SAR TEST REPORT

No. 2011SAR00023

For

TCT Mobile Limited

GSM dual band mobile phone

U1 ALC US

one touch 090A

With

Hardware Version: Proto

Software Version: V193

FCCID: RAD187

Issued Date: 2011-04-25

Deutscher Akkreditierungs Rat

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

No. 52, Huayuan Bei Road, Haidian District, Beijing, P. R. China 100191.

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TABLE OF CONTENT

1 Test Laboratory

1.1 Testing Location

Company Name:	TMC Beijing, Telecommunication Metrology Center of MIIT
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Telephone:	+86-10-62304633
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1.2 Testing Environment

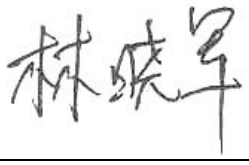
Temperature:	18°C~25 °C,
Relative humidity:	30%~ 70%
Ground system resistance:	< 0.5 Ω

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

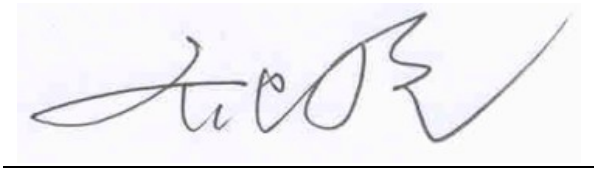
Project Leader:	Qi Dianyuan
Test Engineer:	Lin Xiaojun
Testing Start Date:	April 13, 2011
Testing End Date:	April 14, 2011

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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City:	Shanghai
Postal Code:	201203
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2.2 Manufacturer Information

Company Name:	TCT Mobile Limited
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City:	Shanghai
Postal Code:	201203
Country:	P. R. China
Telephone:	0086-21-61460890
Fax:	0086-21-61460602

3 Equipment Under Test (EUT) and Ancillary Equipment (AE)

3.1 About EUT

EUT Description:	GSM dual band mobile phone
Model Name:	U1 ALC US
Marketing Name:	one touch 090A
Frequency Band:	GSM 850 / PCS 1900

3.2 Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version
EUT1	012726000010484	Proto	V193

*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	CAB2170000C1	/	BYD
AE2	Battery	CAB2170000C2	/	BAK

*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: 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)

5 OPERATIONAL CONDITIONS DURING TEST

5.1 Schematic Test Configuration

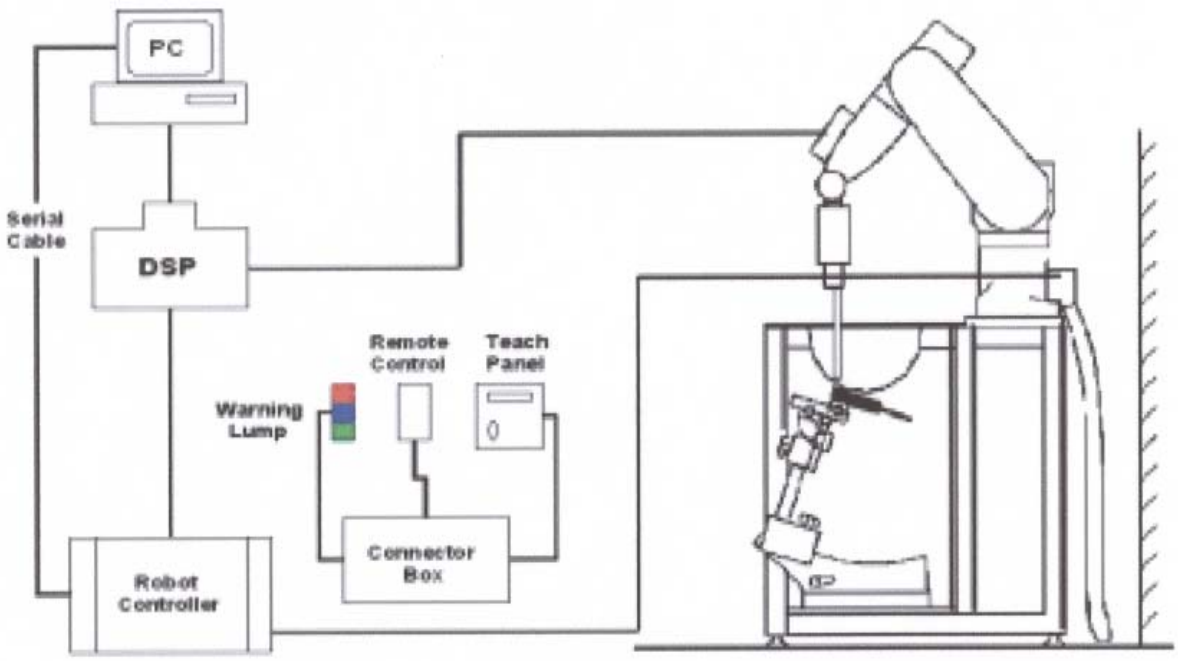
During SAR test, EUT is in Traffic Mode (Channel Allocated) at Normal Voltage Condition. A communication link is set up with a System Simulator (SS) by air link, and a call is established. The Absolute Radio Frequency Channel Number (ARFCN) is allocated to 128, 190 and 251 respectively in the case of GSM 850 MHz, or to 512, 661 and 810 respectively in the case of PCS 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

Picture 3: ES3DV3 E-field

Frequency	10 MHz to 4 GHz; Linearity: ± 0.2 dB (30 MHz to 4 GHz)
Directivity	± 0.2 dB in HSL (rotation around probe axis) ± 0.3 dB in tissue material (rotation normal to probe axis)
Dynamic Range	5 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,
ρ = Tissue density (kg/m^3).

Picture 5: Device Holder

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. l mm
Filling Volume	Approx. 20 liters
Dimensions	810 x l000 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

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

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

The conducted power for GSM 850/1900 is as following:

GSM 850MHZ	**Conducted Power (dBm)**		
	Channel 251(848.8MHz)	**Channel 190(836.6MHz)**	**Channel 128(824.2MHz)**
	32.82	32.36	32.84
GSM 1900MHZ	**Conducted Power (dBm)**		
	Channel 810(1909.8MHz)	**Channel 661(1880MHz)**	**Channel 512(1850.2MHz)**
	29.81	29.87	29.91

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 15 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 4: 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 **April 13, 2011** 1900 MHz **April 14, 2011**			
/	**Frequency**	**Permittivity ε**	**Conductivity σ (S/m)**
Target value	835 MHz	41.5	0.90
	1900 MHz	40.0	1.40
Measurement value (Average of 10 tests)	835 MHz	40.9	0.89
	1900 MHz	39.5	1.38

Table 5: 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 **April 13, 2011** 1900 MHz **April 14, 2011**			
/	**Frequency**	**Permittivity ε**	**Conductivity σ (S/m)**
Target value	835 MHz	55.2	0.97
	1900 MHz	53.3	1.52
Measurement value (Average of 10 tests)	835 MHz	54.2	0.96
	1900 MHz	52.0	1.51

7.2 System Validation

Table 6: 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 **April 13, 2011** 1900 MHz **April 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	
	Actural Measurement value	835 MHz		40.9		0.89	
		1900 MHz		39.5		1.38	
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	6.16	9.72	0.65%	3.29%
	1900 MHz	20.1	39.4	19.72	39.16	-1.89%	-0.61%

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

Table 7: 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 **April 13, 2011** 1900 MHz **April 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	
	Actural Measurement value	835 MHz		54.2		0.96	
		1900 MHz		52.0		1.51	
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	6.20	9.60	-0.64%	0.31%
	1900 MHz	20.9	41.4	20.76	41.2	-0.67%	-0.48%

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

7.3 Evaluation of Multi-Batteries

Table 8: Pretest SAR Values (GSM 1900 MHz Band)

Limit of SAR (W/kg)	**10 g Average**	**1 g Average**
	2.0	1.6
Test Case	**Measurement Result (W/kg)**	
	10 g Average	**1 g Average**
Right hand, Touch cheek, Mid frequency (CAB2170000C1)	0.722	1.2
Right hand, Touch cheek, Mid frequency (CAB2170000C2)	0.704	1.17

Note: According to the values in the above table, the battery, CAB2170000C1, is the normal battery. We'll perform the head measurement with this battery and retest on highest value point with others.

Table 9: Pretest SAR Values (GSM 850 MHz Band-Body)

Limit of SAR (W/kg)	**10 g Average**	**1 g Average**
	2.0	1.6
Test Case	**Measurement Result (W/kg)**	
	10 g Average	**1 g Average**
Body, Towards Ground, Bottom frequency (CAB2170000C1)	0.713	1.04
Body, Towards Ground, Bottom frequency (CAB2170000C2)	0.701	1.03

Note: According to the values in the above table, the battery, CAB2170000C1, is the normal battery. We'll perform the body measurement with this battery and retest on highest value point with others.

7.4 Summary of Measurement Results

Table 10: SAR Values (850MHz-Head) - with battery CAB2170000C1

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, Top frequency (See Fig.1)	0.743	1.08	-0.125
Left hand, Touch cheek, Mid frequency (See Fig.2)	0.734	1.06	-0.108
Left hand, Touch cheek, Bottom frequency (See Fig.3)	0.763	1.1	-0.039
Left hand, Tilt 15 Degree, Top frequency (See Fig.4)	0.278	0.381	-0.069
Left hand, Tilt 15 Degree, Mid frequency (See Fig.5)	0.269	0.367	-0.083
Left hand, Tilt 15 Degree, Bottom frequency (See Fig.6)	0.304	0.412	-0.139
Right hand, Touch cheek, Top frequency (See Fig.7)	0.736	1.1	0.158
Right hand, Touch cheek, Mid frequency (See Fig.8)	0.725	1.09	0.151
Right hand, Touch cheek, Bottom frequency (See Fig.9)	0.758	1.13	0.058
Right hand, Tilt 15 Degree, Top frequency (See Fig.10)	0.287	0.398	-0.104
Right hand, Tilt 15 Degree, Mid frequency (See Fig.11)	0.309	0.425	0.049
Right hand, Tilt 15 Degree, Bottom frequency (See Fig.12)	0.321	0.440	-0.042

Table 11: SAR Values (1900MHz-Head) - with battery CAB2170000C1

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, Top frequency (See Fig.13)	0.602	0.971	-0.175
Left hand, Touch cheek, Mid frequency (See Fig.14)	0.649	1.04	0.104
Left hand, Touch cheek, Bottom frequency (See Fig.15)	0.557	0.888	0.173
Left hand, Tilt 15 Degree, Top frequency (See Fig.16)	0.316	0.514	-0.165
Left hand, Tilt 15 Degree, Mid frequency (See Fig.17)	0.283	0.450	-0.039
Left hand, Tilt 15 Degree, Bottom frequency (See Fig.18)	0.200	0.315	0.041
Right hand, Touch cheek, Top frequency (See Fig.19)	0.701	1.15	0.089
Right hand, Touch cheek, Mid frequency (See Fig.20)	0.722	1.2	-0.015
Right hand, Touch cheek, Bottom frequency (See Fig.21)	0.653	1.07	0.019
Right hand, Tilt 15 Degree, Top frequency (See Fig.22)	0.304	0.497	-0.032
Right hand, Tilt 15 Degree, Mid frequency (See Fig.23)	0.279	0.450	0.012
Right hand, Tilt 15 Degree, Bottom frequency(See Fig.24)	0.230	0.367	0.002

Table 12: SAR Values (1900MHz-Head) - with battery CAB2170000C2

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	
Right hand, Touch cheek, Mid frequency (See Fig.25)	0.704	1.17	0.070

Table 13: SAR Values (850MHz-Body) - with battery CAB2170000C1

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	
Body, Towards Ground, Top frequency (See Fig.26)	0.450	0.658	-0.058
Body, Towards Ground, Mid frequency (See Fig.27)	0.565	0.826	0.068
Body, Towards Ground, Bottom frequency (See Fig.28)	0.713	1.04	-0.153
Body, Towards Phantom, Top frequency (See Fig.29)	0.409	0.601	0.011
Body, Towards Phantom, Mid frequency (See Fig.30)	0.535	0.786	0.007
Body, Towards Phantom, Bottom frequency (See Fig.31)	0.667	0.973	0.030

Table 14: SAR Values (1900MHz-Body) - with battery CAB2170000C1

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	
Body, Towards Ground, Top frequency (See Fig.32)	0.200	0.322	-0.034
Body, Towards Ground, Mid frequency (See Fig.33)	0.220	0.352	-0.013
Body, Towards Ground, Bottom frequency (See Fig.34)	0.196	0.311	-0.003
Body, Towards Phantom, Top frequency (See Fig.35)	0.187	0.303	0.071
Body, Towards Phantom, Mid frequency (See Fig.36)	0.209	0.337	-0.064
Body, Towards Phantom, Bottom frequency (See Fig.37)	0.175	0.279	-0.011

Table 15: SAR Values (850MHz-Body) - with battery CAB2170000C2

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**	
Body, Towards Ground, Bottom frequency (See Fig.38)	0.701	1.03	-0.004

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 **GSM 1900 Head, Right hand, Touch Cheek, Mid frequency (Table 20)**, and the value are: **0.722(10g), 1.2(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	B	2.9	R	$\sqrt{3}$	1	1	1.7	1.7	∞

	phantom shell									
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 (target)	B	5.0	R	$\sqrt{3}$	0.6	0.49	1.7	1.4	∞
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 16: 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	E4438C	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	DAE	SPEAG DAE4	771	November 21, 2010	One year
09	Dipole Validation Kit	SPEAG D835V2	443	February 26, 2010	Two years
10	Dipole Validation Kit	SPEAG D1900V2	541	February 26, 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.

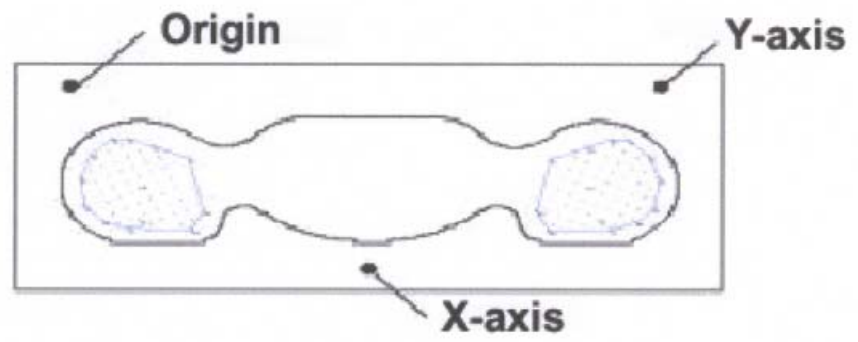
Step 3: Around this point, a volume of 30 mm x 30 mm x 30 mm was assessed by measuring 7 x 7x 7 points. On this basis of this data set, the spatial peak SAR value was evaluated with the following procedure:

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.

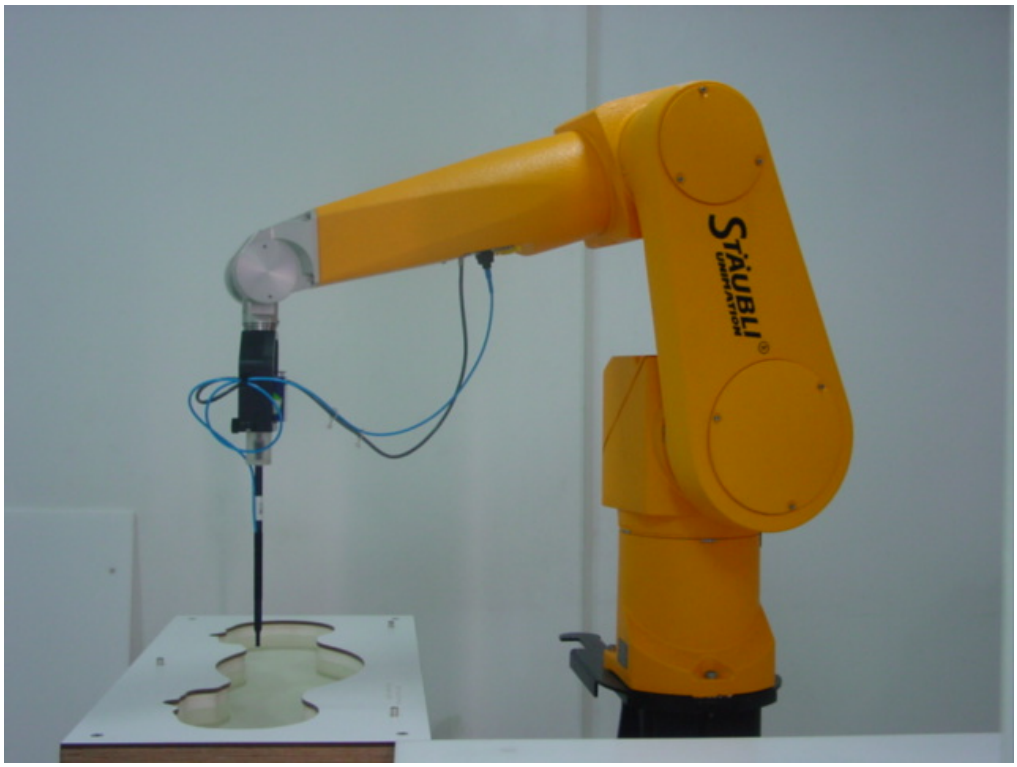
c. All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.

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.

