NO.: RZA2008-0242

(No. CNAS L2264)

OET 65

TEST REPORT

Test name	Electromagnetic Field (Specific Absorption Rate)
Product	GSM Mobile Telephone
Model	HUAWEI T520
FCC ID	QIST520
Client	HUAWEI Technologies Co., Ltd.

TA Technology (Shanghai) Co., Ltd.

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GENERAL SUMMARY

Product	GSM Mobile Telephone	**Model**	HUAWEI T520
Client	HUAWEI Technologies Co., Ltd.	**Type of test**	Entrusted
Manufacturer	HUAWEI Technologies Co., Ltd.	**Arrival Date of sample**	Feb 29th, 2008
Place of sampling	(Blank)	**Carrier of the samples**	Hong Liu
Quantity of the samples	One	**Date of product**	(Blank)
Base of the samples	(Blank)	**Items of test**	SAR
Series number	01149900000002		
Standard(s)	**EN 50360–2001:** Product standard for the measurement of Specific Absorption Rate related to human exposure to electromagnetic fields from mobile phones. **EN 50361–2001:** Basic standard for the measurement of Specific Absorption Rate related to human exposure to electromagnetic fields from mobile phones. **ANSI C95.1–1999:** IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 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)		
Conclusion	Localized Specific Absorption Rate (SAR) of this portable wireless equipment has been measured in all cases requested by the relevant standards cited in Clause 6.2 of this test report. Maximum localized SAR is below exposure limits specified in the relevant standards cited in Clause 6.1 of this test report. General Judgment: **Pass** (Stamp) **Date of issue: Mar.13th, 2008**		
Comment	TX Freq. Band: GSM850 GSM 1900 Max. Power: 2Watt 1Watt		

Approved by (Chenguang Zheng) **Revised by** (WeizhongYang) **Performed by** (Minbao Ling)

TABLE OF CONTENT

1 COMPETENCE AND WARRANTIES

TA Technology (Shanghai) Co., Ltd. is a test laboratory competent to carry out the tests described in this test report.

TA Technology (Shanghai) Co., Ltd. guarantees the reliability of the data presented in this test report, which is the results of measurements and tests performed for the items under test on the date and under the conditions stated in this test report and is based on the knowledge and technical facilities available at TA Technology (Shanghai) Co., Ltd. at the time of execution of the test.

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2 GENERAL CONDITIONS

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3 DESCRIPTION OF EUT

3.1 Addressing Information Related to EUT

Table 1: Applicant (The Client)

Name or Company	HUAWEI Technologies Co., Ltd.
Address/Post	Bantian, Longgang District
City	Shenzhen
Postal Code	518129
Country	P.R. China
Telephone	0755-28780808
Fax	0755-28780808

Table 2: Manufacturer

Name or Company	HUAWEI Technologies Co., Ltd.
Address/Post	Bantian, Longgang District
City	Shenzhen
Postal Code	518129
Country	P.R. China
Telephone	0755-28780808
Fax	0755-28780808

3.2 Constituents of EUT

Table 3: Constituents of Samples

Description	Model	Serial Number	Manufacturer
Handset	HUAWEI T520	01149900000002	HUAWEI Technologies CO.,Ltd
Lithium Battery	HBC80S	BYD811440697	BYD CO.,Ltd
AC/DC Adapter	HS-050040U2	XQB811800004	SHENZHEN HUNTKEY POWER Technologies CO.,Ltd

Note:
The EUT appearances see ANNEX H.

3.3 General Description

Equipment Under Test (EUT) is a GSM Mobile Telephone with internal antenna. It consists of Handset, Lithium Battery and AC/DC Adapter. The detail about Mobile phone, Lithium Battery and AC/DC Adapter is in Table 3.Since it is a GSM850/GSM1900 Mobile phone, SAR is tested respectively for two bands. It has the GPRS (class 10) functions.

The sample undergoing test was selected by the Client.

Components list please refer to documents of the manufacturer

4 OPERATIONAL CONDITIONS DURING TEST

4.1 Test to be performed

During SAR test, EUT is in Traffic Mode (Channel Allocated). 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, 251 respectively in the case of GSM 850, 512, 661, 810 respectively in the case of GSM 1900. 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 GSM Test Configuration

SAR tests for GSM 850 and GSM 1900, a communication link is set up with a System Simulator (SS) by air link. Using E5515C the power lever is set to”5” in head SAR and body SAR of GSM850, but is”0” in head SAR and body SAR of GSM1900,

Since the EUT not only has the data transfer function, but also have the speech transfer function.

The tests in the band of GSM 850 and GSM 1900 are performed in the mode of speech transfer function and GPRS. And since the GPRS class is 10 for this EUT, it has at most 2timeslots in uplink.

5 SAR Measurements System Configuration

5.1 SAR Measurement Set-up

These measurements were performed with the automated near-field scanning system DASY4 from Schmid & Partner Engineering AG (SPEAG). The system is based on a high precision robot (working range greater than 0.9m) which positions the probes with a positional repeatability of better than ± 0.02mm. Special E- and H-field probes have been developed for measurements close to material discontinuity, the sensors of which are directly loaded with a Schottky diode and connected via highly resistive lines (length =300mm) to the data acquisition unit.

A cell controller system contains the power supply, robot controller, teaches pendant (Joystick) and remote control, is used to drive the robot motors. The PC consists of the Micron Pentium III 800 MHz computer with Windows 2000 system and SAR Measurement Software DASY4, 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.

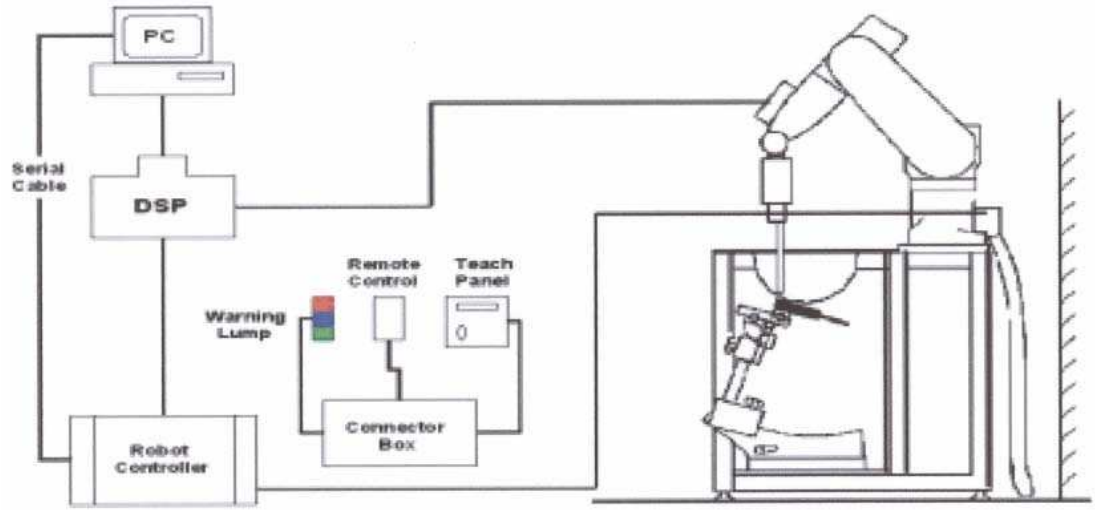


Figure1. SAR Lab Test Measurement Set-up

The DAE3 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.

5.2 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 ± 10%. The spherical isotropy was evaluated and found to be better than ± 0.25dB.

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 900MHz，1750MHz，1950MHz and 2450MHz (accuracy±8%) Calibration for other liquids and frequencies upon request
Frequency	I 0 MHz to > 6 GHz; Linearity: ±0.2 dB (30 MHz to 3 GHz)
Directivity	±0.2 dB in brain tissue (rotation around probe axis) ±0.4 dB in brain tissue (rotation normal probe axis)
Dynamic Range	5u W/g to > 100mW/g; Linearity: ±0.2dB
Surface Detection	±0.2 mm repeatability in air and clear liquids over diffuse reflecting surface(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

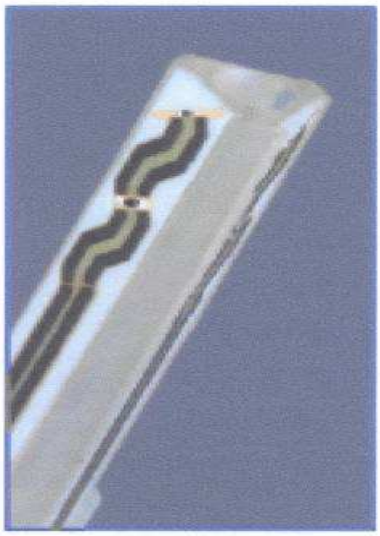


Figure2. ET3DV6 E-field Probe

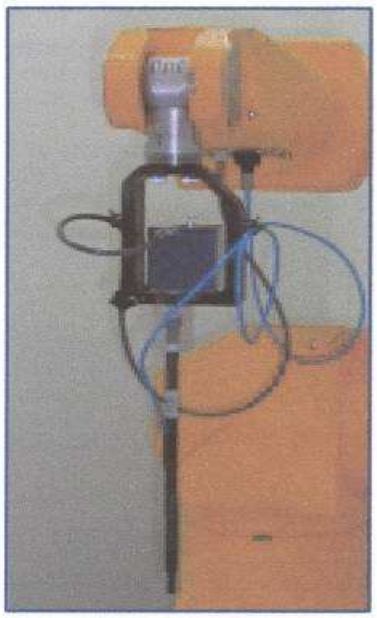


Figure3. ET3DV6 E-field probe

5.3 E-field Probe Calibration

Each probe is calibrated according to a dosimetric assessment procedure with accuracy better than ± 10%. The spherical isotropy was evaluated and found to be better than ± 0.25dB. The sensitivity parameters (NormX, NormY, NormZ), the diode compression parameter (DCP) and the conversion factor (ConvF) of the probe are tested.

The free space E-field from amplified probe outputs is determined in a test chamber. This is performed in a TEM cell for frequencies bellow 1 GHz, and in a wave guide above 1 GHz for free space. For the free space calibration, the probe is placed in the volumetric center of the cavity and at the proper orientation with the field. The probe is then rotated 360 degrees.
E-field temperature correlation calibration is performed in a flat phantom filled with the appropriate simulated brain tissue. The measured free space E-field in the medium correlates to temperature rise in a dielectric medium. For temperature correlation calibration a RF transparent thermistor-based temperature probe is used in conjunction with the E-field probe.

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

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

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

Where:
σ = Simulated tissue conductivity,
ρ = Tissue density (kg/m3).

5.4 Other Test Equipment

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

Figure4. Device Holder

5.4.2 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 l000 x 500 mm (H x L x W)
Available	Special

Figure5. Generic Twin Phantom

5.5 Equivalent Tissues

The liquid used for the frequency range of 800-2000 MHz consisted of water, sugar, salt, Preventol, Glycol, and Cellulose. The liquid has previously been proven to be suited for worst-case.
The Table 4 and Table 5 show the detail solution. It's satisfying the latest tissue dielectric parameters requirements proposed by the IEEE 1528.

Table 4: Composition of the Head Tissue Equivalent Matter

MIXTURE%	FREQUENCY(Brain) 835MHz
Water	41.45
Sugar	56
Salt	1.45
Preventol	0.1
Cellulose	1.0
Dielectric Parameters Target Value	f=835MHz ε=41.5 σ=0.9

MIXTURE%	FREQUENCY(Brain)1900MHz
Water	55.242
Glycol	44.452
Salt	0.306
Dielectric Parameters Target Value	f=1900MHz ε=40.0 σ=1.40

Table 5: Composition of the Body Tissue Equivalent Matter

MIXTURE%	FREQUENCY(Body)835MHz
Water	52.5
Sugar	45
Salt	1.4
Preventol	0.1
Cellulose	1.0
Dielectric Parameters Target Value	f=835MHz ε=55.2 σ=0.97

MIXTURE%	FREQUENCY(Body)1900MHz
Water	69.91
Glycol	29.96
Salt	0.13
Dielectric Parameters Target Value	f=1900MHz ε=53.3 σ=1.52

5.6 System Specifications

5.6.1 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.

6 CHARACTERISTICS OF THE TEST

6.1 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.

6.2 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.
It specifies the measurement method for demonstration of compliance with the SAR limits for such equipments.

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)

7 LABORATORY ENVIRONMENT

Table 6: The Ambient Conditions during Test

Temperature	Min. = 20 °C, Max. = 25 °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.	

8 CONDUCTED OUTPUT POWER MEASUREMENT

8.1 Summary

During the process of testing, the EUT was controlled via Digital Radio Communication tester 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.

8.2 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 11 to Table 18 labeled as: (Power Drift [dB]). This ensures that the power drift during one measurement is within 5%.

8.3 Conducted Power

8.3.1 Measurement Methods

The EUT was set up for the maximum output power. The channel power was measured. These measurements were done at 3 channels 128, 190 and 251 of GSM850, 3 channels 512, 661, 810 of GSM 1900, before SAR test and after SAR test.

8.3.2 Measurement result

Table 7: Conducted Power Measurement Results

GSM 850	**Conducted Power**		
	Channel 128 (824.2MHz)	Channel 190 (836.6MHz)	Channel 251 (848.8MHz)
Before Test (dBm)	32.68	32.88	32.67
After Test (dBm)	32.58	32.79	32.58
GSM 1900	**Conducted Power**		
	Channel 512 (1850.2MHz)	Channel 661 (1880MHz)	Channel 810 (1909.8MHz)
Before Test (dBm)	29.46	29.27	29.23
After Test (dBm)	29.35	29.16	29.12
GSM 850+GPRS	**Conducted Power**		
	Channel 128 (824.2MHz)	Channel 190 (836.6MHz)	Channel 251 (848.8MHz)
Before Test (dBm)	32.13	32.37	32.12
After Test (dBm)	31.98	32.26	31.93
GSM 1900 +GPRS	**Conducted Power**		
	Channel 512 (1850.2MHz)	Channel 661 (1880MHz)	Channel 810 (1909.8MHz)
Before Test (dBm)	29.06	28.85	28.76
After Test (dBm)	28.95	28.76	28.67

9 TEST RESULTS

9.1 Dielectric Performance

Table 8: Dielectric Performance of Head Tissue Simulating Liquid

Measurement is made at temperature 22.5 °C and relative humidity 51%. Liquid temperature during the test: 22.3°C					
Frequency (MHz)		**Target value**	**Measurement value**	**Difference percentage**	
835 (Head)	Permittivity ε_r	41.50	42.30	2.03	%
	Conductivity **σ**	0.90	0.92	2.22	%
1900 (Head)	Permittivity ε_r	40.0	40.32	0.80	%
	Conductivity **σ**	1.40	1.42	1.43	%

Table 9: Dielectric Performance of Body Tissue Simulating Liquid

Measurement is made at temperature 22.5 °C and relative humidity 51%. Liquid temperature during the test: 22.3°C					
Frequency (MHz)		**Target value**	**Measurement value**	**Difference percentage**	
835 (Body)	Permittivity ε_r	55.20	55.94	1.34	%
	Conductivity **σ**	0.97	0.99	2.06	%
1900 (Body)	Permittivity ε_r	53.30	52.64	-1.24	%
	Conductivity **σ**	1.52	1.53	0.66	%

9.2 System Validation

Table 10: System Validation

Measurement is made at temperature 23.2 °C, relative humidity 50%, and input power 250 mW. Liquid temperature during the test: 22.3°C							
Liquid parameters	**Frequency**		**Permittivity ε**		**Conductivity σ (S/m)**		
	835MHz		40.2		0.89		
	1900MHz		39.5		1.46		
Verification results	**Frequency**	**Target value (W/kg)**		**Measurement value (W/kg)**		**Difference percentage**	
		10 g Average	**1 g Average**	**10 g Average**	**1 g Average**	**10 g Average**	**1g Average**
	835 MHz	1.56	2.43	1.53	2.34	-1.92%	-3.70%
	1900MHz	4.94	9.35	4.93	9.36	-0.20%	-0.11%

Note：

a. Target Values used derive from the SPEAG calibration certificate and 250 mW is used as feeding power to the validation dipole (SPEAG using).

b. The graph results see ANNEX D.

9.3 Summary of Measurement Results

Table 11: SAR Values (Head, GSM 850)

Liquid Temperature: 22.5℃					
Limit of SAR (W/kg)		**10 g Average**	**1 g Average**	**Power Drift (dB)**	**Graph Results**
		2.0	**1.6**	**± 0.2**	
Test Case Of Head		**Measurement Result (W/kg)**		**Power Drift (dB)**	
Different Test Position	**Channel**	**10 g Average**	**1 g Average**		
Left hand, Touch cheek	High	0.661	0.985	-0.151	Figure7
	Middle	0.489	0.729	0.098	Figure9
	Low	0.403	0.596	-0.056	Figure11
Left hand, Tilt 15 Degree	High	0.375	0.559	-0.053	Figure13
	Middle	0.312	0.452	-0.105	Figure15
	Low	0.237	0.354	-0.045	Figure17
Right hand, Touch cheek	High	0.657	0.978	-0.072	Figure19
	Middle	0.555	0.827	-0.031	Figure21
	Low	0.436	0.644	-0.103	Figure23
Right hand, Tilt 15 Degree	High	0.375	0.550	-0.164	Figure25
	Middle	0.301	0.438	-0.148	Figure27
	Low	0.259	0.376	-0.136	Figure29

Table 12: SAR Values (Body, GSM 850, Distance 20mm)

Liquid Temperature: 22.5℃					
Limit of SAR (W/kg)		**10 g Average**	**1 g Average**	**Power Drift (dB)**	**Graph Results**
		2.0	**1.6**	**± 0.2**	
Test Case Of Body		**Measurement Result (W/kg)**		**Power Drift (dB)**	
Different Test Position	**Channel**	**10 g Average**	**1 g Average**		
Towards Ground	High	0.409	0.566	-0.192	Figure31
	Middle	0.346	0.480	-0.094	Figure33
	Low	0.271	0.374	-0.026	Figure35
Towards Phantom	High	0.207	0.289	-0.078	Figure37
	Middle	0.161	0.225	-0.091	Figure39
	Low	0.128	0.178	-0.114	Figure41

Table 13: SAR Values (Body, GSM 850, with earphone, Distance 20mm)

Liquid Temperature: 22.5℃					
Limit of SAR (W/kg)		**10 g Average**	**1 g Average**	**Power Drift (dB)**	**Graph Results**
		2.0	**1.6**	**± 0.2**	
Test Case Of Body		**Measurement Result (W/kg)**		**Power Drift (dB)**	
Different Test Position	**Channel**	**10 g Average**	**1 g Average**		
Towards Ground	High	0.201	0.284	-0.095	Figure43

Table 14: SAR Values (Body, GSM 850 GPRS, Distance 20mm)

Liquid Temperature: 22.5℃					
Limit of SAR (W/kg)		**10 g Average**	**1 g Average**	**Power Drift (dB)**	**Graph Results**
		2.0	**1.6**	**± 0.2**	
Test Case Of Body		**Measurement Result (W/kg)**		**Power Drift (dB)**	
Different Test Position	**Channel**	**10 g Average**	**1 g Average**		
Towards Ground	High	0.814	1.120	-0.150	Figure45
	Middle	0.678	0.940	-0.164	Figure47
	Low	0.521	0.717	-0.068	Figure49
Towards Phantom	High	0.414	0.576	-0.181	Figure51
	Middle	0.306	0.425	-0.068	Figure53
	Low	0.234	0.326	-0.070	Figure55

Remark: The value with blue color is the maximum SAR Value of each test band.

Table 15: SAR Values (Head, GSM 1900)

Liquid Temperature: 22.5℃					
Limit of SAR (W/kg)		**10 g Average**	**1 g Average**	**Power Drift (dB)**	**Graph Results**
		2.0	**1.6**	**± 0.2**	
Test Case Of Head		**Measurement Result (W/kg)**		**Power Drift (dB)**	
Different Test Position	**Channel**	**10 g Average**	**1 g Average**		
Left hand, Touch cheek	High	0.209	0.366	-0.006	Figure57
	Middle	0.249	0.437	-0.035	Figure59
	Low	0.275	0.444	-0.059	Figure61
Left hand, Tilt 15 Degree	High	0.189	0.344	0.023	Figure63
	Middle	0.249	0.450	-0.005	Figure65
	Low	0.270	0.488	0.020	Figure67
Right hand, Touch cheek	High	0.232	0.435	-0.002	Figure69
	Middle	0.294	0.554	-0.032	Figure71
	Low	0.300	0.565	-0.005	Figure73
Right hand, Tilt 15 Degree	High	0.222	0.422	-0.025	Figure75
	Middle	0.300	0.570	0.018	Figure77
	Low	0.316	0.603	0.005	Figure79

Remark: The value with blue color is the maximum SAR Value of each test band.

