

SAR TEST REPORT

No. 2007SAR00001

for

LG Electronics Inc

GSM 850/1900 Dual-band Terminal Equipment

MG140a

With

FCCID: UBIMG140A

Hardware Version: Rev.1.0

Software Version: V100

Issued Date: 2007-01-20



No. DAT-P-114/01-01

Note:

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Test Laboratory:

TMC Beijing, Telecommunication Metrology Center of Ministry of Information Industry

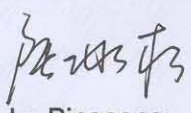
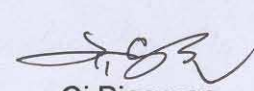
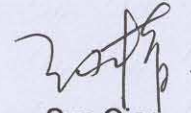
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SAR TEST REPORT

Test report No.	2007SAR00001	Date of report	January 20 th , 2007
Test laboratory	TMC Beijing, Telecommunication Metrology Center of MII	Client	LG Electronics Inc
Test device	Product name: GSM 850/1900 Dual-band Terminal Equipment Model type: MG140a Series number: 004401091504056 GPRS Class: 10 FCCID: UBIMG140A		
Test reference documents	<p>EN 50360-2001: Product standard for the measurement of Specific Absorption Rate related to human exposure to electromagnetic fields from mobile phones.</p> <p>EN 50361-2001: Basic standard for the measurement of Specific Absorption Rate related to human exposure to electromagnetic fields from mobile phones.</p> <p>ANSI C95.1-1999: IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.</p> <p>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.</p> <p>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)</p> <p>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.</p>		
Test conclusion	<p>Localized Specific Absorption Rate (SAR) of this portable wireless equipment has been measured in all cases requested by the relevant standards cited in Clause 5.2 of this test report. Maximum localized SAR is below exposure limits specified in the relevant standards cited in Clause 5.1 of this test report.</p> <p>General Judgment: Pass</p>		
Signature	<div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;">  Lu Bingsong Deputy Director of the laboratory (Approved for this report) </div> <div style="text-align: center;">  Qi Dianyuan SAR Project Leader (Reviewed for this report) </div> <div style="text-align: center;">  Sun Qian SAR Test Engineer (Prepared for this report) </div> </div>		

1 Test Laboratory

1.1 Testing Location

Company Name: TMC Beijing, Telecommunication Metrology Center of MII
Address: No 52, Huayuan beilu, Haidian District, Beijing,P.R.China
Postal Code: 100083
Telephone: 00861062303288
Fax: 00861062304793

1.2 Testing Environment

Temperature: Min. = 15 °C, Max. = 30 °C
Relative humidity: Min. = 30%, Max. = 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: Qian Dianyuan
Test Engineer: Sun Qian
Testing Start Date: Jan 16, 2007
Testing End Date: Jan 17, 2007

2 Client Information

2.1 Applicant Information

Company Name: LG Electronics Inc
Address /Post: LG Twin Towers 20,Yeouido-dong, Yeongdeungpo-gu Seoul, Korea
150-721
City: Seoul
Postal Code: 150-721
Country: Korea
Telephone: +82-2-2033-1121
Fax: +82-2-2033-1222

2.2 Manufacturer Information

Company Name: LG Electronics Inc
Address /Post: LG Twin Towers 20,Yeouido-dong, Yeongdeungpo-gu Seoul, Korea
150-721
City: Seoul
Postal Code: 150-721
Country: Korea
Telephone: +82-2-2033-1121
Fax: +82-2-2033-1222

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

3.1 About EUT

Description: GSM 850/1900 Dual-band Terminal Equipment
Model: MG140a
Frequency Band: 850/1900MHz



Picture 1: Constituents of the sample

3.2 Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version
EUT1	004401091504056	Rev.1.0	V100

*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	Travel Adapter	TA-22GT2	060617SR08475	Best Technology Co.,Ltd
AE2	Battery	LGTL-GBIP-830	\	BYD Battery CO., LTD.

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

4 OPERATIONAL CONDITIONS DURING TEST

4.1 Schematic Test Configuration

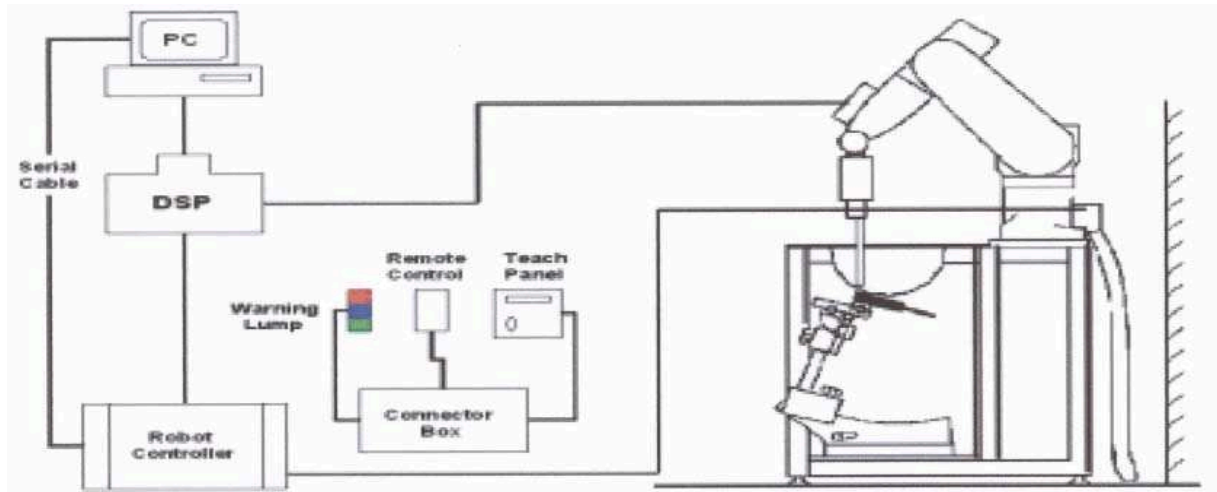
During SAR test, EUT is in Traffic Mode (Channel Allocated) at Normal Voltage Condition. A communication link is set up with a System Simulator (SS) by air link, and a call is established. The Absolute Radio Frequency Channel Number (ARFCN) is allocated to 128, 190 and 251 respectively in the case of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

4.2 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 $\pm 0.02\text{mm}$. 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

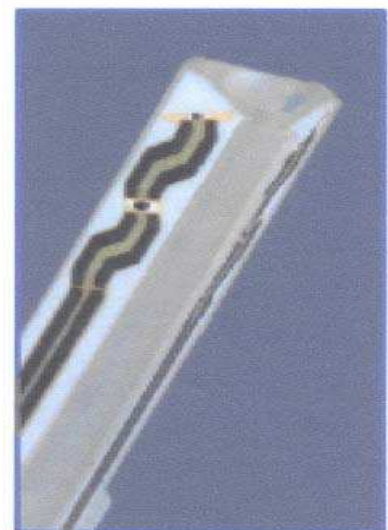
The DAE consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the PC-card is accomplished through an optical downlink for data and status information 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.

4.3 Dasy4 E-field Probe System

The SAR measurements were conducted with the dosimetric probe ET3DV6 (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 $\pm 0.25\text{dB}$.

ET3DV6 Probe Specification

Construction	Symmetrical design with triangular core Built-in optical fiber for surface detection System(ET3DV6 only) Built-in shielding against static charges PEEK enclosure material(resistant to organic solvents, e.q., glycol)
Calibration	In air from 10 MHz to 2.5 GHz In brain and muscle simulating tissue at frequencies of 450MHz, 900MHz and 1.8GHz (accuracy $\pm 8\%$) Calibration for other liquids and frequencies upon request
Frequency	10 MHz to > 6 GHz; Linearity: $\pm 0.2\text{ dB}$ (30 MHz to 3 GHz)



Picture 3: ET3DV6 E-field Probe

Directivity	±0.2 dB in brain tissue (rotation around probe axis) ±0.4 dB in brain tissue (rotation normal probe axis)
Dynamic Range	5u W/g to > 100mW/g; Linearity: ±0.2dB
Surface Detection	±0.2 mm repeatability in air and clear liquids over diffuse reflecting surface(ET3DV6 only)
Dimensions	Overall length: 330mm Tip length: 16mm Body diameter: 12mm Tip diameter: 6.8mm Distance from probe tip to dipole centers: 2.7mm
Application	General dosimetry up to 3GHz Compliance tests of mobile phones Fast automatic scanning in arbitrary phantoms



4.4 E-field Probe Calibration

Picture 4: ET3DV6 E-field

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 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).

Note: Please check Annex E to see the Probe Certificate.



Picture 5: Device Holder

4.5 Other Test Equipment

4.5.1 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).

4.5.2 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



4.6 Equivalent Tissues

Picture 6: Generic Twin Phantom

The liquid used for the frequency range of 800-2000 MHz consisted of water, sugar, salt and Cellulose. The liquid has been previously proven to be suited for worst-case. The Table 4 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	$\epsilon=40.0$	$\sigma=1.40$

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	$\epsilon=53.3$	$\sigma=1.52$

4.7 System Specifications

4.7.1 Robotic 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

5 CHARACTERISTICS OF THE TEST

5.1 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.

5.2 Applicable Measurement Standards

EN 50361–2001: Basic standard for the measurement of Specific Absorption Rate related to human exposure to electromagnetic fields from mobile phones.

IEEE 1528–2003: Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Body Due to Wireless Communications Devices: Experimental Techniques.

OET Bulletin 65 (Edition 97-01) and Supplement C (Edition 01-01): Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits.

IEC 62209-1-2005: Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Human models, instrumentation, and procedures –Part 1: Procedure to determine the specific absorption rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)

They specify the measurement method for demonstration of compliance with the SAR limits for such equipments.

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 and ERP for the EUT. In all cases, the measured peak 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.

6.2.2 Measurement result

Table 3: Conducted Power Measurement Results

850MHZ	Conducted Power		
	Channel 251 (848.8MHz)	Channel 190 (836.6MHz)	Channel 128 (824.2MHz)
Before SAR Test (dBm)	32.38	32.43	32.63
After SAR Test (dBm)	32.34	32.45	32.64
1900MHZ	Conducted Power		
	Channel 810 (1909.8MHz)	Channel 661 (1880MHz)	Channel 512 (1850.2MHz)
Before SAR Test (dBm)	29.36	29.27	28.41
After SAR Test (dBm)	29.33	29.28	28.44

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 7 to Table 12 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 23.3 °C and relative humidity 49%. Liquid temperature during the test: 22.5°C			
/	Frequency	Permittivity ϵ	Conductivity σ (S/m)
Target value	850 MHz	41.5	0.90
	1900 MHz	40.0	1.40
Measurement value (Average of 10 tests)	850 MHz	41.6	0.91
	1900 MHz	39.2	1.45

Table 5: Dielectric Performance of Body Tissue Simulating Liquid

Measurement is made at temperature 23.3 °C and relative humidity 49%. Liquid temperature during the test: 22.5°C			
/	Frequency	Permittivity ϵ	Conductivity σ (S/m)
Target value	850 MHz	55.2	0.97
	1900 MHz	53.3	1.52
Measurement value (Average of 10 tests)	850 MHz	53.4	1.00
	1900 MHz	51.5	1.57

7.2 System Validation

Table 6: System Validation

Measurement is made at temperature 23.3 °C, relative humidity 49%, input power 250 mW. Liquid temperature during the test: 22.3°C					
Liquid parameters		Frequency	Permittivity ϵ	Conductivity σ (S/m)	
		835 MHz	41.7	0.88	
		1900 MHz	39.2	1.45	
Verification results	Frequency	Target value (W/kg)		Measurement value (W/kg)	
		10 g Average	1 g Average	10 g Average	1 g Average
	835 MHz	1.55	2.375	1.62	2.48
	1900 MHz	5.31	10.1	5.27	9.91

Note: Target Values used are one fourth of those in IEEE Std 1528-2003 (feeding power is normalized to 1 Watt), i.e. 250 mW is used as feeding power to the validation dipole (SPEAG using).

7.3 Summary of Measurement Results (850MHz)

Table 7: SAR Values (850MHz-Head)

Limit of SAR (W/kg)	10 g Average	1 g Average	Power Drift (dB)
	2.0	1.6	
Test Case	Measurement Result (W/kg)		
	10 g Average	1 g Average	
Left hand, Touch cheek, Top frequency(See Fig.1)	0.156	0.241	-0.029
Left hand, Touch cheek, Mid frequency(See Fig.3)	0.100	0.154	0.002
Left hand, Touch cheek, Bottom frequency(See Fig.5)	0.077	0.118	0.015
Left hand, Tilt 15 Degree, Top frequency(See Fig.7)	0.069	0.107	-0.039
Left hand, Tilt 15 Degree, Mid frequency(See Fig.9)	0.044	0.069	0.017
Left hand, Tilt 15 Degree, Bottom frequency(See Fig.11)	0.034	0.052	0.037
Right hand, Touch cheek, Top frequency(See Fig.13)	0.162	0.251	-0.181
Right hand, Touch cheek, Mid frequency(See Fig.15)	0.105	0.160	-0.059
Right hand, Touch cheek, Bottom frequency(See Fig.17)	0.078	0.119	-0.006
Right hand, Tilt 15 Degree, Top frequency(See Fig.19)	0.066	0.101	0.016
Right hand, Tilt 15 Degree, Mid frequency(See Fig.21)	0.042	0.064	0.015
Right hand, Tilt 15 Degree, Bottom frequency(See Fig.23)	0.032	0.049	-0.098

Table 8: SAR Values (850MHz-Body)

Limit of SAR (W/kg)	10 g Average	1 g Average	Power Drift (dB)
	2.0	1.6	
Test Case	Measurement Result (W/kg)		
	10 g Average	1 g Average	
Body, Towards Phantom, Top frequency(See Fig.25)	0.066	0.096	0.024
Body, Towards Phantom, Mid frequency(See Fig.27)	0.037	0.053	-0.071
Body, Towards Phantom, Bottom frequency(See Fig.29)	0.022	0.031	0.111
Body, Towards Ground, Top frequency(See Fig.31)	0.229	0.338	-0.012
Body, Towards Ground, Mid frequency(See Fig.33)	0.126	0.188	0.024
Body, Towards Ground, Bottom frequency(See Fig.35)	0.070	0.105	0.161

Table 9: SAR Values (850MHz-GPRS)

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	
Body, Towards Phantom, Top frequency(See Fig.37)	0.104	0.149	0.200
Body, Towards Phantom, Mid frequency(See Fig.39)	0.077	0.111	0.007
Body, Towards Phantom, Bottom frequency(See Fig.41)	0.061	0.086	0.114
Body, Towards Ground, Top frequency(See Fig.43)	0.287	0.409	0.003
Body, Towards Ground, Mid frequency(See Fig.45)	0.210	0.296	0.030
Body, Towards Ground, Bottom frequency(See Fig.47)	0.177	0.248	0.058

7.4 Summary of Measurement Results (1900MHz)

Table 10: SAR Values (1900MHz-Head)

Limit of SAR (W/kg)	10 g Average	1 g Average	Power Drift (dB)
	2.0	1.6	
Test Case	Measurement Result (W/kg)		
	10 g Average	1 g Average	
Left hand, Touch cheek, Top frequency(See Fig.49)	0.164	0.278	-0.035
Left hand, Touch cheek, Mid frequency(See Fig.51)	0.128	0.215	0.044
Left hand, Touch cheek, Bottom frequency(See Fig.53)	0.079	0.133	-0.050
Left hand, Tilt 15 Degree, Top frequency(See Fig.55)	0.152	0.271	-0.061
Left hand, Tilt 15 Degree, Mid frequency(See Fig.57)	0.117	0.206	-0.105
Left hand, Tilt 15 Degree, Bottom frequency(See Fig.59)	0.069	0.121	0.040
Right hand, Touch cheek, Top frequency(See Fig.61)	0.154	0.259	-0.017
Right hand, Touch cheek, Mid frequency(See Fig.63)	0.123	0.206	-0.025
Right hand, Touch cheek, Bottom frequency(See Fig.65)	0.079	0.130	0.030
Right hand, Tilt 15 Degree, Top frequency(See Fig.67)	0.158	0.280	-0.183
Right hand, Tilt 15 Degree, Mid frequency(See Fig.69)	0.156	0.282	-0.012
Right hand, Tilt 15 Degree, Bottom frequency(See Fig.71)	0.094	0.170	0.033

Table 11: SAR Values (1900MHz-Body)

Limit of SAR (W/kg)	10 g Average	1 g Average	Power Drift (dB)
	2.0	1.6	
Test Case	Measurement Result (W/kg)		
	10 g Average	1 g Average	
Body, Towards Phantom, Top frequency(See Fig.73)	0.029	0.043	-0.022
Body, Towards Phantom, Mid frequency(See Fig.75)	0.020	0.031	-0.142
Body, Towards Phantom, Bottom frequency(See Fig.77)	0.010	0.020	-0.005
Body, Towards Ground, Top frequency(See Fig.79)	0.096	0.161	-0.200
Body, Towards Ground, Mid frequency(See Fig.81)	0.076	0.126	0.164
Body, Towards Ground, Bottom frequency(See Fig.83)	0.053	0.089	-0.187

Table 12: SAR Values (1900MHz-GPRS)

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	
Body, Towards Phantom, Top frequency(See Fig.85)	0.045	0.067	0.029
Body, Towards Phantom, Mid frequency(See Fig.87)	0.032	0.046	0.046
Body, Towards Phantom, Bottom frequency(See Fig.89)	0.021	0.031	-0.195
Body, Towards Ground, Top frequency(See Fig.91)	0.175	0.298	0.117
Body, Towards Ground, Mid frequency(See Fig.93)	0.127	0.212	-0.095
Body, Towards Ground, Bottom frequency(See Fig.95)	0.088	0.146	-0.059

7.5Conclusion

Localized Specific Absorption Rate (SAR) of this fixed terminal station has been measured in all cases requested by the relevant standards cited in Clause 5.2 of this report. Maximum localized SAR is below exposure limits specified in the relevant standards cited in Clause 5.1 of this test report.

8 Measurement Uncertainty

SN	a	Type	c	d	e = f(d,k)	f	h = c x f / e	k
	Uncertainty Component		Tol. (± %)	Prob. Dist.	Div.	c _i (1 g)	1 g u _i (±%)	v _i
1	System repetivity	A	0.5	N	1	1	0.5	9
	Measurement System							
2	Probe Calibration	B	5	N	2	1	2.5	∞
3	Axial Isotropy	B	4.7	R	√3	(1-cp) ^{1/2}	4.3	∞
4	Hemispherical Isotropy	B	9.4	R	√3	√c _p		∞
5	Boundary Effect	B	0.4	R	√3	1	0.23	∞
6	Linearity	B	4.7	R	√3	1	2.7	∞
7	System Detection Limits	B	1.0	R	√3	1	0.6	∞
8	Readout Electronics	B	1.0	N	1	1	1.0	∞
9	RF Ambient Conditions	B	3.0	R	√3	1	1.73	∞
10	Probe Positioner Mechanical Tolerance	B	0.4	R	√3	1	0.2	∞
11	Probe Positioning with respect to Phantom Shell	B	2.9	R	√3	1	1.7	∞
12	Extrapolation, interpolation and Integration Algorithms for Max. SAR Evaluation	B	3.9	R	√3	1	2.3	∞
	Test sample Related							
13	Test Sample Positioning	A	4.9	N	1	1	4.9	N-1
14	Device Holder Uncertainty	A	6.1	N	1	1	6.1	N-1
15	Output Power Variation - SAR drift measurement	B	5.0	R	√3	1	2.9	∞
	Phantom and Tissue Parameters							
16	Phantom Uncertainty (shape and thickness tolerances)	B	1.0	R	√3	1	0.6	∞
17	Liquid Conductivity - deviation from target values	B	5.0	R	√3	0.64	1.7	∞
18	Liquid Conductivity - measurement uncertainty	B	5.0	N	1	0.64	1.7	M
19	Liquid Permittivity - deviation from target values	B	5.0	R	√3	0.6	1.7	∞
20	Liquid Permittivity - measurement uncertainty	B	5.0	N	1	0.6	1.7	M
	Combined Standard Uncertainty			RSS			11.25	
	Expanded Uncertainty (95% CONFIDENCE INTERVAL)			K=2			22.5	

9 MAIN TEST INSTRUMENTS

Table 13: List of Main Instruments

No.	Name	Type	Serial Number	Calibration Date	Valid Period
01	Network analyzer	HP 8753E	US38433212	August 30,2006	One year
02	Power meter	NRVD	101253	June 20, 2006	One year
03	Power sensor	NRV-Z5	100333		
04	Power sensor	NRV-Z6	100011	September 2, 2006	One year
05	Signal Generator	E4433B	US37230472	September 4, 2006	One Year
06	Amplifier	VTL5400	0505	No Calibration Requested	
07	BTS	CMU 200	105948	August 15, 2006	One year
08	E-field Probe	SPEAG ET3DV6	1736	December 1, 2006	One year
09	DAE	SPEAG DAE3	536	July 11, 2006	One year

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.

