A Test Lab Techno Corp.

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SAR EVALUATION REPORT

Test Report No.	:	1209FS12
Applicant	:	QBEX Electronics Corporation
Product Type	:	Dual Sim Smart phone
Trade Name	:	QBEX
Model Number	:	QBA757
Date of Received	:	Aug. 29, 2012
Dates of Test	:	Sep. 19 ~ Sep. 25, 2012
Date of Issued	:	Oct. 05, 2012
Test Environment	:	Ambient Temperature： 22 ±2 ° C
		Relative Humidity：40 - 70 %
Standard	:	ANSI/IEEE C95.1-1999
		IEEE Std. 1528-2003
		IEEE Std. 1528a-2005
		47 CFR Part §2.1093;
		FCC/OET Bulletin 65 Supplement C [July 2001]
Max. SAR	:	0.163 W/kg Head SAR
		0.877 W/kg Body SAR
Test Lab Location	:	Chang-an Lab

1. The test operations have to be performed with cautious behavior, the test results are as attached.
2. The test results are under chamber environment of A Test Lab Techno Corp. A Test Lab Techno Corp. does not assume responsibility for any conclusions and generalizations drawn from the test results with regard to other specimens or samples.
3. The measurement report has to be written approval of A Test Lab Techno Corp. It may only be reproduced or published in full. This report shall not be reproduced except in full, without the written approval of A Test Lab Techno Corp. The test results in the report only apply to the tested sample.

Approved By : Yung-Tan Tsai (Yung Tan Tsai)

Tested By : Bill Hu (Bill Hu)

Contents

1. Description of Equipment under Test (EUT)

Applicant	QBEX Electronics Corporation	
Applicant Address	1606 NW 84th Ave, MIAMI, FL33126, USA	
Manufacture	TRANSAVA INC. (SZ)	
Manufacture Address	Unit 10c, Block 7, East Pacific Garden 2, Shen Zhen, Guangdong, China 518040	
Product Type	Dual Sim Smart phone	
Trade Name	QBEX	
Model Number	QBA757	
IMEI No.	IMEI 1:354515041110411, IMEI 2:354515041110387	
FCC ID	XFM-QBA757	
RF Function	GSM/GPRS 850 (Multi-slot Class 12) GSM/GPRS 1900 (Multi-slot Class 12) WCDMA(RMC 12.2K) / HSDPA / HSUPA (QPSK) Band V IEEE 802.11b / 802.11g / draft 802.11n 2.4GHz Standard-20MHz / draft 802.11n 2.4GHz Wide band-40MHz with Wi-Fi Hot spot mode Bluetooth v3.0 / Bluetooth v4.0 LE	
Tx Frequency	Band	Operate Frequency (MHz)
	GSM/GPRS 850	824.2 - 848.8
	GSM/GPRS 1900	1850.2 - 1909.8
	WCDMA(RMC 12.2K) / HSDPA / HSUPA (QPSK) Band V	826.4 - 846.6
	IEEE 802.11b/802.11g	2412 - 2462
	draft 802.11n 2.4GHz Standard-20MHz	2412 - 2462
	draft 802.11n 2.4GHz Wide band -40MHz	2422 - 2452
	Bluetooth v3.0 / Bluetooth v4.0 LE	2402 - 2480

RF Conducted Power (Avg.)	Band	Power (W / dBm)
	GSM/GPRS 850	1.549 / 31.90
	GSM/GPRS 1900	0.793 / 28.99
	WCDMA(RMC 12.2K) / HSDPA / HSUPA (QPSK) Band V	0.205 / 23.12
	IEEE 802.11b	0.024 / 13.76
	IEEE 802.11g	0.048 / 16.85
	draft 802.11n 2.4GHz Standard-20MHz	0.046 / 16.63
	draft 802.11n 2.4GHz Wide band -40MHz	0.028 / 14.51
	Bluetooth v3.0	0.005 / 3.87
	Bluetooth v4.0 LE	0.001 / -1.29
Max. SAR Measurement	0.163 W/kg Head SAR 0.877 W/kg Body SAR	
Antenna Type	Internal Type	
Device Category	Portable Device	
RF Exposure Environment	General Population / Uncontrolled	
Battery Option	Standard	
Application Type	Certification	

This wireless portable device has been shown to be capable of compliance for localized specific absorption rate (SAR) for uncontrolled environment / general population exposure limits specified in Standard C95.1-1999 and had been tested in accordance with the measurement procedures specified in IEEE Std. 1528-2003 and IEEE Std. 1528a-2005.

2. Introduction

The A Test Lab Techno Corp. has performed measurements of the maximum potential exposure to the user of **QBEX Electronics Corporation Trade Name：QBEX Model(s)：QBA757.** The test procedures, as described in American National Standards, Institute C95.1-1999〔1〕, FCC/OET Bulletin 65 Supplement C [July 2001] were employed and they specify the maximum exposure limit of 1.6mW/g as averaged over any 1 gram of tissue for portable devices being used within 20cm between user and EUT in the uncontrolled environment. A description of the product and operating configuration, detailed summary of the test results, methodology and procedures used in the equipment used are included within this test report.

2.1 SAR Definition

Specific Absorption Rate (SAR) is defined as the time derivative (rate) of the incremental 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 (see Figure 2).

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

Figure 2. SAR Mathematical Equation

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

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

Where：

σ = conductivity of the tissue (S/m)

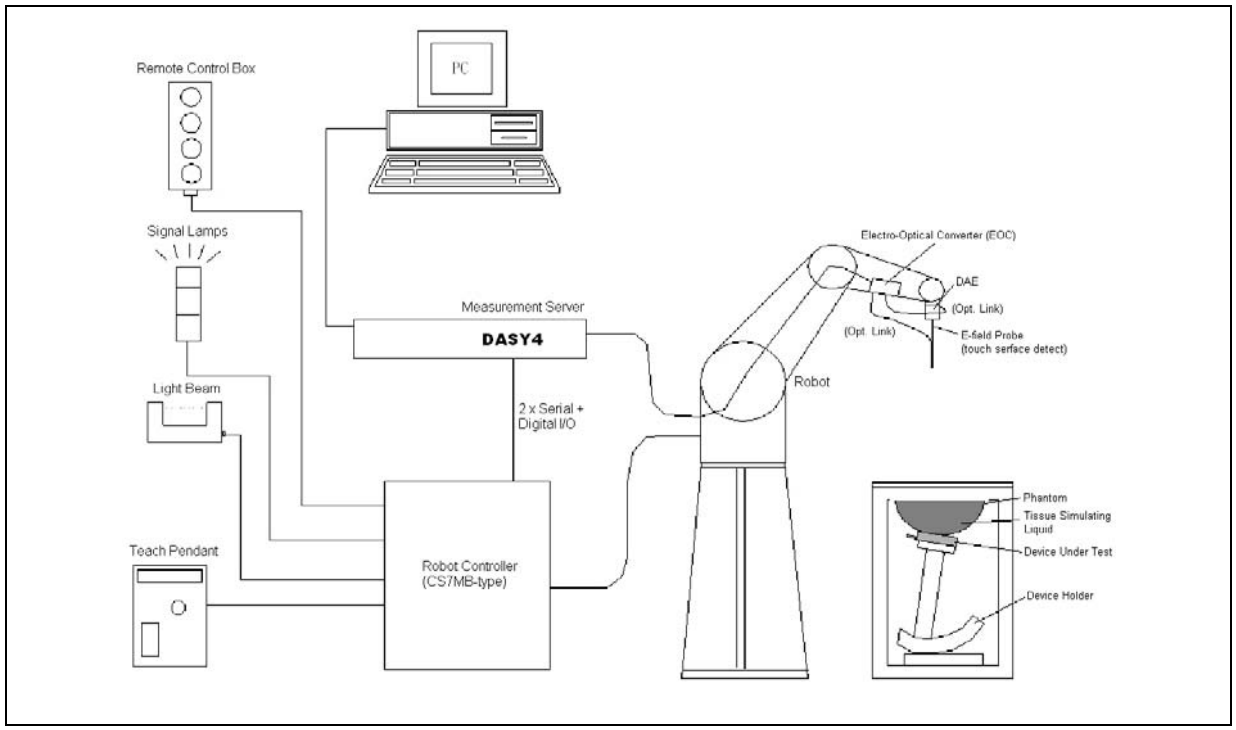
ρ = mass density of the tissue (kg/m^3)

E = 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〕

3. SAR Measurement Setup



The DASY4 system for performing compliance tests consists of the following items:

1. A standard high precision 6-axis robot (Stäubli RX family) with controller, teach pendant and software. An arm extension for accommodating the data acquisition electronics (DAE).
2. A dosimetric probe, i.e., an isotropic E-field probe optimized and calibrated for usage in tissue simulating liquid. The probe is equipped with an optical surface detector system.
3. A data acquisition electronics (DAE) which performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. The unit is battery powered with standard or rechargeable batteries. The signal is optically transmitted to the EOC.
4. The function of the measurement server is to perform the time critical tasks such as signal filtering, control of the robot operation and fast movement interrupts.
5. A probe alignment unit which improves the (absolute) accuracy of the probe positioning.
6. A computer operating Windows 2000 or Windows XP.
7. DASY4 software.
8. Remote controls with teach pendant and additional circuitry for robot safety such as warning lamps, etc.
9. The SAM twin phantom enabling testing left-hand and right-hand usage.
10. The device holder for handheld mobile phones.
11. Tissue simulating liquid mixed according to the given recipes.
12. Validation dipole kits allowing validating the proper functioning of the system.

3.1 DASY4 E-Field Probe System

The SAR measurements were conducted with the dosimetric probe EX3DV4 (manufactured by SPEAG), designed in the classical triangular configuration[3]and optimized for dosimetric evaluation. The probes is constructed using the thick film technique; with printed resistive lines on ceramic substrates. The probe is equipped with an optical multi-fiber 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 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 when reaching the maximum.

3.1.1 E-Field Probe Specification

Construction	Symmetrical design with triangular core
	Built-in optical fiber for surface detection System
	Built-in shielding against static charges
	PEEK enclosure material (resistant to organic solvents, e.q., glycol)
Calibration	In air from 10 MHz to 6 GHz
	In brain and muscle simulating tissue at frequencies of 835, 1900, 2450MHz (accuracy ±8%)
	Calibration for other liquids and frequencies upon request
Frequency	±0.2 dB (30 MHz to 6 GHz) for EX3DV4
Directivity	±0.3 dB in brain tissue (rotation around probe axis)
	±0.5 dB in brain tissue (rotation normal probe axis)
Dynamic Range	10 μW/g to $>$ 100mW/g; Linearity: ±0.2dB
Dimensions	Overall length: 337mm
	Tip length: 20mm
	Body diameter: 12mm
	Tip diameter: 2.5mm for EX3DV4,
	Distance from probe tip to dipole centers: 1.0mm for EX3DV4,
Application	General dosimetry up to 6GHz
	Compliance tests of mobile phones
	Fast automatic scanning in arbitrary phantoms

Figure 3. E-field Probe

Figure 4. Probe setup on robot

3.1.2 E-Field Probe Calibration process

Dosimetric Assessment Procedure

Each E-Probe/Probe Amplifier combination has unique calibration parameters. A TEM cell calibration procedure is conducted to determine the proper amplifier settings to enter in the probe parameters. The amplifier settings are determined for a given frequency by subjecting the probe to a known E-field density (1 mW/cm^2) using an RF Signal generator, TEM cell, and RF Power Meter.

Free Space Assessment

The free space E-field from amplified probe outputs is determined in a test chamber. This calibration can be performed in a TEM cell if the frequency is below 1 GHz and in a waveguide or other methodologies 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 rotated 360 degrees until the three channels show the maximum reading. The power density readings equates to 1 mW/cm^2.

Temperature Assessment

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

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

Where：

Δt = Exposure time (30 seconds),

C = Heat capacity of tissue (head or body),

ΔT = Temperature increase due to RF exposure.

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

Where：

σ = Simulated tissue conductivity,

ρ = Tissue density (kg/m^3).

3.2 Data Acquisition Electronic (DAE) System

Cell Controller

Processor：	Intel Pentium 4
Clock Speed：	2.4GHz
Operating System：	Windows XP Professional

Data Converter

Features：	Signal Amplifier, multiplexer, A/D converter, and control logic
Software：	DASY4 v4.7 (Build 80) & SEMCAD v1.8 (Build 186)
Connecting Lines：	Optical downlink for data and status info
	Optical uplink for commands and clock

3.3 Robot

Positioner：	Stäubli Unimation Corp. Robot Model: RX90L
Repeatability：	±0.025 mm
No. of Axis：	6

3.4 Measurement Server

Processor：	PC/104 with a 166MHz low-power Pentium
I/O-board：	Link to DAE4 (or DAE3)
	16-bit A/D converter for surface detection system
	Digital I/O interface
	Serial link to robot
	Direct emergency stop output for robot

3.5 Device Holder

The DASY device holder is constructed of low-loss POM material having the following dielectric parameters: relative permittivity ε=3 and loss tangent δ=0.02. The amount of dielectric material has been reduced in the closest vicinity of the device, since measurements have suggested that the influence of the clamp on the test results could thus be lowered.

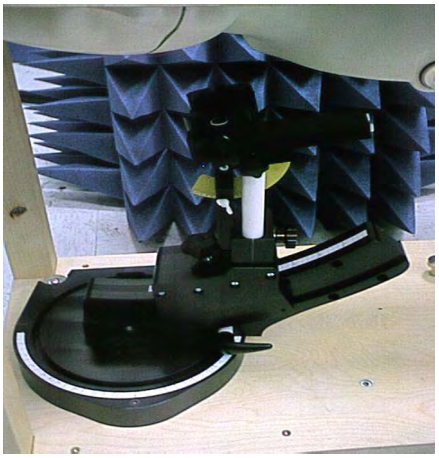


Figure 5. Device Holder

3.6 Phantom - SAM v4.0

The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (SAM) phantom defined in IEEE 1528 and IEC 62209. 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 manually teaching three points with the robot.

Shell Thickness	2 ±0.2 mm
Filling Volume	Approx. 25 liters
Dimensions	1000x500 mm (LxW)

Table 1. Specification of SAM v4.0

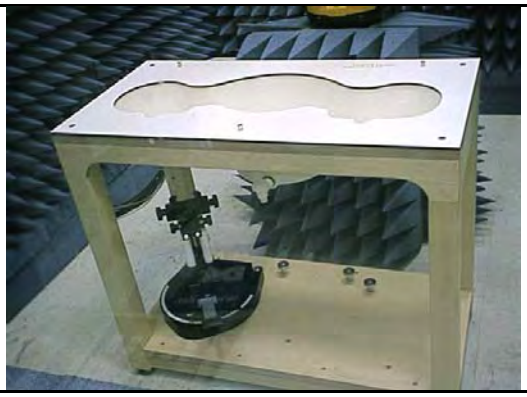


Figure 6. SAM Twin Phantom

3.7 Oval Flat Phantom - ELI 4.0

The shell corresponds to the specifications of the Specific Anthropomorphic Mannequin (Oval Flat) phantom defined in IEEE 1528-2003, IEEE Std. 1528a-2005, CENELEC 50361 and IEC 62209. It enables the dosimetric evaluation of wireless portable device 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 manually teaching three points with the robot.

Shell Thickness	2 ±0.2 mm
Filling Volume	Approx. 30 liters
Dimensions	190×600×400 mm (H×L×W)

Table 2. Specification of ELI 4.0

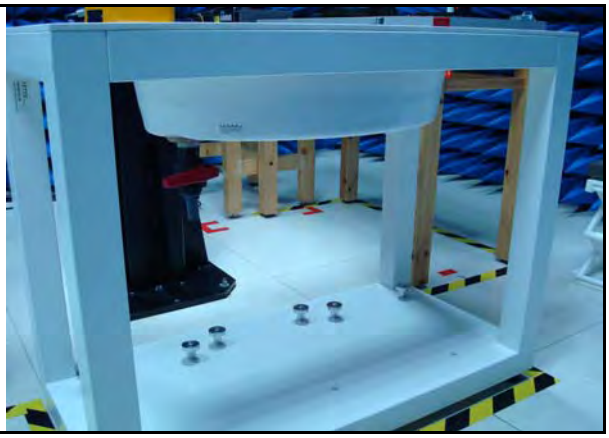


Figure 7. Oval Flat Phantom

3.8 Data Storage and Evaluation

3.8.1 Data Storage

The DASY4 software stores the assessed data from the data acquisition electronics as raw data (in microvolt readings from the probe sensors), together with all the necessary software parameters for the data evaluation (probe calibration data, liquid parameters and device frequency and modulation data) in measurement files with the extension DA4 The post processing software evaluates the desired unit and format for output each time the data is visualized or exported. This allows verification of the complete software setup even after the measurement and allows correction of erroneous parameter settings. For example, if a measurement has been performed with an incorrect crest factor parameter in the device setup, the parameter can be corrected afterwards and the data can be reevaluated.

3.8.2 Data Evaluation

The DASY4 post processing software (SEMCAD) automatically executes the following procedures to calculate the field units from the microvolt readings at the probe connector. The parameters used in the evaluation are stored in the configuration modules of the software：

Probe parameters：	- Sensitivity	Normi, ai0, ai1, ai2	
	- Conversion factor		ConvFi
	- Diode compression point		dcpi
Device parameters：	- Frequency	f	
	- Crest factor		cf
Media parameters：	- Conductivity	σ	
	- Density		ρ

These parameters must be set correctly in the software. They can be found in the component documents or they can be imported into the software from the configuration files issued for the DASY components. In the direct measuring mode of the multimeter option, the parameters of the actual system setup are used. In the scan visualization and export modes, the parameters stored in the corresponding document files are used.

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 as：

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

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

H-field probes：

$$H_i = \sqrt{V_i} \cdot \frac{a_{i0} + a_{i1} f + a_{i2} f^2}{f}$$

with V_i = compensated signal of channel i (i = x, y, z)

$Norm_i$ = sensor sensitivity of channel i (i = x, y, z)

μ V/(V/m)^2 for E-field Probes

$ConvF$ = sensitivity enhancement in solution

a_{ij} = sensor sensitivity factors for H-field probes

f = carrier frequency [GHz]

E_i = electric field strength of channel i in V/m

Hi = magnetic field strength of channel i in A/m

The RSS value of the field components gives the total field strength (Hermitian 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 mW/g

E_{tot} = total field strength in V/m

σ = conductivity in [mho/m] or [Siemens/m]

ρ = equivalent tissue density in g/cm^3

∗**Note**：That the density is set to 1, to account for actual head tissue density rather than the density of the tissue simulating liquid.

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

$$P_{pwe} = \frac{E_{tot}^2}{3770} \quad \text{or} \quad P_{pwe} = \frac{H_{tot}^2}{37.7}$$

with P_{pwe} = equivalent power density of a plane wave in mW/cm^2

E_{tot} = total electric field strength in V/m

H_{tot} = total magnetic field strength in A/m

4. Tissue Simulating Liquids

The mixture is calibrated to obtain proper dielectric constant (permittivity) and conductivity of the tissue. The dielectric parameters of the liquids were verified prior to the SAR evaluation using an 85070C Dielectric Probe Kit and an E5071B Network Analyzer.

IEEE SCC-34/SC-2 in 1528 recommended Tissue Dielectric Parameters

The head tissue dielectric parameters recommended by the IEEE SCC-34/SC-2 in 1528 have been incorporated in the following table. These head parameters are derived from planar layer models simulating the highest expected SAR for the dielectric properties and tissue thickness variations in human head. Other head and body tissue parameters that have not been specified in 1528 are derived from the tissue dielectric parameters computed from the 4-Cole-Cole equation and extrapolated according to the head parameter specified in 1528.

Target Frequency	Head		Body	
(MHz)	ε_r	σ (S/m)	ε_r	σ (S/m)
150	52.3	0.76	61.9	0.80
300	45.3	0.87	58.2	0.92
450	43.5	0.87	56.7	0.94
835	41.5	0.90	55.2	0.97
900	41.5	0.97	55.0	1.05
915	41.5	0.98	55.0	1.06
1450	40.5	1.20	54.0	1.30
1610	40.3	1.29	53.8	1.40
1800 - 2000	40.0	1.40	53.3	1.52
2450	39.2	1.80	52.7	1.95
3000	38.5	2.40	52.0	2.73
5800	35.3	5.27	48.2	6.00
(ε_r = relative permittivity, σ = conductivity and ρ = 1000 kg/m^3)				

Table 3. Tissue dielectric parameters for head and body phantoms

4.1 Ingredients

The following ingredients are used:

- Water: deionized water (pure H_20), resistivity ≥ 16 M Ω -as basis for the liquid
- Sugar: refied white sugar (typically 99.7 % sucrose, available as crystal sugar in food shops) -to reduce relative permittivity
- Salt: pure NaCl -to increase conductivity
- Cellulose: Hydroxyethyl-cellulose, medium viscosity (75-125 mPa.s, 2% in water, 20°C), CAS # 54290 -to increase viscosity and to keep sugar in solution.
- Preservative: Preventol D-7 Bayer AG, D-51368 Leverkusen, CAS # 55965-84-9 -to prevent the spread of bacteria and molds
- DGBE: Diethylenglycol-monobuthyl ether (DGBE), Fluka Chemie GmbH, CAS # 112-34-5 -to reduce relative permittivity

4.2 Recipes

The following tables give the recipes for tissue simulating liquids to be used in different frequency bands.

Note: The goal dielectric parameters (at 22 ℃) must be achieved within a tolerance of ±5% for εand ±5% for σ.

Ingredients (% by weight)	Frequency (MHz)									
	450		835		915		1900		2450	
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
Dielectric Constant	43.42	58.0	42.54	56.1	42.0	56.8	39.9	54.0	39.8	52.5
Conductivity (S/m)	0.85	0.83	0.91	0.95	1.0	1.07	1.42	1.45	1.88	1.78

Salt: 99$^+$% Pure Sodium Chloride Sugar: 98$^+$% Pure Sucrose

Water: De-ionized, 16 MΩ$^+$ 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

Simulating Liquids for 5 GHz, Manufactured by SPEAG

Ingredients	(% by weight)
Water	78
Mineral oil	11
Emulsifiers	9
Additives and Salt	2

4.3 Liquid Confirmation

4.3.1 Parameters

Liquid Verify								
Ambient Temperature： 22 ± 2 °C；Relative Humidity：40 -70%								
Liquid Type	Frequency	Temp (°C)	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)	Measured Date
835MHz Head	820MHz	22.0	εr	41.50	41.99	1.18	± 5	09/19/2012
			σ	0.90	0.89	-1.11	± 5	
	835MHz	22.0	εr	41.50	41.80	0.72	± 5	
			σ	0.90	0.91	1.11	± 5	
	850MHz	22.0	εr	41.50	41.60	0.24	± 5	
			σ	0.90	0.92	2.22	± 5	
1900MHz Head	1850MHz	22.0	εr	40.00	39.54	-1.15	± 5	09/21/2012
			σ	1.40	1.34	-4.29	± 5	
	1900MHz	22.0	εr	40.00	39.37	-1.58	± 5	
			σ	1.40	1.39	-0.71	± 5	
	1930MHz	22.0	εr	40.00	39.23	-1.93	± 5	
			σ	1.40	1.42	1.43	± 5	
2450MHz Head	2400MHz	22.0	εr	39.20	39.72	1.33	± 5	09/21/2012
			σ	1.80	1.76	-2.22	± 5	
	2450MHz	22.0	εr	39.20	39.49	0.74	± 5	
			σ	1.80	1.81	0.56	± 5	
	2500MHz	22.0	εr	39.20	39.40	0.51	± 5	
			σ	1.80	1.86	3.33	± 5	
2450MHz Head	2400MHz	22.0	εr	39.20	39.72	1.33	± 5	09/22/2012
			σ	1.80	1.76	-2.22	± 5	
	2450MHz	22.0	εr	39.20	39.49	0.74	± 5	
			σ	1.80	1.81	0.56	± 5	
	2500MHz	22.0	εr	39.20	39.40	0.51	± 5	
			σ	1.80	1.86	3.33	± 5	

Table 4. Measured Tissue dielectric parameters for head and body phantoms-1

Liquid Verify								
Ambient Temperature： 22 ± 2 °C；Relative Humidity：40 -70%								
Liquid Type	Frequency	Temp (°C)	Parameters	Target Value	Measured Value	Deviation (%)	Limit (%)	Measured Date
835MHz Body	820MHz	22.0	εr	55.20	54.63	-1.03	± 5	09/20/2012
			σ	0.97	0.97	0.00	± 5	
	835MHz	22.0	εr	55.20	54.53	-1.21	± 5	
			σ	0.97	0.99	2.06	± 5	
	850MHz	22.0	εr	55.20	54.43	-1.39	± 5	
			σ	0.97	1.00	3.09	± 5	
1900MHz Body	1850MHz	22.0	εr	53.30	52.53	-1.44	± 5	09/23/2012
			σ	1.52	1.47	-3.29	± 5	
	1900MHz	22.0	εr	53.30	52.46	-1.58	± 5	
			σ	1.52	1.53	0.66	± 5	
	1930MHz	22.0	εr	53.30	52.40	-1.69	± 5	
			σ	1.52	1.55	1.97	± 5	
2450MHz Body	2400MHz	22.0	εr	52.70	51.82	-1.67	± 5	09/23/2012
			σ	1.95	1.89	-3.08	± 5	
	2450MHz	22.0	εr	52.70	51.69	-1.92	± 5	
			σ	1.95	1.96	0.51	± 5	
	2500MHz	22.0	εr	52.70	51.57	-2.14	± 5	
			σ	1.95	2.02	3.59	± 5	
2450MHz Body	2400MHz	22.0	εr	52.70	51.82	-1.67	± 5	09/24/2012
			σ	1.95	1.89	-3.08	± 5	
	2450MHz	22.0	εr	52.70	51.69	-1.92	± 5	
			σ	1.95	1.96	0.51	± 5	
	2500MHz	22.0	εr	52.70	51.57	-2.14	± 5	
			σ	1.95	2.02	3.59	± 5	

Table 5. Measured Tissue dielectric parameters for head and body phantoms-4

4.3.2 Liquid Depth

The liquid level was during measurement 15cm ±0.5cm.

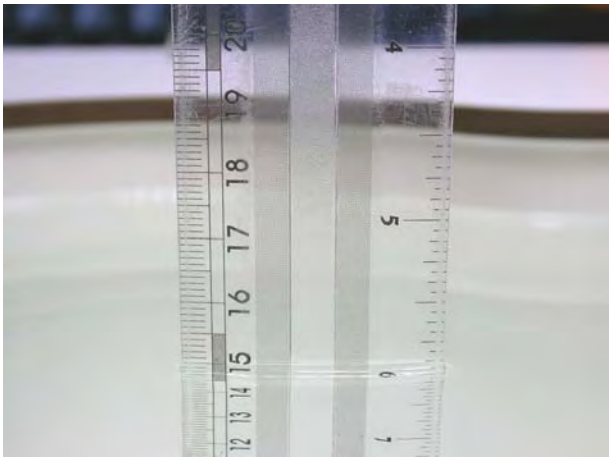


Figure 8. Head-Tissue-Simulating-Liquid

Figure 9. Body-Tissue-Simulating-Liquid

5. SAR Testing with RF Transmitters

5.1 SAR Testing with HSDPA Transmitters

HSDPA Date Devices setup for SAR Measurement.

HSDPA should be configured according to the UE category of a test device. The number of HS-DSCH/HS-PDSCHs, HARQ processes, minimum inter-TTI interval, transport block sizes and RV coding sequence are defined by the H-set. To maintain a consistent test configuration and stable transmission conditions, QPSK is used in the H-set for SAR testing. HS-DPCCH should be configured with a CQI feedback cycle of 4 ms with a CQI repetition factor of 2 to maintain a constant rate of active CQI slots. DPCCH and DPDCH gain factors(βc, βd), and HS-DPCCH power offset parameters (ΔACK, ΔNACK, ΔCQI) should be set according to values indicated in the Table below.[32] The CQI value is determined by the UE category, transport block size, number of HS-PDSCHs and modulation used in the H-set.[33]

Sub-test	βc	βd	βd (SF)	βc/βd	βhs(1,2)	CM (dB)(3)	MRP (dB)(3)
1	2/15	15/15	64	2/15	4/15	0.0	0.0
2	12/15(4)	15/15(4)	64	12/15(4)	24/15	1.0	0.0
3	15/15	8/15	64	15/8	30/15	1.5	0.5
4	15/15	4/15	64	15/4	30/15	1.5	0.5

Note

1. Δ_{ACK}, Δ_{NACK} and Δ_{CQI} = 8 ⇔ Ahs = βhs/βc = 30/15 ⇔ βhs= 30/15 *βc
2. For theHS-DPCCH power mask requirement test in clause 5.2C, 5.7A, and the Error Vector Magnitude(EVM) with HS-DPCCH test in clause 5.13.1A and HSDPA EVM with phase discontinuity in clause 5.13.1AA, Δ_{ACK} and Δ_{NACK} = 30/15 with βhs = 30/15 *βc and Δ_{CQI} = 24/15 with βhs = 24/15*βc
3. CM = 1 for βc/βd =12/15, βhs/βc=24/15. For all other combinations of DPDCH, DPCCH and HS-DPCCH the MPR is based on the relative CM difference. This is applicable for only UEs that support HSDPA in release 6 and later releases.
4. For subtest 2 the βc/βd ratio of 12/15 for the TFC during the measurement period (TF1, TF0) is achieved by setting the signaled gain factors for the reference TFC (TF1, TF1) to βc = 11/15 and βd = 15/15.

Table 6. Setup for Release 5 HSDPA

HSPA Date Devices setup for SAR Measurement.

The following procedures are applicable to HSPA (HSUPA/HSDPA) data devices operating under 3GPP Release 6. Body exposure conditions generally apply to these devices, including handsets and data modems operating in various electronic devices. HSUPA operates in conjunction with WCDMA and HSDPA. SAR is initially measured in WCDMA test configurations without HSPA. The default test configuration is to establish a radio link between the DUT and a communication test set to configure a 12.2 kbps RMC (reference measurement channel) in Test Loop Mode 1. SAR for HSPA is selectively measured with HS-DPCCH, EDPCCH and E-DPDCH, all enabled, along with a 12.2 kbps RMC using the highest SAR configuration in WCDMA with 12.2 kbps RMC only. An FRC is configured according to HSDPCCH Sub-test 1 using H-set 1 and QPSK. HSPA is configured according to E-DCH Subtest 5 requirements. SAR for other HSPA sub-test configurations is also confirmed selectively according to output power, exposure conditions and E-DCH UE Category. Maximum output power is verified according to procedures in applicable versions of 3GPP TS 34.121 and SAR must be measured according to these maximum output conditions. The UE Categories for HSDPCCH and HSPA should be clearly identified in the SAR report. The following procedures are applicable only if Maximum Power Reduction (MPR) is implemented according to Cubic Metric (CM) requirements.

When voice transmission and head exposure conditions are applicable to a WCDMA/HSPA data device, head exposure is measured according to the 'Head SAR Measurements' procedures in the 'WCDMA Handsets' section of this document. SAR for body exposure configurations are measured according to the 'Body SAR Measurements' procedures in the 'WCDMA Handsets' section of this document. In addition, body SAR is also measured for HSPA when the maximum average output of each RF channel with HSPA active is at least ¼ dB higher than that measured without HSPA using 12.2 kbps RMC or the maximum SAR for 12.2 kbps RMC is above 75% of the SAR limit. Body SAR for HSPA is measured with E-DCH Sub-test 5, using H-Set 1 and QPSK for FRC and a 12.2 kbps RMC configured in Test Loop Mode 1 with power control algorithm 2, according to the highest body SAR configuration in 12.2 kbps RMC without HSPA. When VOIP is applicable for head exposure, SAR is not required when the maximum output of each RF channel with HSPA is less than ¼ dB higher than that measured using 12.2 kbps RMC; otherwise, the same HSPA configuration used for body measurements should be used to test for head exposure.

Due to inner loop power control requirements in HSPA, a commercial communication test set should be used for the output power and SAR tests. The 12.2 kbps RMC, FRC H-set 1 and E-DCH configurations for HSPA should be configured according to the β values indicated below as well as other applicable procedures described in the 'WCDMA Handset' and 'Release 5 HSDPA Data Devices' sections of this document.

The highest body SAR measured in Antenna Extended & Retracted configurations on a channel in 12.2 kbps RMC. The possible channels are the High, Middle & Low channel. Contact the FCC Laboratory for test and approval requirements if the maximum output power measured in E-DCH Sub-test 2 - 4 is higher than Sub-test 5.

Sub-test	βc	βd	βd (SF)	βc/βd	βhs(1)	βec	βed	Bed (SF)	Bed (codes)	CM(2) (dB)	MPR (dB)	AG(4) Index	E-TFCI
1	11/15(3)	15/15(3)	64	11/15(3)	22/15	209/225	1039/225	4	1	1.0	0.0	20	75
2	6/15	15/15	64	6/15	12/15	12/15	94/75	4	1	3.0	2.0	12	67
3	15/15	9/15	64	15/9	30/15	30/15	βed1: 47/15 βed2: 47/15	4	2	2.0	1.0	15	92
4	2/15	15/15	64	2/15	4/15	2/15	56/75	4	1	3.0	2.0	17	71
5	15/15(4)	15/15(4)	64	15/15(4)	30/15	24/15	134/15	4	1	1.0	0.0	21	81

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

Table 7. Setup for Release 6 HSPA / Release 7 HSPA+

5.2 SAR Testing with 802.11 Transmitters

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

5.2.1 General Device Setup

Chipset based test mode software is hardware dependent and generally varies among manufacturers. The device operating parameters established in test mode for SAR measurements must be identical to those programmed in production units, including output power levels, amplifier gain settings and other RF performance tuning parameters. The test frequencies should correspond to actual channel frequencies defined

for domestic use. SAR for devices with switched diversity should be measured with only one antenna transmitting at a time during each SAR measurement, according to a fixed modulation and data rate.

The same data pattern should be used for all measurements.

5.2.2 Frequency Channel Configurations

802.11 a/b/g and 4.9 GHz operating modes are tested independently according to the service requirements in each frequency band. 802.11 b/g modes are tested on channels 1, 6 and 11. 802.11a is tested for UNII operations on channels 36 and 48 in the 5.15-5.25 GHz band; channels 52 and 64 in the 5.25-5.35 GHz band; channels 104, 116, 124 and 136 in the 5.470-5.725 GHz band; and channels 149 and 161 in the 5.8 GHz band. When 5.8 GHz §15.247 is also available, channels 149, 157 and 165 should be tested instead of the UNII channels. 4.9 GHz is tested on channels 1, 10 and 5 or 6, whichever has the higher output power, for 5 MHz channels; channels 11, 15 and 19 for 10 MHz channels; and channels 21 and 25 for 20 MHz channels. These are referred to as the “default test channels”. 802.11g mode was evaluated only if the output power was 0.25 dB higher than the 802.11b mode.