Table 16: SAR Values (Body, GSM 1900, Distance 20mm)

Liquid Temperature: 22.5℃					
Limit of SAR (W/kg)		**10 g Average**	**1 g Average**	**Power Drift (dB)**	**Graph Results**
		2.0	**1.6**	**± 0.2**	
Test Case Of Body		**Measurement Result (W/kg)**		**Power Drift (dB)**	
Different Test Position	**Channel**	**10 g Average**	**1 g Average**		
Towards Ground	High	0.157	0.247	-0.019	Figure81
	Middle	0.201	0.313	-0.032	Figure83
	Low	0.217	0.335	0.042	Figure85
Towards Phantom	High	0.070	0.112	0.035	Figure87
	Middle	0.093	0.148	0.015	Figure89
	Low	0.109	0.172	-0.014	Figure91

Table 17: SAR Values (GSM 1900, Body with earphone, Distance 20mm)

Liquid Temperature: 22.5℃					
Limit of SAR (W/kg)		**10 g Average**	**1 g Average**	**Power Drift (dB)**	**Graph Results**
		2.0	**1.6**	**± 0.2**	
Test Case Of Body		**Measurement Result (W/kg)**		**Power Drift (dB)**	
		10 g Average	**1 g Average**		
Different Test Position	**Channel**				
Towards Ground	Low	0.142	0.227	-0.013	Figure93

Table 18: SAR Values (Body, GSM 1900 GPRS, Distance 20mm)

Liquid Temperature: 22.5℃					
Limit of SAR (W/kg)		**10 g Average**	**1 g Average**	**Power Drift (dB)**	**Graph Results**
		2.0	**1.6**	**± 0.2**	
Test Case Of Body		**Measurement Result (W/kg)**		**Power Drift (dB)**	
		10 g Average	**1 g Average**		
Different Test Position	**Channel**				
Towards Ground	High	0.258	0.402	0.010	Figure95
	Middle	0.316	0.491	-0.057	Figure97
	Low	0.326	0.501	-0.055	Figure99
Towards Phantom	High	0.132	0.212	-0.006	Figure101
	Middle	0.181	0.288	-0.158	Figure103
	Low	0.193	0.307	-0.011	Figure105

9.4 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 6.2 of this report. Maximum localized SAR is below exposure limits specified in the relevant standards cited in Clause 6.1 of this test report.

10 MEASUREMENT UNCETAINTY

No.	a	Type	c	d	e=f(d、k)	f	h=c×f / e	k
	Uncertainty Component		Tol. (±%)	Prob. Dist	Div.	c_1(1g)	1g u (± %)	v_1
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	$\sqrt{3}$	$(1\text{-cp})^{1/2}$	4.3	∞
4	Hemisphere Isotropy	B	9.4	R	$\sqrt{3}$	$\sqrt{C_P}$		∞
5	Boundary Effect	B	0.4	R	$\sqrt{3}$	1	0.23	∞
6	Linearity	B	4.7	R	$\sqrt{3}$	1	2.7	∞
7	System Detection Limits	B	1.0	R	$\sqrt{3}$	1	0.6	∞
8	Readout Electronics	B	1.0	N	1	1	1.0	∞
9	RF Ambient Conditions	B	3.0	R	$\sqrt{3}$	1	1.73	∞
10	Probe Positioner Mechanical Tolerance	B	0.4	R	$\sqrt{3}$	1	0.2	∞
11	Probe Positioning with respect to Phantom Shell	B	2.9	R	$\sqrt{3}$	1	1.7	∞
12	Extrapolation, interpolation and Integration Algorithms for Max. SAR Evaluation	B	3.9	R	$\sqrt{3}$	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	$\sqrt{3}$	1	2.9	∞
	Phantom and Tissue Parameters							
16	Phantom Uncertainty(shape and thickness tolerances)	B	1.0	R	$\sqrt{3}$	1	0.6	∞
17	Liquid Conductivity-deviation from target values	B	5.0	R	$\sqrt{3}$	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	$\sqrt{3}$	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	

11 MAIN TEST INSTRUMENTS

Table 19: List of Main Instruments

No.	Name	Type	Serial Number	Calibration Date	Valid Period
01	Network analyzer	Agilent 8753E	US37390326	September 15, 2007	One year
02	Dielectric Probe Kit	Agilent 85070E	US44020115	No Calibration Requested	
03	Power meter	Agilent E4417A	GB41291714	March 16, 2007	One year
04	Power sensor	Agilent 8481H	MY41091316	March 16, 2007	One year
05	Signal Generator	HP 8341B	2730A00804	September 15, 2007	One year
06	Amplifier	IXA-020	0401	No Calibration Requested	
07	Validation Kit 835MHz	SPEAG D835V2	443	December 9, 2007	One year
08	Validation Kit 1900MHz	SPEAG D1900V2	5d018	April 23, 2007	One year
09	BTS	E5515C	GB46490218	September 15, 2007	One year
10	E-field Probe	ET3DV6	1531	January 29, 2008	One year
11	DAE	DAE3	452	September 6, 2007	One year

12 TEST PERIOD

The test is performed from Feb. 29th, 2008 to Mar. 10th, 2008.

13 TEST LOCATION

The test is performed at TA Technology (Shanghai) Co., Ltd.

*****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 ear 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 head was measured at a distance of 3.9 mm from the inner surface of the shell. The area covered the entire dimension of the head and the horizontal grid spacing was 20 mm x 20 mm. Based on this data, the area of the maximum absorption was determined by spline interpolation.

Step 3: Around this point, a volume of 32 mm x 32 mm x 34 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.

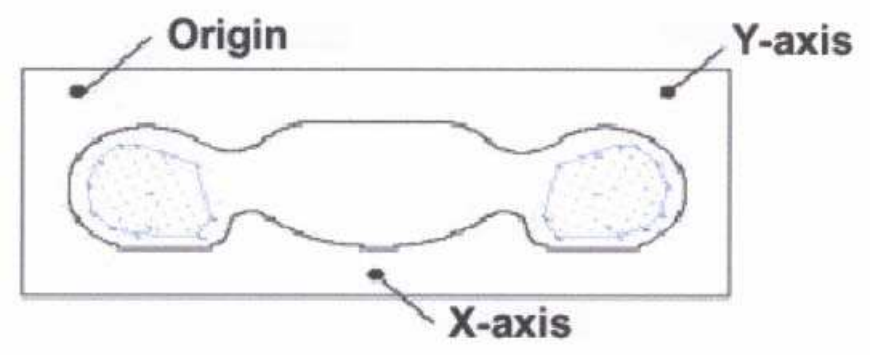


Figure 6 SAR Measurement Points in Area Scan

ANNEX B： TEST LAYOUT

Picture 1 Specific Absorption Rate Test Layout

Picture 2 Liquid depth in the Phantom (835 MHz)

Picture 3 Liquid depth in the Phantom (1900 MHz)

ANNEX C： GRAPH RESULTS

GSM 850 Left Cheek High

Communication System: GSM 850; Frequency: 848.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 849 MHz; σ = 0.936 mho/m; ε_r = 42.1; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(6.85, 6.85, 6.85);
Electronics: DAE3 Sn452;
Cheek High/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.08 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 27.3 V/m; Power Drift = -0.151 dB
Peak SAR (extrapolated) = 1.35 W/kg
SAR(1 g) = 0.985 mW/g; SAR(10 g) = 0.661 mW/g
Maximum value of SAR (measured) = 1.06 mW/g

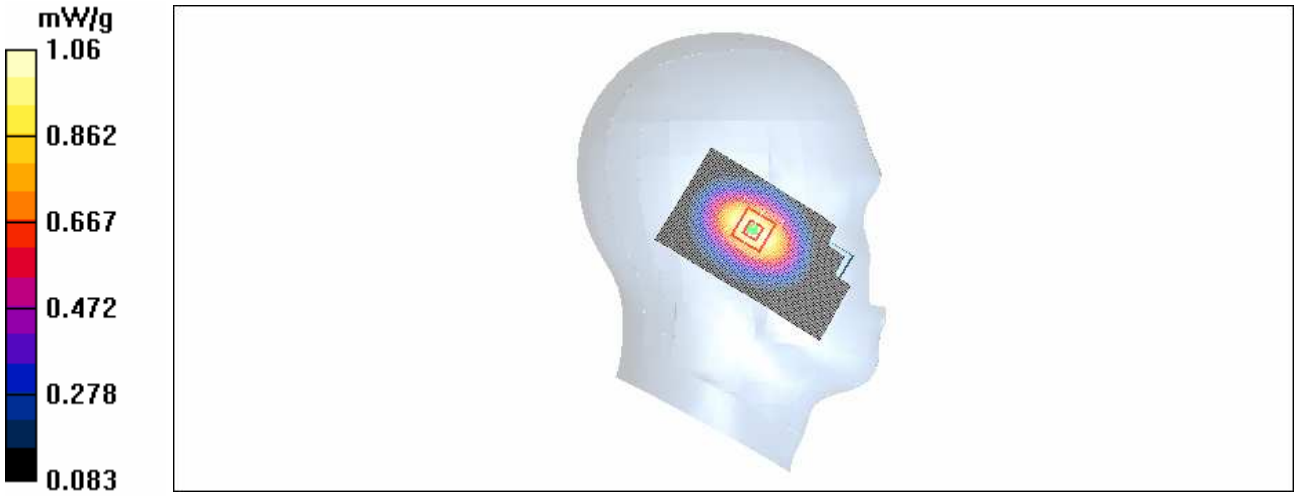


Figure 7 Left Hand Touch Cheek GSM 850 Channel 251

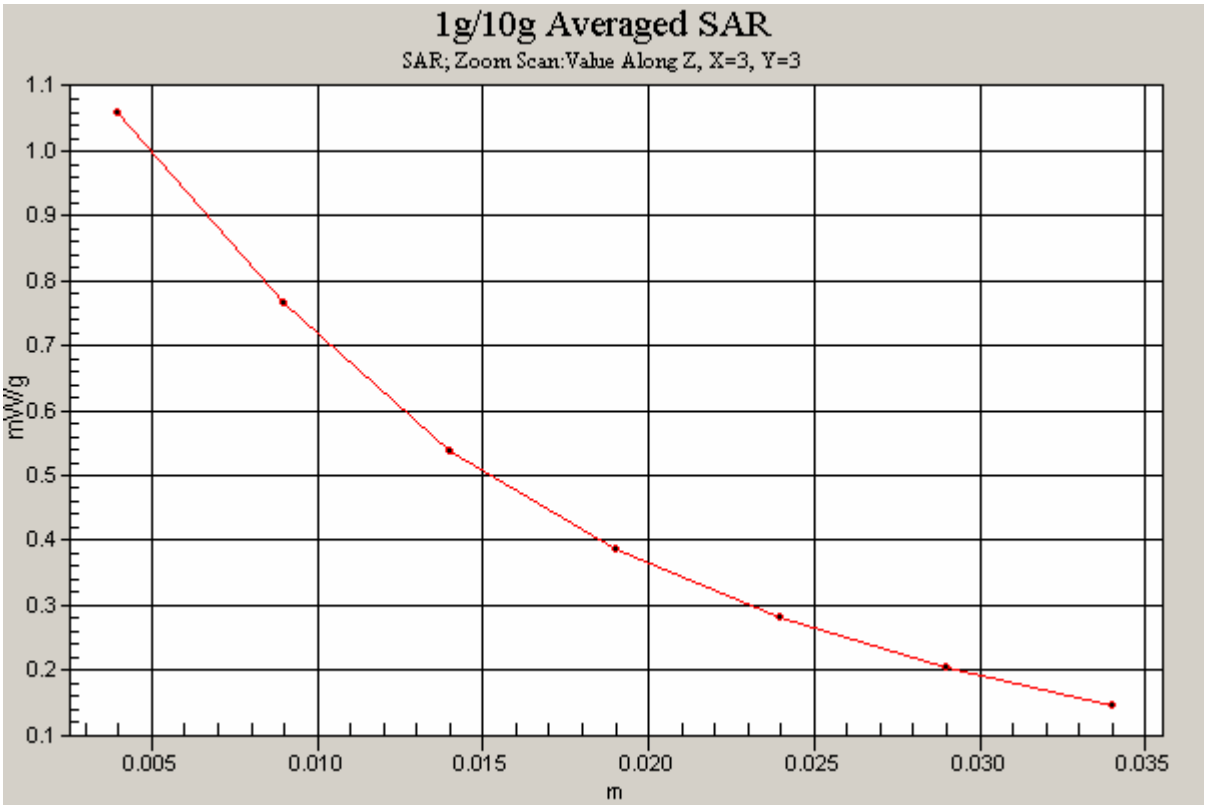


Figure 8 Z-Scan at power reference point (Left Hand Touch Cheek GSM 850 Channel 251)

GSM 850 Left Cheek Middle

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 837 MHz; σ = 0.925 mho/m; ε_r = 42.3; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(6.85, 6.85, 6.85);
Electronics: DAE3 Sn452;
Cheek Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.792 mW/g

Cheek Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 23.6 V/m; Power Drift = -0.098 dB
Peak SAR (extrapolated) = 1.01 W/kg
SAR(1 g) = 0.729 mW/g; SAR(10 g) = 0.489 mW/g
Maximum value of SAR (measured) = 0.782 mW/g

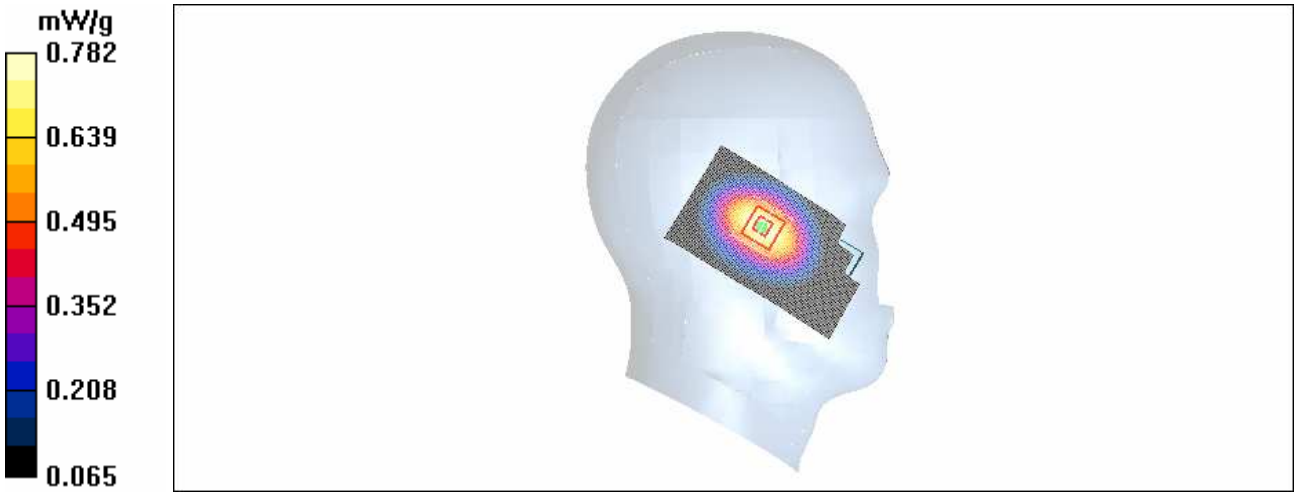


Figure 9 Left Hand Touch Cheek GSM 850 Channel 190

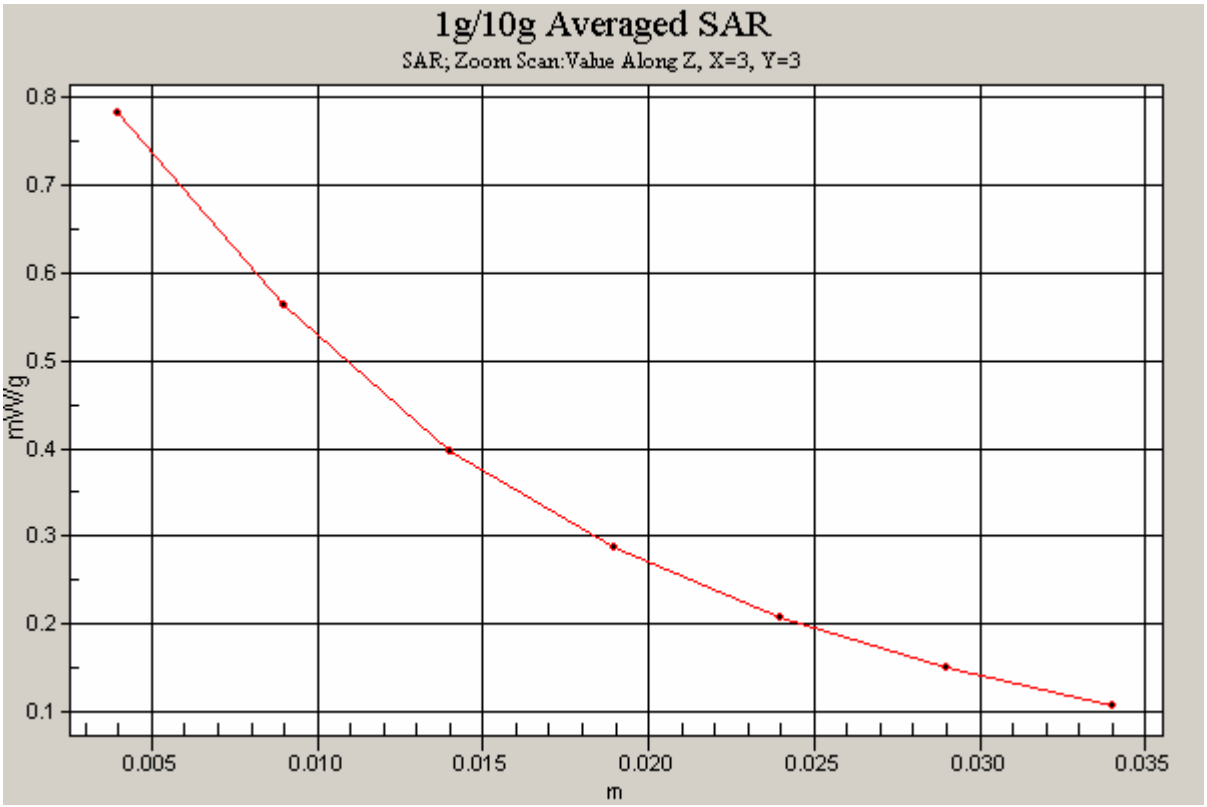


Figure 10 Z-Scan at power reference point (Left Hand Touch Cheek GSM 850 Channel 190)

GSM 850 Left Cheek Low

Communication System: GSM 850; Frequency: 824.2 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.909 mho/m; ε_r = 42.4; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(6.85, 6.85, 6.85);
Electronics: DAE3 Sn452;
Cheek Low/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 0.655 mW/g

Cheek Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 21.7 V/m; Power Drift = -0.056 dB
Peak SAR (extrapolated) = 0.824 W/kg
SAR(1 g) = 0.596 mW/g; SAR(10 g) = 0.403 mW/g
Maximum value of SAR (measured) = 0.639 mW/g