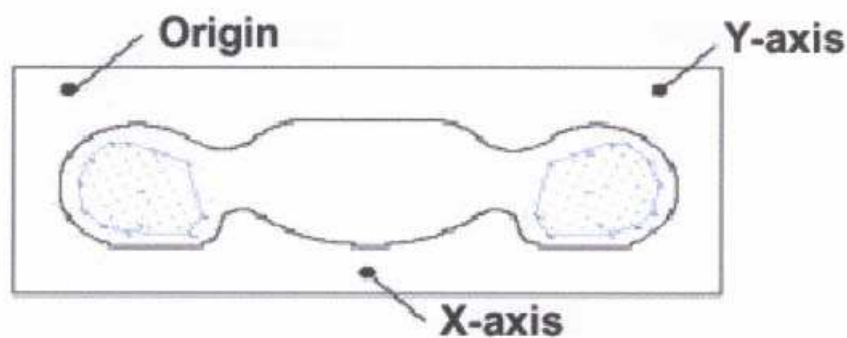
Step 3: Around this point, a volume of 30 mm x 30 mm x 30 mm was assessed by measuring 7 x 7x 7 points. On this basis of this data set, the spatial peak SAR value was evaluated with the following procedure:

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.

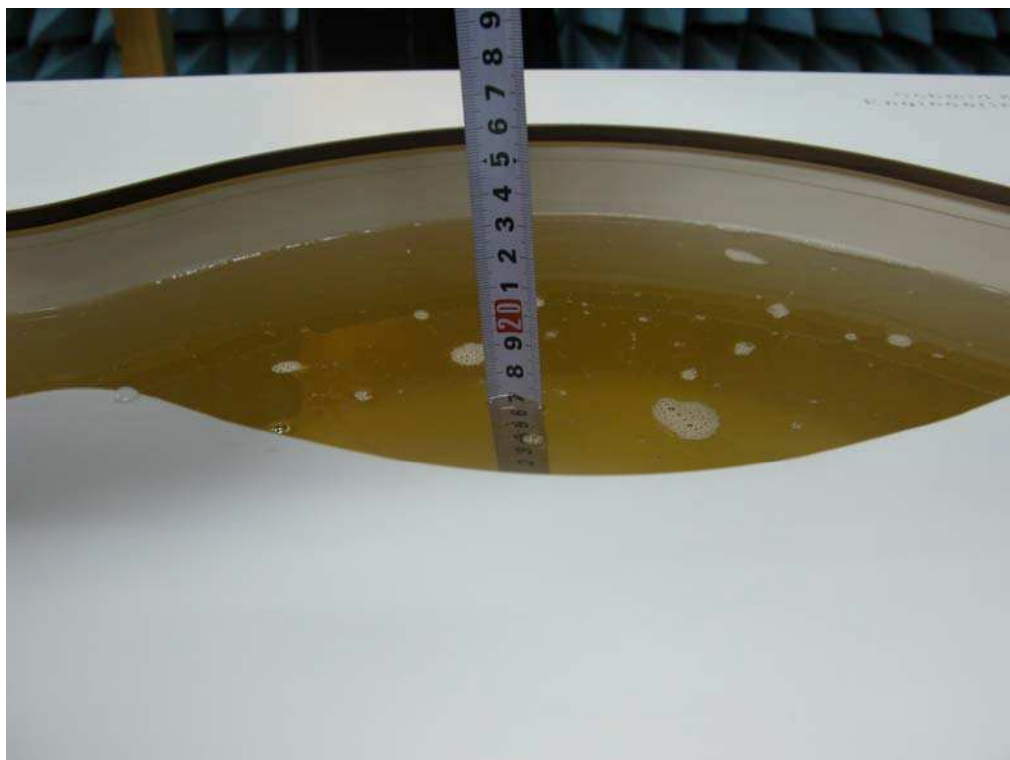


Picture A: SAR Measurement Points in Area Scan

ANNEX B TEST LAYOUT



Picture B1: Specific Absorption Rate Test Layout



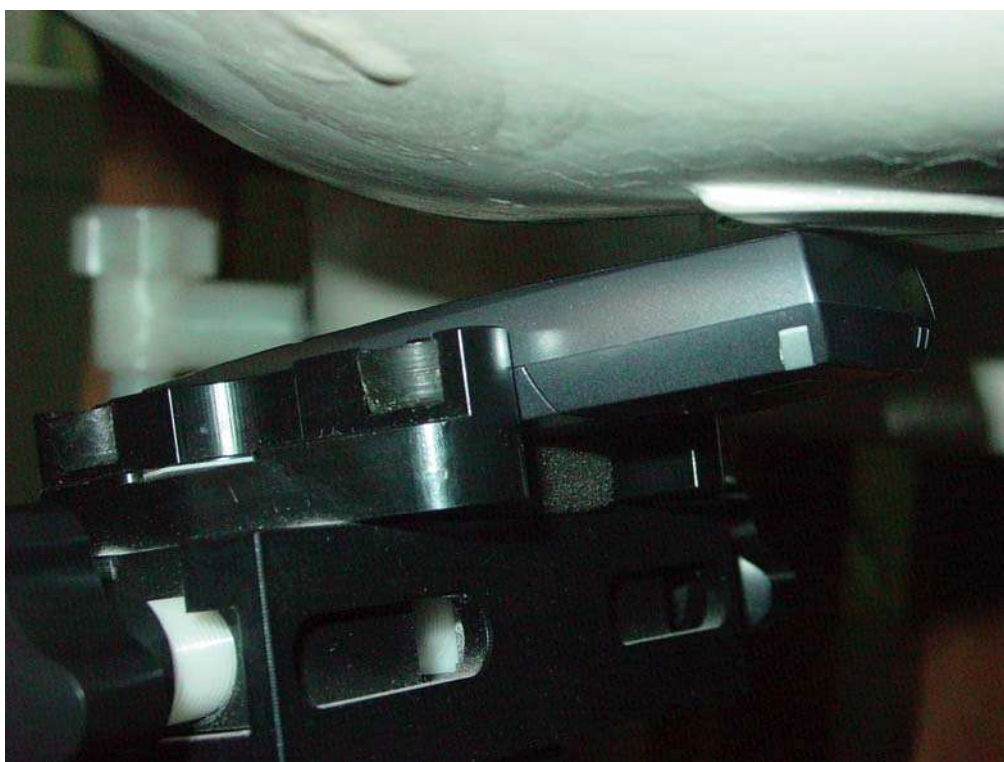
Picture B2: Liquid depth in the Flat Phantom (850 MHz)



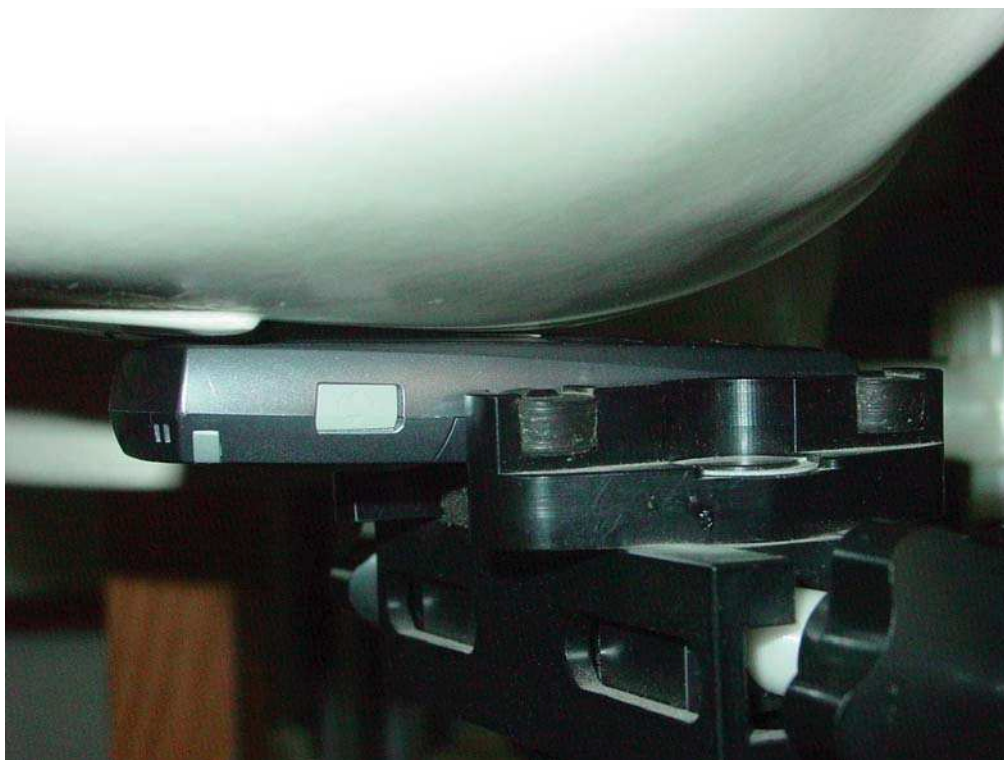
Picture B3 Liquid depth in the Flat Phantom (1900MHz)



Picture B4: Left Hand Touch Cheek Position



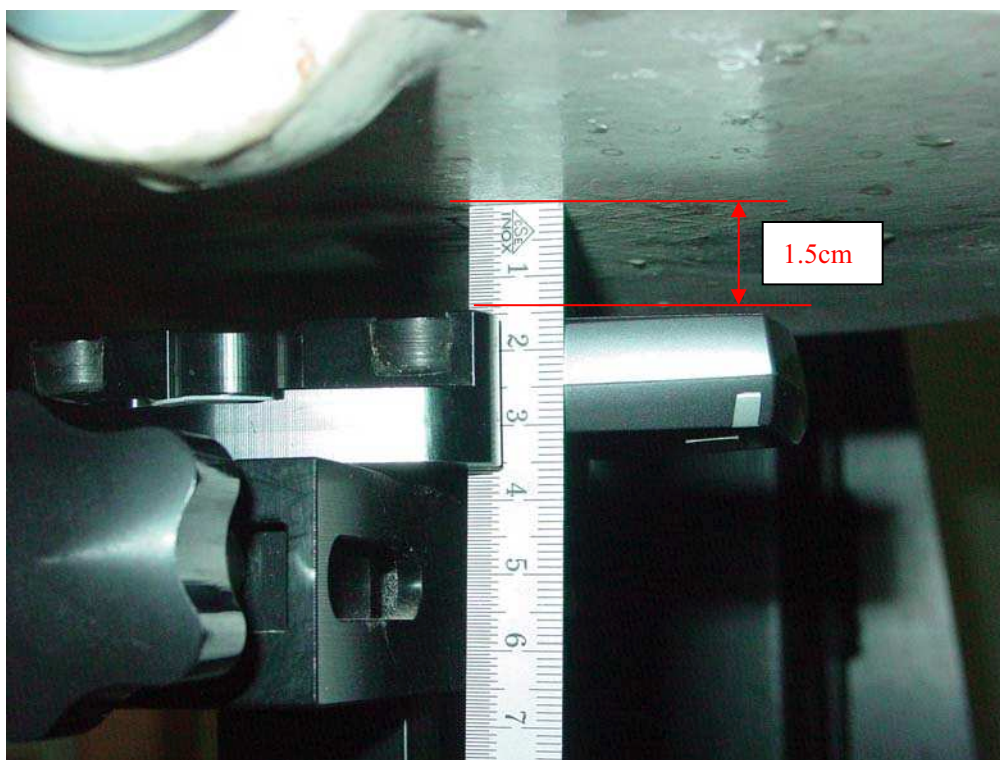
Picture B5: Left Hand Tilt 15° Position



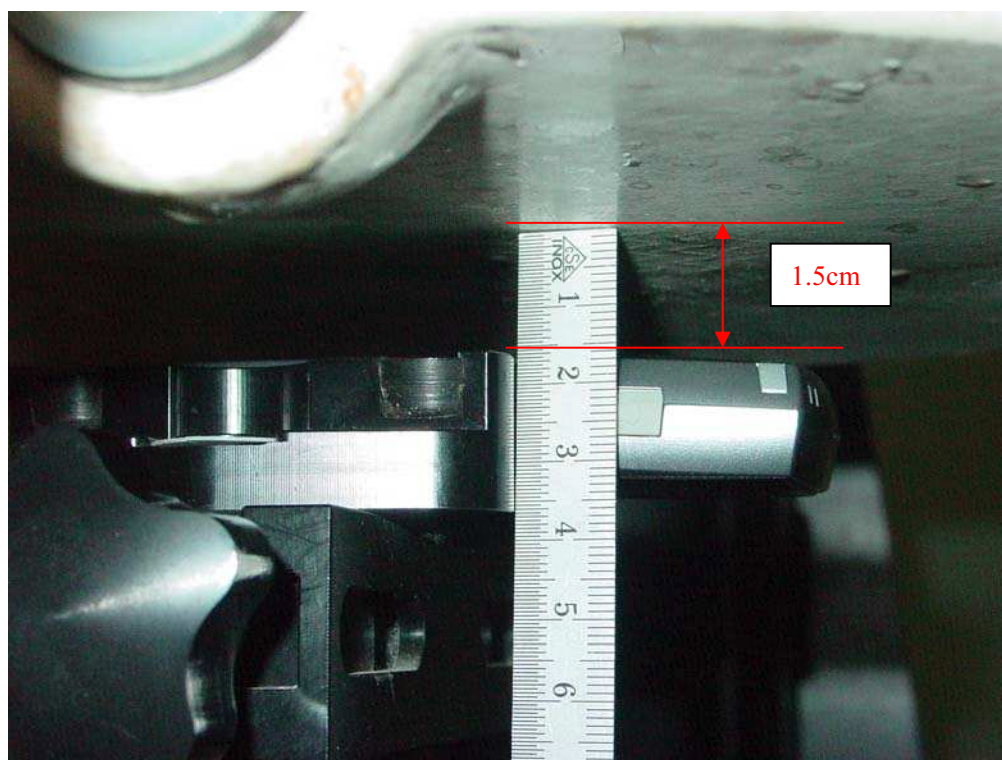
Picture B6: Right Hand Touch Cheek Position



Picture B7: Right Hand Tilt 15° Position



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



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

ANNEX C: GRAPH RESULTS

850 Left Cheek High

Date/Time: 2007-1-16 08:06:24

Electronics: DAE3 Sn536

Medium: 850 Head

Medium parameters used (interpolated): $\sigma = 0.91$ mho/m; $\epsilon_r = 41.6$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: GSM 850 Frequency: 848.8 MHz Duty Cycle: 1:8.3

Probe: ET3DV6 - SN1736 ConvF(6.51, 6.51, 6.51)

Cheek High/Area Scan (51x81x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.264 mW/g

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

Reference Value = 14.2 V/m; Power Drift = -0.029 dB

Peak SAR (extrapolated) = 0.348 W/kg

SAR(1 g) = 0.241 mW/g; SAR(10 g) = 0.156 mW/g

Maximum value of SAR (measured) = 0.243 mW/g

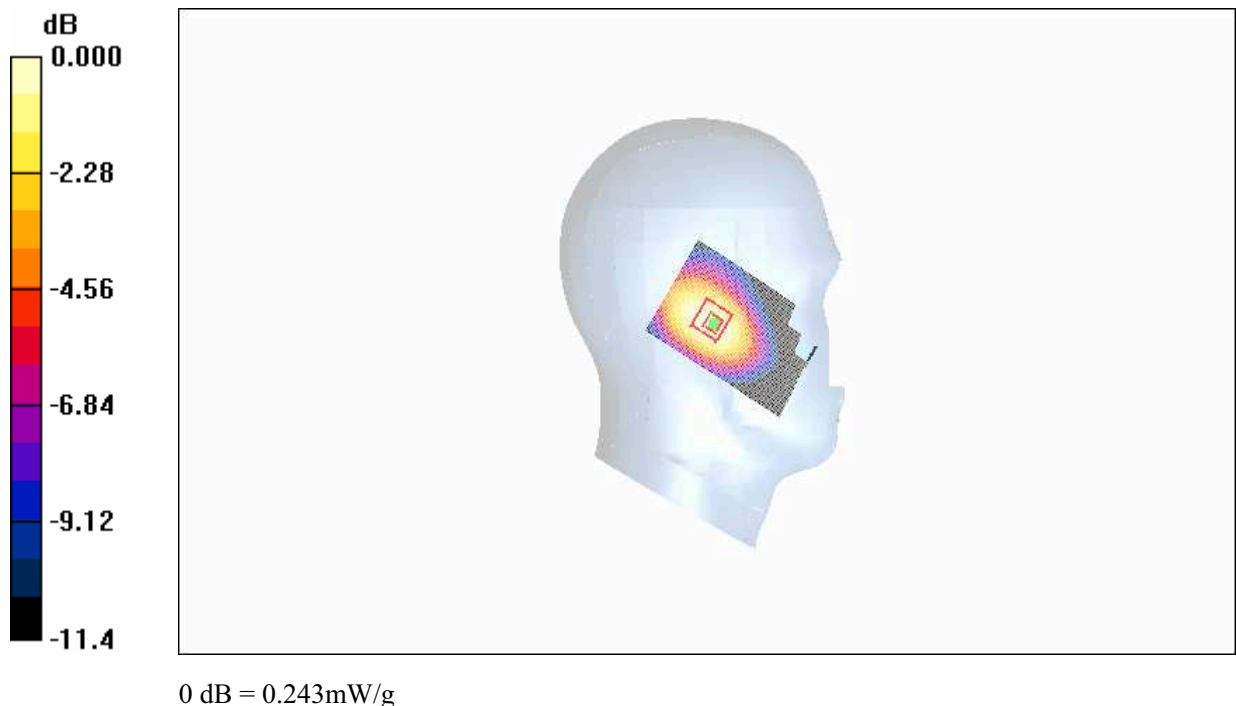


Fig. 1 850MHz CH251

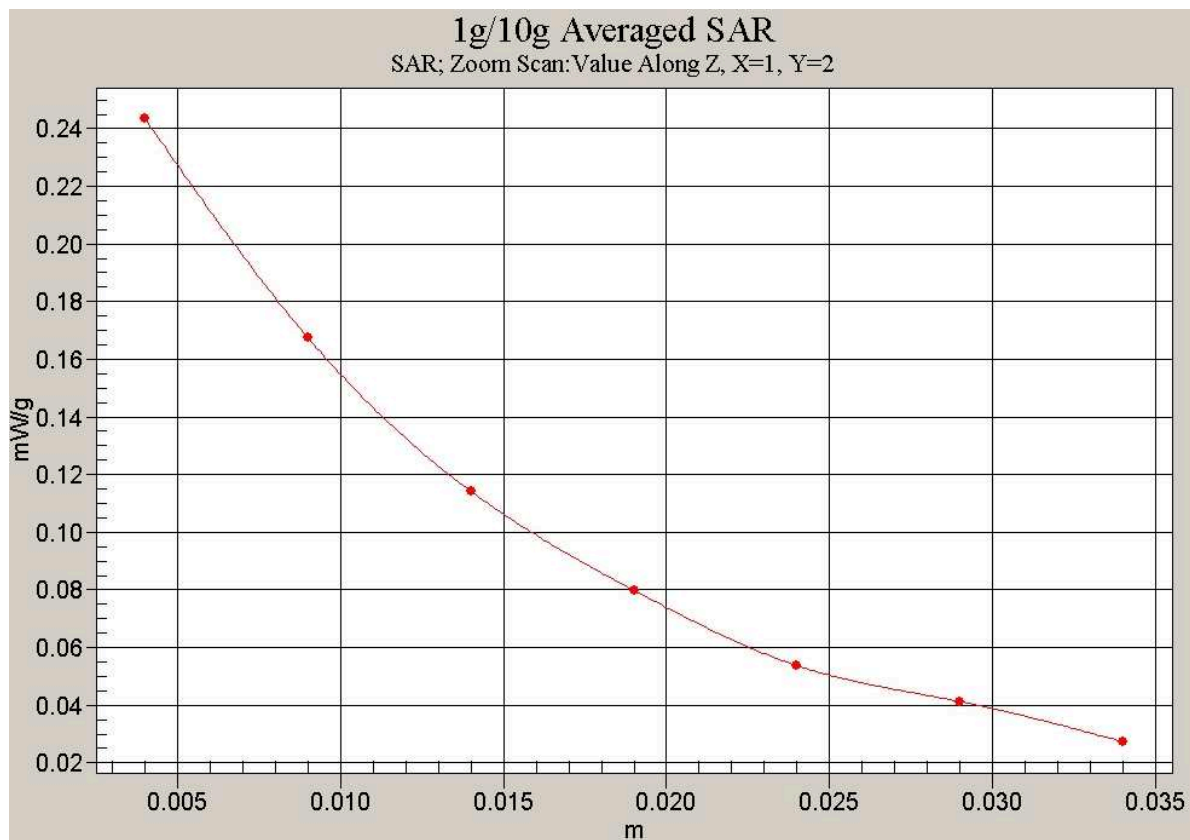


Fig. 2 Z-Scan at power reference point (850 MHz CH251)