802.11 Test Channels per FCC Requirement

Mode	GHz	Channel	Turbo Channel	Default Test “Channels”			
				§15.247		UNII	
				802.11b	802.11g		
802.11 b/g	2412	1		✓	▽		
	2437	6	6	✓	▽		
	2462	11		✓	▽		

5.3 Conducted Power

Band	Modulation	Mode	CH	Frequency (MHz)	RF Conducted Output Power (dBm)	
					Time Average	Average burst
GSM 850 (SIM 1)	GMSK	1Down1Up Duty Factor 1/8	Lowest	824.2	22.29	31.32
			Middle	836.6	22.85	31.88
			Highest	848.8	22.30	31.33
GPRS 850 (SIM 1) Multi Class :12 Max Up:4 Max Down:4 Sum:5		4Down1Up Duty Factor 1/8	Lowest	824.2	22.26	31.29
			Middle	836.6	22.79	31.82
			Highest	848.8	22.28	31.31
		3Down2Up Duty Factor 2/8	Lowest	824.2	24.51	30.53
			Middle	836.6	24.91	30.93
			Highest	848.8	24.49	30.51
		2Down3Up Duty Factor 3/8	Lowest	824.2	24.70	28.96
			Middle	836.6	25.12	29.38
			Highest	848.8	24.69	28.95
		1Down4Up Duty Factor 4/8	Lowest	824.2	25.20	28.21
			Middle	836.6	25.55	28.56
			Highest	848.8	25.11	28.12
GSM 850 (SIM 2)	GMSK	1Down1Up Duty Factor 1/8	Lowest	824.2	22.32	31.35
			Middle	836.6	22.87	31.90
			Highest	848.8	22.32	31.35
GPRS 850 (SIM 2) Multi Class :12 Max Up:4 Max Down:4 Sum:5		4Down1Up Duty Factor 1/8	Lowest	824.2	22.29	31.32
			Middle	836.6	22.81	31.84
			Highest	848.8	22.30	31.33
		3Down2Up Duty Factor 2/8	Lowest	824.2	24.53	30.55
			Middle	836.6	24.94	30.96
			Highest	848.8	24.51	30.53
		2Down3Up Duty Factor 3/8	Lowest	824.2	24.72	28.98
			Middle	836.6	25.17	29.43
			Highest	848.8	24.71	28.97
		1Down4Up Duty Factor 4/8	Lowest	824.2	25.22	28.23
			Middle	836.6	**25.58**	28.59
			Highest	848.8	25.14	28.15

Note: 1.Time Average power slot duty cycle factor calculate:

1up: Average burst power+10*LOG(1/8)

2up: Average burst power+10*LOG(2/8)

3up: Average burst power+10*LOG(3/8)

4up: Average burst power+10*LOG(4/8)

2. Selected Mode for SAR testing:

a. Head –GPRS(1Down4Up)/WCDMA(RMC 12.2K mode)/802.11b/802.11g/802.11n_HT20/ 802.11n_HT40

b. Body 10mm - GPRS(1Down4Up)/WCDMA(RMC 12.2K mode)/802.11b/802.11g/ 802.11n_HT20/802.11n_HT40/Bluetooth v3.0

3. EUT not supposed DTM mode.

4. SIM1 & SIM2 can't transmit simultaneously.

Band	Modulation	Mode	CH	Frequency (MHz)	RF Conducted Output Power (dBm)	
					Time Average	Average burst
GSM 1900 (SIM 1)	GMSK	1Down1Up Duty Factor 1/8	Lowest	1850.2	19.66	28.69
			Middle	1880.0	19.70	28.73
			Highest	1909.8	19.93	28.96
GPRS 1900 (SIM 1) Multi Class :12 Max Up:4 Max Down:4 Sum:5		4Down1Up Duty Factor 1/8	Lowest	1850.2	19.60	28.63
			Middle	1880.0	19.68	28.71
			Highest	1909.8	19.85	28.88
		3Down2Up Duty Factor 2/8	Lowest	1850.2	21.41	27.43
			Middle	1880.0	21.50	27.52
			Highest	1909.8	21.71	27.73
		2Down3Up Duty Factor 3/8	Lowest	1850.2	21.06	25.32
			Middle	1880.0	21.15	25.41
			Highest	1909.8	21.48	25.74
		1Down4Up Duty Factor 4/8	Lowest	1850.2	21.51	24.52
			Middle	1880.0	21.63	24.64
			Highest	1909.8	21.83	24.84
GSM 1900 (SIM 2)	GMSK	1Down1Up Duty Factor 1/8	Lowest	1850.2	19.68	28.71
			Middle	1880.0	19.73	28.76
			Highest	1909.8	19.96	28.99
GPRS 1900 (SIM 2) Multi Class :12 Max Up:4 Max Down:4 Sum:5		4Down1Up Duty Factor 1/8	Lowest	1850.2	19.62	28.65
			Middle	1880.0	19.71	28.74
			Highest	1909.8	19.87	28.90
		3Down2Up Duty Factor 2/8	Lowest	1850.2	21.43	27.45
			Middle	1880.0	21.52	27.54
			Highest	1909.8	21.74	27.76
		2Down3Up Duty Factor 3/8	Lowest	1850.2	21.08	25.34
			Middle	1880.0	21.17	25.43
			Highest	1909.8	21.51	25.77
		1Down4Up Duty Factor 4/8	Lowest	1850.2	21.53	24.54
			Middle	1880.0	21.66	24.67
			Highest	1909.8	**21.87**	24.88

Note: 1. Time Average power slot duty cycle factor calculate:

1up: Average burst power+10*LOG(1/8)

2up: Average burst power+10*LOG(2/8)

3up: Average burst power+10*LOG(3/8)

4up: Average burst power+10*LOG(4/8)

2. Selected Mode for SAR testing:

a. Head –GPRS(1Down4Up)/WCDMA(RMC 12.2K mode)/802.11b/802.11g/802.11n_HT20/ 802.11n_HT40

b. Body 10mm - GPRS(1Down4Up)/WCDMA(RMC 12.2K mode)/802.11b/802.11g/ 802.11n_HT20/802.11n_HT40/Bluetooth v3.0

3. EUT not supposed DTM mode.

4. SIM1 & SIM2 can't transmit simultaneously.

Band	Modulation	Sub-test	CH	Frequency (MHz)	RF Conducted Output Power (dBm)
					Average
WCDMA Band V	RMC12.2K	---	Lowest	826.4	**23.12**
			Middle	836.6	22.84
			Highest	846.6	22.96
HSDPA Band V	QPSK	1	Lowest	826.4	22.93
			Middle	836.6	22.77
			Highest	846.6	22.89
		2	Lowest	826.4	22.92
			Middle	836.6	22.76
			Highest	846.6	22.86
		3	Lowest	826.4	22.44
			Middle	836.6	22.29
			Highest	846.6	22.40
		4	Lowest	826.4	22.41
			Middle	836.6	22.24
			Highest	846.6	22.38
HSUPA Band V		1	Lowest	826.4	22.21
			Middle	836.6	22.13
			Highest	846.6	22.18
		2	Lowest	826.4	20.19
			Middle	836.6	20.12
			Highest	846.6	20.16
		3	Lowest	826.4	21.19
			Middle	836.6	21.13
			Highest	846.6	21.14
		4	Lowest	826.4	20.16
			Middle	836.6	20.09
			Highest	846.6	20.15
		5	Lowest	826.4	22.15
			Middle	836.6	22.09
			Highest	846.6	22.11

Note: 1. Selected Mode for SAR testing:

a. Head –GPRS(1Down4Up)/WCDMA(RMC 12.2K mode)/802.11b/802.11g/802.11n_HT20/ 802.11n_HT40

b. Body 10mm - GPRS(1Down4Up)/WCDMA(RMC 12.2K mode)/802.11b/802.11g/ 802.11n_HT20/802.11n_HT40/Bluetooth v3.0

Band	Data Rate	CH	Frequency (MHz)	RF Conducted Output Power (dBm)
				Average
IEEE 802.11b	1 M	1	2412.0	13.34
		6	2437.0	12.96
		11	2462.0	**13.76**
	2 M	1	2412.0	13.48
		6	2437.0	13.47
		11	2462.0	13.34
	5.5 M	1	2412.0	13.49
		6	2437.0	13.16
		11	2462.0	13.53
	11 M	1	2412.0	13.38
		6	2437.0	13.03
		11	2462.0	13.39
IEEE 802.11g	6 M	1	2412.0	**16.85**
		6	2437.0	15.77
		11	2462.0	16.11
	9 M	1	2412.0	16.57
		6	2437.0	15.56
		11	2462.0	16.11
	12 M	1	2412.0	16.62
		6	2437.0	14.60
		11	2462.0	15.92
	18 M	1	2412.0	16.59
		6	2437.0	15.84
		11	2462.0	16.00
	24 M	1	2412.0	16.69
		6	2437.0	15.64
		11	2462.0	16.15
	36 M	1	2412.0	16.74
		6	2437.0	15.62
		11	2462.0	16.21
	48 M	1	2412.0	16.68
		6	2437.0	15.62
		11	2462.0	16.18
	54 M	1	2412.0	16.72
		6	2437.0	15.54
		11	2462.0	16.03

Note: 1. Selected Mode for SAR testing:

a. Head –GPRS(1Down4Up)/WCDMA(RMC 12.2K mode)/802.11b/802.11g/802.11n_HT20/ 802.11n_HT40

b. Body 10mm - GPRS(1Down4Up)/WCDMA(RMC 12.2K mode)/802.11b/802.11g/ 802.11n_HT20/802.11n_HT40/Bluetooth v3.0

Band	Data Rate	CH	Frequency (MHz)	RF Conducted Output Power (dBm)
				Average
Draft 802.11n_HT20 (2.4 GHz)	6.5 M	1	2412.0	14.68
		6	2437.0	15.60
		11	2462.0	**16.63**
	13.0 M	1	2412.0	15.11
		6	2437.0	15.50
		11	2462.0	16.02
	19.5 M	1	2412.0	15.11
		6	2437.0	15.59
		11	2462.0	16.17
	26.0 M	1	2412.0	15.07
		6	2437.0	15.71
		11	2462.0	16.19
	39.0 M	1	2412.0	14.91
		6	2437.0	15.52
		11	2462.0	16.08
	52.0 M	1	2412.0	15.13
		6	2437.0	16.51
		11	2462.0	16.16
	58.5 M	1	2412.0	15.03
		6	2437.0	15.52
		11	2462.0	16.08
	65.0 M	1	2412.0	14.64
		6	2437.0	15.62
		11	2462.0	16.08

Note: 1. Selected Mode for SAR testing:

a. Head –GPRS(1Down4Up)/WCDMA(RMC 12.2K mode)/802.11b/802.11g/802.11n_HT20/ 802.11n_HT40

b. Body 10mm - GPRS(1Down4Up)/WCDMA(RMC 12.2K mode)/802.11b/802.11g/ 802.11n_HT20/802.11n_HT40/Bluetooth v3.0

Band	Data Rate	CH	Frequency (MHz)	RF Conducted Output Power (dBm)
				Average
Draft 802.11n_HT40 (2.4 GHz)	13.5 M	3	2422.0	**14.51**
		6	2437.0	13.72
		9	2452.0	14.08
	27.0 M	3	2422.0	14.48
		6	2437.0	13.60
		9	2452.0	14.06
	40.5 M	3	2422.0	14.45
		6	2437.0	13.74
		9	2452.0	14.07
	54.0 M	3	2422.0	12.79
		6	2437.0	14.10
		9	2452.0	13.84
	81.0 M	3	2422.0	13.42
		6	2437.0	13.70
		9	2452.0	13.85
	108.0 M	3	2422.0	13.63
		6	2437.0	13.56
		9	2452.0	12.95
	121.5 M	3	2422.0	13.58
		6	2437.0	13.80
		9	2452.0	14.09
	135.0 M	3	2422.0	14.20
		6	2437.0	13.60
		9	2452.0	13.94

Note: 1. Selected Mode for SAR testing:

a. Head –GPRS(1Down4Up)/WCDMA(RMC 12.2K mode)/802.11b/802.11g/802.11n_HT20/ 802.11n_HT40

b. Body 10mm - GPRS(1Down4Up)/WCDMA(RMC 12.2K mode)/802.11b/802.11g/ 802.11n_HT20/802.11n_HT40/Bluetooth v3.0

Band	Packet Type	CH	Frequency (MHz)	RF Conducted Output Power (dBm)
				Average
Bluetooth v3.0	DH1	00	2402	-0.91
		39	2441	2.45
		78	2480	3.18
	DH3	00	2402	-0.51
		39	2441	2.95
		78	2480	3.62
	DH5	00	2402	-0.25
		39	2441	3.12
		78	2480	**3.87**
Bluetooth v4.0 LE	---	00	2402	-1.94
		19	2440	-1.61
		39	2480	-1.29

Note: 1. Selected Mode for SAR testing:

a. Head –GPRS(1Down4Up)/WCDMA(RMC 12.2K mode)/802.11b/802.11g/802.11n_HT20/ 802.11n_HT40

b. Body 10mm - GPRS(1Down4Up)/WCDMA(RMC 12.2K mode)/802.11b/802.11g/ 802.11n_HT20/802.11n_HT40/Bluetooth v3.0

5.4 Simultaneous Transmitting Evaluate

RF Conducted Power		
Band	dBm	W
GSM/GPRS 850	25.58	0.361
GSM/GPRS 1900	21.87	0.154
WCDMA/HSDPA/HSUPA (QPSK) Band V	23.12	0.205
Wi-Fi 802.11b	13.76	0.024
Wi-Fi 802.11g	16.85	0.048
Wi-Fi 802.11n_2.4GHz _ HT20	16.63	0.046
Wi-Fi 802.11n_2.4GHz _ HT40	14.51	0.028
Bluetooth v3.0 / Bluetooth v4.0 LE	3.87	0.005

Antenna Distance	
Antenna Account	Distance (cm)
Bluetooth to WLAN	0
Bluetooth to WWAN (License)	11.575
WLAN to WWAN (License)	11.575

* Bluetooth & WLAN is the same antenna

BT and WWAN and WLAN simultaneously SAR Description

(1) Antenna Distance

1a.Bluetooth & WWAN 11.575cm

1b.Bluetooth & WLAN 0 cm

(2) WWAN/Bluetooth – with antenna separation distance greater than 5cm –Bluetooth power is less than 2Pref, than both stand alone for Bluetooth and simultaneous SAR of WWAN / Bluetooth is not required.

(3) WLAN/ Bluetooth – Use the same antenna, then antenna separation distance greater than <2.5cm

Max sum of Bluetooth and WLAN (2.4GHz) is 0.00211+0.024 =0.026116 <1.6mW/g, therefore Simultaneous SAR is not required.

(4) WLAN/WWAN – with antenna separation distance greater than > 5cm

Max sum of WWAN and WLAN is 0.877+0.024 =0.901 <1.6 mW/g, therefore Simultaneous SAR is not required.

(5) WWAN/WLAN/ Bluetooth

Stand-alone SAR is required due to routine evaluation requirements.

(6) Highest Simultaneous SAR Evaluation:

Head SAR：∑SAR=GPRS 1900+Wi-Fi 802.11n_HT40=0.184mW/g < SAR limit: 1.6mW/g

Body SAR：∑SAR=WCDMA Band V+Wi-Fi 802.11n_HT40=0.901 mW/g < SAR limit: 1.6mW/g

Therefore, the Simultaneous SAR is not required.

(7) For Wi-Fi hot spot mode, the Wi-Fi SAR of head is required

(8) The distance of peak to peak location for evaluation as below:

1. Simultaneous Transmitting Summary, please find the table 8 as below.
2. Simultaneous Transmission Summation of SAR, please find the table 9 as below.
   2.1 For hot-spot mode, the WWAN antenna location to edge >2.5 cm, therefore test Edge Top is not required.
   2.2 For hot-spot mode, the WLAN antenna location to edge >2.5 cm, therefore test Edge Bottom and Edge Left are not required.

Table 8. Simultaneous Transmitting Summary

Simultaneous Transmitting	802.11b	802.11g	802.11n	Bluetooth
GPRS 850	V	V	V	V
GPRS 1900	V	V	V	V
WCDMA Band V	V	V	V	V
Bluetooth	V	V	V	

This is a summary for the capability of simultaneous transmitting. For evaluation of simultaneously SAR, please refer to the above Bluetooth and WWAN and WLAN simultaneously SAR Description

Table 9.

Head					
The sum of the 1-g SAR					
Simult Tx	Configuration	GPRS 850 SAR mW/g	WLAN SAR mW/g	∑ SAR mW/g	∑ SAR
Head SAR	Right-Cheek	0.117	0.026	0.143	<1.6
Simult Tx	Configuration	GPRS 1900 SAR mW/g	WLAN SAR mW/g	∑ SAR mW/g	∑ SAR
Head SAR	Right-Cheek	0.084	0.026	0.110	<1.6
Simult Tx	Configuration	WCDMA Band V SAR mW/g	WLAN SAR mW/g	∑ SAR mW/g	∑ SAR
Head SAR	Right-Cheek	0.156	0.026	0.182	<1.6
Simult Tx	Configuration	GPRS 850 SAR mW/g	WLAN SAR mW/g	∑ SAR mW/g	∑ SAR
Head SAR	Right-Tilted	0.066	0.033	0.099	<1.6
Simult Tx	Configuration	GPRS 1900 SAR mW/g	WLAN SAR mW/g	∑ SAR mW/g	∑ SAR
Head SAR	Right-Tilted	0.070	0.033	0.103	<1.6
Simult Tx	Configuration	WCDMA Band V SAR mW/g	WLAN SAR mW/g	∑ SAR mW/g	∑ SAR
Head SAR	Right-Tilted	0.088	0.033	0.121	<1.6

Head					
The sum of the 1-g SAR					
Simult Tx	Configuration	GPRS 850 SAR mW/g	WLAN SAR mW/g	∑ SAR mW/g	∑ SAR
Head SAR	Left-Cheek	0.119	0.021	0.140	<1.6
Simult Tx	Configuration	GPRS 1900 SAR mW/g	WLAN SAR mW/g	∑ SAR mW/g	∑ SAR
Head SAR	Left-Cheek	0.163	0.021	0.184	<1.6
Simult Tx	Configuration	WCDMA Band V SAR mW/g	WLAN SAR mW/g	∑ SAR mW/g	∑ SAR
Head SAR	Left-Cheek	0.150	0.021	0.171	<1.6
Simult Tx	Configuration	GPRS 850 SAR mW/g	WLAN SAR mW/g	∑ SAR mW/g	∑ SAR
Head SAR	Left-Tilted	0.067	0.028	0.095	<1.6
Simult Tx	Configuration	GPRS 1900 SAR mW/g	WLAN SAR mW/g	∑ SAR mW/g	∑ SAR
Head SAR	Left-Tilted	0.059	0.028	0.087	<1.6
Simult Tx	Configuration	WCDMA Band V SAR mW/g	WLAN SAR mW/g	∑ SAR mW/g	∑ SAR
Head SAR	Left-Tilted	0.086	0.028	0.114	<1.6

Body _ Hot-spot mode _ Front surface					
The sum of the 1-g SAR					
Simult Tx	Configuration	GPRS 850 SAR mW/g	WLAN SAR mW/g	∑ SAR mW/g	∑ SAR
Body SAR	Flat	0.122	0.007	0.129	<1.6
Simult Tx	Configuration	GPRS 1900 SAR mW/g	WLAN SAR mW/g	∑ SAR mW/g	∑ SAR
Body SAR	Flat	0.128	0.007	0.135	<1.6
Simult Tx	Configuration	WCDMA Band V SAR mW/g	WLAN SAR mW/g	∑ SAR mW/g	∑ SAR
Body SAR	Flat	0.202	0.007	0.209	<1.6
Simult Tx	Configuration	GPRS 850 SAR mW/g	Bluetooth SAR mW/g	∑ SAR mW/g	∑ SAR
Body SAR	Flat	0.122	0.002	0.124	<1.6
Simult Tx	Configuration	GPRS 1900 SAR mW/g	Bluetooth SAR mW/g	∑ SAR mW/g	∑ SAR
Body SAR	Flat	0.128	0.002	0.130	<1.6
Simult Tx	Configuration	WCDMA Band V SAR mW/g	Bluetooth SAR mW/g	∑ SAR mW/g	∑ SAR
Body SAR	Flat	0.202	0.002	0.204	<1.6
Simult Tx	Configuration	WLAN SAR mW/g	Bluetooth SAR mW/g	∑ SAR mW/g	∑ SAR
Body SAR	Flat	0.007	0.002	0.009	<1.6

Body _ Hot-spot mode _ Back surface					
The sum of the 1-g SAR					
Simult Tx	Configuration	GPRS 850 SAR mW/g	WLAN SAR mW/g	∑ SAR mW/g	∑ SAR
Body SAR	Flat	0.674	0.024	0.698	<1.6
Simult Tx	Configuration	GPRS 1900 SAR mW/g	WLAN SAR mW/g	∑ SAR mW/g	∑ SAR
Body SAR	Flat	0.400	0.024	0.424	<1.6
Simult Tx	Configuration	WCDMA Band V SAR mW/g	WLAN SAR mW/g	∑ SAR mW/g	∑ SAR
Body SAR	Flat	0.877	0.024	0.901	<1.6
Simult Tx	Configuration	GPRS 850 SAR mW/g	Bluetooth SAR mW/g	∑ SAR mW/g	∑ SAR
Body SAR	Flat	0.674	0.002	0.676	<1.6
Simult Tx	Configuration	GPRS 1900 SAR mW/g	Bluetooth SAR mW/g	∑ SAR mW/g	∑ SAR
Body SAR	Flat	0.400	0.002	0.402	<1.6
Simult Tx	Configuration	WCDMA Band V SAR mW/g	Bluetooth SAR mW/g	∑ SAR mW/g	∑ SAR
Body SAR	Flat	0.877	0.002	0.879	<1.6
Simult Tx	Configuration	WLAN SAR mW/g	Bluetooth SAR mW/g	∑ SAR mW/g	∑ SAR
Body SAR	Flat	0.024	0.002	0.026	<1.6

Body _ Hot-spot mode _ Edge Right					
The sum of the 1-g SAR					
Simult Tx	Configuration	GPRS 850 SAR mW/g	WLAN SAR mW/g	∑ SAR mW/g	∑ SAR
Body SAR	Flat	0.403	0.005	0.408	<1.6
Simult Tx	Configuration	GPRS 1900 SAR mW/g	WLAN SAR mW/g	∑ SAR mW/g	∑ SAR
Body SAR	Flat	0.145	0.005	0.150	<1.6
Simult Tx	Configuration	WCDMA Band V SAR mW/g	WLAN SAR mW/g	∑ SAR mW/g	∑ SAR
Body SAR	Flat	0.594	0.005	0.599	<1.6

6. System Performance Check

6.1 Symmetric Dipoles for System Verification

Construction	Symmetrical dipole with l/4 balun enables measurement of feed point impedance with NWA matched for use near flat phantoms filled with head simulating solutions Includes distance holder and tripod adaptor Calibration Calibrated SAR value for specified position and input power at the flat phantom in head simulating solutions.
Frequency	835, 1900, 2450 MHz
Return Loss	> 20 dB at specified verification position
Power Capability	> 100 W (f < 1GHz); > 40 W (f > 1GHz)
Options	Dipoles for other frequencies or solutions and other calibration conditions are available upon request
Dimensions	D835V2: dipole length 161 mm; overall height 340 mm D1900V2: dipole length 67.7 mm; overall height 300 mm D2450V2：dipole length 51.5 mm; overall height 300 mm

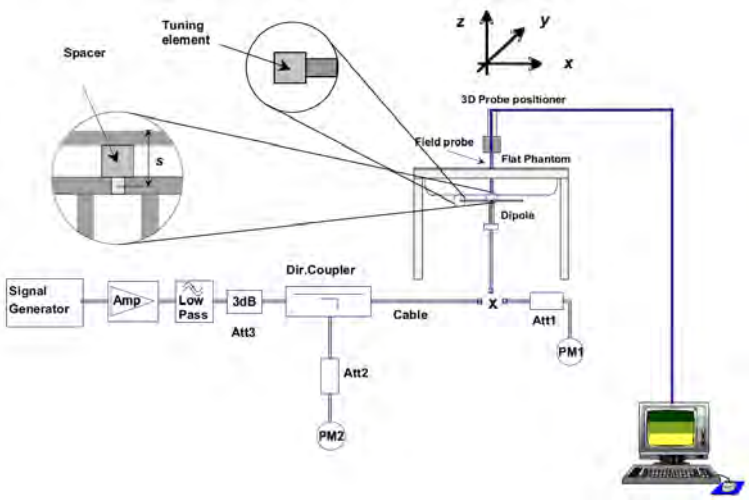


Figure 10. System Verification Setup Diagram

Figure 11. Validation Kit

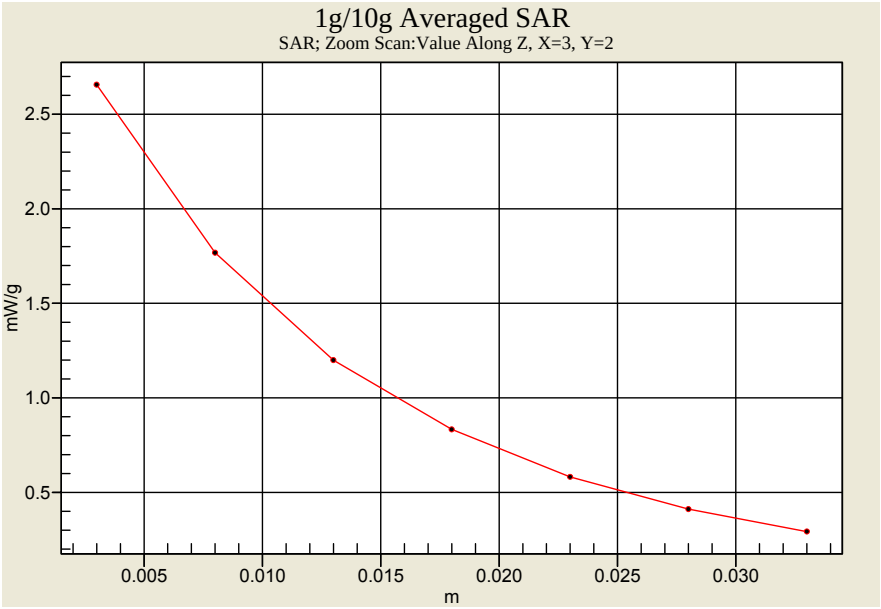
6.2 Verification

Prior to the assessment, the system validation kit was used to test whether the system was operating within its specifications of ± 7%. The verification was performed at 835, 1900 and 2450MHz.

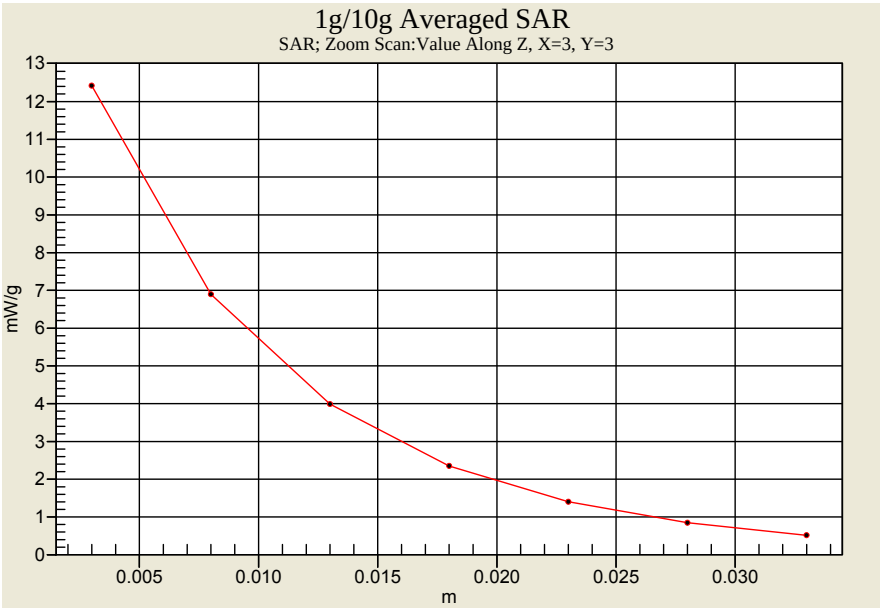
Validation kit	Mixture Type	SAR_{1g} [mW/g]	SAR_{10g} [mW/g]	Date of Calibration
D835V2-SN4d082	Head	9.35	6.10	07/25/2012
D1900V2-SN5d111	Head	39.60	20.80	07/20/2012
D2450V2-SN712	Head	53.50	24.80	02/23/2012
D835V2-SN4d082	Body	9.54	6.29	07/25/2012
D1900V2-SN5d111	Body	40.3	21.3	07/20/2012
D2450V2-SN712	Body	49.9	23.6	02/23/2012

Frequency (MHz)	Power (dBm)	SAR_{1g} (mW/g)	SAR_{10g} (mW/g)	Drift (dB)	Difference percentage		Date
					1g	10g	
835 (Head)	250mW	2.26	1.48	-0.068	-3.3 %	-3.0 %	09/19/2012
	Normalize to 1 Watt	9.04	5.92				
1900 (Head)	250mW	9.80	5.16	0.018	-1.0 %	-0.8 %	09/21/2012
	Normalize to 1 Watt	39.20	20.64				
2450 (Head)	250mW	13.20	6.06	0.036	-1.3 %	-2.3 %	09/21/2012
	Normalize to 1 Watt	52.80	24.24				
2450 (Head)	250mW	13.50	6.35	-0.028	0.9 %	2.4 %	09/22/2012
	Normalize to 1 Watt	54.00	25.40				
835 (Body)	250mW	2.34	1.54	-0.082	-1.9 %	-2.1 %	09/20/2012
	Normalize to 1 Watt	9.36	6.16				
1900 (Body)	250mW	10.50	5.48	-0.068	4.2 %	2.9 %	09/21/2012
	Normalize to 1 Watt	42.00	21.92				
2450 (Body)	250mW	12.40	5.78	-0.009	-0.6 %	-2.0 %	09/23/2012
	Normalize to 1 Watt	49.60	23.12				
2450 (Body)	250mW	12.50	5.90	0.017	0.2 %	0.0 %	09/24/2012
	Normalize to 1 Watt	50.00	23.6				

Z-axis Plot of System Performance Check

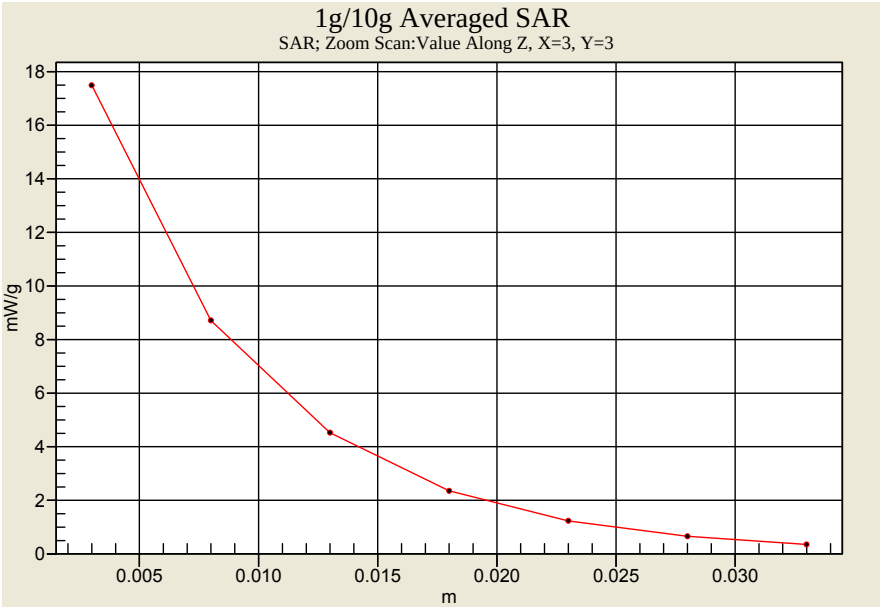


Head-Tissue-Simulating-Liquid 835MHz

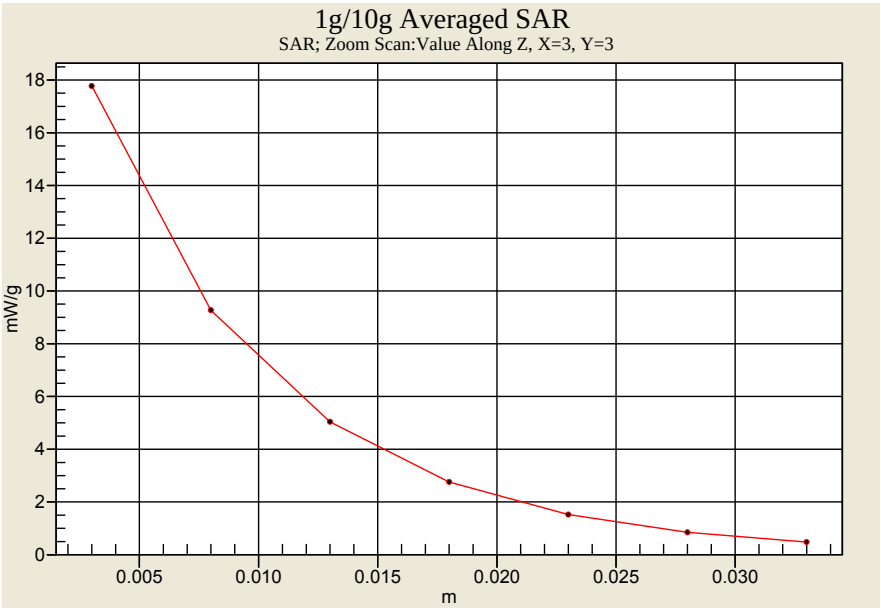


Head-Tissue-Simulating-Liquid 1900MHz

Z-axis Plot of System Performance Check

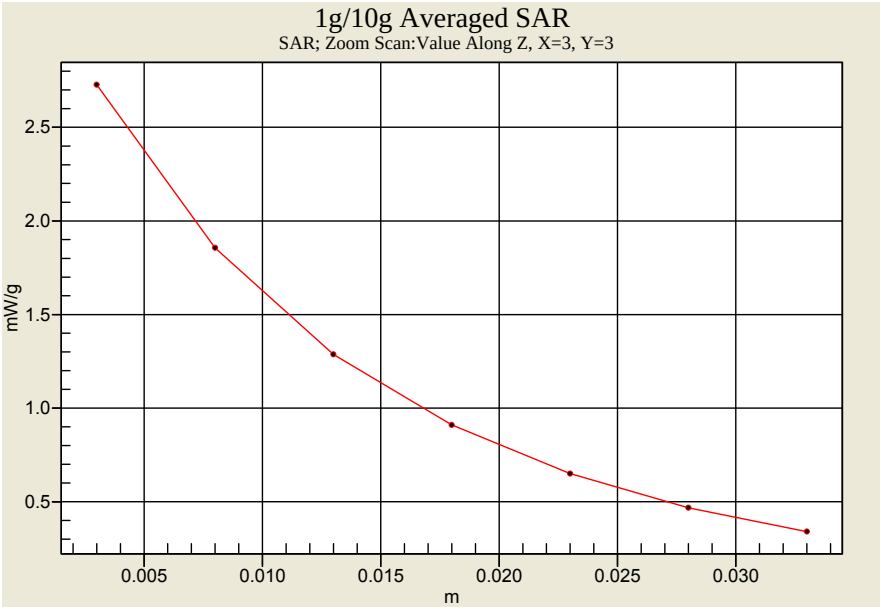


Head-Tissue-Simulating-Liquid 2450MHz (09/21/2012)

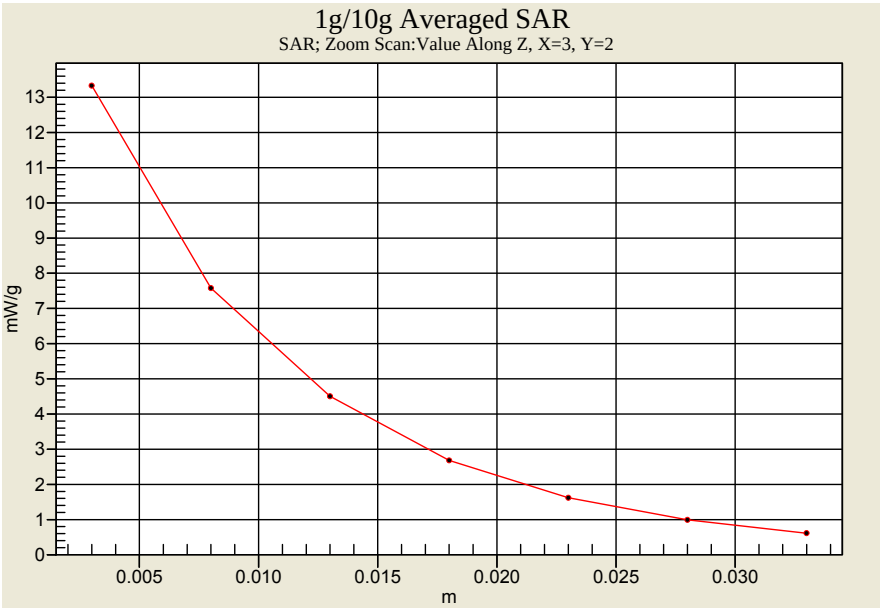


Head-Tissue-Simulating-Liquid 2450MHz (09/22/2012)

Z-axis Plot of System Performance Check

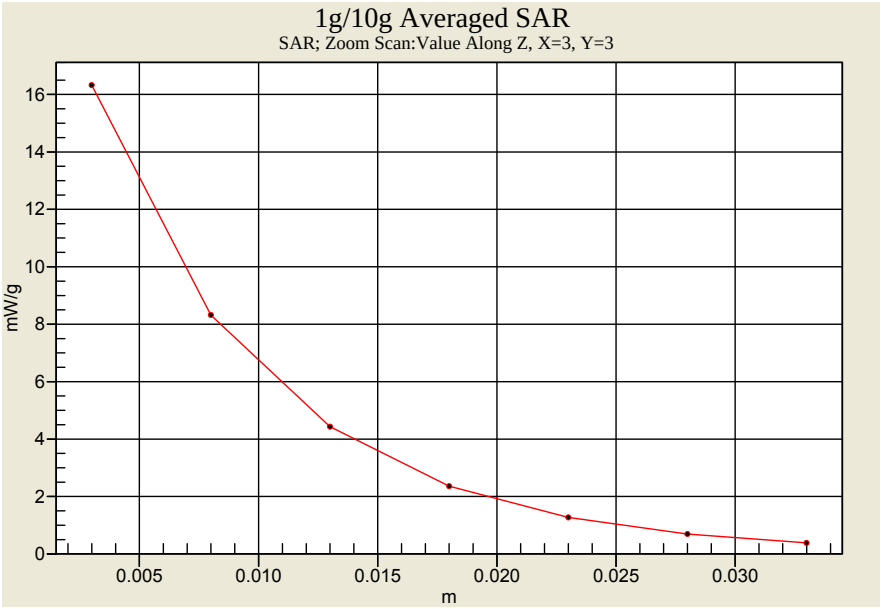


Body-Tissue-Simulating-Liquid 835MHz

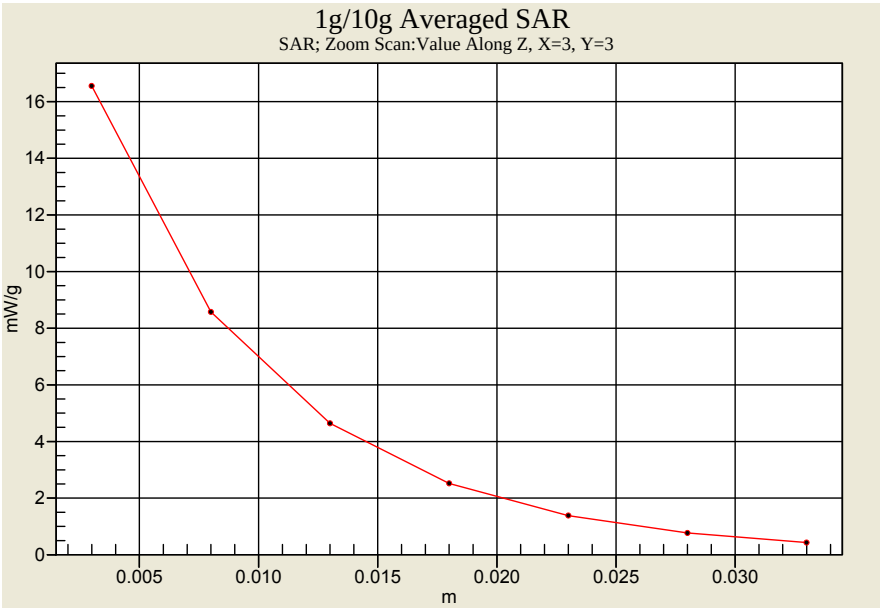


Body-Tissue-Simulating-Liquid 1900MHz

Z-axis Plot of System Performance Check



Body-Tissue-Simulating-Liquid 2450MHz (09/23/2012)



Body-Tissue-Simulating-Liquid 2450MHz (09/24/2012)

7. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	Dosimetric E-Field Probe	EX3DV4	3847	03/21/2012	03/21/2013
SPEAG	835MHz System Validation Kit	D835V2	4d082	07/25/2012	07/25/2013
SPEAG	1900MHz System Validation Kit	D1900V2	5d111	07/20/2012	07/20/2013
SPEAG	2450MHz System Validation Kit	D2450V2	712	02/23/2012	02/23/2013
SPEAG	Data Acquisition Electronics	DAE4	541	07/23/2012	07/23/2013
SPEAG	Measurement Server	SE UMS 011 AA	1025	NCR	
SPEAG	Device Holder	N/A	N/A	NCR	
SPEAG	Phantom	SAM V4.0	TP-1009	NCR	
SPEAG	Robot	Staubli RX90L	F00/589B1/A/01	NCR	
SPEAG	Software	DASY4 V4.7 Build 80	N/A	NCR	
SPEAG	Software	SEMCAD V1.8 Build 186	N/A	NCR	
Agilent	Dielectric Probe Kit	85070C	US99360094	NCR	
Agilent	ENA Series Network Analyzer	E5071B	MY42404655	04/05/2012	04/05/2014
R&S	Power Sensor	NRP-Z22	100179	05/16/2012	05/16/2013
Agilent	MXG Vector Signal Generator	N5182A	MY47420962	05/24/2011	05/24/2013
Agilent	Dual Directional Coupler	778D	50334	NCR	
Mini-Circuits	Power Amplifier	ZHL-42W-SMA	D111103#5	NCR	
Mini-Circuits	Power Amplifier	ZVE-8G-SMA	D042005 671800514	NCR	
Aisi	Attenuator	IEAT 3dB	N/A	NCR	

Table 10. Test Equipment List

8. Measurement Uncertainty

Measurement uncertainties in SAR measurements are difficult to quantify due to several variables including biological, physiological, and environmental. However, we estimate the measurement uncertainties in SAR to be less than ±19.62 %〔8〕. The frequency range of the measurement uncertainty is 750 ~ 5800MHz ±10.1 %

According to Std. C95.3〔9〕, the overall uncertainties are difficult to assess and will vary with the type of meter and usage situation. However, accuracy's of ±1 to 3 dB can be expected in practice, with greater uncertainties in near-field situations and at higher frequencies (shorter wavelengths), or areas where large reflecting objects are present. Under optimum measurement conditions, SAR measurement uncertainties of at least ±2dB can be expected.

According to CENELEC〔10〕, typical worst-case uncertainty of field measurements is ±5 dB. For well-defined modulation characteristics the uncertainty can be reduced to ±3 dB.

