SAR TEST REPORT

HCT CO., LTD

EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
FCC ID:	ZNFMS840
Model:	MS840
Date of Issue:	Jan.03, 2012
Test report No.:	HCTA1112FS01
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 :	**LG Electronics, MobileComm U.S.A., Inc.** 10101 Old Grove Road, San Diego, CA 92131
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

Table of Contents

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.

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

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).

2.1 General Information

<table>
<tr><td>EUT Type</td><td colspan="4">Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN</td></tr>
<tr><td>FCC ID:</td><td colspan="4">ZNFMS840</td></tr>
<tr><td>Model:</td><td colspan="4">MS840</td></tr>
<tr><td>Trade Name</td><td colspan="2">LG</td><td>Serial Number(s)</td><td>#1</td></tr>
<tr><td>Mode(s)of Operation</td><td colspan="4">CDMA835/PCS1900/AWS1700/802.11bgn/LTE Band4/LTE Band2</td></tr>
<tr><td>Tx Frequency</td><td colspan="4">824.70 - 848.31 MHz (CDMA835) / 1 851.25 – 1 908.75 MHz (PCS CDMA)
2 412- 2 462 MHz (WLAN)/ 1 714 – 1 754 MHz (AWS)
1 710-1 755 MHz (LTE Band4)/ 1 850-1 910 MHz (LTE Band2)</td></tr>
<tr><td>Rx Frequency</td><td colspan="4">869.70 - 893.31 MHz (CDMA835) /1 931.25 – 1 988.75 MHz (PCS CDMA)
2 412- 2 462 MHz (WLAN)/ 1 714 – 1 754 MHz (AWS)
1 710-1 755 MHz (LTE Band4)/ 1 850-1 910 MHz (LTE Band2)</td></tr>
<tr><td>FCC Classification</td><td colspan="4">Licensed Portable Transmitter Held to Ear (PCE)/ DSS/ DTS</td></tr>
<tr><td>Production Unit</td><td colspan="4">Prototype</td></tr>
<tr><td rowspan="8">Max SAR</td><td rowspan="2">Band</td><td colspan="3">1g SAR (W/kg)</td></tr>
<tr><td>Head</td><td>Body-worn</td><td>Hotspot</td></tr>
<tr><td>CDMA835</td><td>0.361</td><td>0.842</td><td>-</td></tr>
<tr><td>AWS1700</td><td>0.616</td><td>0.579</td><td>0.579</td></tr>
<tr><td>PCS1900</td><td>0.931</td><td>0.792</td><td>0.628</td></tr>
<tr><td>802.11b</td><td>0.241</td><td>0.361</td><td>0.361</td></tr>
<tr><td>LTE 4</td><td>0.440</td><td>0.573</td><td>0.573</td></tr>
<tr><td>LTE 2</td><td>0.710</td><td>0.493</td><td>0.493</td></tr>
<tr><td>Date(s) of Tests</td><td colspan="4">Dec. 15, 2011 ~ Dec. 29, 2011</td></tr>
<tr><td>Antenna Type</td><td colspan="4">Integral Antenna</td></tr>
<tr><td>EVDO</td><td colspan="4">Rev.0, A</td></tr>
<tr><td>Key Features;</td><td colspan="4">Mobile Hotspot support, SVDO & SVLTE support, Power reduction implement</td></tr>
</table>

2.2 KDB 941225 LTE information

<table>
<tr><th>#</th><th>Description</th><th>Parameter</th></tr>
<tr><td>1</td><td>Identify the operating grequency range of each LTE Transmission band used by the device</td><td>Band 2: 1850 to 1910 Mhz
Band 4: 1710 to 1755 Mhz</td></tr>
<tr><td>2</td><td>Identify the channel bandwidths used in each frequency band; 1.4, 3, 5, 10, 15, 20 MHz etc</td><td>Band 2: 1.4MHz, 3MHz,
5MHz Band 4: 1.4MHz, 3MHz, 5MHz</td></tr>
<tr><td>3</td><td>Identify the high, middle and low channel numbers and frequencies in each LTE frequency band</td><td>Please refer to section 9.3</td></tr>
<tr><td>4</td><td>Specify the UE category and uplink modulations used</td><td>The UE Category is 3/ QPSK, 16QAM</td></tr>
<tr><td>5</td><td>Descriptions of the LTE transmitter and antenna implementation & identify whether it is a standalone transmitter operating independently of other wireless transmitters in the device or sharing hardware components and/or antenna(s) with other transmitters etc.</td><td>Please refer to the antenna description and distance at section 10.1</td></tr>
<tr><td>6</td><td>Identify the LTE voice/data requirements in each operating mode and exposure condition with respect to head and body test configurations, antenna locations, handset flip-cover or slide positions, antenna diversity conditions, etc.</td><td>Please refer to Tables in section 10.2</td></tr>
<tr><td>7</td><td>Identify if Maximum Power Reduction (MPR) is optional or mandatory, i.e. built-in by design: a) only mandatory MPR may be considered during SAR testing, when the maximum output power is permanently limited by the MPR implemented within the UE; and only for the applicable RB (resource block) configurations specified in LTE standards b) A-MPR (additional MPR) must be disabled.</td><td>
<table>
<tr><th rowspan="2">Modulation</th><th colspan="3">Channel bandwidth / Transmission bandwidth configuration (RB)</th><th rowspan="2">MPR (dB)</th></tr>
<tr><th>1.4 MHz</th><th>3.0 MHz</th><th>5.0 MHz</th></tr>
<tr><td>QPSK</td><td>> 5</td><td>> 4</td><td>> 8</td><td>≤ 1</td></tr>
<tr><td>16 QAM</td><td>≤ 5</td><td>≤ 4</td><td>≤ 8</td><td>≤ 1</td></tr>
<tr><td>16 QAM</td><td>> 5</td><td>> 4</td><td>> 8</td><td>≤ 1</td></tr>
</table>
</td></tr>
<tr><td>8</td><td>Include the maximum average conducted output power measured on the required test channels for each channel bandwidth and UL modulation used in each frequency band: a) with 1 RB allocated at the upper edge of a channel b) with 1 RB allocated at the lower edge of a channel c) using 50% RB allocation centered within a channel d) using 100% RB allocation</td><td>Refer to section 9 RF output power table.</td></tr>
</table>

<table>
<tr><td>9</td><td>Identify all other U.S. wireless operating modes (3G, Wi-Fi, WiMax, Bluetooth etc), device/exposure configurations (head and body, antenna and handset flip-cover or slide positions, antenna diversity conditions etc.) and frequency bands used for these modes</td><td>Please refer to the tables in section 10.2</td></tr>
<tr><td>10</td><td>Include the maximum average conducted output power measured for the other wireless mode and frequency bands</td><td>See section 9 RF output power measurements in SAR report.</td></tr>
<tr><td>11</td><td>Identify the simultaneous transmission conditions for the voice and data configurations supported by all wireless modes, device configurations and frequency bands, for the head and body exposure conditions and device operating configurations (handset flip or cover positions, antenna diversity conditions etc.)</td><td>Please refer to the table in section 11</td></tr>
<tr><td>12</td><td>When power reduction is applied to certain wireless modes to satisfy SAR compliance for simultaneous transmission conditions, other equipment certification or operating requirements, include the maximum average conducted output power measured in each power reduction mode applicable to the simultaneous voice/data transmission configurations for such wireless configurations and frequency bands; and also include details of the power reduction implementation and measurement setup</td><td>1. Power Reduction operation table for SVDO Mode
<table>
<tr><th>Mode</th><th>CDMA Current Voice Power for BC0, BC1 & BC15</th><th>CDMA EVDO Max. Power for BC1 & BC15</th></tr>
<tr><td rowspan="2">SVDO</td><td>P < 15.5 dBm</td><td>24.0 dBm (Limited)</td></tr>
<tr><td>P ≥ 15.5 dBm</td><td>19.0 dBm (Limited)</td></tr>
</table>
2. Power Reduction operation table for SVLTE Mode
<table>
<tr><th>Mode</th><th>CDMA Current Voice Power for BC0, BC1 & BC15</th><th>LTE Max. Power for B2 & B4</th></tr>
<tr><td rowspan="2">SVLTE</td><td>P < 18.5 dBm</td><td>22.8 dBm (Limited)</td></tr>
<tr><td>P ≥ 18.5 dBm</td><td>17.8 dBm (Limited)</td></tr>
</table>
Note:
CDMA BC0 = CDMA Cellular,
CDMA BC1 = CDMA PCS,
CDMA BC15 = CDMA AWS</td></tr>
<tr><td>13</td><td>Include descriptions of the test equipment, test software, built-in test firmware etc. required to support testing the device when power reduction is applied to one or more transmitters/antennas for simultaneous voice/data transmission</td><td>* Power reduction is implemented on EVDO in SVDO mode
* Power reduction is implemented on LTE in SVLTE mode</td></tr>
<tr><td>14</td><td>When appropriate, include a SAR test plan proposal with respect to the above</td><td>Not Applicable</td></tr>
<tr><td>15</td><td>If applicable, include preliminary SAR test data and/or supporting information in laboratory testing inquiries to address specific issues and concerns or for requesting further test reduction considerations appropriate for the device; for example, simultaneous transmission configurations</td><td>Not Applicable</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 mMaximum 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.

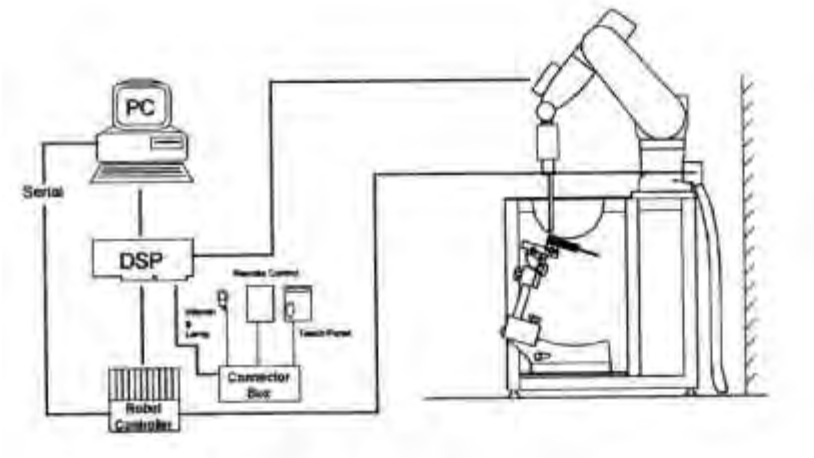


Figure 3.1 HCT SAR Lab. Test Measurement Set-up

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 DASY4 E-FIELD PROBE SYSTEM

3.1 ES3DV3 Probe Specification

Construction	Symmetrical design with triangular core Interleaved sensors Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	Basic Broad Band Calibration in air Conversion Factors (CF) for HSL 900 and HSL 1810 Additional CF for other liquids and frequencies upon request
Frequency	10 MHz to 4 GHz; Linearity: ± 0.2 dB (30 MHz to 4 GHz)
Directivity	± 0.2 dB in HSL (rotation around probe axis) ± 0.3 dB in tissue material (rotation normal to probe axis)
Dynamic Range	5 μW/g to > 100 mW/g; Linearity: ± 0.2 dB
Dimensions	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 3.9 mm (Body: 12 mm) Distance from probe tip to dipole centers: 2.0 mm
Application	General dosimetry up to 4 GHz Dosimetry in strong gradient fields Compliance tests of mobile phones

Figure 3.1 Photograph of the probe and the Phantom

Figure 3.2 ET3DV6 E-field Probe

The SAR measurements were conducted with the dosimetric probe ET3DV6, designed in the classical triangular configuration [5] 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 mortifier 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 2 nd 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/cm³ for brain tissue)

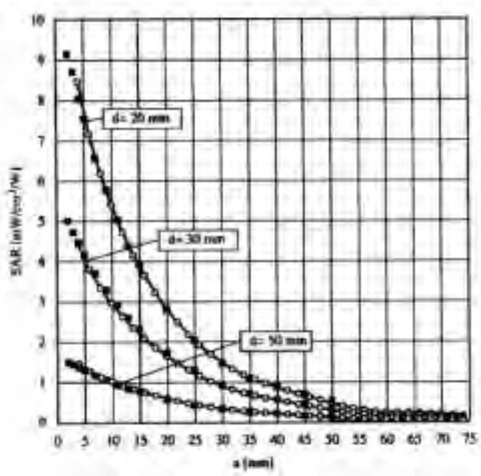


Figure 3.4 E-Field and Temperature measurements at 900 MHz

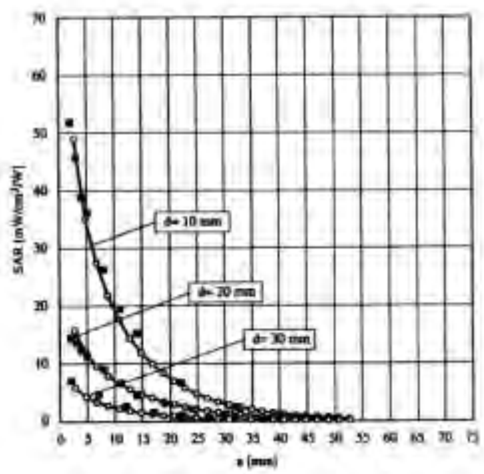


Figure 3.5 E-Field and temperature measurements at 1.8 GHz

3.3.2 Data Extrapolation

The DASY4 software automatically executes the following procedures to calculate the field units from the microvolt readings at the probe connector. The first step of the evaluation is a linearization of the filtered input signal to account for the compression characteristics of the detector diode. The compensation depends on the input signal, the diode type and the DC-transmission factor from the diode to the evaluation electronics. If the exciting field is pulsed, the crest factor of the signal must be known to correctly compensate for peak power. The formula for each channel can be given like below;

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

with V_i = compensated signal of channel i (i=x,y,z)
U_i = input signal of channel i (i=x,y,z)
cf = crest factor of exciting field (DASY parameter)
dcp_i = diode compression point (DASY parameter)

From the compensated input signals the primary field data for each channel can be evaluated:

E-field probes:

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

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

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

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

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

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

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

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	Head	Body	Head	Body	Head	Body	Head	Body	Head	Body
Water	38.56	51.16	41.2	51.7	41.45	52.4	41.05	56.0	54.9	40.4	62.7	73.2
Salt (NaCl)	3.95	1.49	1.4	1.0	1.45	1.4	1.35	0.76	0.18	0.5	0.5	0.04
Sugar	56.32	46.78	57	47.2	56.0	45.0	56.5	41.76	0.0	58.0	0.0	0.0
HEC	0.98	0.52	0.2	0.0	1.0	1.0	1.0	1.21	0.0	1.0	0.0	0.0
Bactericide	0.19	0.05	0.2	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	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.8	0.0
DGBE	0.0	0.0	0.00	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 D835V2	441	May 16, 2011	Annual	May 16, 2012
SPEAG	Validation Dipole D1800V2	2d007	Apr. 19, 2011	Annual	Apr. 19, 2012
SPEAG	Validation Dipole D1900V2	5d032	July 22, 2011	Annual	July 22, 2012
SPEAG	Validation Dipole D2450V2	743	Aug. 29, 2011	Annual	Aug. 29, 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	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, 2011	Annual	Feb. 10, 2012
HP	Signal Generator E4438C	MY42082646	Nov. 11, 2011	Annual	Nov. 11, 2012
HP	Network Analyzer 8753ES	JP39240221	Mar. 30, 2011	Annual	Mar. 30, 2012
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 head was measured at a distance of 3.9 mm from the inner surface of the shell. The area covered the entire dimension of the head and the horizontal grid spacing was 15 mm x 15 mm. Based on this data, the area of the mMaximum absorption was determined by spline interpolation.

3. Around this point, a volume of 32 mm x 32 mm x 30 mm was assessed by measuring 5 x 5 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 mMaximum interpolated value was searched with a straight-forward algorithm. Around this mMaximum 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.

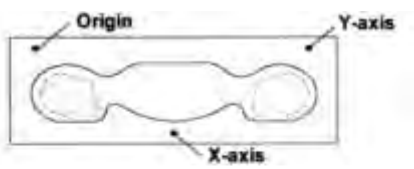


Figure 4.1 SAR Measurement Point in Area Scan

5. DESCRIPTION OF TEST POSITION

5.1 HEAD POSITION

The device was placed in a normal operating position with the Point A on the device, as illustrated in following drawing, aligned with the location of the RE(ERP) on the phantom. With the ear-piece pressed against the head, the vertical center line of the body of the handset was aligned with an imaginary plane consisting of the RE, LE and M. While maintaining these alignments, the body of the handset was gradually moved towards the cheek until any point on the mouth-piece or keypad contacted the cheek. This is a cheek/touch position. For ear/tilt position, while maintain the device aligned with the BM and FN lines, the device was pivot against ERP back for 15º or until the device antenna touch the phantom. Please refer to IEEE 1528-2003 illustration below.

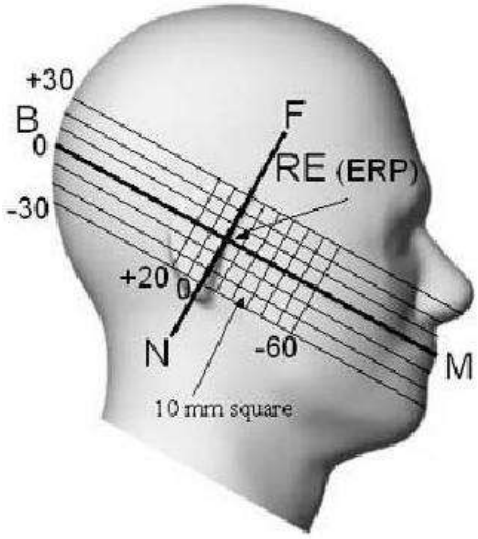


Figure 5.1 Side view of the phantom

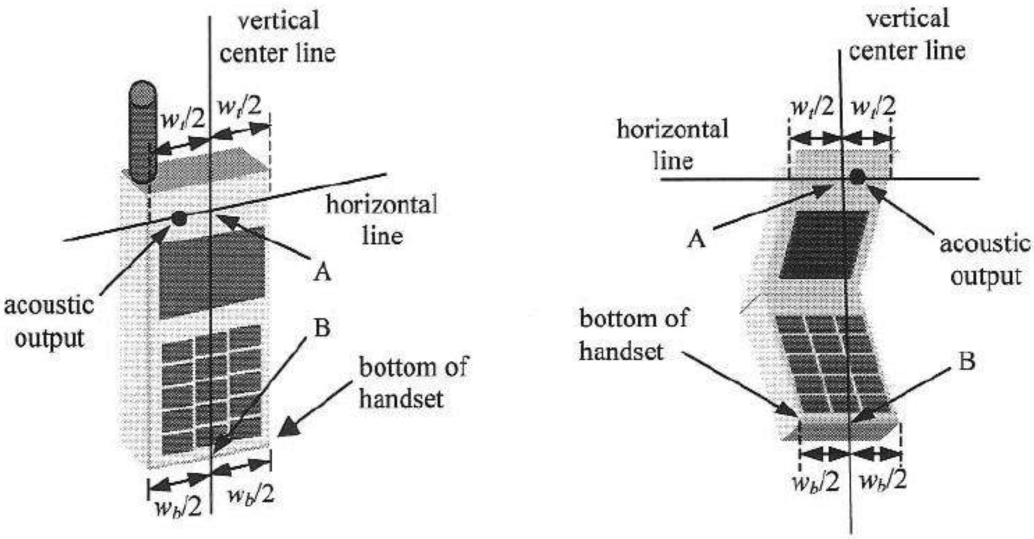


Figure 5.2 Handset vertical and horizontal reference lines

5.2 Body Holster/Belt Clip Configurations

Body-worn operating configurations are tested with the belt-clips and holsters attached to the device and positioned against a flat phantom in a normal use configuration. A device with a headset output is tested with a headset connected to the device. Body dielectric parameters are used.

Accessories for Body-worn operation configurations are divided into two categories: those that do not contain metallic components and those that contain metallic components. When multiple accessories that do not contain metallic components are supplied with the device, the device is tested with only the accessory that dictates the closest spacing to the body. Then multiple accessories that contain metallic components are tested with each accessory. If multiple accessory share an identical metallic component (i.e. the same metallic belt-clip used with different holsters with no other metallic components) only the accessory that dictates the closest spacing to the body is tested.

Body-worn accessories may not always be supplied or available as options for some Devices intended to be authorized for body-worn use. In this case, a test configuration with a separation distance between the back of the device and the flat phantom is used.

Since this EUT does not supply any body worn accessory to the end user a distance of 1.0 cm from the EUT back surface to the liquid interface is configured for the generic test.

"See the Test SET-UP Photo"

Transmitters that are designed to operate in front of a person’s face, as in push-to-talk configurations, are tested for SAR compliance with the front of the device positioned to face the flat phantom. For devices that are carried next to the body such as a shoulder, waist or chest-worn transmitters, SAR compliance is tested with the accessory(ies), Including headsets and microphones, attached to the device and positioned against a flat phantom in a normal use configuration.

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.

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- 2600 MHz)

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

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

Table 7.1 Safety Limits for Partial Body Exposure

NOTES:

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

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

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

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

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

8. SYSTEM VERIFICATION

8.1 Tissue Verification

Freq. [MHz]	Date	Liquid	Liquid Temp.[°C]	Parameters	Target Value	Measured Value	Deviation [%]	Limit [%]
835	Dec. 15, 2011	Head	21.2	ε r	41.5	43	+ 3.61	± 5
				σ	0.90	0.901	+ 0.11	± 5
835		Body		ε r	55.2	55.9	+ 1.27	± 5
				σ	0.97	0.95	- 2.06	± 5
1 800	Dec. 16, 2011	Head	21.3	ε r	40.0	40.6	+ 1.50	± 5
				σ	1.40	1.39	- 0.71	± 5
1 800		Body		ε r	53.3	55.1	+ 3.38	± 5
				σ	1.52	1.51	- 0.66	± 5
1 900	Dec. 17, 2011	Head	21.3	ε r	40.0	39.3	- 1.75	± 5
				σ	1.40	1.44	+ 2.86	± 5
1 900		Body		ε r	53.3	54.6	+ 2.44	± 5
				σ	1.52	1.46	- 3.95	± 5
1 800	Dec. 19, 2011	Head	21.2	ε r	40.0	39.6	- 1.00	± 5
				σ	1.40	1.4	0.00	± 5
1 800	Dec. 21, 2011	Body	21.3	ε r	53.3	55.1	+ 3.38	± 5
				σ	1.52	1.51	- 0.66	± 5
1 900	Dec. 20, 2011	Head	21.3	ε r	40.0	40	0.00	± 5
				σ	1.40	1.45	+ 3.57	± 5
1 900	Dec. 22. 2011	Body	21.3	ε r	53.3	54.5	+ 2.25	± 5
				σ	1.52	1.46	- 3.95	± 5
2 450	Dec. 23. 2011	Head	21.2	ε r	39.2	38.3	- 2.30	± 5
				σ	1.80	1.85	+ 2.78	± 5
2 450		Body		ε r	52.7	51.6	- 2.09	± 5
				σ	1.95	1.96	+ 0.51	± 5
835	Dec. 26. 2011	Body	21.3	ε r	55.2	54.5	- 1.27	± 5
				σ	0.97	0.97	0.00	± 5
1 800	Dec. 26, 2011	Body	21.3	ε r	53.3	55.1	+ 3.38	± 5
				σ	1.52	1.5	- 1.32	± 5
1 900	Dec. 28, 2011	Head	21.2	ε r	40.0	41	+ 2.50	± 5
				σ	1.40	1.4	0.00	± 5
1 900	Dec. 27. 2011	Body	21.2	ε r	53.3	55	+ 3.19	± 5
				σ	1.52	1.47	- 3.29	± 5

2450	Dec. 29. 2011	Head	21.3	ε ρ	39.2	38.7	- 1.27	± 5
				σ	1.80	1.85	+ 2.77	± 5
2450	Dec. 29. 2011	Body	21.3	ε r	52.7	50.6	- 3.98	± 5
				σ	1.95	1.98	+ 1.54	± 5

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

8.2 System Validation

Prior to assessment, the system is verified to the ± 10 % of the specifications at 835 MHz / 750 MHz /1 800 MHz/ 1 900 MHz/ 2 450 MHz by using the system validation kit. (Graphic Plots Attached)

* Input Power: 100 m W

Freq. [MHz]		Probe (SN)	Dipole (SN)	Date	Liquid	Liquid Temp. [°C]	SAR Average	Target Value (SPEAG) (mW/g)	*Measured Value (mW/g)	Deviation [%]	Limit [%]
CDMA	835	1630	441	Dec. 15, 2011	Head	21.2	1 g	9.34	0.940	+ 0.64	± 10
	835		441	Dec. 15, 2011	Body	21.2	1 g	9.45	0.949	+ 0.42	± 10
AWS	1 800		2d007	Dec. 16, 2011	Head	21.3	1 g	39.8	4	+ 0.50	± 10
	1 800		2d007	Dec. 16, 2011	Body	21.3	1 g	37.3	3.84	+ 2.95	± 10
PCS	1 900		5d032	Dec. 17, 2011	Head	21.3	1 g	39.9	4.03	+ 1.00	± 10
	1 900		5d032	Dec. 17, 2011	Body	21.3	1 g	41.5	4.18	+ 0.72	± 10
LTE	1 800		2d007	Dec. 19, 2011	Head	21.2	1 g	39.8	3.9	- 2.01	± 10
	1 800		2d007	Dec. 21, 2011	Body	21.3	1 g	37.3	3.69	- 1.07	± 10
	1 900		5d032	Dec. 20, 2011	Head	21.3	1 g	39.9	4.06	+ 1.75	± 10
	1 900		5d032	Dec. 22. 2011	Body	21.3	1 g	41.5	4.1	- 1.20	± 10
WIFI	2 450		743	Dec. 23. 2011	Head	21.2	1 g	53.8	5.45	+ 1.30	± 10
	2 450		743	Dec. 23. 2011	Body	21.2	1 g	51.7	5.11	- 1.16	± 10
Volume	835		441	Dec. 26. 2011	Body	21.3	1 g	9.45	0.927	- 1.90	± 10
	1 800		2d007	Dec. 26, 2011	Body	21.3	1 g	37.3	3.82	+ 2.41	± 10
	1 900		5d032	Dec. 28, 2011	Head	21.2	1 g	39.9	4.05	+ 1.50	± 10
	1 900		5d032	Dec. 27. 2011	Body	21.2	1 g	41.5	4.18	+ 0.72	± 10
	2 450		743	Dec. 29, 2011	Head	21.3	1 g	53.8	5.26	- 2.23	± 10
	2 450		743	Dec. 29, 2011	Body	21.3	1 g	51.7	5.23	+ 1.16	± 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.

9. RF CONDUCTED POWER MEASUREMENT

9.1 CDMA & EVDO

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. 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.

9.2 SAR Measurement Conditions for CDMA2000 1x

These procedures were followed according to FCC "SAR Measurement Procedures for 3G Devices", May 2006.

9.1.1 Output Power Verification

See 3GPP2 C.S0011/TIA-98-E as recommended by "SAR Measurement Procedures for 3G Devices", May 2006. MMaximum output power is verified on the High, Middle and Low channels according to procedures defined in section 4.4.5.2 of 3GPP2 C.S0011/TIA-98-E. SO55 tests were measured with power control bits in “All Up” condition.

1. If the mobile station supports Reverse TCH RC 1 and Forward TCH RC 1, set up a call using Fundamental Channel Test Mode 1 (RC=1/1) with 9 600 bps data rate only.
2. Under RC1, C.S0011 Table 4.4.5.2-1 (Table 9.1) parameters were applied.
3. If the MS supports the RC 3 Reverse FCH, RC3 Reverse SCH0 and demodulation of RC 3, 4, or 5, set up a call using Supplemental Channel Test Mode 3 (RC 3/3) with 9 600 bps Fundamental Channel and 9 600 bps SCH0 data rate Channel and 9 600 bps SCH0 data rate.
4. Under RC3, C.S0011 Table 4.4.5.2-2(Table 9.2) was applied.
5. FCHs were configured at full rate for mMaximum SAR with “All Up” power control bits.

Parameters for Max. Power for RC1

Parameter	Units	Value
$\hat{I}_{or}$	dBm/1.23 MHz	-104
$\frac{\text{Pilot } E_c}{I_{or}}$	dB	-7
$\frac{\text{Traffic } E_c}{I_{or}}$	dB	-7.4

Table. 9.1

Parameters for Max. Power for RC3

Parameter	Units	Value
$\hat{I}_{or}$	dBm/1.23 MHz	-86
$\frac{\text{Pilot } E_c}{I_{or}}$	dB	-7
$\frac{\text{Traffic } E_c}{I_{or}}$	dB	-7.4

Table. 9.2

9.1.2 Head SAR Measurement

SAR for head exposure configurations is measured in RC3 with the DUT configured to transmit at full rate using Loopback Service Option SO55. SAR for RC1 is not required when the mMaximum average output of each channel is less than ¼ dB higher than that measured in RC3. Otherwise, SAR is measured on the mMaximum output channel in RC1 using the exposure configuration that results in the highest SAR for that channel in RC3.

9.1.3 Body SAR Measurement

SAR for body exposure configurations is measured in RC3 with the DUT configured to transmit at full rate on FCH with all other code channels disabled using TDSO / SO32. SAR for multiple code channels (FCH + SCHn) is not required when the mMaximum average output of each RF channel is less than ¼ dB higher than that measured with FCH only. Otherwise, SAR is measured on the mMaximum output channel (FCH + SCHn) with FCH at full rate and SCH0 enabled at 9 600 bps using the exposure configuration that results in the highest SAR for that channel with FCH only. When multiple code channels are enabled, the DUT output may shift by more than 0.5 dB and lead to higher SAR drifts and SCH dropouts.

Body SAR in RC1 is not required when the mMaximum average output of each channel is less than ¼ dB higher than that measured in RC3. Otherwise, SAR is measured on the mMaximum 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.

9.1.4 Handsets with EV-DO

For handsets with Ev-Do capabilities, when the mMaximum average output of each channel in Rev. 0 is less than ¼ dB higher than that measured in RC3 (1x RTT), body SAR for Ev-Do is not required. Otherwise, SAR for Rev. 0 is measured on the mMaximum output channel at 153.6 kbps using the body exposure configuration that results in the highest SAR for that channel in RC3. SAR for Rev. A is not required when the mMaximum average output of each channel is less than that measured in Rev. 0 or less than ¼ dB higher than that measured in RC3. Otherwise, SAR is measured on the mMaximum output channel for Rev. A using a Reverse Data Channel payload size of 4 096 bits and a Termination Target of 16 slots defined for Subtype 2 Physical Layer configurations. A Forward Traffic Channel data rate corresponding to the 2-slot version of 307.2 kbps with the ACK Channel transmitting in all slots should be configured in the downlink for both Rev. 0 and Rev. A.

Average Output Power Measurement for FCC ID: ZNFMS840

Band	CH.No	SO2	SO2	SO55	SO55	TDSO SO32	1xEvDO Rev.0	1xEvDO Rev.0	1xEvDO Rev.1	1xEvDO Rev.1
		RC1/1	RC3/3	RC1/1	RC3/3	RC3/3	(FTAP)	(RTAP)	(FETAP)	(RETAP)
CDMA	1013	24.01	23.97	24.26	24.06	24.02	-	-	-	-
	384	24.39	24.14	24.27	24.19	24.15	-	-	-	-
	777	24.5	24.55	24.45	24.38	24.32	-	-	-	-
PCS	25	24.45	24.5	24.33	24.26	24.34	23.91	24.04	23.91	23.95
	600	24.26	24.36	24.17	24.32	24.28	23.89	24.01	23.9	23.98
	1175	24.06	24.25	24.12	24.18	24.3	23.81	23.99	23.94	24.01
AWS	25	24.48	24.3	24.39	24.21	24.25	24.25	24.25	24.11	24.14
	450	24.52	24.61	24.35	24.29	24.29	24.18	24.2	24.03	24.07
	875	24.26	24.27	24.15	24.18	24.36	24.17	24.22	24	24.08

CDMA Avergae Conducted output powers (dBm)

9.2 WiFi

9.2.1 SAR Testing for 802.11a/b/g/n modes

General Device Setup

Normal Network operating configurations are not suitable for measuring the SAR of 802.11 a/b/g transmitters. Unpredictable fluctuations in network traffic and antenna diversity conditions can introduce undesirable variations in SAR results. The SAR for these devices should be measured using chipset based test mode software to ensure the results are consistent and reliable.

Chipset based test mode software is hardware dependent and generally varies among manufacturers. The device operating parameters established in test mode for SAR measurements must be identical to those programmed in production units, including output power levels, amplifier gain settings and other RF performance tuning parameters. The test frequencies should correspond to actual channel frequencies defined for domestic use. SAR for devices with switched diversity should be measured with only one antenna transmitting at a time during each SAR measurement, according to a fixed modulation and data rate. The same data pattern should be used for all measurements.

Frequency Channel Configurations

80.11 a/b/g and 4.9 GHz operating modes are tested independently according to the service requirements in each frequency band. 80.211 b/g modes are tested on channels 1, 6 and 11.802.11a is tested for UNII operations on channels 36 and 48 in the 5.15-5.25 GHz band; channels 52 and 64 in the 5.25-5.35 GHz band; Channels 104, 116, 124 and 136 in the 5.470-5.725 GHz band; and channels 149 and 161 in the 5.8 GHz band. When 5.8 GHz § 15.247 is also available, channels 149, 157 and 165 should be tested instead of the UNII channels. 4.9 GHz is tested on channels 1, 10 and 5 or 6, whichever has the higher output power, for 5 MHz channels; channels 11,15 and 19 for 10 MHz channels; and channels 21 and 25 for 20 MHz channels.

These are referred to as the "default test channels". 802.11g mode was evaluated only if the output power was 0.25 dB higher than the 802.11b mode.

Mode		GHz	Channel	Turbo Channel	"Default Test Channels"			
					§15.247		UNII	
					802.11b	802.11g		
802.11 b/g		2.412	1		√	∇		
		2.437	6	6	√	∇		
		2.462	11		√	∇		
802.11a	UNII	5.18	36				√	
		5.20	40	42 (5.21 GHz)				*
		5.22	44					*
		5.24	48	50 (5.25 GHz)			√	
		5.26	52				√	
		5.28	56	58 (5.29 GHz)				*
		5.30	60					*
		5.32	64				√	
		5.500	100	Unknown				*
		5.520	104				√	
		5.540	108					*
		5.560	112					*
		5.580	116				√	
		5.600	120					*
		5.620	124				√	
		5.640	128					*
		5.660	132					*
		5.680	136				√	
		5.700	140					*
	UNII or §15.247	5.745	149		√		√	
		5.765	153	152 (5.76 GHz)		*		*
		5.785	157		√			*
		5.805	161	160 (5.80 GHz)		*	√	
	§15.247	5.825	165		√			

802.11 Test Channels per FCC Requirements

Band	Channel	Conducted Power (dBm)	
		(dBm)	(mW)
IEEE 802.11b	1	12.7	18.6
	6	13.9	24.5
	11	13.9	24.5
IEEE 802.11b	1	10.8	12.0
	6	11.6	14.5
	11	11.9	15.5
IEEE 802.11b	1	9.30	8.5
	6	10.0	10.0
	11	10.4	11.0

Note;
SAR testing was performed according to the FCC KDB 248227.

9.3 LTE

SAR testing was performed according to the FCC KDB 941225 D05 publication.

The device has been 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.

9.3.1 LTE Band 2

Bandwidth	UL Channel	UL Freq.(MHz)	Modulation	RB Size	RB Offset	Max.Average Power (dBm)	Target MPR (dB)	Measured Power reduction (dB)
1.4 MHz	18607(Low)	1850.7	QPSK	1	0	23.01	0	0.41
			QPSK	1	5	23.02	0	0.4
			QPSK	3	2	23	0	0.42
			QPSK	6	0	22.99	0	0.43
			16QAM	1	0	**23.42**	0	0
			16QAM	1	5	23.29	0	0.13
			16QAM	3	2	22.96	0	0.46
			16QAM	6	0	23.05	0	0.37
	18900(Mid)	1880	QPSK	1	0	23.14	0	0.33
			QPSK	1	5	23.13	0	0.34
			QPSK	3	2	23.25	0	0.22
			QPSK	6	0	23.16	0	0.31
			16QAM	1	0	23.46	0	0.01
			16QAM	1	5	23.44	0	0.03
			16QAM	3	2	23.27	0	0.2
			16QAM	6	0	**23.47**	0	0
	19193(High)	1909.3	QPSK	1	0	23.03	0	0.32
			QPSK	1	5	22.88	0	0.47
			QPSK	3	2	23.04	0	0.31
			QPSK	6	0	23.02	0	0.33
			16QAM	1	0	**23.35**	0	0
			16QAM	1	5	23.21	0	0.14
			16QAM	3	2	23.06	0	0.29
			16QAM	6	0	23.26	0	0.09

Bandwidth	UL Channel	UL Freq.(MHz)	Modulation	RB Size	RB Offset	Max.Average Power (dBm)	Target MPR (dB)	Measured Power reduction (dB)
3 MHz	18615(Low)	1851.5	QPSK	1	0	23.08	0	0.06
			QPSK	1	14	23.1	0	0.04
			QPSK	8	4	23	0	0.14
			QPSK	15	0	23.02	0	0.12
			16QAM	1	0	22.98	0	0.16
			16QAM	1	14	22.85	0	0.29
			16QAM	8	4	**23.14**	0	0
			16QAM	15	0	23	0	0.14
	18900(Mid)	1880	QPSK	1	0	23.19	0	0.11
			QPSK	1	14	23.25	0	0.05
			QPSK	8	4	23.17	0	0.13
			QPSK	15	0	23.1	0	0.2
			16QAM	1	0	23.07	0	0.23
			16QAM	1	14	22.96	0	0.34
			16QAM	8	4	**23.3**	0	0
			16QAM	15	0	23.13	0	0.17
	19185(High)	1908.5	QPSK	1	0	**23.24**	0	0
			QPSK	1	14	23.01	0	0.23
			QPSK	8	4	23.03	0	0.21
			QPSK	15	0	23.07	0	0.17
			16QAM	1	0	23.1	0	0.14
			16QAM	1	14	22.89	0	0.35
			16QAM	8	4	23.21	0	0.03
			16QAM	15	0	23.05	0	0.19

Bandwidth	UL Channel	UL Freq.(MHz)	Modulation	RB Size	RB Offset	Max.Average Power (dBm)	Target MPR (dB)	Measured Power reduction (dB)
5 MHz	18625(Low)	1852.5	QPSK	1	0	23.01	0	0.13
			QPSK	1	24	**23.14**	0	0
			QPSK	12	6	23	0	0.14
			QPSK	25	0	23.04	0	0.1
			16QAM	1	0	22.9	0	0.24
			16QAM	1	24	22.78	0	0.36
			16QAM	12	6	22.87	0	0.27
			16QAM	25	0	23.14	0	0
	18900(Mid)	1880	QPSK	1	0	23.2	0	0.13
			QPSK	1	24	23.23	0	0.1
			QPSK	12	6	23.21	0	0.12
			QPSK	25	0	23.24	0	0.09
			16QAM	1	0	22.93	0	0.4
			16QAM	1	24	22.9	0	0.43
			16QAM	12	6	23.03	0	0.3
			16QAM	25	0	**23.33**	0	0
	19175(High)	1907.5	QPSK	1	0	**23.34**	0	0
			QPSK	1	24	23	0	0.34
			QPSK	12	6	23.26	0	0.08
			QPSK	25	0	23.29	0	0.05
			16QAM	1	0	23.24	0	0.1
			16QAM	1	24	22.98	0	0.36
			16QAM	12	6	23.02	0	0.32
			16QAM	25	0	23.3	0	0.04

9.3.2 LTE Band 4

Bandwidth	UL Channel	UL Freq.(MHz)	Modulation	RB Size	RB Offset	Max.Average Power (dBm)	Target MPR (dB)	Measured Power reduction (dB)
1.4 MHz	19957(Low)	1710.7	QPSK	1	0	23.06	0	0.29
			QPSK	1	49	22.98	0	0.37
			QPSK	25	13	23.06	0	0.29
			QPSK	50	0	23	0	0.35
			16QAM	1	0	**23.35**	0	0
			16QAM	1	49	23.32	0	0.03
			16QAM	25	13	23.12	0	0.23
			16QAM	50	0	23.33	0	0.02
	20175(Mid)	1732.5	QPSK	1	0	22.93	0	0.37
			QPSK	1	49	22.91	0	0.39
			QPSK	25	13	22.88	0	0.42
			QPSK	50	0	22.93	0	0.37
			16QAM	1	0	**23.3**	0	0
			16QAM	1	49	23.25	0	0.05
			16QAM	25	13	23.05	0	0.25
			16QAM	50	0	23.21	0	0.09
	20393(High)	1754.3	QPSK	1	0	22.94	0	0.41
			QPSK	1	49	23	0	0.35
			QPSK	25	13	23.02	0	0.33
			QPSK	50	0	23.02	0	0.33
			16QAM	1	0	**23.35**	0	0
			16QAM	1	49	23.29	0	0.06
			16QAM	25	13	23.06	0	0.29
			16QAM	50	0	23.32	0	0.03

Bandwidth	UL Channel	UL Freq.(MHz)	Modulation	RB Size	RB Offset	Max.Average Power (dBm)	Target MPR (dB)	Measured Power reduction (dB)
3 MHz	19965(Low)	1711.5	QPSK	1	0	23.1	0	0.05
			QPSK	1	14	23.11	0	0.04
			QPSK	8	4	22.94	0	0.21
			QPSK	15	0	22.93	0	0.22
			16QAM	1	0	22.91	0	0.24
			16QAM	1	14	22.99	0	0.16
			16QAM	8	4	**23.15**	0	0
			16QAM	15	0	22.97	0	0.18
	20175(Mid)	1732.5	QPSK	1	0	22.9	0	0.32
			QPSK	1	14	22.91	0	0.31
			QPSK	8	4	22.98	0	0.24
			QPSK	15	0	23.01	0	0.21
			16QAM	1	0	**23.22**	0	0
			16QAM	1	14	23.21	0	0.01
			16QAM	8	4	23.1	0	0.12
			16QAM	15	0	23.13	0	0.09
	20385(High)	1753.5	QPSK	1	0	23.05	0	0.14
			QPSK	1	14	23.06	0	0.13
			QPSK	8	4	23	0	0.19
			QPSK	15	0	22.96	0	0.23
			16QAM	1	0	22.9	0	0.29
			16QAM	1	14	22.81	0	0.38
			16QAM	8	4	**23.19**	0	0
			16QAM	15	0	22.98	0	0.21

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(Low)	1712.5	QPSK	1	0	23.03	0	0.15
			QPSK	1	24	23.07	0	0.11
			QPSK	12	6	23.03	0	0.15
			QPSK	25	0	23.08	0	0.1
			16QAM	1	0	22.96	0	0.22
			16QAM	1	24	23.06	0	0.12
			16QAM	12	6	22.88	0	0.3
			16QAM	25	0	**23.18**	0	0
	20175(Mid)	1732.5	QPSK	1	0	22.89	0	0.38
			QPSK	1	24	22.86	0	0.41
			QPSK	12	6	22.97	0	0.3
			QPSK	25	0	22.91	0	0.36
			16QAM	1	0	**23.27**	0	0
			16QAM	1	24	23.22	0	0.05
			16QAM	12	6	22.83	0	0.44
			16QAM	25	0	23.13	0	0.14
	20375(High)	1752.5	QPSK	1	0	23.02	0	0.06
			QPSK	1	24	23	0	0.08
			QPSK	12	6	22.89	0	0.19
			QPSK	25	0	23.02	0	0.06
			16QAM	1	0	22.72	0	0.36
			16QAM	1	24	22.75	0	0.33
			16QAM	12	6	22.8	0	0.28
			16QAM	25	0	**23.08**	0	0

9.4. SVLTE/SVDO RF Conducted Power

The EUT uses a power reduction technique where the data mode transmit power is reduced a predetermined amount based on the voice transmit power. As voice 1x power approaches maximum transmit power, the data mode transmit power is reduced a configured magnitude. For low voice 1x power levels, there is no restriction on the data mode transmit power. Although this device supports SVDO/SVLTE power reduction, initial SAR evaluation will use the max. output power without power reduction. If the SVDO and SVLTE mode of operation can achieve SAR compliance without power reduction, SVDO and SVLTE with reduced power will not be performed. However, if during SAR evaluation, it is determined that power reduction is required to achieve SAR compliance; test report will include the output power used during final SAR evaluation.

Mode	Voice Average Power 1x(dBm)	Maximum EVDO Average Power (dBm)
SVDO	P<15.5	24.0 (Limited)
	P≥15.5	19.0 (Limited)
Mode	**Voice Average Power 1x (dBm)**	**Maximum LTE Average Power (dBm)**
SVLTE	P<18.5	22.8 (Limited)
	P≥18.5	17.8 (Limited)

Power reduction Settings

9.4.1 SVDO

SV-DO: CDMA 1xRTT to 1xEVDO1700 & 1xEVDO1700

CDAM BCO 850 1xRTT		1x EVDO 1700			1x EVDO 1900		
		Output Power[dBm]			Output Power[dBm]		
ch #	Output Power [dBm]	low 25	Middle 450	high 875	low 25	Middle 450	high 875
low-1013	11	23.82	23.83	23.90	23.91	23.92	23.89
	15	23.82	23.83	23.90	23.91	23.92	23.89
	16	16.87	16.86	16.87	17.62	17.65	17.58
	24	16.87	16.86	16.87	17.62	17.65	17.58
Middle_384	11	23.88	23.89	23.87	23.92	23.95	23.80
	15	23.88	23.89	23.87	23.92	23.95	23.80
	16	16.94	16.96	16.98	17.60	17.62	17.52
	24	16.94	16.96	16.98	17.60	17.62	17.52
High_777	11	23.88	23.89	23.87	23.91	23.90	23.88
	15	23.88	23.89	23.87	23.91	23.90	23.88
	16	16.87	16.88	16.84	17.58	17.61	17.54
	24	16.87	16.88	16.84	17.58	17.61	17.54

SV-DO: CDMA1700 1xRTT to 1xEVDO1700 & 1xEVDO1700

CDAM 1700 1xRTT		1x EVDO 1700 Output Power[dBm]			1x EVDO 1900 Output Power[dBm]		
ch #	Output Power [dBm]	low 25	Middle 450	high 875	low 25	Middle 450	high 875
low-25	11	23.98	23.94	23.95	23.88	23.93	23.86
	15	23.98	23.94	23.95	23.88	23.93	23.86
	16	17.18	17.15	17.16	17.02	17.11	17.07
	24	17.18	17.15	17.16	17.02	17.11	17.07
Middle_450	11	23.92	23.97	23.95	23.91	23.95	23.90
	15	23.92	23.97	23.95	23.91	23.95	23.90
	16	17.10	17.14	17.13	17.03	17.02	17.01
	24	17.10	17.14	17.13	17.03	17.02	17.01
High_875	11	23.93	23.95	23.94	23.89	23.92	23.90
	15	23.93	23.95	23.94	23.89	23.92	23.90
	16	17.05	17.07	17.08	17.05	17.04	17.03
	24	17.05	17.07	17.08	17.05	17.04	17.03

SV-DO: CDMA1900 1xRTT to 1xEVDO1700 & 1xEVDO1700

CDAM BC1 1900 1xRTT		1x EVDO 1700 Output Power[dBm]			1x EVDO 1900 Output Power[dBm]		
ch #	Output Power [dBm]	low 25	Middle 450	high 875	low 25	Middle 450	high 875
low-25	11	23.89	23.93	23.91	23.87	23.89	23.86
	15	23.89	23.93	23.91	23.87	23.89	23.86
	16	17.12	17.14	17.1	17.58	17.51	17.42
	24	17.12	17.14	17.1	17.58	17.51	17.42
Middle_600	11	23.94	23.95	23.92	23.89	23.93	23.91
	15	23.94	23.95	23.92	23.89	23.93	23.91
	16	17.13	17.11	17.12	17.48	17.51	17.55
	24	17.13	17.11	17.12	17.48	17.51	17.55
High_1175	11	23.89	23.92	23.90	23.88	23.89	23.87
	15	23.89	23.92	23.90	23.88	23.89	23.87
	16	17.09	17.07	17.10	17.51	17.48	17.55
	24	17.09	17.07	17.10	17.51	17.48	17.55

9.4.2 SVLTE

Band 2

SV-LTE: CDMA850 1xRTT to SV-LTE Band2 (5MHz), (QPSK, 16QAM)

CDAM BCO 850 1xRTT		QPSK				16QAM			
LTE 2		Output Power[dBm]				Output Power[dBm]			
ch #	Output Power [dBm]	1RB,0 offset	1RB,24 offset	12RB,6 offset	25RB	1RB,0 offset	1RB,24 offset	12RB,6 offset	25RB
low-1013	11	22.90	22.96	22.88	22.9	22.91	22.98	22.66	23.28
	18	22.90	22.96	22.88	22.9	22.91	22.98	22.66	23.28
	19	17.69	17.78	17.55	17.61	17.7	17.68	17.47	18.02
	24	17.69	17.78	17.55	17.61	17.7	17.68	17.47	18.02
Middle_384	11	22.90	22.97	22.89	22.91	22.91	22.98	22.73	23.28
	18	22.90	22.97	22.89	22.91	22.91	22.98	22.73	23.28
	19	17.68	17.78	17.59	17.59	17.71	17.71	17.47	18.02
	24	17.68	17.78	17.59	17.59	17.71	17.71	17.47	18.02
High_777	11	22.89	22.96	22.88	22.87	22.90	22.99	22.72	23.29
	18	22.89	22.96	22.88	22.87	22.90	22.99	22.72	23.29
	19	17.67	17.78	17.58	17.61	17.71	17.71	17.48	17.98
	24	17.67	17.78	17.58	17.61	17.71	17.71	17.48	17.98

SV-LTE: CDMA1900 1xRTT to SV-LTE Band2 (5MHz), (QPSK, 16QAM)

CDAM BC1 1900 1xRTT		QPSK				16QAM			
LTE 2		Output Power[dBm]				Output Power[dBm]			
ch #	Output Power [dBm]	1RB,0 offset	1RB,24 offset	12RB,6 offset	25RB	1RB,0 offset	1RB,24 offset	12RB,6 offset	25RB
low-25	11	22.95	23.01	22.84	22.92	22.91	23.00	22.71	23.36
	18	22.95	23.01	22.84	22.92	22.91	23.00	22.71	23.36
	19	17.72	17.80	17.62	17.59	17.72	17.77	17.44	17.97
	24	17.72	17.80	17.62	17.59	17.72	17.77	17.44	17.97
Middle_600	11	22.94	23.00	22.85	22.94	22.92	22.99	22.70	23.30
	18	22.94	23.00	22.85	22.94	22.92	22.99	22.70	23.30
	19	17.72	17.81	17.6	17.58	17.71	17.76	17.45	17.96
	24	17.72	17.81	17.6	17.58	17.71	17.76	17.45	17.96
High_1175	11	22.97	23.01	22.88	22.93	22.91	23.00	22.68	23.33
	18	22.97	23.01	22.88	22.93	22.91	23.00	22.68	23.33
	19	17.76	17.81	17.60	17.62	17.70	17.74	17.45	18.01
	24	17.76	17.81	17.60	17.62	17.70	17.74	17.45	18.01

SV-LTE: CDMA AWS1700 1xRTT to SV-LTE Band2 (5MHz), (QPSK, 16QAM)

CDAM 1900 1xRTT LTE 2		QPSK Output Power[dBm]				16QAM Output Power[dBm]			
ch #	Output Power [dBm]	1RB,0 offset	1RB,24 offset	12RB,6 offset	25RB	1RB,0 offset	1RB,24 offset	12RB,6 offset	25RB
low-25	11	22.93	22.95	22.89	22.91	22.94	22.96	22.68	23.30
	18	22.93	22.95	22.89	22.91	22.94	22.96	22.68	23.30
	19	17.73	17.76	17.56	17.61	17.72	17.71	17.45	18.00
	24	17.73	17.76	17.56	17.61	17.72	17.71	17.45	18.00
Middle_450	11	22.94	22.99	22.87	22.88	22.94	22.97	22.67	23.29
	18	22.94	22.99	22.87	22.88	22.94	22.97	22.67	23.29
	19	17.69	17.72	17.57	17.62	17.72	17.72	17.48	18.01
	24	17.69	17.72	17.57	17.62	17.72	17.72	17.48	18.01
High_875	11	22.96	23.02	22.85	22.89	22.93	22.98	22.68	23.31
	18	22.96	23.02	22.85	22.89	22.93	22.98	22.68	23.31
	19	17.73	17.76	17.58	17.62	17.70	17.71	17.50	18.01
	24	17.73	17.76	17.58	17.62	17.70	17.71	17.50	18.01

Band 4

SV-LTE: CDMA850 1xRTT to SV-LTE Band4 (5MHz), (QPSK, 16QAM)

CDAM BCO 850 1xRTT LTE 4		QPSK Output Power[dBm]				16QAM Output Power[dBm]			
ch #	Output Power [dBm]	1RB,0 offset	1RB,24 offset	12RB,6 offset	25RB	1RB,0 offset	1RB,24 offset	12RB,6 offset	25RB
low-1013	11	23.17	23.18	22.94	22.96	23.17	23.1	22.77	23.45
	18	23.17	23.18	22.94	22.96	23.17	23.1	22.77	23.45
	19	18.07	18.05	17.8	17.85	18.02	17.99	17.69	18.22
	24	18.07	18.05	17.8	17.85	18.02	17.99	17.69	18.22
Middle_384	11	23.18	23.17	22.93	22.97	23.17	23.11	22.78	23.44
	18	23.18	23.17	22.93	22.97	23.17	23.11	22.78	23.44
	19	18.08	18.05	17.86	17.88	18.02	18.00	17.7	18.2
	24	18.08	18.05	17.86	17.88	18.02	18.00	17.7	18.2
High_777	11	23.18	23.16	22.92	22.99	23.16	23.11	22.78	23.44
	15	23.18	23.16	22.92	22.99	23.16	23.11	22.78	23.44
	16	18.06	18.01	17.79	17.88	18.00	18.02	17.69	18.23
	24	18.06	18.01	17.79	17.88	18.00	18.02	17.69	18.23

SV-LTE: CDMA1900 1xRTT to SV-LTE Band4 (5MHz), (QPSK, 16QAM)

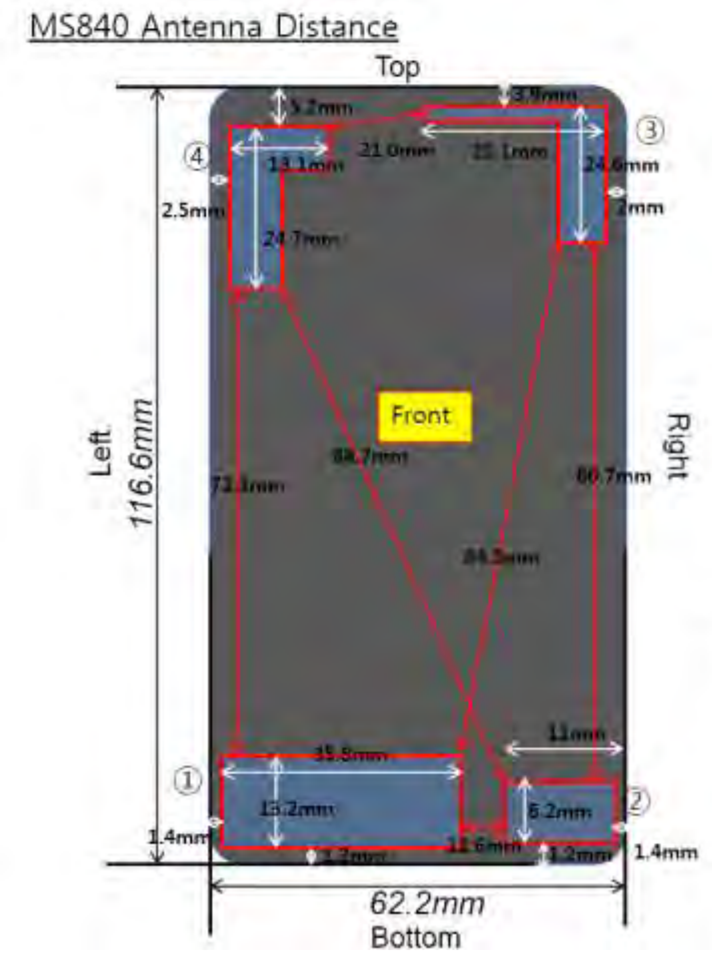
CDAM BC1 1900 1xRTT		QPSK				16QAM			
LTE 4		Output Power[dBm]				Output Power[dBm]			
ch #	Output Power [dBm]	1RB,0 offset	1RB,24 offset	12RB,6 offset	25RB	1RB,0 offset	1RB,24 offset	12RB,6 offset	25RB
low-25	11	23.18	23.19	22.92	22.98	23.16	23.11	22.78	23.47
	18	23.18	23.19	22.92	22.98	23.16	23.11	22.78	23.47
	19	18.02	18.04	17.80	17.88	18.05	18.01	17.69	18.22
	24	18.02	18.04	17.80	17.88	18.05	18.01	17.69	18.22
Middle_600	11	23.17	23.20	22.92	22.98	23.18	23.12	22.78	23.46
	18	23.17	23.20	22.92	22.98	23.18	23.12	22.78	23.46
	19	18.03	18.01	17.88	17.86	18.03	17.99	17.68	18.22
	24	18.03	18.01	17.88	17.86	18.03	17.99	17.68	18.22
High_1175	11	23.17	23.21	22.93	23.00	23.18	23.10	22.79	23.45
	15	23.17	23.21	22.93	23.00	23.18	23.10	22.79	23.45
	16	18.05	18.01	17.80	17.85	18.05	18.00	17.70	18.24
	24	18.05	18.01	17.80	17.85	18.05	18.00	17.70	18.24

SV-LTE: CDMA AWS1700 1xRTT to SV-LTE Band4 (5MHz), (QPSK, 16QAM)

CDAM 1900 1xRTT		QPSK				16QAM			
LTE 4		Output Power[dBm]				Output Power[dBm]			
ch #	Output Power [dBm]	1RB,0 offset	1RB,24 offset	12RB,6 offset	25RB	1RB,0 offset	1RB,24 offset	12RB,6 offset	25RB
low-25	11	23.20	23.15	22.96	23.03	23.18	23.09	22.81	23.44
	18	23.20	23.15	22.96	23.03	23.18	23.09	22.81	23.44
	19	18.05	18.04	17.84	17.84	18.05	18.00	17.70	18.25
	24	18.05	18.04	17.84	17.84	18.05	18.00	17.70	18.25
Middle_450	11	23.20	23.20	22.95	23.01	23.20	23.10	22.81	23.45
	18	23.20	23.20	22.95	23.01	23.20	23.10	22.81	23.45
	19	18.03	18.04	17.84	17.86	18.06	18.01	17.69	18.26
	24	18.03	18.04	17.84	17.86	18.06	18.01	17.69	18.26
High_875	11	23.19	23.19	22.95	23.01	23.20	23.10	22.80	23.46
	15	23.19	23.19	22.95	23.01	23.20	23.10	22.80	23.46
	16	18.04	18.05	17.84	17.86	18.05	17.98	17.70	18.27
	24	18.04	18.05	17.84	17.86	18.05	17.98	17.70	18.27

10. Mobile Hotspot Side for SAR Testing

10.1 Antenna and Device Information



LG Electronics

① CDMA 1x BC0, BC1 and BC15 Rx/Tx

MODE	BAND	TX(MHz)	RX(MHz)
CDMA	BC0	824 ~ 849	869 ~ 894
	BC1	1850 ~ 1910	1930 ~ 1990
	BC15	1710 ~ 1755	2110 ~ 2155

② LTE Band 2 and 4 Rx/Tx
EVDO BC1 and BC15 Rx/Tx
* BC0 doesn't support EVDO capability

MODE	BAND	TX(MHz)	RX(MHz)
LTE	B2	1850 ~ 1910	1930 ~ 1990
	B4	1710 ~ 1755	2110 ~ 2155
EVDO	BC1	1850 ~ 1910	1930 ~ 1990
	BC15	1710 ~ 1755	2110 ~ 2155

③ GPS & BT/WIFI

MODE	TX(MHz)	RX(MHz)
GPS	x	1575.42
BT/WiFi(802.11b/g/n)	2412~2462	2412~2462

④ LTE Band 2 and 4 2nd RX, EVDO BC1 and BC15 Diversity

MODE	BAND	TX(MHz)	RX(MHz)
LTE	B2	2nd Rx	1930 ~ 1990
	B4	2nd Rx	2110 ~ 2155
EVDO	BC1	Diversity	1930 ~ 1990
	BC15	Diversity	2110 ~ 2155

Note;

Per KDB 941225 D06 hotspot procedures, we performed the SAR testing at 1 cm from the top & bottom surfaces and also from side edges with a transmitting antenna ≤ 2.5 cm from an edge.

10.2 SAR Test configurations

Head Operation					
Mode	Tx(Mhz)	ANT ①	ANT ②	ANT ③	ANT ④
CDMA Voice(1xRTT)	835	Yes	No	No	No
CDMA Voice(1xRTT)	1700	Yes	No	No	No
CDMA Voice(1xRTT)	1900	Yes	No	No	No
LTE Data	1900	No	Yes	No	No
LTE Data	1700	No	Yes	No	No
EVDO(VOIP)	1700	No	Yes	No	No
EVDO(VOIP)	1900	No	Yes	No	No
EVDO(VOIP)	1700	No	No	No	No
EVDO(VOIP)	1900	No	No	No	No
SVDO(Voice & Data)	1900	Yes	No	No	No
SVDO(Voice & Data)	1700	Yes	No	No	No
SVDO(Voice & Data)	1900	Yes	Yes	No	No
SVDO(Voice & Data)	1700	Yes	Yes	No	No
SVLTE(Voice & Data)	1900	Yes	Yes	No	No
SVLTE(Voice & Data)	1700	Yes	Yes	No	No
Wi-Fi(VOIP)	2400	No	No	Yes	No
BT	2400	No	No	No	No

Body-worn Operation					
Mode	Tx(Mhz)	ANT ①	ANT ②	ANT ③	ANT ④
CDMA Voice(1xRTT)	835	Yes	No	No	No
CDMA Voice(1xRTT)	1700	Yes	No	No	No
CDMA Voice(1xRTT)	1900	Yes	No	No	No
LTE Data	1900	No	Yes	No	No
LTE Data	1700	No	Yes	No	No
EVDO Data	1700	No	Yes	No	No
EVDO Data	1900	No	Yes	No	No
EVDO Data	1700	No	No	No	No
EVDO Data	1900	No	No	No	No
SVDO(Voice & Data)	1900	Yes	Yes	No	No
SVDO(Voice & Data)	1700	Yes	Yes	No	No
SVLTE(Voice & Data)	1900	Yes	Yes	No	No
SVLTE(Voice & Data)	1700	Yes	Yes	No	No
Wi-Fi(Data)	2400	No	No	Yes	No
BT	2400	No	No	No	No

Wireless Router/ Hot Spot Operation					
Separation Distance = 1Cm					
Mode	Tx(Mhz)	ANT ①	ANT ②	ANT ③	ANT ④
LTE Data+Wi-Fi	1900/2400	No	Yes	Yes	No
LTE Data+Wi-Fi	1700/2400	No	Yes	Yes	No
EVDO Data+Wi-Fi	1700/2400	No	Yes	Yes	No
EVDO Data+Wi-Fi	1900/2400	No	Yes	Yes	No
SVDO(Voice & Data)+Wi-Fi	835/1900/2400	Yes	Yes	Yes	No
SVDO(Voice & Data)+Wi-Fi	835/1700/2400	Yes	Yes	Yes	No
SVDO(Voice & Data)+Wi-Fi	1900/1900/2400	Yes	Yes	Yes	No
SVDO(Voice & Data)+Wi-Fi	1900/1700/2400	Yes	Yes	Yes	No
SVDO(Voice & Data)+Wi-Fi	1700/1900/2400	Yes	Yes	Yes	No
SVDO(Voice & Data)+Wi-Fi	1700/1700/2400	Yes	Yes	Yes	No
SVLTE(Voice & Data)+Wi-F	835/1900/2400	Yes	Yes	Yes	No
SVLTE(Voice & Data)+Wi-F	835/1700/2400	Yes	Yes	Yes	No
SVLTE(Voice & Data)+Wi-F	1900/1900/2400	Yes	Yes	Yes	No
SVLTE(Voice & Data)+Wi-F	1900/1700/2400	Yes	Yes	Yes	No
SVLTE(Voice & Data)+Wi-F	1700/1900/2400	Yes	Yes	Yes	No
SVLTE(Voice & Data)+Wi-F	1700/1700/2400	Yes	Yes	Yes	No

11. SAR Evaluation Considerations for Handsets with Multiple Transmitters and Antennas

11.1 SAR Evaluation Considerations

These procedures were followed according to FCC "SAR Evaluation Considerations for Handsets with Multiple Transmitters and Antennas", May 2008. The procedures are applicable to phones with built-in unlicensed transmitters, such as 802.11 a/b/g and Bluetooth devices.

	2.45	5.15 - 5.35	5.47 - 5.85	GHz
P_{Ref}	12	6	5	mW
Device output power should be rounded to the nearest mW to compare with values specified in this				

Table. 14.1 Output Power Thresholds for Unlicensed Transmitters

	Individual Transmitter	Simultaneous Transmission
Licensed Transmitters	Routine evaluation required	SAR not required: Unlicensed only ○ when stand-alone 1-g SAR is not required and antenna is ≥ 5 cm from other antennas Licensed & Unlicensed ○ when the sum of the 1-g SAR is < 1.6 W/kg for all simultaneous transmitting antennas ○ when SAR to peak location separation ratio of simultaneous transmitting antenna pair is < 0.3 SAR required: Licensed & Unlicensed antenna pairs with SAR to peak location separation ratio ≥ 0.3; test is only required for the configuration that results in the highest SAR in stand-alone configuration for each wireless mode and exposure condition Note: simultaneous transmission exposure conditions for head and body can be different for different style phones; therefore, different test requirements may apply
Unlicensed Transmitters	When there is no simultaneous transmission – ○ output ≤ 60/f: SAR not required ○ output > 60/f: stand-alone SAR required When there is simultaneous transmission – Stand-alone SAR not required when ○ output ≤ $2 \cdot P_{Ref}$ and antenna is ≥ 5.0 cm from other antennas ○ output ≤ P_{Ref} and antenna is ≥ 2.5 cm from other antennas ○ output ≤ P_{Ref} and antenna is < 2.5 cm from other antennas, each with either output power ≤ P_{Ref} or 1-g SAR < 1.2 W/kg Otherwise stand-alone SAR is required When stand-alone SAR is required ○ test SAR on highest output channel for each wireless mode and exposure condition ○ if SAR for highest output channel is > 50% of SAR limit, evaluate all channels according to normal procedures	
Jaw, Mouth and Nose	Flat phantom SAR required ○ when measurement is required in tight regions of SAM and it is not feasible or the results can be questionable due to probe tilt, calibration, positioning and orientation issues ○ position rectangular and clam-shell phones according to flat phantom procedures and conduct SAR measurements for these specific locations	When simultaneous transmission SAR testing is required, contact the FCC Laboratory for interim guidance.

