TEST REPORT

REPORT NUMBER: I08GW7473-FCC-SAR-2

ON

Type of Equipment: Pocket Pc
Type of Designation: 810-F
Manufacturer: ON TIM Technologies LTD

ACCORDING TO

FCC Part 2.1093: Radiofrequency radiation exposure evaluation: portable devices, e-CFR March 23, 2006
FCC OET Bulletin 65 Supplement C (Edition 01-01): Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions
IEEE Std 1528™-2003: IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques

China Telecommunication Technology Labs.

Month date, year
May 8, 2009

Signature

He Guili
Director

FCC ID:	W4RØØ1
Report Date:	2009-05-07
Test Firm Name:	China Telecommunication Technology Labs
Registration Number:	840587

Statement

The measurements shown in this report were made in accordance with the procedures described on test pages. All reported tests were carried out on a sample equipment to demonstrate limited compliance with FCC CFR 47 Part 2.1093. The sample tested was found to comply with the requirements defined in the applied rules.

Table of Contents

1. General Information

1.1 Notes

All reported tests were carried out on a sample equipment to demonstrate limited compliance with the requirements of FCC CFR 47 Part 2.1093.

The test results of this test report relate exclusively to the item(s) tested as specified in section 2.

The following deviations from, additions to, or exclusions from the test specifications have been made. See Annex D.

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1.3.2 Details of accreditation status

Accredited by:	China National Accreditation Service for Conformity Assessment (CNAS)
Registration number:	CNAS Registration No. CNAS L0570
Standard:	ISO/IEC 17025:2005

1.3.3 Test location, where different from section 1.3.1

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1.4 Details of applicant or manufacturer

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1.4.3 Manufactory (if different from applicant in section 1.4.1)

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2 Test Item

2.1 General Information

Manufacturer: ON TIM Technologies LTD
Name: Pocket Pc
Model Number: 810-F
Serial Number: --
Production Status: Product
Receipt date of test item: 2008-12-19

2.2 Outline of EUT

EUT is a pocket pc supporting GSM 850, PCS 1900, WCDMA FDD II and V, 802.11b/g.

2.3 Modifications Incorporated in EUT

The EUT has not been modified from what is described by the brand name and unique type identification stated above.

2.4 Equipment Configuration

Equipment configuration list:

Item	Generic Description	Manufacturer	Type	Serial No.	Remarks
A	handset	ON TIM Technologies LTD	810-F	--	None
B	adapter	HIHONG TECHNOLOGY CO., LTD.	PSAI05R-050Q CH	--	None
C	battery	Amperex Technology Limited	PS-424462-02 Lithium-ion Polymer, rechargeable battery	--	None
D	Earphone	--	--	--	None

Cables:

Item	Cable Type	Manufacturer	Length	Shield	Quantity	Remarks
1	DC cable on Adapter	Unknown	1.0m	No	1	None

2.5 Other Information

Version of hardware and software:

HW Version: P1

SW Version: 810-F_WWE.6.1.1.04

Adaptor information:

Input voltage: 100Vac to 240Vac; 50Hz to 60Hz

Output voltage: 5V dc

Input current: 0.3A (max)

Output current: 1.0A (max)

Battery information:

Capacity: 1200 mAh Voltage: 3.6 to 4.2V

2.6 EUT Photographs

Face view

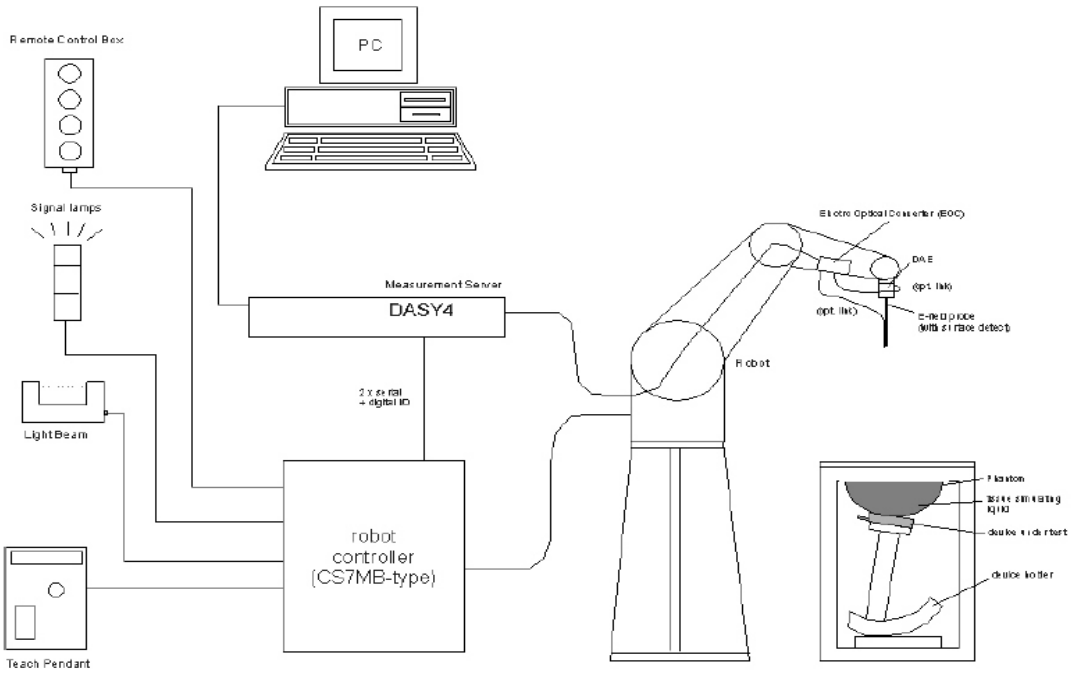
Back view

3 Measurement Systems

3.1 SAR Measurement Systems Setup

All measurements were performed using the automated near-field scanning system, DASY5, from Schmid & Partner Engineering AG (SPEAG). The system is based on a high precision industrial robot which positions the probes with a positional repeatability of better than 0.02mm. Special E- and H-field probes have been developed for measurements close to material discontinuity, the sensors of which are directly loaded with a Schottky diode and connected via highly resistive lines (length =300mm) to the data acquisition unit.

A cell controller system containing the power supply, robot controller, teach pendant (Joystick) and remote control, is used to drive the robot motors. The PC consists of the Micron Pentium III 800 MHz computer with Windows 2000 system and SAR Measurement Software DASY5, A/D interface card, monitor, mouse, and keyboard. The Stäubli Robot is connected to the cell controller to allow software manipulation of the robot. A data acquisition electronic (DAE) performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc., which is connected to the Electro-optical coupler (EOC). The EOC performs the conversion from the optical signal to digital electric signal of the DAE and transfers data to the PC plug-in card.



Demonstration of measurement system setup

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

3.2 E-field Probe

3.2.1 E-field Probe Description

The SAR measurements were conducted with the dosimetric probe ES3DV3 (manufactured by SPEAG), designed in the classical triangular configuration and optimized for dosimetric evaluation. The probe has been calibrated according to the standard procedure with an accuracy of better than ±10%. The spherical isotropy was evaluated and found to be better than ± 0.25dB.

Items	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.g., glycol)
Calibration	In air from 10 MHz to 2.5 GHz In brain and muscle simulating tissue at

	frequencies of 450MHz, 900MHz and 1.8GHz (accuracy±8%) Calibration for other liquids and frequencies upon request
Frequency	l 0 MHz to > 6 GHz; Linearity: ±0.2 dB (30 MHz to 3 GHz)
Directivity	±0.2 dB in brain tissue (rotation around probe axis) ±0.4 dB in brain tissue (rotation normal probe axis)
Dynamic Range	5u W/g to > 100mW/g; Linearity: ±0.2dB
Surface Detection	±0.2 mm repeatability in air and clear liquids over diffuse reflecting surface
Dimensions	Overall length: 330mm Tip length: 16mm Body diameter: 12mm Tip diameter: 6.8mm Distance from probe tip to dipole centers: 2.7mm
Application	General dosimetry up to 3GHz Compliance tests of mobile phones Fast automatic scanning in arbitrary phantoms

3.2.2 E-field Probe Calibration

The Annex C is the copy of the calibration certificate of the used probes.
Each probe is calibrated according to a dosimetric assessment procedure with accuracy better than ± 10%. The spherical isotropy was evaluated and found to be better than ± 0.25dB. The sensitivity parameters (NormX, NormY, NormZ), the diode compression parameter (DCP) and the conversion factor (ConvF) of the probe are tested.
The free space E-field from amplified probe outputs is determined in a test chamber. This is performed in a TEM cell for frequencies bellow 1 GHz, and in a wave guide above 1 GHz for free space. For the free space calibration, the probe is placed in the volumetric center of the cavity and at the proper orientation with the field. The probe is then rotated 360 degrees.
E-field temperature correlation calibration is performed in a flat phantom filled with the appropriate simulated brain tissue. The free-space E-field measured in the medium correlates to temperature increase in a dielectric medium. For temperature correlation calibration a RF transparent thermistor-based temperature probe is used in conjunction with the E-field probe.

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

Where: Δt = Exposure time (30 seconds),
C = Heat capacity of tissue (brain or muscle),
ΔT = Temperature increase due to RF exposure.
Or

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

Where:
σ = Simulated tissue conductivity,
ρ = Tissue density (kg/m^3).

3.3 Phantom

The Generic Twin Phantom is constructed of a fiberglass shell integrated in a wooden table. The shape of the shell is based on data from an anatomical study designed to determine the maximum exposure in at least 90% of all users. 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 the 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 in the robot.
Specifications:
Shell Thickness: 2±0.1mm
Filling Volume: Approx. 20 liters
Dimensions: 810 x l000 x 500 mm (H x L x W)
Liquid depth when testing: at least 150 mm

3.4 Device Holder

In combination with the Generic Twin Phantom V3.0, the Mounting Device (POM) enables the rotation of the mounted transmitter in spherical coordinates whereby the rotation points is the ear opening. The devices can be easily, accurately, and repeat ably positioned according to the FCC and CENELEC specifications. The device holder can be locked at different phantom locations (left head, right head, flat phantom etc).

4 Test Results

4.1 Operational Condition

Specifications FCC OET 65C (01-01), IEEE Std 1528™-2003

Date of Tests 2009-01-16, 2009-01-21, 2009-3-24, 2009-04-30, 2009-05-04, 2009-05-07

Operation Mode TX at the highest output peak power level

Method of measurement: FCC OET 65C (01-01), IEEE Std 1528™-2003

References:

KDB 248227 – D01	SAR Measurement Procedures for 802.11a/b/g Transmitters	July 2, 2008
KDB 447498 – D01 v03r03	Mobile Portable RF Exposure Procedures and EA Policies	January 22, 2009
KDB 648474 – D01 v01r05	SAR Evaluation Considerations for Handsets with Multiple Transmitters and Antennas	October 6, 2008
KDB 941225 – D01 v02	SAR Measurement Procedures for 3G Devices - CDMA 2000 / Ev-Do - WCDMA / HSDPA / HSPA	March 12, 2009
KDB 941225 – D03 v01	Recommended SAR Test Reduction Procedures for GSM/GPRS/EDGE	March 12, 2009

4.2 Test Equipment Used

TYPE	ITEM	S/N	CALIBRATION DATE	DUE DATE
CMU200	Wireless Communication Test Set	109172	2008-04-08	2009-04-07
CMU200	Wireless Communication Test Set	109172	2008-04-08	2009-04-07
ES3DV3	probe	3158	2008-04-07	2009-04-06
ES3DV3	probe	3109	2009-02-16	2010-02-15
DAE	DAE4	797	2008-02-19	2009-02-18
DAE	DAE4	685	2009-02-16	2010-02-17
D835V2	dipole	473	2008-12-12	2009-12-11
D1900V2	dipole	5d024	2008-12-13	2009-12-12
NRVS	Power Meter	1020180902	2009-01-09	2010-01-08
TYPE	**ITEM**	**S/N**	**CALIBRATION DATE**	**DUE DATE**

SMP04	Signal Generator	1035500504	2009-01-09	2010-01-08
NRV-Z32	Power Sensor	836471/003	2009-01-09	2010-01-08
NRV-Z32	Power Sensor	836471/004	2009-01-09	2010-01-08
Narda 4242-20	Dual directional coupler	04200	NA	NA
85070E	Probe kit	MY44300214	N.A.	N.A.
Agilent E8362B	Network Analyzer	MY43021471	2008-06-18	2009-06-17

4.3 Applicable Limit Regulations

Item	Limit Level
Local Specific Absorption Rate (SAR) (1g)	1.6W/kg

4.4 Test Results

The EUT complies.

Note:

All measurements are traceable to national standards.

4.5 Test Setup and Procedures

The test setup is showed as picture 1 in the annex A.

The evaluation was performed according to the following procedure:

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

Step 2: The SAR distribution at the exposed side of the head was measured at a distance of 4 mm from the inner surface of the shell. The area covered the entire dimension of the head and the horizontal grid spacing was 10 mm x 10 mm. Based on these data, the area of the maximum absorption was determined by interpolation.

Step 3: Around this point, a volume of 30 mm x 30 mm x 25 mm was assessed by measuring 7 x 7 x 6 points. On this basis of this data set, the spatial peak SAR value was evaluated with the following procedure:

a. The data at the surface were extrapolated, since the center of the dipoles is 2.7 mm away from the tip of the probe and the distance between the surface and the lowest measuring point is 1.2 mm. The extrapolation was based on the least square algorithm. A polynomial of the fourth order was calculated through the points in z-axes. This polynomial was then used to evaluate the points between the surface and the probe tip.

b. The maximum interpolated value was searched with a straightforward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1g or 10g) were computed using the 3D-Spline interpolation algorithm. The 3D-spline is composed of three one-dimensional splines with the "Not a knot"-condition (in x ~ y and z-directions). The volume was integrated with the trapezoidal algorithm. One thousand points (10 x 10 x 10) were interpolated to calculate the average.
c. All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.
Step 4: Re-measurement the SAR value at the same location as in Step 1. If the value changed by more than 5%, the evaluation should be repeated.

4.6 Test Environment and Liquid Parameters

4.6.1 Test Environment

Date:	Liquid Temperature (℃)	Ambient Temperature (℃)	Ambient Humidity (%)
	20~~24	20~~25	30~~70
2009-01-16	21.7	22	43
2009-01-21	21.6	22	43
2009-03-24	21.3	21	59
2009-4-30	23.4	23	44.5
2009-5-4	23.1	23.3	53.4
2009-05-07	21.8	22.2	57.5
2009-05-08	21.4	20.8	60.6

4.6.2 Liquid Parameters

Date: 2009-01-16

Frequency	Tissue Type	Type	Dielectric Parameters	
			permittivity	conductivity
835MHz	Head	Target	41.5	0.9
		±5% window	39.43~43.58	0.86~0.95
		Measured	42.0	0.92

Date: 2009-01-16

Frequency	Tissue Type	Type	Dielectric Parameters	
			permittivity	conductivity
1900 MHz	Head	Target	40	1.4
		±5% window	38.0~42.0	1.33~1.47
		Measured	38.4	1.46

Date: 2009-01-21

Frequency	Tissue Type	Type	Dielectric Parameters	
			permittivity	conductivity
835 MHz	Body	Target	55	0.97
		±5% window	52.25~57.75	0.92~1.02
		Measured	52.6	0.972

Date: 2009-01-21

Frequency	Tissue Type	Type	Dielectric Parameters	
			permittivity	conductivity
1900 MHz	Body	Target	53.3	1.52
		±5% window	50.64~55.97	1.44~1.60
		Measured	52.4	1.5

Date: 2009-03-24

Frequency	Tissue Type	Type	Dielectric Parameters	
			permittivity	conductivity
2450 MHz	Head	Target	39.2	1.80
		±5% window	37.24~41.16	1.71～1.89
		Measured	38	1.88

Date: 2009-03-24

Frequency	Tissue Type	Type	Dielectric Parameters	
			permittivity	conductivity
2450 MHz	Body	Target	52.7	1.95
		±5% window	50.07～55.34	1.85~2.05
		Measured	52.7	1.95

Frequency (MHz)	Tissue Type	Description	Dielectric Parameters	
			permittivity	conductivity (S/m)
835	Body	Target	55.2	0.97
		±5% window	52.44-57.96	0.922-1.019
		Date: 2009-5-4	54	0.98
1900	Body	Target	53.3	1.52
		±5% window	50.635-55.965	1.444-1.623
		Date: 2009-4-30	53.3	1.61

Frequency (MHz)	Tissue Type	Description	Dielectric Parameters	
			permittivity	conductivity (S/m)
2450	Head	Target	39.2	1.8
		±5% window	37.24-41.16	1.71-1.89
		2009-5-7	38.85	1.889
		2009-5-8	38.10	1.86
2450	Body	Target	52.7	1.95
		±5% window	50.065-55.335	1.853-2.048
		2009-5-7	51.28	2.016

4.7 System Validation Check

Validation Method:

The setup of system validation check or performance check is demonstrated as figure 5. The amplifier, low pass filter and attenuators are optional. The dipole shall be positioned and centered below the phantom, paralleling to the longest side of the phantom. A low loss and low dielectric constant spacer on the dipole may be used to guarantee the correct distance between the dipole top surface and the phantom bottom surface.

The separation d, which is defined as the distance from the liquid bottom surface to the dipole's central axis at location of the feed-point, should be as following: for 835 MHz dipole, d = 15 mm, and for 1900 MHz dipole, d = 10 mm, and this can be obtained using two different size spacer. The dipole arms shall be parallel to the flat phantom surface.

First the power meter PM1 is connected to the cable and it measures the forward power at the location of the dipole connector (X). The signal generator is adjusted for the desired forward power at the dipole connector (taking into account the (Att1) value) and the power meter PM2 is read at that level. Then after connecting the cable

to the dipole, the signal generator is readjusted for the same reading at the power meter PM2.

The system validation check procedures are the same as all measurement procedures used for compliance tests. A complete 1 g averaged SAR measurement is performed using the flat part of the phantom. The reference dipole input power is adjusted to produce a 1 g averaged SAR value falling in the range of 0.4 – 10 mW/g. The 1 g averaged SAR is measured at 835 MHz and 1900 MHz using corresponding dipole respectively. Then the results are normalized to 1 W forward input power and compared with the reference SAR values.

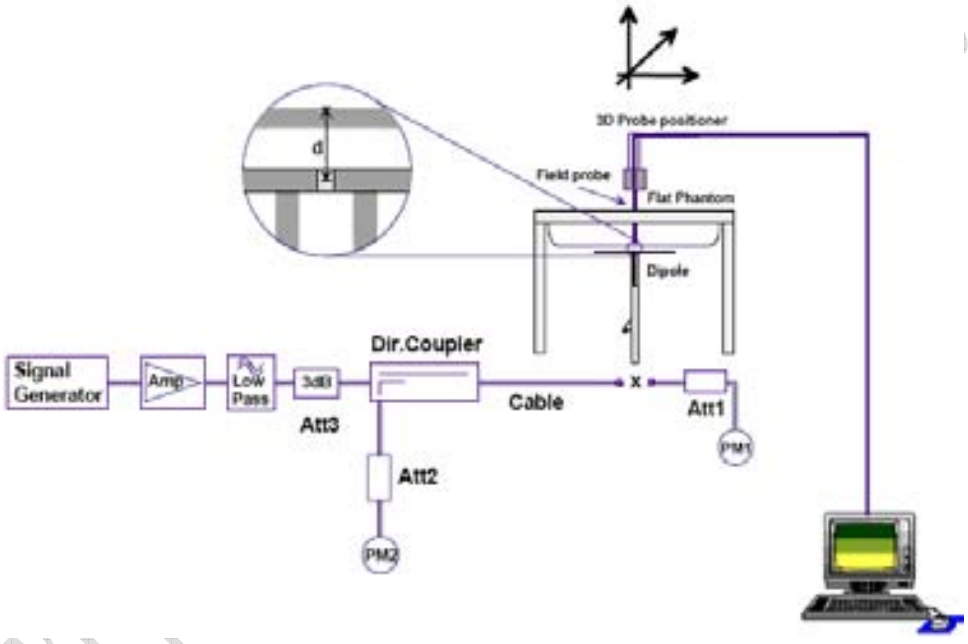


Figure 5 Illustration of system validation test setup

Validation Results

Date:	Frequency (MHz)	Tissue Type	Input Power	Targeted (SAR1g)	Measured (SAR1g)	Deviation (%)
2009-01-16	835	Head	250	2.4	2.55	6.3%
2009-01-16	1900	Head	250	9.99	9.72	-2.7%
2009-01-21	835	Body	250	2.48	2.66	7.3%
2009-01-21	1900	Body	250	9.32	9.05	-2.9%

Date:	Frequency (MHz)	Tissue Type	Input Power	Targeted (SAR1g) 250mW	Measured normalized to 250mW	Deviation (%)
2009-03-24	2450	Head	6.31	13	13.51	3.9%
2009-03-24	2450	Body	6.31	12.7	12.60	-0.8%

Date:	Tissue	Input Power (mW)	Targeted SAR_{1g} (mW/g)	Measured SAR_{1g} (mW/g)	Deviation (%) (<±10%)
2009-04-30	1900MHZ Body	250	10.5	11.2	6.67%
2009-05-04	835 MHZ Body	250	2.45	2.51	2.45%

Date:	Tissue	Input Power (mW)	Targeted SAR_{1g} (mW/g)	Measured SAR_{1g} (mW/g)	Deviation (%) (<±10%)
2009-05-07	2450 MHZ Head	250	13.2	14.3	8.3%
2009-05-07	2450 MHZ Body	250	13.6	14.5	6.6%
2009-05-08	2450 MHZ Head	250	13.2	13.4	1.5%

4.8 Maximum Output Power Measurement

According to FCC OET 65c, maximum output power shall be measured before and after each SAR test. The test setup and method are described as following.

Test setup

The output power measurement test setup is demonstrated as figure 6.

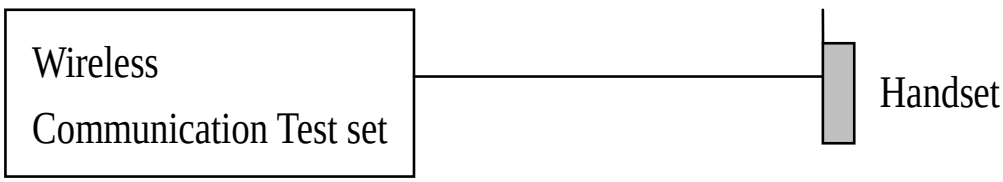


Figure 6 Demonstration of power measurement

The power control level settings and measurement value are as following table.

mode	PCL setting	Permissible max.values	Channel[low]	Channel[mid]	Channel[high]
GSM 850	5	33dBm	31.7dBm	31.8 dBm	31.8 dBm
			824.20MHz	836.60 MHz	848.80 MHz
PCS 1900	0	30dBm	28.2dBm	28.9dBm	28.6dBm
			1850.2 MHz	1880.0 MHz	1909.8 MHz

WCDMA conducted power without HSDPA is as following table:

FDD II	Cable loss [dB]	Channel	Channel 9262 [low]	Channel 9400 [mid]	Channel 9538 [high]
	N.A	Conducted power [dBm]	21.68	21.6	21.07
FDD V	Cable loss [dB]	Channel	Channel 4132 [low]	Channel 4183 [Mid]	Channel 4233 [high]
	N.A	Conducted power [dBm]	21.76	21.62	21.68

The conducted power of HSDPA is as following:

Mode	Subtest	Band V (channel no./Frequency (MHz))			Band II (channel no./Frequency (MHz))		
		4133 /826.4	4175 /836.4	4232 /846.6	9263 /1852.4	9400 /1880.0	9537 /1907.5
HSDPA Rel 5	1	22.23	22.69	22.81	21.25	21.37	21.38
	2	22.82	22.63	22.78	21.21	21.57	21.45
	3	22.19	22.51	22.66	21.32	21.09	21.26
	4	22.23	22.58	22.65	21.22	21.41	21.46

Note:

1. The power measurement method for WCDMA without HSDPA and with HSDPA active is based on section *WCDMA handset* of *FCC KDB 941225 D01 SAR test for 3G Devices v02*.
2. The maximum average output power of RF channel with HSDPA active is more than 1/4 dB higher than that measured without HSDPA using 12.2 kbps RMC, so the SAR for body SAR is also measured for HSDPA.