Item	Uncertainty Component	Uncertainty Value	Prob. Dist	Div.	c_i (1g)	c_i (10g)	Std. Unc. (1-g)	Std. Unc. (10-g)	v_i or V_{eff}
Measurement System									
u1	Probe Calibration (k=1)	±5.05%	Normal	1	1	1	±5.05%	±5.05%	∞
u2	Probe Isotropy	±7.6%	Rectangular	$\sqrt{3}$	0.7	0.7	±3.1%	±3.1%	∞
u3	Boundary Effect	±1.0%	Rectangular	$\sqrt{3}$	1	1	±0.6%	±0.6%	∞
u4	Linearity	±4.7%	Rectangular	$\sqrt{3}$	1	1	±2.7%	±2.7%	∞
u5	System Detection Limit	±1.0%	Rectangular	$\sqrt{3}$	1	1	±0.58%	±0.58%	∞
u6	Readout Electronics	±0.3%	Normal	1	1	1	±0.3%	±0.3%	∞
u7	Response Time	±0.8%	Rectangular	$\sqrt{3}$	1	1	±0.5%	±0.5%	∞
u8	Integration Time	±2.6%	Rectangular	$\sqrt{3}$	1	1	±1.5%	±1.5%	∞
u9	RF Ambient Conditions	±0%	Rectangular	$\sqrt{3}$	1	1	±0%	±0%	∞
u10	RF Ambient Reflections	±0%	Rectangular	$\sqrt{3}$	1	1	±0%	±0%	∞
u11	Probe Positioner Mechanical Tolerance	±0.4%	Rectangular	$\sqrt{3}$	1	1	±0.2%	±0.2%	∞
u12	Probe Positioning with respect to Phantom Shell	±2.9%	Rectangular	$\sqrt{3}$	1	1	±1.7%	±1.7%	∞
u13	Extrapolation, interpolation and integration Algorithms for Max. SAR Evaluation	±1.0%	Rectangular	$\sqrt{3}$	1	1	±0.6%	±0.6%	∞
Test sample Related									
u14	Test sample Positioning	±3.6%	Normal	1	1	1	±3.6%	±3.6%	89
u15	Device Holder Uncertainty	±3.5%	Normal	1	1	1	±3.5%	±3.5%	5
u16	Output Power Variation - SAR drift measurement	±5.0%	Rectangular	$\sqrt{3}$	1	1	±2.9%	±2.9%	∞
Phantom and Tissue Parameters									
u17	Phantom Uncertainty (shape and thickness tolerances)	±4.0%	Rectangular	$\sqrt{3}$	1	1	±2.3%	±2.3%	∞
u18	Liquid Conductivity - deviation from target values	±5.0%	Rectangular	$\sqrt{3}$	0.64	0.43	±1.8%	±1.2%	∞
u19	Liquid Conductivity - measurement uncertainty	±1.93%	Normal	1	0.64	0.43	±1.24%	±0.83%	69
u20	Liquid Permittivity - deviation from target values	±5.0%	Rectangular	$\sqrt{3}$	0.6	0.49	±1.7%	±1.4%	∞
u21	Liquid Permittivity - measurement uncertainty	±1.4%	Normal	1	0.6	0.49	±0.84%	±1.69%	69
Combined standard uncertainty			RSS				±9.81%	±9.62%	313
Expanded uncertainty (95% CONFIDENCE LEVEL)			k=2				±19.62%	±19.24%	

Table 11. Uncertainty Budget of DASY

9. Measurement Procedure

The measurement procedures are as follows:

1. For WLAN function, engineering testing software installed on Notebook can provide continuous transmitting signal.
2. Measure output power through RF cable and power meter
3. Set scan area, grid size and other setting on the DASY software
4. Find out the largest SAR result on these testing positions of each band
5. Measure SAR results for other channels in worst SAR testing position if the SAR of highest power channel is larger than 0.8 W/kg

According to the test standard, the recommended procedure for assessing the peak spatial-average SAR value consists of the following steps:

1. Power reference measurement
2. Area scan
3. Zoom scan
4. Power drift measurement

9.1 Spatial Peak SAR Evaluation

The procedure for spatial peak SAR evaluation has been implemented according to the test standard. It can be conducted for 1g and 10g, as well as for user-specific masses. The DASY software includes all numerical procedures necessary to evaluate the spatial peak SAR value.

The base for the evaluation is a "cube" measurement. The measured volume must include the 1g and 10g cubes with the highest averaged SAR values. For that purpose, the center of the measured volume is aligned to the interpolated peak SAR value of a previously performed area scan.

The entire evaluation of the spatial peak values is performed within the post-processing engine (SEMCAD). The system always gives the maximum values for the 1g and 10g cubes. The algorithm to find the cube with highest averaged SAR is divided into the following stages

1. Extraction of the measured data (grid and values) from the Zoom Scan
2. Calculation of the SAR value at every measurement point based on all stored data (A/D values and measurement parameters)
3. Generation of a high-resolution mesh within the measured volume
4. Interpolation of all measured values form the measurement grid to the high-resolution grid
5. Extrapolation of the entire 3-D field distribution to the phantom surface over the distance from sensor to surface
6. Calculation of the averaged SAR within masses of 1g and 10g

9.2 Area & Zoom Scan Procedures

First Area Scan is used to locate the approximate location(s) of the local peak SAR value(s). The measurement grid within an Area Scan is defined by the grid extent, grid step size and grid offset. For above 4.5 GHz, area scan step size X: 10, Y: 10. For below 4.5 GHz, area scan step size X: 15 or 10, Y: 15 or 10. Next, in order to determine the EM field distribution in a three-dimensional spatial extension, Zoom Scan is required. The Zoom Scan measures 7x7x9 points with step size 5, 5 and 3 mm for 300 MHz to 3 GHz, and 7x7x9 points with step size 4, 4 and 2.5 mm for 3 GHz to 6 GHz. The Zoom Scan is performed around the highest E-field value to determine the averaged SAR-distribution over 10 g.

9.3 Volume Scan Procedures

The volume scan is used for assess overlapping SAR distributions for antennas transmitting in different frequency bands. It is equivalent to an oversized zoom scan used in standalone measurements. The measurement volume will be used to enclose all the simultaneous transmitting antennas. For antennas transmitting simultaneously in different frequency bands, the volume scan is measured separately in each frequency band. In order to sum correctly to compute the 1g aggregate SAR, the DUT remain in the same test position for all measurements and all volume scan use the same spatial resolution and grid spacing (step size 5, 5 and 3 mm or step-size is 4, 4 and 2.5 mm). When all volume scan were completed, the software, SEMCAD postprocessor can combine and subsequently superpose these measurement data to
calculating the multiband SAR.

9.4 SAR Averaged Methods

In DASY, the interpolation and extrapolation are both based on the modified Quadratic Shepard's method. The interpolation scheme combines a least-square fitted function method and a weighted average method which are the two basic types of computational interpolation and approximation. Extrapolation routines are used to obtain SAR values between the lowest measurement points and the inner phantom surface. The extrapolation distance is determined by the surface detection distance and the probe sensor offset. The uncertainty increases with the extrapolation distance. To keep the uncertainty within 1% for the 1 g and 10 g cubes, the extrapolation distance should not be larger than 5 mm.

9.5 Power Drift Monitoring

All SAR testing is under the DUT install full charged battery and transmit maximum output power. In DASY measurement software, the power reference measurement and power drift measurement procedures are used for monitoring the power drift of DUT during SAR test. Both these procedures measure the field at a specified reference position before and after the SAR testing. The software will calculate the field difference in dB. If the power drift more than 5%, the SAR will be retested.

10. SAR Test Results Summary

10.1 Head SAR

Measurement Results								
Band	Frequency		Power (dBm)	Phantom Position	Spacing (mm)	SAR_{1g} [mW/g]	Power Drift (dB)	Remark
	CH	MHz						
GPRS 850 1Down4Up	190	836.6	28.59	Right-cheek	0	0.117	0.037	SIM 2
	190	836.6	28.59	Right-Tilted	0	0.066	0.102	SIM 2
	190	836.6	28.59	Left-cheek	0	0.119	-0.011	SIM 2
	190	836.6	28.59	Left-Tilted	0	0.067	-0.127	SIM 2
GPRS 1900 1Down4Up	810	1909.8	24.88	Right-cheek	0	0.084	0.086	SIM 2
	810	1909.8	24.88	Right-Tilted	0	0.070	-0.109	SIM 2
	810	1909.8	24.88	Left-cheek	0	**0.163**	-0.009	SIM 2
	810	1909.8	24.88	Left-Tilted	0	0.059	0.061	SIM 2
WCDMA Band V	4132	826.4	23.12	Right-cheek	0	0.156	0.167	---
	4132	826.4	23.12	Right-Tilted	0	0.088	-0.070	---
	4132	826.4	23.12	Left-cheek	0	0.150	0.032	---
	4132	826.4	23.12	Left-Tilted	0	0.086	0.157	---
IEEE 802.11b Rate 1M	11	2462.0	13.76	Right-cheek	0	0.006	-0.073	---
	11	2462.0	13.76	Right-Tilted	0	0.006	-0.133	---
	11	2462.0	13.76	Left-cheek	0	0.005	0.070	---
	11	2462.0	13.76	Left-Tilted	0	0.006	-0.098	---
IEEE 802.11g Rate 6M	1	2412.0	16.85	Right-cheek	0	0.012	0.116	---
	1	2412.0	16.85	Right-Tilted	0	0.016	-0.083	---
	1	2412.0	16.85	Left-cheek	0	0.010	0.087	---
	1	2412.0	16.85	Left-Tilted	0	0.013	-0.106	---
Std. C95.1-1999 - Safety Limit Spatial Peak Uncontrolled Exposure/General Population					1.6 W/kg (mW/g) Averaged over 1 gram			

Measurement Results								
Band	Frequency		Power (dBm)	Phantom Position	Spacing (mm)	SAR_{1g} [mW/g]	Power Drift (dB)	Remark
	CH	MHz						
draft 802.11n HT20 Rate 6.5M	11	2462.0	16.63	Right-cheek	0	0.013	-0.074	---
	11	2462.0	16.63	Right-Tilted	0	0.019	-0.169	---
	11	2462.0	16.63	Left-cheek	0	0.015	-0.035	---
	11	2462.0	16.63	Left-Tilted	0	0.017	0.061	---
draft 802.11n HT40 Rate 13.5M	3	2422.0	14.51	Right-cheek	0	0.026	0.144	---
	3	2422.0	14.51	Right-Tilted	0	0.033	0.093	---
	3	2422.0	14.51	Left-cheek	0	0.021	0.097	---
	3	2422.0	14.51	Left-Tilted	0	0.028	0.092	---
Std. C95.1-1999 - Safety Limit Spatial Peak Uncontrolled Exposure/General Population					1.6 W/kg (mW/g) Averaged over 1 gram			

10.2 Body SAR

Measurement Results									
Band	Frequency		Power (dBm)	Phantom Position	Spacing (mm)	Accessory	SAR_{1g} [mW/g]	Power Drift (dB)	Remark
	CH	MHz							
GPRS 850 1Down4Up	190	836.6	28.59	Flat	10	N/A	0.122	0.076	Front Surface to Phantom_SIM 2
	190	836.6	28.59	Flat	10	N/A	0.674	0.041	Back Surface to Phantom_SIM 2
	190	836.6	28.59	Flat	10	N/A	0.207	-0.171	Edge Bottom to Phantom_SIM 2
	190	836.6	28.59	Flat	10	N/A	0.403	-0.082	Edge Right to Phantom_SIM 2
	190	836.6	28.59	Flat	10	N/A	0.446	0.148	Edge Left to Phantom_SIM 2
GPRS 1900 1Down4Up	810	1909.8	24.88	Flat	10	N/A	0.128	0.007	Front Surface to Phantom_SIM 2
	810	1909.8	24.88	Flat	10	N/A	0.400	-0.038	Back Surface to Phantom_SIM 2
	810	1909.8	24.88	Flat	10	N/A	0.278	0.018	Edge Bottom to Phantom_SIM 2
	810	1909.8	24.88	Flat	10	N/A	0.145	0.124	Edge Right to Phantom_SIM 2
	810	1909.8	24.88	Flat	10	N/A	0.162	0.066	Edge Left to Phantom_SIM 2
WCDMA Band V	4132	826.4	23.12	Flat	10	N/A	0.202	0.129	Front Surface to Phantom
	4132	826.4	23.12	Flat	10	N/A	**0.877**	0.030	Back Surface to Phantom
	4183	836.6	22.84	Flat	10	N/A	0.712	0.006	Back Surface to Phantom
	4233	846.6	22.96	Flat	10	N/A	0.839	-0.010	Back Surface to Phantom
	4132	826.4	23.12	Flat	10	N/A	0.240	0.121	Edge Bottom to Phantom
	4132	826.4	23.12	Flat	10	N/A	0.594	0.003	Edge Right to Phantom
	4132	826.4	23.12	Flat	10	N/A	0.617	0.031	Edge Left to Phantom
Std. C95.1-1999 - Safety Limit Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1 gram			

Measurement Results									
Band	Frequency		Power (dBm)	Phantom Position	Spacing (mm)	Accessory	SAR_{1g} [mW/g]	Power Drift (dB)	Remark
	CH	MHz							
IEEE 802.11b Rate 1M	11	2462.0	13.76	Flat	10	N/A	0.004	0.069	Front Surface to Phantom
	11	2462.0	13.76	Flat	10	N/A	0.005	-0.076	Back Surface to Phantom
	11	2462.0	13.76	Flat	10	N/A	0.007	0.008	Edge Top to Phantom
	11	2462.0	13.76	Flat	10	N/A	0.004	0.062	Edge Right to Phantom
IEEE 802.11g Rate 6M	1	2412.0	16.85	Flat	10	N/A	0.007	0.064	Front Surface to Phantom
	1	2412.0	16.85	Flat	10	N/A	0.021	-0.157	Back Surface to Phantom
	1	2412.0	16.85	Flat	10	N/A	0.018	0.152	Edge Top to Phantom
	1	2412.0	16.85	Flat	10	N/A	0.003	0.089	Edge Right to Phantom
draft 802.11n HT20 Rate 6.5M	11	2462.0	16.63	Flat	10	N/A	0.003	-0.002	Front Surface to Phantom
	11	2462.0	16.63	Flat	10	N/A	0.010	0.058	Back Surface to Phantom
	11	2462.0	16.63	Flat	10	N/A	0.012	-0.111	Edge Top to Phantom
	11	2462.0	16.63	Flat	10	N/A	0.005	-0.113	Edge Right to Phantom
draft 802.11n HT40 Rate 13.5M	3	2422.0	14.51	Flat	10	N/A	0.007	0.168	Front Surface to Phantom
	3	2422.0	14.51	Flat	10	N/A	0.024	-0.127	Back Surface to Phantom
	3	2422.0	14.51	Flat	10	N/A	0.016	-0.101	Edge Top to Phantom
	3	2422.0	14.51	Flat	10	N/A	0.003	-0.164	Edge Right to Phantom
Bluetooth v3.0	78	2480.0	3.87	Flat	10	N/A	0.002	-0.063	Front Surface to Phantom
	78	2480.0	3.87	Flat	10	N/A	0.002	0.000	Back Surface to Phantom
Std. C95.1-1999 - Safety Limit Spatial Peak Uncontrolled Exposure/General Population						1.6 W/kg (mW/g) Averaged over 1 gram			

Notes:

1. The test data reported are the worst-case SAR value with the position set in a typical configuration. Test procedures used were according to FCC/OET Bulletin 65, Supplement C [June 2001], IEEE1528-2003, IEEE Std. 1528a-2005 and RSS-102.
2. All modes of operation were investigated, and worst-case results are reported.
3. Tissue parameters and temperatures are listed on the SAR plots.
4. Batteries are fully charged for all readings.
5. If the Channel's SAR 1g of maximum conducted power is > 0.8 mW/g, low, middle and high channel are supposed to be tested.
6. If the conducted power of (802.11g and 802.11n) are higher than 802.11b 0.25dB, (802.11g and 802.11n) are supposed to be tested.
7. For hot-spot Edge Top mode, that 3G antenna to Edge Top >2.5 cm, therefore the test Edge Top is not required.
8. For hot-spot Edge Left and Edge Bottom mode, that Wi-Fi antenna to Edge Left and Edge Bottom >2.5 cm, therefore the test Edge Left and Edge Bottom are not required.
9. For Bluetooth (v3.0 & v4.0 LE) testing, that choose worst case of power measurement.

10.3 Std. C95.1-1999 RF Exposure Limit

Human Exposure	Population Uncontrolled Exposure (W/kg) or (mW/g)	Occupational Controlled Exposure (W/kg) or (mW/g)
Spatial Peak SAR* (head)	1.60	8.00
Spatial Peak SAR** (Whole Body)	0.08	0.40
Spatial Peak SAR*** (Partial-Body)	1.60	8.00
Spatial Peak SAR**** (Hands / Feet / Ankle / Wrist)	4.00	20.00

Table 12. Safety Limits for Partial Body Exposure

Notes：

***** The Spatial Peak value of the SAR averaged over any 1 gram 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 Average value of the SAR averaged over the partial – body.

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

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

Occupational / 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).

11. Conclusion

The SAR test values found for the portable mobile phone **QBEX Electronics Corporation Trade Name：QBEX Model(s)：QBA757** is below the maximum recommended level of 1.6 W/kg (mW/g).

12. References

[1] Std. C95.1-1999, "*American National Standard safety levels with respect to human exposure to radio frequency electromagnetic fields, 300KHz to 100GHz",* New York.

[2] NCRP, National Council on Radiation Protection and Measurements, "*Biological Effects and Exposure Criteria for Radio frequency Electromagnetic Fields"*, NCRP report NO. 86, 1986.

[3] T. Schmid, O. Egger, and N. Kuster, "*Automatic E-field scanning system for dosimetric assessments*", IEEE Transactions on Microwave Theory and Techniques, vol. 44, pp, 105-113, Jan. 1996.

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

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

[7] Robert J. Renka, "*Multivariate Interpolation Of Large Sets Of Scattered Data*", University of North Texas ACM Transactions on Mathematical Software, vol. 14, no. 2, June 1988 , pp. 139-148.

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[9] Std. C95.3-1991, "*IEEE Recommended Practice for the Measurement of Potentially Hazardous Electromagnetic Fields – RF and Microwave,* New York: IEEE, Aug. 1992.

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

[11] IEEE Std 1528™-2003 - IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head From Wireless Communications Devices: Measurement Techniques

[12] IEEE Std 1528a™-2005 (Amendment to IEEE Std 1528™-2003), IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques

[13] KDB248227 D01 SAR meas for 802 11 a b g v01r02.

[14] KDB 648474 D01 SAR Handsets Multi Xmiter and Ant v01r05

[15] KDB 941225 D01 SAR Test for 3G Devices 3G-SAR

[16] KDB 941225 D03 SAR Test Reduction GSM GPRS EDGE

[17] KDB 941225 D04 SAR for GSM E GPRS Dual Xfer Mode v01

[18] KDB 941225 D06 Hot Spot SAR v01

Appendix A - System Performance Check

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/19/2012 9:30:27 PM

System Performance Check at 835MHz_20120919_Head

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d082

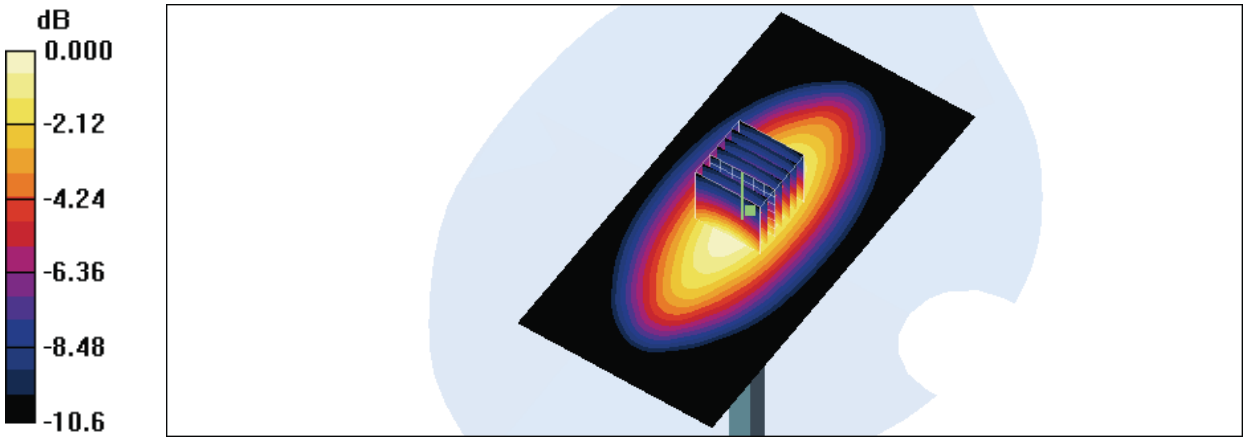
Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.908 mho/m; ε_r = 41.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(9.34, 9.34, 9.34); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

System Performance Check at 835MHz/Area Scan (61x121x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.75 mW/g

System Performance Check at 835MHz/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 58.4 V/m; Power Drift = -0.068 dB
Peak SAR (extrapolated) = 3.40 W/kg
SAR(1 g) = 2.26 mW/g; SAR(10 g) = 1.48 mW/g
Maximum value of SAR (measured) = 2.66 mW/g



0 dB = 2.66mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/21/2012 4:08:44 PM

System Performance Check at 1900MHz_20120921_Head

DUT: Dipole D1900V2_SN5d111; Type: D1900V2; Serial: D1900V2 - SN:5d111

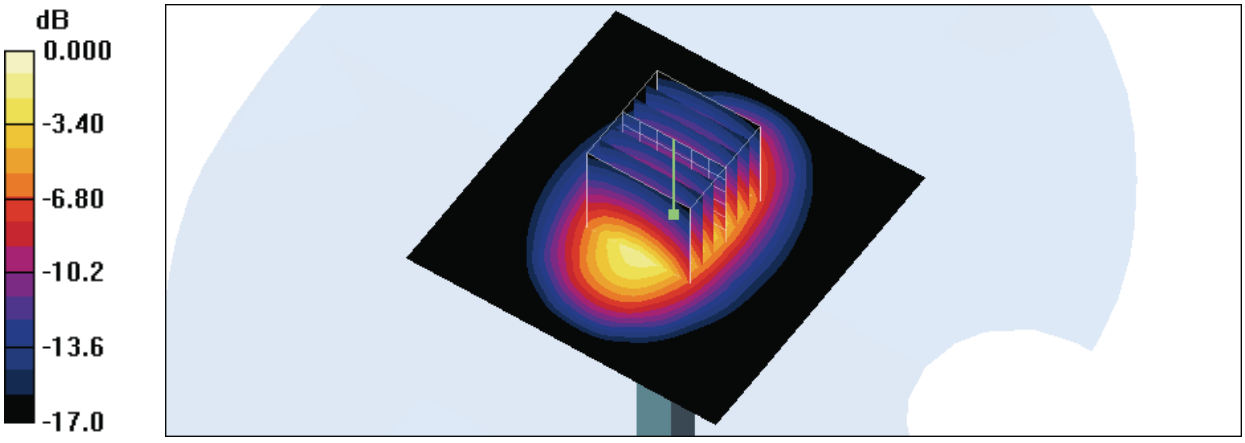
Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.39 mho/m; ε_r = 39.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(8.05, 8.05, 8.05); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

System Performance Check at 1900MHz/Area Scan (91x91x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 12.2 mW/g

System Performance Check at 1900MHz/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 94.5 V/m; Power Drift = 0.018 dB
Peak SAR (extrapolated) = 18.0 W/kg
SAR(1 g) = 9.8 mW/g; SAR(10 g) = 5.16 mW/g
Maximum value of SAR (measured) = 12.4 mW/g



0 dB = 12.4mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/21/2012 7:58:00 PM

System Performance Check at 2450MHz_20120921_Head

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:712

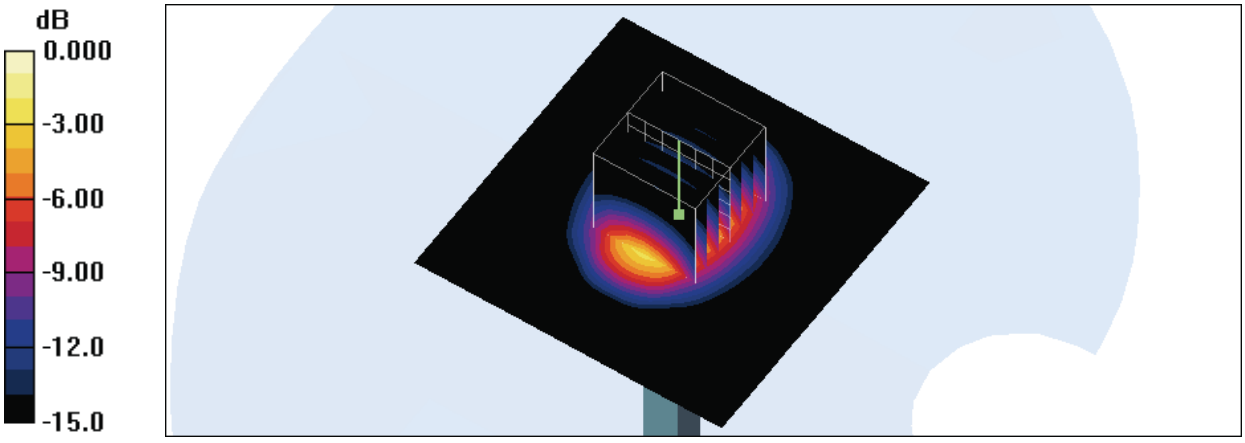
Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.81 mho/m; ε_r = 39.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(7.17, 7.17, 7.17); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

System Performance Check at 2450MHz/Area Scan (91x91x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 17.6 mW/g

System Performance Check at 2450MHz/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 97.4 V/m; Power Drift = 0.036 dB
Peak SAR (extrapolated) = 27.3 W/kg
SAR(1 g) = 13.2 mW/g; SAR(10 g) = 6.06 mW/g
Maximum value of SAR (measured) = 17.5 mW/g



0 dB = 17.5mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/22/2012 5:46:11 PM

System Performance Check at 2450MHz_20120922_Head

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:712

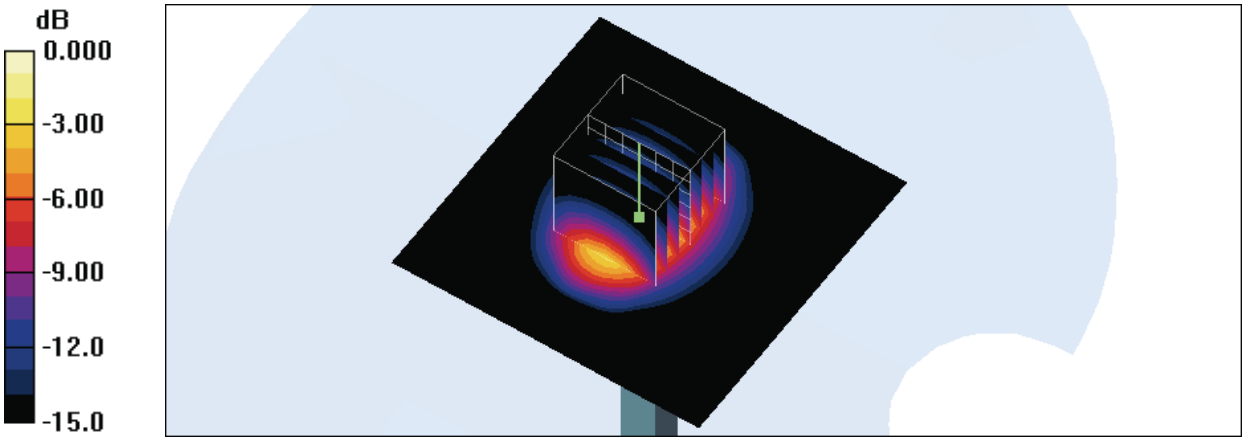
Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.81 mho/m; ε_r = 39.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(7.17, 7.17, 7.17); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

System Performance Check at 2450MHz/Area Scan (91x91x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 18.2 mW/g

System Performance Check at 2450MHz/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 96.8 V/m; Power Drift = -0.028 dB
Peak SAR (extrapolated) = 26.8 W/kg
SAR(1 g) = 13.5 mW/g; SAR(10 g) = 6.35 mW/g
Maximum value of SAR (measured) = 17.8 mW/g



0 dB = 17.8mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/20/2012 4:40:57 PM

System Performance Check at 835MHz_20120920_Body

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:4d082

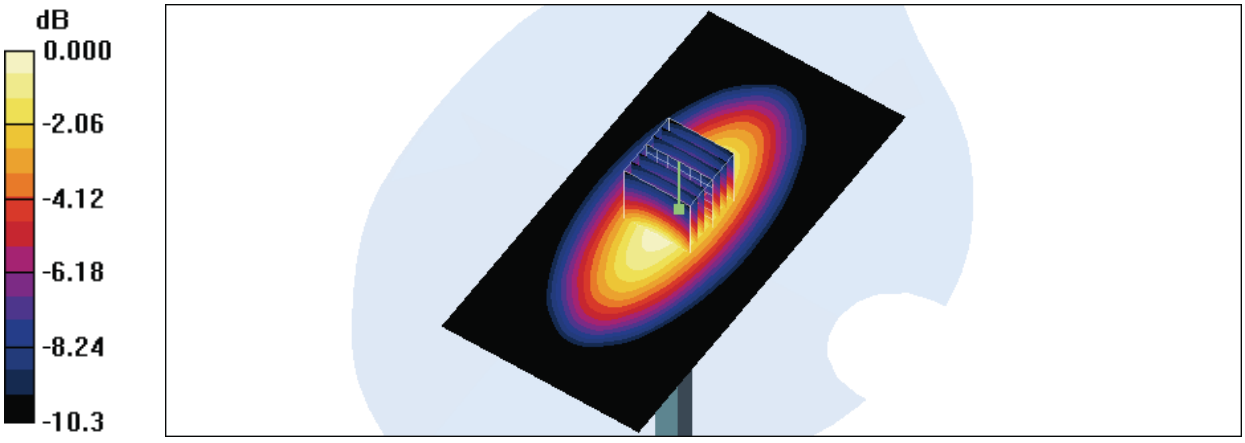
Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.988 mho/m; ε_r = 54.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(9.24, 9.24, 9.24); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

System Performance Check at 835MHz/Area Scan (61x121x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.76 mW/g

System Performance Check at 835MHz/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 53.2 V/m; Power Drift = -0.082 dB
Peak SAR (extrapolated) = 3.44 W/kg
SAR(1 g) = 2.34 mW/g; SAR(10 g) = 1.54 mW/g
Maximum value of SAR (measured) = 2.73 mW/g



0 dB = 2.73mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/23/2012 2:02:01 AM

System Performance Check at 1900MHz_20120923_Body

DUT: Dipole D1900V2_SN5d111; Type: D1900V2; Serial: D1900V2 - SN:5d111

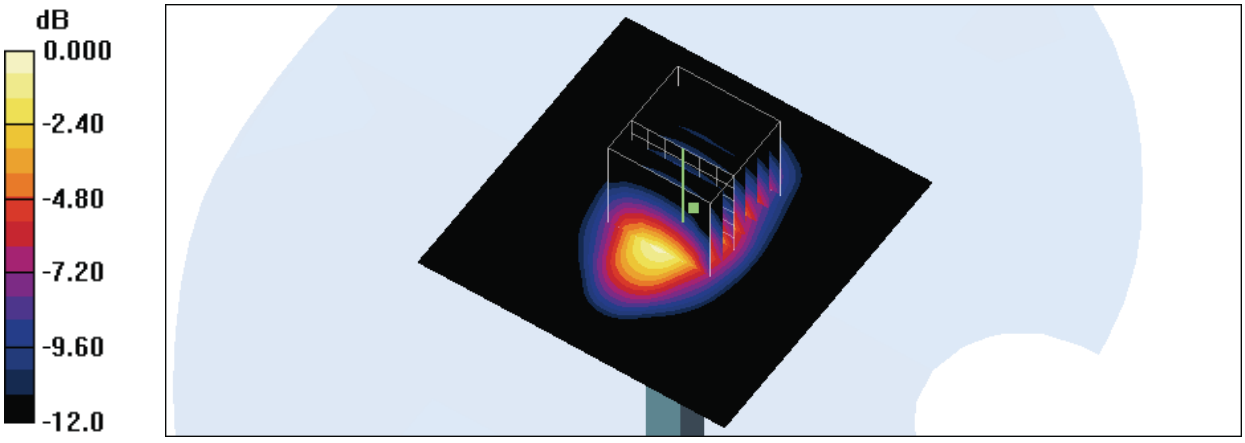
Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.53 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(7.2, 7.2, 7.2); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

System Performance Check at 1900MHz/Area Scan (61x61x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 13.5 mW/g

System Performance Check at 1900MHz/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 92.4 V/m; Power Drift = -0.068 dB
Peak SAR (extrapolated) = 19.1 W/kg
SAR(1 g) = 10.5 mW/g; SAR(10 g) = 5.48 mW/g
Maximum value of SAR (measured) = 13.3 mW/g



0 dB = 13.3mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/23/2012 6:56:15 PM

System Performance Check at 2450MHz_20120923_Boby

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:712

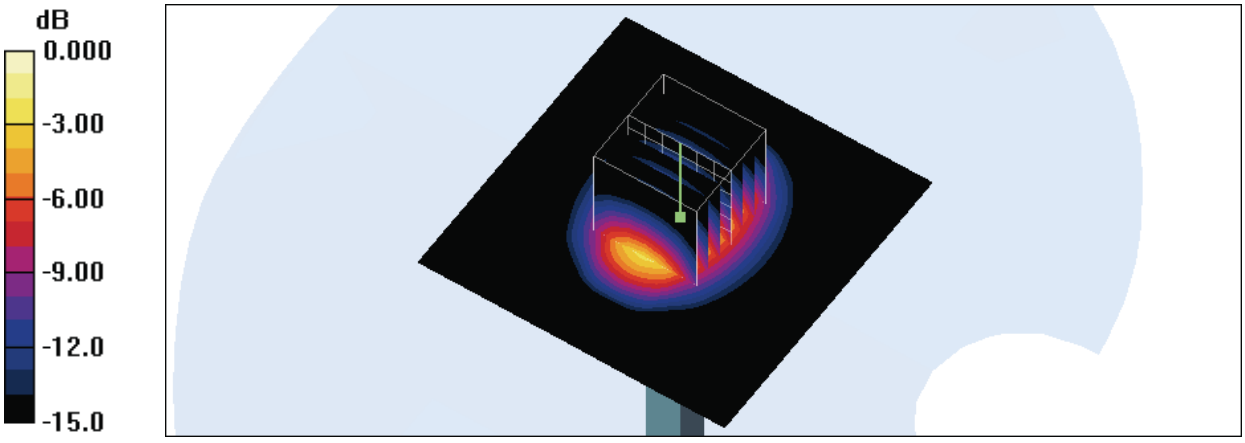
Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.96 mho/m; ε_r = 51.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(6.85, 6.85, 6.85); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

System Performance Check at 2450MHz/Area Scan (91x91x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 16.5 mW/g

System Performance Check at 2450MHz/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 91.0 V/m; Power Drift = -0.009 dB
Peak SAR (extrapolated) = 25.1 W/kg
SAR(1 g) = 12.4 mW/g; SAR(10 g) = 5.78 mW/g
Maximum value of SAR (measured) = 16.3 mW/g



0 dB = 16.3mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/24/2012 6:27:37 PM

System Performance Check at 2450MHz_20120924_Boby

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:712

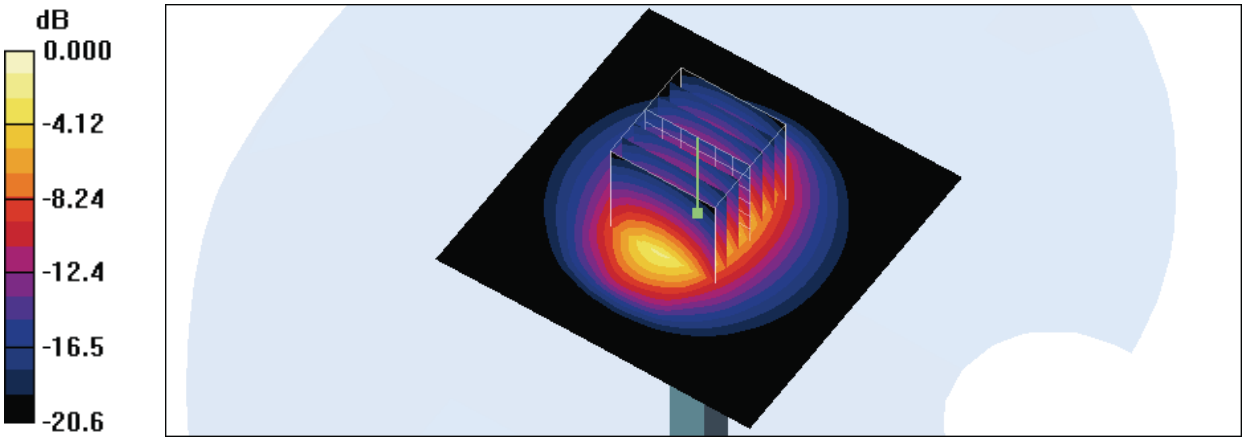
Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.96 mho/m; ε_r = 51.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(6.85, 6.85, 6.85); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

System Performance Check at 2450MHz/Area Scan (91x91x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 16.7 mW/g

System Performance Check at 2450MHz/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 90.8 V/m; Power Drift = 0.017 dB
Peak SAR (extrapolated) = 25.1 W/kg
SAR(1 g) = 12.5 mW/g; SAR(10 g) = 5.9 mW/g
Maximum value of SAR (measured) = 16.6 mW/g



0 dB = 16.6mW/g

Appendix B - SAR Measurement Data

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/20/2012 11:54:00 AM

RC_GPRS 850 CH190_1D4U_SIM2

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

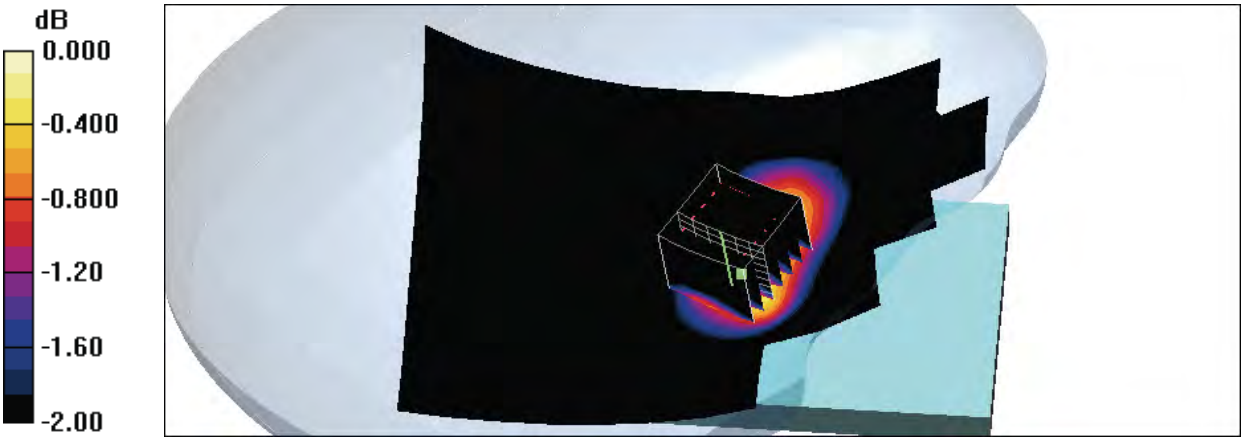
Communication System: GPRS 850 (1Down, 4Up); Frequency: 836.6 MHz;Duty Cycle: 1:2
Medium parameters used: f = 837 MHz; σ = 0.91 mho/m; ε_r = 41.8; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(9.34, 9.34, 9.34); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Right Cheek/Area Scan (81x121x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.128 mW/g

Right Cheek/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 4.09 V/m; Power Drift = 0.037 dB
Peak SAR (extrapolated) = 0.163 W/kg
SAR(1 g) = 0.117 mW/g; SAR(10 g) = 0.090 mW/g
Maximum value of SAR (measured) = 0.130 mW/g



0 dB = 0.130mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/20/2012 12:52:28 PM

