SAR TEST REPORT

HCT CO., LTD

EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
FCC ID:	JYCP4100
Model:	P4100
Date of Issue:	Oct. 14, 2011
Test report No.:	HCTA1110FS01
Test Laboratory:	**HCT CO., LTD.** 105-1, Jangam-ri, Majang-myeon, Icheon-si, Gyeonggi-do, Korea 467-811 TEL: +82 31 645 6485 FAX: +82 31 645 6401
Applicant :	**Pantech Co., Ltd.** Pantech Building, I-2, DMC, Sangam-dong, Mapo-gu,Seoul, Korea(ZIP :121-792) Tel: 82-2-2030-1319 Fax: 82-2-2030-2500
Testing has been carried out in accordance with:	RSS-102 Issue 4; Health Canada Safety Code 6 47CFR §2.1093 FCC OET Bulletin 65(Edition 97-01), Supplement C (Edition 01-01) ANSI/ IEEE C95.1 – 1992 IEEE 1528-2003
Test result:	The tested device complies with the requirements in respect of all parameters subject to the test. The test results and statements relate only to the items tested. The test report shall not be reproduced except in full, without written approval of the laboratory.
Signature	Report prepared by : Young-Soo Jang Test Engineer of SAR Part Approved by : Jae-Sang So Manager of SAR Part

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1. INTRODUCTION

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

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

SAR Definition

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

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

Figure 2. SAR Mathematical Equation

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

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

where:

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

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

2. DESCRIPTION OF DEVICE

EUT Type	GPRS/WCDMA/LTE Tablet PC with Bluetooth and WLAN		
FCC ID:	JYCP4100	Model:	P4100
Trade Name	Pantech	Serial Number(s)	#1
Application Type	Certification		
Mode(s)of Operation	GPRS850/GPRS1900/WCDMA850/WCDMA1900/802.11abgn/LTE Band(17/5/4)		
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) 802.11b/g/n: 2 412- 2 462 MHz 802.11a/n: 5180-5240MHz/ 5260-5320 MHz/ 5500-5700 MHz/ 5745-5825 MHz 704-716 MHz (LTE Band17), 824~849 MHz (LTE5), 1710~1755 MHz (LTE4)		
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) 2110-2155 MHz (LTE4), 869-894 MHz (LTE5), 734-746 MHz (LTE Band17) 2 412- 2 462 MHz (802.11bgn) 802.11a/n: 5180-5240MHz/ 5260-5320 MHz/ 5500-5700 MHz/ 5745-5825 MHz 704-716 MHz (LTE Band17), 824~849 MHz (LTE5), 1710~1755 MHz (LTE4)		
FCC Classification	PCB/ DSS/ DTS		
Production Unit	Prototype		
Max. SAR	Band	Max. C/P (dBm)	1g SAR (W/kg) Body
	GPRS850	33.2	0.433
	GPRS1900	29.6	1.12
	WCDMA850	23.3	0.325
	WCDMA1900	23.2	1.14
	802.11b	15.90	0.24
	5180-5240 MHz	12.55	0.286
	5260-5320 MHz	12.36	0.339
	5500-5700 MHz	12.82	0.423
	5745-5825 MHz	12.97	0.294
	LTE 17	23.31	0.574
	LTE 5	23.23	0.411
	LTE 4	23.26	1.17
Date(s) of Tests	Aug.11, 2011 ~ Oct.5, 2011		
GPRS	Multislot Class: 10, Mode Class: C		
Key Features;	Hotspot support, proximity sensor (3 dBm power back-off except EDGE/WLAN 2.4GHz & 5GHz). Regarding the proximity sensor, please see the attached proximity technical description.		
Power tolerance	Maximum Output Power +/- 0.5 dB		

LTE Information

<table>
<tr><td>Frequency Range:</td><td>Band 17: 704MHz-716MHz
Band 5: 824MHz-849MHz
Band 4: 1710MHz-1755MHz</td></tr>
<tr><td>Channel Bandwidth:</td><td>5 MHz, 10 MHz</td></tr>
<tr><td>Channel Number & Frequency:</td><td>
<table>
<tr><td colspan="4">Band 17</td></tr>
<tr><td colspan="2">5 MHz</td><td colspan="2">10 MHz</td></tr>
<tr><td>Ch.</td><td>Freq. (MHz)</td><td>Ch.</td><td>Freq. (MHz)</td></tr>
<tr><td>23790</td><td>710</td><td>23790</td><td>710</td></tr>
<tr><td colspan="4">Band 5</td></tr>
<tr><td colspan="2">5 MHz</td><td colspan="2">10 MHz</td></tr>
<tr><td>Ch.</td><td>Freq. (MHz)</td><td>Ch.</td><td>Freq. (MHz)</td></tr>
<tr><td>20425</td><td>826.5</td><td>20450</td><td>829</td></tr>
<tr><td>20525</td><td>836.5</td><td>20525</td><td>836.5</td></tr>
<tr><td>20625</td><td>846.5</td><td>20600</td><td>844</td></tr>
<tr><td colspan="4">Band 4</td></tr>
<tr><td colspan="2">5 MHz</td><td colspan="2">10 MHz</td></tr>
<tr><td>Ch.</td><td>Freq. (MHz)</td><td>Ch.</td><td>Freq. (MHz)</td></tr>
<tr><td>19975</td><td>1712.5</td><td>2000</td><td>1715</td></tr>
<tr><td>20175</td><td>1732.5</td><td>20175</td><td>1732.5</td></tr>
<tr><td>20375</td><td>1752.5</td><td>20350</td><td>1750</td></tr>
</table>
</td></tr>
<tr><td>UE Category & Uplink Modulation</td><td>UE Category 3 QPSK, 16QAM</td></tr>
<tr><td>Power Class</td><td>UE Power Class 3</td></tr>
<tr><td>Description of the LTE Transmitter & antenna</td><td>This model has two Tx antennas. Please see the section 8.
- Main: One for GPRS, WCDMA and LTE. It cannot transmit simultaneously.
- Another is for BT/WLAN. It cannot transmit simultaneously.</td></tr>
<tr><td>LTE voice/data requirements</td><td>Data Only</td></tr>
<tr><td>Identify if MPR is optional or mandatory</td><td>The EUT incorporates MPR as per 36.101.
The MPR is permanently built-in by design as a mandatory.
A-MPR is not implemented.
During SAR testing, A-MPR was disabled by setting NS=01 on the R&S CMW500.</td></tr>
<tr><td>Identify all other U.S. wireless operating modes, device exposure configurations and frequency bands</td><td>- GPRS/EDGE 850/1900, WCDMA850/1900 and LTE Band 17/5/4
: Body SAR is required.
- Bluetooth 2.4 GHz: BT SAR is not required as maximum output power < 12 mW
- WiFi 2.4 & 5 GHz: Body SAR is required.</td></tr>
<tr><td>Simultaneous Transmission condition</td><td>See section 12 Simultaneous transmission conditions in this document.</td></tr>
<tr><td>Description of the test equipment, software, etc.</td><td>SAR Testing was performed using a CMW500.
UE transmits with maximum output power during SAR testing.</td></tr>
</table>

3. DESCRIPTION OF TEST EQUIPMENT

3.1 SAR MEASUREMENT SETUP

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

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

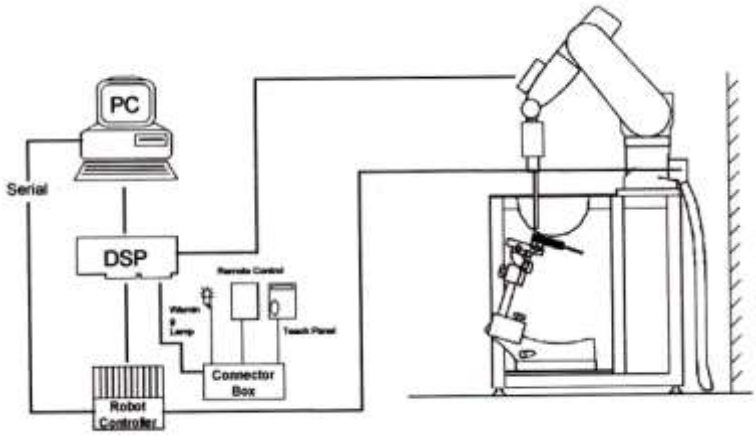


Figure 3.1 HCT SAR Lab. Test Measurement Set-up

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

3.2 DASY4 E-FIELD PROBE SYSTEM

3.2.1 ET3DV6 Probe Specification

Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	ISO/IEC 17025 calibration service available
Frequency	10 MHz to > 6 GHz Linearity: ± 0.2 dB (30 MHz to 6 GHz)
Directivity	± 0.3 dB in HSL (rotation around probe axis) ± 0.5 dB in tissue material (rotation normal to probe axis)
Dynamic	10 µW/g to > 100 mW/g Linearity: ± 0.2 dB (noise: typically < 1 µW/g)
Dimensions	Overall length: 337 mm (Tip: 20 mm) Tip diameter: 2.5 mm (Body: 12 mm) Typical distance from probe tip to dipole centers: 1 mm
Application	High precision dosimetric measurements in any exposure scenario (e.g., very strong gradient fields). Only probe which enables compliance testing for frequencies up to 6 GHz with precision of better 30%.

Figure 3.2 Photograph of the probe and the Phantom

Figure 3.3 EX3DV4 E-field Probe

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)

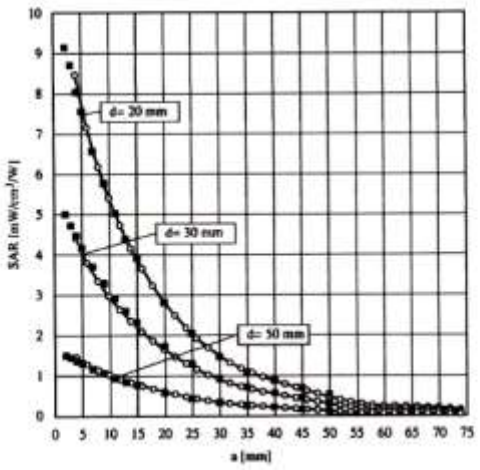


Figure 3.4 E-Field and Temperature measurements at 900 MHz

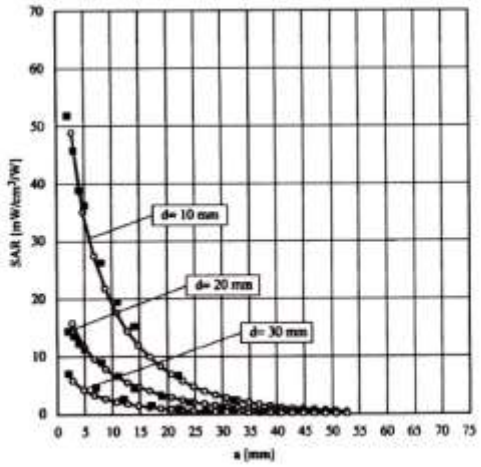


Figure 3.5 E-Field and temperature measurements at 1.8 GHz

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
Filling Volume	about 25 L
Dimensions	1 000 mm x 500 mm (L x W)

3.5 Device Holder for Transmitters

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

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

Figure 3.7 Device Holder

3.6 Brain & Muscle Simulating Mixture Characterization

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

Ingredients (% by weight)	Frequency (MHz)										
	750		835		915		1 900		2 450		5200-5800
Tissue Type	Head	Body	Head	Body	Head	Body	Head	Body	Head	Body	Body
Water	41.2	51.7	41.45	52.4	41.05	56.0	54.9	40.4	62.7	73.2	78.66
Salt (NaCl)	1.4	1.0	1.45	1.4	1.35	0.76	0.18	0.5	0.5	0.04	0.0
Sugar	57	47.2	56.0	45.0	56.5	41.76	0.0	58.0	0.0	0.0	0.0
HEC	0.2	0.0	1.0	1.0	1.0	1.21	0.0	1.0	0.0	0.0	0.0
Bactericide	0.2	0.1	0.1	0.1	0.1	0.27	0.0	0.1	0.0	0.0	0.0
Triton X-100	0.00	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.8	0.0	10.67
DGBE	0.00	0.0	0.0	0.0	0.0	0.0	44.92	0.0	0.0	26.7	0.0
Diethylene glycol hexyl ether											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	Mar. 1, 2011	Annual	Mar. 1, 2012
SPEAG	E-Field Probe ET3DV6	1798	Apr. 14, 2011	Annual	Apr. 14, 2012
SPEAG	E-Field Probe EX3DV4	3797	Jul. 25, 2011	Annual	Jul. 25, 2012
SPEAG	Validation Dipole D835V2	441	May 16, 2011	Annual	May 16, 2012
SPEAG	Validation Dipole D750V2	1014	July 25, 2011	Annual	July 25, 2012
SPEAG	Validation Dipole D1800V2	2d007	Apr. 19, 2011	Annual	Apr. 19, 2012
SPEAG	Validation Dipole D1900V2	5d032	July 22, 2011	Annual	July 22, 2012
SPEAG	Validation Dipole D2450V2	743	Aug. 25, 2010	Annual	Aug. 25, 2011
SPEAG	Validation Dipole D5GHzV2	1099	Mar. 14, 2011	Annual	Mar. 14, 2012
Agilent	Power Meter(F) E4419B	MY41291386	Nov. 05, 2010	Annual	Nov. 05, 2011
Agilent	Power Sensor(G) 8481	MY41090870	Nov. 05, 2010	Annual	Nov. 05, 2011
HP	Dielectric Probe Kit 85070C	00721521	N/A	N/A	N/A
HP	Dual Directional Coupler	16072	Nov. 05, 2010	Annual	Nov. 05, 2011
R&S	Base Station CMU200	110740	July 26, 2011	Annual	July 26, 2012
Agilent	Base Station E5515C	GB44400269	Feb. 10, 2011	Annual	Feb. 10, 2012
HP	Signal Generator E4438C	MY42082646	Nov. 11, 2010	Annual	Nov. 11, 2011
HP	Network Analyzer 8753ES	JP39240221	Mar. 30, 2011	Annual	Mar. 30, 2012
R&S	Base Station CMW500	101901	Aug.5, 2011	Annual	Aug.5, 2012

NOTE:

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

4. SAR MEASUREMENT PROCEDURE

The evaluation was performed with the following procedure:

1. The SAR value at a fixed location above the ear point was measured and was used as a reference value for assessing the power drop.

2. The SAR distribution at the exposed side of the head was measured at a distance of 3.9 mm from the inner surface of the shell. The area covered the entire dimension of the head and the horizontal grid spacing was 15 mm x 15 mm. Based on this data, the area of the maximum absorption was determined by spline interpolation.

3. Around this point, a volume of 32 mm x 32 mm x 30 mm was assessed by measuring 5 x 5 x 7 points. On this basis of this data set, the spatial peak SAR value was evaluated with the following procedure:

    a. The data at the surface were extrapolated, since the center of the dipoles is 2.7 mm away from the tip of the probe and the distance between the surface and the lowest measuring point is 1.2 mm. The extrapolation was based on a least square algorithm. A polynomial of the fourth order was calculated through the points in z-axes. This polynomial was then used to evaluate the points between the surface and the probe tip.
    b. The maximum interpolated value was searched with a straight-forward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1 g or 10 g) were computed using the 3D-Spline interpolation algorithm. The 3D-spline is composed of three one-dimensional splines with the “Not a knot” condition (in x, y, and z directions. The volume was integrated with the trapezoidal algorithm. One thousand points (10 x 10 x 10) were interpolated to calculate the average.
    c. All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.

4. The SAR value, at the same location as procedure #1, was re-measured. If the value changed by more than 5 %, the evaluation is repeated.
5. Per KDB pub. 865664 FCC SAR Measurement requirement, a minimum volume of 24 mm x 24 mm x 20 mm was assessed by measuring 7 x 7 x 11 points for 5GHz testing.

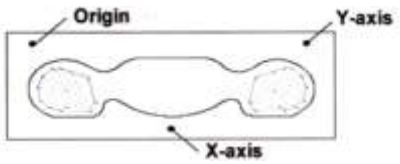


Figure 4.1 SAR Measurement Point in Area Scan

5. MEASUREMENT UNCERTAINTY

Error Description	Tol (± %)	Prob. dist.	Div.	c_i	Standard Uncertainty (± %)	v_{eff}
1. Measurement System						
Probe Calibration	7.00	N	1	1	7.00	∞
Axial Isotropy	4.70	R	1.73	0.7	1.90	∞
Hemispherical Isotropy	9.60	R	1.73	0.7	3.88	∞
Boundary Effects	1.00	R	1.73	1	0.58	∞
Linearity	4.70	R	1.73	1	2.71	∞
System Detection Limits	1.00	R	1.73	1	0.58	∞
Readout Electronics	0.30	N	1.00	1	0.30	∞
Response Time	0.8	R	1.73	1	0.46	∞
Integration Time	2.6	R	1.73	1	1.50	∞
RF Ambient 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					11.70	
Coverage Factor for 95 %					$k=2$	
Expanded STD Uncertainty					23.39	

Table 5.1 Uncertainty (750 MHz)

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 5.2 Uncertainty (800 MHz- 3000 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 5.3 Uncertainty (5000-5900 MHz)

6. 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).

7. SYSTEM VERIFICATION

7.1 Tissue Verification

Freq. [MHz]	Date	Liquid	Liquid Temp.[°C]	Parameters	Target Value	Measured Value	Deviation [%]	Limit [%]
750(LTE)	Aug.18, 2011	Body	21.1	εr	55.5	54.7	- 1.44	± 5
				σ	0.96	0.971	+ 1.15	± 5
750(LTE)	Sep.30, 2011	Body	21.1	εr	55.5	54.7	- 1.44	± 5
				σ	0.96	0.971	+ 1.15	± 5
835(LTE)	Aug.19, 2011	Body	21.3	εr	55.2	55.9	+ 1.27	± 5
				σ	0.97	0.95	- 2.06	± 5
835(LTE)	Sep.28, 2011	Body	21.1	εr	55.2	55.9	+ 1.27	± 5
				σ	0.97	0.95	- 2.06	± 5
1800(LTE)	Aug.20, 2011	Body	21.1	εr	53.4	55.1	+ 3.18	± 5
				σ	1.49	1.51	+ 1.34	± 5
1800(LTE)	Sep.29, 2011	Body	21.1	εr	53.4	55	+ 2.99	± 5
				σ	1.49	1.49	0	± 5
835 (GPRS/WCDMA)	Aug.29, 2011	Body	21.3	εr	55.2	55.9	+ 1.27	± 5
				σ	0.97	0.951	- 1.96	± 5
1 900 (GPRS/WCDMA)	Aug. 30, 2011	Body	21.2	εr	53.3	55.3	+ 3.75	± 5
				σ	1.52	1.48	- 2.63	± 5
2 450	Aug.11, 2011	Body	21.2	εr	52.7	51.8	- 1.71	± 5
				σ	1.95	1.96	+ 0.51	± 5
5 200	Oct.05,2011	Body	21.2	εr	49	47.6	- 2.86	± 5
				σ	5.3	5.17	- 2.45	± 5
5 500	Oct.05,2011	Body	21.2	εr	48.6	46.9	- 3.50	± 5
				σ	5.65	5.68	+ 0.53	± 5
5 800	Oct.05,2011	Body	21.2	εr	48.2	46.3	- 3.94	± 5
				σ	6.00	5.98	- 0.33	± 5

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

7.2 System Validation

Prior to assessment, the system is verified to the ± 10 % of the specifications at 750 MHz/ 835 MHz /1 700 MHz /1 900 MHz/ 2 450/ 5 GHz by using the system validation kit. (Graphic Plots Attached)

* Input Power: 100 m W

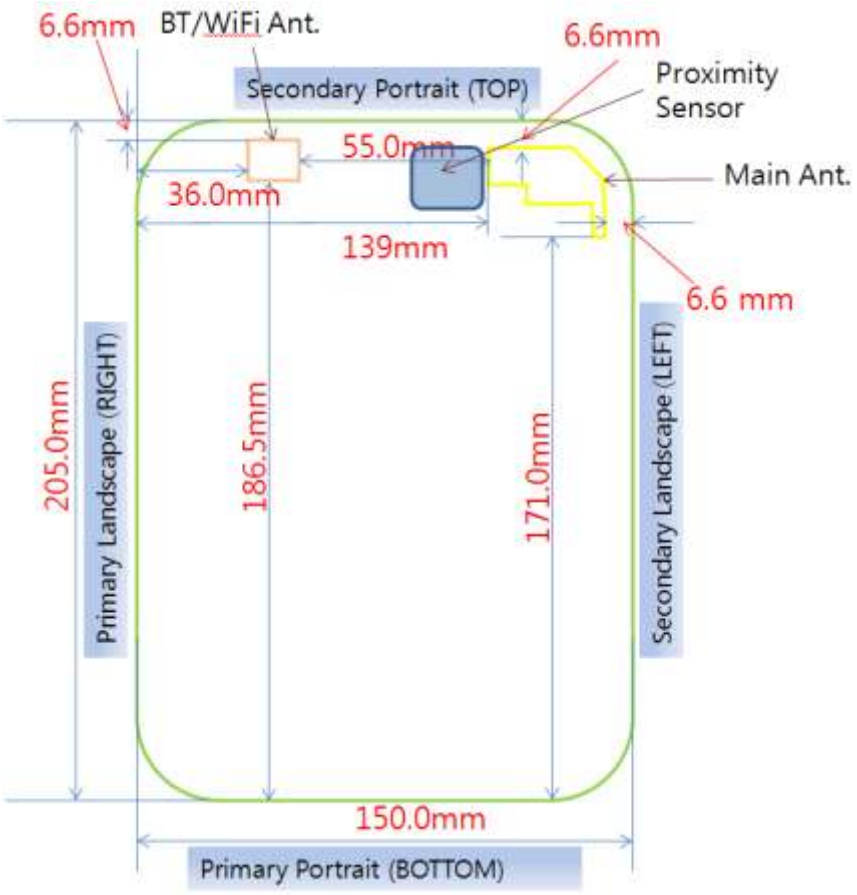
Freq. [MHz]	Probe (SN)	Dipole (SN)	Date	Liquid	Liquid Temp. [°C]	SAR Average	Target Value (SPEAG) (mW/g)	*Measured Value (mW/g)	Deviation [%]	Limit [%]
750(LTE)	1798	1014	Aug.18, 2011	Body	21.1	1 g	8.87	0.889	+ 0.23	± 10
750(LTE)	1798	1014	Sep.30, 2011	Body	21.1	1 g	8.87	0.897	+ 1.13	± 10
835(LTE)	1798	441	Aug.19, 2011	Body	21.3	1 g	9.45	0.972	+ 2.86	± 10
835(LTE)	1798	441	Sep.28, 2011	Body	21.1	1 g	9.45	0.949	+ 0.42	± 10
1800(LTE)	1798	2d007	Aug.20, 2011	Body	21.1	1 g	37.3	3.86	+ 3.49	± 10
1800(LTE)	1798	2d007	Sep.29, 2011	Body	21.1	1 g	37.3	3.72	- 0.26	± 10
835	1798	441	Aug.29, 2011	Body	21.3	1 g	9.45	0.973	+ 2.96	± 10
1 900	1798	5d032	Aug. 30, 2011	Body	21.2	1 g	40.9	4.25	+ 3.91	± 10
2 450	1798	743	Aug.11, 2011	Body	21.2	1 g	54.0	5.17	- 4.26	± 10
5 200	3797	1099	Oct.05,2011	Body	21.2	1 g	75.6	7.8	+ 3.17	± 10
5 500	3797	1099	Oct.05,2011	Body	21.2	1 g	80.5	8.12	+ 0.87	± 10
5 800	3797	1099	Oct.05,2011	Body	21.2	1 g	75.1	7.36	- 2.00	± 10

7.3 System Validation Procedure

SAR measurement was Prior to assessment, the system is verified to the ± 10 % of the specifications at target frequency MHz 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.

8. ANTENNA INFORMATION



[Rear View]

Note;

Per Oct.2010 TCB Workshop guidance, we performed the SAR testing at 1 cm from the top & bottom surfaces and also from side edges with a transmitting antenna ≤ 5 cm from an edge.

The diagonal length of the device is more than 20 cm.

EUT Technology Support

Mode	Band	Frequency
Voice	WCDMA	UMTS B5/ B2
Data	GPRS,EDGE /HSPA	GPRS/EDGE 850/1900, UMTS B5/B2
Data	LTE	LTE Band 17/ 5/ 4
Data	802.11b/g/n	2.45GHz / 5GHz

Definition of Antennas

Antenna	Antenna Use	Technologies	TX Bands
1	GPRS/EDGE+WCDMA B5/2+LTE B17/5/4	GPRS/EDGE,WCDMA.LTE	700/850/1700/1900
2	WLAN/BT	802.11 + Bluetooth	2.4GHz / 5GHz

9. SAR TEST CONFIGURATIONS

9.1 SAR Test Configurations

	Rear	Front	Primary Portrait	Secondary Portrait	Primary Landscape	Secondary Landscape
GPRS850/1900	O (0, 10mm)	X	X	O (0, 10mm)	X	O (0mm)
EDGE850/1900	X	X	X	X	X	X
WCDMA/HSPA 5/2	O (0, 10mm)	X	X	O (0, 10mm)	X	O (0mm)
LTE 17/5/4	O (0, 10mm)	X	X	O (0, 10mm)	X	O (0mm)
WLAN 2.4 GHz	O (0mm)	X	X	O (0mm)	O (0mm)	X
WLAN 5 GHz	O (0mm)	X	X	O (0mm)	O (0mm)	X
Bluetooth	X	X	X	X	X	X

Note;

- **Rear& Secondary Portrait Side for GPRS/WCDMA/LTE**: The proximity sensor can be only active with Secondary Portrait and Rear sides. Therefore SAR is conducted with 0cm separation distance at reduced power (Sensor On) and 10cm separation distance at Maximum power (Sensor Off).
- **Rear, Secondary Portrait Side & Primary Landscape for GPRS/WCDMA/LTE**: There is no power reduction in WLAN 2.4GHz & 5GHz. Therefore SAR is conducted with 0cm separation distance at maximum power.
- **Secondary Landscape for GPRS/WCDMA/LTE:** The proximity sensor cannot be operated, therefore SAR is conducted with 0cm separation distance at maximum power.

10. POWER REDUCTION BY SENSING

10.1 Exclusions for SAR Testing

The proximity sensor can be only active with Secondary Portrait and Rear sides. Therefore, Reduced Power SAR testing for Front, Primary Portrait, Primary Landscape & Secondary Landscape sides can be excluded. Also, it does not have proximity sensor or back-off capabilities on EDGE and WiFi.

10.2 Power Reduction Levels (Unit: dB)

	Rear	Front	Primary Portrait	Secondary Portrait	Primary Landscape	Secondary Landscape
GPRS850/1900	3	X	X	3	X	X
EDGE850/1900	X	X	X	X	X	X
WCDMA/HSPA 5/2	3	X	X	3	X	X
LTE 17/5/4	3	X	X	3	X	X
WLAN 2.4 GHz	X	X	X	X	X	X
WLAN 5 GHz	X	X	X	X	X	X
Bluetooth	X	X	X	X	X	X

10.3 Proximity Sensor Operation

Rear Side

Distance from Rear side(mm)	9	10	11	12	13	14
Proximity Sensor Condition	on	on	on	off	off	off

Secondary Portrait (Top) Side

Distance from Secondary Portrait side(mm)	9	10	11	12	13	14
Proximity Sensor Condition	on	on	on	off	off	off

Note;

-Proximity Sensor Activation

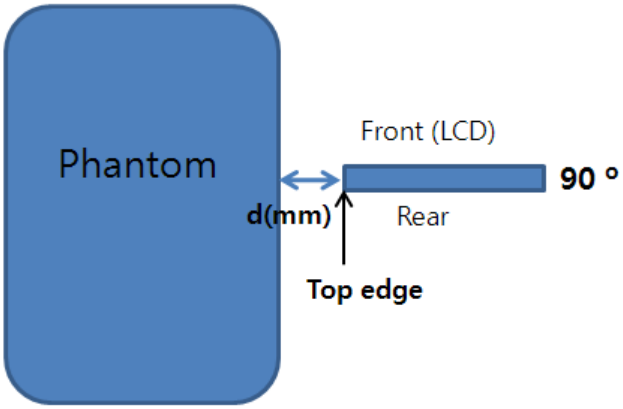
The sensor could sensing human body within 11 mm from touch sensor antenna.

We performed SAR with 0mm separation distance with 3dB power back-off power.

Also, tested 10mm SAR with Maximum power. Basically 11mm is power back-off distance, but we have tested 10mm distance which is more conservative condition with special software(sensor non-active version).

-Please find the Operational Description for power sensor activation.

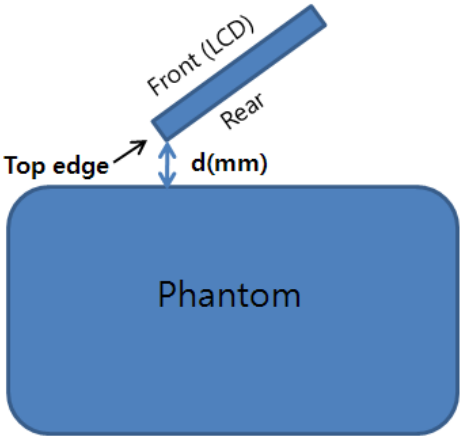
1. Triggering distance from Top edge of 90˚



Angles(˚)	0	15	30	45	60	75	90
Distance(mm)	7	8	9	10	10	11	11

The normal operation condition is 45˚~90˚ angle configuration. Therefore, SAR testing were performed at 10mm separation distance.

2. Triggering distance from Rear side of 45˚

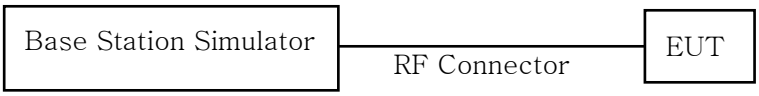


Angles(˚)	0	15	30	45	60	75	90
Distance(mm)	11	11	11	11	11	11	11

11. RF CONDUCTED POWER MEASUREMENT

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

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



SAR Test for WWAN were performed with a base station simulator Agilent E5515C/CMW500. Communication between the device and the emulator was established by air link. Set base station emulator to allow DUT to radiate maximum output power during all tests. Please refer to the below worst case SAR operation setup.

- GPRS Multi-slot Class 10: Body SAR with MCS 1 (GMSK)

11.1 GPRS/ EDGE

Maximum Conducted output powers (Without Power Reduction)

GSM Conducted output powers (Burst-Average)

Band	Channel	GPRS(GMSK) Data-MCS1		EDGE(8PSK) Data-CS9	
		GPRS 1 TX Slot (dBm)	GPRS 2 TX Slot (dBm)	EDGE 1 TX Slot (dBm)	EDGE 2 TX Slot (dBm)
GSM 850	128	33.2	31.6	26.8	26.2
	190	33.1	31.6	26.7	26
	251	33.2	31.7	26.9	26.1
GSM 1900	512	29.6	28.4	25.8	25
	661	29.4	28.4	25.7	24.8
	810	29.4	28.7	25.7	24.9

GSM Conducted output powers (Frame-Average)

Band	Channel	GPRS(GMSK) Data-MCS1		EDGE(8PSK) Data-CS9	
		GPRS 1 TX Slot (dBm)	GPRS 2 TX Slot (dBm)	EDGE 1 TX Slot (dBm)	EDGE 2 TX Slot (dBm)
GSM 850	128	24.17	25.58	17.77	20.18
	190	24.07	25.58	17.67	19.98
	251	24.17	**25.68**	17.87	20.08
GSM 1900	512	20.57	22.38	16.77	18.98
	661	20.37	22.38	16.67	18.78
	810	20.37	**22.68**	16.67	18.88

Reduced Conducted output powers (With Power Reduction)

GSM Conducted output powers (Burst-Average)

Band	Channel	GPRS(GMSK) Data-MCS1		EDGE(8PSK) Data-CS9	
		GPRS 1 TX Slot (dBm)	GPRS 2 TX Slot (dBm)	EDGE 1 TX Slot (dBm)	EDGE 2 TX Slot (dBm)
GSM 850	128	30.1	28.76	26.8	26.2
	190	29.95	28.69	26.7	26
	251	30.39	28.71	26.9	26.1
GSM 1900	512	26.78	25.64	25.8	25
	661	26.51	25.62	25.7	24.8
	810	26.54	25.89	25.7	24.9

GSM Conducted output powers (Frame-Average)

Band	Channel	GPRS(GMSK) Data-MCS1		EDGE(8PSK) Data-CS9	
		GPRS 1 TX Slot (dBm)	GPRS 2 TX Slot (dBm)	EDGE 1 TX Slot (dBm)	EDGE 2 TX Slot (dBm)
GSM 850	128	21.07	**22.74**	17.77	20.18
	190	20.92	22.67	17.67	19.98
	251	21.36	22.69	17.87	20.08
GSM 1900	512	17.75	19.62	16.77	18.98
	661	17.48	19.6	16.67	18.78
	810	17.51	**19.87**	16.67	18.88

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

Since the source-based time-averaged output power for EGPRS mode is lower than that in the GPRS mode, therefore body SAR test reduction is applicable for this device.

11.2 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.

11.2.1 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”.

11.2.2 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.

11.2.3 Body SAR Measurement

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

11.2.4 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.

11.2.5 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 $\Delta_{CQI} = 8 \Leftrightarrow A_{hs} = \beta_{hs}/\beta_c = 30/15 \Leftrightarrow \beta_{hs} = 30/15 * \beta_c$.
Note 2: CM = 1 for β_c/β_d =12/15, β_{hs}/β_c=24/15. 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/HSPA Conducted Average Powers (Without Power Reduction)

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	23.3		23.2		23.3		-
5	HSDPA	Subtest 1	23.2		23.1		23.1		0
5		Subtest 2	23.1	0.1	23.1	0	23.2	-0.1	0
5		Subtest 3	22.7	0.5	22.5	0.6	22.7	0.4	0.5
5		Subtest 4	22.7	0.5	22.6	0.5	22.6	0.5	0.5
6	HSUPA	Subtest 1	22.4		22.3		22.3		0
6		Subtest 2	20.8	1.6	20.9	1.4	21	1.3	2
6		Subtest 3	21.8	0.6	22.2	0.1	21.9	0.4	1
6		Subtest 4	21.5	0.9	21.4	0.9	21.5	0.8	2
6		Subtest 5	22.2	0.2	22.6	-0.3	22.2	0.1	0
3GPP Release Version	Mode	3GPP 34.121 Subtest	PCS Band [dBm]						MPR Target
			9262	Power reduction	9400	Power reduction	9538	Power reduction	
99	WCDMA	12.2 kbps RMC	23.2		23.1		23		-
5	HSDPA	Subtest 1	23.2		23.1		23		0
5		Subtest 2	23.1	0.1	23.1	0	23.2	-0.2	0
5		Subtest 3	22.6	0.6	22.3	0.8	22.4	0.6	0.5
5		Subtest 4	22.6	0.6	22.4	0.7	22.3	0.7	0.5
6	HSUPA	Subtest 1	22.6		22.2		22.3		0
6		Subtest 2	20.9	1.7	21	1.2	20.9	1.4	2
6		Subtest 3	21.9	0.7	21.8	0.4	21.9	0.4	1
6		Subtest 4	21.3	1.3	21.1	1.1	20.7	1.6	2
6		Subtest 5	22.8	-0.2	22.8	-0.6	22.5	-0.2	0

WCDMA/HSPA Conducted Average Powers (With Power Reduction)

3GPP Release Version	Mode	3GPP 34.121 Subtest	Cellular Band [dBm]						Proximity sensor Target MPR (dB)
			4132	Power reduction (dB)	4183	Power reduction (dB)	4233	Power reduction (dB)	
99	WCDMA	12.2 kbps RMC	20.24	3.06	20.16	3.04	20.22	3.08	3
5	HSDPA	Subtest 1	20.31	2.89	20.24	2.86	20.24	2.86	3
5		Subtest 2	20.11	2.99	20.31	2.79	20.31	2.89	3
5		Subtest 3	19.78	2.92	19.67	2.83	19.86	2.84	3
5		Subtest 4	19.84	2.86	19.48	3.12	19.49	3.11	3
6	HSUPA	Subtest 1	19.64	2.76	19.39	2.91	19.46	2.84	3
6		Subtest 2	17.84	2.96	17.98	2.92	18.34	2.66	3
6		Subtest 3	18.67	3.13	19.28	2.92	19.19	2.71	3
6		Subtest 4	18.67	2.83	18.76	2.64	18.67	2.83	3
6		Subtest 5	19.31	2.89	19.65	2.95	19.37	2.83	3
3GPP Release Version	Mode	3GPP 34.121 Subtest	PCS Band [dBm]						Proximity sensor Target MPR
			9262	Power reduction	9400	Power reduction	9538	Power reduction	
99	WCDMA	12.2 kbps RMC	20.34	2.86	20.17	2.93	19.87	3.13	3
5	HSDPA	Subtest 1	20.37	2.83	20.21	2.89	19.96	3.04	3
5		Subtest 2	20.21	2.89	20.22	2.88	20.34	2.86	3
5		Subtest 3	19.47	3.13	19.56	2.74	19.55	2.85	3
5		Subtest 4	19.59	3.01	19.61	2.79	19.34	2.96	3
6	HSUPA	Subtest 1	19.76	2.84	19.45	2.75	19.41	2.89	3
6		Subtest 2	17.85	3.05	18.14	2.86	17.86	3.04	3
6		Subtest 3	18.99	2.91	18.96	2.84	18.91	2.99	3
6		Subtest 4	18.45	2.85	18.23	2.87	17.84	2.86	3
6		Subtest 5	19.91	2.89	19.78	3.02	19.68	2.82	3

11.3 LTE

LTE Maximum Average Conducted Powers

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

The JYCP4100 developed base on MPR. The MPR is mandatory.

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

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

A-MPR has been disabled for all SAR tests by setting NS=01 on the R&S CMW500.

- **Proximity sensor Off**: Without Power reduction
- **Proximity sensor On:** With Power reduction

Band17

						Proximity Sensor OFF			Proximity Sensor On		
UL Freq.(MHz)	UL Channel	Modulation	Bandwidth	RB Size	RB Offset	Max. Average Power (dBm)	Target MPR (dB)	Measured Power reduction (dB)	Max. Average Power (dBm)	Proximity sensor Target MPR (dB)	Measured Power reduction by Proximity sensor (dB)
710	23790	QPSK	10MHz	1	0	**23.31**	0	0	20.72	3	2.59
710		16QAM		1	0	21.85	1	1.46	19.21	3	4.1
710		QPSK		1	49	23.02	0	0.29	20.48	3	2.83
710		16QAM		1	49	22.01	1	1.3	18.88	3	4.43
710		QPSK		25	13	21.87	1	1.44	18.99	3	4.32
710		16QAM		25	13	21.05	2	2.26	17.77	3	5.54
710		QPSK		50	0	21.77	1	1.54	18.76	3	4.55
710		16QAM		50	0	21.1	2	2.21	18.11	3	5.2
UL Freq.(MHz)	UL Channel	Modulation	Bandwidth	RB Size	RB Offset	Max. Average Power (dBm)	Target MPR (dB)	Measured Power reduction (dB)	Max. Average Power (dBm)	Proximity sensor Target MPR (dB)	Measured Power reduction by Proximity sensor (dB)
710	23790	QPSK	5MHz	1	0	22.64	0	0.12	19.55	3	3.21
710		16QAM		1	0	21.94	1	0.82	19.04	3	3.72
710		QPSK		1	24	**22.76**	0	0	19.87	3	2.89
710		16QAM		1	24	21.67	1	1.09	18.74	3	4.02
710		QPSK		12	6	22.06	1	0.7	19.12	3	3.64
710		16QAM		12	6	21.17	2	1.59	18.1	3	4.66
710		QPSK		25	0	21.86	1	0.9	18.95	3	3.81
710		16QAM		25	0	20.81	2	1.95	17.96	3	4.8

Band5

						Proximity Sensor OFF			Proximity Sensor On		
UL Freq.(MHz)	UL Channel	Modulation	Bandwidth	RB Size	RB Offset	Max. Average Power (dBm)	Target MPR (dB)	Measured Power reduction (dB)	Max. Average Power (dBm)	Proximity sensor Target MPR (dB)	Measured Power reduction by Proximity sensor (dB)
829	20450 (Low)	QPSK	10MHz	1	0	22.84	0	0.01	19.8	3	3.05
829		16QAM		1	0	21.7	1	1.15	18.64	3	4.21
829		QPSK		1	49	**22.85**	0	0	19.99	3	2.86
829		16QAM		1	49	21.74	1	1.11	18.91	3	3.94
829		QPSK		25	13	22.16	1	0.69	19.31	3	3.54
829		16QAM		25	13	21.27	2	1.58	18.34	3	4.51
829		QPSK		50	0	21.81	1	1.04	18.77	3	4.08
829		16QAM		50	0	21.05	2	1.8	17.88	3	4.97
836.5	20525 (Mid)	QPSK	10MHz	1	0	**23.04**	0	0	20.26	3	2.78
836.5		16QAM		1	0	21.89	1	1.15	18.94	3	4.1
836.5		QPSK		1	49	22.83	0	0.21	19.85	3	3.19
836.5		16QAM		1	49	21.73	1	1.31	18.89	3	4.15
836.5		QPSK		25	13	21.66	1	1.38	18.75	3	4.29
836.5		16QAM		25	13	20.9	2	2.14	17.82	3	5.22
836.5		QPSK		50	0	22.22	1	0.82	19.32	3	3.72
836.5		16QAM		50	0	21.3	2	1.74	18.24	3	4.8
844	20600 (High)	QPSK	10MHz	1	0	**23.23**	0	0	20.34	3	2.89
844		16QAM		1	0	22.12	1	1.11	19.24	3	3.99
844		QPSK		1	49	23	0	0.23	20.33	3	2.9
844		16QAM		1	49	21.77	1	1.46	18.64	3	4.59
844		QPSK		25	13	21.87	1	1.36	18.97	3	4.26
844		16QAM		25	13	20.91	2	2.32	17.77	3	5.46
844		QPSK		50	0	21.92	1	1.31	18.9	3	4.33
844		16QAM		50	0	21.13	2	2.1	18.23	3	5

Band5

						Proximity Sensor OFF			Proximity Sensor On		
UL Freq.(MHz)	UL Channel	Modulation	Bandwidth	RB Size	RB Offset	Max. Average Power (dBm)	Target MPR (dB)	Measured Power reduction (dB)	Max. Average Power (dBm)	Proximity sensor Target MPR (dB)	Measured Power reduction by Proximity sensor (dB)
826.5	20425 (Low)	QPSK	5MHz	1	0	22.84	0	0.05	19.95	3	2.94
826.5		16QAM		1	0	21.95	1	0.94	18.86	3	4.03
826.5		QPSK		1	24	**22.89**	0	0	19.77	3	3.12
826.5		16QAM		1	24	22.14	1	0.75	19.29	3	3.6
826.5		QPSK		12	6	21.82	1	1.07	18.89	3	4
826.5		16QAM		12	6	20.81	2	2.08	17.97	3	4.92
826.5		QPSK		25	0	21.98	1	0.91	19.02	3	3.87
826.5		16QAM		25	0	21.1	2	1.79	18.34	3	4.55
836.5	20525 (Mid)	QPSK	5MHz	1	0	**22.93**	0	0	19.87	3	3.06
836.5		16QAM		1	0	21.94	1	0.99	18.87	3	4.06
836.5		QPSK		1	24	22.72	0	0.21	19.88	3	3.05
836.5		16QAM		1	24	22.27	1	0.66	19.08	3	3.85
836.5		QPSK		12	6	21.97	1	0.96	18.99	3	3.94
836.5		16QAM		12	6	20.92	2	2.01	18.25	3	4.68
836.5		QPSK		25	0	21.92	1	1.01	19.21	3	3.72
836.5		16QAM		25	0	21.23	2	1.7	18.37	3	4.56
846.5	20625 (High)	QPSK	5MHz	1	0	22.76	0	0.23	19.82	3	3.17
846.5		16QAM		1	0	22.33	1	0.66	19.45	3	3.54
846.5		QPSK		1	24	**22.99**	0	0	20.11	3	2.88
846.5		16QAM		1	24	21.98	1	1.01	19.13	3	3.86
846.5		QPSK		12	6	21.98	1	1.01	19.21	3	3.78
846.5		16QAM		12	6	20.98	2	2.01	17.82	3	5.17
846.5		QPSK		25	0	21.96	1	1.03	18.87	3	4.12
846.5		16QAM		25	0	20.91	2	2.08	18.01	3	4.98

Band4

						Proximity Sensor OFF			Proximity Sensor On		
UL Freq.(MHz)	UL Channel	Modulation	Bandwidth	RB Size	RB Offset	Max.Average Power (dBm)	Target MPR (dB)	Measured Power reduction (dB)	Max. Average Power (dBm)	Proximity sensor Target MPR (dB)	Measured Power reduction by Proximity sensor (dB)
1715	20000 (Low)	QPSK	10MHz	1	0	22.74	0	0.04	19.84	3	2.94
1715		16QAM		1	0	22	1	0.78	19.21	3	3.57
1715		QPSK		1	49	**22.78**	0	0	19.84	3	2.94
1715		16QAM		1	49	22.15	1	0.63	19.24	3	3.54
1715		QPSK		25	13	22.14	1	0.64	19	3	3.78
1715		16QAM		25	13	21.41	2	1.37	18.52	3	4.26
1715		QPSK		50	0	22.13	1	0.65	19.14	3	3.64
1715		16QAM		50	0	21.36	2	1.42	18.45	3	4.33
1732.5	20175 (Mid)	QPSK	10MHz	1	0	**23.25**	0	0	20.31	3	2.94
1732.5		16QAM		1	0	21.88	1	1.37	18.74	3	4.51
1732.5		QPSK		1	49	23.03	0	0.22	19.91	3	3.34
1732.5		16QAM		1	49	21.87	1	1.38	18.97	3	4.28
1732.5		QPSK		25	13	21.9	1	1.35	18.71	3	4.54
1732.5		16QAM		25	13	21.06	2	2.19	18.14	3	5.11
1732.5		QPSK		50	0	22.04	1	1.21	19.21	3	4.04
1732.5		16QAM		50	0	21.19	2	2.06	18.31	3	4.94
1750	20350 (High)	QPSK	10MHz	1	0	**23.26**	0	0	20.41	3	2.85
1750		16QAM		1	0	22.01	1	1.25	18.97	3	4.29
1750		QPSK		1	49	23.25	0	0.01	20.11	3	3.15
1750		16QAM		1	49	22.03	1	1.23	19.16	3	4.1
1750		QPSK		25	13	21.94	1	1.32	18.99	3	4.27
1750		16QAM		25	13	21.06	2	2.2	18.21	3	5.05
1750		QPSK		50	0	22.21	1	1.05	19.36	3	3.9
1750		16QAM		50	0	21.39	2	1.87	18.42	3	4.84

Band4

						Proximity Sensor OFF			Proximity Sensor On		
UL Freq.(MHz)	UL Channel	Modulation	Bandwidth	RB Size	RB Offset	Max. Average Power (dBm)	Target MPR (dB)	Measured Power reduction (dB)	Max. Average Power (dBm)	Proximity sensor Target MPR (dB)	Measured Power reduction by Proximity sensor (dB)
1712.5	19975 (Low)	QPSK	5MHz	1	0	23.09	0	0.01	20.34	3	2.76
1712.5		16QAM		1	0	22.27	1	0.83	19.41	3	3.69
1712.5		QPSK		1	24	**23.1**	0	0	20.24	3	2.86
1712.5		16QAM		1	24	22.11	1	0.99	19.04	3	4.06
1712.5		QPSK		12	6	21.98	1	1.12	18.96	3	4.14
1712.5		16QAM		12	6	20.91	2	2.19	17.79	3	5.31
1712.5		QPSK		25	0	22.16	1	0.94	19.25	3	3.85
1712.5		16QAM		25	0	21.11	2	1.99	18.22	3	4.88
1732.5	20175 (Mid)	QPSK	5MHz	1	0	**23.2**	0	0	20.31	3	2.89
1732.5		16QAM		1	0	22.17	1	1.03	19.26	3	3.94
1732.5		QPSK		1	24	23.17	0	0.03	20.33	3	2.87
1732.5		16QAM		1	24	22.07	1	1.13	19.21	3	3.99
1732.5		QPSK		12	6	21.92	1	1.28	18.99	3	4.21
1732.5		16QAM		12	6	20.85	2	2.35	17.76	3	5.44
1732.5		QPSK		25	0	22.1	1	1.1	19.26	3	3.94
1732.5		16QAM		25	0	21.09	2	2.11	18	3	5.2
1752.5	20375 (High)	QPSK	5MHz	1	0	**23.24**	0	0	20.27	3	2.97
1752.5		16QAM		1	0	22.08	1	1.16	19.21	3	4.03
1752.5		QPSK		1	24	23.21	0	0.03	20.33	3	2.91
1752.5		16QAM		1	24	22.19	1	1.05	19.07	3	4.17
1752.5		QPSK		12	6	21.81	1	1.43	18.83	3	4.41
1752.5		16QAM		12	6	20.82	2	2.42	17.68	3	5.56
1752.5		QPSK		25	0	22.21	1	1.03	19.36	3	3.88
1752.5		16QAM		25	0	21.24	2	2	17.78	3	5.46

Note;

The power reduction is based on the normal maximum output power. During proximity sensor activated and power reduction, Target MPR level and Proximity target MPR (3 dB) were considered.

