

SAR TEST REPORT

HCT CO., LTD



EUT Type:	GSM/CDMA Phone with Bluetooth GPRS Class 12 and GPRS mode class B(GPRS and GSM, but not simultaneously)	
FCC ID:	JYC78	
Model:	C781	
Date of Issue:	June 8, 2011	
Test report No.:	HCTA1106FS03	
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: 82-2-2030-1237	
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	 <hr/> Report prepared by : Sun-Hee Kim Test Engineer of SAR Part	 <hr/> 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 (dW) absorbed by (dissipated in) an incremental mass (dm) contained in a volume element (dV) of a given density (ρ). It is also defined as the rate of RF energy absorption per unit mass at a point in an absorbing body.

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

Figure 2. SAR Mathematical Equation

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

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

where:

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

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

2. DESCRIPTION OF DEVICE

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

EUT Type	GSM/CDMA Phone with Bluetooth GPRS Class 12 and GPRS mode class B(GPRS and GSM, but not simultaneously)
FCC ID	JYC78
Model(s)	C781
Trade Name	Pantech
Serial Number(s)	#1
Application Type	Certification
Modulation(s)	CDMA835/PCS1900/GSM850/GSM1900
Tx Frequency	824.70 - 848.31 MHz (CDMA) 1 851.25 - 1 908.75 MHz (PCS CDMA) 824.20 - 848.80 MHz (GSM850) 1 850.20 - 1 909.80 MHz (GSM1900)
Rx Frequency	869.70 - 893.31 MHz (CDMA) 1 931.25 - 1 988.75 MHz (PCS CDMA) 869.20 - 893.80 MHz (GSM850) 1 930.20 - 1 989.80 MHz (GSM1900)
FCC Classification	Licensed Portable Transmitter Held to Ear (PCE)
Production Unit or Identical Prototype	Prototype
Max SAR	0.772 W/kg CDMA835 Head SAR / 0.951 W/kg CDMA835 Body SAR 0.995 W/kg PCS1900 Head SAR / 0.489 W/kg PCS1900 Body SAR 0.470 W/kg GSM850 Head SAR / 1.12 W/kg GSM850 Body SAR 0.335 W/kg GSM1900 Head SAR / 0.764 W/kg GSM1900 Body SAR
Date(s) of Tests	May 26, 2011 ~ May 27, 2011
Antenna Type	Intenna

3. DESCRIPTION OF TEST EQUIPMENT

3.1 SAR MEASUREMENT SETUP

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

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

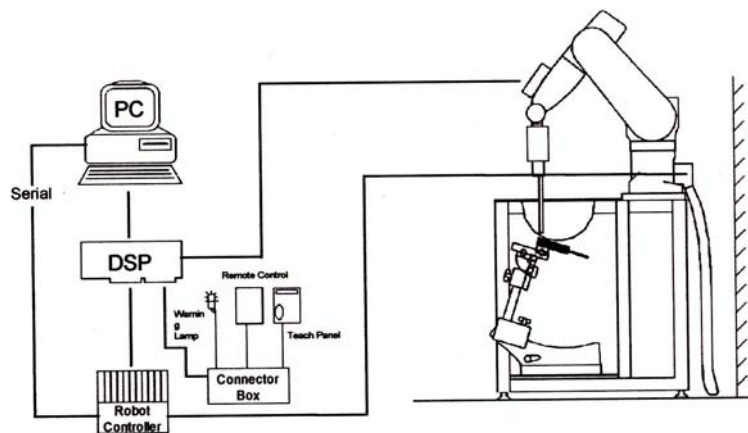


Figure 3.1 HCT SAR Lab. Test Measurement Set-up

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

3.2 DASY E-FIELD PROBE SYSTEM

4.1 ES3DV3 Probe Specification

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

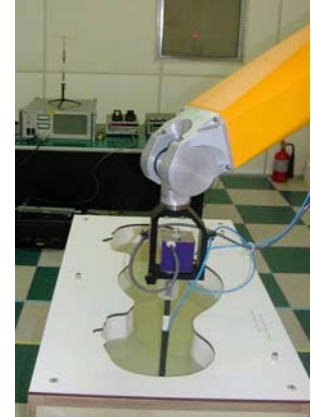


Figure 4.1 Photograph of the probe and the Phantom



Figure 4.2 ES3DV3 E-field Probe

The SAR measurements were conducted with the dosimetric probe ES3DV3, 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 $\pm 10\%$. 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 below 1 GHz, and in a waveguide above 1 GHz for free space. For the free space calibration, the probe is placed in the volumetric center of the cavity and at the proper orientation with the field. The probe is then rotated 360 degrees.

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

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

where:

- Δt = exposure time (30 seconds),
- C = heat capacity of tissue (brain or muscle),
- ΔT = temperature increase due to RF exposure.

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

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

where:

- σ = simulated tissue conductivity,
- ρ = Tissue density (1.25 g/cm³ for brain tissue)

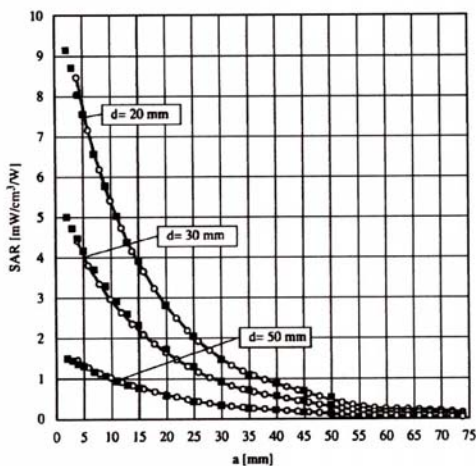


Figure 3.4 E-Field and Temperature measurements at 900 MHz

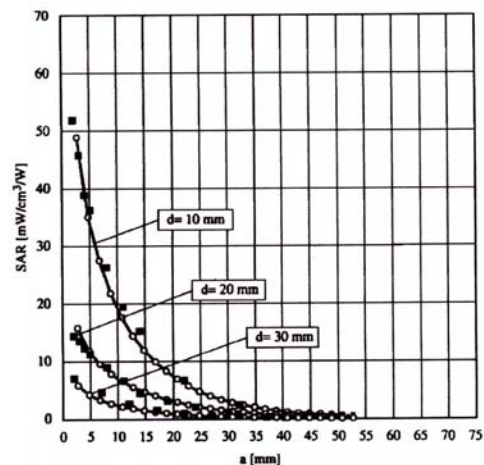


Figure 3.5 E-Field and temperature measurements at 1.8 GHz

3.3.2 Data Extrapolation

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

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

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

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

E-field probes:

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

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

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

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

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

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

with SAR = local specific absorption rate in W/g
 E_{tot} = total field strength in V/m
 σ = conductivity in [mho/m] or [Siemens/m]
 ρ = equivalent tissue density in g/cm³

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/cm²
 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 repeatably 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 bactericide is added and visual inspection is made to make sure air bubbles are not trapped during the mixing process. The mixture is calibrated to obtain proper dielectric constant (permittivity) and conductivity of the desired tissue. The mixture characterizations used for the brain and muscle tissue simulating liquids are according to the data by C. Gabriel and G. Hartsgrove.

Ingredients (% by weight)	Frequency (MHz)									
	450		835		915		1 900		2 450	
Tissue Type	Head	Body	Head	Body	Head	Body	Head	Body	Head	Body
Water	38.56	51.16	41.45	52.4	41.05	56.0	54.9	40.4	62.7	73.2
Salt (NaCl)	3.95	1.49	1.45	1.4	1.35	0.76	0.18	0.5	0.5	0.04
Sugar	56.32	46.78	56.0	45.0	56.5	41.76	0.0	58.0	0.0	0.0
HEC	0.98	0.52	1.0	1.0	1.0	1.21	0.0	1.0	0.0	0.0
Bactericide	0.19	0.05	0.1	0.1	0.1	0.27	0.0	0.1	0.0	0.0
Triton X-100	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	36.8	0.0
DGBE	0.0	0.0	0.0	0.0	0.0	0.0	44.92	0.0	0.0	26.7

Salt:	99 % Pure Sodium Chloride	Sugar:	98 % Pure Sucrose
Water:	De-ionized, 16M resistivity	HEC:	Hydroxyethyl Cellulose
DGBE:	99 % Di(ethylene glycol) butyl ether,[2-(2-butoxyethoxy) ethanol]		
Triton X-100(ultra pure):	Polyethylene glycol mono[4-(1,1,3,3-tetramethylbutyl)phenyl] ether		

Table 3.1 Composition of the Tissue Equivalent Matter

3.7 SAR TEST EQUIPMENT

Manufacturer	Type / Model	S/N	Calib. Date	Calib.Interval	Calib.Due
SPEAG	SAM Phantom	-	N/A	N/A	N/A
Staubli	Robot RX90L	F01/5K09A1/A/01	N/A	N/A	N/A
Staubli	Robot ControllerCS7MB	F99/5A82A1/C/01	N/A	N/A	N/A
HP	Pavilion t000_puffer	KRJ51201TV	N/A	N/A	N/A
SPEAG	Light Alignment Sensor	265	N/A	N/A	N/A
Staubli	Teach Pendant (Joystick)	D221340.01	N/A	N/A	N/A
SPEAG	DAE3	446	Sep. 21, 2010	Annual	Sep. 21, 2011
SPEAG	E-Field Probe ES3DV3	3161	Mar. 17, 2011	Annual	Mar. 17, 2012
SPEAG	Validation Dipole D835V2	481	April 15, 2011	Annual	April 15, 2012
SPEAG	Validation Dipole D1900V2	5d032	July 16, 2010	Annual	July 16, 2011
SPEAG	Validation Dipole D2450V2	743	Aug. 25, 2010	Annual	Aug. 25, 2011
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, 2010	Annual	July 26, 2011
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

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 20 mm x 20 mm. Based on this data, the area of the maximum absorption was determined by spline interpolation.
3. Around this point, a volume of 32 mm x 32 mm x 30 mm was assessed by measuring 5 x 5 x 7 points. On this basis of this data set, the spatial peak SAR value was evaluated with the following procedure:
 - a. The data at the surface were extrapolated, since the center of the dipoles is 2.7 mm away from the tip of the probe and the distance between the surface and the lowest measuring point is 1.2 mm. The extrapolation was based on a least square algorithm. A polynomial of the fourth order was calculated through the points in z-axes. This polynomial was then used to evaluate the points between the surface and the probe tip.
 - b. The maximum interpolated value was searched with a straight-forward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1 g or 10 g) were computed using the 3D-Spline interpolation algorithm. The 3D-spline is composed of three one-dimensional splines with the "Not a knot" condition (in x, y, and z directions. The volume was integrated with the trapezoidal algorithm. One thousand points (10 x 10 x 10) were interpolated to calculate the average.
 - c. All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.
4. The SAR value, at the same location as procedure #1, was re-measured. If the value changed by more than 5 %, the evaluation is repeated.

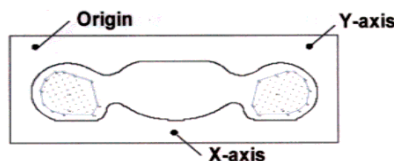


Figure 4.1 SAR Measurement Point in Area Scan

5. DESCRIPTION OF TEST POSITION

5.1 HEAD POSITION

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

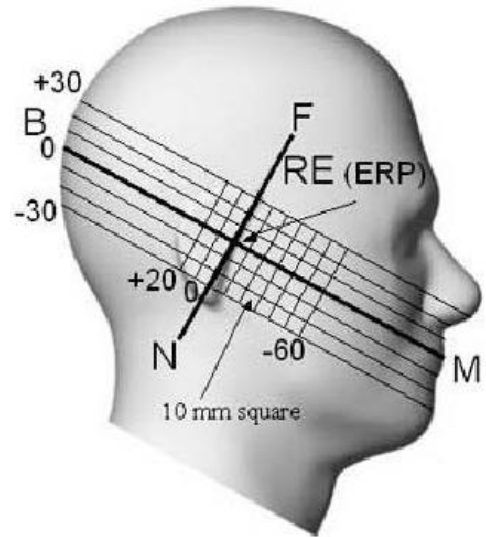


Figure 5.1 Side view of the phantom

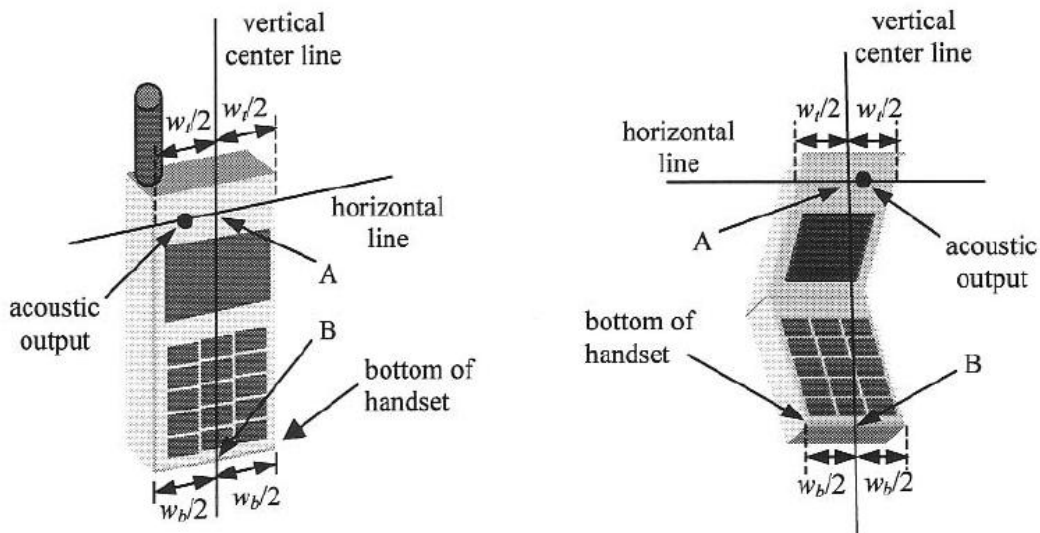


Figure 5.2 Handset vertical and horizontal reference lines

5.2 Body Holster/Belt Clip Configurations

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

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

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

Since this EUT does not supply any body worn accessory to the end user a distance of 2.0 cm from the EUT back surface to the liquid interface is configured for the generic test.

"See the Test SET-UP Photo"

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

In all cases SAR measurements are performed to investigate the worst-case positioning. Worstcase positioning is then documented and used to perform Body SAR testing.

6. MEASUREMENT UNCERTAINTY

Error Description	Tol (± %)	Prob. dist.	Div.	c_i	Standard Uncertainty (± %)	v_{eff}
1. Measurement System						
Probe Calibration	6.00	N	1	1	6.00	∞
Axial Isotropy	4.70	R	173	0.7	1.90	∞
Hemispherical Isotropy	9.60	R	173	0.7	3.88	∞
Boundary Effects	1.00	R	173	1	0.58	∞
Linearity	4.70	R	173	1	2.71	∞
System Detection Limits	1.00	R	173	1	0.58	∞
Readout Electronics	0.30	N	100	1	0.30	∞
Response Time	0.8	R	173	1	0.46	∞
Integration Time	2.6	R	173	1	1.50	∞
RF Ambient Conditions	3.00	R	173	1	1.73	∞
Probe Positioner	0.40	R	173	1	0.23	∞
Probe Positioning	2.90	R	173	1	1.67	∞
Max SAR Eval	1.00	R	173	1	0.58	∞
2. Test Sample Related						
Device Positioning	2.90	N	100	1	2.90	145
Device Holder	3.60	N	100	1	3.60	5
Power Drift	5.00	R	173	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 Permittivity(target)	5.00	R	1.73	0.6	1.73	∞
Liquid Permittivity(meas.)	5.02	N	1	0.6	3.01	9
Combined Standard Uncertainty					11.13	
Coverage Factor for 95 %					$k=2$	
Expanded STD Uncertainty					22.25	

Table 6.1 Uncertainty (800 MHz- 2450 MHz)

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

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

Table 7.1 Safety Limits for Partial Body Exposure

NOTES:

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

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

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

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

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

8. SYSTEM VERIFICATION

8.1 Tissue Verification

Freq. [MHz]	Date	Liquid	Liquid Temp.[°C]	Parameters	Target Value	Measured Value	Deviation [%]	Limit [%]
835	May 26, 2011	Head	21.3	ϵ_r	41.5	43.1	+ 3.86	± 5
				σ	0.90	0.911	+ 1.22	± 5
835	May 26, 2011	Body	21.3	ϵ_r	55.2	56.9	+ 3.08	± 5
				σ	0.97	0.98	+ 1.03	± 5
1 900	May 27, 2011	Head	21.3	ϵ_r	40.0	39.3	- 1.75	± 5
				σ	1.40	1.44	+ 2.86	± 5
1 900	May 27, 2011	Body	21.3	ϵ_r	53.3	52.9	- 0.75	± 5
				σ	1.52	1.56	+ 2.63	± 5

8.2 System Validation

Prior to assessment, the system is verified to the $\pm 10\%$ of the specifications at 835 MHz/ 1 900 MHz by using the system validation kit. (Graphic Plots Attached)

* Input Power: 100 mW

Freq. [MHz]	Date	Liquid	Liquid Temp. [°C]	SAR Average	Target Value (SPEAG) (mW/g)	* Measured Value (mW/g)	Deviation [%]	Limit [%]
835	May 26, 2011	Head	21.3	1 g	9.63	0.975	+ 1.25	± 10
835	May 26, 2011	Body	21.3	1 g	9.84	0.988	+ 0.41	± 10
1 900	May 27, 2011	Head	21.3	1 g	39.9	4.05	+ 1.50	± 10
1 900	May 27, 2011	Body	21.3	1 g	41.5	4.28	+ 3.13	± 10

9. RF CONDUCTED POWER

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

9.1 Procedures Used to Establish RF Signal for SAR

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[4] 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 than 5 % occurred, the tests were repeated.

9.2 SAR Measurement Conditions for CDMA2000 1x

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

9.2.1 Output Power Verification

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

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

Parameters for Max. Power for RC1

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

Table. 9.1

Parameters for Max. Power for RC3

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

Table. 9.2

9.2.2 Head SAR Measurement

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

9.2.3 Body SAR Measurement

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

Body SAR in RC1 is not required when the maximum average output of each channel is less than ¼ dB higher than that measured in RC3. Otherwise, SAR is measured on the maximum output channel in RC1; with Loopback Service Option SO55, at full rate, using the body exposure configuration that results in the highest SAR for that channel in RC3.

Average Output Power Measurement for FCC ID: JYC78

Band	Channel	SO2	SO2	SO55	SO55	TDSO SO32	1xEvDO Rev.0	1xEvDO Rev.0	1xEvDO Rev.A	1xEvDO Rev.A
		RC1/1	RC3/3	RC1/1	RC3/3	RC3/3	(FTAP)	(RTAP)	(FETAP)	(RETAP)
CDMA	1013	23.99	23.93	24.01	23.95	23.95	23.68	23.77	23.74	23.77
	384	23.90	23.93	23.99	23.94	23.94	23.66	23.74	23.77	23.70
	777	23.88	23.76	23.85	23.78	23.83	23.65	23.61	23.56	23.60
PCS	25	24.27	24.13	24.16	24.14	24.13	23.93	24.13	24.03	23.96
	600	24.02	23.85	23.86	23.89	23.85	23.65	23.68	23.72	23.64
	1175	23.87	23.75	23.87	23.77	23.80	23.58	23.61	23.64	23.70

Table 1. CDMA Conducted output powers

Band	Channel	Voice	GPRS Data			
		GSM (dBm)	GPRS 1 TX Slot (dBm)	GPRS 2 TX Slot (dBm)	GPRS 3 TX Slot (dBm)	GPRS 4 TX Slot (dBm)
GSM 850	128	32.95	32.95	31.88	30.99	30.16
	190	32.81	32.81	31.65	30.98	30.20
	251	32.62	32.62	31.74	30.99	30.09
GSM 1900	512	29.26	29.24	29.09	29.04	27.78
	661	29.55	29.55	29.36	29.06	28.28
	810	29.72	29.72	29.57	29.07	28.26

Table 2. GSM Conducted output powers

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

10.1 SAR Evaluation Considerations

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

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

Table. 10.1 Output Power Thresholds for Unlicensed Transmitters

	Individual Transmitter	Simultaneous Transmission
Licensed Transmitters	<u>Routine evaluation required</u>	<u>SAR not required:</u> <u>Unlicensed only</u>
Unlicensed Transmitters	<p><u>When there is no simultaneous transmission –</u></p> <ul style="list-style-type: none"> output ≤ 60/f: SAR not required output > 60/f: stand-alone SAR required <p><u>When there is simultaneous transmission –</u></p> <p><u>Stand-alone SAR not required when</u></p> <ul style="list-style-type: none"> output $\leq 2 \cdot P_{Ref}$ and antenna is ≥ 5.0 cm from other antennas output $\leq P_{Ref}$ and antenna is ≥ 2.5 cm from other antennas output $\leq P_{Ref}$ and antenna is < 2.5 cm from other antennas, each with either output power $\leq P_{Ref}$ or 1-g SAR < 1.2 W/kg <p><u>Otherwise stand-alone SAR is required</u></p> <p><u>When stand-alone SAR is required</u></p> <ul style="list-style-type: none"> test SAR on highest output channel for each wireless mode and exposure condition if SAR for highest output channel is $> 50\%$ of SAR limit, evaluate all channels according to normal procedures 	<ul style="list-style-type: none"> when stand-alone 1-g SAR is not required and antenna is ≥ 5 cm from other antennas <p><u>Licensed & Unlicensed</u></p> <ul style="list-style-type: none"> when the sum of the 1-g SAR is < 1.6 W/kg for all simultaneous transmitting antennas when SAR to peak location separation ratio of simultaneous transmitting antenna pair is < 0.3 <p><u>SAR required:</u></p> <p><u>Licensed & Unlicensed</u></p> <p>antenna pairs with SAR to peak location separation ratio ≥ 0.3; test is only required for the configuration that results in the highest SAR in stand-alone configuration for each wireless mode and exposure condition</p> <p>Note: simultaneous transmission exposure conditions for head and body can be different for different style phones; therefore, different test requirements may apply</p>
Jaw, Mouth and Nose	<p><u>Flat phantom SAR required</u></p> <ul style="list-style-type: none"> when measurement is required in tight regions of SAM and it is not feasible or the results can be questionable due to probe tilt, calibration, positioning and orientation issues position rectangular and clam-shell phones according to flat phantom procedures and conduct SAR measurements for these specific locations 	When simultaneous transmission SAR testing is required, contact the FCC Laboratory for interim guidance.

