SAR TEST REPORT

HCT CO., LTD

EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
FCC ID:	ZNFP895QB
Model:	ZNFP895qb
Additional model:	P895qb, LGP895qb,P895QB,LGP895QB,LG-P895qb,LG-P895QB
Date of Issue:	Aug. 22, 2012
Test report No.:	HCTA1208FS04
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.
Signiture	Report prepared by : Yun-Jeang Heo Test Engineer of SAR Part Approved by : Jae-Sang So Manager of SAR Part

Table of Contents

1. INTRODUCTION

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

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

SAR Definition

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

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

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/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC			
FCC ID:	ZNFP895QB			
Model:	ZNFP895qb			
Trade Name	LG Electronics, MobileComm U.S.A., Inc.			
Application Type	Certification			
Mode(s) of Operation	GSM850/GSM1900 /WCDMA850 / WCDMA1900/802.11a/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) /1 852.4 – 1 907.6 MHz (WCDMA1900) 2 412- 2 462 MHz (802.11b/g/n) 802.11a/n: 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)/ 1 932.4 – 1 987.6 MHz (WCDMA1900) 2 412- 2 462 MHz (802.11b/g/n) 802.11a/n: 5500-5700 MHz/ 5745-5825 MHz			
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	0.246	0.439	0.439
	GSM1900	0.161	0.773	0.773
	WCDMA850	0.193	0.288	0.288
	WCDMA1900	0.218	1.19	1.19
	802.11b	0.183	0.326	0.326
	802.11a	0.845	0.13	-
Simultaneous SAR per KDB 690783 D01		1.063	1.516	1.516
Date(s) of Tests	Aug. 12, 2012 ~ Aug. 16, 2012			
Antenna Type	Integral Antenna			
GPRS	Multislot Class: 33, Mode Class: B			
Key Feature(s)	This device support Mobile Hotspot. But, Hotspot is not supported with 5GHz WiFi.			

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.

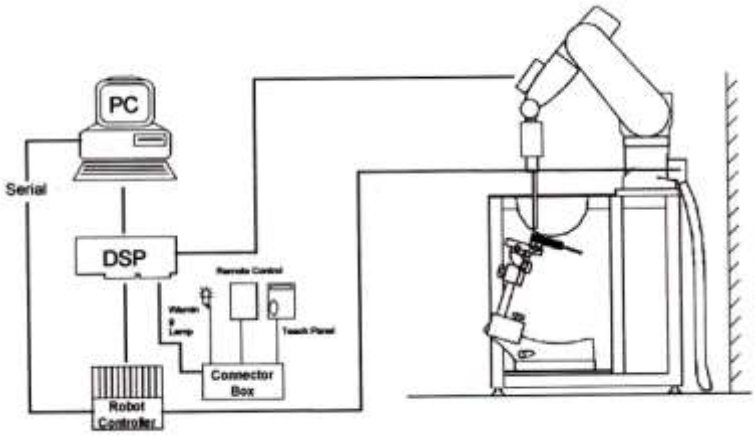


Figure 3.1 HCT SAR Lab. Test Measurement Set-up

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 6 GHz; Linearity: ± 0.2 dB (30 MHz to 6 GHz)
Directivity	± 0.2 dB in HSL (rotation around probe axis)
	± 0.3 dB in tissue material (rotation normal to probe axis)
Dynamic Range	10 µW/g to > 100 mW/g; Linearity: ± 0.2 dB
Dimensions	Overall length: 337 mm (Tip: 20 mm)
	Tip diameter: 2.5 mm (Body: 12 mm)
	Distance from probe tip to dipole centers: 1.0 mm
Application	General dosimetry up to 6 GHz
	Dosimetry in strong gradient fields
	Compliance tests of mobile phones

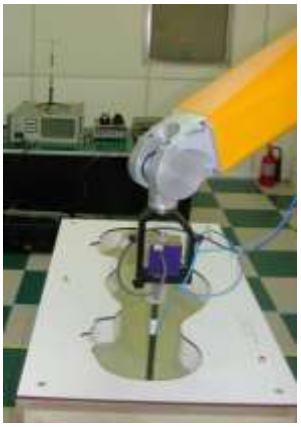


Figure 3.1 Photograph of the probe and the Phantom

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)

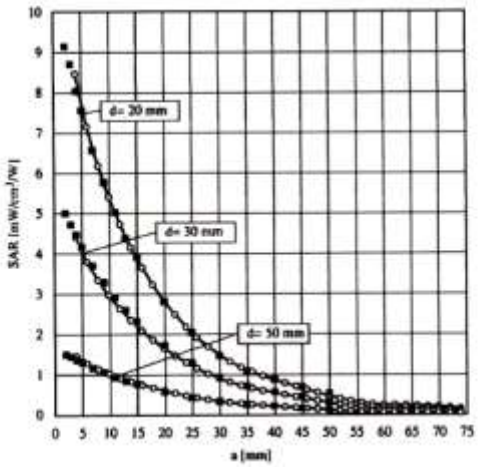


Figure 3.4 E-Field and Temperature measurements at 900 MHz

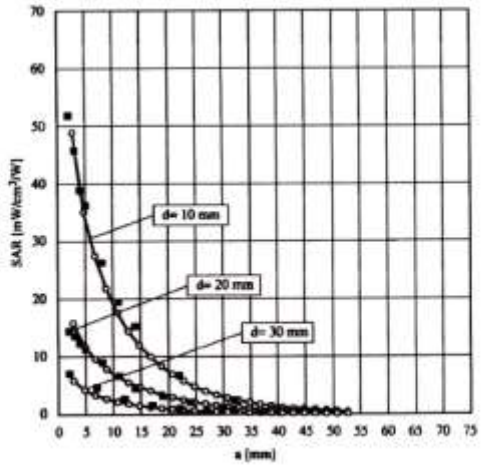


Figure 3.5 E-Field and temperature measurements at 1.8 GHz

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.

0.Ingredients (% by weight)	Frequency (MHz)									
	835		915		1 900		2 450		5200-5800	
Tissue Type	Head	Body	Head	Body	Head	Body	Head	Body	Head	Body
Water	41.45	52.4	41.05	56.0	54.9	40.4	62.7	73.2	65.52	78.66
Salt (NaCl)	1.45	1.4	1.35	0.76	0.18	0.5	0.5	0.04	0.0	0.0
Sugar	56.0	45.0	56.5	41.76	0.0	58.0	0.0	0.0	0.0	0.0
HEC	1.0	1.0	1.0	1.21	0.0	1.0	0.0	0.0	0.0	0.0
Bactericide	0.1	0.1	0.1	0.27	0.0	0.1	0.0	0.0	0.0	0.0
Triton X-100	0.0	0.0	0.0	0.0	0.0	0.0	36.8	0.0	17.24	10.67
DGBE	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	DAE3	466	Feb. 21, 2012	Annual	Feb. 21, 2013
SPEAG	DAE4	648	Apr. 27, 2012	Annual	Apr. 27, 2013
SPEAG	E-Field Probe ET3DV6	1609	Mar 19, 2012	Annual	Mar 19, 2013
SPEAG	E-Field Probe ET3DV6	1630	Nov. 18, 2011	Annual	Nov. 18, 2012
SPEAG	E-Field Probe EX3DV4	3863	July 13, 2012	Annual	July 13, 2013
SPEAG	Validation Dipole D835V2	441	May 16, 2012	Annual	May 16, 2013
SPEAG	Validation Dipole D1900V2	5d032	July 20, 2012	Annual	July 20, 2013
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 CMW500	1201.0002K50_1168	Jan. 17,2012	Annual	Jan. 17,2013
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.

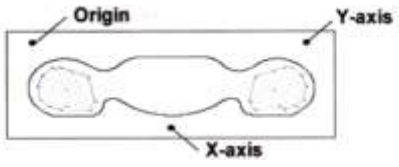


Figure 4.1 SAR Measurement Point in Area Scan

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.

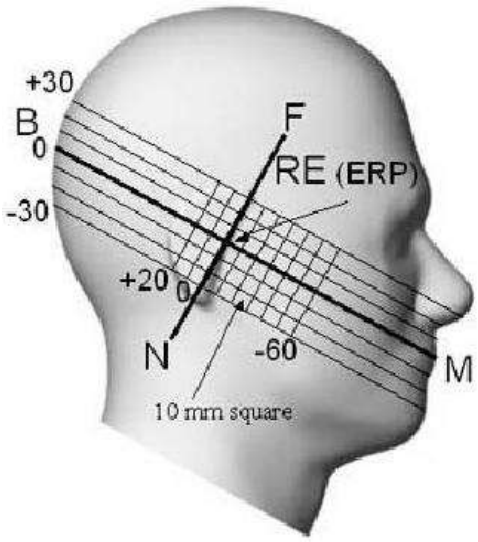


Figure 5.1 Side view of the phantom

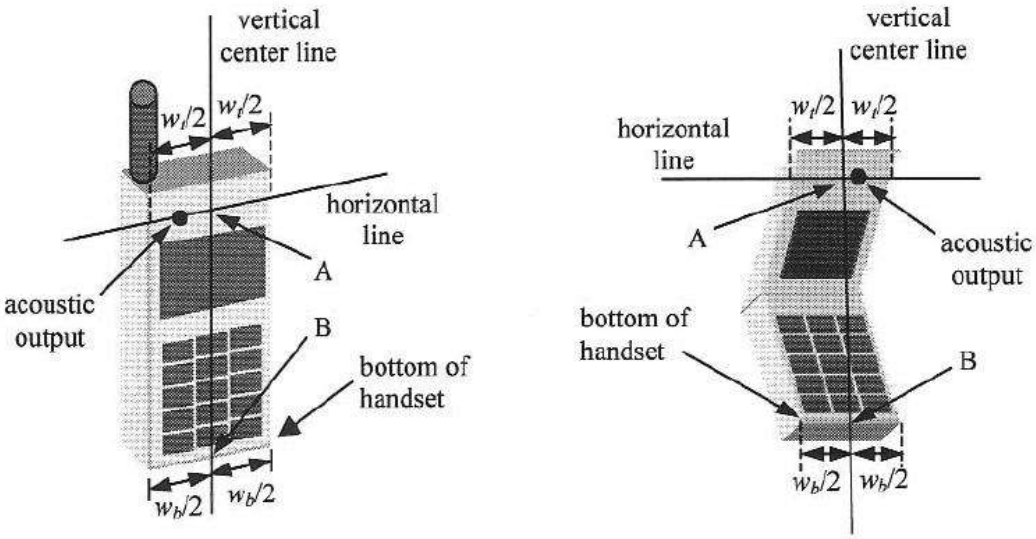


Figure 5.2 Handset vertical and horizontal reference lines

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	Aug. 12, 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	54.1	- 1.99	± 5
				σ	0.97	0.996	+ 2.68	± 5
1 900	Aug. 13, 2012	Head	21.1	ε r	40.0	39.8	- 0.50	± 5
				σ	1.40	1.41	+ 0.71	± 5
1 900		Body		ε r	53.3	52	- 2.44	± 5
				σ	1.52	1.56	+ 2.63	± 5
2 450	Aug. 14, 2012	Head	21.2	ε r	39.2	38.2	- 2.55	± 5
				σ	1.80	1.85	+ 2.78	± 5
2 450		Body		ε r	52.7	51.3	- 2.66	± 5
				σ	1.95	2.01	+ 3.08	± 5
5500	Aug. 16, 2012	Head	21.2	ε r	35.6	35.8	+ 0.56	± 5
				σ	4.96	4.96	0.00	± 5
5500		Body		ε r	48.6	46.4	- 4.53	± 5
				σ	5.65	5.68	+ 0.53	± 5
5800		Head		ε r	35.3	35	- 0.85	± 5
				σ	5.27	5.37	+ 1.90	± 5
5800		Body		ε r	48.2	46.1	- 4.36	± 5
				σ	6.00	6.22	+ 3.67	± 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/5.5GHz/5.8GHz 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	Aug. 12, 2012	1609	Head	21.1	21.3	9.43	0.932	9.32	- 1.17	± 10
			Body			9.50	0.908	9.08	- 4.42	± 10
1 900	Aug. 13, 2012	1630	Head	21.1	21.3	39.0	3.92	39.2	+ 0.51	± 10
			Body			39.9	4.01	40.1	+ 0.50	± 10
2 450	Aug. 14, 2012	1630	Head	21.2	21.4	53.8	5.22	52.2	- 2.97	± 10
			Body			51.7	5.05	50.5	- 2.32	± 10
5 500	Aug. 16, 2012	3863	Head	21.2	21.4	87.8	8.56	85.6	- 2.51	± 10
			Body			81.6	8.33	83.3	+ 2.08	± 10
5 800			Head			78.9	7.56	75.6	- 4.18	± 10
			Body			76.9	7.75	77.5	+ 0.78	± 10

8.3 System Validation Procedure

SAR measurement was prior to assessment, the system is verified to the ± 10 % of the specifications at 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.

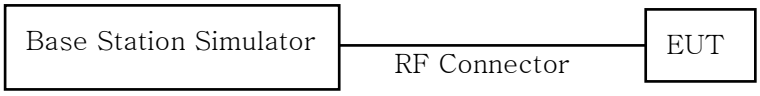
The handset was placed into a simulated call using a base station simulator in a shielded chamber.

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 Class33 with CS 1 (GMSK)

Note;

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

GSM Conducted output powers (Burst-Average)

Band	Channel	GSM	GPRS(GMSK) Data – CS1				EDGE(8PSK) Data – MCS7			
		Voice (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	33.25	33.24	31.43	29.52	28.56	27.22	25.24	23.36	22.43
	190	33.29	33.28	31.48	29.54	28.59	27.23	25.3	23.4	22.45
	251	33.32	33.31	31.45	29.53	28.58	27.22	25.27	23.39	22.45
GSM 1900	512	30.34	30.34	28.40	26.42	25.44	26.03	24.16	22.21	21.05
	661	30.32	30.32	28.38	26.42	25.44	26.05	24.17	22.25	21.05
	810	30.28	30.28	28.37	26.41	25.43	26.03	24.18	22.25	21.03

GSM Conducted output powers (Frame-Average)

Band	Channel	GSM	GPRS(GMSK) Data – CS1				EDGE(8PSK) Data – MCS7			
		Voice (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	24.22	24.21	25.41	25.26	25.55	18.19	19.22	19.1	19.42
	190	24.26	24.25	25.46	25.28	25.58	18.2	19.28	19.14	19.44
	251	24.29	24.28	25.43	25.27	25.57	18.19	19.25	19.13	19.44
GSM 1900	512	21.31	21.31	22.38	22.16	22.43	17	18.14	17.95	18.04
	661	21.29	21.29	22.36	22.16	22.43	17.02	18.15	17.99	18.04
	810	21.25	21.25	22.35	22.15	22.42	17	18.16	17.99	18.02

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.

9.2.5 Handsets with Release 6 HSPA (HSDPA/HSUPA)

Body SAR is not required for handsets with HSPA capabilities when the maximum average output of each RF channel with HSUPA/HSDPA active is less than ¼ dB higher than that measured without HSUPA/HSDPA using 12.2 kbps RMC and the maximum SAR for 12.2 kbps RMC is ≤ 75 % of the SAR limit. Body SAR for HSPA is measured with E-DCH Sub-test 5, using H-Set 1 and QPSK for FRC and a 12.2 kbps RMC configured in Test Loop Mode 1 with power control algorithm 2, according to the highest body SAR configuration in 12.1 kbps RMC without HSPA. When VOIP is applicable for head exposure, SAR is not required when the maximum output of each RF channel with HSPA is less than ¼ dB higher than that measured using 12.2 kbps RMC; otherwise, the same HSPA configuration used for body measurement should be used to test for head exposure.

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

Note 1: Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 8 ⇔ A_{hs} = β_{hs}/β_c = 30/15 ⇔ β_{hs}= 30/15 *β_c.
Note 2: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15. For all other combinations of DPDCH, DPCCH, HS- DPCCH, E-DPDCH and E-DPCCH the MPR is based on the relative CM difference.
Note 3: For subtest 1 the β_c/β_d ratio of 11/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to β_c = 10/15 and β_d = 15/15.
Note 4: For subtest 5 the β_c/β_d ratio of 15/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to β_c = 14/15 and β_d = 15/15.
Note 5: Testing UE using E-DPDCH Physical Layer category 1 Sub-test 3 is not required according to TS 25.306 Table 5.1g.
Note 6: β_{ed} can not be set directly; it is set by Absolute Grant Value.

WCDMA Average Conducted output powers

3GPP Release Version	Mode	3GPP 34.121 Subtest	Cellular Band [dBm]						MPR Target
			4132	Power reduction (dB)	4183	Power reduction (dB)	4233	Power reduction (dB)	
99	WCDMA	12.2 kbps RMC	23.26		23.26		23.17		-
99	WCDMA	12.2 kbps AMR	23.2		23.2		23.12		
5	HSDPA	Subtest 1	23.22		23.22		23.13		0
5		Subtest 2	23.14	0.08	23.14	0.08	23.04	0.09	0
5		Subtest 3	22.63	0.59	22.63	0.59	22.54	0.59	0.5
5		Subtest 4	22.39	0.83	22.39	0.83	22.3	0.83	0.5
6	HSUPA	Subtest 1	22.53		22.53		22.46		0
6		Subtest 2	20.86	1.67	20.86	1.67	20.8	1.66	2
6		Subtest 3	21.58	0.95	21.58	0.95	21.54	0.92	1
6		Subtest 4	21.19	1.34	21.19	1.34	21.05	1.41	2
6		Subtest 5	22.66	-0.13	22.66	-0.13	22.6	-0.14	0

3GPP Release Version	Mode	3GPP 34.121 Subtest	PCS Band [dBm]						MPR Target
			9262	Power reduction (dB)	9400	Power reduction (dB)	9538	Power reduction (dB)	
99	WCDMA	12.2 kbps RMC	23.1		23.17		23.1		-
99	WCDMA	12.2 kbps AMR	23.05		23.12		23.05		
5	HSDPA	Subtest 1	23.07		23.13		23.07		0
5		Subtest 2	22.98	0.09	23.04	0.09	22.98	0.09	0
5		Subtest 3	22.48	0.59	22.54	0.59	22.48	0.59	0.5
5		Subtest 4	22.23	0.84	22.3	0.83	22.23	0.84	0.5
6	HSUPA	Subtest 1	22.35		22.46		22.35		0
6		Subtest 2	20.7	1.65	20.8	1.66	20.7	1.65	2
6		Subtest 3	21.43	0.92	21.54	0.92	21.43	0.92	1
6		Subtest 4	21	1.35	21.05	1.41	21	1.35	2
6		Subtest 5	22.52	-0.17	22.6	-0.14	22.52	-0.17	0

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	12.35	12.30	12.15	12.04
	6	12.99	12.86	12.68	12.57
	11	13.74	13.57	13.54	13.43

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	12.50	12.32	12.23	12.06	11.77	11.59	11.15	11.13
	6	12.80	12.76	12.64	12.46	12.21	11.91	11.59	11.49
	11	13.47	13.37	13.27	13.07	12.90	12.54	12.33	12.19

Average IEEE 802.11g Conducted output power

Band	Channel	Conducted Power (dBm)							
		Data Rate (Mbps)							
		6.5	13	19.5	26	39	52	58.5	65
IEEE 802.11n (HT-20)	1	11.20	11.01	10.83	10.61	10.07	10.31	9.95	9.85
	6	11.61	11.51	11.27	11.19	10.72	10.47	10.33	10.26
	11	12.34	12.10	12.01	11.79	11.50	11.16	11.13	11.06

Average IEEE 802.11n Conducted output power

WLAN 5GHz Average Conducted Powers

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	7.82	7.75	7.65	7.52	7.34	6.99	6.71	6.64
802.11a	5200	40	7.72	7.63	7.51	7.31	7.21	6.94	6.57	6.53
802.11a	5220	44	**8.04**	7.87	7.83	7.59	7.45	7.21	6.92	6.83
802.11a	5240	48	7.94	7.67	7.65	7.45	7.31	7.04	6.64	6.60
802.11a	5260	52	7.78	7.64	7.54	7.31	7.15	6.94	6.66	6.53
802.11a	5280	56	**7.88**	7.74	7.55	7.37	7.22	6.96	6.69	6.57
802.11a	5300	60	7.52	7.49	7.42	7.25	7.09	6.82	6.52	6.40
802.11a	5320	64	7.50	7.36	7.35	7.08	6.92	6.69	6.32	6.28
802.11a	5500	100	9.77	9.70	9.61	9.45	9.29	8.99	8.76	8.69
802.11a	5520	104	9.88	9.79	9.66	9.35	9.23	8.93	8.79	8.63
802.11a	5540	108	9.73	9.64	9.53	9.44	9.28	9.04	8.56	8.73
802.11a	5560	112	9.69	9.62	9.55	9.38	9.16	8.78	8.55	8.45
802.11a	5580	116	9.77	9.54	9.44	9.34	9.21	8.76	8.53	8.44
802.11a	5660	132	9.20	9.11	9.02	8.90	8.74	8.44	8.12	7.93
802.11a	5680	136	9.21	9.12	8.97	8.87	8.68	8.36	8.04	7.89
802.11a	5700	140	9.40	9.32	9.22	9.09	8.99	8.60	8.31	8.25
802.11a	5745	149	12.61	12.56	12.49	12.31	12.17	11.87	11.59	11.42
802.11a	5765	153	12.60	12.59	12.58	12.38	12.24	11.88	11.64	11.52
802.11a	5785	157	12.46	12.31	12.21	12.07	11.92	11.59	11.32	11.14
802.11a	5805	161	12.58	12.43	12.36	12.21	12.04	11.77	11.35	11.26
802.11a	5825	165	12.21	12.10	12.04	11.86	11.77	11.38	11.20	11.02

802.11 n

Mode	Freq [MHz]	Channel	conducted Power [dBm]							
			Data Rate [Mbps]							
			6.5	13	19.5	26	39	52	58.5	65
802.11n	5180	36	6.52	6.34	6.19	6.00	5.68	5.41	5.32	5.23
802.11n	5200	40	6.31	6.14	5.97	5.84	5.50	5.22	5.08	4.97
802.11n	5220	44	**6.55**	6.38	6.22	5.95	5.66	5.45	5.34	5.26
802.11n	5240	48	6.49	6.21	6.01	5.88	5.56	5.30	5.16	5.02
802.11n	5260	52	6.34	6.06	5.88	5.74	5.50	5.24	5.16	5.02
802.11n	5280	56	**6.46**	6.30	6.14	5.82	5.58	5.33	5.24	5.18
802.11n	5300	60	6.08	5.98	5.85	5.63	5.28	5.14	4.93	4.96
802.11n	5320	64	6.10	5.89	5.59	5.54	5.15	4.89	4.85	4.73
802.11n	5500	100	8.57	8.26	8.15	7.97	7.72	7.40	7.25	7.15
802.11n	5520	104	8.67	8.53	8.39	8.23	7.98	7.55	7.44	7.37
802.11n	5540	108	8.72	8.56	8.45	8.05	7.77	7.61	7.55	7.45
802.11n	5560	112	8.70	8.54	8.19	8.02	7.76	7.57	7.50	7.42
802.11n	5580	116	8.42	8.25	8.08	7.93	7.66	7.39	7.16	7.02
802.11n	5660	132	7.94	7.74	7.63	7.47	7.18	6.76	6.68	6.60
802.11n	5680	136	8.05	7.69	7.53	7.45	7.21	6.84	6.70	6.59
802.11n	5700	140	8.21	7.92	7.71	7.59	7.33	7.11	7.03	6.95
802.11n	5745	149	11.56	11.36	11.20	11.03	10.72	10.43	10.32	10.19
802.11n	5765	153	11.58	11.38	11.22	11.11	10.82	10.49	10.40	10.35
802.11n	5785	157	11.49	11.18	11.06	10.93	10.57	10.34	10.23	10.17
802.11n	5805	161	11.46	11.29	10.97	10.86	10.61	10.23	10.15	10.09
802.11n	5825	165	11.34	11.12	10.91	10.75	10.46	10.23	10.10	10.00

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

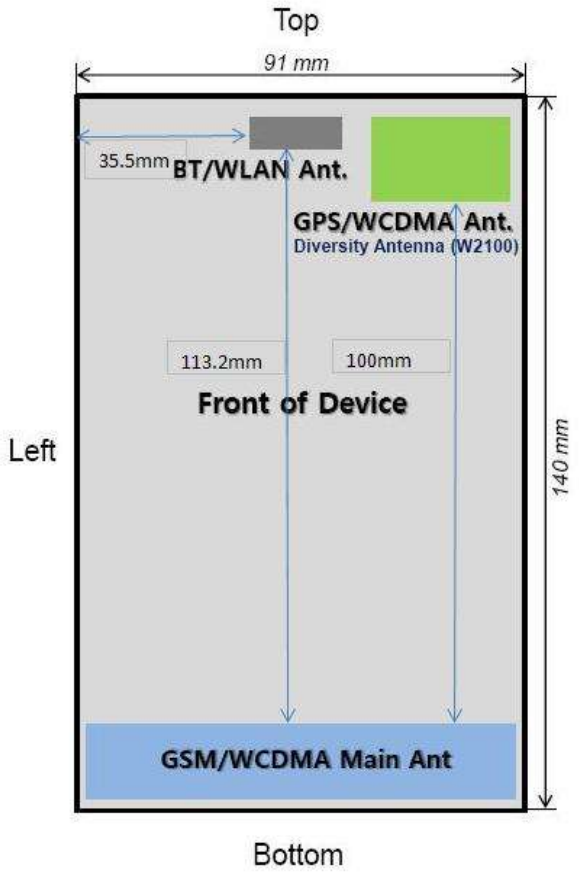
10. SAR Test configuration & Antenna Information

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
WCDMA1900	Yes	Yes	Yes	Yes	Yes	No
2.4GHz WLAN	Yes	Yes	No	No	No	Yes

10.2 Antenna and Device Information

P895 Antenna Distance



[Rear side View]

① GSM/WCDMA Tx/Rx

MODE	BAND	TX(MHz)	RX(MHz)
GSM	850	824 ~ 849	869 ~ 894
	900	1850 ~ 1910	1930 ~ 1990
	DCS	824 ~ 849	869 ~ 894
	PCS	1850 ~ 1910	1930 ~ 1990
WCDMA	B1	1920 ~ 1980	2110 ~ 2170
WCDMA	B2	1850 ~ 1910	1930 ~ 1990
WCDMA	B5	824 ~ 849	869 ~ 894
WCDMA	B8	880 ~ 915	925 ~ 960

② WCDMA Band 1/8 2nd Rx, GPS Rx

MODE	BAND	TX(MHz)	RX(MHz)
GPS	-		
WCDMA	B1	1920 ~ 1980	2110 ~ 2170
WCDMA	B8	880 ~ 915	925 ~ 960

③ BT/WiFi Tx/Rx

MODE	TX(MHz)	RX(MHz)

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: ZNFP895QB

BT Max. RF output power: 10.62 dBm (11.53 mW)

11.2 SAR Summation Scenario

Simultaneous Transmission Summation for Held to Ear

Simultaneous TX	configuration	850 GSM SAR(W/kg)	2.4 GHz WIFI SAR (W/kg)	∑SAR (W/kg)	Simultaneous TX	configuration	1900 GSM SAR(W/kg)	2.4 GHz WIFI SAR (W/kg)	∑SAR (W/kg)
Head SAR	Left Cheek	0.215	0.153	0.368	Head SAR	Left Cheek	0.142	0.153	0.295
	Left Tilt	0.114	0.124	0.238		Left Tilt	0.045	0.124	0.169
	Right Cheek	0.246	0.183	0.429		Right Cheek	0.161	0.183	0.344
	Right Tilt	0.12	0.14	0.260		Right Tilt	0.061	0.14	0.201
Simultaneous TX	configuration	850 GSM SAR(W/kg)	5G WIFI SAR (W/kg)	∑SAR (W/kg)	Simultaneous TX	configuration	1900 GSM SAR(W/kg)	5G WIFI SAR (W/kg)	∑SAR (W/kg)
Head SAR	Left Cheek	0.215	0.845	1.060	Head SAR	Left Cheek	0.142	0.845	0.987
	Left Tilt	0.114	0.654	0.768		Left Tilt	0.045	0.654	0.699
	Right Cheek	0.246	0.615	0.861		Right Cheek	0.161	0.615	0.776
	Right Tilt	0.12	0.534	0.654		Right Tilt	0.061	0.534	0.595
Simultaneous TX	configuration	850 WCMDA SAR(W/kg)	2.4 GHz WIFI SAR (W/kg)	∑SAR (W/kg)	Simultaneous TX	configuration	1900 WCDMA SAR(W/kg)	2.4 GHz WIFI SAR (W/kg)	∑SAR (W/kg)
Head SAR	Left Cheek	0.101	0.153	0.254	Head SAR	Left Cheek	0.218	0.153	0.371
	Left Tilt	0.065	0.124	0.189		Left Tilt	0.074	0.124	0.198
	Right Cheek	0.193	0.183	0.376		Right Cheek	0.212	0.183	0.395
	Right Tilt	0.11	0.14	0.250		Right Tilt	0.094	0.14	0.234
Simultaneous TX	configuration	850 WCMDA SAR(W/kg)	5G WIFI SAR (W/kg)	∑SAR (W/kg)	Simultaneous TX	configuration	1900 WCMDA SAR(W/kg)	5G WIFI SAR (W/kg)	∑SAR (W/kg)
Head SAR	Left Cheek	0.101	0.845	0.946	Head SAR	Left Cheek	0.218	0.845	1.063
	Left Tilt	0.065	0.654	0.719		Left Tilt	0.074	0.654	0.728
	Right Cheek	0.193	0.615	0.808		Right Cheek	0.212	0.615	0.827
	Right Tilt	0.11	0.534	0.644		Right Tilt	0.094	0.534	0.628

Simultaneous Transmission Summation for Body-Worn (1cm)

Simultaneous TX	configuration	850 GPRS SAR(W/kg)	2.4 GHz WIFI SAR (W/kg)	∑SAR (W/kg)	Simultaneous TX	configuration	850 GPRS SAR(W/kg)	5 GHz WIFI SAR (W/kg)	∑SAR (W/kg)
Body SAR	Back	0.439	0.326	0.765	Body SAR	Back	0.439	0.062	0.501
	Front	0.242	0.106	0.348		Front	0.242	0.13	0.372
Simultaneous TX	configuration	1900 GPRS SAR(W/kg)	2.4 GHz WIFI SAR (W/kg)	∑SAR (W/kg)	Simultaneous TX	configuration	1900 GPRS SAR(W/kg)	5 GHz WIFI SAR (W/kg)	∑SAR (W/kg)
Body SAR	Back	0.773	0.326	1.099	Body SAR	Back	0.773	0.062	0.835
	Front	0.305	0.106	0.411		Front	0.305	0.13	0.435
Simultaneous TX	configuration	850 WCDMA SAR(W/kg)	2.4 GHz WIFI SAR (W/kg)	∑SAR (W/kg)	Simultaneous TX	configuration	850 WCDMA SAR(W/kg)	5 GHz WIFI SAR (W/kg)	∑SAR (W/kg)
Body SAR	Back	0.288	0.326	0.614	Body SAR	Back	0.288	0.062	0.350
	Front	0.172	0.106	0.278		Front	0.172	0.13	0.302
Simultaneous TX	configuration	1900 WCDMA SAR(W/kg)	2.4 GHz WIFI SAR (W/kg)	∑SAR (W/kg)	Simultaneous TX	configuration	1900 WCDMA SAR(W/kg)	5 GHz WIFI SAR (W/kg)	∑SAR (W/kg)
Body SAR	Back	1.19	0.326	1.516	Body SAR	Back	1.19	0.062	1.252
	Front	0.404	0.106	0.510		Front	0.404	0.13	0.534

Simultaneous Transmission Summation for Hotspot (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	0.439	0.326	0.765	Body SAR	Back	0.773	0.326	1.099
	Front	0.242	0.106	0.348		Front	0.305	0.106	0.411
	Left	0.219	-	0.219		Left	0.207	-	0.207
	Right	0.321	-	0.321		Right	0.1	-	0.100
	Bottom	0.15	-	0.150		Bottom	0.38	-	0.380
	Top	-	0.129	0.129		Top	-	0.129	0.129
Simultaneous TX	configuration	850 WCDMA SAR(W/kg)	2.4GHz WIFI SAR (W/kg)	∑SAR (W/kg)	Simultaneous TX	configuration	1900 WCDMA SAR(W/kg)	2.4GHz WIFI SAR (W/kg)	∑SAR (W/kg)
Body SAR	Back	0.288	0.326	0.614	Body SAR	Back	1.19	0.326	1.516
	Front	0.172	0.106	0.278		Front	0.404	0.106	0.510
	Left	0.155	-	0.155		Left	0.261	-	0.261
	Right	0.212	-	0.212		Right	0.121	-	0.121
	Bottom	0.104	-	0.104		Bottom	0.529	-	0.529
	Top	-	0.129	0.129		Top	-	0.129	0.129

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

The conducted output power level of the BT , WLAN 802.11a(5180~5240), WLAN 802.11a(5260~5350) transmitter are less than 2*P_{ref}, the BT /WLAN antenna is more than 5 cm from the other antenna, therefore, stand-alone BT, WLAN 802.11a(5180~5240), WLAN 802.11a(5260~5350) SAR evaluation are 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	33.29	-0.016	Standard	Left Ear	0.215
			33.29	0.012	Standard	Left Tilt 15°	0.114
			33.29	-0.055	Standard	Right Ear	0.246
			33.29	0.097	Standard	Right Tilt 15°	0.12
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	30.32	-0.051	Standard	Left Ear	0.142
			30.32	-0.074	Standard	Left Tilt 15°	0.045
			30.32	-0.041	Standard	Right Ear	0.161
			30.32	0.09	Standard	Right Tilt 15°	0.061
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	23.26	-0.032	Standard	Left Ear	0.101
			23.26	0.017	Standard	Left Tilt 15°	0.065
			23.26	0.014	Standard	Right Ear	0.193
			23.26	-0.062	Standard	Right Tilt 15°	0.11
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 HSPA Inactive.