The JYCP4100 developed base on MPR. The MPR is mandatory.

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

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

11.4 WiFi

11.4.1 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

WLAN 2.4GHz Conducted Powers (Without Power Reduction)

Band	Channel	Mbps (dBm)			
		1	2	5.5	11
IEEE 802.11b	1	15.67	15.69	15.68	15.65
	6	15.80	15.80	15.81	15.90
	11	15.42	15.42	15.39	15.36

Average IEEE 802.11b Conducted output power

Band	Channel	Mbps (dBm)							
		6	9	12	18	24	36	48	54
IEEE 802.11g	1	14.02	13.96	13.95	13.96	13.84	13.54	13.35	12.24
	6	14.23	14.20	14.18	14.14	14.02	13.91	13.88	12.31
	11	14.16	14.18	14.17	14.19	14.05	13.94	13.89	12.35

Average IEEE 802.11g Conducted output power

Band	Channel	Mbps (dBm)							
		6.5	13	20	26	39	52	58	65
IEEE 802.11n (HT-20)	1	11.53	11.37	11.39	11.35	11.24	11.18	11.20	9.78
	6	12.01	11.90	11.43	11.38	11.27	11.23	11.22	9.82
	11	12.11	12.01	12.05	11.63	11.46	11.39	11.38	10.04

Average IEEE 802.11n Conducted output power

Note;

SAR testing was performed according to the FCC KDB 248227.

WLAN 5GHz Conducted Powers(Without Power Reduction)

802.11 a

Mode	Freq [MHz]	Channel	conducted Power [dBm]							
			Data Rate [Mbps]							
			6	9	12	18	24	36	48	54
802.11a	5180	36	12.23	12.13	12.16	12.17	12.00	11.87	10.45	9.52
802.11a	5200	40	12.48	12.46	12.35	12.32	12.20	12.13	10.80	9.79
802.11a	5220	44	12.32	12.29	12.30	12.24	12.18	12.16	11.04	9.92
802.11a	5240	48	12.39	12.55	12.45	12.34	12.32	12.23	11.22	10.22
802.11a	5260	52	12.27	12.06	11.91	11.96	12.36	12.18	11.28	10.21
802.11a	5280	56	12.18	12.20	12.12	11.92	11.83	11.72	10.67	9.29
802.11a	5300	60	12.11	12.19	12.04	12.01	11.80	11.74	10.74	9.14
802.11a	5320	64	11.70	11.88	1.62	11.69	11.51	11.27	10.23	8.61
802.11a	5500	100	12.40	12.24	12.13	12.04	12.20	11.78	10.70	9.68
802.11a	5520	104	12.82	12.59	12.33	12.30	12.31	12.12	11.02	10.90
802.11a	5540	108	12.42	12.33	12.16	12.17	12.17	12.01	10.89	9.93
802.11a	5560	112	12.56	12.38	12.24	12.18	12.14	11.98	10.83	9.79
802.11a	5580	116	12.32	12.14	11.98	11.95	11.88	11.80	10.74	9.58
802.11a	5600	120	12.24	12.01	11.86	11.91	12.09	11.92	10.84	9.89
802.11a	5620	124	12.58	12.34	12.19	12.04	11.92	11.88	11.79	10.78
802.11a	5640	128	12.70	12.51	12.34	121.30	12.16	12.02	11.90	10.92
802.11a	5660	132	12.41	12.23	12.09	12.11	12.15	12.00	11.94	10.89
802.11a	5680	136	12.53	12.30	12.15	12.04	11.96	11.89	11.81	10.78
802.11a	5700	140	12.79	12.59	12.39	12.43	12.22	12.23	11.20	9.75
802.11a	5745	149	12.92	12.88	12.97	12.90	12.76	12.64	11.66	10.77
802.11a	5765	153	12.90	12.81	12.76	12.74	12.66	12.54	11.41	10.41
802.11a	5785	157	12.84	12.98	112.66	12.59	12.76	12.54	11.17	10.12
802.11a	5805	161	12.69	12.75	12.69	12.47	12.51	12.31	11.08	10.04
802.11a	5825	165	12.51	12.30	12.27	12.08	12.20	12.07	10.74	9.71

802.11 n

Mode	Freq [MHz]	Channel	conducted Power [dBm]							
			Data Rate [Mbps]							
			6.5	13	20	26	39	52	58	65
802.11n	5180	36	10.10	10.17	10.11	10.05	9.91	9.84	9.94	6.87
802.11n	5200	40	10.76	10.32	10.27	10.47	10.23	10.14	10.05	6.56
802.11n	5220	44	10.55	10.40	10.38	10.34	10.28	10.22	10.08	6.78
802.11n	5240	48	10.34	10.22	10.25	10.31	10.29	10.09	10.04	6.25
802.11n	5260	52	11.02	10.54	10.57	10.48	10.34	10.23	10.20	6.57
802.11n	5280	56	10.76	10.60	10.68	10.61	10.54	10.39	10.22	6.71
802.11n	5300	60	10.27	10.42	10.55	10.39	10.38	10.18	10.06	6.66
802.11n	5320	64	9.01	9.02	8.94	8.84	8.73	8.71	8.66	5.82
802.11n	5500	100	10.18	10.21	10.05	9.84	9.81	9.65	9.81	6.25
802.11n	5520	104	10.11	10.03	9.84	9.69	9.71	9.63	9.60	6.47
802.11n	5540	108	10.24	10.10	10.01	9.83	9.79	9.74	9.48	6.36
802.11n	5560	112	10.02	10.04	9.89	9.81	9.64	9.55	9.49	6.32
802.11n	5580	116	10.42	9.89	9.77	9.43	9.33	9.22	9.09	5.99
802.11n	5600	120	10.79	10.43	10.62	10.07	9.94	9.87	9.83	6.49
802.11n	5620	124	10.14	9.86	9.88	9.72	9.66	9.67	9.61	6.24
802.11n	5640	128	10.27	10.16	9.94	9.90	9.74	9.70	9.55	6.34
802.11n	5660	132	10.64	10.48	10.38	10.24	10.08	10.13	9.98	7.04
802.11n	5680	136	10.52	10.37	10.26	10.22	10.16	10.04	10.00	7.10
802.11n	5700	140	10.37	11.02	10.91	10.89	10.75	10.68	10.60	7.25
802.11n	5745	149	11.11	10.64	10.62	10.96	10.54	10.45	10.42	6.99
802.11n	5765	153	11.27	10.89	10.77	10.71	10.84	10.69	10.71	7.60
802.11n	5785	157	11.34	11.24	11.08	10.97	11.16	10.87	10.99	7.67
802.11n	5805	161	11.08	11.01	10.88	10.76	10.67	10.40	10.31	7.41
802.11n	5825	165	10.65	10.74	10.64	10.54	10.61	10.40	10.44	7.48

Note;

The JYCP4100 developed base on MPR. The MPR is mandatory.

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

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

A-MPR was disabled by setting NS=01 on the R&S CMW500.

The WLAN and Bluetooth cannot transmit simultaneously, so there is no co-location test requirement for WLAN and Bluetooth.

12. SIMULTANEOUS TRANSMISSION

No.	Simultaneous Transmission	Body	Hotspot	Note
1	GPRS/EGPRS850 Data	O	X	Stand-alone
2	GPRS/EGPRS1900 Data	O	X	Stand-alone
3	WCDMA850	O	X	Stand-alone
4	WCDMA1900	O	X	Stand-alone
5	LTE B17 Data	O	X	Stand-alone
6	LTE B5 Data	O	X	Stand-alone
7	LTE B4 Data	O	X	Stand-alone
8	WLAN 2.4 GHZ	O	X	Stand-alone
9	WLAN 5 GHz	O	X	Stand-alone
10	BT	X	X	Below SAR Power Thereshold
11	GPRS/EGPRS850 Data + WLAN 2.4 GHz	O	O	WiFi Hotspot
12	GPRS/EGPRS1900 Data + WLAN 2.4 GHz	O	O	WiFi Hotspot
13	WCDMA850 + WLAN 2.4 GHz	O	O	WiFi Hotspot
14	WCDMA1900 + WLAN 2.4 GHz	O	O	WiFi Hotspot
15	LTE B17 + WLAN 2.4 GHz	O	O	WiFi Hotspot
16	LTE B5 + WLAN 2.4 GHz	O	O	WiFi Hotspot
17	LTE B4 + WLAN 2.4 GHz	O	O	WiFi Hotspot

Table 12.1 Simultaneous Transmission Possibilities

Note;

- GPRS, WCDMA and LTE can not transmit simultaneously since it shares the antenna.
  BT and WLAN can not transmit simultaneously since it shares the antenna.
  But, WWAN and WLAN 2.4 GHz/BT is capable transmit simultaneously.

- 5GHz: When Hotspot is enables, 5GHz bands are disabled. Therefore simultaneous transmission is not required in 5GHz Band.

- Hotspot mode: The device is capable of personal hotspot mode. The hotspot mode can be enabled by the users. As the tablet has a diagonal size of greater than 20cm, and in accordance with FCC training provided in October 2011 (TCBC Workshop) hot spot SAR is not required for this device.

- BT: BT power is below SAR power threshold, so it is not required SAR testing.

Simultaneous Transmission Summation for Body at 1.0 cm

Simultaneous TX	configuration	850 GPRS SAR(W/kg)	1900 GPRS SAR(W/kg)	850 WCDMA SAR (W/kg)	1900 WCDMA SAR (W/kg)	LTE B17 SAR (W/kg)	LTE B5 SAR (W/kg)	LTE B4 SAR (W/kg)	2.4GHz WIFI SAR (W/kg)	∑SAR (W/kg)
Body SAR	Rear	0.186	**1.12**	0.179	0.925	0.353	0.296	1.08	**0.24**	1.360
	Secondary Portrait	0.111	**0.837**	0.097	0.445	0.101	0.169	0.416	**0.066**	0.903

Simultaneous Transmission Summation for Body at 0 cm

Simultaneous TX	configuration	850 GPRS SAR(W/kg)	1900 GPRS SAR(W/kg)	850 WCDMA SAR (W/kg)	1900 WCDMA SAR (W/kg)	LTE B17 SAR (W/kg)	LTE B5 SAR (W/kg)	LTE B4 SAR (W/kg)	2.4GHz WIFI SAR (W/kg)	∑SAR (W/kg)
Body SAR	Rear	0.433	1.07	0.325	1.14	0.574	0.411	**1.17**	**0.24**	1.410
	Secondary Portrait	0.23	0.205	0.084	0.259	0.161	0.213	**0.279**	**0.066**	0.345
	Secondary Landscape	0.152	0.33	0.15	0.36	0.239	0.258	**0.801**	**-**	0.801

Note;

-For sum SAR calculation at 1.0cm, 2.4 GHz WiFi SAR values for 0cm were used since the 0cm distance is more conservative than 1cm.

-Worst-case SAR summation is < 1.6 W/kg, simultaneous SAR measurement is not necessary.

13. SAR TEST DATA SUMMARY

13.1 Measurement Results (GPRS850 Body SAR)

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	Configuration	Separation Distance	Power Sensor	SAR(mW/g)
MHz	Channel							
836.6	190 (Mid)	GPRS 2Tx	31.60	-0.02	Rear	1.0 cm	off	0.186
836.6	190 (Mid)	GPRS 2Tx	31.60	-0.065	Secondary Landscape	0 cm	off	0.152
836.6	190 (Mid)	GPRS 2Tx	31.60	0.02	Secondary Portrait	1.0 cm	off	0.111
836.6	190 (Mid)	GPRS 2Tx	28.69	0.122	Rear	0 cm	on	0.433
836.6	190 (Mid)	GPRS 2Tx	28.69	-0.03	Secondary Portrait	0 cm	on	0.230
ANSI/ IEEE C95.1 - 1992– 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-head position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supplement C [July 2001].
2 All modes of operation were investigated and the worst-case are reported.
3 Measured Depth of Simulating Tissue is 15.0 cm ± 0.2 cm.
4 Tissue parameters and temperatures are listed on the SAR plot.
5 Battery Type ☒ Standard ☐ Extended ☐ Slim
Batteries are fully charged for all readings.
6 Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
7 Test Configuration ☐ With Holster ☒ Without Holster
8 Justification for reduced test configurations: per FCC/OET Supplement C (July, 2001), if the SAR measured at the middle channel for each test configuration (Secondary Landscape, Primary Landscape, 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 class10 with 2uplink 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.

13.2 Measurement Results (GPRS1900 Body SAR)

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	Configuration	Separation Distance	Power Sensor	SAR(mW/g)
MHz	Channel							
1850.2	512 (Low)	GPRS 2Tx	28.4	0.004	Rear	1.0 cm	off	0.792
1880	661 (Mid)	GPRS 2Tx	28.4	-0.04	Rear	1.0 cm	off	1.12
1 909.8	810(High)	GPRS 2Tx	28.7	0.086	Rear	1.0 cm	off	1.00
1880	661 (Mid)	GPRS 2Tx	28.4	-0.02	Secondary Landscape	0 cm	off	0.33
1850.2	512 (Low)	GPRS 2Tx	28.4	-0.06	Secondary Portrait	1.0 cm	off	0.539
1880	661 (Mid)	GPRS 2Tx	28.4	0.05	Secondary Portrait	1.0 cm	off	0.837
1 909.8	810(High)	GPRS 2Tx	28.7	0.003	Secondary Portrait	1.0 cm	off	0.675
1850.2	512 (Low)	GPRS 2Tx	25.64	0.065	Rear	0 cm	on	0.915
1880	661 (Mid)	GPRS 2Tx	25.62	0.056	Rear	0 cm	on	0.962
1 909.8	810(High)	GPRS 2Tx	25.89	0.025	Rear	0 cm	on	1.07
1880	661 (Mid)	GPRS 2Tx	25.62	0.020	Secondary Portrait	0 cm	on	0.205
ANSI/ IEEE C95.1 - 1992– 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-head position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supplement C [July 2001].
2 All modes of operation were investigated and the worst-case are reported.
3 Measured Depth of Simulating Tissue is 15.0 cm ± 0.2 cm.
4 Tissue parameters and temperatures are listed on the SAR plot.
5 Battery Type ☒ Standard ☐ Extended ☐ Slim
Batteries are fully charged for all readings.
6 Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
7 Test Configuration ☐ With Holster ☒ Without Holster
8 Justification for reduced test configurations: per FCC/OET Supplement C (July, 2001), if the SAR measured at the middle channel for each test configuration (Secondary Landscape, Primary Landscape, 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 class10 with 2uplink 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.

13.3 Measurement Results (WCDMA850 Body SAR)

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	Configuration	Separation Distance	Power Sensor	SAR(mW/g)
MHz	Channel							
836.6	4183 (Mid)	WCDMA850	23.20	-0.006	Rear	1.0 cm	off	0.179
836.6	4183 (Mid)	WCDMA850	23.20	-0.152	Secondary Landscape	0 cm	off	0.150
836.6	4183 (Mid)	WCDMA850	23.20	-0.006	Secondary Portrait	1.0 cm	off	0.097
836.6	4183 (Mid)	WCDMA850	20.16	-0.172	Rear	0 cm	on	0.325
836.6	4183 (Mid)	WCDMA850	20.16	-0.195	Secondary Portrait	0 cm	on	0.084
ANSI/ IEEE C95.1 - 1992– 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-head position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supplement C [July 2001].
2 All modes of operation were investigated and the worst-case are reported.
3 Measured Depth of Simulating Tissue is 15.0 cm ± 0.2 cm.
4 Tissue parameters and temperatures are listed on the SAR plot.
5 Battery Type ☒ Standard ☐ Extended ☐ Slim
Batteries are fully charged for all readings.
6 Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
7 Test Configuration ☐ With Holster ☒ Without Holster
8 Justification for reduced test configurations: per FCC/OET Supplement C (July, 2001), if the SAR measured at the middle channel for each test configuration (Secondary Landscape, Primary Landscape, 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.

13.4 Measurement Results (WCDMA1900 Body SAR)

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	Configuration	Separation Distance	Power Sensor	SAR(mW/g)
MHz	Channel							
1 852.4	9262 (Low)	WCDMA1900	23.20	-0.041	Rear	1.0 cm	off	0.797
1 880.0	9400 (Mid)	WCDMA1900	23.10	-0.070	Rear	1.0 cm	off	0.925
1 907.6	9538(High)	WCDMA1900	23.00	-0.076	Rear	1.0 cm	off	0.910
1 880.0	9400 (Mid)	WCDMA1900	23.10	-0.03	Secondary Landscape	0 cm	off	0.360
1 880.0	9400 (Mid)	WCDMA1900	23.10	0.03	Secondary Portrait	1.0 cm	off	0.445
1 852.4	9262 (Low)	WCDMA1900	20.34	0.127	Rear	0 cm	on	0.748
1 880.0	9400 (Mid)	WCDMA1900	20.17	0.103	Rear	0 cm	on	1.14
1 907.6	9538(High)	WCDMA1900	19.87	0.133	Rear	0 cm	on	0.699
1 880.0	9400 (Mid)	WCDMA1900	20.17	0.04	Secondary Portrait	0 cm	on	0.259
ANSI/ IEEE C95.1 - 1992– 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-head position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supplement C [July 2001].
2 All modes of operation were investigated and the worst-case are reported.
3 Measured Depth of Simulating Tissue is 15.0 cm ± 0.2 cm.
4 Tissue parameters and temperatures are listed on the SAR plot.
5 Battery Type ☒ Standard ☐ Extended ☐ Slim
Batteries are fully charged for all readings.
6 Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
7 Test Configuration ☐ With Holster ☒ Without Holster
8 Justification for reduced test configurations: per FCC/OET Supplement C (July, 2001), if the SAR measured at the middle channel for each test configuration (Secondary Landscape, Primary Landscape, 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.

13.5 Measurement Results (LTE Band17 10MHz Body SAR)

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	Configuration	RB Size	RB Offset	Separation Distance	Power Sensor	SAR (mW/g)	MPR by proximity sensor (dB)
MHz	Channel										
710	23790	QPSK	18.99	-0.062	Rear	25	13	0 cm	on	0.451	3
710	23790	QPSK	20.72	-0.013	Rear	1	0	0 cm	on	0.574	3
710	23790	QPSK	20.48	0.027	Rear	1	49	0 cm	on	0.549	3
710	23790	16QAM	17.77	-0.089	Rear	25	13	0 cm	on	0.279	3
710	23790	16QAM	19.21	-0.045	Rear	1	0	0 cm	on	0.316	3
710	23790	16QAM	18.88	0.018	Rear	1	49	0 cm	on	0.174	3
710	23790	QPSK	18.99	0.024	Secondary Portrait	25	13	0 cm	on	0.135	3
710	23790	QPSK	20.72	0.073	Secondary Portrait	1	0	0 cm	on	0.154	3
710	23790	QPSK	20.48	0.008	Secondary Portrait	1	49	0 cm	on	0.161	3
710	23790	16QAM	17.77	-0.059	Secondary Portrait	25	13	0 cm	on	0.094	3
710	23790	16QAM	19.21	0.029	Secondary Portrait	1	0	0 cm	on	0.092	3
710	23790	16QAM	18.88	0.067	Secondary Portrait	1	49	0 cm	on	0.054	3
ANSI/ IEEE C95.1 - 1992– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population								**Body 1.6 W/kg (mW/g) Averaged over 1 gram**			

NOTES:

1 The test data reported are the worst-case SAR value with the antenna-head position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supplement C [July 2001].
2 All modes of operation were investigated and the worst-case are reported.
3 Measured Depth of Simulating Tissue is 15.0 cm ± 0.2 cm.
4 Tissue parameters and temperatures are listed on the SAR plot.
5 Battery Type ☒ Standard ☐ Extended ☐ Slim
Batteries are fully charged for all readings.
6 Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
7 Justification for reduced test configurations: per FCC/OET Supplement C (July, 2001), if the SAR measured at the middle channel for each test configuration (Secondary Landscape, Primary Landscape, cheek/touch, tilt/ear, extended and retracted) is at least 3.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s).
8 KDB 941225 D05 SAR for LTE Devices v01 was followed.
- QPSK with 50% RB is required for the largest channel Bandwidth.
- QPSK with 1 RB for both channel edges are required for the largest channel Bandwidth.
- 16QAM with 50% RB is required for the largest channel Bandwidth.
- 16QAM with 1 RB for both channel edges are required for the largest channel Bandwidth.
- 100% RB allocation is not required since SAR is not > 1.45 W/kg.
- The Low & High channel were not required for Band 5/4 since the power variation across all channels is 1/2 dB and SAR is ≤ 0.8 W/kg.

13.6 Measurement Results(LTE Band17 10MHz Body SAR)

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	Configuration	RB Size	RB Offset	Separation Distance	Power Sensor	SAR (mW/g)	MPR (dB)
MH	Chann										
710	23790	QPSK	21.87	-0.023	Rear	25	13	1.0 cm	off	0.296	1
710	23790	QPSK	23.31	-0.096	Rear	1	0	1.0 cm	off	0.353	0
710	23790	QPSK	23.02	-0.041	Rear	1	49	1.0 cm	off	0.304	0
710	23790	16QAM	21.05	-0.080	Rear	25	13	1.0 cm	off	0.245	2
710	23790	16QAM	21.85	0.024	Rear	1	0	1.0 cm	off	0.292	1
710	23790	16QAM	22.01	-0.133	Rear	1	49	1.0 cm	off	0.252	1

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

NOTES:

1 The test data reported are the worst-case SAR value with the 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 (Secondary Landscape, Primary Landscape, cheek/touch, tilt/ear, extended and retracted) is at least 3.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s).
8 KDB 941225 D05 SAR for LTE Devices v01 was followed.
- QPSK with 50% RB is required for the largest channel Bandwidth.
- QPSK with 1 RB for both channel edges are required for the largest channel Bandwidth.
- 16QAM with 50% RB is required for the largest channel Bandwidth.
- 16QAM with 1 RB for both channel edges are required for the largest channel Bandwidth.
- 100% RB allocation is not required since SAR is not > 1.45 W/kg.
- The Low & High channel were not required for Band 5/4 since the power variation across all channels is 1/2 dB and SAR is ≤ 0.8 W/kg.

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	Configuration	RB Size	RB Offset	Separation Distance	Power Sensor	SAR (mW/g)	MPR (dB)
MH	Chann										
710	23790	QPSK	21.87	-0.016	Secondary Landscape	25	13	0 cm	off	0.213	1
710	23790	QPSK	23.31	-0.188	Secondary Landscape	1	0	0 cm	off	0.239	0
710	23790	QPSK	23.02	-0.043	Secondary Landscape	1	49	0 cm	off	0.184	0
710	23790	16QAM	21.05	-0.061	Secondary Landscape	25	13	0 cm	off	0.179	2
710	23790	16QAM	21.85	-0.053	Secondary Landscape	1	0	0 cm	off	0.200	1
710	23790	16QAM	22.01	0.167	Secondary Landscape	1	49	0 cm	off	0.157	1
710	23790	QPSK	21.87	-0.063	Secondary Portrait	25	13	1.0 cm	off	0.091	1
710	23790	QPSK	23.31	0.028	Secondary Portrait	1	0	1.0 cm	off	0.101	0
710	23790	QPSK	23.02	0.02	Secondary Portrait	1	49	1.0 cm	off	0.096	0
710	23790	16QAM	21.05	-0.006	Secondary Portrait	25	13	1.0 cm	off	0.092	2
710	23790	16QAM	21.85	-0.028	Secondary Portrait	1	0	1.0 cm	off	0.085	1
710	23790	16QAM	22.01	-0.022	Secondary Portrait	1	49	1.0 cm	off	0.081	1
ANSI/ IEEE C95.1 - 1992– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population								**Body 1.6 W/kg (mW/g)** Averaged over 1 gram			

NOTES:

1 The test data reported are the worst-case SAR value with the 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 (Secondary Landscape, Primary Landscape, cheek/touch, tilt/ear, extended and retracted) is at least 3.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s).

8 KDB 941225 D05 SAR for LTE Devices v01 was followed.
- QPSK with 50% RB is required for the largest channel Bandwidth.
- QPSK with 1 RB for both channel edges are required for the largest channel Bandwidth.
- 16QAM with 50% RB is required for the largest channel Bandwidth.
- 16QAM with 1 RB for both channel edges are required for the largest channel Bandwidth.
- 100% RB allocation is not required since SAR is not > 1.45 W/kg.
- The Low & High channel were not required for Band 5/4 since the power variation across all channels is 1/2 dB and SAR is ≤ 0.8 W/kg.

13.7 Measurement Results (LTE Band5 10MHz Body SAR)

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	Configuration	RB Size	RB Offset	Separation Distance	Power Sensor	SAR (mW/g)	MPR by proximity sensor (dB)
MHz	Chan										
836.5	20525	QPSK	18.75	0.171	Rear	25	13	0 cm	on	0.411	3
836.5	20525	QPSK	20.26	0.173	Rear	1	0	0 cm	on	0.278	3
836.5	20525	QPSK	19.85	0.108	Rear	1	49	0 cm	on	0.294	3
836.5	20525	16QAM	17.82	-0.102	Rear	25	13	0 cm	on	0.336	3
836.5	20525	16QAM	18.94	-0.187	Rear	1	0	0 cm	on	0.339	3
836.5	20525	16QAM	18.89	-0.038	Rear	1	49	0 cm	on	0.308	3
836.5	20525	QPSK	18.75	-0.057	Secondary Portrait	25	13	0 cm	on	0.135	3
836.5	20525	QPSK	20.26	-0.091	Secondary Portrait	1	0	0 cm	on	0.213	3
836.5	20525	QPSK	19.85	-0.007	Secondary Portrait	1	49	0 cm	on	0.212	3
836.5	20525	16QAM	17.82	-0.14	Secondary Portrait	25	13	0 cm	on	0.086	3
836.5	20525	16QAM	18.94	0.036	Secondary Portrait	1	0	0 cm	on	0.096	3
836.5	20525	16QAM	18.89	0.022	Secondary Portrait	1	49	0 cm	on	0.094	3
ANSI/ IEEE C95.1 - 1992– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population								**Body 1.6 W/kg (mW/g)** Averaged over 1 gram			

NOTES:

1 The test data reported are the worst-case SAR value with the antenna-head position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supplement C [July 2001].

2 All modes of operation were investigated and the worst-case are reported.

3 Measured Depth of Simulating Tissue is 15.0 cm ± 0.2 cm.

4 Tissue parameters and temperatures are listed on the SAR plot.

5 Battery Type ☒ Standard ☐ Extended ☐ Slim
Batteries are fully charged for all readings.

6 Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator

7 Justification for reduced test configurations: per FCC/OET Supplement C (July, 2001), if the SAR measured at the middle channel for each test configuration (Secondary Landscape, Primary Landscape, cheek/touch, tilt/ear, extended and retracted) is at least 3.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s).

8 KDB 941225 D05 SAR for LTE Devices v01 was followed.
- QPSK with 50% RB is required for the largest channel Bandwidth.
- QPSK with 1 RB for both channel edges are required for the largest channel Bandwidth.
- 16QAM with 50% RB is required for the largest channel Bandwidth.
- 16QAM with 1 RB for both channel edges are required for the largest channel Bandwidth.
- 100% RB allocation is not required since SAR is not > 1.45 W/kg.
- The Low & High channel were not required for Band 5/4 since the power variation across all channels is 1/2 dB and SAR is ≤ 0.8 W/kg.

13.8 Measurement Results(LTE Band5 10MHz Body SAR)

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	Configuration	RB Size	RB Offset	Separation Distance	Power Sensor	SAR (mW/g)	MPR (dB)
MHz	Channel										
836.5	20525	QPSK	21.66	-0.039	Rear	25	13	1.0 cm	off	0.162	1
836.5	20525	QPSK	23.04	0.014	Rear	1	0	1.0 cm	off	0.296	0
836.5	20525	QPSK	22.83	-0.032	Rear	1	49	1.0 cm	off	0.193	0
836.5	20525	16QAM	20.9	0.001	Rear	25	13	1.0 cm	off	0.128	2
836.5	20525	16QAM	21.89	-0.038	Rear	1	0	1.0 cm	off	0.246	1
836.5	20525	16QAM	21.73	-0.11	Rear	1	49	1.0 cm	off	0.159	1
ANSI/ IEEE C95.1 - 1992– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population								**Body 1.6 W/kg (mW/g)** Averaged over 1 gram			

NOTES:

1 The test data reported are the worst-case SAR value with the 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 (Secondary Landscape, Primary Landscape, cheek/touch, tilt/ear, extended and retracted) is at least 3.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s).
8 KDB 941225 D05 SAR for LTE Devices v01 was followed.
- QPSK with 50% RB is required for the largest channel Bandwidth.
- QPSK with 1 RB for both channel edges are required for the largest channel Bandwidth.
- 16QAM with 50% RB is required for the largest channel Bandwidth.
- 16QAM with 1 RB for both channel edges are required for the largest channel Bandwidth.
- 100% RB allocation is not required since SAR is not > 1.45 W/kg.
- The Low & High channel were not required for Band 5/4 since the power variation across all channels is 1/2 dB and SAR is ≤ 0.8 W/kg.

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	Configuration	RB Size	RB Offset	Separation Distance	Power Sensor	SAR (mW/g)	MPR (dB)
MHz	Channel										
836.5	20525	QPSK	21.66	-0.171	Secondary Landscape	25	13	0 cm	off	0.148	1
836.5	20525	QPSK	23.04	-0.054	Secondary Landscape	1	0	0 cm	off	0.258	0
836.5	20525	QPSK	22.83	0.189	Secondary Landscape	1	49	0 cm	off	0.176	0
836.5	20525	16QAM	20.9	-0.023	Secondary Landscape	25	13	0 cm	off	0.126	2
836.5	20525	16QAM	21.89	-0.02	Secondary Landscape	1	0	0 cm	off	0.206	1
836.5	20525	16QAM	21.73	-0.02	Secondary Landscape	1	49	0 cm	off	0.138	1
836.5	20525	QPSK	21.66	0.005	Secondary Portrait	25	13	1.0 cm	off	0.110	1
836.5	20525	QPSK	23.04	-0.014	Secondary Portrait	1	0	1.0 cm	off	0.169	0
836.5	20525	QPSK	22.83	-0.066	Secondary Portrait	1	49	1.0 cm	off	0.141	0
836.5	20525	16QAM	20.9	-0.04	Secondary Portrait	25	13	1.0 cm	off	0.089	2
836.5	20525	16QAM	21.89	0.005	Secondary Portrait	1	0	1.0 cm	off	0.142	1
836.5	20525	16QAM	21.73	-0.194	Secondary Portrait	1	49	1.0 cm	off	0.122	1
ANSI/ IEEE C95.1 - 1992– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population								**Body 1.6 W/kg (mW/g)** Averaged over 1 gram			

NOTES:

1 The test data reported are the worst-case SAR value with the 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 (Secondary Landscape, Primary Landscape, cheek/touch, tilt/ear, extended and retracted) is at least 3.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s).

8 KDB 941225 D05 SAR for LTE Devices v01 was followed.
- QPSK with 50% RB is required for the largest channel Bandwidth.
- QPSK with 1 RB for both channel edges are required for the largest channel Bandwidth.
- 16QAM with 50% RB is required for the largest channel Bandwidth.
- 16QAM with 1 RB for both channel edges are required for the largest channel Bandwidth.
- 100% RB allocation is not required since SAR is not > 1.45 W/kg.
- The Low & High channel were not required for Band 5/4 since the power variation across all channels is 1/2 dB and SAR is ≤ 0.8 W/kg.

13.9 Measurement Results (LTE Band4 10MHz Body SAR)

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	Configuration	RB Size	RB Offset	Separation Distance	Power Sensor	SAR (mW/g)	MPR by proximity sensor
MHz	Channel										
1 732.5	20175	QPSK	18.71	-0.107	Rear	25	13	0 cm	on	1.17	3
1 732.5	20175	QPSK	20.31	0.02	Rear	1	0	0 cm	on	0.970	3
1 732.5	20175	QPSK	19.91	-0.152	Rear	1	49	0 cm	on	1.02	3
1715	20000	QPSK	19.00	0.141	Rear	25	13	0 cm	on	0.782	3
1750	20350	QPSK	18.99	-0.105	Rear	25	13	0 cm	on	0.736	3
1 732.5	20175	16QAM	18.14	-0.03	Rear	25	13	0 cm	on	0.958	3
1 732.5	20175	16QAM	18.74	-0.029	Rear	1	0	0 cm	on	1.11	3
1 732.5	20175	16QAM	18.97	-0.009	Rear	1	49	0 cm	on	1.09	3
1715	20000	16QAM	18.52	-0.045	Rear	25	13	0 cm	on	0.621	3
1750	20350	16QAM	18.21	-0.110	Rear	25	13	0 cm	on	0.602	3
ANSI/ IEEE C95.1 - 1992– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population						**Body 1.6 W/kg (mW/g)** Averaged over 1 gram					

NOTES:

1 The test data reported are the worst-case SAR value with the antenna-head position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supplement C [July 2001].
2 All modes of operation were investigated and the worst-case are reported.
3 Measured Depth of Simulating Tissue is 15.0 cm ± 0.2 cm.
4 Tissue parameters and temperatures are listed on the SAR plot.
5 Battery Type ☒ Standard ☐ Extended ☐ Slim
Batteries are fully charged for all readings.
6 Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
7 Justification for reduced test configurations: per FCC/OET Supplement C (July, 2001), if the SAR measured at the middle channel for each test configuration (Secondary Landscape, Primary Landscape, cheek/touch, tilt/ear, extended and retracted) is at least 3.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s).
8 KDB 941225 D05 SAR for LTE Devices v01 was followed.
- QPSK with 50% RB is required for the largest channel Bandwidth.
- QPSK with 1 RB for both channel edges are required for the largest channel Bandwidth.
- 16QAM with 50% RB is required for the largest channel Bandwidth.
- 16QAM with 1 RB for both channel edges are required for the largest channel Bandwidth.
- 100% RB allocation is not required since SAR is not > 1.45 W/kg.
- The Low & High channel were not required for Band 5/4 since the power variation across all channels is 1/2 dB and SAR is ≤ 0.8 W/kg.

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	Configuration	RB Size	RB Offset	Separation Distance	Power Sensor	SAR (mW/g)	MPR by proximity sensor
MHz	Channel										
1 732.5	20175	QPSK	18.71	0.02	Secondary Portrait	25	13	0 cm	on	0.229	3
1 732.5	20175	QPSK	20.31	-0.129	Secondary Portrait	1	0	0 cm	on	0.238	3
1 732.5	20175	QPSK	19.91	-0.151	Secondary Portrait	1	49	0 cm	on	0.279	3
1 732.5	20175	16QAM	18.14	-0.097	Secondary Portrait	25	13	0 cm	on	0.185	3
1 732.5	20175	16QAM	18.74	-0.135	Secondary Portrait	1	0	0 cm	on	0.202	3
1 732.5	20175	16QAM	18.97	-0.02	Secondary Portrait	1	49	0 cm	on	0.246	3
ANSI/ IEEE C95.1 - 1992– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population								**Body 1.6 W/kg (mW/g)** Averaged over 1 gram			

NOTES:

1 The test data reported are the worst-case SAR value with the antenna-head position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supplement C [July 2001].

2 All modes of operation were investigated and the worst-case are reported.

3 Measured Depth of Simulating Tissue is 15.0 cm ± 0.2 cm.

4 Tissue parameters and temperatures are listed on the SAR plot.

5 Battery Type ☒ Standard ☐ Extended ☐ Slim
Batteries are fully charged for all readings.

6 Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator

7 Justification for reduced test configurations: per FCC/OET Supplement C (July, 2001), if the SAR measured at the middle channel for each test configuration (Secondary Landscape, Primary Landscape, cheek/touch, tilt/ear, extended and retracted) is at least 3.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s).

8 KDB 941225 D05 SAR for LTE Devices v01 was followed.
- QPSK with 50% RB is required for the largest channel Bandwidth.
- QPSK with 1 RB for both channel edges are required for the largest channel Bandwidth.
- 16QAM with 50% RB is required for the largest channel Bandwidth.
- 16QAM with 1 RB for both channel edges are required for the largest channel Bandwidth.
- 100% RB allocation is not required since SAR is not > 1.45 W/kg.
- The Low & High channel were not required for Band 5/4 since the power variation across all channels is 1/2 dB and SAR is ≤ 0.8 W/kg.

13.10 Measurement Results(LTE Band4 10MHz Body SAR)

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	Configuration	RB Size	RB Offset	Separation Distance	Power Sensor	SAR(m W/g)	MPR
MHz	Channel										
1 732.5	20175	QPSK	21.9	0.022	Rear	25	13	1.0 cm	off	0.911	1
1 732.5	20175	QPSK	23.25	0.03	Rear	1	0	1.0 cm	off	0.991	0
1 732.5	20175	QPSK	23.03	0.017	Rear	1	49	1.0 cm	off	1.08	0
1715	20000	QPSK	22.14	-0.098	Rear	25	13	1.0 cm	off	0.704	1
1750	20350	QPSK	21.94	-0.024	Rear	25	13	1.0 cm	off	0.785	1
1 732.5	20175	16QAM	21.06	-0.079	Rear	25	13	1.0 cm	off	0.737	2
1 732.5	20175	16QAM	21.88	-0.014	Rear	1	0	1.0 cm	off	0.822	1
1 732.5	20175	16QAM	21.87	-0.029	Rear	1	49	1.0 cm	off	0.906	1
ANSI/ IEEE C95.1 - 1992– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population								**Body 1.6 W/kg (mW/g)** Averaged over 1 gram			

NOTES:

1 The test data reported are the worst-case SAR value with the 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 (Secondary Landscape, Primary Landscape, cheek/touch, tilt/ear, extended and retracted) is at least 3.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s).

8 KDB 941225 D05 SAR for LTE Devices v01 was followed.
- QPSK with 50% RB is required for the largest channel Bandwidth.
- QPSK with 1 RB for both channel edges are required for the largest channel Bandwidth.
- 16QAM with 50% RB is required for the largest channel Bandwidth.
- 16QAM with 1 RB for both channel edges are required for the largest channel Bandwidth.
- 100% RB allocation is not required since SAR is not > 1.45 W/kg.
- The Low & High channel were not required for Band 5/4 since the power variation across all channels is 1/2 dB and SAR is ≤ 0.8 W/kg.

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	Configuration	RB Size	RB Offset	Separation Distance	Power Sensor	SAR (mW/g)	MPR
MHz	Channel										
1 732.5	20175	QPSK	21.9	0.053	Secondary Landscape	25	13	0 cm	off	0.670	1
1 732.5	20175	QPSK	23.25	0.05	Secondary Landscape	1	0	0 cm	off	0.790	0
1 732.5	20175	QPSK	23.03	0.02	Secondary Landscape	1	49	0 cm	off	0.801	0
1 732.5	20175	16QAM	21.06	-0.02	Secondary Landscape	25	13	0 cm	off	0.514	2
1 732.5	20175	16QAM	21.88	-0.026	Secondary Landscape	1	0	0 cm	off	0.621	1
1 732.5	20175	16QAM	21.87	-0.04	Secondary Landscape	1	49	0 cm	off	0.650	1
1 732.5	20175	QPSK	21.9	-0.03	Secondary Portrait	25	13	1.0 cm	off	0.329	1
1 732.5	20175	QPSK	23.25	-0.056	Secondary Portrait	1	0	1.0 cm	off	0.302	0
1 732.5	20175	QPSK	23.03	0.02	Secondary Portrait	1	49	1.0 cm	off	0.343	0
1 732.5	20175	16QAM	21.06	-0.06	Secondary Portrait	25	13	1.0 cm	off	0.416	2
1 732.5	20175	16QAM	21.88	-0.094	Secondary Portrait	1	0	1.0 cm	off	0.255	1
1 732.5	20175	16QAM	21.87	-0.007	Secondary Portrait	1	49	1.0 cm	off	0.289	1
ANSI/ IEEE C95.1 - 1992– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population								**Body 1.6 W/kg (mW/g)** Averaged over 1 gram			

NOTES:

1 The test data reported are the worst-case SAR value with the 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 (Secondary Landscape, Primary Landscape, cheek/touch, tilt/ear, extended and retracted) is at least 3.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s).

8 KDB 941225 D05 SAR for LTE Devices v01 was followed.
- QPSK with 50% RB is required for the largest channel Bandwidth.
- QPSK with 1 RB for both channel edges are required for the largest channel Bandwidth.
- 16QAM with 50% RB is required for the largest channel Bandwidth.
- 16QAM with 1 RB for both channel edges are required for the largest channel Bandwidth.
- 100% RB allocation is not required since SAR is not > 1.45 W/kg.
- The Low & High channel were not required for Band 5/4 since the power variation across all channels is 1/2 dB and SAR is ≤ 0.8 W/kg.

13.11 Measurement Results (802.11b/g/n Body SAR)

Frequency		Modulation	Conducted Power (dBm)	Power Drift (dB)	Configuration	Separation Distance	Data Rate	SAR(mW/g)
MHz	Channel							
2 437	6 (Mid)	802.11b	15.80	0.172	Rear	0 cm	1 Mbps	0.24
2 437	6 (Mid)	802.11b	15.80	0.04	Primary Landscape	0 cm	1 Mbps	0.000519
2 437	6 (Mid)	802.11b	15.80	-0.027	Secondary Portrait	0 cm	1 Mbps	0.066
ANSI/ IEEE C95.1 1992 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population						**Body 1.6 W/kg (mW/g) Averaged over 1 gram**		

NOTES:

1 The test data reported are the worst-case SAR value with the antenna-head position set in a typical configuration. Test procedures used are according to FCC/OET Bulletin 65, Supplement C [July 2001].
2 All modes of operation were investigated and the worst-case are reported.
3 Measured Depth of Simulating Tissue is 15.0 cm ± 0.2 cm.
4 Tissue parameters and temperatures are listed on the SAR plot.
5 Battery Type ☒ Standard ☐ Extended ☐ Slim
Batteries are fully charged for all readings.
6 Test Signal Call Mode ☒ Manual Test code ☐ Base Station Simulator
7 IEEE 802.11g(including 802.11n) SAR testing is required when the conducted powers are equal to or greater than 0.25 dB Than the conducted powers in IEEE 802.11b.

