SAR TEST REPORT

HCT CO., LTD

EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
FCC ID:	ZNFP940H
Model:	LG-P940h
Date of Issue:	May.11, 2012
Test report No.:	HCTA1204FS06
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

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1. INTRODUCTION

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

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

SAR Definition

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

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

Figure 2. SAR Mathematical Equation

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

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

where:

σ = conductivity of the tissue-simulant material (S/m)

ρ = mass density of the tissue-simulant material (kg/m^3)

E = Total RMS electric field strength (V/m)

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

2. DESCRIPTION OF DEVICE

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

EUT Type	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC			
FCC ID:	ZNFP940H			
Model:	LG-P940h			
Trade Name	LG Electronics, MobileComm U.S.A., Inc.			
Application Type	Certification			
Mode(s) of Operation	GSM850/GSM1900 /WCDMA850 /802.11a/b/g/n			
Tx Frequency	824.20 - 848.80 MHz (GSM850) /1 850.20 – 1 909.80 MHz (GSM1900) 826.4-846.6 MHz (WCDMA850) / 2 412- 2 462 MHz (802.11b/g/n) 802.11a/n: 5180-5240MHz/ 5260-5320 MHz/ 5500-5700 MHz/ 5745-5825 MHz			
Rx Frequency	869.20 - 893.80 MHz (GSM850)/ 1 930.20 – 1 989.80 MHz (GSM1900) 871.4 - 891.6 MHz (WCDMA850) / 2 412- 2 462 MHz (802.11b/g/n) 802.11a/n: 5180-5240MHz/ 5260-5320 MHz/ 5500-5700 MHz/ 5745-5825 MH			
FCC Classification	Licensed Portable Transmitter Held to Ear (PCE)			
Production Unit or Identical Prototype	Prototype			
Max SAR	Band	1g SAR (W/kg)		
		Head	Body-worn	Hotspot
	GSM850	0.240	0.989	0.989
	GSM1900	0.236	0.54	0.632
	WCDMA850	0.268	0.850	0.850
	802.11b/g	0.225	0.048	0.048
	802.11a/n	0.36	0.133	-
Simultaneous SAR per KDB 690783 D01		0.628	1.122	1.037
Date(s) of Tests	Apr.7, 2012 ~ Apr.10, 2012/ May 9, 2012/ May 11, 2012			
Antenna Type	Integral Antenna			
GPRS	Multislot Class: 12, Mode Class: B			
Key Feature(s)	This device support Mobile Hotspot.			

3. DESCRIPTION OF TEST EQUIPMENT

3.1 SAR MEASUREMENT SETUP

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

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

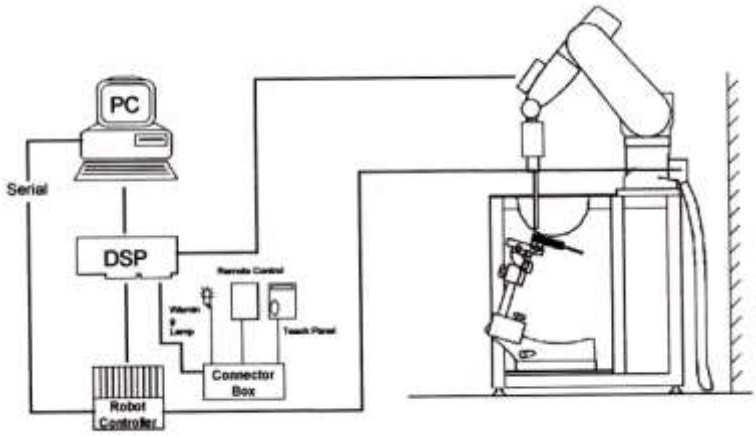


Figure 3.1 HCT SAR Lab. Test Measurement Set-up

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

3.2 DASY4 E-FIELD PROBE SYSTEM

3.2.1 EX3DV4 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

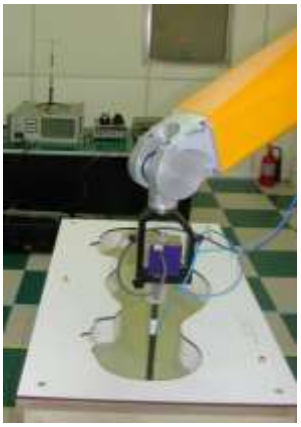


Figure 3.1 Photograph of the probe and the Phantom

Figure 3.2 EX3DV4 E-field

The SAR measurements were conducted with the dosimetric probe EX3DV4, designed in the classical triangular configuration and optimized for dosimetric evaluation. The probe is constructed using the thick film technique; with printed resistive lines on ceramic substrates. The probe is equipped with an optical multifiber line ending at the front of the probe tip. It is connected to the EOC box on the robot arm and provides an automatic detection of the phantom surface. Half of the fibers are connected to a pulsed infrared transmitter, the other half to a synchronized receiver. As the probe approaches the surface, the reflection from the surface produces a coupling from the transmitting to the receiving fibers. This reflection increases first during the approach, reaches a maximum and then decreases. If the probe is flatly touching the surface, the coupling is zero. The distance of the coupling maximum to the surface is independent of the surface reflectivity and largely independent of the surface to probe angle. The DASY4 software reads the reflection during a software approach and looks for the maximum using a 2nd order fitting. The approach is stopped at reaching the maximum.

3.3 PROBE CALIBRATION PROCESS

3.3.1 E-Probe Calibration

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

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

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

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

where:

Δt = exposure time (30 seconds),

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

ΔT = temperature increase due to RF exposure.

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

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

where:

σ = simulated tissue conductivity,

ρ = Tissue density (1.25 g/cm^3 for brain tissue)

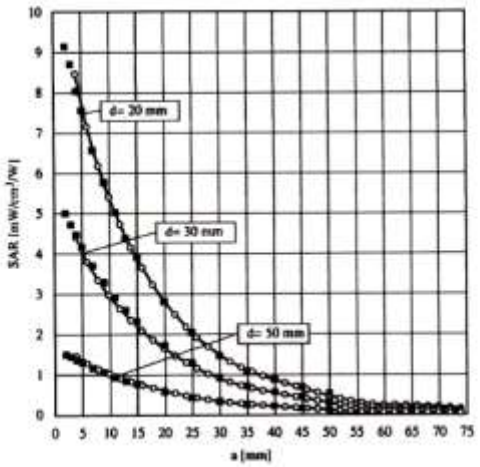


Figure 3.4 E-Field and Temperature measurements at 900 MHz

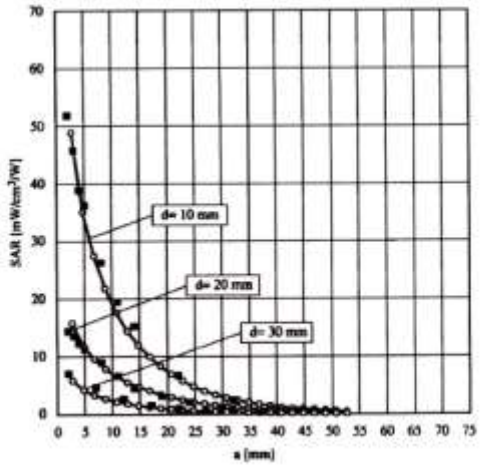


Figure 3.5 E-Field and temperature measurements at 1.8 GHz

3.3.2 Data Extrapolation

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

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

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

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

E-field probes:

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

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

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

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

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

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

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

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

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

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

3.4 SAM Phantom

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

Figure 3.6 SAM Phantom

Shell Thickness	2.0 mm ± 0.2 mm (6 ± 0.2 mm at ear point)
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)											
	750		835		915		1 900		2 450		5200-5800	
Tissue Type	Head	Body	Head	Body	Head	Body	Head	Body	Head	Body	Head	Body
Water	41.2	51.7	41.45	52.4	41.05	56.0	54.9	40.4	62.7	73.2	65.52	78.66
Salt (NaCl)	1.4	1.0	1.45	1.4	1.35	0.76	0.18	0.5	0.5	0.04	0.0	0.0
Sugar	57	47.2	56.0	45.0	56.5	41.76	0.0	58.0	0.0	0.0	0.0	0.0
HEC	0.2	0.0	1.0	1.0	1.0	1.21	0.0	1.0	0.0	0.0	0.0	0.0
Bactericide	0.2	0.1	0.1	0.1	0.1	0.27	0.0	0.1	0.0	0.0	0.0	0.0
Triton X-100	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.8	0.0	17.24	10.67
DGBE	0.00	0.0	0.0	0.0	0.0	0.0	44.92	0.0	0.0	26.7	0.0	0.0
Diethylene glycol hexyl ether											17.24	10.67

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	DAE4	869	Sep 22, 2011	Annual	Sep 22, 2012
SPEAG	E-Field Probe EX3DV4	3797	July 25, 2011	Annual	July 25, 2012
SPEAG	Validation Dipole D835V2	441	May 16, 2011	Annual	May 16, 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
SPEAG	Validation Dipole D5GHzV2	1107	Nov. 15, 2011	Annual	Nov. 15, 2012
Agilent	Power Meter(F) E4419B	MY41291386	Nov. 04, 2011	Annual	Nov. 04, 2012
Agilent	Power Sensor(G) 8481	MY41090870	Nov. 04, 2011	Annual	Nov. 04, 2012
HP	Dielectric Probe Kit 85070C	00721521	N/A	N/A	N/A
HP	Dual Directional Coupler	16072	Nov. 04, 2011	Annual	Nov. 04, 2012
R&S	Base Station CMU200	110740	July 26, 2011	Annual	July 26, 2012
Agilent	Base Station E5515C	GB44400269	Feb. 10, 2012	Annual	Feb. 10, 2013
HP	Signal Generator E4438C	MY42082646	Nov. 11, 2011	Annual	Nov. 11, 2012
HP	Network Analyzer 8753ES	JP39240221	Apr. 3, 2012	Annual	Apr. 3, 2013

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 maximum 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 maximum interpolated value was searched with a straight-forward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1 g or 10 g) were computed using the 3D-Spline interpolation algorithm. The 3D-spline is composed of three one-dimensional splines with the “Not a knot” condition (in x, y, and z directions. The volume was integrated with the trapezoidal algorithm. One thousand points (10 x 10 x 10) were interpolated to calculate the average.
   c. All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.

4. The SAR value, at the same location as procedure #1, was re-measured. If the value changed by more than 5 %, the evaluation is repeated.

5. Per KDB pub. 865664 FCC SAR Measurement requirement, a minimum volume of 24 mm x 24 mm x 20 mm was assessed by measuring 7 x 7 x 11 points for 5GHz testing.

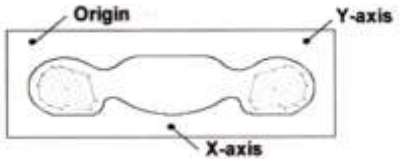


Figure 4.1 SAR Measurement Point in Area Scan

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.

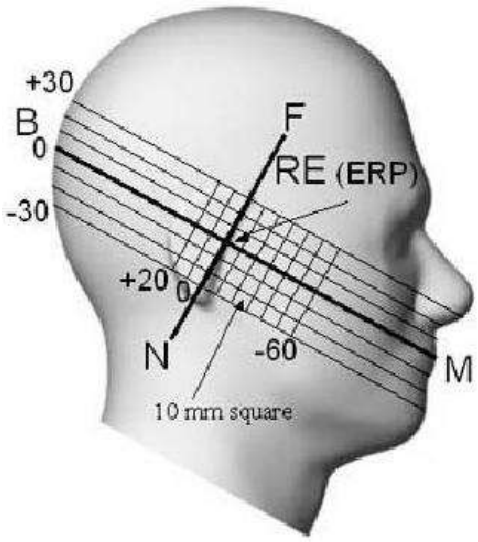


Figure 5.1 Side view of the phantom

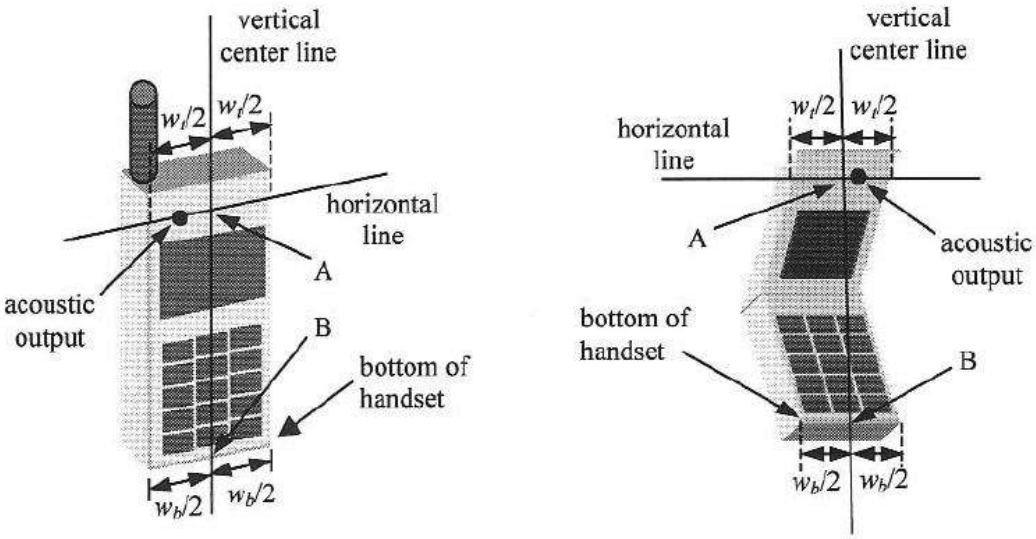


Figure 5.2 Handset vertical and horizontal reference lines

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 (800 MHz- 2450 MHz)

Error Description	Tol (± %)	Prob. dist.	Div.	c_i	Standard Uncertainty (± %)	v_{eff}
1. Measurement System						
Probe Calibration	6.55	N	1	1	6.55	∞
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					11.43	
Coverage Factor for 95 %					$k=2$	
Expanded STD Uncertainty					22.86	

Table 6.2 Uncertainty (5000-5900 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	Apr.7, 2012	Head	21.1	ε r	41.5	43	+ 3.61	± 5
				σ	0.90	0.901	+ 0.11	± 5
835		Body		ε r	55.2	54.9	- 0.54	± 5
				σ	0.97	1.01	+ 4.12	± 5
1 900	Apr.9, 2012	Head	21.1	ε r	40.0	39.1	- 2.25	± 5
				σ	1.40	1.39	- 0.71	± 5
1 900		Body		ε r	53.3	52.8	- 0.94	± 5
				σ	1.52	1.55	+ 1.97	± 5
2 450	Apr.10, 2012	Head	21.2	ε r	39.2	38.4	- 2.04	± 5
				σ	1.80	1.85	+ 2.78	± 5
2 450		Body		ε r	52.7	51.5	- 2.28	± 5
				σ	1.95	1.86	- 4.62	± 5
5 200	May 9,2012	Head	21.1	ε r	36.0	36.1	+ 0.28	± 5
				σ	4.66	4.67	+ 0.21	± 5
5 500	May 9,2012	Head	21.1	ε r	35.6	35.9	+ 0.84	± 5
				σ	4.96	4.97	+ 0.20	± 5
5 800	May 9,2012	Head	21.1	ε r	35.3	35.5	+ 0.57	± 5
				σ	5.27	5.36	+ 1.71	± 5
5 800	May 11,2012	Head	21.2	ε r	35.3	35.5	+ 0.57	± 5
				σ	5.27	5.36	+ 1.71	± 5
5 200	May 9,2012	Body	21.1	ε r	49.0	47.2	- 3.67	± 5
				σ	5.3	5.24	- 1.13	± 5
5 500	May 9,2012	Body	21.1	ε r	48.6	46.4	- 4.53	± 5
				σ	5.65	5.75	+ 1.77	± 5
5 800	Apr.10, 2012	Body	21.2	ε r	48.2	45.9	- 4.77	± 5
				σ	6.00	6.04	+ 0.67	± 5

The Tissue dielectronic parameters were measured 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 /1 900 MHz/ 2 450 MHz/ 5 GHz by using the system validation kit. (Graphic Plots Attached)

Freq. [MHz]	Date	Probe (SN)	Liquid	Amb. Temp. [°C]	Liquid Temp. [°C]	1 W Target SAR_{1g} (SPEAG) (mW/g)	Measured SAR_{1g} (mW/g)	1 W Normalized SAR_{1g} (mW/g)	Deviation [%]	Limit [%]
835	Apr. 7, 2012	3797	Head	21.3	21.1	9.34	0.938	9.38	+ 0.43	± 10
	Apr. 7, 2012		Body			9.45	0.957	9.57	+ 1.27	± 10
1 900	Apr. 9, 2012		Head	21.3	21.1	39.9	4.12	41.2	+ 3.26	± 10
	Apr. 9, 2012		Body			40.9	4.27	42.7	+ 4.40	± 10
2 450	Apr. 10, 2012		Head	21.4	21.2	53.8	5.41	54.1	+ 0.56	± 10
	Apr. 10, 2012		Body			51.7	5.12	51.2	- 0.97	± 10
5 200	May 9,2012		Head	21.3	21.1	80.3	7.63	76.3	- 4.98	± 10
5 500	May 9,2012		Head	21.3	21.1	87.8	8.56	85.6	- 2.51	± 10
5 800	May 9,2012		Head	21.3	21.1	78.9	7.96	79.6	+ 0.89	± 10
5 800	May 11,2012		Head	21.4	21.2	78.9	8.07	80.7	+ 2.28	± 10
5 200	May 9,2012		Body	21.3	21.1	77.2	7.96	79.6	+ 3.11	± 10
5 500	May 9,2012		Body	21.3	21.1	81.6	7.99	79.9	- 2.08	± 10
5 800	Apr. 10, 2012		Body	21.4	21.2	76.9	7.49	74.9	- 2.60	± 10

8.3 System Validation Procedure

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

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

Note;

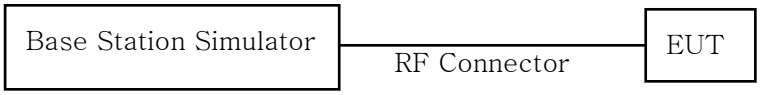
SAR Verification was performed according to the FCC KDB 450824.

9. RF CONDUCTED POWER MEASUREMENT

Power measurements were performed using a base station simulator under digital average power.
The handset was placed into a simulated call using a base station simulator in a shielded chamber.
Such test signals offer a consistent means for testing SAR and are recommended for evaluation SAR
SAR measurements were taken with a fully charged battery. In order to verify that the device was tested
and maintained at full power, this was configured with the base station simulator. The SAR measurement
Software calculates a reference point at the start and end of the test to check for power drifts. If conducted
Power deviations of more then 5 % occurred, the tests were repeated.

9.1 GSM

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



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

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

Note;

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

GSM Conducted output powers (Burst-Average)

Band	Channel	Voice	GPRS(GMSK) Data – CS1				EDGE(8PSK) Data-MCS7			
		GSM (dBm)	GPRS 1 TX Slot (dBm)	GPRS 2 TX Slot (dBm)	GPRS 3 TX Slot (dBm)	GPRS 4 TX Slot (dBm)	EDGE 4 TX Slot (dBm)	GPRS 2 TX Slot (dBm)	GPRS 3 TX Slot (dBm)	GPRS 4 TX Slot (dBm)
GSM 850	128	33.62	33.62	31.60	29.68	28.71	26.94	24.85	22.73	21.89
	190	33.66	33.66	31.64	29.72	28.77	27.00	24.91	22.85	21.91
	251	33.66	33.65	31.63	29.71	28.74	27.00	24.90	22.80	21.97
GSM 1900	512	30.12	30.12	28.14	26.18	25.16	25.54	23.74	21.70	20.65
	661	30.08	30.08	28.10	26.14	25.14	25.55	23.72	21.69	20.65
	810	30.03	30.03	28.07	26.12	25.14	25.42	23.71	21.67	20.63

GSM Conducted output powers (Frame-Average)

Band	Channel	Voice	GPRS(GMSK) Data – CS1				EDGE(8PSK) Data-MCS7			
		GSM (dBm)	GPRS 1 TX Slot (dBm)	GPRS 2 TX Slot (dBm)	GPRS 3 TX Slot (dBm)	GPRS 4 TX Slot (dBm)	EDGE 1 TX Slot (dBm)	EDGE 2 TX Slot (dBm)	EDGE 3 TX Slot (dBm)	EDGE 4 TX Slot (dBm)
GSM 850	128	24.59	24.59	25.58	25.42	25.7	17.91	18.83	18.47	18.88
	190	24.63	24.63	25.62	25.46	25.76	17.97	18.89	18.59	18.9
	251	24.63	24.62	25.61	25.45	25.73	17.97	18.88	18.54	18.96
GSM 1900	512	21.09	21.09	22.12	21.92	22.15	16.51	17.72	17.44	17.64
	661	21.05	21.05	22.08	21.88	22.13	16.52	17.7	17.43	17.64
	810	21.00	21.00	22.05	21.86	22.13	16.39	17.69	17.41	17.62

Note:

Time slot average factor is as follows:

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

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

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

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

9.2 WCDMA

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

9.2.1 Output Power Verification

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

9.2.2 Head SAR Measurements

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

9.2.3 Body SAR Measurement

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

9.2.4 Handsets with Release 5 HSDPA

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

Sub-Test 1 Setup for Release 5 HSDPA

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

Note 1: Δ_{ACK}, Δ_{NACK} and $\Delta_{CQI} = 8 \Leftrightarrow A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15 * \beta_c$
Note 2: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15.
Note 3: For subtest 2 the β_c/β_d ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to β_c = 11/15 and β_d = 15/15.

3GPP Release Version	Mode	3GPP 34.121	Cellular Band [dBm]			MPR
		Subtest	UL 4132 (826.4)	UL 4183 (836.6)	UL 4233 (846.6)	
			DL 4357	DL 4408	DL 4458	
99	WCDMA	12.2 kbps RMC	23.93	23.87	23.87	-
99	WCDMA	12.2 kbps AMR	23.92	23.87	23.85	-
5	HSDPA	Subtest 1	23.93	23.87	23.86	0
5		Subtest 2	23.86	23.77	23.74	0
5		Subtest 3	23.65	23.56	23.50	-0.5
5		Subtest 4	23.35	23.25	23.17	-0.5
6	HSUPA	Subtest 1	22.65	22.57	22.50	0
6		Subtest 2	20.95	20.90	20.81	-2
6		Subtest 3	21.64	21.58	21.49	-1
6		Subtest 4	21.11	21.07	20.99	-2
6		Subtest 5	22.70	22.64	22.54	0

WCDMA Average Conducted output powers

9.3 WiFi

9.3.1 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)			
		Data Rate (Mbps)			
		1	2	5.5	11
IEEE 802.11b	1	13.33	13.35	13.25	13.10
	6	13.66	13.67	13.61	13.49
	11	14.23	14.20	14.15	13.97

Average IEEE 802.11b Conducted output power

Band	Channel	Conducted Power (dBm)							
		Data Rate (Mbps)							
		6	9	12	18	24	36	48	54
IEEE 802.11g	1	10.10	10.06	10.00	9.81	9.70	9.38	9.03	8.90
	6	10.61	10.46	10.43	10.25	10.06	9.76	9.46	9.23
	11	11.11	11.05	10.93	10.73	10.59	10.22	9.91	9.78

Average IEEE 802.11g Conducted output power

Band	Channel	Conducted Power (dBm)							
		Data Rate (Mbps)							
		6.5	13	20	26	39	52	58	65
IEEE 802.11n (HT-20)	1	8.92	8.76	8.59	8.40	8.01	7.76	7.63	7.56
	6	9.37	9.09	8.98	8.76	8.38	8.13	8.00	7.90
	11	9.77	9.57	9.43	9.24	8.91	8.68	8.61	8.49

Average IEEE 802.11n Conducted output power

WLAN 5GHz Conducted Powers(Without Power Reduction)

802.11 a

Mode	Freq [MHz]	Channel	conducted Power [dBm]							
			Data Rate [Mbps]							
			6	9	12	18	24	36	48	54
802.11a	5180	36	10.50	10.59	10.38	10.33	10.14	9.73	9.32	9.42
802.11a	5200	40	10.29	10.20	10.31	10.06	9.97	9.68	9.42	9.30
802.11a	5240	48	10.09	10.11	9.91	9.74	9.51	9.22	8.89	8.72
802.11a	5260	52	10.24	10.01	9.92	9.89	9.67	9.31	9.05	8.79
802.11a	5300	60	10.13	10.12	9.97	9.77	9.57	9.19	8.87	8.81
802.11a	5320	64	10.07	9.98	9.90	9.72	9.51	9.26	8.94	8.77
802.11a	5500	100	11.02	10.92	10.79	10.67	10.47	10.26	9.92	9.82
802.11a	5520	104	10.79	10.72	10.69	10.49	10.37	10.06	9.69	9.58
802.11a	5540	108	10.77	10.69	10.58	10.47	10.26	9.98	9.66	9.61
802.11a	5560	112	10.64	10.60	10.54	10.39	10.24	9.95	9.70	9.52
802.11a	5580	116	11.08	10.92	10.86	10.64	10.54	10.22	9.89	9.85
802.11a	5660	132	10.82	10.70	10.63	10.55	10.31	9.99	9.72	9.60
802.11a	5680	136	10.80	10.77	10.61	10.48	10.32	10.01	9.76	9.58
802.11a	5700	140	11.21	11.09	10.98	10.82	10.65	10.23	10.06	9.98
802.11a	5745	149	10.53	10.52	10.41	10.25	10.02	9.61	9.42	9.31
802.11a	5765	153	10.44	10.39	10.31	10.17	9.95	9.79	9.43	9.20
802.11a	5785	157	10.36	10.19	10.02	9.98	9.75	9.41	9.06	8.98
802.11a	5805	161	10.49	10.48	10.26	10.20	9.90	9.61	9.37	9.22
802.11a	5825	165	9.93	9.90	9.76	9.66	9.49	9.18	8.85	8.77

802.11 n

Mode	Freq [MHz]	Channel	conducted Power [dBm]							
			Data Rate [Mbps]							
			6.5	13	20	26	39	52	58	65
802.11n	5180	36	9.32	9.07	8.95	8.75	8.55	8.16	7.97	7.90
802.11n	5200	40	9.17	9.01	8.81	8.67	8.30	8.03	7.84	7.80
802.11n	5240	48	8.88	8.62	8.51	8.25	7.99	7.78	7.64	7.49
802.11n	5260	52	8.69	8.51	8.39	8.27	7.92	7.57	7.48	7.38
802.11n	5300	60	8.71	8.50	8.28	8.06	7.79	7.60	7.52	7.37
802.11n	5320	64	8.63	8.51	8.21	8.07	7.81	7.48	7.49	7.39
802.11n	5500	100	10.24	9.96	9.83	9.36	9.01	8.94	8.84	10.23
802.11n	5520	104	9.95	9.76	9.63	9.49	9.09	8.89	8.78	8.66
802.11n	5540	108	9.89	9.75	9.61	9.41	9.13	8.89	8.73	8.70
802.11n	5560	112	9.85	9.69	9.49	9.33	9.05	8.88	8.77	8.66
802.11n	5580	116	10.23	10.05	9.81	9.62	9.39	9.07	9.07	9.02
802.11n	5660	132	9.92	9.84	9.56	9.49	9.18	8.95	8.72	8.61
802.11n	5680	136	9.95	9.77	9.60	9.45	9.10	8.88	8.72	8.62
802.11n	5700	140	10.36	10.27	9.94	9.76	9.54	9.24	9.09	9.07
802.11n	5745	149	9.02	8.77	8.71	8.57	8.24	7.90	7.72	7.69
802.11n	5765	153	8.99	8.78	8.57	8.44	8.17	7.88	7.79	7.67
802.11n	5785	157	8.89	8.70	8.49	8.19	8.00	7.80	7.67	7.50
802.11n	5805	161	9.01	8.78	8.65	8.48	8.21	7.86	7.84	7.62
802.11n	5825	165	8.42	8.31	8.15	8.01	7.68	7.33	7.33	7.06

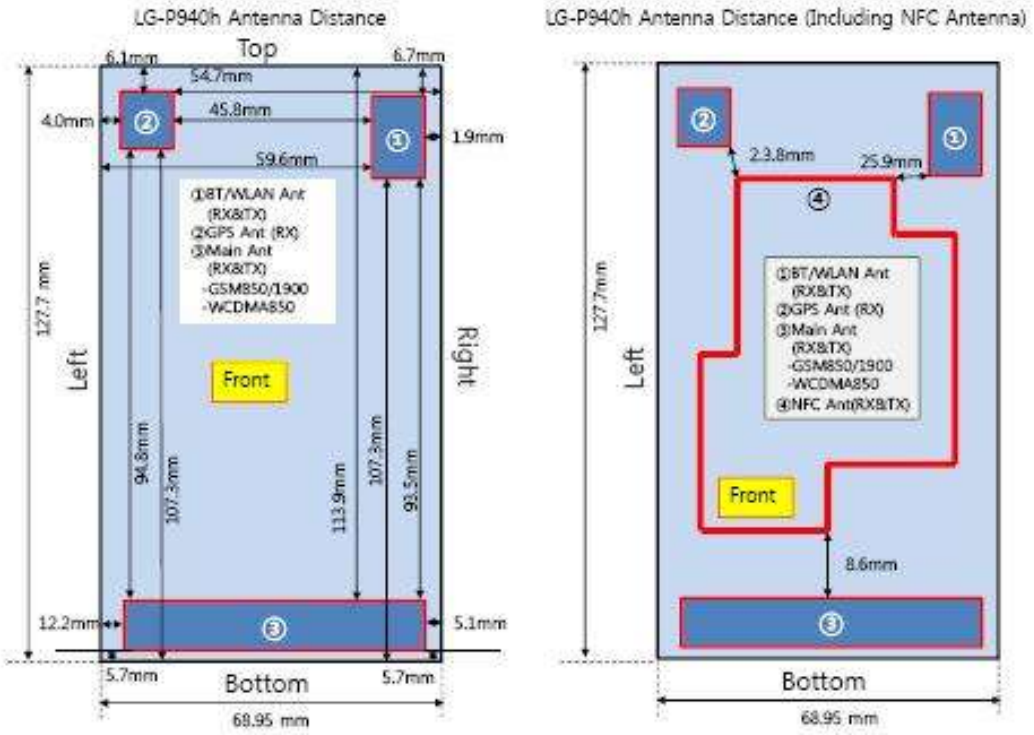
Note;
SAR testing was performed according to the FCC KDB 248227.

10. SAR Test configuration & Antenna Information

10.1 SAR Test configurations

Mode	Back	Front	Left	Right	Bottom	Top
850 GPRS	Yes	Yes	Yes	Yes	Yes	No
1900 GPRS	Yes	Yes	Yes	Yes	Yes	No
WCDMA850	Yes	Yes	Yes	Yes	Yes	No
2.4 GHz	Yes	Yes	No	Yes	No	Yes

10.2 Antenna and Device Information



[Front side View]

Note;

Per FCC KDB Publication 941225 D06, 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.

11. SAR Considerations for 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. 11.1 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·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.

SAR Evaluation Requirements for Multiple Transmitters Handsets

FCC ID: ZNFP940H

BT Max. RF output power: 9.79 dBm (9.53 mW)

11.2 SAR Summation Scenario

Simultaneous Transmission Summation for Held to Ear

Simultaneous TX	configuration	850 GSM SAR(W/kg)	2.4GHz WIFI SAR (W/kg)	∑SAR (W/kg)	Simultaneous TX	configuration	1900 GSM SAR(W/kg)	2.4GHz WIFI SAR (W/kg)	∑SAR (W/kg)
Head SAR	Left Cheek	0.24	0.225	0.465	Head SAR	Left Cheek	0.192	0.225	0.417
	Left Tilt	0.14	0.118	0.258		Left Tilt	0.106	0.118	0.224
	Right Cheek	0.216	0.058	0.274		Right Cheek	0.236	0.058	0.294
	Right Tilt	0.156	0.032	0.188		Right Tilt	0.129	0.032	0.161

Simultaneous TX	configuration	850 WCDMA SAR(W/kg)	2.4GHz WIFI SAR (W/kg)	∑SAR (W/kg)
Head SAR	Left Cheek	0.268	0.225	0.493
	Left Tilt	0.158	0.118	0.276
	Right Cheek	0.246	0.058	0.304
	Right Tilt	0.178	0.032	0.210

The above tables represent a held to ear voice call with 2.4 GHz WLAN.

Simultaneous Transmission Summation for Held to Ear

Simultaneous TX	configuration	850 GSM SAR(W/kg)	5GHz WIFI SAR (W/kg)	∑SAR (W/kg)	Simultaneous TX	configuration	1900 GSM SAR(W/kg)	5GHz WIFI SAR (W/kg)	∑SAR (W/kg)
Head SAR	Left Cheek	0.24	0.36	0.600	Head SAR	Left Cheek	0.192	0.36	0.552
	Left Tilt	0.14	0.166	0.306		Left Tilt	0.106	0.166	0.272
	Right Cheek	0.216	0.097	0.313		Right Cheek	0.236	0.097	0.333
	Right Tilt	0.156	0.19	0.346		Right Tilt	0.129	0.19	0.319

Simultaneous TX	configuration	850 WCDMA SAR(W/kg)	5GHz WIFI SAR (W/kg)	∑SAR (W/kg)
Head SAR	Left Cheek	0.268	0.36	0.628
	Left Tilt	0.158	0.166	0.324
	Right Cheek	0.246	0.097	0.343
	Right Tilt	0.178	0.19	0.368

The above tables represent a held to ear voice call with 5 GHz WLAN.

Simultaneous Transmission Summation for Body-Worn (1cm)

Simultaneous TX	configuration	850 GPRS SAR(W/kg)	2.4GHz WIFI SAR (W/kg)	∑SAR (W/kg)	Simultaneous TX	configuration	1900 GPRS SAR(W/kg)	2.4GHz WIFI SAR (W/kg)	∑SAR (W/kg)
Body SAR	Back	0.989	0.048	1.037	Body SAR	Back	0.54	0.048	0.588
Simultaneous TX	configuration	850 WCDMA SAR(W/kg)	2.4GHz WIFI SAR (W/kg)	∑SAR (W/kg)					
Body SAR	Back	0.85	0.048	0.898					

The above tables represent a body-worn call with 2.4 GHz WLAN.

Simultaneous Transmission Summation for Body-Worn (1cm)

Simultaneous TX	configuration	850 GPRS SAR(W/kg)	5GHz WIFI SAR (W/kg)	∑SAR (W/kg)	Simultaneous TX	configuration	1900 GPRS SAR(W/kg)	5GHz WIFI SAR (W/kg)	∑SAR (W/kg)
Body SAR	Back	0.989	0.133	1.122	Body SAR	Back	0.54	0.133	0.673
Simultaneous TX	configuration	850 WCDMA SAR(W/kg)	5GHz WIFI SAR (W/kg)	∑SAR (W/kg)					
Body SAR	Back	0.85	0.133	0.983					

The above tables represent a body-worn call with 5 GHz WLAN.

Simultaneous Transmission Summation for Hotspot

Simultaneous TX	configuration	850 GPRS SAR(W/kg)	2.4GHz WIFI SAR (W/kg)	∑SAR (W/kg)	Simultaneous TX	configuration	1900 GPRS SAR(W/kg)	2.4GHz WIFI SAR (W/kg)	∑SAR (W/kg)
Body SAR	Back	0.989	0.048	1.037	Body SAR	Back	0.54	0.048	0.588
	Front	0.401	0.021	0.422		Front	0.297	0.021	0.318
	Left	0.547	-	0.547		Left	0.126	-	0.126
	Right	0.456	0.039	0.495		Right	0.2	0.039	0.239
	Bottom	0.097	-	0.097		Bottom	0.558	-	0.558
	Top	-	0.012	0.012		Top	-	0.012	0.012

Simultaneous TX	configuration	850 WCDMA SAR(W/kg)	2.4GHz WIFI SAR (W/kg)	∑SAR (W/kg)
Body SAR	Back	0.85	0.048	0.898
	Front	0.361	0.021	0.382
	Left	0.51	-	0.510
	Right	0.303	0.039	0.342
	Bottom	0.1	-	0.100
	Top	-	0.012	0.012

The above tables represent a portable hotspot condition.

Note;

Body-Worn SAR : The Rear side hotspot SAR test configurations can be considered for body-worn accessory SAR. Although body-worn accessory conditions are typically for voice configurations, the GPRS slot frame averaged output power was more conservative and was included for the body-worn accessory SAR assessment.

11.3 Simultaneous Transmission Conclusion

The above numerical summed SAR was below the SAR limit. Therefore, the above analysis is sufficient to determine that simultaneous transmission cases will not exceed the SAR limit.No volumetric SAR summation is required per FCC KDB Publication 648474.

The above tables represent the worst-case simultaneous transmission scenarios possibility with this device.

The conducted output power level of the BT transmitter is less than $2*P_{ref}$, the BT antenna is more than 5 cm from the other antenna, therefore, a stand-alone BT SAR evaluation is not required.

12. SAR TEST DATA SUMMARY

12.1 Measurement Results (GSM850 Head SAR)

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	Battery	Phantom Position	SAR(mW/g)
MHz	Channel						
836.6	190 (Mid)	GSM850	33.66	- 0.094	Standard	Left Ear	0.240
			33.66	- 0.190	Standard	Left Tilt 15°	0.140
			33.66	- 0.075	Standard	Right Ear	0.216
			33.66	0.032	Standard	Right Tilt 15°	0.156
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 (GSM1900 Head SAR)

Frequency		Modulation	ConductedPower (dBm)	Power Drift (dB)	Battery	Phantom Position	SAR(mW/g)
MHz	Channel						
1 880.0	661 (Mid)	GSM1900	30.08	0.008	Standard	Left Ear	0.192
			30.08	- 0.025	Standard	Left Tilt 15°	0.106
			30.08	0.017	Standard	Right Ear	0.236
			30.08	0.058	Standard	Right Tilt 15°	0.129
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).

12.3 Measurement Results (WCDMA850 Head SAR)

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	Battery	Phantom Position	SAR(mW/g)
MHz	Channel						
836.6	4183 (Mid)	WCDMA850	23.87	- 0.042	Standard	Left Ear	0.268
836.6	4183 (Mid)	WCDMA850	23.87	- 0.053	Standard	Left Tilt 15°	0.158
836.6	4183 (Mid)	WCDMA850	23.87	- 0.062	Standard	Right Ear	0.246
836.6	4183 (Mid)	WCDMA850	23.87	- 0.075	Standard	Right Tilt 15°	0.178
ANSI/ IEEE C95.1 - 2005– 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 WCDMA Mode was tested under RMC 12.2 kbps and HSDPA Inactive.

12.4 Measurement Results (802.11b/g/n Head)

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	Battery	Phantom Position	Data Rate	SAR(mW/g)
MHz	Channel							
2 462	11 (High)	802.11b	13.1	- 0.099	Standard	Left Ear	1 Mbps	0.225
2 462	11 (High)	802.11b	13.1	- 0.065	Standard	Left Tilt 15°	1 Mbps	0.118
2 462	11 (High)	802.11b	13.1	0.013	Standard	Right Ear	1 Mbps	0.058
2 462	11 (High)	802.11b	13.1	- 0.047	Standard	Right Tilt 15	1 Mbps	0.032
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.
8 For 2.4GHz WLAN, Highest average power channel for the lowest data rate was selected for SAR evaluation based on KDB 248227. Other channels are not necessary because 1g-average SAR < 0.8 W/Kg and peak SAR < 1.6W/Kg per KDB 248227.

12.5 Measurement Results (802.11a/n 5GHz Head SAR)

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	Battery	Phantom Position	Data Rate	SAR(mW/g)
MHz	Channel							
5 180	36	802.11a	10.50	0.018	Standard	Left Ear	6Mbps	0.300
5 180	36	802.11a	10.50	- 0.143	Standard	Left Tilt 15°	6Mbps	0.106
5 180	36	802.11a	10.50	- 0.047	Standard	Right Ear	6Mbps	0.063
5 180	36	802.11a	10.50	0.013	Standard	Right Tilt 15	6Mbps	0.077
5 260	52	802.11a	10.24	0.068	Standard	Left Ear	6Mbps	0.215
5 260	52	802.11a	10.24	0.054	Standard	Left Tilt 15°	6Mbps	0.104
5 260	52	802.11a	10.24	- 0.007	Standard	Right Ear	6Mbps	0.050
5 260	52	802.11a	10.24	0.015	Standard	Right Tilt 15	6Mbps	0.048
5 700	140	802.11a	11.21	- 0.104	Standard	Left Ear	6Mbps	0.295
5 700	140	802.11a	11.21	0.063	Standard	Left Tilt 15°	6Mbps	0.154
5 700	140	802.11a	11.21	- 0.033	Standard	Right Ear	6Mbps	0.060
5 700	140	802.11a	11.21	0.109	Standard	Right Tilt 15	6Mbps	0.053
5 745	149	802.11a	10.53	0.115	Standard	Left Ear	6Mbps	0.360
5 745	149	802.11a	10.53	0.104	Standard	Left Tilt 15°	6Mbps	0.166
5 745	149	802.11a	10.53	- 0.016	Standard	Right Ear	6Mbps	0.097
5 745	149	802.11a	10.53	0.079	Standard	Right Tilt 15	6Mbps	0.190
5785	157	802.11a	10.36	0.065	Standard	Right Tilt 15	6Mbps	0.082
5825	165	802.11a	9.93	0.085	Standard	Right Tilt 15	6Mbps	0.057
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 Highest average RF output power channel for the lowest data rate were selected for SAR testing. IEEE 802.11(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 802.11a.
8 When Hotspot is enabled, 5 GHz Bands are disabled

12.6 Measurement Results (GSM850 Hotspot SAR)

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	Configuration	Separation Distance	SAR(mW/g)
MHz	Channel						
824.2	128 (Low)	GPRS 2Tx	31.6	0.046	Rear	1.0 cm	0.859
836.6	190 (Mid)	GPRS 2Tx	31.64	0.043	Rear	1.0 cm	0.903
848.8	251 (High)	GPRS 2Tx	31.63	0.025	Rear	1.0 cm	0.987
824.2	128 (Low)	GPRS 3Tx	29.68	0.028	Rear	1.0 cm	0.816
836.6	190 (Mid)	GPRS 3Tx	29.72	0.043	Rear	1.0 cm	0.874
848.8	251 (High)	GPRS 3Tx	29.71	- 0.007	Rear	1.0 cm	0.941
824.2	128 (Low)	GPRS 4Tx	28.71	- 0.020	Rear	1.0 cm	0.855
836.6	190 (Mid)	GPRS 4Tx	28.77	0.051	Rear	1.0 cm	0.968
848.8	251 (High)	GPRS 4Tx	28.74	0.031	Rear	1.0 cm	0.989
836.6	190 (Mid)	GPRS 4Tx	28.77	0.061	Front	1.0 cm	0.401
836.6	190 (Mid)	GPRS 4Tx	28.77	- 0.089	Left	1.0 cm	0.547
836.6	190 (Mid)	GPRS 4Tx	28.77	0.025	Right	1.0 cm	0.456
836.6	190 (Mid)	GPRS 4Tx	28.77	0.007	Bottom	1.0 cm	0.097
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-body position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supplement C [July 2001].
2 All modes of operation were investigated and the worst-case are reported.
3 Measured Depth of Simulating Tissue is 15.0 cm ± 0.2 cm.
4 Tissue parameters and temperatures are listed on the SAR plot.
5 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).
9 For body SAR testing, the EUT was set in GPRS multi-slot class12 with 4uplink slots for GSM850 due to maximum source-based time-averaged output power.
According to the KDB 941225 D03 SAR test reduction GSM/GPRS/EDGE, the maximum output power configuration were chosen for Body SAR testing.