Table. 14.2 SAR Evaluation Requirements for Cellphones with Multiple Transmitters

FCC ID: ZNFMS840/ BT Max. RF output power: 10.30 mW

WLAN Max. RF output power: 24.5 mW (802.11b)

11.2 Simultaneous Transmission Conditions

Summary of Simultaneous

No.	Capable TX Configuration	Head SAR	Body SAR	Hotspot SAR	Power Reduction (CDMA EVDO)	Power Reduction (LTE)	Note
1	CDMA Voice	O	O	x	x	x	Stand-alone CDMA Voice
2	CDMA EVDO	O	O	x	x	x	Stand-alone CDMA EVDO
3	LTE	O	O	x	x	x	Stand-alone LTE
4	Wi-Fi	O	O	x	x	x	Stand-alone Wi-Fi
5	BT	x	x	x	x	x	
6	CDMA Voice + CDMA EVDO	O	O	x	O	x	SVDO
7	CDMA Voice + LTE	O	O	x	x	O	SVLTE
8	CDMA Voice + CDMA EVDO + WLAN	O	O	O	O	x	WI-FI Hotspot
9	CDMA Voice + LTE + WLAN	O	O	O	x	O	WI-FI Hotspot

* BT and WLAN are not simultaneous transmission.

* CDMA EVDO and LTE are not simultaneous transmission.

* CDMA BC0 EVDO is not supported

* VOIP support (LTE, EVDO).

* SVLTE, SVDO is supported

* Power reduction is implemented on EVDO in SVDO mode

* Power reduction is implemented on LTE in SVLTE mode.

All Simultaneous case

No.	Capable TX Configuration	Head SAR	Body SAR	Hotspot SAR	Power Reduction (CDMA EVDO)	Power Reduction (LTE)	Note
1	CDMA BC0 Voice	O	O	x	x	x	Stand-alone CDMA BC0 Voice
2	2 CDMA BC1 Voice	O	O	x	x	x	Standalone CDMA BC1 Voice
3	CDMA AWS Voice	O	O	x	x	x	Stand-alone CDMA AWS Voice
4	CDMA BC1 EVDO	O	O	x	x	x	Stand-alone CDMA EVDO BC1
5	CDMA AWS EVDO	O	O	x	x	x	Stand-alone CDMA EVDO AWS
6	LTE B2	O	O	x	x	x	Stand-alone LTE B2 data
7	LTE B4	O	O	x	x	x	Stand-alone LTE B4 data
8	Wi-Fi	O	O	x	x	x	Stand-alone Wi-Fi
9	BT	x	x	x	x	x	Below SAR Power Threshold
10	CDMA BC0 Voice + Wi-Fi data	O	O	x	x	x	
11	CDMA BC1 Voice + Wi-Fi data	O	O	x	x	x	
12	CDMA AWS Voice + Wi-Fi data	O	O	x	x	x	
13	CDMA BC1 EVDO+ Wi-Fi data	x	O	O	x	x	WI-FI Hotspot
14	CDMA AWS EVDO+ Wi-Fi data	x	O	O	x	x	WI-FI Hotspot
15	LTE B2 + Wi-Fi data	x	O	O	x	x	WI-FI Hotspot
16	LTE B4 + Wi-Fi data	x	O	O	x	x	WI-FI Hotspot
17	CDMA BC0 Voice + CDMA BC1 EVDO	O	O	x	O	x	SVDO
18	CDMA BC0 Voice + CDMA AWS EVDO	O	O	x	O	x	SVDO
19	CDMA BC0 Voice + LTE B2	O	O	x	x	O	SVLTE
20	CDMA BC0 Voice + LTE B4	O	O	x	x	O	SVLTE
21	CDMA BC1 Voice + CDMA BC1 EVDO	O	O	x	O	x	SVDO
22	CDMA BC1 Voice + CDMA AWS EVDO	O	O	x	O	x	SVDO
23	CDMA BC1 Voice + LTE B2	O	O	x	x	O	SVLTE
24	CDMA BC1 Voice + LTE B4	O	O	x	x	O	SVLTE
25	CDMA AWS Voice + CDMA BC1 EVDO	O	O	x	O	x	SVDO
26	CDMA AWS Voice + CDMA AWS EVDO	O	O	x	O	x	SVDO
27	CDMA AWS Voice + LTE B2	O	O	x	x	O	SVLTE
28	CDMA AWS Voice + LTE B4	O	O	x	x	O	SVLTE
29	CDMA BC0 Voice + CDMA BC1 EVDO + WLAN	O	O	O	O	x	WI-FI Hotspot
30	CDMA BC0 Voice + CDMA AWS EVDO + WLAN	O	O	O	O	x	WI-FI Hotspot
31	CDMA BC0 Voice + LTE B2 + WLAN	O	O	O	x	O	WI-FI Hotspot
32	CDMA BC0 Voice + LTE B4+ WLAN	O	O	O	x	O	WI-FI Hotspot
33	CDMA BC1 Voice + CDMA BC1 EVDO+ WLAN	O	O	O	O	x	WI-FI Hotspot
34	CDMA BC1 Voice + CDMA AWS EVDO+ WLAN	O	O	O	O	x	WI-FI Hotspot
35	CDMA BC1 Voice + LTE B2+ WLAN	O	O	O	x	O	WI-FI Hotspot
36	CDMA BC1 Voice + LTE B4+WLAN	O	O	O	x	O	WI-FI Hotspot
37	CDMA AWS Voice + CDMA BC1 EVDO+ WLAN	O	O	O	O	x	WI-FI Hotspot
38	CDMA AWS Voice + CDMA AWS EVDO+ WLAN	O	O	O	O	x	WI-FI Hotspot
39	CDMA AWS Voice + LTE B2 + WLAN	O	O	O	x	O	WI-FI Hotspot
40	CDMA AWS Voice + LTE B4 + WLAN	O	O	O	x	O	WI-FI Hotspot

11.3 SAR Summation Scenario

11.3.1 SV-DO Head Exposure Condition

Testposition	Voice			Data					Σ1g SAR
	CDMA850	CDMA1700	CDMA1900	CDMA850	CDMA1700	CDMA1900	LTE	WiFi	
	1xRTT	1xRTT	1xRTT	1xEVDO	1xEVDO	1xEVDO			
left touch	0.361				0.376			0.241	0.978
left tilt	0.229				0.194			0.157	0.58
right touch	0.299				0.434			0.074	0.807
right tilt	0.188				0.25			0.068	0.506
left touch		0.616			0.376			0.241	1.233
left tilt		0.154			0.194			0.157	0.505
right touch		0.335			0.434			0.074	0.843
right tilt		0.148			0.25			0.068	0.466
left touch			0.931		0.376			0.241	1.548
left tilt			0.204		0.194			0.157	0.555
right touch			0.444		0.434			0.074	0.952
right tilt			0.239		0.25			0.068	0.557
left touch	0.361					0.541		0.241	1.143
left tilt	0.229					0.244		0.157	0.63
right touch	0.299					0.897		0.074	1.27
right tilt	0.188					0.299		0.068	0.555
left touch		0.616				0.541		0.241	1.398
left tilt		0.154				0.244		0.157	0.555
right touch		0.335				0.897		0.074	1.306
right tilt		0.148				0.299		0.068	0.515
left touch			**0.931**			**0.541**		**0.241**	**1.713**
left tilt			0.204			0.244		0.157	0.605
right touch			0.444			0.897		0.074	1.415
right tilt			0.239			0.299		0.068	0.606

SAR to Peak Location Separation Ratio (SPLSR)

Test Position	worst-case combination			Σ1g SAR	3D distance	SPLSR
	CDMA1900 1xRTT	CDMA1900 1xEVDO	WiFi			
Left touch	0.931	0.541	0.241	1.713		
	0.931	0.541		1.472	n/a	n/a
	0.931		0.241	1.172	n/a	n/a

Note;

Simultaneous transmission SAR is required because the sum of the 1g-SAR is > 1.6 W/kg.

SV-DO Head Volume Scans & Multi Band (Combined) Results

Test position	Multi-band	Ch.#	Freq(MHz)	Zoom scan	Test Results(W/kg)		
					Volume scan	Multi Band (Combined)Results	
Left touch	CDMA1900 1xRTT	600	1880.00	0.931	0.943	1.34	1.34
	CDMA1900 1xEVDO	600	1880.00	0.541	0.55		
	802.11b	11	2462.00	0.241	0.248		

11.3.2 SV-DO Body-worn and Body-hotspot Exposure Condition

Test position	Voice			Data					Σ1g SAR
	CDMA850	CDMA1700	CDMA1900	CDMA850	CDMA1700	CDMA1900	LTE	WiFi	
	1xRTT	1xRTT	1xRTT	1xEVDO	1xEVDO	1xEVDO			
Rear	0.842				0.579			0.361	1.782
	0.842					0.628		0.361	1.831
Rear		0.43			0.579			0.361	1.37
		0.43				0.628		0.361	1.419
Rear			0.792		0.579			0.361	1.732
			0.792			0.628		0.361	1.781

SAR to Peak Location Separation Ratio (SPLSR)

Test Position	worst-case combination			Σ1g SAR	3D distance	SPLSR
	CDMA850 1xRTT	CDMA1700 1xEVDO	WiFi			
Rear	0.842	0.579	0.361	1.782		
	0.842	0.579		1.421	n/a	n/a
	0.842		0.361	1.203	n/a	n/a
Test Position	worst-case combination			Σ1g SAR	3D distance	SPLSR
	CDMA850 1xRTT	CDMA1900 1xEVDO	WiFi			
Rear	0.842	0.628	0.361	1.831		
	0.842	0.628		1.47	n/a	n/a
	0.842		0.361	1.203	n/a	n/a
Test Position	worst-case combination			Σ1g SAR	3D distance	SPLSR
	CDMA1900 1xRTT	CDMA1700 1xEVDO	WiFi			
Rear	0.792	0.579	0.361	1.732		
	0.792	0.579		1.371	n/a	n/a
	0.792		0.361	1.153	n/a	n/a
Test Position	worst-case combination			Σ1g SAR	3D distance	SPLSR
	CDMA1900 1xRTT	CDMA1900 1xEVDO	WiFi			
Rear	0.792	0.628	0.361	1.781		
	0.792	0.628		1.42	n/a	n/a
	0.792		0.361	1.153	n/a	n/a

Note;

Simultaneous transmission SAR is required because the sum of the 1g-SAR is > 1.6 W/kg.

SV-DO Body Volume Scans & Multi Band (Combined) Results

Test position	Multi-band	Ch.#	Freq(MHz)	Zoom scan	Test Results(W/kg)		
					Volume scan	Multi Band (Combined)Results	
Rear	CDMA850 1xRTT	384	836.52	0.842	0.856	1.18	1.2
	CDMA1700 1xEVDO	450	1732.5	0.579	0.601		
	802.11b	11	2462	0.361	0.37		
Rear	CDMA850 1xRTT	384	836.52	0.842	0.856	1.19	1.2
	CDMA1900 1xEVDO	600	1880	0.628	0.625		
	802.11b	11	2462	0.361	0.37		
Rear	CDMA1900 1xRTT	600	1880	0.792	0.805	1.01	1.03
	CDMA1700 1xEVDO	450	1732.5	0.579	0.601		
	802.11b	11	2462	0.361	0.37		
Rear	CDMA1900 1xRTT	600	1880	0.792	0.805	1.05	1.06
	CDMA1900 1xEVDO	600	1880	0.628	0.625		
	802.11b	11	2462	0.361	0.37		

11.3.3 SV-LTE Head Exposure Condition

Band 4

Test position	Voice			Data					Σ1g SAR
	CDMA850	CDMA1700	CDMA1900	CDMA850	CDMA1700	CDMA1900	LTE B4	WiFi	
	1xRTT	1xRTT	1xRTT	1xEVDO	1xEVDO	1xEVDO			
left touch	0.361						0.296	0.241	0.898
left tilt	0.229						0.172	0.157	0.558
right touch	0.299						0.44	0.074	0.813
right tilt	0.188						0.205	0.068	0.461
left touch		0.616					0.296	0.241	1.153
left tilt		0.154					0.172	0.157	0.483
right touch		0.335					0.44	0.074	0.849
right tilt		0.148					0.205	0.068	0.421
left touch			0.931				0.296	0.241	1.468
left tilt			0.204				0.172	0.157	0.533
right touch			0.444				0.44	0.074	0.958
right tilt			0.239				0.205	0.068	0.512

Band 2

Test position	Voice			Data					Σ1g SAR
	CDMA850	CDMA1700	CDMA1900	CDMA850	CDMA1700	CDMA1900	LTE B2	WiFi	
	1xRTT	1xRTT	1xRTT	1xEVDO	1xEVDO	1xEVDO			
left touch	0.361						0.404	0.241	1.006
left tilt	0.229							0.157	0.386
right touch	0.299						0.71	0.074	1.083
right tilt	0.188						0.254	0.068	0.51
left touch		0.616					0.404	0.241	1.261
left tilt		0.154						0.157	0.311
right touch		0.335					0.71	0.074	1.119
right tilt		0.148					0.254	0.068	0.47
left touch			0.931				0.404	0.241	1.576
left tilt			0.204					0.157	0.361
right touch			0.444				0.71	0.074	1.228
right tilt			0.239				0.254	0.068	0.561

Note;

Simultaneous transmission SAR is not required because the sum of the 1g-SAR is < 1.6 W/kg.

11.3.4 SV-LTE Body-worn and Body-hotspot Exposure Condition

Band 4

testposition	voice			data					Σ1g SAR
	CDMA850	CDMA1700	CDMA1900	CDMA850	CDMA1700	CDMA1900	LTE B4	WiFi	
	1xRTT	1xRTT	1xRTT	1xEVDO	1xEVDO	1xEVDO			
Rear	**0.842**						**0.573**	**0.361**	**1.776**
Rear		0.43					0.573	0.361	1.364
Rear			**0.792**				**0.573**	**0.361**	**1.726**

Band 2

Test position	Voice			Data					Σ1g SAR
	CDMA850	CDMA1700	CDMA1900	CDMA850	CDMA1700	CDMA1900	LTE B2	WiFi	
	1xRTT	1xRTT	1xRTT	1xEVDO	1xEVDO	1xEVDO			
Rear	**0.842**						**0.493**	**0.361**	**1.696**
Rear		0.43					0.493	0.361	1.284
Rear			**0.792**				**0.493**	**0.361**	**1.646**

SAR to Peak Location Separation Ratio (SPLSR)

Test Position	worst-case combination			Σ1g SAR	3D distance	SPLSR
	CDMA850 1xRTT	LTE Band2	WiFi			
Rear	0.842	0.493	0.361	1.696		
	0.842	0.493		1.335	n/a	n/a
	0.842		0.361	1.203	n/a	n/a
Test Position	worst-case combination			Σ1g SAR	3D distance	SPLSR
	CDMA1900 1xRTT	LTE Band2	WiFi			
Rear	0.792	0.493	0.361	1.646		
	0.792	0.493		1.285	n/a	n/a
	0.792		0.361	1.153	n/a	n/a
Test Position	worst-case combination			Σ1g SAR	3D distance	SPLSR
	CDMA850 1xRTT	LTE Band4	WiFi			
Rear	0.842	0.573	0.361	1.776		
	0.842	0.573		1.415	n/a	n/a
	0.842		0.361	1.203	n/a	n/a
Test Position	worst-case combination			Σ1g SAR	3D distance	SPLSR
	CDMA1900 1xRTT	LTE Band4	WiFi			
Rear	0.792	0.573	0.361	1.726		
	0.792	0.573		1.365	n/a	n/a
	0.792		0.361	1.153	n/a	n/a

SV-LTE Body Volume Scans & Multi Band (Combined) Results

Test position	Multi-band	Ch.#	Freq(MHz)	Zoom scan	Test Results(W/kg)		
					Volume scan	Multi Band (Combined)Results	
Rear	CDMA850 1xRTT	777	848.31	0.842	0.856	1.14	1.16
	LTE Band2	18900	1880.00	0.493	0.494		
	802.11b	11	2462.00	0.361	0.37		
Rear	CDMA1900 1xRTT	600	1880.00	0.792	0.805	1.04	1.05
	LTE Band2	18900	1880.00	0.493	0.494		
	802.11b	11	2462.00	0.361	0.37		
Rear	CDMA850 1xRTT	384	836.52	0.842	0.856	1.16	1.18
	LTE Band4	20175	1732.50	0.573	0.574		
	802.11b	11	2462.00	0.361	0.37		
Rear	CDMA1900 1xRTT	600	1880.00	0.792	0.805	0.978	0.99
	LTE Band4	20175	1732.50	0.573	0.574		
	802.11b	11	2462.00	0.361	0.37		

12. SAR TEST DATA SUMMARY

12.1 Measurement Results (CDMA835 Head SAR)

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	Battery	Phantom Position	Antenna Type	SAR(mW/g)
MHz	Channel							
836.52	384 (Mid)	CDMA835	24.19	0.045	Standard	Left Ear	Intenna	0.361
836.52	384 (Mid)	CDMA835	24.19	0.161	Standard	Left Tilt 15°	Intenna	0.215
836.52	384 (Mid)	CDMA835	24.19	0.037	Standard	Right Ear	Intenna	0.299
836.52	384 (Mid)	CDMA835	24.19	-0.033	Standard	Right Tilt 15°	Intenna	0.188
ANSI/ IEEE C95.1 - 1992– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population					**Head 1.6 W/kg (mW/g)** Averaged over 1 gram			

NOTES:

1 The test data reported are the worst-case SAR value with the antenna-head 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 Battery Type ☒ Standard ☐ Extended ☐ Slim
Batteries are fully charged for all readings.
6 Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
7 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).

12.2 Measurement Results (AWS1700/EVDO Head SAR)

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	Battery	Phantom Position	Antenna Type	SAR(mW/g)
MHz	Channel							
1732.5	450 (Mid)	AWS	24.29	-0.029	Standard	Left Ear	Intenna	0.616
1732.5	450 (Mid)	AWS	24.29	-0.148	Standard	Left Tilt 15°	Intenna	0.154
1732.5	450 (Mid)	AWS	24.29	0.092	Standard	Right Ear	Intenna	0.335
1732.5	450 (Mid)	AWS	24.29	-0.021	Standard	Right Tilt 15°	Intenna	0.148
1732.5	450 (Mid)	EVDO	24.20	0.027	Standard	Left Ear	Intenna	0.376
1732.5	450 (Mid)	EVDO	24.20	0.068	Standard	Left Tilt 15°	Intenna	0.194
1732.5	450 (Mid)	EVDO	24.20	-0.018	Standard	Right Ear	Intenna	0.434
1732.5	450 (Mid)	EVDO	24.20	0.048	Standard	Right Tilt 15°	Intenna	0.25

ANSI/ IEEE C95.1 - 1992– Safety Limit **Spatial Peak** **Uncontrolled Exposure/ General Population**	**Head** **1.6 W/kg (mW/g)** Averaged over 1 gram

NOTES:

1. The test data reported are the worst-case SAR value with the antenna-head 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. Battery Type ☒ Standard ☐ Extended ☐ Slim
   Batteries are fully charged for all readings.
6. Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
7. 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).
8. EVDO SAR was tested under EVDO Rev.0 RTAP.

12.3 Measurement Results (PCS1900/EVDO Head SAR)

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	Battery	Phantom Position	Antenna Type	SAR(mW/g)
MHz	Channel							
1851.25	25 (Low)	PCS1900	24.26	-0.067	Standard	Left Ear	Intenna	0.732
1880.00	600 (Mid)	PCS1900	24.32	0.029	Standard	Left Ear	Intenna	0.931
1908.75	1175 (High)	PCS1900	24.18	0.065	Standard	Left Ear	Intenna	0.857
1880.00	600 (Mid)	PCS1900	24.32	-0.014	Standard	Left Ear	Intenna	0.204
1880.00	600 (Mid)	PCS1900	24.32	0.126	Standard	Right Ear	Intenna	0.444
1880.00	600 (Mid)	PCS1900	24.32	0.027	Standard	Right Tilt 15°	Intenna	0.239
1880.00	600 (Mid)	EVDO	24.01	-0.02	Standard	Left Ear	Intenna	0.541
1880.00	600 (Mid)	EVDO	24.01	0.075	Standard	Left Tilt 15°	Intenna	0.244
1851.25	25 (Low)	EVDO	24.04	-0.044	Standard	Right Ear	Intenna	0.734
1880.00	600 (Mid)	EVDO	24.01	0.104	Standard	Right Ear	Intenna	0.897
1908.75	1175 (High)	EVDO	23.99	0.033	Standard	Right Ear	Intenna	0.896
1880.00	600 (Mid)	EVDO	24.01	-0.166	Standard	Right Tilt 15°	Intenna	0.299
ANSI/ IEEE C95.1 - 1992– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population					**Head 1.6 W/kg (mW/g)** Averaged over 1 gram			

NOTES:

1 The test data reported are the worst-case SAR value with the antenna-head 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 Battery Type ☒ Standard ☐ Extended ☐ Slim
Batteries are fully charged for all readings.
6 Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
7 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).
8 EVDO SAR was tested under EVDO Rev.0 RTAP.

12.4 Measurement Results (LTE Band4 5MHz QPSK Head SAR)

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	RB Size	RB Offset	Phantom Position	Antenna Type	SAR(mW/g)	MPR
MHz	Channe									
1732.5	20175	QPSK	22.97	0.041	12	6	Left Ear	Intenna	0.288	0
1732.5	20175	QPSK	22.89	0.014	1	0	Left Ear	Intenna	0.277	0
1732.5	20175	QPSK	22.86	-0.009	1	24	Left Ear	Intenna	0.287	0
1732.5	20175	QPSK	22.97	0.058	12	6	Left Tilt 15°	Intenna	0.16	0
1732.5	20175	QPSK	22.89	0.193	1	0	Left Tilt 15°	Intenna	0.163	0
1732.5	20175	QPSK	22.86	0.191	1	24	Left Tilt 15°	Intenna	0.172	0
1732.5	20175	QPSK	22.97	-0.081	12	6	Right Ear	Intenna	0.44	0
1732.5	20175	QPSK	22.89	-0.086	1	0	Right Ear	Intenna	0.423	0
1732.5	20175	QPSK	22.86	-0.082	1	24	Right Ear	Intenna	0.4	0
1732.5	20175	QPSK	22.97	-0.156	12	6	Right Tilt 15°	Intenna	0.205	0
1732.5	20175	QPSK	22.89	-0.107	1	0	Right Tilt 15°	Intenna	0.201	0
1732.5	20175	QPSK	22.86	0.08	1	24	Right Tilt 15°	Intenna	0.193	0

ANSI/ IEEE C95.1 - 1992– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population	Head 1.6 W/kg (mW/g) Averaged over 1 gram

NOTES:

1 The test data reported are the worst-case SAR value with the antenna-head 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 Battery Type ☒ Standard ☐ Extended ☐ Slim
Batteries are fully charged for all readings.
6 Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
7 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).
8 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 ≤ 0.8 W/kg.

12.5 Measurement Results (LTE Band4 5MHz 16QAM Head SAR)

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	RB Size	RB Offset	Phantom Position	Antenna Type	SAR(mW/g)	MPR
MHz	Channe									
1732.5	20175	16QAM	22.83	-0.021	12	6	Left Ear	Intenna	0.296	0
1732.5	20175	16QAM	23.27	0.036	1	0	Left Ear	Intenna	0.277	0
1732.5	20175	16QAM	23.22	-0.080	1	24	Left Ear	Intenna	0.256	0
1732.5	20175	16QAM	22.83	0.01	12	6	Left Tilt 15°	Intenna	0.161	0
1732.5	20175	16QAM	23.27	0.012	1	0	Left Tilt 15°	Intenna	0.133	0
1732.5	20175	16QAM	23.22	-0.05	1	24	Left Tilt 15°	Intenna	0.138	0
1732.5	20175	16QAM	22.83	-0.129	12	6	Right Ear	Intenna	0.384	0
1732.5	20175	16QAM	23.27	-0.016	1	0	Right Ear	Intenna	0.407	0
1732.5	20175	16QAM	23.22	0.041	1	24	Right Ear	Intenna	0.431	0
1732.5	20175	16QAM	22.83	0.125	12	6	Right Tilt 15°	Intenna	0.177	0
1732.5	20175	16QAM	23.27	-0.043	1	0	Right Tilt 15°	Intenna	0.165	0
1732.5	20175	16QAM	23.22	-0.161	1	24	Right Tilt 15°	Intenna	0.174	0
ANSI/ IEEE C95.1 - 1992– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							**Head 1.6 W/kg (mW/g)** Averaged over 1 gram			

NOTES:

1 The test data reported are the worst-case SAR value with the antenna-head 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 Battery Type ☒ Standard ☐ Extended ☐ Slim
Batteries are fully charged for all readings.
6 Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
7 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).
8 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 ≤ 0.8 W/kg.

12.6 Measurement Results (LTE Band2 5MHz QPSK Head SAR)

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	RB Size	RB Offset	Phantom Position	Antenna Type	SAR(mW/g)	MPR
MHz	Channe									
1880	18900	QPSK	23.21	0.007	12	6	Left Ear	Intenna	0.407	0
1880	18900	QPSK	23.20	-0.184	1	0	Left Ear	Intenna	0.398	0
1880	18900	QPSK	23.23	-0.057	1	24	Left Ear	Intenna	0.349	0
1880	18900	QPSK	23.21	0.125	12	6	Left Tilt 15°	Intenna	0.23	0
1880	18900	QPSK	23.20	0.087	1	0	Left Tilt 15°	Intenna	0.237	0
1880	18900	QPSK	23.23	0.067	1	24	Left Tilt 15°	Intenna	0.226	0
1880	18900	QPSK	23.21	-0.178	12	6	Right Ear	Intenna	0.631	0
1880	18900	QPSK	23.20	0.103	1	0	Right Ear	Intenna	0.676	0
1880	18900	QPSK	23.23	-0.07	1	24	Right Ear	Intenna	0.623	0
1880	18900	QPSK	23.21	-0.084	12	6	Right Tilt 15°	Intenna	0.248	0
1880	18900	QPSK	23.20	-0.096	1	0	Right Tilt 15°	Intenna	0.254	0
1880	18900	QPSK	23.23	-0.029	1	24	Right Tilt 15°	Intenna	0.23	0

ANSI/ IEEE C95.1 - 1992– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population	Head 1.6 W/kg (mW/g) Averaged over 1 gram

NOTES:

1 The test data reported are the worst-case SAR value with the antenna-head 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 Battery Type ☒ Standard ☐ Extended ☐ Slim
Batteries are fully charged for all readings.
6 Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
7 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).
8 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 ≤ 0.8 W/kg.

12.7 Measurement Results (LTE Band2 5MHz 16QAM Head SAR)

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	RB Size	RB Offset	Phantom Position	Antenna Type	SAR(mW/g)	MPR
MHz	Channe									
1880	18900	16QAM	23.03	0.099	12	6	Left Ear	Intenna	0.353	0
1880	18900	16QAM	22.93	0.035	1	0	Left Ear	Intenna	0.392	0
1880	18900	16QAM	22.90	0.032	1	24	Left Ear	Intenna	0.35	0
1880	18900	16QAM	23.03	0.082	12	6	Left Tilt 15°	Intenna	0.242	0
1880	18900	16QAM	22.93	0.119	1	0	Left Tilt 15°	Intenna	0.217	0
1880	18900	16QAM	22.90	0.058	1	24	Left Tilt 15°	Intenna	0.207	0
1880	18900	16QAM	23.03	-0.065	12	6	Right Ear	Intenna	0.681	0
1880	18900	16QAM	22.93	0.026	1	0	Right Ear	Intenna	0.71	0
1880	18900	16QAM	22.90	0.061	1	24	Right Ear	Intenna	0.653	0
1880	18900	16QAM	23.03	-0.127	12	6	Right Tilt 15°	Intenna	0.238	0
1880	18900	16QAM	22.93	-0.099	1	0	Right Tilt 15°	Intenna	0.252	0
1880	18900	16QAM	22.90	0.008	1	24	Right Tilt 15°	Intenna	0.222	0
ANSI/ IEEE C95.1 - 1992– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population						**Head 1.6 W/kg (mW/g)** Averaged over 1 gram				

NOTES:

1 The test data reported are the worst-case SAR value with the antenna-head 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 Battery Type ☒ Standard ☐ Extended ☐ Slim
Batteries are fully charged for all readings.
6 Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
7 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).
8 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 ≤ 0.8 W/kg.

12.8 Measurement Results (802.11b/g/n Head SAR)

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	Battery	Phantom Position	Antenna Type	SAR(mW/g)
MHz	Channel							
2 442	11 (High)	802.11b	13.9	-0.029	Standard	Left Ear	Intenna	0.241
2 442	11 (High)	802.11b	13.9	-0.028	Standard	Left Tilt 15^{o}	Intenna	0.171
2 442	11 (High)	802.11b	13.9	-0.07	Standard	Right Ear	Intenna	0.074
2 442	11 (High)	802.11b	13.9	0.146	Standard	Right Tilt 15	Intenna	0.068
ANSI/ IEEE C95.1 - 1992– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population						**Head 1.6 W/kg (mW/g)** Averaged over 1 gram		

NOTES:

1. The test data reported are the worst-case SAR value with the antenna-head 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. Battery Type ☒ Standard ☐ Extended ☐ Slim
   Batteries are fully charged for all readings.
6. Test Signal Call Mode ☒ Manual Test cord ☐ Base Station Simulator
7. IEEE 802.11g(including 802.11n) SAR testing is required when the conducted powers are equal to or greater than 0.25 dB Than the conducted powers in IEEE 802.11b.

12.9 Measurement Results (CDMA835 Body SAR)

Frequency		Modulation	ConductedPower (dBm)	Power Drift (dB)	Configuration	Separation Distance	SAR(mW/g)
MHz	Channel						
824.7	1013(Low)	CDMA835	24.02	0.033	Rear	1.0 cm	0.812
835	384 (Mid)	CDMA835	24.15	0.137	Rear	1.0 cm	0.842
848.31	777 (High)	CDMA835	24.32	-0.057	Rear	1.0 cm	0.749
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 antenna-head 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 Battery Type ☒ Standard ☐ Extended ☐ Slim
Batteries are fully charged for all readings.
6 Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
7 Test Configuration ☐ With Holster ☒ Without Holster
8 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).

12.10 Measurement Results(AWS/EVDO AWS Hotspot Body SAR)

Frequency		Modulation	ConductedPower (dBm)	Power Drift (dB)	Configuration	Separation Distance	SAR(mW/g)
MHz	Channel						
1732.5	450 (Mid)	AWS	24.29	0.005	Rear	1.0 cm	0.43
1732.5	450 (Mid)	EVDO	24.20	-0.071	Rear	1.0 cm	0.579
1732.5	450 (Mid)	EVDO	24.20	-0.061	Front	1.0 cm	0.482
1732.5	450 (Mid)	EVDO	24.20	-0.097	Left	1.0 cm	0.125
1732.5	450 (Mid)	EVDO	24.20	0.043	Right	1.0 cm	0.213
1732.5	450 (Mid)	EVDO	24.20	0.137	Bottom	1.0 cm	0.275
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 antenna-head 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 Battery Type ☒ Standard ☐ Extended ☐ Slim
Batteries are fully charged for all readings.
6 Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
7 EVDO SAR was tested under EVDO Rev.0 RTAP.
8 Test Configuration ☐ With Holster ☒ Without Holster
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).

12.11 Measurement Results(PCS1900/ EVDO1900 Hotspot Body SAR)

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	Configuration	Separation Distance	SAR(mW/g)
MHz	Channel						
1880.00	600 (Mid)	PCS1900	24.28	0.039	Rear	1.0 cm	0.792
1880.00	600 (Mid)	EVDO	24.01	0.149	Rear	1.0 cm	0.628
1880.00	600 (Mid)	EVDO	24.01	0.170	Front	1.0 cm	0.61
1880.00	600 (Mid)	EVDO	24.01	-0.037	Left	1.0 cm	0.172
1880.00	600 (Mid)	EVDO	24.01	-0.027	Right	1.0 cm	0.414
1880.00	600 (Mid)	EVDO	24.01	-0.057	Bottom	1.0 cm	0.395
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 antenna-head 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 Battery Type ☒ Standard ☐ Extended ☐ Slim
Batteries are fully charged for all readings.
6 Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
7 EVDO SAR was tested under EVDO Rev.0 RTAP.
8 Test Configuration ☐ With Holster ☒ Without Holster
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).

12.12 Measurement Results (LTE Band4 5MHz QPSK Body SAR)

Frequency		Modulatio	Conducted Power (dBm)	Power Drift (dB)	Configuratior	RB Size	RB Offset	Separatio n Distance	Antenn a Type	SAR(m W/g)	MP R
MHz	Channel										
1732.5	20175	QPSK	22.97	-0.131	Rear	12	6	1.0 cm	Intenna	0.557	0
1732.5	20175	QPSK	22.89	-0.003	Rear	1	0	1.0 cm	Intenna	0.548	0
1732.5	20175	QPSK	22.86	-0.196	Rear	1	24	1.0 cm	Intenna	0.573	0
1732.5	20175	QPSK	22.97	-0.077	Front	12	6	1.0 cm	Intenna	0.427	0
1732.5	20175	QPSK	22.89	-0.075	Front	1	0	1.0 cm	Intenna	0.426	0
1732.5	20175	QPSK	22.86	-0.025	Front	1	24	1.0 cm	Intenna	0.436	0
1732.5	20175	QPSK	22.97	-0.051	Right	12	6	1.0 cm	Intenna	0.256	0
1732.5	20175	QPSK	22.89	-0.196	Right	1	0	1.0 cm	Intenna	0.219	0
1732.5	20175	QPSK	22.86	-0.052	Right	1	24	1.0 cm	Intenna	0.211	0
1732.5	20175	QPSK	22.97	-0.080	Bottom	12	6	1.0 cm	Intenna	0.242	0
1732.5	20175	QPSK	22.89	-0.019	Bottom	1	0	1.0 cm	Intenna	0.234	0
1732.5	20175	QPSK	22.86	-0.046	Bottom	1	24	1.0 cm	Intenna	0.252	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 antenna-head 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 Battery Type ☒ Standard ☐ Extended ☐ Slim
Batteries are fully charged for all readings.
6 Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
7 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).
8 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 ≤ 0.8 W/kg.

12.13 Measurement Results (LTE Band4 5MHz 16QAM Body SAR)

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	Configuration	RB Size	RB Offset	Separation Distance	Antenna Type	SAR(mW/g)	MPR
MHz	Channel										
1732.5	20175	16QAM	22.83	-0.063	Rear	12	6	1.0 cm	Intenna	0.551	0
1732.5	20175	16QAM	23.27	-0.088	Rear	1	0	1.0 cm	Intenna	0.499	0
1732.5	20175	16QAM	23.22	0.004	Rear	1	24	1.0 cm	Intenna	0.522	0
1732.5	20175	16QAM	22.83	-0.002	Front	12	6	1.0 cm	Intenna	0.442	0
1732.5	20175	16QAM	23.27	0.001	Front	1	0	1.0 cm	Intenna	0.388	0
1732.5	20175	16QAM	23.22	-0.053	Front	1	24	1.0 cm	Intenna	0.399	0
1732.5	20175	16QAM	22.83	0.023	Right	12	6	1.0 cm	Intenna	0.222	0
1732.5	20175	16QAM	23.27	-0.071	Right	1	0	1.0 cm	Intenna	0.206	0
1732.5	20175	16QAM	23.22	0.035	Right	1	24	1.0 cm	Intenna	0.211	0
1732.5	20175	16QAM	22.83	-0.007	Bottom	12	6	1.0 cm	Intenna	0.24	0
1732.5	20175	16QAM	23.27	-0.139	Bottom	1	0	1.0 cm	Intenna	0.223	0
1732.5	20175	16QAM	23.22	0.053	Bottom	1	24	1.0 cm	Intenna	0.259	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 antenna-head 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 Battery Type ☒ Standard ☐ Extended ☐ Slim
Batteries are fully charged for all readings.
6 Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
7 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).
8 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 ≤ 0.8 W/kg.

12.14 Measurement Results (LTE Band2 5MHz QPSK Body SAR)

Frequency		Modulatio	Conducted Power (dBm)	Power Drift (dB)	Configuratior	RB Size	RB Offset	Separation Distance	Antenna Type	SAR(mW/g)	MPR
MHz	Channel										
1880	18900	QPSK	23.21	0.026	Rear	12	6	1.0 cm	Intenna	0.456	0
1880	18900	QPSK	23.20	0.033	Rear	1	0	1.0 cm	Intenna	0.493	0
1880	18900	QPSK	23.23	-0.023	Rear	1	24	1.0 cm	Intenna	0.443	0
1880	18900	QPSK	23.21	0.127	Front	12	6	1.0 cm	Intenna	0.445	0
1880	18900	QPSK	23.20	0.027	Front	1	0	1.0 cm	Intenna	0.485	0
1880	18900	QPSK	23.23	0.061	Front	1	24	1.0 cm	Intenna	0.445	0
1880	18900	QPSK	23.21	-0.004	Right	12	6	1.0 cm	Intenna	0.345	0
1880	18900	QPSK	23.20	-0.131	Right	1	0	1.0 cm	Intenna	0.353	0
1880	18900	QPSK	23.23	-0.039	Right	1	24	1.0 cm	Intenna	0.325	0
1880	18900	QPSK	23.21	-0.01	Bottom	12	6	1.0 cm	Intenna	0.222	0
1880	18900	QPSK	23.20	0.074	Bottom	1	0	1.0 cm	Intenna	0.244	0
1880	18900	QPSK	23.23	-0.103	Bottom	1	24	1.0 cm	Intenna	0.22	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 antenna-head 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 Battery Type ☒ Standard ☐ Extended ☐ Slim
Batteries are fully charged for all readings.
6 Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
7 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).
8 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 ≤ 0.8 W/kg.

12.15 Measurement Results (LTE Band2 5MHz 16QAM Body SAR)

Frequency		Modulatio	Conducted Power (dBm)	Power Drift (dB)	Configuratior	RB Size	RB Offset	Separation Distance	Antenna Type	SAR(mW/g)	MPR
MHz	Channel										
1880	18900	16QAM	23.03	-0.034	Rear	12	6	1.0 cm	Intenna	0.424	0
1880	18900	16QAM	22.93	-0.012	Rear	1	0	1.0 cm	Intenna	0.473	0
1880	18900	16QAM	22.90	0.068	Rear	1	24	1.0 cm	Intenna	0.436	0
1880	18900	16QAM	23.03	-0.017	Front	12	6	1.0 cm	Intenna	0.442	0
1880	18900	16QAM	22.93	-0.003	Front	1	0	1.0 cm	Intenna	0.477	0
1880	18900	16QAM	22.90	-0.079	Front	1	24	1.0 cm	Intenna	0.434	0
1880	18900	16QAM	23.03	0.041	Right	12	6	1.0 cm	Intenna	0.349	0
1880	18900	16QAM	22.93	-0.064	Right	1	0	1.0 cm	Intenna	0.388	0
1880	18900	16QAM	22.90	0.025	Right	1	24	1.0 cm	Intenna	0.355	0
1880	18900	16QAM	23.03	-0.044	Right	12	6	1.0 cm	Intenna	0.26	0
1880	18900	16QAM	22.93	-0.048	Right	1	0	1.0 cm	Intenna	0.242	0
1880	18900	16QAM	22.90	0.014	Right	1	24	1.0 cm	Intenna	0.22	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 antenna-head 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 Battery Type ☒ Standard ☐ Extended ☐ Slim
Batteries are fully charged for all readings.
6 Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
7 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).
8 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 ≤ 0.8 W/kg.

12.16 Measurement Results (802.11b/g/n Hotspot Body SAR)

Frequency MHz	Frequency Channel	Modulation	Conducted Power (dBm)	Power Drift (dB)	Configuration	Separation Distance	Data Rate	SAR(mW/g)
2 442	11 (High)	802.11b	13.9	0.17	Rear	1.0 cm	1 Mbps	0.361
2 442	11 (High)	802.11b	13.9	0.049	Front	1.0 cm	1 Mbps	0.049
2 442	11 (High)	802.11b	13.9	0.167	Left	1.0 cm	1 Mbps	0.00429
2 442	11 (High)	802.11b	13.9	-0.001	Right	1.0 cm	1 Mbps	0.221
2 442	11 (High)	802.11b	13.9	-0.012	Top	1.0 cm	1 Mbps	0.08
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 antenna-head 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 Battery Type ☒ Standard ☐ Extended ☐ Slim
Batteries are fully charged for all readings.
6 Test Signal Call Mode ☒ Manual Test code ☐ Base Station Simulator
7 IEEE 802.11g(including 802.11n) SAR testing is required when the conducted powers are equal to or greater than 0.25 dB Than the conducted powers in IEEE 802.11b.

13. 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.

14. REFERENCES

[1] Federal Communications Commission, OET Bulletin 65 (Edition 97-01), Supplement C (Edition 01-01), Evaluating Compliance with FCC Guidelines for Human Exposure to Radio frequency Electromagnetic Fields, July 2001.

[2] IEEE Standards Coordinating Committee 34 – IEEE Std. 1528-2003, IEE Recommended Practice or Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Body from Wireless Communications Devices.

[3] Federal Communications Commission, ET Docket 93-62, Guidelines for Evaluating the Environmental Effects of Radio frequency Radiation, Aug. 1996.

[4] ANSI/IEEE C95.1 - 1991, American National Standard safety levels with respect to human exposure to radio frequency electromagnetic fields, 300 kHz to 100 GHz, New York: IEEE, Aug. 1992

[5] ANSI/IEEE C95.3 - 1991, IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields - RF and Microwave, New York: IEEE, 1992.

[6] NCRP, National Council on Radiation Protection and Measurements, Biological Effects and Exposure Criteria for Radio Frequency Electromagnetic Fields, NCRP Report No. 86, 1986. Reprinted Feb. 1995.

[7] T. Schmid, O. Egger, N. Kuster, Automated E-field scanning system for dosimetric assessments, IEEE Transaction on Microwave Theory and Techniques, vol. 44, Jan. 1996, pp. 105-113.

[8] K. Pokovic, T. Schmid, N. Kuster, Robust setup for precise calibration of E-field probes in tissue simulating liquids at mobile communications frequencies, ICECOM97, Oct. 1997, pp. 120-124.

[9]K. Pokovi°, T. Schmid, and N. Kuster, E-field Probe with improved isotropy in brain simulating liquids, Proceedings of the ELMAR, Zadar, Croatia, June 23-25, 1996, pp. 172-175.

[10] Schmid & Partner Engineering AG, Application Note: Data Storage and Evaluation, June 1998, p2.

[11] V. Hombach, K. Meier, M. Burkhardt, E. Kuhn, N. Kuster, The Dependence of EM Energy Absorption upon Human Head Modeling at 900 MHz, IEEE Transaction on Microwave Theory and Techniques, vol. 44 no. 10, Oct. 1996, pp. 1865-1873.

[12] N. Kuster and Q. Balzano, Energy absorption mechanism by biological bodies in the near field of dipole antennas above 300 MHz, IEEE Transaction on Vehicular Technology, vol. 41, no. 1, Feb. 1992, pp. 17-23.

[13] G. Hartsgrove, A. Kraszewski, A. Surowiec, Simulated Biological Materials for Electromagnetic Radiation Absorption Studies, University of Ottawa, Bioelectro magnetics, Canada: 1987, pp. 29-36.

[14] Q. Balzano, O. Garay, T. Manning Jr., Electromagnetic Energy Exposure of Simulated Users of Portable Cellular Telephones, IEEE Transactions on Vehicular Technology, vol. 44, no.3, Aug. 1995.

[15] W. Gander, Computer mathematick, Birkhaeuser, Basel, 1992.

[16] W.H. Press, S.A. Teukolsky, W.T. Vetterling, and B.P. Flannery, Numerical Recepies in C, The Art of Scientific Computing, Second edition, Cambridge University Press, 1992.

[17] Federal Communications Commission, OET Bulletin 65, Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields. Supplement C, Dec. 1997.

[18] N. Kuster, R. Kastle, T. Schmid, Dosimetric evaluation of mobile communications equipment with known precision, IEEE Transaction on Communications, vol. E80-B, no. 5, May 1997, pp. 645-652.

[19] CENELEC CLC/SC111B, European Prestandard (prENV 50166-2), Human Exposure to Electromagnetic Fields High-frequency: 10 kHz-300 GHz, Jan. 1995.

[20] Prof. Dr. Niels Kuster, ETH, EidgenØssische Technische Hoschschule Zòrich, Dosimetric Evaluation of the Cellular Phone.

[21] SAR Evaluation of Handsets with Multiple Transmitters and Antennas #648474.

[22] SAR Measurement Procedure for 802.11 a/b/g Transmitters #KDB 248227.

Attachment 1. – SAR Test Plots

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Dec.15, 2011

DUT: MS840; 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 = 0.902 mho/m; ε_r = 43; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

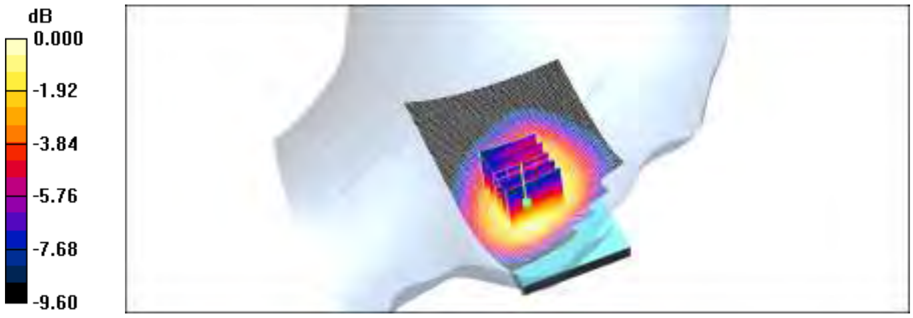
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.27, 6.27, 6.27); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Left touch 384/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.395 mW/g

Left touch 384/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.9 V/m; Power Drift = 0.045 dB
Peak SAR (extrapolated) = 0.457 W/kg
SAR(1 g) = 0.361 mW/g; SAR(10 g) = 0.272 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
aximum value of SAR (measured) = 0.382 mW/g



0 dB = 0.382mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Dec.15, 2011

DUT: MS840; 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 = 0.902 mho/m; ε_r = 43; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

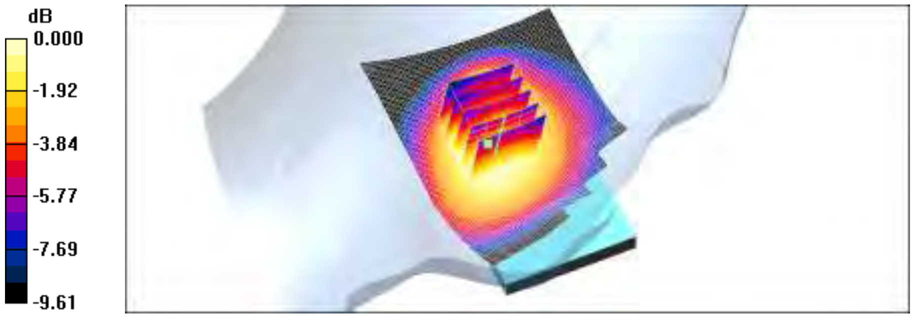
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(8.93, 8.93, 8.93); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Left tilt 384/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.224 mW/g

Left tilt 384/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.6 V/m; Power Drift = 0.161 dB
Peak SAR (extrapolated) = 0.259 W/kg
SAR(1 g) = 0.215 mW/g; SAR(10 g) = 0.167 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.227 mW/g



0 dB = 0.227mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Dec.15, 2011

DUT: MS840; 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 = 0.902 mho/m; ε_r = 43; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

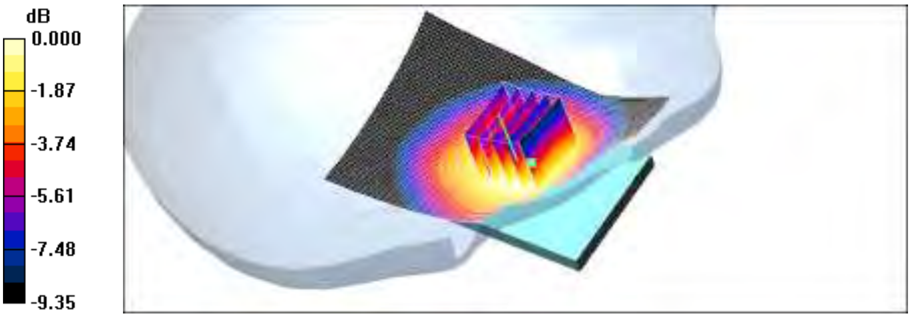
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.27, 6.27, 6.27); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Right touch 384/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.314 mW/g

Right touch 384/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.3 V/m; Power Drift = 0.037 dB
Peak SAR (extrapolated) = 0.349 W/kg
SAR(1 g) = 0.299 mW/g; SAR(10 g) = 0.230 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.310 mW/g



0 dB = 0.310mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Dec.15, 2011

DUT: MS840; 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 = 0.902 mho/m; ε_r = 43; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

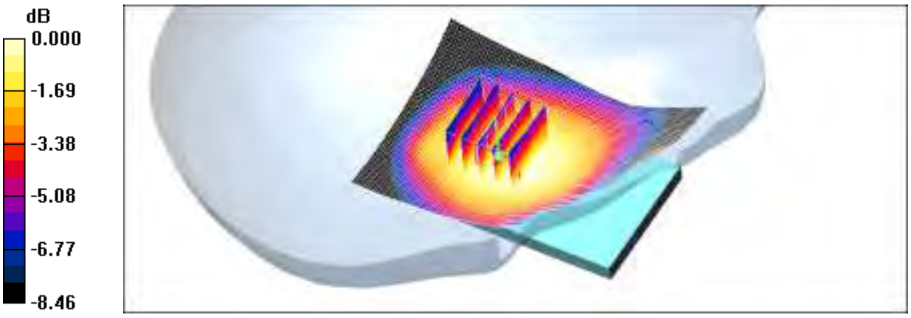
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.27, 6.27, 6.27); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Right tilt 384/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.199 mW/g

Right tilt 384/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.5 V/m; Power Drift = -0.033 dB
Peak SAR (extrapolated) = 0.219 W/kg
SAR(1 g) = 0.188 mW/g; SAR(10 g) = 0.147 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.196 mW/g



0 dB = 0.196mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.16, 2011

DUT: MS840; Type: Bar; Serial: #1

Communication System: AWS 1700 MHz FCC; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.31 mho/m; ε_r = 40.8; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

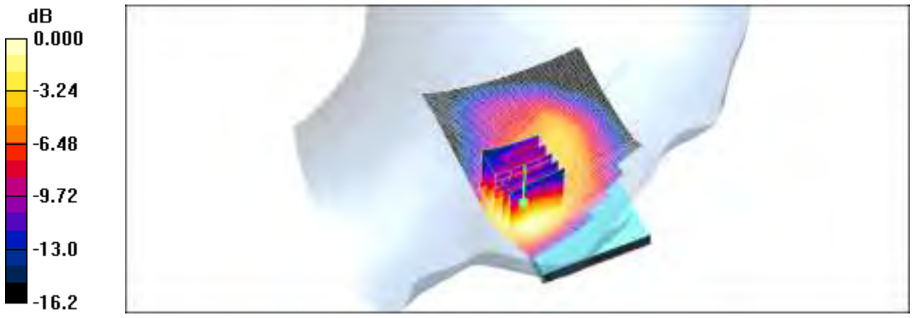
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.43, 5.43, 5.43); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Left touch 450/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.670 mW/g

Left touch 450/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.2 V/m; Power Drift = -0.029 dB
Peak SAR (extrapolated) = 0.924 W/kg
SAR(1 g) = 0.616 mW/g; SAR(10 g) = 0.375 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.682 mW/g



0 dB = 0.682mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.16, 2011

DUT: MS840; Type: Bar; Serial: #1

Communication System: AWS 1700 MHz FCC; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.31 mho/m; ε_r = 40.8; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

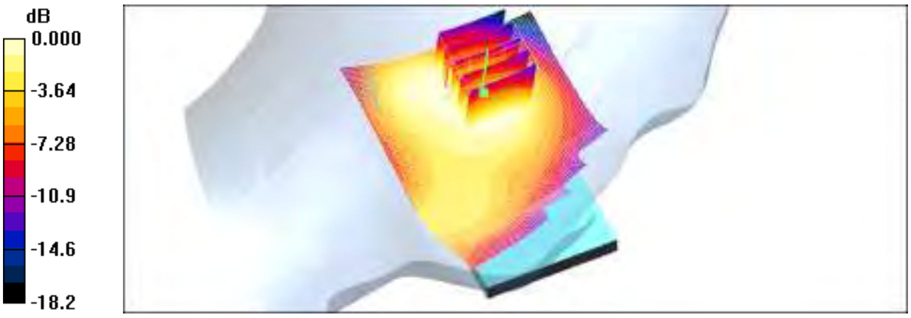
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.43, 5.43, 5.43); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Left tilt 450/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.178 mW/g

Left tilt 450/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.71 V/m; Power Drift = -0.146 dB
Peak SAR (extrapolated) = 0.209 W/kg
SAR(1 g) = 0.154 mW/g; SAR(10 g) = 0.105 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.164 mW/g



0 dB = 0.164mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.16, 2011

DUT: MS840; Type: Bar; Serial: #1

Communication System: AWS 1700 MHz FCC; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.31 mho/m; ε_r = 40.8; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

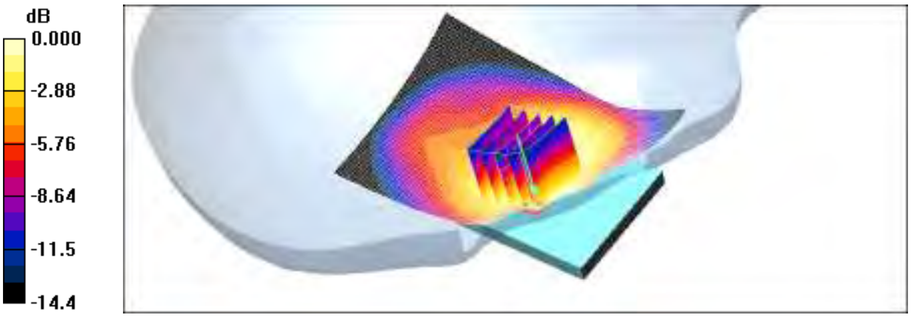
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.43, 5.43, 5.43); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Right touch 450/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.354 mW/g

Right touch 450/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.7 V/m; Power Drift = 0.092 dB
Peak SAR (extrapolated) = 0.461 W/kg
SAR(1 g) = 0.335 mW/g; SAR(10 g) = 0.221 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.356 mW/g



0 dB = 0.356mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.16, 2011

DUT: MS840; Type: Bar; Serial: #1

Communication System: AWS 1700 MHz FCC; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.31 mho/m; ε_r = 40.8; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

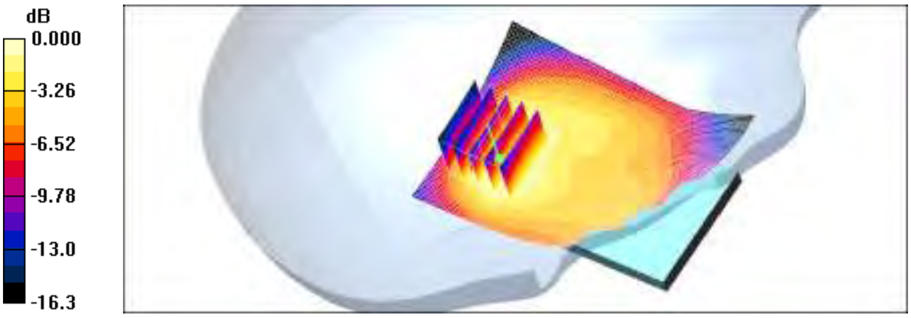
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.43, 5.43, 5.43); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Right tilt 450/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.162 mW/g

Right tilt 450/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.14 V/m; Power Drift = -0.021 dB
Peak SAR (extrapolated) = 0.225 W/kg
SAR(1 g) = 0.148 mW/g; SAR(10 g) = 0.092 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.158 mW/g



0 dB = 0.158mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.16, 2011

DUT: MS840; Type: Bar; Serial: #1

Communication System: AWS 1700 MHz FCC; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.31 mho/m; ε_r = 40.8; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

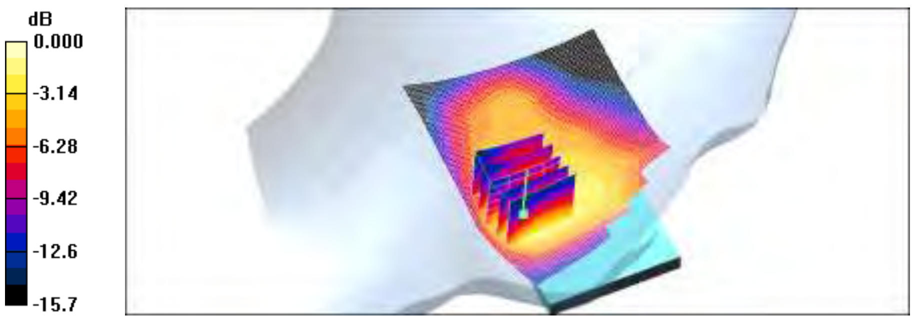
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.43, 5.43, 5.43); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Left touch 450 EVDO/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.419 mW/g

Left touch 450 EVDO/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.4 V/m; Power Drift = 0.027 dB
Peak SAR (extrapolated) = 0.595 W/kg
SAR(1 g) = 0.376 mW/g; SAR(10 g) = 0.228 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.412 mW/g



0 dB = 0.412mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.16, 2011

DUT: MS840; Type: Bar; Serial: #1

Communication System: AWS 1700 MHz FCC; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.31 mho/m; ε_r = 40.8; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

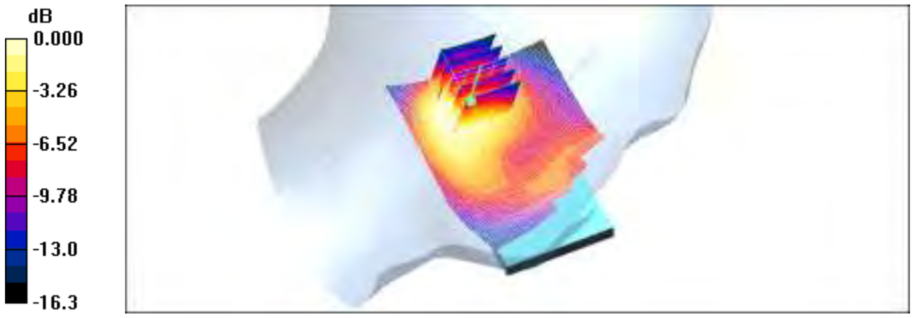
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.43, 5.43, 5.43); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Left tilt 450 EVDO/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.226 mW/g

Left tilt 450 EVDO/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.21 V/m; Power Drift = 0.068 dB
Peak SAR (extrapolated) = 0.288 W/kg
SAR(1 g) = 0.194 mW/g; SAR(10 g) = 0.122 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.212 mW/g



0 dB = 0.212mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.16, 2011

DUT: MS840; Type: Bar; Serial: #1

Communication System: AWS 1700 MHz FCC; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.31 mho/m; ε_r = 40.8; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

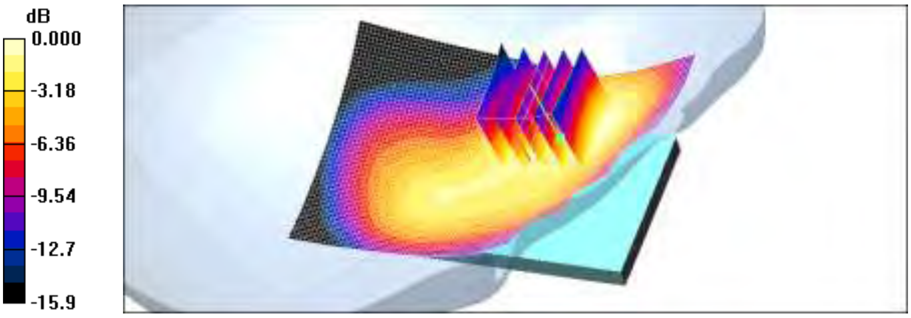
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.43, 5.43, 5.43); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Right touch 450 EVDO/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.472 mW/g

Right touch 450 EVDO/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.9 V/m; Power Drift = -0.018 dB
Peak SAR (extrapolated) = 0.618 W/kg
SAR(1 g) = 0.434 mW/g; SAR(10 g) = 0.273 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:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.16, 2011

DUT: MS840; Type: Bar; Serial: #1

Communication System: AWS 1700 MHz FCC; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.31 mho/m; ε_r = 40.8; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

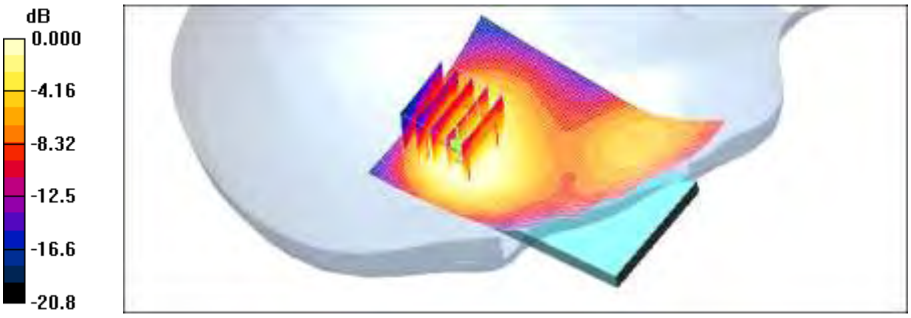
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.43, 5.43, 5.43); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Right tilt 450 EVDO/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.276 mW/g

Right tilt 450 EVDO/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.01 V/m; Power Drift = 0.048 dB
Peak SAR (extrapolated) = 0.353 W/kg
SAR(1 g) = 0.250 mW/g; SAR(10 g) = 0.160 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
aximum value of SAR (measured) = 0.265 mW/g



0 dB = 0.265mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.17, 2011

DUT: MS840; 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 = 1.35 mho/m; ε_r = 40.1; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

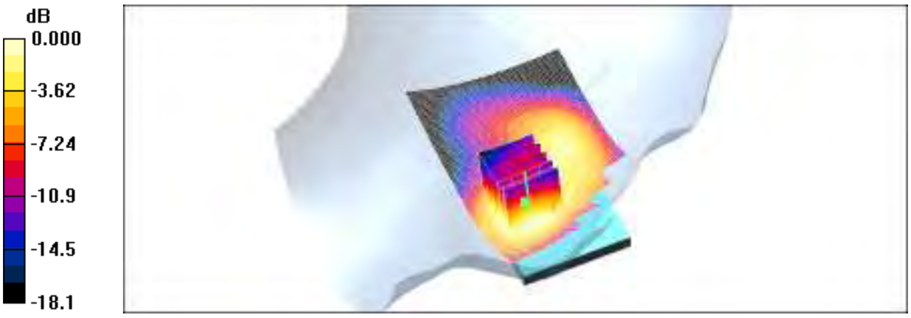
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

Left touch 25/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.776 mW/g

Left touch 25/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.9 V/m; Power Drift = -0.067 dB
Peak SAR (extrapolated) = 1.10 W/kg
SAR(1 g) = 0.732 mW/g; SAR(10 g) = 0.449 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.772 mW/g



0 dB = 0.772mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Dec.28, 2011

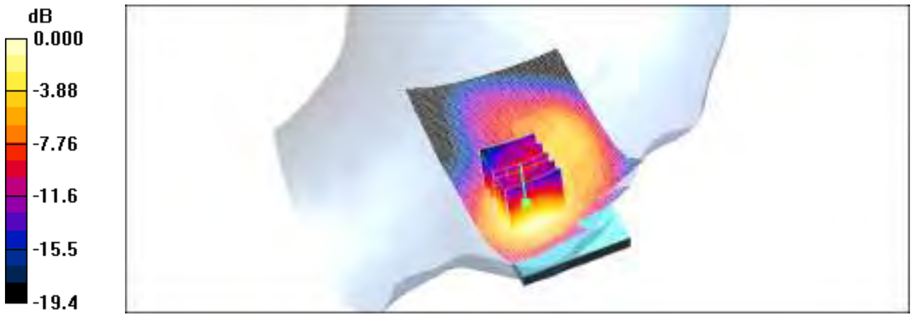
DUT: MS840; Type: Bar; Serial: #1

Communication System: PCS 1900MHz FCC; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.38 mho/m; ε_r = 41.1; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

Left touch 600/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.02 mW/g

Left touch 600/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.7 V/m; Power Drift = 0.029 dB
Peak SAR (extrapolated) = 1.43 W/kg
SAR(1 g) = 0.931 mW/g; SAR(10 g) = 0.554 mW/g
Maximum value of SAR (measured) = 1.03 mW/g



0 dB = 1.03mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.17, 2011

DUT: MS840; 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 = 1.45 mho/m; ε_r = 39.5; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

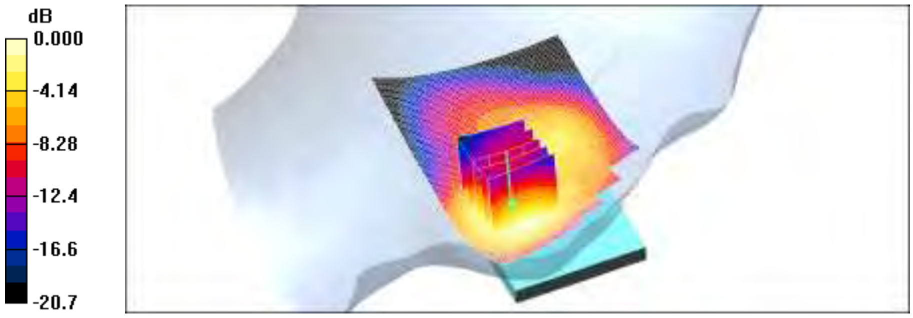
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

Left touch 1175/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

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

Left touch 1175/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.4 V/m; Power Drift = 0.065 dB
Peak SAR (extrapolated) = 1.35 W/kg
SAR(1 g) = 0.857 mW/g; SAR(10 g) = 0.509 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.933 mW/g