13.12 Measurement Results (802.11a 5GHz Body SAR)

Frequency		Mode	Conducted Power (dBm)	Power Drift (dB)	Configuration	Separation Distance	Data Rate (Mbps)	SAR(mW/g)
MHz	Channel							
5 240	48	802.11a	12.39	-0.052	Rear	0 cm	6	0.286
			12.39	0.024	Primary Landscape	0 cm	6	0.069
			12.39	-0.08	Secondary Portrait	0 cm	6	0.062
5 260	52	802.11a	12.27	0.05	Rear	0 cm	6	0.339
			12.27	0.03	Primary Landscape	0 cm	6	0.073
			12.27	0.053	Secondary Portrait	0 cm	6	0.065
5 520	104	802.11a	12.82	0.06	Rear	0 cm	6	0.423
			12.82	0.047	Primary Landscape	0 cm	6	0.086
			12.82	0.022	Secondary Portrait	0 cm	6	0.064
5 745	149	802.11a	12.92	0.06	Rear	0 cm	6	0.294
			12.92	-0.03	Primary Landscape	0 cm	6	0.06
			12.92	0.09	Secondary Portrait	0 cm	6	0.063
ANSI/ IEEE C95.1 - 1992– Safety Limit Spatial Peak Uncontrolled Exposure/ General Population						**Body 1.6 W/kg (mW/g) Averaged over 1 gram**		

NOTES:

1 The test data reported are the worst-case SAR value with the 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.

14. CONCLUSION

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

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

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Attachment 1. – SAR Test Plots

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Aug.29, 2011
Option	Power Sensor off

DUT: P4100; Type: Bar; Serial: #1

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:4.15
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.952 mho/m; ε_r = 55.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

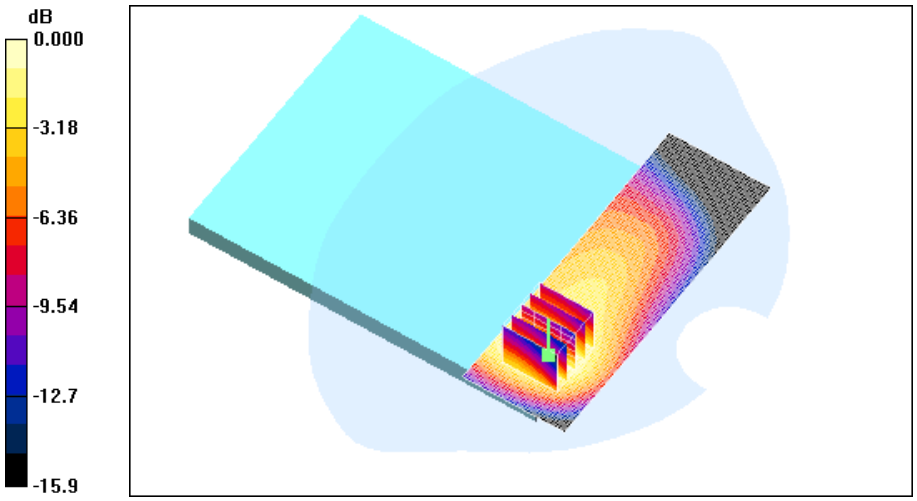
DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(6.5, 6.5, 6.5); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: SAM 835/900 MHz; Type: SAM

Tablet Body 1cm Rear 190/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.198 mW/g

Tablet Body 1cm Rear 190/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.47 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.266 W/kg
SAR(1 g) = 0.186 mW/g; SAR(10 g) = 0.123 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.197 mW/g



0 dB = 0.197mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Aug.29, 2011
Option	Power Sensor off

DUT: P4100; Type: Bar; Serial: #1

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:4.15
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.952 mho/m; ε_r = 55.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

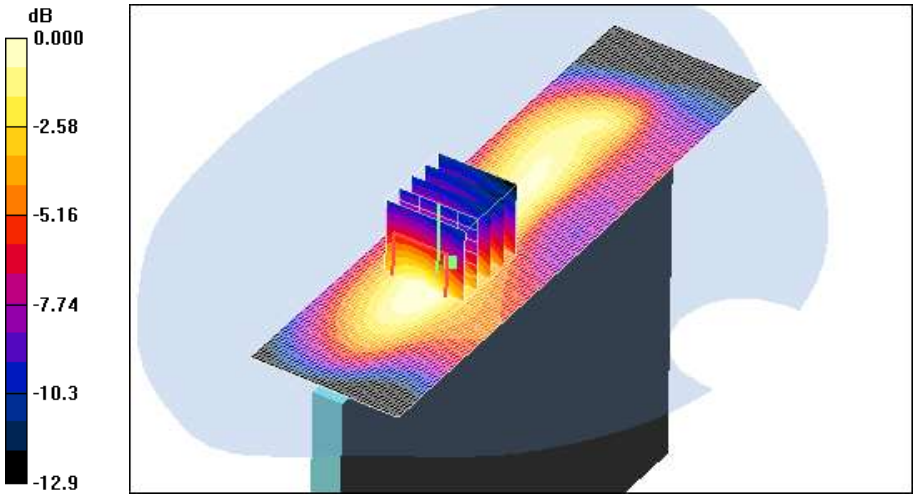
DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(6.5, 6.5, 6.5); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 800/900 Phantom; Type: SAM

Hotspot Body 0cm Secondary Landscape side 190/Area Scan (41x151x1): Measurement grid: dx=15mm, dy=15mm

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

Hotspot Body 0cm Secondary Landscape side 190/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.6 V/m; Power Drift = -0.065 dB
Peak SAR (extrapolated) = 0.250 W/kg
SAR(1 g) = 0.152 mW/g; SAR(10 g) = 0.093 mW/g

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



0 dB = 0.168mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Aug.29, 2011
Option	Power Sensor off

DUT: P4100; Type: Bar; Serial: #1

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:4.15
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.952 mho/m; ε_r = 55.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

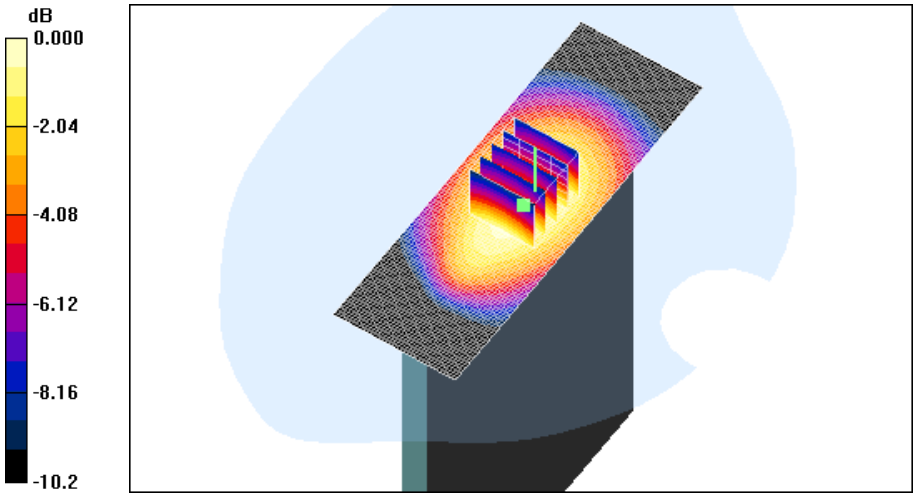
DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(6.5, 6.5, 6.5); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 800/900 Phantom; Type: SAM

Hotspot Body 1cm Secondary Portrait 190/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

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

Hotspot Body 1cm Secondary Portrait 190/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.4 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.142 W/kg
SAR(1 g) = 0.111 mW/g; SAR(10 g) = 0.080 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:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Aug.29, 2011
Option	Power Sensor on

DUT: P4100; Type: Bar; Serial: #1

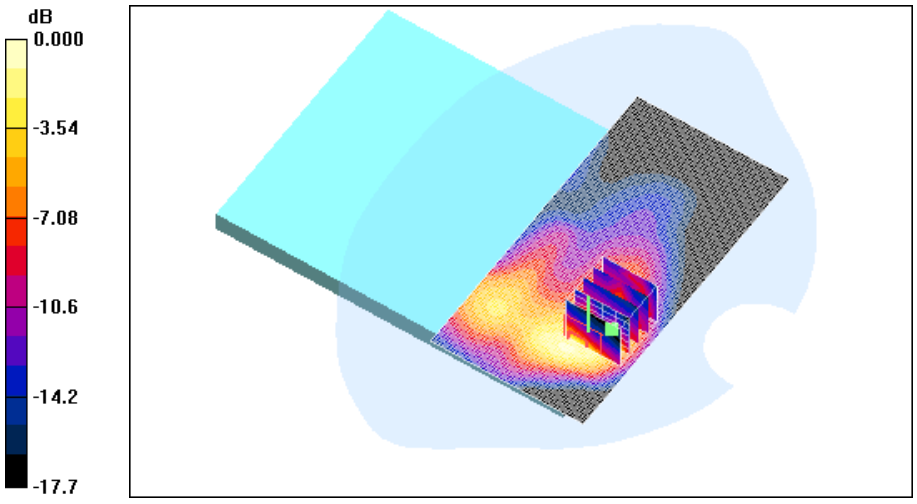
Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:4.15
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.952 mho/m; ε_r = 55.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(6.5, 6.5, 6.5); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

Tablet Body0cm Rear 190/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm

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

Tablet Body0cm Rear 190/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.74 V/m; Power Drift = 0.122 dB
Peak SAR (extrapolated) = 1.01 W/kg
SAR(1 g) = 0.433 mW/g; SAR(10 g) = 0.204 mW/g
Maximum value of SAR (measured) = 0.578 mW/g



0 dB = 0.578mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Aug.29, 2011
Option	Power Sensor on

DUT: P4100; Type: Bar; Serial: #1

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:4.15
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.952 mho/m; ε_r = 55.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

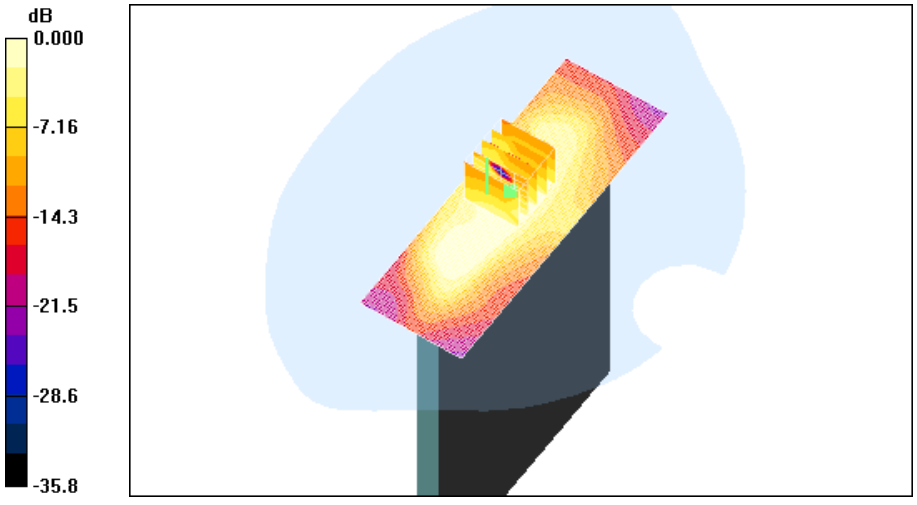
DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(6.5, 6.5, 6.5); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

Hotspot Body 0cm Secondary Portrait 190/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

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

Hotspot Body 0cm Secondary Portrait 190/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 19.7 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.336 W/kg
SAR(1 g) = 0.230 mW/g; SAR(10 g) = 0.126 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
maximum value of SAR (measured) = 0.249 mW/g



0 dB = 0.249mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.30, 2011
Option	Power Sensor off

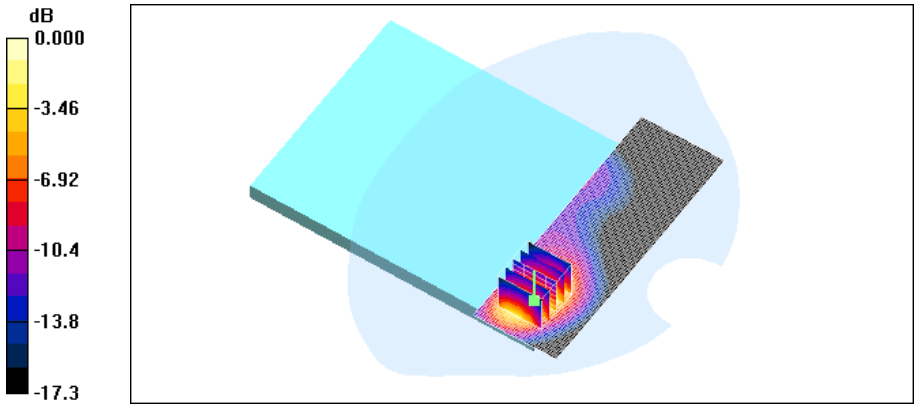
DUT: P4100; Type: Bar; Serial: #1

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:4.15
Medium parameters used: f = 1880 MHz; σ = 1.46 mho/m; ε_r = 55.3; 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 - SN1798; ConvF(4.63, 4.63, 4.63); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 800/900 Phantom; Type: SAM

Tablet Body1cm Rear 661/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.32 mW/g

Tablet Body 1cm Rear 661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.48 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.87 W/kg
SAR(1 g) = 1.12 mW/g; SAR(10 g) = 0.610 mW/g
Maximum value of SAR (measured) = 1.25 mW/g



0 dB = 1.25mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.30, 2011
Option	Power Sensor off

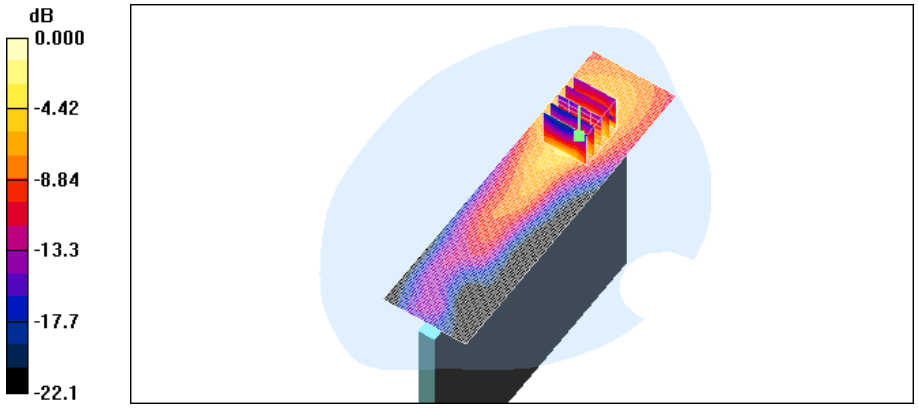
DUT: P4100; Type: Bar; Serial: #1

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:4.15
Medium parameters used: f = 1880 MHz; σ = 1.46 mho/m; ε_r = 55.3; 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 - SN1798; ConvF(4.63, 4.63, 4.63); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

Hotspot Body 0cm Secondary Landscape side 661/Area Scan (41x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.416 mW/g

Hotspot Body 0cm Secondary Landscape side 661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.73 V/m; Power Drift = -0.02 dB
Peak SAR (extrapolated) = 0.679 W/kg
SAR(1 g) = 0.330 mW/g; SAR(10 g) = 0.162 mW/g
Maximum value of SAR (measured) = 0.393 mW/g



0 dB = 0.393mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.30, 2011
Option	Power Sensor off

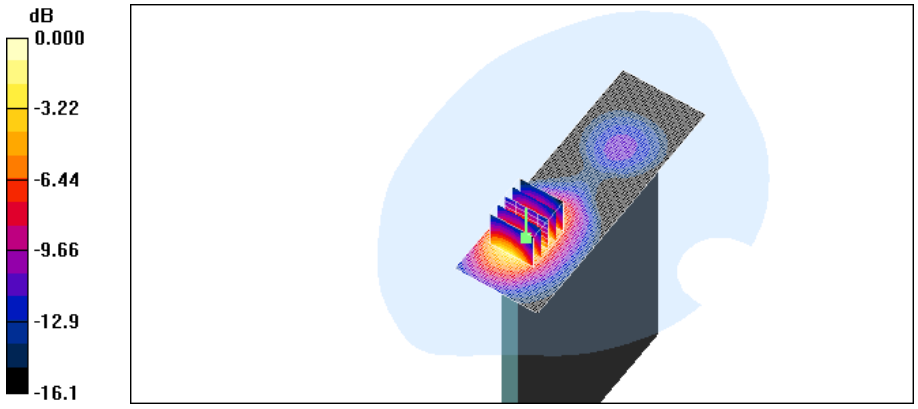
DUT: P4100; Type: Bar; Serial: #1

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:4.15
Medium parameters used: f = 1880 MHz; σ = 1.46 mho/m; ε_r = 55.3; 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 - SN1798; ConvF(4.63, 4.63, 4.63); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

Hotspot Body 1cm Secondary Portrait 661ch/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.916 mW/g

Hotspot Body 1cm Secondary Portrait 661ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.09 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 1.36 W/kg
SAR(1 g) = 0.837 mW/g; SAR(10 g) = 0.476 mW/g
Maximum value of SAR (measured) = 0.902 mW/g



0 dB = 0.902mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.30, 2011
Option	Power Sensor on

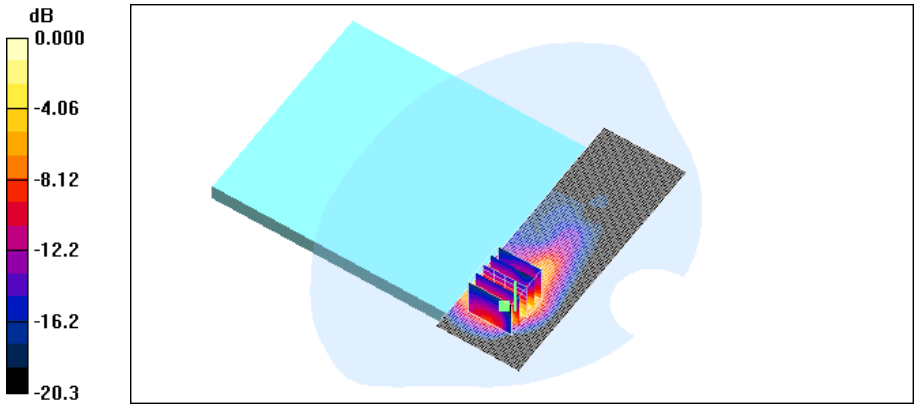
DUT: P4100; Type: Bar; Serial: #1

Communication System: GSM 1900; Frequency: 1909.8 MHz;Duty Cycle: 1:4.15
Medium parameters used: f = 1910 MHz; σ = 1.49 mho/m; ε_r = 55.3; 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 - SN1798; ConvF(4.63, 4.63, 4.63); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 800/900 Phantom; Type: SAM

Hotspot Body 0cm Rear 810/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.42 mW/g

Hotspot Body 0cm Rear 810/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.46 V/m; Power Drift = 0.025 dB
Peak SAR (extrapolated) = 2.92 W/kg
SAR(1 g) = 1.07 mW/g; SAR(10 g) = 0.489 mW/g
Maximum value of SAR (measured) = 1.13 mW/g



0 dB = 1.13mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.30, 2011
Option	Power Sensor on

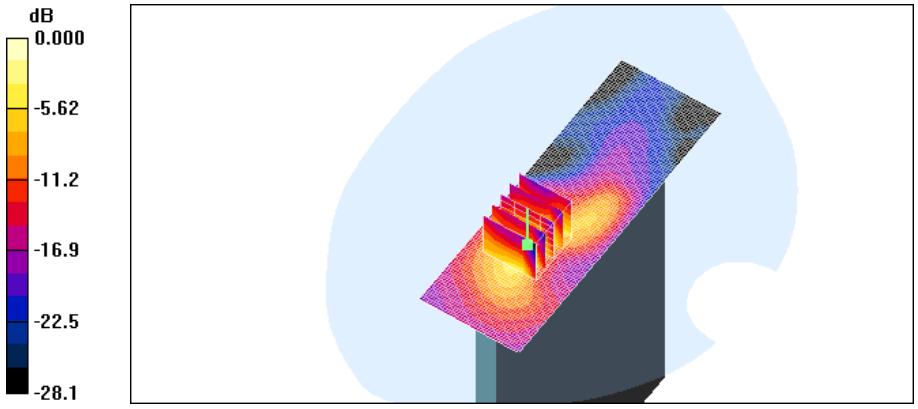
DUT: P4100; Type: Bar; Serial: #1

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:4.15
Medium parameters used: f = 1880 MHz; σ = 1.46 mho/m; ε_r = 55.3; 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 - SN1798; ConvF(4.63, 4.63, 4.63); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 800/900 Phantom; Type: SAM

Hotspot Body 0cm Secondary Portrait 661ch/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.131 mW/g

Hotspot Body 0cm Secondary Portrait 661ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 3.80 V/m; Power Drift = 0.020 dB
Peak SAR (extrapolated) = 0.415 W/kg
SAR(1 g) = 0.205 mW/g; SAR(10 g) = 0.088 mW/g
Maximum value of SAR (measured) = 0.261 mW/g



0 dB = 0.261mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Aug.29, 2011
Option	Power Sensor off

DUT: P4100; Type: Bar; Serial: #1

Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.952 mho/m; ε_r = 55.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

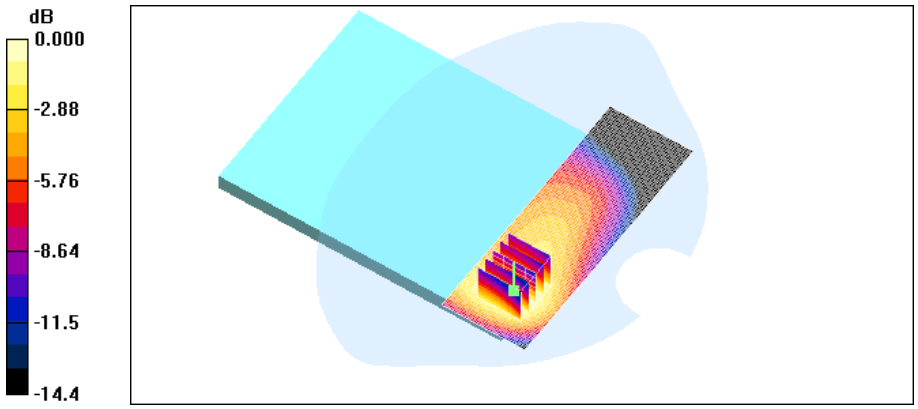
DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(6.5, 6.5, 6.5); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: SAM 835/900 MHz; Type: SAM

Tablet Body 1cm Rear 4183/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

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

Tablet Body 1cm Rear 4183/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.97 V/m; Power Drift = -0.006 dB
Peak SAR (extrapolated) = 0.250 W/kg
SAR(1 g) = 0.179 mW/g; SAR(10 g) = 0.119 mW/g

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



0 dB = 0.193mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Aug.29, 2011
Option	Power Sensor off

DUT: P4100; Type: Bar; Serial: #1

Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.952 mho/m; ε_r = 55.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

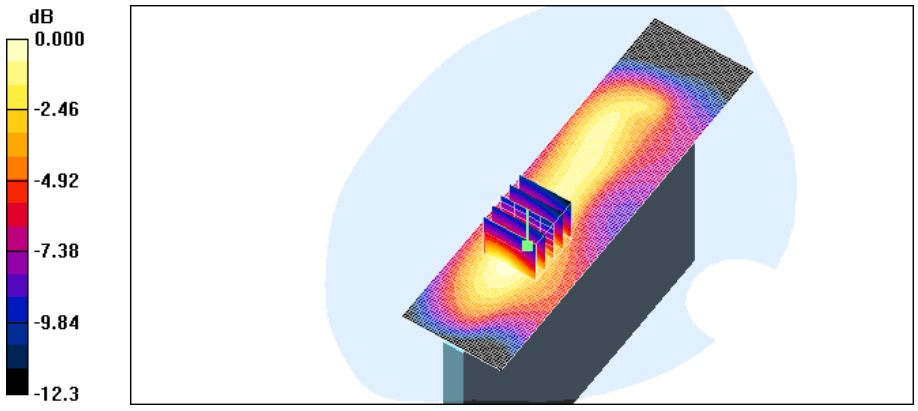
DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(6.5, 6.5, 6.5); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 800/900 Phantom; Type: SAM

Hotspot Body 0cm Secondary Landscape side 4183/Area Scan (41x151x1): Measurement grid: dx=15mm, dy=15mm

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

Hotspot Body 0cm Secondary Landscape side 4183/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.5 V/m; Power Drift = -0.152 dB
Peak SAR (extrapolated) = 0.245 W/kg
SAR(1 g) = 0.150 mW/g; SAR(10 g) = 0.093 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.167 mW/g



0 dB = 0.167mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Aug.29, 2011
Option	Power Sensor off

DUT: P4100; Type: Bar; Serial: #1

Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.952 mho/m; ε_r = 55.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

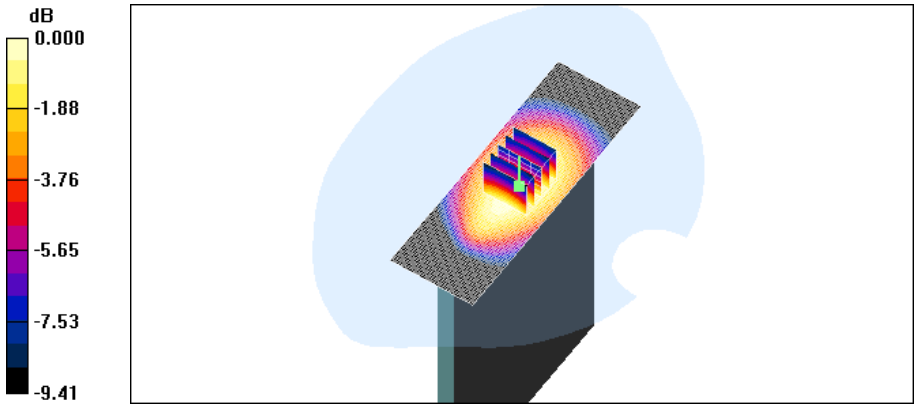
DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(6.5, 6.5, 6.5); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 800/900 Phantom; Type: SAM

Hotspot Body 1cm Secondary Portrait 4183/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.104 mW/g

Hotspot Body 1cm Secondary Portrait 4183/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.9 V/m; Power Drift = -0.006 dB
Peak SAR (extrapolated) = 0.124 W/kg
SAR(1 g) = 0.097 mW/g; SAR(10 g) = 0.070 mW/g

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



0 dB = 0.103mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Aug.29, 2011
Option	Power Sensor on

DUT: P4100; Type: Bar; Serial: #1

Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.952 mho/m; ε_r = 55.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

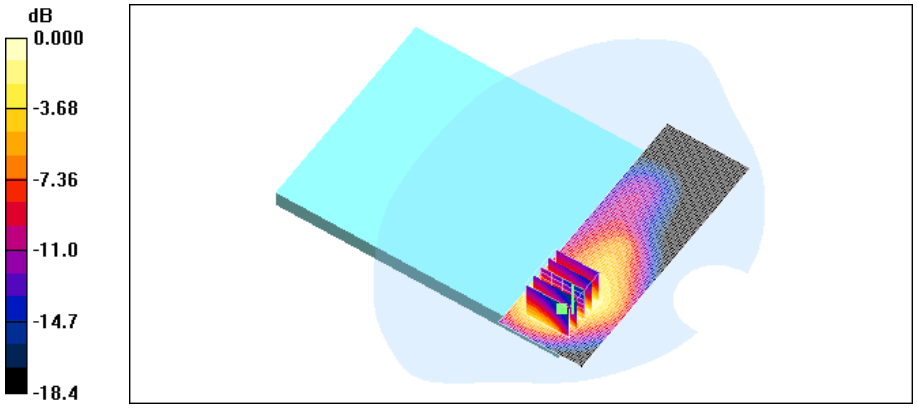
DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(6.5, 6.5, 6.5); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

Tablet Body 0 cm Rear 4183/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.357 mW/g

Tablet Body 0 cm Rear 4183/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.15 V/m; Power Drift = -0.172 dB
Peak SAR (extrapolated) = 0.899 W/kg
SAR(1 g) = 0.325 mW/g; SAR(10 g) = 0.168 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.321 mW/g



0 dB = 0.321mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Aug.29, 2011
Option	Power Sensor on

DUT: P4100; Type: Bar; Serial: #1

Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.952 mho/m; ε_r = 55.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

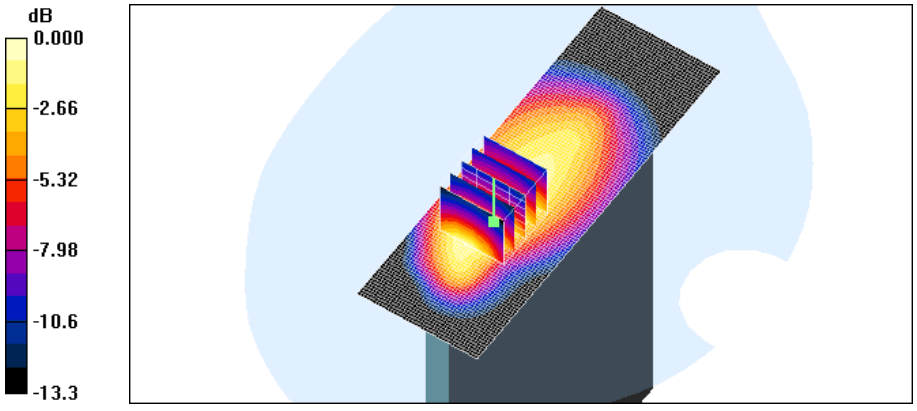
DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(6.5, 6.5, 6.5); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

Hotspot Body 0cm Secondary Portrait 4183/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.096 mW/g

Hotspot Body 0cm Secondary Portrait 4183/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.32 V/m; Power Drift = -0.195 dB
Peak SAR (extrapolated) = 0.137 W/kg
SAR(1 g) = 0.084 mW/g; SAR(10 g) = 0.051 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.095 mW/g



0 dB = 0.095mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.30, 2011
Option	Power Sensor off

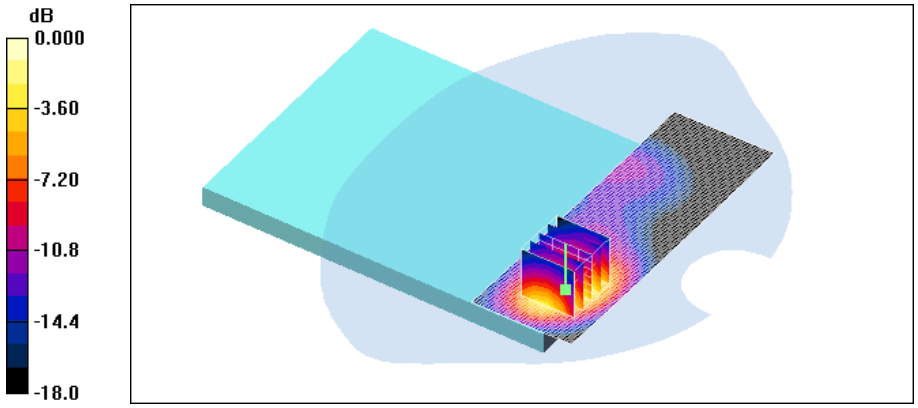
DUT: P4100; Type: Bar; Serial: #1

Communication System: WCDMA1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.46 mho/m; ε_r = 55.3; 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 - SN1798; ConvF(4.63, 4.63, 4.63); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 800/900 Phantom; Type: SAM

Hotspot Body 1cm Rear 9400/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.08 mW/g

Hotspot Body 1cm Rear 9400/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.08 V/m; Power Drift = -0.070 dB
Peak SAR (extrapolated) = 1.57 W/kg
SAR(1 g) = 0.925 mW/g; SAR(10 g) = 0.496 mW/g
Maximum value of SAR (measured) = 1.02 mW/g



0 dB = 1.02mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.30, 2011
Option	Power Sensor off

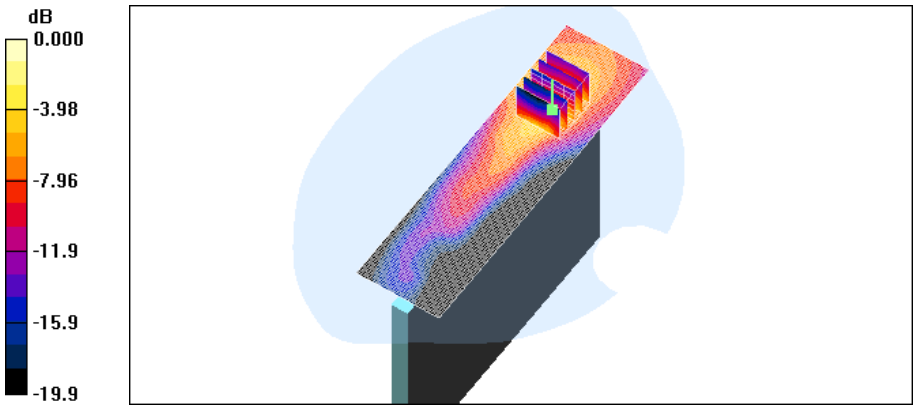
DUT: P4100; Type: Bar; Serial: #1

Communication System: WCDMA1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.46 mho/m; ε_r = 55.3; 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 - SN1798; ConvF(4.63, 4.63, 4.63); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

Hotspot Body 0cm Secondary Landscape side 9400/Area Scan (41x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.448 mW/g

Hotspot Body 0cm Secondary Landscape side 9400/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.62 V/m; Power Drift = -0.030 dB
Peak SAR (extrapolated) = 0.763 W/kg
SAR(1 g) = 0.360 mW/g; SAR(10 g) = 0.177 mW/g
Maximum value of SAR (measured) = 0.428 mW/g



0 dB = 0.428mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.30, 2011
Option	Power Sensor off

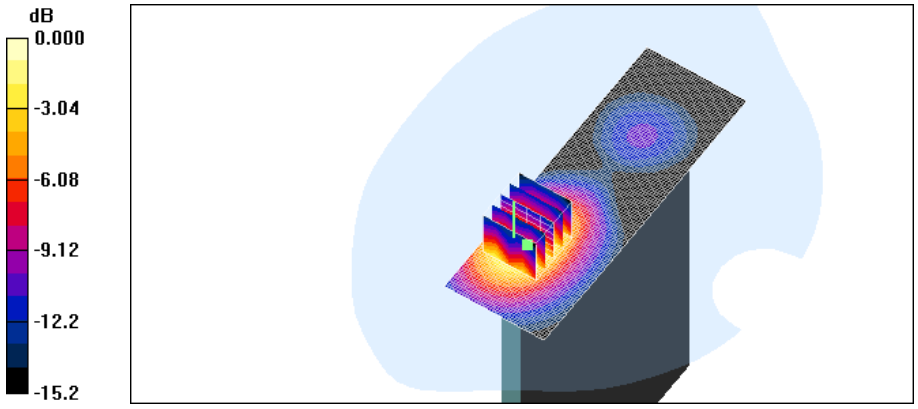
DUT: P4100; Type: Bar; Serial: #1

Communication System: WCDMA1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.46 mho/m; ε_r = 55.3; 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 - SN1798; ConvF(4.63, 4.63, 4.63); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

Hotspot Body 1cm Secondary Portrait 9400 ch/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.529 mW/g

Hotspot Body 1cm Secondary Portrait 9400 ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.32 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 0.727 W/kg
SAR(1 g) = 0.445 mW/g; SAR(10 g) = 0.264 mW/g
Maximum value of SAR (measured) = 0.489 mW/g



0 dB = 0.489mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.30, 2011
Option	Power Sensor on

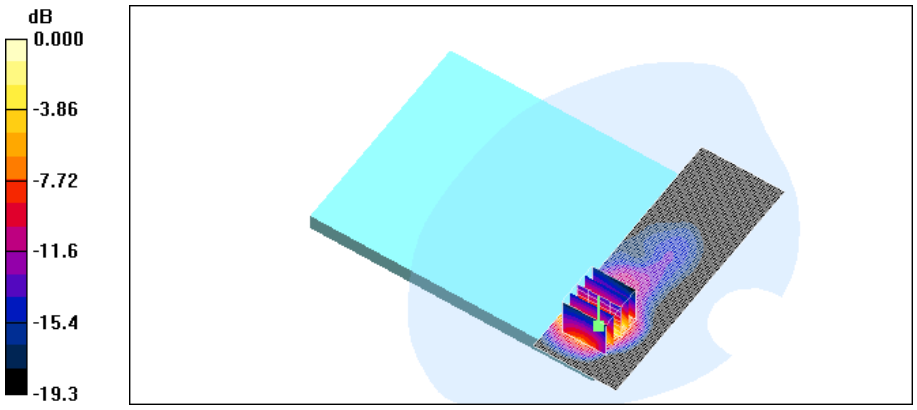
DUT: P4100; Type: Bar; Serial: #1

Communication System: WCDMA1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.46 mho/m; ε_r = 55.3; 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 - SN1798; ConvF(4.63, 4.63, 4.63); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 800/900 Phantom; Type: SAM

Hotspot Body Rear 0 cm 9400/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.56 mW/g

Hotspot Body Rear 0 cm 9400/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.22 V/m; Power Drift = 0.103 dB
Peak SAR (extrapolated) = 2.32 W/kg
SAR(1 g) = 1.14 mW/g; SAR(10 g) = 0.564 mW/g
Maximum value of SAR (measured) = 1.21 mW/g



0 dB = 1.21mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.30, 2011
Option	Power Sensor on

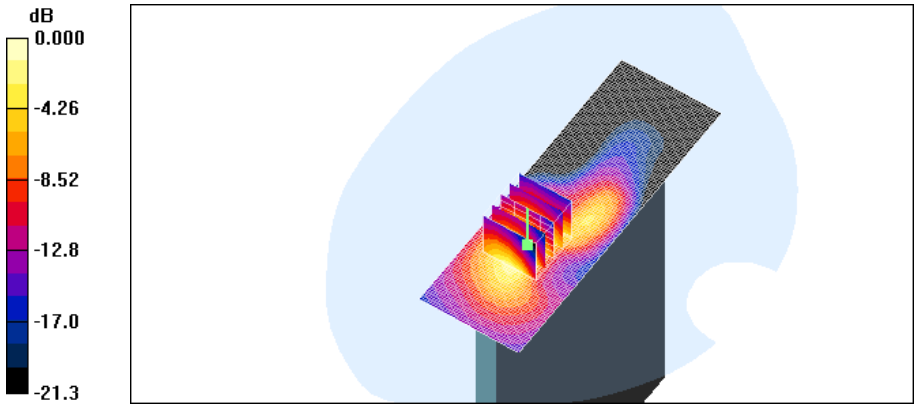
DUT: P4100; Type: Bar; Serial: #1

Communication System: WCDMA1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.46 mho/m; ε_r = 55.3; 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 - SN1798; ConvF(4.63, 4.63, 4.63); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 800/900 Phantom; Type: SAM

Hotspot Body 0cm Secondary Portrait 9400 ch/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.289 mW/g

Hotspot Body 0cm Secondary Portrait 9400 ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.14 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.455 W/kg
SAR(1 g) = 0.259 mW/g; SAR(10 g) = 0.136 mW/g
Maximum value of SAR (measured) = 0.288 mW/g



0 dB = 0.288mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Sep.30, 2011
Option	Power Sensor on

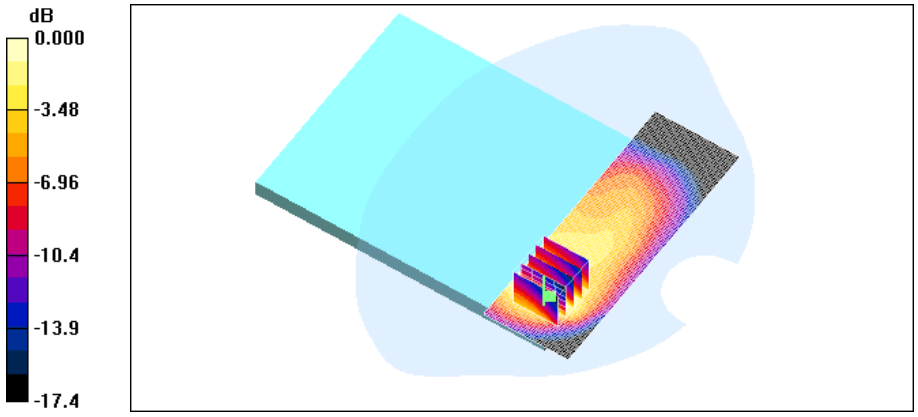
DUT: P4100; Type: Bar; Serial: #1

Communication System: LTE Band 17; Frequency: 710 MHz;Duty Cycle: 1:1
Medium parameters used: f = 710 MHz; σ = 0.933 mho/m; ε_r = 55.3; 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 - SN1798; ConvF(6.79, 6.79, 6.79); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

Tablet Body 0cm Rear 23790 1RB 0 offset QPSK/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.639 mW/g

Tablet Body 0cm Rear 23790 1RB 0 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.1 V/m; Power Drift = -0.013 dB
Peak SAR (extrapolated) = 1.92 W/kg
SAR(1 g) = 0.574 mW/g; SAR(10 g) = 0.330 mW/g
aximum value of SAR (measured) = 0.560 mW/g



0 dB = 0.560mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Sep.30, 2011
Option	Power Sensor on

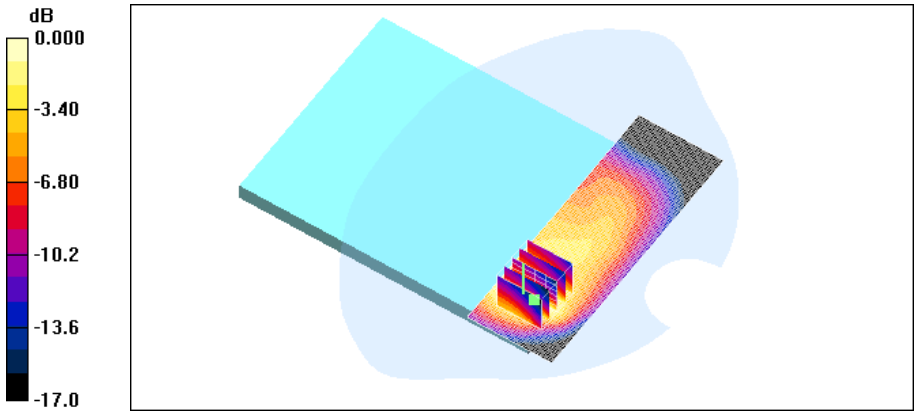
DUT: P4100; Type: Bar; Serial: #1

Communication System: LTE Band 17; Frequency: 710 MHz;Duty Cycle: 1:1
Medium parameters used: f = 710 MHz; σ = 0.933 mho/m; ε_r = 55.3; 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 - SN1798; ConvF(6.79, 6.79, 6.79); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

Tablet Body 0cm Rear 23790 1RB 0 offset 16QAM/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.350 mW/g

Tablet Body 0cm Rear 23790 1RB 0 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.5 V/m; Power Drift = -0.045 dB
Peak SAR (extrapolated) = 1.02 W/kg
SAR(1 g) = 0.316 mW/g; SAR(10 g) = 0.184 mW/g
aximum value of SAR (measured) = 0.310 mW/g



0 dB = 0.310mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Sep.30, 2011
Option	Power Sensor on

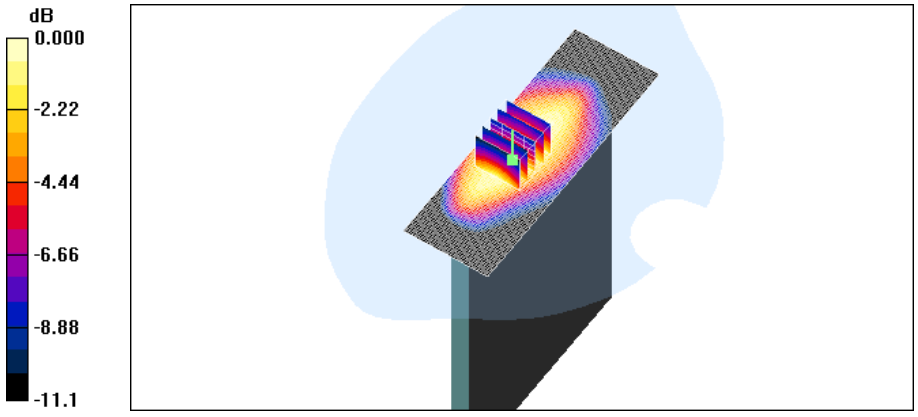
DUT: P4100; Type: Bar; Serial: #1

Communication System: LTE ; Frequency: 710 MHz;Duty Cycle: 1:1
Medium parameters used: f = 710 MHz; σ = 0.933 mho/m; ε_r = 55.3; 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 - SN1798; ConvF(6.79, 6.79, 6.79); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

Tablet Body 0cm Secondary Portrait 23790 1RB 49offset QPSK/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.166 mW/g

Tablet Body 0cm Secondary Portrait 23790 1RB 49offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 12.9 V/m; Power Drift = 0.008 dB
Peak SAR (extrapolated) = 0.266 W/kg
SAR(1 g) = 0.161 mW/g; SAR(10 g) = 0.107 mW/g
aximum value of SAR (measured) = 0.173 mW/g



0 dB = 0.173mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Sep.30, 2011
Option	Power Sensor on

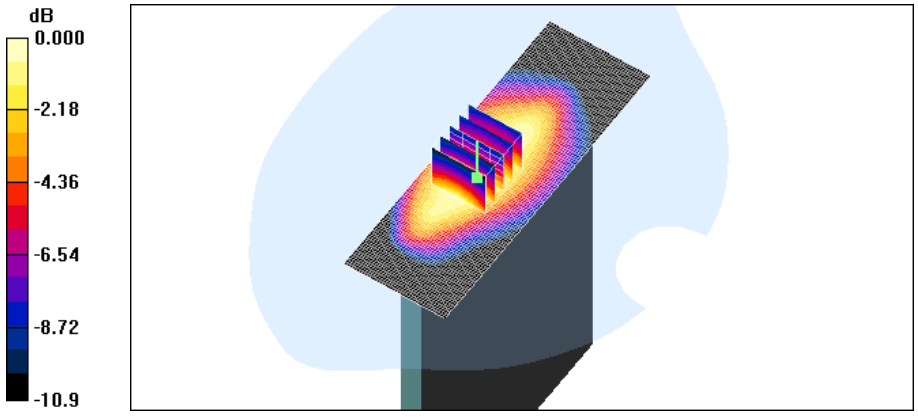
DUT: P4100; Type: Bar; Serial: #1

Communication System: LTE ; Frequency: 710 MHz;Duty Cycle: 1:1
Medium parameters used: f = 710 MHz; σ = 0.933 mho/m; ε_r = 55.3; 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 - SN1798; ConvF(6.79, 6.79, 6.79); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

Tablet Body 0cm Secondary Portrait 23790 25RB 13offset 16QAM/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.097 mW/g

