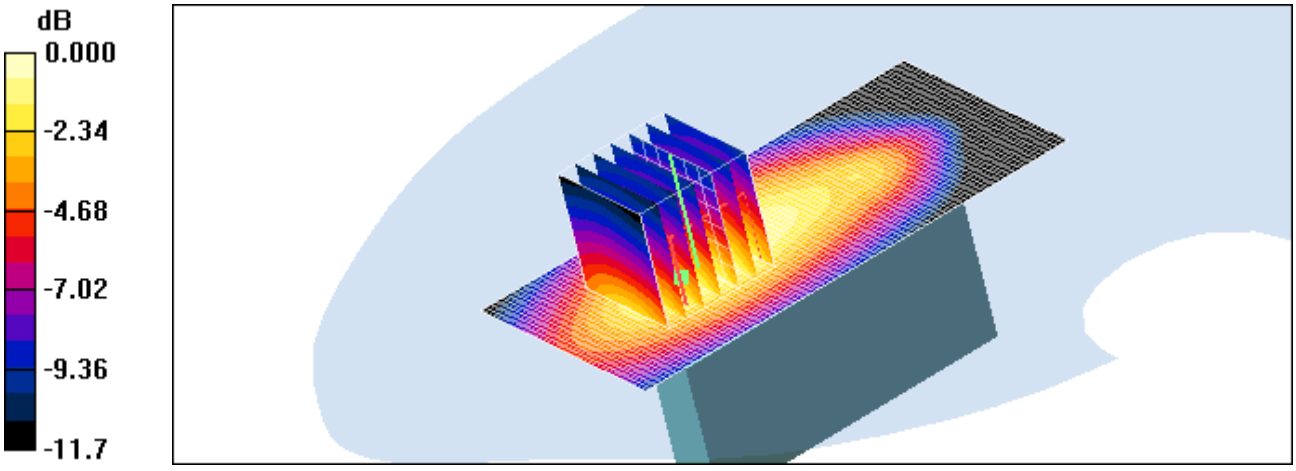
Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.01 mho/m; ε_r = 54.6; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.27, 6.27, 6.27); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Vertical Front 190 1TX/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.819 mW/g

Vertical Front 190 1TX/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.7 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 1.14 W/kg
SAR(1 g) = 0.763 mW/g; SAR(10 g) = 0.486 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.821 mW/g



0 dB = 0.821mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jun. 28, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

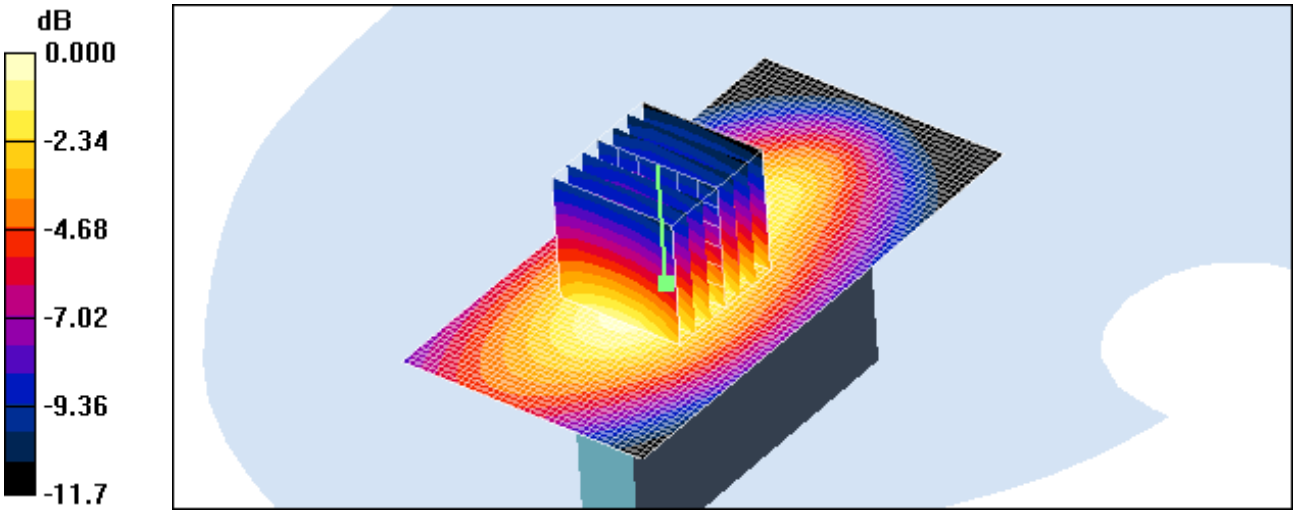
Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.01 mho/m; ε_r = 54.6; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.27, 6.27, 6.27); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Vertical Back 190 1TX/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.573 mW/g

Vertical Back 190 1TX/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.2 V/m; Power Drift = -0.062 dB
Peak SAR (extrapolated) = 0.814 W/kg
SAR(1 g) = 0.520 mW/g; SAR(10 g) = 0.329 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.566 mW/g



0 dB = 0.566mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Jun. 28, 2012
Separation Distance:	5 mm

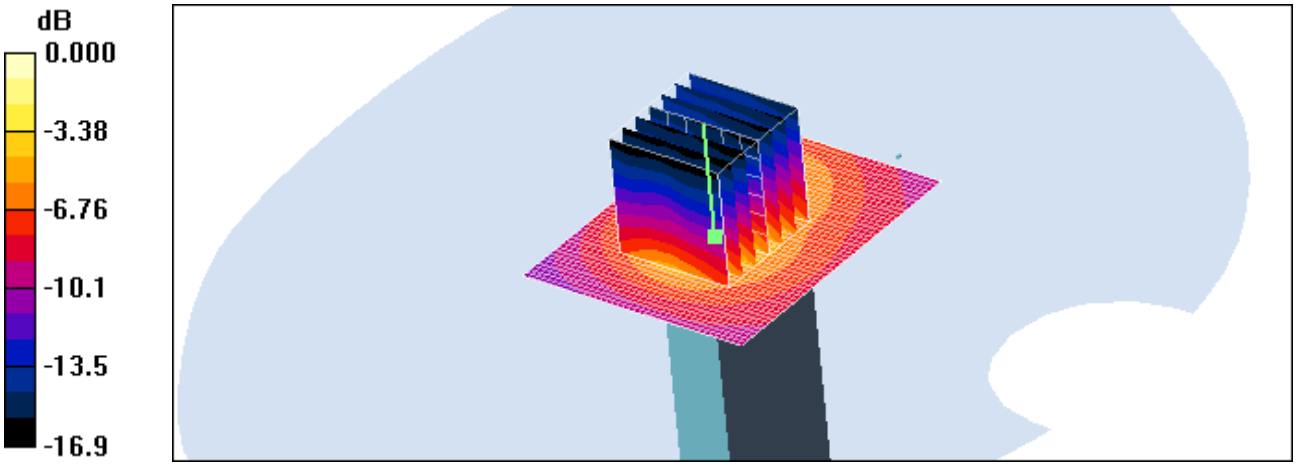
DUT: UML295; Type: bar; Serial: #1
Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.01 mho/m; ε_r = 54.6; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.27, 6.27, 6.27); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Body Top 190 1TX/Area Scan (41x51x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.344 mW/g

Body Top 190 1TX/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.2 V/m; Power Drift = -0.086 dB
Peak SAR (extrapolated) = 1.07 W/kg
SAR(1 g) = 0.312 mW/g; SAR(10 g) = 0.130 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.329 mW/g



0 dB = 0.329mW/g

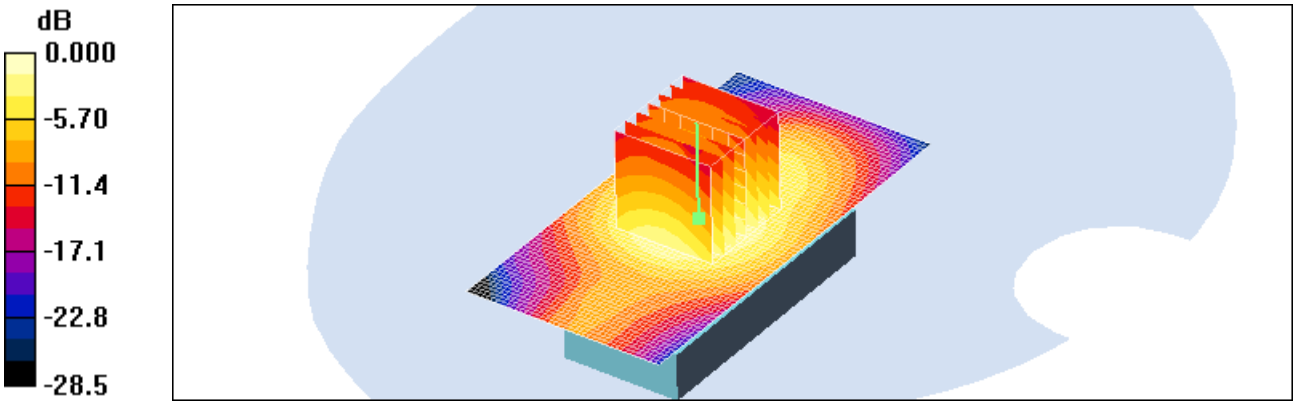
Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 1, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

Communication System: GSM1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.5 mho/m; ε_r = 52.1; ρ = 1000 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Down 661 1TX/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.552 mW/g

Horizontal Down 661 1TX/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.4 V/m; Power Drift = 0.041 dB
Peak SAR (extrapolated) = 0.755 W/kg
SAR(1 g) = 0.506 mW/g; SAR(10 g) = 0.305 mW/g
Maximum value of SAR (measured) = 0.556 mW/g



0 dB = 0.556mW/g

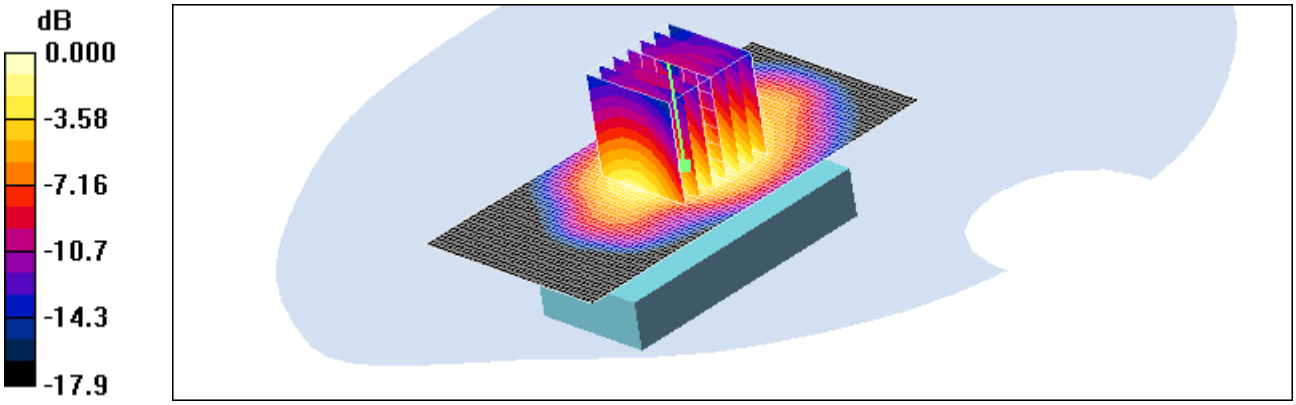
Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 1, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

Communication System: GSM1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.5 mho/m; ε_r = 52.1; ρ = 1000 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Up 661 1TX/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.875 mW/g

Horizontal Up 661 1TX/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.2 V/m; Power Drift = 0.031 dB
Peak SAR (extrapolated) = 1.15 W/kg
SAR(1 g) = 0.778 mW/g; SAR(10 g) = 0.471 mW/g
Maximum value of SAR (measured) = 0.853 mW/g



0 dB = 0.853mW/g

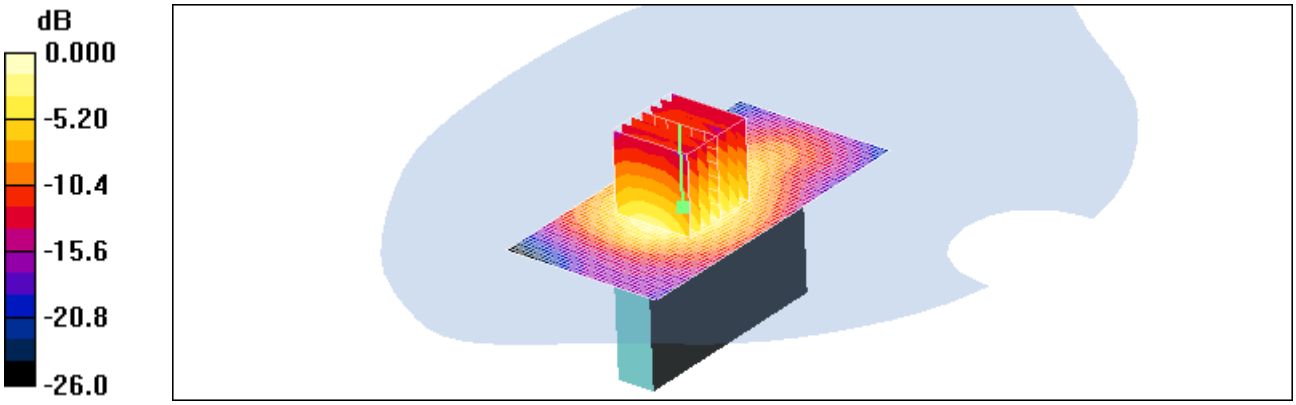
Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 1, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

Communication System: GSM1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.5 mho/m; ε_r = 52.1; ρ = 1000 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Vertical Front 661 1TX/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.421 mW/g

Vertical Front 661 1TX/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.29 V/m; Power Drift = 0.130 dB
Peak SAR (extrapolated) = 0.612 W/kg
SAR(1 g) = 0.363 mW/g; SAR(10 g) = 0.204 mW/g
Maximum value of SAR (measured) = 0.403 mW/g



0 dB = 0.403mW/g

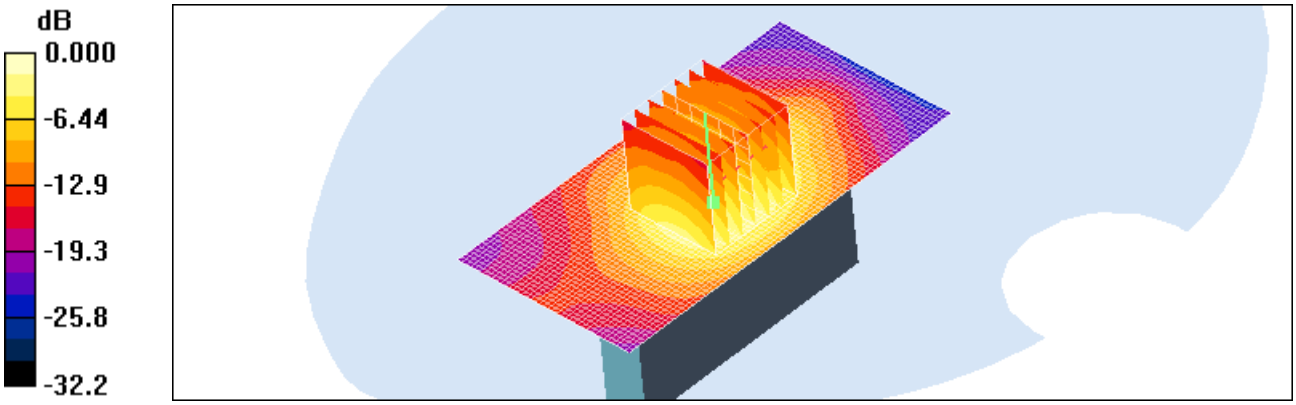
Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 1, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

Communication System: GSM1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.5 mho/m; ε_r = 52.1; ρ = 1000 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Vertical Back 661 1TX/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.556 mW/g

Vertical Back 661 1TX/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.52 V/m; Power Drift = -0.085 dB
Peak SAR (extrapolated) = 0.841 W/kg
SAR(1 g) = 0.443 mW/g; SAR(10 g) = 0.236 mW/g
Maximum value of SAR (measured) = 0.546 mW/g



0 dB = 0.546mW/g

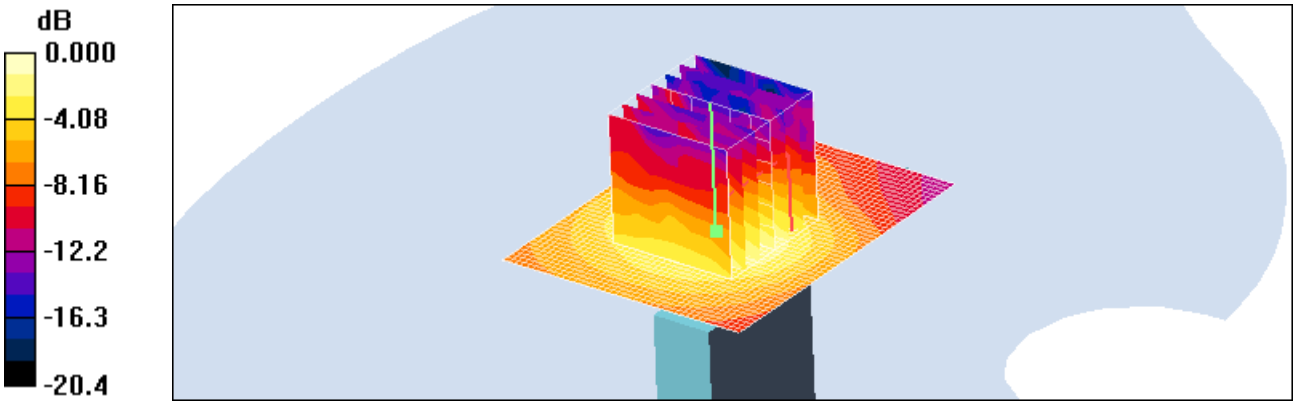
Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 1, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

Communication System: GSM1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.5 mho/m; ε_r = 52.1; ρ = 1000 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Body Top 661 1TX/Area Scan (41x51x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.067 mW/g

Body Top 661 1TX/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.49 V/m; Power Drift = 0.094 dB
Peak SAR (extrapolated) = 0.133 W/kg
SAR(1 g) = 0.063 mW/g; SAR(10 g) = 0.035 mW/g
Maximum value of SAR (measured) = 0.071 mW/g



0 dB = 0.071mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Jun. 28, 2012
Separation Distance:	5 mm

DUT: UML295; Type: bar; Serial: #1

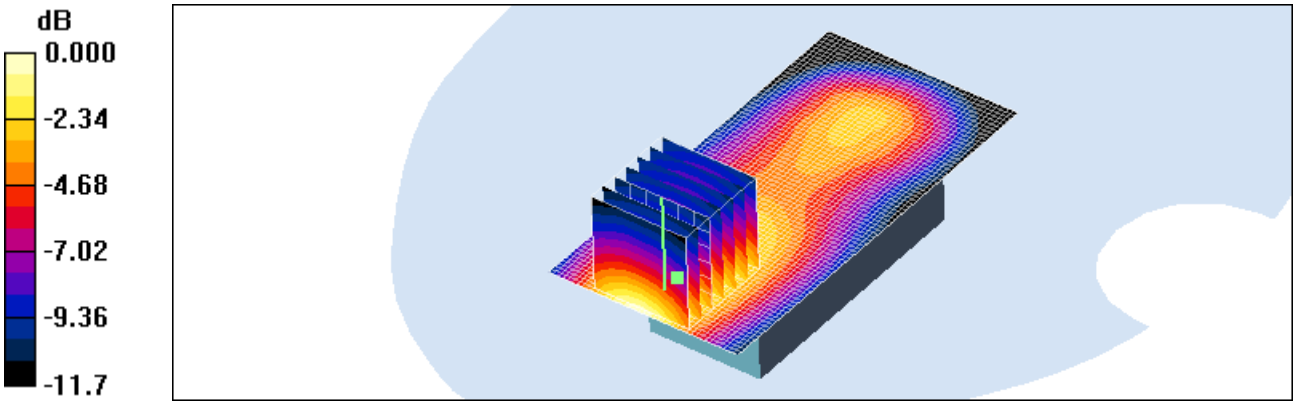
Communication System: WCDMA850; Frequency: 826.4 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.997 mho/m; ε_r = 54.7; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.27, 6.27, 6.27); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Down 4132/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.788 mW/g

Horizontal Down 4132/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 22.4 V/m; Power Drift = 0.032 dB
Peak SAR (extrapolated) = 1.13 W/kg
SAR(1 g) = 0.728 mW/g; SAR(10 g) = 0.460 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.802 mW/g



0 dB = 0.802mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Jun. 28, 2012
Separation Distance:	5 mm

DUT: UML295; Type: bar; Serial: #1

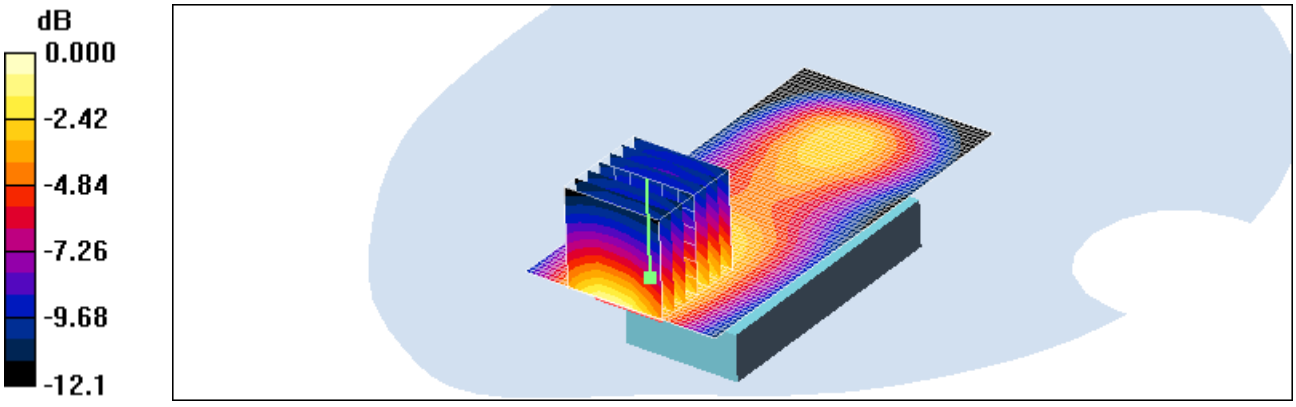
Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.01 mho/m; ε_r = 54.6; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.27, 6.27, 6.27); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Down 4183/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.924 mW/g

Horizontal Down 4183/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 25.4 V/m; Power Drift = -0.116 dB
Peak SAR (extrapolated) = 1.33 W/kg
SAR(1 g) = 0.858 mW/g; SAR(10 g) = 0.532 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.949 mW/g



0 dB = 0.949mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jun. 28, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

Communication System: WCDMA850; Frequency: 846.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 846.6 MHz; σ = 1.02 mho/m; ε_r = 54.5; ρ = 1000 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(6.27, 6.27, 6.27); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Down 4233/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.819 mW/g

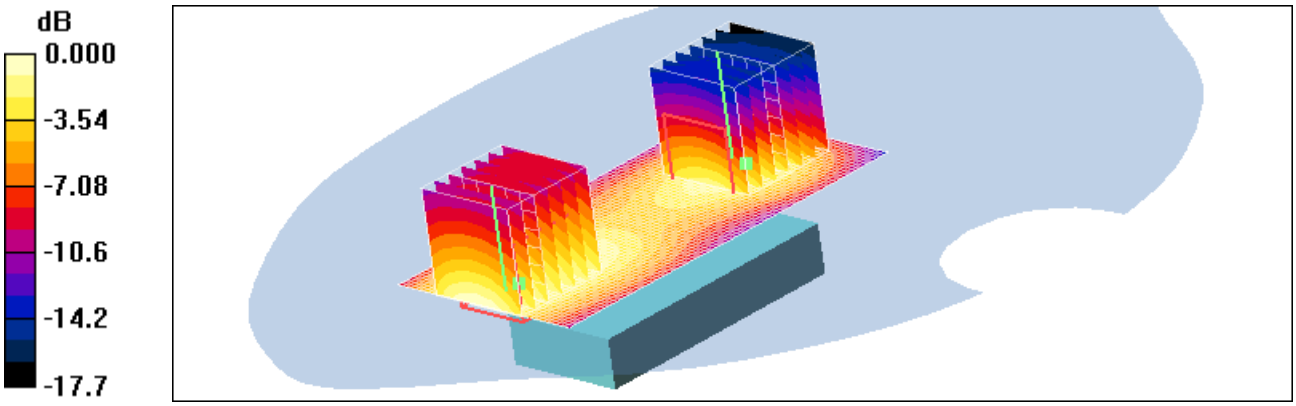
Horizontal Down 4233/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 26.4 V/m; Power Drift = -0.015 dB
Peak SAR (extrapolated) = 1.20 W/kg
SAR(1 g) = 0.763 mW/g; SAR(10 g) = 0.473 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.843 mW/g

Horizontal Down 4233/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 26.4 V/m; Power Drift = -0.015 dB
Peak SAR (extrapolated) = 1.73 W/kg
SAR(1 g) = 0.627 mW/g; SAR(10 g) = 0.313 mW/g

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.704 mW/g



0 dB = 0.704mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jun. 28, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.01 mho/m; ε_r = 54.6; ρ = 1000 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(6.27, 6.27, 6.27); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Up 4183/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

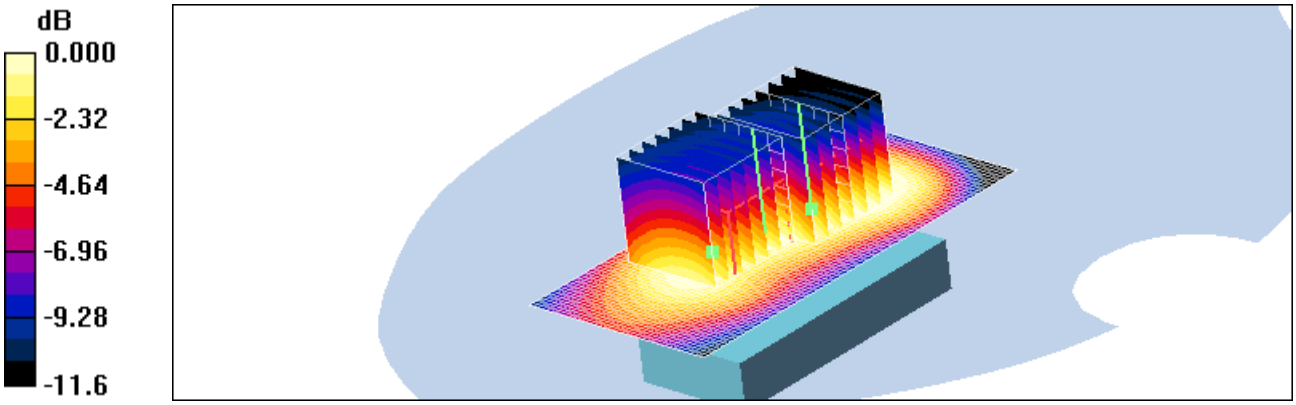
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.773 mW/g

Horizontal Up 4183/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 27.2 V/m; Power Drift = -0.035 dB
Peak SAR (extrapolated) = 1.23 W/kg
SAR(1 g) = 0.706 mW/g; SAR(10 g) = 0.421 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.763 mW/g

Horizontal Up 4183/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 27.2 V/m; Power Drift = -0.035 dB
Peak SAR (extrapolated) = 0.773 W/kg
SAR(1 g) = 0.503 mW/g; SAR(10 g) = 0.329 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.567 mW/g



0 dB = 0.567mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jun. 28, 2012
Separation Distance: 5 mm

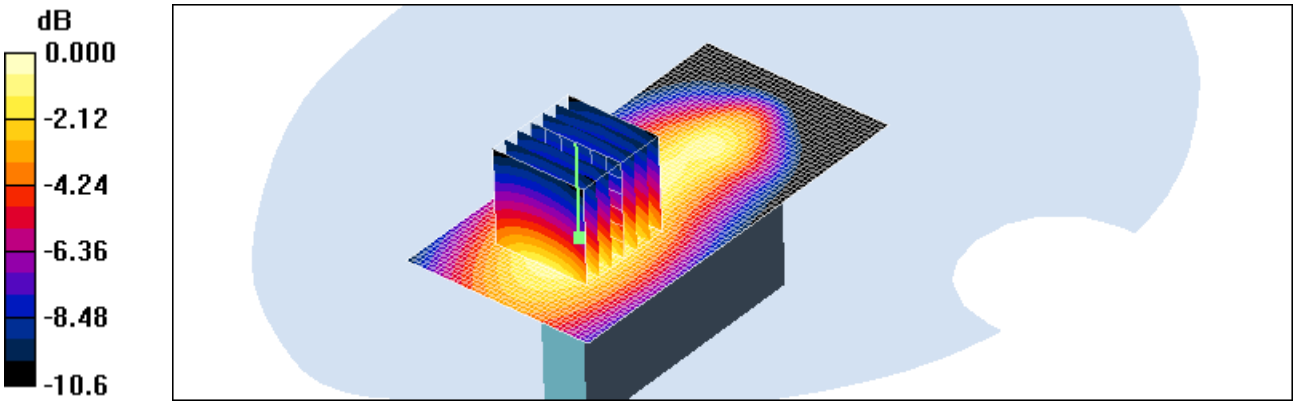
DUT: UML295; Type: bar; Serial: #1
Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.01 mho/m; ε_r = 54.6; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.27, 6.27, 6.27); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Vertical Front 4183/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.501 mW/g

Vertical Front 4183/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.3 V/m; Power Drift = -0.078 dB
Peak SAR (extrapolated) = 0.640 W/kg
SAR(1 g) = 0.430 mW/g; SAR(10 g) = 0.278 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.466 mW/g



0 dB = 0.466mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jun. 28, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

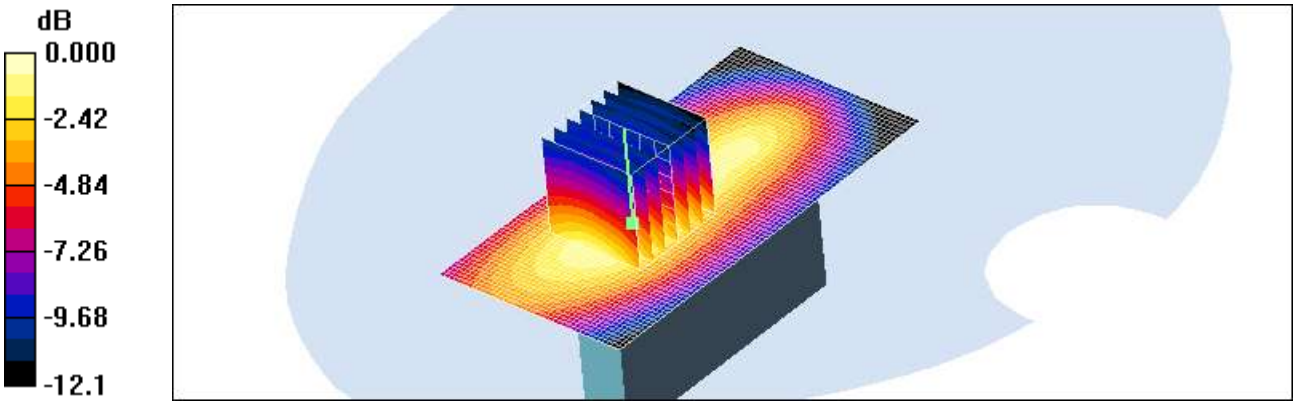
Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.01 mho/m; ε_r = 54.6; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.27, 6.27, 6.27); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Vertical Back 4183/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.387 mW/g

Vertical Back 4183/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.9 V/m; Power Drift = -0.186 dB
Peak SAR (extrapolated) = 0.603 W/kg
SAR(1 g) = 0.360 mW/g; SAR(10 g) = 0.219 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.401 mW/g



0 dB = 0.401mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jun. 28, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