12.7 Measurement Results (GSM1900 Hotspot SAR)

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	Configuration	Separation Distance	SAR(mW/g)
MHz	Channel						
1 880.0	661 (Mid)	GPRS 2Tx	28.1	0.068	Rear	1.0 cm	0.539
1 880.0	661 (Mid)	GPRS 3Tx	26.14	0.017	Rear	1.0 cm	0.494
1 880.0	661 (Mid)	GPRS 4Tx	25.14	0.009	Rear	1.0 cm	0.540
1 880.0	661 (Mid)	GPRS 4Tx	25.14	0.033	Front	1.0 cm	0.297
1 880.0	661 (Mid)	GPRS 4Tx	25.14	0.009	Left	1.0 cm	0.126
1 880.0	661 (Mid)	GPRS 4Tx	25.14	0.093	Right	1.0 cm	0.200
1 880.0	661 (Mid)	GPRS 4Tx	25.14	-0.039	Bottom	1.0 cm	0.632
1 880.0	661 (Mid)	GPRS 2Tx	28.1	0.136	Bottom	1.0 cm	0.558
1 880.0	661 (Mid)	GPRS 3Tx	26.14	0.069	Bottom	1.0 cm	0.528
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-body position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supplement C [July 2001].
2 All modes of operation were investigated and the worst-case are reported.
3 Measured Depth of Simulating Tissue is 15.0 cm ± 0.2 cm.
4 Tissue parameters and temperatures are listed on the SAR plot.
5 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).
9 For body SAR testing, the EUT was set in GPRS multi-slot class12 with 4uplink slots for GSM1900 due to maximum source-based time-averaged output power.
According to the KDB 941225 D03 SAR test reduction GSM/GPRS/EDGE, the maximum output power configuration were chosen for Body SAR testing.

12.8 Measurement Results (WCDMA850 Hotspot SAR)

Frequency		Modulation	ConductedPower (dBm)	Power Drift (dB)	Configuration	Separation Distance	SAR(mW/g)
MHz	Channel						
826.4	4132 (Low)	WCDMA850	23.93	-0.010	Rear	1.0 cm	0.850
836.6	4183 (Mid)	WCDMA850	23.87	0.009	Rear	1.0 cm	0.816
846.6	4233 (High)	WCDMA850	23.87	-0.022	Rear	1.0 cm	0.785
836.6	4183 (Mid)	WCDMA850	23.87	0.122	Front	1.0 cm	0.361
836.6	4183 (Mid)	WCDMA850	23.87	0.015	Left	1.0 cm	0.510
836.6	4183 (Mid)	WCDMA850	23.87	0.087	Right	1.0 cm	0.303
836.6	4183 (Mid)	WCDMA850	23.87	0.008	Bottom	1.0 cm	0.100
ANSI/ IEEE C95.1 - 2005– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population					**Body 1.6 W/kg (mW/g) Averaged over 1 gram**		

1 The test data reported are the worst-case SAR value with the antenna-body position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supplement C [July 2001].
2 All modes of operation were investigated and the worst-case are reported.
3 Measured Depth of Simulating Tissue is 15.0 cm ± 0.2 cm.
4 Tissue parameters and temperatures are listed on the SAR plot.
5 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).
9 WCDMA Mode was tested under RMC 12.2 kbps and HSDPA Inactive.

12.9 Measurement Results (802.11b/g/n Hotspot SAR)

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	Configuration	Separation Distance	Data Rate	SAR(mW/g)
MHz	Channel							
2 462	11 (High)	802.11b	13.1	-0.035	Rear	1.0 cm	1 Mbps	0.048
2 462	11 (High)	802.11b	13.1	0.162	Front	1.0 cm	1 Mbps	0.021
2 462	11 (High)	802.11b	13.1	0.028	Right	1.0 cm	1 Mbps	0.039
2 462	11 (High)	802.11b	13.1	0.02	Top	1.0 cm	1 Mbps	0.012
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-body position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supplement C [July 2001].
2 All modes of operation were investigated and the worst-case are reported.
3 Measured Depth of Simulating Tissue is 15.0 cm ± 0.2 cm.
4 Tissue parameters and temperatures are listed on the SAR plot.
5 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.
8 For 2.4GHz WLAN, Highest average power channel for the lowest data rate was selected for SAR evaluation based on KDB 248227. Other channels are not necessary because 1g-average SAR < 0.8 W/Kg and peak SAR < 1.6W/Kg per KDB 248227.

12.10 Measurement Results (802.11a/n 5GHz Body-Worn)

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	Configuration	Separation Distance	Data Rate	SAR(mW/g)
MHz	Channel							
5 180	36	802.11a	10.50	- 0.187	Rear	1.0 cm	6Mbps	0.059
5 260	52	802.11a	10.24	0.054	Rear	1.0 cm	6Mbps	0.072
5 700	140	802.11a	11.21	0.101	Rear	1.0 cm	6Mbps	0.133
5 745	149	802.11a	10.53	0.12	Rear	1.0 cm	6Mbps	0.107
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 Highest average RF output power channel for the lowest data rate were selected for SAR testing. IEEE 802.11(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 802.11a.
8 When Hotspot is enabled, 5 GHz Bands are disabled

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.

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Attachment 1. – SAR Test Plots

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.7, 2012

DUT: LG-P940h; Type: bar; Serial: #1

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.903 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

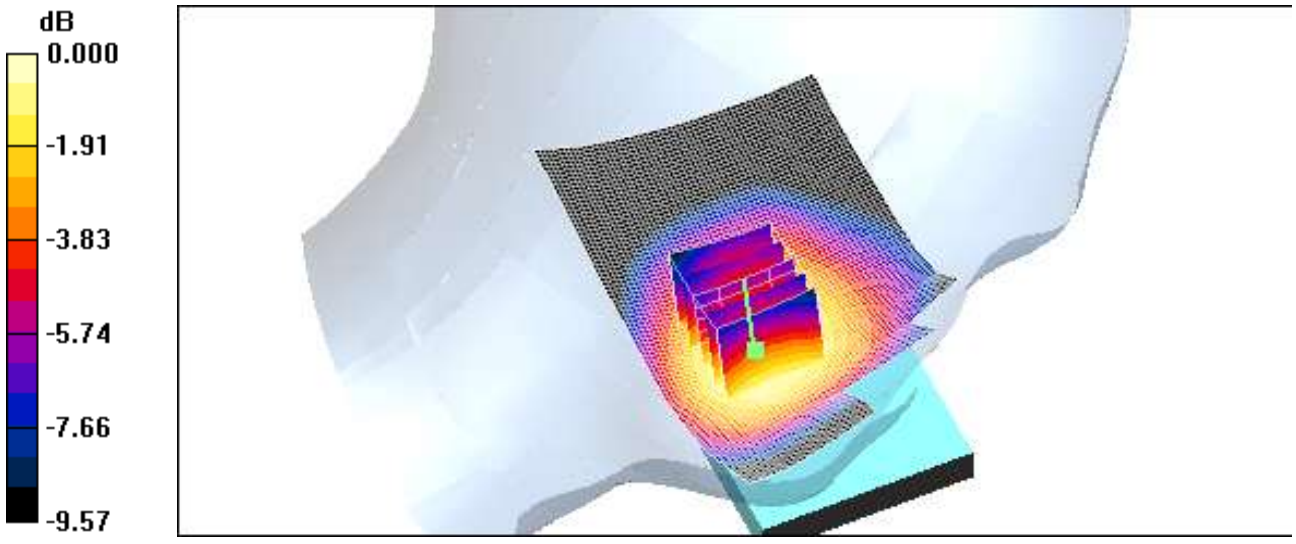
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(8.93, 8.93, 8.93); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 835/900 MHz; Type: SAM

Left touch 190/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.254 mW/g

Left touch 190/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.82 V/m; Power Drift = -0.094 dB
Peak SAR (extrapolated) = 0.298 W/kg
SAR(1 g) = 0.240 mW/g; SAR(10 g) = 0.182 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.252 mW/g



0 dB = 0.252mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.7, 2012

DUT: LG-P940h; Type: bar; Serial: #1

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.903 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

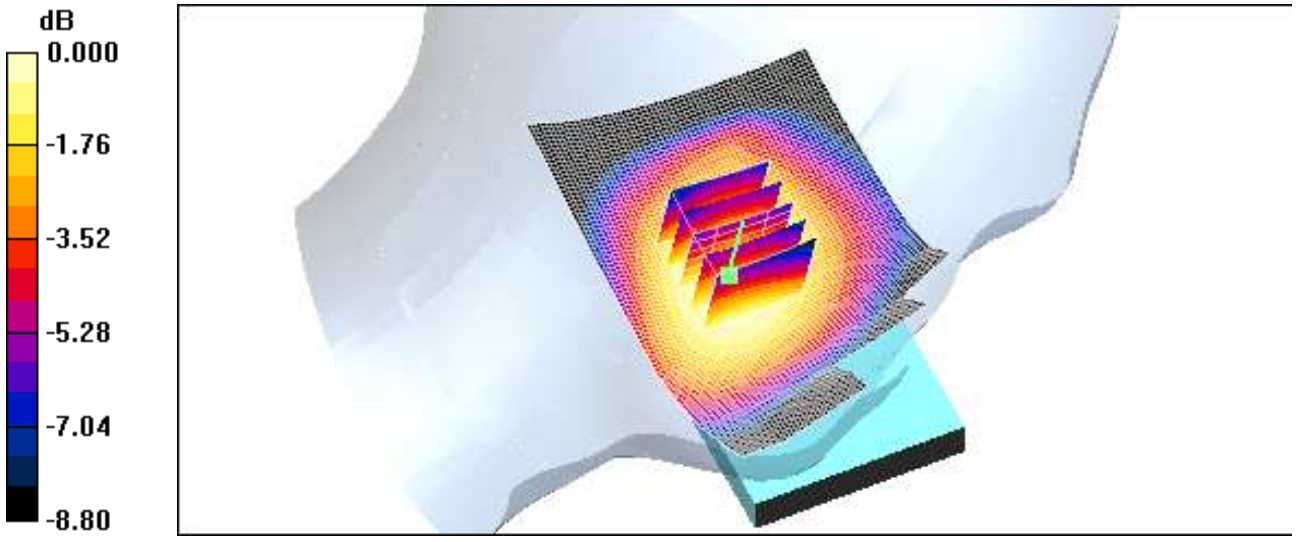
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(8.93, 8.93, 8.93); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 835/900 MHz; Type: SAM

Left tilt 190/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.149 mW/g

Left tilt 190/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.77 V/m; Power Drift = -0.190 dB
Peak SAR (extrapolated) = 0.167 W/kg
SAR(1 g) = 0.140 mW/g; SAR(10 g) = 0.109 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.145 mW/g



0 dB = 0.145mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.7, 2012

DUT: LG-P940h; Type: bar; Serial: #1

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.903 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

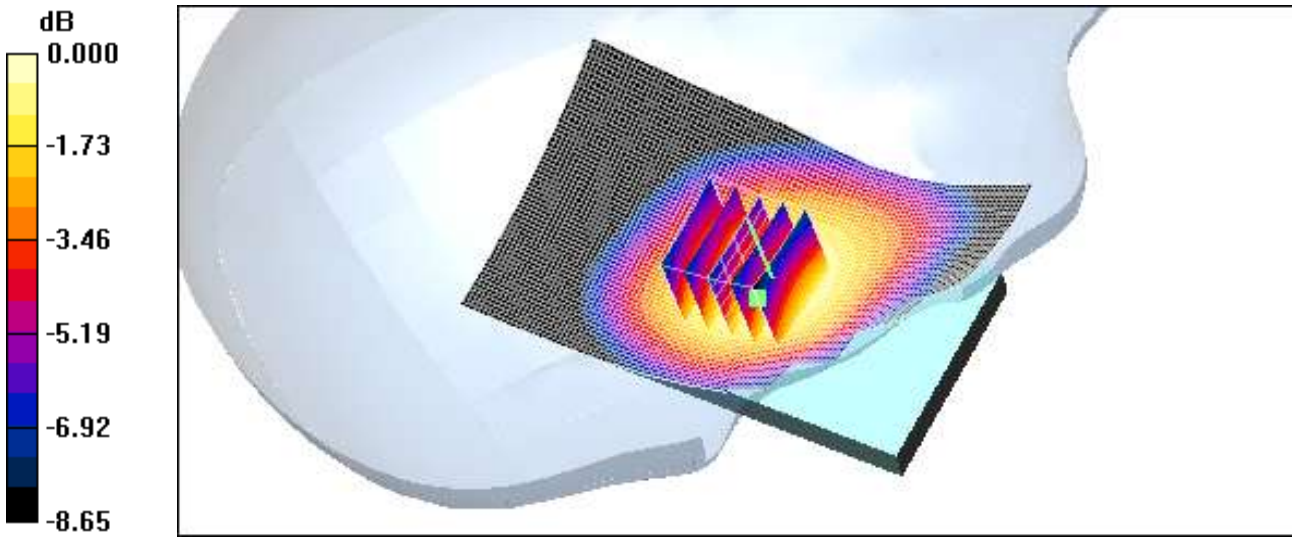
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(8.93, 8.93, 8.93); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 835/900 MHz; Type: SAM

Right touch 190/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

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

Right touch 190/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.24 V/m; Power Drift = -0.075 dB
Peak SAR (extrapolated) = 0.258 W/kg
SAR(1 g) = 0.216 mW/g; SAR(10 g) = 0.165 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.225 mW/g



0 dB = 0.225mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.7, 2012

DUT: LG-P940h; Type: bar; Serial: #1

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.903 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

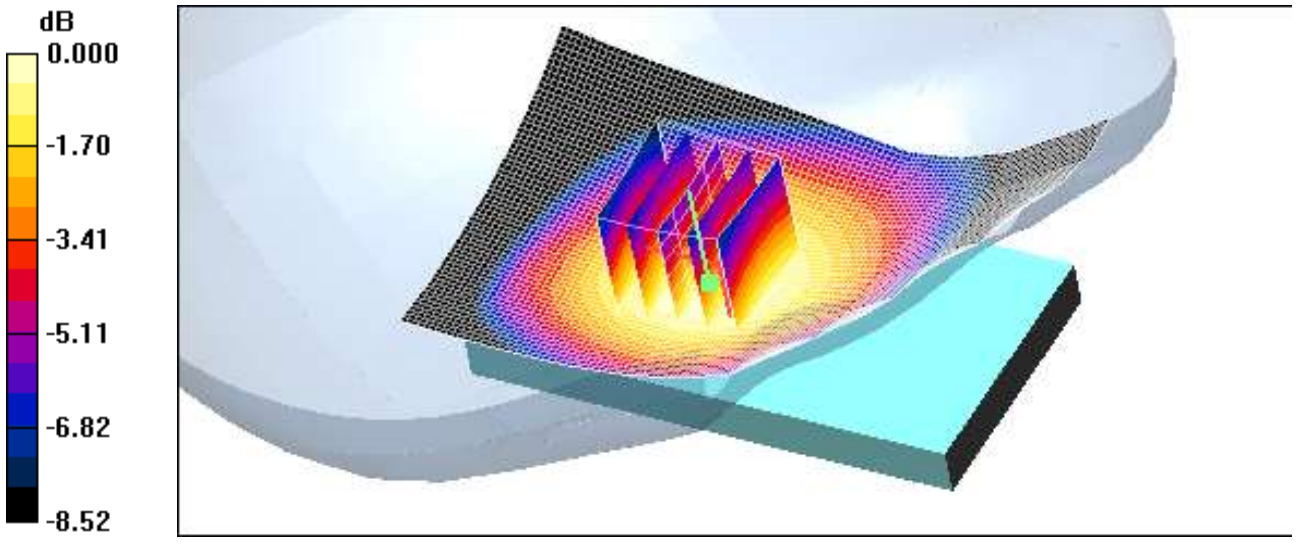
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(8.93, 8.93, 8.93); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 835/900 MHz; Type: SAM

Right tilt 190/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.165 mW/g

Right tilt 190/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.20 V/m; Power Drift = 0.032 dB
Peak SAR (extrapolated) = 0.188 W/kg
SAR(1 g) = 0.156 mW/g; SAR(10 g) = 0.122 mW/g

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



0 dB = 0.162mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.9, 2012

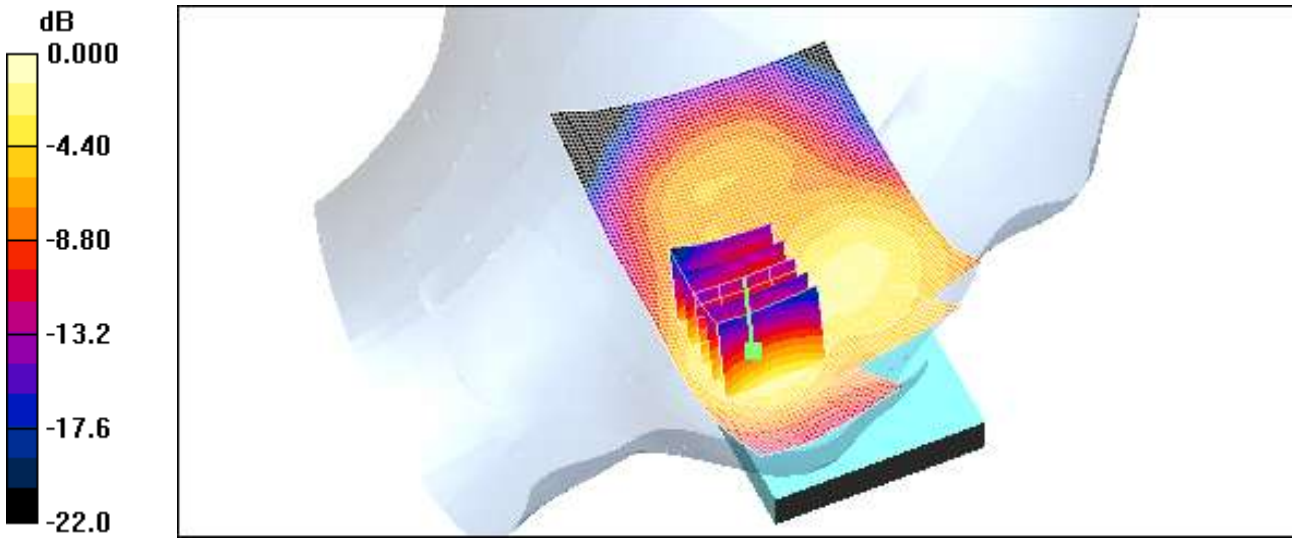
DUT: LG-P940h; Type: bar; Serial: #1

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.37 mho/m; ε_r = 39.2; 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: EX3DV4 - SN3797; ConvF(7.6, 7.6, 7.6); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 1800/1900 MHz; Type: SAM

Left Touch 661/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.206 mW/g

Left Touch 661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.68 V/m; Power Drift = 0.008 dB
Peak SAR (extrapolated) = 0.328 W/kg
SAR(1 g) = 0.192 mW/g; SAR(10 g) = 0.110 mW/g
Maximum value of SAR (measured) = 0.213 mW/g



0 dB = 0.213mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.9, 2012

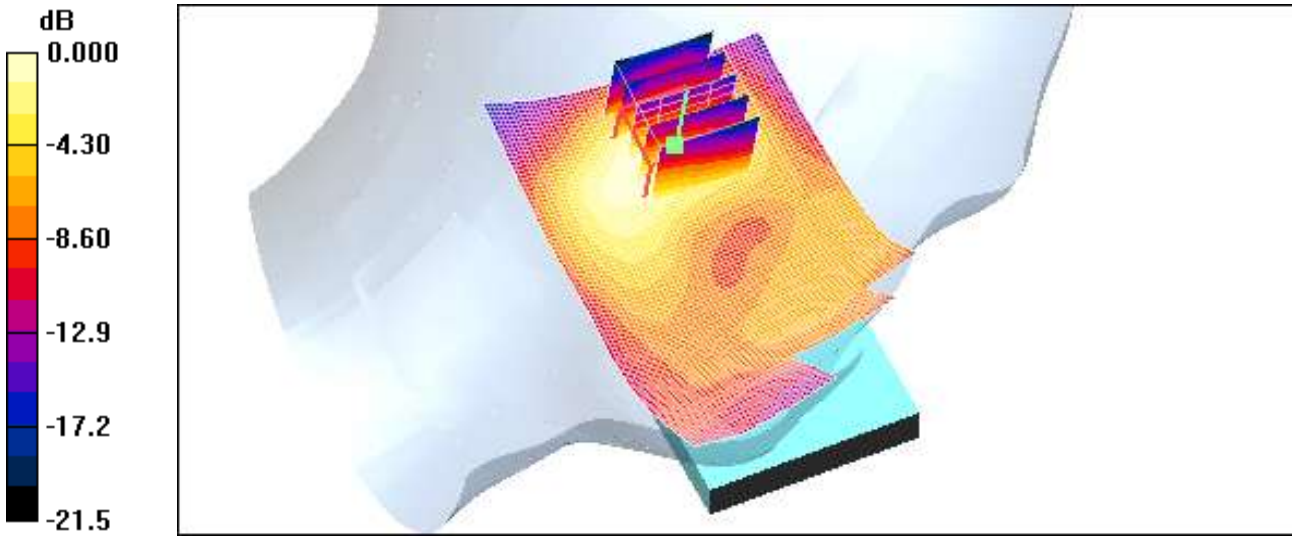
DUT: LG-P940h; Type: bar; Serial: #1

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.37 mho/m; ε_r = 39.2; 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: EX3DV4 - SN3797; ConvF(7.6, 7.6, 7.6); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 1800/1900 MHz; Type: SAM

Left tilt 661/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.118 mW/g

Left tilt 661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.06 V/m; Power Drift = -0.025 dB
Peak SAR (extrapolated) = 0.184 W/kg
SAR(1 g) = 0.106 mW/g; SAR(10 g) = 0.060 mW/g
Maximum value of SAR (measured) = 0.117 mW/g



0 dB = 0.117mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.9, 2012

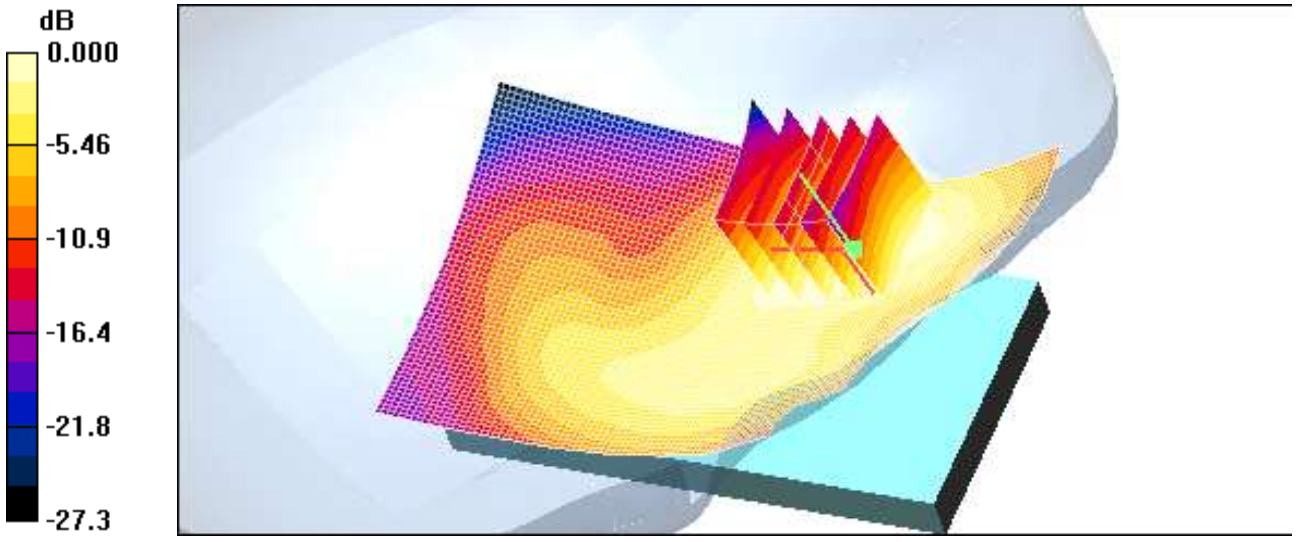
DUT: LG-P940h; Type: bar; Serial: #1

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.37 mho/m; ε_r = 39.2; 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: EX3DV4 - SN3797; ConvF(7.6, 7.6, 7.6); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 1800/1900 MHz; Type: SAM

Right touch 661/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.253 mW/g

Right touch 661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.06 V/m; Power Drift = 0.017 dB
Peak SAR (extrapolated) = 0.414 W/kg
SAR(1 g) = 0.236 mW/g; SAR(10 g) = 0.134 mW/g
Maximum value of SAR (measured) = 0.258 mW/g



0 dB = 0.258mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.9, 2012

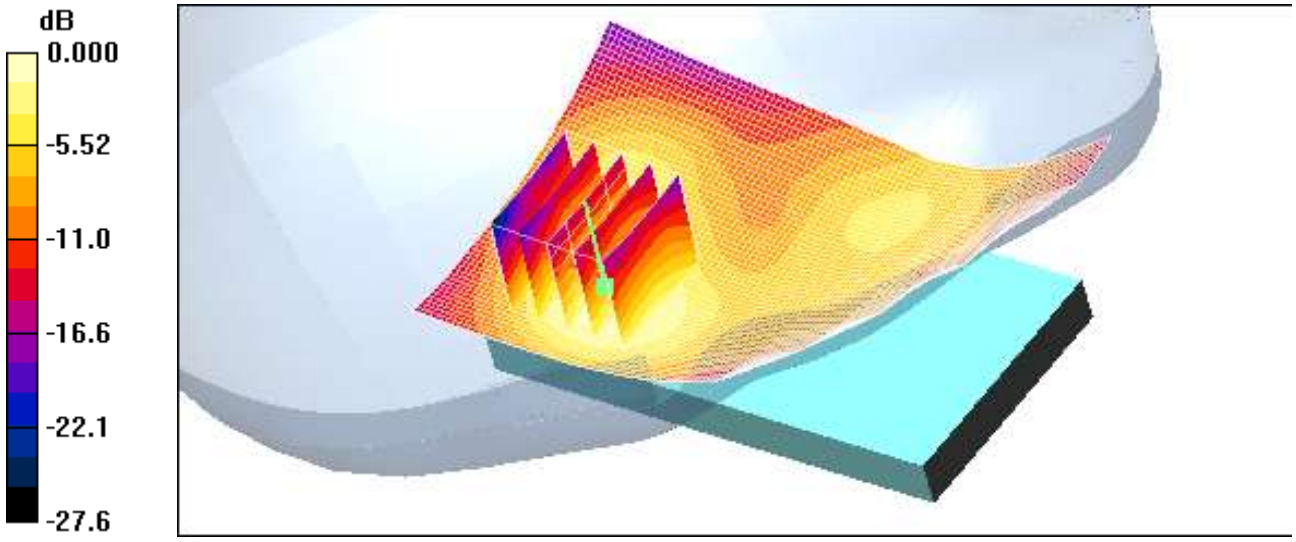
DUT: LG-P940h; Type: bar; Serial: #1

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.37 mho/m; ε_r = 39.2; 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: EX3DV4 - SN3797; ConvF(7.6, 7.6, 7.6); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 1800/1900 MHz; Type: SAM

Right tilt 661/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.152 mW/g

Right tilt 661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.46 V/m; Power Drift = 0.058 dB
Peak SAR (extrapolated) = 0.224 W/kg
SAR(1 g) = 0.129 mW/g; SAR(10 g) = 0.072 mW/g
Maximum value of SAR (measured) = 0.142 mW/g



0 dB = 0.142mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.7, 2012

DUT: LG-P940h; Type: bar; Serial: #1

Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.903 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

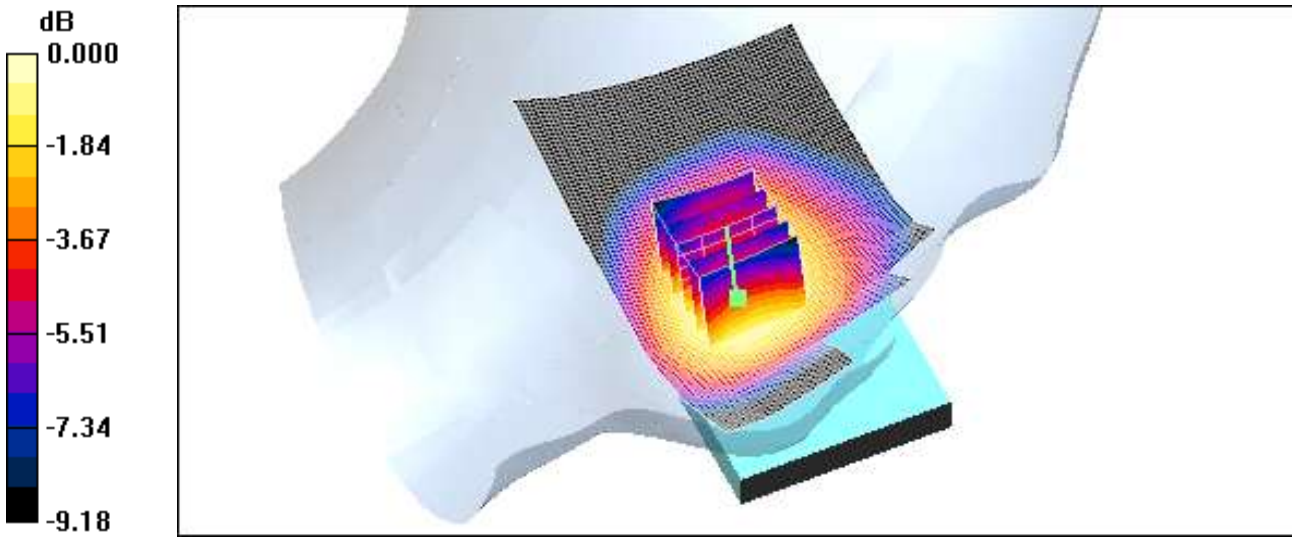
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(8.93, 8.93, 8.93); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 835/900 MHz; Type: SAM

Left touch 4183/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.285 mW/g

Left touch 4183/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.27 V/m; Power Drift = -0.042 dB
Peak SAR (extrapolated) = 0.330 W/kg
SAR(1 g) = 0.268 mW/g; SAR(10 g) = 0.204 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.281 mW/g



0 dB = 0.281mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.7, 2012

DUT: LG-P940h; Type: bar; Serial: #1

Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.903 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

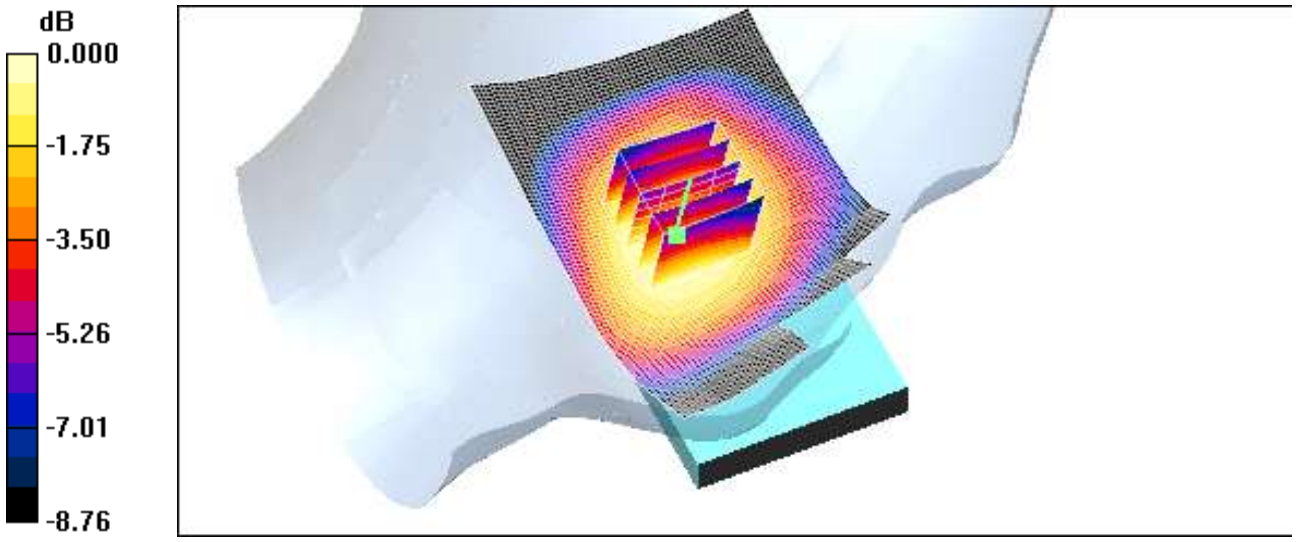
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(8.93, 8.93, 8.93); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 835/900 MHz; Type: SAM

Left tilt 4183/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.168 mW/g

Left tilt 4183/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.90 V/m; Power Drift = -0.053 dB
Peak SAR (extrapolated) = 0.190 W/kg
SAR(1 g) = 0.158 mW/g; SAR(10 g) = 0.123 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.165 mW/g



0 dB = 0.165mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.7, 2012

DUT: LG-P940h; Type: bar; Serial: #1

Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.903 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

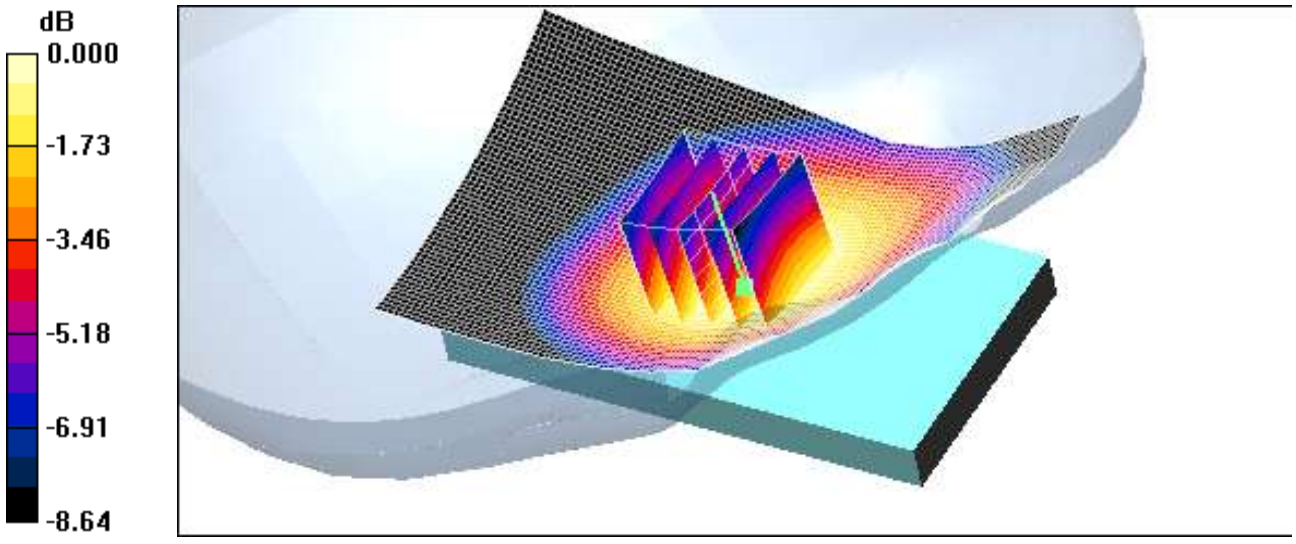
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(8.93, 8.93, 8.93); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 835/900 MHz; Type: SAM

Right touch 4183/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.258 mW/g

Right touch 4183/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.68 V/m; Power Drift = -0.062 dB
Peak SAR (extrapolated) = 0.294 W/kg
SAR(1 g) = 0.246 mW/g; SAR(10 g) = 0.189 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.256 mW/g



0 dB = 0.256mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.7, 2012

DUT: LG-P940h; Type: bar; Serial: #1

Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.903 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

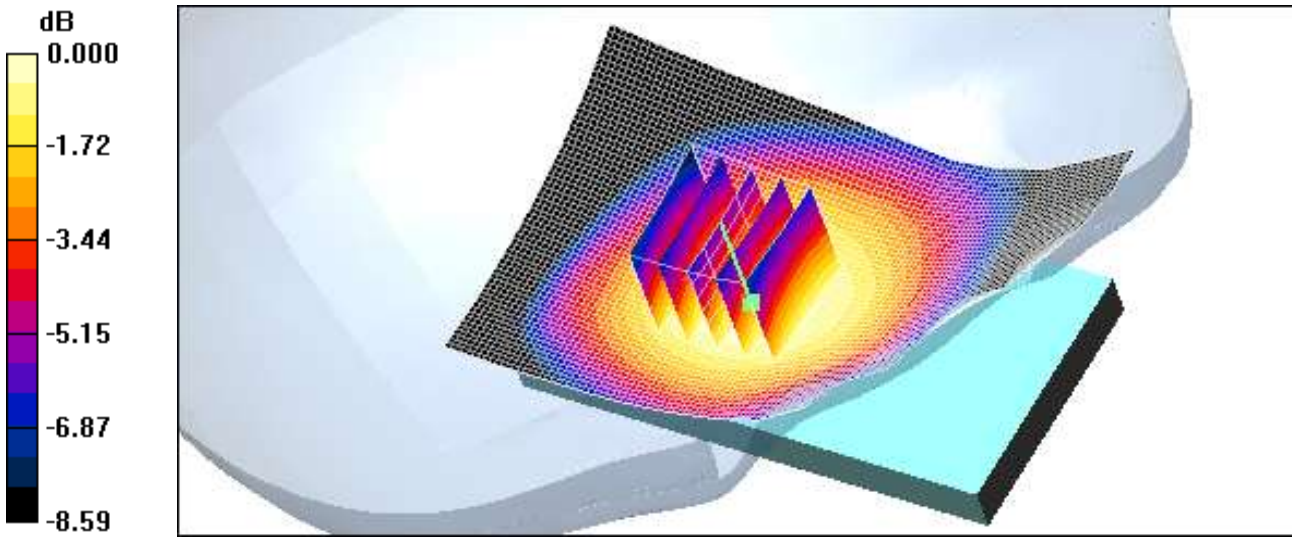
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(8.93, 8.93, 8.93); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 835/900 MHz; Type: SAM

Right tilt 4183/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.189 mW/g

Right tilt 4183/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.75 V/m; Power Drift = -0.075 dB
Peak SAR (extrapolated) = 0.214 W/kg
SAR(1 g) = 0.178 mW/g; SAR(10 g) = 0.139 mW/g

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



0 dB = 0.185mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Apr10, 2012

DUT: LG-P940h; 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 = 38.4; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

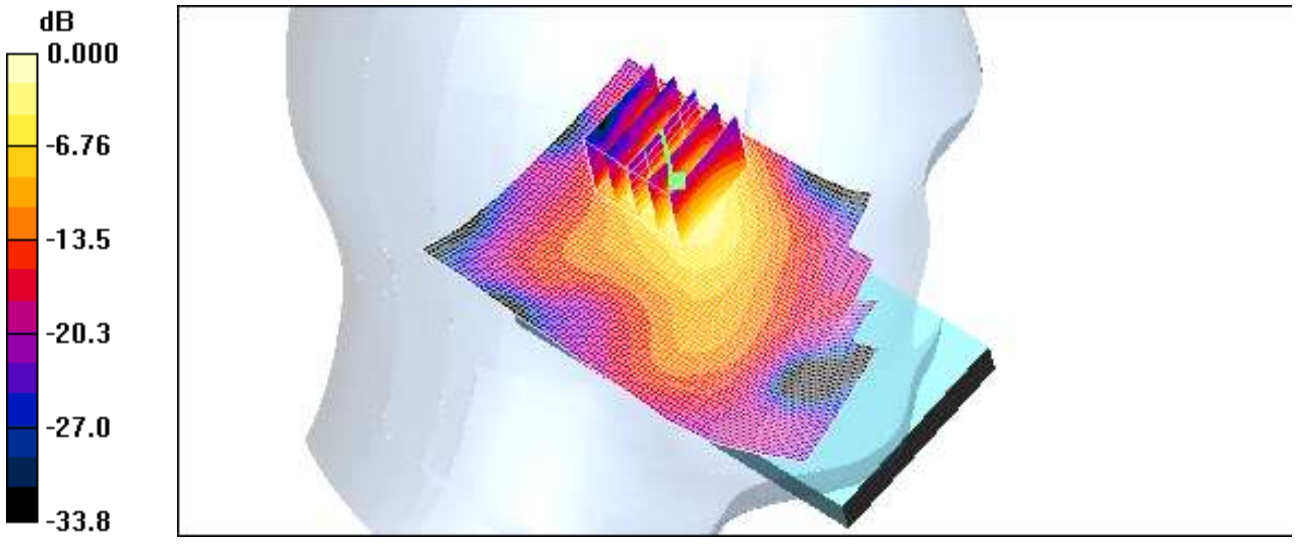
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(6.94, 6.94, 6.94); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: 835/900 Phamtom ; Type: SAM

Left touch 11/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.250 mW/g

Left touch 11/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.49 V/m; Power Drift = -0.099 dB
Peak SAR (extrapolated) = 0.561 W/kg
SAR(1 g) = 0.225 mW/g; SAR(10 g) = 0.093 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:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Apr10, 2012

DUT: LG-P940h; 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 = 38.4; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

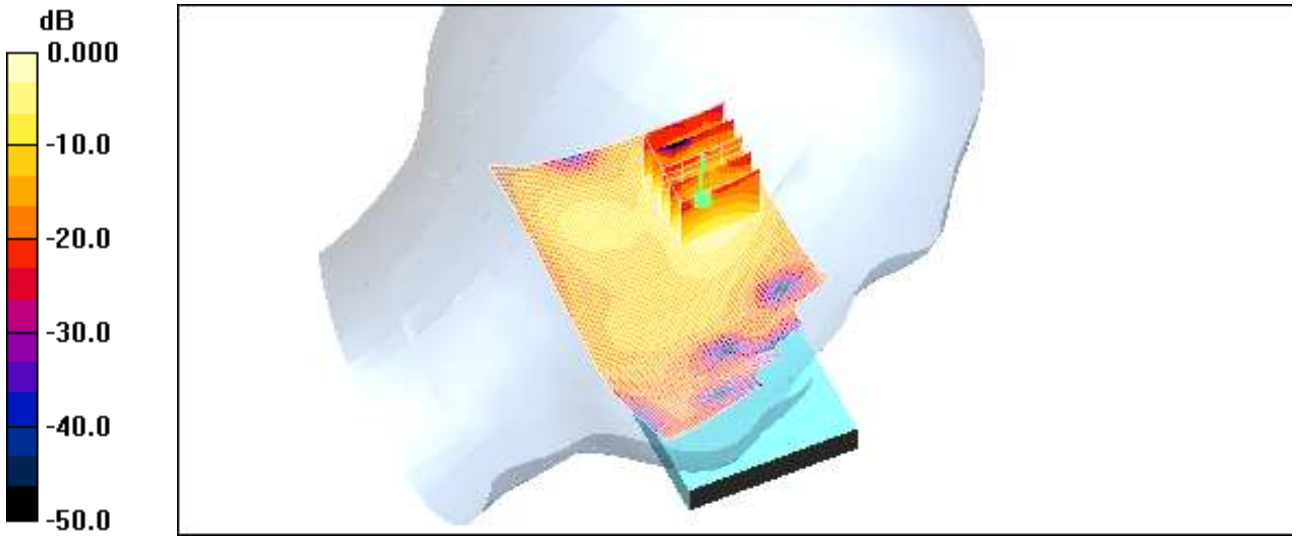
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(6.94, 6.94, 6.94); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: 835/900 Phamtom ; Type: SAM

Left tilt 11/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.134 mW/g

Left tilt 11/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.76 V/m; Power Drift = -0.065 dB
Peak SAR (extrapolated) = 0.280 W/kg
SAR(1 g) = 0.118 mW/g; SAR(10 g) = 0.050 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.135 mW/g



0 dB = 0.135mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Apr.10, 2012

DUT: LG-P940h; 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 = 38.4; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

