SAR TEST REPORT

No. 2011SAR00052

For

TCT Mobile Limited

HSDPA/UMTS dual band / GSM four bands mobile phone

BrandyA

one touch 990A

With

Hardware Version: PIO

Software Version: V520

FCCID: RAD158

Issued Date: 2011-05-24

Deutscher Akkreditierungs Rat DAR

No. **DGA-PL-114/01-02**

Note:

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of TMC Beijing.

Test Laboratory:

TMC Beijing, Telecommunication Metrology Center of MIIT

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TABLE OF CONTENT

1 Test Laboratory

1.1 Testing Location

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1.2 Testing Environment

Temperature:	18°C~25 °C,
Relative humidity:	30%~ 70%
Ground system resistance:	< 0.5 Ω

Ambient noise is checked and found very low and in compliance with requirement of standards.
Reflection of surrounding objects is minimized and in compliance with requirement of standards.

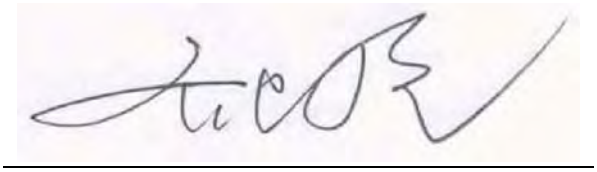
1.3 Project Data

Project Leader:	Qi Dianyuan
Test Engineer:	Lin Xiaojun
Testing Start Date:	May 12, 2011
Testing End Date:	May 14, 2011

1.4 Signature

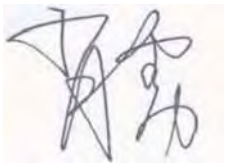
Lin Xiaojun

(Prepared this test report)



Qi Dianyuan

(Reviewed this test report)



Xiao Li

Deputy Director of the laboratory

(Approved this test report)

2 Client Information

2.1 Applicant Information

Company Name:	TCT Mobile Limited
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2.2 Manufacturer Information

Company Name:	TCT Mobile Limited
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3 Equipment Under Test (EUT) and Ancillary Equipment (AE)

3.1 About EUT

EUT Description:	HSDPA/UMTS dual band / GSM four bands mobile phone
Model Name:	BrandyA
Marketing Name:	one touch 990A
Frequency Band:	GSM850 / PCS1900 / WCDMA850 / WCDMA1900 / WiFi
GPRS Multislot Class:	12
GPRS capability Class:	B
EGPRS Multislot Class:	12
Hotspot mode:	Support simultaneous transmission of hotspot and voice(or data)
Form factor:	11.5cm×6.2cm

3.2 Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version
EUT1	012578000000183	PIO	V520

*EUT ID: is used to identify the test sample in the lab internally.

3.3 Internal Identification of AE used during the test

AE ID*	Description	Model	SN	Manufacturer
AE1	Battery	CAB31P0000C1	/	BYD
AE2	Headset	CCB3160A10C0	/	Juwei
AE3	Headset	CCB3160A10C2	/	Shunda

*AE ID: is used to identify the test sample in the lab internally.

4 CHARACTERISTICS OF THE TEST

4.1 Applicable Limit Regulations

EN 50360–2001: Product standard for the measurement of Specific Absorption Rate related to human exposure to electromagnetic fields from mobile phones.
It specifies the maximum exposure limit of **2.0 W/kg** as averaged over any 10 gram of tissue for portable devices being used within 20 cm of the user in the uncontrolled environment.
ANSI C95.1–1999: IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.
It specifies the maximum exposure limit of **1.6 W/kg** as averaged over any 1 gram of tissue for portable devices being used within 20 cm of the user in the uncontrolled environment.

4.2 Applicable Measurement Standards

EN 62209-1–2006: Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Human models, instrumentation, and procedures –Part 1: Procedure to determine the specific absorption rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz).
IEEE 1528–2003: Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Body Due to Wireless Communications Devices: Experimental Techniques.
OET Bulletin 65 (Edition 97-01) and Supplement C(Edition 01-01): Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits.
IEC 62209-1-2005: Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Human models, instrumentation, and procedures –Part 1:Procedure to determine the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)
KDB648474 D01 SAR Handsets Multi Xmiter and Ant, v01r05: SAR Evaluation Considerations for Handsets with Multiple Transmitters and Antennas.
KDB248227: SAR measurement procedures for 802.112abg transmitters.
KDB941225 D06 Hot Spot SAR v01: SAR Evaluation Procedures for Portable Devices with Wireless Router Capabilities.

5 OPERATIONAL CONDITIONS DURING TEST

5.1 Schematic Test Configuration

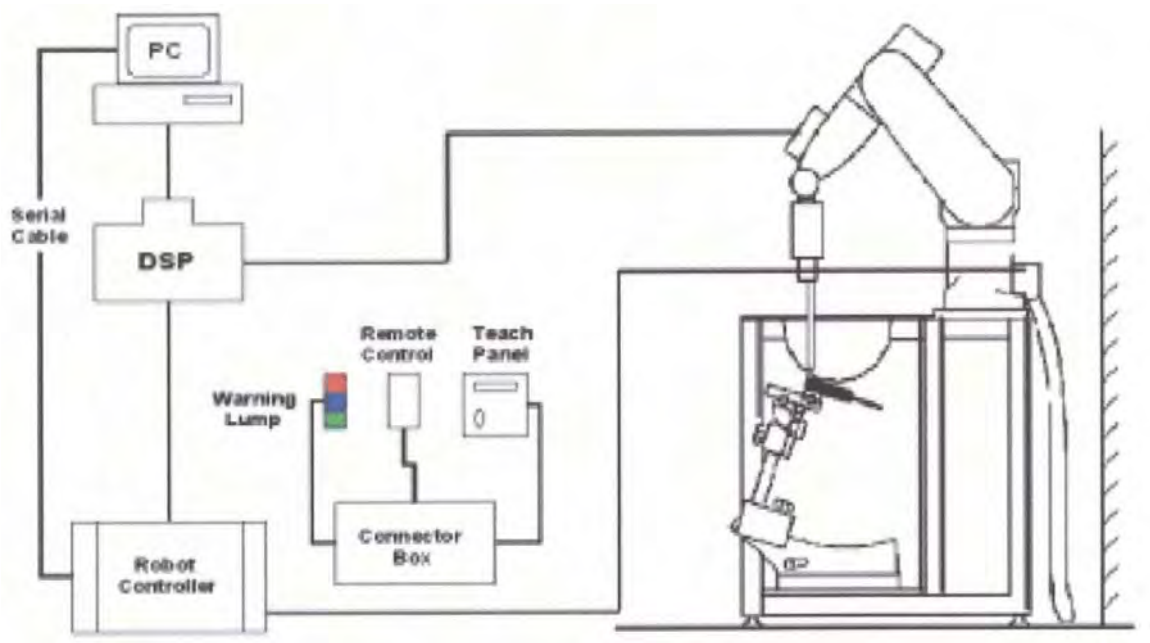
During SAR test, EUT is in Traffic Mode (Channel Allocated) at Normal Voltage Condition. A communication link is set up with a System Simulator (SS) by air link, and a call is established. The Absolute Radio Frequency Channel Number (ARFCN) is allocated to 128, 190 and 251 respectively in the case of GSM 850 MHz; 512, 661 and 810 respectively in the case of PCS 1900 MHz; 4132, 4182 and 4233 respectively in the case of WCDMA 850 MHz; 9262, 9400 and 9538 respectively in the case of WCDMA 1900 MHz. The EUT is commanded to operate at maximum transmitting power.

The EUT shall use its internal transmitter. The antenna(s), battery and accessories shall be those specified by the manufacturer. The EUT battery must be fully charged and checked periodically during the test to ascertain uniform power output. If a wireless link is used, the antenna connected to the output of the base station simulator shall be placed at least 50 cm away from the handset. The signal transmitted by the simulator to the antenna feeding point shall be lower than the output power level of the handset by at least 30 dB.

5.2 SAR Measurement Set-up

These measurements were performed with the automated near-field scanning system DASY4 Professional from Schmid & Partner Engineering AG (SPEAG). The system is based on a high precision robot (working range greater than 0.9m), 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 contains the power supply, robot controller, teaches 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 DASY4 Professional, 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) circuit performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. is connected to the Electro-optical coupler (EOC). The EOC performs the conversion from the optical into digital electric signal of the DAE and transfers data to the PC plug-in card.



Picture 2: SAR Lab Test Measurement Set-up

The DAE 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.

5.3 Dasy4 E-field Probe System

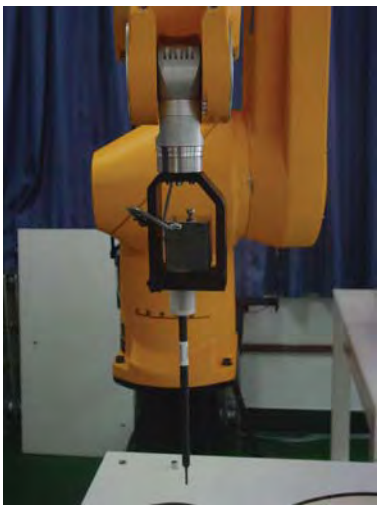
The SAR measurements were conducted with the dosimetric probe ES3DV3 (manufactured by SPEAG), designed in the classical triangular configuration and optimized for dosimetric evaluation. The probe has been calibrated according to the standard procedure with an accuracy of better than ± 10%. The spherical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

ES3DV3 Probe Specification

Construction	Symmetrical design with triangular core Interleaved sensors Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	Basic Broad Band Calibration in air Conversion Factors (CF) for HSL 900 and HSL 1810 Additional CF for other liquids and frequencies upon request
Frequency	10 MHz to 4 GHz; Linearity: ± 0.2 dB (30 MHz to 4 GHz)

Picture 3: ES3DV3 E-field

Directivity	± 0.2 dB in HSL (rotation around probe axis) ± 0.3 dB in tissue material (rotation normal to probe axis)
Dynamic Range	5 μW/g to > 100 mW/g; Linearity: ± 0.2 dB
Dimensions	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 3.9 mm (Body: 12 mm) Distance from probe tip to dipole centers: 2.0 mm
Application	General dosimetry up to 4 GHz Dosimetry in strong gradient fields Compliance tests of mobile phones



Picture4:ES3DV3 E-field probe

5.4 E-field Probe Calibration

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 measured free space E-field in the medium correlates to temperature rise in a dielectric medium. For temperature correlation calibration a RF transparent thermistor-based temperature probe is used in conjunction with the E-field probe.

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

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

Or

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

Where:
σ = Simulated tissue conductivity,

Picture 5: Device Holder

ρ = Tissue density (kg/m^3).

5.5 Other Test Equipment

5.5.1 Device Holder for Transmitters

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 repeatable positioned according to the FCC and CENELEC specifications. The device holder can be locked at different phantom locations (left head, right head, flat phantom).

5.5.2 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.

Shell Thickness	2±0. I mm
Filling Volume	Approx. 20 liters
Dimensions	810 x I000 x 500 mm (H x L x W)
Available	Special

Picture 6: Generic Twin Phantom

5.6 Equivalent Tissues

The liquid used for the frequency range of 800-2000 MHz consisted of water, sugar, salt, preventol, glycol monobutyl and Cellulose. The liquid has been previously proven to be suited for worst-case. The Table 1 and 2 shows the detail solution. It's satisfying the latest tissue dielectric parameters requirements proposed by the IEEE 1528.

Table 1. Composition of the Head Tissue Equivalent Matter

MIXTURE %	FREQUENCY 850MHz
Water	41.45
Sugar	56.0
Salt	1.45
Preventol	0.1
Cellulose	1.0
Dielectric Parameters Target Value	f=850MHz ε=41.5 σ=0.90
MIXTURE %	FREQUENCY 1900MHz
Water	55.242

Glycol monobutyl	**44.452**
Salt	**0.306**
Dielectric Parameters Target Value	**f=1900MHz ε=40.0 σ=1.40**
MIXTURE %	**FREQUENCY 2450MHz**
Water	**58.79**
Glycol monobutyl	**41.15**
Salt	**0.06**
Dielectric Parameters Target Value	**f=2450MHz ε=39.2 σ=1.80**

Table 2. Composition of the Body Tissue Equivalent Matter

MIXTURE %	**FREQUENCY 850MHz**
Water	**52.5**
Sugar	**45.0**
Salt	**1.4**
Preventol	**0.1**
Cellulose	**1.0**
Dielectric Parameters Target Value	**f=850MHz ε=55.2 σ=0.97**
MIXTURE %	**FREQUENCY 1900MHz**
Water	**69.91**
Glycol monobutyl	**29.96**
Salt	**0.13**
Dielectric Parameters Target Value	**f=1900MHz ε=53.3 σ=1.52**
MIXTURE %	**FREQUENCY 2450MHz**
Water	**72.60**
Glycol monobutyl	**27.22**
Salt	**0.18**
Dielectric Parameters Target Value	**f=2450MHz ε=52.7 σ=1.95**

5.7 System Specifications

Specifications

Positioner: Stäubli Unimation Corp. Robot Model: RX90L
Repeatability: ±0.02 mm
No. of Axis: 6

Data Acquisition Electronic (DAE) System

Cell Controller

Processor: Pentium III
Clock Speed: 800 MHz
Operating System: Windows 2000

Data Converter

Features: Signal Amplifier, multiplexer, A/D converter, and control logic
Software: DASY4 software
Connecting Lines: Optical downlink for data and status info.

Optical uplink for commands and clock

6 CONDUCTED OUTPUT POWER MEASUREMENT

6.1 Summary

During the process of testing, the EUT was controlled via Rhode & Schwarz Digital Radio Communication tester (CMU-200) to ensure the maximum power transmission and proper modulation. This result contains conducted output power for the EUT. In all cases, the measured output power should be greater and within 5% than EMI measurement.

6.2 Conducted Power

6.2.1 Measurement Methods

The EUT was set up for the maximum output power. The channel power was measured with Agilent Spectrum Analyzer E4440A. These measurements were done at low, middle and high channels.

6.2.2 Measurement result

Table 3: The conducted power for GSM 850/1900

GSM 850MHZ	**Conducted Power (dBm)**		
	Channel 251(848.8MHz)	**Channel 190(836.6MHz)**	**Channel 128(824.2MHz)**
	31.91	32.04	32.18
GSM 1900MHZ	**Conducted Power (dBm)**		
	Channel 810(1909.8MHz)	**Channel 661(1880MHz)**	**Channel 512(1850.2MHz)**
	29.19	29.06	28.85

Table 4: The conducted power for GPRS 850/1900 and EGPRS 850/1900

GSM 850	Measured Power (dBm)			calculation	Averaged Power (dBm)		
GPRS	**251**	**190**	**128**		**251**	**190**	**128**
1 Txslot	31.94	32.08	32.21	-9.03dB	22.91	23.05	23.18
2 Txslots	29.51	29.63	29.76	-6.02dB	23.49	23.61	23.74
3Txslots	27.97	28.09	28.20	-4.26dB	23.71	23.83	23.94
4 Txslots	26.92	27.08	27.21	-3.01dB	**23.91**	**24.07**	**24.20**
GSM 850	Measured Power (dBm)			calculation	Averaged Power (dBm)		
EGPRS	**251**	**190**	**128**		**251**	**190**	**128**
1 Txslot	31.87	32.00	32.13	-9.03dB	22.84	22.97	23.10
2 Txslots	29.43	29.56	29.68	-6.02dB	23.41	23.54	23.66
3Txslots	27.89	28.02	28.14	-4.26dB	23.63	23.76	23.88
4 Txslots	26.91	27.04	27.15	-3.01dB	**23.90**	**24.03**	**24.14**
PCS1900	Measured Power (dBm)			calculation	Averaged Power (dBm)		
GPRS	**810**	**661**	**512**		**810**	**661**	**512**

1 Txslot	29.24	29.22	29.10	-9.03dB	20.21	20.19	20.07
2 Txslots	27.73	27.71	27.59	-6.02dB	21.71	21.69	21.57
3Txslots	26.27	26.30	26.23	-4.26dB	22.01	22.04	21.97
4 Txslots	25.27	25.32	25.27	-3.01dB	**22.26**	**22.31**	**22.26**
PCS1900	Measured Power (dBm)			calculation	Averaged Power (dBm)		
EGPRS	**810**	**661**	**512**		**810**	**661**	**512**
1 Txslot	29.22	29.20	29.08	-9.03dB	20.19	20.17	20.05
2 Txslots	27.70	27.69	27.57	-6.02dB	21.68	21.67	21.55
3Txslots	26.24	26.28	26.20	-4.26dB	21.98	22.02	21.94
4 Txslots	25.25	25.30	25.25	-3.01dB	**22.24**	**22.29**	**22.24**

NOTES:

1) Division Factors

To average the power, the division factor is as follows:

1TX-slot = 1 transmit time slot out of 8 time slots=> conducted power divided by (8/1) => -9.03dB

2TX-slots = 2 transmit time slots out of 8 time slots=> conducted power divided by (8/2) => -6.02dB

3TX-slots = 3 transmit time slots out of 8 time slots=> conducted power divided by (8/3) => -4.26dB

4TX-slots = 4 transmit time slots out of 8 time slots=> conducted power divided by (8/4) => -3.01dB

According to the conducted power as above, the body measurements are performed with 4 Txslots for GPRS and EGPRS.

Table 5: The conducted Power for WCDMA850/1900

Item	**band**	**FDDV result**		
	ARFCN	**4233 (846.6MHz)**	**4182 (836.4MHz)**	**4132 (826.4MHz)**
WCDMA	\	21.95	21.64	21.96
HSDPA	**1**	21.50	21.32	21.56
	2	21.48	21.25	21.39
	3	20.90	20.78	20.99
	4	20.90	20.77	20.98
Item	**band**	**FDDII result**		
	ARFCN	**9538 (1907.6MHz)**	**9400 (1880MHz)**	**9262 (1852.4MHz)**
WCDMA	\	22.28	22.20	22.20
HSDPA	**1**	21.66	21.39	21.31
	2	21.54	21.31	21.42
	3	21.28	21.03	20.95
	4	21.25	21.00.	20.94

Note: Body SAR for HSDPA of WCDMA1900 is measured using an FRC with H-Set 1 in Sub-test 1 and a 12.2 kbps RMC configured in Test Loop Mode 1, using the highest body SAR configuration in 12.2 kbps TMC without HSDPA. Because the maximum SAR for WCDMA1900 is above 75% of the SAR limit (see table 17 for the SAR measurement results).

6.2.3 Power Drift

To control the output power stability during the SAR test, DASY4 system calculates the power drift by measuring the E-field at the same location at the beginning and at the end of the measurement for each test position. These drift values can be found in Table 10 to Table 19 labeled as: (Power Drift [dB]). This ensures that the power drift during one measurement is within 5%.

7 TEST RESULTS

7.1 Dielectric Performance

Table 6: Dielectric Performance of Head Tissue Simulating Liquid

Measurement is made at temperature 23.0 °C and relative humidity 38%. Liquid temperature during the test: 22.5°C Measurement Date : 850 MHz **May 12, 2011** 1900 MHz **May 13, 2011** 2450 MHz **May 14, 2011**			
/	**Frequency**	**Permittivity ε**	**Conductivity σ (S/m)**
Target value	835 MHz	41.5	0.90
	1900 MHz	40.0	1.40
	2450 MHz	39.2	1.80
Measurement value (Average of 10 tests)	835 MHz	41.7	0.91
	1900 MHz	40.4	1.41
	2450 MHz	39.5	1.82

Table 7: Dielectric Performance of Body Tissue Simulating Liquid

Measurement is made at temperature 23.0 °C and relative humidity 38%. Liquid temperature during the test: 22.5°C Measurement Date : 850 MHz **May 12, 2011** 1900 MHz **May 13, 2011** 2450 MHz **May 14, 2011**			
/	**Frequency**	**Permittivity ε**	**Conductivity σ (S/m)**
Target value	835 MHz	55.2	0.97
	1900 MHz	53.3	1.52
	2450 MHz	52.7	1.95
Measurement value (Average of 10 tests)	835 MHz	54.8	0.95
	1900 MHz	52.9	1.53
	2450 MHz	52.5	1.97

7.2 System Validation

Table 8: System Validation of Head

Measurement is made at temperature 23.0 °C and relative humidity 38%. Liquid temperature during the test: 22.5°C Measurement Date : 850 MHz **May 12, 2011** 1900 MHz **May 13, 2011** 2450 MHz **May 14, 2011**				
Liquid parameters	Dipole calibration Target value	**Frequency**	**Permittivity ε**	**Conductivity σ (S/m)**
		835 MHz	41.6	0.92
		1900 MHz	39.6	1.40
		2450 MHz	39.0	1.74

	Actural Measurement value	835 MHz		41.9		0.90	
		1900 MHz		40.4		1.41	
		2450 MHz		39.5		1.82	
Verification results	**Frequency**	**Target value (W/kg)**		**Measured value (W/kg)**		**Deviation**	
		10 g Average	**1 g Average**	**10 g Average**	**1 g Average**	**10 g Average**	**1 g Average**
	835 MHz	6.12	9.41	5.96	9.28	-2.61%	-1.38%
	1900 MHz	20.1	39.4	19.92	38.56	-0.90%	-2.13%
	2450 MHz	24.6	52.4	23.8	51.6	-3.25%	-1.53%

Note：Target values are the data of the dipole validation results, please check Annex F for the Dipole Calibration Certificate.

Table 9: System Validation of Body

Measurement is made at temperature 23.0 °C and relative humidity 38%. Liquid temperature during the test: 22.5°C Measurement Date : 850 MHz **May 12, 2011** 1900 MHz **May 13, 2011** 2450 MHz **May 14, 2011**							
Liquid parameters	Dipole calibration Target value	**Frequency**		**Permittivity ε**		**Conductivity σ (S/m)**	
		835 MHz		54.5		0.97	
		1900 MHz		52.5		1.51	
		2450 MHz		52.5		1.95	
	Actural Measurement value	835 MHz		55.0		0.94	
		1900 MHz		52.9		1.53	
		2450 MHz		52.5		1.97	
Verification results	**Frequency**	**Target value (W/kg)**		**Measured value (W/kg)**		**Deviation**	
		10 g Average	**1 g Average**	**10 g Average**	**1 g Average**	**10 g Average**	**1 g Average**
	835 MHz	6.24	9.57	6.16	9.64	-1.28%	0.73%
	1900 MHz	20.9	41.4	20.64	41.2	-1.24%	-0.48%
	2450 MHz	23.9	51.6	23.72	51.6	-0.75%	0.00%

Note：Target values are the data of the dipole validation results, please check Annex F for the Dipole Calibration Certificate.

7.3 Summary of Measurement Results

Table 10: SAR Values (GSM 850MHz-Head)

Limit of SAR (W/kg)	10 g Average	1 g Average	Power Drift (dB)
	2.0	1.6	
Test Case	Measurement Result (W/kg)		
	10 g Average	1 g Average	
Left hand, Touch cheek, High frequency (See Fig.1)	0.495	0.671	-0.105
Left hand, Touch cheek, Middle frequency (See Fig.2)	0.538	0.724	-0.173
Left hand, Touch cheek, Low frequency (See Fig.3)	0.566	0.759	-0.162
Left hand, Tilt 15 Degree, High frequency (See Fig.4)	0.303	0.398	0.059
Left hand, Tilt 15 Degree, Middle frequency (See Fig.5)	0.324	0.422	-0.054
Left hand, Tilt 15 Degree, Low frequency (See Fig.6)	0.326	0.424	-0.018
Right hand, Touch cheek, High frequency (See Fig.7)	0.520	0.695	-0.142
Right hand, Touch cheek, Middle frequency (See Fig.8)	0.572	0.761	-0.051
Right hand, Touch cheek, Low frequency (See Fig.9)	0.572	0.760	-0.013
Right hand, Tilt 15 Degree, High frequency (See Fig.10)	0.281	0.371	-0.044
Right hand, Tilt 15 Degree, Middle frequency (See Fig.11)	0.308	0.404	0.023
Right hand, Tilt 15 Degree, Low frequency (See Fig.12)	0.302	0.393	0.062

Table 11: SAR Values (PCS 1900MHz-Head)

Limit of SAR (W/kg)	10 g Average	1 g Average	Power Drift (dB)
	2.0	1.6	
Test Case	Measurement Result (W/kg)		
	10 g Average	1 g Average	
Left hand, Touch cheek, High frequency (See Fig.13)	0.183	0.319	-0.132
Left hand, Touch cheek, Middle frequency (See Fig.14)	0.187	0.327	0.087
Left hand, Touch cheek, Low frequency (See Fig.15)	0.216	0.373	0.140
Left hand, Tilt 15 Degree, High frequency (See Fig.16)	0.080	0.130	0.095
Left hand, Tilt 15 Degree, Middle frequency (See Fig.17)	0.088	0.141	0.058
Left hand, Tilt 15 Degree, Low frequency (See Fig.18)	0.096	0.151	-0.043
Right hand, Touch cheek, High frequency (See Fig.19)	0.219	0.374	-0.110
Right hand, Touch cheek, Middle frequency (See Fig.20)	0.234	0.394	0.053

Right hand, Touch cheek, Low frequency (See Fig.21)	0.251	0.422	0.004
Right hand, Tilt 15 Degree, High frequency (See Fig.22)	0.091	0.153	-0.001
Right hand, Tilt 15 Degree, Middle frequency (See Fig.23)	0.097	0.159	0.039
Right hand, Tilt 15 Degree, Low frequency(See Fig.24)	0.107	0.176	0.055

Table 12: SAR Values (WCDMA 850MHz-Head)

Limit of SAR (W/kg)	**10 g Average**	**1 g Average**	**Power Drift (dB)**
	2.0	1.6	
Test Case	**Measurement Result (W/kg)**		
	10 g Average	**1 g Average**	
Left hand, Touch cheek, High frequency (See Fig.25)	0.632	0.853	-0.084
Left hand, Touch cheek, Middle frequency (See Fig.26)	0.518	0.698	0.020
Left hand, Touch cheek, Low frequency (See Fig.27)	0.515	0.695	0.052
Left hand, Tilt 15 Degree, High frequency (See Fig.28)	0.356	0.476	-0.119
Left hand, Tilt 15 Degree, Middle frequency (See Fig.29)	0.300	0.400	-0.087
Left hand, Tilt 15 Degree, Low frequency (See Fig.30)	0.271	0.355	-0.112
Right hand, Touch cheek, High frequency (See Fig.31)	0.668	0.903	-0.152
Right hand, Touch cheek, Middle frequency (See Fig.32)	0.530	0.713	0.062
Right hand, Touch cheek, Low frequency (See Fig.33)	0.508	0.683	0.088
Right hand, Tilt 15 Degree, High frequency (See Fig.34)	0.352	0.466	-0.180
Right hand, Tilt 15 Degree, Middle frequency (See Fig.35)	0.270	0.354	0.038
Right hand, Tilt 15 Degree, Low frequency(See Fig.36)	0.272	0.355	0.039

Table 13: SAR Values (WCDMA 1900MHz-Head)

Limit of SAR (W/kg)	**10 g Average**	**1 g Average**	**Power Drift (dB)**
	2.0	1.6	
Test Case	**Measurement Result (W/kg)**		
	10 g Average	**1 g Average**	
Left hand, Touch cheek, High frequency (See Fig.37)	0.339	0.576	-0.122
Left hand, Touch cheek, Middle frequency (See Fig.38)	0.415	0.703	0.115
Left hand, Touch cheek, Low frequency (See Fig.39)	0.328	0.549	0.115
Left hand, Tilt 15 Degree, High frequency (See Fig.40)	0.188	0.302	0.028
Left hand, Tilt 15 Degree, Middle frequency (See Fig.41)	0.227	0.360	-0.004
Left hand, Tilt 15 Degree, Low frequency (See Fig.42)	0.177	0.278	0.073
Right hand, Touch cheek, High frequency (See Fig.43)	0.429	0.721	-0.113
Right hand, Touch cheek, Middle frequency (See Fig.44)	0.495	0.829	-0.071
Right hand, Touch cheek, Low frequency (See Fig.45)	0.432	0.717	0.056

Right hand, Tilt 15 Degree, High frequency (See Fig.46)	0.163	0.269	0.046
Right hand, Tilt 15 Degree, Middle frequency (See Fig.47)	0.196	0.320	0.085
Right hand, Tilt 15 Degree, Low frequency(See Fig.48)	0.162	0.262	-0.061

Table 14: SAR Values (GSM 850MHz-Body)

Limit of SAR (W/kg)	**10 g Average**	**1g Average**	**Power Drift (dB)**
	2.0	1.6	
Test Case	**Measurement Result (W/kg)**		
	10 g Average	**1 g Average**	
Towards Phantom, High frequency with GPRS (See Fig.49)	0.744	1	-0.067
Towards Phantom, Middle frequency with GPRS (See Fig.50)	0.769	1.07	-0.151
Towards Phantom, Low frequency with GPRS (See Fig.51)	0.870	1.22	-0.076
Towards Ground, High frequency with GPRS (See Fig.52)	0.831	1.17	0.016
Towards Ground, Middle frequency with GPRS (See Fig.53)	0.879	1.25	0.023
Towards Ground, Low frequency with GPRS (See Fig.54)	0.935	1.29	-0.178
Left Side, High frequency with GPRS (See Fig.55)	0.593	0.869	0.021
Left Side, Middle frequency with GPRS (See Fig.56)	0.617	0.907	0.016
Left Side, Low frequency with GPRS (See Fig.57)	0.618	0.908	-0.046
Right Side, High frequency with GPRS (See Fig.58)	0.553	0.936	-0.077
Right Side, Middle frequency with GPRS (See Fig.59)	0.613	0.888	-0.003
Right Side, Low frequency with GPRS (See Fig.60)	0.636	0.944	-0.113
Bottom Side, Low frequency with GPRS (See Fig.61)	0.051	0.086	0.005
Towards Ground, Low frequency with EGPRS (See Fig.62)	0.887	1.27	-0.107
Towards Ground, Low frequency with Headset_CCB3160A10C0 (See Fig.63)	0.453	0.682	-0.126
Towards Ground, Low frequency with Headset_CCB3160A10C2 (See Fig.64)	0.573	0.789	-0.0012

Table 15: SAR Values (PCS 1900MHz-Body)

Limit of SAR (W/kg)	**10 g Average**	**1g Average**	**Power Drift (dB)**
	2.0	1.6	
Test Case	**Measurement Result (W/kg)**		
	10 g Average	**1 g Average**	
Towards Phantom, Middle frequency with GPRS (See Fig.65)	0.408	0.707	-0.056
Towards Ground, Middle frequency with GPRS (See Fig.66)	0.441	0.753	-0.162

Left Side, Middle frequency with GPRS (See Fig.67)	0.081	0.137	-0.166
Right Side, Middle frequency with GPRS (See Fig.68)	0.147	0.246	-0.029
Bottom Side, High frequency with GPRS (See Fig.69)	0.521	0.983	-0.183
Bottom Side, Middle frequency with GPRS (See Fig.70)	0.538	1.02	-0.107
Bottom Side, Low frequency with GPRS (See Fig.71)	0.464	0.883	-0.117
Bottom Side, Middle frequency with EGPRS (See Fig.72)	0.411	0.793	-0.160
Bottom Side, Middle frequency with Headset_CCB3160A10C0 (See Fig.73)	0.310	0.587	-0.121
Bottom Side, Middle frequency with Headset_CCB3160A10C2 (See Fig.74)	0.328	0.623	-0.153

Table 16: SAR Values (WCDMA 850MHz-Body)

Limit of SAR (W/kg)	**10 g Average**	**1g Average**	**Power Drift (dB)**
	2.0	1.6	
Test Case	**Measurement Result (W/kg)**		
	10 g Average	**1 g Average**	
Towards Phantom, High frequency (See Fig.75)	0.659	0.887	-0.121
Towards Phantom, Middle frequency (See Fig.76)	0.632	0.854	0.049
Towards Phantom, Low frequency (See Fig.77)	0.595	0.799	-0.011
Towards Ground, High frequency (See Fig.78)	0.773	1.07	-0.012
Towards Ground, Middle frequency (See Fig.79)	0.745	1.03	0.062
Towards Ground, Low frequency (See Fig.80)	0.713	0.988	0.064
Left Side, Low frequency (See Fig.81)	0.489	0.722	-0.033
Right Side, Low frequency (See Fig.82)	0.507	0.731	-0.165
Bottom Side, Low frequency (See Fig.83)	0.052	0.091	0.025
Towards Ground,High frequency with Headset_CCB3160A10C0 (See Fig.84)	0.511	0.712	0.071
Towards Ground,High frequency with Headset_CCB3160A10C2 (See Fig.85)	0.53	0.756	-0.061

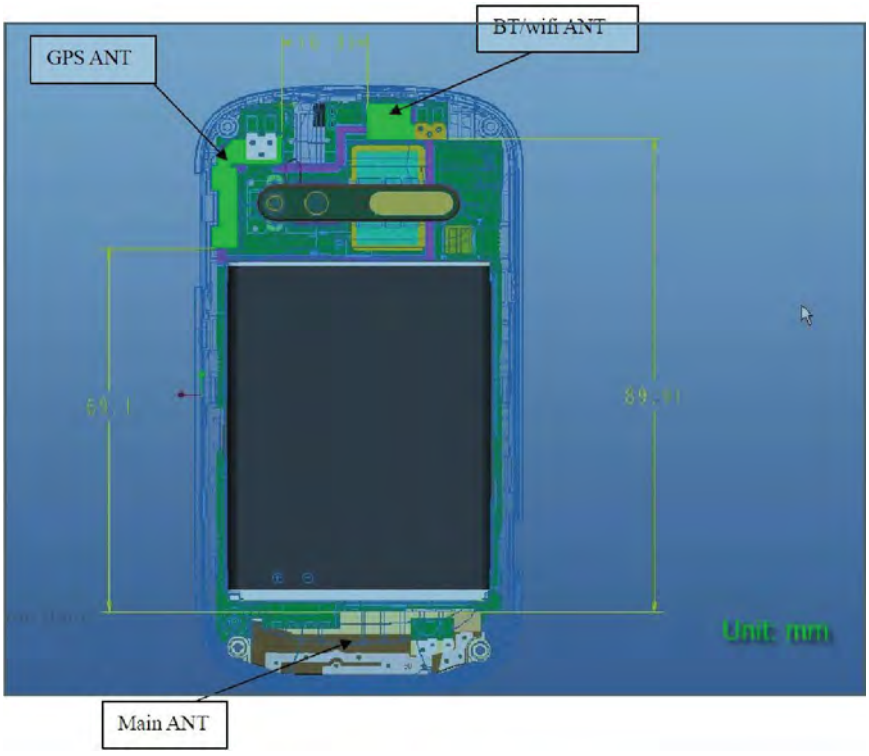
Table 17: SAR Values (WCDMA 1900MHz-Body)

Limit of SAR (W/kg)	**10 g Average**	**1g Average**	**Power Drift (dB)**
	2.0	1.6	
Test Case	**Measurement Result (W/kg)**		
	10 g Average	**1 g Average**	
Towards Phantom, High frequency (See Fig.86)	0.410	0.698	-0.146

Towards Ground, High frequency (See Fig.87)	0.431	0.731	-0.025
Left Side, High frequency (See Fig.88)	0.080	0.134	0.075
Right Side, High frequency (See Fig.89)	0.158	0.268	0.046
Bottom Side, High frequency (See Fig.90)	0.589	1.13	0.168
Bottom Side, Middle frequency (See Fig.91)	0.690	1.31	0.026
Bottom Side, Low frequency (See Fig.92)	0.580	1.1	0.100
Bottom Side, Middle frequency with Headset_CCB3160A10C0 (See Fig.93)	0.488	0.907	-0.124
Bottom Side, Middle frequency with Headset_CCB3160A10C2 (See Fig.94)	0.626	1.17	-0.175
Bottom Side, Middle frequency with HSDPA (See Fig.95)	0.591	1.11	0.103

7.4 Summary of Measurement Results (Bluetooth and WiFi function)

The distance between BT antenna and RF antenna is ＞5cm. The location of the antennas inside mobile phone is shown below:



The output power of BT antenna is as following:

Channel	Ch 0 (2402 MHz)	Ch 39 (2441 MHz)	Ch 78 (2480 MHz)
Peak Conducted Output Power(dBm)	0.18	1.08	2.20

According to the output power measurement result and the distance between the two antennas, we can draw the conclusion that: stand-alone SAR and simultaneous transmission SAR are not required for BT transmitter, because the output power of BT transmitter is ≤$2P_{Ref}$ and its antenna is ＞5cm from other antenna

Note: Power thresholds (P_{Ref}) is derived from multiples of $0.5 \times 60/f_{(GHz)}$, that is 12mW (10.79dBm) for BT frequency.

The average conducted power for WiFi is as following:

802.11b（dBm）

Channel\data rate	1Mbps	2Mbps	5.5Mbps	11Mbps
1	16.89	16.78	16.39	16.03
6	16.82	16.63	16.30	15.98
11	16.96	16.87	16.79	16.22

802.11g（dBm）

Channel\data rate	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
1	13.93	13.45	13.21	12.66	12.38	11.60	11.25	11.10
6	13.90	13.63	13.30	13.77	12.50	12.02	11.45	11.26
11	13.98	13.74	13.37	12.89	12.62	12.10	11.53	11.35

802.11n（dBm）

Channel\data rate	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
1	14.35	13.96	13.40	12.95	12.55	11.99	11.69	11.65
6	14.76	14.18	13.82	13.39	12.78	12.50	11.98	12.82
11	14.83	14.28	13.91	13.41	12.75	12.20	11.98	11.90

The peak conducted power for WiFi is as following:

802.11b（dBm）

Channel\data rate	1Mbps	2Mbps	5.5Mbps	11Mbps
1	20.13	20.56	21.71	23.22
6	/	/	/	23.38
11	/	/	/	23.20

802.11g（dBm）

Channel\data rate	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
1	22.97	22.95	22.64	22.54	23.11	22.97	23.06	23.15
6	/	/	/	/	/	/	/	23.10
11	/	/	/	/	/	/	/	23.38

802.11n（dBm）

Channel\data rate	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
1	23.66	23.37	23.39	23.45	23.59	23.61	23.65	23.83
6	/	/	/	/	/	/	/	23.88

11	/	/	/	/	/	/	/	24.01

According to the conducted power measurement result, we can draw the conclusion that: stand-alone SAR for WiFi should be performed. Then, simultaneous transmission SAR for WiFi is considered with measurement results of GSM/WCDMA and WiFi.
SAR is not required for 802.11g/n channels if the output power is less than 0.25dB higher than that measured on the corresponding 802.11b channels, and for each frequency band, testing at higher data rates and higher order modulations is not required when the maximum average output power for each of these configurations is less than 0.25dB higher than those measured at the lowest data rate. According to the above conducted power, the EUT should be tested for “802.11b, 1Mbps, channel 11”.

Table 18: SAR Values (WIFI 802.b -Head)

Limit of SAR (W/kg)	**10 g Average**	**1 g Average**	**Power Drift (dB)**
	2.0	1.6	
Test Case	**Measurement Result (W/kg)**		
	10 g Average	**1 g Average**	
Left hand, Touch cheek, 1Mbps,channel 11 (See Fig.96)	0.144	0.312	-0.135
Left hand, Tilt 15 Degree, 1Mbps,channel 11 (See Fig.97)	0.116	0.245	-0.039
Right hand, Touch cheek, 1Mbps,channel 11 (See Fig.98)	0.268	0.559	0.050
Right hand, Tilt 15 Degree, 1Mbps,channel 11 (See Fig.99)	0.178	0.377	0.151

Table 19: SAR Values (WIFI 802.b -Body)

Limit of SAR (W/kg)	**10 g Average**	**1 g Average**	**Power Drift (dB)**
	2.0	1.6	
Test Case	**Measurement Result (W/kg)**		
	10 g Average	**1 g Average**	
Toward Phantom, 1Mbps,channel 11 (See Fig.100)	0.079	0.140	0.114
Toward Ground, 1Mbps,channel 11 (See Fig.101)	0.162	0.304	0.128
Left Side, 1Mbps,channel 11 (See Fig.102)	0.080	0.141	-0.079
Right Side, 1Mbps,channel 11 (See Fig.103)	0.035	0.064	0.197
Top Side, 1Mbps,channel 11 (See Fig.104)	0.083	0.162	0.013

Table 20: The sum of SAR values for GSM/WCDMA and WiFi

	Position	**GSM/WCDMA**	**WiFi**	**Sum**
Maximum SAR value for Head	Right hand, Touch cheek	0.903	0.559	**1.462**
Maximum SAR value for Body	Toward Ground	1.29	0.304	**1.594**
	Bottom Side	1.31	/	**/**

According to the above tables, the sum of SAR values for GSM/WCDMA and WiFi ＜1.6W/kg. So simultaneous transmission SAR are not required for WiFi transmitter.

7.5 Conclusion

Localized Specific Absorption Rate (SAR) of this portable wireless device has been measured in

all cases requested by the relevant standards cited in Clause 4.2 of this report. Maximum localized SAR is below exposure limits specified in the relevant standards cited in Clause 4.1 of this test report.

The maximum SAR values are obtained at the case of **WCDMA 1900 MHz Band, Body** Bottom Side, Middle frequency **(Table 17)**, and the value are: **1.31(1g).**

8 Measurement Uncertainty

No.	Error Description	Type	Uncertainty value	Probably Distribution	Div.	(Ci) 1g	(Ci) 10g	Std. Unc. (1g)	Std. Unc. (10g)	Degree of freedom
Measurement system										
1	Probe calibration	B	5.5	N	1	1	1	5.5	5.5	∞
2	Isotropy	B	4.7	R	$\sqrt{3}$	0.7	0.7	1.9	1.9	∞
3	Boundary effect	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
4	Linearity	B	4.7	R	$\sqrt{3}$	1	1	2.7	2.7	∞
5	Detection limit	B	1.0	N	1	1	1	0.6	0.6	∞
6	Readout electronics	B	0.3	R	$\sqrt{3}$	1	1	0.3	0.3	∞
7	Response time	B	0.8	R	$\sqrt{3}$	1	1	0.5	0.5	∞
8	Integration time	B	2.6	R	$\sqrt{3}$	1	1	1.5	1.5	∞
9	RF ambient conditions-noise	B	0	R	$\sqrt{3}$	1	1	0	0	∞
10	RF ambient conditions-reflection	B	0	R	$\sqrt{3}$	1	1	0	0	∞
11	Probe positioned mech. restrictions	B	0.4	R	$\sqrt{3}$	1	1	0.2	0.2	∞
12	Probe positioning with respect to phantom shell	B	2.9	R	$\sqrt{3}$	1	1	1.7	1.7	∞
13	Post-processing	B	1.0	R	$\sqrt{3}$	1	1	0.6	0.6	∞
Test sample related										
14	Test sample positioning	A	3.3	N	1	1	1	3.3	3.3	71
15	Device holder uncertainty	A	3.4	N	1	1	1	3.4	3.4	5
16	Drift of output power	B	5.0	R	$\sqrt{3}$	1	1	2.9	2.9	∞
Phantom and set-up										
17	Phantom uncertainty	B	4.0	R	$\sqrt{3}$	1	1	2.3	2.3	∞
18	Liquid conductivity (target)	B	5.0	R	$\sqrt{3}$	0.64	0.43	1.8	1.2	∞
19	Liquid conductivity (meas.)	A	2.06	N	1	0.64	0.43	1.32	0.89	43
20	Liquid permittivity	B	5.0	R	$\sqrt{3}$	0.6	0.49	1.7	1.4	∞

	(target)									
21	Liquid permittivity (meas.)	A	1.6	N	1	0.6	0.49	1.0	0.8	521
Combined standard uncertainty		$u_c' = \sqrt{\sum_{i=1}^{21} c_i^2 u_i^2}$						9.25	9.12	257
Expanded uncertainty (confidence interval of 95 %)		$u_e = 2u_c$						18.5	18.2	

9 MAIN TEST INSTRUMENTS

Table 18: List of Main Instruments

No.	Name	Type	Serial Number	Calibration Date	Valid Period
01	Network analyzer	HP 8753E	US38433212	August 4,2010	One year
02	Power meter	NRVD	102083	September 11, 2010	One year
03	Power sensor	NRV-Z5	100542		
04	Signal Generator	E4433C	MY49070393	November 13, 2010	One Year
05	Amplifier	VTL5400	0505	No Calibration Requested	
06	BTS	8960	MY48365192	November 18, 2010	One year
07	E-field Probe	SPEAG ES3DV3	3149	September 25, 2010	One year
08	E-field Probe	SPEAG EX3DV4	3617	July 9, 2010	One year
09	DAE	SPEAG DAE4	771	November 21, 2010	One year
10	Dipole Validation Kit	SPEAG D835V2	443	February 26, 2010	Two years
11	Dipole Validation Kit	SPEAG D1900V2	541	February 26, 2010	Two years
12	Dipole Validation Kit	SPEAG D2450V2	853	September 27, 2010	Two years

END OF REPORT BODY

ANNEX A MEASUREMENT PROCESS

The evaluation was performed with the following procedure:

Step 1: Measurement of the SAR value at a fixed location above the reference point was measured and was used as a reference value for assessing the power drop.

Step 2: The SAR distribution at the exposed side of the phantom was measured at a distance of 3.9 mm from the inner surface of the shell. The area covered the entire dimension of the flat phantom and the horizontal grid spacing was 10 mm x 10 mm. Based on this data, the area of the maximum absorption was determined by spline interpolation.

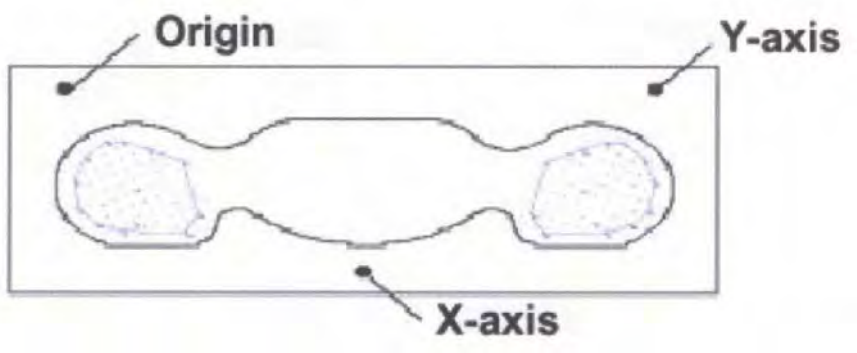
Step 3: Around this point, a volume of 30 mm x 30 mm x 30 mm was assessed by measuring 7 x 7x 7 points. On this basis of this data set, the spatial peak SAR value was evaluated with the following procedure:

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

b. The maximum interpolated value was searched with a 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.

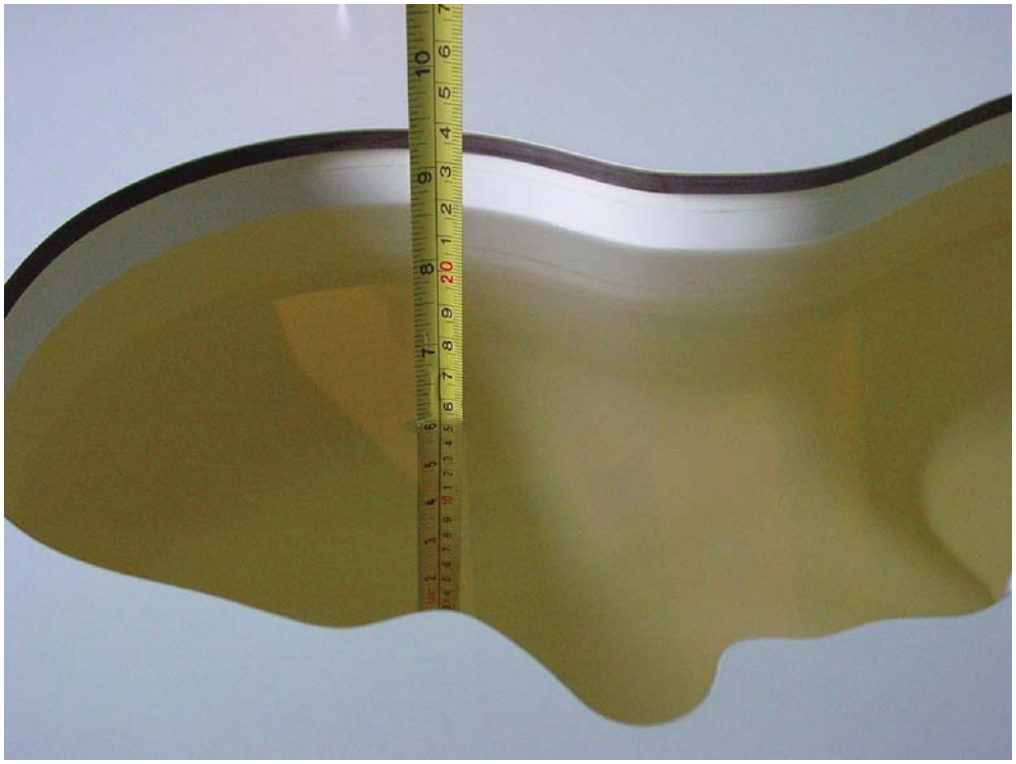
Step 4: Re-measurement the SAR value at the same location as in Step 1. If the value changed by more than 5%, the evaluation is repeated.