Tablet Body 0cm Secondary Portrait 23790 25RB 13offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.82 V/m; Power Drift = -0.059 dB
Peak SAR (extrapolated) = 0.158 W/kg
SAR(1 g) = 0.094 mW/g; SAR(10 g) = 0.061 mW/g
Maximum value of SAR (measured) = 0.101 mW/g



0 dB = 0.101mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.18, 2011
Option	Power Sensor off

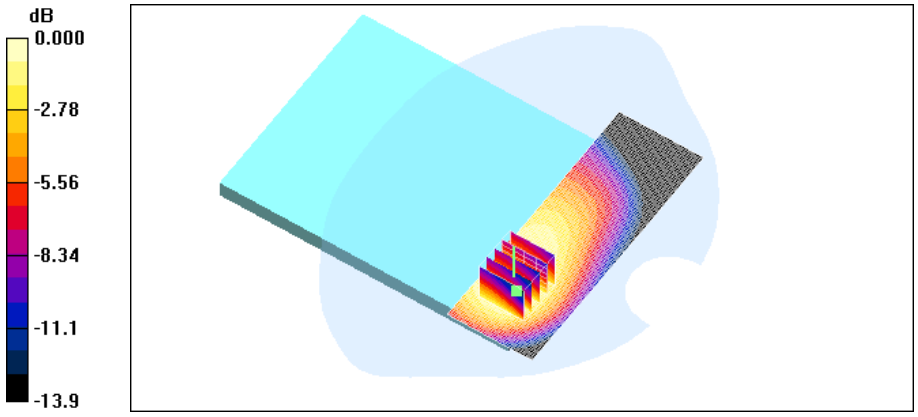
DUT: P4100; Type: Bar; Serial: #1

Communication System: LTE Band 17; Frequency: 710 MHz;Duty Cycle: 1:1
Medium parameters used: f = 710 MHz; σ = 0.934 mho/m; ε_r = 55.3; 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 - SN1798; ConvF(6.79, 6.79, 6.79); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: SAM 835/900 MHz; Type: SAM

Tablet Body 1cm Rear 23790 1RB 0 offset QPSK/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.363 mW/g

Tablet Body 1cm Rear 23790 1RB 0 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.4 V/m; Power Drift = -0.096 dB
Peak SAR (extrapolated) = 0.582 W/kg
SAR(1 g) = 0.353 mW/g; SAR(10 g) = 0.239 mW/g
aximum value of SAR (measured) = 0.366 mW/g



0 dB = 0.366mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.18, 2011
Option	Power Sensor off

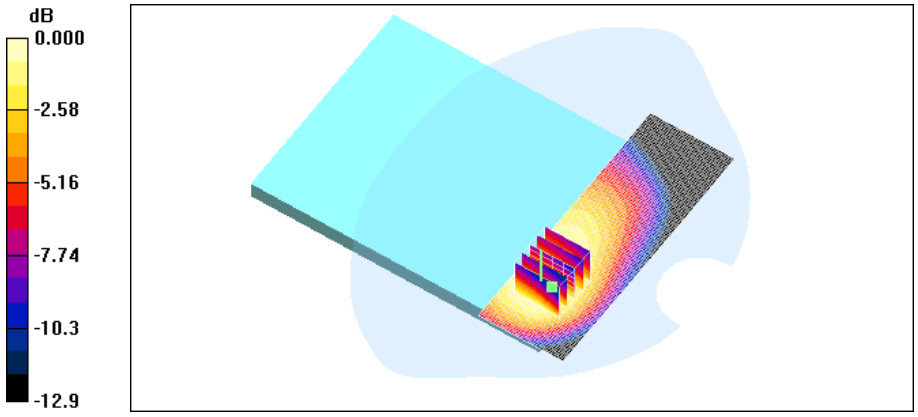
DUT: P4100; Type: Bar; Serial: #1

Communication System: LTE Band 17; Frequency: 710 MHz;Duty Cycle: 1:1
Medium parameters used: f = 710 MHz; σ = 0.934 mho/m; ε_r = 55.3; 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 - SN1798; ConvF(6.79, 6.79, 6.79); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: SAM 835/900 MHz; Type: SAM

Tablet Body 1cm Rear 23790 1RB 0 offset 16QAM/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.296 mW/g

Tablet Body 1cm Rear 23790 1RB 0 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.4 V/m; Power Drift = 0.024 dB
Peak SAR (extrapolated) = 0.469 W/kg
SAR(1 g) = 0.292 mW/g; SAR(10 g) = 0.201 mW/g
aximum value of SAR (measured) = 0.303 mW/g



0 dB = 0.303mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.18, 2011
Option	Power Sensor off

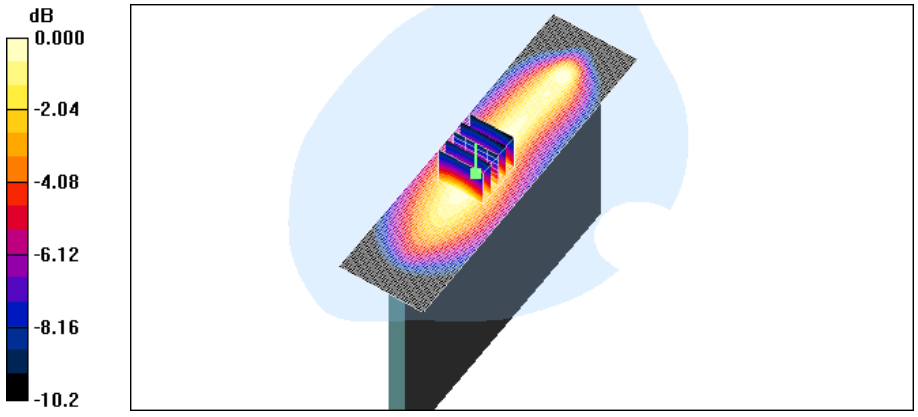
DUT: P4100; Type: Bar; Serial: #1

Communication System: LTE ; Frequency: 710 MHz;Duty Cycle: 1:1
Medium parameters used: f = 710 MHz; σ = 0.934 mho/m; ε_r = 55.3; 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 - SN1798; ConvF(6.79, 6.79, 6.79); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 800/900 Phantom; Type: SAM

Hotspot Body 0cm Secondary Landscape 23790 1RB 0 offset QPSK/Area Scan (41x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.269 mW/g

Hotspot Body 0cm Secondary Landscape 23790 1RB 0 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.4 V/m; Power Drift = -0.188 dB
Peak SAR (extrapolated) = 0.431 W/kg
SAR(1 g) = 0.239 mW/g; SAR(10 g) = 0.151 mW/g
Maximum value of SAR (measured) = 0.257 mW/g



0 dB = 0.257mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.18, 2011
Option	Power Sensor off

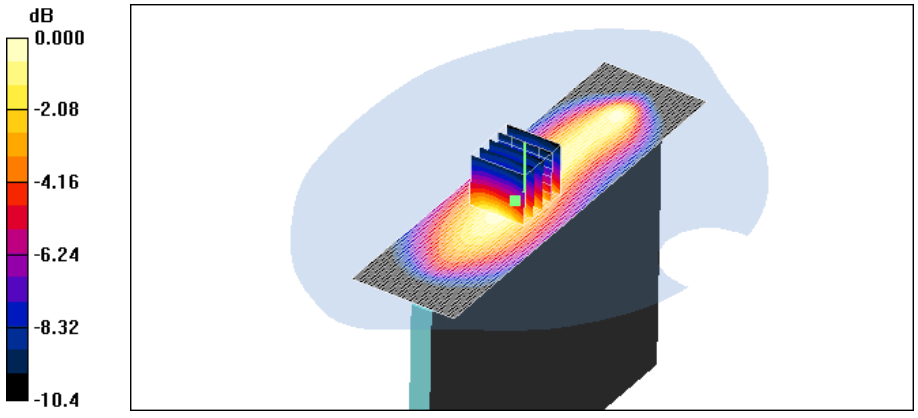
DUT: P4100; Type: Bar; Serial: #1

Communication System: LTE ; Frequency: 710 MHz;Duty Cycle: 1:1
Medium parameters used: f = 710 MHz; σ = 0.934 mho/m; ε_r = 55.3; 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 - SN1798; ConvF(6.79, 6.79, 6.79); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 800/900 Phantom; Type: SAM

Hotspot Body 0cm Secondary Landscape 23790 1RB 0 offset 16QAM/Area Scan (41x151x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.219 mW/g

Hotspot Body 0cm Secondary Landscape 23790 1RB 0 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.7 V/m; Power Drift = -0.053 dB
Peak SAR (extrapolated) = 0.372 W/kg
SAR(1 g) = 0.200 mW/g; SAR(10 g) = 0.125 mW/g
Maximum value of SAR (measured) = 0.219 mW/g



0 dB = 0.219mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.18, 2011
Option	Power Sensor off

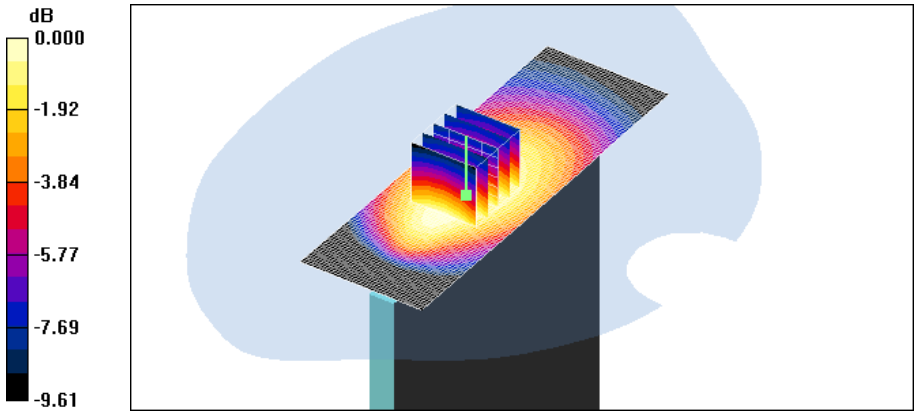
DUT: P4100; Type: Bar; Serial: #1

Communication System: LTE ; Frequency: 710 MHz;Duty Cycle: 1:1
Medium parameters used: f = 710 MHz; σ = 0.934 mho/m; ε_r = 55.3; 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 - SN1798; ConvF(6.79, 6.79, 6.79); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 800/900 Phantom; Type: SAM

Hotspot Body 1cm Secondary Portrait 23790 1RB 0 offset QPSK/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.107 mW/g

Hotspot Body 1cm Secondary Portrait 23790 1RB 0 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.3 V/m; Power Drift = 0.028 dB
Peak SAR (extrapolated) = 0.151 W/kg
SAR(1 g) = 0.101 mW/g; SAR(10 g) = 0.071 mW/g
Maximum value of SAR (measured) = 0.105 mW/g



0 dB = 0.105mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.18, 2011
Option	Power Sensor off

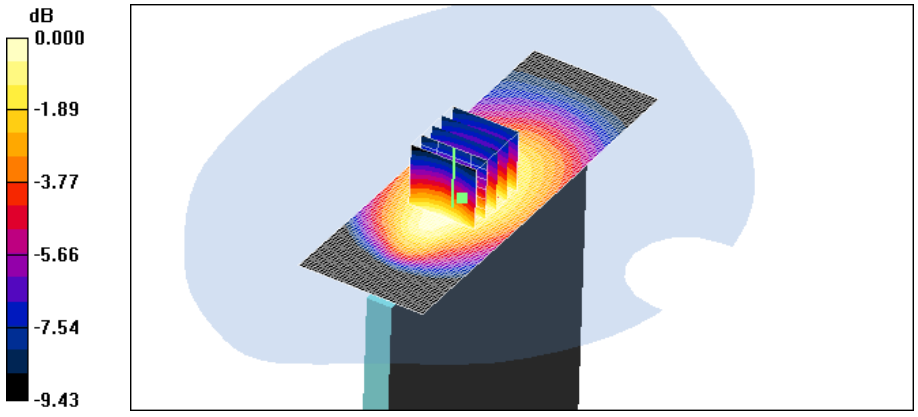
DUT: P4100; Type: Bar; Serial: #1

Communication System: LTE ; Frequency: 710 MHz;Duty Cycle: 1:1
Medium parameters used: f = 710 MHz; σ = 0.934 mho/m; ε_r = 55.3; 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 - SN1798; ConvF(6.79, 6.79, 6.79); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 800/900 Phantom; Type: SAM

Hotspot Body 1cm Secondary Portrait 23790 25RB 13offset 16QAM/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.099 mW/g

Hotspot Body 1cm Secondary Portrait 23790 25RB 13offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.83 V/m; Power Drift = -0.006 dB
Peak SAR (extrapolated) = 0.140 W/kg
SAR(1 g) = 0.092 mW/g; SAR(10 g) = 0.064 mW/g
Maximum value of SAR (measured) = 0.097 mW/g



0 dB = 0.097mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Sep.28, 2011
Option	Power Sensor on

DUT: P4100; Type: Bar; Serial: #1

Communication System: LTE Band 5; Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.5 MHz; σ = 0.951 mho/m; ε_r = 55.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

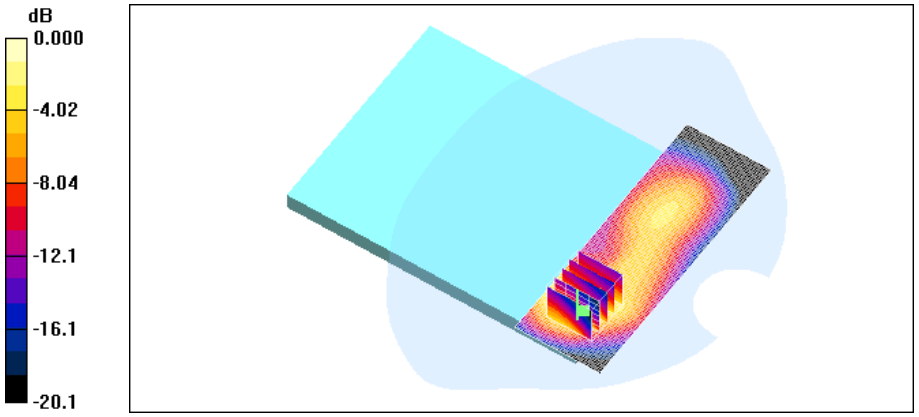
DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(6.5, 6.5, 6.5); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

Tablet Body 0cm Rear 20525 25RB 13 offset QPSK/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.432 mW/g

Tablet Body 0cm Rear 20525 25RB 13 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.86 V/m; Power Drift = 0.171 dB
Peak SAR (extrapolated) = 1.39 W/kg
SAR(1 g) = 0.411 mW/g; SAR(10 g) = 0.202 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.411 mW/g



0 dB = 0.411mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Sep.28, 2011
Option	Power Sensor on

DUT: P4100; Type: Bar; Serial: #1

Communication System: LTE Band 5; Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.5 MHz; σ = 0.951 mho/m; ε_r = 55.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

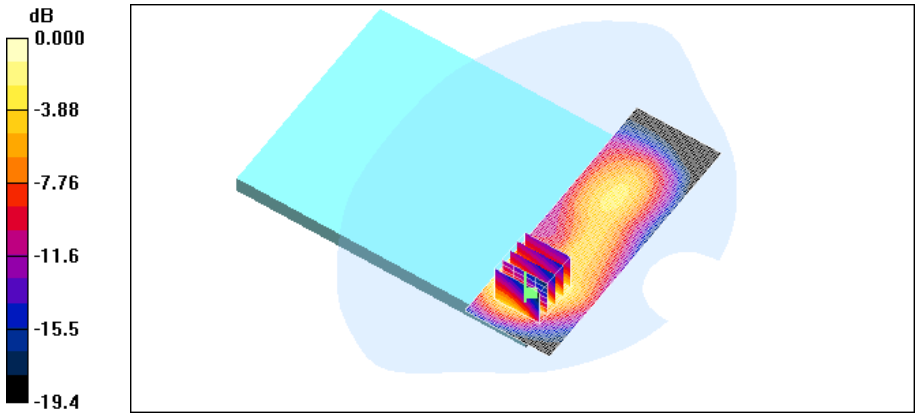
DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(6.5, 6.5, 6.5); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

Tablet Body 0cm Rear 20525 1RB 0 offset 16QAM/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.374 mW/g

Tablet Body 0cm Rear 20525 1RB 0 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.65 V/m; Power Drift = -0.187 dB
Peak SAR (extrapolated) = 1.12 W/kg
SAR(1 g) = 0.339 mW/g; SAR(10 g) = 0.168 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.341 mW/g



0 dB = 0.341mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Sep.28, 2011
Option	Power Sensor on

DUT: P4100; Type: Bar; Serial: #1

Communication System: LTE Band 5; Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.5 MHz; σ = 0.951 mho/m; ε_r = 55.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

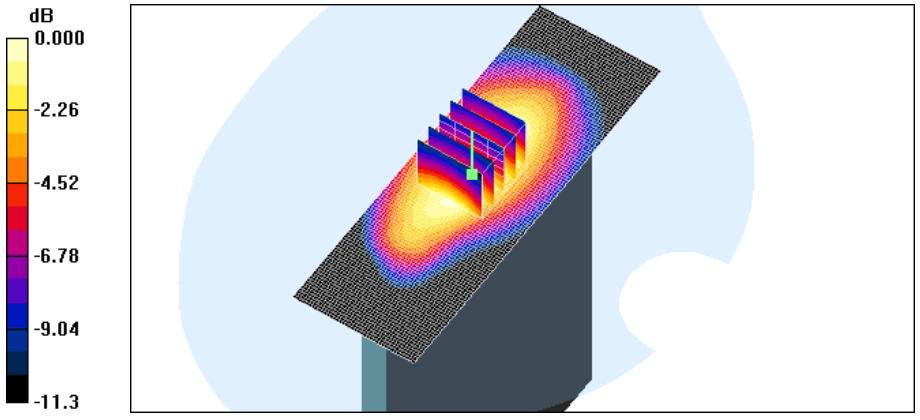
DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(6.5, 6.5, 6.5); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

Tablet Body 0cm Secondary Portrait 20525 1RB 0 offset QPSK/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

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

Tablet Body 0cm Secondary Portrait 20525 1RB 0 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 16.0 V/m; Power Drift = -0.091 dB
Peak SAR (extrapolated) = 0.309 W/kg
SAR(1 g) = 0.213 mW/g; SAR(10 g) = 0.143 mW/g

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



0 dB = 0.231mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Sep.28, 2011
Option	Power Sensor on

DUT: P4100; Type: Bar; Serial: #1

Communication System: LTE Band 5; Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.5 MHz; σ = 0.951 mho/m; ε_r = 55.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

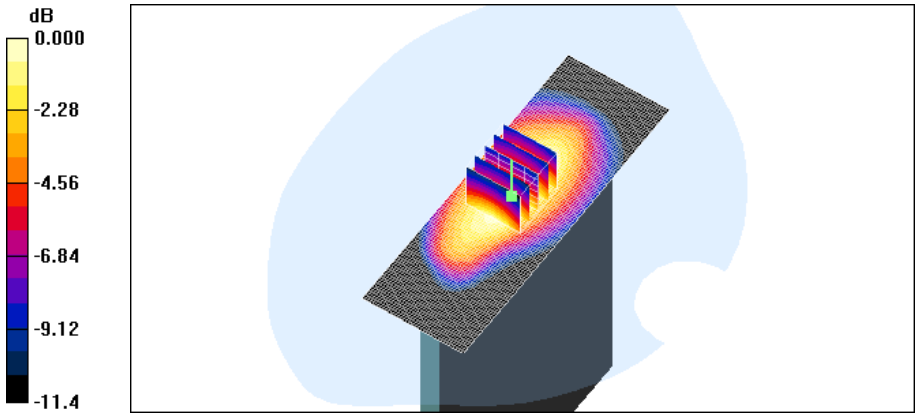
DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(6.5, 6.5, 6.5); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

Tablet Body 0cm Secondary Portrait 20525 1RB 0 offset 16QAM/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.104 mW/g

Tablet Body 0cm Secondary Portrait 20525 1RB 0 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.5 V/m; Power Drift = 0.036 dB
Peak SAR (extrapolated) = 0.141 W/kg
SAR(1 g) = 0.096 mW/g; SAR(10 g) = 0.065 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
aximum value of SAR (measured) = 0.104 mW/g



0 dB = 0.104mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Aug.19, 2011
Option	Power Sensor off

DUT: P4100; Type: Bar; Serial: #1

Communication System: LTE Band 5; Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.5 MHz; σ = 0.951 mho/m; ε_r = 55.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

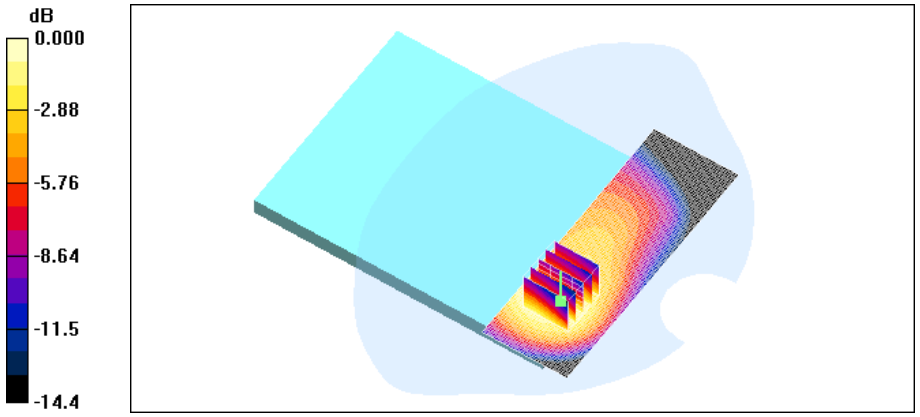
DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(6.5, 6.5, 6.5); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: SAM 835/900 MHz; Type: SAM

Tablet Body 1cm Rear 20525 1RB 0 offset QPSK/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.300 mW/g

Tablet Body 1cm Rear 20525 1RB 0 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.4 V/m; Power Drift = 0.014 dB
Peak SAR (extrapolated) = 0.426 W/kg
SAR(1 g) = 0.296 mW/g; SAR(10 g) = 0.195 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
aximum value of SAR (measured) = 0.320 mW/g



0 dB = 0.320mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Aug.19, 2011
Option	Power Sensor off

DUT: P4100; Type: Bar; Serial: #1

Communication System: LTE Band 5; Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.5 MHz; σ = 0.951 mho/m; ε_r = 55.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

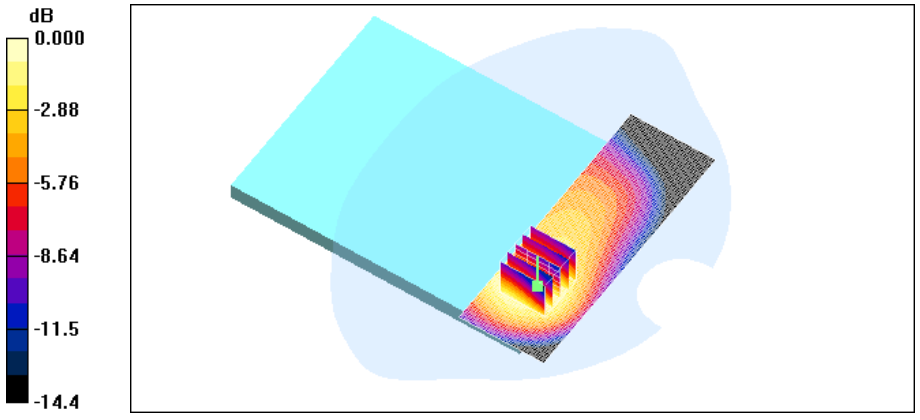
DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(6.5, 6.5, 6.5); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: SAM 835/900 MHz; Type: SAM

Tablet Body 1cm Rear 20525 1RB 0 offset 16QAM/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.251 mW/g

Tablet Body 1cm Rear 20525 1RB 0 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.4 V/m; Power Drift = -0.038 dB
Peak SAR (extrapolated) = 0.350 W/kg
SAR(1 g) = 0.246 mW/g; SAR(10 g) = 0.164 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
aximum value of SAR (measured) = 0.262 mW/g



0 dB = 0.262mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Aug.19, 2011
Option	Power Sensor off

DUT: P4100; Type: Bar; Serial: #1

Communication System: LTE Band 5; Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.5 MHz; σ = 0.951 mho/m; ε_r = 55.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

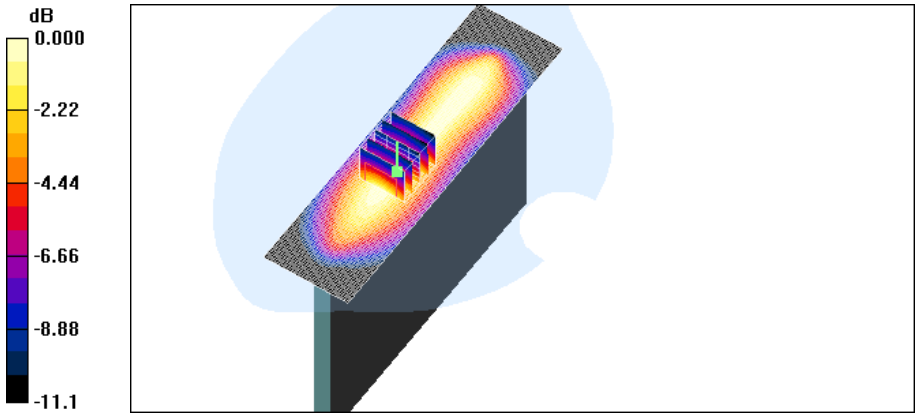
DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(6.5, 6.5, 6.5); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 800/900 Phantom; Type: SAM

Hotspot Body 0cm Secondary Landscape 20525 1RB 0 offset QPSK/Area Scan (41x151x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.295 mW/g

Hotspot Body 0cm Secondary Landscape 20525 1RB 0 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.7 V/m; Power Drift = -0.054 dB
Peak SAR (extrapolated) = 0.401 W/kg
SAR(1 g) = 0.258 mW/g; SAR(10 g) = 0.164 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.287 mW/g



0 dB = 0.287mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Aug.19, 2011
Option	Power Sensor off

DUT: P4100; Type: Bar; Serial: #1

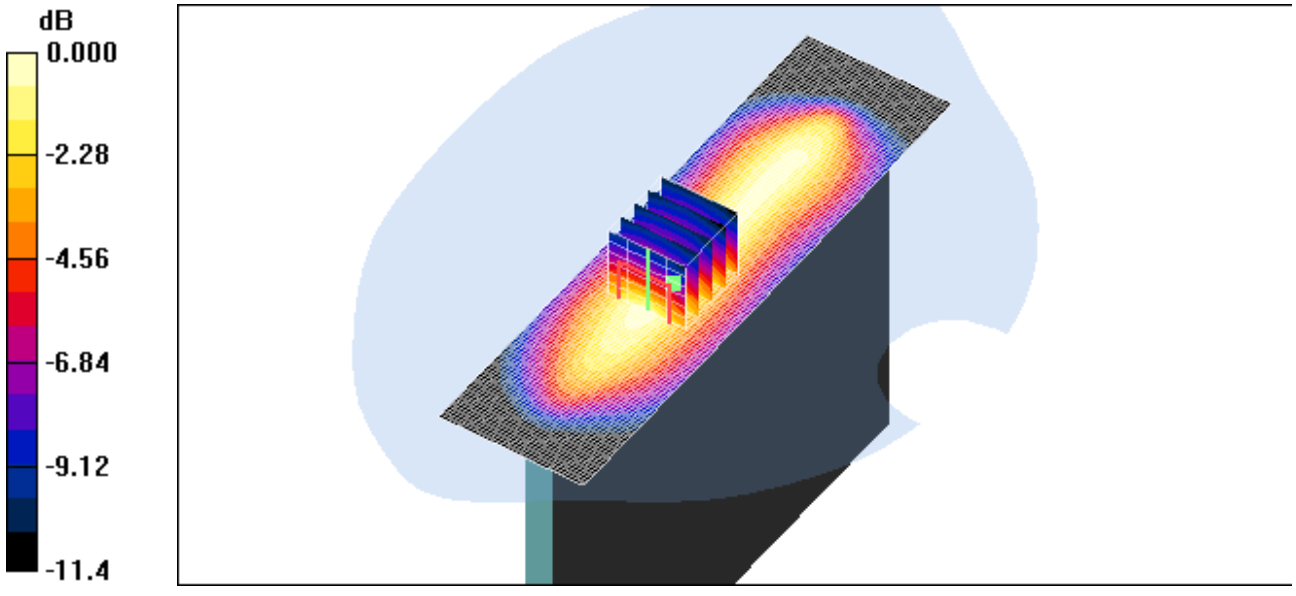
Communication System: LTE Band 5; Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.5 MHz; σ = 0.951 mho/m; ε_r = 55.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(6.5, 6.5, 6.5); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 800/900 Phantom; Type: SAM

Hotspot Body 0cm Secondary Landscape 20525 1RB 0 offset 16QAM/Area Scan (41x151x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.235 mW/g

Hotspot Body 0cm Secondary Landscape 20525 1RB 0 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 15.4 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.333 W/kg
SAR(1 g) = 0.206 mW/g; SAR(10 g) = 0.131 mW/g
Maximum value of SAR (measured) = 0.237 mW/g



0 dB = 0.237mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Aug.19, 2011
Option	Power Sensor off

DUT: P4100; Type: Bar; Serial: #1

Communication System: LTE Band 5; Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.5 MHz; σ = 0.951 mho/m; ε_r = 55.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

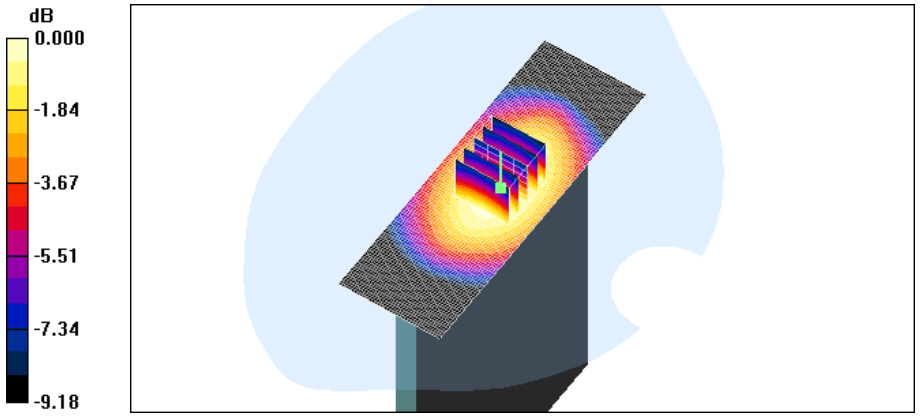
DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(6.5, 6.5, 6.5); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 800/900 Phantom; Type: SAM

Hotspot Body 1cm Secondary Portrait 20525 1RB 0 offset QPSK/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

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

Hotspot Body 1cm Secondary Portrait 20525 1RB 0 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.3 V/m; Power Drift = -0.014 dB
Peak SAR (extrapolated) = 0.216 W/kg
SAR(1 g) = 0.169 mW/g; SAR(10 g) = 0.122 mW/g

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



0 dB = 0.180mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Aug.19, 2011
Option	Power Sensor off

DUT: P4100; Type: Bar; Serial: #1

Communication System: LTE Band 5; Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.5 MHz; σ = 0.951 mho/m; ε_r = 55.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

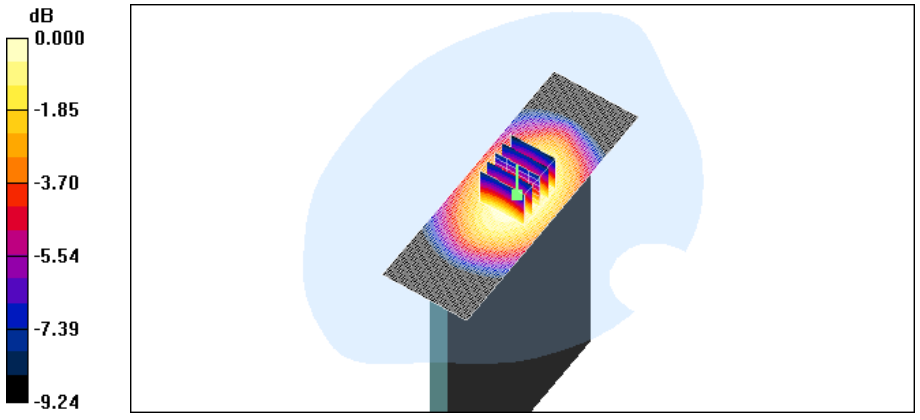
DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(6.5, 6.5, 6.5); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 800/900 Phantom; Type: SAM

Hotspot Body 1cm Secondary Portrait 20525 1RB 0 offset 16QAM/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

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

Hotspot Body 1cm Secondary Portrait 20525 1RB 0 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.0 V/m; Power Drift = -0.005 dB
Peak SAR (extrapolated) = 0.181 W/kg
SAR(1 g) = 0.142 mW/g; SAR(10 g) = 0.103 mW/g

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



0 dB = 0.150mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Sep.29, 2011
Option	Power Sensor on

DUT: P4100; Type: Bar; Serial: #1

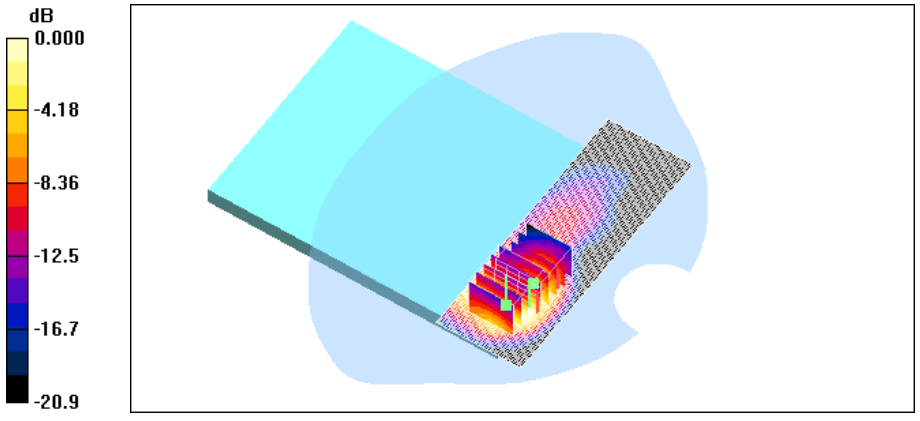
Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.42 mho/m; ε_r = 55.4; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(4.84, 4.84, 4.84); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2011-08-29
- Phantom: 800/900 Phantom; Type: SAM

Tablet Body 0cm Rear 20175 25RB 13 offset QPSK/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.34 mW/g

Tablet Body 0cm Rear 20175 25RB 13 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.64 V/m; Power Drift = 0.107 dB
Peak SAR (extrapolated) = 2.16 W/kg
SAR(1 g) = 1.17 mW/g; SAR(10 g) = 0.609 mW/g
Maximum value of SAR (measured) = 1.27 mW/g

Tablet Body1cm Rear 20175 25RB 13 offset QPSK/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.64 V/m; Power Drift = 0.107 dB
Peak SAR (extrapolated) = 1.55 W/kg
SAR(1 g) = 0.916 mW/g; SAR(10 g) = 0.506 mW/g
aximum value of SAR (measured) = 1.03 mW/g



0 dB = 1.03mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Sep.29, 2011
Option	Power Sensor on

DUT: P4100; Type: Bar; Serial: #1

Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.42 mho/m; ε_r = 55.4; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

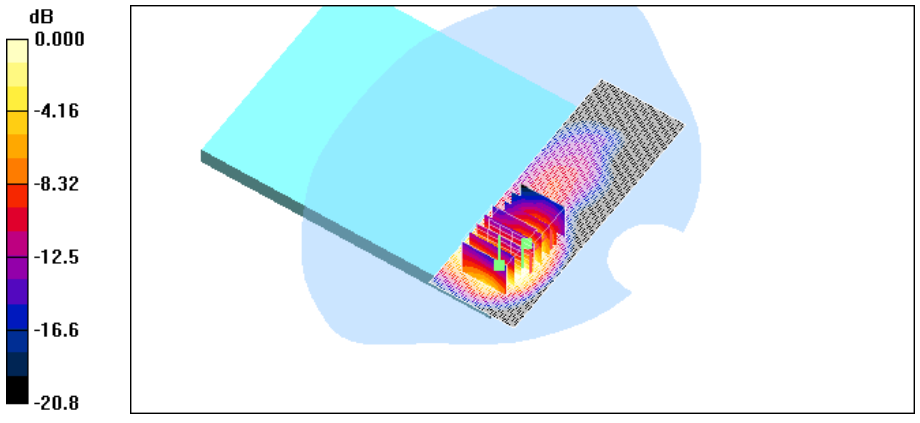
DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(4.84, 4.84, 4.84); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 800/900 Phantom; Type: SAM

Tablet Body 0cm Rear 20175 1 RB 0 offset 16QAM/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.36 mW/g

Tablet Body 0cm Rear 20175 1 RB 0 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.58 V/m; Power Drift = 0.029 dB
Peak SAR (extrapolated) = 2.05 W/kg
SAR(1 g) = 1.11 mW/g; SAR(10 g) = 0.581 mW/g
Maximum value of SAR (measured) = 1.19 mW/g

Tablet Body 0cm Rear 20175 1 RB 0 offset 16QAM/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.58 V/m; Power Drift = 0.029 dB
Peak SAR (extrapolated) = 1.47 W/kg
SAR(1 g) = 0.904 mW/g; SAR(10 g) = 0.500 mW/g

aximum value of SAR (measured) = 0.992 mW/g



0 dB = 0.992mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Sep.29, 2011
Option	Power Sensor on

DUT: P4100; Type: Bar; Serial: #1

Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.42 mho/m; ε_r = 55.4; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

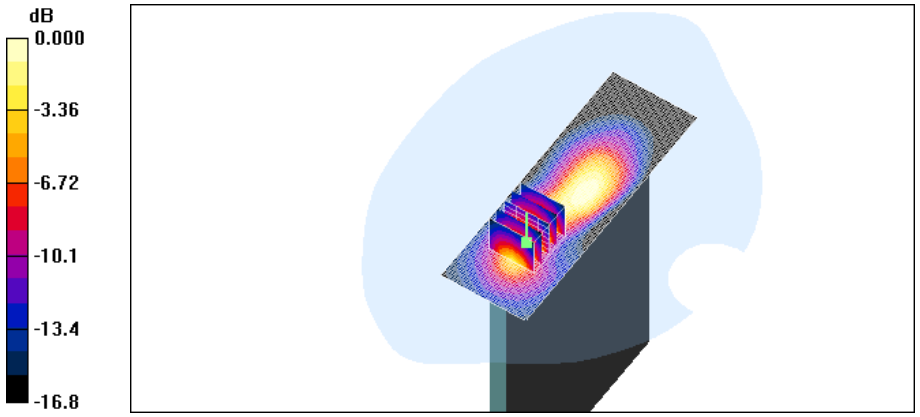
DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(4.84, 4.84, 4.84); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 800/900 Phantom; Type: SAM

Tablet Body 0cm Secondary Portrait 20175 1RB 49offset QPSK/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

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

Tablet Body 0cm Secondary Portrait 20175 1RB 49offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.5 V/m; Power Drift = 0.151 dB
Peak SAR (extrapolated) = 0.461 W/kg
SAR(1 g) = 0.279 mW/g; SAR(10 g) = 0.144 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.316 mW/g



0 dB = 0.316mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Sep.29, 2011
Option	Power Sensor on

DUT: P4100; Type: Bar; Serial: #1

Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.42 mho/m; ε_r = 55.4; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

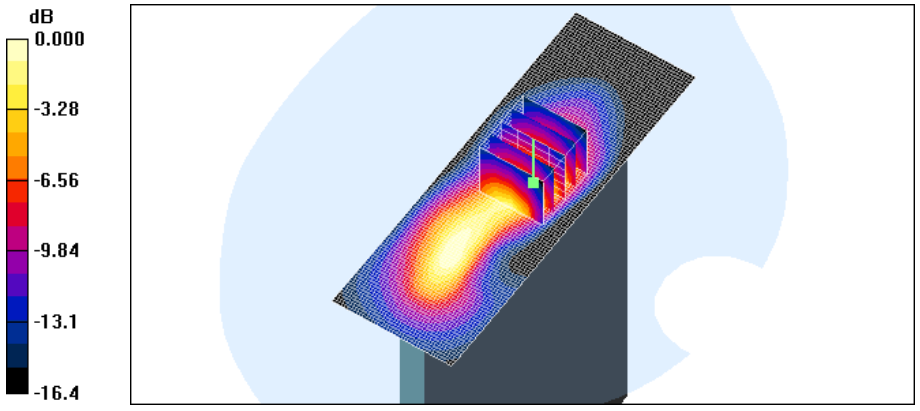
DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(4.84, 4.84, 4.84); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 800/900 Phantom; Type: SAM

Tablet Body 0cm Secondary Portrait 20175 1RB 49offset 16QAM/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.283 mW/g

Tablet Body 0cm Secondary Portrait 20175 1RB 49offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.3 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.375 W/kg
SAR(1 g) = 0.246 mW/g; SAR(10 g) = 0.133 mW/g

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



0 dB = 0.282mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.20, 2011
Option	Power Sensor off

DUT: P4100; Type: Bar; Serial: #1

Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.45 mho/m; ε_r = 55.3; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

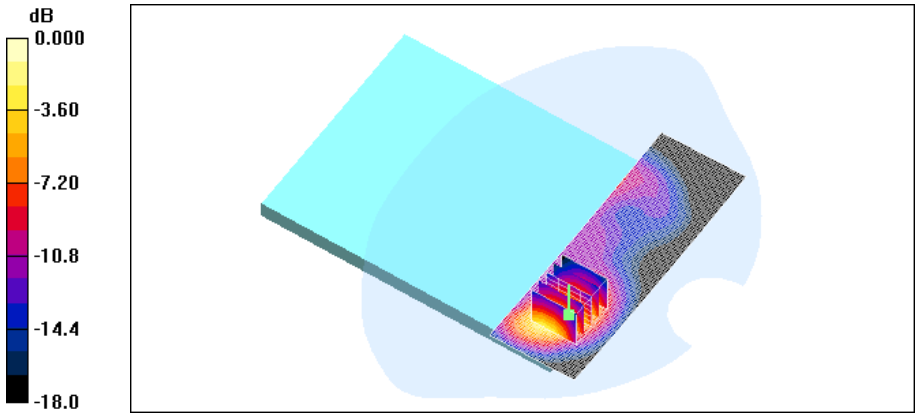
DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(4.84, 4.84, 4.84); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: SAM 1800/1900 MHz; Type: SAM

Tablet Body 1cm Rear 20175 1RB 49 offset QPSK/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

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

Tablet Body 1cm Rear 20175 1RB 49 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.83 V/m; Power Drift = 0.017 dB
Peak SAR (extrapolated) = 1.71 W/kg
SAR(1 g) = 1.08 mW/g; SAR(10 g) = 0.570 mW/g

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



0 dB = 1.16mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.20, 2011
Option	Power Sensor off

DUT: P4100; Type: Bar; Serial: #1

Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.45 mho/m; ε_r = 55.3; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

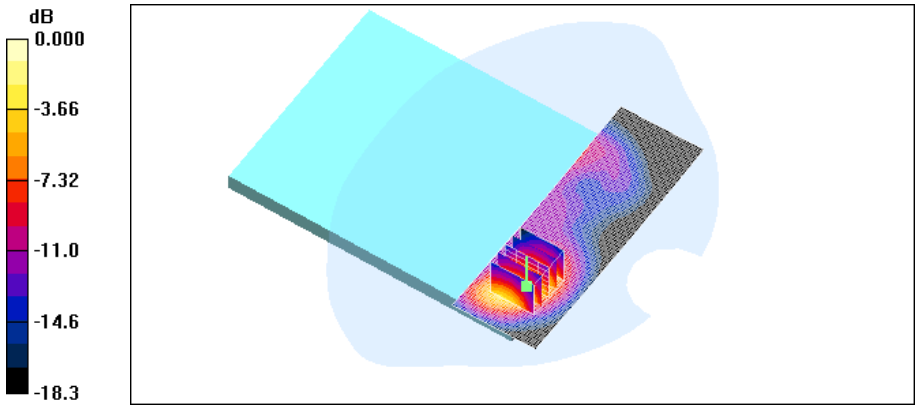
DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(4.84, 4.84, 4.84); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: SAM 1800/1900 MHz; Type: SAM

Tablet Body 1cm Rear 20175 1RB 49 offset 16QAM/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.973 mW/g

Tablet Body 1cm Rear 20175 1RB 49 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.36 V/m; Power Drift = -0.029 dB
Peak SAR (extrapolated) = 1.43 W/kg
SAR(1 g) = 0.906 mW/g; SAR(10 g) = 0.479 mW/g

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



0 dB = 1.02mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.20, 2011
Option	Power Sensor off

DUT: P4100; Type: Bar; Serial: #1

Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.45 mho/m; ε_r = 55.3; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

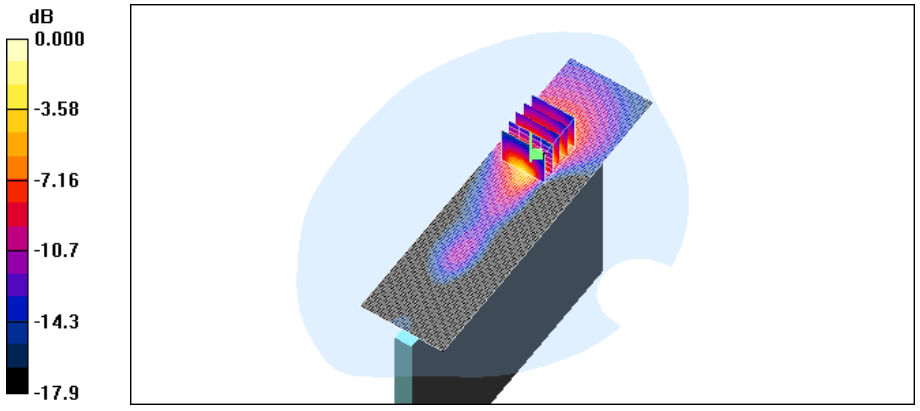
DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(4.84, 4.84, 4.84); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