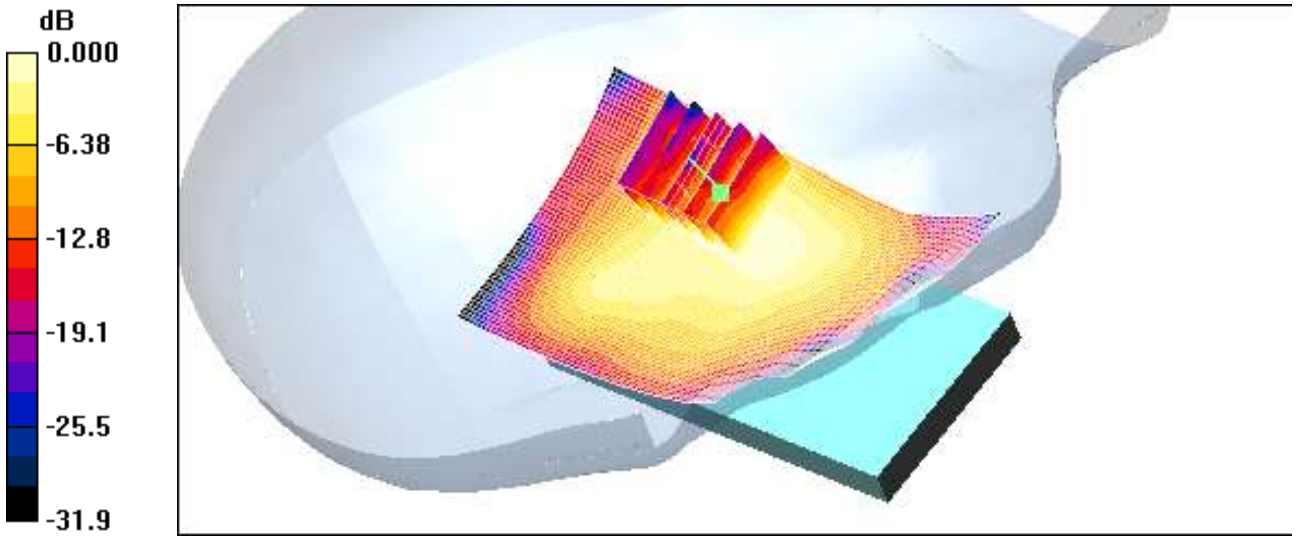
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(6.94, 6.94, 6.94); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: 835/900 Phamtom ; Type: SAM

Right touch 11/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.067 mW/g

Right touch 11/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.39 V/m; Power Drift = 0.013 dB
Peak SAR (extrapolated) = 0.132 W/kg
SAR(1 g) = 0.058 mW/g; SAR(10 g) = 0.028 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.065 mW/g



0 dB = 0.065mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Apr.10, 2012

DUT: LG-P940h; 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 = 38.4; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

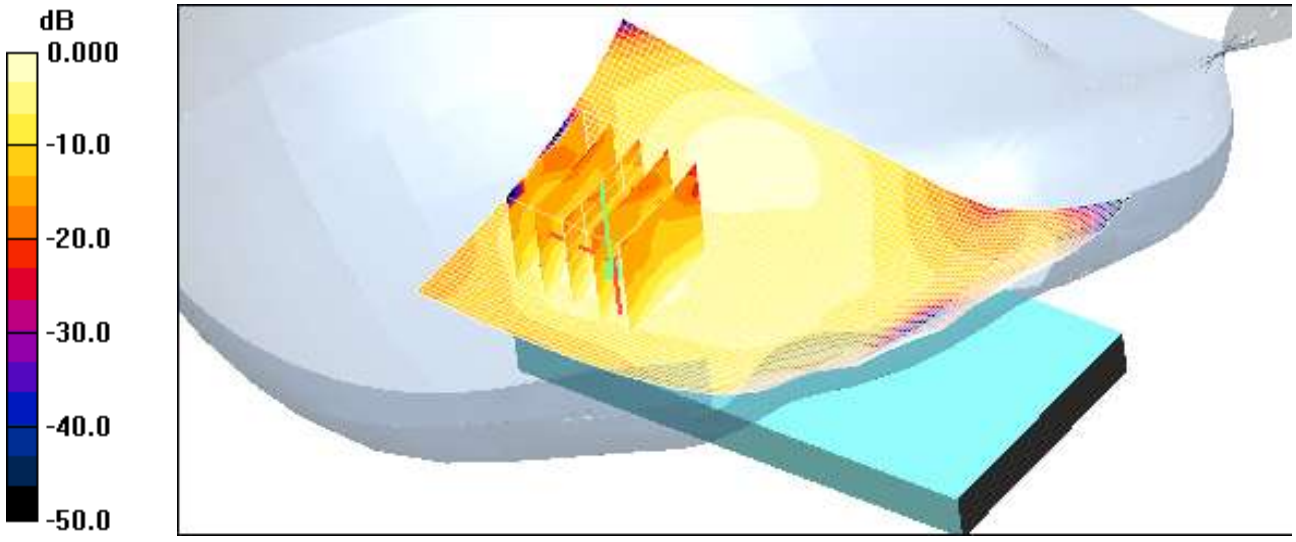
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(6.94, 6.94, 6.94); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: 835/900 Phamtom ; Type: SAM

Right tilt 11/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.035 mW/g

Right tilt 11/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.90 V/m; Power Drift = -0.047 dB
Peak SAR (extrapolated) = 0.078 W/kg
SAR(1 g) = 0.032 mW/g; SAR(10 g) = 0.014 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.033 mW/g



0 dB = 0.033mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	May 9. 2012

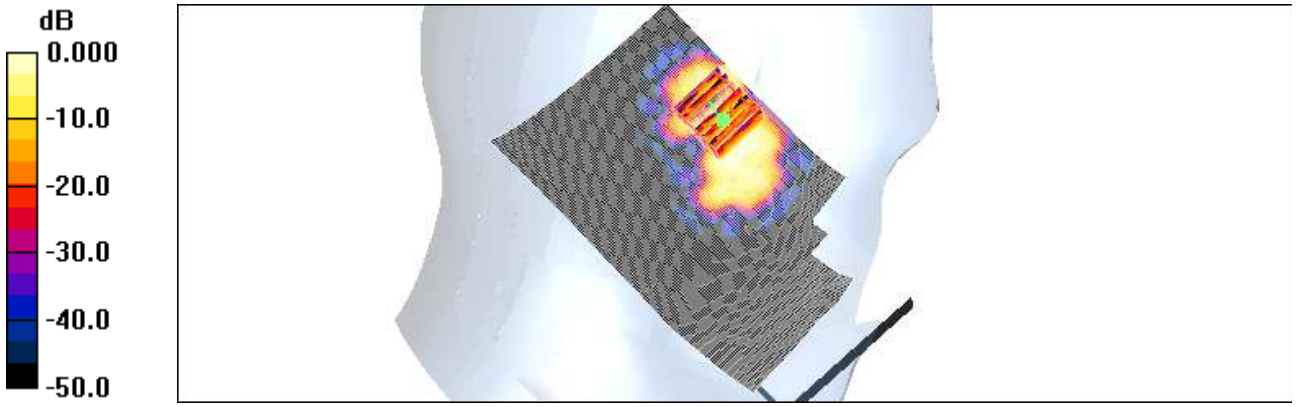
DUT: LG-P940h; Type: bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5180 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5180 MHz; σ = 4.65 mho/m; ε_r = 36.1; 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: EX3DV4 - SN3797; ConvF(4.73, 4.73, 4.73); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: 800/900 Phantom; Type: SAM

802.11a Left touch 36ch 6Mbps/Area Scan (91x151x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.460 mW/g

802.11a Left touch 36ch 6Mbps/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.33 V/m; Power Drift = 0.018 dB
Peak SAR (extrapolated) = 1.04 W/kg
SAR(1 g) = 0.300 mW/g; SAR(10 g) = 0.103 mW/g
Maximum value of SAR (measured) = 0.363 mW/g



0 dB = 0.363mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	May 9. 2012

DUT: LG-P940h; Type: bar; Serial: #1

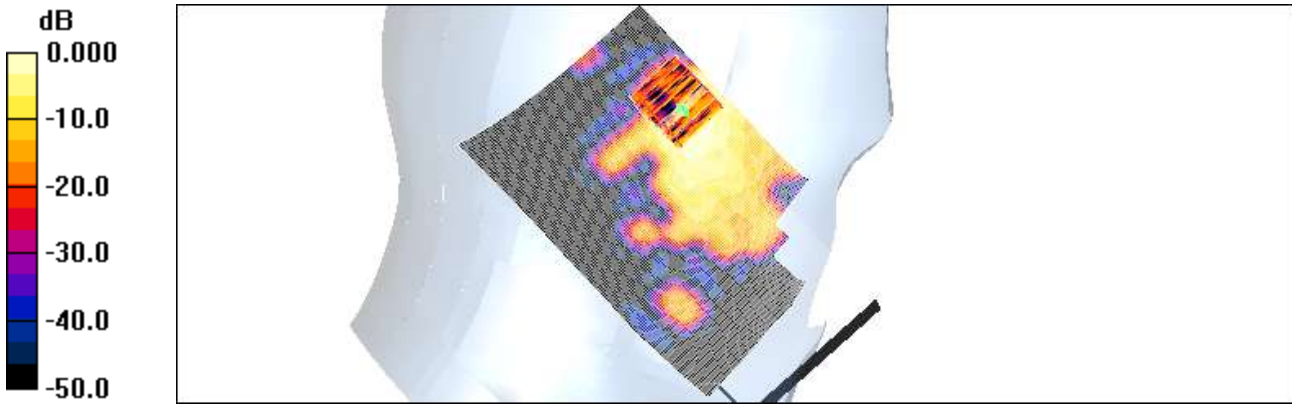
Communication System: WIFI 5GHz; Frequency: 5180 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5180 MHz; σ = 4.65 mho/m; ε_r = 36.1; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(4.73, 4.73, 4.73); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: 800/900 Phantom; Type: SAM

802.11a Left tilt 36ch 6Mbps/Area Scan (91x151x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.134 mW/g

802.11a Left tilt 36ch 6Mbps/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.59 V/m; Power Drift = -0.143 dB
Peak SAR (extrapolated) = 0.340 W/kg
SAR(1 g) = 0.106 mW/g; SAR(10 g) = 0.030 mW/g
Maximum value of SAR (measured) = 0.137 mW/g



0 dB = 0.137mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	May 9. 2012

DUT: LG-P940h; Type: bar; Serial: #1

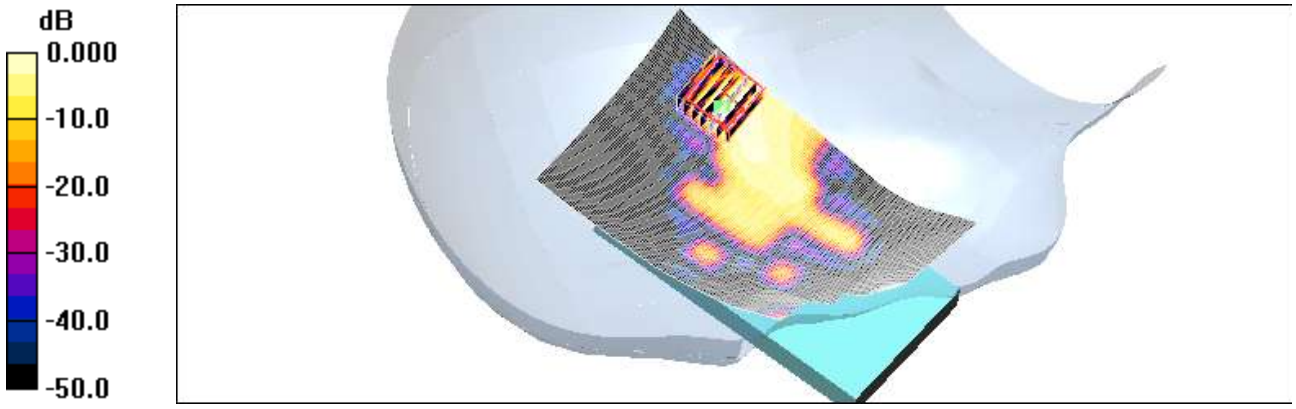
Communication System: WIFI 5GHz; Frequency: 5180 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5180 MHz; σ = 4.65 mho/m; ε_r = 36.1; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(4.73, 4.73, 4.73); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: 800/900 Phantom; Type: SAM

802.11a Right touch 36ch 6Mbps/Area Scan (91x151x1): Measurement grid: dx=10mm, dy=10mm

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

802.11a Right touch 36ch 6Mbps/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.04 V/m; Power Drift = -0.047 dB
Peak SAR (extrapolated) = 0.384 W/kg
SAR(1 g) = 0.063 mW/g; SAR(10 g) = 0.021 mW/g
Maximum value of SAR (measured) = 0.087 mW/g



0 dB = 0.087mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	May 9. 2012

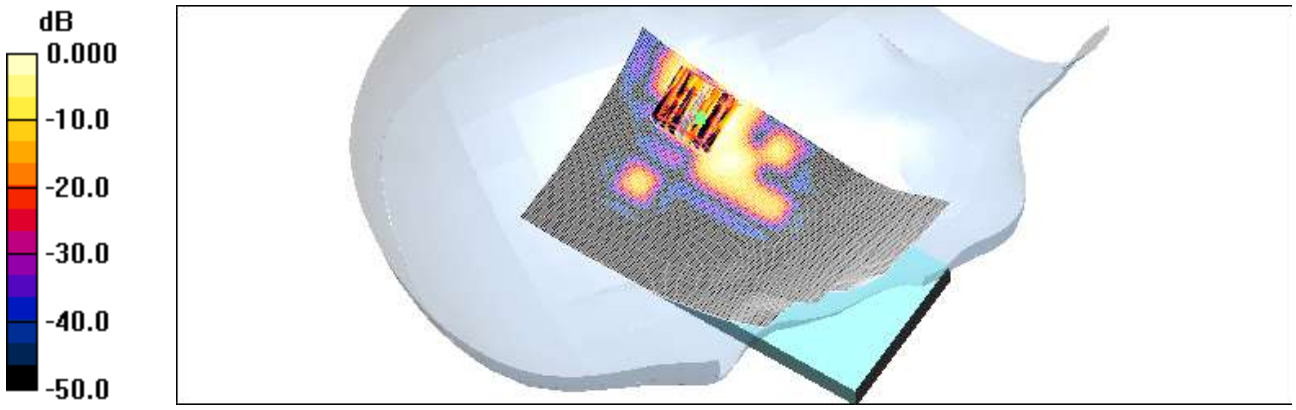
DUT: LG-P940h; Type: bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5180 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5180 MHz; σ = 4.65 mho/m; ε_r = 36.1; 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: EX3DV4 - SN3797; ConvF(4.73, 4.73, 4.73); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: 800/900 Phantom; Type: SAM

802.11a Right tilt 36ch 6Mbps/Area Scan (91x151x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.101 mW/g

802.11a Right tilt 36ch 6Mbps/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0.664 V/m; Power Drift = 0.013 dB
Peak SAR (extrapolated) = 0.707 W/kg
SAR(1 g) = 0.077 mW/g; SAR(10 g) = 0.026 mW/g
Maximum value of SAR (measured) = 0.063 mW/g



0 dB = 0.063mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	May 9. 2012

DUT: LG-P940h; Type: bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5260 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5260 MHz; σ = 4.73 mho/m; ε_r = 36.1; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

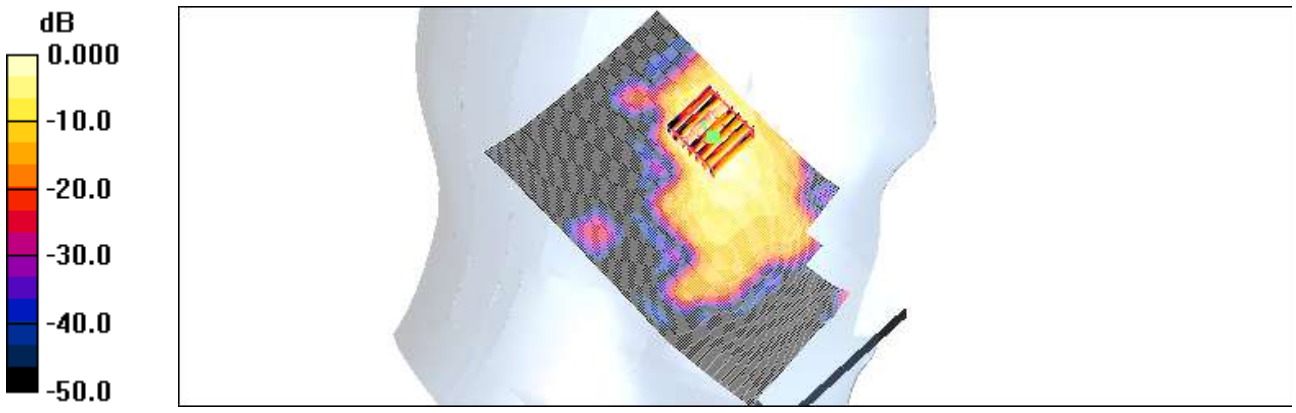
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(4.44, 4.44, 4.44); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: 800/900 Phantom; Type: SAM

802.11a Left touch 52ch 6Mbps/Area Scan (91x151x1): Measurement grid: dx=10mm, dy=10mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.258 mW/g

802.11a Left touch 52ch 6Mbps/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0.400 V/m; Power Drift = 0.068 dB
Peak SAR (extrapolated) = 0.731 W/kg
SAR(1 g) = 0.215 mW/g; SAR(10 g) = 0.072 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:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	May 9. 2012

DUT: LG-P940h; Type: bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5260 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5260 MHz; σ = 4.73 mho/m; ε_r = 36.1; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

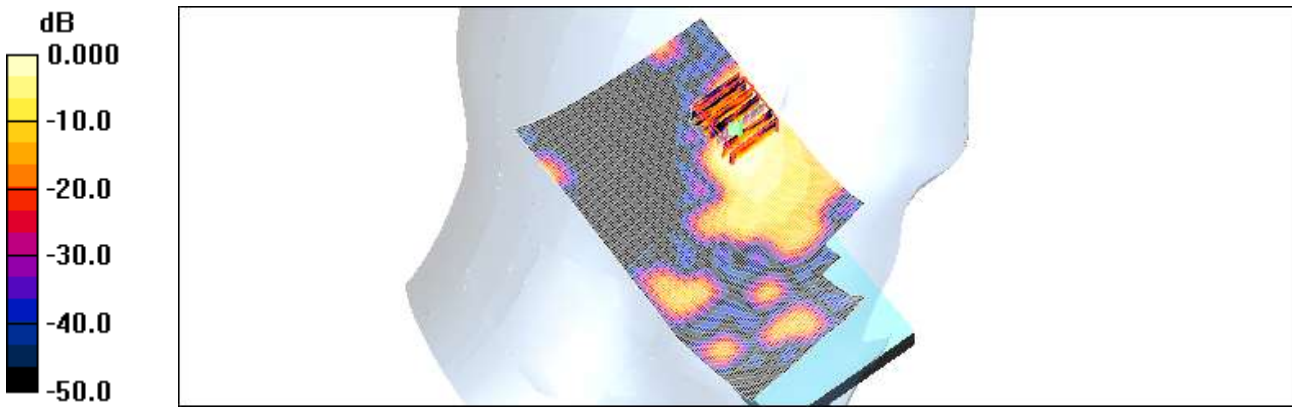
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(4.44, 4.44, 4.44); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: 800/900 Phantom; Type: SAM

802.11a Left tilt 52ch 6Mbps/Area Scan (91x151x1): Measurement grid: dx=10mm, dy=10mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.154 mW/g

802.11a Left tilt 52ch 6Mbps/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0.186 V/m; Power Drift = 0.054 dB
Peak SAR (extrapolated) = 0.600 W/kg
SAR(1 g) = 0.104 mW/g; SAR(10 g) = 0.034 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.122 mW/g



0 dB = 0.122mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	May 9. 2012

DUT: LG-P940h; Type: bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5260 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5260 MHz; σ = 4.73 mho/m; ε_r = 36.1; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

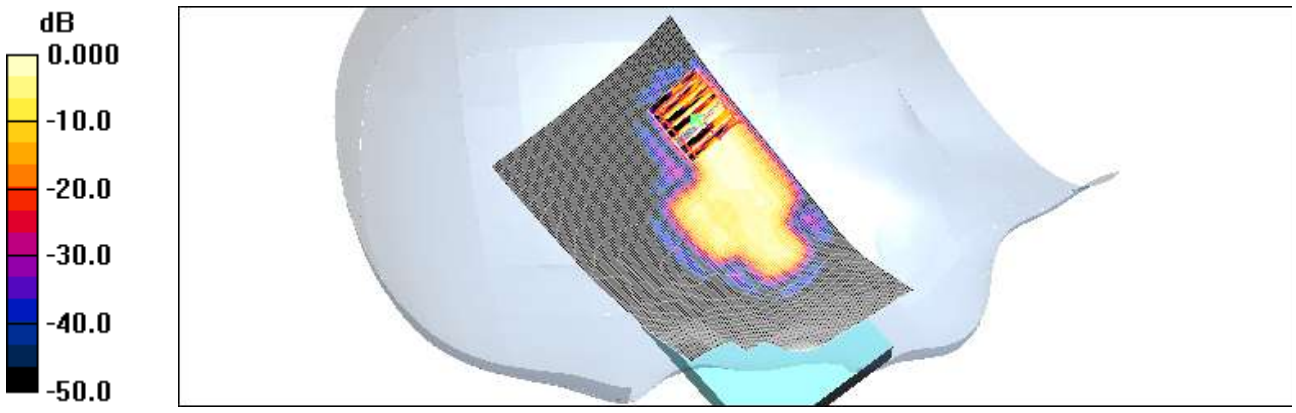
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(4.44, 4.44, 4.44); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: 800/900 Phantom; Type: SAM

802.11a Right touch 52ch 6Mbps/Area Scan (91x151x1): Measurement grid: dx=10mm, dy=10mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.180 mW/g

802.11a Right touch 52ch 6Mbps/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0.198 V/m; Power Drift = -0.007 dB
Peak SAR (extrapolated) = 0.358 W/kg
SAR(1 g) = 0.050 mW/g; SAR(10 g) = 0.020 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.071 mW/g



0 dB = 0.071mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	May 9. 2012

DUT: LG-P940h; Type: bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5260 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5260 MHz; σ = 4.73 mho/m; ε_r = 36.1; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

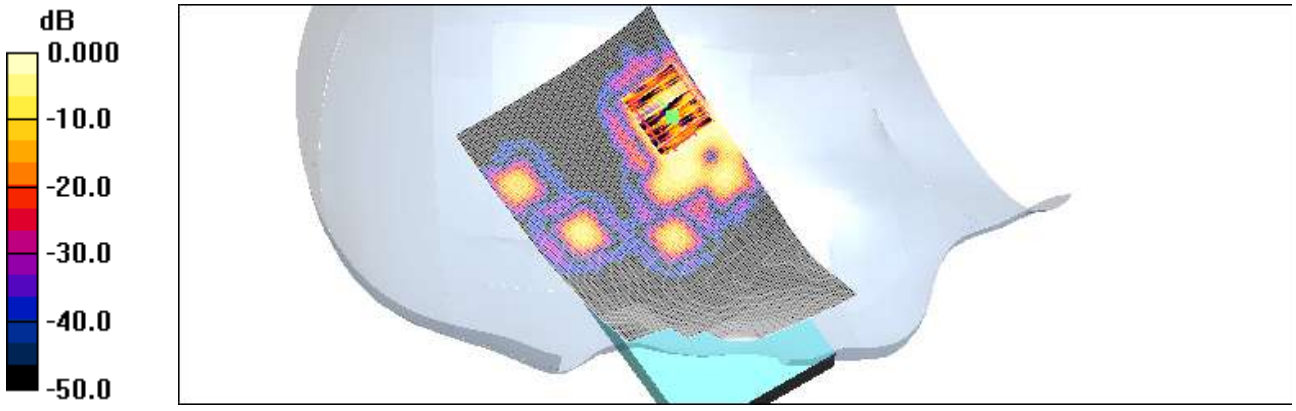
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(4.44, 4.44, 4.44); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: 800/900 Phantom; Type: SAM

802.11a Right tilt 52ch 6Mbps/Area Scan (91x151x1): Measurement grid: dx=10mm, dy=10mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.049 mW/g

802.11a Right tilt 52ch 6Mbps/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0.141 V/m; Power Drift = 0.015 dB
Peak SAR (extrapolated) = 0.418 W/kg
SAR(1 g) = 0.048 mW/g; SAR(10 g) = 0.014 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.052 mW/g



0 dB = 0.052mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	May 9. 2012

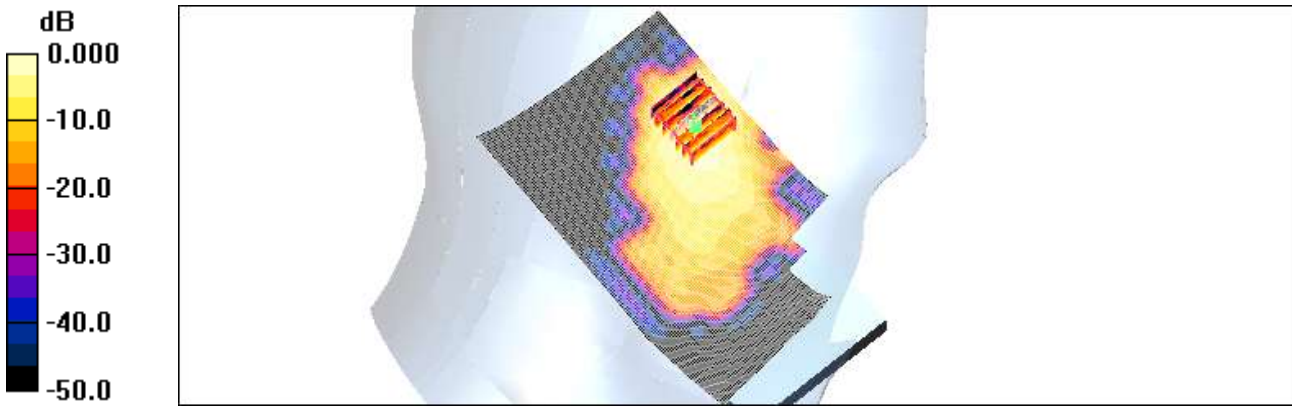
DUT: LG-P940h; Type: bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5700 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5700 MHz; σ = 5.24 mho/m; ε_r = 35.7; 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(4.16, 4.16, 4.16); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: 800/900 Phantom; Type: SAM

802.11a Left touch 140ch 6Mbps/Area Scan (91x151x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.297 mW/g

802.11a Left touch 140ch 6Mbps/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.40 V/m; Power Drift = -0.104 dB
Peak SAR (extrapolated) = 1.25 W/kg
SAR(1 g) = 0.295 mW/g; SAR(10 g) = 0.089 mW/g
Maximum value of SAR (measured) = 0.322 mW/g



0 dB = 0.322mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	May 9. 2012

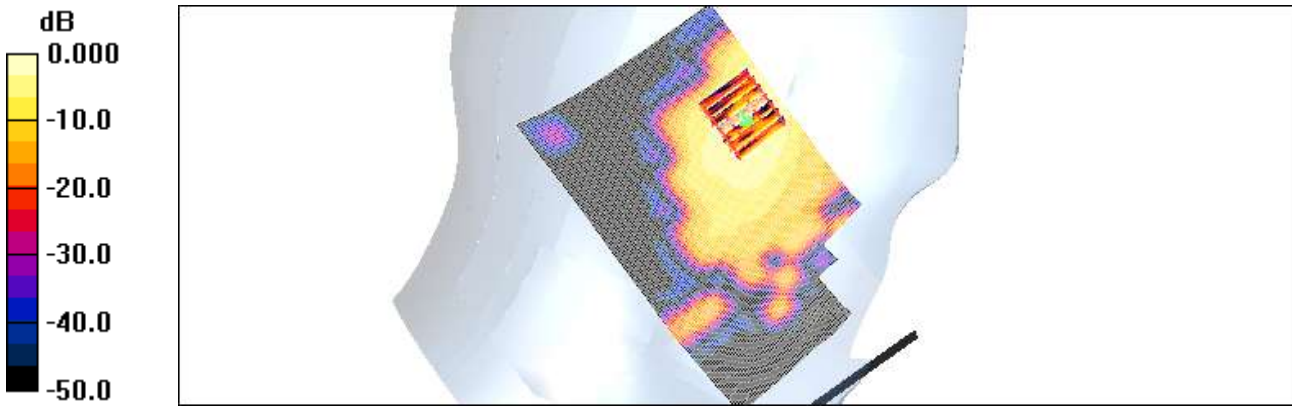
DUT: LG-P940h; Type: bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5700 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5700 MHz; σ = 5.24 mho/m; ε_r = 35.7; 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(4.16, 4.16, 4.16); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: 800/900 Phantom; Type: SAM

802.11a Left tilt 140ch 6Mbps/Area Scan (91x151x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.159 mW/g

802.11a Left tilt 140ch 6Mbps/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0.579 V/m; Power Drift = 0.063 dB
Peak SAR (extrapolated) = 0.584 W/kg
SAR(1 g) = 0.154 mW/g; SAR(10 g) = 0.049 mW/g
Maximum value of SAR (measured) = 0.178 mW/g



0 dB = 0.178mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	May 9. 2012

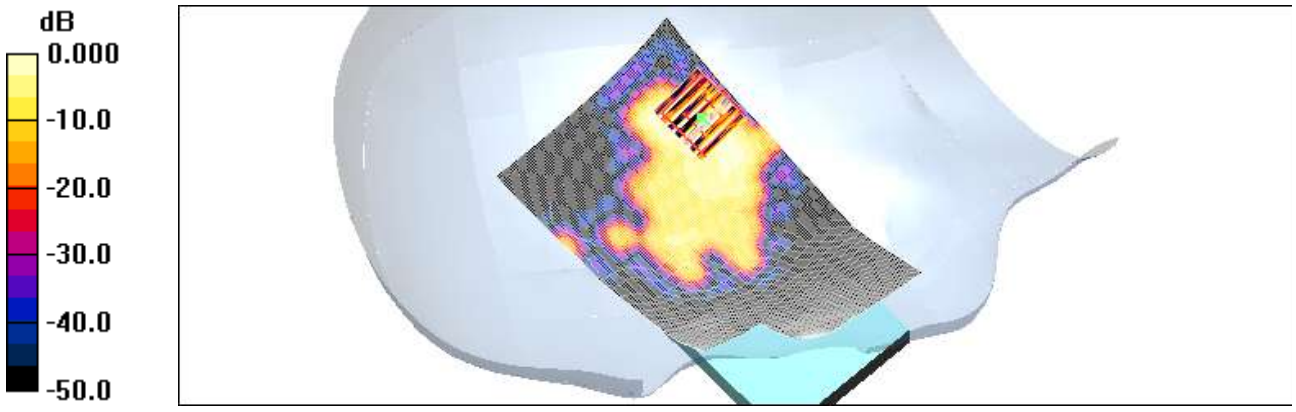
DUT: LG-P940h; Type: bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5700 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5700 MHz; σ = 5.24 mho/m; ε_r = 35.7; 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: EX3DV4 - SN3797; ConvF(4.16, 4.16, 4.16); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: 800/900 Phantom; Type: SAM

Right touch 802.11a 140ch 6Mbps/Area Scan (91x151x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.155 mW/g

Right touch 802.11a 140ch 6Mbps/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.50 V/m; Power Drift = -0.033 dB
Peak SAR (extrapolated) = 0.379 W/kg
SAR(1 g) = 0.060 mW/g; SAR(10 g) = 0.022 mW/g
Maximum value of SAR (measured) = 0.092 mW/g



0 dB = 0.092mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	May 9. 2012

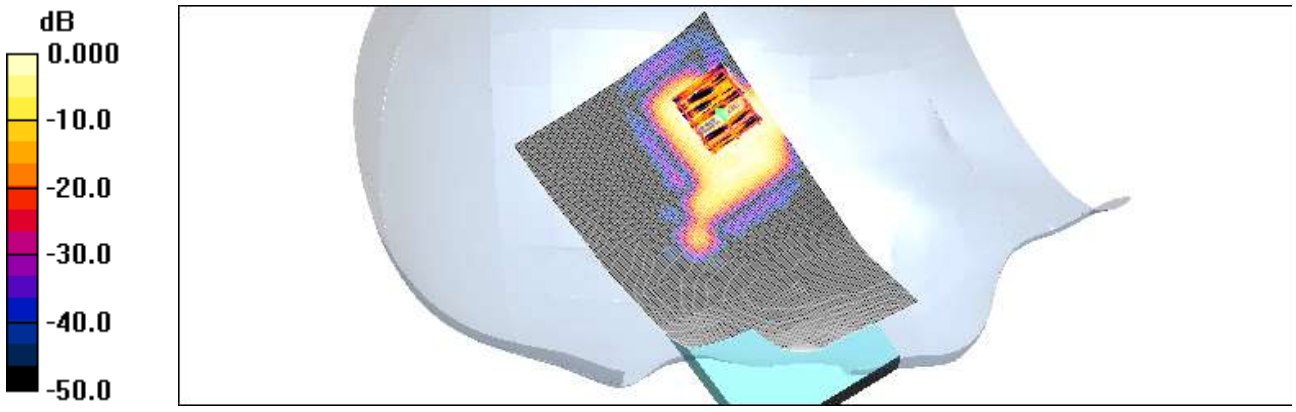
DUT: LG-P940h; Type: bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5700 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5700 MHz; σ = 5.24 mho/m; ε_r = 35.7; 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: EX3DV4 - SN3797; ConvF(4.16, 4.16, 4.16); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: 800/900 Phantom; Type: SAM

Right tilt 802.11a 140ch 6Mbps/Area Scan (91x151x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.099 mW/g

Right tilt 802.11a 140ch 6Mbps/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0.814 V/m; Power Drift = 0.109 dB
Peak SAR (extrapolated) = 0.374 W/kg
SAR(1 g) = 0.053 mW/g; SAR(10 g) = 0.017 mW/g
Maximum value of SAR (measured) = 0.071 mW/g



0 dB = 0.071mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	May 9. 2012

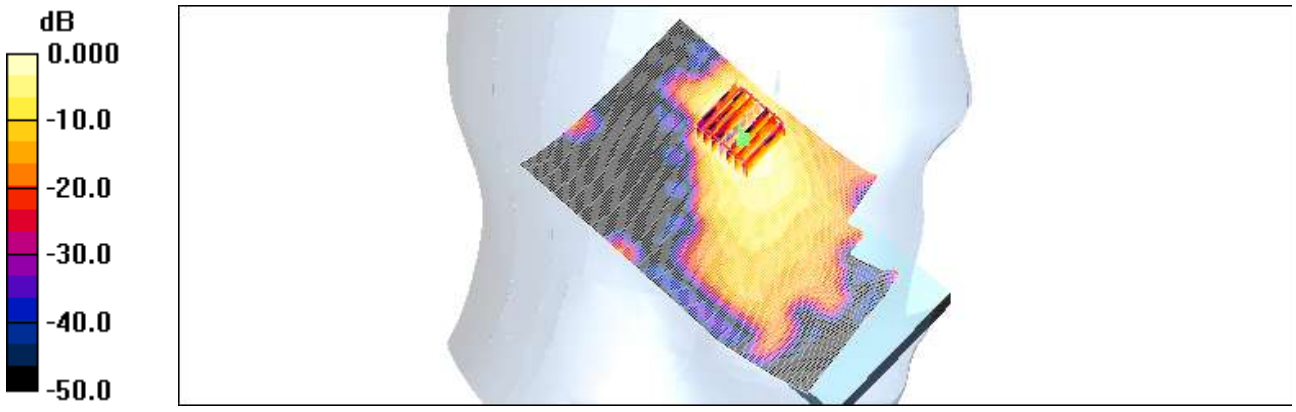
DUT: LG-P940h; Type: bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5745 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5745 MHz; σ = 5.29 mho/m; ε_r = 35.6; 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: EX3DV4 - SN3797; ConvF(4.26, 4.26, 4.26); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: 800/900 Phantom; Type: SAM

802.11a Left touch 149ch 6Mbps/Area Scan (91x151x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.434 mW/g

802.11a Left touch 149ch 6Mbps/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0.648 V/m; Power Drift = 0.115 dB
Peak SAR (extrapolated) = 1.19 W/kg
SAR(1 g) = 0.360 mW/g; SAR(10 g) = 0.118 mW/g
Maximum value of SAR (measured) = 0.416 mW/g



0 dB = 0.416mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	May 9. 2012

DUT: LG-P940h; Type: bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5745 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5745 MHz; σ = 5.29 mho/m; ε_r = 35.6; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

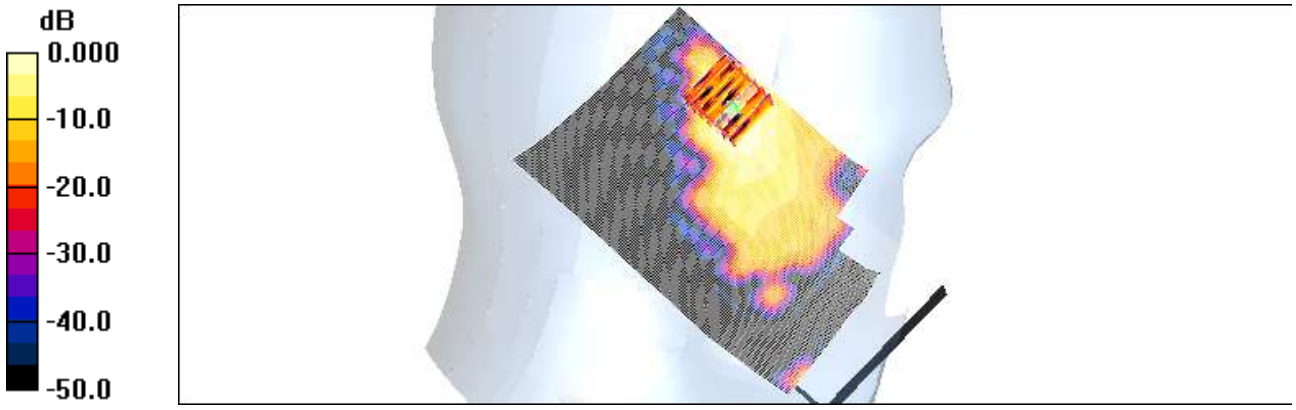
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(4.26, 4.26, 4.26); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: 800/900 Phantom; Type: SAM

802.11a Left tilt 149ch 6Mbps/Area Scan (91x151x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.210 mW/g

802.11a Left tilt 149ch 6Mbps/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.62 V/m; Power Drift = 0.104 dB
Peak SAR (extrapolated) = 0.505 W/kg
SAR(1 g) = 0.166 mW/g; SAR(10 g) = 0.049 mW/g

Maximum value of SAR (measured) = 0.211 mW/g



0 dB = 0.211mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	May 9. 2012

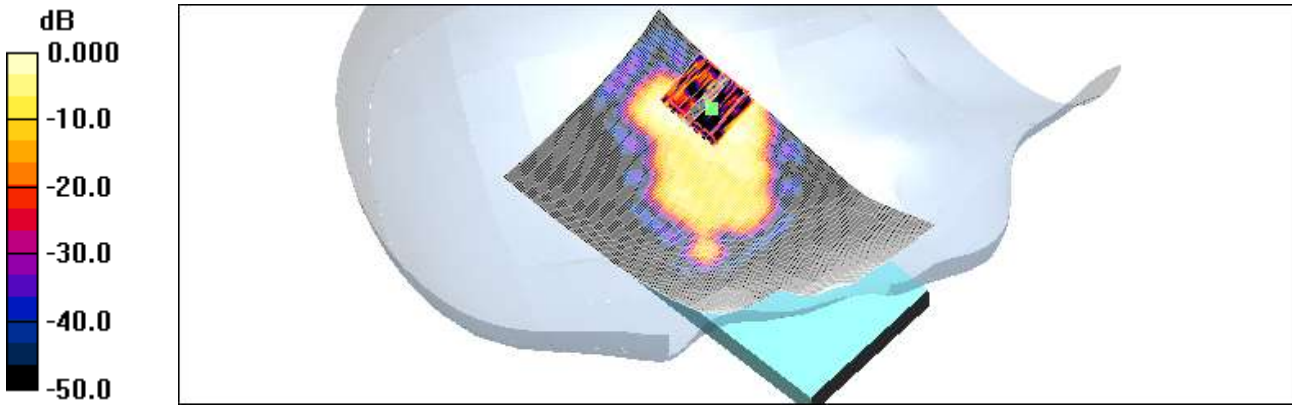
DUT: LG-P940h; Type: bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5745 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5745 MHz; σ = 5.29 mho/m; ε_r = 35.6; 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: EX3DV4 - SN3797; ConvF(4.26, 4.26, 4.26); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: 800/900 Phantom; Type: SAM

Right touch 802.11a 149ch 6Mbps/Area Scan (91x151x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.144 mW/g

Right touch 802.11a 149ch 6Mbps/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.17 V/m; Power Drift = -0.016 dB
Peak SAR (extrapolated) = 0.916 W/kg
SAR(1 g) = 0.097 mW/g; SAR(10 g) = 0.032 mW/g
Maximum value of SAR (measured) = 0.110 mW/g



0 dB = 0.110mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	May 9. 2012

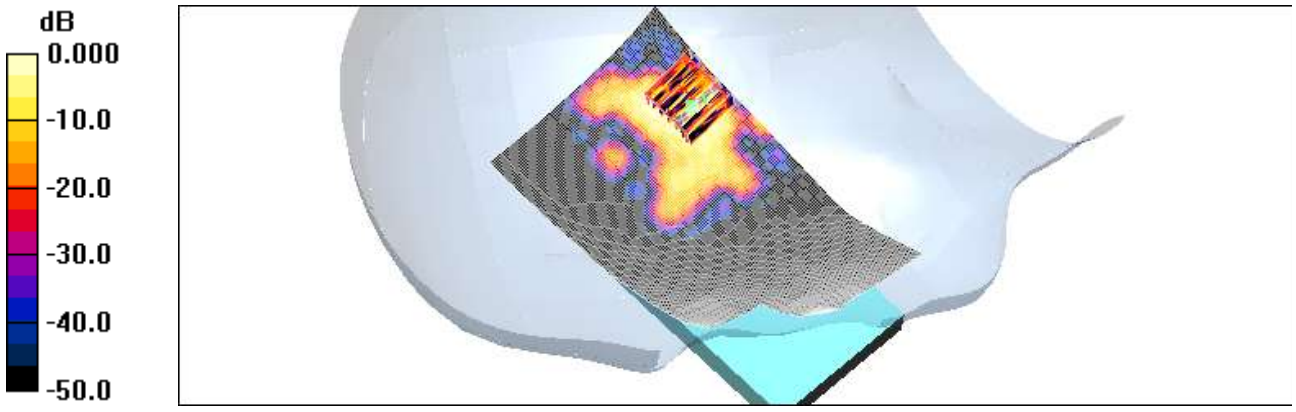
DUT: LG-P940h; Type: bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5745 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5745 MHz; σ = 5.29 mho/m; ε_r = 35.6; 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: EX3DV4 - SN3797; ConvF(4.26, 4.26, 4.26); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: 800/900 Phantom; Type: SAM

Right tilt 802.11a 149ch 6Mbps/Area Scan (91x151x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.127 mW/g

Right tilt 802.11a 149ch 6Mbps/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0.859 V/m; Power Drift = 0.079 dB
Peak SAR (extrapolated) = 2.07 W/kg
SAR(1 g) = 0.190 mW/g; SAR(10 g) = 0.036 mW/g
Maximum value of SAR (measured) = 0.128 mW/g



0 dB = 0.128mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	May 11. 2012

DUT: LG-P940h; Type: bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5785 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5785 MHz; σ = 5.33 mho/m; ε_r = 35.5; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