850 Left Cheek Middle

Date/Time: 2007-1-16 08:20:24

Electronics: DAE3 Sn536

Medium: 850 Head

Medium parameters used (interpolated): $\sigma = 0.91$ mho/m; $\epsilon_r = 41.6$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: GSM 850 Frequency: 836.6 MHz Duty Cycle: 1:8.3

Probe: ET3DV6 - SN1736 ConvF(6.51, 6.51, 6.51)

Cheek Middle/Area Scan (51x81x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.169 mW/g

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

Reference Value = 11.6 V/m; Power Drift = 0.002 dB

Peak SAR (extrapolated) = 0.219 W/kg

SAR(1 g) = 0.154 mW/g; SAR(10 g) = 0.100 mW/g

Maximum value of SAR (measured) = 0.157 mW/g

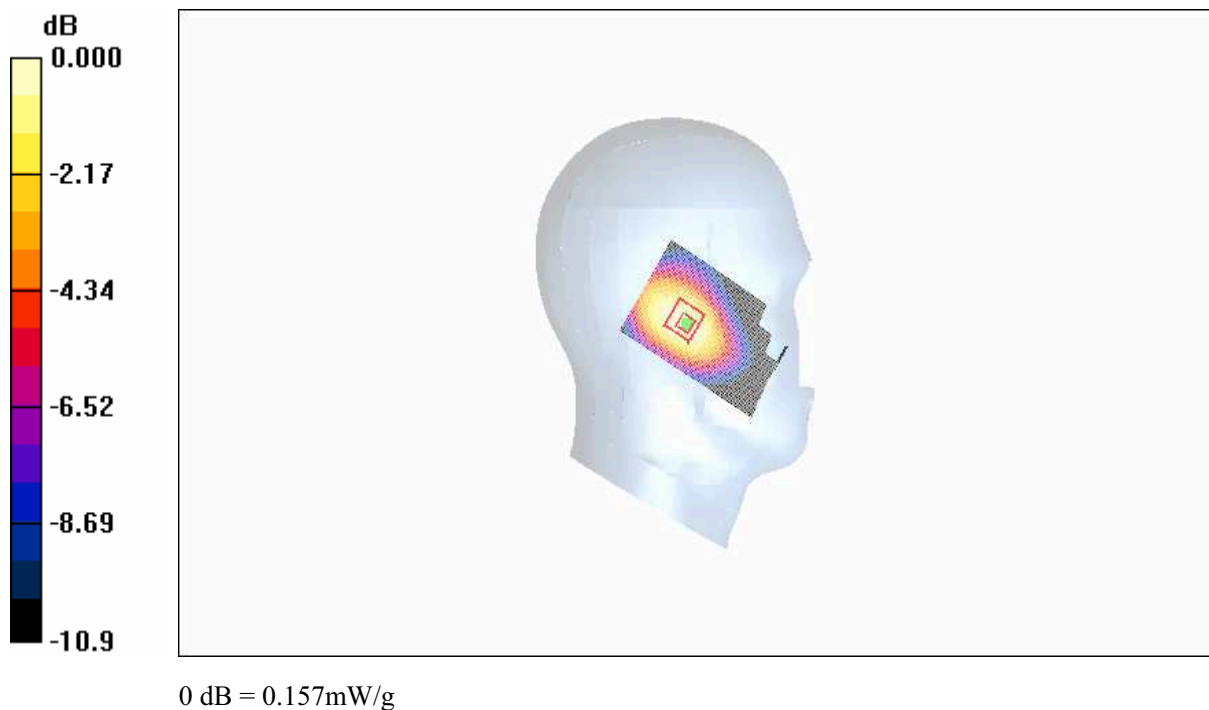


Fig. 3 850 MHz CH190

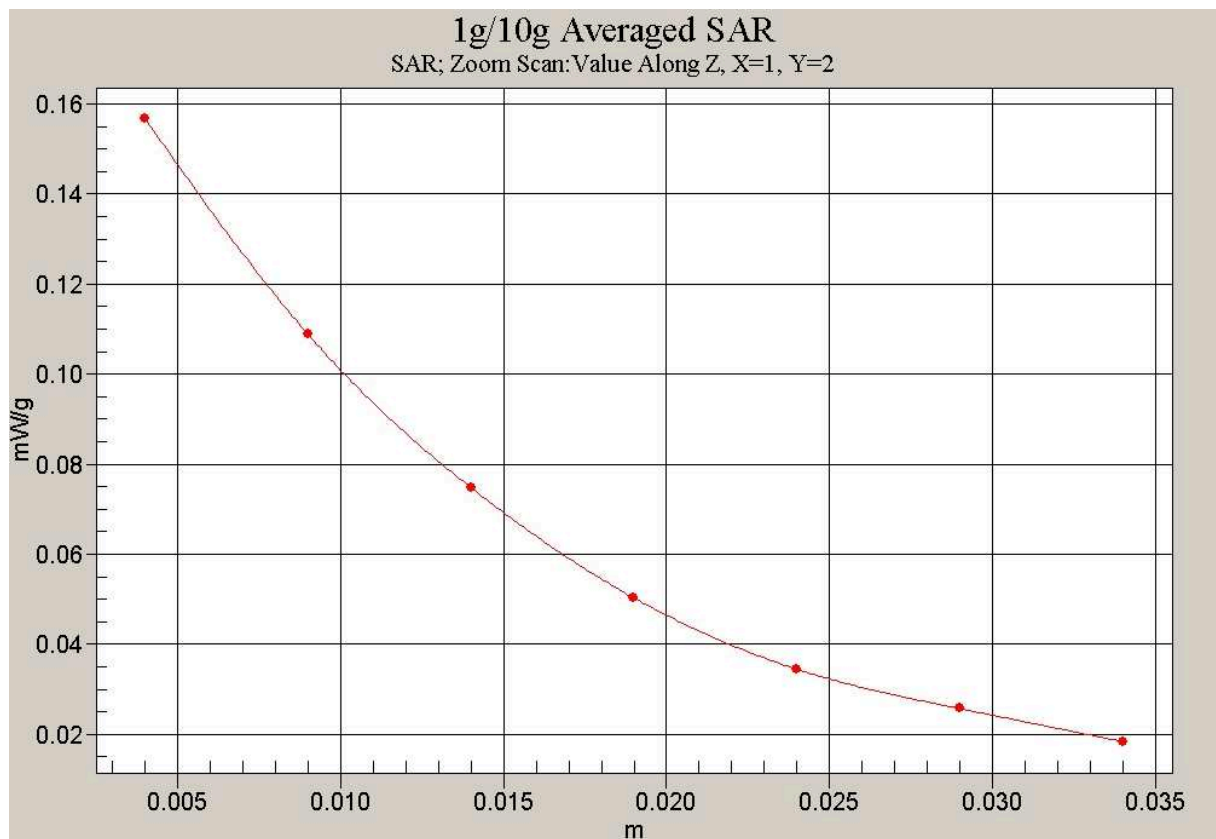


Fig. 4 Z-Scan at power reference point (850 MHz CH190)

850 Left Cheek Low

Date/Time: 2007-1-16 08:33:28

Electronics: DAE3 Sn536

Medium: 850 Head

Medium parameters used (interpolated): $\sigma = 0.91$ mho/m; $\epsilon_r = 41.6$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: GSM 850 Frequency: 824.2 MHz Duty Cycle: 1:8.3

Probe: ET3DV6 - SN1736 ConvF(6.51, 6.51, 6.51)

Cheek Low/Area Scan (51x81x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.130 mW/g

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

Reference Value = 10.2 V/m; Power Drift = 0.015 dB

Peak SAR (extrapolated) = 0.171 W/kg

SAR(1 g) = 0.118 mW/g; SAR(10 g) = 0.077 mW/g

Maximum value of SAR (measured) = 0.119 mW/g

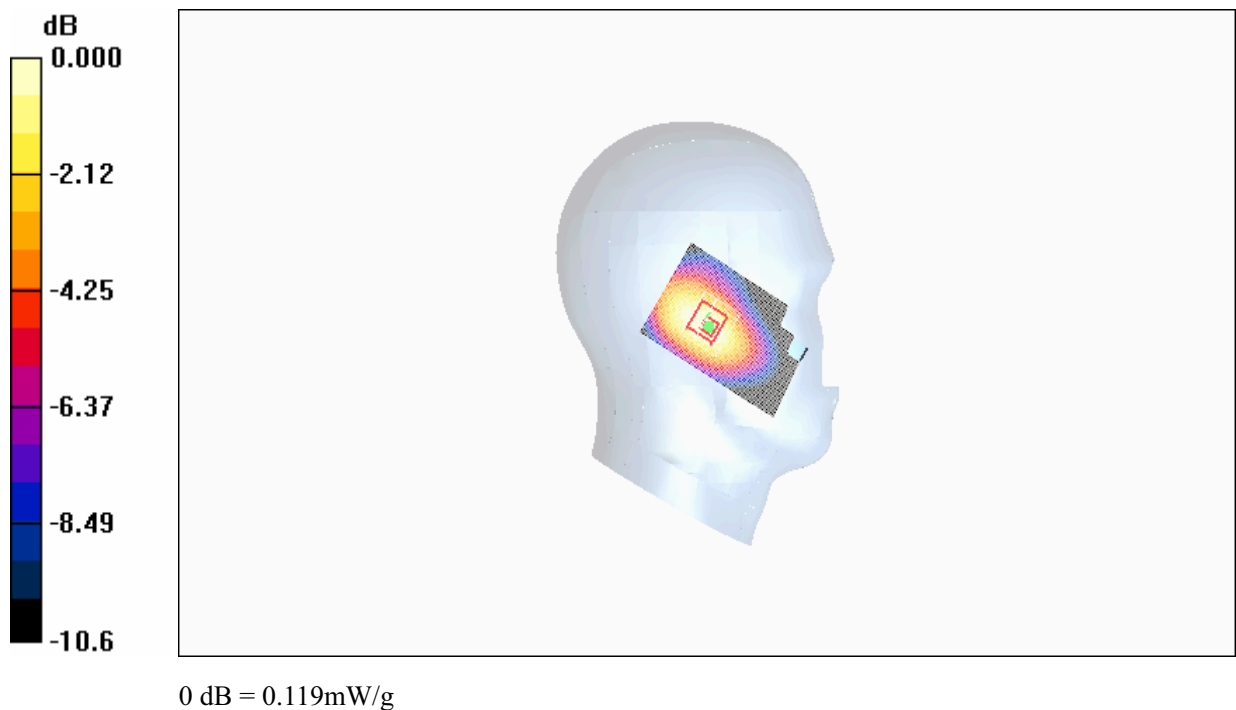


Fig. 5 850 MHz CH128

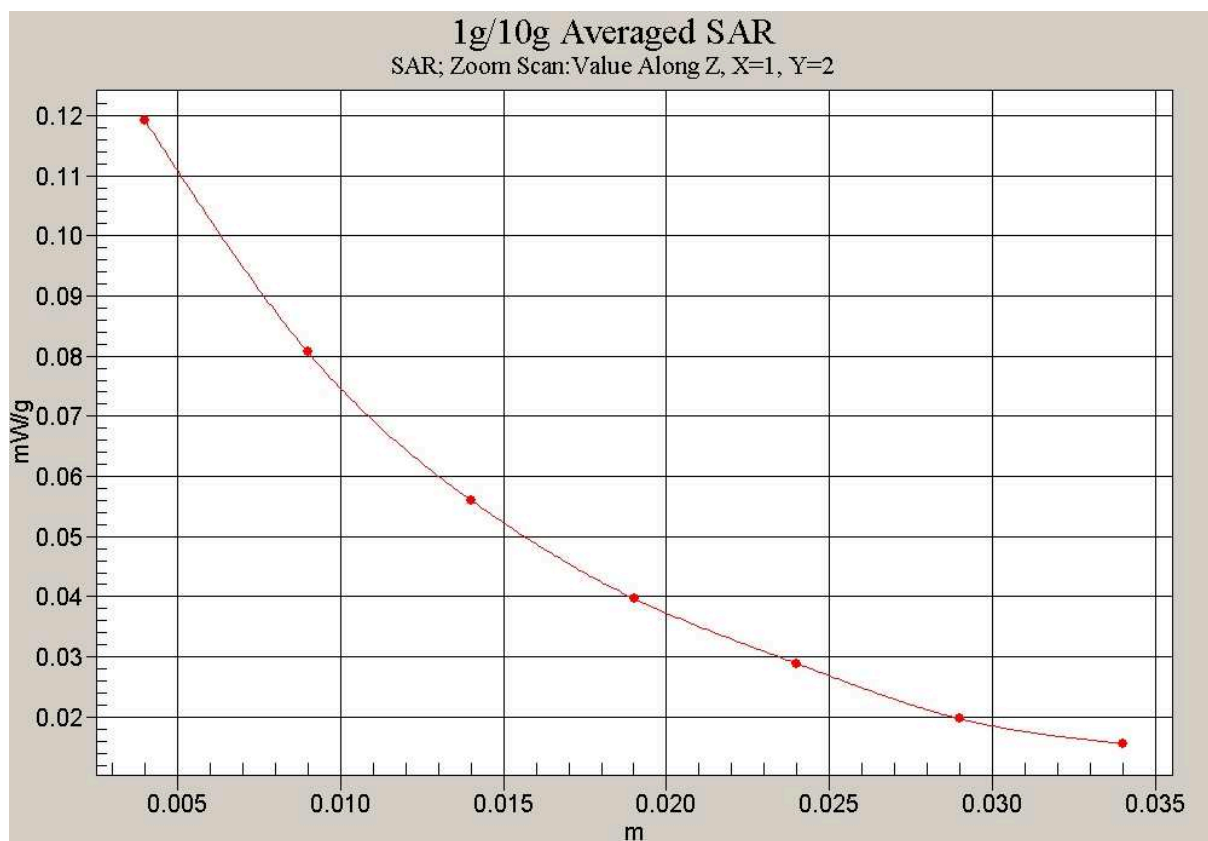


Fig. 6 Z-Scan at power reference point (850 MHz CH190)

850 Left Tilt High

Date/Time: 2007-1-16 09:22:21

Electronics: DAE3 Sn536

Medium: 850 Head

Medium parameters used (interpolated): $\sigma = 0.91$ mho/m; $\epsilon_r = 41.6$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: GSM 850 Frequency: 848.8 MHz Duty Cycle: 1:8.3

Probe: ET3DV6 - SN1736 ConvF(6.51, 6.51, 6.51)

Tilt High/Area Scan (51x81x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.118 mW/g

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

Reference Value = 11.2 V/m; Power Drift = -0.039 dB

Peak SAR (extrapolated) = 0.151 W/kg

SAR(1 g) = 0.107 mW/g; SAR(10 g) = 0.069 mW/g

Maximum value of SAR (measured) = 0.108 mW/g

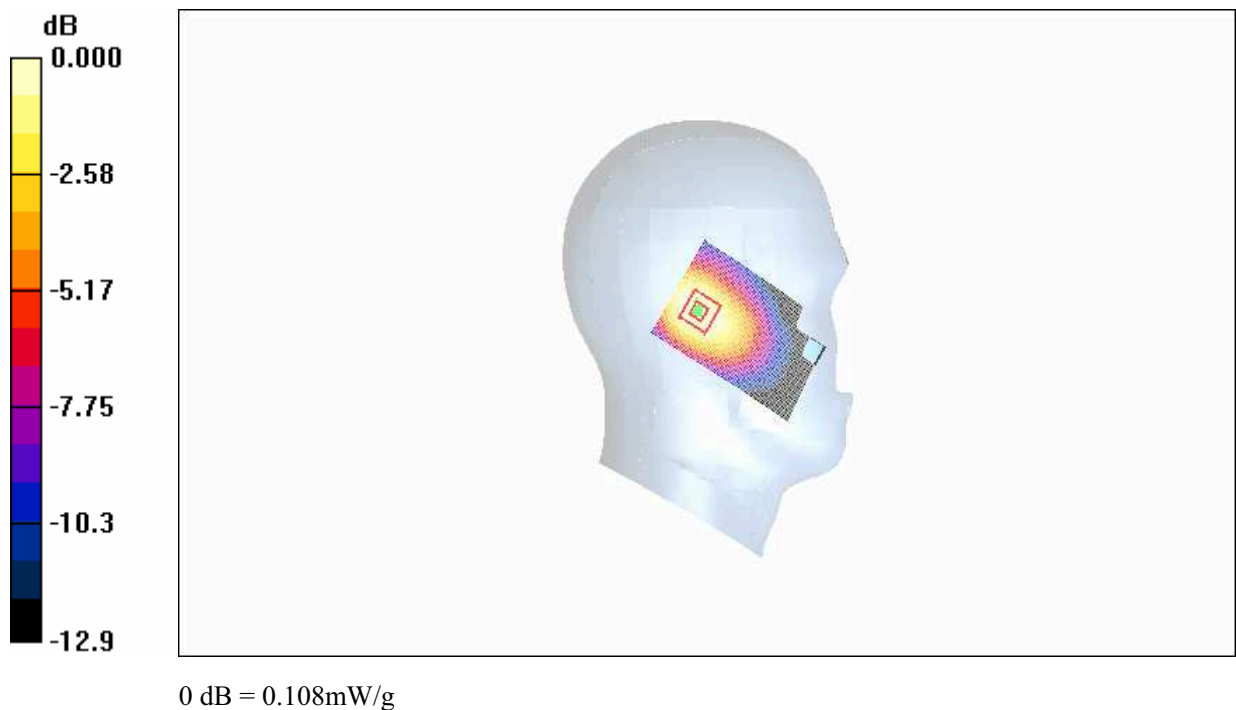


Fig.7 850 MHz CH251

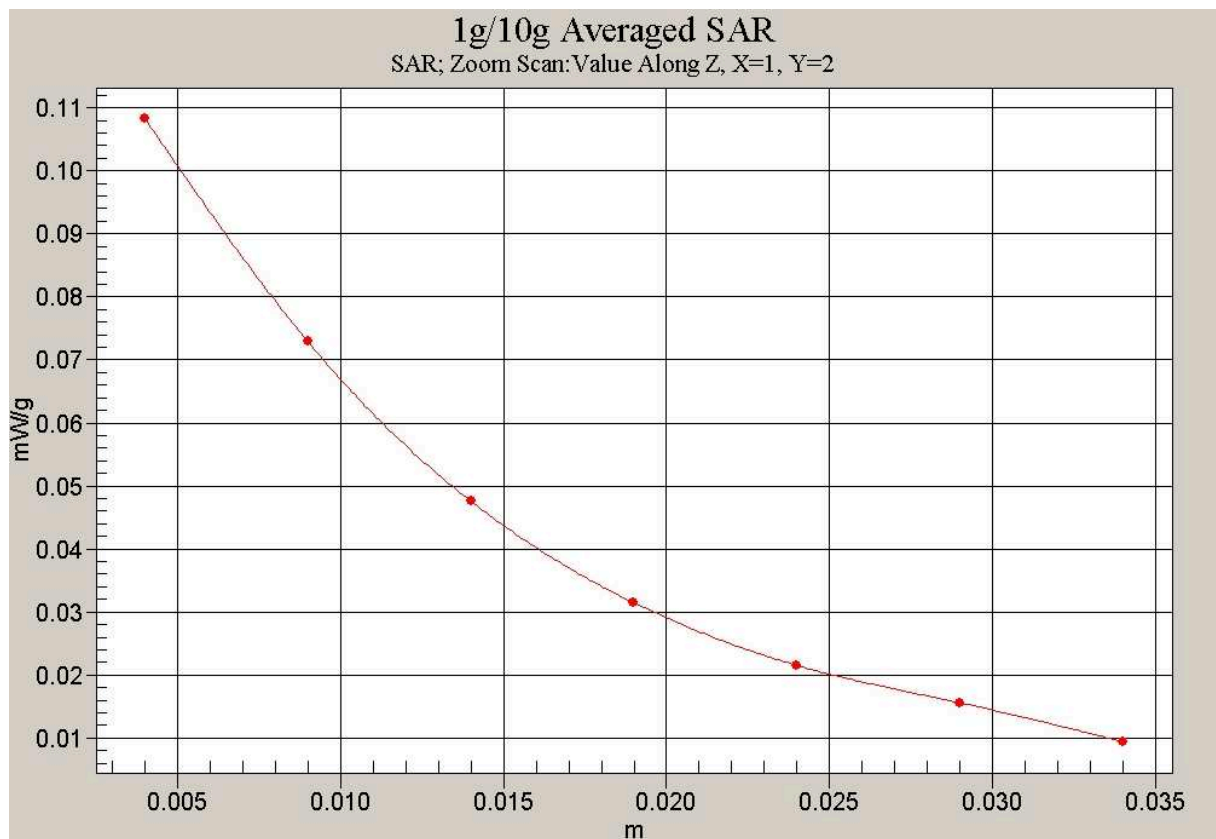


Fig. 8 Z-Scan at power reference point (850 MHz CH251)