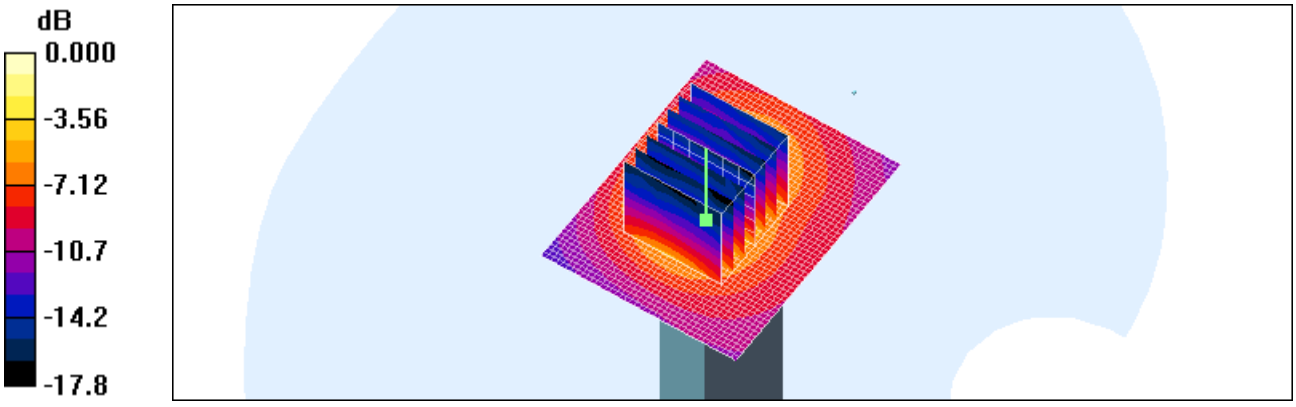
Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.01 mho/m; ε_r = 54.6; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.27, 6.27, 6.27); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Body Top 4183/Area Scan (41x51x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.269 mW/g

Body Top 4183/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.6 V/m; Power Drift = 0.069 dB
Peak SAR (extrapolated) = 0.877 W/kg
SAR(1 g) = 0.254 mW/g; SAR(10 g) = 0.105 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.264 mW/g



0 dB = 0.264mW/g

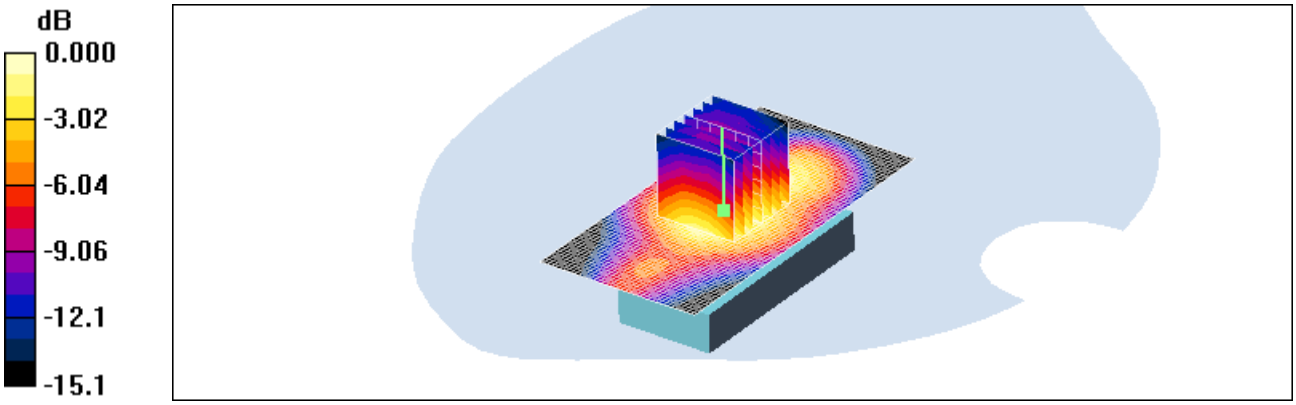
Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 1, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

Communication System: WCDMA1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.5 mho/m; ε_r = 52.1; ρ = 1000 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Down 9400/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.542 mW/g

Horizontal Down 9400/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.3 V/m; Power Drift = -0.055 dB
Peak SAR (extrapolated) = 0.685 W/kg
SAR(1 g) = 0.483 mW/g; SAR(10 g) = 0.303 mW/g
Maximum value of SAR (measured) = 0.533 mW/g



0 dB = 0.533mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 1, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

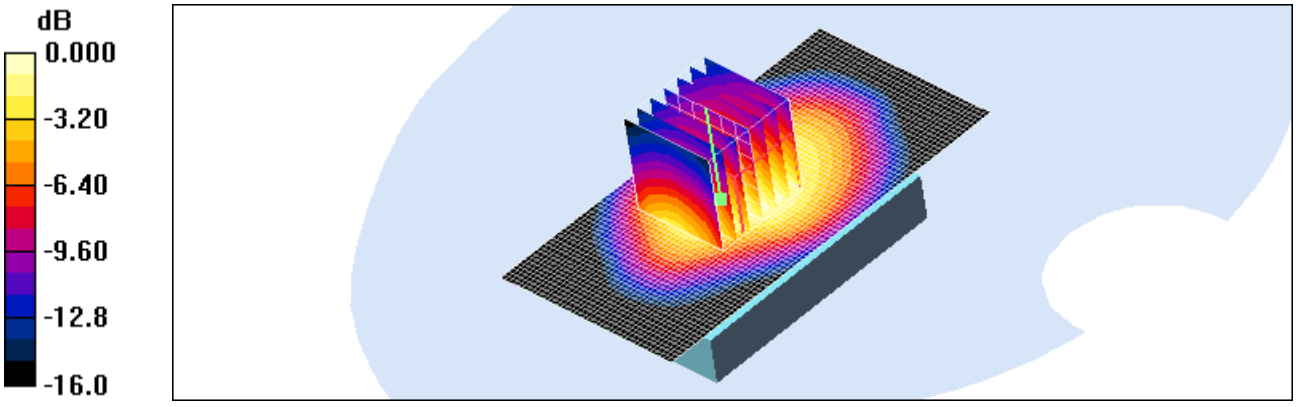
Communication System: WCDMA1900; Frequency: 1852.4 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.47 mho/m; ε_r = 52.2; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Up 9262/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 1.09 mW/g

Horizontal Up 9262/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.4 V/m; Power Drift = -0.018 dB
Peak SAR (extrapolated) = 1.36 W/kg
SAR(1 g) = 0.974 mW/g; SAR(10 g) = 0.615 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.06 mW/g



0 dB = 1.06mW/g

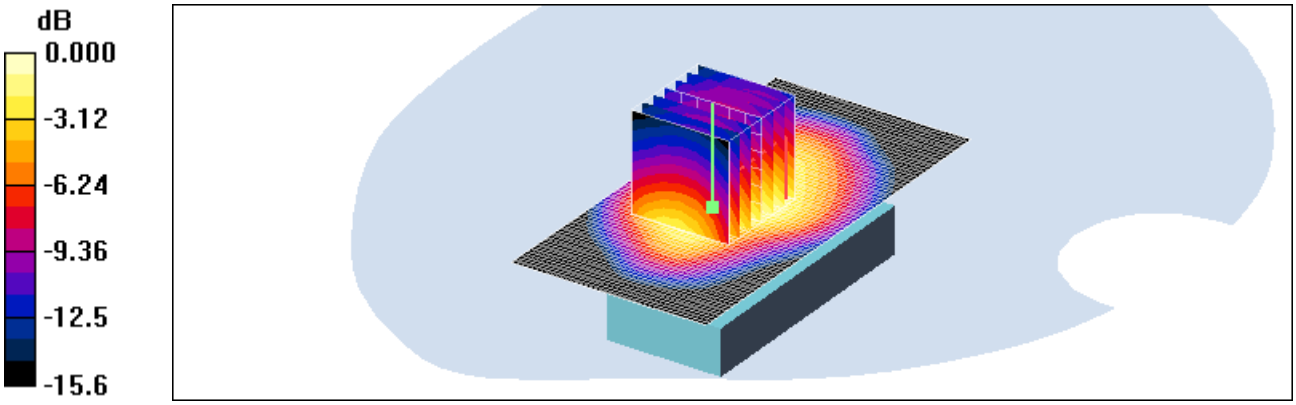
Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 1, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

Communication System: WCDMA1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.5 mho/m; ε_r = 52.1; ρ = 1000 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Up 9400/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.958 mW/g

Horizontal Up 9400/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.7 V/m; Power Drift = 0.066 dB
Peak SAR (extrapolated) = 1.19 W/kg
SAR(1 g) = 0.837 mW/g; SAR(10 g) = 0.524 mW/g
Maximum value of SAR (measured) = 0.901 mW/g



0 dB = 0.901mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 1, 2012
Separation Distance: 5 mm

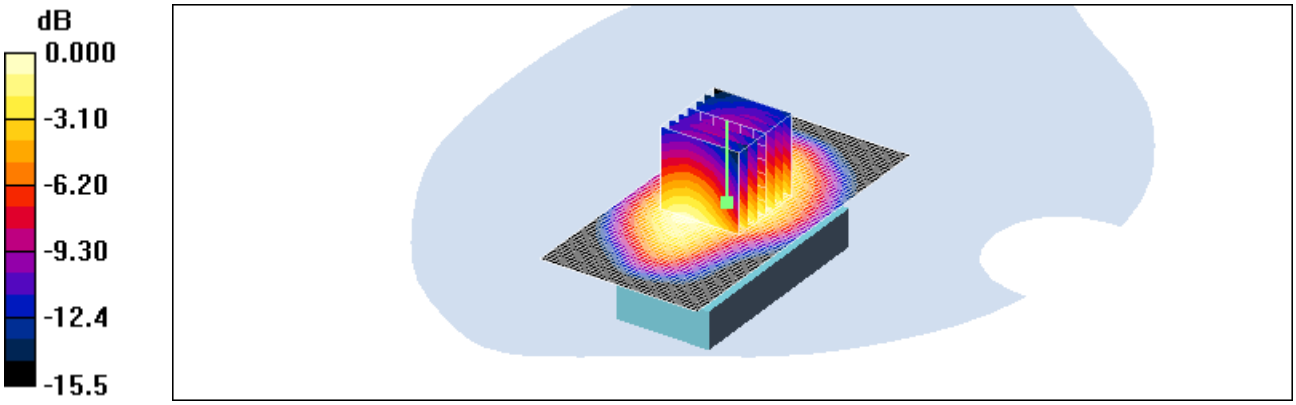
DUT: UML295; Type: bar; Serial: #1
Communication System: WCDMA1900; Frequency: 1907.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1907.6 MHz; σ = 1.54 mho/m; ε_r = 51.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Up 9538/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.850 mW/g

Horizontal Up 9538/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.5 V/m; Power Drift = -0.108 dB
Peak SAR (extrapolated) = 1.09 W/kg
SAR(1 g) = 0.762 mW/g; SAR(10 g) = 0.484 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.820 mW/g



0 dB = 0.820mW/g

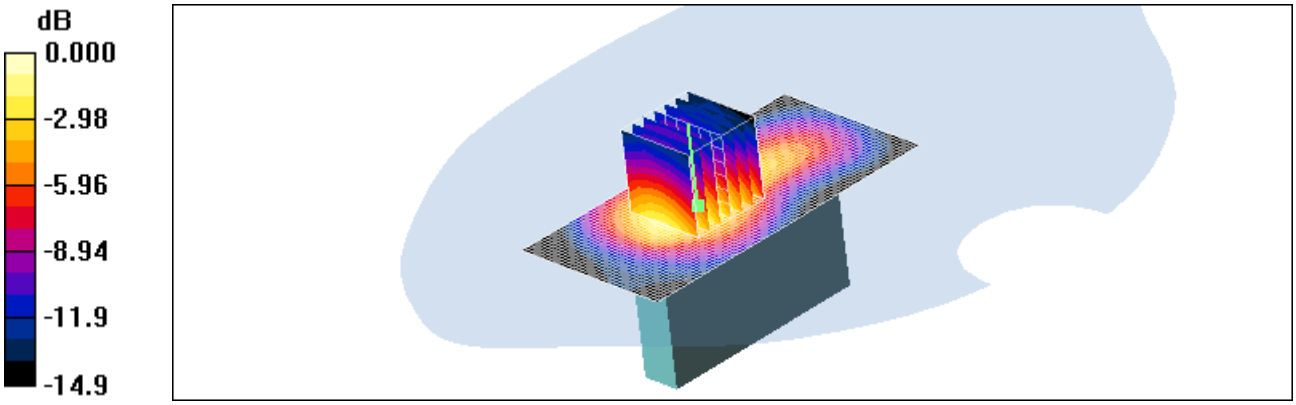
Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 1, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

Communication System: WCDMA1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.5 mho/m; ε_r = 52.1; ρ = 1000 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Vertical Front 9400/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.321 mW/g

Vertical Front 9400/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.97 V/m; Power Drift = -0.017 dB
Peak SAR (extrapolated) = 0.493 W/kg
SAR(1 g) = 0.287 mW/g; SAR(10 g) = 0.168 mW/g
Maximum value of SAR (measured) = 0.329 mW/g



0 dB = 0.329mW/g

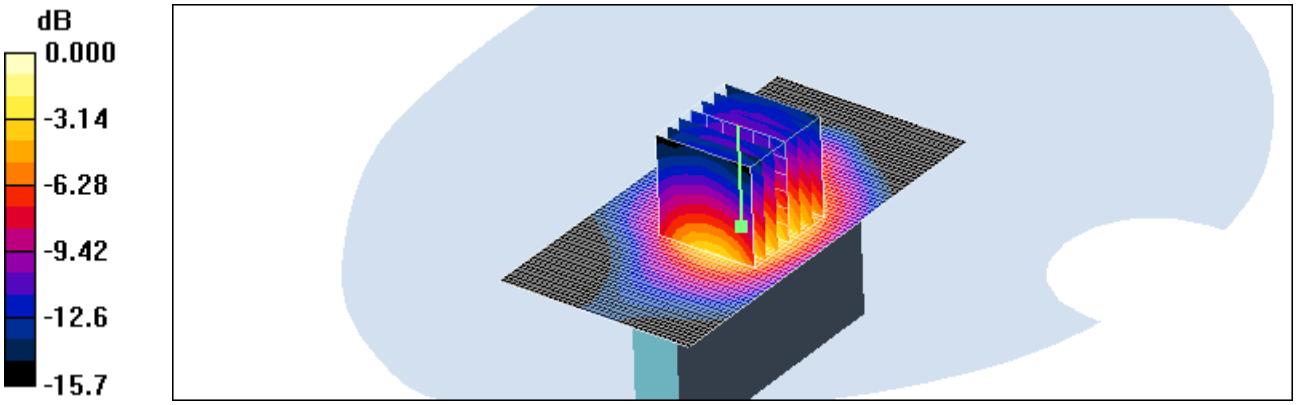
Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 1, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

Communication System: WCDMA1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.5 mho/m; ε_r = 52.1; ρ = 1000 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Vertical Back 9400/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.647 mW/g

Vertical Back 9400/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.02 V/m; Power Drift = -0.130 dB
Peak SAR (extrapolated) = 0.904 W/kg
SAR(1 g) = 0.562 mW/g; SAR(10 g) = 0.317 mW/g
Maximum value of SAR (measured) = 0.637 mW/g



0 dB = 0.637mW/g

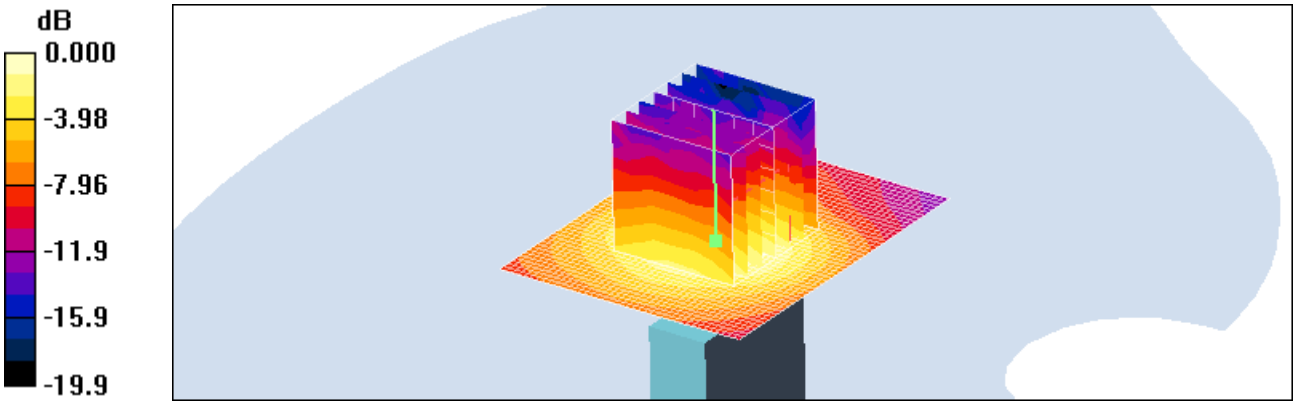
Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 1, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

Communication System: WCDMA1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.5 mho/m; ε_r = 52.1; ρ = 1000 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Body Top 9400/Area Scan (41x51x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.120 mW/g

Body Top 9400/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.92 V/m; Power Drift = 0.157 dB
Peak SAR (extrapolated) = 0.208 W/kg
SAR(1 g) = 0.105 mW/g; SAR(10 g) = 0.058 mW/g
Maximum value of SAR (measured) = 0.114 mW/g



0 dB = 0.114mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 5, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

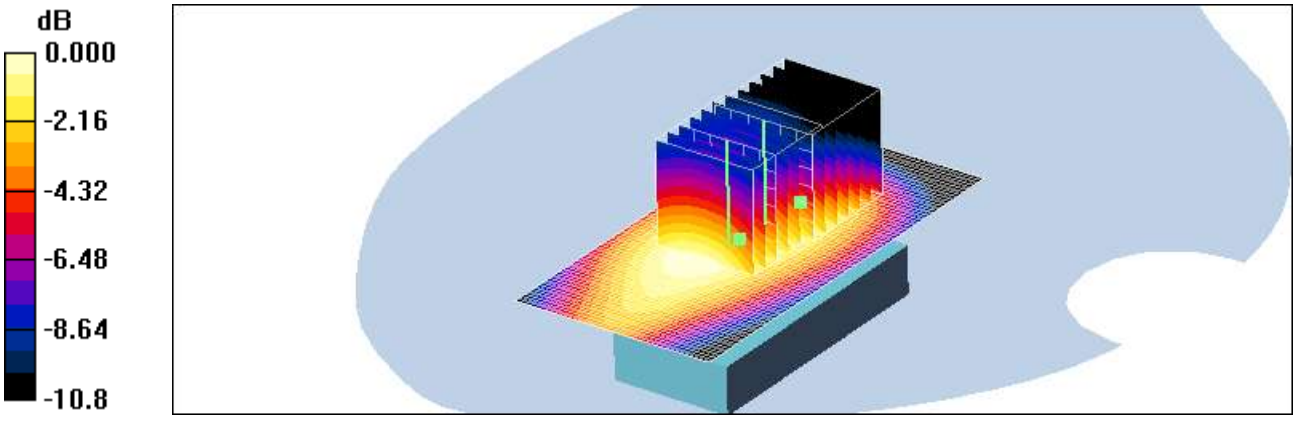
Communication System: LTE; Frequency: 782 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 782 MHz; σ = 1.02 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.36, 6.36, 6.36); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Down QPSK 10MHz 25RB 12 offset 23230/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.740 mW/g

Horizontal Down QPSK 10MHz 25RB 12 offset 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 20.1 V/m; Power Drift = -0.062 dB
Peak SAR (extrapolated) = 1.16 W/kg
SAR(1 g) = 0.611 mW/g; SAR(10 g) = 0.387 mW/g
Maximum value of SAR (measured) = 0.675 mW/g

Horizontal Down QPSK 10MHz 25RB 12 offset 23230/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 20.1 V/m; Power Drift = -0.062 dB
Peak SAR (extrapolated) = 0.875 W/kg
SAR(1 g) = 0.638 mW/g; SAR(10 g) = 0.439 mW/g
Maximum value of SAR (measured) = 0.687 mW/g



0 dB = 0.687mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Jul. 5, 2012
Separation Distance:	5 mm

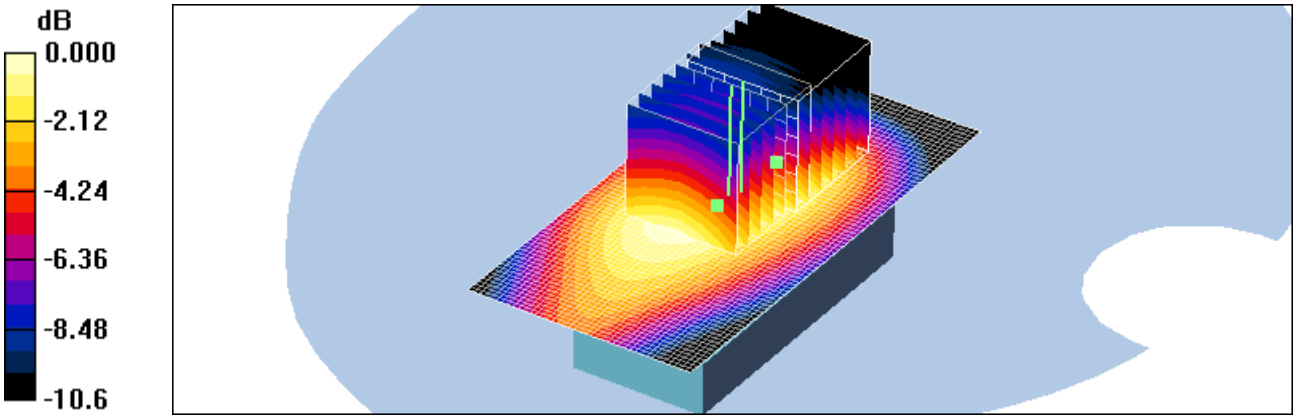
DUT: UML295; Type: bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 782 MHz; σ = 1.02 mho/m; ε_r = 54.9; ρ = 1000 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(6.36, 6.36, 6.36); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Down QPSK 10MHz 1RB 0 offset 23230/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.07 mW/g

Horizontal Down QPSK 10MHz 1RB 0 offset 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.6 V/m; Power Drift = -0.099 dB
Peak SAR (extrapolated) = 1.77 W/kg
SAR(1 g) = 0.901 mW/g; SAR(10 g) = 0.582 mW/g
Maximum value of SAR (measured) = 0.987 mW/g

Horizontal Down QPSK 10MHz 1RB 0 offset 23230/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.6 V/m; Power Drift = -0.099 dB
Peak SAR (extrapolated) = 1.27 W/kg
SAR(1 g) = 0.915 mW/g; SAR(10 g) = 0.633 mW/g
Maximum value of SAR (measured) = 0.986 mW/g



0 dB = 0.986mW/g

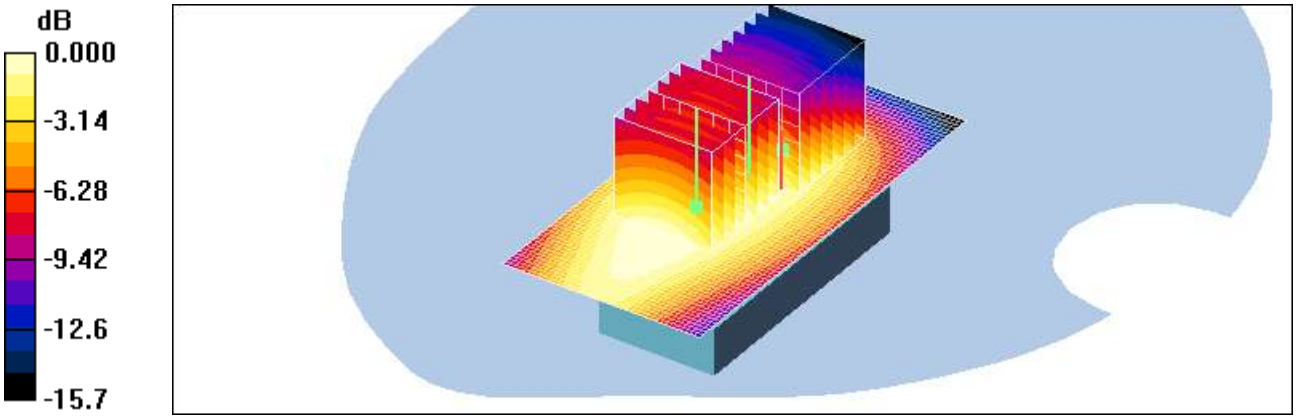
Test Laboratory:	HCT CO., LTD
EUT Type:	CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Jul. 5, 2012
Separation Distance:	5 mm

DUT: UML295; Type: bar; Serial: #1
Communication System: LTE; Frequency: 782 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 782 MHz; σ = 1.02 mho/m; ε_r = 54.9; ρ = 1000 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(6.36, 6.36, 6.36); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Down QPSK 10MHz 1RB 49 offset 23230/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.01 mW/g

Horizontal Down QPSK 10MHz 1RB 49 offset 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 22.5 V/m; Power Drift = -0.095 dB
Peak SAR (extrapolated) = 1.23 W/kg
SAR(1 g) = 0.917 mW/g; SAR(10 g) = 0.638 mW/g
Maximum value of SAR (measured) = 0.980 mW/g

Horizontal Down QPSK 10MHz 1RB 49 offset 23230/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 22.5 V/m; Power Drift = -0.095 dB
Peak SAR (extrapolated) = 1.50 W/kg
SAR(1 g) = 0.810 mW/g; SAR(10 g) = 0.509 mW/g
Maximum value of SAR (measured) = 0.900 mW/g



0 dB = 0.900mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 5, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

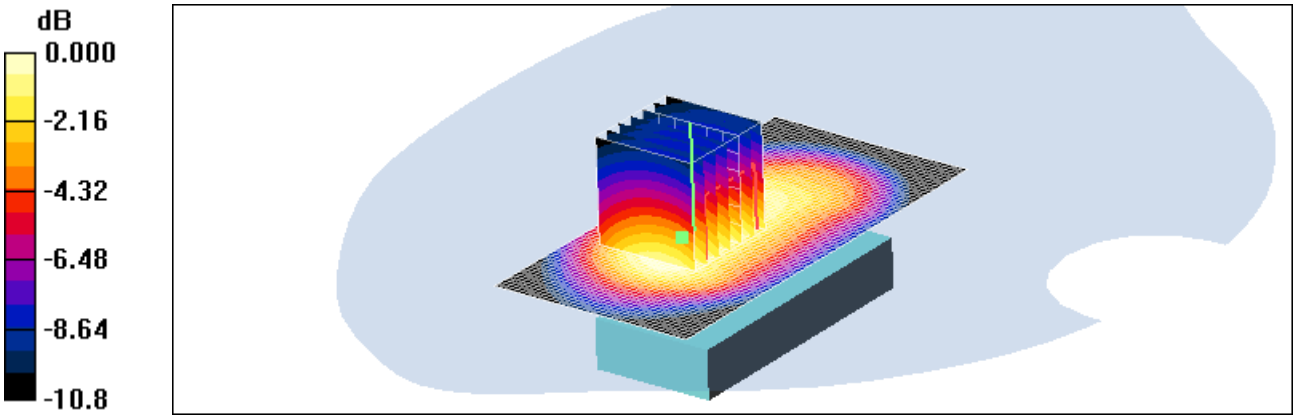
Communication System: LTE; Frequency: 782 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 782 MHz; σ = 1.02 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.36, 6.36, 6.36); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Up QPSK 10MHz 25RB 12 offset 23230/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.812 mW/g

Horizontal Up QPSK 10MHz 25RB 12 offset 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.5 V/m; Power Drift = 0.003 dB
Peak SAR (extrapolated) = 1.06 W/kg
SAR(1 g) = 0.748 mW/g; SAR(10 g) = 0.503 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.805 mW/g



0 dB = 0.805mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Jul. 5, 2012
Separation Distance:	5 mm

DUT: UML295; Type: bar; Serial: #1

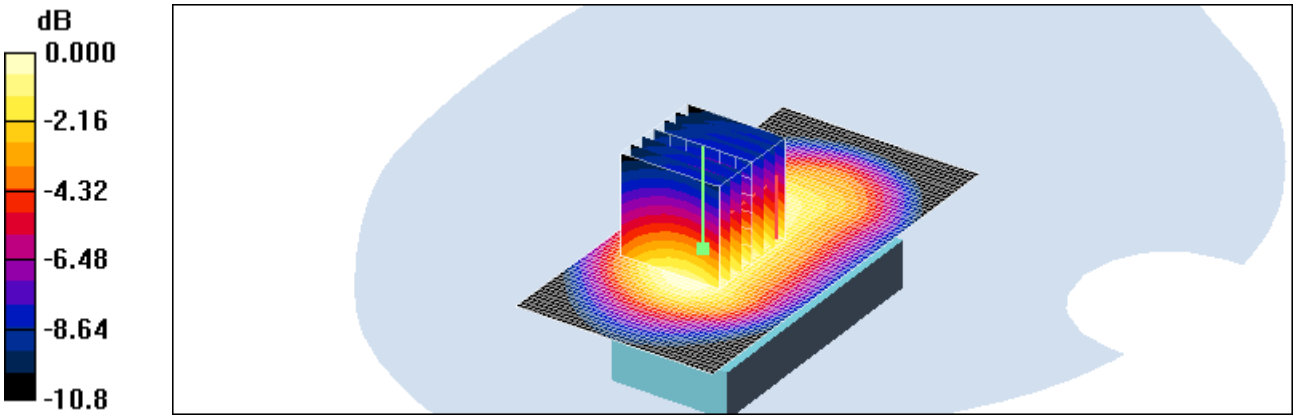
Communication System: LTE; Frequency: 782 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 782 MHz; σ = 1.02 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.36, 6.36, 6.36); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Up QPSK 10MHz 1RB 0 offset 23230/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 1.19 mW/g

Horizontal Up QPSK 10MHz 1RB 0 offset 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.0 V/m; Power Drift = -0.129 dB
Peak SAR (extrapolated) = 1.58 W/kg
SAR(1 g) = 1.11 mW/g; SAR(10 g) = 0.746 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.20 mW/g



0 dB = 1.20mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 5, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

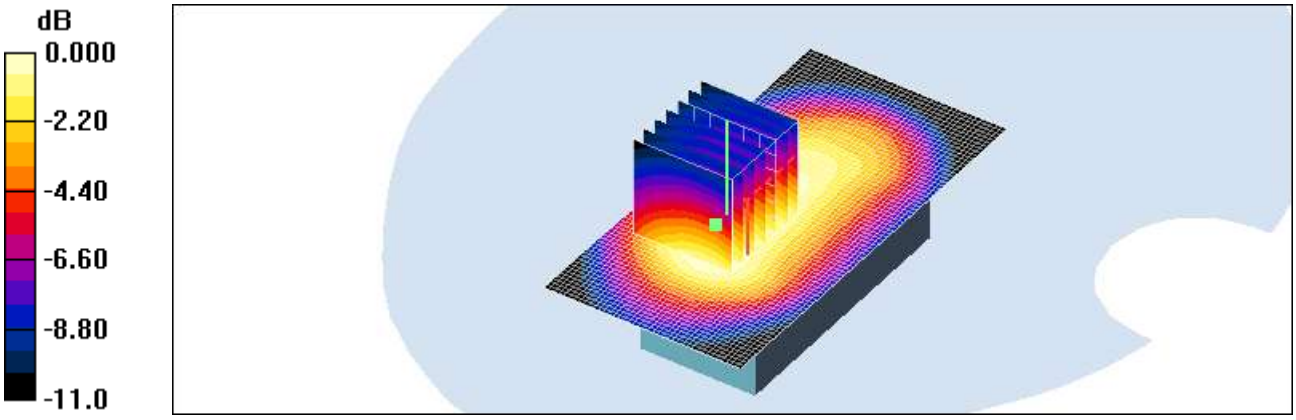
Communication System: LTE; Frequency: 782 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 782 MHz; σ = 1.02 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.36, 6.36, 6.36); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Up QPSK 10MHz 1RB 49 offset 23230/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 1.22 mW/g

Horizontal Up QPSK 10MHz 1RB 49 offset 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 23.8 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.52 W/kg
SAR(1 g) = 1.06 mW/g; SAR(10 g) = 0.717 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.14 mW/g



0 dB = 1.14mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 5, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

