A Test Lab Techno Corp.

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SAR EVALUATION REPORT

Test Report No.	:	1204FS11-01
Applicant	:	LXE Inc
Product Type	:	Handheld Computer
Trade Name	:	Marathon
Model Number	:	FX1
Dates of Received	:	Sep. 16, 2011
Dates of Test	:	Mar. 15 ~ Apr. 02, 2012
Date of Issued	:	Apr. 11, 2012
Test Environment	:	Ambient Temperature： 22 ±2 ° C
		Relative Humidity：40 - 70 %
Standard	:	ANSI/IEEE C95.1-1999
		IEEE Std. 1528-2003
		47 CFR Part §2.1093;
		FCC/OET Bulletin 65 Supplement C [July 2001]
		RSS-102 ISSUE 4 March 2010
		IEC62209-2 2010
Max. SAR	:	0.389 W/kg Body FCC SAR
		0.391 W/kg Body IC 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	LXE Inc	
Applicant Address	125 Technology Parkway, Norcross, Georgia, United States 30092-9200	
Manufacture	NEXCOM International Co., Ltd.	
Manufacture Address	5F,7F,8F,9F,10F&12F,No.63, Sec.1, Sanmin Rd., Banqiao Dist, New Taipei City, Taiwan	
Product Type	Handheld Computer	
Trade Name	Marathon	
Model Number	FX1	
FCC ID	KDZLXE-FX1	
IC	1995B-LXEFX1	
WWAN Module Used	LXE, Gobi2000	
RF Function	IEEE 802.11a / IEEE 802.11b / 802.11g draft 802.11n 2.4GHz Standard-20MHz / Wide-40MHz draft 802.11n 5GHz Standard-20MHz / Wide-40MHz Bluetooth	
Tx Frequency	Band	Operate Frequency (MHz)
	IEEE 802.11b/802.11g	2412 - 2462
	draft 802.11n 2.4GHz Standard-20MHz	2412 - 2462
	draft 802.11n 2.4GHz Wide-40MHz	2422 - 2452
	IEEE 802.11a	5180 - 5825
	draft 802.11n 5GHz Standard-20MHz	5180 - 5825
	draft 802.11n 5GHz Wide-40MHz	5190 - 5795
	Bluetooth	2402 - 2480
RF Conducted Power (Avg.)	Band	Power (W / dBm)
	IEEE 802.11b	0.017 / 12.26
	IEEE 802.11g	0.007 / 8.15
	draft 802.11n 2.4GHz Standard-20MHz	0.006 / 7.75
	draft 802.11n 2.4GHz Wide-40MHz	0.005 / 7.28
	IEEE 802.11a	0.023 / 13.54
	draft 802.11n 5GHz Standard-20MHz	0.022 / 13.46
	draft 802.11n 5GHz Wide-40MHz	0.020 / 13.02
	Bluetooth	0.002 / 2.89
Max. SAR Measurement	0.389 W/kg Body FCC SAR 0.391 W/kg Body IC SAR	
Antenna Type	Wi-Fi / Bluetooth: Printed Type	
Device Category	Portable Device	
RF Exposure Environment	General Population / Uncontrolled	
Battery Option	Internal Battery / Hip Pad Battery / Thick Battery / Thin Battery	
Accessory	Hand Strap / Shoulder Strap / Barcode Scanner / Magnetic Stripe	
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.

2. Introduction

The A Test Lab Techno Corp. has performed measurements of the maximum potential exposure to the user of **LXE Inc Trade Name：Marathon Model(s)：FX1.** 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)

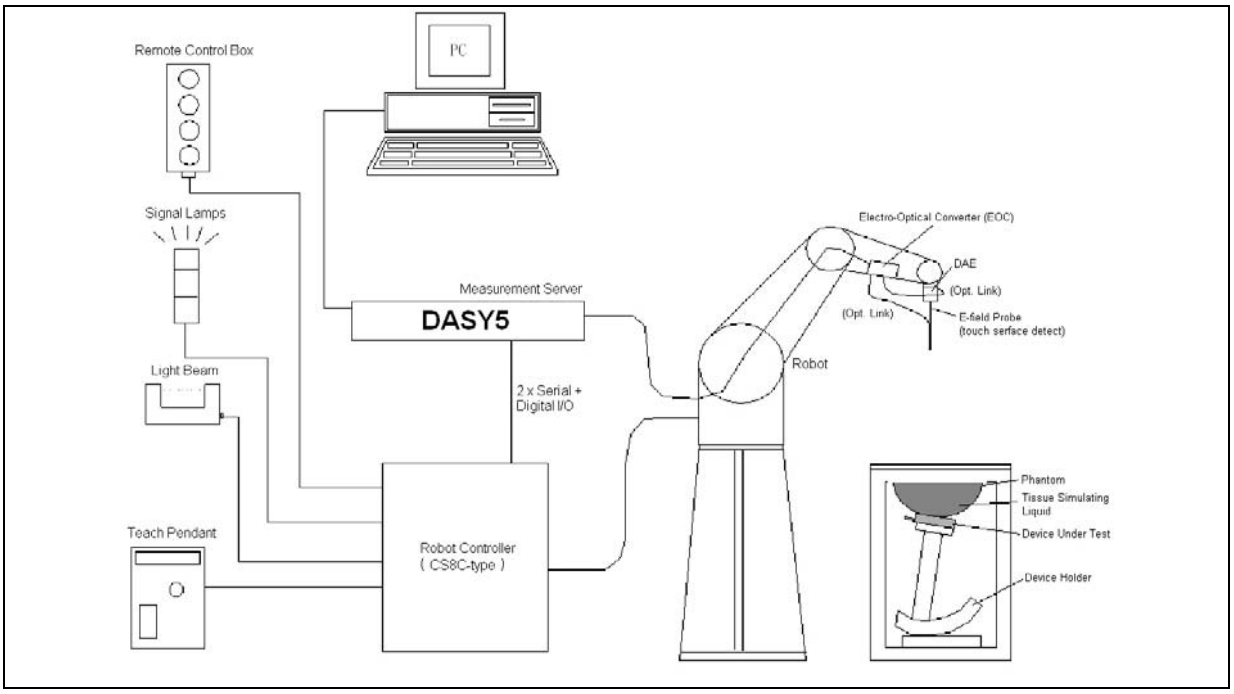
ρ = mass density of the tissue (kg/m^3)

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 DASY5 system for performing compliance tests consists of the following items:

1. A standard high precision 6-axis robot (Stäubli TX 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. DASY5 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 DASY5 E-Field Probe System

The SAR measurements were conducted with the dosimetric probe EX3DV3 (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 DASY5 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 2450MHz (accuracy ±8%)
	Calibration for other liquids and frequencies upon request
Frequency	±0.2 dB (30 MHz to 4 GHz) for EX3DV3
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: 3.9mm for EX3DV3
	Distance from probe tip to dipole centers: 2.0mm for EX3DV3
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 Core(TM)2 CPU
Clock Speed：	@ 1.86GHz
Operating System：	Windows XP Professional

Data Converter

Features：	Signal Amplifier, multiplexer, A/D converter, and control logic
Software：	DASY5 v5.0 (Build 125) & SEMCAD X Version 13.4 Build 125
Connecting Lines：	Optical downlink for data and status info
	Optical uplink for commands and clock

3.3 Robot

Positioner：	Stäubli Unimation Corp. Robot Model: TX90XL
Repeatability：	±0.02 mm
No. of Axis：	6

3.4 Measurement Server

Processor：	PC/104 with a 400MHz intel ULV Celeron
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.

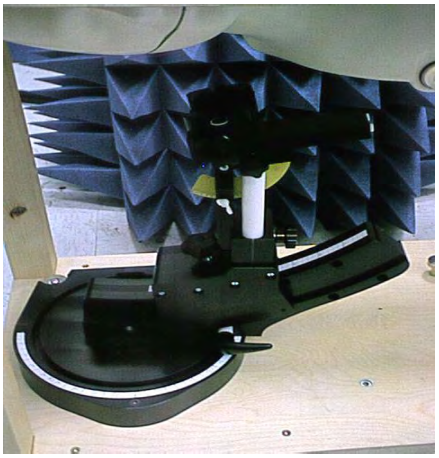


Figure 5. Device Holder

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

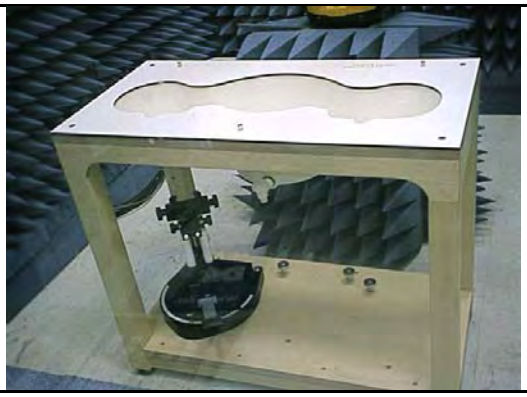


Figure 6. SAM Twin Phantom

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, 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

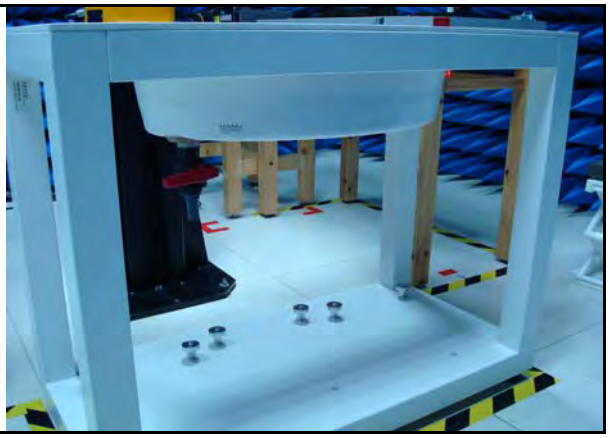


Figure 7. Oval Flat Phantom

3.8 Data Storage and Evaluation

3.8.1 Data Storage

The DASY5 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 DA5 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 DASY5 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 $\boldsymbol{V_i}$ = compensated signal of channel i (i = x, y, z)

$\boldsymbol{U_i}$ = input signal of channel i (i = x, y, z)

$\boldsymbol{cf}$ = crest factor of exciting field (DASY parameter)

$\boldsymbol{dcp_i}$ = 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)

μV/(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
2450MHz Body	2400MHz	22.0	εr	52.70	51.38	-2.50%	± 5	03/15/2012
			σ	1.95	1.89	-3.08%	± 5	
	2450MHz	22.0	εr	52.70	51.23	-2.79%	± 5	
			σ	1.95	1.98	1.54%	± 5	
	2500MHz	22.0	εr	52.70	51.07	-3.09%	± 5	
			σ	1.95	2.03	4.10%	± 5	
2450MHz Body	2400MHz	22.0	εr	52.70	51.38	-2.50%	± 5	03/16/2012
			σ	1.95	1.89	-3.08%	± 5	
	2450MHz	22.0	εr	52.70	51.23	-2.79%	± 5	
			σ	1.95	1.98	1.54%	± 5	
	2500MHz	22.0	εr	52.70	51.07	-3.09%	± 5	
			σ	1.95	2.03	4.10%	± 5	
2450MHz Body	2400MHz	22.0	εr	52.70	51.38	-2.50%	± 5	04/02/2012
			σ	1.95	1.89	-3.08%	± 5	
	2450MHz	22.0	εr	52.70	51.23	-2.79%	± 5	
			σ	1.95	1.98	1.54%	± 5	
	2500MHz	22.0	εr	52.70	51.07	-3.09%	± 5	
			σ	1.95	2.03	4.10%	± 5	
5200MHz Body	5150MHz	22.0	εr	49.01	47.89	-2.29%	± 5	03/17/2012
			σ	5.30	5.46	3.02%	± 5	
	5200MHz	22.0	εr	49.01	47.76	-2.55%	± 5	
			σ	5.30	5.52	4.15%	± 5	
	5250MHz	22.0	εr	49.01	47.63	-2.82%	± 5	
			σ	5.30	5.55	4.72%	± 5	

Table 4. Measured Tissue dielectric parameters for 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
5200MHz Body	5150MHz	22.0	εr	49.01	47.89	-2.29%	± 5	03/19/2012
			σ	5.30	5.46	3.02%	± 5	
	5200MHz	22.0	εr	49.01	47.76	-2.55%	± 5	
			σ	5.30	5.52	4.15%	± 5	
	5250MHz	22.0	εr	49.01	47.63	-2.82%	± 5	
			σ	5.30	5.55	4.72%	± 5	
5200MHz Body	5150MHz	22.0	εr	49.01	47.89	-2.29%	± 5	03/20/2012
			σ	5.30	5.46	3.02%	± 5	
	5200MHz	22.0	εr	49.01	47.76	-2.55%	± 5	
			σ	5.30	5.52	4.15%	± 5	
	5250MHz	22.0	εr	49.01	47.63	-2.82%	± 5	
			σ	5.30	5.55	4.72%	± 5	
5500MHz Body	5450MHz	22.0	εr	48.61	47.27	-2.76%	± 5	03/17/2012
			σ	5.65	5.77	2.12%	± 5	
	5500MHz	22.0	εr	48.61	47.09	-3.13%	± 5	
			σ	5.65	5.90	4.42%	± 5	
	5550MHz	22.0	εr	48.61	46.93	-3.46%	± 5	
			σ	5.65	5.93	4.96%	± 5	
5500MHz Body	5450MHz	22.0	εr	48.61	47.27	-2.76%	± 5	03/18/2012
			σ	5.65	5.77	2.12%	± 5	
	5500MHz	22.0	εr	48.61	47.09	-3.13%	± 5	
			σ	5.65	5.90	4.42%	± 5	
	5550MHz	22.0	εr	48.61	46.93	-3.46%	± 5	
			σ	5.65	5.93	4.96%	± 5	
5500MHz Body	5450MHz	22.0	εr	48.61	47.27	-2.76%	± 5	03/19/2012
			σ	5.65	5.77	2.12%	± 5	
	5500MHz	22.0	εr	48.61	47.09	-3.13%	± 5	
			σ	5.65	5.90	4.42%	± 5	
	5550MHz	22.0	εr	48.61	46.93	-3.46%	± 5	
			σ	5.65	5.93	4.96%	± 5	

Table 5. Measured Tissue dielectric parameters for body phantoms-2

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
5500MHz Body	5450MHz	22.0	εr	48.61	47.27	-2.76%	± 5	03/20/2012
			σ	5.65	5.77	2.12%	± 5	
	5500MHz	22.0	εr	48.61	47.09	-3.13%	± 5	
			σ	5.65	5.90	4.42%	± 5	
	5550MHz	22.0	εr	48.61	46.93	-3.46%	± 5	
			σ	5.65	5.93	4.96%	± 5	
5500MHz Body	5450MHz	22.0	εr	48.61	47.27	-2.76%	± 5	03/21/2012
			σ	5.65	5.77	2.12%	± 5	
	5500MHz	22.0	εr	48.61	47.09	-3.13%	± 5	
			σ	5.65	5.90	4.42%	± 5	
	5550MHz	22.0	εr	48.61	46.93	-3.46%	± 5	
			σ	5.65	5.93	4.96%	± 5	
5800MHz Body	5750MHz	22.0	εr	48.20	46.54	-3.44%	± 5	03/17/2012
			σ	6.00	6.21	3.50%	± 5	
	5800MHz	22.0	εr	48.20	46.40	-3.73%	± 5	
			σ	6.00	6.27	4.50%	± 5	
	5850MHz	22.0	εr	48.20	46.35	-3.84%	± 5	
			σ	6.00	6.29	4.83%	± 5	
5800MHz Body	5750MHz	22.0	εr	48.20	46.54	-3.44%	± 5	03/21/2012
			σ	6.00	6.21	3.50%	± 5	
	5800MHz	22.0	εr	48.20	46.40	-3.73%	± 5	
			σ	6.00	6.27	4.50%	± 5	
	5850MHz	22.0	εr	48.20	46.35	-3.84%	± 5	
			σ	6.00	6.29	4.83%	± 5	

Table 6. Measured Tissue dielectric parameters for body phantoms-3

Liquid parameter for measured frequency							
Body	Frequency	Measured Value		Target Value		Deviation (%)	
		σ	εr	σ	εr	σ	εr
WLAN 2.4GHz	2462 MHz	2.00	51.3	1.967018	52.68473	1.676742	-2.62833
BT	2441 MHz	1.96	51.2	1.941400	52.71200	0.958071	-2.86842
WLAN 5GHz	5240 MHz	5.54	47.7	5.346000	48.96000	3.628881	-2.57353
	5260 MHz	5.57	47.6	5.369357	48.93286	3.736813	-2.72385
	5300 MHz	5.65	47.5	5.416071	48.87857	4.319156	-2.8204
	5580 MHz	5.98	46.9	5.743071	48.49857	4.125468	-3.29612
	5620 MHz	6.03	46.8	5.789786	48.44429	4.148932	-3.39418
	5680 MHz	6.05	46.7	5.859857	48.36286	3.244838	-3.43829
	5700 MHz	6.05	46.6	5.883214	48.33571	2.834942	-3.59096
	5745 MHz	6.19	46.5	5.935768	48.27464	4.283054	-3.67614
	5805 MHz	6.27	46.4	6.000000	48.20000	4.500000	-3.73444
	5825 MHz	6.28	46.4	6.000000	48.20000	4.666667	-3.73444
	5200 MHz	5.52	47.8	5.299286	49.01429	4.164982	-2.47741

4.3.2 Liquid Depth

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

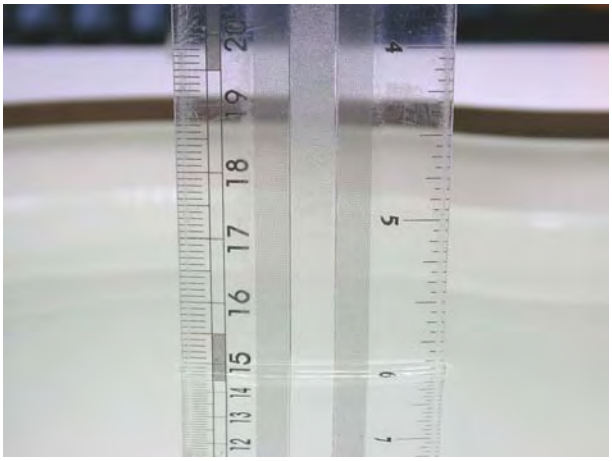


Figure 8. Head-Tissue-Simulating-Liquid

Figure 9. Body-Tissue-Simulating-Liquid

5. SAR Testing with RF Transmitters

5.1 SAR Testing with 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.

5.1.1 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.

5.1.2 Frequency Channel Configurations

802.11 a/b/g 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. 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		✓	▽		
802.11a	UNII	5.18	36				✓	
		5.20	40	42 (5.21 GHz)				*
		5.22	44					*
		5.24	48	50 (5.25 GHz)				
		5.26	52				✓	
		5.28	56	58 (5.29 GHz)				*
		5.30	60					*
		5.32	64				✓	
		5.500	100	Unknown				*
		5.520	104				✓	
		5.540	108					*
		5.560	112					*
		5.580	116				✓	
		5.600	120					*
		5.620	124				✓	
		5.640	128					*
		5.660	132					*
		5.680	136				✓	
		5.700	140					*
	UNII or §15.247	5.745	149		✓		✓	
		5.765	153	152 (5.76 GHz)		*		*
		5.785	157		✓			*
		5.805	161	160 (5.80 GHz)		*	✓	
	§15.247	5.825	165		✓			

5.2 Conducted Power

Band	Data Rate	CH	Frequency (MHz)	RF Conducted Output Power (dBm)
				Average
IEEE 802.11b	1 M	1	2412.0	12.06
		6	2437.0	11.94
		11	2462.0	11.96
	2 M	1	2412.0	11.79
		6	2437.0	11.80
		11	2462.0	11.82
	5.5 M	1	2412.0	11.56
		6	2437.0	11.58
		11	2462.0	11.53
	11 M	1	2412.0	12.22
		6	2437.0	12.19
		11	2462.0	**12.26**
IEEE 802.11g	6 M	1	2412.0	7.91
		6	2437.0	**8.15**
		11	2462.0	7.45
	9 M	1	2412.0	7.83
		6	2437.0	7.96
		11	2462.0	7.44
	12 M	1	2412.0	7.66
		6	2437.0	7.74
		11	2462.0	7.20
	18 M	1	2412.0	7.17
		6	2437.0	7.39
		11	2462.0	6.79
	24 M	1	2412.0	6.80
		6	2437.0	7.12
		11	2462.0	6.56
	36 M	1	2412.0	6.40
		6	2437.0	6.52
		11	2462.0	5.79
	48 M	1	2412.0	5.72
		6	2437.0	5.83
		11	2462.0	5.25
	54 M	1	2412.0	5.27
		6	2437.0	5.31
		11	2462.0	4.41

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	7.28
		6	2437.0	**7.75**
		11	2462.0	7.21
	13.0 M	1	2412.0	5.88
		6	2437.0	7.26
		11	2462.0	6.48
	19.5 M	1	2412.0	5.09
		6	2437.0	6.46
		11	2462.0	5.79
	26.0 M	1	2412.0	4.85
		6	2437.0	6.27
		11	2462.0	5.52
	39.0 M	1	2412.0	3.98
		6	2437.0	5.47
		11	2462.0	4.30
	52.0 M	1	2412.0	3.40
		6	2437.0	4.84
		11	2462.0	3.76
	58.5 M	1	2412.0	3.06
		6	2437.0	4.77
		11	2462.0	3.59
	65.0 M	1	2412.0	3.15
		6	2437.0	4.50
		11	2462.0	3.36

Band	Data Rate	CH	Frequency (MHz)	RF Conducted Output Power (dBm)
				Average
Draft 802.11n_HT40 (2.4 GHz)	6.5 M	3	2422.0	6.77
		6	2437.0	**7.28**
		9	2452.0	6.77
	13.0 M	3	2422.0	5.13
		6	2437.0	6.94
		9	2452.0	5.69
	19.5 M	3	2422.0	4.31
		6	2437.0	5.91
		9	2452.0	4.89
	26.0 M	3	2422.0	3.82
		6	2437.0	5.50
		9	2452.0	4.19
	39.0 M	3	2422.0	3.29
		6	2437.0	5.06
		9	2452.0	3.69
	52.0 M	3	2422.0	2.80
		6	2437.0	4.49
		9	2452.0	3.14
	58.5 M	3	2422.0	2.37
		6	2437.0	4.27
		9	2452.0	2.89
	65.0 M	3	2422.0	2.54
		6	2437.0	4.15
		9	2452.0	2.75

Band	Data Rate	CH	Frequency (MHz)	RF Conducted Output Power (dBm)
				Average
IEEE 802.11a	6.0 M	36	5180.0	11.20
		40	5200.0	11.43
		44	5220.0	11.18
		48	5240.0	11.34
		52	5260.0	13.25
		56	5280.0	13.24
		60	5300.0	**13.54**
		64	5320.0	12.16
		100	5500.0	13.17
		104	5520.0	13.03
		108	5540.0	13.26
		112	5560.0	13.27
		116	5580.0	13.40
		120	5600.0	13.30
		124	5620.0	13.17
		128	5640.0	13.26
		132	5660.0	13.28
		136	5680.0	13.42
		140	5700.0	13.44
		149	5745.0	8.43
		153	5765.0	8.48
		157	5785.0	8.38
		161	5805.0	8.49
		165	5825.0	8.44

Band	Data Rate	CH	Frequency (MHz)	RF Conducted Output Power (dBm)
				Average
IEEE 802.11a	54.0 M	36	5180.0	9.86
		40	5200.0	9.91
		44	5220.0	9.73
		48	5240.0	9.75
		52	5260.0	11.79
		56	5280.0	**11.98**
		60	5300.0	11.98
		64	5320.0	10.76
		100	5500.0	11.60
		104	5520.0	11.37
		108	5540.0	11.81
		112	5560.0	11.59
		116	5580.0	11.83
		120	5600.0	11.72
		124	5620.0	11.63
		128	5640.0	11.70
		132	5660.0	11.46
		136	5680.0	11.93
		140	5700.0	11.73
		149	5745.0	7.00
		153	5765.0	6.76
		157	5785.0	6.94
		161	5805.0	6.89
		165	5825.0	6.89

Band	Data Rate	CH	Frequency (MHz)	RF Conducted Output Power (dBm)
				Average
Draft 802.11n_HT20 (5 GHz)	6.5 M	36	5180.0	7.79
		40	5200.0	7.69
		44	5220.0	7.68
		48	5240.0	7.71
		52	5260.0	13.28
		56	5280.0	13.32
		60	5300.0	13.38
		64	5320.0	**13.46**
		100	5500.0	12.74
		104	5520.0	12.68
		108	5540.0	13.30
		112	5560.0	13.31
		116	5580.0	13.23
		120	5600.0	13.27
		124	5620.0	12.84
		128	5640.0	13.33
		132	5660.0	13.42
		136	5680.0	13.15
		140	5700.0	12.81
		149	5745.0	8.47
		153	5765.0	8.58
		157	5785.0	8.55
		161	5805.0	8.50
		165	5825.0	8.55

Band	Data Rate	CH	Frequency (MHz)	RF Conducted Output Power (dBm)
				Average
Draft 802.11n_HT20 (5 GHz)	65 M	36	5180.0	5.42
		40	5200.0	5.31
		44	5220.0	5.30
		48	5240.0	5.33
		52	5260.0	10.85
		56	5280.0	11.01
		60	5300.0	10.95
		64	5320.0	11.17
		100	5500.0	10.45
		104	5520.0	10.37
		108	5540.0	10.90
		112	5560.0	10.99
		116	5580.0	10.91
		120	5600.0	10.95
		124	5620.0	10.54
		128	5640.0	11.10
		132	5660.0	**11.26**
		136	5680.0	10.93
		140	5700.0	10.51
		149	5745.0	6.17
		153	5765.0	6.35
		157	5785.0	6.12
		161	5805.0	6.12
		165	5825.0	6.15

Band	Data Rate	CH	Frequency (MHz)	RF Conducted Output Power (dBm)
				Average
Draft 802.11n_HT40 (5 GHz)	6.5 M	38	5190.0	9.05
		46	5230.0	9.02
		54	5270.0	12.51
		62	5310.0	12.79
		102	5510.0	11.91
		110	5550.0	12.89
		118	5590.0	**13.02**
		126	5630.0	12.95
		134	5670.0	12.03
		151	5755.0	7.81
		159	5795.0	7.96
	65 M	38	5190.0	6.19
		46	5230.0	6.22
		54	5270.0	9.53
		62	5310.0	10.02
		102	5510.0	8.91
		110	5550.0	9.87
		118	5590.0	9.96
		126	5630.0	9.95
		134	5670.0	9.07
		151	5755.0	4.86
		159	5795.0	5.06
Bluetooth	---	00	2402	2.00
		39	2441	**2.89**
		78	2480	2.72

5.3 Simultaneous Transmitting Evaluate

RF Conducted Power		
Band	dBm	W
GSM/GPRS/EGPRS 850	26.68	0.47
GSM/GPRS/EGPRS 1900	23.28	0.21
WCDMA/HSDPA/HSUPA Band II	24.50	0.28
WCDMA/HSDPA/HSUPA Band V	24.50	0.28
CDMA/1xRTT/1xEvdo RA /1xEvdo R0 Cellular	24.17	0.26
CDMA/1xRTT/1xEvdo RA /1xEvdo R0 PCS	23.94	0.25
Wi-Fi 802.11a	13.54	0.02
Wi-Fi 802.11b	12.26	0.02
Wi-Fi 802.11g	8.15	0.01
Wi-Fi 802.11n_2.4GHz	7.75	0.01
Wi-Fi 802.11n_5GHz	13.46	0.02
BT 2.0	2.89	0.002

Antenna Distance	
Antenna Account	Distance (cm)
BT to WLAN	14.667
BT to WWAN (License)	1.600
WLAN to WWAN (License)	6.650

BT and WWAN and WLAN simultaneously SAR Description

(1) Antenna Distance

1a.BT & WWAN 1.600 cm

1b.BT & WLAN 14.667 cm

1c. WWAN & WLAN 6.650 cm

(2) WWAN/BT –with antenna separation distance 1.6cm <2.5 cm – BT power is < Pref ,WWAN SAR >1.2 mW/g. The sum of SAR 1g is 1.55+0.0000113 =1.5500113 < SAR limit: 1.6mW/g.

Therefore, the Simultaneous SAR is not required.

(3) WLAN/BT –with antenna separation distance 14.667cm >5 cm – BT power is < 2*Pref. BT and WLAN SAR <1.2 mW/g. Therefore, the Simultaneous SAR is not required.

(4) WLAN/WWAN –with antenna separation distance 6.65cm >5 cm– WLAN power is > 2*Pref.

The max sum of SAR 1g is 1.55+0.13 =1.68 > SAR limit: 1.6mW/g

then SPLSR(SAR to peak location separation ratios) is 1.68 / 13.8 = 0.122 < 0.3

Therefore, the Simultaneous SAR is not required.

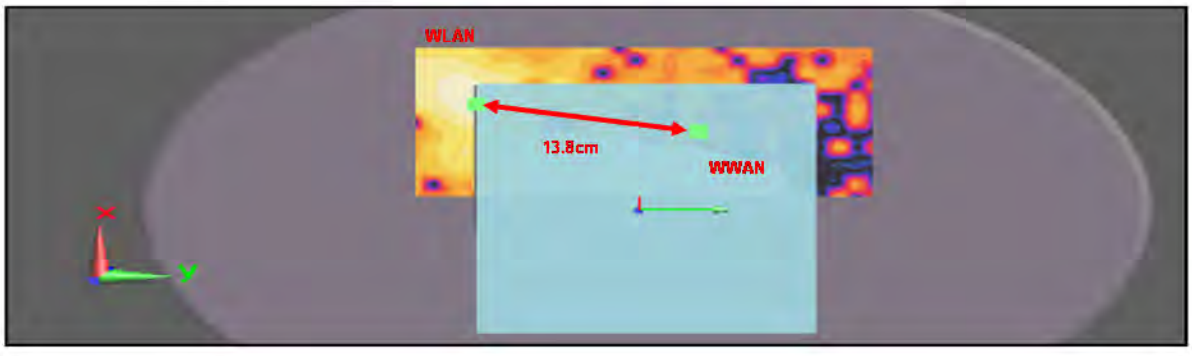
Distance of peak to peak location separation as below:

WWAN: Flat_GPRS 850 CH128_3D2U_Back Surface 0mm_Thick Battery_Hand Strap			
	X	Y	Z
Max.	m	m	m
1.81	0.0575	0.0315	-0.182
WLAN: Flat_802.11a CH116_6M_Back surface to phantom 0mm_Hip Pad Battery_Shoulder strap			
	X	Y	Z
Max.	m	m	m
0.219	0.089	-0.103	-0.18

Distance calculation
DASY stores the individual coordinates of each measurement point, whereby the center coordinate (x=0, y=0) is always the Grid Reference Point as set in the Phantom properties within DASY setup pane. As long as the same phantom section is used the distance between two hot spots can be calculated with the Pythagoras' theorem. E.g. Antenna 1 has X1, Y1, Z1 and Antenna 2 has X2, Y2, Z2 as the hot spot coordinates. The closest distance between them is $d = \sqrt[2]{(X1 - X2)^2 + (Y1 - Y2)^2 + (Z1 - Z2)^2}$

Distance	Calculation
0.138 m	d=SQRT((0.089-0.0575)^2+(-0.103-0.0315)^2+(-0.18-(-0.182))^2)
13.8 cm	

Distance of WLAN to WWAN for peak



(5) WWAN/WLAN/BT Stand-alone SAR is required due to routine evaluation requirements.

