



SAR TEST REPORT

No. 2011SAR00013

For

TCT Mobile Limited

Quadband GSM/GPRS/EDGE mobile phone

Baby D Single SIM

one touch 890

With

Hardware Version: PIO

Software Version: V129

FCCID: RAD165

Issued Date: 2011-03-01



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:

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1 Test Laboratory

1.1 Testing Location

Company Name: TMC Beijing, Telecommunication Metrology Center of MIIT
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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.

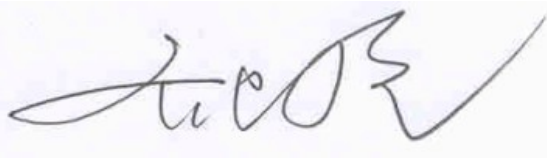
1.3 Project Data

Project Leader: Qi Dianyuan
Test Engineer: Lin Xiaojun
Testing Start Date: February 16, 2011
Testing End Date: February 20, 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

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2.2 Manufacturer Information

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

3.1 About EUT

EUT Description:	Quadband GSM/GPRS/EDGE mobile phone
Model Name:	Baby D Single SIM
Marketing Name:	one touch 890
GSM Frequency Band:	GSM 850 / PCS 1900 / WiFi
GPRS Multislot Class:	12
EGPRS Multislot Class:	12
GPRS capability Class:	B

3.2 Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version
EUT1	355190040019531	PIO	V129

*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	CAB31L0000C1	\	BYD
AE2	Battery	CAB31L0000C2	\	BAK
AE3	Headset	CCB3160A10C2	\	Shunda
AE4	Headset	CCB3160A10C3	\	Lianchuang
AE5	Headset	CCB3125A10C2	\	Juwei

*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)

KDB648474 D01 SAR Handsets Multi Xmitter and Ant, v01r05: SAR Evaluation Considerations for Handsets with Multiple Transmitters and Antennas.

KDB248227: SAR measurement procedures for 802.112abg transmitters.

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.

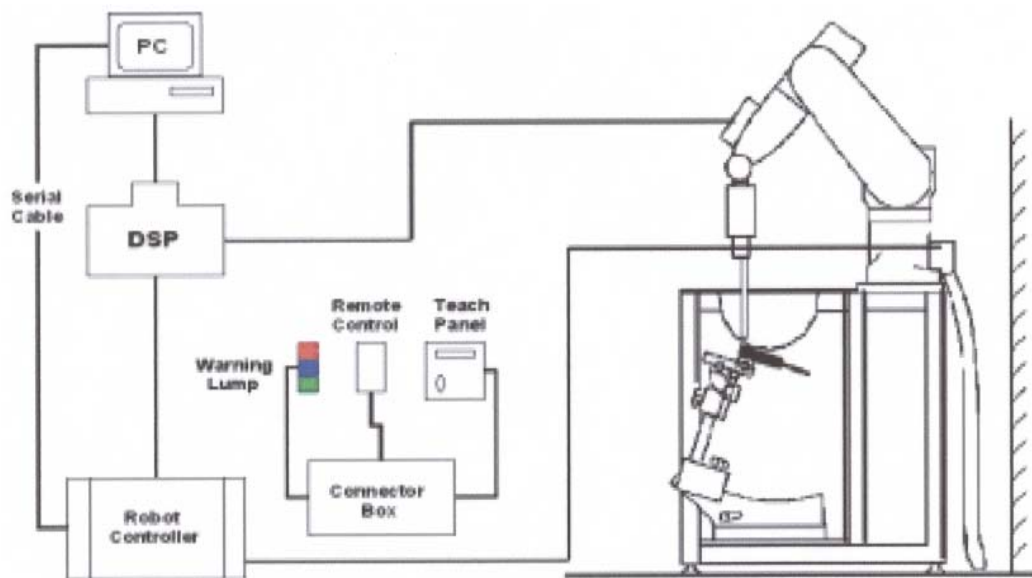
The EUT shall use its internal transmitter. The antenna(s), battery and accessories shall be those specified by the manufacturer. The EUT battery must be fully charged and checked periodically during the test to ascertain uniform power output. If a wireless link is used, the antenna connected to the 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 DAS4 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 $\pm 0.02\text{mm}$. 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 $\pm 10\%$. The spherical isotropy was evaluated and found to be better than $\pm 0.25\text{dB}$.

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 μ W/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 $\pm 10\%$. The spherical isotropy was evaluated and found to be better than ± 0.25 dB. 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 below 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/m³).



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 repeatably 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±0.1 mm
Filling Volume	Approx. 20 liters
Dimensions	810 x 1000 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 800-3000 MHz consisted of water, sugar, salt, Glycol monobutyl, Preventol 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 $\epsilon=41.5$ $\sigma=0.90$
MIXTURE %	FREQUENCY 1900MHz
Water	55.242
Glycol monobutyl	44.452
Salt	0.306
Dielectric Parameters Target Value	f=1900MHz $\epsilon=40.0$ $\sigma=1.40$
MIXTURE %	FREQUENCY 2450MHz
Water	58.79
Glycol monobutyl	41.15
Salt	0.06
Dielectric Parameters Target Value	f=2450MHz $\epsilon=39.2$ $\sigma=1.80$

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 $\epsilon=55.2$ $\sigma=0.97$
MIXTURE %	FREQUENCY 1900MHz
Water	69.91
Glycol monobutyl	29.96
Salt	0.13
Dielectric Parameters Target Value	f=1900MHz $\epsilon=53.3$ $\sigma=1.52$
MIXTURE %	FREQUENCY 2450MHz
Water	72.60
Glycol monobutyl	27.22
Salt	0.18
Dielectric Parameters Target Value	f=2450MHz $\epsilon=52.7$ $\sigma=1.95$

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	Conducted Power (dBm)		
	Channel 251(848.8MHz)	Channel 190(836.6MHz)	Channel 128(824.2MHz)
850MHZ	32.21	32.49	32.69
GSM	Conducted Power (dBm)		
	Channel 810(1909.8MHz)	Channel 661(1880MHz)	Channel 512(1850.2MHz)
1900MHZ	31.03	30.74	30.37

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

GSM 850 GPRS	Measured Power (dBm)			calculation	Averaged Power (dBm)		
	251	190	128		251	190	128
1 Txslot	32.15	32.43	32.64	-9.03dB	23.12	23.4	23.61
2 Txslots	31.02	31.35	31.67	-6.02dB	25.00	25.33	25.65
3Txslots	27.71	28.01	28.59	-4.26dB	23.45	23.75	24.33
4 Txslots	26.73	27.03	27.66	-3.01dB	23.72	24.02	24.65
GSM 850 EGPRS	Measured Power (dBm)			calculation	Averaged Power (dBm)		
	251	190	128		251	190	128
1 Txslot	32.22	32.50	32.72	-9.03dB	23.19	23.47	23.69
2 Txslots	31.11	31.41	31.75	-6.02dB	25.09	25.39	25.73
3Txslots	27.77	28.05	28.64	-4.26dB	23.51	23.79	24.38
4 Txslots	26.67	27.00	27.67	-3.01dB	23.66	23.99	24.66
PCS1900 GPRS	Measured Power (dBm)			calculation	Averaged Power (dBm)		
	810	661	512		810	661	512
1 Txslot	31.30	30.98	30.58	-9.03dB	22.27	21.95	21.55
2 Txslots	30.31	29.78	29.29	-6.02dB	24.29	23.76	23.27
3Txslots	28.19	27.23	26.65	-4.26dB	23.93	22.97	22.39
4 Txslots	27.25	26.28	25.72	-3.01dB	24.24	23.27	22.71
PCS1900 EGPRS	Measured Power (dBm)			calculation	Averaged Power (dBm)		
	810	661	512		810	661	512
1 Txslot	31.22	30.91	30.48	-9.03dB	22.19	21.88	21.45
2 Txslots	30.21	29.68	29.21	-6.02dB	24.19	23.66	23.19
3Txslots	28.15	27.21	26.62	-4.26dB	23.89	22.95	22.36
4 Txslots	27.19	26.25	25.68	-3.01dB	24.18	23.24	22.67

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 2 Txslots for GPRS and EGPRS.

6.2.3 Power Drift

To control the output power stability during the SAR test, DAS4 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 11 to Table 18 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 5: Dielectric Performance of Head Tissue Simulating Liquid

Measurement is made at temperature 23.0 °C and relative humidity 40%.			
Liquid temperature during the test: 22.5°C			
Measurement Date : 850 MHz Feb 19, 2011 1900 MHz Feb 20, 2011 2450 MHz Feb 16, 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	40.6	0.88
	1900 MHz	39.6	1.39
	2450 MHz	39.6	1.82

Table 6: Dielectric Performance of Body Tissue Simulating Liquid

Measurement is made at temperature 23.0 °C and relative humidity 40%.			
Liquid temperature during the test: 22.5°C			
Measurement Date : 850 MHz Feb 19, 2011 1900 MHz Feb 20, 2011 2450 MHz Feb 16, 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	54.4	0.96
	1900 MHz	52.4	1.53
	2450 MHz	52.2	1.96

7.2 System Validation

Table 7: System Validation of Head

Measurement is made at temperature 23.0 °C and relative humidity 40%.				
Liquid temperature during the test: 22.5°C				
Measurement Date : 850 MHz Feb 19, 2011 1900 MHz Feb 20, 2011 2450 MHz Feb 16, 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	
	Actual Measurement value	835 MHz	40.6	0.88
		1900 MHz	39.6	1.39
2450 MHz		39.6	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	6.16	9.64	0.65%	2.44%
1900 MHz	20.1	39.4	19.76	39.6	-1.69%	0.51%	
2450 MHz	24.6	52.4	23.96	51.6	-2.60%	-1.53%	

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

Table 8: System Validation of Body

Measurement is made at temperature 23.0 °C and relative humidity 40%.							
Liquid temperature during the test: 22.5°C							
Measurement Date : 850 MHz Feb 19, 2011 1900 MHz Feb 20, 2011 2450 MHz Feb 16, 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		
	Actual Measurement value	835 MHz		54.4	0.96		
		1900 MHz		52.4	1.53		
		2450 MHz		52.2	1.96		
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	9.76	-1.28%	1.99%
	1900 MHz	20.9	41.4	21.36	41.6	2.20%	0.48%
	2450 MHz	23.9	51.6	23.8	52.4	-0.42%	1.55%

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 9: Pretest SAR Values (GSM 850 MHz Band)

Limit of SAR (W/kg)	10 g Average	1 g Average
		2.0
Test Case	Measurement Result (W/kg)	
	10 g Average	1 g Average
Left hand, Touch cheek, Top frequency (CAB31L0000C1)	0.790	1.08
Left hand, Touch cheek, Top frequency (CAB31L0000C2)	0.751	1.04

Note: According to the values in the above table, the battery, CAB31L0000C1, is the normal battery. We'll perform the head measurement with this battery and retest on highest value point with others.

Table 10: Pretest SAR Values (GSM 850 MHz Band-Body)

Limit of SAR (W/kg)	10 g Average	1 g Average
		2.0
Test Case	Measurement Result (W/kg)	
	10 g Average	1 g Average
Body, Towards Ground, Mid frequency (CAB31L0000C1)	0.891	1.24
Body, Towards Ground, Mid frequency (CAB31L0000C2)	0.877	1.22

Note: According to the values in the above table, the battery, CAB31L0000C1, 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 11: SAR Values (850MHz-Head) - with battery CAB31L0000C1

Limit of SAR (W/kg)	10 g Average	1 g Average	Power Drift (dB)
		2.0	
Test Case	Measurement Result (W/kg)		
	10 g Average	1 g Average	
Left hand, Touch cheek, Top frequency (See Fig.1)	0.790	1.08	-0.036
Left hand, Touch cheek, Mid frequency (See Fig.2)	0.707	0.964	-0.085
Left hand, Touch cheek, Bottom frequency (See Fig.3)	0.618	0.839	-0.058
Left hand, Tilt 15 Degree, Top frequency (See Fig.4)	0.349	0.465	-0.095
Left hand, Tilt 15 Degree, Mid frequency (See Fig.5)	0.335	0.445	-0.100
Left hand, Tilt 15 Degree, Bottom frequency (See Fig.6)	0.287	0.379	0.109
Right hand, Touch cheek, Top frequency (See Fig.7)	0.718	1.01	-0.137
Right hand, Touch cheek, Mid frequency (See Fig.8)	0.612	0.850	-0.176
Right hand, Touch cheek, Bottom frequency (See Fig.9)	0.519	0.722	-0.033
Right hand, Tilt 15 Degree, Top frequency (See Fig.10)	0.343	0.461	-0.059
Right hand, Tilt 15 Degree, Mid frequency (See Fig.11)	0.313	0.420	-0.022
Right hand, Tilt 15 Degree, Bottom frequency (See Fig.12)	0.272	0.362	-0.110

Table 12: SAR Values (1900MHz-Head) - with battery CAB31L0000C1

Limit of SAR (W/kg)	10 g Average	1 g Average	Power Drift (dB)
		2.0	
Test Case	Measurement Result (W/kg)		
	10 g Average	1 g Average	
Left hand, Touch cheek, Top frequency (See Fig.13)	0.493	0.852	-0.133
Left hand, Touch cheek, Mid frequency (See Fig.14)	0.470	0.809	-0.055

Left hand, Touch cheek, Bottom frequency (See Fig.15)	0.458	0.785	-0.066
Left hand, Tilt 15 Degree, Top frequency (See Fig.16)	0.205	0.334	-0.062
Left hand, Tilt 15 Degree, Mid frequency (See Fig.17)	0.202	0.321	-0.051
Left hand, Tilt 15 Degree, Bottom frequency (See Fig.18)	0.190	0.296	-0.005
Right hand, Touch cheek, Top frequency (See Fig.19)	0.456	0.835	-0.153
Right hand, Touch cheek, Mid frequency (See Fig.20)	0.435	0.797	0.080
Right hand, Touch cheek, Bottom frequency (See Fig.21)	0.405	0.733	-0.035
Right hand, Tilt 15 Degree, Top frequency (See Fig.22)	0.190	0.307	-0.010
Right hand, Tilt 15 Degree, Mid frequency (See Fig.23)	0.189	0.301	-0.076
Right hand, Tilt 15 Degree, Bottom frequency(See Fig.24)	0.182	0.290	-0.046

Table 13: SAR Values (850MHz-Head) - with battery CAB31L0000C2

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.25)	0.751	1.04	-0.136

Table 14: SAR Values (850MHz-Body) - with battery CAB31L0000C1

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 with GPRS (See Fig.26)	0.882	1.23	-0.105
Body, Towards Ground, Mid frequency with GPRS (See Fig.27)	0.891	1.24	0.006
Body, Towards Ground, Bottom frequency with GPRS (See Fig.28)	0.827	1.15	-0.009
Body, Towards Phantom, Top frequency with GPRS (See Fig.29)	0.815	1.12	-0.043
Body, Towards Phantom, Mid frequency with GPRS (See Fig.30)	0.821	1.13	0.033
Body, Towards Phantom, Bottom frequency with GPRS (See Fig.31)	0.761	1.04	-0.058
Body, Towards Ground, Mid frequency with EGPRS (See Fig.32)	0.859	1.2	-0.005
Body, Towards Ground, Mid frequency with Headset_CCB3160A10C2 (See Fig.33)	0.392	0.546	-0.013
Body, Towards Ground, Mid frequency with Headset_CCB3160A10C3 (See Fig.34)	0.413	0.577	-0.020
Body, Towards Ground, Mid frequency with Headset_CCB3125A10C2 (See Fig.35)	0.424	0.588	-0.036

Table 15: SAR Values (1900MHz-Body) - with battery CAB31L0000C1

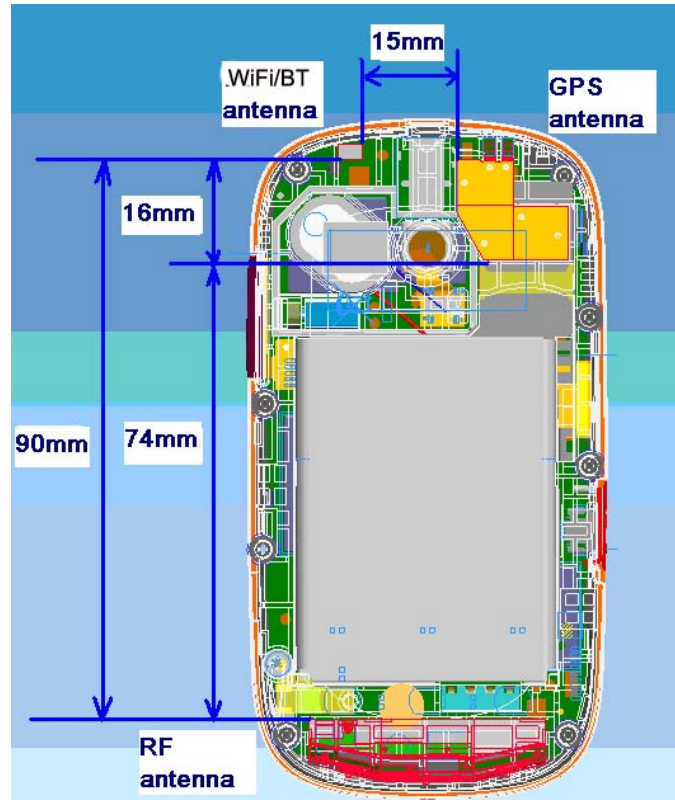
Limit of SAR (W/kg)	10 g Average	1g Average	Power Drift (dB)
	2.0	1.6	
Test Case	Measurement Result (W/kg)		Power Drift (dB)
	10 g Average	1 g Average	
Body, Towards Ground, Top frequency with GPRS (See Fig.36)	0.261	0.446	-0.198
Body, Towards Ground, Mid frequency with GPRS (See Fig.37)	0.231	0.392	0.014
Body, Towards Ground, Bottom frequency with GPRS (See Fig.38)	0.224	0.379	-0.019
Body, Towards Phantom, Top frequency with GPRS (See Fig.39)	0.253	0.427	0.013
Body, Towards Phantom, Mid frequency with GPRS (See Fig.40)	0.227	0.384	-0.043
Body, Towards Phantom, Bottom frequency with GPRS (See Fig.41)	0.217	0.365	0.064
Body, Towards Ground, Top frequency with EGPRS (See Fig.42)	0.245	0.411	-0.010
Body, Towards Ground, Top frequency with Headset_CCB3160A10C2 (See Fig.43)	0.164	0.275	-0.008
Body, Towards Ground, Top frequency with Headset_CCB3160A10C3 (See Fig.44)	0.165	0.279	-0.028
Body, Towards Ground, Top frequency with Headset_CCB3125A10C2 (See Fig.45)	0.132	0.223	0.129

Table 16: SAR Values (850MHz-Body) - with battery CAB31L0000C2

Limit of SAR (W/kg)	10 g Average	1g Average	Power Drift (dB)
	2.0	1.6	
Test Case	Measurement Result (W/kg)		Power Drift (dB)
	10 g Average	1 g Average	
Body, Towards Ground, Mid frequency with GPRS (See Fig.46)	0.877	1.22	-0.160

7.5 Summary of Measurement Results (Bluetooth and WiFi function)

The distance between BT/WiFi antenna and RF antenna is $>5\text{cm}$. 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)	-4.59	-4.36	-4.02

The output power of BT transmitter is $\leq 2P_{\text{Ref}}$ and its antenna is $>5\text{cm}$ from the RF antenna. So we can draw the conclusion that: stand-alone SAR and simultaneous transmission SAR are not required for BT transmitter.

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

The average conducted power for WiFi is as following:
802.11b (dBm)

Channel\data rate	1Mbps	2Mbps	5.5Mbps	11Mbps
1	13.52	13.16	13.18	13.10
6	13.57	13.55	13.56	13.55
11	14.32	14.29	14.26	14.23

802.11g (dBm)

Channel\data rate	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
1	10.50	10.51	10.50	10.44	10.46	10.40	10.38	10.38
6	11.28	11.20	11.35	11.37	11.39	11.37	11.40	11.49
11	11.99	11.95	11.95	11.95	11.99	11.98	12.02	11.90

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 and WiFi.

SAR is not required for 802.11g 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 17: 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)		Power Drift (dB)
	10 g Average	1 g Average	
Left hand, Touch cheek, 1Mbps,channel 11 (See Fig.47)	0.028	0.067	0.129
Left hand, Tilt 15 Degree, 1Mbps,channel 11 (See Fig.48)	0.011	0.032	0.191
Right hand, Touch cheek, 1Mbps,channel 11 (See Fig.49)	0.016	0.037	0.164
Right hand, Tilt 15 Degree, 1Mbps,channel 11 (See Fig.50)	0.00939	0.025	0.163

Table 18: 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)		Power Drift (dB)
	10 g Average	1 g Average	
Toward Ground, 1Mbps,channel 11 (See Fig.51)	0.00331	0.00908	-0.154
Toward Phantom, 1Mbps,channel 11(See Fig.52)	0.00343	0.00909	0.116

Table 19: The sum of SAR values for GSM and WiFi

	Maximum SAR value for Head	Maximum SAR value for Body
GSM	1.08	1.24
WiFi	0.067	0.00909
Sum	1.147	1.24909

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

7.6 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 850 MHz Band, Body, Towards Ground, Mid frequency with GPRS (Table 14)**, and the value are: **1.24(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 (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 20: 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.