RT_GPRS 850 CH190_1D4U_SIM2

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

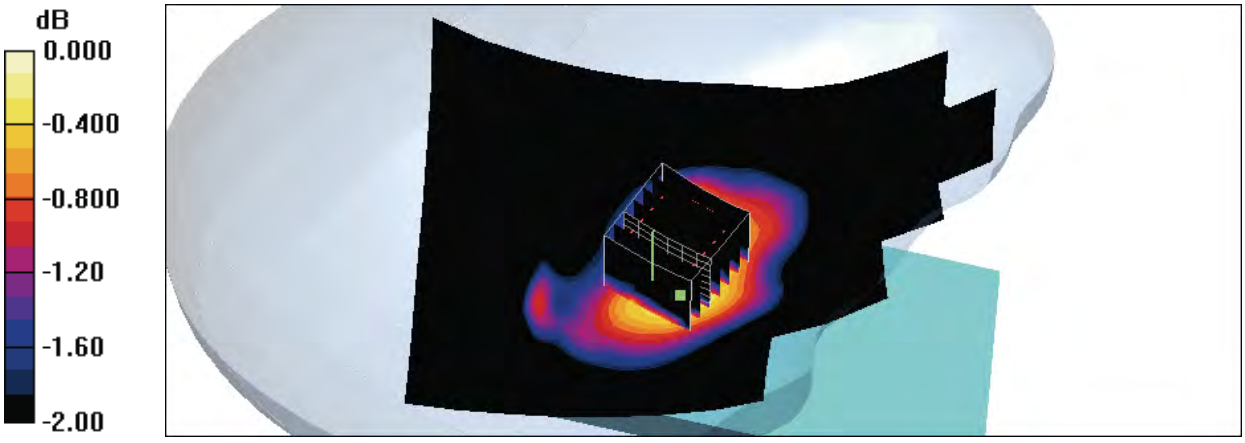
Communication System: GPRS 850 (1Down, 4Up); Frequency: 836.6 MHz;Duty Cycle: 1:2
Medium parameters used: f = 837 MHz; σ = 0.91 mho/m; ε_r = 41.8; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(9.34, 9.34, 9.34); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Right Tilted/Area Scan (81x121x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.071 mW/g

Right Tilted/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 6.52 V/m; Power Drift = 0.102 dB
Peak SAR (extrapolated) = 0.086 W/kg
SAR(1 g) = 0.066 mW/g; SAR(10 g) = 0.052 mW/g
Maximum value of SAR (measured) = 0.074 mW/g



0 dB = 0.074mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/20/2012 1:44:52 PM

LC_GPRS 850 CH190_1D4U_SIM2

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

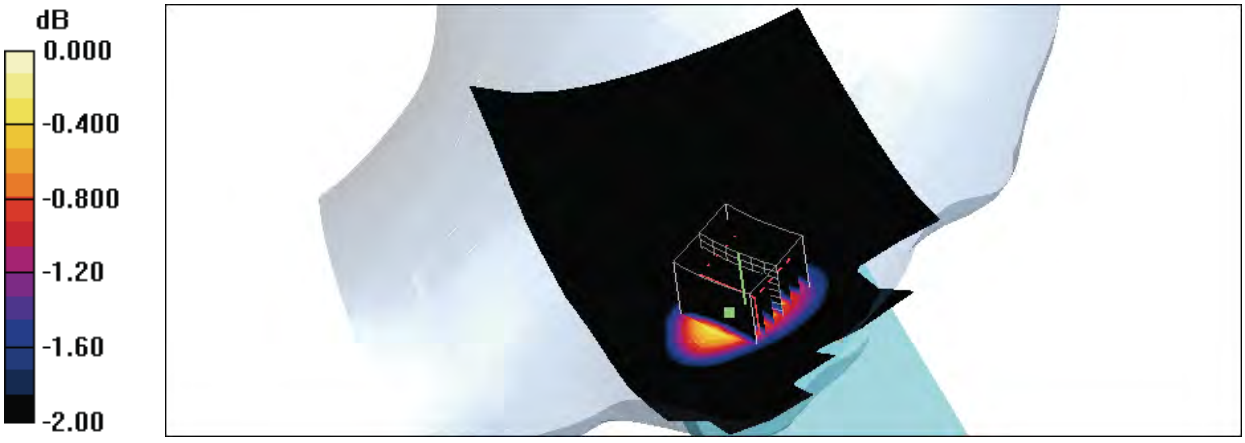
Communication System: GPRS 850 (1Down, 4Up); Frequency: 836.6 MHz;Duty Cycle: 1:2
Medium parameters used: f = 837 MHz; σ = 0.91 mho/m; ε_r = 41.8; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(9.34, 9.34, 9.34); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Left Cheek/Area Scan (81x121x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.131 mW/g

Left Cheek/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 4.38 V/m; Power Drift = -0.011 dB
Peak SAR (extrapolated) = 0.151 W/kg
SAR(1 g) = 0.119 mW/g; SAR(10 g) = 0.091 mW/g
Maximum value of SAR (measured) = 0.135 mW/g



0 dB = 0.135mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/20/2012 2:32:02 PM

LT_GPRS 850 CH190_1D4U_SIM2

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

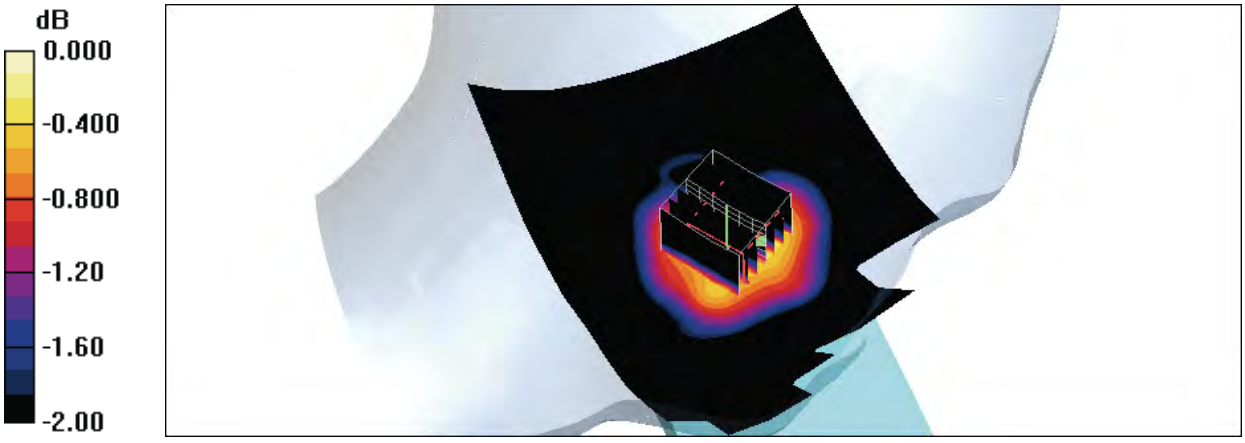
Communication System: GPRS 850 (1Down, 4Up); Frequency: 836.6 MHz;Duty Cycle: 1:2
Medium parameters used: f = 837 MHz; σ = 0.91 mho/m; ε_r = 41.8; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(9.34, 9.34, 9.34); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Left Tilted/Area Scan (81x121x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.070 mW/g

Left Tilted/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 6.25 V/m; Power Drift = -0.127 dB
Peak SAR (extrapolated) = 0.091 W/kg
SAR(1 g) = 0.067 mW/g; SAR(10 g) = 0.053 mW/g
Maximum value of SAR (measured) = 0.074 mW/g



0 dB = 0.074mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/21/2012 4:44:56 PM

RC_GPRS PCS CH810_1D4U_SIM2

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

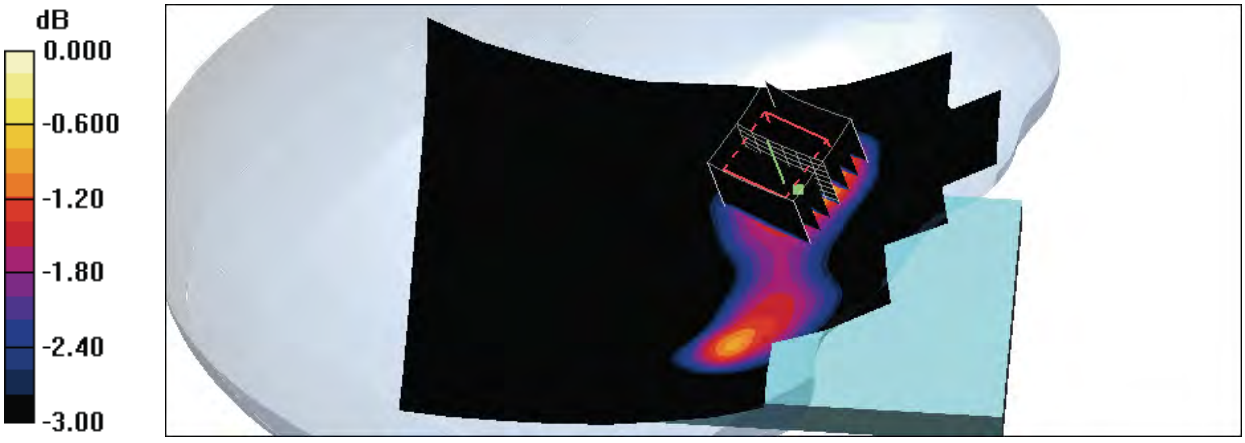
Communication System: GPRS PCS (1Down,4Up); Frequency: 1909.8 MHz;Duty Cycle: 1:2
Medium parameters used: f = 1910 MHz; σ = 1.4 mho/m; ε_r = 39.3; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(8.05, 8.05, 8.05); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Right Cheek/Area Scan (81x121x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.099 mW/g

Right Cheek/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 3.11 V/m; Power Drift = 0.086 dB
Peak SAR (extrapolated) = 0.133 W/kg
SAR(1 g) = 0.084 mW/g; SAR(10 g) = 0.053 mW/g
Maximum value of SAR (measured) = 0.100 mW/g



0 dB = 0.100mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/21/2012 5:25:12 PM

RT_GPRS PCS CH810_1D4U_SIM2

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

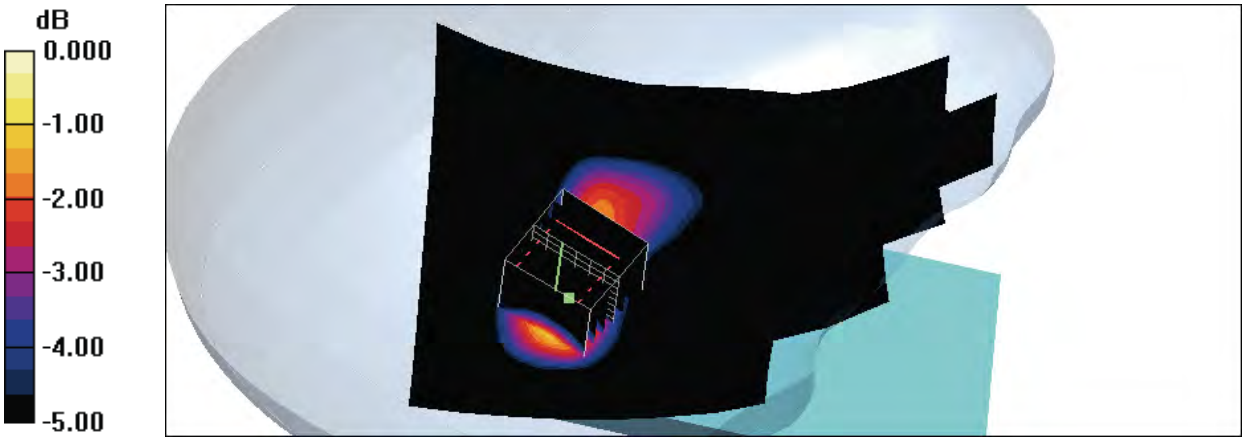
Communication System: GPRS PCS (1Down,4Up); Frequency: 1909.8 MHz;Duty Cycle: 1:2
Medium parameters used: f = 1910 MHz; σ = 1.4 mho/m; ε_r = 39.3; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(8.05, 8.05, 8.05); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Right Tilted/Area Scan (81x121x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.085 mW/g

Right Tilted/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 5.93 V/m; Power Drift = -0.109 dB
Peak SAR (extrapolated) = 0.112 W/kg
SAR(1 g) = 0.070 mW/g; SAR(10 g) = 0.042 mW/g
Maximum value of SAR (measured) = 0.084 mW/g



0 dB = 0.084mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/21/2012 5:57:18 PM

LC_GPRS PCS CH810_1D4U_SIM2

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

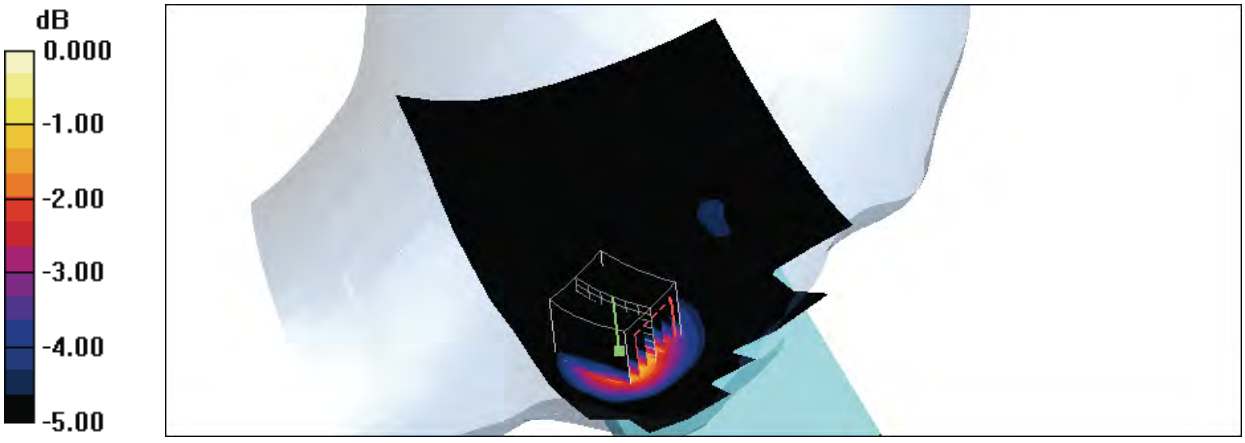
Communication System: GPRS PCS (1Down,4Up); Frequency: 1909.8 MHz;Duty Cycle: 1:2
Medium parameters used: f = 1910 MHz; σ = 1.4 mho/m; ε_r = 39.3; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

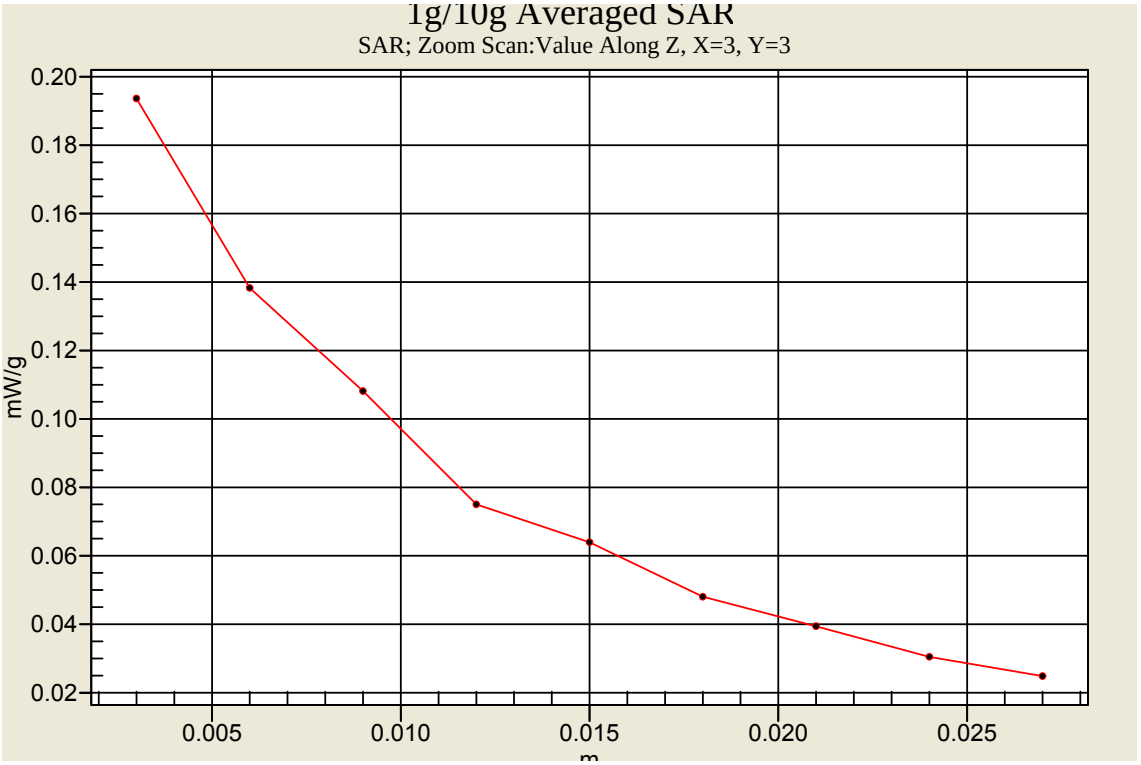
- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(8.05, 8.05, 8.05); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Left Cheek/Area Scan (81x121x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.193 mW/g

Left Cheek/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 2.24 V/m; Power Drift = -0.009 dB
Peak SAR (extrapolated) = 0.293 W/kg
SAR(1 g) = 0.163 mW/g; SAR(10 g) = 0.099 mW/g
Maximum value of SAR (measured) = 0.194 mW/g



0 dB = 0.194mW/g



Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/21/2012 6:29:00 PM

LT_GPRS PCS CH810_1D4U_SIM2

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

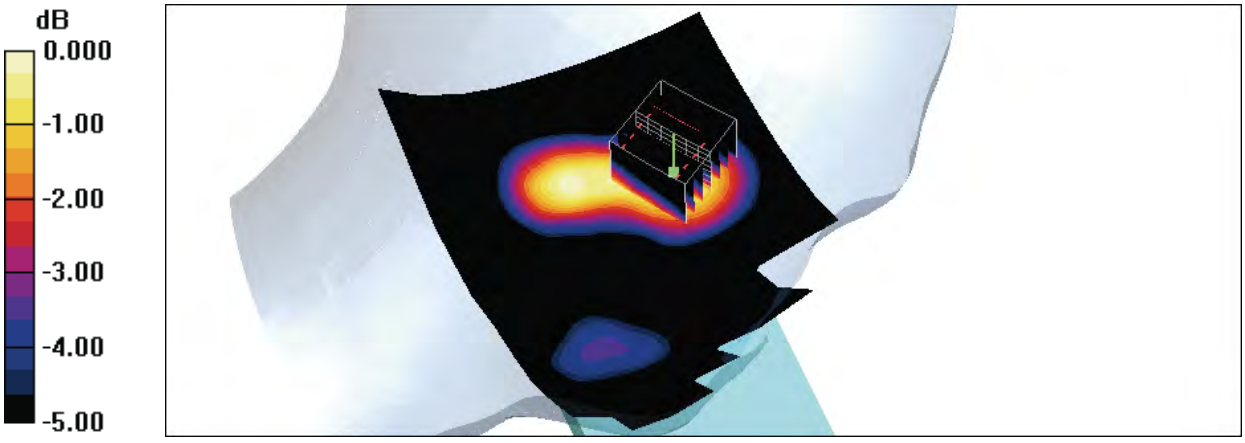
Communication System: GPRS PCS (1Down,4Up); Frequency: 1909.8 MHz;Duty Cycle: 1:2
Medium parameters used: f = 1910 MHz; σ = 1.4 mho/m; ε_r = 39.3; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(8.05, 8.05, 8.05); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Left Tilted/Area Scan (81x121x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.075 mW/g

Left Tilted/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 5.18 V/m; Power Drift = 0.061 dB
Peak SAR (extrapolated) = 0.089 W/kg
SAR(1 g) = 0.059 mW/g; SAR(10 g) = 0.039 mW/g
Maximum value of SAR (measured) = 0.069 mW/g



0 dB = 0.069mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/20/2012 3:55:07 AM

RC_WCDMA Band V CH4132

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

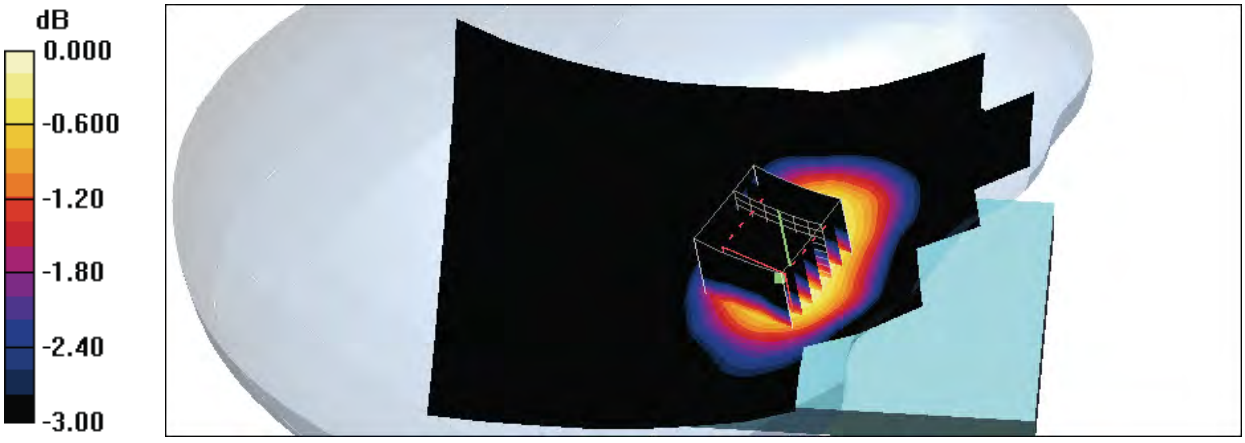
Communication System: WCDMA Band V; Frequency: 826.4 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.899 mho/m; ε_r = 41.9; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(9.34, 9.34, 9.34); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Right Cheek/Area Scan (81x121x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.176 mW/g

Right Cheek/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 3.33 V/m; Power Drift = 0.167 dB
Peak SAR (extrapolated) = 0.193 W/kg
SAR(1 g) = 0.156 mW/g; SAR(10 g) = 0.120 mW/g
Maximum value of SAR (measured) = 0.172 mW/g



0 dB = 0.172mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/20/2012 9:45:11 AM

RT_WCDMA Band V CH4132

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

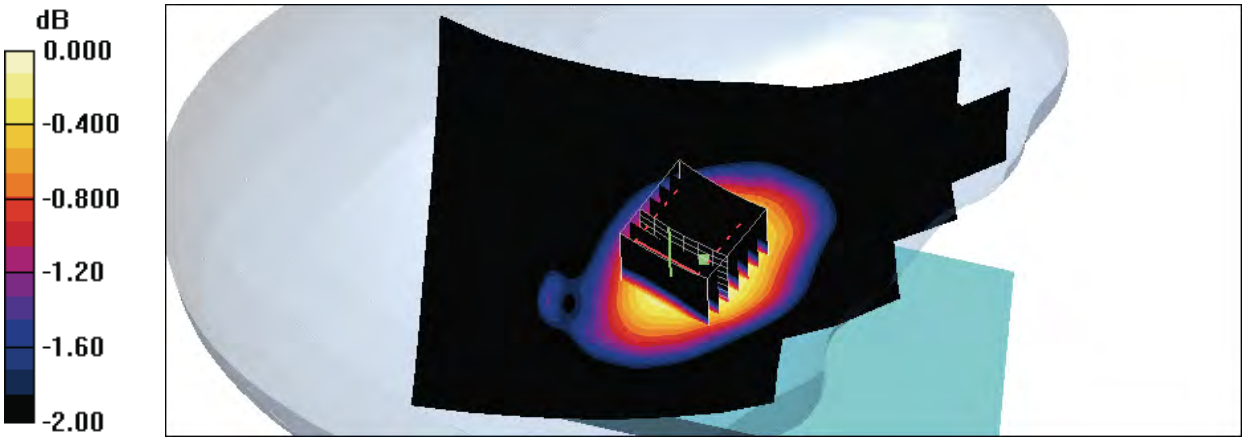
Communication System: WCDMA Band V; Frequency: 826.4 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.899 mho/m; ε_r = 41.9; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(9.34, 9.34, 9.34); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Right Tilted/Area Scan (81x121x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.098 mW/g

Right Tilted/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 7.21 V/m; Power Drift = -0.070 dB
Peak SAR (extrapolated) = 0.106 W/kg
SAR(1 g) = 0.088 mW/g; SAR(10 g) = 0.070 mW/g
Maximum value of SAR (measured) = 0.095 mW/g



0 dB = 0.095mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/20/2012 2:36:49 AM

LC_WCDMA Band V CH4132

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

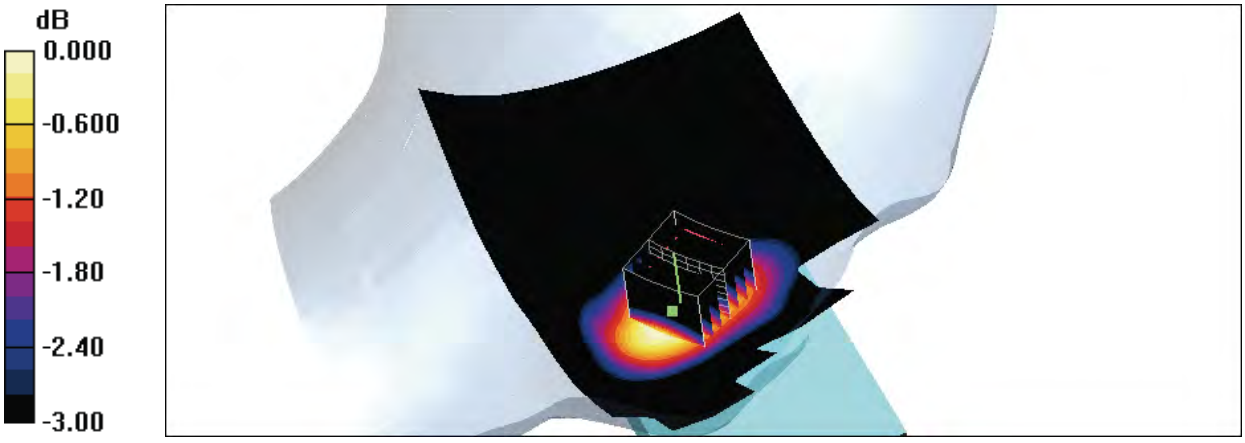
Communication System: WCDMA Band V; Frequency: 826.4 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.899 mho/m; ε_r = 41.9; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(9.34, 9.34, 9.34); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Left Cheek/Area Scan (81x121x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.175 mW/g

Left Cheek/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 4.01 V/m; Power Drift = 0.032 dB
Peak SAR (extrapolated) = 0.191 W/kg
SAR(1 g) = 0.150 mW/g; SAR(10 g) = 0.114 mW/g
Maximum value of SAR (measured) = 0.165 mW/g



0 dB = 0.165mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/20/2012 3:22:20 AM

LT_WCDMA Band V CH4132

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

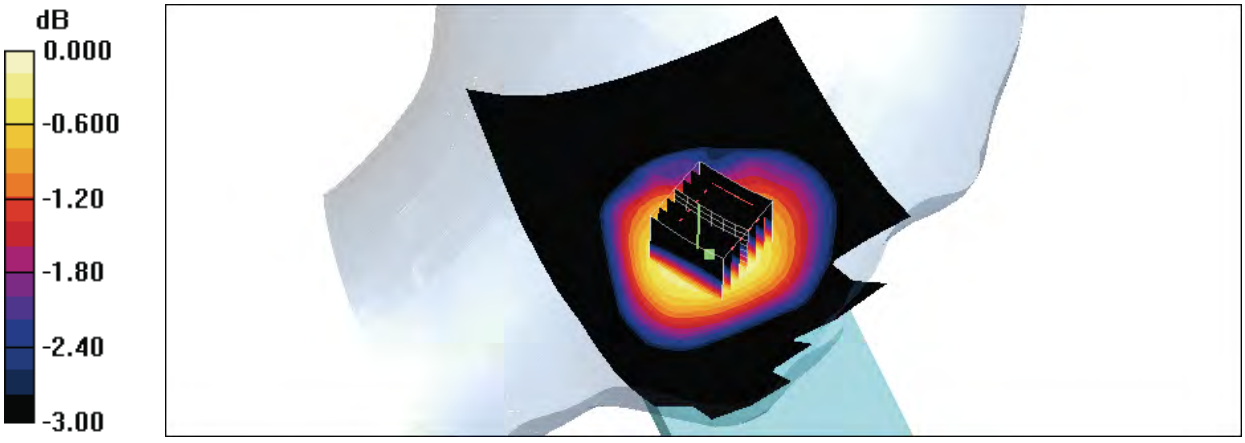
Communication System: WCDMA Band V; Frequency: 826.4 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.899 mho/m; ε_r = 41.9; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(9.34, 9.34, 9.34); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Left Tilted/Area Scan (81x121x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.093 mW/g

Left Tilted/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 6.12 V/m; Power Drift = 0.157 dB
Peak SAR (extrapolated) = 0.105 W/kg
SAR(1 g) = 0.086 mW/g; SAR(10 g) = 0.068 mW/g
Maximum value of SAR (measured) = 0.092 mW/g



0 dB = 0.092mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/21/2012 8:39:21 PM

RC_802.11b CH11_1M

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

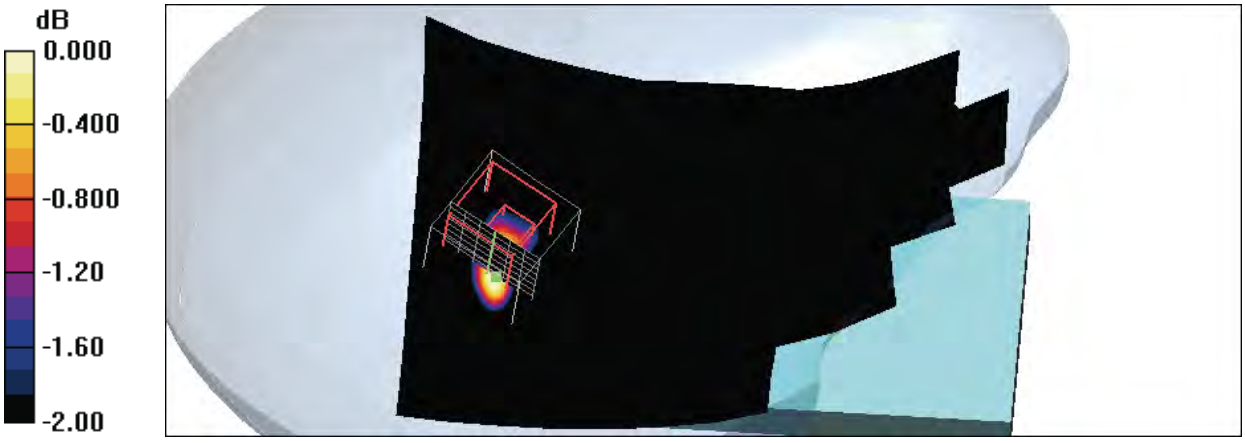
Communication System: IEEE 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 1.83 mho/m; ε_r = 39.5; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(7.17, 7.17, 7.17); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Right Cheek/Area Scan (81x121x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.008 mW/g

Right Cheek/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 1.66 V/m; Power Drift = -0.073 dB
Peak SAR (extrapolated) = 0.012 W/kg
SAR(1 g) = 0.00583 mW/g; SAR(10 g) = 0.00354 mW/g
Maximum value of SAR (measured) = 0.008 mW/g



0 dB = 0.008mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/21/2012 9:43:00 PM

RT_802.11b CH11_1M

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

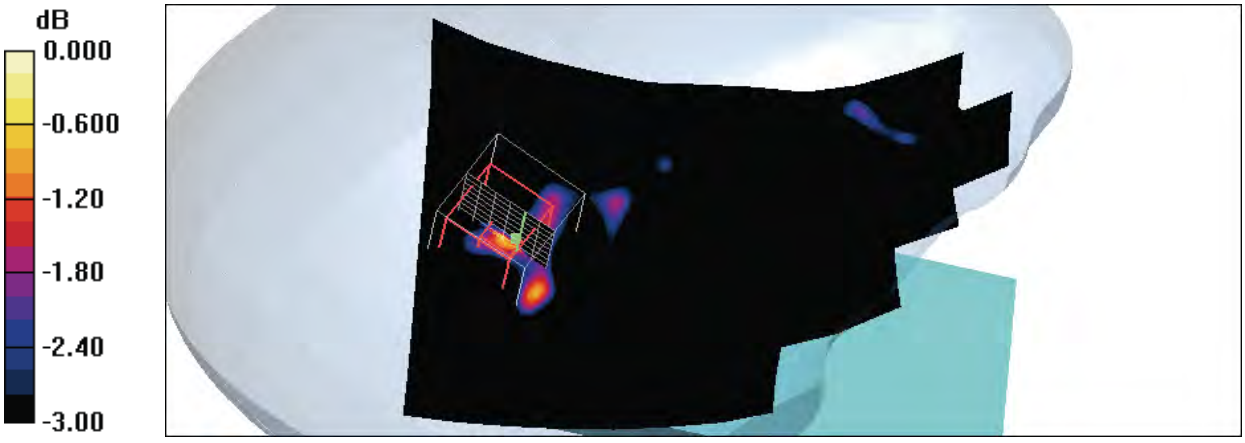
Communication System: IEEE 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 1.83 mho/m; ε_r = 39.5; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(7.17, 7.17, 7.17); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Right Tilted/Area Scan (81x121x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.007 mW/g

Right Tilted/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 1.74 V/m; Power Drift = -0.133 dB
Peak SAR (extrapolated) = 0.011 W/kg
SAR(1 g) = 0.00609 mW/g; SAR(10 g) = 0.00338 mW/g
Maximum value of SAR (measured) = 0.008 mW/g



0 dB = 0.008mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/21/2012 10:28:07 PM

LC_802.11b CH11_1M

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

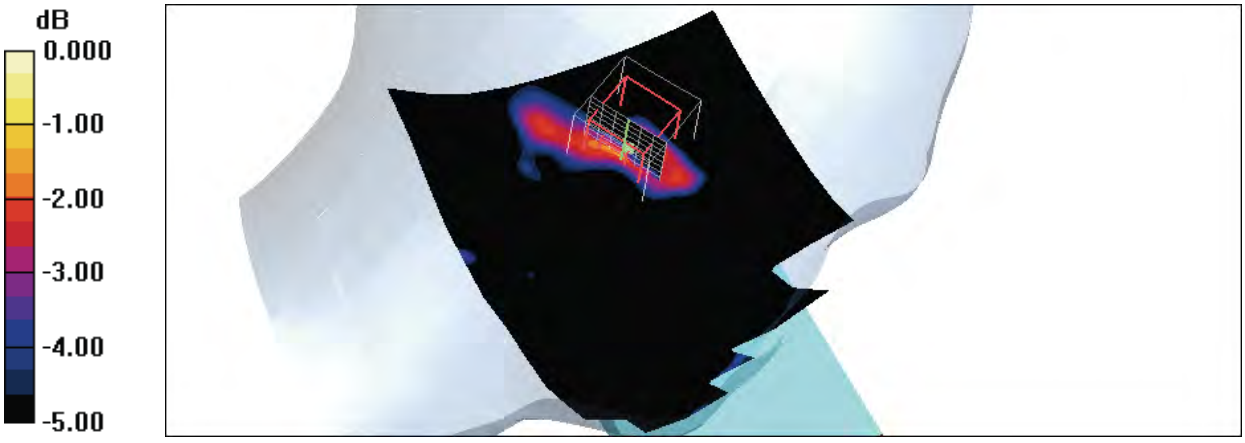
Communication System: IEEE 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 1.83 mho/m; ε_r = 39.5; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(7.17, 7.17, 7.17); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Left Cheek/Area Scan (81x121x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.006 mW/g

Left Cheek/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 1.87 V/m; Power Drift = 0.070 dB
Peak SAR (extrapolated) = 0.016 W/kg
SAR(1 g) = 0.00547 mW/g; SAR(10 g) = 0.00301 mW/g
Maximum value of SAR (measured) = 0.007 mW/g



0 dB = 0.007mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/21/2012 10:57:58 PM

LT_802.11b CH11_1M

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

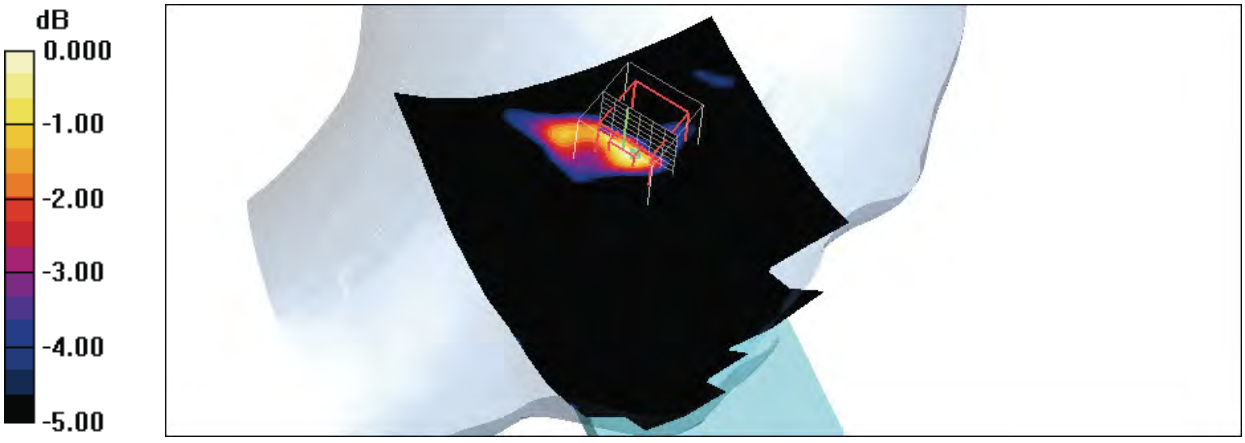
Communication System: IEEE 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 1.83 mho/m; ε_r = 39.5; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(7.17, 7.17, 7.17); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Left Tilted/Area Scan (81x121x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.008 mW/g

Left Tilted/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 1.70 V/m; Power Drift = -0.098 dB
Peak SAR (extrapolated) = 0.009 W/kg
SAR(1 g) = 0.00581 mW/g; SAR(10 g) = 0.00329 mW/g
Maximum value of SAR (measured) = 0.008 mW/g



0 dB = 0.008mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/22/2012 12:52:53 AM

RC_802.11g CH1_6M

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

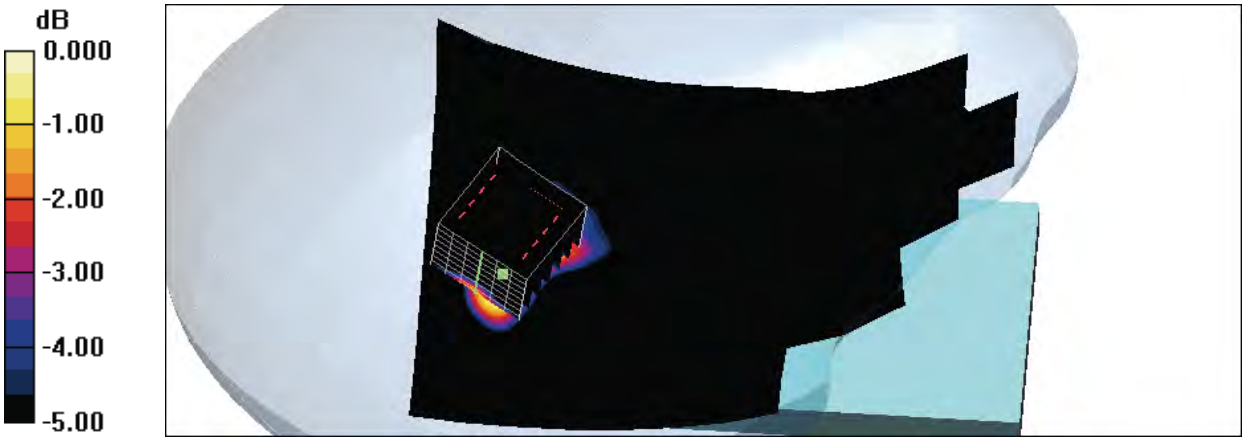
Communication System: IEEE 802.11g; Frequency: 2412 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2412 MHz; σ = 1.76 mho/m; ε_r = 39.6; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(7.17, 7.17, 7.17); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Right Cheek/Area Scan (81x121x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.021 mW/g