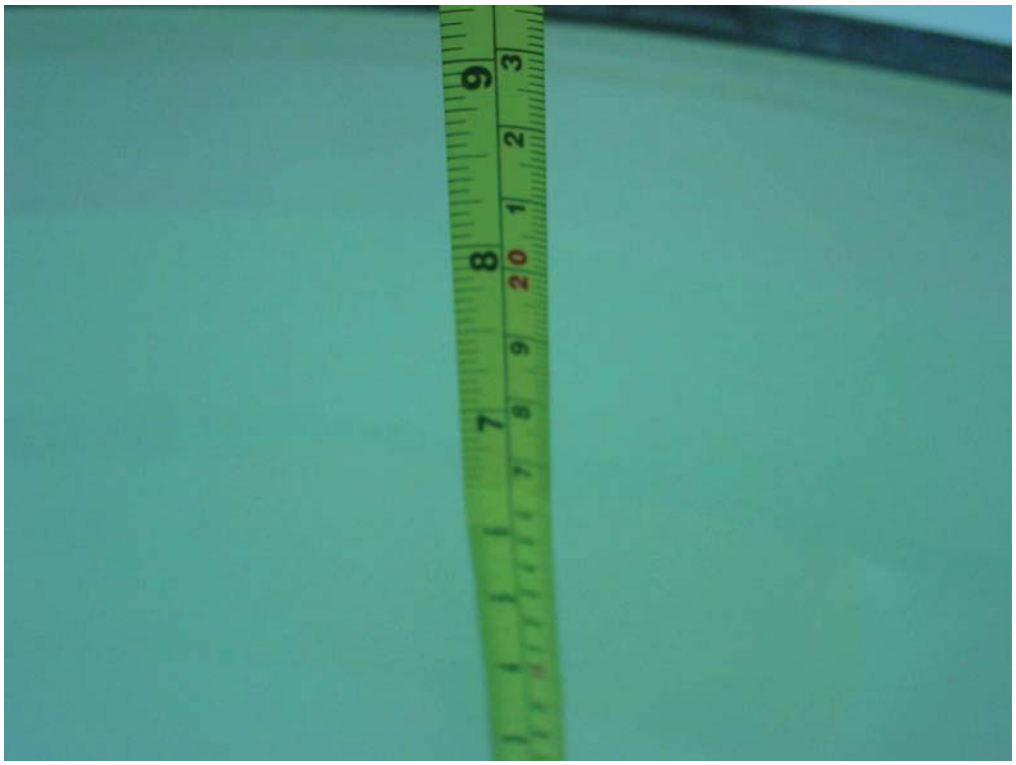
Picture A: SAR Measurement Points in Area Scan

ANNEX B TEST LAYOUT

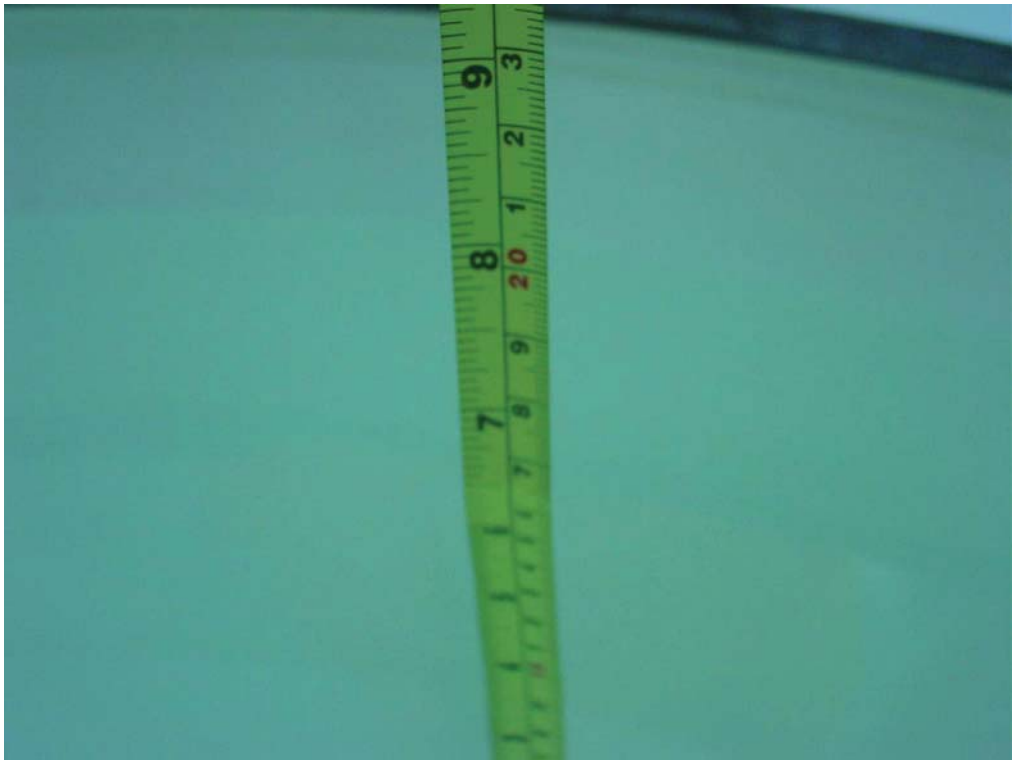
Picture B1: Specific Absorption Rate Test Layout



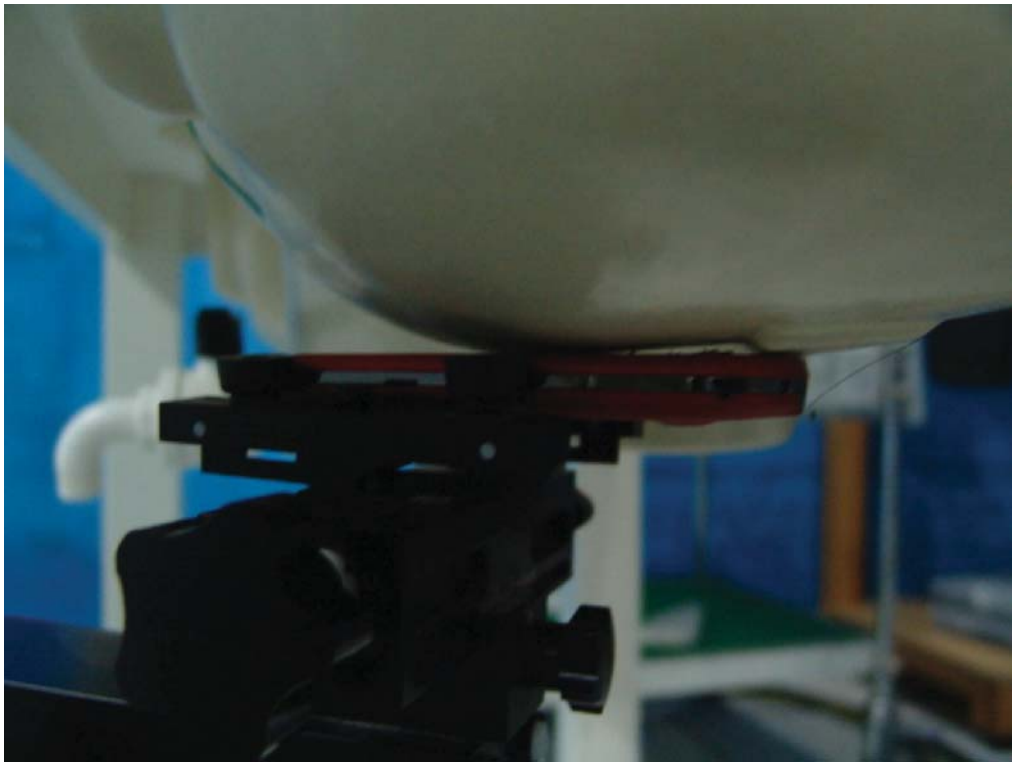
Picture B2: Liquid depth in the Head Phantom (850 MHz)



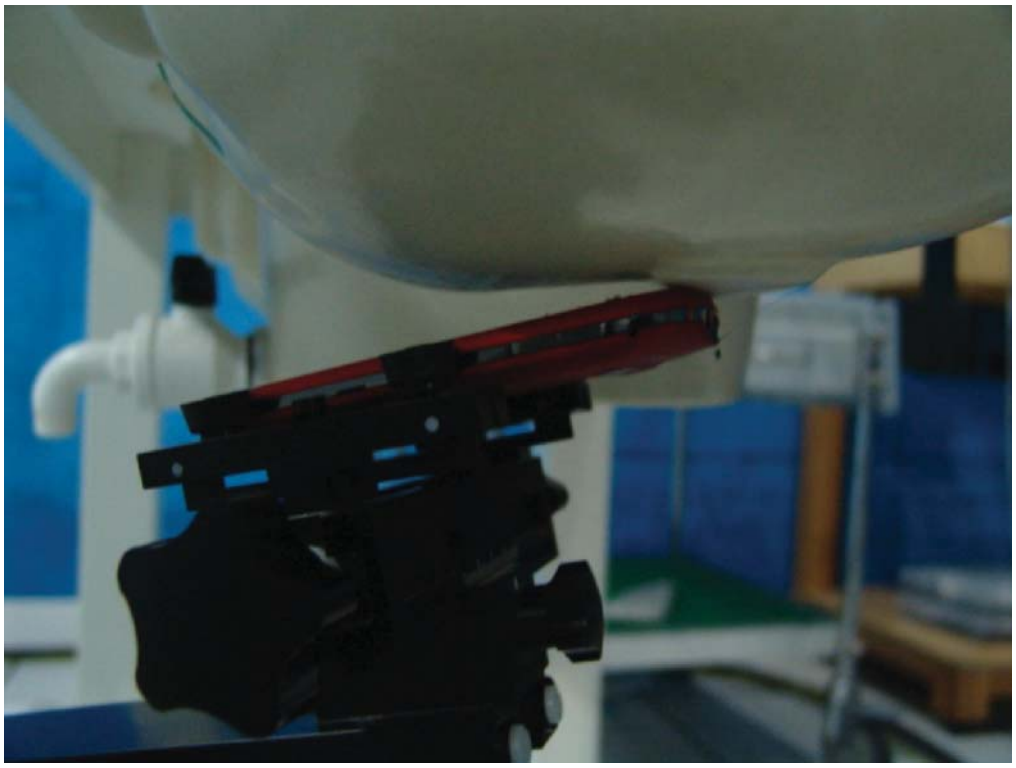
Picture B3 Liquid depth in the Flat Phantom (1900MHz)



Picture B4 Liquid depth in the Flat Phantom (2450MHz)

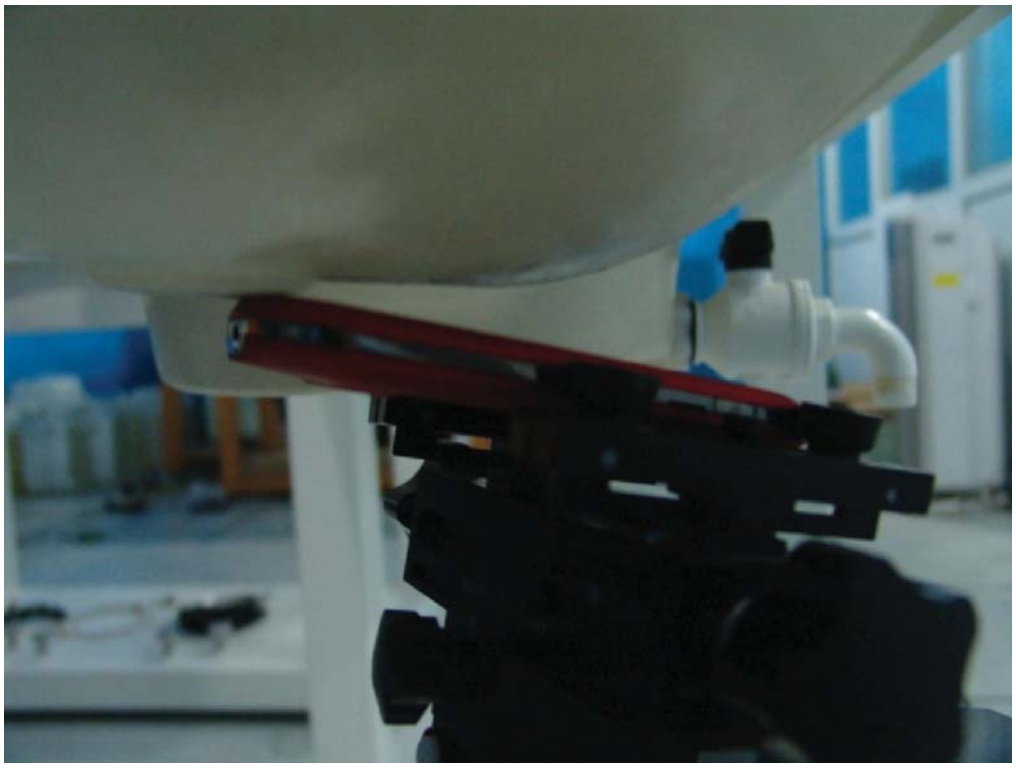


Picture B5: Left Hand Touch Cheek Position



Picture B6: Left Hand Tilt 15° Position

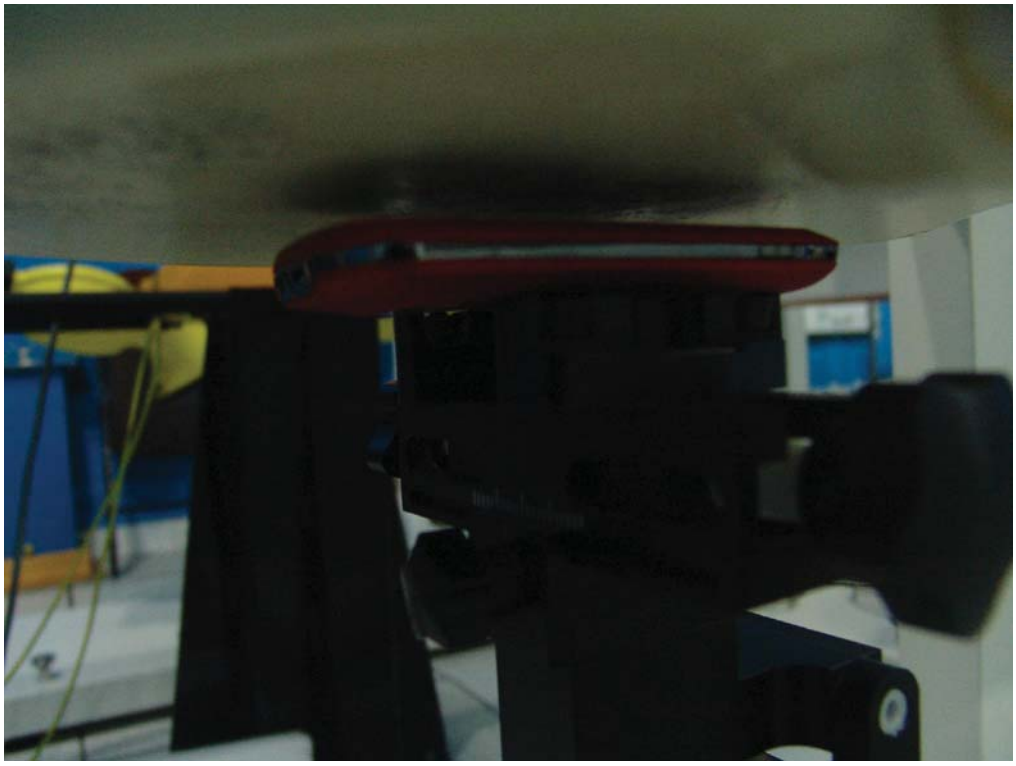
Picture B7: Right Hand Touch Cheek Position



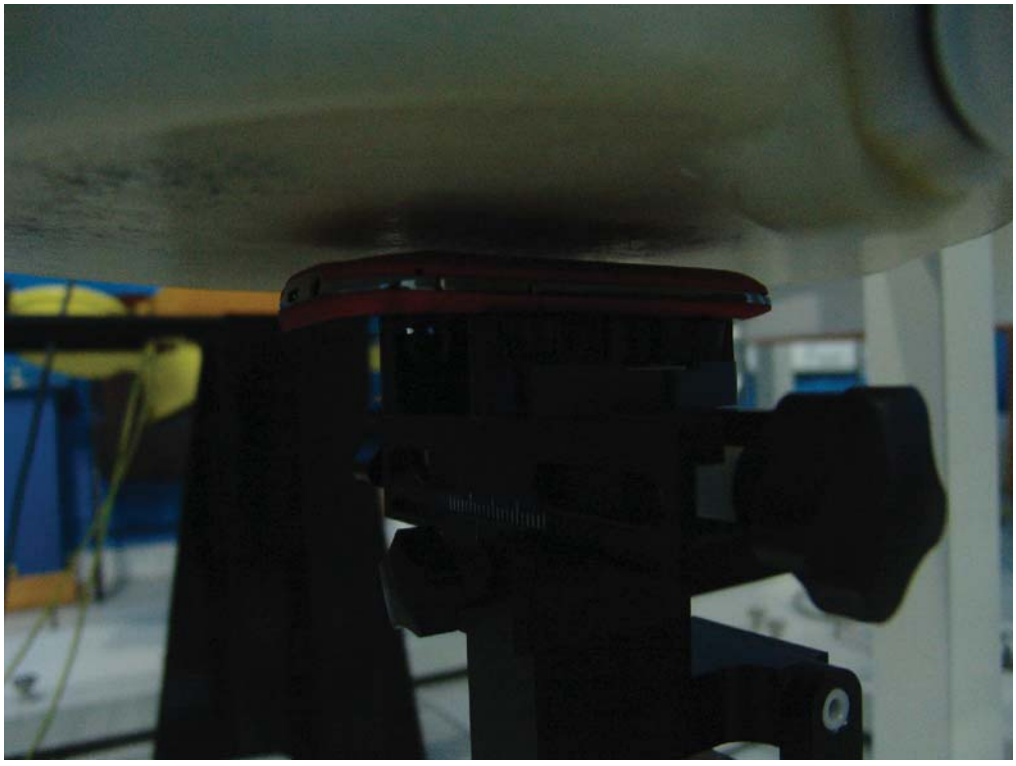
Picture B8: Right Hand Tilt 15° Position

Test positions for body:

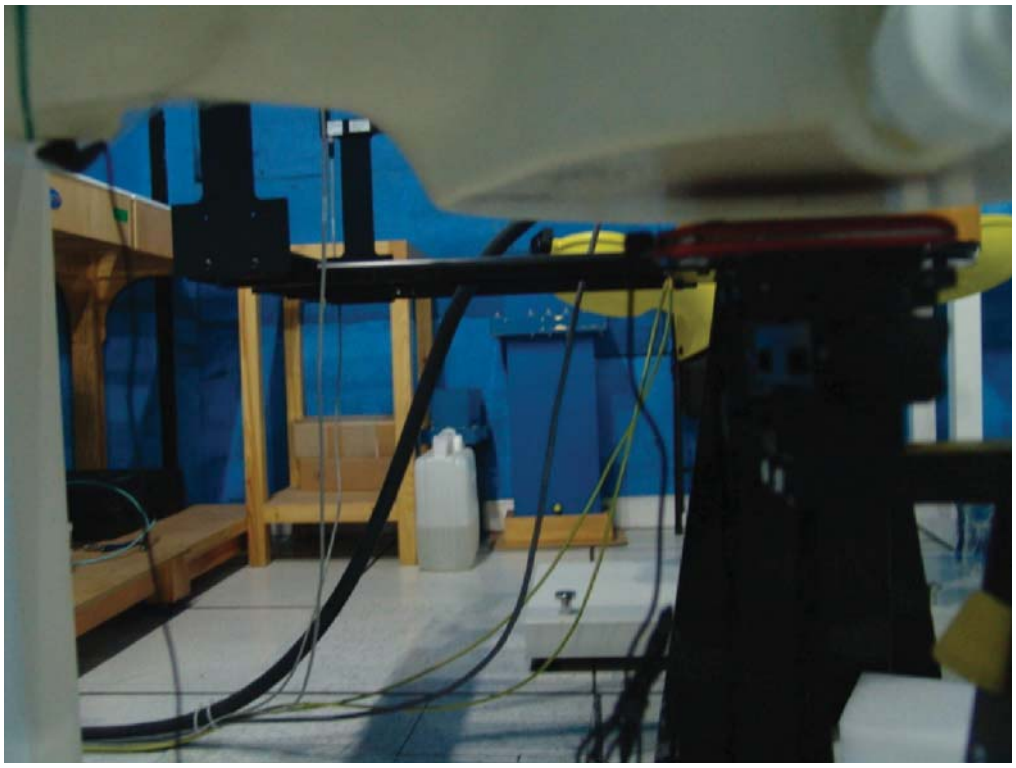
The Body SAR is tested at the following 6 test positions all with the distance =10mm between the EUT and the phantom bottom :



Picture B9: Forward Surface



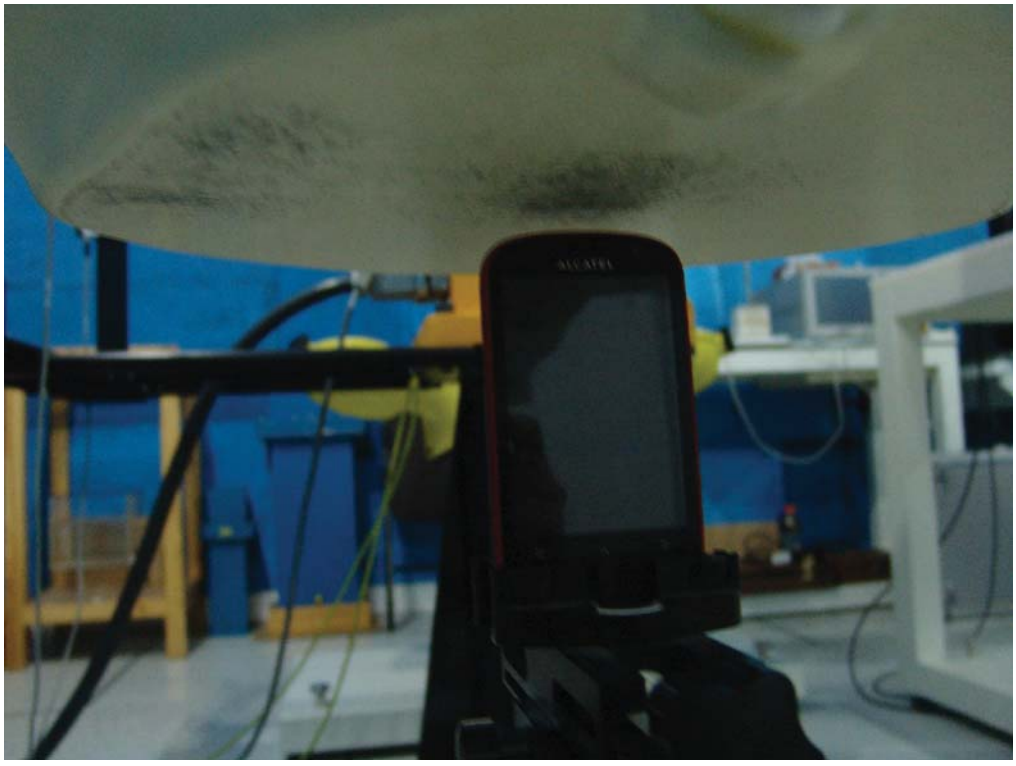
Picture B10: Back Surface



Picture B10-1: Back Surface with Headset

Picture B11: Left Side

Picture B12: Right Side



Picture B13: Top Side

Picture B14: Bottom Side

Picture B14-1: Bottom Side with Headset

ANNEX C GRAPH RESULTS

850 Left Cheek High

Date/Time: 2011-5-12 8:09:41
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 848.8 MHz; σ = 0.90 mho/m; εr = 41.8; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 Frequency: 848.8 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

Cheek High/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.692 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.43 V/m; Power Drift = -0.105 dB
Peak SAR (extrapolated) = 0.855 W/kg
SAR(1 g) = 0.671 mW/g; SAR(10 g) = 0.495 mW/g
Maximum value of SAR (measured) = 0.711 mW/g

Fig. 1 850MHz CH251

850 Left Cheek Middle

Date/Time: 2011-5-12 8:23:58
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.90 mho/m; εr = 41.9; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 Frequency: 836.6 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

Cheek Middle/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.770 mW/g

Cheek Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.31 V/m; Power Drift = -0.173 dB
Peak SAR (extrapolated) = 0.923 W/kg
SAR(1 g) = 0.724 mW/g; SAR(10 g) = 0.538 mW/g
Maximum value of SAR (measured) = 0.755 mW/g

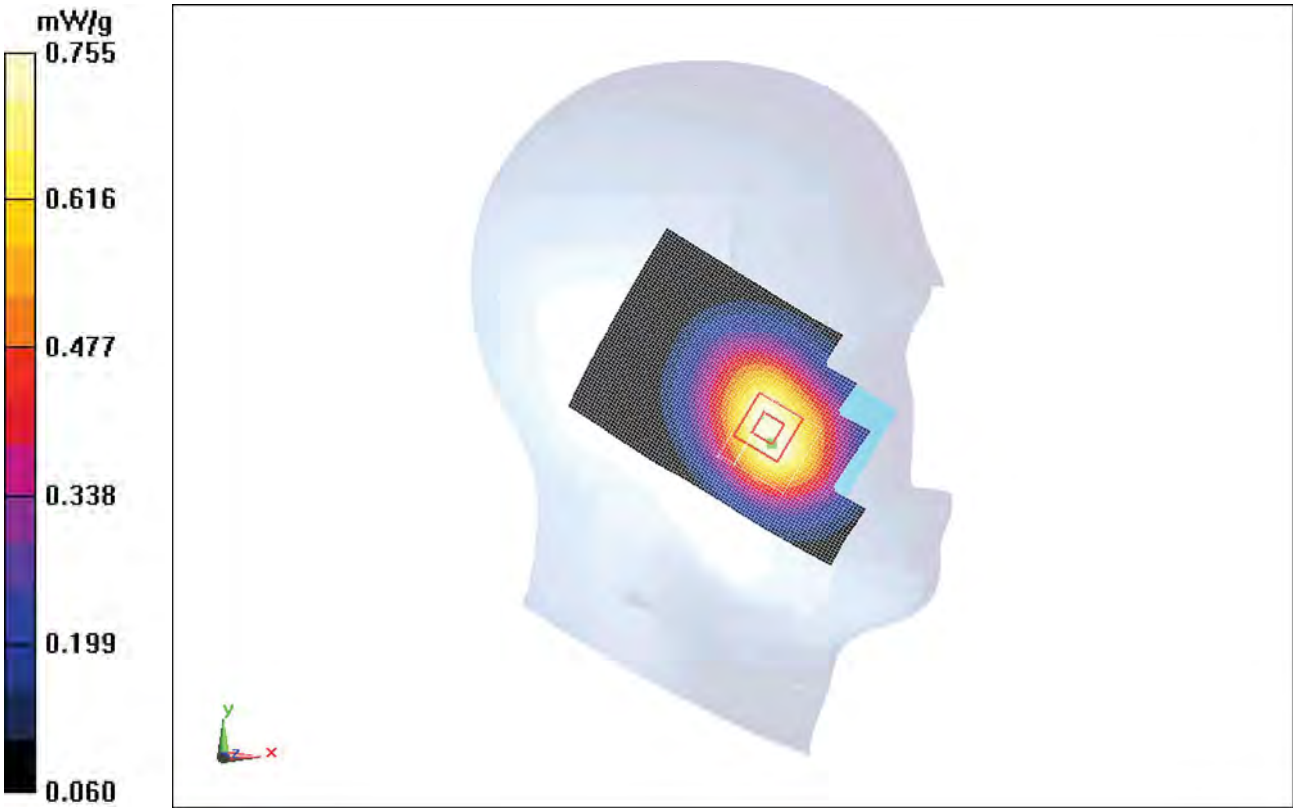


Fig. 2 850 MHz CH190

850 Left Cheek Low

Date/Time: 2011-5-12 8:38:16
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used: f = 825 MHz; σ = 0.88 mho/m; εr = 42.1; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 Frequency: 824.2 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

Cheek Low/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.801 mW/g

Cheek Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.52 V/m; Power Drift = -0.162 dB
Peak SAR (extrapolated) = 0.955 W/kg
SAR(1 g) = 0.759 mW/g; SAR(10 g) = 0.566 mW/g
Maximum value of SAR (measured) = 0.804 mW/g

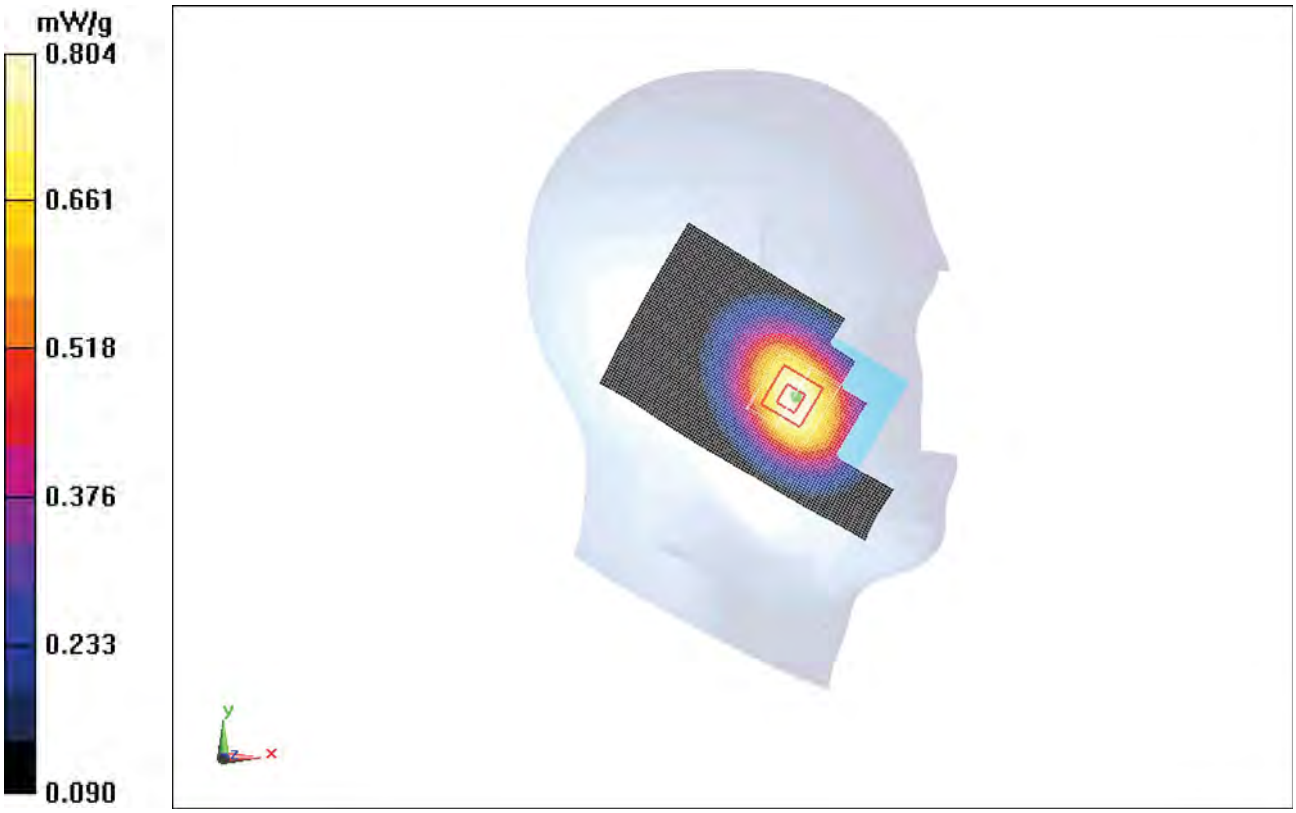


Fig. 3 850 MHz CH128

850 Left Tilt High

Date/Time: 2011-5-12 8:52:49
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 848.8 MHz; σ = 0.90 mho/m; εr = 41.8; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 Frequency: 848.8 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

Tilt High/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.421 mW/g

Tilt High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.9 V/m; Power Drift = 0.059 dB
Peak SAR (extrapolated) = 0.485 W/kg
SAR(1 g) = 0.398 mW/g; SAR(10 g) = 0.303 mW/g
Maximum value of SAR (measured) = 0.419 mW/g

Fig.4 850 MHz CH251

850 Left Tilt Middle

Date/Time: 2011-5-12 9:07:04
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.90 mho/m; εr = 41.9; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 Frequency: 836.6 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

Tilt Middle/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.452 mW/g

Tilt Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.7 V/m; Power Drift = -0.054 dB
Peak SAR (extrapolated) = 0.513 W/kg
SAR(1 g) = 0.422 mW/g; SAR(10 g) = 0.324 mW/g
Maximum value of SAR (measured) = 0.443 mW/g

Fig.5 850 MHz CH190

850 Left Tilt Low

Date/Time: 2011-5-12 9:21:26
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used: f = 825 MHz; σ = 0.88 mho/m; εr = 42.1; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 Frequency: 824.2 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

Tilt Low/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.450 mW/g

Tilt Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.8 V/m; Power Drift = -0.018 dB
Peak SAR (extrapolated) = 0.520 W/kg
SAR(1 g) = 0.424 mW/g; SAR(10 g) = 0.326 mW/g
Maximum value of SAR (measured) = 0.445 mW/g

Fig. 6 850 MHz CH128

850 Right Cheek High

Date/Time: 2011-5-12 9:36:02
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 848.8 MHz; σ = 0.90 mho/m; εr = 41.8; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 Frequency: 848.8 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

Cheek High/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.735 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.93 V/m; Power Drift = -0.142 dB
Peak SAR (extrapolated) = 0.856 W/kg
SAR(1 g) = 0.695 mW/g; SAR(10 g) = 0.520 mW/g
Maximum value of SAR (measured) = 0.726 mW/g

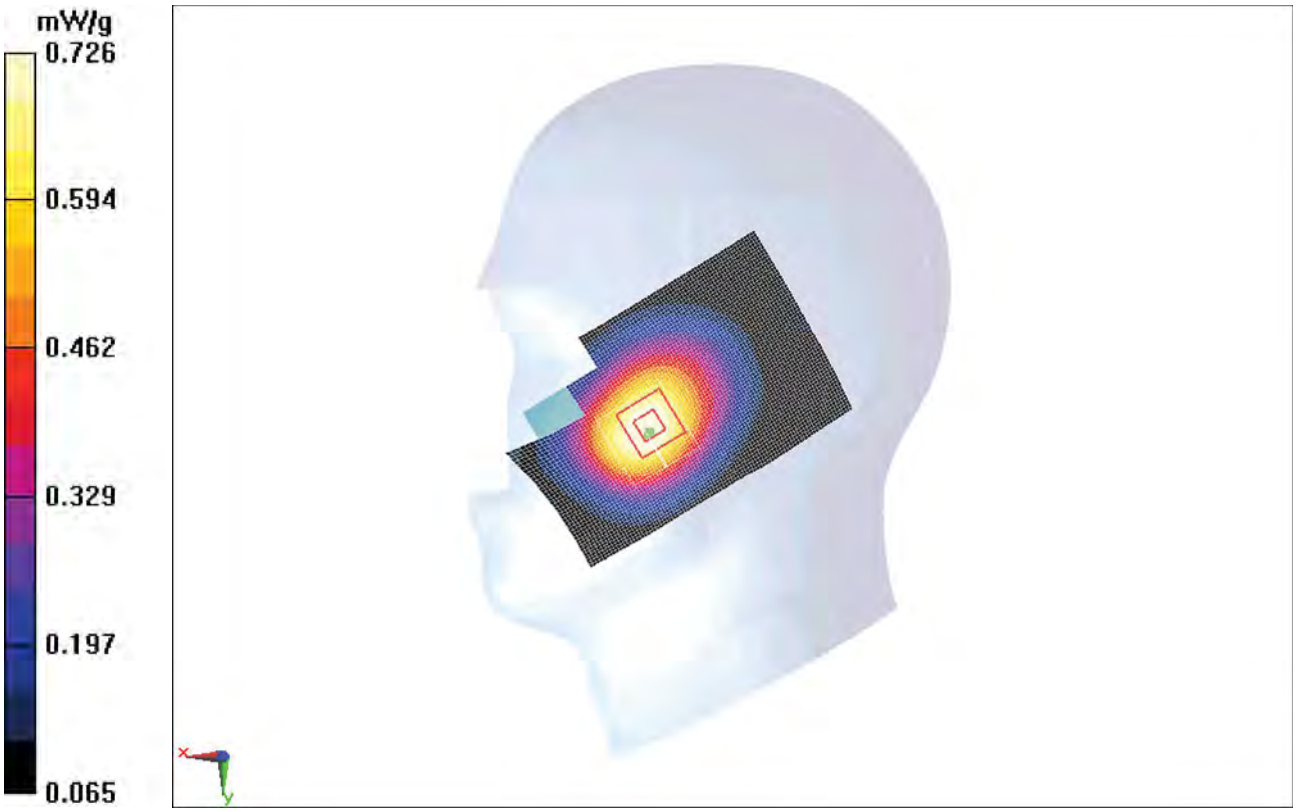


Fig. 7 850 MHz CH251

850 Right Cheek Middle

Date/Time: 2011-5-12 9:50:23
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.90 mho/m; εr = 41.9; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 Frequency: 836.6 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

Cheek Middle/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.802 mW/g

Cheek Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.51 V/m; Power Drift = -0.051 dB
Peak SAR (extrapolated) = 0.930 W/kg
SAR(1 g) = 0.761 mW/g; SAR(10 g) = 0.572 mW/g
Maximum value of SAR (measured) = 0.788 mW/g

Fig. 8 850 MHz CH190

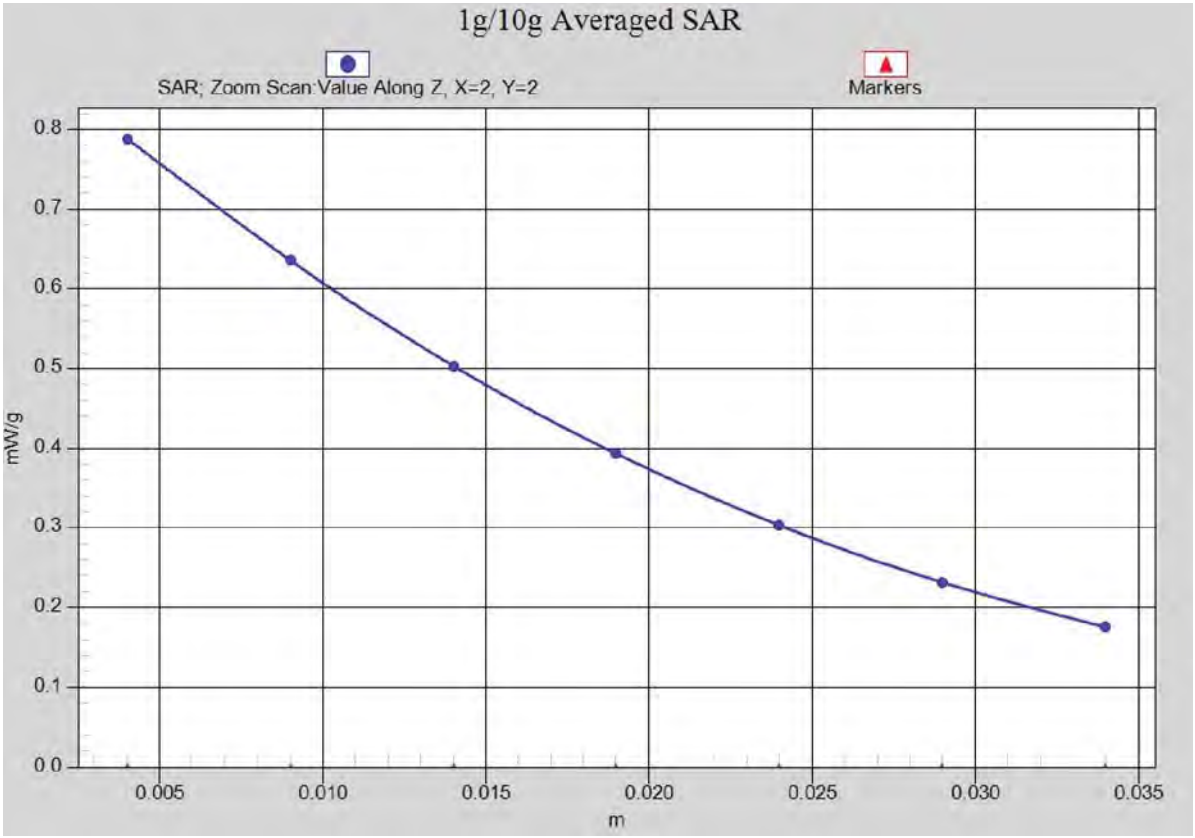


Fig. 8-1 Z-Scan at power reference point (850 MHz CH190)

850 Right Cheek Low

Date/Time: 2011-5-12 10:04:45
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used: f = 825 MHz; σ = 0.88 mho/m; εr = 42.1; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 Frequency: 824.2 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

Cheek Low/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.803 mW/g

Cheek Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.64 V/m; Power Drift = -0.013 dB
Peak SAR (extrapolated) = 0.940 W/kg
SAR(1 g) = 0.760 mW/g; SAR(10 g) = 0.572 mW/g
Maximum value of SAR (measured) = 0.801 mW/g

Fig. 9 850 MHz CH128

850 Right Tilt High

Date/Time: 2011-5-12 10:19:05
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 848.8 MHz; σ = 0.90 mho/m; εr = 41.8; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 Frequency: 848.8 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

Tilt High/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.390 mW/g

Tilt High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.3 V/m; Power Drift = -0.044 dB
Peak SAR (extrapolated) = 0.464 W/kg
SAR(1 g) = 0.371 mW/g; SAR(10 g) = 0.281 mW/g
Maximum value of SAR (measured) = 0.387 mW/g

Fig.10 850 MHz CH251

850 Right Tilt Middle

Date/Time: 2011-5-12 10:33:24
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.90 mho/m; εr = 41.9; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 Frequency: 836.6 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

Tilt Middle/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.424 mW/g

Tilt Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.1 V/m; Power Drift = 0.023 dB
Peak SAR (extrapolated) = 0.494 W/kg
SAR(1 g) = 0.404 mW/g; SAR(10 g) = 0.308 mW/g
Maximum value of SAR (measured) = 0.420 mW/g

Fig.11 850 MHz CH190

850 Right Tilt Low

Date/Time: 2011-5-12 10:47:50
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used: f = 825 MHz; σ = 0.88 mho/m; εr = 42.1; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 Frequency: 824.2 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

Tilt Low/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.414 mW/g

Tilt Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14 V/m; Power Drift = 0.062 dB
Peak SAR (extrapolated) = 0.484 W/kg
SAR(1 g) = 0.393 mW/g; SAR(10 g) = 0.302 mW/g
Maximum value of SAR (measured) = 0.409 mW/g

Fig. 12 850 MHz CH128

1900 Left Cheek High

Date/Time: 2011-5-13 8:10:32
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used: f = 1910 MHz; σ = 1.43 mho/m; εr = 40.2; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900MHz Frequency: 1909.8 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

Cheek High/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.353 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.94 V/m; Power Drift = -0.132 dB
Peak SAR (extrapolated) = 0.509 W/kg
SAR(1 g) = 0.319 mW/g; SAR(10 g) = 0.183 mW/g
Maximum value of SAR (measured) = 0.348 mW/g

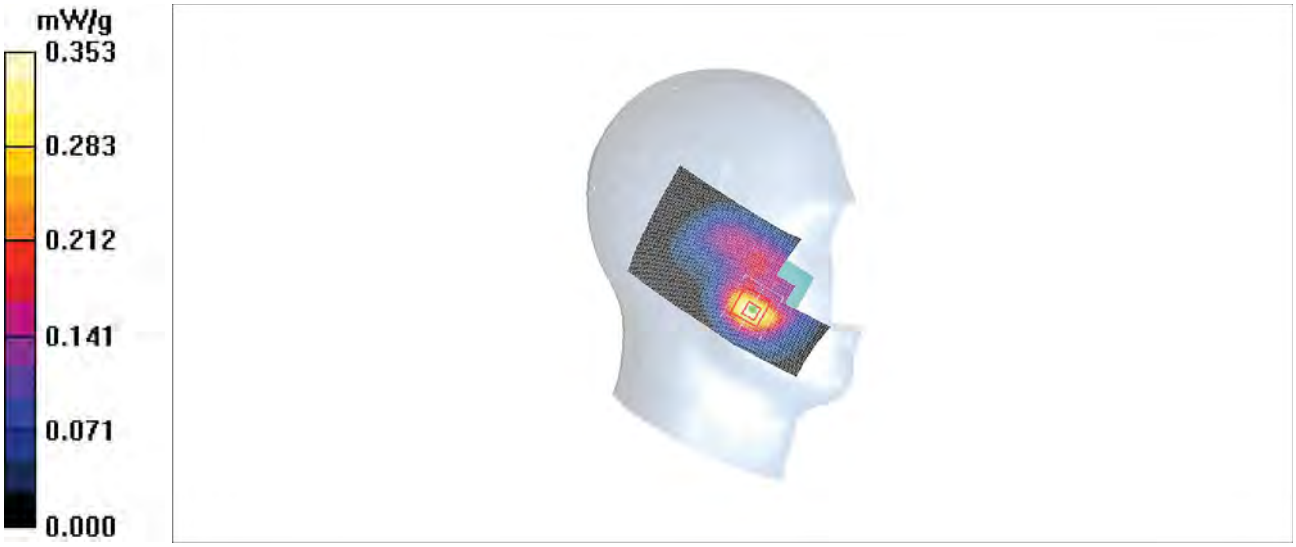


Fig. 13 1900 MHz CH810

1900 Left Cheek Middle

Date/Time: 2011-5-13 8:24:56
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.39 mho/m; εr = 40.6; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900MHz Frequency: 1880 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

Cheek Middle/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.352 mW/g

Cheek Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.76 V/m; Power Drift = 0.087 dB
Peak SAR (extrapolated) = 0.518 W/kg
SAR(1 g) = 0.327 mW/g; SAR(10 g) = 0.187 mW/g
Maximum value of SAR (measured) = 0.360 mW/g

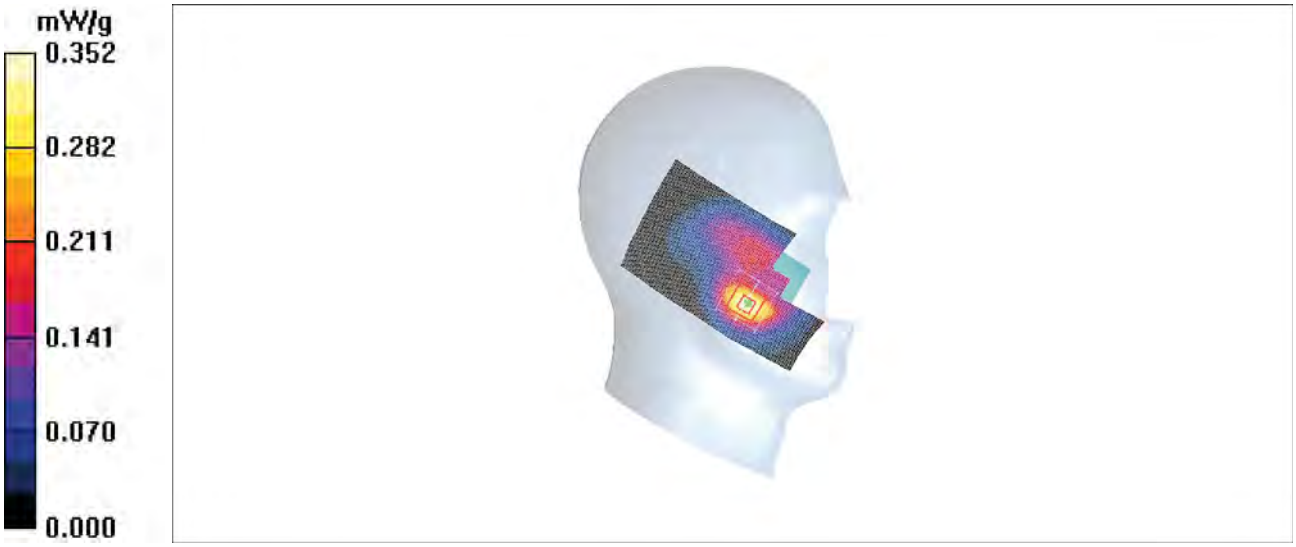


Fig. 14 1900 MHz CH661

1900 Left Cheek Low

Date/Time: 2011-5-13 8:39:14
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.36 mho/m; εr = 39.5; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900MHz Frequency: 1850.2 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

Cheek Low/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.400 mW/g

Cheek Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.44 V/m; Power Drift = 0.140 dB
Peak SAR (extrapolated) = 0.590 W/kg
SAR(1 g) = 0.373 mW/g; SAR(10 g) = 0.216 mW/g
Maximum value of SAR (measured) = 0.408 mW/g

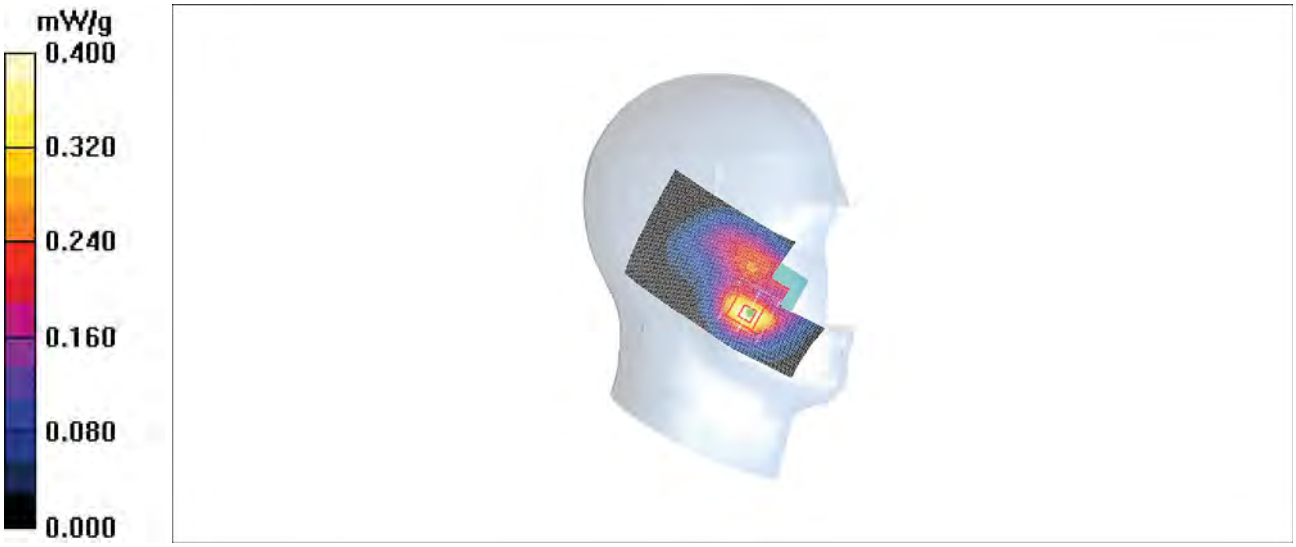


Fig. 15 1900 MHz CH512

1900 Left Tilt High

Date/Time: 2011-5-13 8:54:00
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used: f = 1910 MHz; σ = 1.43 mho/m; εr = 40.2; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900MHz Frequency: 1909.8 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

Tilt High/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.153 mW/g

Tilt High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.17 V/m; Power Drift = 0.095 dB
Peak SAR (extrapolated) = 0.193 W/kg
SAR(1 g) = 0.130 mW/g; SAR(10 g) = 0.080 mW/g
Maximum value of SAR (measured) = 0.137 mW/g

Fig.16 1900 MHz CH810

1900 Left Tilt Middle

Date/Time: 2011-5-13 9:08:21
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.39 mho/m; εr = 40.6; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900MHz Frequency: 1880 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

Tilt Middle/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.166 mW/g

Tilt Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.72 V/m; Power Drift = 0.058 dB
Peak SAR (extrapolated) = 0.208 W/kg
SAR(1 g) = 0.141 mW/g; SAR(10 g) = 0.088 mW/g
Maximum value of SAR (measured) = 0.151 mW/g

Fig. 17 1900 MHz CH661

1900 Left Tilt Low

Date/Time: 2011-5-13 9:22:45
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.36 mho/m; εr = 39.5; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900MHz Frequency: 1850.2 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

Tilt Low/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.180 mW/g

Tilt Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.38 V/m; Power Drift = -0.043 dB
Peak SAR (extrapolated) = 0.222 W/kg
SAR(1 g) = 0.151 mW/g; SAR(10 g) = 0.096 mW/g
Maximum value of SAR (measured) = 0.163 mW/g

Fig. 18 1900 MHz CH512

1900 Right Cheek High

Date/Time: 2011-5-13 9:37:19
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used: f = 1910 MHz; σ = 1.43 mho/m; εr = 40.2; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900MHz Frequency: 1909.8 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

Cheek High/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.406 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.99 V/m; Power Drift = -0.110 dB
Peak SAR (extrapolated) = 0.561 W/kg
SAR(1 g) = 0.374 mW/g; SAR(10 g) = 0.219 mW/g
Maximum value of SAR (measured) = 0.411 mW/g

Fig. 19 1900 MHz CH810

1900 Right Cheek Middle

Date/Time: 2011-5-13 9:51:42
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.39 mho/m; εr = 40.6; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900MHz Frequency: 1880 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

Cheek Middle/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.425 mW/g

Cheek Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.66 V/m; Power Drift = 0.053 dB
Peak SAR (extrapolated) = 0.582 W/kg
SAR(1 g) = 0.394 mW/g; SAR(10 g) = 0.234 mW/g
Maximum value of SAR (measured) = 0.434 mW/g

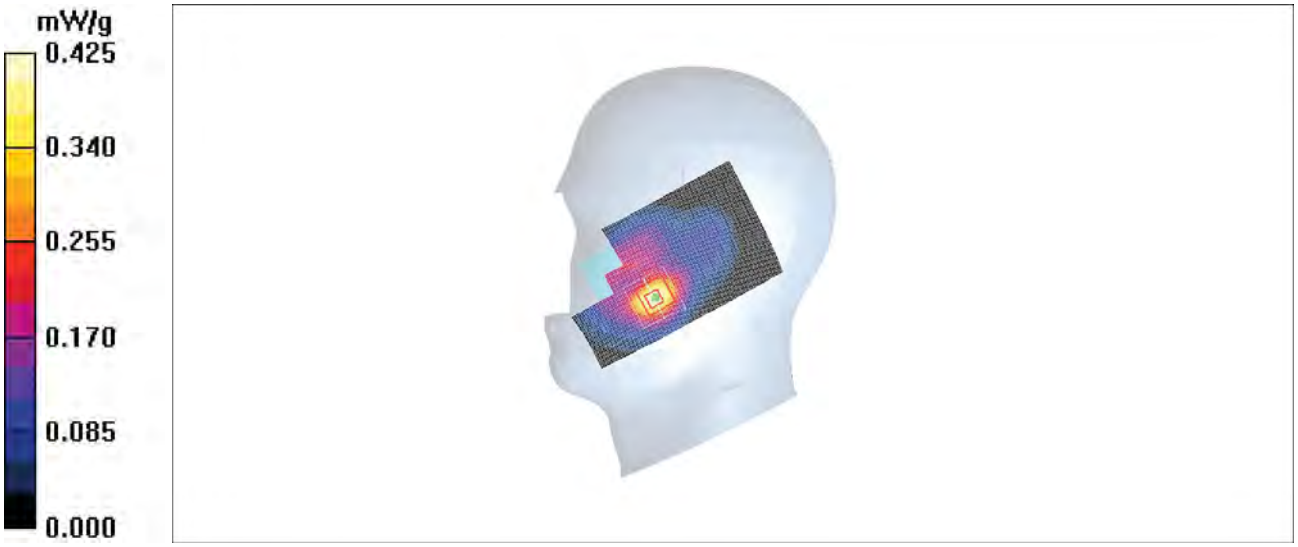


Fig. 20 1900 MHz CH661

1900 Right Cheek Low

Date/Time: 2011-5-13 10:06:01
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.36 mho/m; εr = 39.5; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900MHz Frequency: 1850.2 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

Cheek Low/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.453 mW/g

Cheek Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.28 V/m; Power Drift = 0.004 dB
Peak SAR (extrapolated) = 0.625 W/kg
SAR(1 g) = 0.422 mW/g; SAR(10 g) = 0.251 mW/g
Maximum value of SAR (measured) = 0.464 mW/g

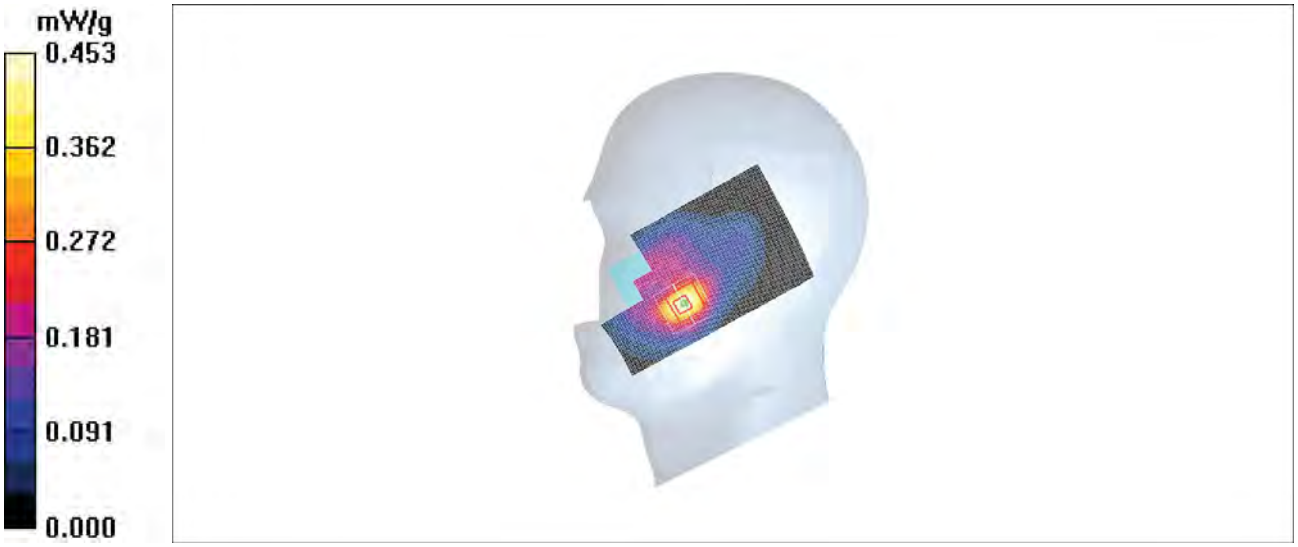


Fig. 21 1900 MHz CH512

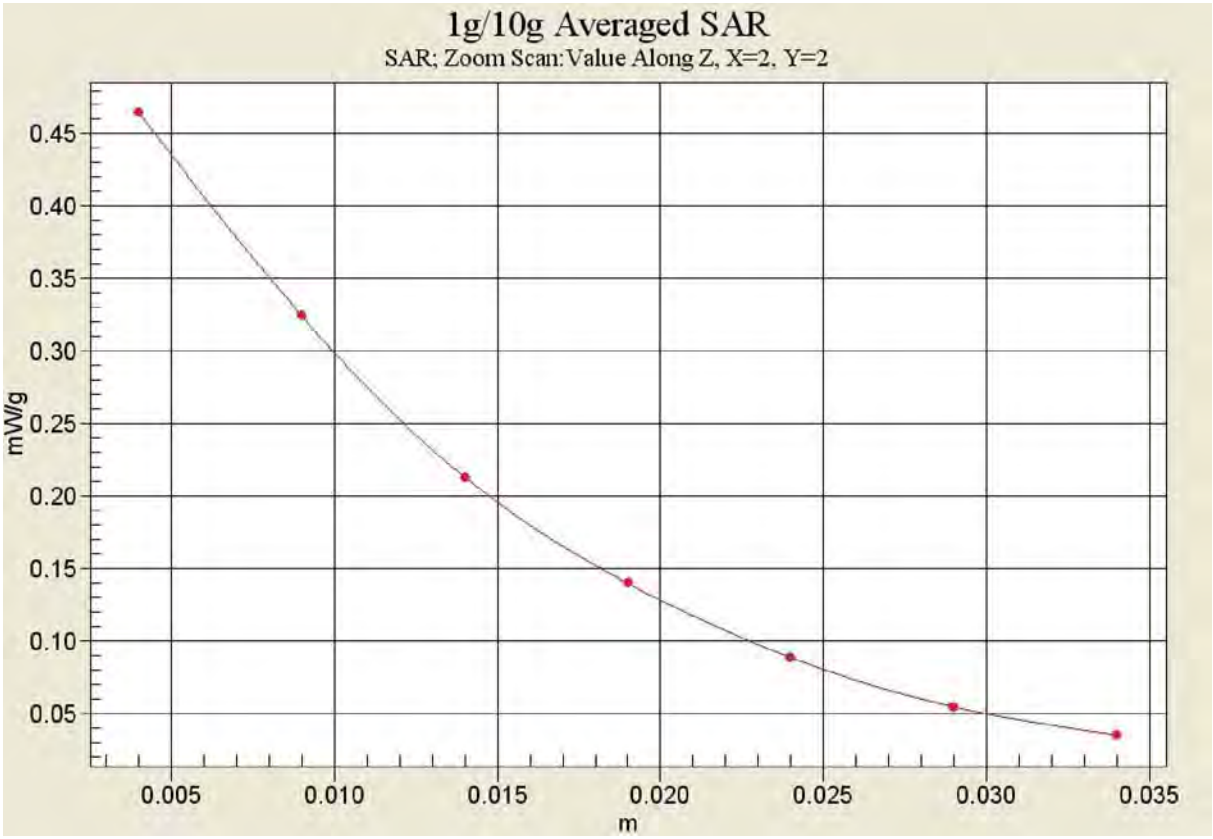


Fig. 21-1 Z-Scan at power reference point (1900 MHz CH512)