Hotspot Body 0cm Secondary Landscape 20175 1RB 49 offset QPSK/Area Scan (41x151x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.965 mW/g

Hotspot Body 0cm Secondary Landscape 20175 1RB 49 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.90 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 1.41 W/kg
SAR(1 g) = 0.801 mW/g; SAR(10 g) = 0.410 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.913 mW/g



0 dB = 0.913mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.20, 2011
Option	Power Sensor off

DUT: P4100; Type: Bar; Serial: #1

Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.45 mho/m; ε_r = 55.3; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

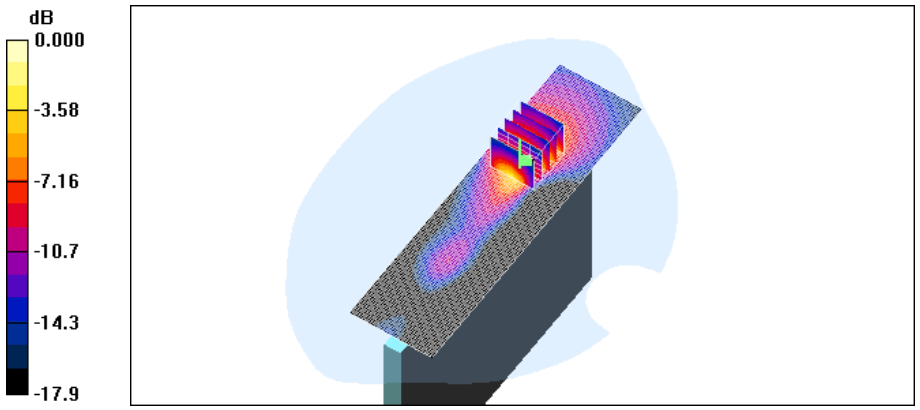
DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(4.84, 4.84, 4.84); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

Hotspot Body 0cm Secondary Landscape 20175 1RB 49 offset 16QAM/Area Scan (41x151x1): Measurement grid: dx=15mm, dy=15mm

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

Hotspot Body 0cm Secondary Landscape 20175 1RB 49 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 6.60 V/m; Power Drift = -0.040 dB
Peak SAR (extrapolated) = 1.14 W/kg
SAR(1 g) = 0.650 mW/g; SAR(10 g) = 0.333 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.736 mW/g



0 dB = 0.736mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.20, 2011
Option	Power Sensor off

DUT: P4100; Type: Bar; Serial: #1

Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.45 mho/m; ε_r = 55.3; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

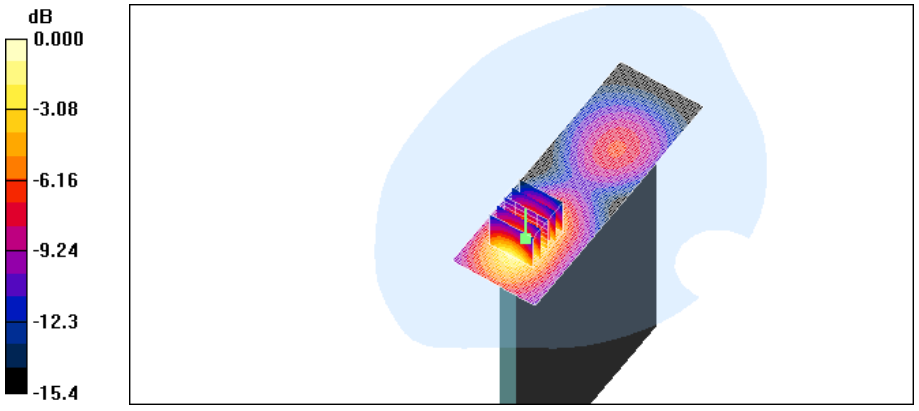
DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(4.84, 4.84, 4.84); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

Hotspot Body 1cm Secondary Portrait 20175 1RB 49 offset QPSK/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

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

Hotspot Body 1cm Secondary Portrait 20175 1RB 49 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.07 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 0.483 W/kg
SAR(1 g) = 0.343 mW/g; SAR(10 g) = 0.208 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.374 mW/g



0 dB = 0.374mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Aug.20, 2011
Option	Power Sensor off

DUT: P4100; Type: Bar; Serial: #1

Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.45 mho/m; ε_r = 55.3; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

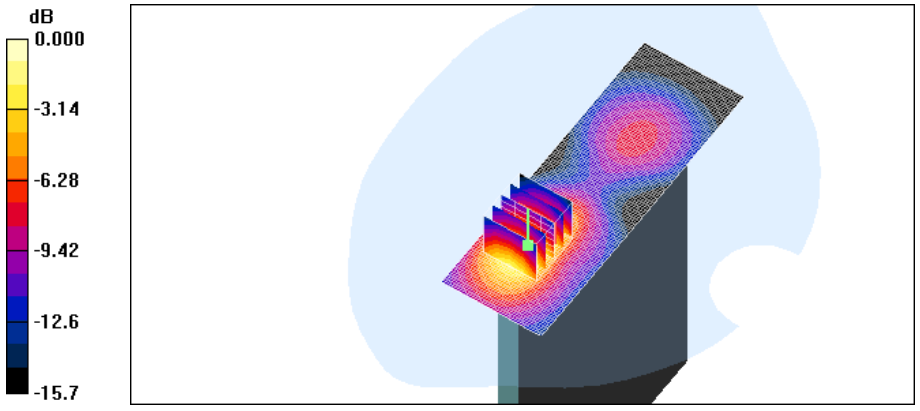
DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(4.84, 4.84, 4.84); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

Hotspot Body 1cm Secondary Portrait 20175 1RB 49 offset 16QAM/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

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

Hotspot Body 1cm Secondary Portrait 20175 1RB 49 offset 16QAM/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.69 V/m; Power Drift = -0.06 dB
Peak SAR (extrapolated) = 0.600 W/kg
SAR(1 g) = 0.416 mW/g; SAR(10 g) = 0.244 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.462 mW/g



0 dB = 0.462mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.11, 2011

DUT: P4100; Type: Bar; Serial: #1

Communication System: 2450MHz FCC; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2437 MHz; σ = 1.94 mho/m; ε_r = 51.8; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

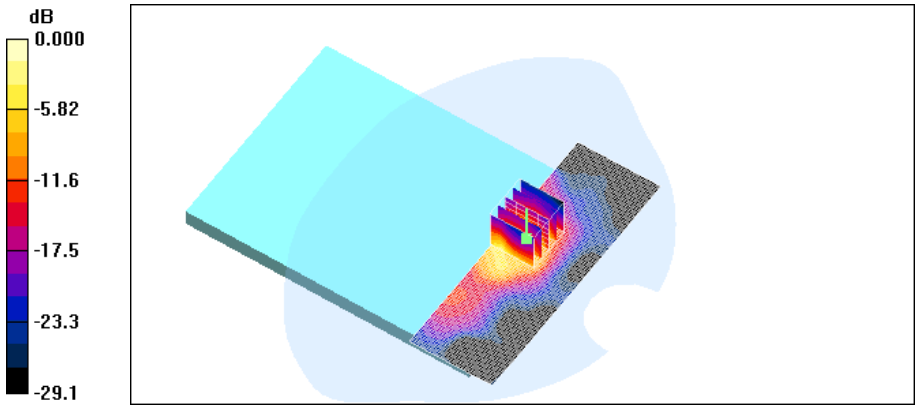
DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(4.21, 4.21, 4.21); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 835/900 Phamtom ; Type: SAM

Tablet Body 0cm Rear 6/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

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

Tablet Body 0cm Rear 6/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.13 V/m; Power Drift = 0.172 dB
Peak SAR (extrapolated) = 0.728 W/kg
SAR(1 g) = 0.240 mW/g; SAR(10 g) = 0.089 mW/g

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



0 dB = 0.305mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.11, 2011

DUT: P4100; Type: Bar; Serial: #1

Communication System: 2450MHz FCC; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2437 MHz; σ = 1.94 mho/m; ε_r = 51.8; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

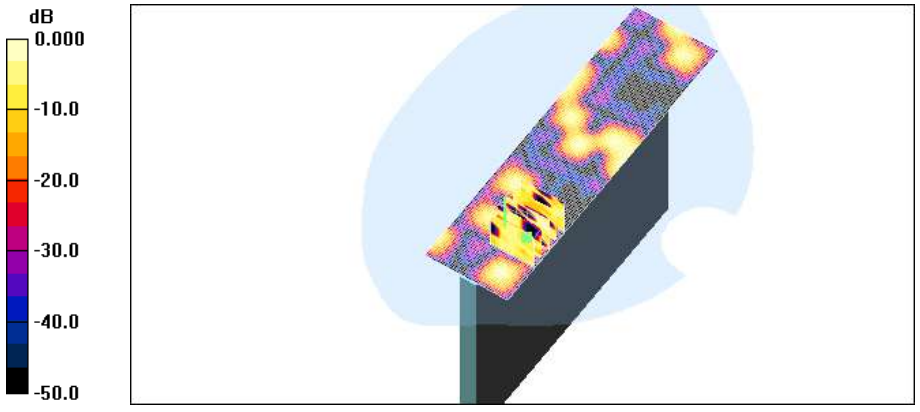
DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(4.21, 4.21, 4.21); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

Tablet Body 0cm Primary Landscape side 6ch/Area Scan (41x151x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.002 mW/g

Tablet Body 0cm Primary Landscape side 6ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 0.287 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 0.003 W/kg
SAR(1 g) = 0.000519 mW/g; SAR(10 g) = 0.000126 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.001 mW/g



0 dB = 0.001mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.11, 2011

DUT: P4100; Type: Bar; Serial: #1

Communication System: 2450MHz FCC; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2437 MHz; σ = 1.94 mho/m; ε_r = 51.8; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

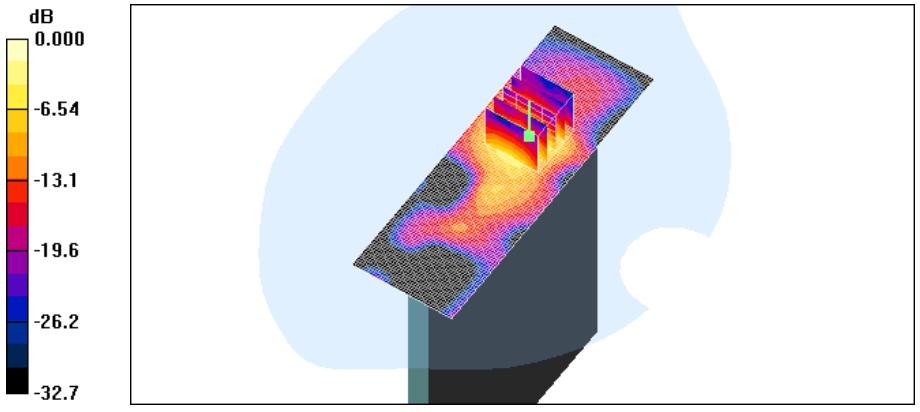
DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(4.21, 4.21, 4.21); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

Tablet Body 0cm Secondary Portrait 6ch/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.075 mW/g

Tablet Body 0cm Secondary Portrait 6ch/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 2.26 V/m; Power Drift = -0.027 dB
Peak SAR (extrapolated) = 0.190 W/kg
SAR(1 g) = 0.066 mW/g; SAR(10 g) = 0.026 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.069 mW/g



0 dB = 0.069mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Oct.05, 2011

DUT: P4100; Type: Bar; Serial: #1

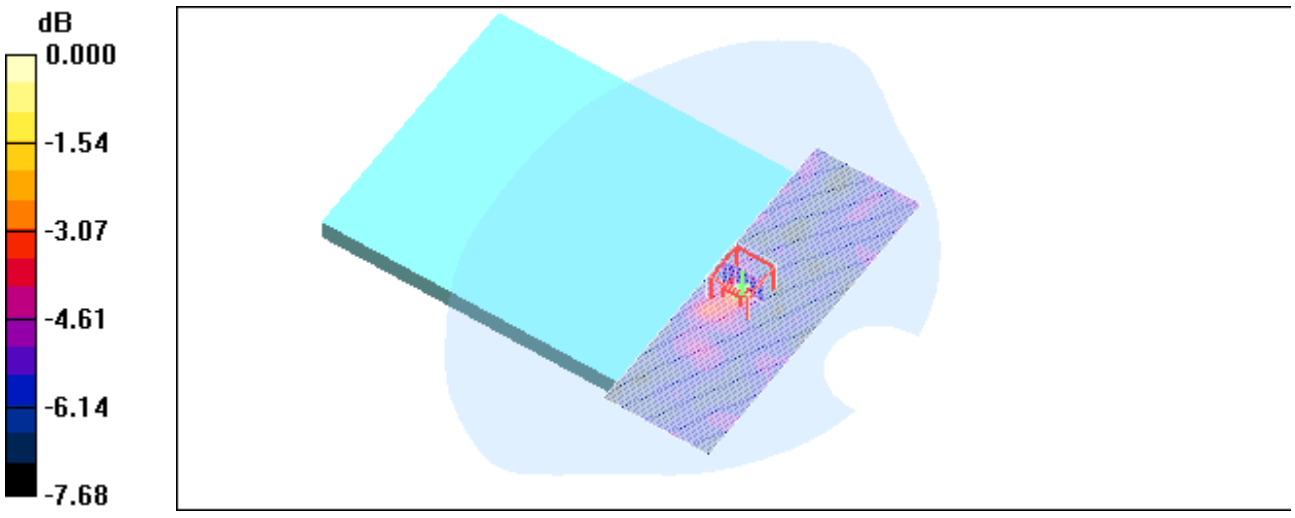
Communication System: WIFI 5GHz; Frequency: 5240 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5240 MHz; σ = 5.26 mho/m; ε_r = 47.5; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(4.1, 4.1, 4.1); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

802.11a Tablet Body Rear 48/Area Scan (61x181x1): Measurement grid: dx=10mm, dy=10mm

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

802.11a Tablet Body Rear 48/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 4.71 V/m; Power Drift = 0.052 dB
Peak SAR (extrapolated) = 1.38 W/kg
SAR(1 g) = 0.286 mW/g; SAR(10 g) = 0.161 mW/g
Maximum value of SAR (measured) = 0.471 mW/g



0 dB = 0.471mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Oct.05, 2011

DUT: P4100; Type: Bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5240 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5240 MHz; σ = 5.26 mho/m; ε_r = 47.5; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

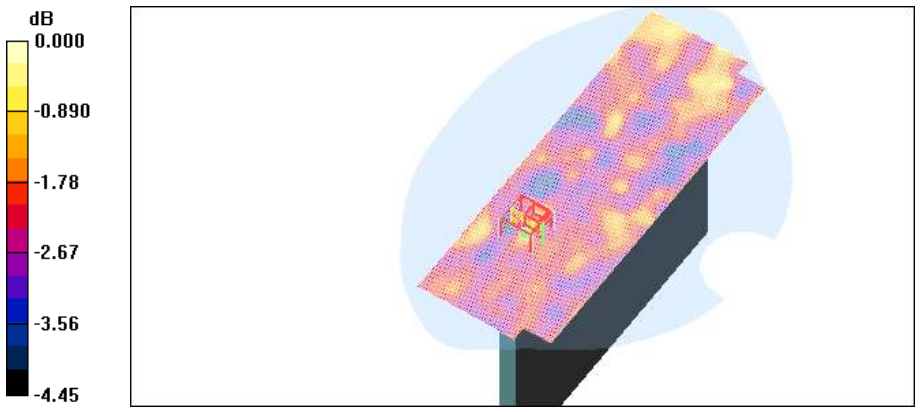
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(4.1, 4.1, 4.1); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

802.11a Tablet Body 0cm Primary Landscape side 48/Area Scan (91x251x1): Measurement grid: dx=10mm, dy=10mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.077 mW/g

802.11a Tablet Body 0cm Primary Landscape side 48/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 3.37 V/m; Power Drift = 0.024 dB
Peak SAR (extrapolated) = 0.087 W/kg
SAR(1 g) = 0.069 mW/g; SAR(10 g) = 0.059 mW/g

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



0 dB = 0.086mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Oct.05, 2011

DUT: P4100; Type: Bar; Serial: #1

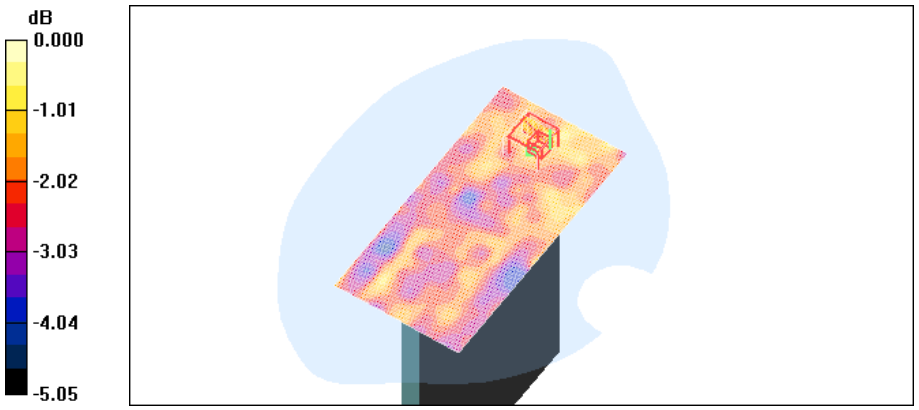
Communication System: WIFI 5GHz; Frequency: 5240 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5240 MHz; σ = 5.26 mho/m; ε_r = 47.5; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(4.1, 4.1, 4.1); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

802.11a Tablet Body 0cm Primary Landscape side 48/Area Scan (91x181x1): Measurement grid: dx=10mm, dy=10mm

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

802.11a Tablet Body 0cm Primary Landscape side 48/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 3.37 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 0.081 W/kg
SAR(1 g) = 0.062 mW/g; SAR(10 g) = 0.055 mW/g
Maximum value of SAR (measured) = 0.081 mW/g



0 dB = 0.081mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Oct.05, 2011

DUT: P4100; Type: Bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5260 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5260 MHz; σ = 5.3 mho/m; ε_r = 47.5; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

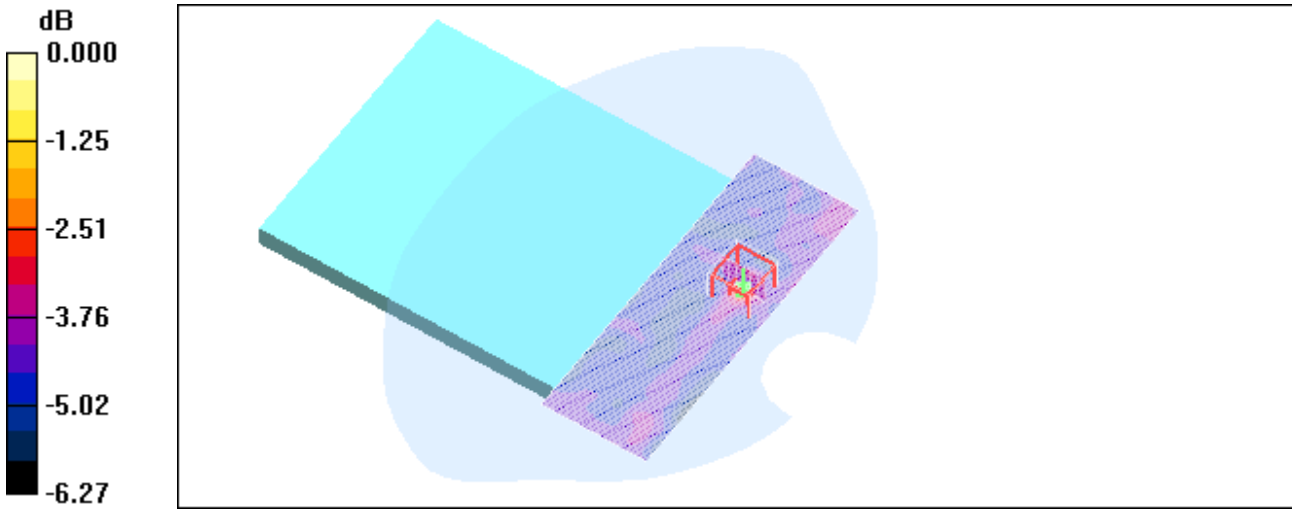
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(3.83, 3.83, 3.83); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

802.11a Tablet Body Rear 52/Area Scan (61x181x1): Measurement grid: dx=10mm, dy=10mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.347 mW/g

802.11a Tablet Body Rear 52/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 5.33 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 2.37 W/kg
SAR(1 g) = 0.339 mW/g; SAR(10 g) = 0.222 mW/g

Maximum value of SAR (measured) = 0.507 mW/g



0 dB = 0.507mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Oct.05, 2011

DUT: P4100; Type: Bar; Serial: #1

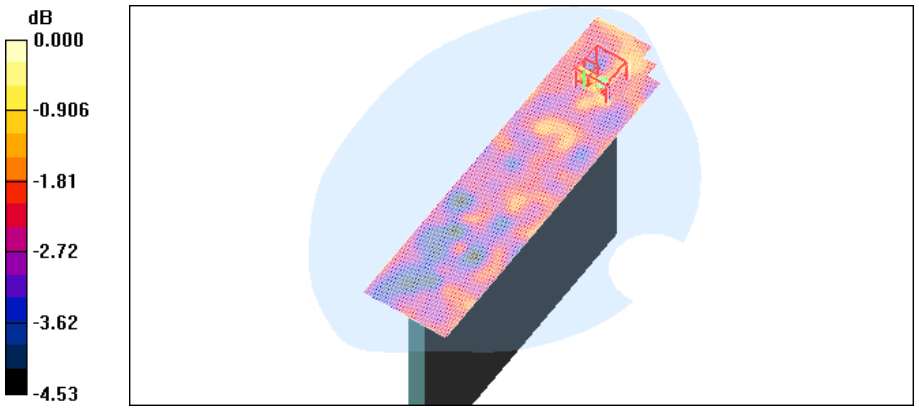
Communication System: WIFI 5GHz; Frequency: 5260 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5260 MHz; σ = 5.3 mho/m; ε_r = 47.5; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(3.83, 3.83, 3.83); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

802.11a Tablet Body 0cm Primary Landscape side 52/Area Scan (61x251x1): Measurement grid: dx=10mm, dy=10mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.079 mW/g

802.11a Tablet Body 0cm Primary Landscape side 52/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 3.37 V/m; Power Drift = 0.030 dB
Peak SAR (extrapolated) = 0.096 W/kg
SAR(1 g) = 0.073 mW/g; SAR(10 g) = 0.062 mW/g
Maximum value of SAR (measured) = 0.096 mW/g



0 dB = 0.096mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Oct.05, 2011

DUT: P4100; Type: Bar; Serial: #1

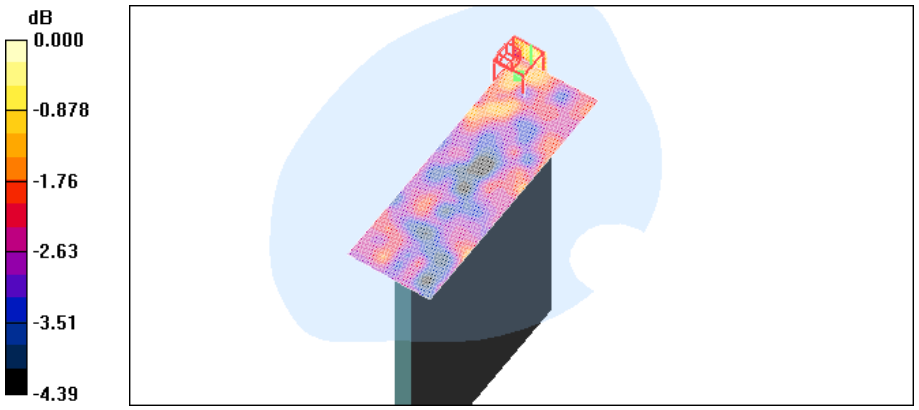
Communication System: WIFI 5GHz; Frequency: 5260 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5260 MHz; σ = 5.3 mho/m; ε_r = 47.5; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(3.83, 3.83, 3.83); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

802.11a Tablet Body 0cm Secondary Portrait 52ch/Area Scan (61x181x1): Measurement grid: dx=10mm, dy=10mm

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

802.11a Tablet Body 0cm Secondary Portrait 52ch/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 2.63 V/m; Power Drift = 0.053 dB
Peak SAR (extrapolated) = 0.084 W/kg
SAR(1 g) = 0.065 mW/g; SAR(10 g) = 0.056 mW/g
Maximum value of SAR (measured) = 0.084 mW/g



0 dB = 0.084mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Oct.05, 2011

DUT: P4100; Type: Bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5520 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5520 MHz; σ = 5.67 mho/m; ε_r = 46.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

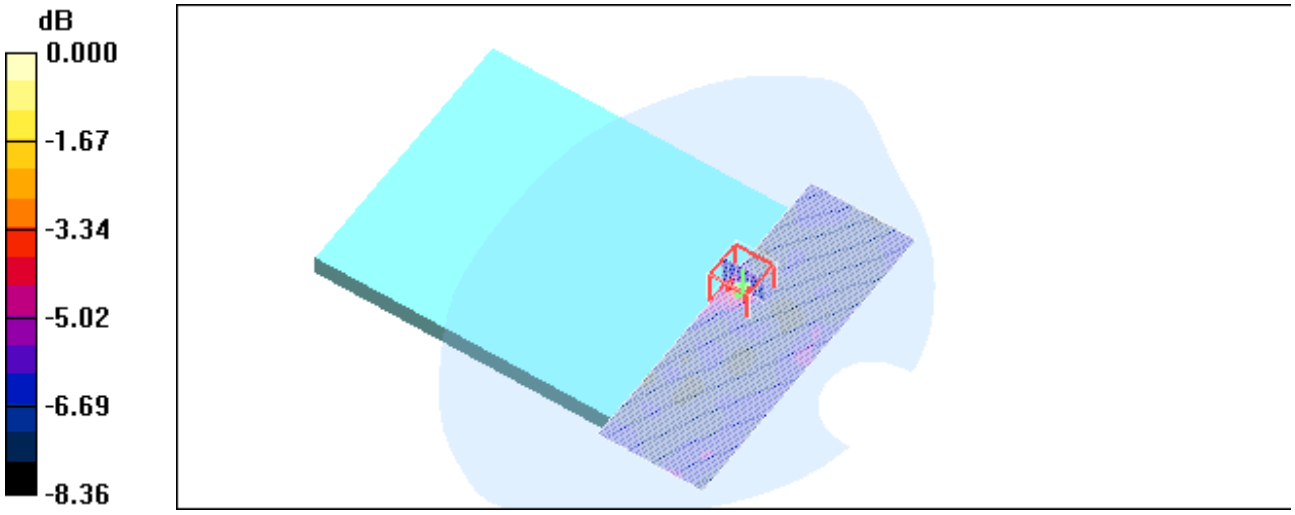
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(3.72, 3.72, 3.72); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

802.11a Tablet Body Rear 104/Area Scan (61x181x1): Measurement grid: dx=10mm, dy=10mm

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

802.11a Tablet Body Rear 104/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 5.28 V/m; Power Drift = 0.060 dB
Peak SAR (extrapolated) = 2.40 W/kg
SAR(1 g) = 0.423 mW/g; SAR(10 g) = 0.218 mW/g

Maximum value of SAR (measured) = 0.748 mW/g



0 dB = 0.748mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Oct.05, 2011

DUT: P4100; Type: Bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5520 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5520 MHz; σ = 5.67 mho/m; ε_r = 46.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

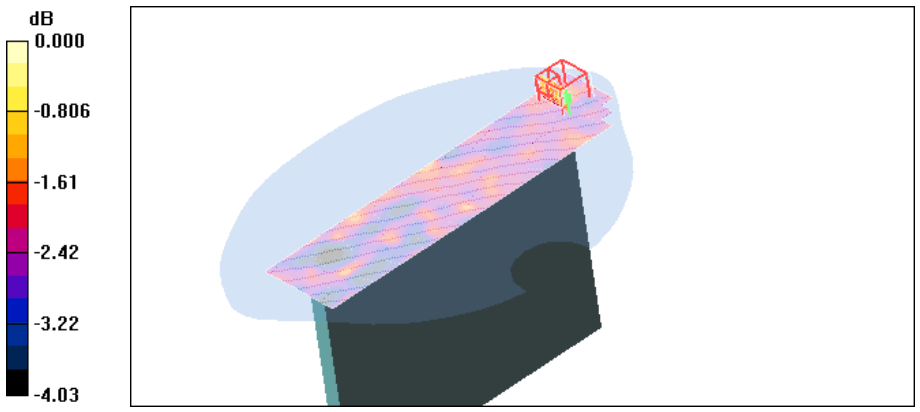
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(3.72, 3.72, 3.72); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

802.11a Tablet Body 0cm Primary Landscape side 104/Area Scan (61x251x1): Measurement grid: dx=10mm, dy=10mm

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

802.11a Tablet Body 0cm Primary Landscape side 104/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 3.24 V/m; Power Drift = 0.047 dB
Peak SAR (extrapolated) = 0.109 W/kg
SAR(1 g) = 0.086 mW/g; SAR(10 g) = 0.075 mW/g

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



0 dB = 0.108mW/g

Test Laboratory: HCT CO., LTD
EUT Type: GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature: 21.2 ℃
Ambient Temperature: 21.4 ℃
Test Date: Oct.05, 2011

DUT: P4100; Type: Bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5520 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5520 MHz; σ = 5.67 mho/m; ε_r = 46.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

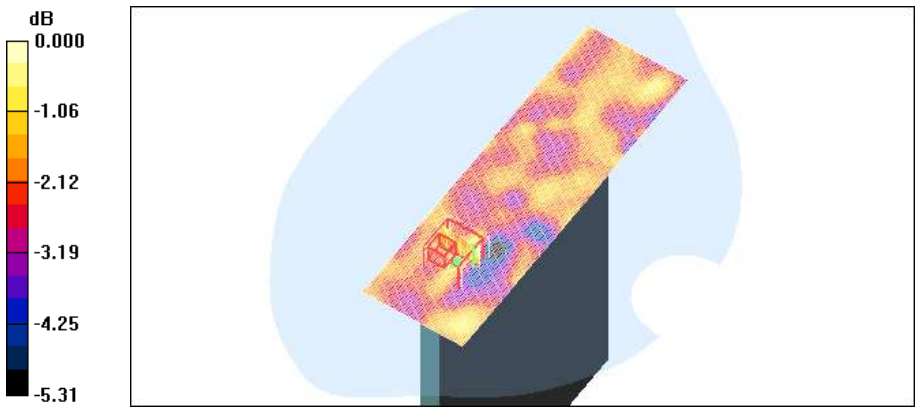
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(3.72, 3.72, 3.72); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

802.11a Tablet Body 0cm Secondary Portrait 104ch/Area Scan (61x201x1): Measurement grid: dx=10mm, dy=10mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.069 mW/g

802.11a Tablet Body 0cm Secondary Portrait 104ch/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 2.95 V/m; Power Drift = 0.022 dB
Peak SAR (extrapolated) = 0.079 W/kg
SAR(1 g) = 0.064 mW/g; SAR(10 g) = 0.052 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
aximum value of SAR (measured) = 0.078 mW/g



0 dB = 0.078mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Oct.05, 2011

DUT: P4100; Type: Bar; Serial: #1

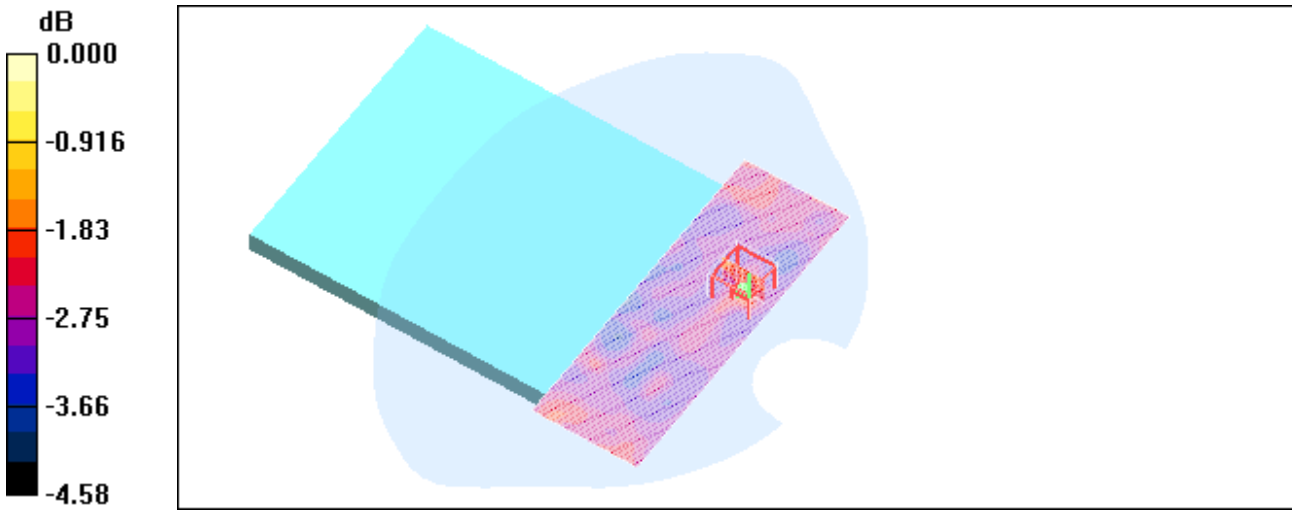
Communication System: WIFI 5GHz; Frequency: 5745 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5745 MHz; σ = 6.03 mho/m; ε_r = 46.3; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(3.75, 3.75, 3.75); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

802.11a Tablet Body Rear 149/Area Scan (61x181x1): Measurement grid: dx=10mm, dy=10mm

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

802.11a Tablet Body Rear 149/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 5.94 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 1.12 W/kg
SAR(1 g) = 0.294 mW/g; SAR(10 g) = 0.239 mW/g
Maximum value of SAR (measured) = 0.394 mW/g



0 dB = 0.394mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Oct.05, 2011

DUT: P4100; Type: Bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5745 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5745 MHz; σ = 6.03 mho/m; ε_r = 46.3; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

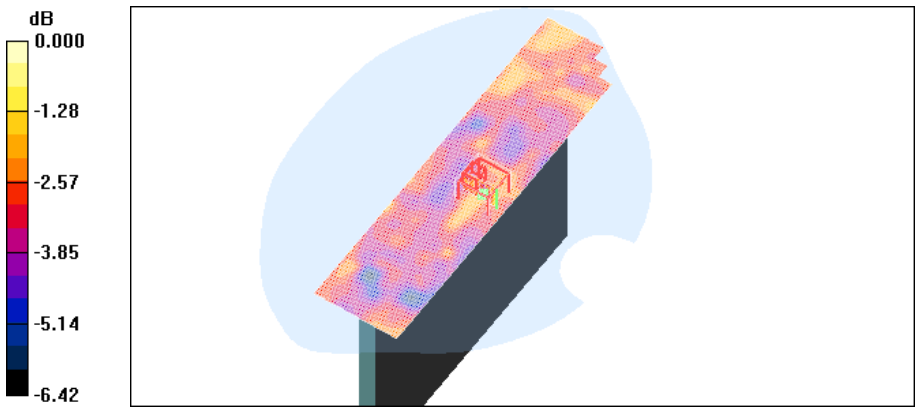
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(3.75, 3.75, 3.75); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

802.11a Tablet Body 0cm Primary Landscape side 149/Area Scan (61x251x1): Measurement grid: dx=10mm, dy=10mm

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

802.11a Tablet Body 0cm Primary Landscape side 149/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 3.06 V/m; Power Drift = -0.03 dB
Peak SAR (extrapolated) = 0.103 W/kg
SAR(1 g) = 0.060 mW/g; SAR(10 g) = 0.052 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
aximum value of SAR (measured) = 0.100 mW/g



0 dB = 0.100mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Oct.05, 2011

DUT: P4100; Type: Bar; Serial: #1

Communication System: WIFI 5GHz; Frequency: 5745 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5745 MHz; σ = 6.03 mho/m; ε_r = 46.3; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

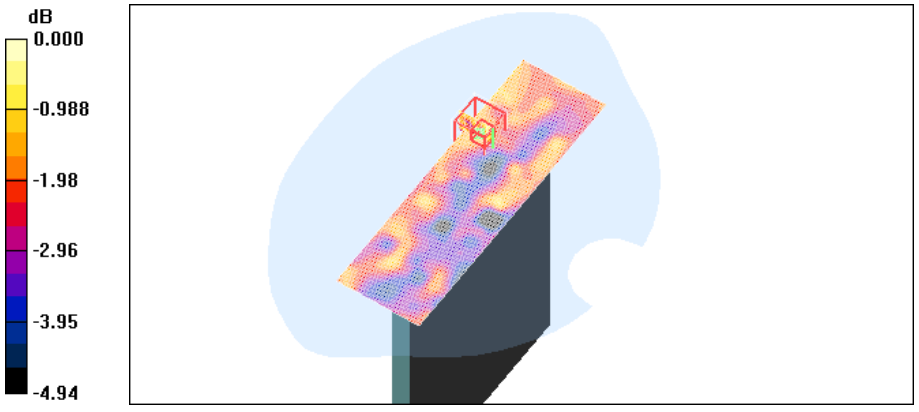
DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(3.75, 3.75, 3.75); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

802.11a Tablet Body 0cm Secondary Portrait 149ch/Area Scan (61x201x1): Measurement grid: dx=10mm, dy=10mm

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

802.11a Tablet Body 0cm Secondary Portrait 149ch/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 2.79 V/m; Power Drift = 0.09 dB
Peak SAR (extrapolated) = 0.083 W/kg
SAR(1 g) = 0.063 mW/g; SAR(10 g) = 0.053 mW/g

Maximum value of SAR (measured) = 0.083 mW/g



0 dB = 0.083mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Aug.29, 2011
Option	Power Sensor on

DUT: P4100; Type: Bar; Serial: #1

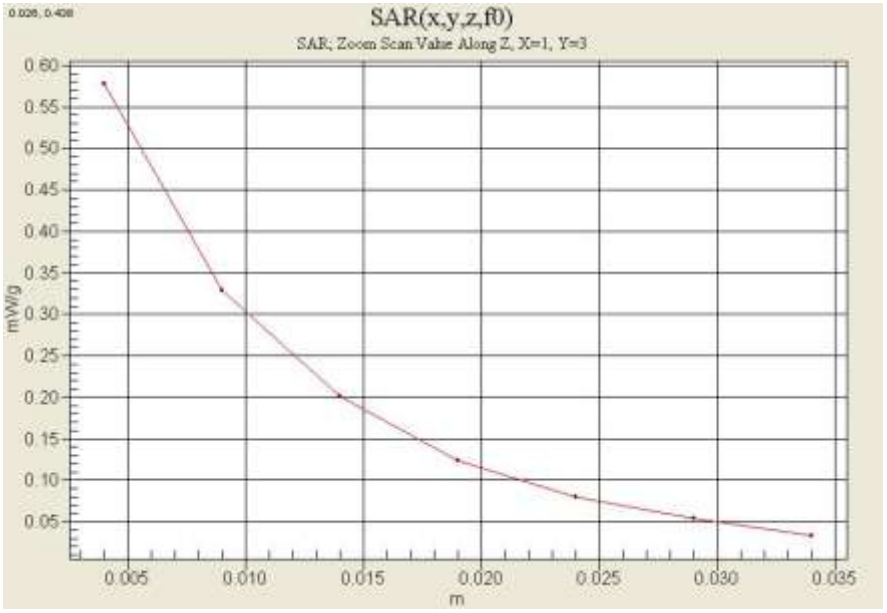
Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:4.15
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.952 mho/m; ε_r = 55.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(6.5, 6.5, 6.5); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

Tablet Body Rear 190/Area Scan (61x121x1): Measurement grid: dx=15mm, dy=15mm

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

Tablet Body Rear 190/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.74 V/m; Power Drift = 0.122 dB
Peak SAR (extrapolated) = 1.01 W/kg
SAR(1 g) = 0.433 mW/g; SAR(10 g) = 0.204 mW/g
Maximum value of SAR (measured) = 0.578 mW/g



Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.30, 2011
Option	Power Sensor off

DUT: P4100; Type: Bar; Serial: #1

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:4.15
Medium parameters used: f = 1880 MHz; σ = 1.46 mho/m; ε_r = 55.3; 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 - SN1798; ConvF(4.63, 4.63, 4.63); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 800/900 Phantom; Type: SAM

Tablet Body Rear 661/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.32 mW/g

Tablet Body Rear 661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 7.48 V/m; Power Drift = -0.04 dB
Peak SAR (extrapolated) = 1.87 W/kg
SAR(1 g) = 1.12 mW/g; SAR(10 g) = 0.610 mW/g
Maximum value of SAR (measured) = 1.25 mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.3 ℃
Ambient Temperature:	21.5 ℃
Test Date:	Aug.29, 2011
Option	Power Sensor on

DUT: P4100; Type: Bar; Serial: #1

Communication System: WCDMA850; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.952 mho/m; ε_r = 55.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

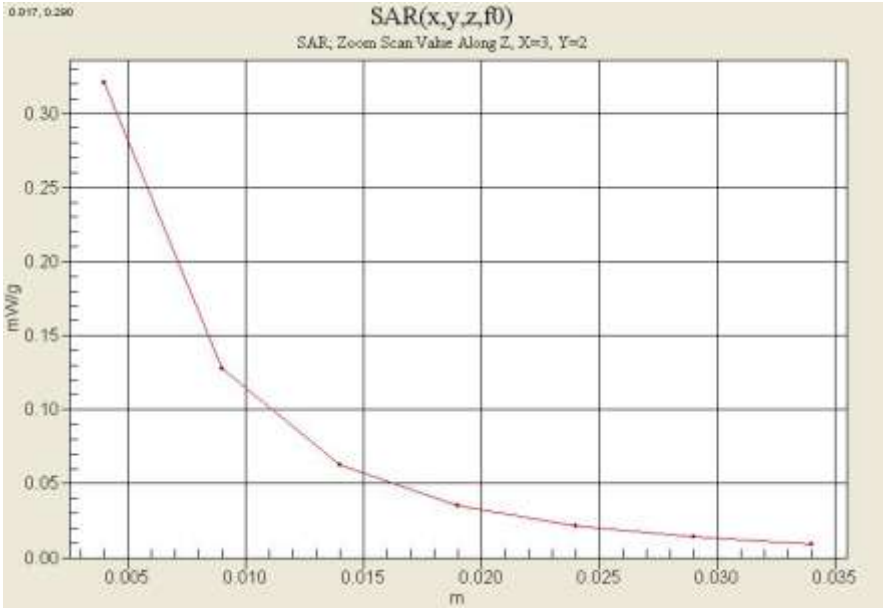
DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(6.5, 6.5, 6.5); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

Tablet Body 0 cm Rear 4183/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.357 mW/g

Tablet Body 0 cm Rear 4183/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.15 V/m; Power Drift = -0.172 dB
Peak SAR (extrapolated) = 0.899 W/kg
SAR(1 g) = 0.325 mW/g; SAR(10 g) = 0.168 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.321 mW/g



Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.30, 2011
Option	Power Sensor on

DUT: P4100; Type: Bar; Serial: #1

Communication System: WCDMA1900; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1880 MHz; σ = 1.46 mho/m; ε_r = 55.3; 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 - SN1798; ConvF(4.63, 4.63, 4.63); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 800/900 Phantom; Type: SAM

Hotspot Body Rear 0 cm 9400/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.56 mW/g

Hotspot Body Rear 0 cm 9400/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.22 V/m; Power Drift = 0.103 dB
Peak SAR (extrapolated) = 2.32 W/kg
SAR(1 g) = 1.14 mW/g; SAR(10 g) = 0.564 mW/g
Maximum value of SAR (measured) = 1.21 mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Sep.30, 2011
Option	Power Sensor on

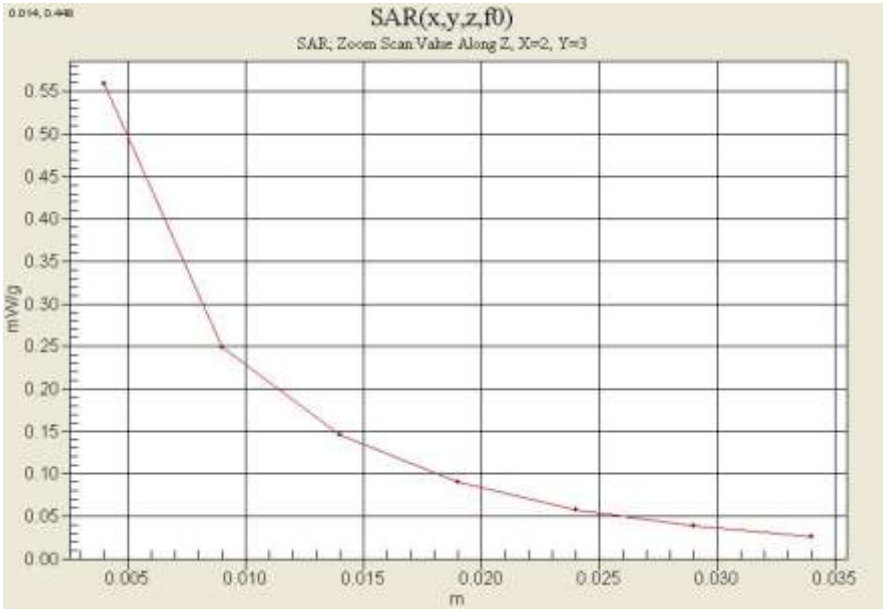
DUT: P4100; Type: Bar; Serial: #1

Communication System: LTE Band 17; Frequency: 710 MHz;Duty Cycle: 1:1
Medium parameters used: f = 710 MHz; σ = 0.933 mho/m; ε_r = 55.3; 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 - SN1798; ConvF(6.79, 6.79, 6.79); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

Tablet Body 0cm Rear 23790 1RB 0 offset QPSK/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.639 mW/g