0 dB = 0.933mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.17, 2011

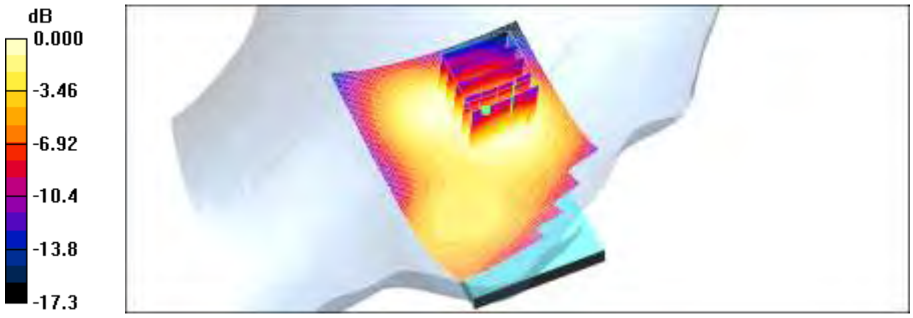
DUT: MS840; Type: Bar; Serial: #1

Communication System: PCS 1900MHz FCC; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.4 mho/m; ε_r = 39.3; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

Left tilt 600/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.227 mW/g

Left tilt 600/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.92 V/m; Power Drift = -0.014 dB
Peak SAR (extrapolated) = 0.295 W/kg
SAR(1 g) = 0.204 mW/g; SAR(10 g) = 0.132 mW/g
Maximum value of SAR (measured) = 0.219 mW/g



0 dB = 0.219mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.17, 2011

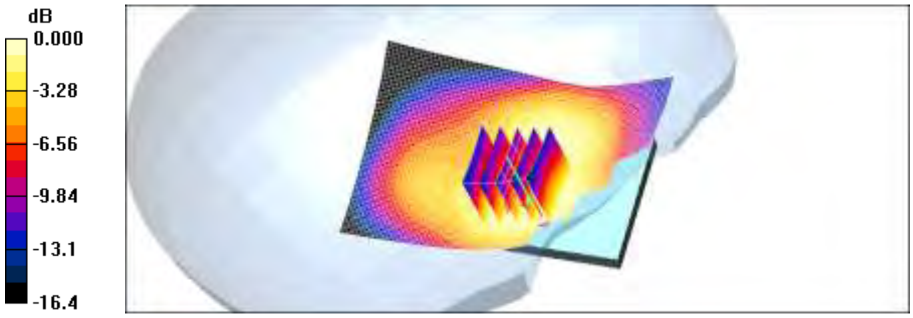
DUT: MS840; Type: Bar; Serial: #1

Communication System: PCS 1900MHz FCC; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.4 mho/m; ε_r = 39.3; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Right touch 600/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.460 mW/g

Right touch 600/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.6 V/m; Power Drift = 0.126 dB
Peak SAR (extrapolated) = 0.686 W/kg
SAR(1 g) = 0.444 mW/g; SAR(10 g) = 0.279 mW/g
Maximum value of SAR (measured) = 0.474 mW/g



0 dB = 0.474mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.17, 2011

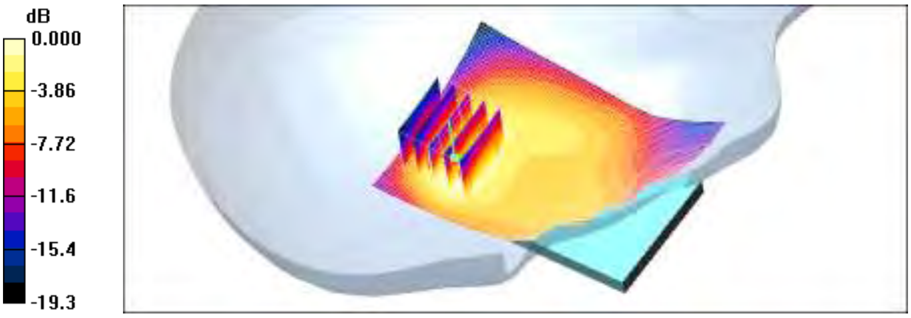
DUT: MS840; Type: Bar; Serial: #1

Communication System: PCS 1900MHz FCC; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.4 mho/m; ε_r = 39.3; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Right tilt 600/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.252 mW/g

Right tilt 600/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.02 V/m; Power Drift = 0.027 dB
Peak SAR (extrapolated) = 0.400 W/kg
SAR(1 g) = 0.239 mW/g; SAR(10 g) = 0.138 mW/g
Maximum value of SAR (measured) = 0.254 mW/g



0 dB = 0.254mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Dec.28, 2011

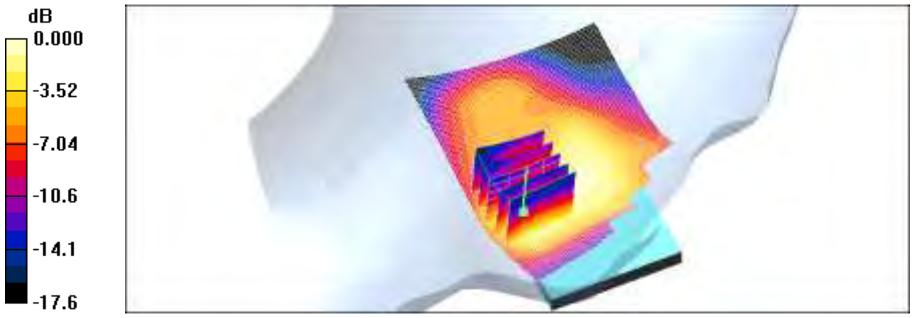
DUT: MS840; Type: Bar; Serial: #1

Communication System: PCS 1900MHz FCC; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.38 mho/m; ε_r = 41.1; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Left touch 600 EVDO/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.690 mW/g

Left touch 600 EVDO/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.0 V/m; Power Drift = -0.020 dB
Peak SAR (extrapolated) = 0.943 W/kg
SAR(1 g) = 0.541 mW/g; SAR(10 g) = 0.315 mW/g
Maximum value of SAR (measured) = 0.597 mW/g



0 dB = 0.597mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.17, 2011

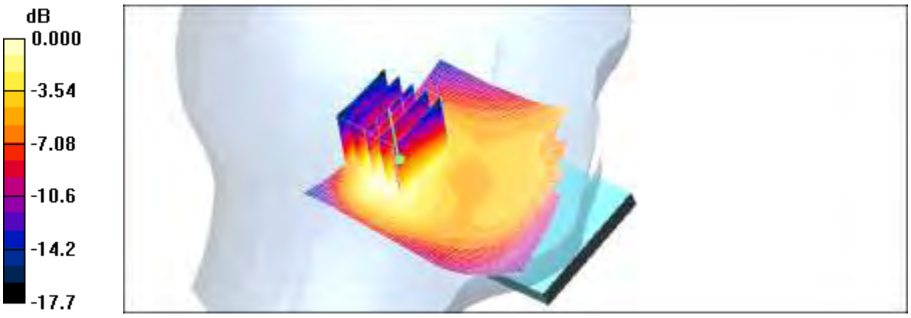
DUT: MS840; Type: Bar; Serial: #1

Communication System: PCS 1900MHz FCC; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.4 mho/m; ε_r = 39.3; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Left tilt 600 EVDO/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.273 mW/g

Left tilt 600 EVDO/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.56 V/m; Power Drift = 0.075 dB
Peak SAR (extrapolated) = 0.386 W/kg
SAR(1 g) = 0.244 mW/g; SAR(10 g) = 0.147 mW/g
Maximum value of SAR (measured) = 0.264 mW/g



0 dB = 0.264mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.17, 2011

DUT: MS840; 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 = 1.35 mho/m; ε_r = 40.1; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

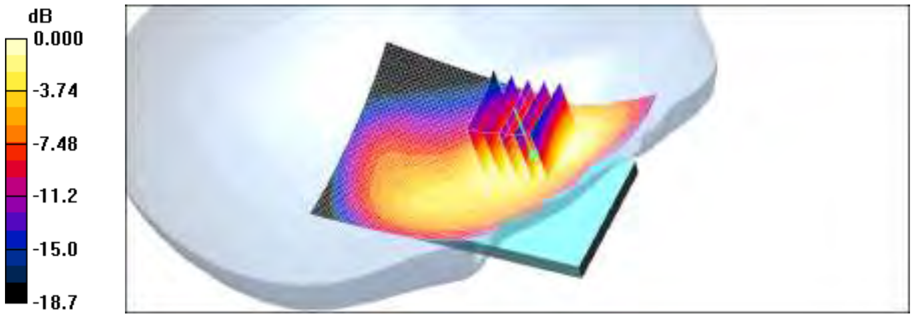
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Right touch 25 EVDO/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.845 mW/g

Right touch 25 EVDO/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.5 V/m; Power Drift = -0.044 dB
Peak SAR (extrapolated) = 1.09 W/kg
SAR(1 g) = 0.734 mW/g; SAR(10 g) = 0.450 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.795 mW/g



0 dB = 0.795mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.17, 2011

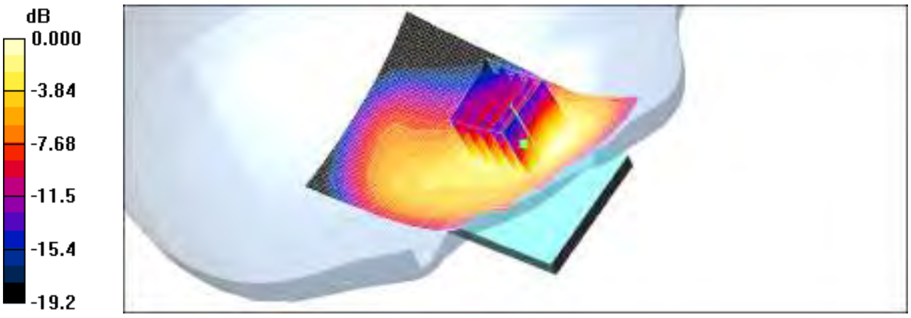
DUT: MS840; Type: Bar; Serial: #1

Communication System: PCS 1900MHz FCC; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.4 mho/m; ε_r = 39.3; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Right touch 600 EVDO/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.02 mW/g

Right touch 600 EVDO/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 21.6 V/m; Power Drift = 0.104 dB
Peak SAR (extrapolated) = 1.35 W/kg
SAR(1 g) = 0.897 mW/g; SAR(10 g) = 0.537 mW/g
Maximum value of SAR (measured) = 0.976 mW/g



0 dB = 0.976mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.17, 2011

DUT: MS840; 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 = 1.45 mho/m; ε_r = 39.5; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

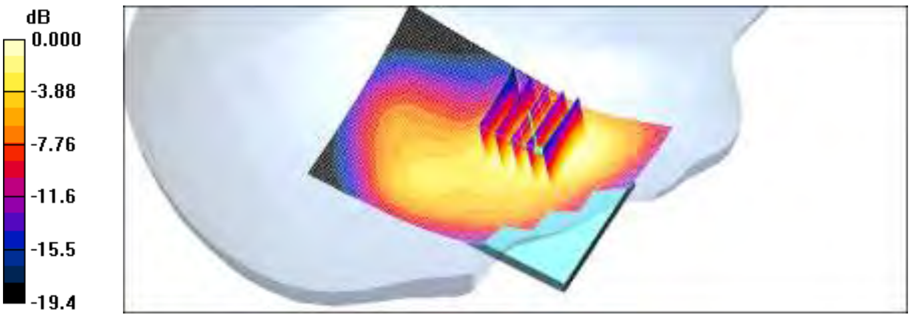
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Right touch 1175 EVDO/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.995 mW/g

Right touch 1175 EVDO/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.1 V/m; Power Drift = 0.033 dB
Peak SAR (extrapolated) = 1.38 W/kg
SAR(1 g) = 0.896 mW/g; SAR(10 g) = 0.535 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.985 mW/g



0 dB = 0.985mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.17, 2011

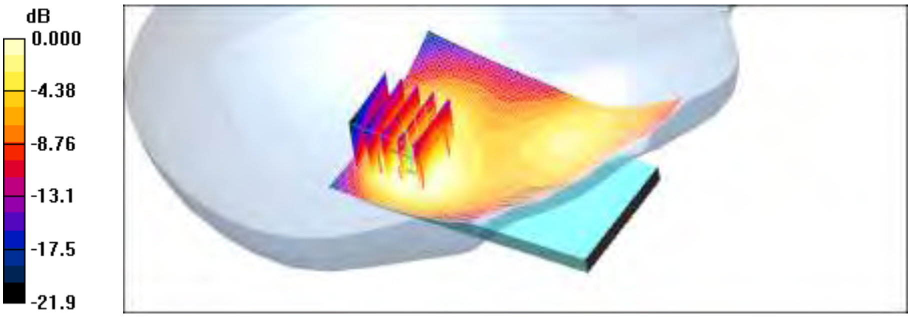
DUT: MS840; Type: Bar; Serial: #1

Communication System: PCS 1900MHz FCC; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.4 mho/m; ε_r = 39.3; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Right tilt 600 EVDO/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.373 mW/g

Right tilt 600 EVDO/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.59 V/m; Power Drift = -0.166 dB
Peak SAR (extrapolated) = 0.455 W/kg
SAR(1 g) = 0.299 mW/g; SAR(10 g) = 0.186 mW/g
aximum value of SAR (measured) = 0.322 mW/g



0 dB = 0.322mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Dec.19, 2011

DUT: MS840; 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 = 1.33 mho/m; ε_r = 39.8; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

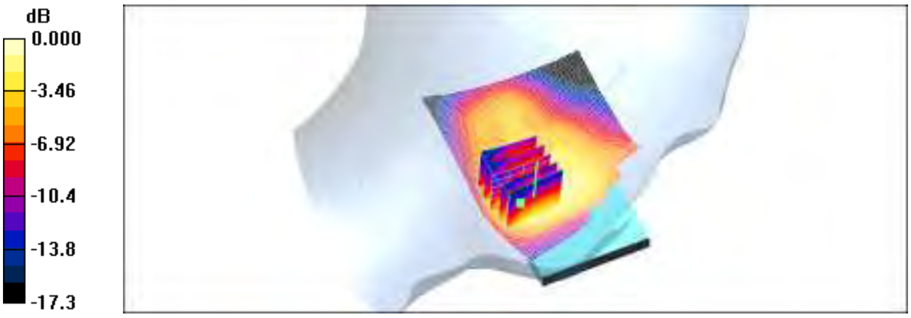
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.43, 5.43, 5.43); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Left touch 20175 12 RB 6 offset QPSK/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

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

Left touch 20175 12 RB 6 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.2 V/m; Power Drift = 0.041 dB
Peak SAR (extrapolated) = 0.464 W/kg
SAR(1 g) = 0.288 mW/g; SAR(10 g) = 0.176 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
aximum value of SAR (measured) = 0.315 mW/g



0 dB = 0.315mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Dec.19, 2011

DUT: MS840; 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 = 1.33 mho/m; ε_r = 39.8; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

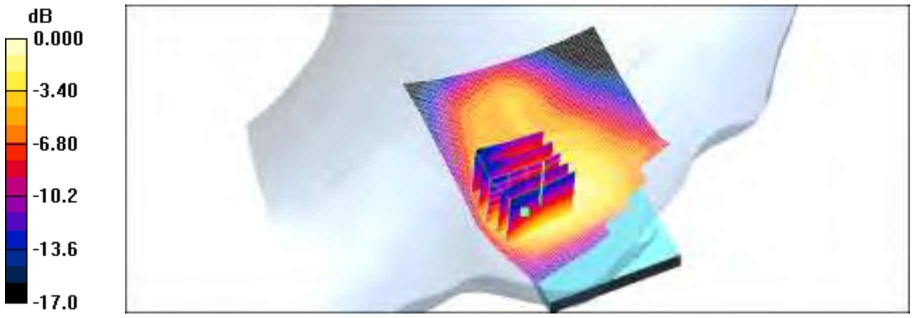
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.43, 5.43, 5.43); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Left touch 20175 1RB 0 offset QPSK/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.309 mW/g

Left touch 20175 1RB 0 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.2 V/m; Power Drift = 0.014 dB
Peak SAR (extrapolated) = 0.438 W/kg
SAR(1 g) = 0.277 mW/g; SAR(10 g) = 0.170 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
aximum value of SAR (measured) = 0.305 mW/g



0 dB = 0.305mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Dec.19, 2011

DUT: MS840; 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 = 1.33 mho/m; ε_r = 39.8; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

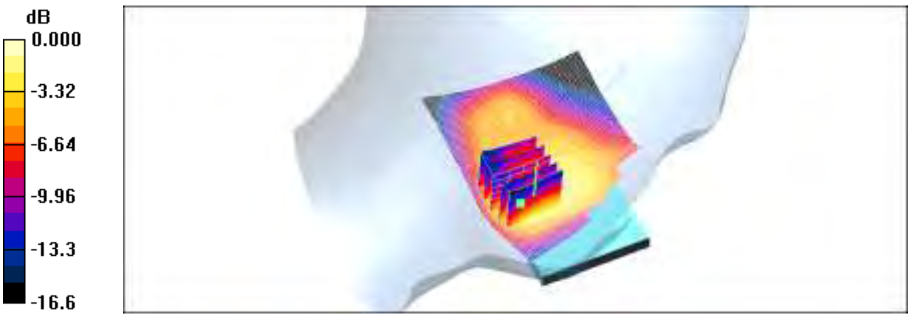
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.43, 5.43, 5.43); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Left touch 20175 1RB 24 offset QPSK/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.322 mW/g

Left touch 20175 1RB 24 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.2 V/m; Power Drift = -0.009 dB
Peak SAR (extrapolated) = 0.445 W/kg
SAR(1 g) = 0.287 mW/g; SAR(10 g) = 0.176 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
aximum value of SAR (measured) = 0.314 mW/g



0 dB = 0.314mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Dec.19, 2011

DUT: MS840; 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 = 1.33 mho/m; ε_r = 39.8; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

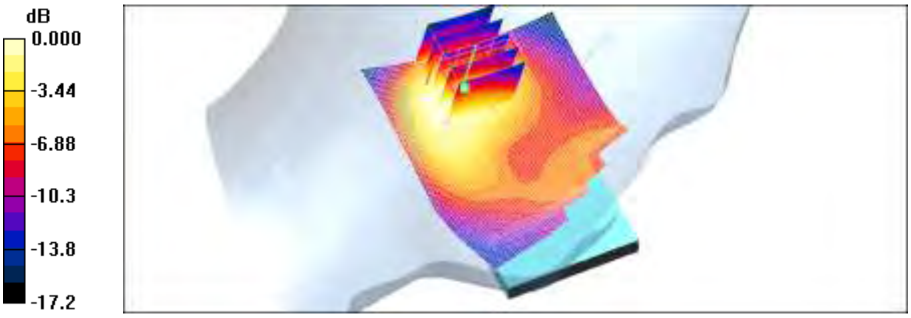
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.43, 5.43, 5.43); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Left tilt 20175 12 RB 6 offset QPSK/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

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

Left tilt 20175 12 RB 6 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.68 V/m; Power Drift = 0.058 dB
Peak SAR (extrapolated) = 0.238 W/kg
SAR(1 g) = 0.160 mW/g; SAR(10 g) = 0.100 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.176 mW/g



0 dB = 0.176mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Dec.19, 2011

DUT: MS840; 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 = 1.33 mho/m; ε_r = 39.8; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

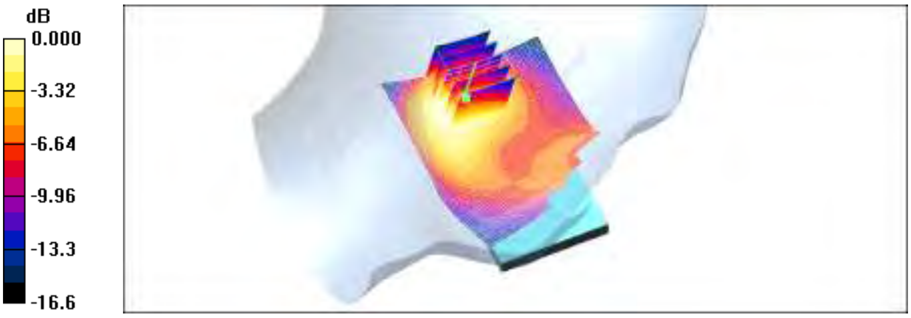
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.43, 5.43, 5.43); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Left tilt 20175 1 RB 0 offset QPSK/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.186 mW/g

Left tilt 20175 1 RB 0 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.77 V/m; Power Drift = 0.193 dB
Peak SAR (extrapolated) = 0.236 W/kg
SAR(1 g) = 0.163 mW/g; SAR(10 g) = 0.102 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.179 mW/g



0 dB = 0.179mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Dec.19, 2011

DUT: MS840; 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 = 1.33 mho/m; ε_r = 39.8; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

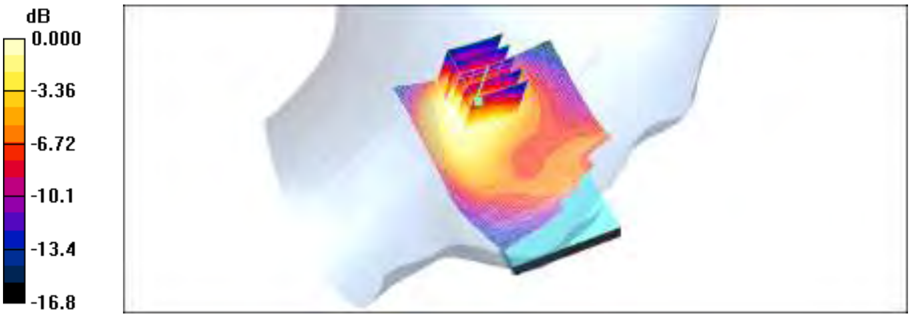
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.43, 5.43, 5.43); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Left tilt 20175 1 RB 24 offset QPSK/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.201 mW/g

Left tilt 20175 1 RB 24 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.91 V/m; Power Drift = 0.191 dB
Peak SAR (extrapolated) = 0.254 W/kg
SAR(1 g) = 0.172 mW/g; SAR(10 g) = 0.108 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.188 mW/g



0 dB = 0.188mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Dec.19, 2011

DUT: MS840; 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 = 1.33 mho/m; ε_r = 39.8; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

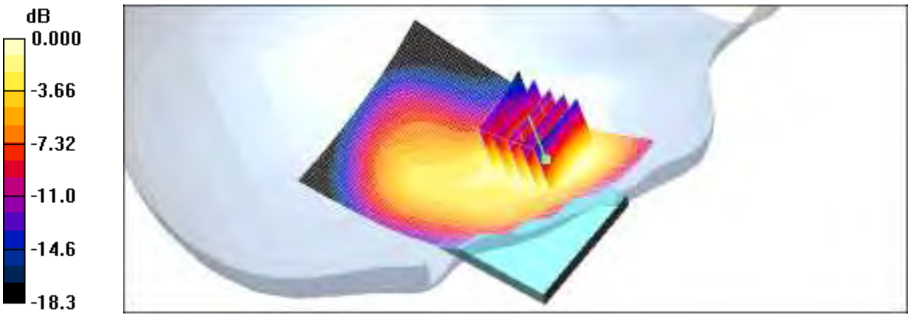
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.43, 5.43, 5.43); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Right touch 20175 12RB 6offset QPSK/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.491 mW/g

Right touch 20175 12RB 6offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.9 V/m; Power Drift = -0.081 dB
Peak SAR (extrapolated) = 0.638 W/kg
SAR(1 g) = 0.440 mW/g; SAR(10 g) = 0.274 mW/g

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



0 dB = 0.483mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Dec.19, 2011

DUT: MS840; 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 = 1.33 mho/m; ε_r = 39.8; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

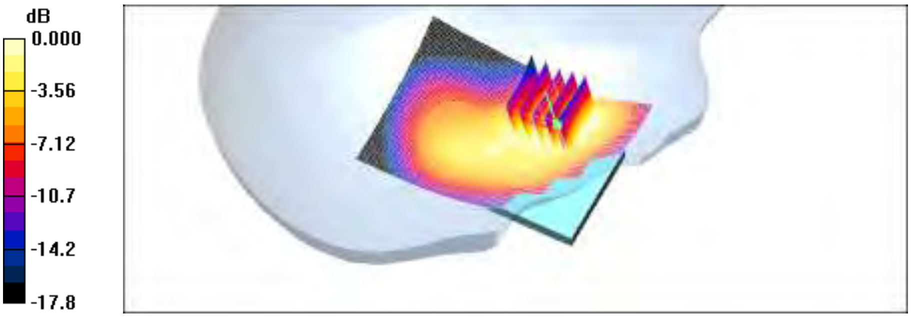
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.43, 5.43, 5.43); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Right touch 20175 1RB 0 offset QPSK/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.468 mW/g

Right touch 20175 1RB 0 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.9 V/m; Power Drift = -0.086 dB
Peak SAR (extrapolated) = 0.603 W/kg
SAR(1 g) = 0.423 mW/g; SAR(10 g) = 0.265 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.461 mW/g



0 dB = 0.461mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Dec.19, 2011

DUT: MS840; 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 = 1.33 mho/m; ε_r = 39.8; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

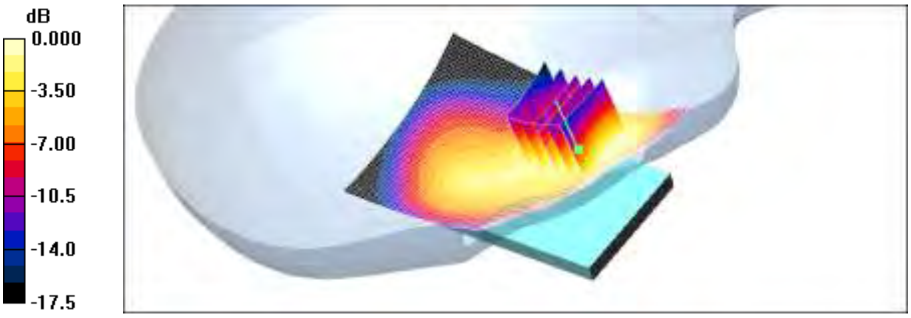
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.43, 5.43, 5.43); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Right touch 20175 1RB 24 offset QPSK/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.441 mW/g

Right touch 20175 1RB 24 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.4 V/m; Power Drift = -0.081 dB
Peak SAR (extrapolated) = 0.576 W/kg
SAR(1 g) = 0.400 mW/g; SAR(10 g) = 0.251 mW/g

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



0 dB = 0.436mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Dec.19, 2011

DUT: MS840; 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 = 1.33 mho/m; ε_r = 39.8; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

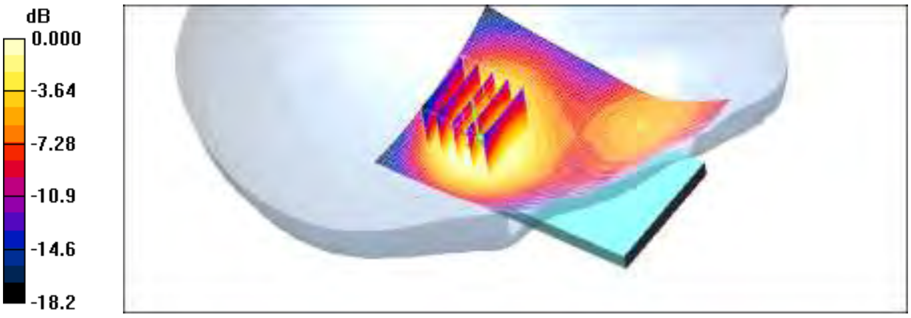
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.43, 5.43, 5.43); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Right tilt 20175 12RB 6 offset QPSK/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.239 mW/g

Right tilt 20175 12RB 6 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.19 V/m; Power Drift = -0.156 dB
Peak SAR (extrapolated) = 0.292 W/kg
SAR(1 g) = 0.205 mW/g; SAR(10 g) = 0.132 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.215 mW/g



0 dB = 0.215mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Dec.19, 2011

DUT: MS840; 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 = 1.33 mho/m; ε_r = 39.8; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

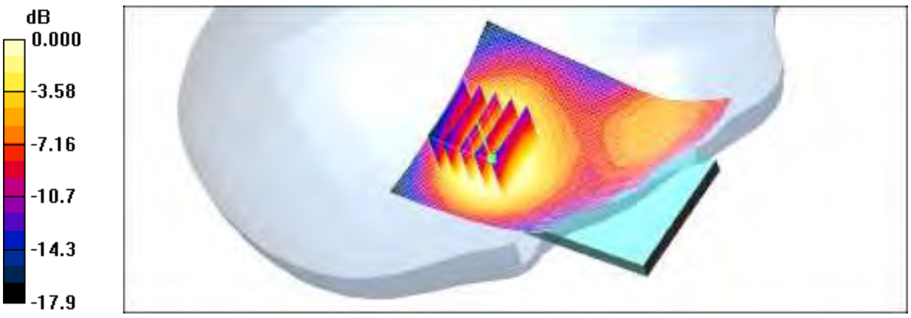
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.43, 5.43, 5.43); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Right tilt 20175 1RB 0 offset QPSK/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.233 mW/g

Right tilt 20175 1RB 0 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.10 V/m; Power Drift = -0.107 dB
Peak SAR (extrapolated) = 0.287 W/kg
SAR(1 g) = 0.201 mW/g; SAR(10 g) = 0.130 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.213 mW/g



0 dB = 0.213mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Dec.19, 2011

DUT: MS840; 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 = 1.33 mho/m; ε_r = 39.8; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

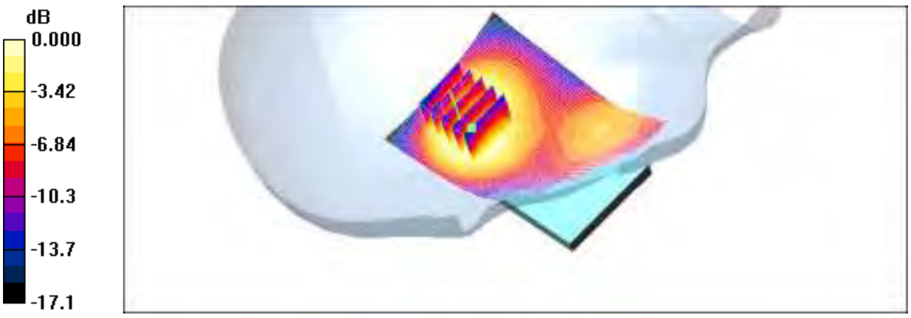
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.43, 5.43, 5.43); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Right tilt 20175 1RB 24 offset QPSK/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.242 mW/g

Right tilt 20175 1RB 24 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.29 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.275 W/kg
SAR(1 g) = 0.193 mW/g; SAR(10 g) = 0.126 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.206 mW/g



0 dB = 0.206mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Dec.19, 2011

DUT: MS840; 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 = 1.33 mho/m; ε_r = 39.8; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

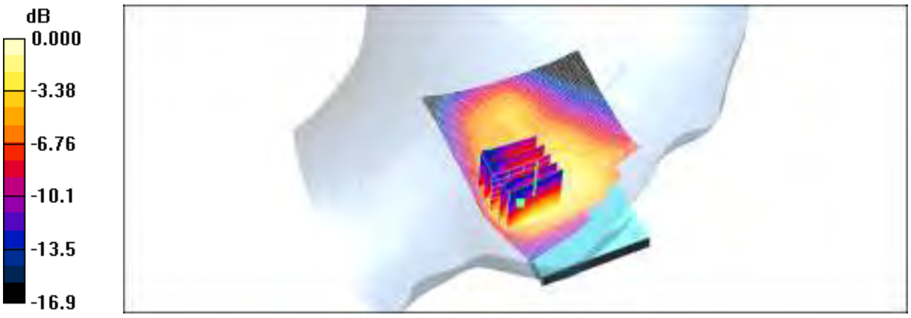
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.43, 5.43, 5.43); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Left touch 20175 12 RB 6 offset 16QAM/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.330 mW/g

Left touch 20175 12 RB 6 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.5 V/m; Power Drift = -0.021 dB
Peak SAR (extrapolated) = 0.458 W/kg
SAR(1 g) = 0.296 mW/g; SAR(10 g) = 0.182 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
aximum value of SAR (measured) = 0.322 mW/g



0 dB = 0.322mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Dec.19, 2011

DUT: MS840; 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 = 1.33 mho/m; ε_r = 39.8; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

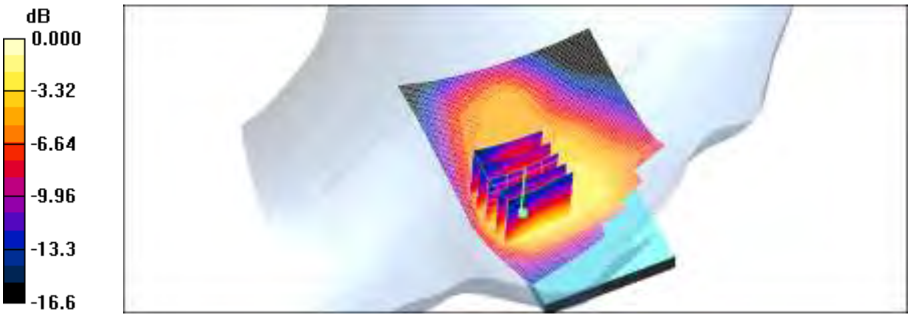
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.43, 5.43, 5.43); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Left touch 20175 1 RB 0 offset 16QAM/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

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

Left touch 20175 1 RB 0 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.6 V/m; Power Drift = 0.036 dB
Peak SAR (extrapolated) = 0.486 W/kg
SAR(1 g) = 0.277 mW/g; SAR(10 g) = 0.163 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.306 mW/g



0 dB = 0.306mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Dec.19, 2011

DUT: MS840; 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 = 1.33 mho/m; ε_r = 39.8; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

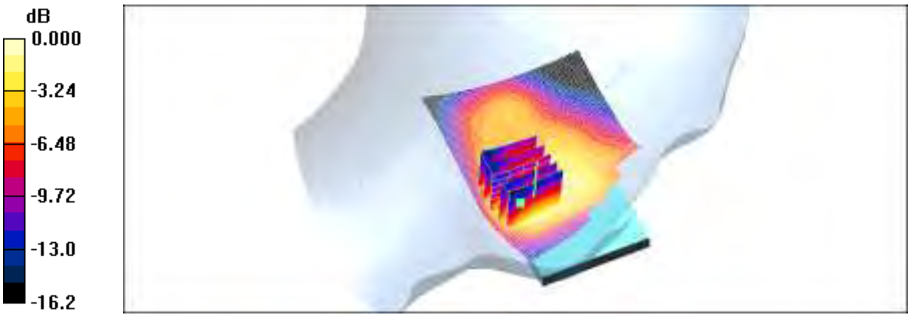
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.43, 5.43, 5.43); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Left touch 20175 1 RB 24 offset QPSK/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.297 mW/g

Left touch 20175 1 RB 24 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.8 V/m; Power Drift = -0.080 dB
Peak SAR (extrapolated) = 0.397 W/kg
SAR(1 g) = 0.256 mW/g; SAR(10 g) = 0.157 mW/g

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



0 dB = 0.282mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Dec.19, 2011

DUT: MS840; 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 = 1.33 mho/m; ε_r = 39.8; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

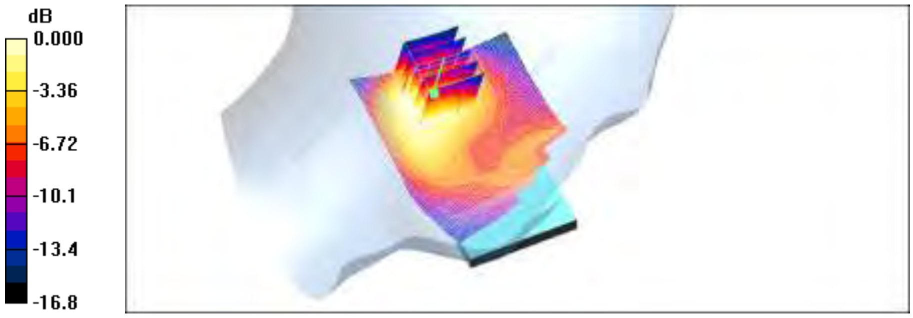
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.43, 5.43, 5.43); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Left tilt 20175 12 RB 6 offset 16QAM/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

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

Left tilt 20175 12 RB 6 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.74 V/m; Power Drift = 0.010 dB
Peak SAR (extrapolated) = 0.237 W/kg
SAR(1 g) = 0.161 mW/g; SAR(10 g) = 0.101 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.175 mW/g



0 dB = 0.175mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Dec.19, 2011

DUT: MS840; 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 = 1.33 mho/m; ε_r = 39.8; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

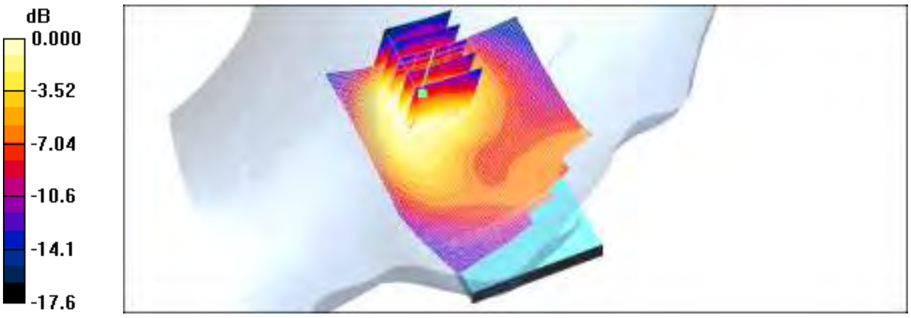
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.43, 5.43, 5.43); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Left tilt 20175 1 RB 0 offset 16QAM/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.156 mW/g

Left tilt 20175 1 RB 0 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.27 V/m; Power Drift = 0.012 dB
Peak SAR (extrapolated) = 0.198 W/kg
SAR(1 g) = 0.133 mW/g; SAR(10 g) = 0.083 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.146 mW/g



0 dB = 0.146mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Dec.19, 2011

DUT: MS840; 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 = 1.33 mho/m; ε_r = 39.8; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

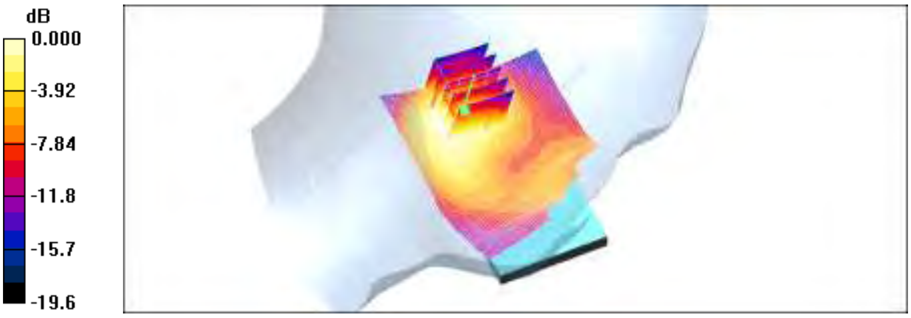
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.43, 5.43, 5.43); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Left tilt 20175 1 RB 24 offset 16QAM/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.161 mW/g

Left tilt 20175 1 RB 24 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.25 V/m; Power Drift = -0.050 dB
Peak SAR (extrapolated) = 0.207 W/kg
SAR(1 g) = 0.138 mW/g; SAR(10 g) = 0.087 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.151 mW/g



0 dB = 0.151mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Dec.19, 2011

DUT: MS840; 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 = 1.33 mho/m; ε_r = 39.8; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

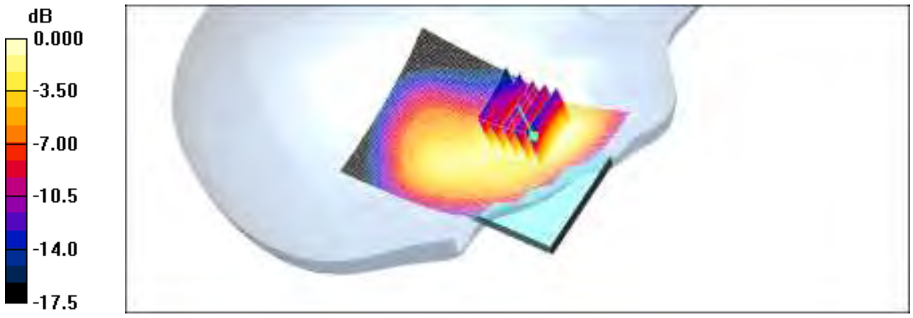
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.43, 5.43, 5.43); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Right touch 20175 12RB 6offset 16QAM/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.430 mW/g

Right touch 20175 12RB 6offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.0 V/m; Power Drift = -0.129 dB
Peak SAR (extrapolated) = 0.552 W/kg
SAR(1 g) = 0.384 mW/g; SAR(10 g) = 0.240 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.419 mW/g



0 dB = 0.419mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Dec.19, 2011

DUT: MS840; 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 = 1.33 mho/m; ε_r = 39.8; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

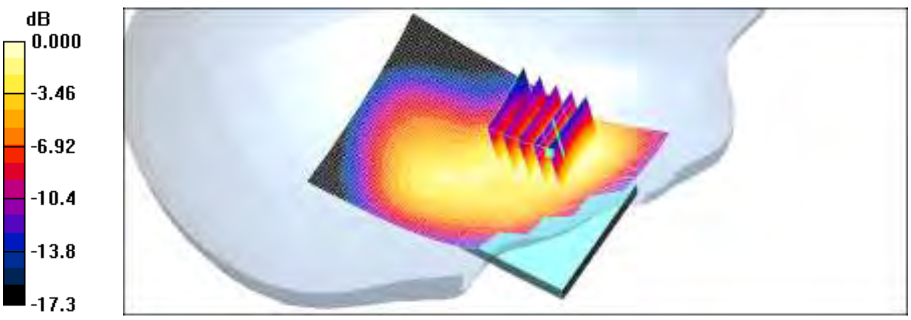
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.43, 5.43, 5.43); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Right touch 20175 1RB 0 offset 16QAM/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.440 mW/g

Right touch 20175 1RB 0 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.4 V/m; Power Drift = -0.016 dB
Peak SAR (extrapolated) = 0.595 W/kg
SAR(1 g) = 0.407 mW/g; SAR(10 g) = 0.252 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.444 mW/g



0 dB = 0.444mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Dec.19, 2011

DUT: MS840; 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 = 1.33 mho/m; ε_r = 39.8; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

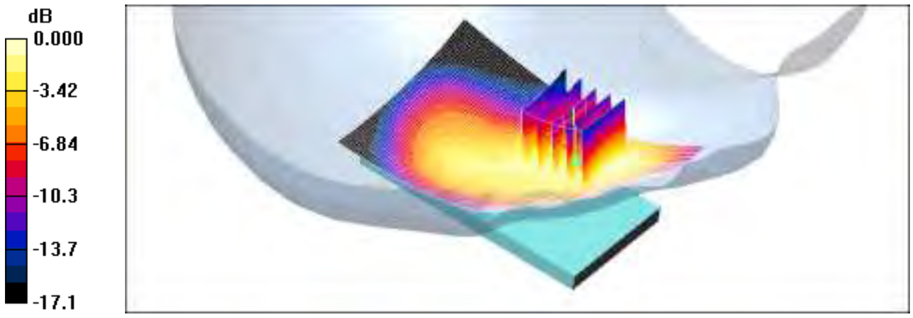
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.43, 5.43, 5.43); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Right touch 20175 1RB 24 offset 16QAM/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.472 mW/g

Right touch 20175 1RB 24 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.9 V/m; Power Drift = 0.041 dB
Peak SAR (extrapolated) = 0.621 W/kg
SAR(1 g) = 0.431 mW/g; SAR(10 g) = 0.271 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:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Dec.19, 2011

DUT: MS840; 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 = 1.33 mho/m; ε_r = 39.8; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

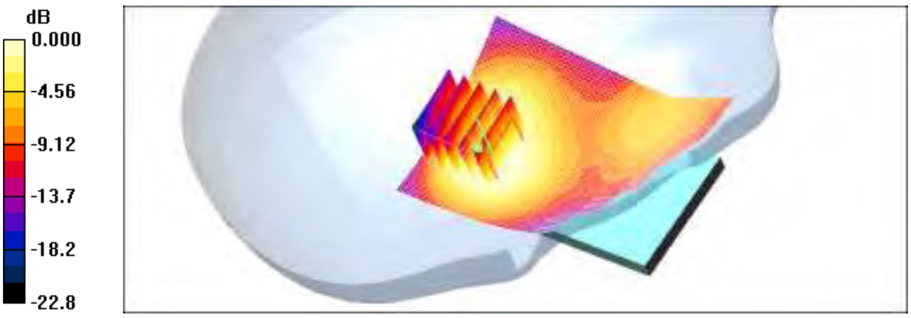
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.43, 5.43, 5.43); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Right tilt 20175 12RB 6 offset 16QAM/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.214 mW/g

Right tilt 20175 12RB 6 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.53 V/m; Power Drift = 0.125 dB
Peak SAR (extrapolated) = 0.252 W/kg
SAR(1 g) = 0.177 mW/g; SAR(10 g) = 0.115 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
aximum value of SAR (measured) = 0.185 mW/g



0 dB = 0.185mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Dec.19, 2011

DUT: MS840; 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 = 1.33 mho/m; ε_r = 39.8; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

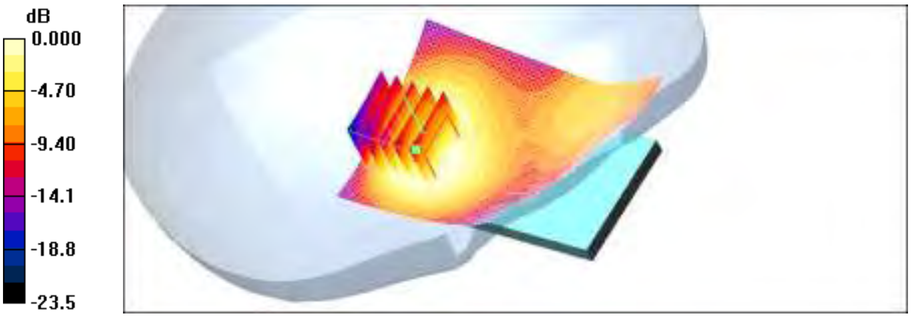
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.43, 5.43, 5.43); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Right tilt 20175 1RB 0 offset 16QAM/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.206 mW/g

Right tilt 20175 1RB 0 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.35 V/m; Power Drift = -0.043 dB
Peak SAR (extrapolated) = 0.238 W/kg
SAR(1 g) = 0.165 mW/g; SAR(10 g) = 0.108 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
aximum value of SAR (measured) = 0.172 mW/g



0 dB = 0.172mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Dec.19, 2011

DUT: MS840; 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 = 1.33 mho/m; ε_r = 39.8; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

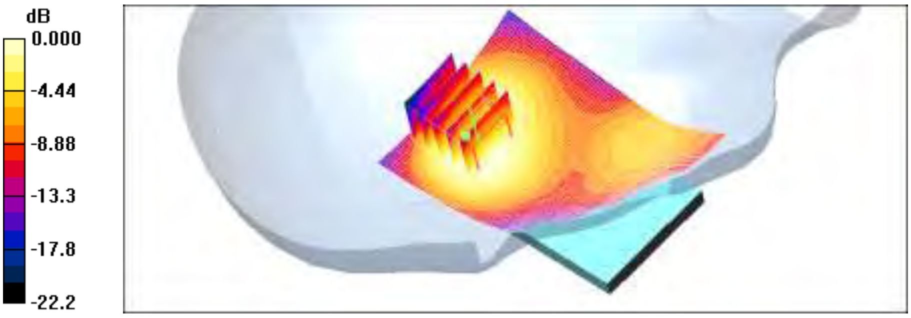
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.43, 5.43, 5.43); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Right tilt 20175 1RB 24 offset 16QAM/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.213 mW/g

Right tilt 20175 1RB 24 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.51 V/m; Power Drift = -0.161 dB
Peak SAR (extrapolated) = 0.243 W/kg
SAR(1 g) = 0.174 mW/g; SAR(10 g) = 0.114 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
aximum value of SAR (measured) = 0.182 mW/g



0 dB = 0.182mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.20, 2011

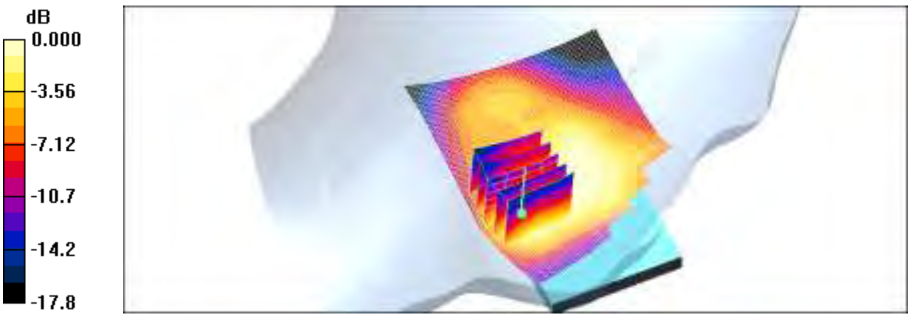
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.44 mho/m; ε_r = 40.2; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Left touch 18900 12RB 6 offset QPSK/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.513 mW/g

Left touch 18900 12RB 6 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.9 V/m; Power Drift = 0.007 dB
Peak SAR (extrapolated) = 0.655 W/kg
SAR(1 g) = 0.407 mW/g; SAR(10 g) = 0.252 mW/g
aximum value of SAR (measured) = 0.438 mW/g



0 dB = 0.438mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.20, 2011

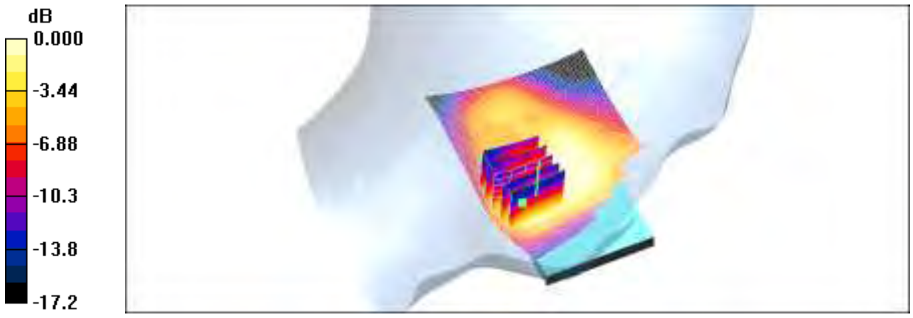
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.44 mho/m; ε_r = 40.2; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Left touch 18900 1RB 0 offset QPSK/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.527 mW/g

Left touch 18900 1RB 0 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.1 V/m; Power Drift = -0.184 dB
Peak SAR (extrapolated) = 0.661 W/kg
SAR(1 g) = 0.398 mW/g; SAR(10 g) = 0.245 mW/g
aximum value of SAR (measured) = 0.425 mW/g



0 dB = 0.425mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.20, 2011

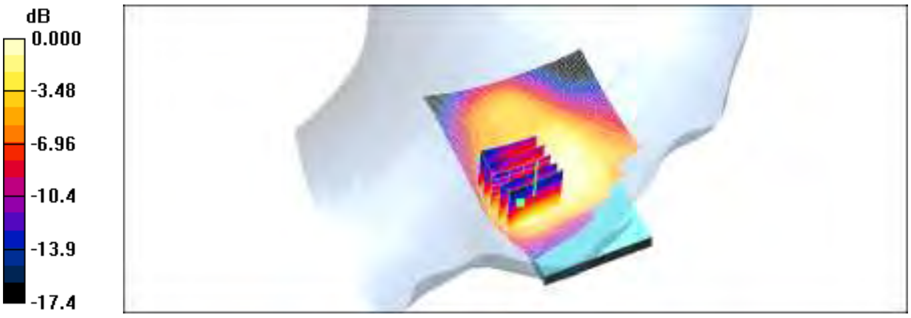
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.44 mho/m; ε_r = 40.2; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Left touch 18900 1RB 24 offset QPSK/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.438 mW/g

Left touch 18900 1RB 24 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.9 V/m; Power Drift = -0.057 dB
Peak SAR (extrapolated) = 0.558 W/kg
SAR(1 g) = 0.349 mW/g; SAR(10 g) = 0.214 mW/g
aximum value of SAR (measured) = 0.373 mW/g



0 dB = 0.373mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.20, 2011

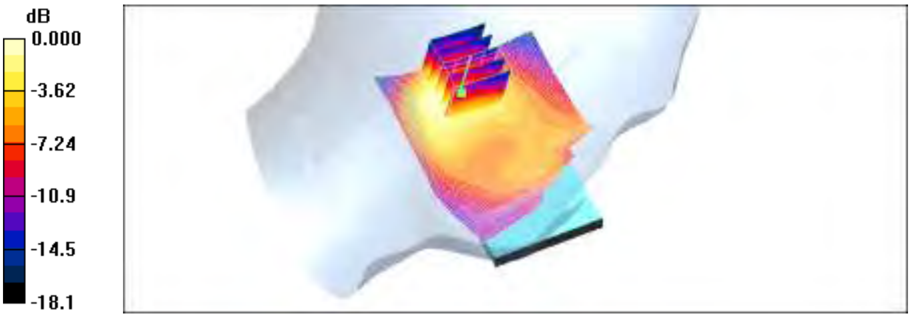
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.44 mho/m; ε_r = 40.2; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Left tilt 18900 12RB 6 offset QPSK/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.265 mW/g

Left tilt 18900 12RB 6 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.41 V/m; Power Drift = 0.125 dB
Peak SAR (extrapolated) = 0.370 W/kg
SAR(1 g) = 0.230 mW/g; SAR(10 g) = 0.135 mW/g
Maximum value of SAR (measured) = 0.254 mW/g



0 dB = 0.254mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.20, 2011

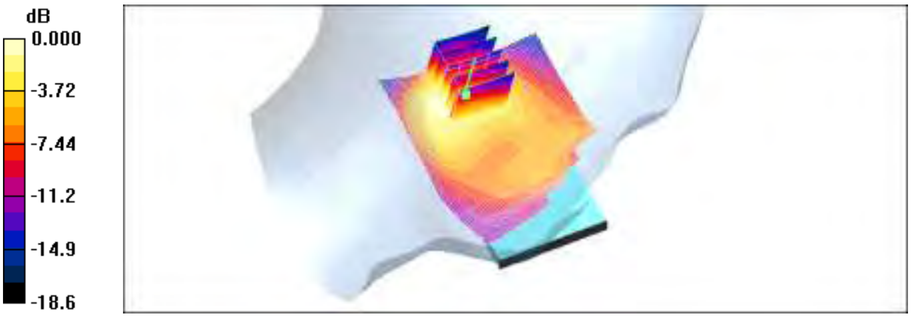
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.44 mho/m; ε_r = 40.2; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Left tilt 18900 1RB 0 offset QPSK/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.275 mW/g

Left tilt 18900 1RB 0 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.48 V/m; Power Drift = 0.087 dB
Peak SAR (extrapolated) = 0.379 W/kg
SAR(1 g) = 0.237 mW/g; SAR(10 g) = 0.139 mW/g
Maximum value of SAR (measured) = 0.261 mW/g



0 dB = 0.261mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.20, 2011

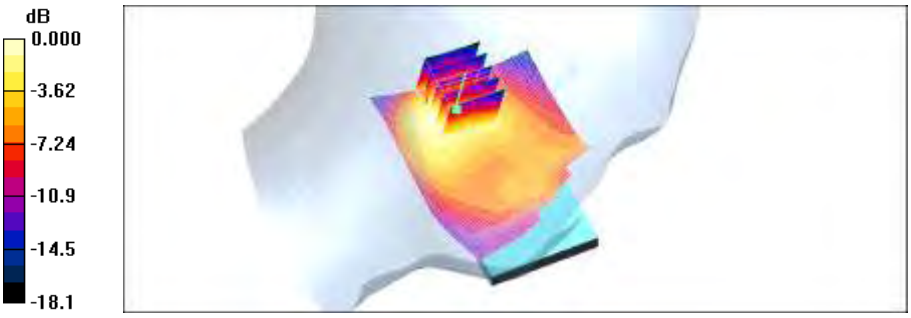
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.44 mho/m; ε_r = 40.2; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Left tilt 18900 1RB 24 offset QPSK/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.262 mW/g

Left tilt 18900 1RB 24 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.46 V/m; Power Drift = 0.067 dB
Peak SAR (extrapolated) = 0.361 W/kg
SAR(1 g) = 0.226 mW/g; SAR(10 g) = 0.133 mW/g
Maximum value of SAR (measured) = 0.250 mW/g



0 dB = 0.250mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.20, 2011

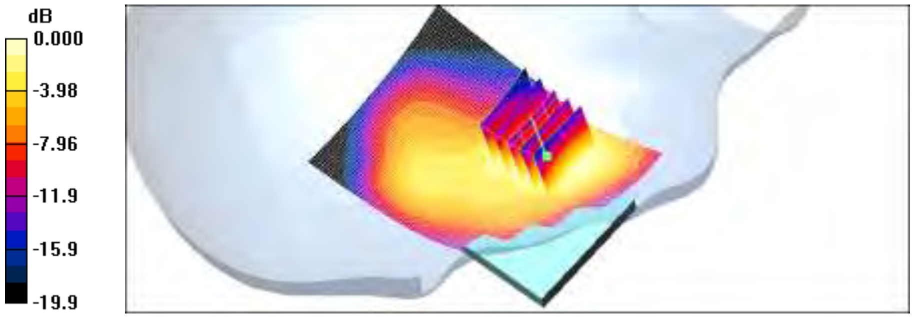
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.44 mho/m; ε_r = 40.2; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Right touch 18900 12RB 6 offset QPSK/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.703 mW/g

Right touch 18900 12RB 6 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.0 V/m; Power Drift = -0.178 dB
Peak SAR (extrapolated) = 0.965 W/kg
SAR(1 g) = 0.631 mW/g; SAR(10 g) = 0.378 mW/g
Maximum value of SAR (measured) = 0.692 mW/g



0 dB = 0.692mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.20, 2011

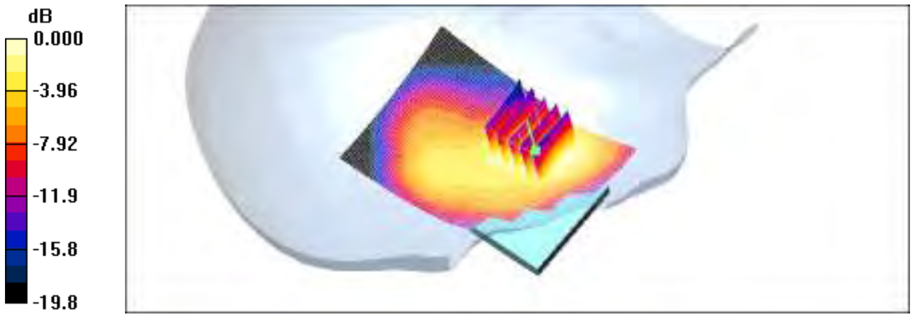
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.44 mho/m; ε_r = 40.2; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Right touch 18900 1RB 0 offset QPSK/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.740 mW/g

Right touch 18900 1RB 0 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.3 V/m; Power Drift = 0.103 dB
Peak SAR (extrapolated) = 1.04 W/kg
SAR(1 g) = 0.676 mW/g; SAR(10 g) = 0.406 mW/g
Maximum value of SAR (measured) = 0.739 mW/g



0 dB = 0.739mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.20, 2011

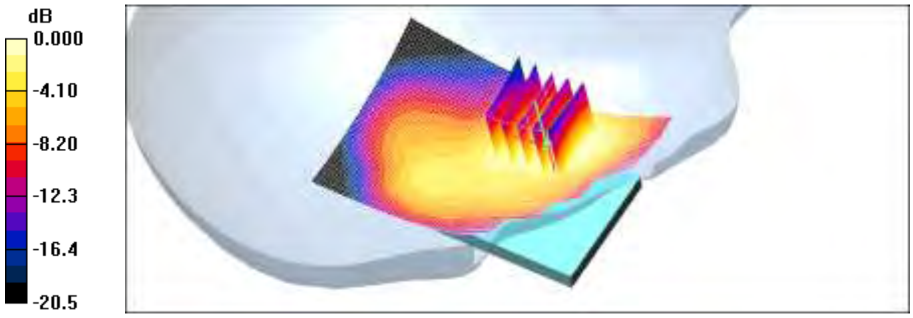
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.44 mho/m; ε_r = 40.2; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Right touch 18900 1RB 24 offset QPSK/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.682 mW/g

Right touch 18900 1RB 24 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.8 V/m; Power Drift = -0.070 dB
Peak SAR (extrapolated) = 0.958 W/kg
SAR(1 g) = 0.623 mW/g; SAR(10 g) = 0.373 mW/g
Maximum value of SAR (measured) = 0.682 mW/g



0 dB = 0.682mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.20, 2011

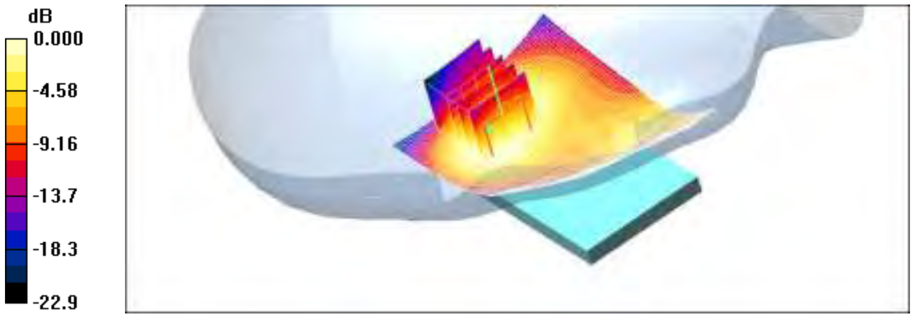
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.44 mho/m; ε_r = 40.2; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Right tilt 18900 12RB 6 offset QPSK/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.302 mW/g

Right tilt 18900 12RB 6 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.45 V/m; Power Drift = -0.084 dB
Peak SAR (extrapolated) = 0.385 W/kg
SAR(1 g) = 0.248 mW/g; SAR(10 g) = 0.158 mW/g
aximum value of SAR (measured) = 0.269 mW/g



0 dB = 0.269mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.20, 2011

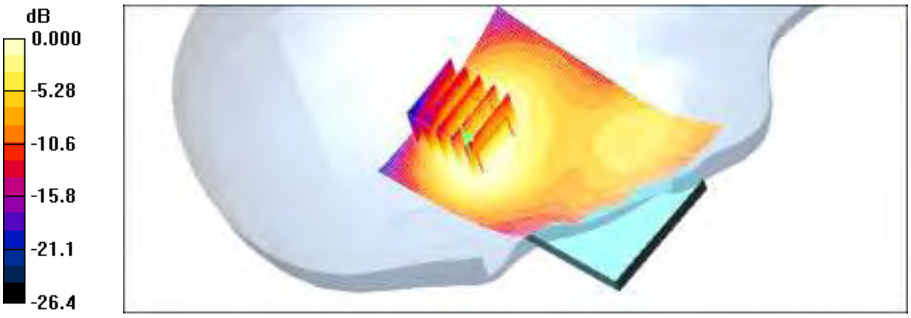
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.44 mho/m; ε_r = 40.2; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Right tilt 18900 1RB 0 offset QPSK/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.306 mW/g

Right tilt 18900 1RB 0 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.61 V/m; Power Drift = -0.096 dB
Peak SAR (extrapolated) = 0.382 W/kg
SAR(1 g) = 0.254 mW/g; SAR(10 g) = 0.161 mW/g
aximum value of SAR (measured) = 0.269 mW/g



0 dB = 0.269mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.20, 2011

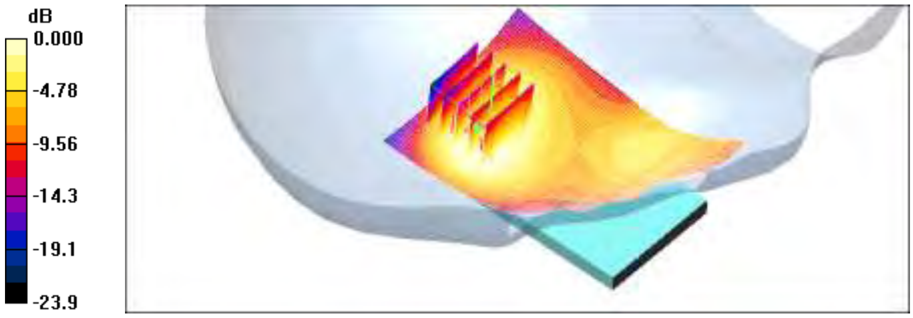
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.44 mho/m; ε_r = 40.2; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Right tilt 18900 1RB 24 offset QPSK/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.259 mW/g

Right tilt 18900 1RB 24 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.72 V/m; Power Drift = -0.029 dB
Peak SAR (extrapolated) = 0.358 W/kg
SAR(1 g) = 0.230 mW/g; SAR(10 g) = 0.147 mW/g
Maximum value of SAR (measured) = 0.249 mW/g



0 dB = 0.249mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.20, 2011

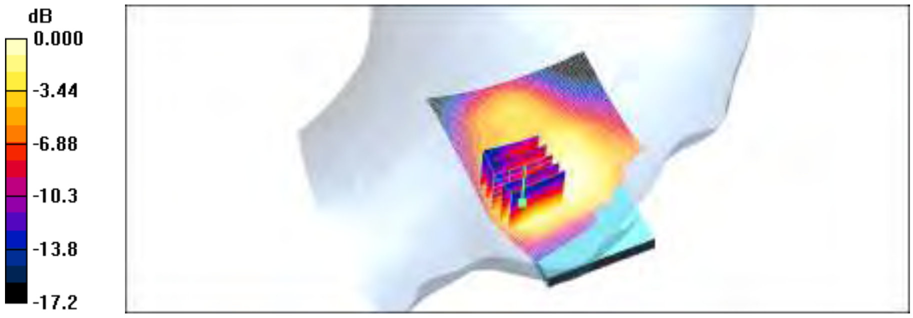
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.44 mho/m; ε_r = 40.2; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Left touch 18900 12RB 6 offset 16QAM/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.426 mW/g

Left touch 18900 12RB 6 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.6 V/m; Power Drift = 0.099 dB
Peak SAR (extrapolated) = 0.556 W/kg
SAR(1 g) = 0.353 mW/g; SAR(10 g) = 0.221 mW/g
Maximum value of SAR (measured) = 0.381 mW/g



0 dB = 0.381mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.20, 2011

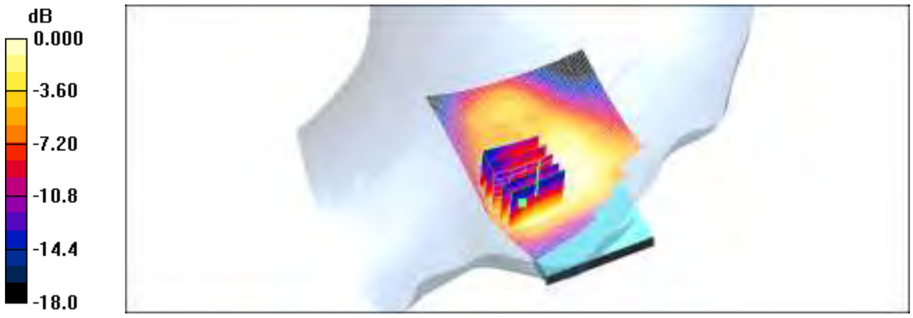
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.44 mho/m; ε_r = 40.2; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Left touch 18900 1RB 0 offset 16QAM/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.476 mW/g