Table. 10.2 SAR Evaluation Requirements for Cellphones with Multiple Transmitters

FCC ID: JYC78

BT Max. RF output power: 0.97 dBm(1.25 mW)

Antenna separation distance: 6.9 cm

Because the conducted output power level of the BT transmitter is less than $2 \cdot P_{ref}$, and the BT antenna is more than 5.0 cm from the Main antenna, neither simultaneous SAR nor stand-alone BT SAR are required for the EUT.

11. SAR TEST DATA SUMMARY

11.1 Measurement Results (CDMA835 Head SAR)

Frequency		Modulation	Conducted Power (dBm)		Battery	Phantom Position	Antenna Type	SAR(mW/g)
MHz	Channel		Begin	End				
836.52	384 (Mid)	CDMA835	23.94	24.00	Standard	Left Ear	Intenna	0.748
836.52	384 (Mid)	CDMA835	23.94	23.93	Standard	Left Tilt 15°	Intenna	0.199
836.52	384 (Mid)	CDMA835	23.94	23.90	Standard	Right Ear	Intenna	0.772
836.52	384 (Mid)	CDMA835	23.94	23.98	Standard	Right Tilt 15°	Intenna	0.177
836.52	384 (Mid)	CDMA835	23.94	24.08	Extended	Right Ear	Intenna	*0.665
836.52	384 (Mid)	CDMA835	23.94	23.90	Standard	Front 2.5 cm without Holster	Intenna	**0.557
ANSI/ IEEE C95.1 1992 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population						Head 1.6 W/kg (mW/g) Averaged over 1 gram		

NOTES:

- 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].
- All modes of operation were investigated and the worst-case are reported.
- Measured Depth of Simulating Tissue is 15.0 cm ± 0.2 cm.
- Tissue parameters and temperatures are listed on the SAR plot.
- Battery Type ☒ Standard ☐ Extended ☐ Slim
Batteries are fully charged for all readings.
- Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
- Head SAR was tested under RC3/SO55.
- Justification for reduced test configurations: per FCC/OET Supplement C (July, 2001), if the SAR measured at the middle channel for each test configuration (Left, right, cheek/touch, tilt/ear, extended and retracted) is at least 3.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s).
- Highest SAR value measurement in this band repeated with *Extended battery.
- Highest SAR value measurement in this band repeated in **PTT Mode.

11.2 Measurement Results (PCS1900 Head SAR Touch)

Frequency		Modulation	Conducted Power (dBm)		Battery	Phantom Position	Antenna Type	SAR(mW/g)
MHz	Channel		Begin	End				
1 880.00	600 (Mid)	PCS1900	23.89	23.92	Standard	Left Ear	Intenna	0.730
1 880.00	600 (Mid)	PCS1900	23.89	23.87	Standard	Left Tilt 15°	Intenna	0.155
1 851.25	25 (Low)	PCS1900	24.14	24.26	Standard	Right Ear	Intenna	0.945
1 880.00	600 (Mid)	PCS1900	23.89	23.81	Standard	Right Ear	Intenna	0.995
1 908.75	1175 (High)	PCS1900	23.77	23.74	Standard	Right Ear	Intenna	0.649
1 880.00	600 (Mid)	PCS1900	23.89	23.81	Standard	Right Tilt 15°	Intenna	0.184
1 880.00	600 (Mid)	PCS1900	23.89	23.87	Extended	Right Ear	Intenna	*0.947
1 880.00	600 (Mid)	PCS1900	23.89	23.86	Standard	Front 2.5 cm without Holster	Intenna	**0.250
ANSI/ IEEE C95.1 1992 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population						Head 1.6 W/kg (mW/g) Averaged over 1 gram		

NOTES:

- 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].
- All modes of operation were investigated and the worst-case are reported.
- Measured Depth of Simulating Tissue is 15.0 cm ± 0.2 cm.
- Tissue parameters and temperatures are listed on the SAR plot.
- Battery Type ☒ Standard ☐ Extended ☐ Slim
Batteries are fully charged for all readings.
- Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
- Head SAR was tested under RC3/SO55.
- Highest SAR value measurement in this band repeated with *Extended battery.
- Highest SAR value measurement in this band repeated in **PTT Mode.

11.3 Measurement Results (GSM850 Head SAR Touch)

Frequency		Modulation	Conducted Power (dBm)		Battery	Phantom Position	Antenna Type	SAR(mW/g)
MHz	Channel		Begin	End				
836.6	190 (Mid)	GSM850	32.81	32.83	Standard	Left Ear	Intenna	0.470
836.6	190 (Mid)	GSM850	32.81	32.75	Standard	Left Tilt 15°	Intenna	0.128
836.6	190 (Mid)	GSM850	32.81	32.72	Standard	Right Ear	Intenna	0.415
836.6	190 (Mid)	GSM850	32.81	32.99	Standard	Right Tilt 15°	Intenna	0.097
836.6	190 (Mid)	GSM850	32.81	32.75	Extended	Left Ear	Intenna	*0.461
836.6	190 (Mid)	GSM850	32.81	32.61	Standard	Front 2.5 cm without Holster	Intenna	**0.383
ANSI/ IEEE C95.1 1992 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population						Head 1.6 W/kg (mW/g) Averaged over 1 gram		

NOTES:

- 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].
- All modes of operation were investigated and the worst-case are reported.
- Measured Depth of Simulating Tissue is 15.0 cm ± 0.2 cm.
- Tissue parameters and temperatures are listed on the SAR plot.
- Battery Type ☒ Standard ☐ Extended ☐ Slim
Batteries are fully charged for all readings.
- Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
- Justification for reduced test configurations: per FCC/OET Supplement C (July, 2001), if the SAR measured at the middle channel for each test configuration (Left, right, cheek/touch, tilt/ear, extended and retracted) is at least 3.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s).
- Highest SAR value measurement in this band repeated with *Extended battery.
- Highest SAR value measurement in this band repeated in **PTT Mode.

11.4 Measurement Results (GSM1900 Head SAR Touch)

Frequency		Modulation	Conducted Power (dBm)		Battery	Phantom Position	Antenna Type	SAR(mW/g)
MHz	Channel		Begin	End				
1 880.0	661 (Mid)	GSM1900	29.55	29.56	Standard	Left Ear	Intenna	0.269
1 880.0	661 (Mid)	GSM1900	29.55	29.40	Standard	Left Tilt 15°	Intenna	0.062
1 880.0	661 (Mid)	GSM1900	29.55	29.42	Standard	Right Ear	Intenna	0.335
1 880.0	661 (Mid)	GSM1900	29.55	29.59	Standard	Right Tilt 15°	Intenna	0.067
1 880.0	661 (Mid)	GSM1900	29.55	29.48	Extended	Right Ear	Intenna	*0.291
1 880.0	661 (Mid)	GSM1900	29.55	29.46	Standard	Front 2.5 cm without Holster	Intenna	**0.092
ANSI/ IEEE C95.1 1992 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population						Head 1.6 W/kg (mW/g) Averaged over 1 gram		

NOTES:

- 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].
- All modes of operation were investigated and the worst-case are reported.
- Measured Depth of Simulating Tissue is 15.0 cm ± 0.2 cm.
- Tissue parameters and temperatures are listed on the SAR plot.
- Battery Type ☒ Standard ☐ Extended ☐ Slim
Batteries are fully charged for all readings.
- Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
- Justification for reduced test configurations: per FCC/OET Supplement C (July, 2001), if the SAR measured at the middle channel for each test configuration (Left, right, cheek/touch, tilt/ear, extended and retracted) is at least 3.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s).
- Highest SAR value measurement in this band repeated with *Extended battery.
- Highest SAR value measurement in this band repeated in **PTT Mode.

11.5 Measurement Results (CDMA835 Body SAR)

Frequency		Modulation	Conducted Power (dBm)		Configuration	Battery	Phantom Position	Antenna Type	SAR(mW/g)
MHz	Channel		Begin	End					
824.7	1013 (Low)	CDMA835	23.95	23.95	Rear	Standard	2.0 cm without Holster	Intenna	0.951
836.52	384 (Mid)	CDMA835	23.94	23.87	Rear	Standard	2.0 cm without Holster	Intenna	0.925
848.31	777 (High)	CDMA835	23.83	23.68	Rear	Standard	2.0 cm without Holster	Intenna	0.768
824.7	1013 (Low)	CDMA835	23.95	24.01	Rear	Extended	2.0 cm without Holster	Intenna	*0.874
ANSI/ IEEE C95.1 2005 – Safety Limit Spatial Peak Uncontrolled Exposure/ General Population							Body 1.6 W/kg (Mw/g) Averaged over 1 gram		

NOTES:

- 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].
- All modes of operation were investigated and the worst-case are reported.
- Measured Depth of Simulating Tissue is 15.0 cm ± 0.2 cm.
- Tissue parameters and temperatures are listed on the SAR plot.
- Battery Type ☒ Standard ☒ Extended ☐ Slim
Batteries are fully charged for all readings.
- Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
- HEADSET was connected.
- Test Configuration ☒ With Holster ☒ Without Holster
- Body SAR was tested under RC3/SO32.
- Justification for reduced test configurations: per FCC/OET Supplement C (July, 2001), if the SAR measured at the middle channel for each test configuration (Left, right, cheek/touch, tilt/ear, extended and retracted) is at least 3.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s).
- Highest SAR value measurement in this band repeated with *Extended battery.

11.6 Measurement Results (PCS1900 Body SAR)

Frequency		Modulation	Conducted Power (dBm)		Configuration	Phantom Position	Antenna Type	SAR(mW/g)
MHz	Channel		Begin	End				
1 880.00	600 (Mid)	PCS1900	23.85	23.96	Rear	2.0 cm without Holster	Intenna	0.489
1 880.00	600 (Mid)	PCS1900	23.85	23.75	Rear	2.0 cm without Holster	Intenna	*0.398
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:

- 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].
- All modes of operation were investigated and the worst-case are reported.
- Measured Depth of Simulating Tissue is 15.0 cm ± 0.2 cm.
- Tissue parameters and temperatures are listed on the SAR plot.
- Battery Type ☒ Standard ☒ Extended ☐ Slim
Batteries are fully charged for all readings.
- Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
- HEADSET was connected.
- Test Configuration ☒ With Holster ☒ Without Holster
- Body SAR was tested under RC3/SO32.
- Justification for reduced test configurations: per FCC/OET Supplement C (July, 2001), if the SAR measured at the middle channel for each test configuration (Left, right, cheek/touch, tilt/ear, extended and retracted) is at least 3.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s).
- Highest SAR value measurement in this band repeated with *Extended battery.

11.7 Measurement Results (GSM850 Body SAR)

Frequency		Modulation	Conducted Power (dBm)		Configuration	Phantom Position	Antenna Type	SAR(mW/g)
MHz	Channel		Begin	End				
824.2	128 (Low)	GPRS 4Tx	30.16	29.99	Rear	2.0 cm without Holster	Intenna	1.12
836.6	190 (Mid)	GPRS 4Tx	30.20	30.12	Rear	2.0 cm without Holster	Intenna	1.11
848.8	251 (High)	GPRS 4Tx	30.09	30.09	Rear	2.0 cm without Holster	Intenna	1.12
824.2	128 (Low)	GPRS 4Tx	30.16	30.07	Rear	2.0 cm without Holster	Intenna	*0.981
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:

- 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].
- All modes of operation were investigated and the worst-case are reported.
- Measured Depth of Simulating Tissue is 15.0 cm ± 0.2 cm.
- Tissue parameters and temperatures are listed on the SAR plot.
- Battery Type ☒ Standard ☒ Extended ☐ Slim
Batteries are fully charged for all readings.
- Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
- HEADSET was connected.
- Test Configuration ☒ With Holster ☒ Without Holster
- Justification for reduced test configurations: per FCC/OET Supplement C (July, 2001), if the SAR measured at the middle channel for each test configuration (Left, right, cheek/touch, tilt/ear, extended and retracted) is at least 3.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s).
- Highest SAR value measurement in this band repeated with *Extended battery.

11.8 Measurement Results (GSM1900 Body SAR)

Frequency		Modulation	Conducted Power (dBm)		Configuration	Phantom Position	Antenna Type	SAR(mW/g)
MHz	Channel		Begin	End				
824.2	512 (Low)	GPRS 4Tx	27.78	27.91	Rear	2.0 cm without Holster	Intenna	0.764
836.6	661 (Mid)	GPRS 4Tx	28.28	28.25	Rear	2.0 cm without Holster	Intenna	*0.545
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:

- 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].
- All modes of operation were investigated and the worst-case are reported.
- Measured Depth of Simulating Tissue is 15.0 cm ± 0.2 cm.
- Tissue parameters and temperatures are listed on the SAR plot.
- Battery Type ☒ Standard ☒ Extended ☐ Slim
Batteries are fully charged for all readings.
- Test Signal Call Mode ☐ Manual Test cord ☒ Base Station Simulator
- HEADSET was connected.
- Test Configuration ☒ With Holster ☒ Without Holster
- Justification for reduced test configurations: per FCC/OET Supplement C (July, 2001), if the SAR measured at the middle channel for each test configuration (Left, right, cheek/touch, tilt/ear, extended and retracted) is at least 3.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s).
- Highest SAR value measurement in this band repeated with *Extended battery.

12. 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.

13. REFERENCES

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Attachment 1. – SAR Test Plots

Test Laboratory: HCT CO., LTD
 EUT Type: GSM/CDMA Phone with Bluetooth
 GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
 Liquid Temperature: 21.3 °C
 Ambient Temperature: 21.5 °C
 Test Date: May 26, 2011

DUT: C781; Type: Folder; Serial: #1

Communication System: CDMA 835MHz FCC; Frequency: 836.52 MHz; Duty Cycle: 1:1
 Medium parameters used (interpolated): $f = 836.52 \text{ MHz}$; $\sigma = 0.912 \text{ mho/m}$; $\epsilon_r = 43.1$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(6.1, 6.1, 6.1); Calibrated: 2011-03-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2010-09-21
- Phantom: 800/900 Phantom; Type: SAM

Left touch 384/Area Scan (51x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.829 mW/g

Left touch 384/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

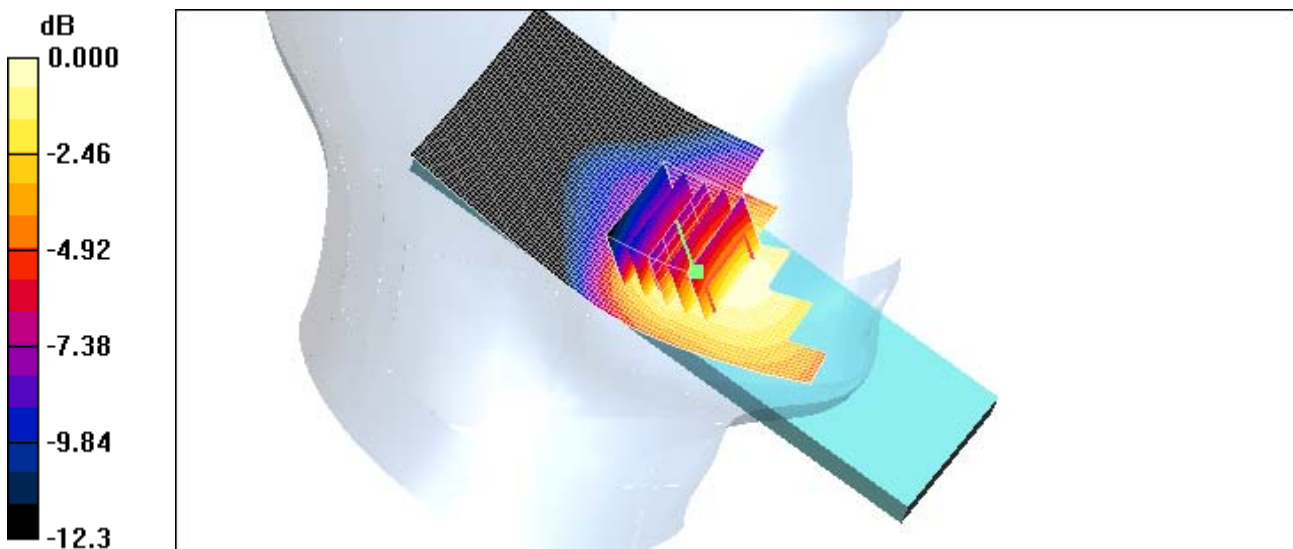
Reference Value = 16.5 V/m; Power Drift = 0.057 dB

Peak SAR (extrapolated) = 1.27 W/kg

SAR(1 g) = 0.748 mW/g; SAR(10 g) = 0.522 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.780 mW/g



0 dB = 0.780mW/g

Test Laboratory: HCT CO., LTD
EUT Type: GSM/CDMA Phone with Bluetooth
GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: May 26, 2011

DUT: C781; Type: Folder; Serial: #1

Communication System: CDMA 835MHz FCC; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 836.52 \text{ MHz}$; $\sigma = 0.912 \text{ mho/m}$; $\epsilon_r = 43.1$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(6.1, 6.1, 6.1); Calibrated: 2011-03-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2010-09-21
- Phantom: 800/900 Phantom; Type: SAM

Left tilt 384/Area Scan (51x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.209 mW/g

Left tilt 384/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

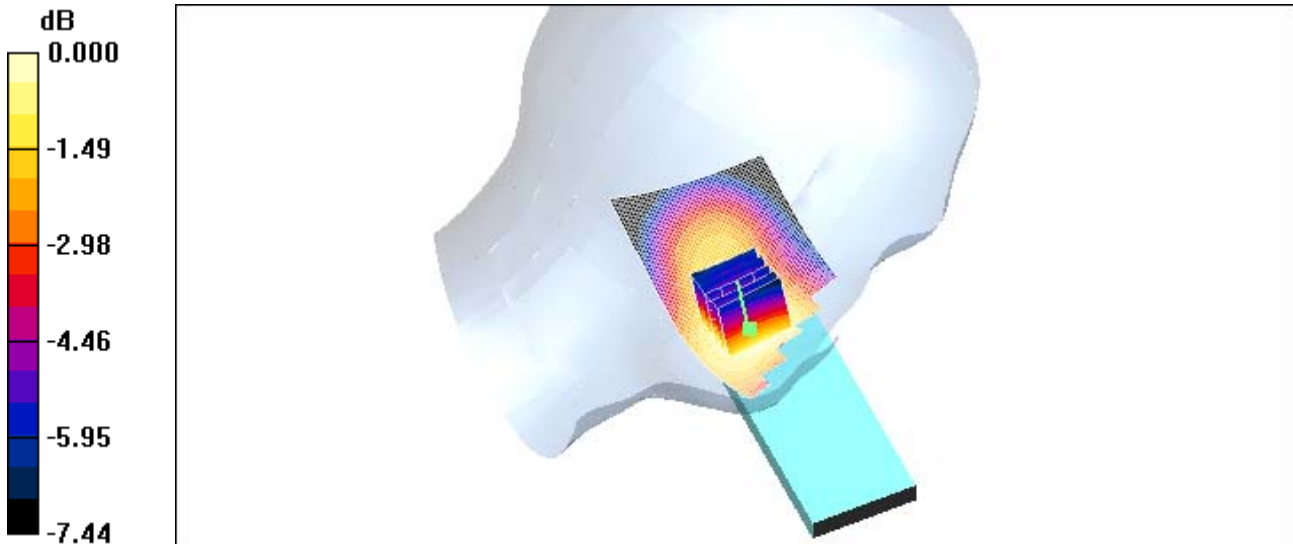
Reference Value = 13.9 V/m; Power Drift = -0.007 dB

Peak SAR (extrapolated) = 0.248 W/kg

SAR(1 g) = 0.199 mW/g; SAR(10 g) = 0.151 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.208 mW/g



0 dB = 0.208mW/g

Test Laboratory: HCT CO., LTD
EUT Type: GSM/CDMA Phone with Bluetooth
GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: May 26, 2011

DUT: C781; Type: Folder; Serial: #1

Communication System: CDMA 835MHz FCC; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 836.52 \text{ MHz}$; $\sigma = 0.912 \text{ mho/m}$; $\epsilon_r = 43.1$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(6.1, 6.1, 6.1); Calibrated: 2011-03-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2010-09-21
- Phantom: 800/900 Phantom; Type: SAM