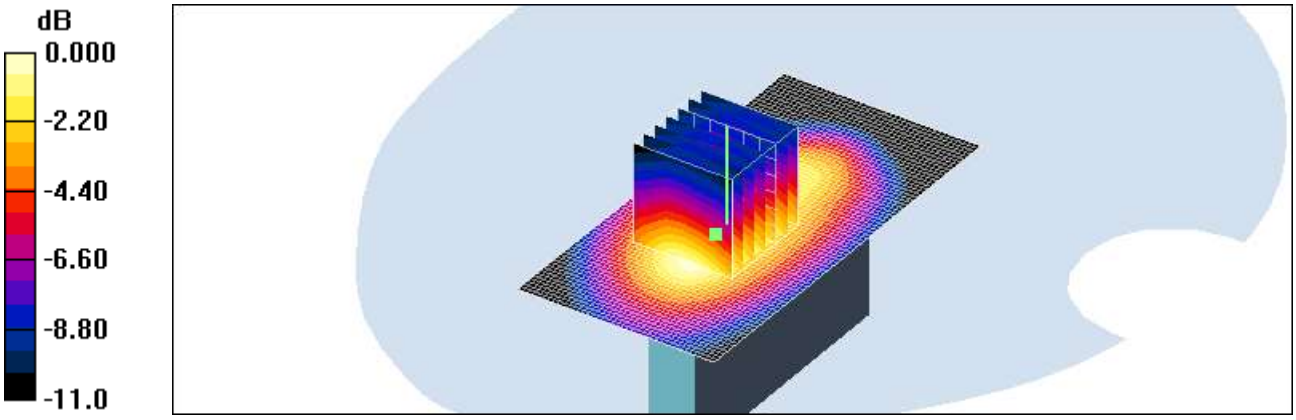
Communication System: LTE; Frequency: 782 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 782 MHz; σ = 1.02 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.36, 6.36, 6.36); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Vertical Front QPSK 10MHz 25RB 12 offset 23230/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.609 mW/g

Vertical Front QPSK 10MHz 25RB 12 offset 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.2 V/m; Power Drift = 0.072 dB
Peak SAR (extrapolated) = 0.904 W/kg
SAR(1 g) = 0.611 mW/g; SAR(10 g) = 0.395 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.650 mW/g



0 dB = 0.650mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 5, 2012
Separation Distance: 5 mm

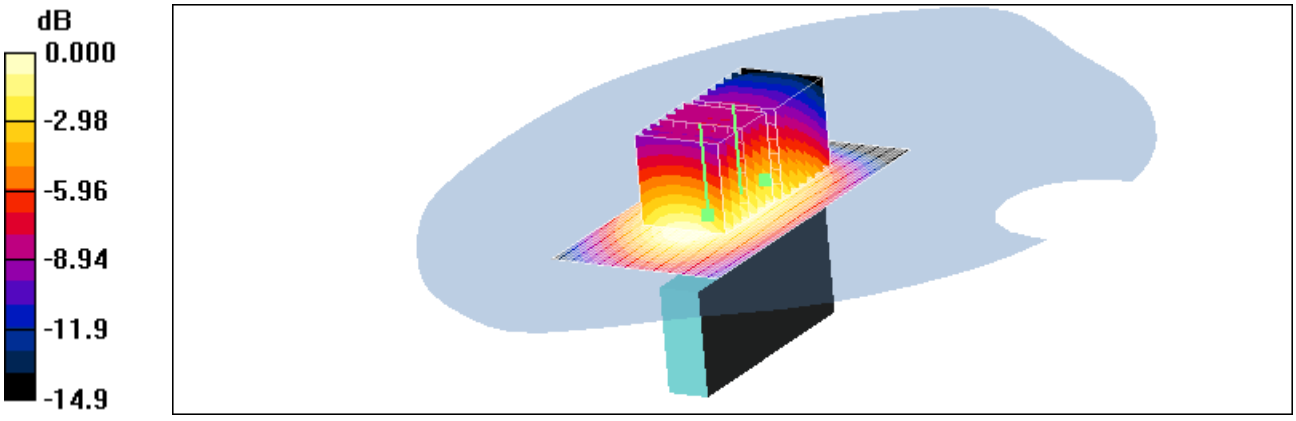
DUT: UML295; Type: bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 782 MHz; σ = 1.02 mho/m; ε_r = 54.9; ρ = 1000 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(6.36, 6.36, 6.36); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Vertical Front QPSK 10MHz 1RB 0 offset 23230/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.895 mW/g

Vertical Front QPSK 10MHz 1RB 0 offset 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.6 V/m; Power Drift = -0.105 dB
Peak SAR (extrapolated) = 1.19 W/kg
SAR(1 g) = 0.812 mW/g; SAR(10 g) = 0.536 mW/g
Maximum value of SAR (measured) = 0.880 mW/g

Vertical Back QPSK 10MHz 1RB 0 offset 23230/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.6 V/m; Power Drift = -0.105 dB
Peak SAR (extrapolated) = 1.03 W/kg
SAR(1 g) = 0.673 mW/g; SAR(10 g) = 0.411 mW/g
Maximum value of SAR (measured) = 0.771 mW/g



0 dB = 0.771mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 5, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz;Duty Cycle: 1:1

Medium parameters used (interpolated): f = 782 MHz; σ = 1.02 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3

Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

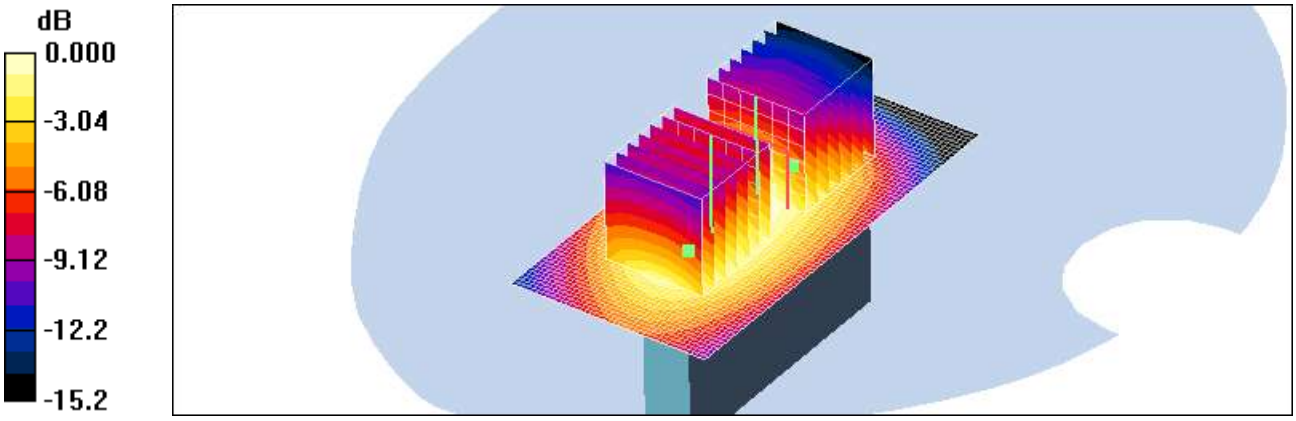
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.36, 6.36, 6.36); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Vertical Front QPSK 10MHz 1RB 49 offset 23230/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.866 mW/g

Vertical Front QPSK 10MHz 1RB 49 offset 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.1 V/m; Power Drift = -0.045 dB
Peak SAR (extrapolated) = 1.17 W/kg
SAR(1 g) = 0.794 mW/g; SAR(10 g) = 0.514 mW/g
Maximum value of SAR (measured) = 0.861 mW/g

Vertical Back QPSK 10MHz 1RB 49 offset 23230/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.1 V/m; Power Drift = -0.045 dB
Peak SAR (extrapolated) = 0.994 W/kg
SAR(1 g) = 0.631 mW/g; SAR(10 g) = 0.378 mW/g
Maximum value of SAR (measured) = 0.738 mW/g



0 dB = 0.738mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 5, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

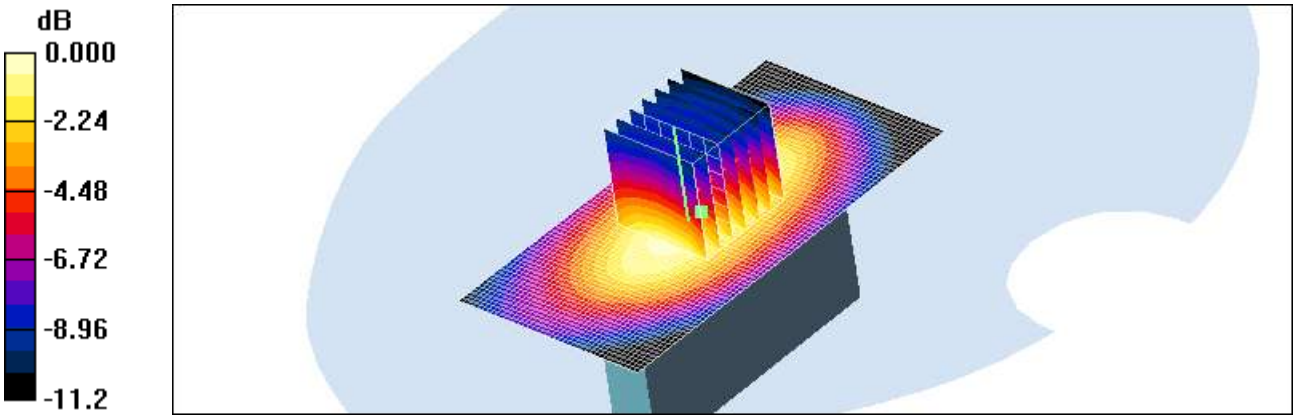
Communication System: LTE; Frequency: 782 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 782 MHz; σ = 1.02 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.36, 6.36, 6.36); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Vertical Back QPSK 10MHz 25RB 12 offset 23230/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.557 mW/g

Vertical Back QPSK 10MHz 25RB 12 offset 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.7 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 0.771 W/kg
SAR(1 g) = 0.503 mW/g; SAR(10 g) = 0.322 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.547 mW/g



0 dB = 0.547mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 5, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

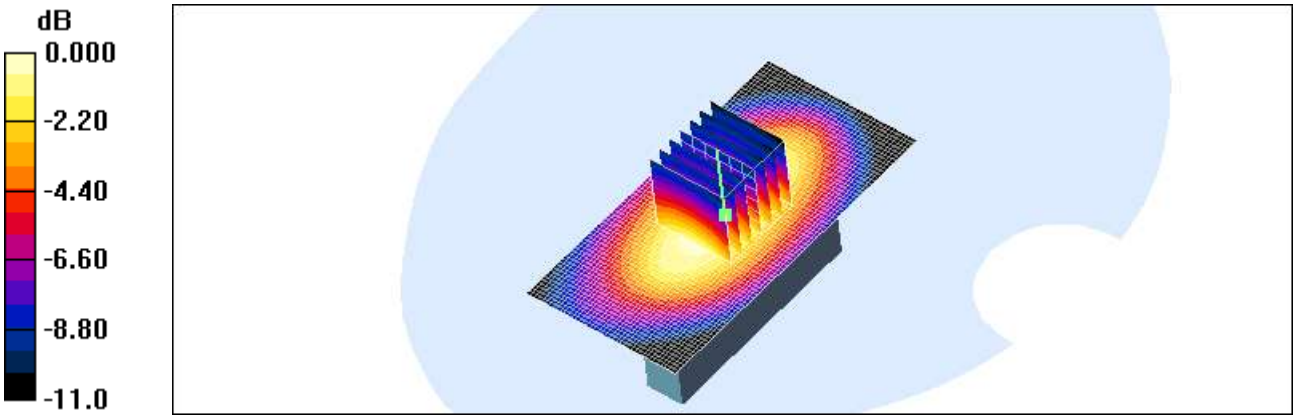
Communication System: LTE; Frequency: 782 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 782 MHz; σ = 1.02 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.36, 6.36, 6.36); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Vertical Back QPSK 10MHz 1RB 0 offset 23230/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.788 mW/g

Vertical Back QPSK 10MHz 1RB 0 offset 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 20.3 V/m; Power Drift = -0.036 dB
Peak SAR (extrapolated) = 1.05 W/kg
SAR(1 g) = 0.703 mW/g; SAR(10 g) = 0.456 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.761 mW/g



0 dB = 0.761mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 5, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

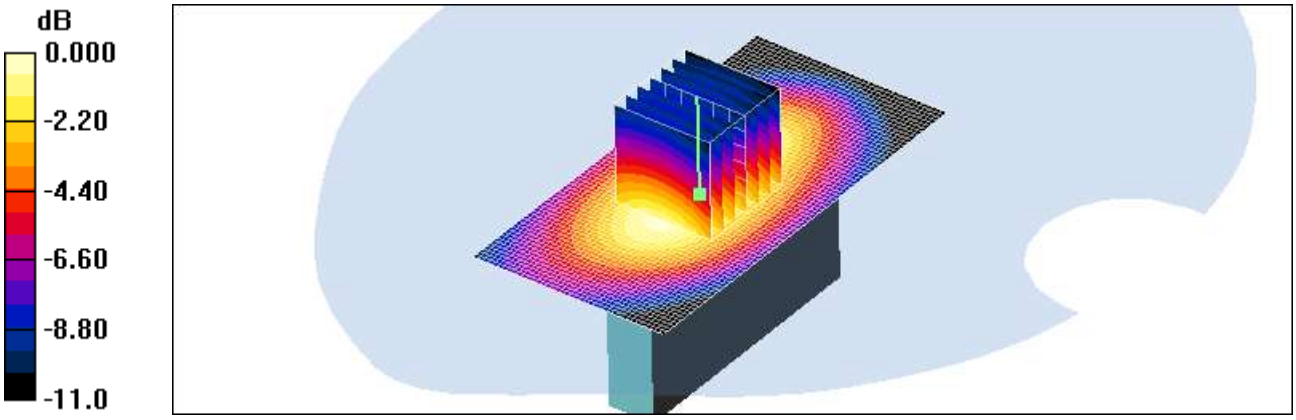
Communication System: LTE; Frequency: 782 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 782 MHz; σ = 1.02 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.36, 6.36, 6.36); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Vertical Back QPSK 10MHz 1RB 49 offset 23230/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.782 mW/g

Vertical Back QPSK 10MHz 1RB 49 offset 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.4 V/m; Power Drift = -0.044 dB
Peak SAR (extrapolated) = 1.06 W/kg
SAR(1 g) = 0.706 mW/g; SAR(10 g) = 0.456 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.767 mW/g



0 dB = 0.767mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 5, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

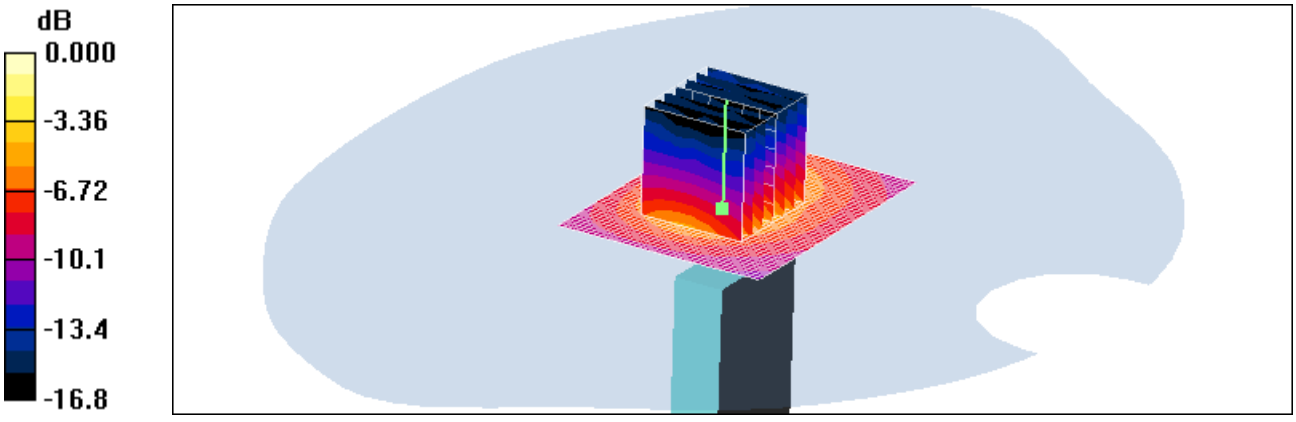
Communication System: LTE; Frequency: 782 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 782 MHz; σ = 1.02 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.36, 6.36, 6.36); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Body Top QPSK 10MHz 25RB 12 offset 23230/Area Scan (41x51x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.253 mW/g

Body Top QPSK 10MHz 25RB 12 offset 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.7 V/m; Power Drift = -0.067 dB
Peak SAR (extrapolated) = 0.798 W/kg
SAR(1 g) = 0.228 mW/g; SAR(10 g) = 0.095 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: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 5, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

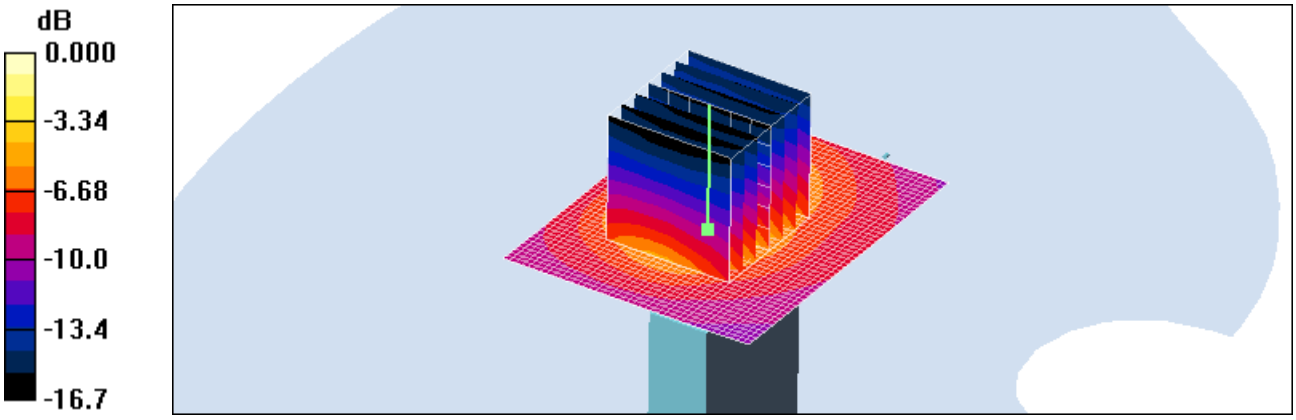
Communication System: LTE; Frequency: 782 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 782 MHz; σ = 1.02 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.36, 6.36, 6.36); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Body Top QPSK 10MHz 1RB 0 offset 23230/Area Scan (41x51x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.352 mW/g

Body Top QPSK 10MHz 1RB 0 offset 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.1 V/m; Power Drift = -0.012 dB
Peak SAR (extrapolated) = 1.20 W/kg
SAR(1 g) = 0.339 mW/g; SAR(10 g) = 0.140 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.348 mW/g



0 dB = 0.348mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Jul. 5, 2012
Separation Distance:	5 mm

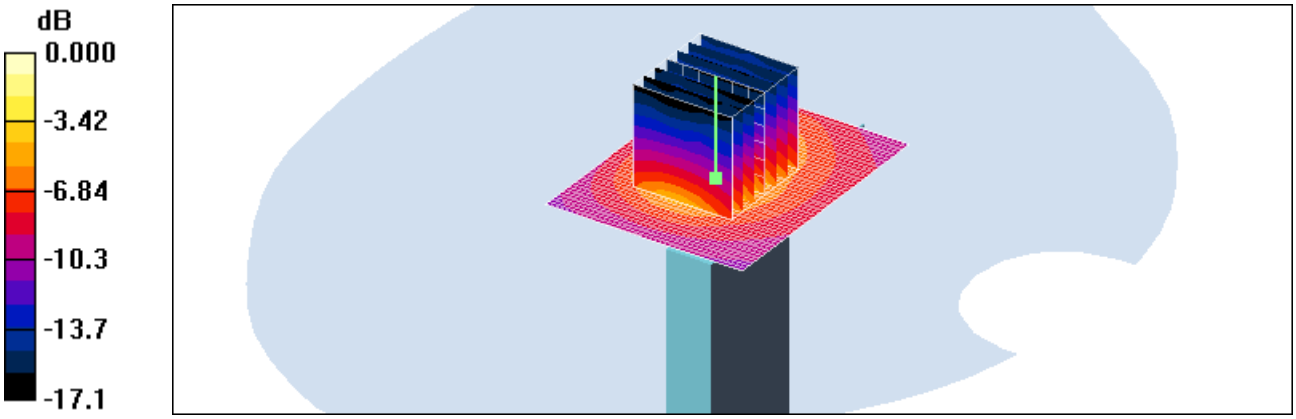
DUT: UML295; Type: bar; Serial: #1
Communication System: LTE; Frequency: 782 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 782 MHz; σ = 1.02 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.36, 6.36, 6.36); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Body Top QPSK 10MHz 1RB 49 offset 23230/Area Scan (41x51x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.328 mW/g

Body Top QPSK 10MHz 1RB 49 offset 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.6 V/m; Power Drift = 0.060 dB
Peak SAR (extrapolated) = 1.19 W/kg
SAR(1 g) = 0.332 mW/g; SAR(10 g) = 0.136 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.346 mW/g



0 dB = 0.346mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Jul. 5, 2012
Separation Distance:	5 mm

DUT: UML295; Type: bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 782 MHz; σ = 1.02 mho/m; ε_r = 54.9; ρ = 1000 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(6.36, 6.36, 6.36); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

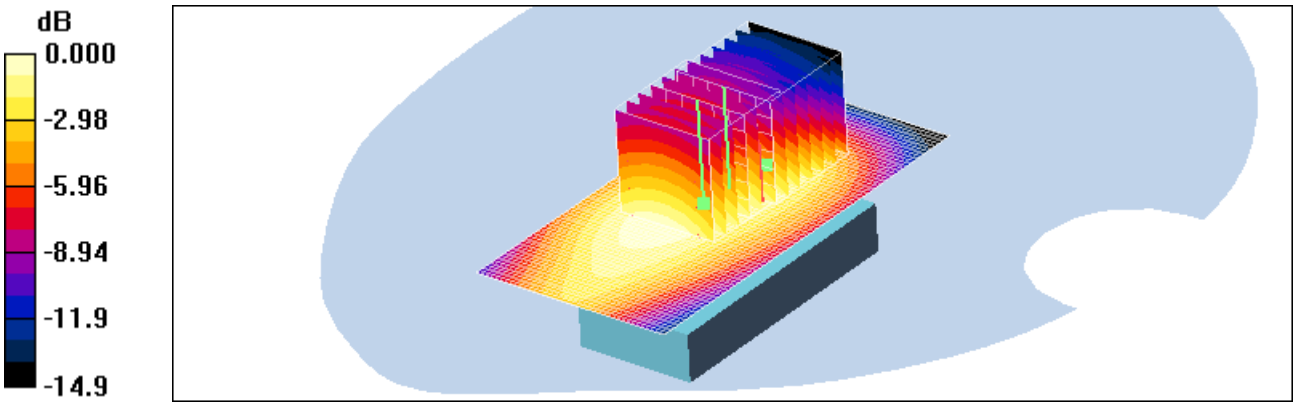
Horizontal Down 16QAM 10MHz 25RB 12 offset 23230/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.559 mW/g

Horizontal Down 16QAM 10MHz 25RB 12 offset 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.0 V/m; Power Drift = -0.068 dB
Peak SAR (extrapolated) = 0.701 W/kg
SAR(1 g) = 0.515 mW/g; SAR(10 g) = 0.355 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.549 mW/g

Horizontal Down 16QAM 10MHz 25RB 12 offset 23230/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.0 V/m; Power Drift = -0.068 dB
Peak SAR (extrapolated) = 0.940 W/kg
SAR(1 g) = 0.490 mW/g; SAR(10 g) = 0.310 mW/g
Maximum value of SAR (measured) = 0.538 mW/g



0 dB = 0.538mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 5, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

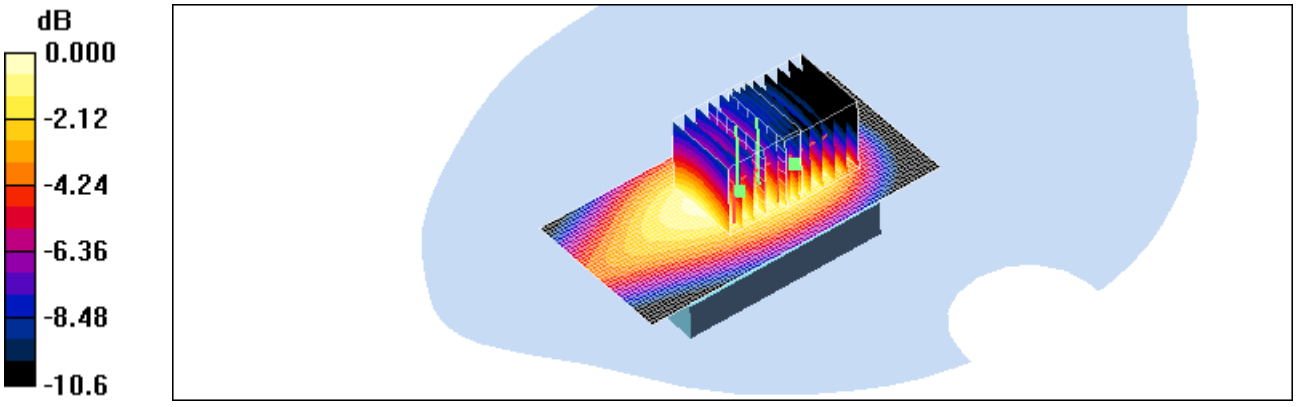
Communication System: LTE; Frequency: 782 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 782 MHz; σ = 1.02 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.36, 6.36, 6.36); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Down 16QAM 10MHz 1RB 0 offset 23230/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.834 mW/g

Horizontal Down 16QAM 10MHz 1RB 0 offset 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 21.4 V/m; Power Drift = 0.094 dB
Peak SAR (extrapolated) = 1.40 W/kg
SAR(1 g) = 0.716 mW/g; SAR(10 g) = 0.465 mW/g
Maximum value of SAR (measured) = 0.780 mW/g

Horizontal Down 16QAM 10MHz 1RB 0 offset 23230/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 21.4 V/m; Power Drift = 0.094 dB
Peak SAR (extrapolated) = 1.00 W/kg
SAR(1 g) = 0.734 mW/g; SAR(10 g) = 0.506 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.787 mW/g



0 dB = 0.787mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 5, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

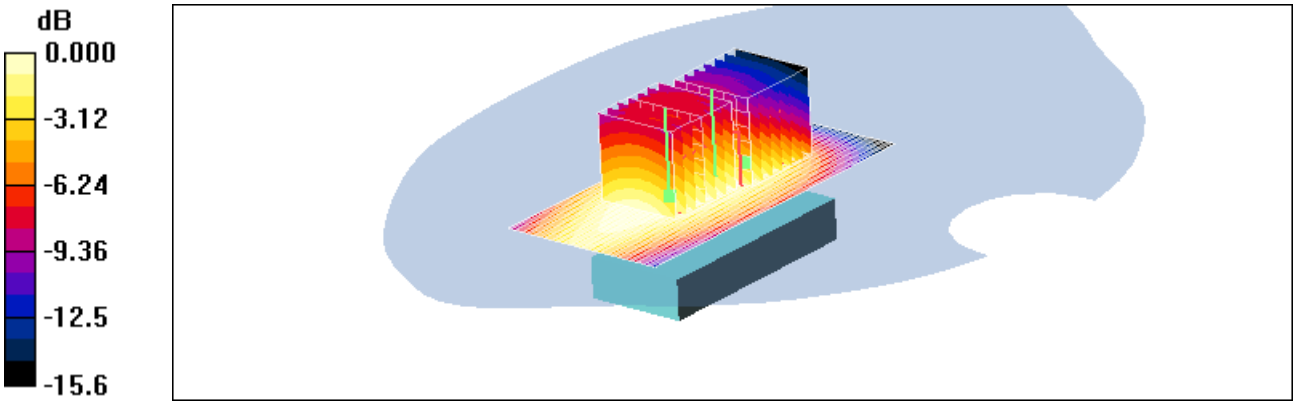
Communication System: LTE; Frequency: 782 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 782 MHz; σ = 1.02 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.36, 6.36, 6.36); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Down 16QAM 10MHz 1RB 49 offset 23230/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.774 mW/g

Horizontal Down 16QAM 10MHz 1RB 49 offset 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.6 V/m; Power Drift = 0.061 dB
Peak SAR (extrapolated) = 1.02 W/kg
SAR(1 g) = 0.745 mW/g; SAR(10 g) = 0.517 mW/g
Maximum value of SAR (measured) = 0.809 mW/g

Horizontal Down 16QAM 10MHz 1RB 49 offset 23230/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.6 V/m; Power Drift = 0.061 dB
Peak SAR (extrapolated) = 1.23 W/kg
SAR(1 g) = 0.669 mW/g; SAR(10 g) = 0.421 mW/g
Maximum value of SAR (measured) = 0.743 mW/g



0 dB = 0.743mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 5, 2012
Separation Distance: 5 mm

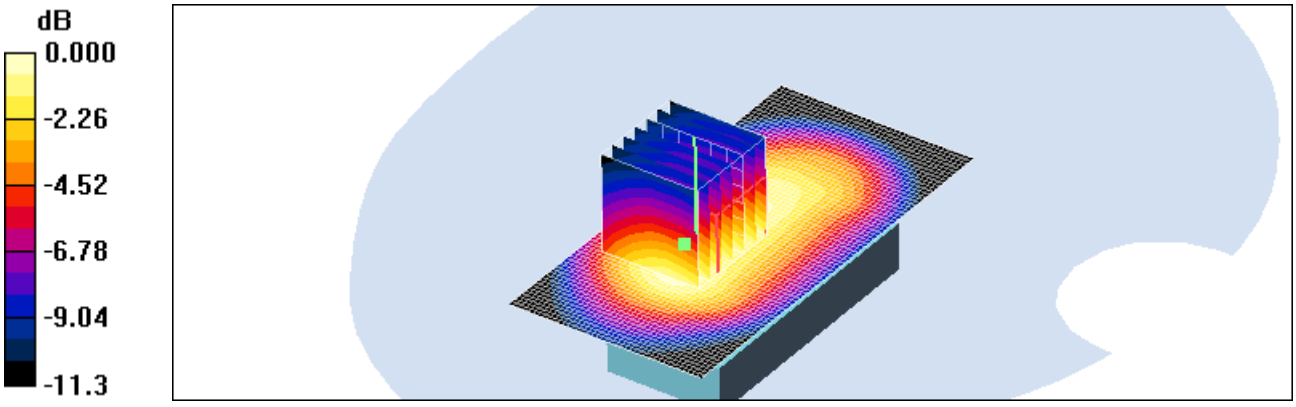
DUT: UML295; Type: bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 782 MHz; σ = 1.02 mho/m; ε_r = 54.9; ρ = 1000 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(6.36, 6.36, 6.36); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Up 16QAM 10MHz 25RB 12 offset 23230/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.644 mW/g

Horizontal Up 16QAM 10MHz 25RB 12 offset 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.3 V/m; Power Drift = 0.029 dB
Peak SAR (extrapolated) = 0.865 W/kg
SAR(1 g) = 0.603 mW/g; SAR(10 g) = 0.404 mW/g
Maximum value of SAR (measured) = 0.650 mW/g



0 dB = 0.650mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 5, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

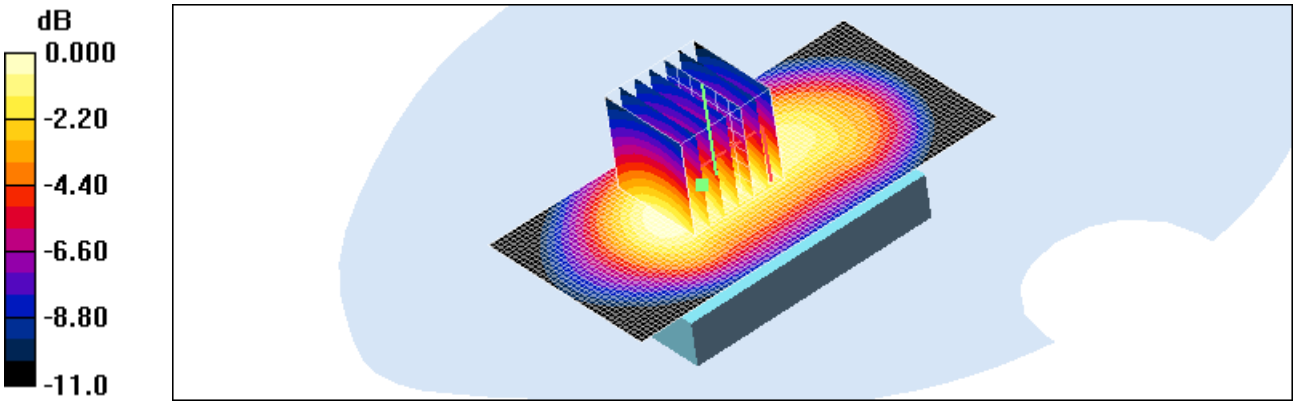
Communication System: LTE; Frequency: 782 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 782 MHz; σ = 1.02 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.36, 6.36, 6.36); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Up 16QAM 10MHz 1RB 0 offset 23230/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.932 mW/g