Left touch 18900 1RB 0 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.4 V/m; Power Drift = 0.034 dB
Peak SAR (extrapolated) = 0.656 W/kg
SAR(1 g) = 0.392 mW/g; SAR(10 g) = 0.241 mW/g
aximum value of SAR (measured) = 0.420 mW/g



0 dB = 0.420mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.20, 2011

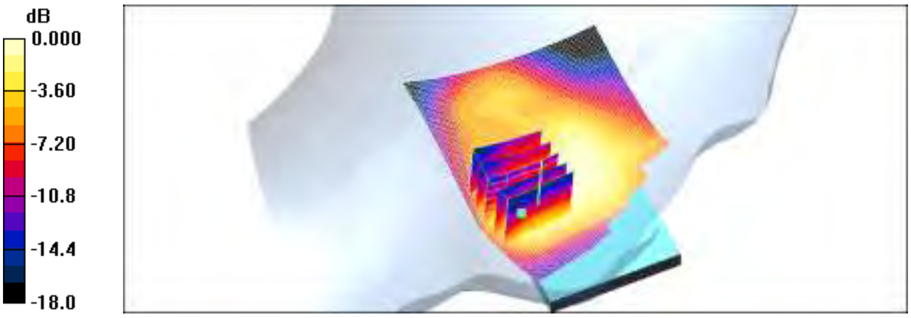
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.44 mho/m; ε_r = 40.2; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Left touch 18900 1RB 24 offset 16QAM/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.433 mW/g

Left touch 18900 1RB 24 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.7 V/m; Power Drift = 0.032 dB
Peak SAR (extrapolated) = 0.617 W/kg
SAR(1 g) = 0.350 mW/g; SAR(10 g) = 0.215 mW/g
aximum value of SAR (measured) = 0.376 mW/g



0 dB = 0.376mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.20, 2011

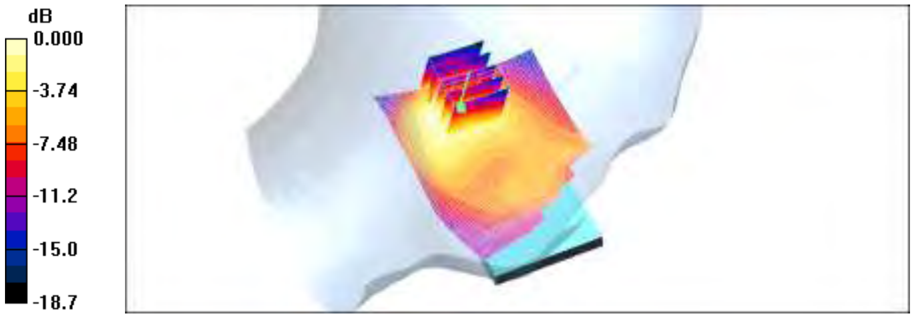
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.44 mho/m; ε_r = 40.2; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Left tilt 18900 12RB 6 offset 16QAM/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.284 mW/g

Left tilt 18900 12RB 6 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.59 V/m; Power Drift = 0.082 dB
Peak SAR (extrapolated) = 0.387 W/kg
SAR(1 g) = 0.242 mW/g; SAR(10 g) = 0.142 mW/g
Maximum value of SAR (measured) = 0.269 mW/g



0 dB = 0.269mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.20, 2011

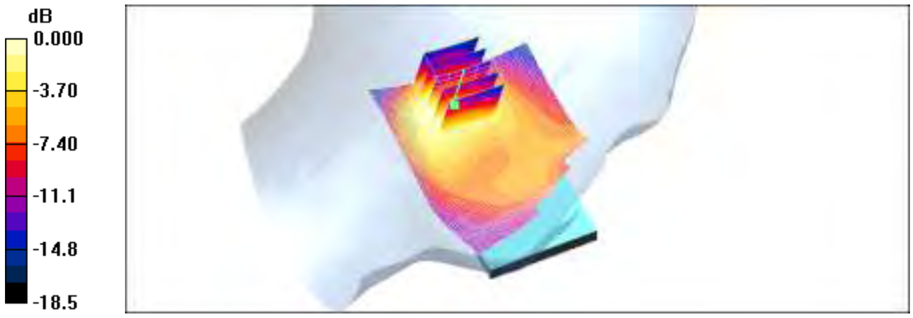
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.44 mho/m; ε_r = 40.2; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Left tilt 18900 1RB 0 offset 16QAM/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.252 mW/g

Left tilt 18900 1RB 0 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.16 V/m; Power Drift = 0.119 dB
Peak SAR (extrapolated) = 0.346 W/kg
SAR(1 g) = 0.217 mW/g; SAR(10 g) = 0.127 mW/g
Maximum value of SAR (measured) = 0.240 mW/g



0 dB = 0.240mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.20, 2011

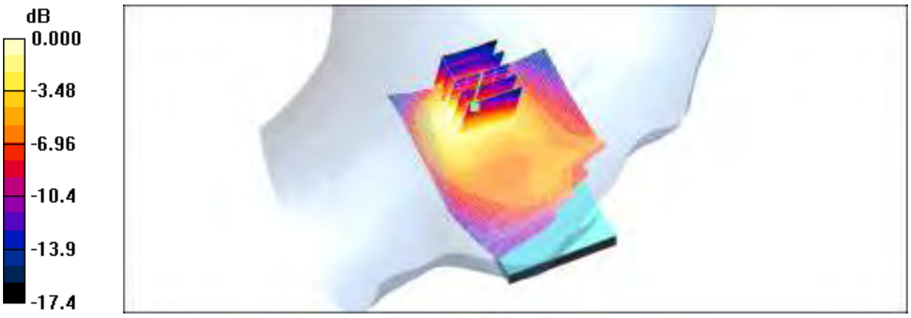
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.44 mho/m; ε_r = 40.2; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Left tilt 18900 1RB 24 offset 16QAM/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.237 mW/g

Left tilt 18900 1RB 24 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.00 V/m; Power Drift = 0.053 dB
Peak SAR (extrapolated) = 0.326 W/kg
SAR(1 g) = 0.207 mW/g; SAR(10 g) = 0.122 mW/g
Maximum value of SAR (measured) = 0.230 mW/g



0 dB = 0.230mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.20, 2011

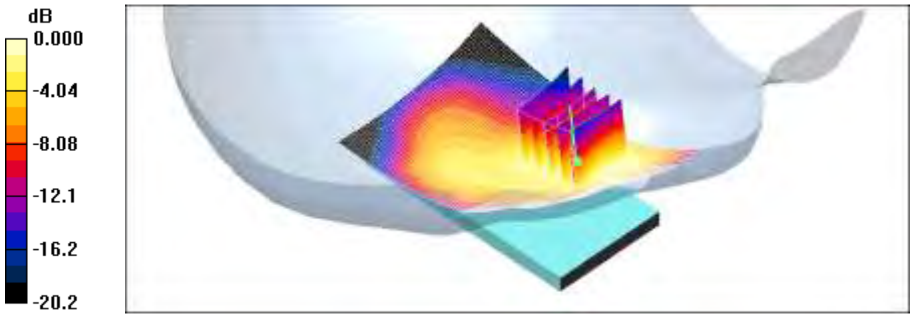
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.44 mho/m; ε_r = 40.2; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Right touch 18900 12RB 6 offset 16QAM/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.753 mW/g

Right touch 18900 12RB 6 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.6 V/m; Power Drift = -0.065 dB
Peak SAR (extrapolated) = 1.05 W/kg
SAR(1 g) = 0.681 mW/g; SAR(10 g) = 0.408 mW/g
Maximum value of SAR (measured) = 0.746 mW/g



0 dB = 0.746mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.20, 2011

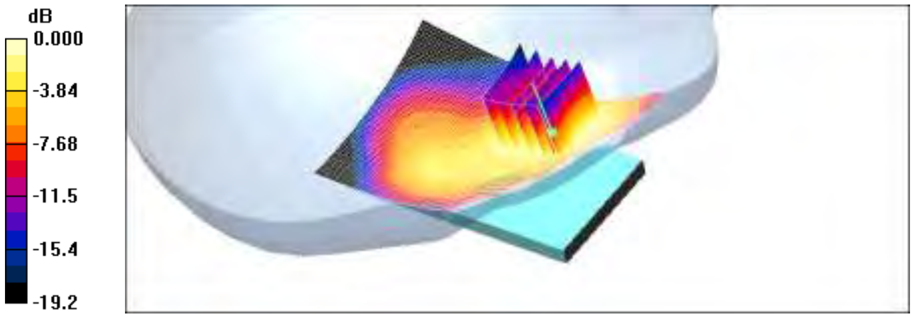
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.44 mho/m; ε_r = 40.2; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Right touch 18900 1RB 0 offset 16QAM/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.784 mW/g

Right touch 18900 1RB 0 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.8 V/m; Power Drift = 0.026 dB
Peak SAR (extrapolated) = 1.10 W/kg
SAR(1 g) = 0.710 mW/g; SAR(10 g) = 0.427 mW/g
Maximum value of SAR (measured) = 0.772 mW/g



0 dB = 0.772mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.20, 2011

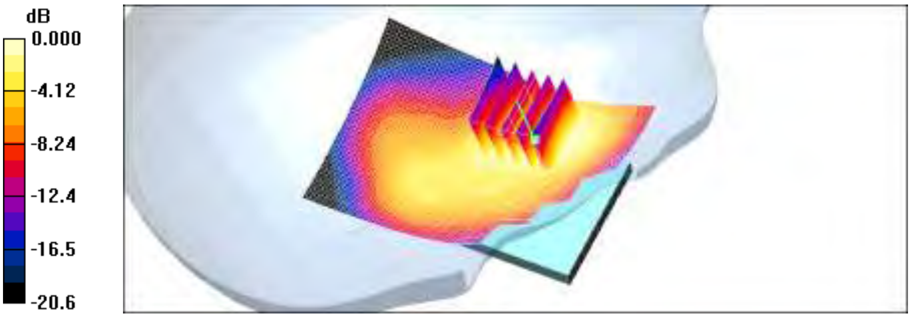
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.44 mho/m; ε_r = 40.2; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Right touch 18900 1RB 24 offset 16QAM/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.714 mW/g

Right touch 18900 1RB 24 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.9 V/m; Power Drift = 0.061 dB
Peak SAR (extrapolated) = 1.00 W/kg
SAR(1 g) = 0.653 mW/g; SAR(10 g) = 0.392 mW/g
Maximum value of SAR (measured) = 0.712 mW/g



0 dB = 0.712mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.20, 2011

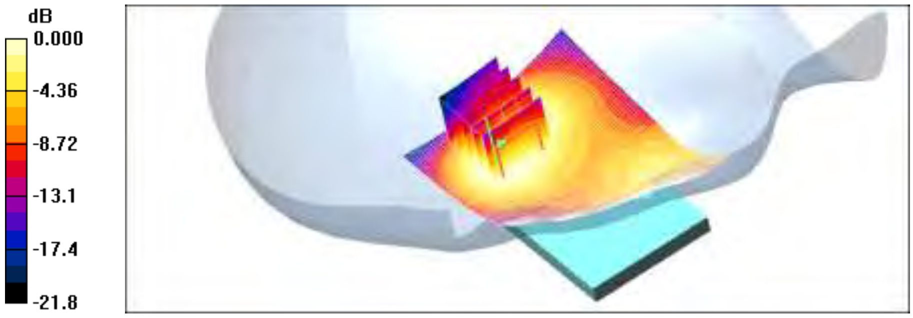
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.44 mho/m; ε_r = 40.2; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Right tilt 18900 12RB 6 offset 16QAM/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.293 mW/g

Right tilt 18900 12RB 6 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.46 V/m; Power Drift = -0.127 dB
Peak SAR (extrapolated) = 0.358 W/kg
SAR(1 g) = 0.238 mW/g; SAR(10 g) = 0.151 mW/g
aximum value of SAR (measured) = 0.253 mW/g



0 dB = 0.253mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.20, 2011

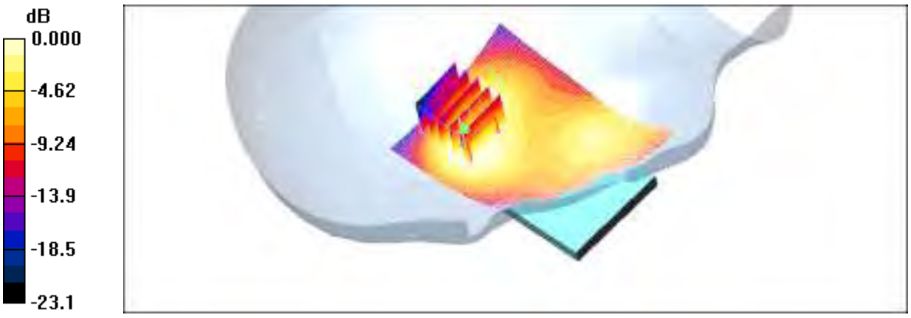
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.44 mho/m; ε_r = 40.2; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Right tilt 18900 1RB 0 offset 16QAM/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.309 mW/g

Right tilt 18900 1RB 0 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.97 V/m; Power Drift = -0.099 dB
Peak SAR (extrapolated) = 0.395 W/kg
SAR(1 g) = 0.252 mW/g; SAR(10 g) = 0.153 mW/g
aximum value of SAR (measured) = 0.271 mW/g



0 dB = 0.271mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.20, 2011

DUT: MS840; Type: Bar; Serial: #1

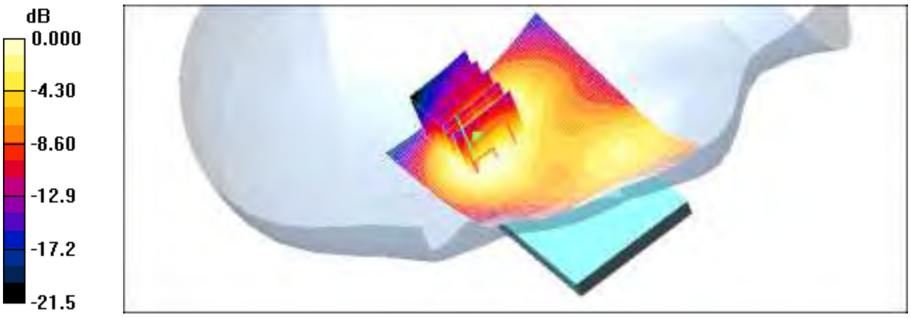
Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.44 mho/m; ε_r = 40.2; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Right tilt 18900 1RB 24 offset 16QAM/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.258 mW/g

Right tilt 18900 1RB 24 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.10 V/m; Power Drift = 0.008 dB
Peak SAR (extrapolated) = 0.433 W/kg
SAR(1 g) = 0.222 mW/g; SAR(10 g) = 0.136 mW/g

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



0 dB = 0.239mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.29, 2011

DUT: MS840; Type: Bar; Serial: #1

Communication System: 2450MHz FCC; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.86 mho/m; ε_r = 38.6; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

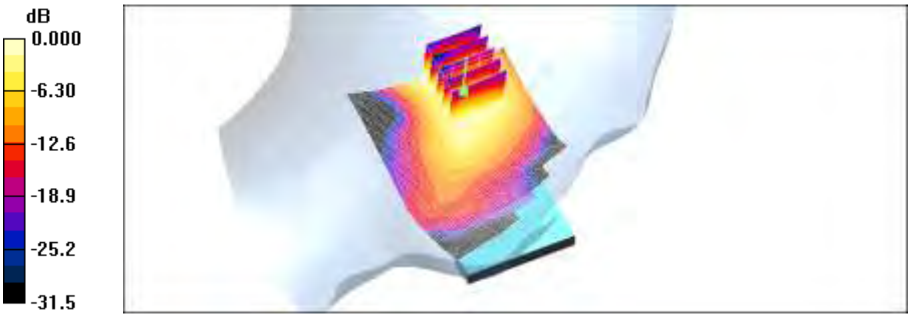
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.57, 4.57, 4.57); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Left touch 11/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

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

Left touch 11/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.11 V/m; Power Drift = -0.029 dB
Peak SAR (extrapolated) = 0.538 W/kg
SAR(1 g) = 0.241 mW/g; SAR(10 g) = 0.117 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.272 mW/g



0 dB = 0.272mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Dec.23, 2011

DUT: MS840; Type: Bar; Serial: #1

Communication System: 2450MHz FCC; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.87 mho/m; ε_r = 38.2; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

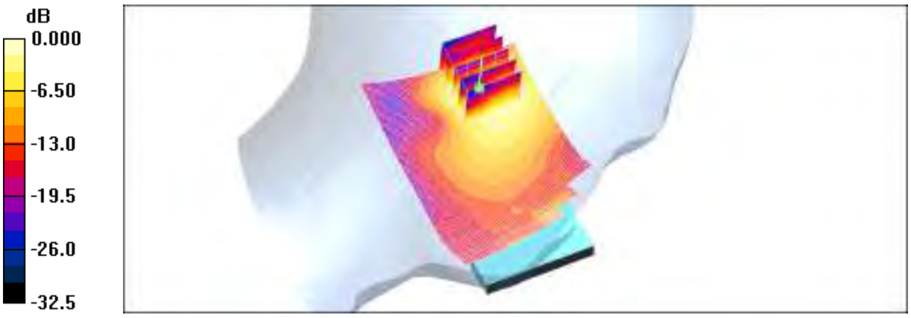
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.57, 4.57, 4.57); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: SAM 835/900 MHz; Type: SAM

Left tilt 11/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.205 mW/g

Left tilt 11/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.47 V/m; Power Drift = -0.026 dB
Peak SAR (extrapolated) = 0.403 W/kg
SAR(1 g) = 0.171 mW/g; SAR(10 g) = 0.080 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.201 mW/g



0 dB = 0.201mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Dec.23, 2011

DUT: MS840; Type: Bar; Serial: #1

Communication System: 2450MHz FCC; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.87 mho/m; ε_r = 38.2; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

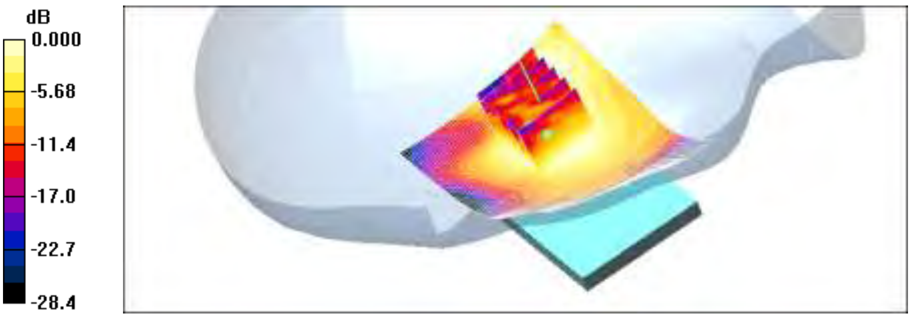
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.57, 4.57, 4.57); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Right touch 11/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.086 mW/g

Right touch 11/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.79 V/m; Power Drift = -0.07 dB
Peak SAR (extrapolated) = 0.152 W/kg
SAR(1 g) = 0.074 mW/g; SAR(10 g) = 0.042 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.082 mW/g



0 dB = 0.082mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Dec.23, 2011

DUT: MS840; Type: Bar; Serial: #1

Communication System: 2450MHz FCC; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.87 mho/m; ε_r = 38.2; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

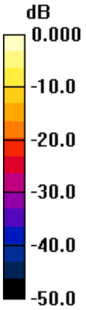
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.57, 4.57, 4.57); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

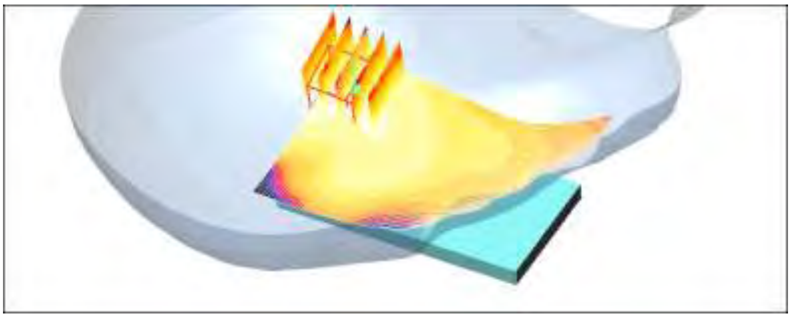
Right tilt 11/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.068 mW/g

Right tilt 11/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.89 V/m; Power Drift = 0.146 dB
Peak SAR (extrapolated) = 0.146 W/kg
SAR(1 g) = 0.068 mW/g; SAR(10 g) = 0.033 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.073 mW/g





0 dB = 0.073mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Dec.15, 2011

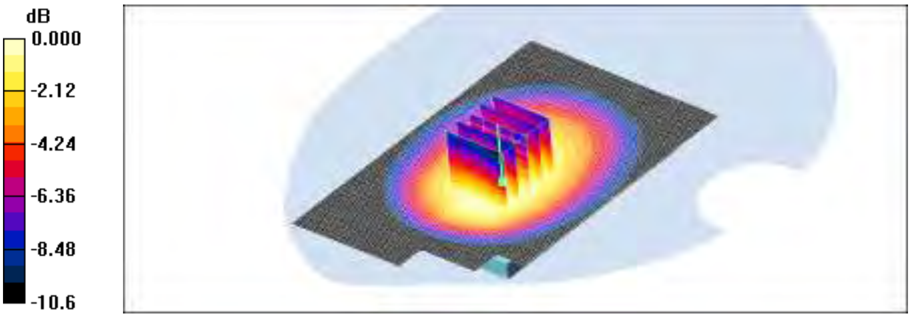
DUT: MS840; Type: Bar; Serial: #1

Communication System: CDMA 835MHz FCC; Frequency: 824.7 MHz;Duty Cycle: 1:1
Medium parameters used: f = 825 MHz; σ = 0.941 mho/m; ε_r = 56; 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: 1800/1900 Phantom; Type: SAM

CDMA835 Body Rear 1013/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.874 mW/g

CDMA835 Body Rear 1013/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.0 V/m; Power Drift = 0.033 dB
Peak SAR (extrapolated) = 1.03 W/kg
SAR(1 g) = 0.812 mW/g; SAR(10 g) = 0.595 mW/g
Maximum value of SAR (measured) = 0.858 mW/g



0 dB = 0.858mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Dec.26, 2011

DUT: MS840; 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 = 0.971 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

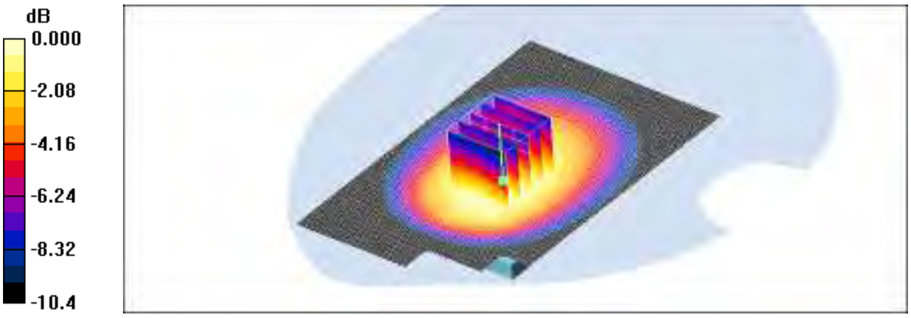
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.27, 6.27, 6.27); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

CDMA835 Body Rear 384/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.894 mW/g

CDMA835 Body Rear 384/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.6 V/m; Power Drift = 0.137 dB
Peak SAR (extrapolated) = 1.06 W/kg
SAR(1 g) = 0.842 mW/g; SAR(10 g) = 0.618 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.891 mW/g



0 dB = 0.891mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Dec.15, 2011

DUT: MS840; 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 = 0.964 mho/m; ε_r = 55.8; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

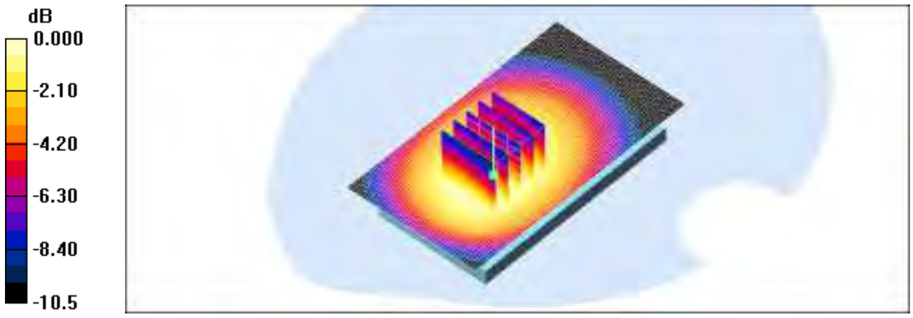
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.27, 6.27, 6.27); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

CDMA835 Body Rear 777/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.791 mW/g

CDMA835 Body Rear 777/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.7 V/m; Power Drift = -0.057 dB
Peak SAR (extrapolated) = 0.949 W/kg
SAR(1 g) = 0.749 mW/g; SAR(10 g) = 0.550 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: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.16, 2011

DUT: MS840; Type: Bar; Serial: #1

Communication System: AWS 1700 MHz FCC; 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

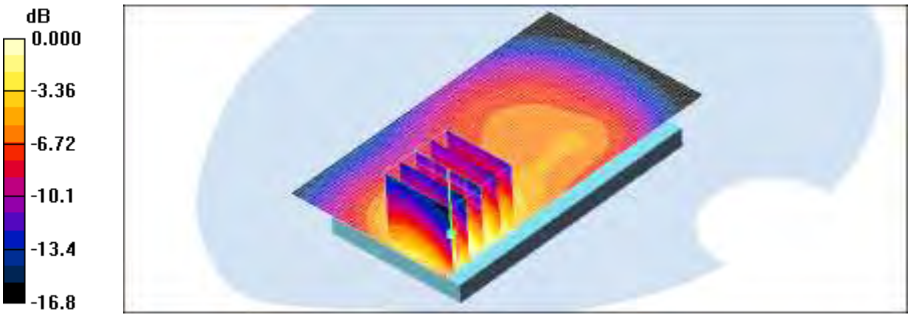
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

AWS Body Rear 450 1xRTT/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.487 mW/g

AWS Body Rear 450 1xRTT/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.41 V/m; Power Drift = 0.005 dB
Peak SAR (extrapolated) = 0.682 W/kg
SAR(1 g) = 0.430 mW/g; SAR(10 g) = 0.261 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.465 mW/g



0 dB = 0.465mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.26, 2011

DUT: MS840; Type: Bar; Serial: #1

Communication System: AWS 1700 MHz FCC; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.43 mho/m; ε_r = 55.5; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

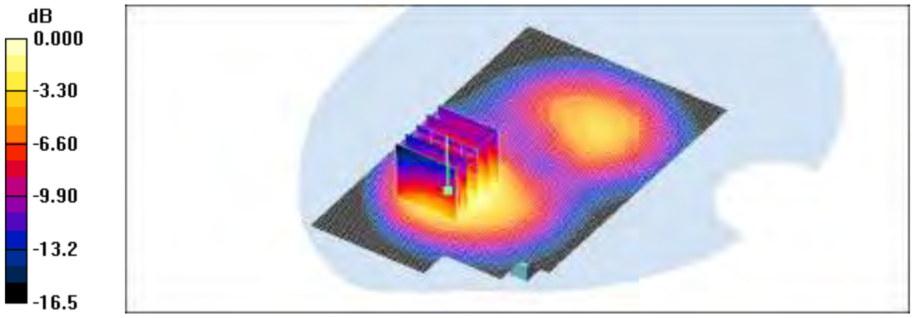
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

AWS EVDO Body Rear 450/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.666 mW/g

AWS EVDO Body Rear 450/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.9 V/m; Power Drift = -0.071 dB
Peak SAR (extrapolated) = 0.869 W/kg
SAR(1 g) = 0.579 mW/g; SAR(10 g) = 0.355 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.631 mW/g



0 dB = 0.631mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.16, 2011

DUT: MS840; Type: Bar; Serial: #1

Communication System: AWS 1700 MHz FCC; 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

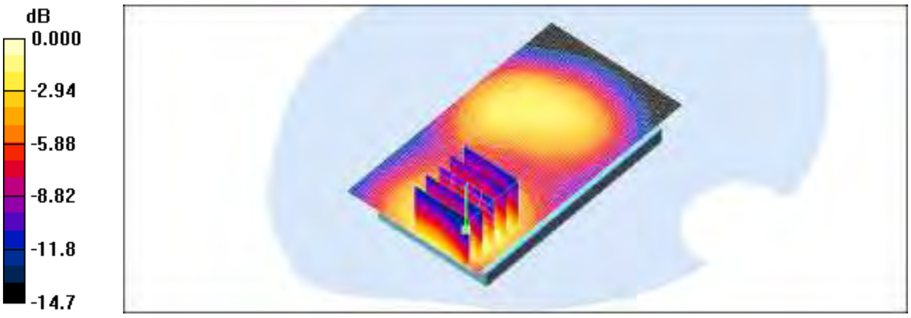
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

AWS EVDO Body Front 450/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.522 mW/g

AWS EVDO Body Front 450/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.9 V/m; Power Drift = -0.061 dB
Peak SAR (extrapolated) = 0.677 W/kg
SAR(1 g) = 0.482 mW/g; SAR(10 g) = 0.308 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.521 mW/g



0 dB = 0.521mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.16, 2011

DUT: MS840; Type: Bar; Serial: #1

Communication System: AWS 1700 MHz FCC; 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

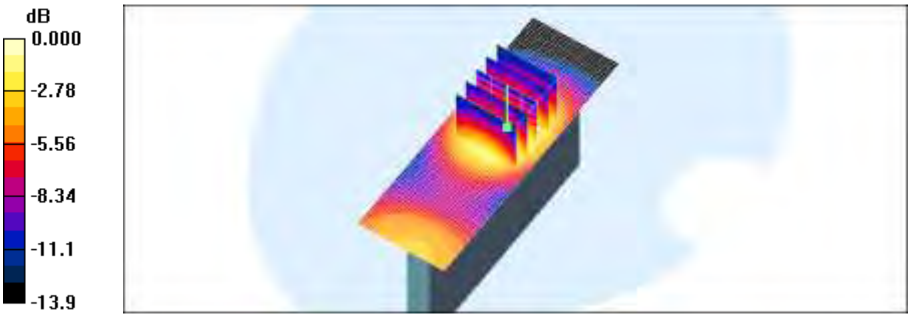
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

AWS EVDO Body Left side 450/Area Scan (31x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.142 mW/g

AWS EVDO Body Left side 450/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.64 V/m; Power Drift = -0.097 dB
Peak SAR (extrapolated) = 0.179 W/kg
SAR(1 g) = 0.125 mW/g; SAR(10 g) = 0.078 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.137 mW/g



0 dB = 0.137mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.16, 2011

DUT: MS840; Type: Bar; Serial: #1

Communication System: AWS 1700 MHz FCC; 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

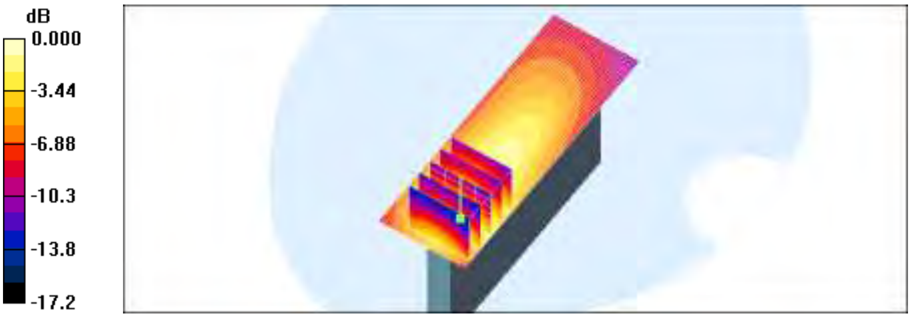
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

AWS EVDO Body Right side 450/Area Scan (31x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.246 mW/g

AWS EVDO Body Right side 450/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.53 V/m; Power Drift = 0.043 dB
Peak SAR (extrapolated) = 0.311 W/kg
SAR(1 g) = 0.213 mW/g; SAR(10 g) = 0.134 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
aximum value of SAR (measured) = 0.230 mW/g



0 dB = 0.230mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.16, 2011

DUT: MS840; Type: Bar; Serial: #1

Communication System: AWS 1700 MHz FCC; 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

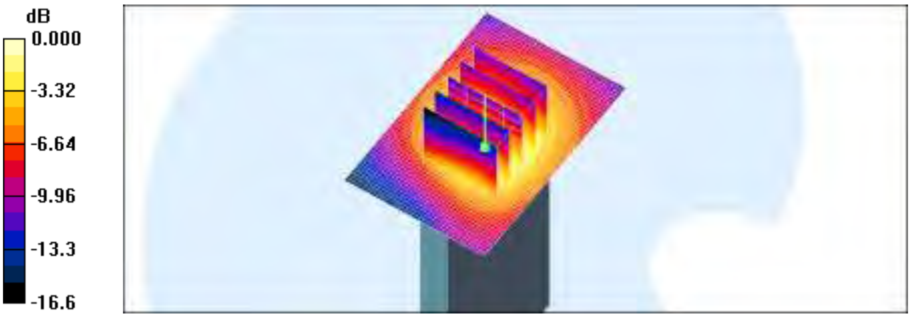
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

AWS EVDO Body bottom side 450/Area Scan (41x61x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.299 mW/g

AWS EVDO Body bottom side 450/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.1 V/m; Power Drift = 0.137 dB
Peak SAR (extrapolated) = 0.398 W/kg
SAR(1 g) = 0.275 mW/g; SAR(10 g) = 0.171 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.305 mW/g



0 dB = 0.305mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Dec.27, 2011

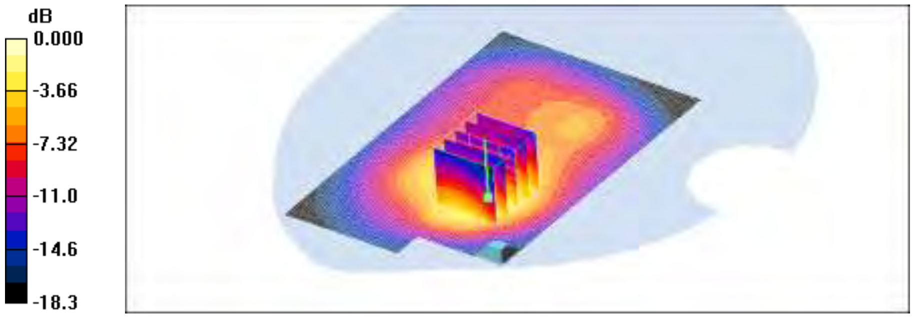
DUT: MS840; Type: Bar; Serial: #1

Communication System: PCS 1900MHz FCC; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.45 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

PCS Body Rear 600/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.900 mW/g

PCS Body Rear 600/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.5 V/m; Power Drift = 0.039 dB
Peak SAR (extrapolated) = 1.29 W/kg
SAR(1 g) = 0.792 mW/g; SAR(10 g) = 0.477 mW/g
Maximum value of SAR (measured) = 0.862 mW/g



0 dB = 0.862mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Dec.27, 2011

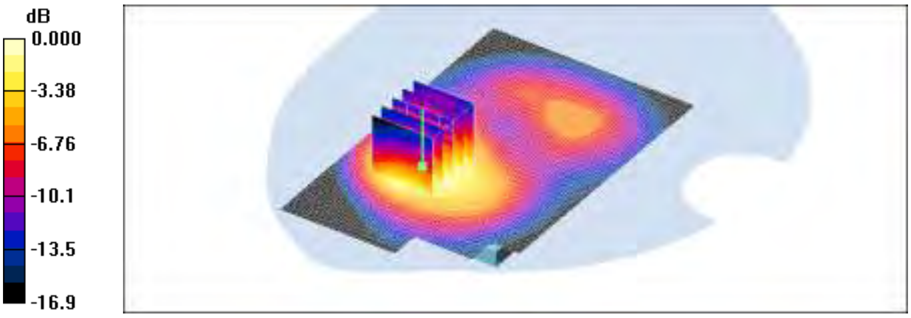
DUT: MS840; Type: Bar; Serial: #1

Communication System: PCS 1900MHz FCC; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.45 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

PCS EVDO Body Rear 600/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.714 mW/g

PCS EVDO Body Rear 600/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.3 V/m; Power Drift = 0.149 dB
Peak SAR (extrapolated) = 1.08 W/kg
SAR(1 g) = 0.628 mW/g; SAR(10 g) = 0.369 mW/g
Maximum value of SAR (measured) = 0.671 mW/g



0 dB = 0.671mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.17, 2011

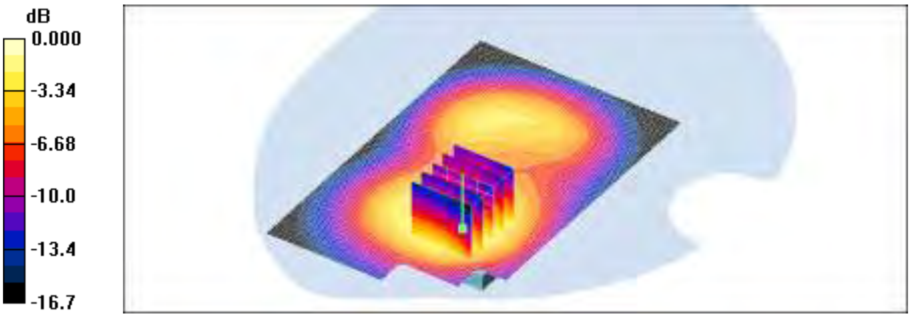
DUT: MS840; Type: Bar; Serial: #1

Communication System: PCS 1900MHz FCC; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.44 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

PCS Body Front 600/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.680 mW/g

PCS Body Front 600/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.1 V/m; Power Drift = 0.170 dB
Peak SAR (extrapolated) = 0.921 W/kg
SAR(1 g) = 0.610 mW/g; SAR(10 g) = 0.385 mW/g
Maximum value of SAR (measured) = 0.653 mW/g



0 dB = 0.653mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.17, 2011

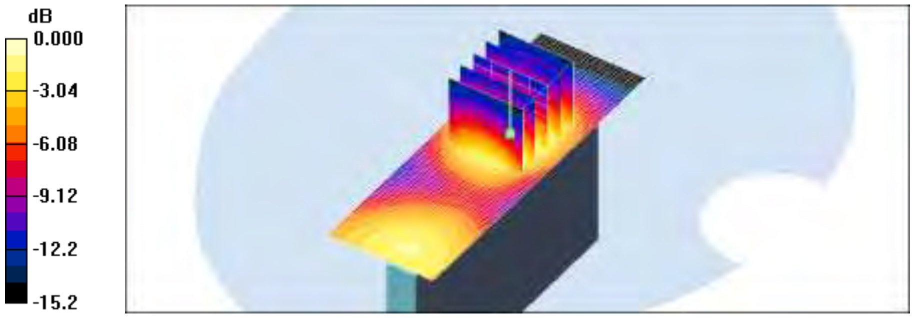
DUT: MS840; Type: Bar; Serial: #1

Communication System: PCS 1900MHz FCC; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.44 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

PCS EVDO Body Left side 600/Area Scan (31x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.197 mW/g

PCS EVDO Body Left side 600/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.54 V/m; Power Drift = -0.037 dB
Peak SAR (extrapolated) = 0.274 W/kg
SAR(1 g) = 0.172 mW/g; SAR(10 g) = 0.101 mW/g
Maximum value of SAR (measured) = 0.190 mW/g



0 dB = 0.190mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.17, 2011

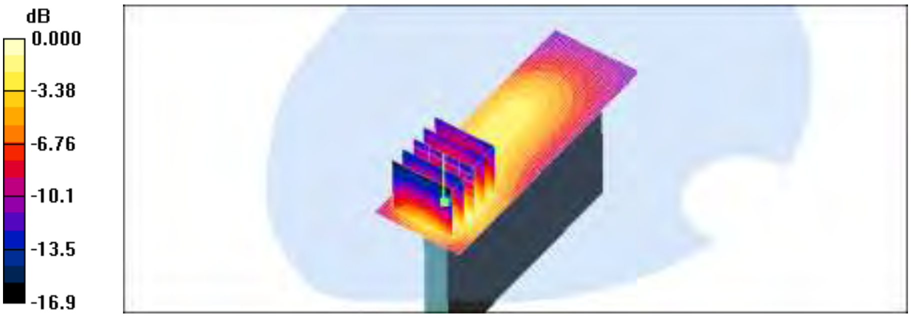
DUT: MS840; Type: Bar; Serial: #1

Communication System: PCS 1900MHz FCC; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.44 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

PCS EVDO Body Right side 600/Area Scan (31x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.489 mW/g

PCS EVDO Body Right side 600/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.4 V/m; Power Drift = -0.027 dB
Peak SAR (extrapolated) = 0.680 W/kg
SAR(1 g) = 0.414 mW/g; SAR(10 g) = 0.244 mW/g
Maximum value of SAR (measured) = 0.450 mW/g



0 dB = 0.450mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.17, 2011

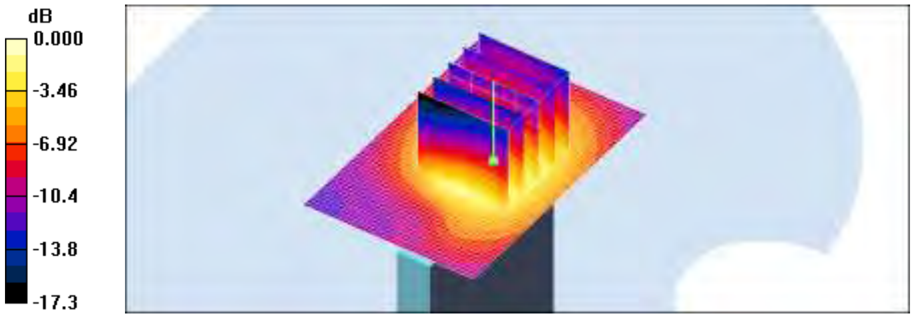
DUT: MS840; Type: Bar; Serial: #1

Communication System: PCS 1900MHz FCC; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.44 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

PCS EVDO Body bottom side 600/Area Scan (41x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.460 mW/g

PCS EVDO Body bottom side 600/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.2 V/m; Power Drift = -0.057 dB
Peak SAR (extrapolated) = 0.625 W/kg
SAR(1 g) = 0.395 mW/g; SAR(10 g) = 0.235 mW/g
Maximum value of SAR (measured) = 0.431 mW/g



0 dB = 0.431mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.21, 2011

DUT: MS840; 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

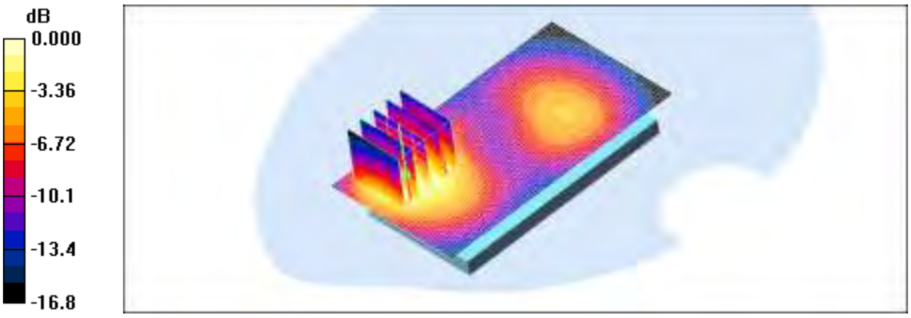
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body Rear 20175 12RB 6 offset QPSK/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.625 mW/g

LTE Body Rear 20175 12RB 6 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.5 V/m; Power Drift = -0.131 dB
Peak SAR (extrapolated) = 0.884 W/kg
SAR(1 g) = 0.557 mW/g; SAR(10 g) = 0.328 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.619 mW/g



0 dB = 0.619mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.21, 2011

DUT: MS840; 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

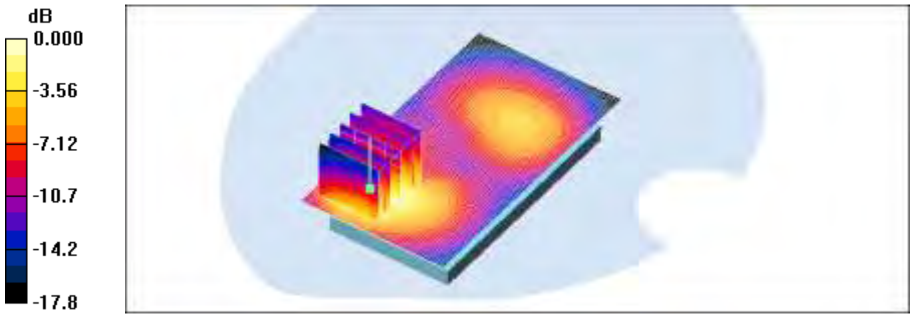
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body Rear 20175 1RB 0 offset QPSK/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.628 mW/g

LTE Body Rear 20175 1RB 0 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.2 V/m; Power Drift = -0.003 dB
Peak SAR (extrapolated) = 0.858 W/kg
SAR(1 g) = 0.548 mW/g; SAR(10 g) = 0.323 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.599 mW/g



0 dB = 0.599mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.26, 2011

DUT: MS840; 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 = 1.43 mho/m; ε_r = 55.5; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

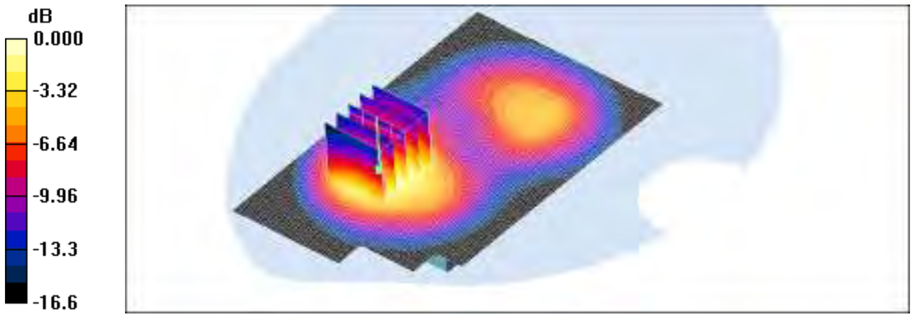
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Band 4 Body Rear 20175 1RB 24 offset QPSK/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.654 mW/g

LTE Band 4 Body Rear 20175 1RB 24 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.6 V/m; Power Drift = -0.196 dB
Peak SAR (extrapolated) = 0.896 W/kg
SAR(1 g) = 0.573 mW/g; SAR(10 g) = 0.340 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.629 mW/g



0 dB = 0.629mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.21, 2011

DUT: MS840; 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

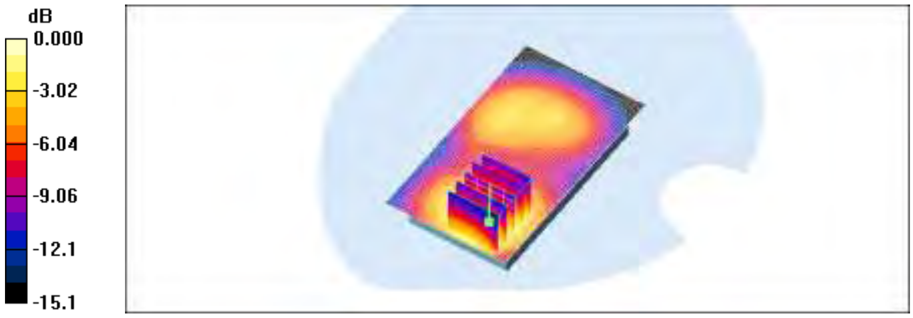
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body Front 20175 12RB 6offset QPSK/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.475 mW/g

LTE Body Front 20175 12RB 6offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.8 V/m; Power Drift = -0.077 dB
Peak SAR (extrapolated) = 0.597 W/kg
SAR(1 g) = 0.427 mW/g; SAR(10 g) = 0.276 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.462 mW/g



0 dB = 0.462mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.21, 2011

DUT: MS840; 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

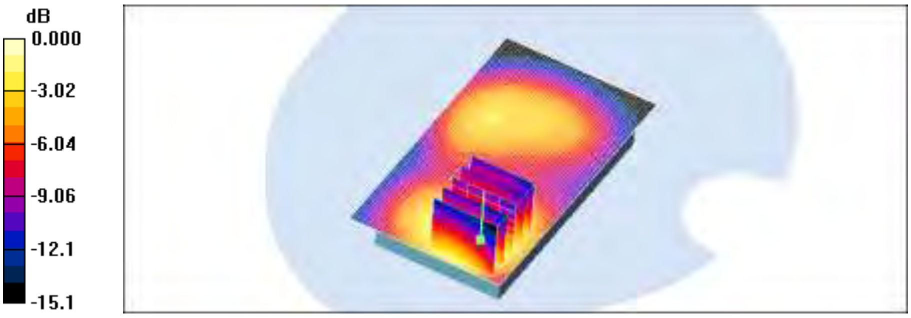
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body Front 20175 1RB 0offset QPSK/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.476 mW/g

LTE Body Front 20175 1RB 0offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.8 V/m; Power Drift = -0.075 dB
Peak SAR (extrapolated) = 0.590 W/kg
SAR(1 g) = 0.426 mW/g; SAR(10 g) = 0.275 mW/g

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



0 dB = 0.458mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.21, 2011

DUT: MS840; 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

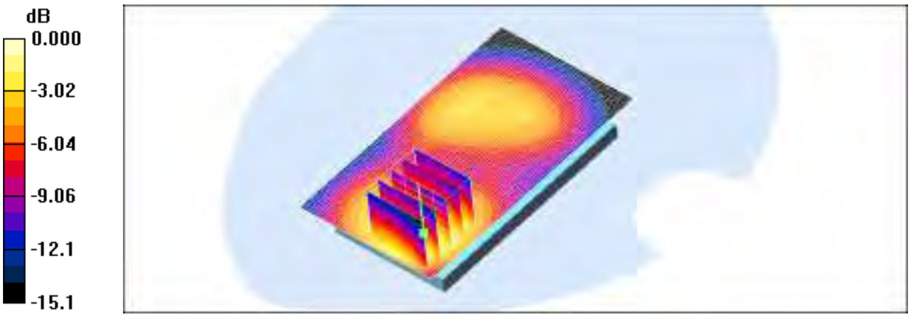
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body Front 20175 1RB 24offset QPSK/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.479 mW/g

LTE Body Front 20175 1RB 24offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.9 V/m; Power Drift = -0.025 dB
Peak SAR (extrapolated) = 0.599 W/kg
SAR(1 g) = 0.436 mW/g; SAR(10 g) = 0.282 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.470 mW/g



0 dB = 0.470mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.21, 2011

DUT: MS840; 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

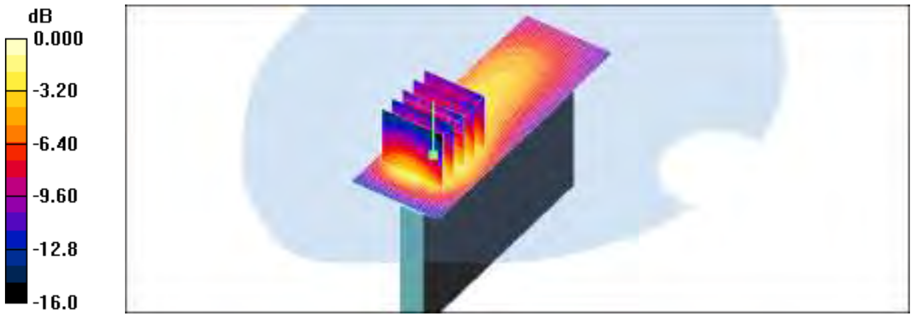
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body Right side 20175 12RB 6offset QPSK/Area Scan (31x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.304 mW/g

LTE Body Right side 20175 12RB 6offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.68 V/m; Power Drift = -0.051 dB
Peak SAR (extrapolated) = 0.380 W/kg
SAR(1 g) = 0.256 mW/g; SAR(10 g) = 0.157 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: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.21, 2011

DUT: MS840; 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

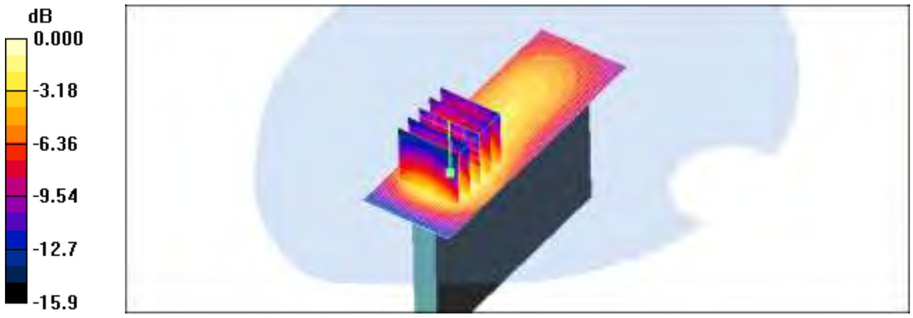
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body Right side 20175 1RB 0offset QPSK/Area Scan (31x91x1): Measurement grid: dx=15mm, dy=15mm

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

LTE Body Right side 20175 1RB 0offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.40 V/m; Power Drift = -0.196 dB
Peak SAR (extrapolated) = 0.321 W/kg
SAR(1 g) = 0.219 mW/g; SAR(10 g) = 0.135 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.239 mW/g



0 dB = 0.239mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.21, 2011

DUT: MS840; 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

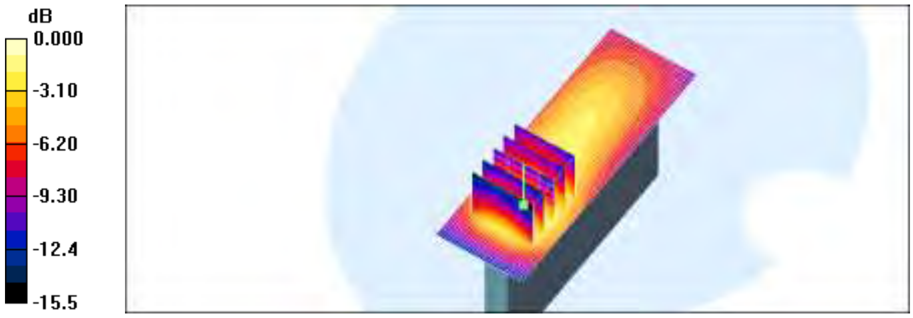
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body Right side 20175 1RB 24offset QPSK/Area Scan (31x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.249 mW/g

LTE Body Right side 20175 1RB 24offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.36 V/m; Power Drift = -0.052 dB
Peak SAR (extrapolated) = 0.314 W/kg
SAR(1 g) = 0.211 mW/g; SAR(10 g) = 0.131 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.232 mW/g



0 dB = 0.232mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.21, 2011

DUT: MS840; 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

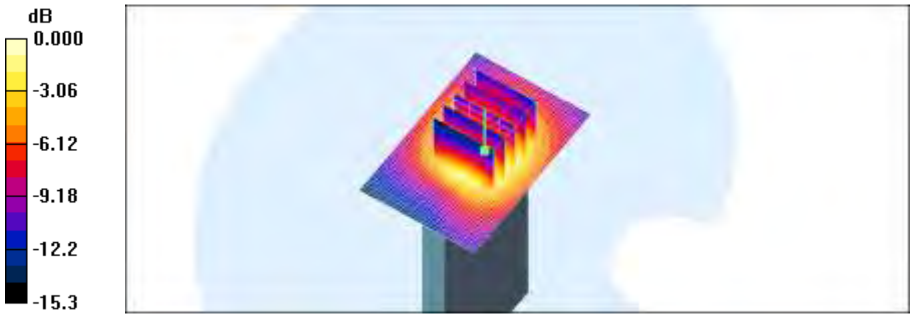
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body bottom side 20175 12 RB 6 offset QPSK/Area Scan (41x61x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.275 mW/g

LTE Body bottom side 20175 12 RB 6 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.6 V/m; Power Drift = -0.080 dB
Peak SAR (extrapolated) = 0.346 W/kg
SAR(1 g) = 0.242 mW/g; SAR(10 g) = 0.150 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.265 mW/g



0 dB = 0.265mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.21, 2011

DUT: MS840; 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

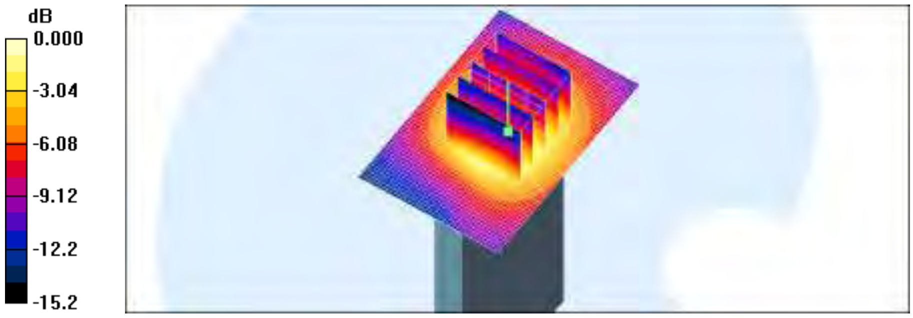
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body bottom side 20175 1RB 0offset QPSK/Area Scan (41x61x1): Measurement grid: dx=15mm, dy=15mm

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

LTE Body bottom side 20175 1RB 0offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.6 V/m; Power Drift = -0.019 dB
Peak SAR (extrapolated) = 0.338 W/kg
SAR(1 g) = 0.234 mW/g; SAR(10 g) = 0.146 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.255 mW/g



0 dB = 0.255mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.21, 2011

DUT: MS840; 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

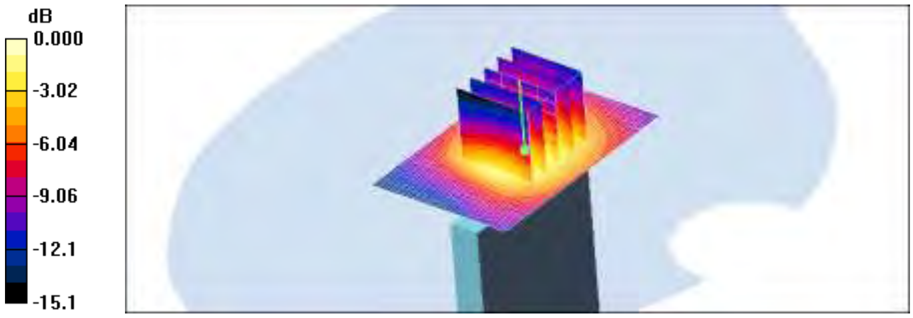
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body bottom side 20175 1RB 24offset QPSK/Area Scan (41x61x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.275 mW/g

LTE Body bottom side 20175 1RB 24offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.8 V/m; Power Drift = -0.046 dB
Peak SAR (extrapolated) = 0.364 W/kg
SAR(1 g) = 0.252 mW/g; SAR(10 g) = 0.156 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.271 mW/g



0 dB = 0.271mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.21, 2011

DUT: MS840; 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

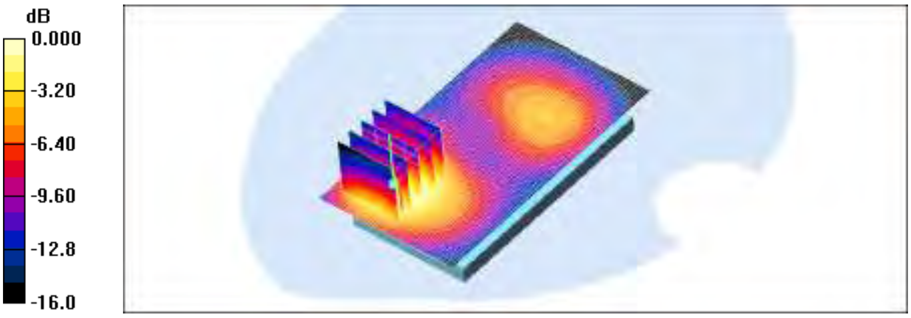
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body Rear 20175 12RB 6 offset 16QAM/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.613 mW/g

LTE Body Rear 20175 12RB 6 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.4 V/m; Power Drift = -0.063 dB
Peak SAR (extrapolated) = 0.850 W/kg
SAR(1 g) = 0.551 mW/g; SAR(10 g) = 0.328 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:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.21, 2011

DUT: MS840; 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

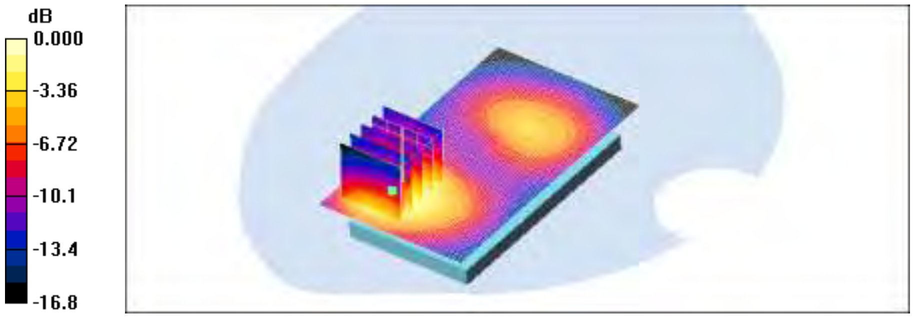
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body Rear 20175 1RB 0 offset 16QAM/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

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

LTE Body Rear 20175 1RB 0 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.6 V/m; Power Drift = -0.088 dB
Peak SAR (extrapolated) = 0.778 W/kg
SAR(1 g) = 0.499 mW/g; SAR(10 g) = 0.290 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.543 mW/g



0 dB = 0.543mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.21, 2011

DUT: MS840; 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

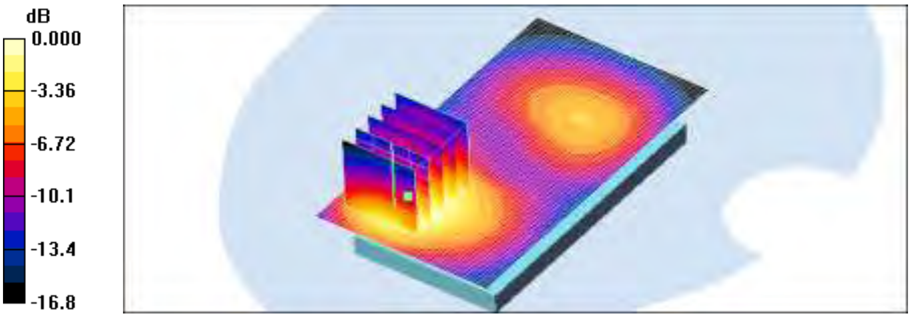
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body Rear 20175 1RB 24 offset 16QAM/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.639 mW/g

LTE Body Rear 20175 1RB 24 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.9 V/m; Power Drift = 0.004 dB
Peak SAR (extrapolated) = 0.881 W/kg
SAR(1 g) = 0.522 mW/g; SAR(10 g) = 0.304 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.577 mW/g



0 dB = 0.577mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.21, 2011

DUT: MS840; 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

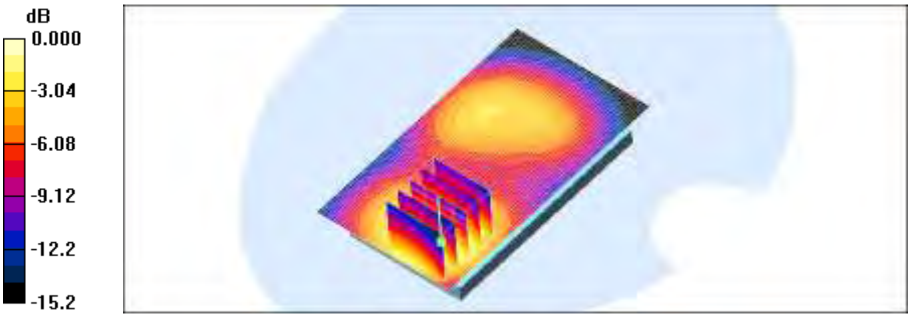
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body Front 20175 12RB 6offset 16QAM/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.503 mW/g

LTE Body Front 20175 12RB 6offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.0 V/m; Power Drift = -0.002 dB
Peak SAR (extrapolated) = 0.612 W/kg
SAR(1 g) = 0.442 mW/g; SAR(10 g) = 0.285 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.478 mW/g



0 dB = 0.478mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.21, 2011

DUT: MS840; 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

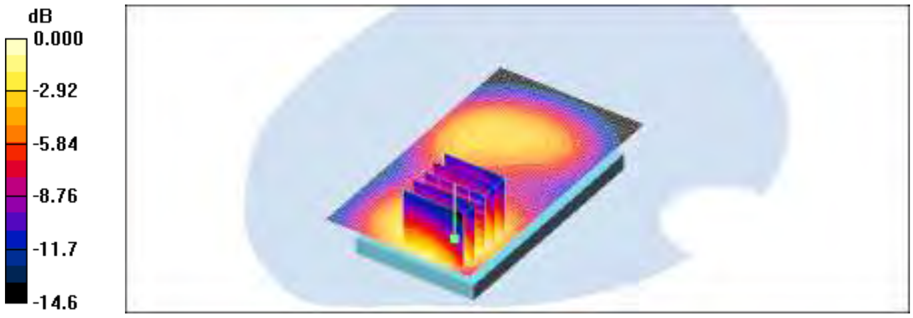
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body Front 20175 1RB 0offset 16QAM/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.433 mW/g

LTE Body Front 20175 1RB 0offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.2 V/m; Power Drift = 0.001 dB
Peak SAR (extrapolated) = 0.530 W/kg
SAR(1 g) = 0.388 mW/g; SAR(10 g) = 0.252 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.420 mW/g



0 dB = 0.420mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.21, 2011

DUT: MS840; 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

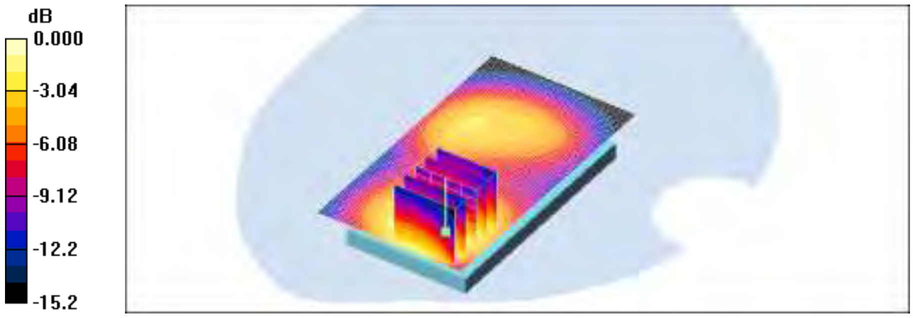
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body Front 20175 1RB 24offset 16QAM/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.443 mW/g