Right touch 384/Area Scan (51x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.839 mW/g

Right touch 384/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 19.4 V/m; Power Drift = -0.044 dB

Peak SAR (extrapolated) = 1.04 W/kg

SAR(1 g) = 0.768 mW/g; SAR(10 g) = 0.539 mW/g

Maximum value of SAR (measured) = 0.815 mW/g

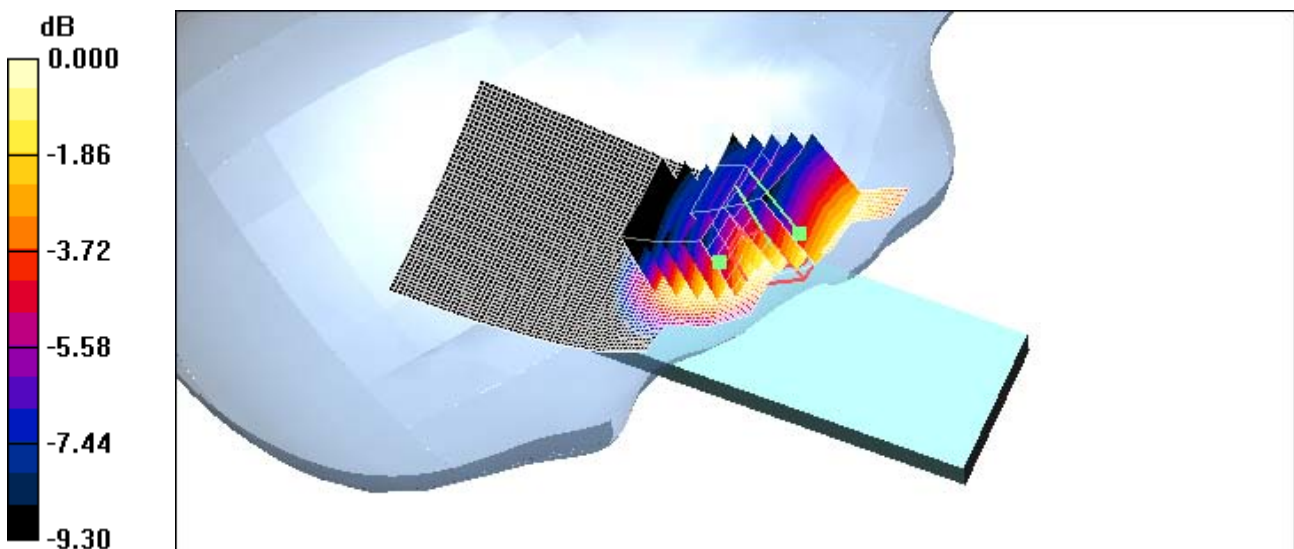
Right touch 384/Zoom Scan (5x5x7)/Cube 1: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 19.4 V/m; Power Drift = -0.044 dB

Peak SAR (extrapolated) = 1.03 W/kg

SAR(1 g) = 0.772 mW/g; SAR(10 g) = 0.560 mW/g

Maximum value of SAR (measured) = 0.818 mW/g



0 dB = 0.818mW/g

Test Laboratory: HCT CO., LTD
 EUT Type: GSM/CDMA Phone with Bluetooth
 GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
 Liquid Temperature: 21.3 °C
 Ambient Temperature: 21.5 °C
 Test Date: May 26, 2011

DUT: C781; Type: Folder; Serial: #1

Communication System: CDMA 835MHz FCC; Frequency: 836.52 MHz; Duty Cycle: 1:1
 Medium parameters used (interpolated): $f = 836.52 \text{ MHz}$; $\sigma = 0.912 \text{ mho/m}$; $\epsilon_r = 43.1$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(6.1, 6.1, 6.1); Calibrated: 2011-03-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2010-09-21
- Phantom: 800/900 Phantom; Type: SAM

Right tilt 384/Area Scan (51x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.186 mW/g

Right tilt 384/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

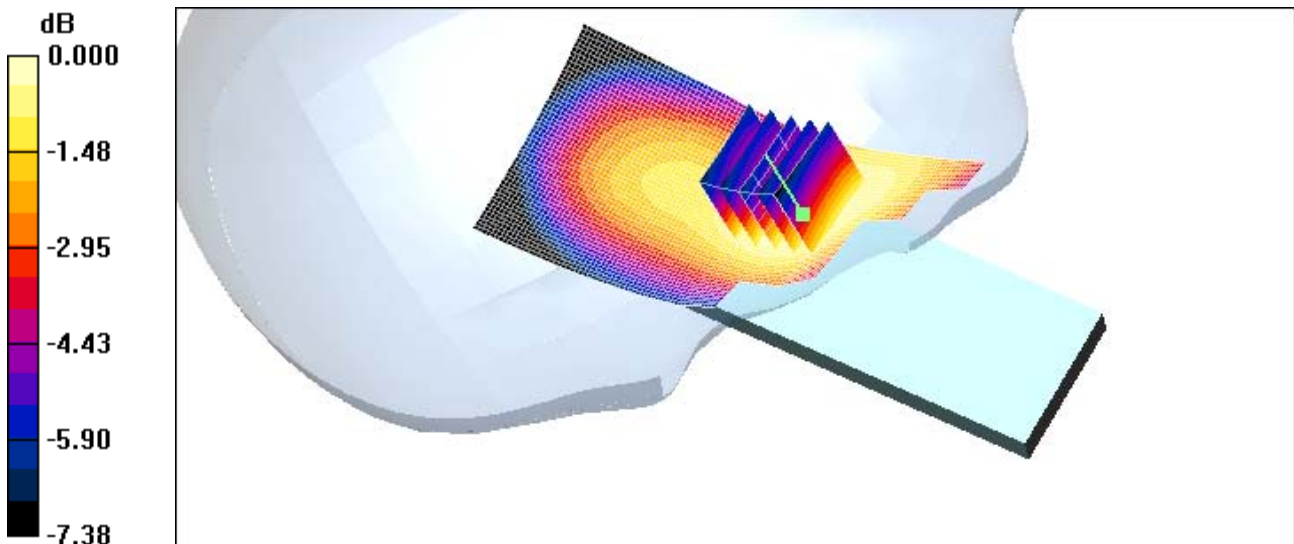
Reference Value = 13.5 V/m; Power Drift = 0.038 dB

Peak SAR (extrapolated) = 0.224 W/kg

SAR(1 g) = 0.177 mW/g; SAR(10 g) = 0.134 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.185 mW/g



0 dB = 0.185mW/g

Test Laboratory: HCT CO., LTD
EUT Type: GSM/CDMA Phone with Bluetooth
GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: May 26, 2011
option Extended Battery

DUT: C781; Type: Folder; Serial: #1

Communication System: CDMA 835MHz FCC; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 836.52$ MHz; $\sigma = 0.912$ mho/m; $\epsilon_r = 43.1$; $\rho = 1000$ kg/m³
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(6.1, 6.1, 6.1); Calibrated: 2011-03-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2010-09-21
- Phantom: SAM 835/900 MHz; Type: SAM

Right touch 384/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.747 mW/g

Right touch 384/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

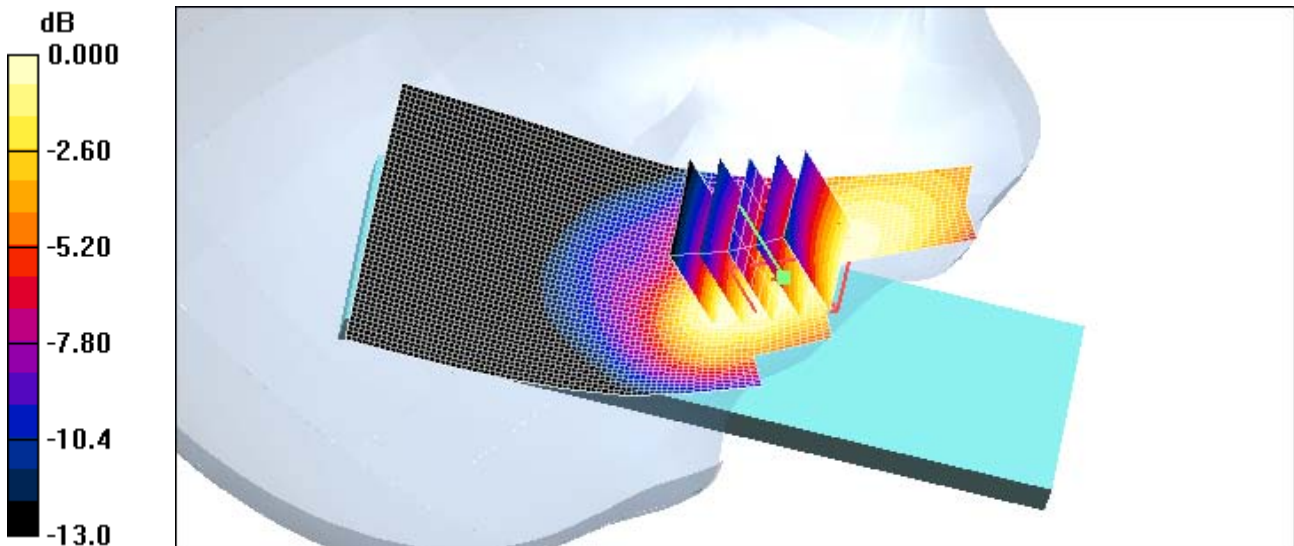
Reference Value = 12.1 V/m; Power Drift = 0.137 dB

Peak SAR (extrapolated) = 0.952 W/kg

SAR(1 g) = 0.665 mW/g; SAR(10 g) = 0.449 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.714 mW/g



Test Laboratory: HCT CO., LTD
 EUT Type: GSM/CDMA Phone with Bluetooth
 GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
 Liquid Temperature: 21.3 °C
 Ambient Temperature: 21.5 °C
 Test Date: May 26, 2011
 option PPT Mode

DUT: C781; Type: Bar; Serial: #1

Communication System: CDMA 835MHz FCC; Frequency: 836.52 MHz; Duty Cycle: 1:1
 Medium parameters used (interpolated): $f = 836.52 \text{ MHz}$; $\sigma = 0.912 \text{ mho/m}$; $\epsilon_r = 43.1$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
 - Probe: ES3DV3 - SN3161; ConvF(6.1, 6.1, 6.1); Calibrated: 2011-03-17
 - Sensor-Surface: 4mm (Mechanical Surface Detection)
 - Electronics: DAE3 Sn446; Calibrated: 2010-09-21
 - Phantom: SAM 835/900 MHz; Type: SAM

CDMA Face PTT 384/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.591 mW/g

CDMA Face PTT 384/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

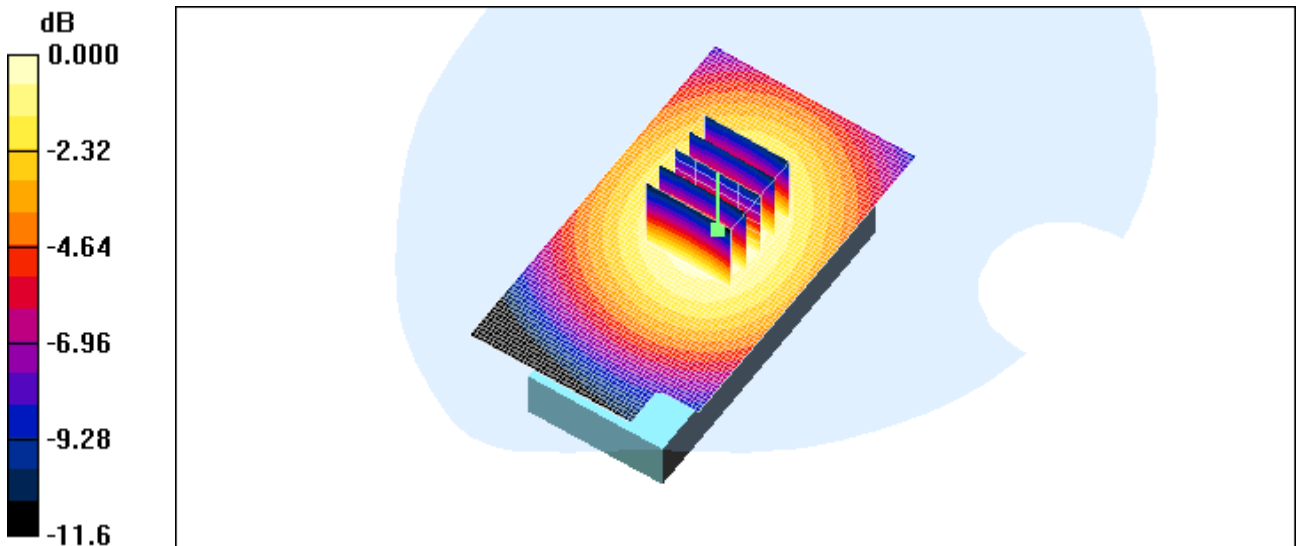
Reference Value = 18.7 V/m; Power Drift = -0.044 dB

Peak SAR (extrapolated) = 0.797 W/kg

SAR(1 g) = 0.557 mW/g; SAR(10 g) = 0.378 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.592 mW/g



0 dB = 0.592mW/g

Test Laboratory: HCT CO., LTD
EUT Type: GSM/CDMA Phone with Bluetooth
GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: May 27, 2011

DUT: C781; Type: Folder; Serial: #1

Communication System: PCS 1900MHz FCC; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1880$ MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 39.3$; $\rho = 1000$ kg/m³
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(4.91, 4.91, 4.91); Calibrated: 2011-03-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2010-09-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Left touch 600/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.752 mW/g

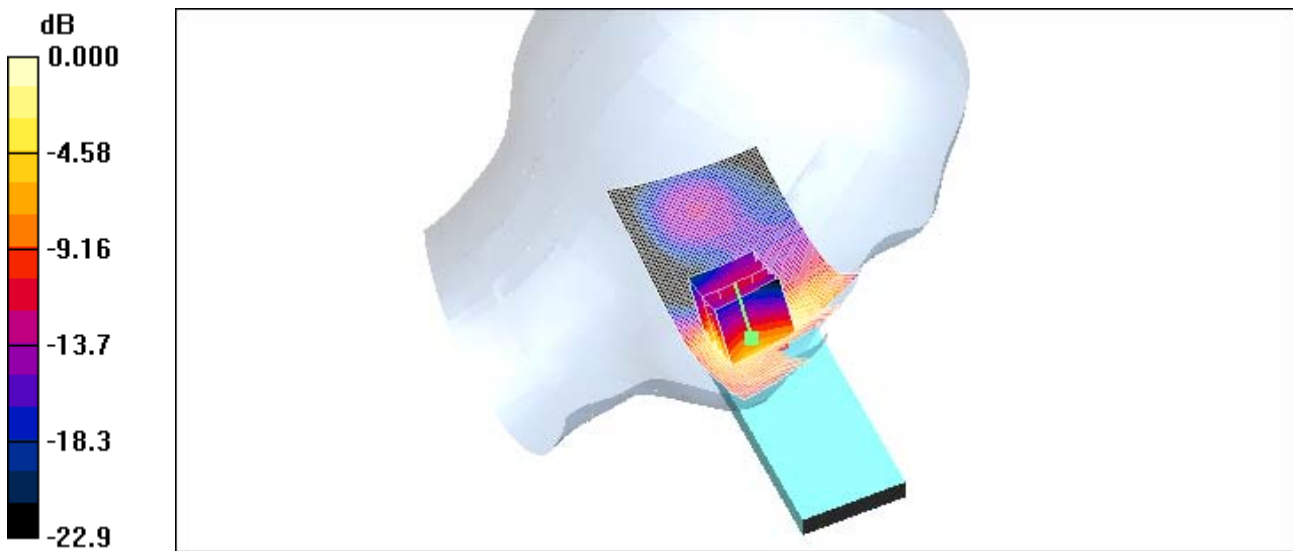
Left touch 600/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 6.77 V/m; Power Drift = 0.031 dB

Peak SAR (extrapolated) = 1.26 W/kg

SAR(1 g) = 0.730 mW/g; SAR(10 g) = 0.385 mW/g

Maximum value of SAR (measured) = 0.823 mW/g



0 dB = 0.823mW/g

Test Laboratory: HCT CO., LTD
EUT Type: GSM/CDMA Phone with Bluetooth
GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: May 27, 2011

DUT: C781; Type: Folder; Serial: #1

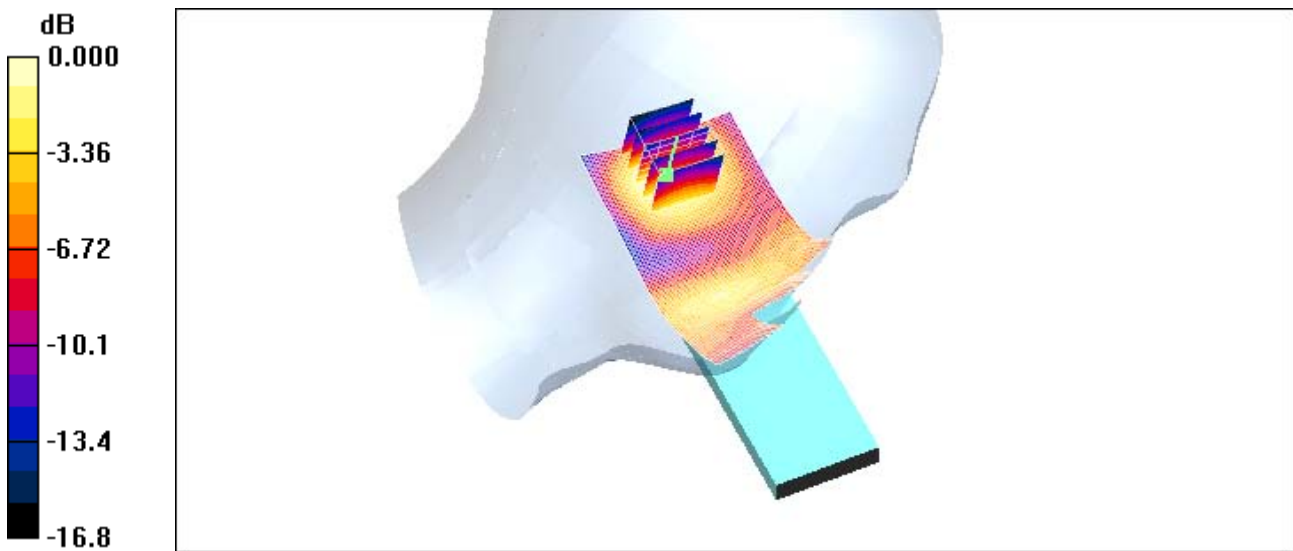
Communication System: PCS 1900MHz FCC; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.4 \text{ mho/m}$; $\epsilon_r = 39.3$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD,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

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(4.91, 4.91, 4.91); Calibrated: 2011-03-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2010-09-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Left tilt 600/Area Scan (51x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.186 mW/g

Left tilt 600/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 5.02 V/m; Power Drift = -0.024 dB
Peak SAR (extrapolated) = 0.248 W/kg
SAR(1 g) = 0.155 mW/g; SAR(10 g) = 0.092 mW/g
Maximum value of SAR (measured) = 0.168 mW/g



0 dB = 0.168mW/g

Test Laboratory: HCT CO., LTD
 EUT Type: GSM/CDMA Phone with Bluetooth
 GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
 Liquid Temperature: 21.3 °C
 Ambient Temperature: 21.5 °C
 Test Date: May 27, 2011

DUT: C781; Type: Folder; Serial: #1

Communication System: PCS 1900MHz FCC; Frequency: 1851.25 MHz; Duty Cycle: 1:1
 Medium parameters used (interpolated): $f = 1851.25 \text{ MHz}$; $\sigma = 1.35 \text{ mho/m}$; $\epsilon_r = 40.1$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(4.91, 4.91, 4.91); Calibrated: 2011-03-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2010-09-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Right touch 25/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.913 mW/g

Right touch 25/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

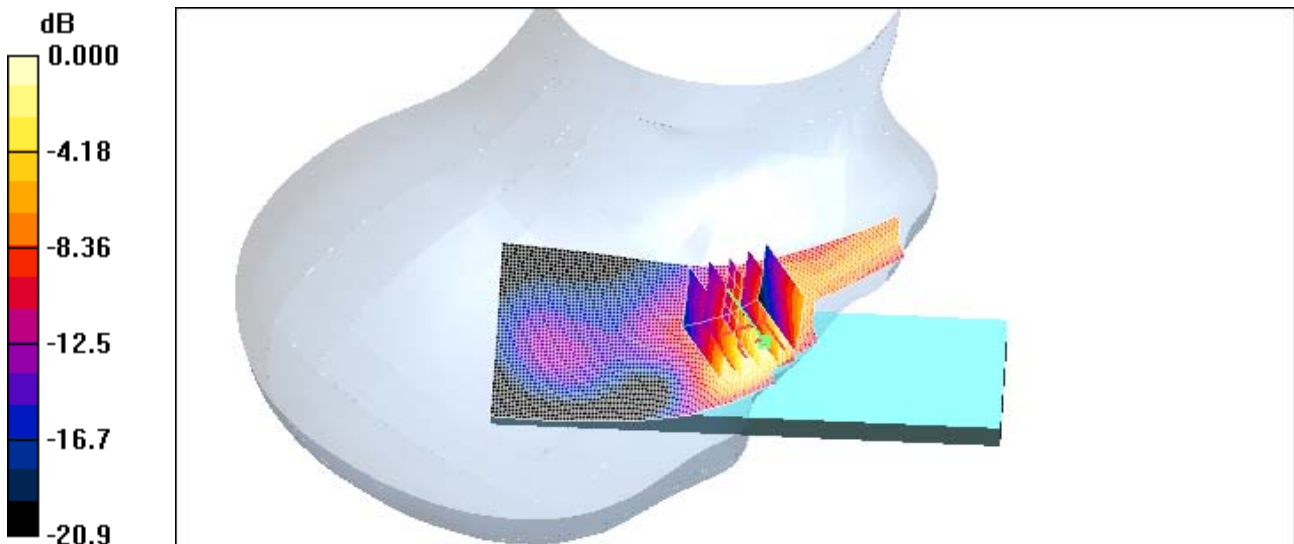
Reference Value = 10.3 V/m; Power Drift = 0.123 dB