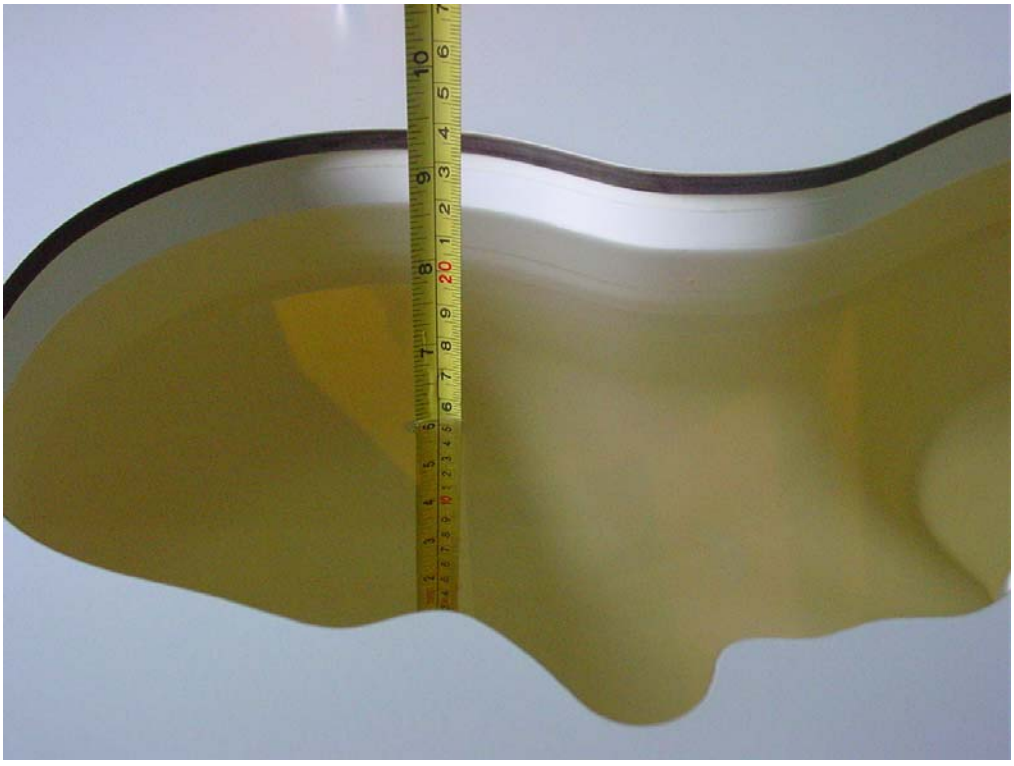


Picture A: SAR Measurement Points in Area Scan

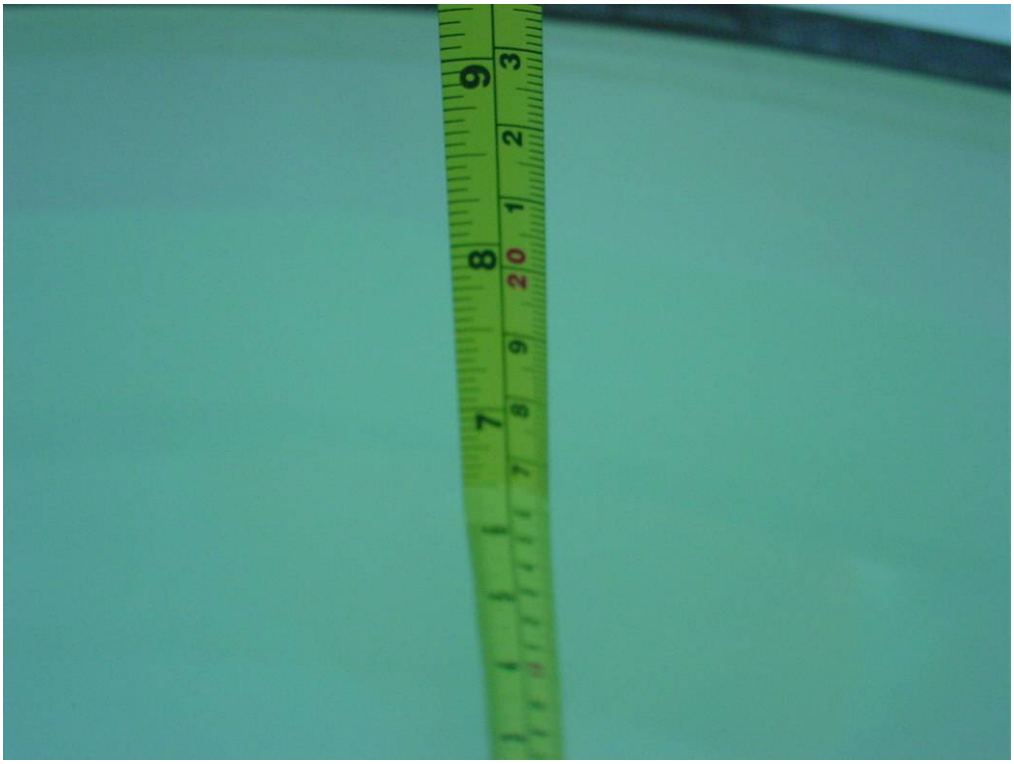
ANNEX B TEST LAYOUT



Picture B1: Specific Absorption Rate Test Layout

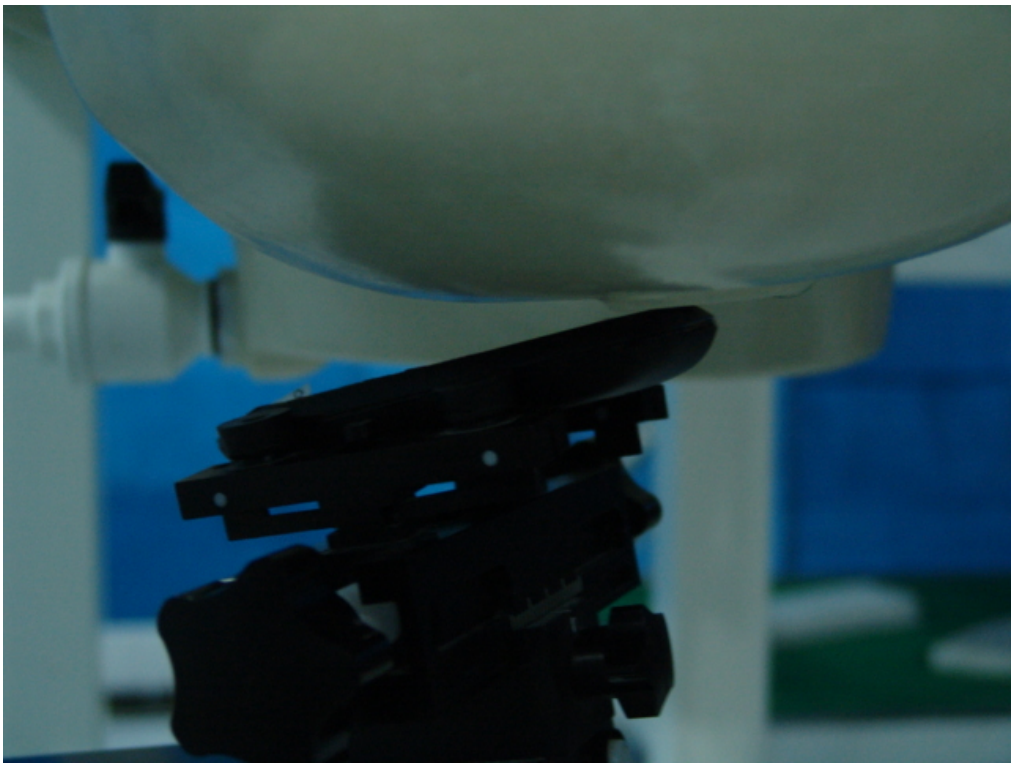


Picture B2: Liquid depth in the Flat Phantom (850 MHz)



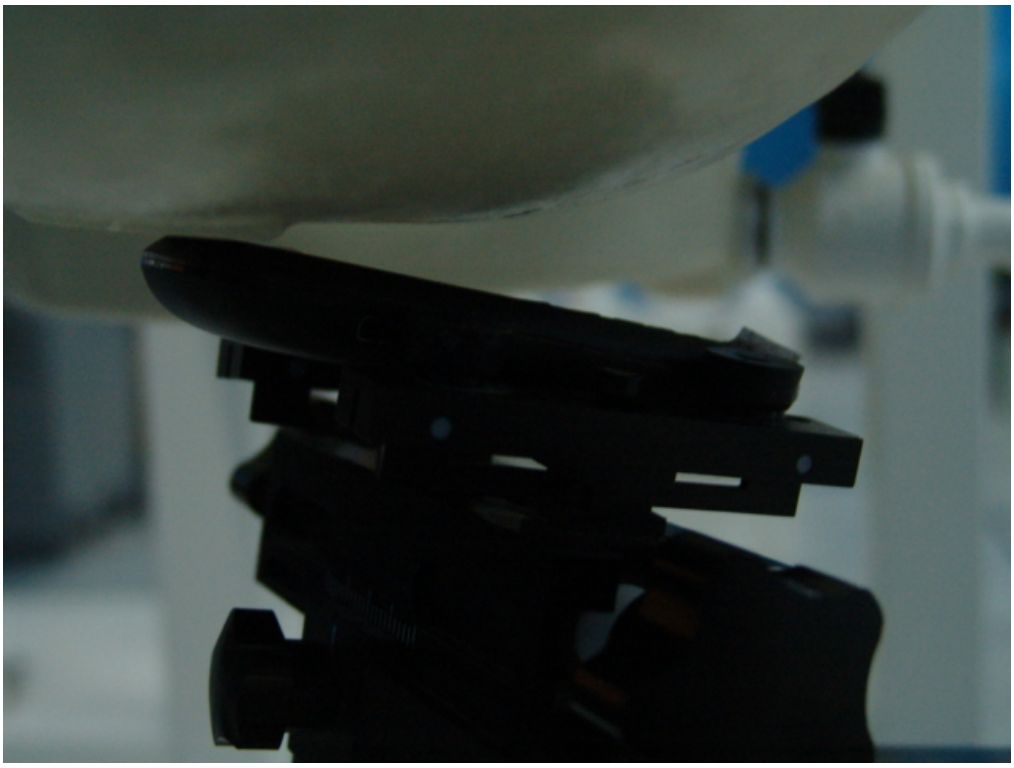
Picture B3 Liquid depth in the Flat Phantom (1900MHz)

Picture B4: Left Hand Touch Cheek Position

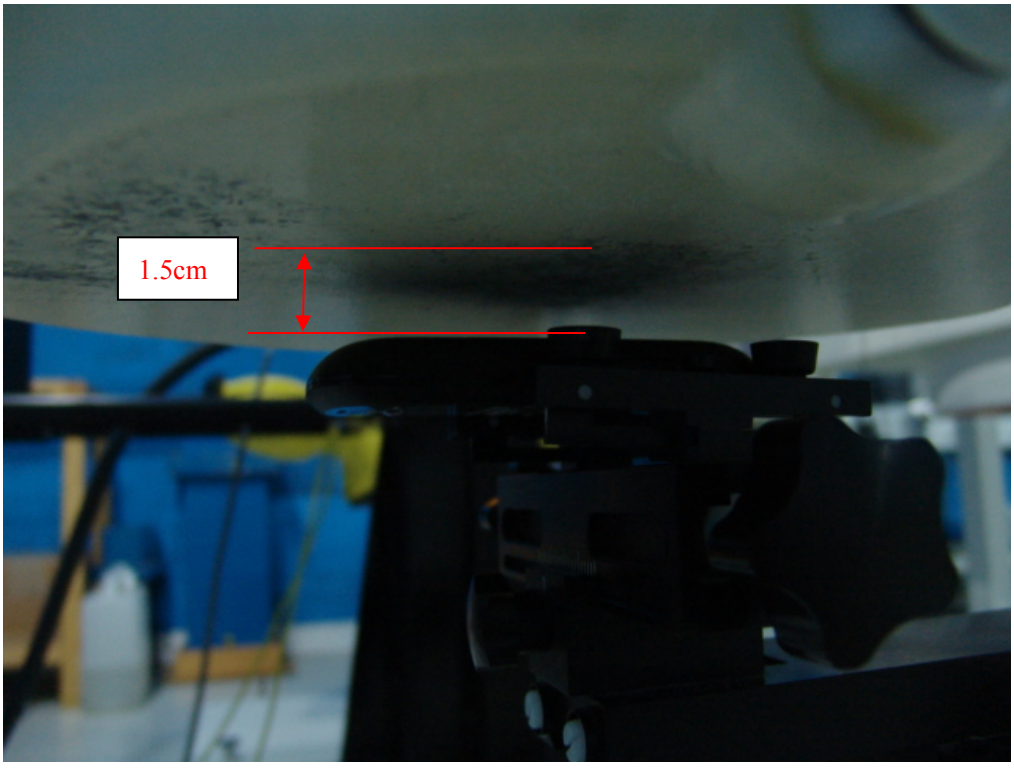


Picture B5: Left Hand Tilt 15° Position

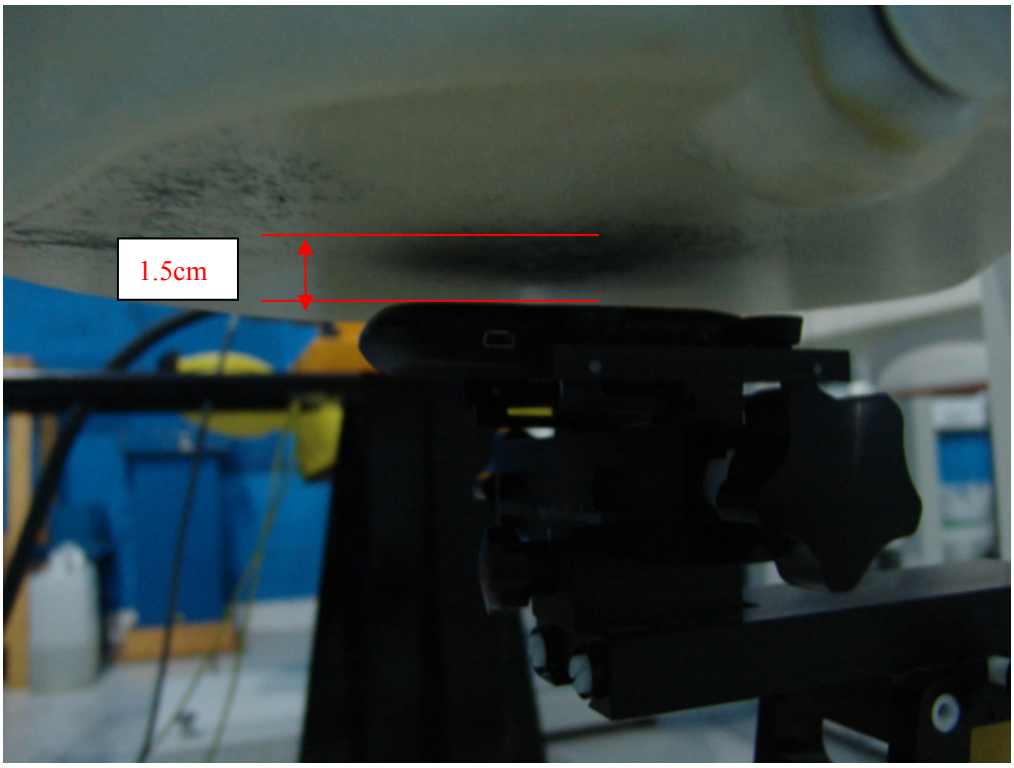
Picture B6: Right Hand Touch Cheek Position



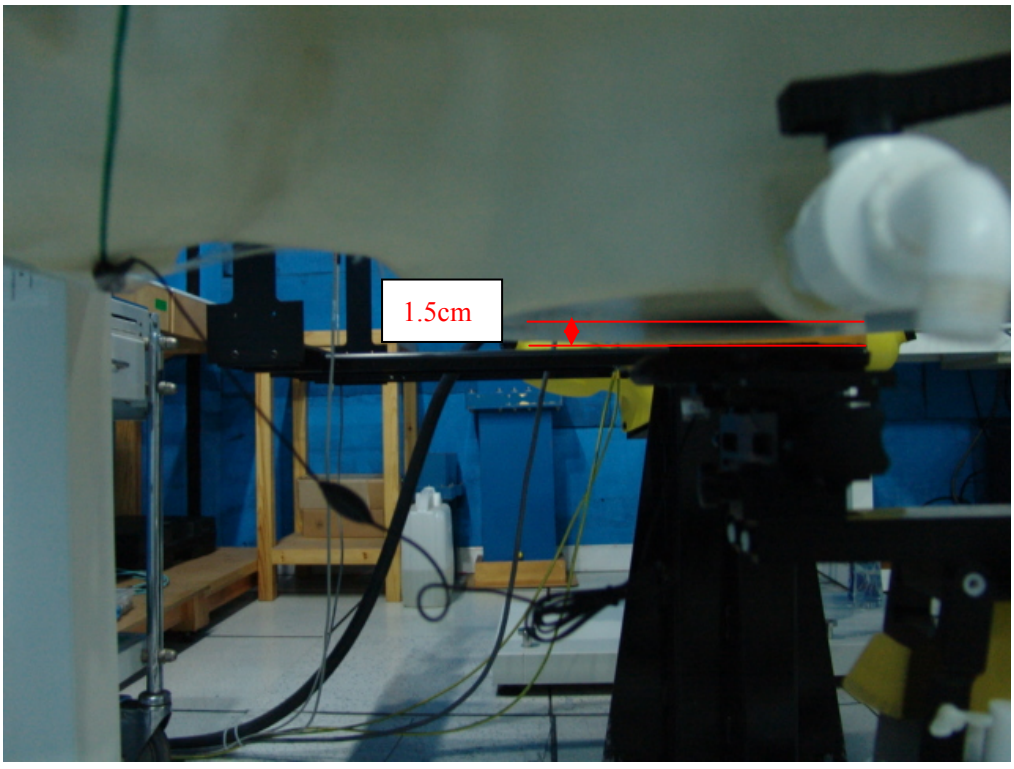
Picture B7: Right Hand Tilt 15° Position



Picture B8: Body-worn Position (towards ground, the distance from handset to the bottom of the Phantom is 1.5cm)



Picture B9: Body-worn Position (towards phantom, the distance from handset to the bottom of the Phantom is 1.5cm)



Picture B10: Body-worn Position with Headset (towards ground, the distance from handset to the bottom of the Phantom is 1.5cm)

ANNEX C GRAPH RESULTS

850 Left Cheek High

Date/Time: 2011-4-13 8:02:11
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 848.8 MHz; σ = 0.91 mho/m; εr = 40.8; 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 C1/Area Scan (51x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.19 mW/g

CheekHigh C1/Zoom Scan (7x7x7)/Cube0: Measurementgrid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.65 V/m; Power Drift = -0.125 dB
Peak SAR (extrapolated) = 1.51 W/kg
SAR(1 g) = 1.08 mW/g; SAR(10 g) = 0.743 mW/g
Maximum value of SAR (measured) = 1.16 mW/g

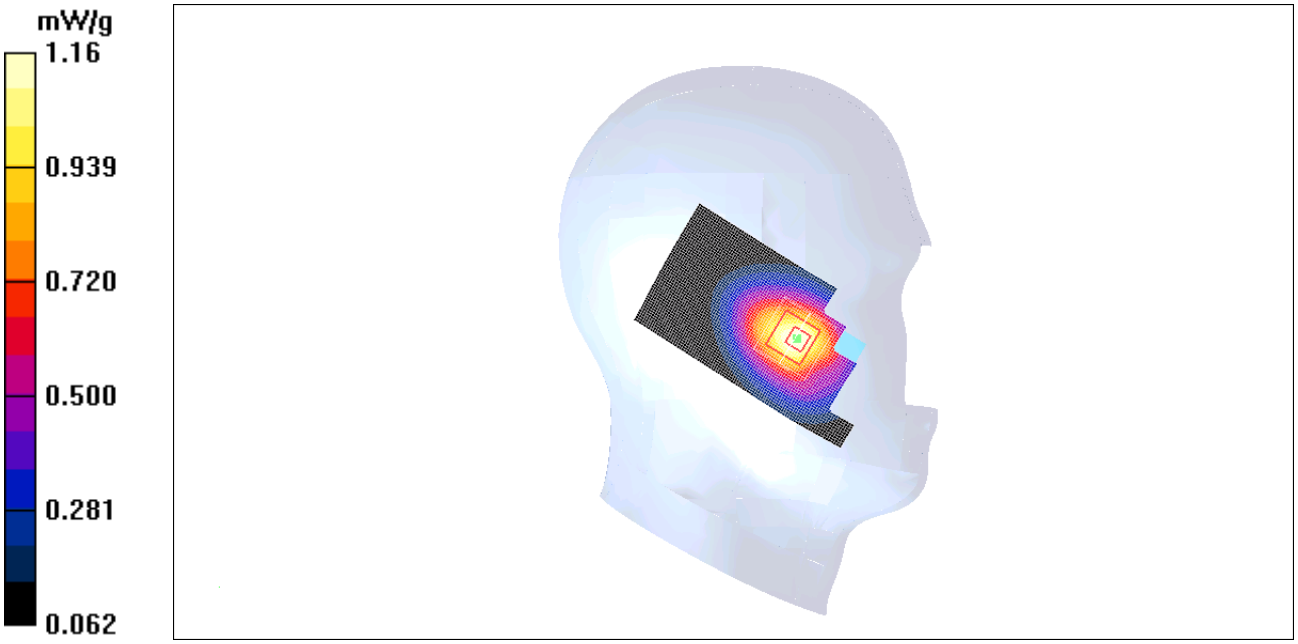


Fig. 1 850MHz CH251

850 Left Cheek Middle

Date/Time: 2011-4-13 8:28:49
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.898 mho/m; εr = 40.9; 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 (51x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.22 mW/g

CheekMiddle/Zoom Scan (7x7x7)/Cube0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.92 V/m; Power Drift = -0.108 dB
Peak SAR (extrapolated) = 1.47 W/kg
SAR(1 g) = 1.06 mW/g; SAR(10 g) = 0.734 mW/g
Maximum value of SAR (measured) = 1.12 mW/g

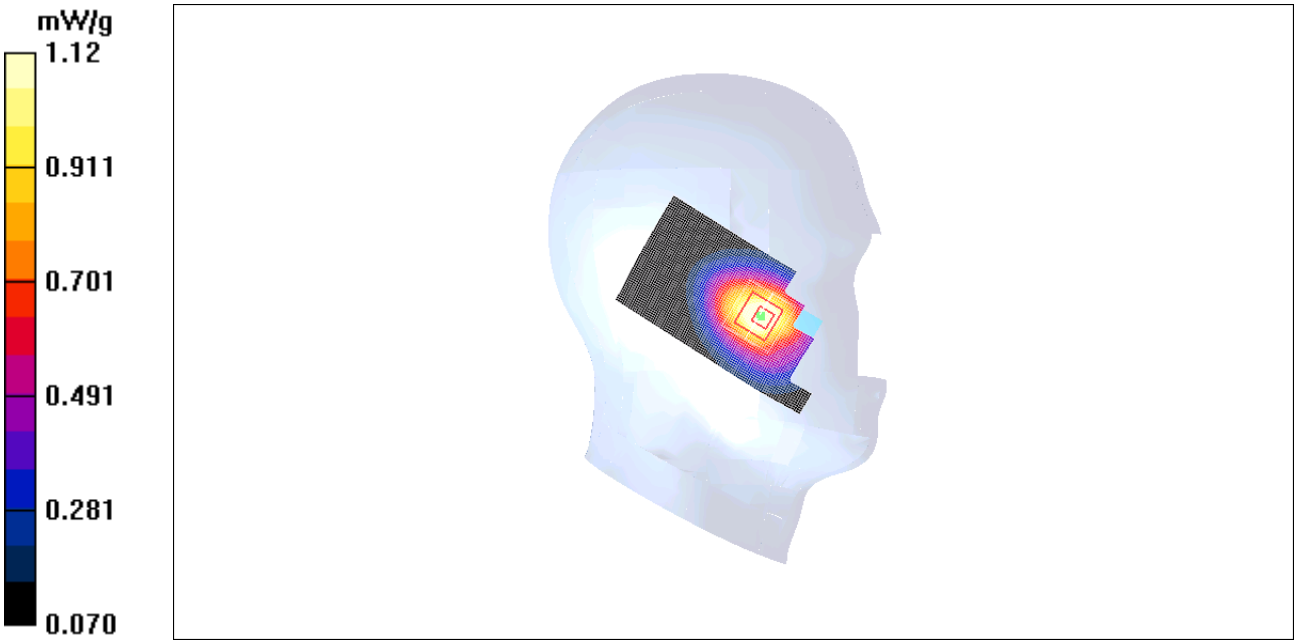


Fig. 2 850 MHz CH190

850 Left Cheek Low

Date/Time: 2011-4-13 8:47:25
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used: f = 825 MHz; σ = 0.886 mho/m; εr = 40.9; 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 (51x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.2 mW/g