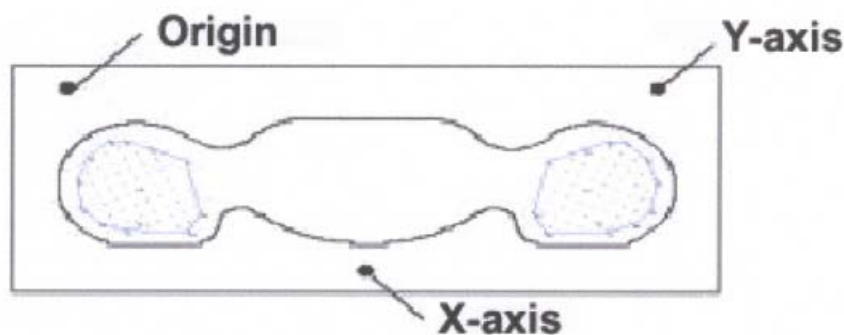
Step 3: Around this point, a volume of 30 mm x 30 mm x 30 mm was assessed by measuring 7 x 7x 7 points. On this basis of this data set, the spatial peak SAR value was evaluated with the following procedure:

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.

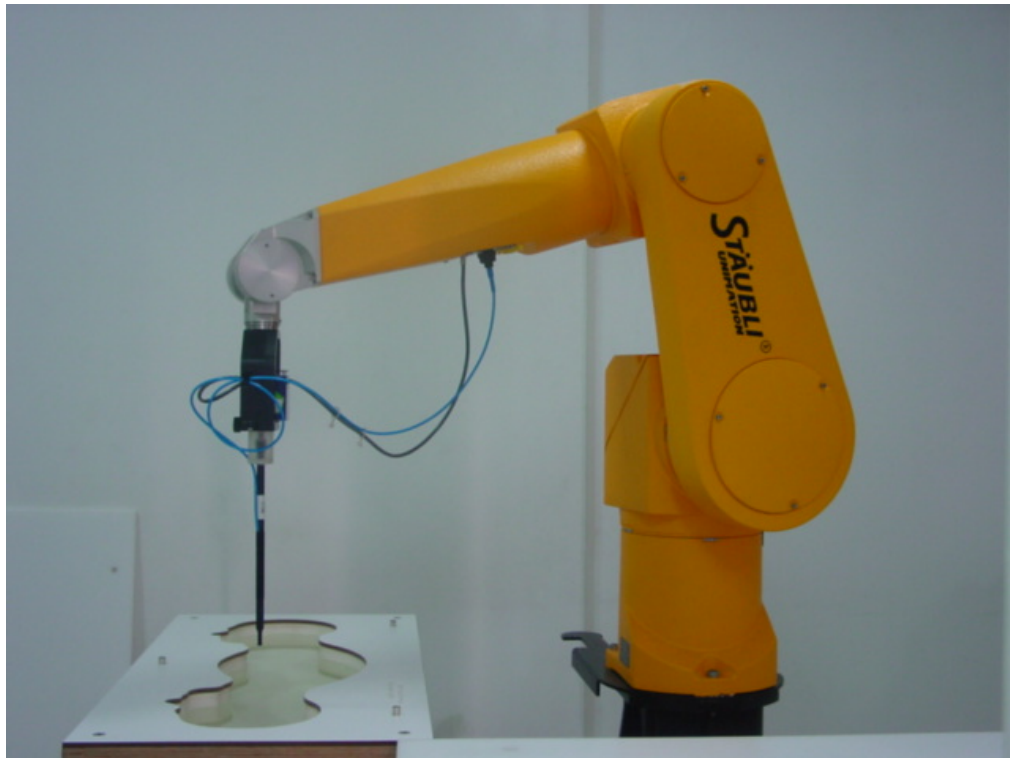
c. All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.

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.

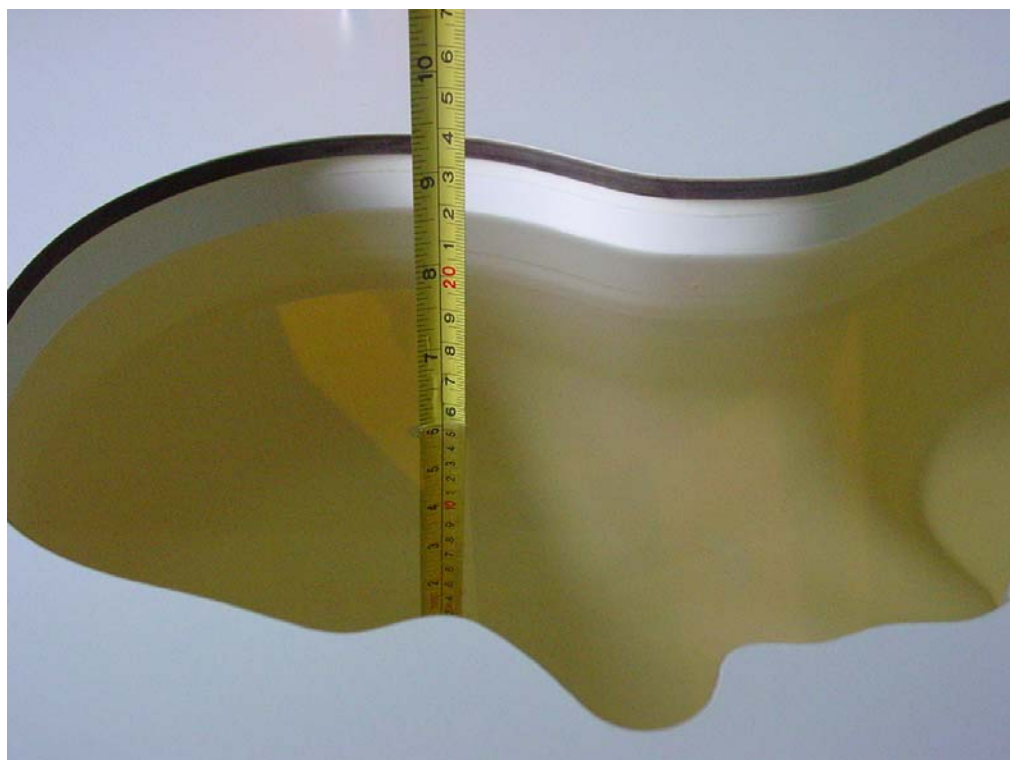


Picture A: SAR Measurement Points in Area Scan

ANNEX B TEST LAYOUT



Picture B1: Specific Absorption Rate Test Layout



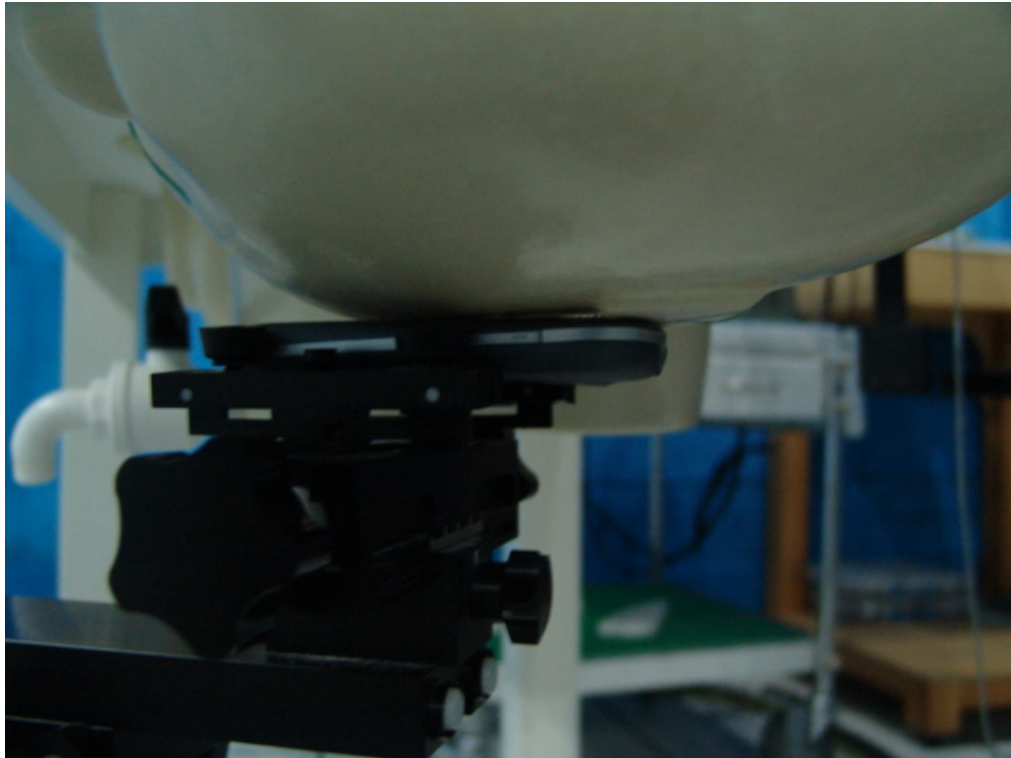
Picture B2: Liquid depth in the Flat Phantom (850 MHz)



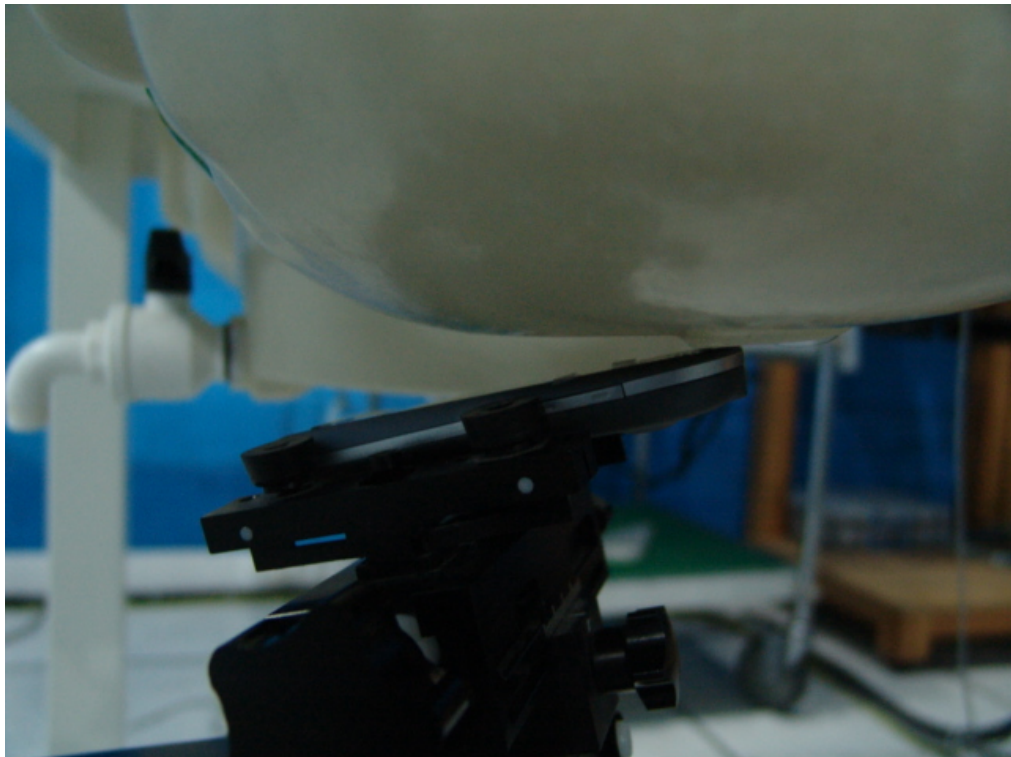
Picture B3 Liquid depth in the Flat Phantom (1900MHz)



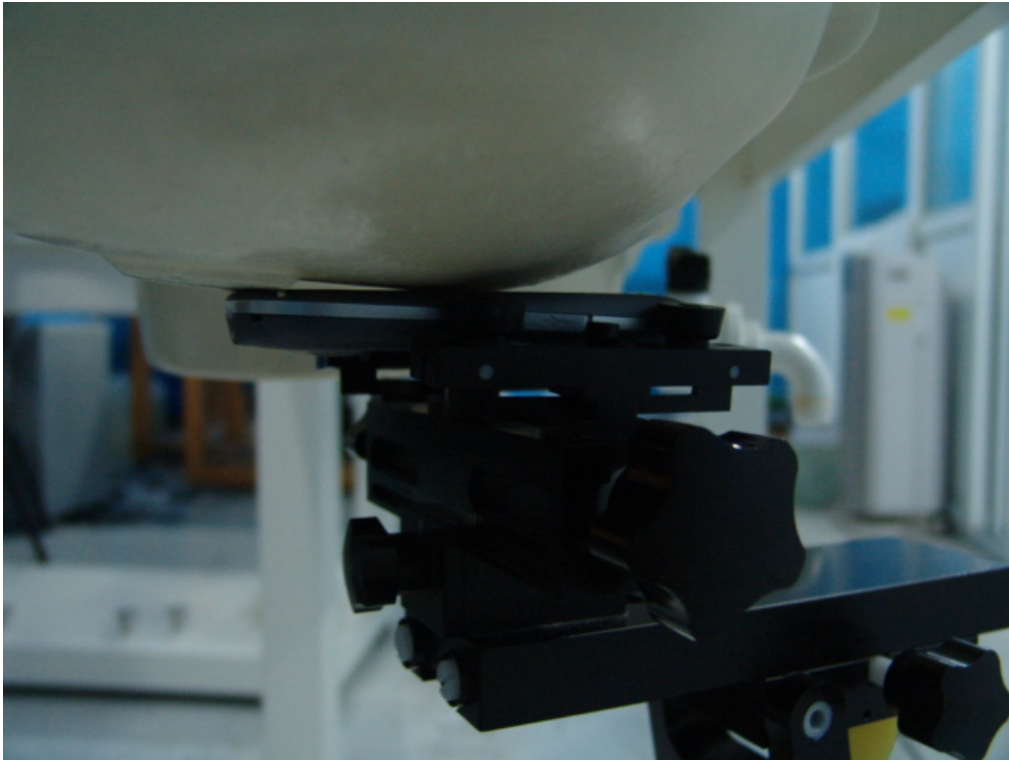
Picture B4 Liquid depth in the Flat Phantom (2450MHz)



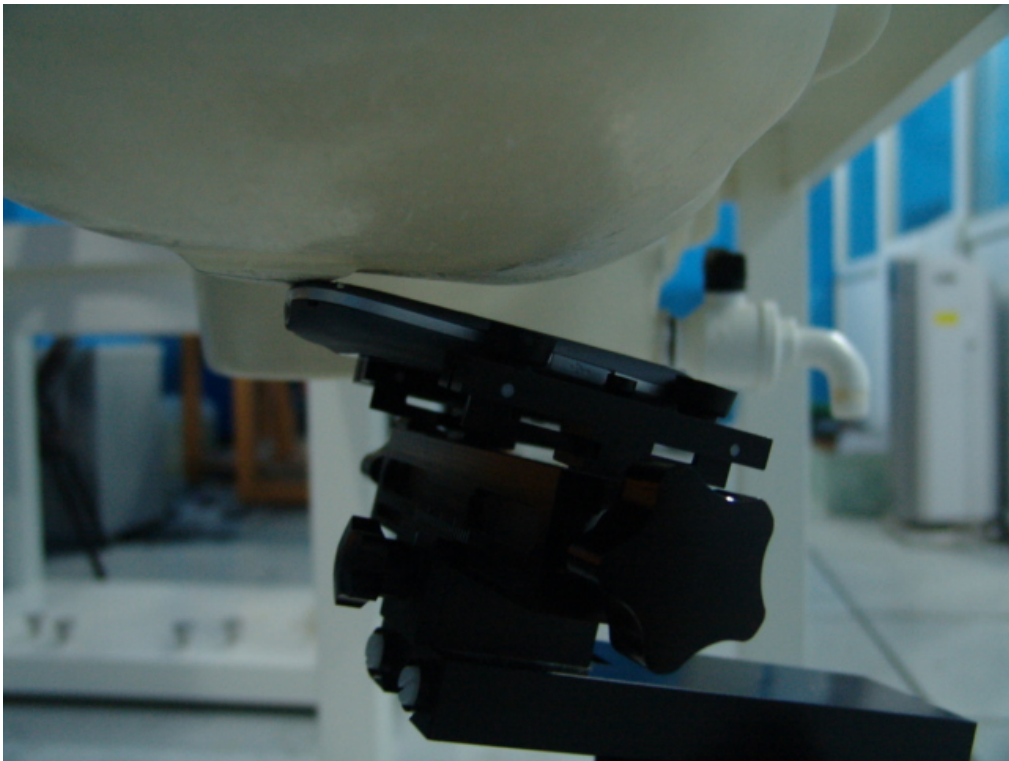
Picture B5: Left Hand Touch Cheek Position



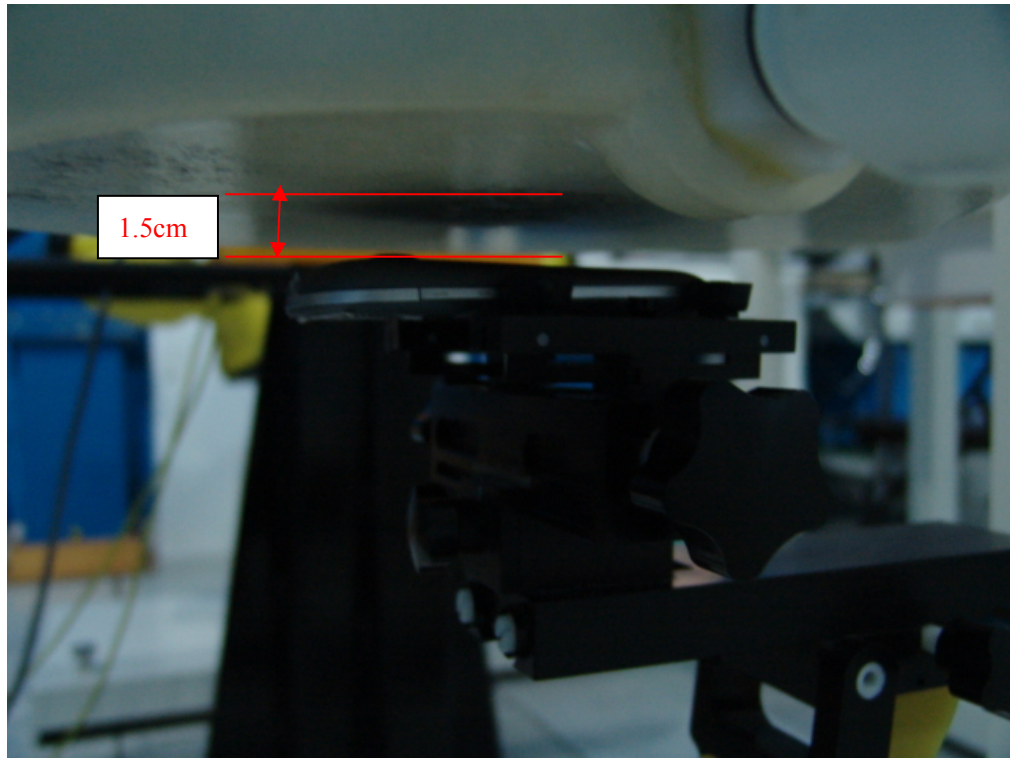
Picture B6: Left Hand Tilt 15° Position



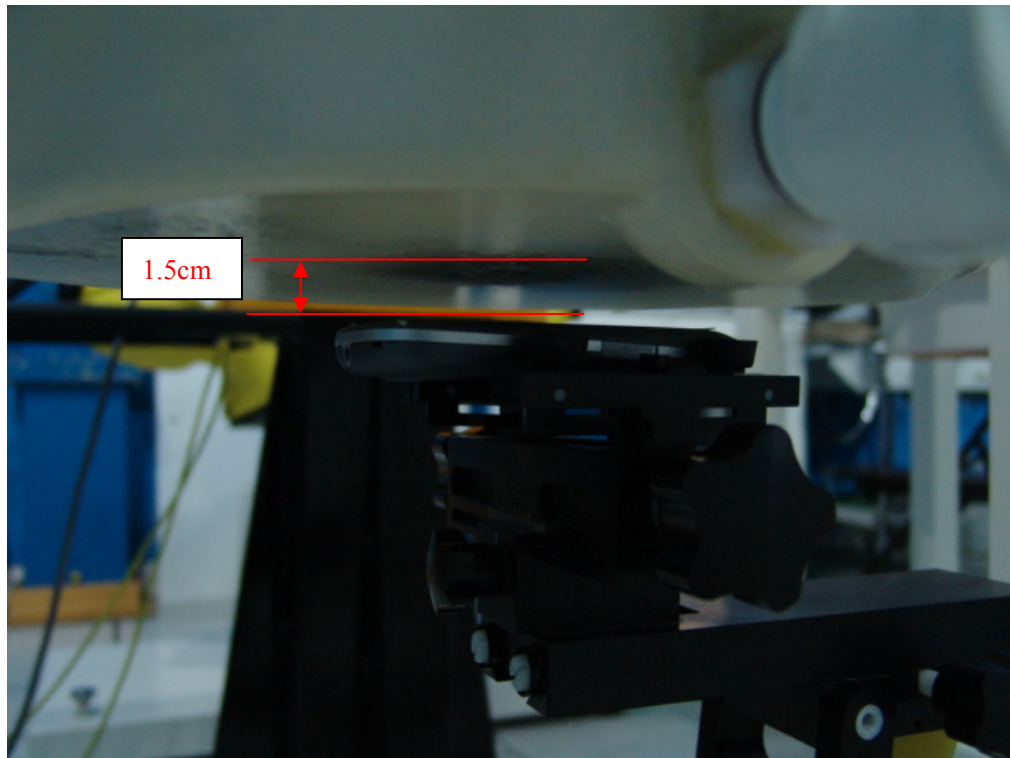
Picture B7: Right Hand Touch Cheek Position