12.4 Measurement Results (WCDMA1900 Head SAR)

Frequency		Modulation	ConductedPower (dBm)	Power Drift (dB)	Battery	Phantom Position	SAR(mW/g)
MHz	Channel						
1 880.0	9400 (Mid)	WCDMA1900	23.17	-0.175	Standard	Left Ear	0.218
			23.17	-0.162	Standard	Left Tilt 15°	0.074
			23.17	-0.137	Standard	Right Ear	0.212
			23.17	0.048	Standard	Right Tilt 15°	0.094
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 HSPA Inactive.

12.5 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	13.74	0.141	Standard	Left Ear	1 Mbps	0.153
			13.74	0.013	Standard	Left Tilt 15°	1 Mbps	0.124
			13.74	0.05	Standard	Right Ear	1 Mbps	0.183
			13.74	0.027	Standard	Right Tilt 15	1 Mbps	0.14
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.

12.6 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							
5 500	100	802.11a	9.40	-0.069	Standard	Left Ear	6Mbps	0.305
5 500	100	802.11a	9.40	0.134	Standard	Left Tilt 15°	6Mbps	0.222
5 500	100	802.11a	9.40	-0.074	Standard	Right Ear	6Mbps	0.338
5 500	100	802.11a	9.40	-0.04	Standard	Right Tilt 15	6Mbps	0.241
5 745	149	802.11a	12.61	0.034	Standard	Left Ear	6Mbps	0.845
5 785	157	802.11a	12.46	-0.187	Standard	Left Ear	6Mbps	0.71
5 825	165	802.11a	12.21	-0.069	Standard	Left Ear	6Mbps	0.69
5 745	149	802.11a	12.61	0.027	Standard	Left Tilt 15°	6Mbps	0.653
5 785	157	802.11a	12.46	-0.145	Standard	Left Tilt 15°	6Mbps	0.607
5 825	165	802.11a	12.21	-0.130	Standard	Left Tilt 15°	6Mbps	0.654
5 745	149	802.11a	12.61	-0.002	Standard	Right Ear	6Mbps	0.614
5 785	157	802.11a	12.46	0.102	Standard	Right Ear	6Mbps	0.615
5 825	165	802.11a	12.21	-0.086	Standard	Right Ear	6Mbps	0.595
5 745	149	802.11a	12.61	0.080	Standard	Right Tilt 15	6Mbps	0.507
5 785	157	802.11a	12.46	0.136	Standard	Right Tilt 15	6Mbps	0.516
5 825	165	802.11a	12.21	0.112	Standard	Right Tilt 15	6Mbps	0.534
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
9 For 5GHz WLAN, Highest average power channel for the lowest data rate was selected for SAR evaluation based on KDB 248227. Other channels are required because 1g-average SAR > 0.8 W/Kg and peak SAR > 1.6W/Kg per KDB 248227.

12.7 Measurement Results (GSM850 Hotspot SAR)

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	Configuration	Separation Distance	SAR(mW/g)
MHz	Channel						
836.6	190 (Mid)	GPRS 4Tx	28.59	-0.011	Rear	1.0 cm	0.439
836.6	190 (Mid)	GPRS 4Tx	28.59	0.004	Front	1.0 cm	0.242
836.6	190 (Mid)	GPRS 4Tx	28.59	-0.054	Left	1.0 cm	0.219
836.6	190 (Mid)	GPRS 4Tx	28.59	-0.011	Right	1.0 cm	0.321
836.6	190 (Mid)	GPRS 4Tx	28.59	-0.097	Bottom	1.0 cm	0.15
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 class33 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.

12.8 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 3Tx	26.42	0.018	Rear	1.0 cm	0.773
1 880.0	661 (Mid)	GPRS 3Tx	26.42	0.020	Front	1.0 cm	0.305
1 880.0	661 (Mid)	GPRS 3Tx	26.42	-0.07	Left	1.0 cm	0.207
1 880.0	661 (Mid)	GPRS 3Tx	26.42	0.088	Right	1.0 cm	0.1
1 880.0	661 (Mid)	GPRS 3Tx	26.42	-0.034	Bottom	1.0 cm	0.38
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 class33 with 3uplink 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.

12.9 Measurement Results (WCDMA850 Hotspot SAR)

Frequency		Modulation	ConductedPower (dBm)	Power Drift (dB)	Configuration	Separation Distance	SAR(mW/g)
MHz	Channel						
836.6	4183 (Mid)	WCDMA850	23.26	-0.004	Rear	1.0 cm	0.288
836.6	4183 (Mid)	WCDMA850	23.26	-0.015	Front	1.0 cm	0.172
836.6	4183 (Mid)	WCDMA850	23.26	-0.027	Left	1.0 cm	0.155
836.6	4183 (Mid)	WCDMA850	23.26	0.079	Right	1.0 cm	0.212
836.6	4183 (Mid)	WCDMA850	23.26	-0.03	Bottom	1.0 cm	0.104
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 HSPA Inactive.

12.10 Measurement Results (WCDMA1900 Hotspot SAR)

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	Configuration	Separation Distance	SAR(mW/g)
MHz	Channel						
1 852.4	9262 (Low)	WCDMA1900	23.10	-0.058	Rear	1.0 cm	0.634
1 880.0	9400 (Mid)	WCDMA1900	23.17	0.025	Rear	1.0 cm	0.894
1 907.4	9538 (High)	WCDMA1900	23.10	-0.135	Rear	1.0 cm	1.19
1 880.0	9400 (Mid)	WCDMA1900	23.17	0.059	Front	1.0 cm	0.404
1 880.0	9400 (Mid)	WCDMA1900	23.17	-0.09	Left	1.0 cm	0.261
1 880.0	9400 (Mid)	WCDMA1900	23.17	0.044	Right	1.0 cm	0.121
1 880.0	9400 (Mid)	WCDMA1900	23.17	0.007	Bottom	1.0 cm	0.529
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 HSPA Inactive.

12.11 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	13.74	0.041	Rear	1.0 cm	1 Mbps	0.326
2 462	11 (High)	802.11b	13.74	0.052	Front	1.0 cm	1 Mbps	0.106
2 462	11 (High)	802.11b	13.74	0.075	Top	1.0 cm	1 Mbps	0.129
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.

12.12 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							
5 700	140	802.11a	9.40	0.047	Rear	1.0 cm	6Mbps	0.031
5 700	140	802.11a	9.40	-0.077	Front	1.0 cm	6Mbps	0.054
5 745	149	802.11a	12.61	-0.072	Rear	1.0 cm	6Mbps	0.062
5 745	149	802.11a	12.61	0.074	Front	1.0 cm	6Mbps	0.13
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
9 For 5GHz 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.

13. CONCLUSION

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

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

14. REFERENCES

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Attachment 1. – SAR Test Plots

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.12, 2012

DUT: LG-P895qb; 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 = 0.902 mho/m; ε_r = 43; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

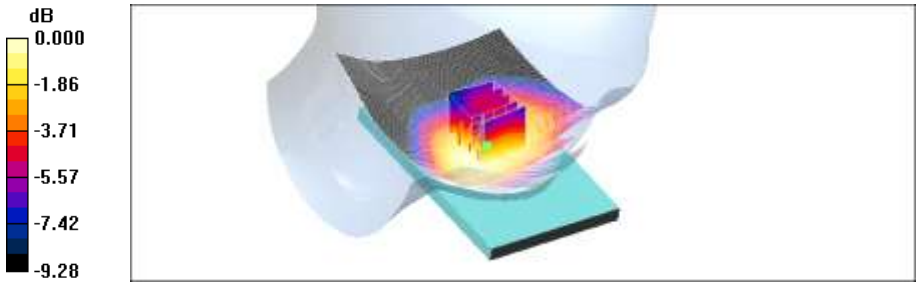
DASY4 Configuration:
- Probe: ET3DV6 - SN1609; ConvF(6.36, 6.36, 6.36); Calibrated: 2012-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

Left Touch 190/Area Scan (81x111x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.222 mW/g

Left Touch 190/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.84 V/m; Power Drift = -0.016 dB
Peak SAR (extrapolated) = 0.265 W/kg
SAR(1 g) = 0.215 mW/g; SAR(10 g) = 0.164 mW/g

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



0 dB = 0.226mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.12, 2012

DUT: LG-P895qb; 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 = 0.902 mho/m; ε_r = 43; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

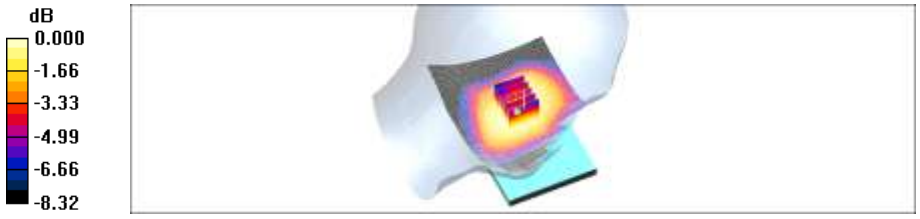
DASY4 Configuration:
- Probe: ET3DV6 - SN1609; ConvF(6.36, 6.36, 6.36); Calibrated: 2012-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

Left Tilt 190/Area Scan (81x111x1): Measurement grid: dx=15mm, dy=15mm

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

Left Tilt 190/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.37 V/m; Power Drift = 0.012 dB
Peak SAR (extrapolated) = 0.131 W/kg
SAR(1 g) = 0.114 mW/g; SAR(10 g) = 0.092 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.119 mW/g



0 dB = 0.119mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.12, 2012

DUT: LG-P895qb; 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 = 0.902 mho/m; ε_r = 43; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

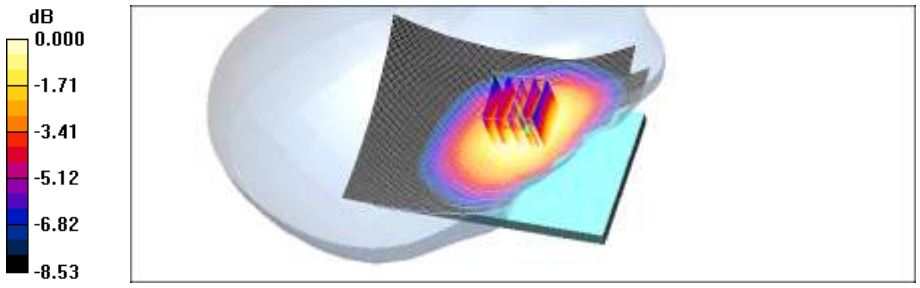
DASY4 Configuration:
- Probe: ET3DV6 - SN1609; ConvF(6.36, 6.36, 6.36); Calibrated: 2012-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

Right touch 190/Area Scan (81x111x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.255 mW/g

Right touch 190/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.30 V/m; Power Drift = -0.055 dB
Peak SAR (extrapolated) = 0.305 W/kg
SAR(1 g) = 0.246 mW/g; SAR(10 g) = 0.192 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/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.12, 2012

DUT: LG-P895qb; 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 = 0.902 mho/m; ε_r = 43; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

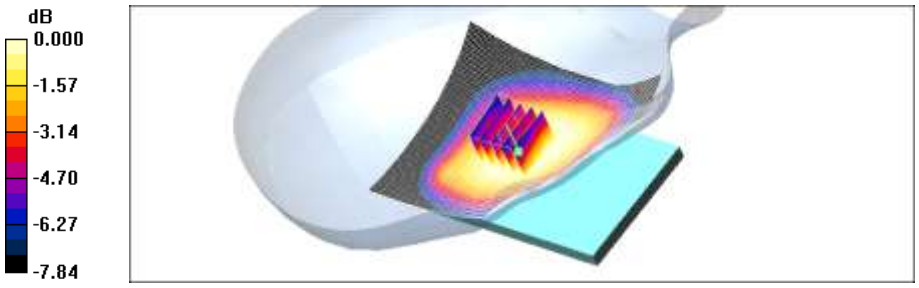
DASY4 Configuration:
- Probe: ET3DV6 - SN1609; ConvF(6.36, 6.36, 6.36); Calibrated: 2012-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

Right tilt 190/Area Scan (81x111x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.139 mW/g

Right tilt 190/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.93 V/m; Power Drift = 0.097 dB
Peak SAR (extrapolated) = 0.140 W/kg
SAR(1 g) = 0.120 mW/g; SAR(10 g) = 0.095 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.125 mW/g



0 dB = 0.125mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.13, 2012

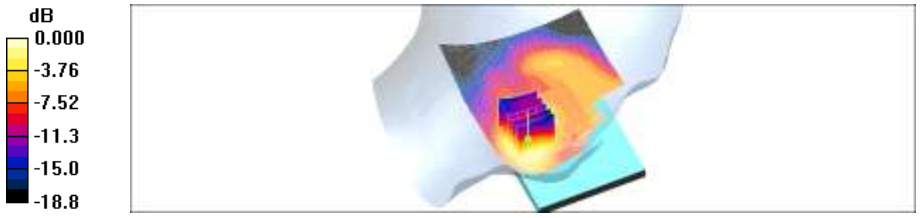
DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.39 mho/m; ε_r = 39.9; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2012-02-21
- Phantom: 800/900 Phantom; Type: SAM

Left touch 661/Area Scan (81x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.164 mW/g

Left touch 661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.29 V/m; Power Drift = -0.051 dB
Peak SAR (extrapolated) = 0.225 W/kg
SAR(1 g) = 0.142 mW/g; SAR(10 g) = 0.084 mW/g
Maximum value of SAR (measured) = 0.155 mW/g



0 dB = 0.155mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.13, 2012

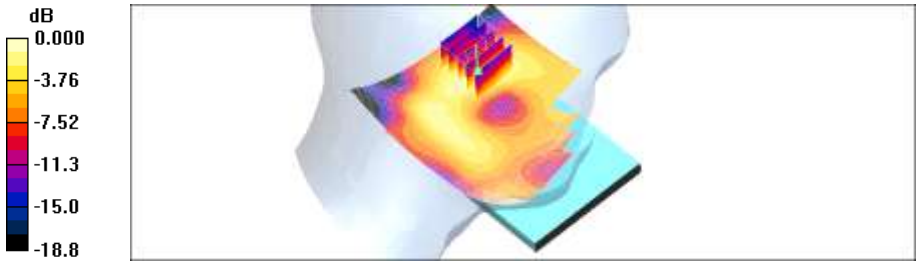
DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.39 mho/m; ε_r = 39.9; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2012-02-21
- Phantom: 800/900 Phantom; Type: SAM

Left tilt 661/Area Scan (81x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.050 mW/g

Left tilt 661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.81 V/m; Power Drift = -0.074 dB
Peak SAR (extrapolated) = 0.078 W/kg
SAR(1 g) = 0.045 mW/g; SAR(10 g) = 0.026 mW/g
Maximum value of SAR (measured) = 0.049 mW/g



0 dB = 0.049mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.13, 2012

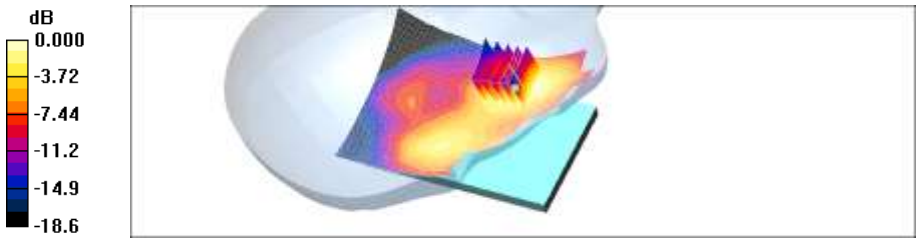
DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.39 mho/m; ε_r = 39.9; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2012-02-21
- Phantom: 800/900 Phantom; Type: SAM

Right touch 661/Area Scan (81x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.177 mW/g

Right touch 661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.71 V/m; Power Drift = -0.041 dB
Peak SAR (extrapolated) = 0.239 W/kg
SAR(1 g) = 0.161 mW/g; SAR(10 g) = 0.098 mW/g
Maximum value of SAR (measured) = 0.177 mW/g



0 dB = 0.177mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.13, 2012

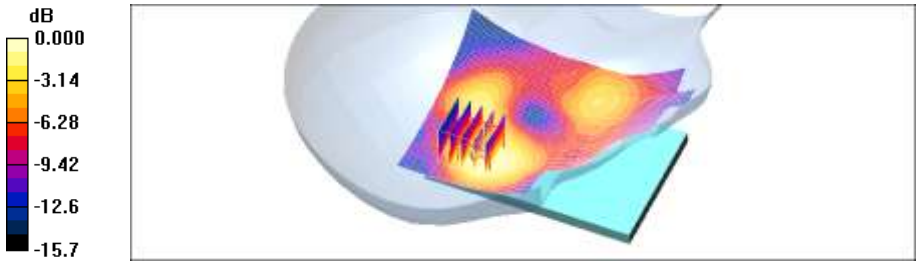
DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.39 mho/m; ε_r = 39.9; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2012-02-21
- Phantom: 800/900 Phantom; Type: SAM

Right tilt 661/Area Scan (81x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.066 mW/g

Right tilt 661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.29 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.092 W/kg
SAR(1 g) = 0.061 mW/g; SAR(10 g) = 0.038 mW/g
aximum value of SAR (measured) = 0.066 mW/g



0 dB = 0.066mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.12, 2012

DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.902 mho/m; ε_r = 43; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

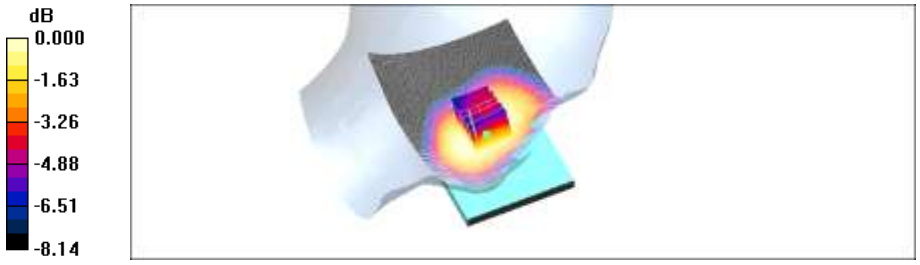
DASY4 Configuration:
- Probe: ET3DV6 - SN1609; ConvF(6.36, 6.36, 6.36); Calibrated: 2012-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

Left Touch 4183/Area Scan (81x111x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.106 mW/g

Left Touch 4183/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.42 V/m; Power Drift = -0.032 dB
Peak SAR (extrapolated) = 0.117 W/kg
SAR(1 g) = 0.101 mW/g; SAR(10 g) = 0.082 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.105 mW/g



0 dB = 0.105mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.12, 2012

DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.902 mho/m; ε_r = 43; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

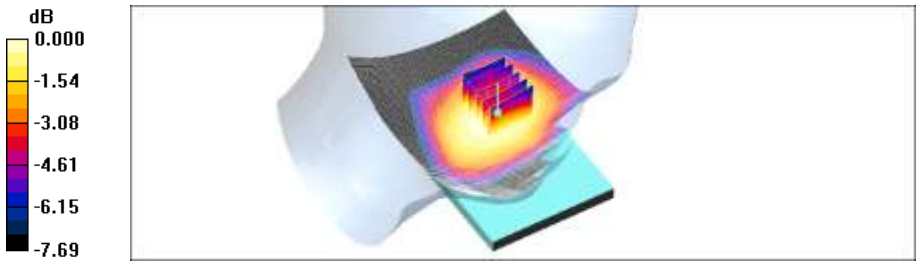
DASY4 Configuration:
- Probe: ET3DV6 - SN1609; ConvF(6.36, 6.36, 6.36); Calibrated: 2012-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

Left Tilt 4183/Area Scan (81x111x1): Measurement grid: dx=15mm, dy=15mm

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

Left Tilt 4183/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.83 V/m; Power Drift = 0.017 dB
Peak SAR (extrapolated) = 0.073 W/kg
SAR(1 g) = 0.065 mW/g; SAR(10 g) = 0.053 mW/g

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



0 dB = 0.067mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.12, 2012

DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.902 mho/m; ε_r = 43; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

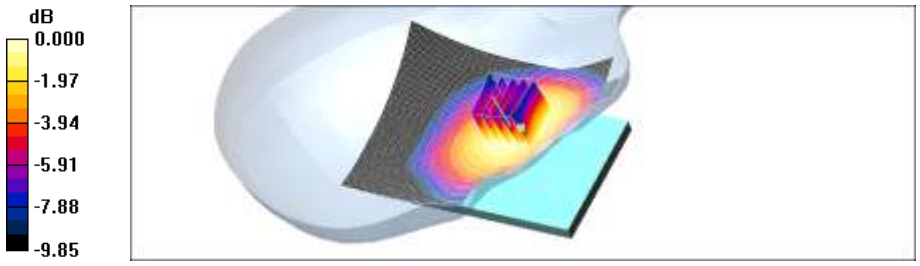
DASY4 Configuration:
- Probe: ET3DV6 - SN1609; ConvF(6.36, 6.36, 6.36); Calibrated: 2012-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: 1800/1900 Phantom; Type: SAM

Right Touch 4183/Area Scan (81x111x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.203 mW/g

Right Touch 4183/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.02 V/m; Power Drift = 0.014 dB
Peak SAR (extrapolated) = 0.247 W/kg
SAR(1 g) = 0.193 mW/g; SAR(10 g) = 0.144 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.202 mW/g



0 dB = 0.202mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.12, 2012

DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.902 mho/m; ε_r = 43; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

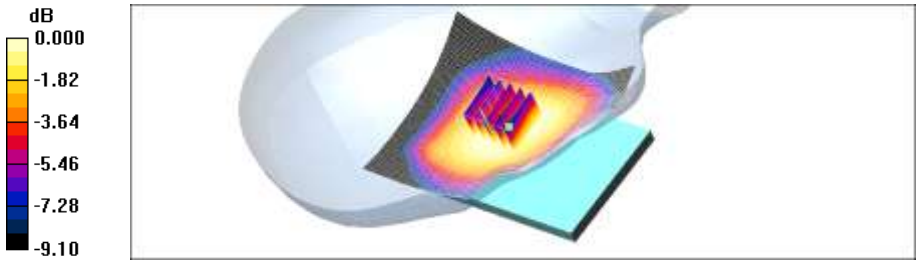
DASY4 Configuration:
- Probe: ET3DV6 - SN1609; ConvF(6.36, 6.36, 6.36); Calibrated: 2012-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: 1800/1900 Phantom; Type: SAM

Right Tilt 4183/Area Scan (81x111x1): Measurement grid: dx=15mm, dy=15mm

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

Right Tilt 4183/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.07 V/m; Power Drift = -0.062 dB
Peak SAR (extrapolated) = 0.134 W/kg
SAR(1 g) = 0.110 mW/g; SAR(10 g) = 0.084 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.114 mW/g



0 dB = 0.114mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.13, 2012

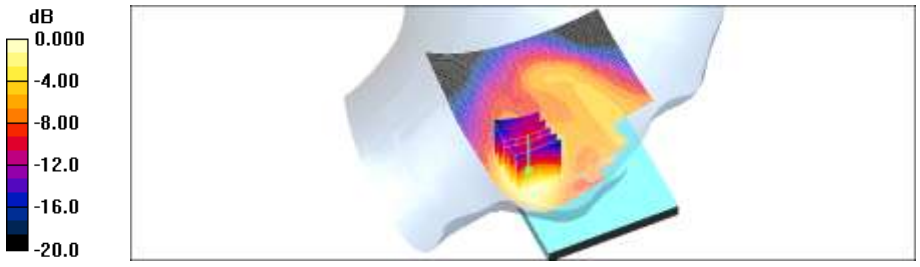
DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: WCDMA1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.39 mho/m; ε_r = 39.9; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2012-02-21
- Phantom: 800/900 Phantom; Type: SAM

Left touch 9400/Area Scan (81x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.238 mW/g

Left touch 9400/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.89 V/m; Power Drift = -0.175 dB
Peak SAR (extrapolated) = 0.337 W/kg
SAR(1 g) = 0.218 mW/g; SAR(10 g) = 0.131 mW/g
Maximum value of SAR (measured) = 0.240 mW/g



0 dB = 0.240mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.13, 2012

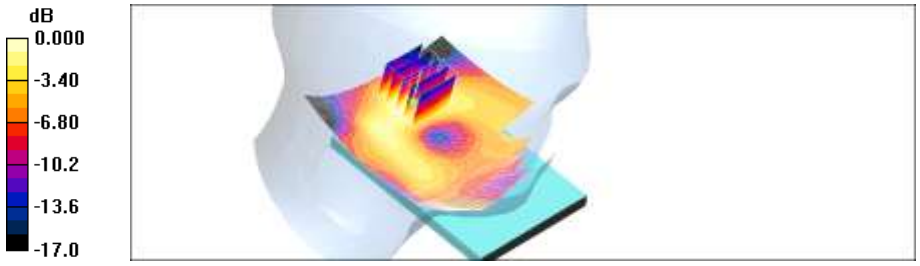
DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: WCDMA1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.39 mho/m; ε_r = 39.9; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2012-02-21
- Phantom: 800/900 Phantom; Type: SAM

Left tilt 9400/Area Scan (81x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.083 mW/g

Left tilt 9400/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.24 V/m; Power Drift = -0.162 dB
Peak SAR (extrapolated) = 0.121 W/kg
SAR(1 g) = 0.074 mW/g; SAR(10 g) = 0.042 mW/g
Maximum value of SAR (measured) = 0.080 mW/g



0 dB = 0.080mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.13, 2012

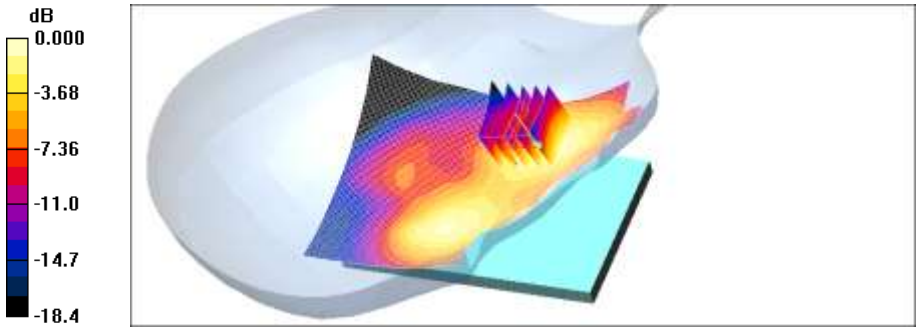
DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: WCDMA1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.39 mho/m; ε_r = 39.9; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2012-02-21
- Phantom: 800/900 Phantom; Type: SAM

Right Touch 9400/Area Scan (81x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.234 mW/g

Right Touch 9400/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.23 V/m; Power Drift = -0.137 dB
Peak SAR (extrapolated) = 0.319 W/kg
SAR(1 g) = 0.212 mW/g; SAR(10 g) = 0.130 mW/g
Maximum value of SAR (measured) = 0.232 mW/g