1900 Right Tilt High

Date/Time: 2011-5-13 10:20:44
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used: f = 1910 MHz; σ = 1.43 mho/m; εr = 40.2; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900MHz Frequency: 1909.8 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

Tilt High/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.175 mW/g

Tilt High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.3 V/m; Power Drift = -0.001 dB
Peak SAR (extrapolated) = 0.236 W/kg
SAR(1 g) = 0.153 mW/g; SAR(10 g) = 0.091 mW/g
Maximum value of SAR (measured) = 0.163 mW/g

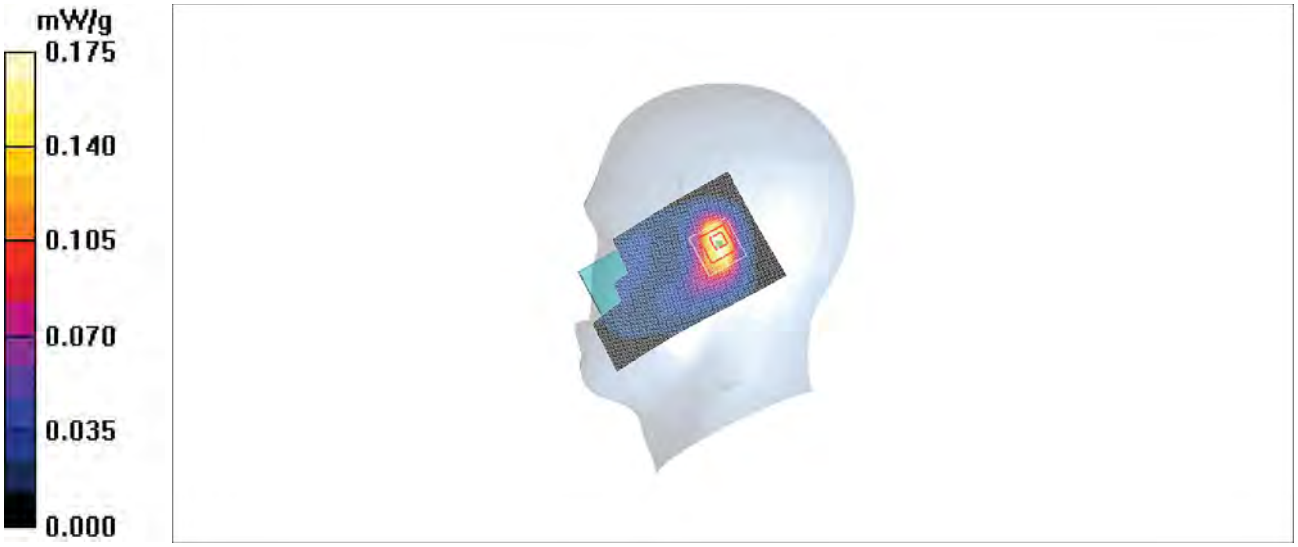


Fig. 22 1900 MHz CH810

1900 Right Tilt Middle

Date/Time: 2011-5-13 10:35:05
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.39 mho/m; εr = 40.6; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900MHz Frequency: 1880 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

Tilt Middle/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.185 mW/g

Tilt Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.6 V/m; Power Drift = 0.039 dB
Peak SAR (extrapolated) = 0.242 W/kg
SAR(1 g) = 0.159 mW/g; SAR(10 g) = 0.097 mW/g
Maximum value of SAR (measured) = 0.167 mW/g

Fig.23 1900 MHz CH661

1900 Right Tilt Low

Date/Time: 2011-5-13 10:49:26
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.36 mho/m; εr = 39.5; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900MHz Frequency: 1850.2 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

Tilt Low/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.206 mW/g

Tilt Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.1 V/m; Power Drift = 0.055 dB
Peak SAR (extrapolated) = 0.263 W/kg
SAR(1 g) = 0.176 mW/g; SAR(10 g) = 0.107 mW/g
Maximum value of SAR (measured) = 0.185 mW/g

Fig.24 1900 MHz CH512

WCDMA850 Left Cheek High

Date/Time: 2011-5-12 11:15:21
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 846.6 MHz; σ = 0.901 mho/m; εr = 41.8; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: WCDMA 850 Frequency: 846.6 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

Cheek High/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.896 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.6 V/m; Power Drift = -0.084 dB
Peak SAR (extrapolated) = 1.07 W/kg
SAR(1 g) = 0.853 mW/g; SAR(10 g) = 0.632 mW/g
Maximum value of SAR (measured) = 0.890 mW/g

Fig. 25 850MHz CH4233

WCDMA 850 Left Cheek Middle

Date/Time: 2011-5-12 11:29:44
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 836.4 MHz; σ = 0.90 mho/m; εr = 41.9; ρ = 1000 kg/m^3
Ambient Temperature:23°C Liquid Temperature: 22.5°C
Communication System: WCDMA 850 Frequency: 836.4 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

Cheek Middle/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.733 mW/g

Cheek Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.57 V/m; Power Drift = 0.020 dB
Peak SAR (extrapolated) = 0.878 W/kg
SAR(1 g) = 0.698 mW/g; SAR(10 g) = 0.518 mW/g
Maximum value of SAR (measured) = 0.728 mW/g

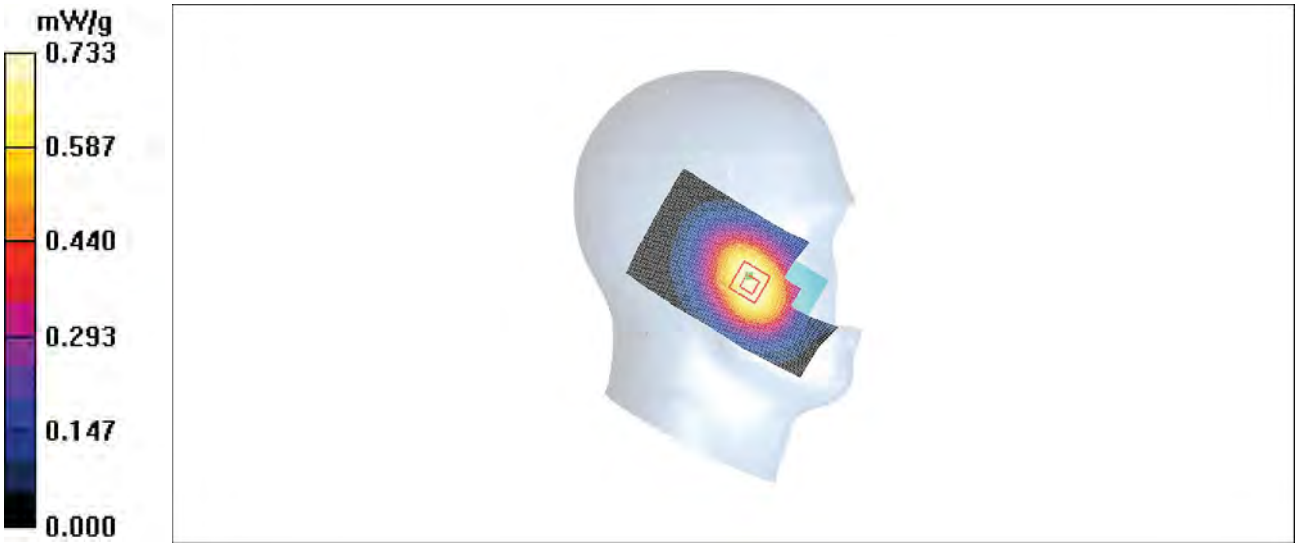


Fig. 26 850 MHz CH4182

WCDMA 850 Left Cheek Low

Date/Time: 2011-5-12 11:44:03
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.88 mho/m; εr = 42.1; ρ = 1000 kg/m^3
Ambient Temperature:23°C Liquid Temperature: 22.5°C
Communication System: WCDMA 850 Frequency: 826.4 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

Cheek Low/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.717 mW/g

Cheek Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.48 V/m; Power Drift = 0.052 dB
Peak SAR (extrapolated) = 0.880 W/kg
SAR(1 g) = 0.695 mW/g; SAR(10 g) = 0.515 mW/g
Maximum value of SAR (measured) = 0.723 mW/g

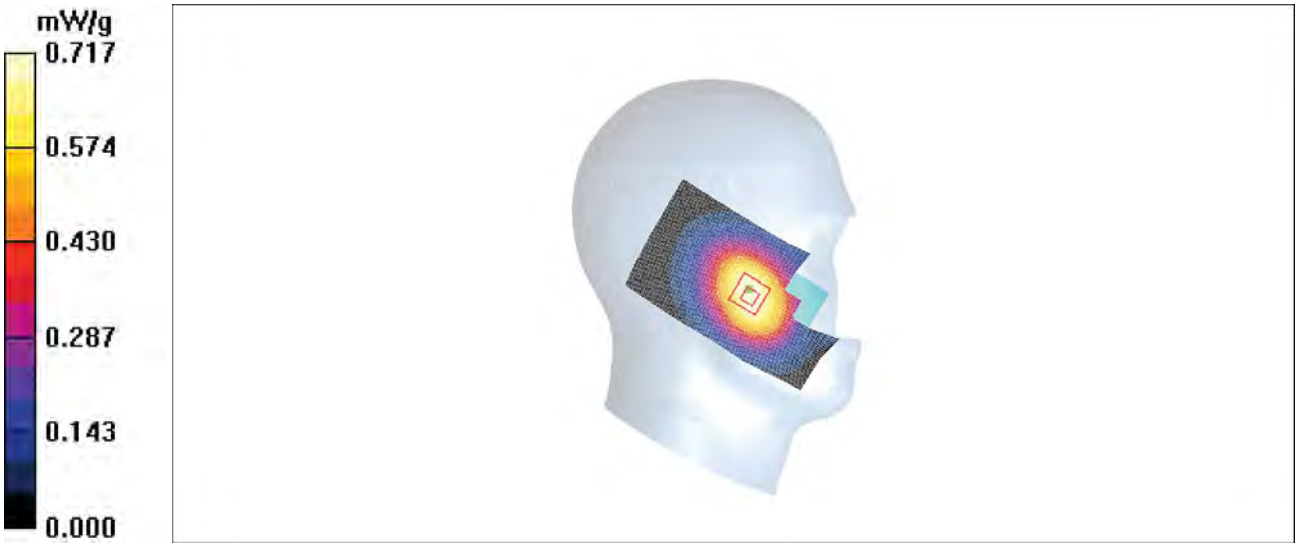


Fig. 27 850 MHz CH4132

WCDMA 850 Left Tilt High

Date/Time: 2011-5-12 11:58:42
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 846.6 MHz; σ = 0.901 mho/m; εr = 41.8; ρ = 1000 kg/m^3
Ambient Temperature:23°C Liquid Temperature: 22.5°C
Communication System: WCDMA 850 Frequency: 846.6 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

Tilt High/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.500 mW/g

Tilt High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.9 V/m; Power Drift = -0.119 dB
Peak SAR (extrapolated) = 0.596 W/kg
SAR(1 g) = 0.476 mW/g; SAR(10 g) = 0.356 mW/g
Maximum value of SAR (measured) = 0.501 mW/g

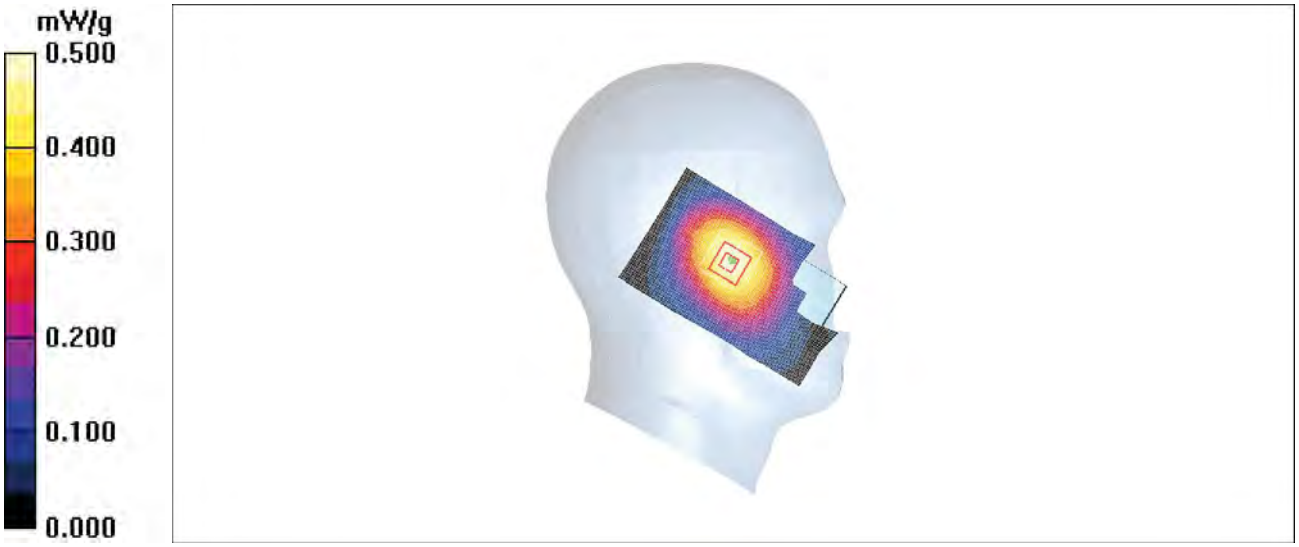


Fig.28 850 MHz CH4233

WCDMA 850 Left Tilt Middle

Date/Time: 2011-5-12 12:13:09
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 836.4 MHz; σ = 0.90 mho/m; εr = 41.9; ρ = 1000 kg/m^3
Ambient Temperature:23°C Liquid Temperature: 22.5°C
Communication System: WCDMA 850 Frequency: 836.4 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

Tilt Middle/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.424 mW/g

Tilt Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.5 V/m; Power Drift = -0.087 dB
Peak SAR (extrapolated) = 0.498 W/kg
SAR(1 g) = 0.400 mW/g; SAR(10 g) = 0.300 mW/g
Maximum value of SAR (measured) = 0.423 mW/g

Fig.29 850 MHz CH4182

WCDMA 850 Left Tilt Low

Date/Time: 2011-5-12 12:27:30
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.88 mho/m; εr = 42.1; ρ = 1000 kg/m^3
Ambient Temperature:23°C Liquid Temperature: 22.5°C
Communication System: WCDMA 850 Frequency: 826.4 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

Tilt Low/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.380 mW/g

Tilt Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.8 V/m; Power Drift = -0.112 dB
Peak SAR (extrapolated) = 0.436 W/kg
SAR(1 g) = 0.355 mW/g; SAR(10 g) = 0.271 mW/g
Maximum value of SAR (measured) = 0.373 mW/g

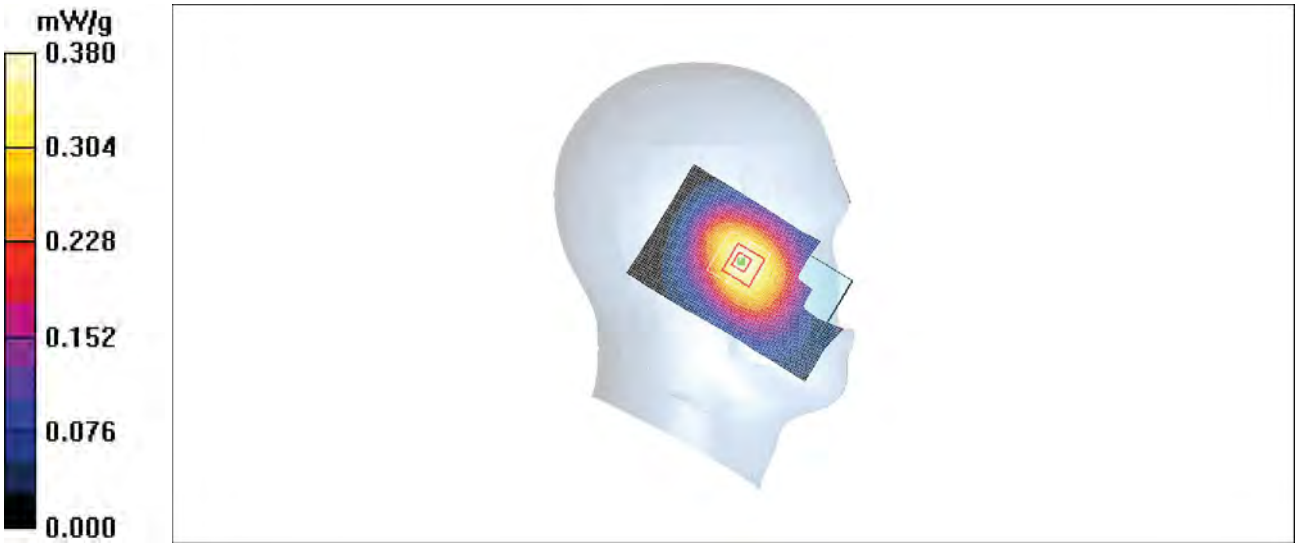


Fig. 30 850 MHz CH4132

WCDMA 850 Right Cheek High

Date/Time: 2011-5-12 12:42:13
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 846.6 MHz; σ = 0.901 mho/m; εr = 41.8; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WCDMA 850 Frequency: 846.6 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

Cheek High/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.969 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.14 V/m; Power Drift = -0.152 dB
Peak SAR (extrapolated) = 1.16 W/kg
SAR(1 g) = 0.903 mW/g; SAR(10 g) = 0.668 mW/g
Maximum value of SAR (measured) = 0.942 mW/g

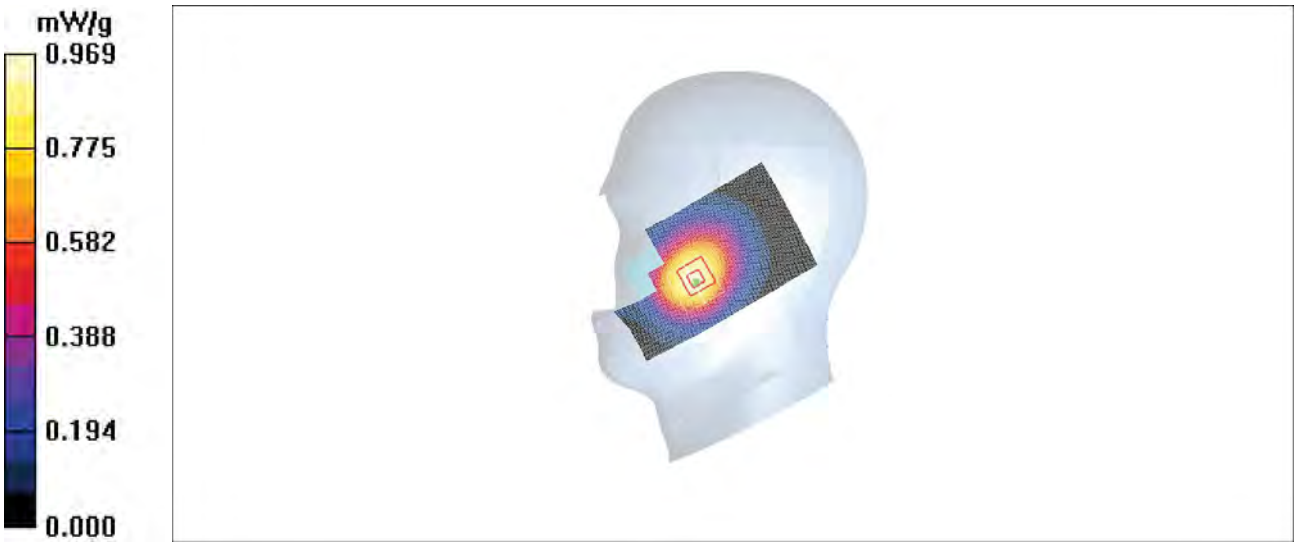


Fig. 31 850 MHz CH4233

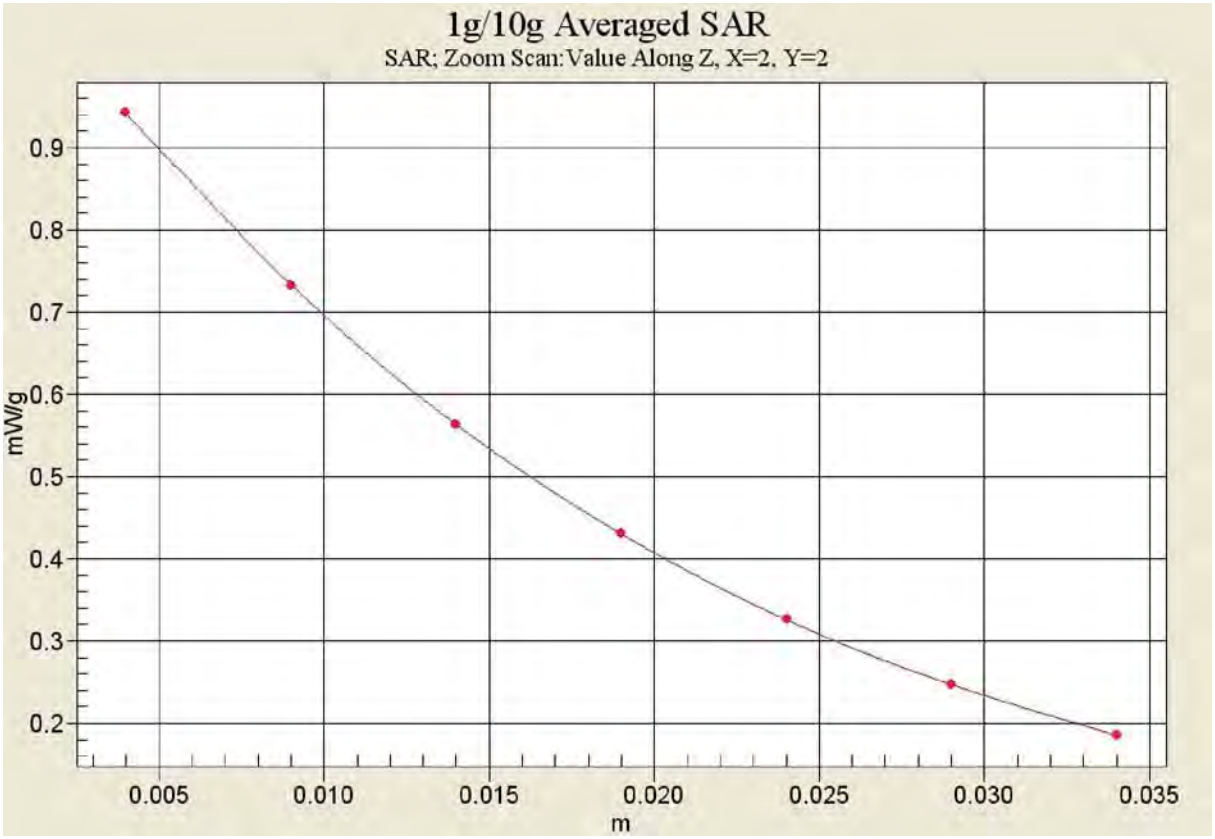


Fig. 31-1 Z-Scan at power reference point (850 MHz CH4233)

WCDMA 850 Right Cheek Middle

Date/Time: 2011-5-12 12:56:37
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 836.4 MHz; σ = 0.90 mho/m; εr = 41.9; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WCDMA 850 Frequency: 836.4 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

Cheek Middle/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.763 mW/g

Cheek Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.85 V/m; Power Drift = 0.062 dB
Peak SAR (extrapolated) = 0.908 W/kg
SAR(1 g) = 0.713 mW/g; SAR(10 g) = 0.530 mW/g
Maximum value of SAR (measured) = 0.745 mW/g

Fig. 32 850 MHz CH4182

WCDMA 850 Right Cheek Low

Date/Time: 2011-5-12 13:10:54
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.88 mho/m; εr = 42.1; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WCDMA 850 Frequency: 826.4 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

Cheek Low/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.734 mW/g

Cheek Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.71 V/m; Power Drift = 0.088 dB
Peak SAR (extrapolated) = 0.866 W/kg
SAR(1 g) = 0.683 mW/g; SAR(10 g) = 0.508 mW/g
Maximum value of SAR (measured) = 0.712 mW/g

Fig. 33 850 MHz CH4132

WCDMA 850 Right Tilt High

Date/Time: 2011-5-12 13:25:20
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 846.6 MHz; σ = 0.901 mho/m; εr = 41.8; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WCDMA 850 Frequency: 846.6 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

Tilt High/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.500 mW/g

Tilt High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.4 V/m; Power Drift = -0.180 dB
Peak SAR (extrapolated) = 0.577 W/kg
SAR(1 g) = 0.466 mW/g; SAR(10 g) = 0.352 mW/g
Maximum value of SAR (measured) = 0.488 mW/g

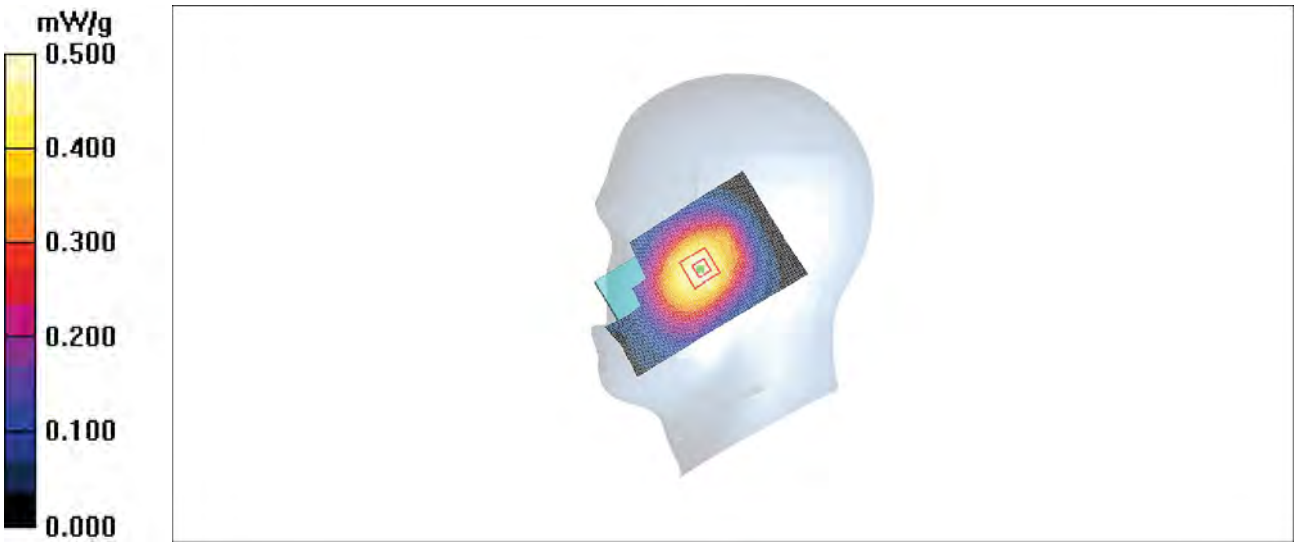


Fig.34 850 MHz CH4233

WCDMA 850 Right Tilt Middle

Date/Time: 2011-5-12 13:39:42
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 836.4 MHz; σ = 0.90 mho/m; εr = 41.9; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WCDMA 850 Frequency: 836.4 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

Tilt Middle/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.375 mW/g

Tilt Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.7 V/m; Power Drift = 0.038 dB
Peak SAR (extrapolated) = 0.432 W/kg
SAR(1 g) = 0.354 mW/g; SAR(10 g) = 0.270 mW/g
Maximum value of SAR (measured) = 0.372 mW/g

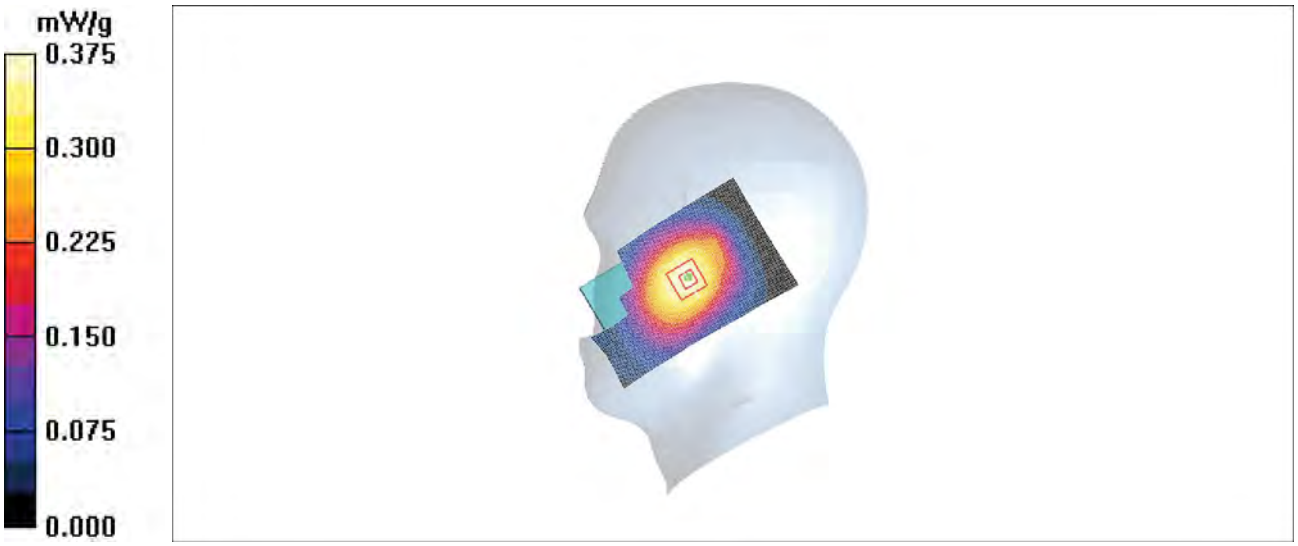


Fig.35 850 MHz CH4182

WCDMA 850 Right Tilt Low
Date/Time: 2011-5-12 13:54:10
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.88 mho/m; εr = 42.1; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WCDMA 850 Frequency: 826.4 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

Tilt Low/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.377 mW/g

Tilt Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.9 V/m; Power Drift = 0.039 dB
Peak SAR (extrapolated) = 0.432 W/kg
SAR(1 g) = 0.355 mW/g; SAR(10 g) = 0.272 mW/g
Maximum value of SAR (measured) = 0.373 mW/g

Fig. 36 850 MHz CH4132

WCDMA 1900 Left Cheek High

Date/Time: 2011-5-13 11:17:09
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used (interpolated): f = 1907.6 MHz; σ = 1.42 mho/m; εr = 40.3; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WCDMA 1900 Frequency: 1907.6 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

Cheek High/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.650 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.92 V/m; Power Drift = -0.122 dB
Peak SAR (extrapolated) = 0.891 W/kg
SAR(1 g) = 0.576 mW/g; SAR(10 g) = 0.339 mW/g
Maximum value of SAR (measured) = 0.633 mW/g

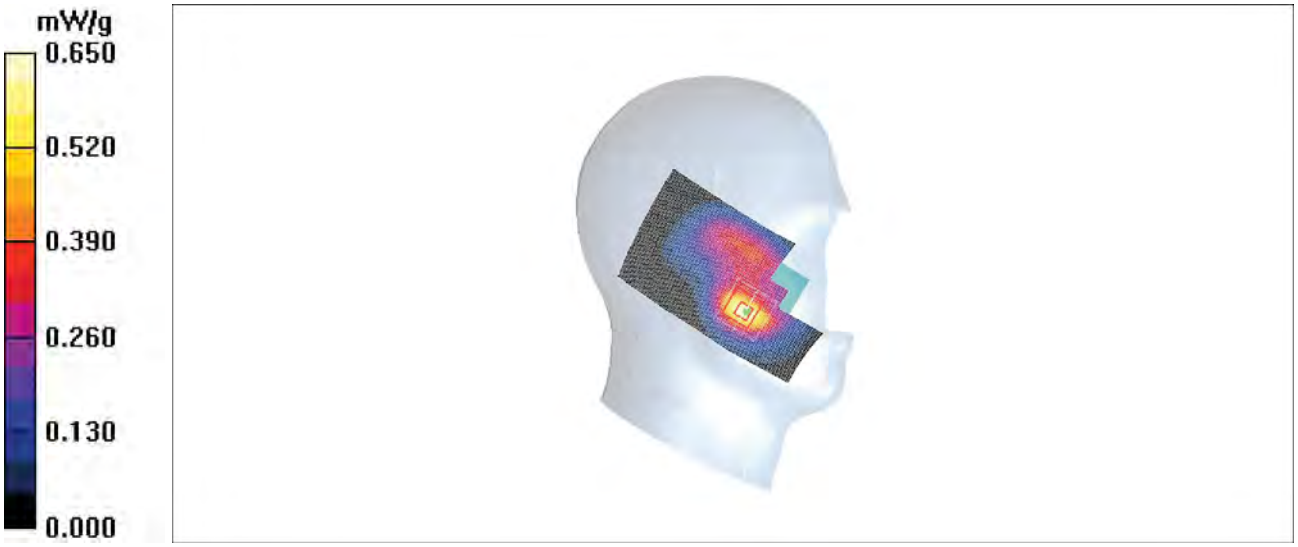


Fig. 37 1900 MHz CH9538

WCDMA 1900 Left Cheek Middle

Date/Time: 2011-5-13 11:31:30
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.39 mho/m; εr = 40.6; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WCDMA 1900 Frequency: 1880 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

Cheek Middle/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.785 mW/g

Cheek Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.31 V/m; Power Drift = 0.115 dB
Peak SAR (extrapolated) = 1.09 W/kg
SAR(1 g) = 0.703 mW/g; SAR(10 g) = 0.415 mW/g
Maximum value of SAR (measured) = 0.775 mW/g

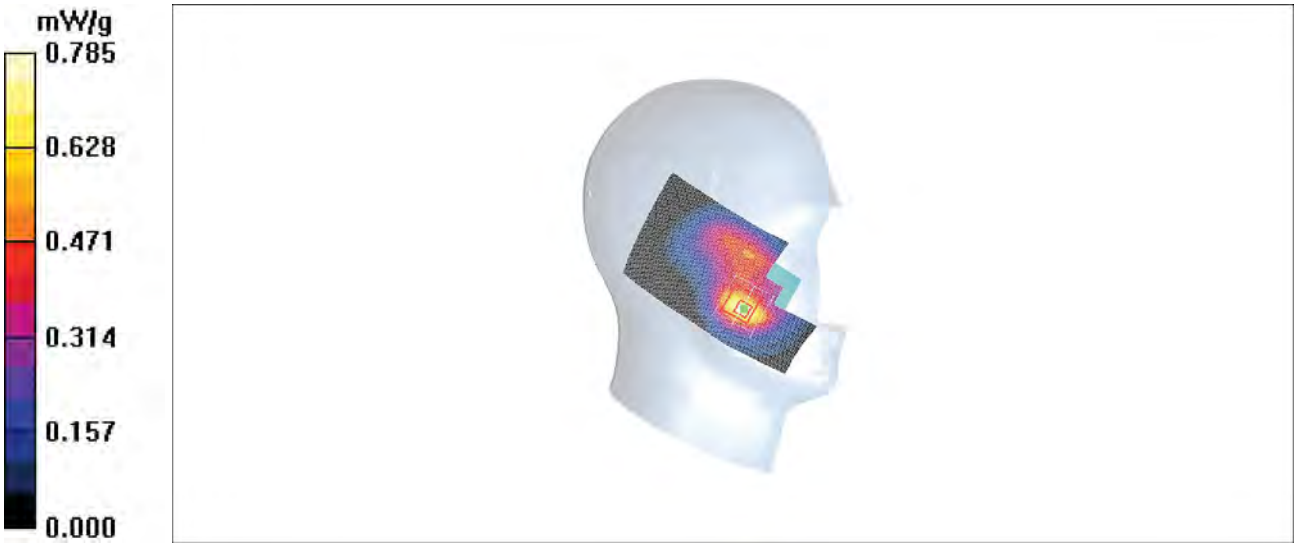


Fig. 38 1900 MHz CH9400

WCDMA 1900 Left Cheek Low

Date/Time: 2011-5-13 11:45:53
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.36 mho/m; εr = 41.1; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WCDMA 1900 Frequency: 1852.4 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

Cheek Low/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.611 mW/g

Cheek Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.37 V/m; Power Drift = 0.115 dB
Peak SAR (extrapolated) = 0.845 W/kg
SAR(1 g) = 0.549 mW/g; SAR(10 g) = 0.328 mW/g
Maximum value of SAR (measured) = 0.602 mW/g

Cheek Low/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.37 V/m; Power Drift = 0.115 dB
Peak SAR (extrapolated) = 0.564 W/kg
SAR(1 g) = 0.402 mW/g; SAR(10 g) = 0.269 mW/g
Maximum value of SAR (measured) = 0.426 mW/g

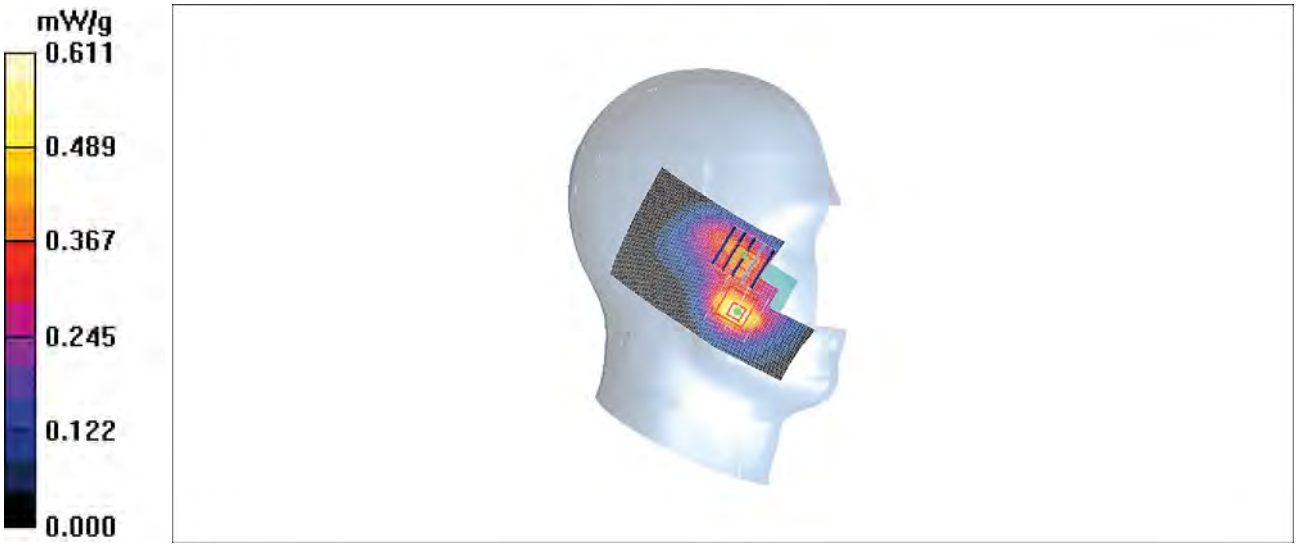


Fig. 39 1900 MHz CH9262

WCDMA 1900 Left Tilt High

Date/Time: 2011-5-13 12:00:19
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used (interpolated): f = 1907.6 MHz; σ = 1.42 mho/m; εr = 40.3; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WCDMA 1900 Frequency: 1907.6 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

Tilt High/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.350 mW/g

Tilt High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.4 V/m; Power Drift = 0.028 dB
Peak SAR (extrapolated) = 0.446 W/kg
SAR(1 g) = 0.302 mW/g; SAR(10 g) = 0.188 mW/g
Maximum value of SAR (measured) = 0.325 mW/g

Fig.40 1900 MHz CH9538

WCDMA 1900 Left Tilt Middle

Date/Time: 2011-5-13 12:14:37
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.39 mho/m; εr = 40.6; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WCDMA 1900 Frequency: 1880 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

Tilt Middle/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.414 mW/g

Tilt Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.4 V/m; Power Drift = -0.004 dB
Peak SAR (extrapolated) = 0.525 W/kg
SAR(1 g) = 0.360 mW/g; SAR(10 g) = 0.227 mW/g
Maximum value of SAR (measured) = 0.384 mW/g

Fig. 41 1900 MHz CH9400

WCDMA 1900 Left Tilt Low

Date/Time: 2011-5-13 12:28:56
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.36 mho/m; εr = 41.1; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WCDMA 1900 Frequency: 1852.4 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

Tilt Low/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.321 mW/g

Tilt Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.6 V/m; Power Drift = 0.073 dB
Peak SAR (extrapolated) = 0.403 W/kg
SAR(1 g) = 0.278 mW/g; SAR(10 g) = 0.177 mW/g
Maximum value of SAR (measured) = 0.300 mW/g

Fig. 42 1900 MHz CH9262

WCDMA 1900 Right Cheek High

Date/Time: 2011-5-13 12:43:24
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used (interpolated): f = 1907.6 MHz; σ = 1.42 mho/m; εr = 40.3; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WCDMA 1900 Frequency: 1907.6 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

Cheek High/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.777 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.58 V/m; Power Drift = -0.113 dB
Peak SAR (extrapolated) = 1.07 W/kg
SAR(1 g) = 0.721 mW/g; SAR(10 g) = 0.429 mW/g
Maximum value of SAR (measured) = 0.799 mW/g

Fig. 43 1900 MHz CH9538

WCDMA 1900 Right Cheek Middle

Date/Time: 2011-5-13 12:57:50
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.39 mho/m; εr = 40.6; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WCDMA 1900 Frequency: 1880 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

Cheek Middle/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.896 mW/g

Cheek Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.75 V/m; Power Drift = -0.071 dB
Peak SAR (extrapolated) = 1.23 W/kg
SAR(1 g) = 0.829 mW/g; SAR(10 g) = 0.495 mW/g
Maximum value of SAR (measured) = 0.915 mW/g

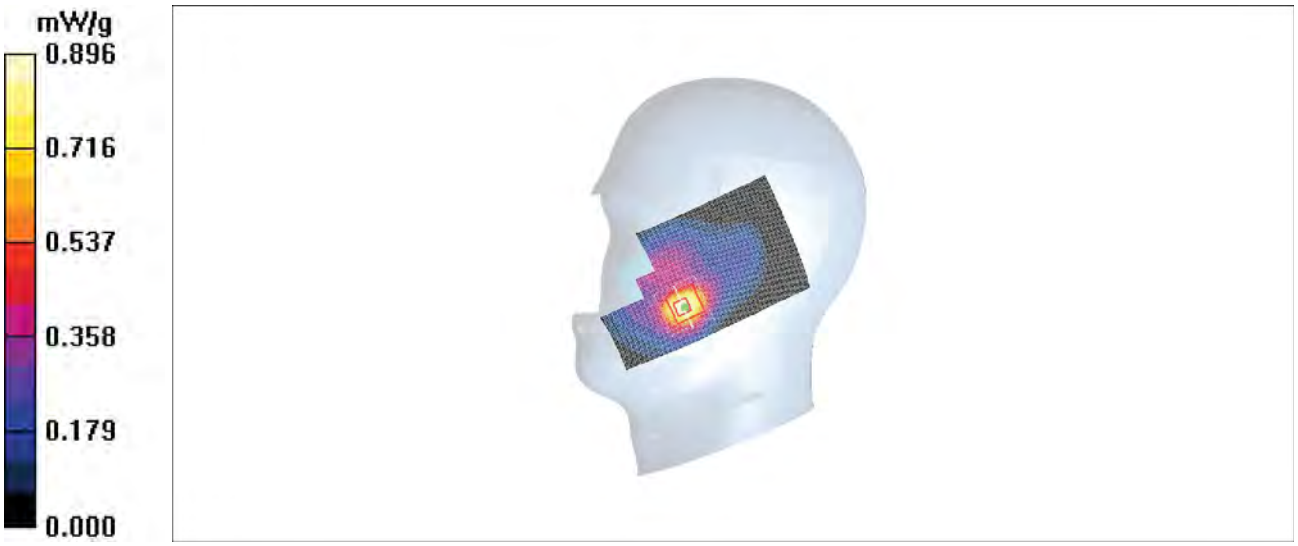


Fig. 44 1900 MHz CH9400

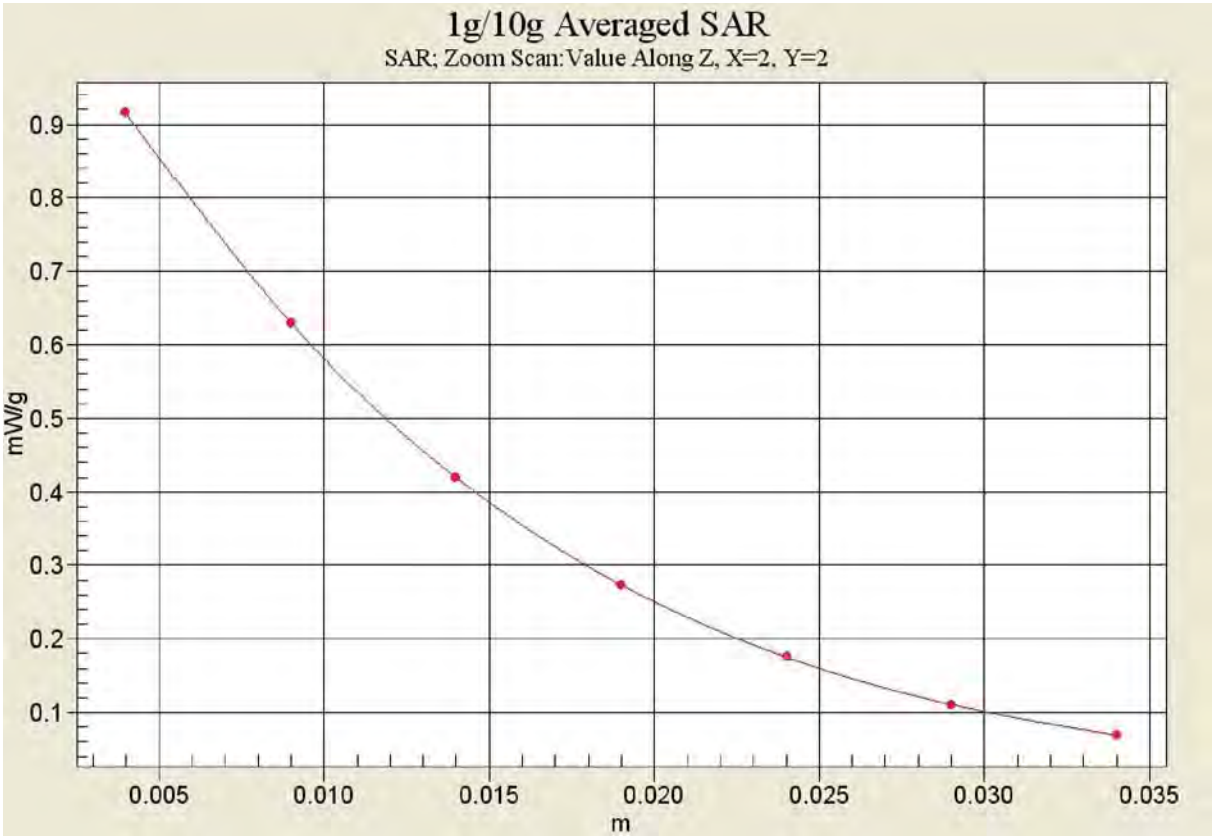


Fig. 44-1 Z-Scan at power reference point (1900 MHz CH9400)

WCDMA 1900 Right Cheek Low

Date/Time: 2011-5-13 13:12:11
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.36 mho/m; εr = 41.1; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WCDMA 1900 Frequency: 1852.4 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

Cheek Low/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.769 mW/g

Cheek Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.50 V/m; Power Drift = 0.056 dB
Peak SAR (extrapolated) = 1.05 W/kg
SAR(1 g) = 0.717 mW/g; SAR(10 g) = 0.432 mW/g
Maximum value of SAR (measured) = 0.790 mW/g

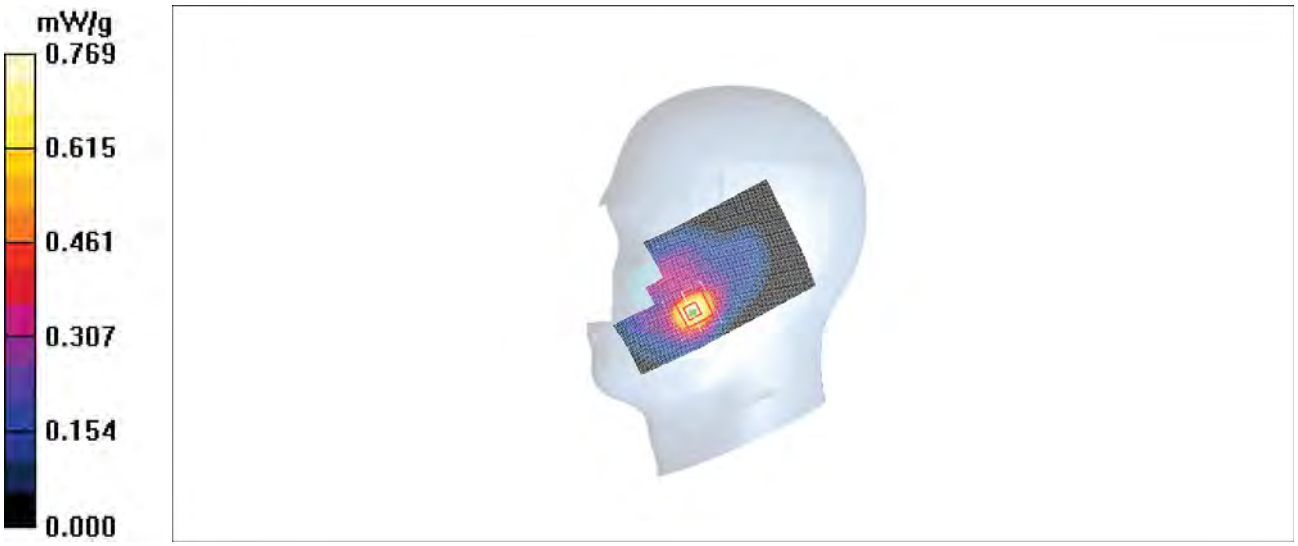


Fig. 45 1900 MHz CH9262

WCDMA 1900 Right Tilt High

Date/Time: 2011-5-13 13:27:39
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used (interpolated): f = 1907.6 MHz; σ = 1.42 mho/m; εr = 40.3; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WCDMA 1900 Frequency: 1907.6 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

Tilt High/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.317 mW/g

Tilt High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.2 V/m; Power Drift = 0.046 dB
Peak SAR (extrapolated) = 0.410 W/kg
SAR(1 g) = 0.269 mW/g; SAR(10 g) = 0.163 mW/g
Maximum value of SAR (measured) = 0.284 mW/g

Fig. 46 1900 MHz CH9538

WCDMA 1900 Right Tilt Middle

Date/Time: 2011-5-13 13:41:58
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.39 mho/m; εr = 40.6; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WCDMA 1900 Frequency: 1880 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

Tilt Middle/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.379 mW/g

Tilt Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.5 V/m; Power Drift = 0.085 dB
Peak SAR (extrapolated) = 0.484 W/kg
SAR(1 g) = 0.320 mW/g; SAR(10 g) = 0.196 mW/g
Maximum value of SAR (measured) = 0.340 mW/g

Fig.47 1900 MHz CH9400

WCDMA 1900 Right Tilt Low

Date/Time: 2011-5-13 13:56:22
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.36 mho/m; εr = 41.1; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WCDMA 1900 Frequency: 1852.4 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

Tilt Low/Area Scan (61x101x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.306 mW/g

Tilt Low/Zoom Scan (5x5x7)/Cube 0: Measurement grid: dx=8mm, dy=8mm, dz=5mm
Reference Value = 13.3 V/m; Power Drift = -0.061 dB
Peak SAR (extrapolated) = 0.392 W/kg
SAR(1 g) = 0.262 mW/g; SAR(10 g) = 0.162 mW/g
Maximum value of SAR (measured) = 0.278 mW/g

Fig.48 1900 MHz CH9262

850 Body Towards Phantom High with GPRS

Date/Time: 2011-5-12 15:06:38
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used (interpolated): f = 848.8 MHz; σ = 0.94 mho/m; εr = 54.5; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 GPRS Frequency: 848.8 MHz Duty Cycle: 1:2
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

Toward Phantom High/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.07 mW/g

Toward Phantom High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 27.5 V/m; Power Drift = -0.067 dB
Peak SAR (extrapolated) = 1.29 W/kg
SAR(1 g) = 1 mW/g; SAR(10 g) = 0.744 mW/g
Maximum value of SAR (measured) = 1.05 mW/g