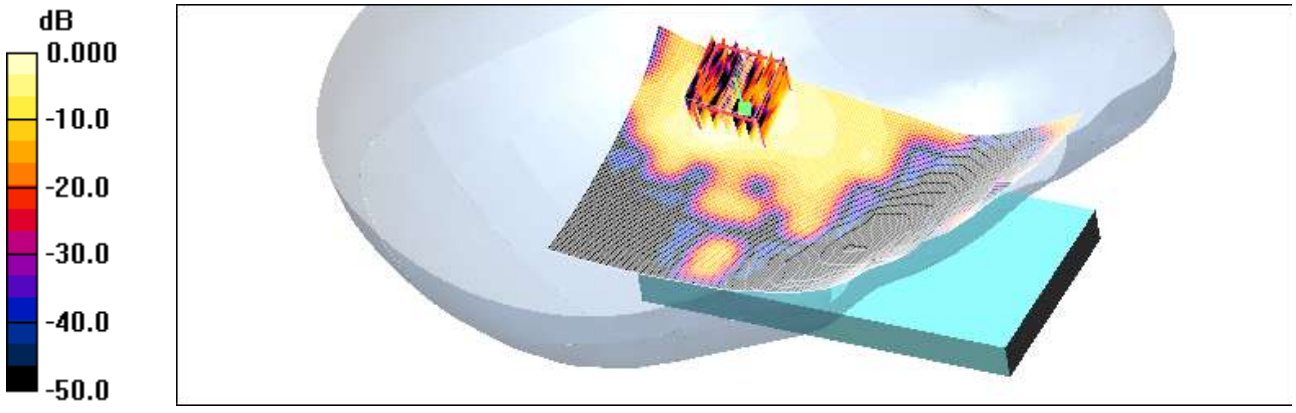
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(4.26, 4.26, 4.26); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: 800/900 Phantom; Type: SAM

Right tilt 802.11a 157ch 6Mbps/Area Scan (91x151x1): Measurement grid: dx=10mm, dy=10mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.113 mW/g

Right tilt 802.11a 157ch 6Mbps/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.52 V/m; Power Drift = -0.065 dB
Peak SAR (extrapolated) = 0.342 W/kg
SAR(1 g) = 0.082 mW/g; SAR(10 g) = 0.027 mW/g

Maximum value of SAR (measured) = 0.098 mW/g



0 dB = 0.098mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	May 11. 2012

DUT: LG-P940h; Type: bar; Serial: #1

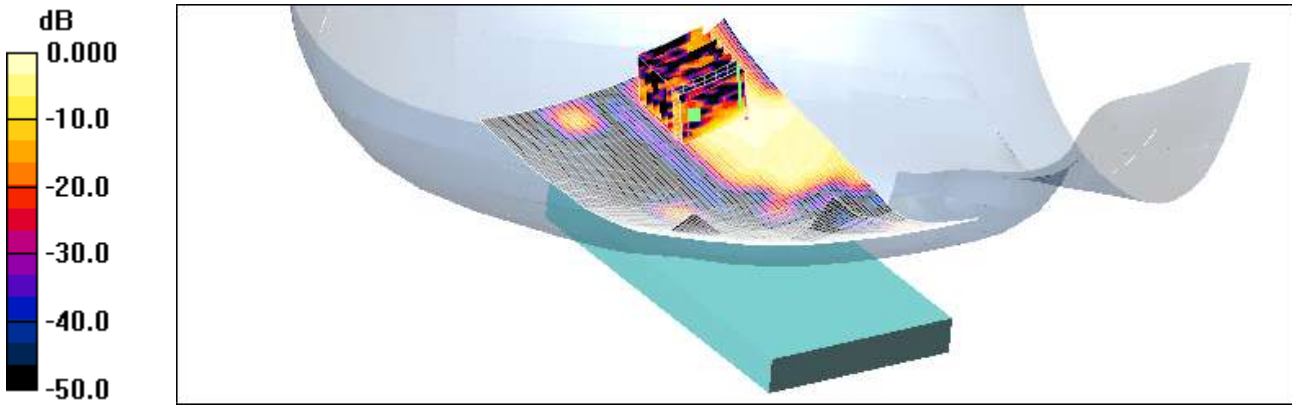
Communication System: WIFI 5GHz; Frequency: 5825 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5825 MHz; σ = 5.38 mho/m; ε_r = 35.5; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(4.26, 4.26, 4.26); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: 800/900 Phantom; Type: SAM

Right touch 802.11a 165ch 6Mbps/Area Scan (91x151x1): Measurement grid: dx=10mm, dy=10mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.081 mW/g

Right touch 802.11a 165ch 6Mbps/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0.677 V/m; Power Drift = -0.085 dB
Peak SAR (extrapolated) = 0.211 W/kg
SAR(1 g) = 0.057 mW/g; SAR(10 g) = 0.017 mW/g
Maximum value of SAR (measured) = 0.074 mW/g



0 dB = 0.074mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.7, 2012
Separation Distance	1.0 cm

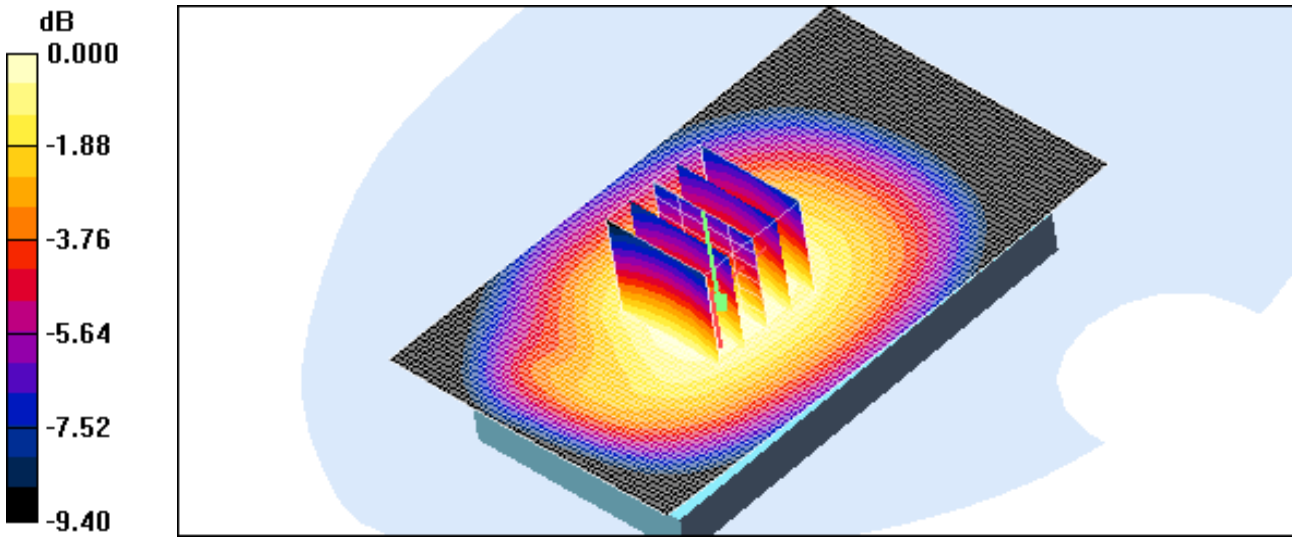
DUT: LG-P940h; Type: bar; Serial: #1

Communication System: GSM 850; Frequency: 824.2 MHz;Duty Cycle: 1:4.15
Medium parameters used: f = 825 MHz; σ = 0.995 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: EX3DV4 - SN3797; ConvF(9.14, 9.14, 9.14); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 1800/1900 MHz; Type: SAM

GSM850 Body Rear 2Tx 128/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.898 mW/g

GSM850 Body Rear 2Tx 128/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.1 V/m; Power Drift = 0.046 dB
Peak SAR (extrapolated) = 1.09 W/kg
SAR(1 g) = 0.859 mW/g; SAR(10 g) = 0.644 mW/g
Maximum value of SAR (measured) = 0.897 mW/g



0 dB = 0.897mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.7, 2012
Separation Distance	1.0 cm

DUT: LG-P940h; Type: bar; Serial: #1

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:4.15
Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.01 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

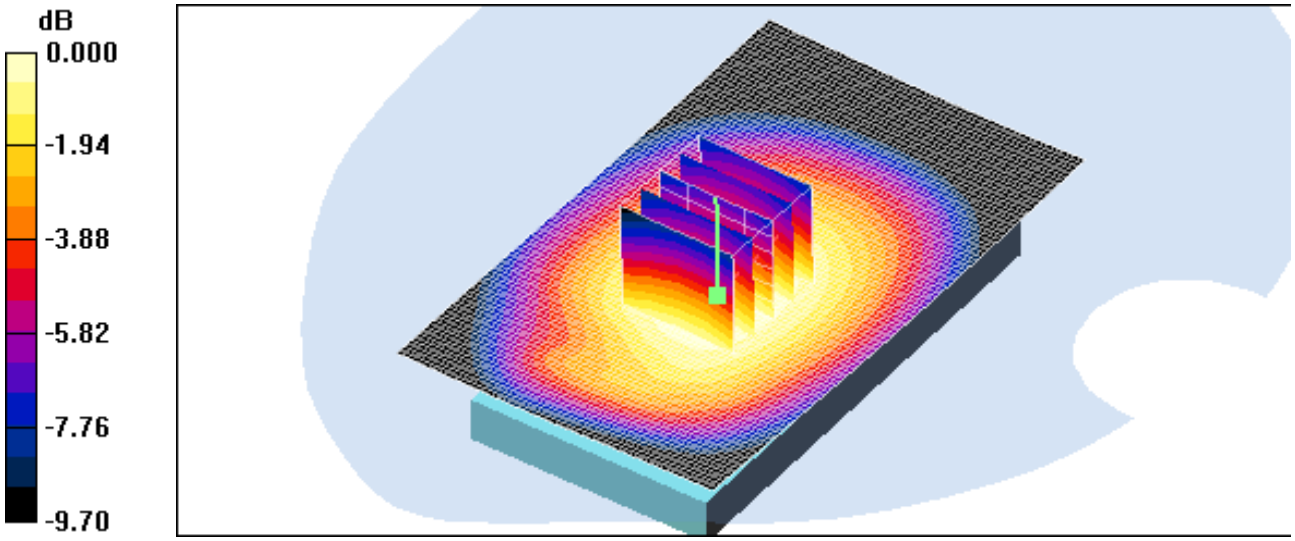
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(9.14, 9.14, 9.14); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 1800/1900 MHz; Type: SAM

GSM850 Body Rear 2Tx 190/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.951 mW/g

GSM850 Body Rear 2Tx 190/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.8 V/m; Power Drift = 0.043 dB
Peak SAR (extrapolated) = 1.15 W/kg
SAR(1 g) = 0.903 mW/g; SAR(10 g) = 0.676 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.947 mW/g



0 dB = 0.947mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.7, 2012
Separation Distance	1.0 cm

DUT: LG-P940h; Type: bar; Serial: #1

Communication System: GSM 850; Frequency: 848.8 MHz;Duty Cycle: 1:4.15
Medium parameters used (interpolated): f = 848.8 MHz; σ = 1.03 mho/m; ε_r = 54.7; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

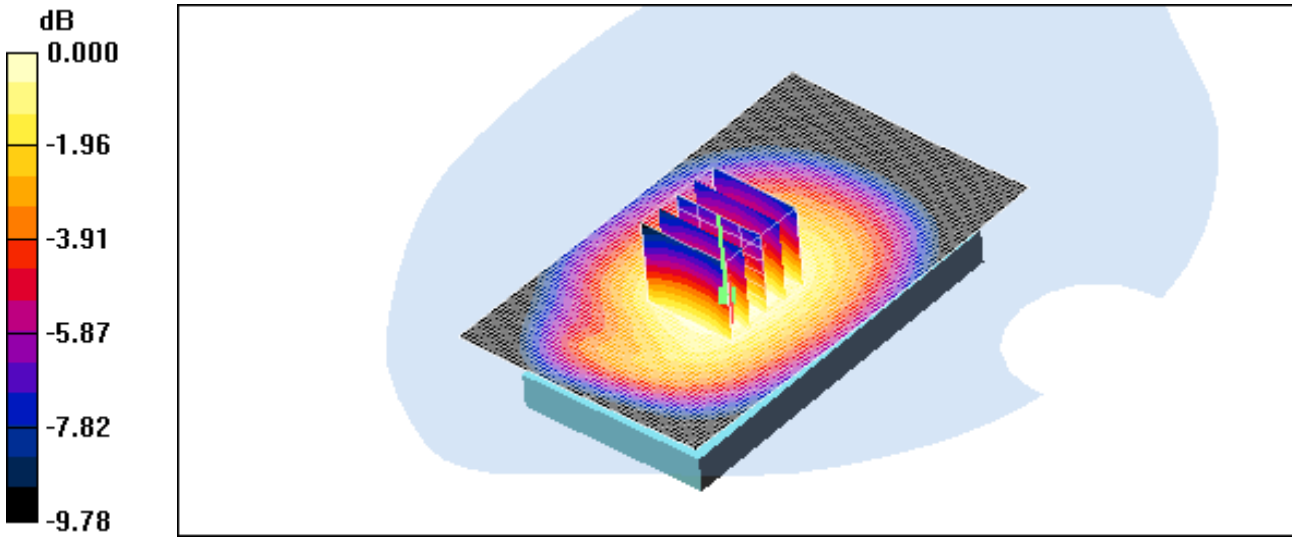
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(9.14, 9.14, 9.14); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 1800/1900 MHz; Type: SAM

GSM850 Body Rear 2Tx 251/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 1.04 mW/g

GSM850 Body Rear 2Tx 251/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.7 V/m; Power Drift = 0.025 dB
Peak SAR (extrapolated) = 1.27 W/kg
SAR(1 g) = 0.987 mW/g; SAR(10 g) = 0.735 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.04 mW/g



0 dB = 1.04mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.7, 2012
Separation Distance	1.0 cm

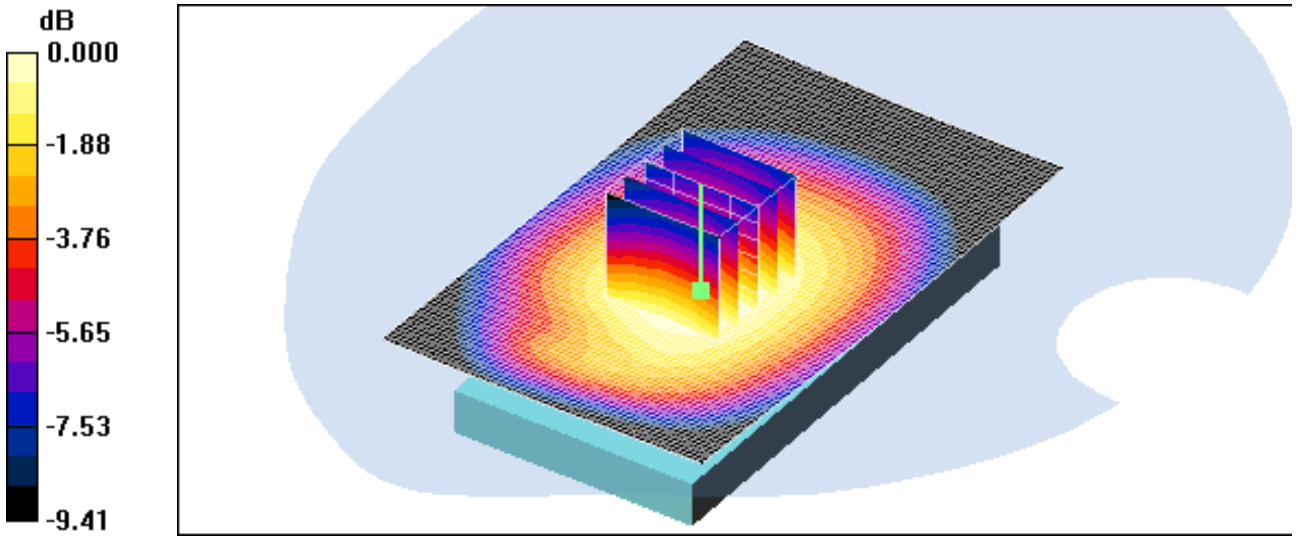
DUT: LG-P940h; Type: bar; Serial: #1

Communication System: GSM 850; Frequency: 824.2 MHz;Duty Cycle: 1:2.77
Medium parameters used: f = 825 MHz; σ = 0.995 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: EX3DV4 - SN3797; ConvF(9.14, 9.14, 9.14); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 1800/1900 MHz; Type: SAM

GSM850 Body Rear 3Tx 128/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.857 mW/g

GSM850 Body Rear 3Tx 128/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.7 V/m; Power Drift = 0.028 dB
Peak SAR (extrapolated) = 1.04 W/kg
SAR(1 g) = 0.816 mW/g; SAR(10 g) = 0.610 mW/g
Maximum value of SAR (measured) = 0.859 mW/g



0 dB = 0.859mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.7, 2012
Separation Distance	1.0 cm

DUT: LG-P940h; Type: bar; Serial: #1

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:2.77
Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.01 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

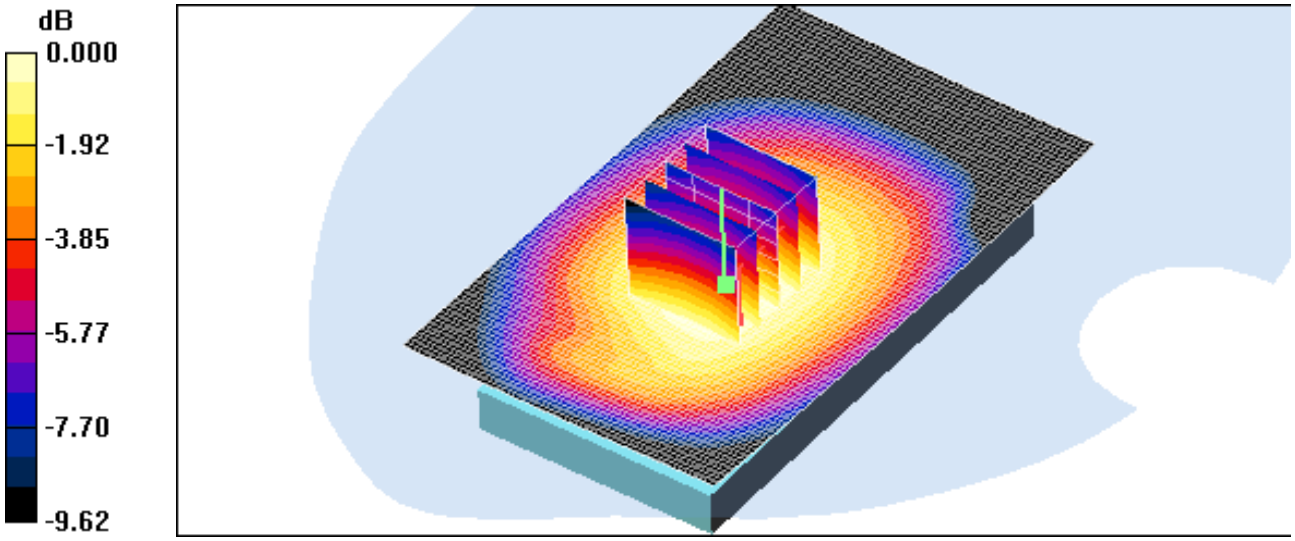
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(9.14, 9.14, 9.14); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 1800/1900 MHz; Type: SAM

GSM850 Body Rear 3Tx 190/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.918 mW/g

GSM850 Body Rear 3Tx 190/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.4 V/m; Power Drift = 0.043 dB
Peak SAR (extrapolated) = 1.11 W/kg
SAR(1 g) = 0.874 mW/g; SAR(10 g) = 0.654 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.916 mW/g



0 dB = 0.916mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.7, 2012
Separation Distance	1.0 cm

DUT: LG-P940h; Type: bar; Serial: #1

Communication System: GSM 850; Frequency: 848.8 MHz;Duty Cycle: 1:2.77
Medium parameters used (interpolated): f = 848.8 MHz; σ = 1.03 mho/m; ε_r = 54.7; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

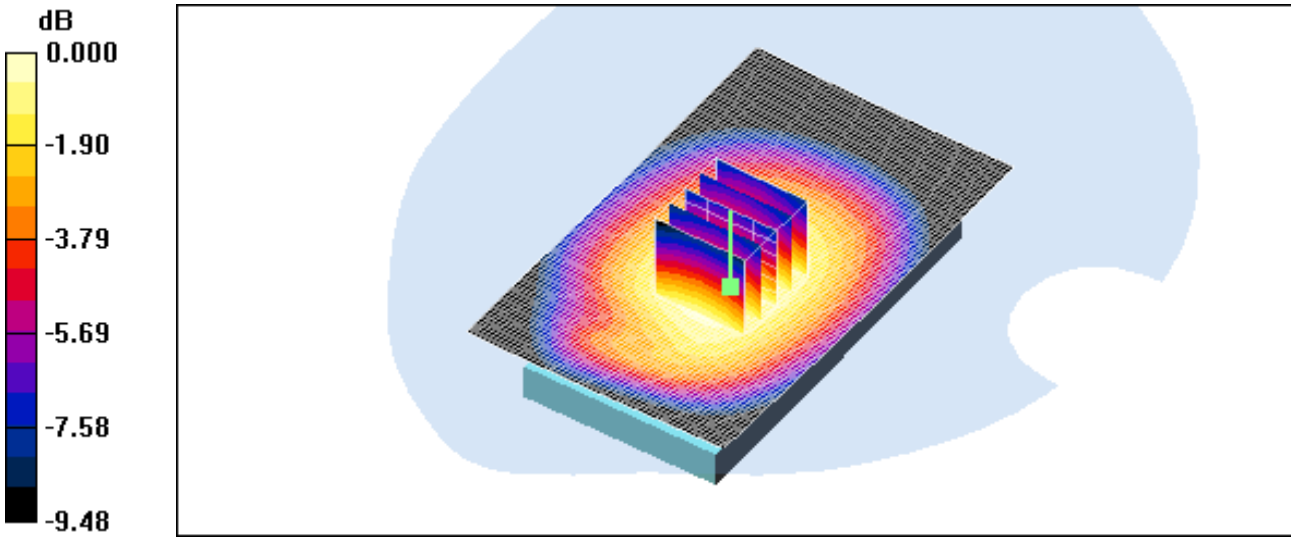
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(9.14, 9.14, 9.14); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 1800/1900 MHz; Type: SAM

GSM850 Body Rear 3Tx 251/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.984 mW/g

GSM850 Body Rear 3Tx 251/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.2 V/m; Power Drift = -0.007 dB
Peak SAR (extrapolated) = 1.21 W/kg
SAR(1 g) = 0.941 mW/g; SAR(10 g) = 0.701 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.991 mW/g



0 dB = 0.991mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.7, 2012
Separation Distance	1.0 cm

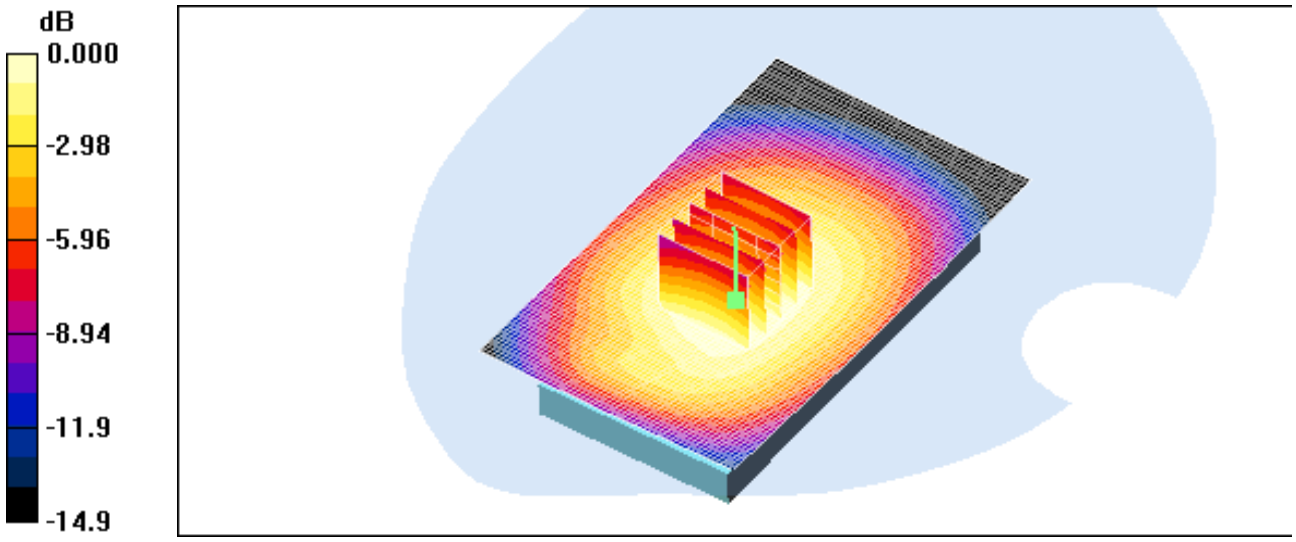
DUT: LG-P940h; Type: bar; Serial: #1

Communication System: GSM 850; Frequency: 824.2 MHz;Duty Cycle: 1:2.075
Medium parameters used: f = 825 MHz; σ = 0.995 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: EX3DV4 - SN3797; ConvF(9.14, 9.14, 9.14); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 1800/1900 MHz; Type: SAM

GSM850 Body Rear 4Tx 128/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.886 mW/g

GSM850 Body Rear 4Tx 128/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.1 V/m; Power Drift = -0.020 dB
Peak SAR (extrapolated) = 1.85 W/kg
SAR(1 g) = 0.855 mW/g; SAR(10 g) = 0.639 mW/g
Maximum value of SAR (measured) = 0.887 mW/g



0 dB = 0.887mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.7, 2012
Separation Distance	1.0 cm

DUT: LG-P940h; Type: bar; Serial: #1

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:2.075
Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.01 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

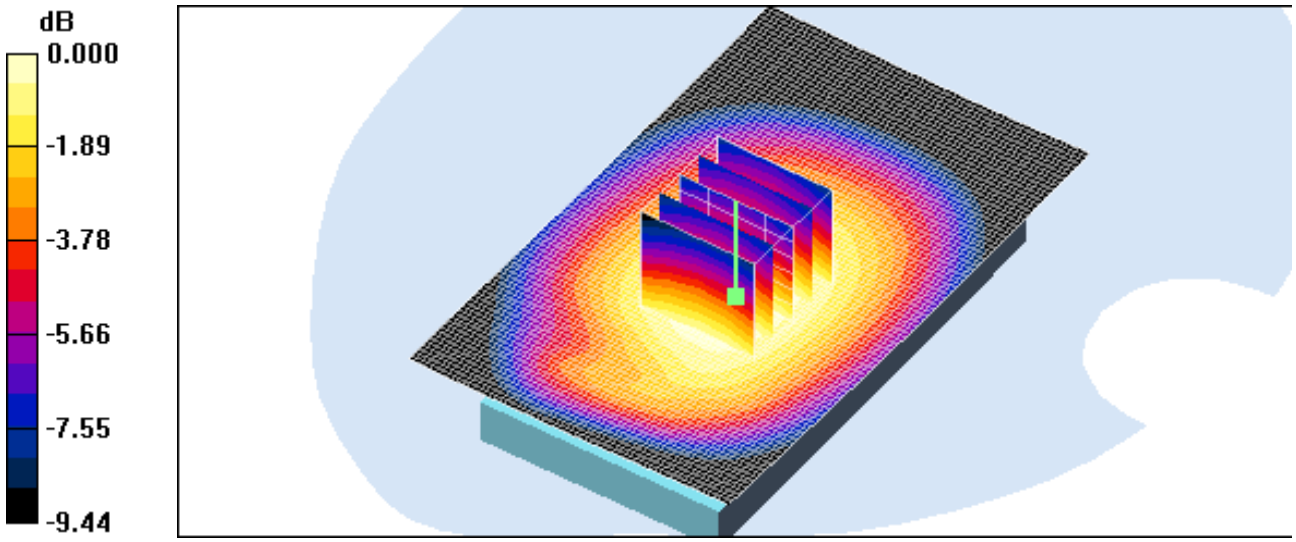
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(9.14, 9.14, 9.14); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 1800/1900 MHz; Type: SAM

GSM850 Body Rear 4Tx 190/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

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

GSM850 Body Rear 4Tx 190/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.8 V/m; Power Drift = 0.051 dB
Peak SAR (extrapolated) = 1.23 W/kg
SAR(1 g) = 0.968 mW/g; SAR(10 g) = 0.725 mW/g

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



0 dB = 1.02mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.7, 2012
Separation Distance	1.0 cm

DUT: LG-P940h; Type: bar; Serial: #1

Communication System: GSM 850; Frequency: 848.8 MHz;Duty Cycle: 1:2.075
Medium parameters used (interpolated): f = 848.8 MHz; σ = 1.03 mho/m; ε_r = 54.7; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

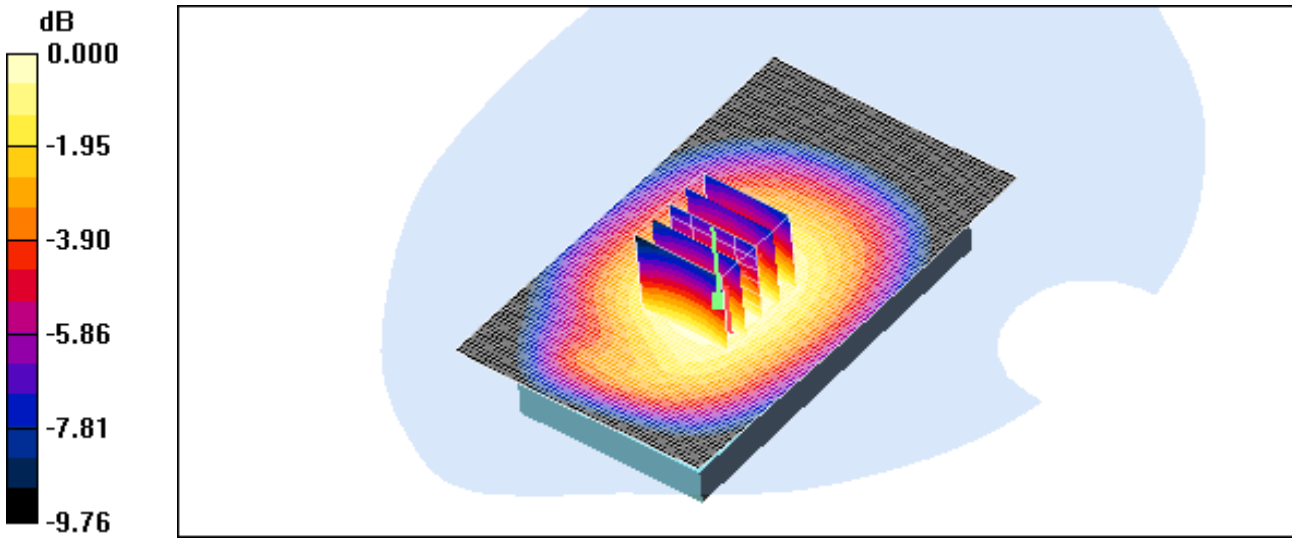
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(9.14, 9.14, 9.14); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 1800/1900 MHz; Type: SAM

GSM850 Body Rear 4Tx 251/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 1.04 mW/g

GSM850 Body Rear 4Tx 251/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.7 V/m; Power Drift = 0.031 dB
Peak SAR (extrapolated) = 1.29 W/kg
SAR(1 g) = 0.989 mW/g; SAR(10 g) = 0.735 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.04 mW/g



0 dB = 1.04mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.7, 2012
Separation Distance	1.0 cm

DUT: LG-P940h; Type: bar; Serial: #1

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:2.075
Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.01 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

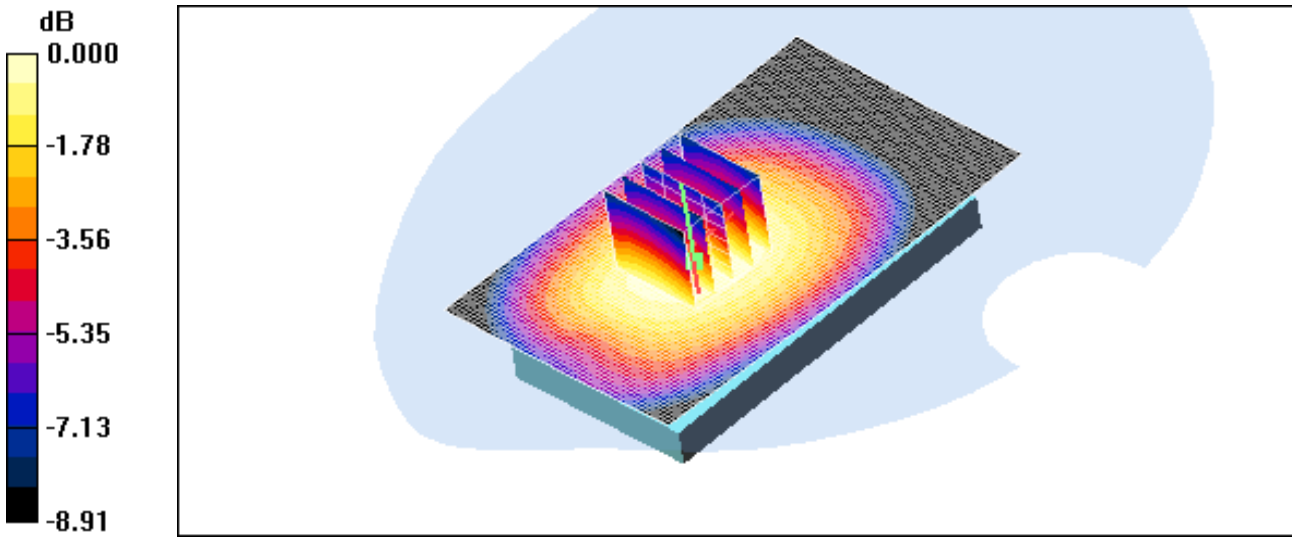
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(9.14, 9.14, 9.14); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 1800/1900 MHz; Type: SAM

GSM850 Body Front 4Tx 190/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

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

GSM850 Body Front 4Tx 190/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.7 V/m; Power Drift = 0.061 dB
Peak SAR (extrapolated) = 0.509 W/kg
SAR(1 g) = 0.401 mW/g; SAR(10 g) = 0.303 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.422 mW/g



0 dB = 0.422mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.7, 2012
Separation Distance	1.0 cm

DUT: LG-P940h; Type: bar; Serial: #1

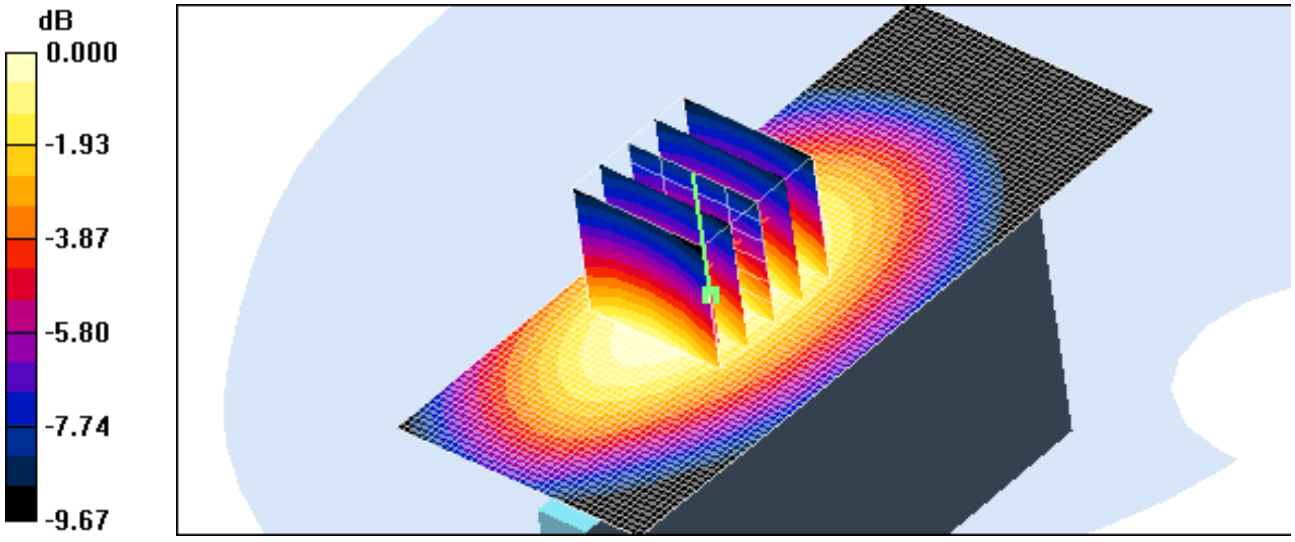
Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:2.075
Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.01 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(9.14, 9.14, 9.14); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: 835/900 Phamtom ; Type: SAM

GSM850 Body Left Side 4Tx 190/Area Scan (41x101x1): Measurement grid: dx=15mm, dy=15mm

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

GSM850 Body Left Side 4Tx 190/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.0 V/m; Power Drift = -0.089 dB
Peak SAR (extrapolated) = 0.770 W/kg
SAR(1 g) = 0.547 mW/g; SAR(10 g) = 0.378 mW/g
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.580 mW/g



0 dB = 0.580mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.7, 2012
Separation Distance	1.0 cm

DUT: LG-P940h; Type: bar; Serial: #1

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:2.075
Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.01 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

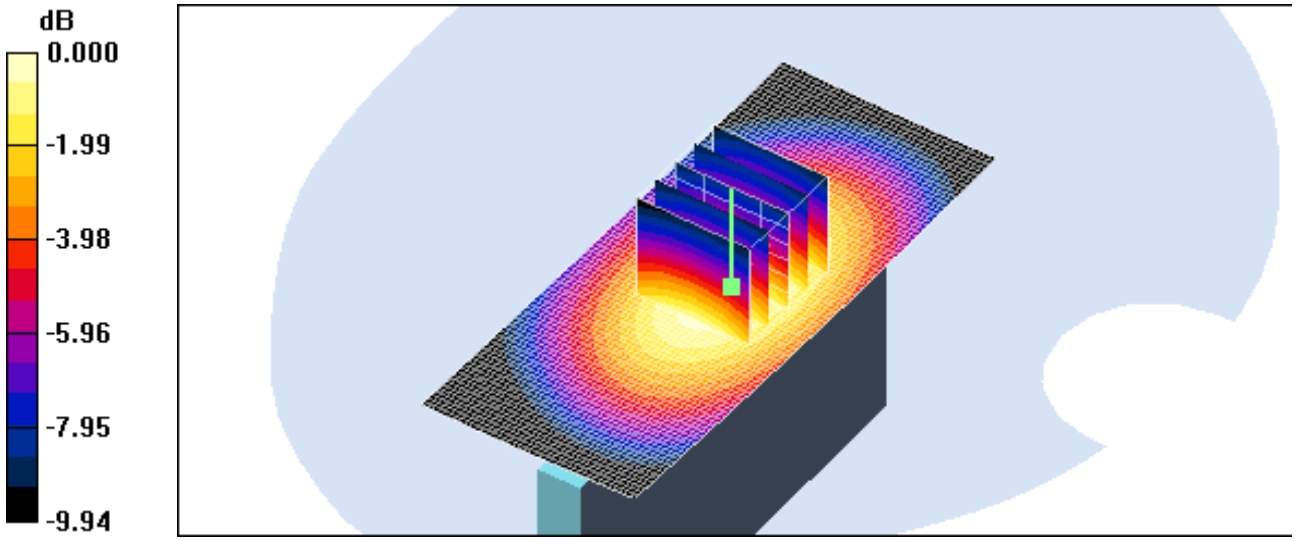
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(9.14, 9.14, 9.14); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 1800/1900 MHz; Type: SAM

GSM850 Body Right Side 4Tx 190/Area Scan (41x101x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.490 mW/g

GSM850 Body Right Side 4Tx 190/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.2 V/m; Power Drift = 0.025 dB
Peak SAR (extrapolated) = 0.645 W/kg
SAR(1 g) = 0.456 mW/g; SAR(10 g) = 0.313 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.485 mW/g



0 dB = 0.485mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.7, 2012
Separation Distance	1.0 cm

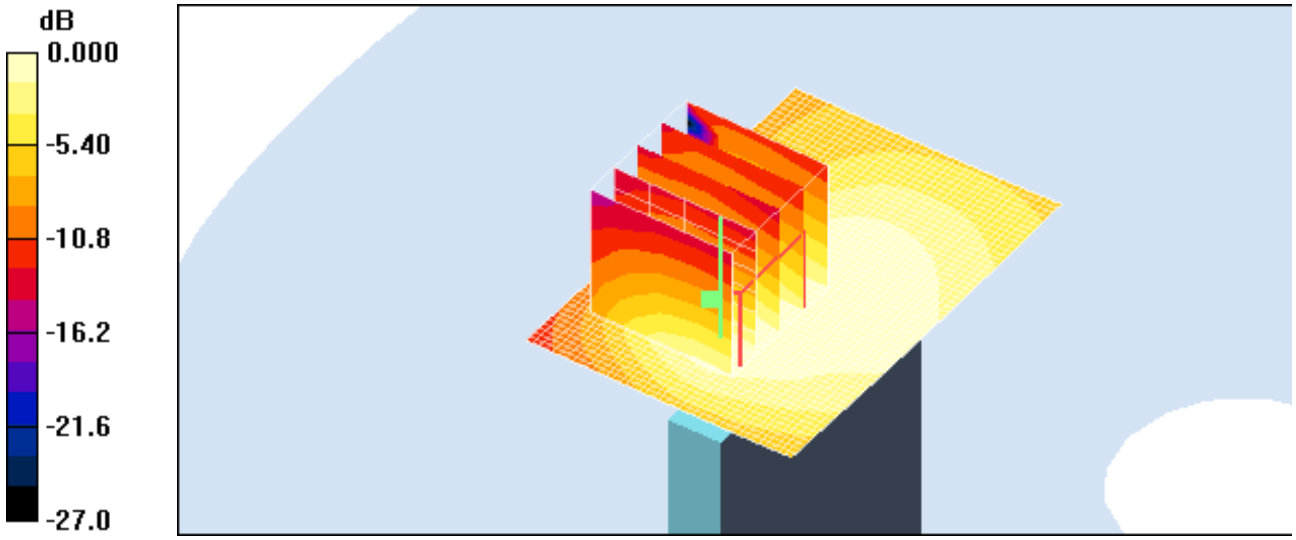
DUT: LG-P940h; Type: bar; Serial: #1

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:2.075
Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.01 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(9.14, 9.14, 9.14); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 1800/1900 MHz; Type: SAM

GSM850 Body Bottom 4TX 190/Area Scan (41x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.100 mW/g

GSM850 Body Bottom 4TX 190/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.30 V/m; Power Drift = 0.007 dB
Peak SAR (extrapolated) = 0.186 W/kg
SAR(1 g) = 0.097 mW/g; SAR(10 g) = 0.054 mW/g
Maximum value of SAR (measured) = 0.104 mW/g



0 dB = 0.104mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.9, 2012
Separation Distance	1.0 cm