(6) Highest Simultaneous SAR Evaluation:

Body SAR：∑SAR=GPRS 850+Wifi 802.11a=1.68 mW/g > SAR limit: 1.6mW/g

then SPLSR(SAR to peak location separation ratios) is 1.68 / 13.8 = 0.122 < 0.3

Therefore, the Simultaneous SAR is not required.

(7) SAR data of WWAN/BT please refer to report No.: 1204FS12, WLAN to report No.: 1204FS11-01.

(8) WWAN will be enabled only if only Thick or Hip Pad battery is used.

Note:

1. Simultaneous Transmitting Summary, please find the table 7 as below.
2. Simultaneous Transmission Summation of SAR, please find the table 8 as below.
   2.1 The device for orientation can't rotated, only used for Edge bottom, Back surface and Front surface.
   2.2 The device for "Barcode and Magnetic Stripe" mode selected worst of all test items.

Table 7. Simultaneous Transmitting Summary

Simultaneous Transmitting	802.11a	802.11b	802.11g	802.11n	Bluetooth
GSM/GPRS/EGPRS 850	V	V	V	V	V
GSM/GPRS/EGPRS 1900	V	V	V	V	V
WCDMA /HSDPA/HSUPA Band V	V	V	V	V	V
WCDMA /HSDPA/HSUPA Band II	V	V	V	V	V
CDMA/1xRTT/1xEvdo Cellular	V	V	V	V	V
CDMA/1xRTT/1xEvdo PCS	V	V	V	V	V
Bluetooth	V	V	V	V	

Table 8.

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	0.223	0.271	0.494	<1.6
Simult Tx	Configuration	WCDMA Band V SAR mW/g	WLAN SAR mW/g	∑ SAR mW/g	∑ SAR
Body SAR	Flat	0.150	0.271	0.421	<1.6
Simult Tx	Configuration	CDMA Cellular SAR mW/g	WLAN SAR mW/g	∑ SAR mW/g	∑ SAR
Body SAR	Flat	0.132	0.271	0.403	<1.6
Simult Tx	Configuration	GPRS PCS SAR mW/g	WLAN SAR mW/g	∑ SAR mW/g	∑ SAR
Body SAR	Flat	0.132	0.271	0.403	<1.6
Simult Tx	Configuration	WCDMA Band II SAR mW/g	WLAN SAR mW/g	∑ SAR mW/g	∑ SAR
Body SAR	Flat	0.229	0.271	0.500	<1.6
Simult Tx	Configuration	CDMA PCS SAR mW/g	WLAN SAR mW/g	∑ SAR mW/g	∑ SAR
Body SAR	Flat	0.477	0.271	0.748	<1.6

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	1.550	0.13	1.680	>1.6
Simult Tx	Configuration	WCDMA Band V SAR mW/g	WLAN SAR mW/g	∑ SAR mW/g	∑ SAR
Body SAR	Flat	1.180	0.13	1.310	<1.6
Simult Tx	Configuration	CDMA Cellular SAR mW/g	WLAN SAR mW/g	∑ SAR mW/g	∑ SAR
Body SAR	Flat	1.050	0.13	1.180	<1.6
Simult Tx	Configuration	GPRS PCS SAR mW/g	WLAN SAR mW/g	∑ SAR mW/g	∑ SAR
Body SAR	Flat	0.416	0.13	0.546	<1.6
Simult Tx	Configuration	WCDMA Band II SAR mW/g	WLAN SAR mW/g	∑ SAR mW/g	∑ SAR
Body SAR	Flat	0.680	0.13	0.810	<1.6
Simult Tx	Configuration	CDMA PCS SAR mW/g	WLAN SAR mW/g	∑ SAR mW/g	∑ SAR
Body SAR	Flat	0.665	0.13	0.795	<1.6

Note: The WLAN worst SAR value is with Thick / Hip Pad only.

6. System Performance Check

6.1 Symmetric Dipoles for System Validation

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	2450, 5200, 5500, 5800 MHz
Return Loss	> 20 dB at specified validation 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	D2450V2：dipole length 51.5 mm; overall height 300 mm D5GHzV2: dipole length 20.6 mm; overall height 300 mm

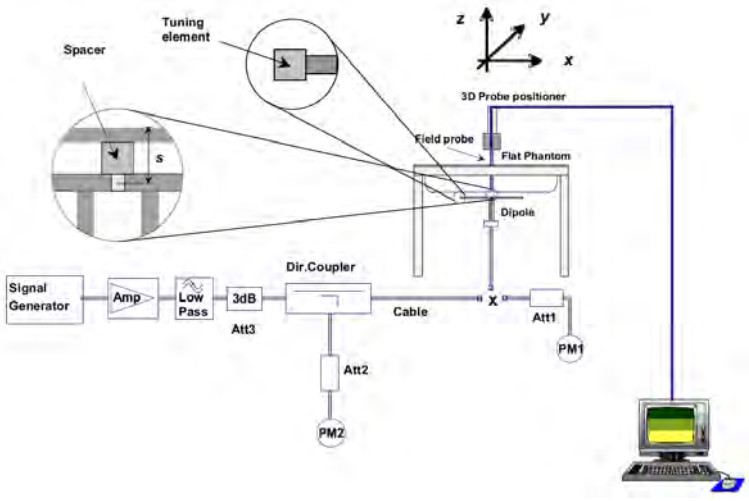


Figure 10. System Verification Setup Diagram

Figure 11. Validation Kit

6.2 Validation

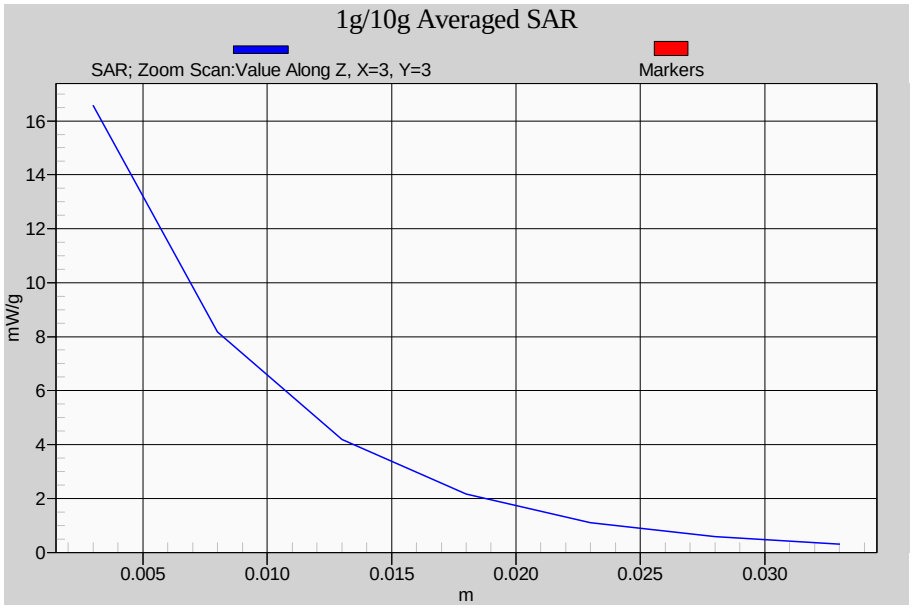
Prior to the assessment, the system validation kit was used to test whether the system was operating within its specifications of ± 7%. The validation was performed at 2450, 5200, 5500 and 5800MHz.

Validation kit	Mixture Type	SAR_{1g} [mW/g]	SAR_{10g} [mW/g]	Date of Calibration
D2450V2-SN712	Body	49.90	23.60	02/23/2012
D5GHzV2-SN1021_5200MHz	Body	74.50	20.90	02/21/2012
D5GHzV2-SN1021_5500MHz	Body	79.50	22.00	02/21/2012

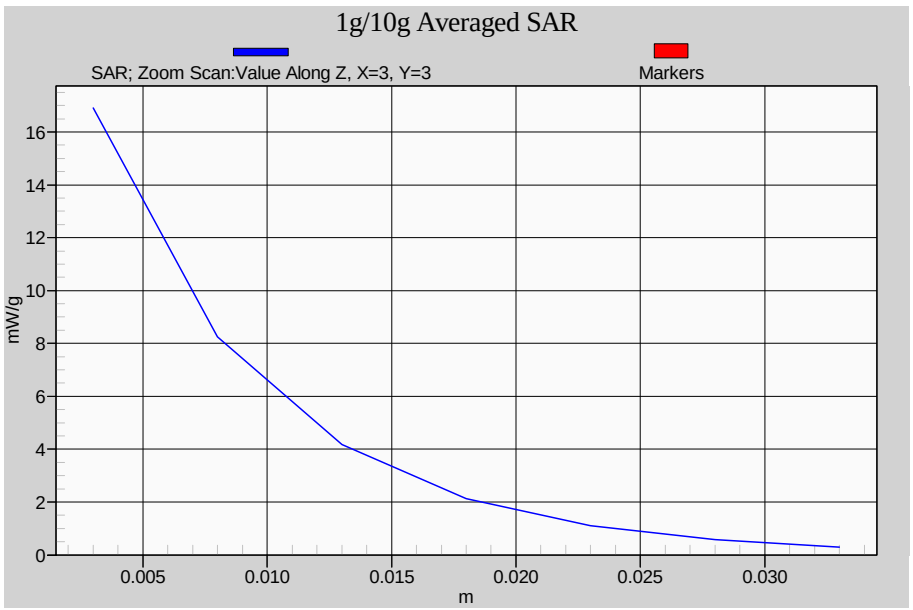
Frequency (MHz)	Power (dBm)	SAR_{1g} (mW/g)	SAR_{10g} (mW/g)	Drift (dB)	Difference percentage		Date
					1g	10g	
2450 (Body)	250mW	12.50	5.75	0.022	0.2 %	-2.5 %	03/15/2012
	Normalize to 1 Watt	50.00	23.00				
2450 (Body)	250mW	12.70	5.80	0.047	1.8 %	-1.7 %	03/16/2012
	Normalize to 1 Watt	50.80	23.20				
2450 (Body)	250mW	12.20	5.68	-0.036	-2.2 %	-3.7 %	04/02/2012
	Normalize to 1 Watt	48.80	22.72				
5200 (Body)	100mW	7.16	2.03	0.136	-3.9 %	-2.9 %	03/17/2012
	Normalize to 1 Watt	71.6	20.3				
5200 (Body)	100mW	7.36	2.09	0.0021	-1.2 %	0.0 %	03/19/2012
	Normalize to 1 Watt	73.6	20.9				
5200 (Body)	100mW	7.63	2.18	-0.013	2.4 %	4.3 %	03/20/2012
	Normalize to 1 Watt	76.30	21.80				
5500 (Body)	100mW	7.75	2.18	0.089	-2.5 %	-0.9 %	03/17/2012
	Normalize to 1 Watt	77.50	21.80				
5500 (Body)	100mW	7.76	2.19	0.018	-2.4 %	-0.5 %	03/18/2012
	Normalize to 1 Watt	77.60	21.90				
5500 (Body)	100mW	8.11	2.30	0.044	2.0 %	4.5 %	03/19/2012
	Normalize to 1 Watt	81.10	23.00				

Validation kit		Mixture Type	SAR_{1g} [mW/g]		SAR_{10g} [mW/g]		Date of Calibration
D5GHzV2-SN1021_5500MHz		Body	79.50		22.00		02/21/2012
D5GHzV2-SN1021_5800MHz		Body	74.10		20.40		02/21/2012
Frequency (MHz)	Power (dBm)	SAR_{1g} (mW/g)	SAR10g (mW/g)	Drift (dB)	Difference percentage		Date
					1g	10g	
5500 (Body)	100mW	7.87	2.25	0.00274	-1.0 %	2.3 %	03/20/2012
	Normalize to 1 Watt	78.70	22.50				
5500 (Body)	100mW	7.74	2.19	0.016	-2.6 %	-0.5 %	03/21/2012
	Normalize to 1 Watt	77.40	21.90				
5800 (Body)	100mW	7.42	2.07	0.077	0.1 %	1.5 %	03/17/2012
	Normalize to 1 Watt	74.20	20.70				
5800 (Body)	100mW	7.53	2.14	0.015	1.6 %	4.9 %	03/21/2012
	Normalize to 1 Watt	75.30	21.40				

Z-axis Plot of System Performance Check

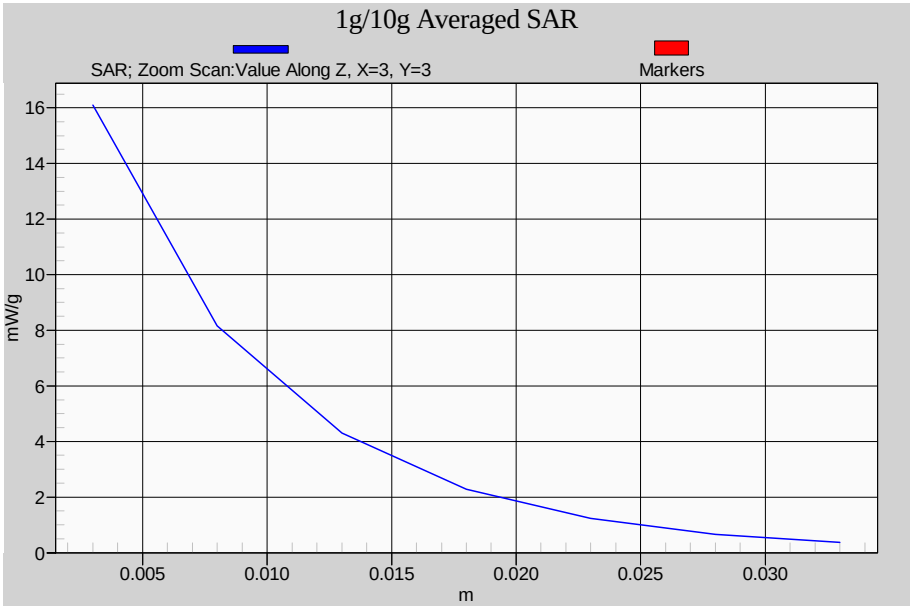


Body-Tissue-Simulating-Liquid 2450MHz (03/15/2012)

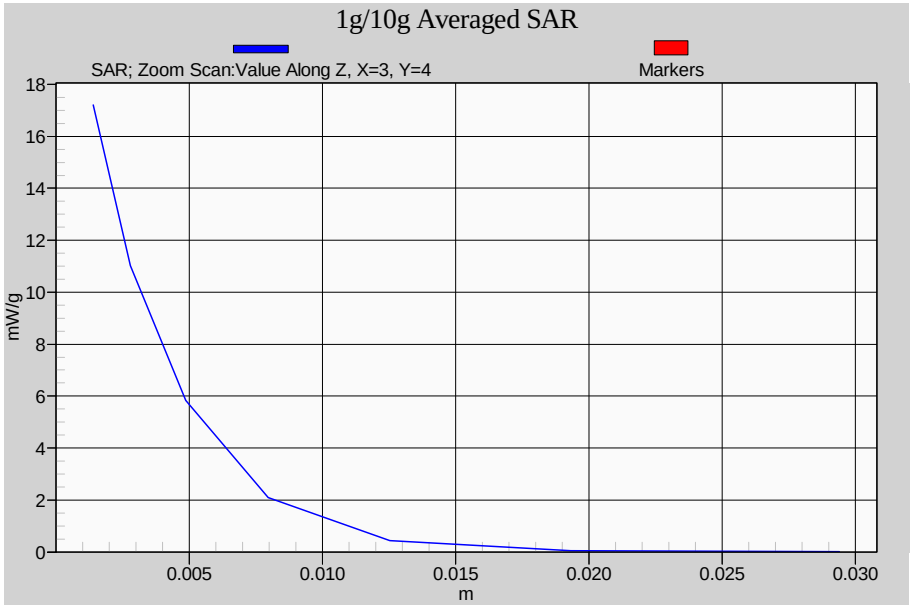


Body-Tissue-Simulating-Liquid 2450MHz (03/16/2012)

Z-axis Plot of System Performance Check

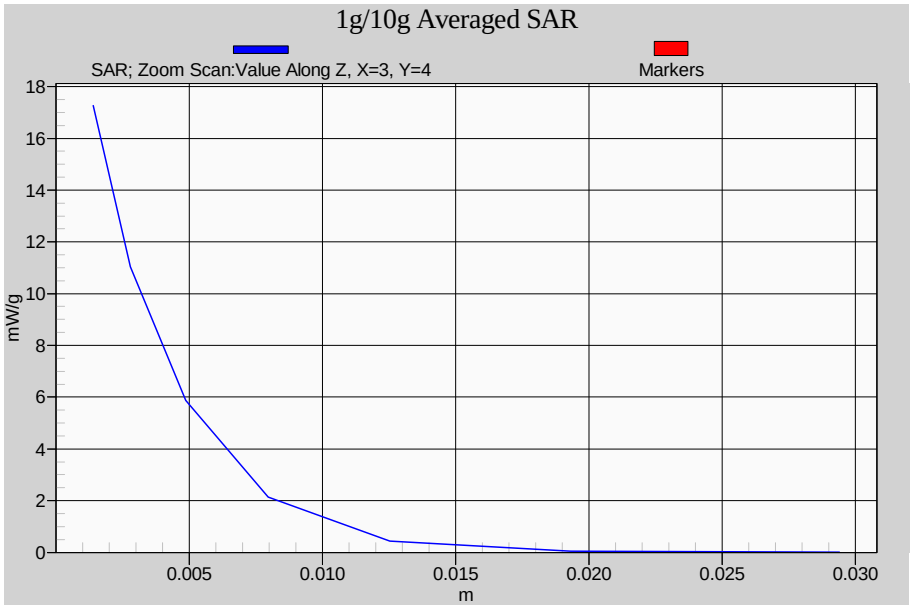


Body-Tissue-Simulating-Liquid 2450MHz (04/02/2012)

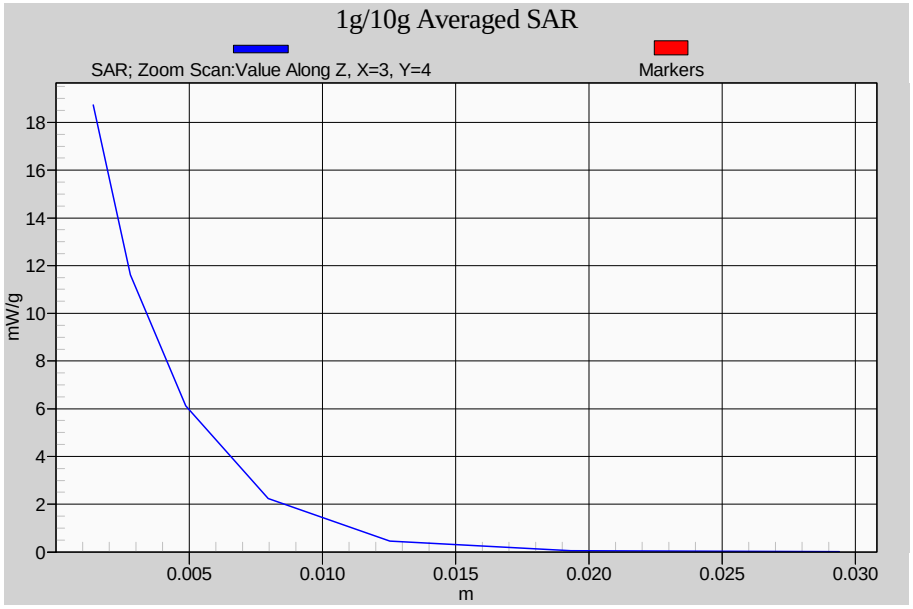


Body-Tissue-Simulating-Liquid 5200MHz (03/17/2012)

Z-axis Plot of System Performance Check

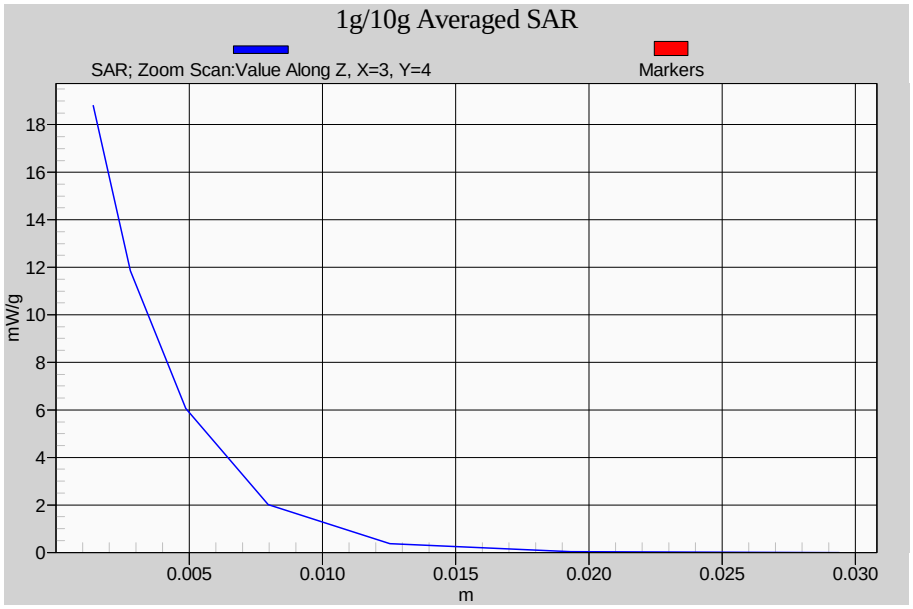


Body-Tissue-Simulating-Liquid 5200MHz (03/19/2012)

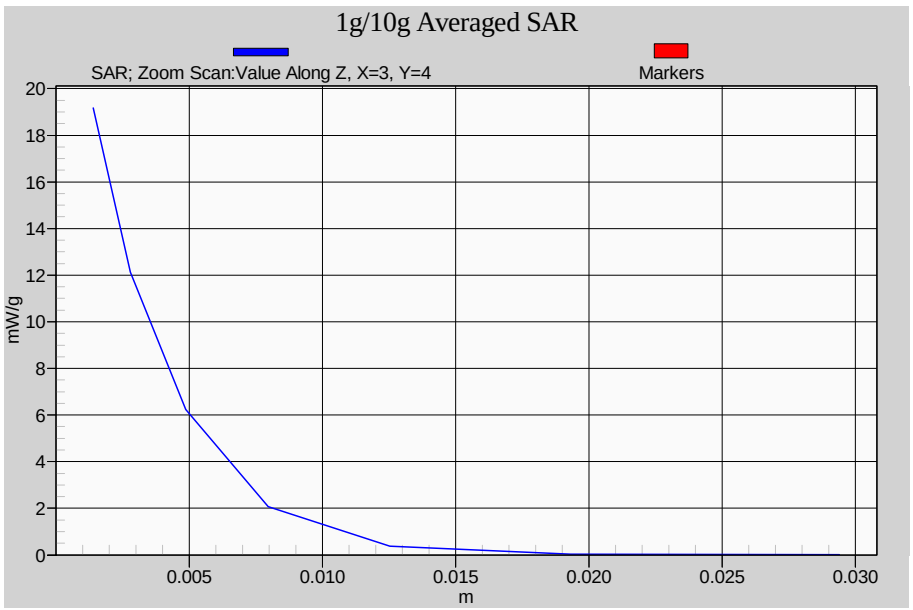


Body-Tissue-Simulating-Liquid 5200MHz (03/20/2012)

Z-axis Plot of System Performance Check

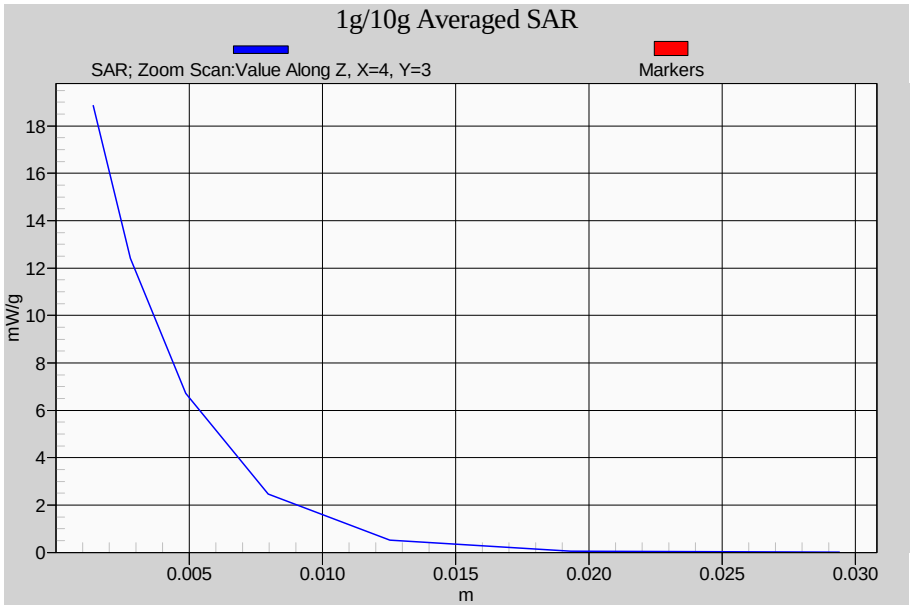


Body-Tissue-Simulating-Liquid 5500MHz (03/17/2012)

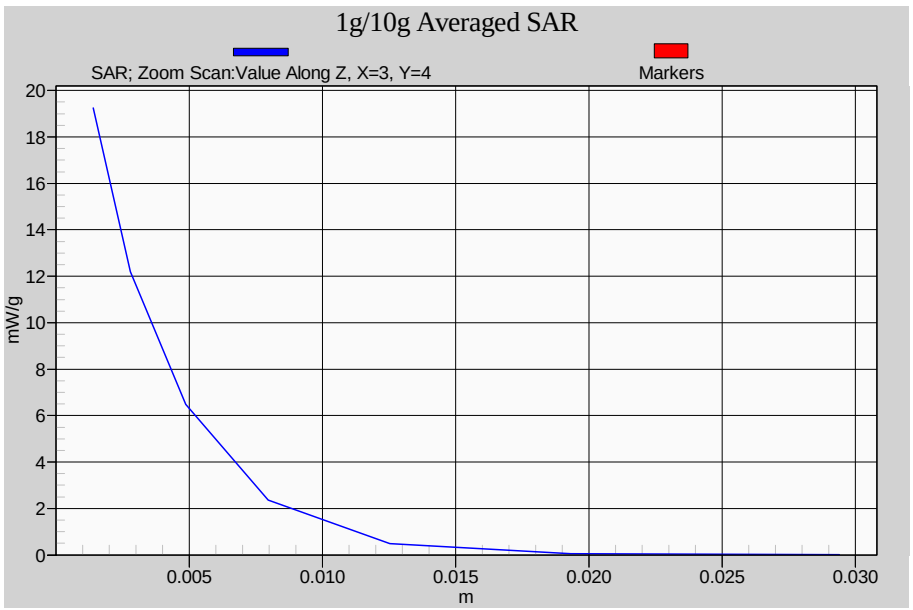


Body-Tissue-Simulating-Liquid 5500MHz (03/18/2012)

Z-axis Plot of System Performance Check

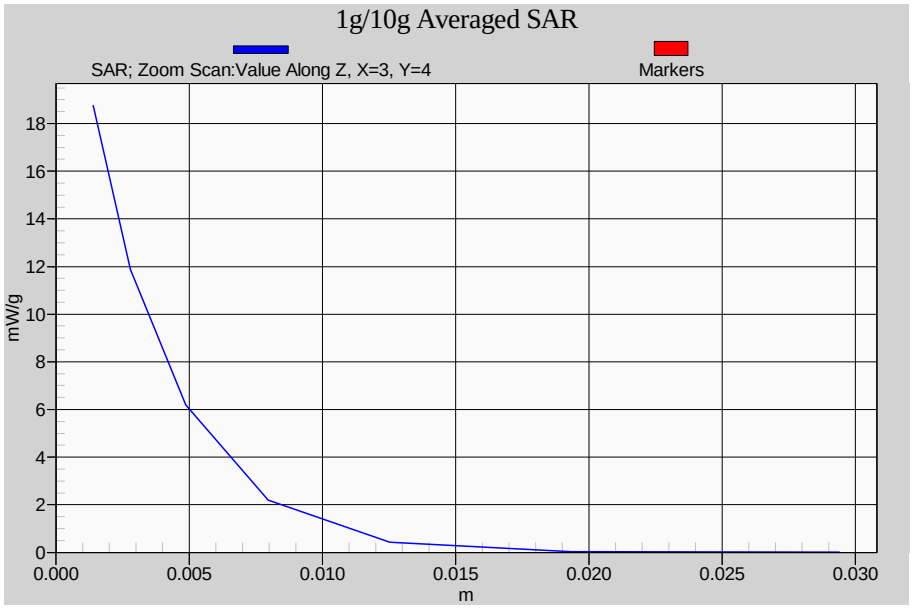


Body-Tissue-Simulating-Liquid 5500MHz (03/19/2012)

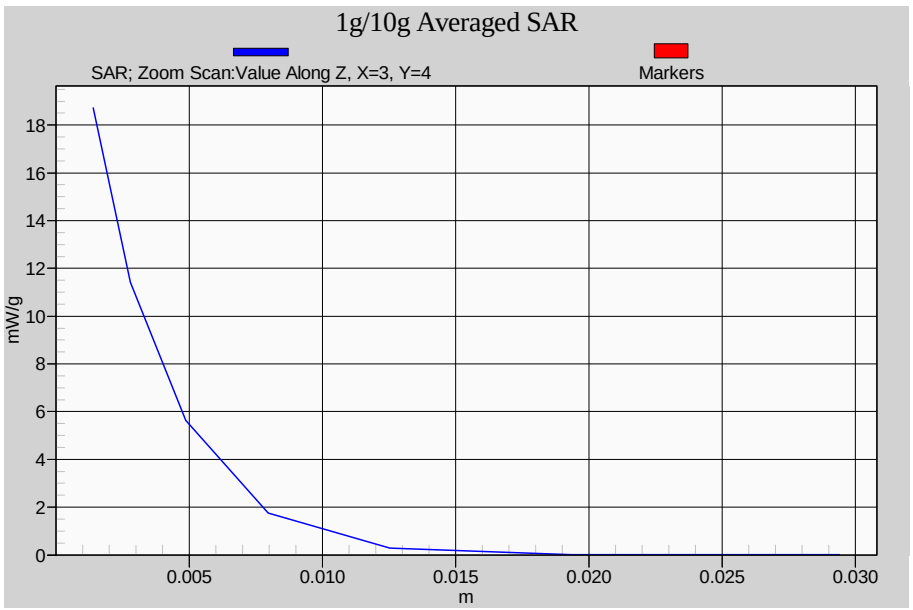


Body-Tissue-Simulating-Liquid 5500MHz (03/20/2012)