850 Left Tilt Middle

Date/Time: 2007-1-16 09:06:15

Electronics: DAE3 Sn536

Medium: 850 Head

Medium parameters used (interpolated): $\sigma = 0.91$ mho/m; $\epsilon_r = 41.6$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: GSM 850 Frequency: 836.6 MHz Duty Cycle: 1:8.3

Probe: ET3DV6 - SN1736 ConvF(6.51, 6.51, 6.51)

Tilt Middle/Area Scan (51x81x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.076 mW/g

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

Reference Value = 9.06 V/m; Power Drift = 0.017 dB

Peak SAR (extrapolated) = 0.104 W/kg

SAR(1 g) = 0.069 mW/g; SAR(10 g) = 0.044 mW/g

Maximum value of SAR (measured) = 0.073 mW/g

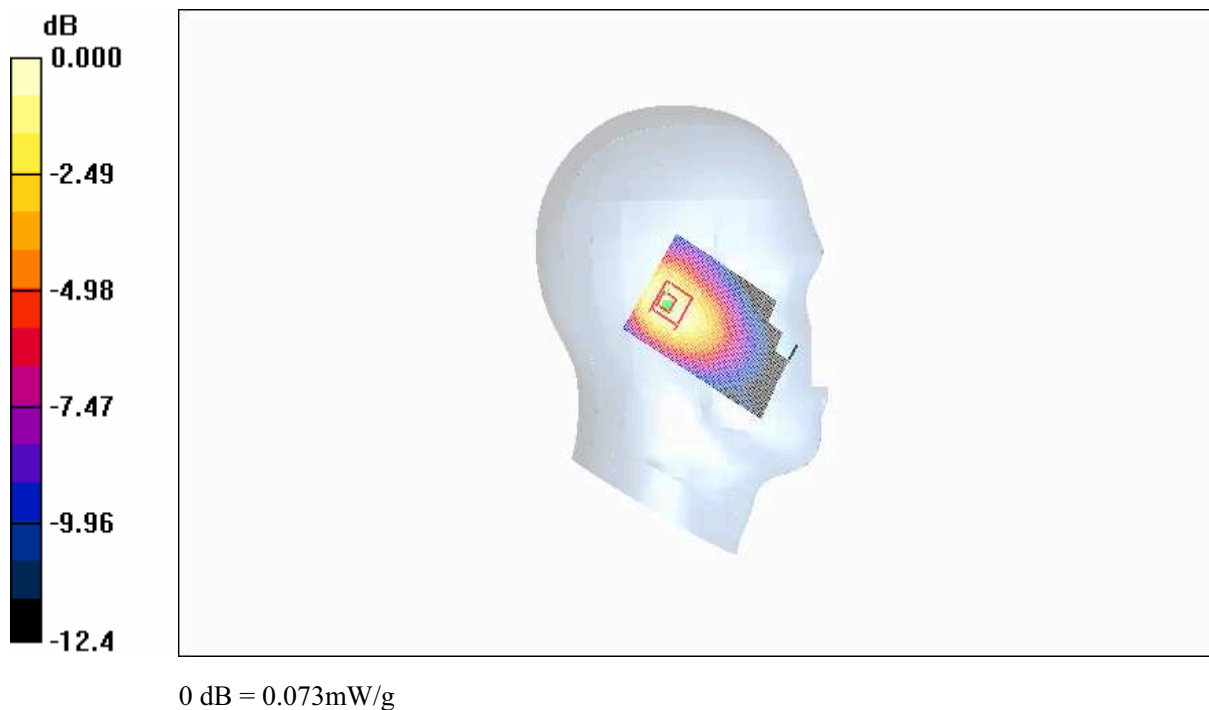


Fig.9 850 MHz CH190

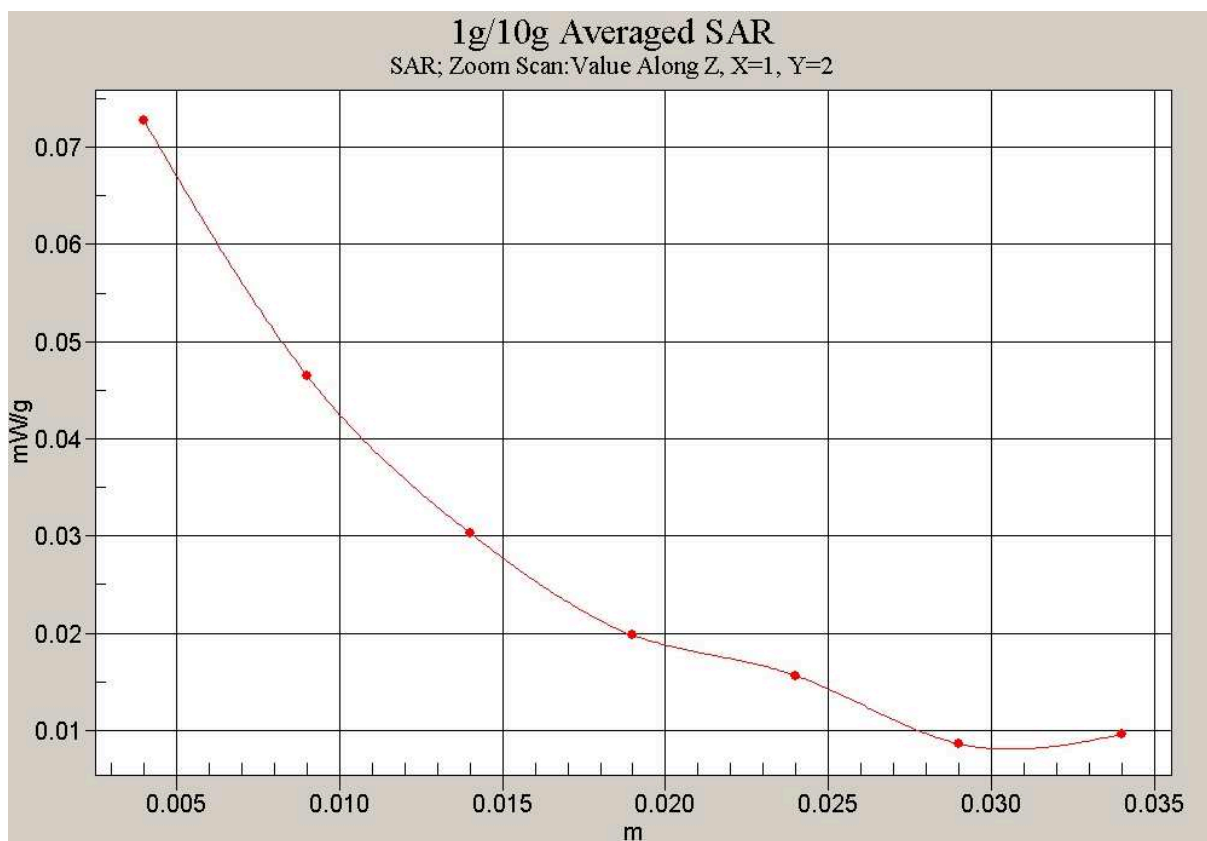


Fig. 10 Z-Scan at power reference point (850 MHz CH190)

850 Left Tilt Low

Date/Time: 2007-1-16 08:49:20

Electronics: DAE3 Sn536

Medium: 850 Head

Medium parameters used (interpolated): $\sigma = 0.91$ mho/m; $\epsilon_r = 41.6$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: GSM 850 Frequency: 824.2 MHz Duty Cycle: 1:8.3

Probe: ET3DV6 - SN1736 ConvF(6.51, 6.51, 6.51)

Tilt Low/Area Scan (51x81x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.057 mW/g

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

Reference Value = 7.91 V/m; Power Drift = 0.037 dB

Peak SAR (extrapolated) = 0.078 W/kg

SAR(1 g) = 0.052 mW/g; SAR(10 g) = 0.034 mW/g

Maximum value of SAR (measured) = 0.055 mW/g

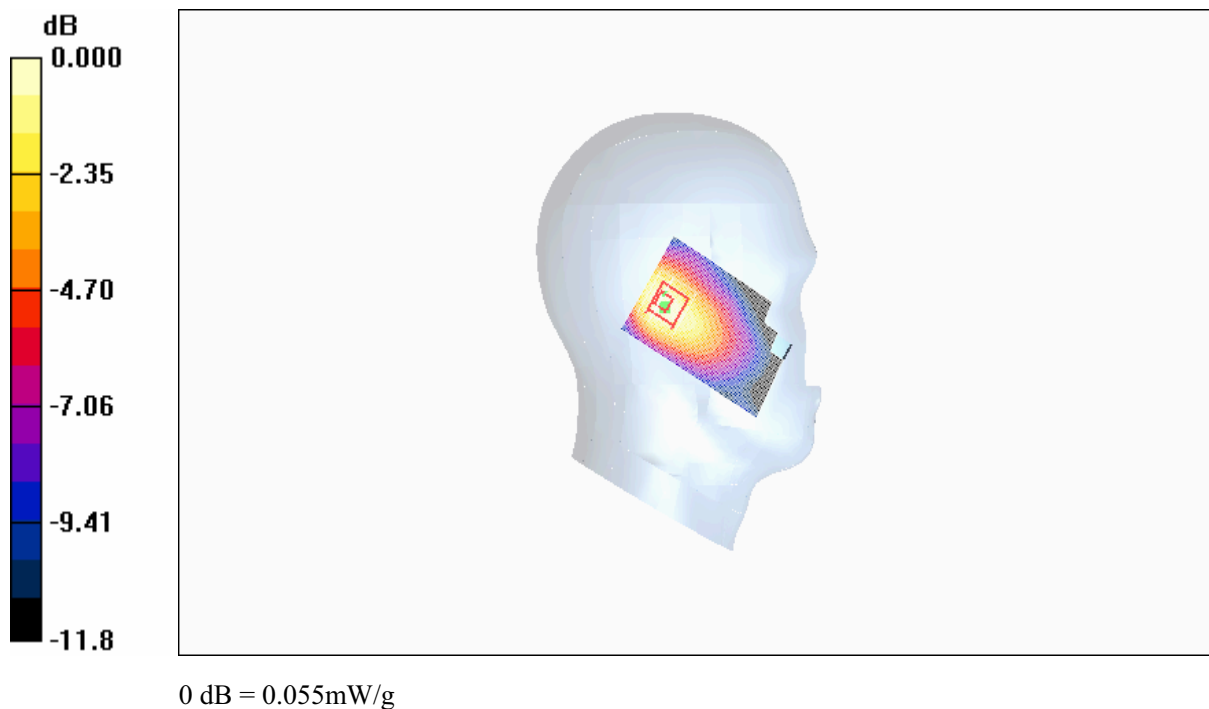


Fig. 11 850 MHz CH128

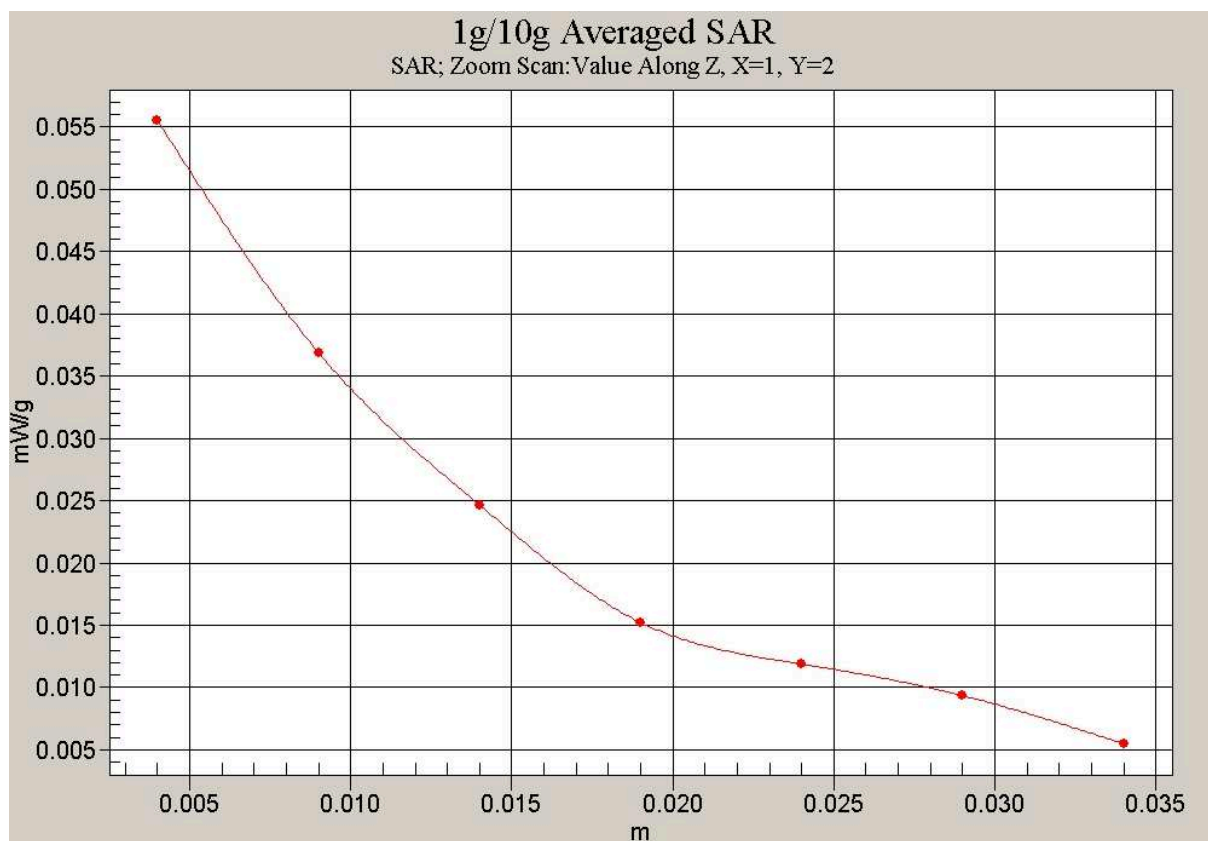


Fig. 12 Z-Scan at power reference point (850 MHz CH128)

850 Right Cheek High

Date/Time: 2007-1-16 09:40:47

Electronics: DAE3 Sn536

Medium: 850 Head

Medium parameters used (interpolated): $\sigma = 0.91$ mho/m; $\epsilon_r = 41.6$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: GSM 850 Frequency: 848.8 MHz Duty Cycle: 1:8.3

Probe: ET3DV6 - SN1736 ConvF(6.51, 6.51, 6.51)

Cheek High/Area Scan (51x81x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.283 mW/g

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

Reference Value = 14.3 V/m; Power Drift = -0.181 dB

Peak SAR (extrapolated) = 0.370 W/kg

SAR(1 g) = 0.251 mW/g; SAR(10 g) = 0.162 mW/g

Maximum value of SAR (measured) = 0.268 mW/g

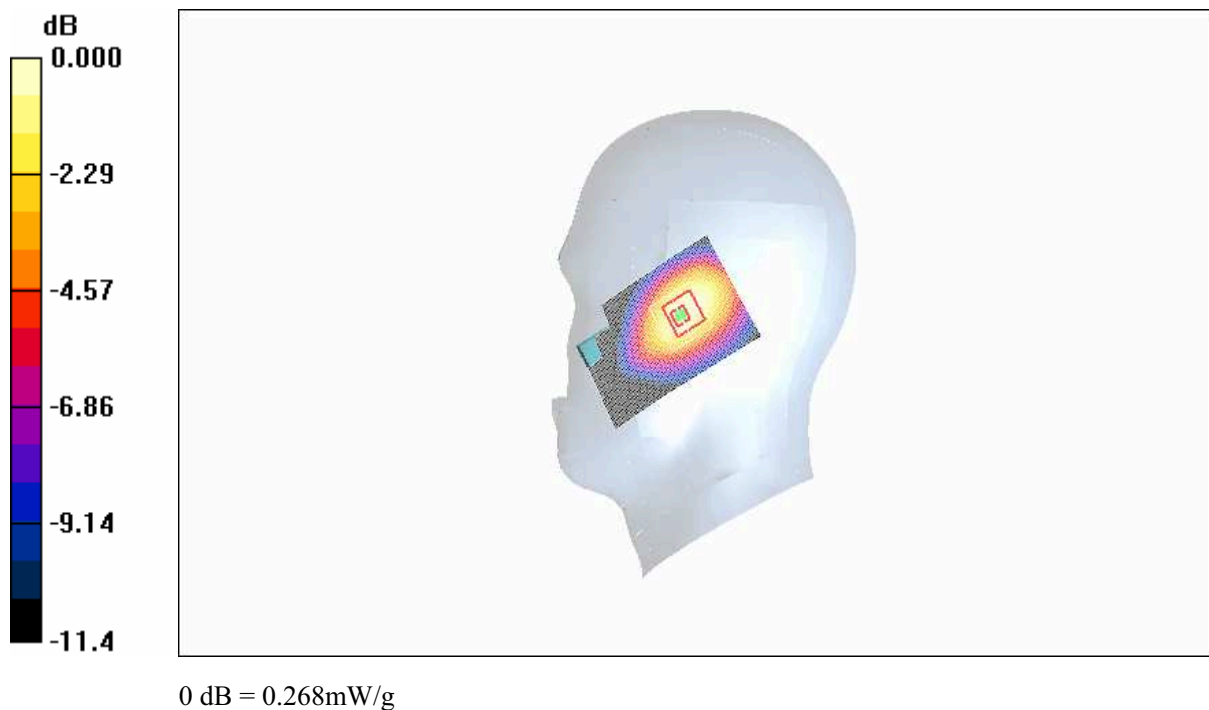


Fig. 13 850 MHz CH251

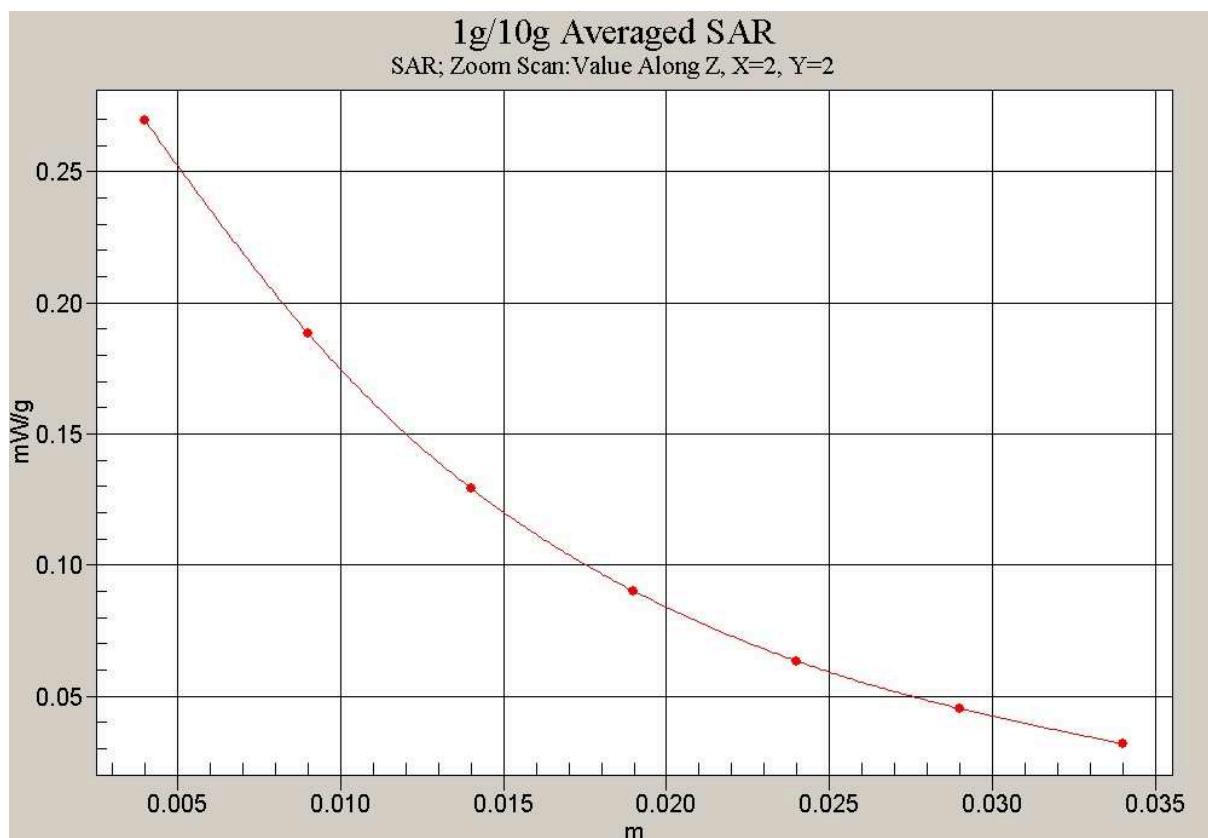


Fig. 14 Z-Scan at power reference point (850 MHz CH251)