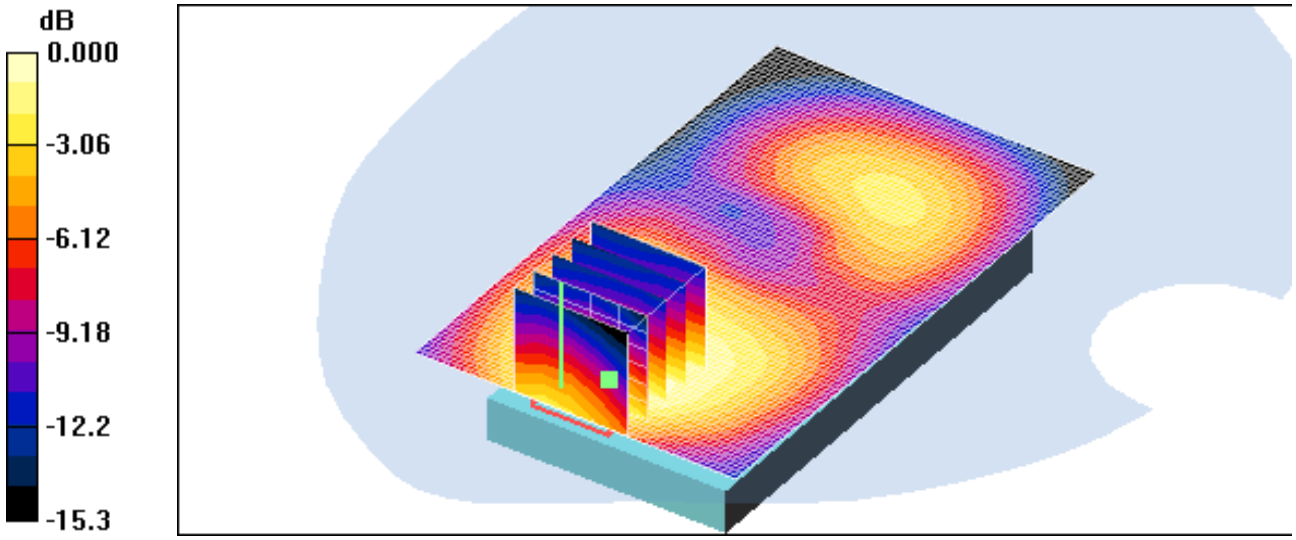
DUT: LG-P940h; Type: bar; Serial: #1

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:4.15
Medium parameters used: f = 1880 MHz; σ = 1.53 mho/m; ε_r = 52.9; 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: EX3DV4 - SN3797; ConvF(7.26, 7.26, 7.26); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 835/900 MHz; Type: SAM

GSM1900 Body Rear 661 2Tx/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.586 mW/g

GSM1900 Body Rear 661 2Tx/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.8 V/m; Power Drift = 0.068 dB
Peak SAR (extrapolated) = 0.912 W/kg
SAR(1 g) = 0.539 mW/g; SAR(10 g) = 0.309 mW/g
Maximum value of SAR (measured) = 0.581 mW/g



0 dB = 0.581mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.9, 2012
Separation Distance	1.0 cm

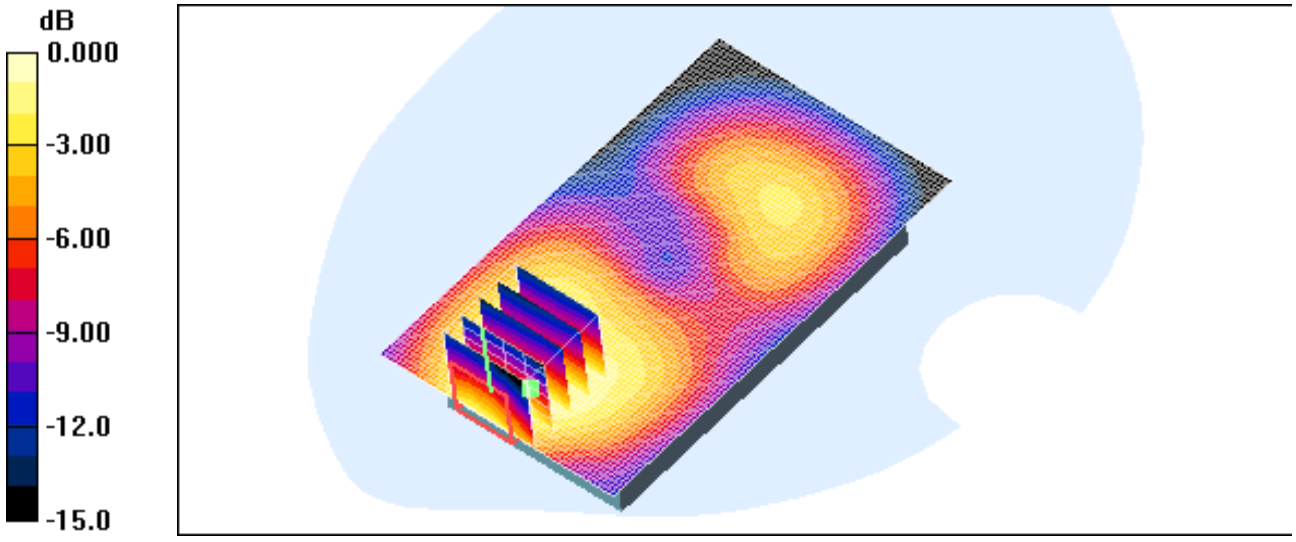
DUT: LG-P940h; Type: bar; Serial: #1

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:2.77
Medium parameters used: f = 1880 MHz; σ = 1.53 mho/m; ε_r = 52.9; 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: EX3DV4 - SN3797; ConvF(7.26, 7.26, 7.26); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 835/900 MHz; Type: SAM

GSM1900 Body Rear 661 3Tx/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.482 mW/g

GSM1900 Body Rear 661 3Tx/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.8 V/m; Power Drift = 0.017 dB
Peak SAR (extrapolated) = 0.836 W/kg
SAR(1 g) = 0.494 mW/g; SAR(10 g) = 0.283 mW/g
Maximum value of SAR (measured) = 0.555 mW/g



0 dB = 0.555mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.9, 2012
Separation Distance	1.0 cm

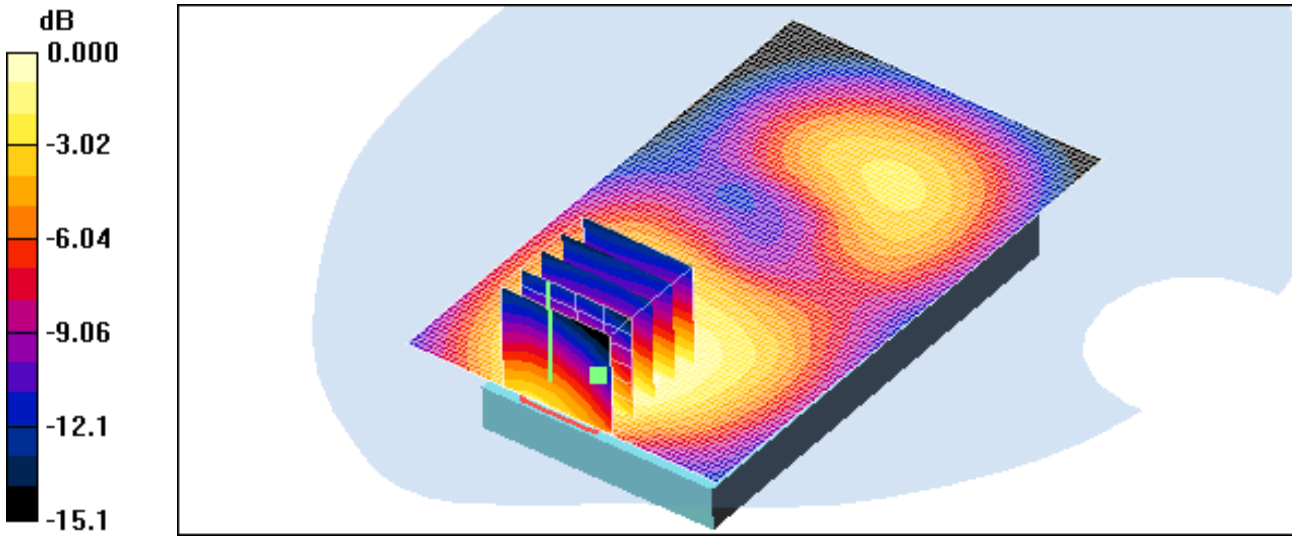
DUT: LG-P940h; Type: bar; Serial: #1

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:2.075
Medium parameters used: f = 1880 MHz; σ = 1.53 mho/m; ε_r = 52.9; 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: EX3DV4 - SN3797; ConvF(7.26, 7.26, 7.26); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 835/900 MHz; Type: SAM

GSM850 Body Rear 661 4Tx/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.582 mW/g

GSM850 Body Rear 661 4Tx/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.9 V/m; Power Drift = 0.009 dB
Peak SAR (extrapolated) = 0.920 W/kg
SAR(1 g) = 0.540 mW/g; SAR(10 g) = 0.309 mW/g
Maximum value of SAR (measured) = 0.585 mW/g



0 dB = 0.585mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.9, 2012
Separation Distance	1.0 cm

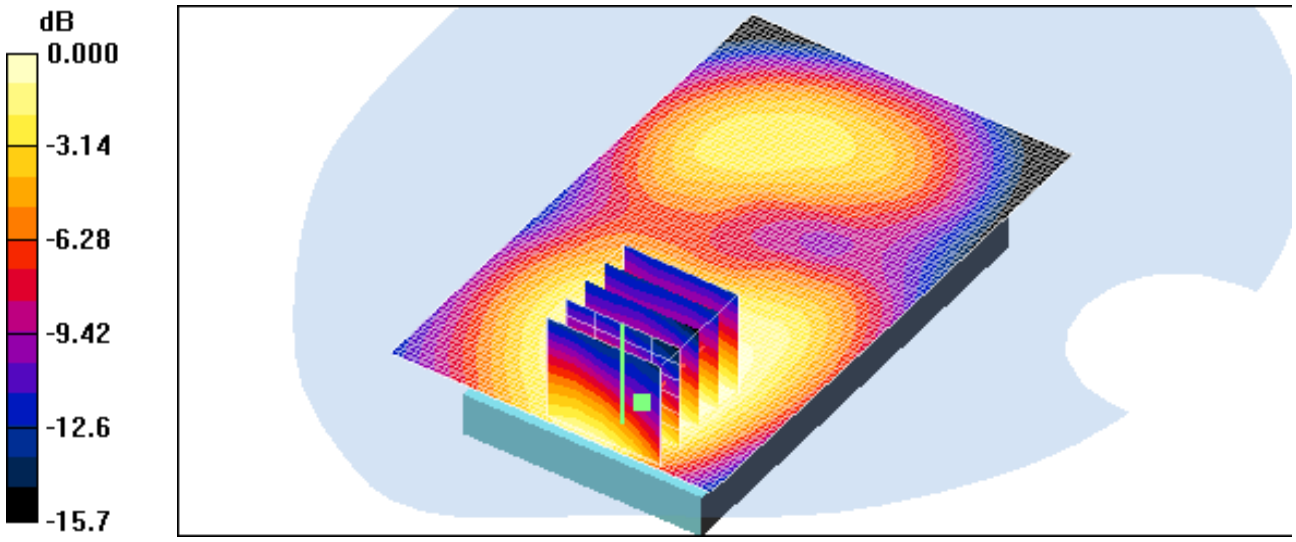
DUT: LG-P940h; Type: bar; Serial: #1

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:2.075
Medium parameters used: f = 1880 MHz; σ = 1.53 mho/m; ε_r = 52.9; 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: EX3DV4 - SN3797; ConvF(7.26, 7.26, 7.26); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 835/900 MHz; Type: SAM

GSM850 Body Front 661 4Tx/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.338 mW/g

GSM850 Body Front 661 4Tx/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.52 V/m; Power Drift = 0.033 dB
Peak SAR (extrapolated) = 0.501 W/kg
SAR(1 g) = 0.297 mW/g; SAR(10 g) = 0.179 mW/g
Maximum value of SAR (measured) = 0.318 mW/g



0 dB = 0.318mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.9, 2012
Separation Distance	1.0 cm

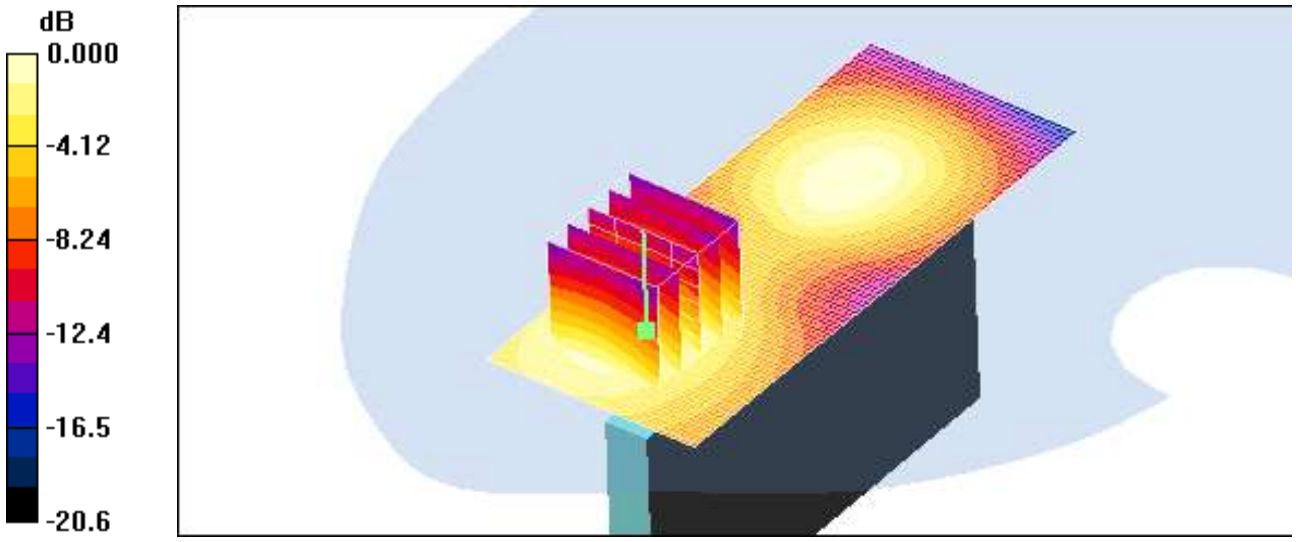
DUT: LG-P940h; Type: bar; Serial: #1

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:2.075
Medium parameters used: f = 1880 MHz; σ = 1.53 mho/m; ε_r = 52.9; 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: EX3DV4 - SN3797; ConvF(7.26, 7.26, 7.26); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 835/900 MHz; Type: SAM

GSM1900 Body Left Side 4Tx 661/Area Scan (41x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.137 mW/g

GSM1900 Body Left Side 4Tx 661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.07 V/m; Power Drift = 0.009 dB
Peak SAR (extrapolated) = 0.196 W/kg
SAR(1 g) = 0.126 mW/g; SAR(10 g) = 0.076 mW/g
Maximum value of SAR (measured) = 0.136 mW/g



0 dB = 0.136mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.9, 2012
Separation Distance	1.0 cm

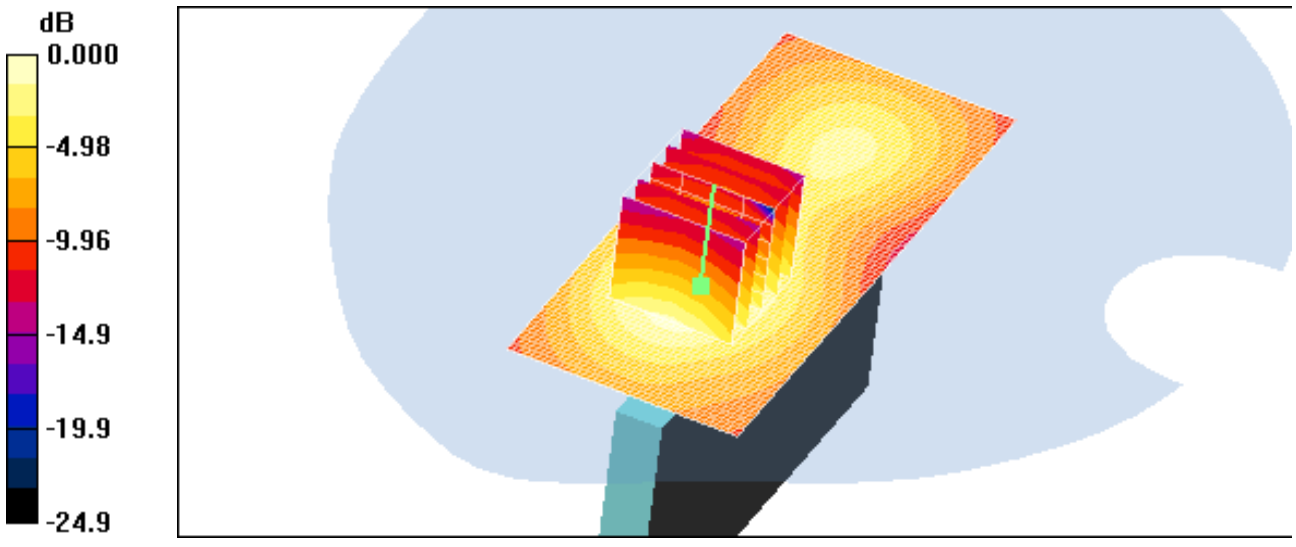
DUT: LG-P940h; Type: bar; Serial: #1

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:2.075
Medium parameters used: f = 1880 MHz; σ = 1.53 mho/m; ε_r = 52.9; 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: EX3DV4 - SN3797; ConvF(7.26, 7.26, 7.26); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 835/900 MHz; Type: SAM

GSM1900 Body Right Side 4Tx 661/Area Scan (41x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.220 mW/g

GSM1900 Body Right Side 4Tx 661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.59 V/m; Power Drift = 0.093 dB
Peak SAR (extrapolated) = 0.324 W/kg
SAR(1 g) = 0.200 mW/g; SAR(10 g) = 0.120 mW/g
Maximum value of SAR (measured) = 0.217 mW/g



0 dB = 0.217mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.9, 2012
Separation Distance	1.0 cm

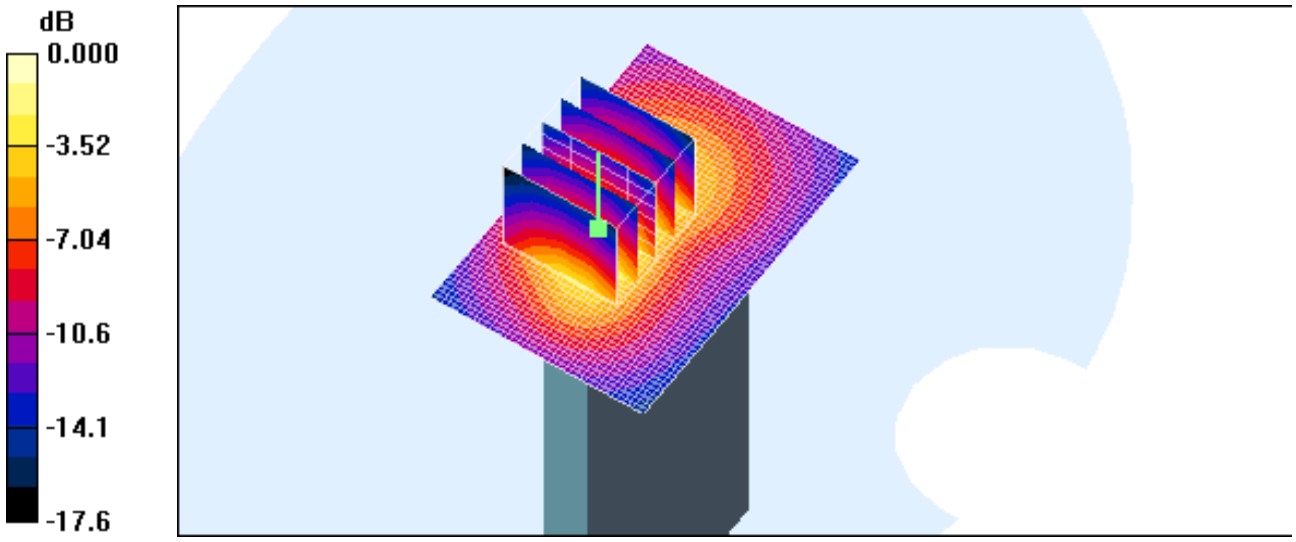
DUT: LG-P940h; Type: bar; Serial: #1

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:2.075
Medium parameters used: f = 1880 MHz; σ = 1.53 mho/m; ε_r = 52.9; 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: EX3DV4 - SN3797; ConvF(7.26, 7.26, 7.26); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 835/900 MHz; Type: SAM

GSM1900 Body Bottom 4TX 661/Area Scan (41x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.687 mW/g

GSM1900 Body Bottom 4TX 661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.3 V/m; Power Drift = -0.039 dB
Peak SAR (extrapolated) = 1.10 W/kg
SAR(1 g) = 0.632 mW/g; SAR(10 g) = 0.335 mW/g
Maximum value of SAR (measured) = 0.722 mW/g



0 dB = 0.722mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.9, 2012
Separation Distance	1.0 cm

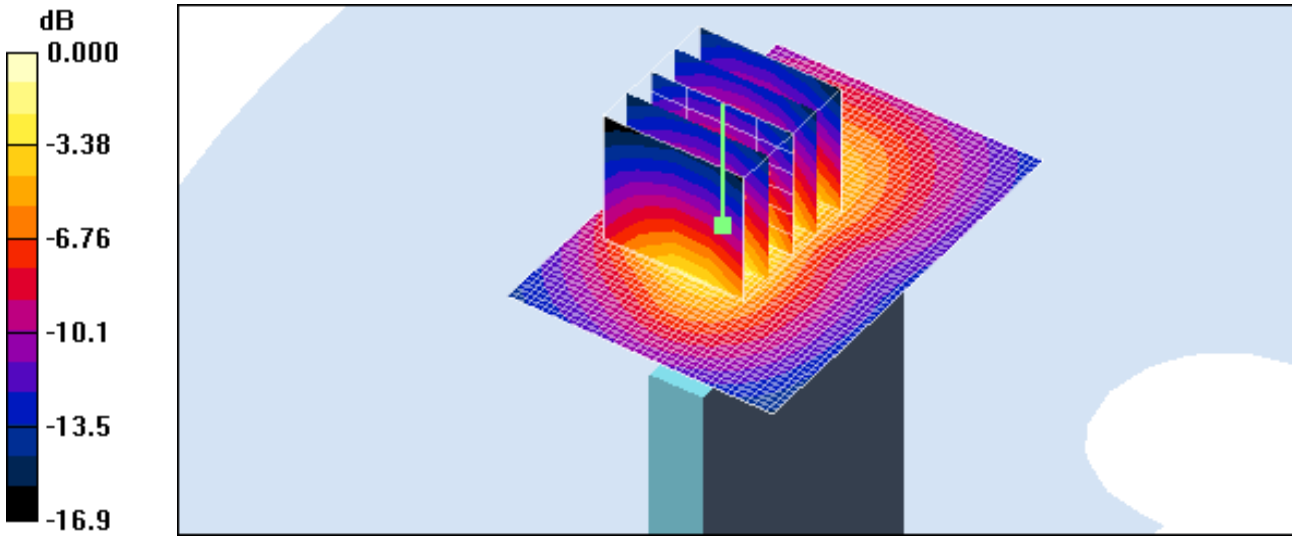
DUT: LG-P940h; Type: bar; Serial: #1

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:4.15
Medium parameters used: f = 1880 MHz; σ = 1.53 mho/m; ε_r = 52.9; 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: EX3DV4 - SN3797; ConvF(7.26, 7.26, 7.26); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 835/900 MHz; Type: SAM

GSM1900 Body Bottom 2TX 661/Area Scan (41x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.596 mW/g

GSM1900 Body Bottom 2TX 661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.2 V/m; Power Drift = 0.136 dB
Peak SAR (extrapolated) = 0.967 W/kg
SAR(1 g) = 0.558 mW/g; SAR(10 g) = 0.300 mW/g
Maximum value of SAR (measured) = 0.635 mW/g



0 dB = 0.635mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.9, 2012
Separation Distance	1.0 cm

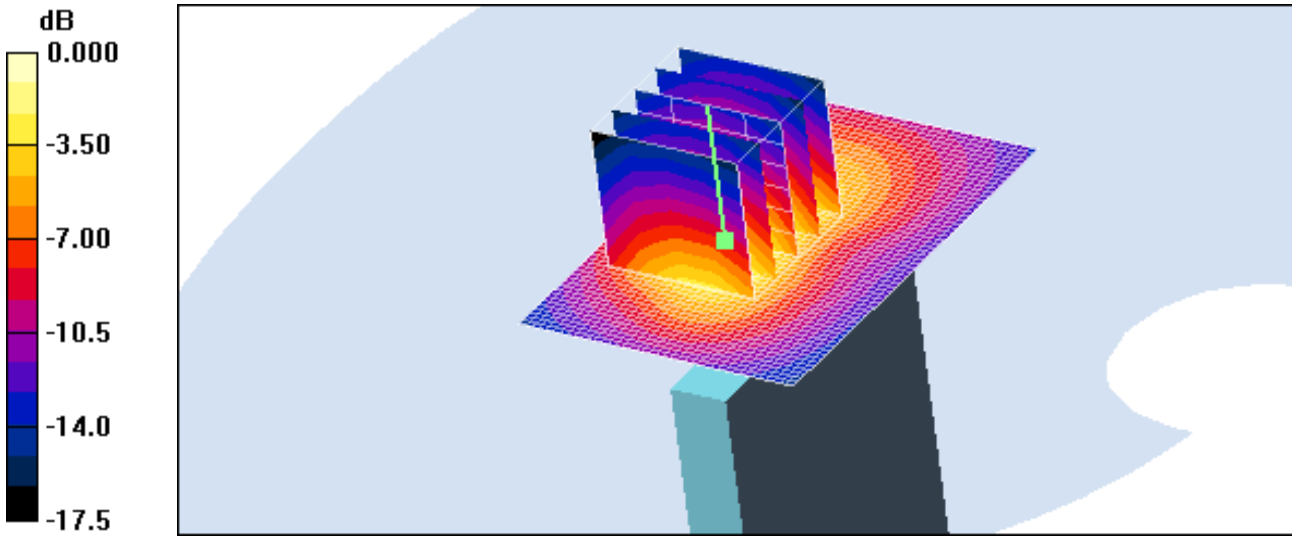
DUT: LG-P940h; Type: bar; Serial: #1

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:2.77
Medium parameters used: f = 1880 MHz; σ = 1.53 mho/m; ε_r = 52.9; 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: EX3DV4 - SN3797; ConvF(7.26, 7.26, 7.26); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 835/900 MHz; Type: SAM

GSM1900 Body Bottom 3TX 661/Area Scan (41x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.569 mW/g

GSM1900 Body Bottom 3TX 661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.9 V/m; Power Drift = 0.069 dB
Peak SAR (extrapolated) = 0.908 W/kg
SAR(1 g) = 0.528 mW/g; SAR(10 g) = 0.284 mW/g
Maximum value of SAR (measured) = 0.605 mW/g



0 dB = 0.605mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.7, 2012
Separation Distance	1.0 cm

DUT: LG-P940h; Type: bar; Serial: #1

Communication System: WCDMA850; Frequency: 826.4 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.997 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

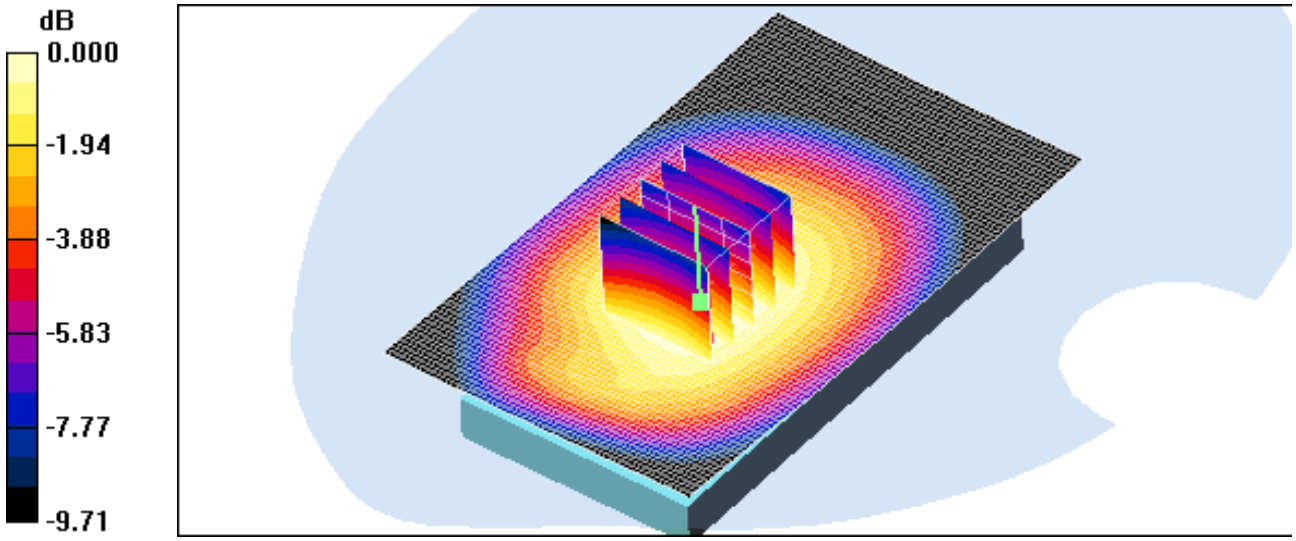
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(9.14, 9.14, 9.14); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 1800/1900 MHz; Type: SAM

WCDMA850 Body Rear 4132/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

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

WCDMA850 Body Rear 4132/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.4 V/m; Power Drift = -0.010 dB
Peak SAR (extrapolated) = 1.09 W/kg
SAR(1 g) = 0.850 mW/g; SAR(10 g) = 0.636 mW/g

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



0 dB = 0.893mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.7, 2012
Separation Distance	1.0 cm

DUT: LG-P940h; Type: bar; Serial: #1

Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.01 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

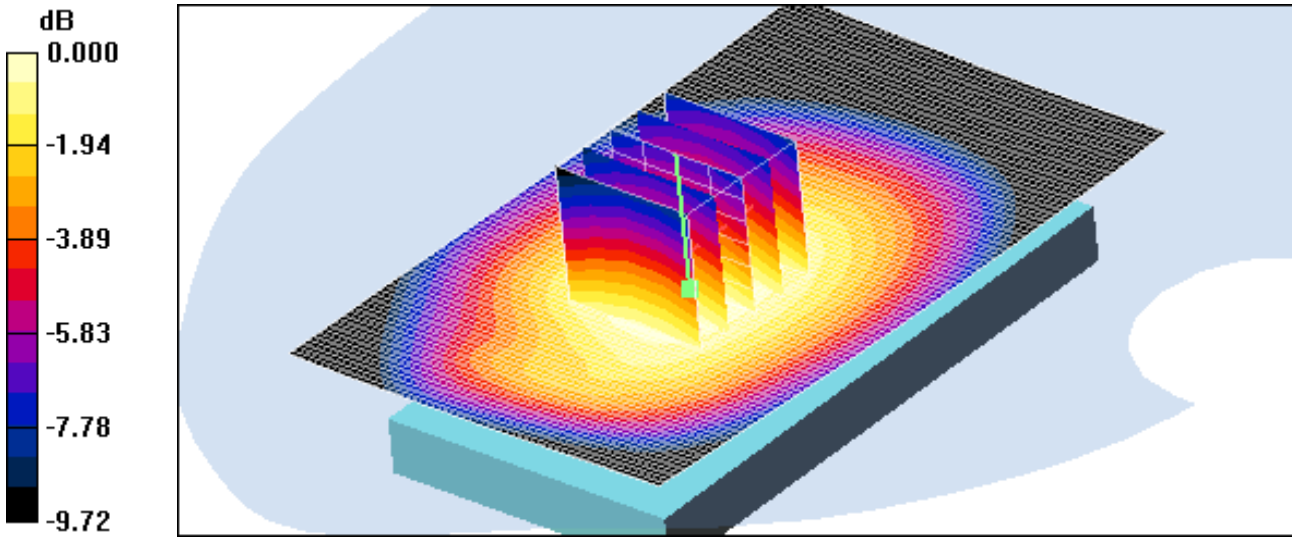
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(9.14, 9.14, 9.14); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 1800/1900 MHz; Type: SAM

WCDMA850 Body Rear 4183/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.852 mW/g

WCDMA850 Body Rear 4183/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.0 V/m; Power Drift = 0.009 dB
Peak SAR (extrapolated) = 1.04 W/kg
SAR(1 g) = 0.816 mW/g; SAR(10 g) = 0.608 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.857 mW/g



0 dB = 0.857mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.7, 2012
Separation Distance	1.0 cm

DUT: LG-P940h; Type: bar; Serial: #1

Communication System: WCDMA850; Frequency: 846.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 846.6 MHz; σ = 1.03 mho/m; ε_r = 54.7; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

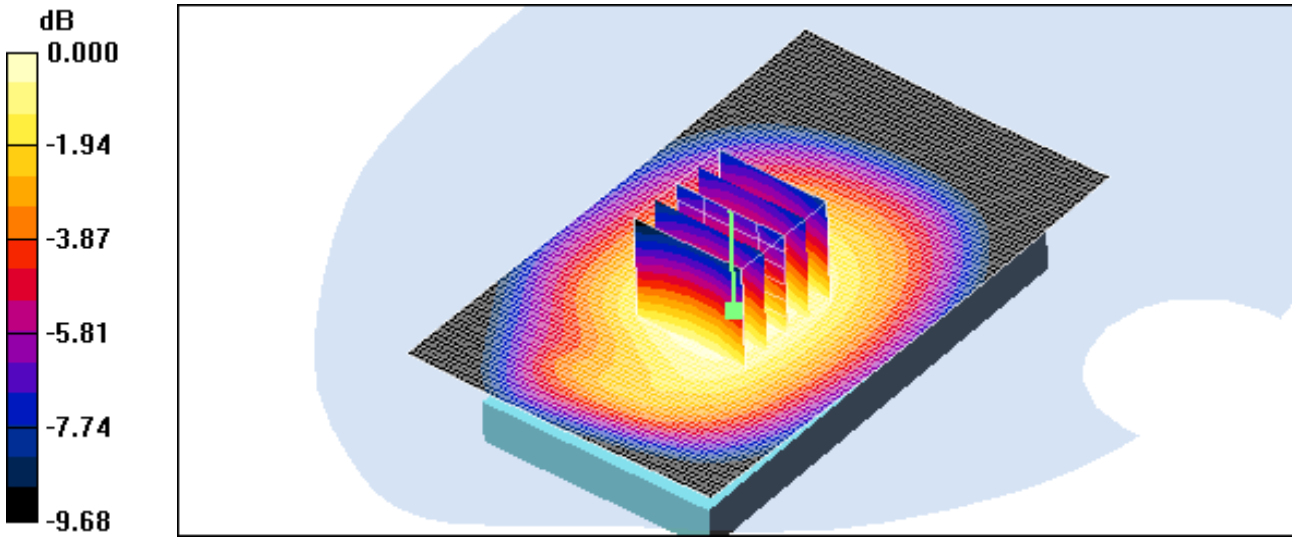
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(9.14, 9.14, 9.14); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 1800/1900 MHz; Type: SAM

WCDMA850 Body Rear 4233/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.822 mW/g

WCDMA850 Body Rear 4233/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.7 V/m; Power Drift = -0.022 dB
Peak SAR (extrapolated) = 1.01 W/kg
SAR(1 g) = 0.785 mW/g; SAR(10 g) = 0.585 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.826 mW/g



0 dB = 0.826mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.7, 2012
Separation Distance	1.0 cm

DUT: LG-P940h; Type: bar; Serial: #1

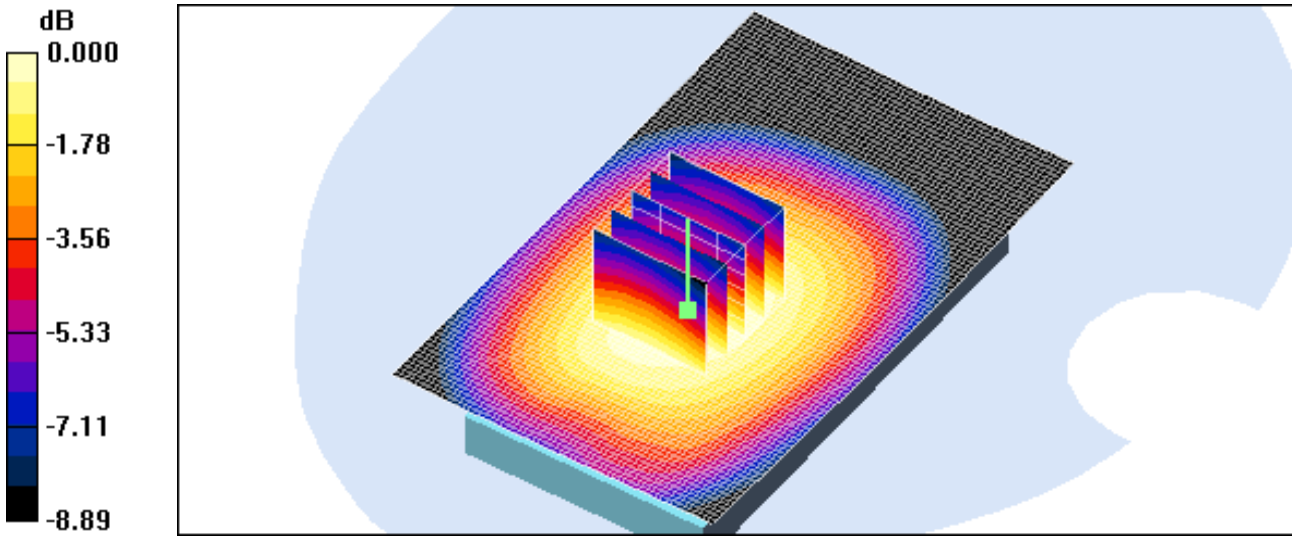
Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.01 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(9.14, 9.14, 9.14); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 1800/1900 MHz; Type: SAM

WCDMA850 Body Front 4183/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.376 mW/g

WCDMA850 Body Front 4183/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.4 V/m; Power Drift = 0.122 dB
Peak SAR (extrapolated) = 0.455 W/kg
SAR(1 g) = 0.361 mW/g; SAR(10 g) = 0.273 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.378 mW/g



0 dB = 0.378mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.7, 2012
Separation Distance	1.0 cm

DUT: LG-P940h; Type: bar; Serial: #1

Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.01 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

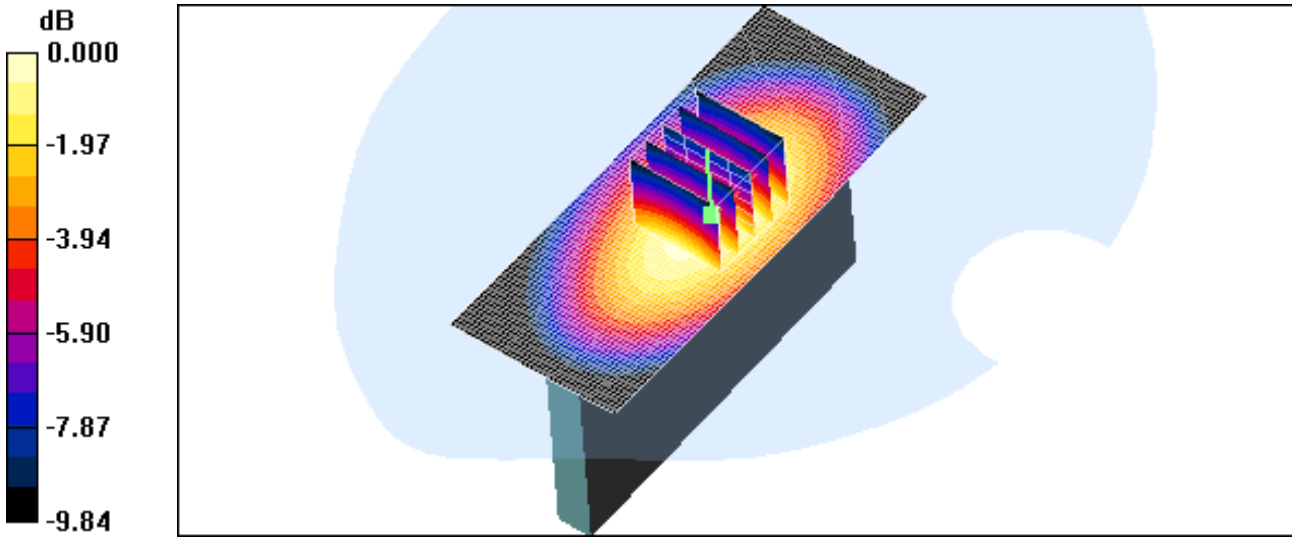
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(9.14, 9.14, 9.14); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 1800/1900 MHz; Type: SAM

WCDMA850 Body Left Side 4183/Area Scan (41x101x1): Measurement grid: dx=15mm, dy=15mm

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

WCDMA850 Body Left Side 4183/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.3 V/m; Power Drift = 0.015 dB
Peak SAR (extrapolated) = 0.725 W/kg
SAR(1 g) = 0.510 mW/g; SAR(10 g) = 0.349 mW/g

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



0 dB = 0.546mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.7, 2012
Separation Distance	1.0 cm

DUT: LG-P940h; Type: bar; Serial: #1

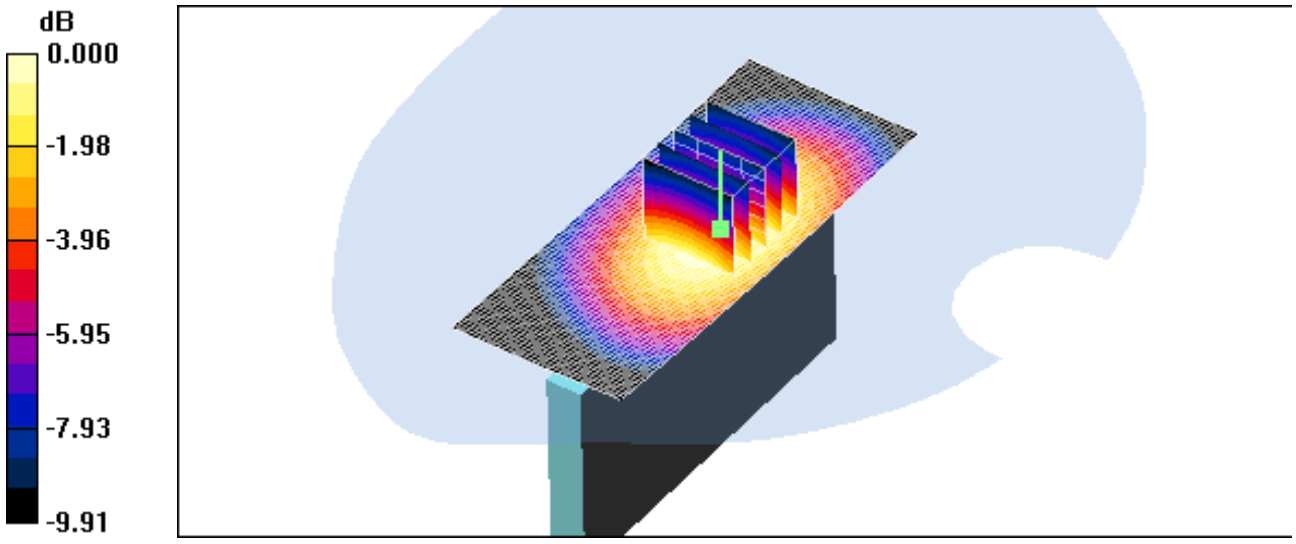
Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.01 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(9.14, 9.14, 9.14); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 1800/1900 MHz; Type: SAM

WCDMA850 Body Right Side 4183/Area Scan (41x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.331 mW/g

WCDMA850 Body Right Side 4183/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.1 V/m; Power Drift = 0.087 dB
Peak SAR (extrapolated) = 0.428 W/kg
SAR(1 g) = 0.303 mW/g; SAR(10 g) = 0.208 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.324 mW/g



0 dB = 0.324mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.7, 2012
Separation Distance	1.0 cm

DUT: LG-P940h; Type: bar; Serial: #1

Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.01 mho/m; ε_r = 54.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