Peak SAR (extrapolated) = 1.56 W/kg

SAR(1 g) = 0.945 mW/g; SAR(10 g) = 0.524 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: GSM/CDMA Phone with Bluetooth
GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: May 27, 2011

DUT: C781; Type: Folder; Serial: #1

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

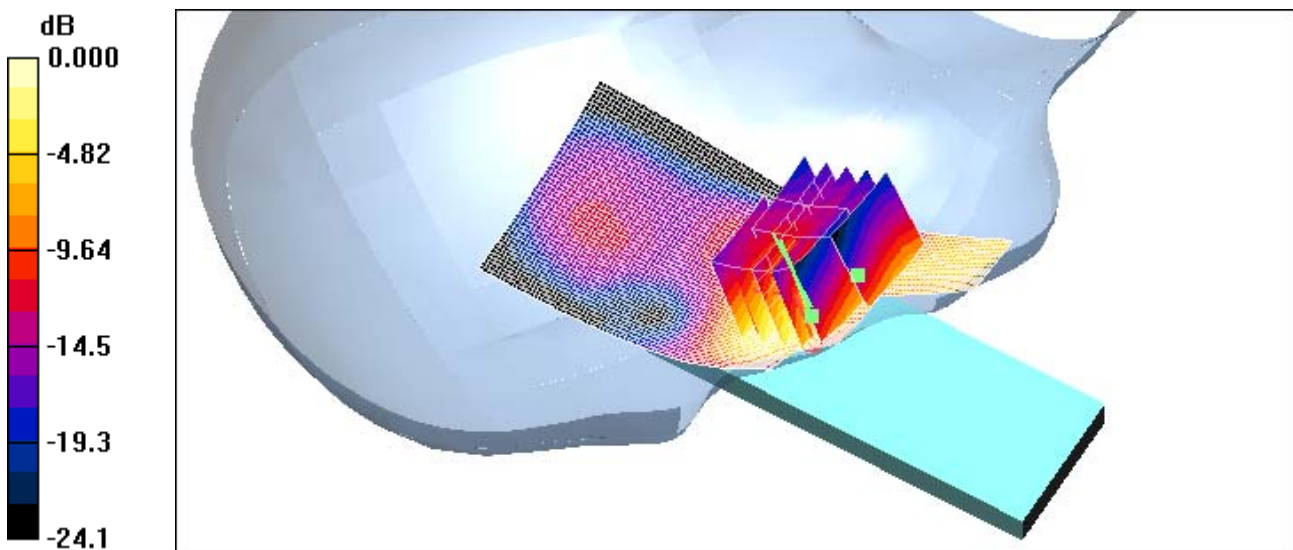
DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(4.91, 4.91, 4.91); Calibrated: 2011-03-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2010-09-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Right touch 600/Area Scan (51x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.897 mW/g

Right touch 600/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 11.8 V/m; Power Drift = -0.076 dB
Peak SAR (extrapolated) = 1.70 W/kg
SAR(1 g) = 0.995 mW/g; SAR(10 g) = 0.528 mW/g
Maximum value of SAR (measured) = 1.05 mW/g

Right touch 600/Zoom Scan (5x5x7)/Cube 1: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 11.8 V/m; Power Drift = -0.076 dB
Peak SAR (extrapolated) = 1.57 W/kg
SAR(1 g) = 0.809 mW/g; SAR(10 g) = 0.382 mW/g
Maximum value of SAR (measured) = 1.02 mW/g



0 dB = 1.02mW/g

Test Laboratory: HCT CO., LTD
EUT Type: GSM/CDMA Phone with Bluetooth
GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: May 27, 2011

DUT: C781; Type: Folder; Serial: #1

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

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(4.91, 4.91, 4.91); Calibrated: 2011-03-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2010-09-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Right touch 1175/Area Scan (51x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.536 mW/g

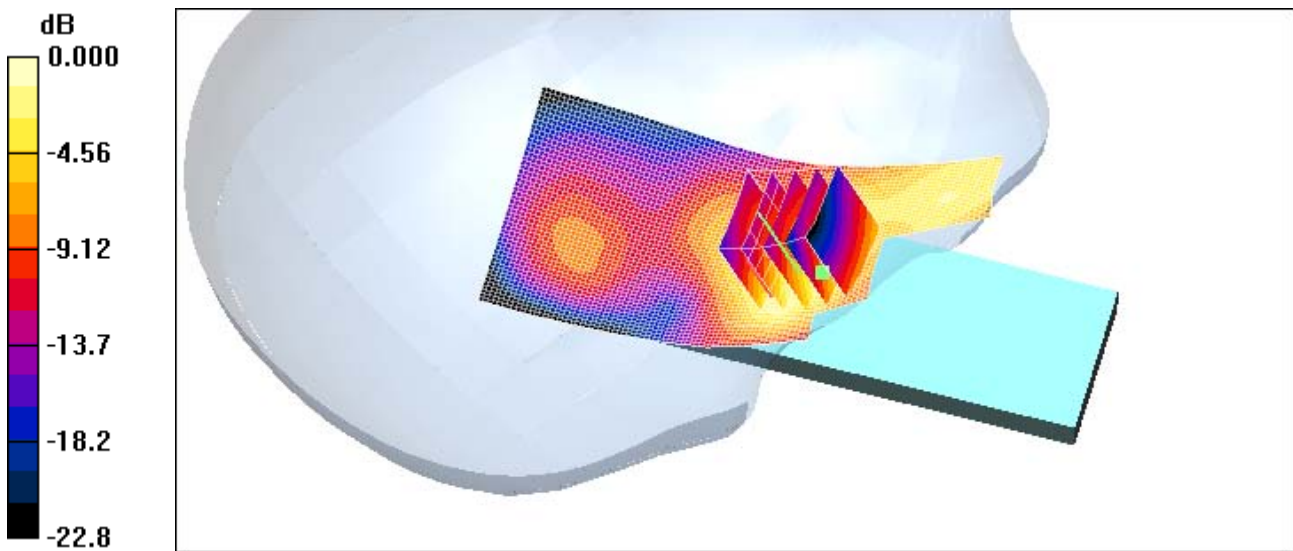
Right touch 1175/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 14.4 V/m; Power Drift = -0.035 dB

Peak SAR (extrapolated) = 1.14 W/kg

SAR(1 g) = 0.649 mW/g; SAR(10 g) = 0.341 mW/g

Maximum value of SAR (measured) = 0.695 mW/g



0 dB = 0.695mW/g

Test Laboratory: HCT CO., LTD
EUT Type: GSM/CDMA Phone with Bluetooth
GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: May 27, 2011

DUT: C781; Type: Folder; Serial: #1

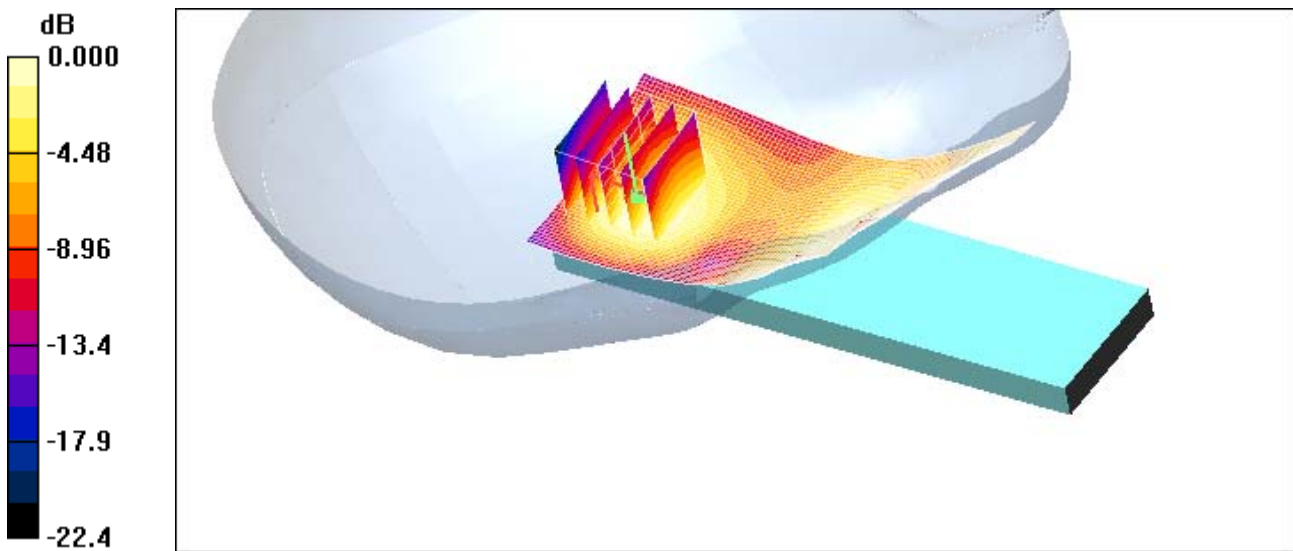
Communication System: PCS 1900MHz FCC; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.4 \text{ mho/m}$; $\epsilon_r = 39.3$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD,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

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(4.91, 4.91, 4.91); Calibrated: 2011-03-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2010-09-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Right tilt 600/Area Scan (51x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.225 mW/g

Right tilt 600/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 5.76 V/m; Power Drift = -0.083 dB
Peak SAR (extrapolated) = 0.288 W/kg
SAR(1 g) = 0.184 mW/g; SAR(10 g) = 0.109 mW/g
Maximum value of SAR (measured) = 0.199 mW/g



0 dB = 0.199mW/g

Test Laboratory: HCT CO., LTD
EUT Type: GSM/CDMA Phone with Bluetooth
GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: May 27, 2011
Option: Extended Battery

DUT: C781; Type: Folder; Serial: #1

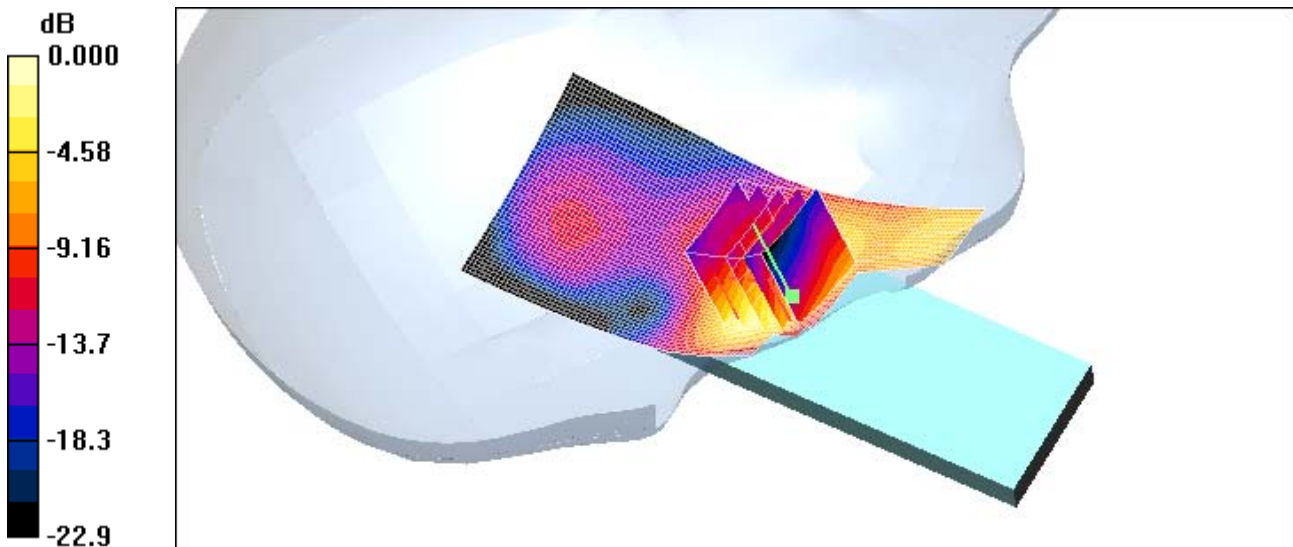
Communication System: PCS 1900MHz FCC; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.4 \text{ mho/m}$; $\epsilon_r = 39.3$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD,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

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(4.91, 4.91, 4.91); Calibrated: 2011-03-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2010-09-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Right touch 600/Area Scan (51x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.889 mW/g

Right touch 600/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 12.6 V/m; Power Drift = -0.017 dB
Peak SAR (extrapolated) = 1.63 W/kg
SAR(1 g) = 0.947 mW/g; SAR(10 g) = 0.503 mW/g
Maximum value of SAR (measured) = 0.996 mW/g



0 dB = 0.996mW/g

Test Laboratory: HCT CO., LTD
 EUT Type: GSM/CDMA Phone with Bluetooth
 GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
 Liquid Temperature: 21.3 °C
 Ambient Temperature: 21.5 °C
 Test Date: May 27, 2011
 Option: PTT Mode

DUT: C781; Type: Bar; Serial: #1

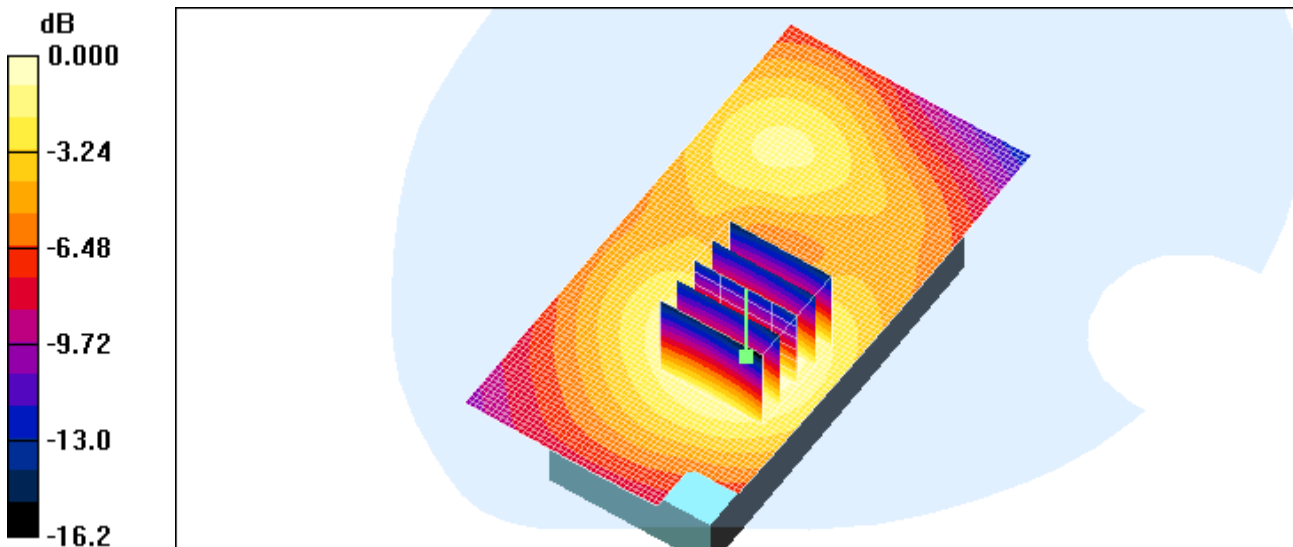
Communication System: PCS 1900MHz FCC; Frequency: 1880 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.4 \text{ mho/m}$; $\epsilon_r = 39.3$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(4.91, 4.91, 4.91); Calibrated: 2011-03-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2010-09-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

PCS Face PTT 600/Area Scan (51x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 0.270 mW/g

PCS Face PTT 600/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
 Reference Value = 9.26 V/m; Power Drift = -0.034 dB
 Peak SAR (extrapolated) = 0.418 W/kg
SAR(1 g) = 0.250 mW/g; SAR(10 g) = 0.152 mW/g
 Maximum value of SAR (measured) = 0.270 mW/g



0 dB = 0.270mW/g

Test Laboratory: HCT CO., LTD
 EUT Type: GSM/CDMA Phone with Bluetooth
 GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
 Liquid Temperature: 21.3 °C
 Ambient Temperature: 21.5 °C
 Test Date: May 26, 2011

DUT: C781; Type: Folder; Serial: #1

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
 Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.912 \text{ mho/m}$; $\epsilon_r = 43.1$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(6.1, 6.1, 6.1); Calibrated: 2011-03-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2010-09-21
- Phantom: 800/900 Phantom; Type: SAM

Left touch 190/Area Scan (51x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.521 mW/g

Left touch 190/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

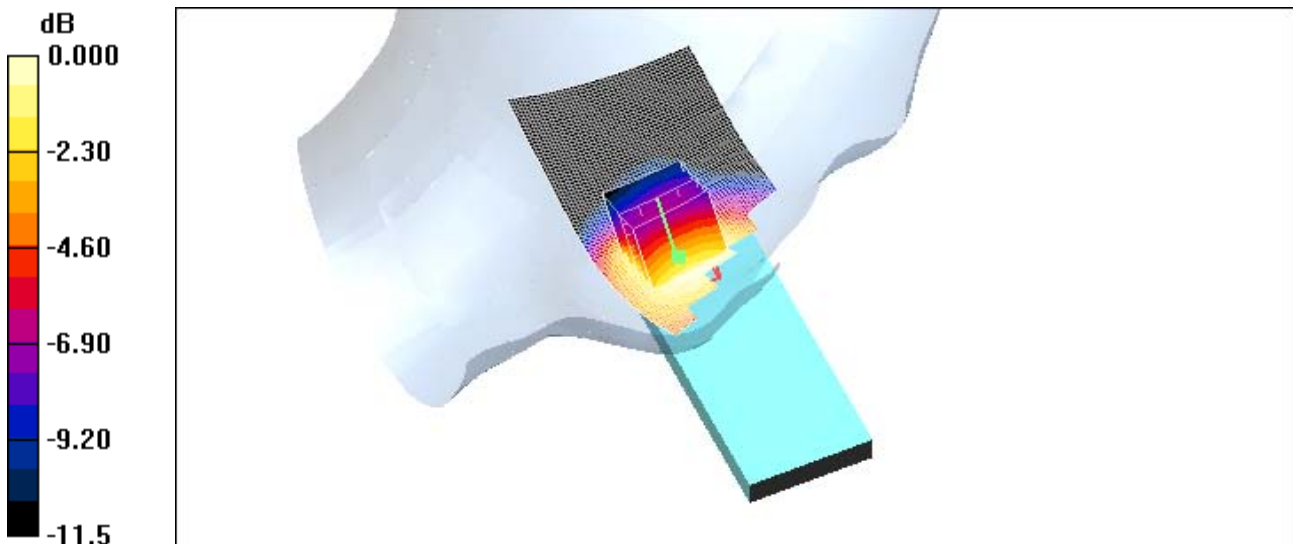
Reference Value = 14.8 V/m; Power Drift = 0.024 dB

Peak SAR (extrapolated) = 0.796 W/kg

SAR(1 g) = 0.470 mW/g; SAR(10 g) = 0.331 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.494 mW/g



0 dB = 0.494mW/g

Test Laboratory: HCT CO., LTD
 EUT Type: GSM/CDMA Phone with Bluetooth
 GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
 Liquid Temperature: 21.3 °C
 Ambient Temperature: 21.5 °C
 Test Date: May 26, 2011

DUT: C781; Type: Folder; Serial: #1

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
 Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.912 \text{ mho/m}$; $\epsilon_r = 43.1$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(6.1, 6.1, 6.1); Calibrated: 2011-03-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2010-09-21
- Phantom: 800/900 Phantom; Type: SAM

Left tilt 190/Area Scan (51x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.135 mW/g