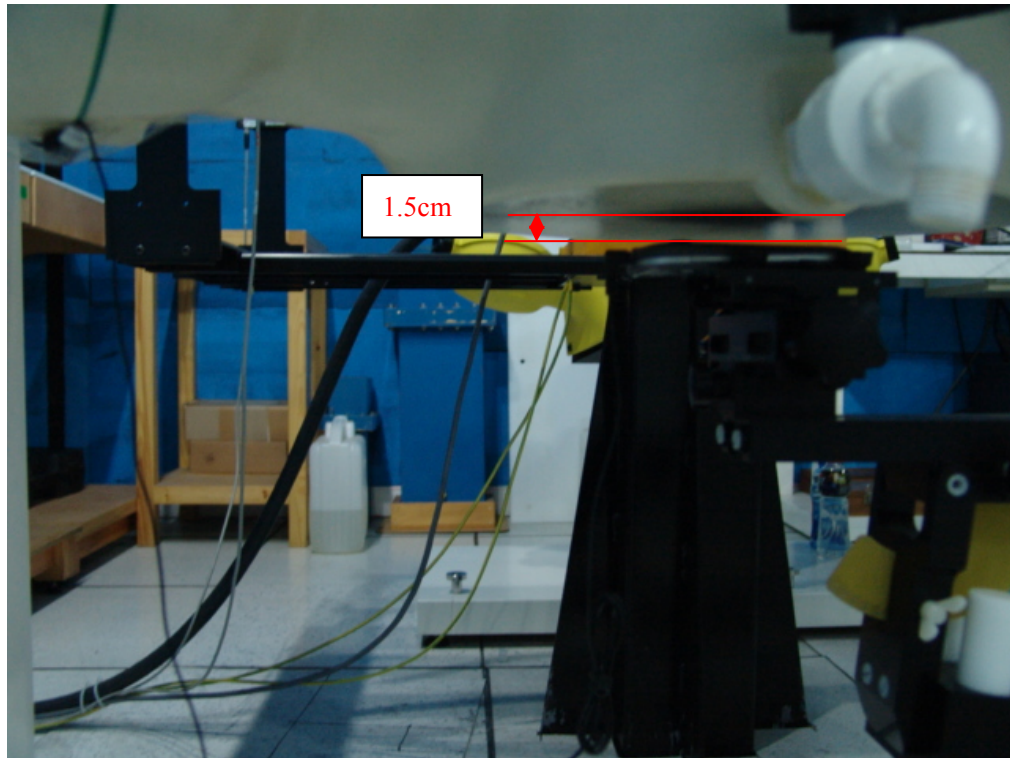
Picture B8: Right Hand Tilt 15° Position



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



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



Picture B11: 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: 2011-2-19 8:08:12

Electronics: DAE4 Sn771

Medium: Head 850 MHz

Medium parameters used (interpolated): $f = 848.8$ MHz; $\sigma = 0.90$ mho/m; $\epsilon_r = 40.5$; $\rho = 1000$ kg/m³

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) = 1.15 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.1 V/m; Power Drift = -0.036 dB

Peak SAR (extrapolated) = 1.37 W/kg

SAR(1 g) = 1.08 mW/g; SAR(10 g) = 0.790 mW/g

Maximum value of SAR (measured) = 1.15 mW/g

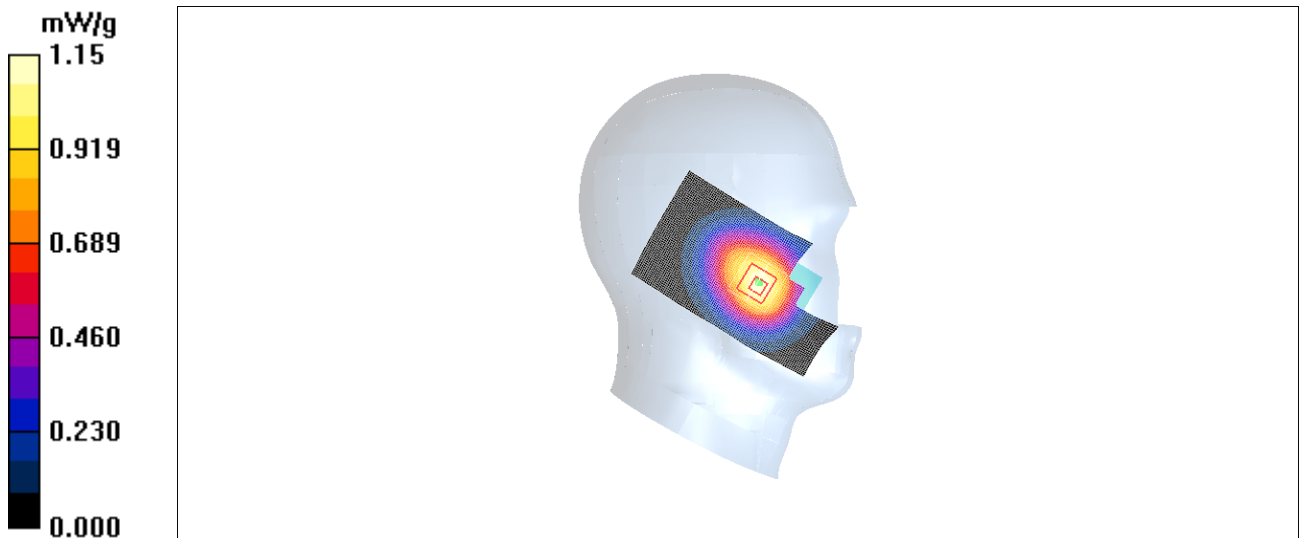


Fig. 1 850MHz CH251

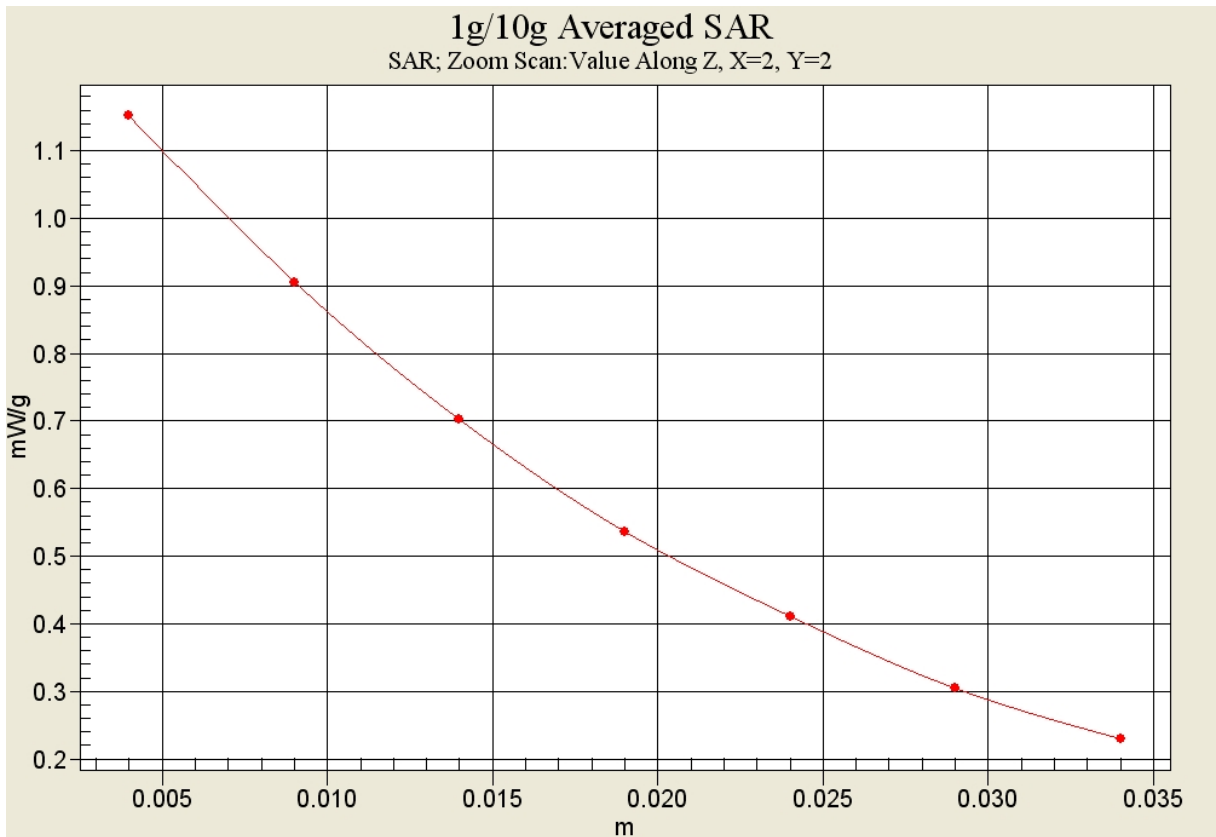


Fig. 1-1 Z-Scan at power reference point (850 MHz CH251)

850 Left Cheek Middle

Date/Time: 2011-2-19 8:22:35

Electronics: DAE4 Sn771

Medium: Head 850 MHz

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.888$ mho/m; $\epsilon_r = 40.6$; $\rho = 1000$ kg/m³

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 (61x101x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 1.01 mW/g

Cheek Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.74 V/m; Power Drift = -0.085 dB

Peak SAR (extrapolated) = 1.21 W/kg

SAR(1 g) = 0.964 mW/g; SAR(10 g) = 0.707 mW/g

Maximum value of SAR (measured) = 1.03 mW/g

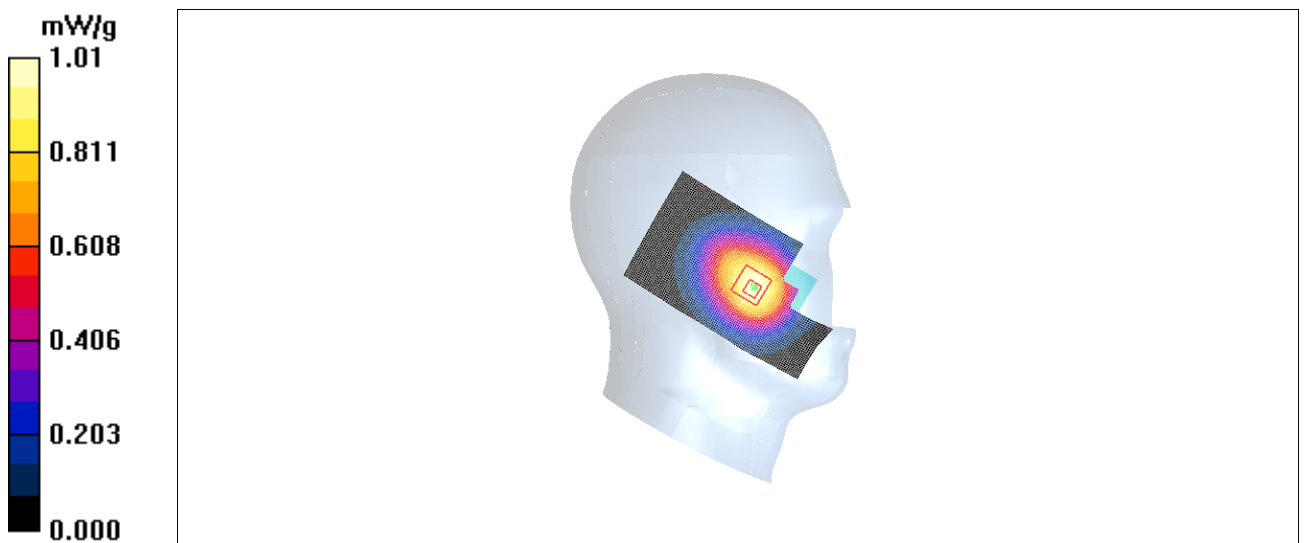


Fig. 2 850 MHz CH190

850 Left Cheek Low

Date/Time: 2011-2-19 8:36:51

Electronics: DAE4 Sn771

Medium: Head 850 MHz

Medium parameters used: $f = 825 \text{ MHz}$; $\sigma = 0.876 \text{ mho/m}$; $\epsilon_r = 40.6$; $\rho = 1000 \text{ kg/m}^3$

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: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (interpolated) = 0.877 mW/g

Cheek Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 9.21 V/m ; Power Drift = -0.058 dB

Peak SAR (extrapolated) = 1.05 W/kg

SAR(1 g) = 0.839 mW/g ; SAR(10 g) = 0.618 mW/g

Maximum value of SAR (measured) = 0.892 mW/g

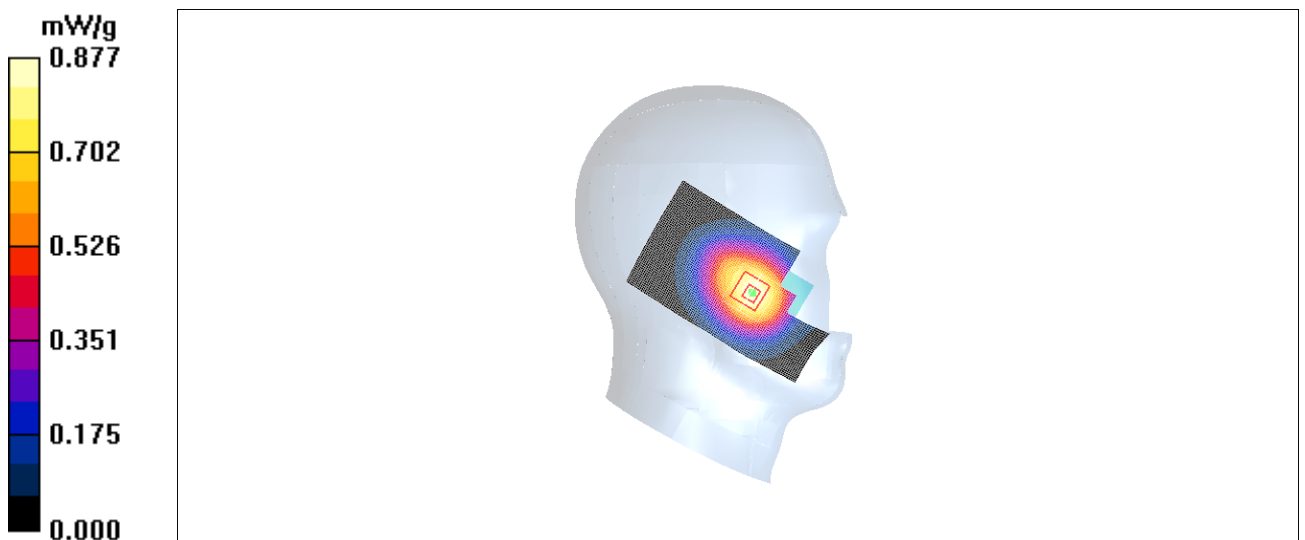


Fig. 3 850 MHz CH128

850 Left Tilt High

Date/Time: 2011-2-19 8:51:27

Electronics: DAE4 Sn771

Medium: Head 850 MHz

Medium parameters used (interpolated): $f = 848.8$ MHz; $\sigma = 0.90$ mho/m; $\epsilon_r = 40.5$; $\rho = 1000$ kg/m³

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) = 0.500 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 = -0.095 dB

Peak SAR (extrapolated) = 0.581 W/kg

SAR(1 g) = 0.465 mW/g; SAR(10 g) = 0.349 mW/g

Maximum value of SAR (measured) = 0.490 mW/g

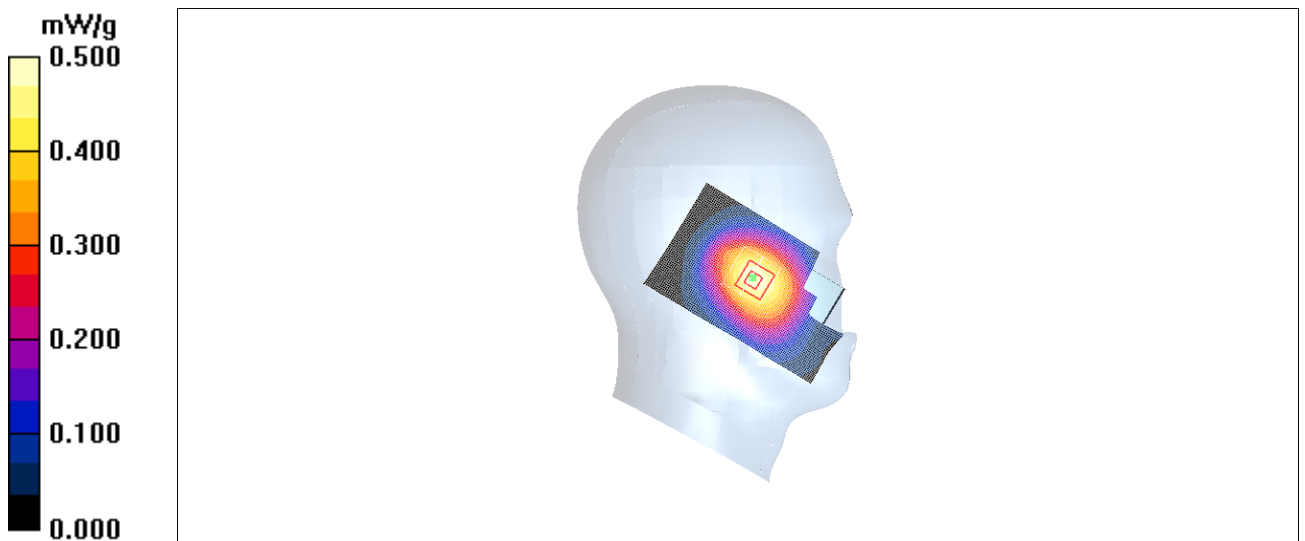


Fig.4 850 MHz CH251

850 Left Tilt Middle

Date/Time: 2011-2-19 9:05:44

Electronics: DAE4 Sn771

Medium: Head 850 MHz

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.888$ mho/m; $\epsilon_r = 40.6$; $\rho = 1000$ kg/m³

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) = 0.491 mW/g

Tilt Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.9 V/m; Power Drift = -0.100 dB

Peak SAR (extrapolated) = 0.553 W/kg

SAR(1 g) = 0.445 mW/g; SAR(10 g) = 0.335 mW/g

Maximum value of SAR (measured) = 0.470 mW/g

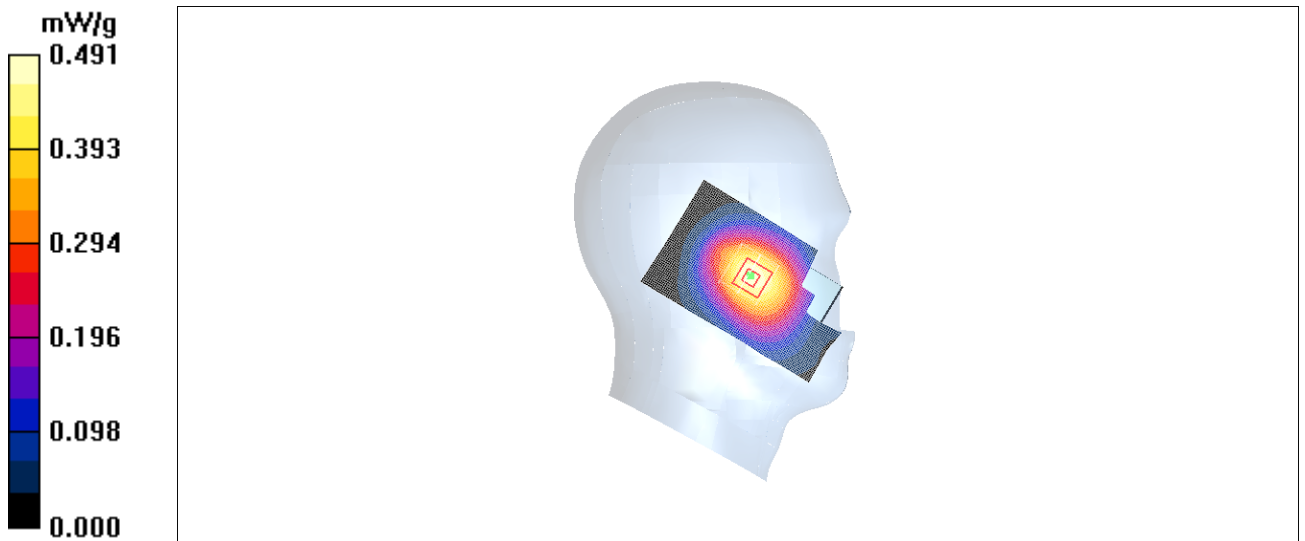


Fig.5 850 MHz CH190

850 Left Tilt Low

Date/Time: 2011-2-19 9:20:13

Electronics: DAE4 Sn771

Medium: Head 850 MHz

Medium parameters used: $f = 825$ MHz; $\sigma = 0.876$ mho/m; $\epsilon_r = 40.6$; $\rho = 1000$ kg/m³