Cheek Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.99 V/m; Power Drift = -0.039 dB
Peak SAR (extrapolated) = 1.53 W/kg
SAR(1 g) = 1.1 mW/g; SAR(10 g) = 0.763 mW/g
Maximum value of SAR (measured) = 1.18 mW/g

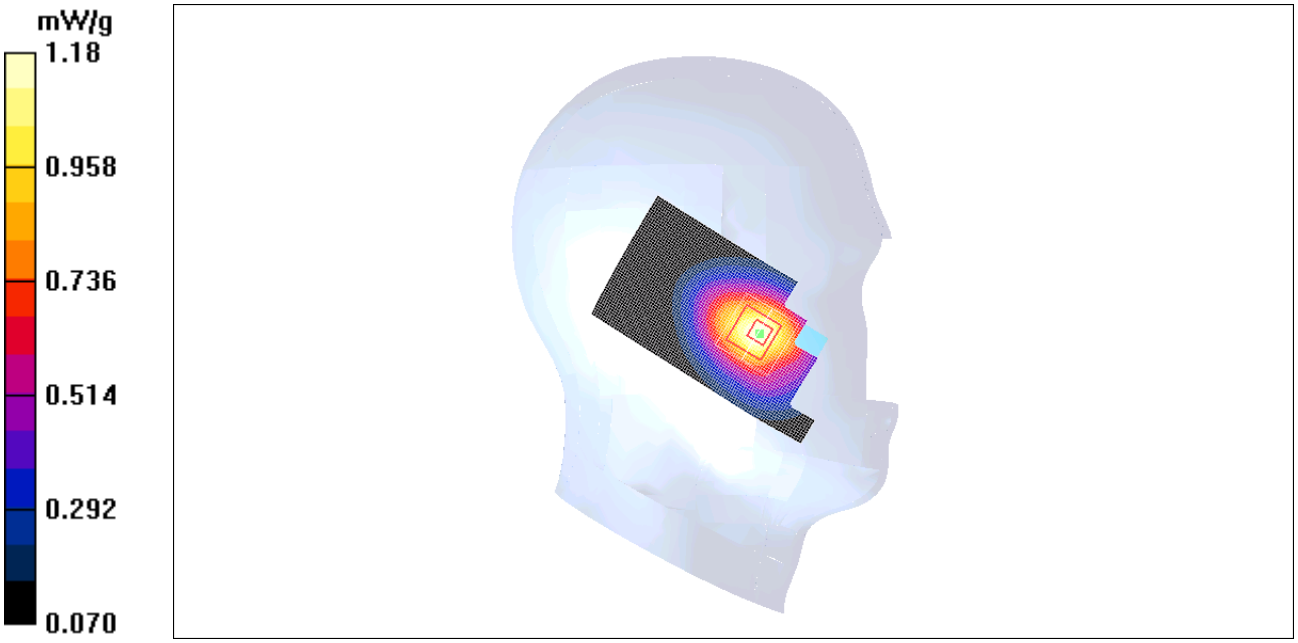


Fig. 3 850 MHz CH128

850 Left Tilt High

Date/Time: 2011-4-13 9:02:33
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 848.8 MHz; σ = 0.91 mho/m; εr = 40.8; 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 (51x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.414 mW/g

Tilt High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.8 V/m; Power Drift = -0.069 dB
Peak SAR (extrapolated) = 0.492 W/kg
SAR(1 g) = 0.381 mW/g; SAR(10 g) = 0.278 mW/g
Maximum value of SAR (measured) = 0.400 mW/g

Fig.4 850 MHz CH251

850 Left Tilt Middle

Date/Time: 2011-4-13 9:29:11
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.898 mho/m; εr = 40.9; 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 (51x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.398 mW/g

Tilt Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.7 V/m; Power Drift = -0.083 dB
Peak SAR (extrapolated) = 0.470 W/kg
SAR(1 g) = 0.367 mW/g; SAR(10 g) = 0.269 mW/g
Maximum value of SAR (measured) = 0.386 mW/g

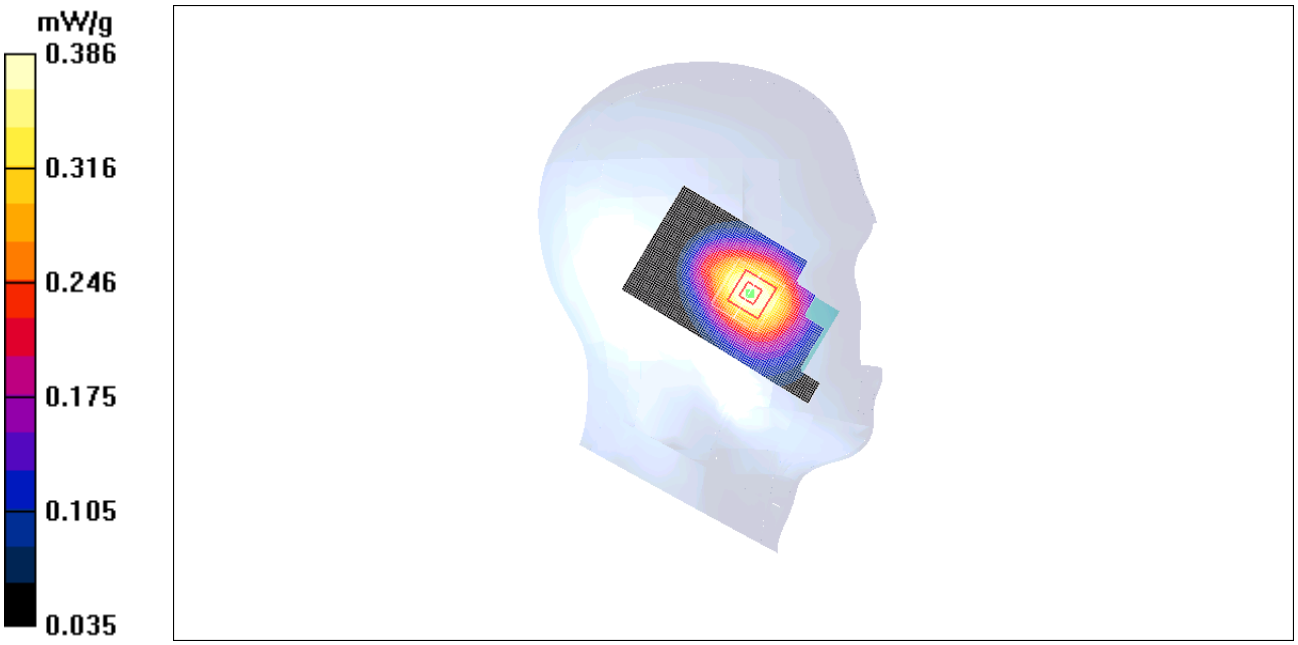


Fig.5 850 MHz CH190

850 Left Tilt Low

Date/Time: 2011-4-13 9:45:41
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used: f = 825 MHz; σ = 0.886 mho/m; εr = 40.9; 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 (51x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.472 mW/g

Tilt Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.4 V/m; Power Drift = -0.139 dB
Peak SAR (extrapolated) = 0.520 W/kg
SAR(1 g) = 0.412 mW/g; SAR(10 g) = 0.304 mW/g
Maximum value of SAR (measured) = 0.432 mW/g

Fig. 6 850 MHz CH128

850 Right Cheek High

Date/Time: 2011-4-13 10:11:22
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 848.8 MHz; σ = 0.91 mho/m; εr = 40.8; 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 (51x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.2 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.67 V/m; Power Drift = 0.158 dB
Peak SAR (extrapolated) = 1.63 W/kg
SAR(1 g) = 1.1 mW/g; SAR(10 g) = 0.736 mW/g
Maximum value of SAR (measured) = 1.19 mW/g

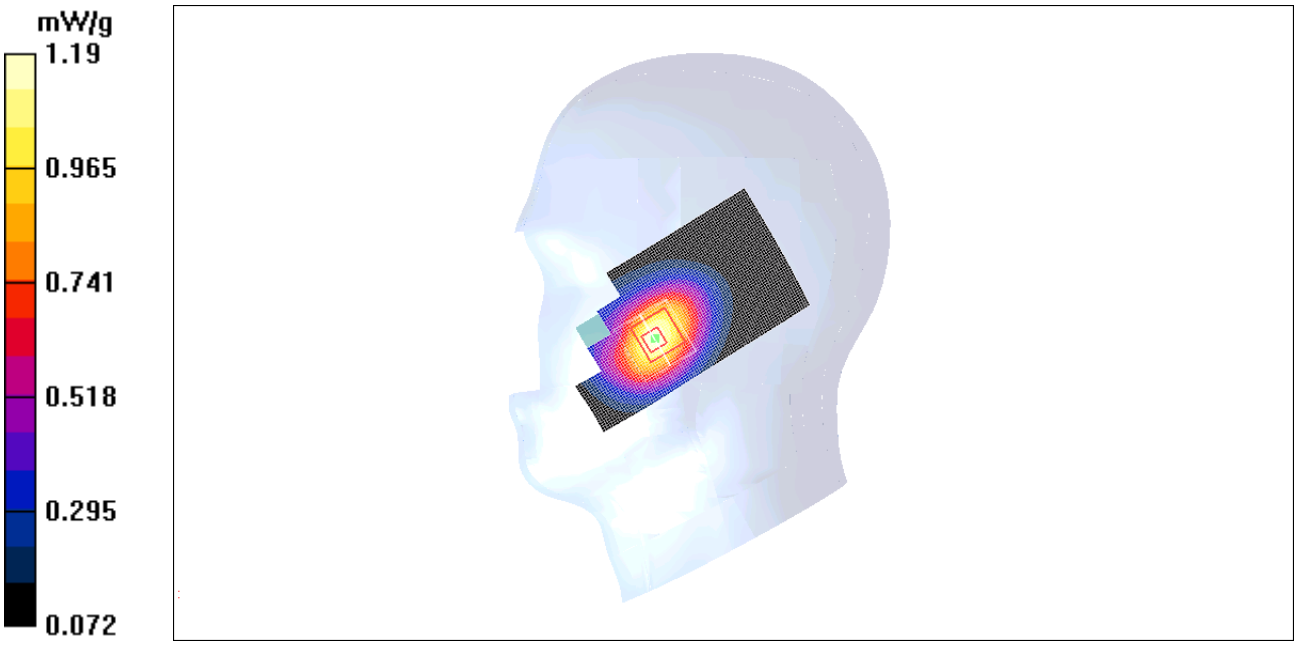


Fig. 7 850 MHz CH251

850 Right Cheek Middle

Date/Time: 2011-4-13 10:27:57
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.898 mho/m; εr = 40.9; 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 (51x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.18 mW/g

Cheek Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.66 V/m; Power Drift = 0.151 dB
Peak SAR (extrapolated) = 1.61 W/kg
SAR(1 g) = 1.09 mW/g; SAR(10 g) = 0.725 mW/g
Maximum value of SAR (measured) = 1.17 mW/g

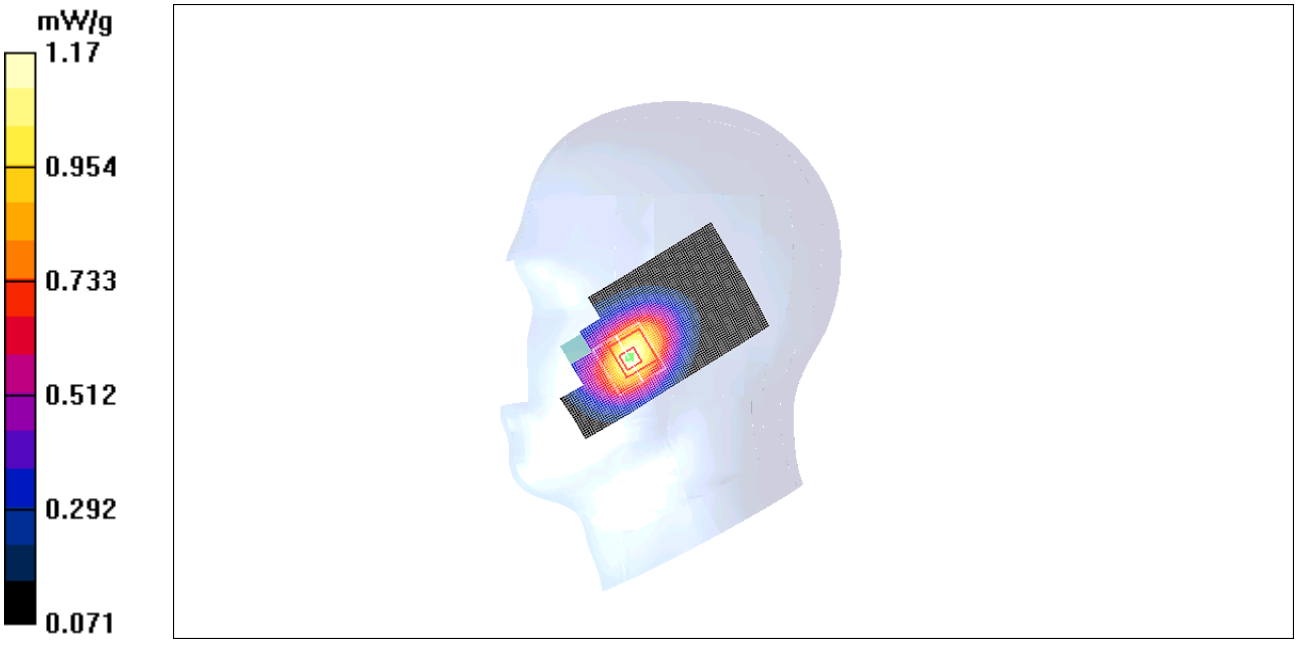


Fig. 8 850 MHz CH190

850 Right Cheek Low

Date/Time: 2011-4-13 10:45:03
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used: f = 825 MHz; σ = 0.886 mho/m; εr = 40.9; 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 (51x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.22 mW/g

Cheek Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.05 V/m; Power Drift = 0.058 dB
Peak SAR (extrapolated) = 1.66 W/kg
SAR(1 g) = 1.13 mW/g; SAR(10 g) = 0.758 mW/g
Maximum value of SAR (measured) = 1.21 mW/g

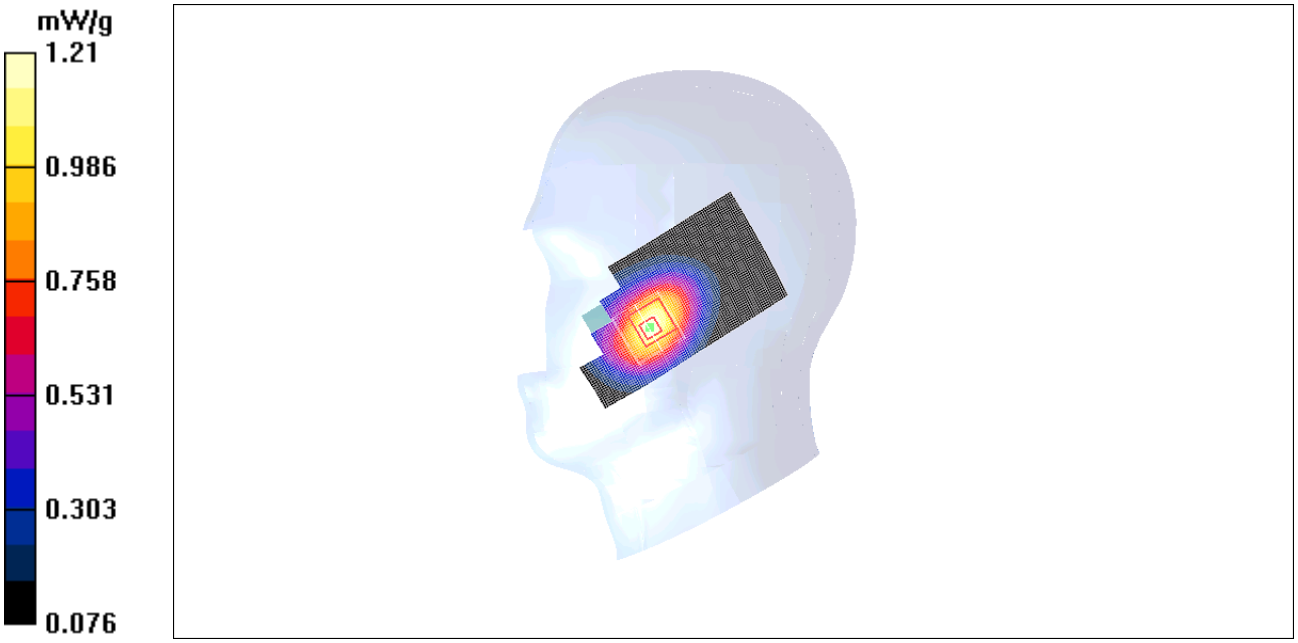


Fig. 9 850 MHz CH128

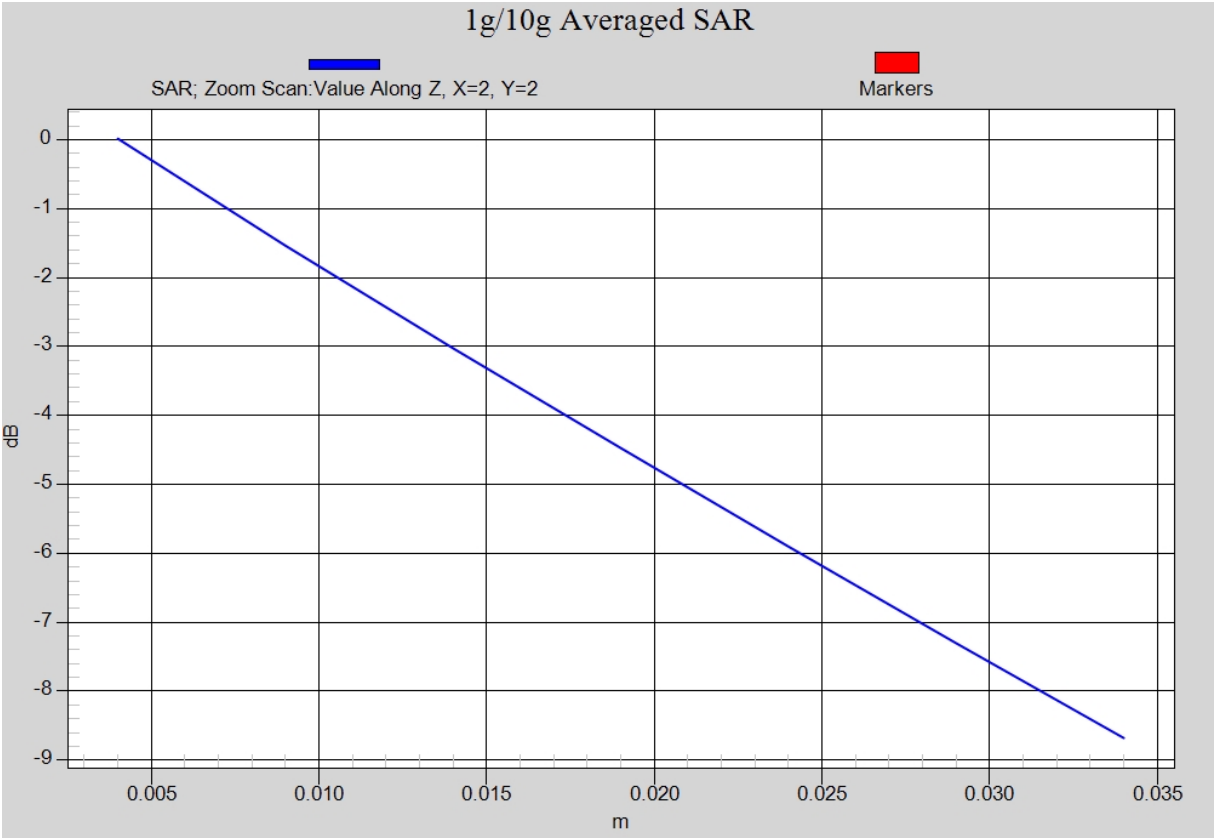


Fig. 9-1 Z-Scan at power reference point (850 MHz CH128)

850 Right Tilt High

Date/Time: 2011-4-13 11:00:52
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 848.8 MHz; σ = 0.91 mho/m; εr = 40.8; 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 (51x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.428 mW/g

Tilt High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.5 V/m; Power Drift = -0.104 dB
Peak SAR (extrapolated) = 0.515 W/kg
SAR(1 g) = 0.398 mW/g; SAR(10 g) = 0.287 mW/g
Maximum value of SAR (measured) = 0.423 mW/g