0 dB = 0.232mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.13, 2012

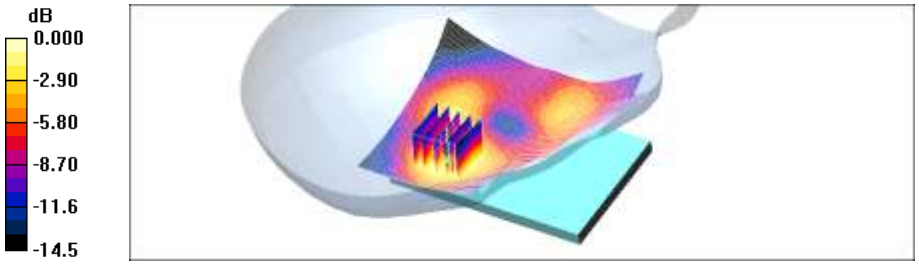
DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: WCDMA1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.39 mho/m; ε_r = 39.9; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2012-02-21
- Phantom: 800/900 Phantom; Type: SAM

Right Tilt 9400/Area Scan (81x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.104 mW/g

Right Tilt 9400/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.74 V/m; Power Drift = 0.048 dB
Peak SAR (extrapolated) = 0.147 W/kg
SAR(1 g) = 0.094 mW/g; SAR(10 g) = 0.058 mW/g
Maximum value of SAR (measured) = 0.100 mW/g



0 dB = 0.100mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.14, 2012

DUT: LG-P895qb; Type: bar; Serial: #1

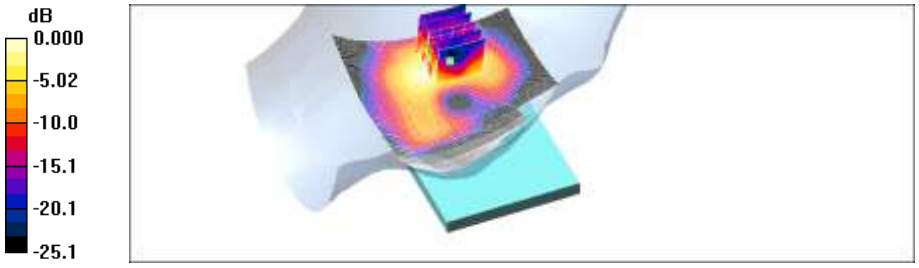
Communication System: 2450MHz FCC; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.86 mho/m; ε_r = 38.3; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.57, 4.57, 4.57); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2012-02-21
- Phantom: 800/900 Phantom; Type: SAM

802.11b Left Touch 11ch 1Mbps/Area Scan (81x111x1): Measurement grid: dx=15mm, dy=15mm

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

802.11b Left Touch 11ch 1Mbps/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.65 V/m; Power Drift = 0.141 dB
Peak SAR (extrapolated) = 0.422 W/kg
SAR(1 g) = 0.153 mW/g; SAR(10 g) = 0.066 mW/g
Maximum value of SAR (measured) = 0.198 mW/g



0 dB = 0.198mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.14, 2012

DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: 2450MHz FCC; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.86 mho/m; ε_r = 38.3; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

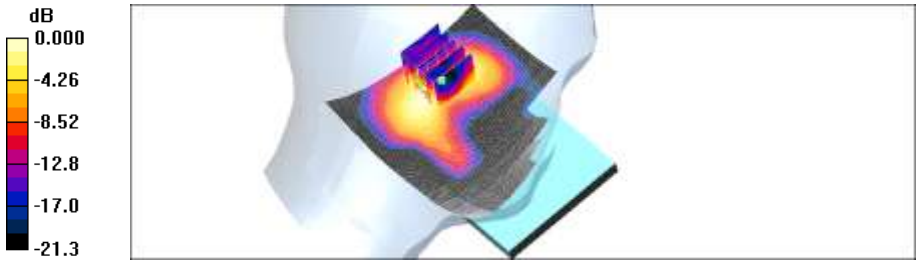
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.57, 4.57, 4.57); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2012-02-21
- Phantom: 800/900 Phantom; Type: SAM

802.11b Left Tilt 11ch 1Mbps/Area Scan (81x111x1): Measurement grid: dx=15mm, dy=15mm

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

802.11b Left Tilt 11ch 1Mbps/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.84 V/m; Power Drift = 0.013 dB
Peak SAR (extrapolated) = 0.312 W/kg
SAR(1 g) = 0.124 mW/g; SAR(10 g) = 0.057 mW/g

Maximum value of SAR (measured) = 0.148 mW/g



0 dB = 0.148mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.14, 2012

DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: 2450MHz FCC; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2437 MHz; σ = 1.83 mho/m; ε_r = 38.2; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

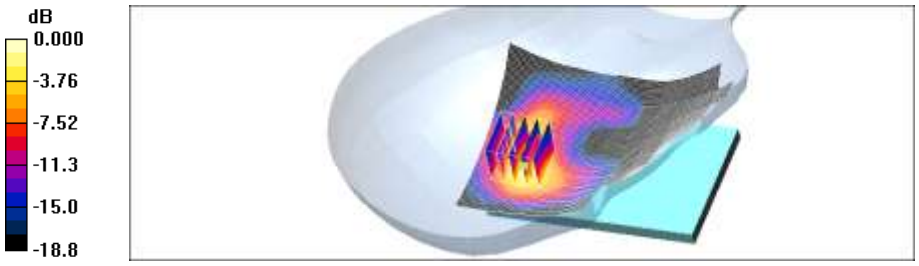
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.57, 4.57, 4.57); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2012-02-21
- Phantom: 800/900 Phantom; Type: SAM

801.11b Right touch 11ch 1Mbps/Area Scan (81x111x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.193 mW/g

801.11b Right touch 11ch 1Mbps/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.81 V/m; Power Drift = 0.050 dB
Peak SAR (extrapolated) = 0.413 W/kg
SAR(1 g) = 0.183 mW/g; SAR(10 g) = 0.086 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.194 mW/g



0 dB = 0.194mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.14, 2012

DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: 2450MHz FCC; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2437 MHz; σ = 1.83 mho/m; ε_r = 38.2; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

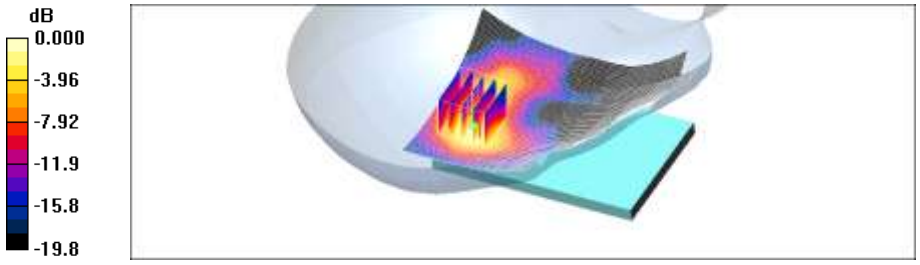
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.57, 4.57, 4.57); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2012-02-21
- Phantom: 800/900 Phantom; Type: SAM

801.11b Right tilt 11ch 1Mbps/Area Scan (81x111x1): Measurement grid: dx=15mm, dy=15mm

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

801.11b Right tilt 11ch 1Mbps/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.98 V/m; Power Drift = 0.027 dB
Peak SAR (extrapolated) = 0.299 W/kg
SAR(1 g) = 0.140 mW/g; SAR(10 g) = 0.070 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/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.16, 2012

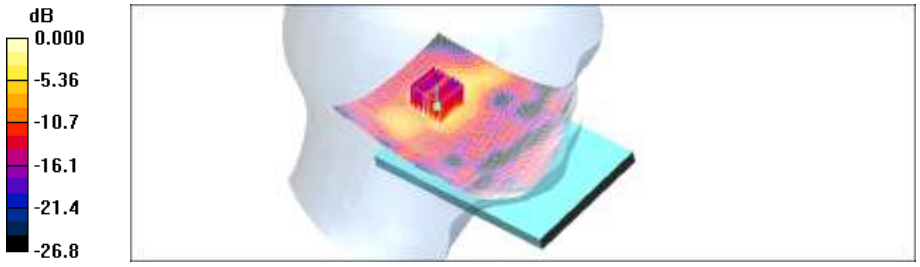
DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5500 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5500 MHz; σ = 4.96 mho/m; ε_r = 35.8; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: EX3DV4 - SN3863; ConvF(4.66, 4.66, 4.66); Calibrated: 2012-07-13
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

802.11a Left touch 100ch 6Mbps/Area Scan (101x161x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.380 mW/g

802.11a Left touch 100ch 6Mbps/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 8.14 V/m; Power Drift = -0.069 dB
Peak SAR (extrapolated) = 0.972 W/kg
SAR(1 g) = 0.305 mW/g; SAR(10 g) = 0.099 mW/g
aximum value of SAR (measured) = 0.377 mW/g



0 dB = 0.377mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.16, 2012

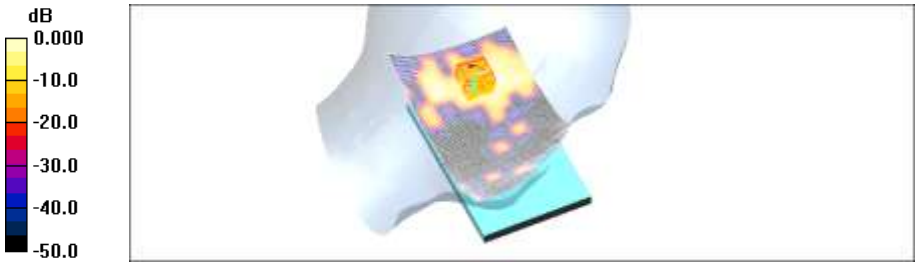
DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5500 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5500 MHz; σ = 4.96 mho/m; ε_r = 35.8; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: EX3DV4 - SN3863; ConvF(4.66, 4.66, 4.66); Calibrated: 2012-07-13
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

802.11a Left tilt 100ch 6Mbps/Area Scan (101x161x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.208 mW/g

802.11a Left tilt 100ch 6Mbps/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 5.86 V/m; Power Drift = 0.134 dB
Peak SAR (extrapolated) = 0.768 W/kg
SAR(1 g) = 0.222 mW/g; SAR(10 g) = 0.074 mW/g
aximum value of SAR (measured) = 0.253 mW/g



0 dB = 0.253mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.16, 2012

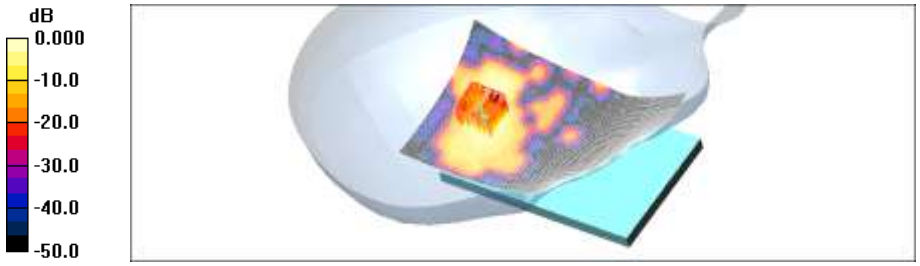
DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5500 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5500 MHz; σ = 4.96 mho/m; ε_r = 35.8; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: EX3DV4 - SN3863; ConvF(4.66, 4.66, 4.66); Calibrated: 2012-07-13
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

Right touch 802.11a 100ch 6Mbps/Area Scan (101x161x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.593 mW/g

Right touch 802.11a 100ch 6Mbps/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 8.63 V/m; Power Drift = -0.074 dB
Peak SAR (extrapolated) = 1.52 W/kg
SAR(1 g) = 0.338 mW/g; SAR(10 g) = 0.099 mW/g
aximum value of SAR (measured) = 0.694 mW/g



0 dB = 0.694mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.16, 2012

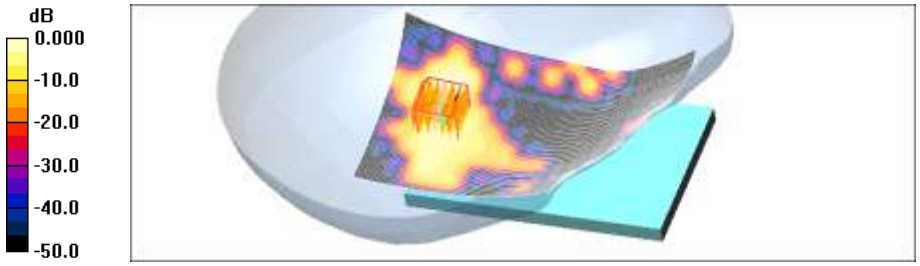
DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5500 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5500 MHz; σ = 4.96 mho/m; ε_r = 35.8; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: EX3DV4 - SN3863; ConvF(4.66, 4.66, 4.66); Calibrated: 2012-07-13
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

Right tilt 802.11a 100ch 6Mbps/Area Scan (101x161x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.449 mW/g

Right tilt 802.11a 100ch 6Mbps/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 7.30 V/m; Power Drift = -0.040 dB
Peak SAR (extrapolated) = 1.02 W/kg
SAR(1 g) = 0.241 mW/g; SAR(10 g) = 0.077 mW/g
aximum value of SAR (measured) = 0.492 mW/g



0 dB = 0.492mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.16, 2012

DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5745 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5745 MHz; σ = 5.32 mho/m; ε_r = 35.2; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

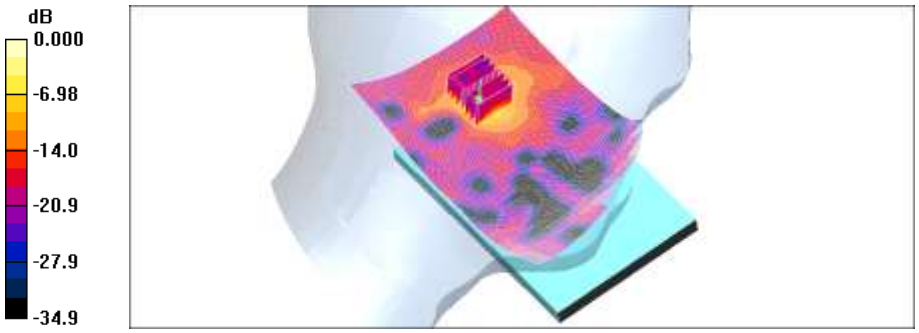
DASY4 Configuration:
- Probe: EX3DV4 - SN3863; ConvF(4.61, 4.61, 4.61); Calibrated: 2012-07-13
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

Left touch 802.11a 149ch 6Mbps/Area Scan (101x161x1): Measurement grid: dx=10mm, dy=10mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.803 mW/g

Left touch 802.11a 149ch 6Mbps/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 16.9 V/m; Power Drift = 0.034 dB
Peak SAR (extrapolated) = 3.67 W/kg
SAR(1 g) = 0.845 mW/g; SAR(10 g) = 0.238 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
aximum value of SAR (measured) = 1.77 mW/g



0 dB = 1.77mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.16, 2012

DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5785 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5785 MHz; σ = 5.36 mho/m; ε_r = 35; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

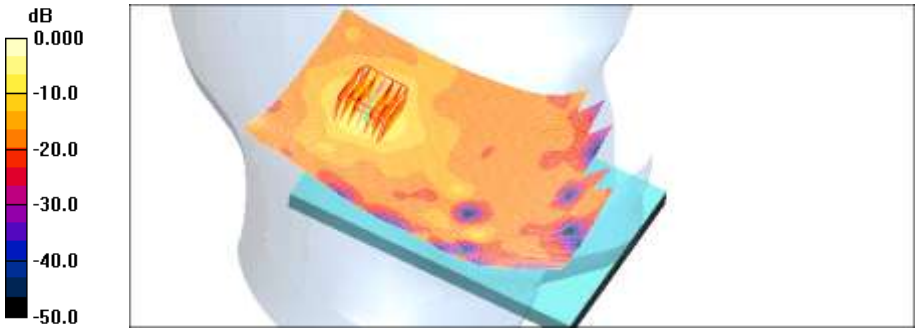
DASY4 Configuration:
- Probe: EX3DV4 - SN3863; ConvF(4.61, 4.61, 4.61); Calibrated: 2012-07-13
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

Left touch 802.11a 157ch 6Mbps/Area Scan (101x161x1): Measurement grid: dx=10mm, dy=10mm

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

Left touch 802.11a 157ch 6Mbps/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 16.7 V/m; Power Drift = -0.187 dB
Peak SAR (extrapolated) = 3.13 W/kg
SAR(1 g) = 0.710 mW/g; SAR(10 g) = 0.207 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
aximum value of SAR (measured) = 1.46 mW/g



0 dB = 1.46mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.16, 2012

DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5825 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5825 MHz; σ = 5.43 mho/m; ε_r = 34.9; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

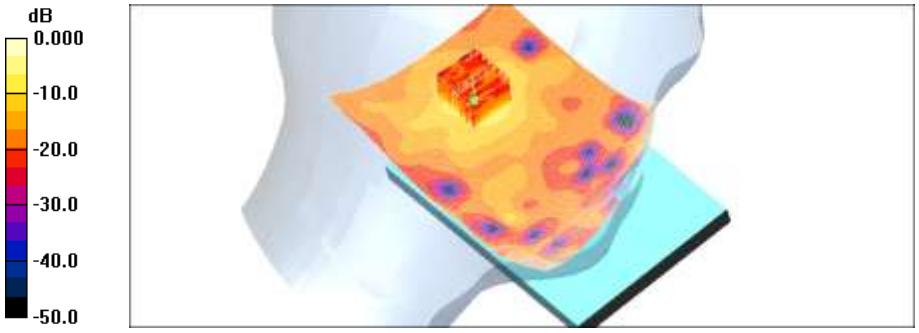
DASY4 Configuration:
- Probe: EX3DV4 - SN3863; ConvF(4.61, 4.61, 4.61); Calibrated: 2012-07-13
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

Left touch 802.11a 165ch 6Mbps/Area Scan (101x161x1): Measurement grid: dx=10mm, dy=10mm

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

Left touch 802.11a 165ch 6Mbps/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 16.2 V/m; Power Drift = -0.069 dB
Peak SAR (extrapolated) = 3.13 W/kg
SAR(1 g) = 0.690 mW/g; SAR(10 g) = 0.201 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
aximum value of SAR (measured) = 1.47 mW/g



0 dB = 1.47mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.16, 2012

DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5745 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5745 MHz; σ = 5.32 mho/m; ε_r = 35.2; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

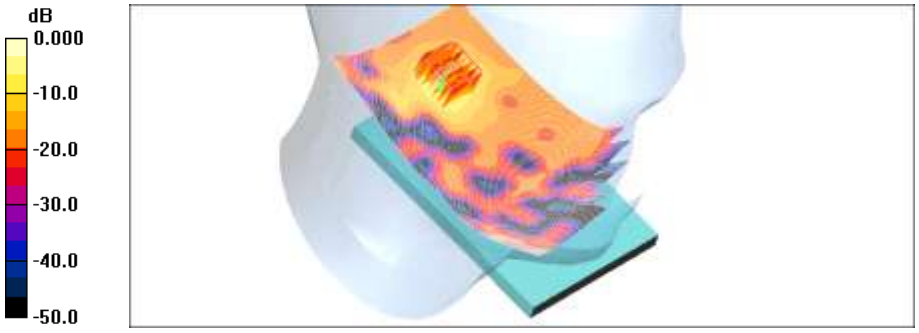
DASY4 Configuration:
- Probe: EX3DV4 - SN3863; ConvF(4.61, 4.61, 4.61); Calibrated: 2012-07-13
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

Left tilt 802.11a 149ch 6Mbps/Area Scan (101x161x1): Measurement grid: dx=10mm, dy=10mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.615 mW/g

Left tilt 802.11a 149ch 6Mbps/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 13.3 V/m; Power Drift = 0.027 dB
Peak SAR (extrapolated) = 2.84 W/kg
SAR(1 g) = 0.653 mW/g; SAR(10 g) = 0.189 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
aximum value of SAR (measured) = 1.36 mW/g



0 dB = 1.36mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.16, 2012

DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5785 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5785 MHz; σ = 5.36 mho/m; ε_r = 35; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

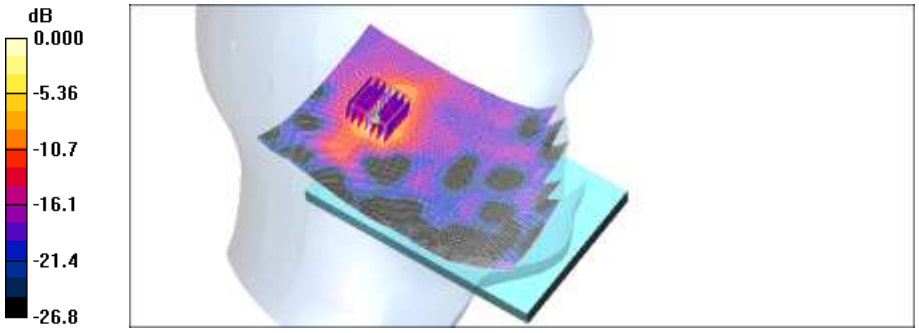
DASY4 Configuration:
- Probe: EX3DV4 - SN3863; ConvF(4.61, 4.61, 4.61); Calibrated: 2012-07-13
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

Left tilt 802.11a 157ch 6Mbps/Area Scan (101x161x1): Measurement grid: dx=10mm, dy=10mm

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

Left tilt 802.11a 157ch 6Mbps/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 13.7 V/m; Power Drift = -0.145 dB
Peak SAR (extrapolated) = 2.72 W/kg
SAR(1 g) = 0.607 mW/g; SAR(10 g) = 0.183 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
aximum value of SAR (measured) = 1.31 mW/g



0 dB = 1.31mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.16, 2012

DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5825 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5825 MHz; σ = 5.43 mho/m; ε_r = 34.9; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

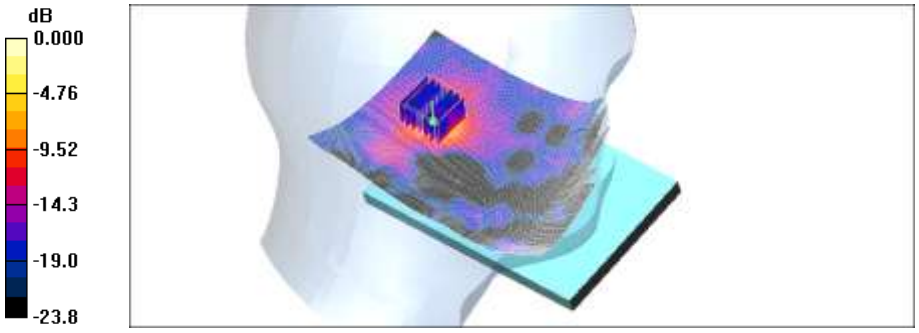
DASY4 Configuration:
- Probe: EX3DV4 - SN3863; ConvF(4.61, 4.61, 4.61); Calibrated: 2012-07-13
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

Left touch 802.11a 165ch 6Mbps/Area Scan (101x161x1): Measurement grid: dx=10mm, dy=10mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.637 mW/g

Left touch 802.11a 165ch 6Mbps/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 15.1 V/m; Power Drift = -0.130 dB
Peak SAR (extrapolated) = 3.00 W/kg
SAR(1 g) = 0.654 mW/g; SAR(10 g) = 0.197 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
aximum value of SAR (measured) = 1.38 mW/g



0 dB = 1.38mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.16, 2012

DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5745 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5745 MHz; σ = 5.32 mho/m; ε_r = 35.2; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

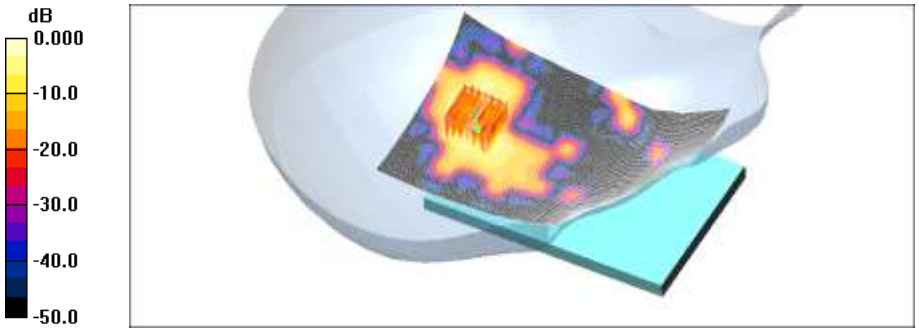
DASY4 Configuration:
- Probe: EX3DV4 - SN3863; ConvF(4.61, 4.61, 4.61); Calibrated: 2012-07-13
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

Right touch 802.11a 149ch 6Mbps/Area Scan (101x161x1): Measurement grid: dx=10mm, dy=10mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.696 mW/g

Right touch 802.11a 149ch 6Mbps/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 11.8 V/m; Power Drift = -0.002 dB
Peak SAR (extrapolated) = 2.27 W/kg
SAR(1 g) = 0.614 mW/g; SAR(10 g) = 0.178 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
aximum value of SAR (measured) = 0.749 mW/g



0 dB = 0.749mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.16, 2012

DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5785 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5785 MHz; σ = 5.36 mho/m; ε_r = 35; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

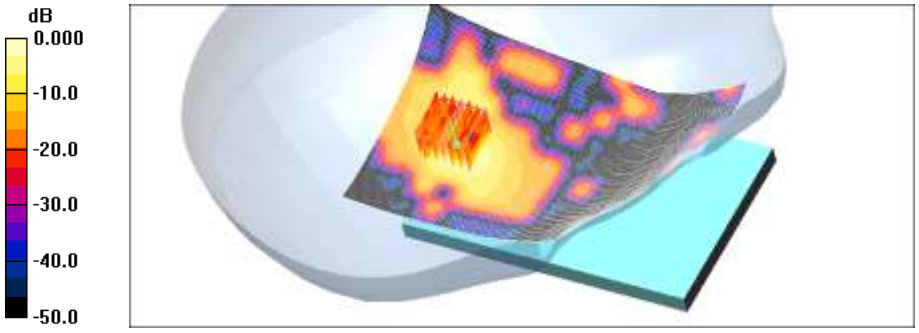
DASY4 Configuration:
- Probe: EX3DV4 - SN3863; ConvF(4.61, 4.61, 4.61); Calibrated: 2012-07-13
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

Right touch 802.11a 157ch 6Mbps/Area Scan (101x161x1): Measurement grid: dx=10mm, dy=10mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.661 mW/g

Right touch 802.11a 157ch 6Mbps/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 10.9 V/m; Power Drift = 0.102 dB
Peak SAR (extrapolated) = 2.47 W/kg
SAR(1 g) = 0.615 mW/g; SAR(10 g) = 0.175 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
aximum value of SAR (measured) = 0.732 mW/g



0 dB = 0.732mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.16, 2012

DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5825 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5825 MHz; σ = 5.43 mho/m; ε_r = 34.9; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

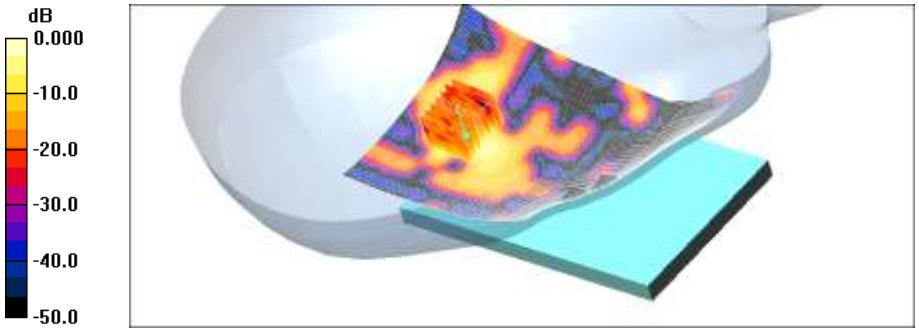
DASY4 Configuration:
- Probe: EX3DV4 - SN3863; ConvF(4.61, 4.61, 4.61); Calibrated: 2012-07-13
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

Right touch 802.11a 165ch 6Mbps/Area Scan (101x161x1): Measurement grid: dx=10mm, dy=10mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.746 mW/g

Right touch 802.11a 165ch 6Mbps/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 11.4 V/m; Power Drift = -0.086 dB
Peak SAR (extrapolated) = 2.29 W/kg
SAR(1 g) = 0.595 mW/g; SAR(10 g) = 0.172 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.704 mW/g



0 dB = 0.704mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.16, 2012

DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5745 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5745 MHz; σ = 5.32 mho/m; ε_r = 35.2; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

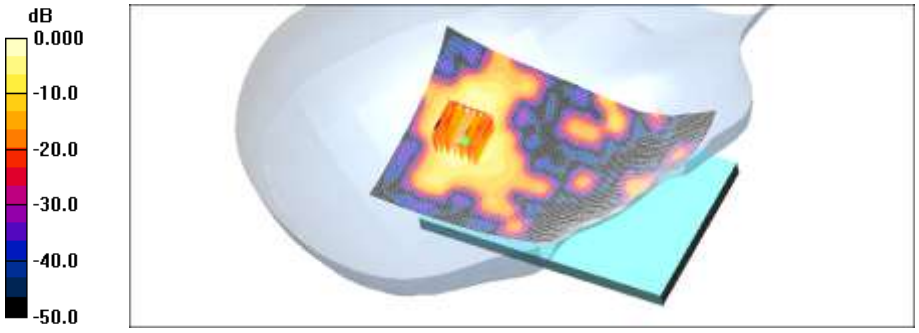
DASY4 Configuration:
- Probe: EX3DV4 - SN3863; ConvF(4.61, 4.61, 4.61); Calibrated: 2012-07-13
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

Right tilt 802.11a 149ch 6Mbps/Area Scan (101x161x1): Measurement grid: dx=10mm, dy=10mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.574 mW/g

Right tilt 802.11a 149ch 6Mbps/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 10.2 V/m; Power Drift = 0.080 dB
Peak SAR (extrapolated) = 1.84 W/kg
SAR(1 g) = 0.507 mW/g; SAR(10 g) = 0.153 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.598 mW/g



0 dB = 0.598mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.16, 2012

DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5785 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5785 MHz; σ = 5.36 mho/m; ε_r = 35; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