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) = 0.403 mW/g

Tilt Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.0 V/m; Power Drift = 0.109 dB

Peak SAR (extrapolated) = 0.473 W/kg

SAR(1 g) = 0.379 mW/g; SAR(10 g) = 0.287 mW/g

Maximum value of SAR (measured) = 0.400 mW/g

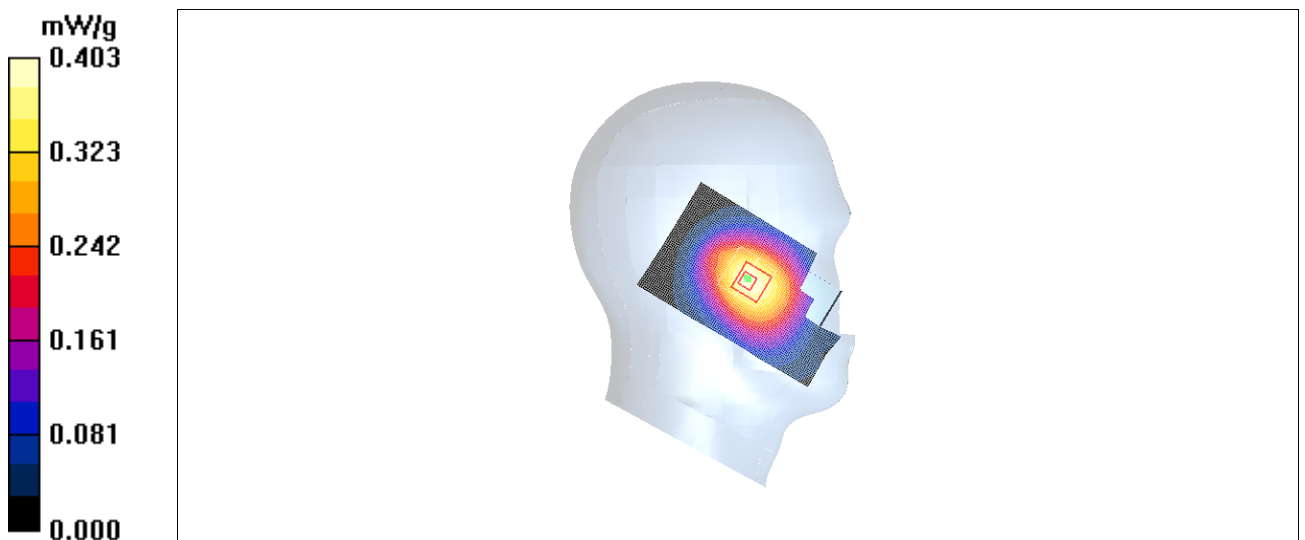


Fig. 6 850 MHz CH128

850 Right Cheek High

Date/Time: 2011-2-19 9:34:46

Electronics: DAE4 Sn771

Medium: Head 850 MHz

Medium parameters used (interpolated): $f = 848.8$ MHz; $\sigma = 0.90$ mho/m; $\epsilon_r = 40.5$; $\rho = 1000$ kg/m³

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) = 1.11 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.85 V/m; Power Drift = -0.137 dB

Peak SAR (extrapolated) = 1.40 W/kg

SAR(1 g) = 1.01 mW/g; SAR(10 g) = 0.718 mW/g

Maximum value of SAR (measured) = 1.08 mW/g

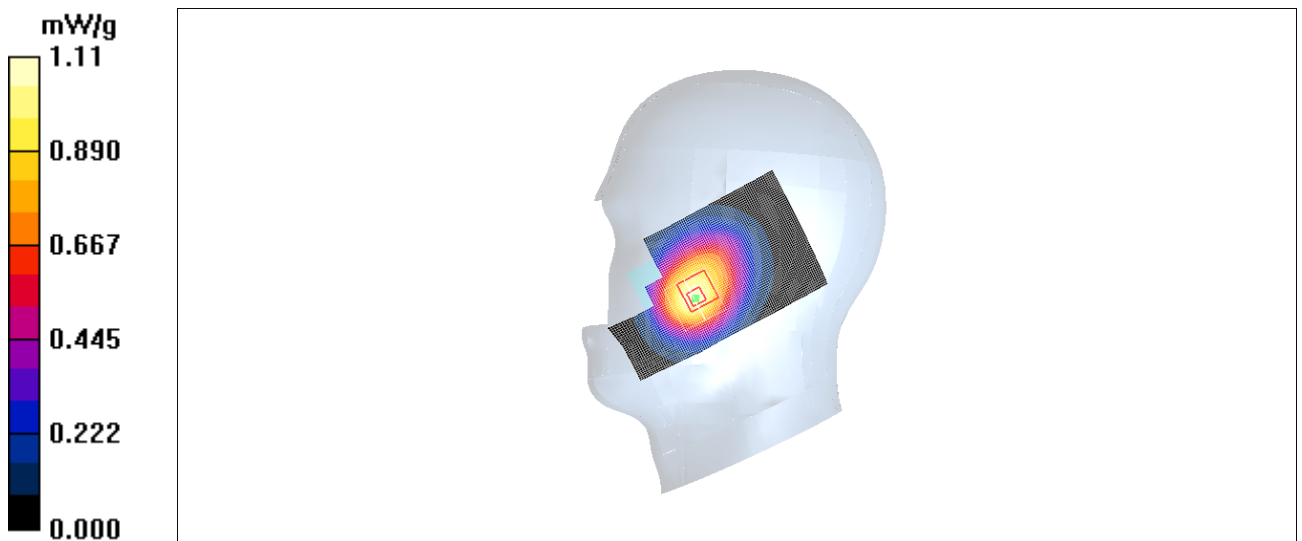


Fig. 7 850 MHz CH251

850 Right Cheek Middle

Date/Time: 2011-2-19 9:50:06

Electronics: DAE4 Sn771

Medium: Head 850 MHz

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.888$ mho/m; $\epsilon_r = 40.6$; $\rho = 1000$ kg/m³

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 (61x101x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.927 mW/g

Cheek Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.78 V/m; Power Drift = -0.176 dB

Peak SAR (extrapolated) = 1.17 W/kg

SAR(1 g) = 0.850 mW/g; SAR(10 g) = 0.612 mW/g

Maximum value of SAR (measured) = 0.894 mW/g

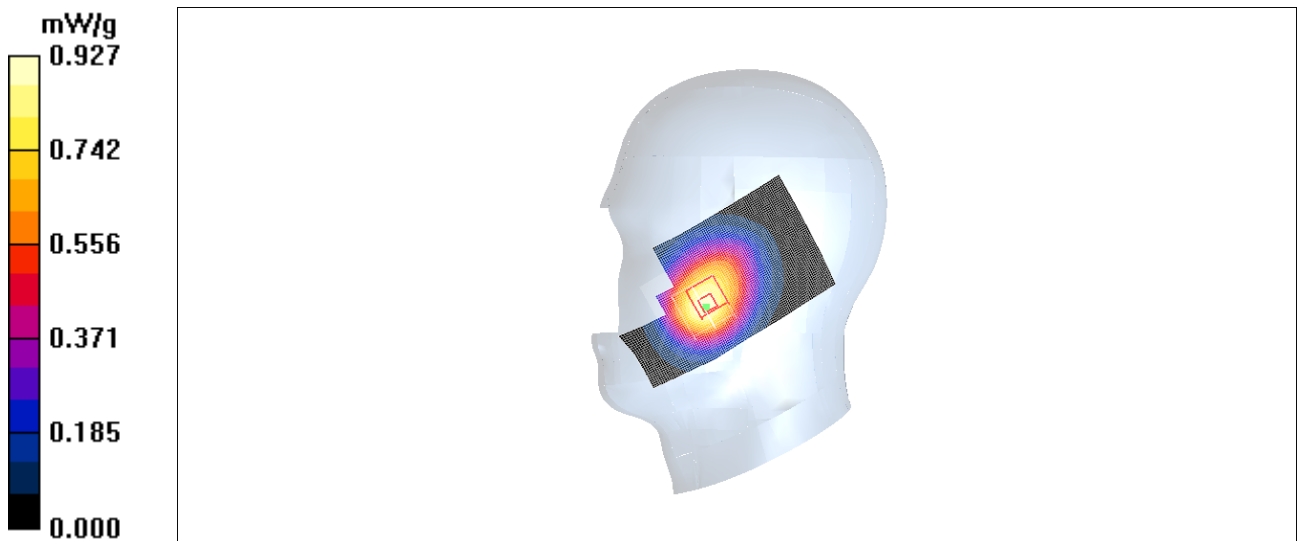


Fig. 8 850 MHz CH190

850 Right Cheek Low

Date/Time: 2011-2-19 10:04:22

Electronics: DAE4 Sn771

Medium: Head 850 MHz

Medium parameters used: $f = 825 \text{ MHz}$; $\sigma = 0.876 \text{ mho/m}$; $\epsilon_r = 40.6$; $\rho = 1000 \text{ kg/m}^3$

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: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (interpolated) = 0.788 mW/g

Cheek Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 8.06 V/m ; Power Drift = -0.033 dB

Peak SAR (extrapolated) = 0.979 W/kg

SAR(1 g) = 0.722 mW/g ; SAR(10 g) = 0.519 mW/g

Maximum value of SAR (measured) = 0.759 mW/g

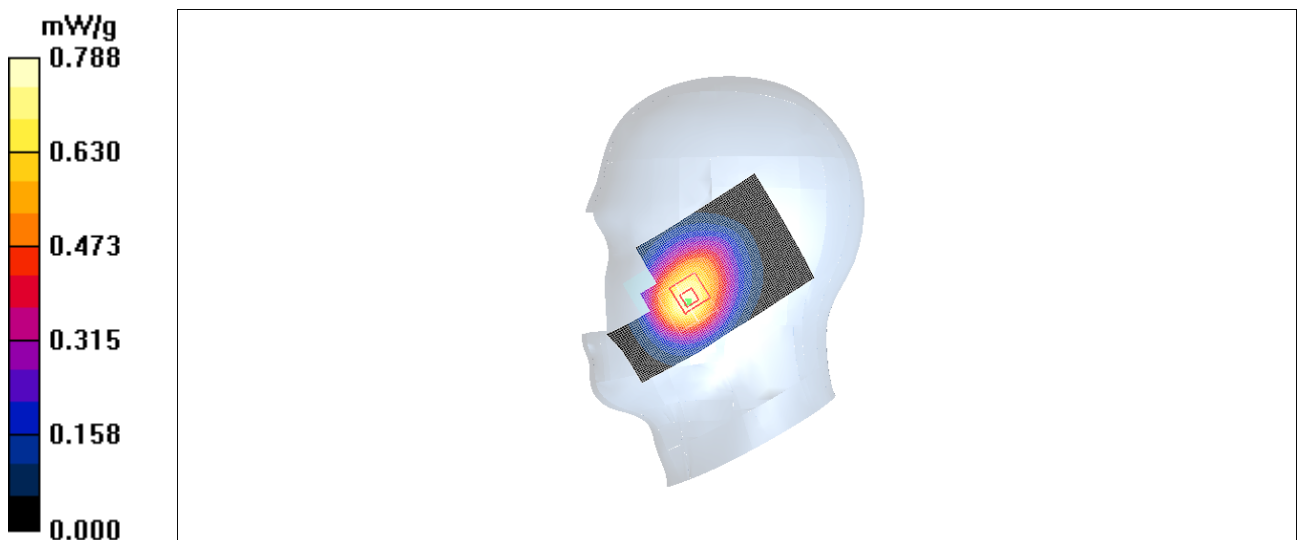


Fig. 9 850 MHz CH128

850 Right Tilt High

Date/Time: 2011-2-19 10:18:51

Electronics: DAE4 Sn771

Medium: Head 850 MHz

Medium parameters used (interpolated): $f = 848.8$ MHz; $\sigma = 0.90$ mho/m; $\epsilon_r = 40.5$; $\rho = 1000$ kg/m³

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) = 0.494 mW/g

Tilt High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 14.2 V/m; Power Drift = -0.059 dB

Peak SAR (extrapolated) = 0.575 W/kg

SAR(1 g) = 0.461 mW/g; SAR(10 g) = 0.343 mW/g

Maximum value of SAR (measured) = 0.484 mW/g

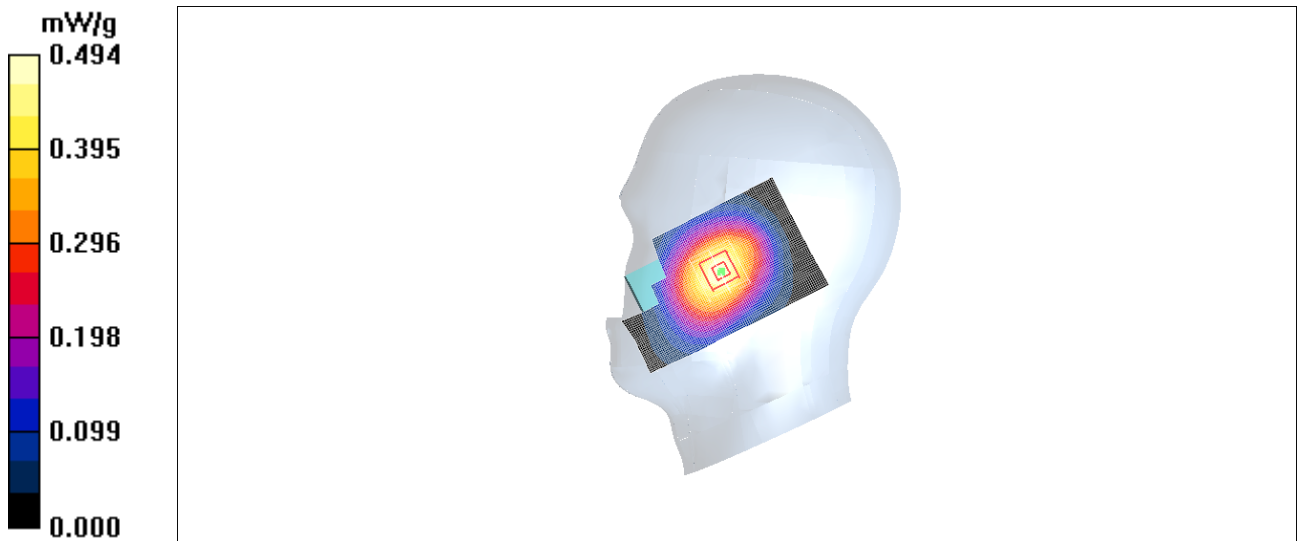


Fig.10 850 MHz CH251

850 Right Tilt Middle

Date/Time: 2011-2-19 10:33:17

Electronics: DAE4 Sn771

Medium: Head 850 MHz

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.888$ mho/m; $\epsilon_r = 40.6$; $\rho = 1000$ kg/m³

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) = 0.448 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 = -0.022 dB

Peak SAR (extrapolated) = 0.526 W/kg

SAR(1 g) = 0.420 mW/g; SAR(10 g) = 0.313 mW/g

Maximum value of SAR (measured) = 0.443 mW/g

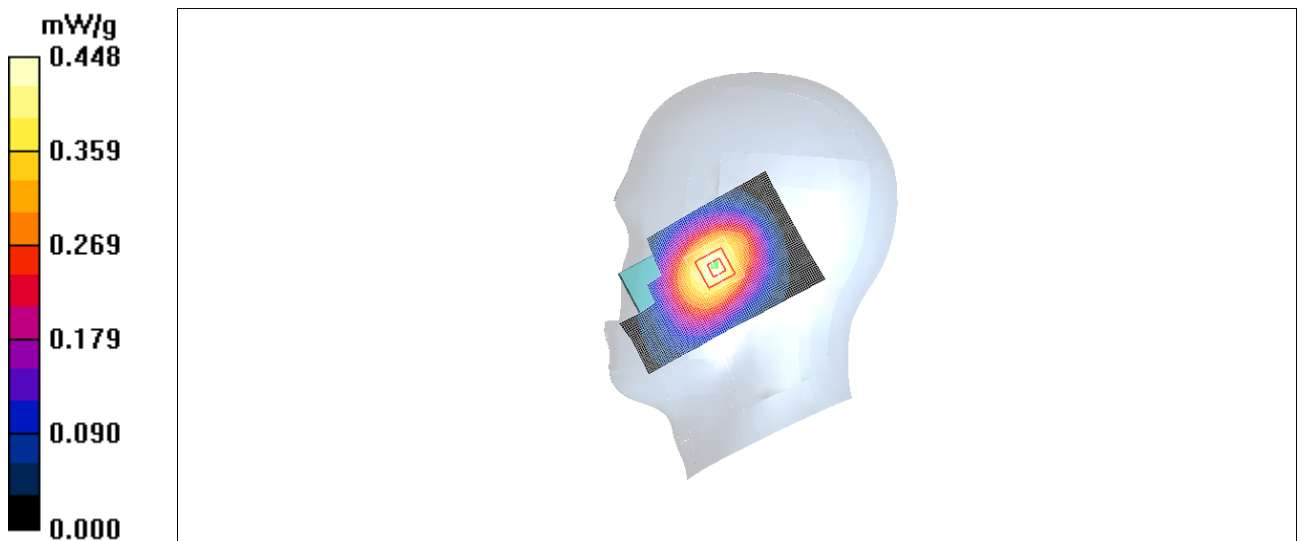


Fig.11 850 MHz CH190

850 Right Tilt Low

Date/Time: 2011-2-19 10:47:39

Electronics: DAE4 Sn771

Medium: Head 850 MHz

Medium parameters used: $f = 825$ MHz; $\sigma = 0.876$ mho/m; $\epsilon_r = 40.6$; $\rho = 1000$ kg/m³

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) = 0.386 mW/g

Tilt Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.0 V/m; Power Drift = -0.110 dB

Peak SAR (extrapolated) = 0.455 W/kg

SAR(1 g) = 0.362 mW/g; SAR(10 g) = 0.272 mW/g

Maximum value of SAR (measured) = 0.381 mW/g

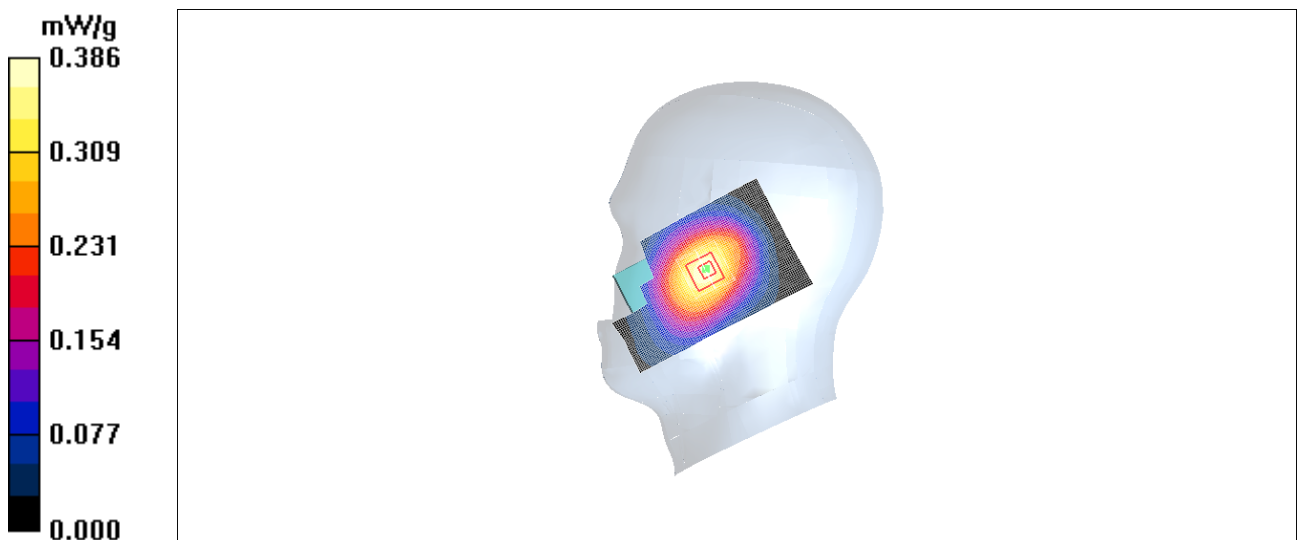


Fig. 12 850 MHz CH128

1900 Left Cheek High

Date/Time: 2011-2-20 8:09:22

Electronics: DAE4 Sn771

Medium: Head 1900 MHz

Medium parameters used: $f = 1910$ MHz; $\sigma = 1.40$ mho/m; $\epsilon_r = 39.5$; $\rho = 1000$ kg/m³

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) = 0.908 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.5 V/m; Power Drift = -0.133 dB

Peak SAR (extrapolated) = 1.35 W/kg

SAR(1 g) = 0.852 mW/g; SAR(10 g) = 0.493 mW/g

Maximum value of SAR (measured) = 0.907 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.5 V/m; Power Drift = -0.133 dB