Left tilt 190/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

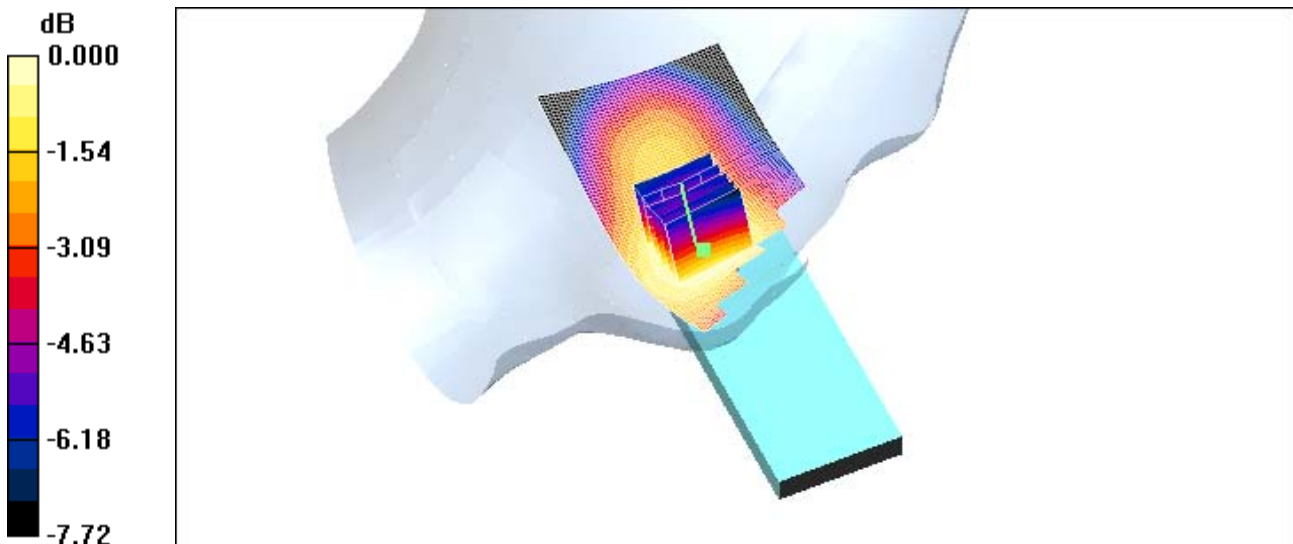
Reference Value = 11.2 V/m; Power Drift = -0.060 dB

Peak SAR (extrapolated) = 0.162 W/kg

SAR(1 g) = 0.128 mW/g; SAR(10 g) = 0.097 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.135 mW/g



0 dB = 0.135mW/g

Test Laboratory: HCT CO., LTD
EUT Type: GSM/CDMA Phone with Bluetooth
GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: May 26, 2011

DUT: C781; Type: Folder; Serial: #1

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.912$ mho/m; $\epsilon_r = 43.1$; $\rho = 1000$ kg/m³
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(6.1, 6.1, 6.1); Calibrated: 2011-03-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2010-09-21
- Phantom: 800/900 Phantom; Type: SAM

Right touch 190/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.471 mW/g

Right touch 190/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

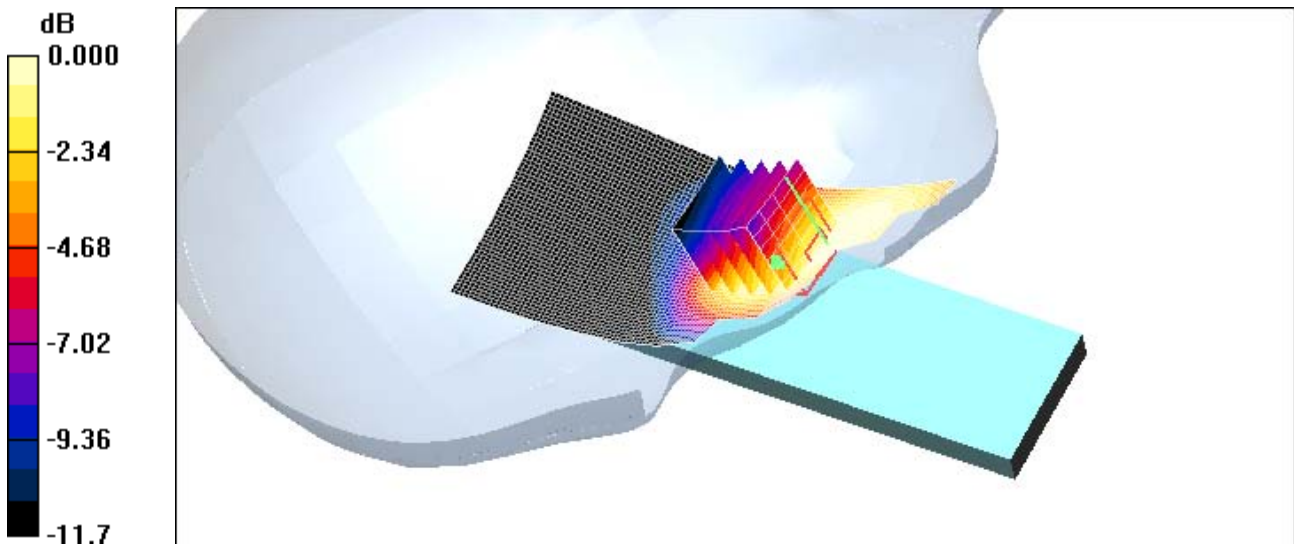
Reference Value = 15.0 V/m; Power Drift = -0.092 dB

Peak SAR (extrapolated) = 0.580 W/kg

SAR(1 g) = 0.415 mW/g; SAR(10 g) = 0.295 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.438 mW/g



0 dB = 0.438mW/g

Test Laboratory: HCT CO., LTD
EUT Type: GSM/CDMA Phone with Bluetooth
GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: May 26, 2011

DUT: C781; Type: Folder; Serial: #1

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.912 \text{ mho/m}$; $\epsilon_r = 43.1$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(6.1, 6.1, 6.1); Calibrated: 2011-03-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2010-09-21
- Phantom: 800/900 Phantom; Type: SAM

Right tilt 190/Area Scan (51x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.100 mW/g

Right tilt 190/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

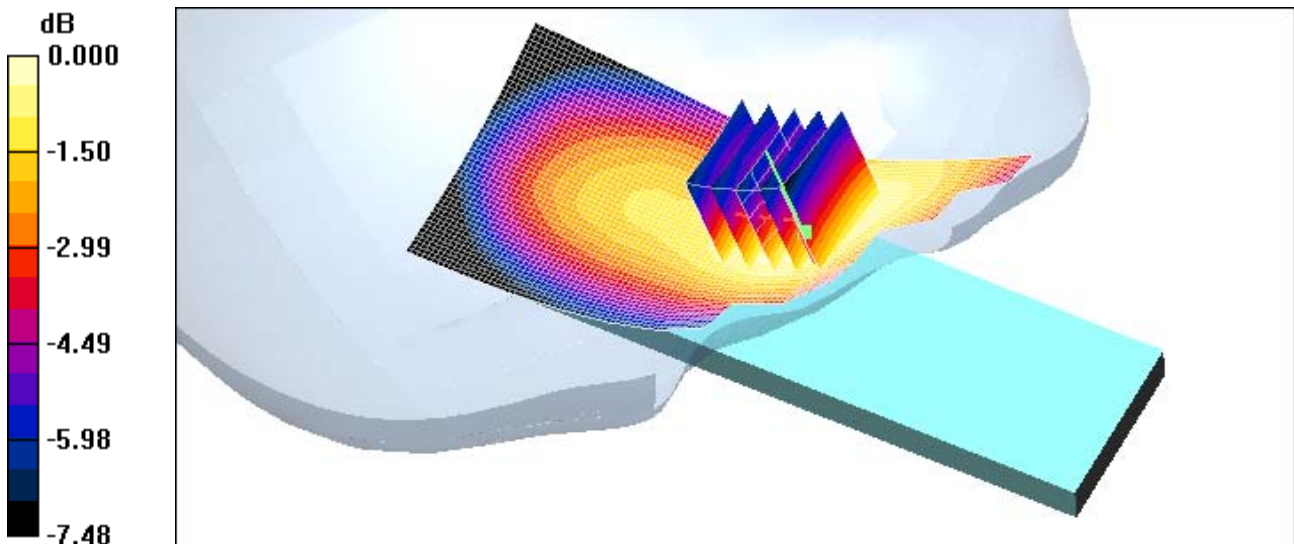
Reference Value = 9.82 V/m; Power Drift = 0.175 dB

Peak SAR (extrapolated) = 0.125 W/kg

SAR(1 g) = 0.097 mW/g; SAR(10 g) = 0.072 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: GSM/CDMA Phone with Bluetooth
 GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
 Liquid Temperature: 21.3 °C
 Ambient Temperature: 21.5 °C
 Test Date: May 26, 2011
 Option: Extended Battery

DUT: C781; Type: Folder; Serial: #1

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
 Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.912 \text{ mho/m}$; $\epsilon_r = 43.1$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
 - Probe: ES3DV3 - SN3161; ConvF(6.1, 6.1, 6.1); Calibrated: 2011-03-17
 - Sensor-Surface: 4mm (Mechanical Surface Detection)
 - Electronics: DAE3 Sn446; Calibrated: 2010-09-21
 - Phantom: SAM 835/900 MHz; Type: SAM

Left touch 190/Area Scan (51x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.513 mW/g

Left touch 190/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

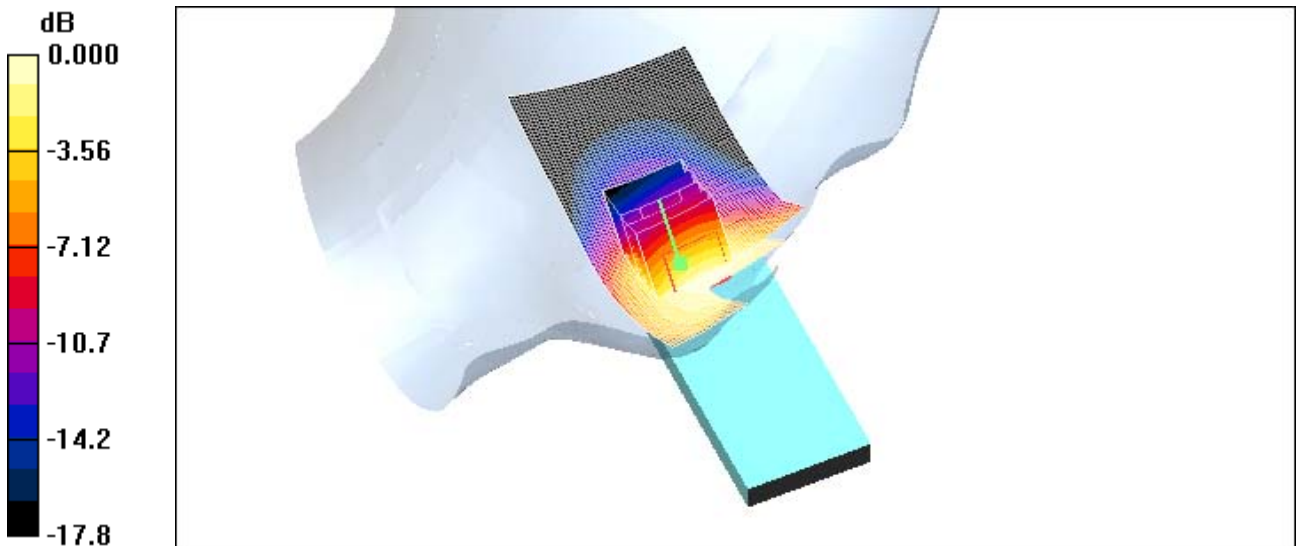
Reference Value = 9.71 V/m; Power Drift = -0.065 dB

Peak SAR (extrapolated) = 0.855 W/kg

SAR(1 g) = 0.461 mW/g; SAR(10 g) = 0.288 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.490 mW/g



0 dB = 0.490mW/g

Test Laboratory: HCT CO., LTD
 EUT Type: GSM/CDMA Phone with Bluetooth
 GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
 Liquid Temperature: 21.3 °C
 Ambient Temperature: 21.5 °C
 Test Date: May 26, 2011
 Option: PTT Mode

DUT: C781; Type: Bar; Serial: #1

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
 Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.912 \text{ mho/m}$; $\epsilon_r = 43.1$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
 - Probe: ES3DV3 - SN3161; ConvF(6.1, 6.1, 6.1); Calibrated: 2011-03-17
 - Sensor-Surface: 4mm (Mechanical Surface Detection)
 - Electronics: DAE3 Sn446; Calibrated: 2010-09-21
 - Phantom: SAM 835/900 MHz; Type: SAM

GSM Face PTT 190/Area Scan (51x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.409 mW/g

GSM Face PTT 190/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

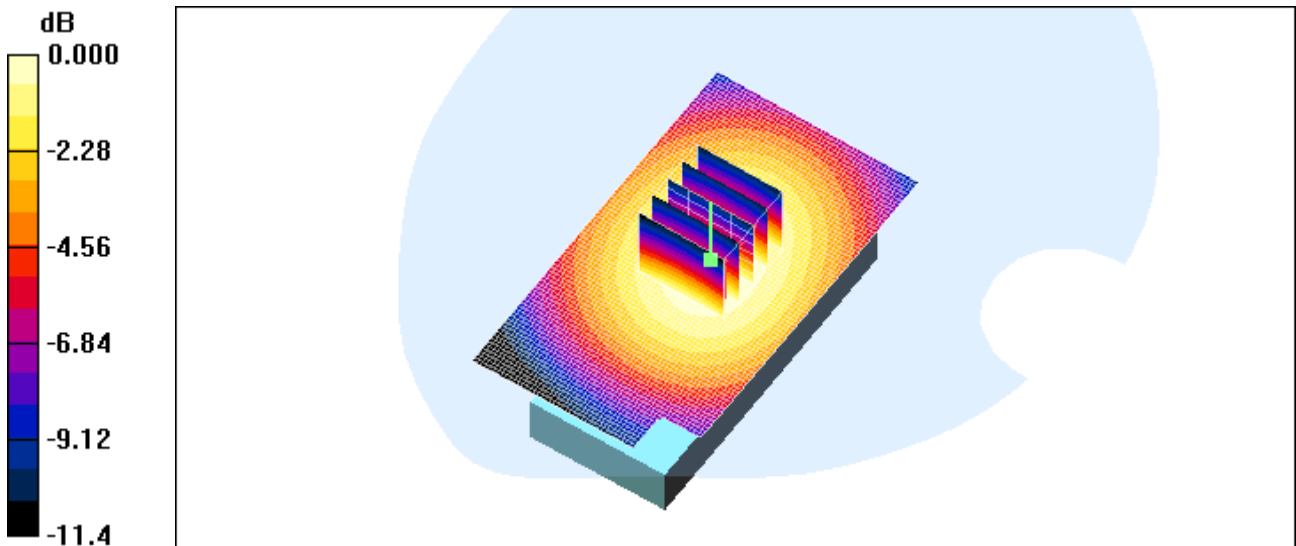
Reference Value = 14.7 V/m; Power Drift = -0.198 dB

Peak SAR (extrapolated) = 0.546 W/kg

SAR(1 g) = 0.383 mW/g; SAR(10 g) = 0.259 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.409 mW/g



0 dB = 0.409mW/g

Test Laboratory: HCT CO., LTD
EUT Type: GSM/CDMA Phone with Bluetooth
GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: May 27, 2011

DUT: C781; Type: Folder; Serial: #1

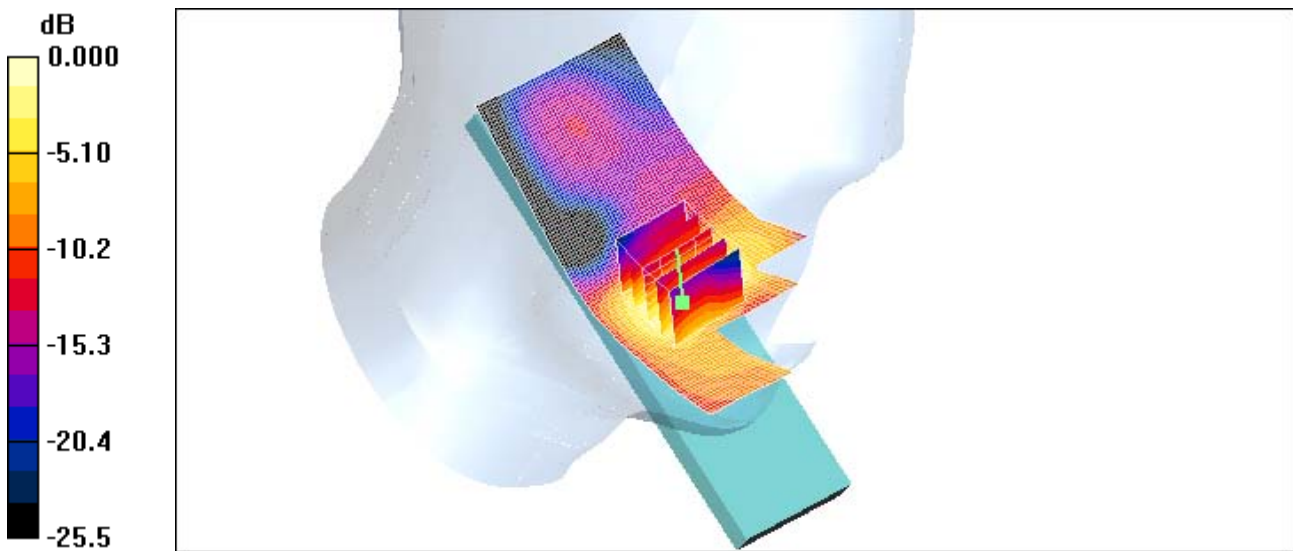
Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3
Medium parameters used: $f = 1880$ MHz; $\sigma = 1.4$ mho/m; $\epsilon_r = 39.3$; $\rho = 1000$ kg/m³
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(4.91, 4.91, 4.91); Calibrated: 2011-03-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2010-09-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Left touch 661/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.291 mW/g

Left touch 661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 4.16 V/m; Power Drift = 0.013 dB
Peak SAR (extrapolated) = 0.465 W/kg
SAR(1 g) = 0.269 mW/g; SAR(10 g) = 0.140 mW/g
Maximum value of SAR (measured) = 0.303 mW/g



0 dB = 0.303mW/g

Test Laboratory: HCT CO., LTD
 EUT Type: GSM/CDMA Phone with Bluetooth
 GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
 Liquid Temperature: 21.3 °C
 Ambient Temperature: 21.5 °C
 Test Date: May 27, 2011

DUT: C781; Type: Folder; Serial: #1

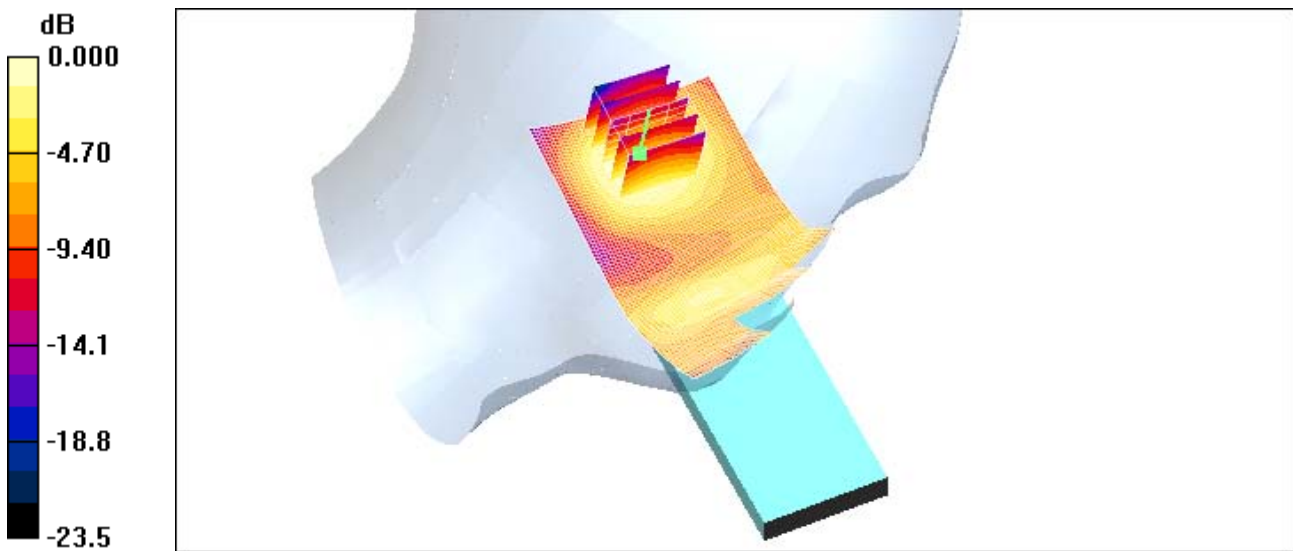
Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3
 Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.4 \text{ mho/m}$; $\epsilon_r = 39.3$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(4.91, 4.91, 4.91); Calibrated: 2011-03-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2010-09-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Left tilt 661/Area Scan (51x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 0.073 mW/g

Left tilt 661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
 Reference Value = 2.59 V/m; Power Drift = -0.148 dB
 Peak SAR (extrapolated) = 0.100 W/kg
SAR(1 g) = 0.062 mW/g; SAR(10 g) = 0.037 mW/g
 Maximum value of SAR (measured) = 0.067 mW/g



0 dB = 0.067mW/g

Test Laboratory: HCT CO., LTD
EUT Type: GSM/CDMA Phone with Bluetooth
GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: May 27, 2011