Conducted Wifi output power is as following:

channel	mode	Data Rate (Mbps)	Measured output power (dBm)
1	802.11b	1	12.45
		5.5	11.66
		11	12.33
	802.11g	6	15.61
		24	16.64
		54	16.23
6	802.11b	1	13.53
		5.5	12.66
		11	13.30
	802.11g	6	16.71
		24	17.62
		54	17.21
11	802.11b	1	14.32
		5.5	13.47
		11	14.08
	802.11g	6	17.78
		24	17.91
		54	17.73

Note:

1. The power measurements were made in accordance to KDB 248227 – D01.
2. 802.11g channel 11 with 24 Mbps data rate mode has the maximum conducted power. Consequently, this mode has been tested for both head and body SAR.

4.9 Test Data

4.9.1 Test Specifications

(a) Duty Factor and Crest Factor

For GSM mode, the duty factor is 1:8.3, and for GPRS and EGPRS they are 1:2 (multi time class 12), for WCDMA it is 1:1.

(b) Test configurations pictures:

Configurations	pictures no. in Annex A
Head Right touch position:	2
Head Right tilt position:	3
Head Left touch position:	4
Head Left tilt position:	5
Body SAR Back to the phantom:	6
Body SAR Front to the phantom:	7

(c) Test description for body-worn mode

The distance between the handset and the bottom of the flat section is 15 mm.

(d) Liquid recipe

INGREDIENTS	TISSUE TYPE					
	835MHz Head	835MHz body	1900MHz Head	1900MHz Head	2450MHz Head	2450MHz Body
Water	40.29	50.75	55.24	55.24	62.7	73.2
DGBE	0	0	44.45	44.45	0	26.7
Triton X-100	0	0	0	0	36.8	0
Sugar	57.90	48.21	0	0	0	0
Salt	1.38	0.94	0.31	0.31	0.5	0.04
Cellulose	0.24	0.00	0	0	0	0
Preventol	0.18	0.10	0	0	0	0

(e) Test procedure for body-worn mode

Step 1: GSM850 band, test the middle channel of each of the front side and back side mode with the 15 mm distance between the handset and the bottom of the phantom, including slip open and close. Find out the worst case.

Step 2: For the worst case of step 1, test the low and high channel.

Step 3: Find out the worst case of step 1 and 2, and for this case, test the mode with

Bluetooth on, and then with earphone using voice traffic mode.
Step 4: Repeat all the above steps for PCS 1900 band.
Step 5: WCDMA and HSDPA test method is based on FCC KDB 941225 D01 SAR test for 3G Devices v02.

4.9.2 Test Data for Head mode

GSM850 head

Test configuration	Test position	SAR_{1g} [W/kg] / Power Drift [dB]		
		Channel 128 [low] 824.20 MHz	Channel 190 [Mid] 836.60 MHz	Channel 251 [high] 848.80 MHz
Right side of Head	Cheek	-- / --	0.104 / 0.134	-- / --
	Tilted	-- / --	0.095 / 0.093	-- / --
Left side of Head	Cheek	0.132 / -0.197	0.161 / 0.135	0.135 / -0.105
	Tilted	-- / --	0.153 / 0.005	-- / --

PCS1900 head

Test configuration	Test position	SAR_{1g} [W/kg] / Power Drift [dB]		
		Channel 512 [low] 1850.2 MHz	Channel 661 [Mid] 1880.0 MHz	Channel 810 [high] 1909.8 MHz
Right side of Head	Cheek	-- / --	0.197 / 0.078	-- / --
	Tilted	-- / --	0.221 / 0.037	-- / --
Left side of Head	Cheek	0.237 / -0.139	0.295 / -0.186	0.264 / 0.179
	Tilted	-- / --	0.205 / 0.195	-- / --

WCDMA FDD II head

Test configuration	Test position	SAR_{1g} [W/kg] / Power Drift [dB]		
		Channel 9262 [low] 1852.4 MHz	Channel 9400 [Mid] 1880 MHz	Channel 9538 [high] 1907.6 MHz
Right side of Head	Cheek	-- / --	0.336 / 0.013	-- / --
	Tilted	-- / --	0.412 / 0.0498	-- / --
Left side of Head	Cheek	0.64 / -0.002	0.763 / -0.058	0.679 / -0.036
	Tilted	-- / --	0.653 / -0.154	-- / --

WCDMA FDD V head

Test configuration	Test position	SAR_{1g} [W/kg] / Power Drift [dB]		
		Channel 4132 [low] 826.4 MHz	Channel 4175 [Mid] 835.0 MHz	Channel 4233 [high] 846.6 MHz
Right side of Head	Cheek	-- / --	0.041 / 0.06	-- / --
	Tilted	-- / --	0.039 / -0.001	-- / --
Left side of Head	Cheek	-- / --	0.044 / 0.184	-- / --
	Tilted	0.164 / -0.075	0.093 / 0.161	0.098 / -0.07

802.11b 2.45GHz head

Test configuration	Test position	SAR1g [W/kg] / Power Drift [dB]					
		Channel 1 2412MHz		Channel 6 2437MHz		Channel 11 2462MHz	
Right side of Head	Cheek	0.512	-0.0425	0.187	-0.17	0.25	-0.0815
	Tilted			0.113	0.124		
Left side of Head	Cheek			0.102	0.0378		
	Tilted			0.0862	-0.0401		

802.11g 2.45GHz head

Test configuration	Test position	SAR1g [W/kg] / Power Drift [dB]					
		Channel 1 2412MHz		Channel 6 2437MHz		Channel 11 2462MHz	
Right side of Head	Cheek	0.242	-0.112	0.354	0.0133	1.12	0.0234
	Tilted	0.192	-0.195	0.222	-0.125	0.836	-0.0957
Left side of Head	Cheek					0.66	-0.181
	Tilted					0.624	0.0507

4.9.3 Test Data for Body-Worn mode

GSM850 band body

Test configuration	SAR_{1g} [W/kg] / Power Drift [dB]		
	Channel 128 [low] 824.20 MHz	Channel 190 [Mid] 836.60 MHz	Channel 251 [high] 848.80 MHz
Front side, GPRS	-- / --	0.087 / 0.023	-- / --
Back side, GPRS	0.063 / 0.178	0.202 / -0.005	0.066 / -0.013
Back side, EGPRS	-- / --	0.134 / -0.005	-- / --
Back side, handfree mode, GSM	-- / --	0.002 / 0.148	-- / --
Back side, Bluetooth mode, GSM	-- / --	0.003 / -0.12	-- / --

PCS1900 band body

Test configuration	SAR_{1g} [W/kg] / Power Drift [dB]		
	Channel 512 [low] 1850.2 MHz	Channel 661 [Mid] 1880.0 MHz	Channel 810 [high] 1909.8 MHz
Front side, GPRS	-- / --	0.071 / 0.162	-- / --
Back side, GPRS	0.176 / 0.002	0.15 / -0.005	0.14 / -0.025
Back side, EGPRS	0.175 / 0.165	-- / --	-- / --
Back side, handfree mode, GSM	0.003 / 0.176	-- / --	-- / --
Back side, Bluetooth mode, GSM	0.001 / 0.077	-- / --	-- / --

WCDMA FDD II band body without HSDPA

Test configuration	SAR_{1g} [W/kg] / Power Drift [dB]		
	Channel 9262 [low] 1852.4 MHz	Channel 9400 [Mid] 1880 MHz	Channel 9538 [high] 1907.6 MHz
Front side		0.039 -0.0619	
Back side	0.125 0.119	0.171 0.384	0.129 0.0318

WCDMA FDD V band body without HSDPA

Test configuration	SAR_{1g} [W/kg] / Power Drift [dB]		
	Channel 4132 [low] 826.4 MHz	Channel 4175 [Mid] 835.0 MHz	Channel 4233 [high] 846.6 MHz
Front side		0.025 -0.154	
Back side	0.089 0.071	0.065 0.096	0.059 0.014

HSDPA FDD II band body

Test configuration	SAR_{1g} [W/kg] / Power Drift [dB]		
	Channel 9262 [low] 1852.4 MHz	Channel 9400 [Mid] 1880 MHz	Channel 9538 [high] 1907.6 MHz
Front side, HSDPA	-- / --	0.114 / -0.030	-- / --
Back side, HSDPA	0.072 / -0.006	0.139 / -0.062	0.306 / -0.009

HSDPA FDD V band body

Test configuration	SAR_{1g} [W/kg] / Power Drift [dB]		
	Channel 4132 [low] 826.4 MHz	Channel 4175 [Mid] 835.0 MHz	Channel 4233 [high] 846.6 MHz
Front side, HSDPA	-- / --	0.022 / 0.115	-- / --
Back side, HSDPA	0.071 / -0.084	0.068 / 0.147	0.066 / 0.103

802.11b 2.45GHz body

Test configuration	Test position	SAR1g [W/kg] / Power Drift [dB]					
		Channel 1 2412MHz		Channel 6 2437MHz		Channel 11 2462MHz	
Front side	15mm			0.0298	-0.104		
Back side	15mm	0.0504	-0.196	0.0587	-0.153	0.0631	-0.158

802.11g 2.45GHz body

Test configuration	Test position	SAR1g [W/kg] / Power Drift [dB]					
		Channel 1 2412MHz		Channel 6 2437MHz		Channel 11 2462MHz	
Front side	15mm					0.153	0.0003
Back side	15mm					0.0469	0.0022

4.9.4 Combination test results

Combining the maximum SAR values of WLAN2450 and the cellular bands tends to overestimate the SAR value since their maxima do not necessarily occur in the same location

Test configuration	Maximum 1g SAR results			Combination 1g SAR value	
	2450Mhz band	1900Mhz band	850MHz band	2450 band +1900 band	2450 band +850 band
Head Right Cheek	1.12	0.336	0.104	1.456	1.224
Head Right Tilt	0.836	0.412	0.095	1.248	0.931
Head Left Cheek	0.66	0.763	0.161	1.423	0.821
Head Left Tilt	0.624	0.653	0.153	1.277	0.777
Body Back side	0.0631	0.306	0.202	0.3691	0.2651
Body Front side	0.153	0.114	0.087	0.267	0.24

4.10 Measurement uncertainty

ERROR SOURCE	Uncertainty value (%)	Probability distribution	Divisor	c_i (1g)	Standard Uncertainty (%)
Measurement equipment					
Probe calibration	5.9	Normal	1	1	5.9
Probe axial isotropy	4.7	Rectangular	$\sqrt{3}$	0.7	1.9
Probe hemispherical isotropy	9.6	Rectangular	$\sqrt{3}$	0.7	3.9
Probe linearity	4.7	Rectangular	$\sqrt{3}$	1	2.7
Detection limits	0.25	Rectangular	$\sqrt{3}$	1	0.6
Boundary effect	0.8	Rectangular	$\sqrt{3}$	1	0.6
Measurement device	0.3	Normal	1	1	0.3
Response time	0.0	Normal	1	1	0
Noise	0.0	Normal	1	1	0
Integration time	1.7	Normal	1	1	2.6
Mechanical constraints					
Scanning system	1.5	Rectangular	$\sqrt{3}$	1	0.2
Positioning of the probe	2.9	Normal	1	1	2.9
Phantom shell	4.0	Rectangular	$\sqrt{3}$	1	2.3
Positioning of the dipole	2.0	Normal	1	1	2.0
Positioning of the phone	2.9	Normal	1	1	2.9
Device holder disturbance	3.6	Normal	1	1	3.6
Physical parameters					
Liquid conductivity (deviation from target)	5.0	Rectangular	$\sqrt{3}$	0.5	1.4
Liquid conductivity (measurement error)	4.3	Rectangular	$\sqrt{3}$	0.5	1.2
Liquid permittivity (deviation from target)	5.0	Rectangular	$\sqrt{3}$	0.5	1.4
Liquid permittivity (measurement error)	4.3	Rectangular	$\sqrt{3}$	0.5	1.2
Drifts in output power of the phone, probe, temperature and humidity	5.0	Rectangular	$\sqrt{3}$	1	2.9
Environment disturbance	3.0	Rectangular	$\sqrt{3}$	1	1.7
Post-processing					
SAR interpolation and extrapolation	0.6	Rectangular	$\sqrt{3}$	1	0.6
Maximum SAR evaluation	1.0	Rectangular	$\sqrt{3}$		0.6
Combined standard uncertainty	$u_c = \sqrt{\sum_{i=1}^{m} c_i^2 \cdot u_i^2} = 11.08\%$				
Expanded uncertainty （confidence interval of 95%）	Normal $u_e = 1.96 u_c = 21.7\%$				

ANNEX A Photographs

Picture 1 test setup

Picture 2: Head Right touch position

Picture 3: Head Right tilt position

Picture 4: Head Left touch position

Picture 5: Head Left tilt position

Picture 6: Body SAR Back to the phantom

Picture 7: Body SAR Front to the phantom

ANNEX B Graphical Results

B.1 Maximum head SAR of GSM 850 band – Middle channel, Left cheek mode

Test Laboratory: CTTL

FCC_850

DUT: Ontim0901; Type: --; Serial: --

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.89 mho/m; ε_r = 41.5; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY4 Configuration:

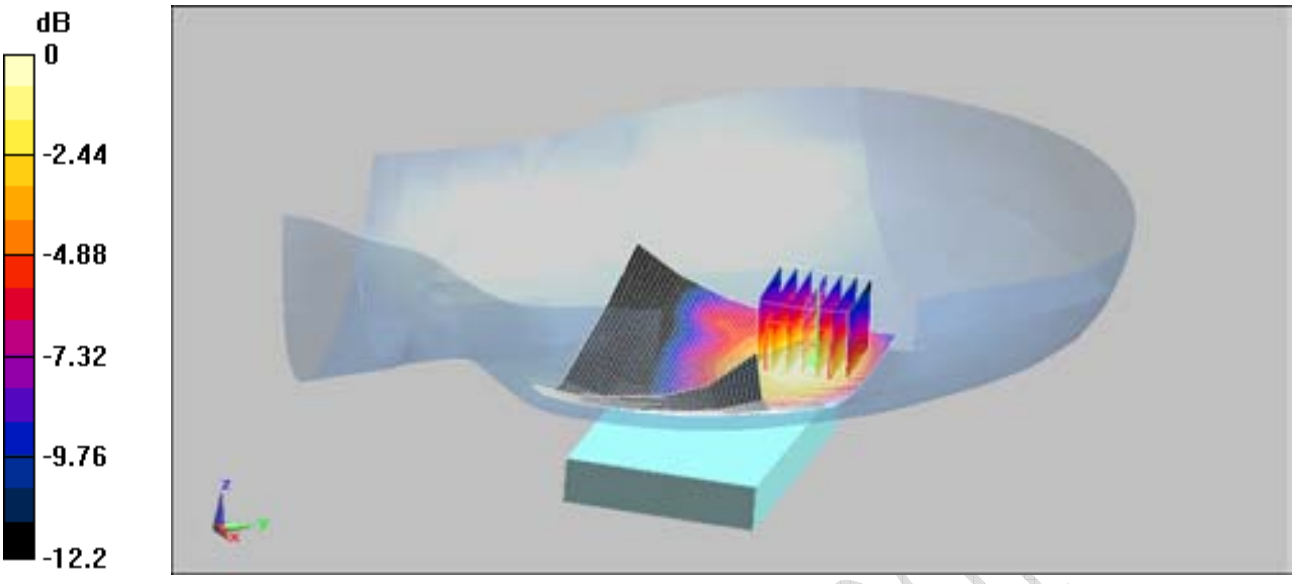
- Probe: ES3DV3 - SN3158; ConvF(6.15, 6.15, 6.15); Calibrated: 4/7/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn797; Calibrated: 2/19/2008
- Phantom: Twin SAM; Type: SAM; Serial: TP-1472
- Measurement SW: DASY5, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

Left_Touch_Mid/Area Scan (91x61x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.174 mW/g

Left_Touch_Mid/Zoom Scan (7x7x6)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.47 V/m; Power Drift = 0.135 dB
Peak SAR (extrapolated) = 0.269 W/kg
SAR(1 g) = 0.161 mW/g; SAR(10 g) = 0.099 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.177 mW/g



0 dB = 0.177mW/g

B.2 Maximum head SAR of PCS 1900 band – Middle channel, Left cheek mode

Test Laboratory: CTTL

FCC_PCS

DUT: Ontim0901; Type: --; Serial: --

Communication System: PCS 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 1880 MHz; σ = 1.33 mho/m; ε_r = 40.8; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY4 Configuration:

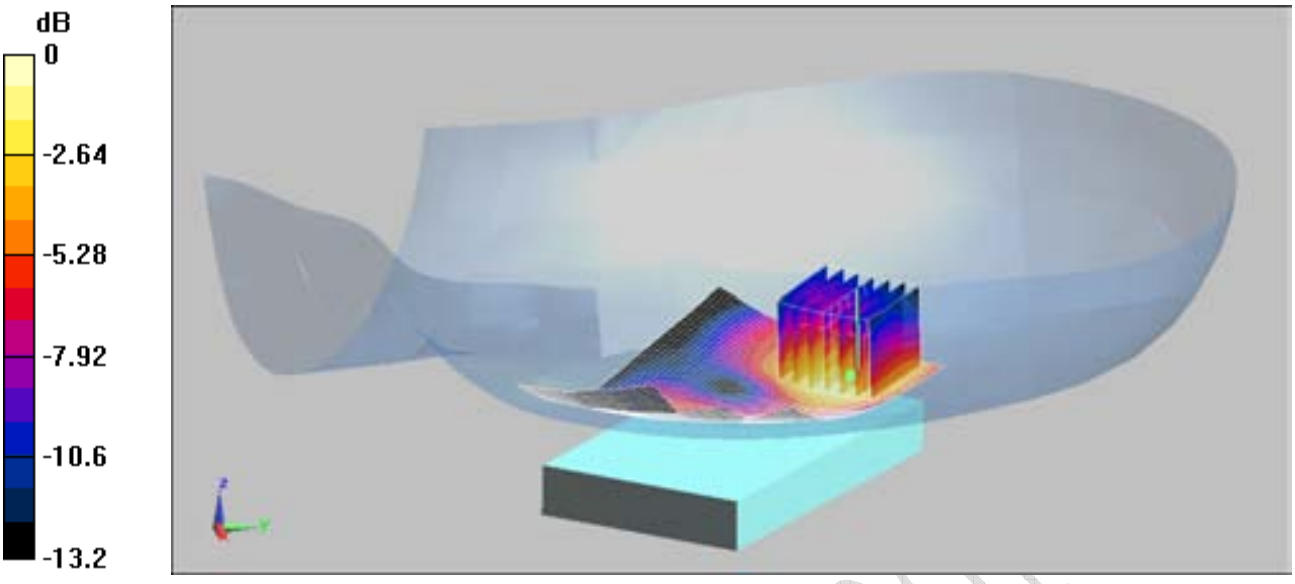
- Probe: ES3DV3 - SN3158; ConvF(5.05, 5.05, 5.05); Calibrated: 4/7/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn797; Calibrated: 2/19/2008
- Phantom: Twin SAM; Type: SAM; Serial: TP-1472
- Measurement SW: DASY5, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

Left_touch_Mid/Area Scan (81x51x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.308 mW/g

Left_touch_Mid/Zoom Scan (7x7x6)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.6 V/m; Power Drift = -0.186 dB
Peak SAR (extrapolated) = 0.497 W/kg
SAR(1 g) = 0.295 mW/g; SAR(10 g) = 0.173 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.325 mW/g



0 dB = 0.325mW/g

B.3 Maximum Head SAR of WCDMA FDD II band – middle channel, Left cheek position

Test Laboratory: CTTL

FCC_WCDMAFDDII_Head

DUT: Ontim0901; Type: --; Serial: --

Communication System: W-CDMA Band II; Frequency: 1880 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1880 MHz; σ = 1.33 mho/m; ε_r = 40.8; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY4 Configuration:

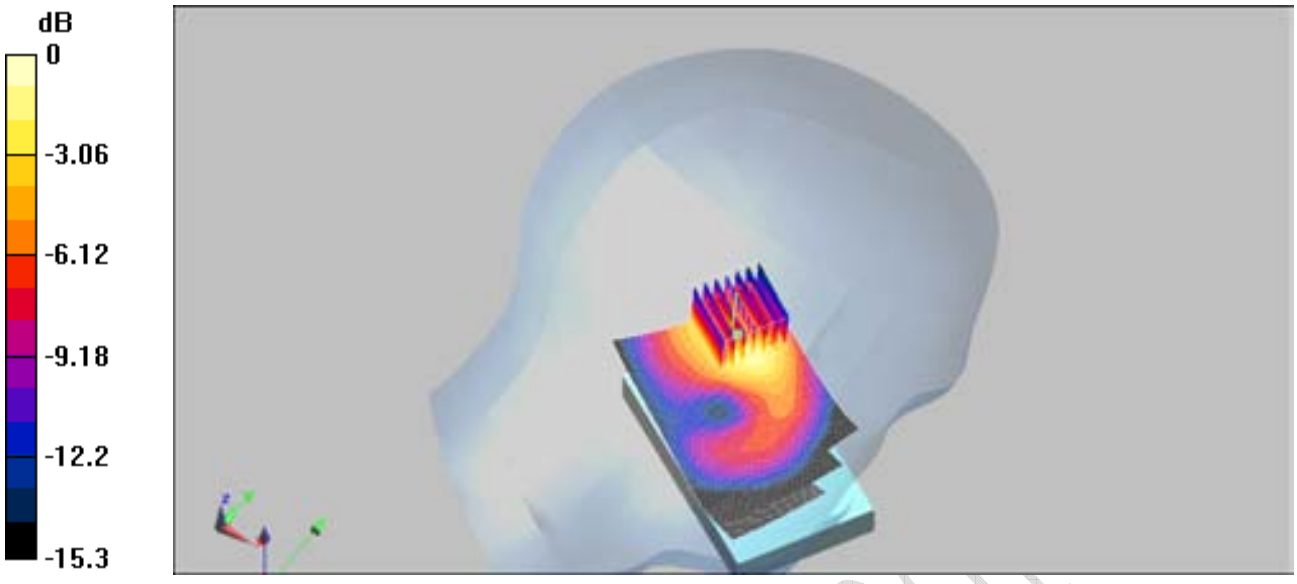
- Probe: ES3DV3 - SN3158; ConvF(5.05, 5.05, 5.05); Calibrated: 4/7/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn797; Calibrated: 2/19/2008
- Phantom: Twin SAM; Type: SAM; Serial: TP-1472
- Measurement SW: DASY5, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

Left_Touch/Area Scan (81x51x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.747 mW/g

Left_Touch/Zoom Scan (7x7x6)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.3 V/m; Power Drift = -0.058 dB
Peak SAR (extrapolated) = 1.35 W/kg
SAR(1 g) = 0.763 mW/g; SAR(10 g) = 0.422 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.862 mW/g



0 dB = 0.862mW/g

B.4 Maximum head SAR of WCDMA FDD V band – low channel, Left tilt position

Test Laboratory: CTTL

FCC_WCDMAFDDV_Head

DUT: Ontim0901; Type: --; Serial: --

Communication System: WCDMA-FDDV; Frequency: 826.4 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.882 mho/m; ε_r = 41.6; ρ = 1000 kg/m^3
Phantom section: Left Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY4 Configuration:

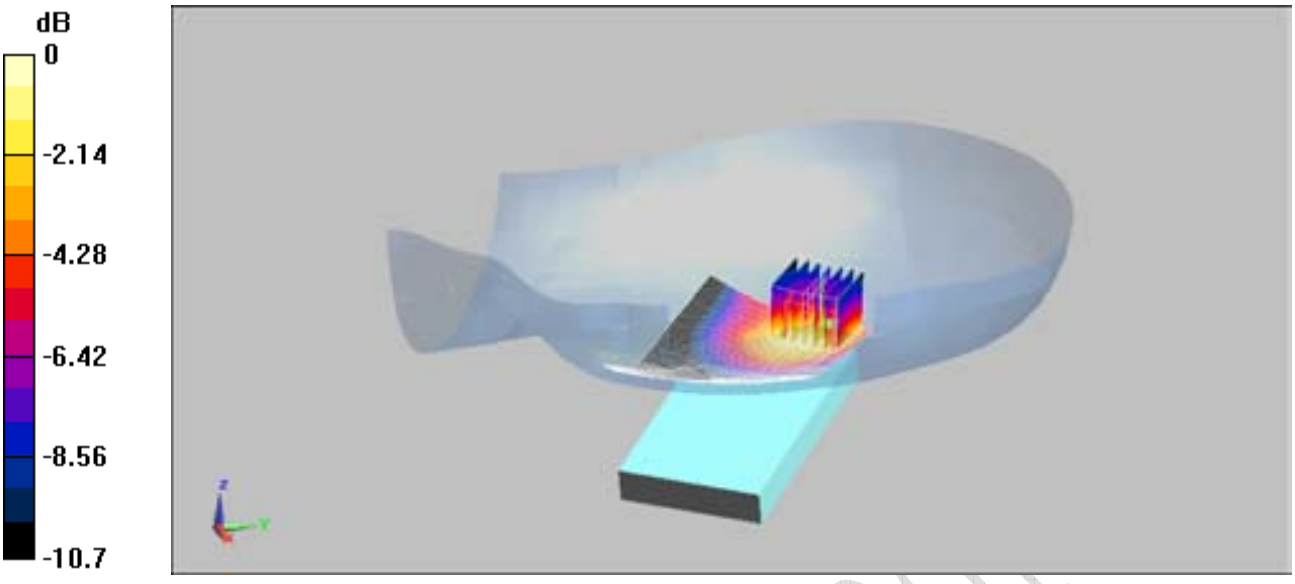
- Probe: ES3DV3 - SN3158; ConvF(6.15, 6.15, 6.15); Calibrated: 4/7/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn797; Calibrated: 2/19/2008
- Phantom: Twin SAM; Type: SAM; Serial: TP-1472
- Measurement SW: DASY5, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

Left_Tilt low/Area Scan (81x51x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.172 mW/g

Left_Tilt low/Zoom Scan (7x7x6)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.9 V/m; Power Drift = -0.075 dB
Peak SAR (extrapolated) = 0.275 W/kg
SAR(1 g) = 0.164 mW/g; SAR(10 g) = 0.101 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.178 mW/g



0 dB = 0.178mW/g

B.5 Maximum body SAR of 850 band – middle channel, back side to phantom, GPRS mode

Test Laboratory: CTTL

FCC_Body_850_GPRS

DUT: Ontim0901; Type: --; Serial: --

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:2
Medium parameters used (interpolated): f = 836.6 MHz; σ = 1.01 mho/m; ε_r = 55.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY4 Configuration:

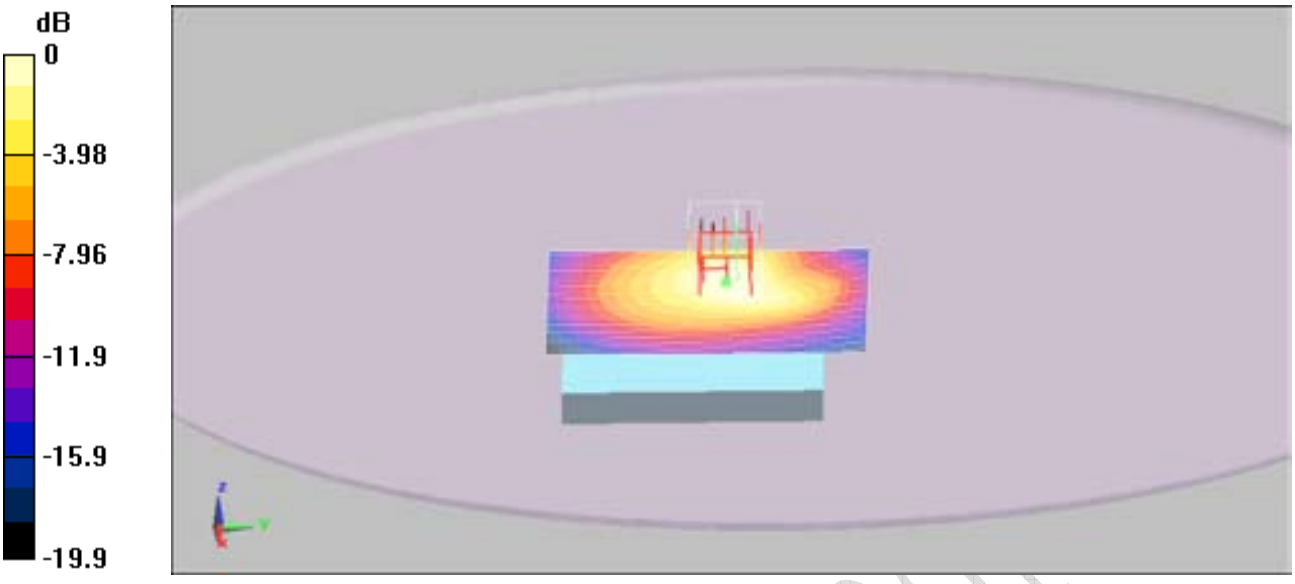
- Probe: ES3DV3 - SN3158; ConvF(5.7, 5.7, 5.7); Calibrated: 4/7/2008
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn797; Calibrated: 2/19/2008
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx
- Measurement SW: DASY5, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

GPRS back Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.75 V/m; Power Drift = -0.00561 dB
Peak SAR (extrapolated) = 0.433 W/kg
SAR(1 g) = 0.202 mW/g; SAR(10 g) = 0.129 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.221 mW/g

GPRS back Middle/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.214 mW/g



0 dB = 0.214mW/g

B.6 Maximum body SAR of 1900 band – low channel, back side to phantom, GPRS mode

Test Laboratory: CTTL

FCC_PCS_GPRS

DUT: Ontim0901; Type: --; Serial: --

Communication System: PCS 1900; Frequency: 1850.2 MHz;Duty Cycle: 1:2
Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.39 mho/m; ε_r = 53.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY4 Configuration:

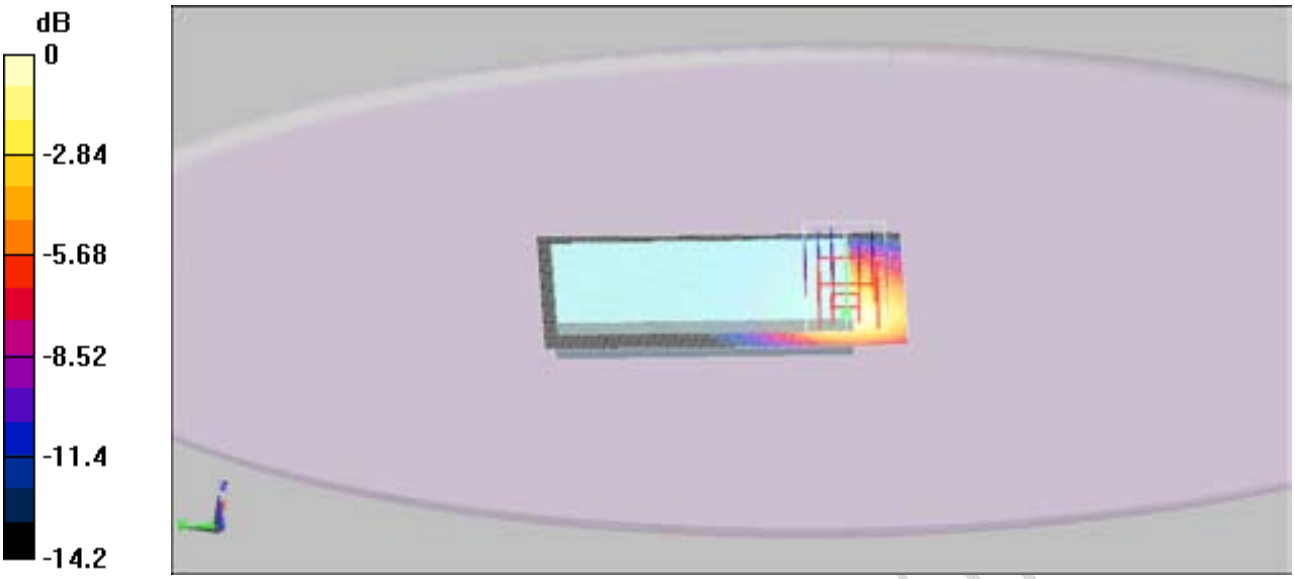
- Probe: ES3DV3 - SN3158; ConvF(4.7, 4.7, 4.7); Calibrated: 4/7/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn549; Calibrated: 12/18/2007
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx
- Measurement SW: DASY5, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

Back side-low-GPRS 2/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.185 mW/g

Back side-low-GPRS 2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.8 V/m; Power Drift = -0.00237 dB
Peak SAR (extrapolated) = 0.274 W/kg
SAR(1 g) = 0.176 mW/g; SAR(10 g) = 0.106 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.192 mW/g



0 dB = 0.192mW/g

B.7 Maximum body SAR of HSDPA FDD II band – high channel, back side to phantom, HSDPA mode

Test Laboratory: CTTL

FCC_WCDMAFDDII_HSDPA

DUT: Ontim0901; Type: --; Serial: --

Communication System: W-CDMA Band II; Frequency: 1907.6 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1907.6 MHz; σ = 1.46 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY4 Configuration:

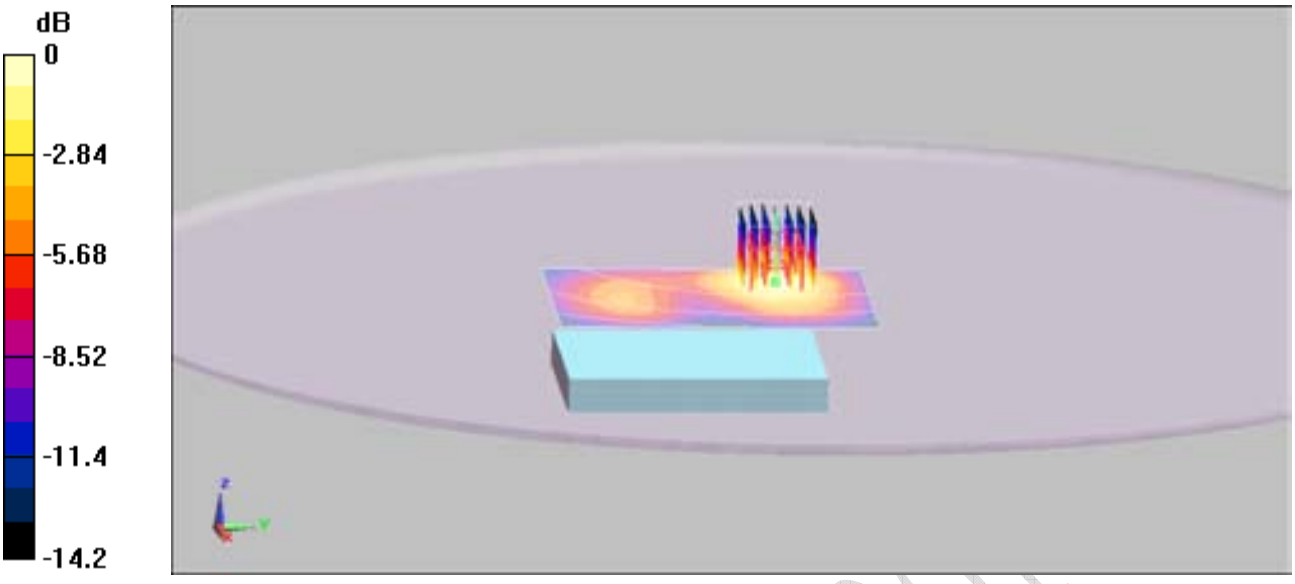
- Probe: ES3DV3 - SN3158; ConvF(4.7, 4.7, 4.7); Calibrated: 4/7/2008
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn797; Calibrated: 2/19/2008
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx
- Measurement SW: DASY5, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

WCDMA back High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.3 V/m; Power Drift = -0.00911 dB
Peak SAR (extrapolated) = 0.508 W/kg
SAR(1 g) = 0.306 mW/g; SAR(10 g) = 0.177 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.353 mW/g

WCDMA back High/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.356 mW/g



0 dB = 0.356mW/g

B.8 Maximum body SAR of HSDPA FDD V band – low channel, back side to phantom, HSDPA mode

Test Laboratory: CTTL

WCDMA FDDV body

DUT: Ontim0901; Type: --; Serial: --

Communication System: WCDMA-FDDV; Frequency: 826.4 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 826.4 MHz; σ = 1 mho/m; ε_r = 55.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY4 Configuration:

- Probe: ES3DV3 - SN3158; ConvF(5.7, 5.7, 5.7); Calibrated: 4/7/2008
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn797; Calibrated: 2/19/2008
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx
- Measurement SW: DASY5, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

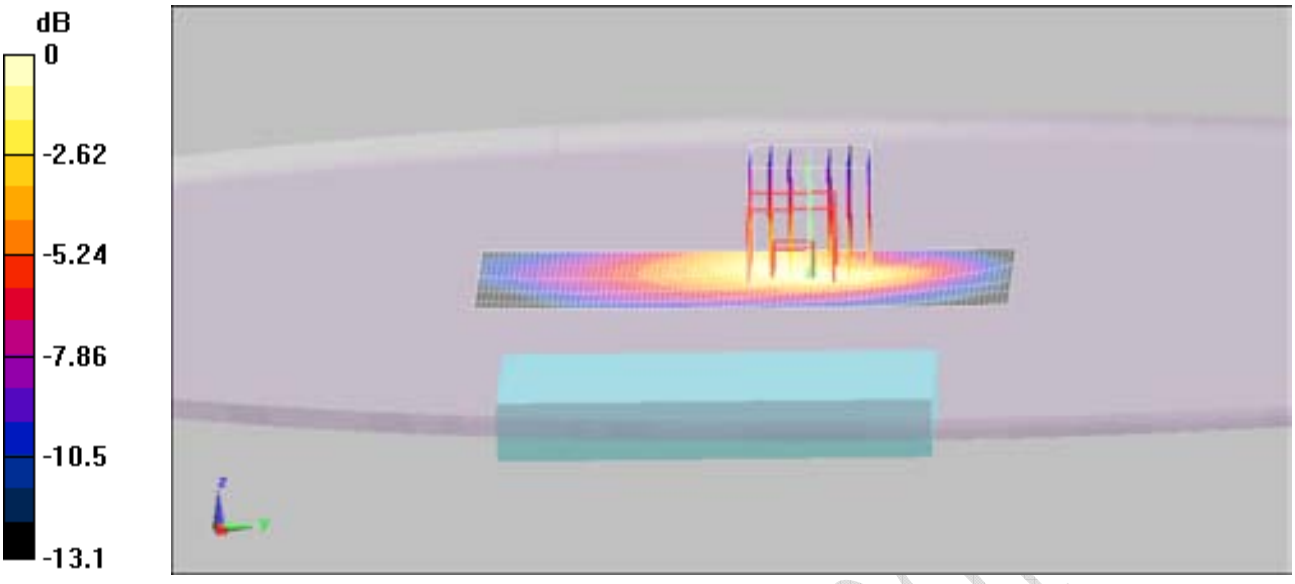
WCDMA back Low/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.081 mW/g

WCDMA back Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.8 V/m; Power Drift = -0.084 dB
Peak SAR (extrapolated) = 0.112 W/kg
SAR(1 g) = 0.071 mW/g; SAR(10 g) = 0.045 mW/g

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.084 mW/g



0 dB = 0.084mW/g

B.9 Maximum head SAR of 802.11b band – low channel, right cheek mode

802.11b head

Test Laboratory: CTTL

DUT: Humme; Type: humme;

Communication System: 802.11b/g; Frequency: 2412 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2412 MHz; σ = 1.81 mho/m; ε_r = 38.5; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY4 Configuration:

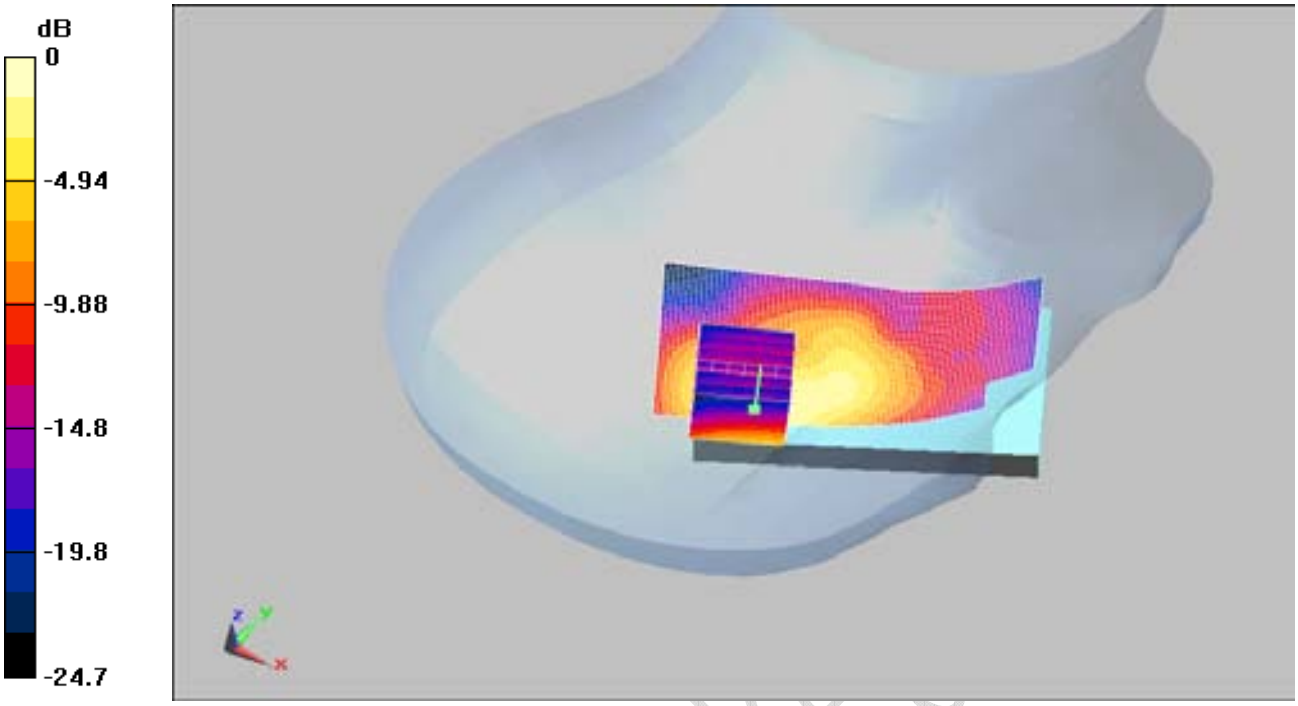
- Probe: ES3DV3 - SN3158; ConvF(4.56, 4.56, 4.56); Calibrated: 4/7/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn797; Calibrated: 2/19/2008
- Phantom: Twin SAM; Type: SAM; Serial: TP-1472
- Measurement SW: DASY5, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

Humme_Right_Touch_Low/Area Scan (81x41x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.512 mW/g

Humme_Right_Touch_Low/Zoom Scan (7x7x6)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.71 V/m; Power Drift = -0.042 dB
Peak SAR (extrapolated) = 1.18 W/kg
SAR(1 g) = 0.512 mW/g; SAR(10 g) = 0.231 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.580 mW/g



0 dB = 0.580mW/g

B.10 Maximum head SAR of 802.11g band – high channel, right cheek mode

File Name: Gooou-i-mate-FCC1-359978020002097-wifi-802.11g-RC-090507.da4

DUT: i-mate;

Communication System: 802.11b/g; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.9 mho/m; ε_r = 38.8; ρ = 1000 kg/m^3 ;
Medium Notes: Ambient humidity:57.5; Ambient temperature: 22.2; Liquid temperature: 21.8;
Phantom section: Right Section ;Phantom: SAM with Front;Type: QD 000 P40 CA

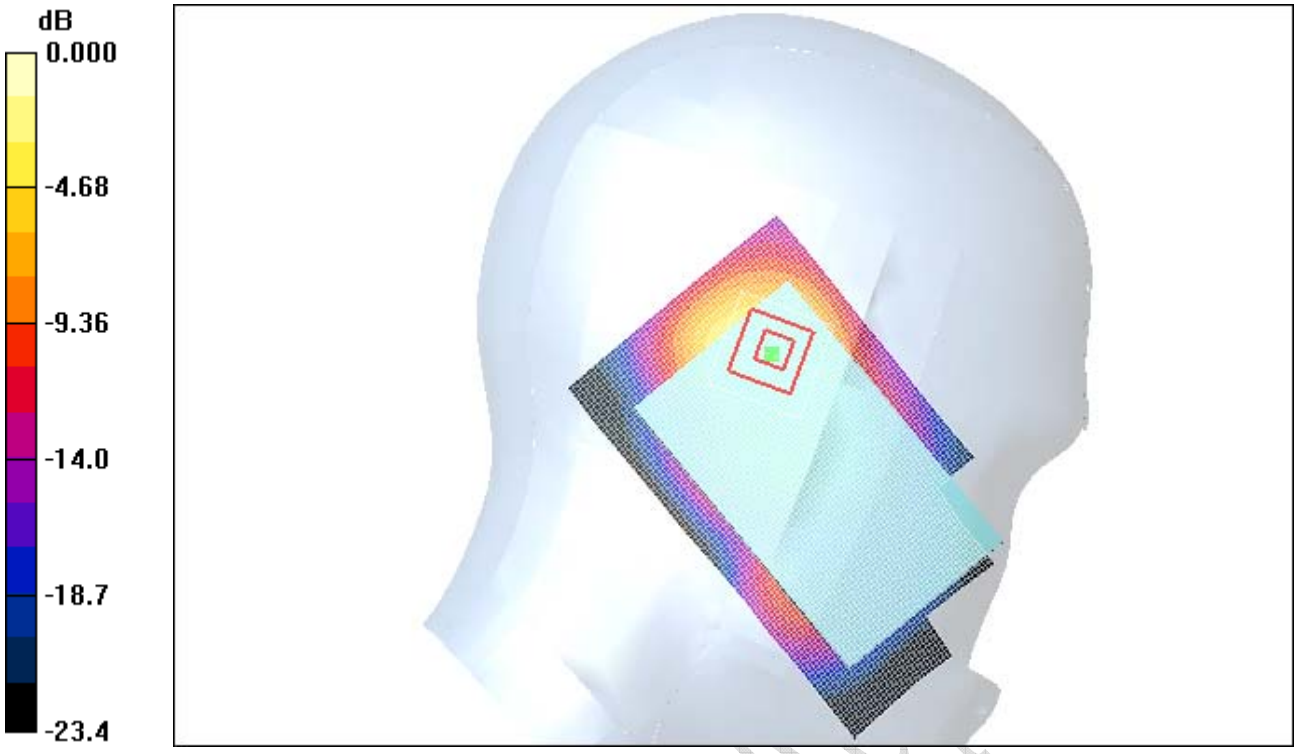
DASY4 Configuration:
- Probe: ES3DV3 - SN3109; ConvF(4.3, 4.3, 4.3); Calibrated: 2009-2-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn685; Calibrated: 2009-2-16
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 171

high/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 1.28 mW/g

high/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.5 V/m; Power Drift = 0.023 dB
Peak SAR (extrapolated) = 2.34 W/kg
SAR(1 g) = 1.12 mW/g; SAR(10 g) = 0.531 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.23 mW/g



0 dB = 1.23mW/g

B.11 Maximum body SAR of 802.11b band – high channel, back side to the phantom mode

802.11b body

Test Laboratory: CTTL

DUT: Humme; Type: humme;

Communication System: 802.11b/g; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.99 mho/m; ε_r = 51.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY4 Configuration:

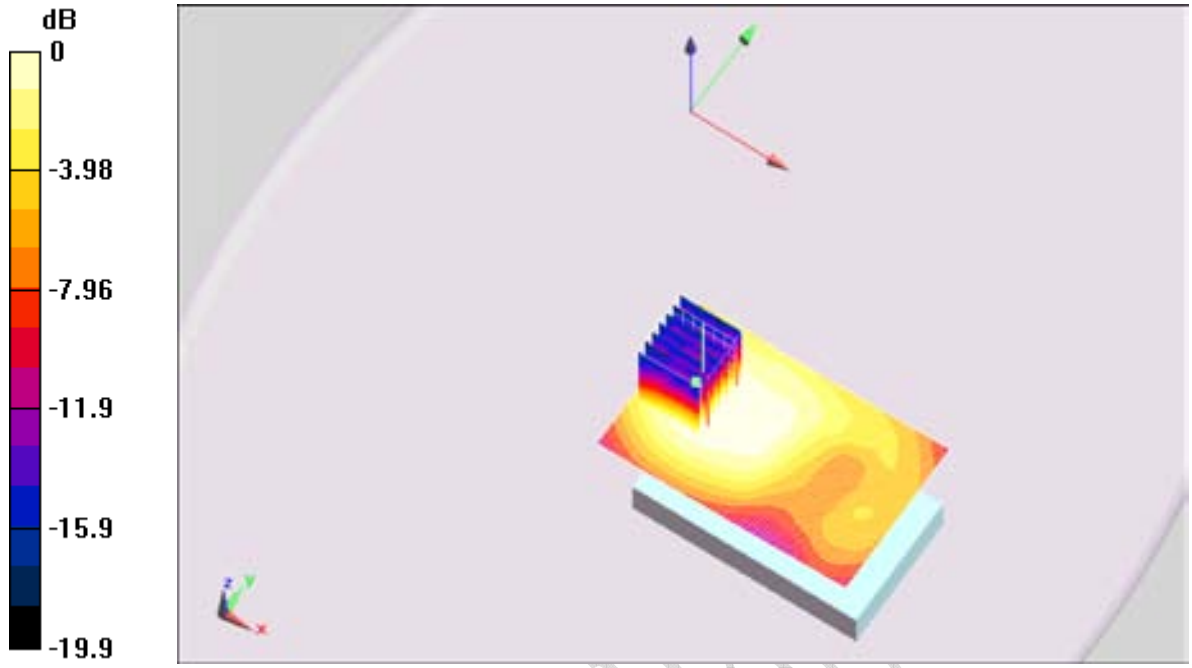
- Probe: ES3DV3 - SN3158; ConvF(4.2, 4.2, 4.2); Calibrated: 4/7/2008
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn797; Calibrated: 2/19/2008
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx
- Measurement SW: DASY5, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

Front_High/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm

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

Front_High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.22 V/m; Power Drift = -0.158 dB
Peak SAR (extrapolated) = 0.121 W/kg
SAR(1 g) = 0.063 mW/g; SAR(10 g) = 0.036 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.074 mW/g



0 dB = 0.074mW/g

B.12 Maximum body SAR of 802.11g band – high channel, back side to the phantom mode

802.11g body

Test Laboratory: CTTL

DUT: Humme; Type: humme;

Communication System: 802.11b/g; Frequency: 2462 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.99 mho/m; ε_r = 51.8; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY4 Configuration:

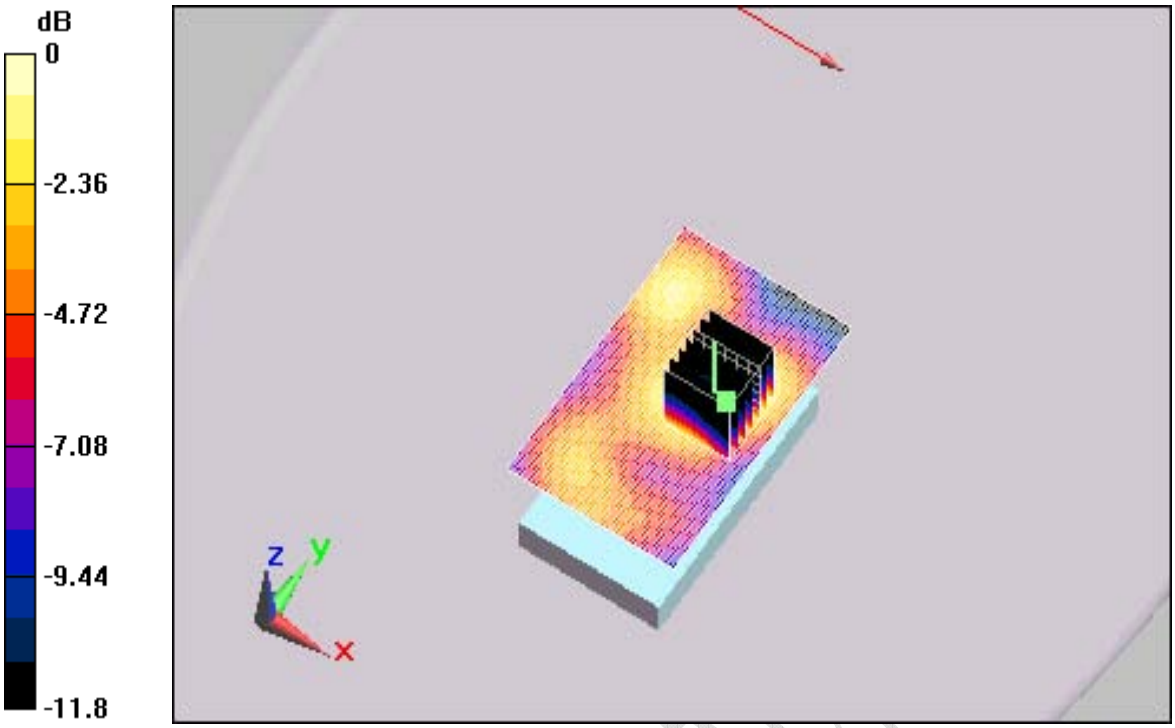
- Probe: ES3DV3 - SN3158; ConvF(4.2, 4.2, 4.2); Calibrated: 4/7/2008
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn797; Calibrated: 2/19/2008
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx
- Measurement SW: DASY5, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

Back_High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.81 V/m; Power Drift = 0.00222 dB
Peak SAR (extrapolated) = 0.086 W/kg
SAR(1 g) = 0.047 mW/g; SAR(10 g) = 0.027 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.054 mW/g

Back_High/Area Scan (51x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.061 mW/g



0 dB = 0.061mW/g

B.13 Maximum body SAR of WCDMA FDD II band – high channel, back side to phantom, without HSDPA mode

File Name: Gooou-i-mate-FCC1-359978020002097-FDD II-BB-090430.da4

DUT: i-mate;

Communication System: WCDMA FDDII; Frequency: 1880 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): f = 1880 MHz; σ = 1.59 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3 ;
Medium Notes: Ambient humidity:44.5; Ambient temperature: 23.0; Liquid temperature: 23.4;
Phantom section: Flat Section ;Phantom: Flat Phantom ELI4.0;Type: QDOVA001BA

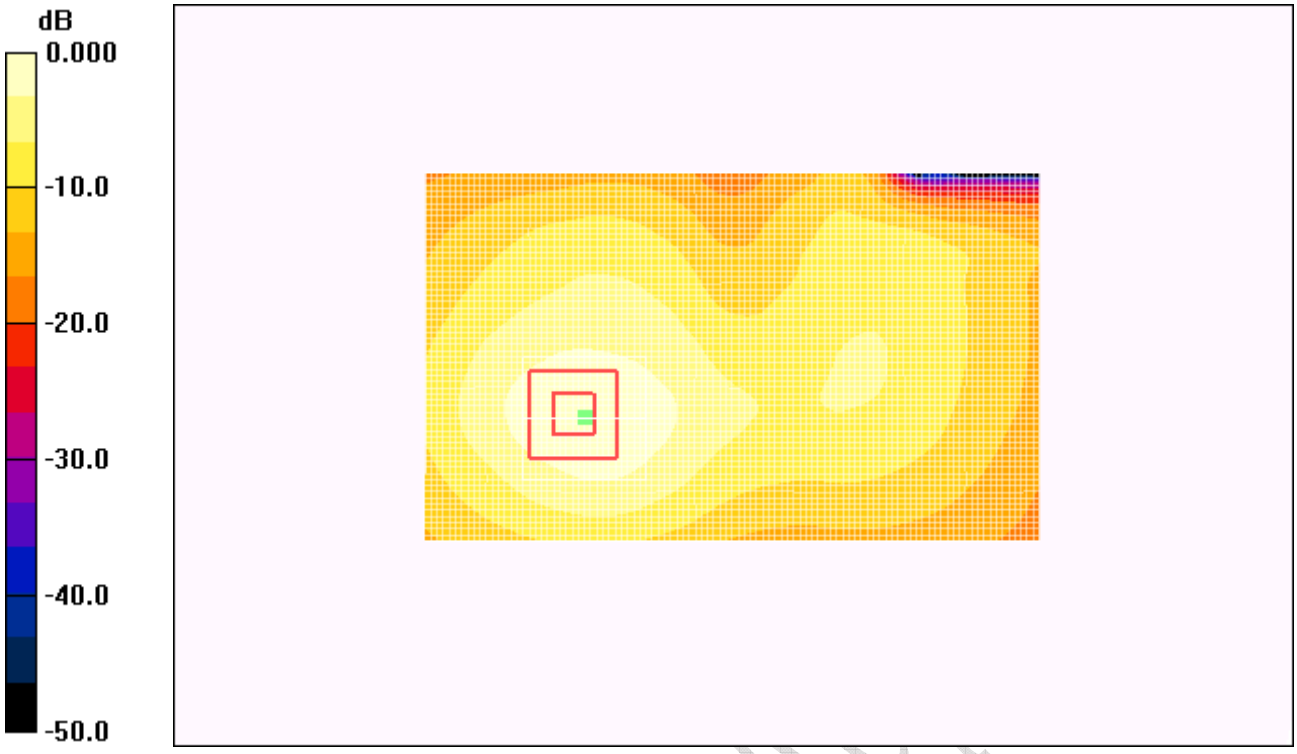
DASY4 Configuration:
- Probe: ES3DV3 - SN3109; ConvF(4.59, 4.59, 4.59); Calibrated: 2009-2-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn685; Calibrated: 2009-2-16
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 171

mid/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.190 mW/g

mid/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.50 V/m; Power Drift = 0.384 dB
Peak SAR (extrapolated) = 0.275 W/kg
SAR(1 g) = 0.171 mW/g; SAR(10 g) = 0.096 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.190 mW/g



0 dB = 0.190mW/g

B.14 Maximum body SAR of WCDMA FDD V band – high channel, back side to phantom, without HSDPA mode

File Name: Gooou-i-mate-FCC1-359978020002097-FDD V-BB-090504.da4

DUT: i-mate;

Communication System: WCDMA FDDV; Frequency: 826.4 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.972 mho/m; ε_r = 54.1; ρ = 1000 kg/m^3 ;
Medium Notes: Ambient humidity:53.4; Ambient temperature: 23.3; Liquid temperature: 23.1;
Phantom section: Flat Section ;Phantom: Flat Phantom ELI4.0;Type: QDOVA001BA

DASY4 Configuration:
- Probe: ES3DV3 - SN3109; ConvF(5.53, 5.53, 5.53); Calibrated: 2009-2-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn685; Calibrated: 2009-2-16
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 171

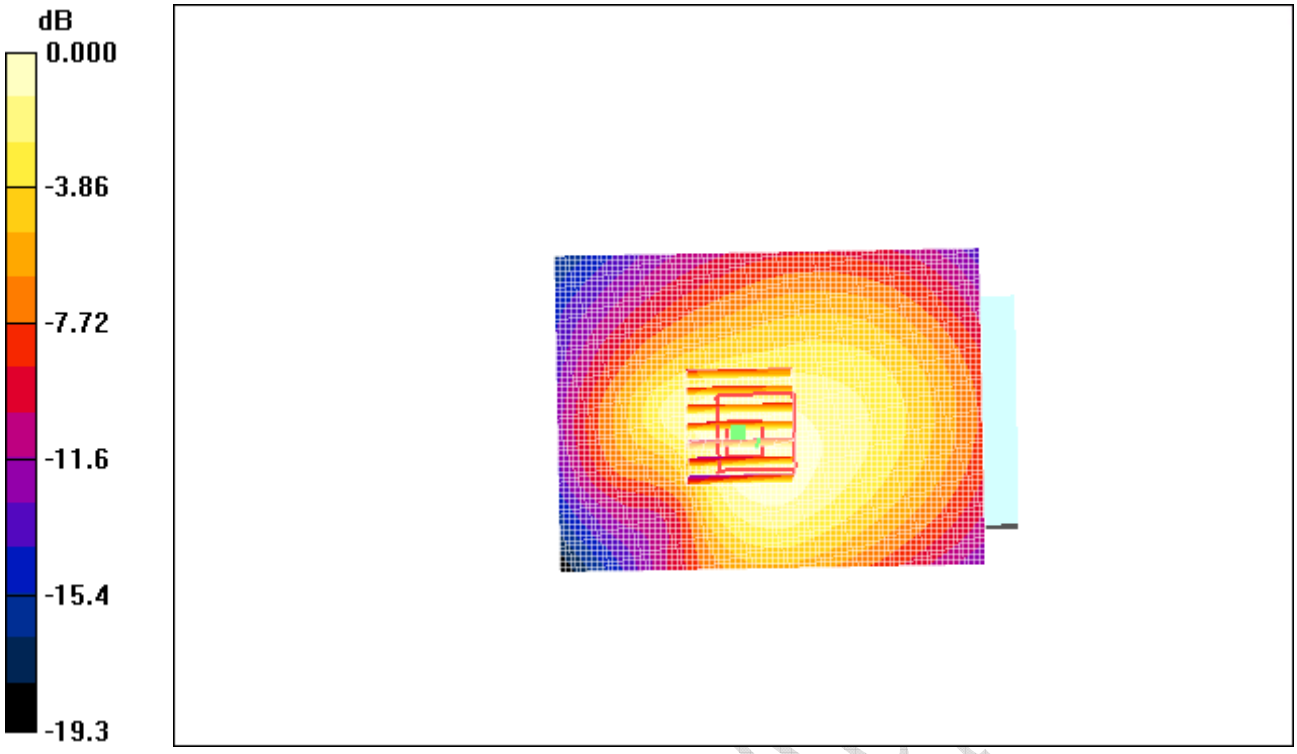
low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.66 V/m; Power Drift = 0.071 dB
Peak SAR (extrapolated) = 0.132 W/kg
SAR(1 g) = 0.089 mW/g; SAR(10 g) = 0.059 mW/g

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (measured) = 0.095 mW/g

low/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.094 mW/g



0 dB = 0.094mW/g

B.15 Head SAR of 802.11g - channel 11, Right cheek

File Name: Gooou-i-mate-FCC1-359978020002097-wifi-802.11g-RC-090507.da4

DUT: i-mate;

Communication System: 802.11b/g; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.9 mho/m; ε_r = 38.8; ρ = 1000 kg/m^3 ;
Medium Notes: Ambient humidity:57.5; Ambient temperature: 22.2; Liquid temperature: 21.8;
Phantom section: Right Section ;Phantom: SAM with Front;Type: QD 000 P40 CA

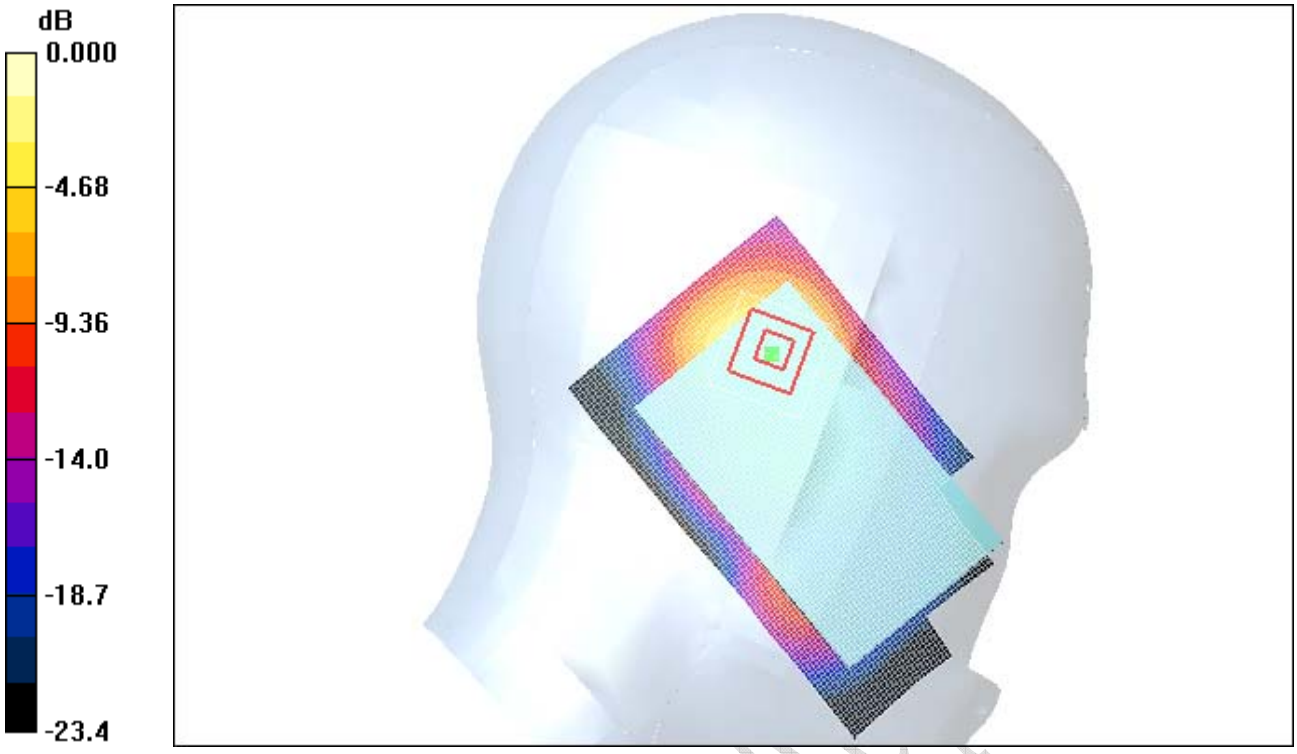
DASY4 Configuration:
- Probe: ES3DV3 - SN3109; ConvF(4.3, 4.3, 4.3); Calibrated: 2009-2-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn685; Calibrated: 2009-2-16
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 171

high/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 1.28 mW/g

high/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 17.5 V/m; Power Drift = 0.023 dB
Peak SAR (extrapolated) = 2.34 W/kg
SAR(1 g) = 1.12 mW/g; SAR(10 g) = 0.531 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 1.23 mW/g



0 dB = 1.23mW/g

B.16 Head SAR of 802.11g - channel 11, Right tilt

File Name: Gooou-i-mate-FCC1-359978020002097-wifi-802.11g-RT-090507.da4

DUT: i-mate;

Communication System: 802.11b/g; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.9 mho/m; ε_r = 38.8; ρ = 1000 kg/m^3 ;
Medium Notes: Ambient humidity:57.5; Ambient temperature: 22.2; Liquid temperature: 21.8;
Phantom section: Right Section ;Phantom: SAM with Front;Type: QD 000 P40 CA

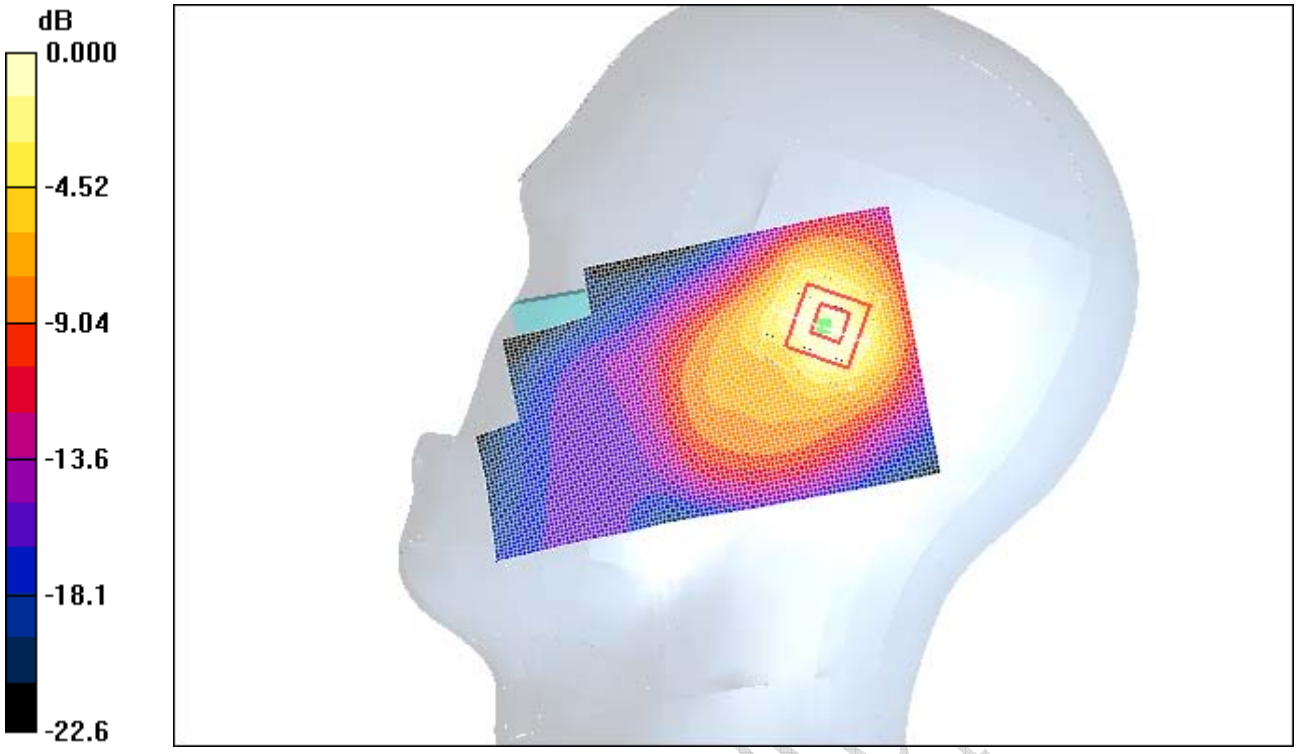
DASY4 Configuration:
- Probe: ES3DV3 - SN3109; ConvF(4.3, 4.3, 4.3); Calibrated: 2009-2-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn685; Calibrated: 2009-2-16
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 171

high/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.981 mW/g

high/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 20.1 V/m; Power Drift = -0.096 dB
Peak SAR (extrapolated) = 1.61 W/kg
SAR(1 g) = 0.836 mW/g; SAR(10 g) = 0.414 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.899 mW/g



0 dB = 0.899mW/g

B.17 Head SAR of 802.11g - channel 11, Left cheek

File Name: Gooou-i-mate-FCC1-359978020002097-wifi-802.11g-LC-090507.da4

DUT: i-mate;

Communication System: 802.11b/g; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.9 mho/m; ε_r = 38.8; ρ = 1000 kg/m^3 ;
Medium Notes: Ambient humidity:57.5; Ambient temperature: 22.2; Liquid temperature: 21.8;
Phantom section: Left Section ;Phantom: SAM with Front;Type: QD 000 P40 CA