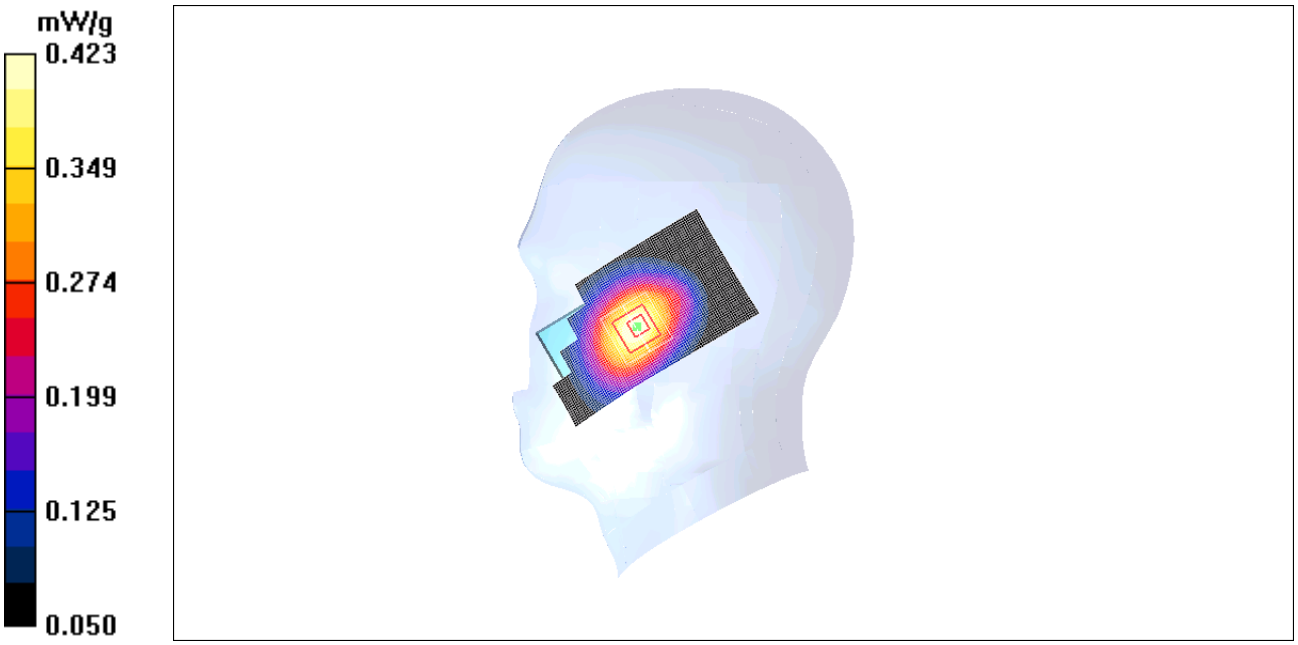


Fig.10 850 MHz CH251

850 Right Tilt Middle

Date/Time: 2011-4-13 11:16:18
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.898 mho/m; εr = 40.9; 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 (51x91x1): 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 = 12.1 V/m; Power Drift = 0.049 dB
Peak SAR (extrapolated) = 0.549 W/kg
SAR(1 g) = 0.425 mW/g; SAR(10 g) = 0.309 mW/g
Maximum value of SAR (measured) = 0.449 mW/g

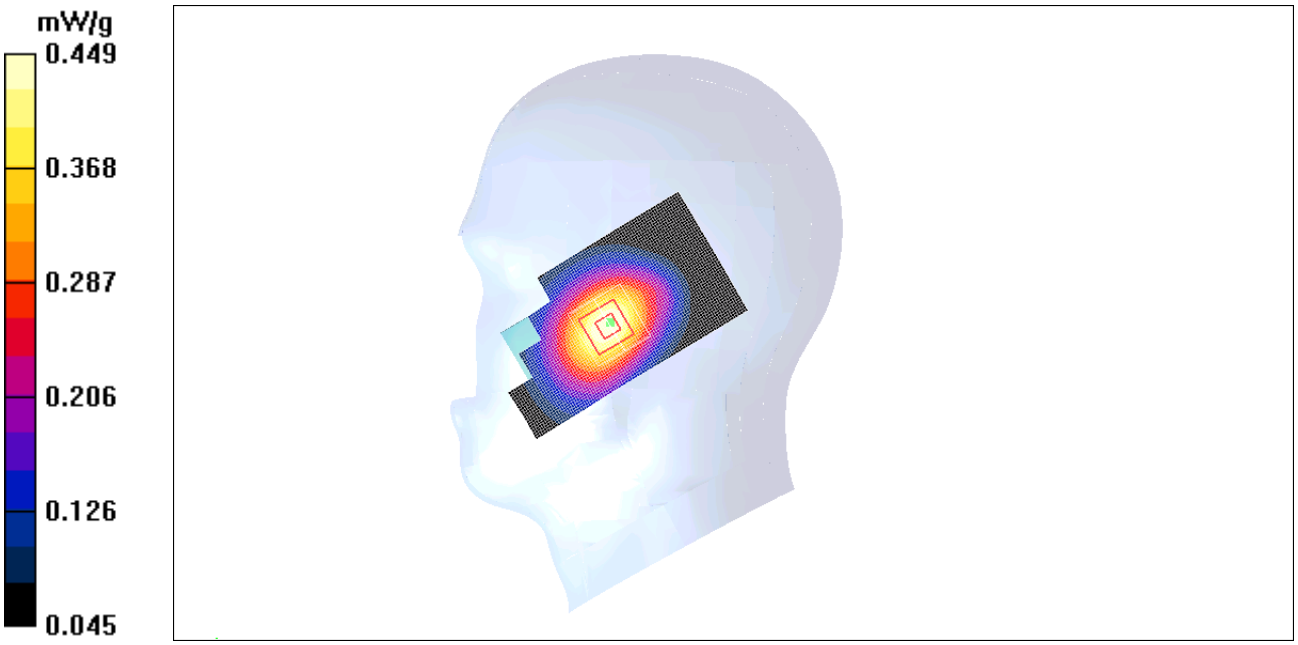


Fig.11 850 MHz CH190

850 Right Tilt Low

Date/Time: 2011-4-13 11:33:21
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used: f = 825 MHz; σ = 0.886 mho/m; εr = 40.9; 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 (51x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.467 mW/g

Tilt Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.5 V/m; Power Drift = -0.042 dB
Peak SAR (extrapolated) = 0.566 W/kg
SAR(1 g) = 0.440 mW/g; SAR(10 g) = 0.321 mW/g
Maximum value of SAR (measured) = 0.464 mW/g

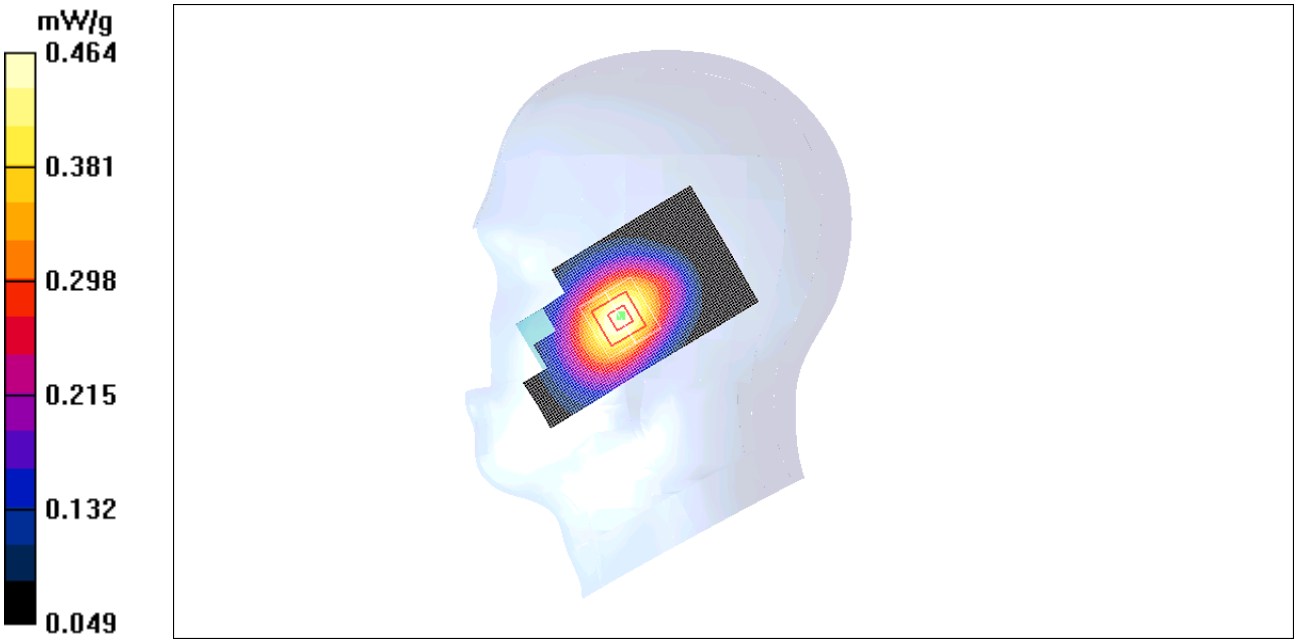


Fig. 12 850 MHz CH128

1900 Left Cheek High

Date/Time: 2011-4-14 8:14:21
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used: f = 1910 MHz; σ = 1.40 mho/m; εr = 39.4; 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 (51x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.08 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.91 V/m; Power Drift = -0.175 dB
Peak SAR (extrapolated) = 1.35 W/kg
SAR(1 g) = 0.971 mW/g; SAR(10 g) = 0.602 mW/g
Maximum value of SAR (measured) = 1.06 mW/g

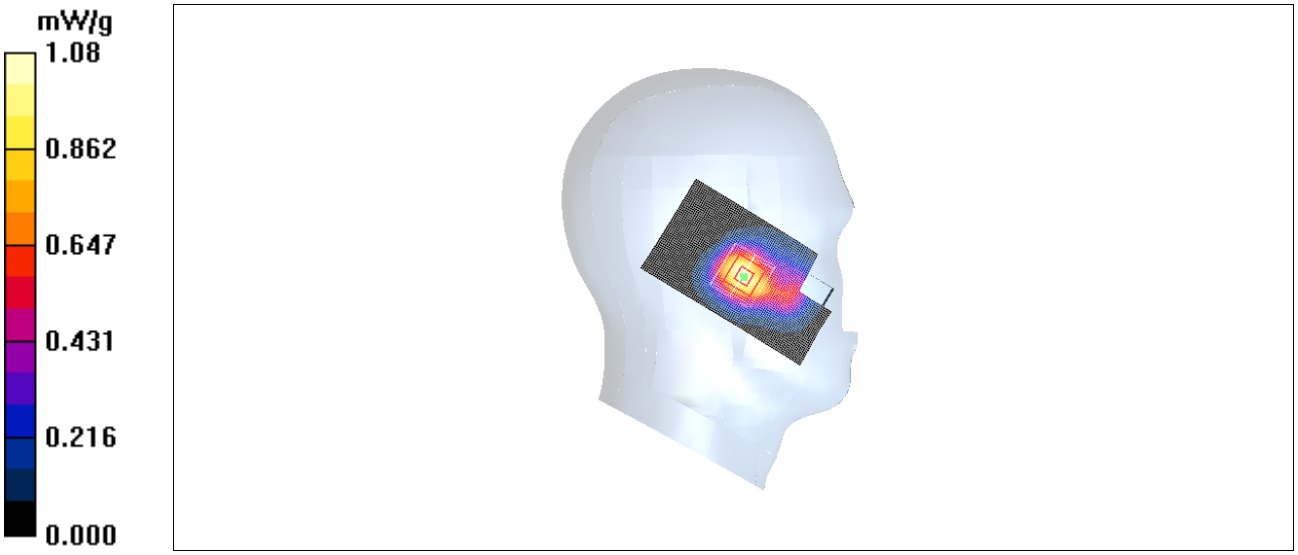


Fig. 13 1900 MHz CH810

1900 Left Cheek Middle

Date/Time: 2011-4-14 8:30:55
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.38 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: 1880 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

Cheek Middle/Area Scan (51x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.16 mW/g

Cheek Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.79 V/m; Power Drift = 0.104 dB
Peak SAR (extrapolated) = 1.43 W/kg
SAR(1 g) = 1.04 mW/g; SAR(10 g) = 0.649 mW/g
Maximum value of SAR (measured) = 1.13 mW/g

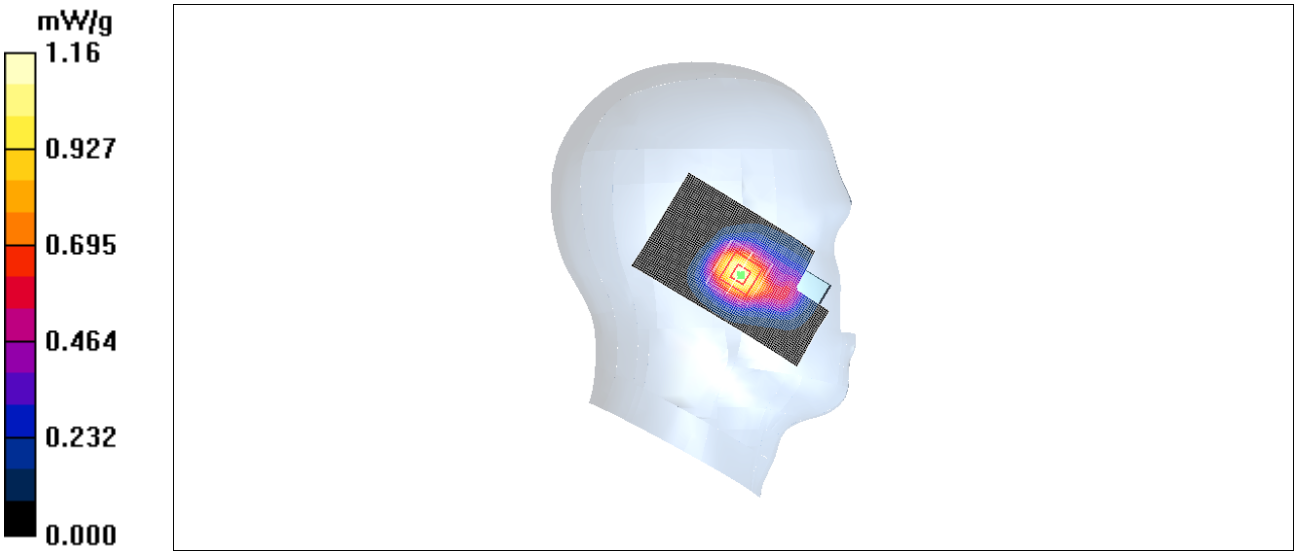


Fig. 14 1900 MHz CH661

1900 Left Cheek Low
Date/Time: 2011-4-14 8:46:41
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.35 mho/m; εr = 39.6; 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 (51x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.981 mW/g

Cheek Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.55 V/m; Power Drift = 0.173 dB
Peak SAR (extrapolated) = 1.20 W/kg
SAR(1 g) = 0.888 mW/g; SAR(10 g) = 0.557 mW/g
Maximum value of SAR (measured) = 0.962 mW/g

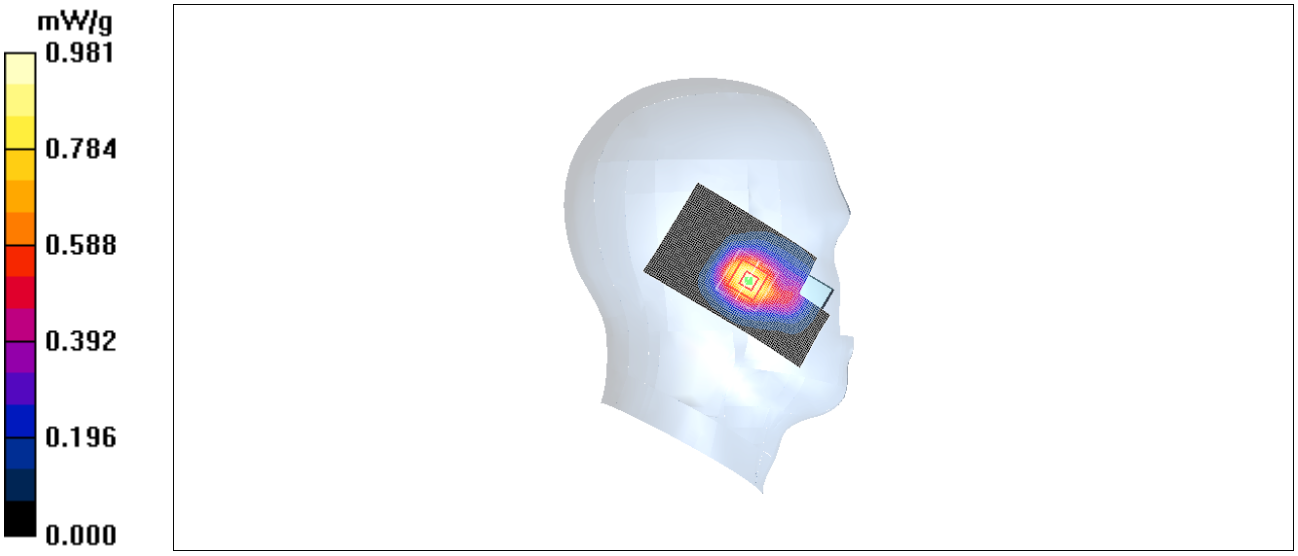


Fig. 15 1900 MHz CH512

1900 Left Tilt High

Date/Time: 2011-4-14 9:03:25
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used: f = 1910 MHz; σ = 1.40 mho/m; εr = 39.4; 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 (51x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.604 mW/g

Tilt High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.91 V/m; Power Drift = -0.165 dB
Peak SAR (extrapolated) = 0.777 W/kg
SAR(1 g) = 0.514 mW/g; SAR(10 g) = 0.316 mW/g
Maximum value of SAR (measured) = 0.555 mW/g

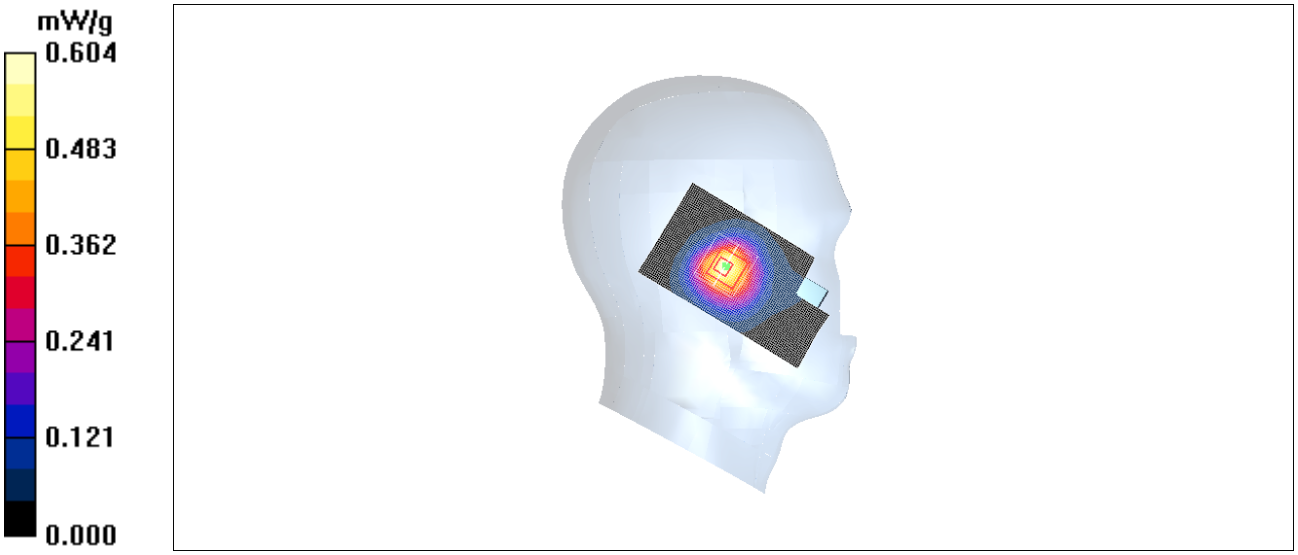


Fig.16 1900 MHz CH810

1900 Left Tilt Middle
Date/Time: 2011-4-14 9:19:58
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.38 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: 1880 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

Tilt Middle/Area Scan (51x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.529 mW/g

Tilt Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.55 V/m; Power Drift = -0.039 dB
Peak SAR (extrapolated) = 0.664 W/kg
SAR(1 g) = 0.450 mW/g; SAR(10 g) = 0.283 mW/g
Maximum value of SAR (measured) = 0.482 mW/g