Right Cheek/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 2.79 V/m; Power Drift = 0.116 dB
Peak SAR (extrapolated) = 0.029 W/kg
SAR(1 g) = 0.012 mW/g; SAR(10 g) = 0.00648 mW/g
Maximum value of SAR (measured) = 0.016 mW/g



0 dB = 0.016mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/22/2012 1:56:05 AM

RT_802.11g CH1_6M

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

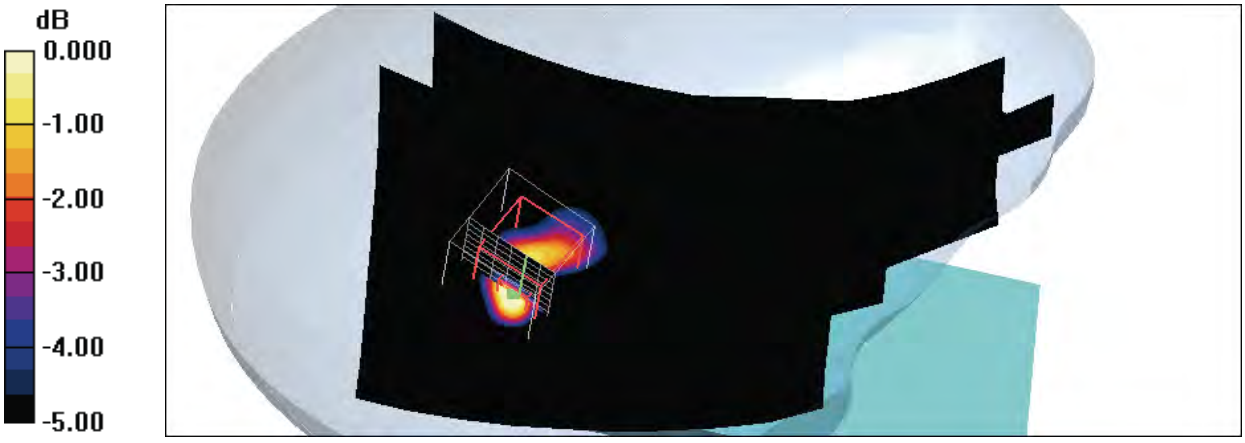
Communication System: IEEE 802.11g; Frequency: 2412 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2412 MHz; σ = 1.76 mho/m; ε_r = 39.6; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(7.17, 7.17, 7.17); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Right Tilted/Area Scan (81x141x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.026 mW/g

Right Tilted/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 2.71 V/m; Power Drift = -0.083 dB
Peak SAR (extrapolated) = 0.031 W/kg
SAR(1 g) = 0.016 mW/g; SAR(10 g) = 0.00788 mW/g
Maximum value of SAR (measured) = 0.022 mW/g



0 dB = 0.022mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/22/2012 3:02:40 AM

LC_802.11g CH1_6M

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

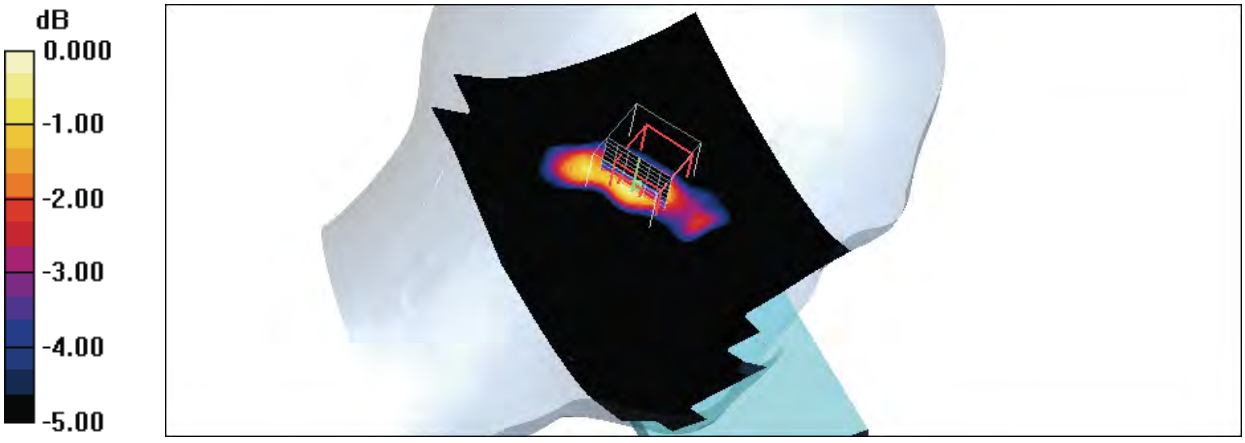
Communication System: IEEE 802.11g; Frequency: 2412 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2412 MHz; σ = 1.76 mho/m; ε_r = 39.6; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(7.17, 7.17, 7.17); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Left Cheek/Area Scan (81x141x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.013 mW/g

Left Cheek/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 2.44 V/m; Power Drift = 0.087 dB
Peak SAR (extrapolated) = 0.017 W/kg
SAR(1 g) = 0.010 mW/g; SAR(10 g) = 0.00588 mW/g
Maximum value of SAR (measured) = 0.013 mW/g



0 dB = 0.013mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/22/2012 3:33:47 AM

LT_802.11g CH1_6M

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

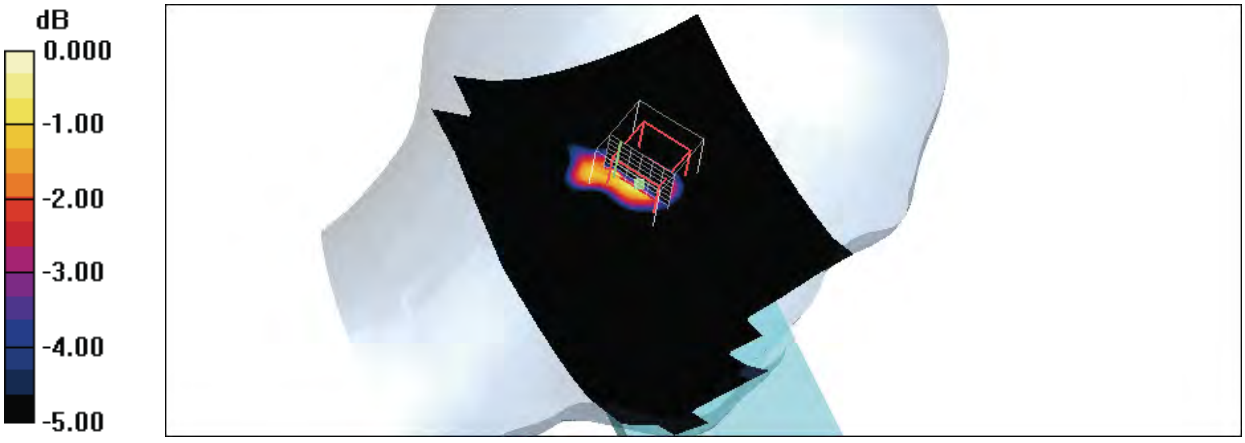
Communication System: IEEE 802.11g; Frequency: 2412 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2412 MHz; σ = 1.76 mho/m; ε_r = 39.6; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(7.17, 7.17, 7.17); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Left Tilted/Area Scan (81x141x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.018 mW/g

Left Tilted/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 2.69 V/m; Power Drift = -0.106 dB
Peak SAR (extrapolated) = 0.022 W/kg
SAR(1 g) = 0.013 mW/g; SAR(10 g) = 0.00698 mW/g
Maximum value of SAR (measured) = 0.019 mW/g



0 dB = 0.019mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/22/2012 6:59:57 PM

RC_802.11n CH11_HT20_6.5M

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

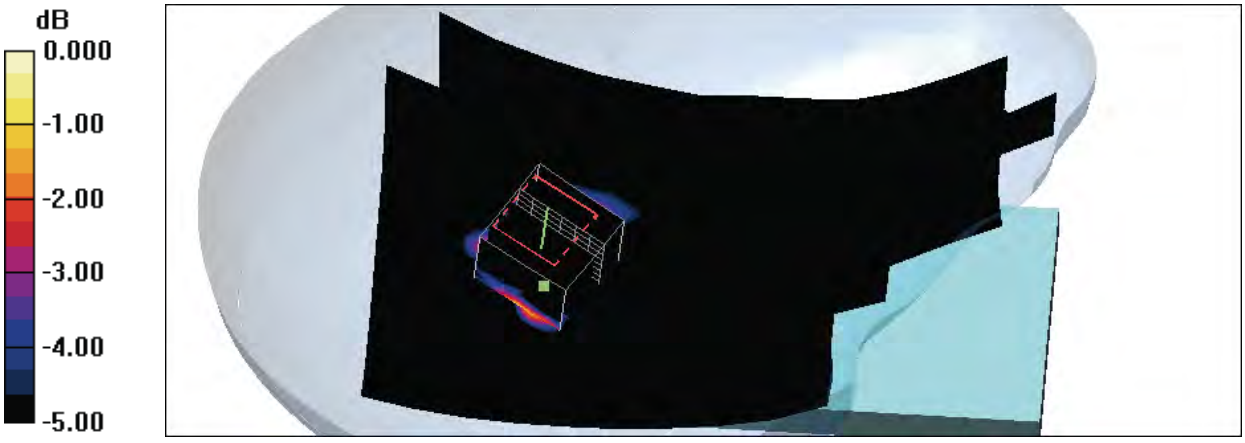
Communication System: IEEE 802.11n(2.4GHz); Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 1.83 mho/m; ε_r = 39.5; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(7.17, 7.17, 7.17); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Right Cheek/Area Scan (81x141x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.018 mW/g

Right Cheek/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 2.32 V/m; Power Drift = -0.074 dB
Peak SAR (extrapolated) = 0.028 W/kg
SAR(1 g) = 0.013 mW/g; SAR(10 g) = 0.0067 mW/g
Maximum value of SAR (measured) = 0.016 mW/g



0 dB = 0.016mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/22/2012 7:33:11 PM

RT_802.11n CH11_HT20_6.5M

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

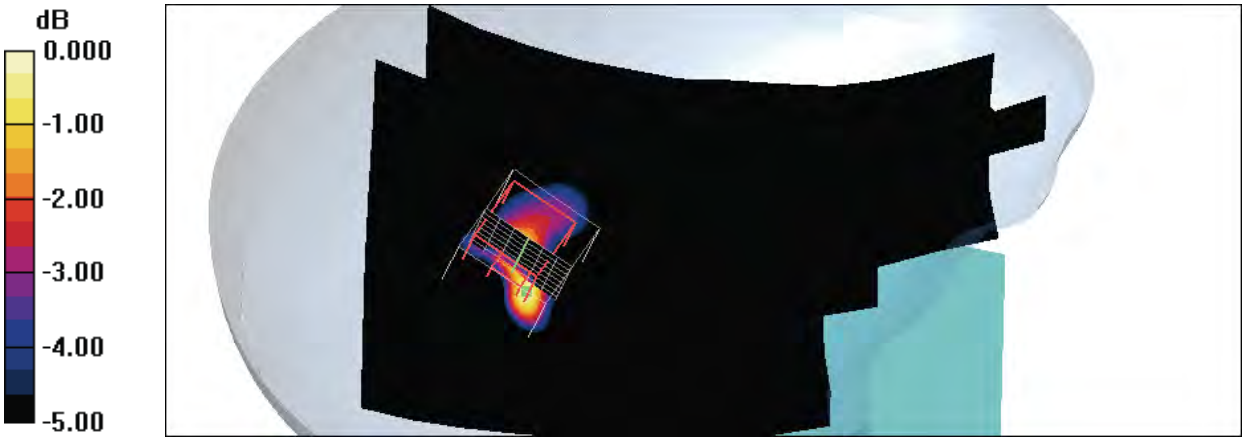
Communication System: IEEE 802.11n(2.4GHz); Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 1.83 mho/m; ε_r = 39.5; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(7.17, 7.17, 7.17); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Right Tilted/Area Scan (81x141x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.024 mW/g

Right Tilted/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 2.48 V/m; Power Drift = -0.169 dB
Peak SAR (extrapolated) = 0.041 W/kg
SAR(1 g) = 0.019 mW/g; SAR(10 g) = 0.00884 mW/g
Maximum value of SAR (measured) = 0.026 mW/g



0 dB = 0.026mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/22/2012 8:06:18 PM

LC_802.11n CH11_HT20_6.5M

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

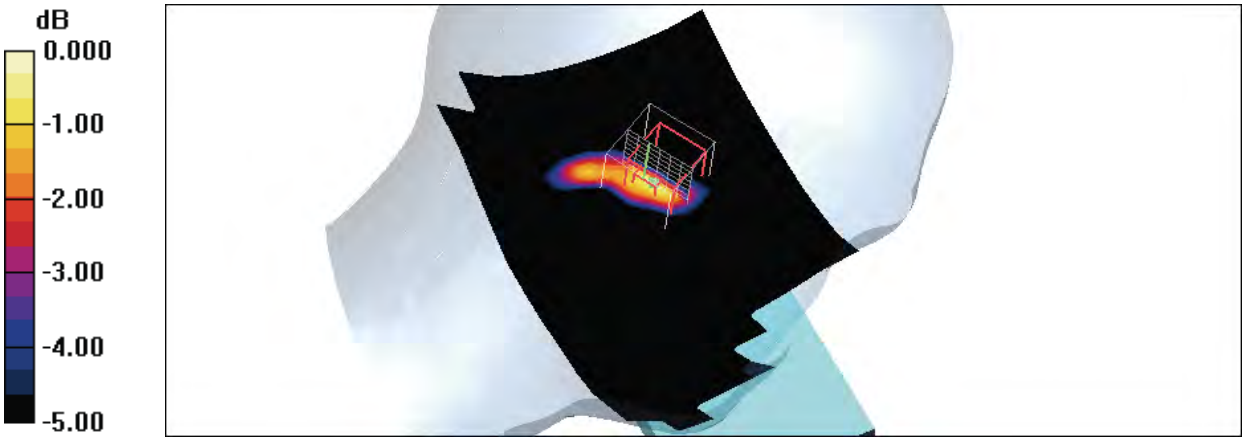
Communication System: IEEE 802.11n(2.4GHz); Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 1.83 mho/m; ε_r = 39.5; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(7.17, 7.17, 7.17); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Left Cheek/Area Scan (81x141x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.017 mW/g

Left Cheek/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 3.14 V/m; Power Drift = -0.035 dB
Peak SAR (extrapolated) = 0.026 W/kg
SAR(1 g) = 0.015 mW/g; SAR(10 g) = 0.00773 mW/g
Maximum value of SAR (measured) = 0.019 mW/g



0 dB = 0.019mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/22/2012 8:34:56 PM

LT_802.11n CH11_HT20_6.5M

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

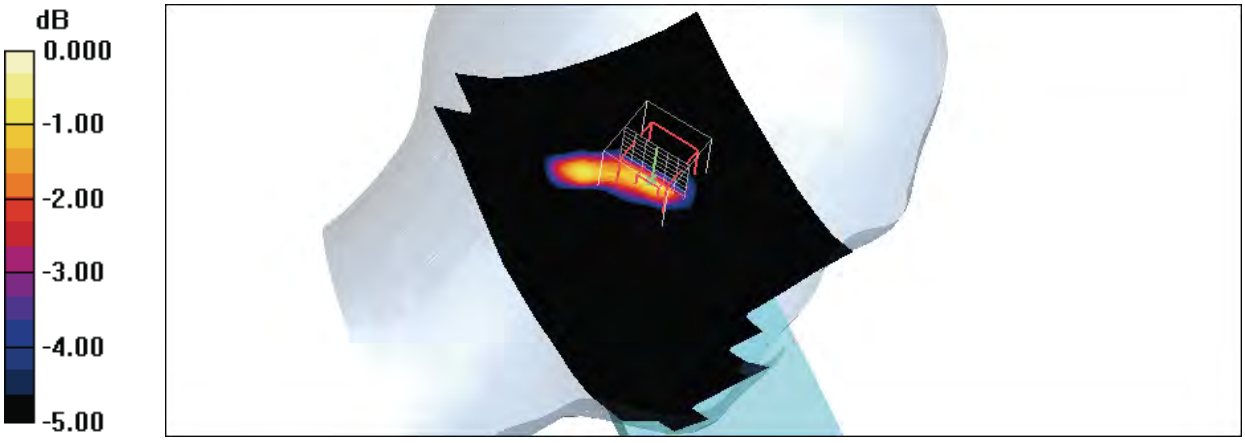
Communication System: IEEE 802.11n(2.4GHz); Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 1.83 mho/m; ε_r = 39.5; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(7.17, 7.17, 7.17); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Left Tilted/Area Scan (81x141x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.019 mW/g

Left Tilted/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 2.80 V/m; Power Drift = 0.061 dB
Peak SAR (extrapolated) = 0.032 W/kg
SAR(1 g) = 0.017 mW/g; SAR(10 g) = 0.0084 mW/g
Maximum value of SAR (measured) = 0.022 mW/g



0 dB = 0.022mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/22/2012 9:10:13 PM

RC_802.11n CH3_HT40_13.5M

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

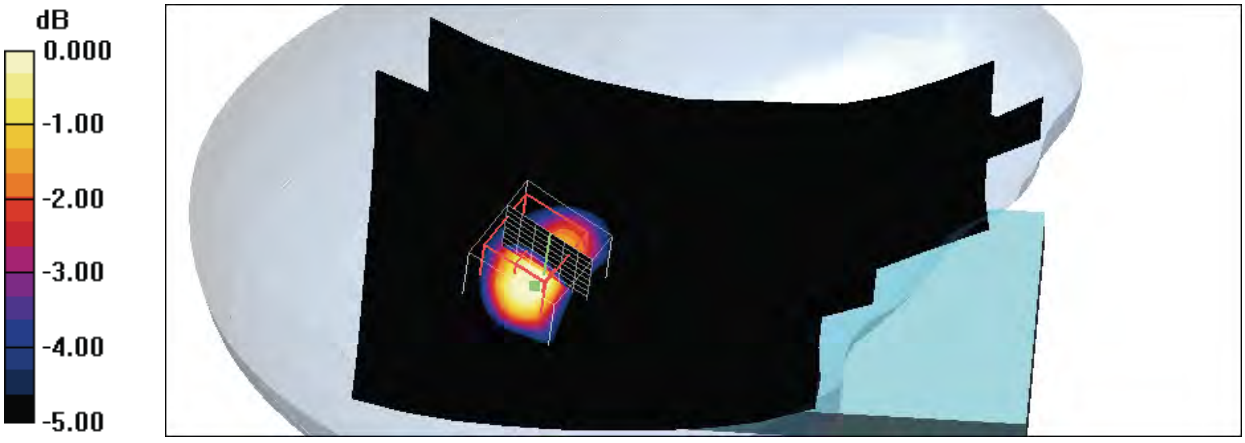
Communication System: IEEE 802.11n(2.4GHz); Frequency: 2422 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2422 MHz; σ = 1.77 mho/m; ε_r = 39.5; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(7.17, 7.17, 7.17); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Right Cheek/Area Scan (81x141x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.035 mW/g

Right Cheek/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 4.37 V/m; Power Drift = 0.144 dB
Peak SAR (extrapolated) = 0.064 W/kg
SAR(1 g) = 0.026 mW/g; SAR(10 g) = 0.013 mW/g
Maximum value of SAR (measured) = 0.033 mW/g



0 dB = 0.033mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/22/2012 9:38:41 PM

RT_802.11n CH3_HT40_13.5M

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

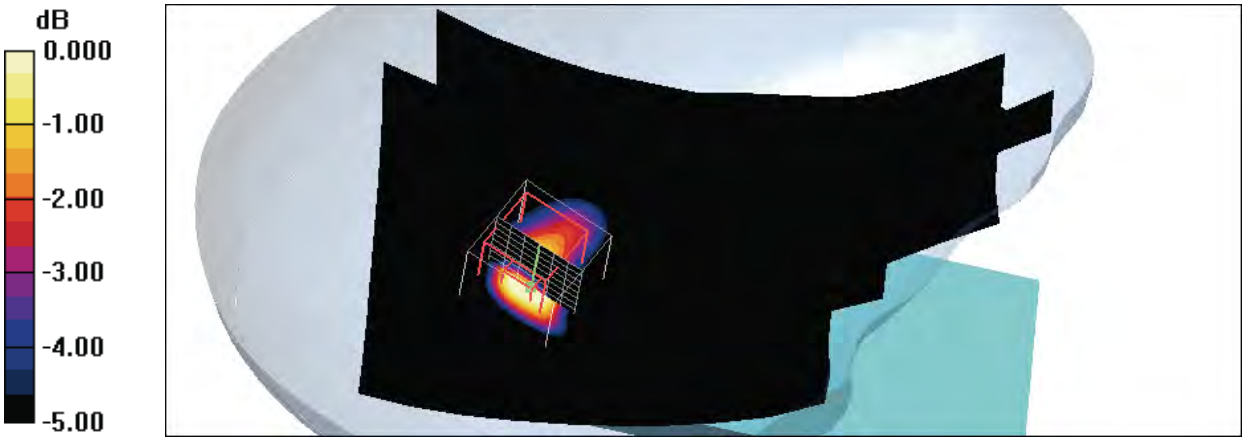
Communication System: IEEE 802.11n(2.4GHz); Frequency: 2422 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2422 MHz; σ = 1.77 mho/m; ε_r = 39.5; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(7.17, 7.17, 7.17); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Right Tilted/Area Scan (81x141x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.054 mW/g

Right Tilted/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 4.21 V/m; Power Drift = 0.093 dB
Peak SAR (extrapolated) = 0.069 W/kg
SAR(1 g) = 0.033 mW/g; SAR(10 g) = 0.016 mW/g
Maximum value of SAR (measured) = 0.045 mW/g



0 dB = 0.045mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/22/2012 10:42:34 PM

LC_802.11n CH3_HT40_13.5M

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

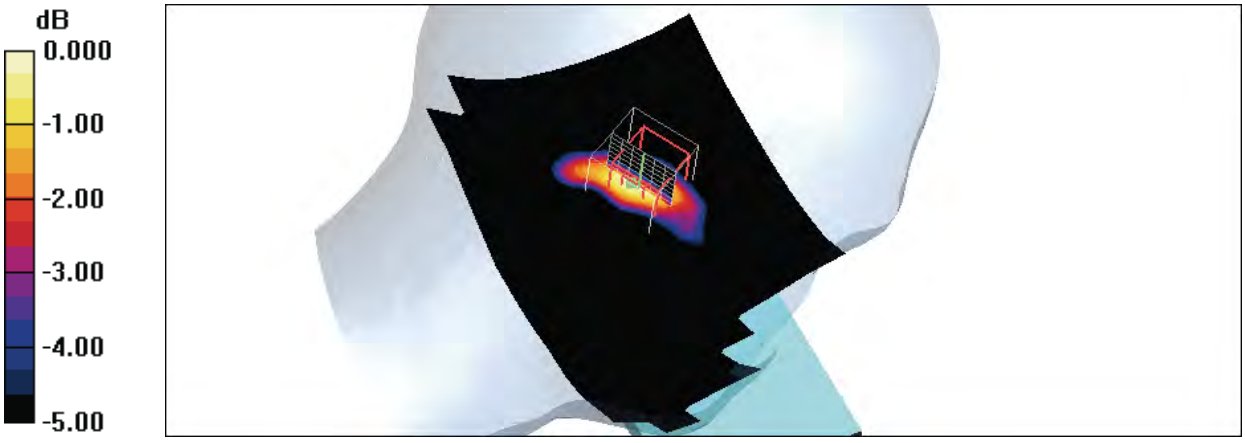
Communication System: IEEE 802.11n(2.4GHz); Frequency: 2422 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2422 MHz; σ = 1.77 mho/m; ε_r = 39.5; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(7.17, 7.17, 7.17); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Left Cheek/Area Scan (81x141x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.026 mW/g

Left Cheek/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 3.31 V/m; Power Drift = 0.097 dB
Peak SAR (extrapolated) = 0.041 W/kg
SAR(1 g) = 0.021 mW/g; SAR(10 g) = 0.011 mW/g
Maximum value of SAR (measured) = 0.027 mW/g



0 dB = 0.027mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/22/2012 11:12:47 PM

LT_802.11n CH3_HT40_13.5M

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

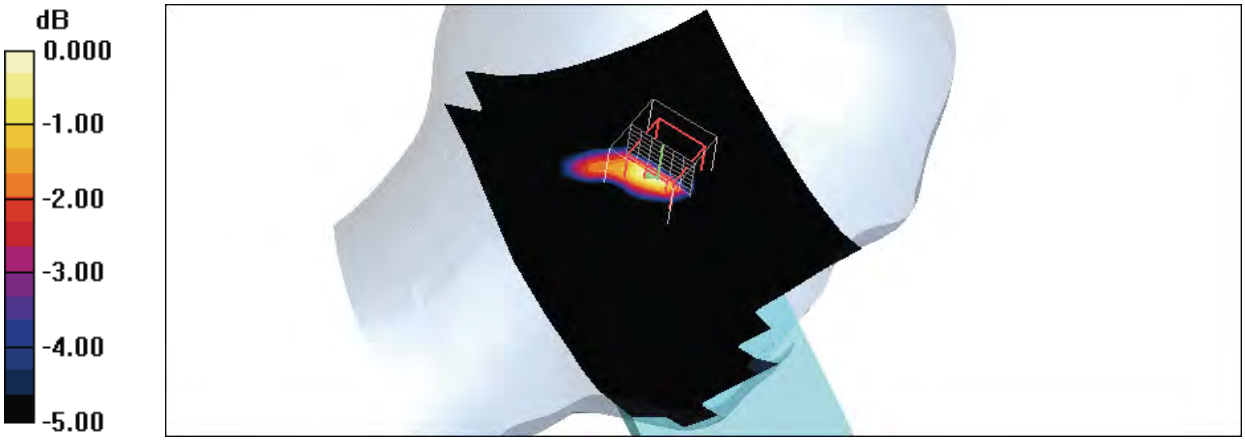
Communication System: IEEE 802.11n(2.4GHz); Frequency: 2422 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2422 MHz; σ = 1.77 mho/m; ε_r = 39.5; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(7.17, 7.17, 7.17); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Left Tilted/Area Scan (81x141x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.035 mW/g

Left Tilted/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 3.52 V/m; Power Drift = 0.092 dB
Peak SAR (extrapolated) = 0.052 W/kg
SAR(1 g) = 0.028 mW/g; SAR(10 g) = 0.014 mW/g
Maximum value of SAR (measured) = 0.035 mW/g



0 dB = 0.035mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/20/2012 5:41:47 PM

Flat_GPRS 850 CH190_1D4U_Front Surface to Phantom_10mm_SIM2

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

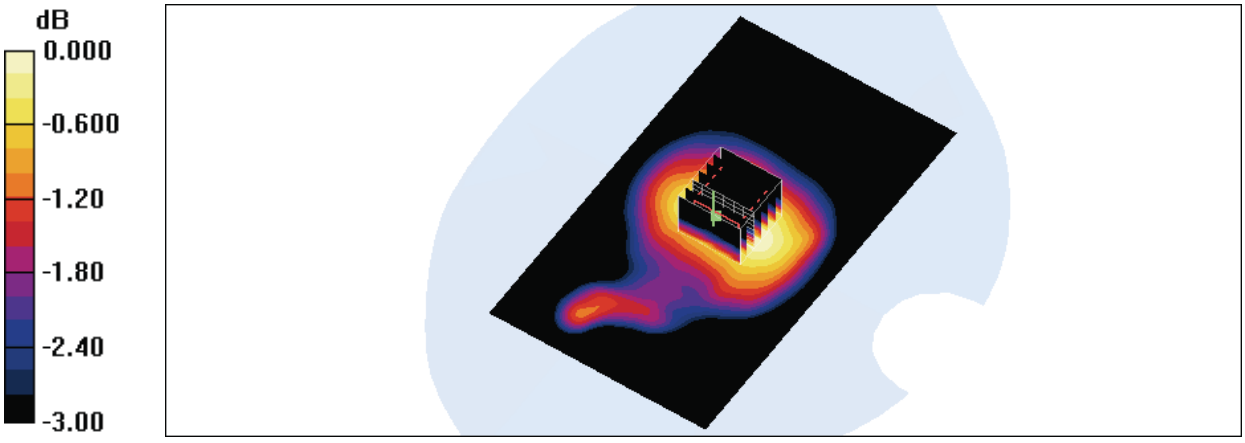
Communication System: GPRS 850 (1Down, 4Up); Frequency: 836.6 MHz;Duty Cycle: 1:2
Medium parameters used: f = 837 MHz; σ = 0.99 mho/m; ε_r = 54.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(9.24, 9.24, 9.24); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Flat/Area Scan (71x121x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.137 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 11.4 V/m; Power Drift = 0.076 dB
Peak SAR (extrapolated) = 0.169 W/kg
SAR(1 g) = 0.122 mW/g; SAR(10 g) = 0.094 mW/g
Maximum value of SAR (measured) = 0.136 mW/g



0 dB = 0.136mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/20/2012 5:14:15 PM

Flat_GPRS 850 CH190_1D4U_Back Surface to Phantom_10mm_SIM2

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

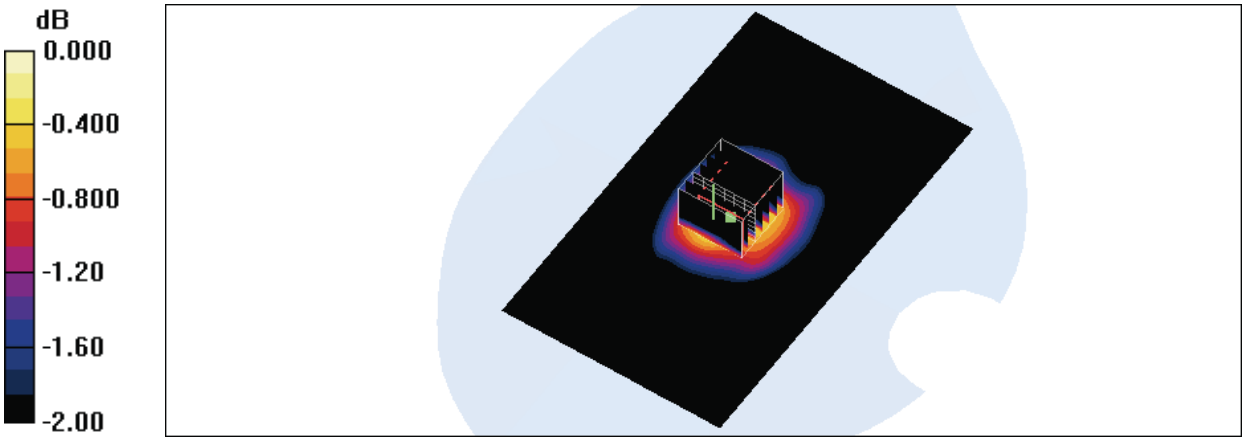
Communication System: GPRS 850 (1Down, 4Up); Frequency: 836.6 MHz;Duty Cycle: 1:2
Medium parameters used: f = 837 MHz; σ = 0.99 mho/m; ε_r = 54.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(9.24, 9.24, 9.24); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Flat/Area Scan (71x121x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.732 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 26.9 V/m; Power Drift = 0.041 dB
Peak SAR (extrapolated) = 1.00 W/kg
SAR(1 g) = 0.674 mW/g; SAR(10 g) = 0.512 mW/g
Maximum value of SAR (measured) = 0.762 mW/g



0 dB = 0.762mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/20/2012 7:26:47 PM

Flat_GPRS 850 CH190_1D4U_Edge Bottom to Phantom_10mm_SIM2

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

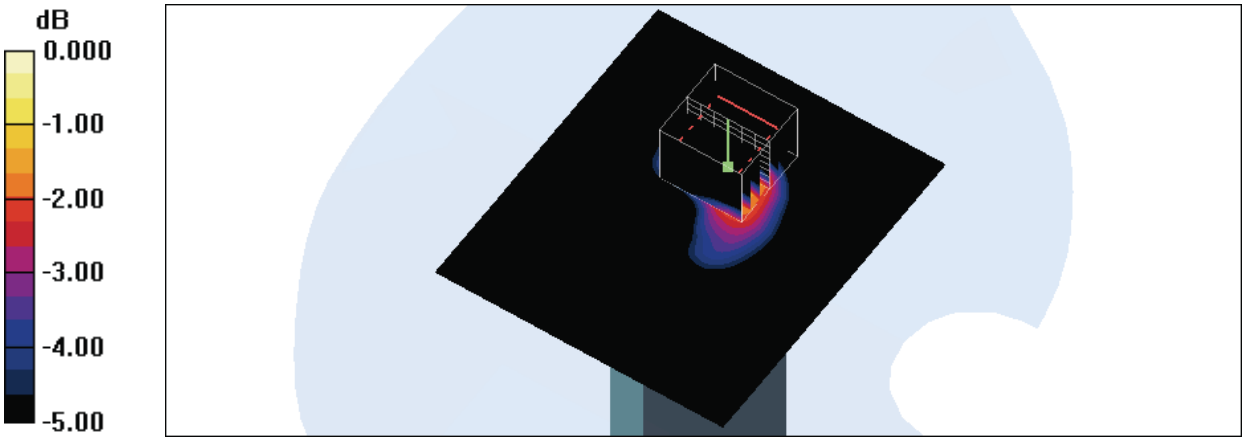
Communication System: GPRS 850 (1Down, 4Up); Frequency: 836.6 MHz;Duty Cycle: 1:2
Medium parameters used: f = 837 MHz; σ = 0.99 mho/m; ε_r = 54.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(9.24, 9.24, 9.24); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Flat/Area Scan (71x81x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.251 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 9.58 V/m; Power Drift = -0.171 dB
Peak SAR (extrapolated) = 0.406 W/kg
SAR(1 g) = 0.207 mW/g; SAR(10 g) = 0.111 mW/g
Maximum value of SAR (measured) = 0.260 mW/g



0 dB = 0.260mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/20/2012 6:32:19 PM

Flat_GPRS 850 CH190_1D4U_Edge Right to Phantom_10mm_SIM2

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

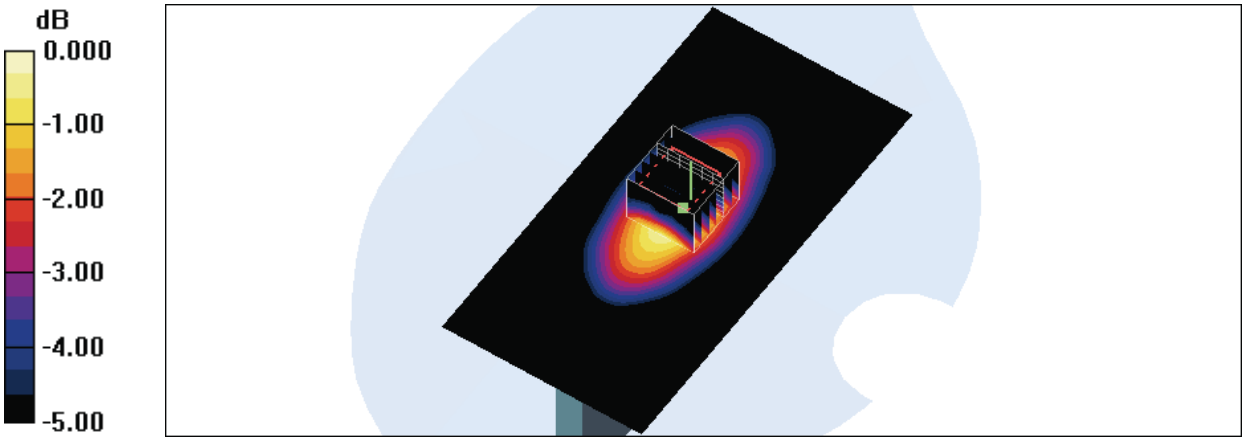
Communication System: GPRS 850 (1Down, 4Up); Frequency: 836.6 MHz;Duty Cycle: 1:2
Medium parameters used: f = 837 MHz; σ = 0.99 mho/m; ε_r = 54.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(9.24, 9.24, 9.24); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Flat/Area Scan (61x121x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.476 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 21.8 V/m; Power Drift = -0.082 dB
Peak SAR (extrapolated) = 0.562 W/kg
SAR(1 g) = 0.403 mW/g; SAR(10 g) = 0.280 mW/g
Maximum value of SAR (measured) = 0.474 mW/g



0 dB = 0.474mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/20/2012 7:01:57 PM

Flat_GPRS 850 CH190_1D4U_Edge Left to Phantom_10mm_SIM2

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

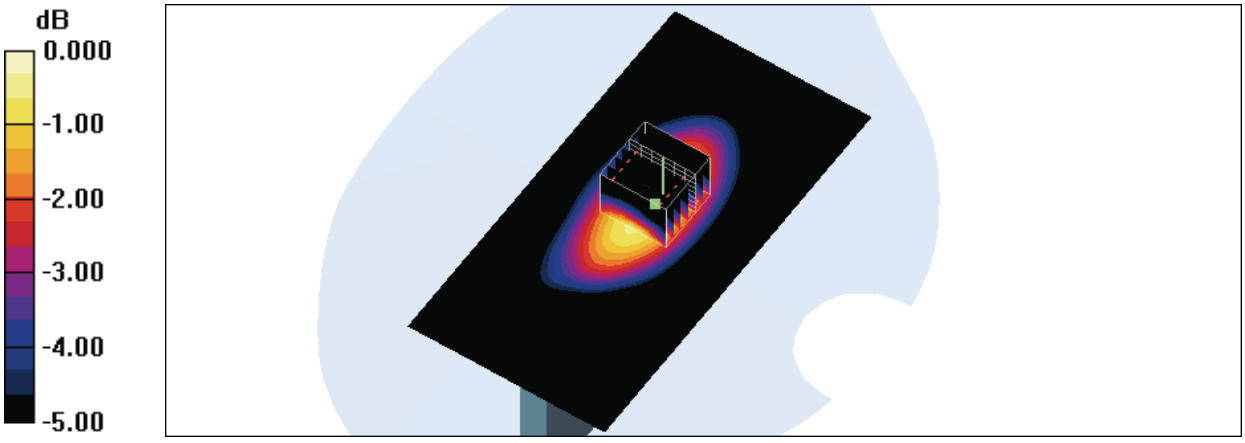
Communication System: GPRS 850 (1Down, 4Up); Frequency: 836.6 MHz;Duty Cycle: 1:2
Medium parameters used: f = 837 MHz; σ = 0.99 mho/m; ε_r = 54.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(9.24, 9.24, 9.24); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Flat/Area Scan (61x121x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.491 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 22.2 V/m; Power Drift = 0.148 dB
Peak SAR (extrapolated) = 0.675 W/kg
SAR(1 g) = 0.446 mW/g; SAR(10 g) = 0.307 mW/g
Maximum value of SAR (measured) = 0.524 mW/g



0 dB = 0.524mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/23/2012 2:57:28 AM