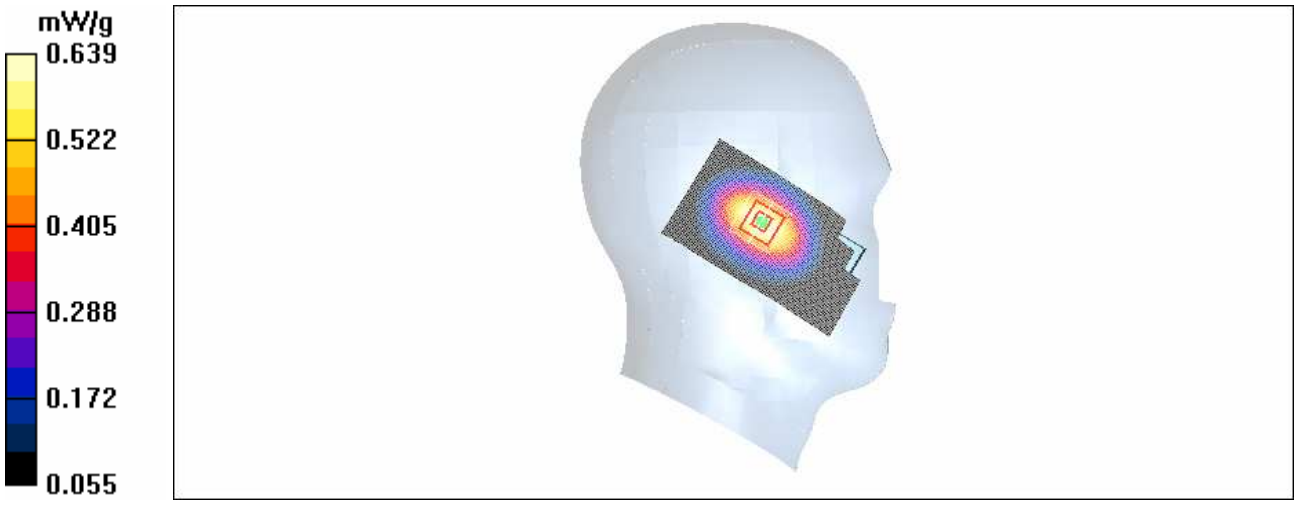


Figure 11 Left Hand Touch Cheek GSM 850 Channel 128

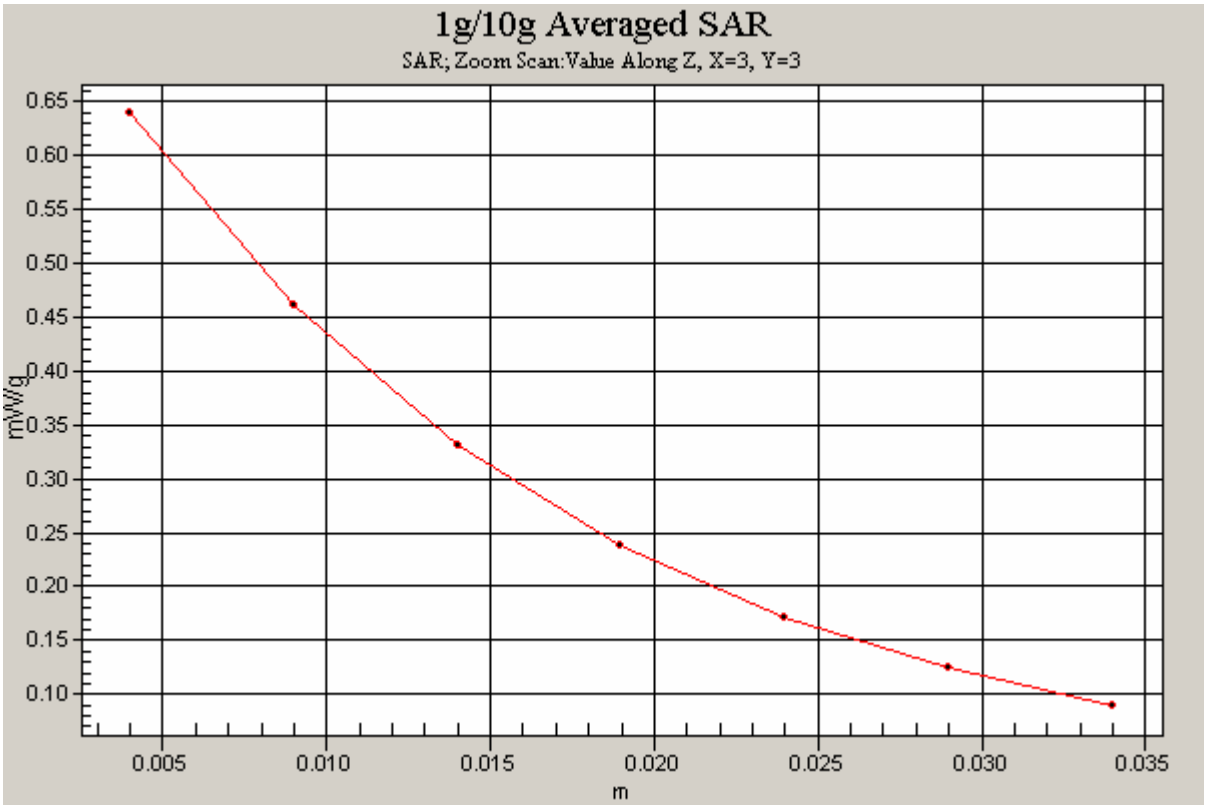


Figure 12 Z-Scan at power reference point (Left Hand Touch Cheek GSM 850 Channel 128)

GSM 850 Left Tilt High

Communication System: GSM 850; Frequency: 848.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 849 MHz; σ = 0.936 mho/m; ε_r = 42.1; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(6.85, 6.85, 6.85);
Electronics: DAE3 Sn452;
Tilt High/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.608 mW/g

Tilt High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.5 V/m; Power Drift = -0.053 dB
Peak SAR (extrapolated) = 0.758 W/kg
SAR(1 g) = 0.559 mW/g; SAR(10 g) = 0.375 mW/g
Maximum value of SAR (measured) = 0.601 mW/g

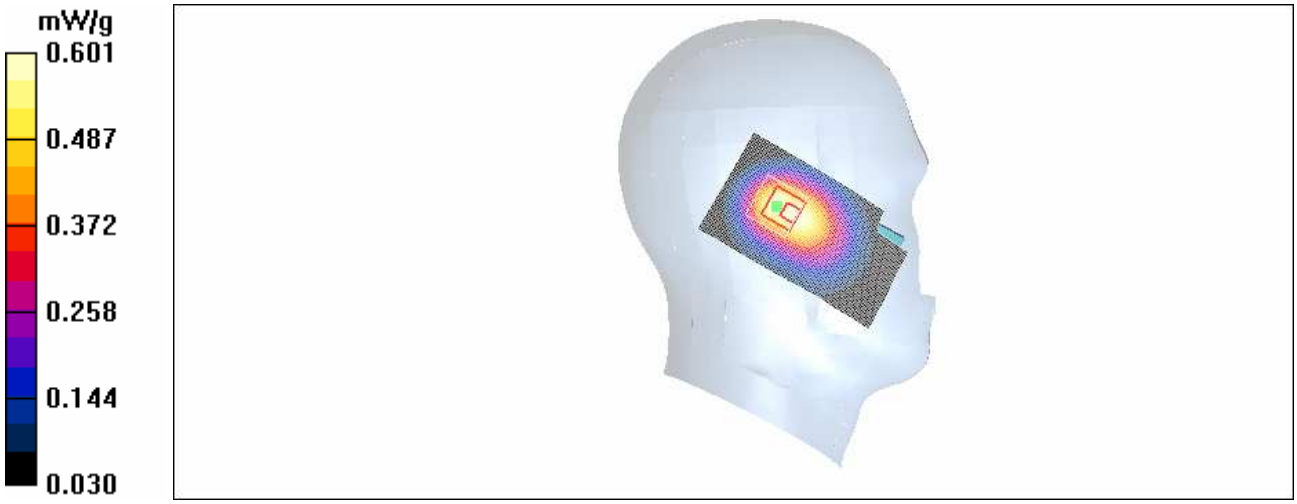


Figure 13 Left Hand Tilt 15° GSM 850 Channel 251

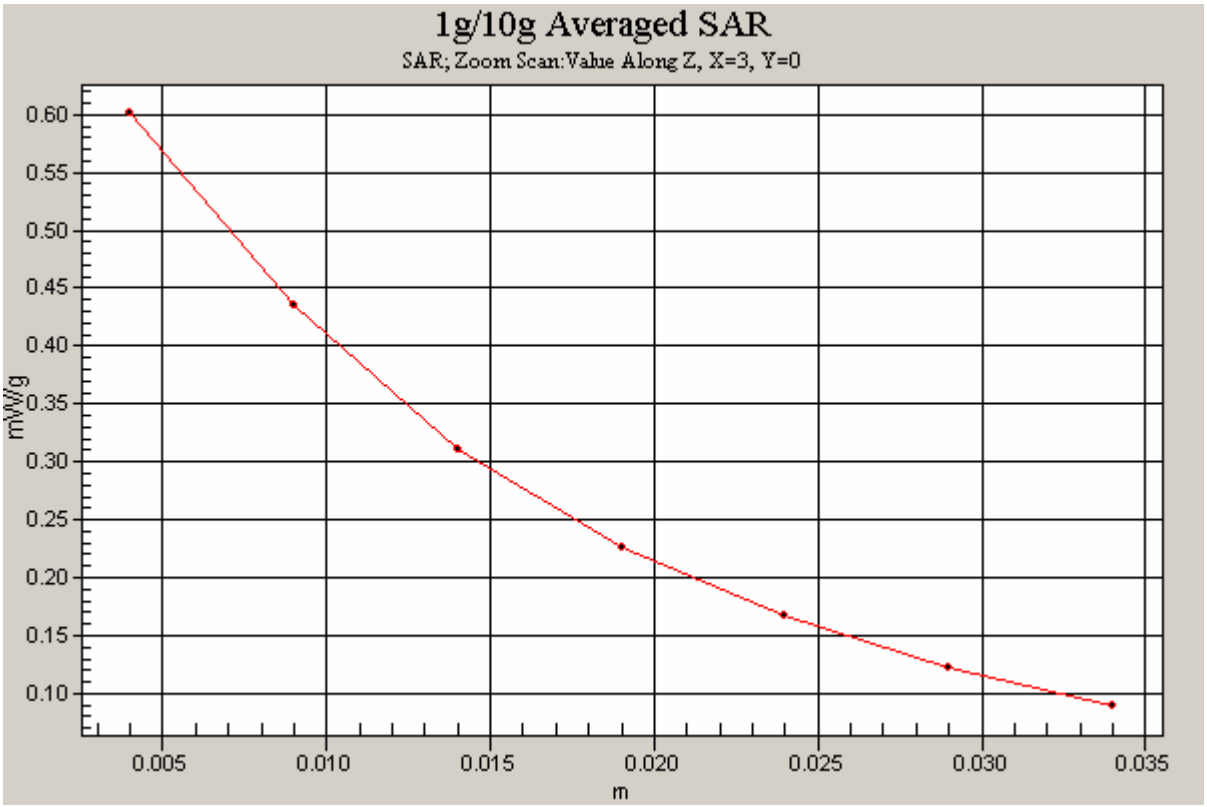


Figure 14 Z-Scan at power reference point (Left Hand Tilt 15° GSM 850 Channel 251)

GSM 850 Left Tilt Middle

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 837 MHz; σ = 0.925 mho/m; ε_r = 42.3; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(6.85, 6.85, 6.85);
Electronics: DAE3 Sn452;
Tilt Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.494 mW/g

Tilt Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 22.2 V/m; Power Drift = -0.105 dB
Peak SAR (extrapolated) = 0.611 W/kg
SAR(1 g) = 0.452 mW/g; SAR(10 g) = 0.312 mW/g
Maximum value of SAR (measured) = 0.483 mW/g

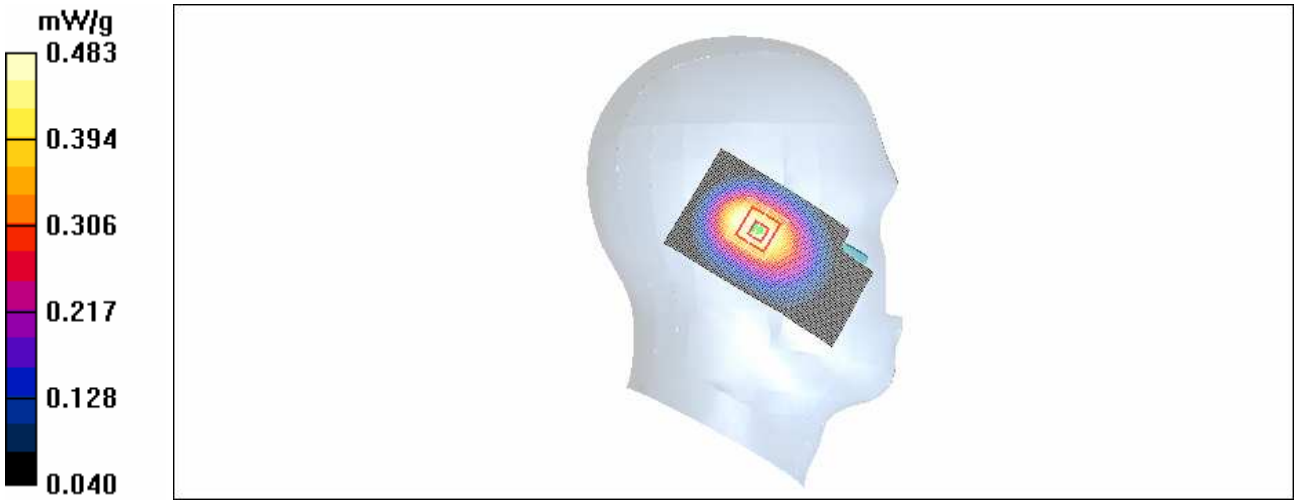


Figure 15 Left Hand Tilt 15° GSM 850 Channel 190

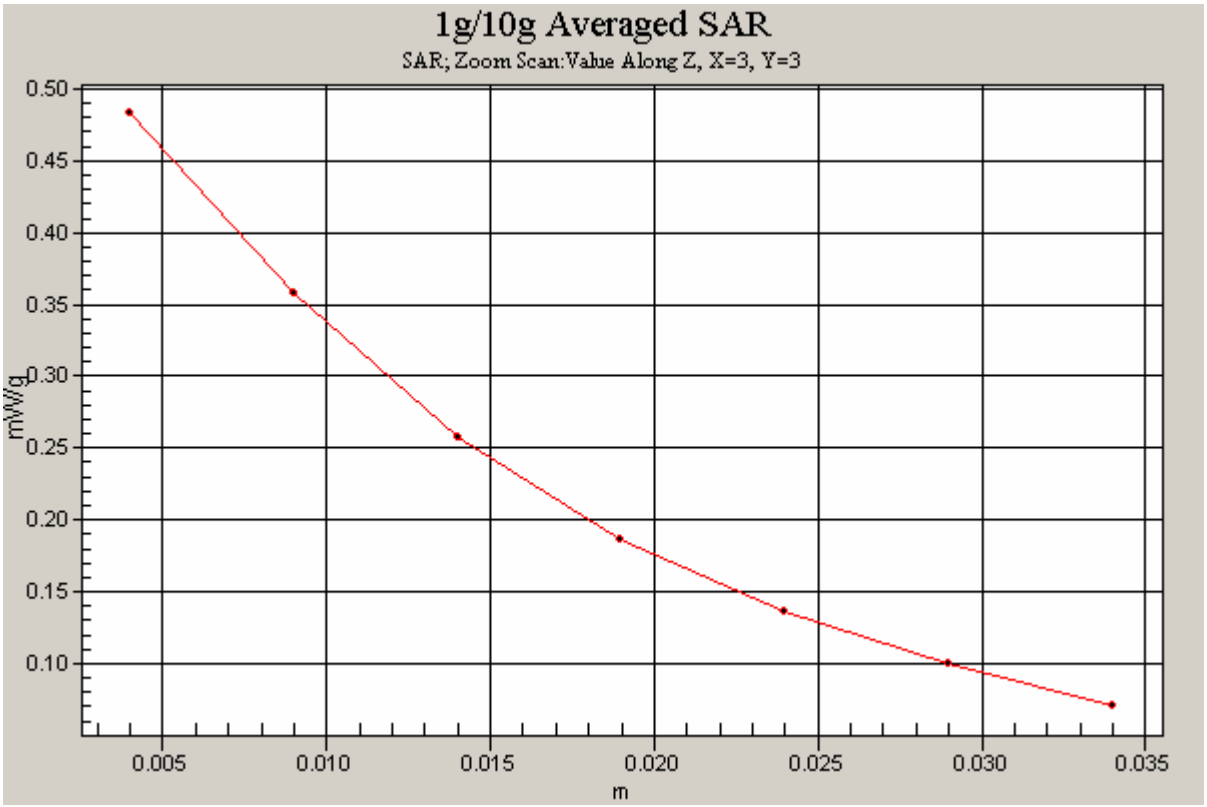


Figure 16 Z-Scan at power reference point (Left Hand Tilt 15° GSM 850 Channel 190)

GSM 850 Left Tilt Low

Communication System: GSM 850; Frequency: 824.2 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.909 mho/m; ε_r = 42.4; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(6.85, 6.85, 6.85);
Electronics: DAE3 Sn452;
Tilt Low/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.390 mW/g

Tilt Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 20.0 V/m; Power Drift = -0.045 dB
Peak SAR (extrapolated) = 0.488 W/kg
SAR(1 g) = 0.354 mW/g; SAR(10 g) = 0.237 mW/g
Maximum value of SAR (measured) = 0.382 mW/g

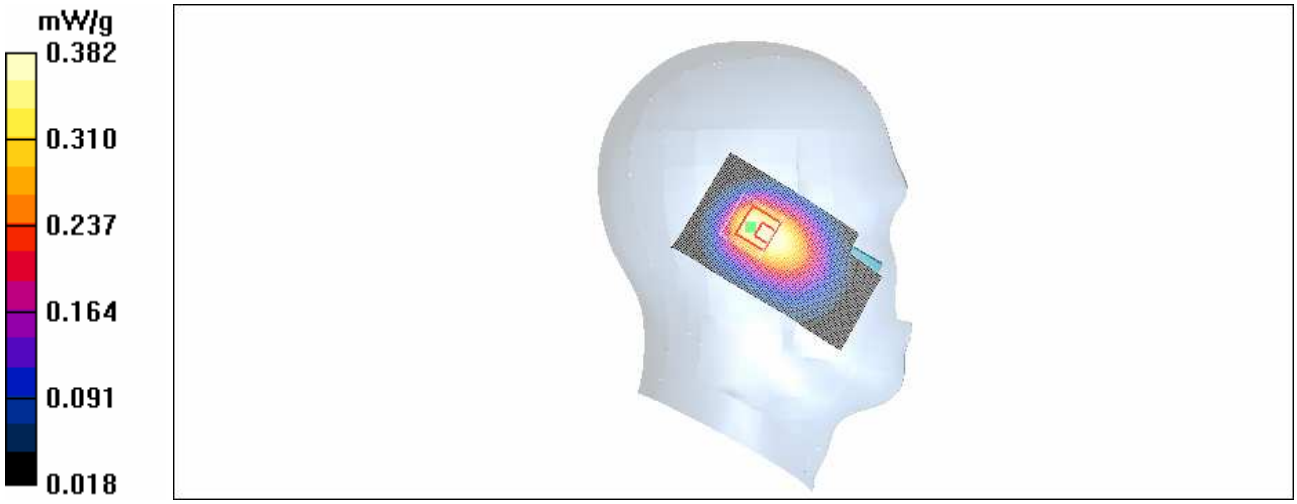


Figure 17 Left Hand Tilt 15° GSM 850 Channel 128

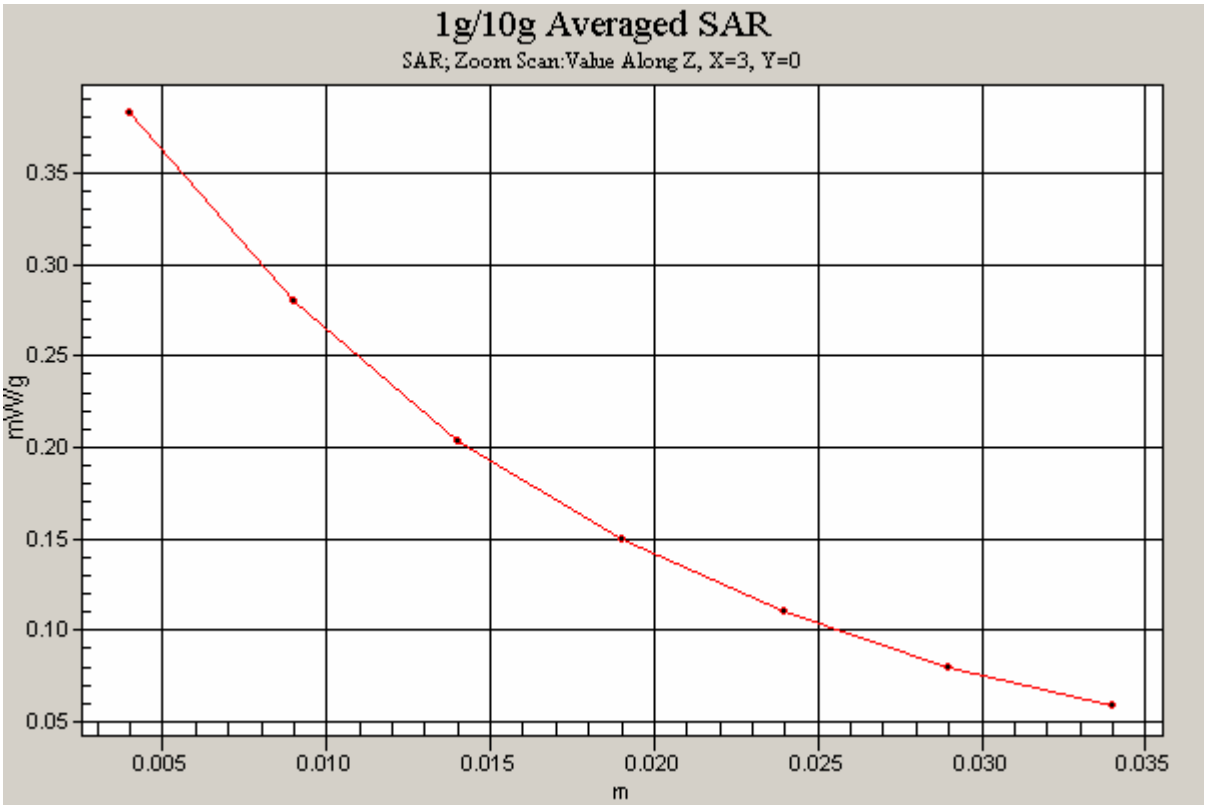


Figure18 Z-Scan at power reference point (Left Hand Tilt 15° GSM 850 Channel 128)