Horizontal Up 16QAM 10MHz 1RB 0 offset 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 21.1 V/m; Power Drift = -0.069 dB
Peak SAR (extrapolated) = 1.21 W/kg
SAR(1 g) = 0.864 mW/g; SAR(10 g) = 0.583 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.930 mW/g



0 dB = 0.930mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Jul. 5, 2012
Separation Distance:	5 mm

DUT: UML295; Type: bar; Serial: #1

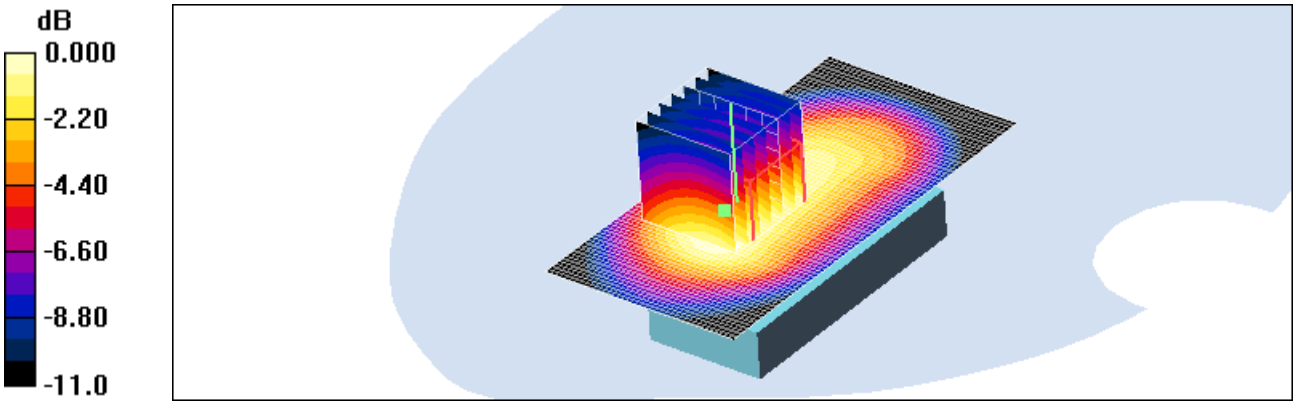
Communication System: LTE; Frequency: 782 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 782 MHz; σ = 1.02 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.36, 6.36, 6.36); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Up 16QAM 10MHz 1RB 49 offset 23230/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.940 mW/g

Horizontal Up 16QAM 10MHz 1RB 49 offset 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 21.0 V/m; Power Drift = -0.002 dB
Peak SAR (extrapolated) = 1.25 W/kg
SAR(1 g) = 0.875 mW/g; SAR(10 g) = 0.589 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.936 mW/g



0 dB = 0.936mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 5, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

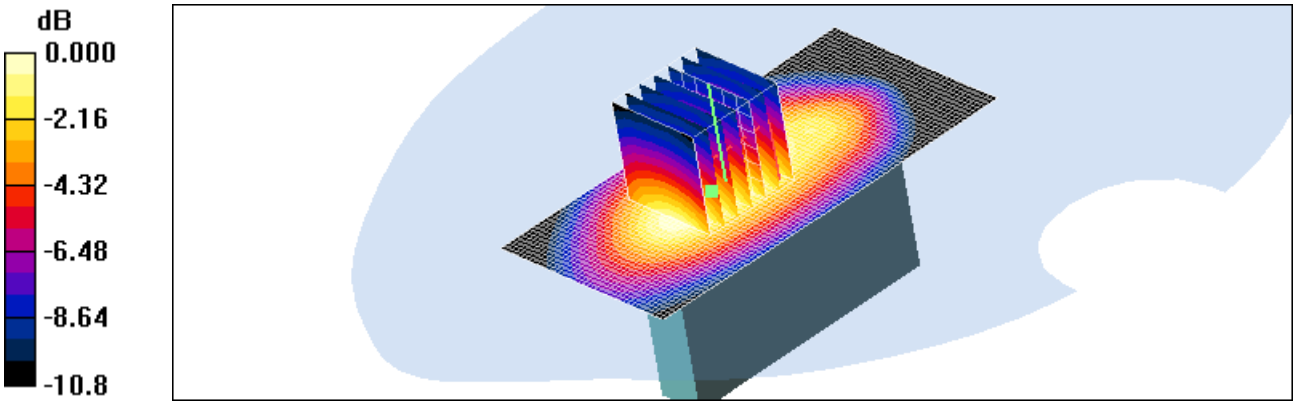
Communication System: LTE; Frequency: 782 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 782 MHz; σ = 1.02 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.36, 6.36, 6.36); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Vertical Front 16QAM 10MHz 25RB 12 offset 23230/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.494 mW/g

Vertical Front 16QAM 10MHz 25RB 12 offset 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.7 V/m; Power Drift = -0.001 dB
Peak SAR (extrapolated) = 0.675 W/kg
SAR(1 g) = 0.452 mW/g; SAR(10 g) = 0.296 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.492 mW/g



0 dB = 0.492mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 5, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 782 MHz; σ = 1.02 mho/m; ε_r = 54.9; ρ = 1000 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(6.36, 6.36, 6.36); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Vertical Front 16QAM 10MHz 1RB 0 offset 23230/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

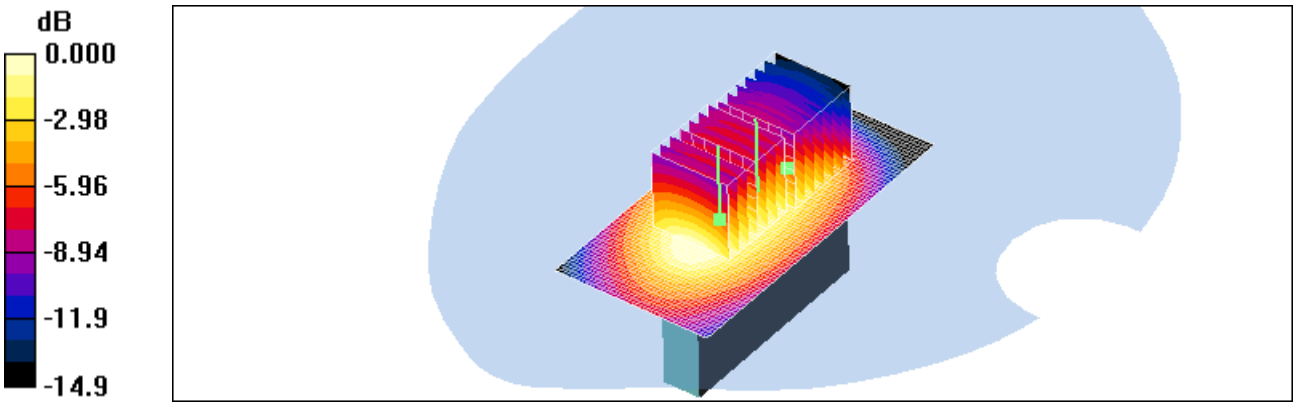
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.693 mW/g

Vertical Front 16QAM 10MHz 1RB 0 offset 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.4 V/m; Power Drift = -0.028 dB
Peak SAR (extrapolated) = 0.969 W/kg
SAR(1 g) = 0.655 mW/g; SAR(10 g) = 0.430 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.719 mW/g

Vertical Front 16QAM 10MHz 1RB 0 offset 23230/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.4 V/m; Power Drift = -0.028 dB
Peak SAR (extrapolated) = 0.844 W/kg
SAR(1 g) = 0.539 mW/g; SAR(10 g) = 0.329 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.622 mW/g



0 dB = 0.622mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 5, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

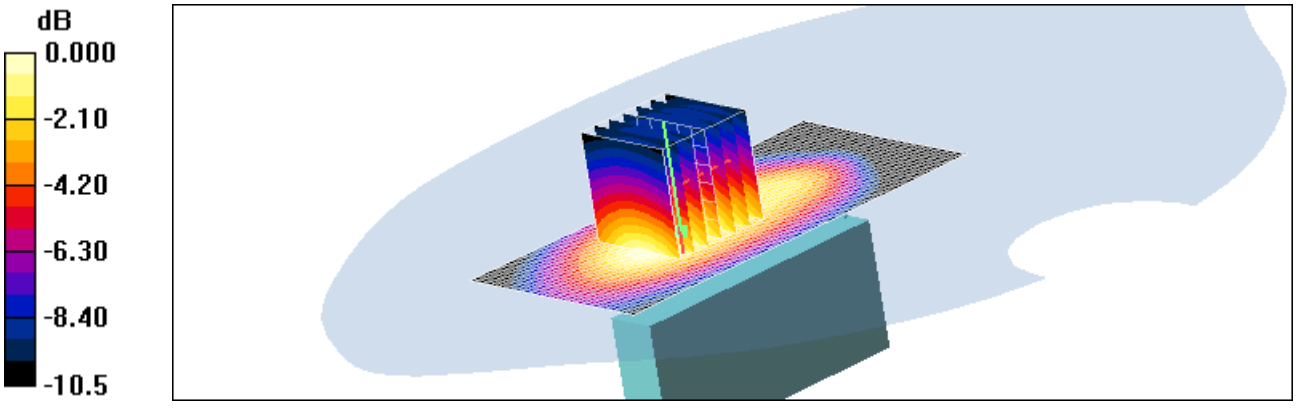
Communication System: LTE; Frequency: 782 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 782 MHz; σ = 1.02 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.36, 6.36, 6.36); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Vertical Front 16QAM 10MHz 1RB 49 offset 23230/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.687 mW/g

Vertical Front 16QAM 10MHz 1RB 49 offset 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.4 V/m; Power Drift = -0.072 dB
Peak SAR (extrapolated) = 0.937 W/kg
SAR(1 g) = 0.640 mW/g; SAR(10 g) = 0.421 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.694 mW/g



0 dB = 0.694mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 5, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

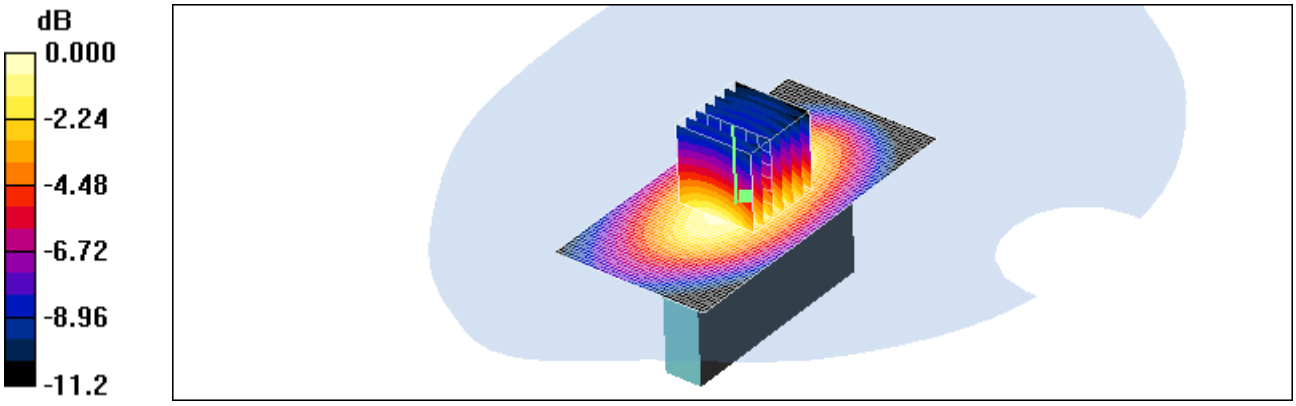
Communication System: LTE; Frequency: 782 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 782 MHz; σ = 1.02 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.36, 6.36, 6.36); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Vertical Back 16QAM 10MHz 25RB 12 offset 23230/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.436 mW/g

Vertical Back 16QAM 10MHz 25RB 12 offset 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.3 V/m; Power Drift = -0.028 dB
Peak SAR (extrapolated) = 0.601 W/kg
SAR(1 g) = 0.395 mW/g; SAR(10 g) = 0.254 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.427 mW/g



0 dB = 0.427mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 5, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

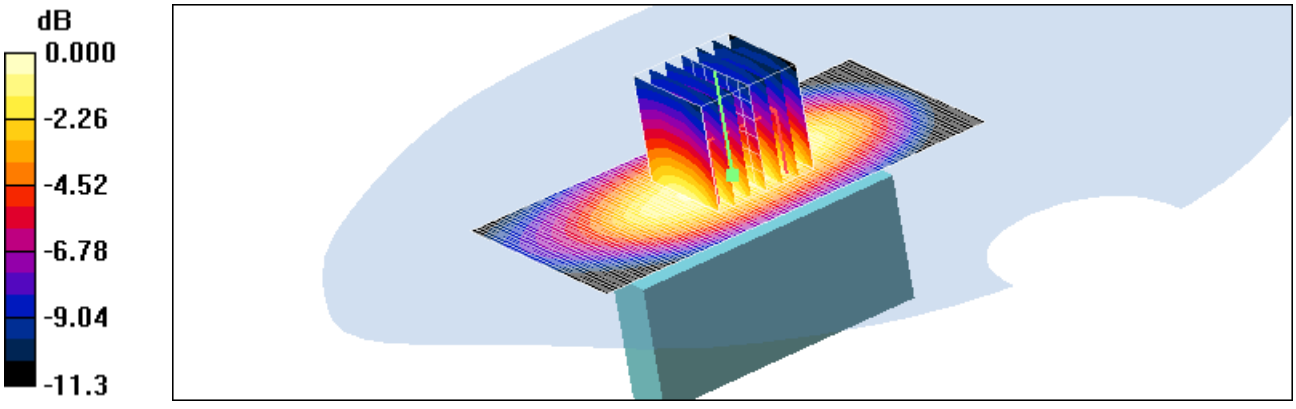
Communication System: LTE; Frequency: 782 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 782 MHz; σ = 1.02 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.36, 6.36, 6.36); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Vertical Back 16QAM 10MHz 1RB 0 offset 23230/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.591 mW/g

Vertical Back 16QAM 10MHz 1RB 0 offset 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.2 V/m; Power Drift = 0.023 dB
Peak SAR (extrapolated) = 0.846 W/kg
SAR(1 g) = 0.560 mW/g; SAR(10 g) = 0.360 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.609 mW/g



0 dB = 0.609mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 5, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

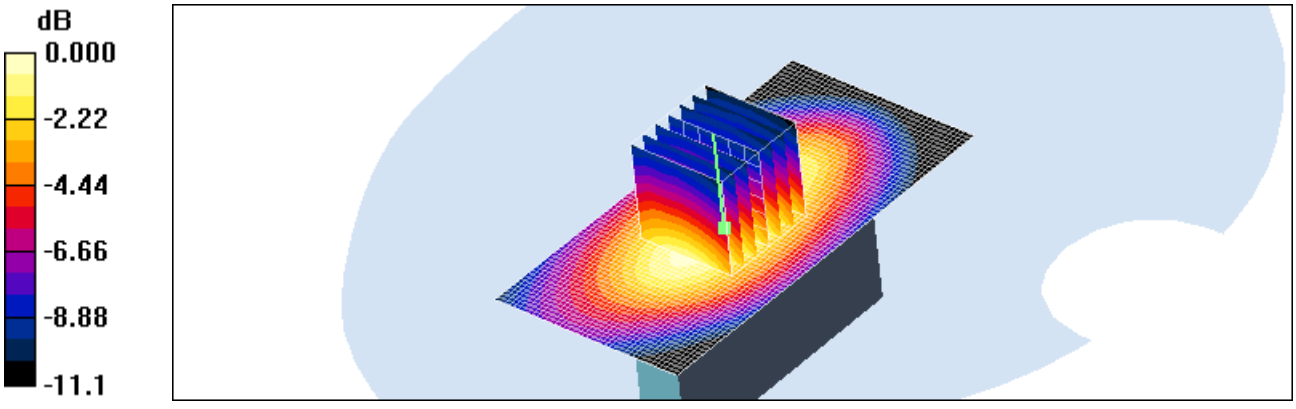
Communication System: LTE; Frequency: 782 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 782 MHz; σ = 1.02 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.36, 6.36, 6.36); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Vertical Back 16QAM 10MHz 1RB 49 offset 23230/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.605 mW/g

Vertical Back 16QAM 10MHz 1RB 49 offset 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.6 V/m; Power Drift = 0.101 dB
Peak SAR (extrapolated) = 0.831 W/kg
SAR(1 g) = 0.551 mW/g; SAR(10 g) = 0.358 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.600 mW/g



0 dB = 0.600mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Jul. 5, 2012
Separation Distance:	5 mm

DUT: UML295; Type: bar; Serial: #1

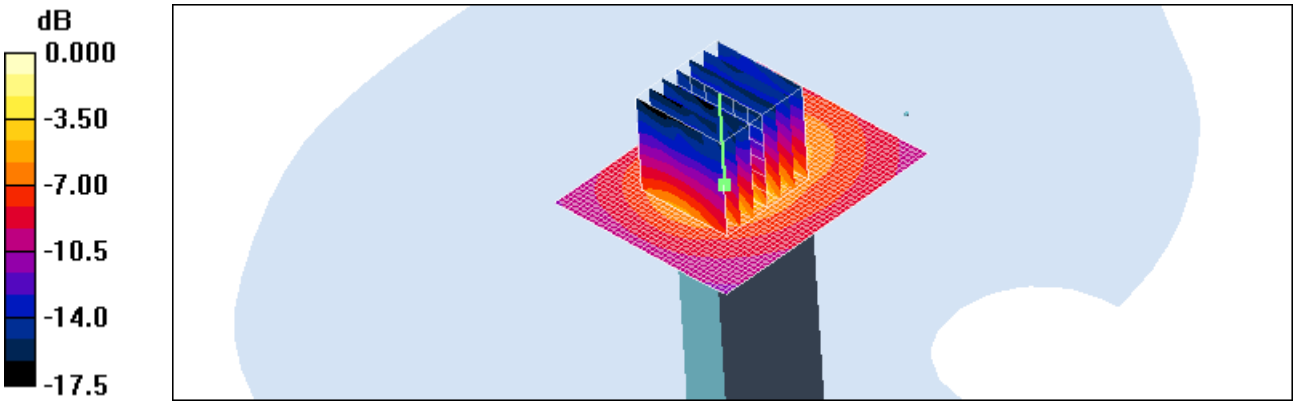
Communication System: LTE; Frequency: 782 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 782 MHz; σ = 1.02 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.36, 6.36, 6.36); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Body Top 16QAM 10MHz 25RB 12 offset 23230/Area Scan (41x51x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.184 mW/g

Body Top 16QAM 10MHz 25RB 12 offset 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.2 V/m; Power Drift = 0.035 dB
Peak SAR (extrapolated) = 0.649 W/kg
SAR(1 g) = 0.181 mW/g; SAR(10 g) = 0.075 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.187 mW/g



0 dB = 0.187mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 5, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

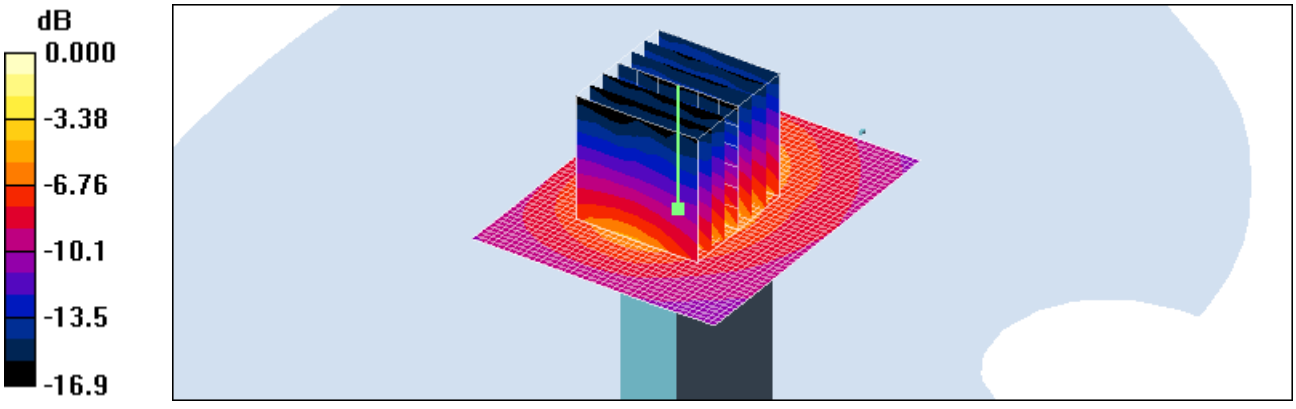
Communication System: LTE; Frequency: 782 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 782 MHz; σ = 1.02 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.36, 6.36, 6.36); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Body Top 16QAM 10MHz 1RB 0 offset 23230/Area Scan (41x51x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.278 mW/g

Body Top 16QAM 10MHz 1RB 0 offset 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.0 V/m; Power Drift = 0.077 dB
Peak SAR (extrapolated) = 0.988 W/kg
SAR(1 g) = 0.275 mW/g; SAR(10 g) = 0.113 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.291 mW/g



0 dB = 0.291mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Jul. 5, 2012
Separation Distance:	5 mm

DUT: UML295; Type: bar; Serial: #1

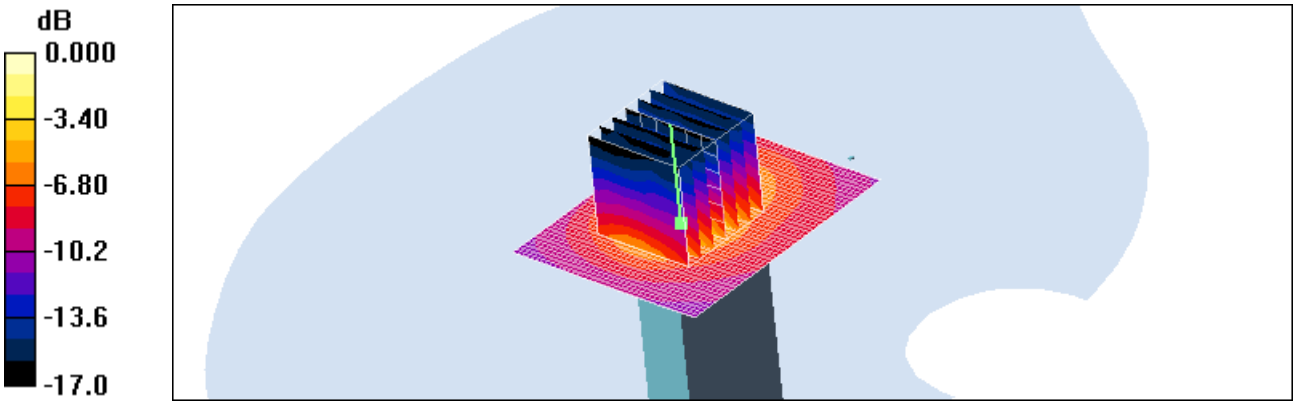
Communication System: LTE; Frequency: 782 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 782 MHz; σ = 1.02 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.36, 6.36, 6.36); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Body Top 16QAM 10MHz 1RB 49 offset 23230/Area Scan (41x51x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.274 mW/g

Body Top 16QAM 10MHz 1RB 49 offset 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.9 V/m; Power Drift = 0.083 dB
Peak SAR (extrapolated) = 0.969 W/kg
SAR(1 g) = 0.267 mW/g; SAR(10 g) = 0.108 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.282 mW/g



0 dB = 0.282mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Jul.3, 2012
Separation Distance:	5 mm

DUT: UML295; Type: bar; Serial: #1

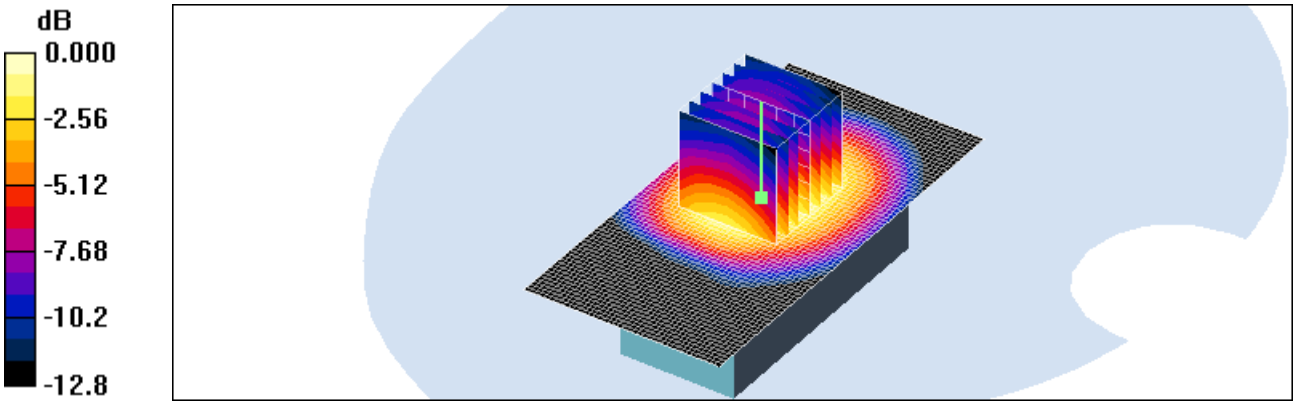
Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.45 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Down QPSK 20MHz 50RB 25 offset 20175/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.754 mW/g

Horizontal Down QPSK 20MHz 50RB 25 offset 20175/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.9 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 0.779 W/kg
SAR(1 g) = 0.592 mW/g; SAR(10 g) = 0.386 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.648 mW/g



0 dB = 0.648mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Jul.3, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

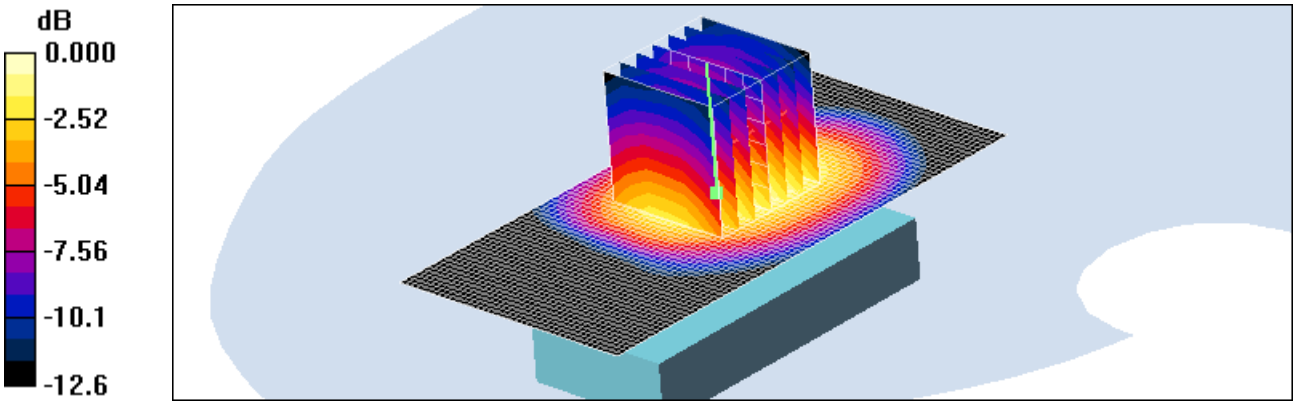
Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.45 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Down QPSK 20MHz 1RB 0 offset 20175/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.763 mW/g

Horizontal Down QPSK 20MHz 1RB 0 offset 20175/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.1 V/m; Power Drift = -0.044 dB
Peak SAR (extrapolated) = 0.888 W/kg
SAR(1 g) = 0.682 mW/g; SAR(10 g) = 0.446 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.740 mW/g



0 dB = 0.740mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Jul.3, 2012
Separation Distance:	5 mm

DUT: UML295; Type: bar; Serial: #1

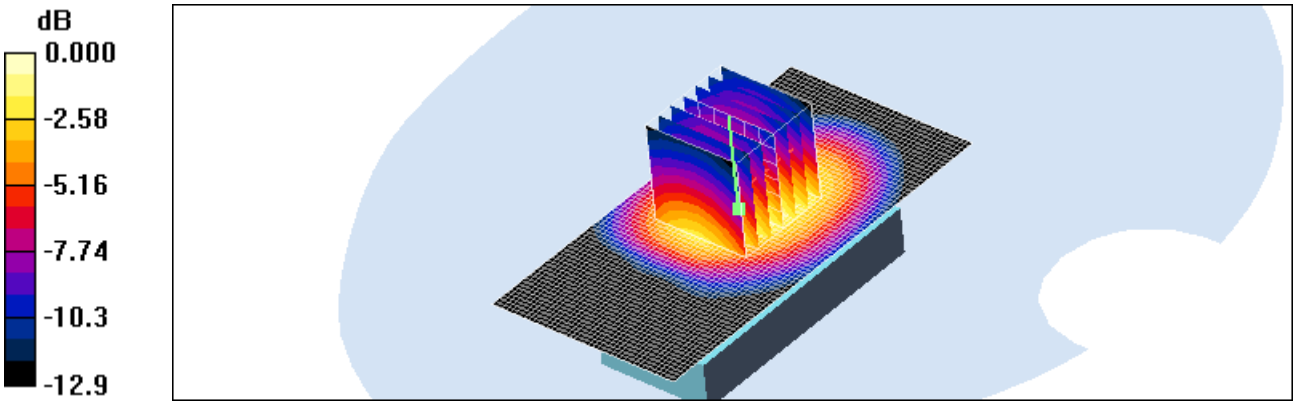
Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.45 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Down QPSK 20MHz 1RB 99 offset 20175/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.760 mW/g

Horizontal Down QPSK 20MHz 1RB 99 offset 20175/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.7 V/m; Power Drift = -0.005 dB
Peak SAR (extrapolated) = 0.910 W/kg
SAR(1 g) = 0.680 mW/g; SAR(10 g) = 0.440 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.742 mW/g



0 dB = 0.742mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Jul.3, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

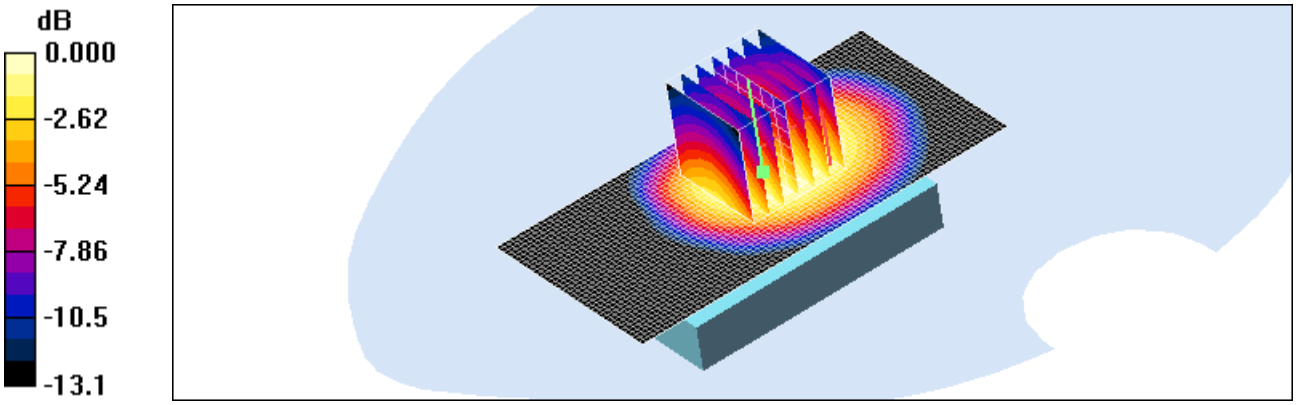
Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.45 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Up QPSK 20MHz 50RB 25 offset 20175/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.988 mW/g

Horizontal Up QPSK 20MHz 50RB 25 offset 20175/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.9 V/m; Power Drift = -0.084 dB
Peak SAR (extrapolated) = 1.01 W/kg
SAR(1 g) = 0.792 mW/g; SAR(10 g) = 0.529 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.856 mW/g