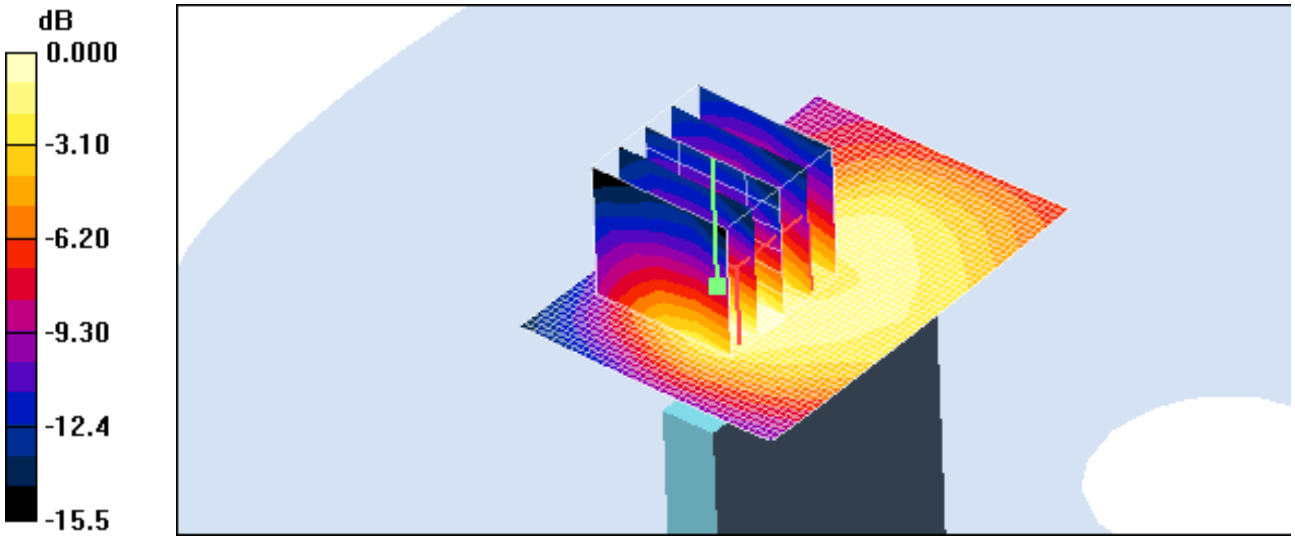
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(9.14, 9.14, 9.14); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 1800/1900 MHz; Type: SAM

WCDMA850 Body Bottom 4183/Area Scan (41x61x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.108 mW/g

WCDMA850 Body Bottom 4183/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.39 V/m; Power Drift = 0.008 dB
Peak SAR (extrapolated) = 0.195 W/kg
SAR(1 g) = 0.100 mW/g; SAR(10 g) = 0.053 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.108 mW/g



0 dB = 0.108mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Apr.10, 2012
Separation Distance	1.0 cm

DUT: LG-P940h; 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 = 51.4; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

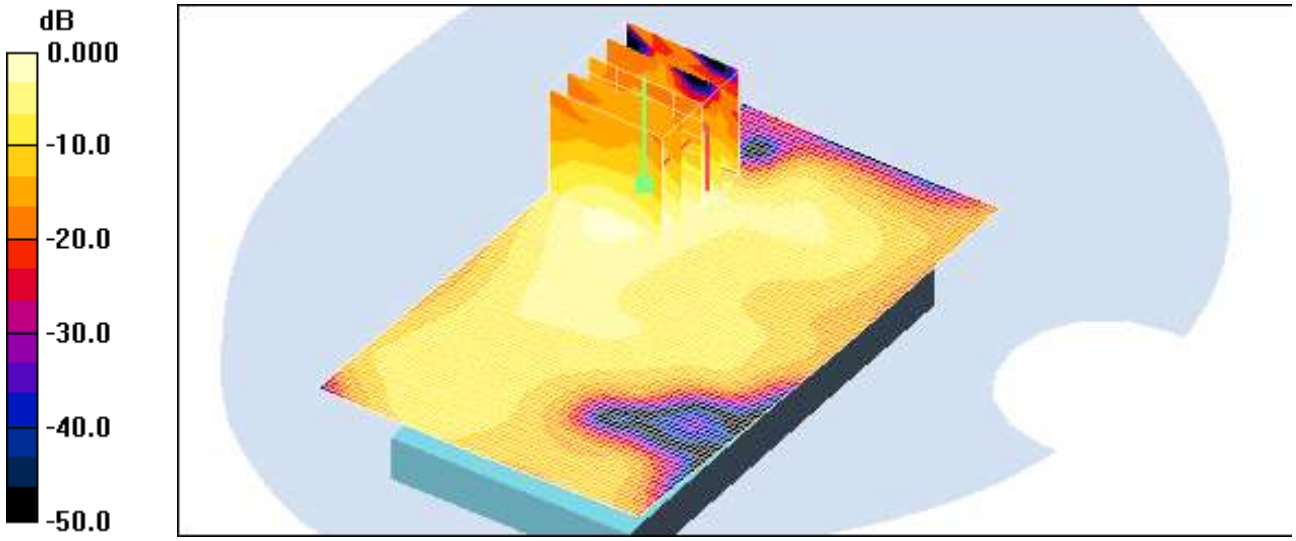
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(6.96, 6.96, 6.96); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 1800/1900 MHz; Type: SAM

802.11b Body Rear 11ch 1Mbps/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.055 mW/g

802.11b Body Rear 11ch 1Mbps/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.63 V/m; Power Drift = -0.035 dB
Peak SAR (extrapolated) = 0.102 W/kg
SAR(1 g) = 0.048 mW/g; SAR(10 g) = 0.023 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.055 mW/g



0 dB = 0.055mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Apr.10, 2012
Separation Distance	1.0 cm

DUT: LG-P940h; 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 = 51.4; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

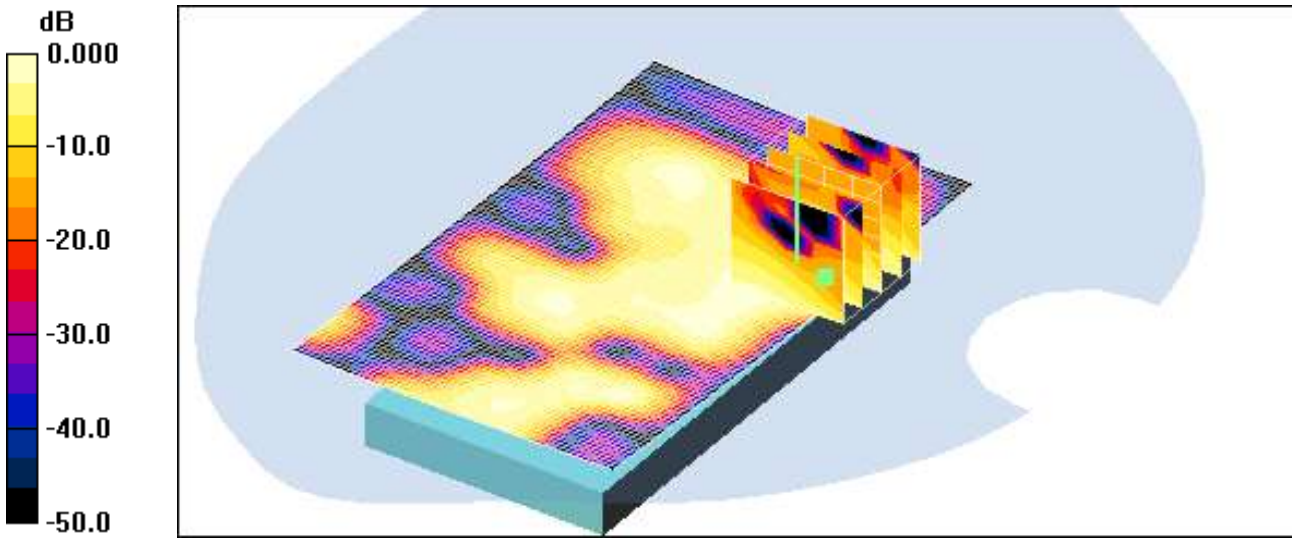
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(6.96, 6.96, 6.96); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 1800/1900 MHz; Type: SAM

802.11b Body Front 11ch 1Mbps/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.035 mW/g

802.11b Body Front 11ch 1Mbps/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.04 V/m; Power Drift = 0.162 dB
Peak SAR (extrapolated) = 0.037 W/kg
SAR(1 g) = 0.021 mW/g; SAR(10 g) = 0.010 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.023 mW/g



0 dB = 0.023mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Apr.10, 2012
Separation Distance	1.0 cm

DUT: LG-P940h; Type: bar; Serial: #1

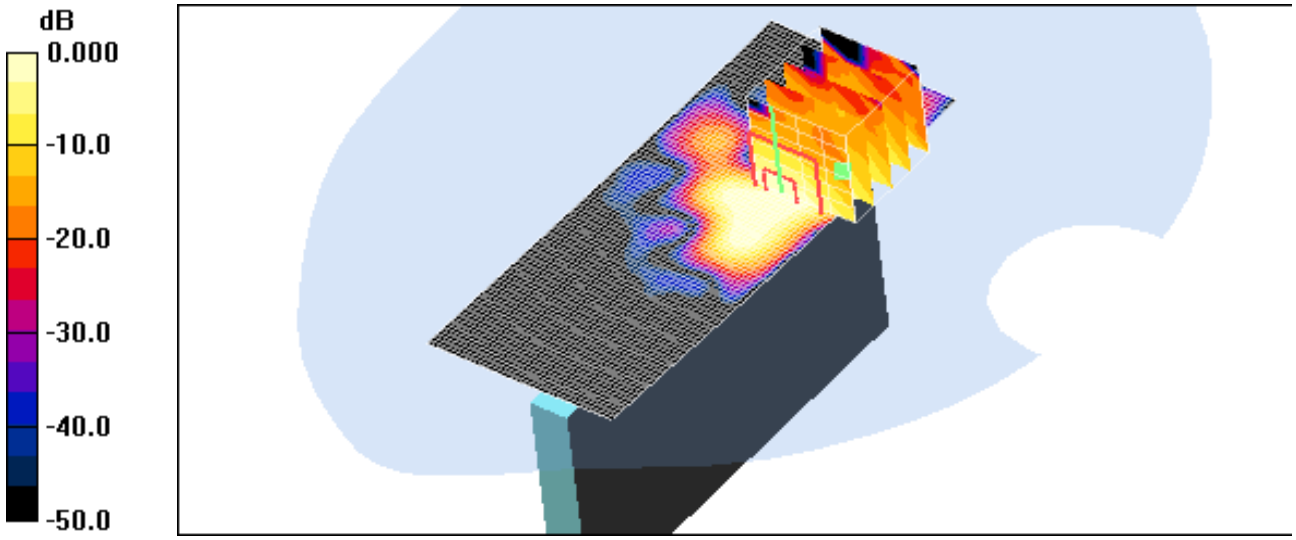
Communication System: 2450MHz FCC; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.87 mho/m; ε_r = 51.4; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(6.96, 6.96, 6.96); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 1800/1900 MHz; Type: SAM

802.11b Body Right Side 11ch 1Mbps/Area Scan (41x101x1): Measurement grid: dx=15mm, dy=15mm

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

802.11b Body Right Side 11ch 1Mbps/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.78 V/m; Power Drift = 0.028 dB
Peak SAR (extrapolated) = 0.078 W/kg
SAR(1 g) = 0.039 mW/g; SAR(10 g) = 0.019 mW/g
Maximum value of SAR (measured) = 0.044 mW/g



0 dB = 0.044mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Apr.10, 2012
Separation Distance	1.0 cm

DUT: LG-P940h; 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 = 51.4; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

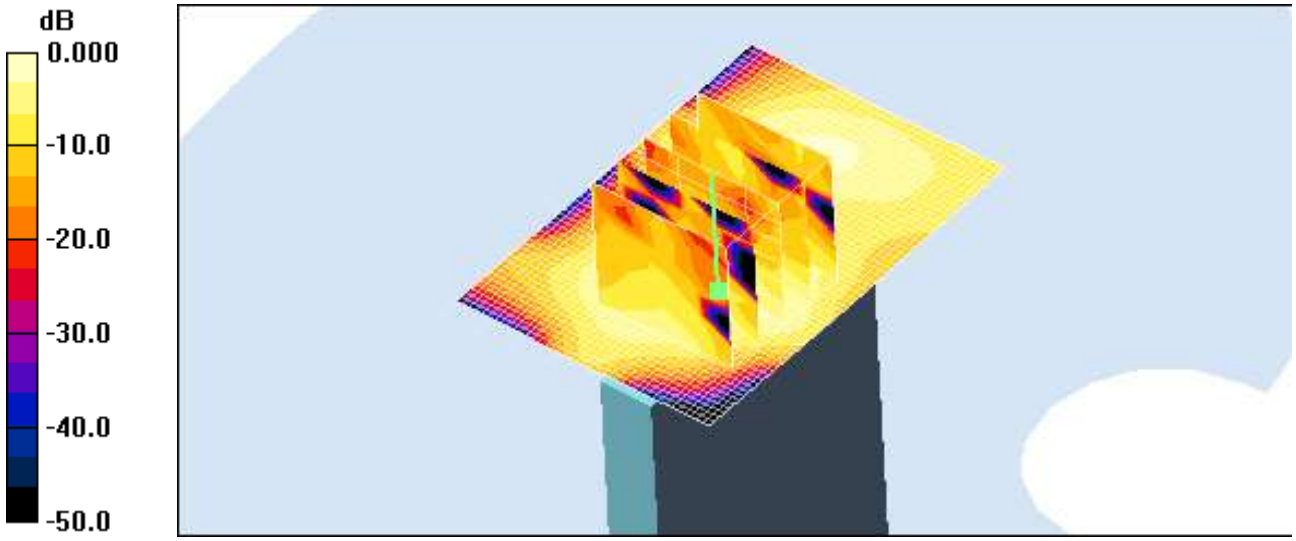
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(6.96, 6.96, 6.96); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 1800/1900 MHz; Type: SAM

802.11b Body Top 11ch 1Mbps/Area Scan (41x61x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.015 mW/g

802.11b Body Top 11ch 1Mbps/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.70 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.061 W/kg
SAR(1 g) = 0.012 mW/g; SAR(10 g) = 0.00564 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.013 mW/g



0 dB = 0.013mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	May 9, 2012
Separation Distance	1.0 cm

DUT: LG-P940h; Type: bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5180 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5180 MHz; σ = 5.26 mho/m; ε_r = 47.3; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

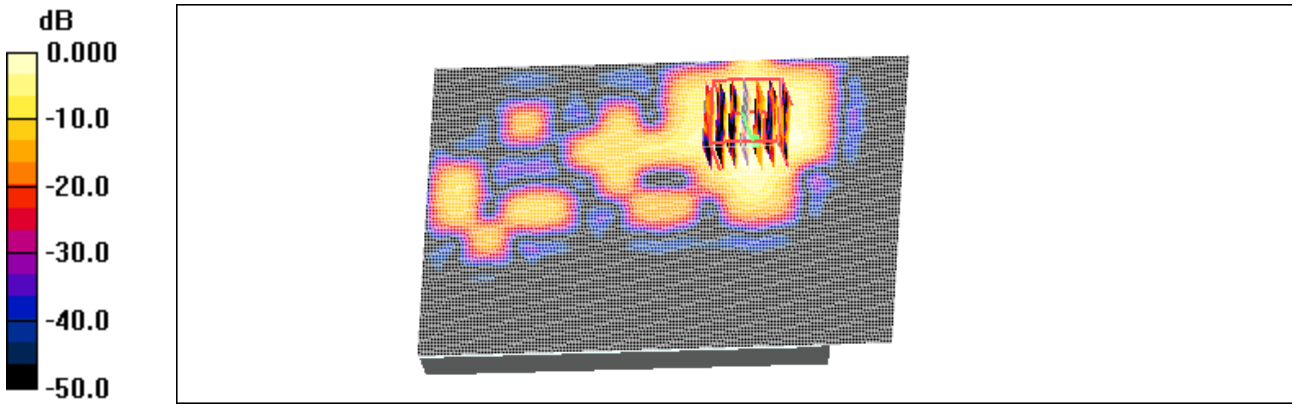
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(4.1, 4.1, 4.1); Calibrated: 2011-07-25
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: 800/900 Phantom; Type: SAM

WIFI 5GHz Body Rear 36ch 6Mbps/Area Scan (101x151x1): Measurement grid: dx=10mm, dy=10mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.118 mW/g

WIFI 5GHz Body Rear 36ch 6Mbps/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.950 V/m; Power Drift = -0.187 dB
Peak SAR (extrapolated) = 0.221 W/kg
SAR(1 g) = 0.059 mW/g; SAR(10 g) = 0.018 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.113 mW/g



0 dB = 0.113mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	May 9, 2012
Separation Distance	1.0 cm

DUT: LG-P940h; Type: bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5260 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5260 MHz; σ = 5.36 mho/m; ε_r = 47; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

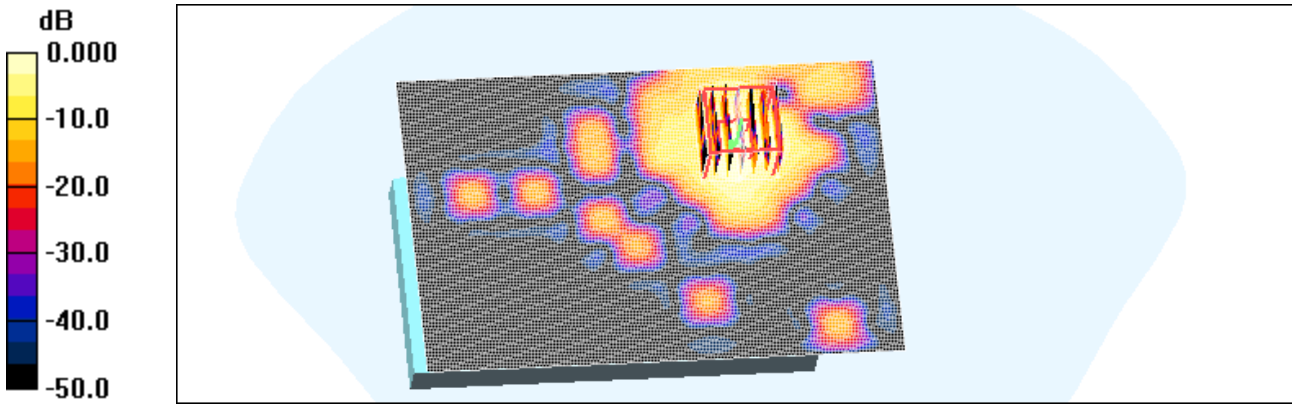
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(3.83, 3.83, 3.83); Calibrated: 2011-07-25
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: 800/900 Phantom; Type: SAM

WIFI 5GHz Body Rear 52ch 6Mbps/Area Scan (101x151x1): Measurement grid: dx=10mm, dy=10mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.150 mW/g

WIFI 5GHz Body Rear 52ch 6Mbps/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.785V/m; Power Drift = 0.054 dB
Peak SAR (extrapolated) = 0.250 W/kg
SAR(1 g) = 0.072 mW/g; SAR(10 g) = 0.022 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.138 mW/g



0 dB = 0.138mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	May 9, 2012
Separation Distance	1.0 cm

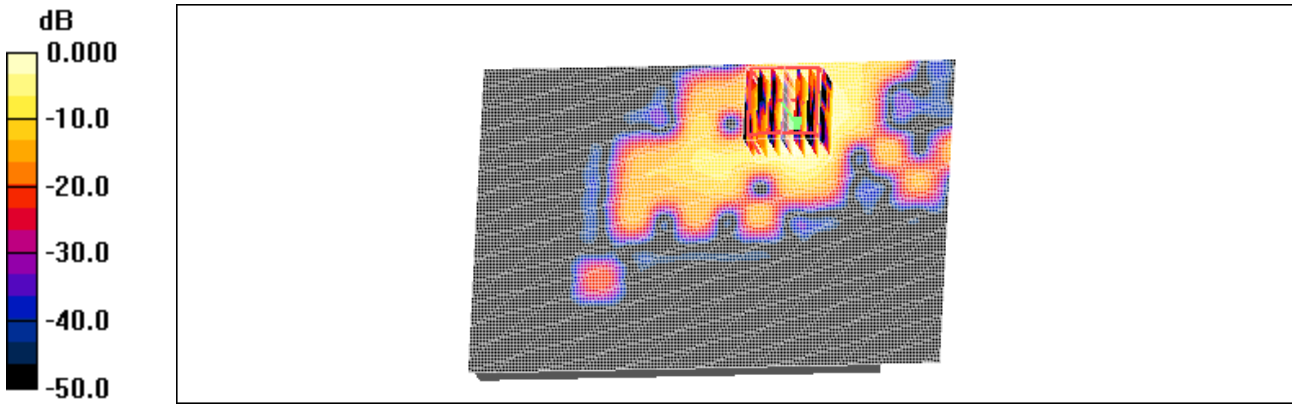
DUT: LG-P940h; Type: bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5700 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5700 MHz; σ = 5.92 mho/m; ε_r = 45.9; 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: EX3DV4 - SN3797; ConvF(3.75, 3.75, 3.75); Calibrated: 2011-07-25
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: 800/900 Phantom; Type: SAM

WIFI 5GHz Body Rear 140ch 6Mbps/Area Scan (101x151x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.229 mW/g

WIFI 5GHz Body Rear 140ch 6Mbps/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.180 V/m; Power Drift = 0.101 dB
Peak SAR (extrapolated) = 0.512 W/kg
SAR(1 g) = 0.133 mW/g; SAR(10 g) = 0.041 mW/g
Maximum value of SAR (measured) = 0.237 mW/g



0 dB = 0.237mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Apr.10, 2012
Separation Distance	1.0 cm

DUT: LG-P940h; Type: bar; Serial: #1

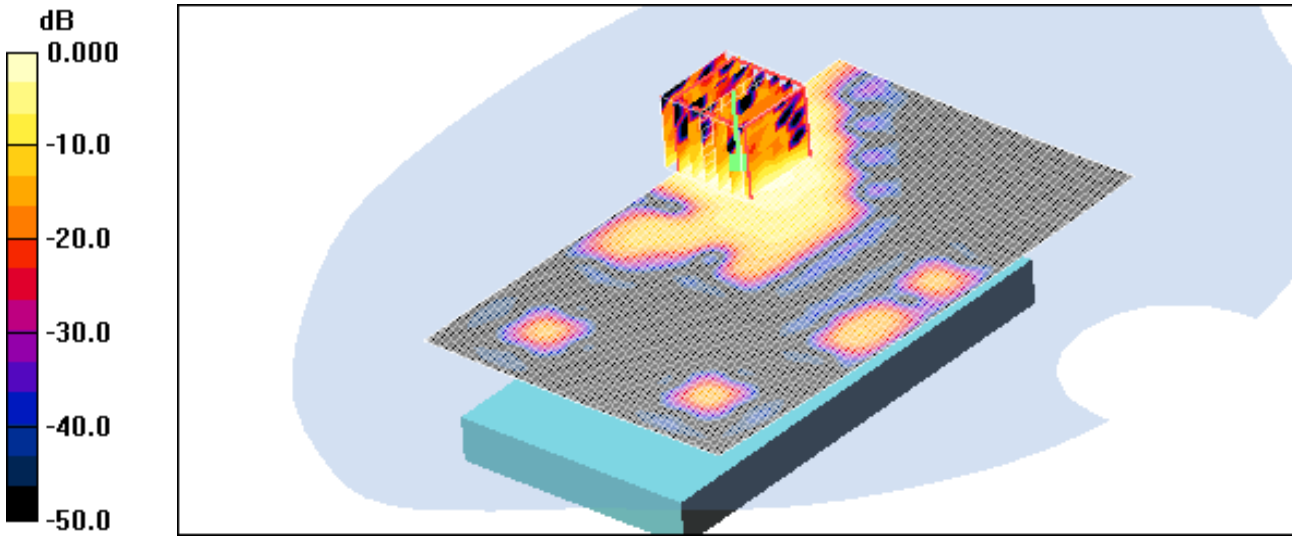
Communication System: WIFI 5GHz; Frequency: 5745 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5745 MHz; σ = 6.11 mho/m; ε_r = 45.8; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(3.75, 3.75, 3.75); Calibrated: 2011-07-25
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 1800/1900 MHz; Type: SAM

WIFI 5GHz Body Rear 149ch 6Mbps/Area Scan (91x151x1): Measurement grid: dx=10mm, dy=10mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.200 mW/g

WIFI 5GHz Body Rear 149ch 6Mbps/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.505 V/m; Power Drift = 0.12 dB
Peak SAR (extrapolated) = 0.375 W/kg
SAR(1 g) = 0.107 mW/g; SAR(10 g) = 0.038 mW/g
Maximum value of SAR (measured) = 0.180 mW/g



0 dB = 0.180mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.7, 2012

DUT: LG-P940h; Type: bar; Serial: #1

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.903 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: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 835/900 MHz; Type: SAM

Left touch 190/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.254 mW/g

Left touch 190/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.82 V/m; Power Drift = -0.094 dB
Peak SAR (extrapolated) = 0.298 W/kg
SAR(1 g) = 0.240 mW/g; SAR(10 g) = 0.182 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.252 mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.7, 2012
Separation Distance	1.0 cm

DUT: LG-P940h; Type: bar; Serial: #1

Communication System: GSM 850; Frequency: 848.8 MHz;Duty Cycle: 1:2.075
Medium parameters used (interpolated): f = 848.8 MHz; σ = 1.03 mho/m; ε_r = 54.7; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(9.14, 9.14, 9.14); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 1800/1900 MHz; Type: SAM

GSM850 Body Rear 4Tx 251/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 1.04 mW/g

GSM850 Body Rear 4Tx 251/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.7 V/m; Power Drift = 0.031 dB
Peak SAR (extrapolated) = 1.29 W/kg
SAR(1 g) = 0.989 mW/g; SAR(10 g) = 0.735 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.04 mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.9, 2012

DUT: LG-P940h; Type: bar; Serial: #1

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.37 mho/m; ε_r = 39.2; 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: EX3DV4 - SN3797; ConvF(7.6, 7.6, 7.6); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 1800/1900 MHz; Type: SAM

Right touch 661/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.253 mW/g

Right touch 661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.06 V/m; Power Drift = 0.017 dB
Peak SAR (extrapolated) = 0.414 W/kg
SAR(1 g) = 0.236 mW/g; SAR(10 g) = 0.134 mW/g
Maximum value of SAR (measured) = 0.258 mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.9, 2012
Separation Distance	1.0 cm

DUT: LG-P940h; Type: bar; Serial: #1

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:2.075
Medium parameters used: f = 1880 MHz; σ = 1.53 mho/m; ε_r = 52.9; 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: EX3DV4 - SN3797; ConvF(7.26, 7.26, 7.26); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 835/900 MHz; Type: SAM

GSM1900 Body Bottom 4TX 661/Area Scan (41x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.687 mW/g

GSM1900 Body Bottom 4TX 661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.3 V/m; Power Drift = -0.039 dB
Peak SAR (extrapolated) = 1.10 W/kg
SAR(1 g) = 0.632 mW/g; SAR(10 g) = 0.335 mW/g
Maximum value of SAR (measured) = 0.722 mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.7, 2012

DUT: LG-P940h; Type: bar; Serial: #1

Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.903 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: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 835/900 MHz; Type: SAM

Left touch 4183/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.285 mW/g

Left touch 4183/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.27 V/m; Power Drift = -0.042 dB
Peak SAR (extrapolated) = 0.330 W/kg
SAR(1 g) = 0.268 mW/g; SAR(10 g) = 0.204 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.281 mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Apr.7, 2012
Separation Distance	1.0 cm

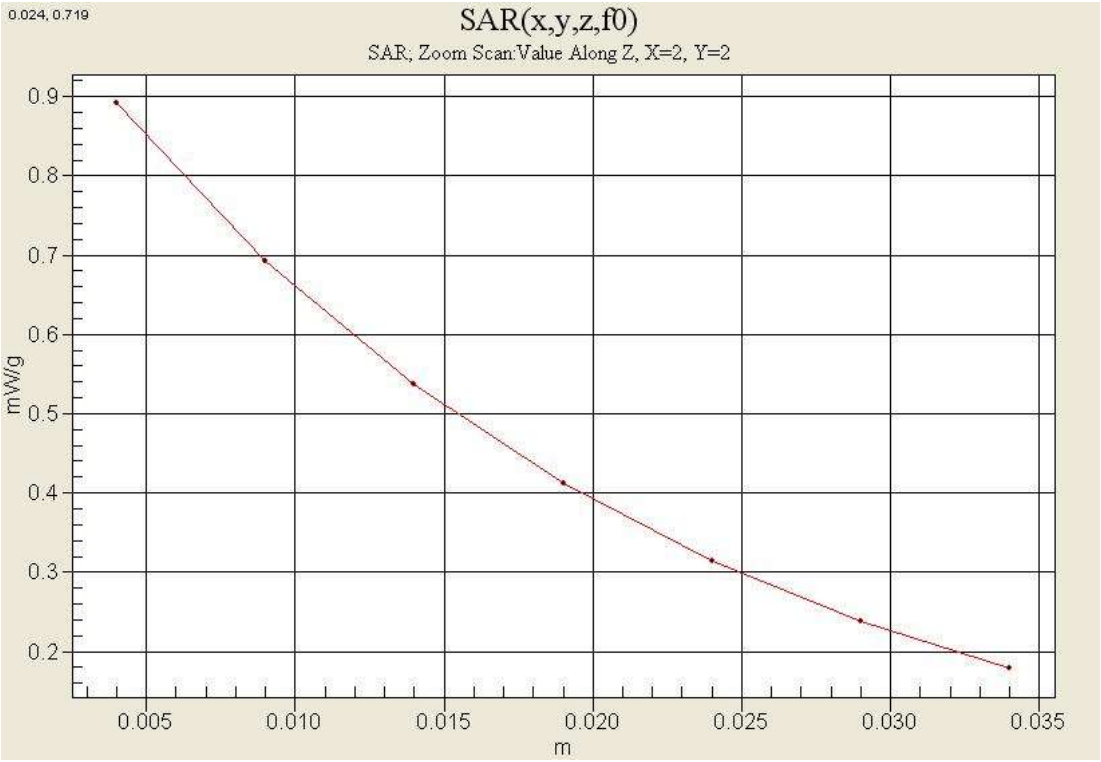
DUT: LG-P940h; Type: bar; Serial: #1

Communication System: WCDMA850; Frequency: 826.4 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.997 mho/m; ε_r = 54.9; 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: EX3DV4 - SN3797; ConvF(9.14, 9.14, 9.14); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 1800/1900 MHz; Type: SAM

WCDMA850 Body Rear 4132/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.894 mW/g
WCDMA850 Body Rear 4132/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 18.4 V/m; Power Drift = -0.010 dB
Peak SAR (extrapolated) = 1.09 W/kg
SAR(1 g) = 0.850 mW/g; SAR(10 g) = 0.636 mW/g

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



Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.2 ℃
Test Date:	Apr10, 2012

DUT: LG-P940h; Type: bar; Serial: #1

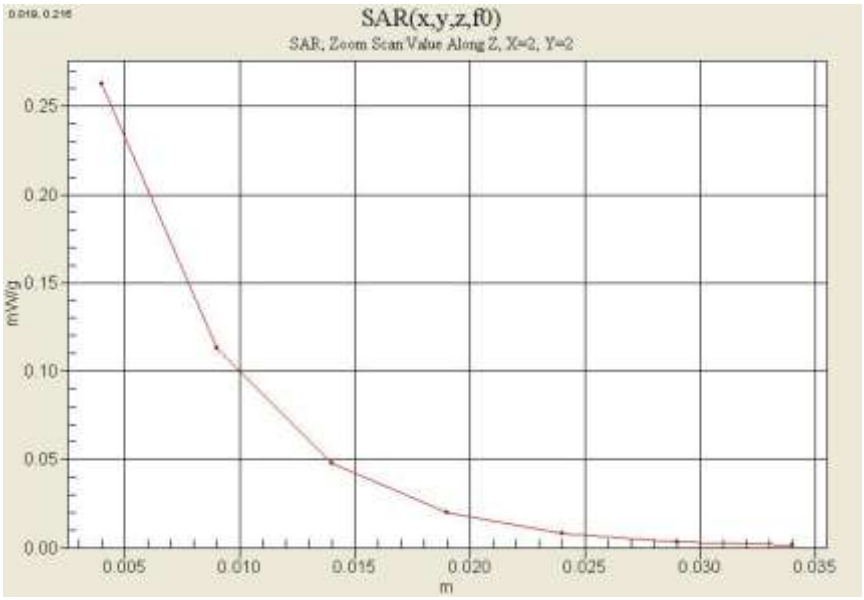
Communication System: 2450MHz FCC; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.87 mho/m; ε_r = 38.4; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(6.94, 6.94, 6.94); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: 835/900 Phamtom ; Type: SAM

Left touch 11/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

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

Left touch 11/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.49 V/m; Power Drift = -0.099 dB
Peak SAR (extrapolated) = 0.561 W/kg
SAR(1 g) = 0.225 mW/g; SAR(10 g) = 0.093 mW/g
maximum value of SAR (measured) = 0.263 mW/g



Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	May 9. 2012

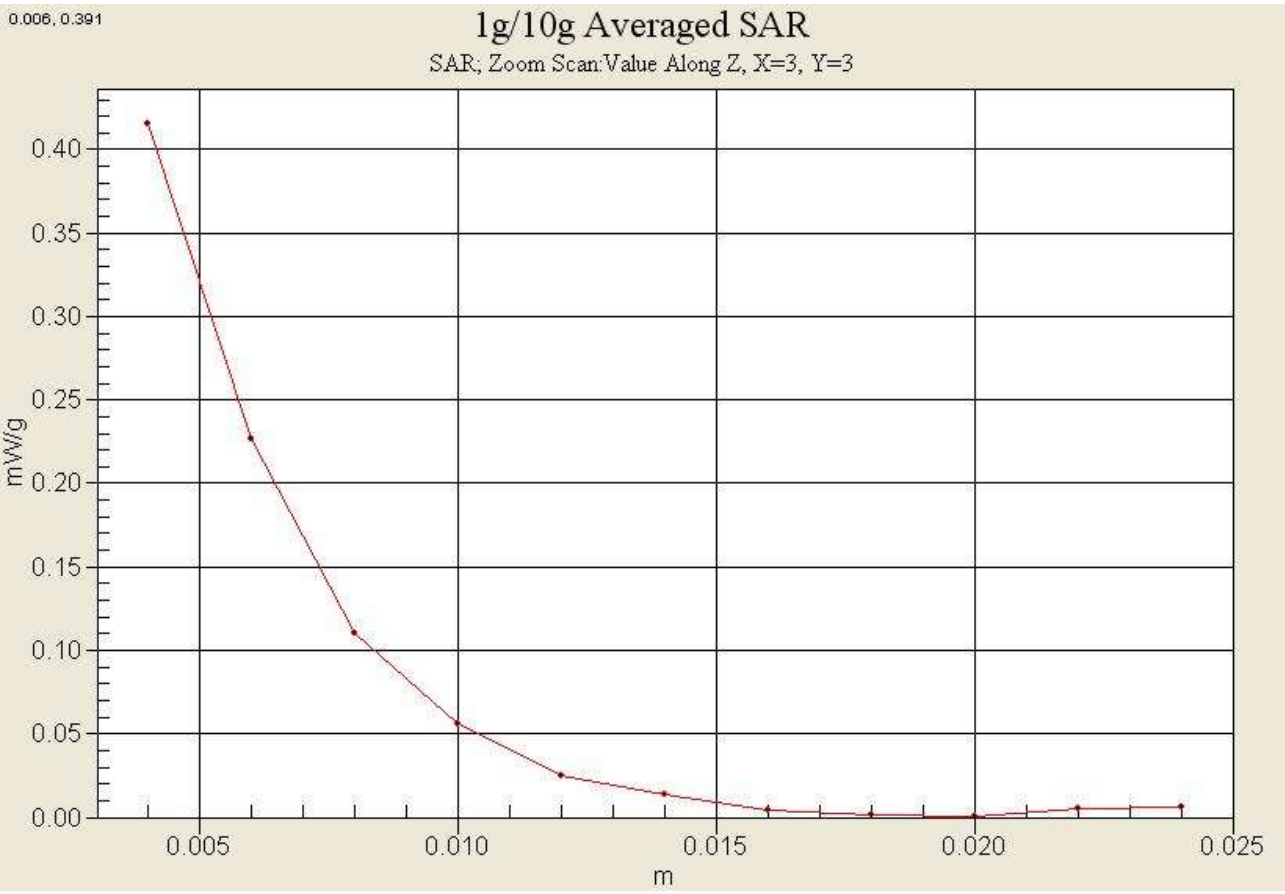
DUT: LG-P940h; Type: bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5745 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5745 MHz; σ = 5.29 mho/m; ε_r = 35.6; 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: EX3DV4 - SN3797; ConvF(4.26, 4.26, 4.26); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: 800/900 Phantom; Type: SAM

802.11a Left touch 149ch 6Mbps/Area Scan (91x151x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.434 mW/g

802.11a Left touch 149ch 6Mbps/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 0.648 V/m; Power Drift = 0.115 dB
Peak SAR (extrapolated) = 1.19 W/kg
SAR(1 g) = 0.360 mW/g; SAR(10 g) = 0.118 mW/g
Maximum value of SAR (measured) = 0.416 mW/g



Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.2 ℃
Test Date:	Apr10, 2012
Separation Distance	1.0 cm

DUT: LG-P940h; 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 = 51.4; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(6.96, 6.96, 6.96); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 1800/1900 MHz; Type: SAM

802.11b Body Rear 11ch 1Mbps/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm
Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.055 mW/g

802.11b Body Rear 11ch 1Mbps/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.63 V/m; Power Drift = -0.035 dB
Peak SAR (extrapolated) = 0.102 W/kg
SAR(1 g) = 0.048 mW/g; SAR(10 g) = 0.023 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.055 mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE & Cellular WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	May 9, 2012
Separation Distance	1.0 cm

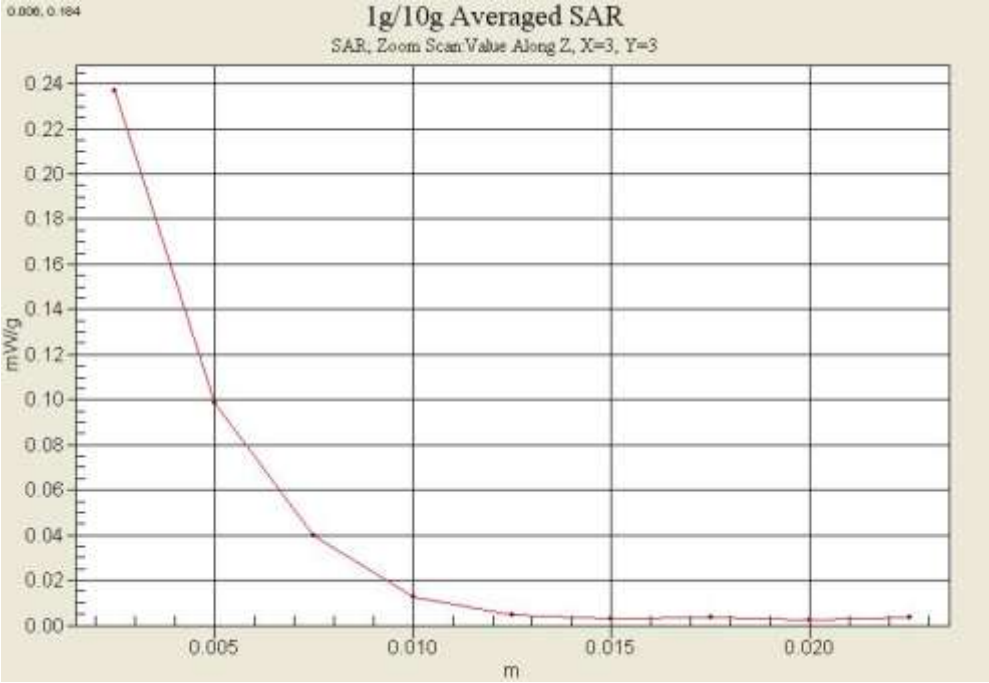
DUT: LG-P940h; Type: bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5700 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5700 MHz; σ = 5.92 mho/m; ε_r = 45.9; 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: EX3DV4 - SN3797; ConvF(3.75, 3.75, 3.75); Calibrated: 2011-07-25
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: 800/900 Phantom; Type: SAM

WIFI 5GHz Body Rear 140ch 6Mbps/Area Scan (101x151x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.229 mW/g

WIFI 5GHz Body Rear 140ch 6Mbps/Zoom Scan (7x7x9)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.180 V/m; Power Drift = 0.101 dB
Peak SAR (extrapolated) = 0.512 W/kg
SAR(1 g) = 0.133 mW/g; SAR(10 g) = 0.041 mW/g
Maximum value of SAR (measured) = 0.237 mW/g



Attachment 2. – Dipole Validation Plots

■ Validation Data (835 MHz Head)

Test Laboratory: HCT CO., LTD
Input Power 100 mW (20 dBm)
Liquid Temp: 21.1 ℃
Test Date: Apr.7, 2012

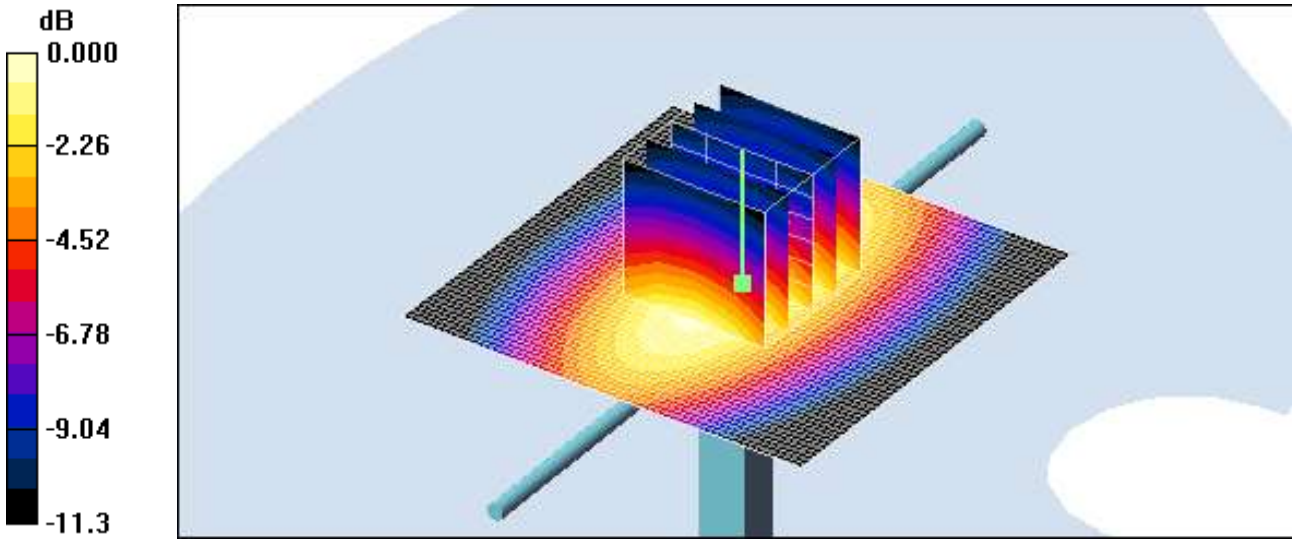
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 – SN:441

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 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: EX3DV4 - SN3797; ConvF(8.93, 8.93, 8.93); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 835/900 MHz; Type: SAM

Validation 835 MHz/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.01 mW/g

Validation 835 MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 33.7 V/m; Power Drift = -0.054 dB
Peak SAR (extrapolated) = 1.48 W/kg
SAR(1 g) = 0.938 mW/g; SAR(10 g) = 0.596 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: 21.1 ℃
Test Date: Apr.7, 2012