GSM 850 Right Cheek High

Communication System: GSM 850; Frequency: 848.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 849 MHz; σ = 0.936 mho/m; ε_r = 42.1; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(6.85, 6.85, 6.85);
Electronics: DAE3 Sn452;
Cheek High/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.07 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 26.0 V/m; Power Drift = -0.072 dB
Peak SAR (extrapolated) = 1.36 W/kg
SAR(1 g) = 0.978 mW/g; SAR(10 g) = 0.657 mW/g
Maximum value of SAR (measured) = 1.07 mW/g

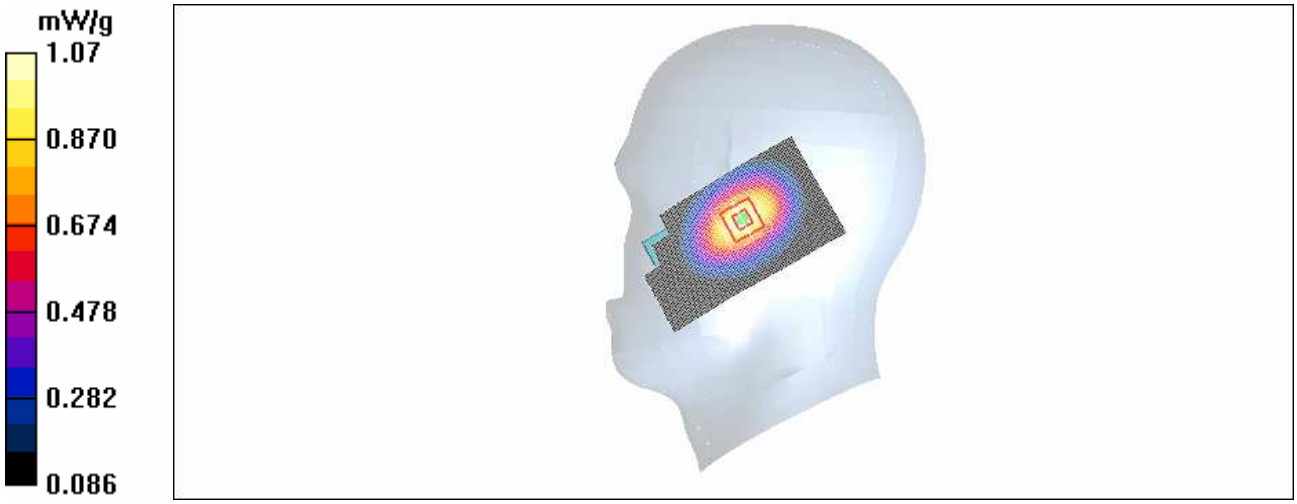


Figure 19 Right Hand Touch Cheek GSM 850 Channel 251

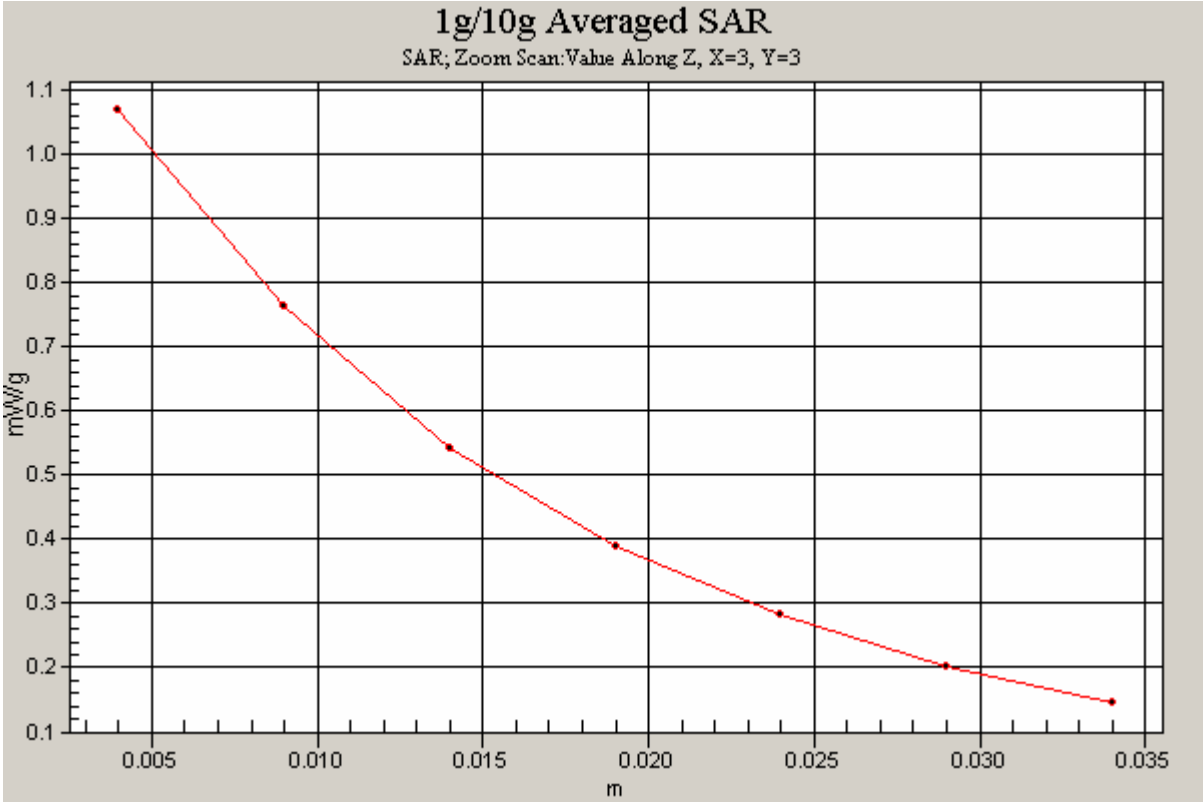


Figure 20 Z-Scan at power reference point (Right Hand Touch Cheek GSM 850 Channel 251)

GSM 850 Right Cheek Middle

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 837 MHz; σ = 0.925 mho/m; ε_r = 42.3; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(6.85, 6.85, 6.85);
Electronics: DAE3 Sn452;
Cheek Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.914 mW/g

Cheek Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.2 V/m; Power Drift = -0.031 dB
Peak SAR (extrapolated) = 1.15 W/kg
SAR(1 g) = 0.827 mW/g; SAR(10 g) = 0.555 mW/g
Maximum value of SAR (measured) = 0.894 mW/g

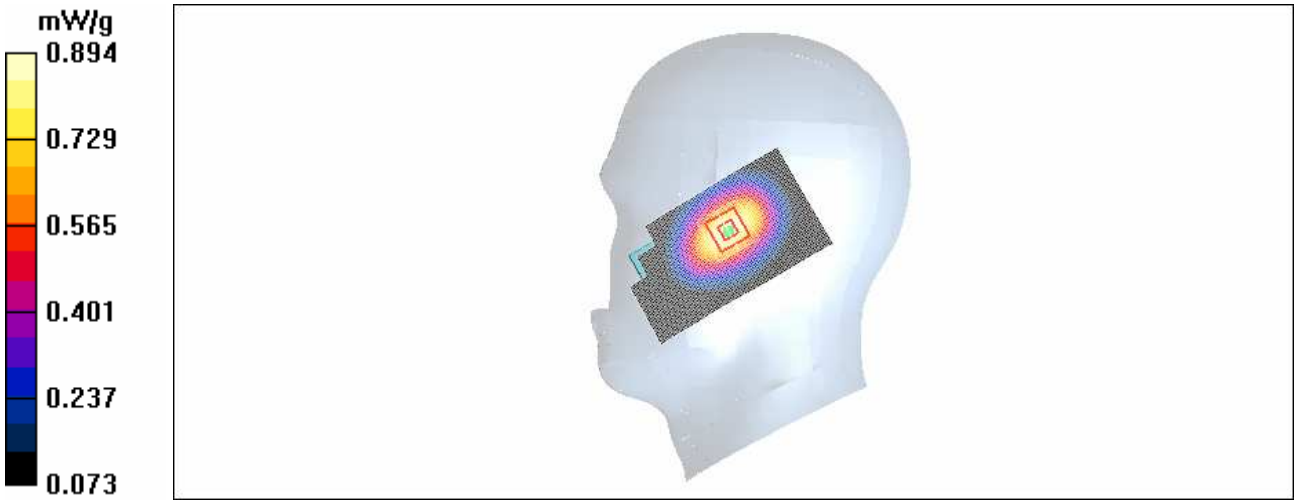


Figure 21 Right Hand Touch Cheek GSM 850 Channel 190

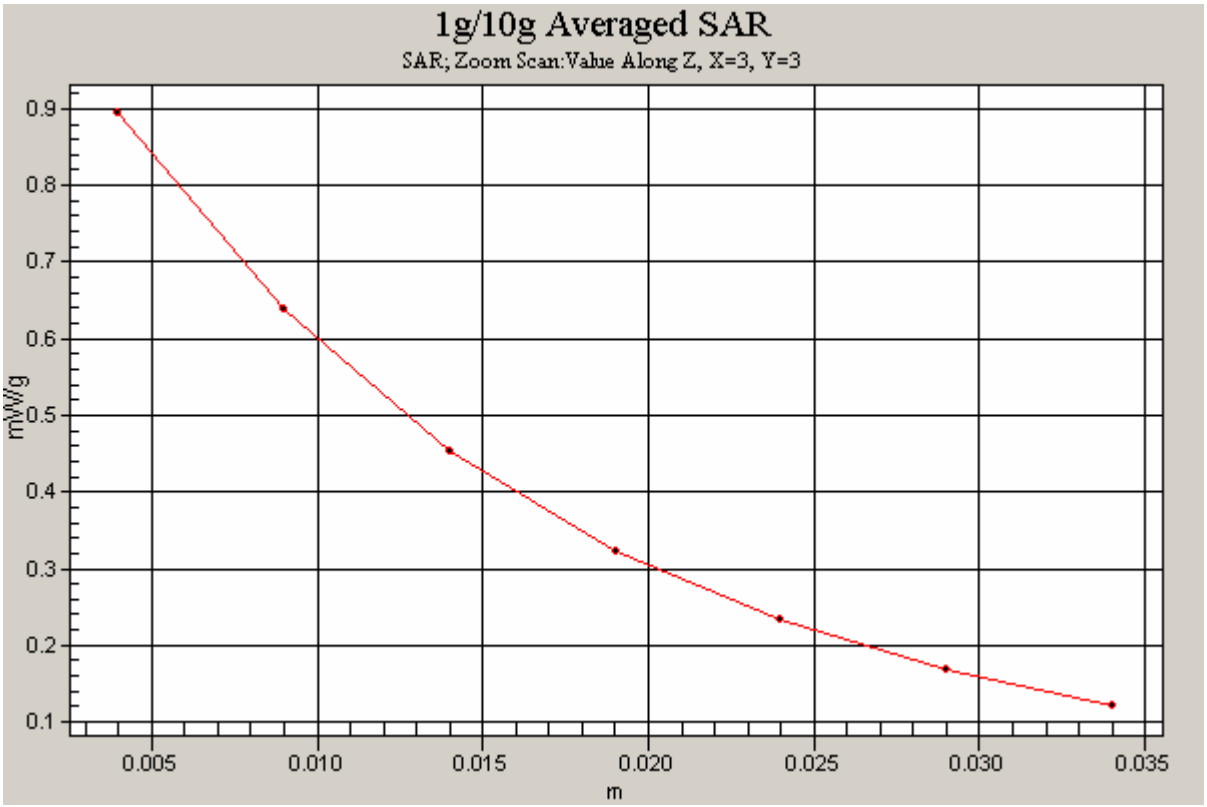


Figure 22 Z-Scan at power reference point (Right Hand Touch Cheek GSM 850 Channel 190)

GSM 850 Right Cheek Low

Communication System: GSM 850; Frequency: 824.2 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.909 mho/m; ε_r = 42.4; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(6.85, 6.85, 6.85);
Electronics: DAE3 Sn452;
Cheek Low/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.705 mW/g

Cheek Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 21.4 V/m; Power Drift = -0.103 dB
Peak SAR (extrapolated) = 0.882 W/kg
SAR(1 g) = 0.644 mW/g; SAR(10 g) = 0.436 mW/g
Maximum value of SAR (measured) = 0.695 mW/g

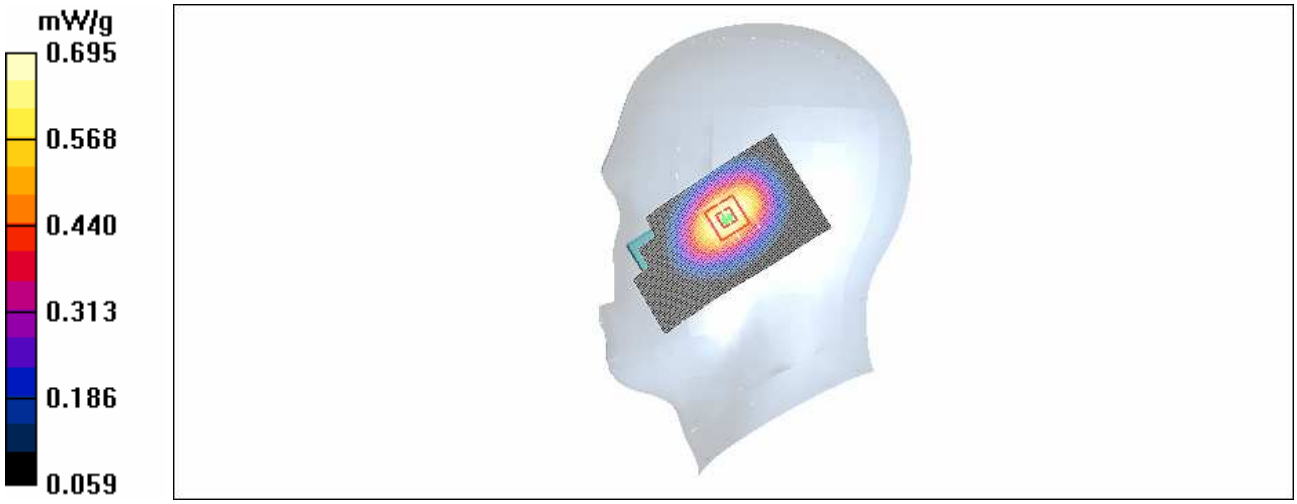


Figure 23 Right Hand Touch Cheek GSM 850 Channel 128

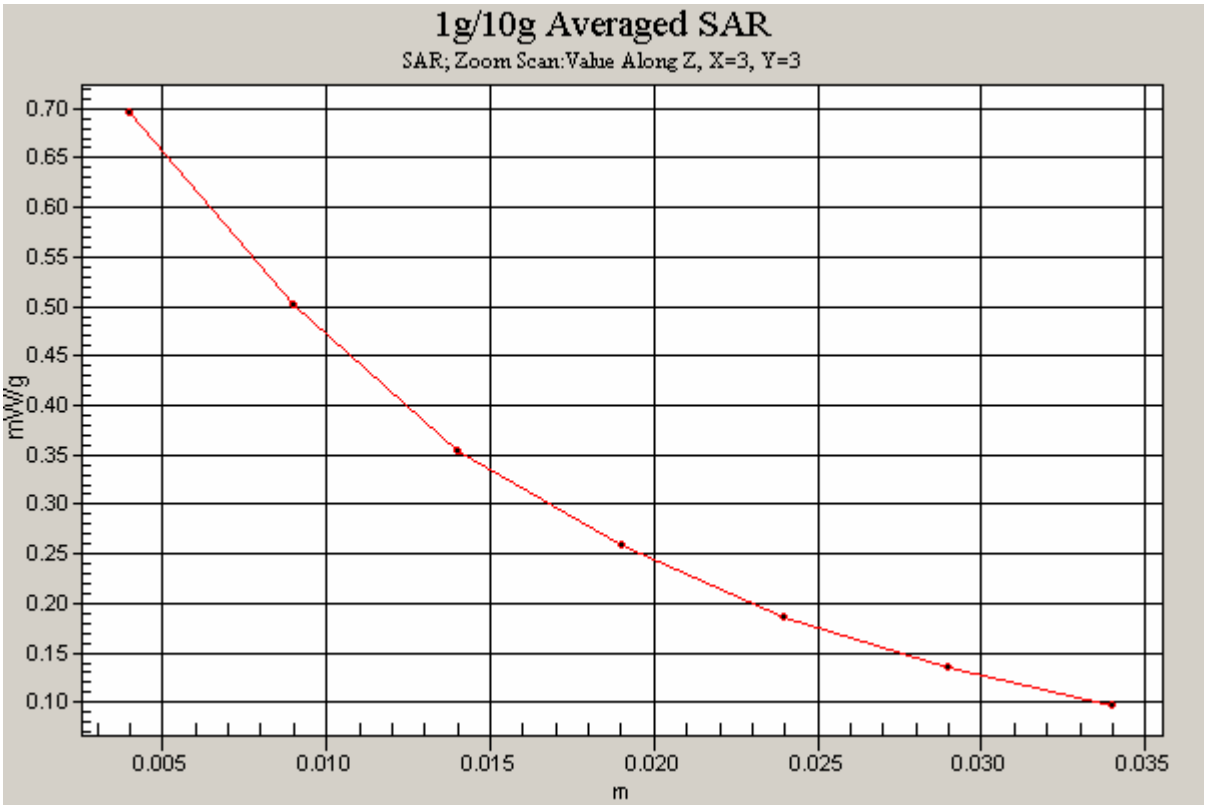


Figure 24 Z-Scan at power reference point (Right Hand Touch Cheek GSM 850 Channel 128)

GSM 850 Right Tilt High

Communication System: GSM 850; Frequency: 848.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 849 MHz; σ = 0.936 mho/m; ε_r = 42.1; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(6.85, 6.85, 6.85);
Electronics: DAE3 Sn452;
Tilt High/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.604 mW/g

Tilt High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 22.6 V/m; Power Drift = -0.164 dB
Peak SAR (extrapolated) = 0.748 W/kg
SAR(1 g) = 0.550 mW/g; SAR(10 g) = 0.375 mW/g
Maximum value of SAR (measured) = 0.589 mW/g