Tablet Body 0cm Rear 23790 1RB 0 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 14.1 V/m; Power Drift = -0.013 dB
Peak SAR (extrapolated) = 1.92 W/kg
SAR(1 g) = 0.574 mW/g; SAR(10 g) = 0.330 mW/g
maximum value of SAR (measured) = 0.560 mW/g



Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Sep.28, 2011
Option	Power Sensor on

DUT: P4100; Type: Bar; Serial: #1

Communication System: LTE Band 5; Frequency: 836.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 836.5 MHz; σ = 0.951 mho/m; ε_r = 55.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

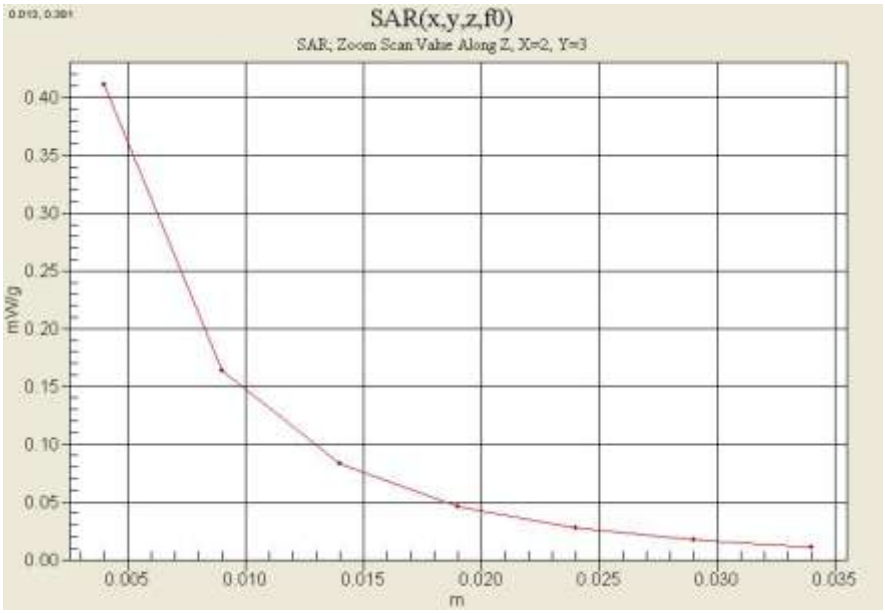
DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(6.5, 6.5, 6.5); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

Tablet Body 0cm Rear 20525 25RB 13 offset QPSK/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.432 mW/g

Tablet Body 0cm Rear 20525 25RB 13 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.86 V/m; Power Drift = 0.171 dB
Peak SAR (extrapolated) = 1.39 W/kg
SAR(1 g) = 0.411 mW/g; SAR(10 g) = 0.202 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.411 mW/g



Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.1 ℃
Ambient Temperature:	21.3 ℃
Test Date:	Sep.29, 2011
Option	Power Sensor on

DUT: P4100; Type: Bar; Serial: #1

Communication System: LTE Band 4; Frequency: 1732.5 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1732.5 MHz; σ = 1.42 mho/m; ε_r = 55.4; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(4.84, 4.84, 4.84); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn479; Calibrated: 2011-08-29
- Phantom: 800/900 Phantom; Type: SAM

Tablet Body Rear 20175 25RB 13 offset QPSK/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.34 mW/g

Tablet Body Rear 20175 25RB 13 offset QPSK/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.64 V/m; Power Drift = 0.107 dB
Peak SAR (extrapolated) = 2.16 W/kg
SAR(1 g) = 1.17 mW/g; SAR(10 g) = 0.609 mW/g

Maximum value of SAR (measured) = 1.27 mW/g

Tablet Body Rear 20175 25RB 13 offset QPSK/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.64 V/m; Power Drift = 0.107 dB
Peak SAR (extrapolated) = 1.55 W/kg
SAR(1 g) = 0.916 mW/g; SAR(10 g) = 0.506 mW/g
aximum value of SAR (measured) = 1.03 mW/g

Test Laboratory:	HCT CO., LTD
EUT Type:	GPRS/EDGE/WCDMA/HSPA/LTE Tablet with Bluetooth and WLAN
Liquid Temperature:	21.2 ℃
Ambient Temperature:	21.4 ℃
Test Date:	Aug.11, 2011

DUT: P4100; Type: Bar; Serial: #1

Communication System: 2450MHz FCC; Frequency: 2437 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2437 MHz; σ = 1.94 mho/m; ε_r = 51.8; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

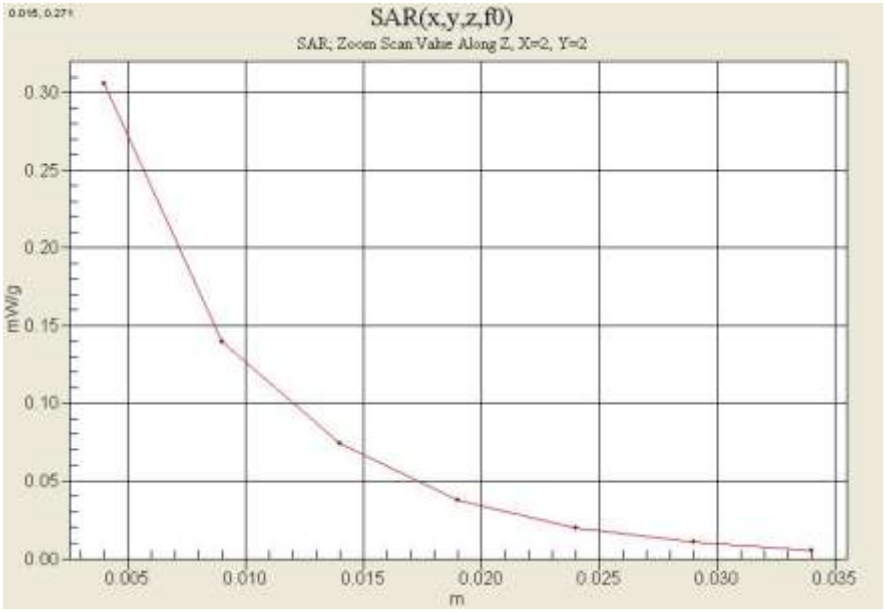
DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(4.21, 4.21, 4.21); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 835/900 Phamtom ; Type: SAM

Tablet Body Rear 6/Area Scan (41x121x1): Measurement grid: dx=15mm, dy=15mm

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

Tablet Body Rear 6/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.13 V/m; Power Drift = 0.172 dB
Peak SAR (extrapolated) = 0.728 W/kg
SAR(1 g) = 0.240 mW/g; SAR(10 g) = 0.089 mW/g

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



Attachment 2. – Dipole Validation Plots

■ Validation Data (750 MHz LTE Body)

Test Laboratory: HCT CO., LTD
Input Power 100 mW (20 dBm)
Liquid Temp: 21.1 ℃
Test Date: Aug.18, 2011

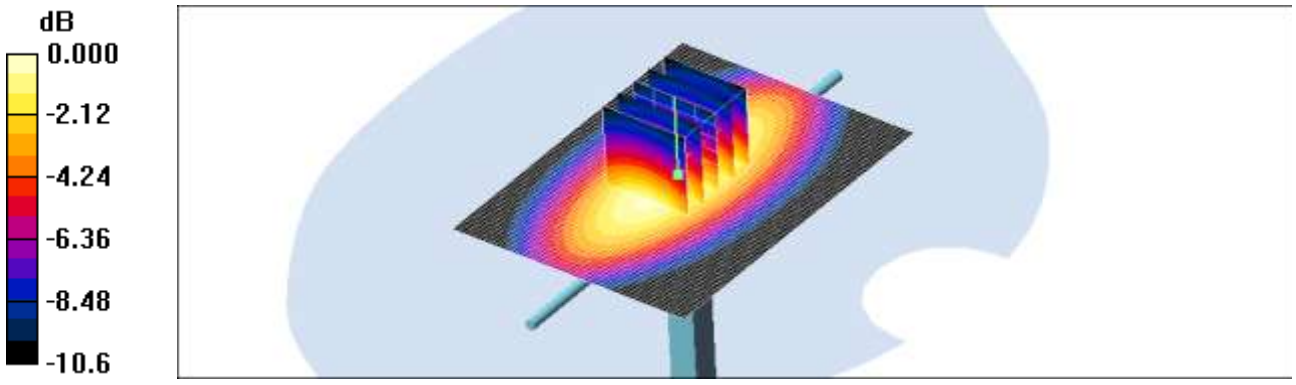
DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 – SN:1014

Communication System: CW; Frequency: 750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 750 MHz; σ = 0.971 mho/m; ε_r = 54.7; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(6.79, 6.79, 6.79); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

Validation 750MHz/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.966 mW/g

Validation 750MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 32.7 V/m; Power Drift = -0.012 dB
Peak SAR (extrapolated) = 1.26 W/kg
SAR(1 g) = 0.889 mW/g; SAR(10 g) = 0.585 mW/g
Maximum value of SAR (measured) = 0.963 mW/g



0 dB = 0.963mW/g

■ Validation Data (750 MHz LTE Body)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.1 ℃

Test Date: Sep.30, 2011

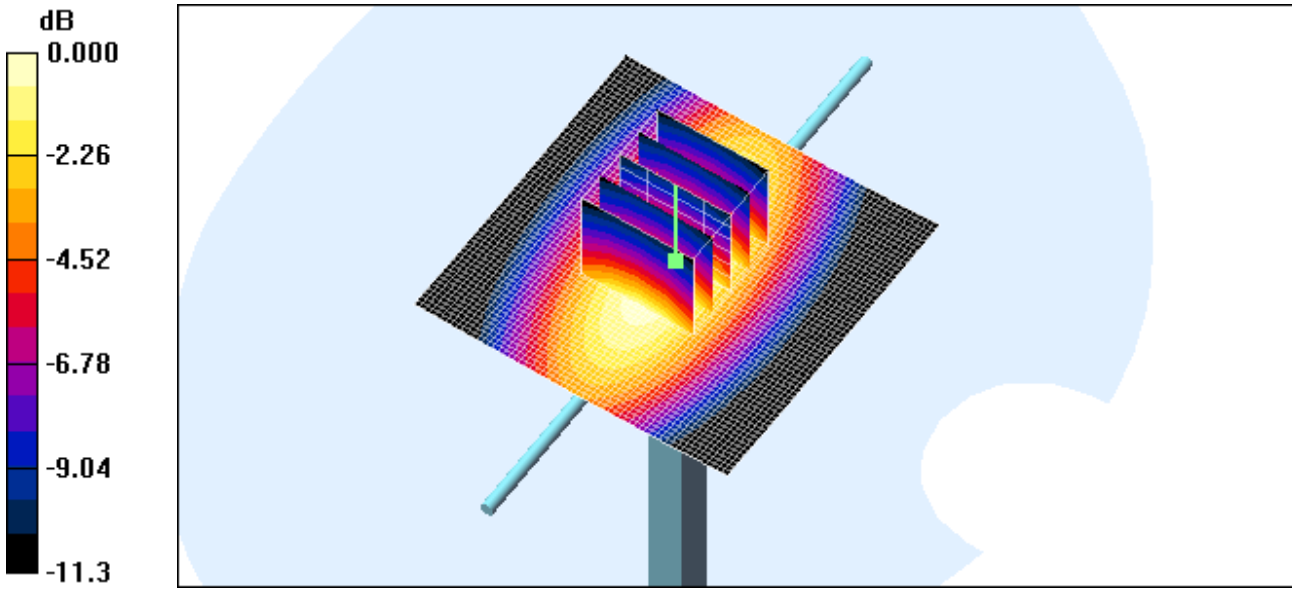
DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 – SN:1014

Communication System: CW; Frequency: 750 MHz;Duty Cycle: 1:1
Medium parameters used: f = 750 MHz; σ = 0.971 mho/m; ε_r = 54.7; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(6.79, 6.79, 6.79); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: SAM 1800/1900 MHz; Type: SAM

Validation 750MHz/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.969 mW/g

Validation 750MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 31.5 V/m; Power Drift = 0.001 dB
Peak SAR (extrapolated) = 1.56 W/kg
SAR(1 g) = 0.897 mW/g; SAR(10 g) = 0.558 mW/g
Maximum value of SAR (measured) = 0.960 mW/g



0 dB = 0.960mW/g

■ Validation Data (835 MHz LTE Body)

Test Laboratory: HCT CO., LTD
Input Power 100 mW (20 dBm)
Liquid Temp: 21.3 ℃
Test Date: Aug.19, 2011

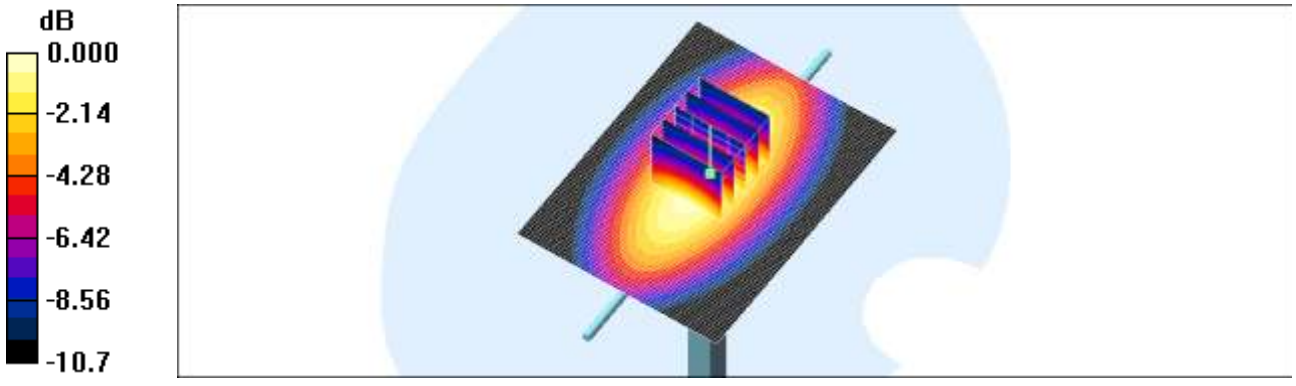
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:441

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.95 mho/m; ε_r = 55.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(6.5, 6.5, 6.5); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: SAM 835/900 MHz; Type: SAM

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

Validation 835 MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 34.5 V/m; Power Drift = -0.026 dB
Peak SAR (extrapolated) = 1.37 W/kg
SAR(1 g) = 0.972 mW/g; SAR(10 g) = 0.641 mW/g
Maximum value of SAR (measured) = 1.05 mW/g



0 dB = 1.05mW/g

■ Validation Data (835 MHz LTE Body)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.3 ℃

Test Date: Sep.28, 2011

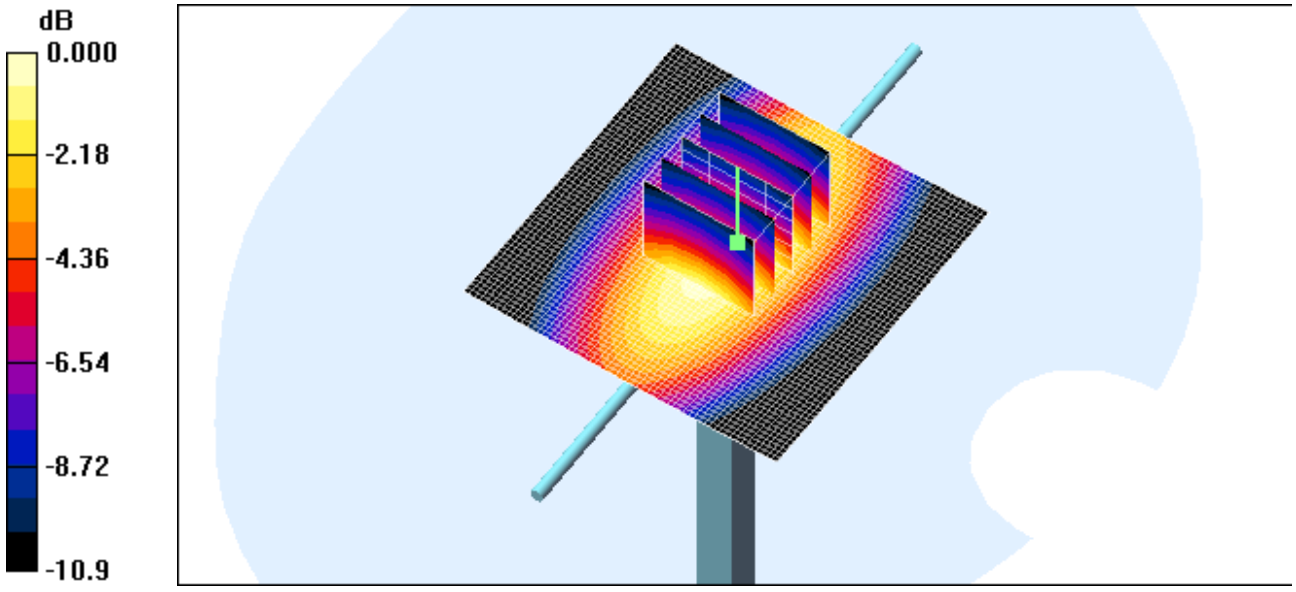
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 – SN:441

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.95 mho/m; ε_r = 55.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(6.5, 6.5, 6.5); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: SAM 1800/1900 MHz; Type: SAM

Validation 835MHz/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.03 mW/g

Validation 835MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 34.6 V/m; Power Drift = -0.042 dB
Peak SAR (extrapolated) = 1.38 W/kg
SAR(1 g) = 0.949 mW/g; SAR(10 g) = 0.612 mW/g
Maximum value of SAR (measured) = 1.04 mW/g



0 dB = 1.04mW/g

■ Validation Data (1 800 MHz LTE Body)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.1 ℃

Test Date: Aug.20, 2011

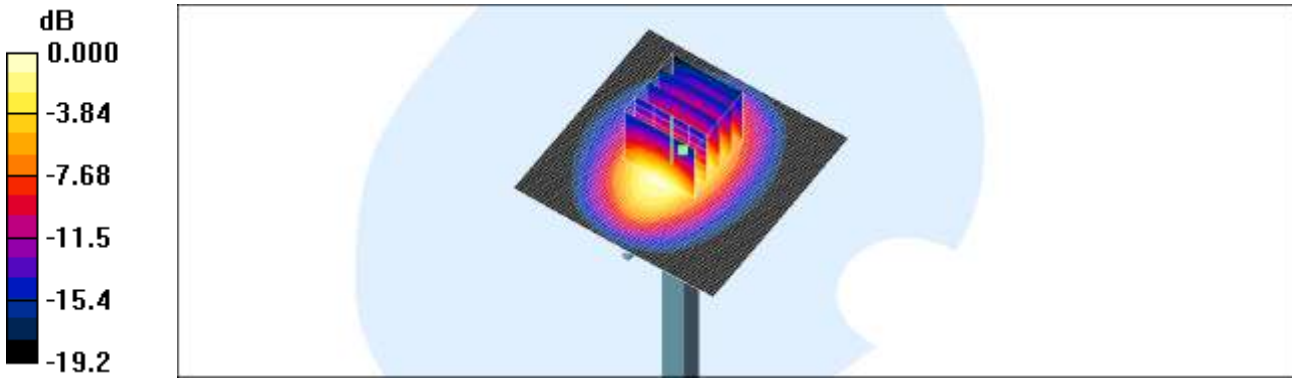
DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 – SN:2d007

Communication System: CW; Frequency: 1800 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1800 MHz; σ = 1.51 mho/m; ε_r = 55.1; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(4.84, 4.84, 4.84); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: SAM 1800/1900 MHz; Type: SAM

Dipole 1800MHz Validation/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 4.54 mW/g

Dipole 1800MHz Validation/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 57.2 V/m; Power Drift = -0.039 dB
Peak SAR (extrapolated) = 6.48 W/kg
SAR(1 g) = 3.86 mW/g; SAR(10 g) = 2.04 mW/g
Maximum value of SAR (measured) = 4.32 mW/g



0 dB = 4.32mW/g

■ Validation Data (1 800 MHz LTE Body)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.1 ℃

Test Date: Sep.29, 2011

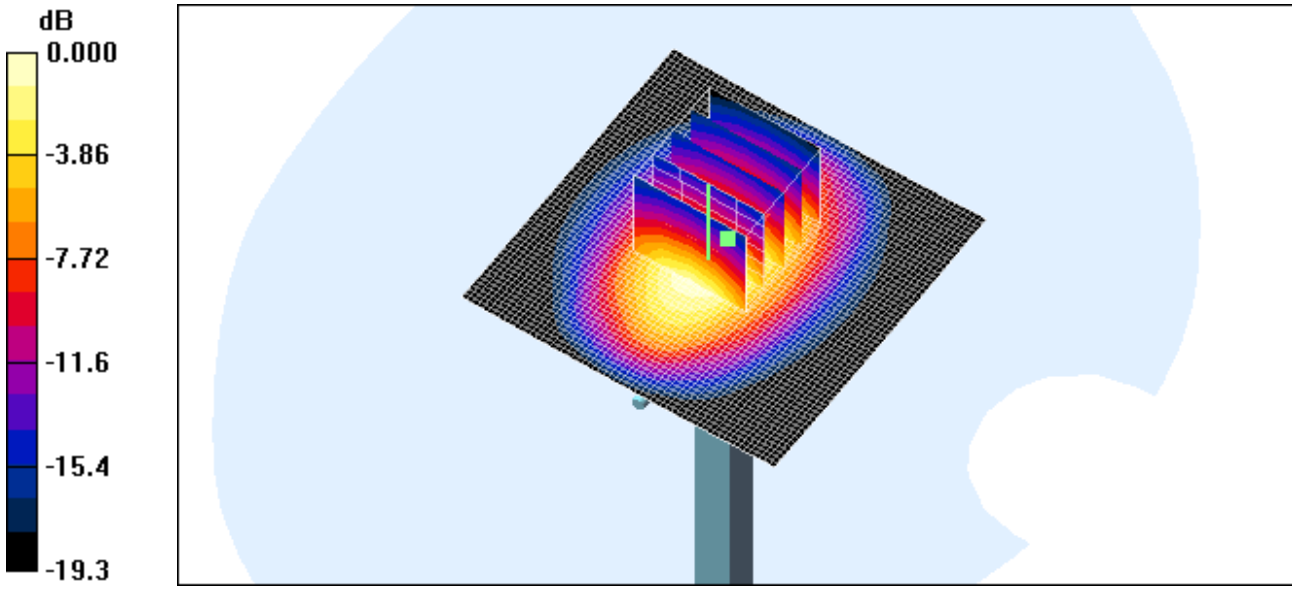
DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 – SN:2d007

Communication System: CW; Frequency: 1800 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1800 MHz; σ = 1.49 mho/m; ε_r = 55; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(4.84, 4.84, 4.84); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: SAM 1800/1900 MHz; Type: SAM

Dipole 1800MHz Validation/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 4.42 mW/g

Dipole 1800MHz Validation/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 56.3 V/m; Power Drift = -0.031 dB
Peak SAR (extrapolated) = 6.23 W/kg
SAR(1 g) = 3.72 mW/g; SAR(10 g) = 1.96 mW/g
Maximum value of SAR (measured) = 4.17 mW/g



0 dB = 4.17mW/g

■ Validation Data (835 MHz Body)

Test Laboratory: HCT CO., LTD
Input Power 100 mW (20 dBm)
Liquid Temp: 21.3 ℃
Test Date: Aug.29, 2011

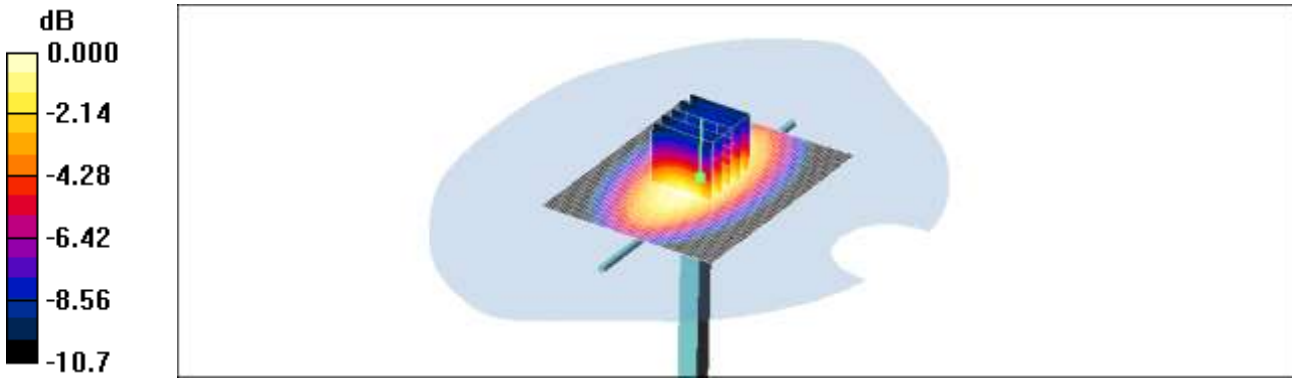
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:441

Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.951 mho/m; ε_r = 55.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: ET3DV6 - SN1798; ConvF(6.5, 6.5, 6.5); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: SAM 835/900 MHz; Type: SAM

Validation 835 MHz/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.05 mW/g

Validation 835 MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 34.5 V/m; Power Drift = -0.026 dB
Peak SAR (extrapolated) = 1.37 W/kg
SAR(1 g) = 0.973 mW/g; SAR(10 g) = 0.641 mW/g
Maximum value of SAR (measured) = 1.05 mW/g



0 dB = 1.05mW/g

■ Validation Data (1 900 MHz Body)

Test Laboratory: HCT CO., LTD
Input Power 100 mW (20 dBm)
Liquid Temp: 21.2 ℃
Test Date: Aug.30, 2011

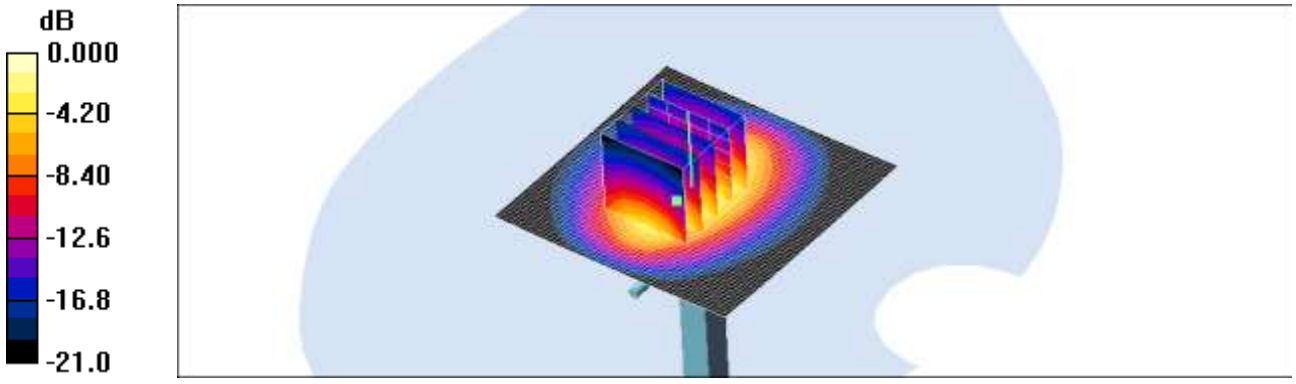
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 – SN:5d032

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.48 mho/m; ε_r = 55.3; 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 - SN1798; ConvF(4.63, 4.63, 4.63); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: SAM 1800/1900 MHz; Type: SAM

Dipole 1900MHz Validation/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 4.96 mW/g

Dipole 1900MHz Validation/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 59.2 V/m; Power Drift = -0.026 dB
Peak SAR (extrapolated) = 7.56 W/kg
SAR(1 g) = 4.25 mW/g; SAR(10 g) = 2.17 mW/g
Maximum value of SAR (measured) = 4.80 mW/g



0 dB = 4.80mW/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.11, 2011

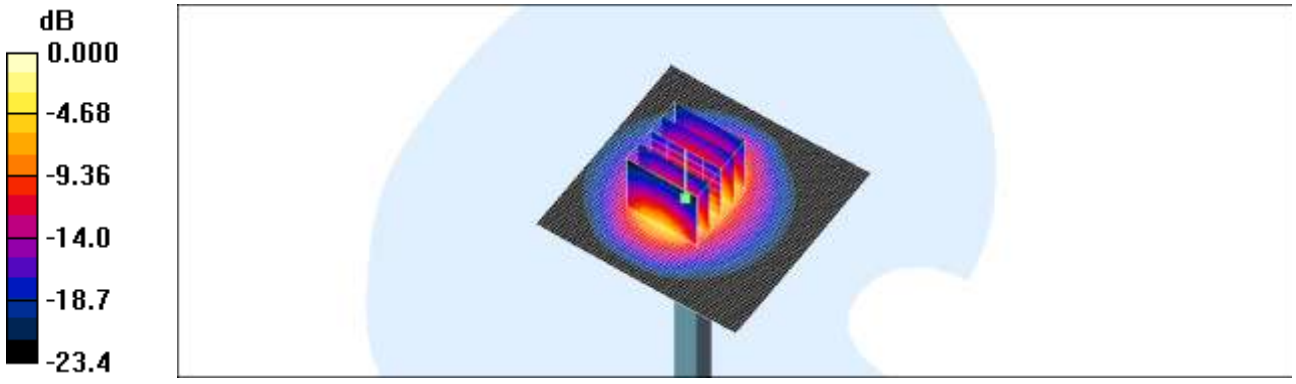
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 – SN:743

Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.96 mho/m; ε_r = 51.8; 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 - SN1798; ConvF(4.21, 4.21, 4.21); Calibrated: 2011-04-14
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: SAM 1800/1900 MHz; Type: SAM

Validation 2450MHz/Area Scan (61x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 6.15 mW/g

Validation 2450MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 54.7 V/m; Power Drift = -0.036 dB
Peak SAR (extrapolated) = 13.3 W/kg
SAR(1 g) = 5.17 mW/g; SAR(10 g) = 2.32 mW/g
Maximum value of SAR (measured) = 5.54 mW/g



0 dB = 5.54mW/g

■ Validation Data (5200 MHz Body)

Test Laboratory: HCT CO., LTD
Input Power 100 mW (20 dBm)
Liquid Temp: 21.2 ℃
Test Date: Oct.05, 2011

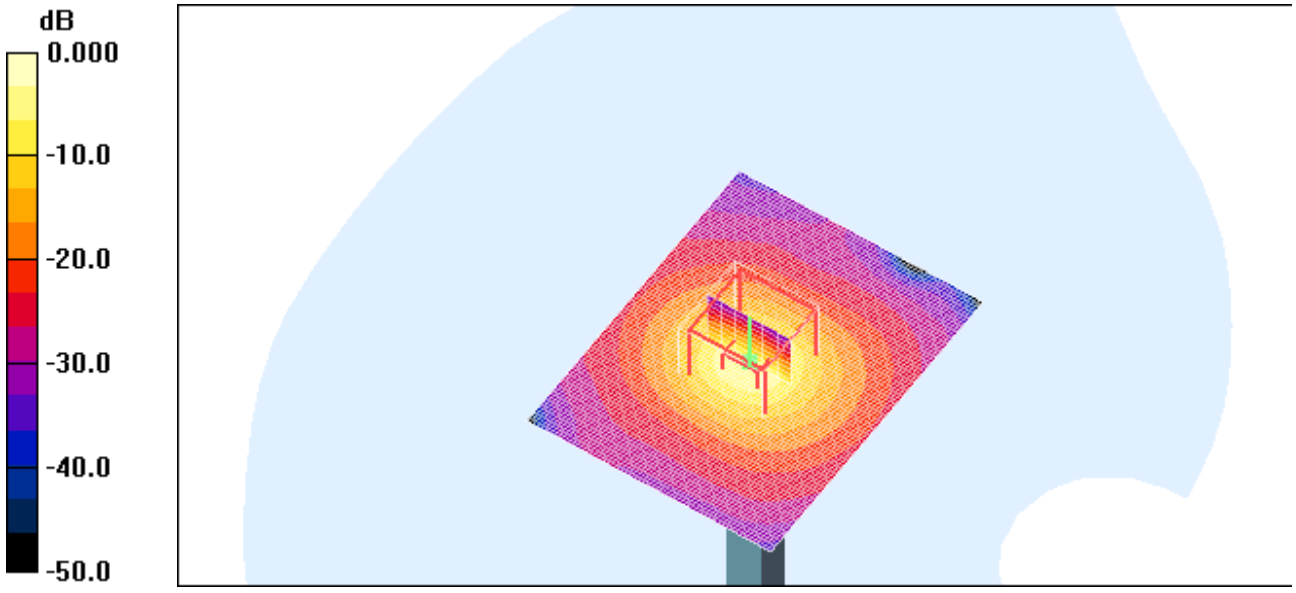
DUT: Dipole 5GHz; Type: D5000V2; Serial: D5000V2 – SN:1099

Communication System: CW; Frequency: 5200 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5200 MHz; σ = 5.17 mho/m; ε_r = 47.6; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(4.1, 4.1, 4.1); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

Validation 5200MHz/Area Scan (71x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 8.37 mW/g

Validation 5200MHz/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 41.3 V/m; Power Drift = 0.020 dB
Peak SAR (extrapolated) = 35.1 W/kg
SAR(1 g) = 7.8 mW/g; SAR(10 g) = 2.15 mW/g
Maximum value of SAR (measured) = 16.6 mW/g



0 dB = 16.6mW/g

■ Validation Data (5500 MHz Body)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.2 ℃

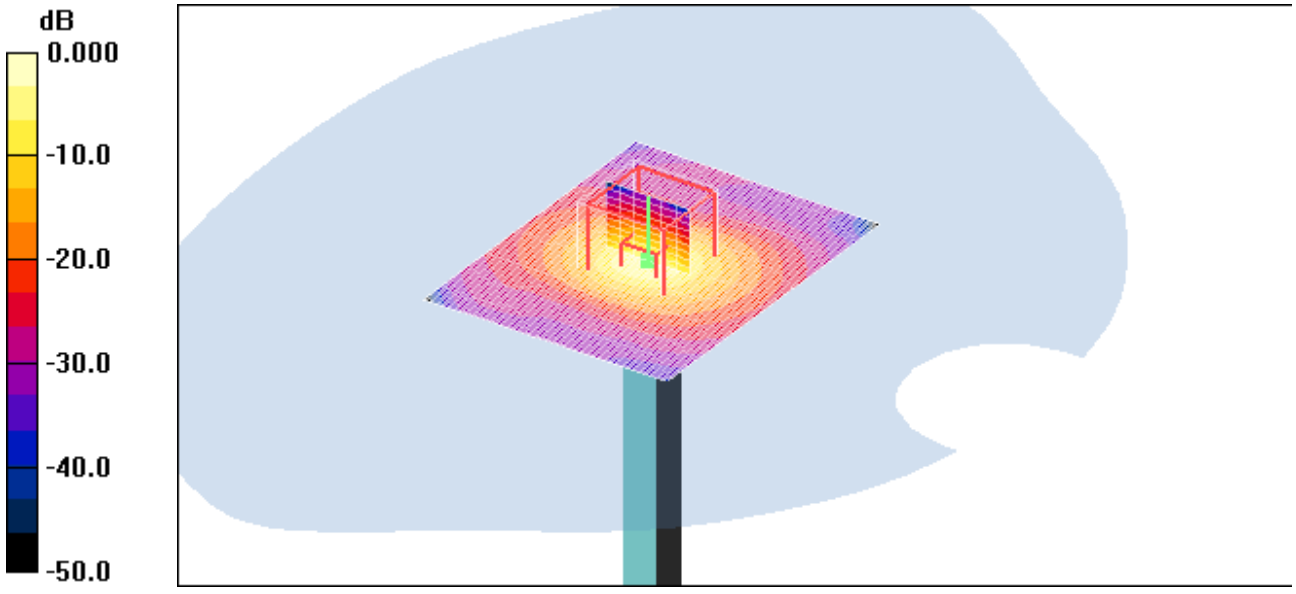
Test Date: Oct.05, 2011

DUT: Dipole 5GHz; Type: D5000V2; Serial: D5000V2 – SN:1099

Communication System: CW; Frequency: 5500 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5500 MHz; σ = 5.68 mho/m; ε_r = 46.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(3.72, 3.72, 3.72); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

Validation 5500MHz/Area Scan (71x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 8.66 mW/g
Validation 5500MHz/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 40.6 V/m; Power Drift = -0.010 dB
Peak SAR (extrapolated) = 38.0 W/kg
SAR(1 g) = 8.12 mW/g; SAR(10 g) = 2.24 mW/g
Maximum value of SAR (measured) = 17.4 mW/g



0 dB = 17.4mW/g

■ Validation Data (5800 MHz Body)

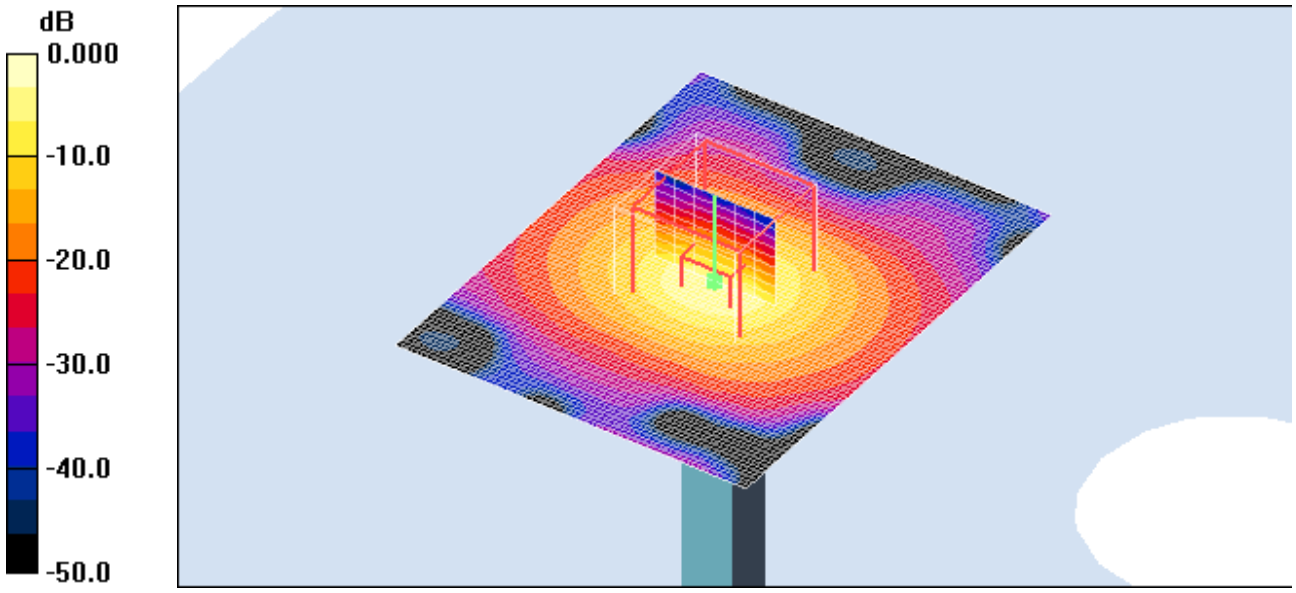
Test Laboratory: HCT CO., LTD
Input Power 100 mW (20 dBm)
Liquid Temp: 21.2 ℃
Test Date: Oct.05, 2011

DUT: Dipole 5GHz; Type: D5000V2; Serial: D5000V2 – SN:1099

Communication System: CW; Frequency: 5800 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5800 MHz; σ = 5.98 mho/m; ε_r = 46.3; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(3.75, 3.75, 3.75); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

Validation 5800MHz/Area Scan (71x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 7.54 mW/g
Validation 5800MHz/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 36.8 V/m; Power Drift = 0.087 dB
Peak SAR (extrapolated) = 34.8 W/kg
SAR(1 g) = 7.36 mW/g; SAR(10 g) = 2.09 mW/g
Maximum value of SAR (measured) = 15.2 mW/g



0 dB = 15.2mW/g

■ Validation Data (5200 MHz Body)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.2 ℃

Test Date: Oct.05, 2011

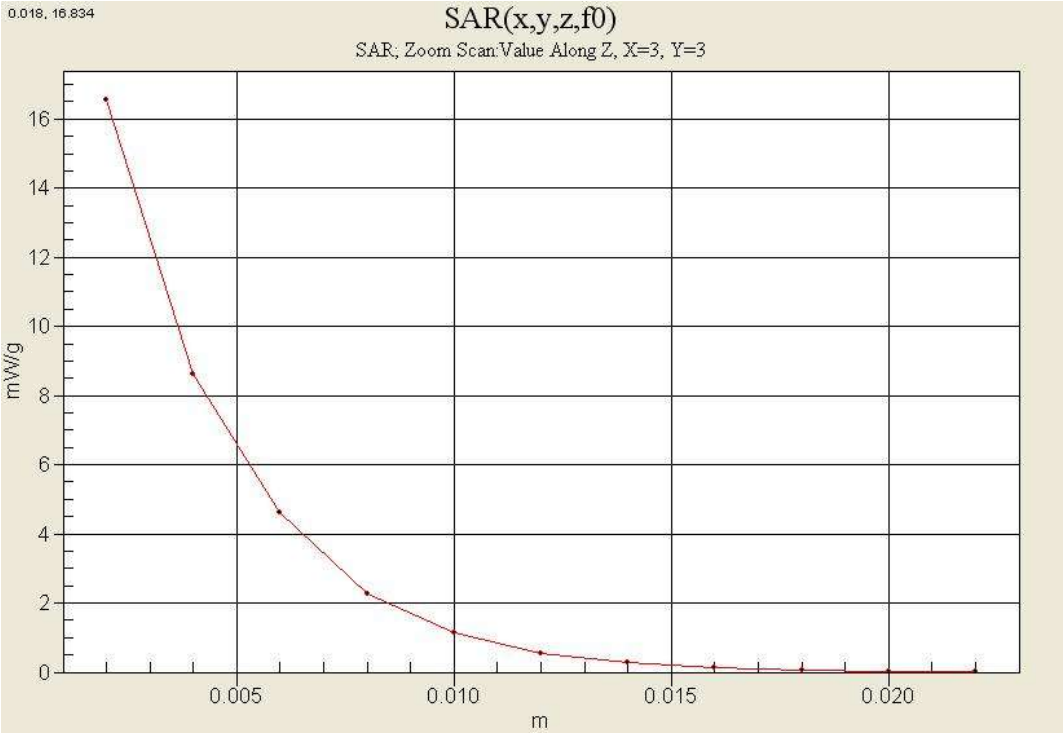
DUT: Dipole 5GHz; Type: D5000V2; Serial: D5000V2 – SN:1099

Communication System: CW; Frequency: 5200 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5200 MHz; σ = 5.17 mho/m; ε_r = 47.6; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: EX3DV4 – SN3797; ConvF(4.1, 4.1, 4.1); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

Validation 5200MHz/Area Scan (71x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 8.37 mW/g

Validation 5200MHz/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 41.3 V/m; Power Drift = 0.020 dB
Peak SAR (extrapolated) = 35.1 W/kg
SAR(1 g) = 7.8 mW/g; SAR(10 g) = 2.15 mW/g
Maximum value of SAR (measured) = 16.6 mW/g



■ Validation Data (5500 MHz Body)

Test Laboratory: HCT CO., LTD

Input Power 100 mW (20 dBm)

Liquid Temp: 21.2 ℃

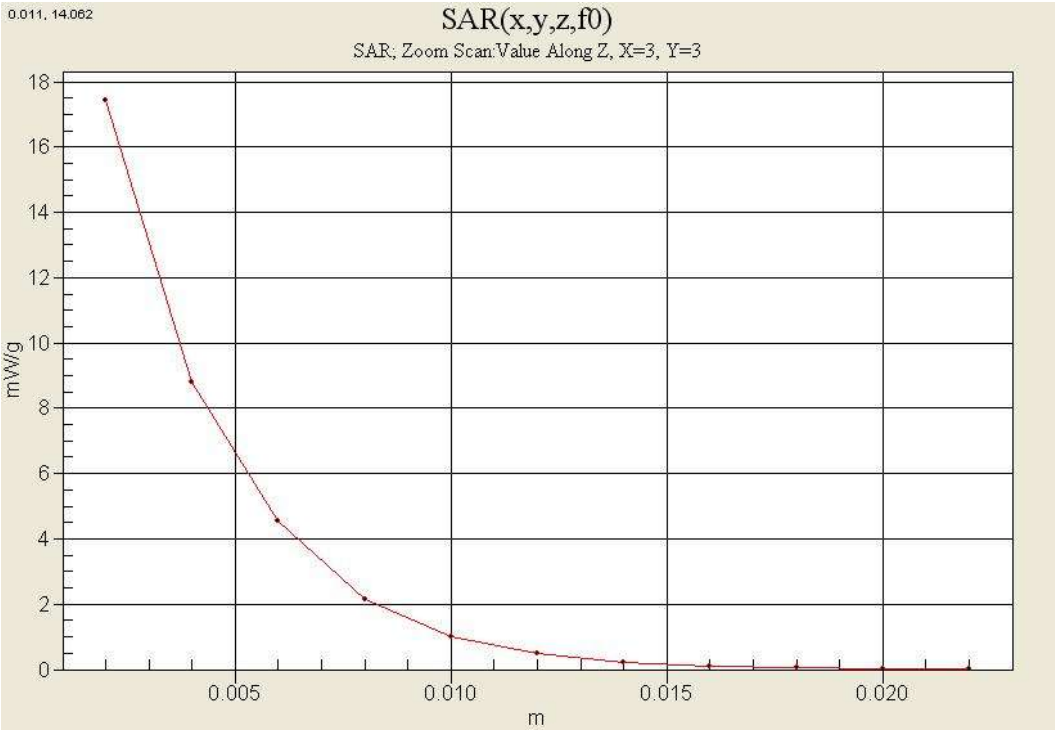
Test Date: Oct.05, 2011

DUT: Dipole 5GHz; Type: D5000V2; Serial: D5000V2 – SN:1099

Communication System: CW; Frequency: 5500 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5500 MHz; σ = 5.68 mho/m; ε_r = 46.9; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: EX3DV4 - SN3797; ConvF(3.72, 3.72, 3.72); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