Flat_GPRS PCS CH810_1D4U_Front Surface to Phantom_10mm_SIM2

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

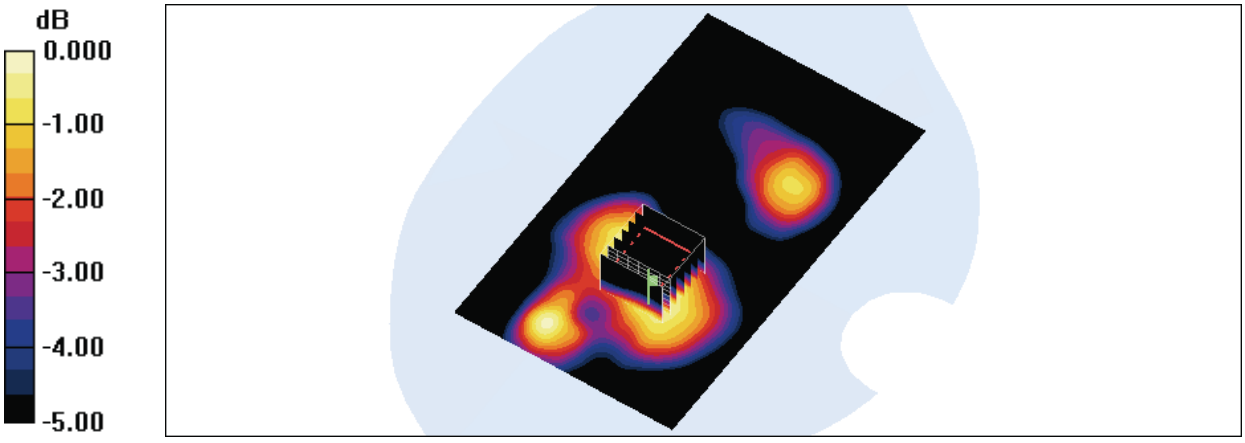
Communication System: GPRS PCS (1Down,4Up); Frequency: 1909.8 MHz;Duty Cycle: 1:2
Medium parameters used: f = 1910 MHz; σ = 1.54 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(7.2, 7.2, 7.2); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Flat/Area Scan (71x121x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.154 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 5.11 V/m; Power Drift = 0.007 dB
Peak SAR (extrapolated) = 0.189 W/kg
SAR(1 g) = 0.128 mW/g; SAR(10 g) = 0.086 mW/g
Maximum value of SAR (measured) = 0.152 mW/g



0 dB = 0.152mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/23/2012 2:28:55 AM

Flat_GPRS PCS CH810_1D4U_Back Surface to Phantom_10mm_SIM2

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

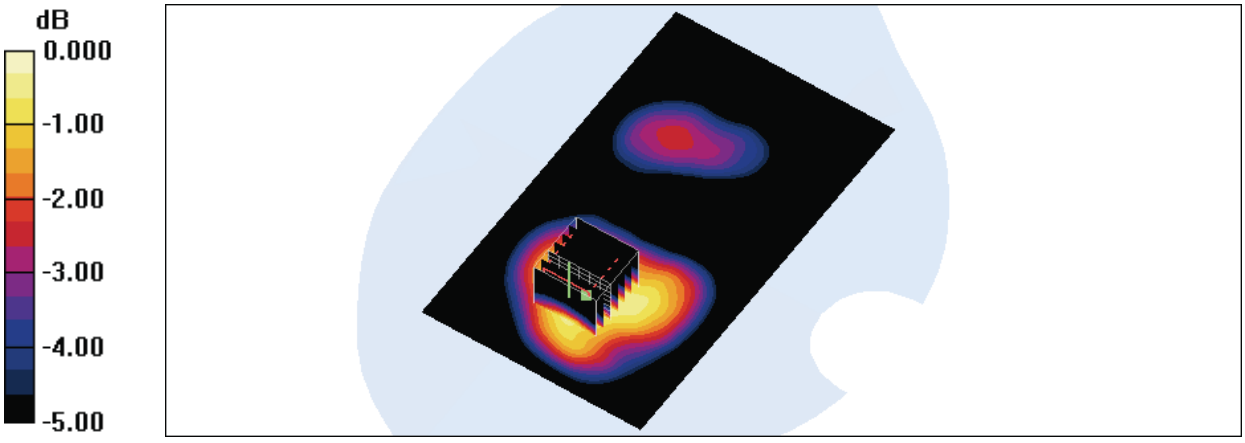
Communication System: GPRS PCS (1Down,4Up); Frequency: 1909.8 MHz;Duty Cycle: 1:2
Medium parameters used: f = 1910 MHz; σ = 1.54 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(7.2, 7.2, 7.2); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Flat/Area Scan (71x121x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.465 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 6.66 V/m; Power Drift = -0.038 dB
Peak SAR (extrapolated) = 0.656 W/kg
SAR(1 g) = 0.400 mW/g; SAR(10 g) = 0.259 mW/g
Maximum value of SAR (measured) = 0.467 mW/g



0 dB = 0.467mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/23/2012 3:25:52 AM

Flat_GPRS PCS CH810_1D4U_Edge Bottom to Phantom_10mm_SIM2

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

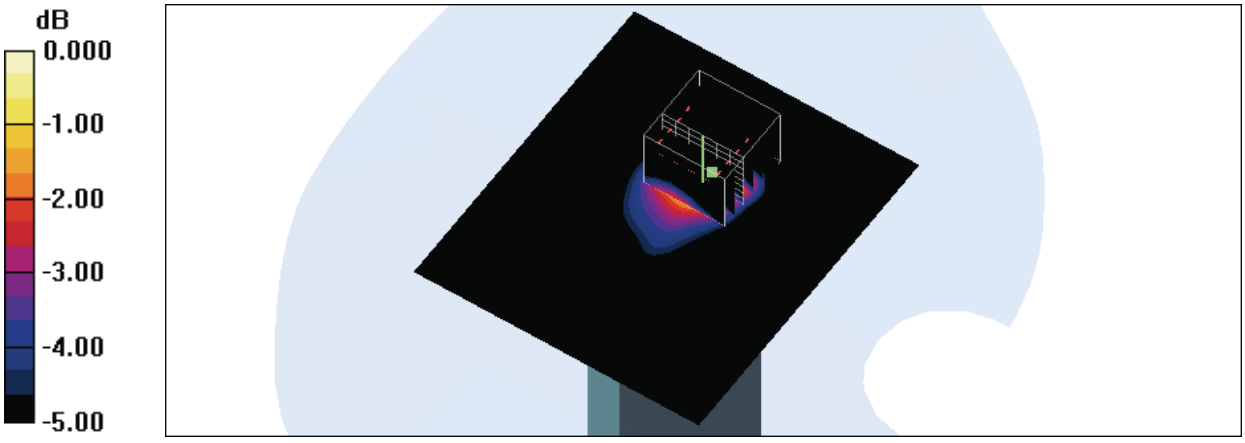
Communication System: GPRS PCS (1Down,4Up); Frequency: 1909.8 MHz;Duty Cycle: 1:2
Medium parameters used: f = 1910 MHz; σ = 1.54 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(7.2, 7.2, 7.2); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Flat/Area Scan (71x81x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.351 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 10.3 V/m; Power Drift = 0.018 dB
Peak SAR (extrapolated) = 0.469 W/kg
SAR(1 g) = 0.278 mW/g; SAR(10 g) = 0.147 mW/g
Maximum value of SAR (measured) = 0.346 mW/g



0 dB = 0.346mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/23/2012 5:37:48 PM

Flat_GPRS PCS CH810_1D4U_Edge Right to Phantom_10mm_SIM2

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

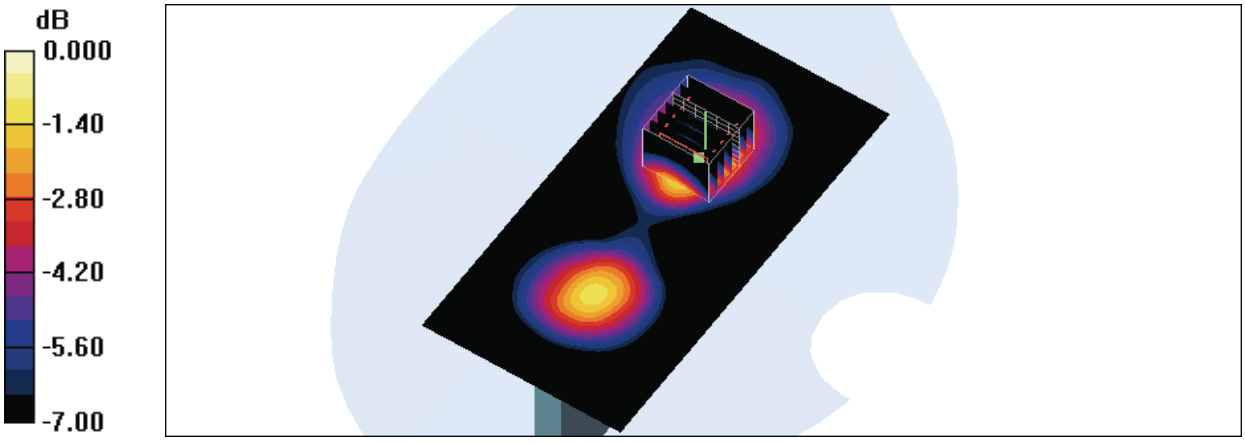
Communication System: GPRS PCS (1Down,4Up); Frequency: 1909.8 MHz;Duty Cycle: 1:2
Medium parameters used: f = 1910 MHz; σ = 1.54 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(7.2, 7.2, 7.2); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Flat/Area Scan (61x121x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.174 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 5.27 V/m; Power Drift = 0.124 dB
Peak SAR (extrapolated) = 0.237 W/kg
SAR(1 g) = 0.145 mW/g; SAR(10 g) = 0.089 mW/g
Maximum value of SAR (measured) = 0.175 mW/g



0 dB = 0.175mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/23/2012 6:03:54 PM

Flat_GPRS PCS CH810_1D4U_Edge Left to Phantom_10mm_SIM2

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

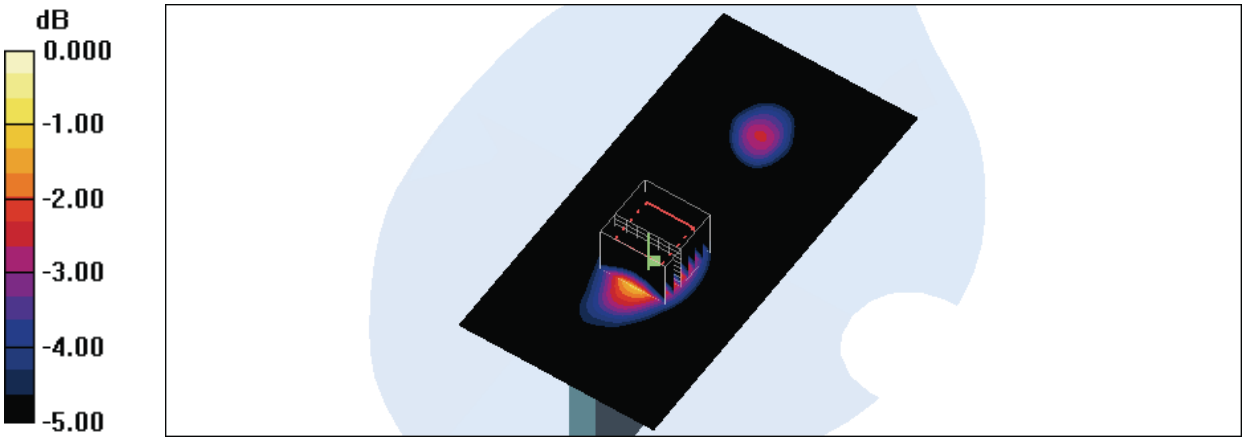
Communication System: GPRS PCS (1Down,4Up); Frequency: 1909.8 MHz;Duty Cycle: 1:2
Medium parameters used: f = 1910 MHz; σ = 1.54 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(7.2, 7.2, 7.2); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Flat/Area Scan (61x121x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.200 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 7.30 V/m; Power Drift = 0.066 dB
Peak SAR (extrapolated) = 0.261 W/kg
SAR(1 g) = 0.162 mW/g; SAR(10 g) = 0.097 mW/g
Maximum value of SAR (measured) = 0.197 mW/g



0 dB = 0.197mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/20/2012 9:22:25 PM

Flat_WCDMA Band V CH4132_Front Surface to Phantom_10mm

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

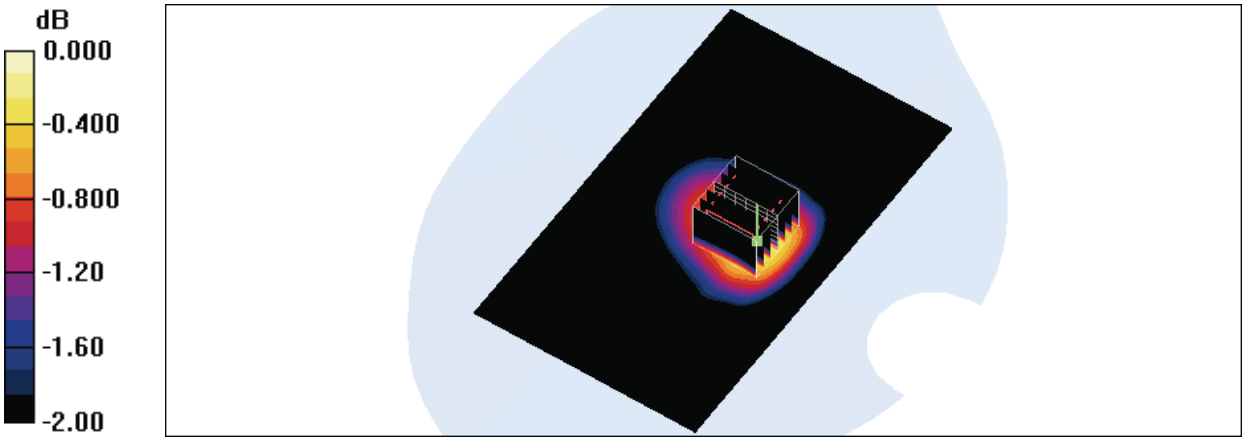
Communication System: WCDMA Band V; Frequency: 826.4 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.979 mho/m; ε_r = 54.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(9.24, 9.24, 9.24); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Flat/Area Scan (71x121x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.217 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 14.4 V/m; Power Drift = 0.129 dB
Peak SAR (extrapolated) = 0.255 W/kg
SAR(1 g) = 0.202 mW/g; SAR(10 g) = 0.155 mW/g
Maximum value of SAR (measured) = 0.222 mW/g



0 dB = 0.222mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/20/2012 10:11:12 PM

Flat_WCDMA Band V CH4132_Back Surface to Phantom_10mm

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

Communication System: WCDMA Band V; Frequency: 826.4 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.979 mho/m; ε_r = 54.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

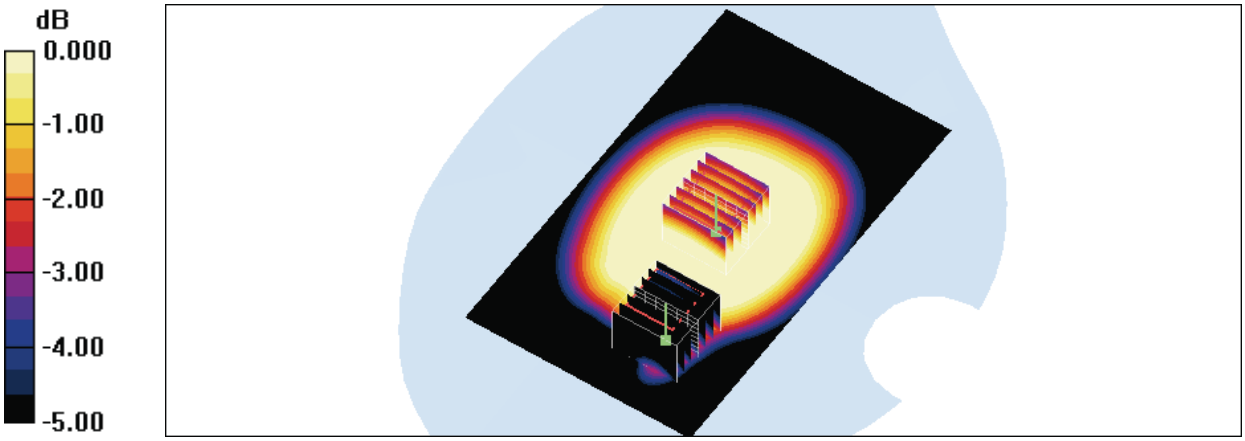
DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(9.24, 9.24, 9.24); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

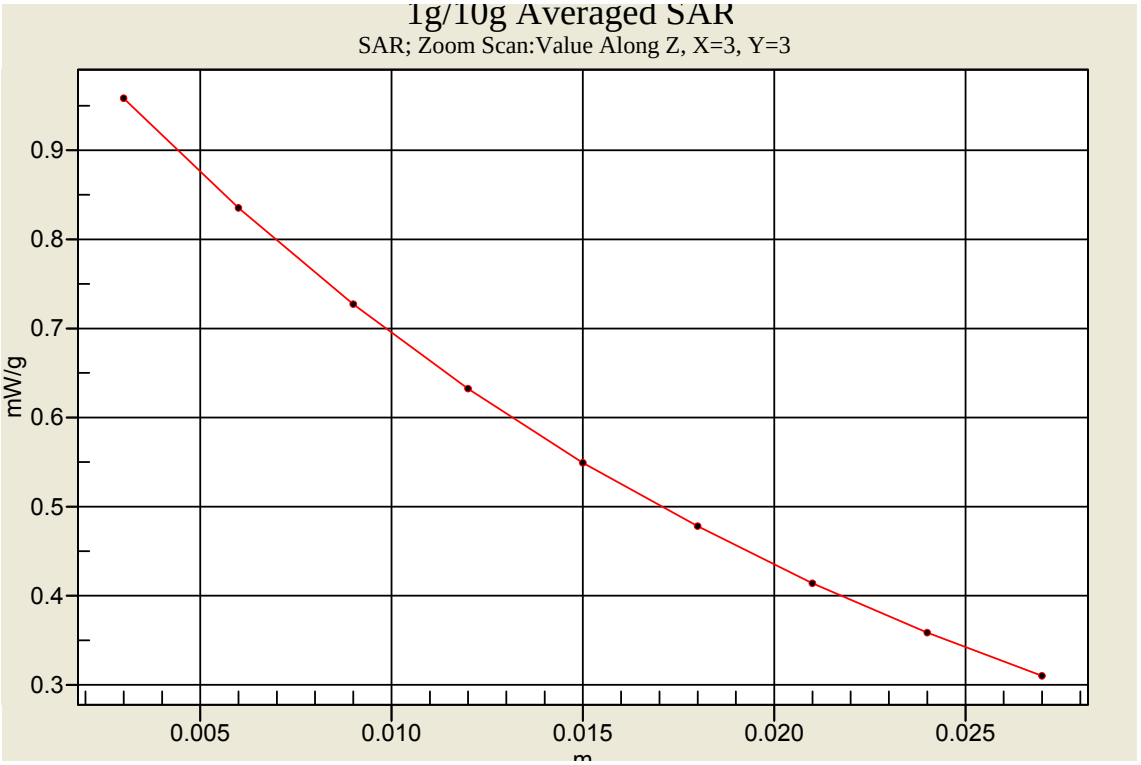
Flat/Area Scan (71x121x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.956 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 31.1 V/m; Power Drift = 0.030 dB
Peak SAR (extrapolated) = 1.09 W/kg
SAR(1 g) = 0.877 mW/g; SAR(10 g) = 0.678 mW/g
Maximum value of SAR (measured) = 0.958 mW/g

Flat/Zoom Scan (7x7x9)/Cube 1:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 31.1 V/m; Power Drift = 0.030 dB
Peak SAR (extrapolated) = 0.749 W/kg
SAR(1 g) = 0.490 mW/g; SAR(10 g) = 0.336 mW/g
Maximum value of SAR (measured) = 0.580 mW/g



0 dB = 0.580mW/g



Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/20/2012 10:49:38 PM

Flat_WCDMA Band V CH4183_Back Surface to Phantom_10mm

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

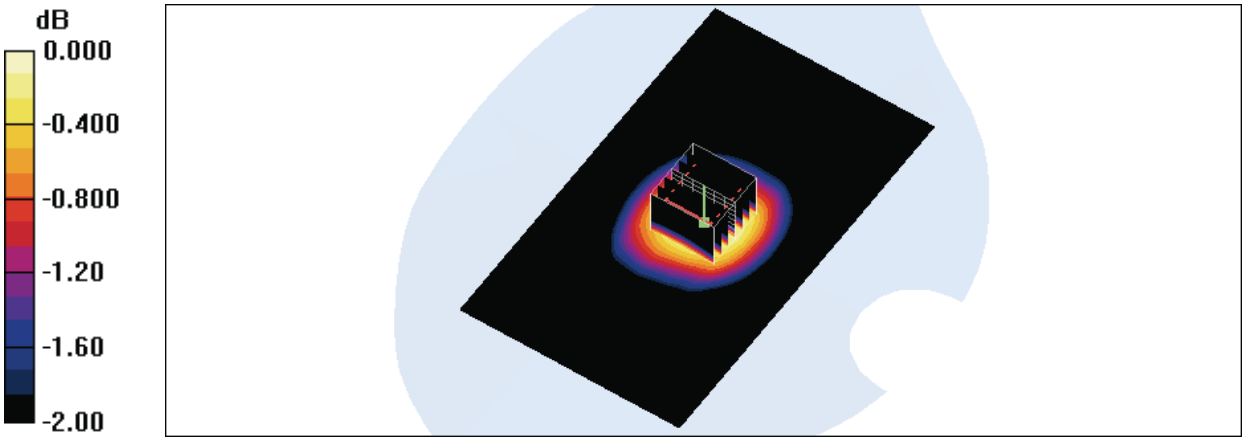
Communication System: WCDMA Band V; Frequency: 836.6 MHz;Duty Cycle: 1:1
Medium parameters used: f = 837 MHz; σ = 0.99 mho/m; ε_r = 54.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(9.24, 9.24, 9.24); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Flat/Area Scan (71x121x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.779 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 28.3 V/m; Power Drift = 0.006 dB
Peak SAR (extrapolated) = 0.885 W/kg
SAR(1 g) = 0.712 mW/g; SAR(10 g) = 0.549 mW/g
Maximum value of SAR (measured) = 0.780 mW/g



0 dB = 0.780mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/20/2012 11:14:22 PM

Flat_WCDMA Band V CH4233_Back Surface to Phantom_10mm

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

Communication System: WCDMA Band V; Frequency: 846.6 MHz;Duty Cycle: 1:1
Medium parameters used: f = 847 MHz; σ = 1 mho/m; ε_r = 54.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

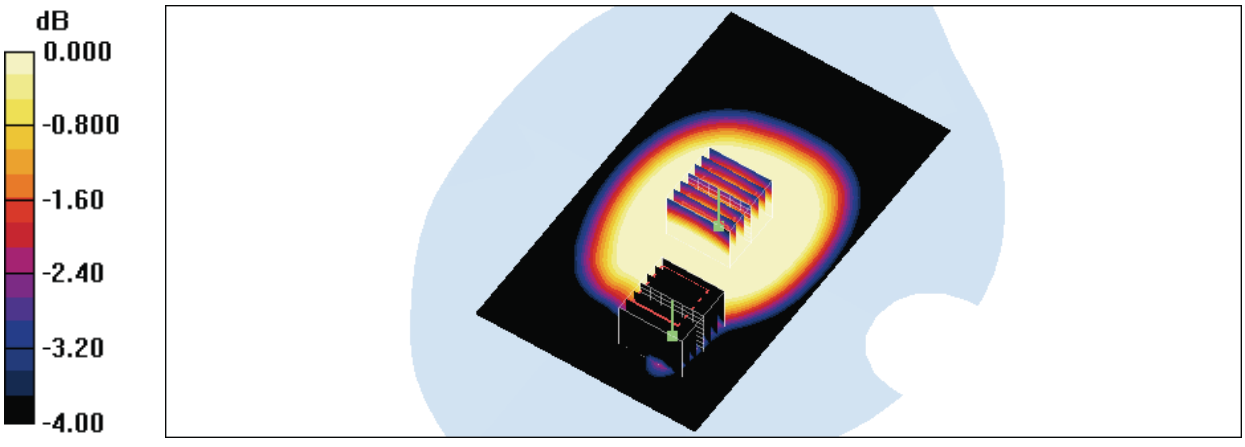
DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(9.24, 9.24, 9.24); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Flat/Area Scan (71x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.921 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 30.5 V/m; Power Drift = -0.010 dB
Peak SAR (extrapolated) = 1.04 W/kg
SAR(1 g) = 0.839 mW/g; SAR(10 g) = 0.646 mW/g
Maximum value of SAR (measured) = 0.918 mW/g

Flat/Zoom Scan (7x7x9)/Cube 1:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 30.5 V/m; Power Drift = -0.010 dB
Peak SAR (extrapolated) = 0.738 W/kg
SAR(1 g) = 0.462 mW/g; SAR(10 g) = 0.303 mW/g
Maximum value of SAR (measured) = 0.557 mW/g



0 dB = 0.557mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/20/2012 7:56:01 PM

Flat_WCDMA Band V CH4132_Edge Bottom to Phantom_10mm

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

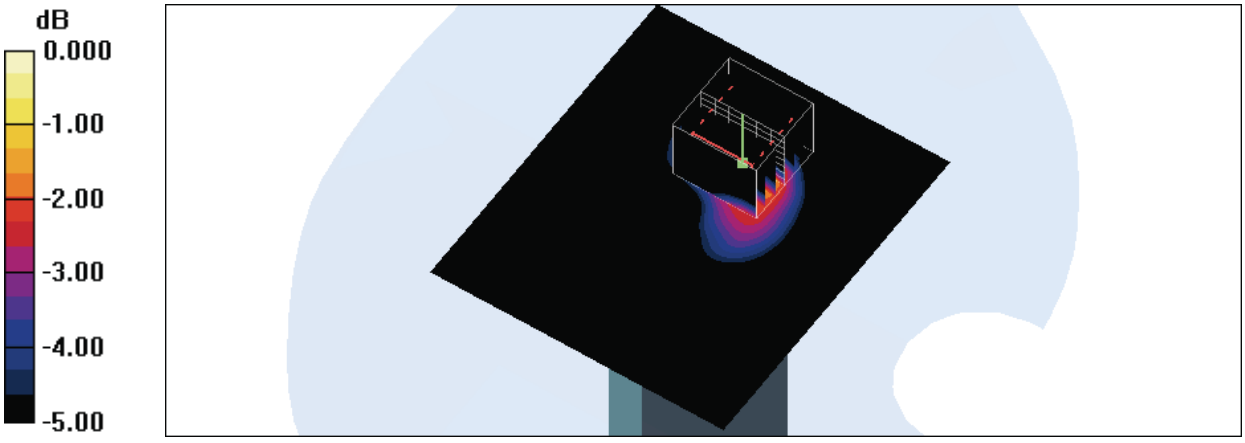
Communication System: WCDMA Band V; Frequency: 826.4 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.979 mho/m; ε_r = 54.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(9.24, 9.24, 9.24); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Flat/Area Scan (71x81x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.297 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 9.15 V/m; Power Drift = 0.121 dB
Peak SAR (extrapolated) = 0.438 W/kg
SAR(1 g) = 0.240 mW/g; SAR(10 g) = 0.132 mW/g
Maximum value of SAR (measured) = 0.301 mW/g



0 dB = 0.301mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/20/2012 8:53:32 PM

Flat_WCDMA Band V CH4132_Edge Right to Phantom_10mm

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

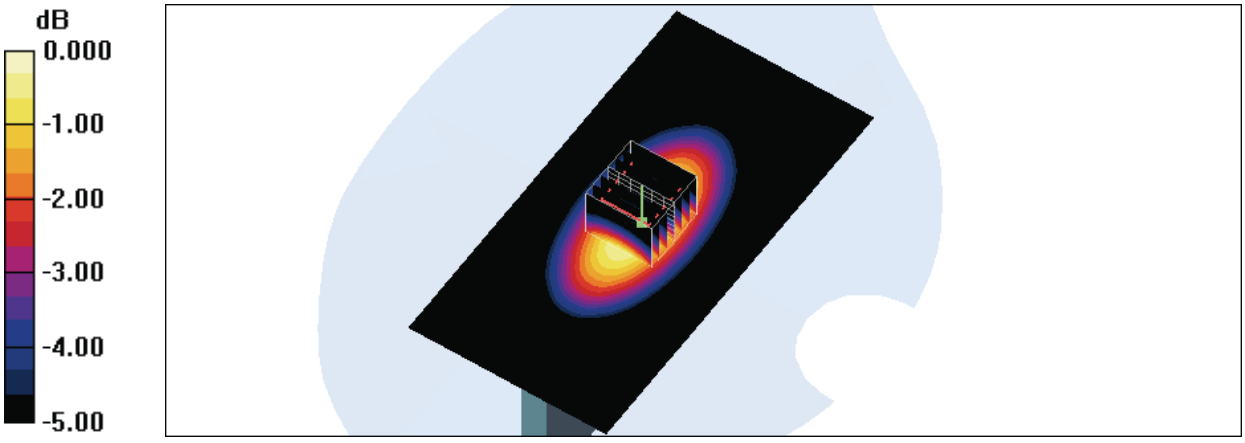
Communication System: WCDMA Band V; Frequency: 826.4 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.979 mho/m; ε_r = 54.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(9.24, 9.24, 9.24); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Flat/Area Scan (61x121x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.679 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 26.5 V/m; Power Drift = 0.003 dB
Peak SAR (extrapolated) = 0.822 W/kg
SAR(1 g) = 0.594 mW/g; SAR(10 g) = 0.412 mW/g
Maximum value of SAR (measured) = 0.678 mW/g



0 dB = 0.678mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/20/2012 8:23:36 PM

Flat_WCDMA Band V CH4132_Edge Left to Phantom_10mm

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

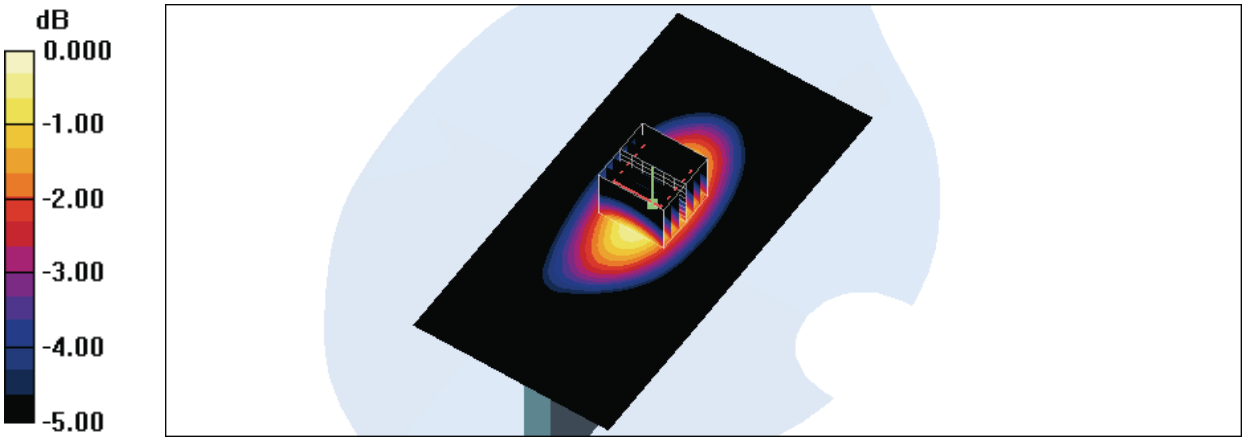
Communication System: WCDMA Band V; Frequency: 826.4 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.979 mho/m; ε_r = 54.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(9.24, 9.24, 9.24); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Flat/Area Scan (61x121x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.708 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 26.4 V/m; Power Drift = 0.031 dB
Peak SAR (extrapolated) = 0.854 W/kg
SAR(1 g) = 0.617 mW/g; SAR(10 g) = 0.428 mW/g
Maximum value of SAR (measured) = 0.706 mW/g



0 dB = 0.706mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/23/2012 9:54:57 PM

Flat_802.11b CH11_1M_Front Surface to Phantom_10mm

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

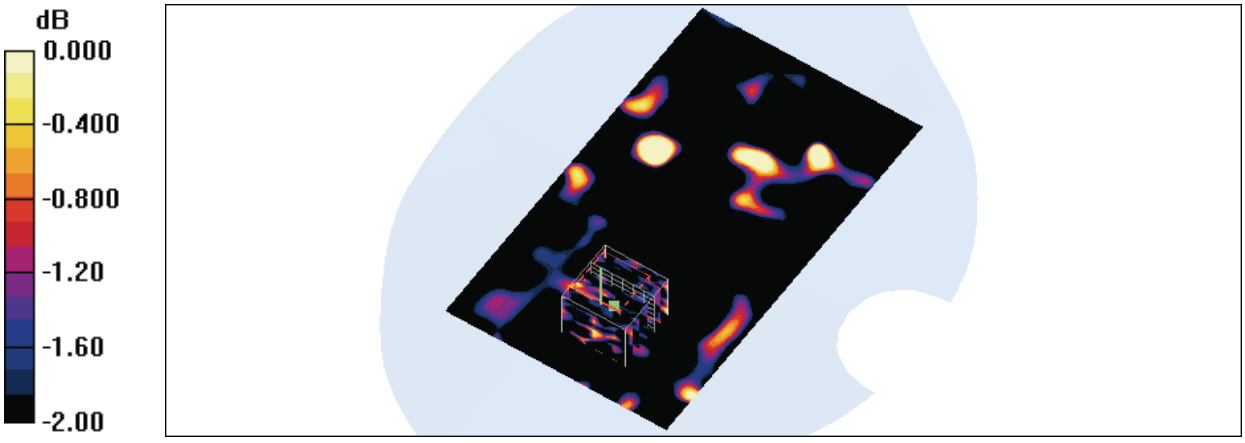
Communication System: IEEE 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 1.97 mho/m; ε_r = 51.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(6.85, 6.85, 6.85); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Flat/Area Scan (71x121x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.010 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 0.976 V/m; Power Drift = 0.069 dB
Peak SAR (extrapolated) = 0.013 W/kg
SAR(1 g) = 0.00375 mW/g; SAR(10 g) = 0.00291 mW/g
Maximum value of SAR (measured) = 0.005 mW/g



0 dB = 0.005mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/23/2012 7:26:46 PM

Flat_802.11b CH11_1M_Back Surface to Phantom_10mm

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

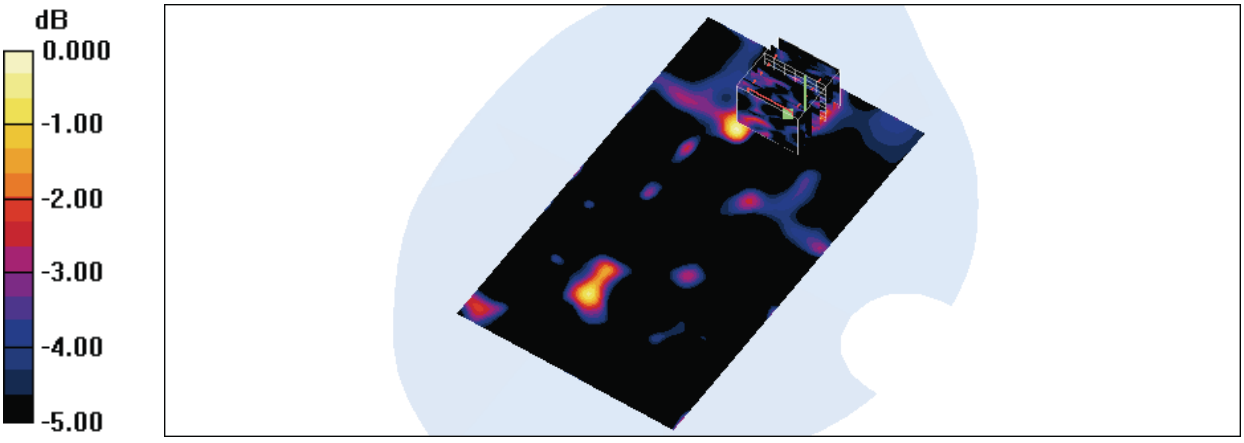
Communication System: IEEE 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 1.97 mho/m; ε_r = 51.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(6.85, 6.85, 6.85); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Flat/Area Scan (71x121x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.007 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 0.978 V/m; Power Drift = -0.076 dB
Peak SAR (extrapolated) = 0.007 W/kg
SAR(1 g) = 0.00473 mW/g; SAR(10 g) = 0.00309 mW/g
Maximum value of SAR (measured) = 0.007 mW/g



0 dB = 0.007mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/24/2012 1:08:40 AM

Flat_802.11b CH11_1M_Edge Top to Phantom_10mm

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

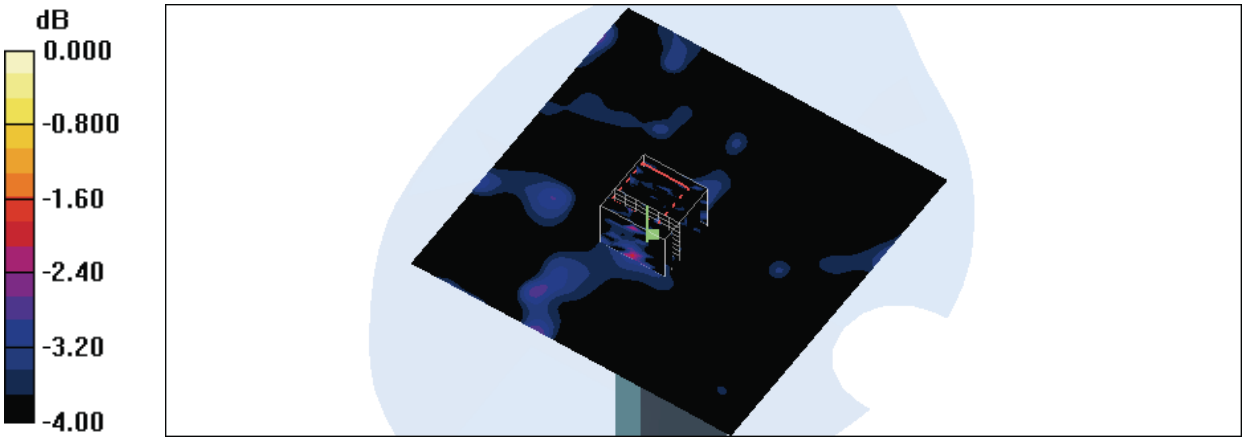
Communication System: IEEE 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 1.97 mho/m; ε_r = 51.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(6.85, 6.85, 6.85); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Flat/Area Scan (101x101x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.008 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 1.47 V/m; Power Drift = 0.008 dB
Peak SAR (extrapolated) = 0.013 W/kg
SAR(1 g) = 0.00697 mW/g; SAR(10 g) = 0.00509 mW/g
Maximum value of SAR (measured) = 0.010 mW/g



0 dB = 0.010mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/24/2012 12:37:17 AM

Flat_802.11b CH11_1M_Edge Right to Phantom_10m

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

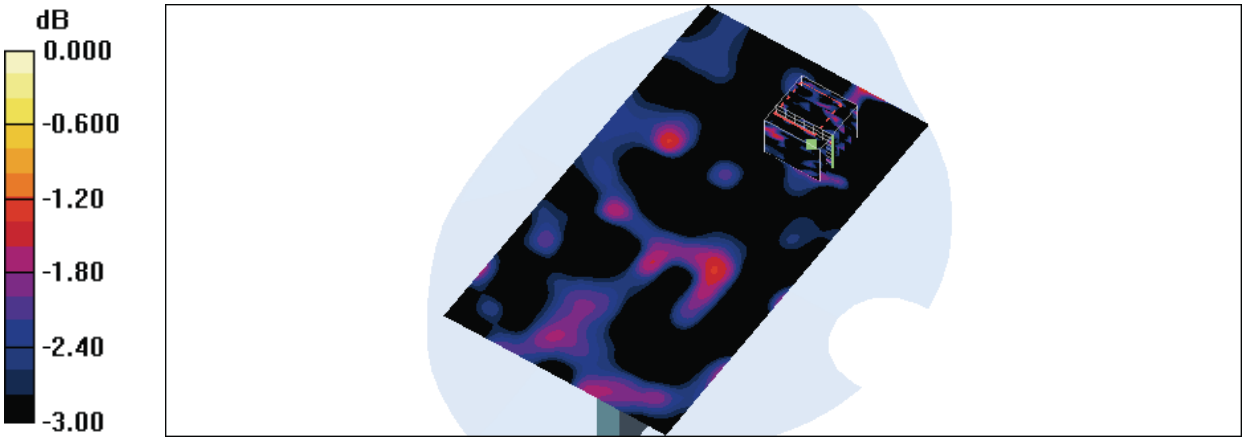
Communication System: IEEE 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 1.97 mho/m; ε_r = 51.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(6.85, 6.85, 6.85); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Flat/Area Scan (81x141x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.006 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 1.23 V/m; Power Drift = 0.062 dB
Peak SAR (extrapolated) = 0.008 W/kg
SAR(1 g) = 0.004 mW/g; SAR(10 g) = 0.00336 mW/g
Maximum value of SAR (measured) = 0.007 mW/g