850 Right Cheek Middle

Date/Time: 2007-1-16 09:57:54

Electronics: DAE3 Sn536

Medium: 850 Head

Medium parameters used (interpolated): $\sigma = 0.91$ mho/m; $\epsilon_r = 41.6$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: GSM 850 Frequency: 836.6 MHz Duty Cycle: 1:8.3

Probe: ET3DV6 - SN1736 ConvF(6.51, 6.51, 6.51)

Cheek Middle/Area Scan (51x81x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.177 mW/g

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

Reference Value = 11.4 V/m; Power Drift = -0.059 dB

Peak SAR (extrapolated) = 0.237 W/kg

SAR(1 g) = 0.160 mW/g; SAR(10 g) = 0.105 mW/g

Maximum value of SAR (measured) = 0.172 mW/g

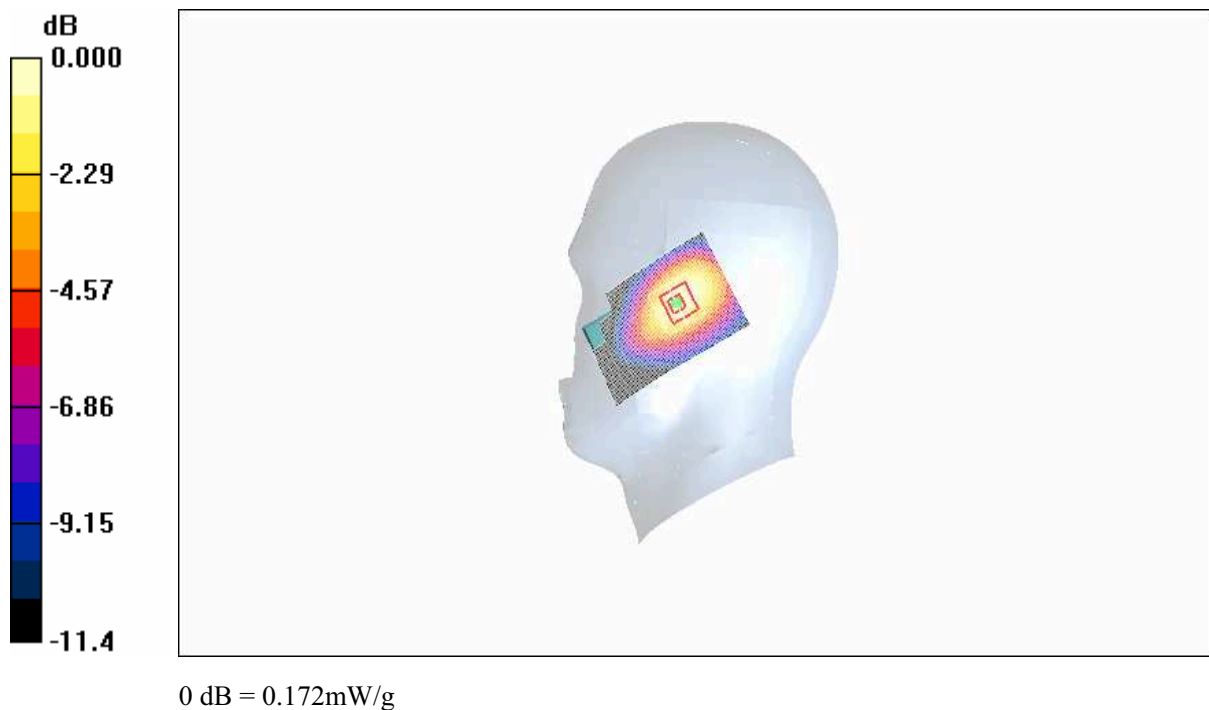


Fig. 15 850 MHz CH190

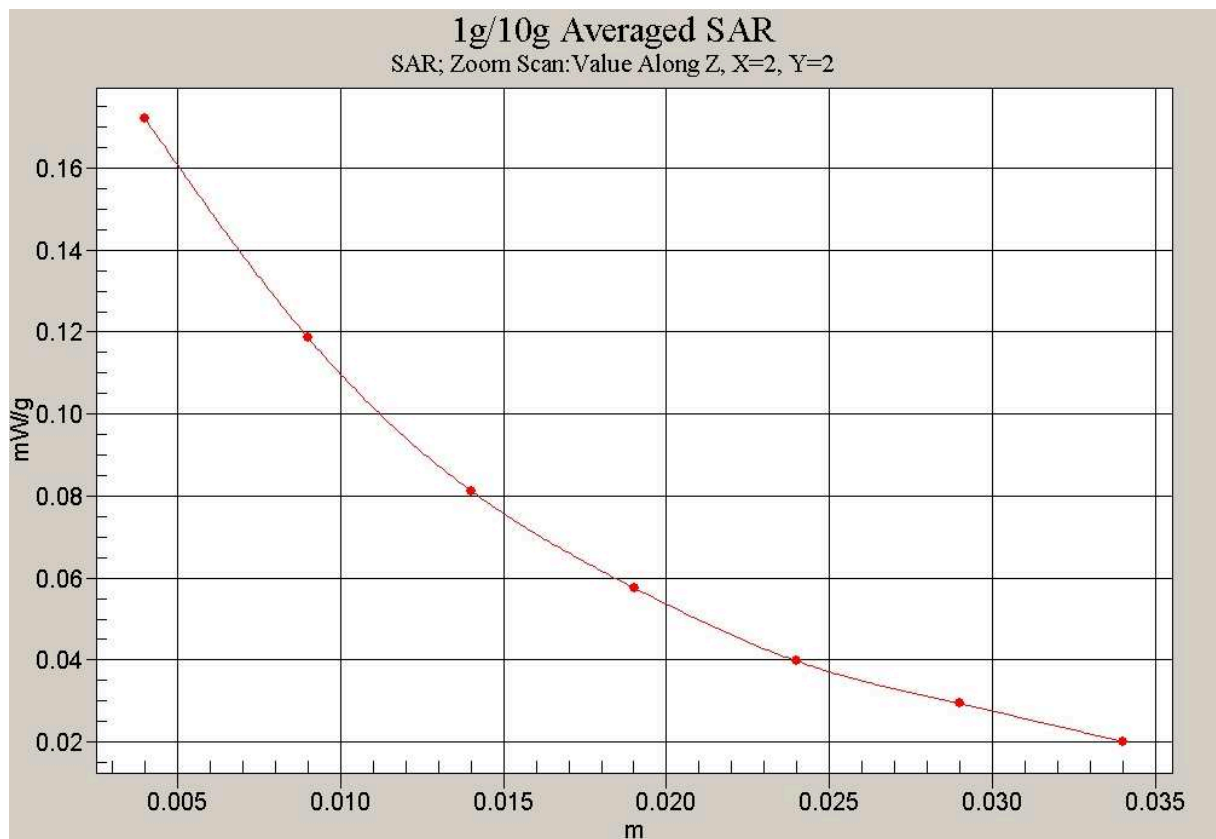


Fig. 16 Z-Scan at power reference point (850 MHz CH190)

850 Right Cheek Low

Date/Time: 2007-1-16 10:15:11

Electronics: DAE3 Sn536

Medium: 850 Head

Medium parameters used (interpolated): $\sigma = 0.91$ mho/m; $\epsilon_r = 41.6$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: GSM 850 Frequency: 824.2 MHz Duty Cycle: 1:8.3

Probe: ET3DV6 - SN1736 ConvF(6.51, 6.51, 6.51)

Cheek Low/Area Scan (51x81x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.130 mW/g

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

Reference Value = 9.85 V/m; Power Drift = -0.006 dB

Peak SAR (extrapolated) = 0.177 W/kg

SAR(1 g) = 0.119 mW/g; SAR(10 g) = 0.078 mW/g

Maximum value of SAR (measured) = 0.127 mW/g

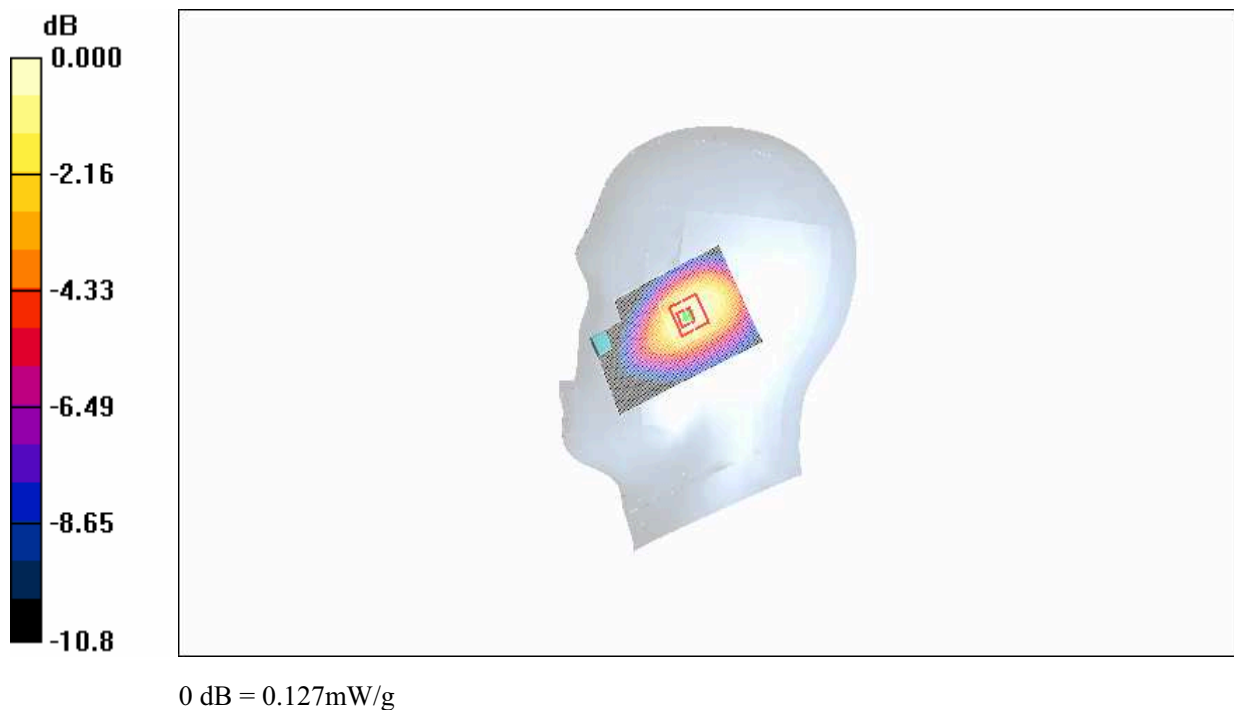


Fig. 17 850 MHz CH128

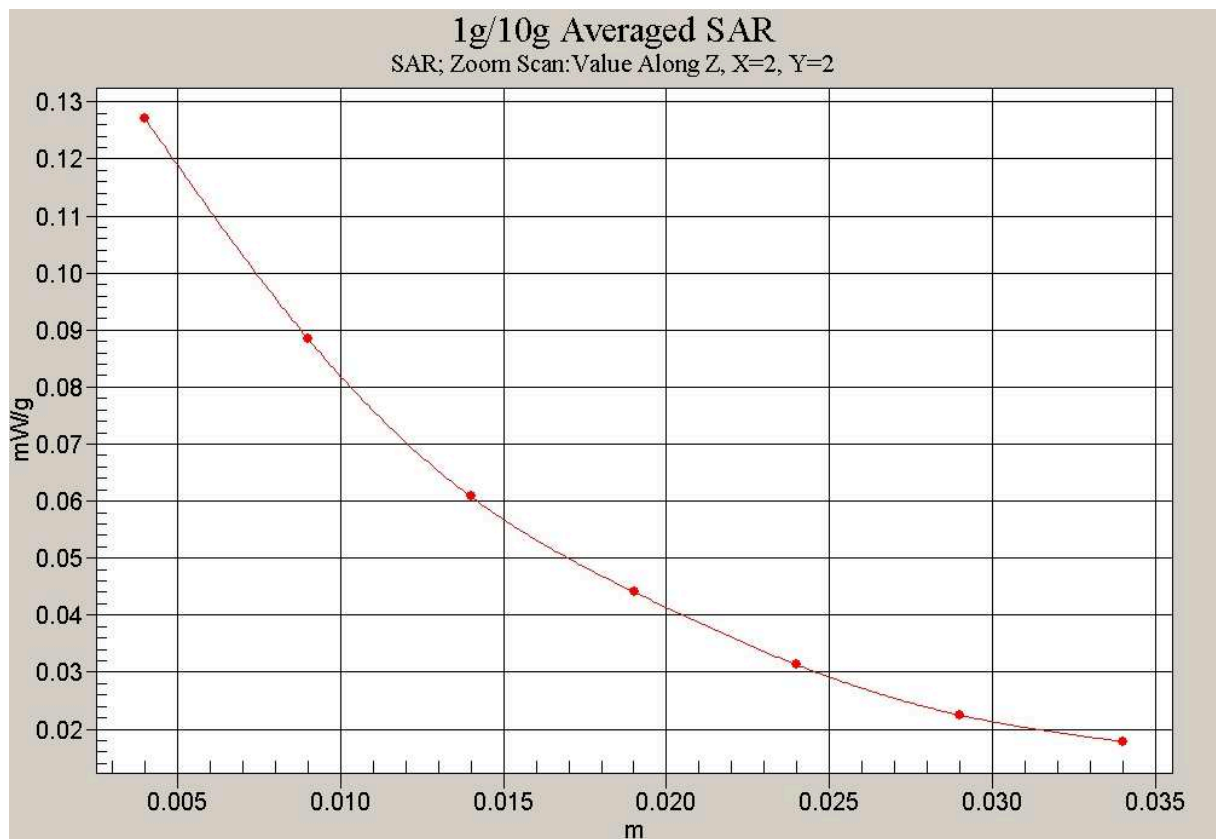


Fig. 18 Z-Scan at power reference point (850 MHz CH128)

850 Right Tilt High

Date/Time: 2007-1-16 11:12:43

Electronics: DAE3 Sn536

Medium: 850 Head

Medium parameters used (interpolated): $\sigma = 0.91$ mho/m; $\epsilon_r = 41.6$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: GSM 850 Frequency: 848.8 MHz Duty Cycle: 1:8.3

Probe: ET3DV6 - SN1736 ConvF(6.51, 6.51, 6.51)

Tilt High/Area Scan (51x81x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.115 mW/g

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

Reference Value = 10.7 V/m; Power Drift = 0.016 dB

Peak SAR (extrapolated) = 0.147 W/kg

SAR(1 g) = 0.101 mW/g; SAR(10 g) = 0.066 mW/g

Maximum value of SAR (measured) = 0.102 mW/g

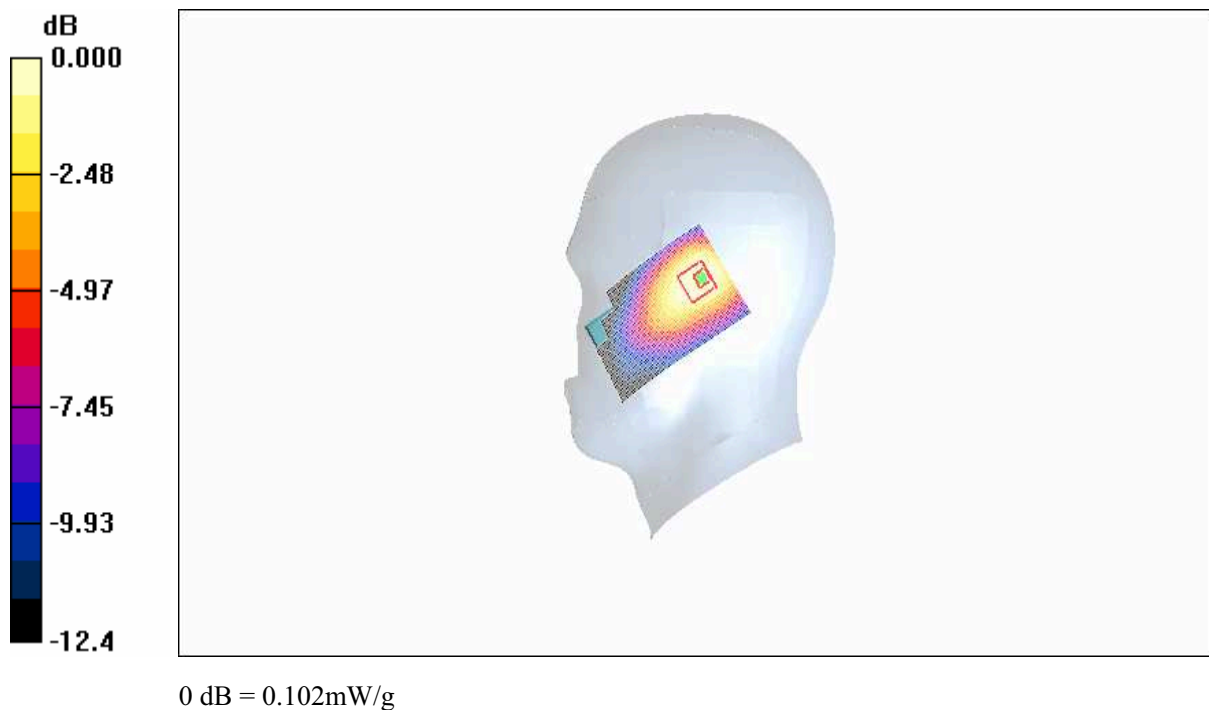


Fig.19 850 MHz CH251

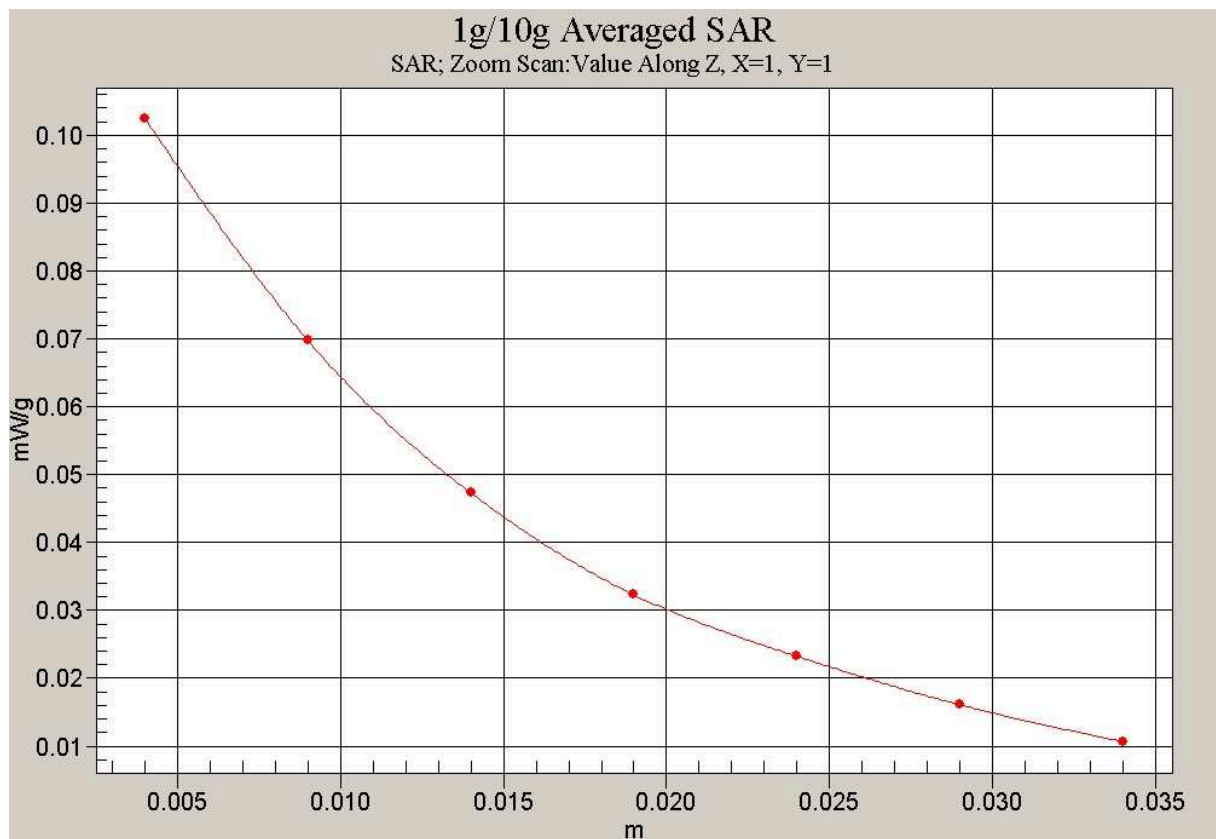


Fig. 20 Z-Scan at power reference point (850 MHz CH251)