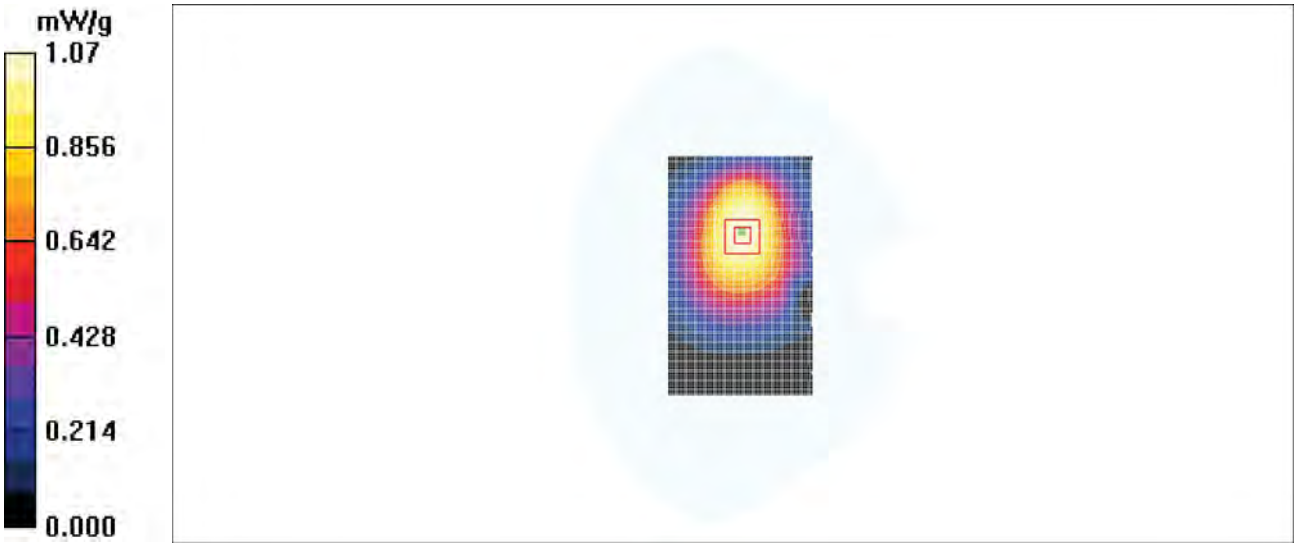


Fig. 49 850 MHz CH251

850 Body Towards Phantom Middle with GPRS

Date/Time: 2011-5-12 14:51:14
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.95 mho/m; εr = 54.8; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 GPRS Frequency: 836.6 MHz Duty Cycle: 1:2
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

Toward Phantom Middle/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.17 mW/g

Toward Phantom Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 30.2 V/m; Power Drift = -0.151 dB
Peak SAR (extrapolated) = 1.35 W/kg
SAR(1 g) = 1.07 mW/g; SAR(10 g) = 0.769 mW/g
Maximum value of SAR (measured) = 1.15 mW/g

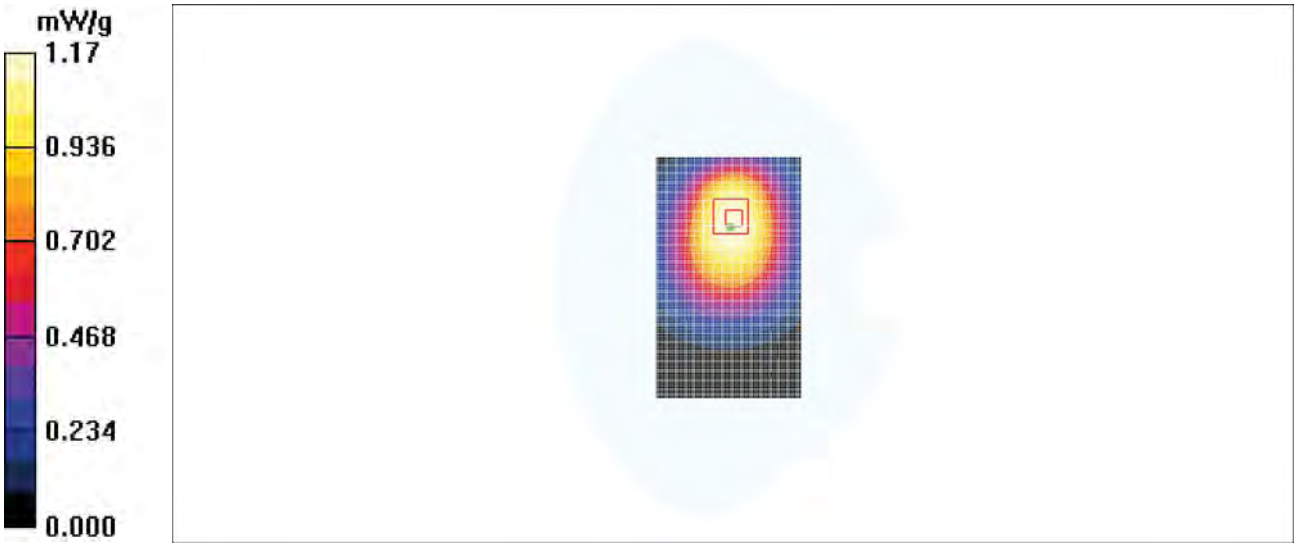


Fig. 50 850 MHz CH190

850 Body Towards Phantom Low with GPRS

Date/Time: 2011-5-12 15:21:59
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used: f = 825 MHz; σ = 0.93 mho/m; εr = 55.8; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 GPRS Frequency: 824.2 MHz Duty Cycle: 1:2
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

Toward Phantom Low/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.23 mW/g

Toward Phantom Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 29.2 V/m; Power Drift = -0.076 dB
Peak SAR (extrapolated) = 1.62 W/kg
SAR(1 g) = 1.22 mW/g; SAR(10 g) = 0.870 mW/g
Maximum value of SAR (measured) = 1.23 mW/g

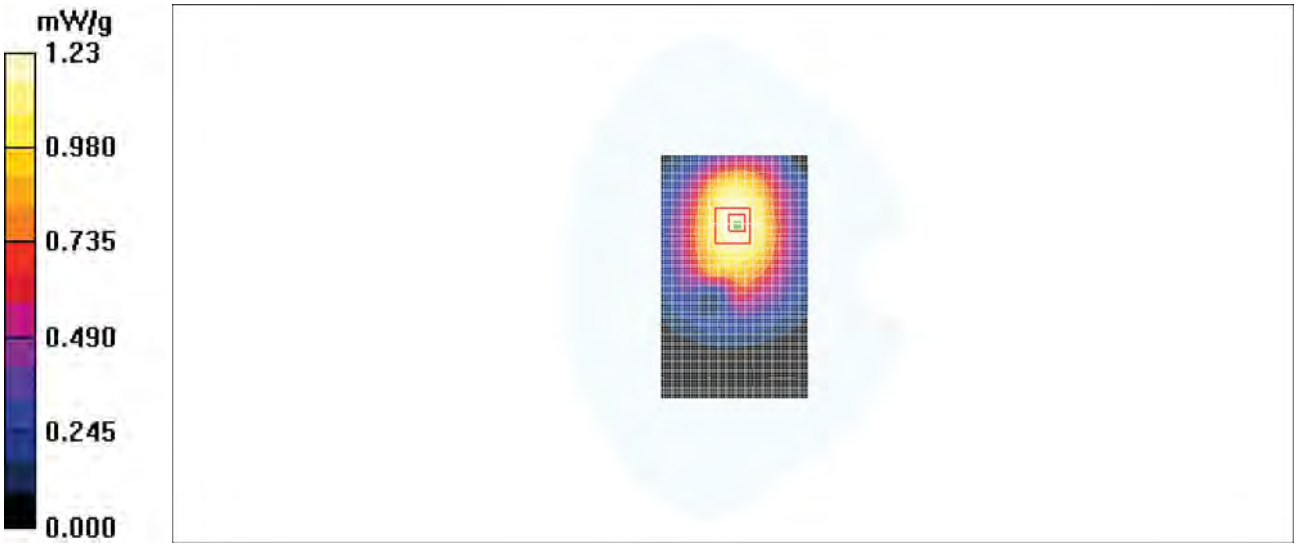


Fig. 51 850 MHz CH128

850 Body Towards Ground High with GPRS

Date/Time: 2011-5-12 15:53:32
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used (interpolated): f = 848.8 MHz; σ = 0.94 mho/m; εr = 54.5; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 GPRS Frequency: 848.8 MHz Duty Cycle: 1:2
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

Toward Ground High/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.23 mW/g

Toward Ground High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 29.0 V/m; Power Drift = 0.016 dB
Peak SAR (extrapolated) = 1.51 W/kg
SAR(1 g) = 1.17 mW/g; SAR(10 g) = 0.831 mW/g
Maximum value of SAR (measured) = 1.22 mW/g

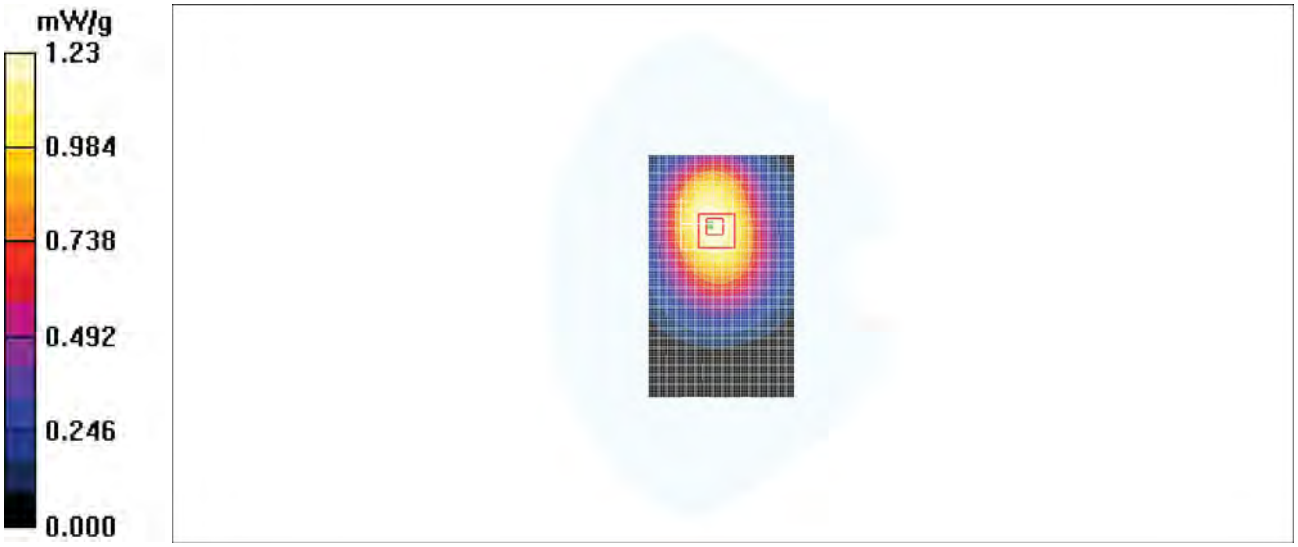


Fig. 52 850 MHz CH251

850 Body Towards Ground Middle with GPRS

Date/Time: 2011-5-12 15:38:10
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.95 mho/m; εr = 54.8; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 GPRS Frequency: 836.6 MHz Duty Cycle: 1:2
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

Toward Ground Middle/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.31 mW/g

Toward Ground Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 29.6 V/m; Power Drift = 0.023 dB
Peak SAR (extrapolated) = 1.64 W/kg
SAR(1 g) = 1.25 mW/g; SAR(10 g) = 0.879 mW/g
Maximum value of SAR (measured) = 1.32 mW/g

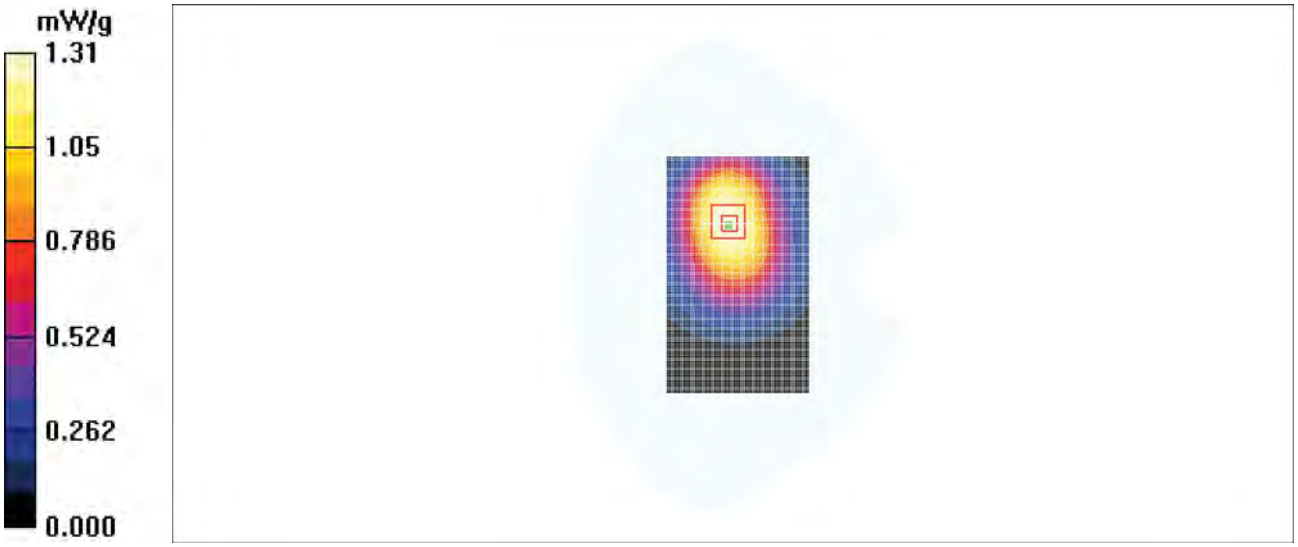


Fig. 53 850 MHz CH190

850 Body Towards Ground Low with GPRS

Date/Time: 2011-5-12 16:08:55
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used: f = 825 MHz; σ = 0.93 mho/m; εr = 55.8; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 GPRS Frequency: 824.2 MHz Duty Cycle: 1:2
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

Toward Ground Low/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.41 mW/g

Toward Ground Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 35.2 V/m; Power Drift = -0.178 dB
Peak SAR (extrapolated) = 1.77 W/kg
SAR(1 g) = 1.29 mW/g; SAR(10 g) = 0.935 mW/g
Maximum value of SAR (measured) = 1.36 mW/g

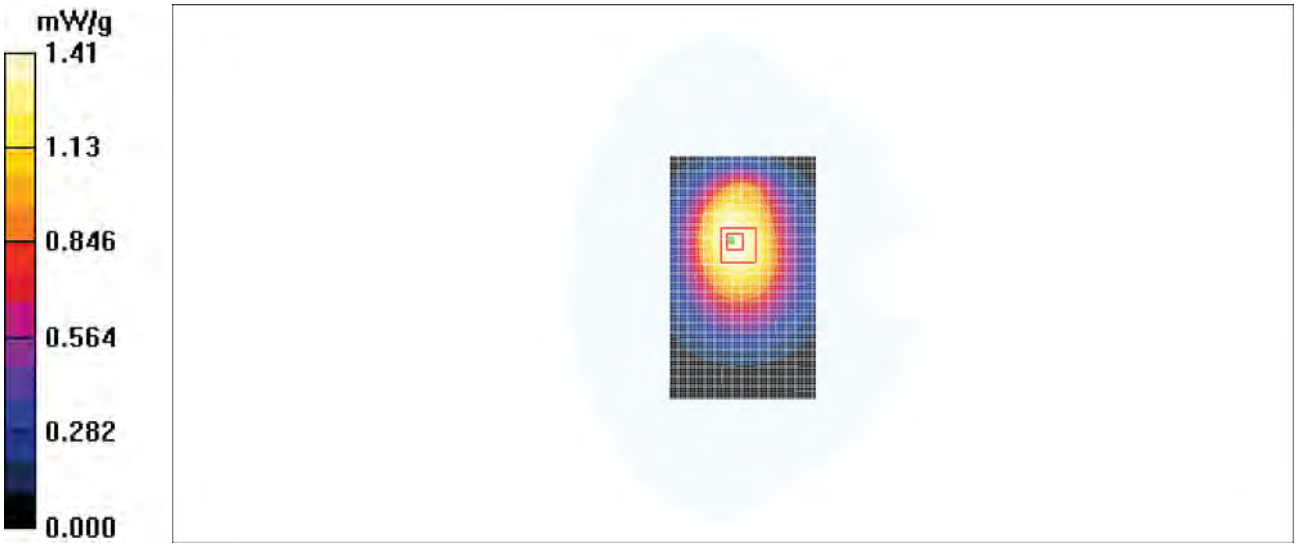


Fig. 54 850 MHz CH128

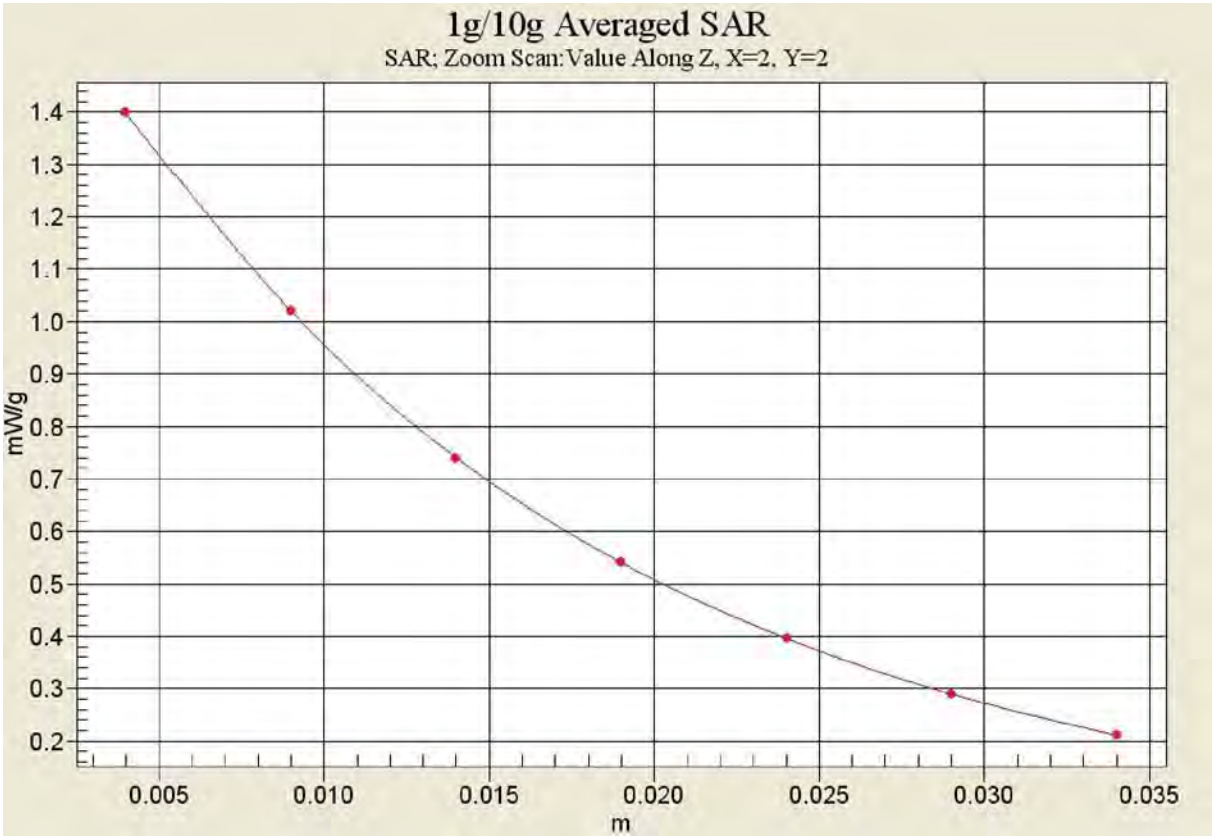


Fig. 54-1 Z-Scan at power reference point (850 MHz CH128)

850 Body Left Side High with GPRS

Date/Time: 2011-5-12 16:39:50
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used (interpolated): f = 848.8 MHz; σ = 0.94 mho/m; εr = 54.5; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 GPRS Frequency: 848.8 MHz Duty Cycle: 1:2
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

Left Side High/Area Scan (51x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.932 mW/g

Left Side High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 27.4 V/m; Power Drift = 0.021 dB
Peak SAR (extrapolated) = 1.23 W/kg
SAR(1 g) = 0.869 mW/g; SAR(10 g) = 0.593 mW/g
Maximum value of SAR (measured) = 0.927 mW/g

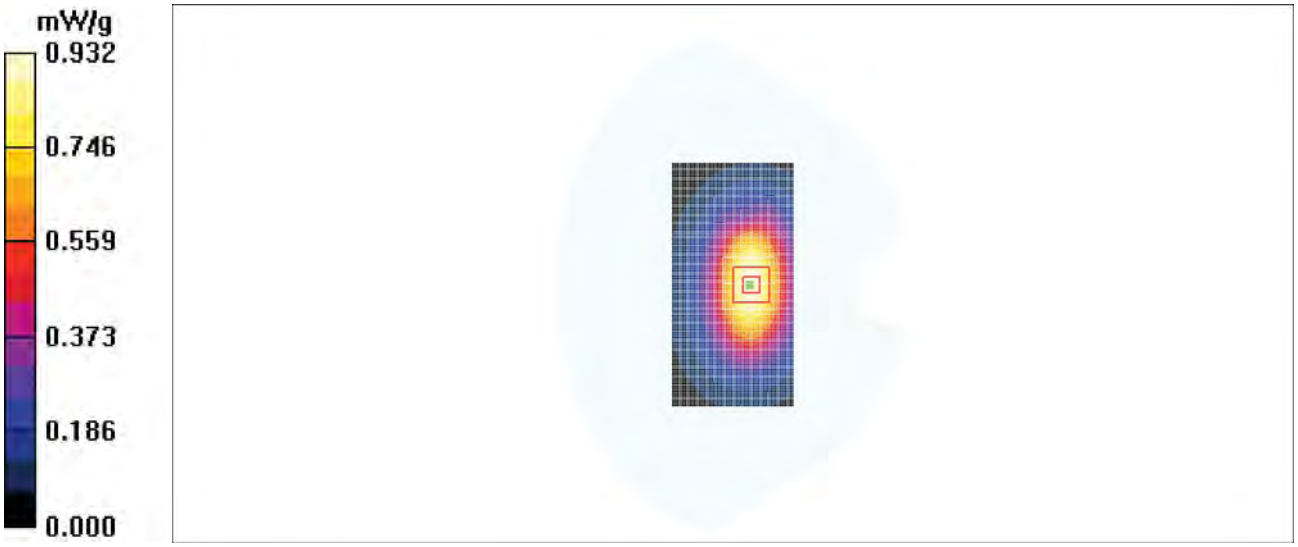


Fig. 55 850 MHz CH251

850 Body Left Side Middle with GPRS

Date/Time: 2011-5-12 16:24:31
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.95 mho/m; εr = 54.8; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 GPRS Frequency: 836.6 MHz Duty Cycle: 1:2
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

Left Side Middle/Area Scan (51x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.966 mW/g

Left Side Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 28.0 V/m; Power Drift = 0.016 dB
Peak SAR (extrapolated) = 1.28 W/kg
SAR(1 g) = 0.907 mW/g; SAR(10 g) = 0.617 mW/g
Maximum value of SAR (measured) = 0.969 mW/g

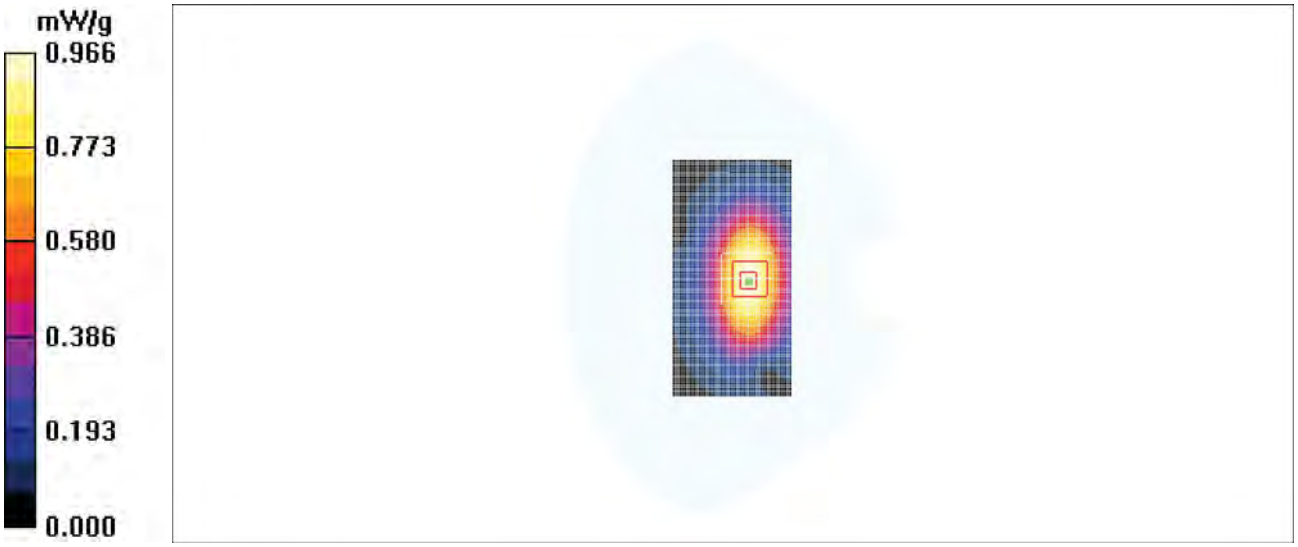


Fig. 56 850 MHz CH190

850 Body Left Side Low with GPRS

Date/Time: 2011-5-12 16:55:13
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used: f = 825 MHz; σ = 0.93 mho/m; εr = 55.8; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 GPRS Frequency: 824.2 MHz Duty Cycle: 1:2
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

Left Side Low/Area Scan (51x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.981 mW/g

Left Side Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 28.5 V/m; Power Drift = -0.046 dB
Peak SAR (extrapolated) = 1.28 W/kg
SAR(1 g) = 0.908 mW/g; SAR(10 g) = 0.618 mW/g
Maximum value of SAR (measured) = 0.966 mW/g

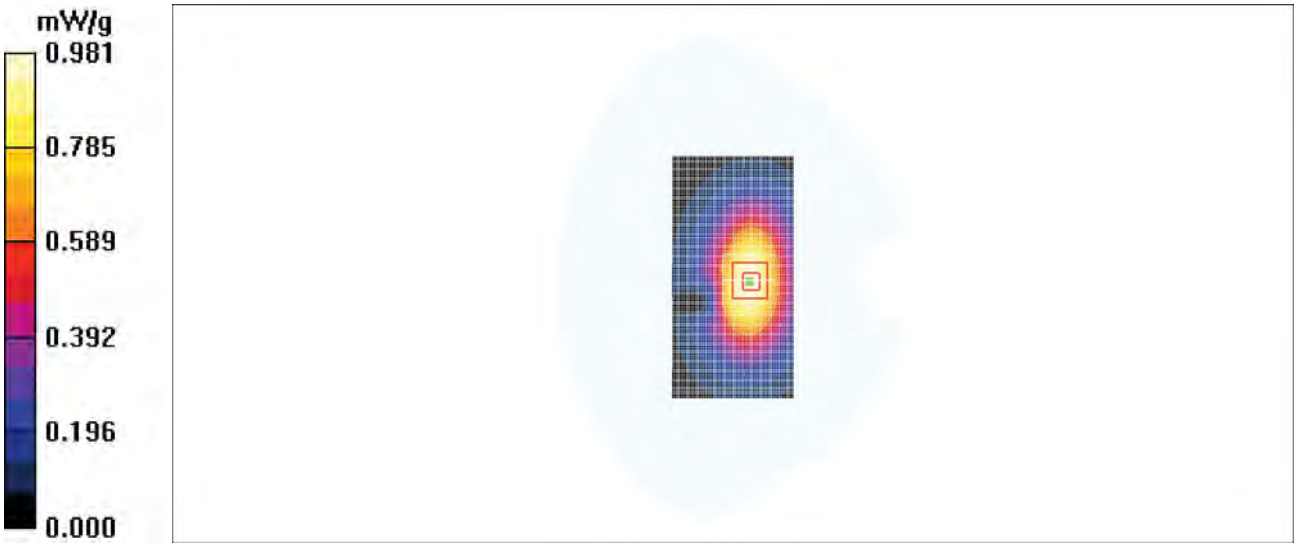


Fig. 57 850 MHz CH128

850 Body Right Side High with GPRS

Date/Time: 2011-5-12 17:26:28
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used (interpolated): f = 848.8 MHz; σ = 0.94 mho/m; εr = 54.5; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 GPRS Frequency: 848.8 MHz Duty Cycle: 1:2
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

Right Side High/Area Scan (51x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.00 mW/g

Right Side High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 27.7 V/m; Power Drift = -0.077 dB
Peak SAR (extrapolated) = 1.46 W/kg
SAR(1 g) = 0.936 mW/g; SAR(10 g) = 0.553 mW/g
Maximum value of SAR (measured) = 0.941 mW/g

Right Side High/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 27.7 V/m; Power Drift = -0.077 dB
Peak SAR (extrapolated) = 1.26 W/kg
SAR(1 g) = 0.905 mW/g; SAR(10 g) = 0.623 mW/g
Maximum value of SAR (measured) = 0.962 mW/g

Fig. 58 850 MHz CH251

850 Body Right Side Middle with GPRS

Date/Time: 2011-5-12 17:11:02
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.95 mho/m; εr = 54.8; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 GPRS Frequency: 836.6 MHz Duty Cycle: 1:2
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

Right Side Middle/Area Scan (51x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.957 mW/g

Right Side Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 27.8 V/m; Power Drift = -0.003 dB
Peak SAR (extrapolated) = 1.21 W/kg
SAR(1 g) = 0.888 mW/g; SAR(10 g) = 0.613 mW/g
Maximum value of SAR (measured) = 0.957 mW/g

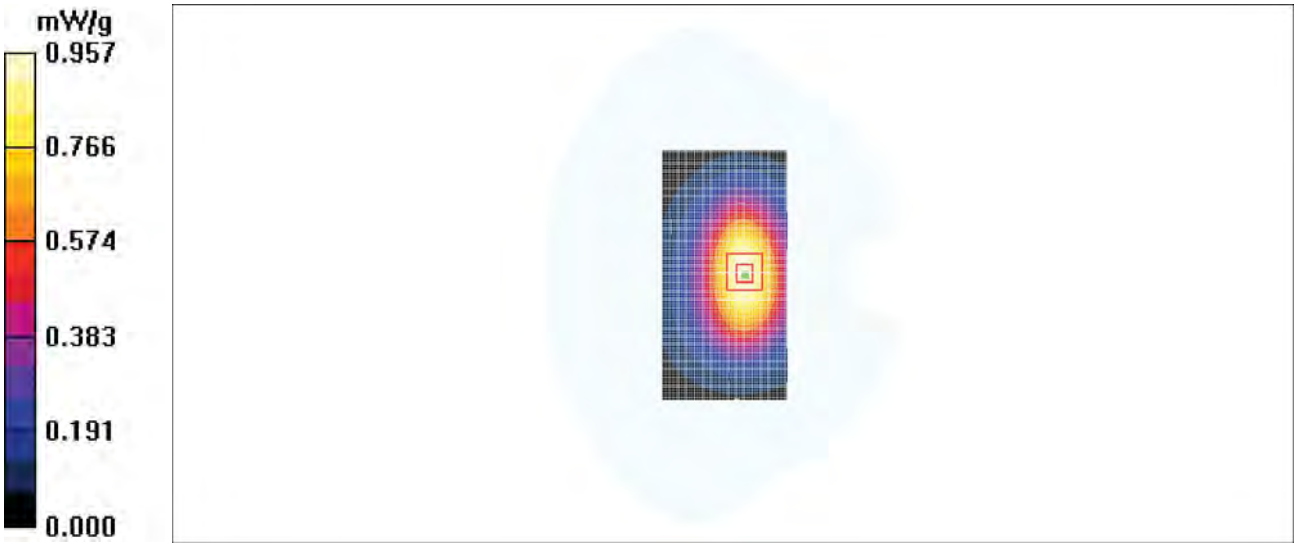


Fig. 59 850 MHz CH190

850 Body Right Side Low with GPRS

Date/Time: 2011-5-12 17:41:52
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used: f = 825 MHz; σ = 0.93 mho/m; εr = 55.8; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 GPRS Frequency: 824.2 MHz Duty Cycle: 1:2
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

Right Side Low/Area Scan (51x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.987 mW/g

Right Side Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 28.5 V/m; Power Drift = -0.113 dB
Peak SAR (extrapolated) = 2.14 W/kg
SAR(1 g) = 0.944 mW/g; SAR(10 g) = 0.636 mW/g
Maximum value of SAR (measured) = 0.984 mW/g

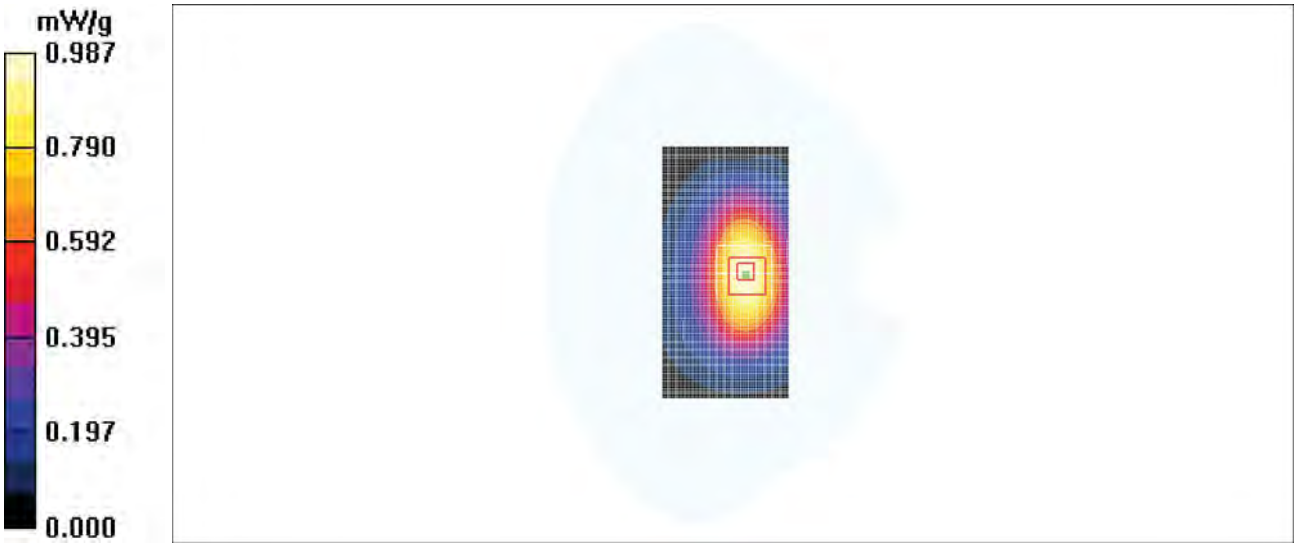


Fig. 60 850 MHz CH128

850 Body Bottom Side Low with GPRS

Date/Time: 2011-5-12 17:57:33
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used: f = 825 MHz; σ = 0.93 mho/m; εr = 55.8; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 GPRS Frequency: 824.2 MHz Duty Cycle: 1:2
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

Bottom Side Low/Area Scan (51x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.093 mW/g

Bottom Side Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.28 V/m; Power Drift = 0.005 dB
Peak SAR (extrapolated) = 0.152 W/kg
SAR(1 g) = 0.086 mW/g; SAR(10 g) = 0.051 mW/g
Maximum value of SAR (measured) = 0.095 mW/g

Fig. 61 850 MHz CH128

850 Body Towards Ground Low with EGPRS

Date/Time: 2011-5-12 18:14:25
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used: f = 825 MHz; σ = 0.93 mho/m; εr = 55.8; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 GPRS Frequency: 824.2 MHz Duty Cycle: 1:2
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

Toward Ground Low EGPRS/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.36 mW/g

Toward Ground Low EGPRS/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 32.4 V/m; Power Drift = -0.107 dB
Peak SAR (extrapolated) = 1.77 W/kg
SAR(1 g) = 1.27 mW/g; SAR(10 g) = 0.887 mW/g
Maximum value of SAR (measured) = 1.32 mW/g

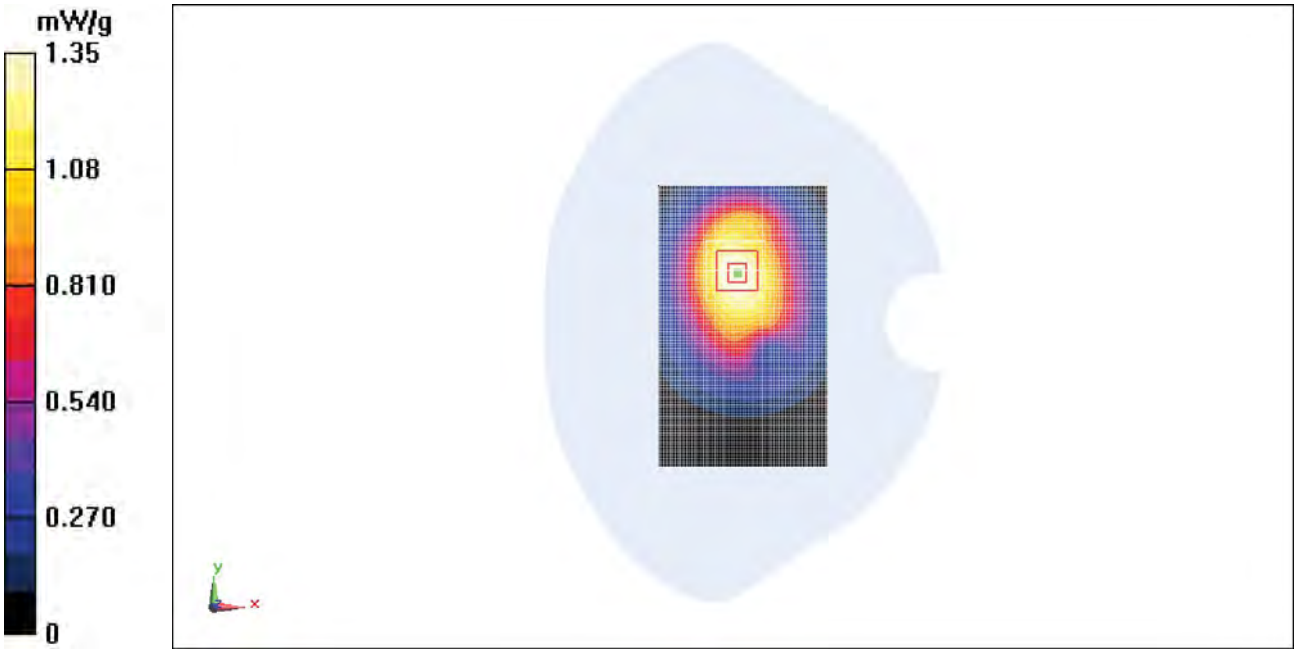


Fig. 62 850 MHz CH128

850 Body Towards Ground Low with Headset_CCB3160A10C0

Date/Time: 2011-5-12 18:30:58
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used: f = 825 MHz; σ = 0.93 mho/m; εr = 55.8; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 Frequency: 824.2 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

Toward Ground Low/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.751 mW/g

Toward Ground Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.3 V/m; Power Drift = -0.126 dB
Peak SAR (extrapolated) = 1.01 W/kg
SAR(1 g) = 0.682 mW/g; SAR(10 g) = 0.453 mW/g
Maximum value of SAR (measured) = 0.740 mW/g

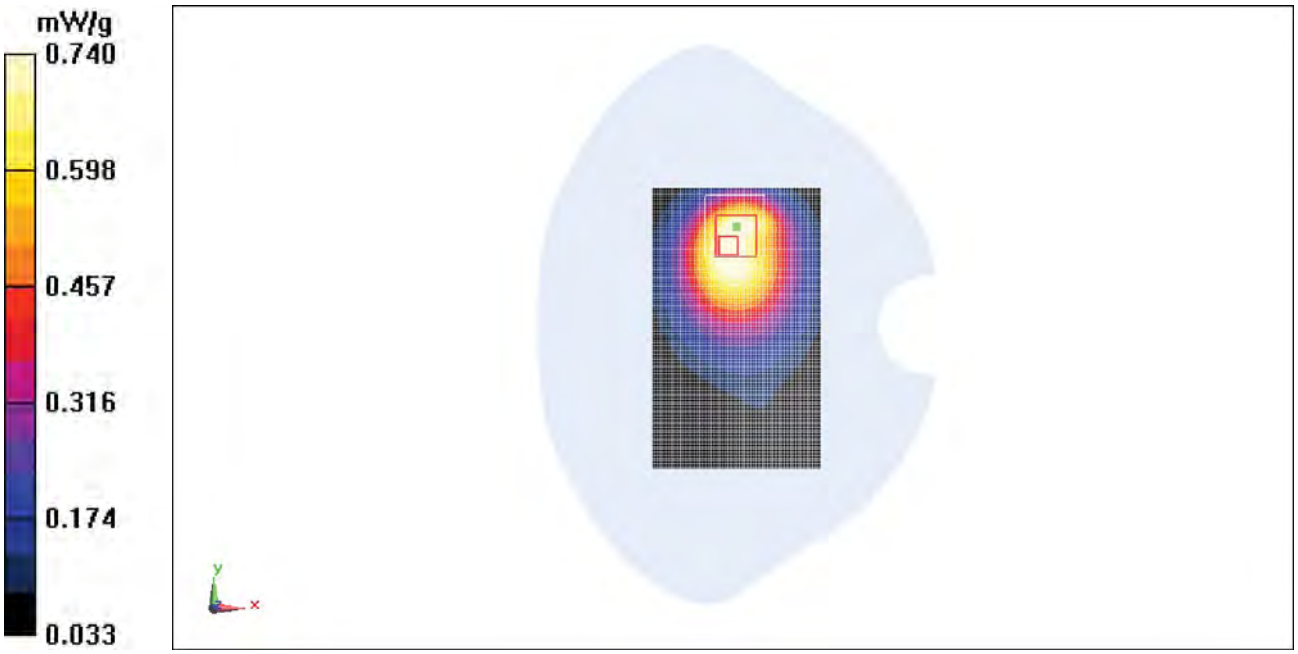


Fig. 63 850 MHz CH128

850 Body Towards Ground Low with Headset_CCB3160A10C2

Date/Time: 2011-5-12 18:47:03
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used: f = 825 MHz; σ = 0.93 mho/m; εr = 55.8; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 Frequency: 824.2 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

Toward Ground Low/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.823 mW/g

Toward Ground Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 26.5 V/m; Power Drift = -0.0012 dB
Peak SAR (extrapolated) = 1.05 W/kg
SAR(1 g) = 0.789 mW/g; SAR(10 g) = 0.573 mW/g
Maximum value of SAR (measured) = 0.832 mW/g

Toward Ground Low/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 26.5 V/m; Power Drift = -0.0012 dB
Peak SAR (extrapolated) = 0.993 W/kg
SAR(1 g) = 0.651 mW/g; SAR(10 g) = 0.427 mW/g
Maximum value of SAR (measured) = 0.742 mW/g

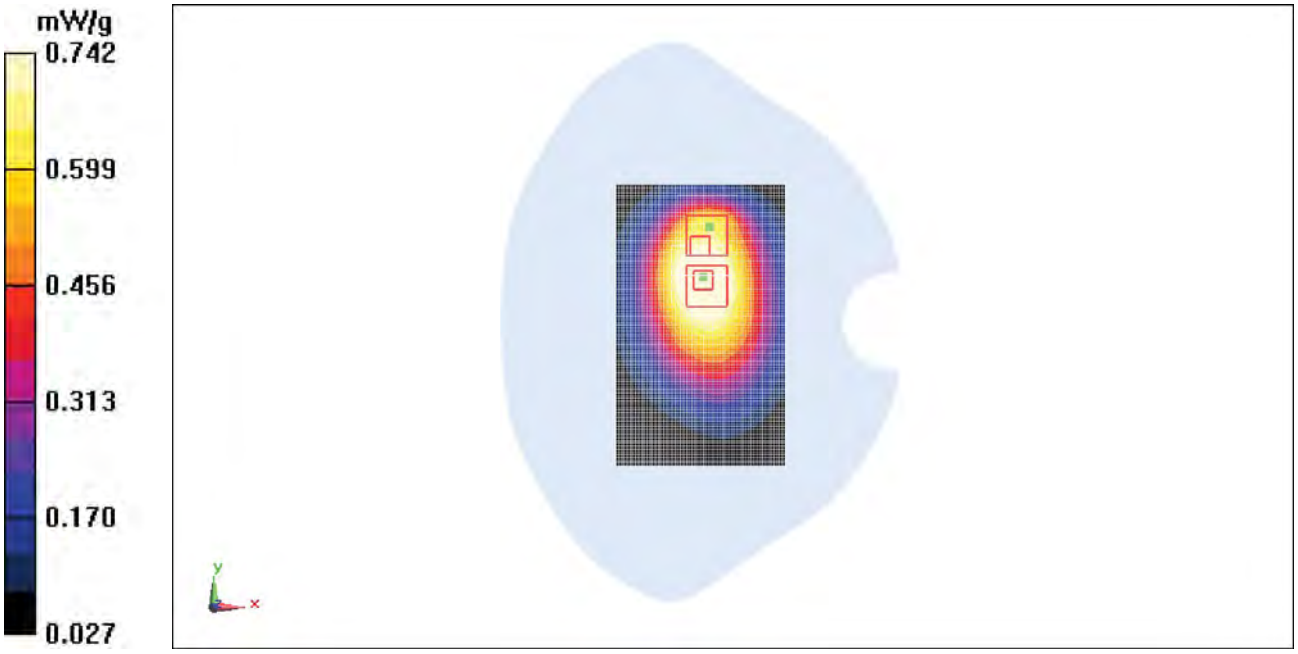


Fig. 64 850 MHz CH128

1900 Body Towards Phantom Middle with GPRS

Date/Time: 2011-5-13 14:54:16
Electronics: DAE4 Sn771
Medium: Body 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.50 mho/m; εr = 53.2; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900MHz GPRS Frequency: 1880 MHz Duty Cycle: 1:2
Probe: ES3DV3 - SN3149 ConvF(4.68, 4.68, 4.68)

Toward Phantom Middle/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.788 mW/g

Toward Phantom Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11 V/m; Power Drift = -0.056 dB
Peak SAR (extrapolated) = 1.2 W/kg
SAR(1 g) = 0.707 mW/g; SAR(10 g) = 0.408 mW/g
Maximum value of SAR (measured) = 0.742 mW/g

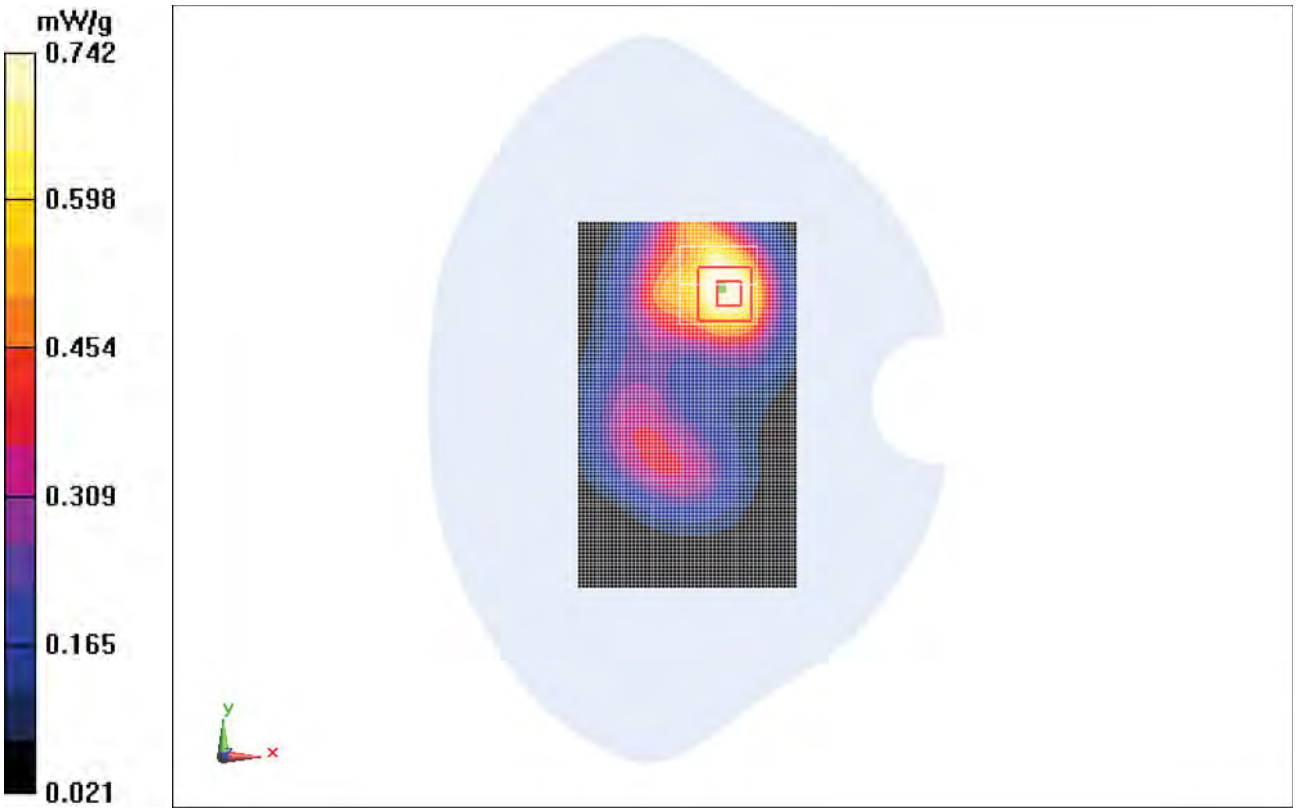


Fig. 65 1900 MHz CH661

1900 Body Towards Ground Middle with GPRS

Date/Time: 2011-5-13 15:09:39
Electronics: DAE4 Sn771
Medium: Body 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.50 mho/m; εr = 53.2; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900MHz GPRS Frequency: 1880 MHz Duty Cycle: 1:2
Probe: ES3DV3 - SN3149 ConvF(4.68, 4.68, 4.68)

Toward Ground Middle/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.814 mW/g

Toward Ground Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.88 V/m; Power Drift = -0.162 dB
Peak SAR (extrapolated) = 1.27 W/kg
SAR(1 g) = 0.753 mW/g; SAR(10 g) = 0.441 mW/g
Maximum value of SAR (measured) = 0.818 mW/g

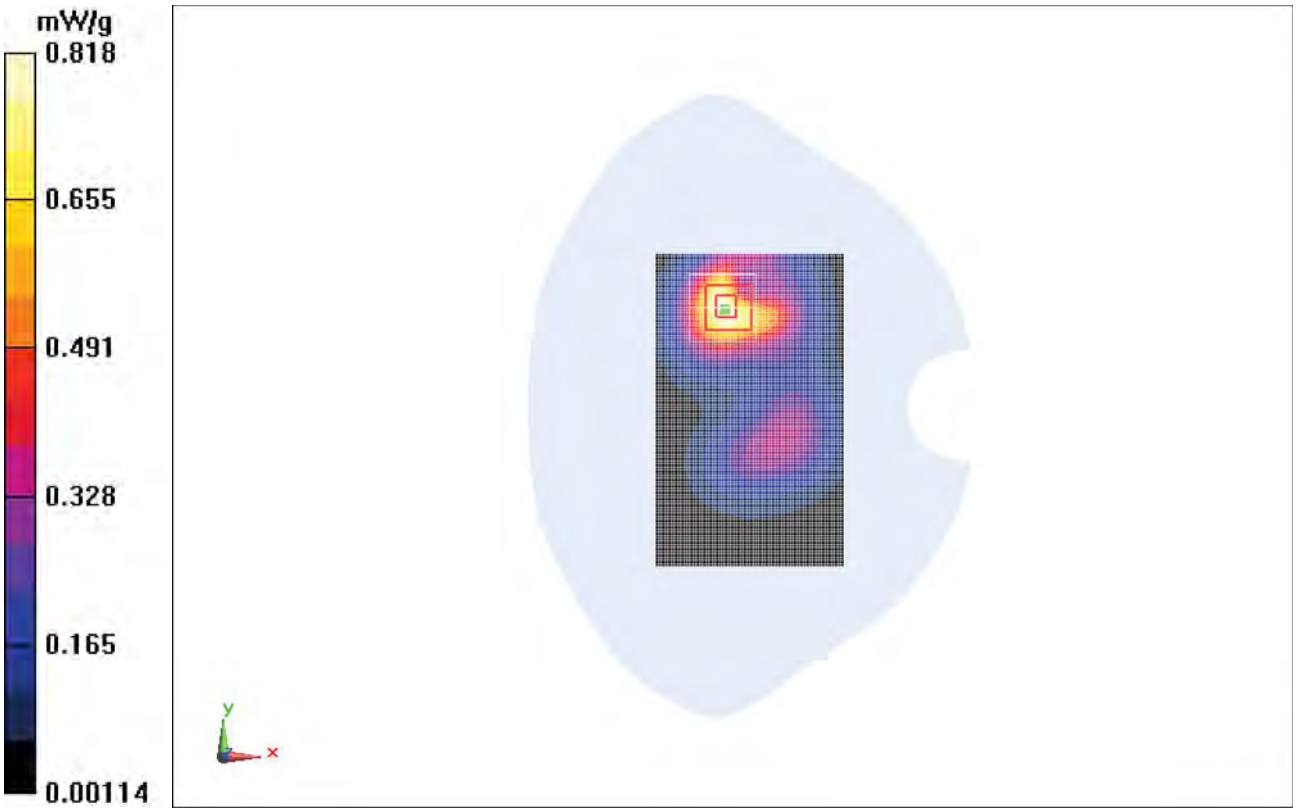


Fig. 66 1900 MHz CH661

1900 Body Left Side Middle with GPRS

Date/Time: 2011-5-13 15:25:08
Electronics: DAE4 Sn771
Medium: Body 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.50 mho/m; εr = 53.2; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900MHz GPRS Frequency: 1880 MHz Duty Cycle: 1:2
Probe: ES3DV3 - SN3149 ConvF(4.68, 4.68, 4.68)

Left Side Middle/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.158 mW/g

Left Side Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.96 V/m; Power Drift = -0.166 dB
Peak SAR (extrapolated) = 0.219 W/kg
SAR(1 g) = 0.137 mW/g; SAR(10 g) = 0.081 mW/g
Maximum value of SAR (measured) = 0.147 mW/g