Peak SAR (extrapolated) = 1.21 W/kg

SAR(1 g) = 0.595 mW/g; SAR(10 g) = 0.346 mW/g

Maximum value of SAR (measured) = 0.864 mW/g

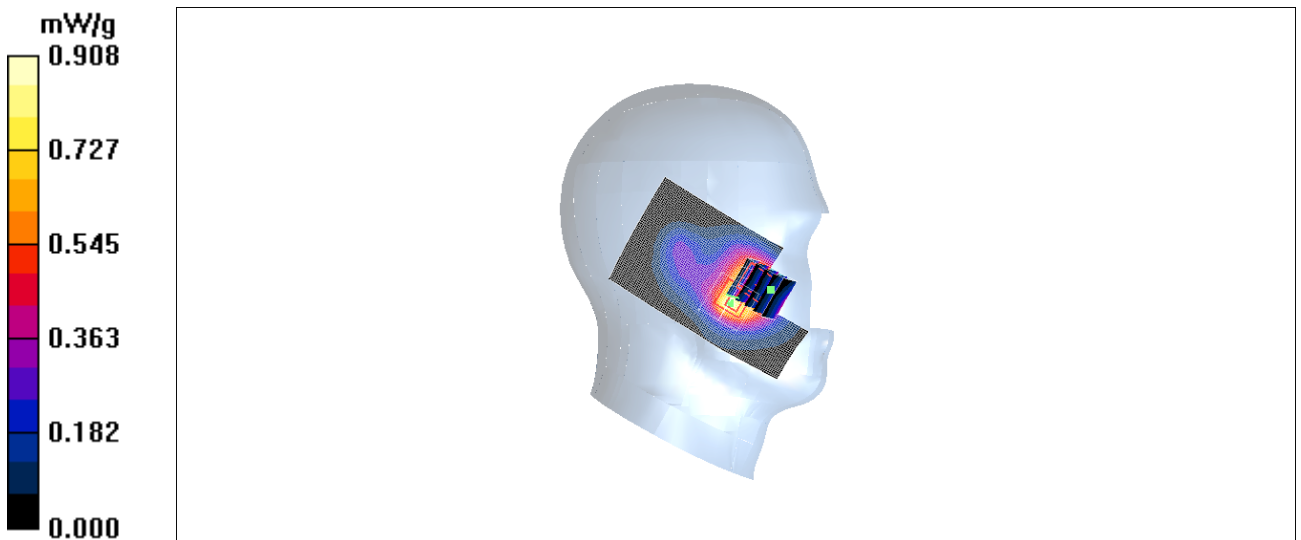


Fig. 13 1900 MHz CH810

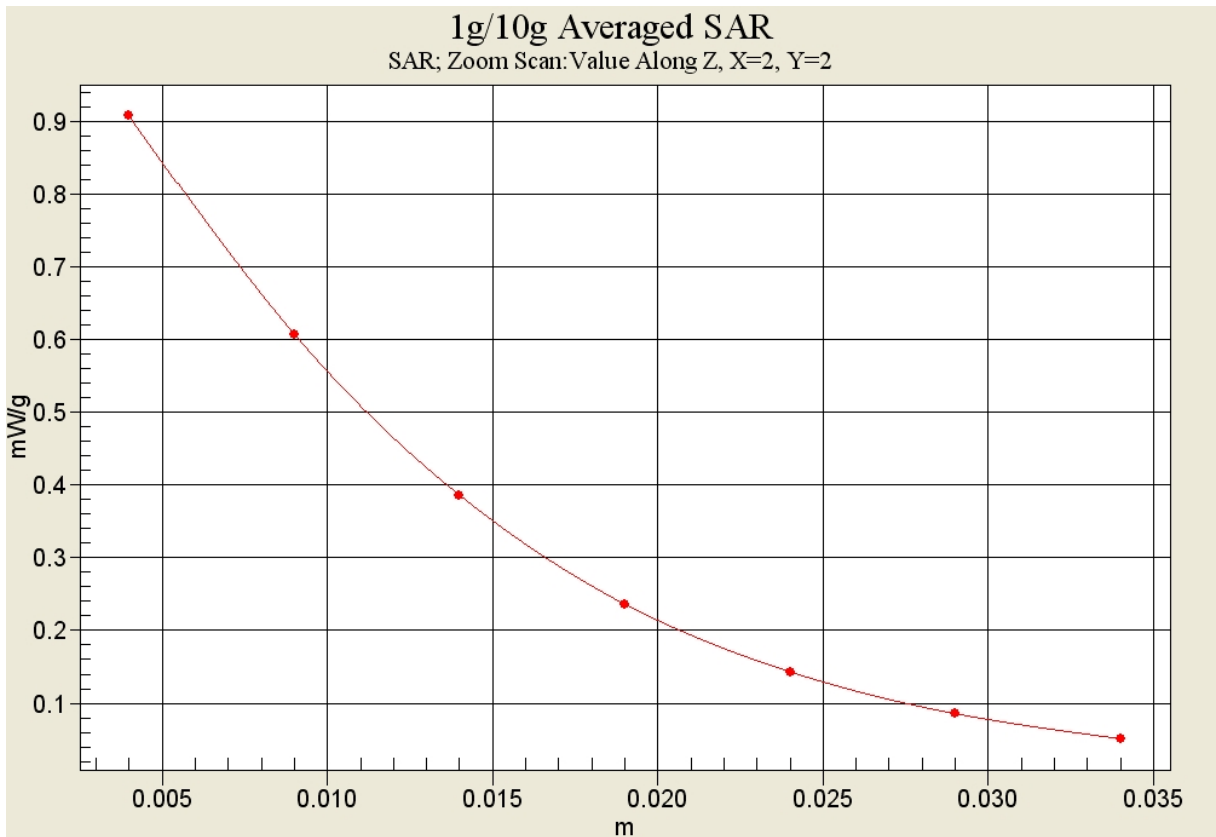


Fig. 13-1 Z-Scan at power reference point (1900 MHz CH810)

1900 Left Cheek Middle

Date/Time: 2011-2-20 8:23:43

Electronics: DAE4 Sn771

Medium: Head 1900 MHz

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.38$ mho/m; $\epsilon_r = 39.6$; $\rho = 1000$ kg/m³

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) = 0.837 mW/g

Cheek Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.34 V/m; Power Drift = -0.055 dB

Peak SAR (extrapolated) = 1.28 W/kg

SAR(1 g) = 0.809 mW/g; SAR(10 g) = 0.470 mW/g

Maximum value of SAR (measured) = 0.867 mW/g

Cheek Middle/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.34 V/m; Power Drift = -0.055 dB

Peak SAR (extrapolated) = 1.17 W/kg

SAR(1 g) = 0.562 mW/g; SAR(10 g) = 0.330 mW/g

Maximum value of SAR (measured) = 0.846 mW/g

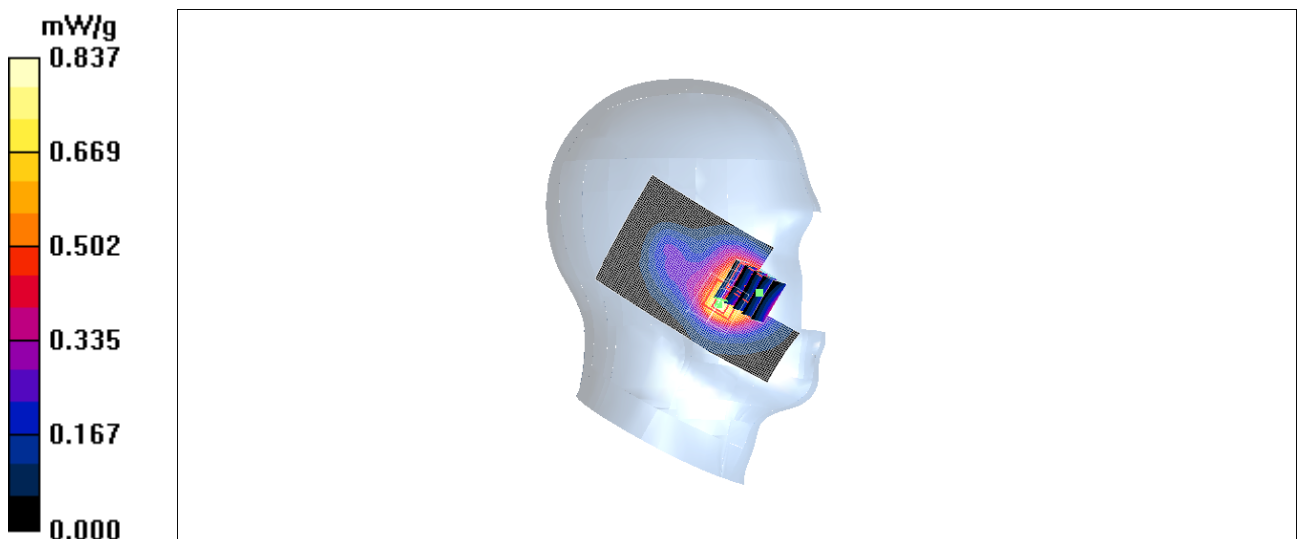


Fig. 14 1900 MHz CH661

1900 Left Cheek Low

Date/Time: 2011-2-20 8:37:59

Electronics: DAE4 Sn771

Medium: Head 1900 MHz

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.35$ mho/m; $\epsilon_r = 39.7$; $\rho = 1000$ kg/m³

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) = 0.804 mW/g

Cheek Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.76 V/m; Power Drift = -0.066 dB

Peak SAR (extrapolated) = 1.25 W/kg

SAR(1 g) = 0.785 mW/g; SAR(10 g) = 0.458 mW/g

Maximum value of SAR (measured) = 0.836 mW/g

Cheek Low/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.76 V/m; Power Drift = -0.066 dB

Peak SAR (extrapolated) = 1.13 W/kg

SAR(1 g) = 0.535 mW/g; SAR(10 g) = 0.319 mW/g

Maximum value of SAR (measured) = 0.809 mW/g

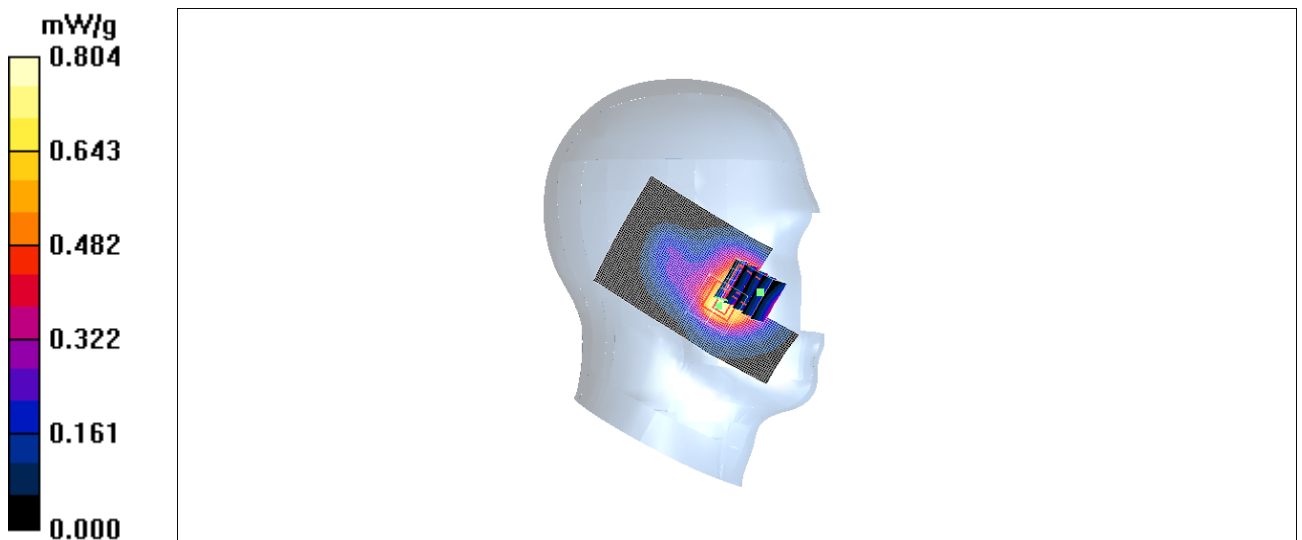


Fig. 15 1900 MHz CH512

1900 Left Tilt High

Date/Time: 2011-2-20 8:52:38

Electronics: DAE4 Sn771

Medium: Head 1900 MHz

Medium parameters used: $f = 1910$ MHz; $\sigma = 1.40$ mho/m; $\epsilon_r = 39.5$; $\rho = 1000$ kg/m³

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) = 0.402 mW/g

Tilt High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.8 V/m; Power Drift = -0.062 dB

Peak SAR (extrapolated) = 0.519 W/kg

SAR(1 g) = 0.334 mW/g; SAR(10 g) = 0.205 mW/g

Maximum value of SAR (measured) = 0.361 mW/g

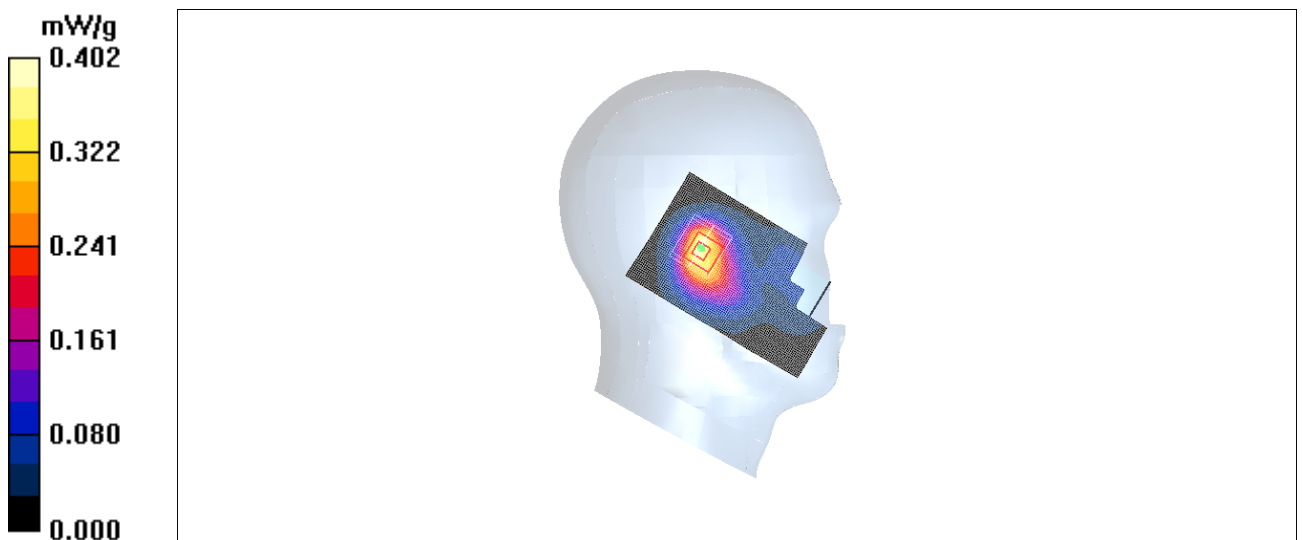


Fig.16 1900 MHz CH810

1900 Left Tilt Middle

Date/Time: 2011-2-20 9:06:54

Electronics: DAE4 Sn771

Medium: Head 1900 MHz

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.38$ mho/m; $\epsilon_r = 39.6$; $\rho = 1000$ kg/m³

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) = 0.387 mW/g

Tilt Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.6 V/m; Power Drift = -0.051 dB

Peak SAR (extrapolated) = 0.482 W/kg

SAR(1 g) = 0.321 mW/g; SAR(10 g) = 0.202 mW/g

Maximum value of SAR (measured) = 0.342 mW/g

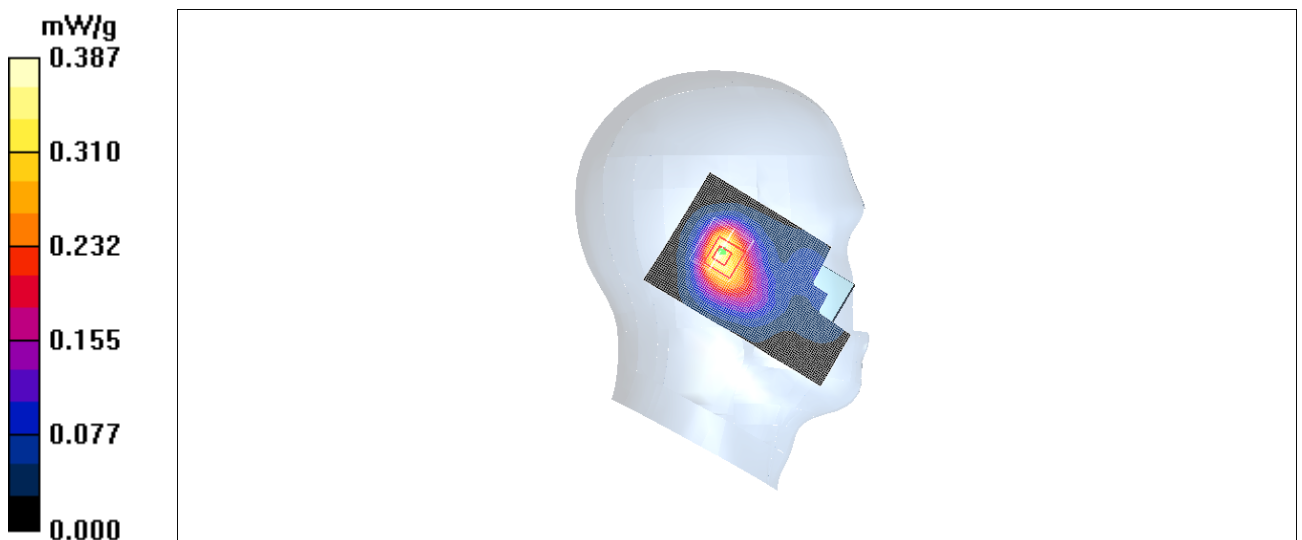


Fig. 17 1900 MHz CH661

1900 Left Tilt Low

Date/Time: 2011-2-20 9:21:20

Electronics: DAE4 Sn771

Medium: Head 1900 MHz

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.35$ mho/m; $\epsilon_r = 39.7$; $\rho = 1000$ kg/m³

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) = 0.354 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 = -0.005 dB

Peak SAR (extrapolated) = 0.437 W/kg

SAR(1 g) = 0.296 mW/g; SAR(10 g) = 0.190 mW/g

Maximum value of SAR (measured) = 0.313 mW/g

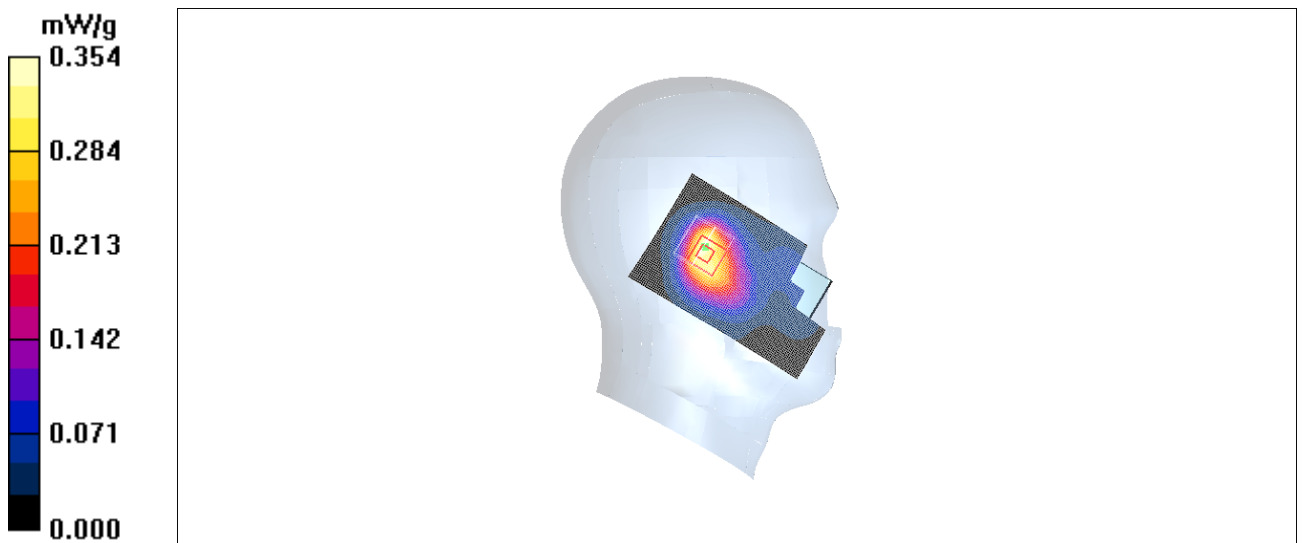


Fig. 18 1900 MHz CH512

1900 Right Cheek High

Date/Time: 2011-2-20 9:36:01

Electronics: DAE4 Sn771

Medium: Head 1900 MHz

Medium parameters used: $f = 1910$ MHz; $\sigma = 1.40$ mho/m; $\epsilon_r = 39.5$; $\rho = 1000$ kg/m³

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) = 0.908 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.79 V/m; Power Drift = -0.153 dB