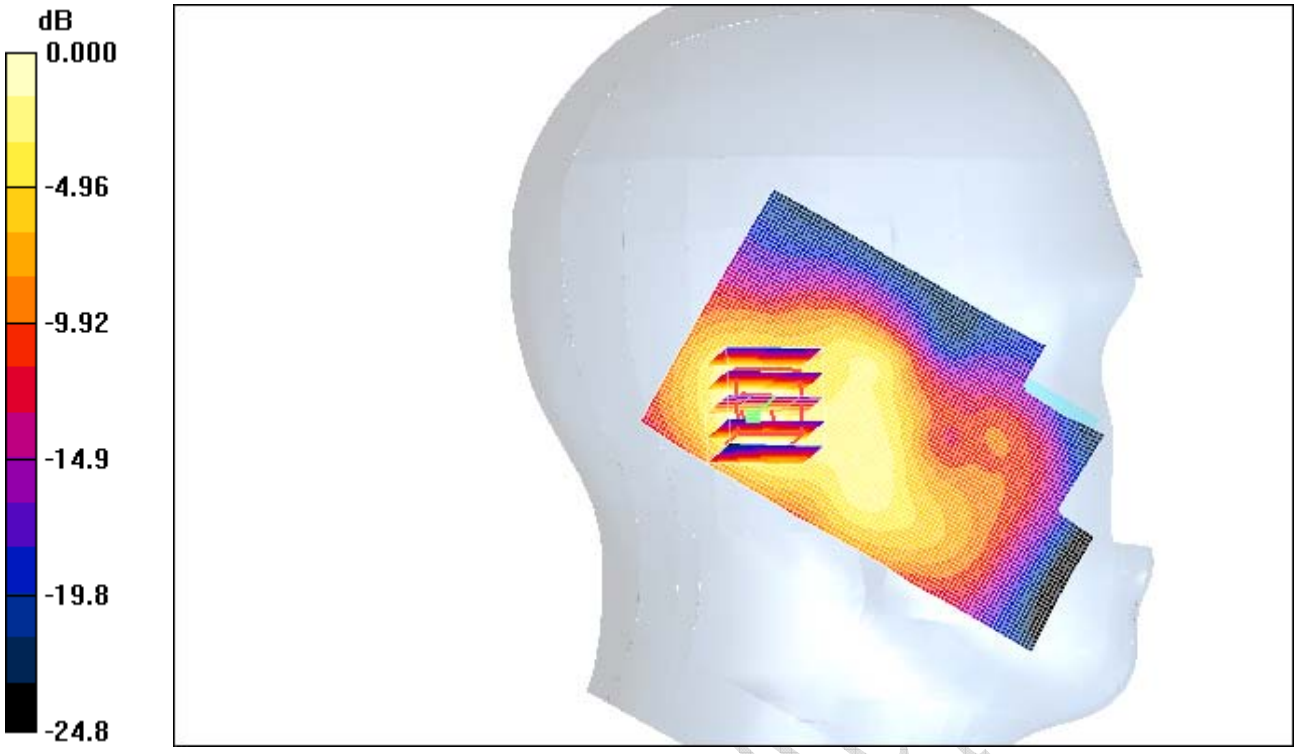
DASY4 Configuration:
- Probe: ES3DV3 - SN3109; ConvF(4.3, 4.3, 4.3); Calibrated: 2009-2-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn685; Calibrated: 2009-2-16
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 171

high/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.762 mW/g

high/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.5 V/m; Power Drift = -0.181 dB
Peak SAR (extrapolated) = 1.23 W/kg
SAR(1 g) = 0.660 mW/g; SAR(10 g) = 0.341 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.730 mW/g



0 dB = 0.730mW/g

B.18 Head SAR of 802.11g - channel 11, Left tilt

File Name: Gooou-i-mate-FCC1-359978020002097-wifi-802.11g-LT-090507.da4

DUT: i-mate;

Communication System: 802.11b/g; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.9 mho/m; ε_r = 38.8; ρ = 1000 kg/m^3 ;
Medium Notes: Ambient humidity:57.5; Ambient temperature: 22.2; Liquid temperature: 21.8;
Phantom section: Left Section ;Phantom: SAM with Front;Type: QD 000 P40 CA

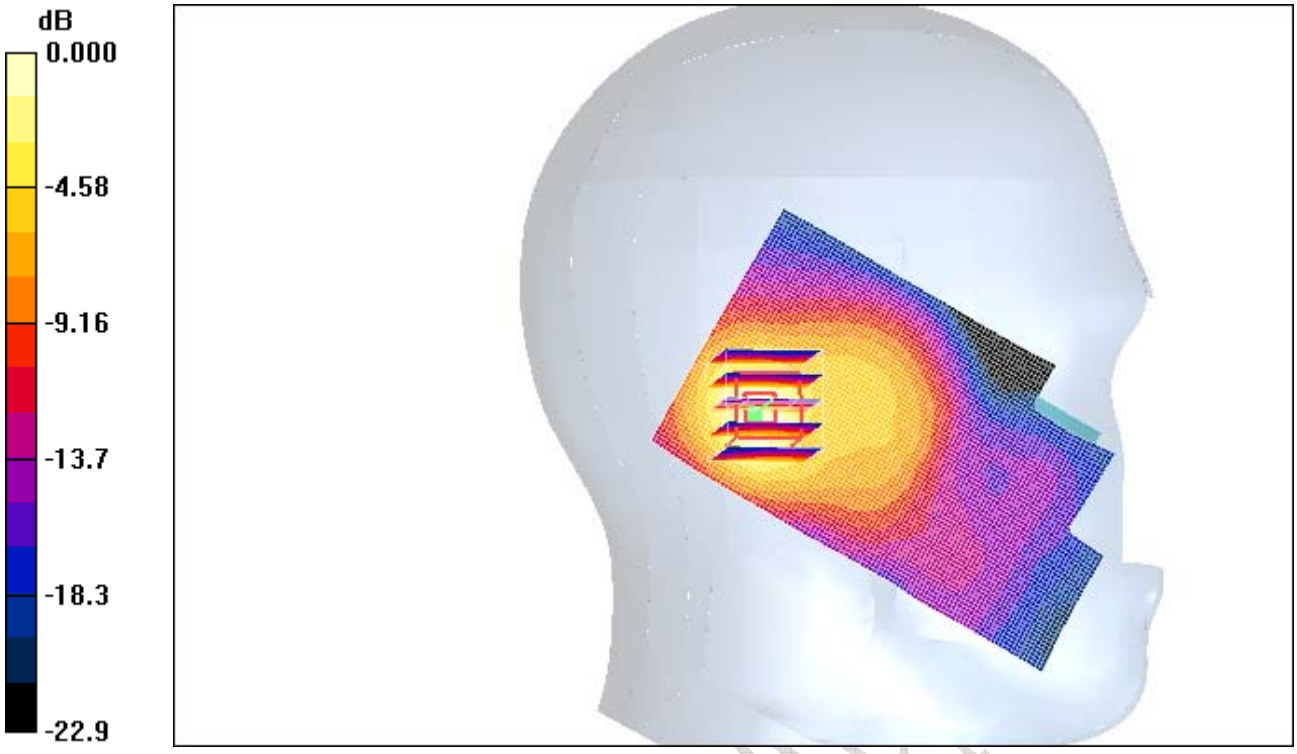
DASY4 Configuration:
- Probe: ES3DV3 - SN3109; ConvF(4.3, 4.3, 4.3); Calibrated: 2009-2-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn685; Calibrated: 2009-2-16
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 171

high/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.657 mW/g

high/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 11.1 V/m; Power Drift = 0.051 dB
Peak SAR (extrapolated) = 1.22 W/kg
SAR(1 g) = 0.624 mW/g; SAR(10 g) = 0.309 mW/g

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



0 dB = 0.693mW/g

B.19 Head SAR of 802.11g - channel 6, Right Cheek

File Name: Gooou-i-mate-FCC1-359978020002097-wifi-802.11g-RC-090508.da4

DUT: i-mate;

Communication System: 802.11b/g; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2437 MHz; σ = 1.85 mho/m; ε_r = 38.1; ρ = 1000 kg/m^3 ;
Medium Notes: Ambient humidity:60.6; Ambient temperature: 20.8; Liquid temperature: 21.4;
Phantom section: Right Section ;Phantom: SAM with Front;Type: QD 000 P40 CA

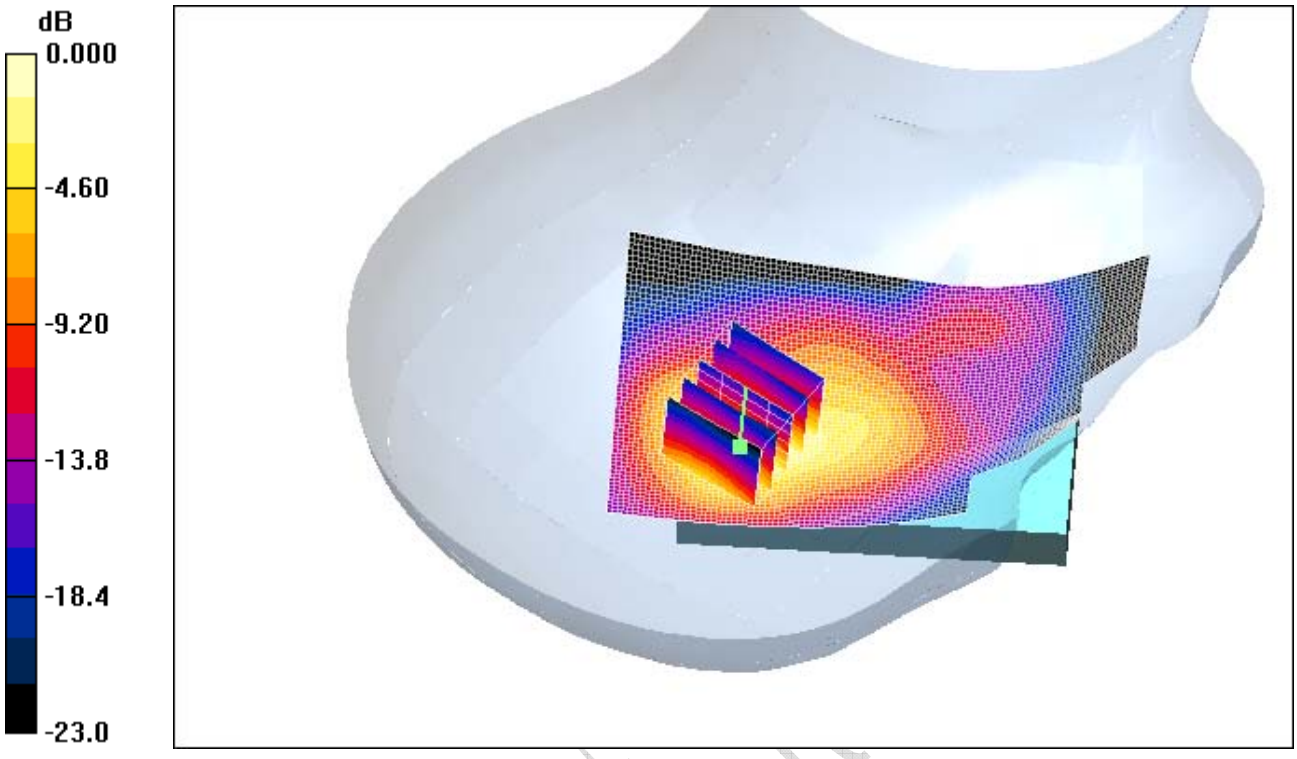
DASY4 Configuration:
- Probe: ES3DV3 - SN3109; ConvF(4.3, 4.3, 4.3); Calibrated: 2009-2-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn685; Calibrated: 2009-2-16
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 171

high/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.409 mW/g

high/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.58 V/m; Power Drift = 0.013 dB
Peak SAR (extrapolated) = 0.727 W/kg
SAR(1 g) = 0.354 mW/g; SAR(10 g) = 0.170 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.391 mW/g



0 dB = 0.391mW/g

B.20 Head SAR of 802.11g - channel 6, Right Tilted

File Name: Gooou-i-mate-FCC1-359978020002097-wifi-802.11g-RT-090508.da4

DUT: i-mate;

Communication System: 802.11b/g; Frequency: 2437 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2437 MHz; σ = 1.85 mho/m; ε_r = 38.1; ρ = 1000 kg/m^3 ;
Medium Notes: Ambient humidity:60.6; Ambient temperature: 20.8; Liquid temperature: 21.4;
Phantom section: Right Section ;Phantom: SAM with Front;Type: QD 000 P40 CA

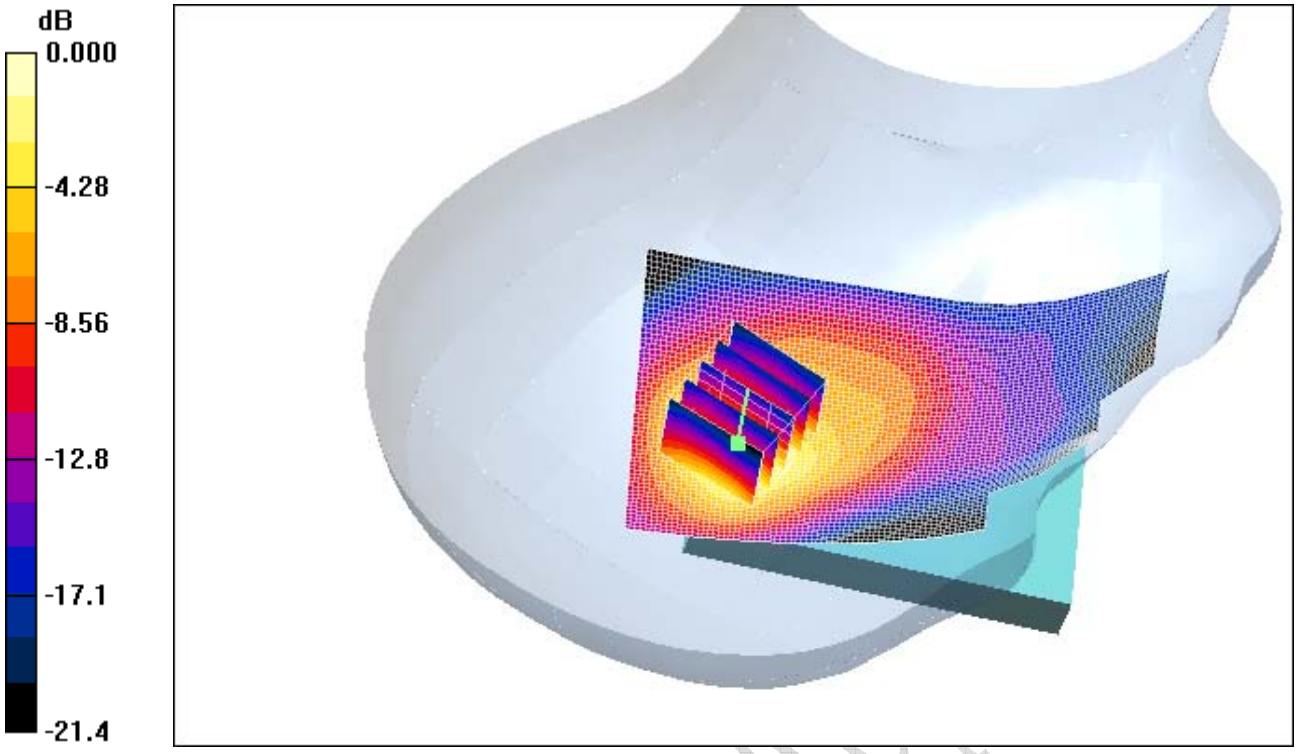
DASY4 Configuration:
- Probe: ES3DV3 - SN3109; ConvF(4.3, 4.3, 4.3); Calibrated: 2009-2-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn685; Calibrated: 2009-2-16
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 171

high/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.263 mW/g

high/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 10.2 V/m; Power Drift = -0.125 dB
Peak SAR (extrapolated) = 0.427 W/kg
SAR(1 g) = 0.222 mW/g; SAR(10 g) = 0.112 mW/g

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



0 dB = 0.235mW/g

B.21 SAR of 802.11g band – low channel, right cheek mode

802.11g head

Test Laboratory: CTTL

DUT: Humme; Type: humme;

Communication System: 802.11b/g; Frequency: 2412 MHz;Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2412 MHz; σ = 1.81 mho/m; ε_r = 38.5; ρ = 1000 kg/m^3
Phantom section: Right Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY4 Configuration:

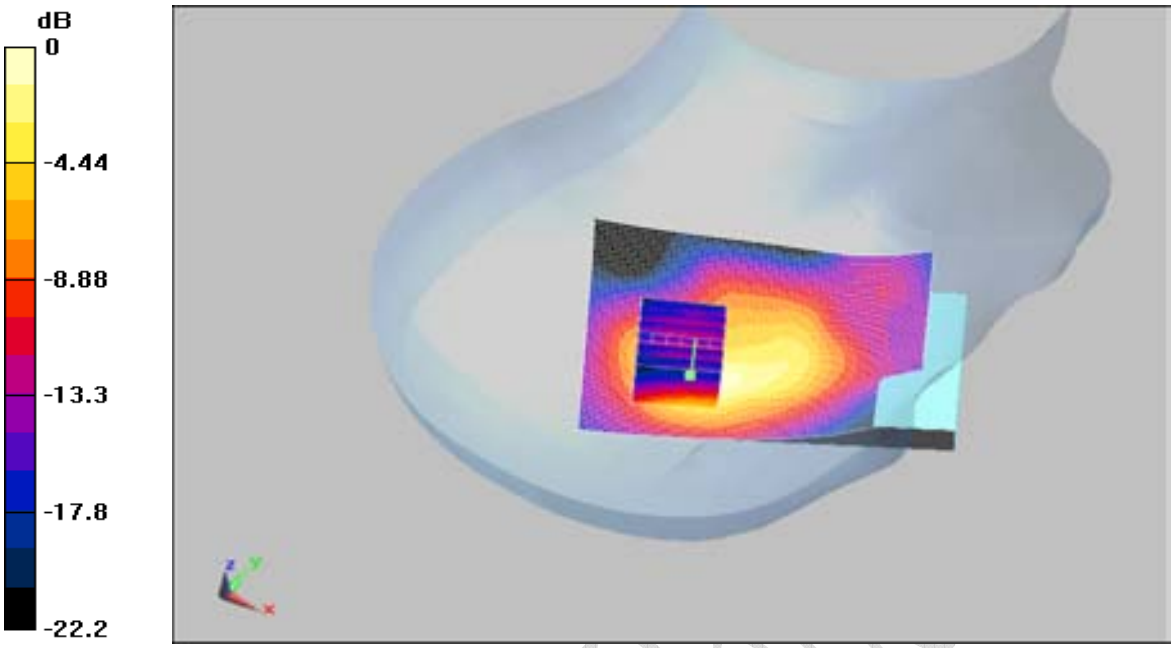
- Probe: ES3DV3 - SN3158; ConvF(4.56, 4.56, 4.56); Calibrated: 4/7/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn797; Calibrated: 2/19/2008
- Phantom: Twin SAM; Type: SAM; Serial: TP-1472
- Measurement SW: DASY5, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

Humme_Right_Touch_Low/Area Scan (81x61x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.273 mW/g

Humme_Right_Touch_Low/Zoom Scan (7x7x6)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.22 V/m; Power Drift = -0.112 dB
Peak SAR (extrapolated) = 0.540 W/kg
SAR(1 g) = 0.242 mW/g; SAR(10 g) = 0.109 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 0.263 mW/g



0 dB = 0.263mW/g

B.22 Head SAR of 802.11g - channel 1, Right Tilted

File Name: Gooou-i-mate-FCC1-359978020002097-wifi-802.11g-RT-090508.da4

DUT: i-mate;

Communication System: 802.11b/g; Frequency: 2412 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2412 MHz; σ = 1.82 mho/m; ε_r = 38.2; ρ = 1000 kg/m^3 ;
Medium Notes: Ambient humidity:60.6; Ambient temperature: 20.8; Liquid temperature: 21.4;
Phantom section: Right Section ;Phantom: SAM with Front;Type: QD 000 P40 CA

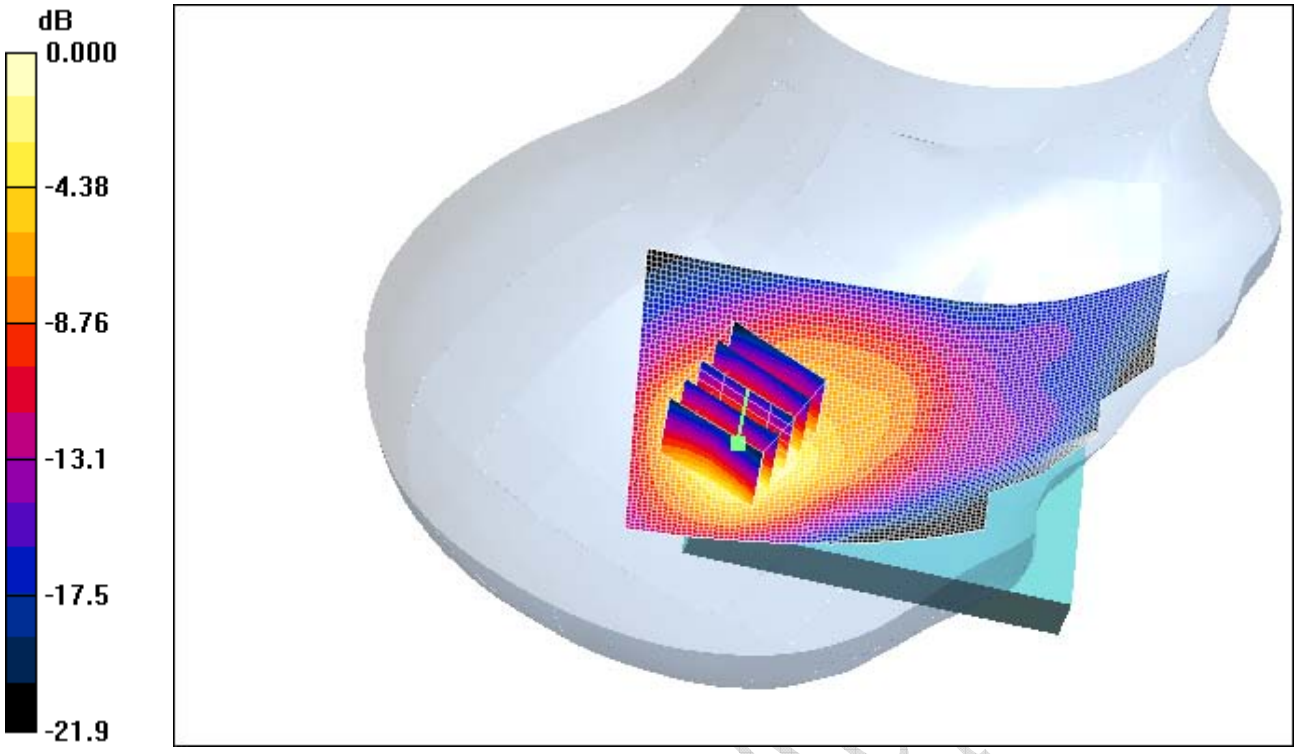
DASY4 Configuration:
- Probe: ES3DV3 - SN3109; ConvF(4.3, 4.3, 4.3); Calibrated: 2009-2-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn685; Calibrated: 2009-2-16
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 171

low/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.227 mW/g

low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 9.68 V/m; Power Drift = -0.195 dB
Peak SAR (extrapolated) = 0.365 W/kg
SAR(1 g) = 0.192 mW/g; SAR(10 g) = 0.098 mW/g

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



0 dB = 0.203mW/g

B.23 Body SAR of 802.11g - channel 11, front side to phantom

File Name: Gooou-i-mate-FCC1-359978020002097-wifi-802.11g-FB-090507.da4

DUT: i-mate;

Communication System: 802.11b/g; Frequency: 2462 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): f = 2462 MHz; σ = 2.03 mho/m; ε_r = 51.3; ρ = 1000 kg/m^3 ;
Medium Notes: Ambient humidity:57.5; Ambient temperature: 22.2; Liquid temperature: 21.8;
Phantom section: Flat Section ;Phantom: Flat Phantom ELI4.0;Type: QDOVA001BA