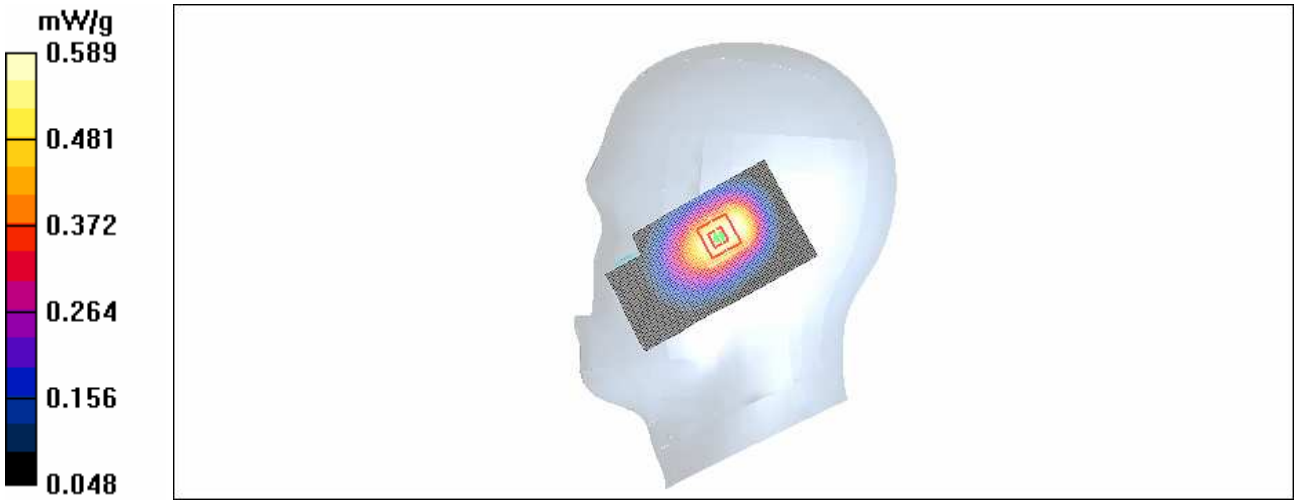


Figure 25 Right Hand Tilt 15° GSM 850 Channel 251

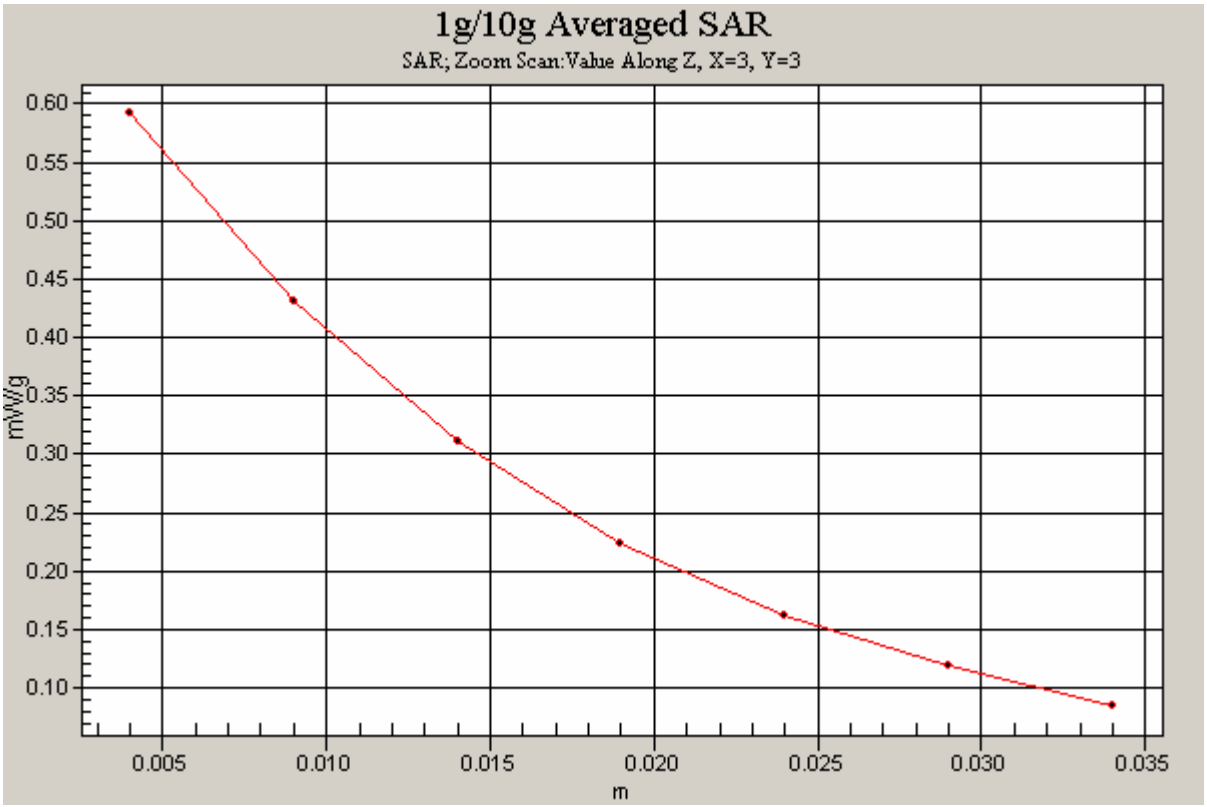


Figure 26 Z-Scan at power reference point (Right Hand Tilt 15° GSM 850 Channel 251

GSM 850 Right Tilt Middle

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 837 MHz; σ = 0.925 mho/m; ε_r = 42.3; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(6.85, 6.85, 6.85);
Electronics: DAE3 Sn452;
Tilt Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.481 mW/g

Tilt Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 20.4 V/m; Power Drift = -0.148 dB
Peak SAR (extrapolated) = 0.598 W/kg
SAR(1 g) = 0.438 mW/g; SAR(10 g) = 0.301 mW/g
Maximum value of SAR (measured) = 0.472 mW/g

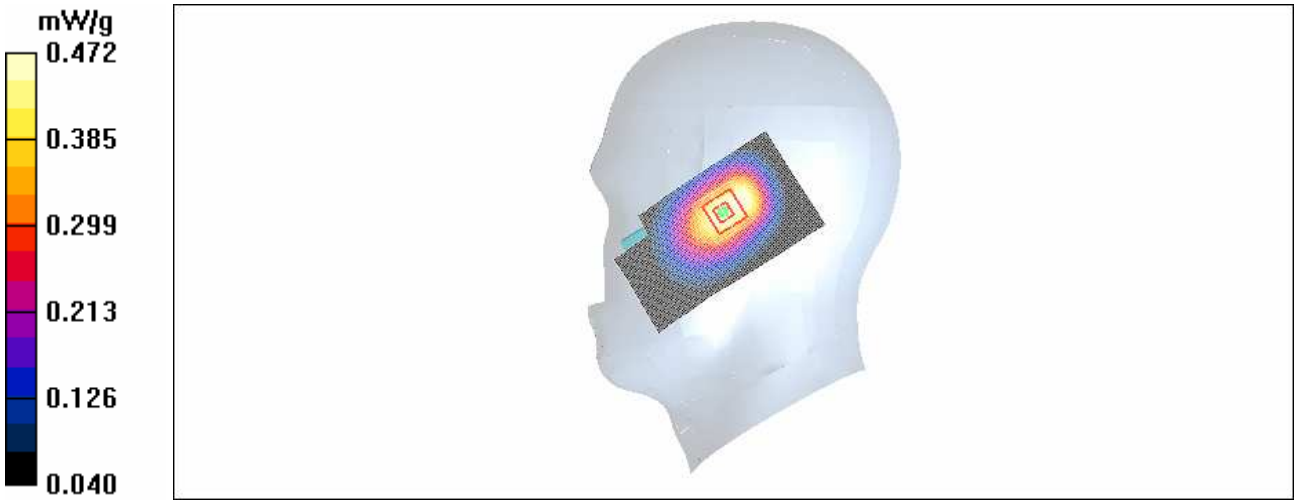


Figure 27 Right Hand Tilt 15° GSM 850 Channel 190

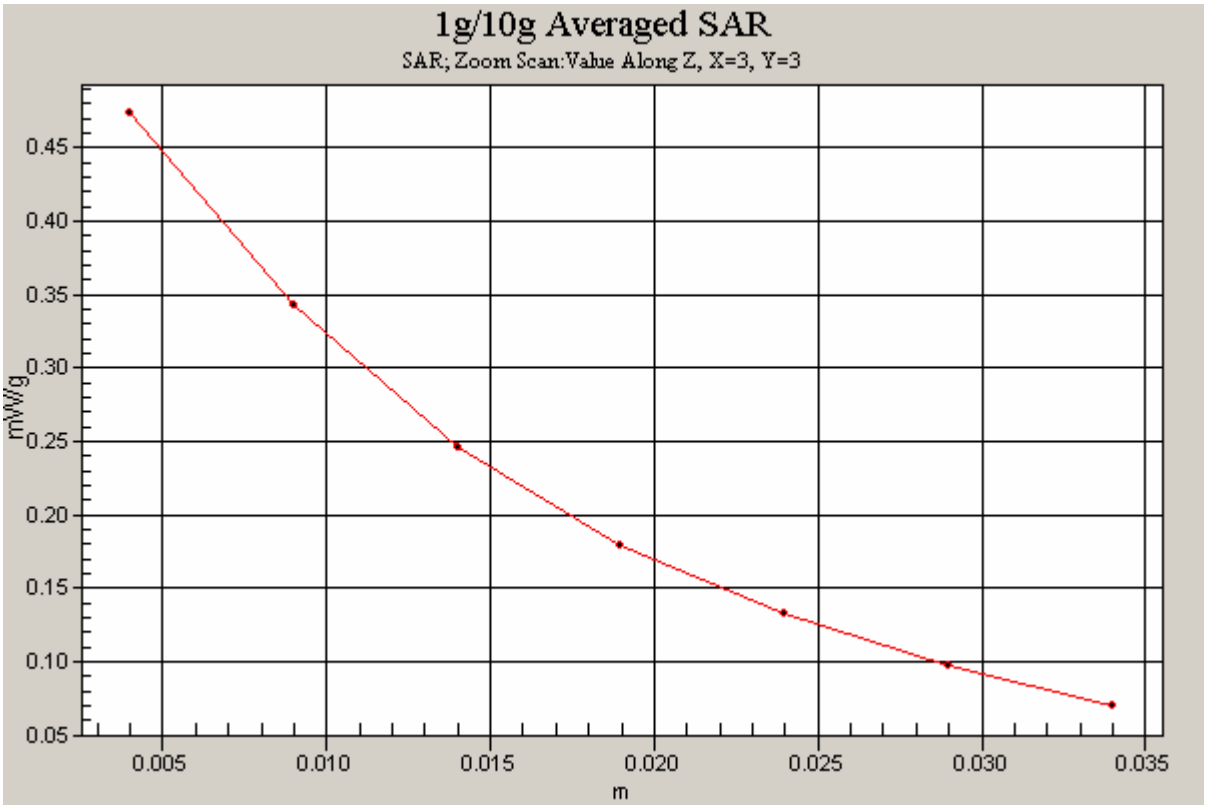


Figure28 Z-Scan at power reference point (Right Hand Tilt 15° GSM 850 Channel 190)

GSM 850 Right Tilt Low

Communication System: GSM 850; Frequency: 824.2 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.909 mho/m; ε_r = 42.4; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(6.85, 6.85, 6.85);
Electronics: DAE3 Sn452;
Tilt Low/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.411 mW/g

Tilt Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.2 V/m; Power Drift = 0.136 dB
Peak SAR (extrapolated) = 0.509 W/kg
SAR(1 g) = 0.376 mW/g; SAR(10 g) = 0.259 mW/g
Maximum value of SAR (measured) = 0.403 mW/g

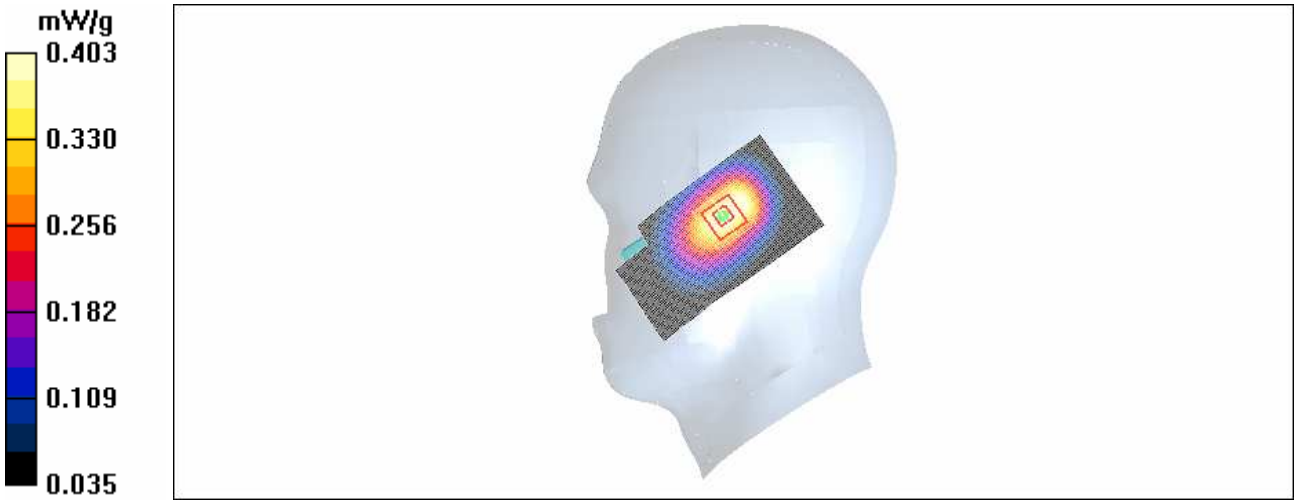


Figure 29 Right Hand Tilt 15° GSM 850 Channel 128

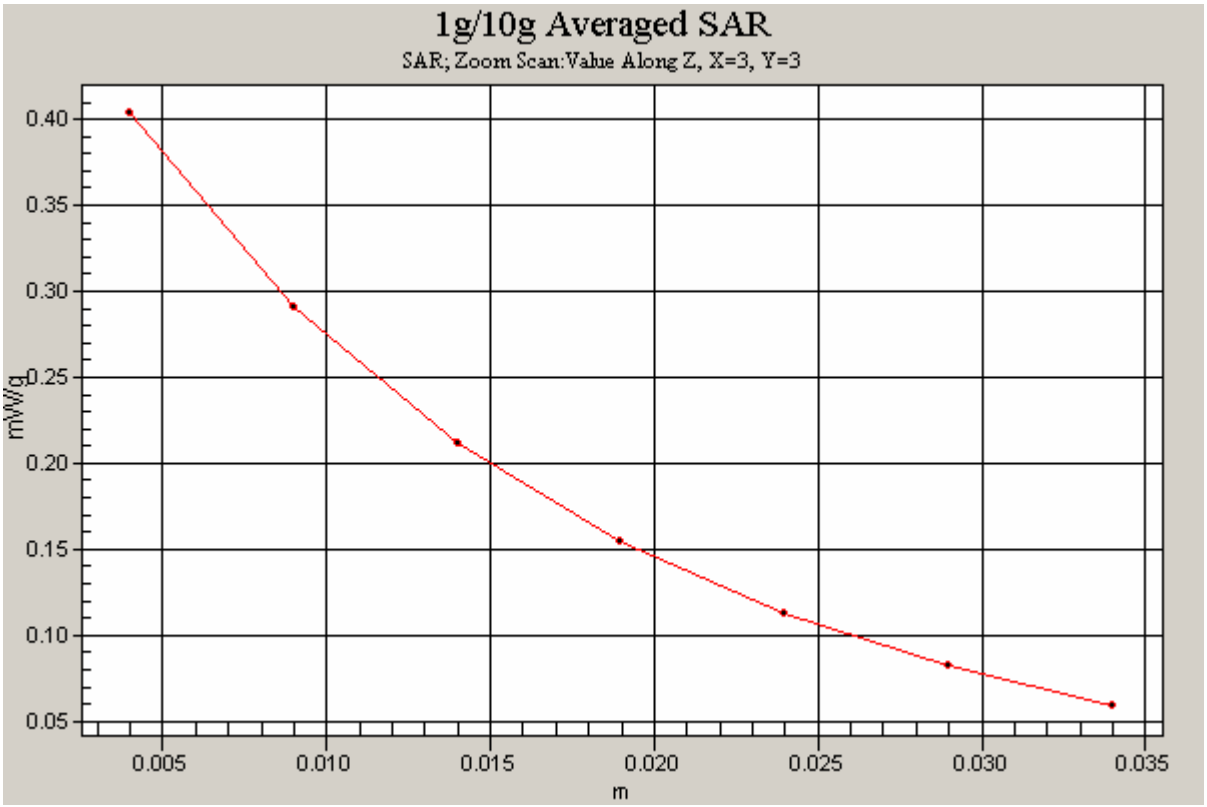


Figure 30 Z-Scan at power reference point (Right Hand Tilt 15° GSM 850 Channel 128)

GSM 850 Towards the ground High

Communication System: GSM 850; Frequency: 848.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 849 MHz; σ = 1.01 mho/m; ε_r = 55.8; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(6.52, 6.52, 6.52);
Electronics: DAE3 Sn452;
Towards ground, High frequency/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.613 mW/g

Towards ground, High frequency/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.0 V/m; Power Drift = -0.192 dB
Peak SAR (extrapolated) = 0.719 W/kg
SAR(1 g) = 0.566 mW/g; SAR(10 g) = 0.409 mW/g
Maximum value of SAR (measured) = 0.598 mW/g

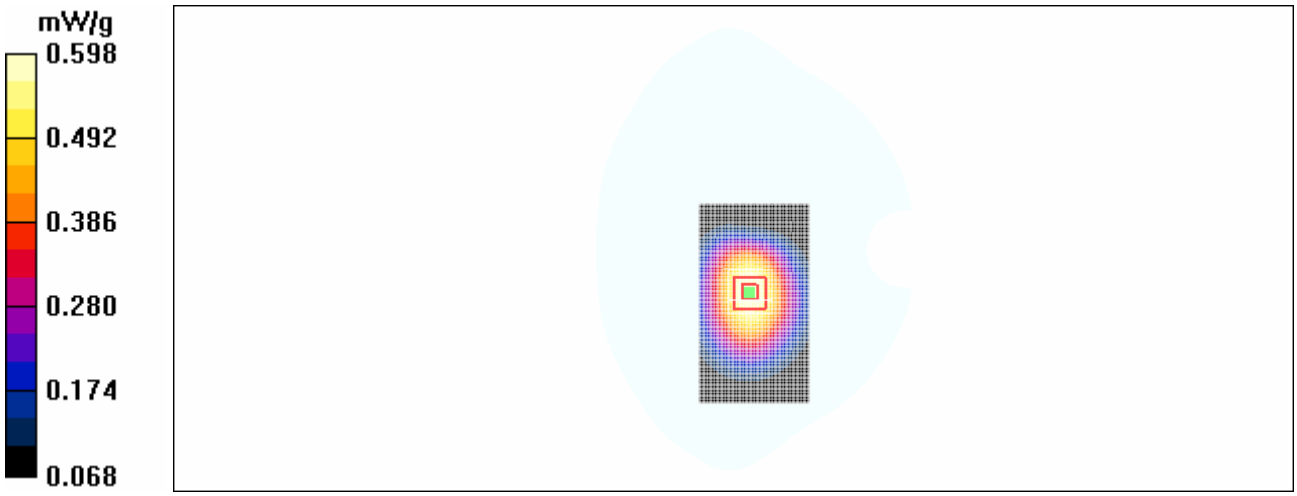


Figure 31 Body, Towards the ground, GSM 850, Channel 251

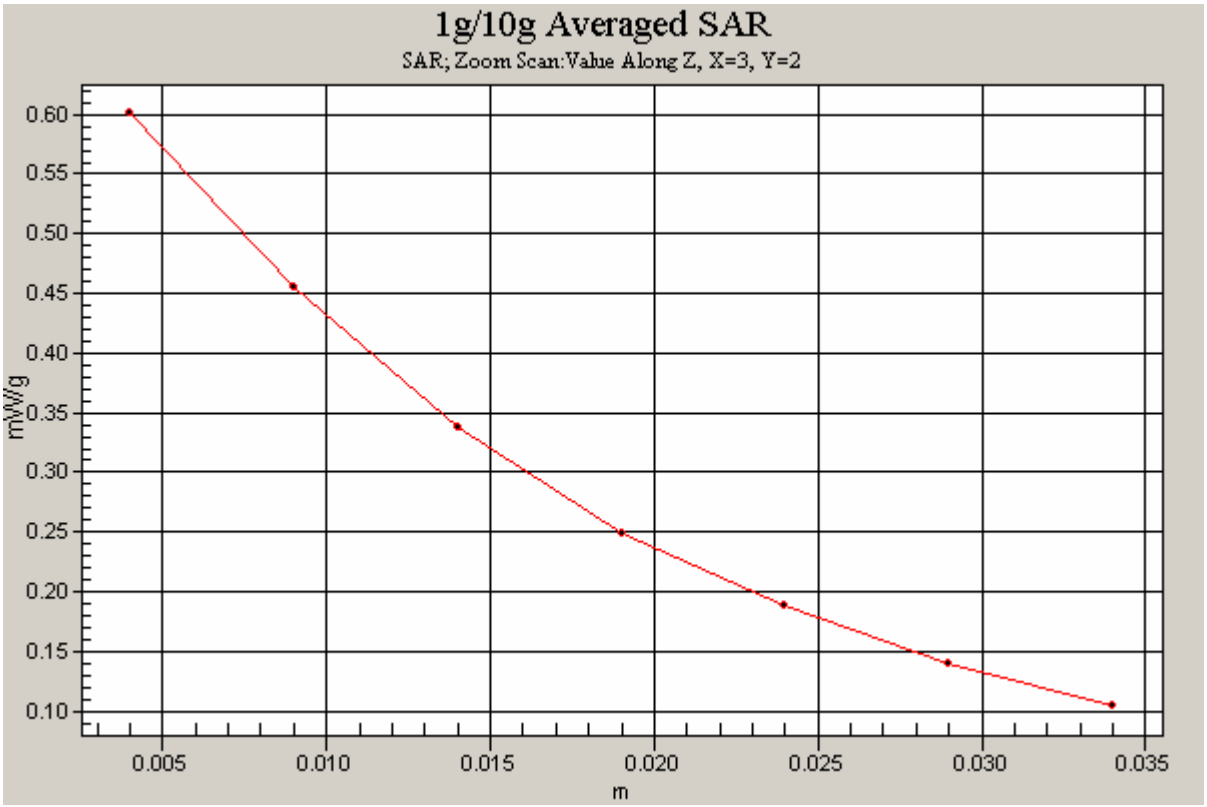


Figure 32 Z-Scan at power reference point (Body, Towards the ground, GSM 850, Channel 251)