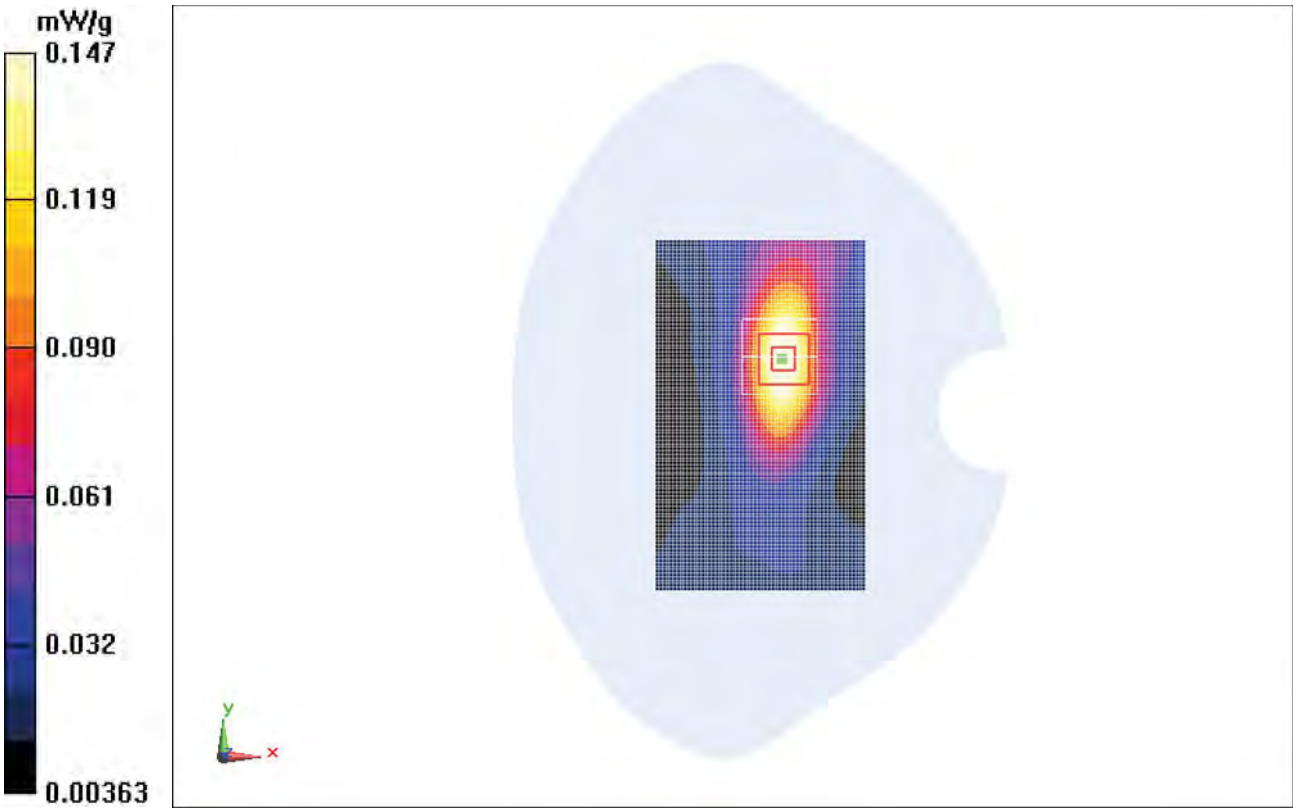


Fig. 67 1900 MHz CH661

1900 Body Right Side Middle with GPRS

Date/Time: 2011-5-13 15:40:29
Electronics: DAE4 Sn771
Medium: Body 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.50 mho/m; εr = 53.2; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900MHz GPRS Frequency: 1880 MHz Duty Cycle: 1:2
Probe: ES3DV3 - SN3149 ConvF(4.68, 4.68, 4.68)

Right Side Middle/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.275 mW/g

Right Side Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.2 V/m; Power Drift = -0.029 dB
Peak SAR (extrapolated) = 0.393 W/kg
SAR(1 g) = 0.246 mW/g; SAR(10 g) = 0.147 mW/g
Maximum value of SAR (measured) = 0.269 mW/g

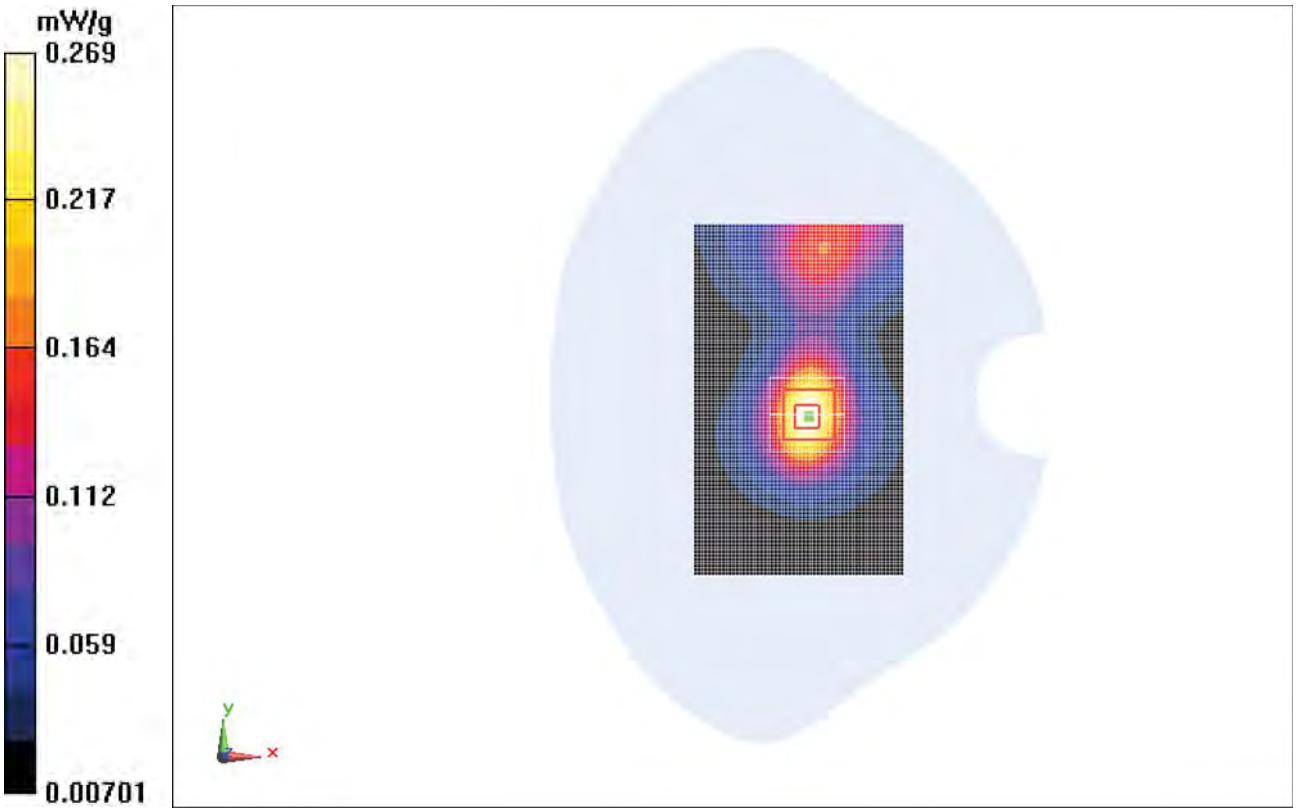


Fig. 68 1900 MHz CH661

1900 Body Bottom Side High with GPRS

Date/Time: 2011-5-13 16:11:18
Electronics: DAE4 Sn771
Medium: Body 1900 MHz
Medium parameters used: f = 1910 MHz; σ = 1.55 mho/m; εr = 52.7; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900MHz GPRS Frequency: 1909.8 MHz Duty Cycle: 1:2
Probe: ES3DV3 - SN3149 ConvF(4.68, 4.68, 4.68)

Bottom Side High/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.14 mW/g

Bottom Side High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 27 V/m; Power Drift = -0.183 dB
Peak SAR (extrapolated) = 1.94 W/kg
SAR(1 g) = 0.983 mW/g; SAR(10 g) = 0.521 mW/g
Maximum value of SAR (measured) = 1.12 mW/g

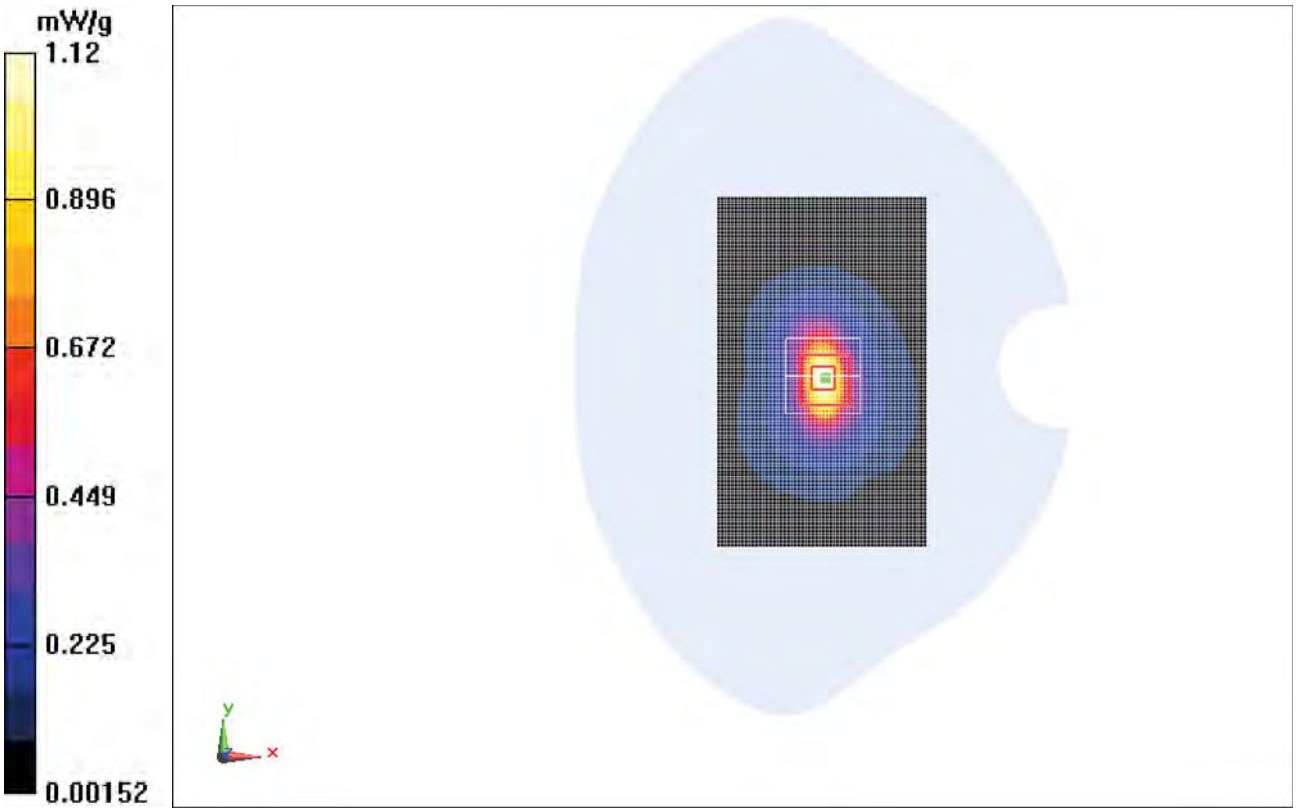


Fig. 69 1900 MHz CH810

1900 Body Bottom Side Middle with GPRS

Date/Time: 2011-5-13 15:55:52
Electronics: DAE4 Sn771
Medium: Body 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.50 mho/m; εr = 53.2; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900MHz GPRS Frequency: 1880 MHz Duty Cycle: 1:2
Probe: ES3DV3 - SN3149 ConvF(4.68, 4.68, 4.68)

Bottom Side Middle/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.1 mW/g

Bottom Side Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 23.8 V/m; Power Drift = -0.107 dB
Peak SAR (extrapolated) = 1.75 W/kg
SAR(1 g) = 1.02 mW/g; SAR(10 g) = 0.538 mW/g
Maximum value of SAR (measured) = 1.13 mW/g

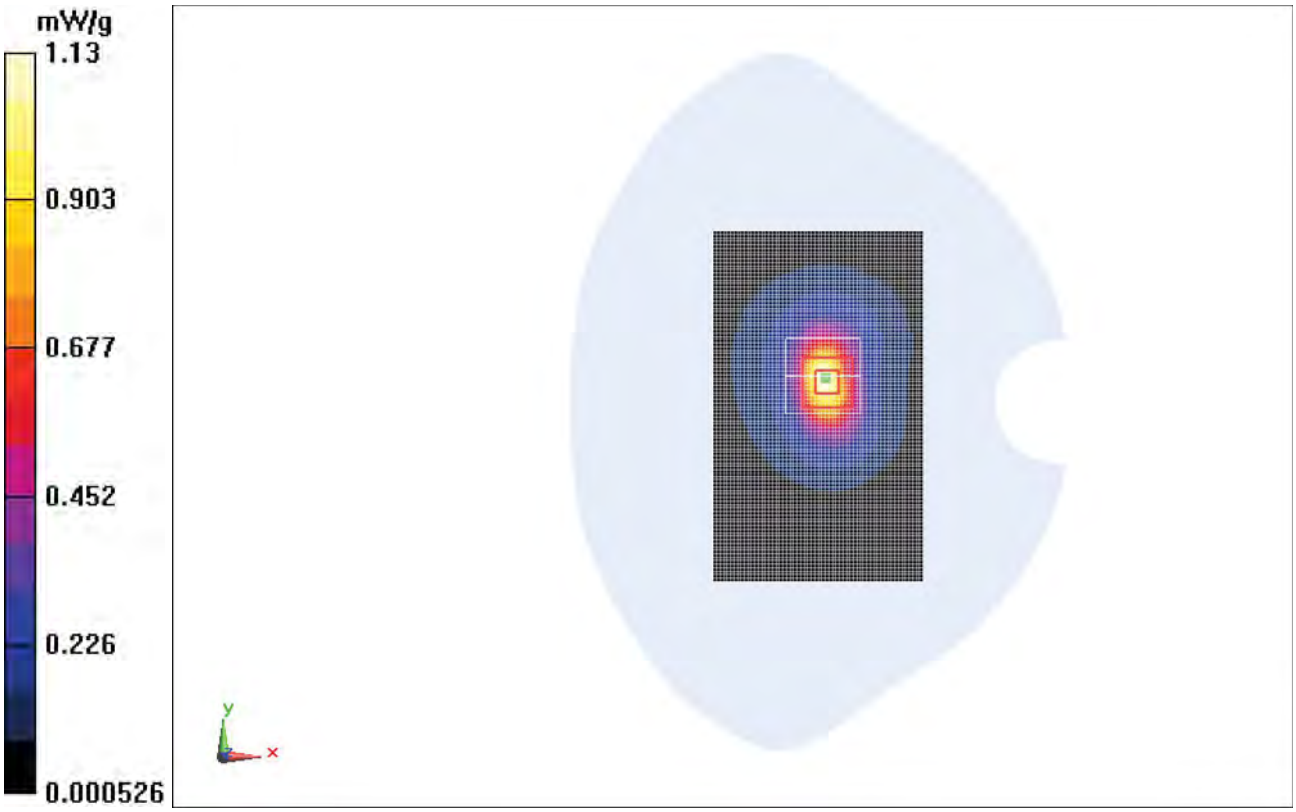


Fig. 70 1900 MHz CH661

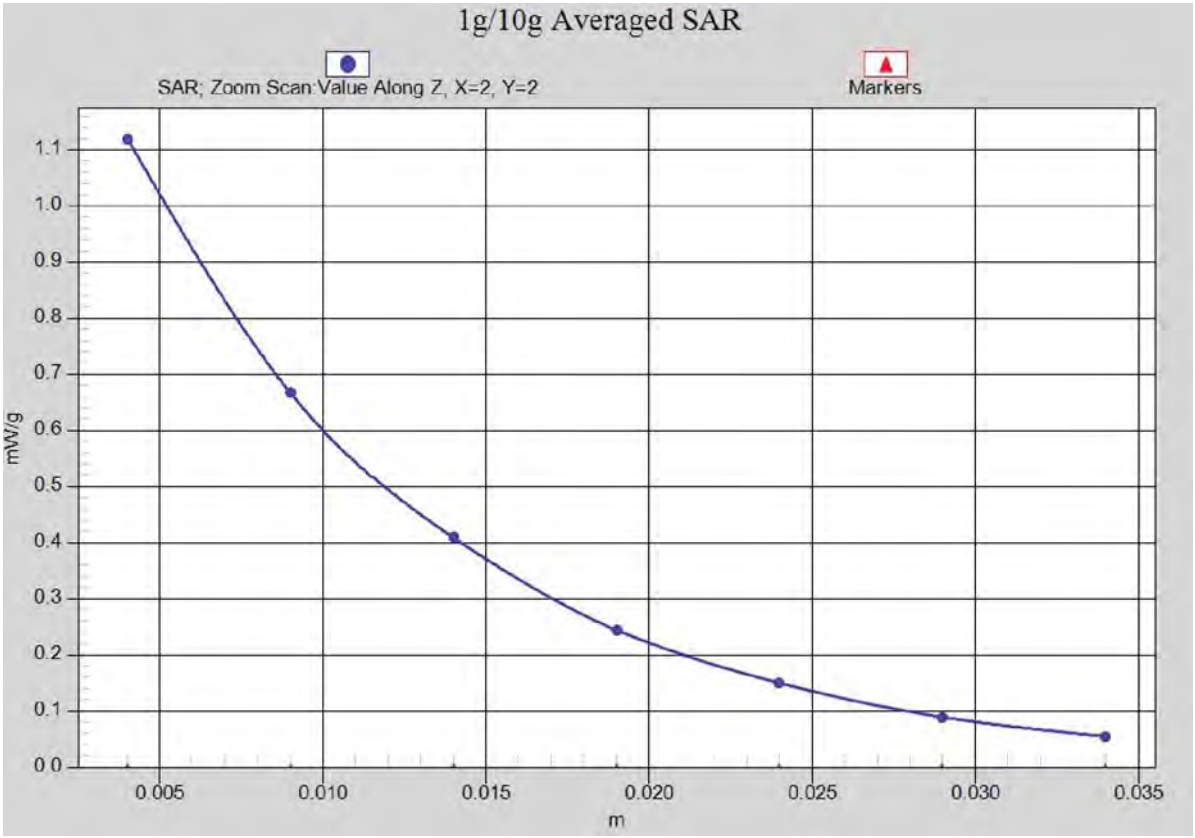


Fig. 70-1 Z-Scan at power reference point (1900 MHz CH661)

1900 Body Bottom Side Low with GPRS

Date/Time: 2011-5-13 16:26:40
Electronics: DAE4 Sn771
Medium: Body 1900 MHz
Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.48 mho/m; εr = 53.6; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900MHz GPRS Frequency: 1850.2 MHz Duty Cycle: 1:2
Probe: ES3DV3 - SN3149 ConvF(4.68, 4.68, 4.68)

Bottom Side Low/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.02 mW/g

Bottom Side Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 20.2 V/m; Power Drift = -0.117 dB
Peak SAR (extrapolated) = 1.29 W/kg
SAR(1 g) = 0.883 mW/g; SAR(10 g) = 0.464 mW/g
Maximum value of SAR (measured) = 1.17 mW/g

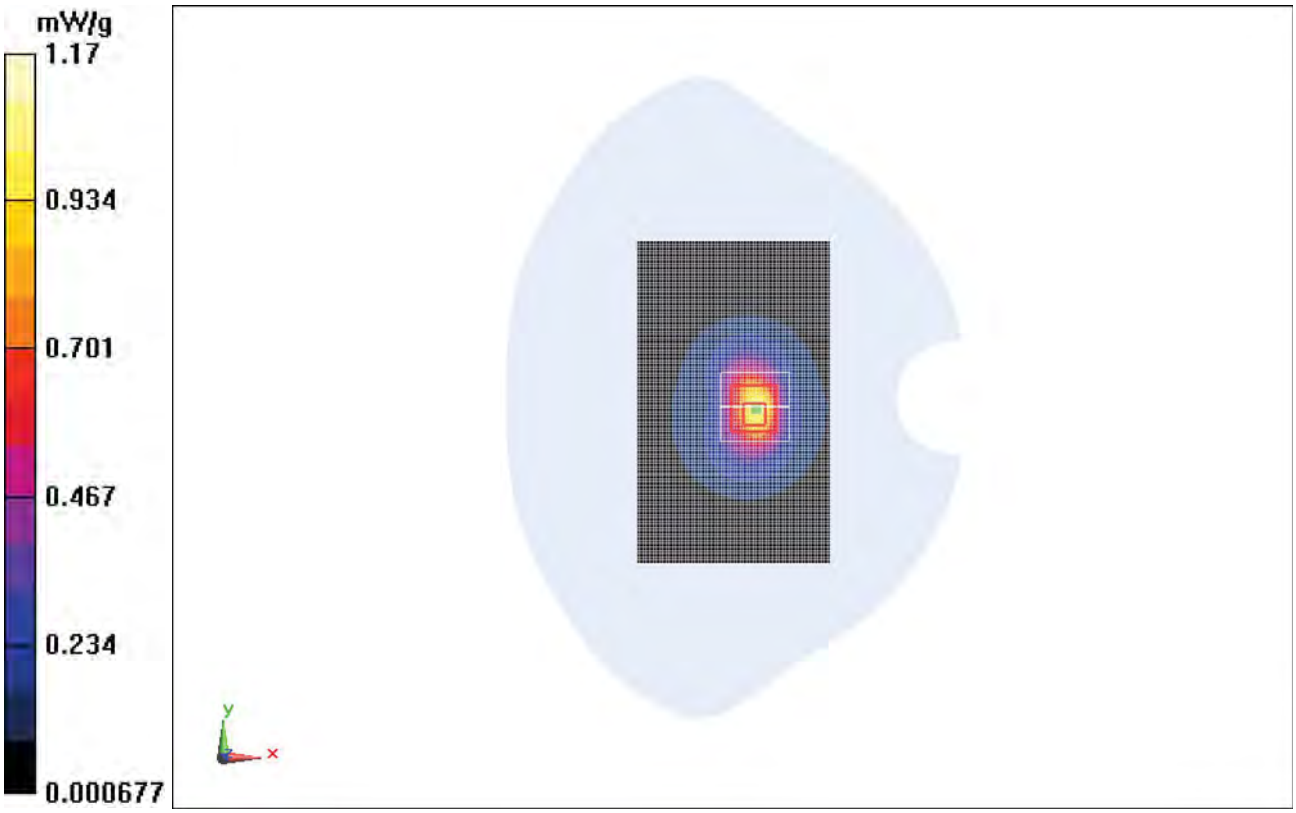


Fig. 71 1900 MHz CH512

1900 Body Bottom Side Middle with EGPRS

Date/Time: 2011-5-13 16:43:22
Electronics: DAE4 Sn771
Medium: Body 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.50 mho/m; εr = 53.2; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900MHz GPRS Frequency: 1880 MHz Duty Cycle: 1:2
Probe: ES3DV3 - SN3149 ConvF(4.68, 4.68, 4.68)

Bottom Side Middle/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.809 mW/g

Bottom Side Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 21.5 V/m; Power Drift = -0.160 dB
Peak SAR (extrapolated) = 1.53 W/kg
SAR(1 g) = 0.793 mW/g; SAR(10 g) = 0.411 mW/g
Maximum value of SAR (measured) = 0.814 mW/g

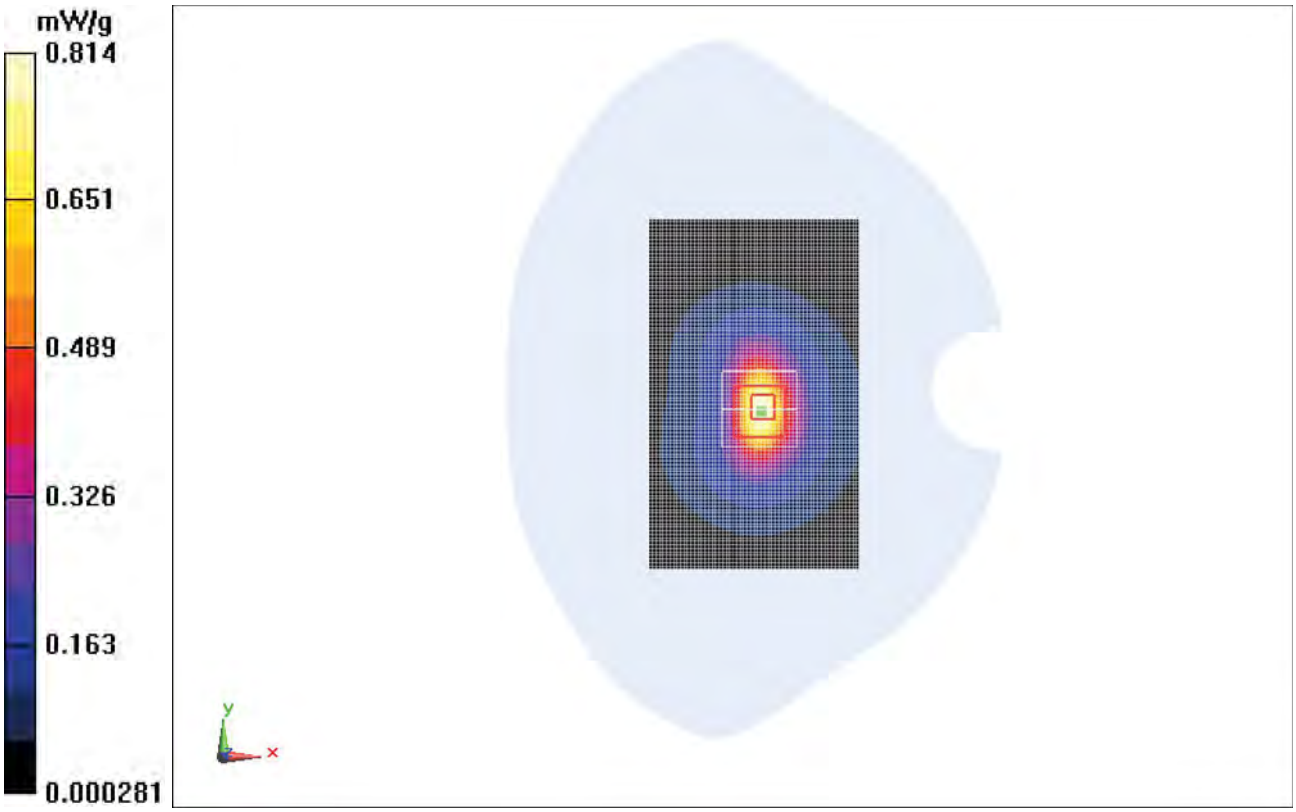


Fig. 72 1900 MHz CH661

1900 Body Bottom Side Middle with Headset_CCB3160A10C0

Date/Time: 2011-5-13 17:00:15
Electronics: DAE4 Sn771
Medium: Body 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.50 mho/m; εr = 53.2; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900MHz Frequency: 1880 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(4.68, 4.68, 4.68)

Bottom Side Middle/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.607 mW/g

Bottom Side Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.3 V/m; Power Drift = -0.121 dB
Peak SAR (extrapolated) = 1.01 W/kg
SAR(1 g) = 0.587 mW/g; SAR(10 g) = 0.310 mW/g
Maximum value of SAR (measured) = 0.675 mW/g

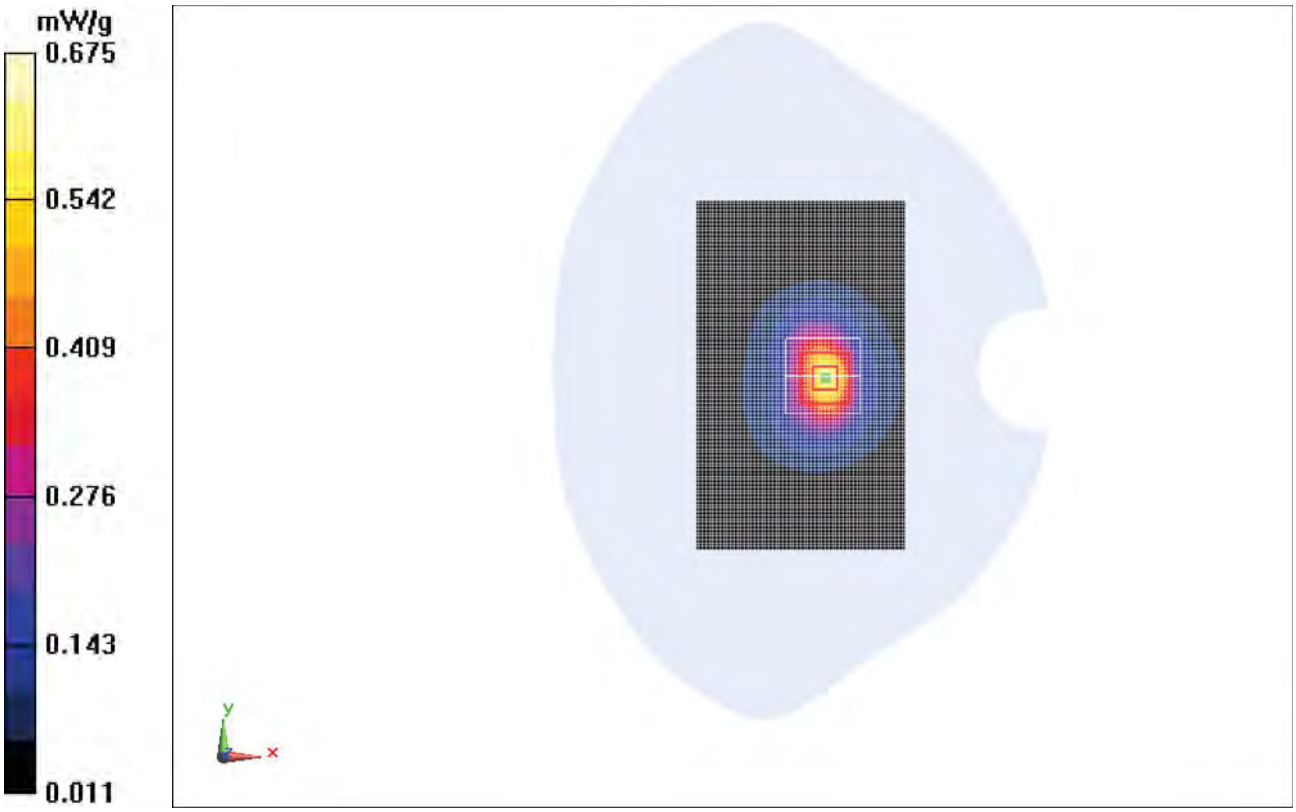


Fig. 73 1900 MHz CH661

1900 Body Bottom Side Middle with Headset_CCB3160A10C2

Date/Time: 2011-5-13 17:16:54
Electronics: DAE4 Sn771
Medium: Body 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.50 mho/m; εr = 53.2; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900MHz Frequency: 1880 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(4.68, 4.68, 4.68)

Bottom Side Middle/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.662 mW/g

Bottom Side Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.6 V/m; Power Drift = -0.153 dB
Peak SAR (extrapolated) = 1.08 W/kg
SAR(1 g) = 0.623 mW/g; SAR(10 g) = 0.328 mW/g
Maximum value of SAR (measured) = 0.703 mW/g

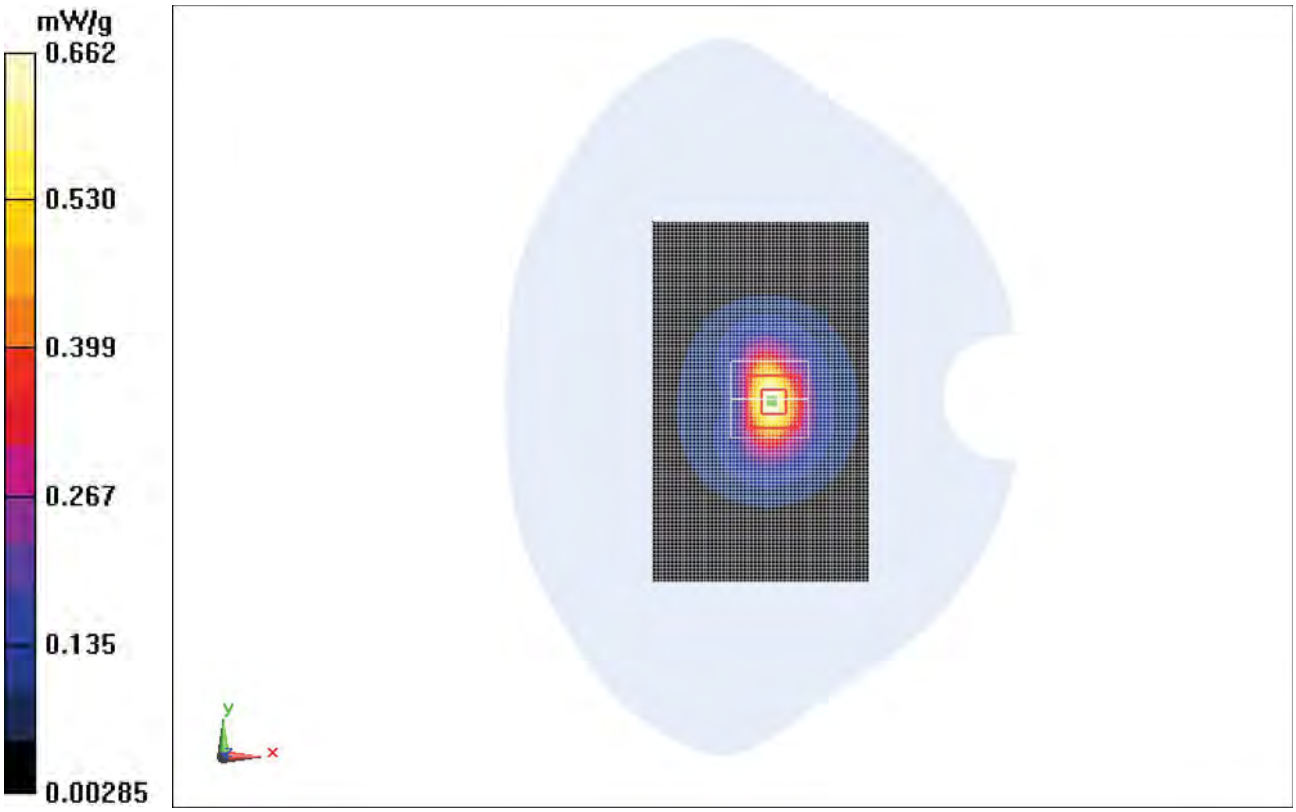


Fig. 74 1900 MHz CH661

WCDMA850 Body Towards Phantom High

Date/Time: 2011-3-24 17:40:55
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used (interpolated): f = 846.6 MHz; σ = 0.94 mho/m; εr = 54.6; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WCDMA 850 Frequency: 846.6 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

Toward Phantom High/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.946 mW/g

Toward Phantom High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 30.2 V/m; Power Drift = -0.121 dB
Peak SAR (extrapolated) = 1.11 W/kg
SAR(1 g) = 0.887 mW/g; SAR(10 g) = 0.659 mW/g
Maximum value of SAR (measured) = 0.935 mW/g

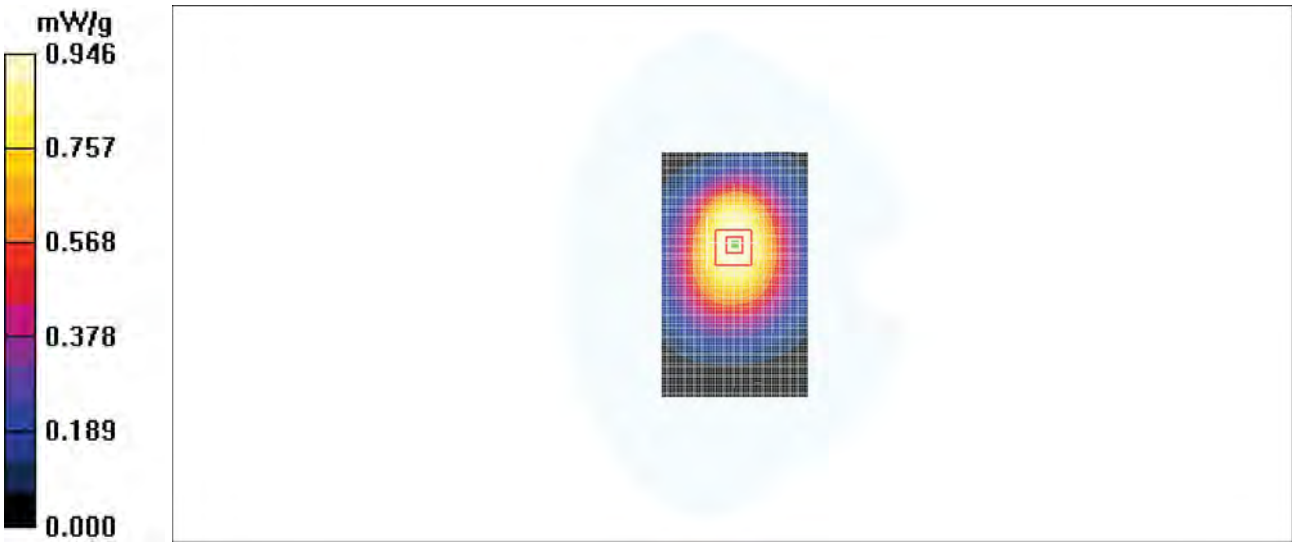


Fig. 75 850 MHz CH4233

WCDMA 850 Body Towards Phantom Middle

Date/Time: 2011-3-24 17:58:55
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used (interpolated): f = 836.4 MHz; σ = 0.95 mho/m; εr = 54.8; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WCDMA 850 Frequency: 836.4 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

Toward Phantom Middle/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.900 mW/g

Toward Phantom Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 28.4 V/m; Power Drift = 0.049 dB
Peak SAR (extrapolated) = 1.08 W/kg
SAR(1 g) = 0.854 mW/g; SAR(10 g) = 0.632 mW/g
Maximum value of SAR (measured) = 0.906 mW/g

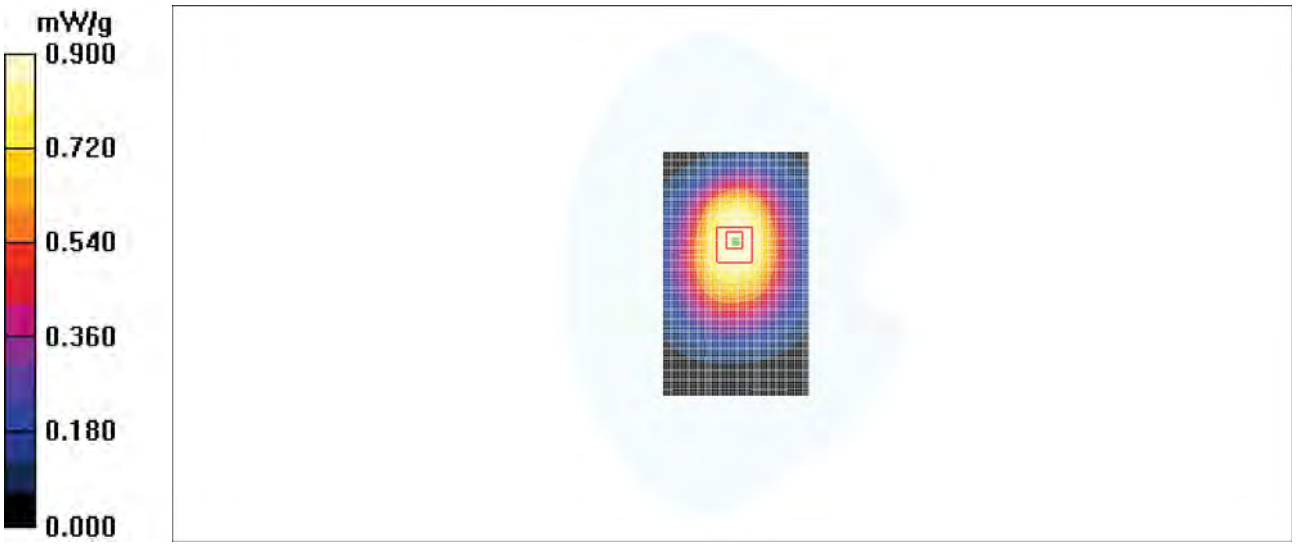


Fig. 76 850 MHz CH4182

WCDMA 850 Body Towards Phantom Low

Date/Time: 2011-3-24 18:15:37
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.94 mho/m; εr = 55.5; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WCDMA 850 Frequency: 826.4 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

Toward Phantom Low/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.843 mW/g

Toward Phantom Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 27.6 V/m; Power Drift = -0.011 dB
Peak SAR (extrapolated) = 1.01 W/kg
SAR(1 g) = 0.799 mW/g; SAR(10 g) = 0.595 mW/g
Maximum value of SAR (measured) = 0.837 mW/g

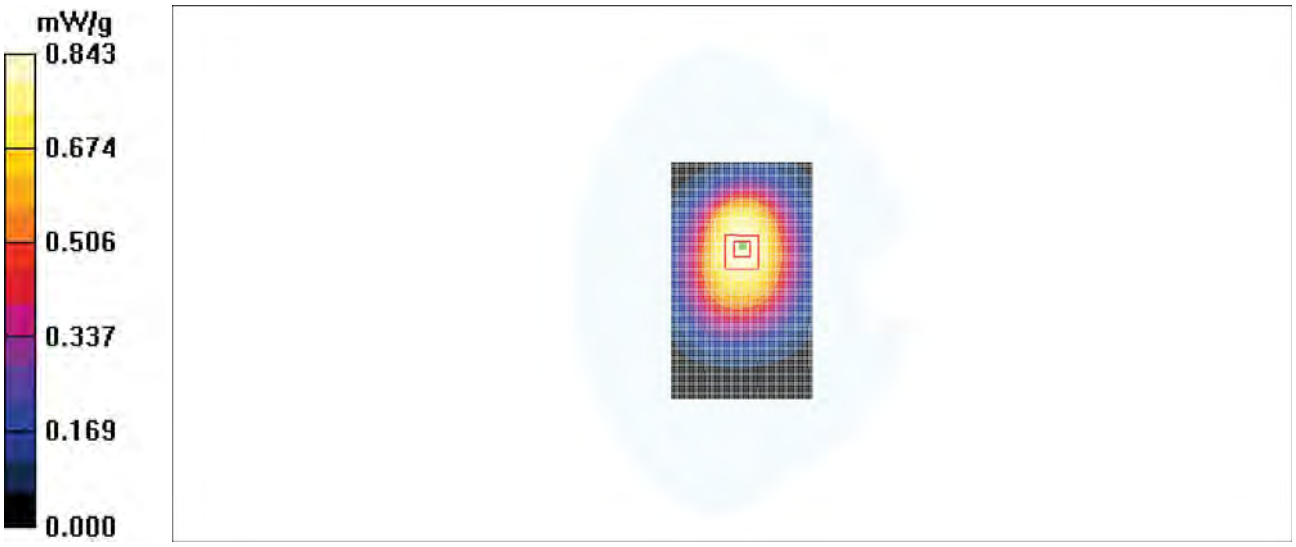


Fig. 77 850 MHz CH4132

WCDMA 850 Body Towards Ground High

Date/Time: 2011-3-24 18:32:59
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used (interpolated): f = 846.6 MHz; σ = 0.94 mho/m; εr = 54.6; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WCDMA 850 Frequency: 846.6 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

Toward Ground High/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.14 mW/g

Toward Ground High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 31.8 V/m; Power Drift = -0.012 dB
Peak SAR (extrapolated) = 1.42 W/kg
SAR(1 g) = 1.07 mW/g; SAR(10 g) = 0.773 mW/g
Maximum value of SAR (measured) = 1.13 mW/g

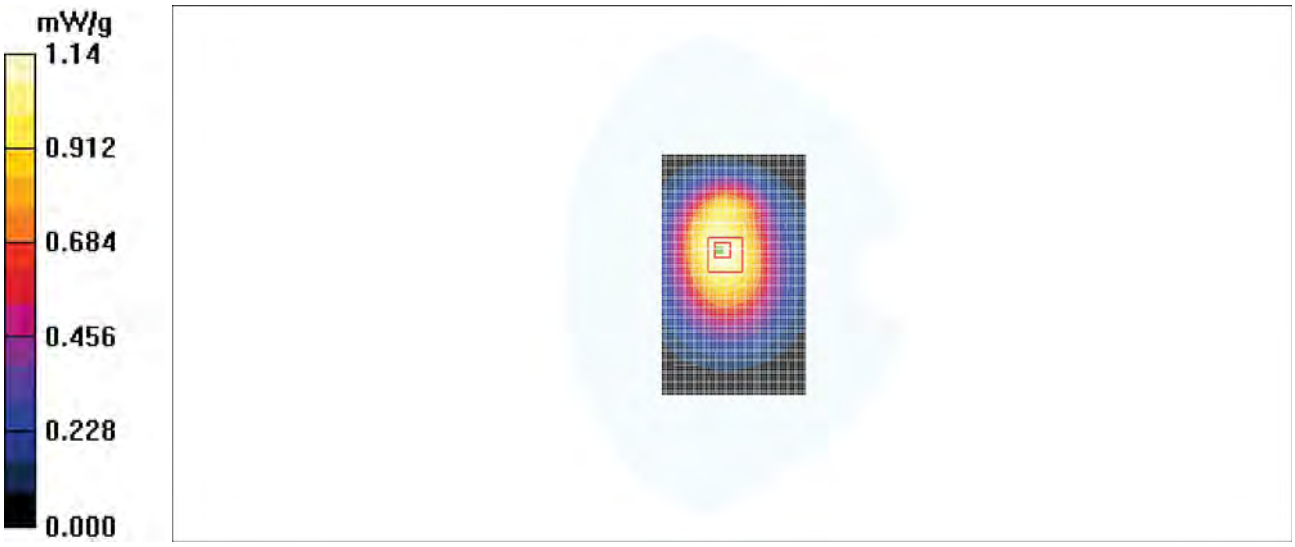


Fig. 78 850 MHz CH4233

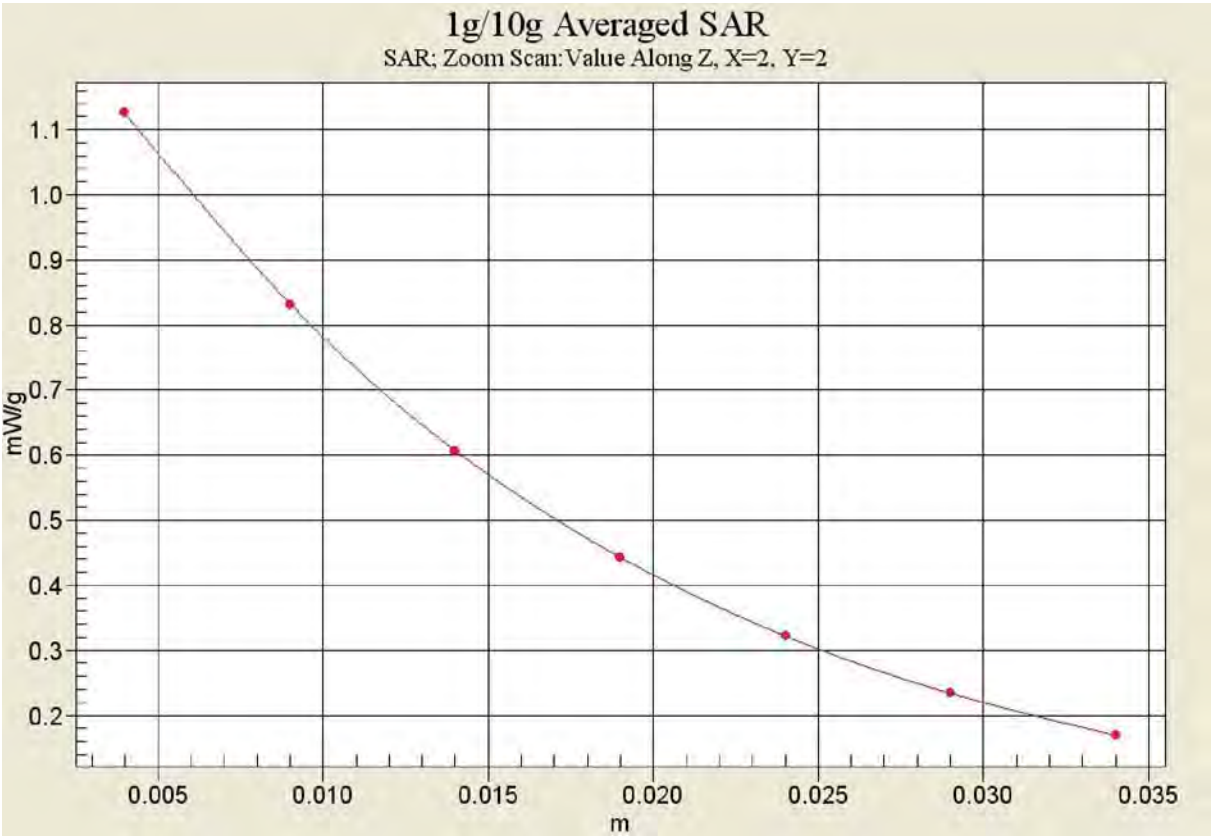


Fig. 78-1 Z-Scan at power reference point (850 MHz CH4233)

WCDMA 850 Body Towards Ground Middle

Date/Time: 2011-3-24 18:49:18
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used (interpolated): f = 836.4 MHz; σ = 0.95 mho/m; εr = 54.8; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WCDMA 850 Frequency: 836.4 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

Toward Ground Middle/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.11 mW/g

Toward Ground Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 31.0 V/m; Power Drift = 0.062 dB
Peak SAR (extrapolated) = 1.38 W/kg
SAR(1 g) = 1.03 mW/g; SAR(10 g) = 0.745 mW/g
Maximum value of SAR (measured) = 1.09 mW/g

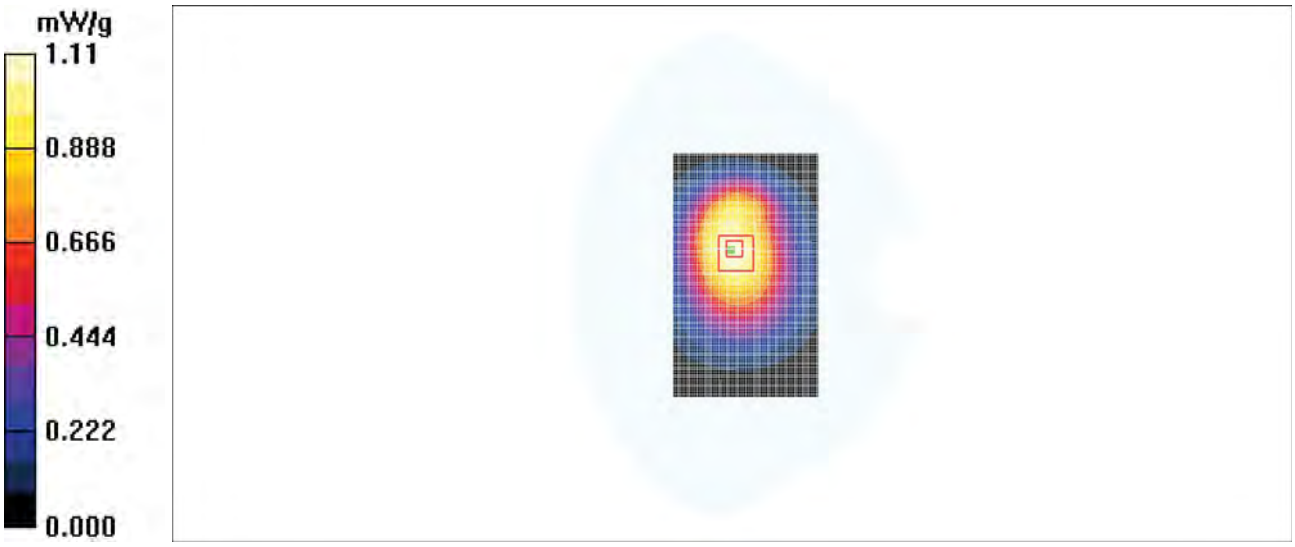


Fig. 79 850 MHz CH4182

WCDMA 850 Body Towards Ground Low

Date/Time: 2011-3-24 19:06:41
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.94 mho/m; εr = 55.5; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WCDMA 850 Frequency: 826.4 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

Toward Ground Low/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.05 mW/g

Toward Ground Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 30.2 V/m; Power Drift = 0.064 dB
Peak SAR (extrapolated) = 1.32 W/kg
SAR(1 g) = 0.988 mW/g; SAR(10 g) = 0.713 mW/g
Maximum value of SAR (measured) = 1.04 mW/g

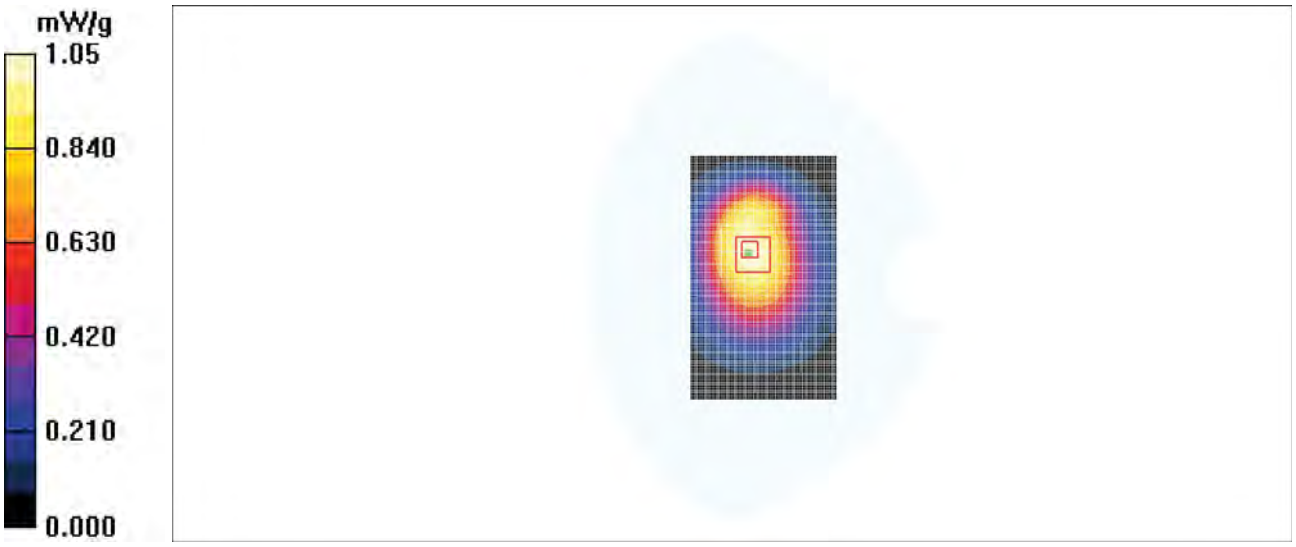


Fig. 80 850 MHz CH4132

WCDMA 850 Body Left Side Low

Date/Time: 2011-3-24 18:32:59
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.94 mho/m; εr = 55.5; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WCDMA 850 Frequency: 826.4 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