0 dB = 0.856mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Jul.3, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

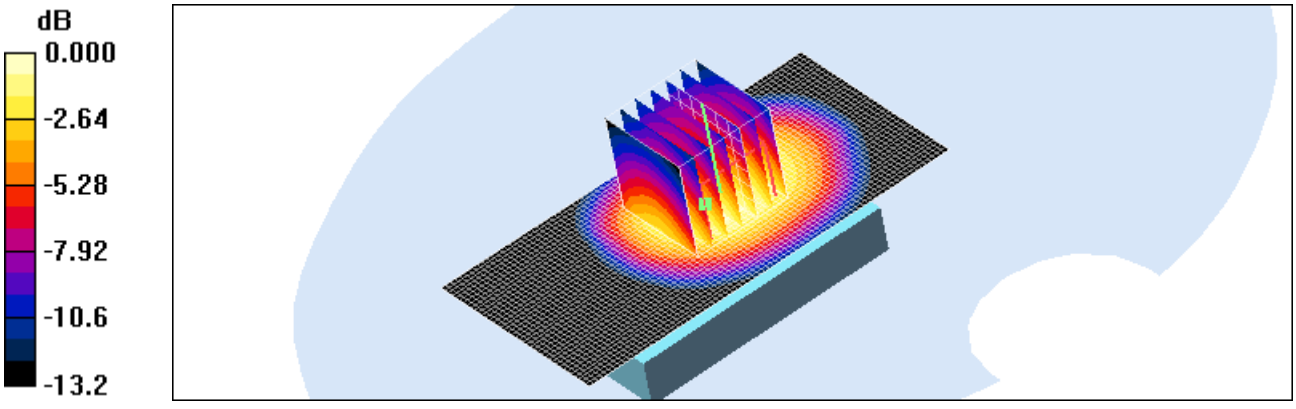
Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.45 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Up QPSK 20MHz 1RB 0 offset 20175/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 1.02 mW/g

Horizontal Up QPSK 20MHz 1RB 0 offset 20175/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.8 V/m; Power Drift = -0.017 dB
Peak SAR (extrapolated) = 1.15 W/kg
SAR(1 g) = 0.913 mW/g; SAR(10 g) = 0.608 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.01 mW/g



0 dB = 1.01mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Jul.3, 2012
Separation Distance:	5 mm

DUT: UML295; Type: bar; Serial: #1

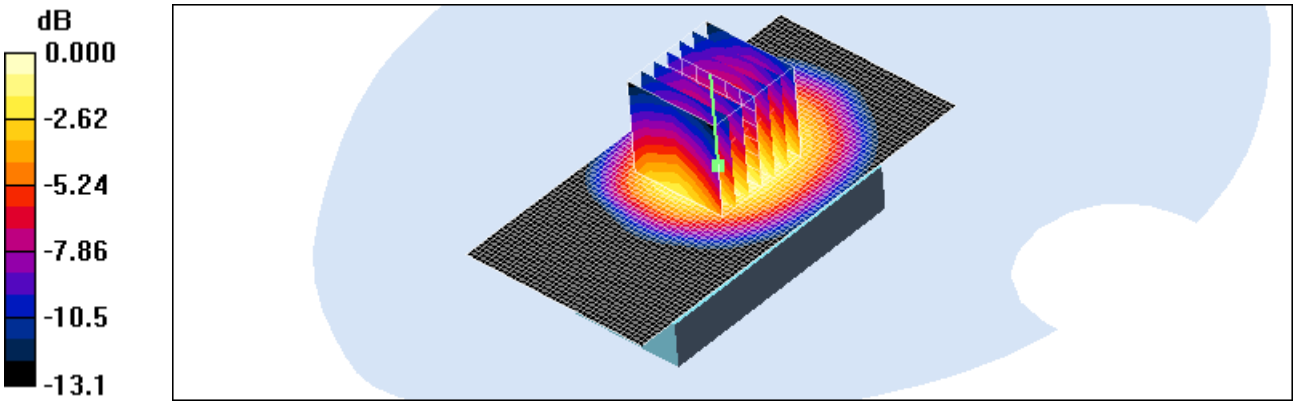
Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.45 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Up QPSK 20MHz 1RB 99 offset 20175/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 1.06 mW/g

Horizontal Up QPSK 20MHz 1RB 99 offset 20175/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.6 V/m; Power Drift = 0.038 dB
Peak SAR (extrapolated) = 1.18 W/kg
SAR(1 g) = 0.944 mW/g; SAR(10 g) = 0.630 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.01 mW/g



0 dB = 1.01mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Jul.3, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

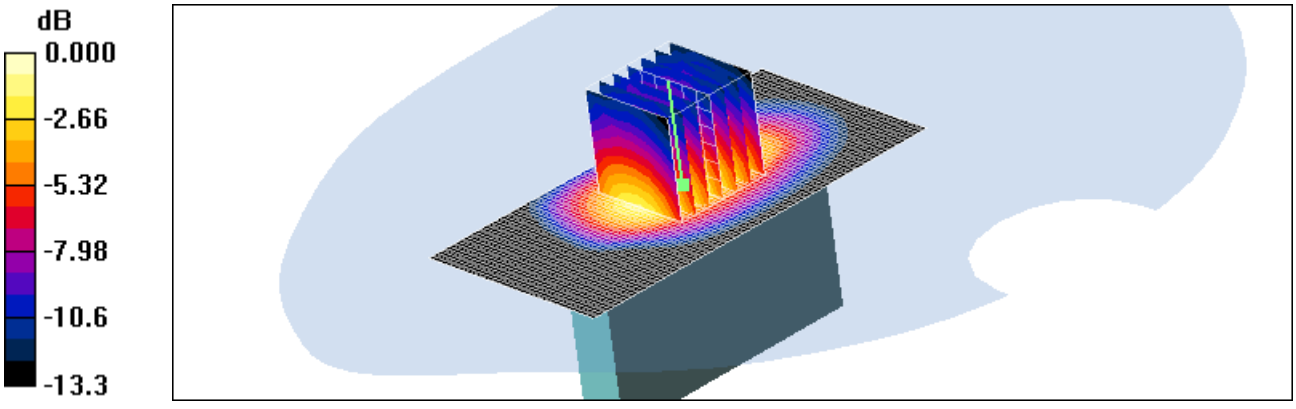
Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.45 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Vertical Front QPSK 20MHz 50RB 25 offset 20175/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.548 mW/g

Vertical Front QPSK 20MHz 50RB 25 offset 20175/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.35 V/m; Power Drift = -0.102 dB
Peak SAR (extrapolated) = 0.692 W/kg
SAR(1 g) = 0.471 mW/g; SAR(10 g) = 0.280 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.524 mW/g



0 dB = 0.524mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Jul.3, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

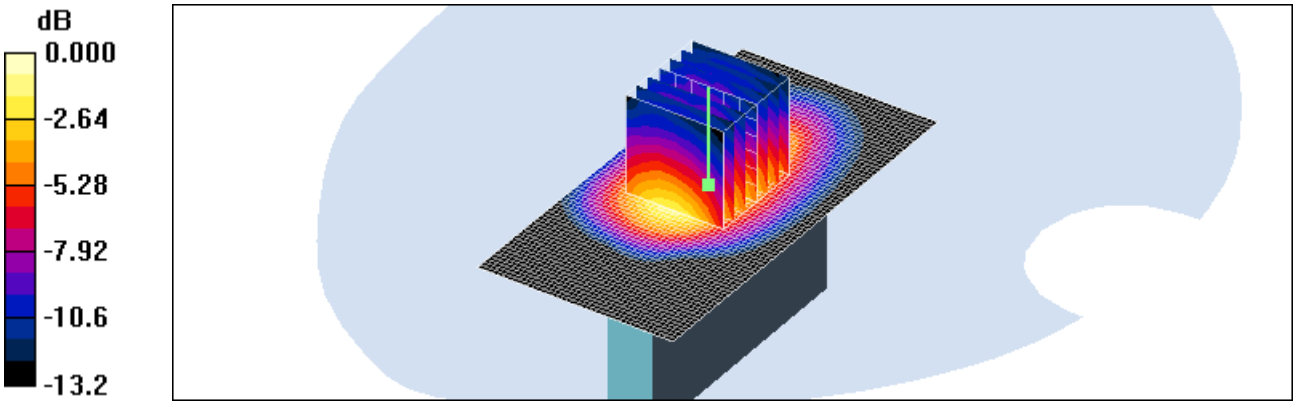
Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.45 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Vertical Front QPSK 20MHz 1RB 0 offset 20175/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.438 mW/g

Vertical Front QPSK 20MHz 1RB 0 offset 20175/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.96 V/m; Power Drift = -0.031 dB
Peak SAR (extrapolated) = 0.539 W/kg
SAR(1 g) = 0.367 mW/g; SAR(10 g) = 0.219 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.413 mW/g



0 dB = 0.413mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Jul.3, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

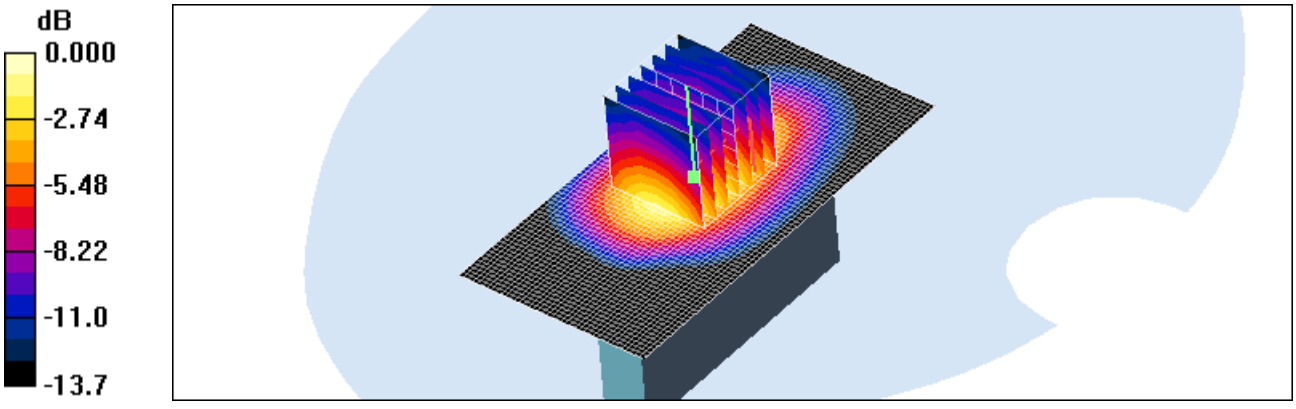
Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.45 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Vertical Front QPSK 20MHz 1RB 99 offset 20175/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.548 mW/g

Vertical Front QPSK 20MHz 1RB 99 offset 20175/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.93 V/m; Power Drift = -0.013 dB
Peak SAR (extrapolated) = 0.703 W/kg
SAR(1 g) = 0.479 mW/g; SAR(10 g) = 0.284 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.533 mW/g



0 dB = 0.533mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Jul.3, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

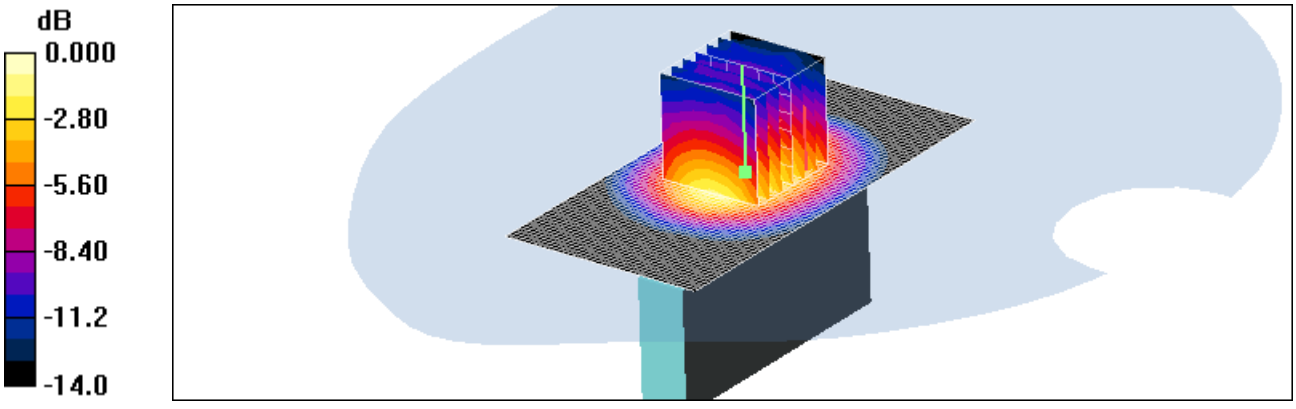
Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.45 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Vertical Back QPSK 20MHz 50RB 25 offset 20175/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.612 mW/g

Vertical Back QPSK 20MHz 50RB 25 offset 20175/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.01 V/m; Power Drift = 0.004 dB
Peak SAR (extrapolated) = 0.777 W/kg
SAR(1 g) = 0.530 mW/g; SAR(10 g) = 0.318 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.592 mW/g



0 dB = 0.592mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Jul.3, 2012
Separation Distance:	5 mm

DUT: UML295; Type: bar; Serial: #1

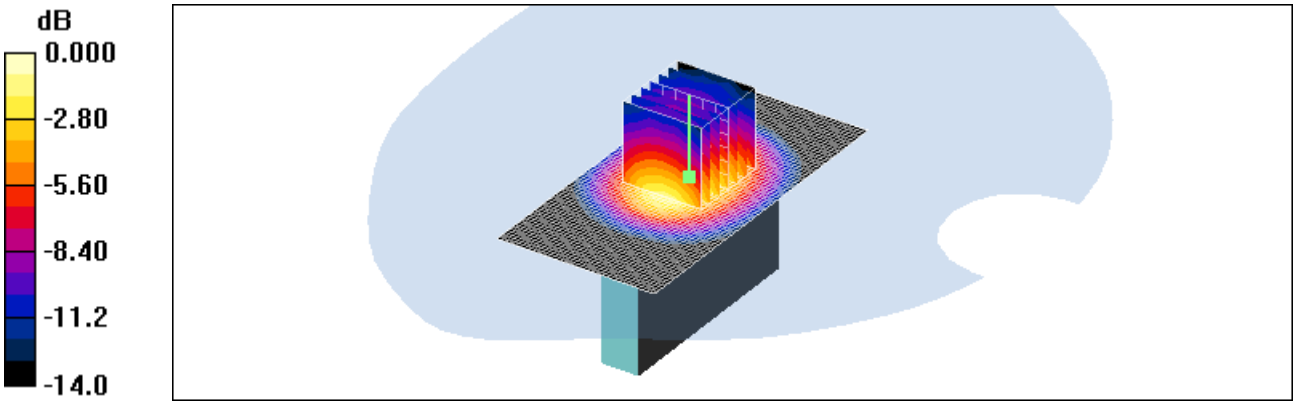
Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.45 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Vertical Back QPSK 20MHz 1RB 0 offset 20175/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.570 mW/g

Vertical Back QPSK 20MHz 1RB 0 offset 20175/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.15 V/m; Power Drift = -0.148 dB
Peak SAR (extrapolated) = 0.705 W/kg
SAR(1 g) = 0.489 mW/g; SAR(10 g) = 0.295 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.545 mW/g



0 dB = 0.545mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Jul.3, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

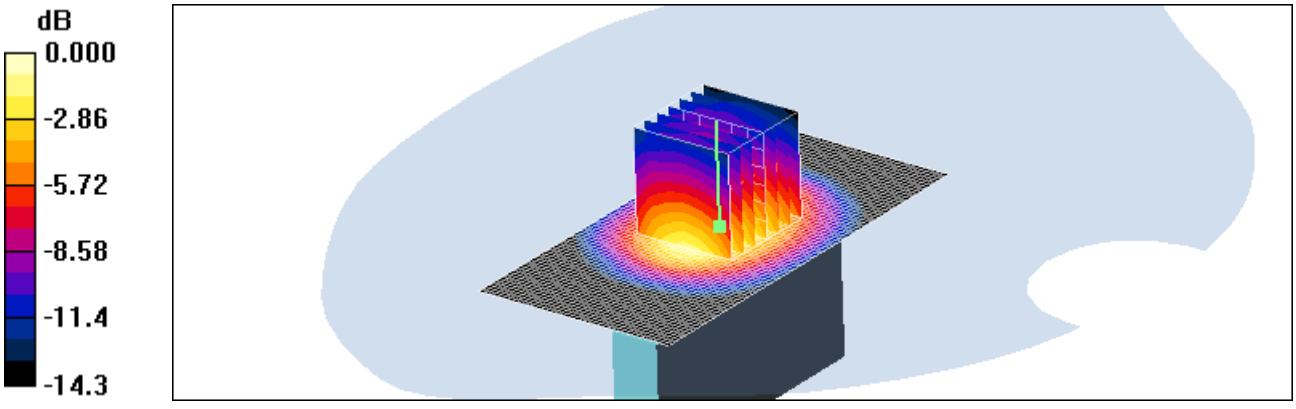
Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.45 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Vertical Back QPSK 20MHz 1RB 99 offset 20175/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.843 mW/g

Vertical Back QPSK 20MHz 1RB 99 offset 20175/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.16 V/m; Power Drift = -0.076 dB
Peak SAR (extrapolated) = 1.02 W/kg
SAR(1 g) = 0.699 mW/g; SAR(10 g) = 0.417 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.777 mW/g



0 dB = 0.777mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Jul.3, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

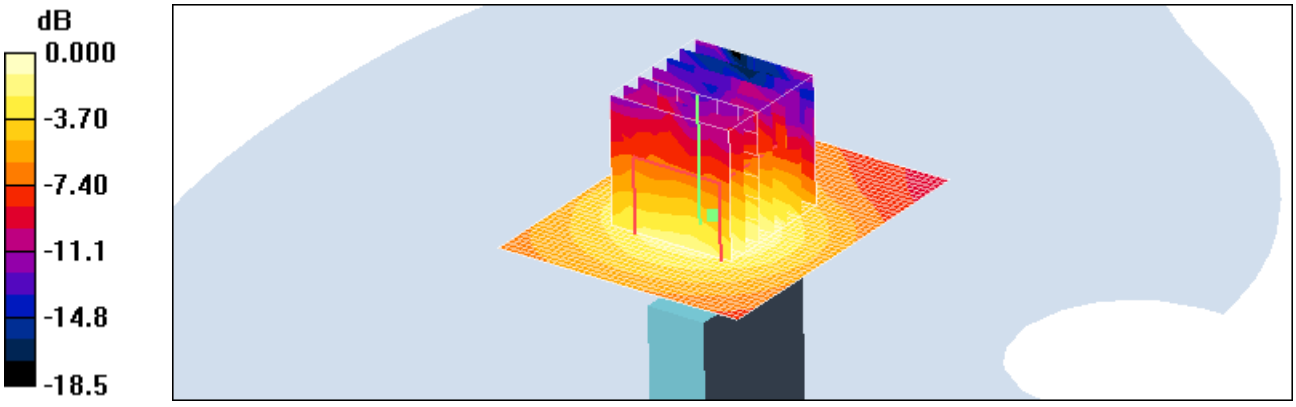
Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.45 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Body Top QPSK 20MHz 50RB 25 offset 20175/Area Scan (41x51x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.103 mW/g

Body Top QPSK 20MHz 50RB 25 offset 20175/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.56 V/m; Power Drift = -0.054 dB
Peak SAR (extrapolated) = 0.161 W/kg
SAR(1 g) = 0.089 mW/g; SAR(10 g) = 0.053 mW/g

Maximum value of SAR (measured) = 0.099 mW/g



0 dB = 0.099mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Jul.3, 2012
Separation Distance: 5 mm

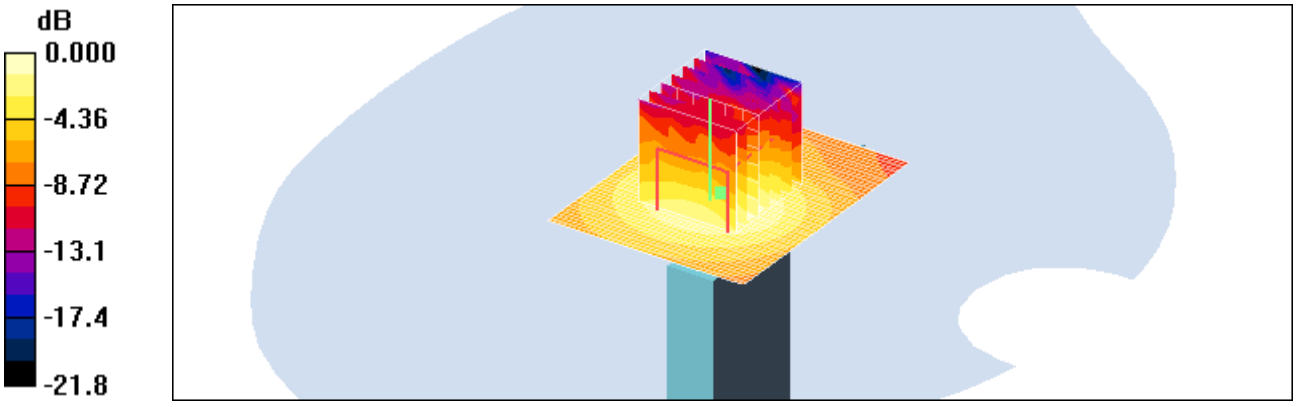
DUT: UML295; Type: bar; Serial: #1

Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.45 mho/m; ε_r = 55.2; ρ = 1000 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(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Body Top QPSK 20MHz 1RB 0 offset 20175/Area Scan (41x51x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.098 mW/g

Body Top QPSK 20MHz 1RB 0 offset 20175/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.22 V/m; Power Drift = -0.049 dB
Peak SAR (extrapolated) = 0.150 W/kg
SAR(1 g) = 0.083 mW/g; SAR(10 g) = 0.049 mW/g
Maximum value of SAR (measured) = 0.092 mW/g



0 dB = 0.092mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Jul.3, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

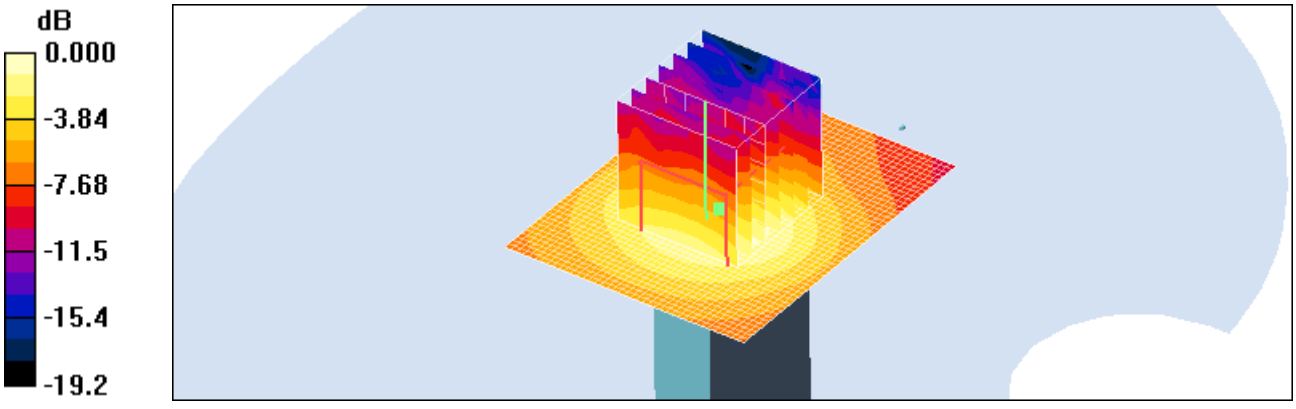
Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.45 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Body Top QPSK 20MHz 1RB 99 offset 20175/Area Scan (41x51x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.123 mW/g

Body Top QPSK 20MHz 1RB 99 offset 20175/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.24 V/m; Power Drift = 0.006 dB
Peak SAR (extrapolated) = 0.187 W/kg
SAR(1 g) = 0.105 mW/g; SAR(10 g) = 0.062 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.116 mW/g



0 dB = 0.116mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Jul.3, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

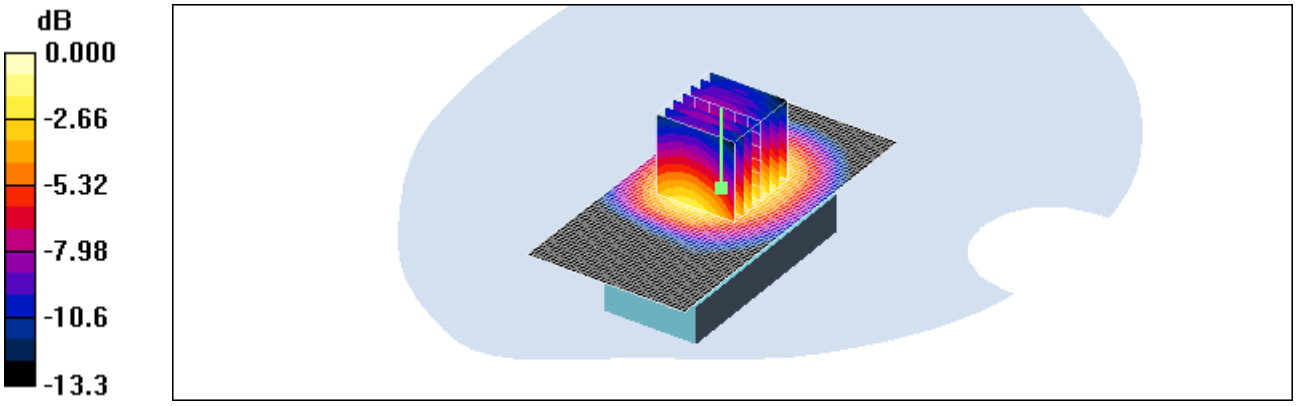
Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.45 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Down 16QAM 20MHz 50RB 25 offset 20175/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.593 mW/g

Horizontal Down 16QAM 20MHz 50RB 25 offset 20175/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.6 V/m; Power Drift = 0.079 dB
Peak SAR (extrapolated) = 0.710 W/kg
SAR(1 g) = 0.536 mW/g; SAR(10 g) = 0.349 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.586 mW/g



0 dB = 0.586mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Jul.3, 2012
Separation Distance:	5 mm

DUT: UML295; Type: bar; Serial: #1

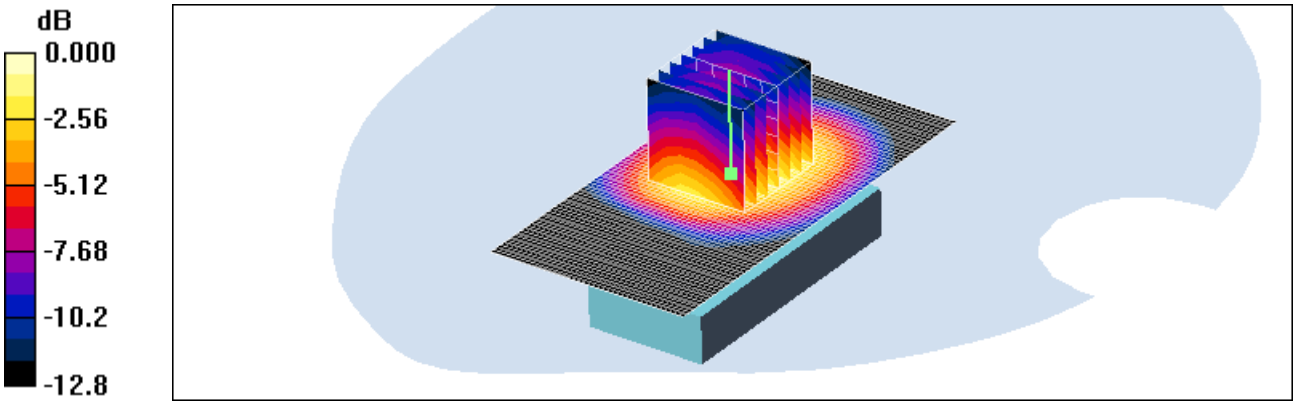
Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.45 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Down 16QAM 20MHz 1RB 0 offset 20175/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.605 mW/g

Horizontal Down 16QAM 20MHz 1RB 0 offset 20175/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.2 V/m; Power Drift = -0.096 dB
Peak SAR (extrapolated) = 0.706 W/kg
SAR(1 g) = 0.541 mW/g; SAR(10 g) = 0.349 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.593 mW/g



0 dB = 0.593mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Jul.3, 2012
Separation Distance:	5 mm

DUT: UML295; Type: bar; Serial: #1

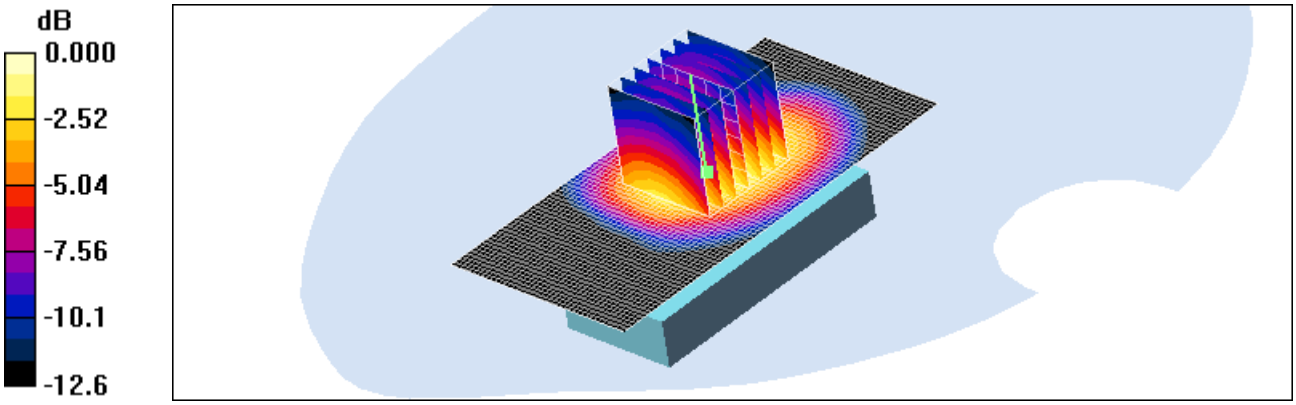
Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.45 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Down 16QAM 20MHz 1RB 99 offset 20175/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.683 mW/g

Horizontal Down 16QAM 20MHz 1RB 99 offset 20175/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.5 V/m; Power Drift = 0.080 dB
Peak SAR (extrapolated) = 0.798 W/kg
SAR(1 g) = 0.608 mW/g; SAR(10 g) = 0.395 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.660 mW/g



0 dB = 0.660mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Jul.3, 2012
Separation Distance:	5 mm

DUT: UML295; Type: bar; Serial: #1

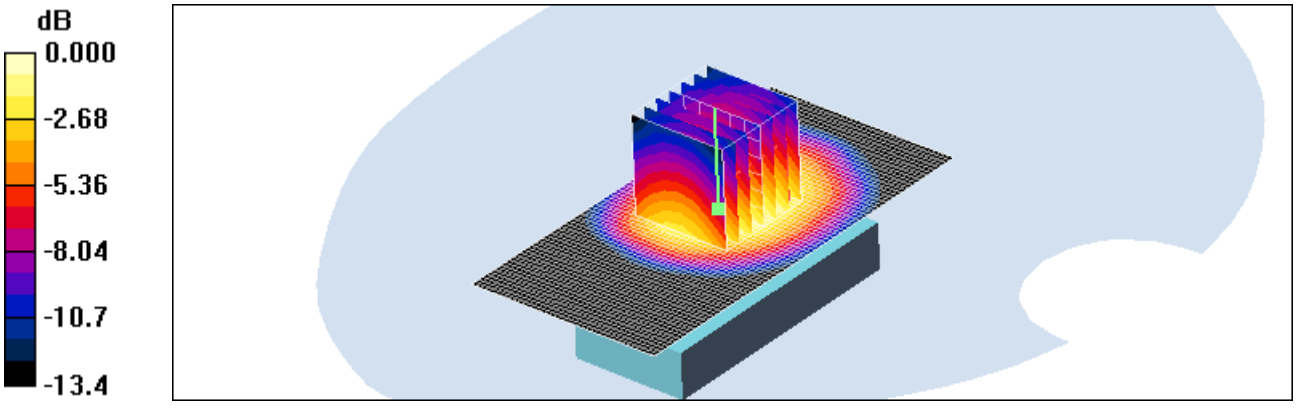
Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.45 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Up 16QAM 20MHz 50RB 25 offset 20175/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.691 mW/g