Peak SAR (extrapolated) = 1.44 W/kg

SAR(1 g) = 0.835 mW/g; SAR(10 g) = 0.456 mW/g

Maximum value of SAR (measured) = 0.929 mW/g

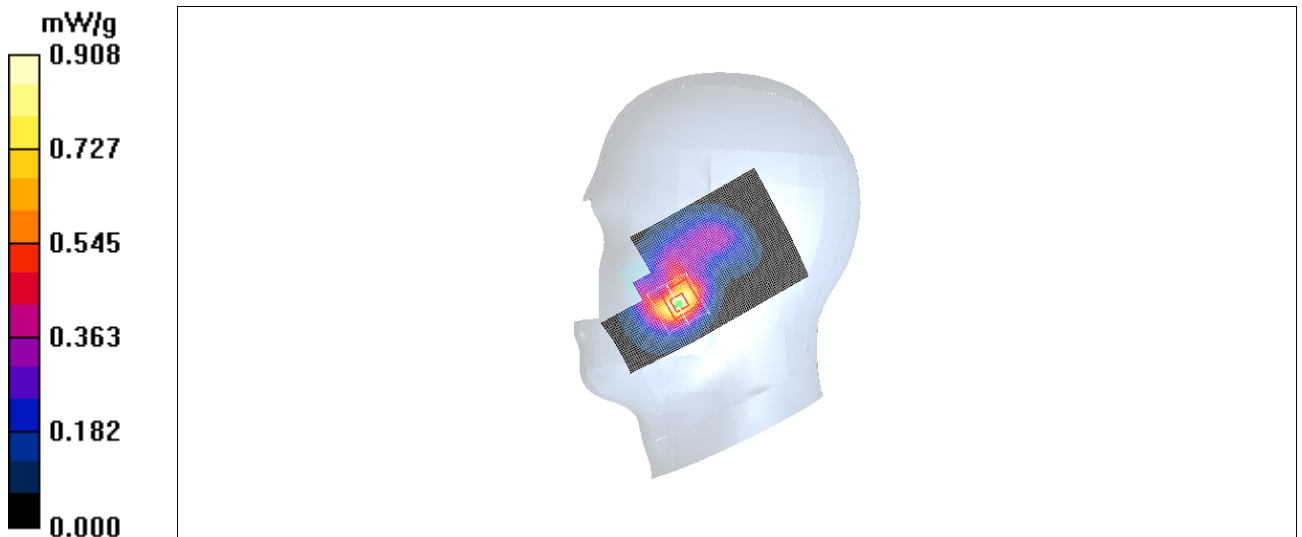


Fig. 19 1900 MHz CH810

1900 Right Cheek Middle

Date/Time: 2011-2-20 9:50:23

Electronics: DAE4 Sn771

Medium: Head 1900 MHz

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.38$ mho/m; $\epsilon_r = 39.6$; $\rho = 1000$ kg/m³

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) = 0.870 mW/g

Cheek Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.17 V/m; Power Drift = 0.080 dB

Peak SAR (extrapolated) = 1.38 W/kg

SAR(1 g) = 0.797 mW/g; SAR(10 g) = 0.435 mW/g

Maximum value of SAR (measured) = 0.885 mW/g

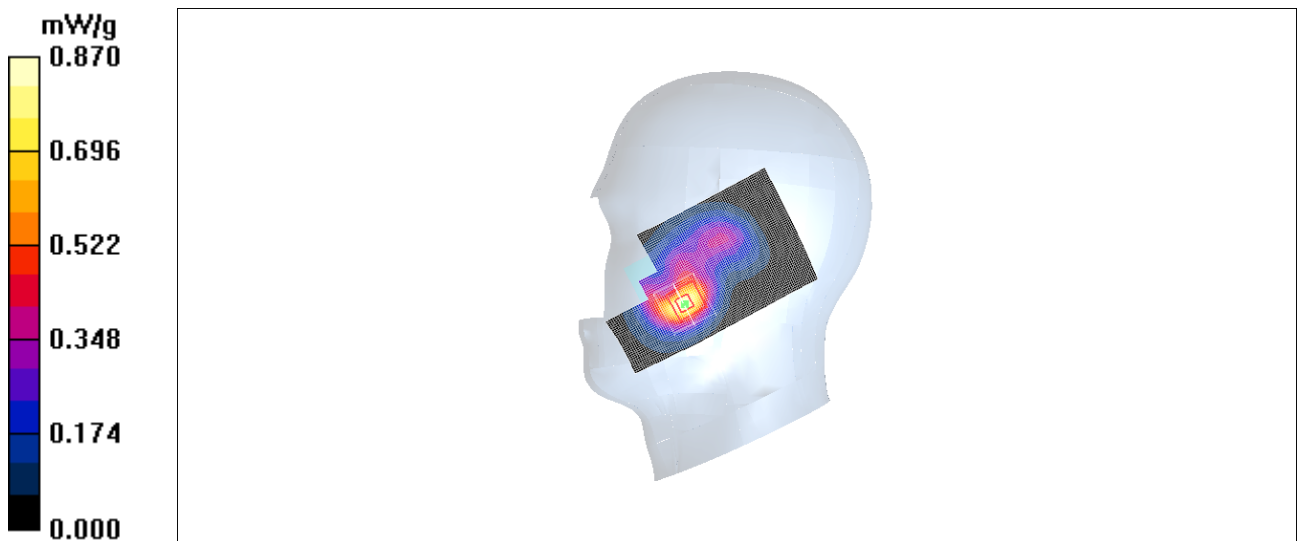


Fig. 20 1900 MHz CH661

1900 Right Cheek Low

Date/Time: 2011-2-20 10:04:46

Electronics: DAE4 Sn771

Medium: Head 1900 MHz

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.35$ mho/m; $\epsilon_r = 39.7$; $\rho = 1000$ kg/m³

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) = 0.807 mW/g

Cheek Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.35 V/m; Power Drift = -0.035 dB

Peak SAR (extrapolated) = 1.25 W/kg

SAR(1 g) = 0.733 mW/g; SAR(10 g) = 0.405 mW/g

Maximum value of SAR (measured) = 0.810 mW/g

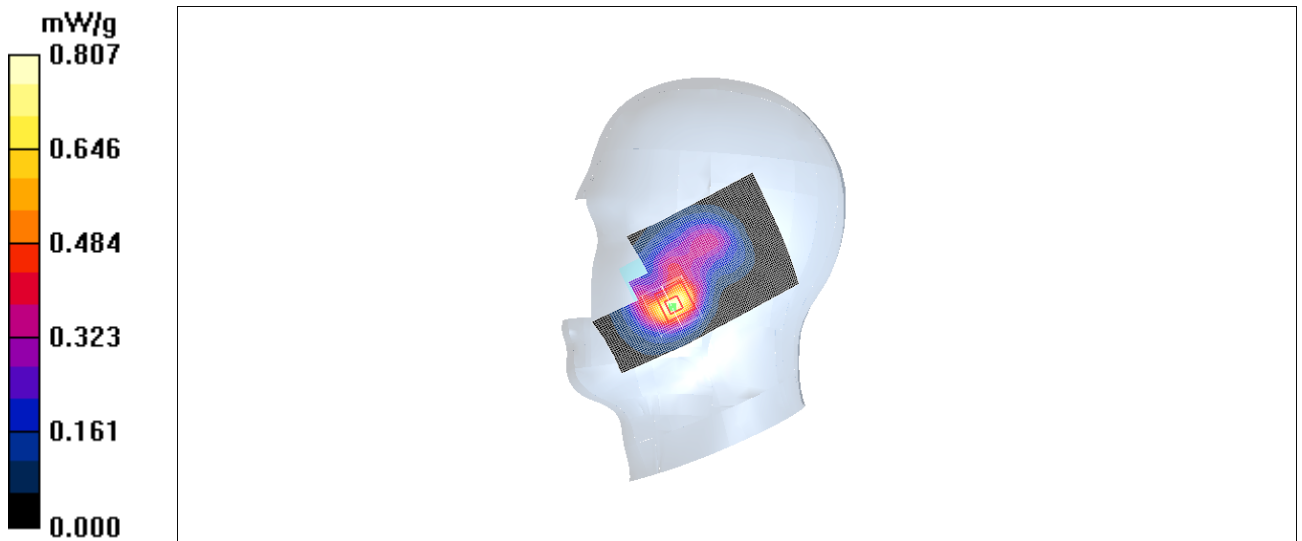


Fig. 21 1900 MHz CH512

1900 Right Tilt High

Date/Time: 2011-2-20 10:19:17

Electronics: DAE4 Sn771

Medium: Head 1900 MHz

Medium parameters used: $f = 1910$ MHz; $\sigma = 1.40$ mho/m; $\epsilon_r = 39.5$; $\rho = 1000$ kg/m³

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) = 0.370 mW/g

Tilt High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.3 V/m; Power Drift = -0.010 dB

Peak SAR (extrapolated) = 0.468 W/kg

SAR(1 g) = 0.307 mW/g; SAR(10 g) = 0.190 mW/g

Maximum value of SAR (measured) = 0.323 mW/g

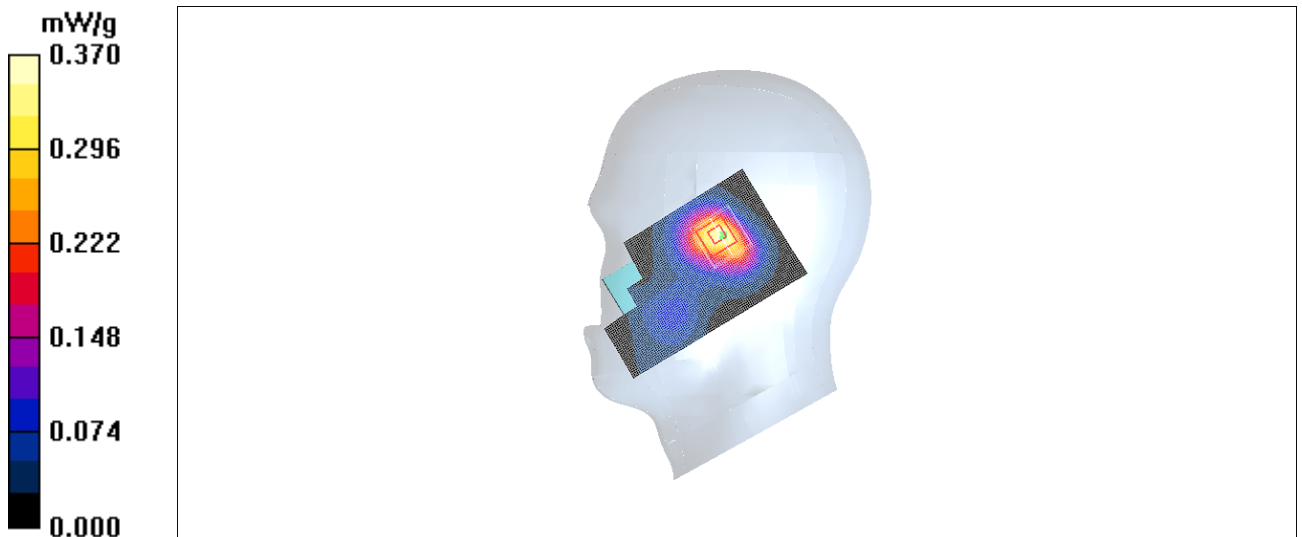


Fig. 22 1900 MHz CH810

1900 Right Tilt Middle

Date/Time: 2011-2-20 10:33:36

Electronics: DAE4 Sn771

Medium: Head 1900 MHz

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.38$ mho/m; $\epsilon_r = 39.6$; $\rho = 1000$ kg/m³

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) = 0.357 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 = -0.076 dB

Peak SAR (extrapolated) = 0.450 W/kg

SAR(1 g) = 0.301 mW/g; SAR(10 g) = 0.189 mW/g

Maximum value of SAR (measured) = 0.315 mW/g

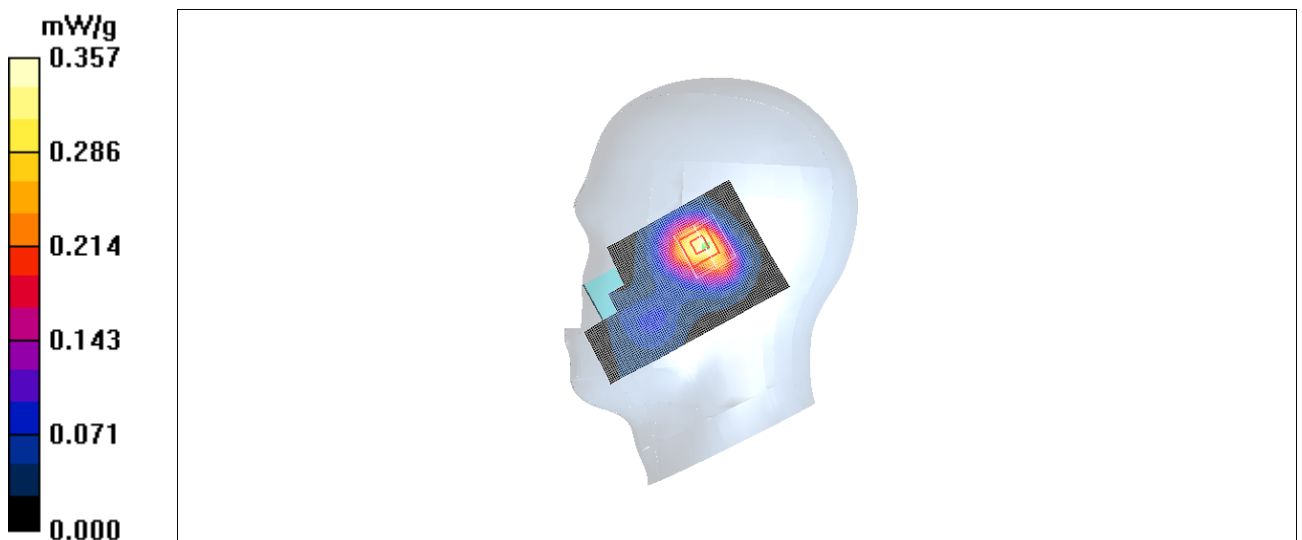


Fig.23 1900 MHz CH661

1900 Right Tilt Low

Date/Time: 2011-2-20 10:47:58

Electronics: DAE4 Sn771

Medium: Head 1900 MHz

Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.35$ mho/m; $\epsilon_r = 39.7$; $\rho = 1000$ kg/m³

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) = 0.338 mW/g

Tilt Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.5 V/m; Power Drift = -0.046 dB

Peak SAR (extrapolated) = 0.432 W/kg

SAR(1 g) = 0.290 mW/g; SAR(10 g) = 0.182 mW/g

Maximum value of SAR (measured) = 0.304 mW/g

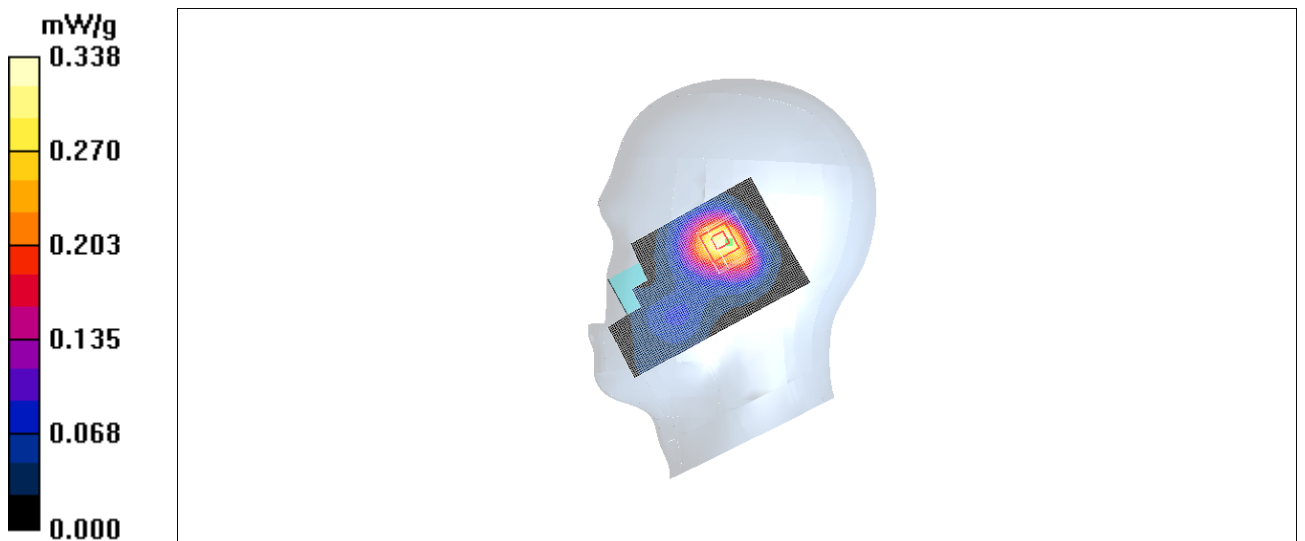


Fig.24 1900 MHz CH512

850 Left Cheek High with battery CAB31L0000C2

Date/Time: 2011-2-19 11:10:43

Electronics: DAE4 Sn771

Medium: Head 850 MHz

Medium parameters used (interpolated): $f = 848.8$ MHz; $\sigma = 0.90$ mho/m; $\epsilon_r = 40.5$; $\rho = 1000$ kg/m³

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) = 1.14 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.58 V/m; Power Drift = -0.136 dB

Peak SAR (extrapolated) = 1.35 W/kg

SAR(1 g) = 1.04 mW/g; SAR(10 g) = 0.751 mW/g

Maximum value of SAR (measured) = 1.11 mW/g

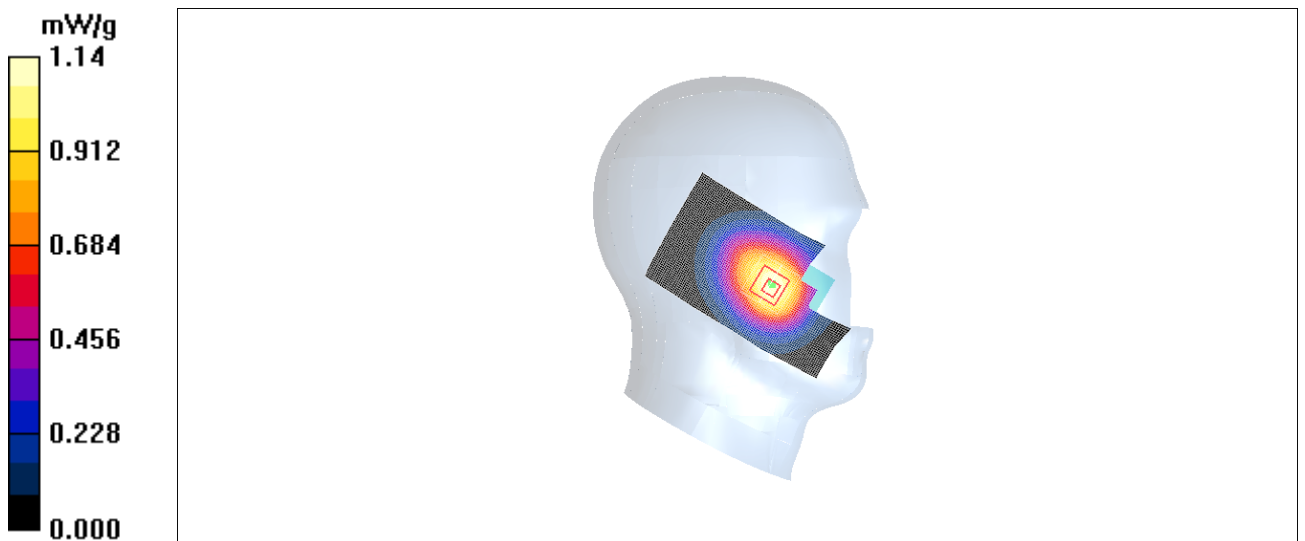


Fig. 25 850MHz CH251

850 Body Towards Ground High with GPRS

Date/Time: 2011-2-19 13:39:07

Electronics: DAE4 Sn771

Medium: Body 850 MHz

Medium parameters used (interpolated): $f = 848.8$ MHz; $\sigma = 0.96$ mho/m; $\epsilon_r = 54.4$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.0°C Liquid Temperature: 22.5°C

Communication System: GSM 850 GPRS Frequency: 848.8 MHz Duty Cycle: 1:4

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) = 1.32 mW/g

Toward Ground High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 34.3 V/m; Power Drift = -0.105 dB