DUT: C781; Type: Folder; Serial: #1

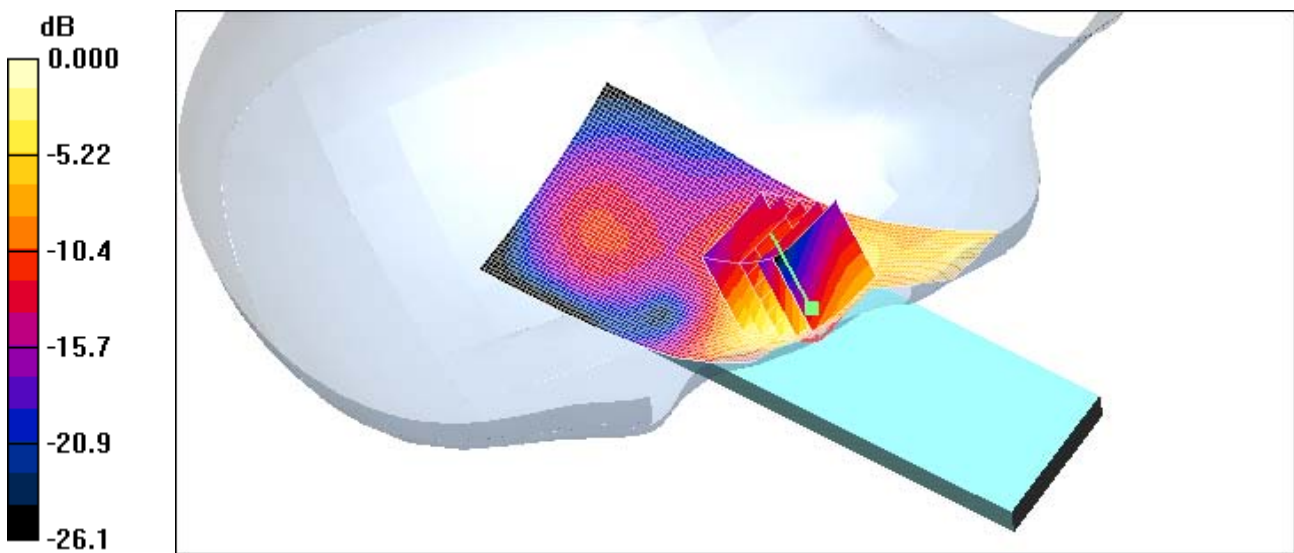
Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.4 \text{ mho/m}$; $\epsilon_r = 39.3$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(4.91, 4.91, 4.91); Calibrated: 2011-03-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2010-09-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Right touch 661/Area Scan (51x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.333 mW/g

Right touch 661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 7.44 V/m; Power Drift = -0.133 dB
Peak SAR (extrapolated) = 0.575 W/kg
SAR(1 g) = 0.335 mW/g; SAR(10 g) = 0.179 mW/g
Maximum value of SAR (measured) = 0.357 mW/g



0 dB = 0.357mW/g

Test Laboratory: HCT CO., LTD
EUT Type: GSM/CDMA Phone with Bluetooth
GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: May 27, 2011

DUT: C781; Type: Folder; Serial: #1

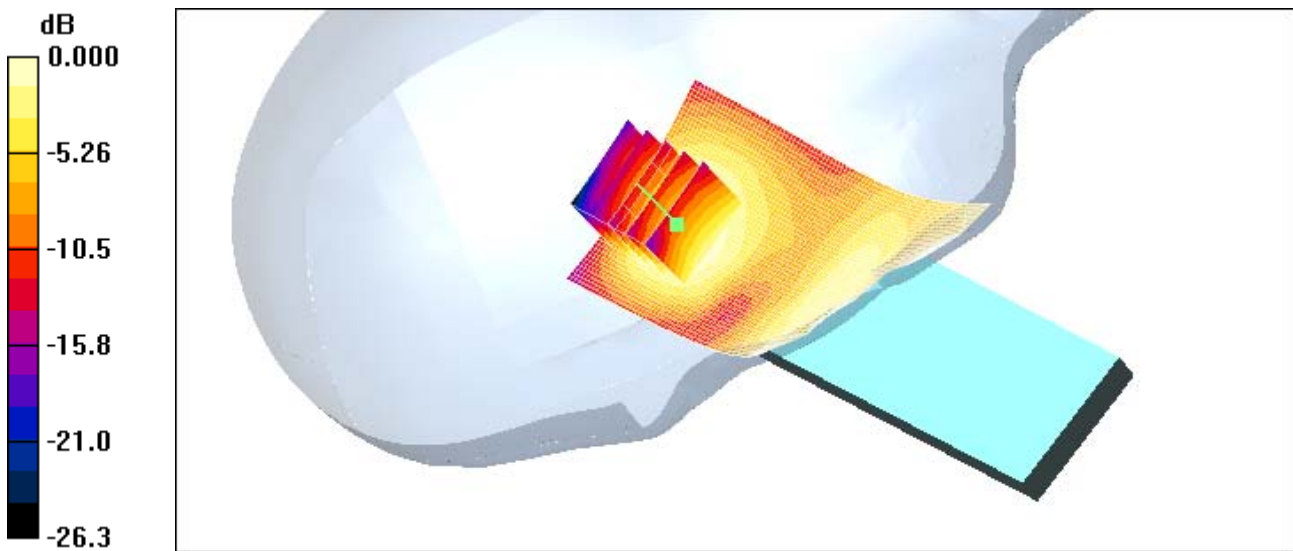
Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.4 \text{ mho/m}$; $\epsilon_r = 39.3$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(4.91, 4.91, 4.91); Calibrated: 2011-03-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2010-09-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Right tilt 661/Area Scan (51x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.083 mW/g

Right tilt 661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 3.37 V/m; Power Drift = 0.041 dB
Peak SAR (extrapolated) = 0.105 W/kg
SAR(1 g) = 0.067 mW/g; SAR(10 g) = 0.040 mW/g
Maximum value of SAR (measured) = 0.071 mW/g



0 dB = 0.071mW/g

Test Laboratory: HCT CO., LTD
 EUT Type: GSM/CDMA Phone with Bluetooth
 GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
 Liquid Temperature: 21.3 °C
 Ambient Temperature: 21.5 °C
 Test Date: May 27, 2011
 Option: Extended Battery

DUT: C781; Type: Folder; Serial: #1

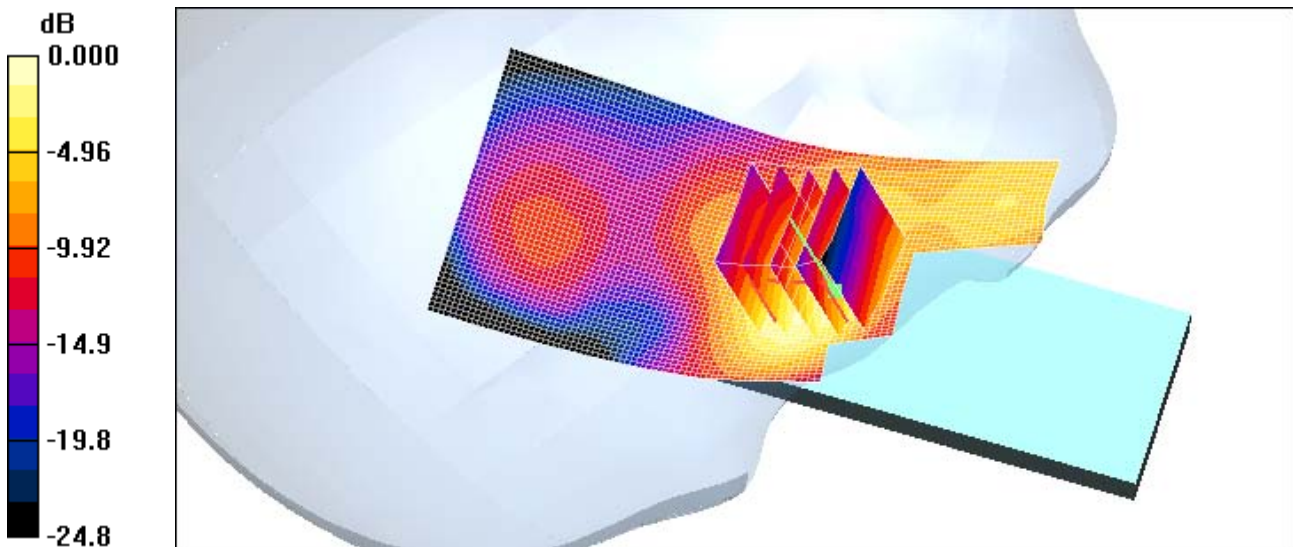
Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3
 Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.4 \text{ mho/m}$; $\epsilon_r = 39.3$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(4.91, 4.91, 4.91); Calibrated: 2011-03-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2010-09-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Right touch 661/Area Scan (51x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 0.288 mW/g

Right touch 661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
 Reference Value = 7.42 V/m; Power Drift = -0.072 dB
 Peak SAR (extrapolated) = 0.500 W/kg
SAR(1 g) = 0.291 mW/g; SAR(10 g) = 0.157 mW/g
 Maximum value of SAR (measured) = 0.308 mW/g



0 dB = 0.308mW/g

Test Laboratory: HCT CO., LTD
 EUT Type: GSM/CDMA Phone with Bluetooth
 GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
 Liquid Temperature: 21.3 °C
 Ambient Temperature: 21.5 °C
 Test Date: May 27, 2011
 Option: PTT Mode

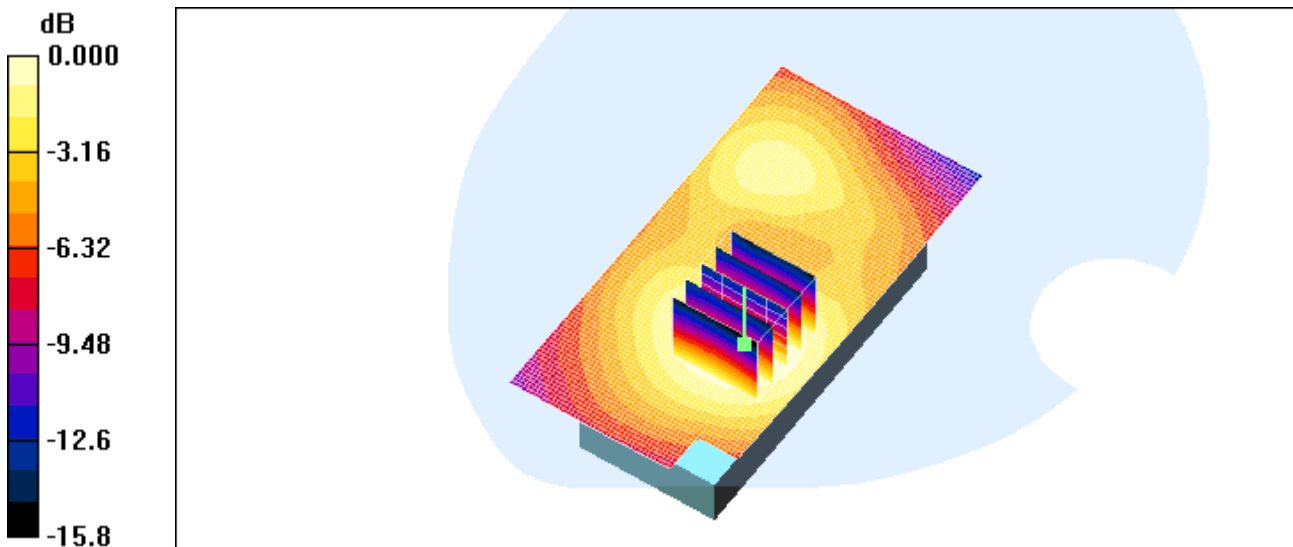
DUT: C781; Type: Bar; Serial: #1

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3
 Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.4 \text{ mho/m}$; $\epsilon_r = 39.3$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
 - Probe: ES3DV3 - SN3161; ConvF(4.91, 4.91, 4.91); Calibrated: 2011-03-17
 - Sensor-Surface: 4mm (Mechanical Surface Detection)
 - Electronics: DAE3 Sn446; Calibrated: 2010-09-21
 - Phantom: SAM 1800/1900 MHz; Type: SAM

GSM1900 Face PTT 661/Area Scan (51x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 0.111 mW/g

GSM1900 Face PTT 661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
 Reference Value = 5.73 V/m; Power Drift = -0.081 dB
 Peak SAR (extrapolated) = 0.152 W/kg
SAR(1 g) = 0.092 mW/g; SAR(10 g) = 0.056 mW/g
 Maximum value of SAR (measured) = 0.099 mW/g



0 dB = 0.099mW/g

Test Laboratory: HCT CO., LTD
 EUT Type: GSM/CDMA Phone with Bluetooth
 GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
 Liquid Temperature: 21.3 °C
 Ambient Temperature: 21.5 °C
 Test Date: May 26, 2011

DUT: C781; Type: Bar; Serial: #1

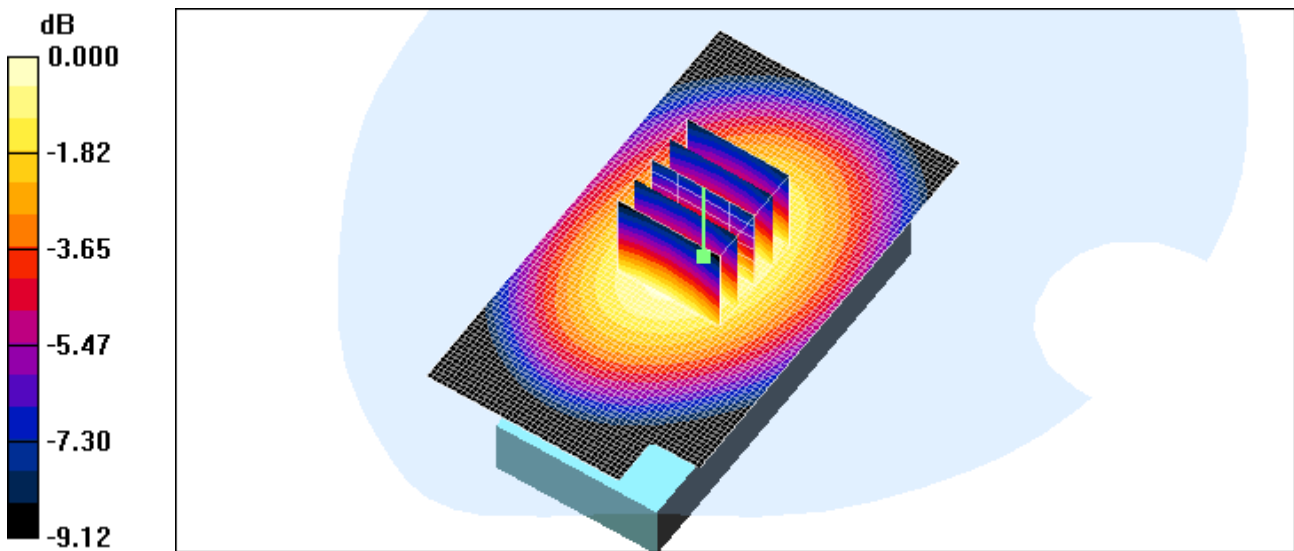
Communication System: CDMA 835MHz FCC; Frequency: 824.7 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 825 \text{ MHz}$; $\sigma = 0.971 \text{ mho/m}$; $\epsilon_r = 56.9$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(5.93, 5.93, 5.93); Calibrated: 2011-03-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2010-09-21
- Phantom: SAM 835/900 MHz; Type: SAM

CDMA Body 1013/Area Scan (51x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 1.000 mW/g

CDMA Body 1013/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
 Reference Value = 20.3 V/m; Power Drift = 0.004 dB
 Peak SAR (extrapolated) = 1.24 W/kg
SAR(1 g) = 0.951 mW/g; SAR(10 g) = 0.685 mW/g
 Maximum value of SAR (measured) = 1.01 mW/g



0 dB = 1.01mW/g

Test Laboratory: HCT CO., LTD
EUT Type: GSM/CDMA Phone with Bluetooth
GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: May 26, 2011

DUT: C781; Type: Bar; Serial: #1

Communication System: CDMA 835MHz FCC; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 836.52 \text{ MHz}$; $\sigma = 0.981 \text{ mho/m}$; $\epsilon_r = 56.9$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(5.93, 5.93, 5.93); Calibrated: 2011-03-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2010-09-21
- Phantom: SAM 835/900 MHz; Type: SAM

CDMA Body 384/Area Scan (51x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.979 mW/g

CDMA Body 384/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

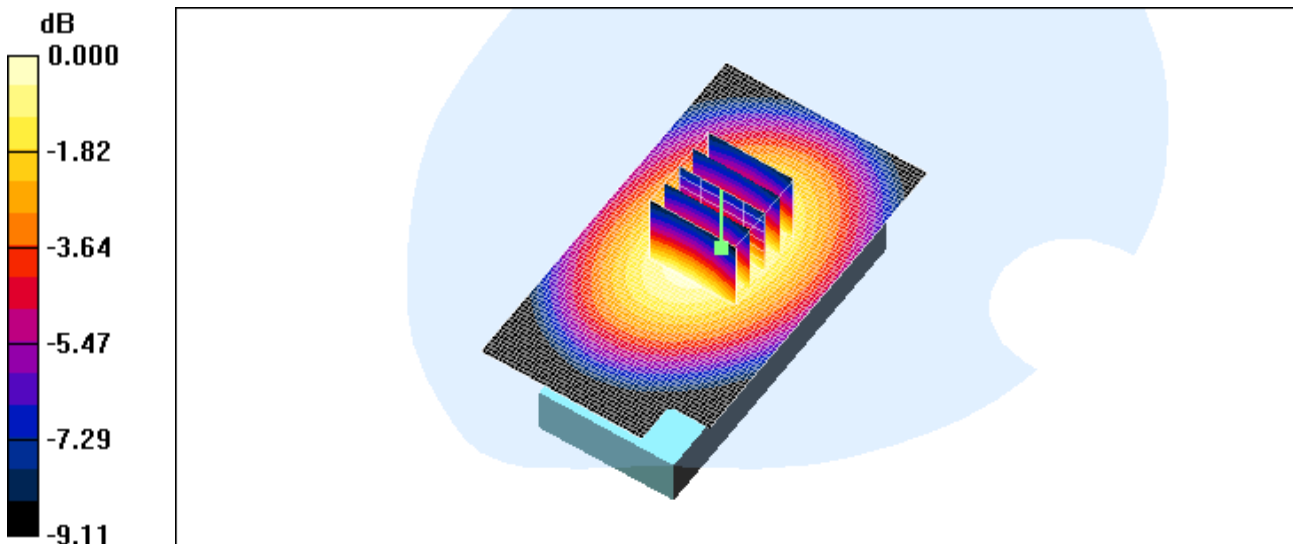
Reference Value = 20.9 V/m; Power Drift = -0.073 dB

Peak SAR (extrapolated) = 1.19 W/kg

SAR(1 g) = 0.925 mW/g; SAR(10 g) = 0.671 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.978 mW/g



0 dB = 0.978mW/g

Test Laboratory: HCT CO., LTD
 EUT Type: GSM/CDMA Phone with Bluetooth
 GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
 Liquid Temperature: 21.3 °C
 Ambient Temperature: 21.5 °C
 Test Date: May 26, 2011

DUT: C781; Type: Bar; Serial: #1

Communication System: CDMA 835MHz FCC; Frequency: 848.31 MHz; Duty Cycle: 1:1
 Medium parameters used (interpolated): $f = 848.31 \text{ MHz}$; $\sigma = 0.991 \text{ mho/m}$; $\epsilon_r = 56.7$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(5.93, 5.93, 5.93); Calibrated: 2011-03-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2010-09-21
- Phantom: SAM 835/900 MHz; Type: SAM

CDMA Body 777/Area Scan (51x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.824 mW/g

CDMA Body 777/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

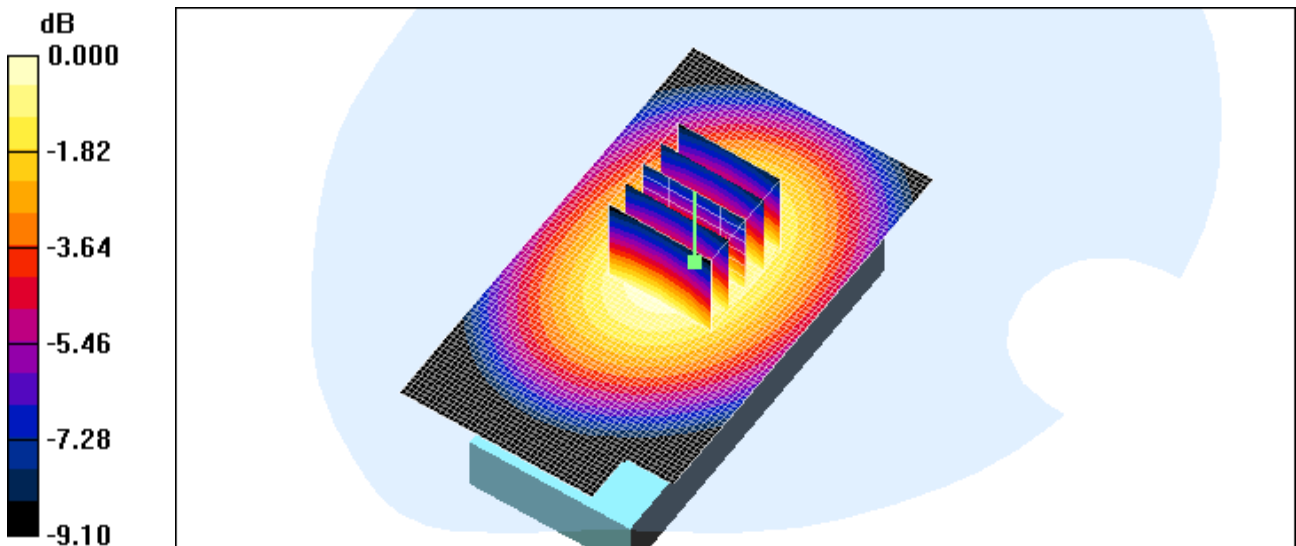
Reference Value = 20.2 V/m; Power Drift = -0.155 dB