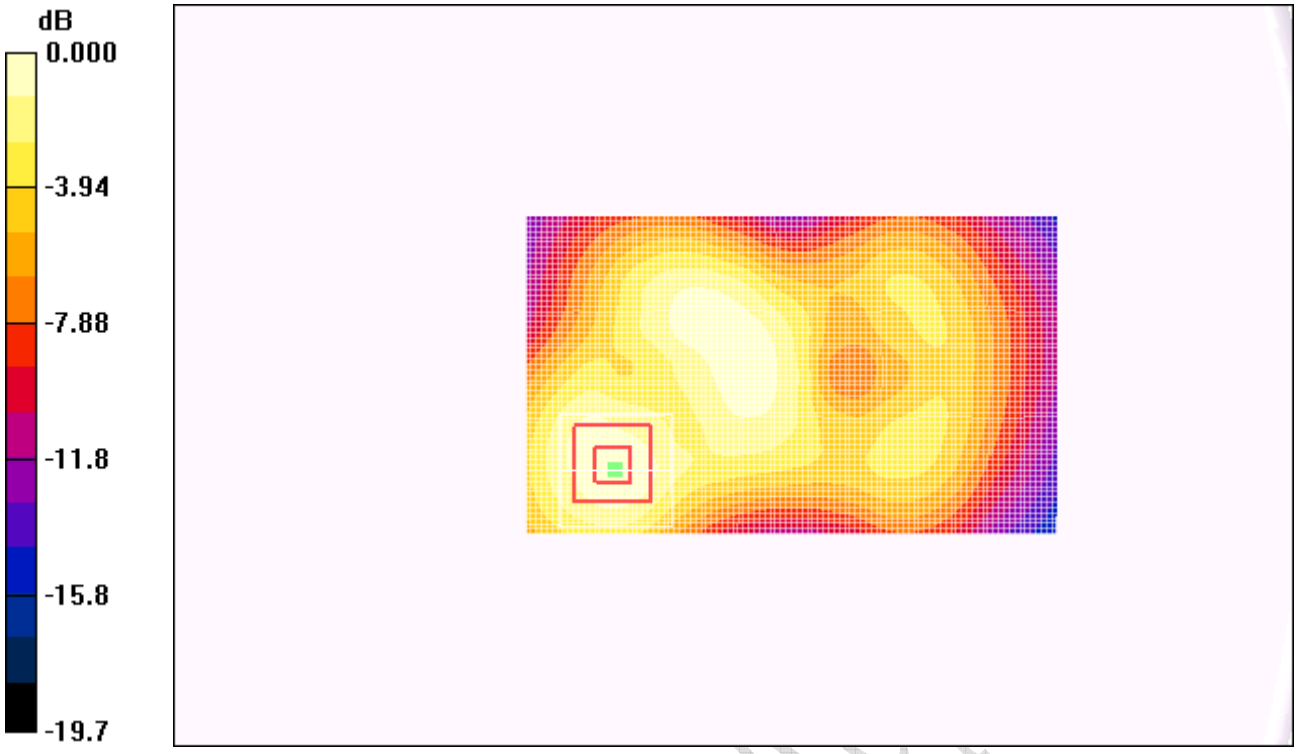
DASY4 Configuration:
- Probe: ES3DV3 - SN3109; ConvF(3.94, 3.94, 3.94); Calibrated: 2009-2-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn685; Calibrated: 2009-2-16
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 171

high/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 0.169 mW/g

high/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 5.57 V/m; Power Drift = 0.000 dB
Peak SAR (extrapolated) = 0.284 W/kg
SAR(1 g) = 0.153 mW/g; SAR(10 g) = 0.084 mW/g

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



0 dB = 0.167mW/g

Annex C System Performance Check Graphical Results

C.1 Head 850 Band

Test Laboratory: CTTL

850_Head

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

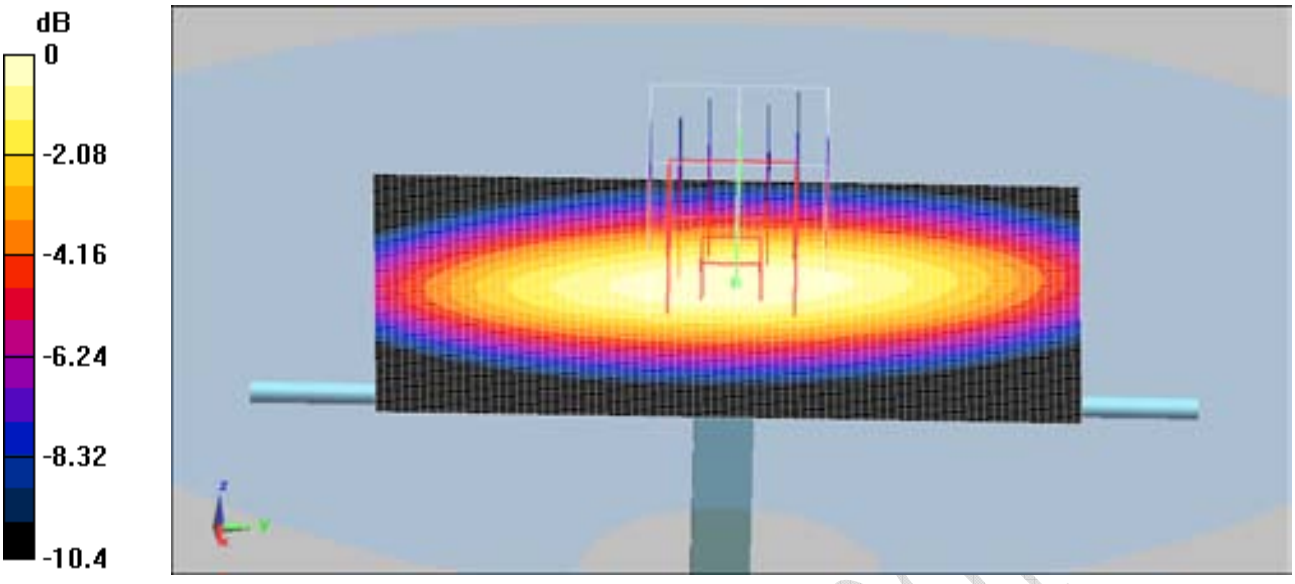
Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 0.89 mho/m; ε_r = 41.5; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY4 Configuration:

- Probe: ES3DV3 - SN3158; ConvF(6.15, 6.15, 6.15); Calibrated: 4/7/2008
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn797; Calibrated: 2/19/2008
- Phantom: Twin SAM; Type: SAM; Serial: TP-1472
- Measurement SW: DASY5, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

d=15mm, Pin=24 dBm, dist=3.4mm (ES-Probe) 2/Area Scan (61x81x1):
Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.85 mW/g

d=15mm, Pin=24 dBm, dist=3.4mm (ES-Probe) 2/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 59.2 V/m; Power Drift = -0.149 dB
Peak SAR (extrapolated) = 3.71 W/kg
SAR(1 g) = 2.55 mW/g; SAR(10 g) = 1.67 mW/g
Maximum value of SAR (measured) = 2.89 mW/g



0 dB = 2.89mW/g

C.2 Head 1900 band

Test Laboratory: CTTL

PCS_Head

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:xxx

Communication System: CW; Frequency: 1800 MHz;Duty Cycle: 1:1
Medium parameters used (extrapolated): f = 1800 MHz; σ = 1.25 mho/m; ε_r = 41.1; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY4 Configuration:

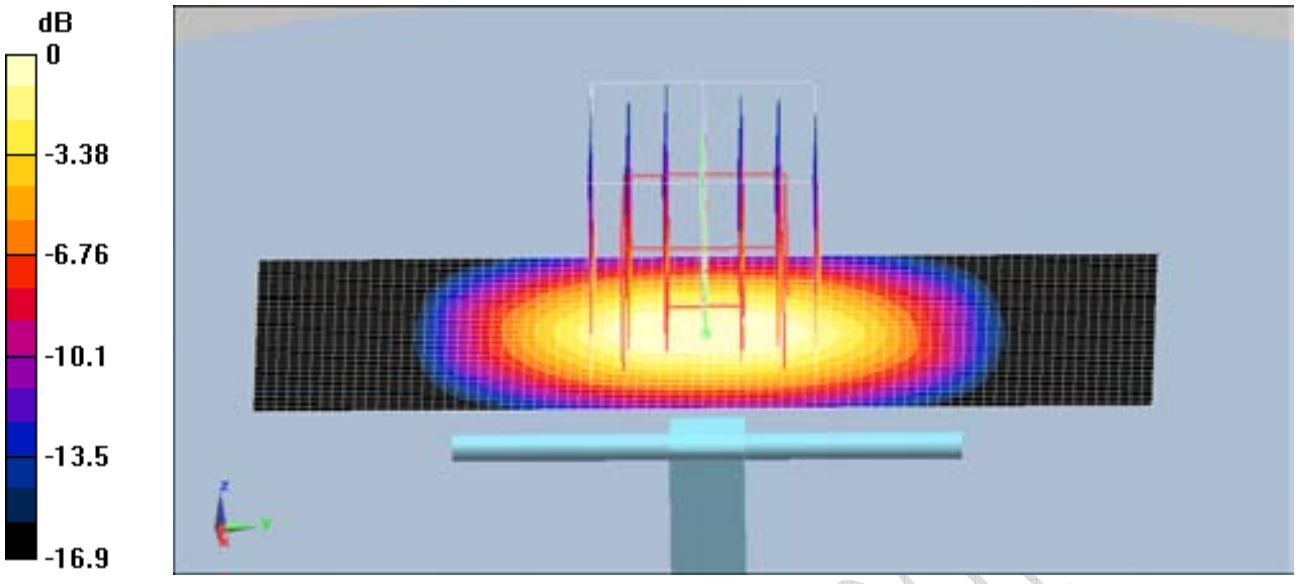
- Probe: ES3DV3 - SN3158; ConvF(5.08, 5.08, 5.08); Calibrated: 4/7/2008
- Sensor-Surface: 3.4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn797; Calibrated: 2/19/2008
- Phantom: Twin SAM; Type: SAM; Serial: TP-1472
- Measurement SW: DASY5, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

d=10mm, Pin=24 dBm/Area Scan (31x81x1): Measurement grid: dx=15mm, dy=15mm

Info: Extrapolated medium parameters used for SAR evaluation.
Maximum value of SAR (interpolated) = 11.2 mW/g

d=10mm, Pin=24 dBm/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 95.5 V/m; Power Drift = -0.149 dB
Peak SAR (extrapolated) = 16 W/kg
SAR(1 g) = 9.72 mW/g; SAR(10 g) = 4.55 mW/g

Info: Extrapolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 10.6 mW/g



0 dB = 10.6mW/g

C.3 Body 850 band

Test Laboratory: CTTL

850_Body

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

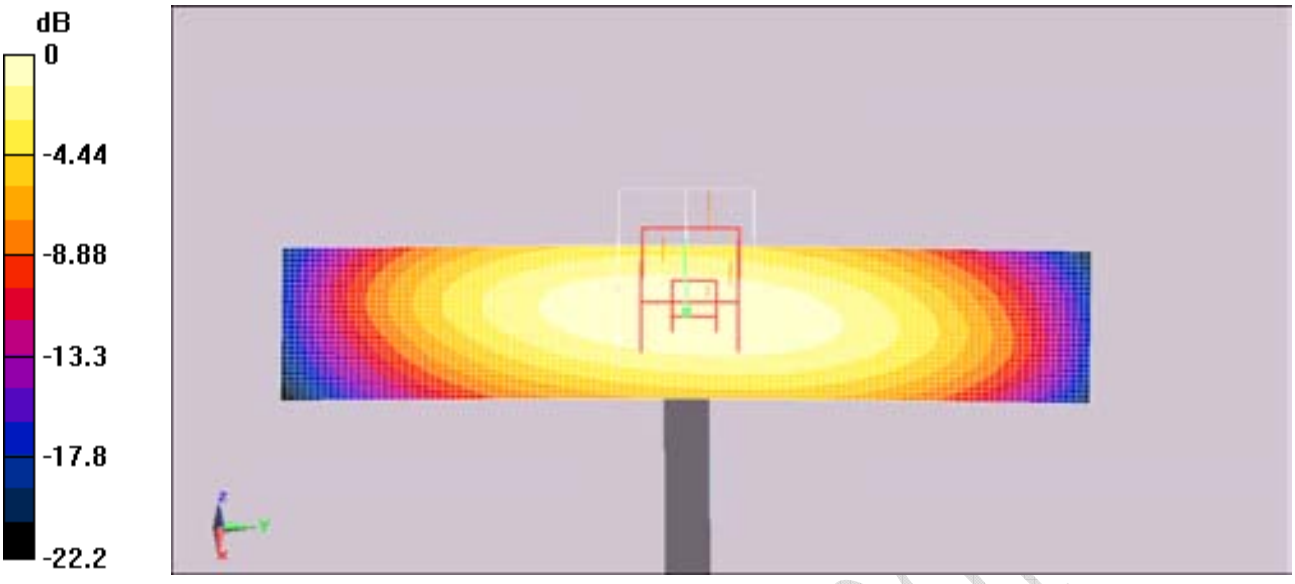
Communication System: CW; Frequency: 835 MHz;Duty Cycle: 1:1
Medium parameters used: f = 835 MHz; σ = 1.01 mho/m; ε_r = 55.3; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY4 Configuration:

- Probe: ES3DV3 - SN3158; ConvF(5.7, 5.7, 5.7); Calibrated: 4/7/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn797; Calibrated: 2/19/2008
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx
- Measurement SW: DASY5, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

D850V2/Zoom Scan (7x7x6)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 54.2 V/m; Power Drift = -0.125 dB
Peak SAR (extrapolated) = 3.89 W/kg
SAR(1 g) = 2.66 mW/g; SAR(10 g) = 1.74 mW/g
Maximum value of SAR (measured) = 2.87 mW/g

D850V2/Area Scan (31x121x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 2.88 mW/g



0 dB = 2.88mW/g

C.4 Body 1900 band

Test Laboratory: CTTL

PCS_Body

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:xxx

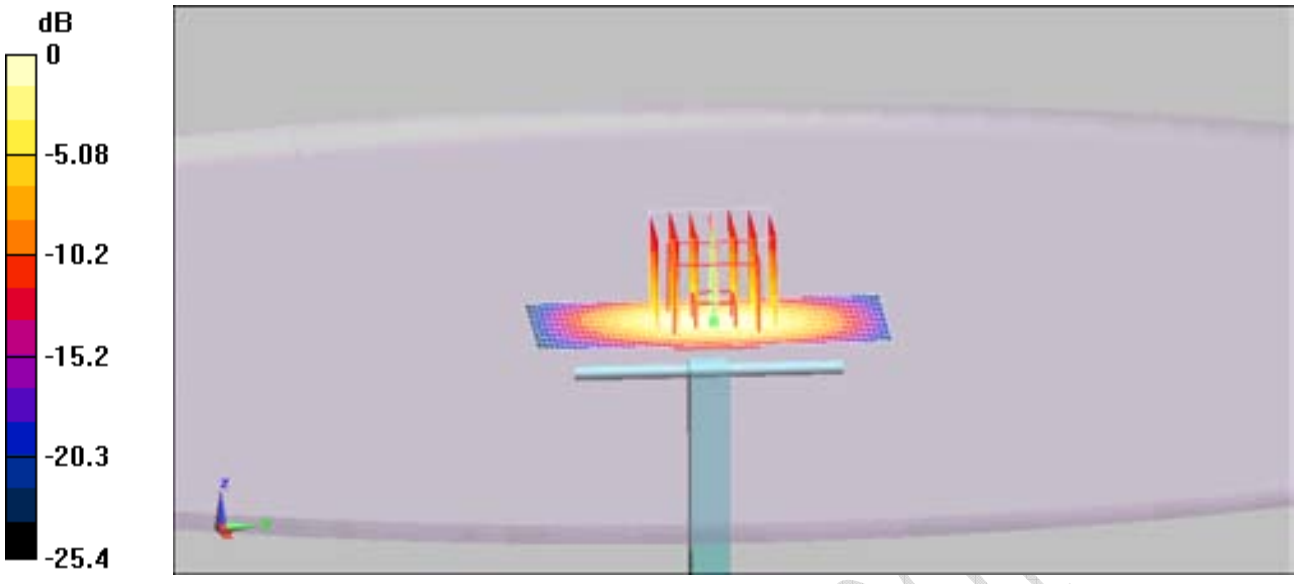
Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.45 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY4 Configuration:

- Probe: ES3DV3 - SN3158; ConvF(4.7, 4.7, 4.7); Calibrated: 4/7/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn797; Calibrated: 2/19/2008
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx
- Measurement SW: DASY5, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

D1900V2/Zoom Scan (7x7x6)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 88 V/m; Power Drift = -0.064 dB
Peak SAR (extrapolated) = 16.5 W/kg
SAR(1 g) = 9.05 mW/g; SAR(10 g) = 4.77 mW/g
Maximum value of SAR (measured) = 10.3 mW/g

D1900V2/Area Scan (31x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 11.3 mW/g



0 dB = 11.3mW/g

C.5 Head 2450 band

Test Laboratory: CTTL

system check head 2450

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

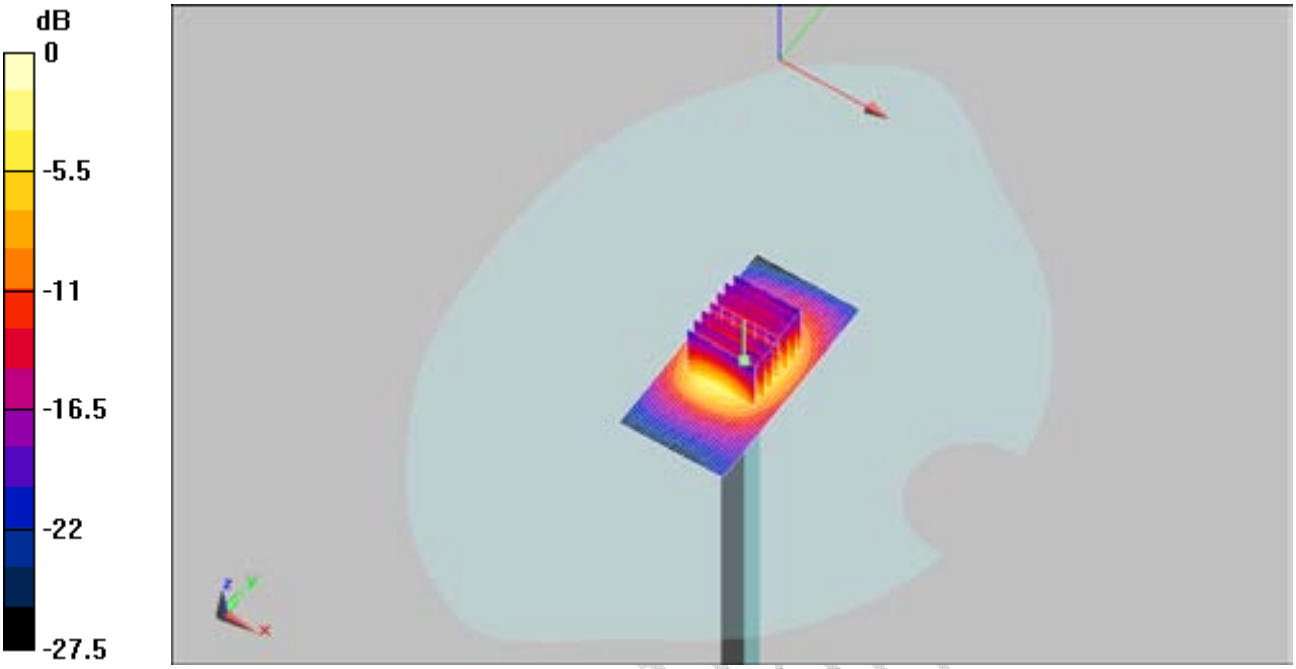
Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.88 mho/m; ε_r = 38; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY4 Configuration:

- Probe: ES3DV3 - SN3158; ConvF(4.56, 4.56, 4.56); Calibrated: 4/7/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn797; Calibrated: 2/19/2008
- Phantom: Twin SAM; Type: SAM; Serial: TP-1472
- Measurement SW: DASY5, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

D2450V2/Zoom Scan (7x7x6)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.5 V/m; Power Drift = -0.090 dB
Peak SAR (extrapolated) = 0.782 W/kg
SAR(1 g) = 0.341 mW/g; SAR(10 g) = 0.151 mW/g
Maximum value of SAR (measured) = 0.385 mW/g

D2450V2/Area Scan (31x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.433 mW/g



0 dB = 0.433mW/g

C.6 Body 2450 band

Test Laboratory: CTTL

system check body 2450

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

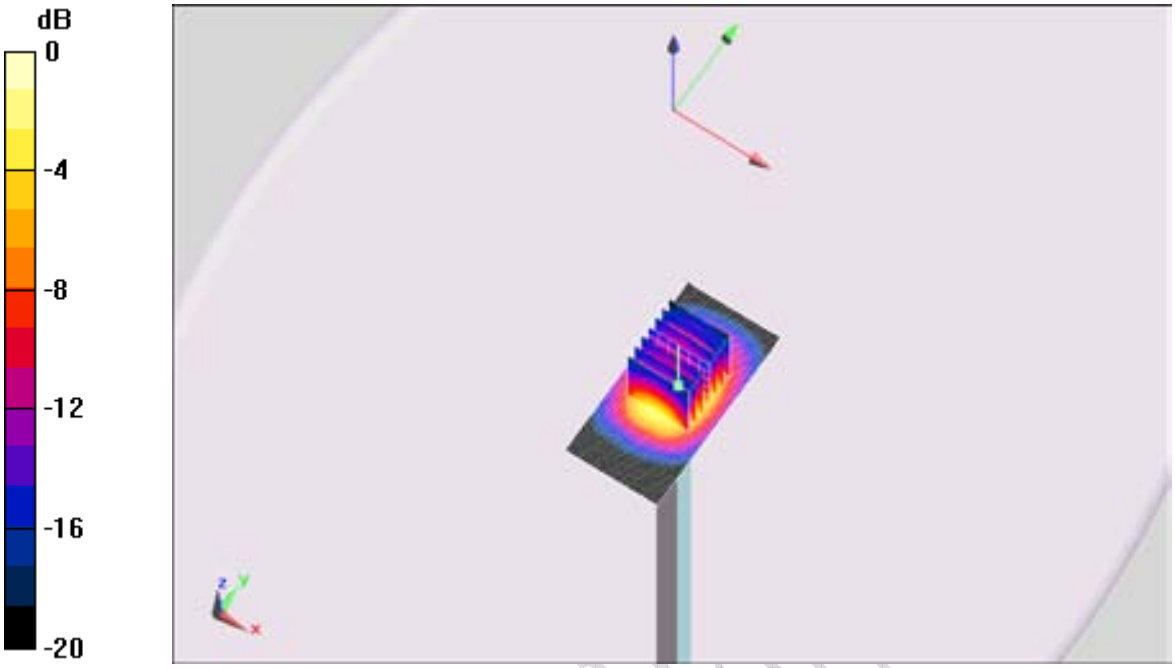
Communication System: CW; Frequency: 2450 MHz;Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.95 mho/m; ε_r = 52.7; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC)

DASY4 Configuration:

- Probe: ES3DV3 - SN3158; ConvF(4.2, 4.2, 4.2); Calibrated: 4/7/2008
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn797; Calibrated: 2/19/2008
- Phantom: ELI 4.0; Type: QDOVA001BA; Serial: xxxx
- Measurement SW: DASY5, V5.0 Build 119; SEMCAD X Version 13.2 Build 87

D2450V2 2/Area Scan (31x61x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.387 mW/g

D2450V2 2/Zoom Scan (7x7x6)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.7 V/m; Power Drift = 0.020 dB
Peak SAR (extrapolated) = 0.676 W/kg
SAR(1 g) = 0.318 mW/g; SAR(10 g) = 0.144 mW/g
Maximum value of SAR (measured) = 0.365 mW/g