850 Right Tilt Middle

Date/Time: 2007-1-16 10:56:14

Electronics: DAE3 Sn536

Medium: 850 Head

Medium parameters used (interpolated): $\sigma = 0.91$ mho/m; $\epsilon_r = 41.6$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: GSM 850 Frequency: 836.6 MHz Duty Cycle: 1:8.3

Probe: ET3DV6 - SN1736 ConvF(6.51, 6.51, 6.51)

Tilt Middle/Area Scan (51x81x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.074 mW/g

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

Reference Value = 8.56 V/m; Power Drift = 0.015 dB

Peak SAR (extrapolated) = 0.091 W/kg

SAR(1 g) = 0.064 mW/g; SAR(10 g) = 0.042 mW/g

Maximum value of SAR (measured) = 0.066 mW/g

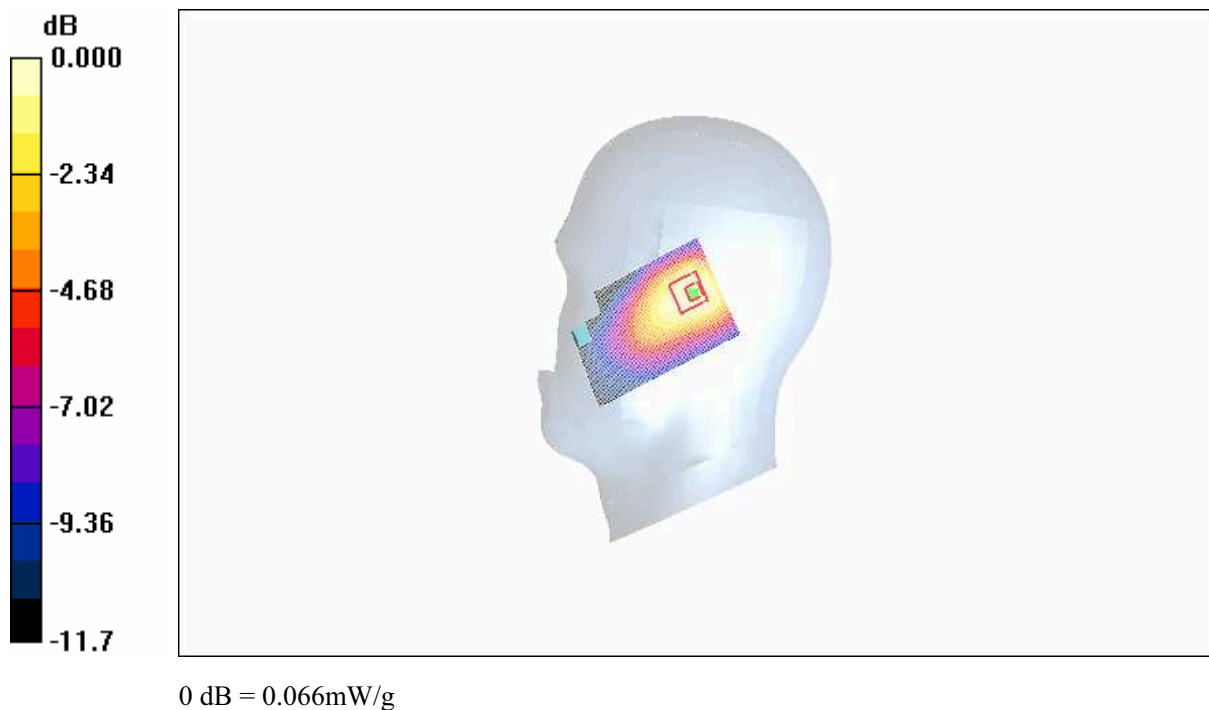


Fig.21 850 MHz CH190

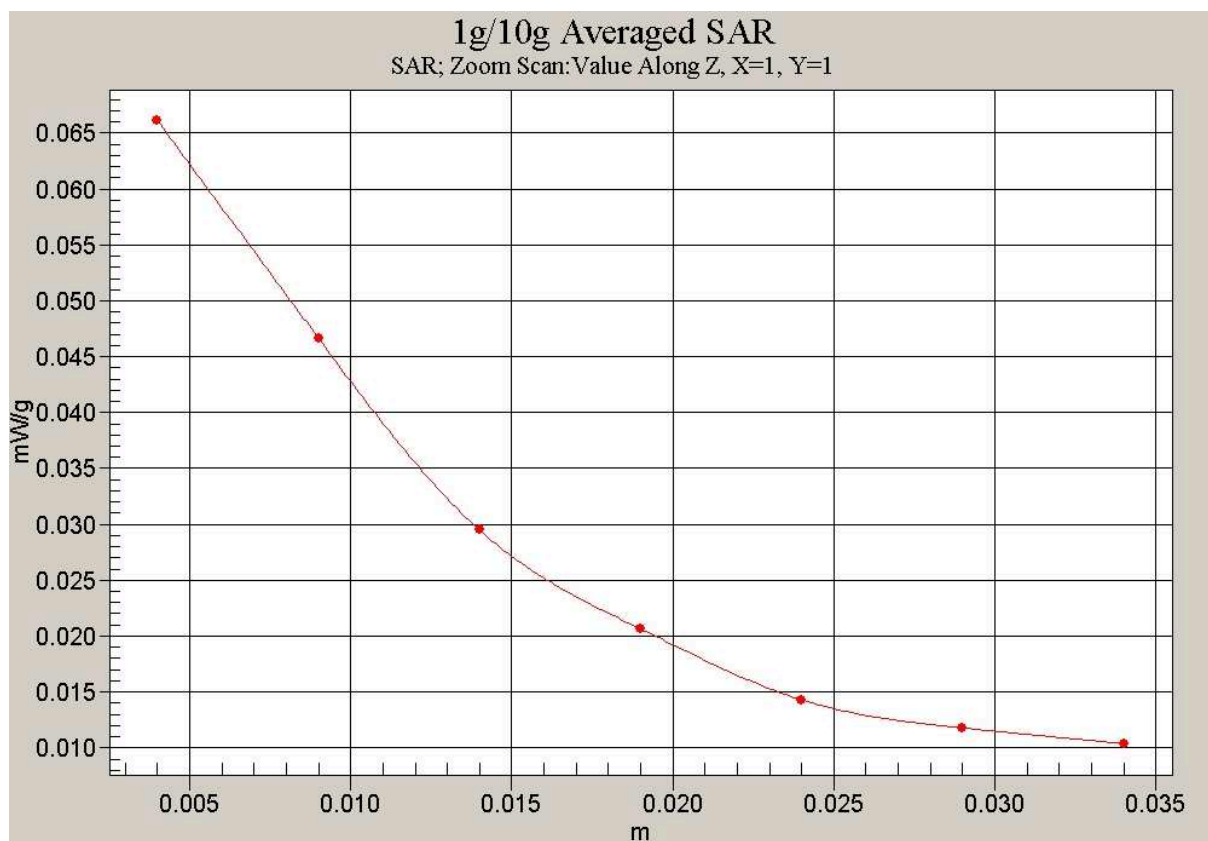


Fig. 22 Z-Scan at power reference point (850 MHz CH190)

850 Right Tilt Low

Date/Time: 2007-1-16 10:39:10

Electronics: DAE3 Sn536

Medium: 850 Head

Medium parameters used (interpolated): $\sigma = 0.91$ mho/m; $\epsilon_r = 41.6$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: GSM 850 Frequency: 824.2 MHz Duty Cycle: 1:8.3

Probe: ET3DV6 - SN1736 ConvF(6.51, 6.51, 6.51)

Tilt Low/Area Scan (51x81x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.055 mW/g

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

Reference Value = 7.55 V/m; Power Drift = -0.098 dB

Peak SAR (extrapolated) = 0.072 W/kg

SAR(1 g) = 0.049 mW/g; SAR(10 g) = 0.032 mW/g

Maximum value of SAR (measured) = 0.050 mW/g

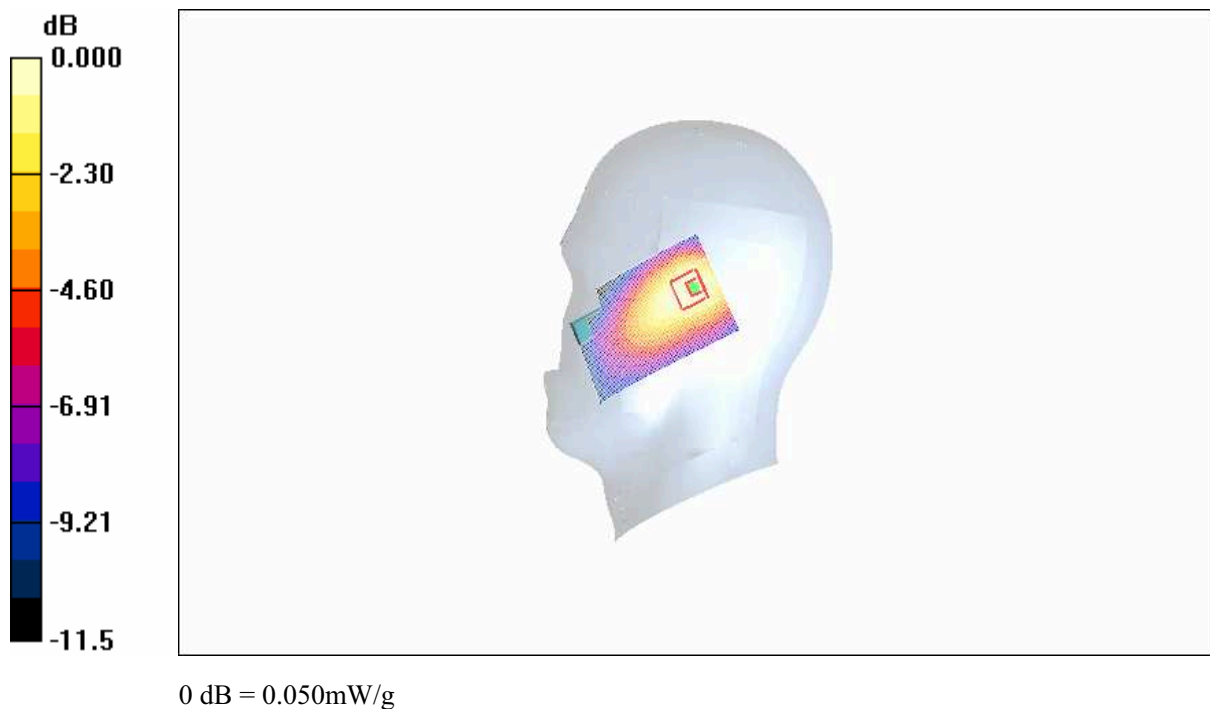


Fig. 23 850 MHz CH128

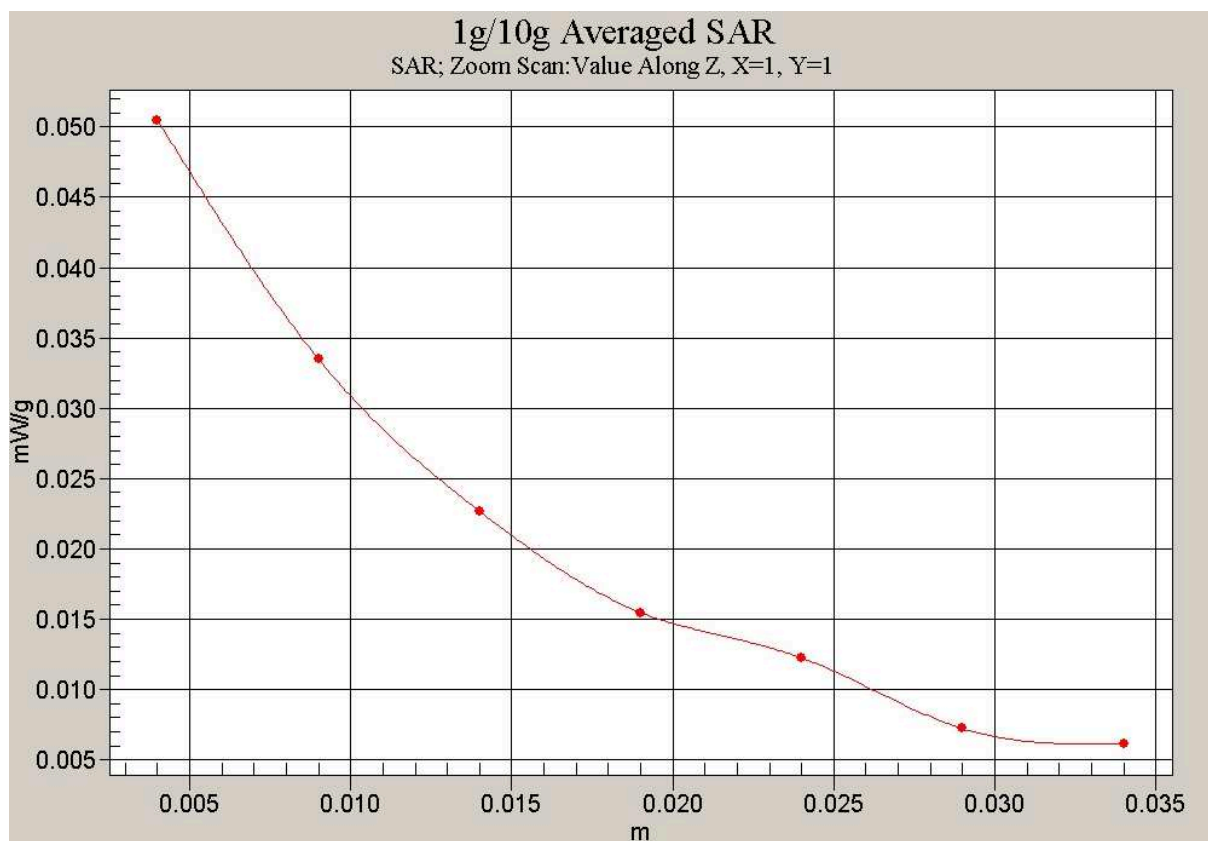


Fig. 24 Z-Scan at power reference point (850 MHz CH128)

850 Body Towards Phantom High

Date/Time: 2007-1-16 12:25:14

Electronics: DAE3 Sn536

Medium: 850 Body

Medium parameters used (interpolated): $\sigma = 1.00$ mho/m; $\epsilon_r = 53.4$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: GSM 850 Frequency: 848.8 MHz Duty Cycle: 1:8.3

Probe: ET3DV6 - SN1736 ConvF(6.45, 6.45, 6.45)

Toward Phantom High/Area Scan (51x81x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.103 mW/g

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

Reference Value = 9.68 V/m; Power Drift = 0.024 dB

Peak SAR (extrapolated) = 0.123 W/kg

SAR(1 g) = 0.096 mW/g; SAR(10 g) = 0.066 mW/g

Maximum value of SAR (measured) = 0.102 mW/g

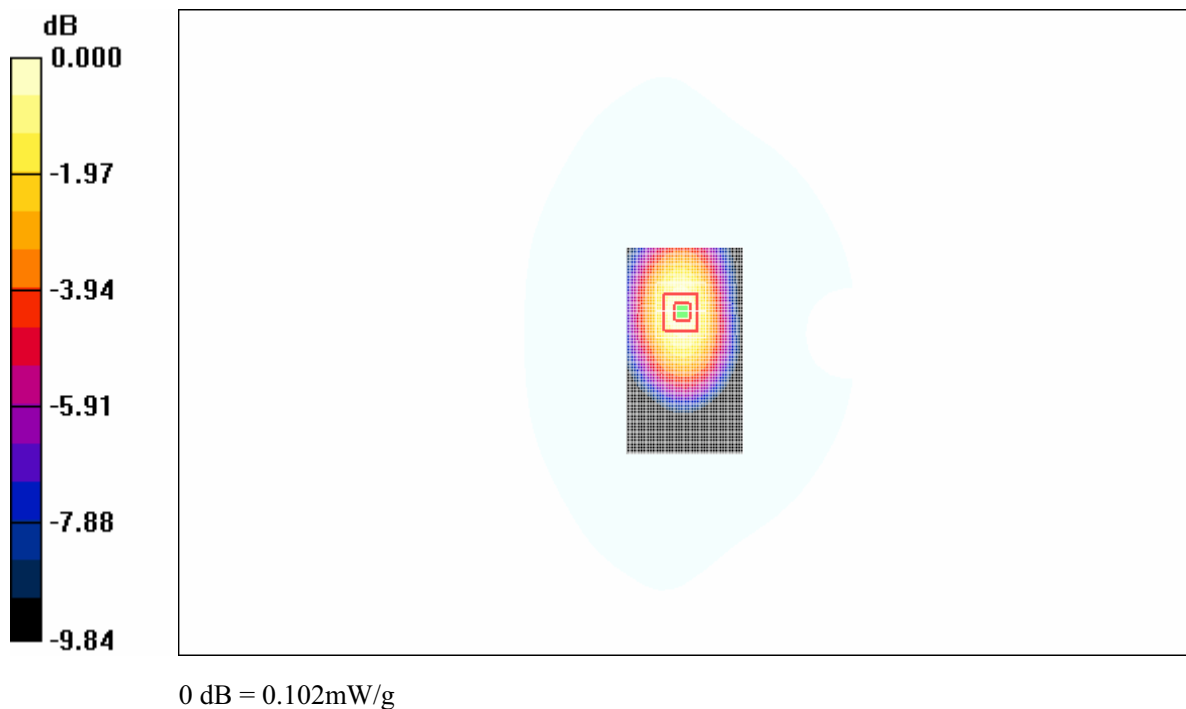


Fig. 25 850 MHz CH251

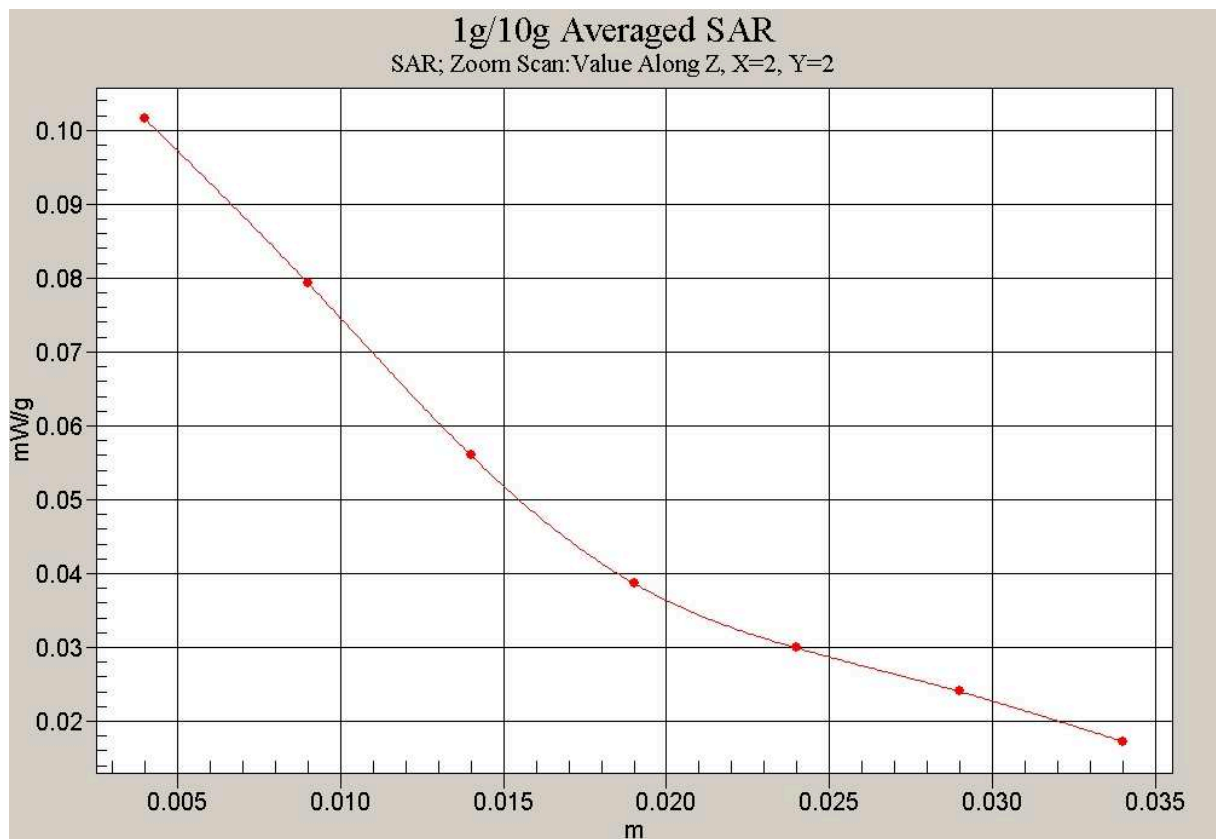


Fig. 26 Z-Scan at power reference point (850 MHz CH251)