LTE Body Front 20175 1RB 24offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.4 V/m; Power Drift = -0.053 dB
Peak SAR (extrapolated) = 0.554 W/kg
SAR(1 g) = 0.399 mW/g; SAR(10 g) = 0.256 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.434 mW/g



0 dB = 0.434mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.21, 2011

DUT: MS840; 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

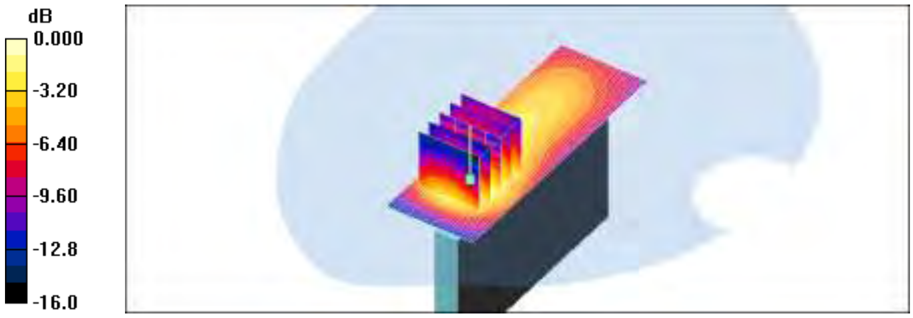
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body Right side 20175 12RB 6 offset 16QAM/Area Scan (31x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.259 mW/g

LTE Body Right side 20175 12RB 6 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.06 V/m; Power Drift = 0.023 dB
Peak SAR (extrapolated) = 0.325 W/kg
SAR(1 g) = 0.222 mW/g; SAR(10 g) = 0.137 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.243 mW/g



0 dB = 0.243mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.21, 2011

DUT: MS840; 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

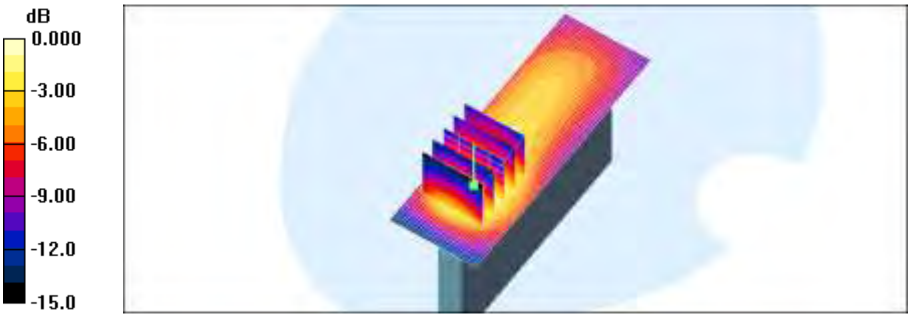
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body Right side 20175 1RB 0 offset 16QAM/Area Scan (31x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.230 mW/g

LTE Body Right side 20175 1RB 0 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.69 V/m; Power Drift = -0.071 dB
Peak SAR (extrapolated) = 0.326 W/kg
SAR(1 g) = 0.206 mW/g; SAR(10 g) = 0.125 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.228 mW/g



0 dB = 0.228mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.21, 2011

DUT: MS840; 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

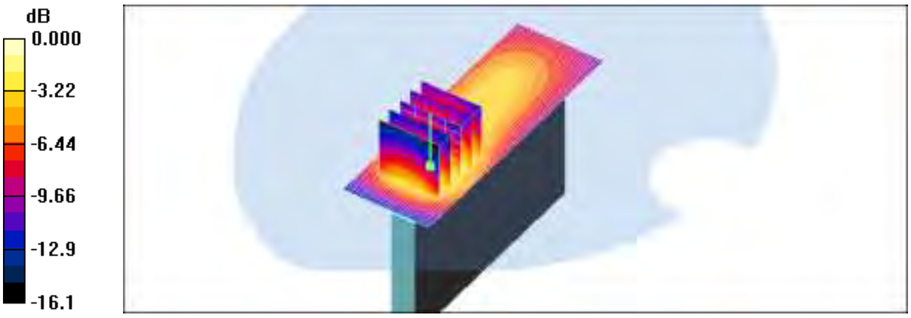
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body Right side 20175 1RB 24offset 16QAM/Area Scan (31x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.219 mW/g

LTE Body Right side 20175 1RB 24offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.69 V/m; Power Drift = 0.035 dB
Peak SAR (extrapolated) = 0.313 W/kg
SAR(1 g) = 0.211 mW/g; SAR(10 g) = 0.130 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
aximum value of SAR (measured) = 0.230 mW/g



0 dB = 0.230mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.21, 2011

DUT: MS840; 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

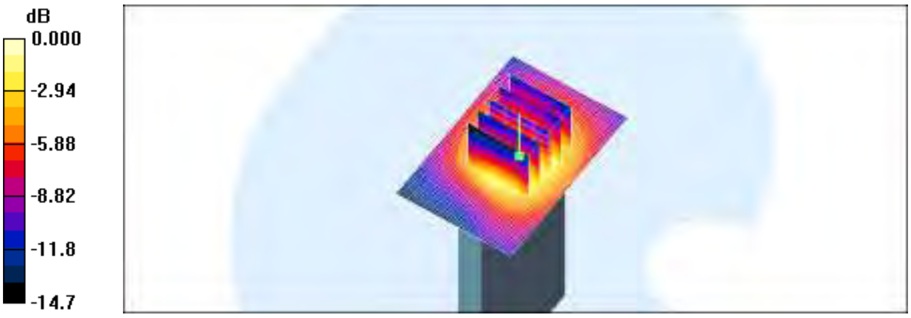
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body bottom side 20175 12RB 6offset 16QAM/Area Scan (41x61x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.266 mW/g

LTE Body bottom side 20175 12RB 6offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.4 V/m; Power Drift = -0.007 dB
Peak SAR (extrapolated) = 0.347 W/kg
SAR(1 g) = 0.240 mW/g; SAR(10 g) = 0.149 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.263 mW/g



0 dB = 0.263mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.21, 2011

DUT: MS840; 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

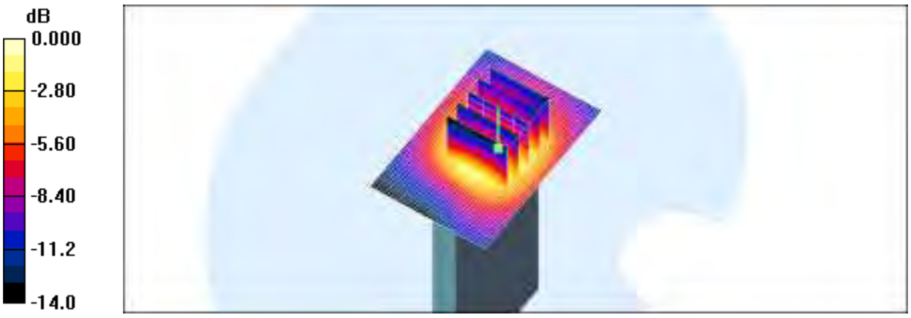
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body bottom side 20175 1RB 0offset 16QAM/Area Scan (41x61x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.245 mW/g

LTE Body bottom side 20175 1RB 0offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.7 V/m; Power Drift = -0.139 dB
Peak SAR (extrapolated) = 0.344 W/kg
SAR(1 g) = 0.223 mW/g; SAR(10 g) = 0.134 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.245 mW/g



0 dB = 0.245mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.21, 2011

DUT: MS840; 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

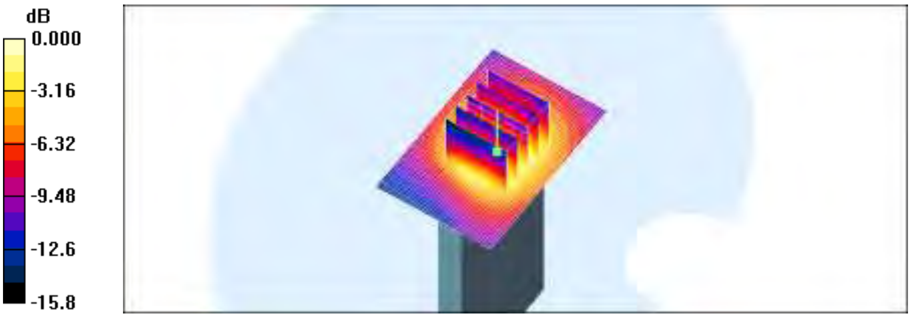
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body bottom side 20175 1RB 24offset 16QAM/Area Scan (41x61x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.296 mW/g

LTE Body bottom side 20175 1RB 24offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.0 V/m; Power Drift = 0.053 dB
Peak SAR (extrapolated) = 0.381 W/kg
SAR(1 g) = 0.259 mW/g; SAR(10 g) = 0.162 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.285 mW/g



0 dB = 0.285mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.22, 2011

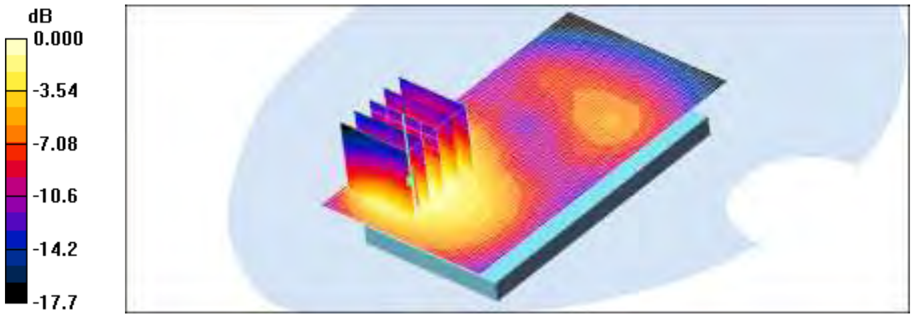
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.43 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body Rear 18900 12RB 6offset QPSK/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.510 mW/g

LTE Body Rear 18900 12RB 6offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.92 V/m; Power Drift = 0.026 dB
Peak SAR (extrapolated) = 0.783 W/kg
SAR(1 g) = 0.456 mW/g; SAR(10 g) = 0.269 mW/g
Maximum value of SAR (measured) = 0.493 mW/g



0 dB = 0.493mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.27, 2011

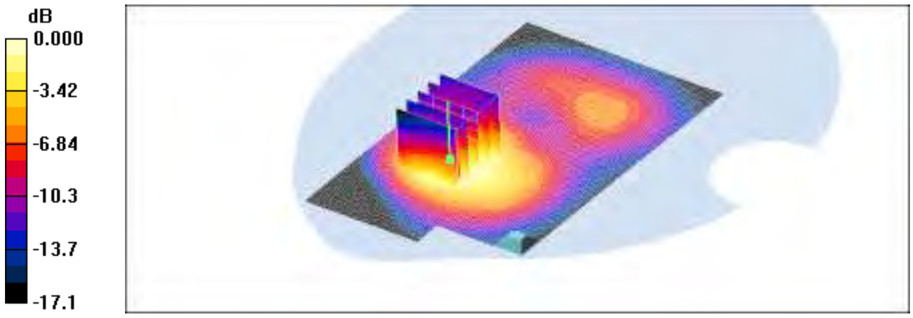
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.45 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Band 2 Body Rear 18900 1RB 0 offset QPSK/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.556 mW/g

LTE Band 2 Body Rear 18900 1RB 0 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.27 V/m; Power Drift = 0.033 dB
Peak SAR (extrapolated) = 0.824 W/kg
SAR(1 g) = 0.493 mW/g; SAR(10 g) = 0.296 mW/g
Maximum value of SAR (measured) = 0.533 mW/g



0 dB = 0.533mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.22, 2011

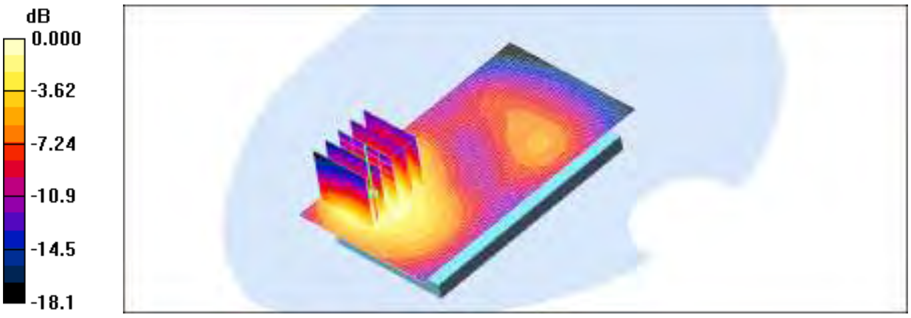
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.43 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body Rear 18900 1RB 24offset QPSK/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.486 mW/g

LTE Body Rear 18900 1RB 24offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.97 V/m; Power Drift = -0.023 dB
Peak SAR (extrapolated) = 0.758 W/kg
SAR(1 g) = 0.443 mW/g; SAR(10 g) = 0.262 mW/g
Maximum value of SAR (measured) = 0.478 mW/g



0 dB = 0.478mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.22, 2011

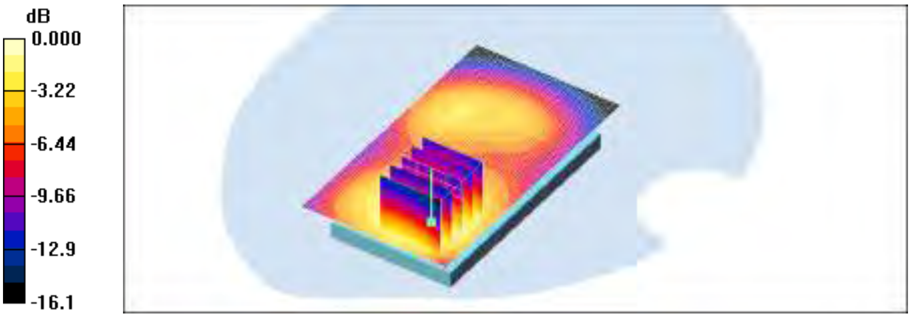
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.43 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body Front 18900 12RB 6offset QPSK/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.475 mW/g

LTE Body Front 18900 12RB 6offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.9 V/m; Power Drift = 0.127 dB
Peak SAR (extrapolated) = 0.666 W/kg
SAR(1 g) = 0.445 mW/g; SAR(10 g) = 0.281 mW/g
Maximum value of SAR (measured) = 0.482 mW/g



0 dB = 0.482mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.22, 2011

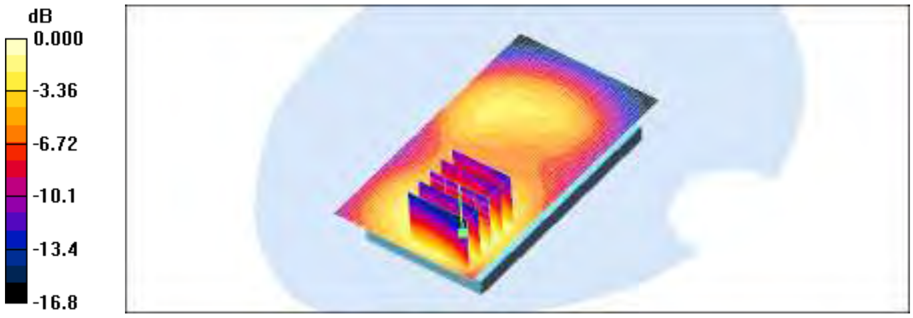
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.43 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body Front 18900 1RB 0offset QPSK/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.535 mW/g

LTE Body Front 18900 1RB 0offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.8 V/m; Power Drift = 0.027 dB
Peak SAR (extrapolated) = 0.722 W/kg
SAR(1 g) = 0.485 mW/g; SAR(10 g) = 0.309 mW/g
Maximum value of SAR (measured) = 0.520 mW/g



0 dB = 0.520mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.22, 2011

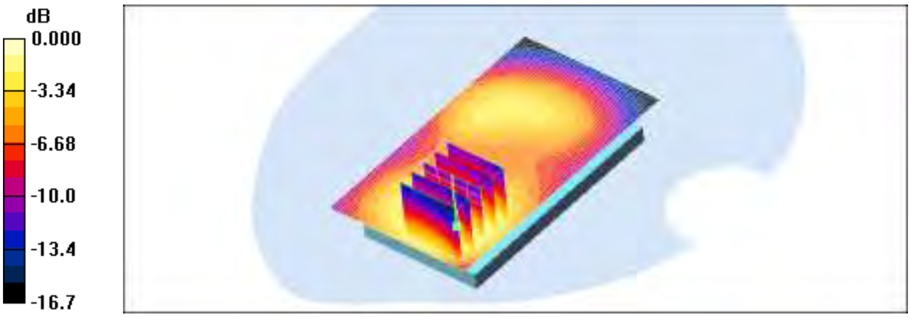
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.43 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body Front 18900 1RB 24offset QPSK/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.496 mW/g

LTE Body Front 18900 1RB 24offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.4 V/m; Power Drift = 0.061 dB
Peak SAR (extrapolated) = 0.662 W/kg
SAR(1 g) = 0.445 mW/g; SAR(10 g) = 0.284 mW/g
Maximum value of SAR (measured) = 0.478 mW/g



0 dB = 0.478mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.22, 2011

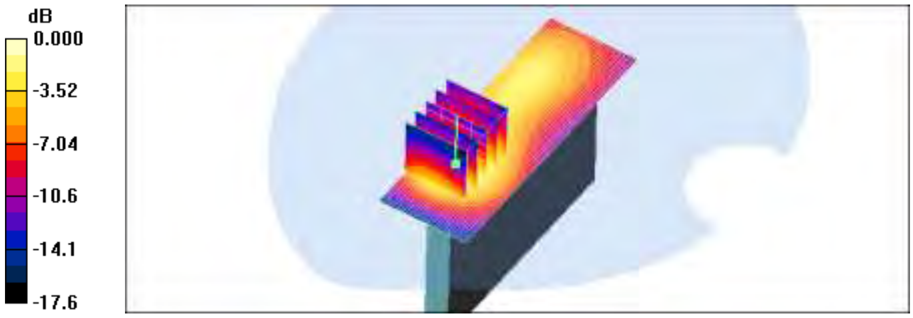
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.43 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body Right side 18900 12RB 6 offset QPSK/Area Scan (31x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.390 mW/g

LTE Body Right side 18900 12RB 6 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.2 V/m; Power Drift = -0.004 dB
Peak SAR (extrapolated) = 0.560 W/kg
SAR(1 g) = 0.345 mW/g; SAR(10 g) = 0.203 mW/g
Maximum value of SAR (measured) = 0.375 mW/g



0 dB = 0.375mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.22, 2011

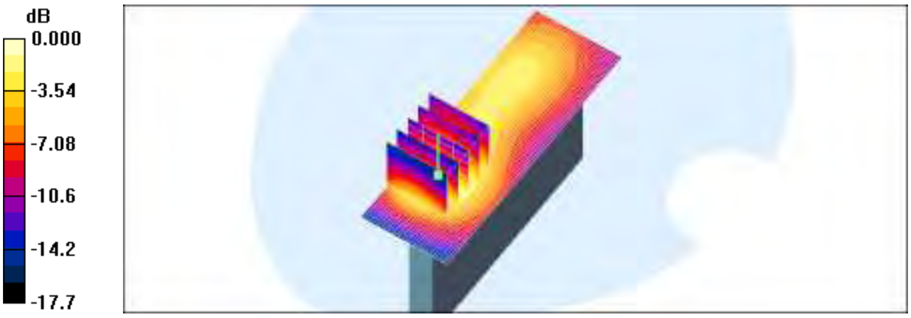
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.43 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body Right side 18900 1RB 0 offset QPSK/Area Scan (31x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.408 mW/g

LTE Body Right side 18900 1RB 0 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.4 V/m; Power Drift = -0.131 dB
Peak SAR (extrapolated) = 0.572 W/kg
SAR(1 g) = 0.353 mW/g; SAR(10 g) = 0.207 mW/g
Maximum value of SAR (measured) = 0.385 mW/g



0 dB = 0.385mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.22, 2011

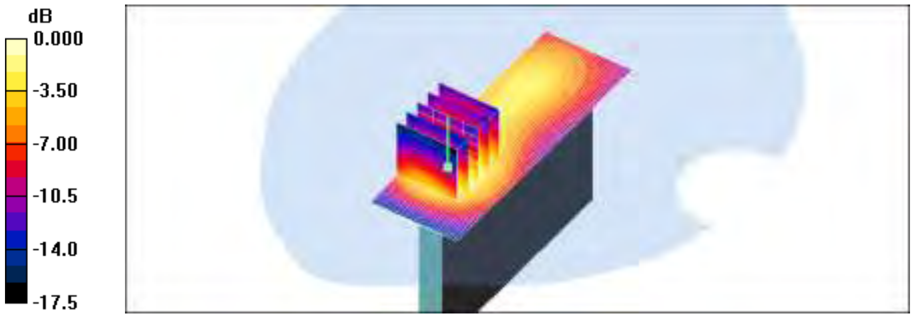
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.43 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body Right side 18900 1RB 24 offset QPSK/Area Scan (31x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.376 mW/g

LTE Body Right side 18900 1RB 24 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.0 V/m; Power Drift = -0.039 dB
Peak SAR (extrapolated) = 0.528 W/kg
SAR(1 g) = 0.325 mW/g; SAR(10 g) = 0.192 mW/g
Maximum value of SAR (measured) = 0.352 mW/g



0 dB = 0.352mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.22, 2011

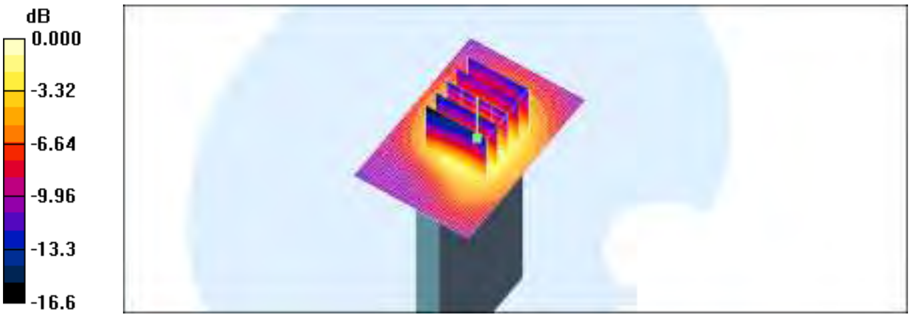
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.43 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body bottom side 18900 12RB 6offset QPSK/Area Scan (41x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.250 mW/g

LTE Body bottom side 18900 12RB 6offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.8 V/m; Power Drift = -0.010 dB
Peak SAR (extrapolated) = 0.342 W/kg
SAR(1 g) = 0.222 mW/g; SAR(10 g) = 0.134 mW/g
Maximum value of SAR (measured) = 0.243 mW/g



0 dB = 0.243mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.22, 2011

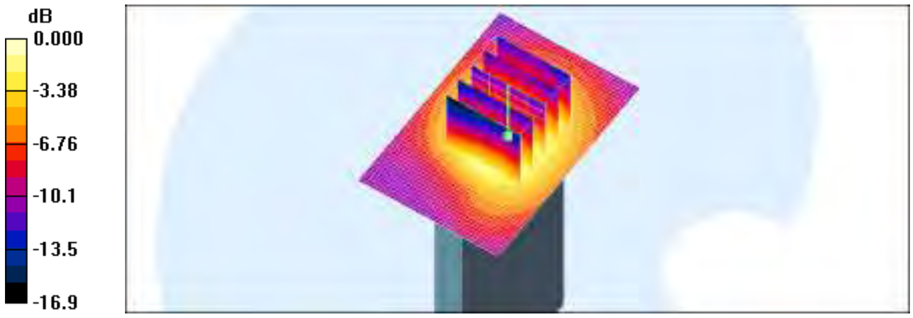
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.43 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body bottom side 18900 1RB 0 offset QPSK/Area Scan (41x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.271 mW/g

LTE Body bottom side 18900 1RB 0 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.3 V/m; Power Drift = 0.074 dB
Peak SAR (extrapolated) = 0.378 W/kg
SAR(1 g) = 0.244 mW/g; SAR(10 g) = 0.148 mW/g
Maximum value of SAR (measured) = 0.265 mW/g



0 dB = 0.265mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.22, 2011

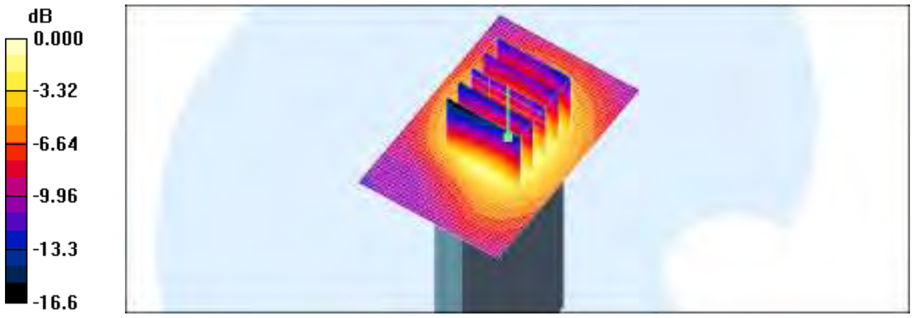
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.43 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body bottom side 18900 1RB 24offset QPSK/Area Scan (41x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.250 mW/g

LTE Body bottom side 18900 1RB 24offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.9 V/m; Power Drift = -0.103 dB
Peak SAR (extrapolated) = 0.342 W/kg
SAR(1 g) = 0.220 mW/g; SAR(10 g) = 0.134 mW/g
Maximum value of SAR (measured) = 0.237 mW/g



0 dB = 0.237mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.22, 2011

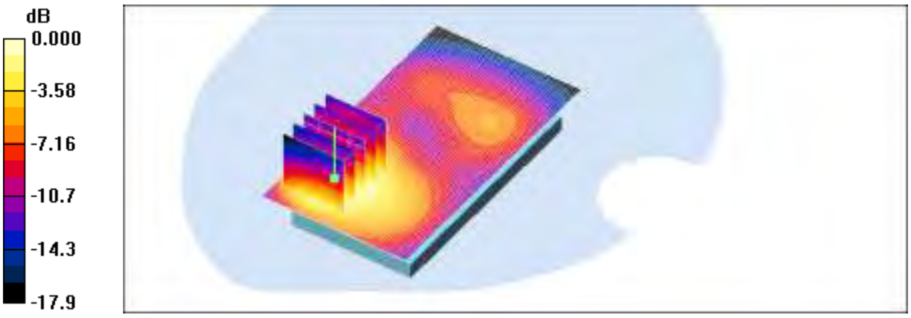
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.43 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body Rear 18900 12RB 6offset 16QAM/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.480 mW/g

LTE Body Rear 18900 12RB 6offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.76 V/m; Power Drift = -0.033 dB
Peak SAR (extrapolated) = 0.723 W/kg
SAR(1 g) = 0.424 mW/g; SAR(10 g) = 0.252 mW/g
Maximum value of SAR (measured) = 0.459 mW/g



0 dB = 0.459mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.22, 2011

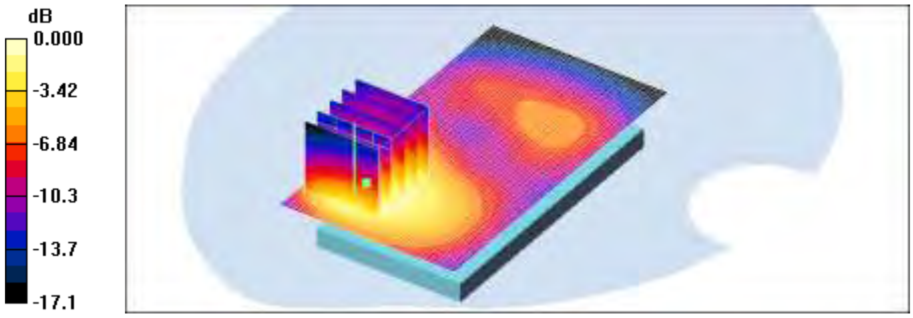
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.43 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body Rear 18900 1RB 0offset 16QAM/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.526 mW/g

LTE Body Rear 18900 1RB 0offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.18 V/m; Power Drift = -0.012 dB
Peak SAR (extrapolated) = 0.808 W/kg
SAR(1 g) = 0.473 mW/g; SAR(10 g) = 0.280 mW/g
Maximum value of SAR (measured) = 0.503 mW/g



0 dB = 0.503mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.22, 2011

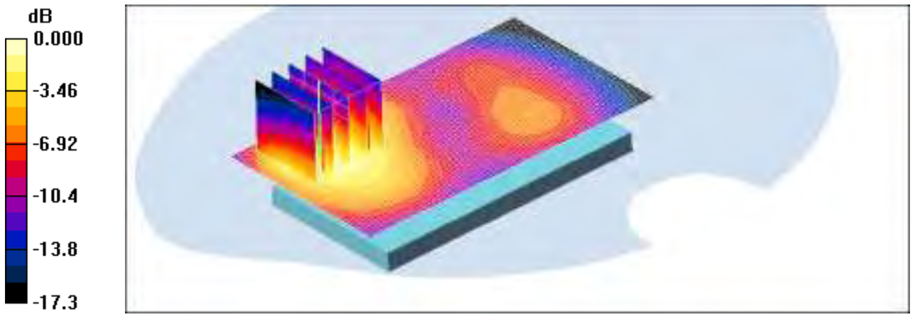
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.43 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body Rear 18900 1RB 24offset 16QAM/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.469 mW/g

LTE Body Rear 18900 1RB 24offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.88 V/m; Power Drift = 0.068 dB
Peak SAR (extrapolated) = 0.751 W/kg
SAR(1 g) = 0.436 mW/g; SAR(10 g) = 0.257 mW/g
Maximum value of SAR (measured) = 0.472 mW/g



0 dB = 0.472mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.22, 2011

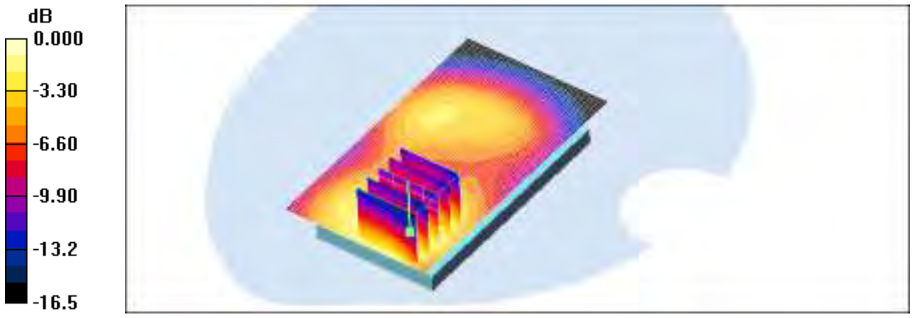
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.43 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body Front 18900 12RB 6offset 16QAM/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.486 mW/g

LTE Body Front 18900 12RB 6offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.7 V/m; Power Drift = -0.017 dB
Peak SAR (extrapolated) = 0.664 W/kg
SAR(1 g) = 0.442 mW/g; SAR(10 g) = 0.280 mW/g
Maximum value of SAR (measured) = 0.475 mW/g



0 dB = 0.475mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.22, 2011

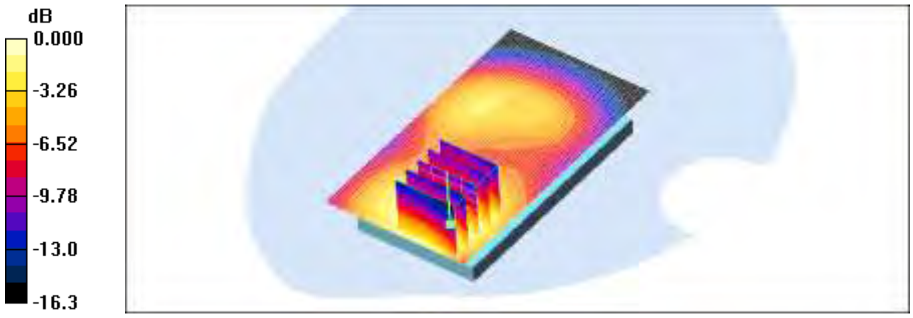
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.43 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body Front 18900 1RB 0offset 16QAM/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.529 mW/g

LTE Body Front 18900 1RB 0offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.1 V/m; Power Drift = -0.003 dB
Peak SAR (extrapolated) = 0.717 W/kg
SAR(1 g) = 0.477 mW/g; SAR(10 g) = 0.304 mW/g
Maximum value of SAR (measured) = 0.506 mW/g



0 dB = 0.506mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.22, 2011

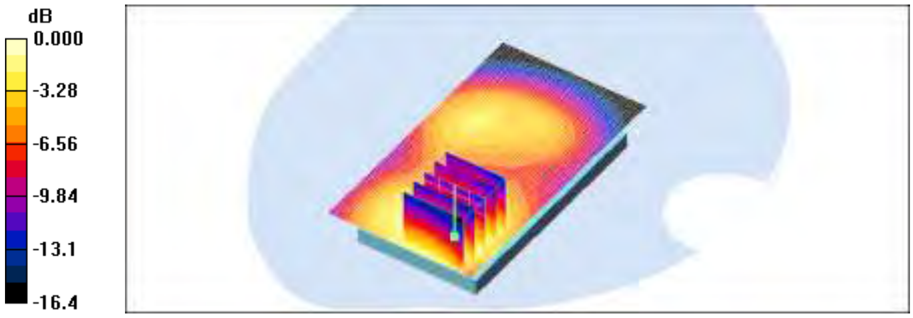
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.43 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body Front 18900 1RB 24offset 16QAM/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.468 mW/g

LTE Body Front 18900 1RB 24offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.9 V/m; Power Drift = -0.079 dB
Peak SAR (extrapolated) = 0.645 W/kg
SAR(1 g) = 0.434 mW/g; SAR(10 g) = 0.275 mW/g
Maximum value of SAR (measured) = 0.462 mW/g



0 dB = 0.462mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.22, 2011

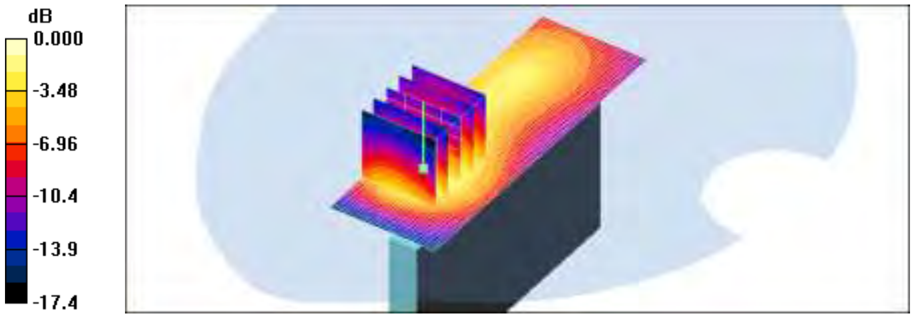
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.43 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body Right side 18900 12RB 6 offset 16QAM/Area Scan (31x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.391 mW/g

LTE Body Right side 18900 12RB 6 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.2 V/m; Power Drift = 0.041 dB
Peak SAR (extrapolated) = 0.569 W/kg
SAR(1 g) = 0.349 mW/g; SAR(10 g) = 0.206 mW/g
Maximum value of SAR (measured) = 0.380 mW/g



0 dB = 0.380mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.22, 2011

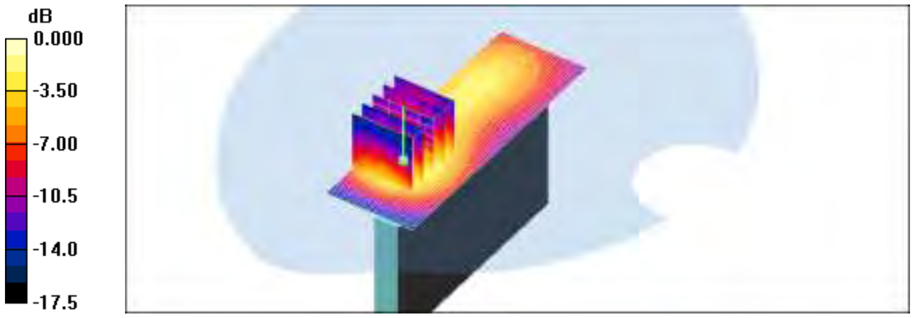
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.43 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body Right side 18900 1RB 0 offset 16QAM/Area Scan (31x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.432 mW/g

LTE Body Right side 18900 1RB 0 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.8 V/m; Power Drift = -0.064 dB
Peak SAR (extrapolated) = 0.639 W/kg
SAR(1 g) = 0.388 mW/g; SAR(10 g) = 0.227 mW/g
Maximum value of SAR (measured) = 0.426 mW/g



0 dB = 0.426mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.22, 2011

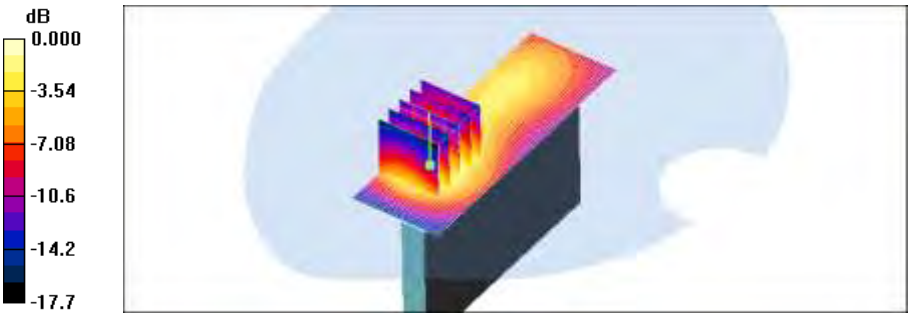
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.43 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body Right side 18900 1RB 24 offset 16QAM/Area Scan (31x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.394 mW/g

LTE Body Right side 18900 1RB 24 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.2 V/m; Power Drift = 0.025 dB
Peak SAR (extrapolated) = 0.575 W/kg
SAR(1 g) = 0.355 mW/g; SAR(10 g) = 0.210 mW/g
Maximum value of SAR (measured) = 0.388 mW/g



0 dB = 0.388mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.22, 2011

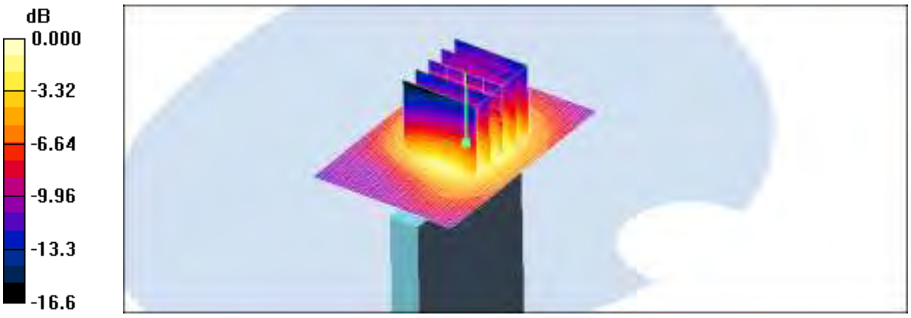
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.43 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body bottom side 18900 12RB 6 offset 16QAM/Area Scan (41x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.292 mW/g

LTE Body bottom side 18900 12RB 6 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.9 V/m; Power Drift = -0.044 dB
Peak SAR (extrapolated) = 0.404 W/kg
SAR(1 g) = 0.260 mW/g; SAR(10 g) = 0.157 mW/g
Maximum value of SAR (measured) = 0.282 mW/g



0 dB = 0.282mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.22, 2011

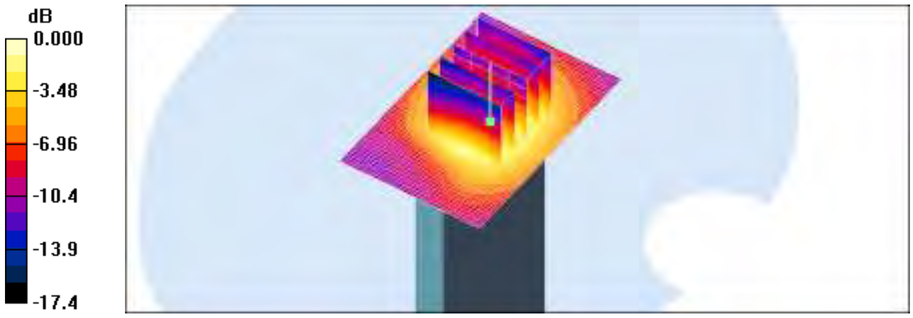
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.43 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body bottom side 18900 1RB 0 offset 16QAM/Area Scan (41x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.272 mW/g

LTE Body bottom side 18900 1RB 0 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.6 V/m; Power Drift = -0.048 dB
Peak SAR (extrapolated) = 0.375 W/kg
SAR(1 g) = 0.242 mW/g; SAR(10 g) = 0.147 mW/g
Maximum value of SAR (measured) = 0.263 mW/g



0 dB = 0.263mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.22, 2011

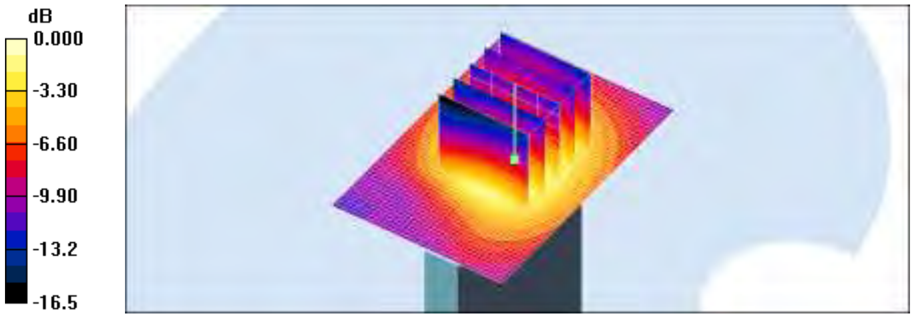
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.43 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Body bottom side 18900 1RB 24offset 16QAM/Area Scan (41x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.242 mW/g

LTE Body bottom side 18900 1RB 24offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.8 V/m; Power Drift = 0.014 dB
Peak SAR (extrapolated) = 0.339 W/kg
SAR(1 g) = 0.220 mW/g; SAR(10 g) = 0.133 mW/g
Maximum value of SAR (measured) = 0.239 mW/g



0 dB = 0.239mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Dec.29, 2011

DUT: MS840; Type: Bar; Serial: #1

Communication System: 2450MHz FCC; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.99 mho/m; ε_r = 50.5; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

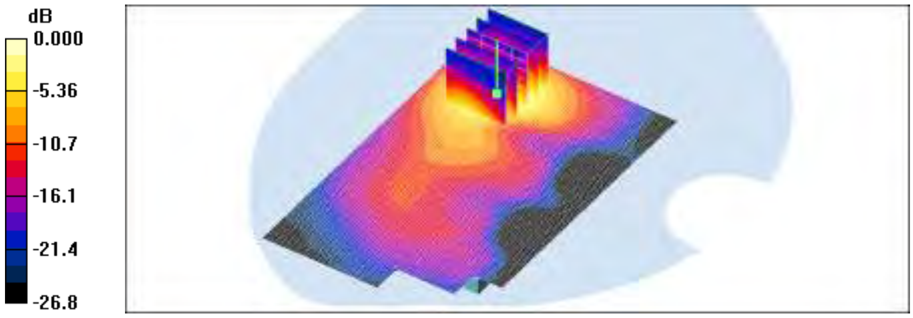
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.3, 4.3, 4.3); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

802.11b Body Rear 11/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.379 mW/g

802.11b Body Rear 11/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.34 V/m; Power Drift = 0.170 dB
Peak SAR (extrapolated) = 0.952 W/kg
SAR(1 g) = 0.361 mW/g; SAR(10 g) = 0.156 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.381 mW/g



0 dB = 0.381mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Dec.23, 2011

DUT: MS840; Type: Bar; Serial: #1

Communication System: 2450MHz FCC; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.98 mho/m; ε_r = 51.5; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

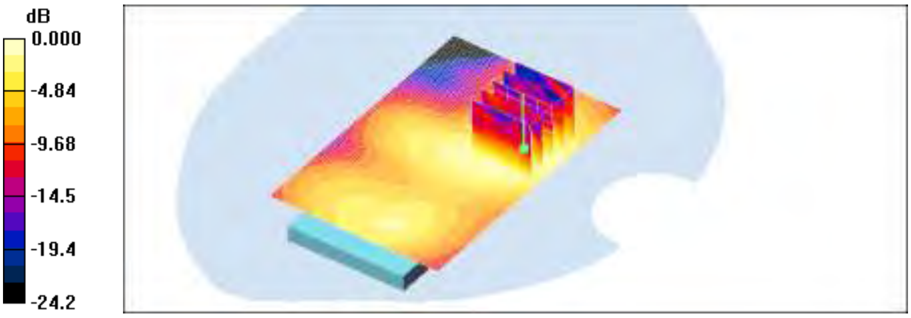
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.3, 4.3, 4.3); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: SAM 835/900 MHz; Type: SAM

802.11b Body Front 11/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.057 mW/g

802.11b Body Front 11/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.37 V/m; Power Drift = -0.683 dB
Peak SAR (extrapolated) = 0.094 W/kg
SAR(1 g) = 0.049 mW/g; SAR(10 g) = 0.026 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.056 mW/g



0 dB = 0.056mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Dec.23, 2011

DUT: MS840; Type: Bar; Serial: #1

Communication System: 2450MHz FCC; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.98 mho/m; ε_r = 51.5; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

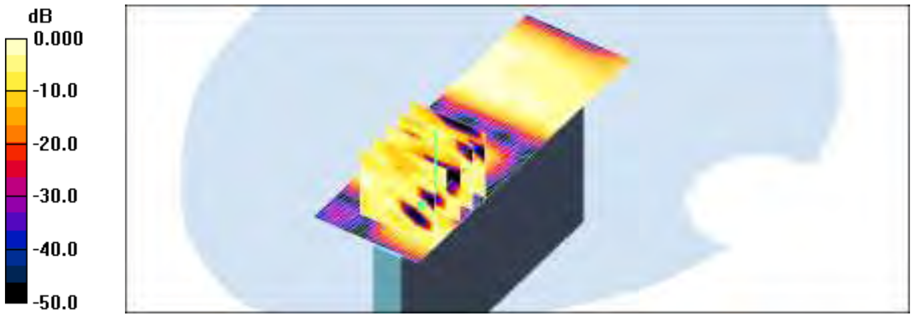
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.3, 4.3, 4.3); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

802.11b Body Left side 11/Area Scan (31x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.006 mW/g

802.11b Body Left side 11/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.09 V/m; Power Drift = 0.167 dB
Peak SAR (extrapolated) = 0.021 W/kg
SAR(1 g) = 0.00429 mW/g; SAR(10 g) = 0.000849 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
aximum value of SAR (measured) = 0.006 mW/g



0 dB = 0.006mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Dec.23, 2011

DUT: MS840; Type: Bar; Serial: #1

Communication System: 2450MHz FCC; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.98 mho/m; ε_r = 51.5; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

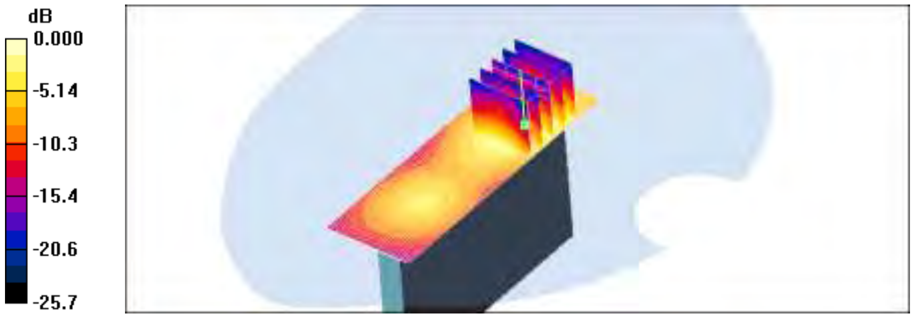
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.3, 4.3, 4.3); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

802.11b Body Right side 11/Area Scan (31x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.240 mW/g

802.11b Body Right side 11/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.81 V/m; Power Drift = -0.001 dB
Peak SAR (extrapolated) = 0.521 W/kg
SAR(1 g) = 0.221 mW/g; SAR(10 g) = 0.104 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.245 mW/g



0 dB = 0.245mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Dec.23, 2011

DUT: MS840; Type: Bar; Serial: #1

Communication System: 2450MHz FCC; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.98 mho/m; ε_r = 51.5; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

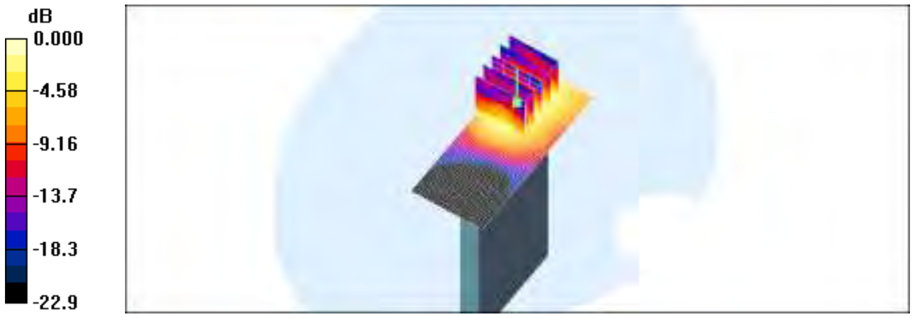
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.3, 4.3, 4.3); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

802.11b Body Top side 11/Area Scan (31x71x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.087 mW/g

802.11b Body Top side 11/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.64 V/m; Power Drift = -0.012 dB
Peak SAR (extrapolated) = 0.197 W/kg
SAR(1 g) = 0.080 mW/g; SAR(10 g) = 0.040 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.082 mW/g



0 dB = 0.082mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Dec.15, 2011

DUT: MS840; 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 = 0.902 mho/m; ε_r = 43; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

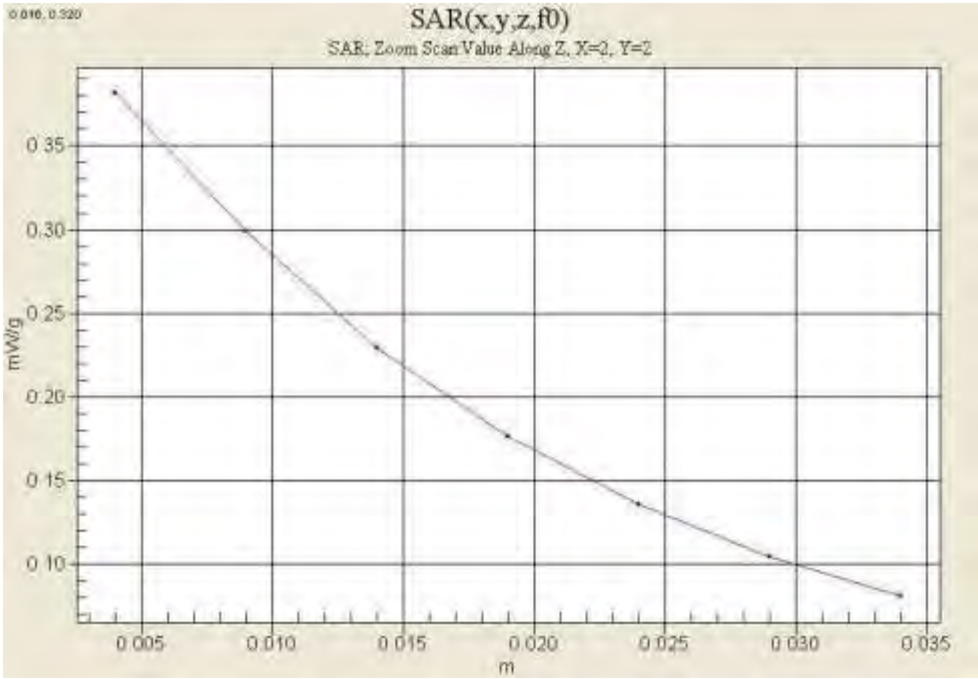
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.27, 6.27, 6.27); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 800/900 Phantom; Type: SAM

Left touch 384/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.395 mW/g

Left touch 384/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.9 V/m; Power Drift = 0.045 dB
Peak SAR (extrapolated) = 0.457 W/kg
SAR(1 g) = 0.361 mW/g; SAR(10 g) = 0.272 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
aximum value of SAR (measured) = 0.382 mW/g



Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Dec.26, 2011

DUT: MS840; 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 = 0.971 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

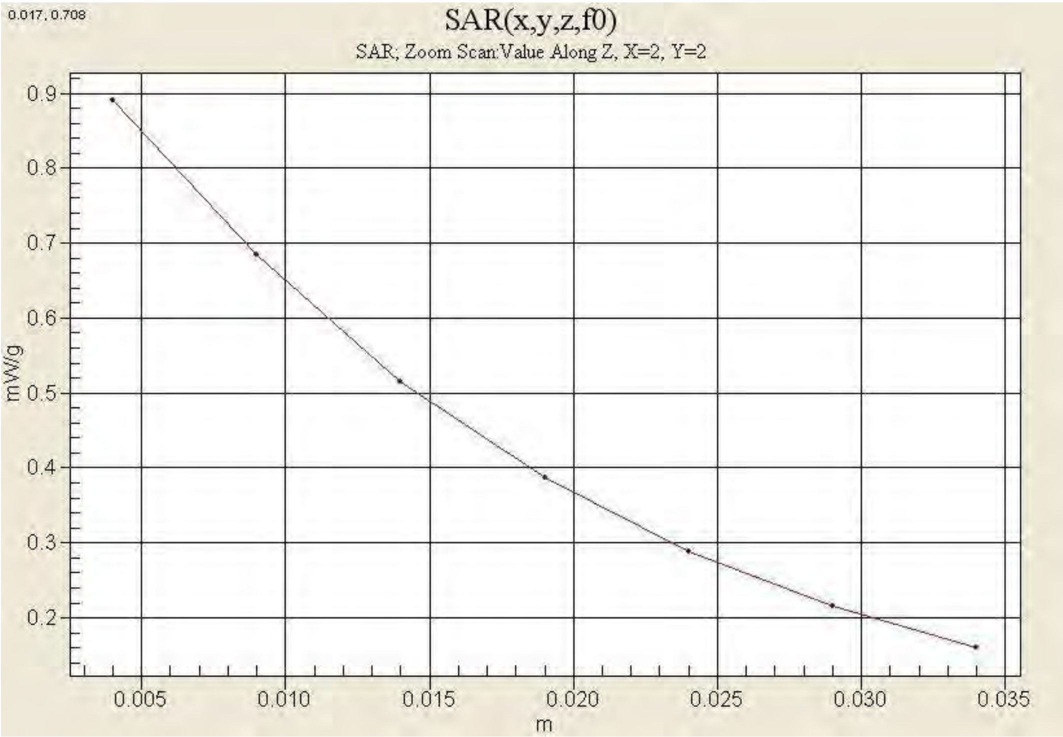
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(6.27, 6.27, 6.27); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

CDMA835 Body Rear 384/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.894 mW/g

CDMA835 Body Rear 384/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.6 V/m; Power Drift = 0.137 dB
Peak SAR (extrapolated) = 1.06 W/kg
SAR(1 g) = 0.842 mW/g; SAR(10 g) = 0.618 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.891 mW/g



Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.16, 2011

DUT: MS840; Type: Bar; Serial: #1

Communication System: AWS 1700 MHz FCC; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.31 mho/m; ε_r = 40.8; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

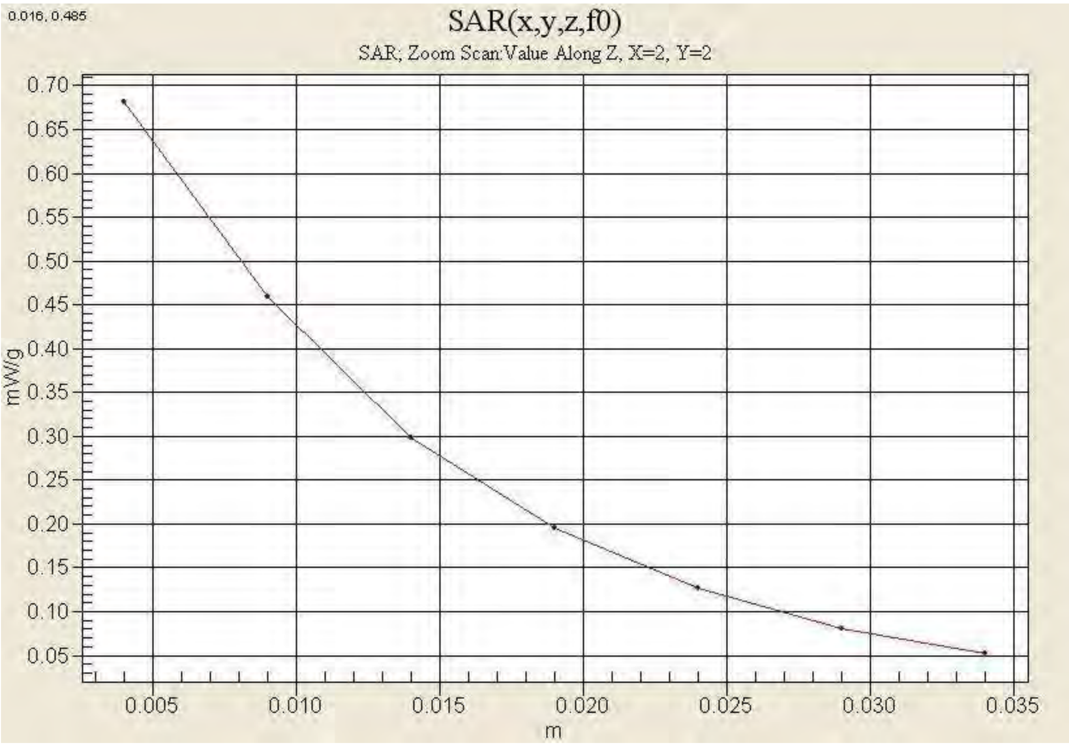
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.43, 5.43, 5.43); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Left touch 450/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.670 mW/g

Left touch 450/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.2 V/m; Power Drift = -0.029 dB
Peak SAR (extrapolated) = 0.924 W/kg
SAR(1 g) = 0.616 mW/g; SAR(10 g) = 0.375 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.682 mW/g



Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.26, 2011

DUT: MS840; Type: Bar; Serial: #1

Communication System: AWS 1700 MHz FCC; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.43 mho/m; ε_r = 55.5; 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(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

AWS EVDO Body Rear 450/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.666 mW/g

AWS EVDO Body Rear 450/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.9 V/m; Power Drift = -0.071 dB
Peak SAR (extrapolated) = 0.869 W/kg
SAR(1 g) = 0.579 mW/g; SAR(10 g) = 0.355 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.631 mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Dec.28, 2011

DUT: MS840; Type: Bar; Serial: #1

Communication System: PCS 1900MHz FCC; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.38 mho/m; ε_r = 41.1; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

Left touch 600/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.02 mW/g

Left touch 600/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.7 V/m; Power Drift = 0.029 dB
Peak SAR (extrapolated) = 1.43 W/kg
SAR(1 g) = 0.931 mW/g; SAR(10 g) = 0.554 mW/g
Maximum value of SAR (measured) = 1.03 mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Dec.27, 2011

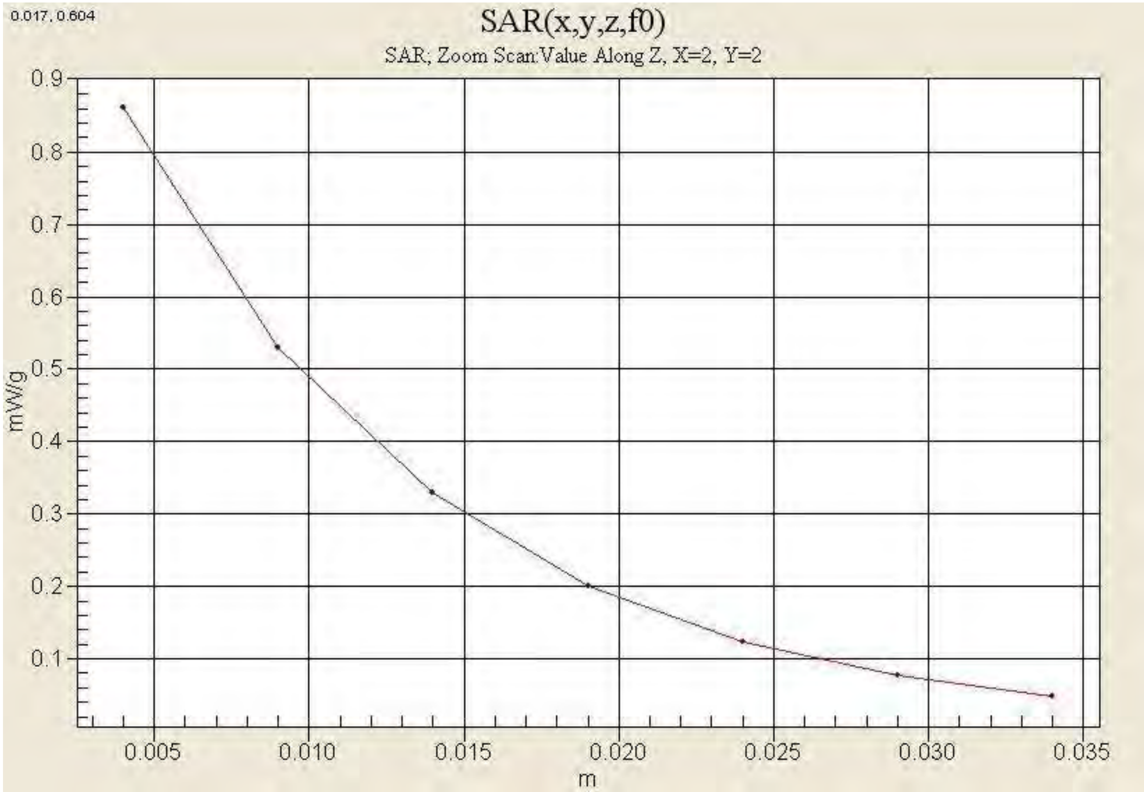
DUT: MS840; Type: Bar; Serial: #1

Communication System: PCS 1900MHz FCC; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.45 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

PCS Body Rear 600/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.900 mW/g

PCS Body Rear 600/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.5 V/m; Power Drift = 0.039 dB
Peak SAR (extrapolated) = 1.29 W/kg
SAR(1 g) = 0.792 mW/g; SAR(10 g) = 0.477 mW/g
Maximum value of SAR (measured) = 0.862 mW/g



Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Dec.19, 2011

DUT: MS840; 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 = 1.33 mho/m; ε_r = 39.8; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

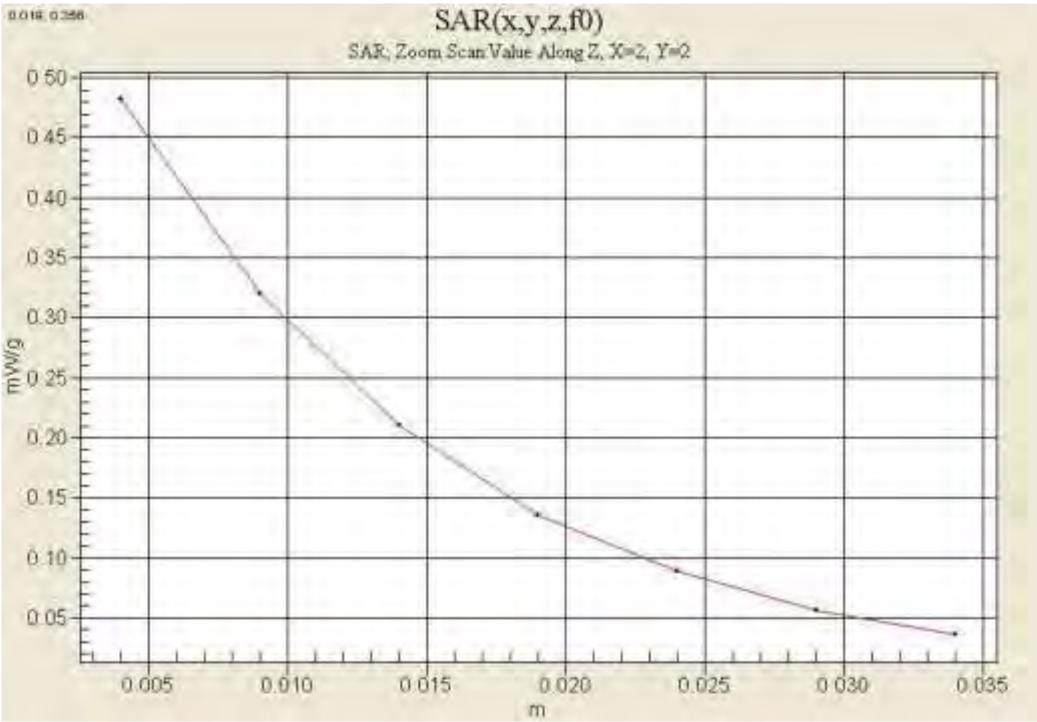
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.43, 5.43, 5.43); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Right touch 20175 12RB 6offset QPSK/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.491 mW/g

Right touch 20175 12RB 6offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.9 V/m; Power Drift = -0.081 dB
Peak SAR (extrapolated) = 0.638 W/kg
SAR(1 g) = 0.440 mW/g; SAR(10 g) = 0.274 mW/g

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



Test Laboratory:	HCT CO., LTD
EUT Type:	Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Dec.26, 2011

DUT: MS840; 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 = 1.43 mho/m; ε_r = 55.5; 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(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Band 4 Body Rear 20175 1RB 24 offset QPSK/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.654 mW/g

LTE Band 4 Body Rear 20175 1RB 24 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.6 V/m; Power Drift = -0.196 dB
Peak SAR (extrapolated) = 0.896 W/kg
SAR(1 g) = 0.573 mW/g; SAR(10 g) = 0.340 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.629 mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.3 ℃
Ambient Temperature: 21.5 ℃
Test Date: Dec.20, 2011

DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.44 mho/m; ε_r = 40.2; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Right touch 18900 1RB 0 offset 16QAM/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.784 mW/g

Right touch 18900 1RB 0 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.8 V/m; Power Drift = 0.026 dB
Peak SAR (extrapolated) = 1.10 W/kg
SAR(1 g) = 0.710 mW/g; SAR(10 g) = 0.427 mW/g
Maximum value of SAR (measured) = 0.772 mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Dec.27, 2011