Horizontal Up 16QAM 20MHz 50RB 25 offset 20175/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.5 V/m; Power Drift = 0.039 dB
Peak SAR (extrapolated) = 0.782 W/kg
SAR(1 g) = 0.614 mW/g; SAR(10 g) = 0.410 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.664 mW/g



0 dB = 0.664mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Jul.3, 2012
Separation Distance:	5 mm

DUT: UML295; Type: bar; Serial: #1

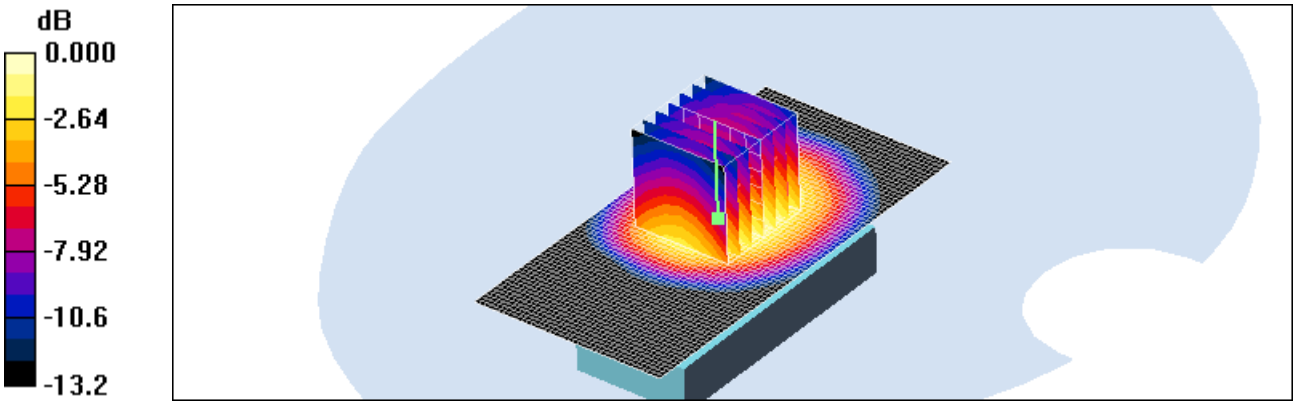
Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.45 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Up 16QAM 20MHz 1RB 0 offset 20175/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.775 mW/g

Horizontal Up 16QAM 20MHz 1RB 0 offset 20175/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.9 V/m; Power Drift = -0.126 dB
Peak SAR (extrapolated) = 0.874 W/kg
SAR(1 g) = 0.695 mW/g; SAR(10 g) = 0.468 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.750 mW/g



0 dB = 0.750mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Jul.3, 2012
Separation Distance:	5 mm

DUT: UML295; Type: bar; Serial: #1

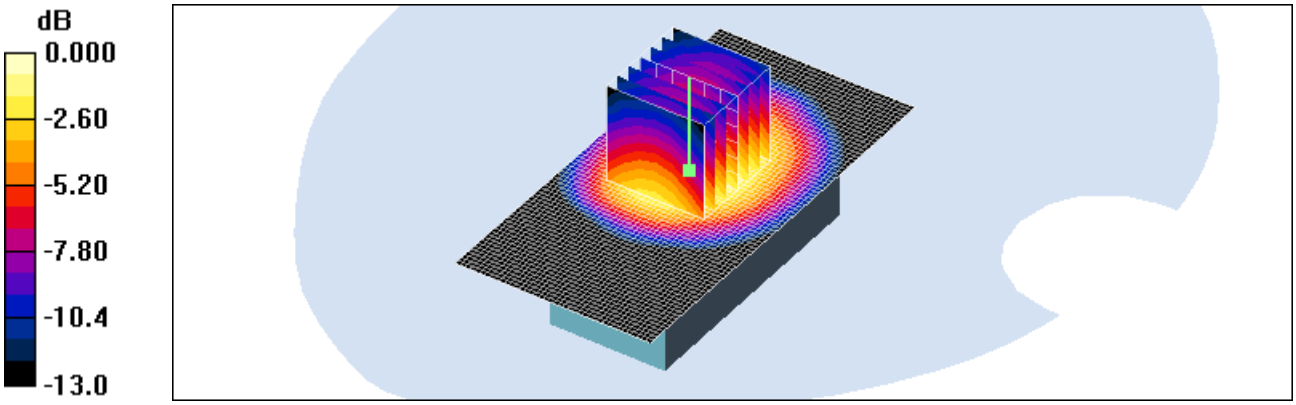
Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.45 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Up 16QAM 20MHz 1RB 99 offset 20175/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.922 mW/g

Horizontal Up 16QAM 20MHz 1RB 99 offset 20175/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.0 V/m; Power Drift = 0.074 dB
Peak SAR (extrapolated) = 1.04 W/kg
SAR(1 g) = 0.822 mW/g; SAR(10 g) = 0.548 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.893 mW/g



0 dB = 0.893mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Jul.3, 2012
Separation Distance:	5 mm

DUT: UML295; Type: bar; Serial: #1

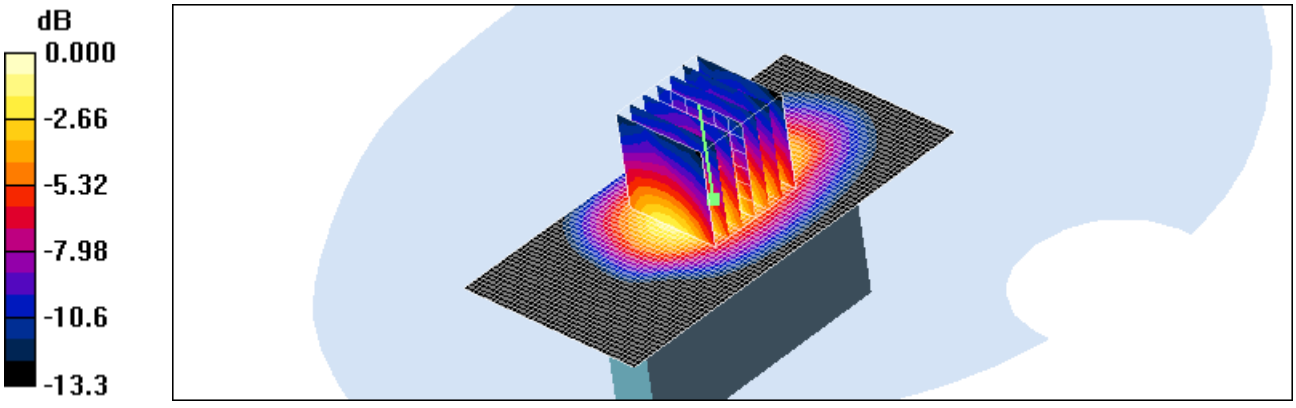
Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.45 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Vertical Front 16QAM 20MHz 50RB 25 offset 20175/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.408 mW/g

Vertical Front 16QAM 20MHz 50RB 25 offset 20175/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.18 V/m; Power Drift = -0.061 dB
Peak SAR (extrapolated) = 0.512 W/kg
SAR(1 g) = 0.344 mW/g; SAR(10 g) = 0.205 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.387 mW/g



0 dB = 0.387mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Jul.3, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

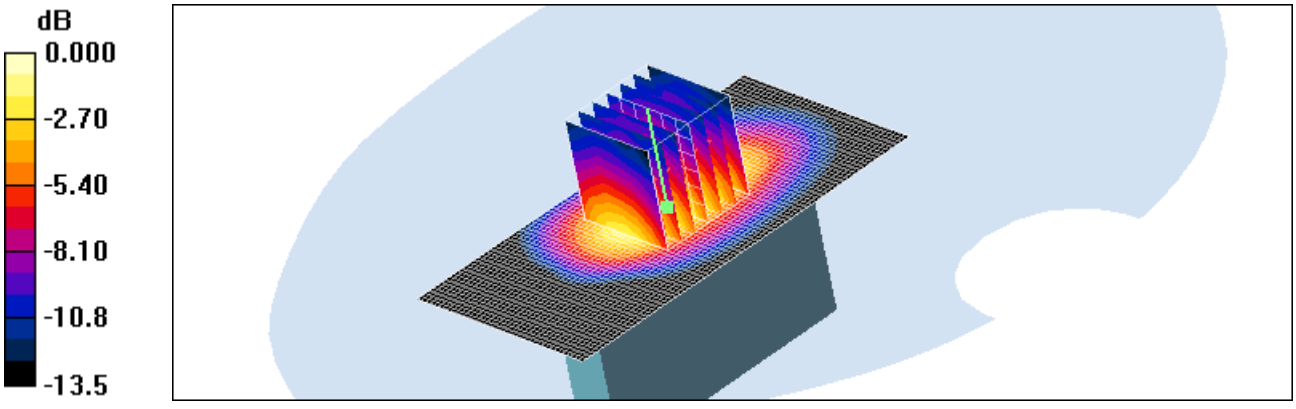
Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.45 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Vertical Front 16QAM 20MHz 1RB 0 offset 20175/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.340 mW/g

Vertical Front 16QAM 20MHz 1RB 0 offset 20175/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.76 V/m; Power Drift = 0.049 dB
Peak SAR (extrapolated) = 0.437 W/kg
SAR(1 g) = 0.297 mW/g; SAR(10 g) = 0.177 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.332 mW/g



0 dB = 0.332mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Jul.3, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

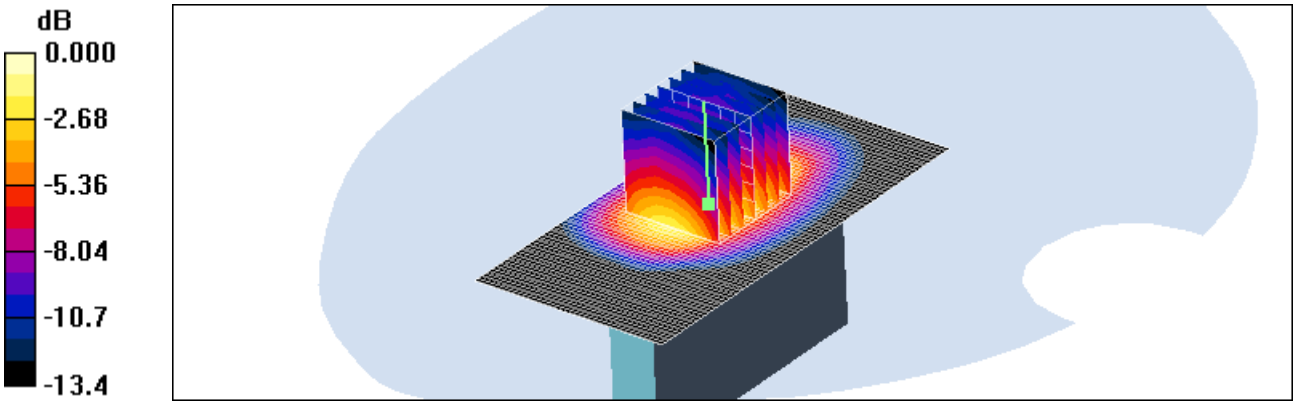
Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.45 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Vertical Front 16QAM 20MHz 1RB 99 offset 20175/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.506 mW/g

Vertical Front 16QAM 20MHz 1RB 99 offset 20175/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.70 V/m; Power Drift = -0.123 dB
Peak SAR (extrapolated) = 0.638 W/kg
SAR(1 g) = 0.428 mW/g; SAR(10 g) = 0.254 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.481 mW/g



0 dB = 0.481mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Jul.3, 2012
Separation Distance:	5 mm

DUT: UML295; Type: bar; Serial: #1

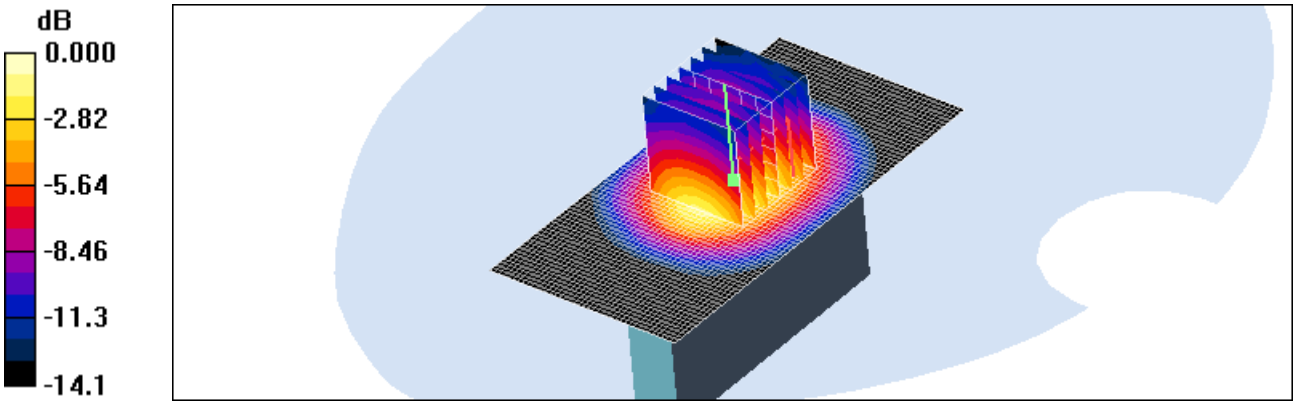
Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.45 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Vertical Back 16QAM 20MHz 50RB 25 offset 20175/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.483 mW/g

Vertical Back 16QAM 20MHz 50RB 25 offset 20175/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.24 V/m; Power Drift = 0.077 dB
Peak SAR (extrapolated) = 0.622 W/kg
SAR(1 g) = 0.426 mW/g; SAR(10 g) = 0.256 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.471 mW/g



0 dB = 0.471mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Jul.3, 2012
Separation Distance:	5 mm

DUT: UML295; Type: bar; Serial: #1

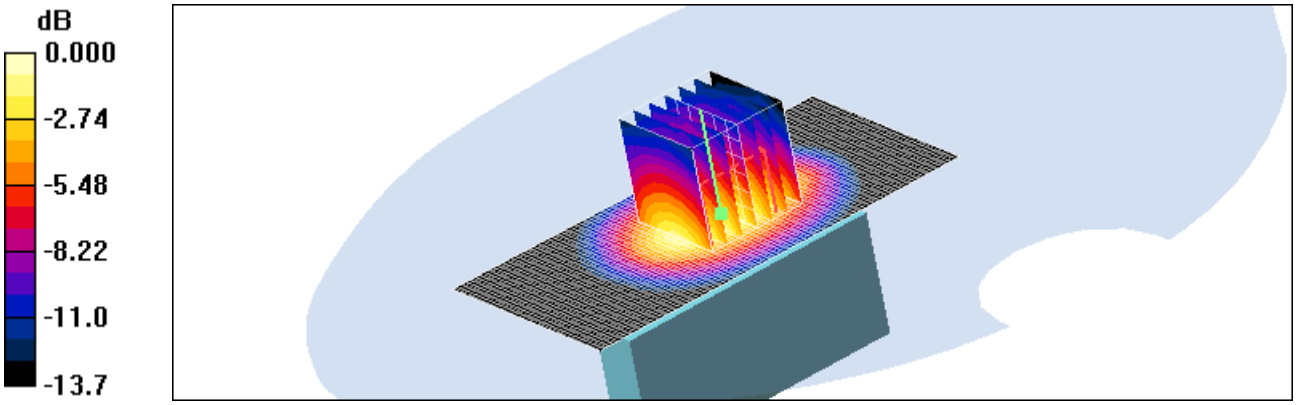
Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.45 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Vertical Front 16QAM 20MHz 1RB 0 offset 20175/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.458 mW/g

Vertical Front 16QAM 20MHz 1RB 0 offset 20175/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.34 V/m; Power Drift = 0.029 dB
Peak SAR (extrapolated) = 0.579 W/kg
SAR(1 g) = 0.402 mW/g; SAR(10 g) = 0.242 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.446 mW/g



0 dB = 0.446mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Jul.3, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

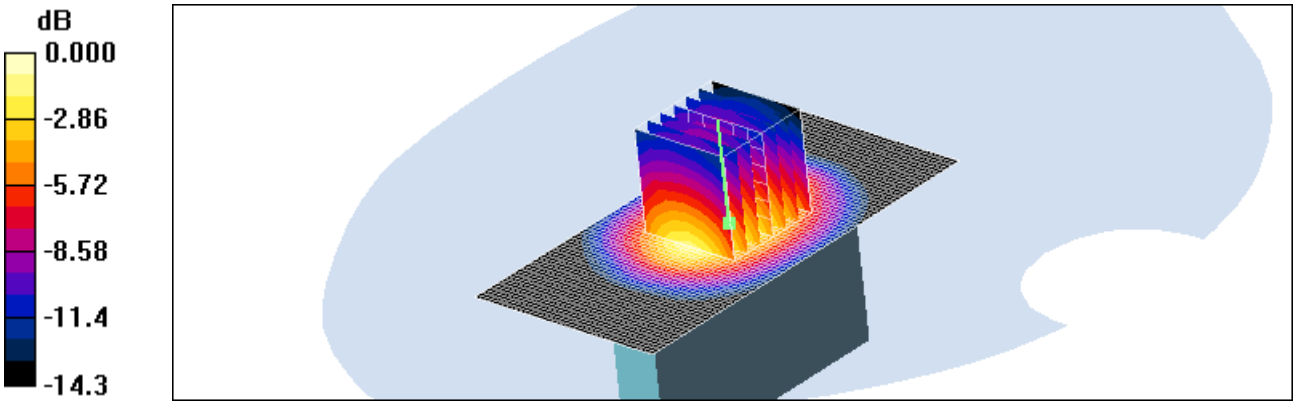
Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.45 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Vertical Back 16QAM 20MHz 1RB 99 offset 20175/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.624 mW/g

Vertical Back 16QAM 20MHz 1RB 99 offset 20175/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.99 V/m; Power Drift = -0.087 dB
Peak SAR (extrapolated) = 0.786 W/kg
SAR(1 g) = 0.543 mW/g; SAR(10 g) = 0.325 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.605 mW/g



0 dB = 0.605mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Jul.3, 2012
Separation Distance: 5 mm

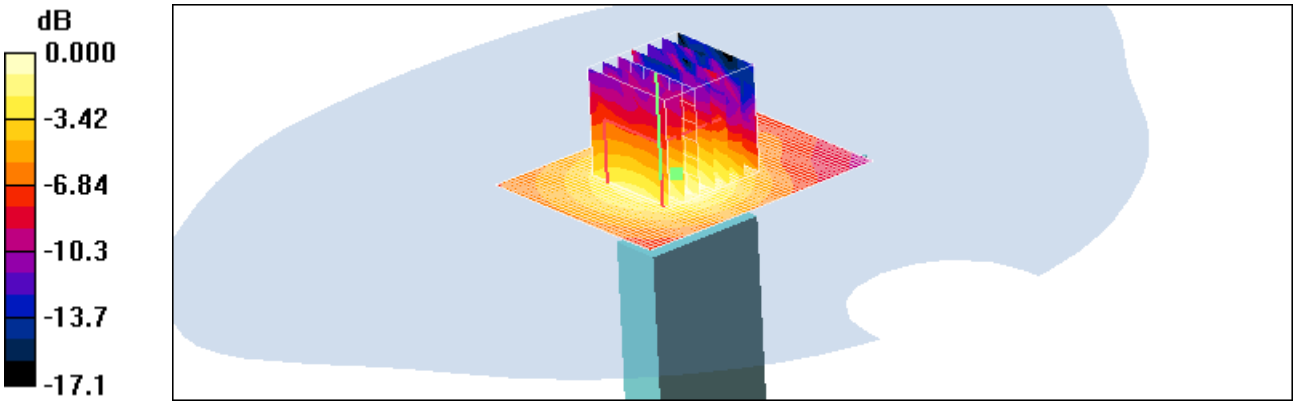
DUT: UML295; Type: bar; Serial: #1

Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.45 mho/m; ε_r = 55.2; ρ = 1000 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(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Body Top 16QAM 20MHz 50RB 25 offset 20175/Area Scan (41x51x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.084 mW/g

Body Top 16QAM 20MHz 50RB 25 offset 20175/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.60 V/m; Power Drift = -0.005 dB
Peak SAR (extrapolated) = 0.130 W/kg
SAR(1 g) = 0.070 mW/g; SAR(10 g) = 0.042 mW/g
Maximum value of SAR (measured) = 0.078 mW/g



0 dB = 0.078mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Jul.3, 2012
Separation Distance: 5 mm

DUT: UML295; Type: bar; Serial: #1

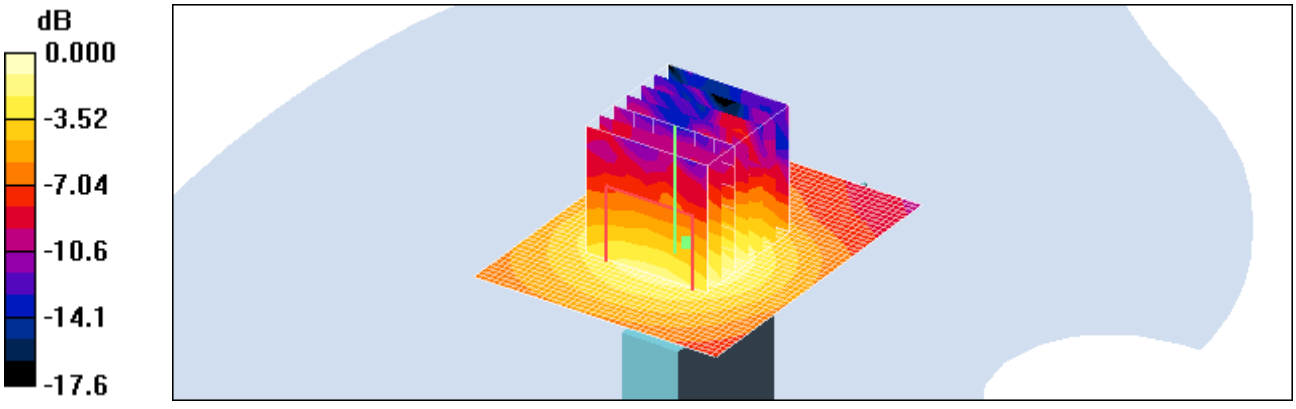
Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.45 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Body Top 16QAM 20MHz 1RB 0 offset 20175/Area Scan (41x51x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.080 mW/g

Body Top 16QAM 20MHz 1RB 0 offset 20175/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.37 V/m; Power Drift = 0.083 dB
Peak SAR (extrapolated) = 0.125 W/kg
SAR(1 g) = 0.068 mW/g; SAR(10 g) = 0.040 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.076 mW/g



0 dB = 0.076mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Jul.3, 2012
Separation Distance:	5 mm

DUT: UML295; Type: bar; Serial: #1

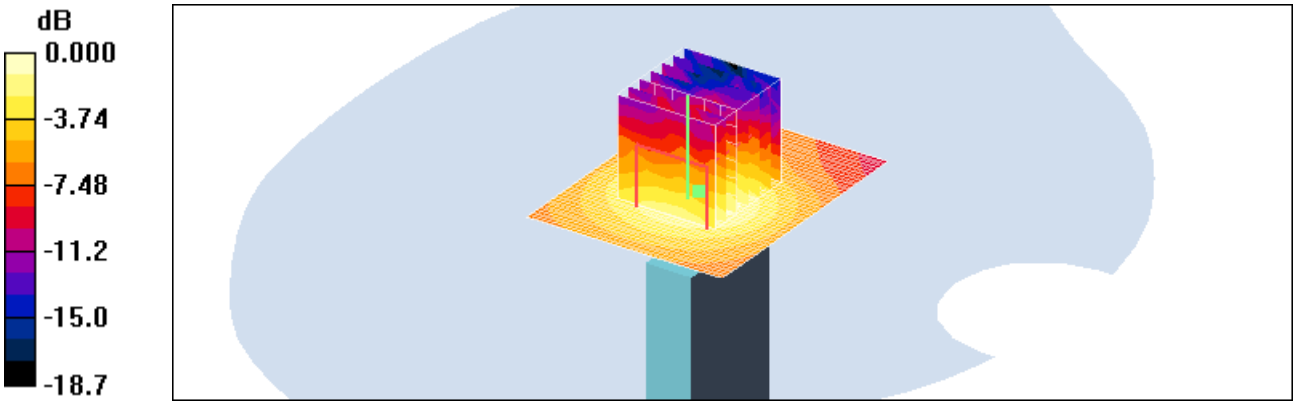
Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.45 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Body Top 16QAM 20MHz 1RB 99 offset 20175/Area Scan (41x51x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.101 mW/g

Body Top 16QAM 20MHz 1RB 99 offset 20175/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.35 V/m; Power Drift = -0.020 dB
Peak SAR (extrapolated) = 0.153 W/kg
SAR(1 g) = 0.085 mW/g; SAR(10 g) = 0.050 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.094 mW/g



0 dB = 0.094mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jun. 28, 2012
Separation Distance: 5 mm

DUT: UML295; 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; σ = 1.01 mho/m; ε_r = 54.6; ρ = 1000 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(6.27, 6.27, 6.27); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Down EVDO 384/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.03 mW/g

Horizontal Down EVDO 384/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 28.5 V/m; Power Drift = 0.109 dB
Peak SAR (extrapolated) = 1.47 W/kg
SAR(1 g) = 0.951 mW/g; SAR(10 g) = 0.600 mW/g
Maximum value of SAR (measured) = 1.04 mW/g
Horizontal Down EVDO 384/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 28.5 V/m; Power Drift = 0.109 dB
Peak SAR (extrapolated) = 2.04 W/kg
SAR(1 g) = 0.722 mW/g; SAR(10 g) = 0.355 mW/g
Maximum value of SAR (measured) = 0.804 mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 1, 2012

DUT: UML295; Type: bar; Serial: #1

Communication System: PCS 1900MHz FCC; Frequency: 1851.25 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1851.25 MHz; σ = 1.47 mho/m; ε_r = 52.2; ρ = 1000 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Up EVDO 25/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 1.07 mW/g

Horizontal Up EVDO 25/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.9 V/m; Power Drift = -0.138 dB
Peak SAR (extrapolated) = 1.39 W/kg
SAR(1 g) = 1 mW/g; SAR(10 g) = 0.627 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.11 mW/g

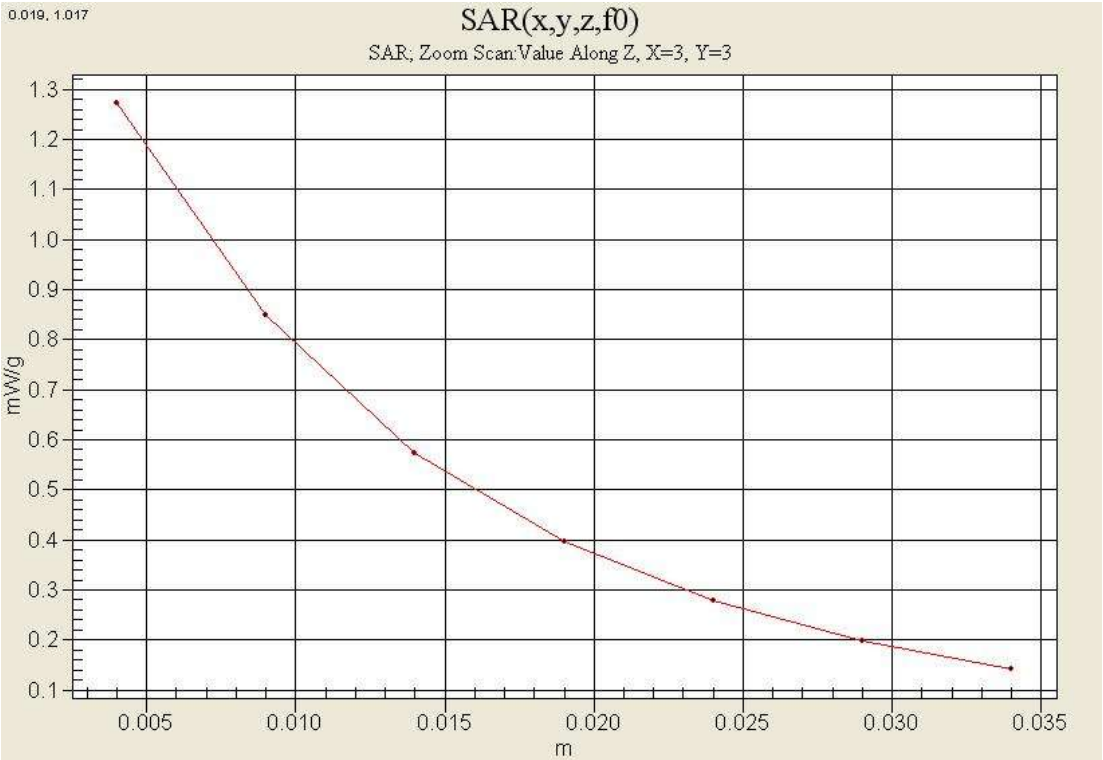
Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jun. 28, 2012

DUT: UML295; Type: bar; Serial: #1

Communication System: GSM 850; Frequency: 848.8 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 848.8 MHz; σ = 1.03 mho/m; ε_r = 54.4; ρ = 1000 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(6.27, 6.27, 6.27); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Down 251 1TX/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.26 mW/g

Horizontal Down 251 1TX/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 22.1 V/m; Power Drift = -0.006 dB
Peak SAR (extrapolated) = 1.76 W/kg
SAR(1 g) = 1.16 mW/g; SAR(10 g) = 0.748 mW/g
Maximum value of SAR (measured) = 1.27 mW/g



Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 1, 2012

DUT: UML295; Type: bar; Serial: #1

Communication System: GSM1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.5 mho/m; ε_r = 52.1; ρ = 1000 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Up 661 1TX/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.875 mW/g

Horizontal Up 661 1TX/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.2 V/m; Power Drift = 0.031 dB
Peak SAR (extrapolated) = 1.15 W/kg
SAR(1 g) = 0.778 mW/g; SAR(10 g) = 0.471 mW/g
Maximum value of SAR (measured) = 0.853 mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jun. 28, 2012

DUT: UML295; Type: bar; Serial: #1

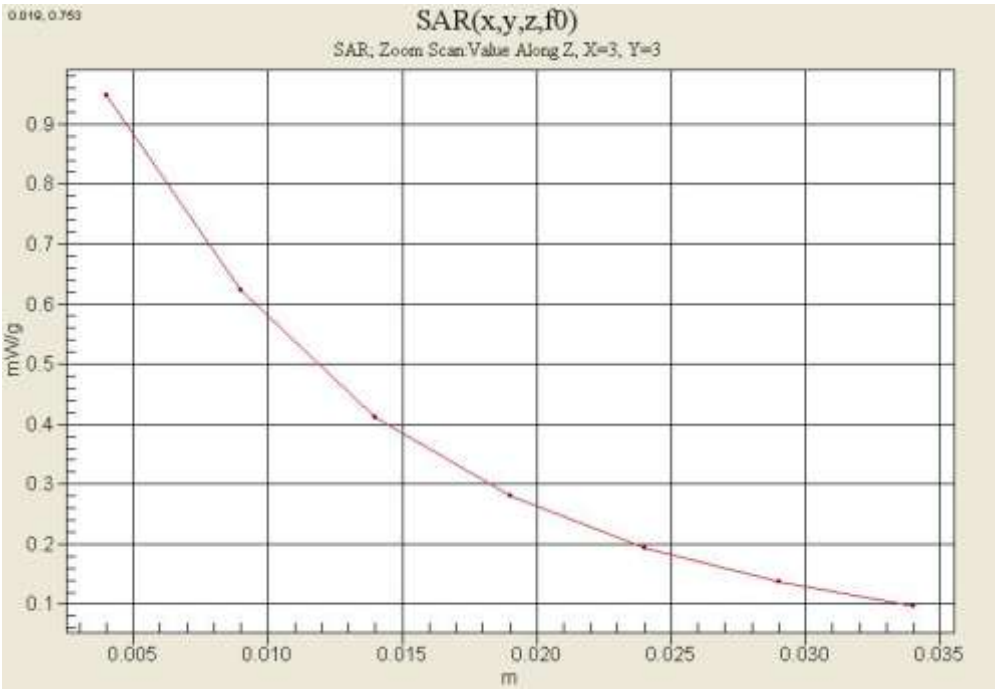
Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.01 mho/m; ε_r = 54.6; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.27, 6.27, 6.27); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Down 4183/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.924 mW/g