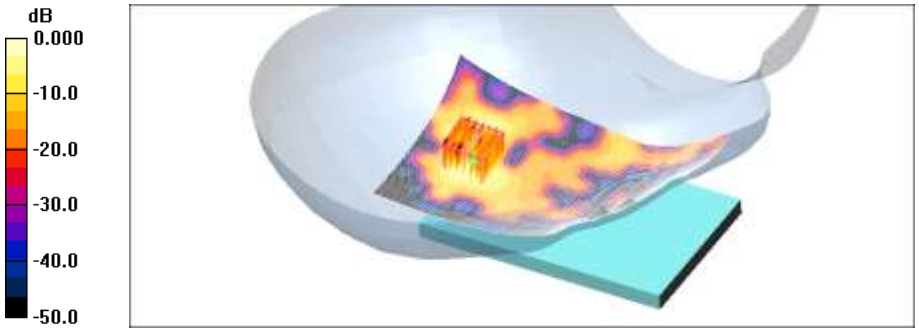
DASY4 Configuration:
- Probe: EX3DV4 - SN3863; ConvF(4.61, 4.61, 4.61); Calibrated: 2012-07-13
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

Right tilt 802.11a 157ch 6Mbps/Area Scan (101x161x1): Measurement grid: dx=10mm, dy=10mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.551 mW/g

Right tilt 802.11a 157ch 6Mbps/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 10.2 V/m; Power Drift = 0.136 dB
Peak SAR (extrapolated) = 1.94 W/kg
SAR(1 g) = 0.516 mW/g; SAR(10 g) = 0.156 mW/g

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



0 dB = 0.592mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.16, 2012

DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5825 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5825 MHz; σ = 5.43 mho/m; ε_r = 34.9; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

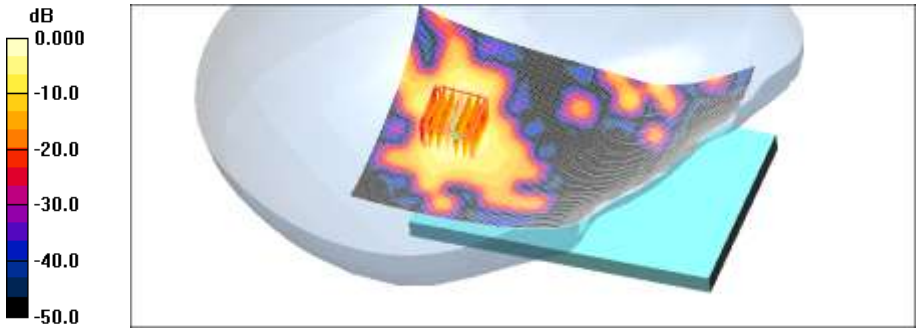
DASY4 Configuration:
- Probe: EX3DV4 - SN3863; ConvF(4.61, 4.61, 4.61); Calibrated: 2012-07-13
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

Right tilt 802.11a 165ch 6Mbps/Area Scan (101x161x1): Measurement grid: dx=10mm, dy=10mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.576 mW/g

Right tilt 802.11a 165ch 6Mbps/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 10.3 V/m; Power Drift = 0.112 dB
Peak SAR (extrapolated) = 2.05 W/kg
SAR(1 g) = 0.534 mW/g; SAR(10 g) = 0.156 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
aximum value of SAR (measured) = 0.642 mW/g



0 dB = 0.642mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.12, 2012
Separation Distance:	1.0 cm

DUT: LG-P895qb; 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 = 0.997 mho/m; ε_r = 54.1; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

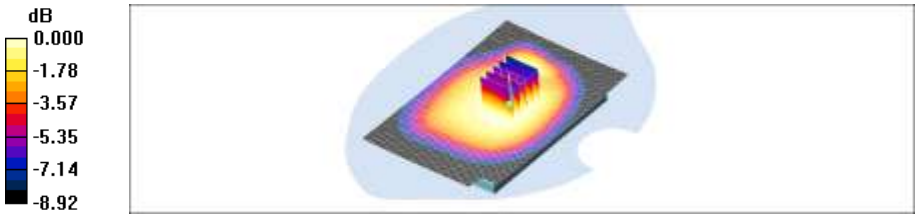
DASY4 Configuration:
- Probe: ET3DV6 - SN1609; ConvF(6.24, 6.24, 6.24); Calibrated: 2012-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

GSM850 GPRS Hotspot Rear 190 4Tx/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm

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

GSM850 GPRS Hotspot Rear 190 4Tx/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.3 V/m; Power Drift = -0.011 dB
Peak SAR (extrapolated) = 0.531 W/kg
SAR(1 g) = 0.439 mW/g; SAR(10 g) = 0.339 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.463 mW/g



0 dB = 0.463mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.12, 2012
Separation Distance:	1.0 cm

DUT: LG-P895qb; 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 = 0.997 mho/m; ε_r = 54.1; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

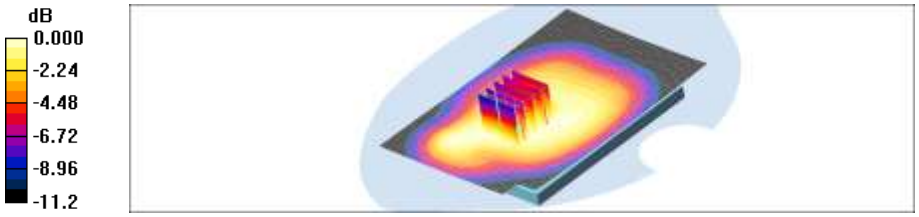
DASY4 Configuration:
- Probe: ET3DV6 - SN1609; ConvF(6.24, 6.24, 6.24); Calibrated: 2012-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

GSM850 GPRS Hotspot Front 190 4Tx/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.255 mW/g

GSM850 GPRS Hotspot Front 190 4Tx/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.7 V/m; Power Drift = 0.004 dB
Peak SAR (extrapolated) = 0.301 W/kg
SAR(1 g) = 0.242 mW/g; SAR(10 g) = 0.184 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.255 mW/g



0 dB = 0.255mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.12, 2012
Separation Distance:	1.0 cm

DUT: LG-P895qb; 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 = 0.997 mho/m; ε_r = 54.1; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

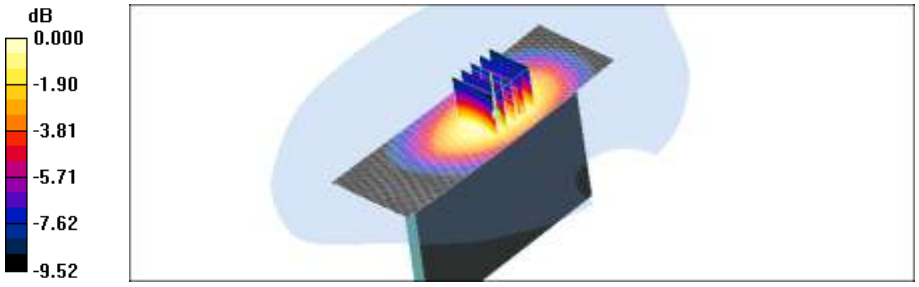
DASY4 Configuration:
- Probe: ET3DV6 - SN1609; ConvF(6.24, 6.24, 6.24); Calibrated: 2012-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

GSM850 GPRS Hotspot Left side 190 4Tx/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

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

GSM850 GPRS Hotspot Left side 190 4Tx/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.7 V/m; Power Drift = -0.054 dB
Peak SAR (extrapolated) = 0.301 W/kg
SAR(1 g) = 0.219 mW/g; SAR(10 g) = 0.149 mW/g

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



0 dB = 0.230mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.12, 2012
Separation Distance:	1.0 cm

DUT: LG-P895qb; 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 = 0.997 mho/m; ε_r = 54.1; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

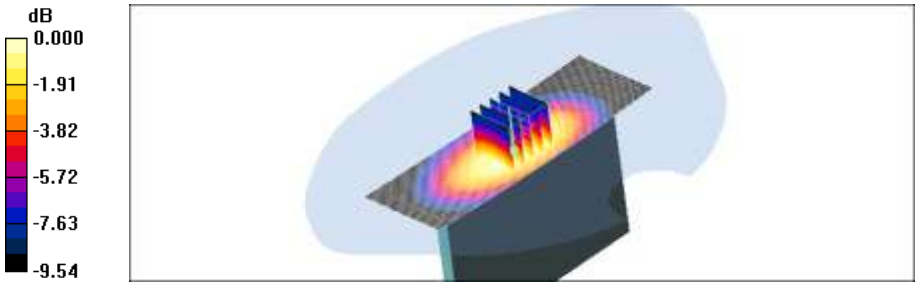
DASY4 Configuration:
- Probe: ET3DV6 - SN1609; ConvF(6.24, 6.24, 6.24); Calibrated: 2012-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

GSM850 GPRS Hotspot Right side 190 4Tx/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.345 mW/g

GSM850 GPRS Hotspot Right side 190 4Tx/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.8 V/m; Power Drift = -0.011 dB
Peak SAR (extrapolated) = 0.436 W/kg
SAR(1 g) = 0.321 mW/g; SAR(10 g) = 0.221 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.345 mW/g



0 dB = 0.345mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.12, 2012
Separation Distance:	1.0 cm

DUT: LG-P895qb; 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 = 0.997 mho/m; ε_r = 54.1; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

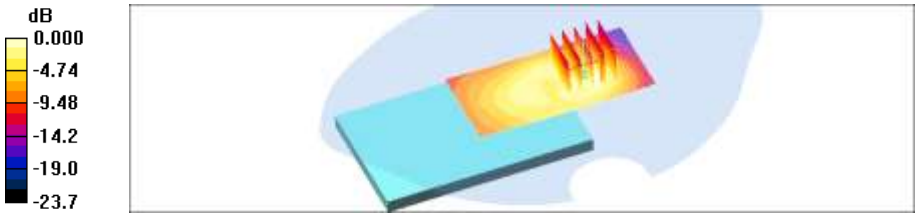
DASY4 Configuration:
- Probe: ET3DV6 - SN1609; ConvF(6.24, 6.24, 6.24); Calibrated: 2012-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

GSM850 GPRS Hotspot Bottom 4Tx 190/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

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

GSM850 GPRS Hotspot Bottom 4Tx 190/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.74 V/m; Power Drift = -0.097 dB
Peak SAR (extrapolated) = 0.279 W/kg
SAR(1 g) = 0.150 mW/g; SAR(10 g) = 0.082 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/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.13, 2012
Separation Distance:	1.0 cm

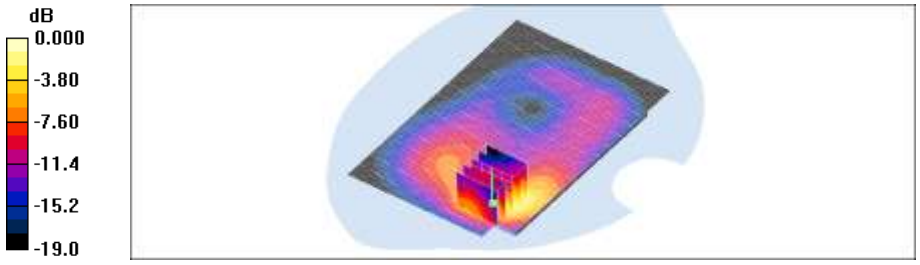
DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:2.77
Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2012-02-21
- Phantom: 800/900 Phantom; Type: SAM

Hotspot Body Rear 661 3Tx/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.622 mW/g

Hotspot Body Rear 661 3Tx/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.82 V/m; Power Drift = 0.018 dB
Peak SAR (extrapolated) = 1.40 W/kg
SAR(1 g) = 0.773 mW/g; SAR(10 g) = 0.397 mW/g
Maximum value of SAR (measured) = 0.850 mW/g



0 dB = 0.850mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.13, 2012
Separation Distance:	1.0 cm

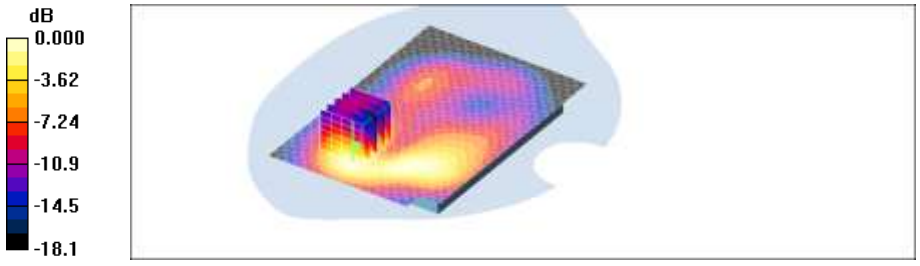
DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:2.77
Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2012-02-21
- Phantom: 800/900 Phantom; Type: SAM

Hotspot Body Front 661 3Tx/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.338 mW/g

Hotspot Body Front 661 3Tx/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.80 V/m; Power Drift = 0.020 dB
Peak SAR (extrapolated) = 0.543 W/kg
SAR(1 g) = 0.305 mW/g; SAR(10 g) = 0.172 mW/g
Maximum value of SAR (measured) = 0.349 mW/g



0 dB = 0.349mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.13, 2012
Separation Distance:	1.0 cm

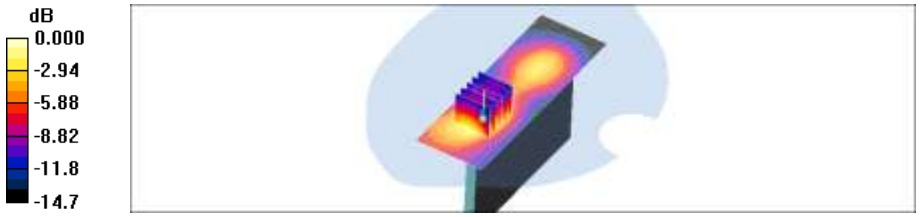
DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:2.77
Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2012-02-21
- Phantom: 800/900 Phantom; Type: SAM

GSM1900 GPRS Hotspot Left side 661/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.233 mW/g

GSM1900 GPRS Hotspot Left side 661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.94 V/m; Power Drift = -0.070 dB
Peak SAR (extrapolated) = 0.325 W/kg
SAR(1 g) = 0.207 mW/g; SAR(10 g) = 0.124 mW/g
Maximum value of SAR (measured) = 0.231 mW/g



0 dB = 0.231mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.13, 2012
Separation Distance:	1.0 cm

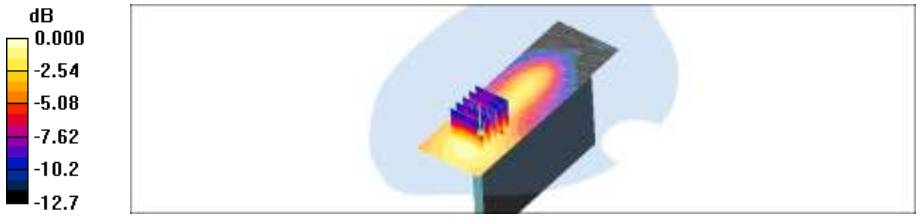
DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:2.77
Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2012-02-21
- Phantom: 800/900 Phantom; Type: SAM

Hotspot Right side 661 3Tx/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.107 mW/g

Hotspot Right side 661 3Tx/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.81 V/m; Power Drift = 0.088 dB
Peak SAR (extrapolated) = 0.157 W/kg
SAR(1 g) = 0.100 mW/g; SAR(10 g) = 0.064 mW/g
Maximum value of SAR (measured) = 0.107 mW/g



0 dB = 0.107mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.13, 2012
Separation Distance:	1.0 cm

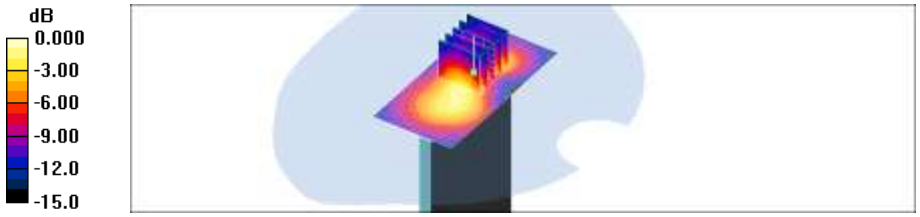
DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:2.77
Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2012-02-21
- Phantom: 800/900 Phantom; Type: SAM

GSM1900 GPRS Hotspot Bottom Side 661/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.430 mW/g

GSM1900 GPRS Hotspot Bottom Side 661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.3 V/m; Power Drift = -0.034 dB
Peak SAR (extrapolated) = 0.650 W/kg
SAR(1 g) = 0.380 mW/g; SAR(10 g) = 0.209 mW/g
Maximum value of SAR (measured) = 0.417 mW/g



0 dB = 0.417mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.12, 2012
Separation Distance:	1.0 cm

DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.997 mho/m; ε_r = 54.1; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

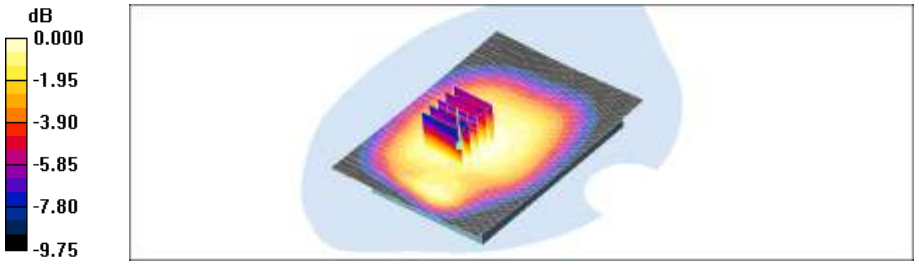
DASY4 Configuration:
- Probe: ET3DV6 - SN1609; ConvF(6.24, 6.24, 6.24); Calibrated: 2012-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

WCDMA850 Hotspot Rear 4183/Area Scan (81x111x1): Measurement grid: dx=15mm, dy=15mm

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

WCDMA850 Hotspot Rear 4183/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.9 V/m; Power Drift = -0.004 dB
Peak SAR (extrapolated) = 0.356 W/kg
SAR(1 g) = 0.288 mW/g; SAR(10 g) = 0.221 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
aximum value of SAR (measured) = 0.302 mW/g



0 dB = 0.302mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.12, 2012
Separation Distance:	1.0 cm

DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.997 mho/m; ε_r = 54.1; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

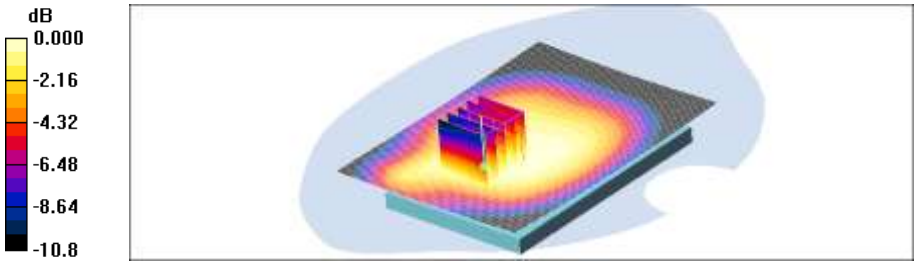
DASY4 Configuration:
- Probe: ET3DV6 - SN1609; ConvF(6.24, 6.24, 6.24); Calibrated: 2012-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

WCDMA850 Hotspot Front 4183/Area Scan (81x111x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.183 mW/g

WCDMA850 Hotspot Front 4183/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.7 V/m; Power Drift = -0.015 dB
Peak SAR (extrapolated) = 0.208 W/kg
SAR(1 g) = 0.172 mW/g; SAR(10 g) = 0.133 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
aximum 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/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.12, 2012
Separation Distance:	1.0 cm

DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.997 mho/m; ε_r = 54.1; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

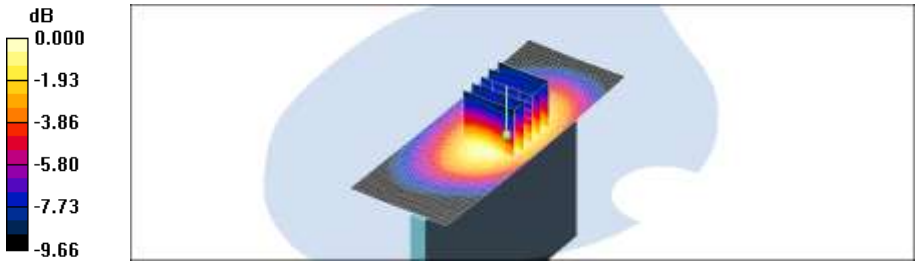
DASY4 Configuration:
- Probe: ET3DV6 - SN1609; ConvF(6.24, 6.24, 6.24); Calibrated: 2012-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

WCDMA850 Hotspot Left side 4183/Area Scan (41x111x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.166 mW/g

WCDMA850 Hotspot Left side 4183/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.8 V/m; Power Drift = -0.027 dB
Peak SAR (extrapolated) = 0.208 W/kg
SAR(1 g) = 0.155 mW/g; SAR(10 g) = 0.107 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.166 mW/g



0 dB = 0.166mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.12, 2012
Separation Distance:	1.0 cm

DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.997 mho/m; ε_r = 54.1; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

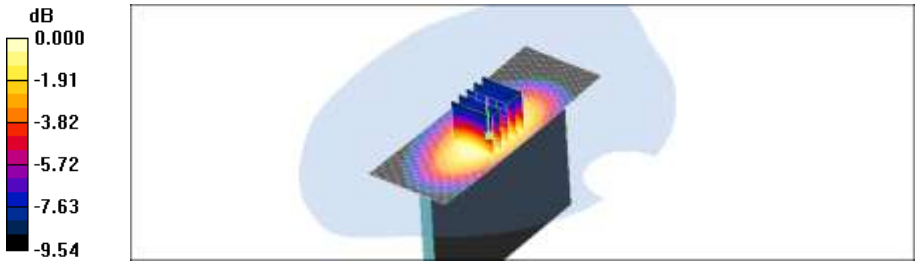
DASY4 Configuration:
- Probe: ET3DV6 - SN1609; ConvF(6.24, 6.24, 6.24); Calibrated: 2012-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

WCDMA850 Hotspot Right side 4183/Area Scan (41x111x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.228 mW/g

WCDMA850 Hotspot Right side 4183/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.1 V/m; Power Drift = 0.079 dB
Peak SAR (extrapolated) = 0.288 W/kg
SAR(1 g) = 0.212 mW/g; SAR(10 g) = 0.146 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.229 mW/g



0 dB = 0.229mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.12, 2012
Separation Distance:	1.0 cm

DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.997 mho/m; ε_r = 54.1; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

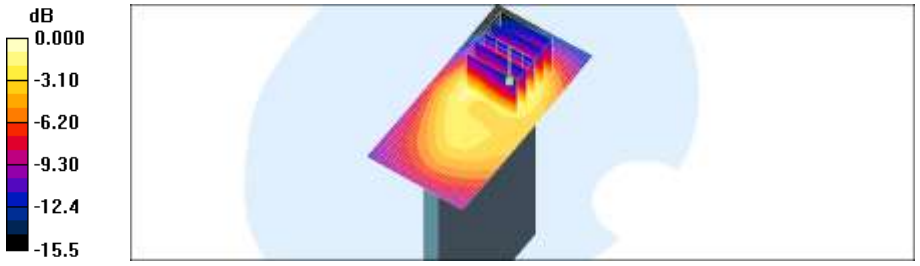
DASY4 Configuration:
- Probe: ET3DV6 - SN1609; ConvF(6.24, 6.24, 6.24); Calibrated: 2012-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

WCDMA850 Hotspot Bottom 4183/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

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

WCDMA850 Hotspot Bottom 4183/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.46 V/m; Power Drift = -0.003 dB
Peak SAR (extrapolated) = 0.194 W/kg
SAR(1 g) = 0.104 mW/g; SAR(10 g) = 0.057 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.115 mW/g



0 dB = 0.115mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.13, 2012
Separation Distance:	1.0 cm

DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: WCDMA1900; Frequency: 1852.4 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.51 mho/m; ε_r = 52.2; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

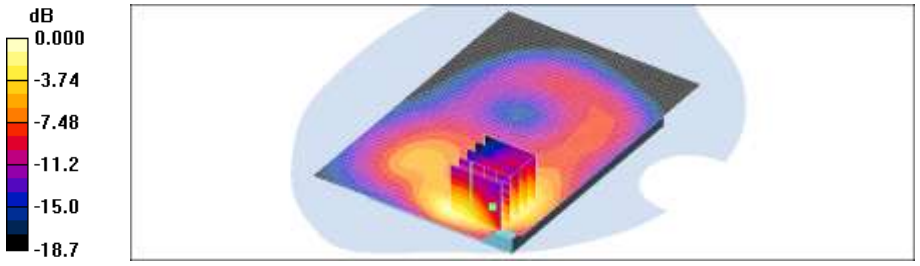
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2012-02-21
- Phantom: 800/900 Phantom; Type: SAM

Hotspot Body Rear 9262/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.663 mW/g

Hotspot Body Rear 9262/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.91 V/m; Power Drift = -0.058 dB
Peak SAR (extrapolated) = 1.08 W/kg
SAR(1 g) = 0.634 mW/g; SAR(10 g) = 0.365 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.718 mW/g



0 dB = 0.718mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.13, 2012
Separation Distance:	1.0 cm

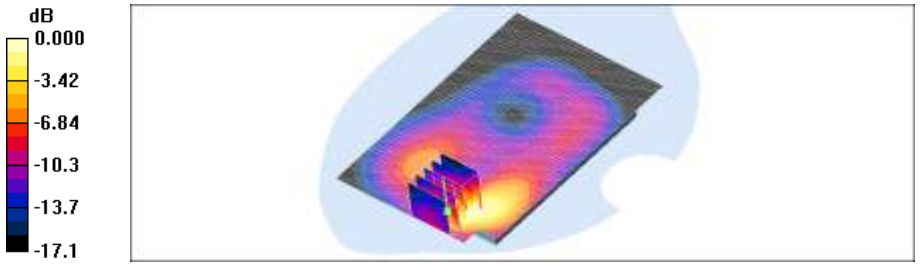
DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: WCDMA1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2012-02-21
- Phantom: 800/900 Phantom; Type: SAM

Hotspot Body Rear 9400/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.920 mW/g

Hotspot Body Rear 9400/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.85 V/m; Power Drift = 0.025 dB
Peak SAR (extrapolated) = 1.62 W/kg
SAR(1 g) = 0.894 mW/g; SAR(10 g) = 0.471 mW/g
aximum value of SAR (measured) = 0.950 mW/g



0 dB = 0.950mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.13, 2012
Separation Distance:	1.0 cm

DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: WCDMA1900; Frequency: 1907.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1907.6 MHz; σ = 1.57 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

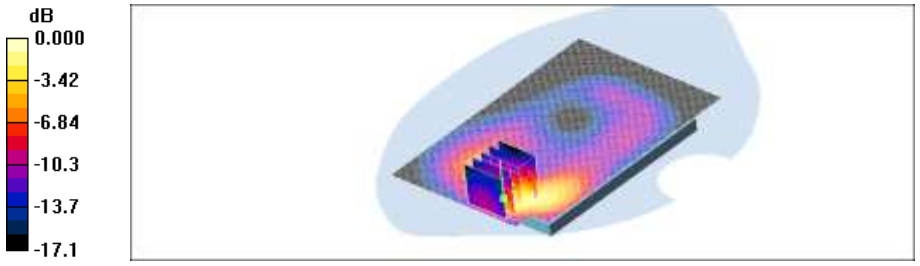
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2012-02-21
- Phantom: 800/900 Phantom; Type: SAM

Hotspot Body Rear 9538/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 1.16 mW/g

Hotspot Body Rear 9538/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.87 V/m; Power Drift = -0.135 dB
Peak SAR (extrapolated) = 2.18 W/kg
SAR(1 g) = 1.19 mW/g; SAR(10 g) = 0.607 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.30 mW/g



0 dB = 1.30mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.13, 2012
Separation Distance:	1.0 cm

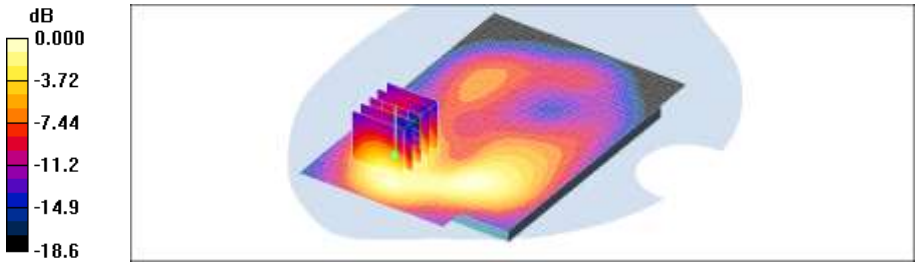
DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: WCDMA1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2012-02-21
- Phantom: 800/900 Phantom; Type: SAM

Hotspot Body Front 9400/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.446 mW/g

Hotspot Body Front 9400/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.70 V/m; Power Drift = 0.059 dB
Peak SAR (extrapolated) = 0.689 W/kg
SAR(1 g) = 0.404 mW/g; SAR(10 g) = 0.228 mW/g
Maximum value of SAR (measured) = 0.443 mW/g



0 dB = 0.443mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.13, 2012
Separation Distance:	1.0 cm

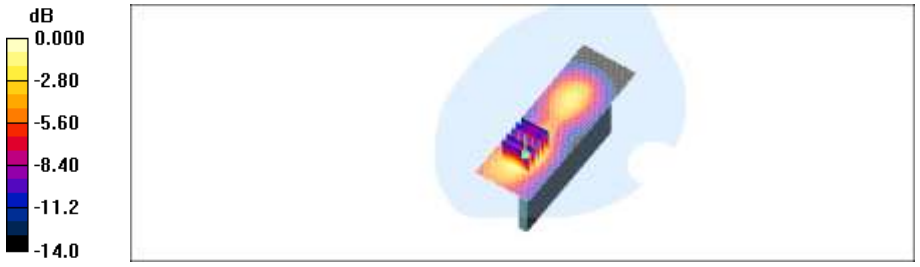
DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: WCDMA1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2012-02-21
- Phantom: 800/900 Phantom; Type: SAM

Body Left 9400/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.290 mW/g

Body Left 9400/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.98 V/m; Power Drift = -0.009 dB
Peak SAR (extrapolated) = 0.412 W/kg
SAR(1 g) = 0.261 mW/g; SAR(10 g) = 0.157 mW/g
Maximum value of SAR (measured) = 0.285 mW/g



0 dB = 0.285mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.13, 2012
Separation Distance:	1.0 cm