Left Side Low/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.775 mW/g

Left Side Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 27.2 V/m; Power Drift = -0.033 dB
Peak SAR (extrapolated) = 1.02 W/kg
SAR(1 g) = 0.722 mW/g; SAR(10 g) = 0.489 mW/g
Maximum value of SAR (measured) = 0.776 mW/g

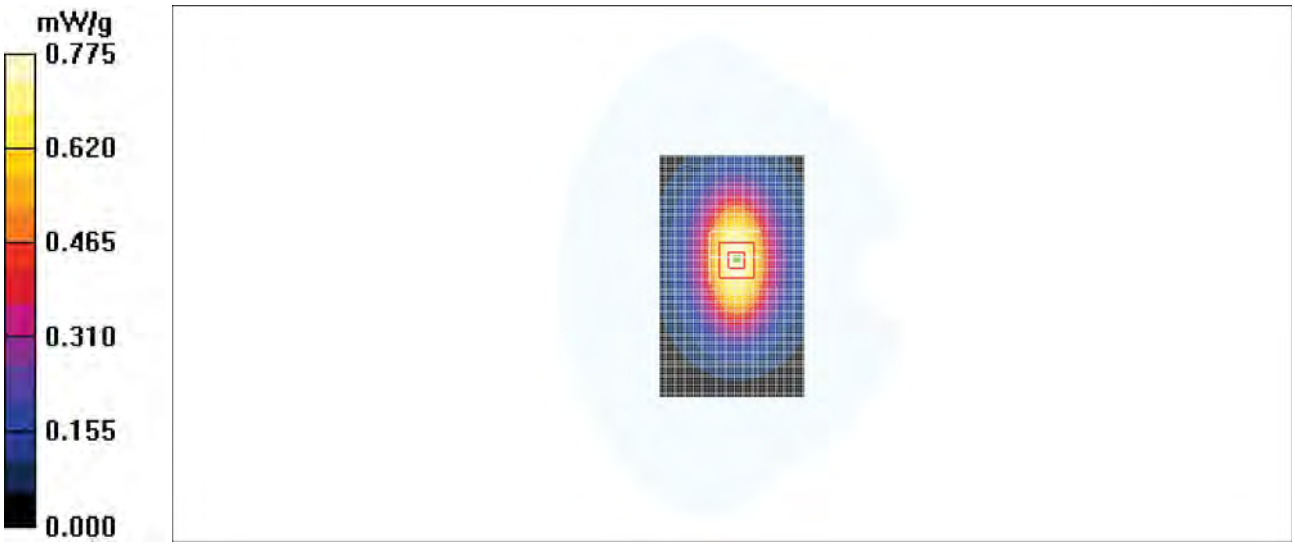


Fig. 81 850 MHz CH4132

WCDMA 850 Body Right Side Low

Date/Time: 2011-3-24 18:32:59
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.94 mho/m; εr = 55.5; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WCDMA 850 Frequency: 826.4 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

Right Side Low/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.795 mW/g

Right Side Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 26.9 V/m; Power Drift = -0.165 dB
Peak SAR (extrapolated) = 1.01 W/kg
SAR(1 g) = 0.731 mW/g; SAR(10 g) = 0.507 mW/g
Maximum value of SAR (measured) = 0.779 mW/g

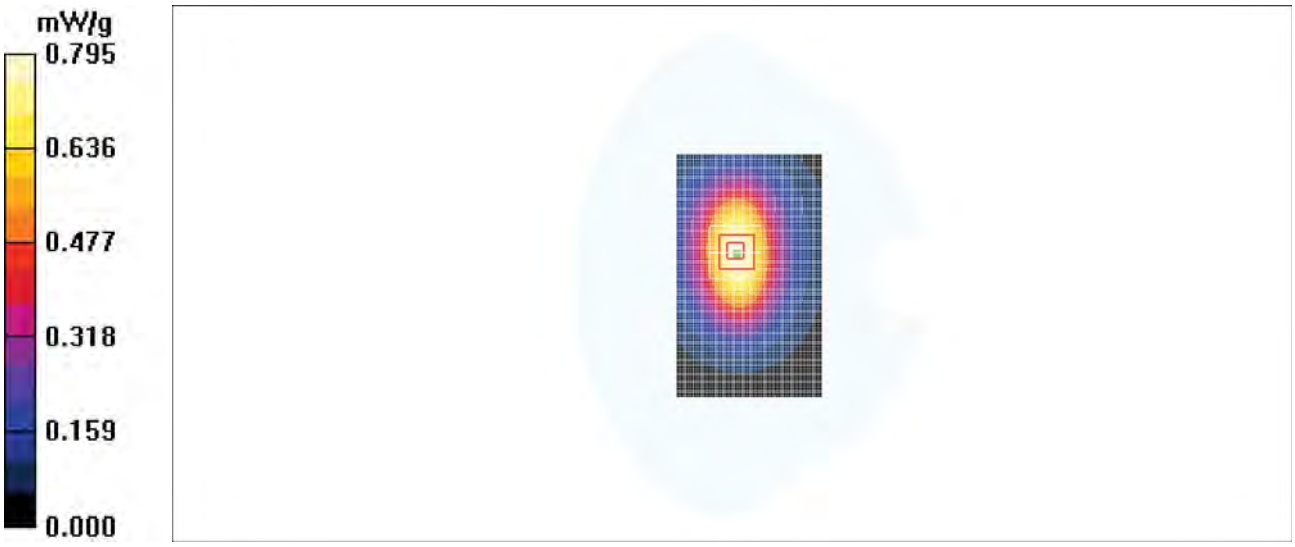


Fig. 82 850 MHz CH4132

WCDMA 850 Body Bottom Side Low

Date/Time: 2011-3-24 18:32:59
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.94 mho/m; εr = 55.5; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WCDMA 850 Frequency: 826.4 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

Bottom Side Low/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.097 mW/g

Bottom Side Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.37 V/m; Power Drift = 0.025 dB
Peak SAR (extrapolated) = 0.168 W/kg
SAR(1 g) = 0.091 mW/g; SAR(10 g) = 0.052 mW/g
Maximum value of SAR (measured) = 0.098 mW/g

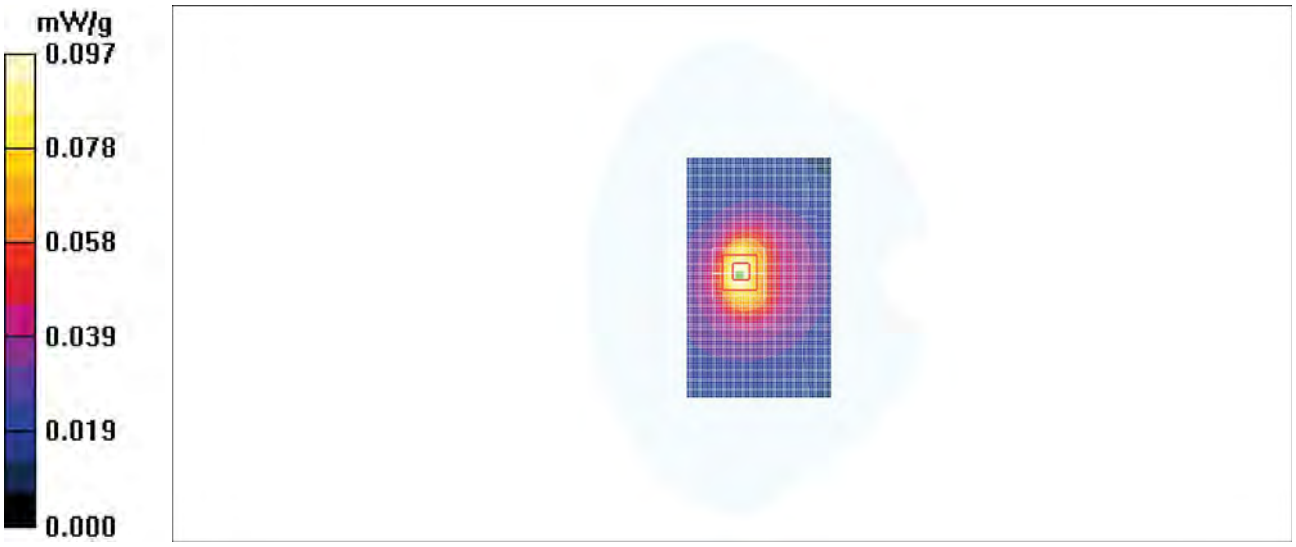


Fig. 83 850 MHz CH4132

WCDMA 850 Body Towards Ground High with Headset_CCB3160A10C0
Date/Time: 2011-3-24 18:32:59
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used (interpolated): f = 846.6 MHz; σ = 0.94 mho/m; εr = 54.6; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WCDMA 850 Frequency: 846.6 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

Toward Ground High/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.738 mW/g

Toward Ground High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 25.0 V/m; Power Drift = 0.071 dB
Peak SAR (extrapolated) = 0.970 W/kg
SAR(1 g) = 0.712 mW/g; SAR(10 g) = 0.511 mW/g
Maximum value of SAR (measured) = 0.754 mW/g

Toward Ground High/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 25.0 V/m; Power Drift = 0.071 dB
Peak SAR (extrapolated) = 0.967 W/kg
SAR(1 g) = 0.678 mW/g; SAR(10 g) = 0.455 mW/g
Maximum value of SAR (measured) = 0.746 mW/g

Fig. 84 850 MHz CH4233

WCDMA 850 Body Towards Ground High with Headset_CCB3160A10C2

Date/Time: 2011-3-24 18:32:59
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used (interpolated): f = 846.6 MHz; σ = 0.94 mho/m; εr = 54.6; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WCDMA 850 Frequency: 846.6 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

Toward Ground High/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.810 mW/g

Toward Ground High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.3 V/m; Power Drift = -0.061 dB
Peak SAR (extrapolated) = 1.06 W/kg
SAR(1 g) = 0.756 mW/g; SAR(10 g) = 0.530 mW/g
Maximum value of SAR (measured) = 0.794 mW/g

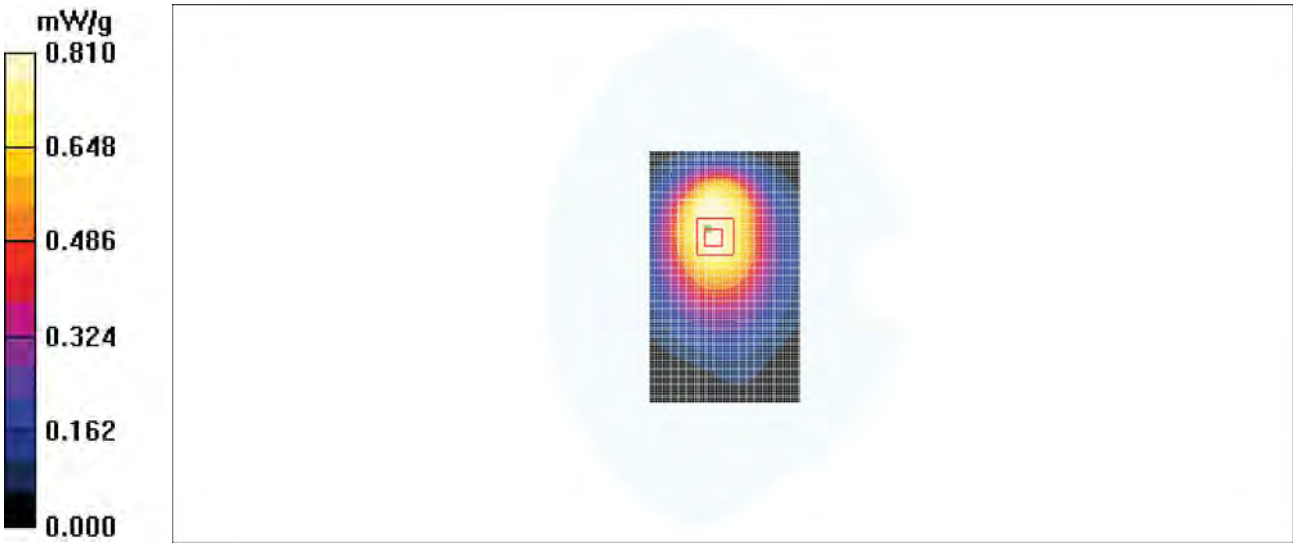


Fig. 85 850 MHz CH4233

WCDMA 1900 Body Towards Phantom High

Date/Time: 2011-5-13 17:35:02
Electronics: DAE4 Sn771
Medium: Body 1900 MHz
Medium parameters used (interpolated): f = 1907.6 MHz; σ = 1.54 mho/m; εr = 52.8; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WCDMA 1900 Frequency: 1907.6 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(4.68, 4.68, 4.68)

Toward Phantom High/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.779 mW/g

Toward Phantom High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.4 V/m; Power Drift = 0.146 dB
Peak SAR (extrapolated) = 1.18 W/kg
SAR(1 g) = 0.698 mW/g; SAR(10 g) = 0.410 mW/g
Maximum value of SAR (measured) = 0.737 mW/g

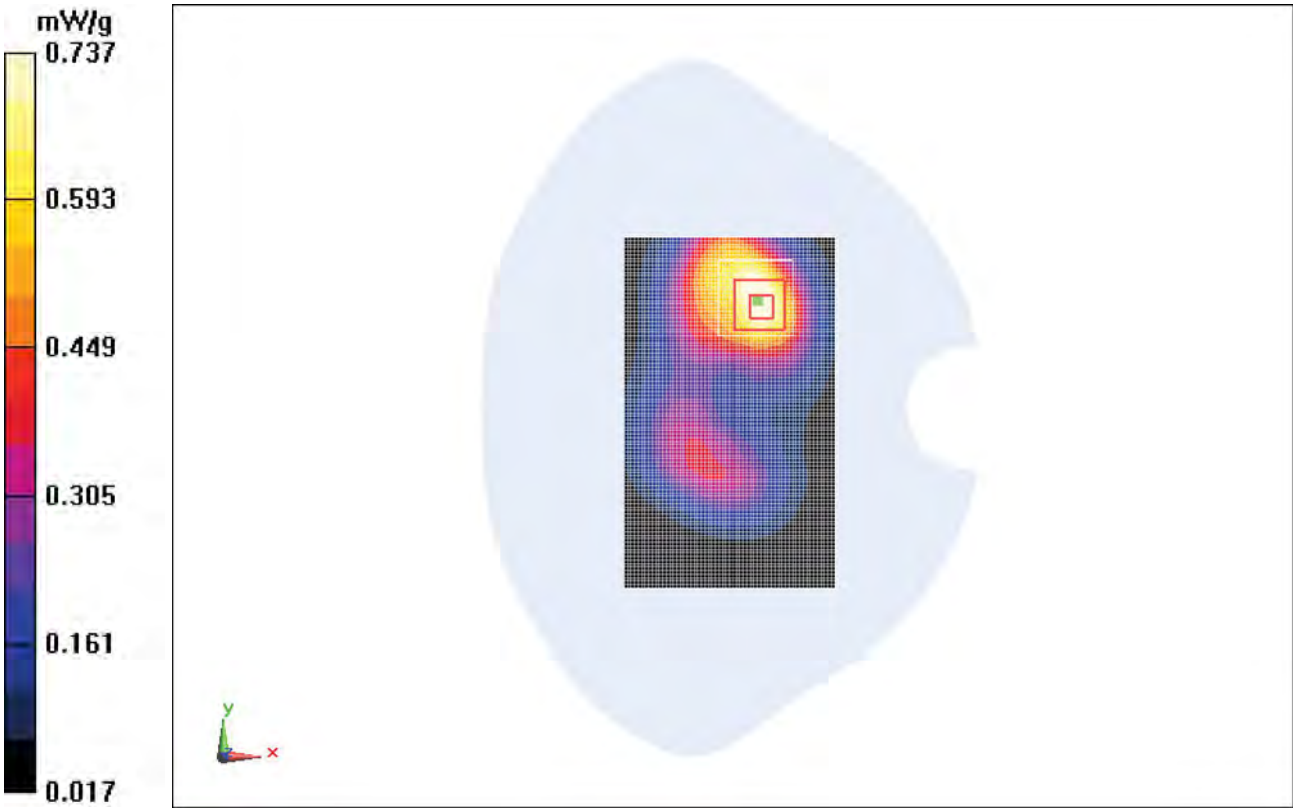


Fig. 86 1900 MHz CH9538

WCDMA 1900 Body Towards Ground High

Date/Time: 2011-5-13 17:50:23
Electronics: DAE4 Sn771
Medium: Body 1900 MHz
Medium parameters used (interpolated): f = 1907.6 MHz; σ = 1.54 mho/m; εr = 52.8; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WCDMA 1900 Frequency: 1907.6 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(4.68, 4.68, 4.68)

Toward Ground High/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.814 mW/g

Toward Ground High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.6 V/m; Power Drift = -0.025 dB
Peak SAR (extrapolated) = 1.22 W/kg
SAR(1 g) = 0.731 mW/g; SAR(10 g) = 0.431 mW/g
Maximum value of SAR (measured) = 0.788 mW/g

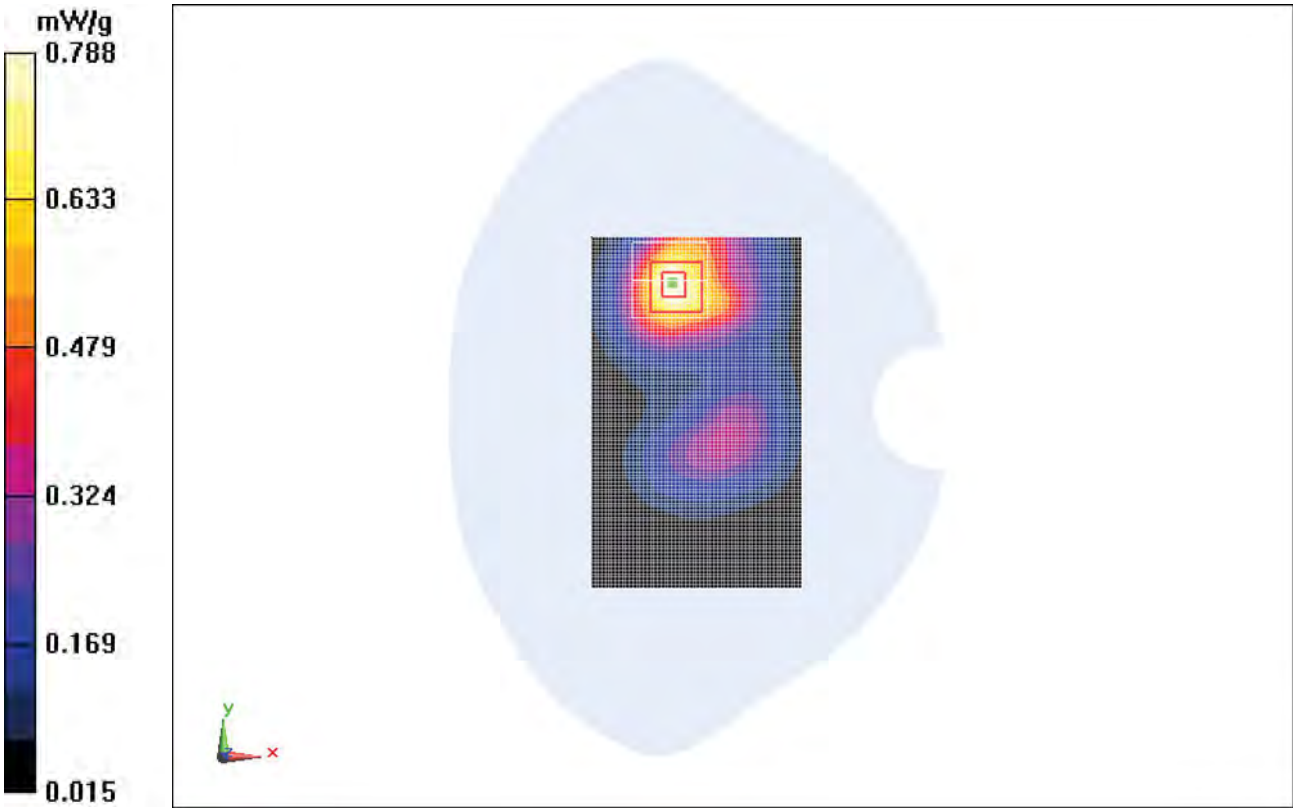


Fig. 87 1900 MHz CH9538

WCDMA 1900 Body Left Side High

Date/Time: 2011-5-13 18:05:59
Electronics: DAE4 Sn771
Medium: Body 1900 MHz
Medium parameters used (interpolated): f = 1907.6 MHz; σ = 1.54 mho/m; εr = 52.8; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WCDMA 1900 Frequency: 1907.6 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(4.68, 4.68, 4.68)

Left Side High/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.149 mW/g

Left Side High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.32 V/m; Power Drift = 0.075 dB
Peak SAR (extrapolated) = 0.217 W/kg
SAR(1 g) = 0.134 mW/g; SAR(10 g) = 0.080 mW/g
Maximum value of SAR (measured) = 0.144 mW/g

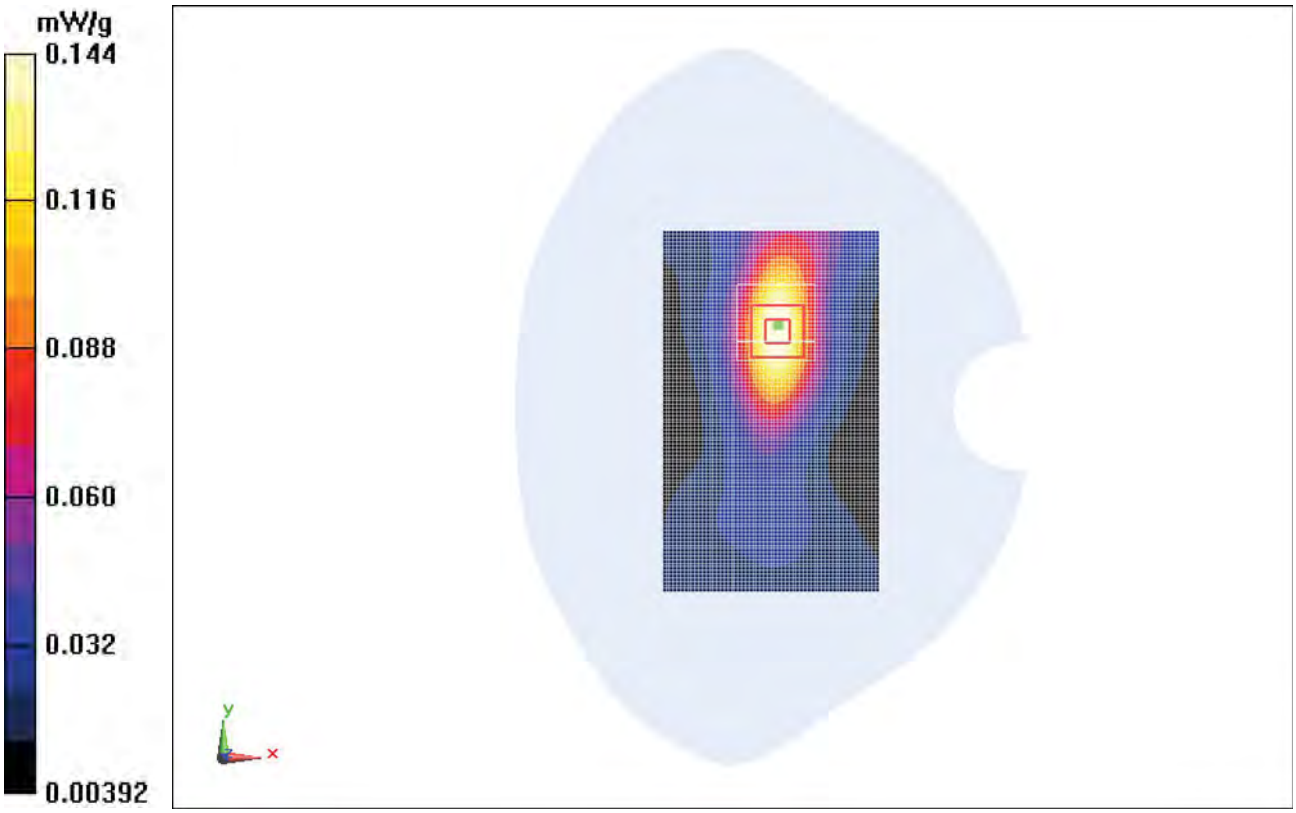


Fig. 88 1900 MHz CH9538

WCDMA 1900 Body Right Side High

Date/Time: 2011-5-13 18:21:26
Electronics: DAE4 Sn771
Medium: Body 1900 MHz
Medium parameters used (interpolated): f = 1907.6 MHz; σ = 1.54 mho/m; εr = 52.8; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WCDMA 1900 Frequency: 1907.6 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(4.68, 4.68, 4.68)

Right Side High/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.292 mW/g

Right Side High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.4 V/m; Power Drift = 0.046 dB
Peak SAR (extrapolated) = 0.433 W/kg
SAR(1 g) = 0.268 mW/g; SAR(10 g) = 0.158 mW/g
Maximum value of SAR (measured) = 0.290 mW/g

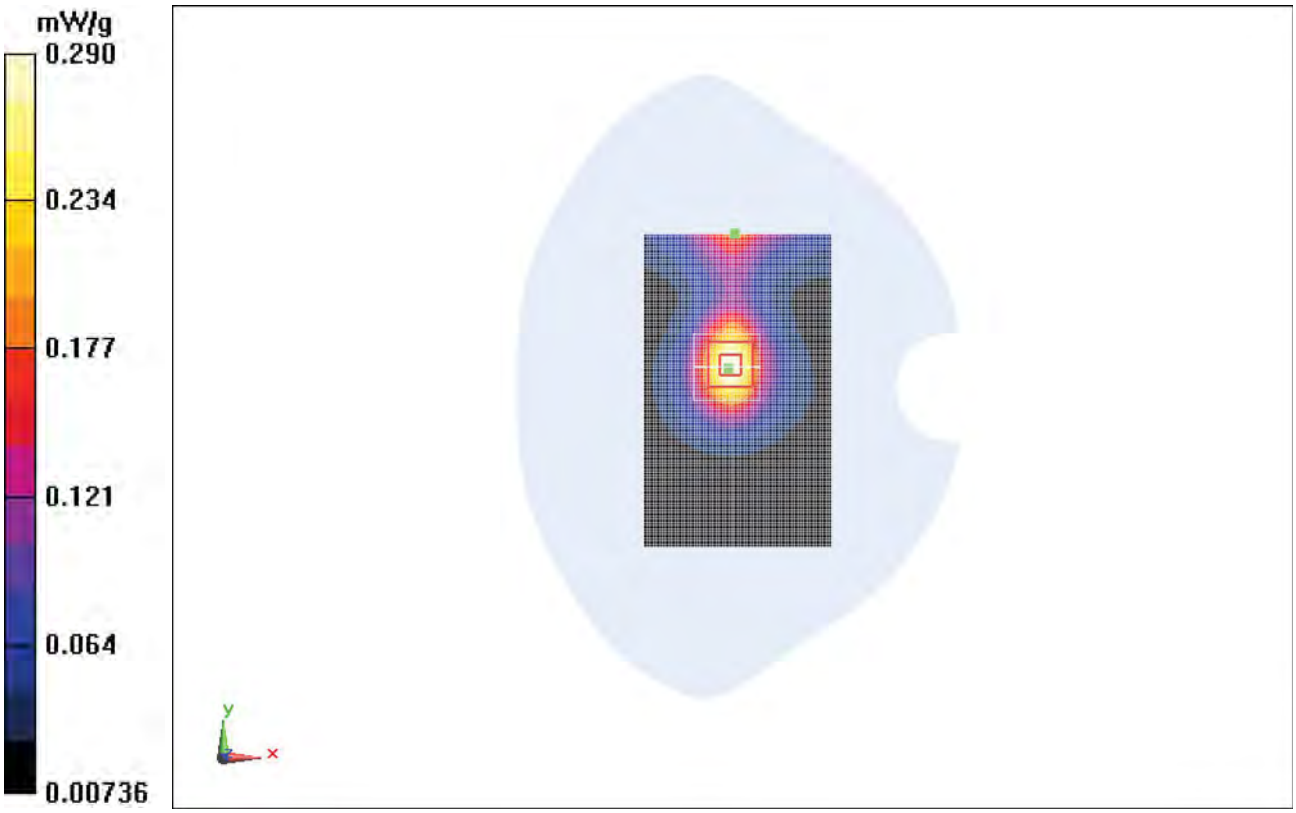


Fig. 89 1900 MHz CH9538

WCDMA 1900 Body Bottom Side High

Date/Time: 2011-5-13 18:36:51
Electronics: DAE4 Sn771
Medium: Body 1900 MHz
Medium parameters used (interpolated): f = 1907.6 MHz; σ = 1.54 mho/m; εr = 52.8; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WCDMA 1900 Frequency: 1907.6 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(4.68, 4.68, 4.68)

Bottom Side High/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.26 mW/g

Bottom Side High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 22 V/m; Power Drift = 0.168 dB
Peak SAR (extrapolated) = 1.99 W/kg
SAR(1 g) = 1.13 mW/g; SAR(10 g) = 0.589 mW/g
Maximum value of SAR (measured) = 1.29 mW/g

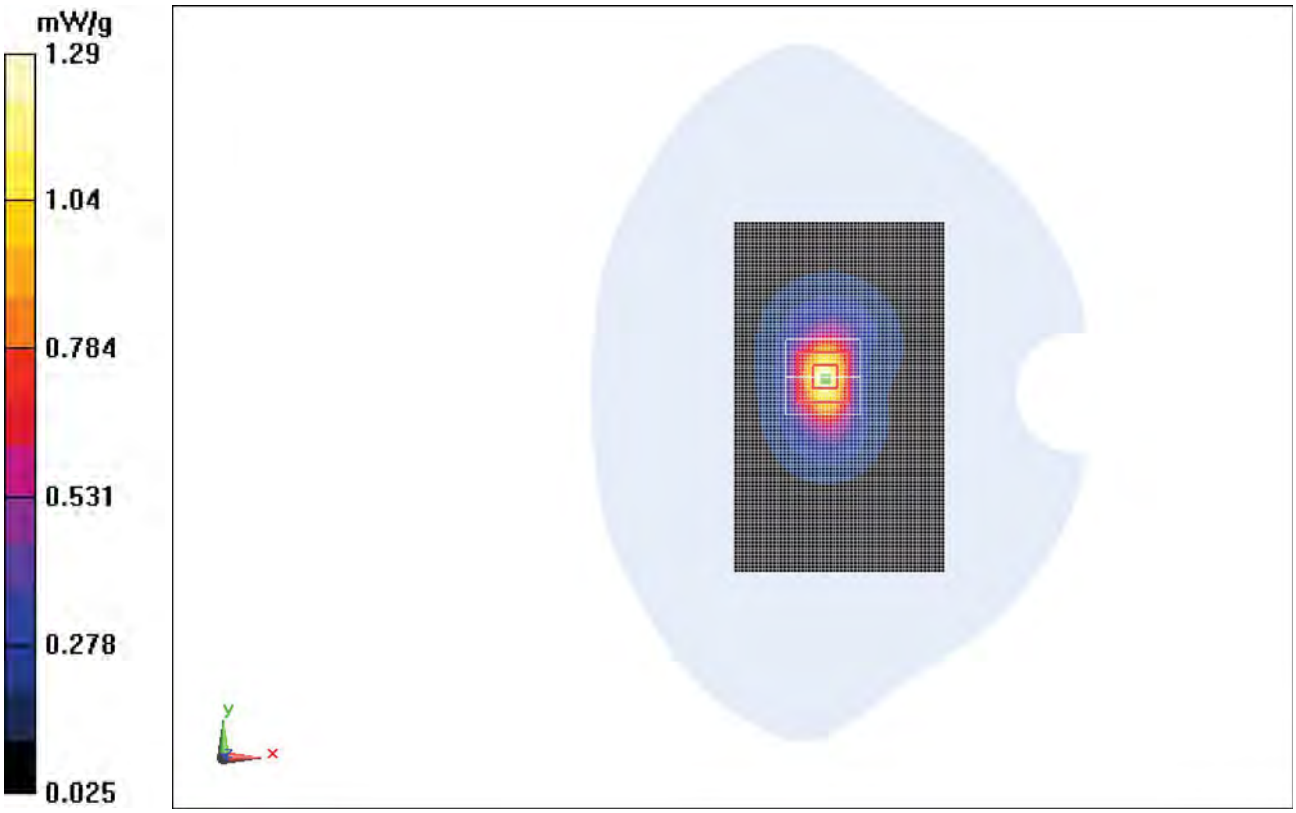


Fig. 90 1900 MHz CH9538

WCDMA 1900 Body Bottom Side Middle

Date/Time: 2011-5-13 18:52:17
Electronics: DAE4 Sn771
Medium: Body 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.50 mho/m; εr = 53.2; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WCDMA 1900 Frequency: 1880 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(4.68, 4.68, 4.68)

Bottom Side Middle/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.41 mW/g

Bottom Side Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.5 V/m; Power Drift = 0.026 dB
Peak SAR (extrapolated) = 2.27 W/kg
SAR(1 g) = 1.31 mW/g; SAR(10 g) = 0.690 mW/g
Maximum value of SAR (measured) = 1.49 mW/g

Fig. 91 1900 MHz CH9400

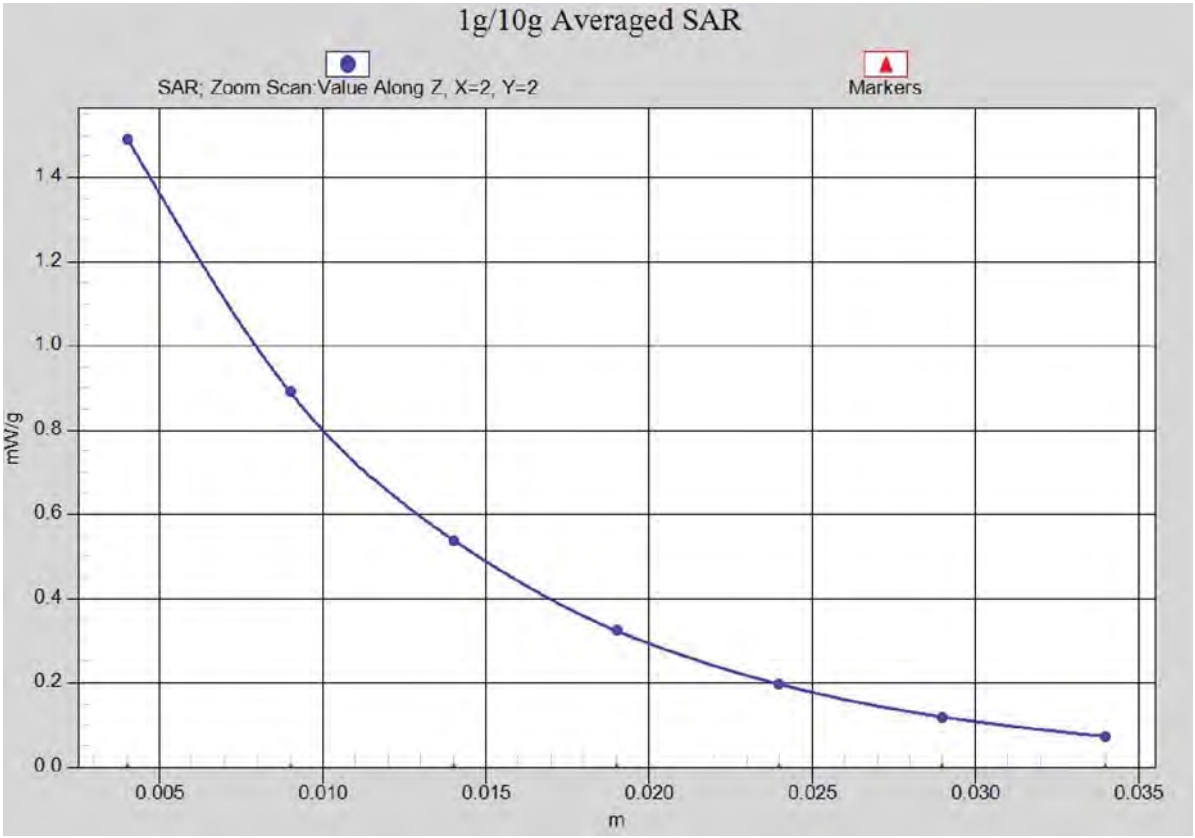


Fig. 91-1 Z-Scan at power reference point (1900 MHz CH9400)

WCDMA 1900 Body Bottom Side Low

Date/Time: 2011-5-13 19:07:40
Electronics: DAE4 Sn771
Medium: Body 1900 MHz
Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.48 mho/m; εr = 53.6; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WCDMA 1900 Frequency: 1852.4 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(4.68, 4.68, 4.68)

Bottom Side Low/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.14 mW/g

Bottom Side Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 22.2 V/m; Power Drift = 0.100 dB
Peak SAR (extrapolated) = 1.87 W/kg
SAR(1 g) = 1.1 mW/g; SAR(10 g) = 0.580 mW/g
Maximum value of SAR (measured) = 1.23 mW/g

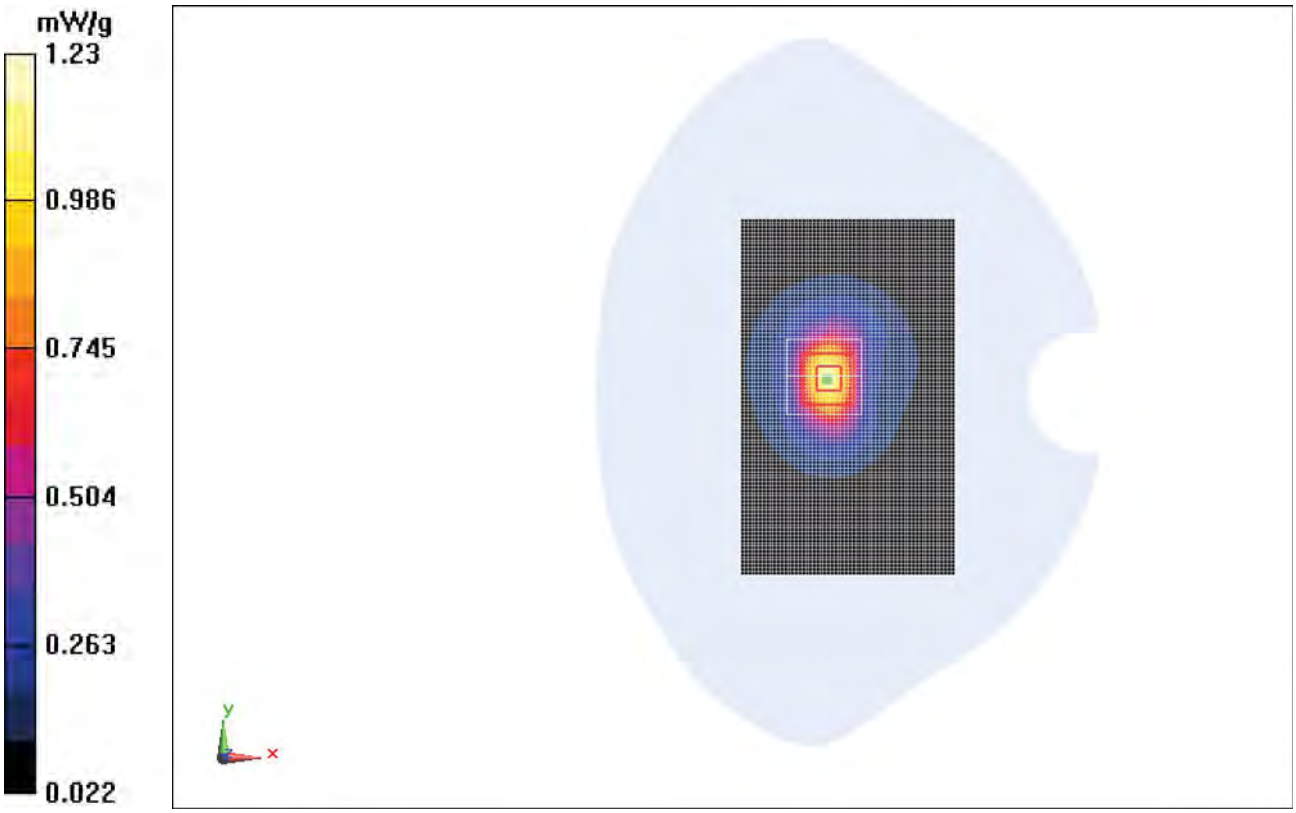


Fig. 92 1900 MHz CH9262

WCDMA 1900 Body Bottom Side Middle with Headset_CCB3160A10C0
Date/Time: 2011-5-13 19:24:33
Electronics: DAE4 Sn771
Medium: Body 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.50 mho/m; εr = 53.2; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WCDMA 1900 Frequency: 1880 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(4.68, 4.68, 4.68)

Bottom Side Middle/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.958 mW/g

Bottom Side Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.2 V/m; Power Drift = -0.124 dB
Peak SAR (extrapolated) = 1.54 W/kg
SAR(1 g) = 0.907 mW/g; SAR(10 g) = 0.488 mW/g
Maximum value of SAR (measured) = 1.02 mW/g

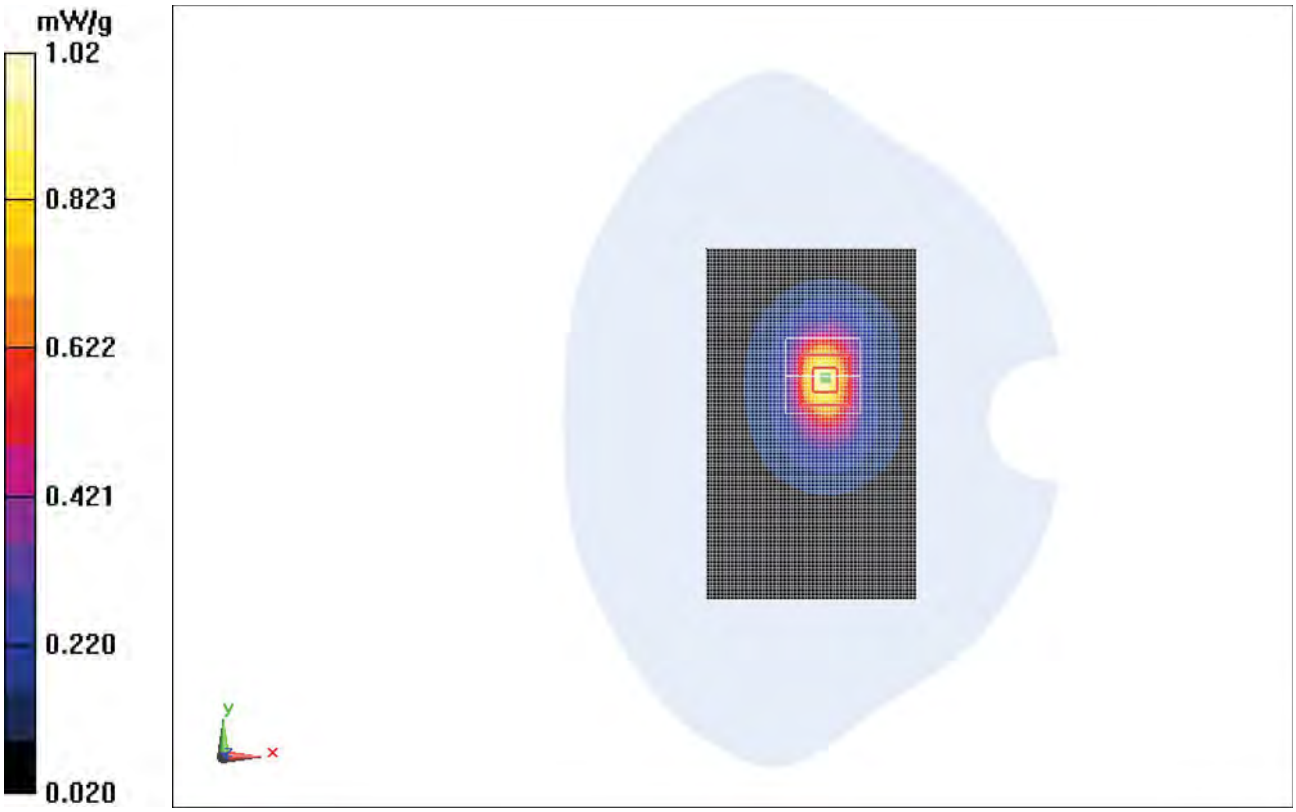


Fig. 93 1900 MHz CH9400

WCDMA 1900 Body Bottom Side Middle with Headset_CCB3160A10C2
Date/Time: 2011-5-13 19:40:38
Electronics: DAE4 Sn771
Medium: Body 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.50 mho/m; εr = 53.2; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WCDMA 1900 Frequency: 1880 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(4.68, 4.68, 4.68)

Bottom Side Middle/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.2 mW/g

Bottom Side Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 22 V/m; Power Drift = -0.175 dB
Peak SAR (extrapolated) = 1.96 W/kg
SAR(1 g) = 1.17 mW/g; SAR(10 g) = 0.626 mW/g
Maximum value of SAR (measured) = 1.29 mW/g

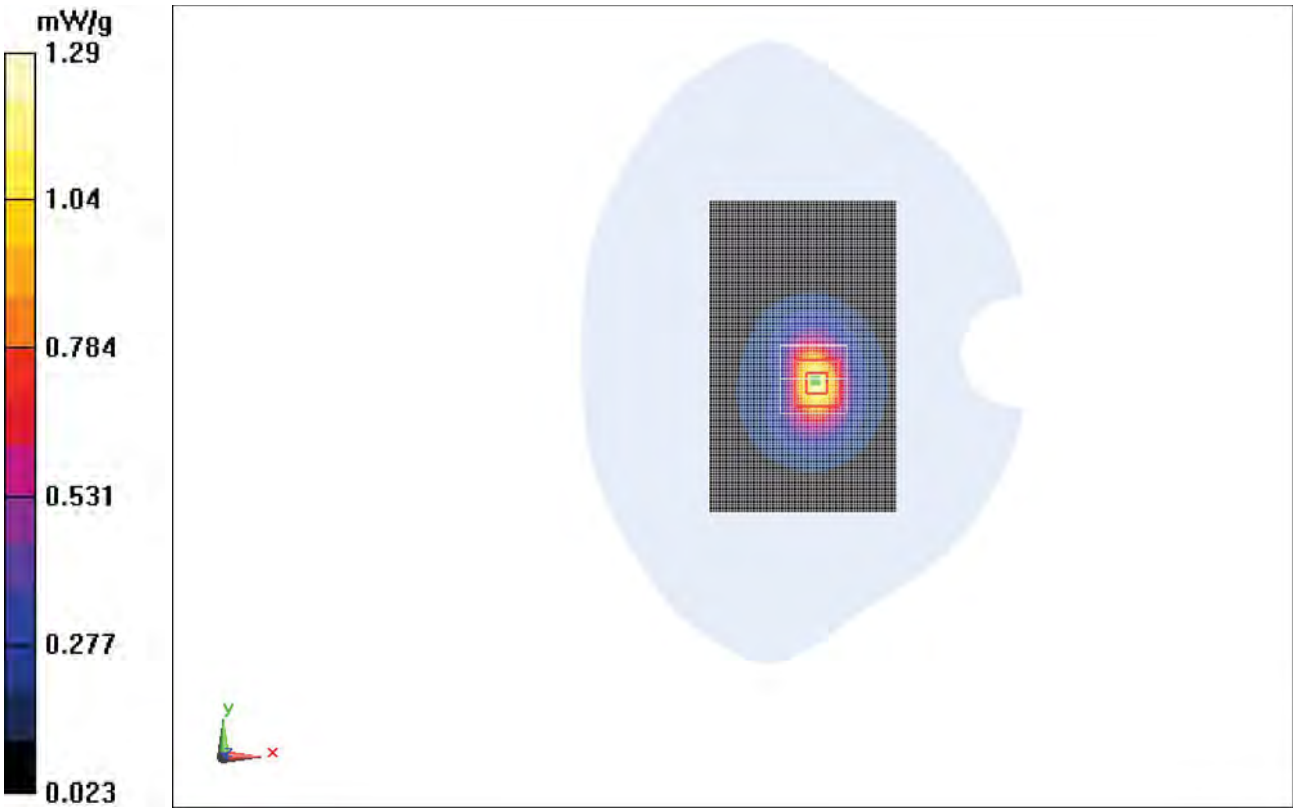


Fig. 94 1900 MHz CH9400

WCDMA 1900 Body Bottom Side Middle with HSDPA

Date/Time: 2011-5-13 19:57:20
Electronics: DAE4 Sn771
Medium: Body 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.50 mho/m; εr = 53.2; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WCDMA 1900 Frequency: 1880 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(4.68, 4.68, 4.68)

Bottom Side Middle/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.30 mW/g

Bottom Side Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 22.5 V/m; Power Drift = 0.103 dB
Peak SAR (extrapolated) = 2.08 W/kg
SAR(1 g) = 1.11 mW/g; SAR(10 g) = 0.591 mW/g
Maximum value of SAR (measured) = 1.29 mW/g

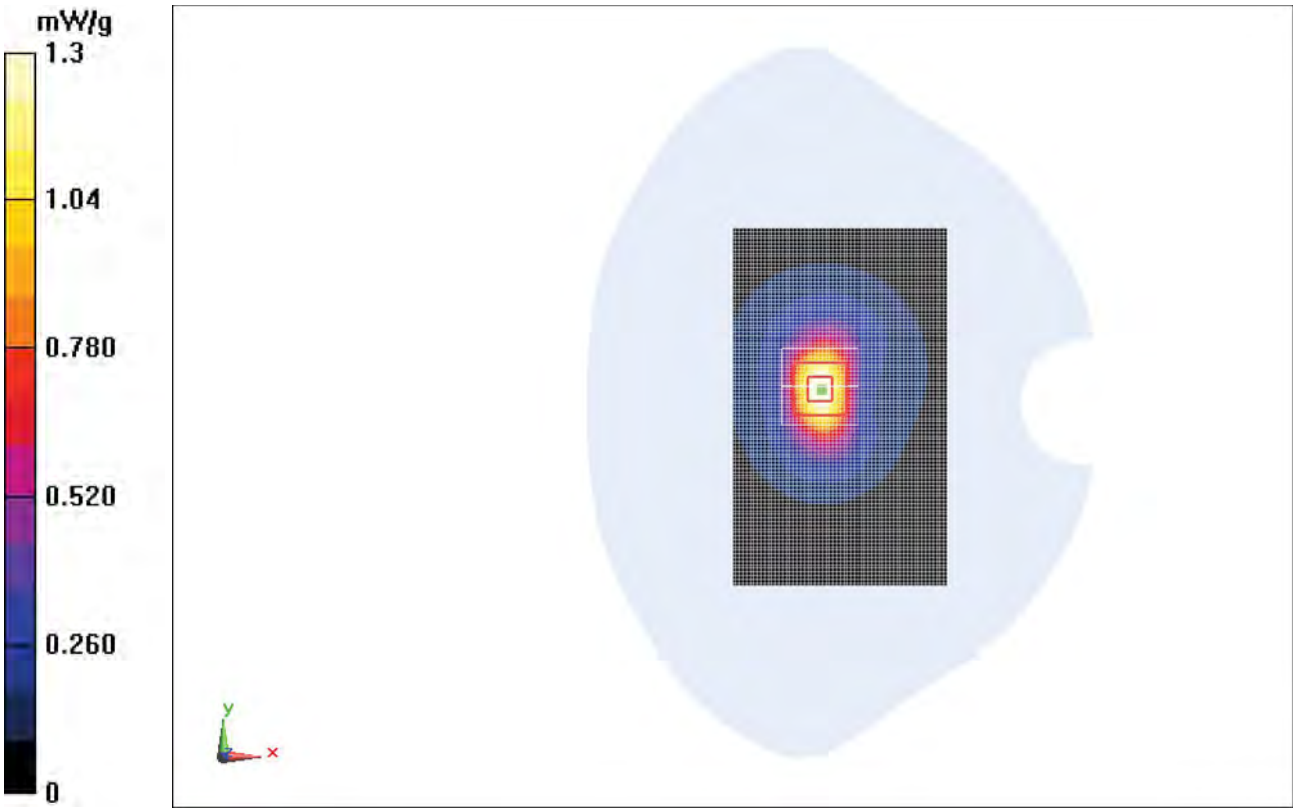


Fig. 95 1900 MHz CH9400

WiFi 802.11b 1Mbps Left Cheek Channel 11

Date/Time: 2011-5-14 8:15:10
Electronics: DAE4 Sn771
Medium: Head 2450 MHz
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.83 mho/m; εr = 39.5; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WLan 2450 Frequency: 2462 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN3617 ConvF(7.19, 7.19, 7.19)

Cheek High/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.342 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.8 V/m; Power Drift = -0.135 dB
Peak SAR (extrapolated) = 0.679 W/kg
SAR(1 g) = 0.312 mW/g; SAR(10 g) = 0.144 mW/g
Maximum value of SAR (measured) = 0.340 mW/g

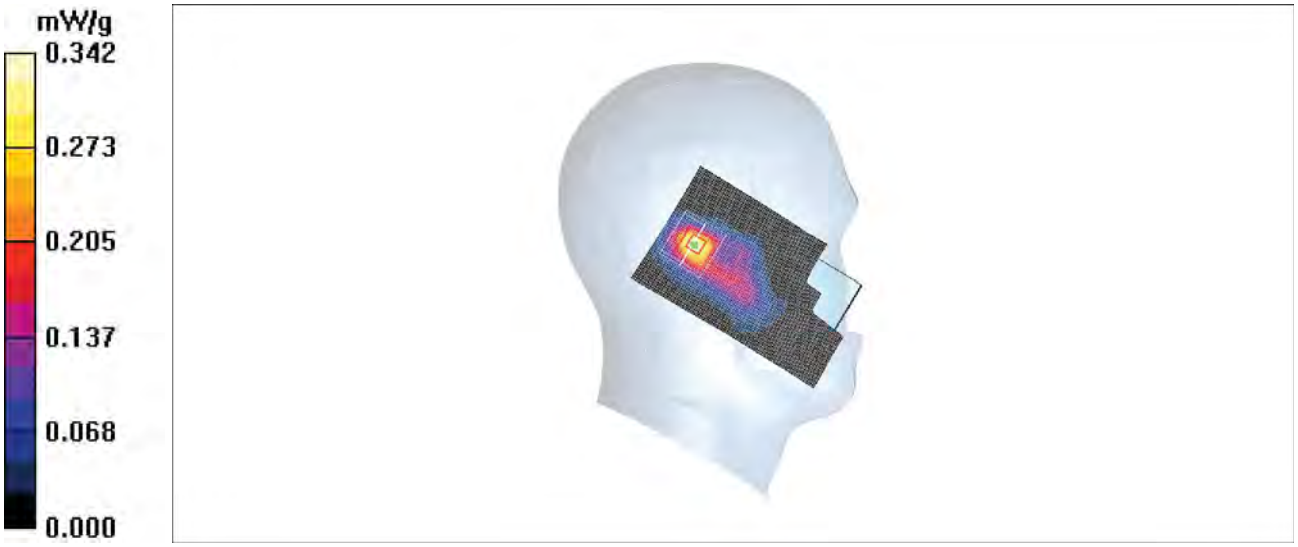


Fig.96 802.11b 1Mbps CH11

WiFi 802.11b 1Mbps Left Tilt Channel 11

Date/Time: 2011-5-14 8:29:31
Electronics: DAE4 Sn771
Medium: Head 2450 MHz
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.83 mho/m; εr = 39.5; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WLan 2450 Frequency: 2462 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN3617 ConvF(7.19, 7.19, 7.19)