Z-axis Plot of System Performance Check

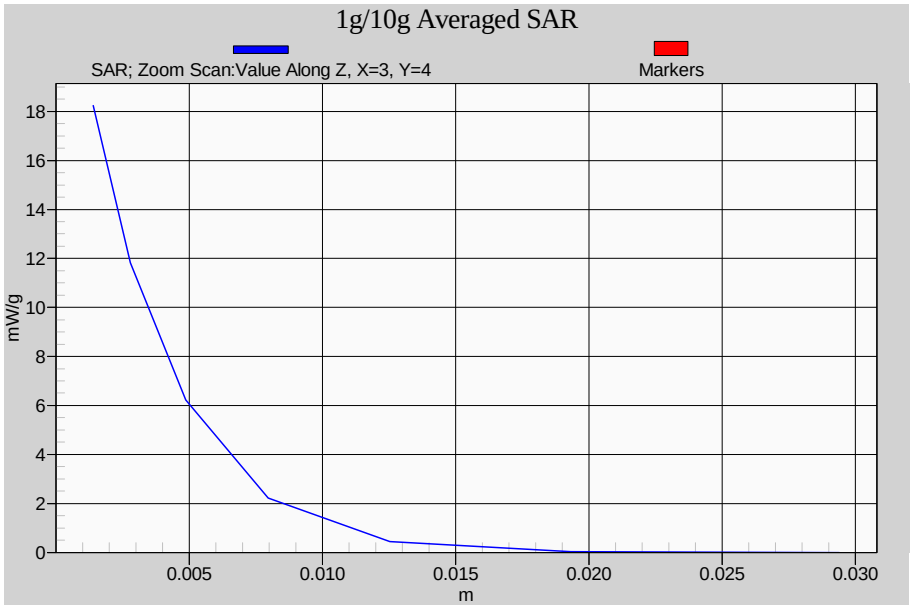


Body-Tissue-Simulating-Liquid 5500MHz (03/21/2012)



Body-Tissue-Simulating-Liquid 5800MHz (03/17/2012)

Z-axis Plot of System Performance Check



Body-Tissue-Simulating-Liquid 5800MHz (03/21/2012)

7. Test Equipment List

Manufacturer	Name of Equipment	Type/Model	Serial Number	Calibration	
				Last Cal.	Due Date
SPEAG	Dosimetric E-Field Probe	EX3DV3	3519	02/21/2012	02/21/2013
SPEAG	2450MHz System Validation Kit	D2450V2	712	02/23/2012	02/23/2013
SPEAG	5GHz System Validation Kit	D5GHzV2	1021	02/21/2012	02/21/2013
SPEAG	Data Acquisition Electronics	DAE4	779	01/23/2012	01/23/2013
SPEAG	Measurement Server	SE UMS 011 AA	1025	NCR	
SPEAG	Device Holder	N/A	N/A	NCR	
SPEAG	Phantom	ELI V4.0	1036	NCR	
SPEAG	Robot	Staubli RX90L	F00/589B1/A/01	NCR	
SPEAG	Software	DASY5 V5.0 Build 125	N/A	NCR	
SPEAG	Software	SEMCAD V13.4 Build 125	N/A	NCR	
Agilent	Dielectric Probe Kit	85070C	US99360094	NCR	
Agilent	ENA Series Network Analyzer	E5071B	MY42404655	04/14/2010	04/14/2012
R&S	Power Sensor	NRP-Z22	100179	05/27/2011	05/27/2012
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 9. 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 10. 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 Body SAR

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 11M	11	2462.0	12.26	Flat	0	Internal Battery	0.0460	0.05600	Front Surface to Phantom
	11	2462.0	12.26	Flat	0	Internal Battery	0.0860	0.02100	Back Surface to Phantom
	11	2462.0	12.26	Flat	0	Hip Pad Battery	0.0215	-0.19000	Back Surface to Phantom
	11	2462.0	12.26	Flat	0	Thick Battery	0.0220	0.19600	Back Surface to Phantom
	11	2462.0	12.26	Flat	0	Thin Battery	0.0390	0.16000	Back Surface to Phantom
	11	2462.0	12.26	Flat	0	Internal Battery	**0.2590**	-0.07100	Edge Left to Phantom
	11	2462.0	12.26	Flat	0	Internal Battery+ Hand Strap	0.0520	-0.16300	Back Surface to Phantom
	11	2462.0	12.26	Flat	0	Hip Pad Battery+ Hand Strap	0.0210	0.11900	Back Surface to Phantom
	11	2462.0	12.26	Flat	0	Thick Battery+ Hand Strap	0.0220	-0.05700	Back Surface to Phantom
	11	2462.0	12.26	Flat	0	Thin Battery+ Hand Strap	0.0400	-0.11400	Back Surface to Phantom
	11	2462.0	12.26	Flat	0	Internal Battery+ Shoulder Strap	0.0530	-0.11900	Back Surface to Phantom
	11	2462.0	12.26	Flat	0	Hip Pad Battery+ Shoulder Strap	0.0190	0.01200	Back Surface to Phantom
	11	2462.0	12.26	Flat	0	Thick Battery+ Shoulder Strap	0.0230	-0.02000	Back Surface to Phantom
	11	2462.0	12.26	Flat	0	Thin Battery+ Shoulder Strap	0.0420	-0.16600	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			

Measurement Results									
Band	Frequency		Power (dBm)	Phantom Position	Spacing (mm)	Accessory	SAR_{1g} [mW/g]	Power Drift (dB)	Remark
	CH	MHz							
IEEE 802.11a Rate 6M	40	5200.0	11.43	Flat	0	Internal Battery	0.1320	-0.16700	Front Surface to Phantom
	48	5240.0	11.34	Flat	0	Internal Battery	0.1170	0.00000	Front Surface to Phantom
	52	5260.0	13.25	Flat	0	Internal Battery	0.1740	0.00000	Front Surface to Phantom
	60	5300.0	13.54	Flat	0	Internal Battery	0.2710	0.00000	Front Surface to Phantom
	116	5580.0	13.40	Flat	0	Internal Battery	0.1090	-0.03400	Front Surface to Phantom
	124	5620.0	13.17	Flat	0	Internal Battery	0.0770	-0.19500	Front Surface to Phantom
	136	5680.0	13.42	Flat	0	Internal Battery	0.1240	0.00000	Front Surface to Phantom
	140	5700.0	13.44	Flat	0	Internal Battery	0.1160	0.00000	Front Surface to Phantom
	149	5745.0	8.43	Flat	0	Internal Battery	0.0400	-0.00477	Front Surface to Phantom
	161	5805.0	8.49	Flat	0	Internal Battery	0.0560	0.08500	Front Surface to Phantom
	165	5825.0	8.44	Flat	0	Internal Battery	0.0610	-0.18900	Front Surface to Phantom
	40	5200.0	11.43	Flat	0	Internal Battery	0.1290	0.12300	Back Surface to Phantom
	48	5240.0	11.34	Flat	0	Internal Battery	0.1380	0.06900	Back Surface to Phantom
	52	5260.0	13.25	Flat	0	Internal Battery	0.2130	0.18700	Back Surface to Phantom
	60	5300.0	13.54	Flat	0	Internal Battery	0.1990	0.18000	Back Surface to Phantom
	116	5580.0	13.40	Flat	0	Internal Battery	0.3020	0.13000	Back Surface to Phantom
	116	5580.0	13.40	Flat	0	Hip Pad Battery	0.0980	-0.11000	Back Surface to Phantom
	116	5580.0	13.40	Flat	0	Thick Battery	0.0910	0.19000	Back Surface to Phantom
	116	5580.0	13.40	Flat	0	Thin Battery	0.1370	0.15800	Back Surface to Phantom
	124	5620.0	13.17	Flat	0	Internal Battery	0.2040	-0.01000	Back Surface to Phantom
	136	5680.0	13.42	Flat	0	Internal Battery	0.2610	-0.09100	Back Surface to Phantom
	140	5700.0	13.44	Flat	0	Internal Battery	0.2430	0.09000	Back Surface to Phantom
	149	5745.0	8.43	Flat	0	Internal Battery	0.0750	-0.16000	Back Surface to Phantom
	161	5805.0	8.49	Flat	0	Internal Battery	0.1050	-0.10500	Back Surface to Phantom
	165	5825.0	8.44	Flat	0	Internal Battery	0.1160	-0.10700	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			

Measurement Results									
Band	Frequency		Power (dBm)	Phantom Position	Spacing (mm)	Accessory	SAR_{1g} [mW/g]	Power Drift (dB)	Remark
	CH	MHz							
IEEE 802.11a Rate 6M	40	5200.0	11.43	Flat	0	Internal Battery	0.2300	-0.05500	Edge Left to Phantom
	48	5240.0	11.34	Flat	0	Internal Battery	0.2240	-0.05300	Edge Left to Phantom
	52	5260.0	13.25	Flat	0	Internal Battery	0.2440	-0.03700	Edge Left to Phantom
	60	5300.0	13.54	Flat	0	Internal Battery	0.3830	0.18900	Edge Left to Phantom
	116	5580.0	13.40	Flat	0	Internal Battery	**0.3890**	0.07200	Edge Left to Phantom
	124	5620.0	13.17	Flat	0	Internal Battery	0.2960	0.18900	Edge Left to Phantom
	136	5680.0	13.42	Flat	0	Internal Battery	0.3160	-0.07500	Edge Left to Phantom
	140	5700.0	13.44	Flat	0	Internal Battery	0.3160	0.00000	Edge Left to Phantom
	149	5745.0	8.43	Flat	0	Internal Battery	0.0820	0.00000	Edge Left to Phantom
	161	5805.0	8.49	Flat	0	Internal Battery	0.1310	-0.08800	Edge Left to Phantom
	165	5825.0	8.44	Flat	0	Internal Battery	0.1470	0.17200	Edge Left to Phantom
	116	5580.0	13.40	Flat	0	Internal Battery+ Hand Strap	0.1860	-0.02300	Back Surface to Phantom
	116	5580.0	13.40	Flat	0	Hip Pad Battery+ Hand Strap	0.0870	0.07700	Back Surface to Phantom
	116	5580.0	13.40	Flat	0	Thick Battery+ Hand Strap	0.1090	-0.00276	Back Surface to Phantom
	116	5580.0	13.40	Flat	0	Thin Battery+ Hand Strap	0.1720	-0.13300	Back Surface to Phantom
	116	5580.0	13.40	Flat	0	Internal Battery+ Shoulder Strap	0.2350	0.11200	Back Surface to Phantom
	116	5580.0	13.40	Flat	0	Hip Pad Battery+ Shoulder Strap	0.1300	0.18700	Back Surface to Phantom
	116	5580.0	13.40	Flat	0	Thick Battery+ Shoulder Strap	0.1160	-0.15100	Back Surface to Phantom
	116	5580.0	13.40	Flat	0	Thin Battery+ Shoulder Strap	0.1720	0.08000	Back Surface to Phantom
	116	5580.0	13.40	Flat	0	Internal Battery+ Barcode+ Magnetic Stripe	0.3260	0.19200	Edge Left to Phantom
Bluetooth	39	2441.0	2.89	Flat	0	Thick Battery	0.00000157	0	Front Surface to Phantom
	39	2441.0	2.89	Flat	0	Hip Pad Battery	0.00000356	0	Back Surface to Phantom
	39	2441.0	2.89	Flat	0	Thick Battery	0.00001130	0	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 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. The orientation can't rotated, only used for edge bottom.
8. The distance of main antenna to edge left is < 5cm,and another is >5cm,therefore SAR test positions consider edge left, front surface and back surface.
9. The distance of main antenna to BT antenna is 146.67mm, and power is 2.89dBm(1.94mW) lower than 60/f, therefore BT SAR is not required.
10. It is found that Hand/Shoulder strap will result in larger air gap between the EUT and phantom, therefore EUT with these accessories was spotted checked only on Highest SAR measured from internal battery configuration
11. It is found that Barcode scanner and magnetic stripe will result in larger air gap between the EUT and phantom, therefore EUT with these accessories was spotted checked only on Highest SAR measured from internal battery configuration.
12. Worst Case chosen as below:

    802.11b: ch11 for 11M, 802.11a/n: ch 40,48,52,60,116,124,136,140,149,161,165 for 6M
13. △SAR is <0, so SAR value is not varied.

f	Measured Value		Target Value		Δ εr(%)	Δσ(%)	For 1g		ΔSAR 1-g(%)	Original SAR	Correction SAR
	Permittivity	conductivity	Permittivity	conductivity	Permittivity	conductivity	cε	cσ		Worst Case	Worst Case
2462	51.3	2	52.68473	1.9670182	-2.628	1.677	-0.2248	0.47762	1.392	0.259	0.263
2441	51.2	1.96	52.712	1.9414	-2.868	0.958	-0.2249	0.4822	1.107	0.0000113	0.0000114
5240	47.7	5.54	48.96	5.346	-2.574	3.629	-0.2011	-0.0284	0.414	0.224	0.225
5260	47.6	5.57	48.93286	5.3693571	-2.724	3.737	-0.201	-0.0298	0.436	0.244	0.245
5300	47.5	5.65	48.87857	5.4160714	-2.820	4.319	-0.2008	-0.0324	0.426	0.383	0.385
5580	46.9	5.98	48.49857	5.7430714	-3.296	4.125	-0.1993	-0.0441	0.475	0.389	**0.391**
5620	46.8	6.03	48.44429	5.7897857	-3.394	4.149	-0.1992	-0.0448	0.490	0.296	0.297
5680	46.7	6.05	48.36286	5.8598571	-3.438	3.245	-0.1989	-0.0454	0.537	0.316	0.318
5700	46.6	6.05	48.33571	5.8832143	-3.591	2.835	-0.1989	-0.0455	0.585	0.316	0.318
5745	46.5	6.19	48.27464	5.9357679	-3.676	4.283	-0.1987	-0.0454	0.536	0.082	0.082
5805	46.4	6.27	48.2	6	-3.734	4.500	-0.1986	-0.0448	0.540	0.131	0.132
5825	46.4	6.28	48.2	6	-3.734	4.667	-0.1985	-0.0445	0.534	0.147	0.148
5200	47.8	5.52	49.01429	5.2992857	-2.477	4.165	-0.2014	-0.0255	0.393	0.23	0.231

SAR Correction Formula	
SAR 1-g	$c_\varepsilon = -7{,}854\times10^{-4} f^3 + 9{,}402\times10^{-3} f^2 - 2{,}742\times10^{-2} f - 0{,}202\,6$ $c_\sigma = 9{,}804\times10^{-3} f^3 - 8{,}661\times10^{-2} f^2 + 2{,}981\times10^{-2} f + 0{,}782\,9$
SAR 10-g	$c_\varepsilon = 3{,}456\times10^{-3} f^3 - 3{,}531\times10^{-2} f^2 + 7{,}675\times10^{-2} f - 0{,}186$ ($c_\sigma = 4{,}479\times10^{-3} f^3 - 1{,}586\times10^{-2} f^2 - 0{,}197\,2 f + 0{,}771\,7$

10.2 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 11. 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 **LXE Inc Trade Name：Marathon Model(s)：FX1** 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.

[4] K. Pokovi ć, T. Schmid, and N. Kuster, "*Robust setup for precise calibration of E-field probes in tissue simulating liquids at mobile communications frequency*", in ICECOM'97, Dubrovnik, October 15-17, 1997, pp.120-124.

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

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

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

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

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

[16] KDB 941225 D06 Hot Spot SAR v01

Appendix A - System Performance Check

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/15/2012 8:57:33 PM

System Performance Check at 2450MHz_20120315_Body

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

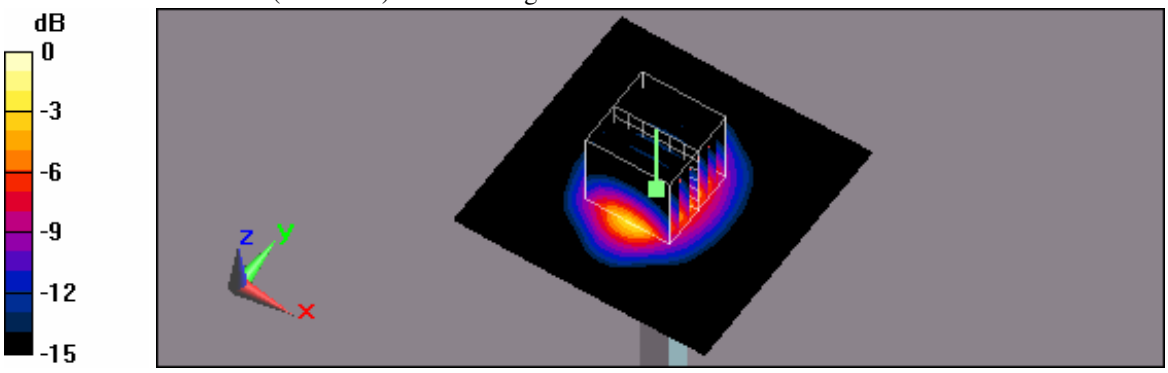
Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.98 mho/m; ε_r = 51.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(8.22, 8.22, 8.22); Calibrated: 2/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

System Performance Check at 2450MHz/Area Scan (61x61x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 16.8 mW/g

System Performance Check at 2450MHz/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 91.8 V/m; Power Drift = 0.022 dB
Peak SAR (extrapolated) = 26.2 W/kg
SAR(1 g) = 12.5 mW/g; SAR(10 g) = 5.75 mW/g
Maximum value of SAR (measured) = 16.6 mW/g



0 dB = 16.6mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/16/2012 5:46:15 PM

System Performance Check at 2450MHz_20120316_Body

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

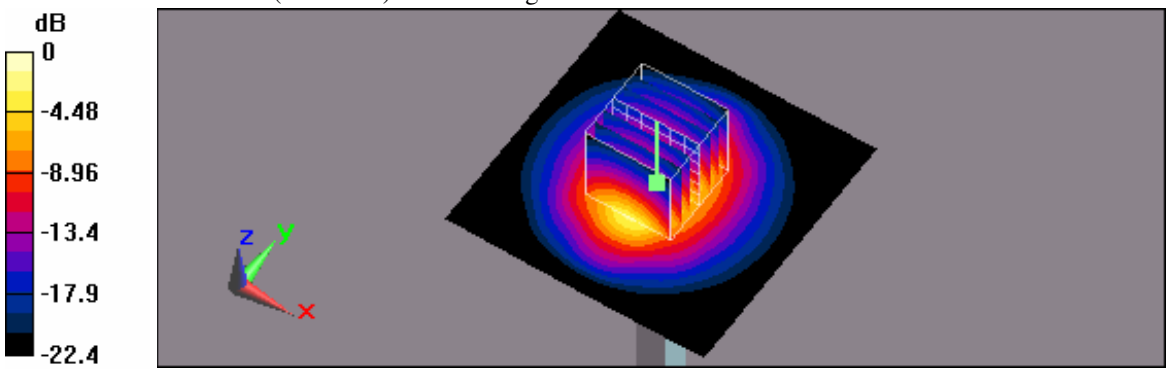
Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.98 mho/m; ε_r = 51.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(8.22, 8.22, 8.22); Calibrated: 2/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

System Performance Check at 2450MHz/Area Scan (61x61x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 16.8 mW/g

System Performance Check at 2450MHz/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 91.8 V/m; Power Drift = 0.047 dB
Peak SAR (extrapolated) = 26.8 W/kg
SAR(1 g) = 12.7 mW/g; SAR(10 g) = 5.8 mW/g
Maximum value of SAR (measured) = 16.9 mW/g



0 dB = 16.9mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 4/2/2012 5:28:30 PM

System Performance Check at 2450MHz_20120402_Body

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

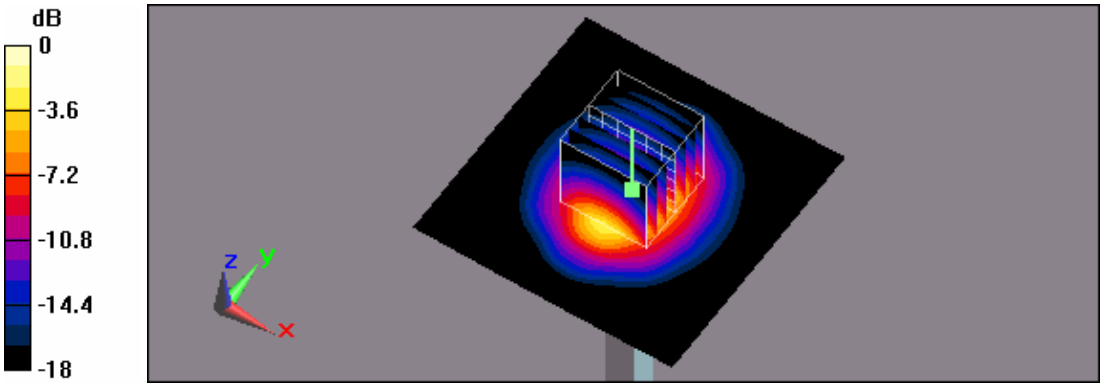
Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.98 mho/m; ε_r = 51.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(8.22, 8.22, 8.22); Calibrated: 2/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

System Performance Check at 2450MHz/Area Scan (61x61x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 16.1 mW/g

System Performance Check at 2450MHz/Zoom Scan (7x7x7)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 90.6 V/m; Power Drift = -0.036 dB
Peak SAR (extrapolated) = 24.9 W/kg
SAR(1 g) = 12.2 mW/g; SAR(10 g) = 5.68 mW/g
Maximum value of SAR (measured) = 16.1 mW/g



0 dB = 16.1mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/17/2012 9:38:09 AM

System Performance Check at 5200MHz_20120317_Body

DUT: Dipole 5GHzV2; Type: D5GHz; Serial: 1021

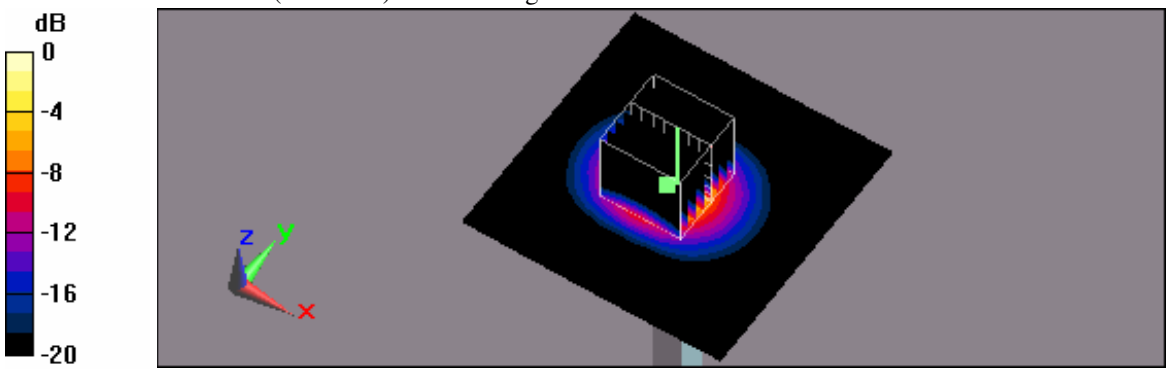
Communication System: CW; Frequency: 5200 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5200 MHz; σ = 5.52 mho/m; ε_r = 47.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(4.38, 4.38, 4.38); Calibrated: 2/21/2012
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

System Performance Check at 5200MHz/Area Scan (91x91x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 17.6 mW/g

System Performance Check at 5200MHz/Zoom Scan (8x8x7)/Cube 0:
Measurement grid:dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 62.7 V/m; Power Drift = 0.136 dB
Peak SAR (extrapolated) = 29.8 W/kg
SAR(1 g) = 7.16 mW/g; SAR(10 g) = 2.03 mW/g
Maximum value of SAR (measured) = 17.2 mW/g



0 dB = 17.2mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/19/2012 10:48:33 AM

System Performance Check at 5200MHz_20120319_Body

DUT: Dipole 5GHzV2; Type: D5GHz; Serial: 1021

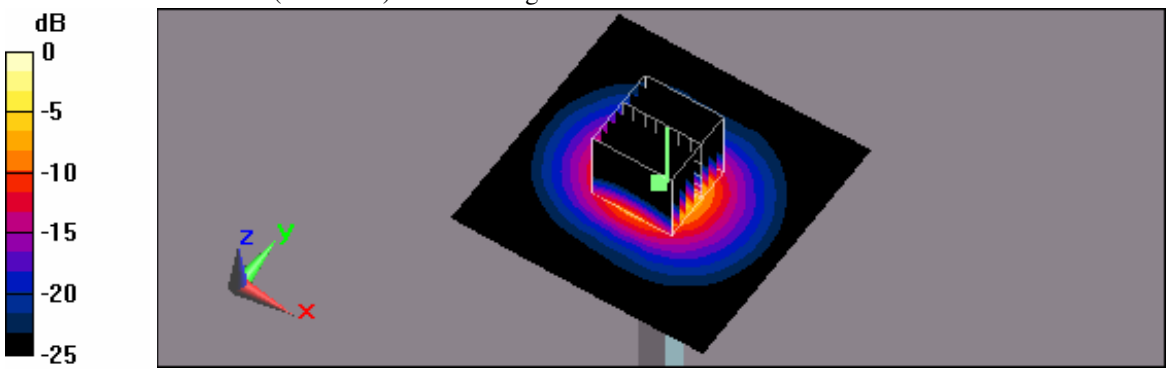
Communication System: CW; Frequency: 5200 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5200 MHz; σ = 5.52 mho/m; ε_r = 47.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(4.38, 4.38, 4.38); Calibrated: 2/21/2012
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

System Performance Check at 5200MHz/Area Scan (91x91x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 18 mW/g

System Performance Check at 5200MHz/Zoom Scan (8x8x7)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 67.4 V/m; Power Drift = 0.0021 dB
Peak SAR (extrapolated) = 30.4 W/kg
SAR(1 g) = 7.36 mW/g; SAR(10 g) = 2.09 mW/g
Maximum value of SAR (measured) = 17.3 mW/g



0 dB = 17.3mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/20/2012 11:37:33 AM

System Performance Check at 5200MHz_20120320_Body

DUT: Dipole 5GHzV2; Type: D5GHz; Serial: 1021

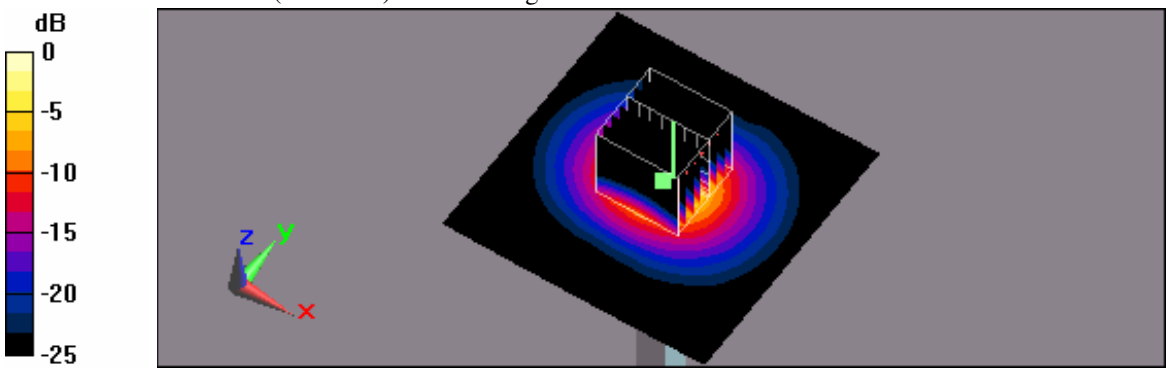
Communication System: CW; Frequency: 5200 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5200 MHz; σ = 5.52 mho/m; ε_r = 47.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(4.38, 4.38, 4.38); Calibrated: 2/21/2012
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

System Performance Check at 5200MHz/Area Scan (91x91x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 18.1 mW/g

System Performance Check at 5200MHz/Zoom Scan (8x8x7)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 64.2 V/m; Power Drift = -0.013 dB
Peak SAR (extrapolated) = 33.4 W/kg
SAR(1 g) = 7.63 mW/g; SAR(10 g) = 2.18 mW/g
Maximum value of SAR (measured) = 18.7 mW/g



0 dB = 18.7mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/17/2012 9:08:55 AM

System Performance Check at 5500MHz_20120317_Body

DUT: Dipole 5GHzV2; Type: D5GHz; Serial: 1021

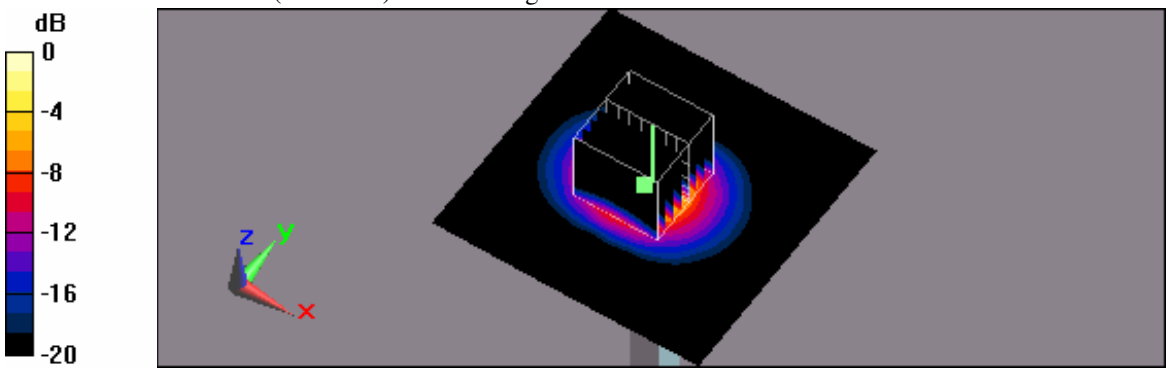
Communication System: CW; Frequency: 5500 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5500 MHz; σ = 5.9 mho/m; ε_r = 47.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(3.92, 3.92, 3.92); Calibrated: 2/21/2012
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

System Performance Check at 5500MHz/Area Scan (91x91x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 19.6 mW/g

System Performance Check at 5500MHz/Zoom Scan (8x8x7)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 65.2 V/m; Power Drift = 0.089 dB
Peak SAR (extrapolated) = 33.6 W/kg
SAR(1 g) = 7.75 mW/g; SAR(10 g) = 2.18 mW/g
Maximum value of SAR (measured) = 18.8 mW/g



0 dB = 18.8mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/18/2012 8:47:02 AM

System Performance Check at 5500MHz_20120318_Body

DUT: Dipole 5GHzV2; Type: D5GHz; Serial: 1021

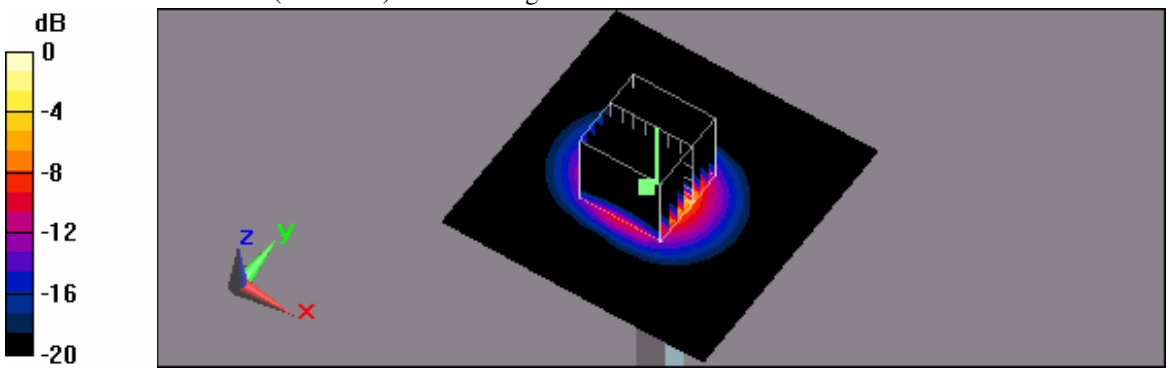
Communication System: CW; Frequency: 5500 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5500 MHz; σ = 5.9 mho/m; ε_r = 47.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(3.92, 3.92, 3.92); Calibrated: 2/21/2012
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