Horizontal Down 4183/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 25.4 V/m; Power Drift = -0.116 dB
Peak SAR (extrapolated) = 1.33 W/kg
SAR(1 g) = 0.858 mW/g; SAR(10 g) = 0.532 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.949 mW/g



Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 1, 2012

DUT: UML295; Type: bar; Serial: #1

Communication System: WCDMA1900; Frequency: 1852.4 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.47 mho/m; ε_r = 52.2; ρ = 1000 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Up 9262/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 1.09 mW/g

Horizontal Up 9262/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.4 V/m; Power Drift = -0.018 dB
Peak SAR (extrapolated) = 1.36 W/kg
SAR(1 g) = 0.974 mW/g; SAR(10 g) = 0.615 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.06 mW/g

Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Jul. 5, 2012

DUT: UML295; Type: bar; Serial: #1

Communication System: LTE; Frequency: 782 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 782 MHz; σ = 1.02 mho/m; ε_r = 54.9; ρ = 1000 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(6.36, 6.36, 6.36); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Up QPSK 10MHz 1RB 0 offset 23230/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 1.19 mW/g

Horizontal Up QPSK 10MHz 1RB 0 offset 23230/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.0 V/m; Power Drift = -0.129 dB
Peak SAR (extrapolated) = 1.58 W/kg
SAR(1 g) = 1.11 mW/g; SAR(10 g) = 0.746 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.20 mW/g

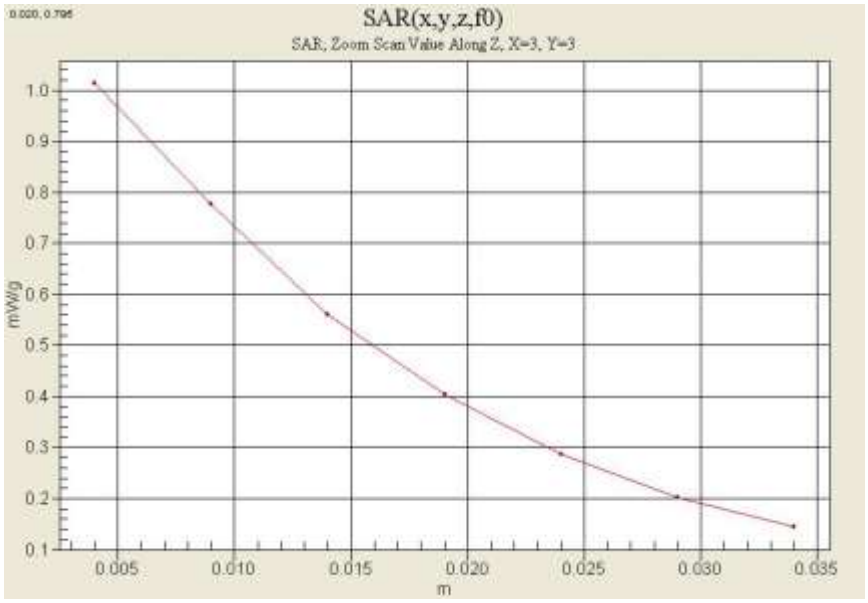
Test Laboratory: HCT CO., LTD
EUT Type: CDMA/GSM/WCDMA/LTE Data Dongle
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Jul.3, 2012

DUT: UML295; Type: bar; Serial: #1

Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.45 mho/m; ε_r = 55.2; ρ = 1000 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(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Horizontal Up QPSK 20MHz 1RB 99 offset 20175/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 1.06 mW/g
Horizontal Up QPSK 20MHz 1RB 99 offset 20175/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.6 V/m; Power Drift = 0.038 dB
Peak SAR (extrapolated) = 1.18 W/kg
SAR(1 g) = 0.944 mW/g; SAR(10 g) = 0.630 mW/g
Maximum value of SAR (measured) = 1.01 mW/g



Attachment 2. – Dipole Validation Plots

■ Validation Data (850 MHz Body)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.2 ℃

Test Date: Jun. 28, 2012

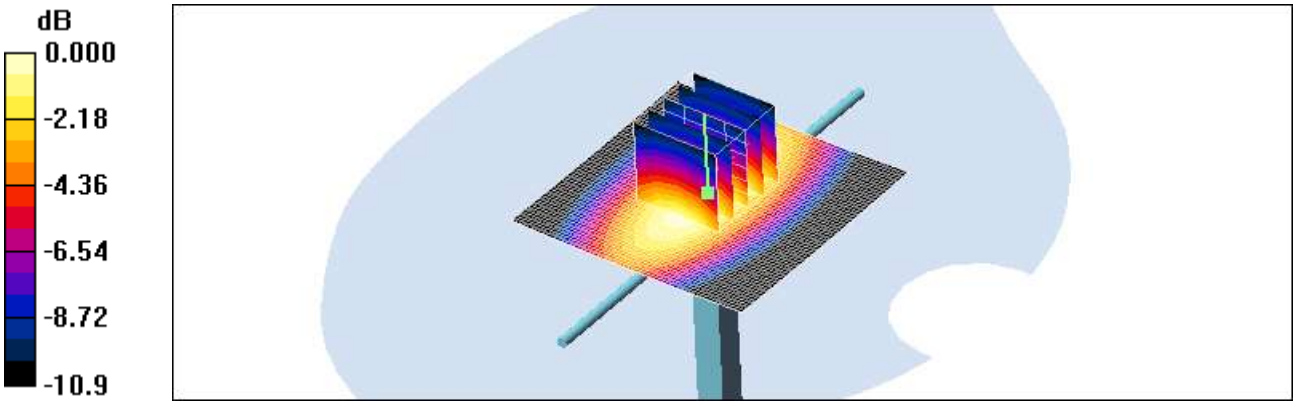
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 – SN:441

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 1.01 mho/m; ε_r = 54.6; ρ = 1000 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(6.27, 6.27, 6.27); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

Validation 835MHz/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.06 mW/g

Validation 835MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 33.7 V/m; Power Drift = -0.067 dB
Peak SAR (extrapolated) = 1.39 W/kg
SAR(1 g) = 0.965 mW/g; SAR(10 g) = 0.625 mW/g
Maximum value of SAR (measured) = 1.05 mW/g



0 dB = 1.05mW/g

■ Validation Data (1900 MHz Body)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.2 ℃

Test Date: Jul. 01, 2012

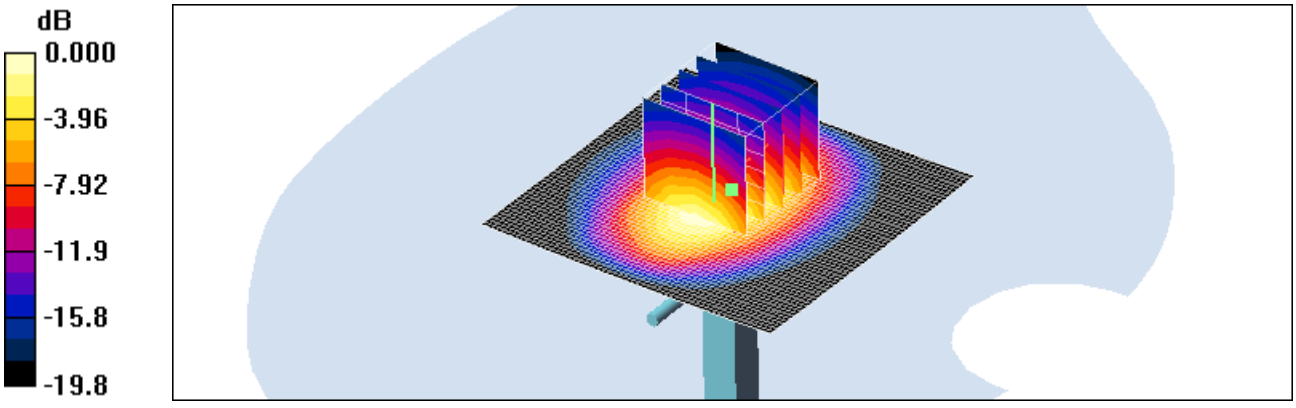
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 – SN:5d032

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.52 mho/m; ε_r = 51.9; ρ = 1000 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

Dipole 1900MHz Validation/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 4.85 mW/g

Dipole 1900MHz Validation/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 57.6 V/m; Power Drift = -0.014 dB
Peak SAR (extrapolated) = 7.18 W/kg
SAR(1 g) = 4.17 mW/g; SAR(10 g) = 2.16 mW/g
Maximum value of SAR (measured) = 4.70 mW/g



0 dB = 4.70mW/g

■ Validation Data (LTE 13 Body)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.2 ℃

Test Date: Jul. 05, 2012

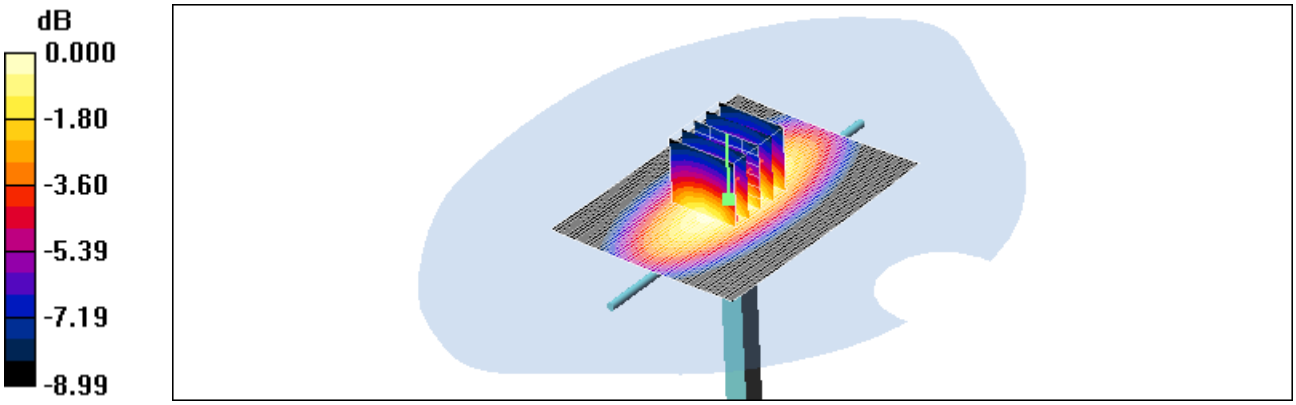
DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 – SN:xxx

Communication System: CW; Frequency: 750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 750 MHz; σ = 0.987 mho/m; ε_r = 55.2; ρ = 1000 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(6.36, 6.36, 6.36); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

Validatoin 750 MHz/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.947 mW/g

Validatoin 750 MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 32.2 V/m; Power Drift = -0.013 dB
Peak SAR (extrapolated) = 1.09 W/kg
SAR(1 g) = 0.876 mW/g; SAR(10 g) = 0.614 mW/g
Maximum value of SAR (measured) = 0.947 mW/g



0 dB = 0.947mW/g

■ Validation Data (LTE4 1800 MHz Body)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.3 ℃

Test Date: Jul. 03, 2012

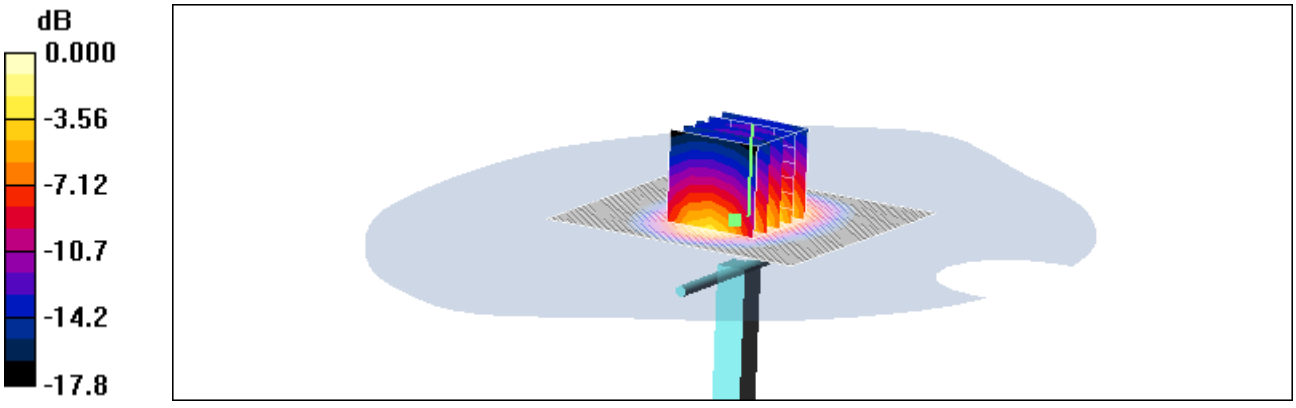
DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 – SN:2d007

Communication System: CW; Frequency: 1800 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1800 MHz; σ = 1.51 mho/m; ε_r = 55.1; ρ = 1000 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(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: SAM 835/900 MHz; Type: SAM

Dipole 1800MHz Validation/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 4.62 mW/g

Dipole 1800MHz Validation/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 57.3 V/m; Power Drift = -0.002 dB
Peak SAR (extrapolated) = 6.22 W/kg
SAR(1 g) = 3.84 mW/g; SAR(10 g) = 2.07 mW/g
Maximum value of SAR (measured) = 4.30 mW/g



0 dB = 4.30mW/g

■ Dielectric Parameter (835 MHz Body)

Title	UML295
SubTitle	CDMA 850(Body)
Test Date	Jun. 28, 2012

Frequency	e'	e''
800000000.0000	54.6632	21.6722
805000000.0000	54.6880	21.6683
810000000.0000	54.6505	21.6468
815000000.0000	54.6600	21.6591
820000000.0000	54.6786	21.6789
825000000.0000	54.6628	21.6939
830000000.0000	54.6179	21.7026
835000000.0000	54.6141	21.7293
840000000.0000	54.5765	21.7516
845000000.0000	54.4936	21.7521
850000000.0000	54.4175	21.7667
855000000.0000	54.3230	21.7285
860000000.0000	54.2180	21.7166
865000000.0000	54.1486	21.6377
870000000.0000	54.0440	21.6055
875000000.0000	53.9596	21.5662
880000000.0000	53.9236	21.4557
885000000.0000	53.8910	21.4085
890000000.0000	53.8408	21.3686
895000000.0000	53.8157	21.2561
900000000.0000	53.8016	21.1978

■ Dielectric Parameter (1900 MHz Body)

Title	UML295
SubTitle	PCS1900(Body)
Test Date	Jun. 1, 2012

Frequency	e'	e''
1850000000.0000	52.2510	14.2986
1855000000.0000	52.2056	14.3244
1860000000.0000	52.2211	14.3328
1865000000.0000	52.1712	14.3809
1870000000.0000	52.1223	14.3886
1875000000.0000	52.1230	14.3707
1880000000.0000	52.0885	14.3734
1885000000.0000	52.0402	14.3561
1890000000.0000	51.9786	14.3797
1895000000.0000	51.9600	14.4188
1900000000.0000	51.9442	14.4125
1905000000.0000	51.8583	14.4550
1910000000.0000	51.8955	14.5265
1915000000.0000	51.8650	14.5697
1920000000.0000	51.8727	14.6069
1925000000.0000	51.8933	14.6539
1930000000.0000	51.9184	14.6932
1935000000.0000	51.9801	14.7169
1940000000.0000	51.9301	14.7279
1945000000.0000	51.9983	14.7379
1950000000.0000	52.0218	14.7459

■ Dielectric Parameter (LTE13 Body)

Title	UML295
SubTitle	LTE (Body)
Test Date	Jun. 5, 2012

Frequency	e'	e''
700000000.0000	55.8384	24.1226
705000000.0000	55.7951	24.0425
710000000.0000	55.7388	24.0181
715000000.0000	55.6321	24.0479
720000000.0000	55.6003	23.9535
725000000.0000	55.5318	23.8781
730000000.0000	55.4603	23.8852
735000000.0000	55.4073	23.8494
740000000.0000	55.3445	23.7989
745000000.0000	55.3415	23.7413
750000000.0000	55.2300	23.6476
755000000.0000	55.1438	23.6252
760000000.0000	55.0969	23.6081
765000000.0000	55.0474	23.5443
770000000.0000	54.9173	23.4850
775000000.0000	54.9177	23.3880
780000000.0000	54.8760	23.4238
785000000.0000	54.8201	23.3471
790000000.0000	54.7148	23.3934
795000000.0000	54.6949	23.2475
800000000.0000	54.6295	23.2342

■ Dielectric Parameter (LTE4 1800 MHz Body)

Title	UML295
SubTitle	LTE (Body)
Test Date	Jun. 3, 2012

Frequency	e'	e''
1700000000.0000	55.2529	15.0452
1710000000.0000	55.2258	15.0434
1720000000.0000	55.1813	15.0626
1730000000.0000	55.1638	15.0665
1740000000.0000	55.1544	15.0770
1750000000.0000	55.1301	15.0805
1760000000.0000	55.1337	15.0666
1770000000.0000	55.1284	15.0329
1780000000.0000	55.0996	15.0507
1790000000.0000	55.0807	15.0386
1800000000.0000	55.0676	15.0487
1810000000.0000	55.0310	15.0610
1820000000.0000	54.9941	15.0710
1830000000.0000	54.9535	15.1136
1840000000.0000	54.9302	15.1233
1850000000.0000	54.9009	15.1439
1860000000.0000	54.8613	15.1560
1870000000.0000	54.8439	15.1527
1880000000.0000	54.8554	15.1664
1890000000.0000	54.8372	15.1453
1900000000.0000	54.8203	15.1235

Attachment 3. – Probe Calibration Data

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Client HCT (Dymstec) Certificate No: ET3-1630_Nov11

CALIBRATION CERTIFICATE

Object ET3DV6 - SN:1630

Calibration procedure(s) QA CAL-01.v8, QA CAL-12.v7, QA CAL-23.v4, QA CAL-25.v4
Calibration procedure for dosimetric E-field probes

Calibration date: November 18, 2011

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	31-Mar-11 (No. 217-01372)	Apr-12
Power sensor E4412A	MY41496087	31-Mar-11 (No. 217-01372)	Apr-12
Reference 3 dB Attenuator	SN: S5054 (3c)	29-Mar-11 (No. 217-01369)	Apr-12
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Reference 30 dB Attenuator	SN: S5129 (30b)	29-Mar-11 (No. 217-01370)	Apr-12
Reference Probe ES3DV2	SN: 3013	29-Dec-10 (No. ES3-3013_Dec10)	Dec-11
DAE4	SN: 654	3-May-11 (No. DAE4-654_May11)	May-12
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Apr-11)	In house check: Apr-13
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: November 18, 2011

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Certificate No: ET3-1630_Nov11 Page 1 of 11

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., ϑ = 0 is normal to probe axis

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003

b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z*: Assessed for E-field polarization ϑ = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not affect the E^2-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,y,z * frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- *DCPx,y,z*: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- *PAR*: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- *Ax,y,z; Bx,y,z; Cx,y,z, VRx,y,z*: *A, B, C* are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. *VR* is the maximum calibration range expressed in RMS voltage across the diode.
- *ConvF and Boundary Effect Parameters*: Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 800 MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to *NORMx,y,z * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- *Spherical isotropy (3D deviation from isotropy)*: in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset*: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

Probe ET3DV6

SN:1630

Manufactured: October 12, 2001
Calibrated: November 18, 2011

Calibrated for DASY/EASY Systems
(Note: non-compatible with DASY2 system!)

DASY/EASY - Parameters of Probe: ET3DV6 - SN:1630

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	1.71	1.62	1.60	± 10.1 %
DCP (mV)[B]	100.3	99.5	101.7	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dB	C dB	VR mV	Unc[E] (k=2)
10000	CW	0.00	X	0.00	0.00	1.00	98.2	±2.7 %
			Y	0.00	0.00	1.00	101.9	
			Z	0.00	0.00	1.00	98.0	

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

[A] The uncertainties of NormX,Y,Z do not affect the E^2-field uncertainty inside TSL (see Pages 5 and 6).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

DASY/EASY - Parameters of Probe: ET3DV6 - SN:1630

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
300	45.3	0.87	8.13	8.13	8.13	0.31	1.60	± 13.4 %
450	43.5	0.87	7.40	7.40	7.40	0.22	2.27	± 13.4 %
750	41.9	0.89	6.61	6.61	6.61	0.82	1.68	± 12.0 %
835	41.5	0.90	6.27	6.27	6.27	0.72	1.84	± 12.0 %
900	41.5	0.97	6.16	6.16	6.16	0.68	1.92	± 12.0 %
1450	40.5	1.20	5.57	5.57	5.57	0.54	2.48	± 12.0 %
1750	40.1	1.37	5.43	5.43	5.43	0.60	2.26	± 12.0 %
1900	40.0	1.40	5.17	5.17	5.17	0.63	2.15	± 12.0 %
1950	40.0	1.40	5.05	5.05	5.05	0.63	2.13	± 12.0 %
2450	39.2	1.80	4.57	4.57	4.57	0.81	1.74	± 12.0 %

[C] Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

DASY/EASY - Parameters of Probe: ET3DV6 - SN:1630

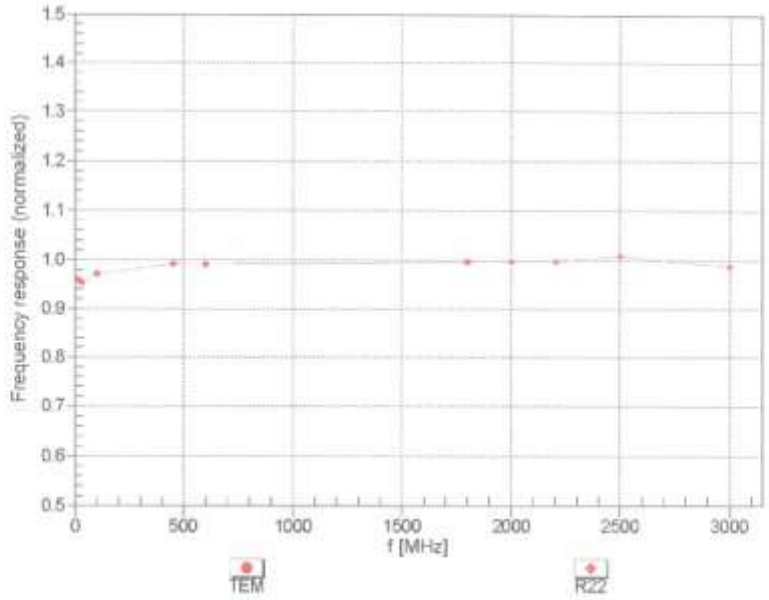
Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
300	58.2	0.92	7.96	7.96	7.96	0.29	2.29	± 13.4 %
450	56.7	0.94	7.74	7.74	7.74	0.16	2.25	± 13.4 %
750	55.5	0.96	6.36	6.36	6.36	0.75	1.84	± 12.0 %
835	55.2	0.97	6.27	6.27	6.27	0.72	1.88	± 12.0 %
1450	54.0	1.30	5.46	5.46	5.46	0.70	1.97	± 12.0 %
1750	53.4	1.49	4.95	4.95	4.95	0.59	2.72	± 12.0 %
1900	53.3	1.52	4.75	4.75	4.75	0.60	2.56	± 12.0 %
2450	52.7	1.95	4.30	4.30	4.30	1.00	1.29	± 12.0 %

[C] Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

ET3DV6– SN:1630 November 18, 2011

Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)



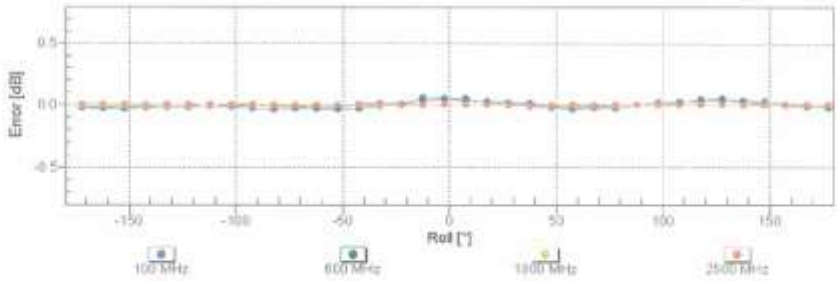
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

ET3DV6– SN:1630 November 18, 2011

Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM

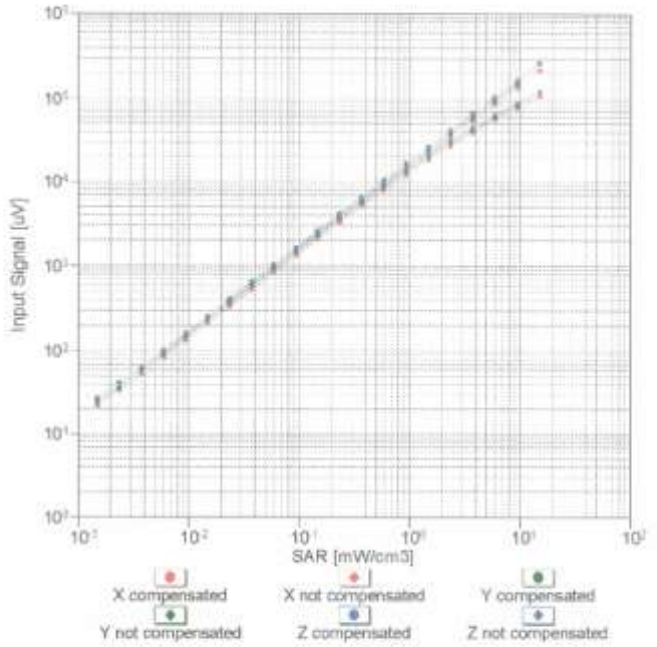
f=1800 MHz,R22

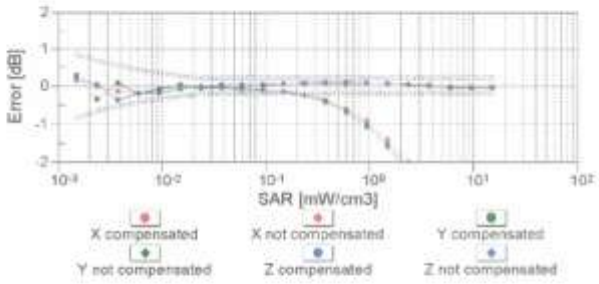


Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

ET3DV6- SN:1630 November 18, 2011

Dynamic Range f(SAR$_{head}$)
(TEM cell , f = 900 MHz)





Uncertainty of Linearity Assessment: ± 0.6% (k=2)

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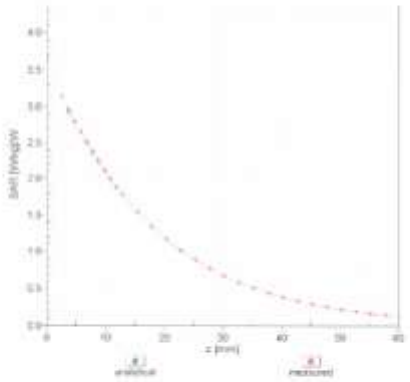
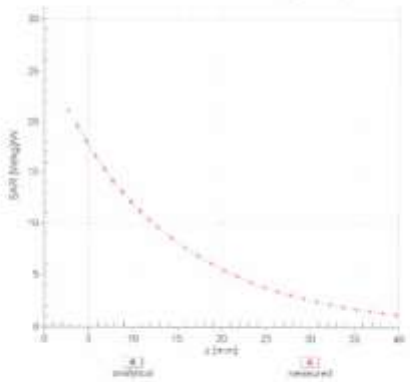
ET3DV6- SN:1630 November 18, 2011

Conversion Factor Assessment

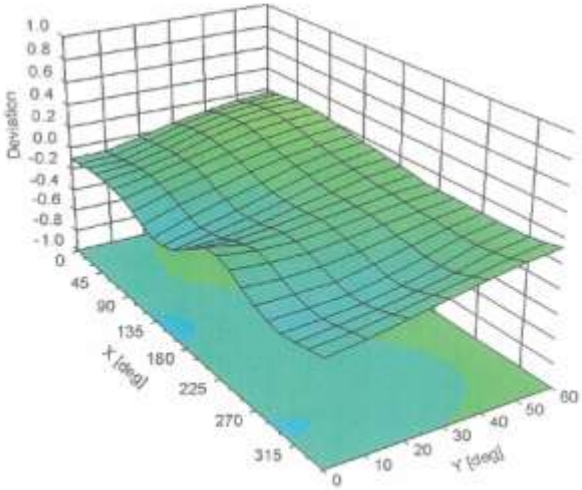
f = 900 MHz,WGLS R9 (H_convF) f = 1750 MHz,WGLS R22 (H_convF)





Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

DASY/EASY - Parameters of Probe: ET3DV6 - SN:1630

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	Not applicable
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	10 mm
Tip Diameter	6.8 mm
Probe Tip to Sensor X Calibration Point	2.7 mm
Probe Tip to Sensor Y Calibration Point	2.7 mm
Probe Tip to Sensor Z Calibration Point	2.7 mm
Recommended Measurement Distance from Surface	4 mm

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Additional Conversion Factors

for Dosimetric E-Field Probe

Type:	**ET3DV6**
Serial Number:	**1630**
Place of Assessment:	**Zurich**
Date of Assessment:	**November 21, 2011**
Probe Calibration Date:	**November 18, 2011**

Schmid & Partner Engineering AG hereby certifies that conversion factor(s) of this probe have been evaluated on the date indicated above. The assessment was performed using the FDTD numerical code SEMCAD of Schmid & Partner Engineering AG. Since the evaluation is coupled with measured conversion factors, it has to be recalculated yearly, i.e., following the re-calibration schedule of the probe. The uncertainty of the numerical assessment is based on the extrapolation from measured value at 450, 900 MHz or at 1750 MHz.

Assessed by: 

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Zeughausstrasse 43, 8004 Zurich, Switzerland
Phone +41 44 245 9700, Fax +41 44 245 9779
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Dosimetric E-Field Probe ET3DV6 - SN:1630

Conversion factor (± standard deviation)

150 ± 50 MHz	*ConvF*	8.03 ± 10%	ε_r = 52.3 ± 5% σ = 0.76 ± 5% mho/m (head tissue)
150 ± 50 MHz	*ConvF*	8.29 ± 10%	ε_r = 61.9 ± 5% σ = 0.80 ± 5% mho/m (body tissue)

Important Note:

For numerically assessed probe conversion factors, parameters Alpha and Delta in the DASY software must have the following entries: Alpha = 0 and Delta = 1.

Please see also DASY Manual.