850 Body Towards Phantom Middle

Date/Time: 2007-1-16 12:49:06

Electronics: DAE3 Sn536

Medium: 850 Body

Medium parameters used (interpolated): $\sigma = 1.00$ mho/m; $\epsilon_r = 53.4$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: GSM 850 Frequency: 836.6 MHz Duty Cycle: 1:8.3

Probe: ET3DV6 - SN1736 ConvF(6.45, 6.45, 6.45)

Toward Phantom Middle/Area Scan (51x81x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.058 mW/g

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

Reference Value = 7.16 V/m; Power Drift = -0.071 dB

Peak SAR (extrapolated) = 0.062 W/kg

SAR(1 g) = 0.053 mW/g; SAR(10 g) = 0.037 mW/g

Maximum value of SAR (measured) = 0.057 mW/g

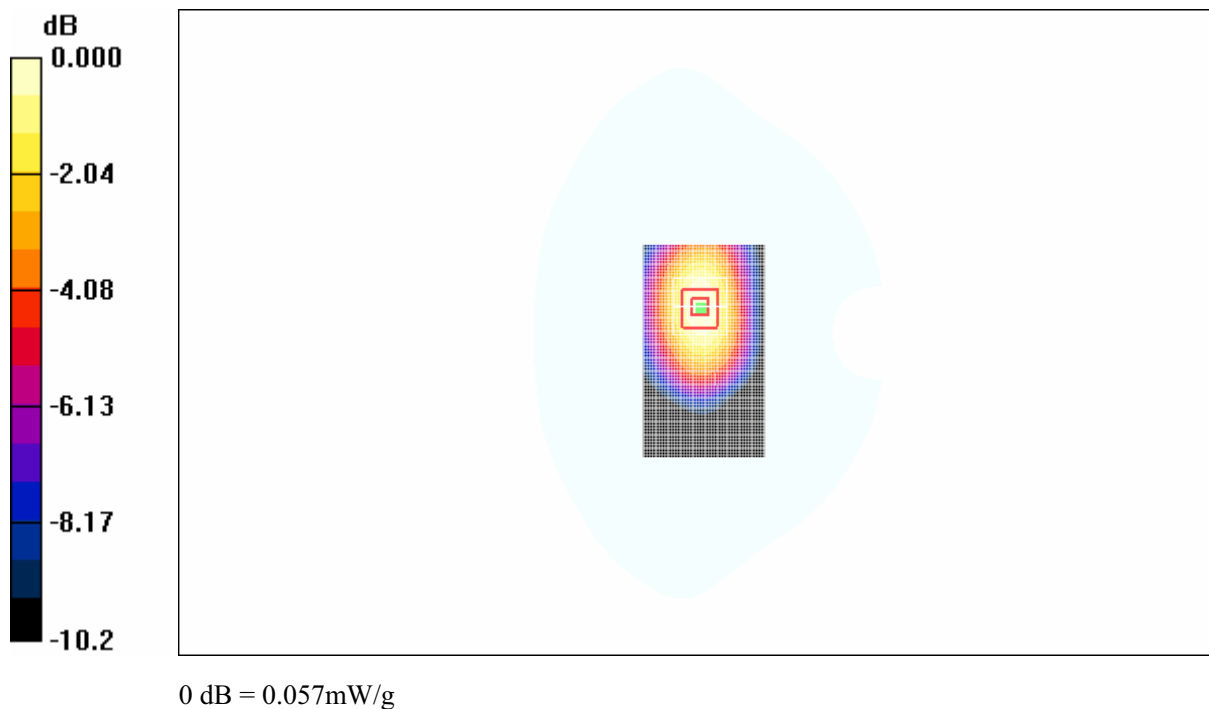


Fig. 27 850 MHz CH190

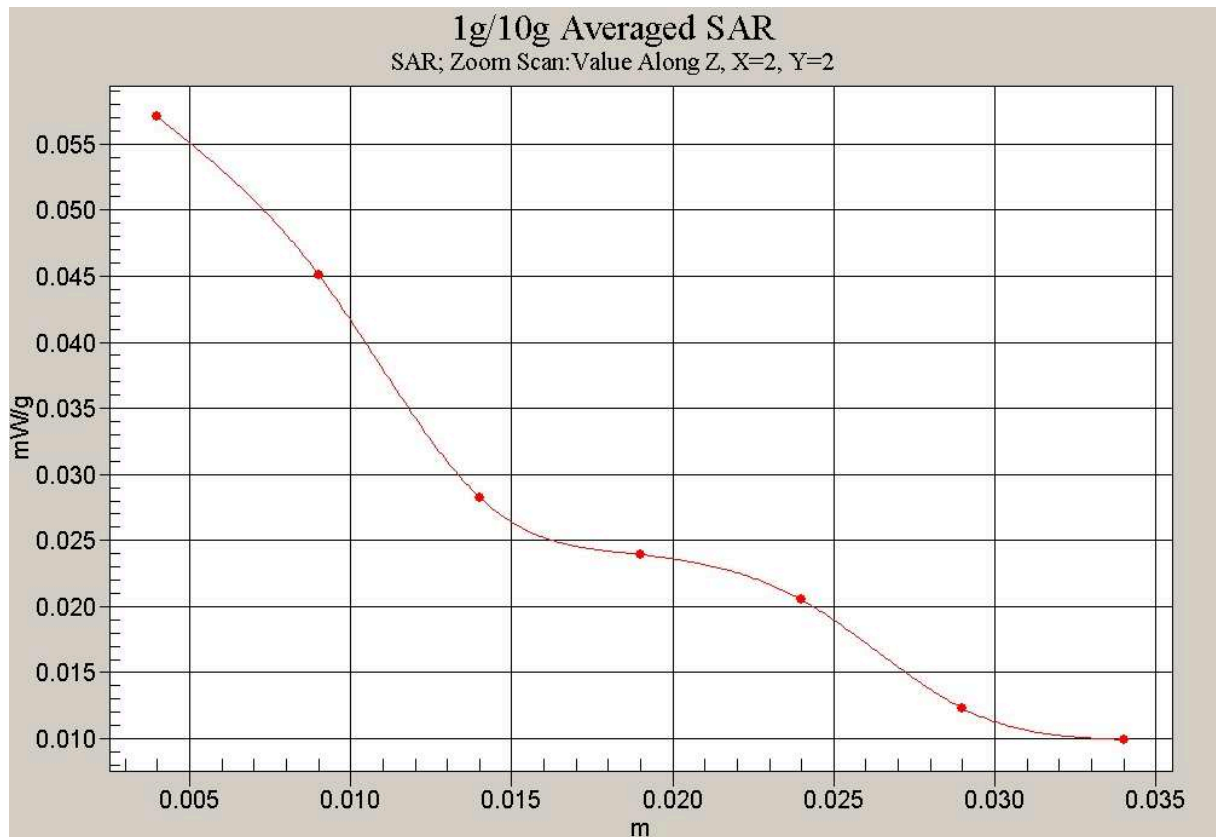


Fig. 28 Z-Scan at power reference point (850 MHz CH190)

850 Body Towards Phantom Low

Date/Time: 2007-1-16 13:07:40

Electronics: DAE3 Sn536

Medium: 850 Body

Medium parameters used (interpolated): $\sigma = 1.00$ mho/m; $\epsilon_r = 53.4$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: GSM 850 Frequency: 824.2 MHz Duty Cycle: 1:8.3

Probe: ET3DV6 - SN1736 ConvF(6.45, 6.45, 6.45)

Toward Phantom Low/Area Scan (51x81x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.034 mW/g

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

Reference Value = 5.37 V/m; Power Drift = 0.111 dB

Peak SAR (extrapolated) = 0.042 W/kg

SAR(1 g) = 0.031 mW/g; SAR(10 g) = 0.022 mW/g

Maximum value of SAR (measured) = 0.033 mW/g

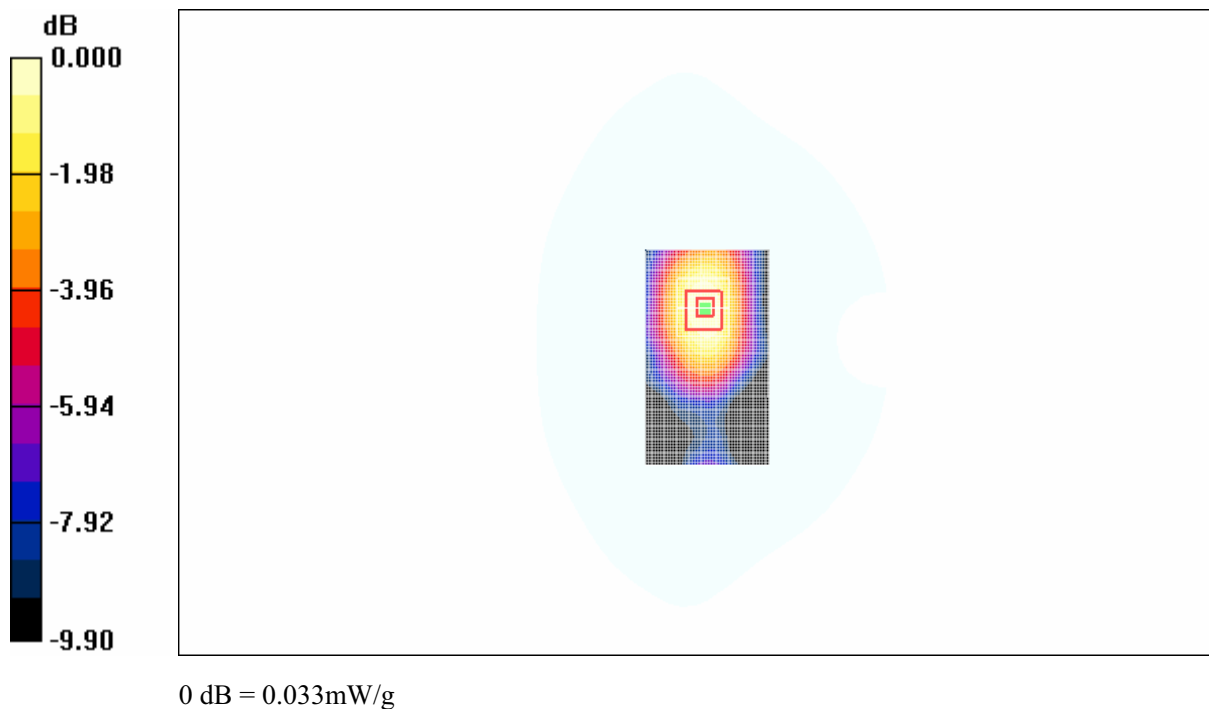


Fig. 29 850 MHz CH128

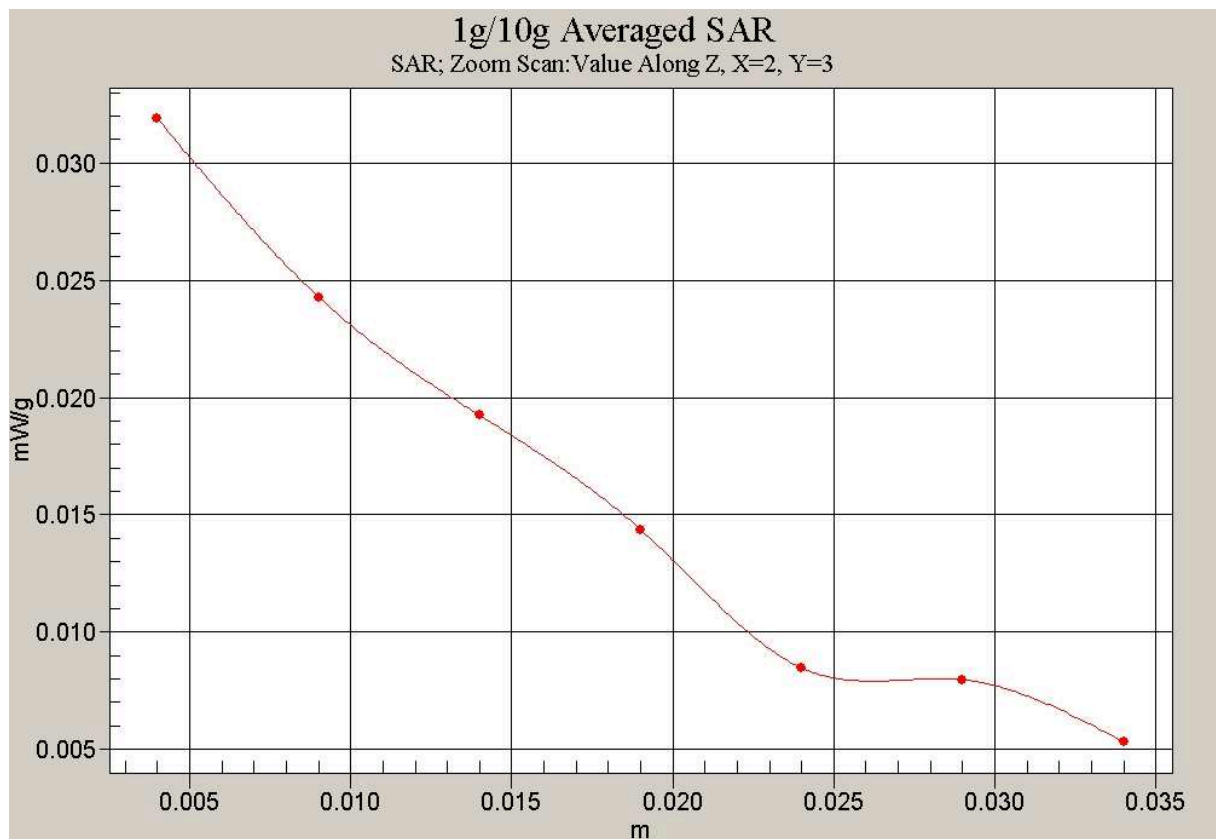


Fig. 30 Z-Scan at power reference point (850 MHz CH128)

850 Body Towards Ground High

Date/Time: 2007-1-16 14:17:08

Electronics: DAE3 Sn536

Medium: 850 Body

Medium parameters used (interpolated): $\sigma = 1.00$ mho/m; $\epsilon_r = 53.4$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: GSM 850 Frequency: 848.8 MHz Duty Cycle: 1:8.3

Probe: ET3DV6 - SN1736 ConvF(6.45, 6.45, 6.45)

Toward Ground High/Area Scan (51x81x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.373 mW/g

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

Reference Value = 18.1 V/m; Power Drift = -0.012 dB

Peak SAR (extrapolated) = 0.488 W/kg

SAR(1 g) = 0.338 mW/g; SAR(10 g) = 0.229 mW/g

Maximum value of SAR (measured) = 0.362 mW/g

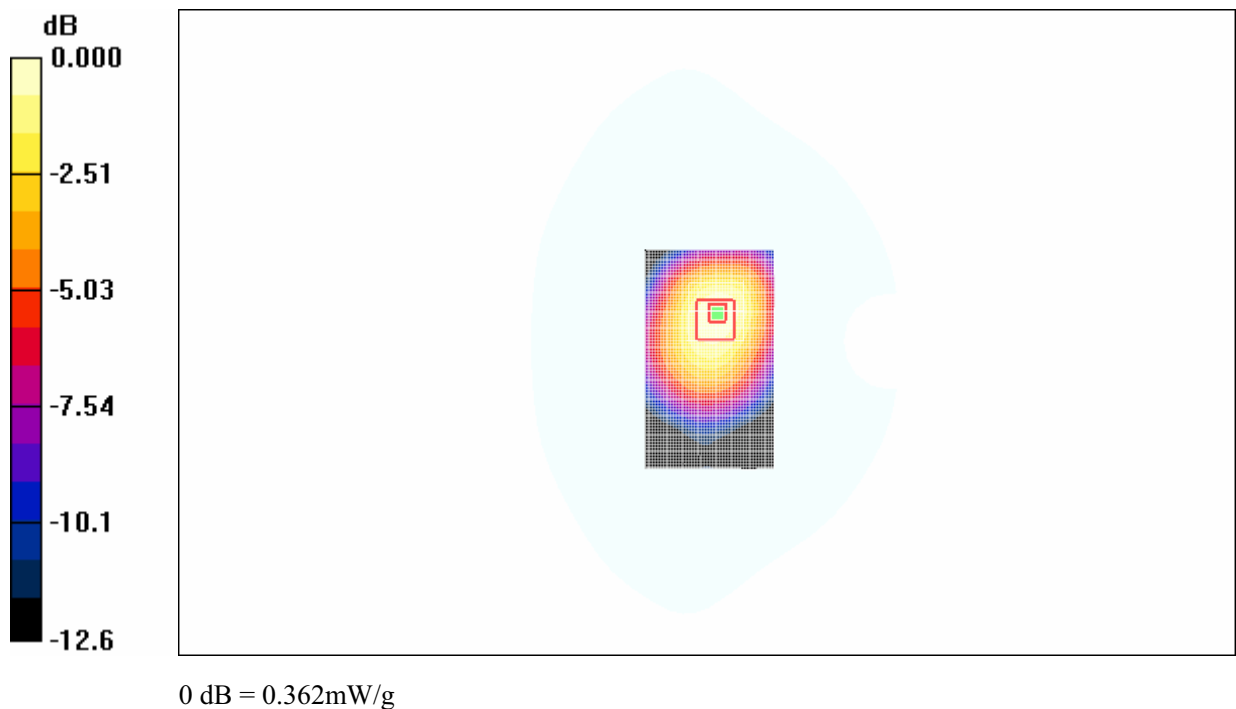


Fig. 31 850 MHz CH251

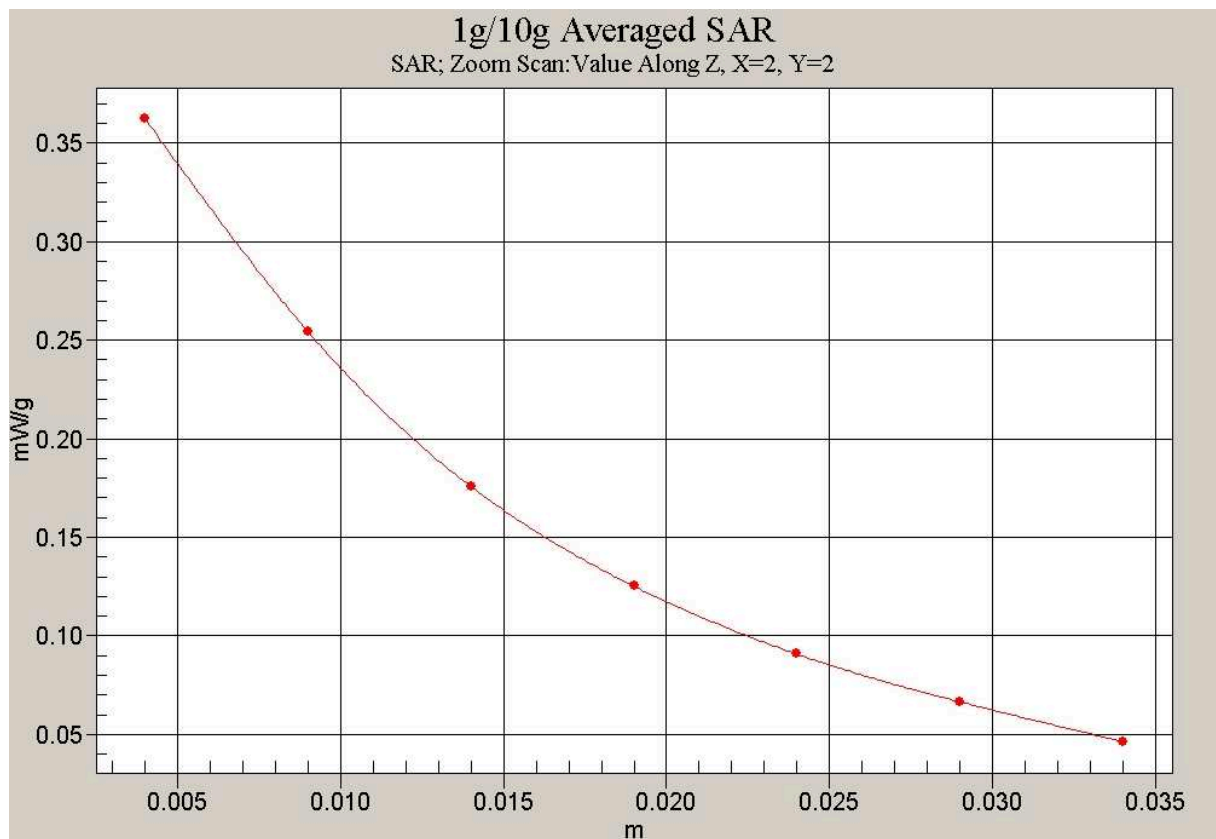


Fig. 32 Z-Scan at power reference point (850 MHz CH251)

850 Body Towards Ground Middle

Date/Time: 2007-1-16 13:53:29

Electronics: DAE3 Sn536

Medium: 850 Body

Medium parameters used (interpolated): $\sigma = 1.00$ mho/m; $\epsilon_r = 53.4$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: GSM 850 Frequency: 836.6 MHz Duty Cycle: 1:8.3