System Performance Check at 5500MHz/Area Scan (91x91x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 19.4 mW/g

System Performance Check at 5500MHz/Zoom Scan (8x8x7)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 64.6 V/m; Power Drift = 0.018 dB
Peak SAR (extrapolated) = 33.2 W/kg
SAR(1 g) = 7.76 mW/g; SAR(10 g) = 2.19 mW/g
Maximum value of SAR (measured) = 19.2 mW/g



0 dB = 19.2mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/19/2012 11:21:44 AM

System Performance Check at 5500MHz_20120319_Body

DUT: Dipole 5GHzV2; Type: D5GHz; Serial: 1021

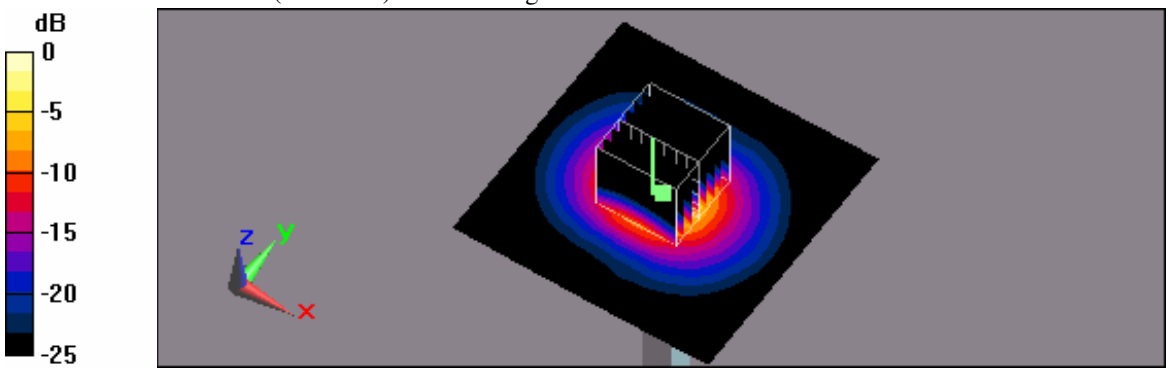
Communication System: CW; Frequency: 5500 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5500 MHz; σ = 5.9 mho/m; ε_r = 47.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(3.92, 3.92, 3.92); Calibrated: 2/21/2012
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

System Performance Check at 5500MHz/Area Scan (91x91x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 19.6 mW/g

System Performance Check at 5500MHz/Zoom Scan (8x8x7)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 69 V/m; Power Drift = 0.044 dB
Peak SAR (extrapolated) = 32 W/kg
SAR(1 g) = 8.11 mW/g; SAR(10 g) = 2.3 mW/g
Maximum value of SAR (measured) = 18.9 mW/g



0 dB = 18.9mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/20/2012 12:22:16 PM

System Performance Check at 5500MHz_20120320_Body

DUT: Dipole 5GHzV2; Type: D5GHz; Serial: 1021

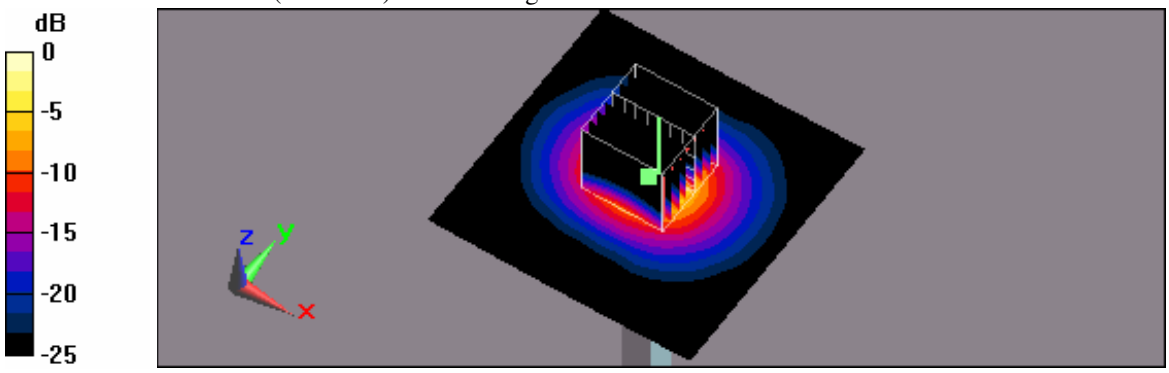
Communication System: CW; Frequency: 5500 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5500 MHz; σ = 5.9 mho/m; ε_r = 47.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(3.92, 3.92, 3.92); Calibrated: 2/21/2012
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

System Performance Check at 5500MHz/Area Scan (91x91x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 18.6 mW/g

System Performance Check at 5500MHz/Zoom Scan (8x8x7)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 64 V/m; Power Drift = 0.00274 dB
Peak SAR (extrapolated) = 33.1 W/kg
SAR(1 g) = 7.87 mW/g; SAR(10 g) = 2.25 mW/g
Maximum value of SAR (measured) = 19.2 mW/g



0 dB = 19.2mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/21/2012 12:37:35 PM

System Performance Check at 5500MHz_20120321_Body

DUT: Dipole 5GHzV2; Type: D5GHz; Serial: 1021

Communication System: CW; Frequency: 5500 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5500 MHz; σ = 5.9 mho/m; ε_r = 47.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

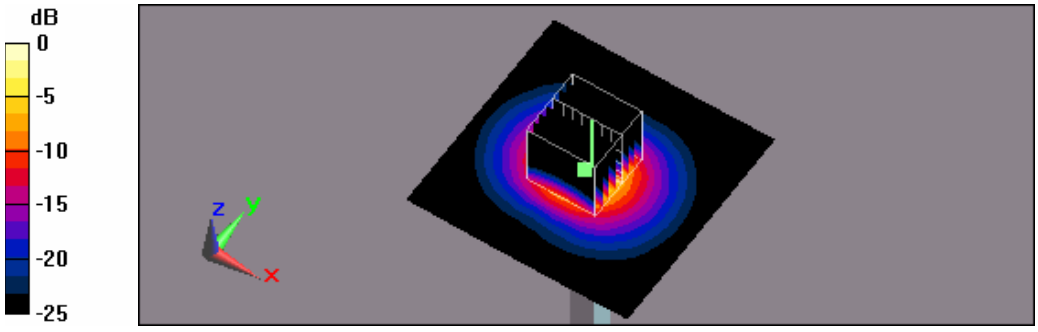
- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(3.92, 3.92, 3.92); Calibrated: 2/21/2012
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

System Performance Check at 5500MHz/Area Scan (91x91x1):

Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 18.7 mW/g

System Performance Check at 5500MHz/Zoom Scan (8x8x7)/Cube 0:

Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 66.9 V/m; Power Drift = 0.016 dB
Peak SAR (extrapolated) = 32.7 W/kg
SAR(1 g) = 7.74 mW/g; SAR(10 g) = 2.19 mW/g
Maximum value of SAR (measured) = 18.8 mW/g



0 dB = 18.8mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/17/2012 8:35:41 AM

System Performance Check at 5800MHz_20120317_Body

DUT: Dipole 5GHzV2; Type: D5GHz; Serial: 1021

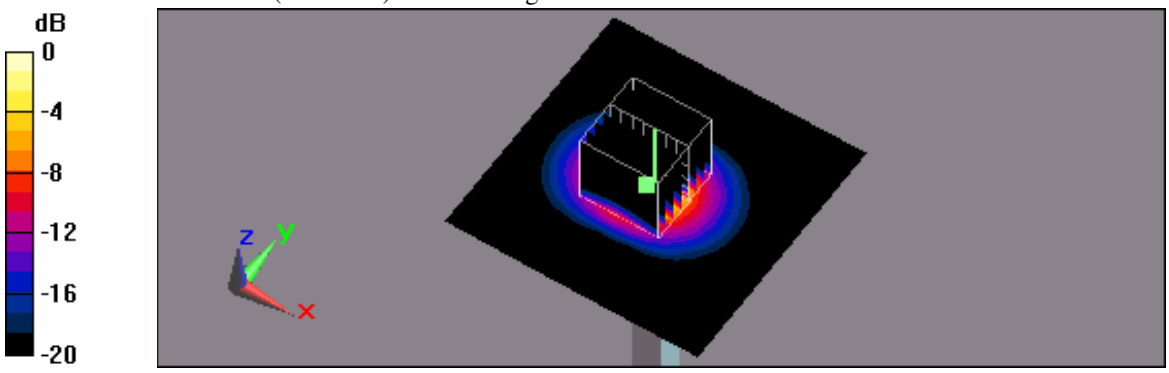
Communication System: CW; Frequency: 5800 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5800 MHz; σ = 6.27 mho/m; ε_r = 46.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(3.88, 3.88, 3.88); Calibrated: 2/21/2012
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

System Performance Check at 5800MHz/Area Scan (91x91x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 19.1 mW/g

System Performance Check at 5800MHz/Zoom Scan (8x8x7)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 63.6 V/m; Power Drift = 0.077 dB
Peak SAR (extrapolated) = 33.8 W/kg
SAR(1 g) = 7.42 mW/g; SAR(10 g) = 2.07 mW/g
Maximum value of SAR (measured) = 18.7 mW/g



0 dB = 18.7mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/21/2012 1:44:10 PM

System Performance Check at 5800MHz_20120321_Body

DUT: Dipole 5GHzV2; Type: D5GHz; Serial: 1021

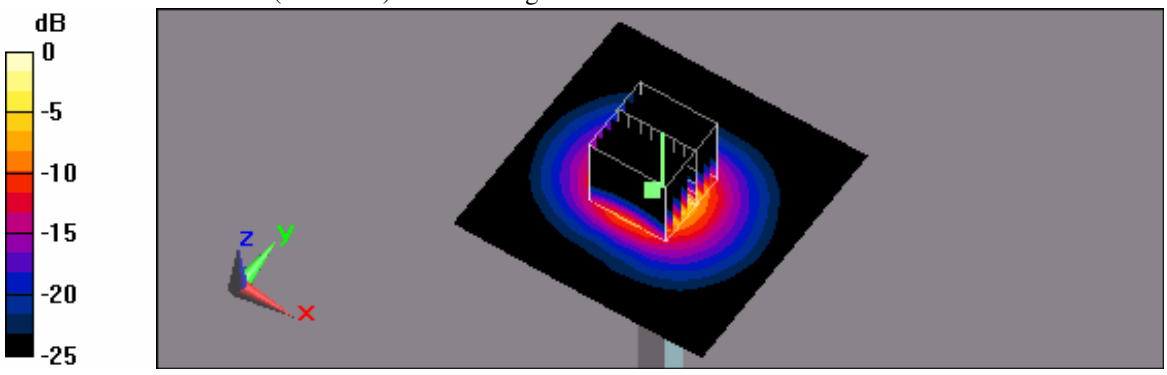
Communication System: CW; Frequency: 5800 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5800 MHz; σ = 6.27 mho/m; ε_r = 46.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(3.88, 3.88, 3.88); Calibrated: 2/21/2012
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

System Performance Check at 5800MHz/Area Scan (91x91x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 18.4 mW/g

System Performance Check at 5800MHz/Zoom Scan (8x8x7)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 65 V/m; Power Drift = 0.015 dB
Peak SAR (extrapolated) = 30.3 W/kg
SAR(1 g) = 7.53 mW/g; SAR(10 g) = 2.14 mW/g
Maximum value of SAR (measured) = 18.2 mW/g



0 dB = 18.2mW/g

Appendix B - SAR Measurement Data

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/16/2012 1:40:40 AM

Flat_802.11b CH11_11M_Front surface to phantom 0mm_Internal Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

Communication System: IEEE 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 2 mho/m; ε_r = 51.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(8.22, 8.22, 8.22); Calibrated: 2/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (81x181x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.065 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 0.523 V/m; Power Drift = 0.056 dB
Peak SAR (extrapolated) = 0.115 W/kg
SAR(1 g) = 0.046 mW/g; SAR(10 g) = 0.023 mW/g
Maximum value of SAR (measured) = 0.062 mW/g

0 dB = 0.062mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/16/2012 12:58:31 AM

Flat_802.11b CH11_11M_Back surface to phantom 0mm_Internal Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

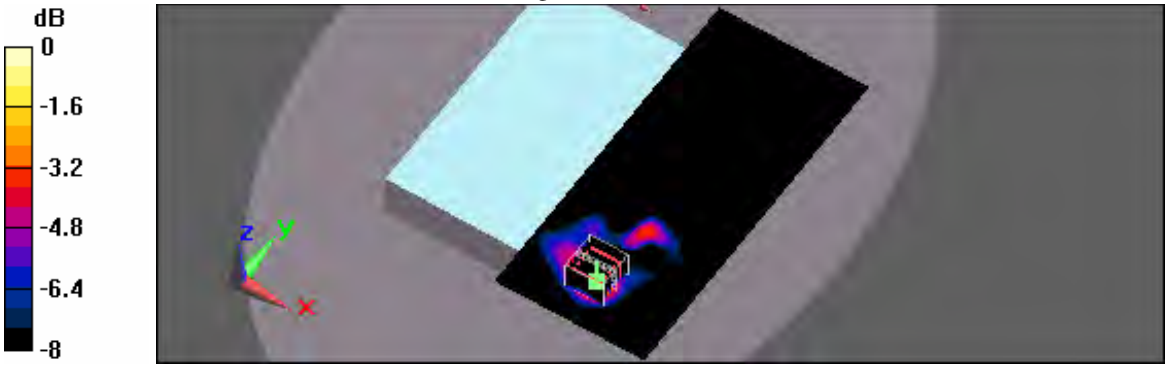
Communication System: IEEE 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 2 mho/m; ε_r = 51.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(8.22, 8.22, 8.22); Calibrated: 2/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (81x181x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.107 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 1.11 V/m; Power Drift = 0.021 dB
Peak SAR (extrapolated) = 0.187 W/kg
SAR(1 g) = 0.086 mW/g; SAR(10 g) = 0.039 mW/g
Maximum value of SAR (measured) = 0.111 mW/g



0 dB = 0.111mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/17/2012 2:11:38 AM

Flat_802.11b CH11_11M_Back surface to phantom 0mm_Hip pad Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

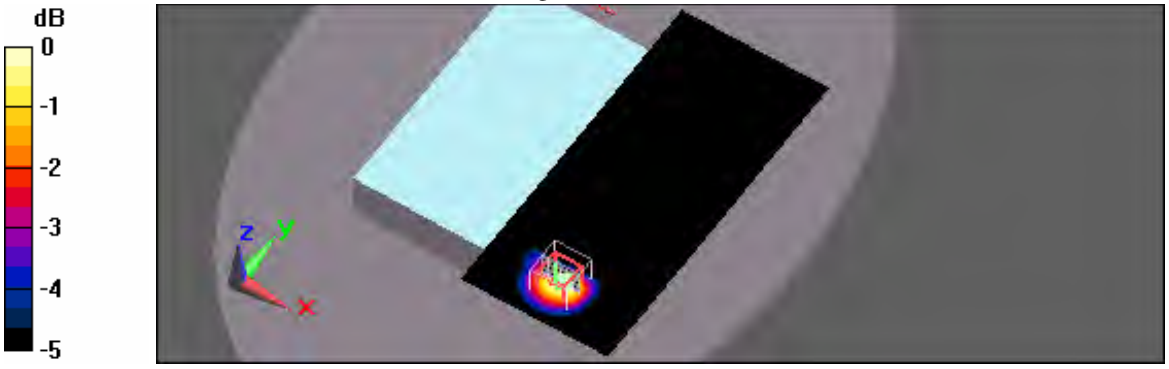
Communication System: IEEE 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 2 mho/m; ε_r = 51.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(8.22, 8.22, 8.22); Calibrated: 2/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (81x181x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.026 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 0.973 V/m; Power Drift = -0.190 dB
Peak SAR (extrapolated) = 0.045 W/kg
SAR(1 g) = 0.0215 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: 3/16/2012 9:59:17 PM

Flat_802.11b CH11_11M_Back surface to phantom 0mm_Thick Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

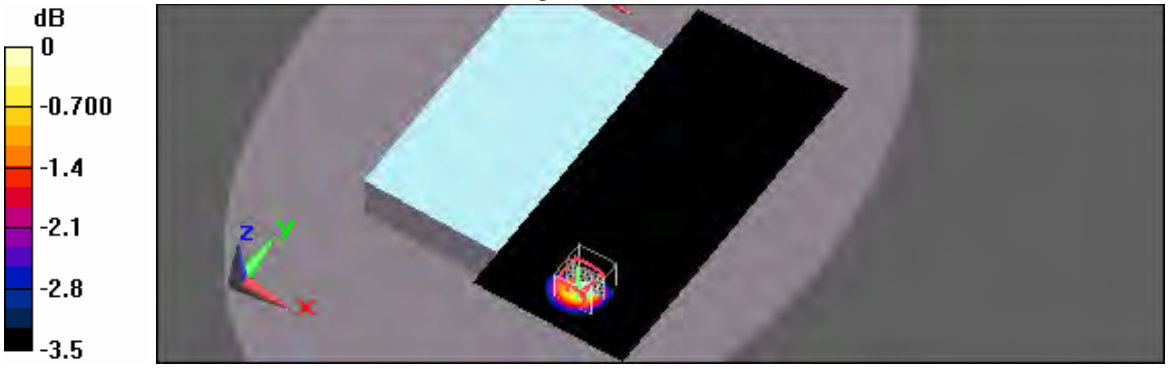
Communication System: IEEE 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 2 mho/m; ε_r = 51.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(8.22, 8.22, 8.22); Calibrated: 2/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (81x181x1):
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 = 1.12 V/m; Power Drift = 0.196 dB
Peak SAR (extrapolated) = 0.047 W/kg
SAR(1 g) = 0.022 mW/g; SAR(10 g) = 0.012 mW/g
Maximum value of SAR (measured) = 0.028 mW/g



0 dB = 0.028mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/17/2012 12:36:19 AM

Flat_802.11b CH11_11M_Back surface to phantom 0mm_Thin Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

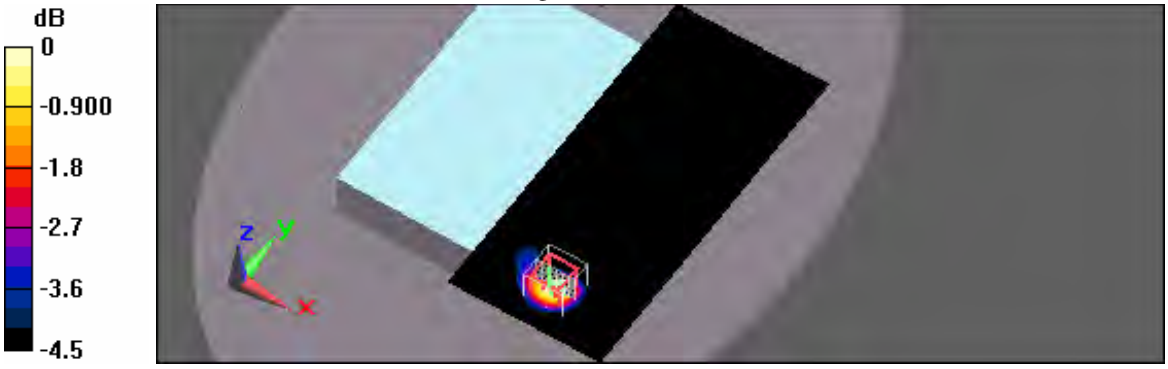
Communication System: IEEE 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 2 mho/m; ε_r = 51.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(8.22, 8.22, 8.22); Calibrated: 2/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (81x181x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.048 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 1.35 V/m; Power Drift = 0.160 dB
Peak SAR (extrapolated) = 0.080 W/kg
SAR(1 g) = 0.039 mW/g; SAR(10 g) = 0.020 mW/g
Maximum value of SAR (measured) = 0.048 mW/g



0 dB = 0.048mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/15/2012 11:30:38 PM

Flat_802.11b CH11_11M_Edge left to phantom 0mm_Internal Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

Communication System: IEEE 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 2 mho/m; ε_r = 51.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(8.22, 8.22, 8.22); Calibrated: 2/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (81x181x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.305 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 2.19 V/m; Power Drift = -0.071 dB
Peak SAR (extrapolated) = 0.637 W/kg
SAR(1 g) = 0.259 mW/g; SAR(10 g) = 0.102 mW/g
Maximum value of SAR (measured) = 0.348 mW/g

0 dB = 0.348mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/16/2012 2:27:18 AM

Flat_802.11b CH11_11M_Back surface to phantom 0mm_Internal Battery_Hand strap

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

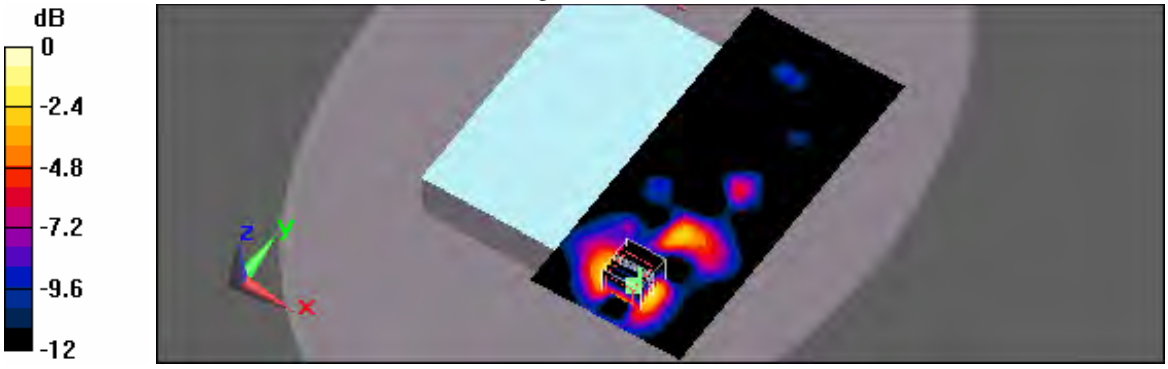
Communication System: IEEE 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 2 mho/m; ε_r = 51.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(8.22, 8.22, 8.22); Calibrated: 2/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (81x181x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.076 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 0.845 V/m; Power Drift = -0.163 dB
Peak SAR (extrapolated) = 0.107 W/kg
SAR(1 g) = 0.052 mW/g; SAR(10 g) = 0.026 mW/g
Maximum value of SAR (measured) = 0.065 mW/g



0 dB = 0.065mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/17/2012 3:05:40 AM

Flat_802.11b CH11_11M_Back surface to phantom 0mm_Hip pad Battery_Hand strap

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

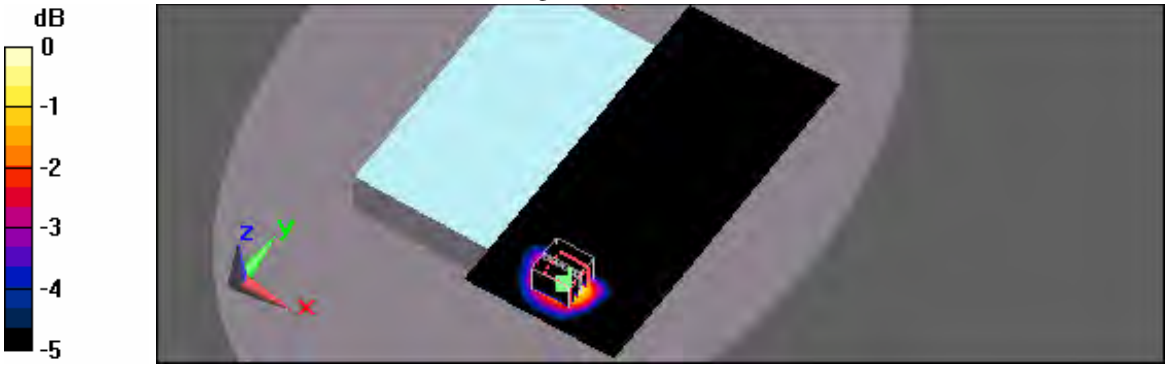
Communication System: IEEE 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 2 mho/m; ε_r = 51.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(8.22, 8.22, 8.22); Calibrated: 2/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (81x181x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.025 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 0.978 V/m; Power Drift = 0.119 dB
Peak SAR (extrapolated) = 0.042 W/kg
SAR(1 g) = 0.021 mW/g; SAR(10 g) = 0.011 mW/g
Maximum value of SAR (measured) = 0.025 mW/g



0 dB = 0.025mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/16/2012 10:48:32 PM

Flat_802.11b CH11_11M_Back surface to phantom 0mm_Thick Battery_Hand strap

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

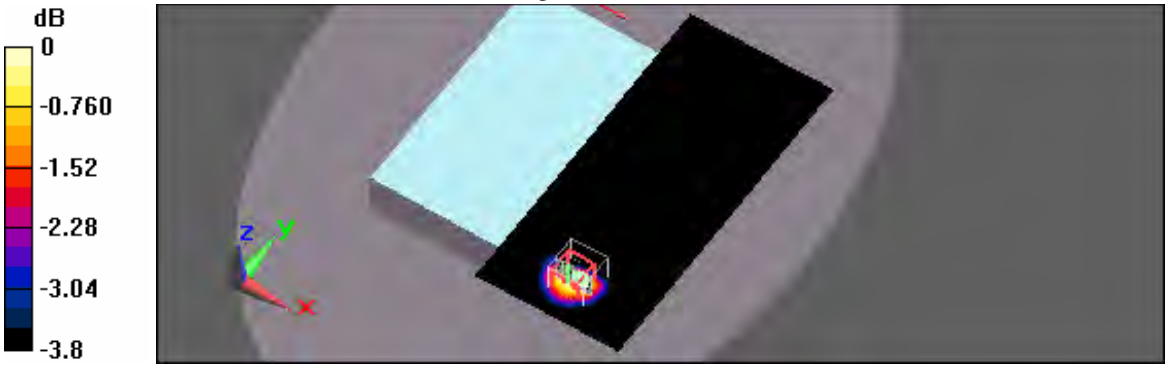
Communication System: IEEE 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 2 mho/m; ε_r = 51.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(8.22, 8.22, 8.22); Calibrated: 2/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (81x181x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.027 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 1.11 V/m; Power Drift = -0.057 dB
Peak SAR (extrapolated) = 0.045 W/kg
SAR(1 g) = 0.022 mW/g; SAR(10 g) = 0.012 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: 3/16/2012 11:50:03 PM

Flat_802.11b CH11_11M_Back surface to phantom 0mm_Thin Battery_Hand strap

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

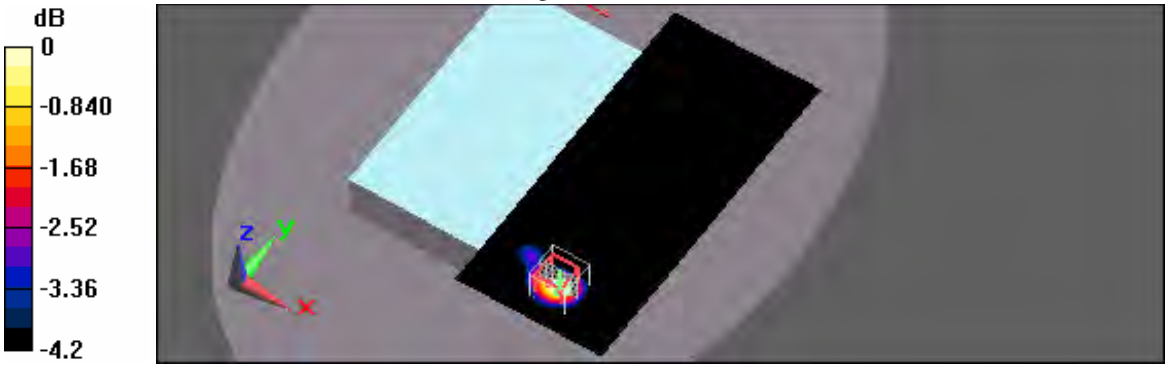
Communication System: IEEE 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 2 mho/m; ε_r = 51.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(8.22, 8.22, 8.22); Calibrated: 2/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (81x181x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.048 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 1.32 V/m; Power Drift = -0.114 dB
Peak SAR (extrapolated) = 0.078 W/kg
SAR(1 g) = 0.040 mW/g; SAR(10 g) = 0.020 mW/g
Maximum value of SAR (measured) = 0.050 mW/g



0 dB = 0.050mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/16/2012 6:44:40 PM

Flat_802.11b CH11_11M_Back surface to phantom 0mm_Internal Battery_Shoulder strap

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

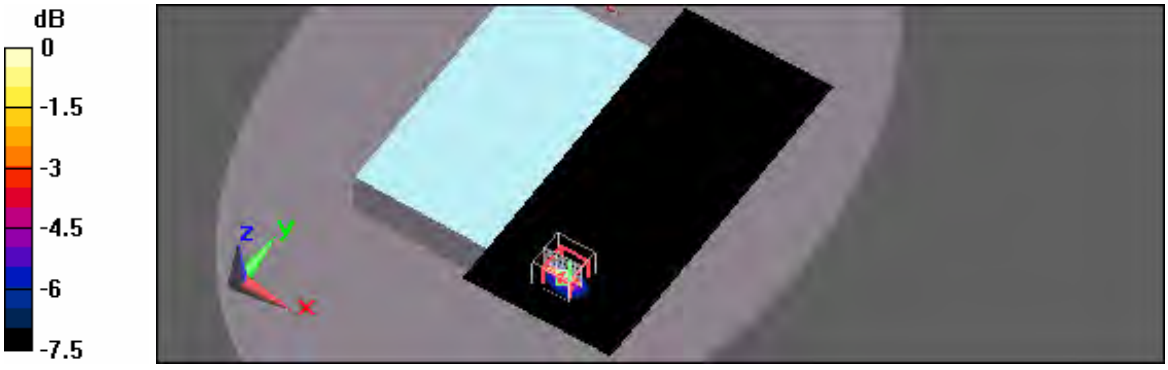
Communication System: IEEE 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 2 mho/m; ε_r = 51.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(8.22, 8.22, 8.22); Calibrated: 2/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (81x181x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.024 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 0.655 V/m; Power Drift = -0.119 dB
Peak SAR (extrapolated) = 0.133 W/kg
SAR(1 g) = 0.053 mW/g; SAR(10 g) = 0.027 mW/g
Maximum value of SAR (measured) = 0.066 mW/g



0 dB = 0.066mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/16/2012 3:31:57 AM