0 dB = 0.007mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/24/2012 11:56:36 AM

Flat_802.11g CH1_6M_Front Surface to Phantom_10mm

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

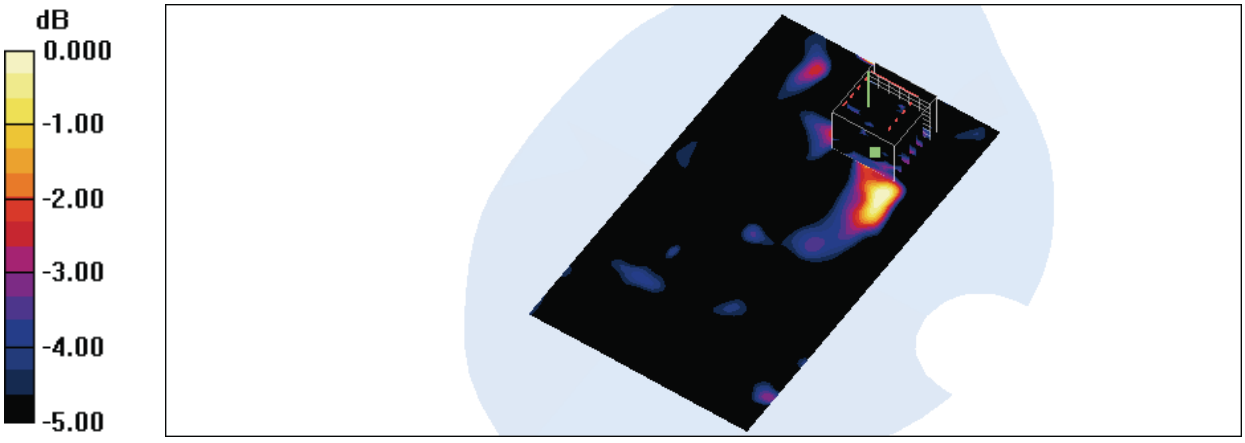
Communication System: IEEE 802.11g; Frequency: 2412 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2412 MHz; σ = 1.9 mho/m; ε_r = 51.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(6.85, 6.85, 6.85); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Flat/Area Scan (71x121x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.013 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 1.11 V/m; Power Drift = 0.064 dB
Peak SAR (extrapolated) = 0.030 W/kg
SAR(1 g) = 0.00662 mW/g; SAR(10 g) = 0.00374 mW/g
Maximum value of SAR (measured) = 0.008 mW/g



0 dB = 0.008mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/24/2012 11:22:36 AM

Flat_802.11g CH1_6M_Back Surface to Phantom_10mm

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

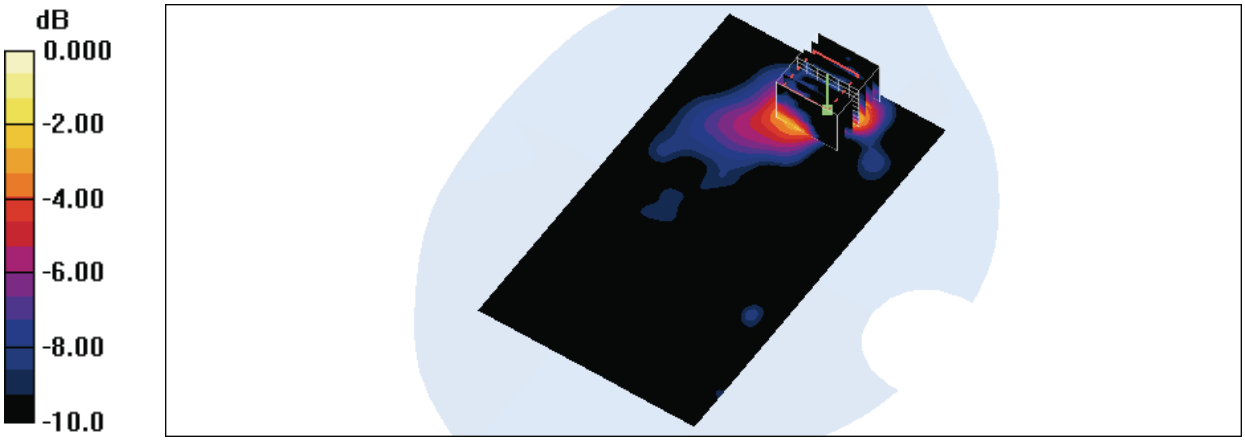
Communication System: IEEE 802.11g; Frequency: 2412 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2412 MHz; σ = 1.9 mho/m; ε_r = 51.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(6.85, 6.85, 6.85); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Flat/Area Scan (71x121x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.028 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 0.829 V/m; Power Drift = -0.157 dB
Peak SAR (extrapolated) = 0.047 W/kg
SAR(1 g) = 0.021 mW/g; SAR(10 g) = 0.00994 mW/g
Maximum value of SAR (measured) = 0.027 mW/g



0 dB = 0.027mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/24/2012 1:38:26 AM

Flat_802.11g CH1_6M_Edge Top to Phantom_10mm

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

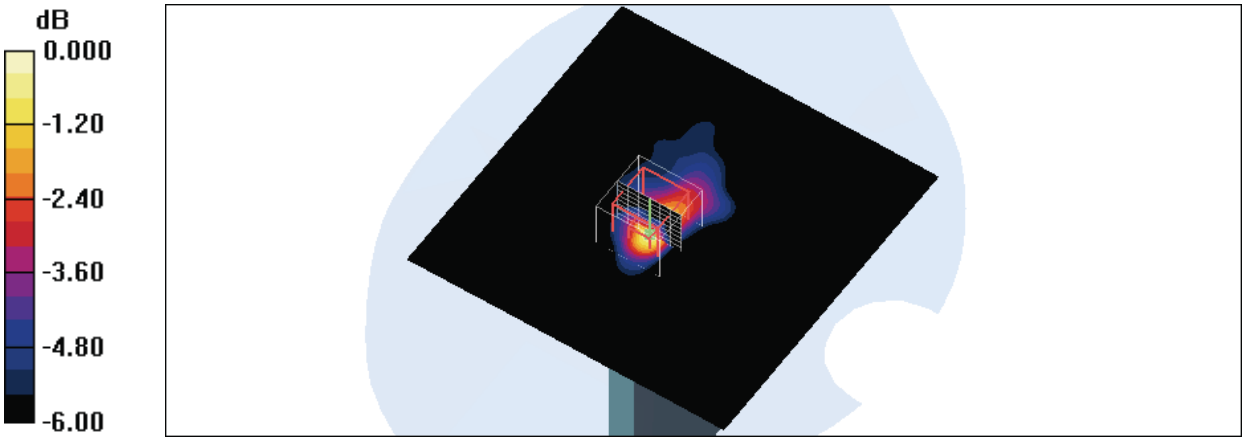
Communication System: IEEE 802.11g; Frequency: 2412 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2412 MHz; σ = 1.9 mho/m; ε_r = 51.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(6.85, 6.85, 6.85); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Flat/Area Scan (101x101x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.022 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 2.47 V/m; Power Drift = 0.152 dB
Peak SAR (extrapolated) = 0.038 W/kg
SAR(1 g) = 0.018 mW/g; SAR(10 g) = 0.010 mW/g
Maximum value of SAR (measured) = 0.024 mW/g



0 dB = 0.024mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/24/2012 9:21:08 AM

Flat_802.11g CH1_6M_Edge Right to Phantom_10mm

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

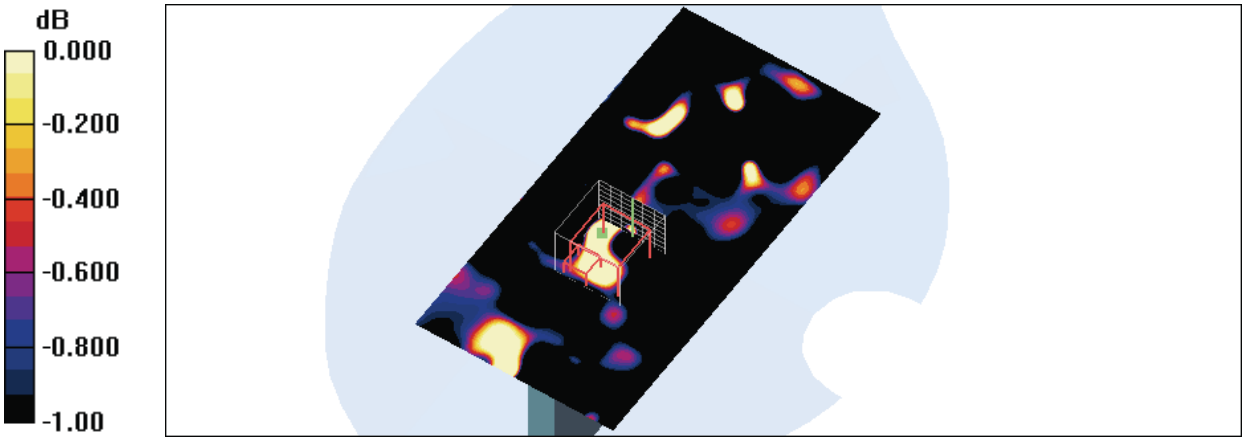
Communication System: IEEE 802.11g; Frequency: 2412 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2412 MHz; σ = 1.9 mho/m; ε_r = 51.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(6.85, 6.85, 6.85); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Flat/Area Scan (61x121x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.005 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 1.13 V/m; Power Drift = 0.089 dB
Peak SAR (extrapolated) = 0.010 W/kg
SAR(1 g) = 0.00301 mW/g; SAR(10 g) = 0.00239 mW/g
Maximum value of SAR (measured) = 0.004 mW/g



0 dB = 0.004mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/24/2012 2:46:18 PM

Flat_802.11n CH11_HT20_6.5M_Front Surface to Phantom_10mm

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

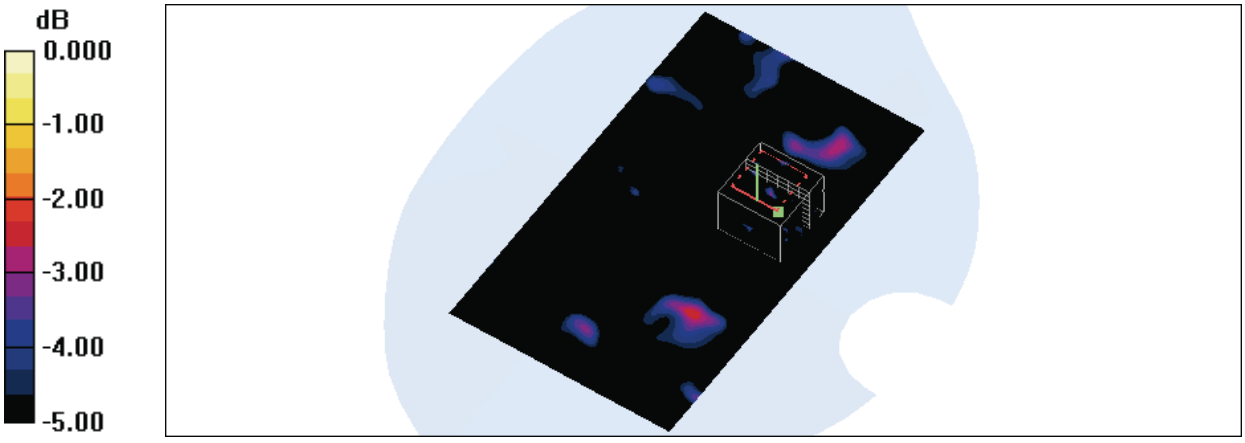
Communication System: IEEE 802.11n(2.4GHz); Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 1.97 mho/m; ε_r = 51.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(6.85, 6.85, 6.85); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Flat/Area Scan (71x121x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.005 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 0.887 V/m; Power Drift = -0.002 dB
Peak SAR (extrapolated) = 0.016 W/kg
SAR(1 g) = 0.00329 mW/g; SAR(10 g) = 0.00154 mW/g
Maximum value of SAR (measured) = 0.008 mW/g



0 dB = 0.008mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/24/2012 2:10:20 PM

Flat_802.11n CH11_HT20_6.5M_Back Surface to Phantom_10mm

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

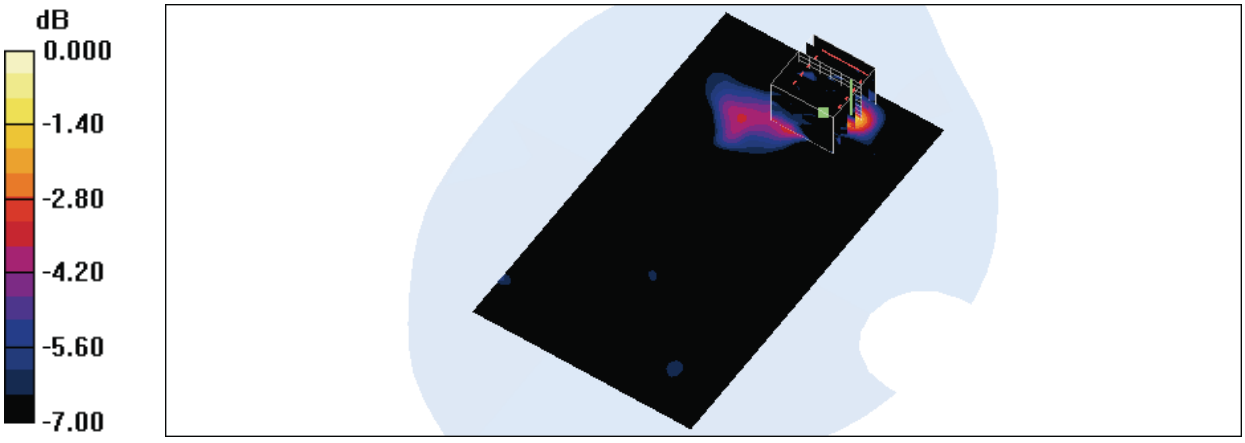
Communication System: IEEE 802.11n(2.4GHz); Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 1.97 mho/m; ε_r = 51.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(6.85, 6.85, 6.85); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Flat/Area Scan (71x121x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.011 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 0.853 V/m; Power Drift = 0.058 dB
Peak SAR (extrapolated) = 0.040 W/kg
SAR(1 g) = 0.00988 mW/g; SAR(10 g) = 0.00449 mW/g
Maximum value of SAR (measured) = 0.012 mW/g



0 dB = 0.012mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/24/2012 4:11:17 PM

Flat_802.11n CH11_HT20_6.5M_Edge Top to Phantom_10mm

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

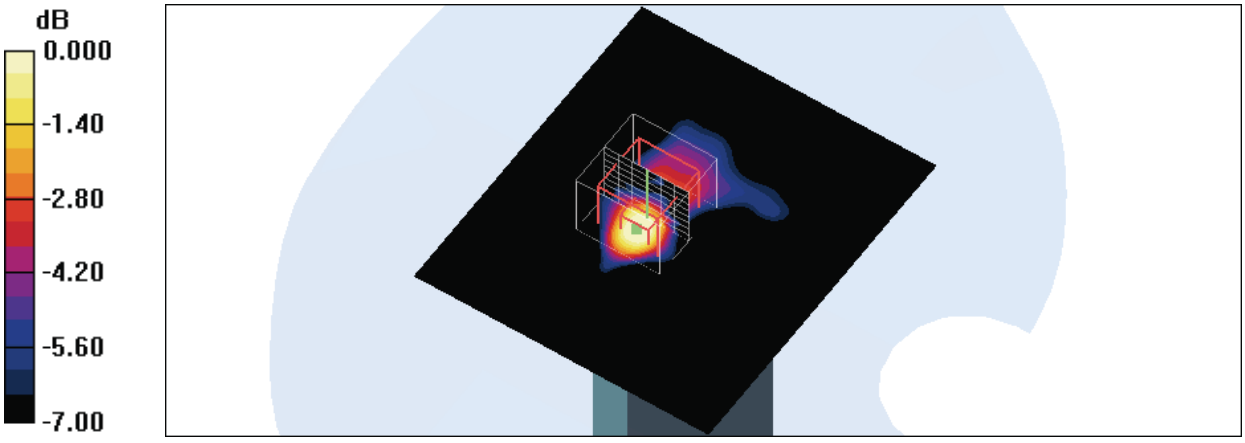
Communication System: IEEE 802.11n(2.4GHz); Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 1.97 mho/m; ε_r = 51.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(6.85, 6.85, 6.85); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Flat/Area Scan (71x81x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.017 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 1.95 V/m; Power Drift = -0.111 dB
Peak SAR (extrapolated) = 0.022 W/kg
SAR(1 g) = 0.012 mW/g; SAR(10 g) = 0.00546 mW/g
Maximum value of SAR (measured) = 0.015 mW/g



0 dB = 0.015mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/24/2012 3:37:07 PM

Flat_802.11n CH11_HT20_6.5M_Edge Right to Phantom_10mm

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

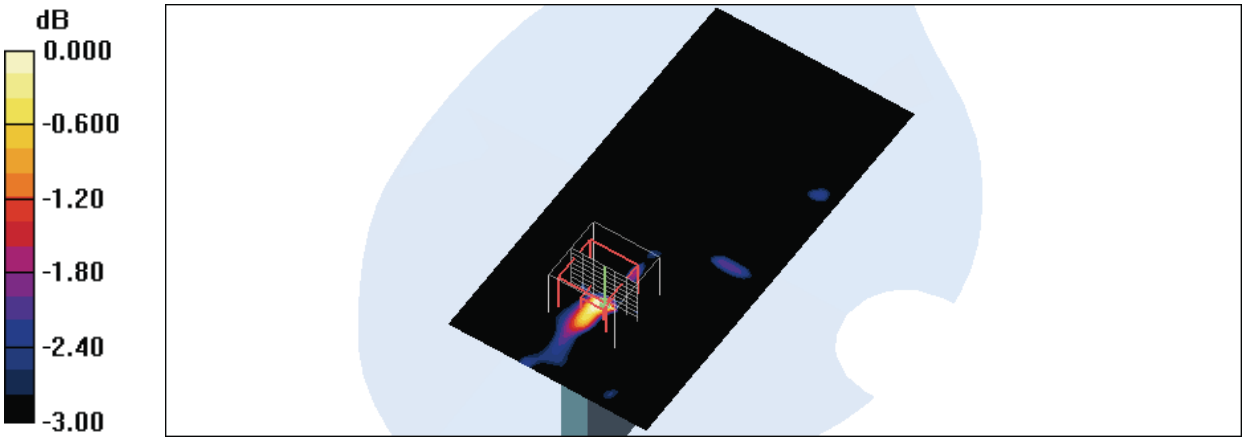
Communication System: IEEE 802.11n(2.4GHz); Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 1.97 mho/m; ε_r = 51.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(6.85, 6.85, 6.85); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Flat/Area Scan (61x121x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.007 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 1.21 V/m; Power Drift = -0.113 dB
Peak SAR (extrapolated) = 0.012 W/kg
SAR(1 g) = 0.00468 mW/g; SAR(10 g) = 0.00288 mW/g
Maximum value of SAR (measured) = 0.006 mW/g



0 dB = 0.006mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/24/2012 8:48:41 PM

Flat_802.11n CH3_HT40_13.5M_Front Surface to Phantom_10mm

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

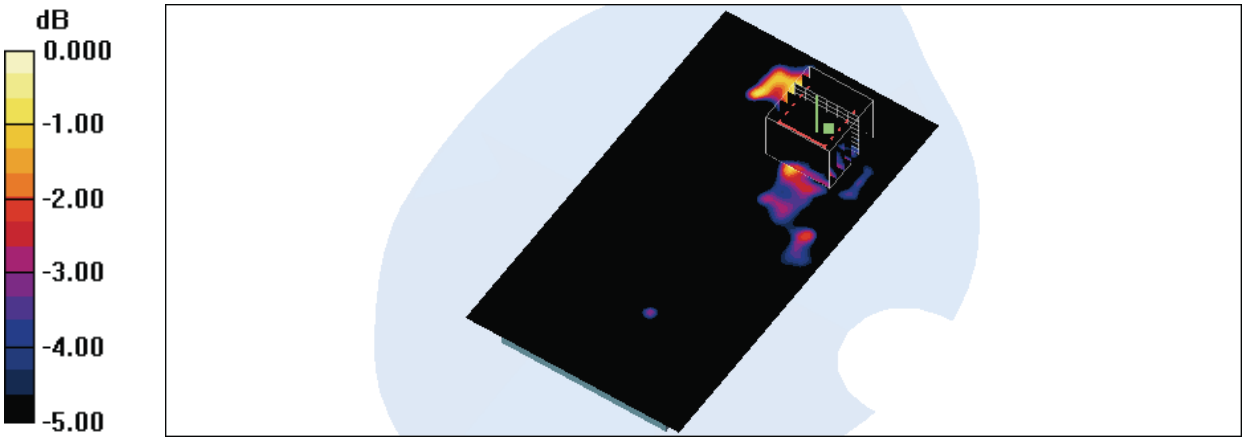
Communication System: IEEE 802.11n(2.4GHz); Frequency: 2422 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2422 MHz; σ = 1.92 mho/m; ε_r = 51.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(6.85, 6.85, 6.85); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Flat/Area Scan (101x181x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.014 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 0.832 V/m; Power Drift = 0.168 dB
Peak SAR (extrapolated) = 0.026 W/kg
SAR(1 g) = 0.00731 mW/g; SAR(10 g) = 0.0039 mW/g
Maximum value of SAR (measured) = 0.009 mW/g



0 dB = 0.009mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/24/2012 8:18:30 PM

Flat_802.11n CH3_HT40_13.5M_Back Surface to Phantom_10mm

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

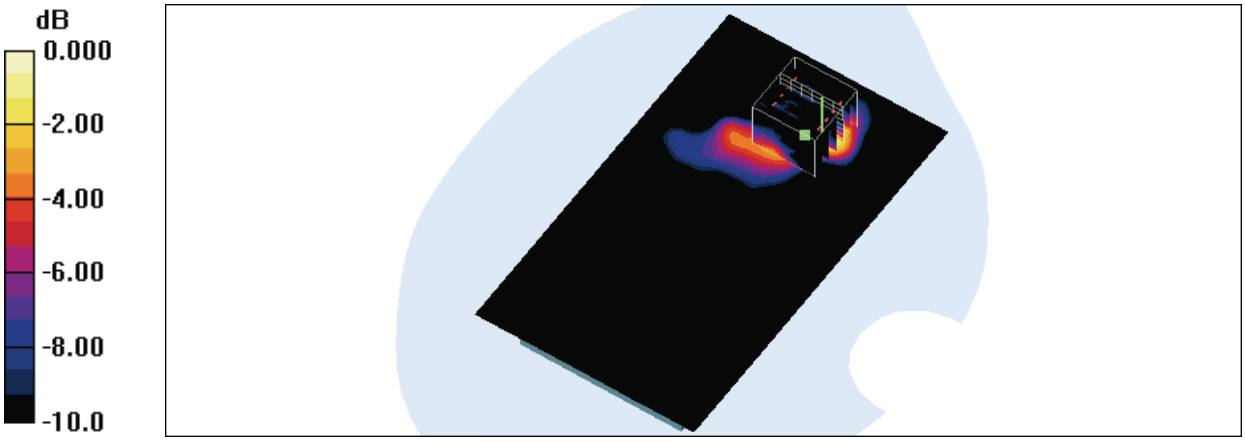
Communication System: IEEE 802.11n(2.4GHz); Frequency: 2422 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2422 MHz; σ = 1.92 mho/m; ε_r = 51.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(6.85, 6.85, 6.85); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Flat/Area Scan (71x121x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.034 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 0.952 V/m; Power Drift = -0.127 dB
Peak SAR (extrapolated) = 0.052 W/kg
SAR(1 g) = 0.024 mW/g; SAR(10 g) = 0.011 mW/g
Maximum value of SAR (measured) = 0.033 mW/g



0 dB = 0.033mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/24/2012 7:04:06 PM

Flat_802.11n CH3_HT40_13.5M_Edge Top to Phantom_10mm

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

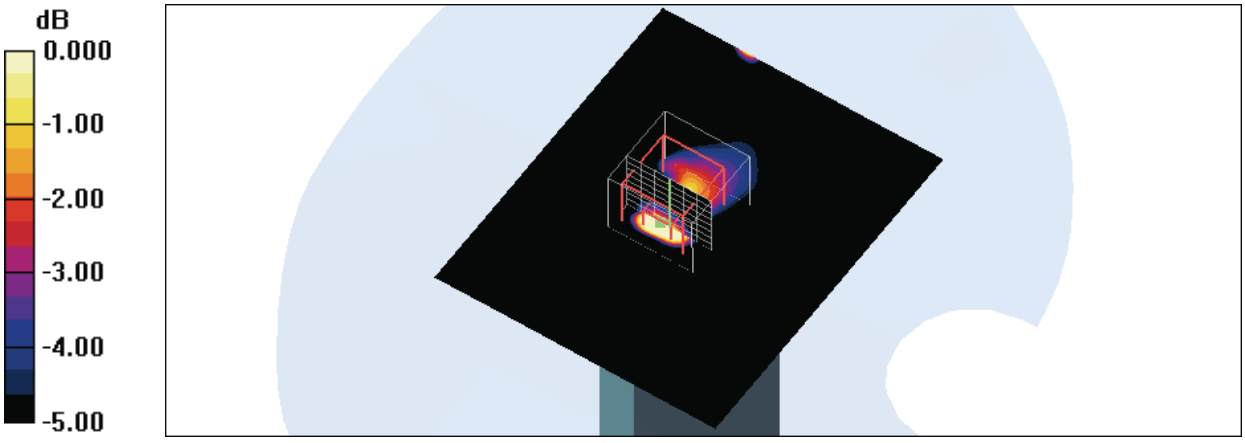
Communication System: IEEE 802.11n(2.4GHz); Frequency: 2422 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2422 MHz; σ = 1.92 mho/m; ε_r = 51.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(6.85, 6.85, 6.85); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Flat/Area Scan (101x121x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.057 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 3.10 V/m; Power Drift = -0.101 dB
Peak SAR (extrapolated) = 0.037 W/kg
SAR(1 g) = 0.016 mW/g; SAR(10 g) = 0.00804 mW/g
Maximum value of SAR (measured) = 0.021 mW/g



0 dB = 0.021mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/24/2012 5:40:04 PM

Flat_802.11n CH11_HT40_13.5M_Edge Right to Phantom_10mm

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

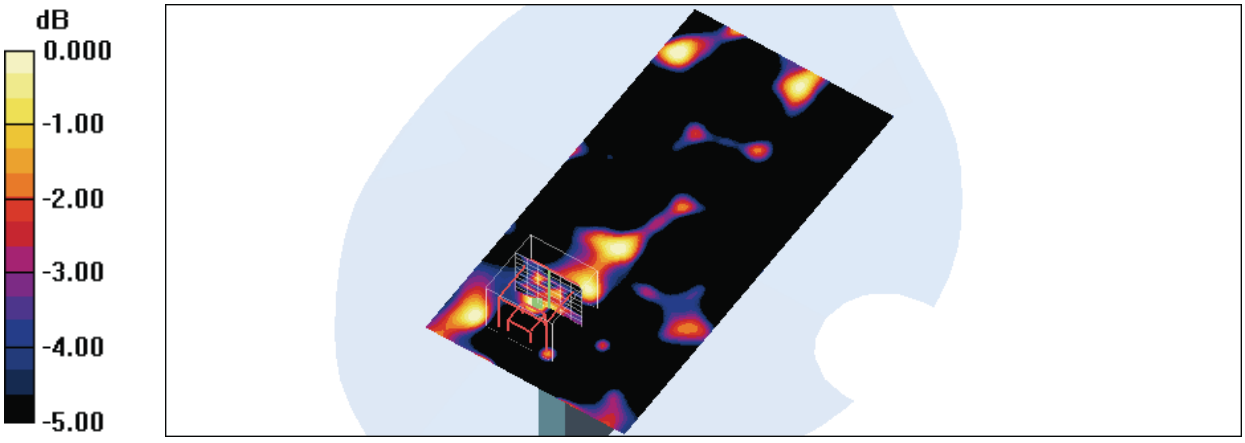
Communication System: IEEE 802.11n(2.4GHz); Frequency: 2422 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2422 MHz; σ = 1.92 mho/m; ε_r = 51.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(6.85, 6.85, 6.85); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Flat/Area Scan (61x121x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.005 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 1.25 V/m; Power Drift = -0.164 dB
Peak SAR (extrapolated) = 0.009 W/kg
SAR(1 g) = 0.00275 mW/g; SAR(10 g) = 0.00184 mW/g
Maximum value of SAR (measured) = 0.004 mW/g



0 dB = 0.004mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/25/2012 1:06:31 AM

Flat_BT CH78_BT 3.0_Front Surface to Phantom_10mm

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

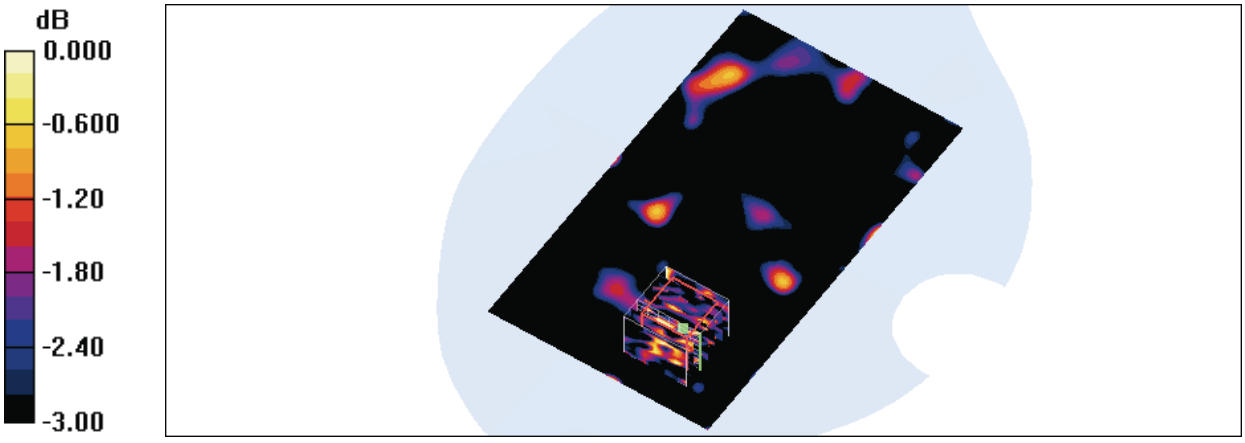
Communication System: Bluetooth; Frequency: 2480 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2480 MHz; σ = 2 mho/m; ε_r = 51.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(6.85, 6.85, 6.85); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Flat/Area Scan (71x121x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.003 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 0.868 V/m; Power Drift = -0.063 dB
Peak SAR (extrapolated) = 0.011 W/kg
SAR(1 g) = 0.00204 mW/g; SAR(10 g) = 0.00146 mW/g
Maximum value of SAR (measured) = 0.003 mW/g



0 dB = 0.003mW/g

Test Laboratory: A Test Lab Techno Corp.

Date/Time: 9/25/2012 2:20:32 AM

Flat_BT CH78_BT 3.0_Back Surface to Phantom_10mm

DUT: QBA757; Type: Dual Sim Smart phone; FCC ID: XFM-QBA757

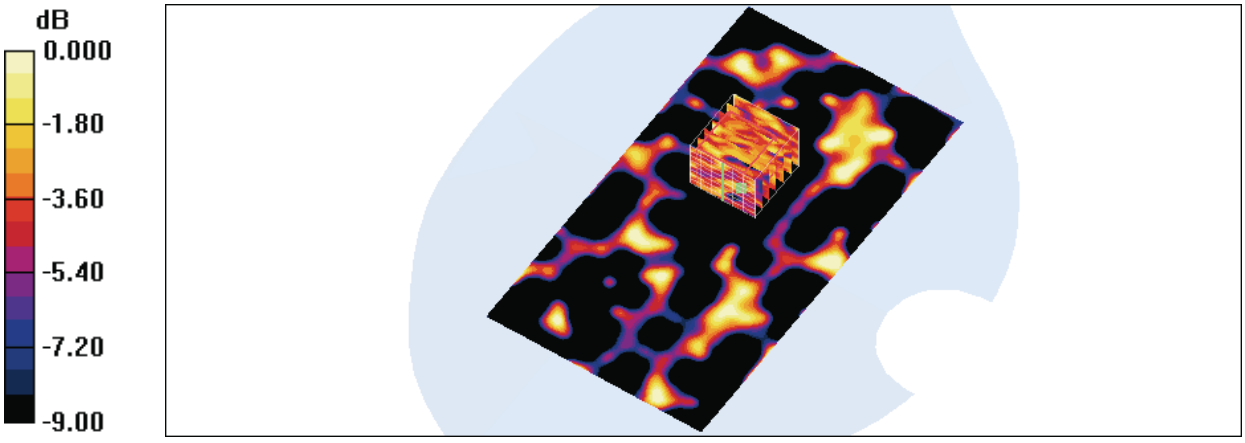
Communication System: Bluetooth; Frequency: 2480 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2480 MHz; σ = 2 mho/m; ε_r = 51.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY4 (High Precision Assessment)

DASY4 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV4 - SN3847; ConvF(6.85, 6.85, 6.85); Calibrated: 3/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn541; Calibrated: 7/23/2012
- Phantom: SAM 12; Type: SAM v4.0; Serial: TP:1009
- Measurement SW: DASY4, V4.7 Build 80;Postprocessing SW: SEMCAD, V1.8 Build 186

Flat/Area Scan (101x181x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.006 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 0.914 V/m; Power Drift = 0.000 dB
Peak SAR (extrapolated) = 0.004 W/kg
SAR(1 g) = 0.00211 mW/g; SAR(10 g) = 0.00156 mW/g
Maximum value of SAR (measured) = 0.004 mW/g



0 dB = 0.004mW/g

Appendix C - Calibration

All of the instruments Calibration information are listed below.