0 dB = 0.365mW/g

Test Laboratory: CTTL

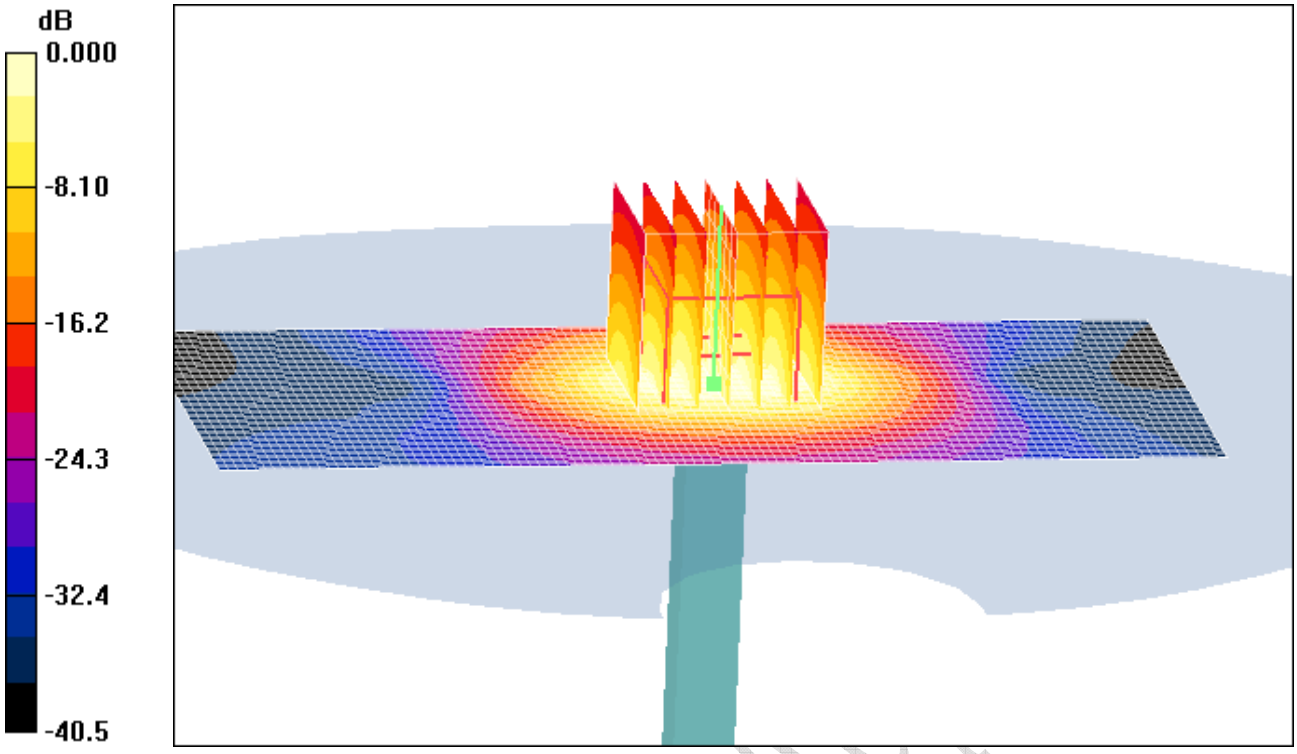
DUT: Dipole 2450 MHz;

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.86 mho/m; ε_r = 38.1; ρ = 1000 kg/m^3 ;
Medium Notes: Ambient humidity:60.6; Ambient temperature: 20.8; Liquid temperature: 21.4;
Phantom section: Flat Section ;Phantom: SAM with Front;Type: QD 000 P40 CA

DASY4 Configuration:
- Probe: ES3DV3 - SN3109; ConvF(4.3, 4.3, 4.3); Calibrated: 2009-2-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn685; Calibrated: 2009-2-16
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 171

GSM900/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 81.5 V/m; Power Drift = 0.065 dB
Peak SAR (extrapolated) = 27.7 W/kg
SAR(1 g) = 13.4 mW/g; SAR(10 g) = 6.2 mW/g
Maximum value of SAR (measured) = 15.1 mW/g

GSM900/Area Scan (51x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 15.8 mW/g



0 dB = 15.8mW/g

C.7 Body 835 band

File Name: SystemPerformanceCheck-MSL835-20090504.da4

DUT: Dipole 835 MHz;

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium parameters used (interpolated): f = 835 MHz; σ = 0.98 mho/m; ε_r = 54; ρ = 1000 kg/m^3 ;
Medium Notes: Ambient humidity:53.4; Ambient temperature: 23.3; Liquid temperature: 23.1;
Phantom section: Flat Section ;Phantom: Flat Phantom ELI4.0;Type: QDOVA001BA

DASY4 Configuration:
- Probe: ES3DV3 - SN3109; ConvF(5.53, 5.53, 5.53); Calibrated: 2009-2-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn685; Calibrated: 2009-2-16
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 171

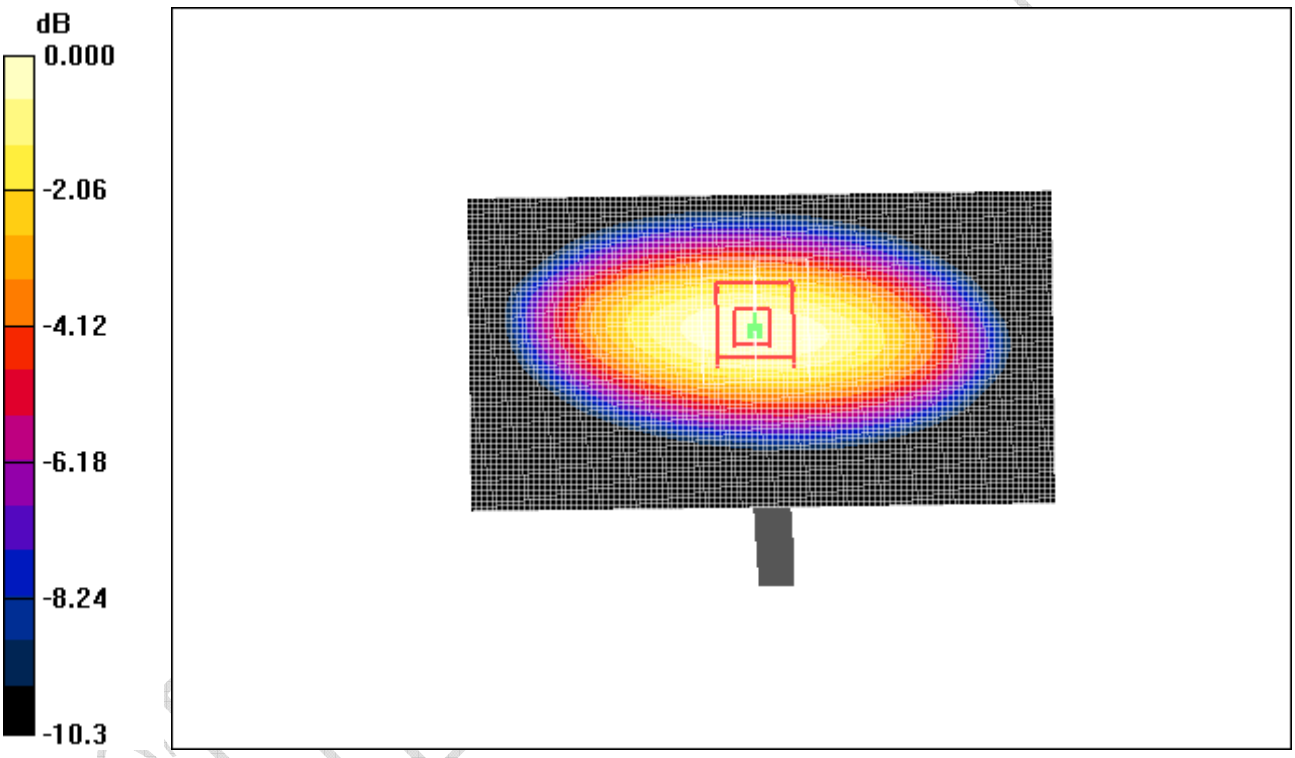
MSL/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm

Info: Interpolated medium parameters used for SAR evaluation.

Maximum value of SAR (interpolated) = 2.68 mW/g

MSL/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 50.9 V/m; Power Drift = 0.002 dB
Peak SAR (extrapolated) = 3.72 W/kg
SAR(1 g) = 2.51 mW/g; SAR(10 g) = 1.64 mW/g

Info: Interpolated medium parameters used for SAR evaluation.
Maximum value of SAR (measured) = 2.71 mW/g



0 dB = 2.71mW/g

C.8 Body 1900 band

File Name: SystemPerformanceCheck-MSL1900-20090430.da4

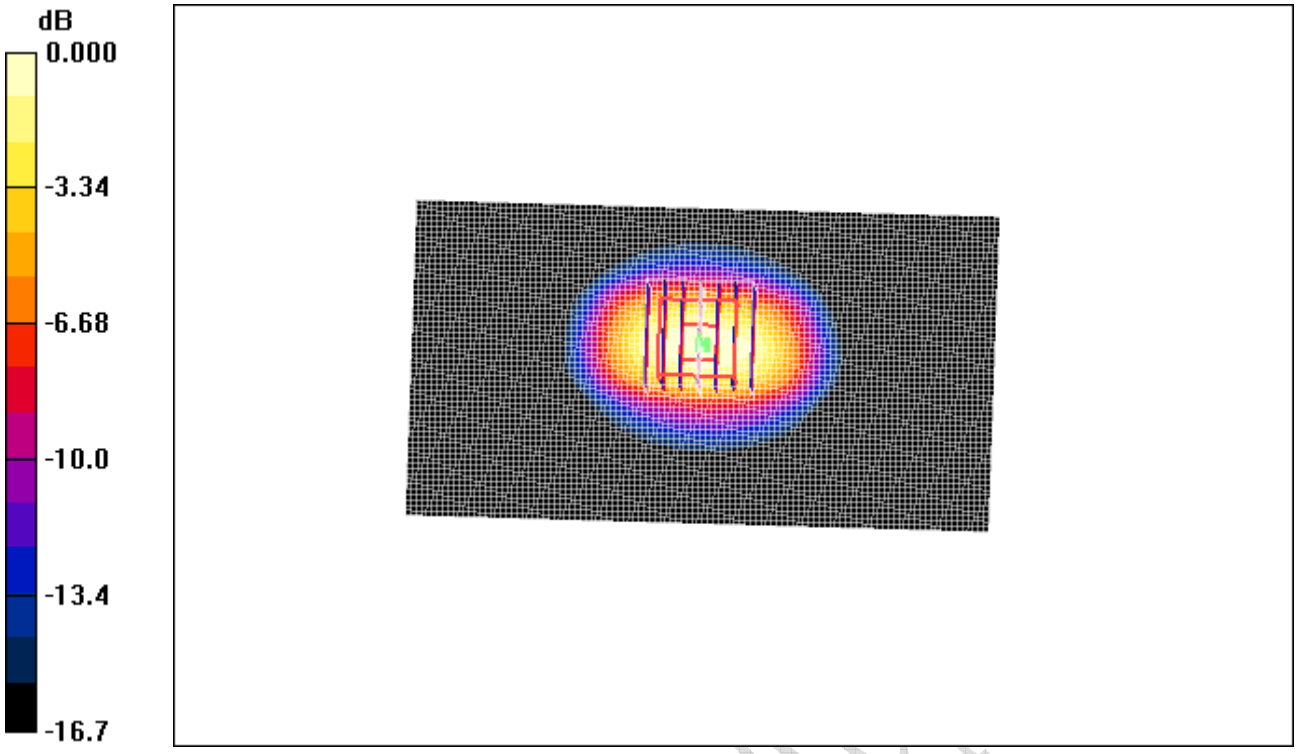
DUT: Dipole 1900 MHz;

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1
Medium parameters used: f = 1900 MHz; σ = 1.61 mho/m; ε_r = 53.3; ρ = 1000 kg/m^3 ;
Medium Notes: Ambient humidity:44.5; Ambient temperature: 23.0; Liquid temperature: 23.4;
Phantom section: Flat Section ;Phantom: Flat Phantom ELI4.0;Type: QDOVA001BA

DASY4 Configuration:
- Probe: ES3DV3 - SN3109; ConvF(4.59, 4.59, 4.59); Calibrated: 2009-2-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn685; Calibrated: 2009-2-16
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 171

MSL/Area Scan (61x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 13.9 mW/g

MSL/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 81.2 V/m; Power Drift = -0.062 dB
Peak SAR (extrapolated) = 20.3 W/kg
SAR(1 g) = 11.2 mW/g; SAR(10 g) = 5.86 mW/g
Maximum value of SAR (measured) = 12.7 mW/g



0 dB = 12.7mW/g

C.9 Head 2450 band on May 7 of 2009

File Name: Systemcheck HSL2450-20090507.da4

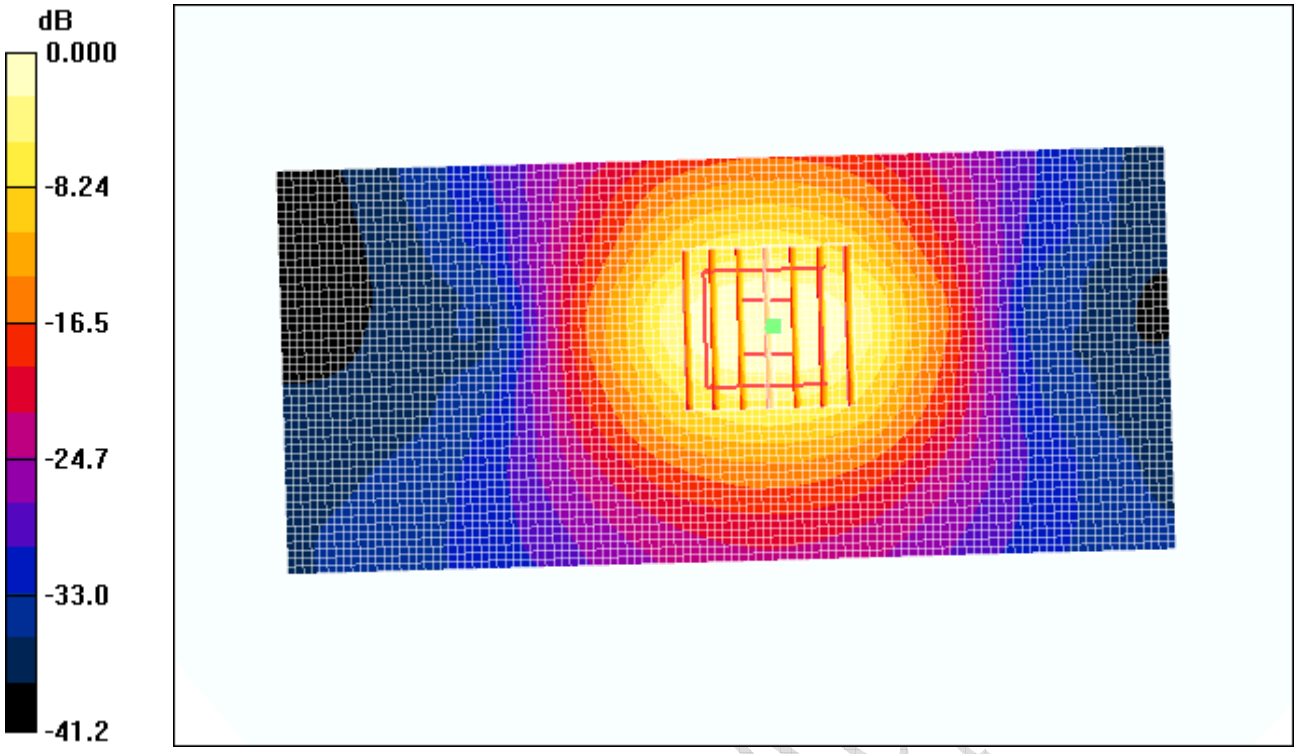
DUT: Dipole 2450 MHz;

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 1.89 mho/m; ε_r = 38.9; ρ = 1000 kg/m^3 ;
Medium Notes: Ambient humidity:57.5; Ambient temperature: 22.2; Liquid temperature: 21.8;
Phantom section: Flat Section ;Phantom: SAM with Front;Type: QD 000 P40 CA

DASY4 Configuration:
- Probe: ES3DV3 - SN3109; ConvF(4.3, 4.3, 4.3); Calibrated: 2009-2-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn685; Calibrated: 2009-2-16
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 171

GSM900/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 81.9 V/m; Power Drift = 0.017 dB
Peak SAR (extrapolated) = 30.2 W/kg
SAR(1 g) = 14.3 mW/g; SAR(10 g) = 6.55 mW/g
Maximum value of SAR (measured) = 16.2 mW/g

GSM900/Area Scan (51x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 16.3 mW/g



0 dB = 16.3mW/g

C.10 Head 2450 band on May 7 of 2009

File Name: Systemcheck MSL2450-20090507.da4

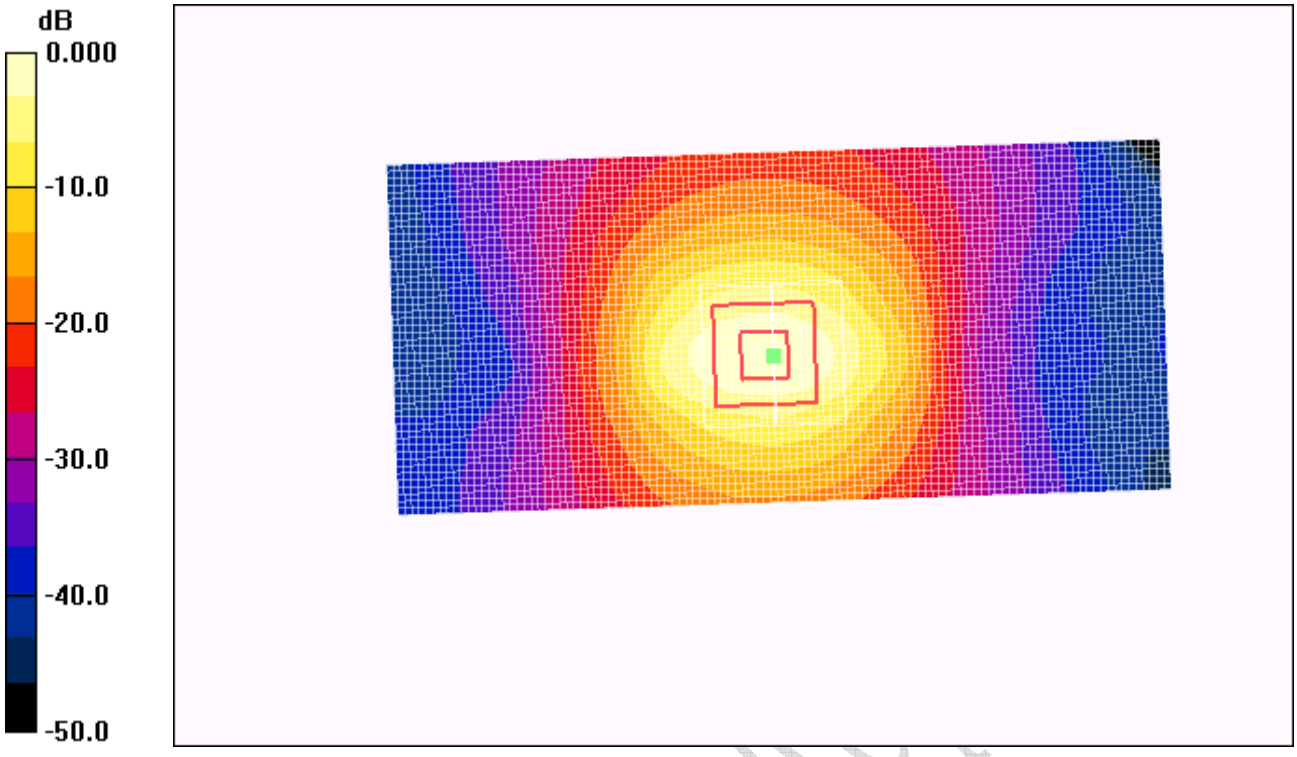
DUT: Dipole 2450 MHz;

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium parameters used: f = 2450 MHz; σ = 2.02 mho/m; ε_r = 51.3; ρ = 1000 kg/m^3 ;
Medium Notes: Ambient humidity:57.5; Ambient temperature: 22.2; Liquid temperature: 21.8;
Phantom section: Flat Section ;Phantom: Flat Phantom ELI4.0;Type: QDOVA001BA

DASY4 Configuration:
- Probe: ES3DV3 - SN3109; ConvF(3.94, 3.94, 3.94); Calibrated: 2009-2-16
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn685; Calibrated: 2009-2-16
- Measurement SW: DASY4, V4.7 Build 71; Postprocessing SW: SEMCAD, V1.8 Build 171

GSM900/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 80.6 V/m; Power Drift = -0.066 dB
Peak SAR (extrapolated) = 30.3 W/kg
SAR(1 g) = 14.5 mW/g; SAR(10 g) = 6.69 mW/g
Maximum value of SAR (measured) = 16.5 mW/g

GSM900/Area Scan (51x111x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 17.7 mW/g



0 dB = 17.7mW/g

ANNEX D Probes Calibration Certificates

The System Validation was conducted following the requirements of standard IEEE 1528: 2003 Clause 8.3.

The scanned copy of the calibration certificate of the probe used is as following.

Note: The probes ES3DV3-SN:3158 and ES3DV3-SN:3109 are used in the test.

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

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

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

Accreditation No.: SCS 108

Client CTTL (MTT) Certificate No: ES3-3158_Apr08

CALIBRATION CERTIFICATE

Object ES3DV3 - SN:3158

Calibration procedure(s) QA CAL-01.v6 and QA CAL-23.v3
Calibration procedure for dosimetric E-field probes

Calibration date: April 7, 2008

Condition of the calibrated item In Tolerance

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	1-Apr-08 (No. 217-00788)	Apr-09
Power sensor E4412A	MY41495277	1-Apr-08 (No. 217-00788)	Apr-09
Power sensor E4412A	MY41498087	1-Apr-08 (No. 217-00788)	Apr-09
Reference 3 dB Attenuator	SN: S5054 (3c)	8-Aug-07 (No. 217-00719)	Aug-08
Reference 20 dB Attenuator	SN: S5086 (20b)	31-Mar-08 (No. 217-00787)	Apr-09
Reference 30 dB Attenuator	SN: S5129 (30b)	8-Aug-07 (No. 217-00720)	Aug-08
Reference Probe ES3DV2	SN: 3013	2-Jan-08 (No. ES3-3013_Jan08)	Jan-09
DAE4	SN: 654	20-Apr-07 (No. DAE4-654_Apr07)	Apr-08

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-07)	In house check: Oct-08

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

Issued: April 7, 2008

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Calibration Laboratory of
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Zeughausstrasse 43, 8004 Zurich, Switzerland

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Accreditation No.: SCS 108

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., ϑ = 0 is normal to probe axis

Calibration is Performed According to the Following Standards:

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

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization ϑ = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not effect 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 (no uncertainty required). DCP does not depend on frequency nor media.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 800 MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to *NORMx,y,z * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- *Spherical isotropy (3D deviation from isotropy):* in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset:* The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

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ES3DV3 SN:3158 April 7, 2008

Probe ES3DV3

SN:3158

Manufactured: August 13, 2007
Calibrated: April 7, 2008

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

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ES3DV3 SN:3158 April 7, 2008

DASY - Parameters of Probe: ES3DV3 SN:3158

Sensitivity in Free Space[A] Diode Compression[B]

NormX	1.11 ± 10.1%	μV/(V/m)²	DCP X	97 mV
NormY	1.20 ± 10.1%	μV/(V/m)²	DCP Y	91 mV
NormZ	1.16 ± 10.1%	μV/(V/m)²	DCP Z	93 mV

Sensitivity in Tissue Simulating Liquid (Conversion Factors)

Please see Page 8.