Flat_802.11b CH11_11M_Back surface to phantom 0mm_Hip pad Battery_Shoulder strap

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

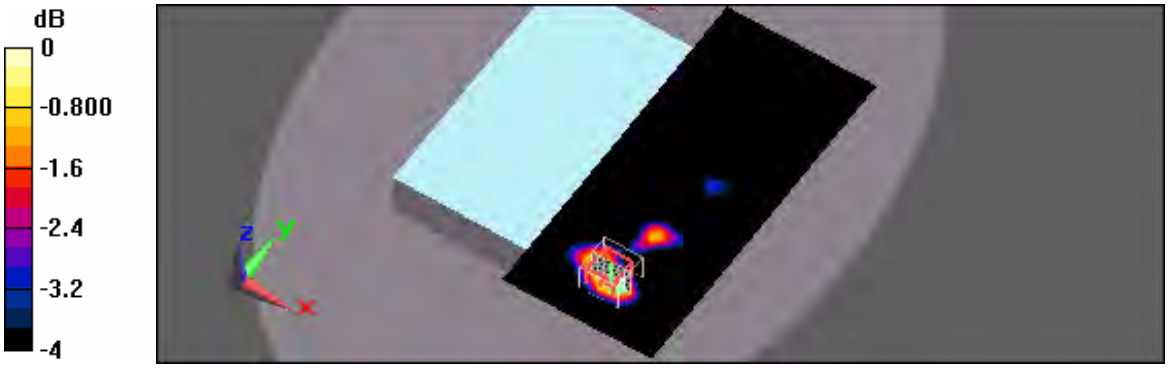
Communication System: IEEE 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 2 mho/m; ε_r = 51.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(8.22, 8.22, 8.22); Calibrated: 2/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (81x181x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.024 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 0.636 V/m; Power Drift = 0.012 dB
Peak SAR (extrapolated) = 0.038 W/kg
SAR(1 g) = 0.019 mW/g; SAR(10 g) = 0.00965 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: 3/16/2012 8:17:21 PM

Flat_802.11b CH11_11M_Back surface to phantom 0mm_Thick Battery_Shoulder strap

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

Communication System: IEEE 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 2 mho/m; ε_r = 51.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(8.22, 8.22, 8.22); Calibrated: 2/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (81x181x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.031 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 0.934 V/m; Power Drift = -0.020 dB
Peak SAR (extrapolated) = 0.072 W/kg
SAR(1 g) = 0.023 mW/g; SAR(10 g) = 0.012 mW/g
Maximum value of SAR (measured) = 0.029 mW/g

0 dB = 0.029mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/16/2012 9:06:38 PM

Flat_802.11b CH11_11M_Back surface to phantom 0mm_Thin Battery_Shoulder strap

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

Communication System: IEEE 802.11b; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2462 MHz; σ = 2 mho/m; ε_r = 51.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(8.22, 8.22, 8.22); Calibrated: 2/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (81x181x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.052 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 1.34 V/m; Power Drift = -0.166 dB
Peak SAR (extrapolated) = 0.087 W/kg
SAR(1 g) = 0.042 mW/g; SAR(10 g) = 0.021 mW/g
Maximum value of SAR (measured) = 0.053 mW/g

0 dB = 0.053mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/20/2012 7:01:58 AM

Flat_802.11a CH40_6M_Front surface to phantom 0mm_Internal Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

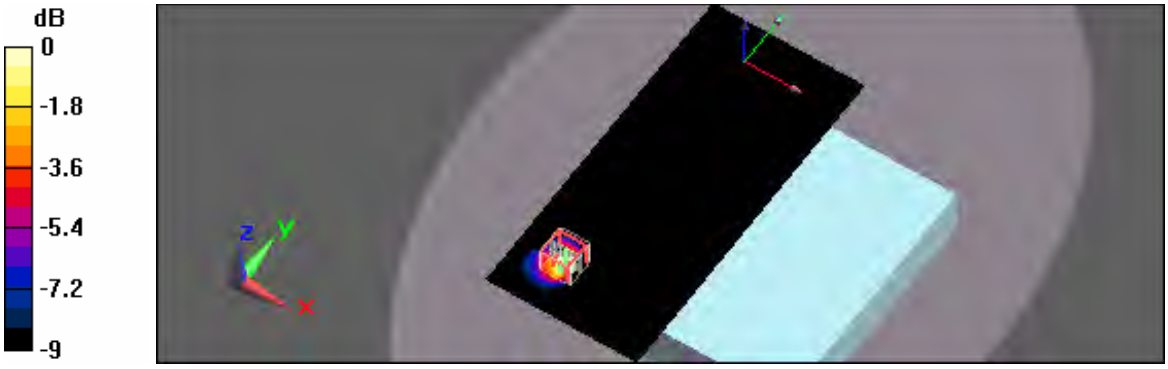
Communication System: IEEE 802.11a; Frequency: 5200 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5200 MHz; σ = 5.52 mho/m; ε_r = 47.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(4.38, 4.38, 4.38); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.341 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.288 V/m; Power Drift = -0.167 dB
Peak SAR (extrapolated) = 0.510 W/kg
SAR(1 g) = 0.132 mW/g; SAR(10 g) = 0.038 mW/g
Maximum value of SAR (measured) = 0.235 mW/g



0 dB = 0.235mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/20/2012 8:23:23 AM

Flat_802.11a CH48_6M_Front surface to phantom 0mm_Internal Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

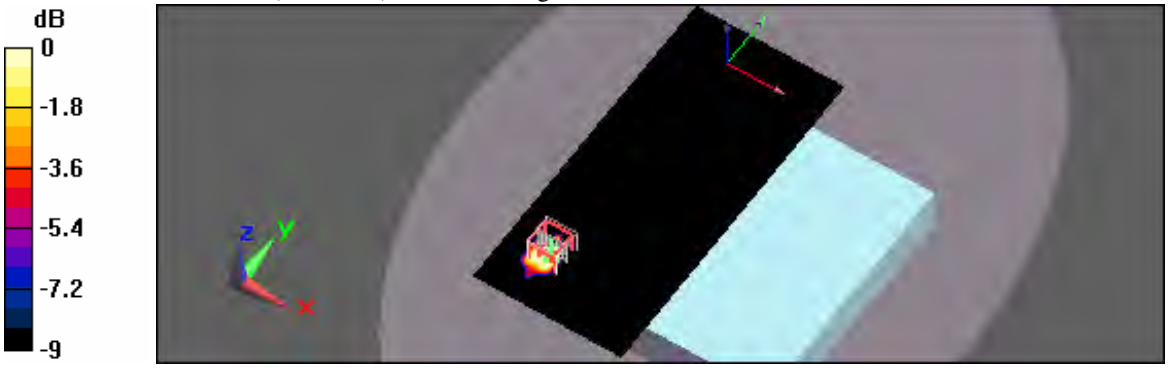
Communication System: IEEE 802.11a; Frequency: 5240 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5240 MHz; σ = 5.54 mho/m; ε_r = 47.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(4.38, 4.38, 4.38); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.294 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0 V/m; Power Drift = 0 dB
Peak SAR (extrapolated) = 0.456 W/kg
SAR(1 g) = 0.117 mW/g; SAR(10 g) = 0.037 mW/g
Maximum value of SAR (measured) = 0.205 mW/g



0 dB = 0.205mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/20/2012 7:38:01 PM

Flat_802.11a CH52_6M_Front surface to phantom 0mm_Internal Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

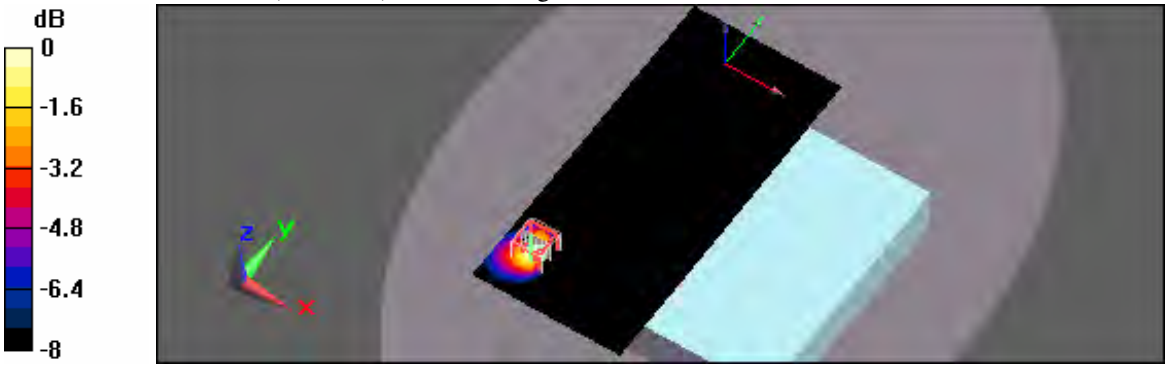
Communication System: IEEE 802.11a; Frequency: 5260 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5260 MHz; σ = 5.57 mho/m; ε_r = 47.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(4.13, 4.13, 4.13); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.333 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0 V/m; Power Drift = 0 dB
Peak SAR (extrapolated) = 0.612 W/kg
SAR(1 g) = 0.174 mW/g; SAR(10 g) = 0.055 mW/g
Maximum value of SAR (measured) = 0.290 mW/g



0 dB = 0.290mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/20/2012 8:42:43 PM

Flat_802.11a CH60_6M_Front surface to phantom 0mm_Internal Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

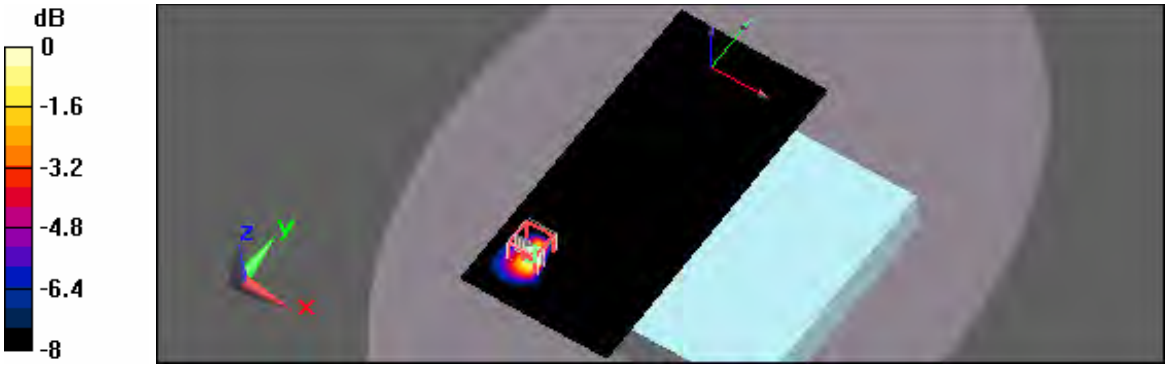
Communication System: IEEE 802.11a; Frequency: 5300 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5300 MHz; σ = 5.65 mho/m; ε_r = 47.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(4.13, 4.13, 4.13); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.430 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0 V/m; Power Drift = 0 dB
Peak SAR (extrapolated) = 1.07 W/kg
SAR(1 g) = 0.271 mW/g; SAR(10 g) = 0.087 mW/g
Maximum value of SAR (measured) = 0.464 mW/g



0 dB = 0.464mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/19/2012 12:48:48 AM

Flat_802.11a CH116_6M_Front surface to phantom 0mm_Internal Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

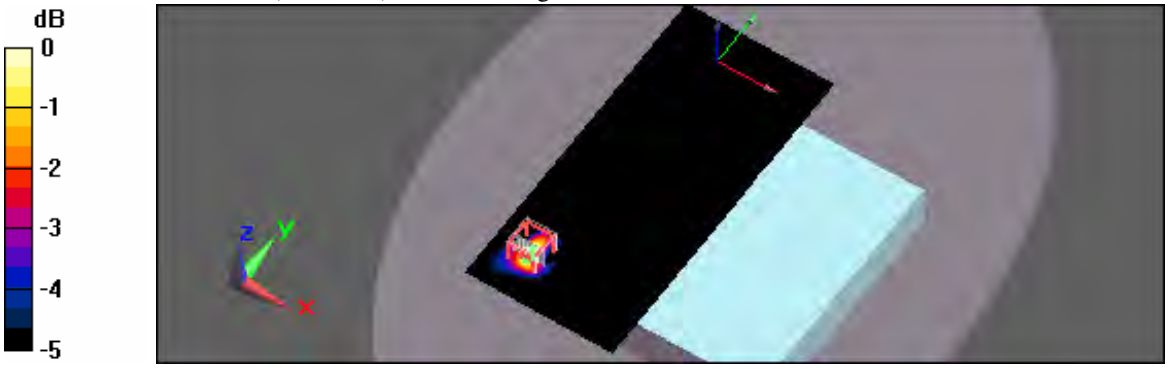
Communication System: IEEE 802.11a; Frequency: 5580 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5580 MHz; σ = 5.98 mho/m; ε_r = 46.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(3.61, 3.61, 3.61); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.182 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.259 V/m; Power Drift = -0.034 dB
Peak SAR (extrapolated) = 0.384 W/kg
SAR(1 g) = 0.109 mW/g; SAR(10 g) = 0.039 mW/g
Maximum value of SAR (measured) = 0.183 mW/g



0 dB = 0.183mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/19/2012 2:40:33 AM

Flat_802.11a CH124_6M_Front surface to phantom 0mm_Internal Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

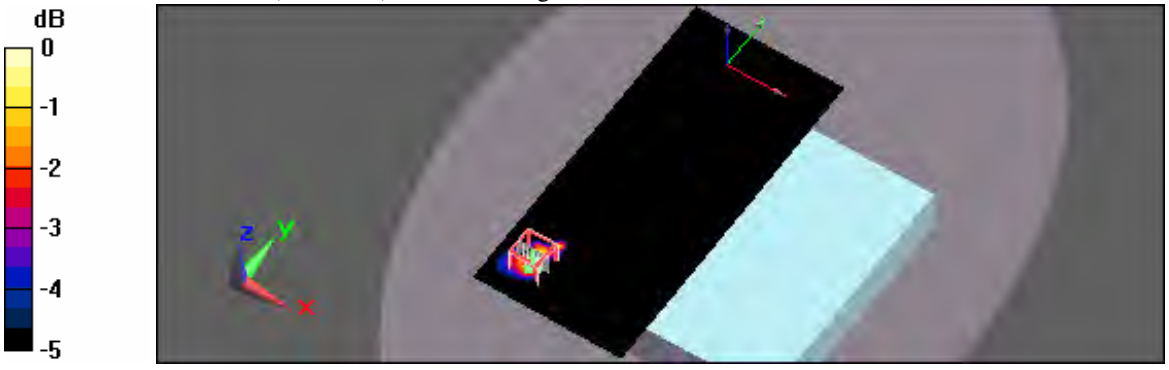
Communication System: IEEE 802.11a; Frequency: 5620 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5620 MHz; σ = 6.03 mho/m; ε_r = 46.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(3.61, 3.61, 3.61); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.137 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.449 V/m; Power Drift = -0.195 dB
Peak SAR (extrapolated) = 0.688 W/kg
SAR(1 g) = 0.077 mW/g; SAR(10 g) = 0.028 mW/g
Maximum value of SAR (measured) = 0.134 mW/g



0 dB = 0.134mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/20/2012 10:37:31 PM

Flat_802.11a CH136_6M_Front surface to phantom 0mm_Internal Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

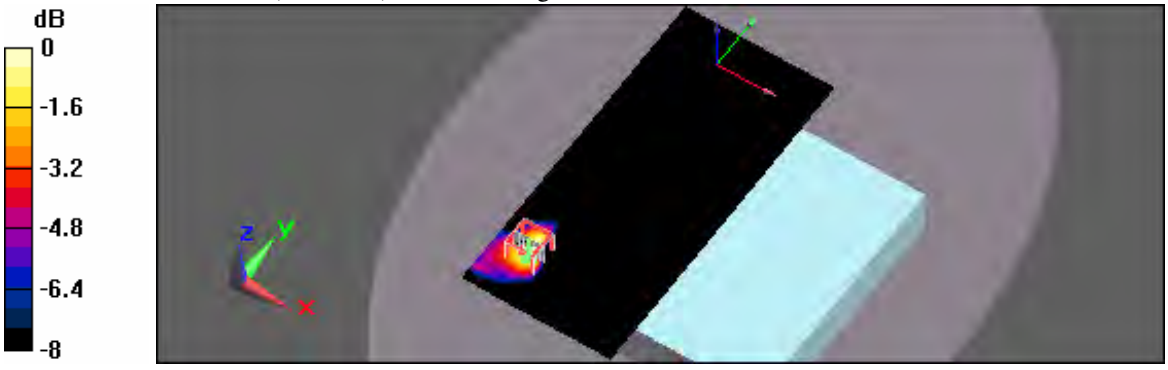
Communication System: IEEE 802.11a; Frequency: 5680 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5680 MHz; σ = 6.05 mho/m; ε_r = 46.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(3.61, 3.61, 3.61); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.272 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0 V/m; Power Drift = 0 dB
Peak SAR (extrapolated) = 0.493 W/kg
SAR(1 g) = 0.124 mW/g; SAR(10 g) = 0.042 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: 3/20/2012 11:44:21 PM

Flat_802.11a CH140_6M_Front surface to phantom 0mm_Internal Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

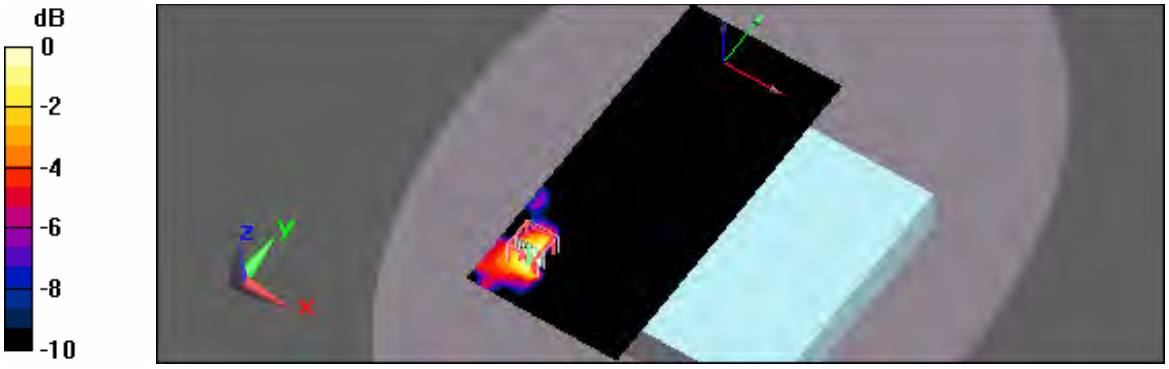
Communication System: IEEE 802.11a; Frequency: 5700 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5700 MHz; σ = 6.05 mho/m; ε_r = 46.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(3.61, 3.61, 3.61); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.290 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0 V/m; Power Drift = 0 dB
Peak SAR (extrapolated) = 0.446 W/kg
SAR(1 g) = 0.116 mW/g; SAR(10 g) = 0.039 mW/g
Maximum value of SAR (measured) = 0.202 mW/g



0 dB = 0.202mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/22/2012 1:24:22 AM

Flat_802.11a CH149_6M_Front surface to phantom 0mm_Internal Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

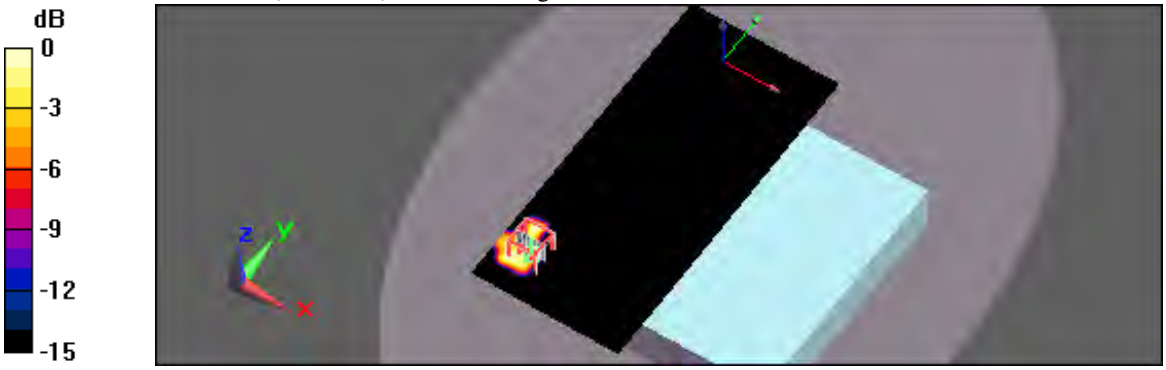
Communication System: IEEE 802.11a; Frequency: 5745 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5745 MHz; σ = 6.19 mho/m; ε_r = 46.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(3.88, 3.88, 3.88); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.096 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.372 V/m; Power Drift = -0.00477 dB
Peak SAR (extrapolated) = 0.161 W/kg
SAR(1 g) = 0.040 mW/g; SAR(10 g) = 0.012 mW/g
Maximum value of SAR (measured) = 0.077 mW/g



0 dB = 0.077mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/22/2012 2:38:15 AM

Flat_802.11a CH161_6M_Front surface to phantom 0mm_Internal Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

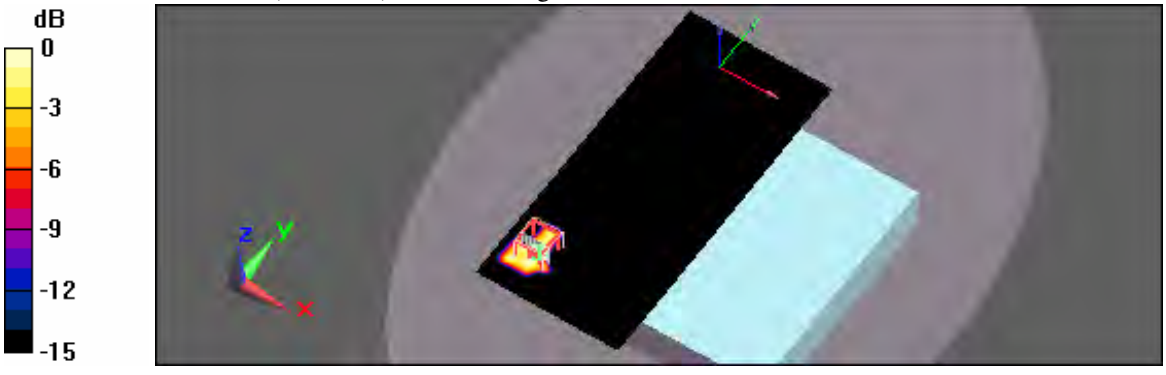
Communication System: IEEE 802.11a; Frequency: 5805 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5805 MHz; σ = 6.27 mho/m; ε_r = 46.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(3.88, 3.88, 3.88); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.140 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.442 V/m; Power Drift = 0.085 dB
Peak SAR (extrapolated) = 0.230 W/kg
SAR(1 g) = 0.056 mW/g; SAR(10 g) = 0.018 mW/g
Maximum value of SAR (measured) = 0.103 mW/g



0 dB = 0.103mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/22/2012 4:07:41 AM

Flat_802.11a CH165_6M_Front surface to phantom 0mm_Internal Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

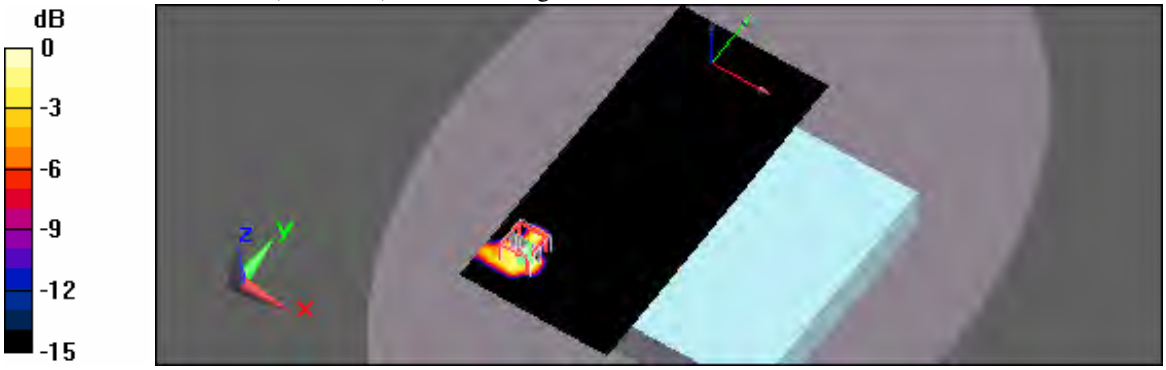
Communication System: IEEE 802.11a; Frequency: 5825 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5825 MHz; σ = 6.28 mho/m; ε_r = 46.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(3.88, 3.88, 3.88); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.141 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.570 V/m; Power Drift = -0.189 dB
Peak SAR (extrapolated) = 0.272 W/kg
SAR(1 g) = 0.061 mW/g; SAR(10 g) = 0.018 mW/g
Maximum value of SAR (measured) = 0.111 mW/g



0 dB = 0.111mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/17/2012 10:22:26 AM

Flat_802.11a CH40_6M_Back surface to phantom 0mm_Internal Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

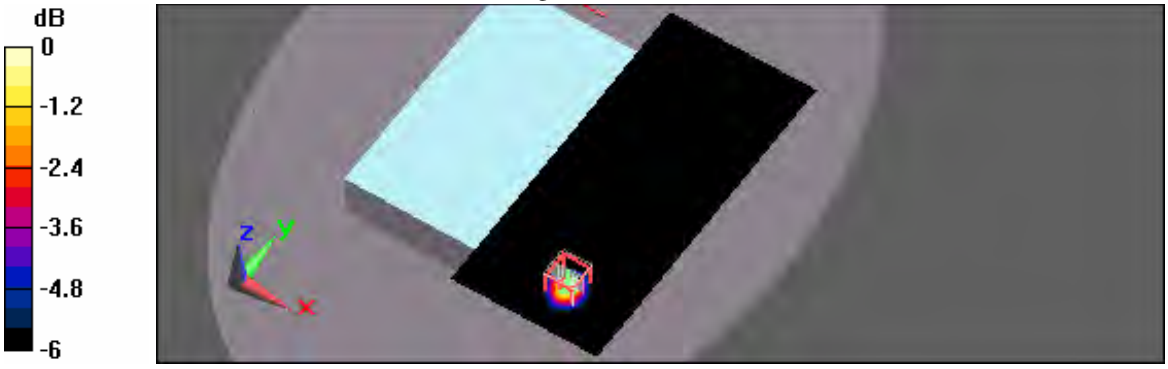
Communication System: IEEE 802.11a; Frequency: 5200 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5200 MHz; σ = 5.52 mho/m; ε_r = 47.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(4.38, 4.38, 4.38); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.259 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.476 V/m; Power Drift = 0.123 dB
Peak SAR (extrapolated) = 0.465 W/kg
SAR(1 g) = 0.129 mW/g; SAR(10 g) = 0.046 mW/g
Maximum value of SAR (measured) = 0.216 mW/g



0 dB = 0.216mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/17/2012 12:05:07 PM

Flat_802.11a CH48_6M_Back surface to phantom 0mm_Internal Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

Communication System: IEEE 802.11a; Frequency: 5240 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5240 MHz; σ = 5.54 mho/m; ε_r = 47.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(4.38, 4.38, 4.38); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.222 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.849 V/m; Power Drift = 0.069 dB
Peak SAR (extrapolated) = 0.492 W/kg
SAR(1 g) = 0.138 mW/g; SAR(10 g) = 0.047 mW/g
Maximum value of SAR (measured) = 0.229 mW/g

0 dB = 0.229mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/17/2012 4:57:34 PM

Flat_802.11a CH52_6M_Back surface to phantom 0mm_Internal Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

Communication System: IEEE 802.11a; Frequency: 5260 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5260 MHz; σ = 5.57 mho/m; ε_r = 47.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(4.13, 4.13, 4.13); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.363 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.689 V/m; Power Drift = 0.187 dB
Peak SAR (extrapolated) = 0.756 W/kg
SAR(1 g) = 0.213 mW/g; SAR(10 g) = 0.074 mW/g
Maximum value of SAR (measured) = 0.375 mW/g

0 dB = 0.375mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/17/2012 6:46:58 PM

Flat_802.11a CH60_6M_Back surface to phantom 0mm_Internal Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

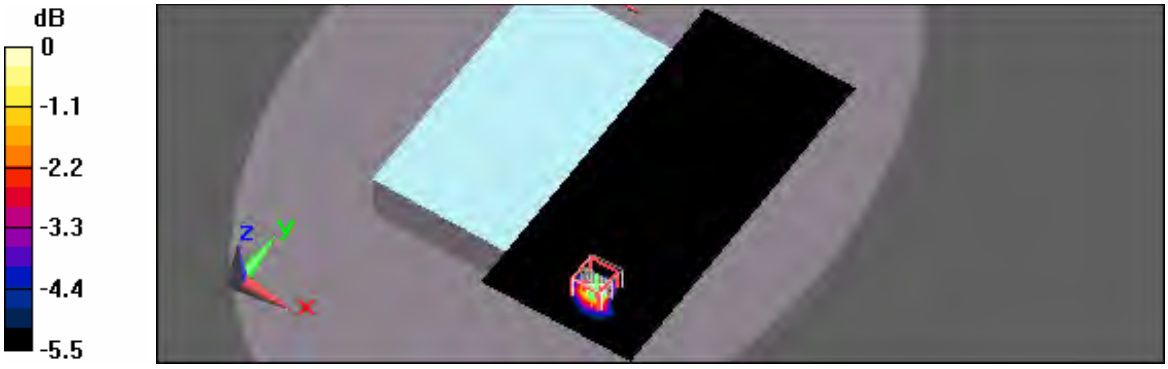
Communication System: IEEE 802.11a; Frequency: 5300 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5300 MHz; σ = 5.65 mho/m; ε_r = 47.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(4.13, 4.13, 4.13); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.346 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.896 V/m; Power Drift = 0.180 dB
Peak SAR (extrapolated) = 0.682 W/kg
SAR(1 g) = 0.199 mW/g; SAR(10 g) = 0.072 mW/g
Maximum value of SAR (measured) = 0.330 mW/g



0 dB = 0.330mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/17/2012 8:43:39 PM

Flat_802.11a CH116_6M_Back surface to phantom 0mm_Internal Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

Communication System: IEEE 802.11a; Frequency: 5580 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5580 MHz; σ = 5.98 mho/m; ε_r = 46.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(3.61, 3.61, 3.61); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.631 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.724 V/m; Power Drift = 0.130 dB
Peak SAR (extrapolated) = 2.26 W/kg
SAR(1 g) = 0.302 mW/g; SAR(10 g) = 0.114 mW/g
Maximum value of SAR (measured) = 0.617 mW/g

0 dB = 0.617mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/18/2012 9:46:58 AM

Flat_802.11a CH116_6M_Back surface to phantom 0mm_Hip pad Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

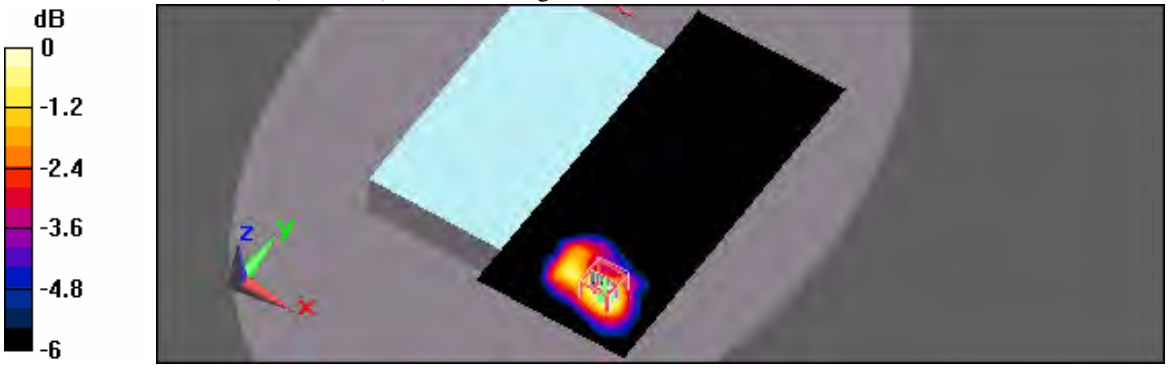
Communication System: IEEE 802.11a; Frequency: 5580 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5580 MHz; σ = 5.98 mho/m; ε_r = 46.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(3.61, 3.61, 3.61); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.153 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.616 V/m; Power Drift = -0.110 dB
Peak SAR (extrapolated) = 0.369 W/kg
SAR(1 g) = 0.098 mW/g; SAR(10 g) = 0.041 mW/g
Maximum value of SAR (measured) = 0.154 mW/g