Probe: ET3DV6 - SN1736 ConvF(6.45, 6.45, 6.45)

Toward Ground Middle/Area Scan (51x81x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.205 mW/g

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

Reference Value = 13.1 V/m; Power Drift = 0.024 dB

Peak SAR (extrapolated) = 0.280 W/kg

SAR(1 g) = 0.188 mW/g; SAR(10 g) = 0.126 mW/g

Maximum value of SAR (measured) = 0.201 mW/g

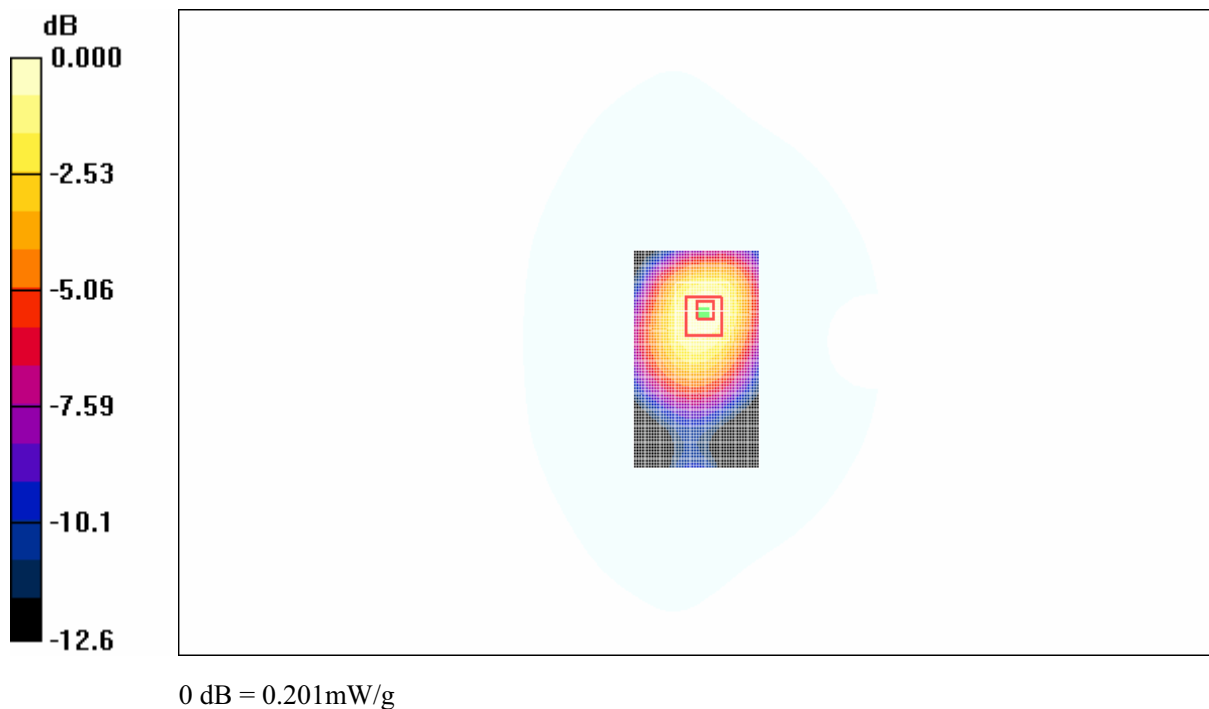


Fig. 33 850 MHz CH190

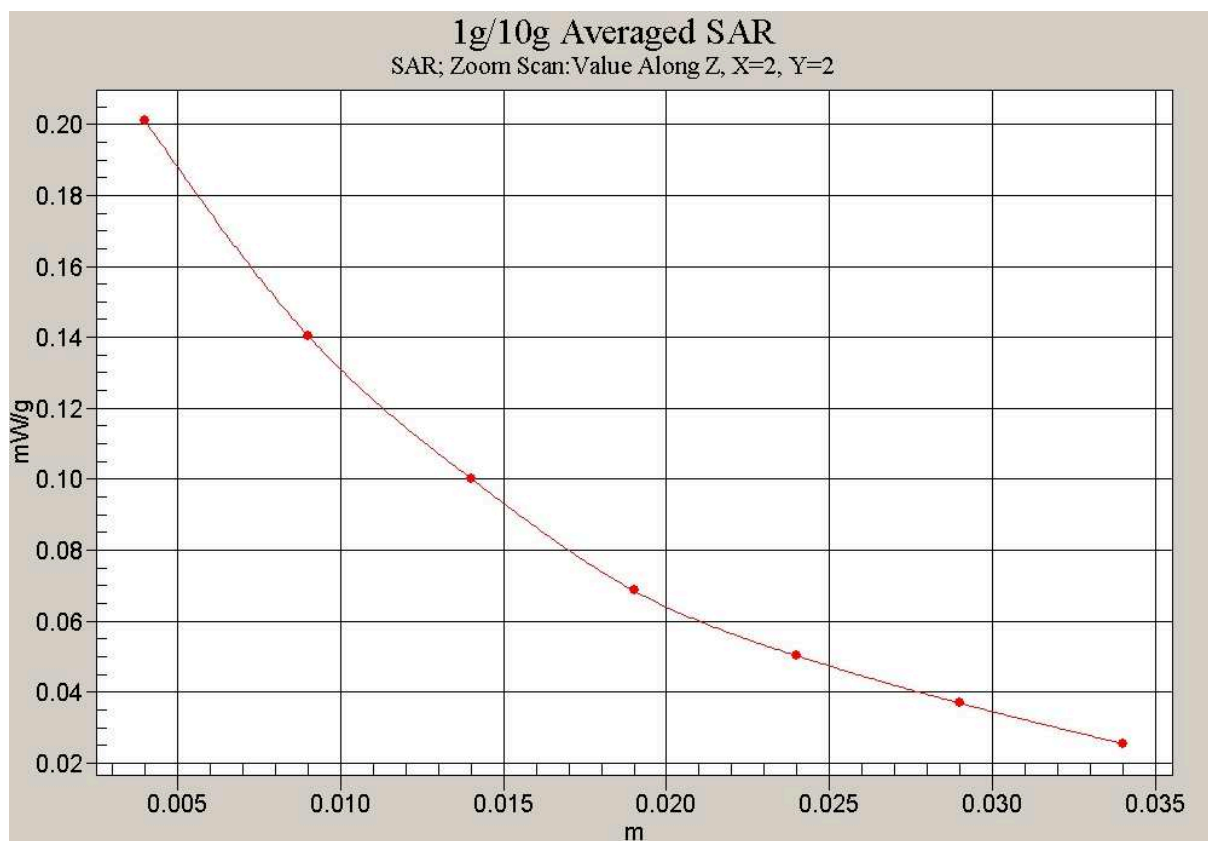


Fig. 34 Z-Scan at power reference point (850 MHz CH190)

850 Body Towards Ground Low

Date/Time: 2007-1-16 13:29:48

Electronics: DAE3 Sn536

Medium: 850 Body

Medium parameters used (interpolated): $\sigma = 1.00$ mho/m; $\epsilon_r = 53.4$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

Communication System: GSM 850 Frequency: 824.2 MHz Duty Cycle: 1:8.3

Probe: ET3DV6 - SN1736 ConvF(6.45, 6.45, 6.45)

Toward Ground Low/Area Scan (51x81x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.112 mW/g

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

Reference Value = 9.33 V/m; Power Drift = 0.161 dB

Peak SAR (extrapolated) = 0.163 W/kg

SAR(1 g) = 0.105 mW/g; SAR(10 g) = 0.070 mW/g

Maximum value of SAR (measured) = 0.110 mW/g

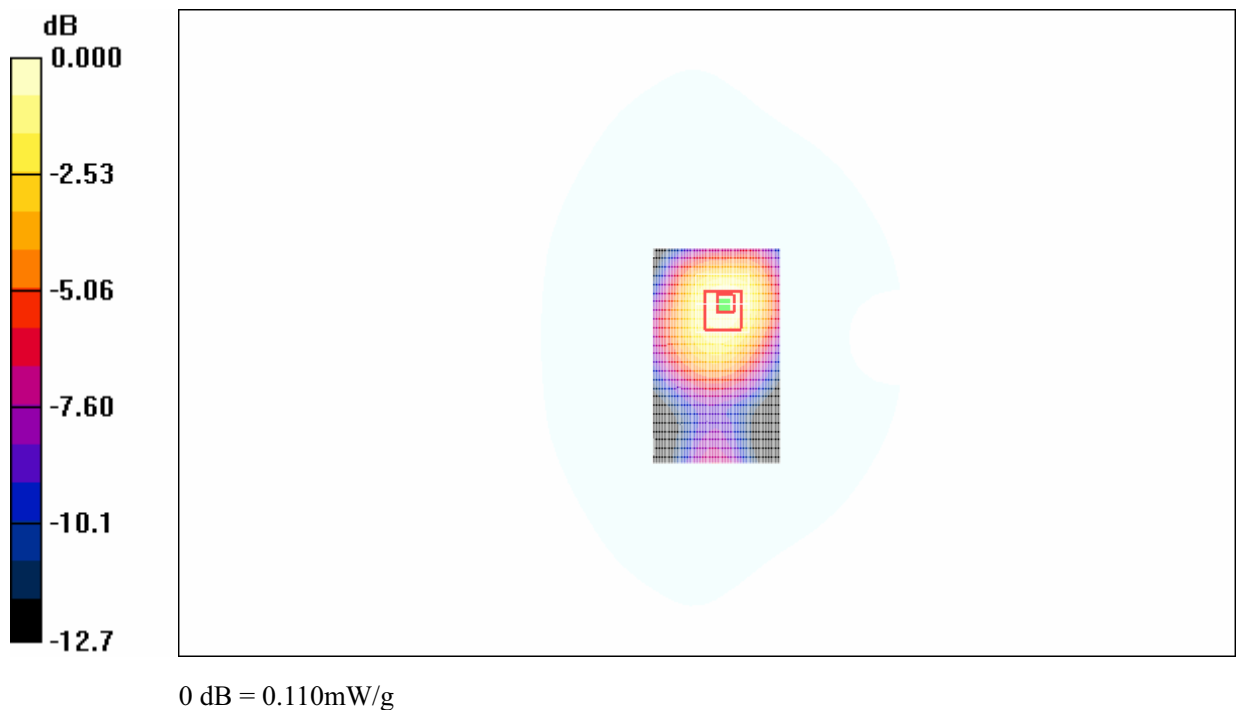


Fig. 35 850 MHz CH128

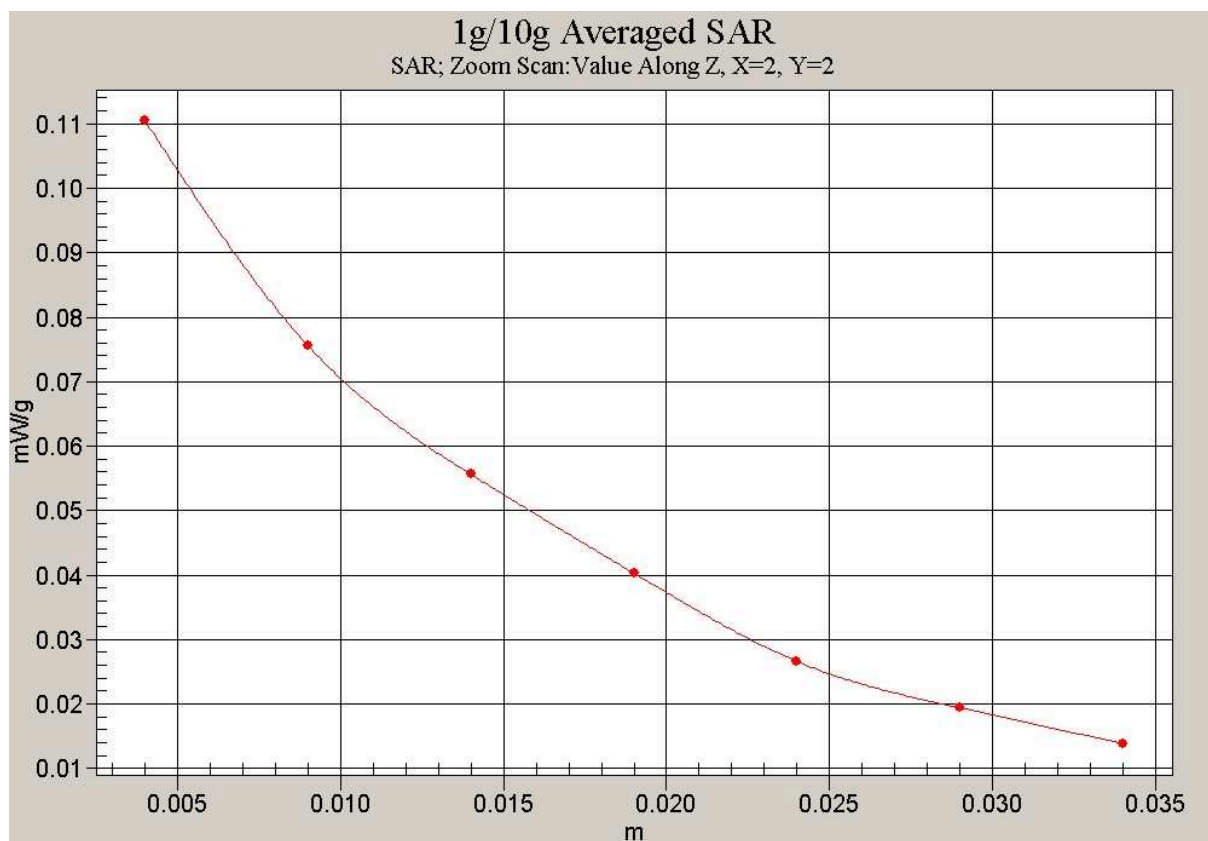


Fig. 36 Z-Scan at power reference point (850 MHz CH128)

850 Body Towards Phantom High with GPRS

Date/Time: 2007-1-16 14:52:21

Electronics: DAE3 Sn536

Medium: 850 Body

Medium parameters used (interpolated): $\sigma = 1.00$ mho/m; $\epsilon_r = 53.4$; $\rho = 1000$ kg/m³

Ambient Temperature: 23.3°C Liquid Temperature: 22.5°C

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

Probe: ET3DV6 - SN1736 ConvF(6.45, 6.45, 6.45)

Toward Phantom High/Area Scan (51x81x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.160 mW/g

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

Reference Value = 12.4 V/m; Power Drift = 0.200 dB

Peak SAR (extrapolated) = 0.193 W/kg

SAR(1 g) = 0.149 mW/g; SAR(10 g) = 0.104 mW/g

Maximum value of SAR (measured) = 0.157 mW/g

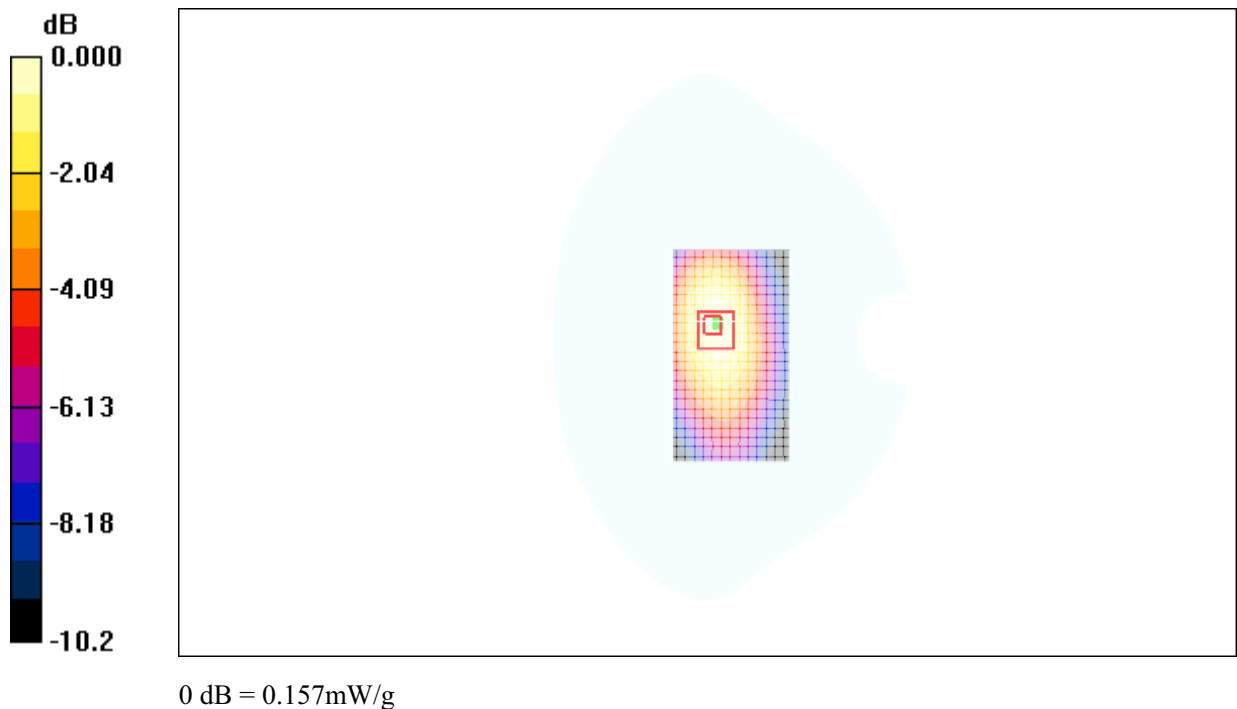


Fig. 37 850 MHz CH251

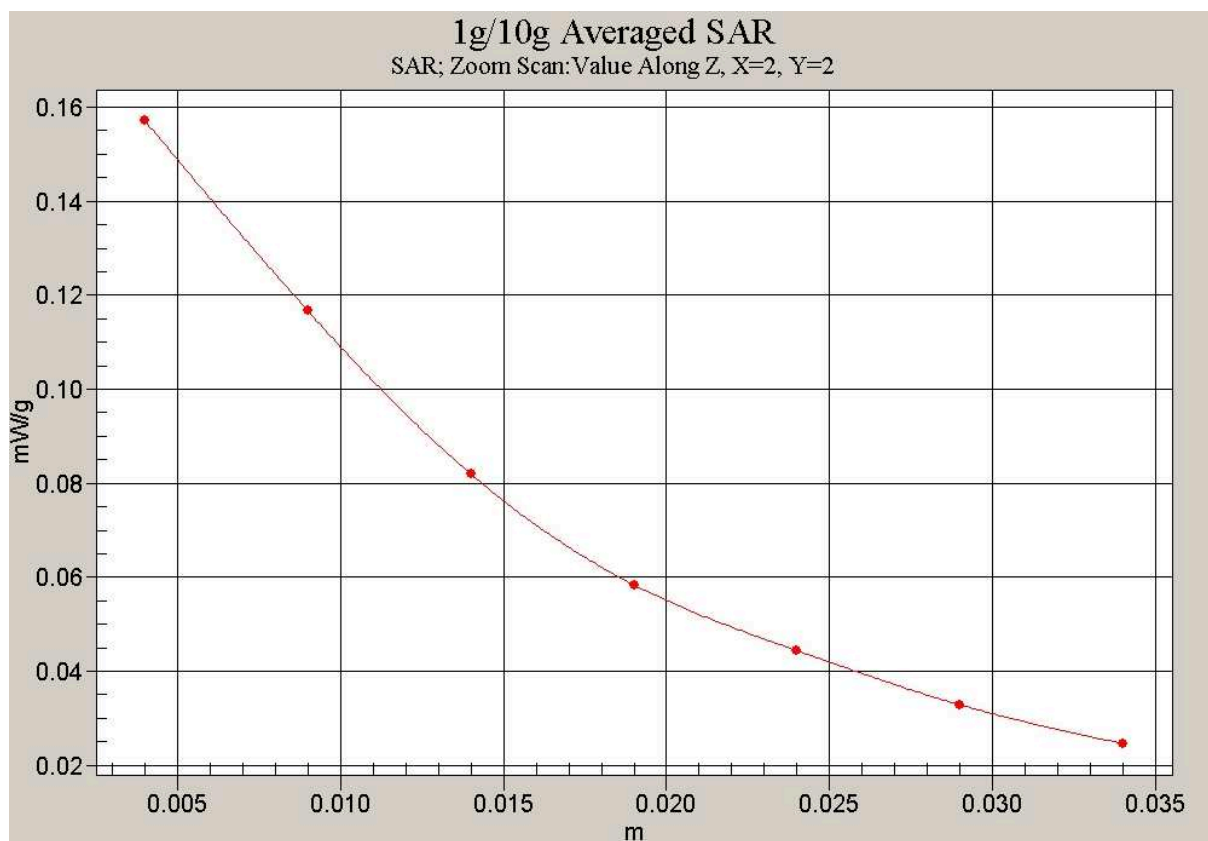


Fig. 38 Z-Scan at power reference point (850 MHz CH251)