Peak SAR (extrapolated) = 1.61 W/kg

SAR(1 g) = 1.23 mW/g; SAR(10 g) = 0.882 mW/g

Maximum value of SAR (measured) = 1.27 mW/g

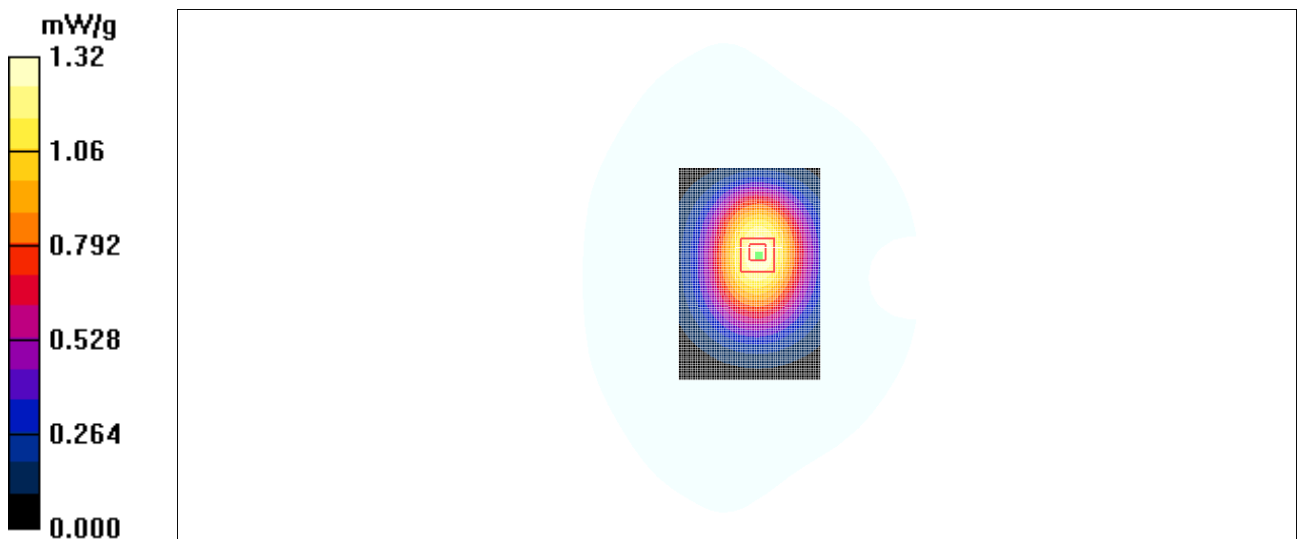


Fig. 26 850 MHz CH251

850 Body Towards Ground Middle with GPRS

Date/Time: 2011-2-19 13:54:26

Electronics: DAE4 Sn771

Medium: Body 850 MHz

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.95$ mho/m; $\epsilon_r = 54.5$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.0°C Liquid Temperature: 22.5°C

Communication System: GSM 850 GPRS Frequency: 836.6 MHz Duty Cycle: 1:4

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) = 1.31 mW/g

Toward Ground Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm,

dy=5mm, dz=5mm

Reference Value = 34.0 V/m; Power Drift = 0.006 dB

Peak SAR (extrapolated) = 1.61 W/kg

SAR(1 g) = 1.24 mW/g; SAR(10 g) = 0.891 mW/g

Maximum value of SAR (measured) = 1.27 mW/g

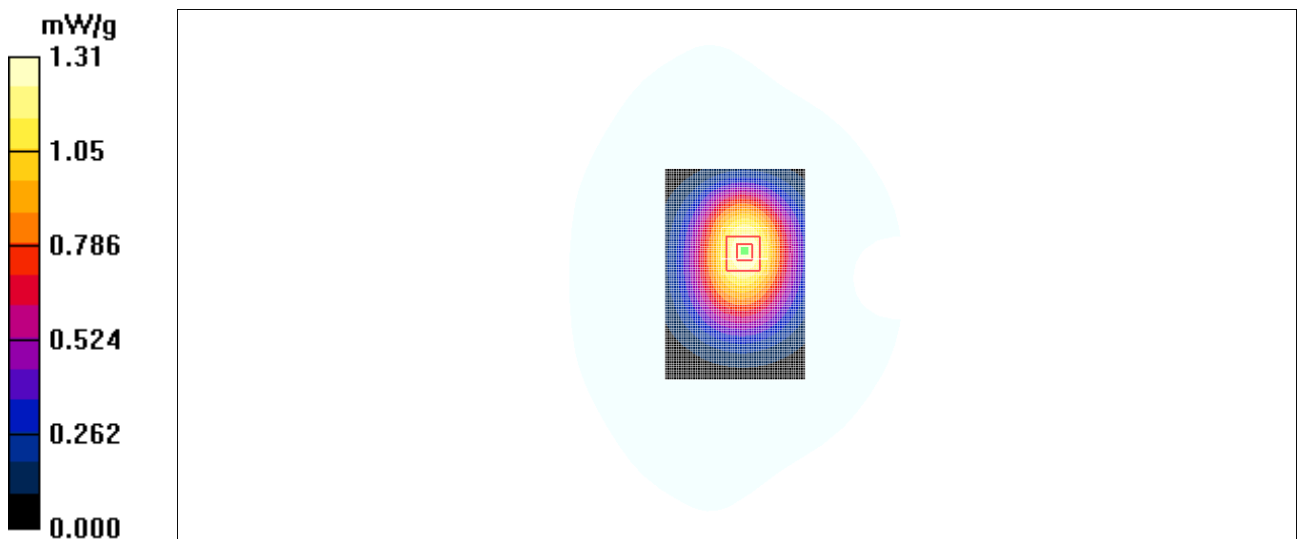


Fig. 27 850 MHz CH190

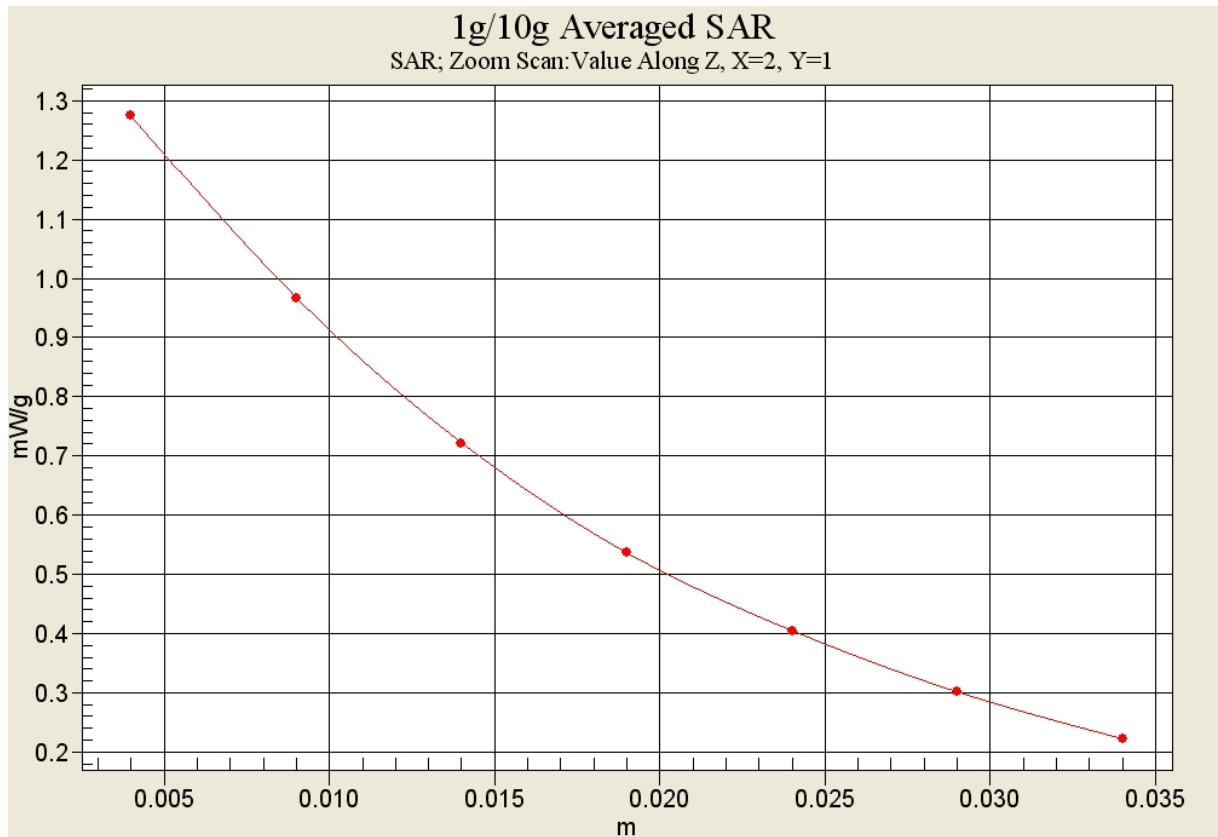


Fig. 27-1 Z-Scan at power reference point (850 MHz CH190)

850 Body Towards Ground Low with GPRS

Date/Time: 2011-2-19 14:09:51

Electronics: DAE4 Sn771

Medium: Body 850 MHz

Medium parameters used: $f = 825$ MHz; $\sigma = 0.933$ mho/m; $\epsilon_r = 54.6$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.0°C Liquid Temperature: 22.5°C

Communication System: GSM 850 GPRS Frequency: 824.2 MHz Duty Cycle: 1:4

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) = 1.22 mW/g

Toward Ground Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 32.7 V/m; Power Drift = -0.009 dB

Peak SAR (extrapolated) = 1.50 W/kg

SAR(1 g) = 1.15 mW/g; SAR(10 g) = 0.827 mW/g

Maximum value of SAR (measured) = 1.20 mW/g

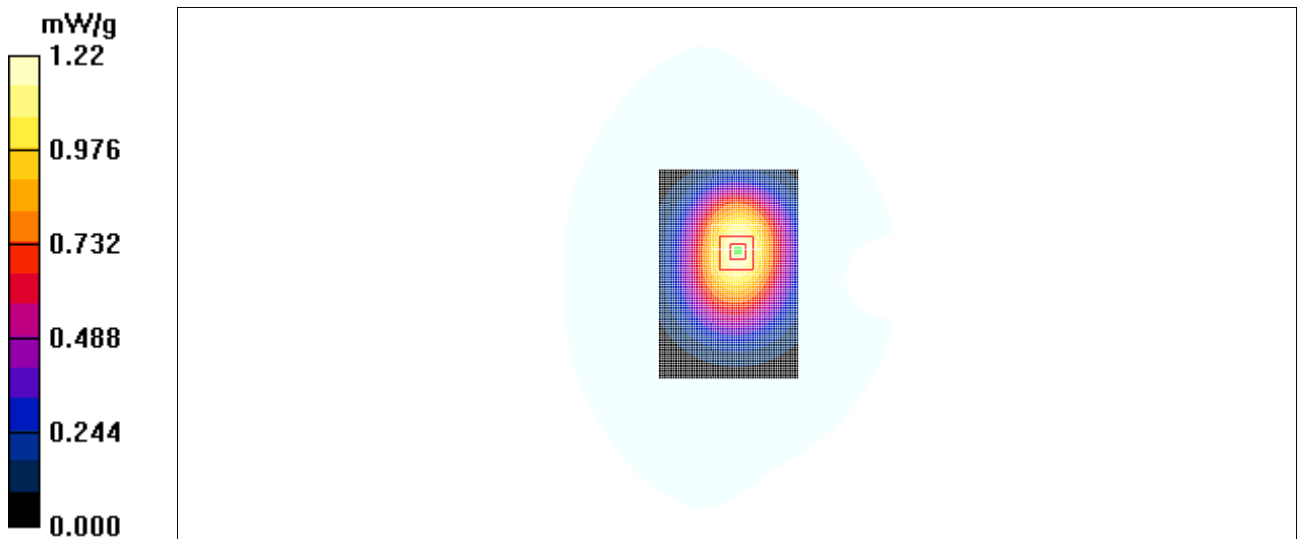


Fig. 28 850 MHz CH128

850 Body Towards Phantom High with GPRS

Date/Time: 2011-2-19 14:25:43

Electronics: DAE4 Sn771

Medium: Body 850 MHz

Medium parameters used (interpolated): $f = 848.8$ MHz; $\sigma = 0.96$ mho/m; $\epsilon_r = 54.4$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.0°C Liquid Temperature: 22.5°C

Communication System: GSM 850 GPRS Frequency: 848.8 MHz Duty Cycle: 1:4

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) = 1.19 mW/g

Toward Phantom High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 33.4 V/m; Power Drift = -0.043 dB

Peak SAR (extrapolated) = 1.44 W/kg

SAR(1 g) = 1.12 mW/g; SAR(10 g) = 0.815 mW/g

Maximum value of SAR (measured) = 1.16 mW/g

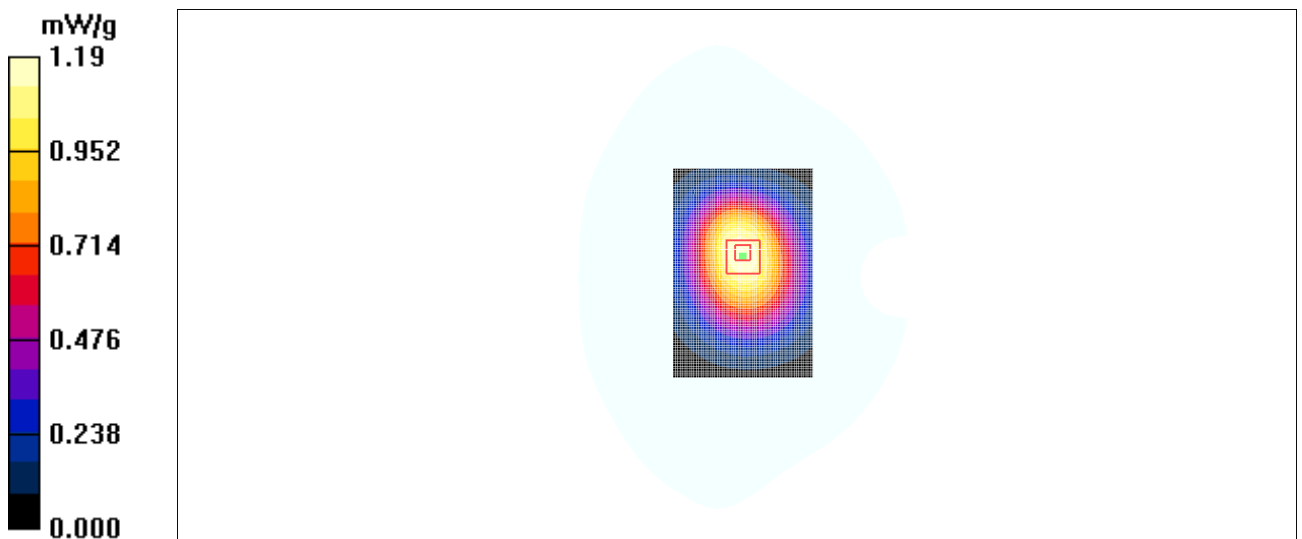


Fig. 29 850 MHz CH251

850 Body Towards Phantom Middle with GPRS

Date/Time: 2011-2-19 14:41:09

Electronics: DAE4 Sn771

Medium: Body 850 MHz

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.95$ mho/m; $\epsilon_r = 54.5$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.0°C Liquid Temperature: 22.5°C

Communication System: GSM 850 GPRS Frequency: 836.6 MHz Duty Cycle: 1:4

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) = 1.19 mW/g

Toward Phantom Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm,

dy=5mm, dz=5mm

Reference Value = 33.2 V/m; Power Drift = 0.033 dB

Peak SAR (extrapolated) = 1.44 W/kg

SAR(1 g) = 1.13 mW/g; SAR(10 g) = 0.821 mW/g

Maximum value of SAR (measured) = 1.17 mW/g

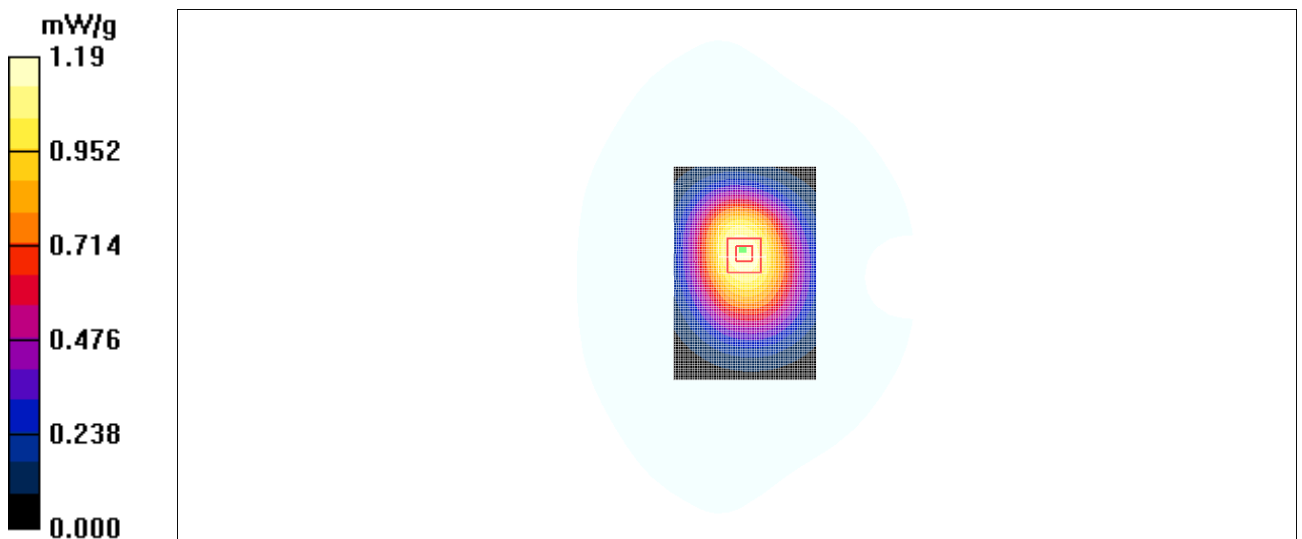


Fig. 30 850 MHz CH190

850 Body Towards Phantom Low with GPRS

Date/Time: 2011-2-19 14:56:30

Electronics: DAE4 Sn771

Medium: Body 850 MHz

Medium parameters used: $f = 825$ MHz; $\sigma = 0.933$ mho/m; $\epsilon_r = 54.6$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.0°C Liquid Temperature: 22.5°C

Communication System: GSM 850 GPRS Frequency: 824.2 MHz Duty Cycle: 1:4

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) = 1.11 mW/g

Toward Phantom Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 32.1 V/m; Power Drift = -0.058 dB

Peak SAR (extrapolated) = 1.34 W/kg

SAR(1 g) = 1.04 mW/g; SAR(10 g) = 0.761 mW/g

Maximum value of SAR (measured) = 1.08 mW/g

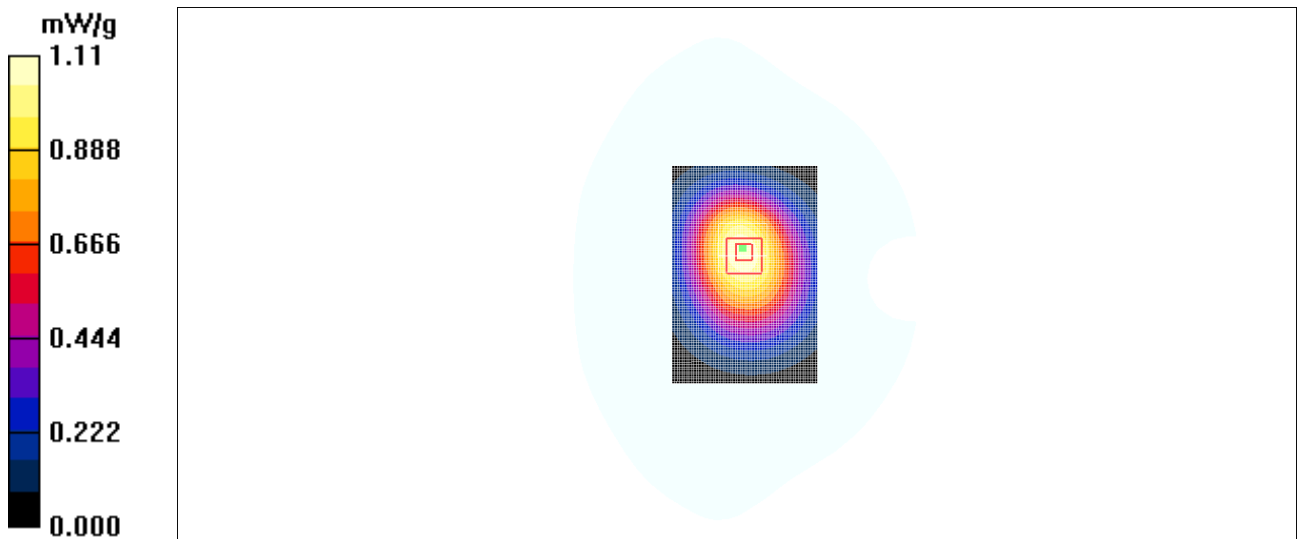


Fig. 31 850 MHz CH128

850 Body Towards Ground Middle with EGPRS

Date/Time: 2011-2-19 15:13:24

Electronics: DAE4 Sn771

Medium: Body 850 MHz

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.95$ mho/m; $\epsilon_r = 54.5$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.0°C Liquid Temperature: 22.5°C

Communication System: GSM 850 GPRS Frequency: 836.6 MHz Duty Cycle: 1:4

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) = 1.27 mW/g

Toward Ground Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 34.0 V/m; Power Drift = -0.005 dB