0 dB = 0.154mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/18/2012 11:18:41 AM

Flat_802.11a CH116_6M_Back surface to phantom 0mm_Thick Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

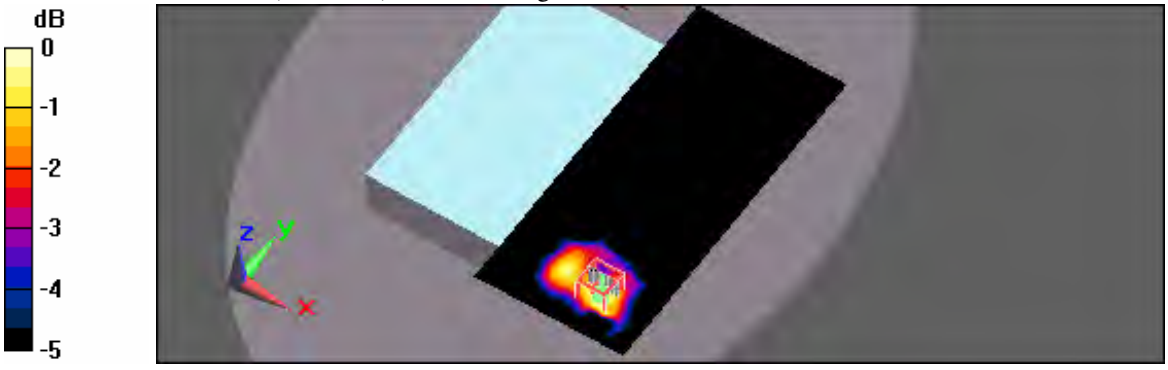
Communication System: IEEE 802.11a; Frequency: 5580 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5580 MHz; σ = 5.98 mho/m; ε_r = 46.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(3.61, 3.61, 3.61); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.150 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.600 V/m; Power Drift = 0.190 dB
Peak SAR (extrapolated) = 0.355 W/kg
SAR(1 g) = 0.091 mW/g; SAR(10 g) = 0.038 mW/g
Maximum value of SAR (measured) = 0.144 mW/g



0 dB = 0.144mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/18/2012 12:24:26 PM

Flat_802.11a CH116_6M_Back surface to phantom 0mm_Thin Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

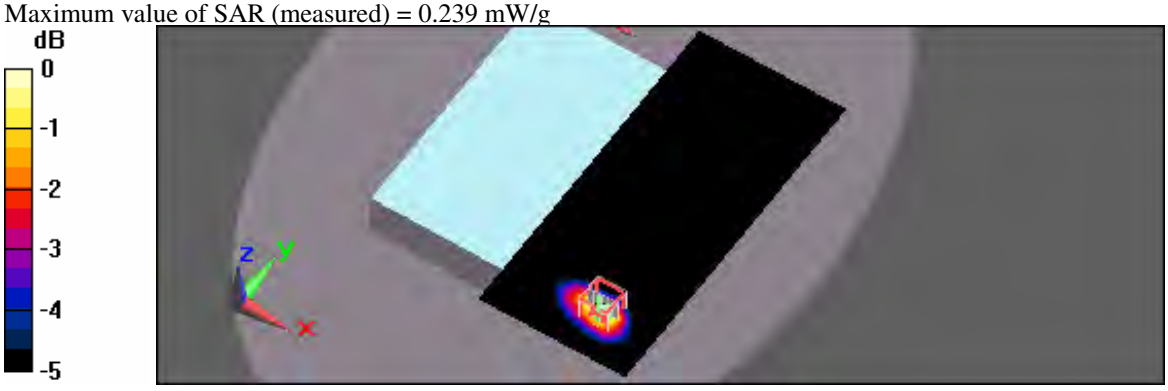
Communication System: IEEE 802.11a; Frequency: 5580 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5580 MHz; σ = 5.98 mho/m; ε_r = 46.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(3.61, 3.61, 3.61); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.239 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.520 V/m; Power Drift = 0.158 dB
Peak SAR (extrapolated) = 0.494 W/kg
SAR(1 g) = 0.137 mW/g; SAR(10 g) = 0.055 mW/g
Maximum value of SAR (measured) = 0.239 mW/g



0 dB = 0.239mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/17/2012 10:34:49 PM

Flat_802.11a CH124_6M_Back surface to phantom 0mm_Internal Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

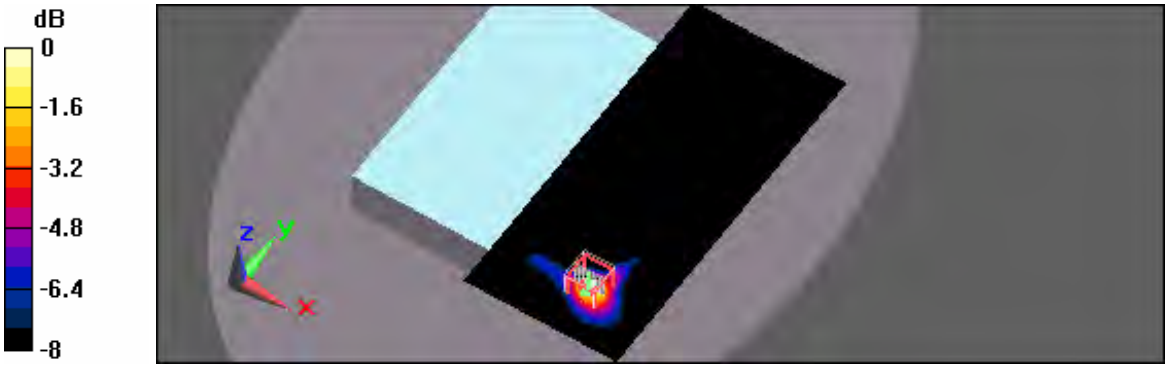
Communication System: IEEE 802.11a; Frequency: 5620 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5620 MHz; σ = 6.03 mho/m; ε_r = 46.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(3.61, 3.61, 3.61); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.354 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.957 V/m; Power Drift = -0.010 dB
Peak SAR (extrapolated) = 0.743 W/kg
SAR(1 g) = 0.204 mW/g; SAR(10 g) = 0.068 mW/g
Maximum value of SAR (measured) = 0.354 mW/g



0 dB = 0.354mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/18/2012 12:34:44 AM

Flat_802.11a CH136_6M_Back surface to phantom 0mm_Internal Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

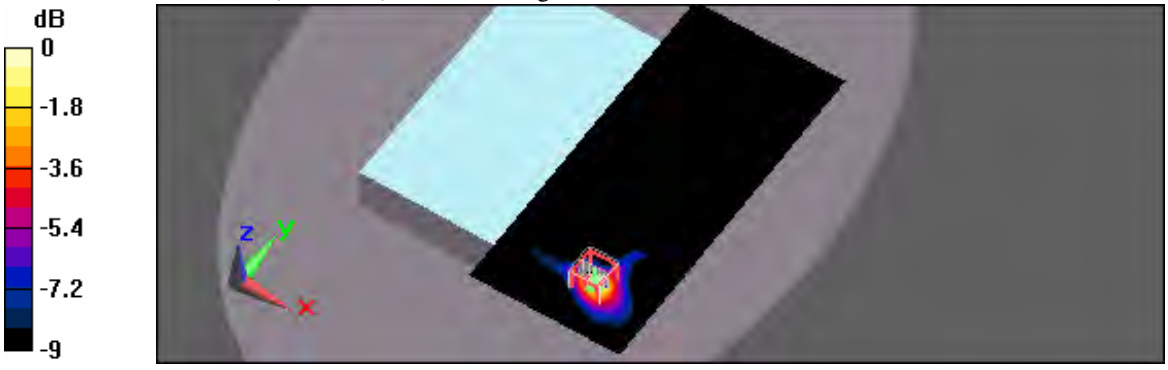
Communication System: IEEE 802.11a; Frequency: 5680 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5680 MHz; σ = 6.05 mho/m; ε_r = 46.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(3.61, 3.61, 3.61); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.447 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.977 V/m; Power Drift = -0.091 dB
Peak SAR (extrapolated) = 1.19 W/kg
SAR(1 g) = 0.261 mW/g; SAR(10 g) = 0.080 mW/g
Maximum value of SAR (measured) = 0.462 mW/g



0 dB = 0.462mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/18/2012 2:25:21 AM

Flat_802.11a CH140_6M_Back surface to phantom 0mm_Internal Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

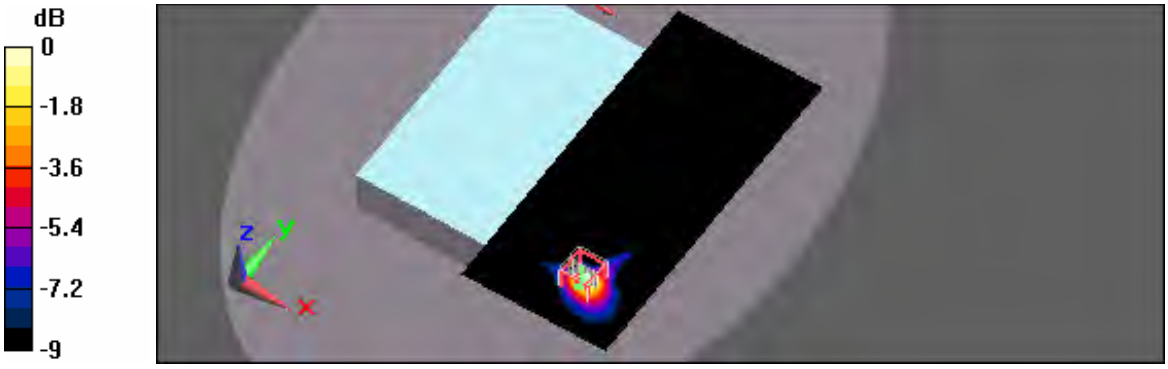
Communication System: IEEE 802.11a; Frequency: 5700 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5700 MHz; σ = 6.05 mho/m; ε_r = 46.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(3.61, 3.61, 3.61); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.389 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.691 V/m; Power Drift = 0.090 dB
Peak SAR (extrapolated) = 0.941 W/kg
SAR(1 g) = 0.243 mW/g; SAR(10 g) = 0.078 mW/g
Maximum value of SAR (measured) = 0.423 mW/g



0 dB = 0.423mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/18/2012 4:14:55 AM

Flat_802.11a CH149_6M_Back surface to phantom 0mm_Internal Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

Communication System: IEEE 802.11a; Frequency: 5745 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5745 MHz; σ = 6.19 mho/m; ε_r = 46.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(3.88, 3.88, 3.88); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.141 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.659 V/m; Power Drift = -0.160 dB
Peak SAR (extrapolated) = 0.287 W/kg
SAR(1 g) = 0.075 mW/g; SAR(10 g) = 0.025 mW/g
Maximum value of SAR (measured) = 0.138 mW/g

0 dB = 0.138mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/18/2012 6:02:33 AM

Flat_802.11a CH161_6M_Back surface to phantom 0mm_Internal Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

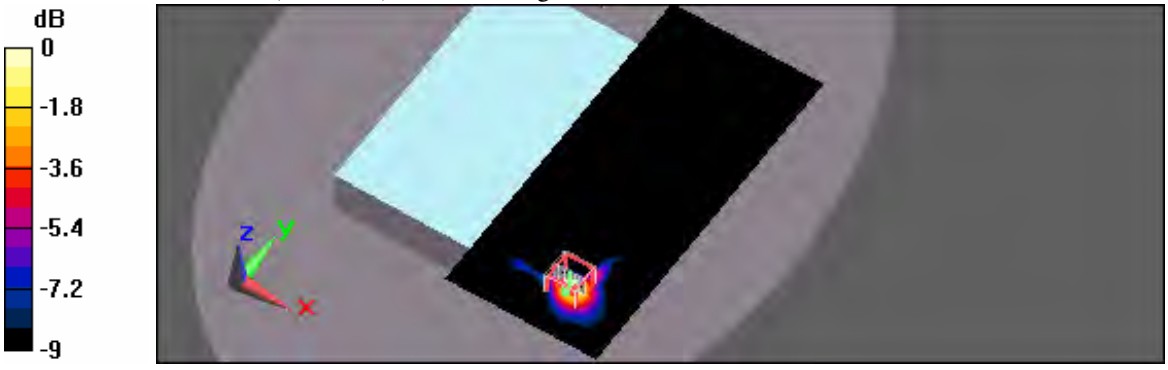
Communication System: IEEE 802.11a; Frequency: 5805 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5805 MHz; σ = 6.27 mho/m; ε_r = 46.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(3.88, 3.88, 3.88); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.182 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.708 V/m; Power Drift = -0.105 dB
Peak SAR (extrapolated) = 0.411 W/kg
SAR(1 g) = 0.105 mW/g; SAR(10 g) = 0.034 mW/g
Maximum value of SAR (measured) = 0.189 mW/g



0 dB = 0.189mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/18/2012 7:47:42 AM

Flat_802.11a CH165_6M_Back surface to phantom 0mm_Internal Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

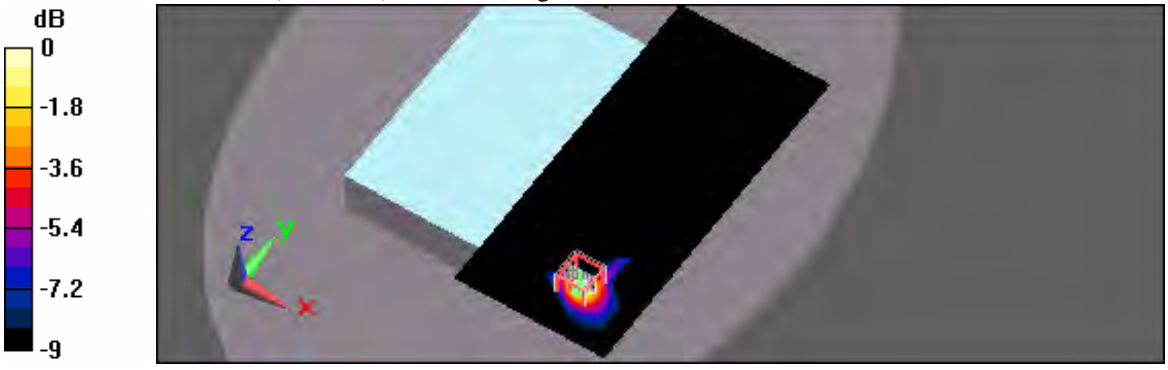
Communication System: IEEE 802.11a; Frequency: 5825 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5825 MHz; σ = 6.28 mho/m; ε_r = 46.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(3.88, 3.88, 3.88); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.209 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.603 V/m; Power Drift = -0.107 dB
Peak SAR (extrapolated) = 0.463 W/kg
SAR(1 g) = 0.116 mW/g; SAR(10 g) = 0.038 mW/g
Maximum value of SAR (measured) = 0.198 mW/g



0 dB = 0.198mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/21/2012 3:44:05 AM

Flat_802.11a CH40_6M_Edge left to phantom 0mm_Internal Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

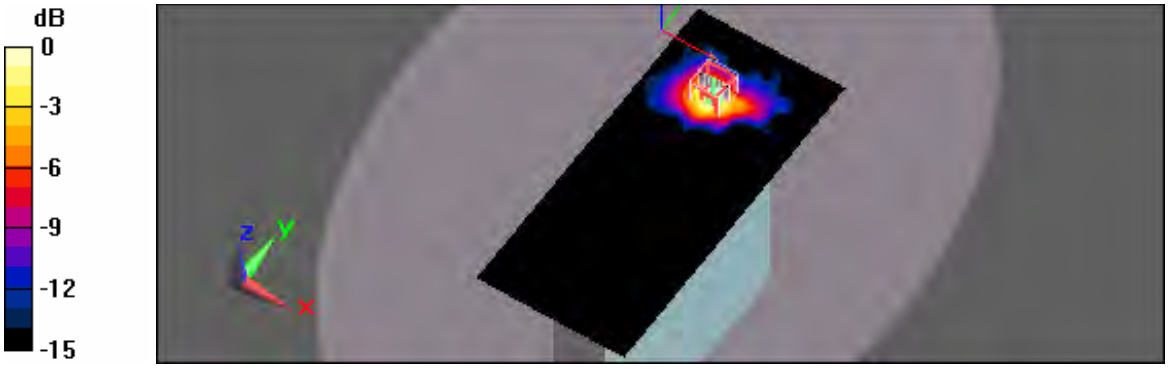
Communication System: IEEE 802.11a; Frequency: 5200 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5200 MHz; σ = 5.52 mho/m; ε_r = 47.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(4.38, 4.38, 4.38); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.373 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.602 V/m; Power Drift = -0.055 dB
Peak SAR (extrapolated) = 0.905 W/kg
SAR(1 g) = 0.230 mW/g; SAR(10 g) = 0.076 mW/g
Maximum value of SAR (measured) = 0.397 mW/g



0 dB = 0.397mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/21/2012 2:26:43 AM

Flat_802.11a CH48_6M_Edge left to phantom 0mm_Internal Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

Communication System: IEEE 802.11a; Frequency: 5240 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5240 MHz; σ = 5.54 mho/m; ε_r = 47.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(4.38, 4.38, 4.38); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.363 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.482 V/m; Power Drift = -0.053 dB
Peak SAR (extrapolated) = 0.843 W/kg
SAR(1 g) = 0.224 mW/g; SAR(10 g) = 0.078 mW/g
Maximum value of SAR (measured) = 0.381 mW/g

0 dB = 0.381mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/21/2012 5:05:30 AM

Flat_802.11a CH52_6M_Edge left to phantom 0mm_Internal Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

Communication System: IEEE 802.11a; Frequency: 5260 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5260 MHz; σ = 5.57 mho/m; ε_r = 47.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(4.13, 4.13, 4.13); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.390 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.346 V/m; Power Drift = -0.037 dB
Peak SAR (extrapolated) = 0.907 W/kg
SAR(1 g) = 0.244 mW/g; SAR(10 g) = 0.080 mW/g
Maximum value of SAR (measured) = 0.422 mW/g

0 dB = 0.422mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/21/2012 6:28:42 AM

Flat_802.11a CH60_6M_Edge left to phantom 0mm_Internal Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

Communication System: IEEE 802.11a; Frequency: 5300 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5300 MHz; σ = 5.65 mho/m; ε_r = 47.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(4.13, 4.13, 4.13); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.615 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.655 V/m; Power Drift = 0.189 dB
Peak SAR (extrapolated) = 1.51 W/kg
SAR(1 g) = 0.383 mW/g; SAR(10 g) = 0.131 mW/g
Maximum value of SAR (measured) = 0.646 mW/g

0 dB = 0.646mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/21/2012 8:31:55 AM

Flat_802.11a CH116_6M_Edge left to phantom 0mm_Internal Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

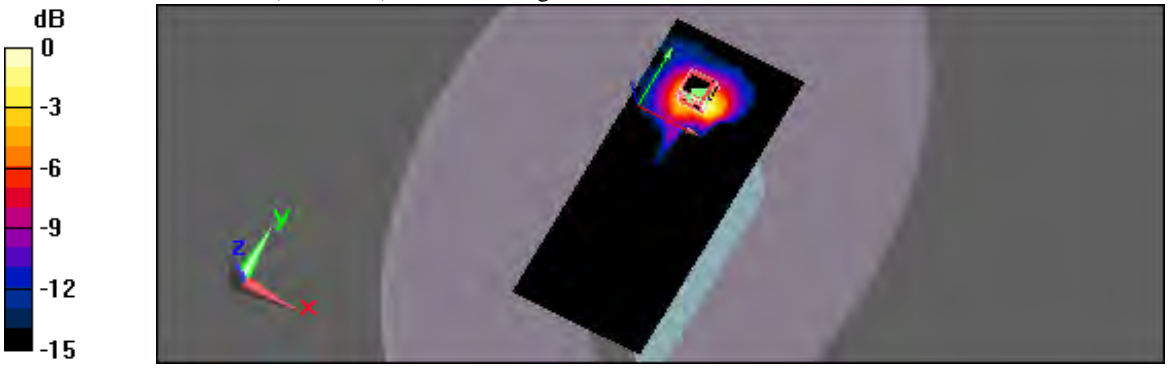
Communication System: IEEE 802.11a; Frequency: 5580 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5580 MHz; σ = 5.98 mho/m; ε_r = 46.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

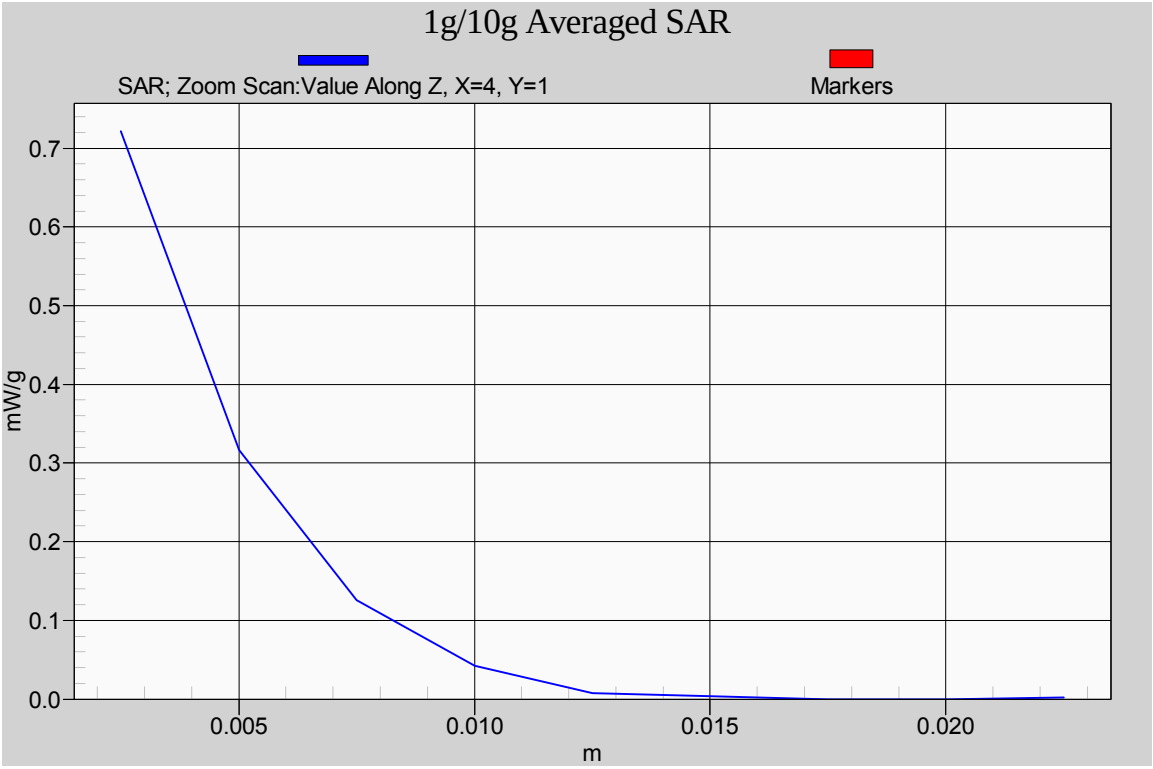
- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(3.61, 3.61, 3.61); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.510 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.953 V/m; Power Drift = 0.072 dB
Peak SAR (extrapolated) = 1.65 W/kg
SAR(1 g) = 0.389 mW/g; SAR(10 g) = 0.106 mW/g
Maximum value of SAR (measured) = 0.721 mW/g



0 dB = 0.721mW/g



Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/21/2012 9:57:36 AM

Flat_802.11a CH124_6M_Edge left to phantom 0mm_Internal Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

Communication System: IEEE 802.11a; Frequency: 5620 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5620 MHz; σ = 6.03 mho/m; ε_r = 46.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(3.61, 3.61, 3.61); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.484 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.710 V/m; Power Drift = 0.189 dB
Peak SAR (extrapolated) = 1.35 W/kg
SAR(1 g) = 0.296 mW/g; SAR(10 g) = 0.091 mW/g
Maximum value of SAR (measured) = 0.540 mW/g

0 dB = 0.540mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/21/2012 11:03:47 AM

Flat_802.11a CH136_6M_Edge left to phantom 0mm_Internal Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

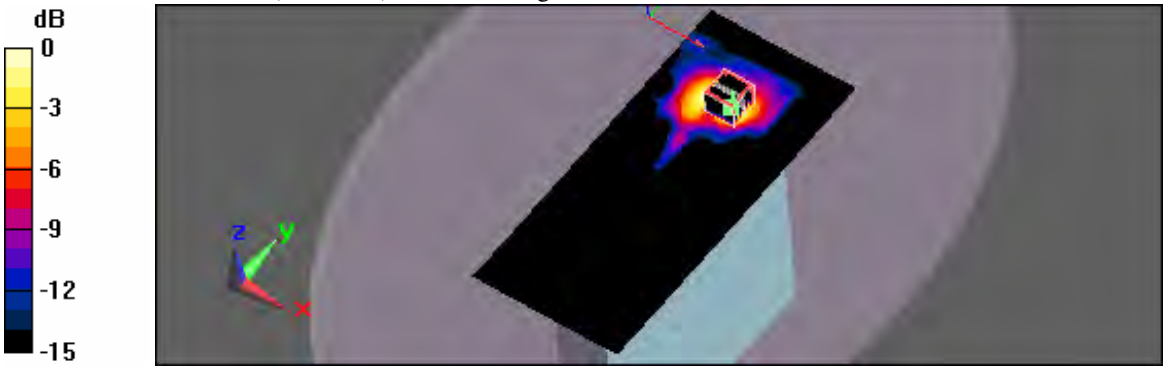
Communication System: IEEE 802.11a; Frequency: 5680 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5680 MHz; σ = 6.05 mho/m; ε_r = 46.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(3.61, 3.61, 3.61); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.548 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.731 V/m; Power Drift = -0.075 dB
Peak SAR (extrapolated) = 1.28 W/kg
SAR(1 g) = 0.316 mW/g; SAR(10 g) = 0.107 mW/g
Maximum value of SAR (measured) = 0.549 mW/g



0 dB = 0.549mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/21/2012 2:23:53 PM

Flat_802.11a CH140_6M_Edge left to phantom 0mm_Internal Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

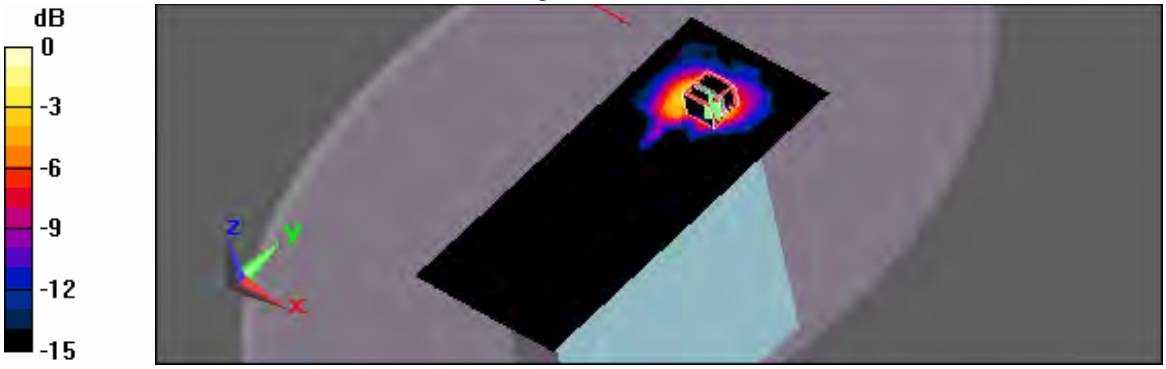
Communication System: IEEE 802.11a; Frequency: 5700 MHz;Duty Cycle: 1:1
Medium parameters used: f = 5700 MHz; σ = 6.05 mho/m; ε_r = 46.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(3.61, 3.61, 3.61); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.537 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0 V/m; Power Drift = 0 dB
Peak SAR (extrapolated) = 1.23 W/kg
SAR(1 g) = 0.316 mW/g; SAR(10 g) = 0.104 mW/g
Maximum value of SAR (measured) = 0.568 mW/g



0 dB = 0.568mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/21/2012 9:17:22 PM

Flat_802.11a CH149_6M_Edge left to phantom 0mm_Internal Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

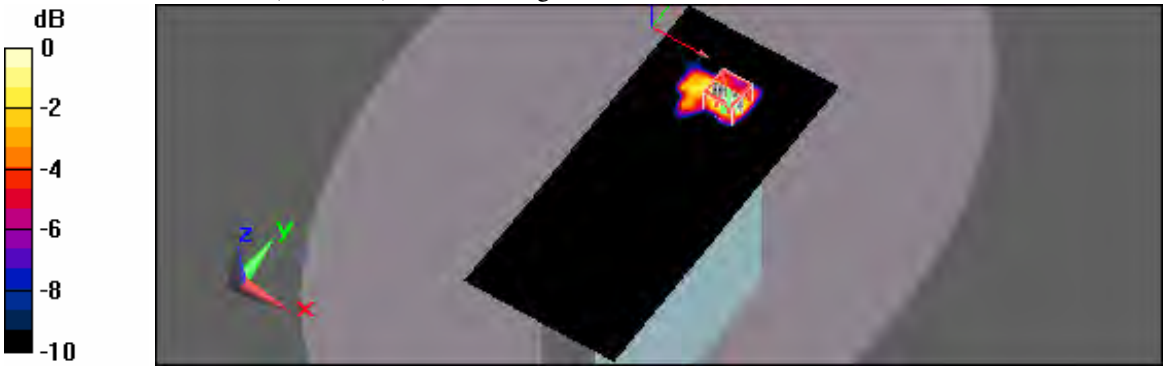
Communication System: IEEE 802.11a; Frequency: 5745 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5745 MHz; σ = 6.19 mho/m; ε_r = 46.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(3.88, 3.88, 3.88); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.151 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0 V/m; Power Drift = 0 dB
Peak SAR (extrapolated) = 0.313 W/kg
SAR(1 g) = 0.082 mW/g; SAR(10 g) = 0.026 mW/g
Maximum value of SAR (measured) = 0.164 mW/g



0 dB = 0.164mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/21/2012 10:56:37 PM

Flat_802.11a CH161_6M_Edge left to phantom 0mm_Internal Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