Peak SAR (extrapolated) = 1.01 W/kg

SAR(1 g) = 0.768 mW/g; SAR(10 g) = 0.554 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.813 mW/g



0 dB = 0.813mW/g

Test Laboratory: HCT CO., LTD
 EUT Type: GSM/CDMA Phone with Bluetooth
 GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
 Liquid Temperature: 21.3 °C
 Ambient Temperature: 21.5 °C
 Test Date: May 26, 2011
 Option: Extended Battery

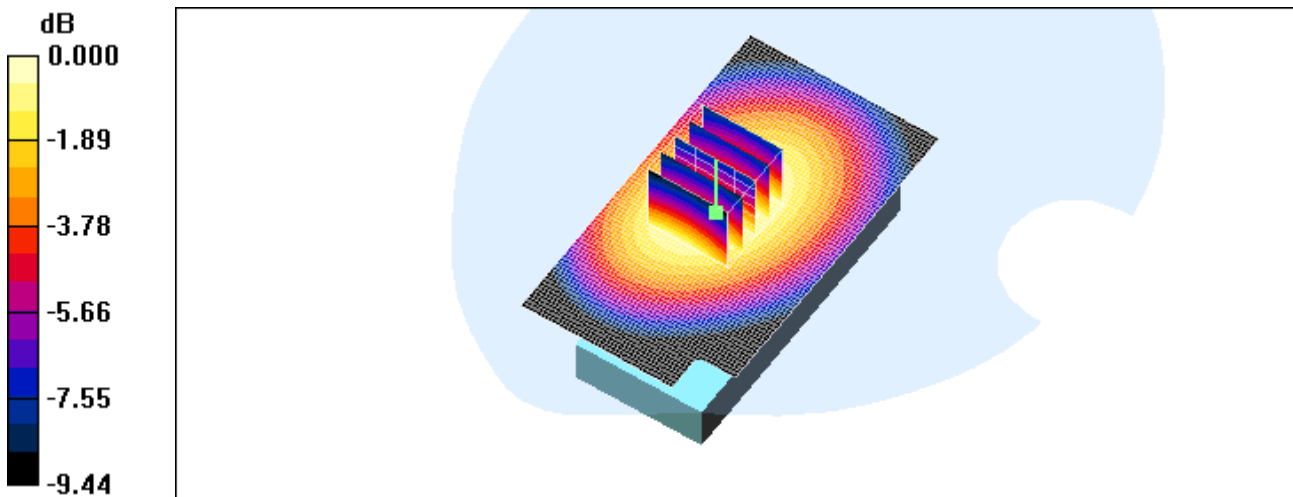
DUT: C781; Type: Bar; Serial: #1

Communication System: CDMA 835MHz FCC; Frequency: 824.7 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 825 \text{ MHz}$; $\sigma = 0.971 \text{ mho/m}$; $\epsilon_r = 56.9$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
 - Probe: ES3DV3 - SN3161; ConvF(5.93, 5.93, 5.93); Calibrated: 2011-03-17
 - Sensor-Surface: 4mm (Mechanical Surface Detection)
 - Electronics: DAE3 Sn446; Calibrated: 2010-09-21
 - Phantom: SAM 835/900 MHz; Type: SAM

CDMA Body 1013/Area Scan (51x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 0.921 mW/g

CDMA Body 1013/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
 Reference Value = 19.1 V/m; Power Drift = 0.061 dB
 Peak SAR (extrapolated) = 1.16 W/kg
SAR(1 g) = 0.874 mW/g; SAR(10 g) = 0.630 mW/g
 Maximum value of SAR (measured) = 0.924 mW/g



0 dB = 0.924mW/g

Test Laboratory: HCT CO., LTD
EUT Type: GSM/CDMA Phone with Bluetooth
GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: May 27, 2011

DUT: C781; Type: Bar; Serial: #1

Communication System: PCS 1900MHz FCC; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.54 \text{ mho/m}$; $\epsilon_r = 52.9$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(4.49, 4.49, 4.49); Calibrated: 2011-03-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2010-09-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

PCS Body 600/Area Scan (51x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.540 mW/g

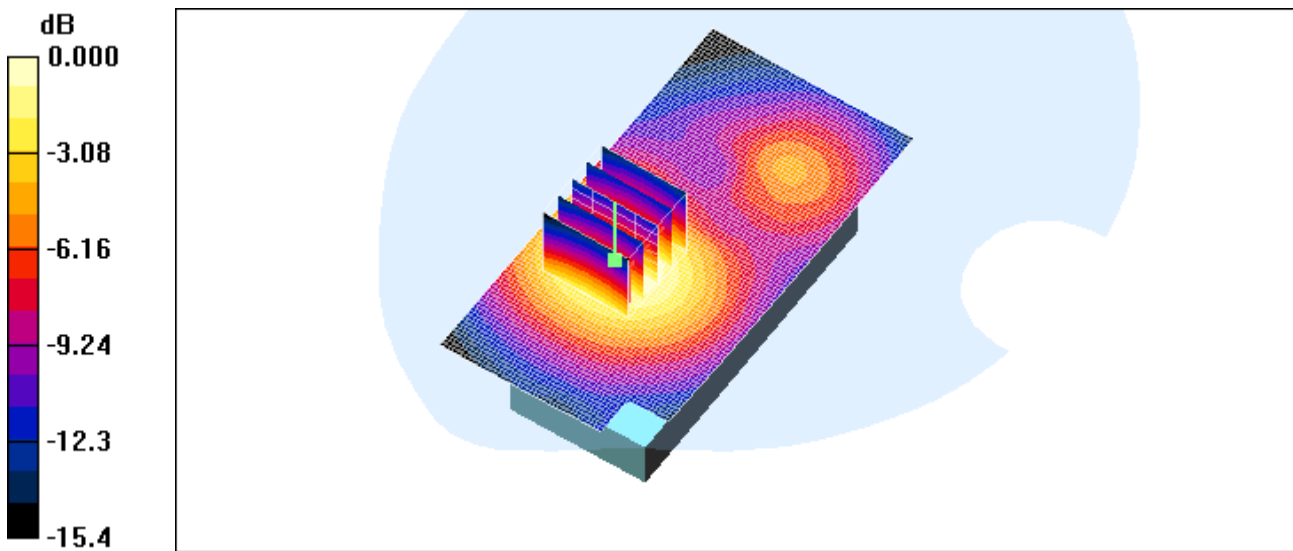
PCS Body 600/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 8.40 V/m; Power Drift = 0.111 dB

Peak SAR (extrapolated) = 0.761 W/kg

SAR(1 g) = 0.489 mW/g; SAR(10 g) = 0.301 mW/g

Maximum value of SAR (measured) = 0.525 mW/g



0 dB = 0.525mW/g

Test Laboratory: HCT CO., LTD
EUT Type: GSM/CDMA Phone with Bluetooth
GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: May 27, 2011
Option: Extended Battery

DUT: C781; Type: Bar; Serial: #1

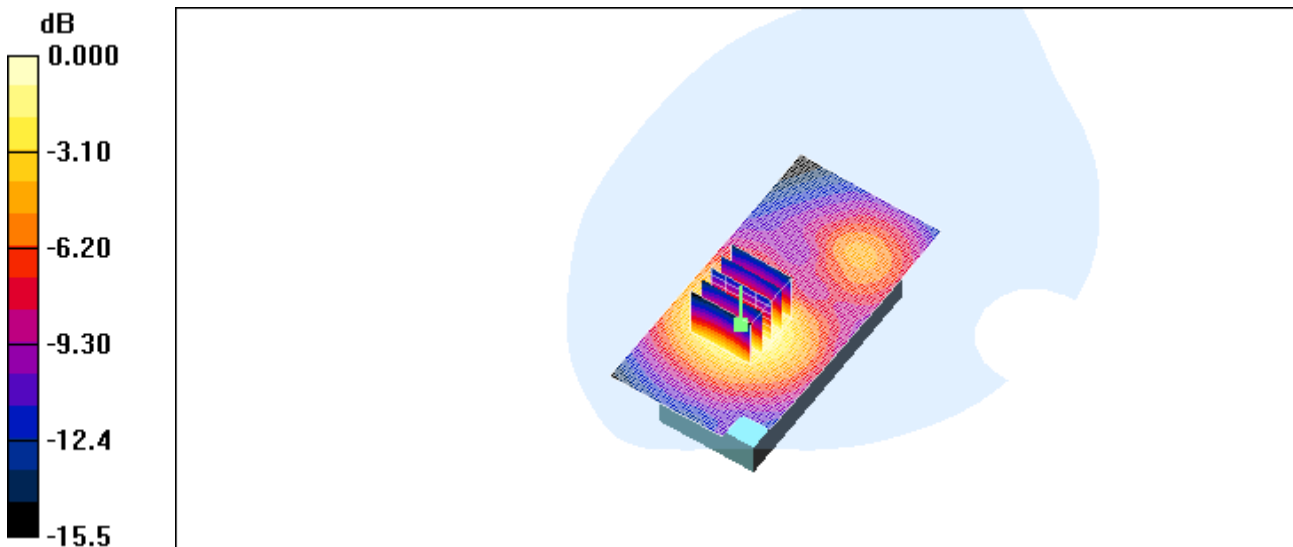
Communication System: PCS 1900MHz FCC; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.54 \text{ mho/m}$; $\epsilon_r = 52.9$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(4.49, 4.49, 4.49); Calibrated: 2011-03-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2010-09-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

PCS Body 600/Area Scan (51x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.435 mW/g

PCS Body 600/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 7.76 V/m; Power Drift = -0.102 dB
Peak SAR (extrapolated) = 0.643 W/kg
SAR(1 g) = 0.398 mW/g; SAR(10 g) = 0.242 mW/g
Maximum value of SAR (measured) = 0.433 mW/g



0 dB = 0.433mW/g

Test Laboratory: HCT CO., LTD
EUT Type: GSM/CDMA Phone with Bluetooth
GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: May 26, 2011

DUT: C781; Type: Bar; Serial: #1

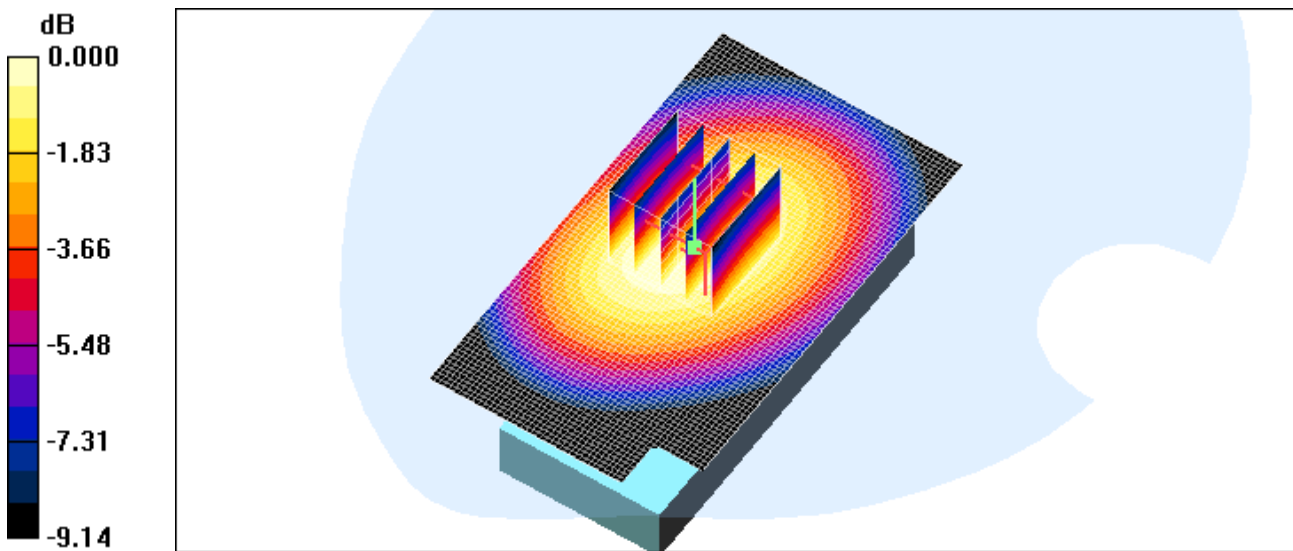
Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:2.075
Medium parameters used: $f = 825$ MHz; $\sigma = 0.971$ mho/m; $\epsilon_r = 56.9$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(5.93, 5.93, 5.93); Calibrated: 2011-03-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2010-09-21
- Phantom: SAM 835/900 MHz; Type: SAM

GSM Body 128/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.20 mW/g

GSM Body 128/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.7 V/m; Power Drift = -0.168 dB
Peak SAR (extrapolated) = 1.48 W/kg
SAR(1 g) = 1.12 mW/g; SAR(10 g) = 0.809 mW/g
Maximum value of SAR (measured) = 1.19 mW/g



0 dB = 1.19mW/g

Test Laboratory: HCT CO., LTD
EUT Type: GSM/CDMA Phone with Bluetooth
GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: May 26, 2011

DUT: C781; Type: Bar; Serial: #1

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:2.075
Medium parameters used (interpolated): $f = 836.6 \text{ MHz}$; $\sigma = 0.981 \text{ mho/m}$; $\epsilon_r = 56.9$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(5.93, 5.93, 5.93); Calibrated: 2011-03-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2010-09-21
- Phantom: SAM 835/900 MHz; Type: SAM

GSM Body 190/Area Scan (51x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 1.32 mW/g

GSM Body 190/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

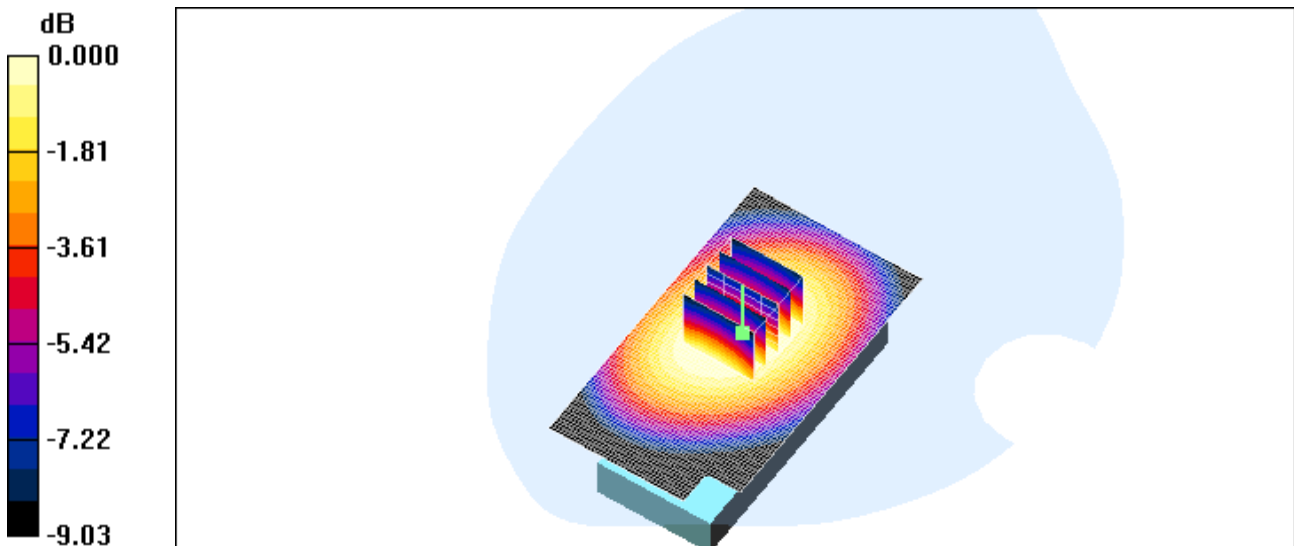
Reference Value = 25.3 V/m; Power Drift = -0.085 dB

Peak SAR (extrapolated) = 1.44 W/kg

SAR(1 g) = 1.11 mW/g; SAR(10 g) = 0.801 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: GSM/CDMA Phone with Bluetooth
 GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
 Liquid Temperature: 21.3 °C
 Ambient Temperature: 21.5 °C
 Test Date: May 26, 2011

DUT: C781; Type: Bar; Serial: #1

Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:2.075
 Medium parameters used (interpolated): $f = 848.8 \text{ MHz}$; $\sigma = 0.991 \text{ mho/m}$; $\epsilon_r = 56.7$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(5.93, 5.93, 5.93); Calibrated: 2011-03-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2010-09-21
- Phantom: SAM 835/900 MHz; Type: SAM

GSM Body 251/Area Scan (51x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 1.19 mW/g

GSM Body 251/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

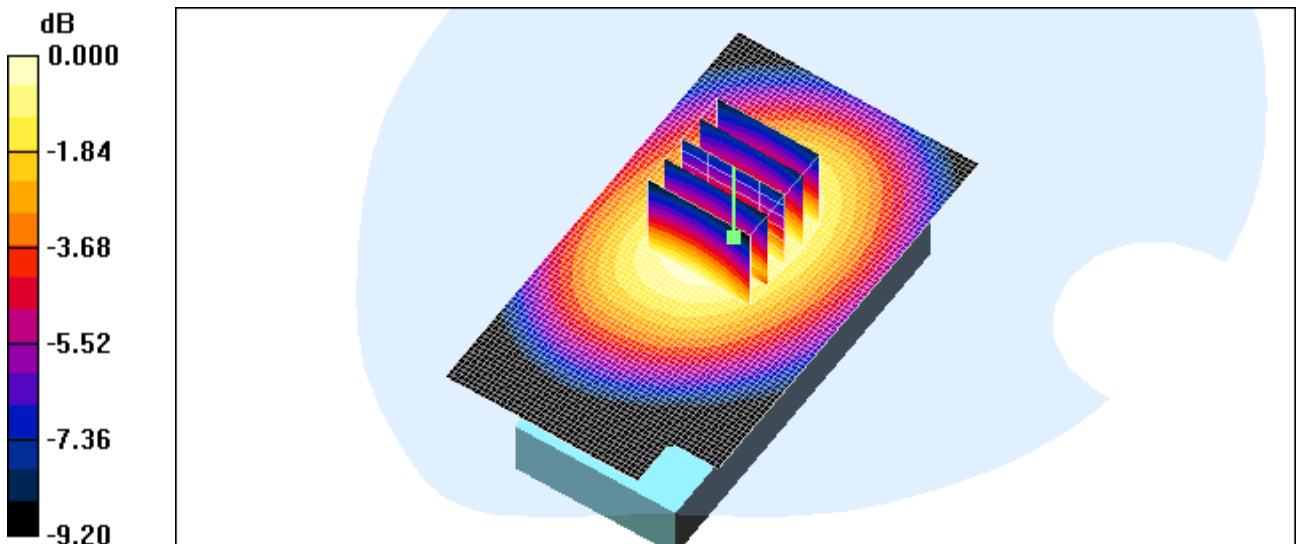
Reference Value = 24.7 V/m; Power Drift = -0.003 dB

Peak SAR (extrapolated) = 1.46 W/kg

SAR(1 g) = 1.12 mW/g; SAR(10 g) = 0.807 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 1.18 mW/g



0 dB = 1.18mW/g

Test Laboratory: HCT CO., LTD
 EUT Type: GSM/CDMA Phone with Bluetooth
 GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
 Liquid Temperature: 21.3 °C
 Ambient Temperature: 21.5 °C
 Test Date: May 26, 2011
 Option: Extended Battery

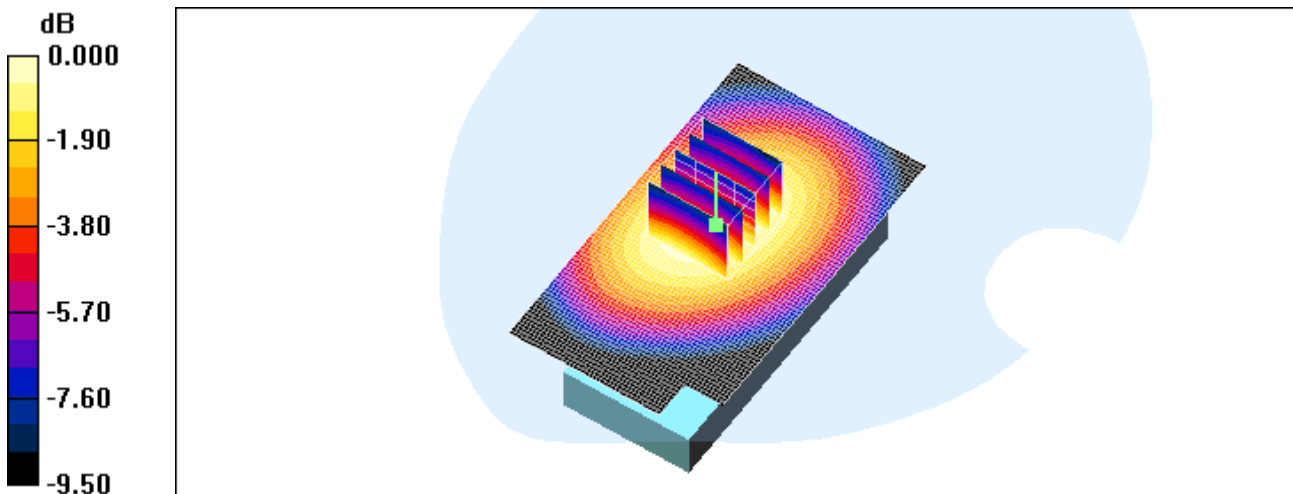
DUT: C781; Type: Bar; Serial: #1

Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:2.075
 Medium parameters used: $f = 825 \text{ MHz}$; $\sigma = 0.971 \text{ mho/m}$; $\epsilon_r = 56.9$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:
 - Probe: ES3DV3 - SN3161; ConvF(5.93, 5.93, 5.93); Calibrated: 2011-03-17
 - Sensor-Surface: 4mm (Mechanical Surface Detection)
 - Electronics: DAE3 Sn446; Calibrated: 2010-09-21
 - Phantom: SAM 835/900 MHz; Type: SAM