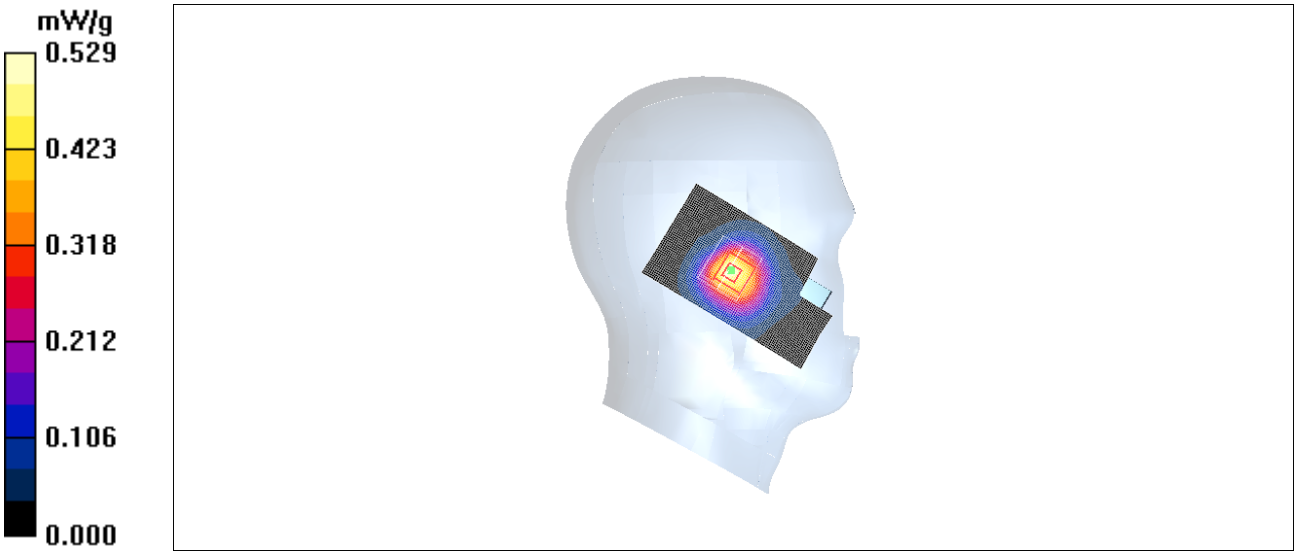


Fig. 17 1900 MHz CH661

1900 Left Tilt Low
Date/Time: 2011-4-14 9:36:01
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.35 mho/m; εr = 39.6; 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 (51x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.368 mW/g

Tilt Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.23 V/m; Power Drift = 0.041 dB
Peak SAR (extrapolated) = 0.460 W/kg
SAR(1 g) = 0.315 mW/g; SAR(10 g) = 0.200 mW/g
Maximum value of SAR (measured) = 0.334 mW/g

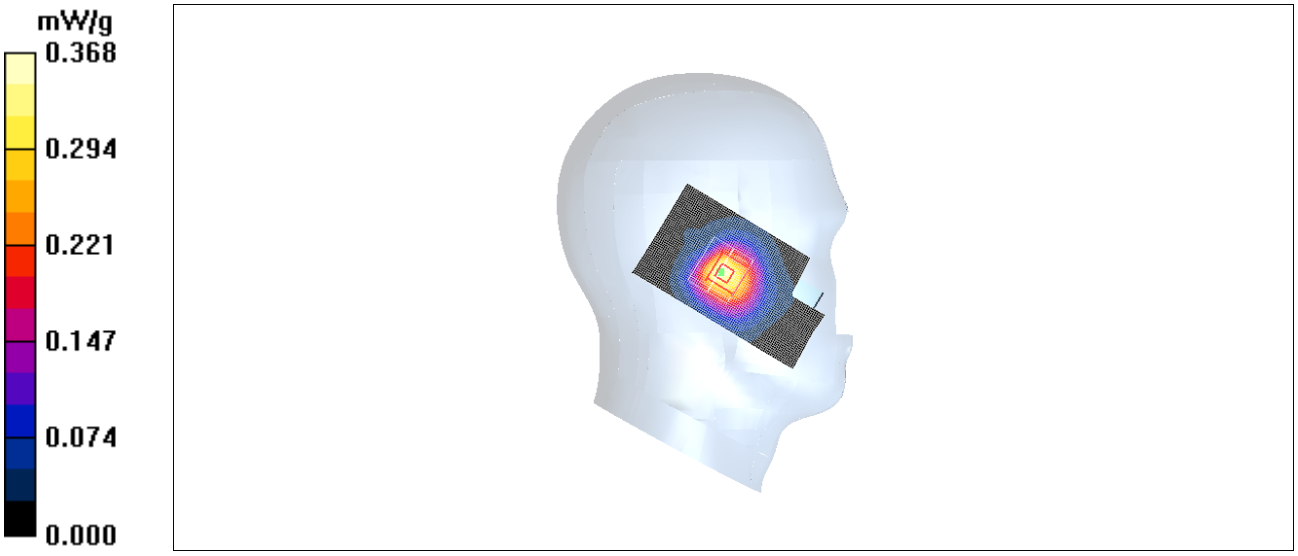


Fig. 18 1900 MHz CH512

1900 Right Cheek High

Date/Time: 2011-4-14 9:58:18
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used: f = 1910 MHz; σ = 1.40 mho/m; εr = 39.4; 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 (51x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.23 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.40 V/m; Power Drift = 0.089 dB
Peak SAR (extrapolated) = 1.52 W/kg
SAR(1 g) = 1.15 mW/g; SAR(10 g) = 0.701 mW/g
Maximum value of SAR (measured) = 1.19 mW/g

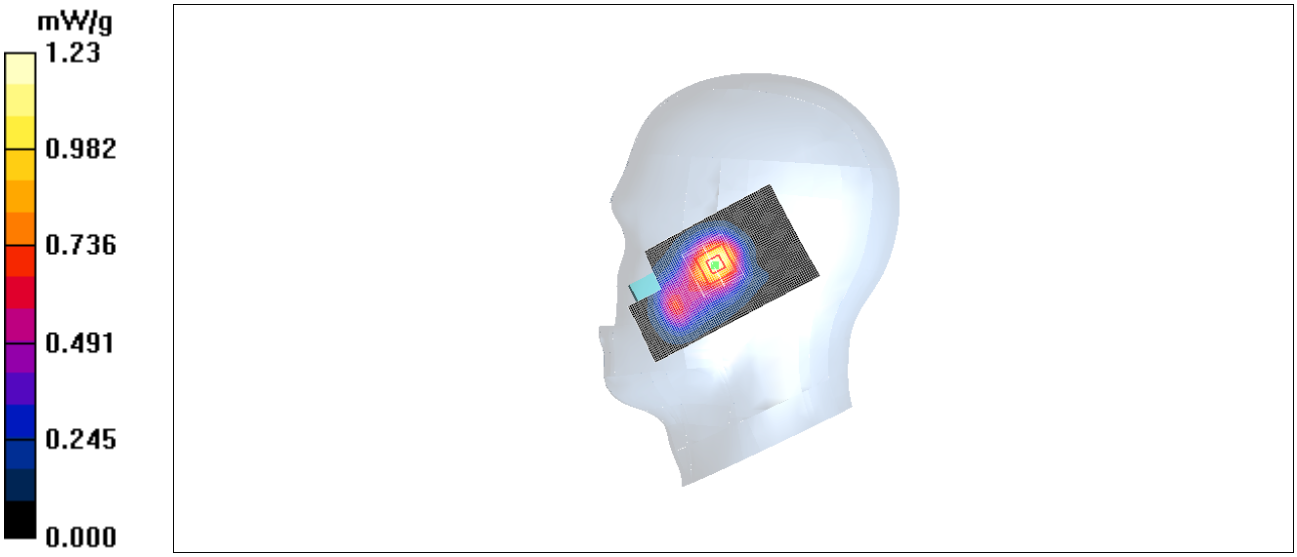


Fig. 19 1900 MHz CH810

1900 Right Cheek Middle
Date/Time: 2011-4-14 10:16:28
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.38 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: 1880 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

Cheek Middle/Area Scan (51x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.33 mW/g

CheekMiddle/Zoom Scan (7x7x7)/Cube0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.77 V/m; Power Drift = -0.015 dB
Peak SAR (extrapolated) = 1.71 W/kg
SAR(1 g) = 1.2 mW/g; SAR(10 g) = 0.722 mW/g
Maximum value of SAR (measured) = 1.30 mW/g

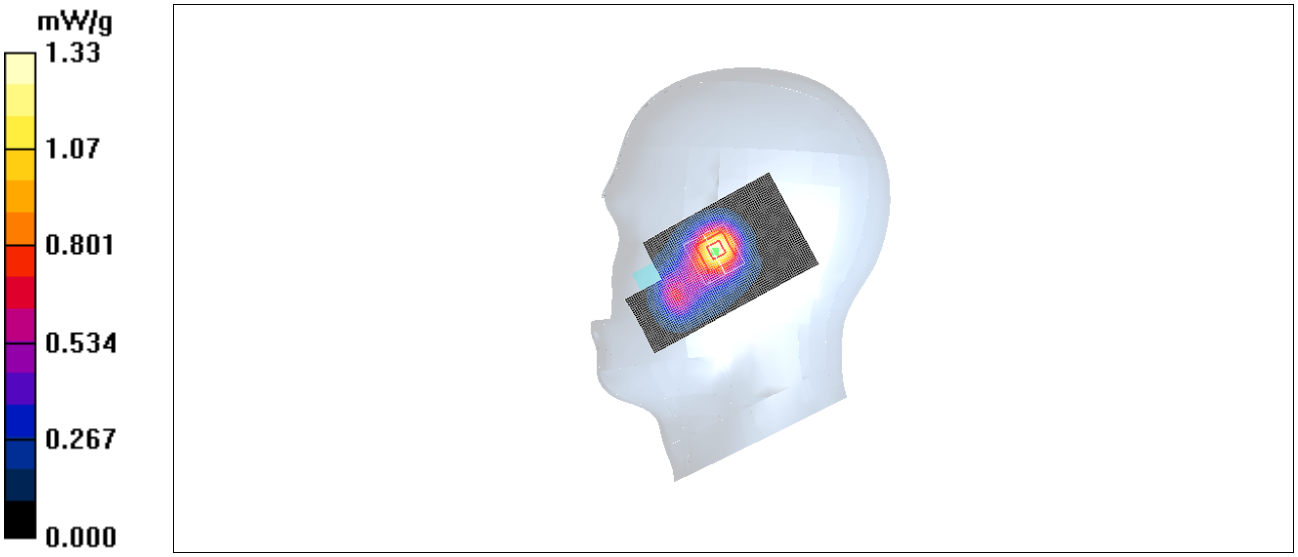


Fig. 20 1900 MHz CH661

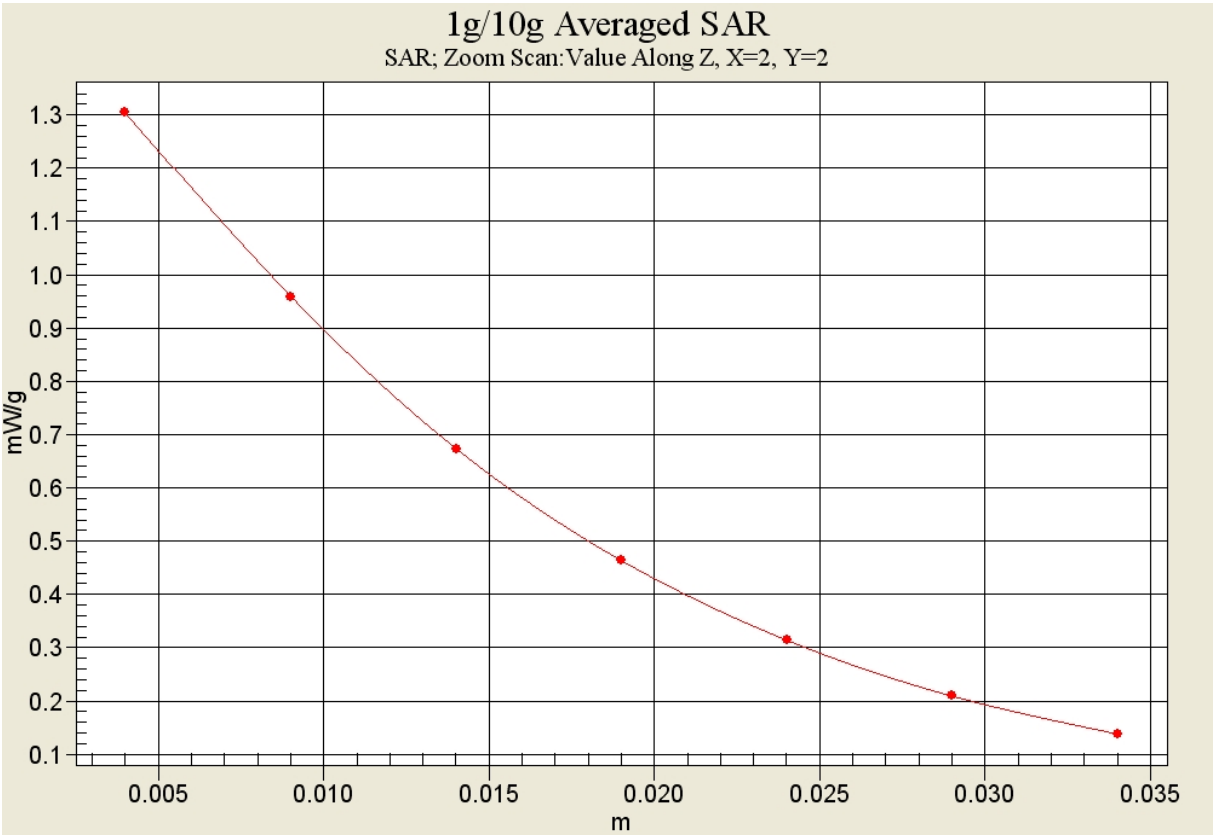


Fig. 20-1 Z-Scan at power reference point (1900 MHz CH661)

1900 Right Cheek Low

Date/Time: 2011-4-14 10:34:47
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.35 mho/m; εr = 39.6; 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 (51x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.20 mW/g

Cheek Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.67 V/m; Power Drift = 0.019 dB
Peak SAR (extrapolated) = 1.48 W/kg
SAR(1 g) = 1.07 mW/g; SAR(10 g) = 0.653 mW/g
Maximum value of SAR (measured) = 1.16 mW/g

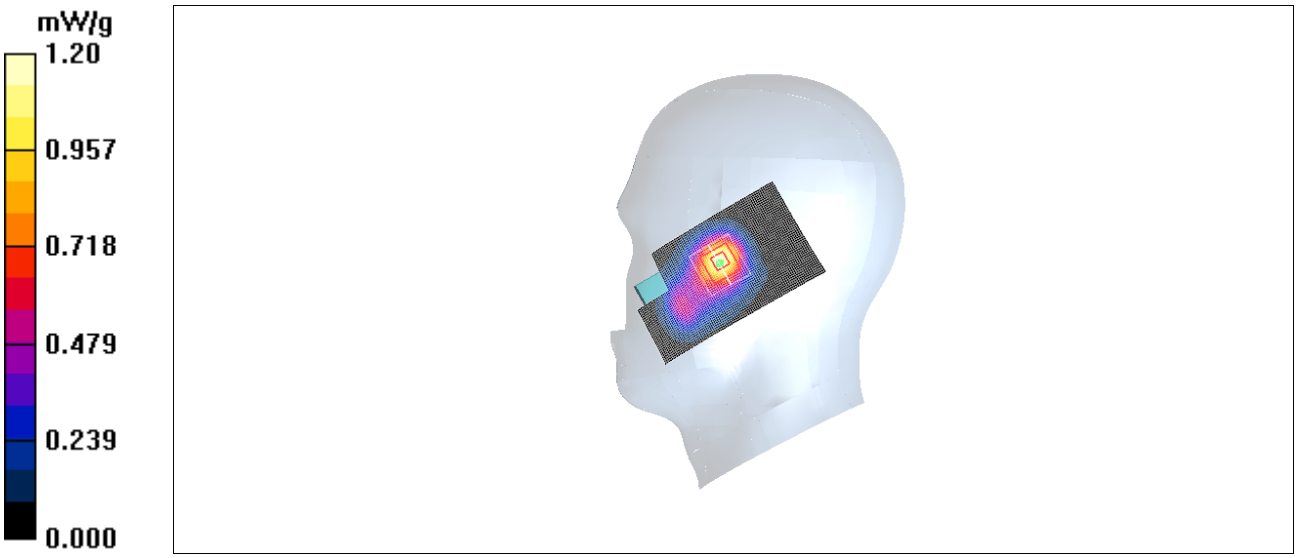


Fig. 21 1900 MHz CH512

1900 Right Tilt High

Date/Time: 2011-4-14 10:50:07
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used: f = 1910 MHz; σ = 1.40 mho/m; εr = 39.4; 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 (51x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.588 mW/g

Tilt High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.01 V/m; Power Drift = -0.032 dB
Peak SAR (extrapolated) = 0.733 W/kg
SAR(1 g) = 0.497 mW/g; SAR(10 g) = 0.304 mW/g
Maximum value of SAR (measured) = 0.531 mW/g

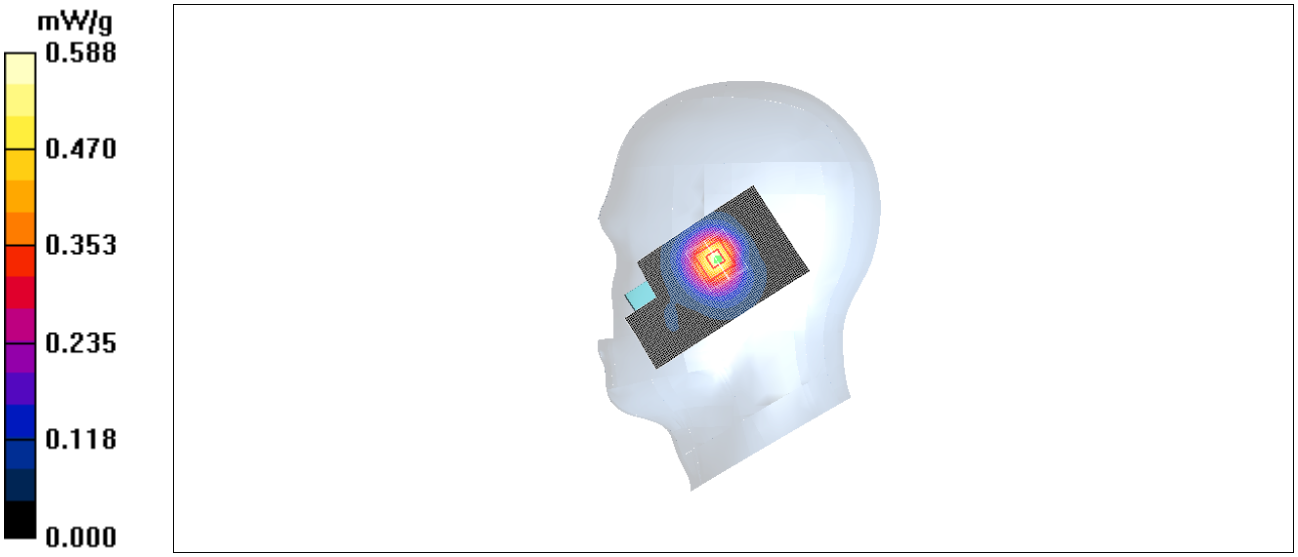


Fig. 22 1900 MHz CH810

1900 Right Tilt Middle
Date/Time: 2011-4-14 11:06:33
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.38 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: 1880 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

Tilt Middle/Area Scan (51x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.531 mW/g

Tilt Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.91 V/m; Power Drift = 0.012 dB
Peak SAR (extrapolated) = 0.649 W/kg
SAR(1 g) = 0.450 mW/g; SAR(10 g) = 0.279 mW/g
Maximum value of SAR (measured) = 0.489 mW/g

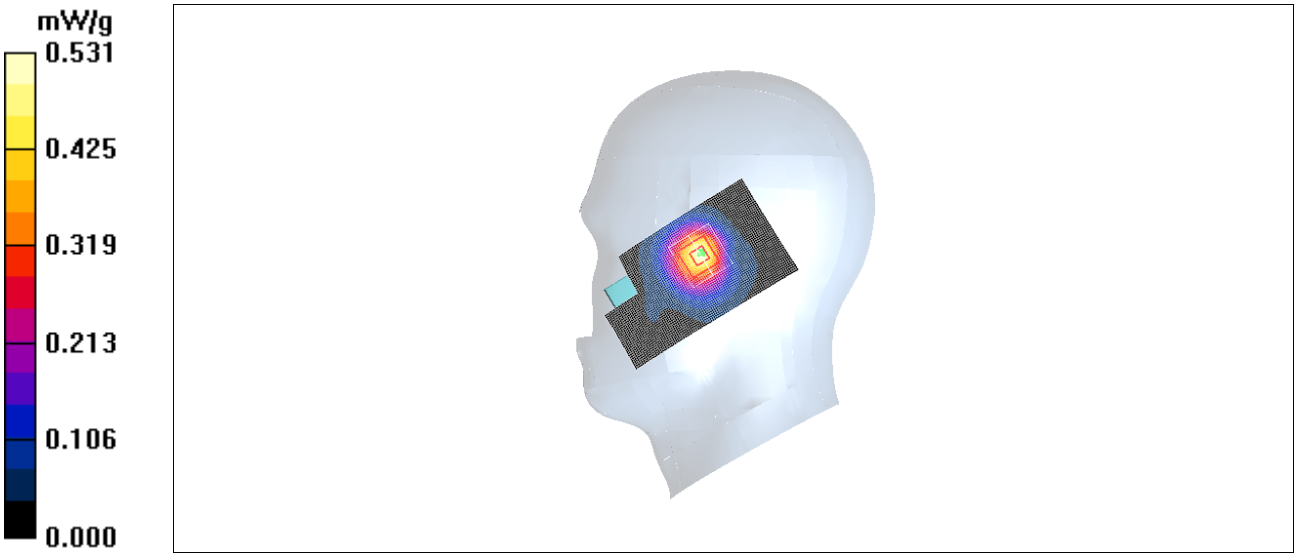


Fig.23 1900 MHz CH661

1900 Right Tilt Low
Date/Time: 2011-4-14 11:23:15
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.35 mho/m; εr = 39.6; 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 (51x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.431 mW/g