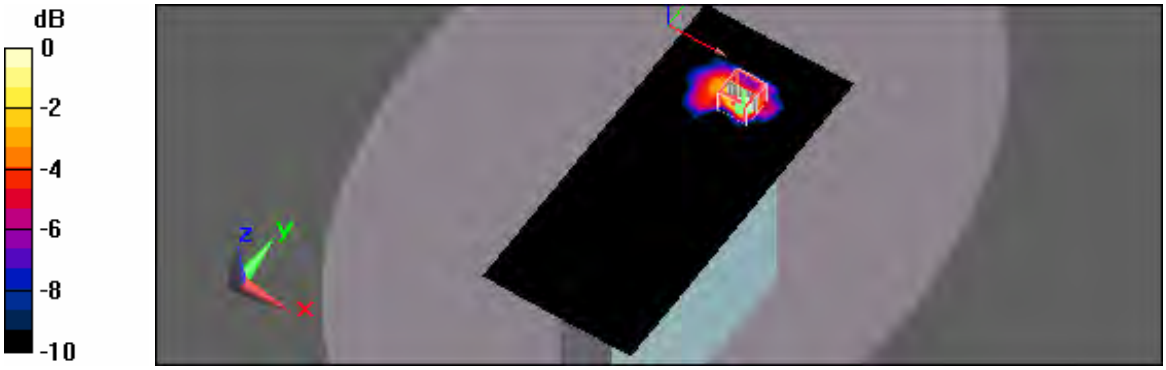
Communication System: IEEE 802.11a; Frequency: 5805 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5805 MHz; σ = 6.27 mho/m; ε_r = 46.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(3.88, 3.88, 3.88); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.234 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.492 V/m; Power Drift = -0.088 dB
Peak SAR (extrapolated) = 0.509 W/kg
SAR(1 g) = 0.131 mW/g; SAR(10 g) = 0.041 mW/g
Maximum value of SAR (measured) = 0.240 mW/g



0 dB = 0.240mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/21/2012 7:28:38 PM

Flat_802.11a CH165_6M_Edge left to phantom 0mm_Internal Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

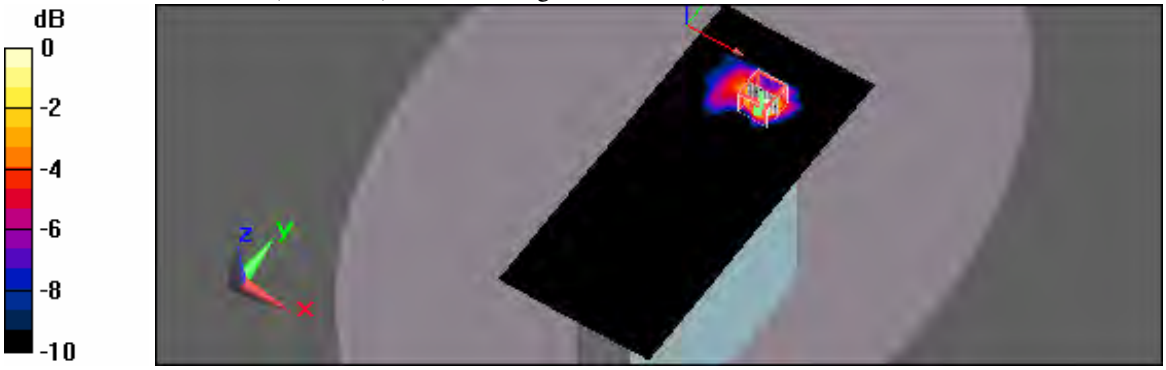
Communication System: IEEE 802.11a; Frequency: 5825 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5825 MHz; σ = 6.28 mho/m; ε_r = 46.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(3.88, 3.88, 3.88); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.279 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.486 V/m; Power Drift = 0.172 dB
Peak SAR (extrapolated) = 1.52 W/kg
SAR(1 g) = 0.147 mW/g; SAR(10 g) = 0.044 mW/g
Maximum value of SAR (measured) = 0.281 mW/g



0 dB = 0.281mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/18/2012 2:14:28 PM

Flat_802.11a CH116_6M_Back surface to phantom 0mm_Internal Battery_Hand strap

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

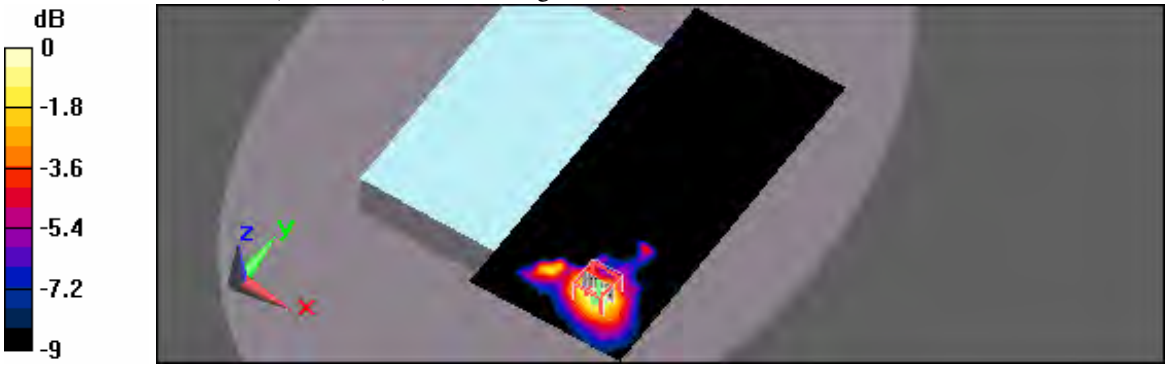
Communication System: IEEE 802.11a; Frequency: 5580 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5580 MHz; σ = 5.98 mho/m; ε_r = 46.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(3.61, 3.61, 3.61); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.298 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.772 V/m; Power Drift = -0.023 dB
Peak SAR (extrapolated) = 0.641 W/kg
SAR(1 g) = 0.186 mW/g; SAR(10 g) = 0.074 mW/g
Maximum value of SAR (measured) = 0.299 mW/g



0 dB = 0.299mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/18/2012 3:22:19 PM

Flat_802.11a CH116_6M_Back surface to phantom 0mm_Hip pad Battery_Hand strap

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

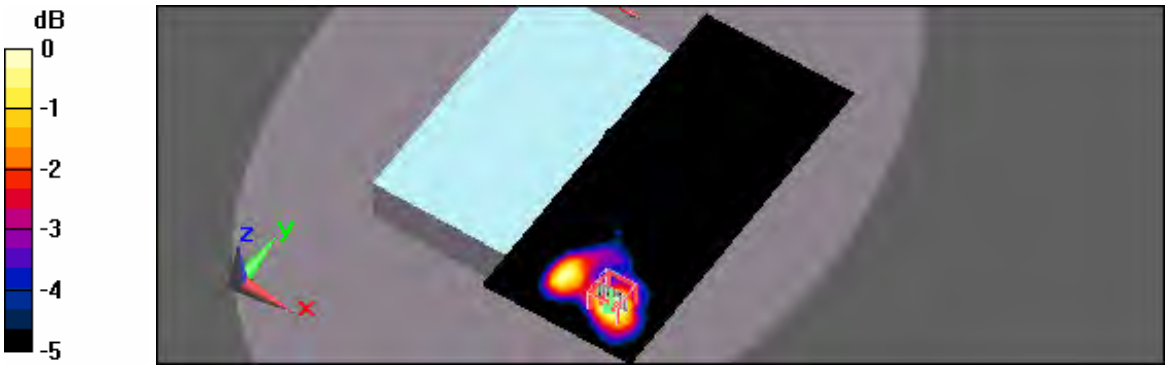
Communication System: IEEE 802.11a; Frequency: 5580 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5580 MHz; σ = 5.98 mho/m; ε_r = 46.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(3.61, 3.61, 3.61); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.150 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0: easurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.535 V/m; Power Drift = 0.077 dB
Peak SAR (extrapolated) = 0.282 W/kg
SAR(1 g) = 0.087 mW/g; SAR(10 g) = 0.037 mW/g
Maximum value of SAR (measured) = 0.142 mW/g



0 dB = 0.142mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/18/2012 5:01:32 PM

Flat_802.11a CH116_6M_Back surface to phantom 0mm_Thick Battery_Hand strap

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

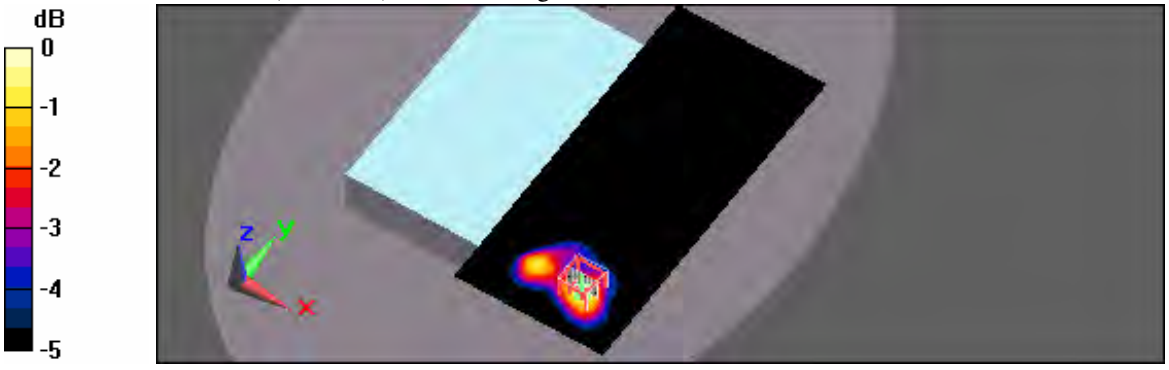
Communication System: IEEE 802.11a; Frequency: 5580 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5580 MHz; σ = 5.98 mho/m; ε_r = 46.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(3.61, 3.61, 3.61); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.171 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.441 V/m; Power Drift = -0.00276 dB
Peak SAR (extrapolated) = 0.415 W/kg
SAR(1 g) = 0.109 mW/g; SAR(10 g) = 0.044 mW/g
Maximum value of SAR (measured) = 0.174 mW/g



0 dB = 0.174mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/18/2012 6:09:10 PM

Flat_802.11a CH116_6M_Back surface to phantom 0mm_Thin Battery_Hand strap

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

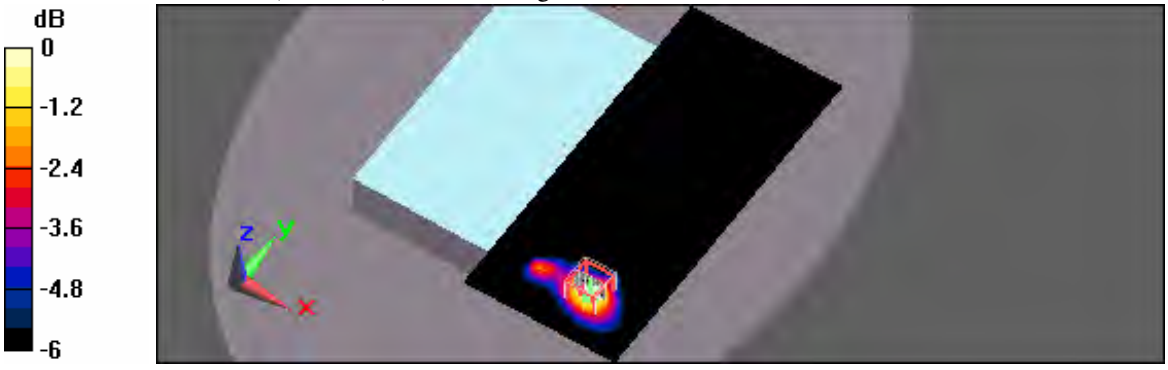
Communication System: IEEE 802.11a; Frequency: 5580 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5580 MHz; σ = 5.98 mho/m; ε_r = 46.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(3.61, 3.61, 3.61); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.282 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.550 V/m; Power Drift = -0.133 dB
Peak SAR (extrapolated) = 0.590 W/kg
SAR(1 g) = 0.172 mW/g; SAR(10 g) = 0.070 mW/g
Maximum value of SAR (measured) = 0.276 mW/g



0 dB = 0.276mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/18/2012 11:19:47 PM

Flat_802.11a CH116_6M_Back surface to phantom 0mm_Internal Battery_Shoulder strap

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

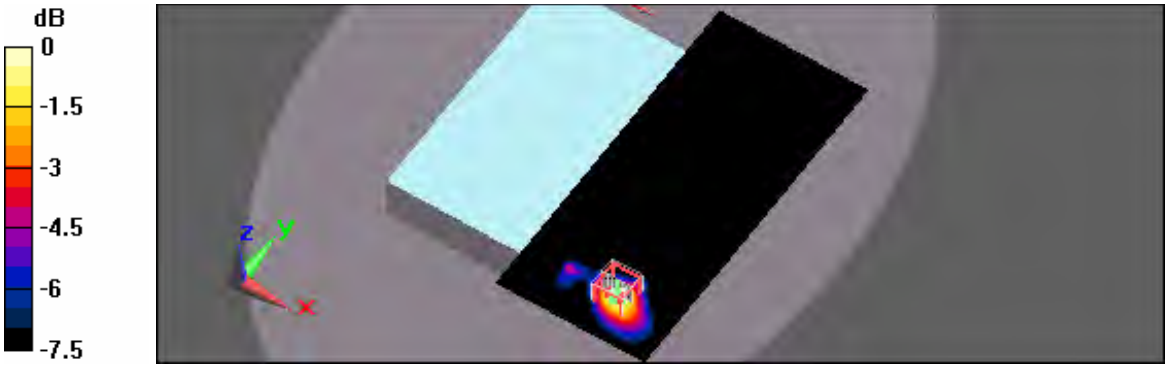
Communication System: IEEE 802.11a; Frequency: 5580 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5580 MHz; σ = 5.98 mho/m; ε_r = 46.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(3.61, 3.61, 3.61); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.402 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.420 V/m; Power Drift = 0.112 dB
Peak SAR (extrapolated) = 0.839 W/kg
SAR(1 g) = 0.235 mW/g; SAR(10 g) = 0.089 mW/g
Maximum value of SAR (measured) = 0.389 mW/g



0 dB = 0.389mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/18/2012 10:14:17 PM

Flat_802.11a CH116_6M_Back surface to phantom 0mm_Hip pad Battery_Shoulder strap

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

Communication System: IEEE 802.11a; Frequency: 5580 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5580 MHz; σ = 5.98 mho/m; ε_r = 46.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(3.61, 3.61, 3.61); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.234 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.729 V/m; Power Drift = 0.187 dB
Peak SAR (extrapolated) = 0.546 W/kg
SAR(1 g) = 0.130 mW/g; SAR(10 g) = 0.053 mW/g
Maximum value of SAR (measured) = 0.219 mW/g

0 dB = 0.219mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/18/2012 7:18:24 PM

Flat_802.11a CH116_6M_Back surface to phantom 0mm_Thick Battery_Shoulder strap

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

Communication System: IEEE 802.11a; Frequency: 5580 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5580 MHz; σ = 5.98 mho/m; ε_r = 46.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(3.61, 3.61, 3.61); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.190 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.612 V/m; Power Drift = -0.151 dB
Peak SAR (extrapolated) = 0.475 W/kg
SAR(1 g) = 0.116 mW/g; SAR(10 g) = 0.045 mW/g
Maximum value of SAR (measured) = 0.186 mW/g

0 dB = 0.186mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/18/2012 8:26:12 PM

Flat_802.11a CH116_6M_Back surface to phantom 0mm_Thin Battery_Shoulder strap

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

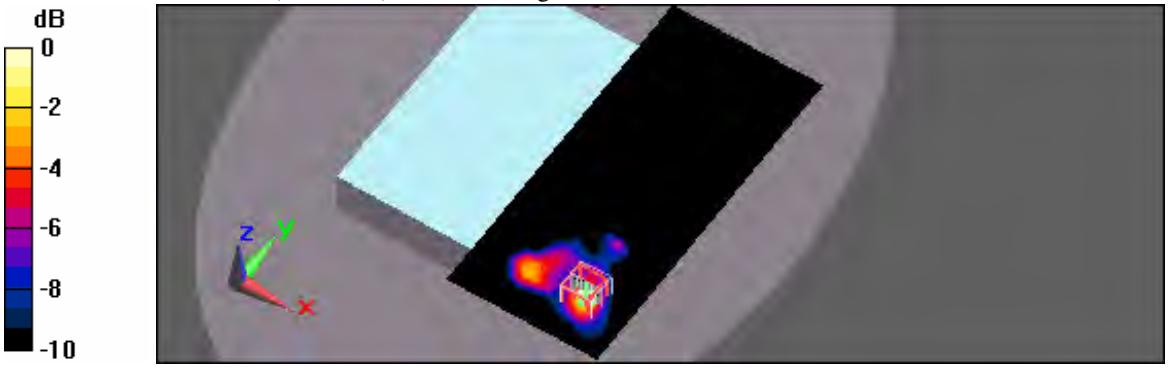
Communication System: IEEE 802.11a; Frequency: 5580 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5580 MHz; σ = 5.98 mho/m; ε_r = 46.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(3.61, 3.61, 3.61); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.274 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.564 V/m; Power Drift = 0.080 dB
Peak SAR (extrapolated) = 0.666 W/kg
SAR(1 g) = 0.172 mW/g; SAR(10 g) = 0.053 mW/g
Maximum value of SAR (measured) = 0.326 mW/g



0 dB = 0.326mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 3/22/2012 12:10:25 AM

Flat_802.11a CH116_6M_Edge left to phantom 0mm_Internal Battery_Barcode_Magnetic Stripe

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

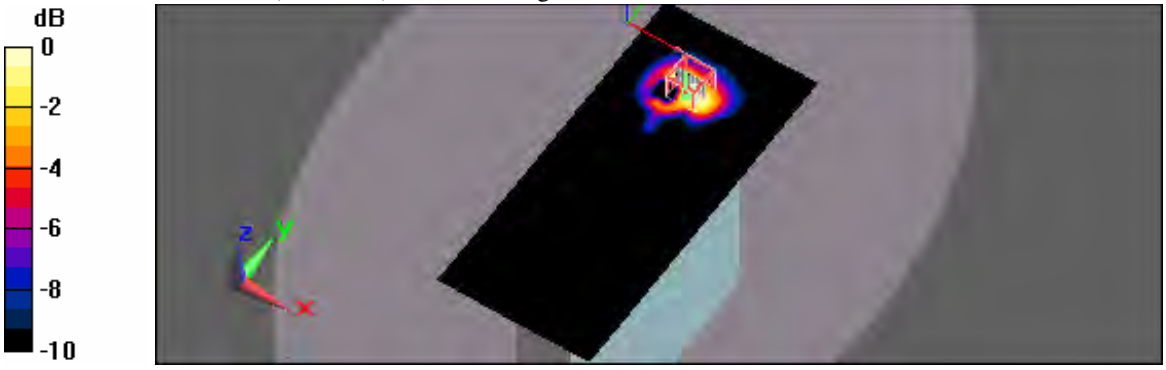
Communication System: IEEE 802.11a; Frequency: 5580 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 5580 MHz; σ = 5.98 mho/m; ε_r = 46.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(3.61, 3.61, 3.61); Calibrated: 2/21/2012
- Sensor-Surface: 2.5mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (121x271x1):
Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.629 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=4mm, dy=4mm, dz=2.5mm
Reference Value = 0.878 V/m; Power Drift = 0.192 dB
Peak SAR (extrapolated) = 1.13 W/kg
SAR(1 g) = 0.326 mW/g; SAR(10 g) = 0.123 mW/g
Maximum value of SAR (measured) = 0.542 mW/g



0 dB = 0.542mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 4/2/2012 7:11:55 PM

Flat_BT CH39_Front Surface 0mm_Thick Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

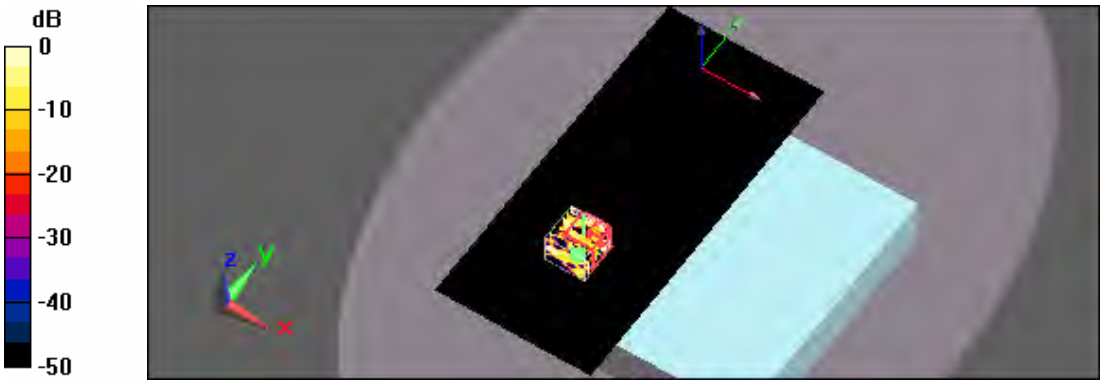
Communication System: Bluetooth; Frequency: 2441 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2441 MHz; σ = 1.96 mho/m; ε_r = 51.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(8.22, 8.22, 8.22); Calibrated: 2/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (81x181x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 7.36e-005 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 0 V/m; Power Drift = 0 dB
Peak SAR (extrapolated) = 0.000187 W/kg
SAR(1 g) = 1.57e-006 mW/g; SAR(10 g) = 1.59e-007 mW/g
Maximum value of SAR (measured) = 0.00118 mW/g



0 dB = 0.00118mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 4/2/2012 11:49:48 PM

Flat_BT CH39_Back Surface 0mm_Hip pad Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

Communication System: Bluetooth; Frequency: 2441 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2441 MHz; σ = 1.96 mho/m; ε_r = 51.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(8.22, 8.22, 8.22); Calibrated: 2/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (81x181x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.002 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 0 V/m; Power Drift = 0 dB
Peak SAR (extrapolated) = 0.000411 W/kg
SAR(1 g) = 3.56e-006 mW/g; SAR(10 g) = 3.67e-007 mW/g
Maximum value of SAR (measured) = 0.00154 mW/g

0 dB = 0.00154mW/g

Test Laboratory: A Test Lab Techno Corp.
Date/Time: 4/2/2012 10:53:09 PM

Flat_BT CH39_Back Surface 0mm_Thick Battery

DUT: FX1; Type: Handheld Computer; FCC ID: KDZLXE-FX1

Communication System: Bluetooth; Frequency: 2441 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2441 MHz; σ = 1.96 mho/m; ε_r = 51.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY5 Configuration:

- Area Scan setting - Find Secondary Maximum Within:2.0dB and with a peak SAR value greater than 0.5 W/Kg
- Probe: EX3DV3 - SN3519; ConvF(8.22, 8.22, 8.22); Calibrated: 2/21/2012
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn779; Calibrated: 1/23/2012
- Phantom: ELI 4.0; Type: QDOVA001BB; Serial: 1036
- Measurement SW: DASY5, V5.0 Build 125;SEMCAD X Version 13.4 Build 125

Flat/Area Scan (81x181x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.000101 mW/g

Flat/Zoom Scan (7x7x9)/Cube 0:
Measurement grid: dx=5mm, dy=5mm, dz=3mm
Reference Value = 0 V/m; Power Drift = 0 dB
Peak SAR (extrapolated) = 0.00142 W/kg
SAR(1 g) = 1.13e-005 mW/g; SAR(10 g) = 2.86e-006 mW/g
Maximum value of SAR (measured) = 0.00142 mW/g

0 dB = 0.00142mW/g

Appendix C - Calibration

All of the instruments Calibration information are listed below.

- Dipole _ D2450V2 SN:712 Calibration No.D2450V2-712_Feb12
- Dipole _ D5GHzV2 SN:1021 Calibration No.D5GHzV2-1021_Feb12
- Probe _ EX3DV3 SN:3519 Calibration No.EX3-3519_ Feb12
- DAE _ DAE4 SN:779 Calibration No.DAE4-779_Jan12

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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	i.V.
Approved by:	Katja Pokovic	Technical Manager	

Issued: February 23, 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.

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

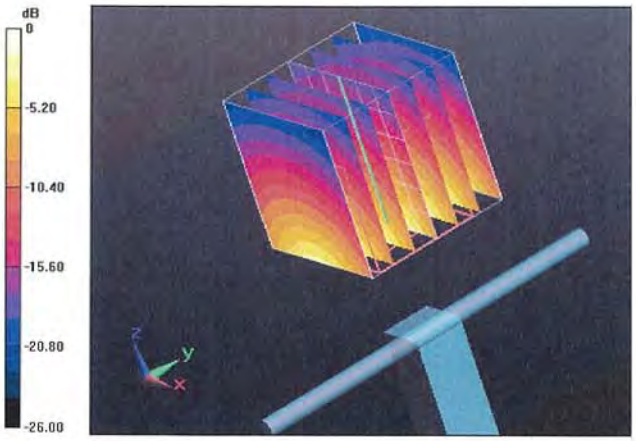
Communication System: CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.86 mho/m; ε_r = 38.9; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

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)

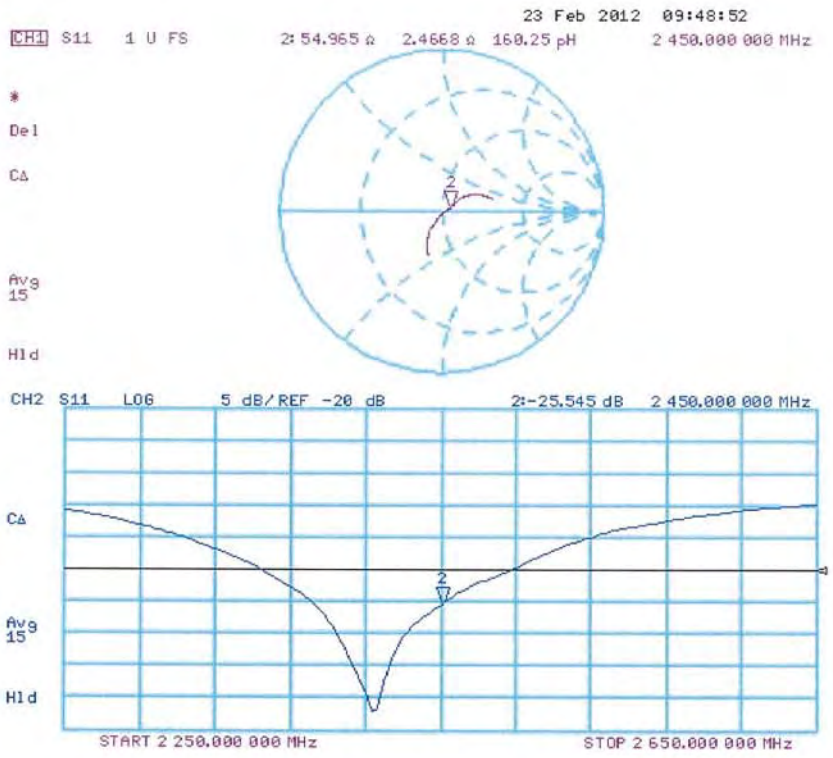
Dipole Calibration for Head Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

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

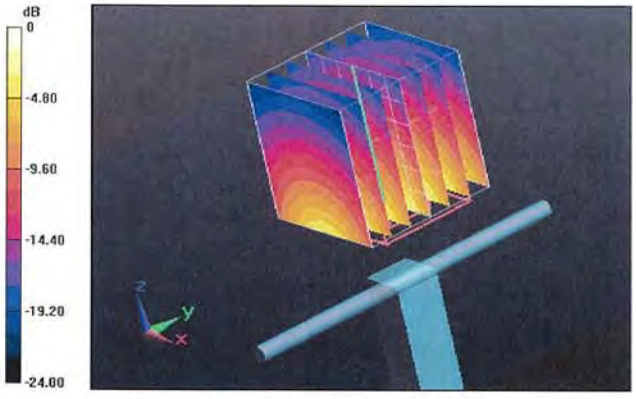
Communication System: CW; Frequency: 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 2.02 mho/m; ε_r = 52.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

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)

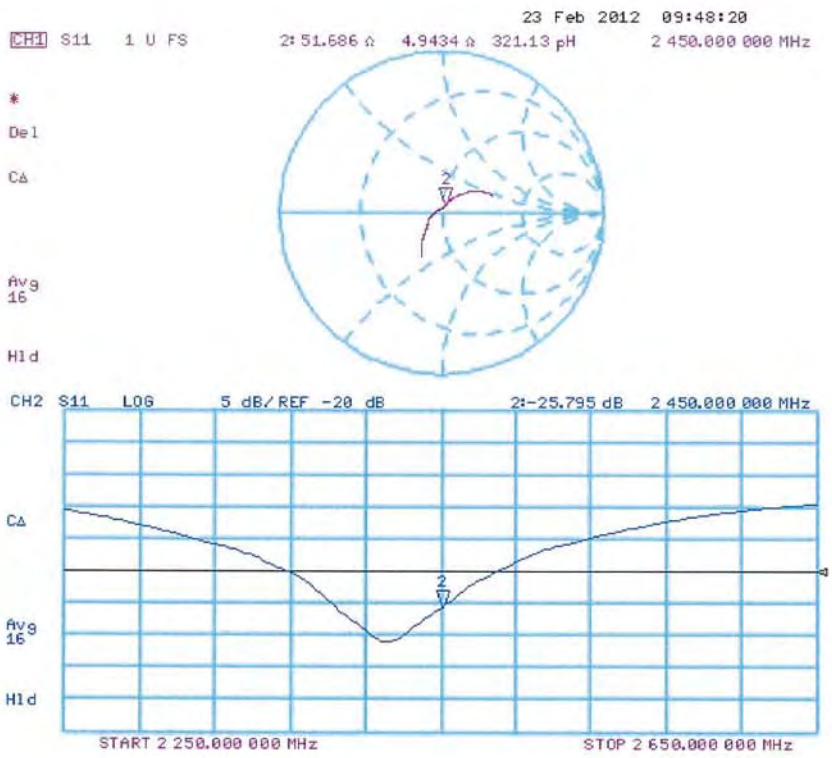
Dipole Calibration for Body Tissue/Pin=250 mW, d=10mm/Zoom Scan (7x7x7)/Cube 0:

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: **D5GHzV2-1021_Feb12**

CALIBRATION CERTIFICATE

Object	D5GHzV2 - SN: 1021
Calibration procedure(s)	QA CAL-22.v1 Calibration procedure for dipole validation kits between 3-6 GHz
Calibration date:	February 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 EPM-442A	GB37480704	05-Oct-11 (No. 217-01451)	Oct-12
Power sensor HP 8481A	US37292783	05-Oct-11 (No. 217-01451)	Oct-12
Reference 20 dB Attenuator	SN: 5086 (20g)	29-Mar-11 (No. 217-01368)	Apr-12
Type-N mismatch combination	SN: 5047.2 / 06327	29-Mar-11 (No. 217-01371)	Apr-12
Reference Probe EX3DV4	SN: 3503	30-Dec-11 (No. EX3-3503_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:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: February 21, 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.