- Dipole _ D835V2 SN:4d082 Calibration No.D835V2-4d082_Jul12
- Dipole _ D1900V2 SN:5d111 Calibration No.D1900V2-5d111_Jul12
- Dipole _ D2450V2 SN:712 Calibration No.D2450V2-712_Feb12
- Probe _ EX3DV4 SN:3847 Calibration No.EX3-3847_Mar12
- DAE _ DAE4 SN:541 Calibration No.DAE4-541_Jul12

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Accreditation No.: SCS 108

Client **ATL (Auden)**

Certificate No: D835V2-4d082_Jul12

CALIBRATION CERTIFICATE

Object	D835V2 - SN: 4d082
Calibration procedure(s)	QA CAL-05.v8 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	July 25, 2012

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	05-Oct-11 (No. 217-01451)	Oct-12
Power sensor HP 8481A	US37292783	05-Oct-11 (No. 217-01451)	Oct-12
Reference 20 dB Attenuator	SN: 5058 (20k)	27-Mar-12 (No. 217-01530)	Apr-13
Type-N mismatch combination	SN: 5047.2 / 06327	27-Mar-12 (No. 217-01533)	Apr-13
Reference Probe ES3DV3	SN: 3205	30-Dec-11 (No. ES3-3205_Dec11)	Dec-12
DAE4	SN: 601	27-Jun-12 (No. DAE4-601_Jun12)	Jun-13

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

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

Issued: July 25, 2012

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Accreditation No.: SCS 108

Glossary:

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

Calibration is Performed According to the Following Standards:

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

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

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

Measurement Conditions

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

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

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	41.5	0.90 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	40.5 ± 6 %	0.89 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.33 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**9.35 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.52 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**6.10 mW /g ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Body TSL parameters	22.0 °C	55.2	0.97 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	53.3 ± 6 %	0.99 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.44 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**9.54 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.60 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**6.29 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	51.9 Ω - 3.4 jΩ
Return Loss	- 28.3 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	48.0 Ω - 5.4 jΩ
Return Loss	- 24.6 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.389 ns

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

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

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	October 17, 2008

DASY5 Validation Report for Head TSL

Date: 25.07.2012

Test Laboratory: SPEAG, Zurich, Switzerland

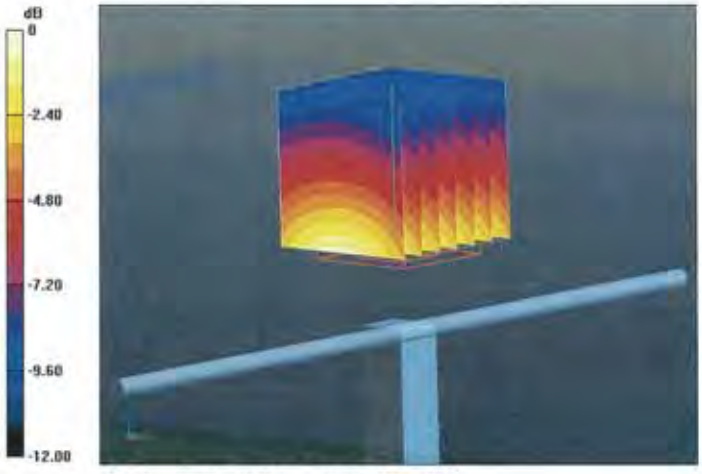
DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d082

Communication System: CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 0.89 mho/m; ε_r = 40.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

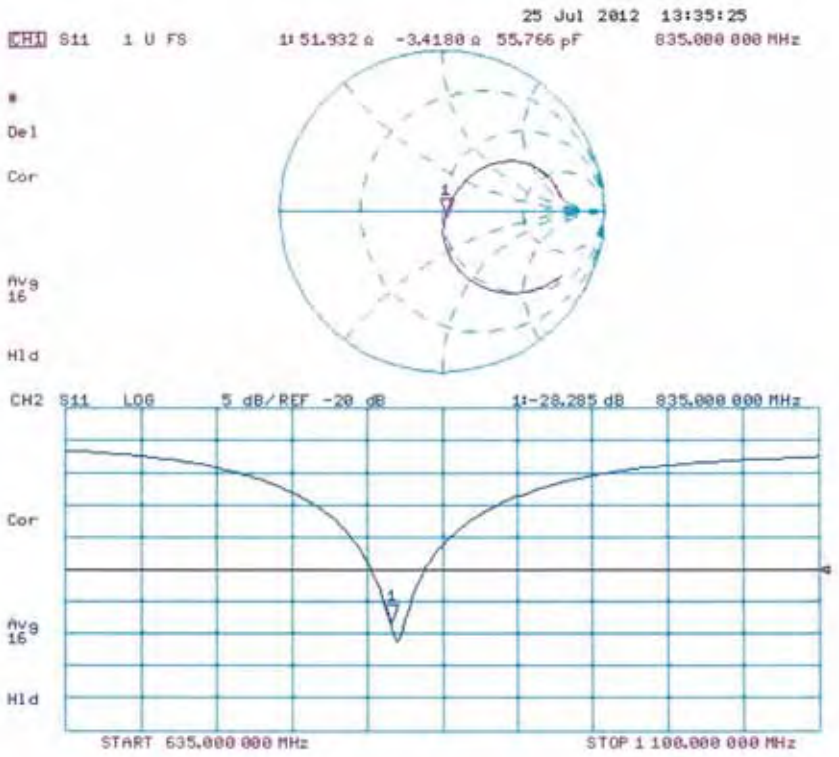
- Probe: ES3DV3 - SN3205; ConvF(6.07, 6.07, 6.07); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 27.06.2012
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

Dipole Calibration for Head Tissue/Pin=250 mW, d=15mm 2/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 57.079 V/m; Power Drift = 0.02 dB
Peak SAR (extrapolated) = 3.436 mW/g
SAR(1 g) = 2.33 mW/g; SAR(10 g) = 1.52 mW/g
Maximum value of SAR (measured) = 2.71 mW/g



0 dB = 2.71 mW/g = 8.66 dB mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 25.07.2012

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN: 4d082

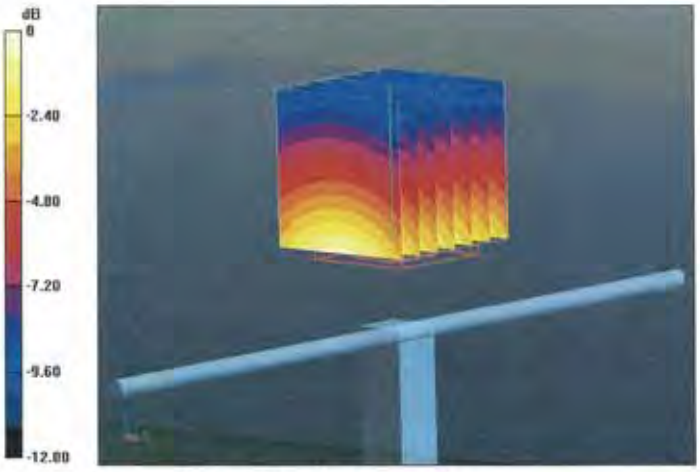
Communication System: CW; Frequency: 835 MHz
Medium parameters used: f = 835 MHz; σ = 0.99 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(6.02, 6.02, 6.02); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 27.06.2012
- Phantom: Flat Phantom 4.9L; Type: QD000P49AA; Serial: 1001
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

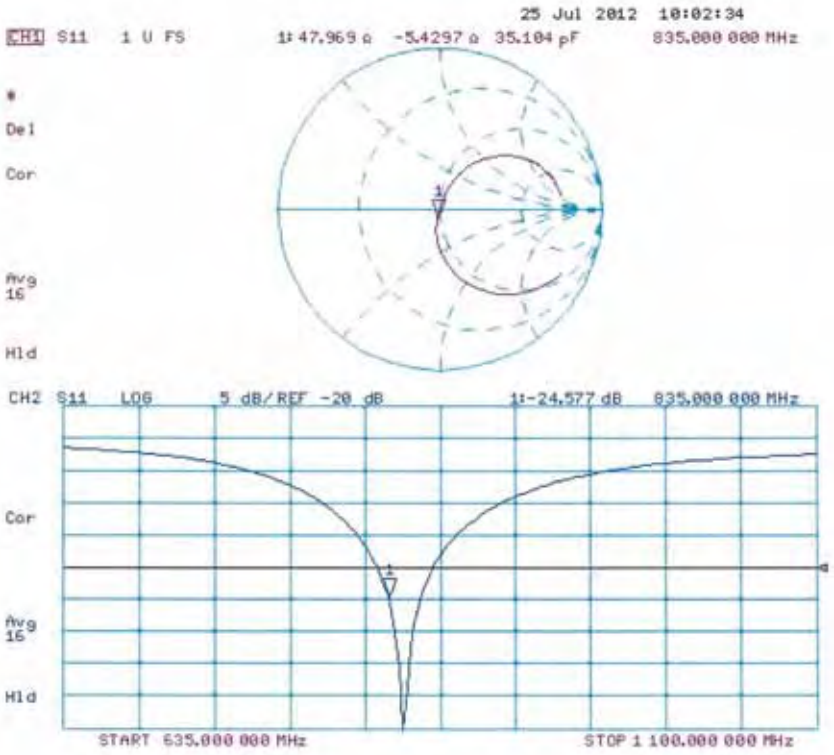
Dipole Calibration for Body Tissue/Pin=250 mW, d=15mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 55.616 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 3.563 mW/g
SAR(1 g) = 2.44 mW/g; SAR(10 g) = 1.6 mW/g
Maximum value of SAR (measured) = 2.85 mW/g



0 dB = 2.85 mW/g = 9.10 dB mW/g

Impedance Measurement Plot for Body TSL



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Accreditation No.: **SCS 108**

Client **ATL (Auden)**

Certificate No: **D1900V2-5d111_Jul12**

CALIBRATION CERTIFICATE

Object	D1900V2 - SN: 5d111
Calibration procedure(s)	QA CAL-05.v8 Calibration procedure for dipole validation kits above 700 MHz
Calibration date:	July 20, 2012

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	05-Oct-11 (No. 217-01451)	Oct-12
Power sensor HP 8481A	US37292783	05-Oct-11 (No. 217-01451)	Oct-12
Reference 20 dB Attenuator	SN: 5058 (20k)	27-Mar-12 (No. 217-01530)	Apr-13
Type-N mismatch combination	SN: 5047.2 / 06327	27-Mar-12 (No. 217-01533)	Apr-13
Reference Probe ES3DV3	SN: 3205	30-Dec-11 (No. ES3-3205_Dec11)	Dec-12
DAE4	SN: 601	27-Jun-12 (No. DAE4-601_Jun12)	Jun-13

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

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

Issued: July 20, 2012

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Accreditation No.: SCS 108

Glossary:

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

Calibration is Performed According to the Following Standards:

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

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

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

Measurement Conditions

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

DASY Version	DASY5	V52.8.1
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1900 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	39.9 ± 6 %	1.38 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	9.82 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**39.6 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.18 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**20.8 mW /g ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Body TSL parameters	22.0 °C	53.3	1.52 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	52.6 ± 6 %	1.52 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	10.1 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**40.3 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.33 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**21.3 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	49.9 Ω + 5.6 jΩ
Return Loss	- 25.0 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	46.2 Ω + 6.1 jΩ
Return Loss	- 22.5 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.201 ns

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

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

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	March 28, 2008

DASY5 Validation Report for Head TSL

Date: 20.07.2012

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d111

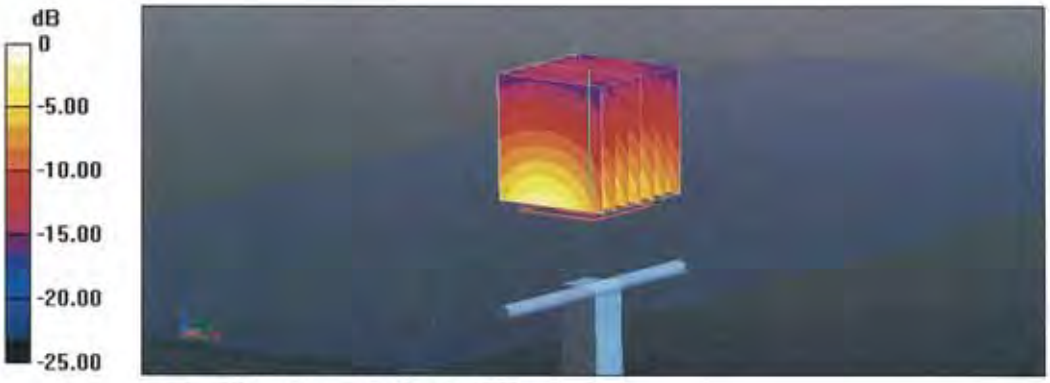
Communication System: CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.38 mho/m; ε_r = 39.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(5.01, 5.01, 5.01); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 27.06.2012
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

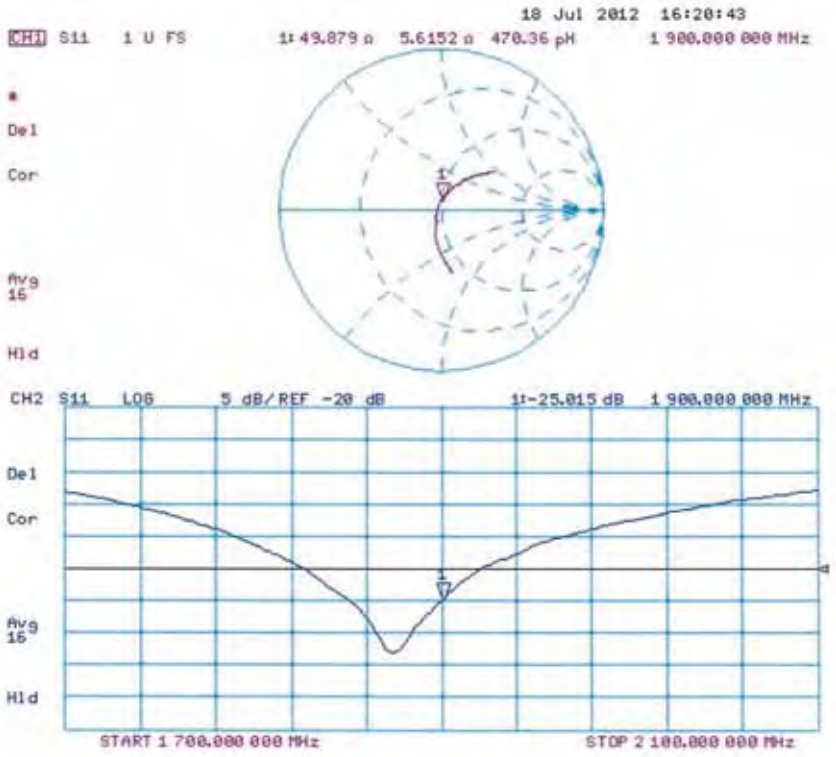
Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 96.871 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 17.499 mW/g
SAR(1 g) = 9.82 mW/g; SAR(10 g) = 5.18 mW/g
Maximum value of SAR (measured) = 12.1 mW/g



0 dB = 12.1 mW/g = 21.66 dB mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 20.07.2012

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN: 5d111

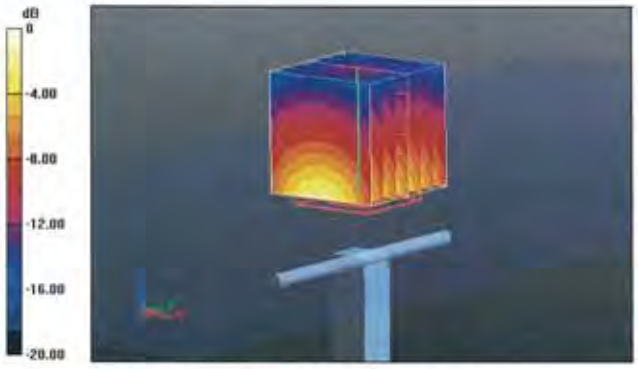
Communication System: CW; Frequency: 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.52 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.62, 4.62, 4.62); Calibrated: 30.12.2011;
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 27.06.2012
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.1(838); SEMCAD X 14.6.5(6469)

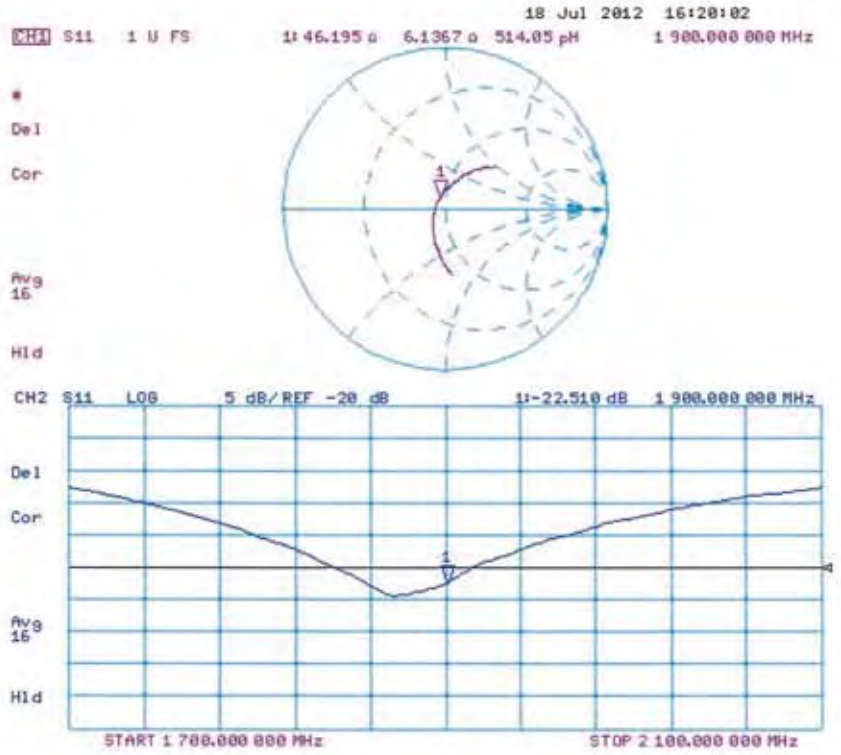
Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 95.399 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 17.454 mW/g
SAR(1 g) = 10.1 mW/g; SAR(10 g) = 5.33 mW/g
Maximum value of SAR (measured) = 12.7 mW/g



0 dB = 12.7 mW/g = 22.08 dB mW/g

Impedance Measurement Plot for Body TSL



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Accreditation No.: SCS 108

Client ATL (Auden)

Certificate No: D2450V2-712_Feb12

CALIBRATION CERTIFICATE

Object D2450V2 - SN: 712

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

Calibration date: February 23, 2012

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	05-Oct-11 (No. 217-01451)	Oct-12
Power sensor HP 8481A	US37292783	05-Oct-11 (No. 217-01451)	Oct-12
Reference 20 dB Attenuator	SN: 5086 (20g)	29-Mar-11 (No. 217-01368)	Apr-12
Type-N mismatch combination	SN: 5047.2 / 06327	29-Mar-11 (No. 217-01371)	Apr-12
Reference Probe ES3DV3	SN: 3205	30-Dec-11 (No. ES3-3205_Dec11)	Dec-12
DAE4	SN: 601	04-Jul-11 (No. DAE4-601_Jul11)	Jul-12

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

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

Issued: February 23, 2012

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

Glossary:

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

Calibration is Performed According to the Following Standards:

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

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

Measurement Conditions

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

DASY Version	DASY5	V52.8.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	38.9 ± 6 %	1.86 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.6 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**53.5 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.26 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**24.8 mW /g ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	52.7	1.95 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	52.3 ± 6 %	2.02 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	12.7 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**49.9 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.95 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**23.6 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	55.0 Ω + 2.5 jΩ
Return Loss	- 25.5 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	51.7 Ω + 4.9 jΩ
Return Loss	- 25.8 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.144 ns

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

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

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	July 05, 2002

DASY5 Validation Report for Head TSL

Date: 23.02.2012

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 712

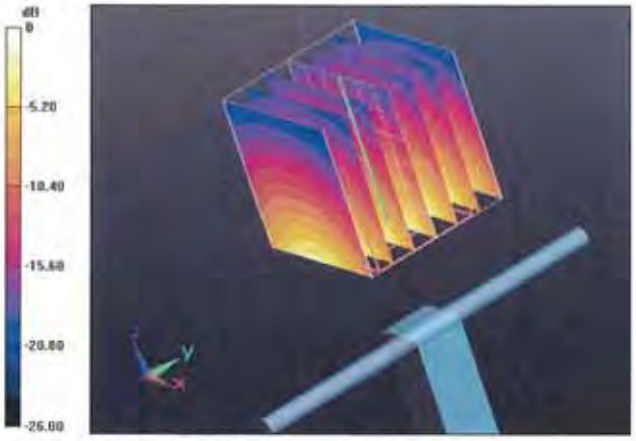
Communication System: CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.86 mho/m; ε_r = 38.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.45, 4.45, 4.45); Calibrated: 30.12.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

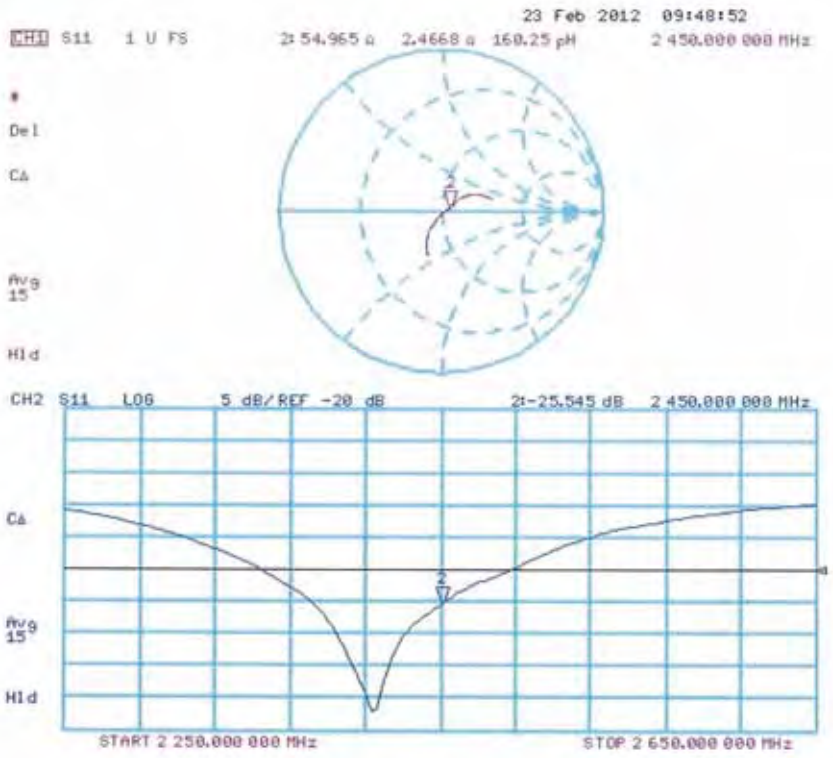
Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 100.1 V/m; Power Drift = 0.06 dB
Peak SAR (extrapolated) = 28.3820
SAR(1 g) = 13.6 mW/g; SAR(10 g) = 6.26 mW/g
Maximum value of SAR (measured) = 17.534 mW/g



0 dB = 17.530mW/g = 24.88 dB mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 23.02.2012

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN: 712

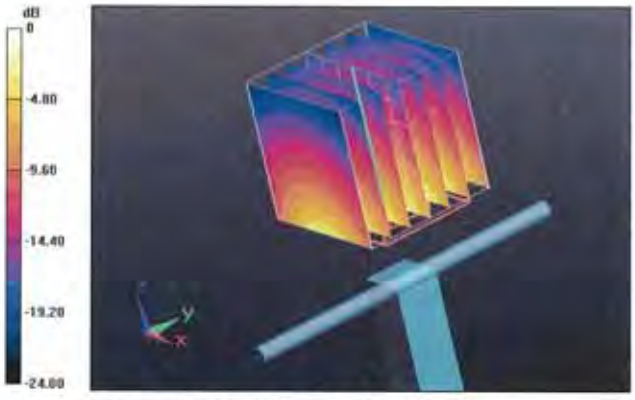
Communication System: CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 2.02 mho/m; ε_r = 52.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY52 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.26, 4.26, 4.26); Calibrated: 30.12.2011
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

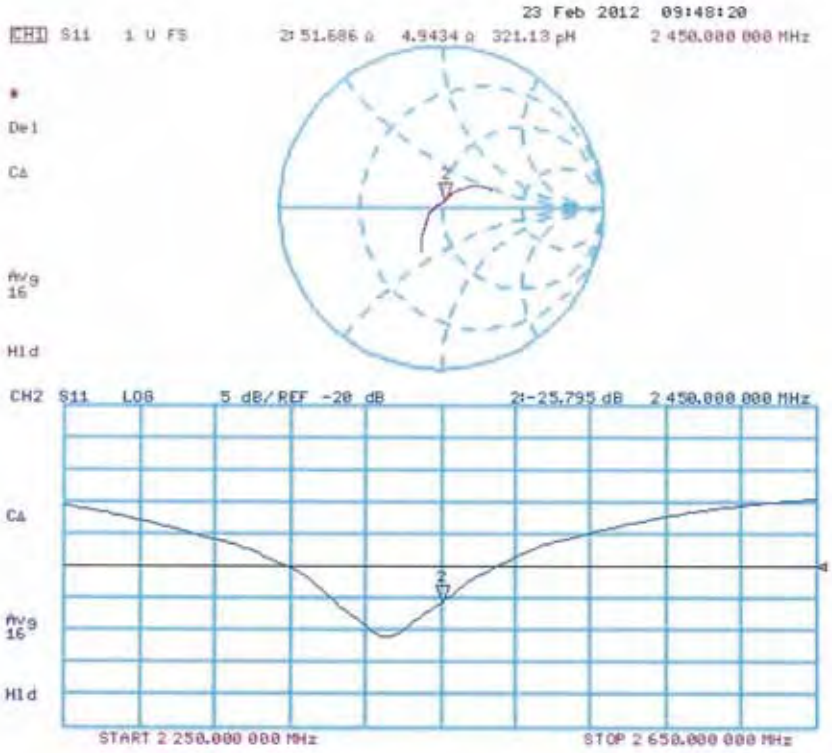
Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 94.094 V/m; Power Drift = 0.0032 dB
Peak SAR (extrapolated) = 26.0450
SAR(1 g) = 12.7 mW/g; SAR(10 g) = 5.95 mW/g
Maximum value of SAR (measured) = 16.700 mW/g



0 dB = 16.700mW/g = 24.45 dB mW/g

Impedance Measurement Plot for Body TSL



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Accreditation No.: SCS 108

Client ATL (Auden)

Certificate No: EX3-3847_Mar12

CALIBRATION CERTIFICATE

Object: EX3DV4 - SN:3847

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

Calibration date: March 21, 2012

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID	Cal Date (Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	31-Mar-11 (No. 217-01372)	Apr-12
Power sensor E4412A	MY41498087	31-Mar-11 (No. 217-01372)	Apr-12
Reference 3 dB Attenuator	SN: S5054 (3c)	29-Mar-11 (No. 217-01369)	Apr-12
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-11 (No. 217-01367)	Apr-12
Reference 30 dB Attenuator	SN: S5129 (30b)	29-Mar-11 (No. 217-01370)	Apr-12
Reference Probe ES3DV2	SN: 3013	29-Dec-11 (No. ES3-3013_Dec11)	Dec-12
DAE4	SN: 654	3-May-11 (No. DAE4-654_May11)	May-12
Secondary Standards	ID	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Apr-11)	In house check: Apr-13
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-11)	In house check: Oct-12

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

Issued: March 21, 2012

Glossary:

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

Calibration is Performed According to the Following Standards:

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

Methods Applied and Interpretation of Parameters:

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

Probe EX3DV4

SN:3847

Manufactured: October 25, 2011
Calibrated: March 21, 2012

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

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3847

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.46	0.35	0.42	± 10.1 %
DCP (mV)[B]	100.3	102.1	94.4	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dB	C dB	VR mV	Unc[E] (k=2)
10000	CW	0.00	X	0.00	0.00	1.00	112.0	±3.0 %
			Y	0.00	0.00	1.00	94.0	
			Z	0.00	0.00	1.00	112.0	

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

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

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3847

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
835	41.5	0.90	9.34	9.34	9.34	0.31	1.01	± 12.0 %
900	41.5	0.97	9.19	9.19	9.19	0.17	1.78	± 12.0 %
1750	40.1	1.37	8.29	8.29	8.29	0.64	0.66	± 12.0 %
1900	40.0	1.40	8.05	8.05	8.05	0.80	0.62	± 12.0 %
2450	39.2	1.80	7.17	7.17	7.17	0.47	0.79	± 12.0 %

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

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3847

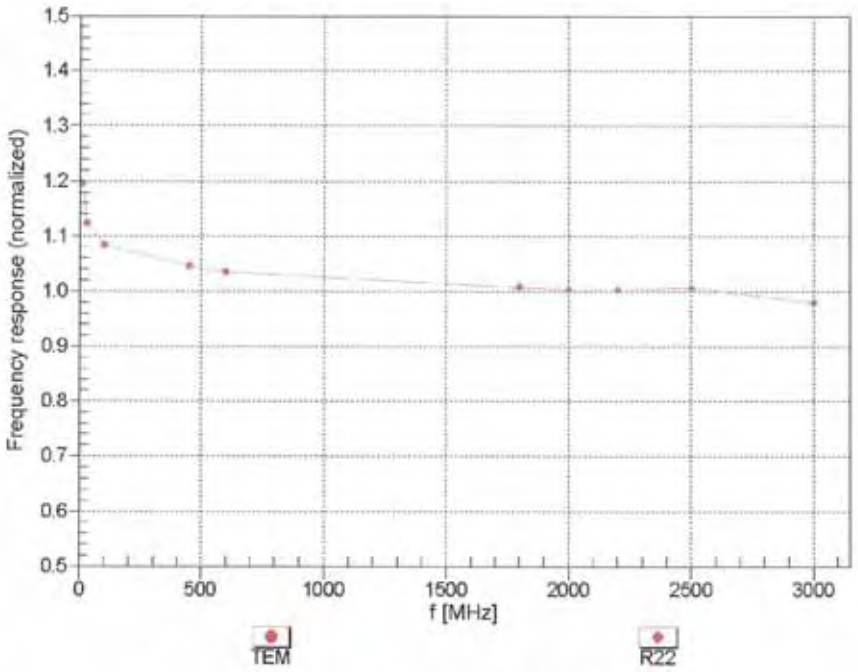
Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
835	55.2	0.97	9.24	9.24	9.24	0.32	1.02	± 12.0 %
900	55.0	1.05	9.14	9.14	9.14	0.26	1.18	± 12.0 %
1750	53.4	1.49	7.70	7.70	7.70	0.38	1.00	± 12.0 %
1900	53.3	1.52	7.20	7.20	7.20	0.46	0.88	± 12.0 %
2450	52.7	1.95	6.85	6.85	6.85	0.77	0.61	± 12.0 %

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

Frequency Response of E-Field

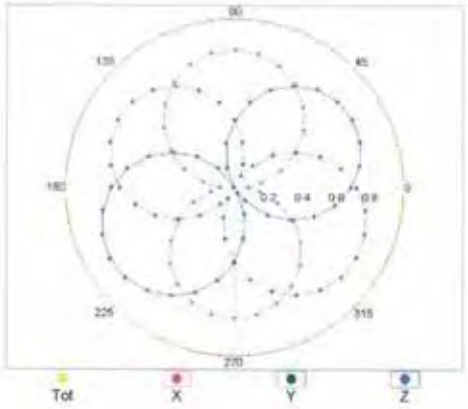
(TEM-Cell:ifi110 EXX, Waveguide: R22)



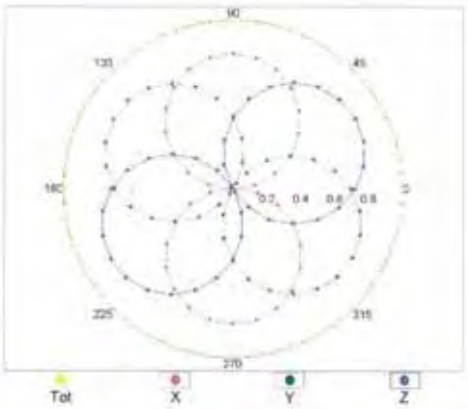
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

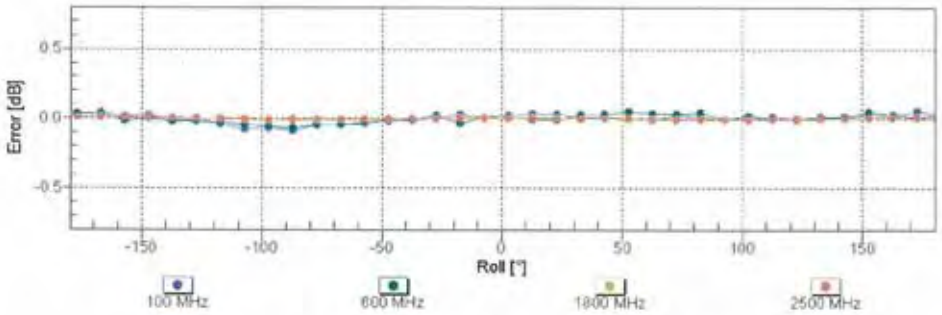
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



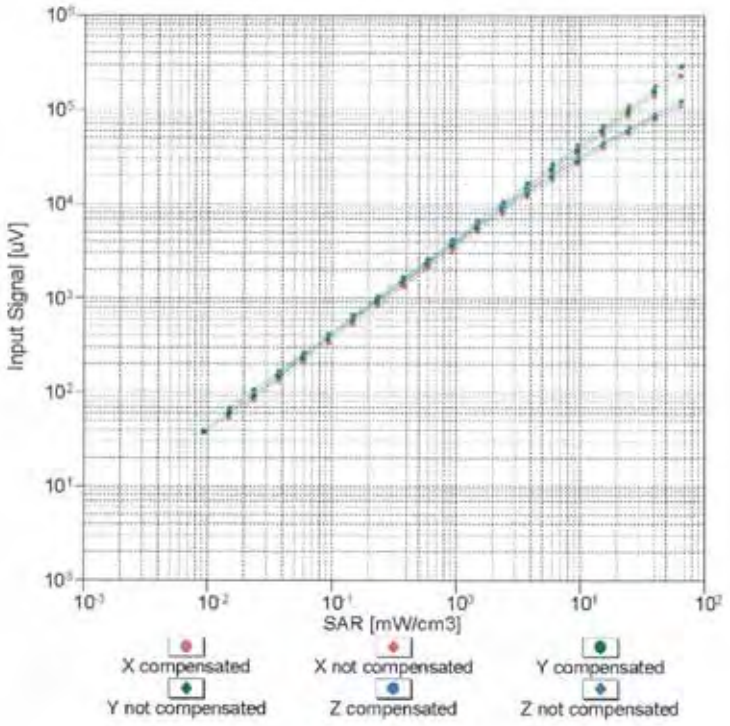
f=1800 MHz,R22

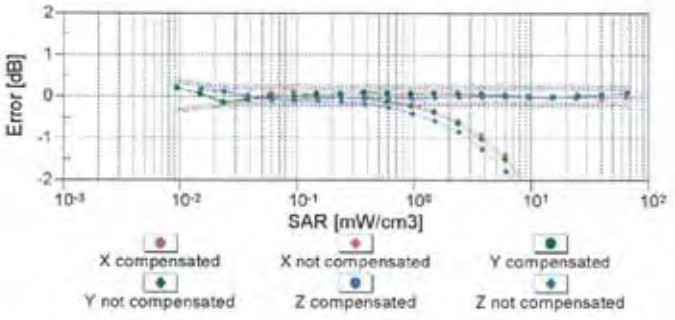




Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

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

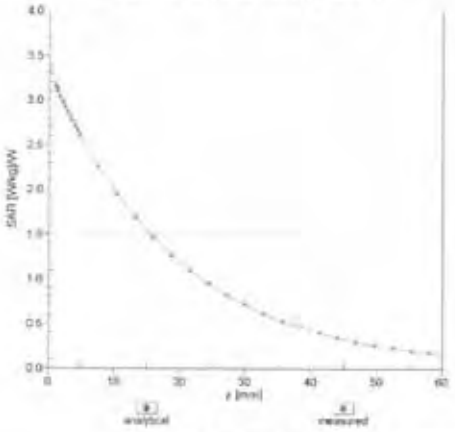




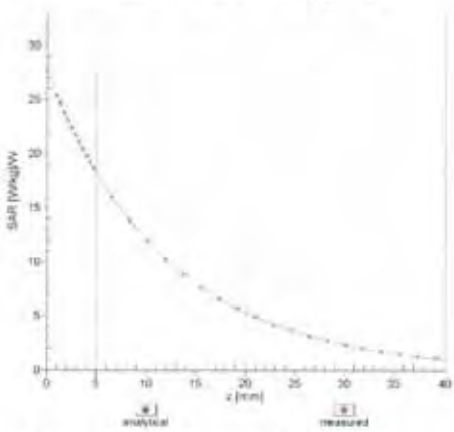
Uncertainty of Linearity Assessment: ± 0.6% (k=2)

Conversion Factor Assessment

f = 835 MHz,WGLS R9 (H_convF)

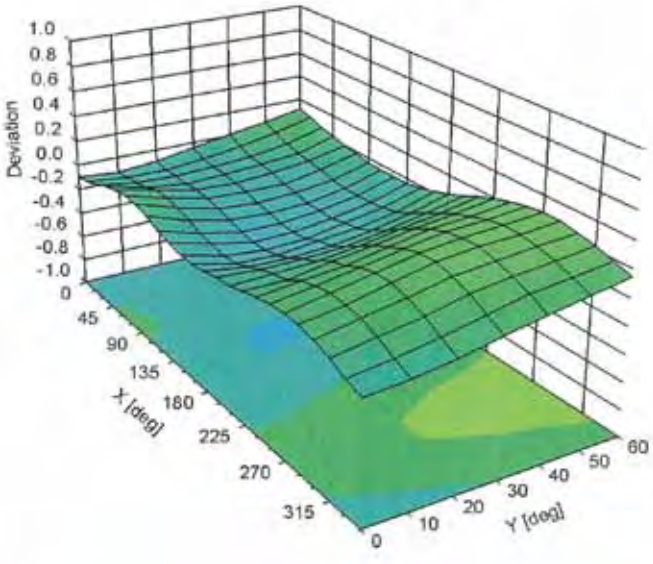


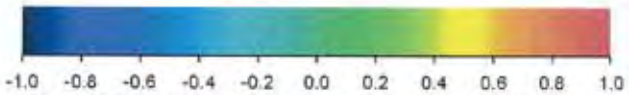
f = 1900 MHz,WGLS R22 (H_convF)



Deviation from Isotropy in Liquid

Error (ϕ, ϑ), f = 900 MHz





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

DASY/EASY - Parameters of Probe: EX3DV4 - SN:3847

Other Probe Parameters

Sensor Arrangement	Triangular
Connector Angle (°)	Not applicable
Mechanical Surface Detection Mode	enabled
Optical Surface Detection Mode	disabled
Probe Overall Length	337 mm
Probe Body Diameter	10 mm
Tip Length	9 mm
Tip Diameter	2.5 mm
Probe Tip to Sensor X Calibration Point	1 mm
Probe Tip to Sensor Y Calibration Point	1 mm
Probe Tip to Sensor Z Calibration Point	1 mm
Recommended Measurement Distance from Surface	2 mm

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

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

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

Accreditation No.: SCS 108

Client ATL (Auden)

Certificate No: DAE4-541_Jul12

CALIBRATION CERTIFICATE

Object	DAE4 - SD 000 D04 BJ - SN: 541
Calibration procedure(s)	QA CAL-06.v24 Calibration procedure for the data acquisition electronics (DAE)
Calibration date:	July 23, 2012

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Keithley Multimeter Type 2001	SN: 0810278	28-Sep-11 (No:11450)	Sep-12
Secondary Standards	**ID #**	**Check Date (in house)**	**Scheduled Check**
Calibrator Box V2.1	SE UWS 053 AA 1001	05-Jan-12 (in house check)	In house check: Jan-13

	Name	Function	Signature
Calibrated by:	R.Mayoraz	Technician	
Approved by:	Fin Bomholt	R&D Director	

Issued: July 23, 2012

Glossary

DAE	data acquisition electronics
Connector angle	information used in DASY system to align probe sensor X to the robot coordinate system.

Methods Applied and Interpretation of Parameters

- *DC Voltage Measurement:* Calibration Factor assessed for use in DASY system by comparison with a calibrated instrument traceable to national standards. The figure given corresponds to the full scale range of the voltmeter in the respective range.
- *Connector angle*: The angle of the connector is assessed measuring the angle mechanically by a tool inserted. Uncertainty is not required.
- The following parameters as documented in the Appendix contain technical information as a result from the performance test and require no uncertainty.
  - *DC Voltage Measurement Linearity:* Verification of the Linearity at +10% and -10% of the nominal calibration voltage. Influence of offset voltage is included in this measurement.
  - *Common mode sensitivity:* Influence of a positive or negative common mode voltage on the differential measurement.
  - *Channel separation:* Influence of a voltage on the neighbor channels not subject to an input voltage.
  - *AD Converter Values with inputs shorted:* Values on the internal AD converter corresponding to zero input voltage
  - *Input Offset Measurement*: Output voltage and statistical results over a large number of zero voltage measurements.
  - *Input Offset Current:* Typical value for information; Maximum channel input offset current, not considering the input resistance.
  - *Input resistance:* Typical value for information: DAE input resistance at the connector, during internal auto-zeroing and during measurement.
  - *Low Battery Alarm Voltage:* Typical value for information. Below this voltage, a battery alarm signal is generated.
  - *Power consumption:* Typical value for information. Supply currents in various operating modes.

DC Voltage Measurement

A/D - Converter Resolution nominal

High Range:	1LSB =	6.1μV ,	full range =	-100...+300 mV
Low Range:	1LSB =	61nV ,	full range =	-1.....+3mV

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

Calibration Factors	X	Y	Z
High Range	404.581 ± 0.1% (k=2)	404.461 ± 0.1% (k=2)	404.227 ± 0.1% (k=2)
Low Range	3.96788 ± 0.7% (k=2)	3.93541 ± 0.7% (k=2)	3.97576 ± 0.7% (k=2)

Connector Angle

Connector Angle to be used in DASY system	289.5 ° ± 1 °

Appendix

1. DC Voltage Linearity

High Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	199995.59	-0.97	-0.00
Channel X	+ Input	20003.10	2.41	0.01
Channel X	- Input	-19994.35	5.66	-0.03
Channel Y	+ Input	199994.72	-2.07	-0.00
Channel Y	+ Input	19998.91	-1.88	-0.01
Channel Y	- Input	-19998.62	1.36	-0.01
Channel Z	+ Input	199995.54	-1.18	-0.00
Channel Z	+ Input	20001.38	0.67	0.00
Channel Z	- Input	-19996.65	3.36	-0.02

Low Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	2001.27	-0.06	-0.00
Channel X	+ Input	201.72	-0.07	-0.03
Channel X	- Input	-198.20	0.03	-0.02
Channel Y	+ Input	2000.66	-0.72	-0.04
Channel Y	+ Input	201.70	-0.03	-0.01
Channel Y	- Input	-198.66	-0.42	0.21
Channel Z	+ Input	2001.55	0.19	0.01
Channel Z	+ Input	201.25	-0.48	-0.24
Channel Z	- Input	-199.31	-1.04	0.52

2. Common mode sensitivity

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Common mode Input Voltage (mV)	High Range Average Reading (μV)	Low Range Average Reading (μV)
Channel X	200	11.94	10.52
	- 200	-10.34	-11.69
Channel Y	200	1.48	1.37
	- 200	-2.82	-2.33
Channel Z	200	0.59	0.59
	- 200	-2.65	-2.37

3. Channel separation

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	Input Voltage (mV)	Channel X (μV)	Channel Y (μV)	Channel Z (μV)
Channel X	200	-	3.31	-1.21
Channel Y	200	9.54	-	3.87
Channel Z	200	3.34	7.99	-

4. AD-Converter Values with inputs shorted

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec

	High Range (LSB)	Low Range (LSB)
Channel X	16008	15626
Channel Y	15794	15710
Channel Z	15984	17133

5. Input Offset Measurement

DASY measurement parameters: Auto Zero Time: 3 sec; Measuring time: 3 sec
Input 10MΩ

	Average (μV)	min. Offset (μV)	max. Offset (μV)	Std. Deviation (μV)
Channel X	0.57	-0.86	1.95	0.41
Channel Y	0.09	-1.01	0.96	0.41
Channel Z	-0.78	-1.65	0.37	0.41

6. Input Offset Current

Nominal Input circuitry offset current on all channels: <25fA

7. Input Resistance (Typical values for information)

	Zeroing (kOhm)	Measuring (MOhm)
Channel X	200	200
Channel Y	200	200
Channel Z	200	200

8. Low Battery Alarm Voltage (Typical values for information)

Typical values	Alarm Level (VDC)
Supply (+ Vcc)	+7.9
Supply (- Vcc)	-7.6

9. Power Consumption (Typical values for information)

Typical values	Switched off (mA)	Stand by (mA)	Transmitting (mA)
Supply (+ Vcc)	+0.01	+6	+14
Supply (- Vcc)	-0.01	-8	-9