Validation 5500MHz/Area Scan (71x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 8.66 mW/g
Validation 5500MHz/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 40.6 V/m; Power Drift = -0.010 dB
Peak SAR (extrapolated) = 38.0 W/kg
SAR(1 g) = 8.12 mW/g; SAR(10 g) = 2.24 mW/g
Maximum value of SAR (measured) = 17.4 mW/g



■ Validation Data (5800 MHz Body)

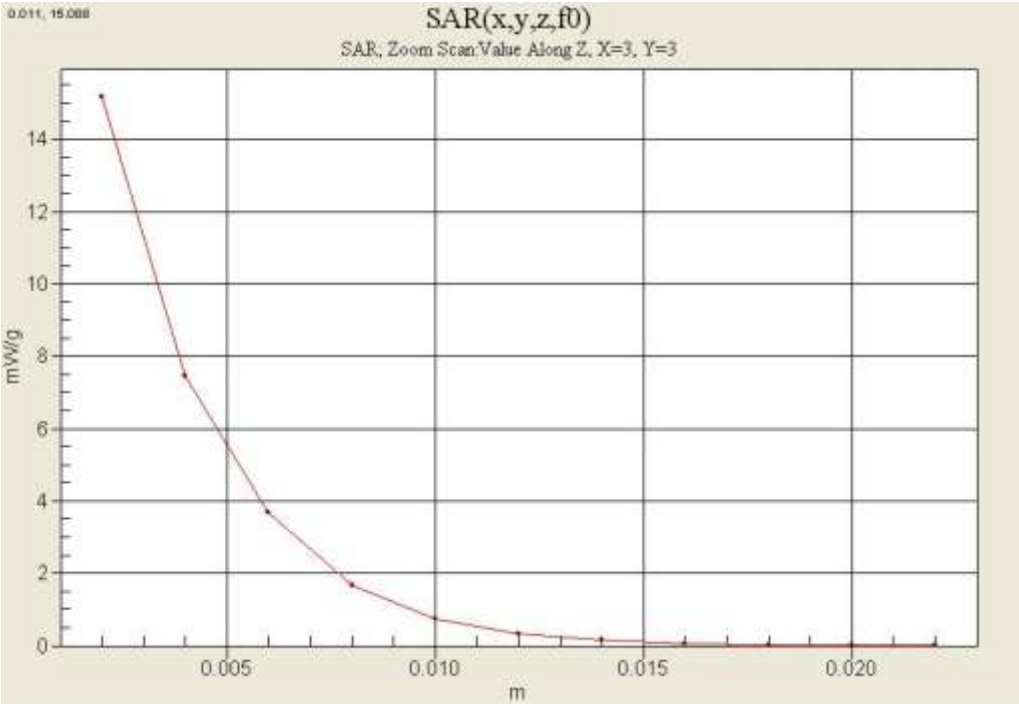
Test Laboratory: HCT CO., LTD
Input Power 100 mW (20 dBm)
Liquid Temp: 21.2 ℃
Test Date: Oct.05, 2011

DUT: Dipole 5GHz; Type: D5000V2; Serial: D5000V2 – SN:1099

Communication System: CW; Frequency: 5800 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5800 MHz; σ = 5.98 mho/m; ε_r = 46.3; ρ = 1000 kg/m^3
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
- Probe: EX3DV4 – SN3797; ConvF(3.75, 3.75, 3.75); Calibrated: 2011-07-25
- Sensor-Surface: 4mm (Mechanical Surface Detection)Sensor-Surface: 2mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn466; Calibrated: 2011-03-01
- Phantom: 1800/1900 Phantom; Type: SAM

Validation 5800MHz/Area Scan (71x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 7.54 mW/g
Validation 5800MHz/Zoom Scan (7x7x11)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=2mm
Reference Value = 36.8 V/m; Power Drift = 0.087 dB
Peak SAR (extrapolated) = 34.8 W/kg
SAR(1 g) = 7.36 mW/g; SAR(10 g) = 2.09 mW/g
Maximum value of SAR (measured) = 15.2 mW/g



■ Dielectric Parameter (750 MHz Body)-LTE

Title	P4100
SubTitle	750MHz
Test Date	Aug.18, 2011

Frequency	e'	e''
700000000.0000	55.4561	23.6992
705000000.0000	55.3507	23.6617
710000000.0000	55.2792	23.6457
715000000.0000	55.2116	23.5975
720000000.0000	55.1341	23.5531
725000000.0000	55.0560	23.5407
730000000.0000	54.9615	23.4537
735000000.0000	54.8848	23.4174
740000000.0000	54.8299	23.3685
745000000.0000	54.7706	23.3398
750000000.0000	54.7381	23.2785
755000000.0000	54.6307	23.2608
760000000.0000	54.5466	23.2179
765000000.0000	54.5280	23.1180
770000000.0000	54.3825	23.0619
775000000.0000	54.3432	23.0181
780000000.0000	54.2790	23.0183
785000000.0000	54.2675	22.9307
790000000.0000	54.1326	22.9211
795000000.0000	54.0132	22.8838
800000000.0000	53.9882	22.8490

■ Dielectric Parameter (750 MHz Body)-LTE

Title	P4100
SubTitle	750MHz
Test Date	Sep.30, 2011

Frequency	e'	e''
700000000.0000	55.4561	23.6992
705000000.0000	55.3507	23.6617
710000000.0000	55.3254	23.6122
715000000.0000	55.2212	23.5882
720000000.0000	55.1665	23.5178
725000000.0000	55.0620	23.5016
730000000.0000	54.9989	23.4169
735000000.0000	54.9370	23.3513
740000000.0000	54.7952	23.3371
745000000.0000	54.7907	23.3454
750000000.0000	54.7036	23.2658
755000000.0000	54.6631	23.2860
760000000.0000	54.5125	23.2233
765000000.0000	54.4941	23.1234
770000000.0000	54.4305	23.0812
775000000.0000	54.3365	23.0675
780000000.0000	54.2751	22.9728
785000000.0000	54.2610	22.9795
790000000.0000	54.2162	22.9618
795000000.0000	54.0928	22.9139
800000000.0000	54.0117	22.8178

■ Dielectric Parameter (835 MHz Body)-LTE

Title	P4100
SubTitle	835MHz
Test Date	Aug.19, 2011

Frequency	e'	e''
800000000.0000	56.3045	20.6782
805000000.0000	56.2523	20.6289
810000000.0000	56.1923	20.5798
815000000.0000	56.1178	20.5437
820000000.0000	56.0714	20.5067
825000000.0000	56.0270	20.4962
830000000.0000	55.9631	20.4967
835000000.0000	55.9479	20.4440
840000000.0000	55.8880	20.4384
845000000.0000	55.8223	20.4276
850000000.0000	55.7768	20.4105
855000000.0000	55.7311	20.3983
860000000.0000	55.6831	20.3877
865000000.0000	55.6619	20.4063
870000000.0000	55.6228	20.4218
875000000.0000	55.5977	20.4206
880000000.0000	55.5521	20.4270
885000000.0000	55.5310	20.4282
890000000.0000	55.5321	20.3904
895000000.0000	55.5016	20.3712
900000000.0000	55.4529	20.3412

■ Dielectric Parameter (835 MHz Body)-LTE

Title	P4100
SubTitle	835MHz
Test Date	Sep.28, 2011

Frequency	e'	e''
800000000.0000	56.2897	20.6676
805000000.0000	56.2633	20.6322
810000000.0000	56.2027	20.5651
815000000.0000	56.0925	20.5390
820000000.0000	56.0508	20.5359
825000000.0000	56.0229	20.4804
830000000.0000	55.9675	20.4718
835000000.0000	55.9250	20.4430
840000000.0000	55.8842	20.4316
845000000.0000	55.8329	20.4307
850000000.0000	55.7738	20.4211
855000000.0000	55.7285	20.4175
860000000.0000	55.6982	20.4145
865000000.0000	55.6424	20.3952
870000000.0000	55.6105	20.4156
875000000.0000	55.6025	20.4442
880000000.0000	55.5577	20.4064
885000000.0000	55.5273	20.4216
890000000.0000	55.4969	20.4195
895000000.0000	55.5015	20.3712
900000000.0000	55.4529	20.3412

■ Dielectric Parameter (1 750 MHz Body)-LTE

Title	P4100
SubTitle	1 750MHz
Test Date	Aug.20, 2011

Frequency	e'	e''
1700000000.0000	55.3064	15.0548
1710000000.0000	55.2889	15.0478
1720000000.0000	55.2739	15.0466
1730000000.0000	55.2600	15.0410
1740000000.0000	55.2480	15.0377
1750000000.0000	55.2289	15.0332
1760000000.0000	55.2038	15.0342
1770000000.0000	55.1888	15.0053
1780000000.0000	55.1477	15.0319
1790000000.0000	55.1307	15.0500
1800000000.0000	55.0997	15.0650
1810000000.0000	55.0762	15.0745
1820000000.0000	55.0635	15.0865
1830000000.0000	55.0411	15.1099
1840000000.0000	55.0229	15.1115
1850000000.0000	55.0088	15.1082
1860000000.0000	54.9870	15.1094
1870000000.0000	54.9512	15.1165
1880000000.0000	54.9413	15.1106
1890000000.0000	54.9026	15.1124
1900000000.0000	54.8719	15.1204

■ Dielectric Parameter (1 750 MHz Body)-LTE

Title	P4100
SubTitle	1 750MHz
Test Date	Sep.29, 2011

Frequency	e'	e''
1700000000.0000	55.4190	14.6261
1710000000.0000	55.4208	14.6482
1720000000.0000	55.3943	14.7056
1730000000.0000	55.3767	14.7440
1740000000.0000	55.2804	14.7940
1750000000.0000	55.3017	14.7760
1760000000.0000	55.2580	14.8114
1770000000.0000	55.2115	14.8496
1780000000.0000	55.1626	14.8486
1790000000.0000	55.0713	14.8824
1800000000.0000	55.0023	14.9007
1810000000.0000	54.9438	14.9367
1820000000.0000	54.9074	14.9985
1830000000.0000	54.8619	15.0312
1840000000.0000	54.8358	15.1031
1850000000.0000	54.8492	15.1538
1860000000.0000	54.8348	15.1964
1870000000.0000	54.8169	15.2047
1880000000.0000	54.7814	15.2524
1890000000.0000	54.7656	15.2667
1900000000.0000	54.6988	15.2847

■ Dielectric Parameter (835 MHz Body)-GPRS/WCDMA

Title	P4100
SubTitle	835MHz
Test Date	Aug.29, 2011

Frequency	e'	e''
800000000.0000	56.2708	20.6316
805000000.0000	56.2014	20.6192
810000000.0000	56.1738	20.5622
815000000.0000	56.0925	20.5390
820000000.0000	56.0484	20.5145
825000000.0000	56.0334	20.4747
830000000.0000	55.9517	20.4759
835000000.0000	55.9222	20.4625
840000000.0000	55.8636	20.4429
845000000.0000	55.8254	20.4170
850000000.0000	55.7769	20.4105
855000000.0000	55.7431	20.3960
860000000.0000	55.6607	20.3870
865000000.0000	55.6263	20.3823
870000000.0000	55.6068	20.3781
875000000.0000	55.5647	20.3782
880000000.0000	55.5050	20.3754
885000000.0000	55.4737	20.3741
890000000.0000	55.4684	20.3405
895000000.0000	55.4377	20.2915
900000000.0000	55.3852	20.2773

■ Dielectric Parameter (1 900 MHz Body)- GPRS/WCDMA

Title	P4100
SubTitle	1 900MHz
Test Date	Aug.30, 2011

Frequency	e'	e''
1850000000.0000	55.3960	13.8925
1855000000.0000	55.3712	13.9114
1860000000.0000	55.3664	13.8987
1865000000.0000	55.3345	13.9122
1870000000.0000	55.3173	13.9290
1875000000.0000	55.3106	13.9464
1880000000.0000	55.2942	13.9627
1885000000.0000	55.2923	13.9821
1890000000.0000	55.2869	13.9988
1895000000.0000	55.2906	14.0098
1900000000.0000	55.2758	14.0252
1905000000.0000	55.2727	14.0525
1910000000.0000	55.2756	14.0615
1915000000.0000	55.2667	14.0683
1920000000.0000	55.2590	14.0646
1925000000.0000	55.2571	14.0693
1930000000.0000	55.2594	14.0761
1935000000.0000	55.2300	14.0743
1940000000.0000	55.2268	14.0822
1945000000.0000	55.2073	14.0644
1950000000.0000	55.1852	14.0604

■ Dielectric Parameter (2 450 MHz Body)

Title	P4100
SubTitle	2 450MHz
Test Date	Aug.11, 2011

Frequency	e'	e''
2400000000.0000	52.1146	14.0238
2405000000.0000	52.0933	14.0608
2410000000.0000	52.0329	14.1022
2415000000.0000	51.9888	14.1232
2420000000.0000	51.9350	14.1719
2425000000.0000	51.9046	14.1913
2430000000.0000	51.8873	14.2207
2435000000.0000	51.8369	14.2622
2440000000.0000	51.8271	14.2939
2445000000.0000	51.7900	14.3304
2450000000.0000	51.7618	14.3557
2455000000.0000	51.7378	14.3723
2460000000.0000	51.7220	14.4274
2465000000.0000	51.7252	14.4322
2470000000.0000	51.7079	14.4295
2475000000.0000	51.6965	14.4722
2480000000.0000	51.7027	14.5224
2485000000.0000	51.6483	14.5341
2490000000.0000	51.6559	14.5640
2495000000.0000	51.6447	14.5617
2500000000.0000	51.6530	14.5683

■ Dielectric Parameter (5 GHz Body)

Title	P4100
SubTitle	5 GHz
Test Date	Oct.05, 2011

Frequency	e'	e''
5000000000.0000	48.2104	17.4448
5050000000.0000	48.3429	17.7747
5100000000.0000	48.0285	17.6500
5150000000.0000	47.9249	18.2205
5200000000.0000	47.6349	17.8688
5250000000.0000	47.5229	18.1071
5300000000.0000	47.4284	18.1226
5350000000.0000	47.2832	18.0408
5400000000.0000	47.1669	18.4154
5450000000.0000	47.0865	18.0569
5500000000.0000	46.8939	18.5749
5550000000.0000	46.8680	18.3386
5600000000.0000	46.6632	18.5710
5650000000.0000	46.5748	18.6542
5700000000.0000	46.4546	18.4790
5750000000.0000	46.2312	18.9168
5800000000.0000	46.3492	18.5296
5850000000.0000	45.9111	18.9633
5900000000.0000	46.0648	18.6770
5950000000.0000	45.7871	18.9495
6000000000.0000	45.9693	19.0086

Attachment 3. – Probe Calibration Data

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

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

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

Accreditation No.: SCS 108

Client HCT (Dymstec) Certificate No: ET3-1798_Apr11

CALIBRATION CERTIFICATE

Object ET3DV6 - SN:1798

Calibration procedure(s) QA CAL-01.v7, QA CAL-23.v4, QA CAL-25.v3
Calibration procedure for dosimetric E-field probes

Calibration date: April 14, 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	MY41495277	31-Mar-11 (No. 217-01372)	Apr-12
Power sensor E4412A	MY41498087	31-Mar-11 (No. 217-01372)	Apr-12
Reference 3 dB Attenuator	SN: S5054 (3c)	29-Mar-11 (No. 217-01369)	Apr-12
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Reference 30 dB Attenuator	SN: S5129 (30b)	29-Mar-11 (No. 217-01370)	Apr-12
Reference Probe ES3DV2	SN: 3013	29-Dec-10 (No. ES3-3013_Dec10)	Dec-11
DAE4	SN: 654	23-Apr-10 (No. DAE4-654_Apr10)	Apr-11
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

	Name	Function	Signature
Calibrated by:	Jelon Kastrat	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: April 14, 2011

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

Certificate No: ET3-1798_Apr11 Page 1 of 11

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

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

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

Accreditation No.: SCS 108

Glossary:

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

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003

b) IEC 62209-1, "Procedure to measure the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)", February 2005

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z*: Assessed for E-field polarization ϑ = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not affect the E^2-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,y,z * frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- *DCPx,y,z*: DCP are numerical linearization parameters assessed based on the data of power sweep with CW signal (no uncertainty required). DCP does not depend on frequency nor media.
- *PAR*: PAR is the Peak to Average Ratio that is not calibrated but determined based on the signal characteristics
- *Ax,y,z; Bx,y,z; Cx,y,z* are numerical linearization parameters in dB assessed based on the data of power sweep for specific modulation signal. The parameters do not depend on frequency nor media.
- *VR*: VR is the validity range of the calibration related to the average diode voltage or DAE voltage in mV.
- *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:1798

Manufactured: August 14, 2003
Calibrated: April 14, 2011

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

DASY/EASY - Parameters of Probe: ET3DV6 - SN:1798

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm (μV/(V/m)^2)^A	2.02	1.82	2.06	± 10.1 %
DCP (mV)^B	96.8	96.3	98.2	

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	113.1	±3.0 %
			Y	0.00	0.00	1.00	145.9	
			Z	0.00	0.00	1.00	114.8	

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:1798

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	7.63	7.63	7.63	0.22	2.25	± 13.4 %
835	41.5	0.90	6.72	6.72	6.72	0.78	1.68	± 12.0 %
900	41.5	0.97	6.61	6.61	6.61	0.74	1.74	± 12.0 %
1750	40.1	1.37	5.46	5.46	5.46	0.52	2.60	± 12.0 %
1900	40.0	1.40	5.24	5.24	5.24	0.54	2.52	± 12.0 %
1950	40.0	1.40	5.08	5.08	5.08	0.53	2.57	± 12.0 %
2450	39.2	1.80	4.56	4.56	4.56	0.70	1.97	± 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:1798

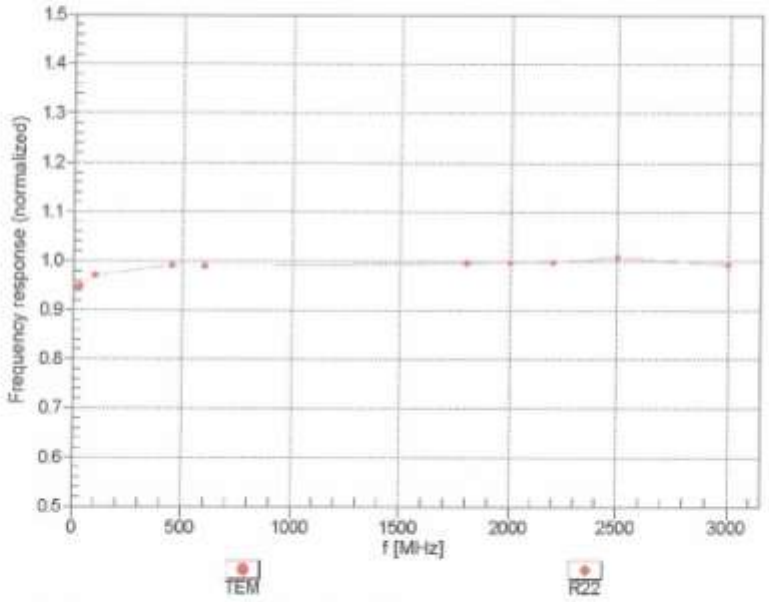
Calibration Parameter Determined in Body Tissue Simulating Media

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	8.09	8.09	8.09	0.15	2.17	± 13.4 %
835	55.2	0.97	6.50	6.50	6.50	0.73	1.84	± 12.0 %
900	55.0	1.05	6.40	6.40	6.40	0.71	1.90	± 12.0 %
1750	53.4	1.49	4.84	4.84	4.84	0.55	2.94	± 12.0 %
1900	53.3	1.52	4.63	4.63	4.63	0.57	2.70	± 12.0 %
1950	53.3	1.52	4.76	4.76	4.76	0.59	2.49	± 12.0 %
2450	52.7	1.95	4.21	4.21	4.21	0.97	1.24	± 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:1798 April 14, 2011

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

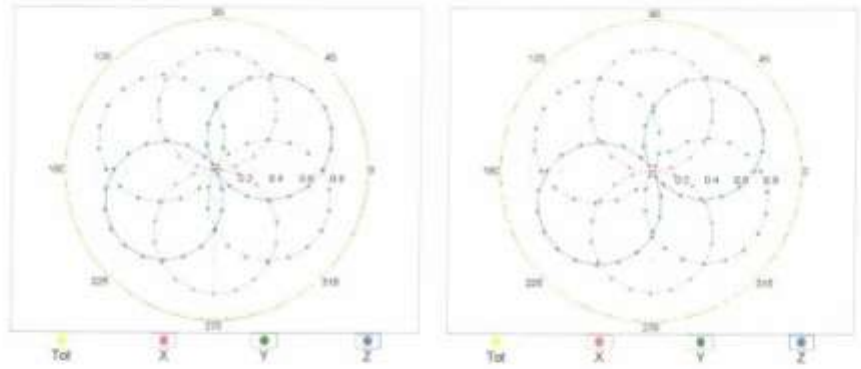


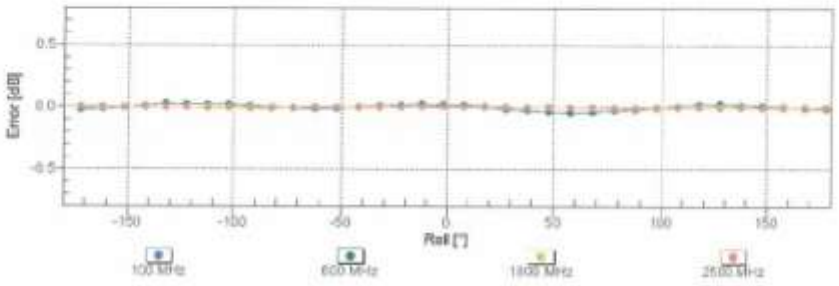
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

ET3DV6– SN:1798 April 14, 2011

Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM f=1800 MHz,R22

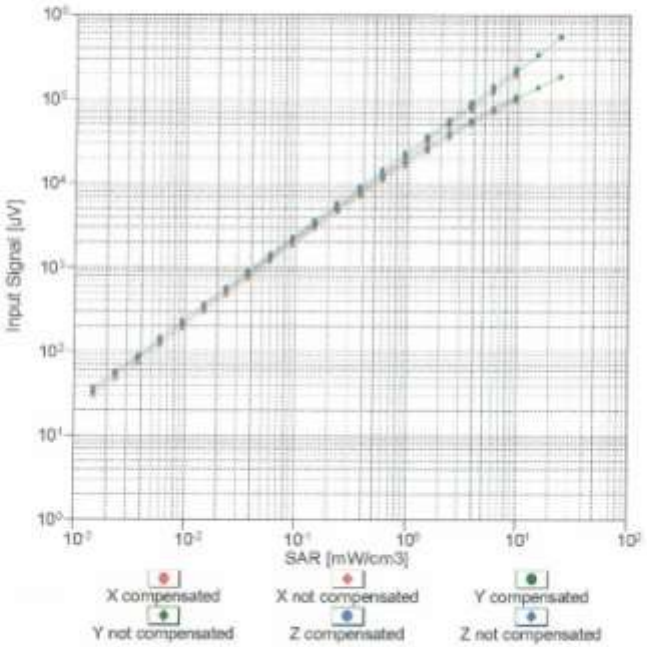


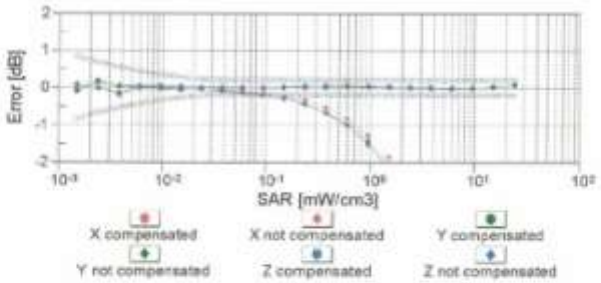


Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

ET3DV6- SN:1798 April 14, 2011

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





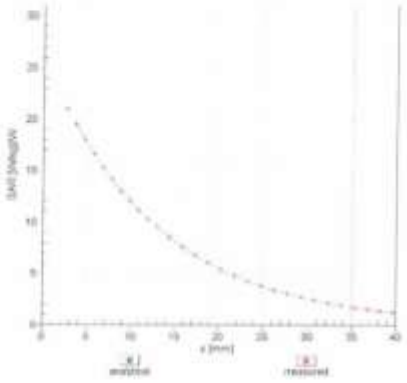
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Certificate No: ET3-1798_Apr11 Page 9 of 11

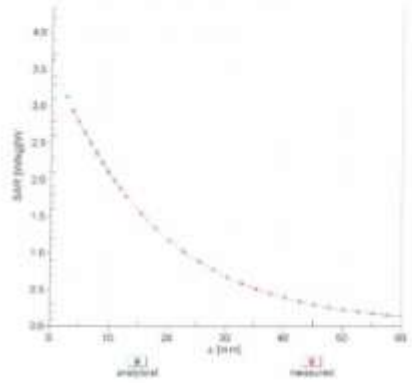
ET3DV6– SN:1798 April 14, 2011

Conversion Factor Assessment

f = 1750 MHz,WGLS R22 (H_convF)

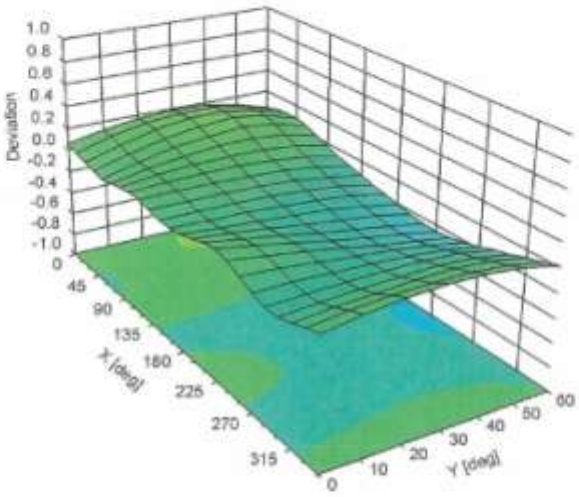


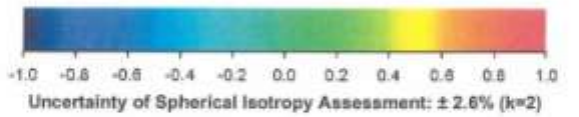
f = 900 MHz,WGLS R9 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz





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

Certificate No: ET3-1798_Apr11 Page 10 of 11

DASY/EASY - Parameters of Probe: ET3DV6 - SN:1798

Other Probe Parameters

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

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info@speag.com, http://www.speag.com

s p e a g

Additional Conversion Factors

for Dosimetric E-Field Probe

Type:	**ET3DV6**
Serial Number:	**1798**
Place of Assessment:	**Zurich**
Date of Assessment:	**July 13, 2011**
Probe Calibration Date:	**April 14, 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 900 MHz or at 1750 MHz.

Assessed by:

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Zeughausstrasse 43, 8004 Zurich, Switzerland
Phone +41 44 245 9700, Fax +41 44 245 9779
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Dosimetric E-Field Probe ET3DV6 - SN:1798

Conversion factor (± standard deviation)

750 ± 50 MHz	*ConvF*	6.94 ± 7%	ε_r = 41.9 ± 5% σ = 0.89 ± 5% mho/m (head tissue)
750 ± 50 MHz	*ConvF*	6.79 ± 7%	ε_r = 55.5 ± 5% σ = 0.96 ± 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.

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Zeughausstrasse 43, 8004 Zurich, Switzerland

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Accreditation No.: SCS 108

Client HCT (Dymstec)

Certificate No: EX3-3797_Jul11

CALIBRATION CERTIFICATE

Object EX3DV4 - SN:3797

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

Calibration date: July 25, 2011

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	31-Mar-11 (No. 217-01372)	Apr-12
Power sensor E4412A	MY41498087	31-Mar-11 (No. 217-01372)	Apr-12
Reference 3 dB Attenuator	SN: S5054 (3c)	29-Mar-11 (No. 217-01369)	Apr-12
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Reference 30 dB Attenuator	SN: S5129 (30b)	29-Mar-11 (No. 217-01370)	Apr-12
Reference Probe ES3DV2	SN: 3013	29-Dec-10 (No. ES3-3013_Dec10)	Dec-11
DAE4	SN: 654	3-May-11 (No. DAE4-654_May11)	May-12
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

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

Issued: July 25, 2011

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

Certificate No: EX3-3797_Jul11 Page 1 of 11

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Accredited by the Swiss Accreditation Service (SAS)
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Accreditation No.: **SCS 108**

Glossary:

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

Calibration is Performed According to the Following Standards:

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

Methods Applied and Interpretation of Parameters:

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

Probe EX3DV4

SN:3797

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

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

EX3DV4– SN:3797 July 25, 2011

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

Basic Calibration Parameters

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

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dB	C dB	VR mV	Unc[E] (k=2)
10000	CW	0.00	X	0.00	0.00	1.00	96.0	±2.5 %
			Y	0.00	0.00	1.00	126.8	
			Z	0.00	0.00	1.00	126.7	

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

[A] The uncertainties of NormX,Y,Z do not affect the E^2-field uncertainty inside TSL (see Pages 5 and 6).
[B] Numerical linearization parameter: uncertainty not required.
[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:3797

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
750	41.9	0.89	9.29	9.29	9.29	0.80	0.68	± 12.0 %
835	41.5	0.90	8.93	8.93	8.93	0.80	0.67	± 12.0 %
900	41.5	0.97	8.83	8.83	8.83	0.80	0.66	± 12.0 %
1450	40.5	1.20	8.30	8.30	8.30	0.59	0.78	± 12.0 %
1750	40.1	1.37	7.88	7.88	7.88	0.77	0.62	± 12.0 %
1900	40.0	1.40	7.60	7.60	7.60	0.80	0.60	± 12.0 %
1950	40.0	1.40	7.44	7.44	7.44	0.78	0.61	± 12.0 %
2300	39.5	1.67	7.30	7.30	7.30	0.75	0.62	± 12.0 %
2450	39.2	1.80	6.94	6.94	6.94	0.74	0.62	± 12.0 %
2600	39.0	1.96	7.16	7.16	7.16	0.59	0.72	± 12.0 %
5200	36.0	4.66	4.73	4.73	4.73	0.40	1.80	± 13.1 %
5300	35.9	4.76	4.44	4.44	4.44	0.42	1.80	± 13.1 %
5500	35.6	4.96	4.48	4.48	4.48	0.42	1.80	± 13.1 %
5600	35.5	5.07	4.16	4.16	4.16	0.42	1.80	± 13.1 %
5800	35.3	5.27	4.26	4.26	4.26	0.45	1.80	± 13.1 %

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

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

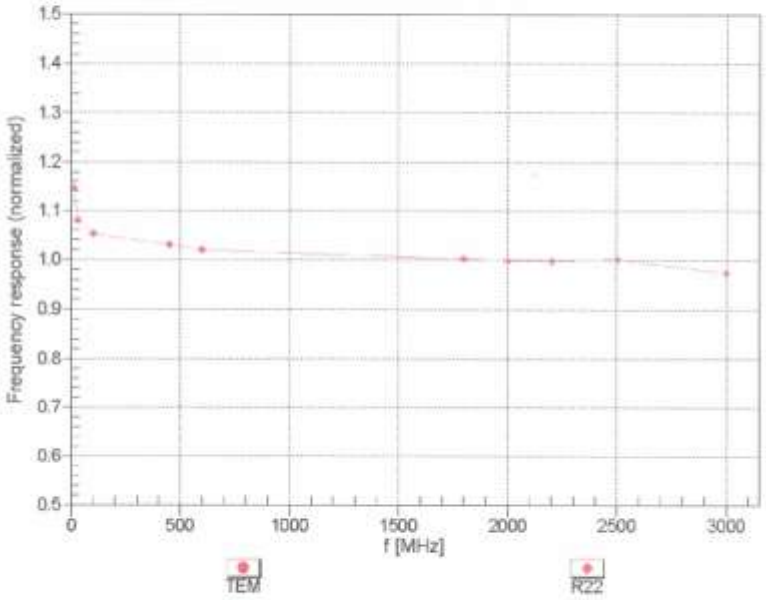
Calibration Parameter Determined in Body Tissue Simulating Media

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

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

EX3DV4– SN:3797 July 25, 2011

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



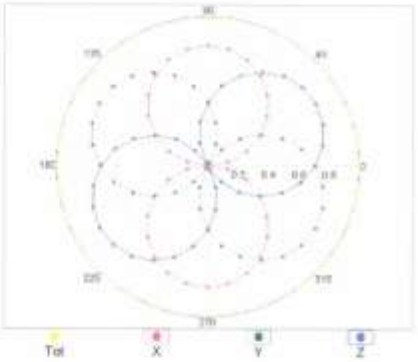
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

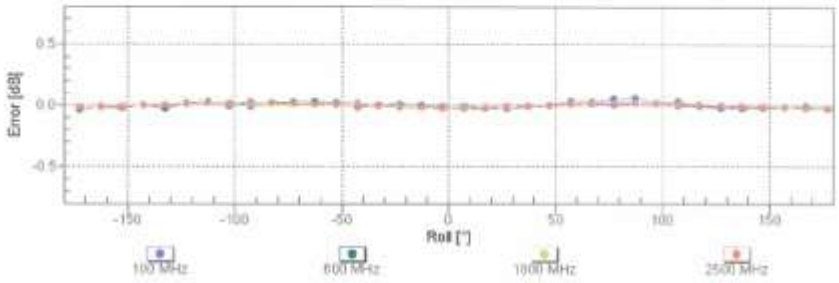
EX3DV4– SN:3797 July 25, 2011

Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM

f=1800 MHz,R22

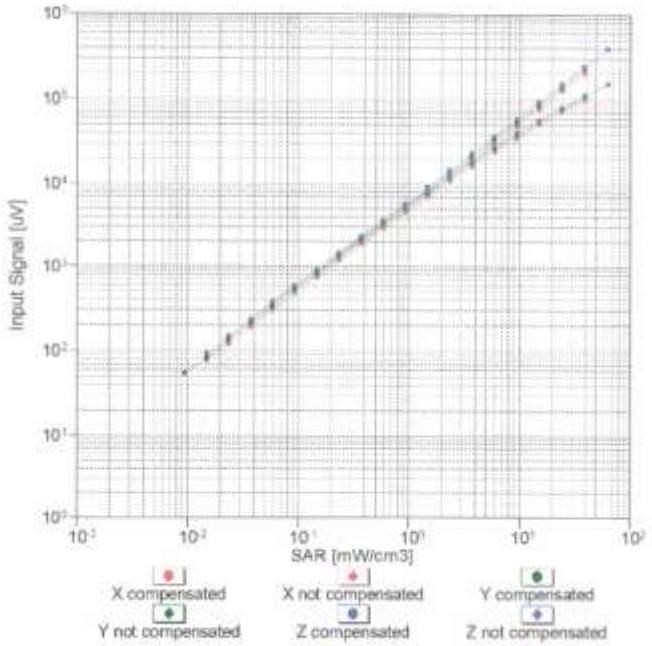


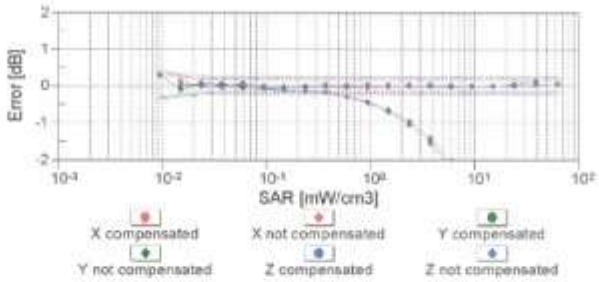


Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

EX3DV4- SN:3797 July 25, 2011

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



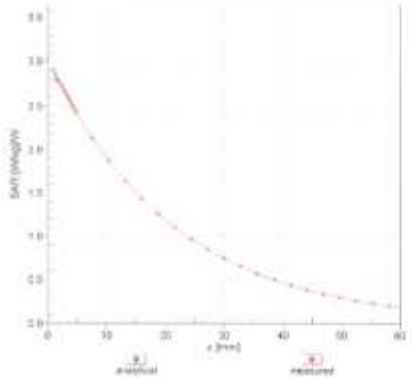


Uncertainty of Linearity Assessment: ± 0.6% (k=2)

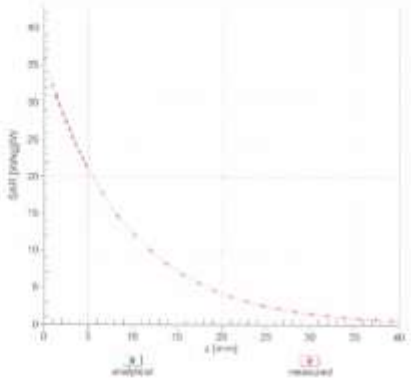
EX3DV4– SN:3797 July 25, 2011

Conversion Factor Assessment

f = 750 MHz,WGLS R9 (H_convF)

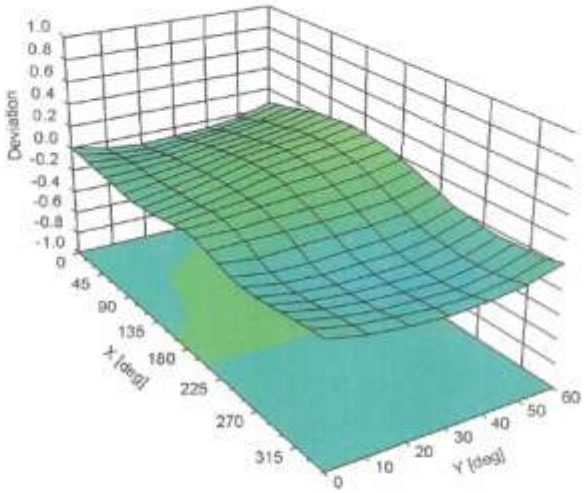


f = 2600 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz



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

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

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	Not applicable
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	2 mm

Attachment 4. – Dipole Calibration Data

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Accreditation No.: SCS 108

Client HCT (Dymstec)

Certificate No: D750V3-1014_Jul11

CALIBRATION CERTIFICATE

Object	D750V3 - SN:1014
Calibration procedure(s)	QA CAL-05.v8 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	July 25, 2011

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-10 (No. 217-01266)	Oct-11
Power sensor HP 8481A	US37292783	06-Oct-10 (No. 217-01266)	Oct-11
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Type-N mismatch combination	SN: 5047.2 / 06327	29-Mar-11 (No. 217-01371)	Apr-12
Reference Probe ES3DV3	SN: 3205	29-Apr-11 (No. ES3-3205_Apr11)	Apr-12
DAE4	SN: 601	04-Jul-11 (No. DAE4-601_Jul11)	Jul-12

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

	Name	Function	Signature
Calibrated by:	Claudio Leubler	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: July 25, 2011

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Accreditation No.: SCS 108

Glossary:

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

Calibration is Performed According to the Following Standards:

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

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

Measurement Conditions

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

DASY Version	DASY5	V52.6.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	750 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.9	0.89 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	41.7 ± 6 %	0.91 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.15 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**8.44 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.40 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**5.52 mW /g ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	55.5	0.96 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	55.2 ± 6 %	0.96 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.22 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**8.87 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.47 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**5.88 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	53.3 Ω + 0.4 jΩ
Return Loss	- 30.0 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	49.0 Ω - 2.7 jΩ
Return Loss	- 30.8 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.040 ns

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

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

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	March 22, 2010

DASY5 Validation Report for Head TSL

Date: 25.07.2011

Test Laboratory: SPEAG, Zurich, Switzerland

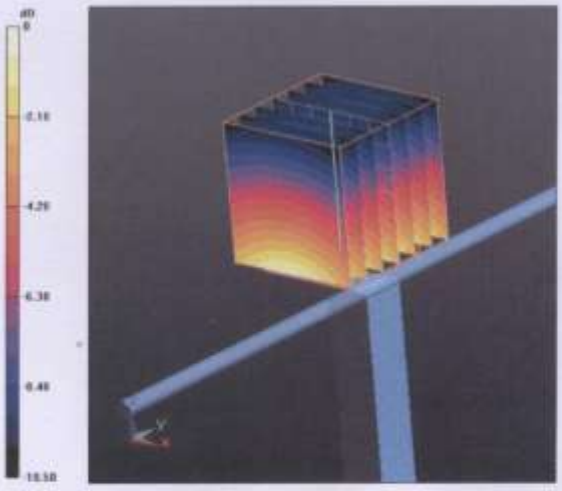
DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN:1014

Communication System: CW; Frequency: 750 MHz
Medium parameters used: f = 750 MHz; σ = 0.91 mho/m; ε_r = 41.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

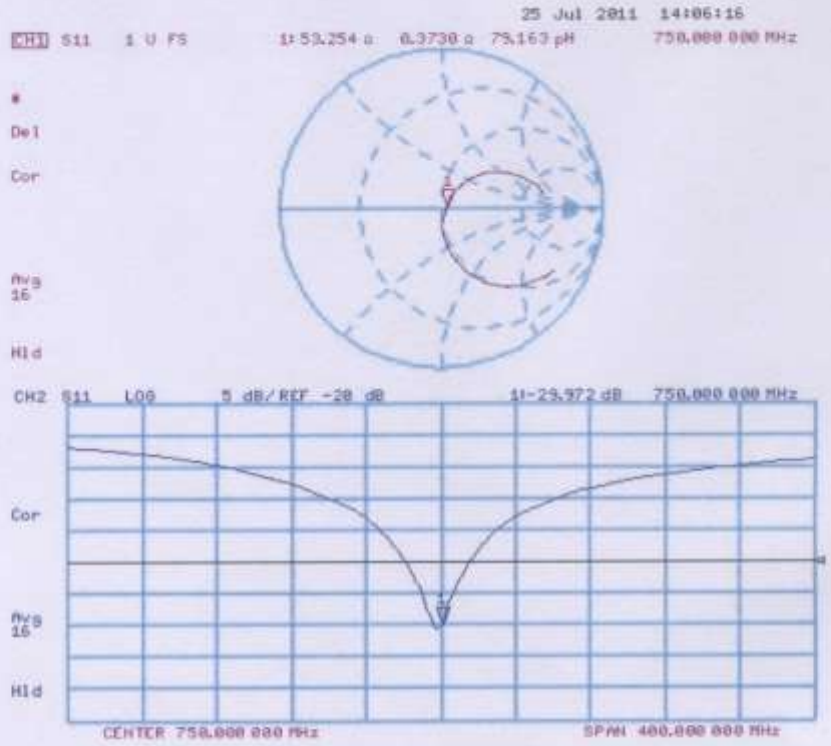
- Probe: ES3DV3 - SN3205; ConvF(6.33, 6.33, 6.33); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

Dipole Calibration for Head Tissue/Pin=250mW; dip=15mm; dist=3.0mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 51.352 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 3.258 W/kg
SAR(1 g) = 2.15 mW/g; SAR(10 g) = 1.4 mW/g
Maximum value of SAR (measured) = 2.524 mW/g



0 dB = 2.520mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 25.07.2011

Test Laboratory: SPEAG, Zurich, Switzerland

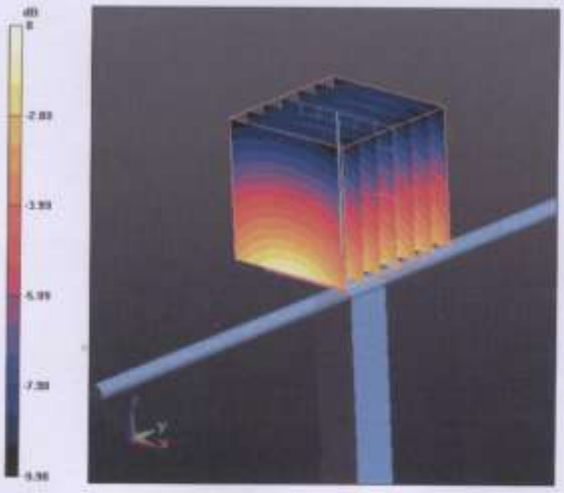
DUT: Dipole 750 MHz; Type: D750V3; Serial: D750V3 - SN:1014

Communication System: CW; Frequency: 750 MHz
Medium parameters used: f = 750 MHz; σ = 0.96 mho/m; ε_r = 55.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

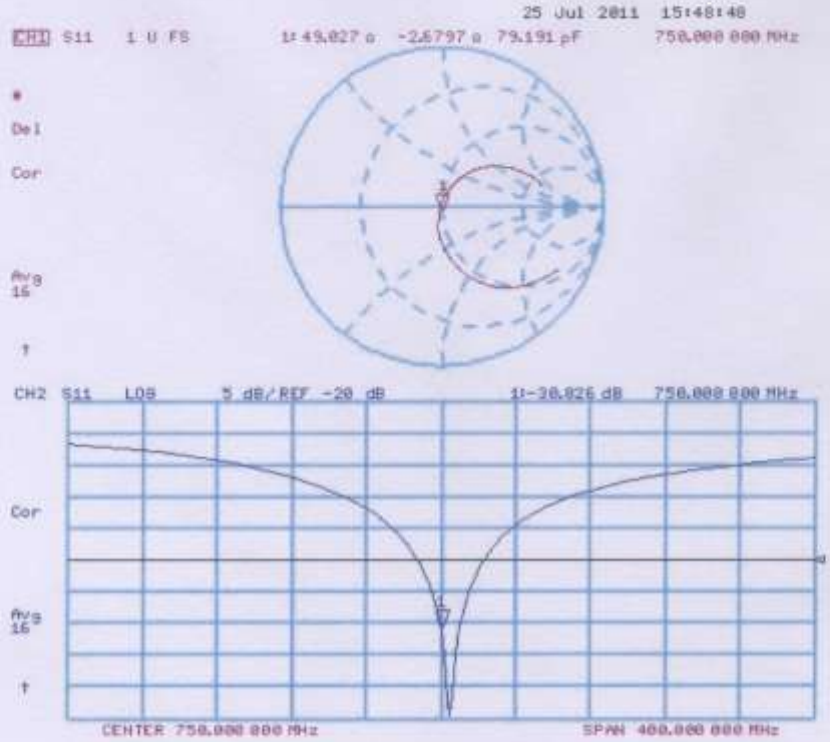
- Probe: ES3DV3 - SN3205; ConvF(6.12, 6.12, 6.12); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