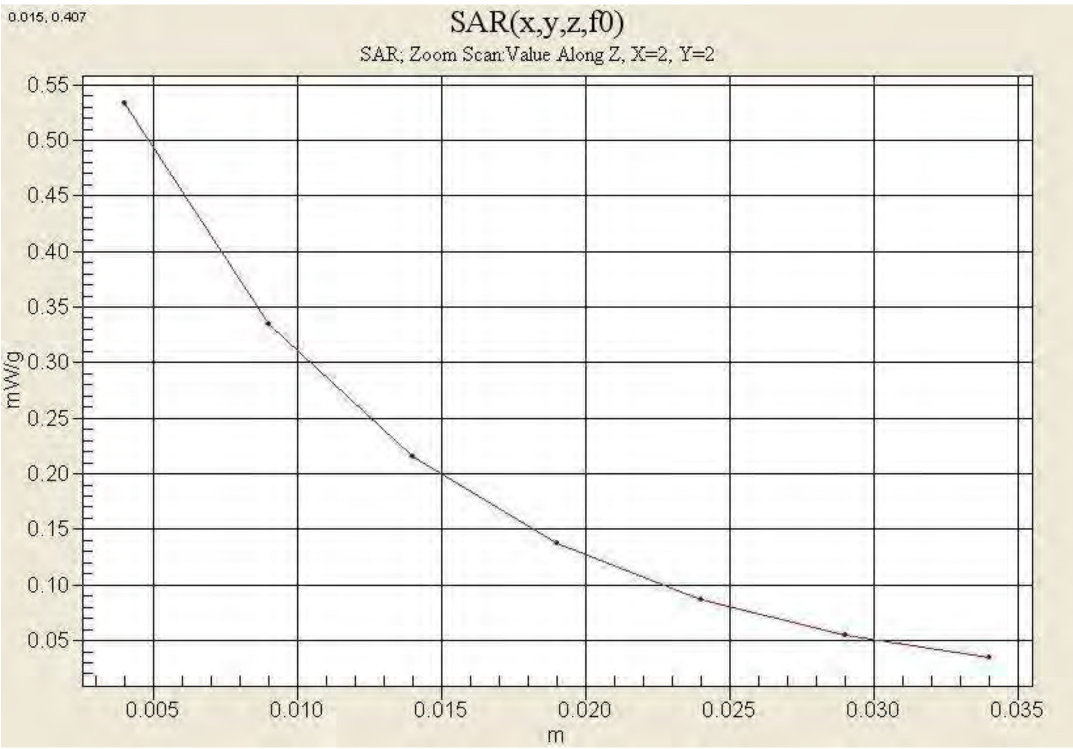
DUT: MS840; Type: Bar; Serial: #1

Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.45 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(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

LTE Band 2 Body Rear 18900 1RB 0 offset QPSK/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.556 mW/g

LTE Band 2 Body Rear 18900 1RB 0 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.27 V/m; Power Drift = 0.033 dB
Peak SAR (extrapolated) = 0.824 W/kg
SAR(1 g) = 0.493 mW/g; SAR(10 g) = 0.296 mW/g
Maximum value of SAR (measured) = 0.533 mW/g



Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Dec.29, 2011

DUT: MS840; Type: Bar; Serial: #1

Communication System: 2450MHz FCC; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.86 mho/m; ε_r = 38.6; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.57, 4.57, 4.57); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM

Left touch 11/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

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

Left touch 11/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.11 V/m; Power Drift = -0.029 dB
Peak SAR (extrapolated) = 0.538 W/kg
SAR(1 g) = 0.241 mW/g; SAR(10 g) = 0.117 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.272 mW/g

Test Laboratory: HCT CO., LTD
EUT Type: Cell/PCS/AWS CDMA and LTE Band 2/4 Phone with Bluetooth and WLAN
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Dec.29, 2011

DUT: MS840; Type: Bar; Serial: #1

Communication System: 2450MHz FCC; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.99 mho/m; ε_r = 50.5; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

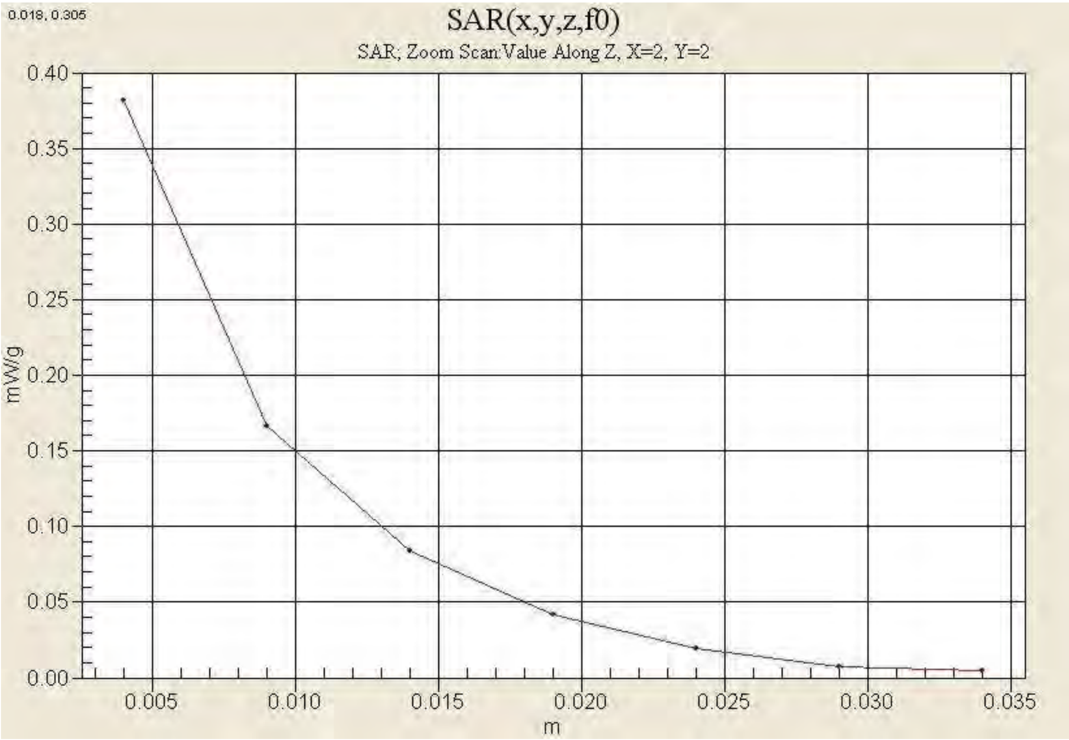
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.3, 4.3, 4.3); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM

802.11b Body Rear 11/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.379 mW/g

802.11b Body Rear 11/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.34 V/m; Power Drift = 0.170 dB
Peak SAR (extrapolated) = 0.952 W/kg
SAR(1 g) = 0.361 mW/g; SAR(10 g) = 0.156 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.381 mW/g



Attachment 2. – SAR Test Plots for Volume scans & Multi band results

SVDO
001 PCS1900 Left touch Volume

DUT: MS840; Type: Bar; Serial::#1

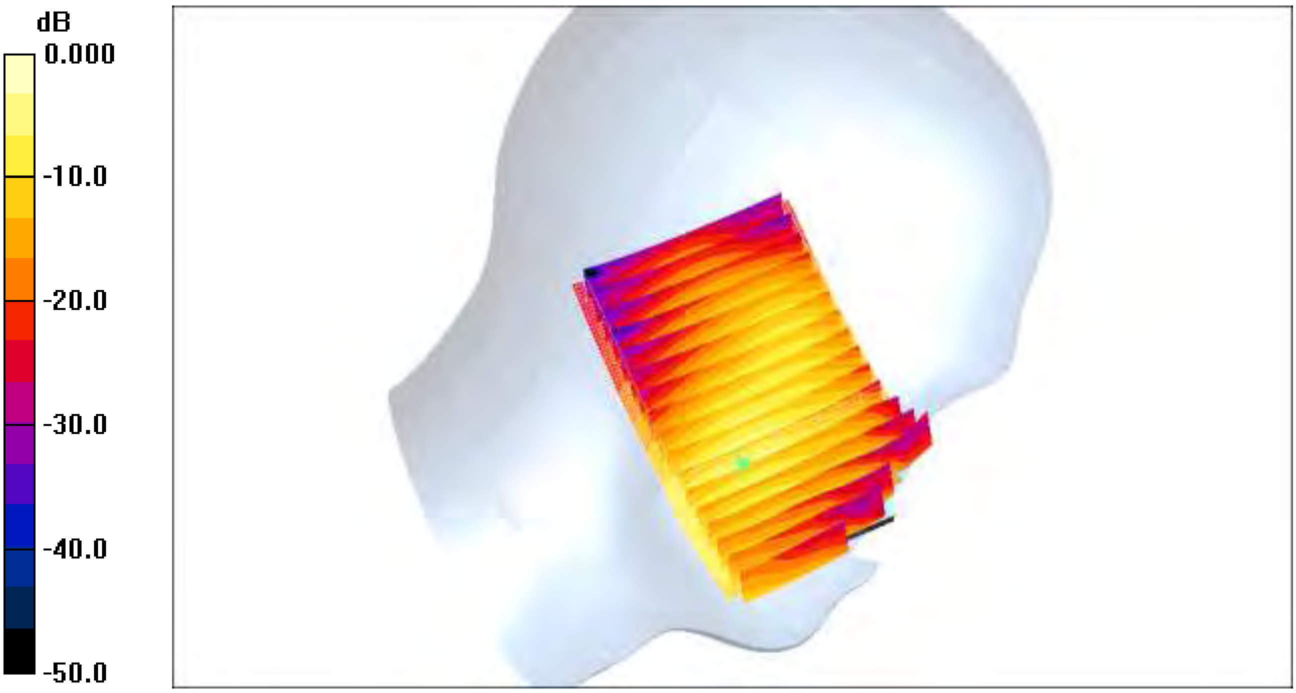
Communication System: PCS 1900MHz FCC; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.38 mho/m; ε_r = 41.1; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: SAM 1800/1900 MHz; Type: SAM; Serial: TP-1173
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Left touch 600/Volume Scan (11x17x7): Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.7 V/m; Power Drift = 0.029 dB
Peak SAR (extrapolated) = 1.47 W/kg
SAR(1 g) = 0.943 mW/g; SAR(10 g) = 0.566 mW/g
Total Absorbed Power = 0.0423568 W
Maximum value of SAR (measured) = 1.02 mW/g

Left touch 600/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.02 mW/g



0 dB = 1.02mW/g

002 PCS1900 EVDO Left touch Volume

DUT: MS840; Type: Bar; Serial:#1

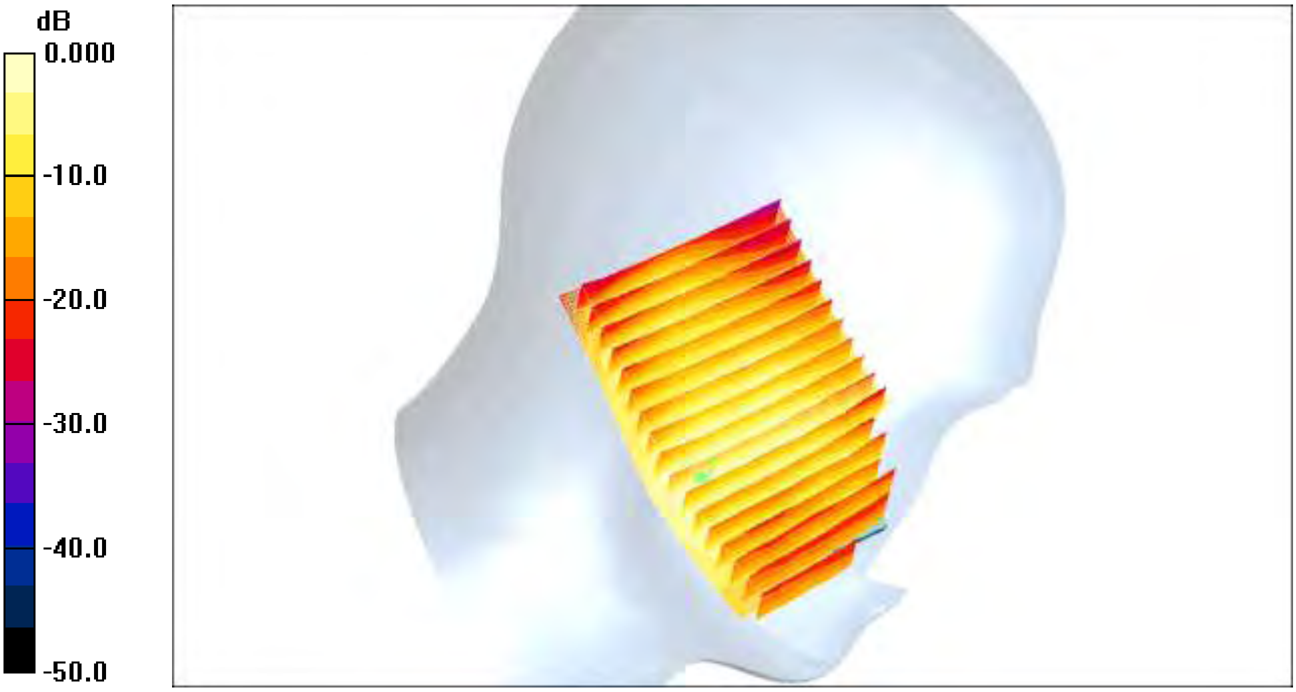
Communication System: PCS 1900MHz FCC; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.38 mho/m; ε_r = 41.1; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Left touch 600 EVDO/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.690 mW/g

Left touch 600 EVDO/Volume Scan (11x17x7): Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.0 V/m; Power Drift = -0.020 dB
Peak SAR (extrapolated) = 1.02 W/kg
SAR(1 g) = 0.550 mW/g; SAR(10 g) = 0.316 mW/g
Total Absorbed Power = 0.032711 W
Maximum value of SAR (measured) = 0.578 mW/g



0 dB = 0.578mW/g

003 Head Volume 2450MHz

DUT: MS840; Type: Bar; Serial:#1

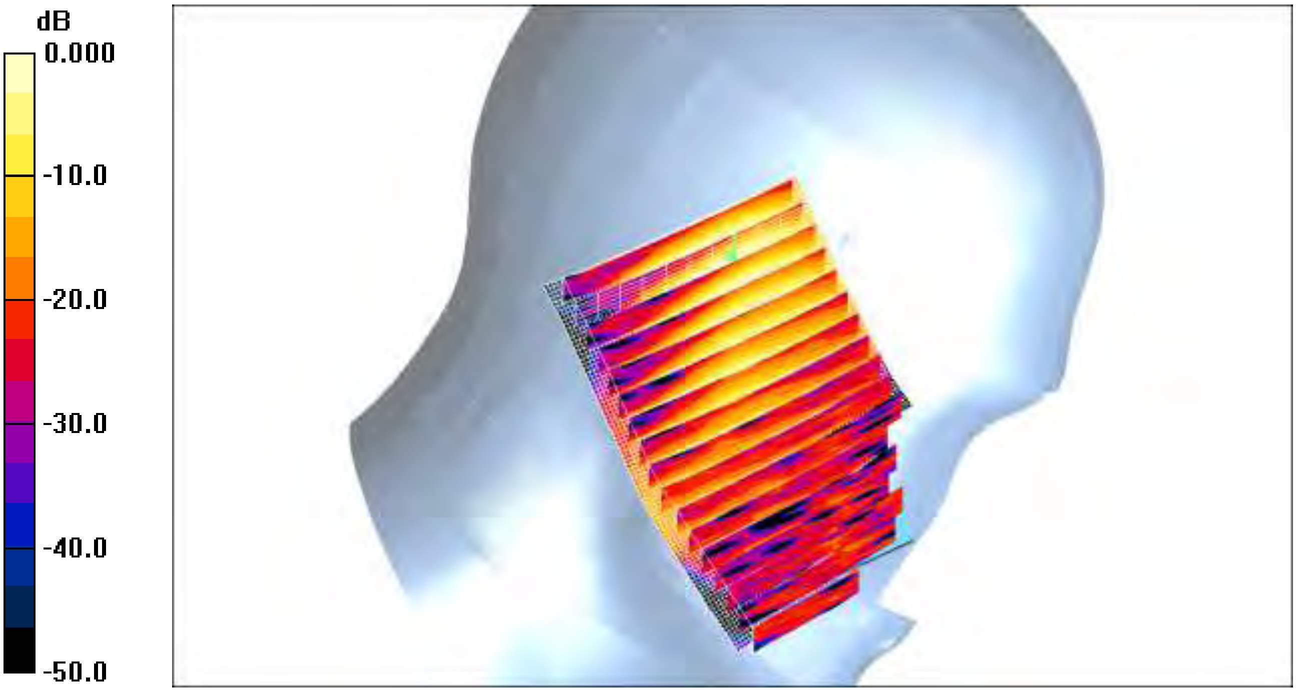
Communication System: 2450MHz FCC; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.86 mho/m; ε_r = 38.6; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.57, 4.57, 4.57); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 835/900 Phamtom ; Type: SAM;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

Left touch 11/Volume Scan (11x17x7): Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.11 V/m; Power Drift = -0.029 dB
Peak SAR (extrapolated) = 0.537 W/kg
SAR(1 g) = 0.248 mW/g; SAR(10 g) = 0.120 mW/g
Total Absorbed Power = 0.00388677 W
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.277 mW/g

Left touch 11/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.274 mW/g



0 dB = 0.277mW/g

004 Rear CDMA835 1xRTT 384ch

DUT: MS840; 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 = 0.971 mho/m; ε_r = 54.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

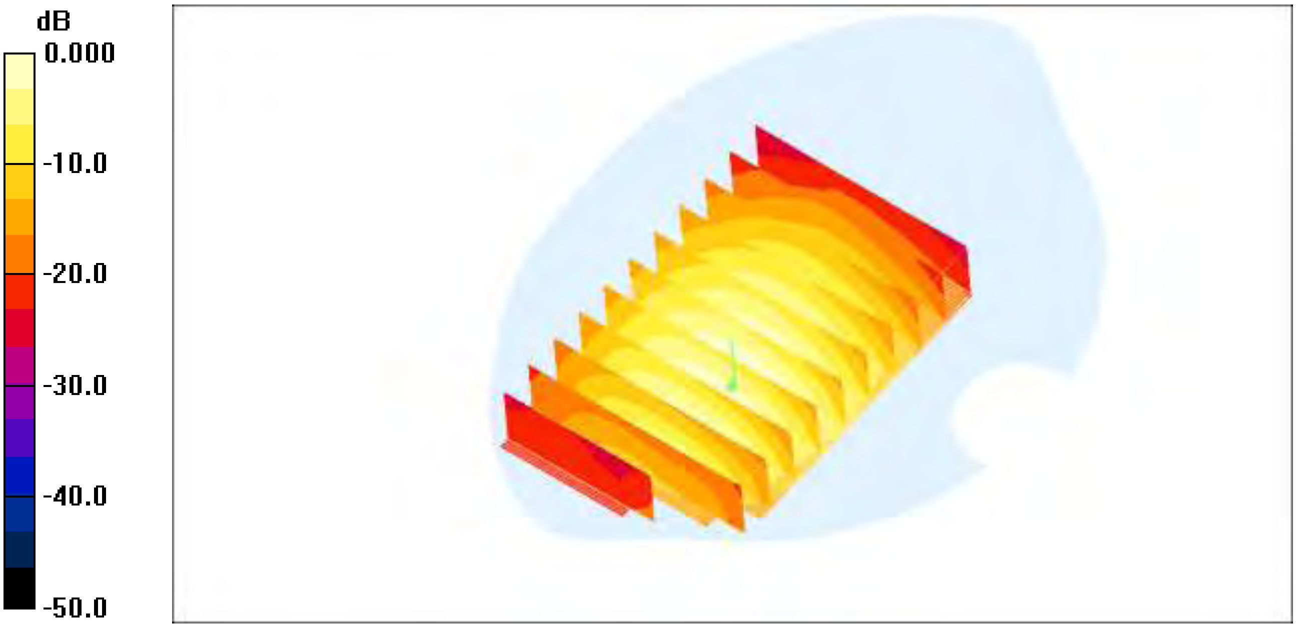
- Probe: ET3DV6 - SN1630; ConvF(6.27, 6.27, 6.27); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

CDMA835 Body Rear 384/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.894 mW/g

CDMA835 Body Rear 384/Volume Scan (14x21x7): Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.6 V/m; Power Drift = 0.137 dB
Peak SAR (extrapolated) = 1.10 W/kg
SAR(1 g) = 0.856 mW/g; SAR(10 g) = 0.627 mW/g
Total Absorbed Power = 0.0796549 W

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.894 mW/g



0 dB = 0.894mW/g

005 Hotspot Rear AWS EVDO Volume 1

DUT: MS840; Type: Bar; Serial:#1

Communication System: AWS 1700 MHz FCC; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.43 mho/m; ε_r = 55.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

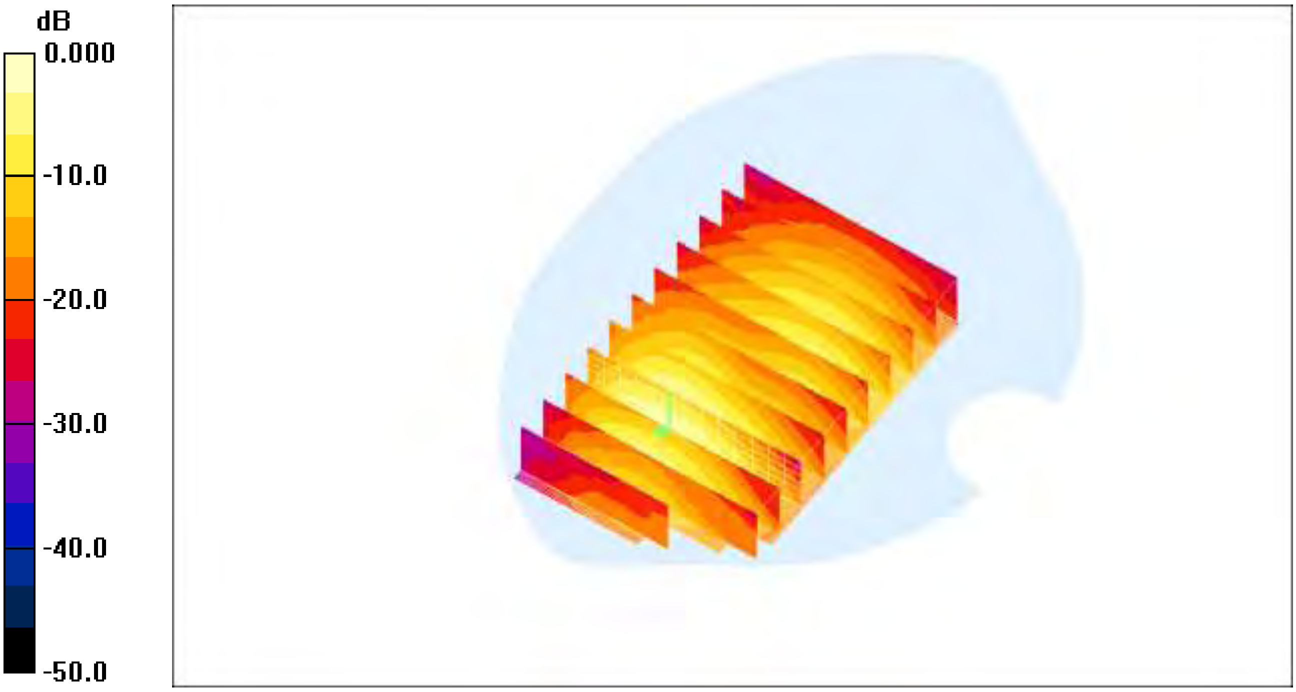
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

AWS EVDO Body Rear 450/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.666 mW/g

AWS EVDO Body Rear 450/Volume Scan (14x21x7): Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.9 V/m; Power Drift = -0.071 dB
Peak SAR (extrapolated) = 0.914 W/kg
SAR(1 g) = 0.601 mW/g; SAR(10 g) = 0.362 mW/g
Total Absorbed Power = 0.0304601 W

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.636 mW/g



0 dB = 0.636mW/g

006 WiFi Body rear Volume

DUT: MS840; Type: Bar; Serial:#1

Communication System: 2450MHz FCC; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.99 mho/m; ε_r = 50.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

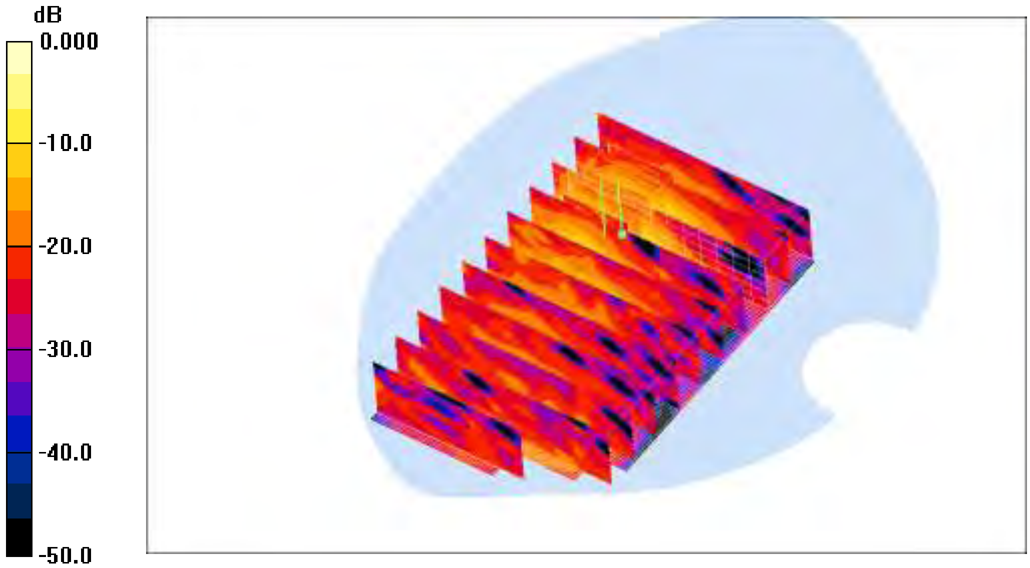
DASY4 Configuration:

- Probe: ET3DV6 - SN1630; ConvF(4.3, 4.3, 4.3); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

802.11b Body Rear 11/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.379 mW/g

802.11b Body Rear 11/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.34 V/m; Power Drift = 0.170 dB
Peak SAR (extrapolated) = 0.952 W/kg
SAR(1 g) = 0.361 mW/g; SAR(10 g) = 0.156 mW/g
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.381 mW/g

802.11b Body Rear 11/Volume Scan (14x21x7): Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.34 V/m; Power Drift = 0.170 dB
Peak SAR (extrapolated) = 0.997 W/kg
SAR(1 g) = 0.370 mW/g; SAR(10 g) = 0.159 mW/g
Total Absorbed Power = 0.00573948 W
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.369 mW/g



0 dB = 0.369mW/g

007 Hotspot Rear PCS EVDO Volume 1

DUT: MS840; Type: Bar; Serial:#1

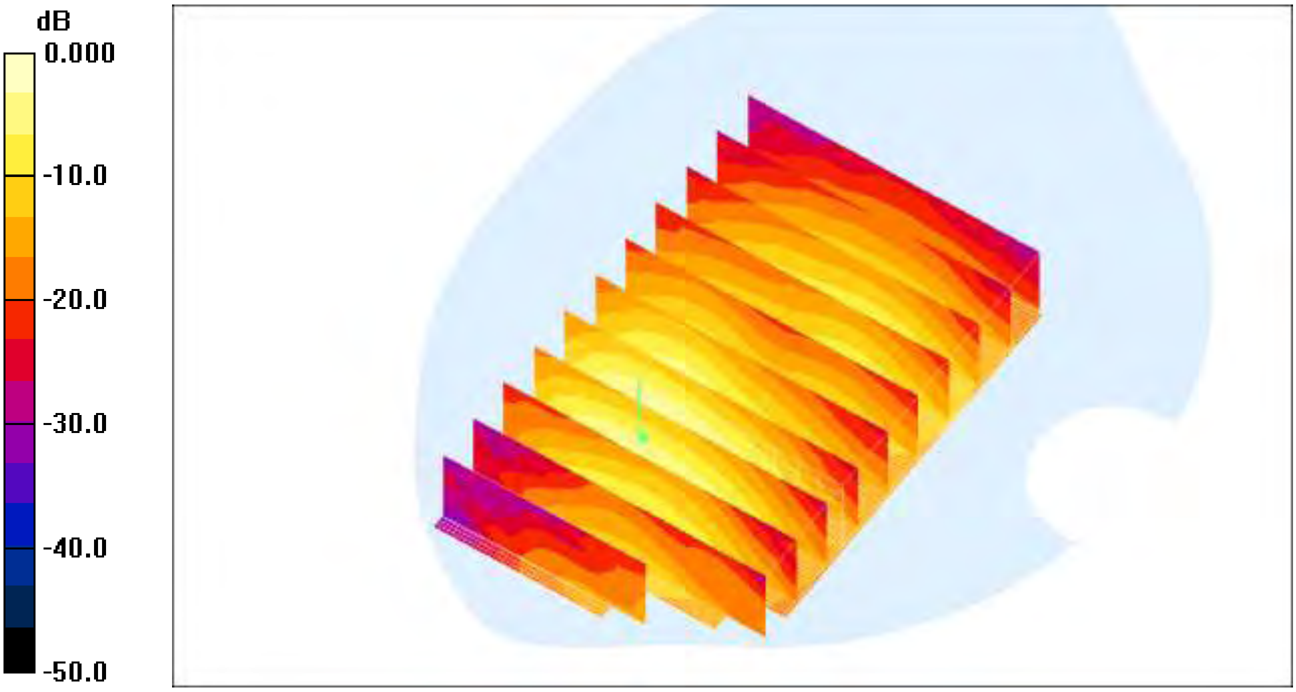
Communication System: PCS 1900MHz FCC; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.45 mho/m; ε_r = 55.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

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: 1800/1900 Phantom; Type: SAM;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

PCS EVDO Body Rear 600/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.714 mW/g

PCS EVDO Body Rear 600/Volume Scan (14x21x7): Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.3 V/m; Power Drift = 0.149 dB
Peak SAR (extrapolated) = 1.07 W/kg
SAR(1 g) = 0.625 mW/g; SAR(10 g) = 0.367 mW/g
Total Absorbed Power = 0.0307447 W
Maximum value of SAR (measured) = 0.678 mW/g



0 dB = 0.678mW/g

008 Rear PCS 1xRTT Volume

DUT: MS840; Type: Bar; Serial:#1

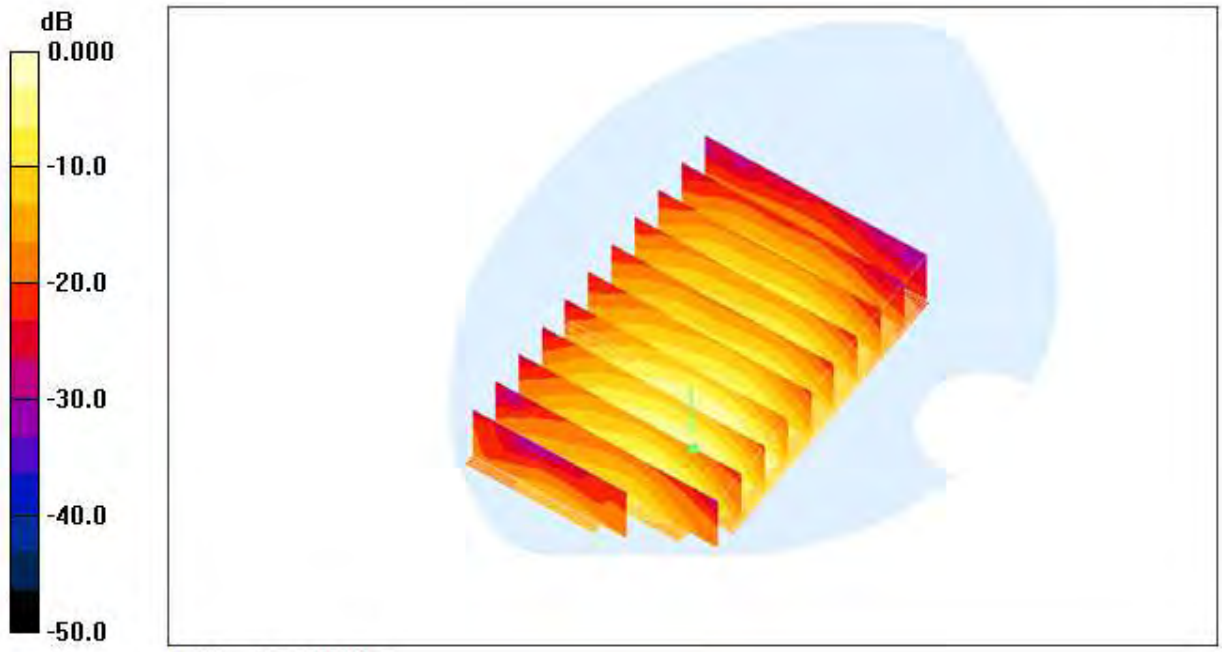
Communication System: PCS 1900MHz FCC; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.45 mho/m; ε_r = 55.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

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: 1800/1900 Phantom; Type: SAM;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

PCS Body Rear 600/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.900 mW/g

PCS Body Rear 600/Volume Scan (14x21x7): Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.5 V/m; Power Drift = 0.039 dB
Peak SAR (extrapolated) = 1.30 W/kg
SAR(1 g) = 0.805 mW/g; SAR(10 g) = 0.484 mW/g
Total Absorbed Power = 0.0421095 W
Maximum value of SAR (measured) = 0.839 mW/g



0 dB = 0.839mW/g

SVLTE
009 Rear 1RB 0offset QPSK volume

DUT: MS840; Type: Bar; Serial:#1

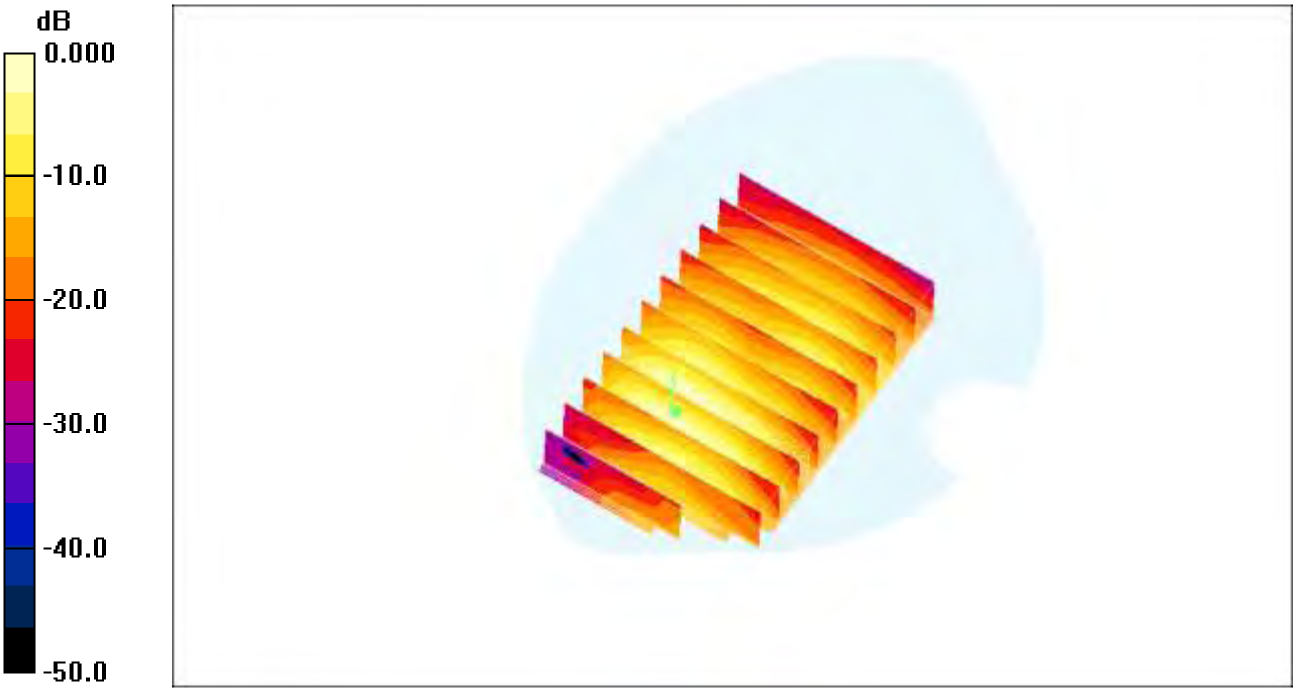
Communication System: LTE Band 2; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.45 mho/m; ε_r = 55.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

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: 1800/1900 Phantom; Type: SAM;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

LTE Band 2 Body Rear 18900 1RB 0 offset QPSK/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.556 mW/g

LTE Band 2 Body Rear 18900 1RB 0 offset QPSK/Volume Scan (14x21x7): Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.27 V/m; Power Drift = 0.033 dB
Peak SAR (extrapolated) = 0.833 W/kg
SAR(1 g) = 0.494 mW/g; SAR(10 g) = 0.296 mW/g
Total Absorbed Power = 0.0254882 W
Maximum value of SAR (measured) = 0.520 mW/g



0 dB = 0.520mW/g

010 LTE 4 Rear 1RB 24offset QPSK Volume

DUT: MS840; 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 = 1.43 mho/m; ε_r = 55.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

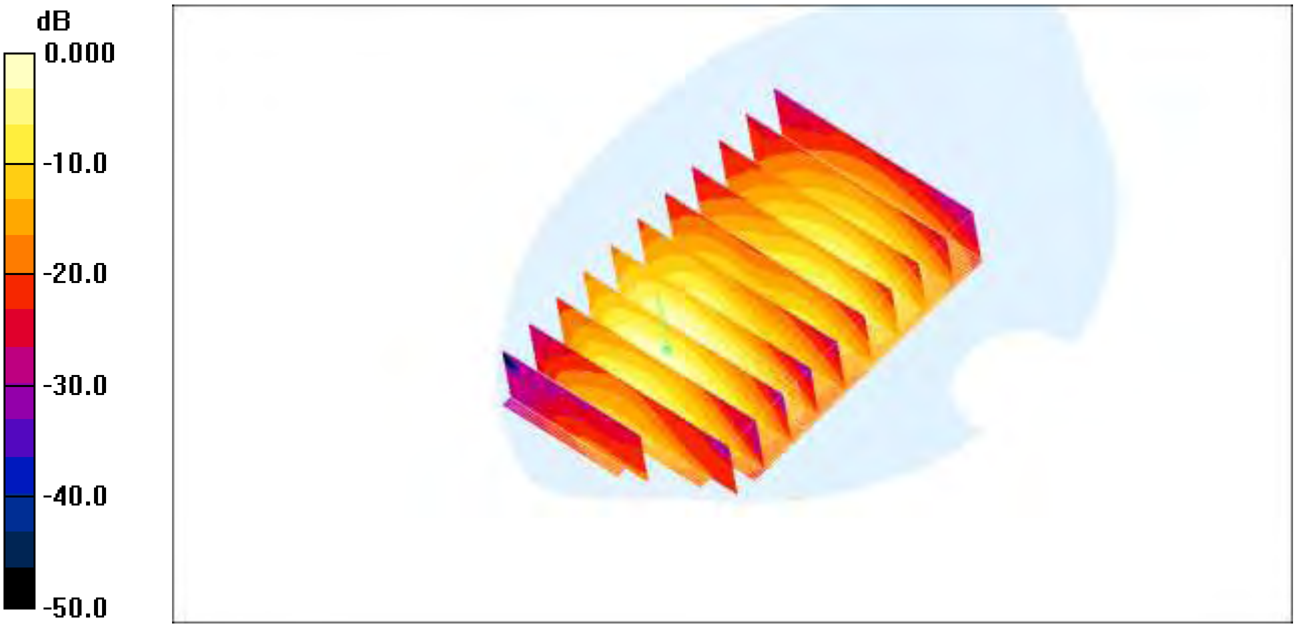
- Probe: ET3DV6 - SN1630; ConvF(4.95, 4.95, 4.95); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2011-09-27
- Phantom: 1800/1900 Phantom; Type: SAM;
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

LTE Band 4 Body Rear 20175 1RB 24 offset QPSK/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.654 mW/g

LTE Band 4 Body Rear 20175 1RB 24 offset QPSK/Volume Scan (14x21x7): Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.6 V/m; Power Drift = -0.196 dB
Peak SAR (extrapolated) = 0.902 W/kg
SAR(1 g) = 0.574 mW/g; SAR(10 g) = 0.338 mW/g
Total Absorbed Power = 0.0261903 W

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.616 mW/g



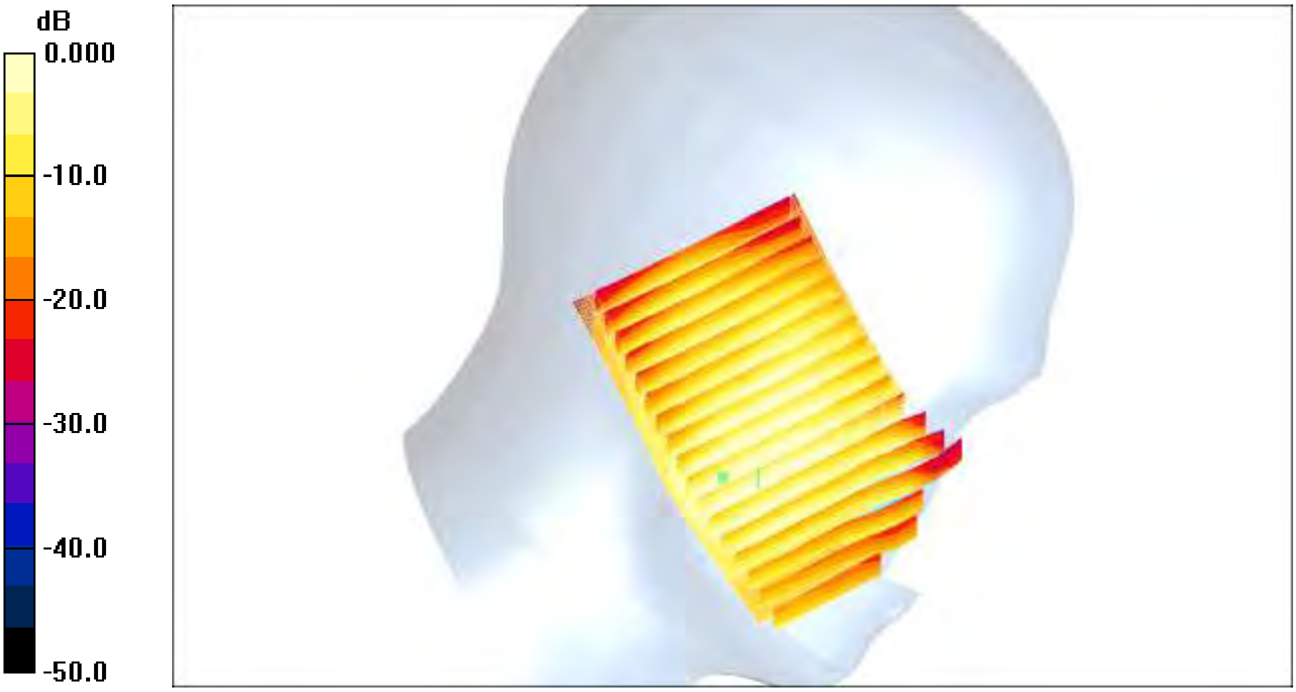
0 dB = 0.616mW/g

Multi band Results

001 PCS1900 1xRTT Left touch Volume
002 PCS1900 EVDO Left touch Volume

Multi Band Result:
SAR(1 g) = 1.34 mW/g; SAR(10 g) = 0.834 mW/g
Maximum value of SAR (measured) = 1.44 mW/g

Left touch 600 EVDO/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.690 mW/g



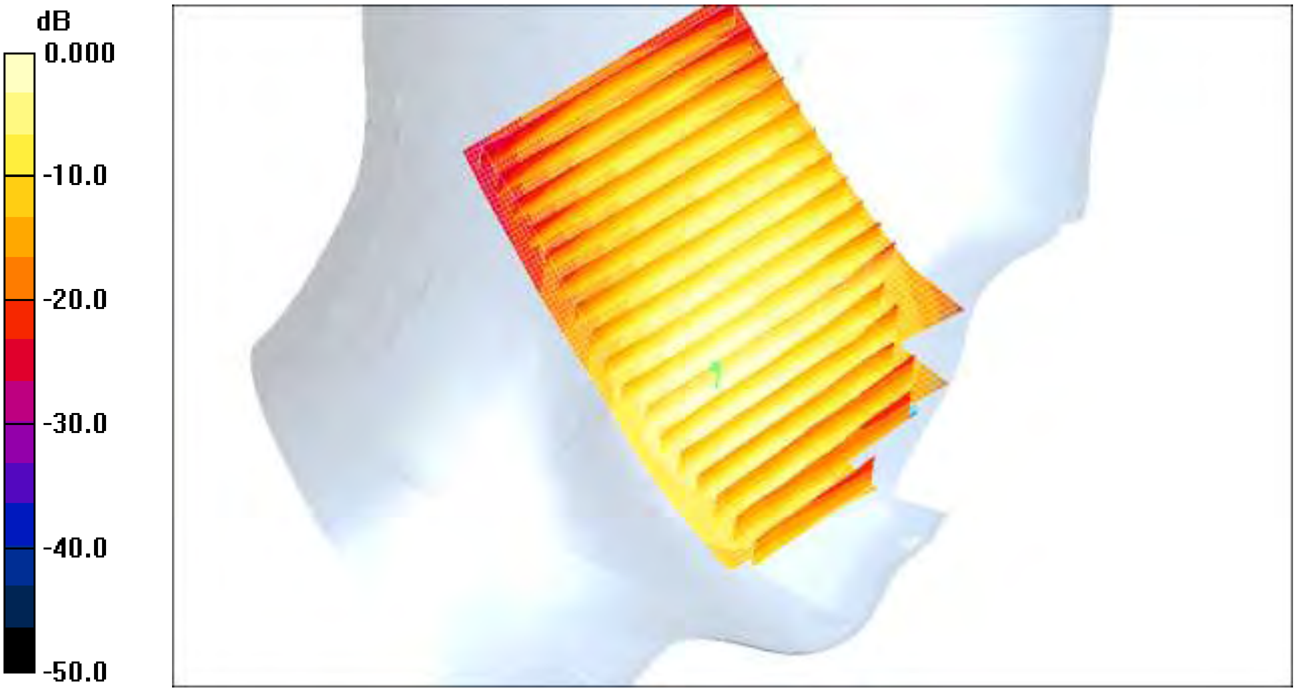
0 dB = 0.690mW/g

Multi band Results

001 PCS1900 1xRTT Left touch Volume
002 PCS1900 EVDO Left touch Volume
003 802.11b Left Touch Volume

Multi Band Result:
SAR(1 g) = 1.34 mW/g; SAR(10 g) = 0.837 mW/g
Maximum value of SAR (measured) = 1.45 mW/g

Left touch 600/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.02 mW/g



0 dB = 1.02mW/g

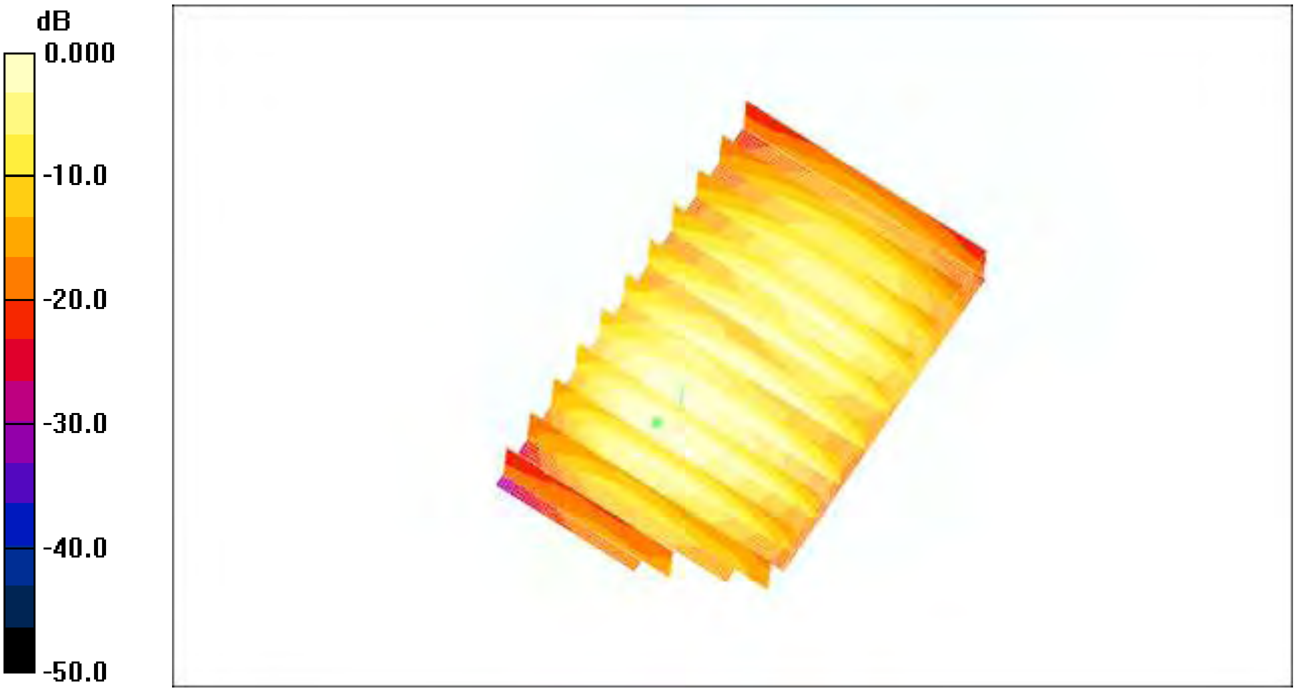
Multi band Results

004 CDMA 1xRTT Rear Volume
005 AWS1700 EVDO Rear

Multi Band Result:
SAR(1 g) = 1.18 mW/g; SAR(10 g) = 0.831 mW/g
Maximum value of SAR (measured) = 1.26 mW/g

AWS EVDO Body Rear 450/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.666 mW/g



0 dB = 0.666mW/g

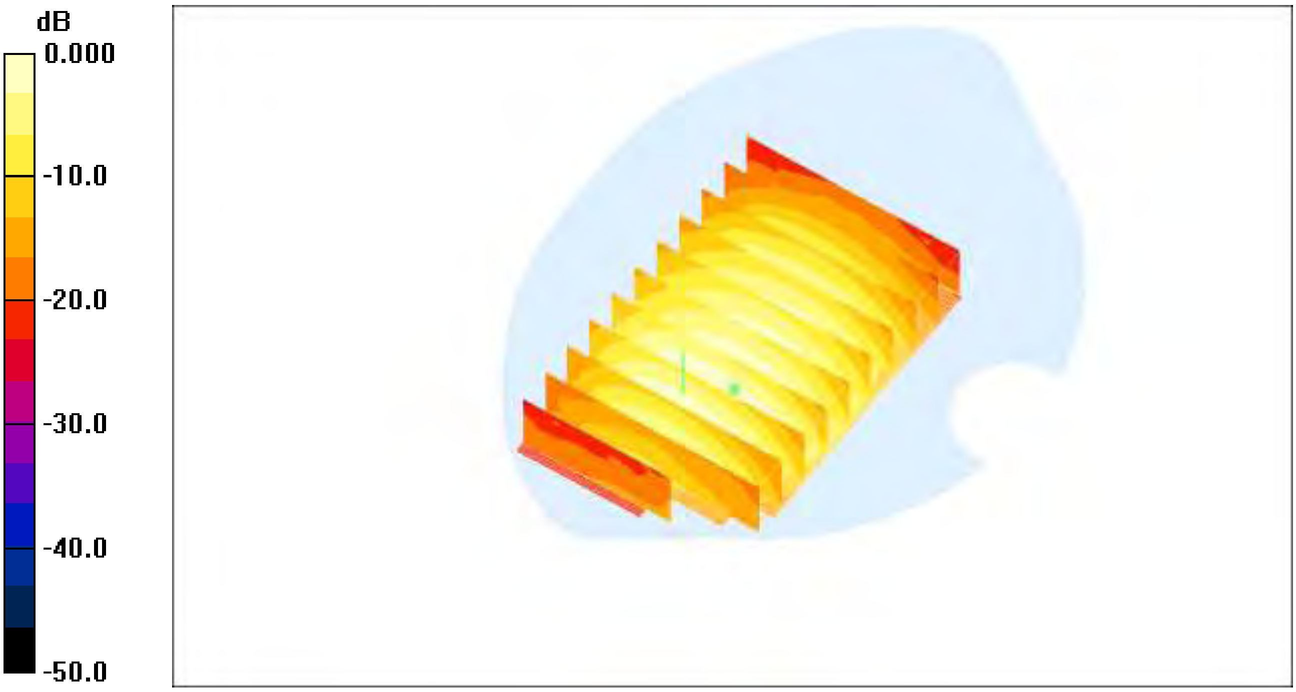
Multi band Results

004 CDMA 1xRTT Rear Volume
005 AWS1700 EVDO Rear Volume
006 802.11b Rear Volume

Multi Band Result:
SAR(1 g) = 1.2 mW/g; SAR(10 g) = 0.842 mW/g
Maximum value of SAR (measured) = 1.28 mW/g

CDMA835 Body Rear 384/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.894 mW/g



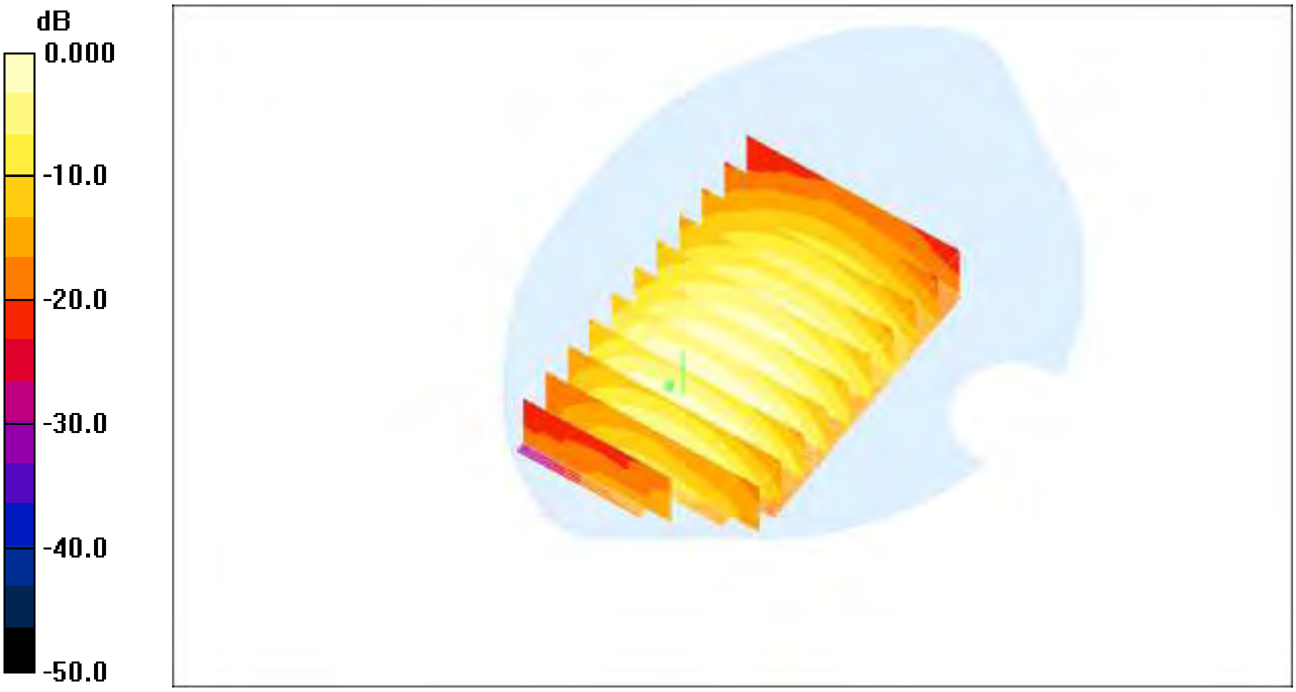
0 dB = 0.894mW/g

Multi band Results

004 CDMA 1xRTT Rear Volume
007 PCS1900 EVDO Rear Volume

Multi Band Result:
SAR(1 g) = 1.19 mW/g; SAR(10 g) = 0.845 mW/g
Maximum value of SAR (measured) = 1.24 mW/g

PCS EVDO Body Rear 600/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.714 mW/g



0 dB = 0.714mW/g

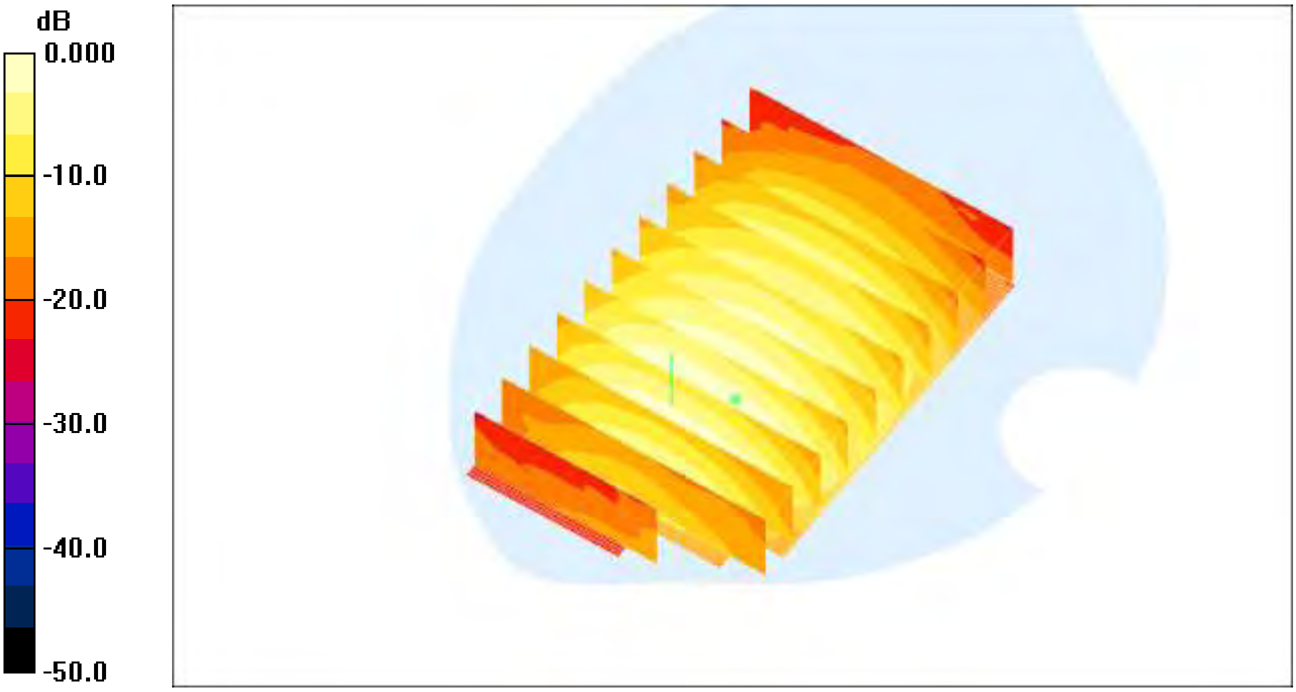
Multi band Results

004 CDMA 1xRTT Rear Volume
007 PCS1900 EVDO Rear Volume
006 802.11b Rear Volume

Multi Band Result:
SAR(1 g) = 1.2 mW/g; SAR(10 g) = 0.856 mW/g
Maximum value of SAR (measured) = 1.26 mW/g

CDMA835 Body Rear 384/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.894 mW/g



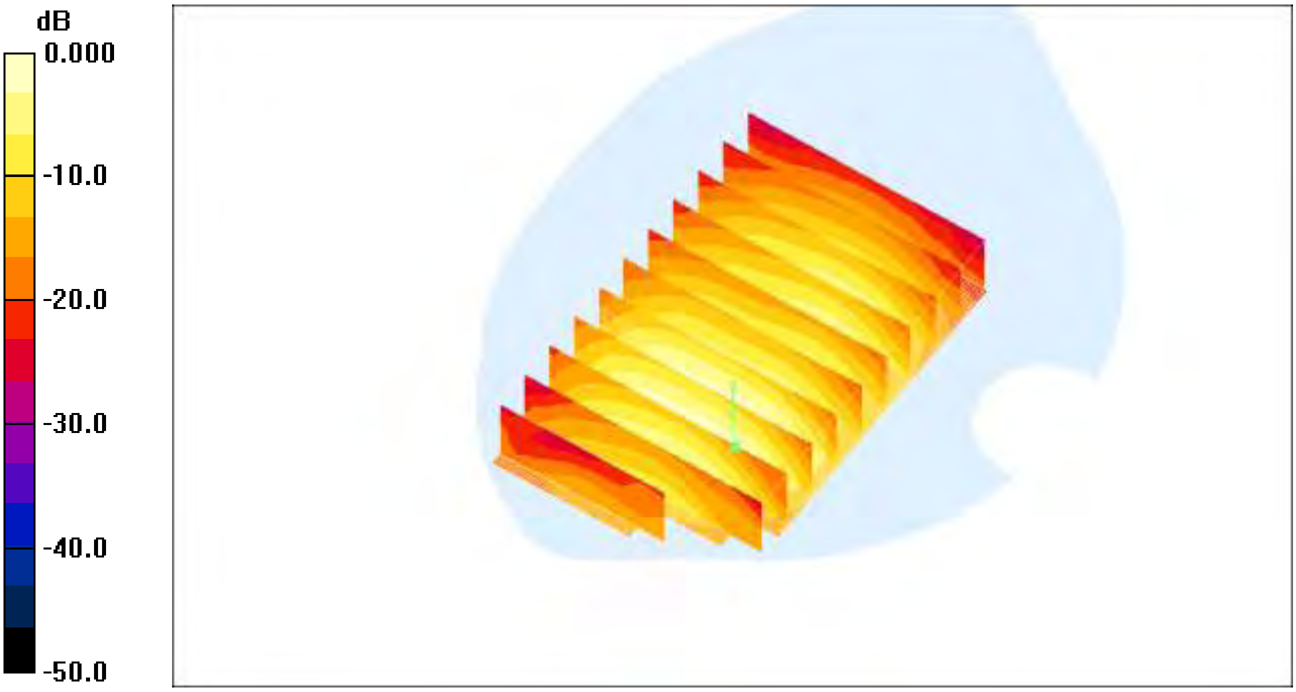
0 dB = 0.894mW/g

Multi band Results

008 PCS1900 1xRTT Rear Volume
005 AWS1700 EVDO Rear Volume

Multi Band Result:
SAR(1 g) = 1.01 mW/g; SAR(10 g) = 0.652 mW/g
Maximum value of SAR (measured) = 1.07 mW/g

PCS Body Rear 600/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.900 mW/g



0 dB = 0.900mW/g

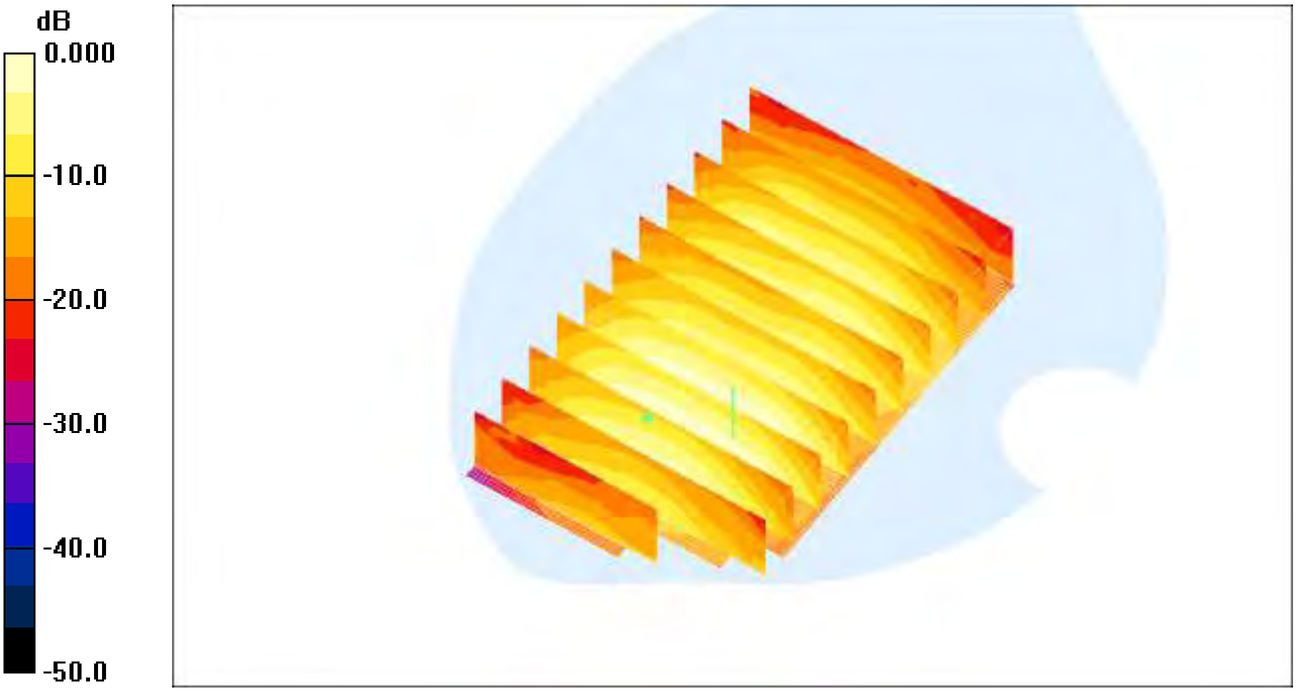
Multi band Results

008 PCS1900 1xRTT Rear Volume
005 AWS1700 EVDO Rear Volume
006 802.11b Rear Volume

Multi Band Result:
SAR(1 g) = 1.03 mW/g; SAR(10 g) = 0.660 mW/g
Maximum value of SAR (measured) = 1.08 mW/g

AWS EVDO Body Rear 450/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.666 mW/g