Tilt Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.32 V/m; Power Drift = 0.002 dB
Peak SAR (extrapolated) = 0.523 W/kg
SAR(1 g) = 0.367 mW/g; SAR(10 g) = 0.230 mW/g
Maximum value of SAR (measured) = 0.397 mW/g

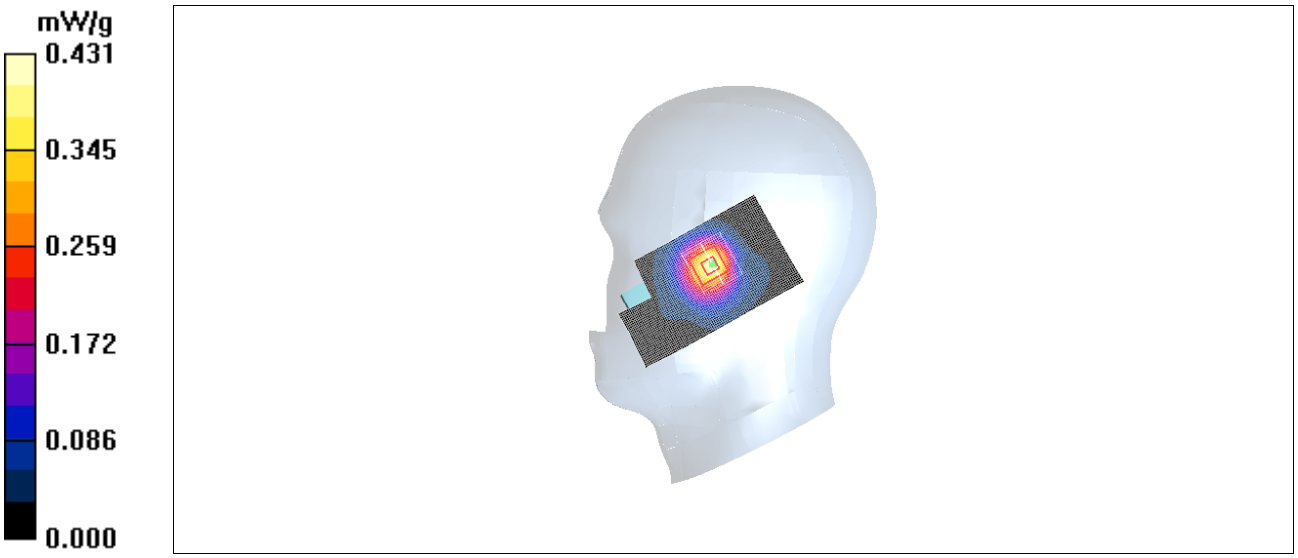


Fig.24 1900 MHz CH512

1900 Right Cheek Middle with battery CAB2170000C2

Date/Time: 2011-4-14 11:36:19
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.38 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: 1880 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

Cheek Middle/Area Scan (51x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.30 mW/g

CheekMiddle/Zoom Scan (7x7x7)/Cube0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.83 V/m; Power Drift = 0.070 dB
Peak SAR (extrapolated) = 1.77 W/kg
SAR(1 g) = 1.17 mW/g; SAR(10 g) = 0.704 mW/g
Maximum value of SAR (measured) = 1.29 mW/g

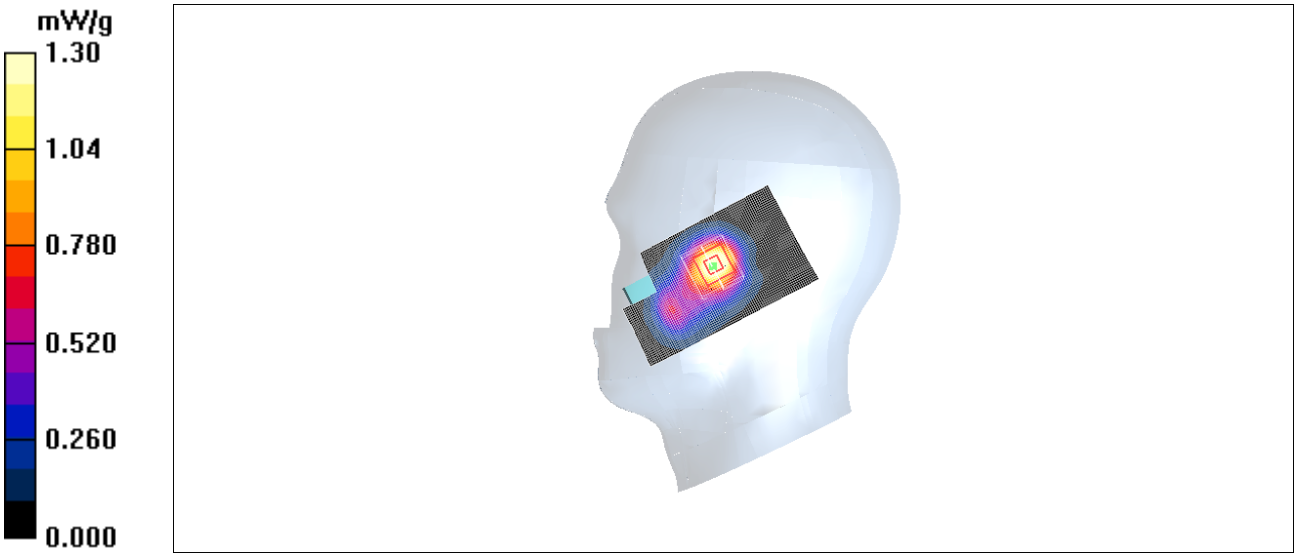


Fig. 25 1900 MHz CH661

850 Body Towards Ground High

Date/Time: 2011-4-13 13:56:15
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used (interpolated): f = 848.8 MHz; σ = 0.98 mho/m; εr = 54.1; 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(6.22, 6.22, 6.22)

Toward Ground High/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.706 mW/g

Toward Ground High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.5 V/m; Power Drift = -0.058 dB
Peak SAR (extrapolated) = 0.910 W/kg
SAR(1 g) = 0.658 mW/g; SAR(10 g) = 0.450 mW/g
Maximum value of SAR (measured) = 0.679 mW/g

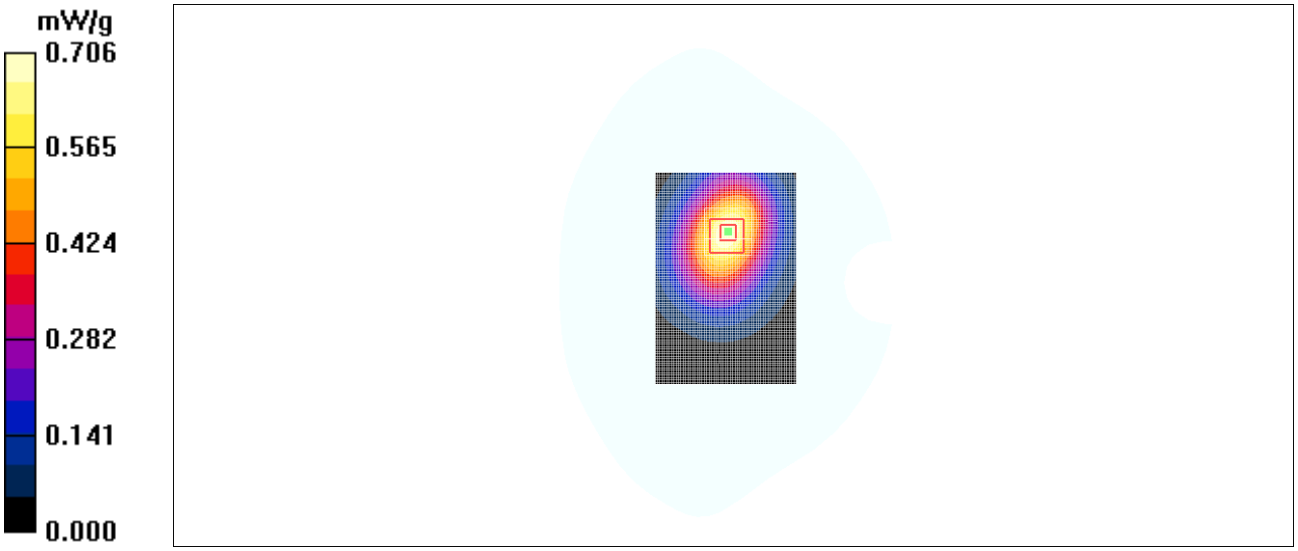


Fig. 26 850 MHz CH251

850 Body Towards Ground Middle

Date/Time: 2011-4-13 14:15:52
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.97 mho/m; εr = 54.2; 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(6.22, 6.22, 6.22)

Toward Ground Middle/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.884 mW/g

Toward Ground Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 21.6 V/m; Power Drift = 0.068 dB
Peak SAR (extrapolated) = 1.13 W/kg
SAR(1 g) = 0.826 mW/g; SAR(10 g) = 0.565 mW/g
Maximum value of SAR (measured) = 0.855 mW/g

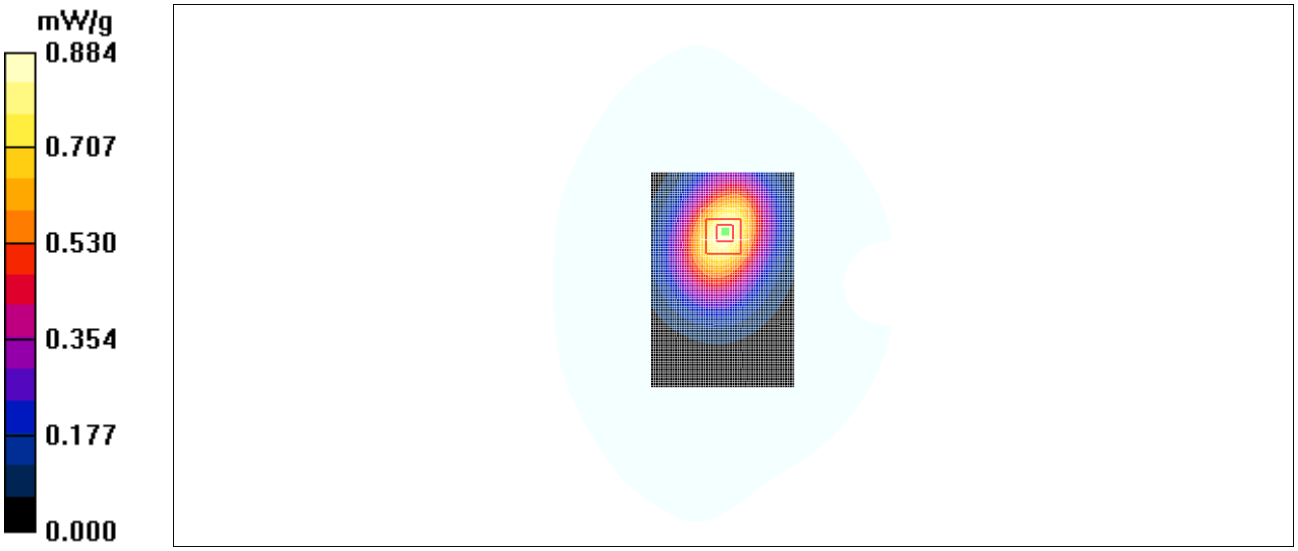


Fig. 27 850 MHz CH190

850 Body Towards Ground Low
Date/Time: 2011-4-13 14:33:26
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used: f = 825 MHz; σ = 0.953 mho/m; εr = 54.3; 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 (61x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.12 mW/g

Toward Ground Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 26.6 V/m; Power Drift = -0.153 dB
Peak SAR (extrapolated) = 1.45 W/kg
SAR(1 g) = 1.04 mW/g; SAR(10 g) = 0.713 mW/g
Maximum value of SAR (measured) = 1.09 mW/g

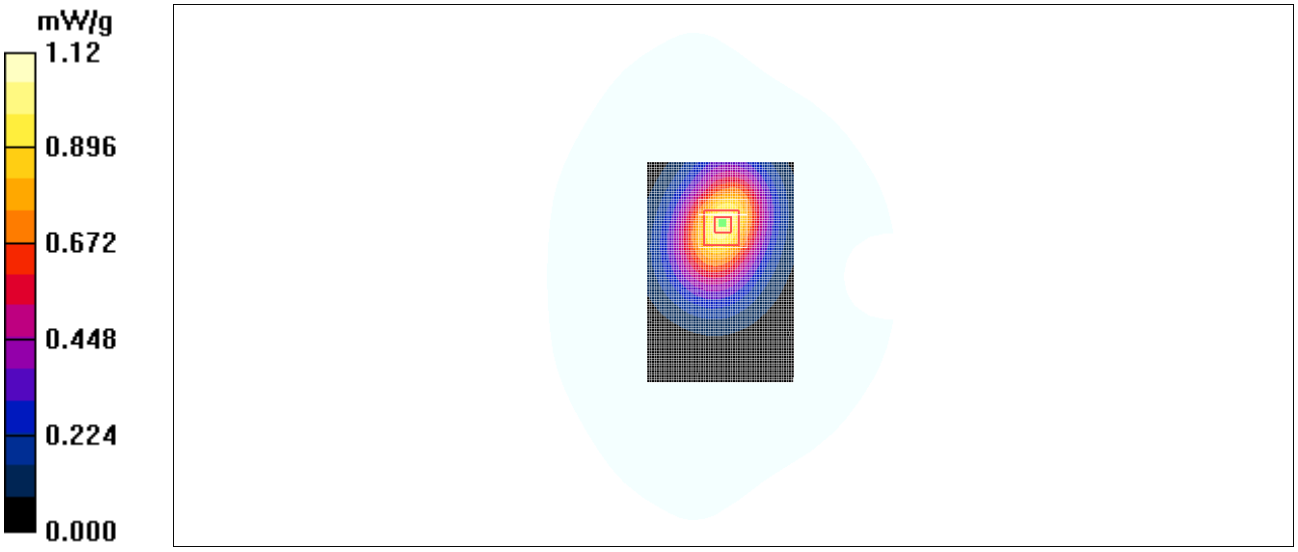


Fig. 28 850 MHz CH128

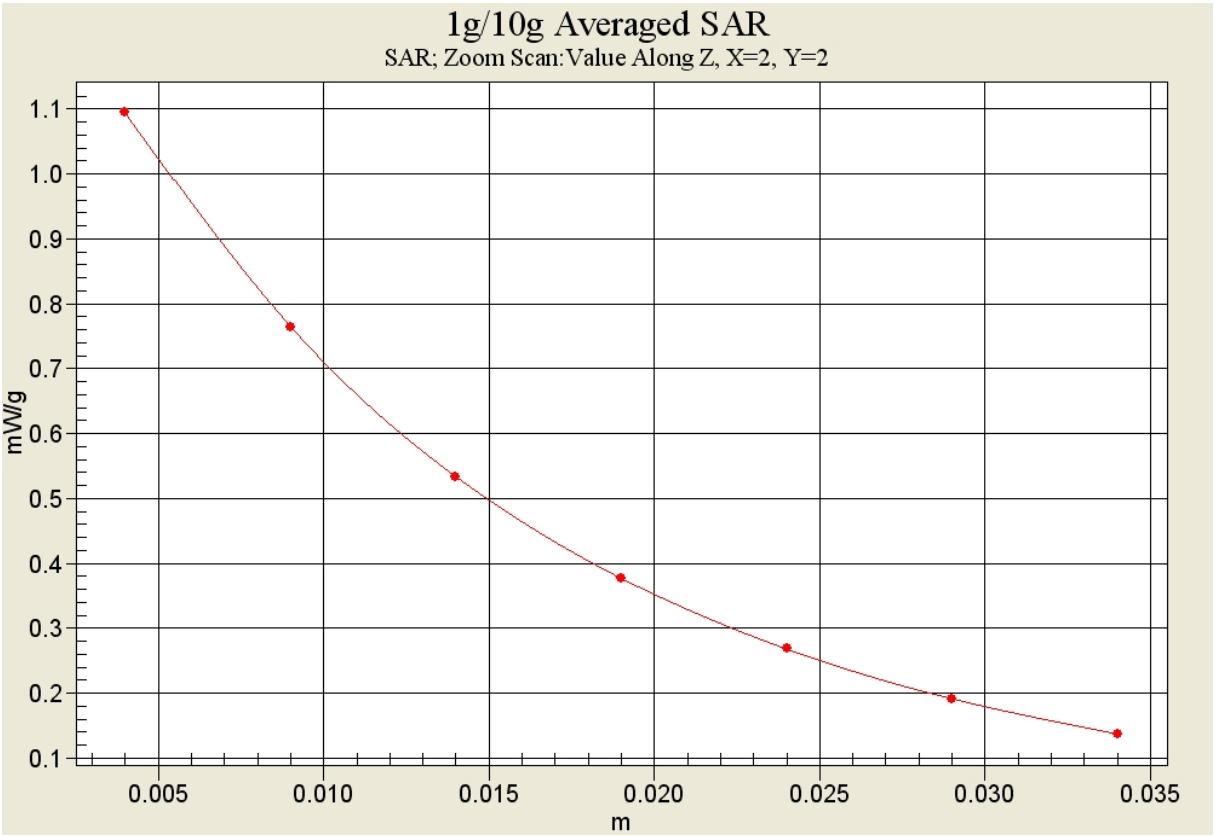


Fig. 28-1 Z-Scan at power reference point (850 MHz CH128)

850 Body Towards Phantom High

Date/Time: 2011-4-13 14:52:51
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used (interpolated): f = 848.8 MHz; σ = 0.98 mho/m; εr = 54.1; 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(6.22, 6.22, 6.22)

Toward Phantom High/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.648 mW/g

Toward Phantom High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.7 V/m; Power Drift = 0.011 dB
Peak SAR (extrapolated) = 0.835 W/kg
SAR(1 g) = 0.601 mW/g; SAR(10 g) = 0.409 mW/g
Maximum value of SAR (measured) = 0.624 mW/g

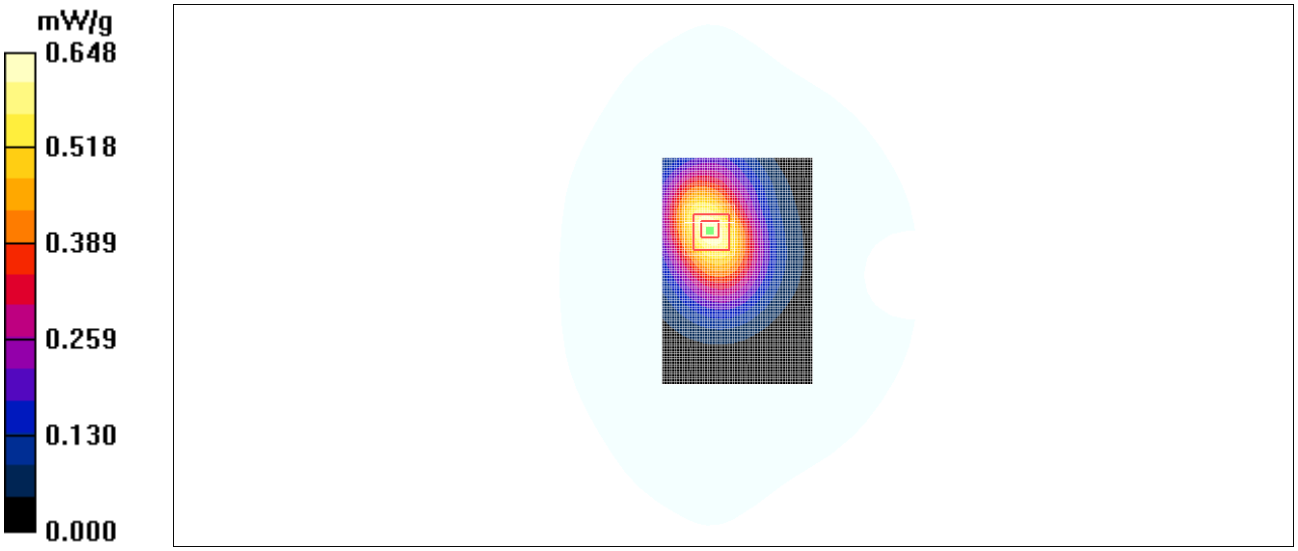


Fig. 29 850 MHz CH251

850 Body Towards Phantom Middle
Date/Time: 2011-4-13 15:11:08
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.97 mho/m; εr = 54.2; 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(6.22, 6.22, 6.22)

Toward Phantom Middle/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.838 mW/g

Toward Phantom Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 21.4 V/m; Power Drift = 0.007 dB
Peak SAR (extrapolated) = 1.09 W/kg
SAR(1 g) = 0.786 mW/g; SAR(10 g) = 0.535 mW/g
Maximum value of SAR (measured) = 0.823 mW/g