Boundary Effect

TSL 900 MHz Typical SAR gradient: 5 % per mm

Sensor Center to Phantom Surface Distance		3.0 mm	4.0 mm
SAR_{be} [%]	Without Correction Algorithm	9.2	5.2
SAR_{be} [%]	With Correction Algorithm	0.8	0.7

TSL 1810 MHz Typical SAR gradient: 10 % per mm

Sensor Center to Phantom Surface Distance		3.0 mm	4.0 mm
SAR_{be} [%]	Without Correction Algorithm	10.8	6.0
SAR_{be} [%]	With Correction Algorithm	0.8	0.7

Sensor Offset

Probe Tip to Sensor Center	2.0 mm

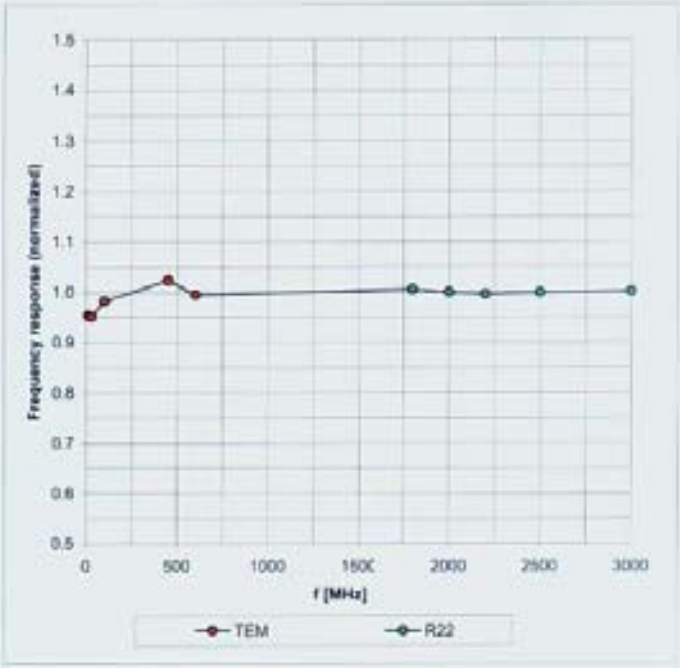
The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

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

ES3DV3 SN:3158 April 7, 2008

Frequency Response of E-Field

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

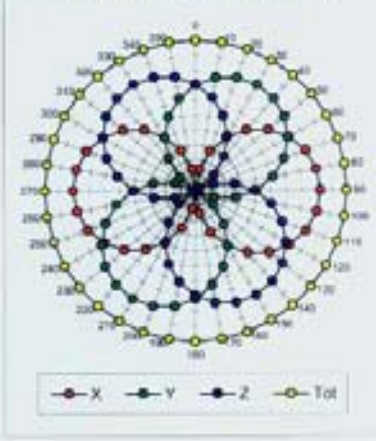


Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

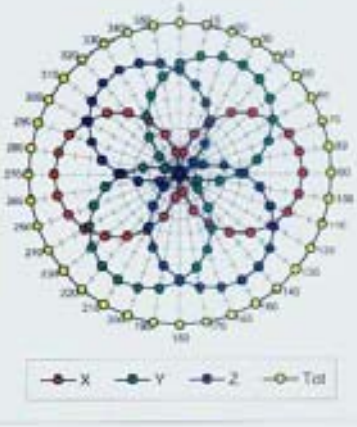
ES3DV3 SN:3158 April 7, 2008

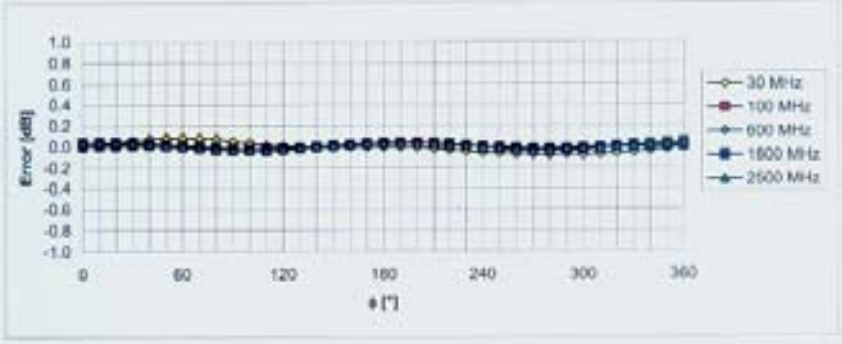
Receiving Pattern (ϕ), $\vartheta = 0°$

f = 600 MHz, TEM iR110EXX



f = 1800 MHz, WG R22





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

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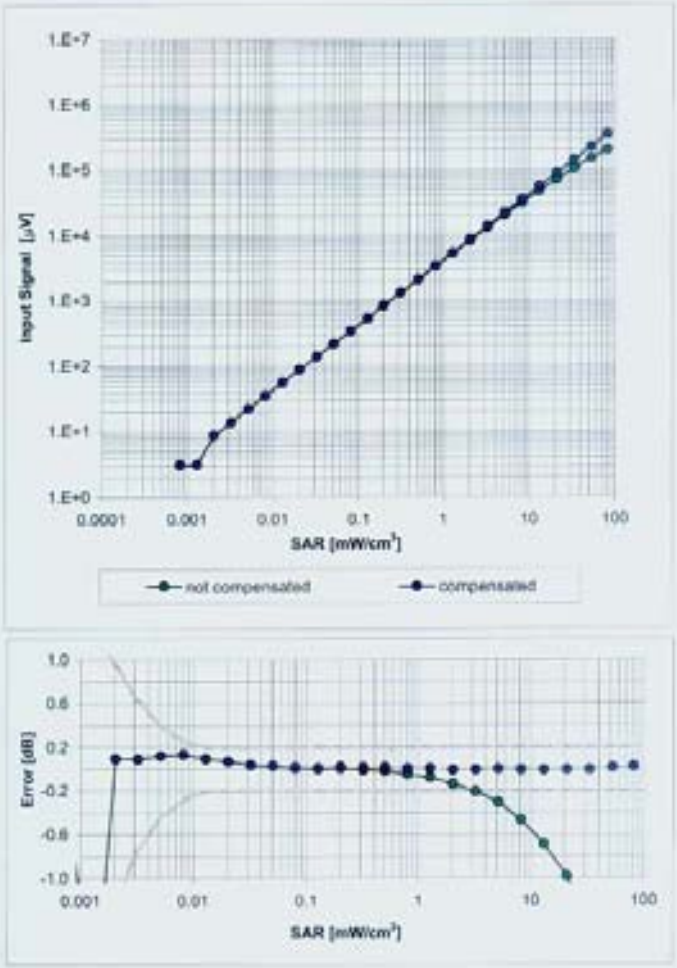
ES3DV3 SN:3158 April 7, 2008

Dynamic Range f(SAR_{head})

(Waveguide R22, f = 1800 MHz)



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

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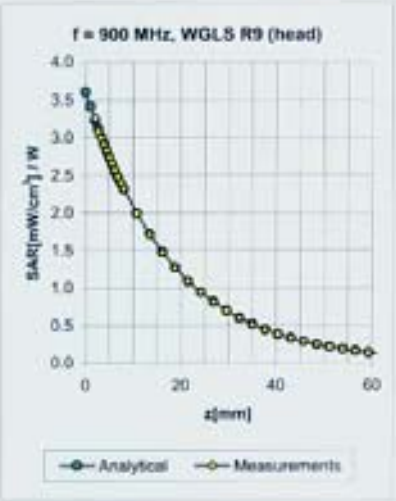
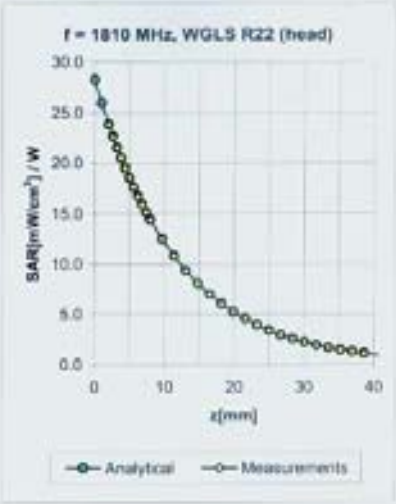
ES3DV3 SN:3158 April 7, 2008

Conversion Factor Assessment





f [MHz]	Validity [MHz][C]	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF	Uncertainty
835	± 50 / ± 100	Head	41.5 ± 5%	0.90 ± 5%	1.00	1.15	6.15	± 11.0% (k=2)
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	1.00	1.11	6.16	± 11.0% (k=2)
1810	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.96	1.12	5.08	± 11.0% (k=2)
1900	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.82	1.20	5.05	± 11.0% (k=2)
1950	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.92	1.12	4.83	± 11.0% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.74	1.29	4.56	± 11.0% (k=2)
835	± 50 / ± 100	Body	55.2 ± 5%	0.97 ± 5%	1.00	1.16	5.70	± 11.0% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	1.00	1.16	5.69	± 11.0% (k=2)
1810	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.78	1.26	5.13	± 11.0% (k=2)
1900	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.87	1.21	4.70	± 11.0% (k=2)
1950	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.78	1.32	4.91	± 11.0% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.64	1.50	4.20	± 11.0% (k=2)

[C] The validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

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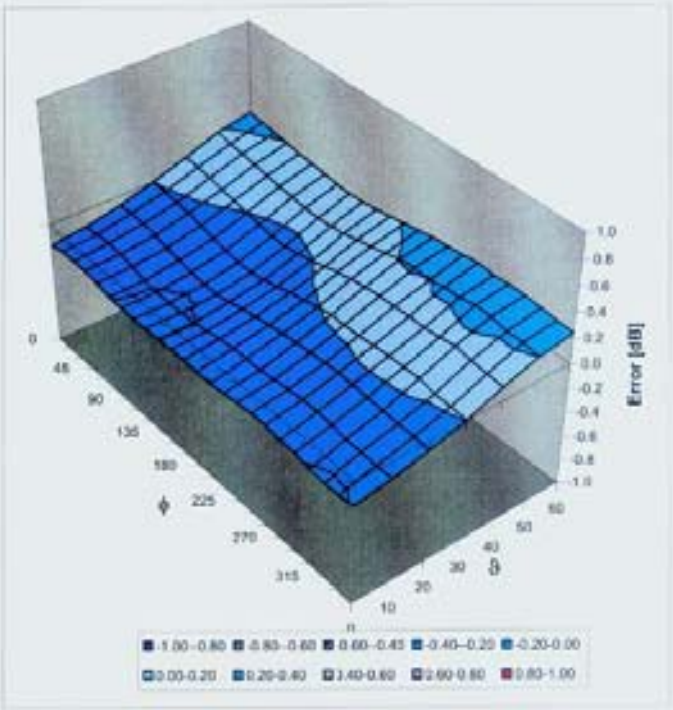
ES3DV3 SN:3158 April 7, 2008

Deviation from Isotropy in HSL

Error (φ, ϑ), f = 900 MHz



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

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Accreditation No.: SCS 108

Client: Flextronics BJDC (Auden)

Certificate No: ES3-3109_Feb09

CALIBRATION CERTIFICATE

Object: ES3DV3 - SN:3109

Calibration procedure(s): QA CAL-01.v6 and QA CAL-23.v3
Calibration procedure for dosimetric E-field probes

Calibration date: February 16, 2009

Condition of the calibrated item: In Tolerance

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	1-Apr-08 (No. 217-00768)	Apr-09
Power sensor E4412A	MY41495277	1-Apr-08 (No. 217-00768)	Apr-09
Power sensor E4412A	MY41496087	1-Apr-08 (No. 217-00768)	Apr-09
Reference 3 dB Attenuator	SN: S5054 (3c)	1-Jul-08 (No. 217-00865)	Jul-09
Reference 20 dB Attenuator	SN: S5086 (20b)	31-Mar-08 (No. 217-00787)	Apr-09
Reference 30 dB Attenuator	SN: S5129 (30b)	1-Jul-08 (No. 217-00866)	Jul-09
Reference Probe ES3DV2	SN: 3013	2-Jan-09 (No. ES3-3013_Jan09)	Jan-10
DAE4	SN: 660	9-Sep-08 (No. DAE4-660_Sep08)	Sep-09

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585	18-Oct-01 (in house check Oct-08)	In house check: Oct-09

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

Issued: February 16, 2009

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

Glossary:

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ConvF	sensitivity in TSL / NORMx,y,z
DCP	diode compression point
Polarization φ	φ rotation around probe axis
Polarization ϑ	ϑ rotation around an axis that is in the plane normal to probe axis (at measurement center), i.e., ϑ = 0 is normal to probe axis

Calibration is Performed According to the Following Standards:

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

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization ϑ = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not effect 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 (no uncertainty required). DCP does not depend on frequency nor media.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 800 MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to *NORMx,y,z * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- *Spherical isotropy (3D deviation from isotropy):* in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset*: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

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Probe ES3DV3

SN:3109

Manufactured:	September 20, 2005
Last calibrated:	November 12, 2007
Recalibrated:	February 16, 2009

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

ES3DV3 SN:3109 February 16, 2009

DASY - Parameters of Probe: ES3DV3 SN:3109

Sensitivity in Free Space[A] Diode Compression[B]

NormX	1.24 ± 10.1%	μV/(V/m)²	DCP X	92 mV
NormY	1.33 ± 10.1%	μV/(V/m)²	DCP Y	94 mV
NormZ	1.30 ± 10.1%	μV/(V/m)²	DCP Z	93 mV

Sensitivity in Tissue Simulating Liquid (Conversion Factors)

Please see Page 8.

Boundary Effect

TSL 900 MHz Typical SAR gradient: 5 % per mm

Sensor Center to Phantom Surface Distance		3.0 mm	4.0 mm
SAR_{be} [%]	Without Correction Algorithm	9.1	5.0
SAR_{be} [%]	With Correction Algorithm	0.8	0.4

TSL 1810 MHz Typical SAR gradient: 10 % per mm

Sensor Center to Phantom Surface Distance		3.0 mm	4.0 mm
SAR_{be} [%]	Without Correction Algorithm	8.5	4.7
SAR_{be} [%]	With Correction Algorithm	0.8	0.3

Sensor Offset

Probe Tip to Sensor Center	2.0 mm

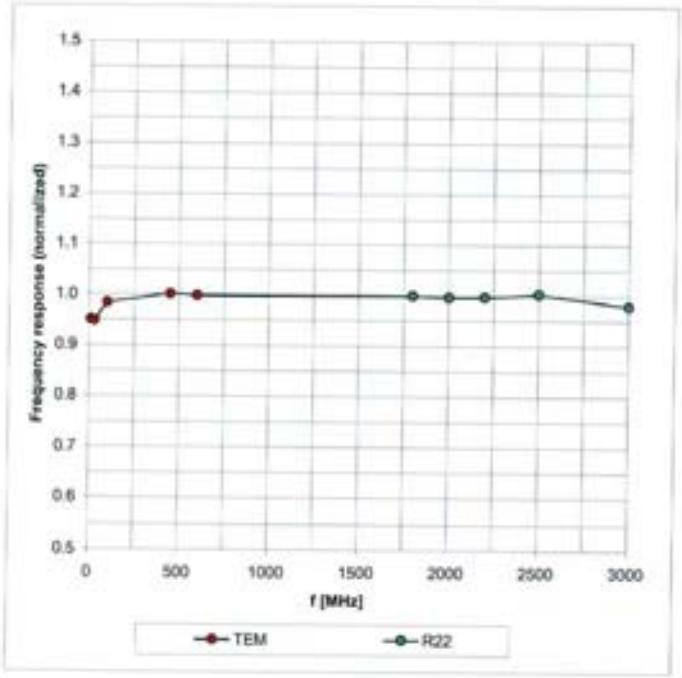
The reported uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%.

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

ES3DV3 SN:3109 February 16, 2009

Frequency Response of E-Field

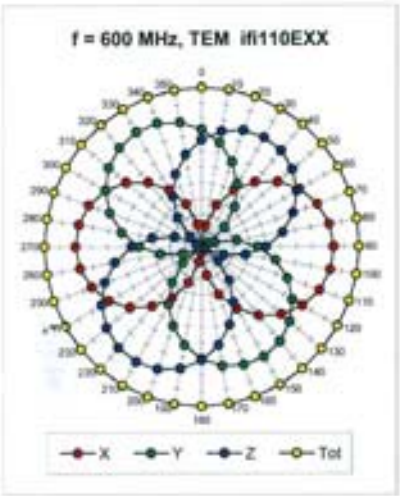
(TEM-Cell:ifi110 EXX, Waveguide: R22)

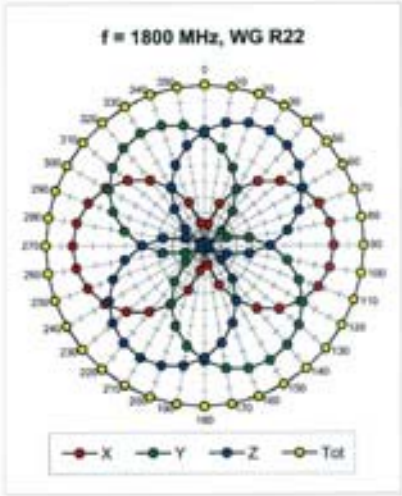


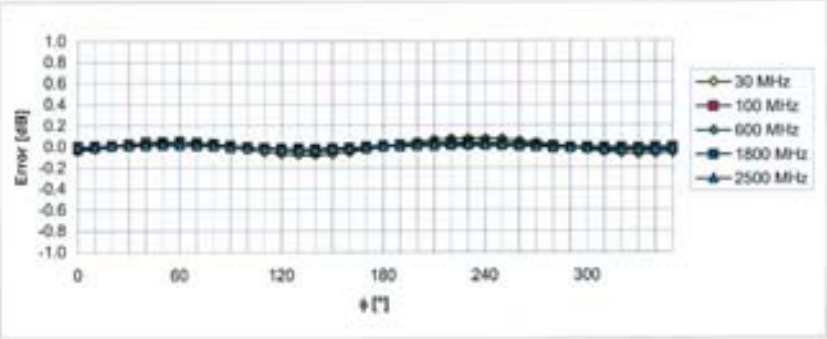
Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

ES3DV3 SN:3109 February 16, 2009

Receiving Pattern (ϕ), ϑ = 0°





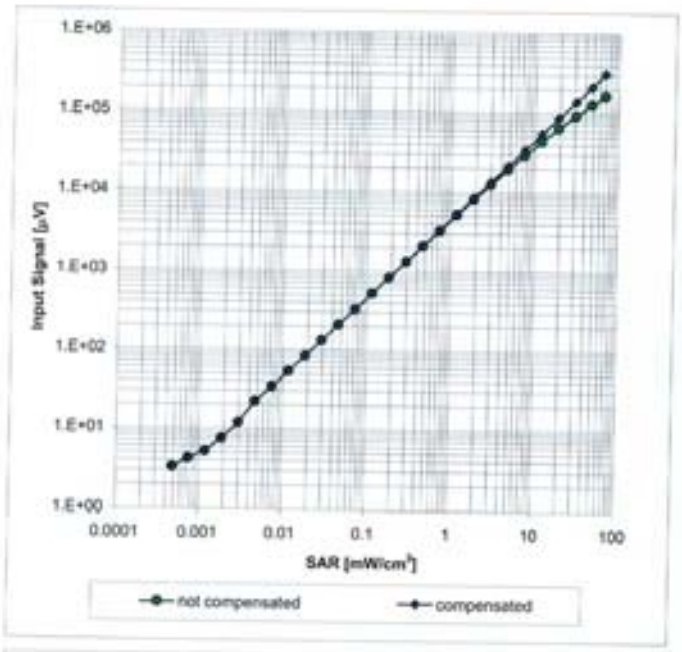


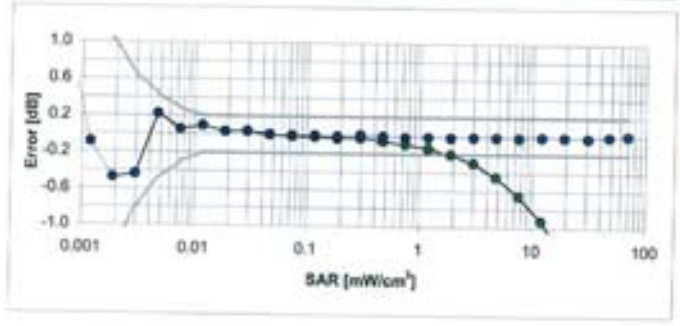
Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

ES3DV3 SN:3109 February 16, 2009

Dynamic Range f(SAR_{head})

(Waveguide R22, f = 1800 MHz)





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

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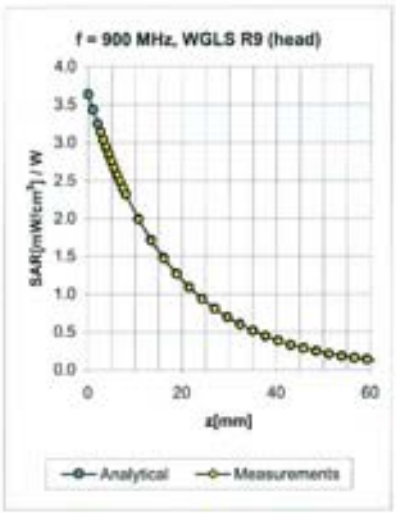
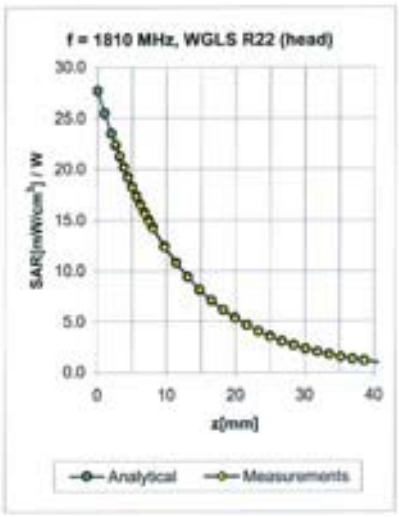
ES3DV3 SN:3109 February 16, 2009

Conversion Factor Assessment





f [MHz]	Validity [MHz][C]	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	0.93	1.07	5.56 ± 11.0% (k=2)
1810	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.51	1.47	4.84 ± 11.0% (k=2)
2000	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.40	1.60	4.67 ± 11.0% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.42	1.69	4.30 ± 11.0% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.89	1.12	5.53 ± 11.0% (k=2)
1810	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.32	1.90	4.59 ± 11.0% (k=2)
2000	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.27	2.15	4.41 ± 11.0% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.72	1.19	3.94 ± 11.0% (k=2)

[C] The validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

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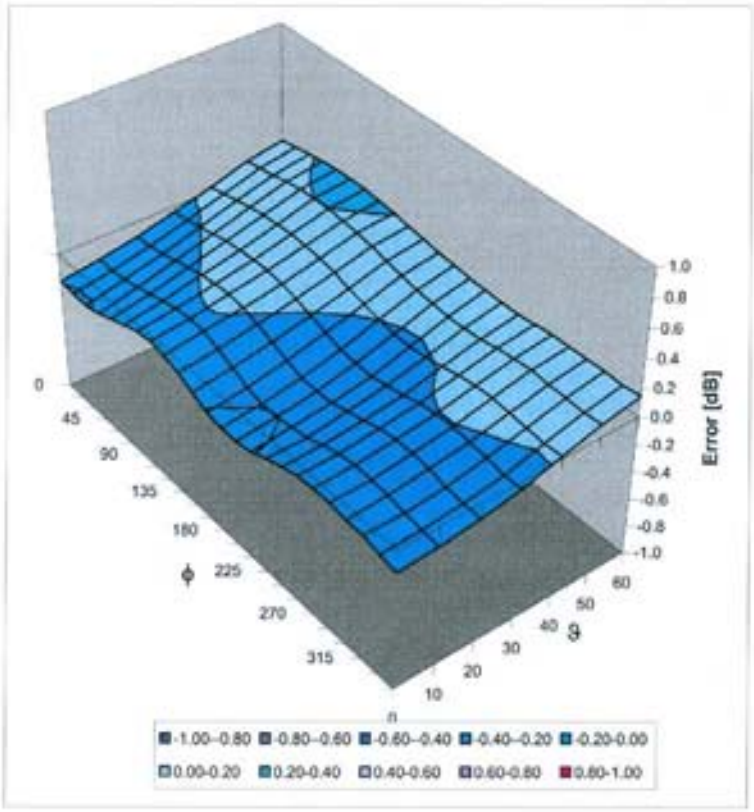
ES3DV3 SN:3109 February 16, 2009

Deviation from Isotropy in HSL

Error (ϕ, ϑ), f = 900 MHz



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

ANNEX E Deviations from Prescribed Test Methods

No deviation from Prescribed Test Methods.

The End of this Report