Attachment 4. – Dipole Calibration Data

Calibration Laboratory of
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Accreditation No.: SCS 108

Client HCT (Dymstec) Certificate No: D835V2-441_May12

CALIBRATION CERTIFICATE

Object D835V2 - SN: 441

Calibration procedure(s) QA CAL-05.v8
Calibration procedure for dipole validation kits above 700 MHz

Calibration date: May 16, 2012

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	05-Oct-11 (No. 217-01451)	Oct-12
Power sensor HP 8481A	US37292783	05-Oct-11 (No. 217-01451)	Oct-12
Reference 20 dB Attenuator	SN: 5058 (20k)	27-Mar-12 (No. 217-01530)	Apr-13
Type-N mismatch combination	SN: 5047.2 / 06327	27-Mar-12 (No. 217-01533)	Apr-13
Reference Probe ES3DV3	SN: 3205	30-Dec-11 (No. ES3-3205_Dec11)	Dec-12
DAE4	SN: 601	04-Jul-11 (No. DAE4-601_Jul11)	Jul-12

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-11)	In house check: Oct-13
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-11)	In house check: Oct-13
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

	Name	Function	Signature
Calibrated by:	Israe El-Naouq	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: May 16, 2012

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Certificate No: D835V2-441_May12 Page 1 of 8

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Accreditation No.: SCS 108

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
c) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.8.1
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	835 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.5	0.90 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	40.6 ± 6 %	0.89 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.35 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**9.43 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.54 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**6.18 mW /g ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	55.2	0.97 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	54.3 ± 6 %	1.00 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.44 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**9.50 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.60 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**6.27 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	51.1 Ω - 5.8 jΩ
Return Loss	- 24.6 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	47.0 Ω - 8.1 jΩ
Return Loss	- 21.0 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.372 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	March 09, 2001

DASY5 Validation Report for Head TSL

Date: 16.05.2012

Test Laboratory: SPEAG, Zurich, Switzerland

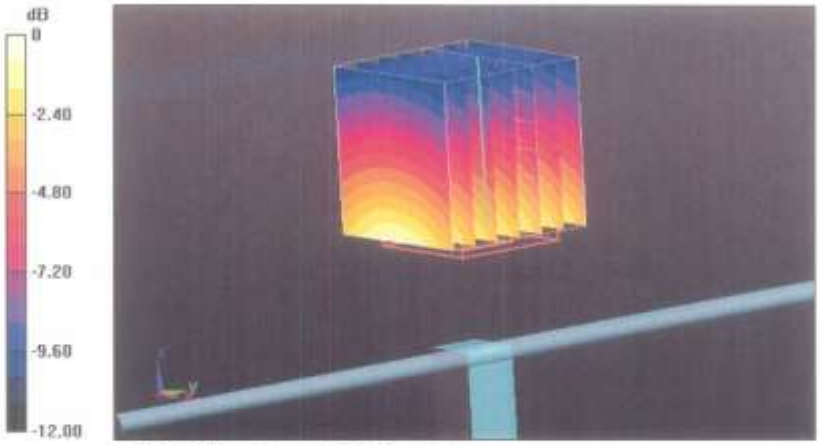
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 441

Communication System: CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 0.89 mho/m; ε_r = 40.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

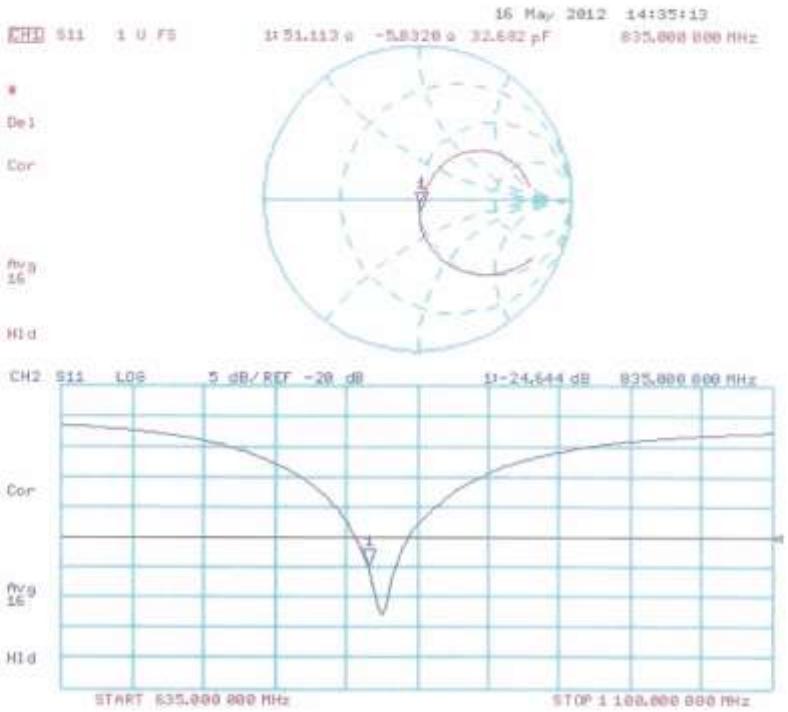
- Probe: ES3DV3 - SN3205; ConvF(6.07, 6.07, 6.07); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm 2/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 57.129 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 3.474 mW/g
SAR(1 g) = 2.35 mW/g; SAR(10 g) = 1.54 mW/g
Maximum value of SAR (measured) = 2.73 mW/g



0 dB = 2.73 mW/g = 8.72 dB mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 16.05.2012

Test Laboratory: SPEAG, Zurich, Switzerland

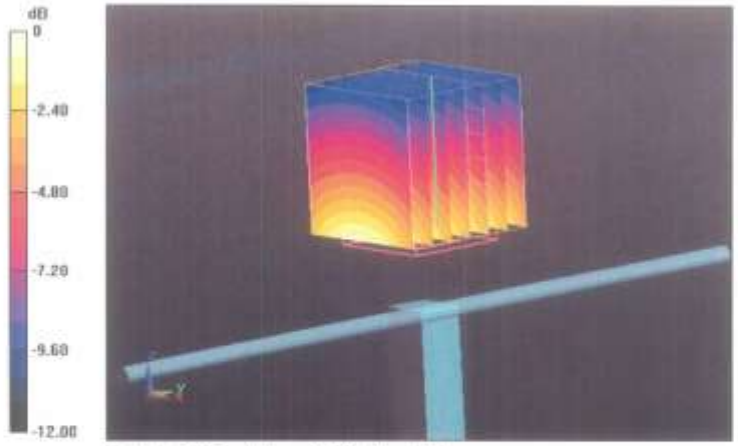
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 441

Communication System: CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 1 mho/m; ε_r = 54.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

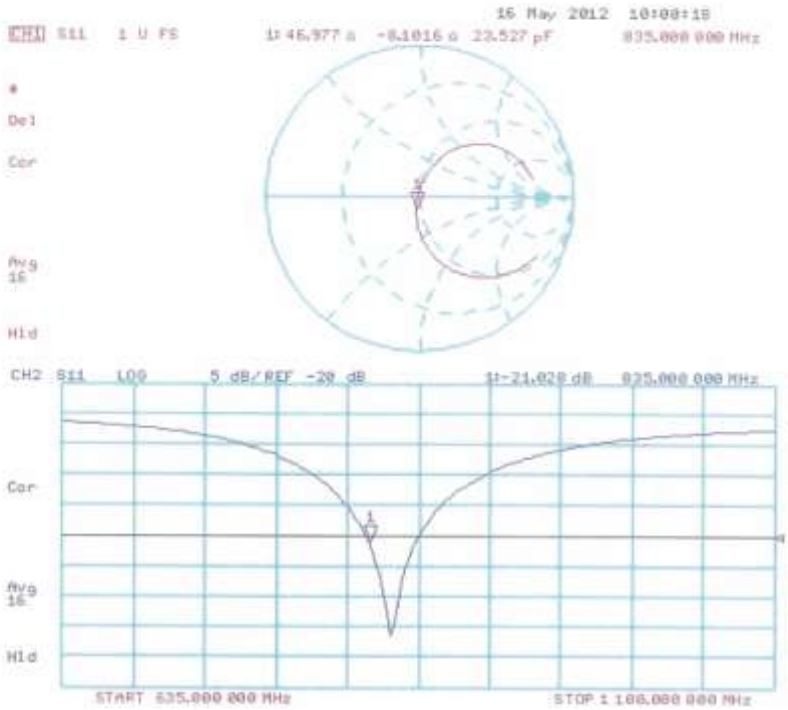
- Probe: ES3DV3 - SN3205; ConvF(6.02, 6.02, 6.02); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

Dipole Calibration for Body Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 55.054 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 3.533 mW/g
SAR(1 g) = 2.44 mW/g; SAR(10 g) = 1.6 mW/g
Maximum value of SAR (measured) = 2.82 mW/g



0 dB = 2.82 mW/g = 9.00 dB mW/g

Impedance Measurement Plot for Body TSL



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Accreditation No.: SCS 108

Client HCT (Dymstec)

Certificate No: D1900V2-5d032_Jul11

CALIBRATION CERTIFICATE

Object D1900V2 - SN: 5d032

Calibration procedure(s) QA CAL-05.v8
Calibration procedure for dipole validation kits above 700 MHz

Calibration date: July 22, 2011

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-10 (No. 217-01266)	Oct-11
Power sensor HP 8481A	US37292783	06-Oct-10 (No. 217-01266)	Oct-11
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Type-N mismatch combination	SN: 5047.2 / 06327	29-Mar-11 (No. 217-01371)	Apr-12
Reference Probe ES3DV3	SN: 3205	29-Apr-11 (No. ES3-3205_Apr11)	Apr-12
DAE4	SN: 601	04-Jul-11 (No. DAE4-601_Jul11)	Jul-12

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

	Name	Function	Signature
Calibrated by:	Dimce Iliev	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: August 2, 2011

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Accreditation No.: SCS 108

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
c) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.6.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1900 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	39.1 ± 6 %	1.42 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	10.1 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**39.9 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.29 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**21.0 mW /g ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	53.3	1.52 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	52.3 ± 6 %	1.53 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	10.3 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**40.9 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.39 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**21.5 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.6 Ω + 6.5 jΩ
Return Loss	- 23.3 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	46.6 Ω + 6.0 jΩ
Return Loss	- 22.9 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.190 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	March 17, 2003

DASY5 Validation Report for Head TSL

Date: 20.07.2011

Test Laboratory: SPEAG, Zurich, Switzerland

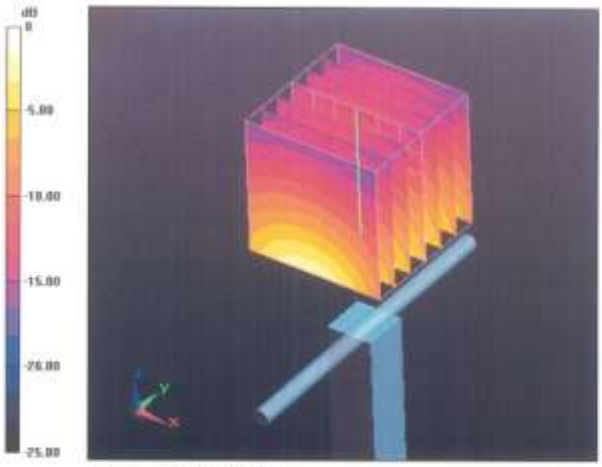
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d032

Communication System: CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.42 mho/m; ε_r = 39.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

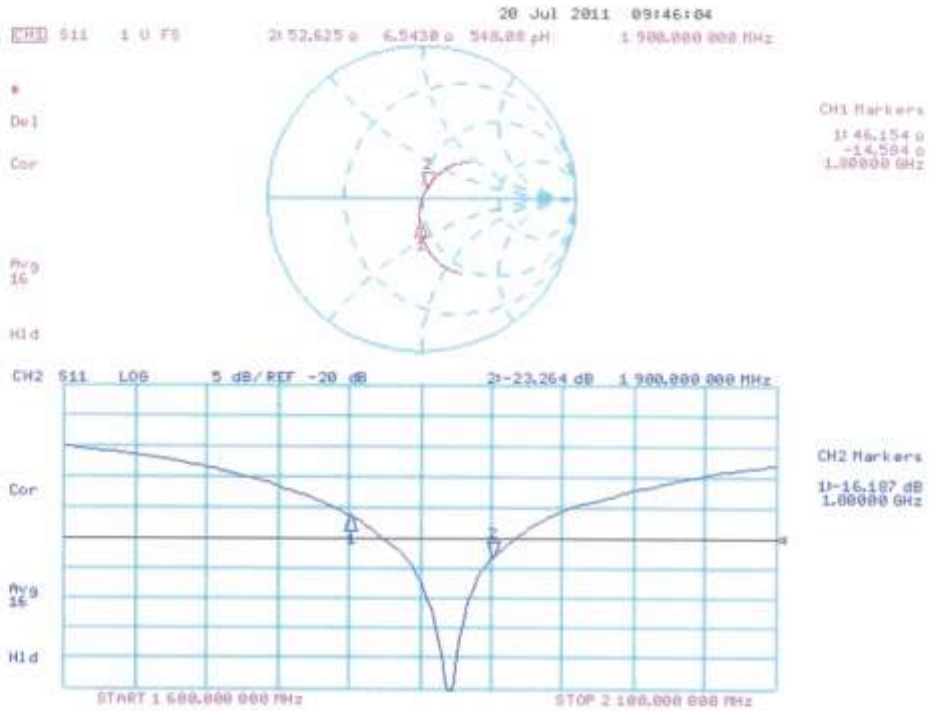
- Probe: ES3DV3 - SN3205; ConvF(5.01, 5.01, 5.01); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 98.253 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 18.469 W/kg
SAR(1 g) = 10.1 mW/g; SAR(10 g) = 5.29 mW/g
Maximum value of SAR (measured) = 12.721 mW/g



0 dB = 12.720mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 22.07.2011

Test Laboratory: SPEAG, Zurich, Switzerland

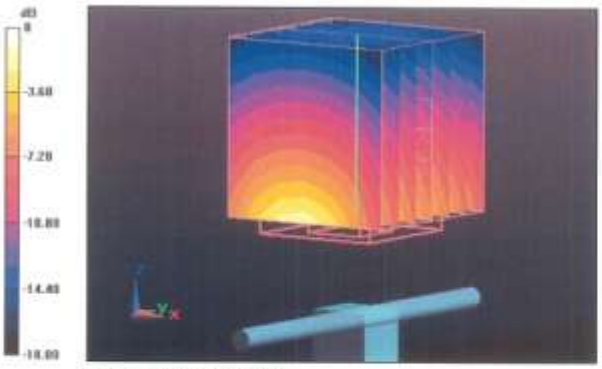
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d032

Communication System: CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.53 mho/m; ε_r = 52.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

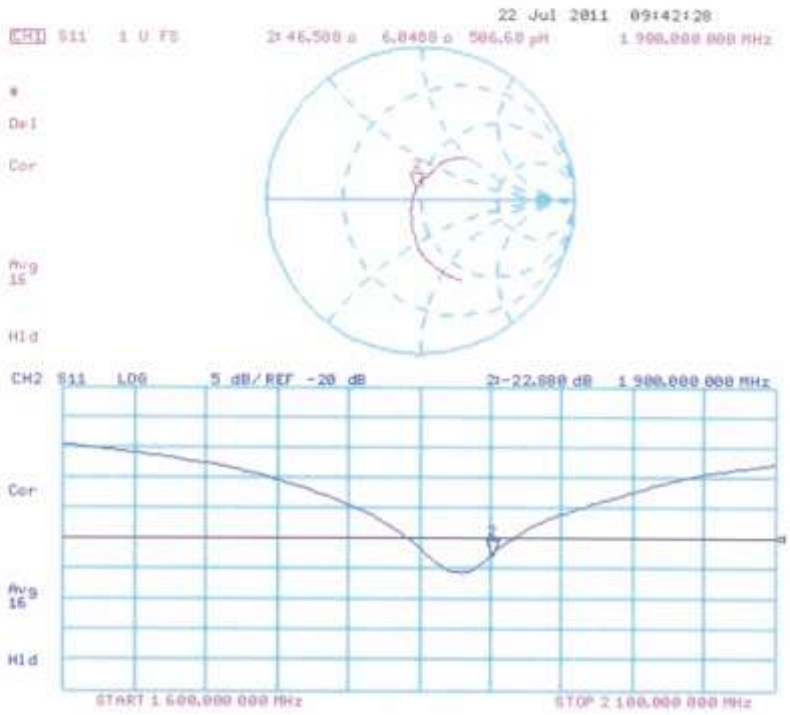
- Probe: ES3DV3 - SN3205; ConvF(4.62, 4.62, 4.62); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

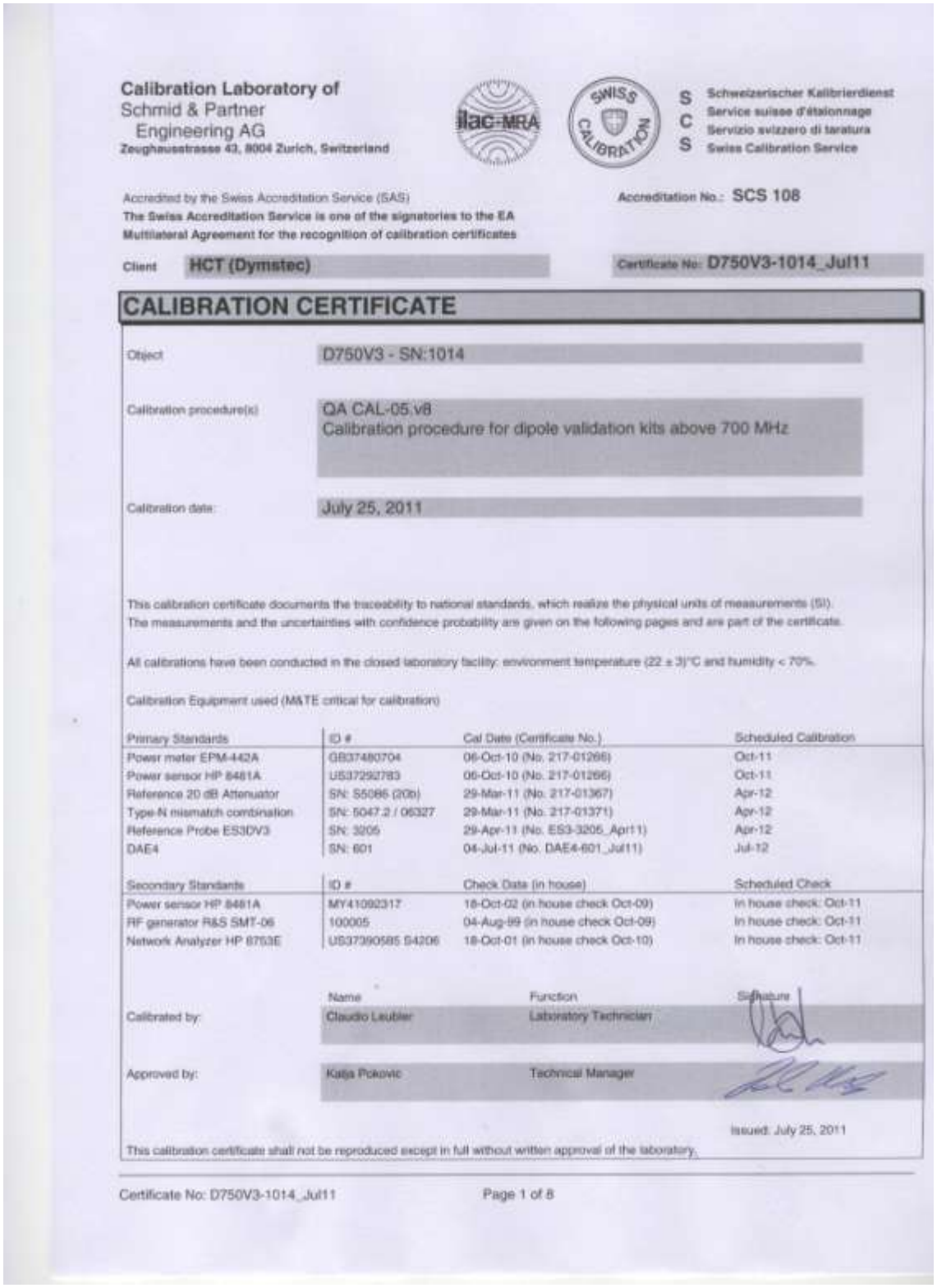
Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 95.827 V/m; Power Drift = 0.0078 dB
Peak SAR (extrapolated) = 18.111 W/kg
SAR(1 g) = 10.3 mW/g; SAR(10 g) = 5.39 mW/g
Maximum value of SAR (measured) = 12.898 mW/g



0 dB = 12.900mW/g

Impedance Measurement Plot for Body TSL





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Accreditation No.: SCS 108

Client HCT (Dymstec)

Certificate No: D750V3-1014_Jul11

CALIBRATION CERTIFICATE

Object D750V3 - SN:1014

Calibration procedure(s) QA CAL-05.v8
Calibration procedure for dipole validation kits above 700 MHz

Calibration date: July 25, 2011

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-10 (No. 217-01266)	Oct-11
Power sensor HP 8481A	US37292783	06-Oct-10 (No. 217-01266)	Oct-11
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Type-N mismatch combination	SN: 5047.2 / 06327	29-Mar-11 (No. 217-01371)	Apr-12
Reference Probe ES3DV3	SN: 3205	29-Apr-11 (No. ES3-3205_Apr11)	Apr-12
DAE4	SN: 601	04-Jul-11 (No. DAE4-601_Jul11)	Jul-12

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

	Name	Function	Signature
Calibrated by:	Claudio Leubler	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: July 25, 2011

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Certificate No: D750V3-1014_Jul11 Page 1 of 8

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Accreditation No.: SCS 108

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
c) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.6.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	750 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.9	0.89 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	41.7 ± 6 %	0.91 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	---	---

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.15 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**8.44 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.40 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**5.52 mW /g ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	55.5	0.96 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	55.2 ± 6 %	0.96 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	---	---

SAR result with Body TSL

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.22 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**8.87 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.47 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**5.88 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	53.3 Ω + 0.4 jΩ
Return Loss	- 30.0 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	49.0 Ω - 2.7 jΩ
Return Loss	- 30.8 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.040 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	March 22, 2010

DASY5 Validation Report for Head TSL

Date: 25.07.2011

Test Laboratory: SPEAG, Zurich, Switzerland

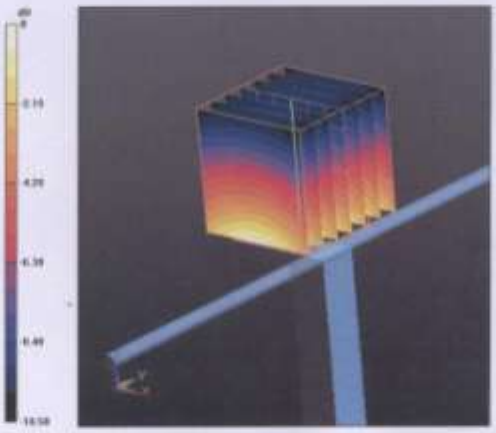
DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN:1014

Communication System: CW; Frequency: 750 MHz
Medium parameters used: f = 750 MHz; σ = 0.91 mho/m; ε_r = 41.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

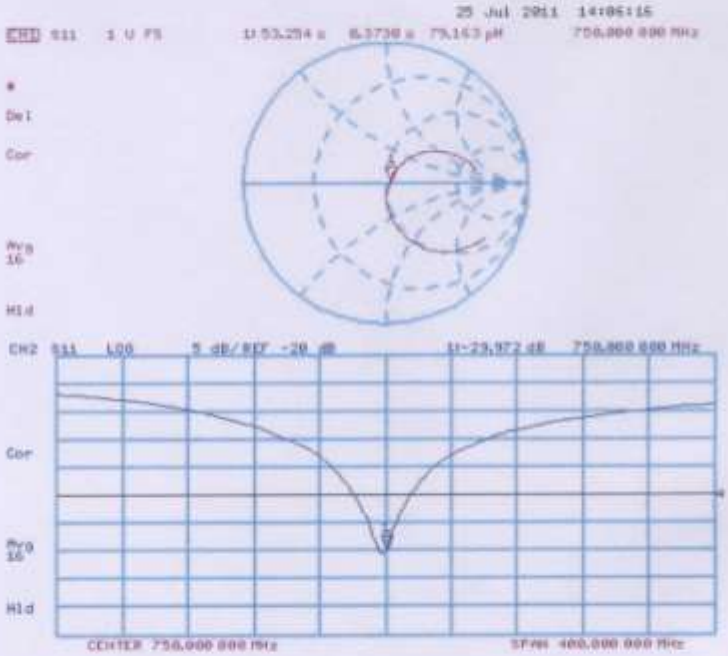
- Probe: ES3DV3 - SN3205; ConvF(6.33, 6.33, 6.33); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

Dipole Calibration for Head Tissue/Pin=250mW; dip=15mm; dist=3.0mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 51.352 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 3.258 W/kg
SAR(1 g) = 2.15 mW/g; SAR(10 g) = 1.4 mW/g
Maximum value of SAR (measured) = 2.524 mW/g



0 dB = 2.520mW/g

Impedance Measurement Plot for Head TSL



Certificate No: D750V3-1014_Jul11 Page 6 of 8

DASY5 Validation Report for Body TSL

Date: 25.07.2011

Test Laboratory: SPEAG, Zurich, Switzerland

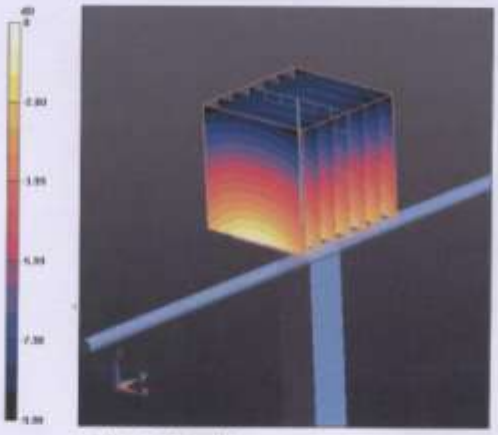
DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN:1014

Communication System: CW; Frequency: 750 MHz
Medium parameters used: f = 750 MHz; σ = 0.96 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.12, 6.12, 6.12); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

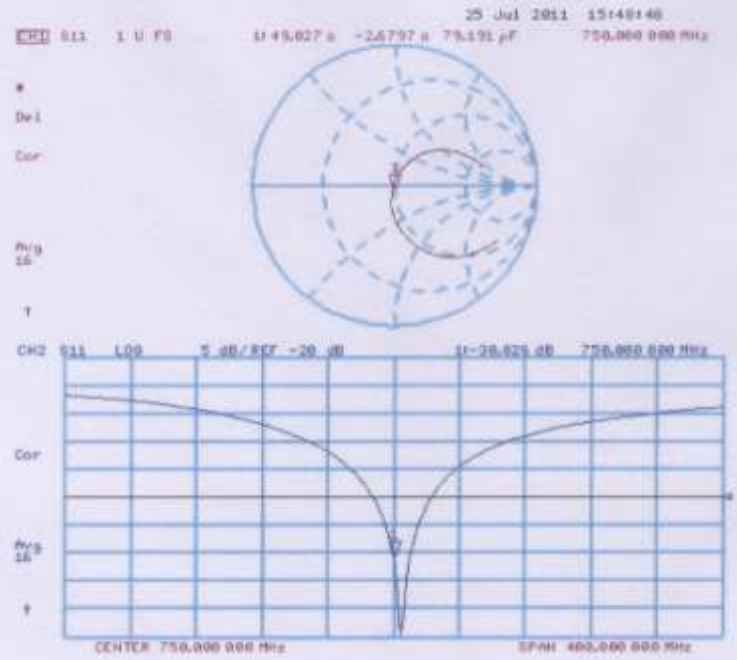
Dipole Calibration for Body Tissue/Pin=250mW; dip=15mm; dist=3.0mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 52.652 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 3.311 W/kg
SAR(1 g) = 2.22 mW/g; SAR(10 g) = 1.47 mW/g
Maximum value of SAR (measured) = 2.584 mW/g



0 dB = 2.580mW/g

Certificate No: D750V3-1014_Jul11 Page 7 of 8

Impedance Measurement Plot for Body TSL



Certificate No: D750V3-1014_Jul11 Page 8 of 8

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Accreditation No.: SCS 108

Client HCT (Dymstec)

Certificate No: D1800V2-2d006_Mar12

CALIBRATION CERTIFICATE

Object D1800V2 - SN: 2d006

Calibration procedure(s) QA CAL-05.v8
Calibration procedure for dipole validation kits above 700 MHz

Calibration date: March 15, 2012

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	05-Oct-11 (No. 217-01451)	Oct-12
Power sensor HP 8481A	US37292783	05-Oct-11 (No. 217-01451)	Oct-12
Reference 20 dB Attenuator	SN: 5086 (20g)	29-Mar-11 (No. 217-01368)	Apr-12
Type-N mismatch combination	SN: 5047.2 / 06327	29-Mar-11 (No. 217-01371)	Apr-12
Reference Probe ES3DV3	SN: 3205	30-Dec-11 (No. ES3-3205_Dec11)	Dec-12
DAE4	SN: 601	04-Jul-11 (No. DAE4-601_Jul11)	Jul-12

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-11)	In house check: Oct-13
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-11)	In house check: Oct-13
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

	Name	Function	Signature
Calibrated by:	Claudio Laubler	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: March 16, 2012

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Accreditation No.: SCS 108

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
c) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.8.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1800 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	40.5 ± 6 %	1.38 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	---	---

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	9.24 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**37.4 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	4.89 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**19.7 mW /g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	46.9 Ω - 7.5 jΩ
Return Loss	- 21.5 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.209 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	July 23, 2001

DASY5 Validation Report for Head TSL

Date: 15.03.2012

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN: 2d006

Communication System: CW; Frequency: 1800 MHz
Medium parameters used: f = 1800 MHz; σ = 1.38 mho/m; ε_r = 40.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

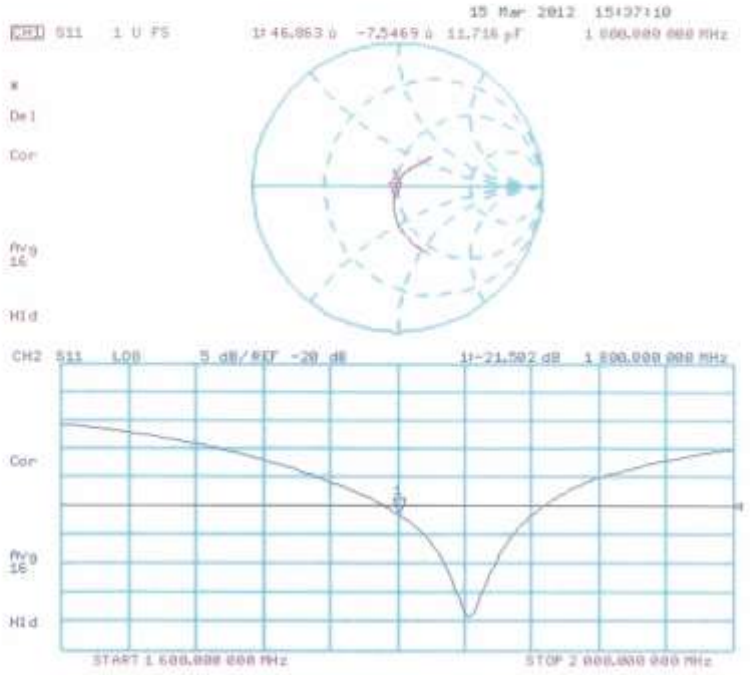
DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.07, 5.07, 5.07); Calibrated: 30.12.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 94.270 V/m; Power Drift = 0.08 dB
Peak SAR (extrapolated) = 16.3460
SAR(1 g) = 9.24 mW/g; SAR(10 g) = 4.89 mW/g
Maximum value of SAR (measured) = 11.318 mW/g

0 dB = 11.320mW/g = 21.08 dB mW/g

Impedance Measurement Plot for Head TSL



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S Schweizerischer Kalibrierdienst
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Swiss Calibration Service

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The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Client HCT (Dymstec)

Certificate No: D1800V2-2d006_May12

CALIBRATION CERTIFICATE

Object D1800V2 - SN: 2d006

Calibration procedure(s) QA CAL-05.v8
Calibration procedure for dipole validation kits above 700 MHz

Calibration date: May 18, 2012

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	05-Oct-11 (No. 217-01451)	Oct-12
Power sensor HP 8481A	US37292783	05-Oct-11 (No. 217-01451)	Oct-12
Reference 20 dB Attenuator	SN: 5058 (20k)	27-Mar-12 (No. 217-01530)	Apr-13
Type-N mismatch combination	SN: 5047.2 / 06327	27-Mar-12 (No. 217-01533)	Apr-13
Reference Probe ES3DV3	SN: 3205	30-Dec-11 (No. ES3-3205_Dec11)	Dec-12
DAE4	SN: 601	04-Jul-11 (No. DAE4-601_Jul11)	Jul-12

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-11)	In house check: Oct-13
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-11)	In house check: Oct-13
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

	Name	Function	Signature
Calibrated by:	Israe El-Naouq	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: May 18, 2012

Calibration Laboratory of
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Swiss Calibration Service

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Accreditation No.: SCS 108

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
c) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.8.1
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1800 MHz ± 1 MHz	

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	53.3	1.52 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	52.7 ± 6 %	1.51 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	---	---

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	9.66 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**38.7 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.13 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**20.5 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Body TSL

Impedance, transformed to feed point	43.9 Ω - 6.4 jΩ
Return Loss	- 20.5 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.209 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	July 23, 2001

DASY5 Validation Report for Body TSL

Date: 18.05.2012

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN: 2d006

Communication System: CW; Frequency: 1800 MHz
Medium parameters used: f = 1800 MHz; σ = 1.51 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.74, 4.74, 4.74); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 93.774 V/m; Power Drift = -0.00 dB
Peak SAR (extrapolated) = 16.930 mW/g
SAR(1 g) = 9.66 mW/g; SAR(10 g) = 5.13 mW/g
Maximum value of SAR (measured) = 12.2 mW/g

0 dB = 12.2 mW/g = 21.73 dB mW/g

Impedance Measurement Plot for Body TSL