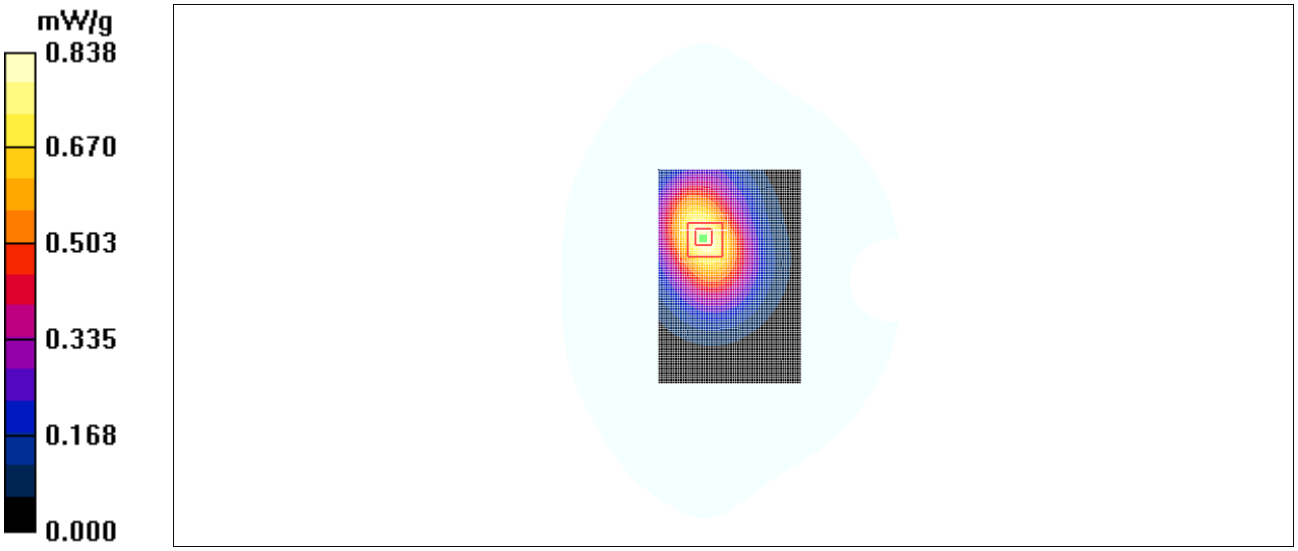


Fig. 30 850 MHz CH190

850 Body Towards Phantom Low
Date/Time: 2011-4-13 15:27:35
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used: f = 825 MHz; σ = 0.953 mho/m; εr = 54.3; 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 Phantom Low/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.04 mW/g

Toward Phantom Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 23.6 V/m; Power Drift = 0.030 dB
Peak SAR (extrapolated) = 1.33 W/kg
SAR(1 g) = 0.973 mW/g; SAR(10 g) = 0.667 mW/g
Maximum value of SAR (measured) = 0.996 mW/g

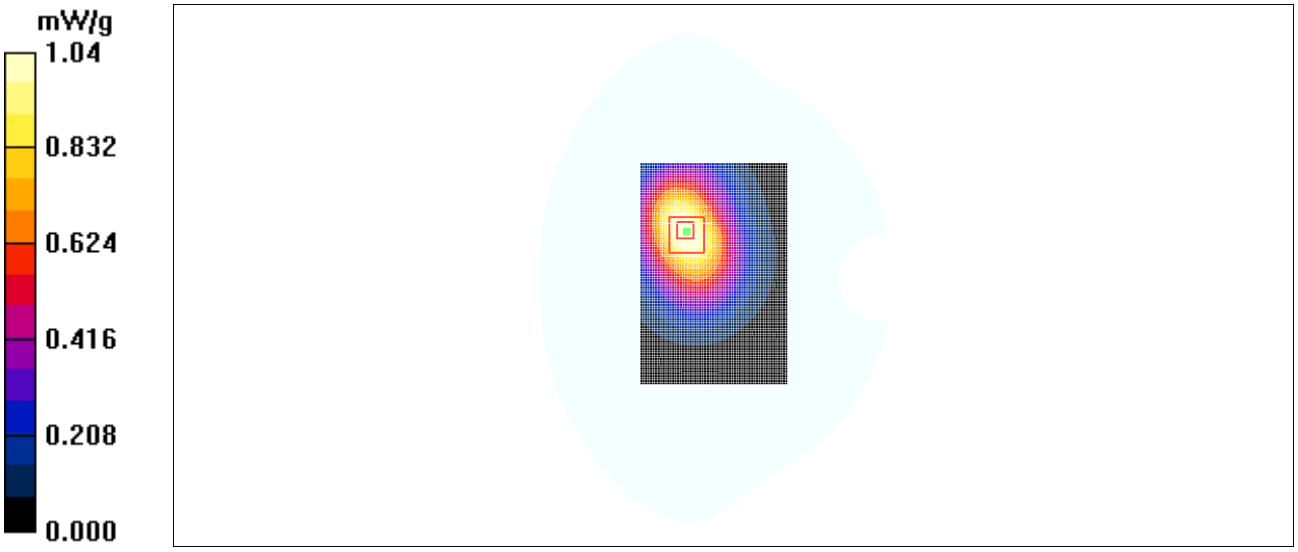


Fig. 31 850 MHz CH128

1900 Body Towards Ground High

Date/Time: 2011-4-14 13:59:21
Electronics: DAE4 Sn771
Medium: Body 1900 MHz
Medium parameters used: f = 1910 MHz; σ = 1.52 mho/m; εr = 52.0; 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(4.68, 4.68, 4.68)

Toward Ground High/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.354 mW/g

Toward Ground High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.5 V/m; Power Drift = -0.034 dB
Peak SAR (extrapolated) = 0.501 W/kg
SAR(1 g) = 0.322 mW/g; SAR(10 g) = 0.200 mW/g
Maximum value of SAR (measured) = 0.331 mW/g

Toward Ground High/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.5 V/m; Power Drift = -0.034 dB
Peak SAR (extrapolated) = 0.492 W/kg
SAR(1 g) = 0.284 mW/g; SAR(10 g) = 0.162 mW/g
Maximum value of SAR (measured) = 0.284 mW/g

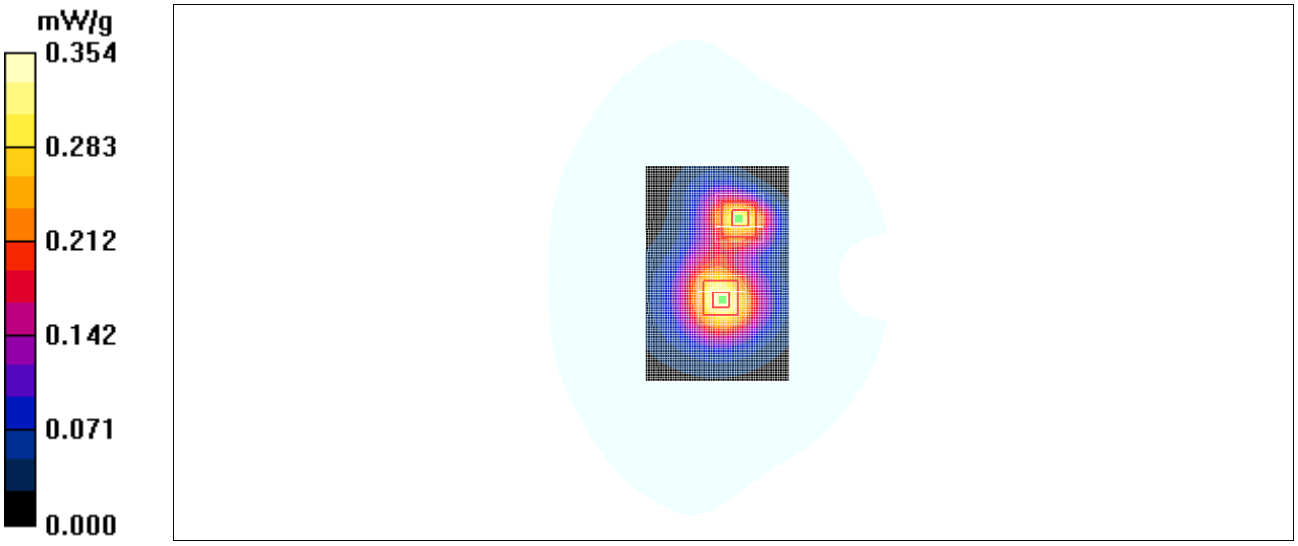


Fig. 32 1900 MHz CH810

1900 Body Towards Ground Middle

Date/Time: 2011-4-14 14:16:55
Electronics: DAE4 Sn771
Medium: Body 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.49 mho/m; εr = 52.1; 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)

Toward Ground Middle/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.387 mW/g

Toward Ground Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.5 V/m; Power Drift = -0.013 dB
Peak SAR (extrapolated) = 0.546 W/kg
SAR(1 g) = 0.352 mW/g; SAR(10 g) = 0.220 mW/g
Maximum value of SAR (measured) = 0.365 mW/g

Toward Ground Middle/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.5 V/m; Power Drift = -0.013 dB
Peak SAR (extrapolated) = 0.441 W/kg
SAR(1 g) = 0.257 mW/g; SAR(10 g) = 0.148 mW/g
Maximum value of SAR (measured) = 0.258 mW/g

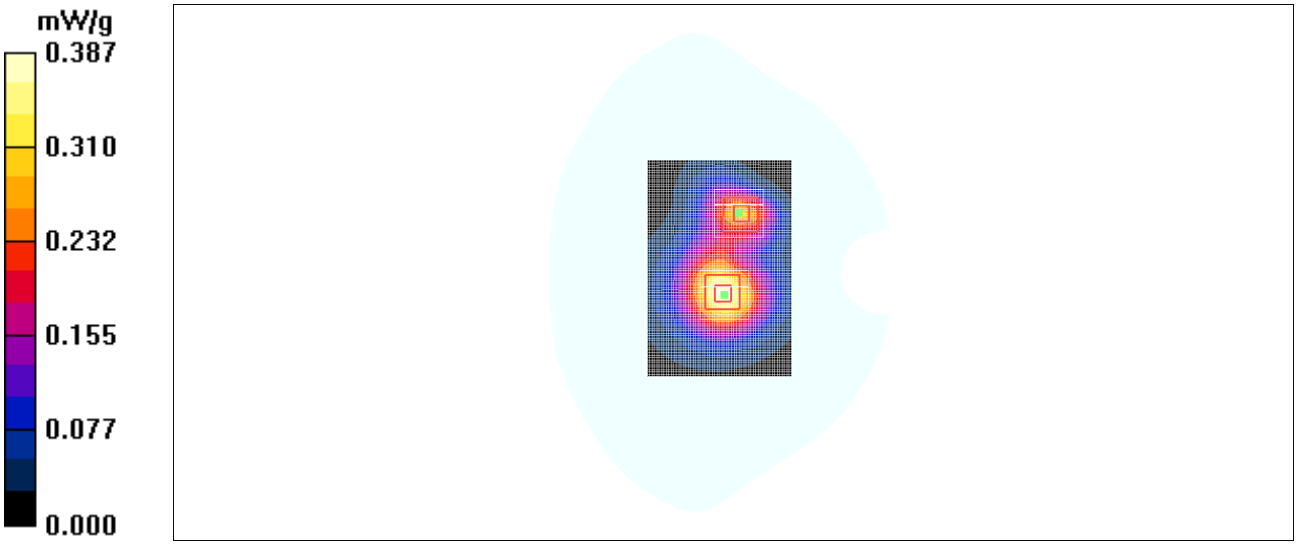


Fig. 33 1900 MHz CH661

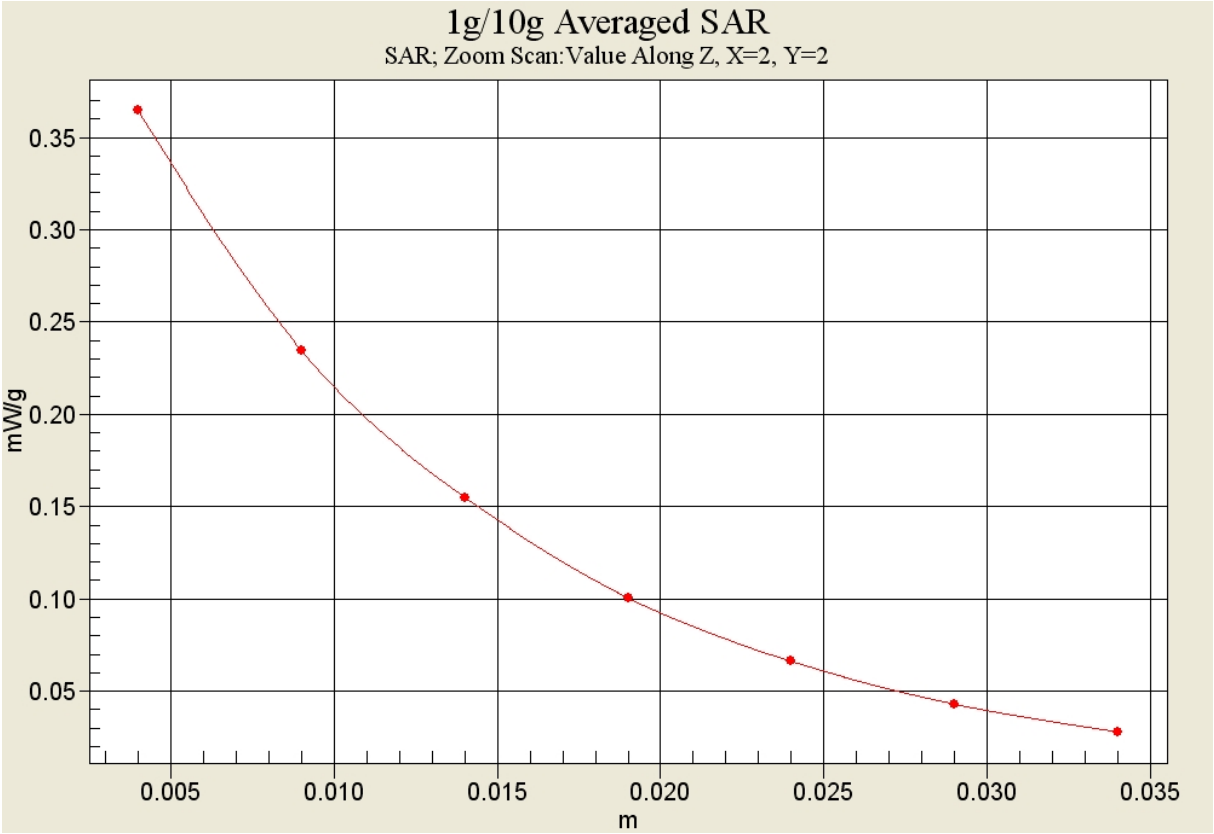


Fig. 33-1 Z-Scan at power reference point (1900 MHz CH661)

1900 Body Towards Ground Low
Date/Time: 2011-4-14 14:38:37
Electronics: DAE4 Sn771
Medium: Body 1900 MHz
Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.47 mho/m; εr = 52.1; 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(4.68, 4.68, 4.68)

Toward Ground Low/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.341 mW/g

Toward Ground Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.9 V/m; Power Drift = -0.003 dB
Peak SAR (extrapolated) = 0.476 W/kg
SAR(1 g) = 0.311 mW/g; SAR(10 g) = 0.196 mW/g
Maximum value of SAR (measured) = 0.321 mW/g

Toward Ground Low/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.9 V/m; Power Drift = -0.003 dB
Peak SAR (extrapolated) = 0.324 W/kg
SAR(1 g) = 0.191 mW/g; SAR(10 g) = 0.112 mW/g
Maximum value of SAR (measured) = 0.194 mW/g

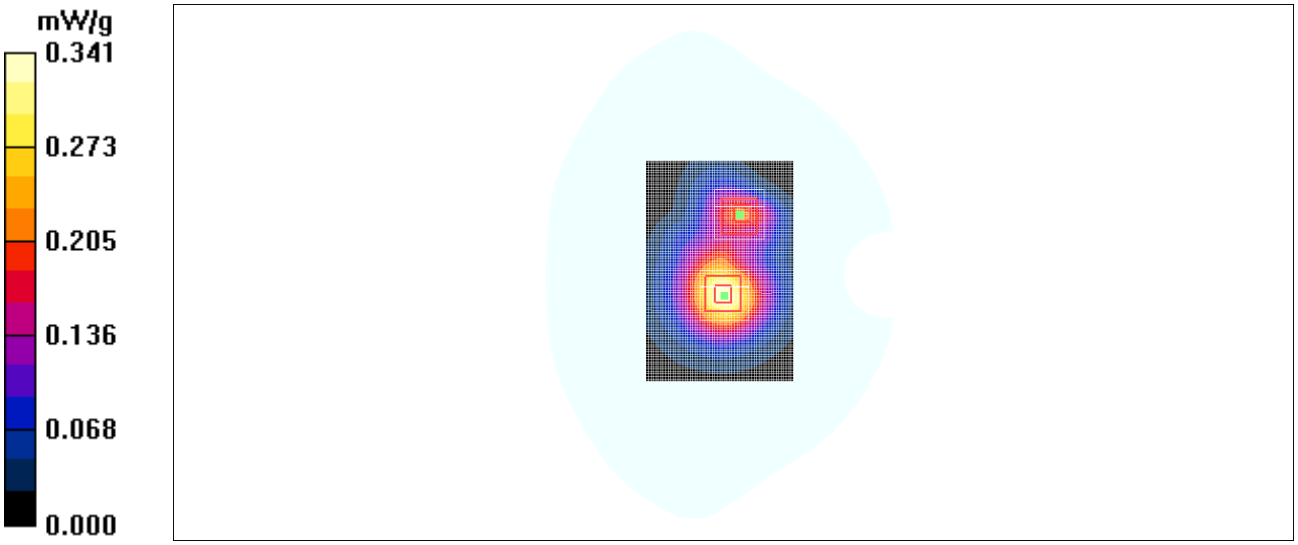


Fig. 34 1900 MHz CH512

1900 Body Towards Phantom High

Date/Time: 2011-4-14 14:59:15
Electronics: DAE4 Sn771
Medium: Body 1900 MHz
Medium parameters used: f = 1910 MHz; σ = 1.52 mho/m; εr = 52.0; 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(4.68, 4.68, 4.68)

Toward Phantom High/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.333 mW/g

Toward Phantom High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.36 V/m; Power Drift = 0.071 dB
Peak SAR (extrapolated) = 0.474 W/kg
SAR(1 g) = 0.303 mW/g; SAR(10 g) = 0.187 mW/g
Maximum value of SAR (measured) = 0.310 mW/g

Toward Phantom High/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.36 V/m; Power Drift = 0.071 dB
Peak SAR (extrapolated) = 0.331 W/kg
SAR(1 g) = 0.198 mW/g; SAR(10 g) = 0.115 mW/g
Maximum value of SAR (measured) = 0.198 mW/g

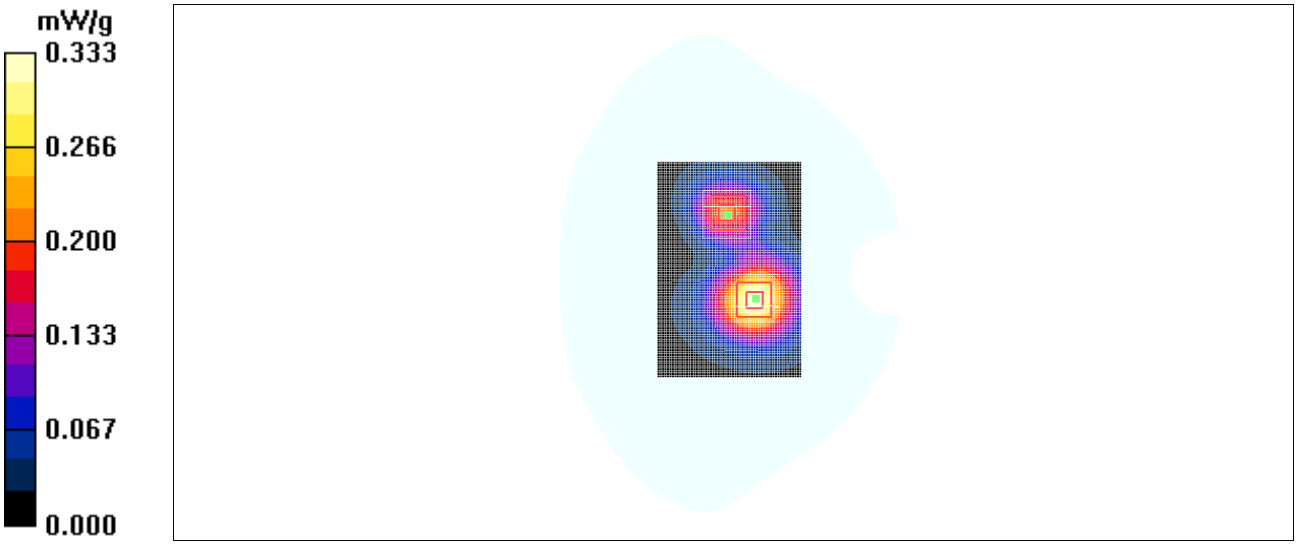


Fig. 35 1900 MHz CH810

1900 Body Towards Phantom Middle

Date/Time: 2011-4-14 15:15:17
Electronics: DAE4 Sn771
Medium: Body 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.49 mho/m; εr = 52.1; 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)