Tilt High/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.280 mW/g

Tilt High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.7 V/m; Power Drift = -0.039 dB
Peak SAR (extrapolated) = 0.507 W/kg
SAR(1 g) = 0.245 mW/g; SAR(10 g) = 0.116 mW/g
Maximum value of SAR (measured) = 0.264 mW/g

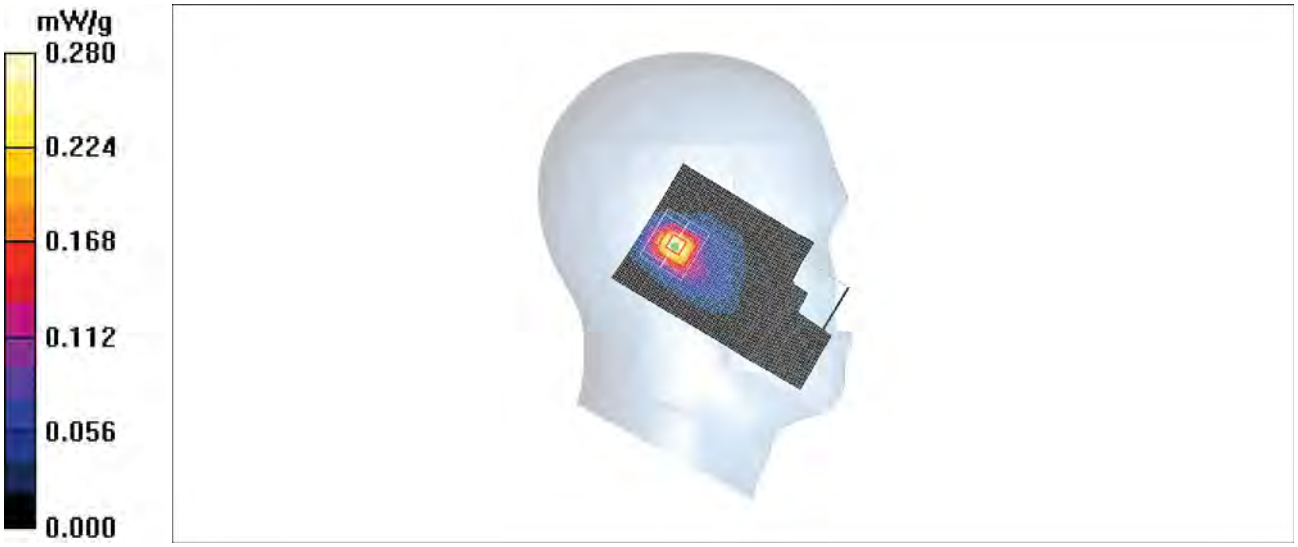


Fig.97 802.11b 1Mbps CH11

WiFi 802.11b 1Mbps Right Cheek Channel 11

Date/Time: 2011-5-14 8:44:09
Electronics: DAE4 Sn771
Medium: Head 2450 MHz
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.83 mho/m; εr = 39.5; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WLan 2450 Frequency: 2462 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN3617 ConvF(7.19, 7.19, 7.19)

Cheek High/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.631 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.3 V/m; Power Drift = 0.050 dB
Peak SAR (extrapolated) = 1.16 W/kg
SAR(1 g) = 0.559 mW/g; SAR(10 g) = 0.268 mW/g
Maximum value of SAR (measured) = 0.642 mW/g

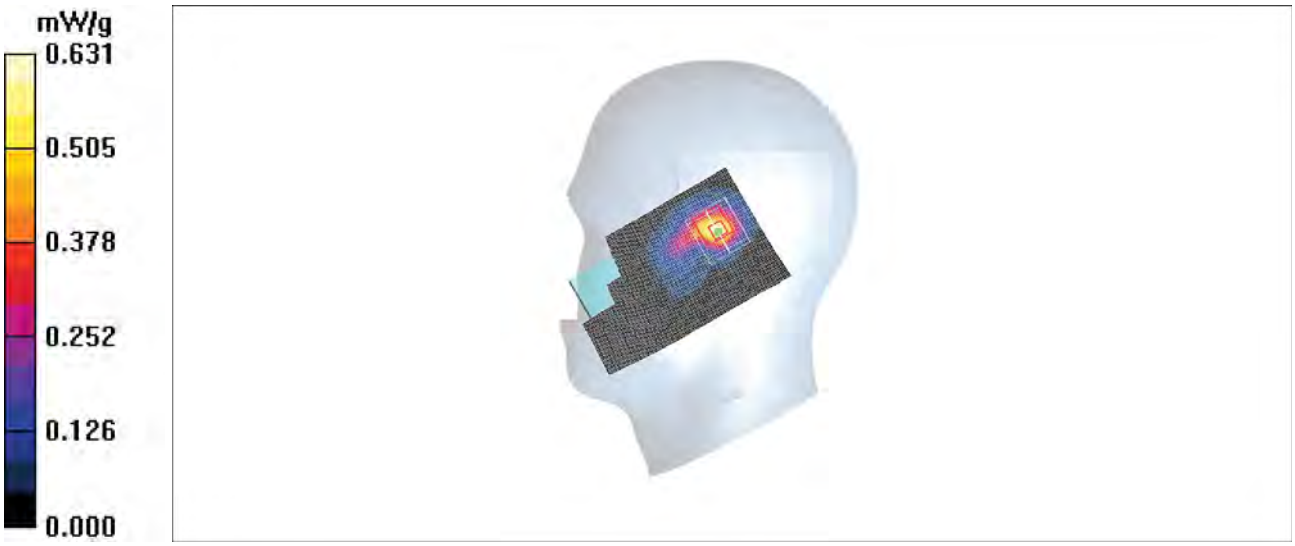


Fig.98 802.11b 1Mbps CH11

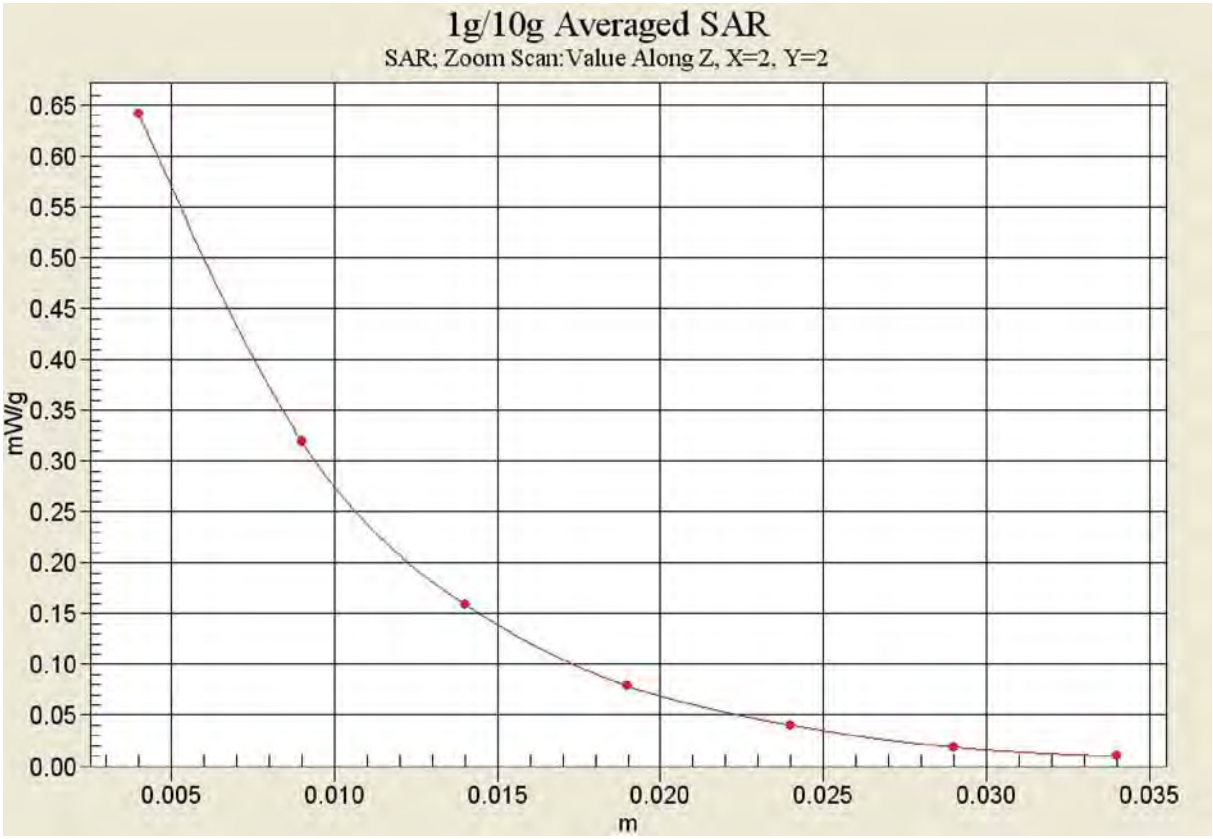


Fig. 97-1 Z-Scan at power reference point (802.11b 1Mbps CH11)

WiFi 802.11b 1Mbps Right Tilt Channel 11

Date/Time: 2011-5-14 8:58:34
Electronics: DAE4 Sn771
Medium: Head 2450 MHz
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.83 mho/m; εr = 39.5; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WLan 2450 Frequency: 2462 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN3617 ConvF(7.19, 7.19, 7.19)

Tilt High/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.465 mW/g

Tilt High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.0 V/m; Power Drift = 0.151 dB
Peak SAR (extrapolated) = 0.766 W/kg
SAR(1 g) = 0.377 mW/g; SAR(10 g) = 0.178 mW/g
Maximum value of SAR (measured) = 0.418 mW/g

Fig.99 802.11b 1Mbps CH11

WiFi 802.11b 1Mbps Toward Phantom Channel 11
Date/Time: 2011-5-14 13:40:23
Electronics: DAE4 Sn771
Medium: Body 2450 MHz
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.99 mho/m; εr = 52.4; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WLan 2450 Frequency: 2462 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN3617 ConvF(7.19, 7.19, 7.19)

Toward Phantom High/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.154 mW/g

Toward Phantom High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.87 V/m; Power Drift = 0.114 dB
Peak SAR (extrapolated) = 0.257 W/kg
SAR(1 g) = 0.140 mW/g; SAR(10 g) = 0.079 mW/g
Maximum value of SAR (measured) = 0.151 mW/g

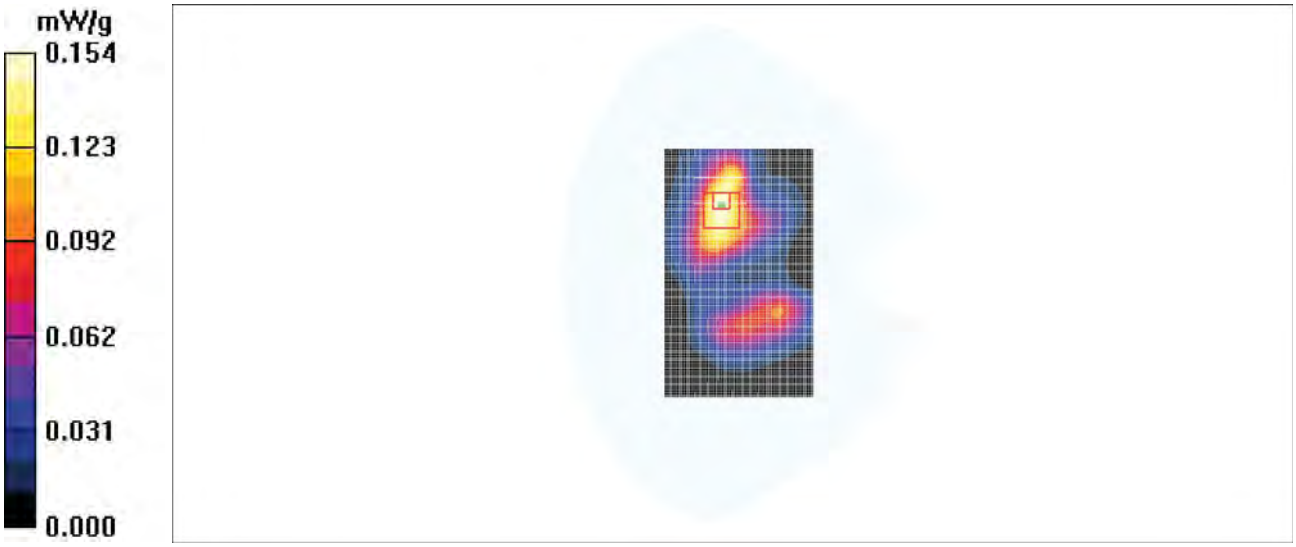


Fig.100 802.11b 1Mbps CH11

WiFi 802.11b 1Mbps Toward Ground Channel 11

Date/Time: 2011-5-14 13:56:17
Electronics: DAE4 Sn771
Medium: Body 2450 MHz
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.99 mho/m; εr = 52.4; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WLan 2450 Frequency: 2462 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN3617 ConvF(7.19, 7.19, 7.19)

Toward Ground High/Area Scan (61x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.345 mW/g

Toward Ground High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.67 V/m; Power Drift = 0.128 dB
Peak SAR (extrapolated) = 0.565 W/kg
SAR(1 g) = 0.304 mW/g; SAR(10 g) = 0.162 mW/g
Maximum value of SAR (measured) = 0.327 mW/g

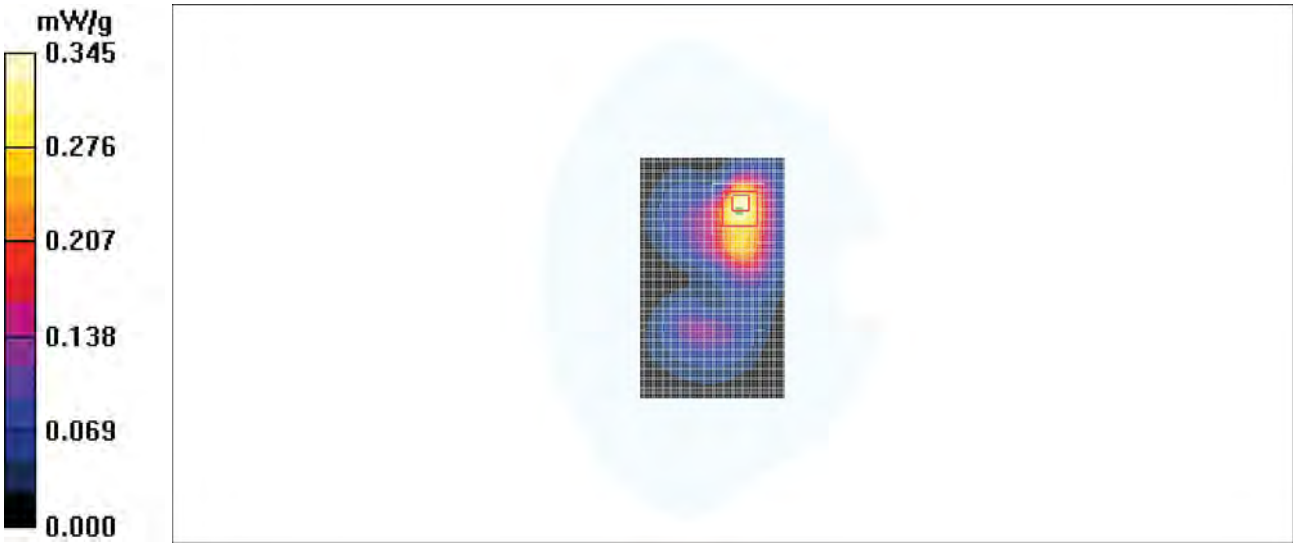


Fig.101 802.11b 1Mbps CH11

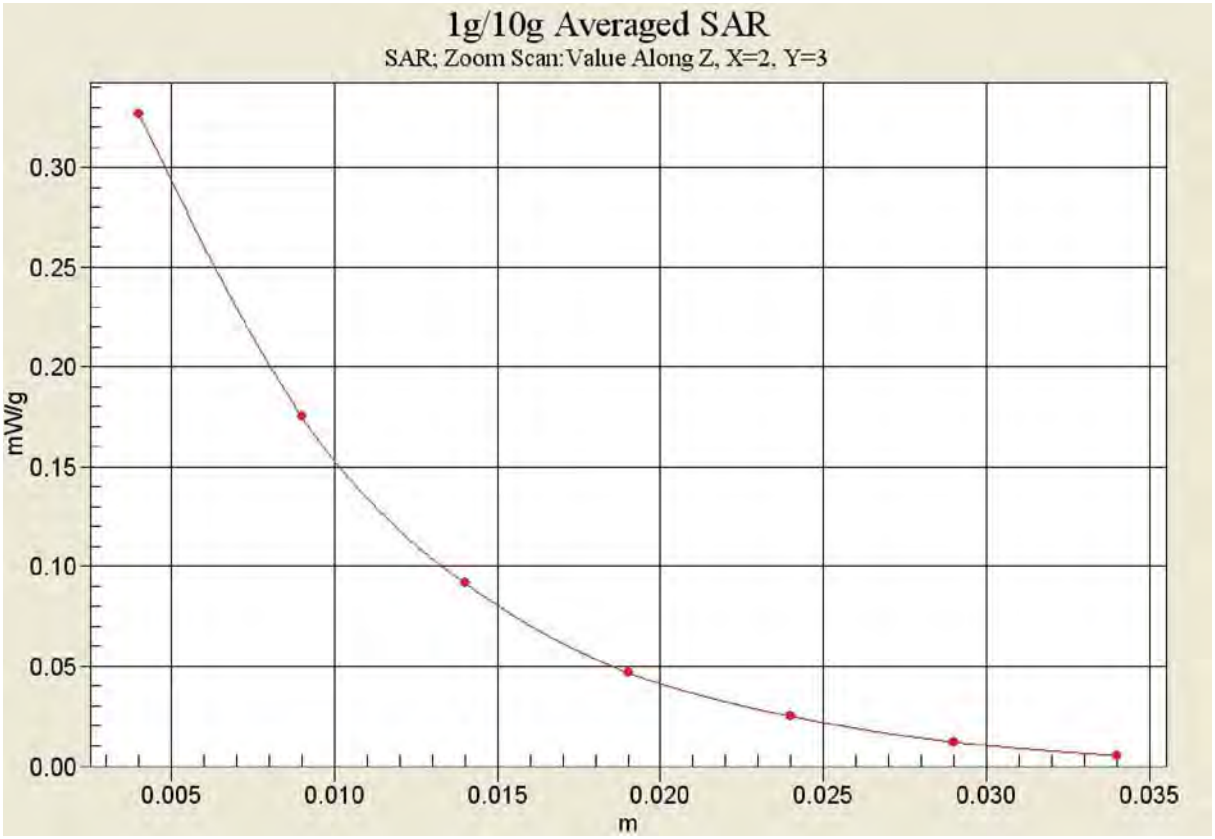


Fig. 101-1 Z-Scan at power reference point (802.11b 1Mbps CH11)

WiFi 802.11b 1Mbps Left Side Channel 11
Date/Time: 2011-5-14 14:12:30
Electronics: DAE4 Sn771
Medium: Body 2450 MHz
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.99 mho/m; εr = 52.4; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WLan 2450 Frequency: 2462 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN3617 ConvF(7.19, 7.19, 7.19)

Left Side High/Area Scan (51x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.150 mW/g

Left Side High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.11 V/m; Power Drift = -0.079 dB
Peak SAR (extrapolated) = 0.258 W/kg
SAR(1 g) = 0.141 mW/g; SAR(10 g) = 0.080 mW/g
Maximum value of SAR (measured) = 0.152 mW/g

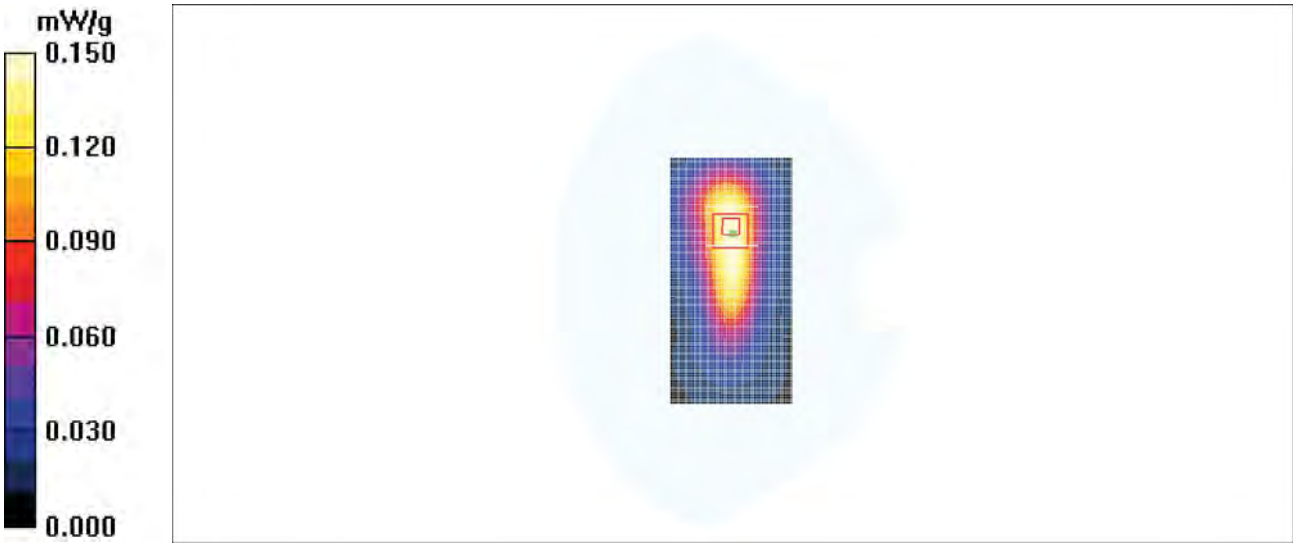


Fig.102 802.11b 1Mbps CH11

WiFi 802.11b 1Mbps Right Side Channel 11

Date/Time: 2011-5-14 14:28:35
Electronics: DAE4 Sn771
Medium: Body 2450 MHz
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.99 mho/m; εr = 52.4; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WLan 2450 Frequency: 2462 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN3617 ConvF(7.19, 7.19, 7.19)

Right Side High/Area Scan (51x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.066 mW/g

Right Side High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.96 V/m; Power Drift = 0.197 dB
Peak SAR (extrapolated) = 0.120 W/kg
SAR(1 g) = 0.064 mW/g; SAR(10 g) = 0.035 mW/g
Maximum value of SAR (measured) = 0.071 mW/g

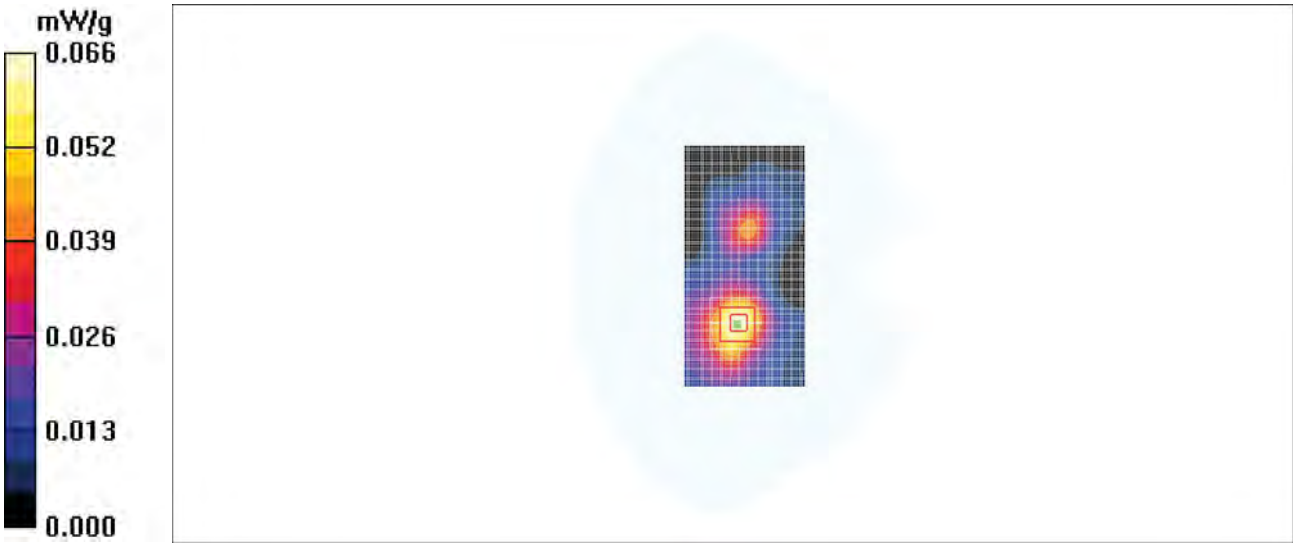


Fig.103 802.11b 1Mbps CH11

WiFi 802.11b 1Mbps Top Side Channel 11
Date/Time: 2011-5-14 14:44:47
Electronics: DAE4 Sn771
Medium: Body 2450 MHz
Medium parameters used (interpolated): f = 2462 MHz; σ = 1.99 mho/m; εr = 52.4; ρ = 1000 kg/m^3
Ambient Temperature:23.0 °C Liquid Temperature: 22.5°C
Communication System: WLan 2450 Frequency: 2462 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN3617 ConvF(7.19, 7.19, 7.19)

Top Side High/Area Scan (51x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.164 mW/g

Top Side High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.62 V/m; Power Drift = 0.013 dB
Peak SAR (extrapolated) = 0.310 W/kg
SAR(1 g) = 0.162 mW/g; SAR(10 g) = 0.083 mW/g
Maximum value of SAR (measured) = 0.178 mW/g

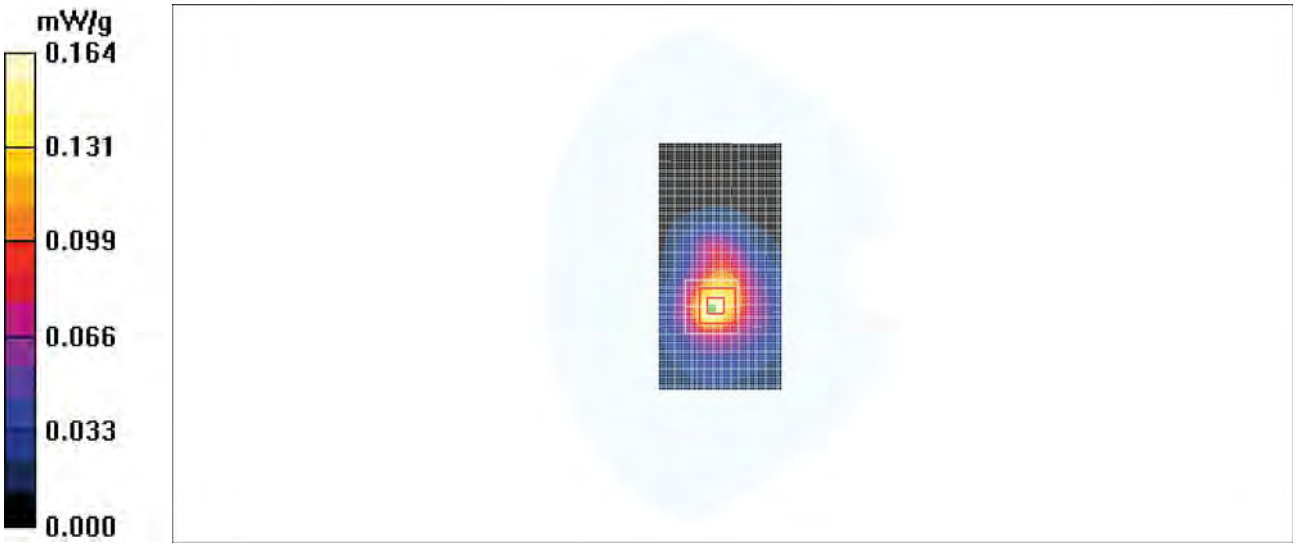


Fig.104 802.11b 1Mbps CH11

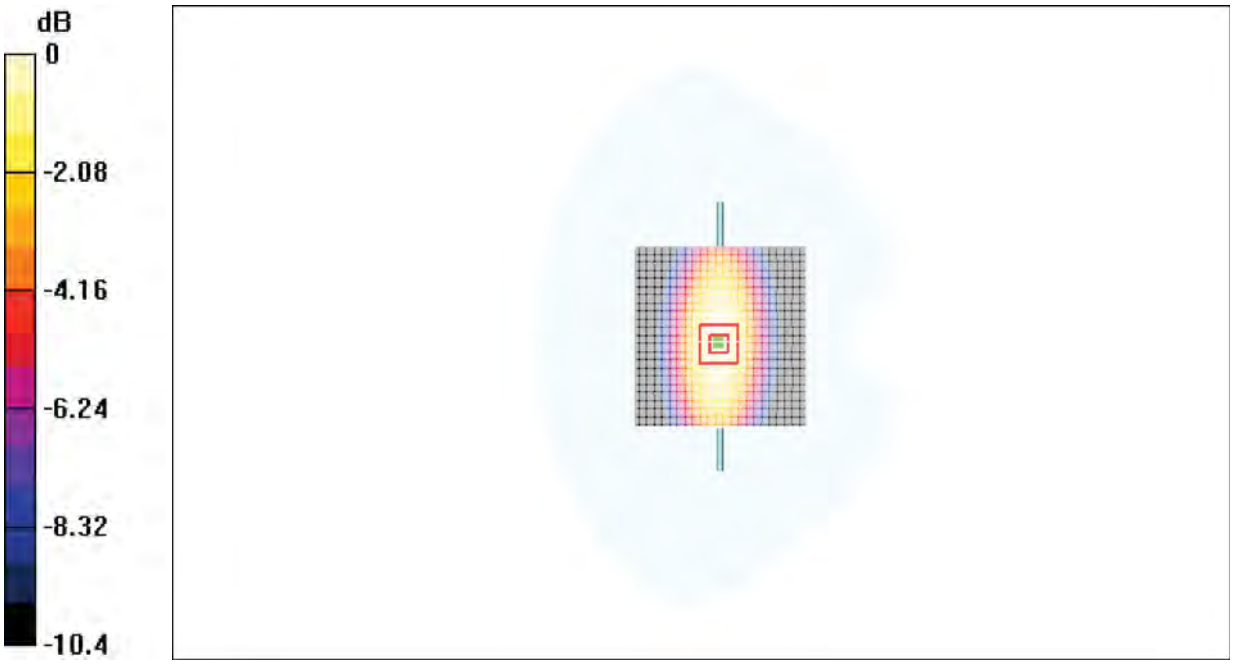
ANNEX D SYSTEM VALIDATION RESULTS

835MHz

Date/Time: 2011-5-12 7:27:35
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used: f = 835 MHz; σ = 0.91 mho/m; ε_r = 41.7; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: CW Frequency: 835 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

System Validation /Area Scan (101x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 2.54 mW/g

System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 55.1 V/m; Power Drift = -0.088 dB
Peak SAR (extrapolated) = 3.36 W/kg
SAR(1 g) = 2.32 mW/g; SAR(10 g) = 1.49 mW/g
Maximum value of SAR (measured) = 2.47 mW/g



0 dB = 2.47mW/g

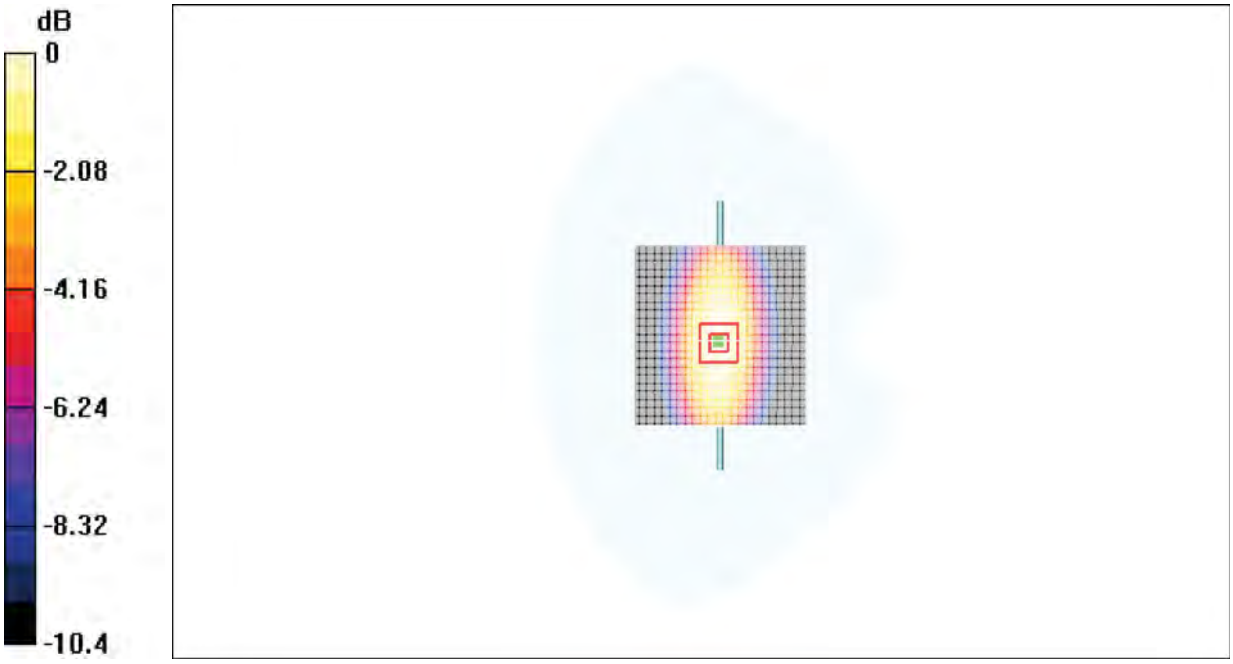
Fig.105 validation 835MHz 250mW

835MHz

Date/Time: 2011-5-12 14:27:08
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used: f = 835 MHz; σ = 0.95 mho/m; ε_r = 54.8; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: CW Frequency: 835 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

System Validation /Area Scan (101x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 2.54 mW/g

System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 51.3 V/m; Power Drift = 0.092 dB
Peak SAR (extrapolated) = 3.35 W/kg
SAR(1 g) = 2.41 mW/g; SAR(10 g) = 1.54 mW/g
Maximum value of SAR (measured) = 2.49 mW/g



0 dB = 2.49mW/g

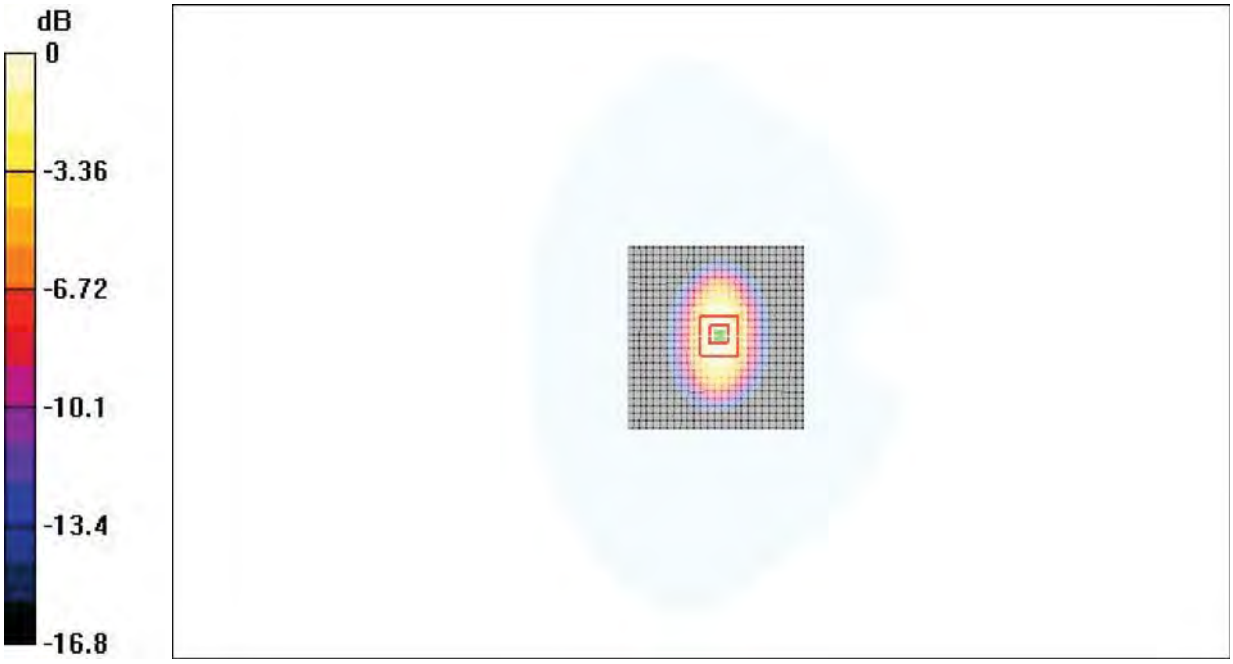
Fig.106 validation 835MHz 250mW

1900MHz

Date/Time: 2011-5-13 7:30:27
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.41 mho/m; ε_r = 40.4; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: CW Frequency: 1900 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

System Validation/Area Scan (101x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 11.3 mW/g

System Validation/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 88.4 V/m; Power Drift = -0.075 dB
Peak SAR (extrapolated) = 14.8 W/kg
SAR(1 g) = 9.64 mW/g; SAR(10 g) = 4.98 mW/g
Maximum value of SAR (measured) = 10.5 mW/g



0 dB = 10.5mW/g

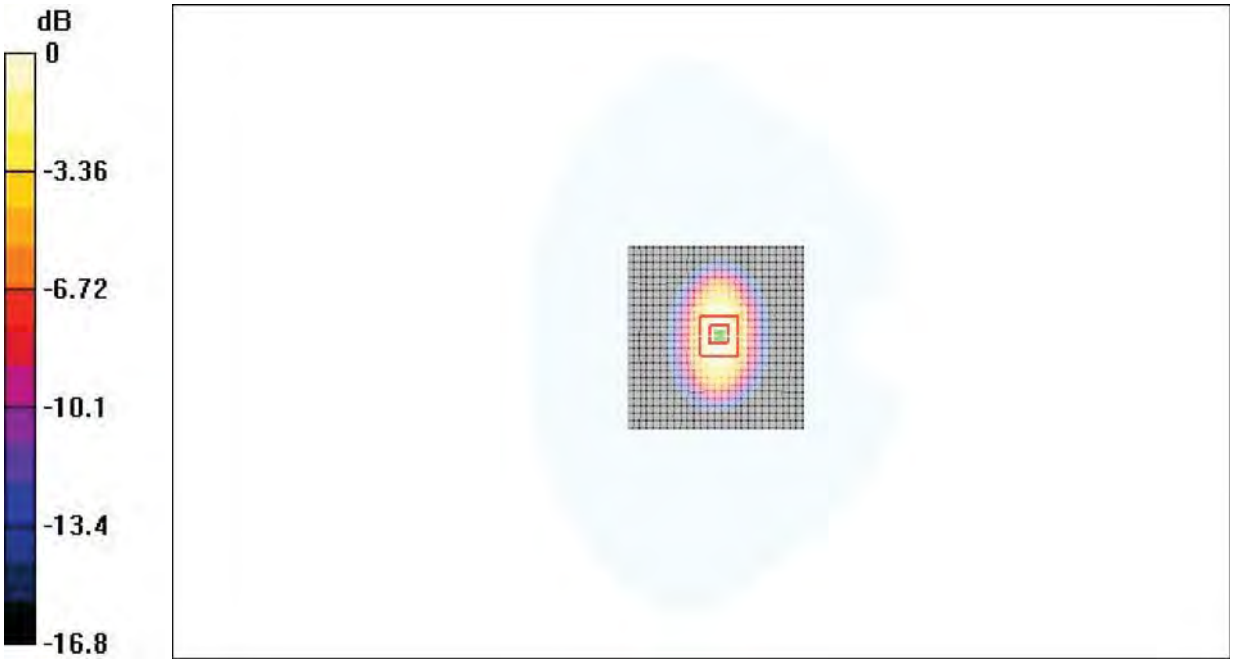
Fig.107 validation 1900MHz 250mW

1900MHz

Date/Time: 2011-5-13 14:32:07
Electronics: DAE4 Sn771
Medium: Body 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.53 mho/m; ε_r = 52.9; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: CW Frequency: 1900 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(4.68, 4.68, 4.68)

System Validation/Area Scan (101x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 11.5 mW/g

System Validation/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 92.5 V/m; Power Drift = -0.053 dB
Peak SAR (extrapolated) = 15.9 W/kg
SAR(1 g) = 10.3 mW/g; SAR(10 g) = 5.16 mW/g
Maximum value of SAR (measured) = 11.0 mW/g



0 dB = 11.0mW/g

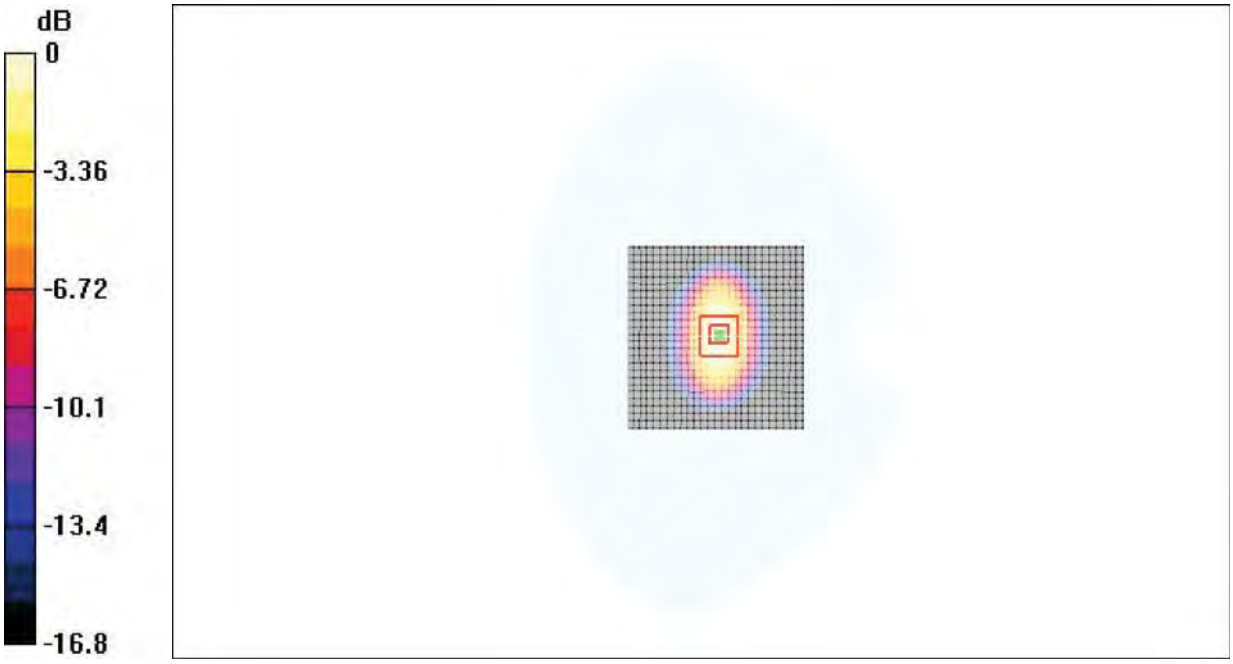
Fig.108 validation 1900MHz 250mW

2450MHz

Date/Time: 2011-5-14 7:34:28
Electronics: DAE4 Sn771
Medium: Head 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.82 mho/m; ε_r = 39.5; ρ = 1000 kg/m^3
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: CW Frequency: 2450 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN3617 ConvF(7.19, 7.19, 7.19)

System Validation/Area Scan (101x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 14.4 mW/g

System Validation/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 87.0 V/m; Power Drift = 0.094 dB
Peak SAR (extrapolated) = 18.9 W/kg
SAR(1 g) = 12.9 mW/g; SAR(10 g) = 5.95 mW/g
Maximum value of SAR (measured) = 14.1 mW/g



0 dB = 14.1mW/g

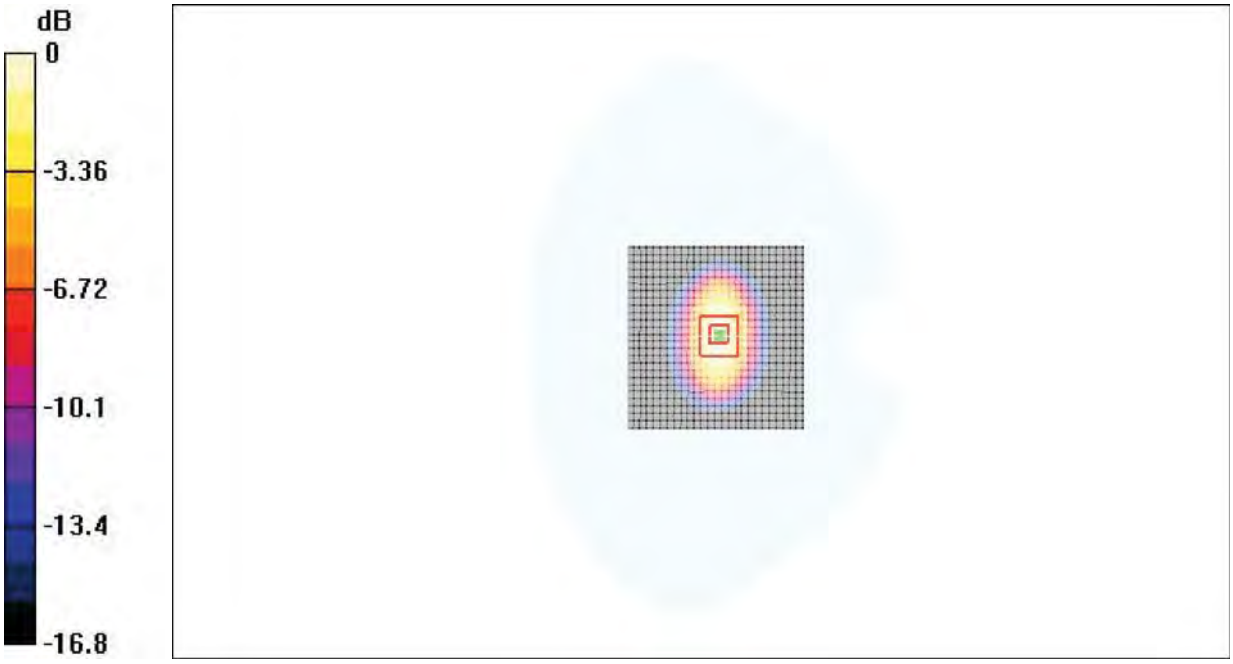
Fig.109 validation 2450MHz 250mW

2450MHz

Date/Time: 2011-5-14 13:16:32
Electronics: DAE4 Sn771
Medium: Body 2450 MHz
Medium parameters used: f = 2450 MHz; σ = 1.97 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3
Ambient Temperature:23.0oC Liquid Temperature: 22.5°C
Communication System: CW Frequency: 2450 MHz Duty Cycle: 1:1
Probe: EX3DV4 - SN3617 ConvF(6.88, 6.88, 6.88)

System Validation/Area Scan (101x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 15.0 mW/g

System Validation/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 86.9 V/m; Power Drift = -0.059 dB
Peak SAR (extrapolated) = 22.7 W/kg
SAR(1 g) = 12.9 mW/g; SAR(10 g) = 5.93 mW/g
Maximum value of SAR (measured) = 14.3 mW/g



0 dB = 14.3mW/g

Fig.110 validation 2450MHz 250mW

ANNEX E PROBE CALIBRATION CERTIFICATE

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

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

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

Accreditation No.: SCS 108

Client TMC China Certificate No: ES3DV3-3149_Sep10

CALIBRATION CERTIFICATE

Object	ES3DV3-SN: 3149
Calibration procedure(s)	QA CAL-01.v6 Calibration procedure for dosimetric E-field probes
Calibration date:	September 25, 2010
Condition of the calibrated item	In Tolerance

This calibration certify 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 at an environment temperature (22±3)°C and humidity<70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID#	Cal Data (Calibrated by, Certification NO.)	Scheduled Calibration
Power meter E4419B	GB41293874	5-May-10 (METAS, NO. 251-00388)	May-11
Power sensor E4412A	MY41495277	5-May-10 (METAS, NO. 251-00388)	May-11
Reference 3 dB Attenuator	SN:S5054 (3c)	10-Aug-10 (METAS, NO. 251-00403)	Aug-11
Reference 20 dB Attenuator	SN:S5086 (20b)	3-May-10 (METAS, NO. 251-00389)	May-11
Reference 30 dB Attenuator	SN:S5129 (30b)	10-Aug-10 (METAS, NO. 251-00404)	Aug-11
DAE4	SN:617	10-Jun-10 (SPEAG, NO.DAE4-907_Jun10)	Jun-11
Reference Probe ES3DV2	SN: 3013	12-Jan-10 (SPEAG, NO. ES3-3013_Jan10)	Jan-11

Secondary Standards	ID#	Check Data (in house)	Scheduled Calibration
RF generator HP8648C	US3642U01700	4-Aug-99(SPEAG, in house check Oct-09)	In house check: Oct-10
Network Analyzer HP 8753E	US37390585	18-Oct-01(SPEAG, in house check Nov-09)	In house check: Nov-10

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

Issued: September 25, 2010

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

Certificate No: ES3DV3-3149_Sep10 Page 1 of 9

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

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S Swiss Calibration Service

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

Accreditation No.: SCS 108

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConF	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.

Probe ES3DV3

SN: 3149

Manufactured: June 12, 2007

Calibrated: September 25, 2010

Calibrated for DASY4 System

ES3DV3 SN: 3149 **September 25, 2010**

DASY – Parameters of Probe: ES3DV3 SN:3149

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

NormX	1.14±10.1%	$\mu V/(V/m)^2$	DCP X	94mV
NormY	1.23±10.1%	$\mu V/(V/m)^2$	DCP Y	95mV
NormZ	1.29±10.1%	$\mu V/(V/m)^2$	DCP Z	91mV

Sensitivity in Tissue Simulating Liquid (Conversion Factors)
Please see Page 8

Boundary Effect

TSL 900MHz Typical SAR gradient: 5% per mm

Sensor Center to Phantom Surface Distance		3.0 mm	4.0 mm
SARbe[%]	Without Correction Algorithm	3.8	1.6
SARbe[%]	With Correction Algorithm	0.8	0.7

TSL 1810MHz Typical SAR gradient: 10% per mm

Sensor Center to Phantom Surface Distance		3.0 mm	4.0 mm
SARbe[%]	Without Correction Algorithm	6.8	3.6
SARbe[%]	With Correction Algorithm	0.4	0.2

Sensor Offset

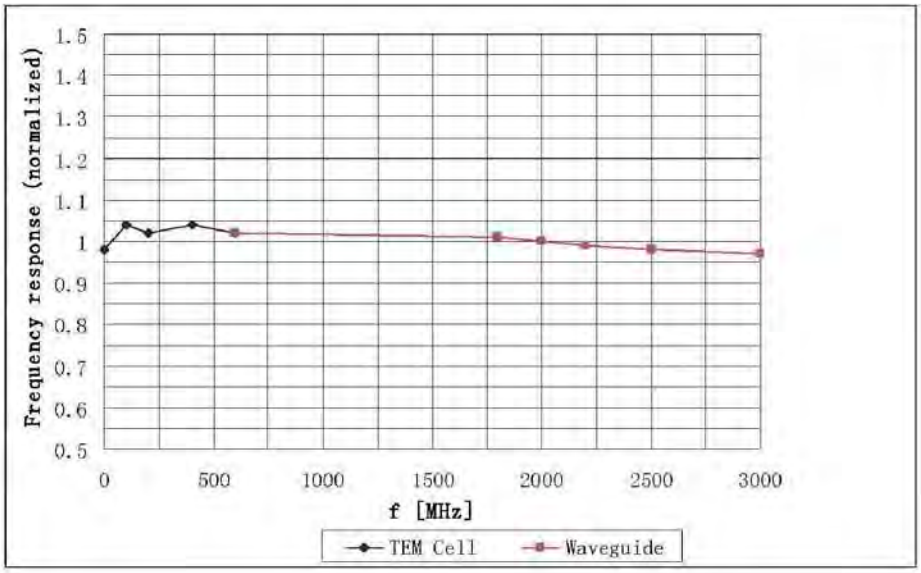
Probe Tip to Sensor Center	2.0 mm

The reported uncertainty of measurement is stated as the standard uncertainty of Measurement multiplied by the coverage factor k=2,which for a normal distributio 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 8).
[B] Numerical linearization parameter: uncertainty not required.