GSM 850 Towards the ground Middle

Communication System: GSM 850; Frequency: 848.8 MHzFrequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 849 MHz; σ = 1.01 mho/m; ε_r = 55.8; ρ = 1000 kg/m^3 Medium parameters used: f = 837 MHz; σ = 0.996 mho/m; ε_r = 56; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(6.52, 6.52, 6.52);
Electronics: DAE3 Sn452;
Towards ground, Middle frequency/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.514 mW/g

Towards ground, Middle frequency/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.5 V/m; Power Drift = -0.094 dB
Peak SAR (extrapolated) = 0.612 W/kg
SAR(1 g) = 0.480 mW/g; SAR(10 g) = 0.346 mW/g
Maximum value of SAR (measured) = 0.513 mW/g

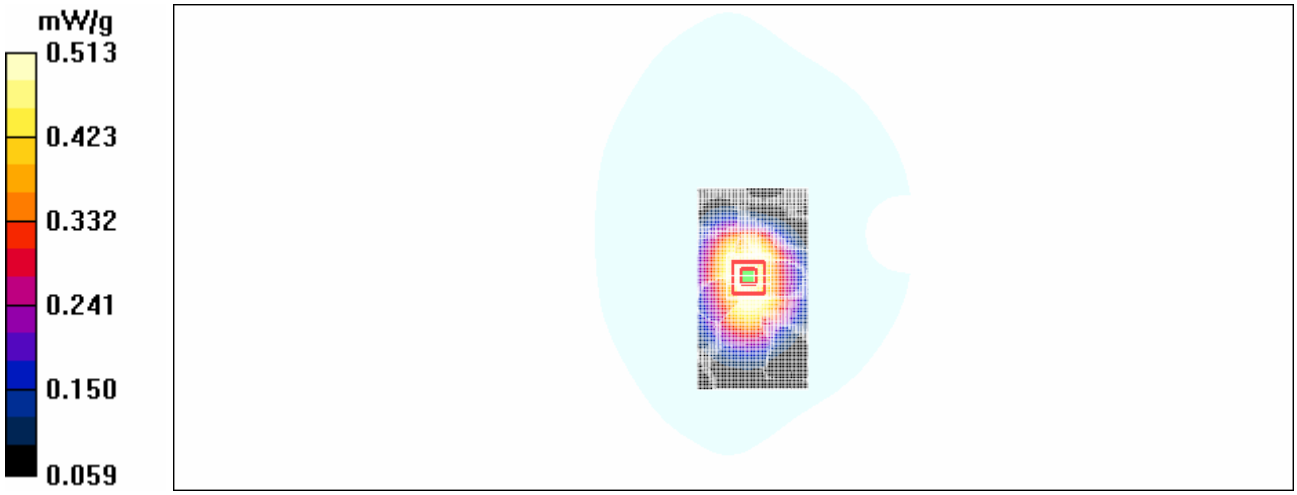


Figure 33 Body, Towards the ground, GSM 850, Channel 190

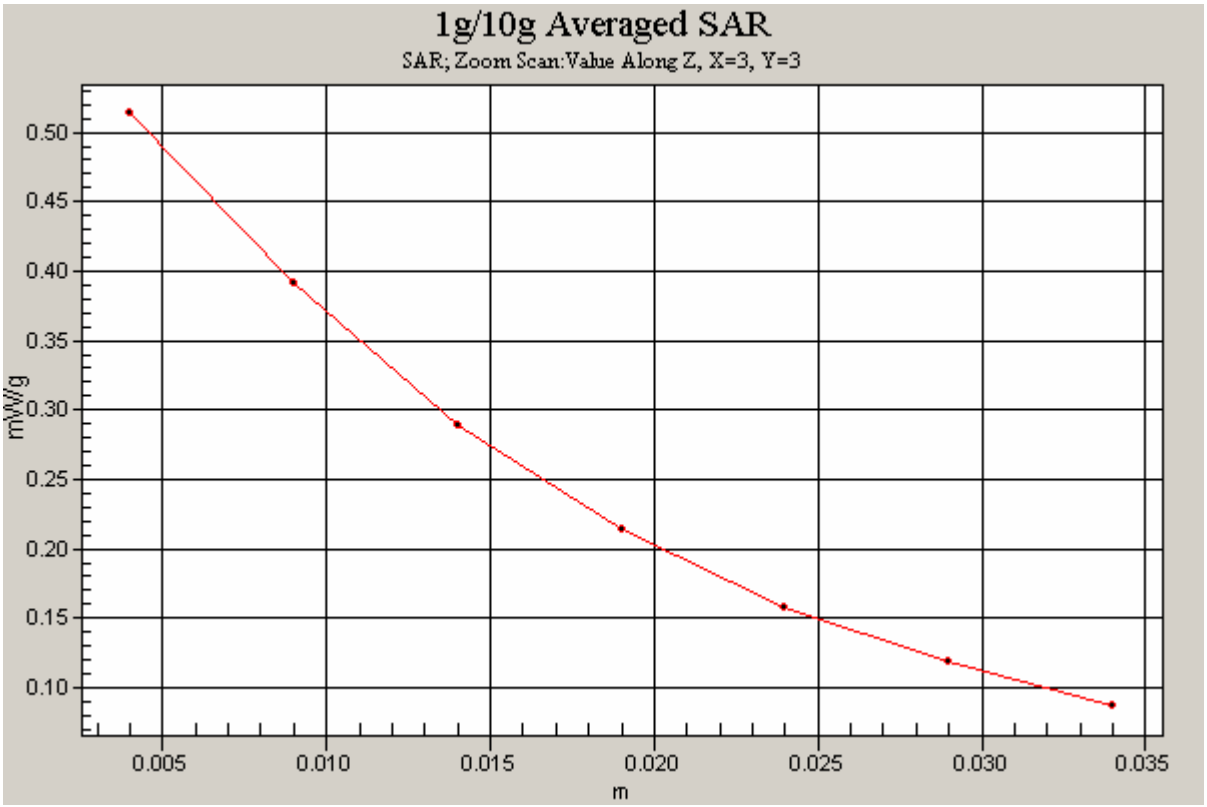


Figure 34 Z-Scan at power reference point (Body, Towards the ground, GSM 850, Channel 190)

GSM 850 Towards the ground Low

Communication System: GSM 850; Frequency: 824.2 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.984 mho/m; ε_r = 56; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(6.52, 6.52, 6.52);
Electronics: DAE3 Sn452;
Towards ground, Low frequency/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.400 mW/g

Towards ground, Low frequency/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.6 V/m; Power Drift = -0.026 dB
Peak SAR (extrapolated) = 0.472 W/kg
SAR(1 g) = 0.374 mW/g; SAR(10 g) = 0.271 mW/g
Maximum value of SAR (measured) = 0.400 mW/g

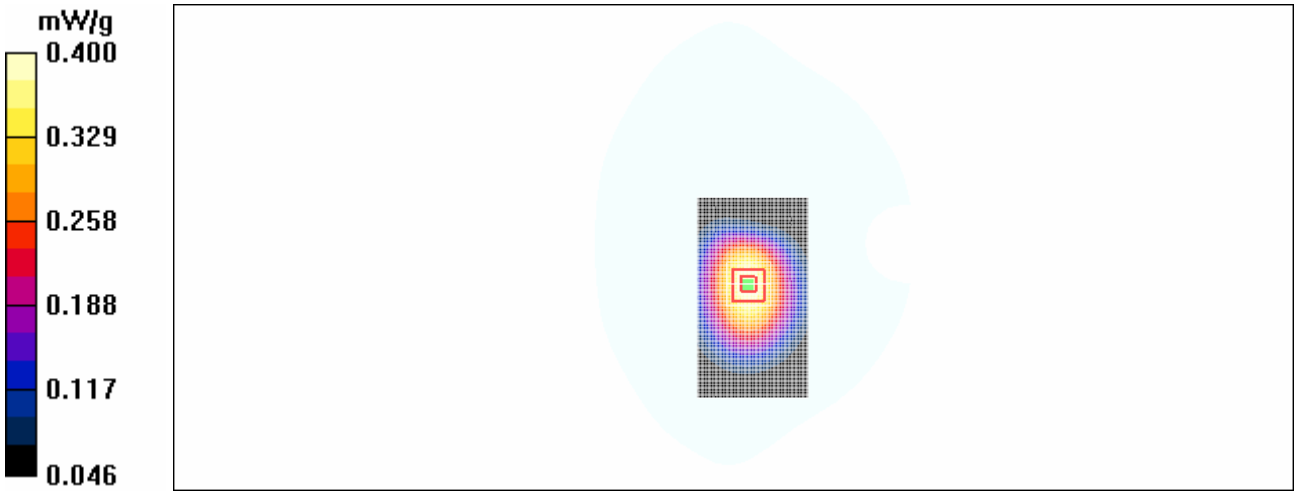


Figure 35 Body, Towards the ground, GSM 850, Channel 128

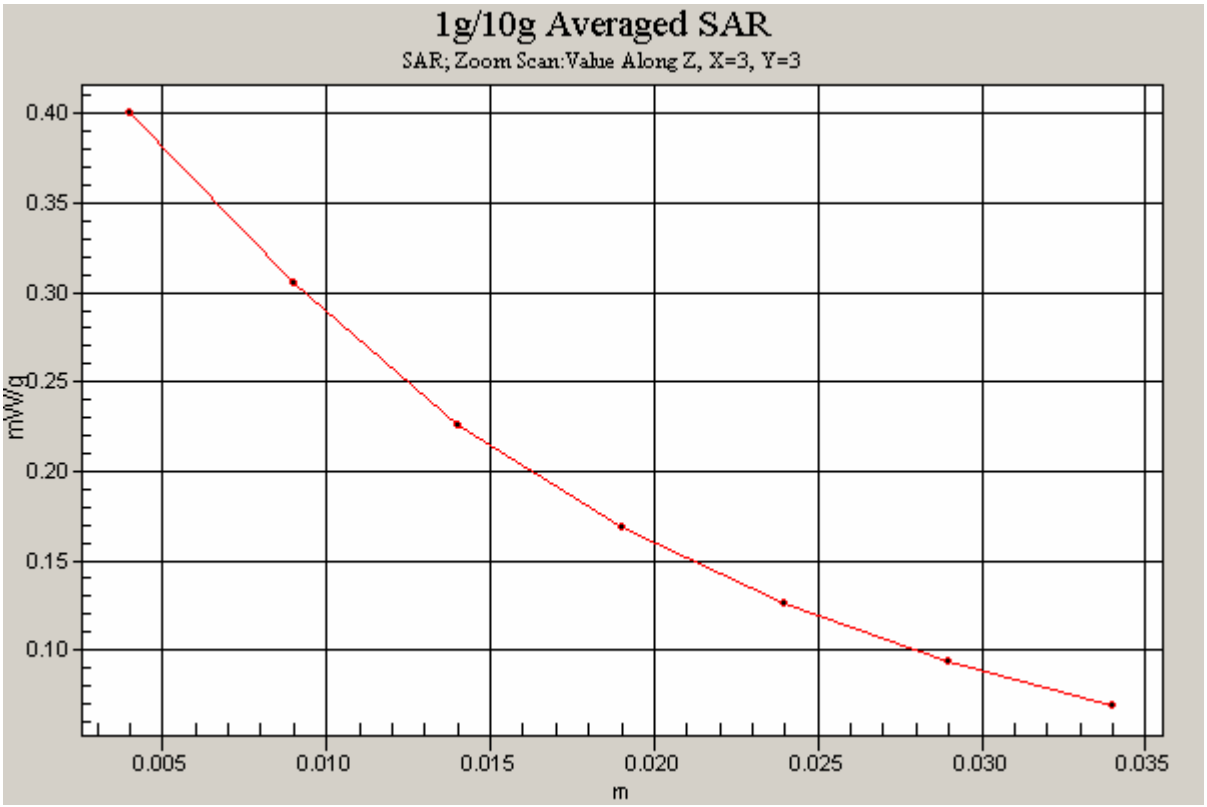


Figure 36 Z-Scan at power reference point (Body, Towards the ground, GSM 850, Channel 128)

GSM 850 Towards the Phantom High

Communication System: GSM 850; Frequency: 848.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 849 MHz; σ = 1.01 mho/m; ε_r = 55.8; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(6.52, 6.52, 6.52);
Electronics: DAE3 Sn452;
Towards phantom, High frequency/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.311 mW/g

Towards phantom, High frequency/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.3 V/m; Power Drift = -0.078 dB
Peak SAR (extrapolated) = 0.373 W/kg
SAR(1 g) = 0.289 mW/g; SAR(10 g) = 0.207 mW/g
Maximum value of SAR (measured) = 0.305 mW/g

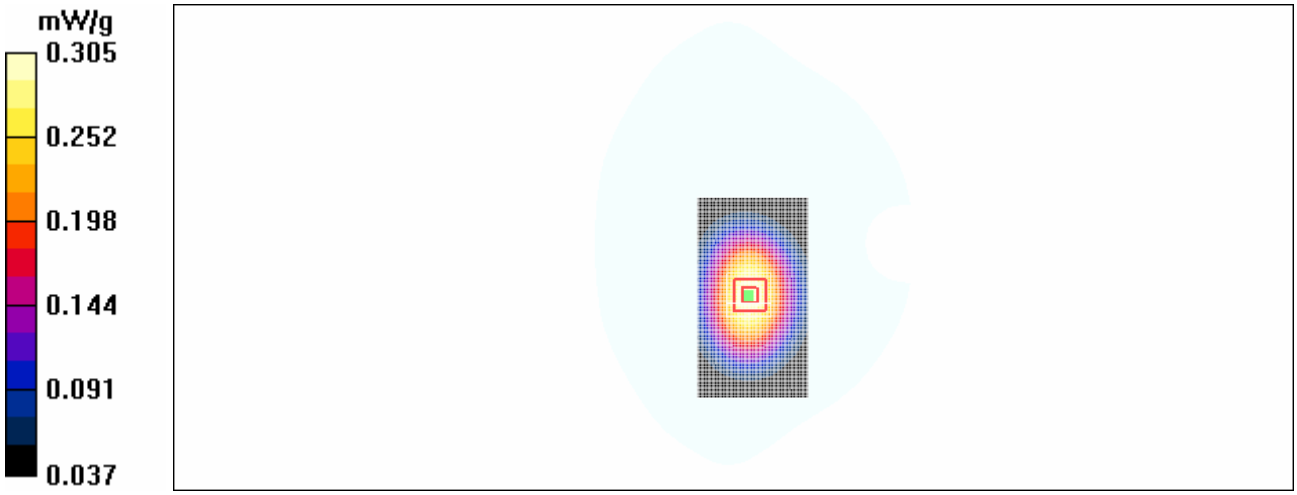


Figure 37 Body, Towards the Phantom, GSM 850, Channel 251

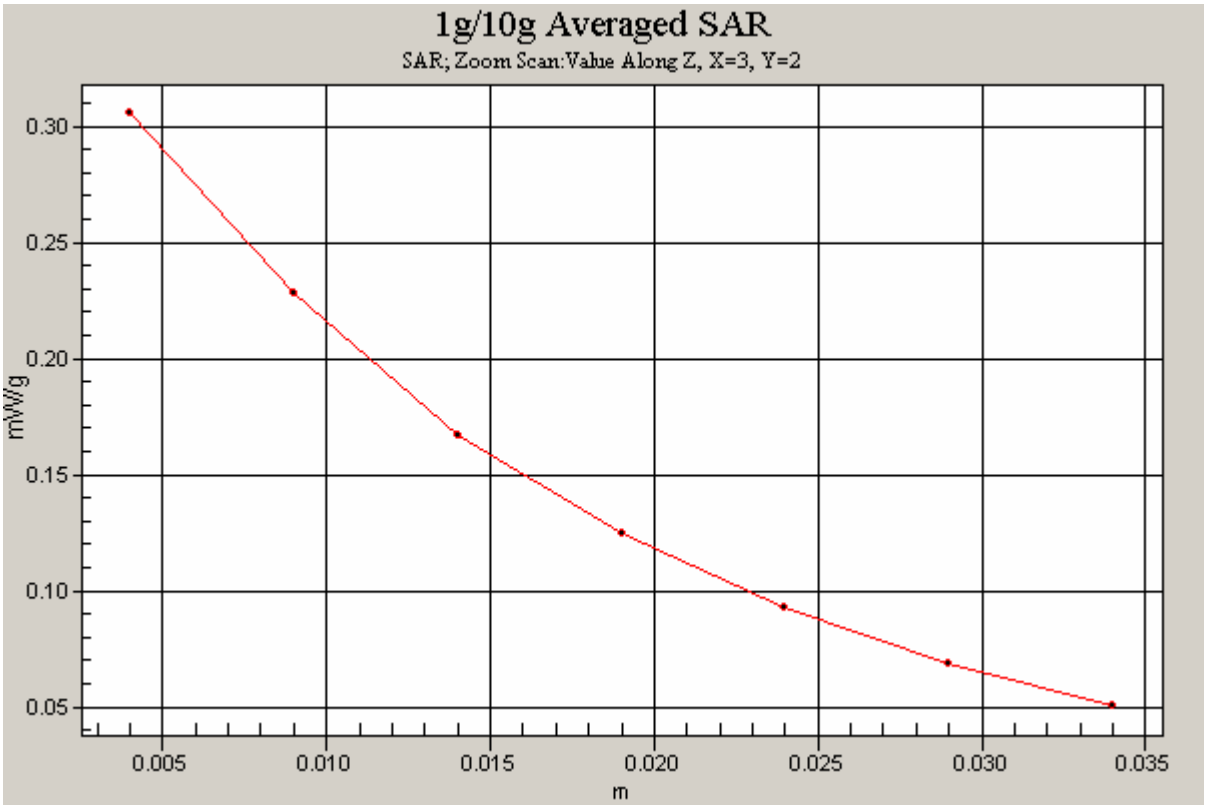


Figure 38 Z-Scan at power reference point (Body, Towards the Phantom, GSM 850, Channel 251)

GSM 850 Towards the Phantom Middle

Communication System: GSM 850; Frequency: 836.6 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 837 MHz; σ = 0.996 mho/m; ε_r = 56; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(6.52, 6.52, 6.52);
Electronics: DAE3 Sn452;
Towards phantom, Middle frequency/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.242 mW/g

Towards phantom, Middle frequency/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.9 V/m; Power Drift = -0.091 dB
Peak SAR (extrapolated) = 0.285 W/kg
SAR(1 g) = 0.225 mW/g; SAR(10 g) = 0.161 mW/g
Maximum value of SAR (measured) = 0.238 mW/g