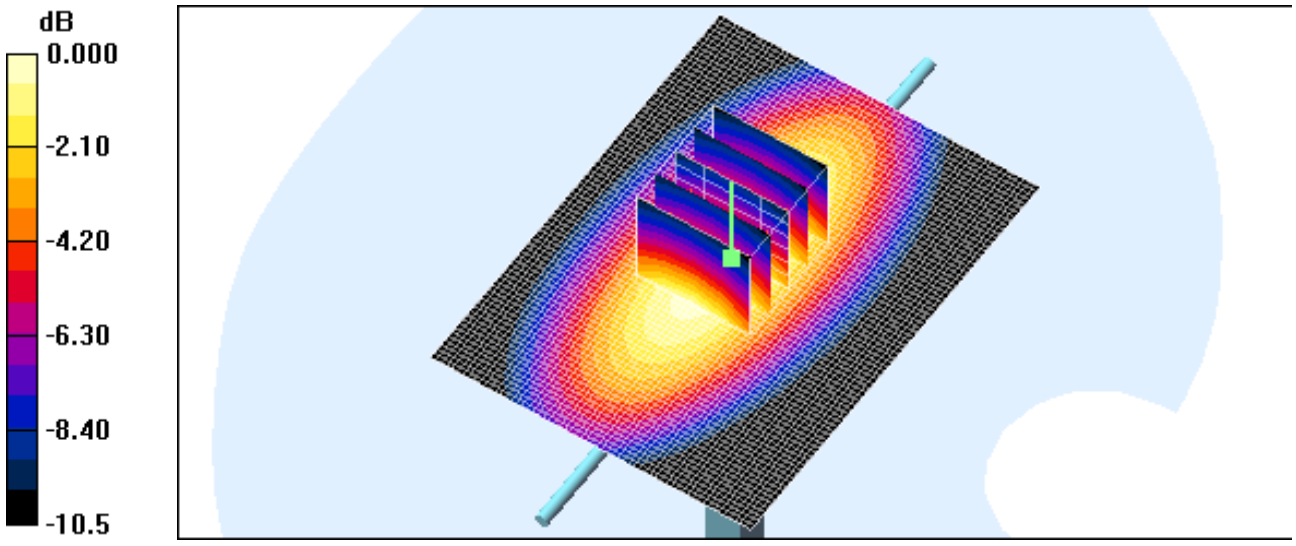
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 – SN:441

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 1.01 mho/m; ε_r = 54.9; 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: EX3DV4 - SN3797; ConvF(9.14, 9.14, 9.14); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: 800/900 Phantom; Type: SAM

Validation 835 MHz/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.04 mW/g

Validation 835 MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 31.5 V/m; Power Drift = -0.006 dB
Peak SAR (extrapolated) = 1.42 W/kg
SAR(1 g) = 0.957 mW/g; SAR(10 g) = 0.628 mW/g
Maximum value of SAR (measured) = 1.03 mW/g



0 dB = 1.03mW/g

■ Validation Data (1 900 MHz Head)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.1 ℃

Test Date: Apr.9, 2012

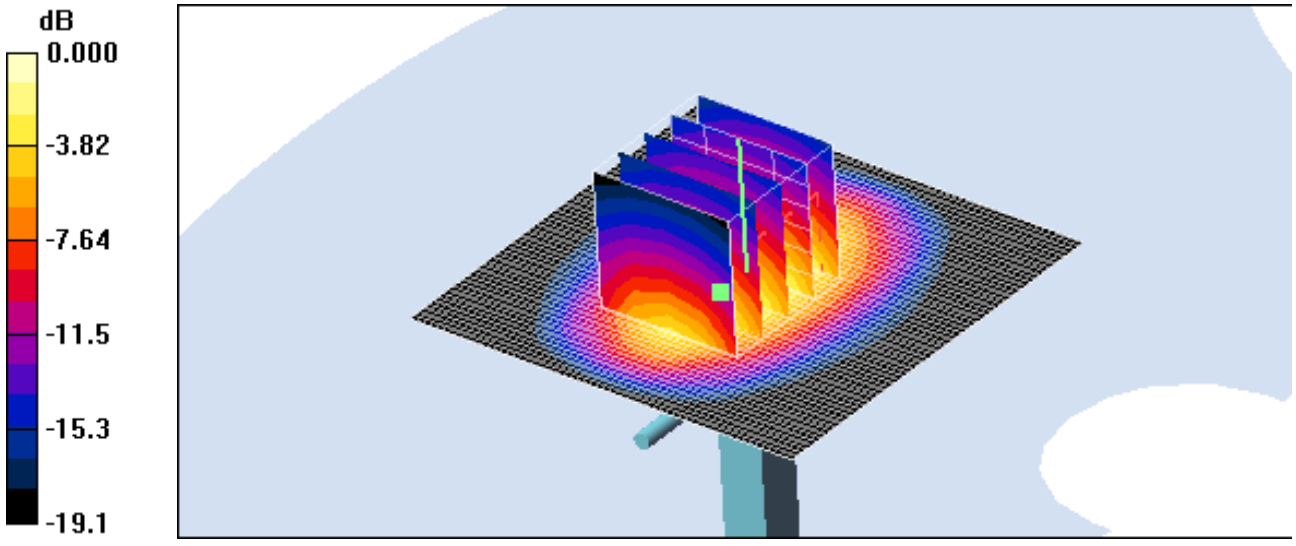
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 – SN:5d032

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.39 mho/m; ε_r = 39.1; 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: EX3DV4 - SN3797; ConvF(7.6, 7.6, 7.6); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: 1800/1900 Phantom; Type: SAM

Dipole 1900MHz Validation/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 4.75 mW/g

Dipole 1900MHz Validation/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 57.4 V/m; Power Drift = -0.006 dB
Peak SAR (extrapolated) = 7.73 W/kg
SAR(1 g) = 4.12 mW/g; SAR(10 g) = 2.14 mW/g
Maximum value of SAR (measured) = 4.55 mW/g



0 dB = 4.55mW/g

■ Validation Data (1 900 MHz Body)

Test Laboratory: HCT CO., LTD
Input Power 100 mW (20 dBm)
Liquid Temp: 21.1 ℃
Test Date: Apr.9, 2012

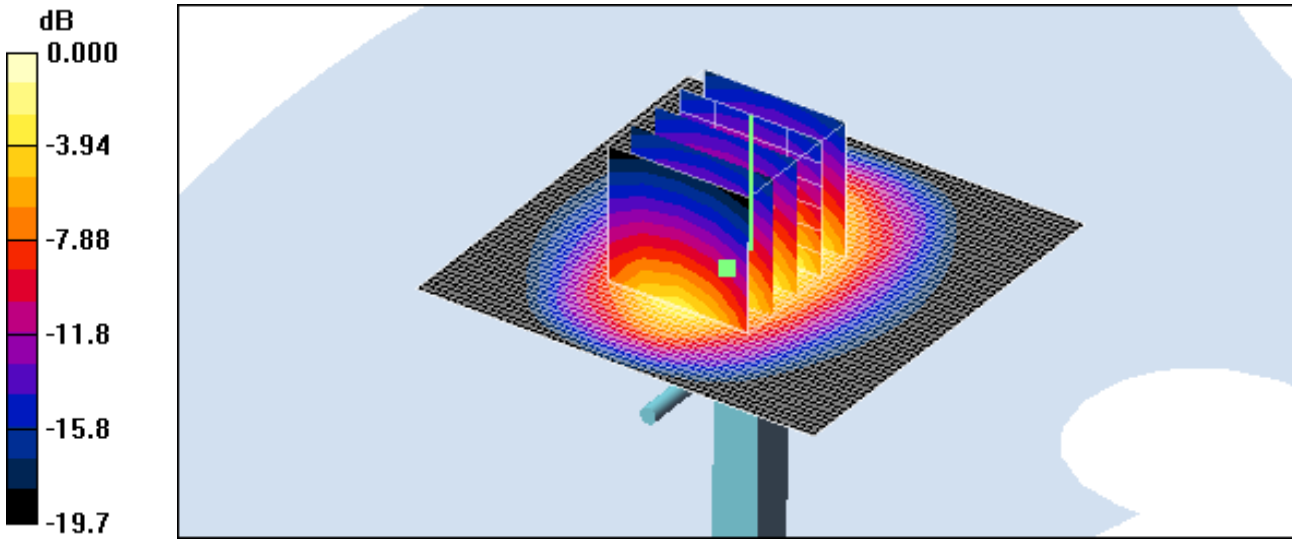
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 – SN:5d032

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.55 mho/m; ε_r = 52.8; 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: EX3DV4 - SN3797; ConvF(7.26, 7.26, 7.26); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: 1800/1900 Phantom; Type: SAM

Dipole 1900MHz Validation/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 5.02 mW/g

Dipole 1900MHz Validation/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 55.1 V/m; Power Drift = 0.027 dB
Peak SAR (extrapolated) = 8.26 W/kg
SAR(1 g) = 4.27 mW/g; SAR(10 g) = 2.18 mW/g
Maximum value of SAR (measured) = 4.66 mW/g



0 dB = 4.66mW/g

■ Validation Data (2 450 MHz Head)

Test Laboratory:	HCT CO., LTD
Input Power	100 mW (20 dBm)
Liquid Temp:	21.2 ℃
Test Date:	Apr.10, 2012

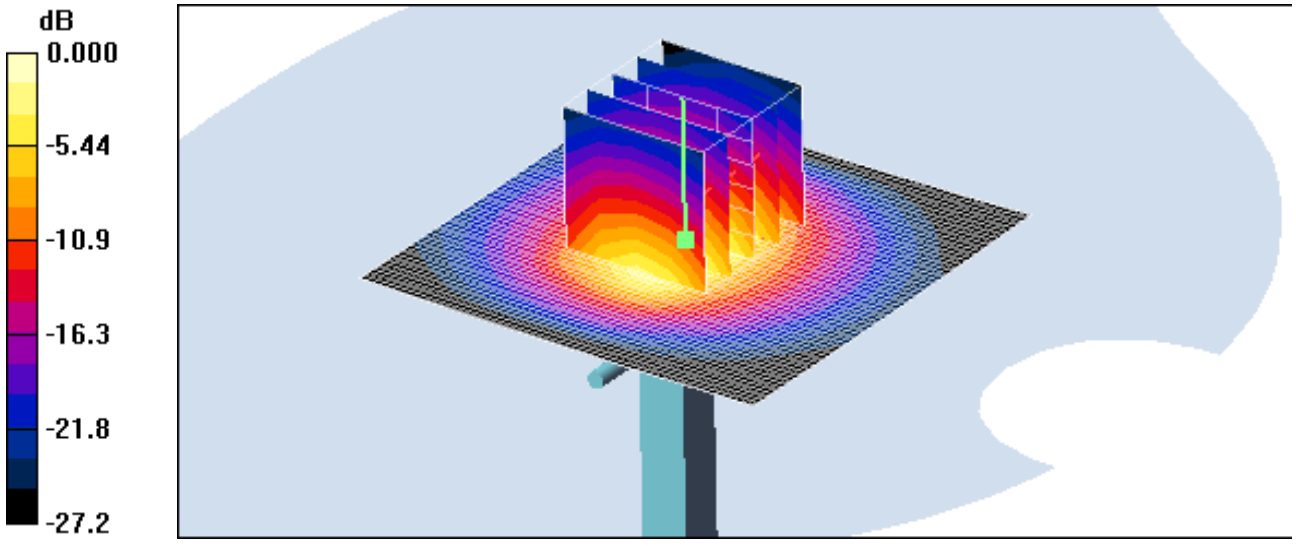
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 – SN:743

Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.85 mho/m; ε_r = 38.4; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(6.94, 6.94, 6.94); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: SAM 1800/1900 MHz; Type: SAM

Validation 2450MHz/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 6.24 mW/g

Validation 2450MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 57.1 V/m; Power Drift = -0.035 dB
Peak SAR (extrapolated) = 12.4 W/kg
SAR(1 g) = 5.41 mW/g; SAR(10 g) = 2.3 mW/g
Maximum value of SAR (measured) = 6.08 mW/g



0 dB = 6.08mW/g

■ Validation Data (2 450 MHz Body)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.2 ℃

Test Date: Apr.10, 2012

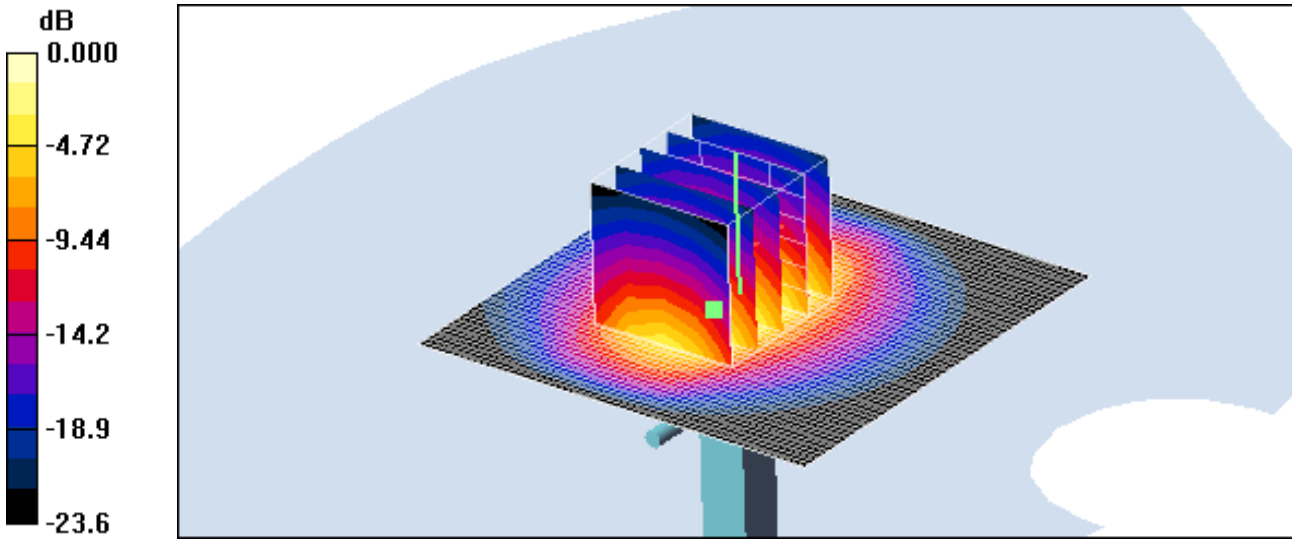
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 – SN:743

Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.86 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: EX3DV4 - SN3797; ConvF(6.96, 6.96, 6.96); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: 800/900 Phantom; Type: SAM

Validation 2450MHz/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 6.09 mW/g

Validation 2450MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 55.1 V/m; Power Drift = 0.103 dB
Peak SAR (extrapolated) = 10.9 W/kg
SAR(1 g) = 5.12 mW/g; SAR(10 g) = 2.4 mW/g
Maximum value of SAR (measured) = 5.66 mW/g



0 dB = 5.66mW/g

■ Validation Data (5GHz Head)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.1 ℃

Test Date: May 9, 2012

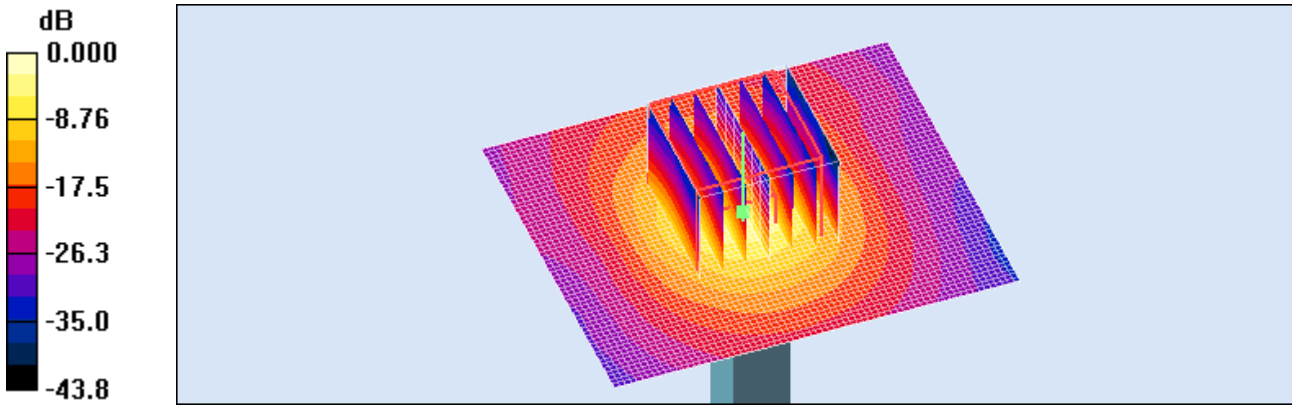
DUT: Dipole 5GHz; Type: D5000V2; Serial: D5000V2 - SN:1107

Communication System: CW; Frequency: 5200 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5200 MHz; σ = 4.67 mho/m; ε_r = 36.1; 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: EX3DV4 - SN3797; ConvF(4.73, 4.73, 4.73); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: 800/900 Phantom; Type: SAM

Validation 5200MHz/Area Scan (61x71x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 8.80 mW/g

Validation 5200MHz/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 42.4 V/m; Power Drift = 0.060 dB
Peak SAR (extrapolated) = 35.9 W/kg
SAR(1 g) = 7.63 mW/g; SAR(10 g) = 2.09 mW/g
Maximum value of SAR (measured) = 16.0 mW/g



0 dB = 16.0mW/g

■ Validation Data (5GHz Head)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.1 ℃

Test Date: May 9, 2012

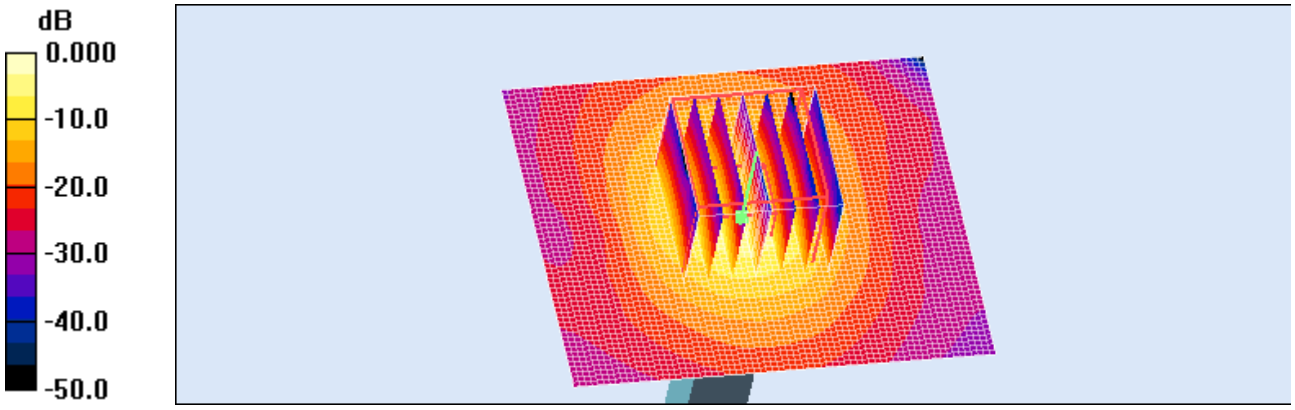
DUT: Dipole 5GHz; Type: D5000V2; Serial: D5000V2 - SN:1107

Communication System: CW; Frequency: 5500 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5500 MHz; σ = 4.97 mho/m; ε_r = 35.9; 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: EX3DV4 - SN3797; ConvF(4.48, 4.48, 4.48); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: 800/900 Phantom; Type: SAM

Validation 5500MHz/Area Scan (61x71x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 9.56 mW/g

Validation 5500MHz/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 42.5 V/m; Power Drift = -0.016 dB
Peak SAR (extrapolated) = 43.0 W/kg
SAR(1 g) = 8.56 mW/g; SAR(10 g) = 2.31 mW/g
Maximum value of SAR (measured) = 18.0 mW/g



0 dB = 18.0mW/g

■ Validation Data (5GHz Head)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.1 ℃

Test Date: May 9, 2012

DUT: Dipole 5GHz; Type: D5000V2; Serial: D5000V2 - SN:1107

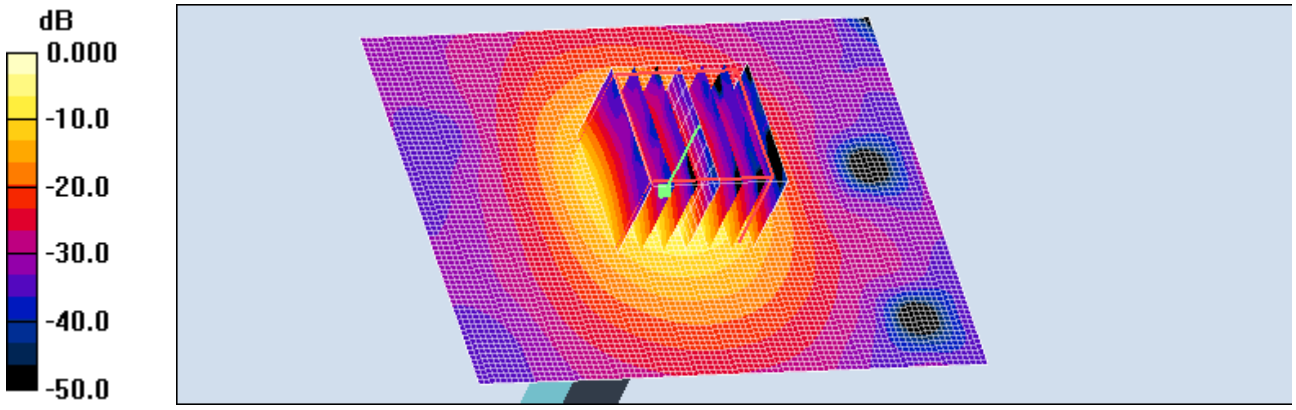
Communication System: CW; Frequency: 5800 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5800 MHz; σ = 5.36 mho/m; ε_r = 35.5; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(4.26, 4.26, 4.26); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: 800/900 Phantom; Type: SAM

Validation 5800MHz/Area Scan (71x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 8.09 mW/g

Validation 5800MHz/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 38.7 V/m; Power Drift = 0.024 dB
Peak SAR (extrapolated) = 41.0 W/kg
SAR(1 g) = 7.96 mW/g; SAR(10 g) = 2.19 mW/g

Maximum value of SAR (measured) = 17.4 mW/g



0 dB = 17.4mW/g

■ Validation Data (5GHz Head)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.2 ℃

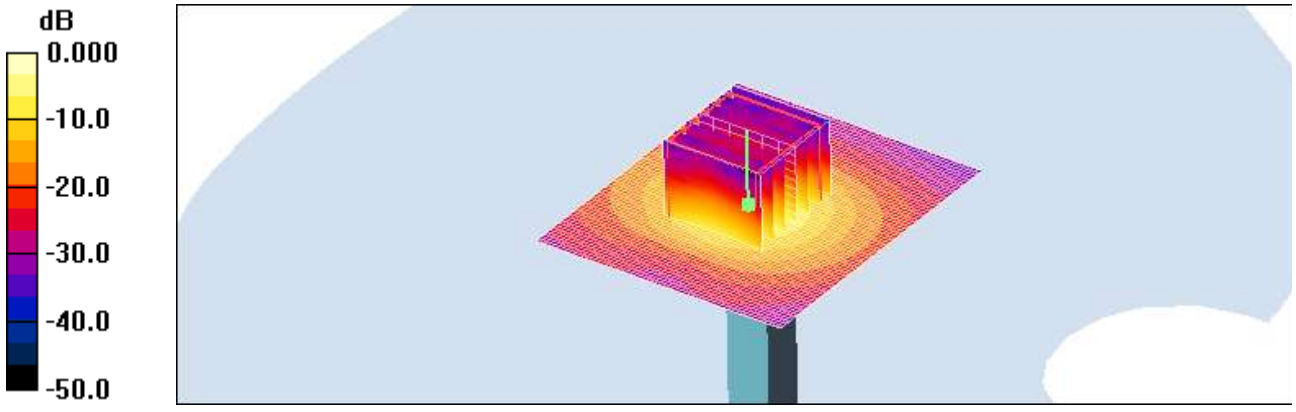
Test Date: May 11, 2012

DUT: Dipole 5GHz; Type: D5000V2; Serial: D5000V2 - SN:1107

Communication System: CW; Frequency: 5800 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5800 MHz; σ = 5.36 mho/m; ε_r = 35.5; 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: EX3DV4 - SN3797; ConvF(4.26, 4.26, 4.26); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: 800/900 Phantom; Type: SAM

Validation 5800MHz/Area Scan (61x71x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 9.52 mW/g
Validation 5800MHz/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 40.9 V/m; Power Drift = 0.074 dB
Peak SAR (extrapolated) = 35.8 W/kg
SAR(1 g) = 8.07 mW/g; SAR(10 g) = 2.23 mW/g
Maximum value of SAR (measured) = 17.1 mW/g



0 dB = 17.1mW/g

■ Validation Data (5GHzBody)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.2 ℃

Test Date: May 9, 2012

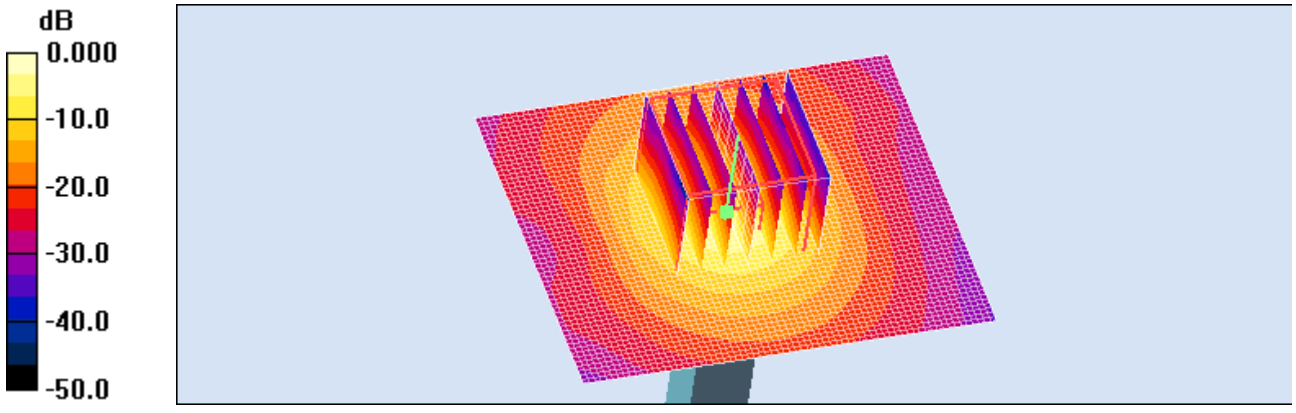
DUT: Dipole 5GHz; Type: D5000V2; Serial: D5000V2 - SN:1107

Communication System: CW; Frequency: 5200 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5200 MHz; σ = 5.24 mho/m; ε_r = 47.2; 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: EX3DV4 - SN3797; ConvF(4.1, 4.1, 4.1); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: 800/900 Phantom; Type: SAM

Validation 5200MHz/Area Scan (61x71x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 9.55 mW/g

Validation 5200MHz/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 41.7 V/m; Power Drift = 0.074 dB
Peak SAR (extrapolated) = 34.1 W/kg
SAR(1 g) = 7.96 mW/g; SAR(10 g) = 2.2 mW/g
Maximum value of SAR (measured) = 16.8 mW/g



0 dB = 16.8mW/g

■ Validation Data (5GHzBody)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.2 ℃

Test Date: May 9, 2012

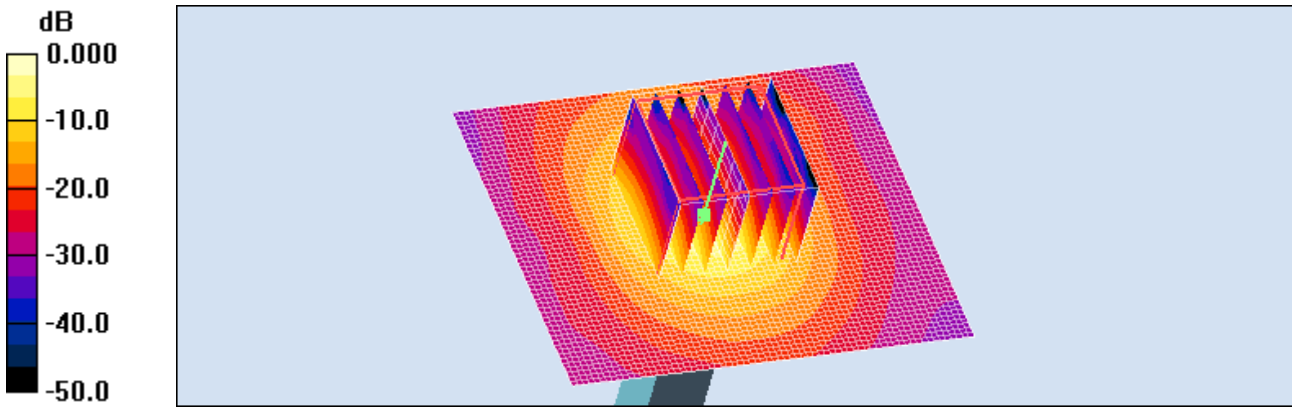
DUT: Dipole 5GHz; Type: D5000V2; Serial: D5000V2 - SN:1107

Communication System: CW; Frequency: 5500 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5500 MHz; σ = 5.75 mho/m; ε_r = 46.4; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(3.72, 3.72, 3.72); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: 800/900 Phantom; Type: SAM

Validation 5500MHz/Area Scan (61x71x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 9.57 mW/g

Validation 5500MHz/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 40.1 V/m; Power Drift = -0.040 dB
Peak SAR (extrapolated) = 36.2 W/kg
SAR(1 g) = 7.99 mW/g; SAR(10 g) = 2.17 mW/g
Maximum value of SAR (measured) = 17.0 mW/g



0 dB = 17.0mW/g

■ Validation Data (5GHzBody)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.2 ℃

Test Date: Apr.10, 2012

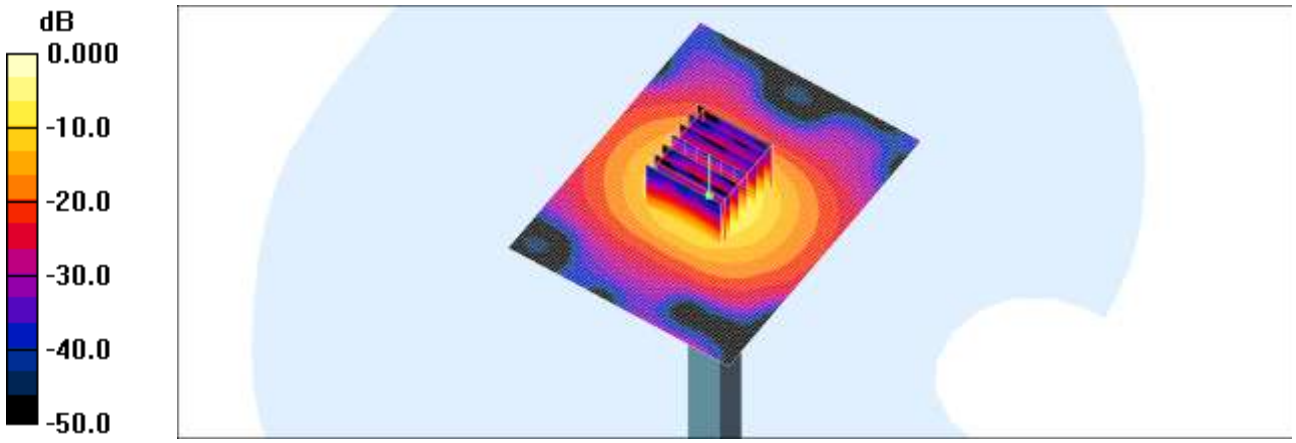
DUT: Dipole 5GHz; Type: D5000V2; Serial: D5000V2 – SN:1107

Communication System: CW; Frequency: 5800 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5800 MHz; σ = 6.04 mho/m; ε_r = 45.9; 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: EX3DV4 - SN3797; ConvF(3.75, 3.75, 3.75); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn869; Calibrated: 2011-09-22
- Phantom: 1800/1900 Phantom; Type: SAM

Validation 5800MHz/Area Scan (71x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 7.74 mW/g

Validation 5800MHz/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 37.1 V/m; Power Drift = 0.087 dB
Peak SAR (extrapolated) = 34.5 W/kg
SAR(1 g) = 7.49 mW/g; SAR(10 g) = 2.14 mW/g
Maximum value of SAR (measured) = 15.4 mW/g



0 dB = 15.4mW/g

■ Dielectric Parameter (835 MHz Head)

Title	LG-P940h
SubTitle	835MHz
Test Date	Apr.7, 2012

Frequency	e'	e''
800000000.0000	43.4955	19.5144
805000000.0000	43.4287	19.4983
810000000.0000	43.3787	19.4995
815000000.0000	43.2834	19.4705
820000000.0000	43.2504	19.4297
825000000.0000	43.1527	19.4400
830000000.0000	43.1081	19.4086
835000000.0000	43.0184	19.4012
840000000.0000	42.9659	19.3728
845000000.0000	42.9200	19.3639
850000000.0000	42.8338	19.3565
855000000.0000	42.7508	19.3382
860000000.0000	42.7228	19.3453
865000000.0000	42.6391	19.3176
870000000.0000	42.5762	19.3046
875000000.0000	42.5385	19.3047
880000000.0000	42.4867	19.2889
885000000.0000	42.4358	19.2731
890000000.0000	42.4068	19.2609
895000000.0000	42.3564	19.2254
900000000.0000	42.2819	19.2225

■ Dielectric Parameter (835 MHz Body)

Title	LG-P940h
SubTitle	835MHz
Test Date	Apr.7, 2012

Frequency	e'	e''
800000000.0000	54.9799	21.6626
805000000.0000	54.9721	21.6350
810000000.0000	54.9589	21.6378
815000000.0000	54.9637	21.6563
820000000.0000	54.9692	21.6742
825000000.0000	54.9519	21.6887
830000000.0000	54.8994	21.7104
835000000.0000	54.9004	21.7231
840000000.0000	54.8524	21.7649
845000000.0000	54.7663	21.7601
850000000.0000	54.7051	21.7737
855000000.0000	54.5816	21.7345
860000000.0000	54.4802	21.7205
865000000.0000	54.4054	21.6590
870000000.0000	54.3169	21.5873
875000000.0000	54.2031	21.5586
880000000.0000	54.1379	21.4584
885000000.0000	54.1341	21.3780
890000000.0000	54.0755	21.3195
895000000.0000	54.0144	21.2257
900000000.0000	53.9946	21.1689

■ Dielectric Parameter (1 900 MHz Head)

Title	LG-P940h
SubTitle	1 900MHz
Test Date	Apr.9, 2012

Frequency	e'	e''
1800000000.0000	39.4860	12.8551
1810000000.0000	39.4336	12.8852
1820000000.0000	39.4016	12.9120
1830000000.0000	39.3701	12.9474
1840000000.0000	39.3378	12.9893
1850000000.0000	39.3045	13.0079
1860000000.0000	39.2613	13.0327
1870000000.0000	39.2171	13.0493
1880000000.0000	39.1886	13.0889
1890000000.0000	39.1481	13.1122
1900000000.0000	39.1072	13.1331
1910000000.0000	39.0602	13.1609
1920000000.0000	39.0257	13.1926
1930000000.0000	38.9796	13.2318
1940000000.0000	38.9442	13.2583
1950000000.0000	38.9062	13.2925
1960000000.0000	38.8679	13.3154
1970000000.0000	38.8169	13.3438
1980000000.0000	38.7803	13.3570
1990000000.0000	38.7391	13.4055
2000000000.0000	38.7209	13.4300

■ Dielectric Parameter (1 900 MHz Body)

Title	LG-P940h
SubTitle	1 900MHz
Test Date	Apr.9, 2012

Frequency	e'	e''
1800000000.0000	53.1925	14.3173
1810000000.0000	53.1583	14.3535
1820000000.0000	53.1408	14.3898
1830000000.0000	53.1190	14.4519
1840000000.0000	53.0872	14.4754
1850000000.0000	53.0567	14.5309
1860000000.0000	52.9972	14.5433
1870000000.0000	52.9465	14.5594
1880000000.0000	52.9066	14.6135
1890000000.0000	52.8376	14.6253
1900000000.0000	52.7702	14.6327
1910000000.0000	52.7587	14.6476
1920000000.0000	52.6924	14.6407
1930000000.0000	52.6610	14.6892
1940000000.0000	52.6316	14.7144
1950000000.0000	52.6004	14.7742
1960000000.0000	52.5823	14.8111
1970000000.0000	52.5836	14.8625
1980000000.0000	52.5364	14.8914
1990000000.0000	52.5196	14.9423
2000000000.0000	52.4859	14.9736

■ Dielectric Parameter (2 450 MHz Head)

Title	LG-P940h
SubTitle	2 450MHz
Test Date	Apr.10, 2012

Frequency	e'	e''
2400000000.0000	38.6212	13.4818
2405000000.0000	38.6113	13.4992
2410000000.0000	38.5891	13.5046
2415000000.0000	38.5621	13.5141
2420000000.0000	38.5407	13.5301
2425000000.0000	38.5211	13.5446
2430000000.0000	38.4936	13.5492
2435000000.0000	38.4834	13.5645
2440000000.0000	38.4638	13.5682
2445000000.0000	38.4436	13.5809
2450000000.0000	38.4097	13.5967
2455000000.0000	38.4042	13.6166
2460000000.0000	38.3847	13.6260
2465000000.0000	38.3725	13.6240
2470000000.0000	38.3344	13.6437
2475000000.0000	38.3197	13.6384
2480000000.0000	38.2880	13.6584
2485000000.0000	38.2813	13.6686
2490000000.0000	38.2628	13.6778
2495000000.0000	38.2499	13.6932
2500000000.0000	38.2241	13.6867

■ Dielectric Parameter (2 450 MHz Body)

Title	LG-P940h
SubTitle	2 450MHz
Test Date	Apr.10, 2012

Frequency	e'	e''
2400000000.0000	51.7307	13.4906
2405000000.0000	51.7026	13.4994
2410000000.0000	51.6792	13.5027
2415000000.0000	51.6524	13.5029
2420000000.0000	51.6247	13.5229
2425000000.0000	51.5930	13.5335
2430000000.0000	51.5655	13.5647
2435000000.0000	51.5433	13.5822
2440000000.0000	51.5428	13.6020
2445000000.0000	51.5088	13.6126
2450000000.0000	51.4887	13.6279
2455000000.0000	51.4524	13.6419
2460000000.0000	51.4428	13.6590
2465000000.0000	51.4254	13.6640
2470000000.0000	51.4163	13.6809
2475000000.0000	51.3977	13.6729
2480000000.0000	51.3618	13.6800
2485000000.0000	51.3508	13.6773
2490000000.0000	51.3337	13.6755
2495000000.0000	51.3211	13.6826
2500000000.0000	51.2971	13.6750

■ Dielectric Parameter (5GHz Head)

Title	LG-P940h
SubTitle	5GHz
Test Date	May 9, 2012

Frequency	e'	e''
5000000000.0000	36.3104	16.0548
5050000000.0000	36.2629	16.0747
5100000000.0000	36.2185	16.0918
5150000000.0000	36.1749	16.1121
5200000000.0000	36.1305	16.1345
5250000000.0000	36.0929	16.1491
5300000000.0000	36.0612	16.1699
5350000000.0000	36.0232	16.1838
5400000000.0000	35.9669	16.2054
5450000000.0000	35.9265	16.2369
5500000000.0000	35.8840	16.2481
5550000000.0000	35.8319	16.2855
5600000000.0000	35.7912	16.4502
5650000000.0000	35.7214	16.4742
5700000000.0000	35.6777	16.5091
5750000000.0000	35.6197	16.5668
5800000000.0000	35.5445	16.6116
5850000000.0000	35.4711	16.6533
5900000000.0000	35.4148	16.7072
5950000000.0000	35.3871	16.7495
6000000000.0000	35.3493	16.7886

■ Dielectric Parameter (5GHz Head)

Title	LG-P940h
SubTitle	5GHz
Test Date	May 11, 2012

Frequency	e'	e''
5000000000.0000	36.5457	16.0354
5050000000.0000	36.4810	16.0522
5100000000.0000	36.4323	16.0709
5150000000.0000	36.3903	16.0925
5200000000.0000	36.3198	16.1141
5250000000.0000	36.2744	16.1291
5300000000.0000	36.2472	16.1427
5350000000.0000	36.2066	16.1653
5400000000.0000	35.1445	16.1844
5450000000.0000	35.9070	16.2099
5500000000.0000	35.8602	16.2301
5550000000.0000	35.8124	16.2675
5600000000.0000	35.7757	16.3802
5650000000.0000	35.7083	16.4310
5700000000.0000	35.6514	16.4777
5750000000.0000	35.5971	16.5212
5800000000.0000	35.5199	16.5989
5850000000.0000	35.4511	16.6302
5900000000.0000	35.3980	16.6714
5950000000.0000	35.3664	16.7166
6000000000.0000	35.3313	16.7504

■ Dielectric Parameter (5GHz Body)

Title	LG-P940h
SubTitle	5GHz
Test Date	Apr.10, 2012

Frequency	e'	e''
5000000000.0000	47.7693	17.6747
5050000000.0000	47.8578	18.0086
5100000000.0000	47.5873	17.8871
5150000000.0000	47.4140	18.4387
5200000000.0000	47.1812	18.1081
5250000000.0000	47.0305	18.3118
5300000000.0000	46.9389	18.3693
5350000000.0000	46.8173	18.2525
5400000000.0000	46.6320	18.6544
5450000000.0000	46.6288	18.2746
5500000000.0000	46.3514	18.7973
5550000000.0000	46.4066	18.5730
5600000000.0000	46.1473	18.7785
5650000000.0000	46.0880	18.8858
5700000000.0000	45.9489	18.6715
5750000000.0000	45.7054	19.1669
5800000000.0000	45.8758	18.7301
5850000000.0000	45.3438	19.1953
5900000000.0000	45.5979	18.9136
5950000000.0000	45.2199	19.1444
6000000000.0000	45.4836	19.2662

Attachment 3. – Probe Calibration Data

Schmid & Partner Engineering AG

s p e a g

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Phone +41 44 245 9700, Fax +41 44 245 9779
info@speag.com, http://www.speag.com

USAGE OF ORGANIC SOLVENTS WITH SPEAG PRODUCTS

INTRODUCTION

SPEAG offers a wide range of simulating liquids. These liquids are based on various ingredients depending on their frequency range. The below compatibility table shows compatibility of SPEAG products used in conjunction with tissue simulating liquids. Proper treatment and maintenance of all SPEAG products is essential regardless of its compliance status.

COMPATIBILITY TABLE

Y= fully compatible with the tissue simulating liquid. Long time exposure is not critical.

P= partially compatible. It is essential to keep the exposure time to a minimum and to rinse and clean the item after exposure to the respective tissue simulating liquid. Continuous exposure will reduce the item life-time drastically and will therefore void any warranty. 100 hours per 7 days maximum exposure.

R= restricted compatibility with the respective tissue simulating liquid. Short time exposure of less then 4 hours is possible given that the item is thoroughly rinsed and dried after each exposure.

N= not compatible with the respective tissue simulating liquid. Short time exposure will cause irreparable damage to the item exposed.