Toward Phantom Middle/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.367 mW/g

Toward Phantom Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.3 V/m; Power Drift = -0.064 dB
Peak SAR (extrapolated) = 0.524 W/kg
SAR(1 g) = 0.337 mW/g; SAR(10 g) = 0.209 mW/g
Maximum value of SAR (measured) = 0.342 mW/g

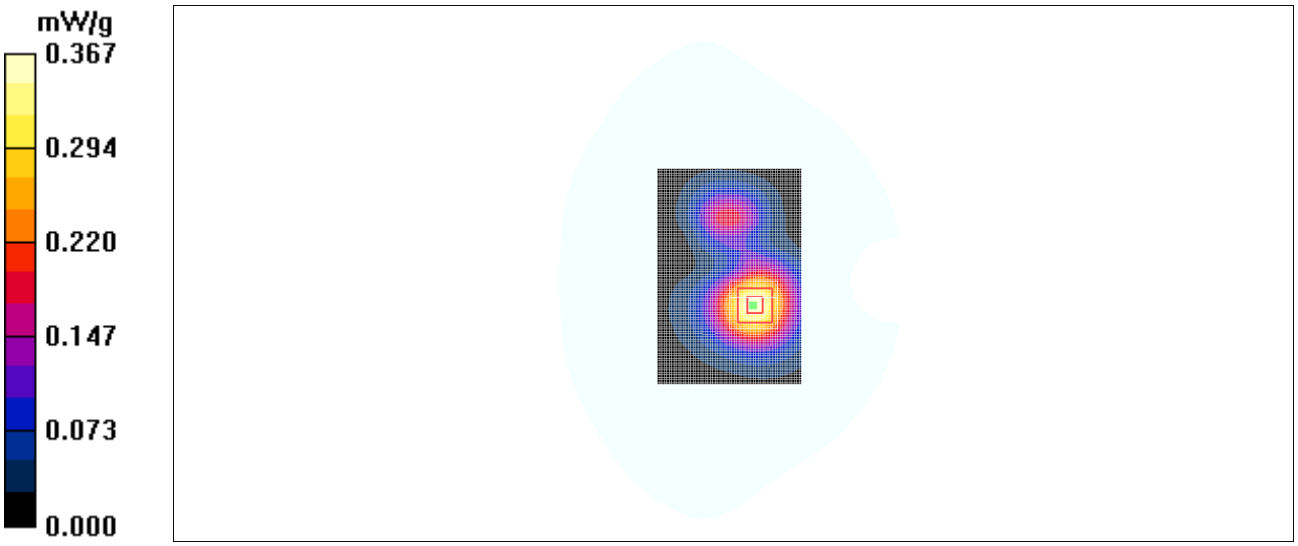


Fig. 36 1900 MHz CH661

1900 Body Towards Phantom Low

Date/Time: 2011-4-14 15:32:23
Electronics: DAE4 Sn771
Medium: Body 1900 MHz
Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.47 mho/m; εr = 52.1; 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(4.68, 4.68, 4.68)

Toward Phantom Low/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.307 mW/g

Toward Phantom Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.2 V/m; Power Drift = -0.011 dB
Peak SAR (extrapolated) = 0.430 W/kg
SAR(1 g) = 0.279 mW/g; SAR(10 g) = 0.175 mW/g
Maximum value of SAR (measured) = 0.283 mW/g

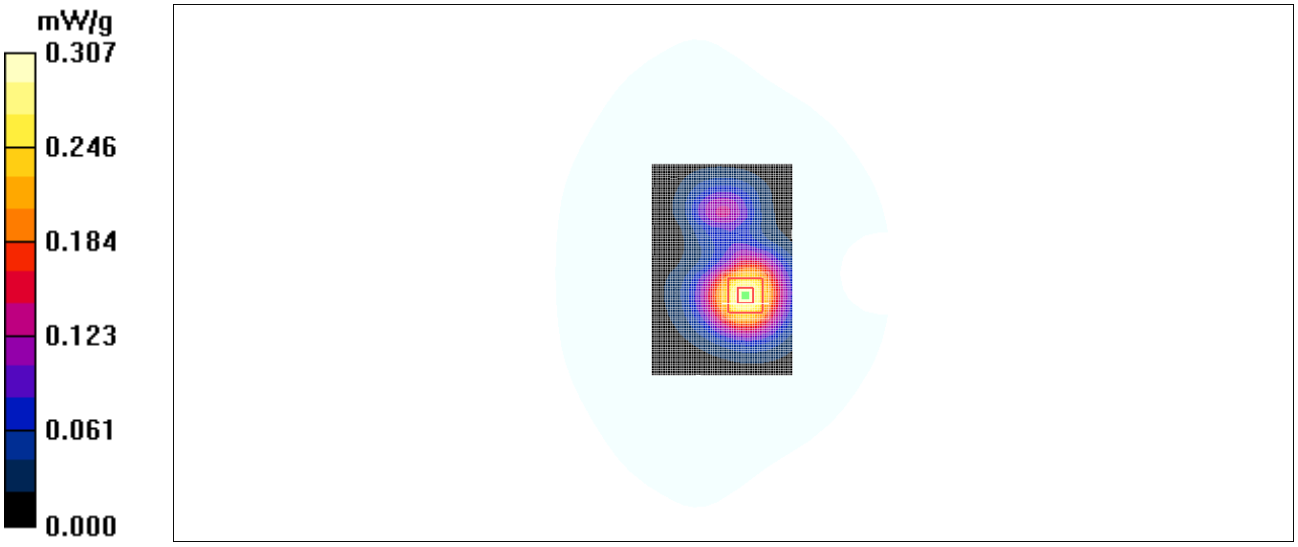


Fig. 37 1900 MHz CH512

850 Body Towards Ground Low with battery CAB2170000C2

Date/Time: 2011-4-13 15:47:38
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used: f = 825 MHz; σ = 0.953 mho/m; εr = 54.3; 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 (61x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.08 mW/g

Toward Ground Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.4 V/m; Power Drift = -0.004 dB
Peak SAR (extrapolated) = 1.43 W/kg
SAR(1 g) = 1.03 mW/g; SAR(10 g) = 0.701 mW/g
Maximum value of SAR (measured) = 1.08 mW/g

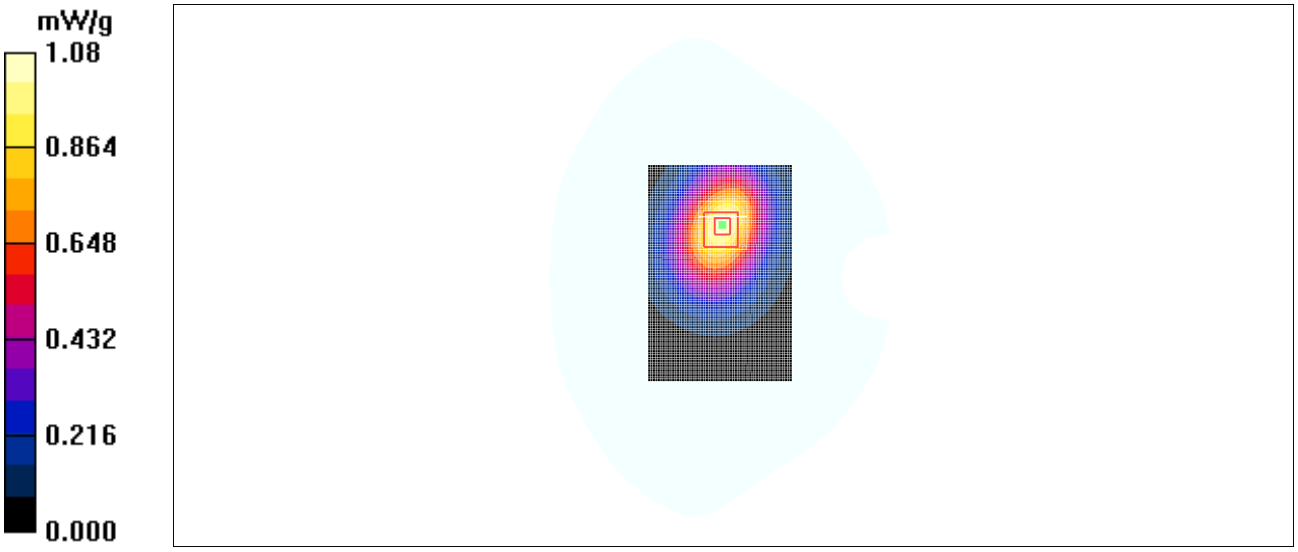


Fig. 38 850 MHz CH128

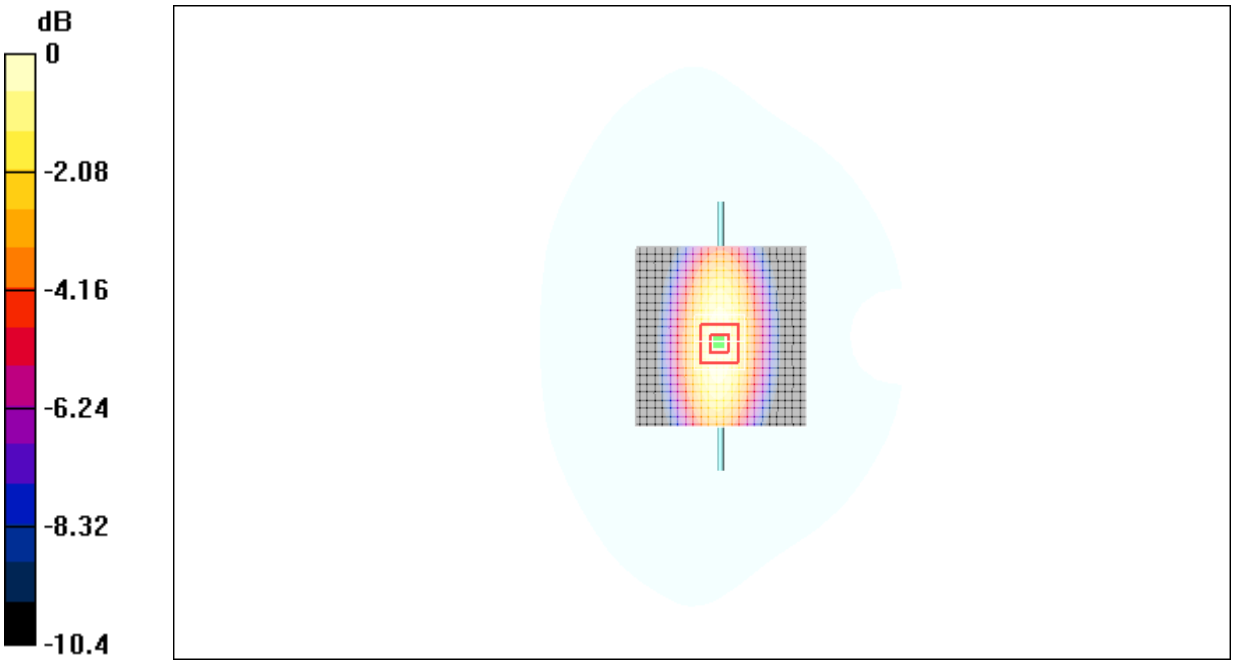
ANNEX D SYSTEM VALIDATION RESULTS

835MHz

Date/Time: 2011-4-13 7:23:39
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used: f = 835 MHz; σ = 0.89 mho/m; ε_r = 40.9; 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) = 2.66 mW/g

System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 56.1 V/m; Power Drift = -0.096 dB
Peak SAR (extrapolated) = 3.39 W/kg
SAR(1 g) = 2.43 mW/g; SAR(10 g) = 1.54 mW/g
Maximum value of SAR (measured) = 2.56 mW/g



0 dB = 2.56mW/g

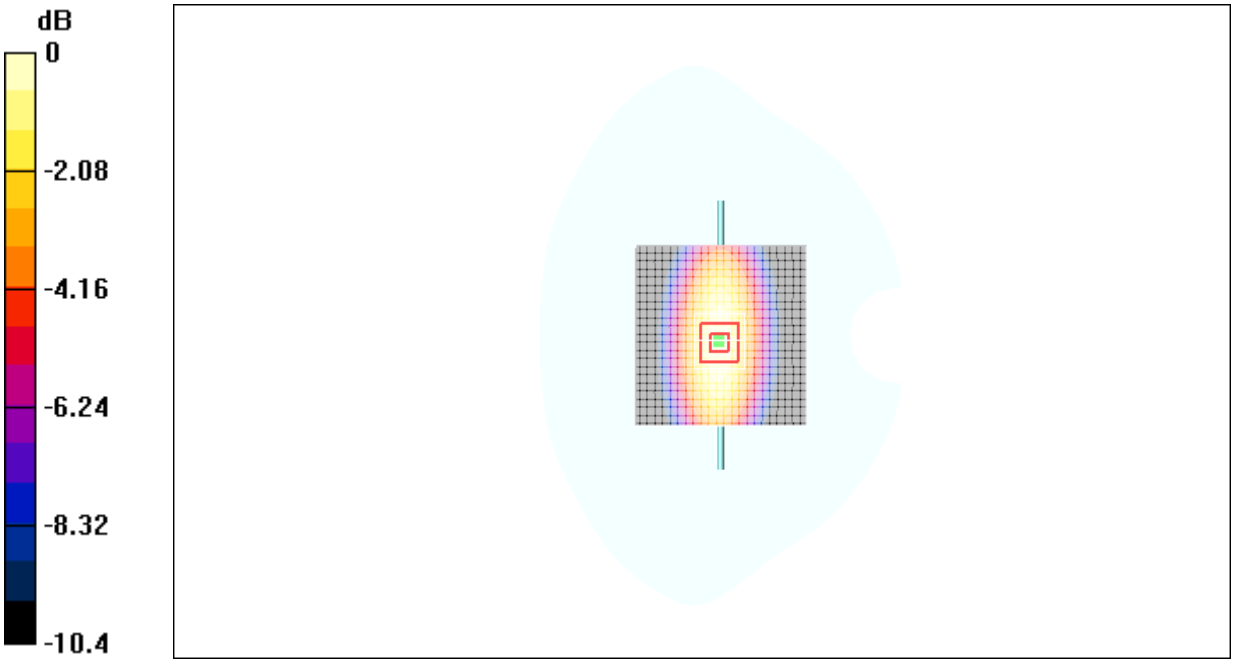
Fig.39 validation 835MHz 250mW

835MHz

Date/Time: 2011-4-13 13:16:31
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used: f = 835 MHz; σ = 0.96 mho/m; ε_r = 54.2; 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) = 2.62 mW/g

System Validation /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 51.8 V/m; Power Drift = 0.105 dB
Peak SAR (extrapolated) = 3.37 W/kg
SAR(1 g) = 2.40 mW/g; SAR(10 g) = 1.55 mW/g
Maximum value of SAR (measured) = 2.47 mW/g



0 dB = 2.47mW/g

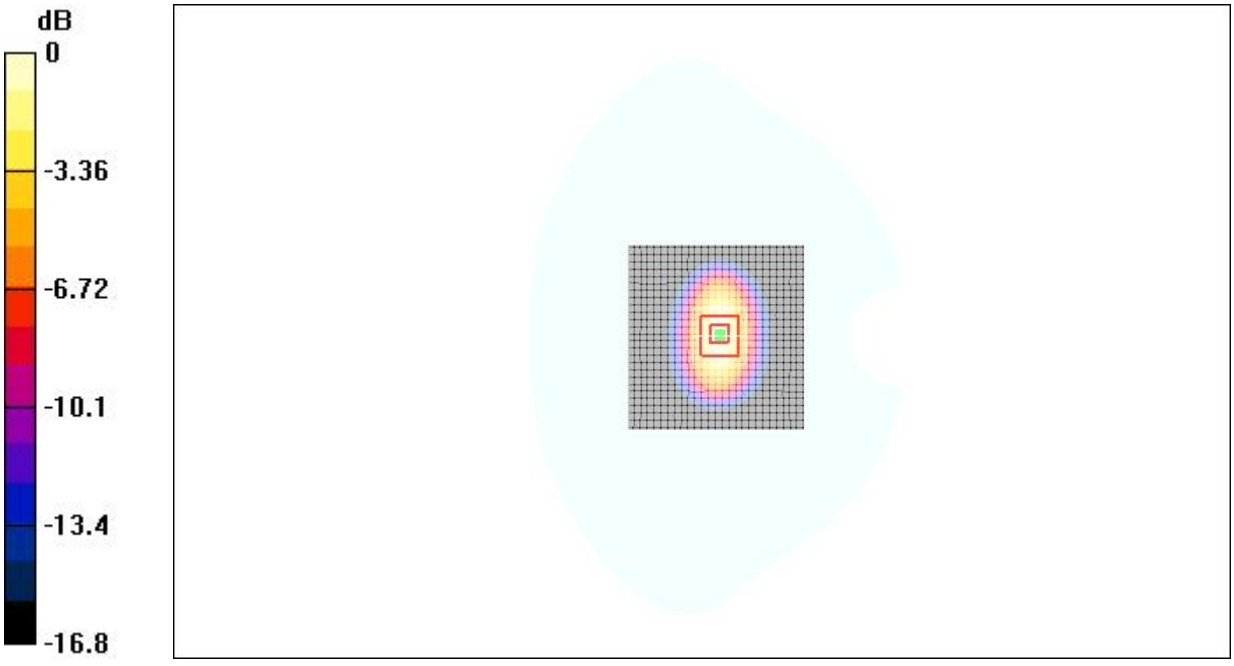
Fig.40 validation 835MHz 250mW

1900MHz

Date/Time: 2011-4-14 7:26:40
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.38 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: 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) = 11.4 mW/g

System Validation/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 90.2 V/m; Power Drift = -0.057 dB
Peak SAR (extrapolated) = 14.6 W/kg
SAR(1 g) = 9.79 mW/g; SAR(10 g) = 4.93 mW/g
Maximum value of SAR (measured) = 10.5 mW/g



0 dB = 10.5mW/g

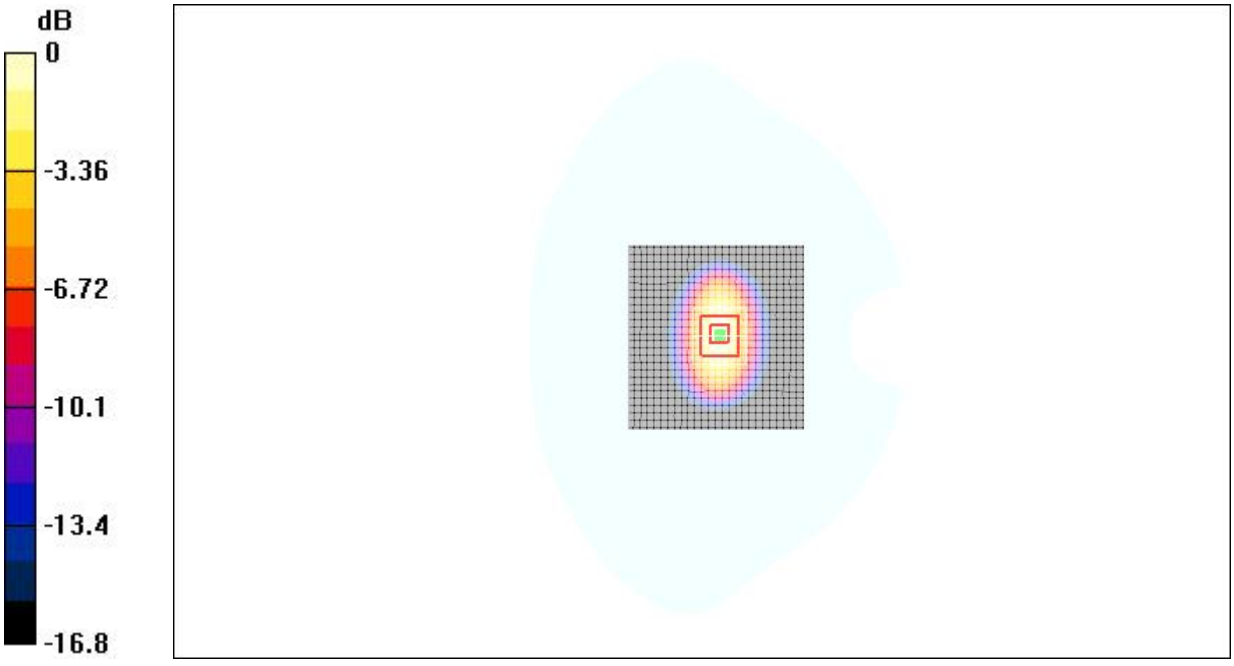
Fig.41 validation 1900MHz 250mW

1900MHz

Date/Time: 2011-4-14 13:17:08
Electronics: DAE4 Sn771
Medium: Body 1900 MHz
Medium parameters used: f = 1900 MHz; σ = 1.51 mho/m; ε_r = 52.0; 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 = 92.7 V/m; Power Drift = -0.063 dB
Peak SAR (extrapolated) = 15.3 W/kg
SAR(1 g) = 10.3 mW/g; SAR(10 g) = 5.19 mW/g
Maximum value of SAR (measured) = 10.8 mW/g



0 dB = 10.8mW/g

Fig.42 validation 1900MHz 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

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
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.