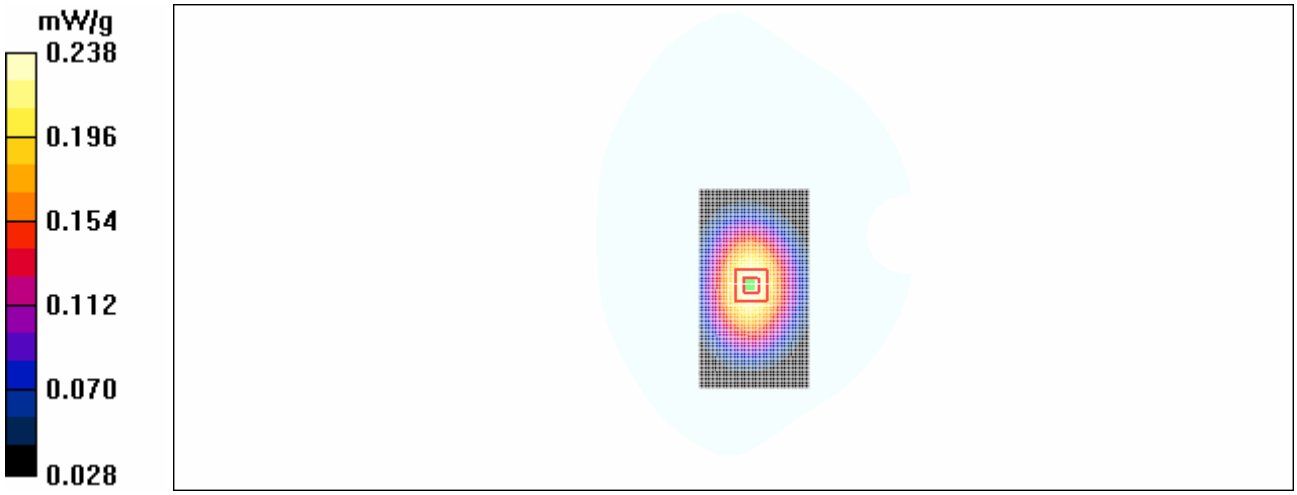


Figure 39 Body, Towards the Phantom, GSM 850, Channel 190

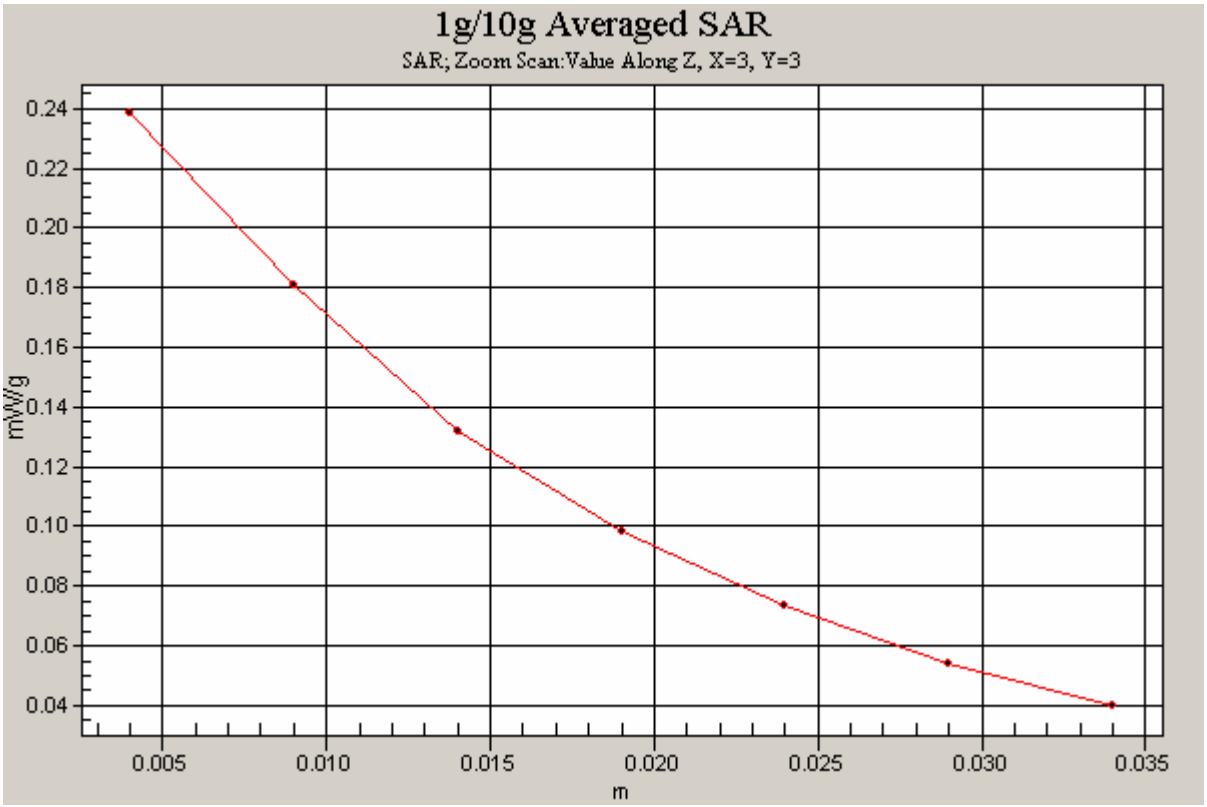


Figure 40 Z-Scan at power reference point (Body, Towards the Phantom, GSM 850, Channel 190)

GSM 850 Towards the Phantom Low

Communication System: GSM 850; Frequency: 824.2 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.984 mho/m; ε_r = 56; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(6.52, 6.52, 6.52);
Electronics: DAE3 Sn452;
Towards phantom, Low frequency/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.193 mW/g

Towards phantom, Low frequency/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.9 V/m; Power Drift = -0.114 dB
Peak SAR (extrapolated) = 0.226 W/kg
SAR(1 g) = 0.178 mW/g; SAR(10 g) = 0.128 mW/g
Maximum value of SAR (measured) = 0.189 mW/g

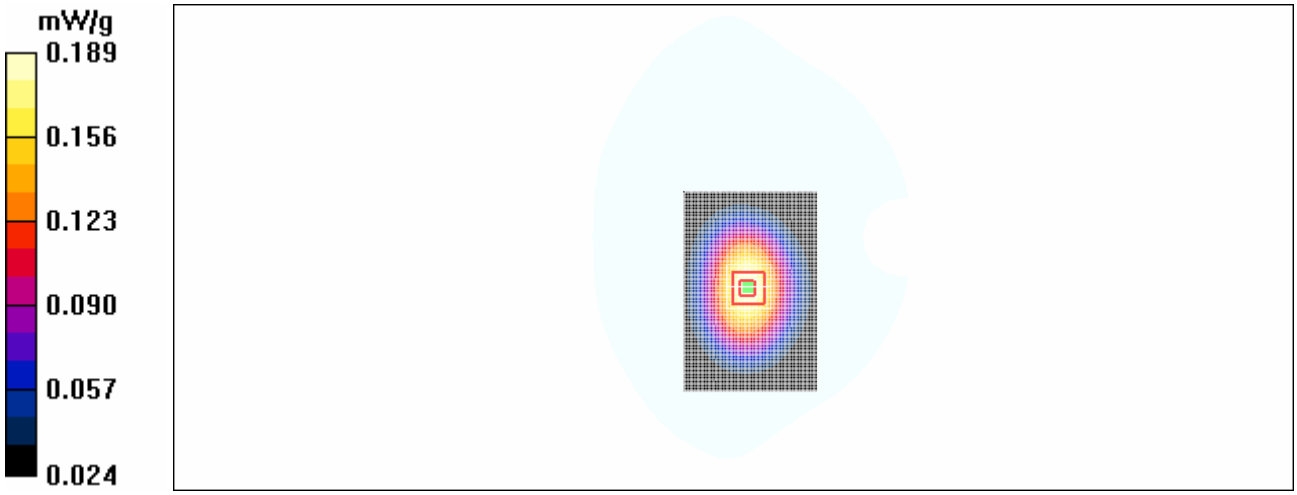


Figure 41 Body, Towards the Phantom, GSM 850, Channel 128

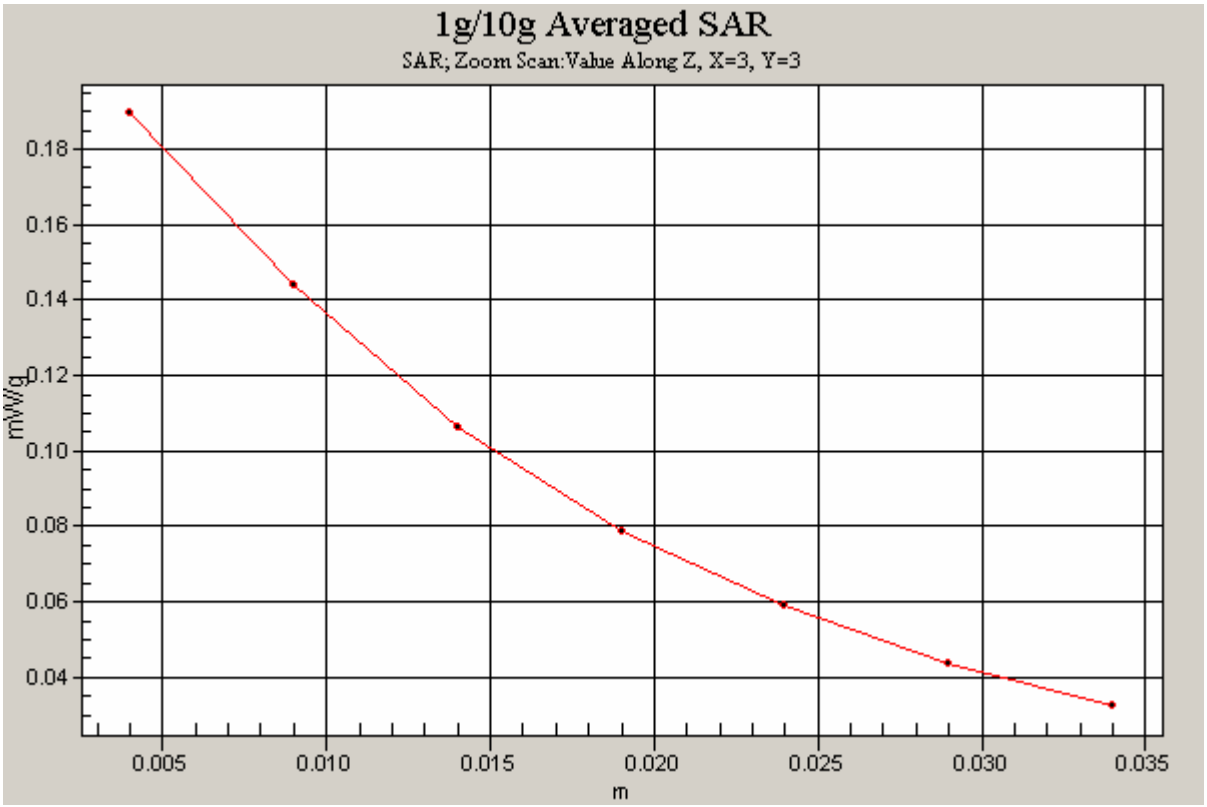


Figure 42 Z-Scan at power reference point (Body, Towards the Phantom, GSM 850, Channel 128)

GSM 850 Earphone Towards the Ground High

Communication System: GSM 850; Frequency: 848.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 849 MHz; σ = 1.01 mho/m; ε_r = 55.8; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(6.52, 6.52, 6.52);
Electronics: DAE3 Sn452;
Towards ground, High frequency/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.311 mW/g

Towards ground, High frequency/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.3 V/m; Power Drift = -0.095 dB
Peak SAR (extrapolated) = 0.372 W/kg
SAR(1 g) = 0.284 mW/g; SAR(10 g) = 0.201 mW/g
Maximum value of SAR (measured) = 0.303 mW/g

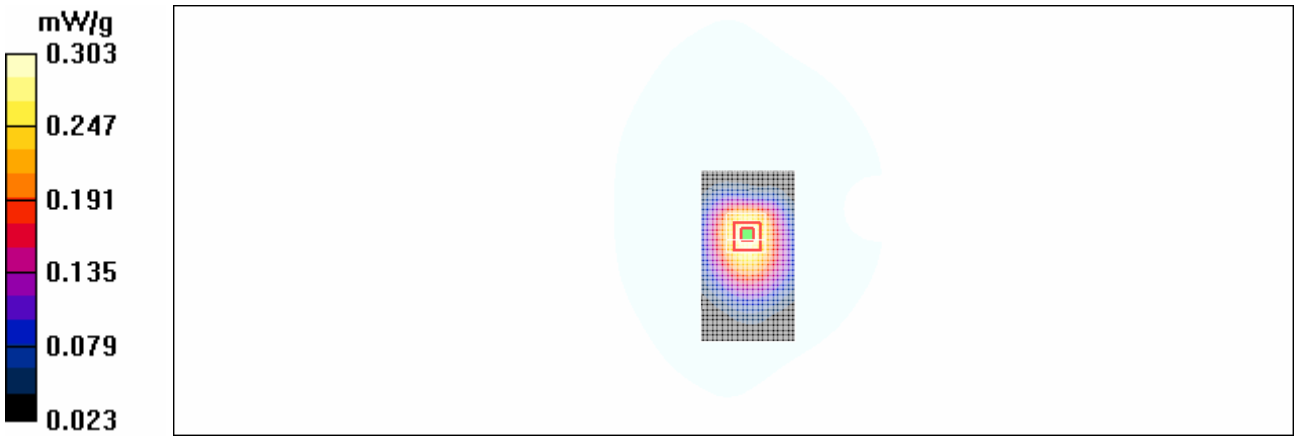


Figure 43 Body with earphone, Towards the ground, GSM 850, Channel 251

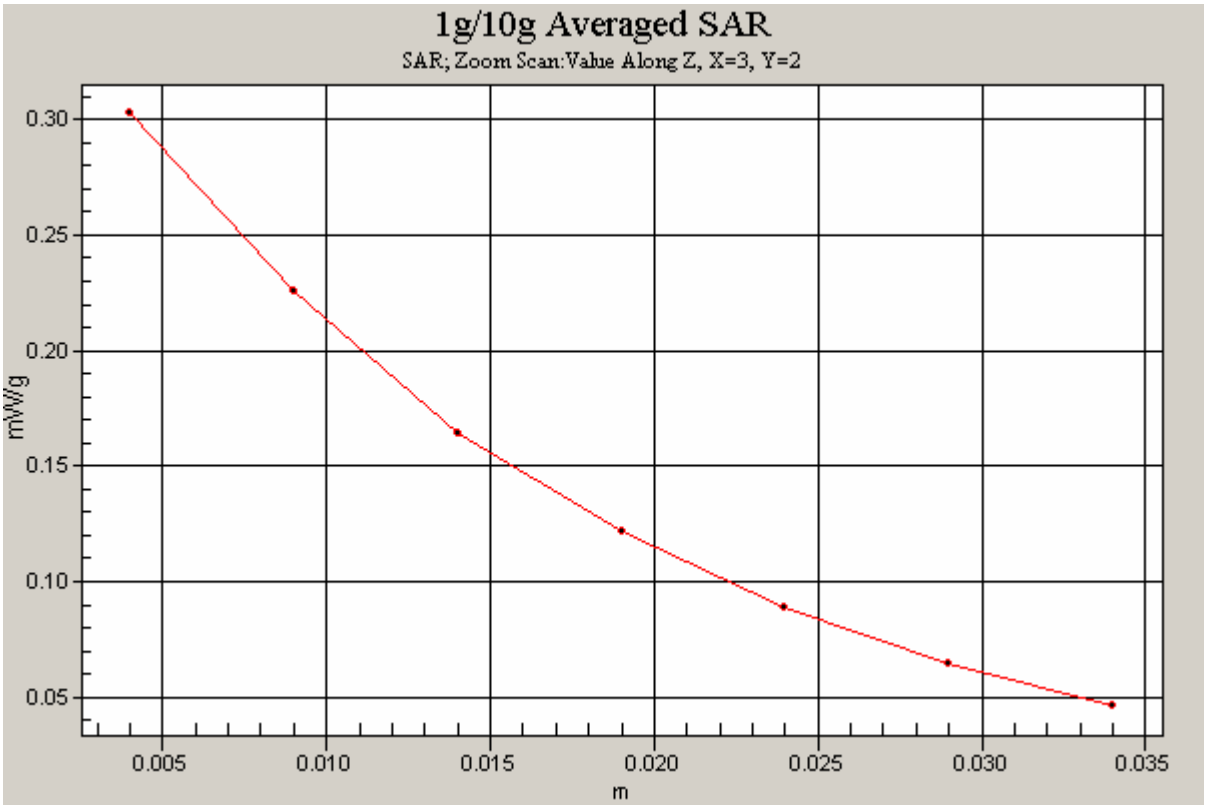


Figure44 Z-Scan at power reference point (Body with earphone, Towards the ground, GSM 850, Channel 251)

GSM 850 GPRS Towards the ground High

Communication System: GSM850 + GPRS(2Up); Frequency: 848.8 MHz;Duty Cycle: 1:4
Medium parameters used: f = 849 MHz; σ = 1.01 mho/m; ε_r = 55.8; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(6.52, 6.52, 6.52);
Electronics: DAE3 Sn452;
Towards ground, High frequency /Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.22 mW/g

Towards ground, High frequency /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 25.0 V/m; Power Drift = -0.150 dB
Peak SAR (extrapolated) = 1.41 W/kg
SAR(1 g) = 1.12 mW/g; SAR(10 g) = 0.814 mW/g
Maximum value of SAR (measured) = 1.20 mW/g

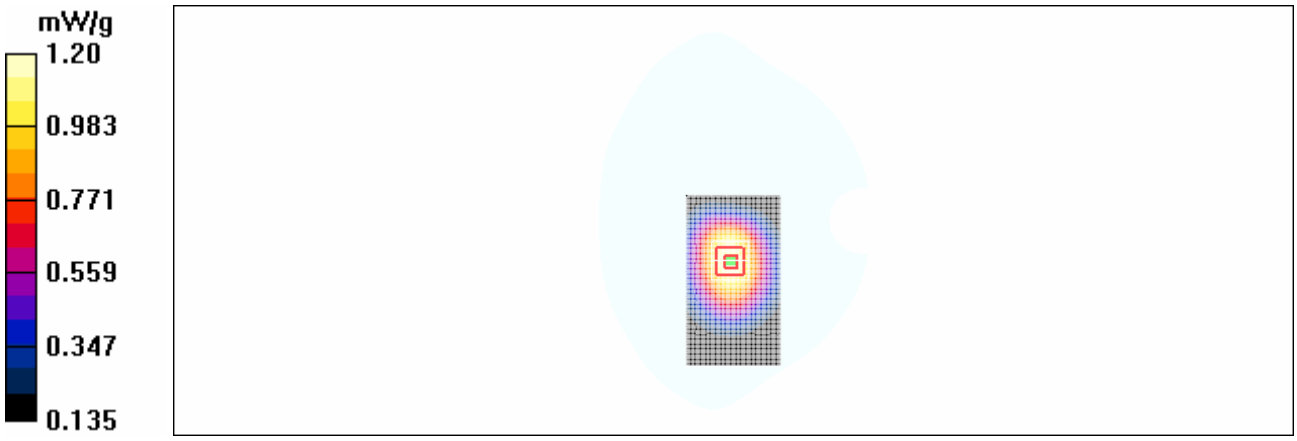


Figure 45 Body, Towards the ground, GSM850 GPRS, Channel 251

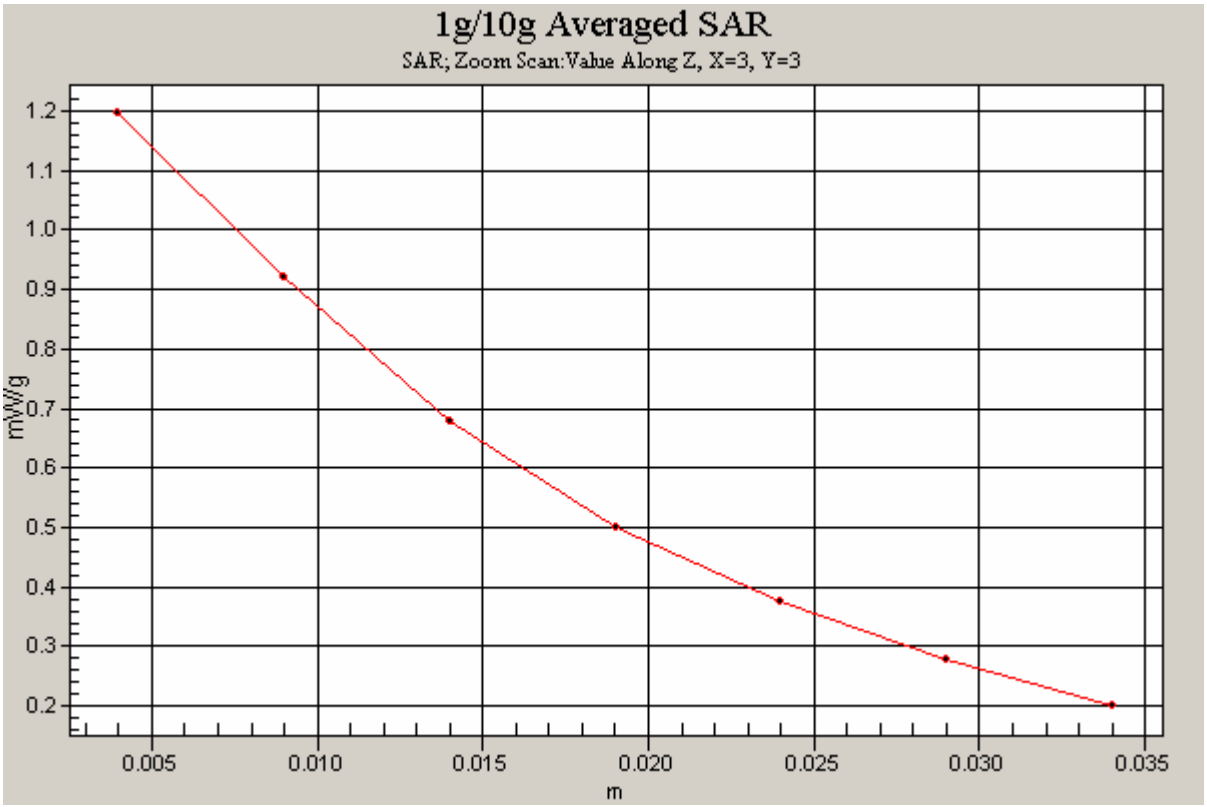


Figure 46 Z-Scan at power reference point (Body, Towards the ground, GSM 850 GPRS, Channel 251)