Peak SAR (extrapolated) = 1.57 W/kg

SAR(1 g) = 1.2 mW/g; SAR(10 g) = 0.859 mW/g

Maximum value of SAR (measured) = 1.24 mW/g

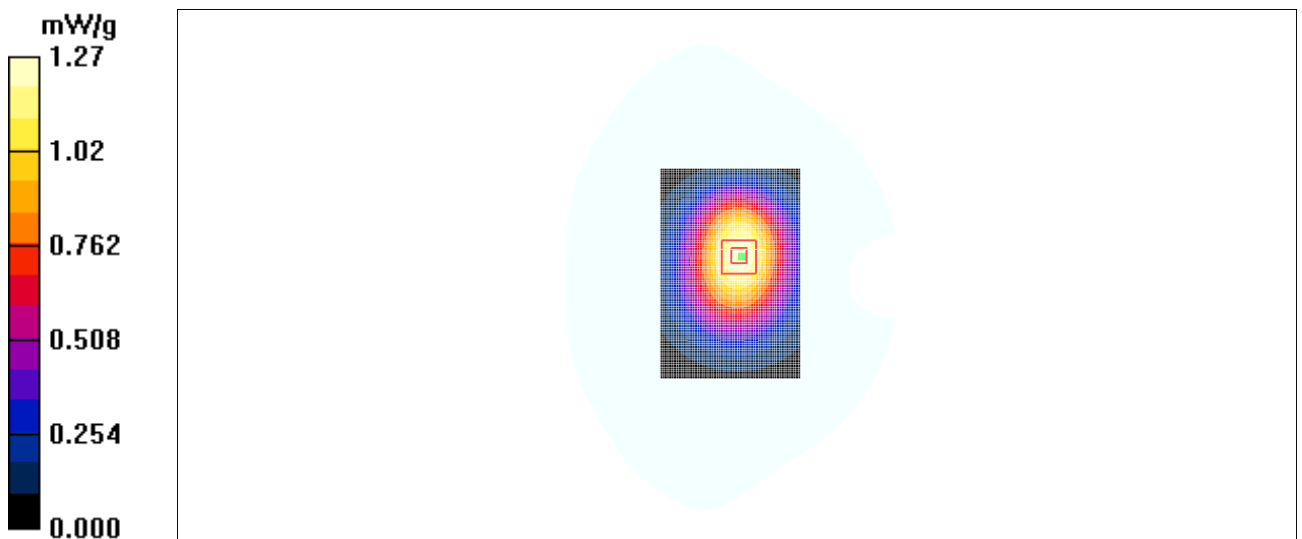


Fig. 32 850 MHz CH190

850 Body Towards Ground Middle with Headset__CCB3160A10C2

Date/Time: 2011-2-19 15:30:18

Electronics: DAE4 Sn771

Medium: Body 850 MHz

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.95$ mho/m; $\epsilon_r = 54.5$; $\rho = 1000$ kg/m³

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) = 0.580 mW/g

Toward Ground Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 22.5 V/m; Power Drift = -0.013 dB

Peak SAR (extrapolated) = 0.718 W/kg

SAR(1 g) = 0.546 mW/g; SAR(10 g) = 0.392 mW/g

Maximum value of SAR (measured) = 0.562 mW/g

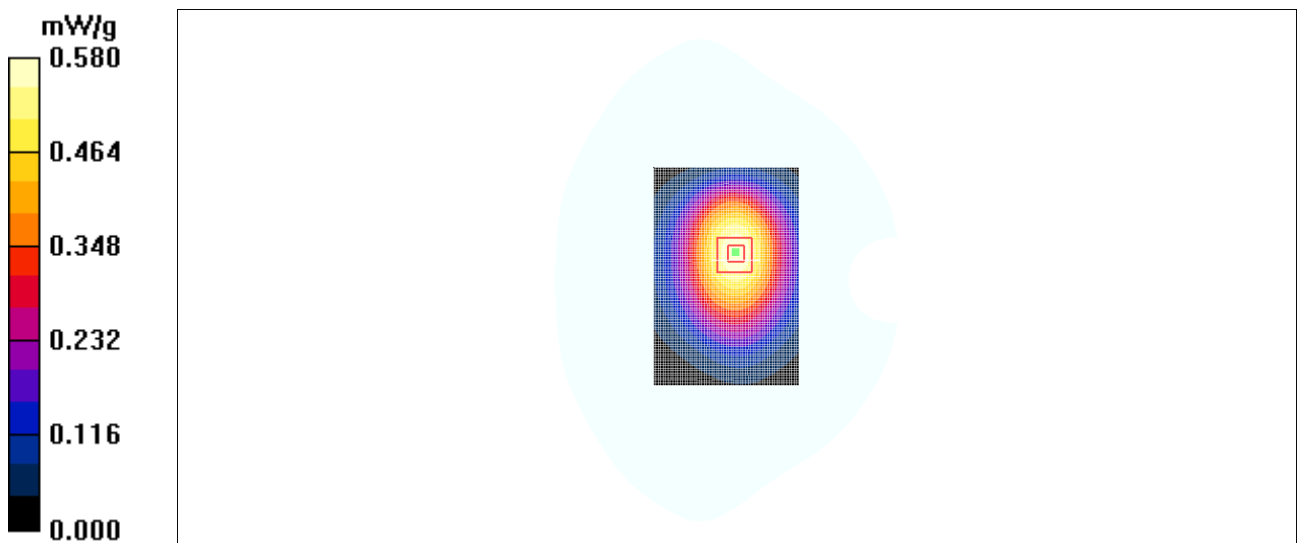


Fig. 33 850 MHz CH190

850 Body Towards Ground Middle with Headset__CCB3160A10C3

Date/Time: 2011-2-19 15:46:53

Electronics: DAE4 Sn771

Medium: Body 850 MHz

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.95$ mho/m; $\epsilon_r = 54.5$; $\rho = 1000$ kg/m³

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) = 0.611 mW/g

Toward Ground Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 22.9 V/m; Power Drift = -0.020 dB

Peak SAR (extrapolated) = 0.760 W/kg

SAR(1 g) = 0.577 mW/g; SAR(10 g) = 0.413 mW/g

Maximum value of SAR (measured) = 0.595 mW/g

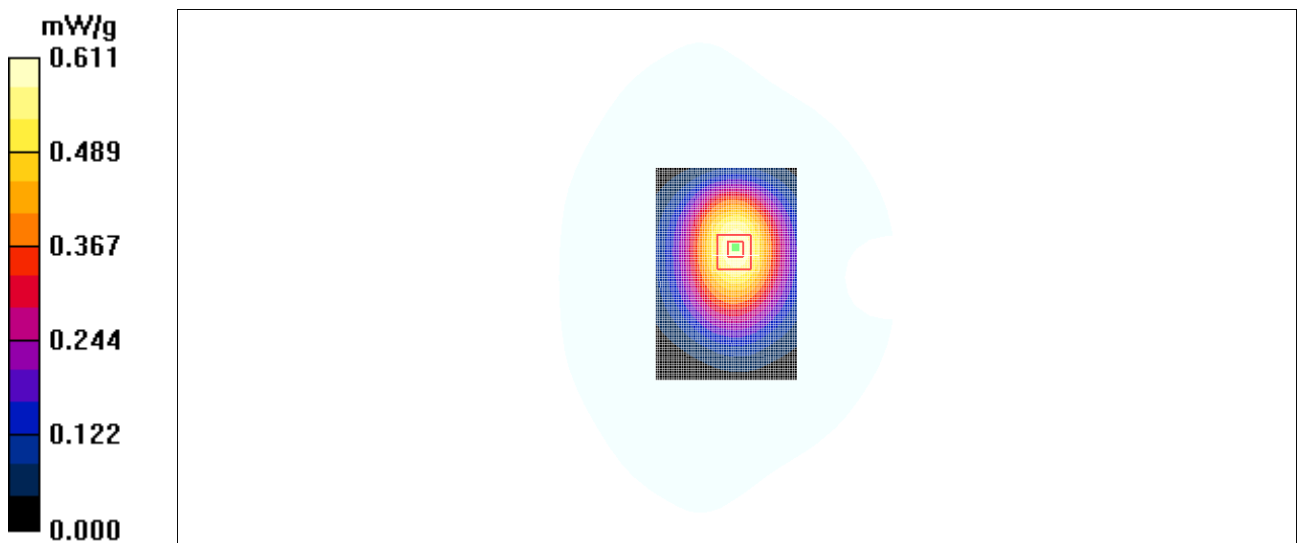


Fig. 34 850 MHz CH190

850 Body Towards Ground Middle with Headset__CCB3125A10C2

Date/Time: 2011-2-19 16:03:36

Electronics: DAE4 Sn771

Medium: Body 850 MHz

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.95$ mho/m; $\epsilon_r = 54.5$; $\rho = 1000$ kg/m³

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) = 0.623 mW/g

Toward Ground Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 23.7 V/m; Power Drift = -0.036 dB

Peak SAR (extrapolated) = 0.767 W/kg

SAR(1 g) = 0.588 mW/g; SAR(10 g) = 0.424 mW/g

Maximum value of SAR (measured) = 0.605 mW/g

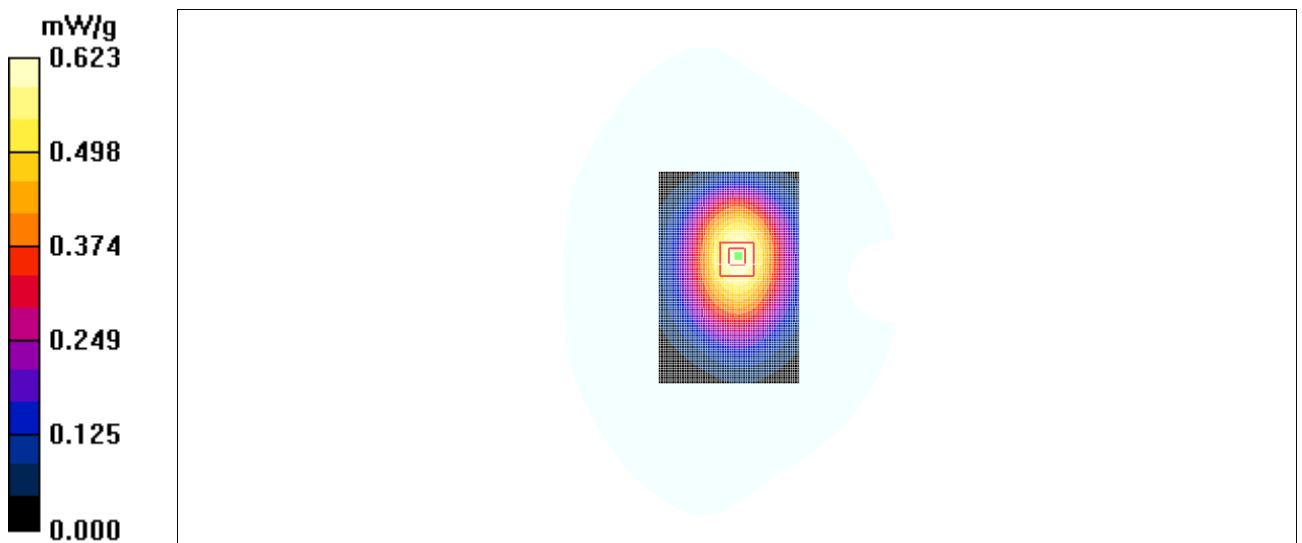


Fig. 35 850 MHz CH190

1900 Body Towards Ground High with GPRS

Date/Time: 2011-2-20 13:47:31

Electronics: DAE4 Sn771

Medium: Body 1900 MHz

Medium parameters used: $f = 1910$ MHz; $\sigma = 1.54$ mho/m; $\epsilon_r = 52.4$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.0°C Liquid Temperature: 22.5°C

Communication System: GSM 1900MHz GPRS Frequency: 1909.8 MHz Duty Cycle: 1:4

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) = 0.501 mW/g

Toward Ground High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.5 V/m; Power Drift = -0.198 dB

Peak SAR (extrapolated) = 0.757 W/kg

SAR(1 g) = 0.446 mW/g; SAR(10 g) = 0.261 mW/g

Maximum value of SAR (measured) = 0.459 mW/g

Toward Ground High/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.5 V/m; Power Drift = -0.198 dB

Peak SAR (extrapolated) = 0.473 W/kg

SAR(1 g) = 0.305 mW/g; SAR(10 g) = 0.194 mW/g

Maximum value of SAR (measured) = 0.318 mW/g

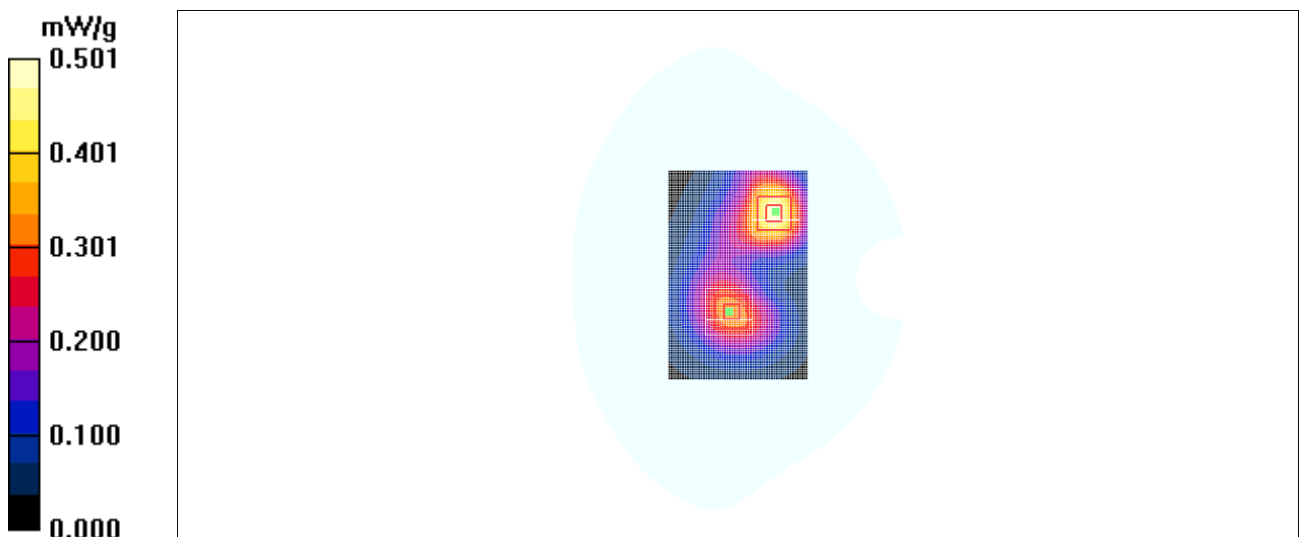


Fig. 36 1900 MHz CH810

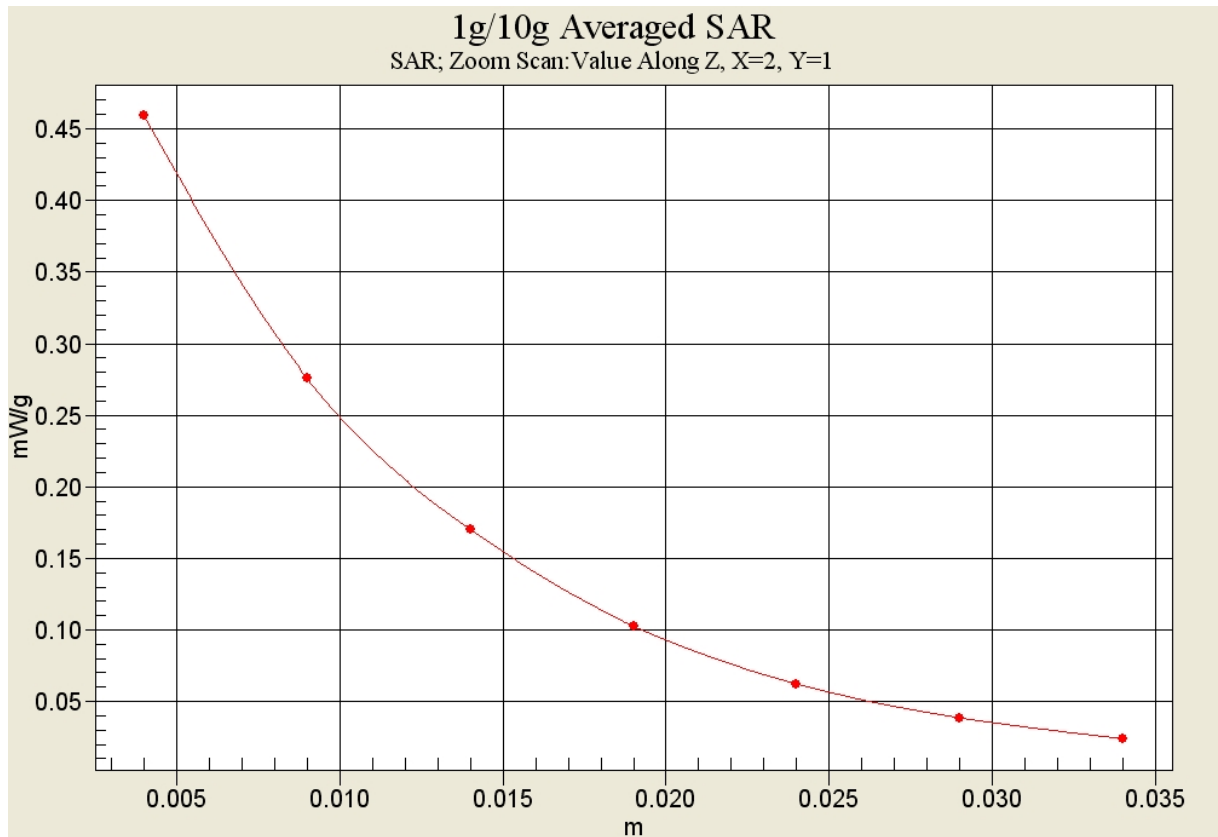


Fig. 36-1 Z-Scan at power reference point (1900 MHz CH810)

1900 Body Towards Ground Middle with GPRS

Date/Time: 2011-2-20 14:02:59

Electronics: DAE4 Sn771

Medium: Body 1900 MHz

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.51$ mho/m; $\epsilon_r = 52.5$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.0°C Liquid Temperature: 22.5°C

Communication System: GSM 1900MHz GPRS Frequency: 1880 MHz Duty Cycle: 1:4

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) = 0.435 mW/g

Toward Ground Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.5 V/m; Power Drift = 0.014 dB

Peak SAR (extrapolated) = 0.660 W/kg

SAR(1 g) = 0.392 mW/g; SAR(10 g) = 0.231 mW/g

Maximum value of SAR (measured) = 0.400 mW/g

Toward Ground Middle/Zoom Scan (7x7x7)/Cube 1: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.5 V/m; Power Drift = 0.014 dB

Peak SAR (extrapolated) = 0.430 W/kg

SAR(1 g) = 0.282 mW/g; SAR(10 g) = 0.182 mW/g

Maximum value of SAR (measured) = 0.296 mW/g

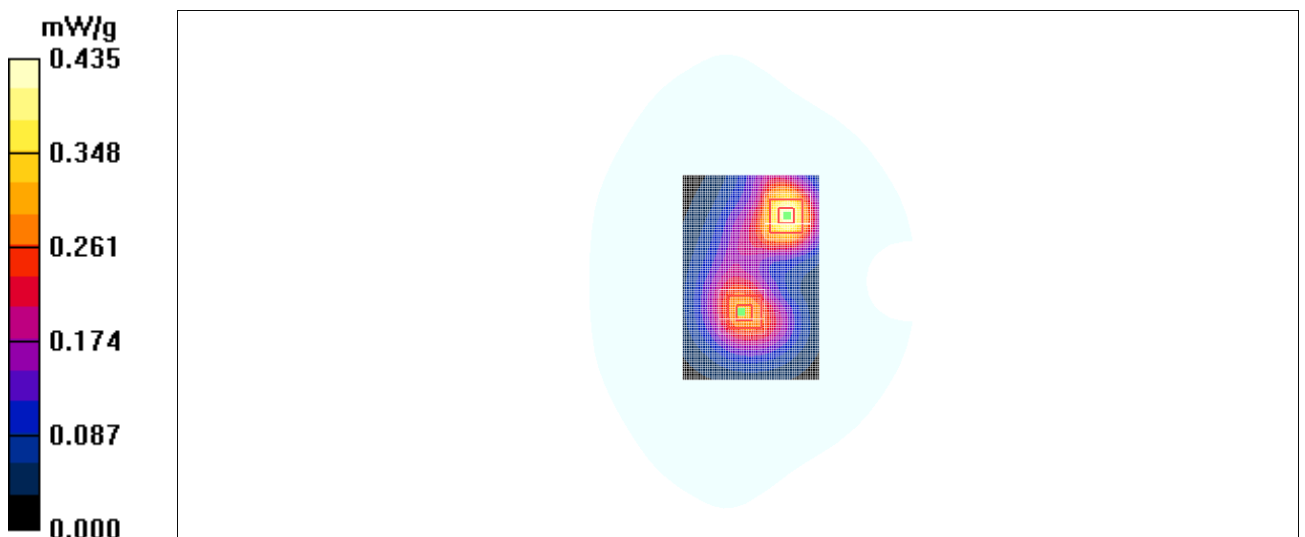


Fig. 37 1900 MHz CH661