0 dB = 0.666mW/g

Multi band Results

008 PCS1900 1xRTT Rear Volume

007 PCS1900 EVDO Rear Volume

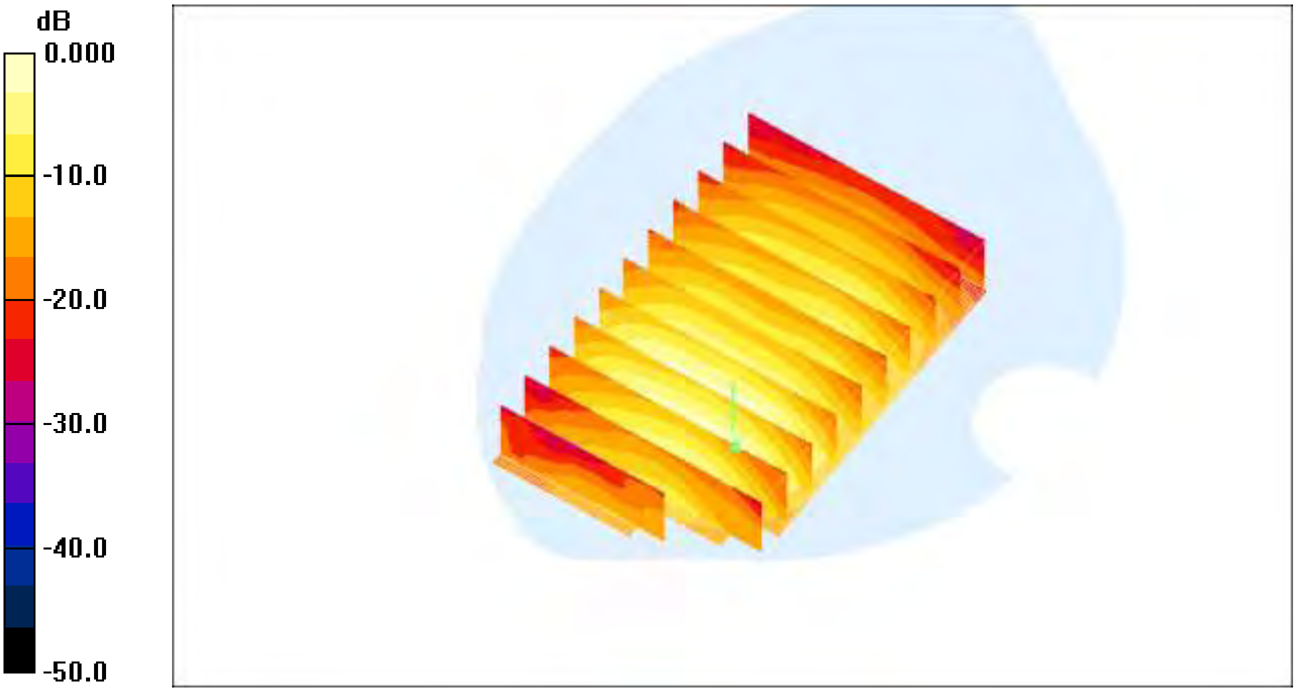
Multi Band Result:

SAR(1 g) = 1.05 mW/g; SAR(10 g) = 0.659 mW/g

Maximum value of SAR (measured) = 1.12 mW/g

PCS Body Rear 600/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.900 mW/g



0 dB = 0.900mW/g

Multi band Results

008 PCS1900 1xRTT Rear Volume

007 PCS1900 EVDO Rear Volume

006 802.11b Rear Volume

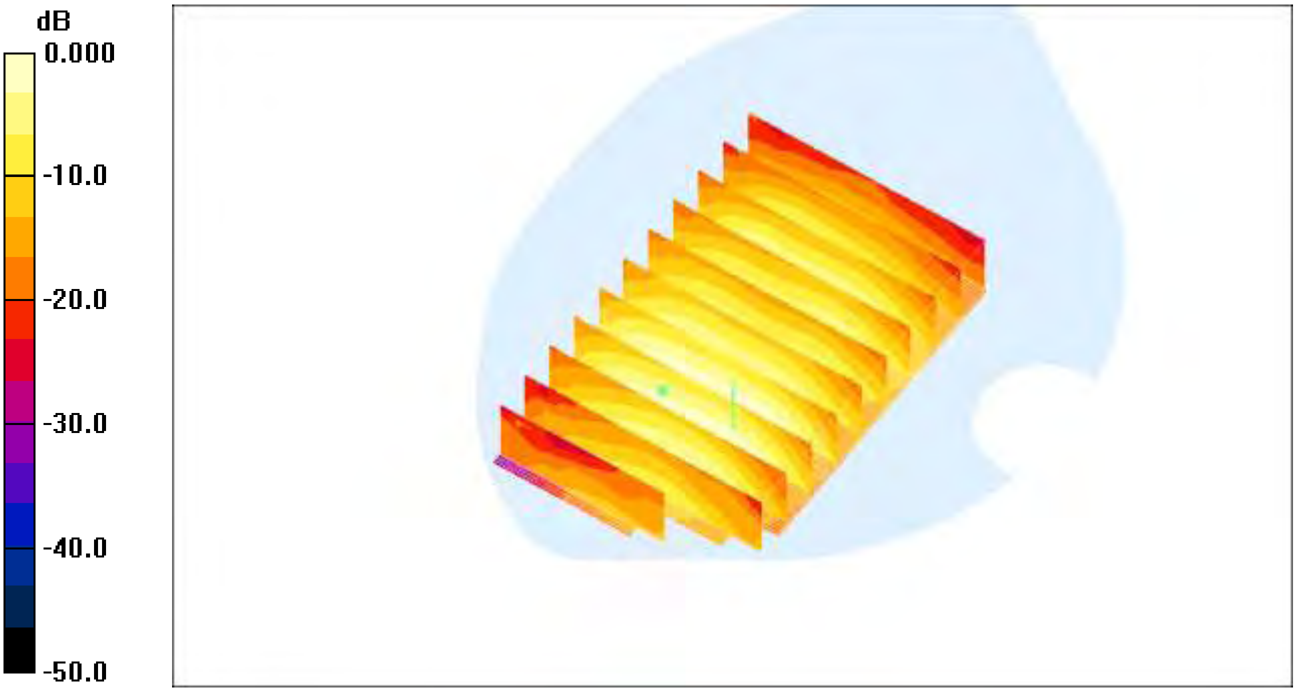
Multi Band Result:

SAR(1 g) = 1.06 mW/g; SAR(10 g) = 0.667 mW/g

Maximum value of SAR (measured) = 1.13 mW/g

PCS EVDO Body Rear 600/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.714 mW/g



0 dB = 0.714mW/g

SVLTE Multi band Results

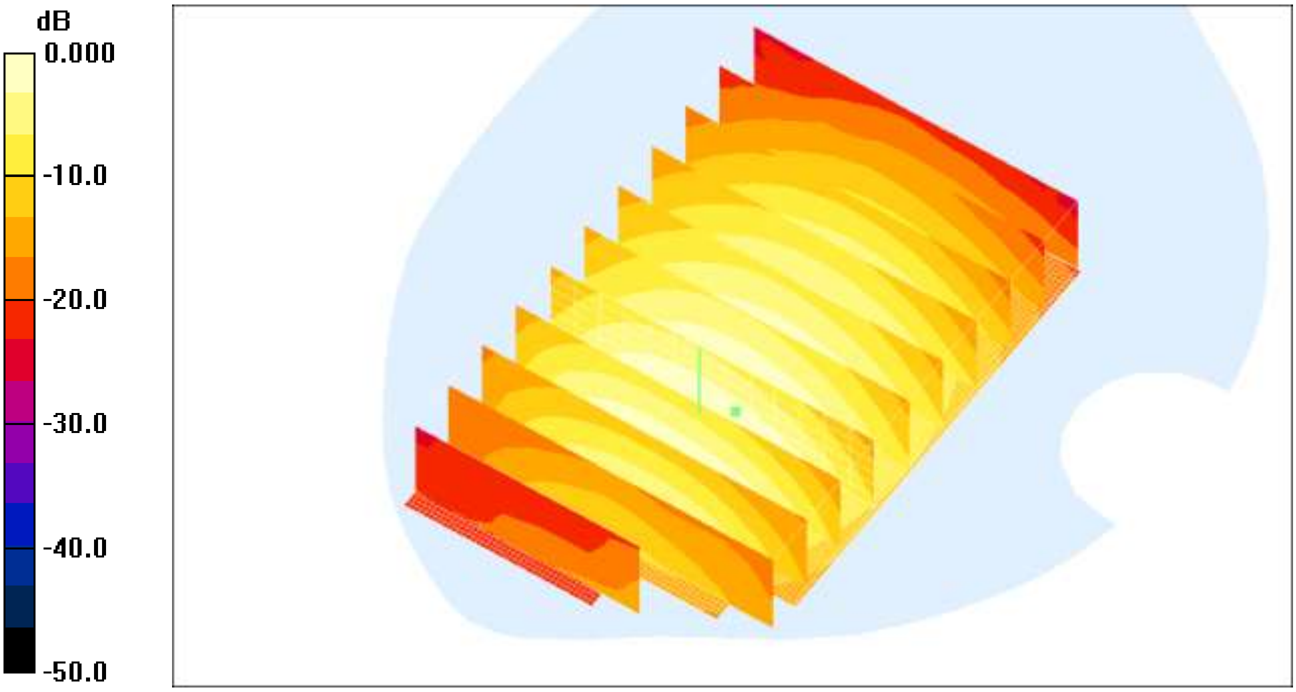
Multi band Results

004 CDMA 1xRTT Rear Volume
009 LTE Band2 Rear Volume

Multi Band Result:
SAR(1 g) = 1.14 mW/g; SAR(10 g) = 0.813 mW/g
Maximum value of SAR (measured) = 1.20 mW/g

CDMA835 Body Rear 384/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.894 mW/g



0 dB = 0.894mW/g

Multi band Results

004 CDMA 1xRTT Rear Volume

009 LTE Band2 Rear Volume

006 802.11b Rear Volume

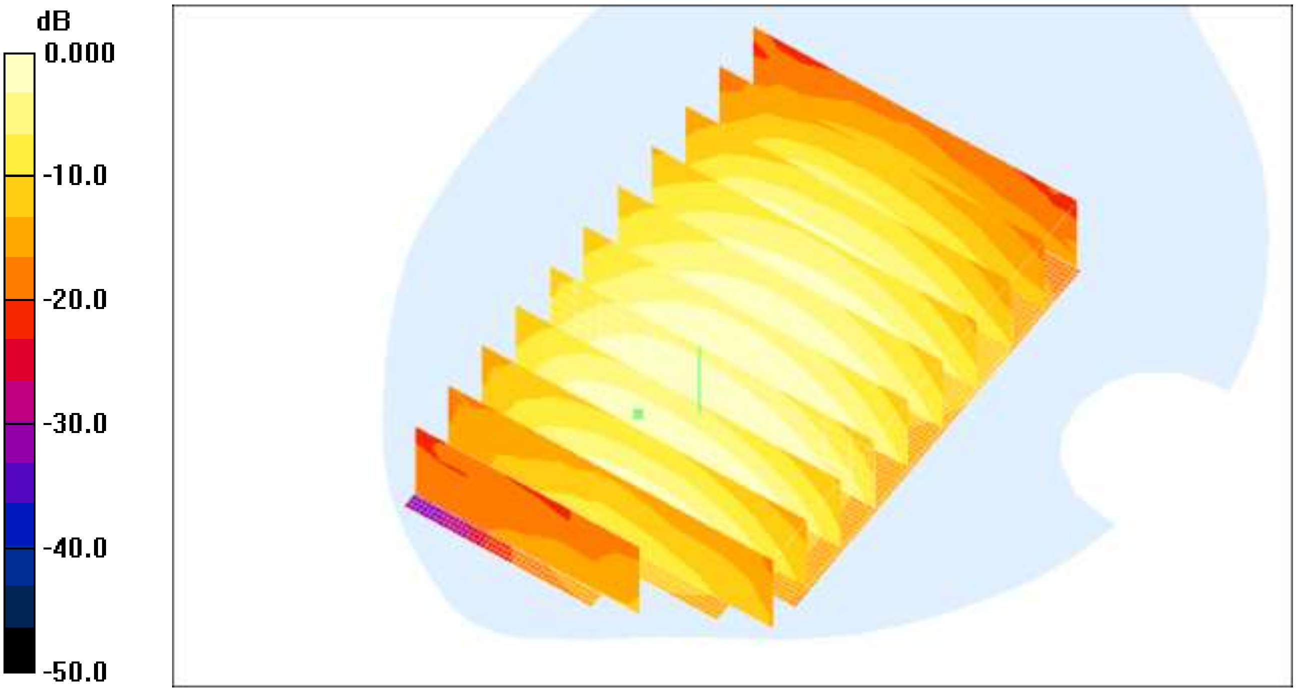
Multi Band Result:

SAR(1 g) = 1.16 mW/g; SAR(10 g) = 0.823 mW/g

Maximum value of SAR (measured) = 1.21 mW/g

LTE Band 2 Body Rear 18900 1RB 0 offset QPSK/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm

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



0 dB = 0.556mW/g

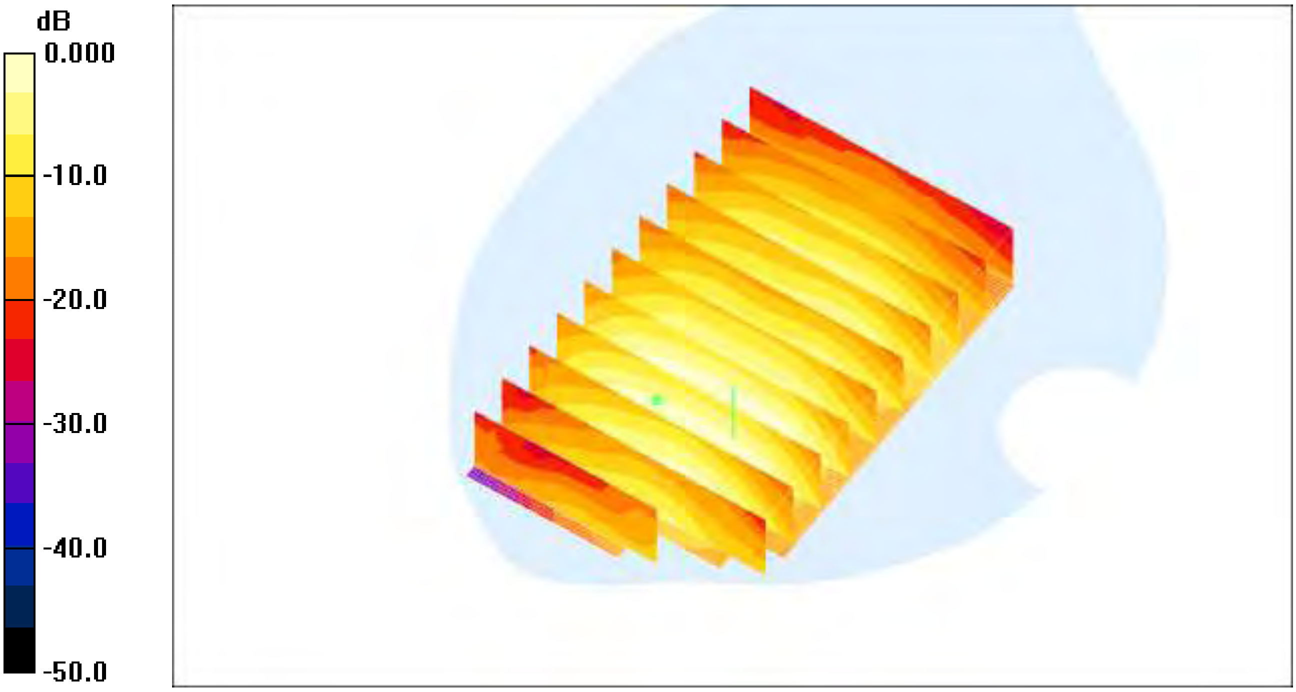
Multi band Results

008 PCS1900 1xRTT Rear Volume

009 LTE Band2 Rear Volume

Multi Band Result:
SAR(1 g) = 1.04 mW/g; SAR(10 g) = 0.651 mW/g
Maximum value of SAR (measured) = 1.10 mW/g

LTE Band 2 Body Rear 18900 1RB 0 offset QPSK/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.556 mW/g



0 dB = 0.556mW/g

Multi band Results

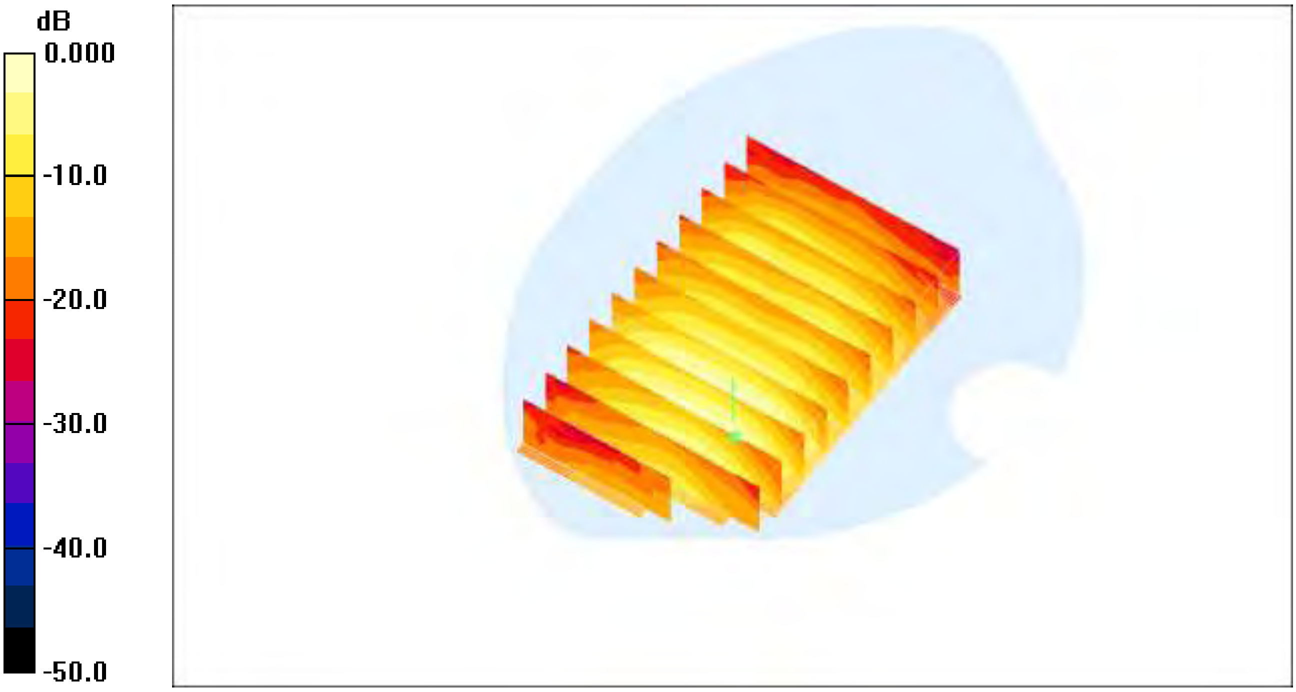
008 PCS1900 1xRTT Rear Volume

009 LTE Band2 Rear Volume

006 802.11b Rear Volume

Multi Band Result:
SAR(1 g) = 1.05 mW/g; SAR(10 g) = 0.659 mW/g
Maximum value of SAR (measured) = 1.11 mW/g

PCS Body Rear 600/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.900 mW/g



0 dB = 0.900mW/g

Multi band Results

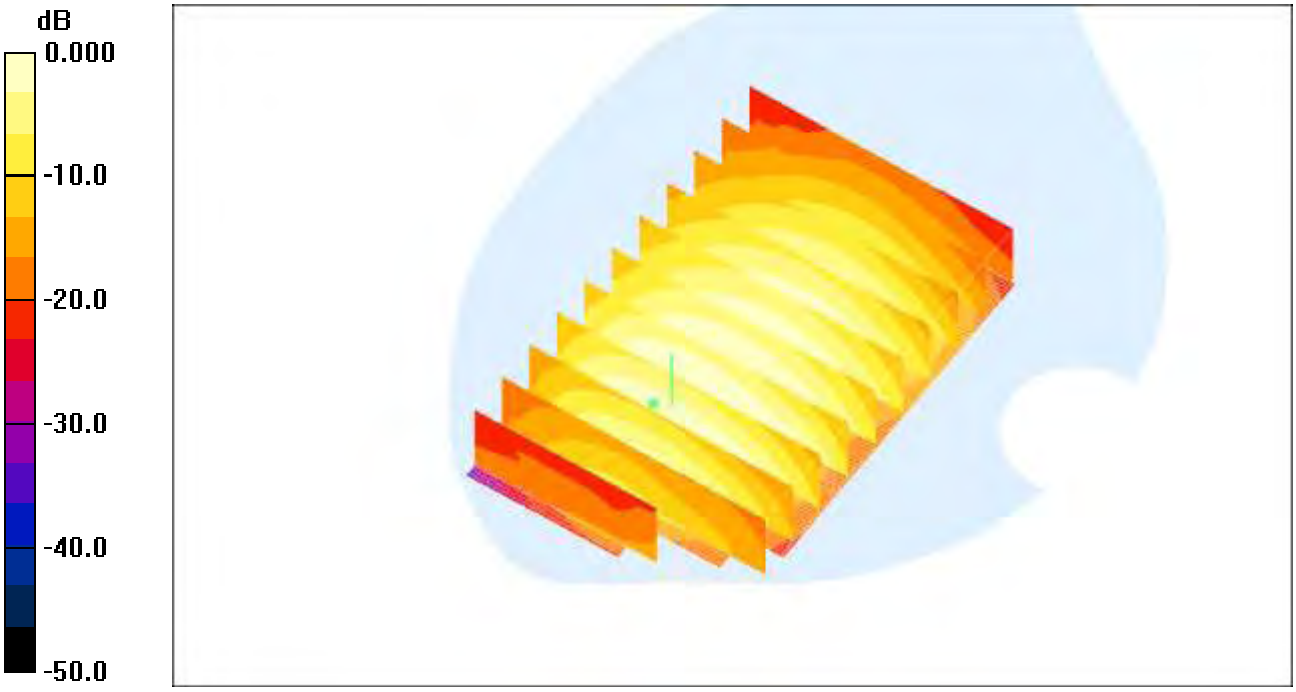
004 CDMA 1xRTT Rear Volume

010 LTE Band4 Rear Volume

Multi Band Result:
SAR(1 g) = 1.16 mW/g; SAR(10 g) = 0.820 mW/g
Maximum value of SAR (measured) = 1.23 mW/g

LTE Band 4 Body Rear 20175 1RB 24 offset QPSK/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.654 mW/g



0 dB = 0.654mW/g

Multi band Results

004 CDMA 1xRTT Rear Volume

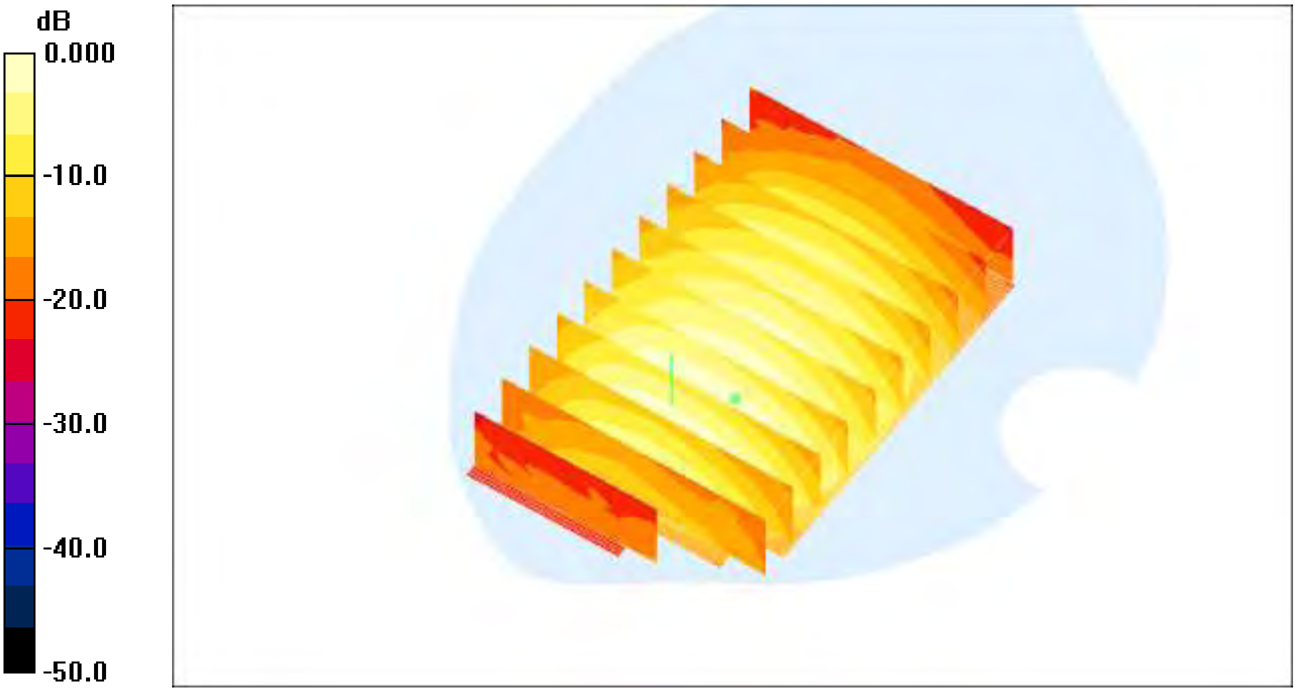
010 LTE Band4 Rear Volume

006 802.11b Rear Volume

Multi Band Result:
SAR(1 g) = 1.18 mW/g; SAR(10 g) = 0.831 mW/g
Maximum value of SAR (measured) = 1.26 mW/g

CDMA835 Body Rear 384/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.894 mW/g



0 dB = 0.894mW/g

Multi band Results

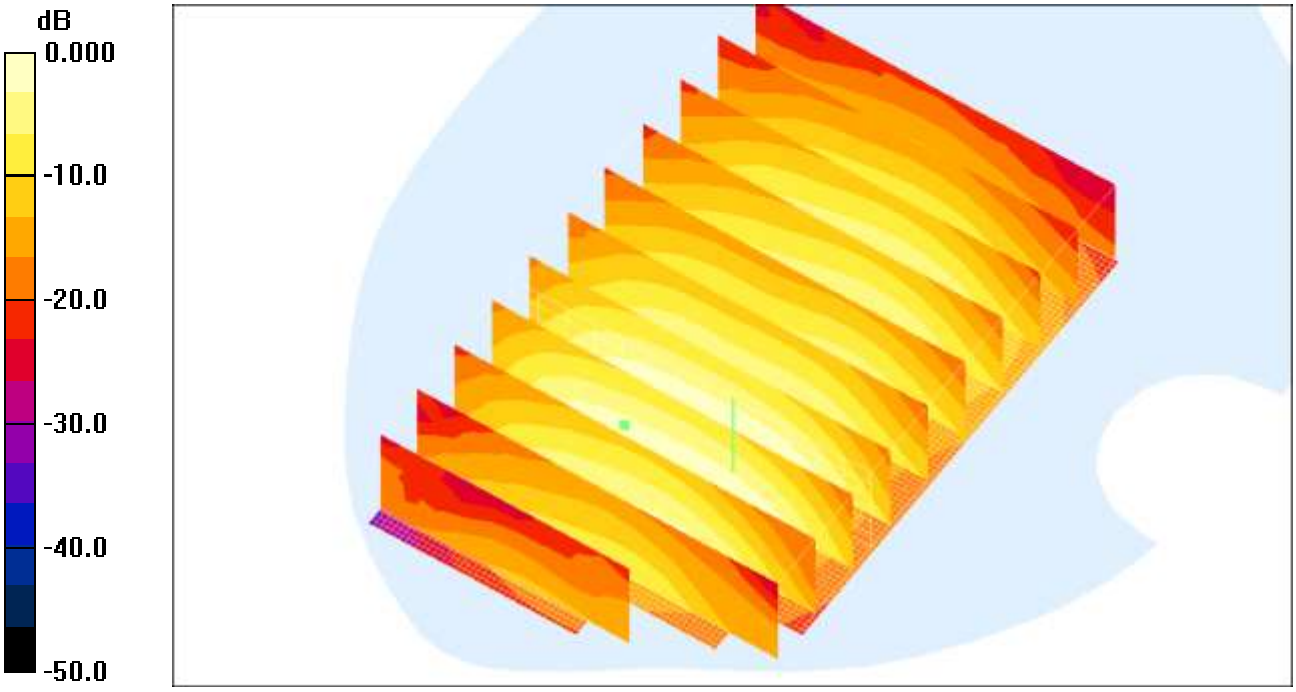
008 PCS1900 1xRTT Rear Volume

010 LTE Band4 Rear Volume

Multi Band Result:
SAR(1 g) = 0.978 mW/g; SAR(10 g) = 0.623 mW/g
Maximum value of SAR (measured) = 1.04 mW/g

LTE Band 4 Body Rear 20175 1RB 24 offset QPSK/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.654 mW/g



0 dB = 0.654mW/g

Multi band Results

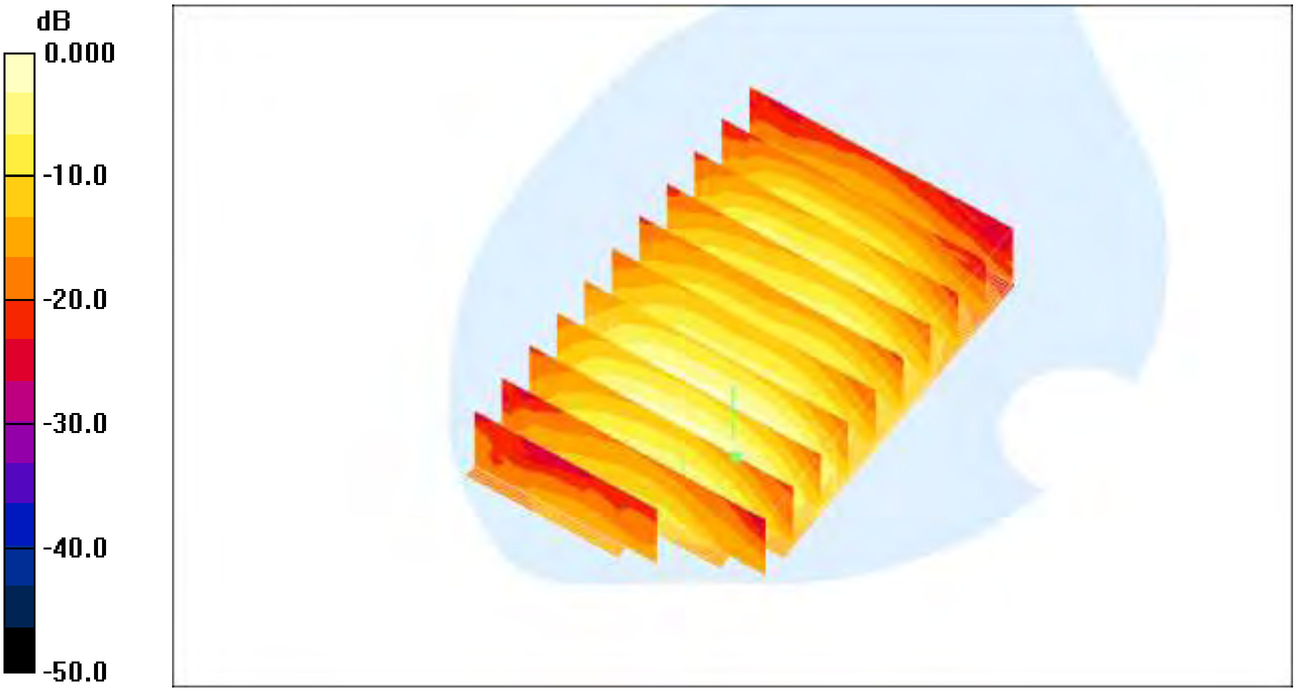
008 PCS1900 1xRTT Rear Volume

010 LTE Band4 Rear Volume

006 802.11b Rear Volume

Multi Band Result:
SAR(1 g) = 0.990 mW/g; SAR(10 g) = 0.631 mW/g
Maximum value of SAR (measured) = 1.05 mW/g

PCS Body Rear 600/Area Scan (71x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.900 mW/g



0 dB = 0.900mW/g

Attachment 3. – Dipole Validation Plots

■ Validation Data (835 MHz Head)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.2 ℃

Test Date: Dec.15, 2011

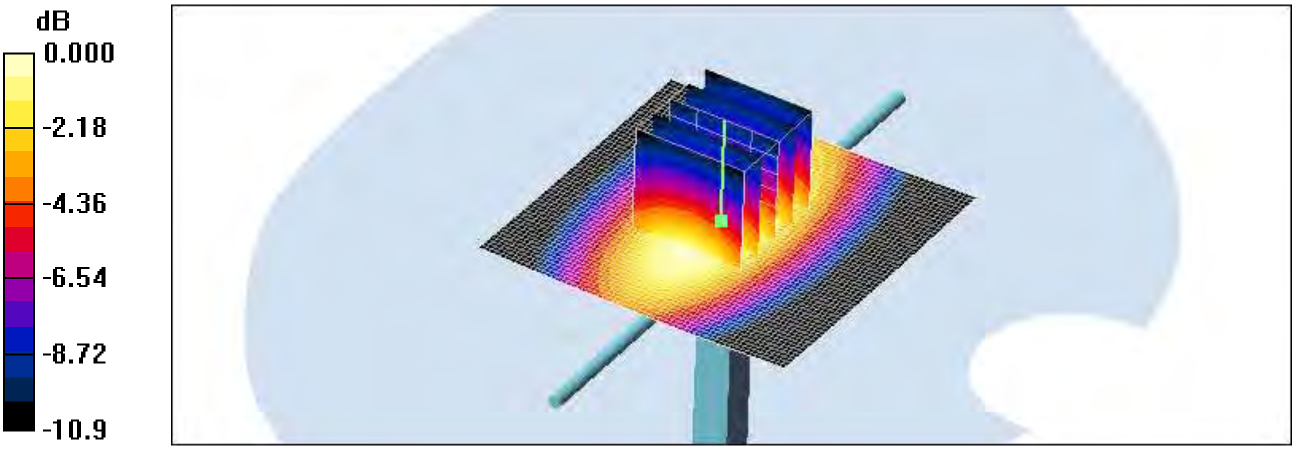
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:441

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.901 mho/m; ε_r = 43; 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) = 1.03 mW/g

Validation 835MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 34.9 V/m; Power Drift = 0.005 dB
Peak SAR (extrapolated) = 1.36 W/kg
SAR(1 g) = 0.940 mW/g; SAR(10 g) = 0.608 mW/g
Maximum value of SAR (measured) = 1.02 mW/g



0 dB = 1.02mW/g

■ Validation Data (835 MHz Body)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.2 ℃

Test Date: Dec.15, 2011

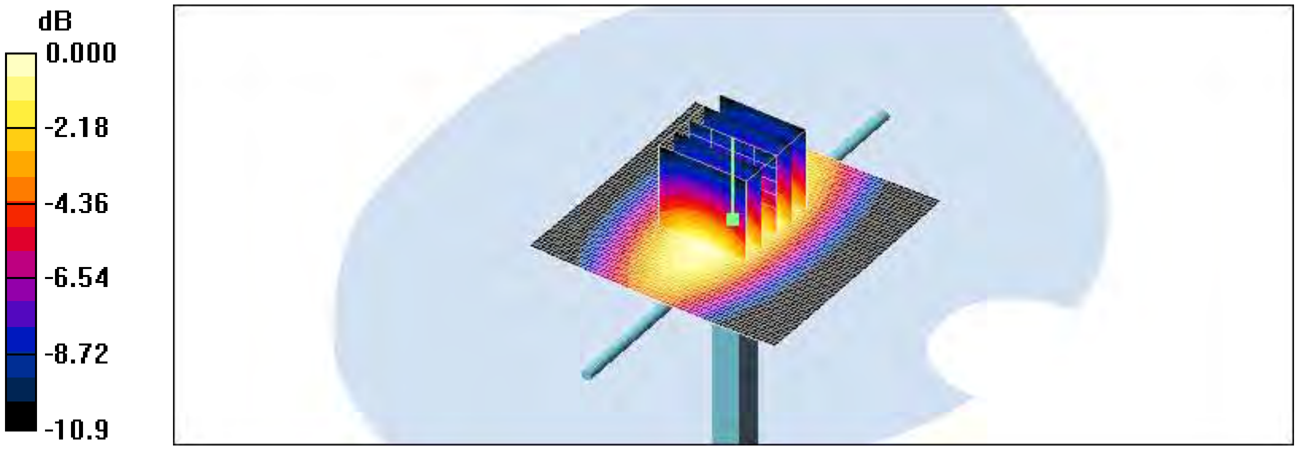
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:441

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.95 mho/m; ε_r = 55.9; 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(6.27, 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) = 1.03 mW/g

Validation 835MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 34.2 V/m; Power Drift = -0.025 dB
Peak SAR (extrapolated) = 1.37 W/kg
SAR(1 g) = 0.949 mW/g; SAR(10 g) = 0.612 mW/g
Maximum value of SAR (measured) = 1.04 mW/g



0 dB = 1.04mW/g

■ Validation Data (1800 MHz Head)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.3 ℃

Test Date: Dec.18, 2011

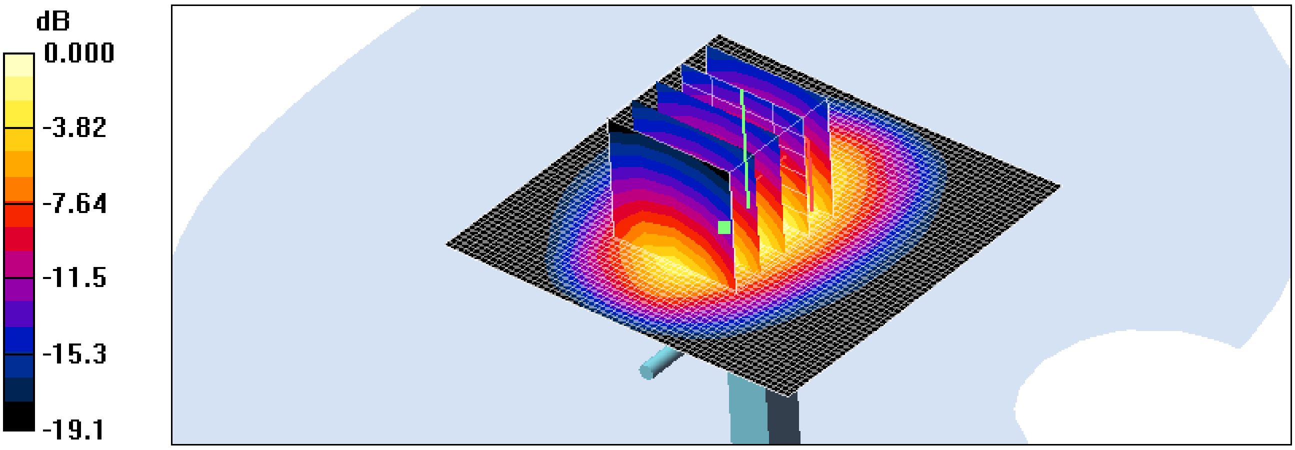
DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN:2d007

Communication System: CW; Frequency: 1800 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1800 MHz; σ = 1.39 mho/m; ε_r = 40.6; 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(5.43, 5.43, 5.43); 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 1800MHz Validation/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 4.75 mW/g

Dipole 1800MHz Validation/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 59.2 V/m; Power Drift = -0.021 dB
Peak SAR (extrapolated) = 7.01 W/kg
SAR(1 g) = 4 mW/g; SAR(10 g) = 2.11 mW/g
Maximum value of SAR (measured) = 4.46 mW/g



0 dB = 4.46mW/g

■ Validation Data (1800 MHz Body)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.3 ℃

Test Date: Dec.18, 2011

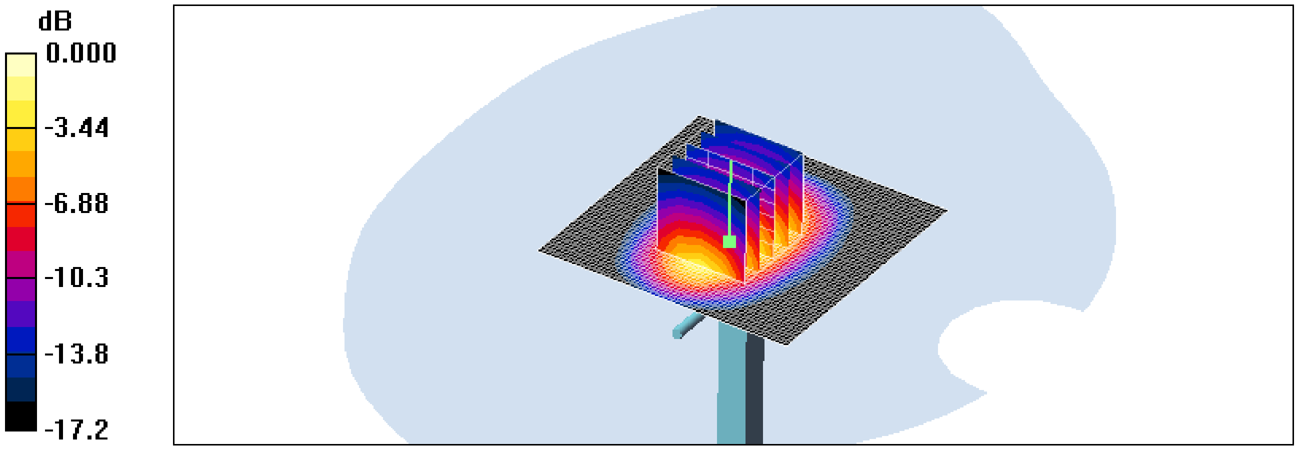
DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN:2d007

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) = 4.71 mW/g

Dipole 1800MHz Validation/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 57.2 V/m; Power Drift = -0.013 dB
Peak SAR (extrapolated) = 6.19 W/kg
SAR(1 g) = 3.84 mW/g; SAR(10 g) = 2.09 mW/g
Maximum value of SAR (measured) = 4.29 mW/g



0 dB = 4.29mW/g

■ Validation Data (1900 MHz Head)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.3 ℃

Test Date: Dec.17, 2011

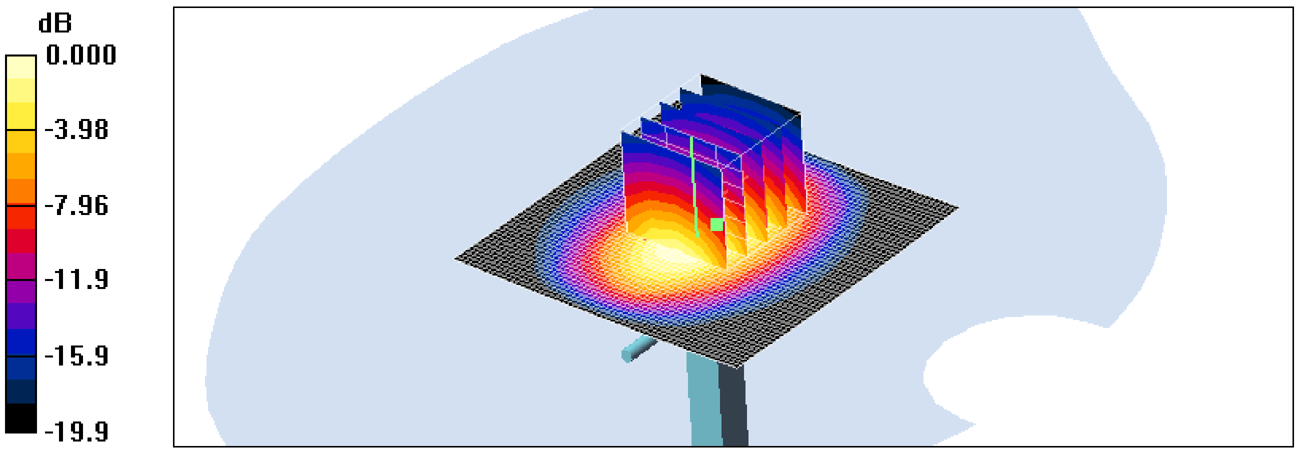
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d032

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.44 mho/m; ε_r = 39.3; 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(5.17, 5.17, 5.17); 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) = 4.97 mW/g

Dipole 1900MHz Validation/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 60.0 V/m; Power Drift = -0.284 dB
Peak SAR (extrapolated) = 7.27 W/kg
SAR(1 g) = 4.03 mW/g; SAR(10 g) = 2.08 mW/g
Maximum value of SAR (measured) = 4.47 mW/g



0 dB = 4.47mW/g

■ Validation Data (1900 MHz Body)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.3 ℃

Test Date: Dec.17, 2011

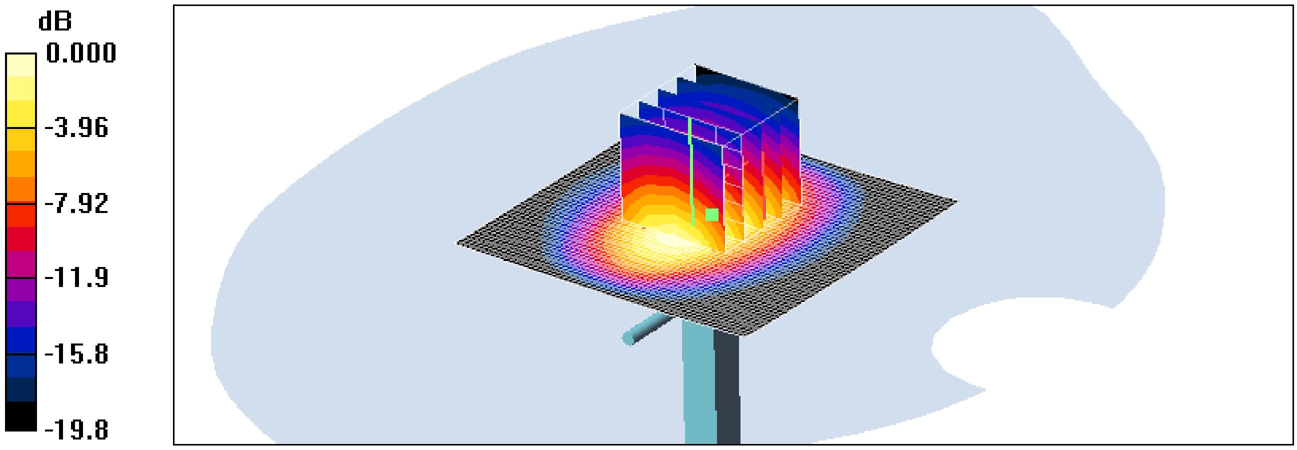
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d032

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.46 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(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) = 4.92 mW/g

Dipole 1900MHz Validation/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 59.4 V/m; Power Drift = 0.038 dB
Peak SAR (extrapolated) = 7.19 W/kg
SAR(1 g) = 4.18 mW/g; SAR(10 g) = 2.18 mW/g
Maximum value of SAR (measured) = 4.69 mW/g



0 dB = 4.69mW/g

■ Validation Data (LTE 1800 MHz Head)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.2 ℃

Test Date: Dec.19, 2011

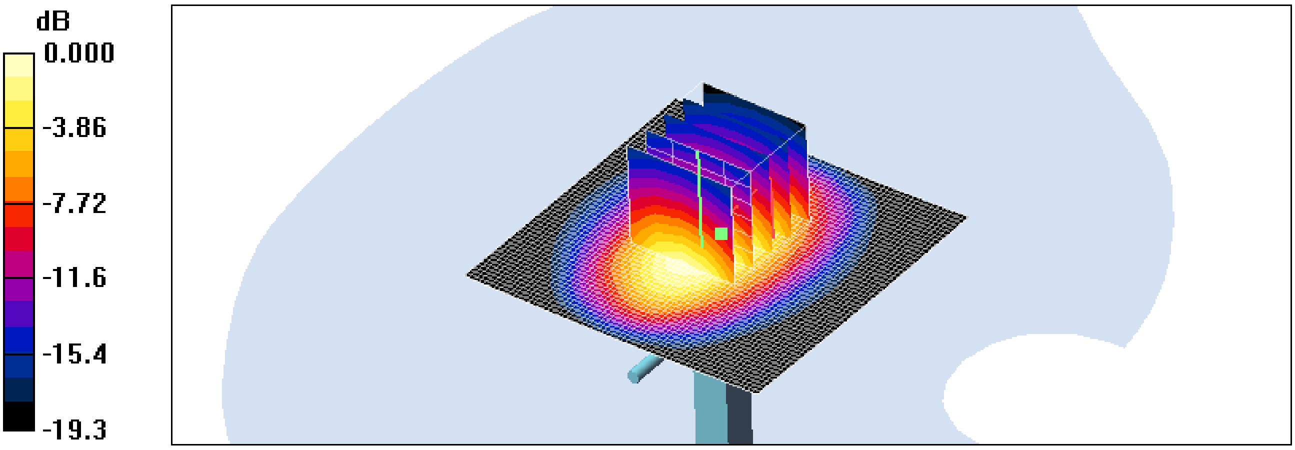
DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN:2d007

Communication System: CW; Frequency: 1800 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1800 MHz; σ = 1.4 mho/m; ε_r = 39.6; 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(5.43, 5.43, 5.43); 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 1800MHz Validation/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 4.56 mW/g

Dipole 1800MHz Validation/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 58.5 V/m; Power Drift = -0.040 dB
Peak SAR (extrapolated) = 6.93 W/kg
SAR(1 g) = 3.9 mW/g; SAR(10 g) = 2.04 mW/g
Maximum value of SAR (measured) = 4.34 mW/g



0 dB = 4.34mW/g

■ Validation Data (LTE 1800 MHz Body)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.3 ℃

Test Date: Dec.21, 2011

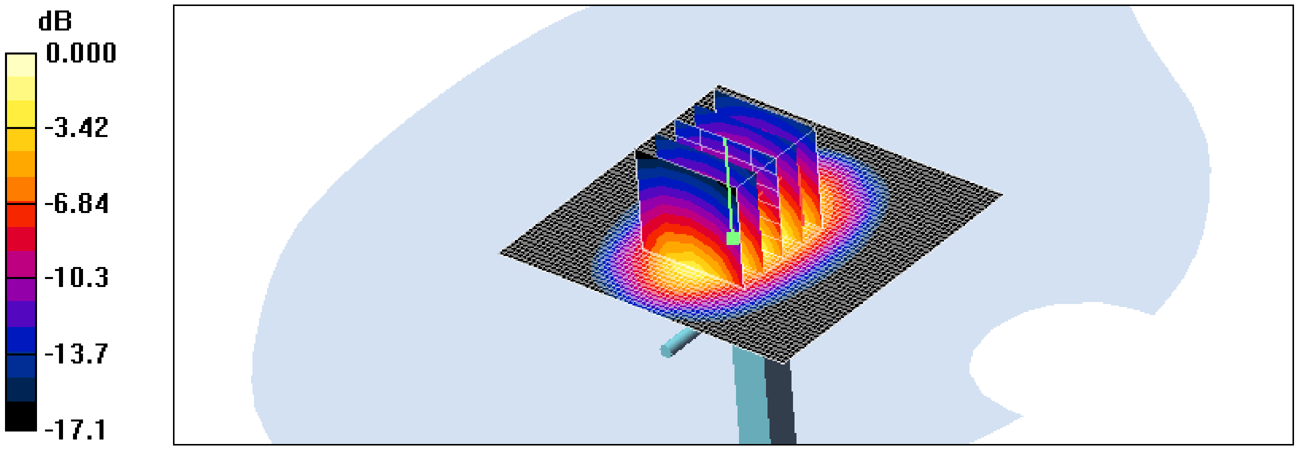
DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN:2d007

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) = 4.54 mW/g

Dipole 1800MHz Validation/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 55.8 V/m; Power Drift = -0.003 dB
Peak SAR (extrapolated) = 5.95 W/kg
SAR(1 g) = 3.69 mW/g; SAR(10 g) = 2 mW/g
Maximum value of SAR (measured) = 4.11 mW/g



0 dB = 4.11mW/g

■ Validation Data (LTE 1900 MHz Head)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.3 ℃

Test Date: Dec.20, 2011

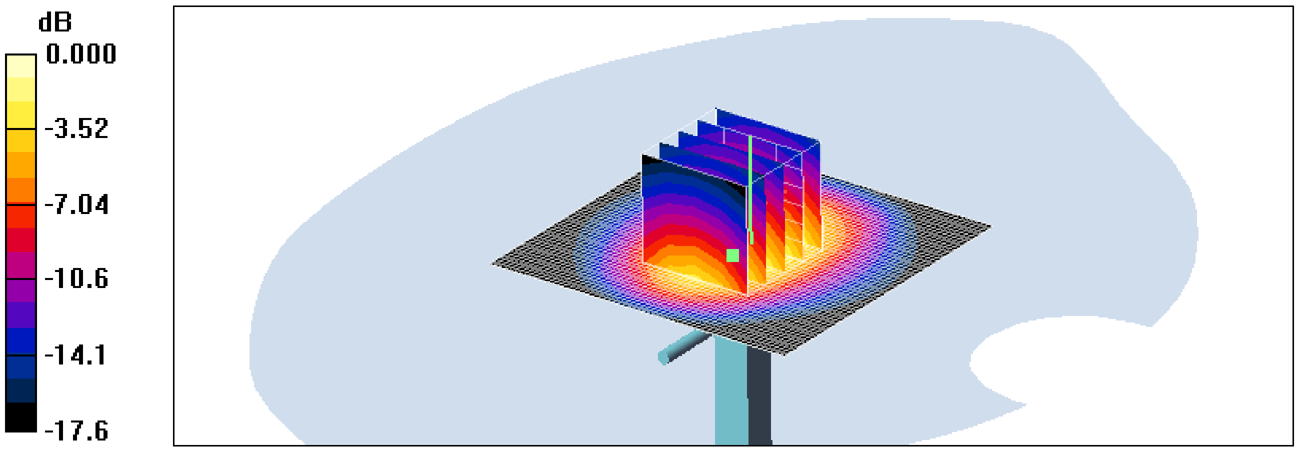
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d032

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.45 mho/m; ε_r = 40; 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(5.17, 5.17, 5.17); 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 1900MHz Validation/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 4.52 mW/g

Dipole 1900MHz Validation/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 58.2 V/m; Power Drift = -0.017 dB
Peak SAR (extrapolated) = 6.91 W/kg
SAR(1 g) = 4.06 mW/g; SAR(10 g) = 2.27 mW/g
Maximum value of SAR (measured) = 4.47 mW/g



0 dB = 4.47mW/g

■ Validation Data (LTE 1900 MHz Body)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.3 ℃

Test Date: Dec.22, 2011

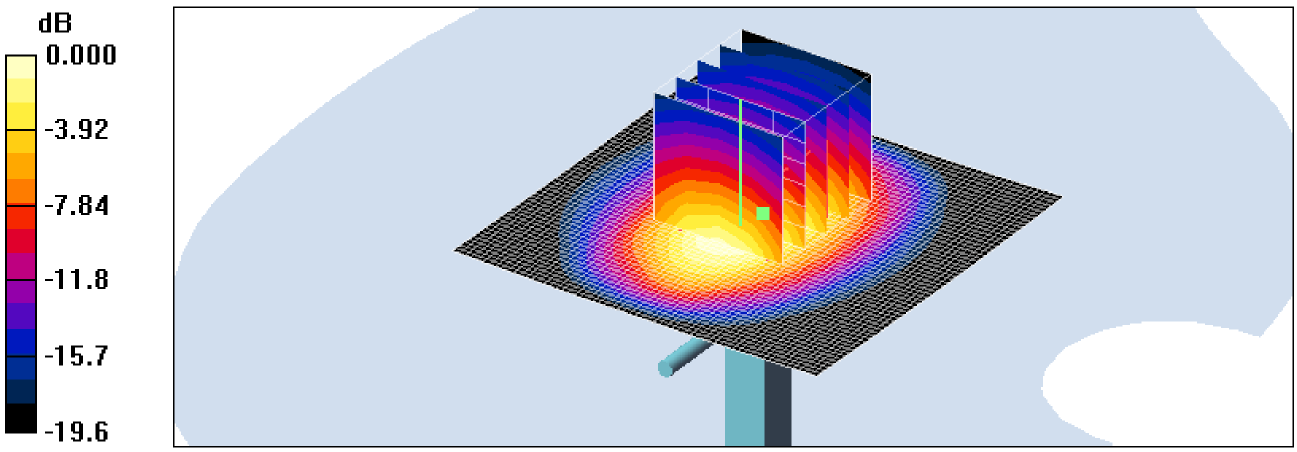
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d032

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.46 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(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) = 4.95 mW/g

Dipole 1900MHz Validation/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 59.8 V/m; Power Drift = 0.010 dB
Peak SAR (extrapolated) = 7.03 W/kg
SAR(1 g) = 4.1 mW/g; SAR(10 g) = 2.14 mW/g
Maximum value of SAR (measured) = 4.59 mW/g



0 dB = 4.59mW/g

■ Validation Data (2450 MHz Head)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.2 ℃

Test Date: Dec.23, 2011

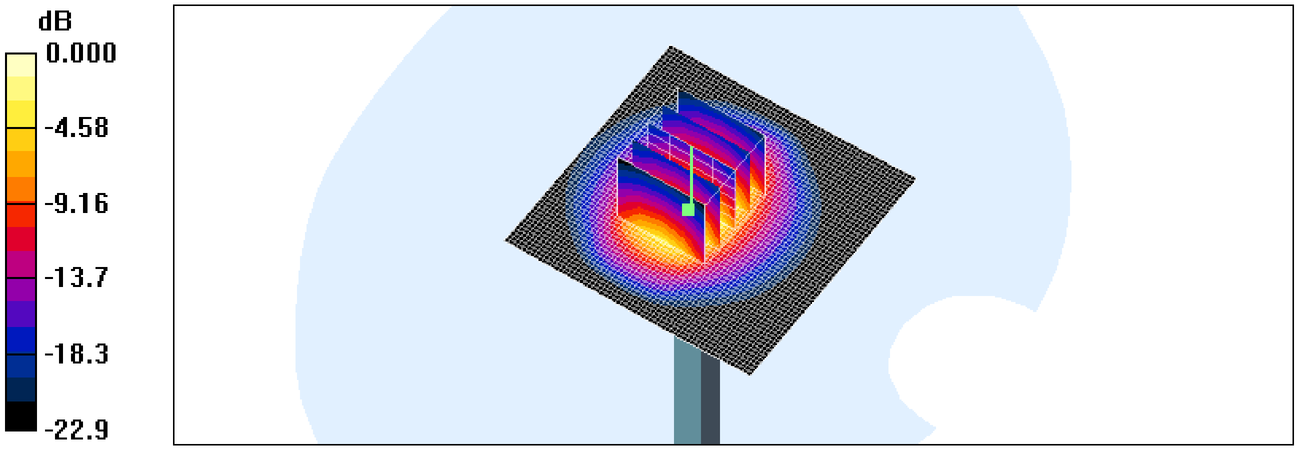
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:743

Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.85 mho/m; ε_r = 38.3; 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(4.57, 4.57, 4.57); 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 2450MHz/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 6.56 mW/g

Validation 2450MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 59.9 V/m; Power Drift = -0.035 dB
Peak SAR (extrapolated) = 12.8 W/kg
SAR(1 g) = 5.45 mW/g; SAR(10 g) = 2.48 mW/g
Maximum value of SAR (measured) = 6.00 mW/g



0 dB = 6.00mW/g

■ Validation Data (2450 MHz Body)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.2 ℃

Test Date: Dec.23, 2011

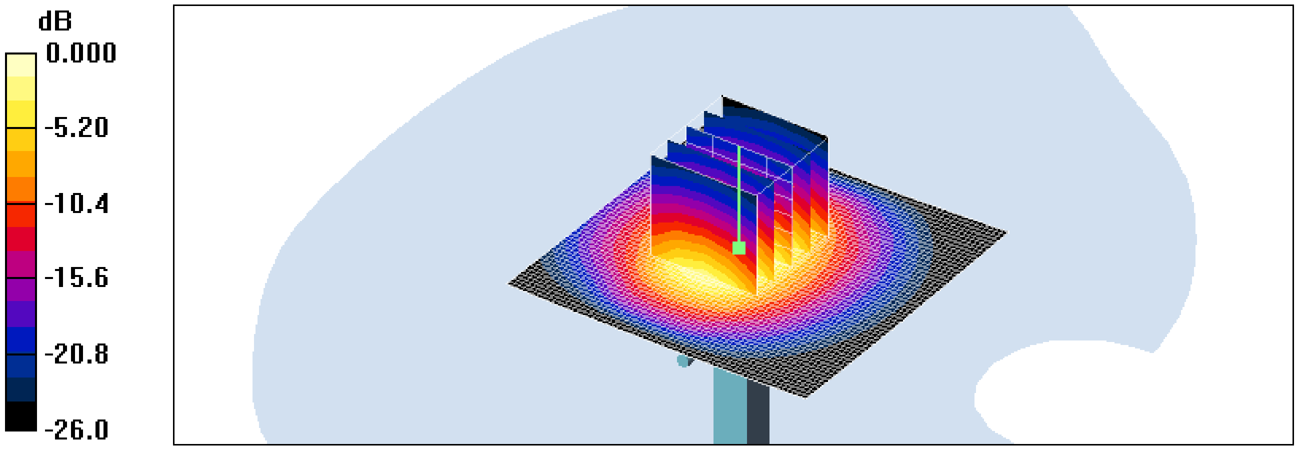
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:743

Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.96 mho/m; ε_r = 51.6; 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(4.3, 4.3, 4.3); 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 2450MHz/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 6.10 mW/g

Validation 2450MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 54.2 V/m; Power Drift = -0.034 dB
Peak SAR (extrapolated) = 12.3 W/kg
SAR(1 g) = 5.11 mW/g; SAR(10 g) = 2.27 mW/g
Maximum value of SAR (measured) = 5.61 mW/g



0 dB = 5.61mW/g

■ Validation Data (835 MHz Volume Body)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.2 ℃

Test Date: Dec.26, 2011

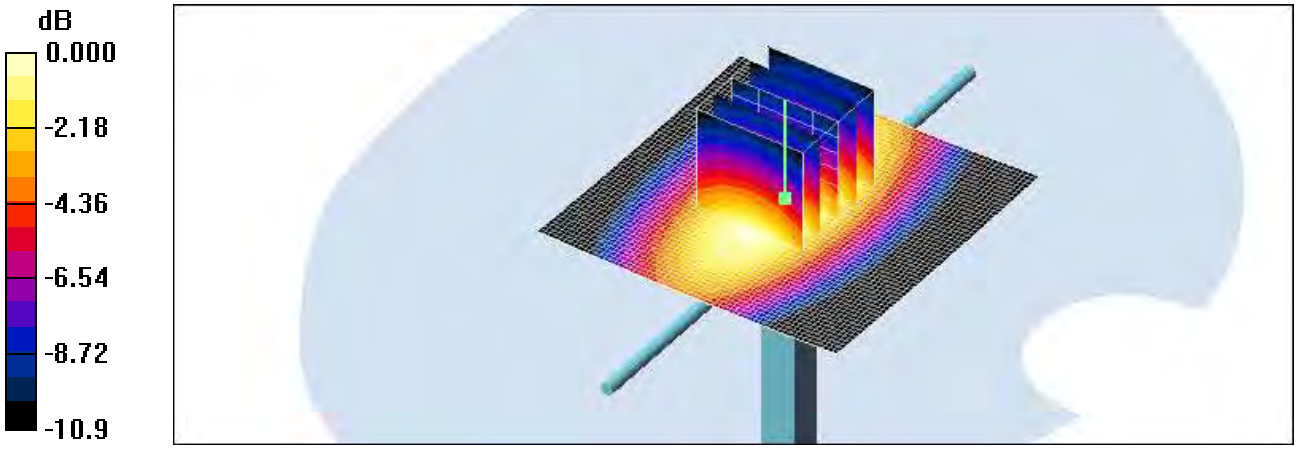
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:441

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.97 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: SAM 1800/1900 MHz; Type: SAM

Validation 835MHz/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.01 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) = 1.33 W/kg
SAR(1 g) = 0.927 mW/g; SAR(10 g) = 0.600 mW/g
Maximum value of SAR (measured) = 1.01 mW/g



0 dB = 1.01mW/g

■ Validation Data (1800 MHz Volume Body)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.3 ℃

Test Date: Dec.26, 2011

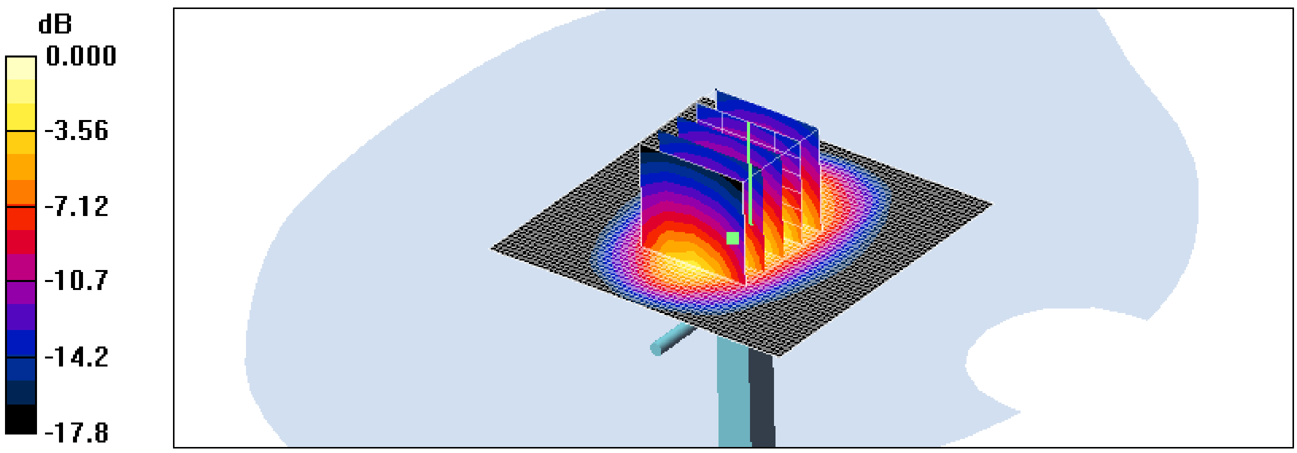
DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN:2d007

Communication System: CW; Frequency: 1800 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1800 MHz; σ = 1.5 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) = 4.61 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) = 6.19 W/kg
SAR(1 g) = 3.82 mW/g; SAR(10 g) = 2.06 mW/g
Maximum value of SAR (measured) = 4.29 mW/g



0 dB = 4.29mW/g

■ Validation Data (1900 MHz Volume Head)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.2 ℃