SPEAG MSDS / Liquid Type / Probes & Phantoms	772-SLAAx0yy			772-SLAAx1yy		772-SLAAx2yy		772-SLAAx4yy		772-SLAAx5yy		772-SLAAx6yy		3rd Party Liquids		
	@ 900	HSL 175 to HSL 900	MSL 450 to MSL 900	HSL 1450 to HSL 2450	MSL 1450 to MSL 2450	HSL 3500 - 5800 Broadband	MSL 3500 - 5800 Broadband	HSL 2500 - 5800 Broadband	MSL 3500 - 5800 Broadband	HSL 5000 Broadband	MSL 5000 Broadband	HSL BB 1.5 to HSL BB 1.9	MSL BB 1.5 to MSL BB 1.9	Triton Based Liquids	Acids	Solvents
Twin SAM Phantom V4.0	Y	Y	Y	P	P	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N
ELI Oval Phantom V4.0	Y	Y	Y	P	P	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N
Flat Phantom V4.x / V5.x	Y	Y	Y	P	P	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N
Whole Body Mannequin	Y	Y	Y	R	R	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N
SAM HEAD V4.5	Y	Y	Y	P	P	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N
SAM HEAD V4.5 CTIA	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N
SAM HEAD V4.5 BS																
SAM HEAD V6.0 / 6.1	Y	Y	Y	R	R	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N
Probe ER3DV6 / ET3DV6R	Y	Y	Y	P	P	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N
Probe ES3DVx / EX3DVx	Y	Y	Y	P	P	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N
Probe H3DV6 and higher	Y	Y	Y	P	P	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N
Probe EU2DVx / HU2DVx	Y	Y	Y	P	P	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N
Probe ET1DVx	Y	Y	Y	R	R	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N
Probe T1V3 / T1V3 Lab	Y	Y	Y	R	R	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N
PEX 150 / 300 Probe Extension	Y	Y	Y	P	P	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N
Probes in PMMA enclosures	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N
ASTM Phantom	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N
ELIT 1.5 / 3.0T Phantom	Y	Y	Y	N	N	Y	Y	Y	Y	Y	Y	Y	Y	N	N	N

IMPORTANT NOTE FOR PROBES: The probe shall not be exposed to solvents longer than necessary for the measurements and shall be cleaned daily after use with warm water and stored dry.

IMPORTANT NOTE FOR PHANTOMS: Phantoms shall not be exposed to solvents longer than necessary for the measurement. After use, they shall be washed in the inside with clean water and stored dry. Any damaging of the inner surface must be avoided. Once a week, also the outside of the phantom shell shall be washed with clean water and dried.

Schmid & Partner Engineering AG

771-TN-BR-100621-7A BR June 2010

Calibration Laboratory of
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Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
Swiss Calibration Service

Accredited by the Swiss Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Client HCT (Dymstec)

Certificate No: EX3-3797_Jul11

CALIBRATION CERTIFICATE

Object EX3DV4 - SN:3797

Calibration procedure(s) QA CAL-01.v8, QA CAL-14.v3, QA CAL-23.v4, QA CAL-25.v4
Calibration procedure for dosimetric E-field probes

Calibration date: July 25, 2011

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter 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 Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

	Name	Function	Signature
Calibrated by:	Katja Pokovic	Technical Manager	
Approved by:	Niels Kuster	Quality Manager	

Issued: July 25, 2011

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Accreditation No.: **SCS 108**

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., ϑ = 0 is normal to probe axis

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization ϑ = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not affect the E^2-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,y,z * frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- *DCPx,y,z:* DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- *PAR:* PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- *Ax,y,z; Bx,y,z; Cx,y,z, VRx,y,z: A, B, C* are numerical linearization parameters assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media. *VR* is the maximum calibration range expressed in RMS voltage across the diode.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 800 MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to *NORMx,y,z * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- *Spherical isotropy (3D deviation from isotropy):* in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset:* The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

Probe EX3DV4

SN:3797

Manufactured: April 5, 2011
Calibrated: July 25, 2011

Calibrated for DASY/EASY Systems
(Note: non-compatible with DASY2 system!)

EX3DV4- SN:3797 July 25, 2011

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3797

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.63	0.59	0.57	± 10.1 %
DCP (mV)[B]	94.6	95.3	96.6	

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	96.0	±2.5 %
			Y	0.00	0.00	1.00	126.8	
			Z	0.00	0.00	1.00	126.7	

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.
[C] 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: EX3DV4 - SN:3797

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)
750	41.9	0.89	9.29	9.29	9.29	0.80	0.68	± 12.0 %
835	41.5	0.90	8.93	8.93	8.93	0.80	0.67	± 12.0 %
900	41.5	0.97	8.83	8.83	8.83	0.80	0.66	± 12.0 %
1450	40.5	1.20	8.30	8.30	8.30	0.59	0.78	± 12.0 %
1750	40.1	1.37	7.88	7.88	7.88	0.77	0.62	± 12.0 %
1900	40.0	1.40	7.60	7.60	7.60	0.80	0.60	± 12.0 %
1950	40.0	1.40	7.44	7.44	7.44	0.78	0.61	± 12.0 %
2300	39.5	1.67	7.30	7.30	7.30	0.75	0.62	± 12.0 %
2450	39.2	1.80	6.94	6.94	6.94	0.74	0.62	± 12.0 %
2600	39.0	1.96	7.16	7.16	7.16	0.59	0.72	± 12.0 %
5200	36.0	4.66	4.73	4.73	4.73	0.40	1.80	± 13.1 %
5300	35.9	4.76	4.44	4.44	4.44	0.42	1.80	± 13.1 %
5500	35.6	4.96	4.48	4.48	4.48	0.42	1.80	± 13.1 %
5600	35.5	5.07	4.16	4.16	4.16	0.42	1.80	± 13.1 %
5800	35.3	5.27	4.26	4.26	4.26	0.45	1.80	± 13.1 %

[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: EX3DV4- SN:3797

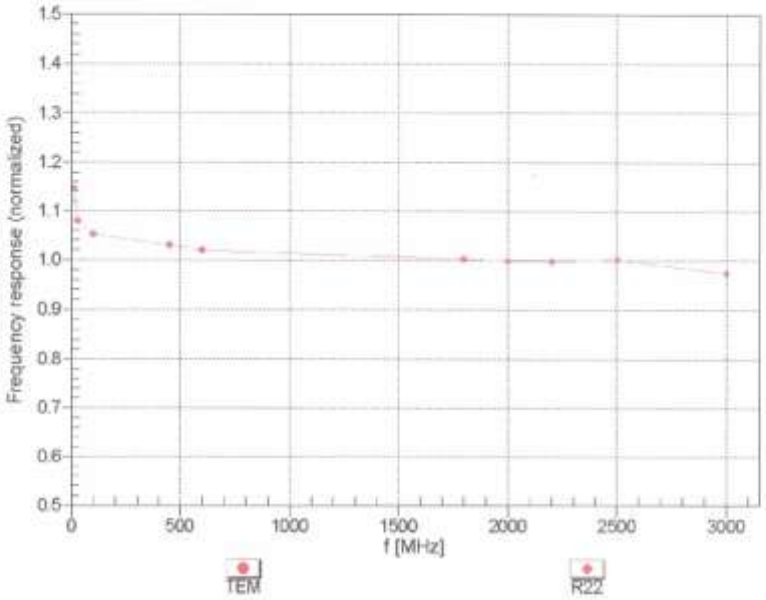
Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	55.5	0.96	9.22	9.22	9.22	0.80	0.70	± 12.0 %
835	55.2	0.97	9.14	9.14	9.14	0.80	0.69	± 12.0 %
1750	53.4	1.49	7.69	7.69	7.69	0.80	0.66	± 12.0 %
1900	53.3	1.52	7.26	7.26	7.26	0.80	0.64	± 12.0 %
2300	52.9	1.81	7.18	7.18	7.18	0.80	0.62	± 12.0 %
2450	52.7	1.95	6.96	6.96	6.96	0.80	0.50	± 12.0 %
2600	52.5	2.16	6.90	6.90	6.90	0.80	0.50	± 12.0 %
5200	49.0	5.30	4.10	4.10	4.10	0.50	1.90	± 13.1 %
5300	48.9	5.42	3.83	3.83	3.83	0.55	1.90	± 13.1 %
5500	48.6	5.65	3.72	3.72	3.72	0.55	1.90	± 13.1 %
5600	48.5	5.77	3.60	3.60	3.60	0.60	1.90	± 13.1 %
5800	48.2	6.00	3.75	3.75	3.75	0.60	1.90	± 13.1 %

[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.

EX3DV4– SN:3797 July 25, 2011

Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)



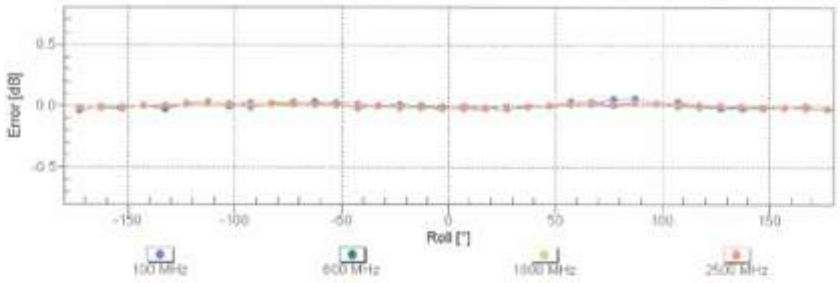
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

EX3DV4– SN:3797 July 25, 2011

Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM

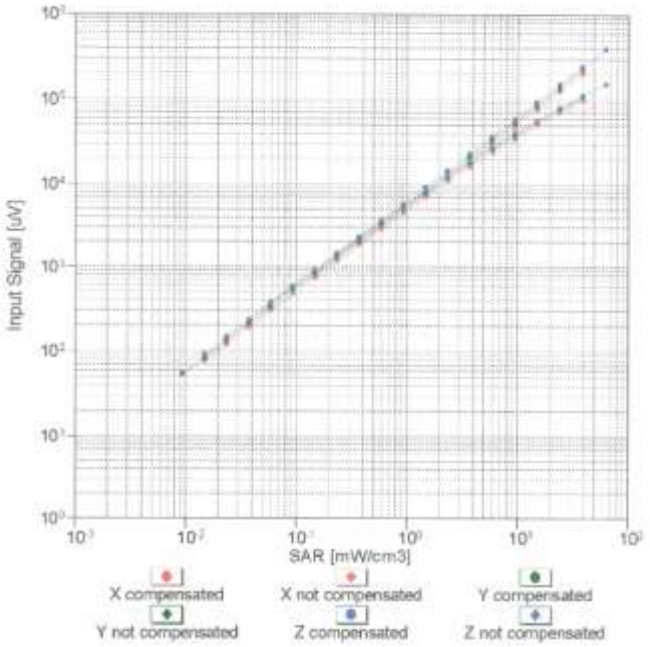
f=1800 MHz,R22

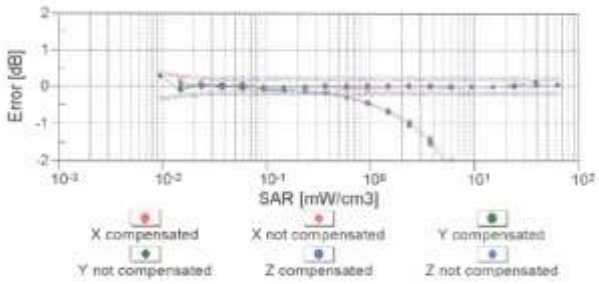


Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

EX3DV4- SN:3797 July 25, 2011

Dynamic Range f(SAR$_{head}$)
(TEM cell , f = 900 MHz)



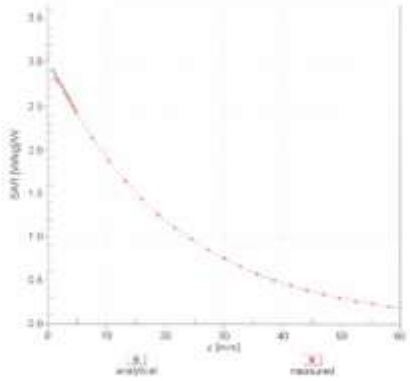


Uncertainty of Linearity Assessment: ± 0.6% (k=2)

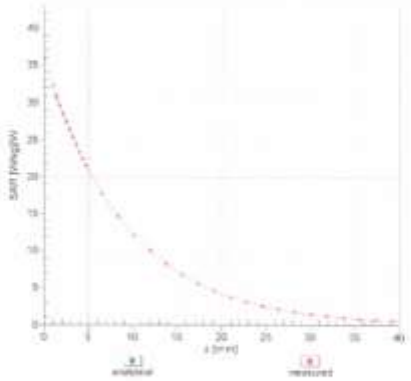
EX3DV4- SN:3797 July 25, 2011

Conversion Factor Assessment

f = 750 MHz,WGLS R9 (H_convF)

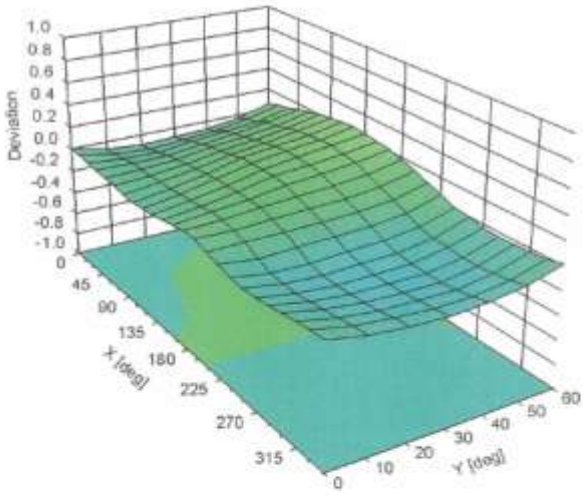


f = 2600 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3797

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	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	2 mm

Attachment 4. – Dipole Calibration Data

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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	
Approved by:	Katja Pokovic	Technical Manager	

Issued: May 16, 2011

Calibration Laboratory of
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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 cm³ (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 cm³ (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 cm³ (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 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.60 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**6.27 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	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

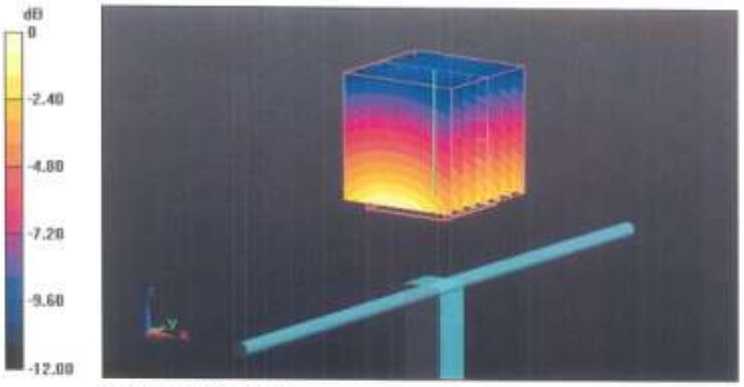
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 441

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:

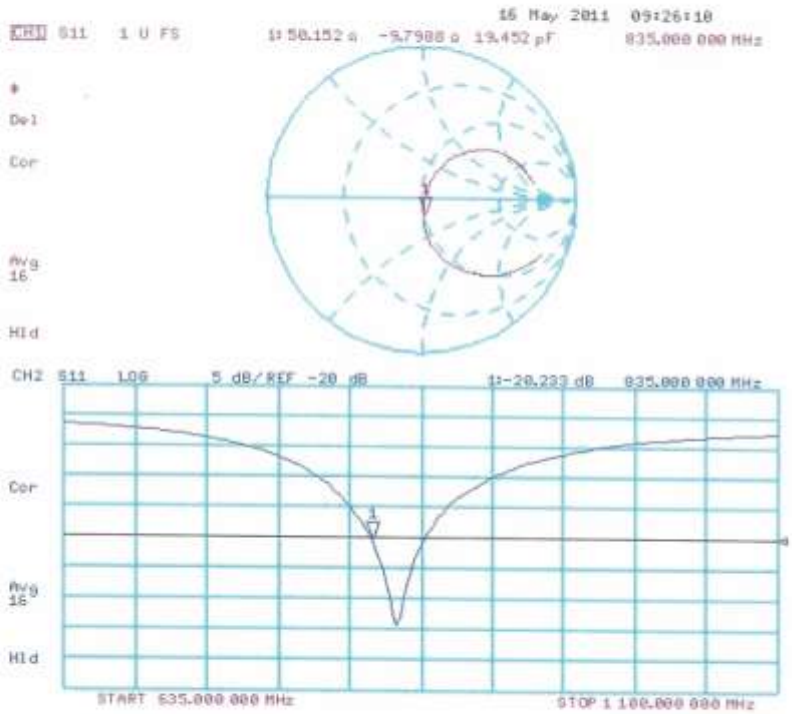
- Probe: ES3DV3 - SN3205; ConvF(6.07, 6.07, 6.07); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY52, V52.6.2 Build (424)
- Postprocessing 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

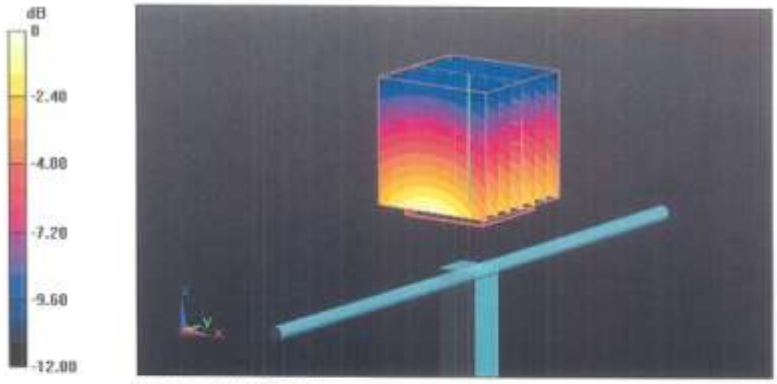
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:441

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:

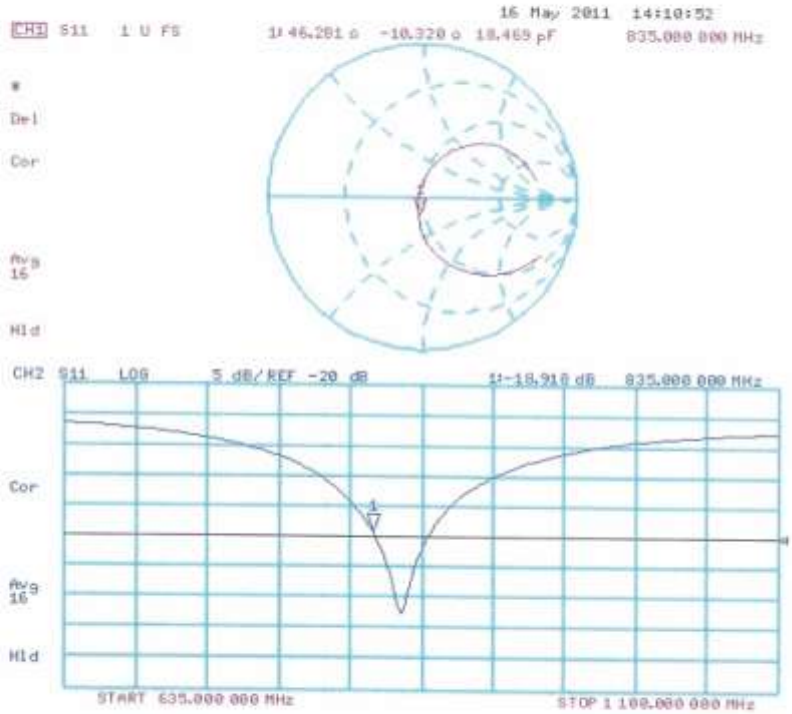
- Probe: ES3DV3 - SN3205; ConvF(6.02, 6.02, 6.02); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY52, V52.6.2 Build (424)
- Postprocessing 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

Impedance Measurement Plot for Body TSL



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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: 55086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Type-N mismatch combination	SN: 5047.2 / 06327	29-Mar-11 (No. 217-01371)	Apr-12
Reference Probe ES3DV3	SN: 3205	29-Apr-11 (No. ES3-3205_Apr11)	Apr-12
DAE4	SN: 601	04-Jul-11 (No. DAE4-601_Jul11)	Jul-12

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

	Name	Function	Signature
Calibrated by:	Dimce Iliev	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: August 2, 2011

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Accreditation No.: SCS 108

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
c) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.6.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1900 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	39.1 ± 6 %	1.42 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	10.1 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**39.9 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.29 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**21.0 mW /g ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	53.3	1.52 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	52.3 ± 6 %	1.53 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	10.3 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**40.9 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.39 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**21.5 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	52.6 Ω + 6.5 jΩ
Return Loss	- 23.3 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	46.6 Ω + 6.0 jΩ
Return Loss	- 22.9 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.190 ns

After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	March 17, 2003

DASY5 Validation Report for Head TSL

Date: 20.07.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d032

Communication System: CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.42 mho/m; ε_r = 39.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

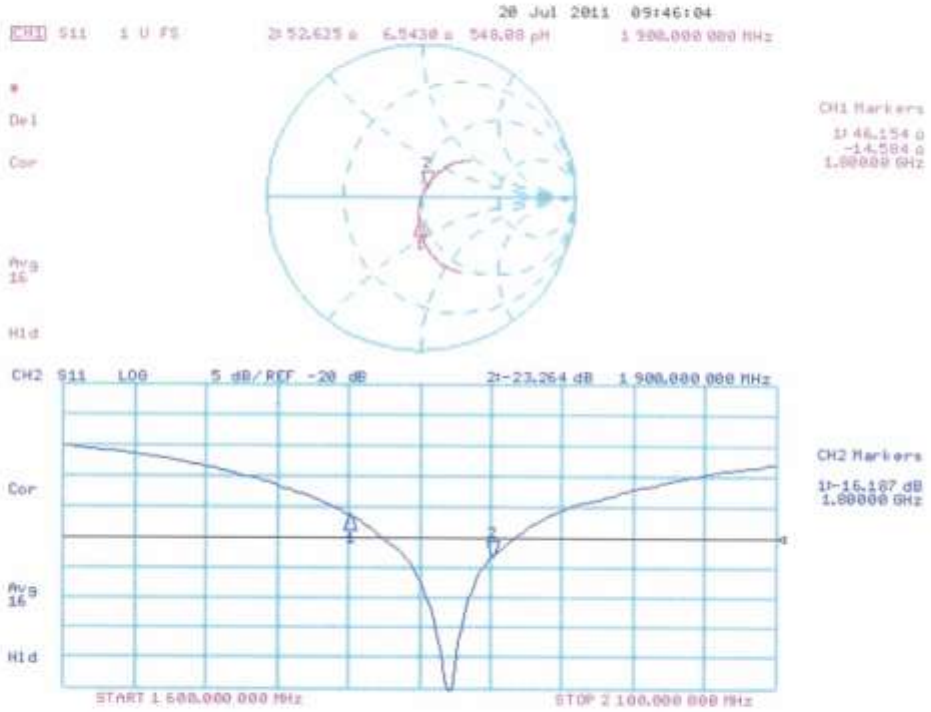
DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.01, 5.01, 5.01); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 98.253 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 18.469 W/kg
SAR(1 g) = 10.1 mW/g; SAR(10 g) = 5.29 mW/g
Maximum value of SAR (measured) = 12.721 mW/g

0 dB = 12.720mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 22.07.2011

Test Laboratory: SPEAG, Zurich, Switzerland

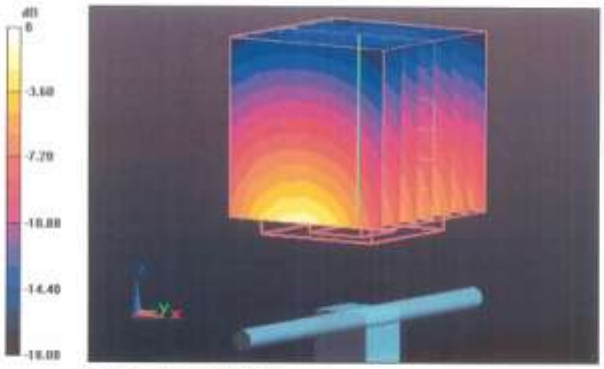
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d032

Communication System: CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.53 mho/m; ε_r = 52.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

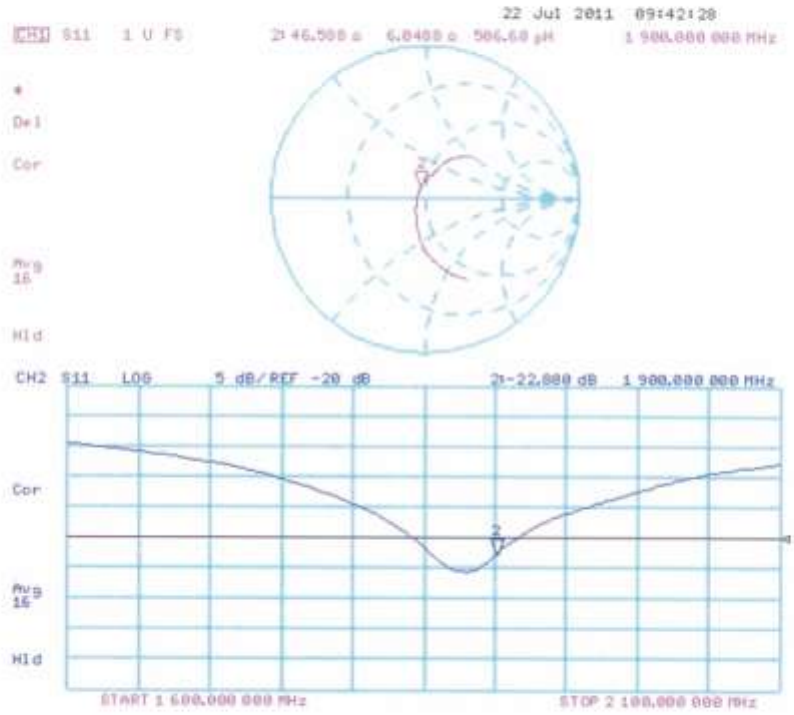
- Probe: ES3DV3 - SN3205; ConvF(4.62, 4.62, 4.62); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 95.827 V/m; Power Drift = 0.0078 dB
Peak SAR (extrapolated) = 18.111 W/kg
SAR(1 g) = 10.3 mW/g; SAR(10 g) = 5.39 mW/g
Maximum value of SAR (measured) = 12.898 mW/g



0 dB = 12.900mW/g

Impedance Measurement Plot for Body TSL



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Accreditation No.: SCS 108

Client HCT (Dymstec) Certificate No: 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	
Approved by:	Katja Pokovic	Technical Manager	

Issued: August 29, 2011

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Accreditation No.: SCS 108

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
c) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.6.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	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 cm³ (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 cm³ (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 cm³ (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 cm³ (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)

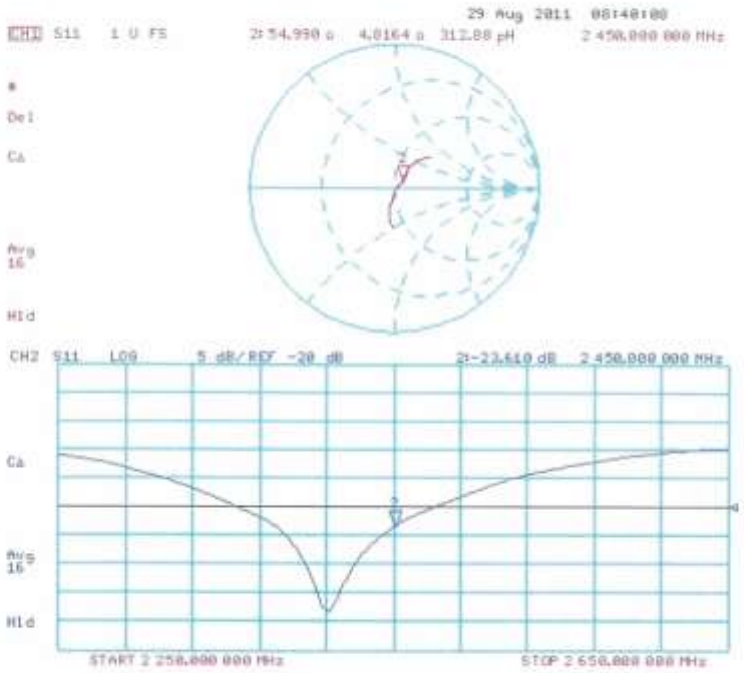
DASY52 Configuration:

- 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

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 29.08.2011

Test Laboratory: SPEAG, Zurich, Switzerland

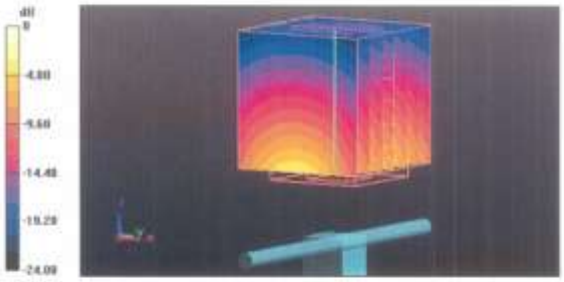
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 743

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:

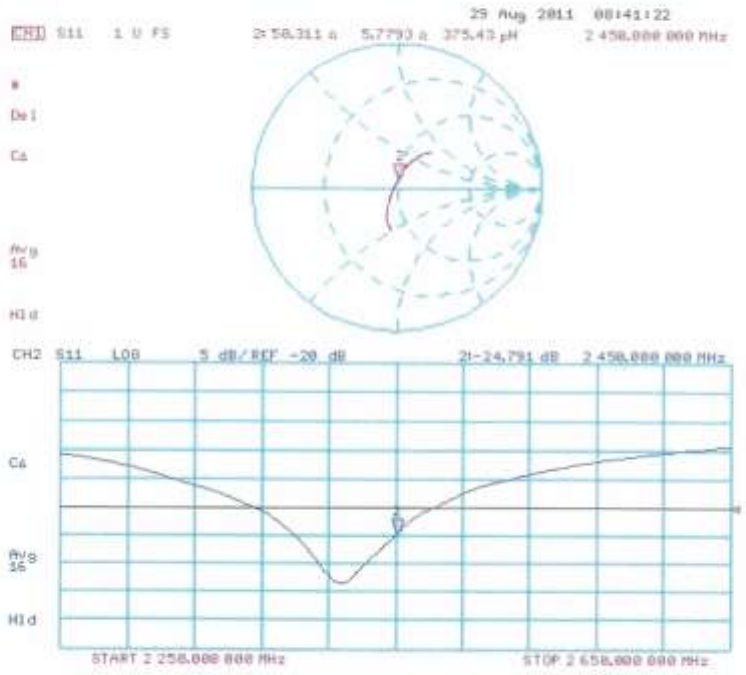
- Probe: ES3DV3 - SN3205; ConvF(4.26, 4.26, 4.26); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

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

Impedance Measurement Plot for Body TSL



Calibration Laboratory of
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Accreditation No.: SCS 108

Client HCT (Dymstec) Certificate No: D5GHzV2-1107_Nov11

CALIBRATION CERTIFICATE

Object D5GHzV2 - SN: 1107

Calibration procedure(s) QA CAL-22.v1
Calibration procedure for dipole validation kits between 3-6 GHz

Calibration date: November 15, 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	05-Oct-11 (No. 217-01451)	Oct-12
Power sensor HP 8481A	US37292783	05-Oct-11 (No. 217-01451)	Oct-12
Reference 20 dB Attenuator	SN: 5086 (20g)	29-Mar-11 (No. 217-01368)	Apr-12
Type-N mismatch combination	SN: 5047.2 / 06327	29-Mar-11 (No. 217-01371)	Apr-12
Reference Probe EX3DV4	SN: 3503	04-Mar-11 (No. EX3-3503_Mar11)	Mar-12
DAE4	SN: 601	04-Jul-11 (No. DAE4-601_Jul11)	Jul-12

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-11)	In house check: Oct-13
RF generator R&S SMT-06	100005	04-Aug-99 (in house check Oct-11)	In house check: Oct-13
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

	Name	Function	Signature
Calibrated by:	Dimce Iliev	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: November 16, 2011

Calibration Laboratory of
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Zeughausstrasse 43, 8004 Zurich, Switzerland

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Accreditation No.: SCS 108

Glossary:

TSL	tissue simulating liquid
ConvF	sensitivity in TSL / NORM x,y,z
N/A	not applicable or not measured

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005
c) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

- *Measurement Conditions:* Further details are available from the Validation Report at the end of the certificate. All figures stated in the certificate are valid at the frequency indicated.
- *Antenna Parameters with TSL:* The dipole is mounted with the spacer to position its feed point exactly below the center marking of the flat phantom section, with the arms oriented parallel to the body axis.
- *Feed Point Impedance and Return Loss:* These parameters are measured with the dipole positioned under the liquid filled phantom. The impedance stated is transformed from the measurement at the SMA connector to the feed point. The Return Loss ensures low reflected power. No uncertainty required.
- *Electrical Delay:* One-way delay between the SMA connector and the antenna feed point. No uncertainty required.
- *SAR measured:* SAR measured at the stated antenna input power.
- *SAR normalized:* SAR as measured, normalized to an input power of 1 W at the antenna connector.
- *SAR for nominal TSL parameters:* The measured TSL parameters are used to calculate the nominal SAR result.

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V52.6.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy = 4.0 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)
Frequency	5200 MHz ± 1 MHz 5500 MHz ± 1 MHz 5800 MHz ± 1 MHz	

Head TSL parameters at 5200 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	36.0	4.66 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.6 ± 6 %	4.46 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5200 MHz

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.10 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**80.3 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.32 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**22.9 mW /g ± 16.5 % (k=2)**

Head TSL parameters at 5500 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.6	4.96 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.2 ± 6 %	4.75 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5500 MHz

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.87 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**87.8 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.52 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**24.9 mW / g ± 16.5 % (k=2)**

Head TSL parameters at 5800 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.3	5.27 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	33.7 ± 6 %	5.03 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	---	---

SAR result with Head TSL at 5800 MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.98 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**78.9 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.27 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**22.4 mW / g ± 16.5 % (k=2)**

Body TSL parameters at 5200 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	49.0	5.30 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	47.7 ± 6 %	5.48 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5200 MHz

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.76 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**77.2 mW / g ± 18.1 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.16 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**21.5 mW / g ± 17.6 % (k=2)**

Body TSL parameters at 5500 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.6	5.65 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	47.2 ± 6 %	5.87 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5500 MHz

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	8.20 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**81.6 mW / g ± 18.1 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.27 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**22.6 mW / g ± 17.6 % (k=2)**

Body TSL parameters at 5800 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.2	6.00 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	46.6 ± 6 %	6.26 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	---	---

SAR result with Body TSL at 5800 MHz

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.73 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**76.9 mW / g ± 18.1 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.14 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**21.2 mW / g ± 17.6 % (k=2)**

Appendix

Antenna Parameters with Head TSL at 5200 MHz

Impedance, transformed to feed point	51.4 Ω - 9.9 jΩ
Return Loss	- 20.2 dB

Antenna Parameters with Head TSL at 5500 MHz

Impedance, transformed to feed point	53.5 Ω - 6.8 jΩ
Return Loss	- 22.6 dB

Antenna Parameters with Head TSL at 5800 MHz

Impedance, transformed to feed point	54.3 Ω - 7.3 jΩ
Return Loss	- 21.8 dB

Antenna Parameters with Body TSL at 5200 MHz

Impedance, transformed to feed point	48.9 Ω - 8.9 jΩ
Return Loss	- 20.9 dB

Antenna Parameters with Body TSL at 5500 MHz

Impedance, transformed to feed point	52.8 Ω - 4.6 jΩ
Return Loss	- 25.6 dB

Antenna Parameters with Body TSL at 5800 MHz

Impedance, transformed to feed point	56.8 Ω - 4.6 jΩ
Return Loss	- 22.2 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.196 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 11, 2011

DASY5 Validation Report for Head TSL

Date: 15.11.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 5GHz; Type: D5GHzV2; Serial: D5GHzV2 - SN: 1107

Communication System: CW; Frequency: 5200 MHz, Frequency: 5500 MHz, Frequency: 5800 MHz
Medium parameters used: f = 5200 MHz; σ = 4.46 mho/m; ε_r = 34.6; ρ = 1000 kg/m^3 , Medium parameters used: f = 5500 MHz; σ = 4.75 mho/m; ε_r = 34.2; ρ = 1000 kg/m^3 , Medium parameters used: f = 5800 MHz; σ = 5.03 mho/m; ε_r = 33.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

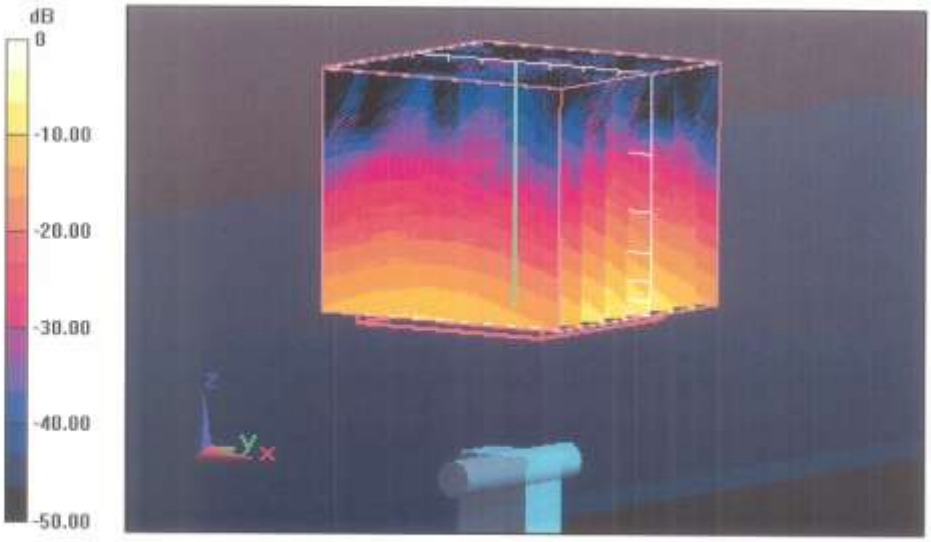
DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.41, 5.41, 5.41), ConvF(4.91, 4.91, 4.91), ConvF(4.81, 4.81, 4.81); Calibrated: 04.03.2011
- Sensor-Surface: 1.4mm (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=100mW, dist=10mm, f=5200 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 65.489 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 30.049 W/kg
SAR(1 g) = 8.1 mW/g; SAR(10 g) = 2.32 mW/g
Maximum value of SAR (measured) = 18.742 mW/g

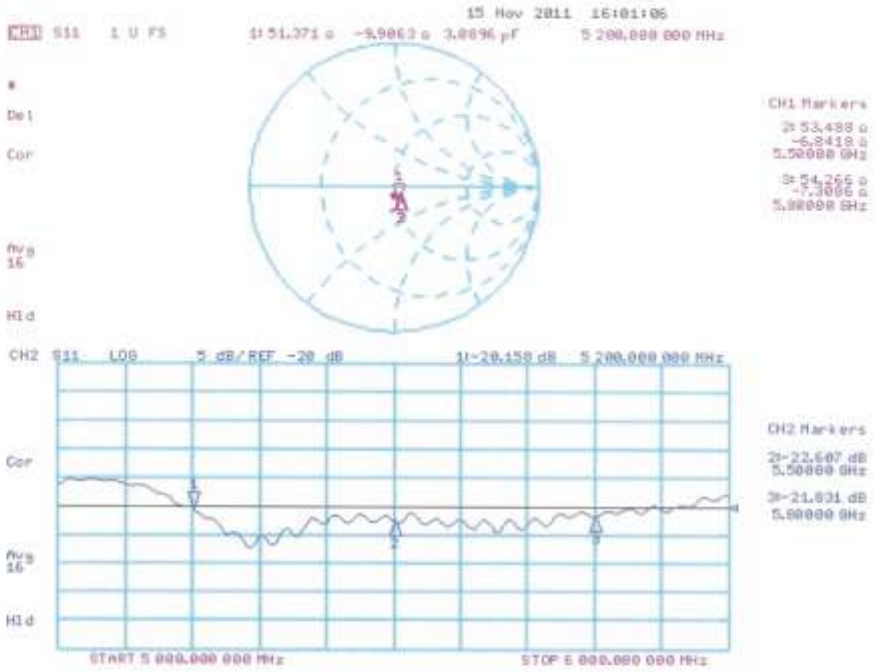
Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5500 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 67.044 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 35.139 W/kg
SAR(1 g) = 8.87 mW/g; SAR(10 g) = 2.52 mW/g
Maximum value of SAR (measured) = 21.234 mW/g

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5800 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 62.486 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 33.340 W/kg
SAR(1 g) = 7.98 mW/g; SAR(10 g) = 2.27 mW/g
Maximum value of SAR (measured) = 19.378 mW/g



0 dB = 19.380mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 14.11.2011

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 5GHz; Type: D5GHzV2; Serial: D5GHzV2 - SN: 1107

Communication System: CW; Frequency: 5200 MHz, Frequency: 5500 MHz, Frequency: 5800 MHz
Medium parameters used: f = 5200 MHz; σ = 5.48 mho/m; ε_r = 47.7; ρ = 1000 kg/m^3 , Medium parameters used: f = 5500 MHz; σ = 5.87 mho/m; ε_r = 47.2; ρ = 1000 kg/m^3 , Medium parameters used: f = 5800 MHz; σ = 6.26 mho/m; ε_r = 46.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

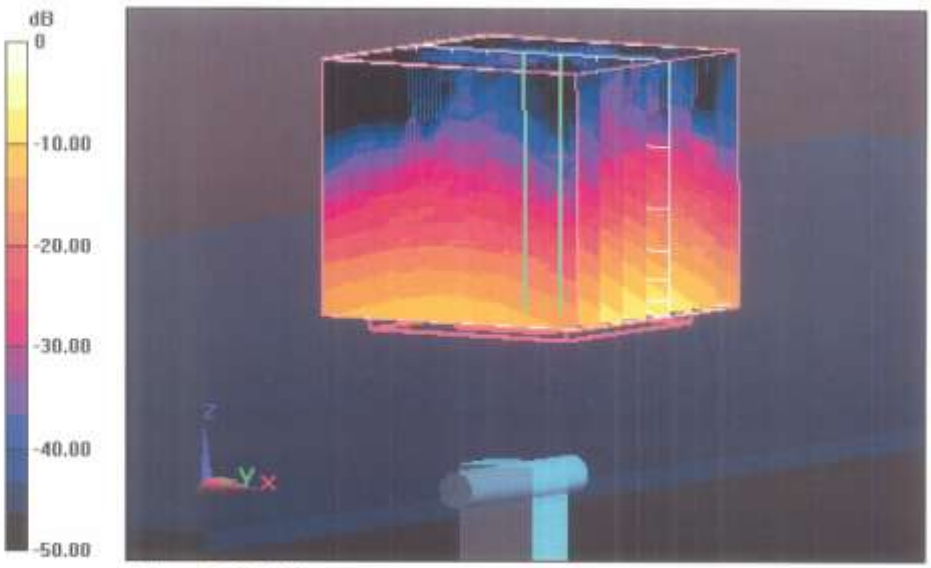
DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(4.91, 4.91, 4.91), ConvF(4.43, 4.43, 4.43), ConvF(4.38, 4.38, 4.38); Calibrated: 04.03.2011
- Sensor-Surface: 1.4mm (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=100mW, dist=10mm, f=5200 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 59.430 V/m; Power Drift = -0.01 dB
Peak SAR (extrapolated) = 30.431 W/kg
SAR(1 g) = 7.76 mW/g; SAR(10 g) = 2.16 mW/g
Maximum value of SAR (measured) = 17.928 mW/g

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5500 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 58.998 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 35.235 W/kg
SAR(1 g) = 8.2 mW/g; SAR(10 g) = 2.27 mW/g
Maximum value of SAR (measured) = 19.488 mW/g

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5800 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 55.860 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 35.929 W/kg
SAR(1 g) = 7.73 mW/g; SAR(10 g) = 2.14 mW/g
Maximum value of SAR (measured) = 18.853 mW/g



0 dB = 18.850mW/g

Impedance Measurement Plot for Body TSL