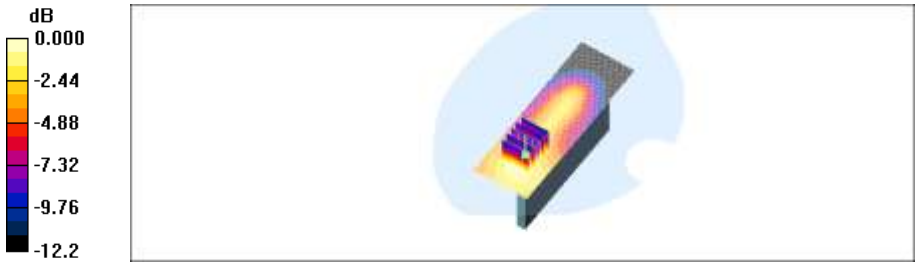
DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: WCDMA1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2012-02-21
- Phantom: 800/900 Phantom; Type: SAM

Hotspot Right side 9400/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.131 mW/g

Hotspot Right side 9400/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.86 V/m; Power Drift = 0.044 dB
Peak SAR (extrapolated) = 0.185 W/kg
SAR(1 g) = 0.121 mW/g; SAR(10 g) = 0.078 mW/g
Maximum value of SAR (measured) = 0.131 mW/g



0 dB = 0.131mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.13, 2012
Separation Distance:	1.0 cm

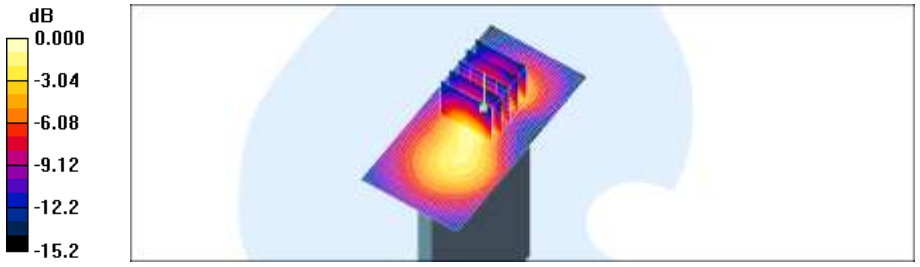
DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: WCDMA1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2012-02-21
- Phantom: 800/900 Phantom; Type: SAM

Body Bottom 9400/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.603 mW/g

Body Bottom 9400/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.9 V/m; Power Drift = 0.007 dB
Peak SAR (extrapolated) = 0.901 W/kg
SAR(1 g) = 0.529 mW/g; SAR(10 g) = 0.289 mW/g
Maximum value of SAR (measured) = 0.579 mW/g



0 dB = 0.579mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.14, 2012
Separation Distance:	1.0 cm

DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: 2450MHz FCC; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2462 MHz; σ = 2.03 mho/m; ε_r = 51.2; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

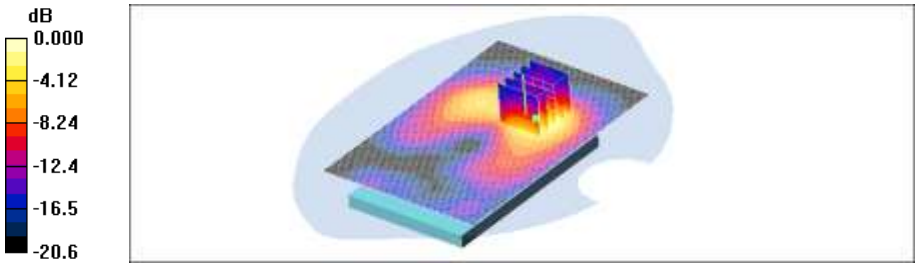
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.3, 4.3, 4.3); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2012-02-21
- Phantom: 800/900 Phantom; Type: SAM

802.11b Hotspot Rear 11ch 1Mbps/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.334 mW/g

802.11b Hotspot Rear 11ch 1Mbps/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.47 V/m; Power Drift = 0.041 dB
Peak SAR (extrapolated) = 0.806 W/kg
SAR(1 g) = 0.326 mW/g; SAR(10 g) = 0.162 mW/g

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



0 dB = 0.337mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.14, 2012
Separation Distance:	1.0 cm

DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: 2450MHz FCC; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2462 MHz; σ = 2.03 mho/m; ε_r = 51.2; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

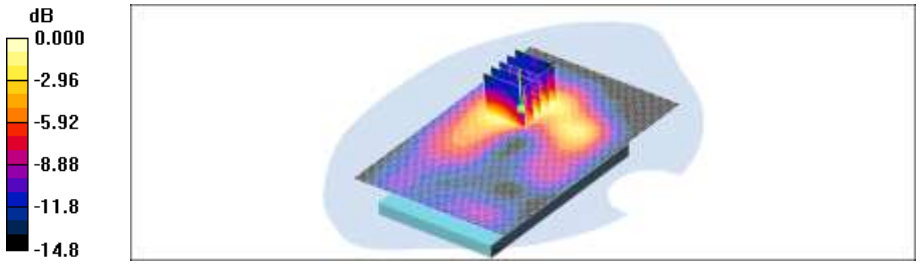
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.3, 4.3, 4.3); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2012-02-21
- Phantom: 800/900 Phantom; Type: SAM

802.11b Hotspot Front 11ch 1Mbps/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm

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

802.11b Hotspot Front 11ch 1Mbps/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 1.85 V/m; Power Drift = 0.052 dB
Peak SAR (extrapolated) = 0.230 W/kg
SAR(1 g) = 0.106 mW/g; SAR(10 g) = 0.058 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.109 mW/g



0 dB = 0.109mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.14, 2012
Separation Distance:	1.0 cm

DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: 2450MHz FCC; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2462 MHz; σ = 2.03 mho/m; ε_r = 51.2; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

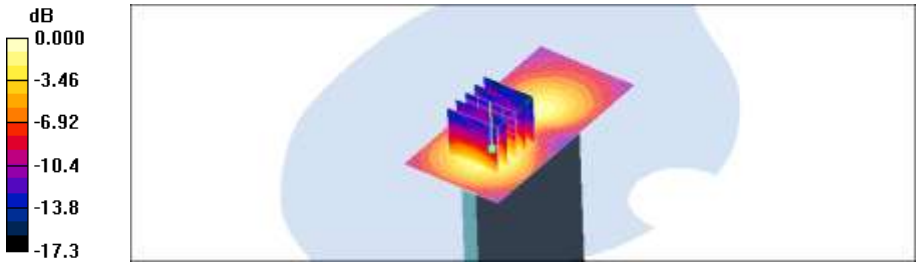
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.3, 4.3, 4.3); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2012-02-21
- Phantom: 800/900 Phantom; Type: SAM

801.11b Hotspot Top side 11ch 1Mbps/Area Scan (41x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.148 mW/g

801.11b Hotspot Top side 11ch 1Mbps/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.41 V/m; Power Drift = 0.075 dB
Peak SAR (extrapolated) = 0.236 W/kg
SAR(1 g) = 0.129 mW/g; SAR(10 g) = 0.071 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.143 mW/g



0 dB = 0.143mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.16, 2012
Separation Distance:	1.0 cm

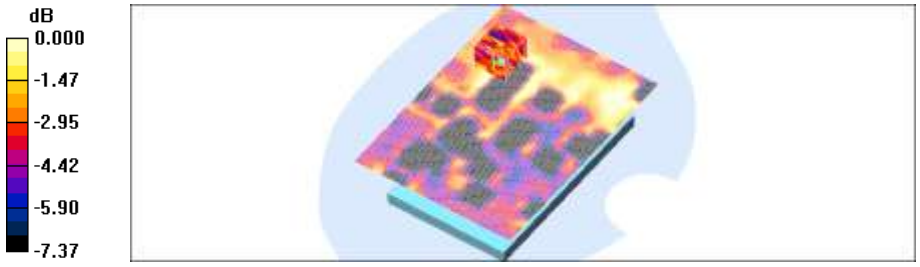
DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5500 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5500 MHz; σ = 5.68 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 - SN3863; ConvF(3.91, 3.91, 3.91); Calibrated: 2012-07-13
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 835/900 MHz; Type: SAM

WIFI 5GHz Body Rear 100ch 6Mbps/Area Scan (121x161x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.061 mW/g

WIFI 5GHz Body Rear 100ch 6Mbps/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.61 V/m; Power Drift = 0.047 dB
Peak SAR (extrapolated) = 0.120 W/kg
SAR(1 g) = 0.031 mW/g; SAR(10 g) = 0.023 mW/g
aximum value of SAR (measured) = 0.047 mW/g



0 dB = 0.047mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.16, 2012
Separation Distance:	1.0 cm

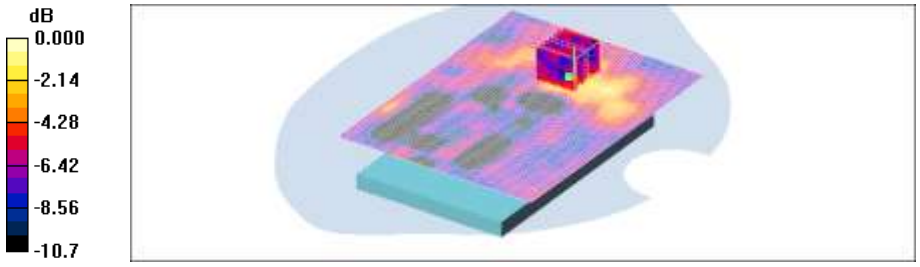
DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5500 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5500 MHz; σ = 5.68 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 - SN3863; ConvF(3.91, 3.91, 3.91); Calibrated: 2012-07-13
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 835/900 MHz; Type: SAM

WIFI 5GHz Body Front 100ch 6Mbps/Area Scan (121x161x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.076 mW/g

WIFI 5GHz Body Front 100ch 6Mbps/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.58 V/m; Power Drift = -0.077 dB
Peak SAR (extrapolated) = 0.371 W/kg
SAR(1 g) = 0.054 mW/g; SAR(10 g) = 0.031 mW/g
aximum value of SAR (measured) = 0.094 mW/g



0 dB = 0.094mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.16, 2012
Separation Distance:	1.0 cm

DUT: LG-P895qb; 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 = 46.2; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

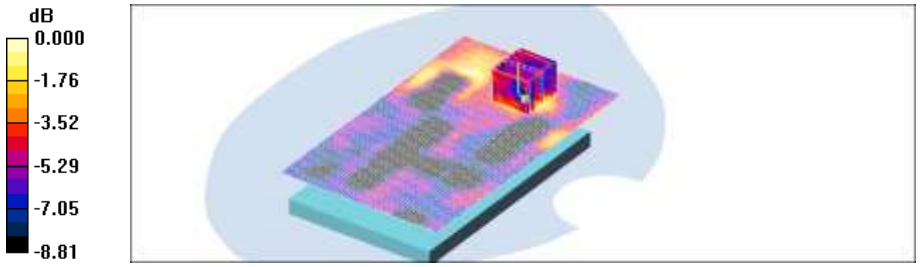
DASY4 Configuration:
- Probe: EX3DV4 - SN3863; ConvF(3.81, 3.81, 3.81); Calibrated: 2012-07-13
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 835/900 MHz; Type: SAM

WIFI 5GHz Body Rear 149ch 6Mbps/Area Scan (101x161x1): Measurement grid: dx=10mm, dy=10mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.083 mW/g

WIFI 5GHz Body Rear 149ch 6Mbps/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.98 V/m; Power Drift = -0.072 dB
Peak SAR (extrapolated) = 0.281 W/kg
SAR(1 g) = 0.062 mW/g; SAR(10 g) = 0.036 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
aximum value of SAR (measured) = 0.093 mW/g



0 dB = 0.093mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.16, 2012
Separation Distance:	1.0 cm

DUT: LG-P895qb; 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 = 46.2; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

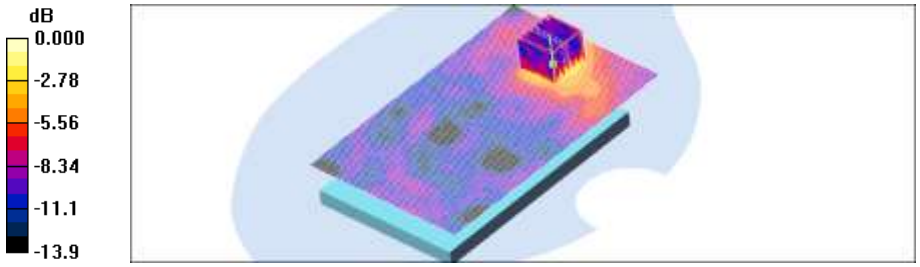
DASY4 Configuration:
- Probe: EX3DV4 - SN3863; ConvF(3.81, 3.81, 3.81); Calibrated: 2012-07-13
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 835/900 MHz; Type: SAM

WIFI 5GHz Body Front 149ch 6Mbps/Area Scan (101x161x1): Measurement grid: dx=10mm, dy=10mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.231 mW/g

WIFI 5GHz Body Front 149ch 6Mbps/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.86 V/m; Power Drift = 0.074 dB
Peak SAR (extrapolated) = 0.412 W/kg
SAR(1 g) = 0.130 mW/g; SAR(10 g) = 0.061 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
aximum value of SAR (measured) = 0.234 mW/g



0 dB = 0.234mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.12, 2012

DUT: LG-P895qb; 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 = 0.902 mho/m; ε_r = 43; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

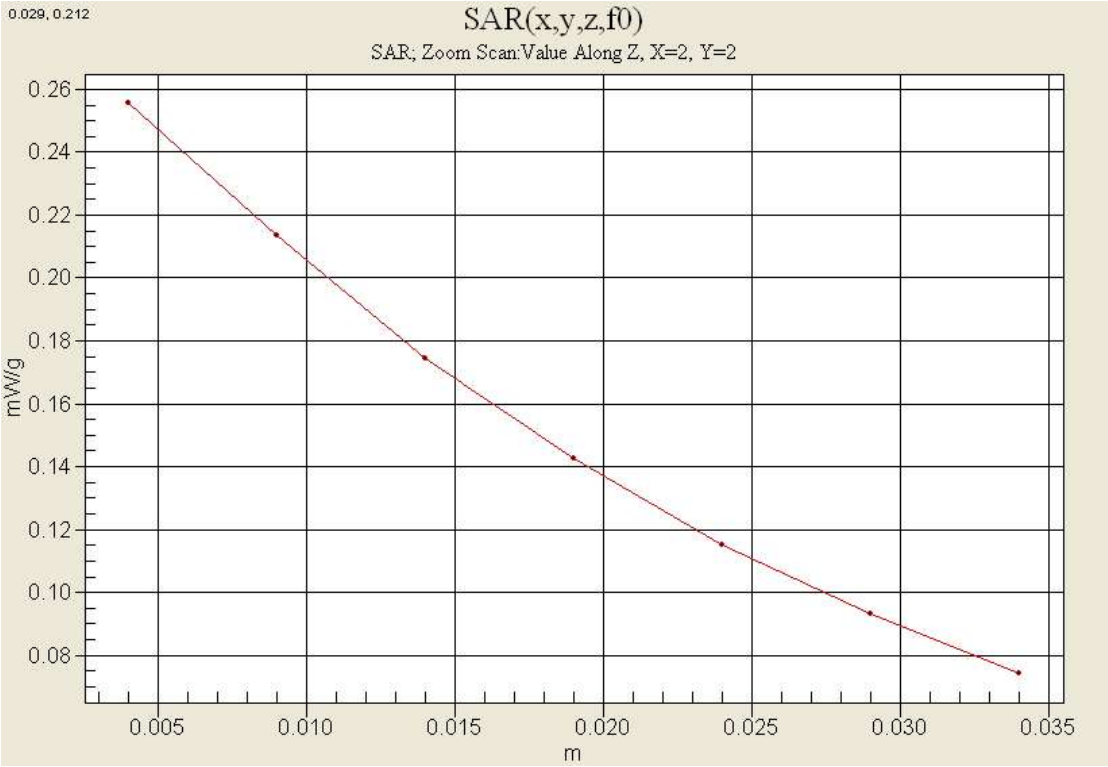
DASY4 Configuration:
- Probe: ET3DV6 - SN1609; ConvF(6.36, 6.36, 6.36); Calibrated: 2012-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

Right touch 190/Area Scan (81x111x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.255 mW/g

Right touch 190/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.30 V/m; Power Drift = -0.055 dB
Peak SAR (extrapolated) = 0.305 W/kg
SAR(1 g) = 0.246 mW/g; SAR(10 g) = 0.192 mW/g

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



Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.12, 2012

DUT: LG-P895qb; 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 = 0.997 mho/m; ε_r = 54.1; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1609; ConvF(6.24, 6.24, 6.24); Calibrated: 2012-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

GSM850 GPRS Hotspot Rear 190 4Tx/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm

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

GSM850 GPRS Hotspot Rear 190 4Tx/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.3 V/m; Power Drift = -0.011 dB
Peak SAR (extrapolated) = 0.531 W/kg
SAR(1 g) = 0.439 mW/g; SAR(10 g) = 0.339 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.463 mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.13, 2012

DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.39 mho/m; ε_r = 39.9; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2012-02-21
- Phantom: 800/900 Phantom; Type: SAM

Right touch 661/Area Scan (81x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.177 mW/g

Right touch 661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.71 V/m; Power Drift = -0.041 dB
Peak SAR (extrapolated) = 0.239 W/kg
SAR(1 g) = 0.161 mW/g; SAR(10 g) = 0.098 mW/g
Maximum value of SAR (measured) = 0.177 mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.13, 2012

DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:2.77
Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2012-02-21
- Phantom: 800/900 Phantom; Type: SAM

Hotspot Body Rear 661 3Tx/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.622 mW/g

Hotspot Body Rear 661 3Tx/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.82 V/m; Power Drift = 0.018 dB
Peak SAR (extrapolated) = 1.40 W/kg
SAR(1 g) = 0.773 mW/g; SAR(10 g) = 0.397 mW/g
Maximum value of SAR (measured) = 0.850 mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.12, 2012

DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.902 mho/m; ε_r = 43; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1609; ConvF(6.36, 6.36, 6.36); Calibrated: 2012-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: 1800/1900 Phantom; Type: SAM

Right Touch 4183/Area Scan (81x111x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.203 mW/g

Right Touch 4183/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.02 V/m; Power Drift = 0.014 dB
Peak SAR (extrapolated) = 0.247 W/kg
SAR(1 g) = 0.193 mW/g; SAR(10 g) = 0.144 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.202 mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.12, 2012

DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.997 mho/m; ε_r = 54.1; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1609; ConvF(6.24, 6.24, 6.24); Calibrated: 2012-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

WCDMA850 Hotspot Rear 4183/Area Scan (81x111x1): Measurement grid: dx=15mm, dy=15mm

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

WCDMA850 Hotspot Rear 4183/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.9 V/m; Power Drift = -0.004 dB
Peak SAR (extrapolated) = 0.356 W/kg
SAR(1 g) = 0.288 mW/g; SAR(10 g) = 0.221 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
aximum value of SAR (measured) = 0.302 mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.13, 2012

DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: WCDMA1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.39 mho/m; ε_r = 39.9; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2012-02-21
- Phantom: 800/900 Phantom; Type: SAM

Left touch 9400/Area Scan (81x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.238 mW/g

Left touch 9400/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.89 V/m; Power Drift = -0.175 dB
Peak SAR (extrapolated) = 0.337 W/kg
SAR(1 g) = 0.218 mW/g; SAR(10 g) = 0.131 mW/g
Maximum value of SAR (measured) = 0.240 mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.13, 2012

DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: WCDMA1900; Frequency: 1907.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1907.6 MHz; σ = 1.57 mho/m; ε_r = 52.1; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

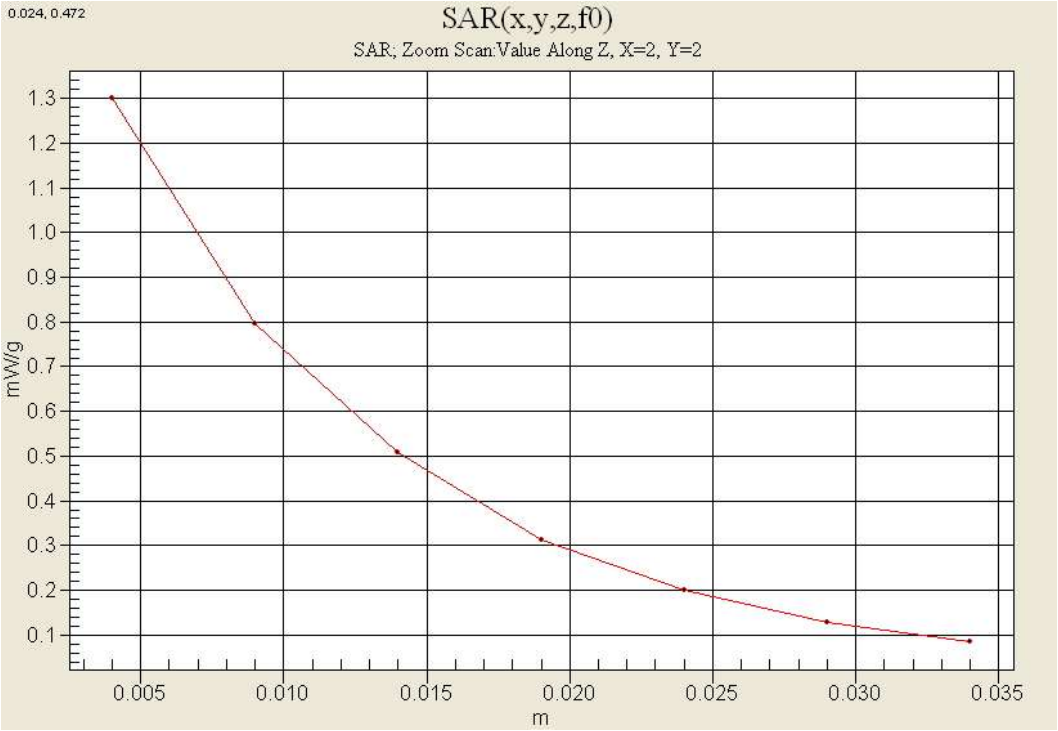
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2012-02-21
- Phantom: 800/900 Phantom; Type: SAM

Hotspot Body Rear 9538/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 1.16 mW/g

Hotspot Body Rear 9538/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.87 V/m; Power Drift = -0.135 dB
Peak SAR (extrapolated) = 2.18 W/kg
SAR(1 g) = 1.19 mW/g; SAR(10 g) = 0.607 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.30 mW/g



Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.14, 2012

DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: 2450MHz FCC; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2437 MHz; σ = 1.83 mho/m; ε_r = 38.2; ρ = 1000 kg/m^3
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

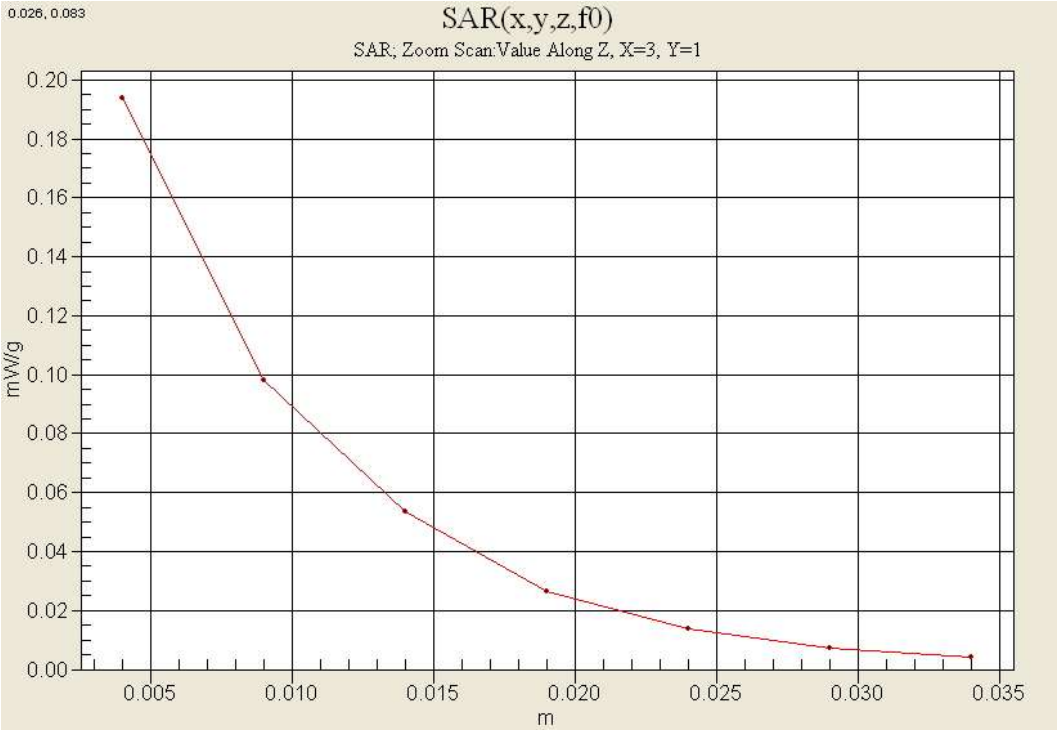
DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.57, 4.57, 4.57); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2012-02-21
- Phantom: 800/900 Phantom; Type: SAM

801.11b Right touch 11ch 1Mbps/Area Scan (81x111x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.193 mW/g

801.11b Right touch 11ch 1Mbps/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.81 V/m; Power Drift = 0.050 dB
Peak SAR (extrapolated) = 0.413 W/kg
SAR(1 g) = 0.183 mW/g; SAR(10 g) = 0.086 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.194 mW/g



Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.14, 2012

DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: 2450MHz FCC; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2462 MHz; σ = 2.03 mho/m; ε_r = 51.2; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.3, 4.3, 4.3); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2012-02-21
- Phantom: 800/900 Phantom; Type: SAM

802.11b Hotspot Rear 11ch 1Mbps/Area Scan (81x121x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.334 mW/g

802.11b Hotspot Rear 11ch 1Mbps/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.47 V/m; Power Drift = 0.041 dB
Peak SAR (extrapolated) = 0.806 W/kg
SAR(1 g) = 0.326 mW/g; SAR(10 g) = 0.162 mW/g

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

Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.16, 2012

DUT: LG-P895qb; Type: bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5745 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5745 MHz; σ = 5.32 mho/m; ε_r = 35.2; ρ = 1000 kg/m^3
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

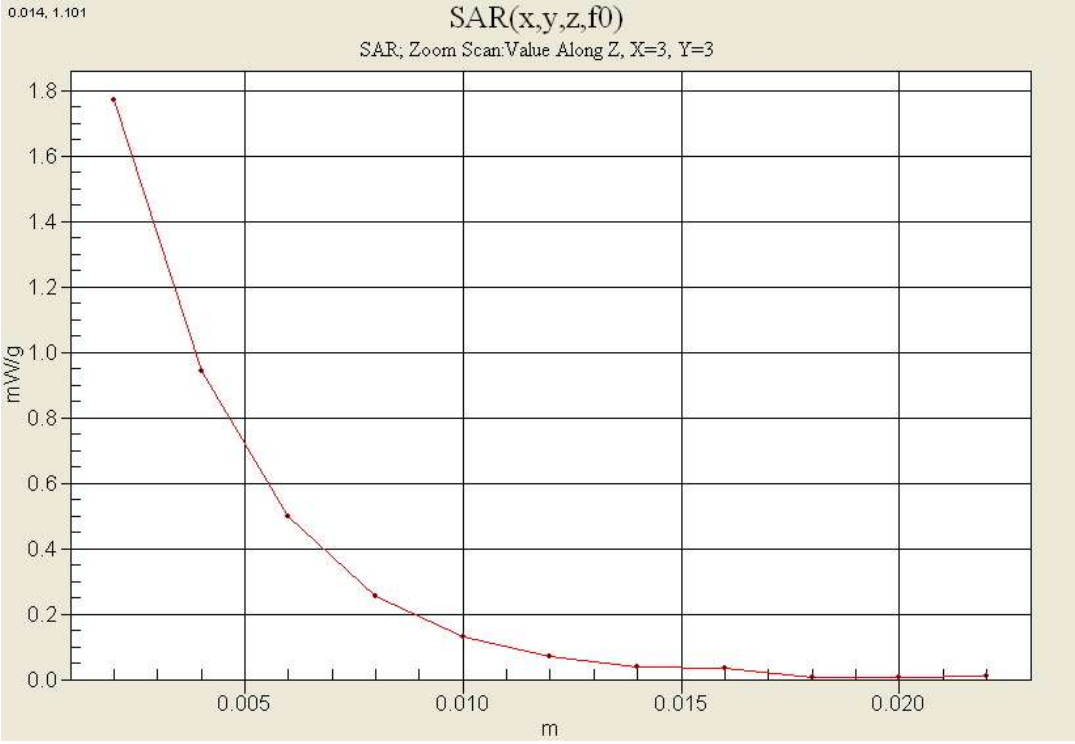
DASY4 Configuration:
- Probe: EX3DV4 - SN3863; ConvF(4.61, 4.61, 4.61); Calibrated: 2012-07-13
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

Left touch 802.11a 149ch 6Mbps/Area Scan (101x161x1): Measurement grid: dx=10mm, dy=10mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.803 mW/g

Left touch 802.11a 149ch 6Mbps/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 16.9 V/m; Power Drift = 0.034 dB
Peak SAR (extrapolated) = 3.67 W/kg
SAR(1 g) = 0.845 mW/g; SAR(10 g) = 0.238 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
aximum value of SAR (measured) = 1.77 mW/g



Test Laboratory:	HCT CO., LTD
EUT Type:	Cellular/PCS GSM/GPRS/EDGE/WCDMA/HSDPA/HSUPA Phone with Bluetooth and WLAN/NFC
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.16, 2012

DUT: LG-P895qb; 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 = 46.2; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