GSM Body 128/Area Scan (51x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 1.04 mW/g

GSM Body 128/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
 Reference Value = 22.5 V/m; Power Drift = -0.086 dB
 Peak SAR (extrapolated) = 1.29 W/kg
SAR(1 g) = 0.981 mW/g; SAR(10 g) = 0.709 mW/g
 Maximum value of SAR (measured) = 1.04 mW/g



0 dB = 1.04mW/g

Test Laboratory: HCT CO., LTD
 EUT Type: GSM/CDMA Phone with Bluetooth
 GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
 Liquid Temperature: 21.3 °C
 Ambient Temperature: 21.5 °C
 Test Date: May 27, 2011

DUT: C781; Type: Bar; Serial: #1

Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:2.075
 Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.54 \text{ mho/m}$; $\epsilon_r = 52.9$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

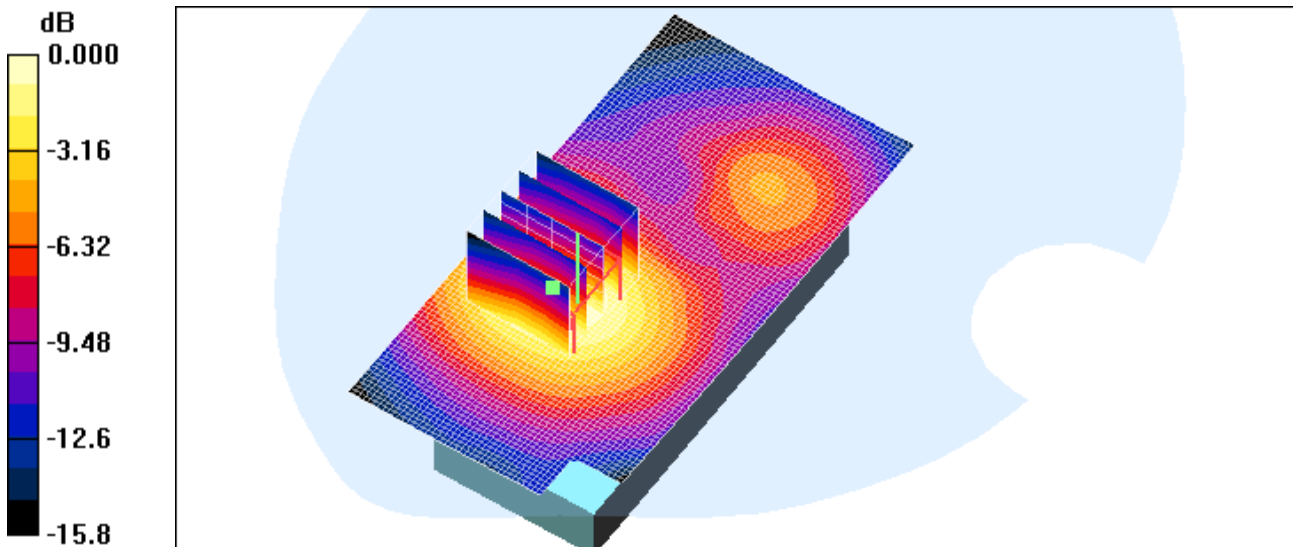
DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(4.49, 4.49, 4.49); Calibrated: 2011-03-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2010-09-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

GSM1900 Body 661/Area Scan (51x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 0.813 mW/g

GSM1900 Body 661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
 Reference Value = 10.4 V/m; Power Drift = 0.134 dB
 Peak SAR (extrapolated) = 1.23 W/kg
SAR(1 g) = 0.764 mW/g; SAR(10 g) = 0.453 mW/g

Maximum value of SAR (measured) = 0.825 mW/g



0 dB = 0.825mW/g

Test Laboratory: HCT CO., LTD
 EUT Type: GSM/CDMA Phone with Bluetooth
 GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
 Liquid Temperature: 21.3 °C
 Ambient Temperature: 21.5 °C
 Test Date: May 27, 2011
 Option: Extended Battery

DUT: C781; Type: Bar; Serial: #1

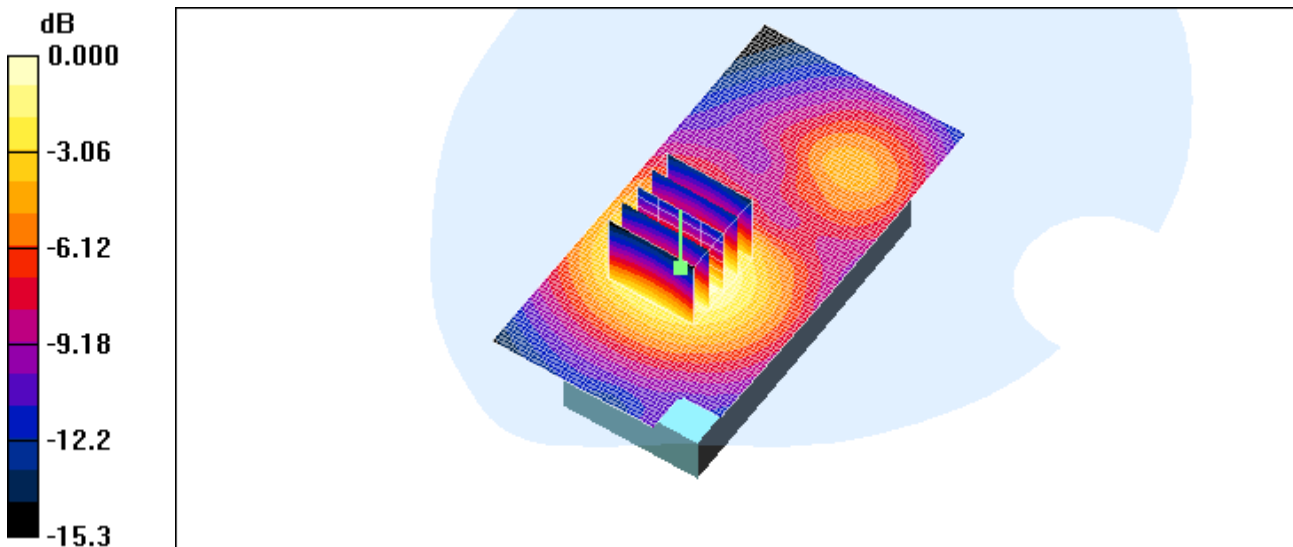
Communication System: GSM 1900; Frequency: 1880 MHz; Duty Cycle: 1:2.075
 Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.47 \text{ mho/m}$; $\epsilon_r = 53.6$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(4.49, 4.49, 4.49); Calibrated: 2011-03-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2010-09-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

GSM1900 Body 661/Area Scan (51x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 0.606 mW/g

GSM1900 Body 661/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
 Reference Value = 9.56 V/m; Power Drift = -0.033 dB
 Peak SAR (extrapolated) = 0.869 W/kg
SAR(1 g) = 0.545 mW/g; SAR(10 g) = 0.328 mW/g
 Maximum value of SAR (measured) = 0.589 mW/g



0 dB = 0.589mW/g

Test Laboratory: HCT CO., LTD
EUT Type: GSM/CDMA Phone with Bluetooth
GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: May 26, 2011

DUT: C781; Type: Folder; Serial: #1

Communication System: CDMA 835MHz FCC; Frequency: 836.52 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): $f = 836.52$ MHz; $\sigma = 0.912$ mho/m; $\epsilon_r = 43.1$; $\rho = 1000$ kg/m³
Phantom section: Right Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(6.1, 6.1, 6.1); Calibrated: 2011-03-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2010-09-21
- Phantom: 800/900 Phantom; Type: SAM

Right touch 384/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.839 mW/g

Right touch 384/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 19.4 V/m; Power Drift = -0.044 dB

Peak SAR (extrapolated) = 1.04 W/kg

SAR(1 g) = 0.768 mW/g; SAR(10 g) = 0.539 mW/g

Maximum value of SAR (measured) = 0.815 mW/g

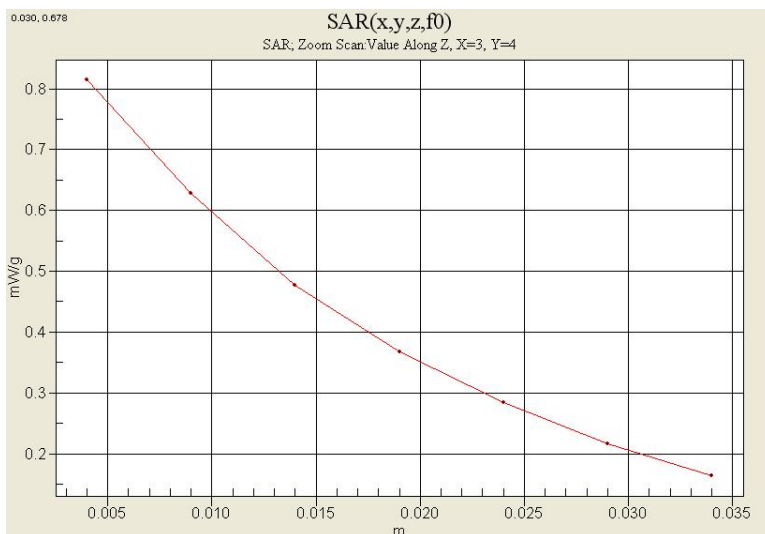
Right touch 384/Zoom Scan (5x5x7)/Cube 1: Measurement grid: dx=8mm, dy=8mm, dz=5mm

Reference Value = 19.4 V/m; Power Drift = -0.044 dB

Peak SAR (extrapolated) = 1.03 W/kg

SAR(1 g) = 0.772 mW/g; SAR(10 g) = 0.560 mW/g

Maximum value of SAR (measured) = 0.818 mW/g



Test Laboratory: HCT CO., LTD
 EUT Type: GSM/CDMA Phone with Bluetooth
 GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
 Liquid Temperature: 21.3 °C
 Ambient Temperature: 21.5 °C
 Test Date: May 26, 2011

DUT: C781; Type: Bar; Serial: #1

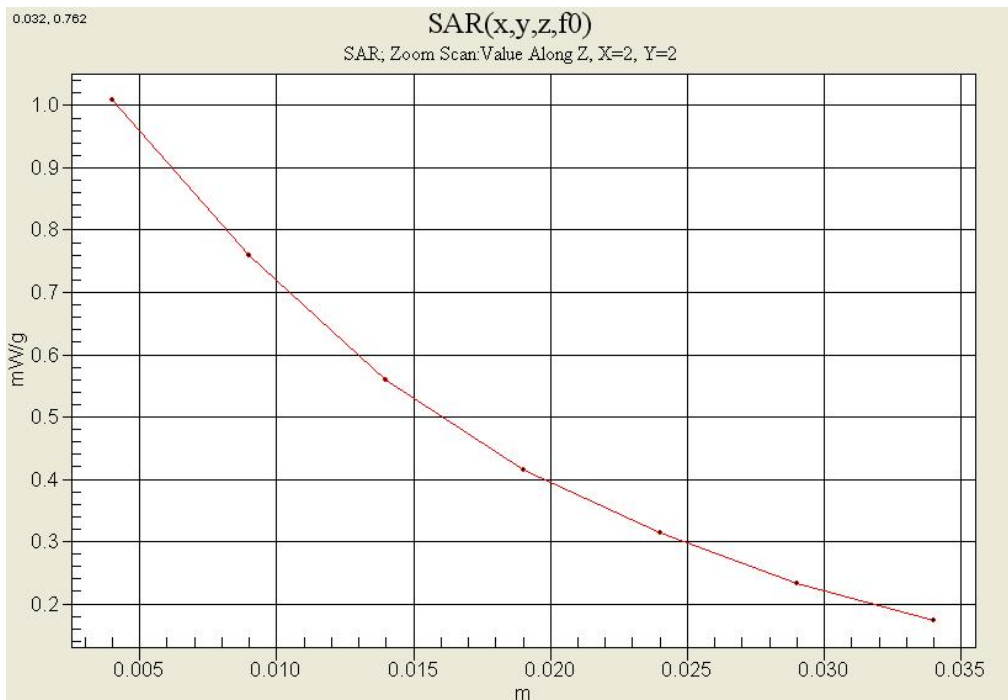
Communication System: CDMA 835MHz FCC; Frequency: 824.7 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 825 \text{ MHz}$; $\sigma = 0.971 \text{ mho/m}$; $\epsilon_r = 56.9$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(5.93, 5.93, 5.93); Calibrated: 2011-03-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2010-09-21
- Phantom: SAM 835/900 MHz; Type: SAM

CDMA Body 1013/Area Scan (51x91x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
 Maximum value of SAR (interpolated) = 1.000 mW/g

CDMA Body 1013/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
 Reference Value = 20.3 V/m; Power Drift = 0.004 dB
 Peak SAR (extrapolated) = 1.24 W/kg
SAR(1 g) = 0.951 mW/g; SAR(10 g) = 0.685 mW/g
 Maximum value of SAR (measured) = 1.01 mW/g



Test Laboratory: HCT CO., LTD
EUT Type: GSM/CDMA Phone with Bluetooth
GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: May 27, 2011

DUT: C781; Type: Folder; Serial: #1

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

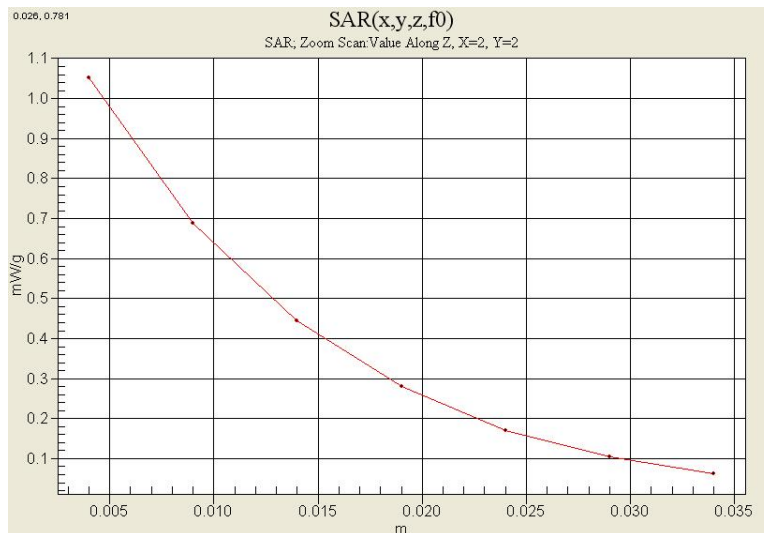
DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(4.91, 4.91, 4.91); Calibrated: 2011-03-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2010-09-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

Right touch 600/Area Scan (51x101x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 0.897 mW/g

Right touch 600/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 11.8 V/m; Power Drift = -0.076 dB
Peak SAR (extrapolated) = 1.70 W/kg
SAR(1 g) = 0.995 mW/g; SAR(10 g) = 0.528 mW/g
Maximum value of SAR (measured) = 1.05 mW/g

Right touch 600/Zoom Scan (5x5x7)/Cube 1: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 11.8 V/m; Power Drift = -0.076 dB
Peak SAR (extrapolated) = 1.57 W/kg
SAR(1 g) = 0.809 mW/g; SAR(10 g) = 0.382 mW/g
Maximum value of SAR (measured) = 1.02 mW/g



Test Laboratory: HCT CO., LTD
EUT Type: GSM/CDMA Phone with Bluetooth
GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: May 27, 2011

DUT: C781; Type: Bar; Serial: #1

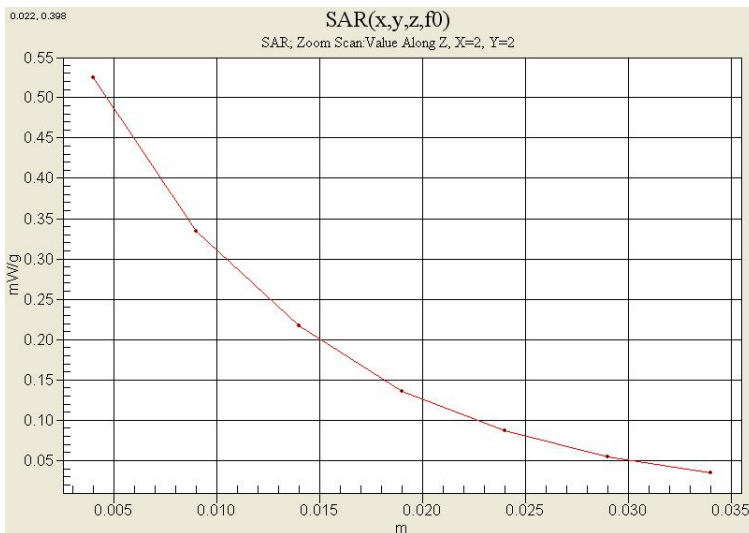
Communication System: PCS 1900MHz FCC; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1880$ MHz; $\sigma = 1.54$ mho/m; $\epsilon_r = 52.9$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(4.49, 4.49, 4.49); Calibrated: 2011-03-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2010-09-21
- Phantom: SAM 1800/1900 MHz; Type: SAM

PCS Body 600/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.540 mW/g

PCS Body 600/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 8.40 V/m; Power Drift = 0.111 dB
Peak SAR (extrapolated) = 0.761 W/kg
SAR(1 g) = 0.489 mW/g; SAR(10 g) = 0.301 mW/g
Maximum value of SAR (measured) = 0.525 mW/g



Test Laboratory: HCT CO., LTD
EUT Type: GSM/CDMA Phone with Bluetooth
GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: May 26, 2011

DUT: C781; Type: Folder; Serial: #1

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.912$ mho/m; $\epsilon_r = 43.1$; $\rho = 1000$ kg/m³
Phantom section: Left Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(6.1, 6.1, 6.1); Calibrated: 2011-03-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2010-09-21
- Phantom: 800/900 Phantom; Type: SAM

Left touch 190/Area Scan (51x101x1): Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.521 mW/g

Left touch 190/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm

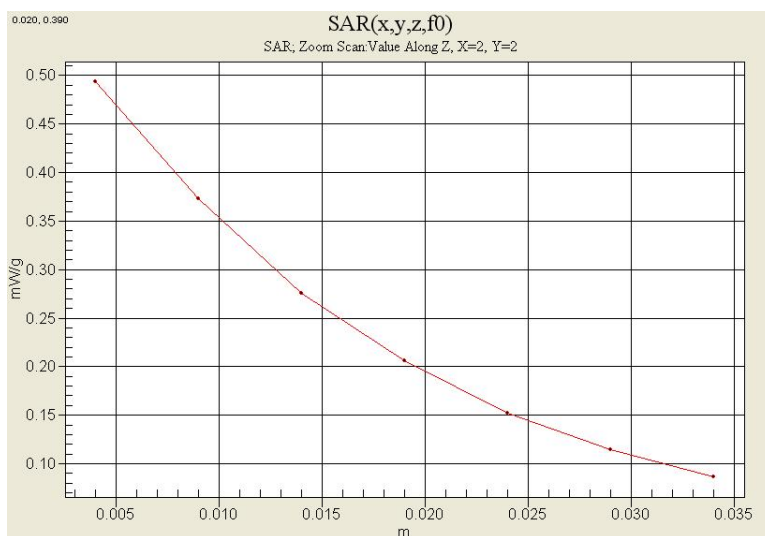
Reference Value = 14.8 V/m; Power Drift = 0.024 dB

Peak SAR (extrapolated) = 0.796 W/kg

SAR(1 g) = 0.470 mW/g; SAR(10 g) = 0.331 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.494 mW/g



Test Laboratory: HCT CO., LTD
EUT Type: GSM/CDMA Phone with Bluetooth
GPRS Class 10 and GPRS mode class B (GPRS and GSM, but not simultaneously)
Liquid Temperature: 21.3 °C
Ambient Temperature: 21.5 °C
Test Date: May 26, 2011

DUT: C781; Type: Bar; Serial: #1

Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:2.075
Medium parameters used: $f = 825$ MHz; $\sigma = 0.971$ mho/m; $\epsilon_r = 56.9$; $\rho = 1000$ kg/m³
Phantom section: Flat Section ; Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 184

DASY4 Configuration:

- Probe: ES3DV3 - SN3161; ConvF(5.93, 5.93, 5.93); Calibrated: 2011-03-17
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2010-09-21
- Phantom: SAM 835/900 MHz; Type: SAM

GSM Body 128/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.20 mW/g

GSM Body 128/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 22.7 V/m; Power Drift = -0.168 dB
Peak SAR (extrapolated) = 1.48 W/kg
SAR(1 g) = 1.12 mW/g; SAR(10 g) = 0.809 mW/g
Maximum value of SAR (measured) = 1.19 mW/g