Test Date: Dec.28, 2011

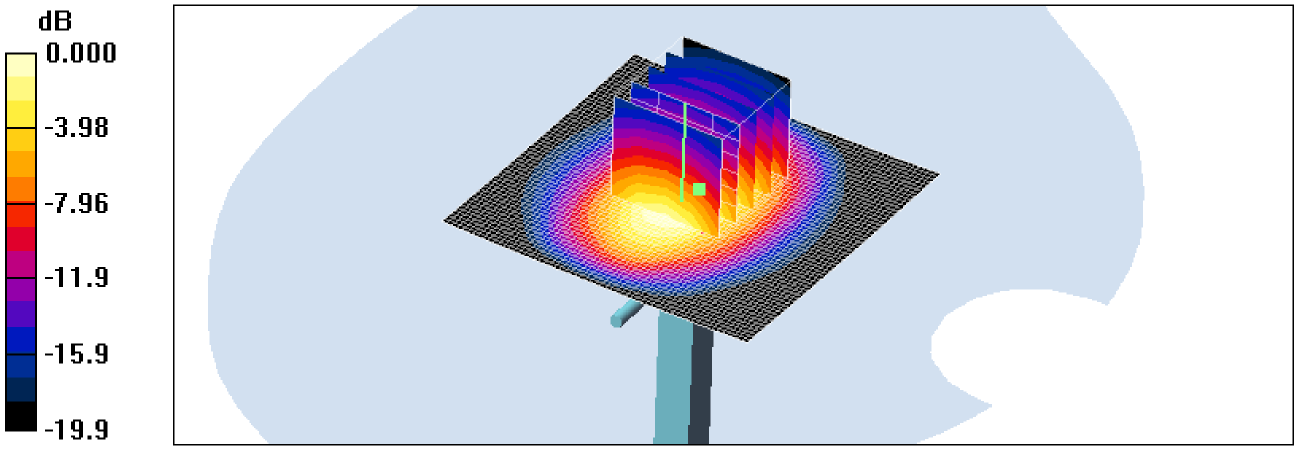
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d032

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.4 mho/m; ε_r = 41; 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(5.17, 5.17, 5.17); 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) = 4.79 mW/g

Dipole 1900MHz Validation/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 59.9 V/m; Power Drift = -0.054 dB
Peak SAR (extrapolated) = 7.33 W/kg
SAR(1 g) = 4.05 mW/g; SAR(10 g) = 2.09 mW/g
Maximum value of SAR (measured) = 4.50 mW/g



0 dB = 4.50mW/g

■ Validation Data (1900 MHz Volume Body)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.2 ℃

Test Date: Dec.27, 2011

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d032

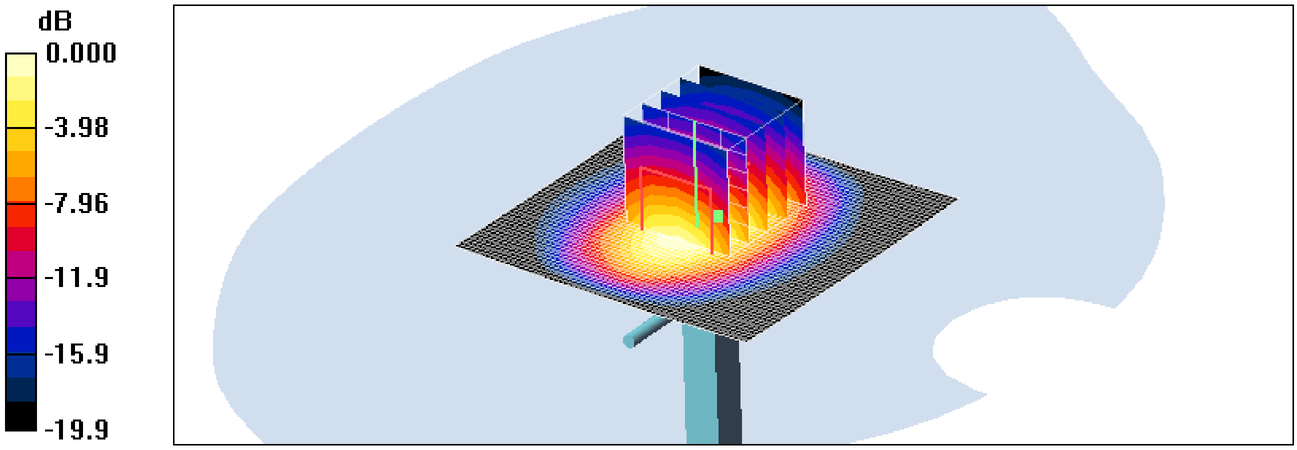
Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.47 mho/m; ε_r = 55; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

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) = 4.92 mW/g

Dipole 1900MHz Validation/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 61.6 V/m; Power Drift = -0.191 dB
Peak SAR (extrapolated) = 7.12 W/kg
SAR(1 g) = 4.18 mW/g; SAR(10 g) = 2.19 mW/g

Maximum value of SAR (measured) = 4.72 mW/g



0 dB = 4.72mW/g

■ Validation Data (2450 MHz Volume Head)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.2 ℃

Test Date: Dec.29, 2011

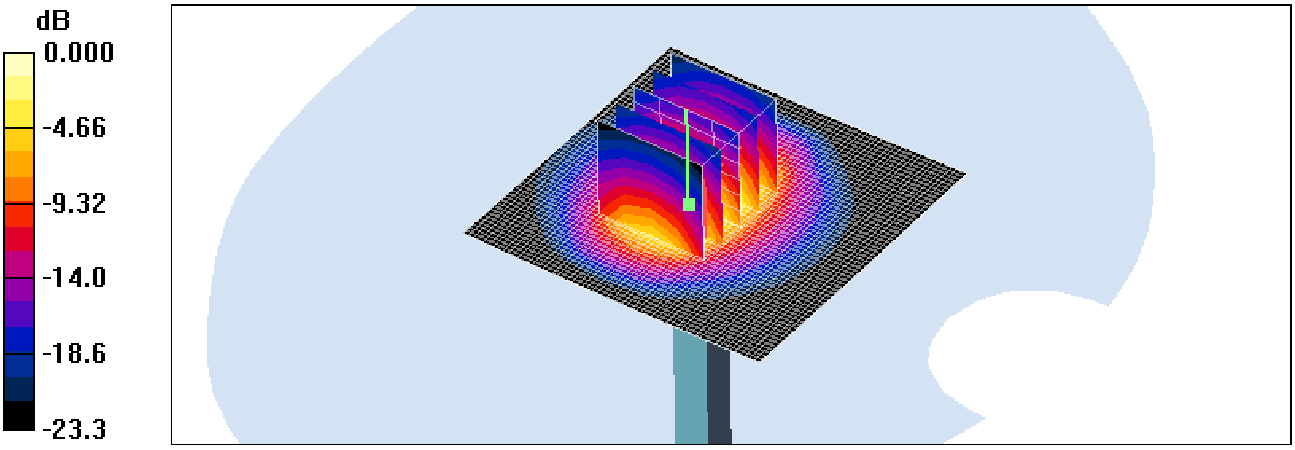
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:743

Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.85 mho/m; ε_r = 38.7; 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(4.57, 4.57, 4.57); 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 2450MHz/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 6.39 mW/g

Validation 2450MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 58.6 V/m; Power Drift = -0.029 dB
Peak SAR (extrapolated) = 12.3 W/kg
SAR(1 g) = 5.26 mW/g; SAR(10 g) = 2.4 mW/g
Maximum value of SAR (measured) = 5.72 mW/g



0 dB = 5.72mW/g

■ Validation Data (2450 MHz Volume Body)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.2 ℃

Test Date: Dec.29, 2011

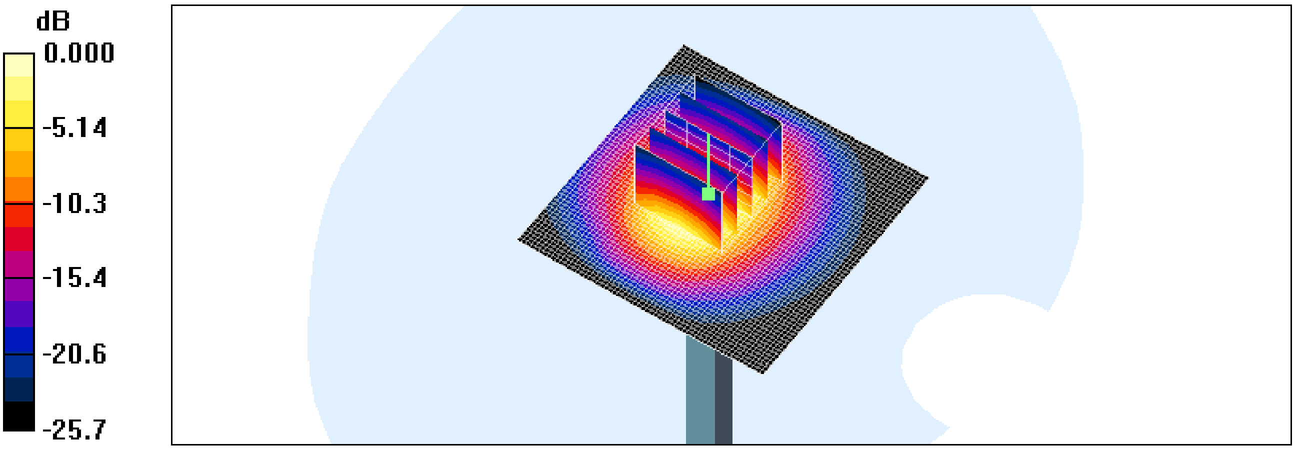
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:743

Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.98 mho/m; ε_r = 50.6; 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(4.3, 4.3, 4.3); 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 2450MHz/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 6.29 mW/g

Validation 2450MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 54.6 V/m; Power Drift = 0.004 dB
Peak SAR (extrapolated) = 12.5 W/kg
SAR(1 g) = 5.23 mW/g; SAR(10 g) = 2.33 mW/g
Maximum value of SAR (measured) = 5.76 mW/g



0 dB = 5.76mW/g

■ Dielectric Parameter (835 MHz Head)

Title	MS840
SubTitle	CDMA835(Head)
Test Date	Dec.15, 2011

Frequency	e'	e''
800000000.0000	43.4724	19.5099
805000000.0000	43.3956	19.4968
810000000.0000	43.3545	19.4522
815000000.0000	43.2436	19.4442
820000000.0000	43.2263	19.4205
825000000.0000	43.1470	19.4203
830000000.0000	43.0743	19.3652
835000000.0000	42.9933	19.3873
840000000.0000	42.9672	19.3409
845000000.0000	42.8722	19.3256
850000000.0000	42.8110	19.3320
855000000.0000	42.7418	19.3253
860000000.0000	42.6742	19.3030
865000000.0000	42.6401	19.2865
870000000.0000	42.5369	19.2755
875000000.0000	42.5413	19.3140
880000000.0000	42.4663	19.2546
885000000.0000	42.3877	19.2473
890000000.0000	42.3561	19.2261
895000000.0000	42.3270	19.1944
900000000.0000	42.2502	19.1676

■ Dielectric Parameter (835 MHz Body)

Title MS840
SubTitle CDMA 850(Body)
Test Date Dec.15, 2011

Frequency	e'	e''
800000000.0000	56.2897	20.6676
805000000.0000	56.2481	20.6036
810000000.0000	56.2144	20.5954
815000000.0000	56.1178	20.5437
820000000.0000	56.0573	20.5143
825000000.0000	56.0308	20.5032
830000000.0000	55.9732	20.4822
835000000.0000	55.9250	20.4431
840000000.0000	55.8568	20.4467
845000000.0000	55.8466	20.4231
850000000.0000	55.7738	20.4211
855000000.0000	55.7390	20.4204
860000000.0000	55.6758	20.4139
865000000.0000	55.6419	20.4176
870000000.0000	55.6309	20.4128
875000000.0000	55.5977	20.4206
880000000.0000	55.5521	20.4270
885000000.0000	55.5272	20.4216
890000000.0000	55.5219	20.3877
895000000.0000	55.4889	20.3569
900000000.0000	55.4523	20.3329

■ Dielectric Parameter (1800 MHz Head)

Title MS840
SubTitle AWS1700(Head)
Test Date Dec.16, 2011

Frequency	e'	e''
1700000000.0000	41.0952	13.5413
1710000000.0000	41.0177	13.5678
1720000000.0000	40.9454	13.5789
1730000000.0000	40.8650	13.5953
1740000000.0000	40.8022	13.6173
1750000000.0000	40.7171	13.6467
1760000000.0000	40.7113	13.7064
1770000000.0000	40.6690	13.7601
1780000000.0000	40.6230	13.7848
1790000000.0000	40.6403	13.8296
1800000000.0000	40.6096	13.8697
1810000000.0000	40.6093	13.8722
1820000000.0000	40.5290	13.8878
1830000000.0000	40.5262	13.9073
1840000000.0000	40.4542	13.9367
1850000000.0000	40.3845	13.9436
1860000000.0000	40.3123	13.9921
1870000000.0000	40.2347	14.0535
1880000000.0000	40.1604	14.1221
1890000000.0000	40.1264	14.1378
1900000000.0000	40.0820	14.2057

■ Dielectric Parameter (1800 MHz Body)

Title	MS840
SubTitle	AWS1700 (Body)
Test Date	Dec.16, 2011

Frequency	e'	e''
1700000000.0000	55.2767	15.0417
1710000000.0000	55.2594	15.0592
1720000000.0000	55.2353	15.0543
1730000000.0000	55.2103	15.0436
1740000000.0000	55.1878	15.0595
1750000000.0000	55.1920	15.0599
1760000000.0000	55.1620	15.0516
1770000000.0000	55.1539	15.0216
1780000000.0000	55.1196	15.0471
1790000000.0000	55.1057	15.0443
1800000000.0000	55.0886	15.0516
1810000000.0000	55.0512	15.0776
1820000000.0000	55.0366	15.0883
1830000000.0000	55.0006	15.1111
1840000000.0000	54.9707	15.1220
1850000000.0000	54.9398	15.1190
1860000000.0000	54.9235	15.1294
1870000000.0000	54.9020	15.1235
1880000000.0000	54.9029	15.1358
1890000000.0000	54.8646	15.1242
1900000000.0000	54.8453	15.1145

■ Dielectric Parameter (1900 MHz Head)

Title	MS840
SubTitle	PCS1900(Head)
Test Date	Dec.17, 2011

Frequency	e'	e''
1850000000.0000	40.1264	13.0736
1855000000.0000	39.9549	13.0962
1860000000.0000	39.7808	13.1327
1865000000.0000	39.6101	13.1777
1870000000.0000	39.4599	13.2374
1875000000.0000	39.3504	13.2981
1880000000.0000	39.2685	13.3668
1885000000.0000	39.2384	13.4426
1890000000.0000	39.2351	13.5047
1895000000.0000	39.2675	13.5834
1900000000.0000	39.3265	13.6510
1905000000.0000	39.4237	13.6932
1910000000.0000	39.5333	13.7005
1915000000.0000	39.6476	13.6915
1920000000.0000	39.7863	13.6662
1925000000.0000	39.9076	13.6228
1930000000.0000	40.0258	13.5700
1935000000.0000	40.1093	13.5338
1940000000.0000	40.1613	13.5000
1945000000.0000	40.1622	13.5004
1950000000.0000	40.0978	13.4755

■ Dielectric Parameter (1900 MHz Body)

Title	MS840
SubTitle	PCS1900(Body)
Test Date	Dec.17, 2011

Frequency	e'	e''
1850000000.0000	54.7318	13.6737
1855000000.0000	54.7058	13.6874
1860000000.0000	54.6887	13.6792
1865000000.0000	54.6800	13.6922
1870000000.0000	54.6552	13.7054
1875000000.0000	54.6424	13.7256
1880000000.0000	54.6373	13.7341
1885000000.0000	54.6277	13.7500
1890000000.0000	54.6175	13.7758
1895000000.0000	54.6249	13.7826
1900000000.0000	54.6172	13.8009
1905000000.0000	54.6160	13.8307
1910000000.0000	54.6069	13.8392
1915000000.0000	54.6102	13.8494
1920000000.0000	54.6166	13.8505
1925000000.0000	54.6064	13.8357
1930000000.0000	54.6018	13.8555
1935000000.0000	54.5797	13.8697
1940000000.0000	54.5874	13.8698
1945000000.0000	54.5575	13.8364
1950000000.0000	54.5419	13.8322

■ Dielectric Parameter (1800 MHz Head)

Title	MS840
SubTitle	LTE1800(Head)
Test Date	Dec.19, 2011

Frequency	e'	e''
1700000000.0000	39.9577	13.8003
1710000000.0000	39.9528	13.7922
1720000000.0000	39.8867	13.7850
1730000000.0000	39.8302	13.7976
1740000000.0000	39.8213	13.8044
1750000000.0000	39.7778	13.8190
1760000000.0000	39.7021	13.8713
1770000000.0000	39.6852	13.8951
1780000000.0000	39.6605	13.9143
1790000000.0000	39.5884	13.9649
1800000000.0000	39.5702	14.0108
1810000000.0000	39.5488	14.0188
1820000000.0000	39.5169	14.0028
1830000000.0000	39.5106	14.0473
1840000000.0000	39.4855	14.0789
1850000000.0000	39.4307	14.0651
1860000000.0000	39.3990	14.0919
1870000000.0000	39.3582	14.0731
1880000000.0000	39.2877	14.1063
1890000000.0000	39.2146	14.1713
1900000000.0000	39.1695	14.2070

■ Dielectric Parameter (1800 MHz Body)

Title	MS840
SubTitle	LTE1800(Body)
Test Date	Dec.21, 2011

Frequency	e'	e''
1700000000.0000	55.2626	15.0403
1710000000.0000	55.2482	15.0539
1720000000.0000	55.2156	15.0608
1730000000.0000	55.2009	15.0606
1740000000.0000	55.1796	15.0626
1750000000.0000	55.1636	15.0750
1760000000.0000	55.1648	15.0476
1770000000.0000	55.1285	15.0330
1780000000.0000	55.1250	15.0393
1790000000.0000	55.0976	15.0560
1800000000.0000	55.0753	15.0627
1810000000.0000	55.0401	15.0729
1820000000.0000	55.0202	15.0915
1830000000.0000	54.9914	15.1163
1840000000.0000	54.9563	15.1181
1850000000.0000	54.9372	15.1229
1860000000.0000	54.8989	15.1414
1870000000.0000	54.8892	15.1431
1880000000.0000	54.8782	15.1311
1890000000.0000	54.8557	15.1295
1900000000.0000	54.8386	15.1295

■ Dielectric Parameter (1900 MHz Head)

Title	MS840
SubTitle	LTE PCS1900(Head)
Test Date	Dec.20, 2011

Frequency	e'	e''
1800000000.0000	40.4424	13.3206
1810000000.0000	40.3508	13.3819
1820000000.0000	40.3329	13.4556
1830000000.0000	40.2673	13.5528
1840000000.0000	40.2847	13.6435
1850000000.0000	40.2863	13.7497
1860000000.0000	40.2491	13.8255
1870000000.0000	40.2101	13.8294
1880000000.0000	40.1561	13.8131
1890000000.0000	40.1143	13.7441
1900000000.0000	40.0427	13.7071
1910000000.0000	39.9586	13.6820
1920000000.0000	39.9020	13.6516
1930000000.0000	39.8381	13.6772
1940000000.0000	39.7779	13.7334
1950000000.0000	39.7084	13.8405
1960000000.0000	39.7045	13.9277
1970000000.0000	39.6853	14.0607
1980000000.0000	39.6740	14.1318
1990000000.0000	39.6831	14.1475
2000000000.0000	39.6643	14.1643

■ Dielectric Parameter (1900 MHz Body)

Title	MS840
SubTitle	LTE PCS1900(Body)
Test Date	Dec.22, 2011

Frequency	e'	e''
1850000000.0000	54.6259	13.6431
1855000000.0000	54.6041	13.6761
1860000000.0000	54.5945	13.6565
1865000000.0000	54.5746	13.6788
1870000000.0000	54.5509	13.6820
1875000000.0000	54.5343	13.7000
1880000000.0000	54.5268	13.7125
1885000000.0000	54.5288	13.7360
1890000000.0000	54.5158	13.7494
1895000000.0000	54.5196	13.7622
1900000000.0000	54.5151	13.7800
1905000000.0000	54.5124	13.8038
1910000000.0000	54.5106	13.8222
1915000000.0000	54.5105	13.8253
1920000000.0000	54.5026	13.8284
1925000000.0000	54.4893	13.8277
1930000000.0000	54.4971	13.8448
1935000000.0000	54.4845	13.8437
1940000000.0000	54.4822	13.8432
1945000000.0000	54.4617	13.8209
1950000000.0000	54.4345	13.8100

■ Dielectric Parameter (2450 MHz Head)

Title	MS840
SubTitle	2450MHz (Head)
Test Date	Dec.23, 2011

Frequency	e'	e''
2400000000.0000	38.4755	13.4454
2405000000.0000	38.4510	13.4585
2410000000.0000	38.4397	13.4773
2415000000.0000	38.4162	13.4842
2420000000.0000	38.3937	13.5124
2425000000.0000	38.3774	13.5107
2430000000.0000	38.3606	13.5316
2435000000.0000	38.3437	13.5389
2440000000.0000	38.3123	13.5582
2445000000.0000	38.3098	13.5757
2450000000.0000	38.2777	13.5902
2455000000.0000	38.2717	13.6162
2460000000.0000	38.2405	13.6247
2465000000.0000	38.2262	13.6466
2470000000.0000	38.2127	13.6626
2475000000.0000	38.2004	13.6665
2480000000.0000	38.1747	13.6872
2485000000.0000	38.1584	13.7056
2490000000.0000	38.1310	13.7170
2495000000.0000	38.1104	13.7363
2500000000.0000	38.0986	13.7429

■ Dielectric Parameter (2450 MHz Body)

Title	MS840
SubTitle	2450MHz (Body)
Test Date	Dec.23, 2011

Frequency	e'	e''
2400000000.0000	51.9128	14.1138
2405000000.0000	51.8718	14.1199
2410000000.0000	51.8277	14.1411
2415000000.0000	51.7744	14.1368
2420000000.0000	51.7498	14.1790
2425000000.0000	51.7284	14.1877
2430000000.0000	51.6575	14.2399
2435000000.0000	51.6482	14.2636
2440000000.0000	51.6421	14.2984
2445000000.0000	51.5641	14.3381
2450000000.0000	51.5684	14.3714
2455000000.0000	51.5661	14.4170
2460000000.0000	51.5334	14.4265
2465000000.0000	51.5363	14.4547
2470000000.0000	51.4931	14.4553
2475000000.0000	51.5062	14.4820
2480000000.0000	51.5312	14.5237
2485000000.0000	51.4867	14.5079
2490000000.0000	51.4503	14.5272
2495000000.0000	51.4577	14.5540
2500000000.0000	51.4772	14.5579

■ Dielectric Parameter (835 MHz Volume Body)

Title MS840
SubTitle CDMA 850(Body)
Test Date Dec.26, 2011

Frequency	e'	e''
800000000.0000	54.9967	21.3251
805000000.0000	54.9097	21.2707
810000000.0000	54.8548	21.2393
815000000.0000	54.7858	21.1348
820000000.0000	54.6970	21.0666
825000000.0000	54.6401	21.0211
830000000.0000	54.5751	20.9514
835000000.0000	54.4652	20.8771
840000000.0000	54.4265	20.8433
845000000.0000	54.3718	20.7940
850000000.0000	54.3551	20.7417
855000000.0000	54.2893	20.7301
860000000.0000	54.2453	20.7589
865000000.0000	54.2434	20.7393
870000000.0000	54.1798	20.7807
875000000.0000	54.1665	20.8240
880000000.0000	54.1340	20.8423
885000000.0000	54.1060	20.8692
890000000.0000	54.0626	20.8808
895000000.0000	54.0475	20.8813
900000000.0000	53.9842	20.8902

■ Dielectric Parameter (1800 MHz Volume Body)

Title	MS840
SubTitle	AWS1700 (Body)
Test Date	Dec.26, 2011

Frequency	e'	e''
1700000000.0000	55.5334	14.6892
1710000000.0000	55.5356	14.7024
1720000000.0000	55.5089	14.7594
1730000000.0000	55.4698	14.7815
1740000000.0000	55.4110	14.8439
1750000000.0000	55.4375	14.8357
1760000000.0000	55.3622	14.8867
1770000000.0000	55.3117	14.9201
1780000000.0000	55.2712	14.9110
1790000000.0000	55.2203	14.9685
1800000000.0000	55.1426	14.9937
1810000000.0000	55.1017	15.0319
1820000000.0000	55.0547	15.0609
1830000000.0000	54.9888	15.1040
1840000000.0000	54.9665	15.1755
1850000000.0000	54.9882	15.2102
1860000000.0000	54.9521	15.2534
1870000000.0000	54.9197	15.2821
1880000000.0000	54.8926	15.3062
1890000000.0000	54.8702	15.3450
1900000000.0000	54.8182	15.3823

■ Dielectric Parameter (1900 MHz Volume Head)

Title	MS840
SubTitle	PCS1900(Body)
Test Date	Dec.28, 2011

Frequency	e'	e''
1800000000.0000	41.4223	12.9700
1810000000.0000	41.4052	12.9995
1820000000.0000	41.3807	13.0583
1830000000.0000	41.3606	13.1170
1840000000.0000	41.3226	13.1505
1850000000.0000	41.3048	13.1891
1860000000.0000	41.2024	13.1947
1870000000.0000	41.1752	13.2152
1880000000.0000	41.1055	13.2064
1890000000.0000	41.0109	13.2176
1900000000.0000	40.9713	13.2230
1910000000.0000	40.9186	13.2344
1920000000.0000	40.8947	13.2598
1930000000.0000	40.8675	13.2965
1940000000.0000	40.8460	13.3263
1950000000.0000	40.8513	13.3585
1960000000.0000	40.8704	13.3961
1970000000.0000	40.8566	13.4232
1980000000.0000	40.8634	13.4567
1990000000.0000	40.8034	13.5040
2000000000.0000	40.7393	13.5306

■ Dielectric Parameter (1900 MHz Volume Body)

Title	MS840
SubTitle	PCS1900(Body)
Test Date	Dec.27, 2011

Frequency	e'	e''
1850000000.0000	55.1452	13.7706
1855000000.0000	55.1330	13.7872
1860000000.0000	55.1156	13.7780
1865000000.0000	55.0863	13.7882
1870000000.0000	55.0598	13.7942
1875000000.0000	55.0638	13.8297
1880000000.0000	55.0600	13.8436
1885000000.0000	55.0541	13.8611
1890000000.0000	55.0346	13.8751
1895000000.0000	55.0359	13.8905
1900000000.0000	55.0269	13.9100
1905000000.0000	55.0348	13.9285
1910000000.0000	55.0356	13.9369
1915000000.0000	55.0279	13.9423
1920000000.0000	55.0221	13.9537
1925000000.0000	55.0107	13.9480
1930000000.0000	55.0131	13.9554
1935000000.0000	55.0072	13.9681
1940000000.0000	54.9968	13.9618
1945000000.0000	54.9719	13.9360
1950000000.0000	54.9475	13.9365

■ Dielectric Parameter (2450 MHz Volume Head)

Title	MS840
SubTitle	2450MHz (Body)
Test Date	Dec.29, 2011

Frequency	e'	e''
2400000000.0000	38.8724	13.4733
2405000000.0000	38.8601	13.4811
2410000000.0000	38.8394	13.4987
2415000000.0000	38.8121	13.5080
2420000000.0000	38.7970	13.5183
2425000000.0000	38.7728	13.5307
2430000000.0000	38.7548	13.5436
2435000000.0000	38.7508	13.5532
2440000000.0000	38.7274	13.5625
2445000000.0000	38.7098	13.5752
2450000000.0000	38.6930	13.5984
2455000000.0000	38.6736	13.6017
2460000000.0000	38.6474	13.6164
2465000000.0000	38.6407	13.6147
2470000000.0000	38.6084	13.6347
2475000000.0000	38.5983	13.6415
2480000000.0000	38.5668	13.6555
2485000000.0000	38.5419	13.6640
2490000000.0000	38.5313	13.6825
2495000000.0000	38.5122	13.6972
2500000000.0000	38.4997	13.7064

■ Dielectric Parameter (2450 MHz Volume Body)

Title MS840
SubTitle 2450MHz (Body)
Test Date Dec.29, 2011

Frequency	e'	e''
2400000000.0000	50.7195	14.3773
2405000000.0000	50.6979	14.3991
2410000000.0000	50.6933	14.4043
2415000000.0000	50.6686	14.4047
2420000000.0000	50.6602	14.4183
2425000000.0000	50.6390	14.4331
2430000000.0000	50.6171	14.4560
2435000000.0000	50.6182	14.4766
2440000000.0000	50.6128	14.4945
2445000000.0000	50.5942	14.5103
2450000000.0000	50.5925	14.5275
2455000000.0000	50.5695	14.5271
2460000000.0000	50.5458	14.5496
2465000000.0000	50.5498	14.5528
2470000000.0000	50.5424	14.5702
2475000000.0000	50.5375	14.5774
2480000000.0000	50.5162	14.5830
2485000000.0000	50.5080	14.5871
2490000000.0000	50.4957	14.5817
2495000000.0000	50.4944	14.5848
2500000000.0000	50.4738	14.5900

Attachment 4. – Probe Calibration Data

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

ilac-MRA

SWISS CALIBRATION

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	MY41498087	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

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

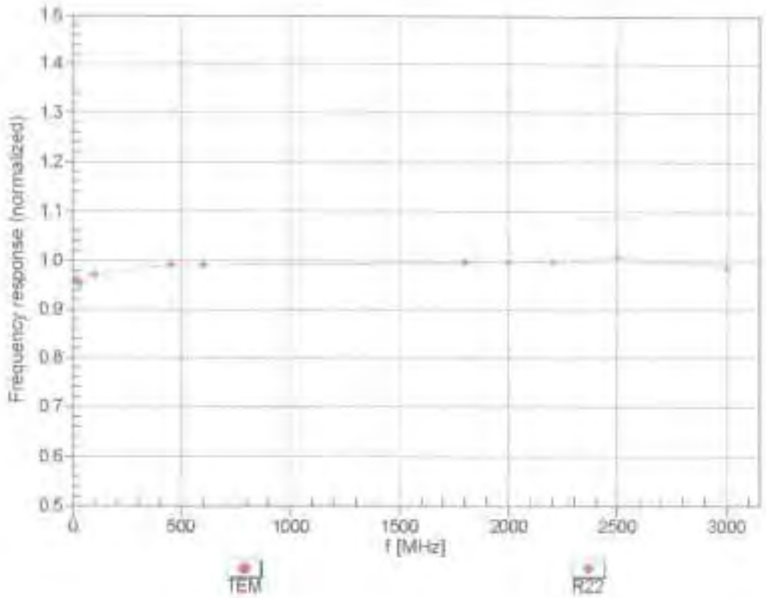
f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
300	58.2	0.92	7.96	7.96	7.96	0.29	2.29	± 13.4 %
450	56.7	0.94	7.74	7.74	7.74	0.16	2.25	± 13.4 %
750	55.5	0.96	6.36	6.36	6.36	0.75	1.84	± 12.0 %
835	55.2	0.97	6.27	6.27	6.27	0.72	1.88	± 12.0 %
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	0.58	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

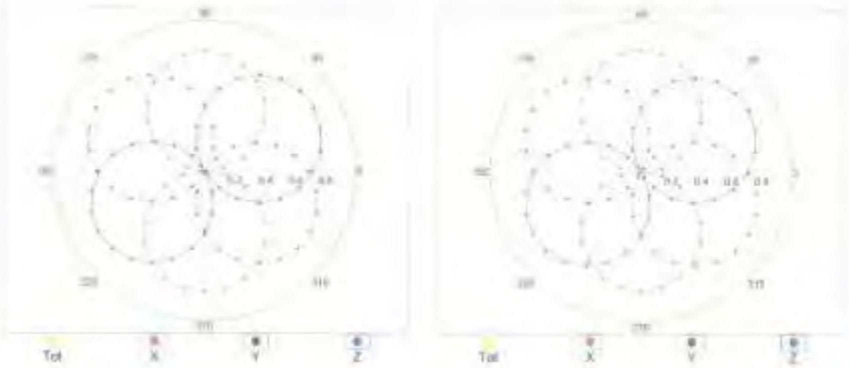
(TEM-Cell:ifi110 EXX, Waveguide: R22)

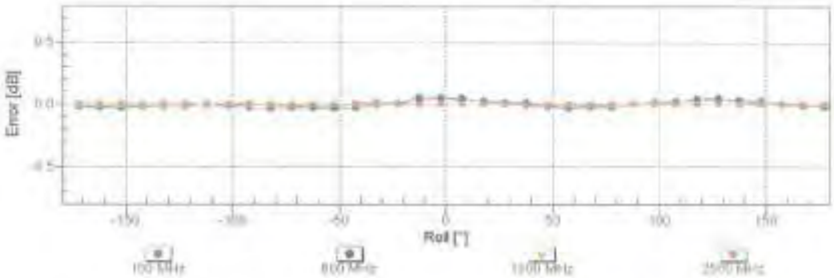


Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM f=1800 MHz,R22

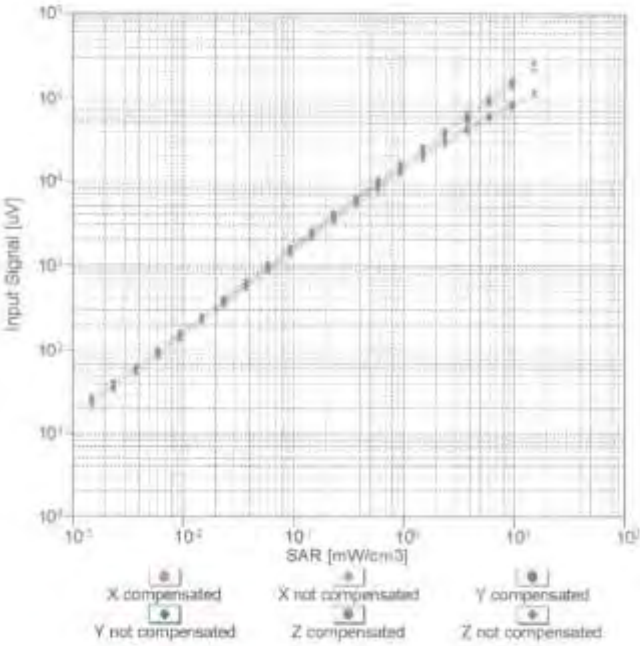


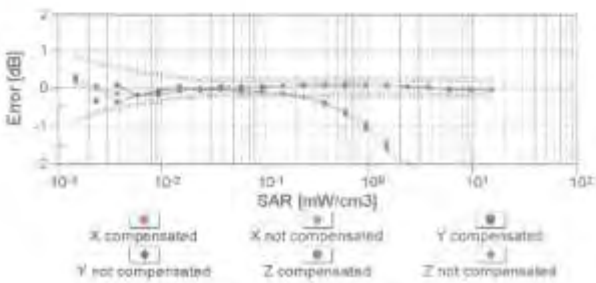


Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

Dynamic Range f(SAR_{head})

(TEM cell , f = 900 MHz)

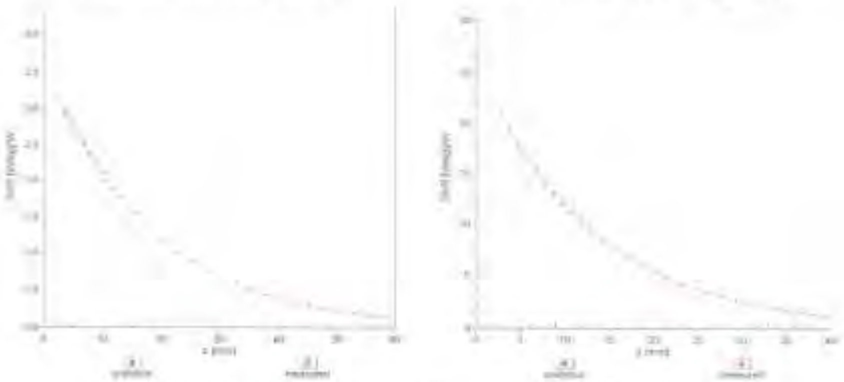




Uncertainty of Linearity Assessment: ± 0.6% (k=2)

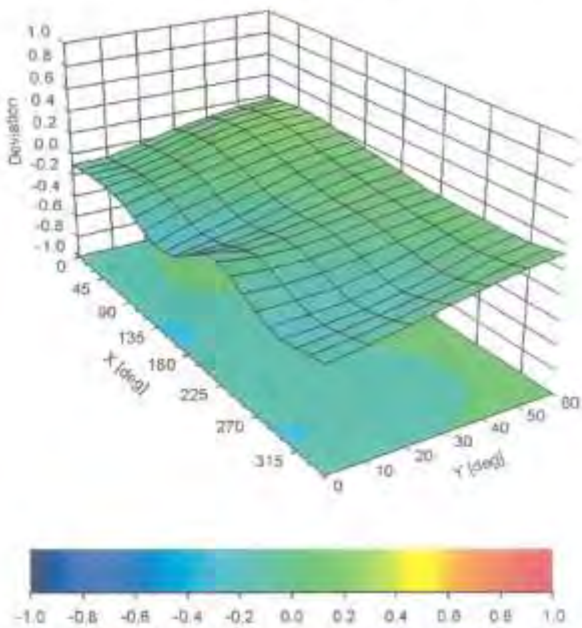
ET3DV6– SN:1630 November 18, 2011

Conversion Factor Assessment



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

Certificate No: ET3-1630_Nov11 Page 10 of 11

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

Schmid & Partner Engineering AG

s p e a g

Zeughausstrasse 43, 8004 Zurich, Switzerland
Phone +41 44 245 9700, Fax +41 44 245 9779
info@speag.com, http://www.speag.com

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:

ET3DV6-SN:1630 Page 1 of 2 November 21, 2011

Schmid & Partner Engineering AG s p e a g
Zeughausstrasse 43, 8004 Zurich, Switzerland
Phone +41 44 245 9700, Fax +41 44 245 9779
info@speag.com, http://www.speag.com

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 5. – Dipole 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
S 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: **D835V2-441_May11**

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, 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	10-Jun-10 (No. DAE4-601_Jun10)	Jun-11

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	4-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	D. Iliev
Approved by:	Katja Pokovic	Technical Manager	

Issued: May 16, 2011

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Certificate No: D835V2-441_May11 Page 1 of 8

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
S 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
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	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	40.4 ± 6 %	0.88 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	2.31 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**9.34 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.51 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**6.09 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	53.9 ± 6 %	1.00 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	2.43 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**9.45 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (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)**

Certificate No: D835V2-441_May11 Page 3 of 8

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	50.2 Ω - 9.8 jΩ
Return Loss	- 20.2 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	46.3 Ω - 10.3 jΩ
Return Loss	18.9 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.374 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 09, 2001

DASY5 Validation Report for Head TSL

Date: 16.05.2011

Test Laboratory: SPEAG, Zurich, Switzerland

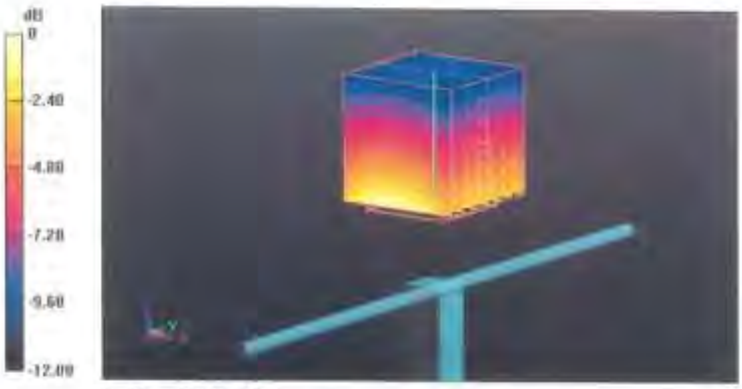
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 441

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: HSL900
Medium parameters used: f = 835 MHz; σ = 0.88 mho/m; ε_r = 40.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

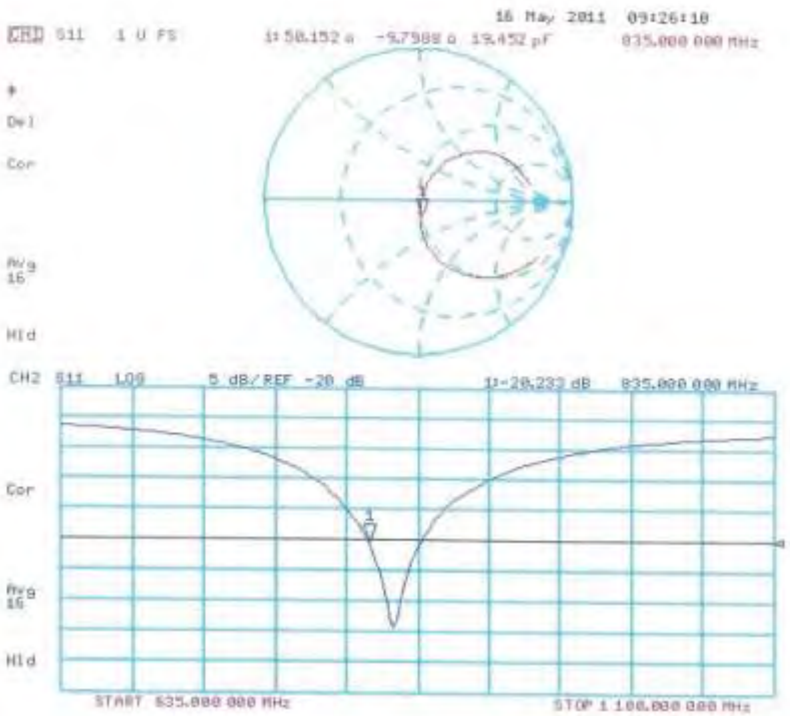
- Probe: ES3DV3 - SN3205; ConvF(6.07, 6.07, 6.07); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY52, V52.6.2 Build (424)
- Postprocessing SW: SEMCAD X, V14.4.4 Build (2829)

Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 57.041 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 3.442 W/kg
SAR(1 g) = 2.31 mW/g; SAR(10 g) = 1.51 mW/g
Maximum value of SAR (measured) = 2.703 mW/g



0 dB = 2.700mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 16.05.2011

Test Laboratory: SPEAG, Zurich, Switzerland

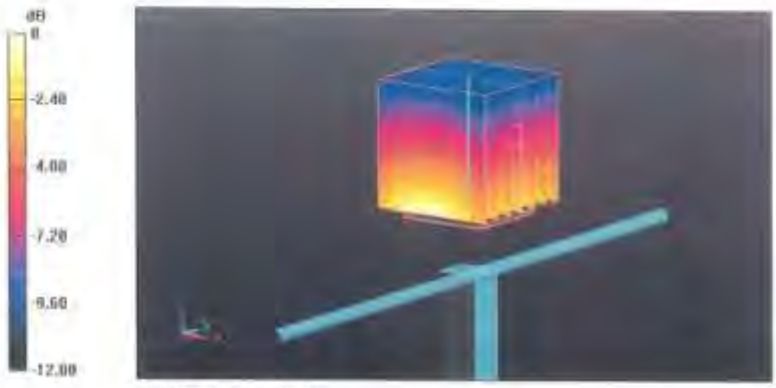
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:441

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: MSL900
Medium parameters used: f = 835 MHz; σ = 1 mho/m; ε_r = 53.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.02, 6.02, 6.02); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY52, V52.6.2 Build (424)
- Postprocessing SW: SEMCAD X, V14.4.4 Build (2829)

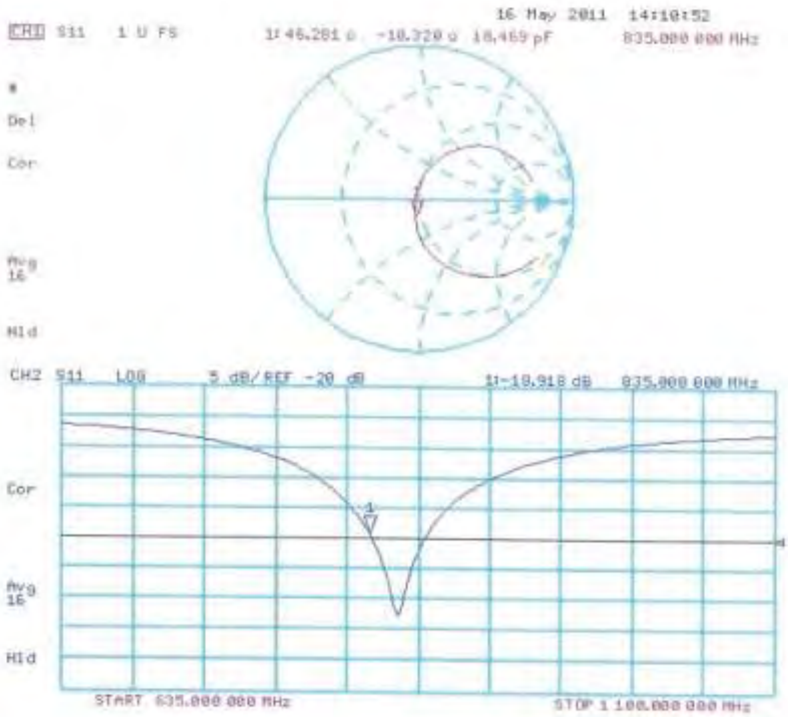
Dipole Calibration for Body Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 55.302 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 3.553 W/kg
SAR(1 g) = 2.43 mW/g; SAR(10 g) = 1.6 mW/g
Maximum value of SAR (measured) = 2.833 mW/g



0 dB = 2.830mW/g

Certificate No: D835V2-441_May11 Page 7 of 8

Impedance Measurement Plot for Body TSL



Certificate No: D835V2-441_May11 Page 8 of 8

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
Servizio svizzero di taratura
S 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: **D1800V2-2d007_Apr11**

CALIBRATION CERTIFICATE

Object	D1800V2 - SN: 2d007
Calibration procedure(s)	QA CAL-05.v8 Calibration procedure for dipole validation kits
Calibration date:	April 19, 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: 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-Apr-10 (No. ES3-3205_Apr10)	Apr-11
DAE4	SN: 601	10-Jun-10 (No. DAE4-601_Jun10)	Jun-11

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	4-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: April 19, 2011

Certificate No: D1800V2-2d007_Apr11 Page 1 of 9

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
S 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
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 V5.0	
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	39.1 ± 6 %	1.36 mho/m ± 6 %
Head TSL temperature during test	(21.2 ± 0.2) °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	9.81 mW / g
SAR normalized	normalized to 1W	39.2 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**39.8 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.15 mW / g
SAR normalized	normalized to 1W	20.6 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**20.7 mW /g ± 16.5 % (k=2)**

Certificate No: D1800V2-2d007_Apr11 Page 3 of 9

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	51.3 ± 6 %	1.47 mho/m ± 6 %
Body TSL temperature during test	(21.8 ± 0.2) °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	9.22 mW / g
SAR normalized	normalized to 1W	36.9 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**37.3 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	4.88 mW / g
SAR normalized	normalized to 1W	19.5 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**19.6 mW / g ± 16.5 % (k=2)**

Certificate No: D1800V2-2d007_Apr11 Page 4 of 9

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	50.6 Ω - 4.0 jΩ
Return Loss	- 28.0 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	44.1 Ω - 7.5 jΩ
Return Loss	- 19.9 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.203 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	July 23, 2001

DASY5 Validation Report for Head TSL

Date/Time: 18.04.2011 14:15:52

Test Laboratory: SPEAG, Zurich, Switzerland

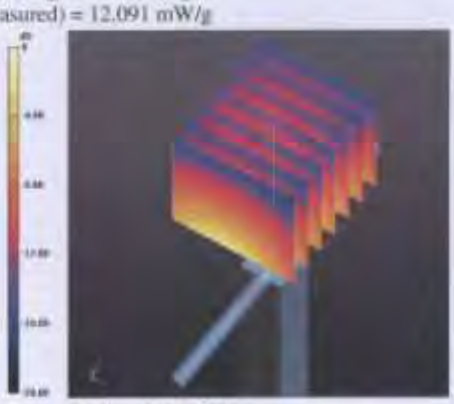
DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN:2d007

Communication System: CW; Frequency: 1800 MHz; Duty Cycle: 1:1
Medium: HSL U12 BB
Medium parameters used: f = 1800 MHz; σ = 1.36 mho/m; ε_r = 39.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.05, 5.05, 5.05); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY52, V52.6.2 Build (424)
- Postprocessing SW: SEMCAD X, V14.4.2 Build (2829)

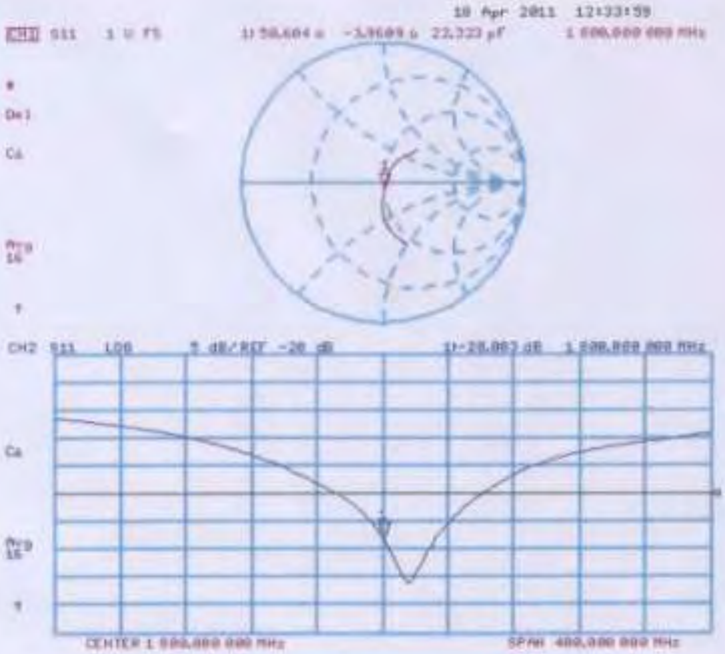
Pin=250 mW, Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 97.643 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 17.931 W/kg
SAR(1 g) = 9.81 mW/g; SAR(10 g) = 5.15 mW/g
Maximum value of SAR (measured) = 12.091 mW/g



0 dB = 12.090mW/g

Certificate No: D1800V2-2d007_Apr11 Page 6 of 9

Impedance Measurement Plot for Head TSL



Certificate No: D1800V2-2d007_Apr11 Page 7 of 9

DASY5 Validation Report for Body TSL

Date/Time: 19.04.2011 11:42:27

Test Laboratory: SPEAG, Zurich, Switzerland

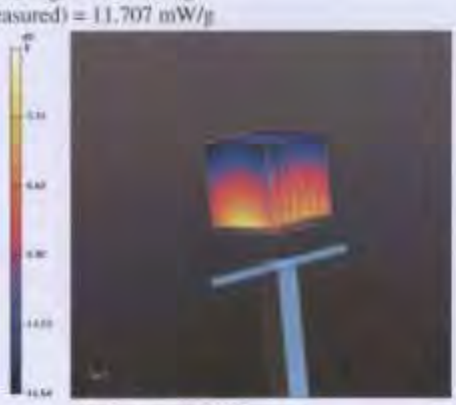
DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN:2d007

Communication System: CW; Frequency: 1800 MHz; Duty Cycle: 1:1
Medium: MSL U12 BB
Medium parameters used: f = 1800 MHz; σ = 1.47 mho/m; ε_r = 51.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.74, 4.74, 4.74); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY52, V52.6.2 Build (424)
- Postprocessing SW: SEMCAD X, V14.4.2 Build (2829)

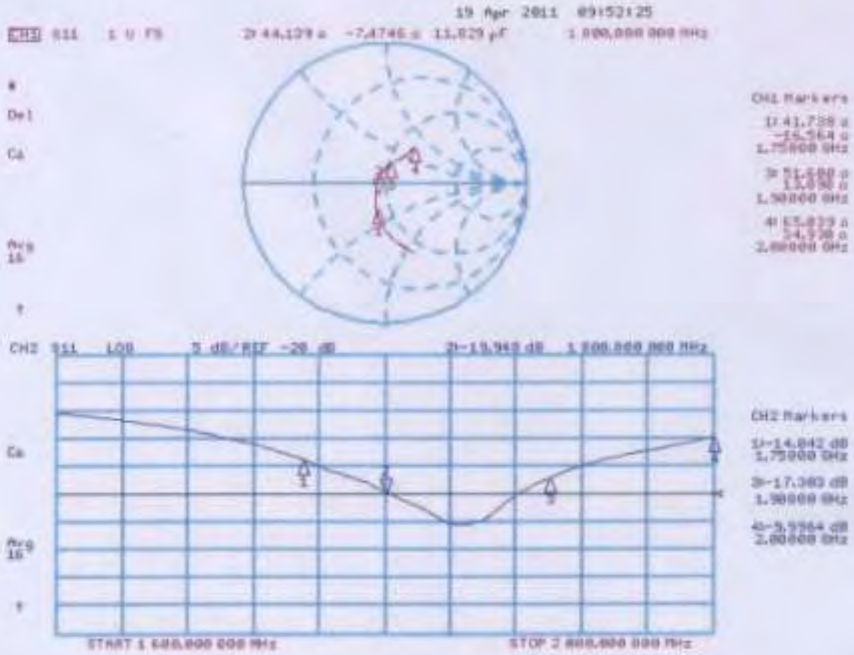
Pin=250 mW, Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 94.703 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 15.979 W/kg
SAR(1 g) = 9.22 mW/g; SAR(10 g) = 4.88 mW/g
Maximum value of SAR (measured) = 11.707 mW/g



0 dB = 11.710mW/g

Certificate No: D1800V2-2d007_Apr11 Page 8 of 9

Impedance Measurement Plot for Body TSL



Certificate No: D1800V2-2d007_Apr11 Page 9 of 9

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
S 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: **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

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
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 cm^3 (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 cm^3 (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 cm^3 (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 cm^3 (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)**

Certificate No: D1900V2-5d032_Jul11 Page 3 of 8

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

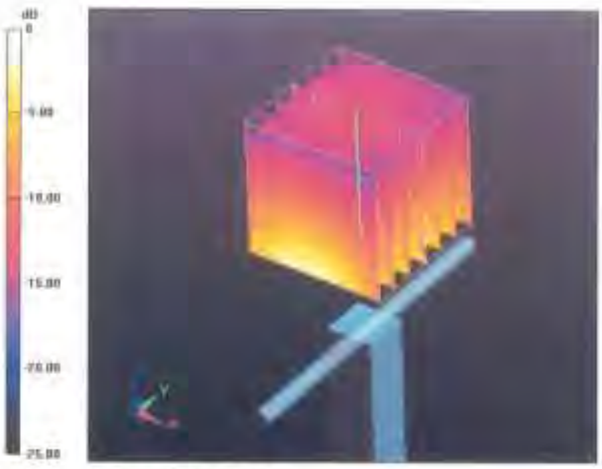
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d032

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)

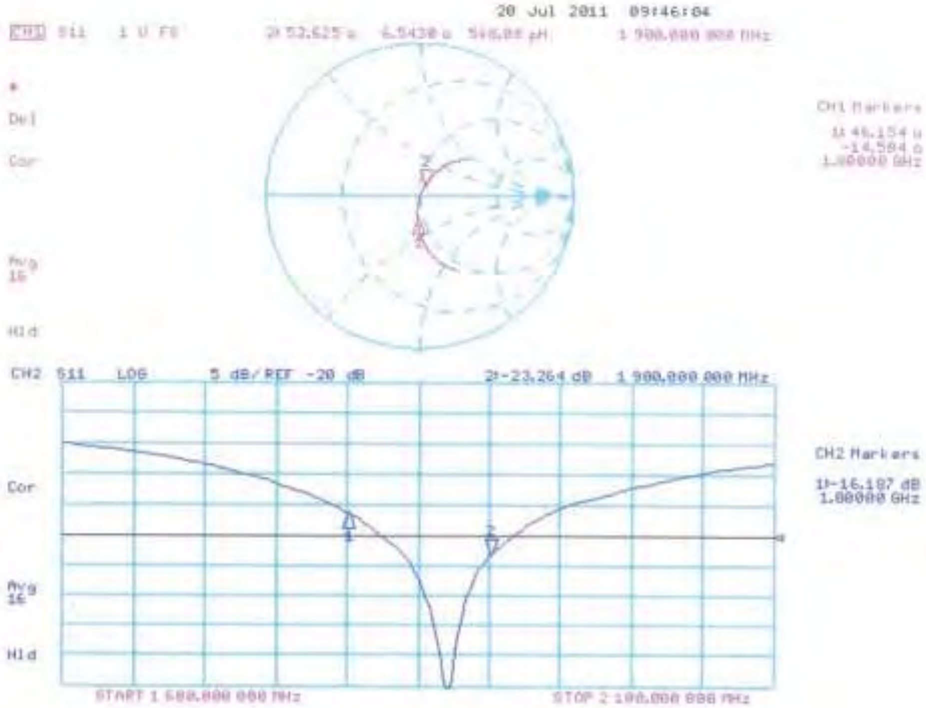
Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 98.253 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 18.469 W/kg
SAR(1 g) = 10.1 mW/g; SAR(10 g) = 5.29 mW/g
Maximum value of SAR (measured) = 12.721 mW/g



0 dB = 12.720mW/g

Certificate No: D1900V2-5d032_Jul11 Page 5 of 8

Impedance Measurement Plot for Head TSL



Certificate No: D1900V2-5d032_Jul11 Page 6 of 8

DASY5 Validation Report for Body TSL

Date: 22.07.2011

Test Laboratory: SPEAG, Zurich, Switzerland

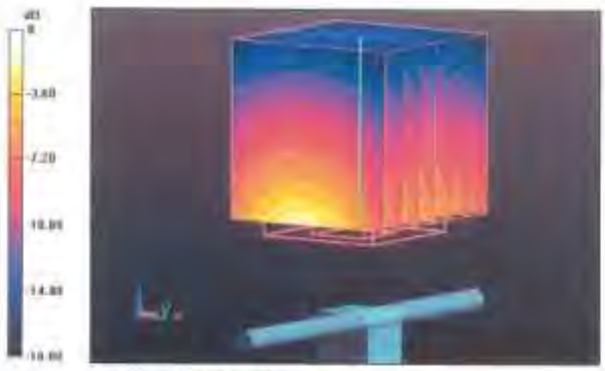
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d032

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)

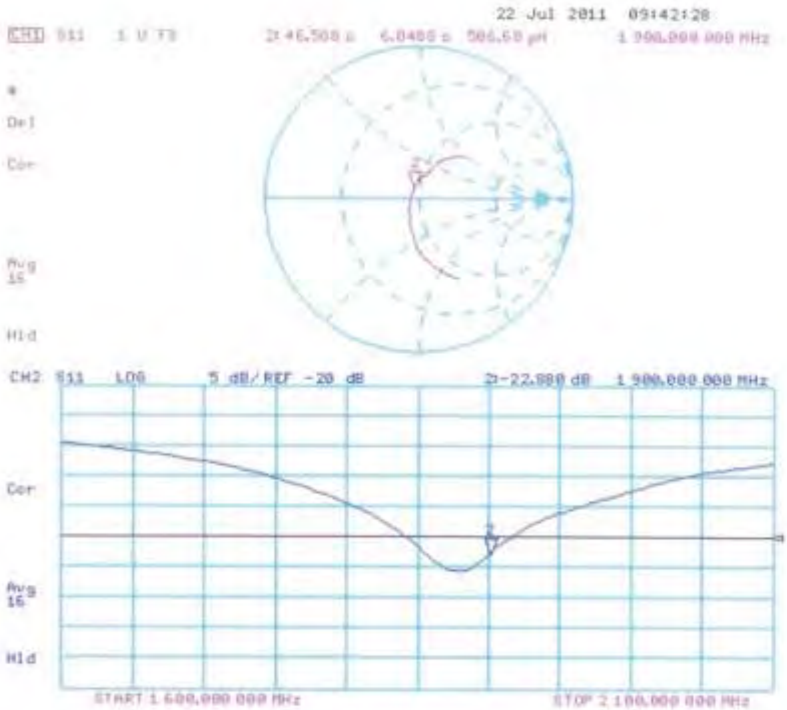
Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 95.827 V/m; Power Drift = 0.0078 dB
Peak SAR (extrapolated) = 18.111 W/kg
SAR(1 g) = 10.3 mW/g; SAR(10 g) = 5.39 mW/g
Maximum value of SAR (measured) = 12.898 mW/g



0 dB = 12.900mW/g

Certificate No: D1900V2-5d032_Jul11 Page 7 of 8

Impedance Measurement Plot for Body TSL



Certificate No: D1900V2-5d032_Jul11 Page 8 of 8

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

ilac-MRA

SWISS CALIBRATION

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
Servizio svizzero di taratura
S 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: **D2450V2-743_Aug11**

CALIBRATION CERTIFICATE

Object	D2450V2 - SN: 743
Calibration procedure(s)	QA CAL-05.v8 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	August 29, 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	D. Iliev
Approved by:	Katja Pokovic	Technical Manager	

Issued: August 29, 2011

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Certificate No: D2450V2-743_Aug11 Page 1 of 8

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
S 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
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.

Certificate No: D2450V2-743_Aug11 Page 2 of 8

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.8.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	38.4 ± 6 %	1.85 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	13.7 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**53.8 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.40 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**25.4 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	52.7	1.95 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	51.8 ± 6 %	2.02 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	13.2 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**51.7 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.11 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**24.2 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	55.0 Ω + 4.8 jΩ
Return Loss	- 23.6 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	50.3 Ω + 5.8 jΩ
Return Loss	- 24.8 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.160 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	December 01, 2003

DASY5 Validation Report for Head TSL

Date: 29.08.2011

Test Laboratory: SPEAG, Zurich, Switzerland

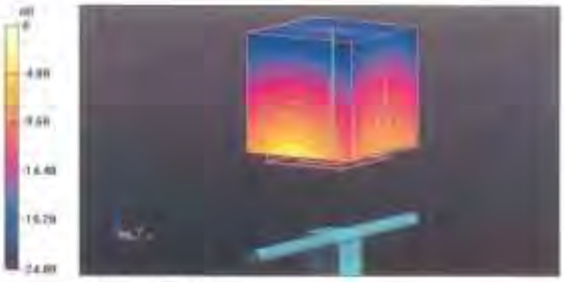
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 743

Communication System: CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.85 mho/m; ε_r = 38.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.45, 4.45, 4.45); 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)

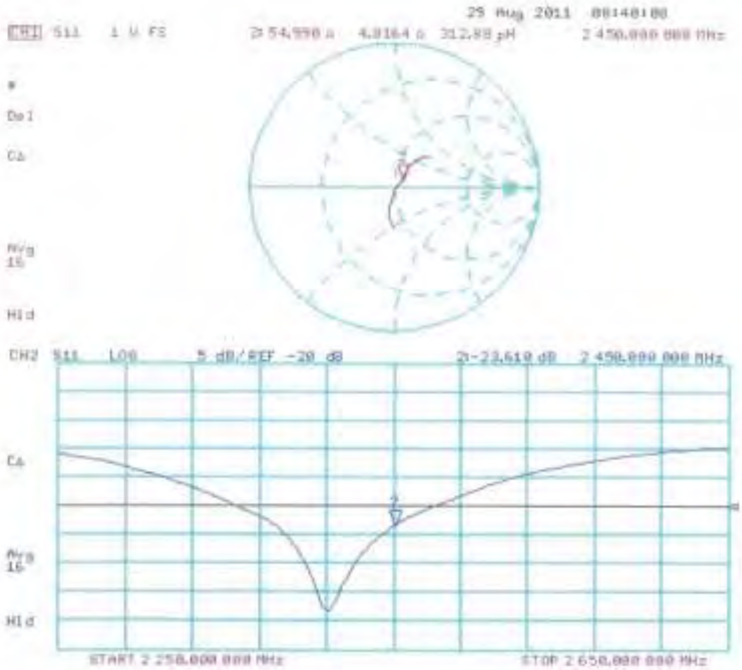
Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 101.2 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 28.291 W/kg
SAR(1 g) = 13.7 mW/g; SAR(10 g) = 6.4 mW/g
Maximum value of SAR (measured) = 17.657 mW/g



0 dB = 17.660mW/g

Certificate No: D2450V2-743_Aug11 Page 5 of 8

Impedance Measurement Plot for Head TSL



Certificate No: D2450V2-743_Aug11 Page 6 of 8

DASY5 Validation Report for Body TSL

Date: 29.08.2011

Test Laboratory: SPEAG, Zurich, Switzerland

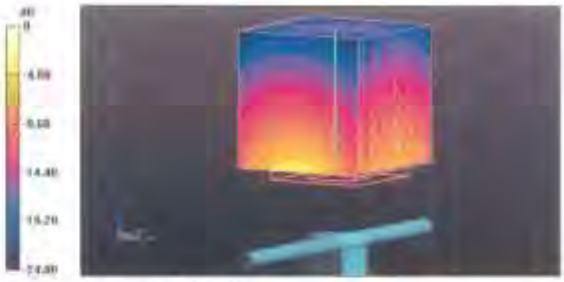
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 743

Communication System: CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 2.02 mho/m; ε_r = 51.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.26, 4.26, 4.26); 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)

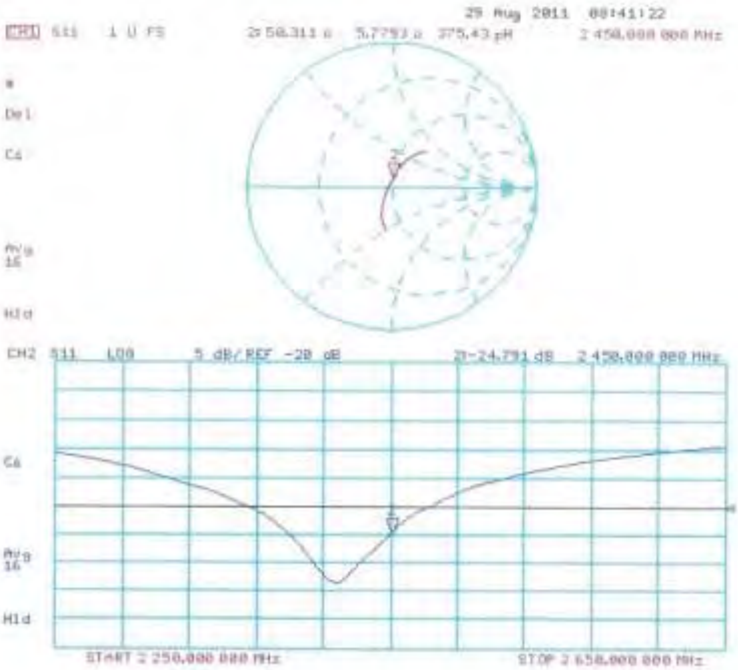
Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 95.903 V/m; Power Drift = -0.0051 dB
Peak SAR (extrapolated) = 27.107 W/kg
SAR(1 g) = 13.2 mW/g; SAR(10 g) = 6.11 mW/g
Maximum value of SAR (measured) = 17.329 mW/g



0 dB = 17.330mW/g

Certificate No: D2450V2-743_Aug11 Page 7 of 8

Impedance Measurement Plot for Body TSL



Certificate No: D2450V2-743_Aug11 Page 8 of 8