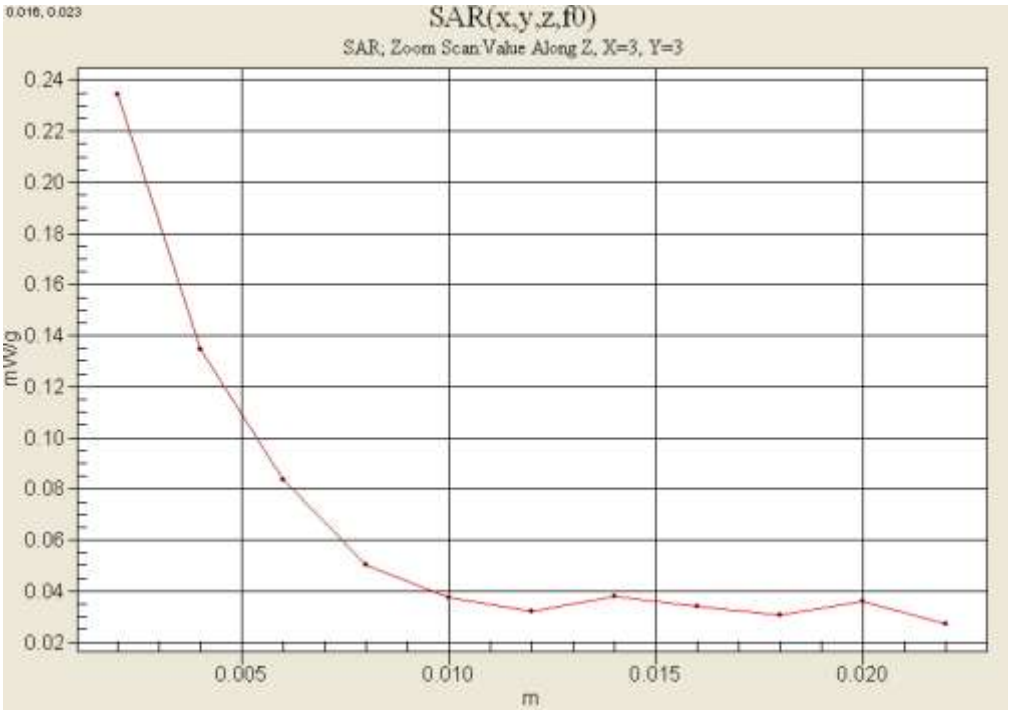
DASY4 Configuration:
- Probe: EX3DV4 - SN3863; ConvF(3.81, 3.81, 3.81); Calibrated: 2012-07-13
- Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 835/900 MHz; Type: SAM

WIFI 5GHz Body Front 149ch 6Mbps/Area Scan (101x161x1): Measurement grid: dx=10mm, dy=10mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.231 mW/g

WIFI 5GHz Body Front 149ch 6Mbps/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 1.86 V/m; Power Drift = 0.074 dB
Peak SAR (extrapolated) = 0.412 W/kg
SAR(1 g) = 0.130 mW/g; SAR(10 g) = 0.061 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
aximum value of SAR (measured) = 0.234 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: Aug.12, 2012

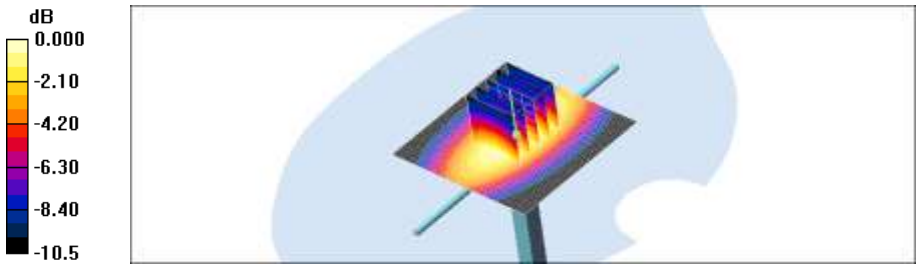
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:441

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: ET3DV6 - SN1609; ConvF(6.36, 6.36, 6.36); Calibrated: 2012-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 835/900 MHz; Type: SAM

Validation 835MHz/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.975 mW/g

Validation 835MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 34.3 V/m; Power Drift = 0.078 dB
Peak SAR (extrapolated) = 1.36 W/kg
SAR(1 g) = 0.932 mW/g; SAR(10 g) = 0.611 mW/g
Maximum value of SAR (measured) = 1.01 mW/g



0 dB = 1.01mW/g

■ Validation Data (835 MHz Body)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.1 ℃

Test Date: Aug.12, 2012

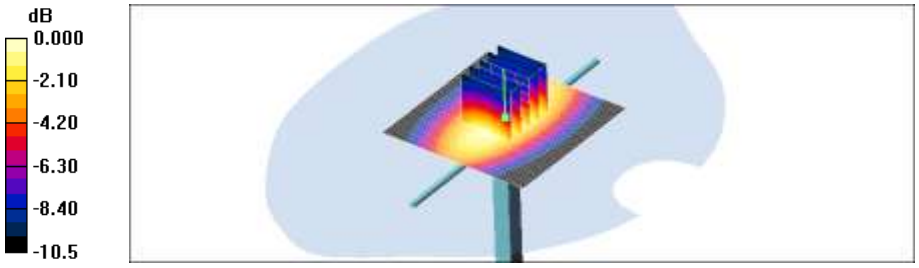
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:441

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.996 mho/m; ε_r = 54.1; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1609; ConvF(6.24, 6.24, 6.24); Calibrated: 2012-03-19
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 835/900 MHz; Type: SAM

Validation 835MHz/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.983 mW/g

Validation 835MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 32.6 V/m; Power Drift = -0.052 dB
Peak SAR (extrapolated) = 1.32 W/kg
SAR(1 g) = 0.908 mW/g; SAR(10 g) = 0.599 mW/g
Maximum value of SAR (measured) = 0.982 mW/g



0 dB = 0.982mW/g

■ Validation Data (1 900 MHz Head)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.1 ℃

Test Date: Aug.13, 2012

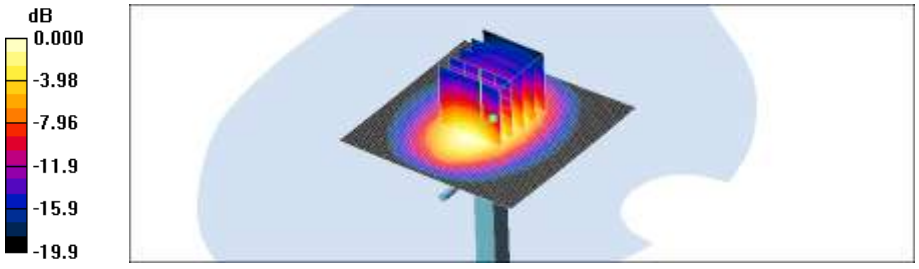
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 – SN: 5d032

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.41 mho/m; ε_r = 39.8; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 – SN1630; ConvF(5.17, 5.17, 5.17); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2012-02-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Dipole 1900MHz Validation/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 4.84 mW/g

Dipole 1900MHz Validation/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 59.9 V/m; Power Drift = -0.284 dB
Peak SAR (extrapolated) = 7.07 W/kg
SAR(1 g) = 3.92 mW/g; SAR(10 g) = 2.02 mW/g
Maximum value of SAR (measured) = 4.35 mW/g



0 dB = 4.35mW/g

■ Validation Data (1 900 MHz Body)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.1 ℃

Test Date: Aug.13, 2012

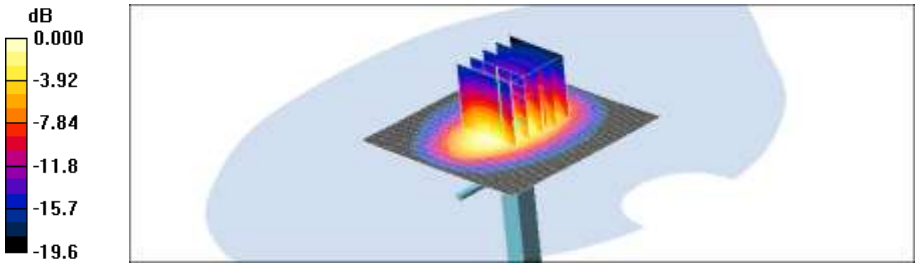
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 – SN:5d032

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.56 mho/m; ε_r = 52; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.75, 4.75, 4.75); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2012-02-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Dipole 1900MHz Validation/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 4.89 mW/g

Dipole 1900MHz Validation/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 57.5 V/m; Power Drift = -0.049 dB
Peak SAR (extrapolated) = 6.88 W/kg
SAR(1 g) = 4.01 mW/g; SAR(10 g) = 2.1 mW/g
Maximum value of SAR (measured) = 4.48 mW/g



0 dB = 4.48mW/g

■ Validation Data (2 450 MHz Head)

Test Laboratory:	HCT CO., LTD
Input Power	100 mW (20 dBm)
Liquid Temp:	21.2 ℃
Test Date:	Aug.14, 2012

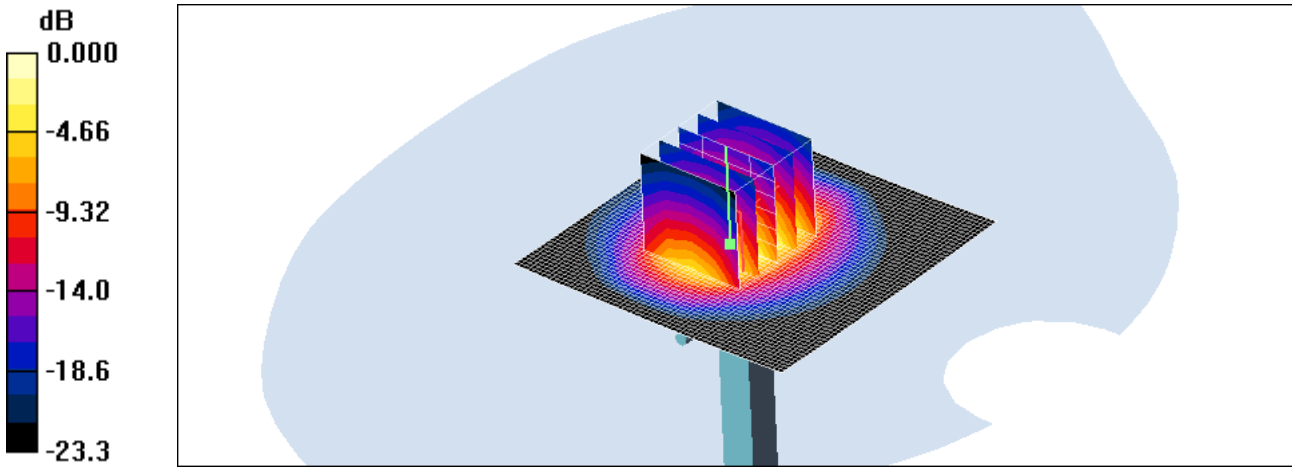
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 – SN: 743

Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.85 mho/m; ε_r = 38.2; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.57, 4.57, 4.57); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2012-02-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Validation 2450MHz/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 6.32 mW/g

Validation 2450MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 58.4 V/m; Power Drift = -0.037 dB
Peak SAR (extrapolated) = 12.3 W/kg
SAR(1 g) = 5.22 mW/g; SAR(10 g) = 2.38 mW/g
Maximum value of SAR (measured) = 5.69 mW/g



0 dB = 5.69mW/g

■ Validation Data (2 450 MHz Body)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.2 ℃

Test Date: Aug.14, 2012

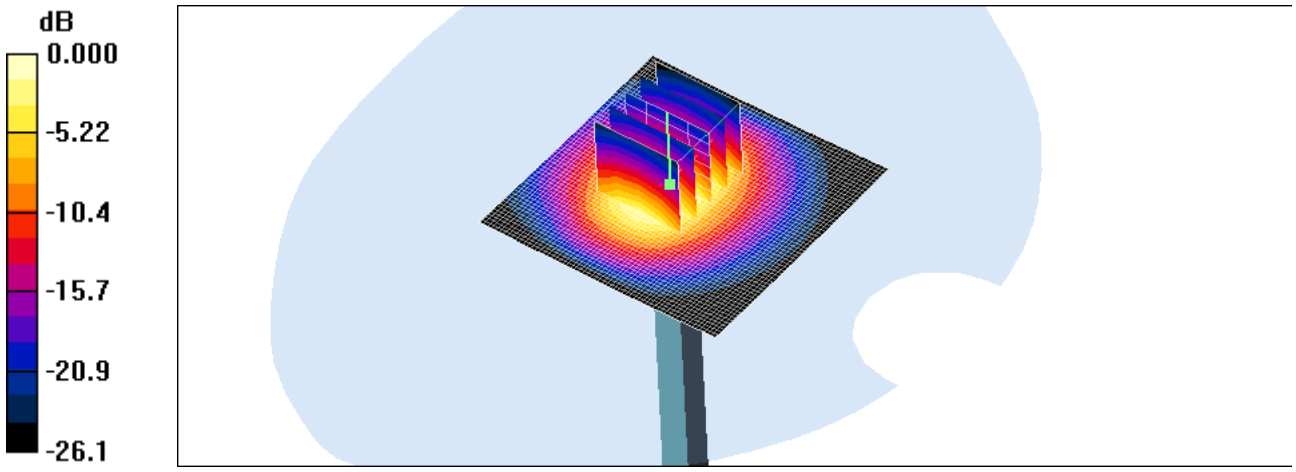
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 – SN:743

Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 2.01 mho/m; ε_r = 51.3; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1630; ConvF(4.3, 4.3, 4.3); Calibrated: 2011-11-18
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2012-02-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Validation 2450MHz/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 6.14 mW/g

Validation 2450MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 53.6 V/m; Power Drift = 0.003 dB
Peak SAR (extrapolated) = 12.1 W/kg
SAR(1 g) = 5.05 mW/g; SAR(10 g) = 2.26 mW/g
Maximum value of SAR (measured) = 5.51 mW/g



0 dB = 5.51mW/g

■ Validation Data (5.5 GHz Head)

Test Laboratory:	HCT CO., LTD
Input Power	100 mW (20 dBm)
Liquid Temp:	21.2 ℃
Test Date:	Aug.16, 2012

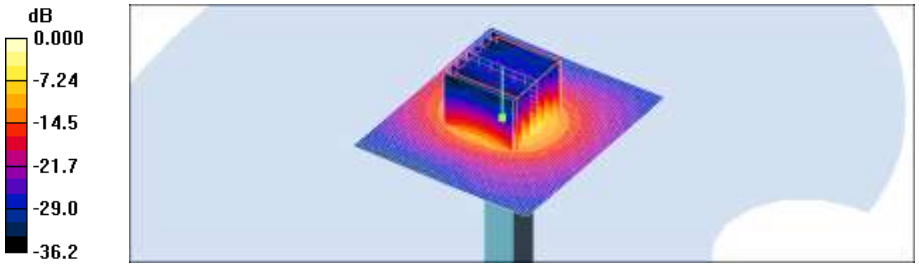
DUT: Dipole 5GHz; Type: D5000V2; Serial: D5000V2 - SN: 1107

Communication System: CW; Frequency: 5500 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5500 MHz; σ = 4.96 mho/m; ε_r = 35.8; 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 - SN3863; ConvF(4.66, 4.66, 4.66); Calibrated: 2012-07-13
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

Validation 5500MHz/Area Scan (61x71x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 9.97 mW/g

Validation 5500MHz/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 41.2 V/m; Power Drift = 0.076 dB
Peak SAR (extrapolated) = 38.6 W/kg
SAR(1 g) = 8.56 mW/g; SAR(10 g) = 2.35 mW/g
aximum value of SAR (measured) = 17.4 mW/g



0 dB = 17.4mW/g

■ Validation Data (5.5 GHz Body)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.2 ℃

Test Date: Aug.16, 2012

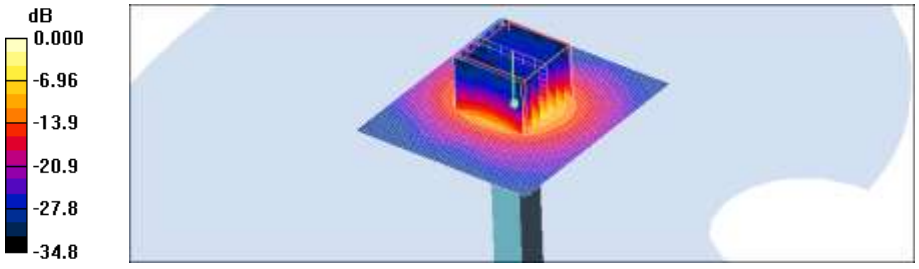
DUT: Dipole 5GHz; Type: D5000V2; Serial: D5000V2 - SN: 1107

Communication System: CW; Frequency: 5500 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5500 MHz; σ = 5.68 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 - SN3863; ConvF(3.91, 3.91, 3.91); Calibrated: 2012-07-13
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 835/900 MHz; Type: SAM

Validation 5500MHz/Area Scan (61x71x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 9.96 mW/g

Validation 5500MHz/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 41.0 V/m; Power Drift = 0.078 dB
Peak SAR (extrapolated) = 35.3 W/kg
SAR(1 g) = 8.33 mW/g; SAR(10 g) = 2.3 mW/g
aximum value of SAR (measured) = 17.5 mW/g



0 dB = 17.5mW/g

■ Validation Data (5.8 GHz Head)

Test Laboratory:	HCT CO., LTD
Input Power	100 mW (20 dBm)
Liquid Temp:	21.2 ℃
Test Date:	Aug.16, 2012

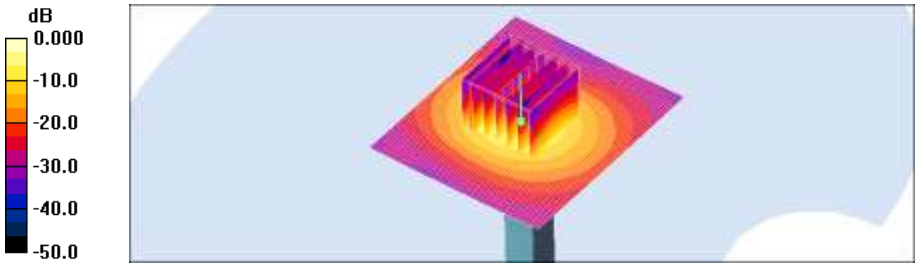
DUT: Dipole 5GHz; Type: D5000V2; Serial: D5000V2 - SN: 1107

Communication System: CW; Frequency: 5800 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5800 MHz; σ = 5.37 mho/m; ε_r = 35; ρ = 1000 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 - SN3863; ConvF(4.61, 4.61, 4.61); Calibrated: 2012-07-13
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 1800/1900 MHz; Type: SAM

Validation 5800MHz/Area Scan (61x71x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 8.55 mW/g

Validation 5800MHz/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 38.6 V/m; Power Drift = -0.002 dB
Peak SAR (extrapolated) = 35.7 W/kg
SAR(1 g) = 7.56 mW/g; SAR(10 g) = 2.14 mW/g
aximum value of SAR (measured) = 16.2 mW/g



0 dB = 16.2mW/g

■ Validation Data (5.8 GHz Body)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.2 ℃

Test Date: Aug.16, 2012

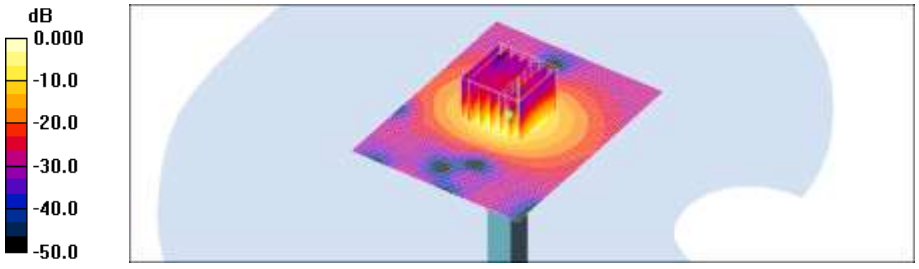
DUT: Dipole 5GHz; Type: D5000V2; Serial: D5000V2 - SN:1107

Communication System: CW; Frequency: 5800 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5800 MHz; σ = 6.22 mho/m; ε_r = 46.1; 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 - SN3863; ConvF(3.81, 3.81, 3.81); Calibrated: 2012-07-13
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn648; Calibrated: 2012-04-27
- Phantom: SAM 835/900 MHz; Type: SAM

Validation 5800MHz/Area Scan (71x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 7.85 mW/g

Validation 5800MHz/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 34.7 V/m; Power Drift = 0.040 dB
Peak SAR (extrapolated) = 35.5 W/kg
SAR(1 g) = 7.75 mW/g; SAR(10 g) = 2.12 mW/g
aximum value of SAR (measured) = 15.8 mW/g



0 dB = 15.8mW/g

■ Dielectric Parameter (835 MHz Head)

Title	LG-P895qb
SubTitle	835MHz
Test Date	Aug.12, 2012

Frequency	e'	e''
800000000.0000	43.4724	19.5099
805000000.0000	43.4114	19.5141
810000000.0000	43.3987	19.4938
815000000.0000	43.3048	19.4698
820000000.0000	43.2448	19.4474
825000000.0000	43.1498	19.4301
830000000.0000	43.1150	19.3959
835000000.0000	43.0058	19.3943
840000000.0000	42.9728	19.3603
845000000.0000	42.8855	19.3531
850000000.0000	42.8200	19.3449
855000000.0000	42.7508	19.3382
860000000.0000	42.7035	19.3149
865000000.0000	42.6580	19.3120
870000000.0000	42.5706	19.2859
875000000.0000	42.5292	19.3075
880000000.0000	42.4839	19.2796
885000000.0000	42.4302	19.2546
890000000.0000	42.3893	19.2361
895000000.0000	42.3385	19.2158
900000000.0000	42.2659	19.2026

■ Dielectric Parameter (835 MHz Body)

Title	LG-P895qb
SubTitle	835MHz
Test Date	Aug.12, 2012

Frequency	e'	e''
800000000.0000	54.4098	21.5048
805000000.0000	54.4327	21.5261
810000000.0000	54.3403	21.4917
815000000.0000	54.2627	21.5259
820000000.0000	54.2177	21.5370
825000000.0000	54.1434	21.5253
830000000.0000	54.1390	21.4884
835000000.0000	54.1183	21.4354
840000000.0000	54.0969	21.3941
845000000.0000	54.0376	21.3670
850000000.0000	53.9625	21.3680
855000000.0000	53.9299	21.3479
860000000.0000	53.8714	21.2999
865000000.0000	53.7922	21.3087
870000000.0000	53.7177	21.2837
875000000.0000	53.5882	21.2374
880000000.0000	53.5135	21.2190
885000000.0000	53.4442	21.1567
890000000.0000	53.3464	21.1272
895000000.0000	53.2878	21.1146
900000000.0000	53.2467	21.0902

■ Dielectric Parameter (1 900 MHz Head)

Title	LG-P895qb
SubTitle	1 900MHz
Test Date	Aug.13, 2012

Frequency	e'	e''
1800000000.0000	40.1849	13.0071
1810000000.0000	40.1580	13.0487
1820000000.0000	40.1238	13.0805
1830000000.0000	40.0894	13.1073
1840000000.0000	40.0504	13.1334
1850000000.0000	40.0144	13.1460
1860000000.0000	39.9702	13.1781
1870000000.0000	39.9416	13.2129
1880000000.0000	39.8939	13.2496
1890000000.0000	39.8577	13.2759
1900000000.0000	39.8081	13.3130
1910000000.0000	39.7642	13.3339
1920000000.0000	39.7341	13.3588
1930000000.0000	39.6938	13.3775
1940000000.0000	39.6618	13.3745
1950000000.0000	39.6164	13.4192
1960000000.0000	39.5750	13.4324
1970000000.0000	39.5291	13.4621
1980000000.0000	39.4871	13.5026
1990000000.0000	39.4448	13.5301
2000000000.0000	39.4005	13.5292

■ Dielectric Parameter (1 900 MHz Body)

Title	LG-P895qb
SubTitle	1 900MHz
Test Date	Aug.13, 2012

Frequency	e'	e''
1850000000.0000	52.1918	14.6525
1855000000.0000	52.1995	14.6679
1860000000.0000	52.1610	14.6877
1865000000.0000	52.1815	14.6919
1870000000.0000	52.1158	14.7287
1875000000.0000	52.1138	14.7309
1880000000.0000	52.1180	14.7315
1885000000.0000	52.1173	14.7869
1890000000.0000	52.0734	14.7689
1895000000.0000	52.0612	14.7697
1900000000.0000	52.0400	14.7643
1905000000.0000	52.0736	14.8032
1910000000.0000	52.0305	14.8285
1915000000.0000	52.0211	14.8305
1920000000.0000	52.0271	14.8295
1925000000.0000	52.0034	14.8663
1930000000.0000	51.9623	14.8758
1935000000.0000	51.9628	14.8907
1940000000.0000	51.9467	14.9028
1945000000.0000	51.9753	14.9279
1950000000.0000	51.9013	14.9504

■ Dielectric Parameter (2 450 MHz Head)

Title	LG-P895qb
SubTitle	2 450MHz
Test Date	Aug.14, 2012

Frequency	e'	e''
2400000000.0000	38.4962	13.3904
2405000000.0000	38.4335	13.3983
2410000000.0000	38.3769	13.4131
2415000000.0000	38.2809	13.3943
2420000000.0000	38.2673	13.4538
2425000000.0000	38.2428	13.4636
2430000000.0000	38.2162	13.4532
2435000000.0000	38.1924	13.4858
2440000000.0000	38.2073	13.5098
2445000000.0000	38.2039	13.5283
2450000000.0000	38.2316	13.5390
2455000000.0000	38.2295	13.5649
2460000000.0000	38.2499	13.5559
2465000000.0000	38.2511	13.5837
2470000000.0000	38.2742	13.5740
2475000000.0000	38.2395	13.5874
2480000000.0000	38.2821	13.5876
2485000000.0000	38.2747	13.6124
2490000000.0000	38.2729	13.6388
2495000000.0000	38.2386	13.6316
2500000000.0000	38.2002	13.6211

■ Dielectric Parameter (2 450 MHz Body)

Title	LG-P895qb
SubTitle	2 450MHz
Test Date	Aug.14, 2012

Frequency	e'	e''
2400000000.0000	51.5461	14.5078
2405000000.0000	51.5030	14.5357
2410000000.0000	51.4957	14.5198
2415000000.0000	51.4442	14.5402
2420000000.0000	51.4100	14.5652
2425000000.0000	51.3630	14.5766
2430000000.0000	51.3512	14.6042
2435000000.0000	51.3138	14.6378
2440000000.0000	51.2793	14.6494
2445000000.0000	51.2507	14.6984
2450000000.0000	51.2501	14.7277
2455000000.0000	51.2172	14.7157
2460000000.0000	51.1957	14.7753
2465000000.0000	51.1617	14.8096
2470000000.0000	51.1687	14.8227
2475000000.0000	51.1520	14.8732
2480000000.0000	51.1301	14.9042
2485000000.0000	51.1073	14.9105
2490000000.0000	51.1132	14.9629
2495000000.0000	51.1111	14.9732
2500000000.0000	51.1134	14.9630

■ Dielectric Parameter (5 GHz Head)

Title	LG-P895qb
SubTitle	2 450MHz
Test Date	Aug.16, 2012

Frequency	e'	e''
5000000000.0000	36.8304	15.5170
5050000000.0000	36.8410	15.7352
5100000000.0000	36.7476	15.5970
5150000000.0000	36.5157	15.8996
5200000000.0000	36.5896	15.8327
5250000000.0000	36.3141	15.8741
5300000000.0000	36.2854	16.0266
5350000000.0000	36.2258	15.9158
5400000000.0000	36.0153	16.0905
5450000000.0000	36.0077	16.0957
5500000000.0000	35.7973	16.2049
5550000000.0000	35.6914	16.2544
5600000000.0000	35.5921	16.3375
5650000000.0000	35.4197	16.4107
5700000000.0000	35.2821	16.4771
5750000000.0000	35.1355	16.6512
5800000000.0000	34.9784	16.6402
5850000000.0000	34.8445	16.8506
5900000000.0000	34.7321	16.8845
5950000000.0000	34.5943	16.9657
6000000000.0000	34.4739	17.0994

■ Dielectric Parameter (5 GHz Body)

Title	LG-P895qb
SubTitle	2 450MHz
Test Date	Aug.16, 2012

Frequency	e'	e''
5000000000.0000	47.9713	18.0975
5050000000.0000	48.0927	18.0007
5100000000.0000	47.7750	18.0839
5150000000.0000	47.7952	18.1832
5200000000.0000	47.4349	18.2975
5250000000.0000	47.5594	18.2304
5300000000.0000	46.9212	18.3817
5350000000.0000	47.4358	18.4684
5400000000.0000	46.5887	18.3842
5450000000.0000	47.1203	18.9395
5500000000.0000	46.4123	18.5528
5550000000.0000	46.6357	19.2944
5600000000.0000	46.3871	18.8793
5650000000.0000	46.2575	19.5020
5700000000.0000	46.2034	19.1773
5750000000.0000	46.1931	19.1058
5800000000.0000	46.0866	19.2674
5850000000.0000	45.6033	19.8572
5900000000.0000	45.9885	19.8213
5950000000.0000	45.3353	19.9150
6000000000.0000	45.8254	20.1333

Attachment 3. – Probe Calibration Data

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

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

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

Accreditation No.: SCS 108

Client HCT (Dymstec) Certificate No: EX3-3863_Jul12

CALIBRATION CERTIFICATE

Object EX3DV4 - SN:3863

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 13, 2012

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	29-Mar-12 (No. 217-01508)	Apr-13
Power sensor E4412A	MY41496087	29-Mar-12 (No. 217-01508)	Apr-13
Reference 3 dB Attenuator	SN: S5054 (3c)	27-Mar-12 (No. 217-01531)	Apr-13
Reference 20 dB Attenuator	SN: S5086 (20b)	27-Mar-12 (No. 217-01529)	Apr-13
Reference 30 dB Attenuator	SN: S5129 (30b)	27-Mar-12 (No. 217-01532)	Apr-13
Reference Probe ES3DV2	SN: 3013	29-Dec-11 (No. ES3-3013_Dec11)	Dec-12
DAE4	SN: 660	10-Jan-12 (No. DAE4-660_Jan12)	Jan-13
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Apr-11)	In house check: Apr-13
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: July 14, 2012

This calibration certificate shall not be reproduced except in full without written approval of the laboratory.