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 V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy = 4.0 mm, dz = 1.4 mm	Graded Ratio = 1.4 (Z direction)
Frequency	5200 MHz ± 1 MHz 5500 MHz ± 1 MHz 5800 MHz ± 1 MHz	

Head TSL parameters at 5200 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	36.0	4.66 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	35.3 ± 6 %	4.60 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5200 MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.18 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**81.5 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.34 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**23.3 mW /g ± 16.5 % (k=2)**

Head TSL parameters at 5500 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.6	4.96 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.9 ± 6 %	4.89 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5500 MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	8.55 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**85.1 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.44 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**24.3 mW / g ± 16.5 % (k=2)**

Head TSL parameters at 5800 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	35.3	5.27 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	34.4 ± 6 %	5.19 mho/m ± 6 %
Head TSL temperature change during test	< 0.5 °C	----	----

SAR result with Head TSL at 5800 MHz

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	100 mW input power	7.96 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**79.1 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	100 mW input power	2.26 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**22.4 mW / g ± 16.5 % (k=2)**

Body TSL parameters at 5200 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	49.0	5.30 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	48.6 ± 6 %	5.48 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5200 MHz

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.46 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**74.5 mW / g ± 18.1 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.09 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**20.9 mW / g ± 17.6 % (k=2)**

Body TSL parameters at 5500 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.6	5.65 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	48.1 ± 6 %	5.87 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5500 MHz

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.95 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**79.5 mW / g ± 18.1 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.20 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**22.0 mW / g ± 17.6 % (k=2)**

Body TSL parameters at 5800 MHz

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	48.2	6.00 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	48.2 ± 6 %	6.28 mho/m ± 6 %
Body TSL temperature change during test	< 0.5 °C	----	----

SAR result with Body TSL at 5800 MHz

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	100 mW input power	7.40 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**74.1 mW / g ± 18.1 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	100 mW input power	2.04 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**20.4 mW / g ± 17.6 % (k=2)**

Appendix

Antenna Parameters with Head TSL at 5200 MHz

Impedance, transformed to feed point	51.6 Ω - 8.0 jΩ
Return Loss	- 21.9 dB

Antenna Parameters with Head TSL at 5500 MHz

Impedance, transformed to feed point	53.7 Ω - 2.1 jΩ
Return Loss	- 27.8 dB

Antenna Parameters with Head TSL at 5800 MHz

Impedance, transformed to feed point	58.4 Ω - 1.0 jΩ
Return Loss	- 22.1 dB

Antenna Parameters with Body TSL at 5200 MHz

Impedance, transformed to feed point	50.9 Ω - 6.2 jΩ
Return Loss	- 24.1 dB

Antenna Parameters with Body TSL at 5500 MHz

Impedance, transformed to feed point	52.8 Ω - 0.7 jΩ
Return Loss	- 31.1 dB

Antenna Parameters with Body TSL at 5800 MHz

Impedance, transformed to feed point	58.9 Ω + 0.4 jΩ
Return Loss	- 21.7 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.200 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	February 05, 2004

DASY5 Validation Report for Head TSL

Date: 21.02.2012

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 5GHz; Type: D5GHzV2; Serial: D5GHzV2 - SN: 1021

Communication System: CW; Frequency: 5200 MHz, Frequency: 5500 MHz, Frequency: 5800 MHz
Medium parameters used: f = 5200 MHz; σ = 4.6 mho/m; ε_r = 35.3; ρ = 1000 kg/m^3 , Medium parameters used: f = 5500 MHz; σ = 4.89 mho/m; ε_r = 34.9; ρ = 1000 kg/m^3 , Medium parameters used: f = 5800 MHz; σ = 5.19 mho/m; ε_r = 34.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

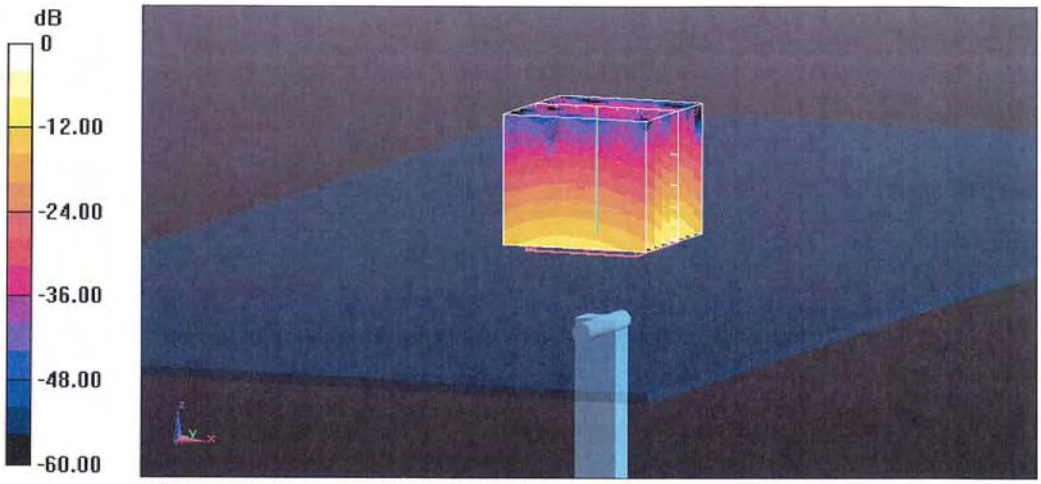
DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(5.41, 5.41, 5.41), ConvF(4.91, 4.91, 4.91), ConvF(4.81, 4.81, 4.81); Calibrated: 30.12.2011
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5200 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 64.919 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 30.6190
SAR(1 g) = 8.18 mW/g; SAR(10 g) = 2.34 mW/g
Maximum value of SAR (measured) = 18.515 mW/g

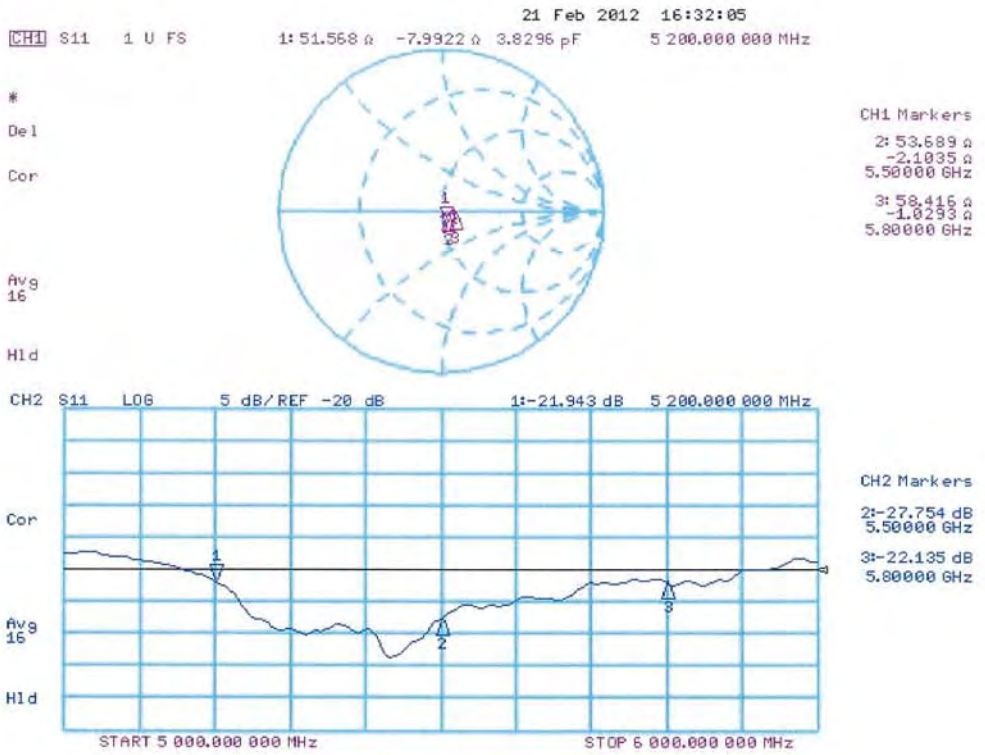
Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5500 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 65.167 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 34.0140
SAR(1 g) = 8.55 mW/g; SAR(10 g) = 2.44 mW/g
Maximum value of SAR (measured) = 19.892 mW/g

Dipole Calibration for Head Tissue/Pin=100mW, dist=10mm, f=5800 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 61.352 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 33.4090
SAR(1 g) = 7.96 mW/g; SAR(10 g) = 2.26 mW/g
Maximum value of SAR (measured) = 19.175 mW/g



0 dB = 19.170mW/g = 25.65 dB mW/g

Impedance Measurement Plot for Head TSL



DASY5 Validation Report for Body TSL

Date: 20.02.2012

Test Laboratory: SPEAG, Zurich, Switzerland

DUT: Dipole 5GHz; Type: D5GHzV2; Serial: D5GHzV2 - SN: 1021

Communication System: CW; Frequency: 5200 MHz, Frequency: 5500 MHz, Frequency: 5800 MHz
Medium parameters used: f = 5200 MHz; σ = 5.48 mho/m; ε_r = 48.6; ρ = 1000 kg/m^3 , Medium parameters used: f = 5500 MHz; σ = 5.87 mho/m; ε_r = 48.1; ρ = 1000 kg/m^3 , Medium parameters used: f = 5800 MHz; σ = 6.28 mho/m; ε_r = 48.2; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

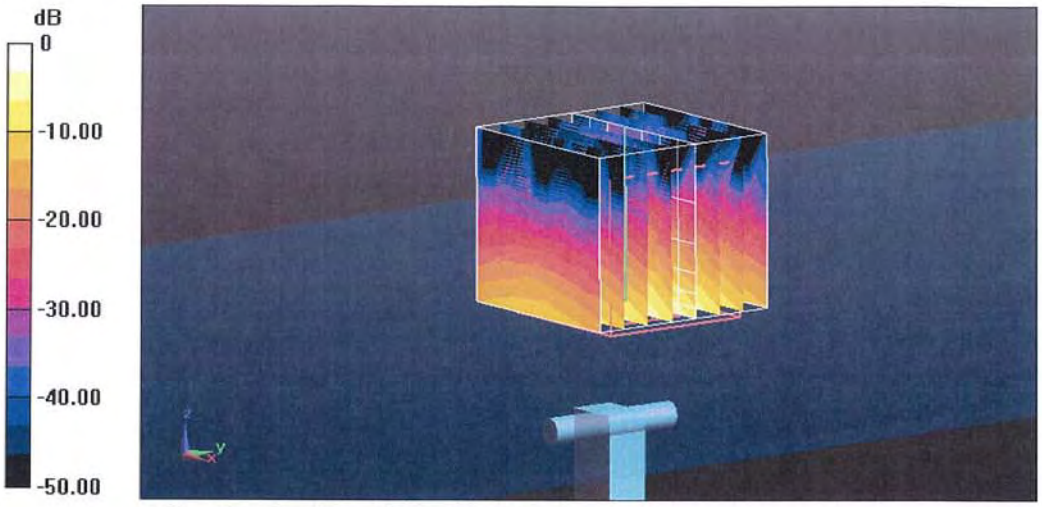
DASY52 Configuration:

- Probe: EX3DV4 - SN3503; ConvF(4.91, 4.91, 4.91), ConvF(4.43, 4.43, 4.43), ConvF(4.38, 4.38, 4.38); Calibrated: 30.12.2011
- Sensor-Surface: 1.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 04.07.2011
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- DASY52 52.8.0(692); SEMCAD X 14.6.4(4989)

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5200 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 57.162 V/m; Power Drift = 0.04 dB
Peak SAR (extrapolated) = 29.4210
SAR(1 g) = 7.46 mW/g; SAR(10 g) = 2.09 mW/g
Maximum value of SAR (measured) = 17.574 mW/g

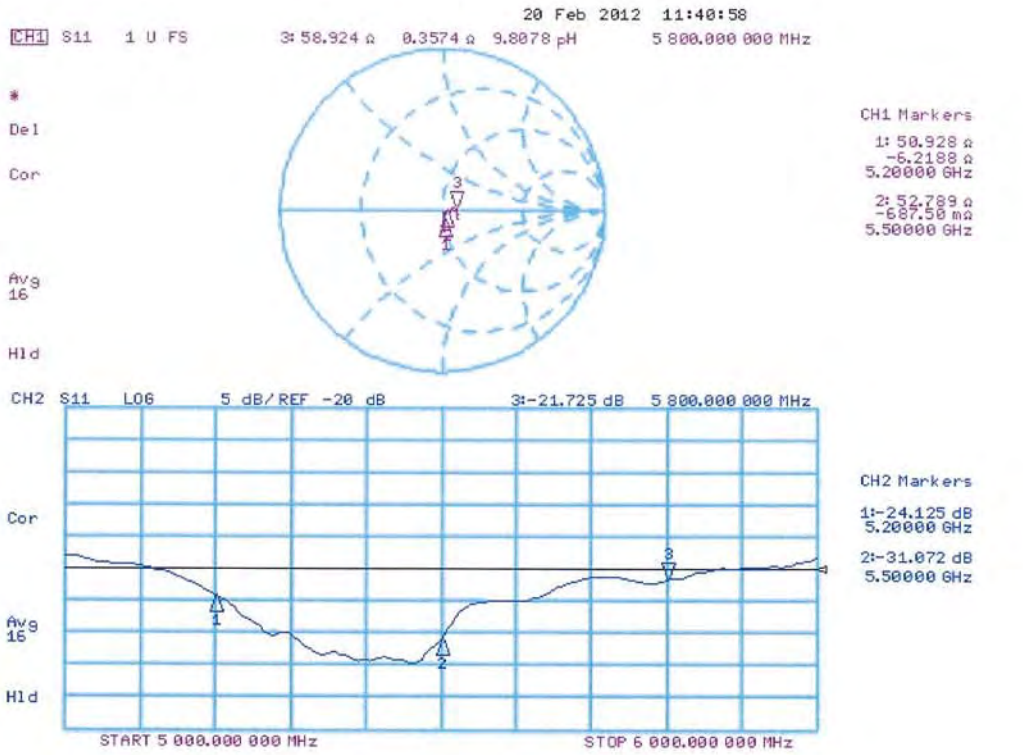
Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5500 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 57.264 V/m; Power Drift = 0.03 dB
Peak SAR (extrapolated) = 34.2100
SAR(1 g) = 7.95 mW/g; SAR(10 g) = 2.2 mW/g
Maximum value of SAR (measured) = 19.106 mW/g

Dipole Calibration for Body Tissue/Pin=100mW, dist=10mm, f=5800 MHz/Zoom Scan, dist=1.4mm (8x8x7)/Cube 0: Measurement grid: dx=4mm, dy=4mm, dz=1.4mm
Reference Value = 53.630 V/m; Power Drift = 0.01 dB
Peak SAR (extrapolated) = 34.8380
SAR(1 g) = 7.4 mW/g; SAR(10 g) = 2.04 mW/g
Maximum value of SAR (measured) = 18.569 mW/g



0 dB = 18.570mW/g = 25.38 dB mW/g

Impedance Measurement Plot for Body TSL



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Accreditation No.: SCS 108

Client ATL (Auden)

Certificate No: EX3-3519_Feb12

CALIBRATION CERTIFICATE

Object: EX3DV3 - SN:3519

Calibration procedure(s): QA CAL-01.v8, QA CAL-12.v7, QA CAL-14.v3, QA CAL-23.v4, QA CAL-25.v4
Calibration procedure for dosimetric E-field probes

Calibration date: February 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: February 21, 2012

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

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The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
CF	crest factor (1/duty_cycle) of the RF signal
A, B, C	modulation dependent linearization parameters
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., $\vartheta = 0$ 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 $\vartheta = 0$ ($f \leq 900$ 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 $f \leq 800$ 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 EX3DV3

SN:3519

Manufactured: March 8, 2004
Calibrated: February 21, 2012

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

DASY/EASY - Parameters of Probe: EX3DV3 - SN:3519

Basic Calibration Parameters

	Sensor X	Sensor Y	Sensor Z	Unc (k=2)
Norm ($\mu V/(V/m)^2$)[A]	0.81	0.70	0.72	± 10.1 %
DCP (mV)[B]	102.5	100.6	101.7	

Modulation Calibration Parameters

UID	Communication System Name	PAR		A dB	B dB	C dB	VR mV	Unc[E] (k=2)
10000	CW	0.00	X	0.00	0.00	1.00	120.7	±1.9 %
			Y	0.00	0.00	1.00	136.5	
			Z	0.00	0.00	1.00	108.9	

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

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

DASY/EASY - Parameters of Probe: EX3DV3 - SN:3519

Calibration Parameter Determined in Head Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
450	43.5	0.87	10.74	10.74	10.74	0.10	1.00	± 13.4 %
750	41.9	0.89	10.59	10.59	10.59	0.22	1.15	± 12.0 %
835	41.5	0.90	10.13	10.13	10.13	0.21	1.25	± 12.0 %
900	41.5	0.97	9.99	9.99	9.99	0.31	0.93	± 12.0 %
1750	40.1	1.37	9.40	9.40	9.40	0.64	0.63	± 12.0 %
1810	40.0	1.40	9.17	9.17	9.17	0.52	0.76	± 12.0 %
1900	40.0	1.40	9.04	9.04	9.04	0.35	0.85	± 12.0 %
2000	40.0	1.40	8.93	8.93	8.93	0.46	0.76	± 12.0 %
2450	39.2	1.80	7.82	7.82	7.82	0.36	0.83	± 12.0 %
5200	36.0	4.66	5.06	5.06	5.06	0.35	1.80	± 13.1 %
5300	35.9	4.76	4.82	4.82	4.82	0.38	1.80	± 13.1 %
5500	35.6	4.96	4.67	4.67	4.67	0.40	1.80	± 13.1 %
5600	35.5	5.07	4.36	4.36	4.36	0.45	1.80	± 13.1 %
5800	35.3	5.27	4.31	4.31	4.31	0.42	1.80	± 13.1 %

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

DASY/EASY - Parameters of Probe: EX3DV3 - SN:3519

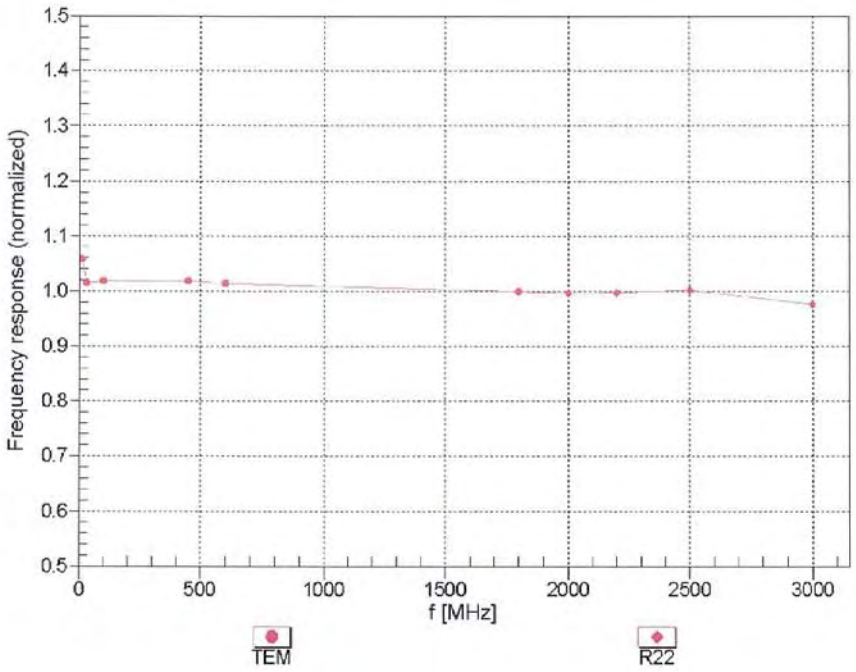
Calibration Parameter Determined in Body Tissue Simulating Media

f (MHz) [C]	Relative Permittivity [F]	Conductivity (S/m) [F]	ConvF X	ConvF Y	ConvF Z	Alpha	Depth (mm)	Unct. (k=2)
450	56.7	0.94	11.71	11.71	11.71	0.02	1.00	± 13.4 %
750	55.5	0.96	10.53	10.53	10.53	0.18	1.49	± 12.0 %
835	55.2	0.97	10.36	10.36	10.36	0.23	1.22	± 12.0 %
900	55.0	1.05	10.27	10.27	10.27	0.21	1.34	± 12.0 %
1750	53.4	1.49	9.70	9.70	9.70	0.41	0.92	± 12.0 %
1810	53.3	1.52	9.41	9.41	9.41	0.32	0.96	± 12.0 %
1900	53.3	1.52	9.04	9.04	9.04	0.37	0.91	± 12.0 %
2000	53.3	1.52	9.06	9.06	9.06	0.44	0.80	± 12.0 %
2300	52.9	1.81	8.56	8.56	8.56	0.39	0.84	± 12.0 %
2450	52.7	1.95	8.22	8.22	8.22	0.76	0.54	± 12.0 %
2600	52.5	2.16	7.82	7.82	7.82	0.80	0.50	± 12.0 %
3500	51.3	3.31	7.01	7.01	7.01	0.37	1.18	± 13.1 %
5200	49.0	5.30	4.38	4.38	4.38	0.50	1.90	± 13.1 %
5300	48.9	5.42	4.13	4.13	4.13	0.55	1.90	± 13.1 %
5500	48.6	5.65	3.92	3.92	3.92	0.55	1.90	± 13.1 %
5600	48.5	5.77	3.61	3.61	3.61	0.60	1.90	± 13.1 %
5800	48.2	6.00	3.88	3.88	3.88	0.60	1.90	± 13.1 %

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

EX3DV3– SN:3519 February 21, 2012

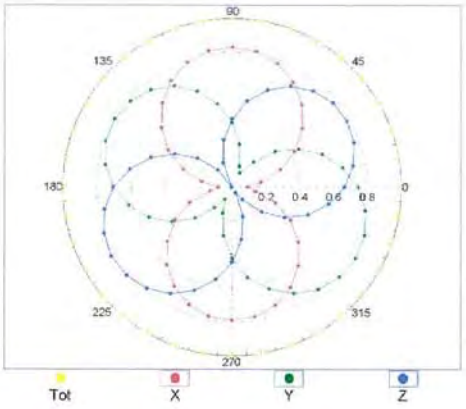
Frequency Response of E-Field
(TEM-Cell:ifi110 EXX, Waveguide: R22)



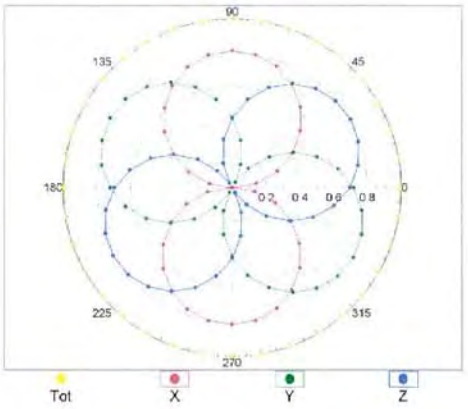
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

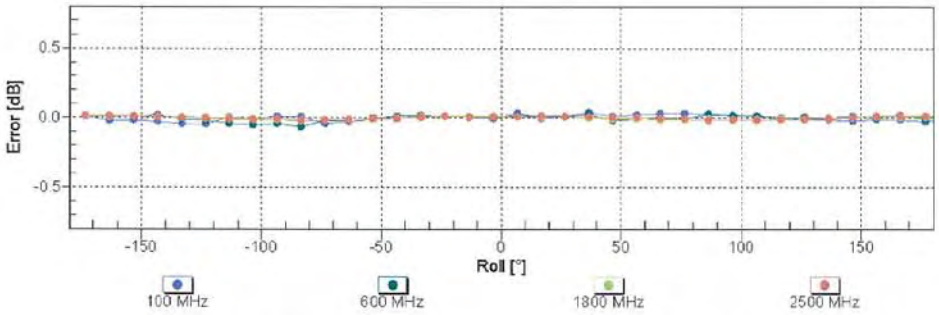
Receiving Pattern (ϕ), ϑ = 0°

f=600 MHz,TEM



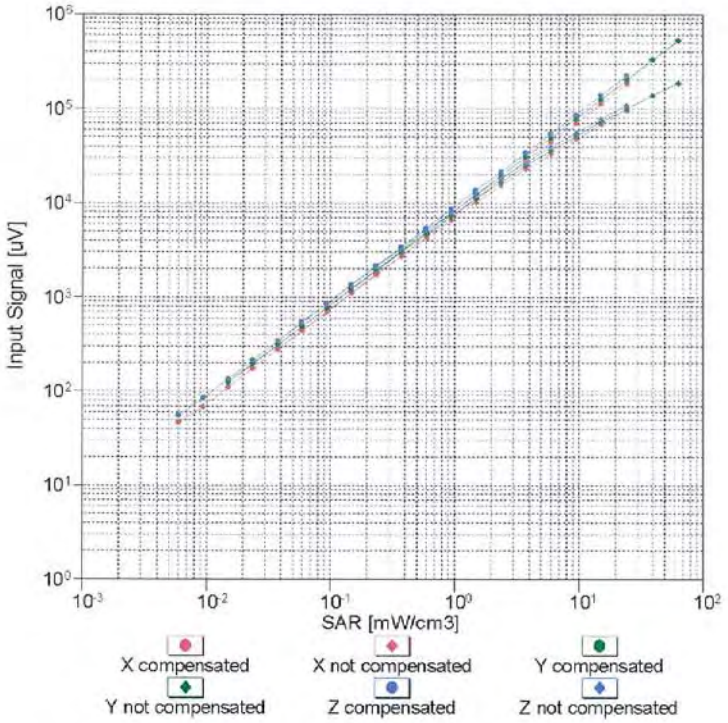
f=1800 MHz,R22

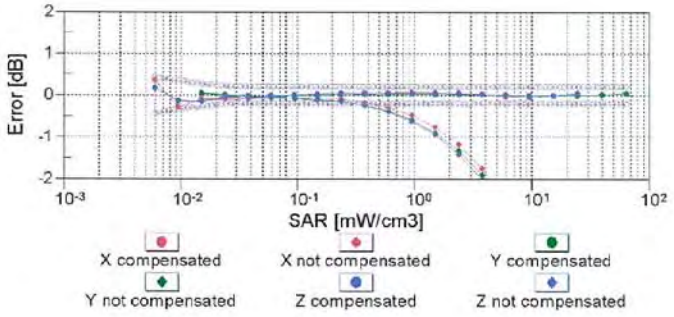




Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

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



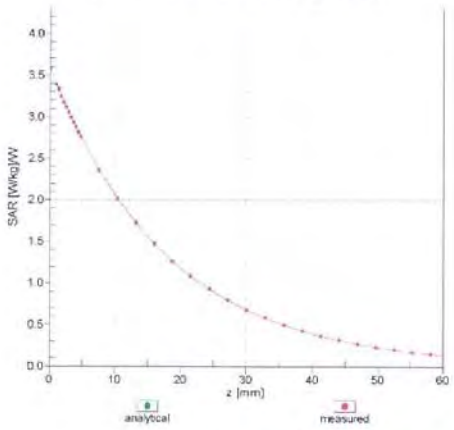


Uncertainty of Linearity Assessment: ± 0.6% (k=2)

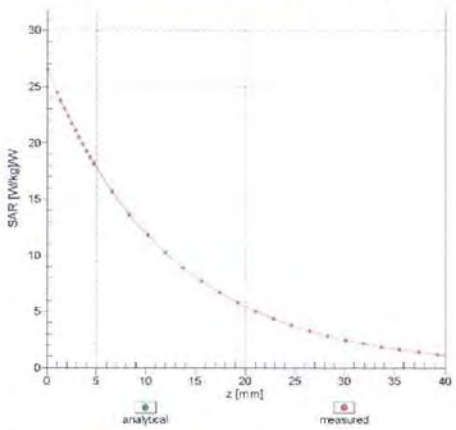
EX3DV3– SN:3519 February 21, 2012

Conversion Factor Assessment

f = 900 MHz,WGLS R9 (H_convF)

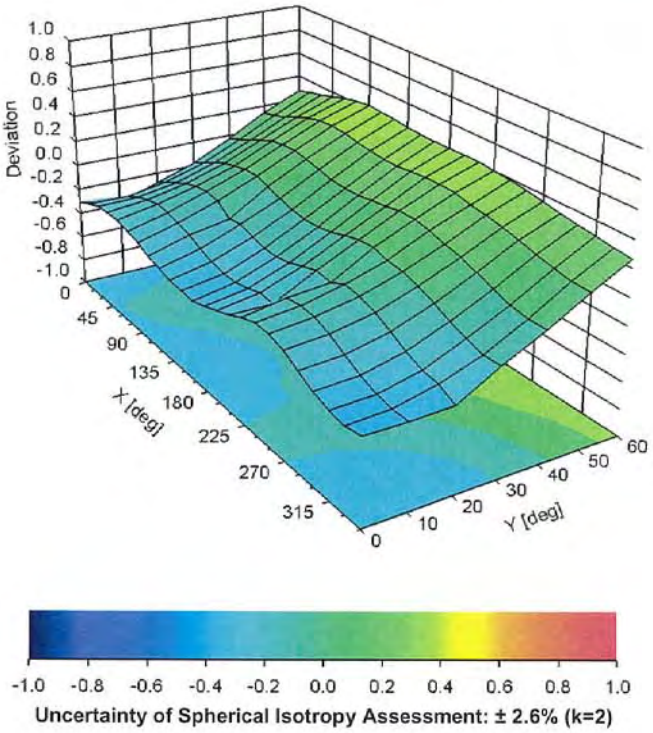


f = 1810 MHz,WGLS R22 (H_convF)



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: EX3DV3 - SN:3519

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

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Accreditation No.: SCS 108

Client ATL (Auden)

Certificate No: DAE4-779_Jan12

CALIBRATION CERTIFICATE

Object	DAE4 - SD 000 D04 BJ - SN: 779
Calibration procedure(s)	QA CAL-06.v24 Calibration procedure for the data acquisition electronics (DAE)
Calibration date:	January 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:	Dominique Steffen	Technician	
Approved by:	Fin Bomholt	R&D Director	

Issued: January 23, 2012

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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	404.578 ± 0.1% (k=2)	403.737 ± 0.1% (k=2)	403.961 ± 0.1% (k=2)
Low Range	3.96952 ± 0.7% (k=2)	3.97827 ± 0.7% (k=2)	3.99341 ± 0.7% (k=2)

Connector Angle

Connector Angle to be used in DASY system	156.5 ° ± 1 °

Appendix

1. DC Voltage Linearity

High Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	199992.36	-2.42	-0.00
Channel X	+ Input	20002.90	2.80	0.01
Channel X	- Input	-19995.39	5.40	-0.03
Channel Y	+ Input	199995.92	1.48	0.00
Channel Y	+ Input	20002.78	2.85	0.01
Channel Y	- Input	-19998.45	2.56	-0.01
Channel Z	+ Input	199992.89	-1.72	-0.00
Channel Z	+ Input	19998.87	-1.11	-0.01
Channel Z	- Input	-20000.07	0.90	-0.00

Low Range		Reading (μV)	Difference (μV)	Error (%)
Channel X	+ Input	1998.52	-1.94	-0.10
Channel X	+ Input	200.77	-0.18	-0.09
Channel X	- Input	-199.69	-0.83	0.42
Channel Y	+ Input	1999.48	-0.80	-0.04
Channel Y	+ Input	200.34	-0.55	-0.27
Channel Y	- Input	-198.10	0.97	-0.49
Channel Z	+ Input	1998.95	-1.37	-0.07
Channel Z	+ Input	199.48	-1.44	-0.71
Channel Z	- Input	-199.41	-0.31	0.16

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	-4.09	-4.76
	- 200	6.36	4.04
Channel Y	200	14.06	13.41
	- 200	-14.67	-14.92
Channel Z	200	3.23	1.98
	- 200	-5.02	-4.73

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	-	-1.52	-1.21
Channel Y	200	12.10	-	-1.51
Channel Z	200	0.25	12.60	-

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	15627	16393
Channel Y	15845	15908
Channel Z	16157	16150

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	-1.27	-2.39	-0.17	0.45
Channel Y	0.05	-1.36	2.93	0.64
Channel Z	-1.16	-2.45	-0.25	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