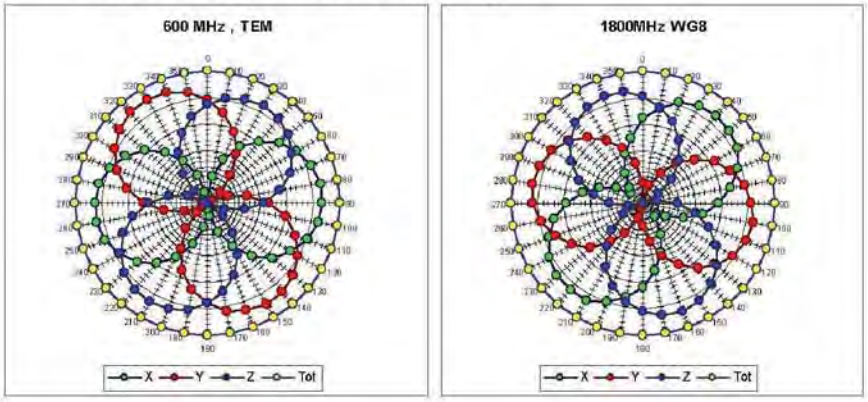
ES3DV3 SN: 3149 September 25, 2010

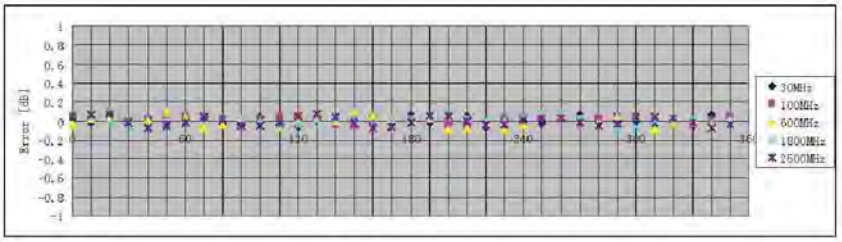
Frequency Response of E-Field



Uncertainty of Frequency Response of E-field: ±5.0% (k=2)

Receiving Pattern (ϕ), θ =0°

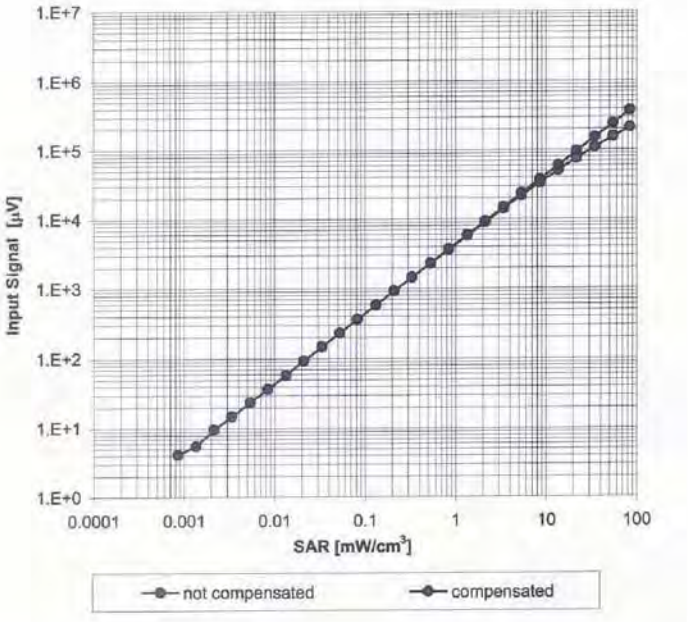


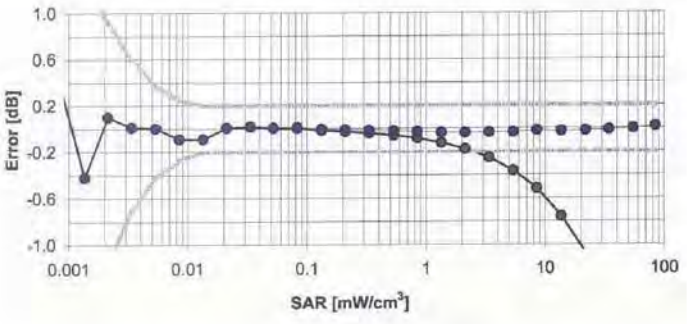


Uncertainty of Axial Isotropy Assessment: ±0.5% (k=2)

Dynamic Range f(SAR_{head})

(Waveguide: WG8, f = 1800 MHz)

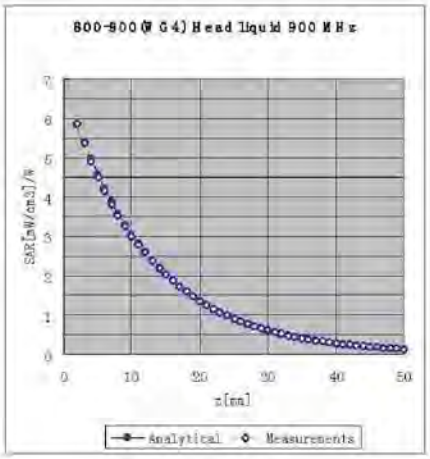


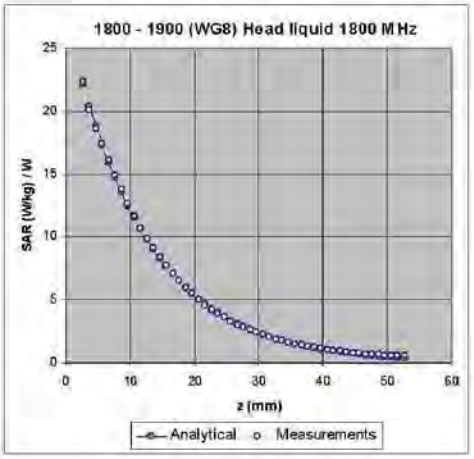


Uncertainty of Linearity Assessment: ±0.5% (k=2)

ES3DV3 SN: 3149 **September 25, 2010**

Conversion Factor Assessment





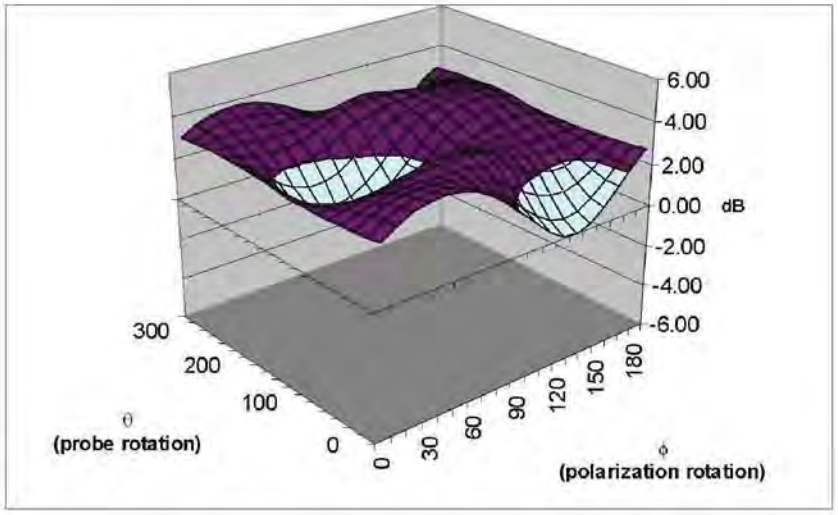
f[MHz]	Validity[MHz][C]	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF	Uncertainty
850	±50 /±100	Head	41.5±5%	0.90±5%	0.91	1.13	6.56	±11.0% (k=2)
900	±50 /±100	Head	41.5±5%	0.97±5%	0.83	1.26	6.34	±11.0% (k=2)
1800	±50 /±100	Head	40.0±5%	1.40±5%	0.69	1.47	5.18	±11.0% (k=2)
1900	±50 /±100	Head	40.0±5%	1.40±5%	0.72	1.38	5.03	±11.0% (k=2)
2100	±50 /±100	Head	39.8±5%	1.49±5%	0.66	1.34	4.58	±11.0% (k=2)
850	±50 /±100	Body	55.2±5%	0.97±5%	0.76	1.26	6.22	±11.0% (k=2)
900	±50 /±100	Body	55.0±5%	1.05±5%	0.99	1.06	6.02	±11.0% (k=2)
1800	±50 /±100	Body	53.3±5%	1.52±5%	0.75	1.34	4.97	±11.0% (k=2)
1900	±50 /±100	Body	53.3±5%	1.52±5%	0.62	1.33	4.68	±11.0% (k=2)
2100	±50 /±100	Body	53.5±5%	1.57±5%	0.68	1.34	4.35	±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.

ES3DV3 SN: 3149 September 25, 2010

Deviation from Isotropy

Error (Φ , θ), f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: ±2.5% (k=2)

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

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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 TMC China

Certificate No: EX3DV4-3617_Jul10

CALIBRATION CERTIFICATE

Object	EX3DV4-SN: 3617
Calibration procedure(s)	QA CAL-01.v6 Calibration procedure for dosimetric E-field probes
Calibration date:	July 9, 2010
Condition of the calibrated item	In Tolerance

This calibration certify 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 at an environment temperature (22±3)°C and humidity<70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID#	Cal Data (Calibrated by, Certification NO.)	Scheduled Calibration
Power meter E4419B	GB41293874	6-May-10 (METAS, NO. 251-00388)	May-11
Power sensor E4412A	MY41495277	6-May-10 (METAS, NO. 251-00388)	May-11
Reference 3 dB Attenuator	SN:S5054 (3c)	12-Aug-09 (METAS, NO. 251-00403)	Aug-10
Reference 20 dB Attenuator	SN:S5086 (20b)	4-May-10 (METAS, NO. 251-00389)	May-11
Reference 30 dB Attenuator	SN:S5129 (30b)	12-Aug-09 (METAS, NO. 251-00404)	Aug-10
DAE4	SN:617	11-Jun-10 (SPEAG, NO.DAE4-907_Jun10)	Jun-11
Reference Probe ES3DV2	SN: 3013	13-Jan-10 (SPEAG, NO. ES3-3013_Jan10)	Jan-11

Secondary Standards	ID#	Check Data (in house)	Scheduled Calibration
RF generator HP8648C	US3642U01700	4-Aug-99(SPEAG, in house check Oct-09)	In house check: Oct-10
Network Analyzer HP 8753E	US37390585	18-Oct-01(SPEAG, in house check Nov-09)	In house check: Nov-10

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

Issued: July 9, 2010

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

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

S Schweizerischer Kalibrierdienst
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S Swiss Calibration Service

Accreditation No.: SCS 108

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

Glossary:

TSL	tissue simulating liquid
NORMx,y,z	sensitivity in free space
ConF	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.

Probe EX3DV4

SN: 3617

Manufactured: May 3, 2007

Calibrated: July 9, 2010

Calibrated for DASY4 System

EX3DV4 SN: 3617 July 9, 2010

DASY – Parameters of Probe: EX3DV4 SN:3617

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

NormX	0.420±10.1%	$\mu V/(V/m)^2$	DCP X	89mV
NormY	0.440±10.1%	$\mu V/(V/m)^2$	DCP Y	88mV
NormZ	0.310±10.1%	$\mu V/(V/m)^2$	DCP Z	91mV

Sensitivity in Tissue Simulating Liquid (Conversion Factors)
Please see Page 8

Boundary Effect

TSL 2450MHz Typical SAR gradient: 11% per mm

Sensor Center to Phantom Surface Distance		2.0 mm	3.0 mm
SARbe[%]	Without Correction Algorithm	3.7	1.8
SARbe[%]	With Correction Algorithm	0.1	0.0

TSL 5200MHz Typical SAR gradient: 25% per mm

Sensor Center to Phantom Surface Distance		2.0 mm	3.0 mm
SARbe[%]	Without Correction Algorithm	10.1	3.7
SARbe[%]	With Correction Algorithm	0.2	0.1

Sensor Offset

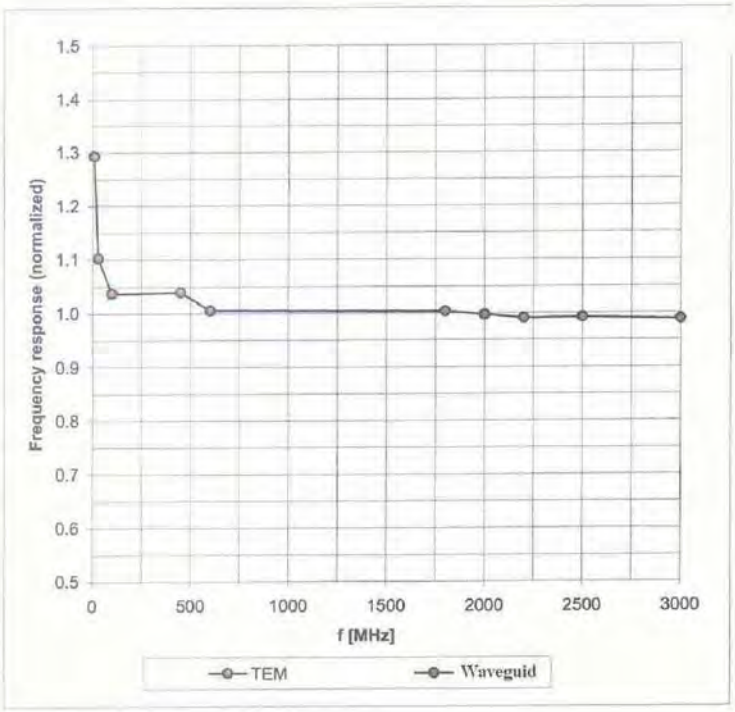
Probe Tip to Sensor Center	1.0 mm

The reported uncertainty of measurement is stated as the standard uncertainty of Measurement multiplied by the coverage factor k=2,which for a normal distributio 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 8).
[B] Numerical linearization parameter: uncertainty not required.

EX3DV4 SN: 3617 July 9, 2010

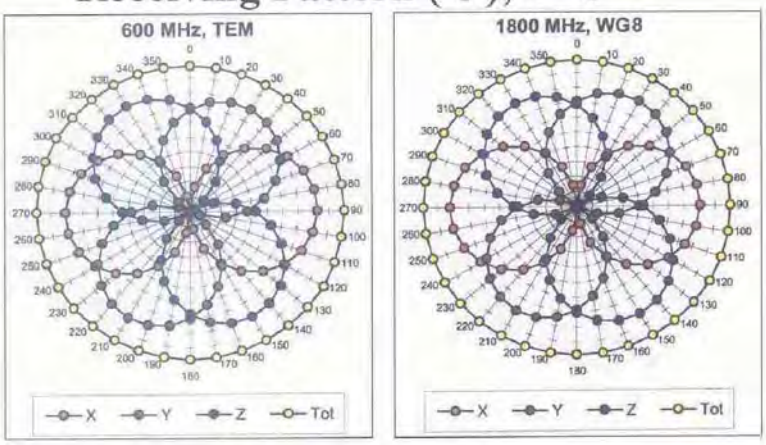
Frequency Response of E-Field

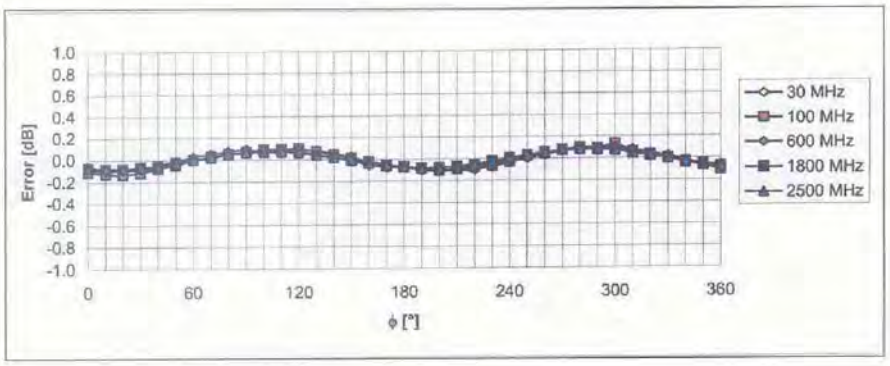


Uncertainty of Frequency Response of E-field: ±6.3% (k=2)

EX3DV4 SN: 3617 July 9, 2010

Receiving Pattern (ϕ), $\theta = 0°$



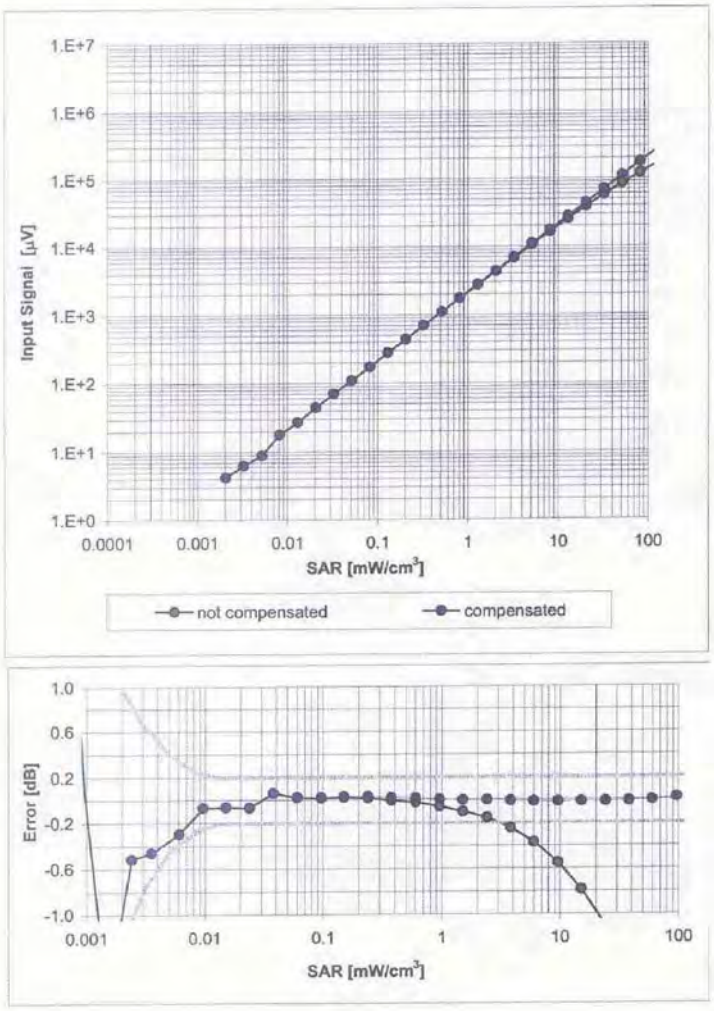


Uncertainty of Axial Isotropy Assessment: ±0.5% (k=2)

EX3DV4 SN: 3617 July 9, 2010

Dynamic Range f(SAR_{head})

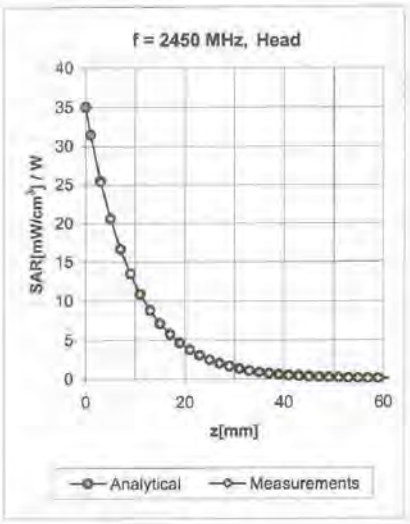
(Waveguide: WG8, f = 1800 MHz)

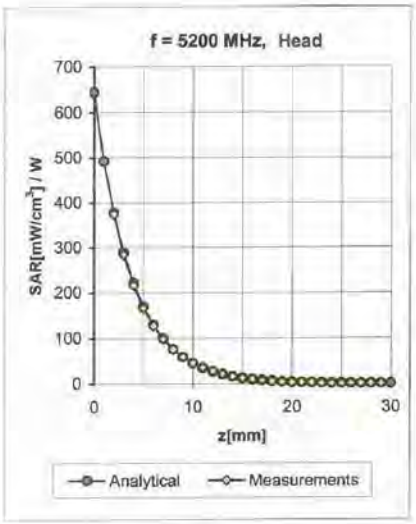


Uncertainty of Linearity Assessment: ±0.6% (k=2)

EX3DV4 SN: 3617 **July 9, 2010**

Conversion Factor Assessment





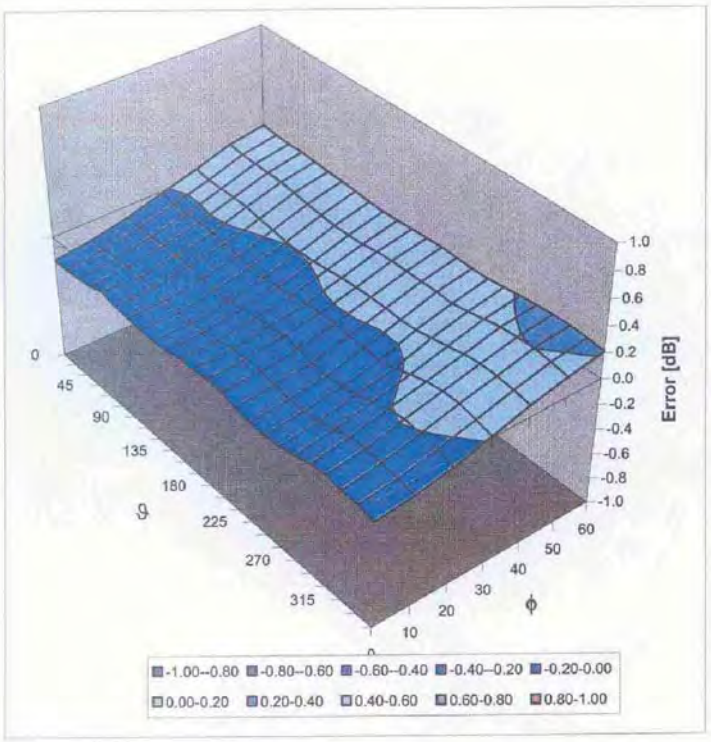
f[MHz]	Validity[MHz][C]	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF	Uncertainty
2300	±50 /±100	Head	39.5±5%	1.67±5%	0.33	1.02	7.23	±11.8% (k=2)
2450	±50 /±100	Head	39.2±5%	1.80±5%	0.33	1.00	7.19	±11.8% (k=2)
2600	±50 /±100	Head	39.0±5%	1.96±5%	0.36	1.21	7.16	±11.8% (k=2)
3500	±50 /±100	Head	37.9±5%	2.91±5%	0.34	1.35	6.48	±11.8% (k=2)
5200	±50 /±100	Head	36.0±5%	4.66±5%	0.35	1.60	5.33	±13.1% (k=2)
5800	±50 /±100	Head	35.3±5%	5.27±5%	0.35	1.60	4.69	±13.1% (k=2)
2300	±50 /±100	Body	52.8±5%	1.85±5%	0.30	1.01	6.95	±11.8% (k=2)
2450	±50 /±100	Body	52.7±5%	1.95±5%	0.36	1.00	6.88	±11.8% (k=2)
2600	±50 /±100	Body	52.5±5%	2.16±5%	0.36	1.05	6.84	±11.8% (k=2)
3500	±50 /±100	Body	51.3±5%	3.30±5%	0.33	1.40	5.02	±11.8% (k=2)
5200	±50 /±100	Body	49.0±5%	5.30±5%	0.35	1.70	4.64	±13.1% (k=2)
5800	±50 /±100	Body	48.2±5%	6.00±5%	0.30	1.70	4.53	±13.1% (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.

EX3DV4 SN: 3617 July 9, 2010

Deviation from Isotropy

Error (Φ , θ), f = 900 MHz



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

ANNEX F DIPOLE CALIBRATION CERTIFICATE

835 MHz Dipole Calibration Certificate

工业和信息化部通信计量中心
Telecommunication Metrology Center of MIIT

CNAS 校准 CNAS L0442

Client TMC Certificate No: D835V2-443_Feb10

CALIBRATION CERTIFICATE

Object	D835V2 - SN: 443
Calibration Procedure(s)	TMC-XZ-01-027 Calibration procedure for dipole validation kits
Calibration date:	February 26, 2010
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)℃ and humidity<70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRVD	101253	04-Sep-09 (TMC, No.JZ09-248)	Jun-10
Power sensor NRV-Z5	100333	04-Sep-09 (TMC, No. JZ09-248)	Jun-10
Reference Probe ES3DV3	SN 3149	25-Sep-09(SPEAG, No.ES3-3149_Sep09)	Sep-10
DAE4	SN 771	19-Nov-09(SPEAG, No.DAE4-771_Nov09)	Nov-10
RF generator E4438C	MY45092879	18-Jun-09(TMC, No.JZ09-302)	Jun-10
Network Analyzer 8753E	US38433212	29-Aug-09(TMC, No.JZ09-056)	Aug-10

	Name	Function	Signature
Calibrated by:	Lin Hao	SAR Test Engineer	
Reviewed by:	Qi Dianyuan	SAR Project Leader	
Approved by:	Lu Bingsong	Deputy Director of the laboratory	

Issued: February 26, 2010

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Glossary:

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

Calibration is Performed According to the Following Standards:

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

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

c) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

d) DASY System Handbook

Methods Applied and Interpretation of Parameters:

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

Measurement Conditions

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

DASY Version	DASY5	V5.0
Extrapolation	Advanced Extrapolation	
Phantom	2mm Oval Phantom ELI4	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	835 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	41.5	0.90 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	41.6 ± 6 %	0.92mho/m ± 6 %
Head TSL temperature during test	(21.7 ± 0.2) °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.38 mW / g
SAR normalized	normalized to 1W	9.52 mW / g
SAR for nominal Head TSL parameters [1]	normalized to 1W	**9.41 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	1.54 mW / g
SAR normalized	normalized to 1W	6.16 mW / g
SAR for nominal Head TSL parameters [1]	normalized to 1W	**6.12 mW /g ± 16.5 % (k=2)**

[1] Correction to nominal TSL parameters according to d), chapter "SAR Sensitivities"

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Telecommunication Metrology Center of MIIT

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	55.2	0.97 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	54.5 ± 6%	0.97mho/m ± 6 %
Body TSL temperature during test	(21.9 ± 0.2) °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.41 mW / g
SAR normalized	normalized to 1W	9.64 mW / g
SAR for nominal Body TSL parameters [2]	normalized to 1W	**9.57 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	Condition	
SAR measured	250 mW input power	1.57 mW / g
SAR normalized	normalized to 1W	6.28 mW / g
SAR for nominal Body TSL parameters [2]	normalized to 1W	**6.24 mW /g ± 16.5 % (k=2)**

[2] Correction to nominal TSL parameters according to d), chapter "SAR Sensitivities"

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Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	53.7Ω -3.7 jΩ
Return Loss	- 25.9dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	49.4Ω - 5.1 jΩ
Return Loss	-25.6dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.387 ns

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

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	September 3, 2001

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DASY5 Validation Report for Head TSL

Date/Time: 2010-2-26 14:31:40

Test Laboratory: TMC, Beijing, China

DUT: Dipole 835 MHz; Type: D835V2; Serial: SN: 443

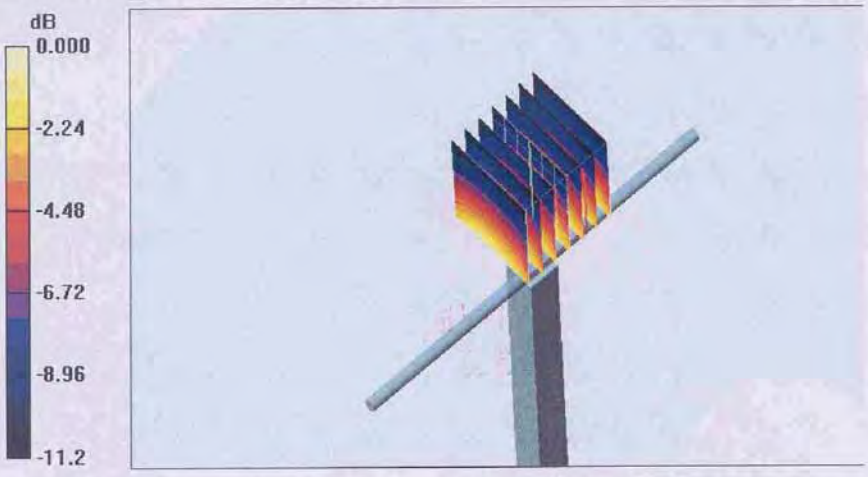
Communication System: CW Frequency: 835 MHz Duty Cycle: 1:1
Medium: Head 835MHz
Medium parameters used: f = 835 MHz; σ = 0.92 mho/m; ε_r = 41.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3149; ConvF(6.56, 6.56, 6.56); Calibrated: 25.09.09
- Electronics: DAE4 Sn771; Calibration: 19.11.09
- Phantom: 2mm Oval Phantom EL14; Type: QDOVA001BB
- Measurement SW: DASY5, V5.0 Build 119.9; Postprocessing SW: SEMCAD, V13.2 Build 87

Pin=250mW; d=15mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 54.8 V/m; Power Drift = -0.037 dB
Peak SAR (extrapolated) = 3.11 W/kg
SAR(1 g) = 2.38 mW/g; SAR(10 g) = 1.54 mW/g
Maximum value of SAR (measured) = 2.71 mW/g



0 dB = 2.71mW/g

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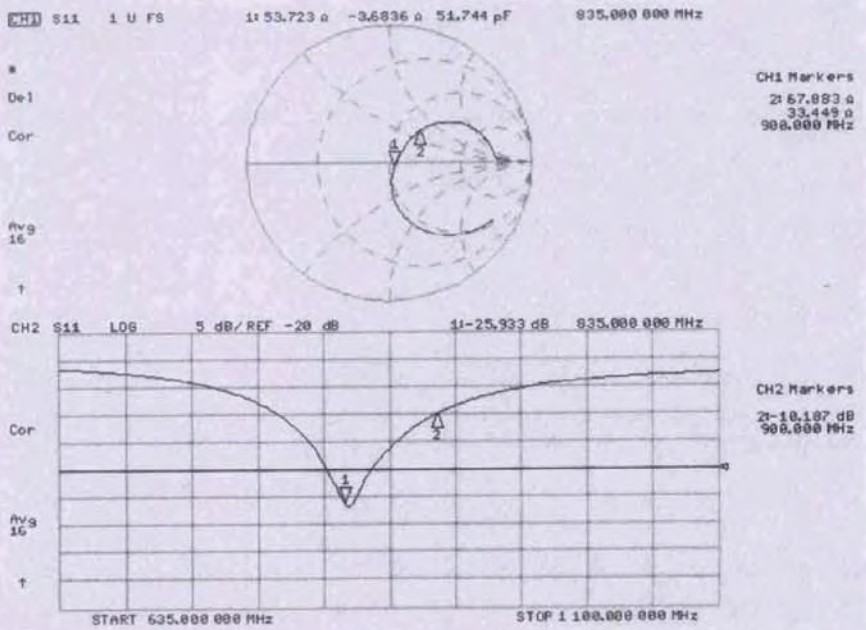
Impedance Measurement Plot for Head TSL



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DASY5 Validation Report for Body TSL

Date/Time: 2010-2-26 9:52:36

Test Laboratory: TMC, Beijing, China

DUT: Dipole 835 MHz; Type: D835V2; Serial: SN: 443

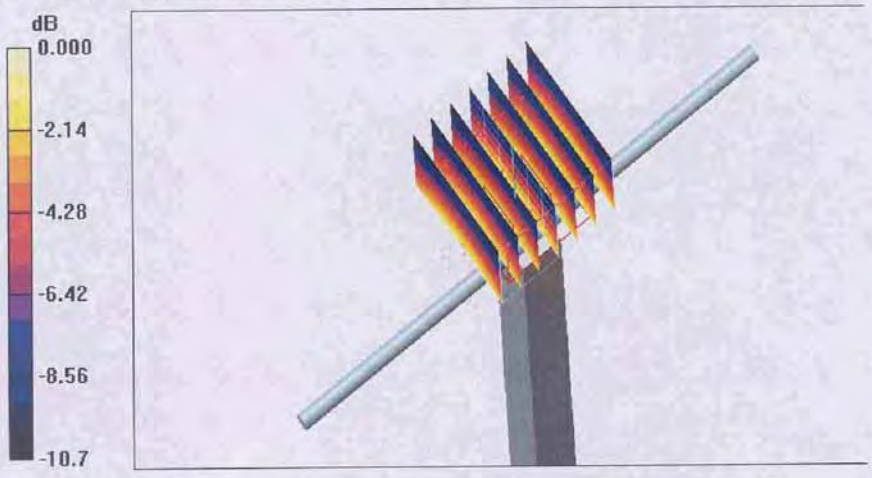
Communication System: CW Frequency: 835 MHz Duty Cycle: 1:1
Medium: Body 835MHz
Medium parameters used: f = 835 MHz; σ = 0.97 mho/m; ε_r = 54.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3149; ConvF(6.22, 6.22, 6.22); Calibrated: 25.09.09
- Electronics: DAE4 Sn771; Calibration: 19.11.09
- Phantom: 2mm Oval Phantom ELI4; Type: QDOVA001BB
- Measurement SW: DASY5, V5.0 Build 119.9; Postprocessing SW: SEMCAD, V13.2 Build 87

Pin=250mW; d=15mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 54.0 V/m; Power Drift = -0.025 dB
Peak SAR (extrapolated) = 3.78 W/kg
SAR(1 g) = 2.41 mW/g; SAR(10 g) = 1.57 mW/g
Maximum value of SAR (measured) = 2.70 mW/g



0 dB = 2.70mW/g

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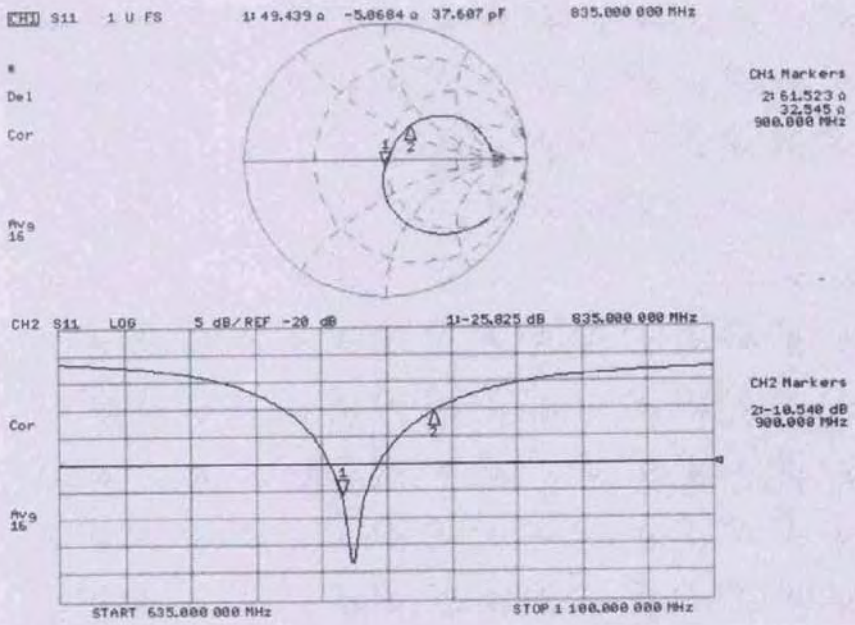
Impedance Measurement Plot for Body TSL



1900 MHz Dipole Calibration Certificate

工业和信息化部通信计量中心
Telecommunication Metrology Center of MIIT

CNAS 校准 CNAS L0442

Client TMC Certificate No: D1900V2-541_Feb10

CALIBRATION CERTIFICATE

Object	D1900V2 - SN: 541
Calibration Procedure(s)	TMC-XZ-01-027 Calibration procedure for dipole validation kits
Calibration date:	February 26, 2010
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)℃ and humidity<70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date(Calibrated by, Certificate No.)	Scheduled Calibration
Power Meter NRVD	101253	04-Sep-09 (TMC, No. JZ09-248)	Sep-10
Power sensor NRV-Z5	100333	04-Sep-09 (TMC, No. JZ09-248)	Sep-10
Reference Probe ES3DV3	SN 3149	25-Sep-09(SPEAG, No.ES3-3149_Sep09)	Sep-10
DAE4	SN 771	19-Nov-09(SPEAG, No.DAE4-771_Nov09)	Nov-10
RF generator E4438C	MY45092879	18-Jun-09(TMC, No.JZ09-302)	Jun-10
Network Analyzer 8753E	US38433212	29-Aug-09(TMC, No.JZ09-056)	Aug-10

	Name	Function	Signature
Calibrated by:	Lin Hao	SAR Test Engineer	
Reviewed by:	Qi Dianyuan	SAR Project Leader	
Approved by:	Lu Bingsong	Deputy Director of the laboratory	

Issued: February 26, 2010

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Glossary:

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

Calibration is Performed According to the Following Standards:

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

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

c) Federal Communications Commission Office of Engineering & Technology (FCC OET), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields; Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits for Human Exposure to Radiofrequency Emissions", Supplement C (Edition 01-01) to Bulletin 65

Additional Documentation:

d) DASY System Handbook

Methods Applied and Interpretation of Parameters:

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

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Measurement Conditions

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

DASY Version	DASY5	V5.0
Extrapolation	Advanced Extrapolation	
Phantom	2mm Oval Phantom EL14	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1900 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	**Permittivity**	**Conductivity**
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	39.6 ± 6 %	1.40mho/m ± 6 %
Head TSL temperature during test	(21.9 ± 0.2) °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	9.91 mW / g
SAR normalized	normalized to 1W	39.6 mW / g
SAR for nominal Head TSL parameters [1]	normalized to 1W	**39.4 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	Condition	
SAR measured	250 mW input power	5.05 mW / g
SAR normalized	normalized to 1W	20.2 mW / g
SAR for nominal Head TSL parameters [1]	normalized to 1W	**20.1 mW /g ± 16.5 % (k=2)**

[1] Correction to nominal TSL parameters according to d), chapter "SAR Sensitivities"

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Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	53.3	1.52 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	52.5 ± 6%	1.51 mho/m ± 6 %
Body TSL temperature during test	(21.8 ± 0.2) °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	10.4 mW / g
SAR normalized	normalized to 1W	41.6 mW / g
SAR for nominal Body TSL parameters [2]	normalized to 1W	**41.4 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	Condition	
SAR measured	250 mW input power	5.24 mW / g
SAR normalized	normalized to 1W	21.0 mW / g
SAR for nominal Body TSL parameters [2]	normalized to 1W	**20.9 mW /g ± 16.5 % (k=2)**

[2] Correction to nominal TSL parameters according to d), chapter "SAR Sensitivities"

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Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	54.8Ω + 4.0 jΩ
Return Loss	- 23.7dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	47.9Ω + 7.1 jΩ
Return Loss	- 22.6dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.201 ns

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

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	October 4, 2001

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Telecommunication Metrology Center of MIIT

DASY5 Validation Report for Head TSL

Date/Time: 2010-2-26 15:20:47

Test Laboratory: TMC, Beijing, China

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: SN: 541

Communication System: CW Frequency: 1900 MHz Duty Cycle: 1:1
Medium: Head 1900MHz
Medium parameters used: f = 1900 MHz; σ = 1.40 mho/m; ε_r = 39.6; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3149; ConvF(5.03, 5.03, 5.03); Calibrated: 25.09.09
- Electronics: DAE4 Sn771; Calibration: 19.11.09
- Phantom: 2mm Oval Phantom ELI4; Type: QDOVA001BB
- Measurement SW: DASY5, V5.0 Build 119.9; Postprocessing SW: SEMCAD, V13.2 Build 87

Pin=250mW; d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 85.1 V/m; Power Drift = -0.057 dB
Peak SAR (extrapolated) = 18.8 W/kg
SAR(1 g) = 9.91 mW/g; SAR(10 g) = 5.05 mW/g
Maximum value of SAR (measured) = 11.5 mW/g

0 dB = 11.5mW/g

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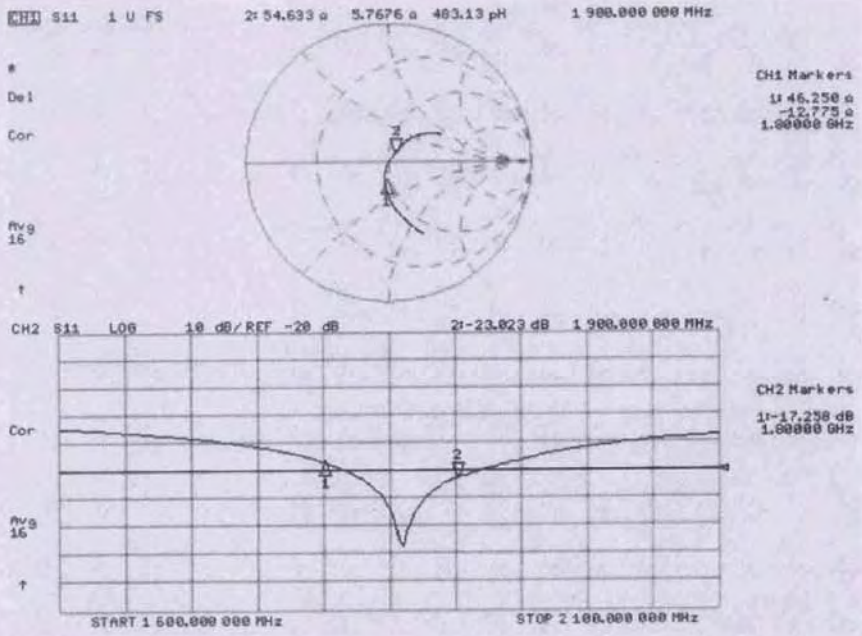
Impedance Measurement Plot for Head TSL



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Telecommunication Metrology Center of MIIT

DASY5 Validation Report for Body TSL

Date/Time: 2010-2-26 10:41:08

Test Laboratory: TMC, Beijing, China

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: SN: 541

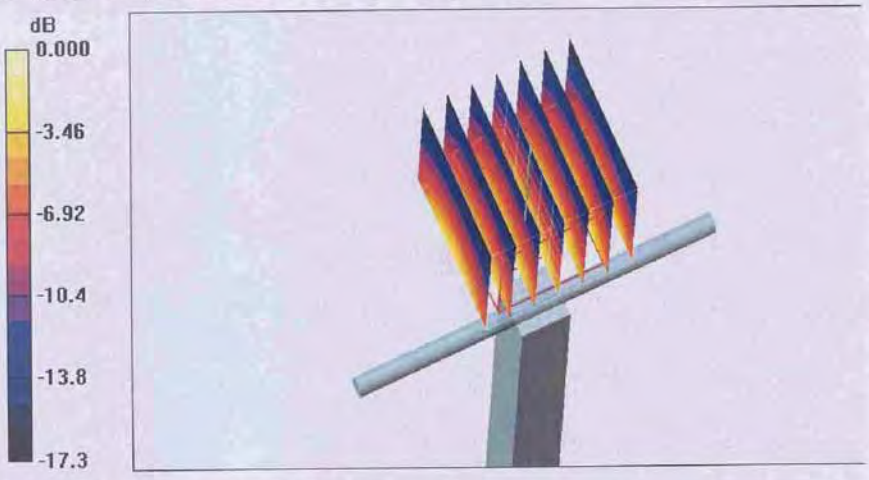
Communication System: CW Frequency: 1900 MHz Duty Cycle: 1:1
Medium: Body 1900MHz
Medium parameters used: f = 1900 MHz; σ = 1.51 mho/m; ε_r = 52.5; ρ = 1000 kg/m^3
Phantom section: Flat Section

DASY5 Configuration:

- Probe: ES3DV3 - SN3149; ConvF(4.68, 4.68, 4.68); Calibrated: 25.09.09
- Electronics: DAE4 Sn771; Calibration: 19.11.09
- Phantom: 2mm Oval Phantom ELI4; Type: QDOVA001BB
- Measurement SW: DASY5, V5.0 Build 119.9; Postprocessing SW: SEMCAD, V13.2 Build 87

Pin=250mW; d=10mm/Zoom Scan (7x7x7)/Cube 0:

Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 80.2 V/m; Power Drift = -0.009 dB
Peak SAR (extrapolated) = 19.1 W/kg
SAR(1 g) = 10.4 mW/g; SAR(10 g) = 5.24 mW/g
Maximum value of SAR (measured) = 12.0 mW/g



0 dB = 12.0mW/g

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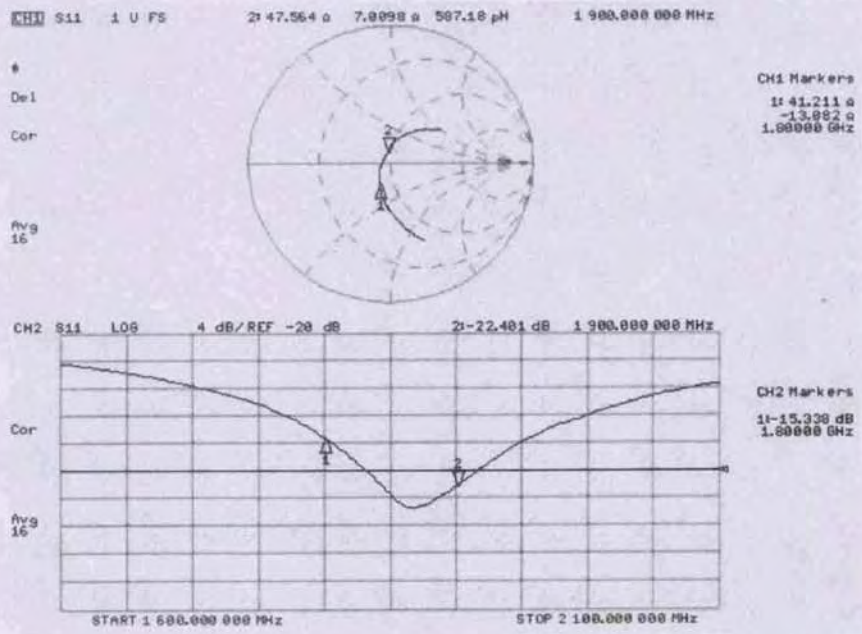
Impedance Measurement Plot for Body TSL



2450 MHz Dipole Calibration Certificate

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

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

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

Accreditation No.: SCS 108

Client: TMC (Auden)

Certificate No: D2450V2-853_Sep10

CALIBRATION CERTIFICATE

Object: D2450V2 - SN: 853

Calibration procedure(s): QA CAL-05.v7
Calibration procedure for dipole validation kits

Calibration date: September 27, 2010

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	06-Oct-09 (No. 217-01086)	Oct-10
Power sensor HP 8481A	US37292783	06-Oct-09 (No. 217-01086)	Oct-10
Reference 20 dB Attenuator	SN: 5086 (20g)	30-Mar-10 (No. 217-01158)	Mar-11
Type-N mismatch combination	SN: 5047.2 / 06327	30-Mar-10 (No. 217-01162)	Mar-11
Reference Probe ES3DV3	SN: 3205	30-Apr-10 (No. ES3-3205_Apr10)	Apr-11
DAE4	SN: 601	10-Jun-10 (No. DAE4-601_Jun10)	Jun-11

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-09)	In house check: Oct-11
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-09)	In house check: Oct-11
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-09)	In house check: Oct-10

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

Issued: September 29, 2010

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

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

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

Accreditation No.: SCS 108

Glossary:

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

Calibration is Performed According to the Following Standards:

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

Additional Documentation:

d) DASY4/5 System Handbook

Methods Applied and Interpretation of Parameters:

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

Measurement Conditions

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

DASY Version	DASY5	V52.2
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	2450 MHz ± 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	39.2	1.80 mho/m
Measured Head TSL parameters	(22.0 ± 0.2) °C	39.0 ± 6 %	1.74 mho/m ± 6 %
Head TSL temperature during test	(21.5 ± 0.2) °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm^3 (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	13.1 mW / g
SAR normalized	normalized to 1W	52.4 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**53.2 mW /g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Head TSL	condition	
SAR measured	250 mW input power	6.16 mW / g
SAR normalized	normalized to 1W	24.6 mW / g
SAR for nominal Head TSL parameters	normalized to 1W	**24.8 mW /g ± 16.5 % (k=2)**

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	52.7	1.95 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	52.5 ± 6 %	1.95 mho/m ± 6 %
Body TSL temperature during test	(21.6 ± 0.2) °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm^3 (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	12.9 mW / g
SAR normalized	normalized to 1W	51.6 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**51.5 mW / g ± 17.0 % (k=2)**

SAR averaged over 10 cm^3 (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.98 mW / g
SAR normalized	normalized to 1W	23.9 mW / g
SAR for nominal Body TSL parameters	normalized to 1W	**23.9 mW / g ± 16.5 % (k=2)**

Appendix

Antenna Parameters with Head TSL

Impedance, transformed to feed point	54.6 Ω + 2.8 jΩ
Return Loss	- 25.8 dB

Antenna Parameters with Body TSL

Impedance, transformed to feed point	49.4 Ω + 4.4 jΩ
Return Loss	- 27.1 dB

General Antenna Parameters and Design

Electrical Delay (one direction)	1.164 ns

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

The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.
No excessive force must be applied to the dipole arms, because they might bend or the soldered connections near the feedpoint may be damaged.

Additional EUT Data

Manufactured by	SPEAG
Manufactured on	November 10, 2009

DASY5 Validation Report for Head TSL

Date/Time: 24.09.2010 14:10:17

Test Laboratory: SPEAG, Zurich, Switzerland

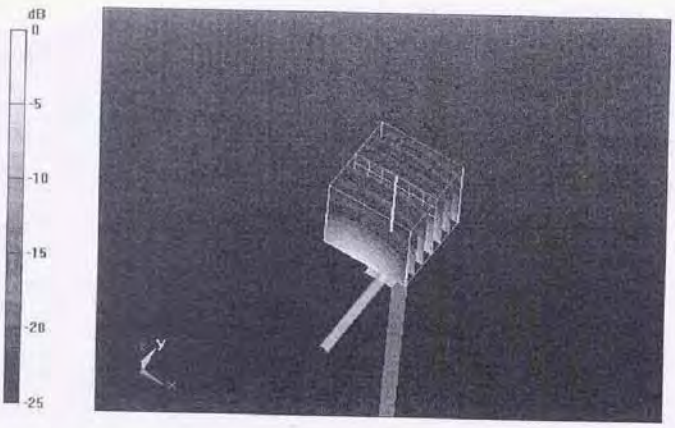
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:853

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: HSL U12 BB
Medium parameters used: f = 2450 MHz; σ = 1.74 mho/m; ε_r = 39; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

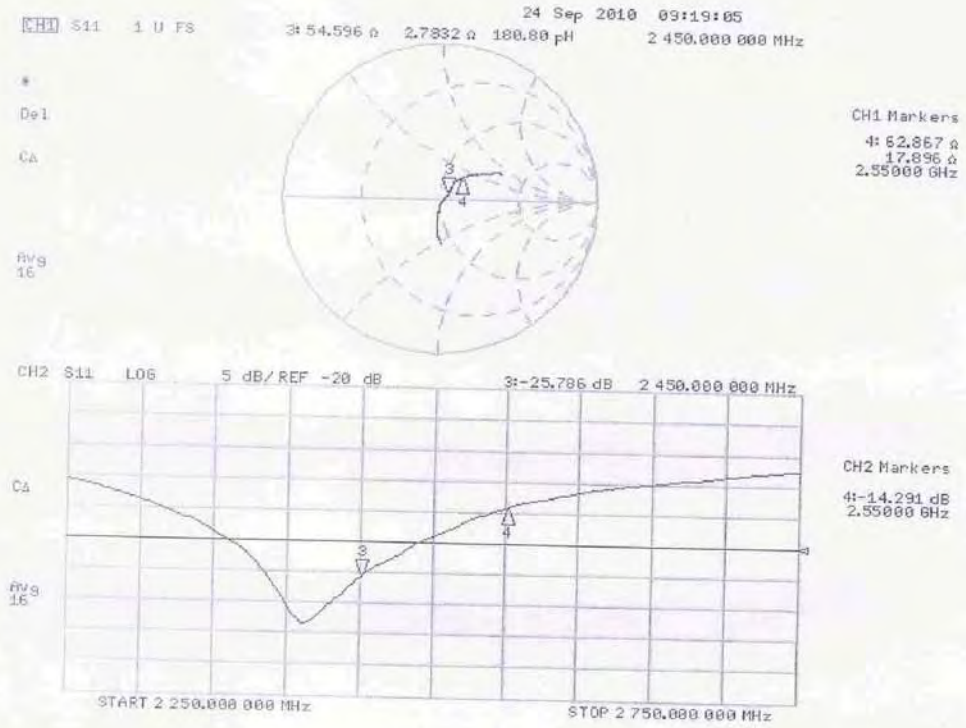
- Probe: ES3DV3 - SN3205; ConvF(4.53, 4.53, 4.53); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 5.0 (front); Type: QD000P50AA; Serial: 1001
- Measurement SW: DASY52, V52.2 Build 0, Version 52.2.0 (163)
- Postprocessing SW: SEMCAD X, V14.2 Build 2, Version 14.2.2 (1685)

Pin=250 mW/d=10mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 101.7 V/m; Power Drift = 0.028 dB
Peak SAR (extrapolated) = 26.7 W/kg
SAR(1 g) = 13.1 mW/g; SAR(10 g) = 6.16 mW/g
Maximum value of SAR (measured) = 16.7 mW/g



0 dB = 16.7mW/g

Impedance Measurement Plot for Head TSL



Validation Report for Body

Date/Time: 27.09.2010 13:39:49

Test Laboratory: SPEAG, Zurich, Switzerland

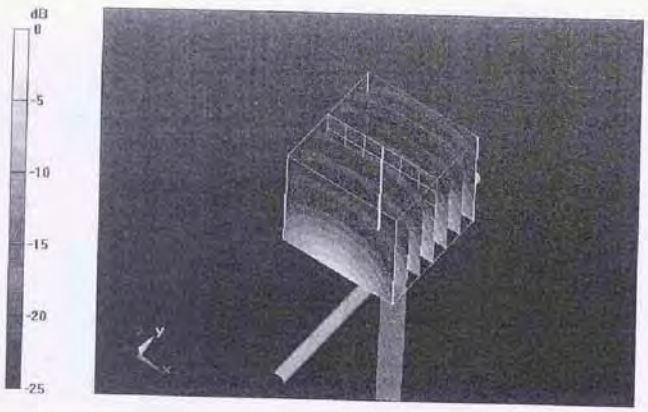
DUT: Dipole 2450 MHz; Type: D2450V2; Serial: D2450V2 - SN:853

Communication System: CW; Frequency: 2450 MHz; Duty Cycle: 1:1
Medium: MSL U12 BB
Medium parameters used: f = 2450 MHz; σ = 1.95 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Phantom section: Flat Section
Measurement Standard: DASY5 (IEEE/IEC/ANSI C63.19-2007)

DASY5 Configuration:

- Probe: ES3DV3 - SN3205; ConvF(4.31, 4.31, 4.31); Calibrated: 30.04.2010
- Sensor-Surface: 3mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn601; Calibrated: 10.06.2010
- Phantom: Flat Phantom 5.0 (back); Type: QD000P50AA; Serial: 1002
- Measurement SW: DASY52, V52.2 Build 0, Version 52.2.0 (163)
- Postprocessing SW: SEMCAD X, V14.2 Build 2, Version 14.2.2 (1685)

Pin=250 mW /d=10mm, dist=3.0mm (ES-Probe)/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 95.7 V/m; Power Drift = 0.045 dB
Peak SAR (extrapolated) = 27 W/kg
SAR(1 g) = 12.9 mW/g; SAR(10 g) = 5.98 mW/g
Maximum value of SAR (measured) = 16.9 mW/g



0 dB = 16.9mW/g

Impedance Measurement Plot for Body TSL