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

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

Accredited by the Swiss Accreditation Service (SAS) Accreditation No.: SCS 108
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

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:3863

Manufactured: February 2, 2012
Calibrated: July 13, 2012

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

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3863

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.36	0.36	0.45	± 10.1 %
DCP (mV)[B]	103.0	100.6	98.8	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dB	C dB	VR mV	Unc[E] (k=2)
0	CW	0.00	X	0.00	0.00	1.00	138.3	±2.2 %
			Y	0.00	0.00	1.00	134.3	
			Z	0.00	0.00	1.00	115.9	

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

[A] The uncertainties of NormX,Y,Z do not affect the E^2-field uncertainty inside TSL (see Pages 5 and 6).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3863

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	9.53	9.53	9.53	0.48	0.80	± 12.0 %
835	41.5	0.90	9.30	9.30	9.30	0.73	0.63	± 12.0 %
900	41.5	0.97	8.96	8.96	8.96	0.25	1.20	± 12.0 %
1750	40.1	1.37	8.46	8.46	8.46	0.10	0.50	± 12.0 %
1900	40.0	1.40	8.22	8.22	8.22	0.79	0.59	± 12.0 %
1950	40.0	1.40	7.79	7.79	7.79	0.25	1.02	± 12.0 %
2450	39.2	1.80	7.19	7.19	7.19	0.49	0.74	± 12.0 %
5200	36.0	4.66	4.96	4.96	4.96	0.40	1.80	± 13.1 %
5300	35.9	4.76	4.79	4.79	4.79	0.38	1.80	± 13.1 %
5500	35.6	4.96	4.66	4.66	4.66	0.40	1.80	± 13.1 %
5600	35.5	5.07	4.56	4.56	4.56	0.38	1.80	± 13.1 %
5800	35.3	5.27	4.61	4.61	4.61	0.40	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:3863

Calibration Parameter Determined in Body Tissue Simulating Media

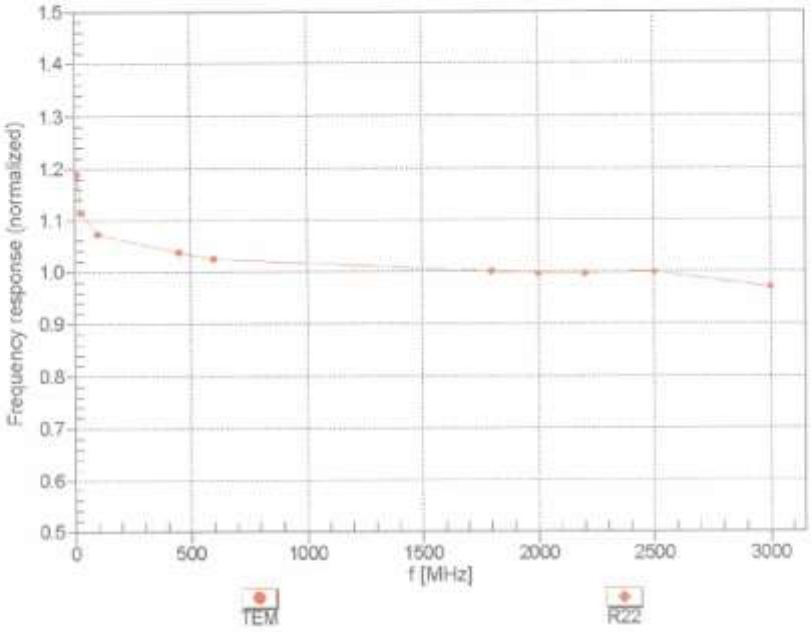
f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	55.5	0.96	9.35	9.35	9.35	0.28	1.11	± 12.0 %
835	55.2	0.97	9.25	9.25	9.25	0.37	0.91	± 12.0 %
1750	53.4	1.49	7.80	7.80	7.80	0.42	0.86	± 12.0 %
1900	53.3	1.52	7.46	7.46	7.46	0.24	1.19	± 12.0 %
2450	52.7	1.95	7.00	7.00	7.00	0.80	0.50	± 12.0 %
5200	49.0	5.30	4.35	4.35	4.35	0.45	1.90	± 13.1 %
5300	48.9	5.42	4.10	4.10	4.10	0.48	1.90	± 13.1 %
5500	48.6	5.65	3.91	3.91	3.91	0.50	1.90	± 13.1 %
5600	48.5	5.77	3.66	3.66	3.66	0.55	1.90	± 13.1 %
5800	48.2	6.00	3.81	3.81	3.81	0.58	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:3863 July 13, 2012

Frequency Response of E-Field

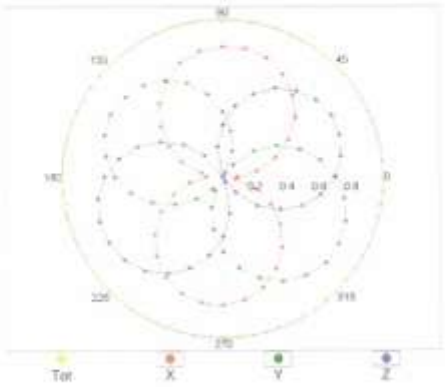
(TEM-Cell:ifi110 EXX, Waveguide: R22)



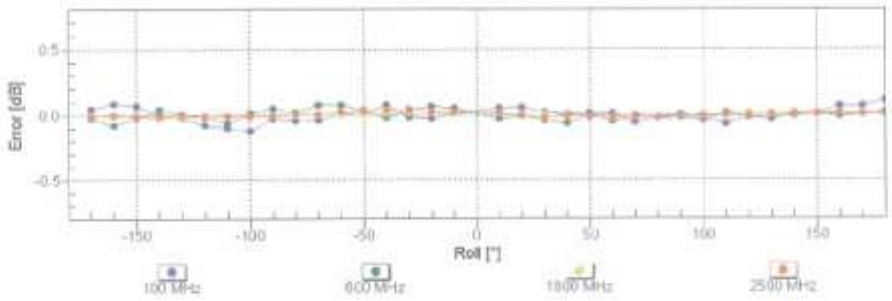
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM

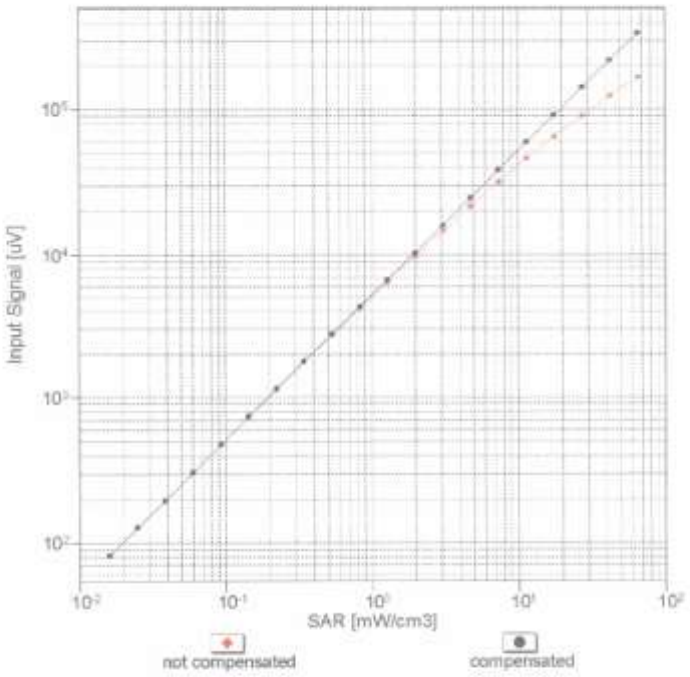


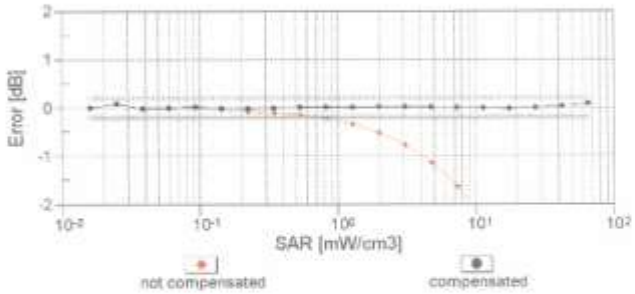
f=1800 MHz,R22



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

Dynamic Range f(SAR_{head})
(TEM cell , f = 900 MHz)



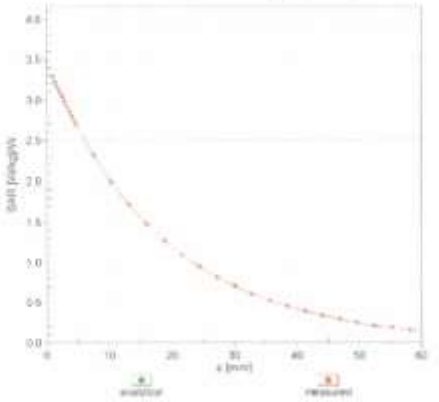


Uncertainty of Linearity Assessment: ± 0.6% (k=2)

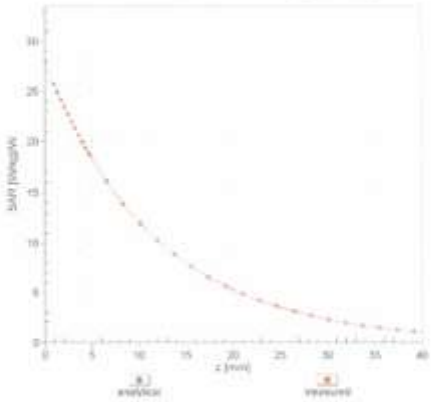
EX3DV4– SN:3863 July 13, 2012

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

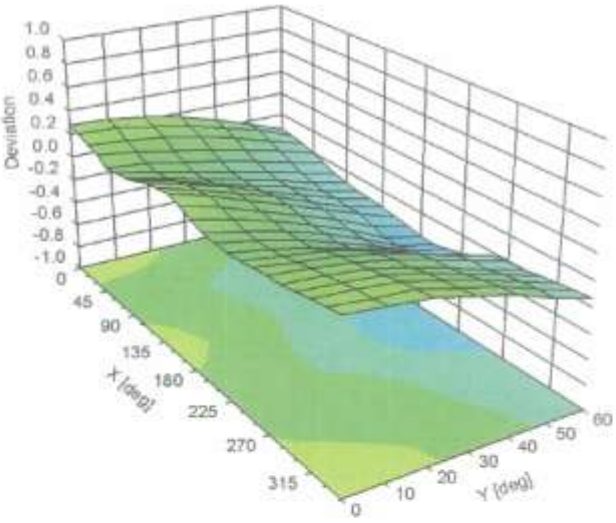


f = 1900 MHz,WGLS R22 (H_convF)



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:3863

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	110
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

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

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

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

Accreditation No.: SCS 108

Client HCT (Dymstec) Certificate No: ET3-1609_Mar12

CALIBRATION CERTIFICATE

Object ET3DV6 - SN:1609

Calibration procedure(s) QA CAL-01.v8, QA CAL-12.v7, QA CAL-23.v4, QA CAL-25.v4
Calibration procedure for dosimetric E-field probes

Calibration date: March 19, 2012

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter 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-11 (No. ES3-3013_Dec11)	Dec-12
DAE4	SN: 654	3-May-11 (No. DAE4-654_May11)	May-12
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Apr-11)	In house check: Apr-13
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: March 19, 2012

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

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

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

Accreditation No.: SCS 108

Glossary:

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

Calibration is Performed According to the Following Standards:

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

Methods Applied and Interpretation of Parameters:

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

Probe ET3DV6

SN:1609

Manufactured: July 27, 2001
Calibrated: March 19, 2012

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

DASY/EASY - Parameters of Probe: ET3DV6 - SN:1609

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	2.01	1.81	1.82	± 10.1 %
DCP (mV)[B]	97.7	97.4	98.1	

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	112.2	±2.2 %
			Y	0.00	0.00	1.00	107.9	
			Z	0.00	0.00	1.00	109.9	

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: ET3DV6 - SN:1609

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)
450	43.5	0.87	7.32	7.32	7.32	0.21	2.26	± 13.4 %
750	41.9	0.89	6.68	6.68	6.68	0.39	2.46	± 12.0 %
835	41.5	0.90	6.36	6.36	6.36	0.32	2.79	± 12.0 %
900	41.5	0.97	6.25	6.25	6.25	0.33	3.00	± 12.0 %
1450	40.5	1.20	5.48	5.48	5.48	0.44	3.00	± 12.0 %
1750	40.1	1.37	5.50	5.50	5.50	0.74	2.42	± 12.0 %
1900	40.0	1.40	5.26	5.26	5.26	0.80	2.18	± 12.0 %
1950	40.0	1.40	5.04	5.04	5.04	0.80	2.09	± 12.0 %
2450	39.2	1.80	4.52	4.52	4.52	0.80	1.90	± 12.0 %

[C] Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

DASY/EASY - Parameters of Probe: ET3DV6 - SN:1609

Calibration Parameter Determined in Body Tissue Simulating Media

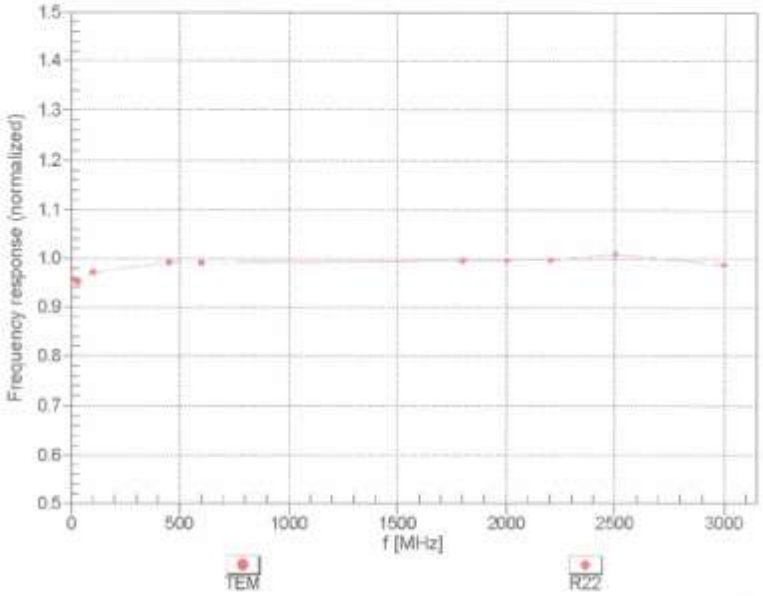
f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
450	56.7	0.94	7.73	7.73	7.73	0.15	2.32	± 13.4 %
750	55.5	0.96	6.38	6.38	6.38	0.29	3.00	± 12.0 %
835	55.2	0.97	6.24	6.24	6.24	0.39	2.51	± 12.0 %
1750	53.4	1.49	4.80	4.80	4.80	0.80	2.57	± 12.0 %
1900	53.3	1.52	4.55	4.55	4.55	0.80	2.50	± 12.0 %
2450	52.7	1.95	4.01	4.01	4.01	0.70	1.23	± 12.0 %

[C] Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

ET3DV6– SN:1609 March 19, 2012

Frequency Response of E-Field

(TEM-Cell:ifi110 EXX, Waveguide: R22)



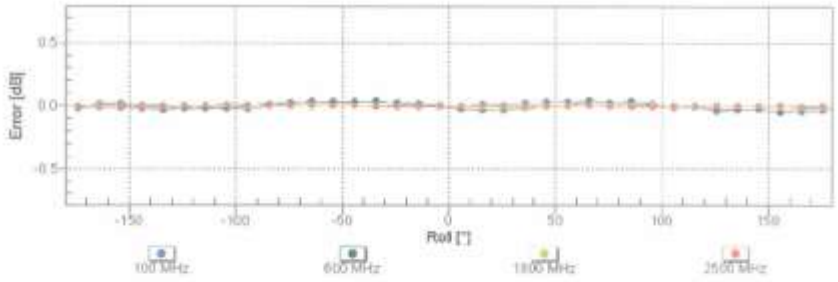
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

ET3DV6- SN:1609 March 19, 2012

Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM

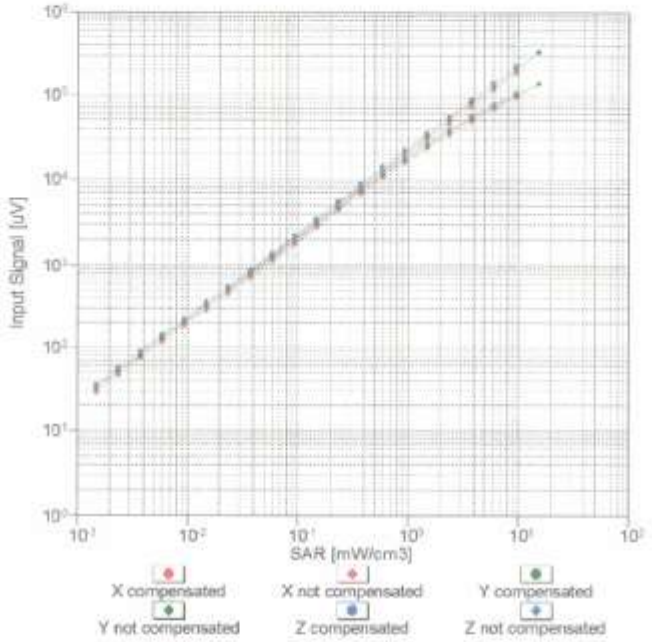
f=1800 MHz,R22

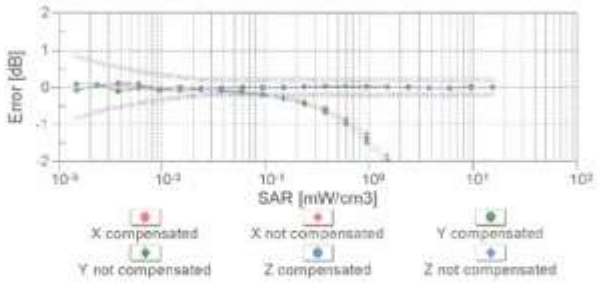


Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

ET3DV6– SN:1609 March 19, 2012

Dynamic Range f(SAR_{head})
(TEM cell , f = 900 MHz)





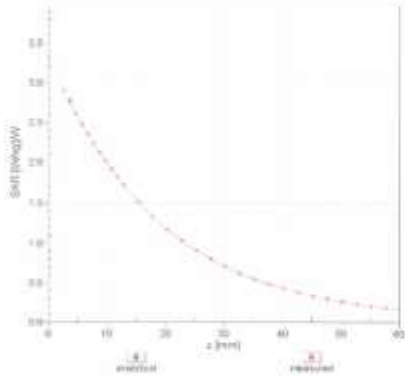
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Certificate No: ET3-1609_Mar12 Page 9 of 11

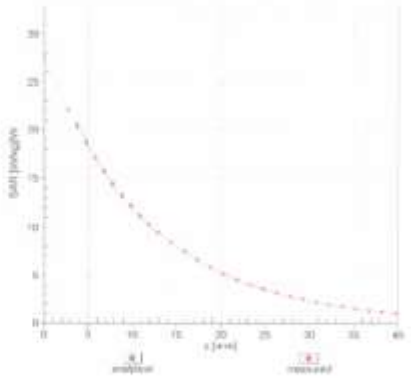
ET3DV6– SN:1609 March 19, 2012

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

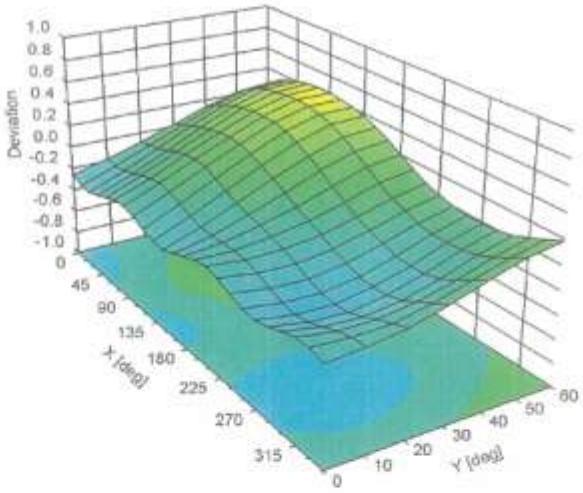


f = 1900 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz



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

DASY/EASY - Parameters of Probe: ET3DV6 - SN:1609

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	Not applicable
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	10 mm
Tip Diameter	6.8 mm
Probe Tip to Sensor X Calibration Point	2.7 mm
Probe Tip to Sensor Y Calibration Point	2.7 mm
Probe Tip to Sensor Z Calibration Point	2.7 mm
Recommended Measurement Distance from Surface	4 mm

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

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

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

Accreditation No.: SCS 108

Client HCT (Dymstec)

Certificate No: ET3-1630_Nov11

CALIBRATION CERTIFICATE

Object ET3DV6 - SN:1630

Calibration procedure(s) QA CAL-01.v8, QA CAL-12.v7, QA CAL-23.v4, QA CAL-25.v4
Calibration procedure for dosimetric E-field probes

Calibration date: November 18, 2011

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	31-Mar-11 (No. 217-01372)	Apr-12
Power sensor E4412A	MY41496087	31-Mar-11 (No. 217-01372)	Apr-12
Reference 3 dB Attenuator	SN: S5054 (3c)	29-Mar-11 (No. 217-01369)	Apr-12
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Reference 30 dB Attenuator	SN: S5129 (30b)	29-Mar-11 (No. 217-01370)	Apr-12
Reference Probe ES3DV2	SN: 3013	29-Dec-10 (No. ES3-3013_Dec10)	Dec-11
DAE4	SN: 654	3-May-11 (No. DAE4-654_May11)	May-12
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Apr-11)	In house check: Apr-13
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: November 18, 2011

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

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

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

Accreditation No.: SCS 108

Glossary:

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

Calibration is Performed According to the Following Standards:

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

Methods Applied and Interpretation of Parameters:

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

Probe ET3DV6

SN:1630

Manufactured: October 12, 2001
Calibrated: November 18, 2011

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

DASY/EASY - Parameters of Probe: ET3DV6 - SN:1630

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	1.71	1.62	1.60	± 10.1 %
DCP (mV)[B]	100.3	99.5	101.7	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dB	C dB	VR mV	Unc[E] (k=2)
10000	CW	0.00	X	0.00	0.00	1.00	98.2	±2.7 %
			Y	0.00	0.00	1.00	101.9	
			Z	0.00	0.00	1.00	98.0	

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

[A] The uncertainties of NormX,Y,Z do not affect the E^2-field uncertainty inside TSL (see Pages 5 and 6).
[B] Numerical linearization parameter: uncertainty not required.
[E] Uncertainty is determined using the max. deviation from linear response applying rectangular distribution and is expressed for the square of the field value.

DASY/EASY - Parameters of Probe: ET3DV6 - SN:1630

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz)[C]	Relative Permittivity[F]	Conductivity (S/m)[F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
300	45.3	0.87	8.13	8.13	8.13	0.31	1.60	± 13.4 %
450	43.5	0.87	7.40	7.40	7.40	0.22	2.27	± 13.4 %
750	41.9	0.89	6.61	6.61	6.61	0.82	1.68	± 12.0 %
835	41.5	0.90	6.27	6.27	6.27	0.72	1.84	± 12.0 %
900	41.5	0.97	6.16	6.16	6.16	0.68	1.92	± 12.0 %
1450	40.5	1.20	5.57	5.57	5.57	0.54	2.48	± 12.0 %
1750	40.1	1.37	5.43	5.43	5.43	0.60	2.26	± 12.0 %
1900	40.0	1.40	5.17	5.17	5.17	0.63	2.15	± 12.0 %
1950	40.0	1.40	5.05	5.05	5.05	0.63	2.13	± 12.0 %
2450	39.2	1.80	4.57	4.57	4.57	0.81	1.74	± 12.0 %

[C] Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

DASY/EASY - Parameters of Probe: ET3DV6 - SN:1630

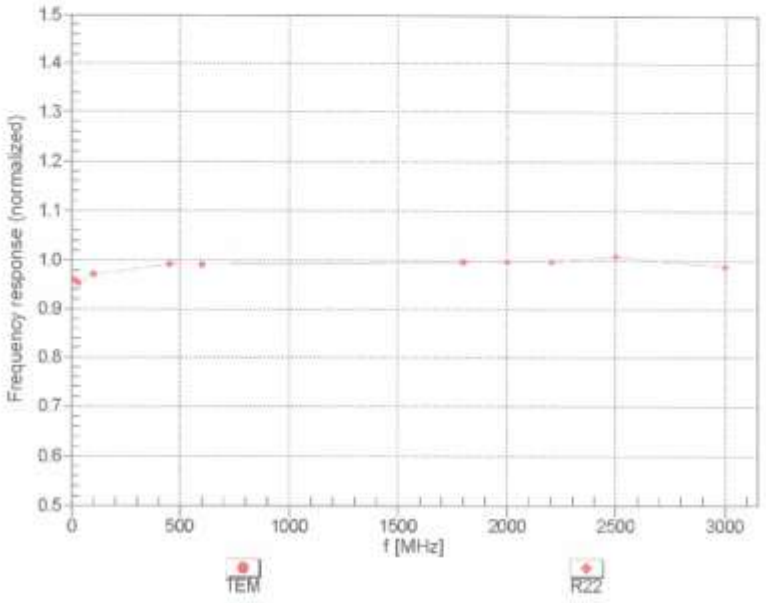
Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
300	58.2	0.92	7.96	7.96	7.96	0.29	2.29	± 13.4 %
450	56.7	0.94	7.74	7.74	7.74	0.16	2.25	± 13.4 %
750	55.5	0.96	6.36	6.36	6.36	0.75	1.84	± 12.0 %
835	55.2	0.97	6.27	6.27	6.27	0.72	1.88	± 12.0 %
1450	54.0	1.30	5.46	5.46	5.46	0.70	1.97	± 12.0 %
1750	53.4	1.49	4.95	4.95	4.95	0.59	2.72	± 12.0 %
1900	53.3	1.52	4.75	4.75	4.75	0.60	2.56	± 12.0 %
2450	52.7	1.95	4.30	4.30	4.30	1.00	1.29	± 12.0 %

[C] Frequency validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2), else it is restricted to ± 50 MHz. The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.
[F] At frequencies below 3 GHz, the validity of tissue parameters (ε and σ) can be relaxed to ± 10% if liquid compensation formula is applied to measured SAR values. At frequencies above 3 GHz, the validity of tissue parameters (ε and σ) is restricted to ± 5%. The uncertainty is the RSS of the ConvF uncertainty for indicated target tissue parameters.

ET3DV6- SN:1630 November 18, 2011

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



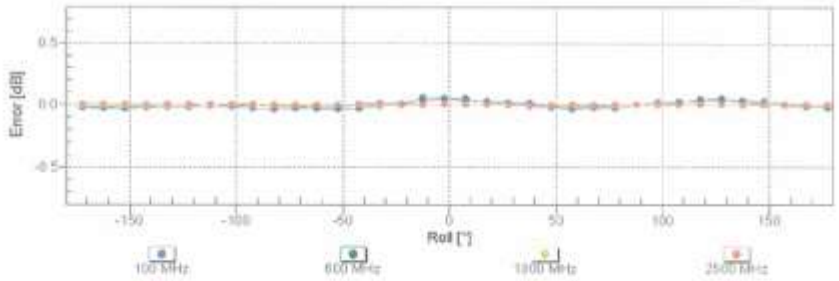
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

ET3DV6- SN:1630 November 18, 2011

Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM

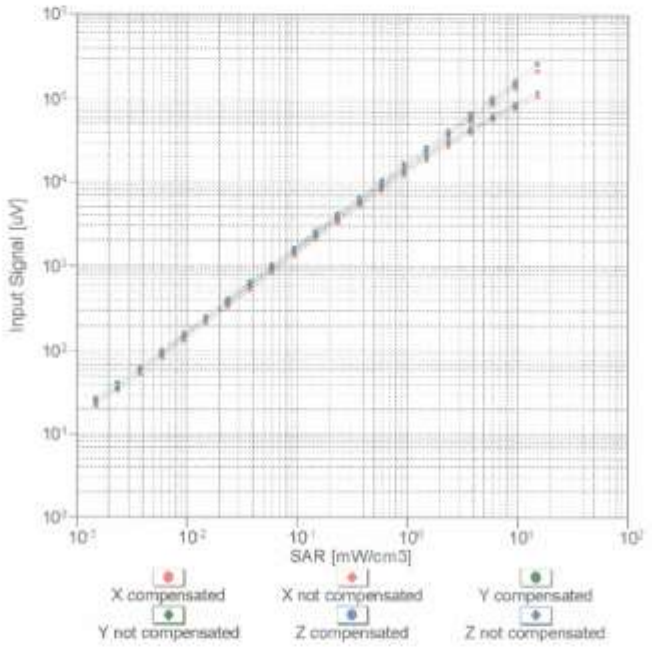
f=1800 MHz,R22

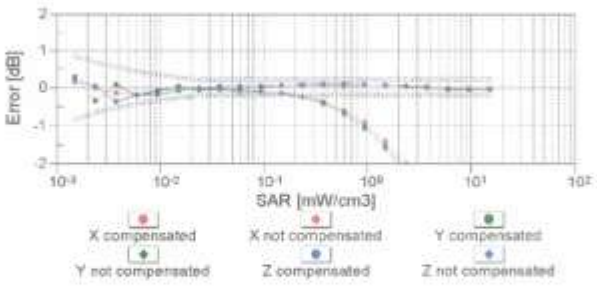


Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

ET3DV6- SN:1630 November 18, 2011

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



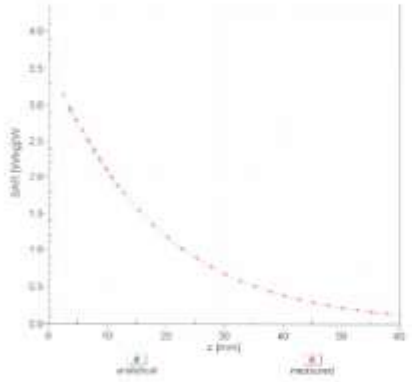


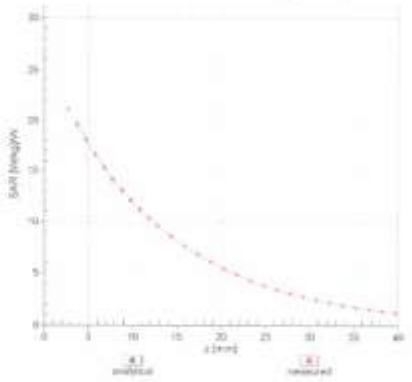
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

ET3DV6- SN:1630 November 18, 2011

Conversion Factor Assessment

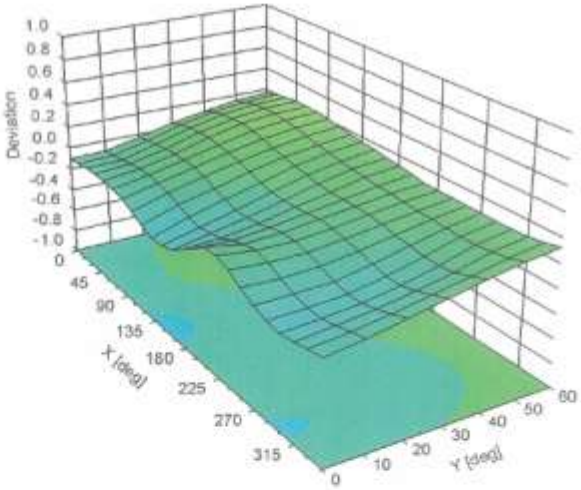
f = 900 MHz,WGLS R9 (H_convF) f = 1750 MHz,WGLS R22 (H_convF)





Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz



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

DASY/EASY - Parameters of Probe: ET3DV6 - SN:1630

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	Not applicable
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	10 mm
Tip Diameter	6.8 mm
Probe Tip to Sensor X Calibration Point	2.7 mm
Probe Tip to Sensor Y Calibration Point	2.7 mm
Probe Tip to Sensor Z Calibration Point	2.7 mm
Recommended Measurement Distance from Surface	4 mm

Schmid & Partner Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland
Phone +41 44 245 9700, Fax +41 44 245 9779
info@speag.com, http://www.speag.com

s p e a g

Additional Conversion Factors

for Dosimetric E-Field Probe

Type:	**ET3DV6**
Serial Number:	**1630**
Place of Assessment:	**Zurich**
Date of Assessment:	**November 21, 2011**
Probe Calibration Date:	**November 18, 2011**

Schmid & Partner Engineering AG hereby certifies that conversion factor(s) of this probe have been evaluated on the date indicated above. The assessment was performed using the FDTD numerical code SEMCAD of Schmid & Partner Engineering AG. Since the evaluation is coupled with measured conversion factors, it has to be recalculated yearly, i.e., following the re-calibration schedule of the probe. The uncertainty of the numerical assessment is based on the extrapolation from measured value at 450, 900 MHz or at 1750 MHz.