Dipole Calibration for Body Tissue/Pin=250mW; dip=15mm; dist=3.0mm/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 52.652 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 3.311 W/kg
SAR(1 g) = 2.22 mW/g; SAR(10 g) = 1.47 mW/g
Maximum value of SAR (measured) = 2.584 mW/g



0 dB = 2.580mW/g

Impedance Measurement Plot for Body TSL



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Accreditation No.: **SCS 108**

Client **HCT (Dymstec)** Certificate No: **D835V2-441_May11**

CALIBRATION CERTIFICATE

Object D835V2 - SN: 441

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

Calibration date: May 16, 2011

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-10 (No. 217-01266)	Oct-11
Power sensor HP 8481A	US37292783	06-Oct-10 (No. 217-01266)	Oct-11
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Type-N mismatch combination	SN: 5047.2 / 06327	29-Mar-11 (No. 217-01371)	Apr-12
Reference Probe ES3DV3	SN: 3205	29-Apr-11 (No. ES3-3205_Apr11)	Apr-12
DAE4	SN: 601	10-Jun-10 (No. DAE4-601_Jun10)	Jun-11

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

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

Issued: May 16, 2011

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Accreditation No.: SCS 108

Glossary:

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

Calibration is Performed According to the Following Standards:

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

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

Measurement Conditions

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

DASY Version	DASY5	V52.6.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	835 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.5	0.90 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	40.4 ± 6 %	0.88 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.31 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**9.34 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.51 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**6.09 mW /g ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	55.2	0.97 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	53.9 ± 6 %	1.00 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.43 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**9.45 mW / g ± 17.0 % (k=2)**

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

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	50.2 Ω - 9.8 jΩ
Return Loss	- 20.2 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	46.3 Ω - 10.3 jΩ
Return Loss	- 18.9 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.374 ns

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

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

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	March 09, 2001

DASY5 Validation Report for Head TSL

Date: 16.05.2011

Test Laboratory: SPEAG, Zurich, Switzerland

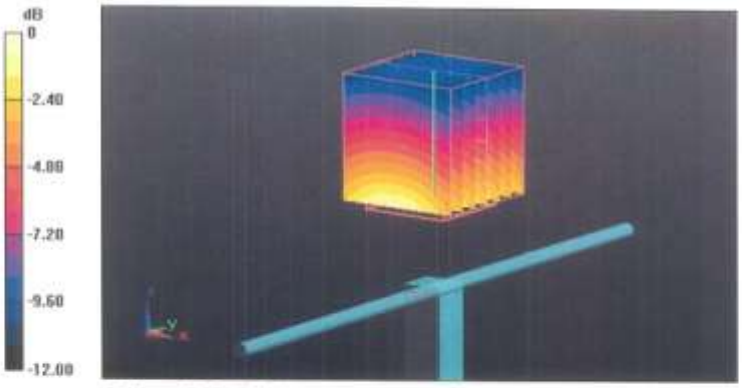
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 441

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: HSL900
Medium parameters used: f = 835 MHz; σ = 0.88 mho/m; ε_r = 40.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

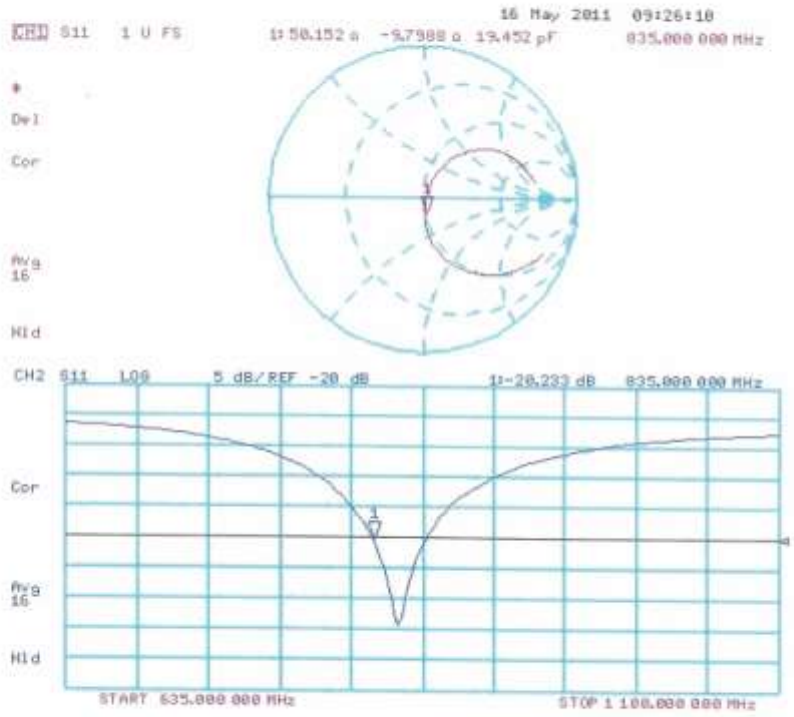
- Probe: ES3DV3 - SN3205; ConvF(6.07, 6.07, 6.07); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY52, V52.6.2 Build (424)
- Postprocessing SW: SEMCAD X, V14.4.4 Build (2829)

Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 57.041 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 3.442 W/kg
SAR(1 g) = 2.31 mW/g; SAR(10 g) = 1.51 mW/g
Maximum value of SAR (measured) = 2.703 mW/g



0 dB = 2.700mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 16.05.2011

Test Laboratory: SPEAG, Zurich, Switzerland

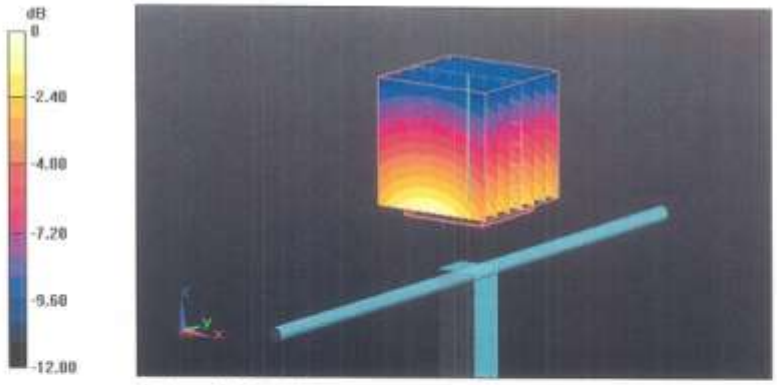
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:441

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium: MSL900
Medium parameters used: f = 835 MHz; σ = 1 mho/m; ε_r = 53.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

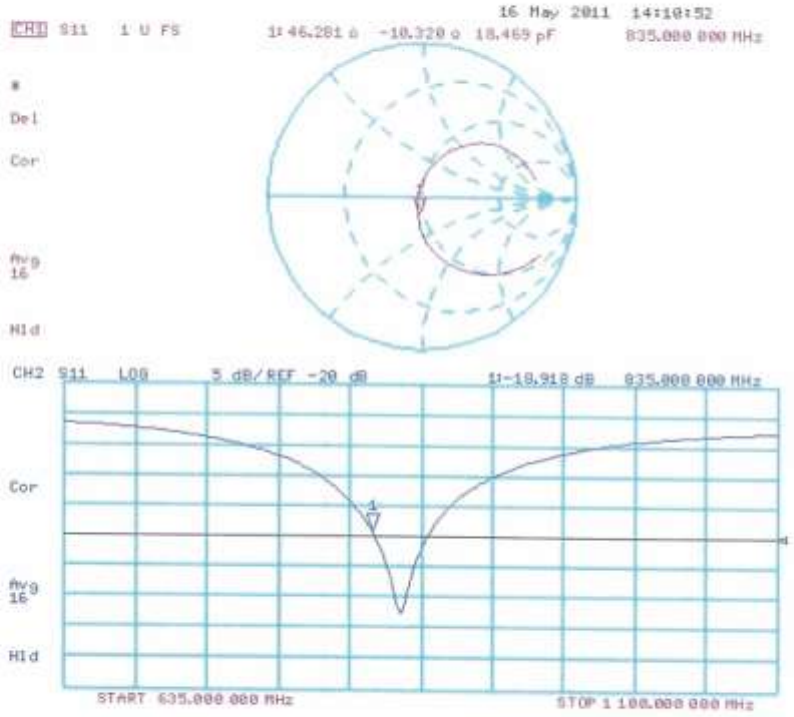
- Probe: ES3DV3 - SN3205; ConvF(6.02, 6.02, 6.02); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- Measurement SW: DASY52, V52.6.2 Build (424)
- Postprocessing SW: SEMCAD X, V14.4.4 Build (2829)

Dipole Calibration for Body Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 55.302 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 3.553 W/kg
SAR(1 g) = 2.43 mW/g; SAR(10 g) = 1.6 mW/g
Maximum value of SAR (measured) = 2.833 mW/g



0 dB = 2.830mW/g

Impedance Measurement Plot for Body TSL



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Accreditation No.: SCS 108

Client HCT (Dymstec) Certificate No: D1800V2-2d007_Apr11

CALIBRATION CERTIFICATE

Object D1800V2 - SN: 2d007

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

Calibration date: April 19, 2011

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-10 (No. 217-01266)	Oct-11
Power sensor HP 8481A	US37292783	06-Oct-10 (No. 217-01266)	Oct-11
Reference 20 dB Attenuator	SN: 5086 (20g)	29-Mar-11 (No. 217-01368)	Apr-12
Type-N mismatch combination	SN: 5047.2 / 06327	29-Mar-11 (No. 217-01371)	Apr-12
Reference Probe ES3DV3	SN: 3205	30-Apr-10 (No. ES3-3205_Apr10)	Apr-11
DAE4	SN: 601	10-Jun-10 (No. DAE4-601_Jun10)	Jun-11

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

	Name	Function	Signature
Calibrated by:	Claudio Leubler	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: April 19, 2011

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

Certificate No: D1800V2-2d007_Apr11 Page 1 of 9

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Accreditation No.: SCS 108

Glossary:

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

Calibration is Performed According to the Following Standards:

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

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

Measurement Conditions

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

DASY Version	DASY5	V52.6.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1800 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	39.1 ± 6 %	1.36 mho/m ± 6 %
Head TSL temperature during test	(21.2 ± 0.2) °C	---	---

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	9.81 mW / g
SAR normalized	normalized to 1W	39.2 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**39.8 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.15 mW / g
SAR normalized	normalized to 1W	20.6 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**20.7 mW /g ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	53.3	1.52 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	51.3 ± 6 %	1.47 mho/m ± 6 %
Body TSL temperature during test	(21.8 ± 0.2) °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	9.22 mW / g
SAR normalized	normalized to 1W	36.9 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**37.3 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	4.88 mW / g
SAR normalized	normalized to 1W	19.5 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**19.6 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	50.6 Ω - 4.0 jΩ
Return Loss	- 28.0 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	44.1 Ω - 7.5 jΩ
Return Loss	- 19.9 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.203 ns

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

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

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	July 23, 2001

DASY5 Validation Report for Head TSL

Date/Time: 18.04.2011 14:15:52

Test Laboratory: SPEAG, Zurich, Switzerland

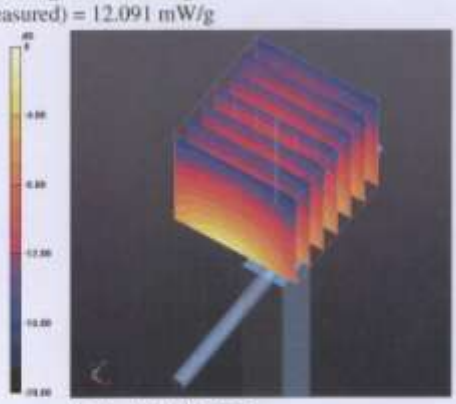
DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN:2d007

Communication System: CW; Frequency: 1800 MHz; Duty Cycle: 1:1
Medium: HSL U12 BB
Medium parameters used: f = 1800 MHz; σ = 1.36 mho/m; ε_r = 39.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

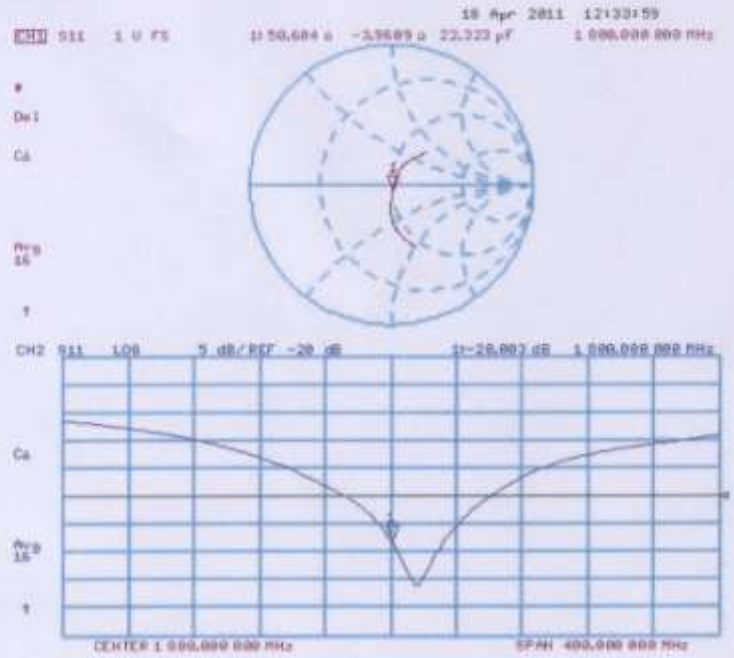
- Probe: ES3DV3 - SN3205; ConvF(5.05, 5.05, 5.05); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY52, V52.6.2 Build (424)
- Postprocessing SW: SEMCAD X, V14.4.2 Build (2829)

Pin=250 mW, Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 97.643 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 17.931 W/kg
SAR(1 g) = 9.81 mW/g; SAR(10 g) = 5.15 mW/g
Maximum value of SAR (measured) = 12.091 mW/g



0 dB = 12.090mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date/Time: 19.04.2011 11:42:27

Test Laboratory: SPEAG, Zurich, Switzerland

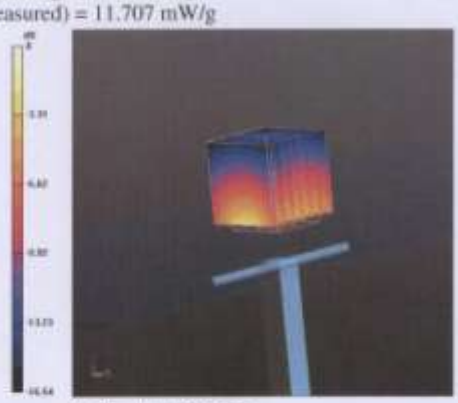
DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN:2d007

Communication System: CW; Frequency: 1800 MHz; Duty Cycle: 1:1
Medium: MSL U12 BB
Medium parameters used: f = 1800 MHz; σ = 1.47 mho/m; ε_r = 51.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

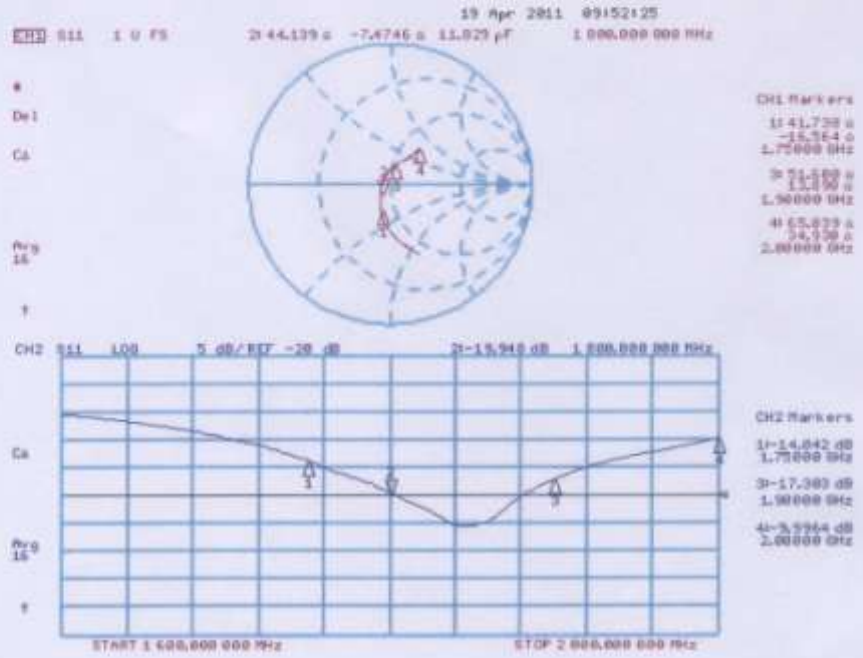
- Probe: ES3DV3 - SN3205; ConvF(4.74, 4.74, 4.74); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY52, V52.6.2 Build (424)
- Postprocessing SW: SEMCAD X, V14.4.2 Build (2829)

Pin=250 mW, Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 94.703 V/m; Power Drift = -0.10 dB
Peak SAR (extrapolated) = 15.979 W/kg
SAR(1 g) = 9.22 mW/g; SAR(10 g) = 4.88 mW/g
Maximum value of SAR (measured) = 11.707 mW/g



0 dB = 11.710mW/g

Impedance Measurement Plot for Body TSL



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Accreditation No.: SCS 108

Client HCT

Certificate No: D1900V2-5d032_Jul11

CALIBRATION CERTIFICATE

Object	D1900V2 - SN: 5d032
Calibration procedure(s)	QA CAL-05.v8 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	July 22, 2011

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-10 (No. 217-01266)	Oct-11
Power sensor HP 8481A	US37292783	06-Oct-10 (No. 217-01266)	Oct-11
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Type-N mismatch combination	SN: 5047.2 / 06327	29-Mar-11 (No. 217-01371)	Apr-12
Reference Probe ES3DV3	SN: 3205	29-Apr-11 (No. ES3-3205_Apr11)	Apr-12
DAE4	SN: 601	04-Jul-11 (No. DAE4-601_Jul11)	Jul-12

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

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

Issued: July 22, 2011

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Certificate No: D1900V2-5d032_Jul11 Page 1 of 8

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Accreditation No.: SCS 108

Glossary:

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

Calibration is Performed According to the Following Standards:

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

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

Measurement Conditions

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

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

Head TSL parameters

The following parameters and calculations were applied.

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

SAR result with Head TSL

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

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

Body TSL parameters

The following parameters and calculations were applied.

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

SAR result with Body TSL

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

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

Appendix

Antenna Parameters with Head TSL

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

Antenna Parameters with Body TSL

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

General Antenna Parameters and Design

Electrical Delay (one direction)	1.190 ns

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

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

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	March 17, 2003

DASY5 Validation Report for Head TSL

Date: 20.07.2011

Test Laboratory: SPEAG, Zurich, Switzerland

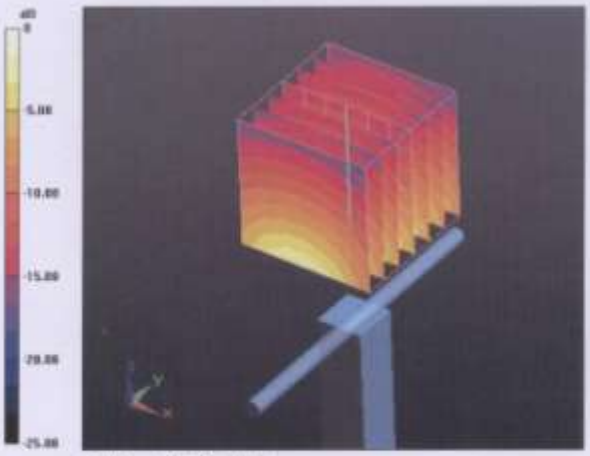
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d032

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

DASY52 Configuration:

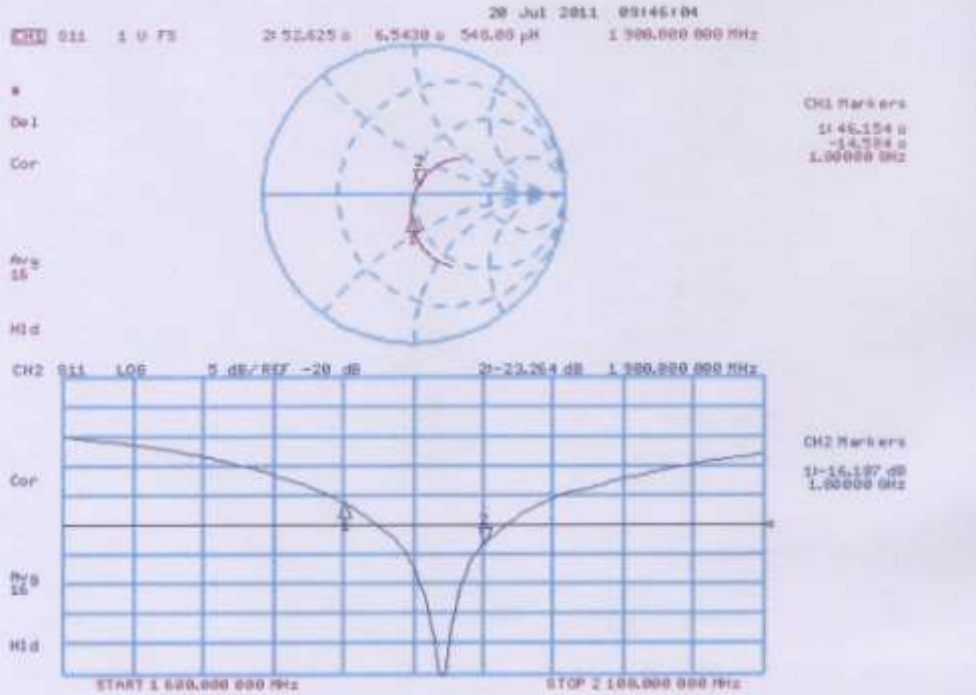
- Probe: ES3DV3 - SN3205; ConvF(5.01, 5.01, 5.01); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

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



0 dB = 12.720mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 22.07.2011

Test Laboratory: SPEAG, Zurich, Switzerland

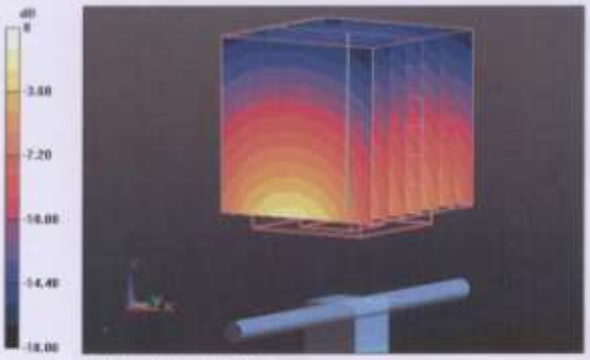
DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d032

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

DASY52 Configuration:

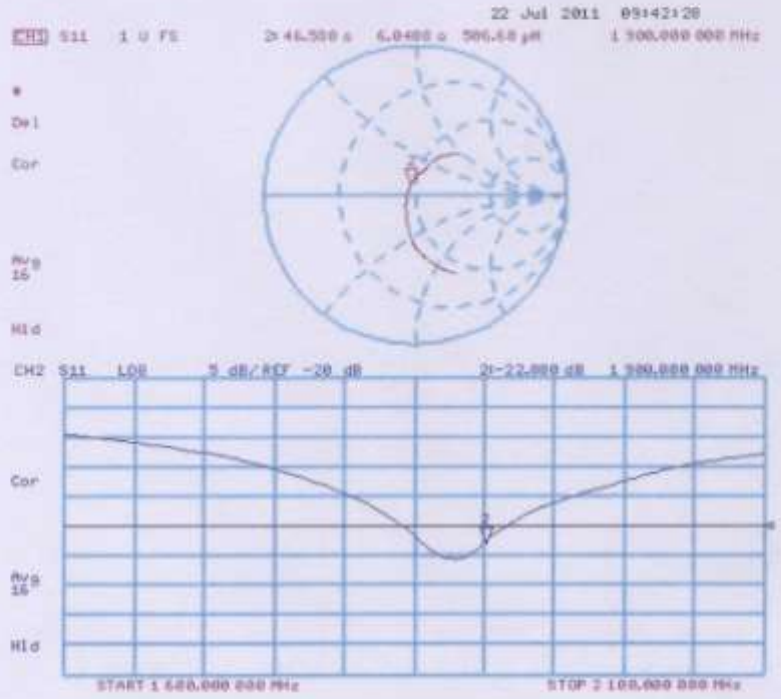
- Probe: ES3DV3 - SN3205; ConvF(4.62, 4.62, 4.62); Calibrated: 29.04.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.6.2(482); SEMCAD X 14.4.5(3634)

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



0 dB = 12.900mW/g

Impedance Measurement Plot for Body TSL



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Accreditation No.: SCS 108

Client HCT (Dymstec)

Certificate No: D2450V2-743_Aug10

CALIBRATION CERTIFICATE

Object	D2450V2 - SN: 743
Calibration procedure(s)	QA CAL-05.v7 Calibration procedure for dipole validation kits
Calibration date:	August 25, 2010

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-09 (No. 217-01086)	Oct-10
Power sensor HP 8481A	US37292783	06-Oct-09 (No. 217-01086)	Oct-10
Reference 20 dB Attenuator	SN: 5086 (20g)	30-Mar-10 (No. 217-01158)	Mar-11
Type-N mismatch combination	SN: 5047.2 / 06327	30-Mar-10 (No. 217-01162)	Mar-11
Reference Probe ES3DV3	SN: 3205	30-Apr-10 (No. ES3-3205_Apr10)	Apr-11
DAE4	SN: 601	10-Jun-10 (No. DAE4-601_Jun10)	Jun-11

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-09)	In house check: Oct-10

	Name	Function	Signature
Calibrated by:	Claudio Leubler	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: August 25, 2010

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Certificate No: D2450V2-743_Aug10 Page 1 of 9

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Accreditation No.: SCS 108

Glossary:

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

Calibration is Performed According to the Following Standards:

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

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

Measurement Conditions

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

DASY Version	DASY5	V52.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	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	39.2 ± 6 %	1.77 mho/m ± 6 %
Head TSL temperature during test	(22.0 ± 0.2) °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.4 mW / g
SAR normalized	normalized to 1W	53.6 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**54.0 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.28 mW / g
SAR normalized	normalized to 1W	25.1 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**25.2 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	52.4 ± 6 %	1.95 mho/m ± 6 %
Body TSL temperature during test	(22.5 ± 0.2) °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	13.5 mW / g
SAR normalized	normalized to 1W	54.0 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**54.0 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	6.46 mW / g
SAR normalized	normalized to 1W	25.8 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**25.8 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	53.3 Ω + 4.2 jΩ
Return Loss	- 25.7 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	50.4 Ω + 5.5 jΩ
Return Loss	- 25.2 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.161 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/Time: 25.08.2010 10:29:57

Test Laboratory: SPEAG, Zurich, Switzerland

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

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: HSL U12 BB
Medium parameters used: f = 2450 MHz; σ = 1.77 mho/m; ε_r = 39.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

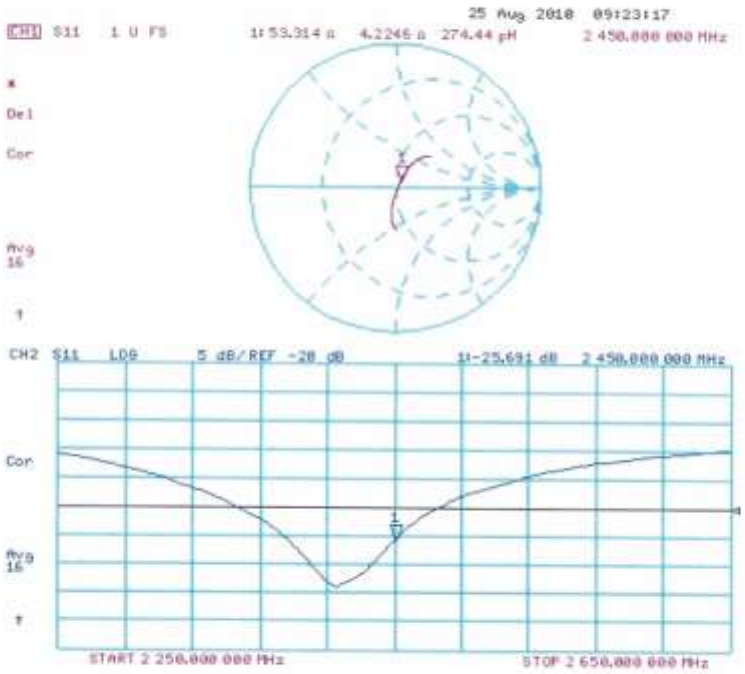
DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.53, 4.53, 4.53); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY52, V52.2 Build 0, Version 52.2.0 (163)
- Postprocessing SW: SEMCAD X, V14.2 Build 2, Version 14.2.2 (1685)

Head/d=10mm, Pin=250 mW, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 98.9 V/m; Power Drift = 0.070 dB
Peak SAR (extrapolated) = 27.1 W/kg
SAR(1 g) = 13.4 mW/g; SAR(10 g) = 6.28 mW/g
Maximum value of SAR (measured) = 17 mW/g

0 dB = 17mW/g

Impedance Measurement Plot for Head TSL



Validation Report for Body

Date/Time: 19.08.2010 11:22:15

Test Laboratory: SPEAG, Zurich, Switzerland

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

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: MSL U11 BB
Medium parameters used: f = 2450 MHz; σ = 1.94 mho/m; ε_r = 52.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

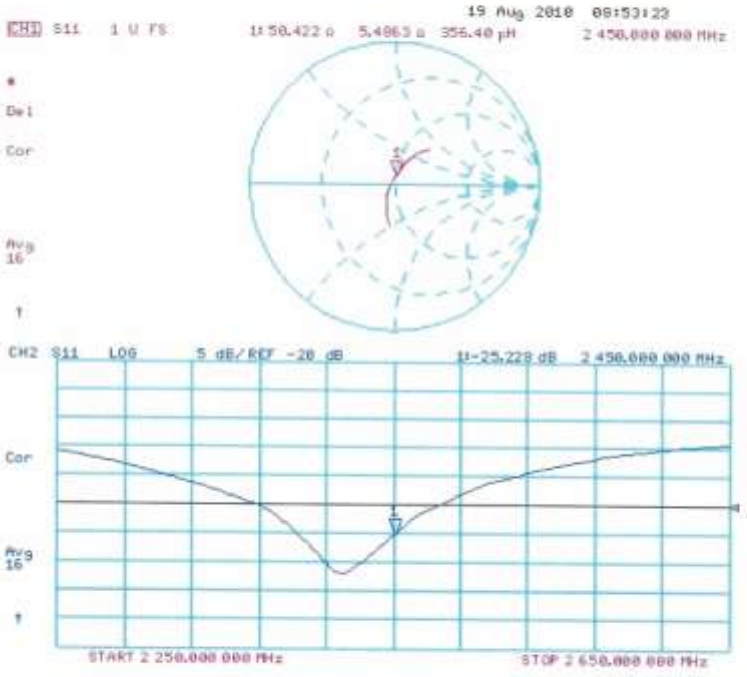
DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.31, 4.31, 4.31); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY52, V52.2 Build 0, Version 52.2.0 (163)
- Postprocessing SW: SEMCAD X, V14.2 Build 2, Version 14.2.2 (1685)

Body/d=10mm, Pin250 mW, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7) (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 98 V/m; Power Drift = 0.015 dB
Peak SAR (extrapolated) = 27.3 W/kg
SAR(1 g) = 13.5 mW/g; SAR(10 g) = 6.46 mW/g
Maximum value of SAR (measured) = 17.5 mW/g

0 dB = 17.5mW/g

Impedance Measurement Plot for Body TSL



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

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Accreditation No.: SCS 108

Client: Samsung (Dymstec)

Certificate No: D5GHzV2-1099_Mar11

CALIBRATION CERTIFICATE

Object: D5GHzV2 - SN: 1099

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

Calibration date: March 14, 2011

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-10 (No. 217-01266)	Oct-11
Power sensor HP 8481A	US37292783	06-Oct-10 (No. 217-01266)	Oct-11
Reference 20 dB Attenuator	SN: 5086 (20g)	30-Mar-10 (No. 217-01158)	Mar-11
Type-N mismatch combination	SN: 5047.2 / 06327	30-Mar-10 (No. 217-01162)	Mar-11
Reference Probe EX3DV4	SN: 3503	04-Mar-11 (No. EX3-3503_Mar11)	Mar-12
DAE4	SN: 601	10-Jun-10 (No. DAE4-601_Jun10)	Jun-11

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-10)	In house check: Oct-11

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

Issued: March 16, 2011

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

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Accreditation No.: SCS 108

Glossary:

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

Calibration is Performed According to the Following Standards:

a) IEC 62209-2, "Evaluation of Human Exposure to Radio Frequency Fields from Handheld and Body-Mounted Wireless Communication Devices in the Frequency Range of 30 MHz to 6 GHz: Human models, Instrumentation, and Procedures"; Part 2: "Procedure to determine the Specific Absorption Rate (SAR) for including accessories and multiple transmitters", March 2010

b) 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:

c) 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
Area Scan resolution	dx, dy = 10 mm	
Zoom Scan Resolution	dx, dy = 4.0 mm, dz = 1.4 mm	
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	36.4 ± 6 %	4.51 mho/m ± 6 %
Head TSL temperature during test	(22.0 ± 0.2) °C	----	----

SAR result with Head TSL at 5200 MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	condition	
SAR measured	100 mW input power	8.25 mW / g
SAR normalized	normalized to 1W	82.5 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**82.6 mW / g ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.34 mW / g
SAR normalized	normalized to 1W	23.4 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**23.4 mW / g ± 19.5 % (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	35.9 ± 6 %	4.80 mho/m ± 6 %
Head TSL temperature during test	(22.0 ± 0.2) °C	----	----

SAR result with Head TSL at 5500 MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	condition	
SAR measured	100 mW input power	8.89 mW / g
SAR normalized	normalized to 1W	88.9 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**88.9 mW / g ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.51 mW / g
SAR normalized	normalized to 1W	25.1 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**25.1 mW / g ± 19.5 % (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	35.5 ± 6 %	5.10 mho/m ± 6 %
Head TSL temperature during test	(22.0 ± 0.2) °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	8.26 mW / g
SAR normalized	normalized to 1W	82.6 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**82.6 mW / g ± 19.9 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.33 mW / g
SAR normalized	normalized to 1W	23.3 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**23.3 mW / g ± 19.5 % (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	48.4 ± 6 %	5.48 mho/m ± 6 %
Body TSL temperature during test	(21.0 ± 0.2) °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	7.58 mW / g
SAR normalized	normalized to 1W	75.8 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**75.6 mW / g ± 19.9 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.11 mW / g
SAR normalized	normalized to 1W	21.1 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**21.1 mW / g ± 19.5 % (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	47.8 ± 6 %	5.85 mho/m ± 6 %
Body TSL temperature during test	(21.0 ± 0.2) °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	8.07 mW / g
SAR normalized	normalized to 1W	80.7 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**80.5 mW / g ± 19.9 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.23 mW / g
SAR normalized	normalized to 1W	22.3 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**22.3 mW / g ± 19.5 % (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	47.1 ± 6 %	6.22 mho/m ± 6 %
Body TSL temperature during test	(21.0 ± 0.2) °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	7.54 mW / g
SAR normalized	normalized to 1W	75.4 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**75.1 mW / g ± 19.9 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.07 mW / g
SAR normalized	normalized to 1W	20.7 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**20.6 mW / g ± 19.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL at 5200 MHz

Impedance, transformed to feed point	50.4 Ω - 8.4 jΩ
Return Loss	-21.6 dB

Antenna Parameters with Head TSL at 5500 MHz

Impedance, transformed to feed point	51.7 Ω - 3.4 jΩ
Return Loss	-28.6 dB

Antenna Parameters with Head TSL at 5800 MHz

Impedance, transformed to feed point	54.5 Ω - 2.9 jΩ
Return Loss	-25.8 dB

Antenna Parameters with Body TSL at 5200 MHz

Impedance, transformed to feed point	50.9 Ω - 7.0 jΩ
Return Loss	-23.1 dB

Antenna Parameters with Body TSL at 5500 MHz

Impedance, transformed to feed point	52.3 Ω - 2.2 jΩ
Return Loss	-30.2 dB

Antenna Parameters with Body TSL at 5800 MHz

Impedance, transformed to feed point	54.8 Ω - 2.2 jΩ
Return Loss	-25.9 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.209 ns

After long term use with 40 W 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	September 24, 2010

DASY5 Validation Report for Head TSL

Date/Time: 11.03.2011 13:44:44

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 5GHz; Type: D5GHz; Serial: D5GHzV2 - SN:1099

Communication System: CW; Frequency: 5200 MHz, Frequency: 5500 MHz, Frequency: 5800 MHz; Duty Cycle: 1:1
Medium: HSL 5000
Medium parameters used: f = 5200 MHz; σ = 4.51 mho/m; ε_r = 36.4; ρ = 1000 kg/m^3 ,
Medium parameters used: f = 5500 MHz; σ = 4.8 mho/m; ε_r = 35.9; ρ = 1000 kg/m^3 ,
Medium parameters used: f = 5800 MHz; σ = 5.1 mho/m; ε_r = 35.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

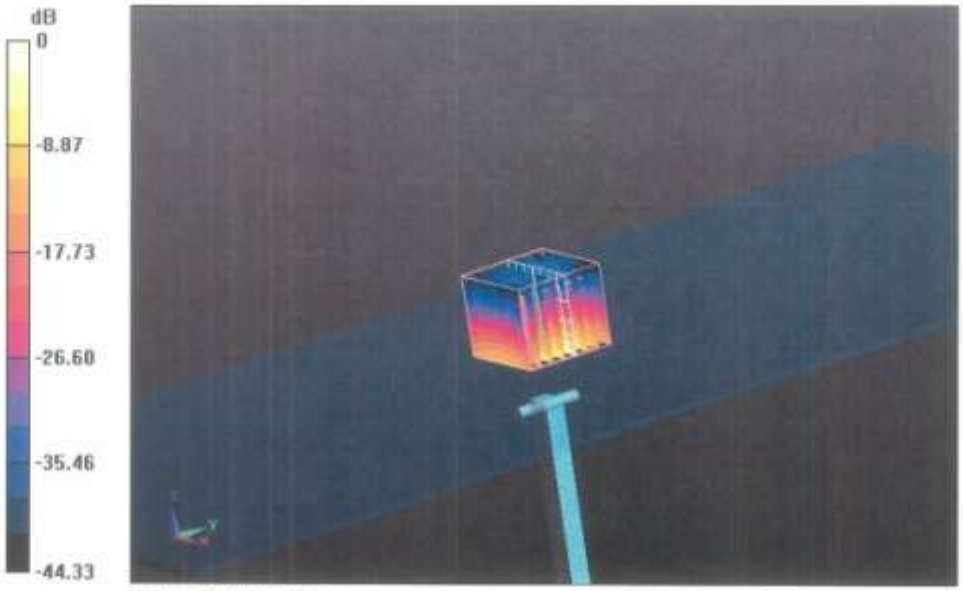
DASY5 Configuration:

- 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: 10.06.2010
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY52, V52.6.2 Build (424)
- Postprocessing SW: SEMCAD X, V14.4.4 Build (2829)

Pin=100mW, f=5200 MHz/Zoom Scan (4x4x1.4mm), dist=1.4mm (8x8x7)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 66.477 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 31.053 W/kg
SAR(1 g) = 8.25 mW/g; SAR(10 g) = 2.34 mW/g
Maximum value of SAR (measured) = 19.398 mW/g

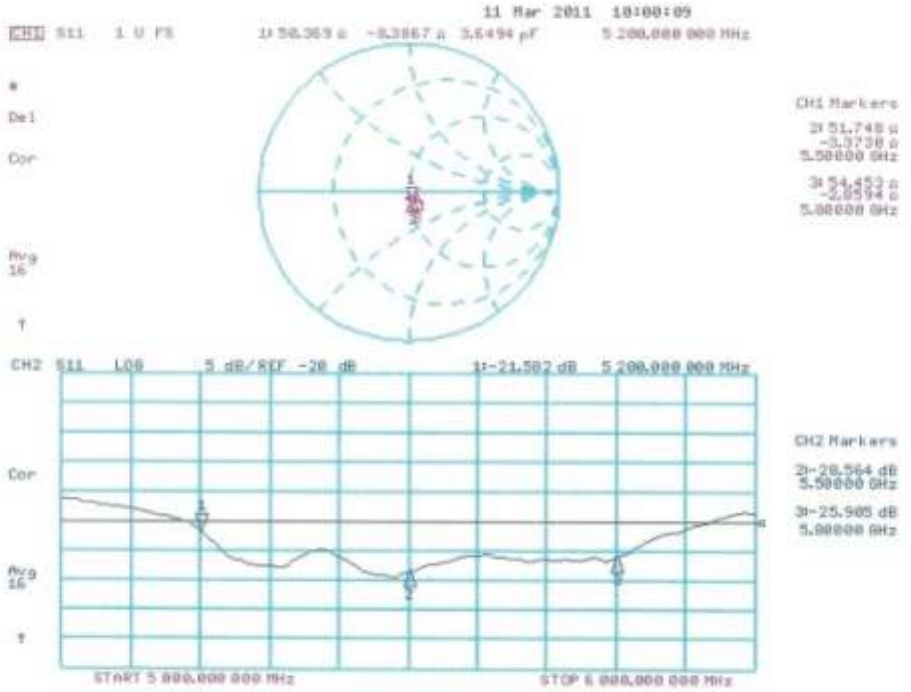
Pin=100mW, f=5500 MHz/Zoom Scan (4x4x1.4mm), dist=1.4mm (8x8x7)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 67.344 V/m; Power Drift = 0.07 dB
Peak SAR (extrapolated) = 35.658 W/kg
SAR(1 g) = 8.89 mW/g; SAR(10 g) = 2.51 mW/g
Maximum value of SAR (measured) = 21.486 mW/g

Pin=100mW, f=5800 MHz/Zoom Scan (4x4x1.4mm), dist=1.4mm (8x8x7)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 63.518 V/m; Power Drift = 0.05 dB
Peak SAR (extrapolated) = 34.944 W/kg
SAR(1 g) = 8.26 mW/g; SAR(10 g) = 2.33 mW/g
Maximum value of SAR (measured) = 20.406 mW/g



0 dB = 20.410mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date/Time: 14.03.2011 14:18:09

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 5GHz; Type: D5GHz; Serial: D5GHzV2 - SN:1099

Communication System: CW; Frequency: 5200 MHz, Frequency: 5500 MHz, Frequency: 5800 MHz; Duty Cycle: 1:1
Medium: MSL 5000 MHz
Medium parameters used: f = 5200 MHz; σ = 5.54 mho/m; ε_r = 48.3; ρ = 1000 kg/m^3 ,
Medium parameters used: f = 5500 MHz; σ = 5.92 mho/m; ε_r = 47.7; ρ = 1000 kg/m^3 ,
Medium parameters used: f = 5800 MHz; σ = 6.3 mho/m; ε_r = 47; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

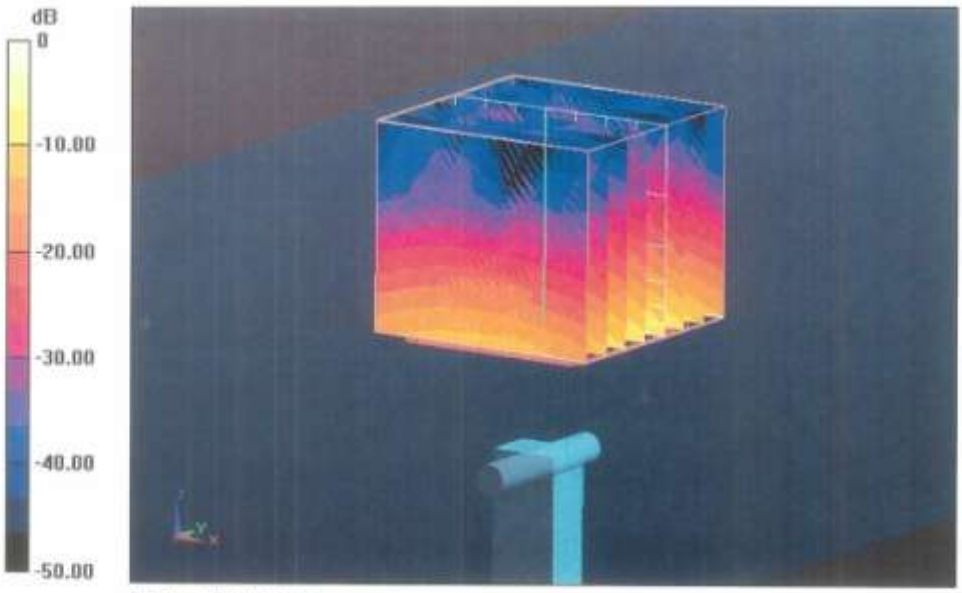
DASY5 Configuration:

- 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: 10.06.2010
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY52, V52.6.2 Build (424)
- Postprocessing SW: SEMCAD X, V14.4.4 Build (2829)

Pin=100mW, f=5200 MHz/Zoom Scan (4x4x1.4mm), dist=1.4mm (8x8x7)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 58.824 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 29.759 W/kg
SAR(1 g) = 7.58 mW/g; SAR(10 g) = 2.11 mW/g
Maximum value of SAR (measured) = 18.228 mW/g

Pin=100mW, f=5500 MHz/Zoom Scan (4x4x1.4mm), dist=1.4mm (8x8x7)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 59.169 V/m; Power Drift = -0.0032 dB
Peak SAR (extrapolated) = 34.496 W/kg
SAR(1 g) = 8.07 mW/g; SAR(10 g) = 2.23 mW/g
Maximum value of SAR (measured) = 19.989 mW/g

Pin=100mW, f=5800 MHz/Zoom Scan (4x4x1.4mm), dist=1.4mm (8x8x7)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 55.872 V/m; Power Drift = -0.08 dB
Peak SAR (extrapolated) = 35.069 W/kg
SAR(1 g) = 7.54 mW/g; SAR(10 g) = 2.07 mW/g
Maximum value of SAR (measured) = 18.922 mW/g



0 dB = 18.920mW/g

Impedance Measurement Plot for Body TSL