Assessed by:

Schmid & Partner Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland
Phone +41 44 245 9700, Fax +41 44 245 9779
info@speag.com, http://www.speag.com

s p e a g

Dosimetric E-Field Probe ET3DV6 - SN:1630

Conversion factor (± standard deviation)

150 ± 50 MHz	*ConvF*	8.03 ± 10%	ε_r = 52.3 ± 5% σ = 0.76 ± 5% mho/m (head tissue)
150 ± 50 MHz	*ConvF*	8.29 ± 10%	ε_r = 61.9 ± 5% σ = 0.80 ± 5% mho/m (body tissue)

Important Note:

For numerically assessed probe conversion factors, parameters Alpha and Delta in the DASY software must have the following entries: Alpha = 0 and Delta = 1.

Please see also DASY Manual.

Attachment 4. – Dipole Calibration Data

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

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

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

Accreditation No.: SCS 108

Client HCT (Dymstec)

Certificate No: D835V2-441_May12

CALIBRATION CERTIFICATE

Object D835V2 - SN: 441

Calibration procedure(s) QA CAL-05.v8
Calibration procedure for dipole validation kits above 700 MHz

Calibration date: May 16, 2012

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	05-Oct-11 (No. 217-01451)	Oct-12
Power sensor HP 8481A	US37292783	05-Oct-11 (No. 217-01451)	Oct-12
Reference 20 dB Attenuator	SN: 5058 (20k)	27-Mar-12 (No. 217-01530)	Apr-13
Type-N mismatch combination	SN: 5047.2 / 06327	27-Mar-12 (No. 217-01533)	Apr-13
Reference Probe ES3DV3	SN: 3205	30-Dec-11 (No. ES3-3205_Dec11)	Dec-12
DAE4	SN: 601	04-Jul-11 (No. DAE4-601_Jul11)	Jul-12

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

	Name	Function	Signature
Calibrated by:	Israe El-Naoug	Laboratory Technician	Israa El-Naoug
Approved by:	Katja Pokovic	Technical Manager	

Issued: May 16, 2012

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

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

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

Accreditation No.: **SCS 108**

Glossary:

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

Calibration is Performed According to the Following Standards:

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

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Measurement Conditions

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

DASY Version	DASY5	V52.8.1
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	835 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.5	0.90 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	40.6 ± 6 %	0.89 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.35 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**9.43 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.54 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**6.18 mW /g ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	55.2	0.97 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	54.3 ± 6 %	1.00 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.44 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**9.50 mW / g ± 17.0 % (k=2)**

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

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	51.1 Ω - 5.8 jΩ
Return Loss	- 24.6 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	47.0 Ω - 8.1 jΩ
Return Loss	- 21.0 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.372 ns

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

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	March 09, 2001

DASY5 Validation Report for Head TSL

Date: 16.05.2012

Test Laboratory: SPEAG, Zurich, Switzerland

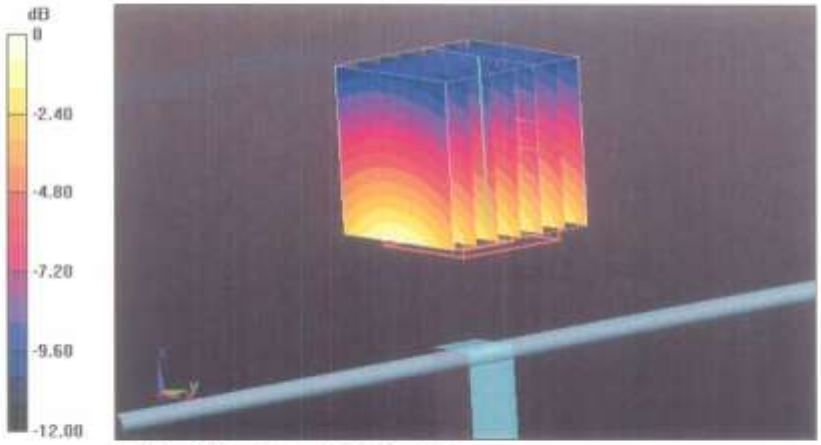
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 441

Communication System: CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 0.89 mho/m; ε_r = 40.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

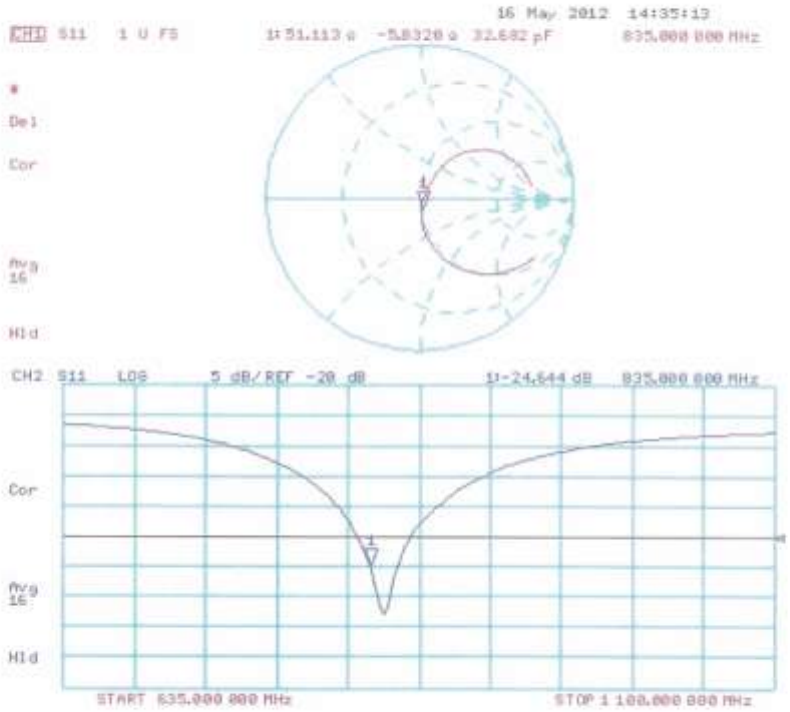
- Probe: ES3DV3 - SN3205; ConvF(6.07, 6.07, 6.07); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm 2/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 57.129 V/m; Power Drift = 0.00 dB
Peak SAR (extrapolated) = 3.474 mW/g
SAR(1 g) = 2.35 mW/g; SAR(10 g) = 1.54 mW/g
Maximum value of SAR (measured) = 2.73 mW/g



0 dB = 2.73 mW/g = 8.72 dB mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 16.05.2012

Test Laboratory: SPEAG, Zurich, Switzerland

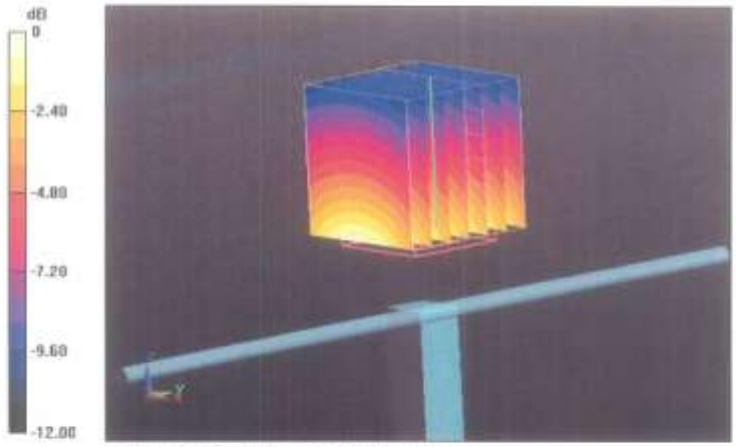
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 441

Communication System: CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 1 mho/m; ε_r = 54.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

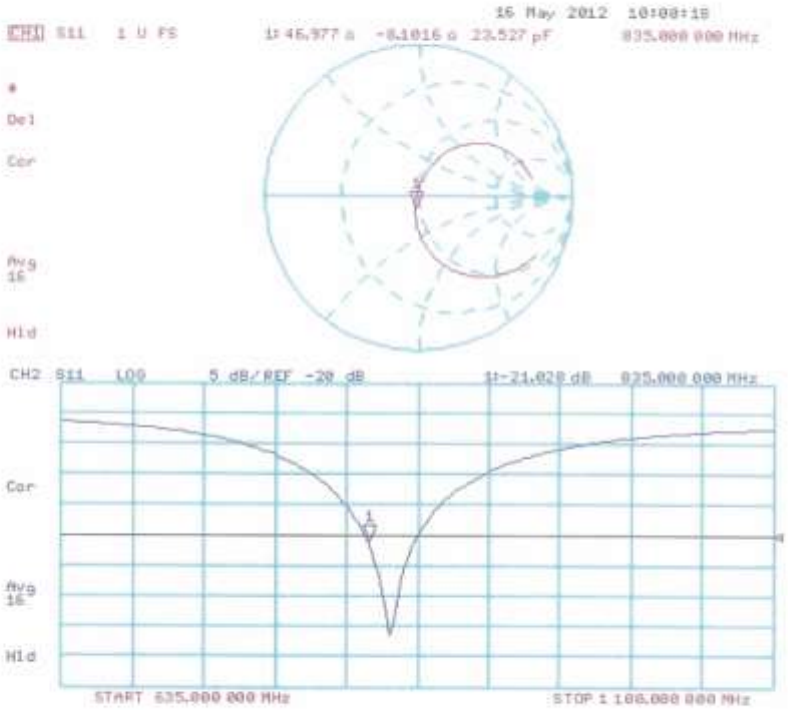
- Probe: ES3DV3 - SN3205; ConvF(6.02, 6.02, 6.02); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

Dipole Calibration for Body Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 55.054 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 3.533 mW/g
SAR(1 g) = 2.44 mW/g; SAR(10 g) = 1.6 mW/g
Maximum value of SAR (measured) = 2.82 mW/g



0 dB = 2.82 mW/g = 9.00 dB mW/g

Impedance Measurement Plot for Body TSL



Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

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

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

Accreditation No.: SCS 108

Client HCT (Dymstec)

Certificate No: D1900V2-5d032_Jul12

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 20, 2012

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	05-Oct-11 (No. 217-01451)	Oct-12
Power sensor HP 8481A	US37292783	05-Oct-11 (No. 217-01451)	Oct-12
Reference 20 dB Attenuator	SN: 5058 (20k)	27-Mar-12 (No. 217-01530)	Apr-13
Type-N mismatch combination	SN: 5047.2 / 06327	27-Mar-12 (No. 217-01533)	Apr-13
Reference Probe ES3DV3	SN: 3205	30-Dec-11 (No. ES3-3205_Dec11)	Dec-12
DAE4	SN: 601	27-Jun-12 (No. DAE4-601_Jun12)	Jun-13

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: July 20, 2012

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

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

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

Accreditation No.: SCS 108

Glossary:

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

Calibration is Performed According to the Following Standards:

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

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

Measurement Conditions

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

DASY Version	DASY5	V52.8.1
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	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	39.9 ± 6 %	1.38 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	9.68 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**39.0 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.11 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**20.5 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	52.6 ± 6 %	1.52 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	10.0 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**39.9 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.30 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**21.2 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	50.0 Ω + 3.1 jΩ
Return Loss	- 30.1 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	46.2 Ω + 3.7 jΩ
Return Loss	- 25.2 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.194 ns

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

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals. On some of the dipoles, small end caps are added to the dipole arms in order to improve matching when loaded according to the position as explained in the "Measurement Conditions" paragraph. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	March 17, 2003

DASY5 Validation Report for Head TSL

Date: 20.07.2012

Test Laboratory: SPEAG, Zurich, Switzerland

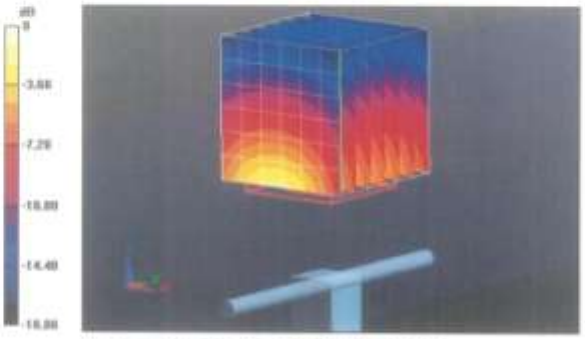
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d032

Communication System: CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.38 mho/m; ε_r = 39.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

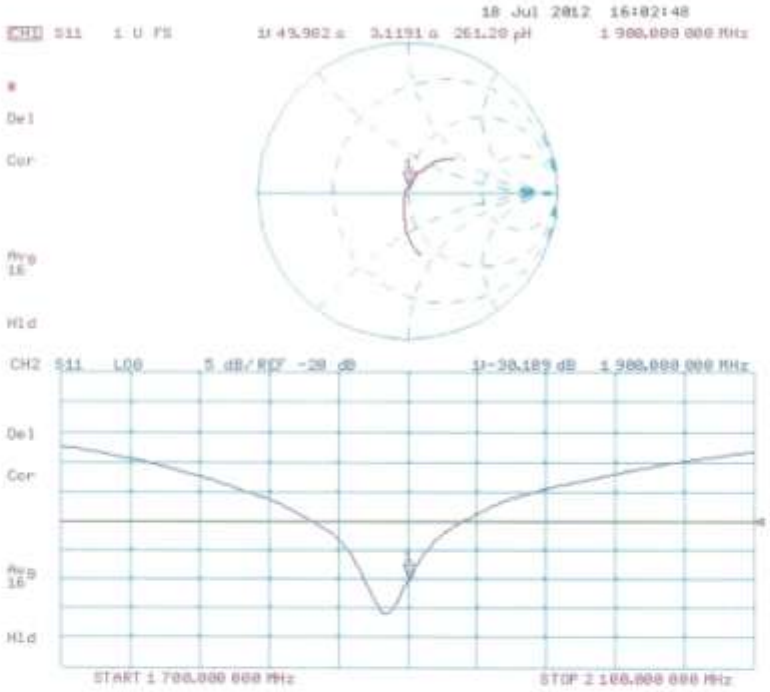
- Probe: ES3DV3 - SN3205; ConvF(5.01, 5.01, 5.01); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 27.06.2012
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

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 = 96.864 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 17.209 mW/g
SAR(1 g) = 9.68 mW/g; SAR(10 g) = 5.11 mW/g
Maximum value of SAR (measured) = 12.1 mW/g



0 dB = 12.1 mW/g = 21.66 dB mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 20.07.2012

Test Laboratory: SPEAG, Zurich, Switzerland

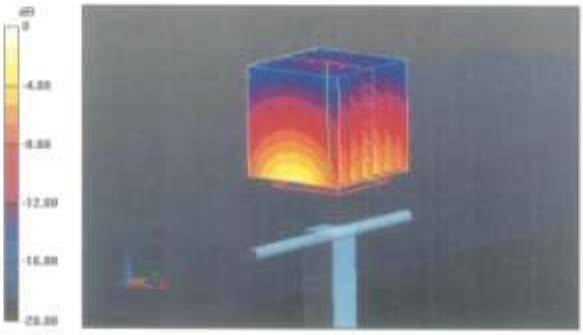
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d032

Communication System: CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.52 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

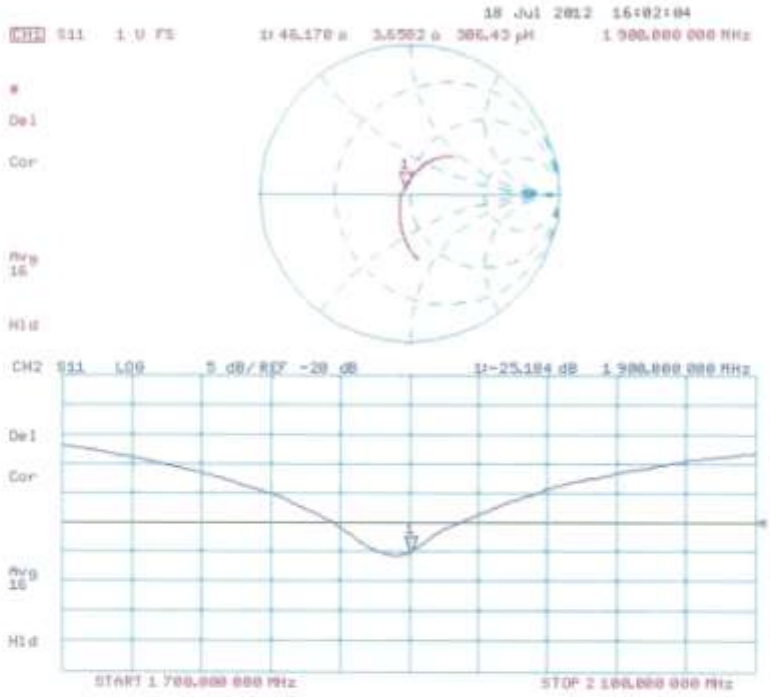
- Probe: ES3DV3 - SN3205; ConvF(4.62, 4.62, 4.62); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 27.06.2012
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 95.470 V/m; Power Drift = -0.00 dB
Peak SAR (extrapolated) = 17.332 mW/g
SAR(1 g) = 10 mW/g; SAR(10 g) = 5.3 mW/g
Maximum value of SAR (measured) = 12.6 mW/g



0 dB = 12.6 mW/g = 22.01 dB mW/g

Impedance Measurement Plot for Body TSL



Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

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

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

Accreditation No.: SCS 108

Client HCT (Dymstec) Certificate No: 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
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

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

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

Accreditation No.: SCS 108

Glossary:

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

Calibration is Performed According to the Following Standards:

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

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

Measurement Conditions

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

DASY Version	DASY5	V52.6.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom 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 cm³ (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 cm³ (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)

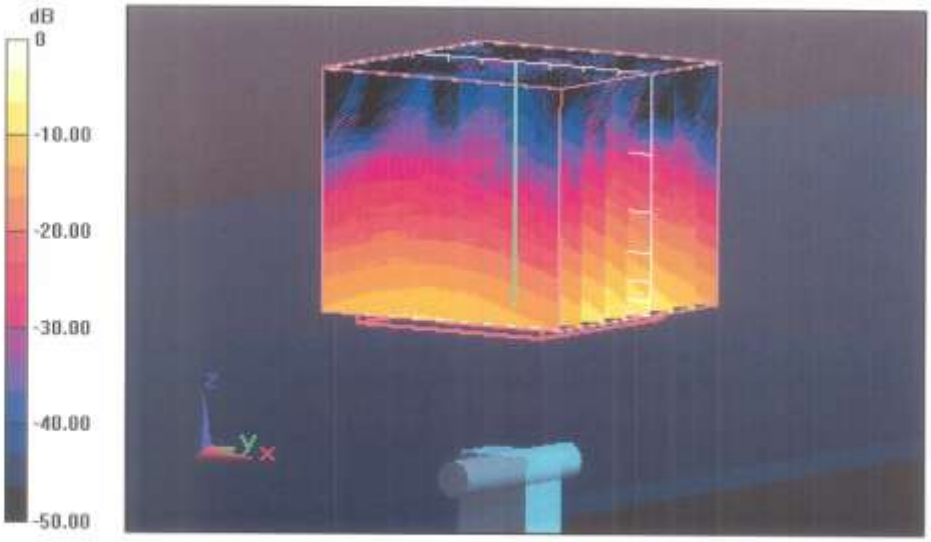
DASY52 Configuration:

- 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

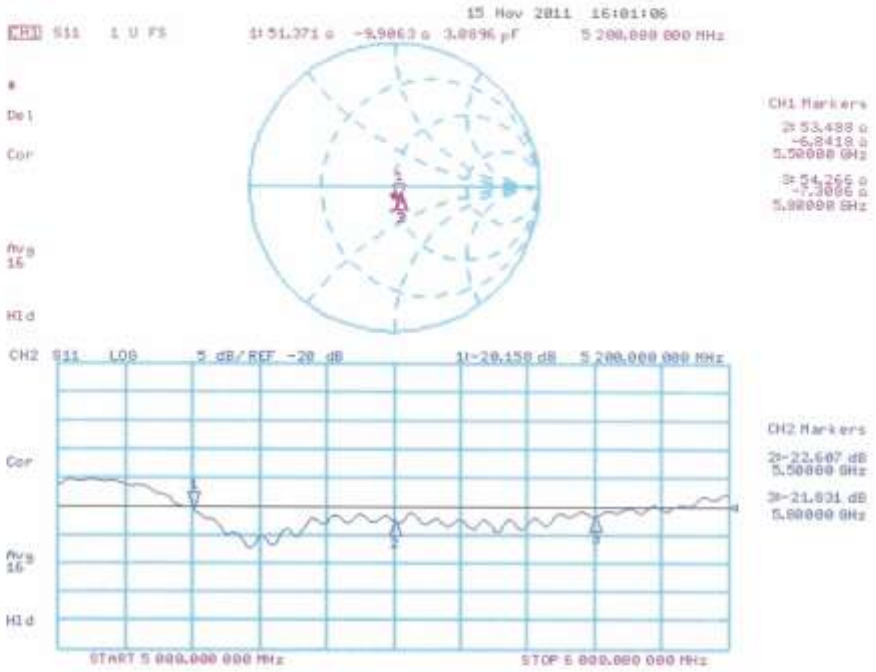
Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5500 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 67.044 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 35.139 W/kg
SAR(1 g) = 8.87 mW/g; SAR(10 g) = 2.52 mW/g
Maximum value of SAR (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)

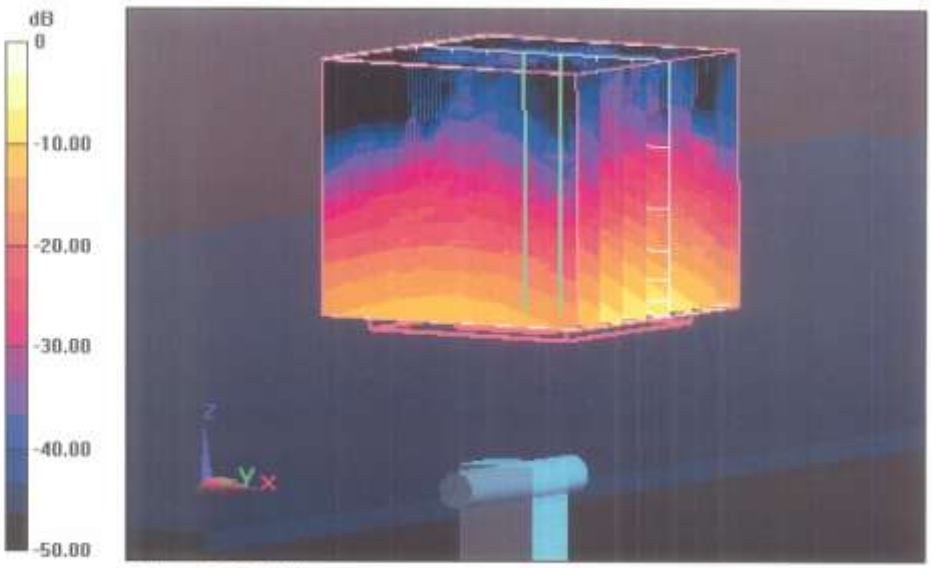
DASY52 Configuration:

- 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

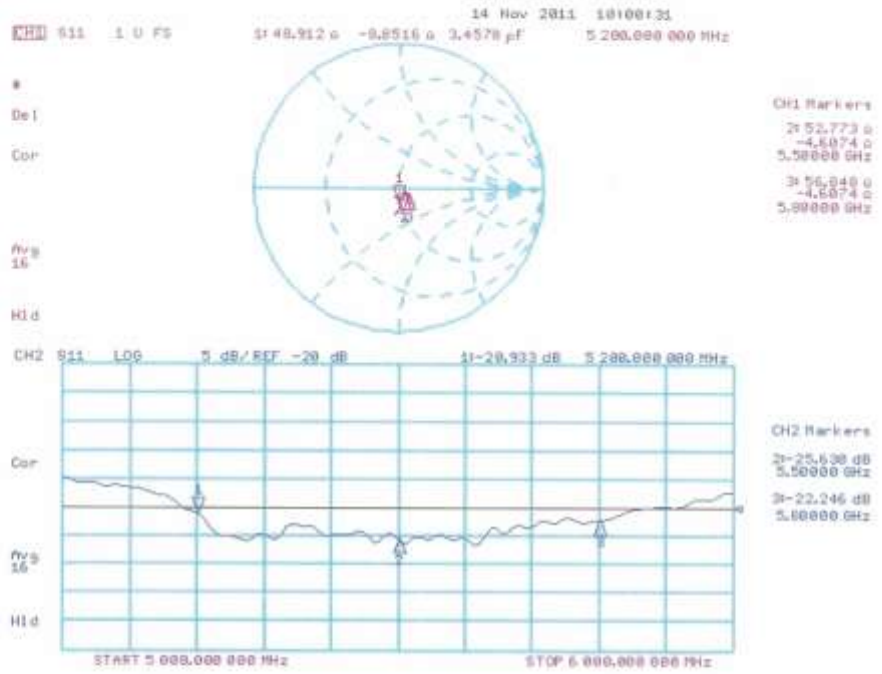
Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5500 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 58.998 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 35.235 W/kg
SAR(1 g) = 8.2 mW/g; SAR(10 g) = 2.27 mW/g
Maximum value of SAR (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



Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

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

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

Accreditation No.: SCS 108

Client HCT (Dymstec) Certificate No: 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

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

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

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

Accreditation No.: SCS 108

Glossary:

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

Calibration is Performed According to the Following Standards:

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

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

Measurement Conditions

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

DASY Version	DASY5	V52.6.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	38.4 ± 6 %	1.85 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.7 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**53.8 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.40 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**25.4 mW /g ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	52.7	1.95 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	51.8 ± 6 %	2.02 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	13.2 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**51.7 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.11 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**24.2 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	55.0 Ω + 4.8 jΩ
Return Loss	- 23.6 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	50.3 Ω + 5.8 jΩ
Return Loss	- 24.8 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.160 ns

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

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

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	December 01, 2003

DASY5 Validation Report for Head TSL

Date: 29.08.2011

Test Laboratory: SPEAG, Zurich, Switzerland

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

Communication System: CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.85 mho/m; ε_r = 38.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

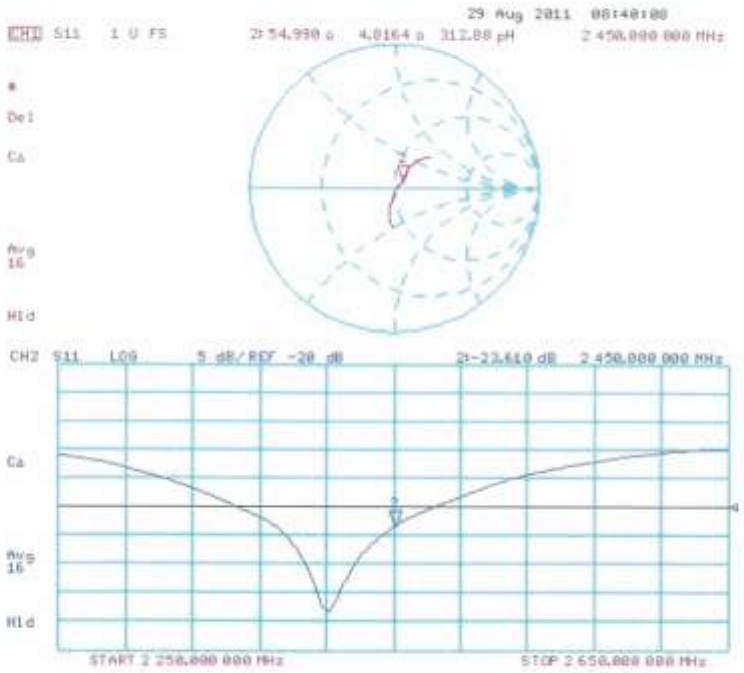
DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.45, 4.45, 4.45); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 101.2 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 28.291 W/kg
SAR(1 g) = 13.7 mW/g; SAR(10 g) = 6.4 mW/g
Maximum value of SAR (measured) = 17.657 mW/g

0 dB = 17.660mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 29.08.2011

Test Laboratory: SPEAG, Zurich, Switzerland

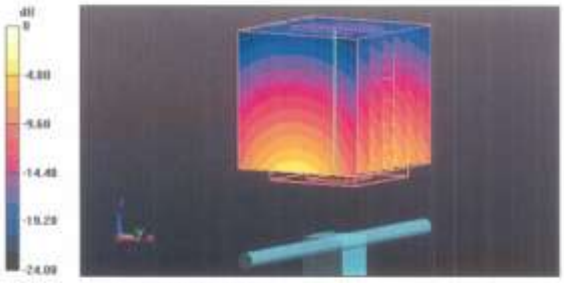
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 743

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