GSM 850 GPRS Towards the ground Middle

Communication System: GSM850 + GPRS(2Up); Frequency: 836.6 MHz;Duty Cycle: 1:4
Medium parameters used: f = 837 MHz; σ = 0.996 mho/m; ε_r = 56; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(6.52, 6.52, 6.52);
Electronics: DAE3 Sn452;
Towards ground, Middle frequency /Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 1.01 mW/g

Towards ground, Middle frequency /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 23.1 V/m; Power Drift = -0.164 dB
Peak SAR (extrapolated) = 1.20 W/kg
SAR(1 g) = 0.940 mW/g; SAR(10 g) = 0.678 mW/g
Maximum value of SAR (measured) = 0.999 mW/g

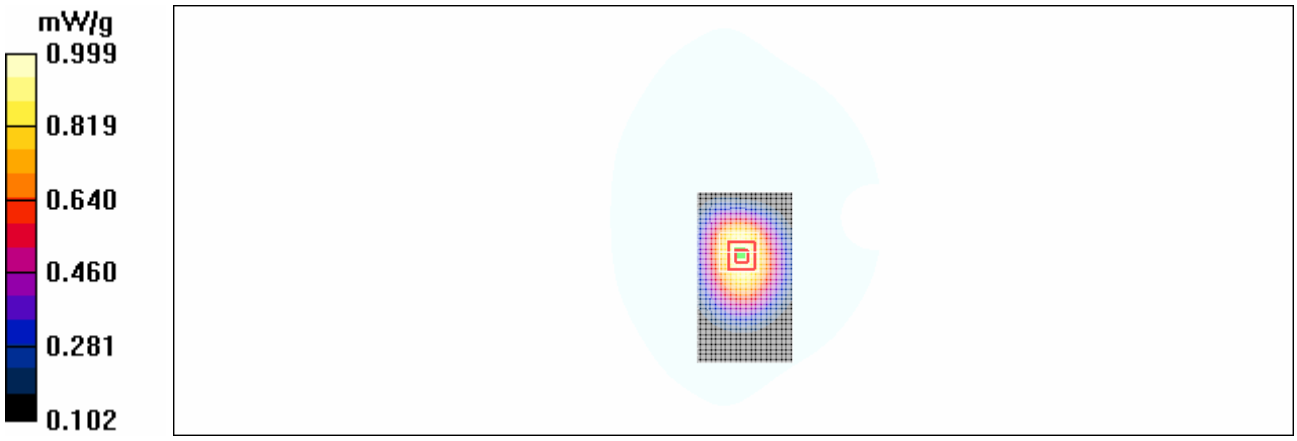


Figure 47 Body, Towards the ground, GSM850 GPRS, Channel 190

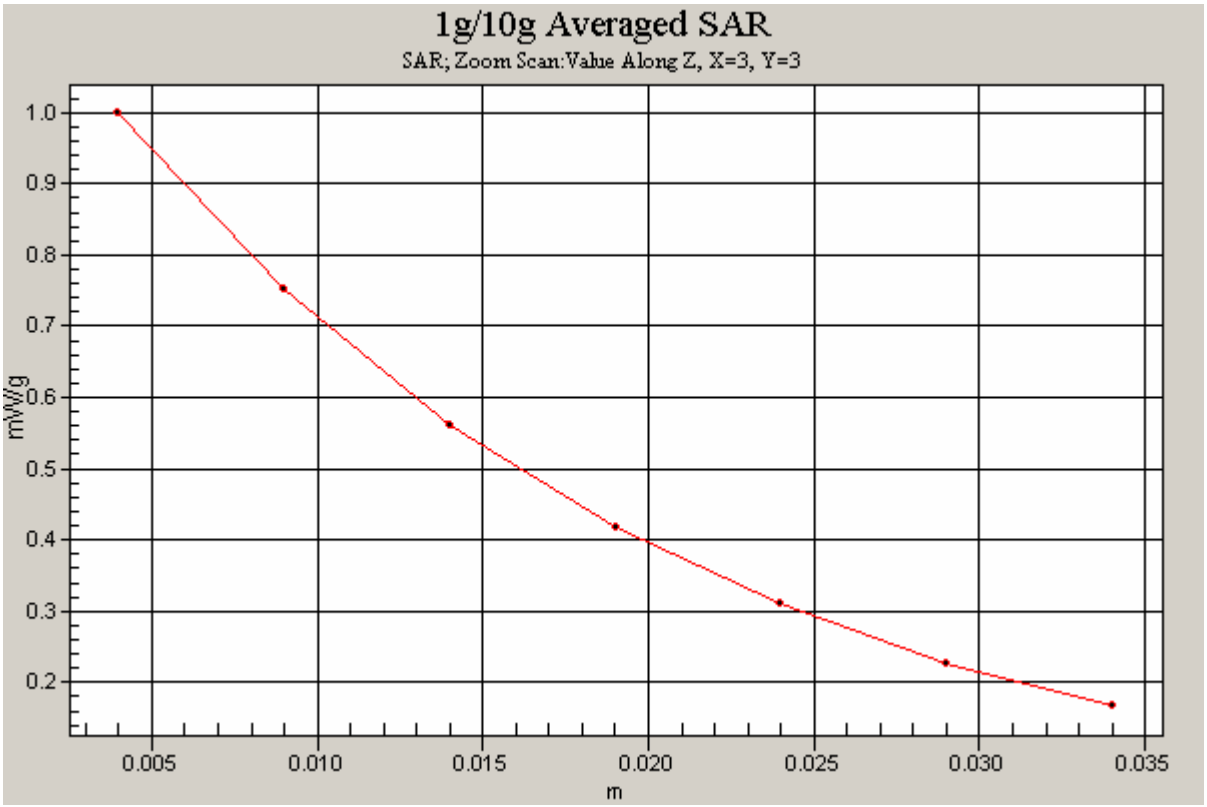


Figure 48 Z-Scan at power reference point (Body, Towards the ground, GSM 850 GPRS, Channel 190)

GSM 850 GPRS Towards the ground Low

Communication System: GSM850 + GPRS(2Up); Frequency: 824.2 MHz;Duty Cycle: 1:4
Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.984 mho/m; ε_r = 56; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(6.52, 6.52, 6.52);
Electronics: DAE3 Sn452;
Towards ground, Low frequency /Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.776 mW/g

Towards ground, Low frequency /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 20.5 V/m; Power Drift = -0.068 dB
Peak SAR (extrapolated) = 0.898 W/kg
SAR(1 g) = 0.717 mW/g; SAR(10 g) = 0.521 mW/g
Maximum value of SAR (measured) = 0.759 mW/g

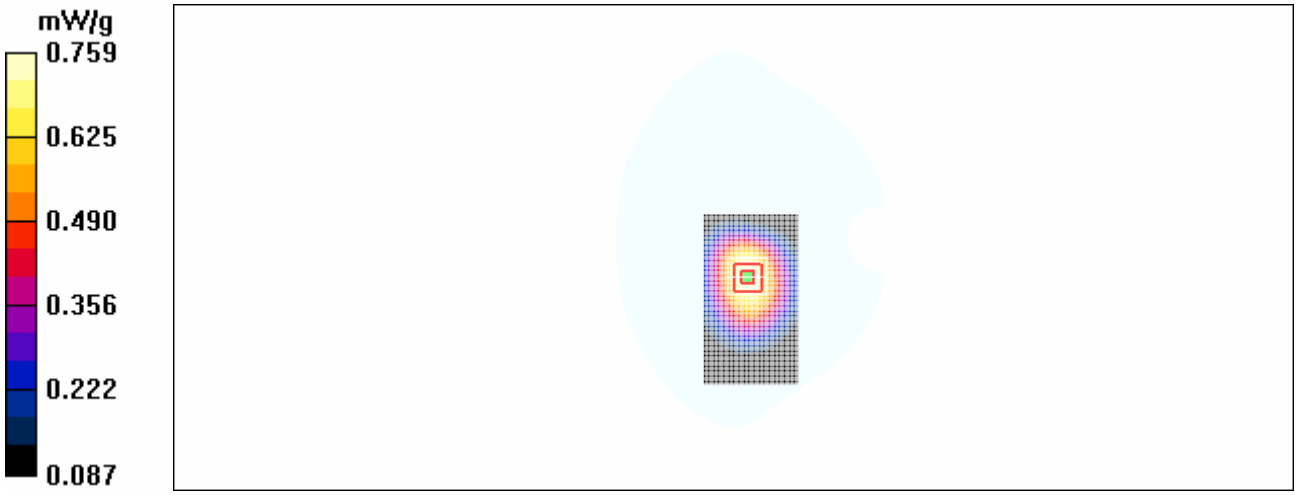


Figure 49 Body, Towards the ground, GSM850 GPRS, Channel 128

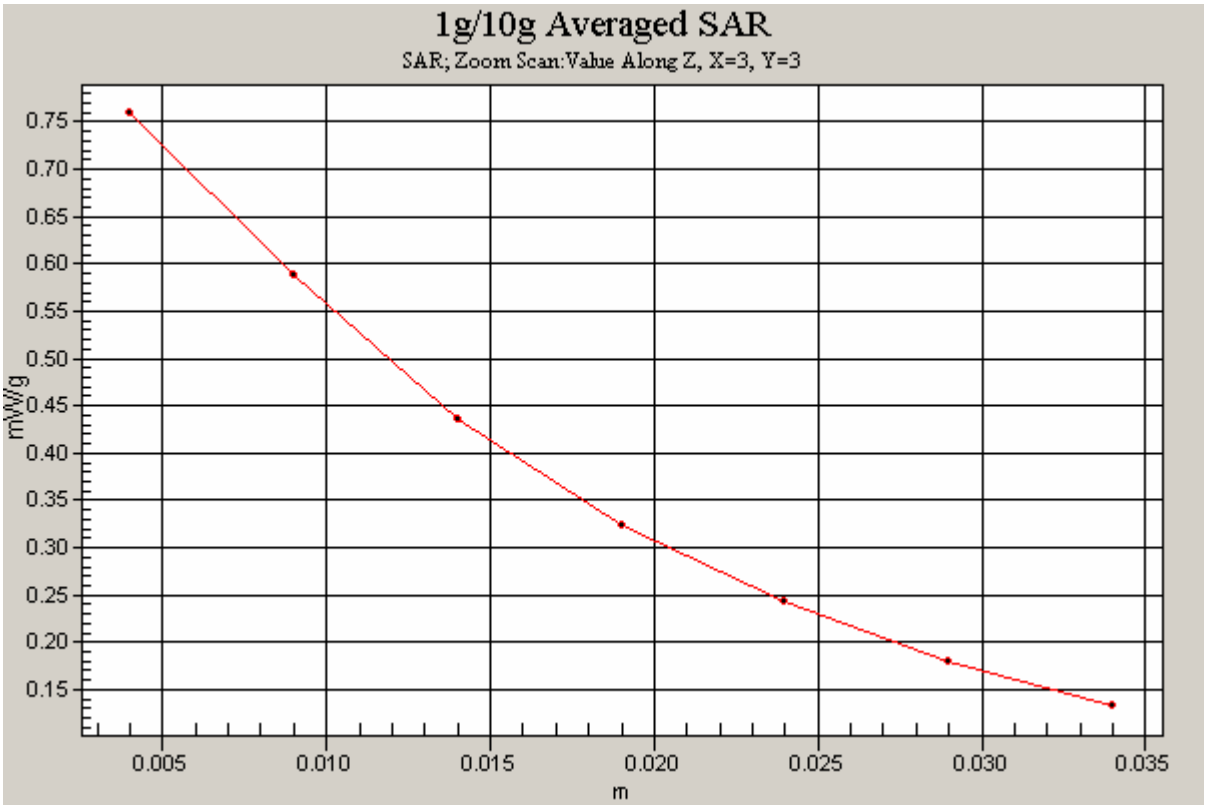


Figure 50 Z-Scan at power reference point (Body, Towards the ground, GSM 850 GPRS, Channel 128)

GSM 850 GPRS Towards the Phantom High

Communication System: GSM850 + GPRS(2Up); Frequency: 848.8 MHz;Duty Cycle: 1:4
Medium parameters used: f = 849 MHz; σ = 1.01 mho/m; ε_r = 55.8; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(6.52, 6.52, 6.52);
Electronics: DAE3 Sn452; , V1.8 Build 176
Towards phantom, High frequency /Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.623 mW/g

Towards phantom, High frequency /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.8 V/m; Power Drift = -0.181 dB
Peak SAR (extrapolated) = 0.730 W/kg
SAR(1 g) = 0.576 mW/g; SAR(10 g) = 0.414 mW/g
Maximum value of SAR (measured) = 0.612 mW/g

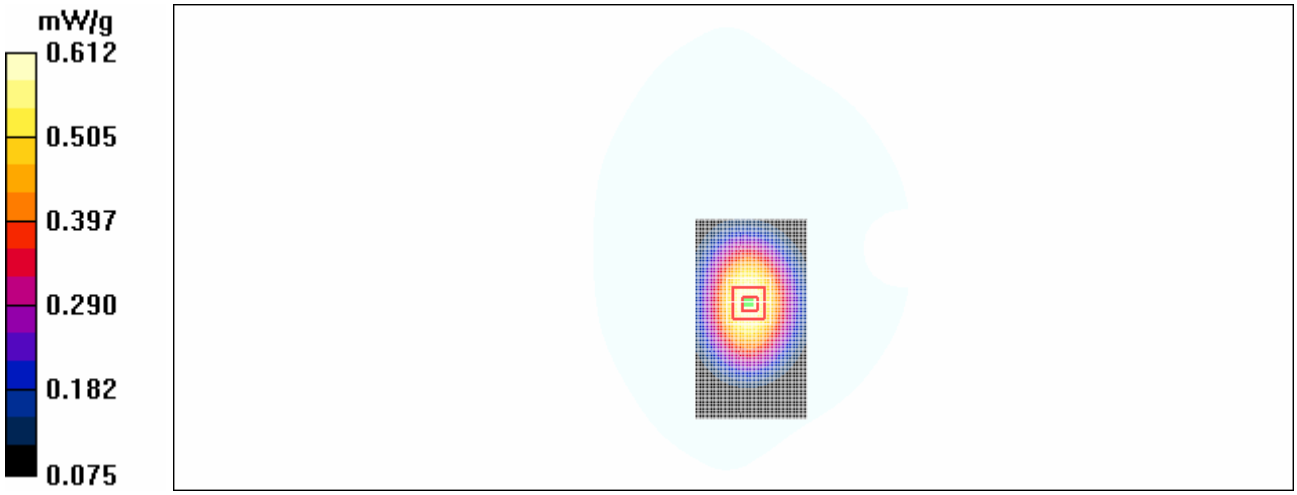


Figure 51 Body, Towards the Phantom, GSM850 GPRS, Channel 251

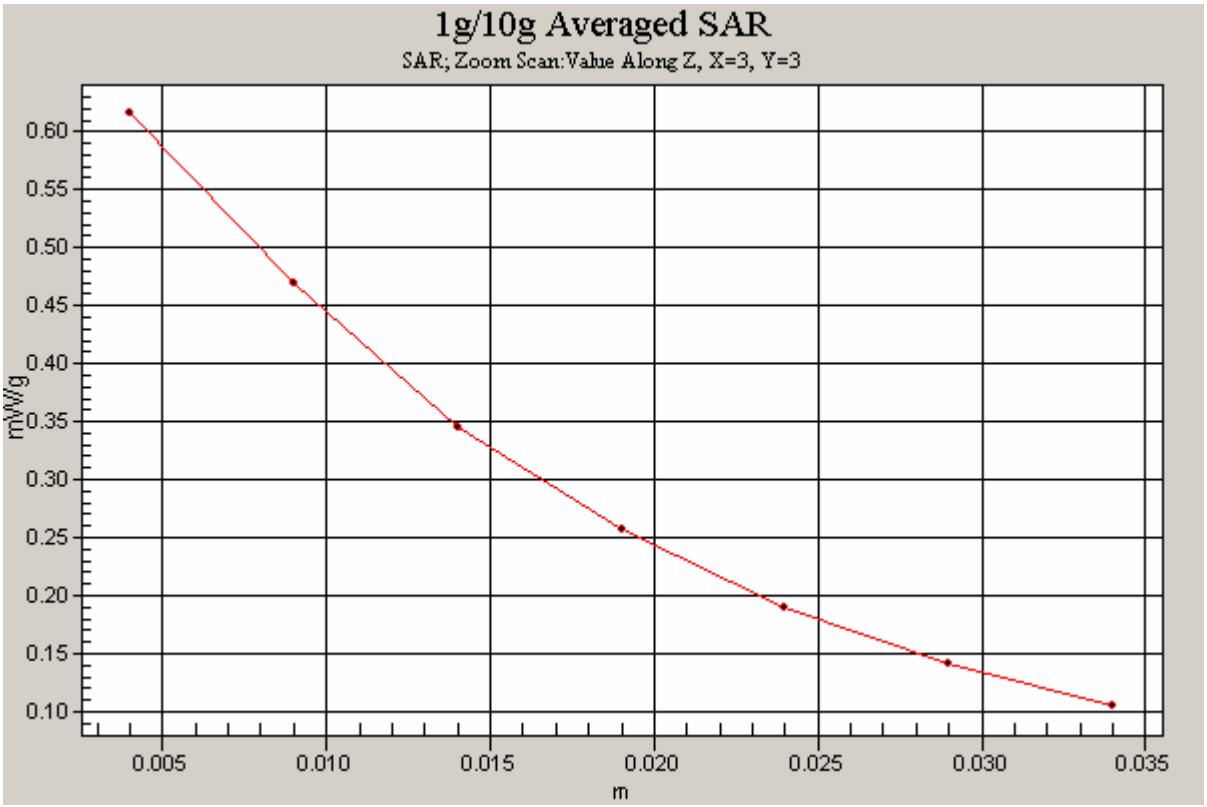


Figure 52 Z-Scan at power reference point (Body, Towards the Phantom, GSM 850 GPRS, Channel 251)

GSM 850 GPRS Towards the Phantom Middle

Communication System: GSM850 + GPRS(2Up); Frequency: 836.6 MHz;Duty Cycle: 1:4
Medium parameters used: f = 837 MHz; σ = 0.996 mho/m; ε_r = 56; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(6.52, 6.52, 6.52);
Electronics: DAE3 Sn452;
Towards phantom, Middle frequency /Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.458 mW/g

Towards phantom, Middle frequency /Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.2 V/m; Power Drift = -0.068 dB
Peak SAR (extrapolated) = 0.539 W/kg
SAR(1 g) = 0.425 mW/g; SAR(10 g) = 0.306 mW/g
Maximum value of SAR (measured) = 0.450 mW/g

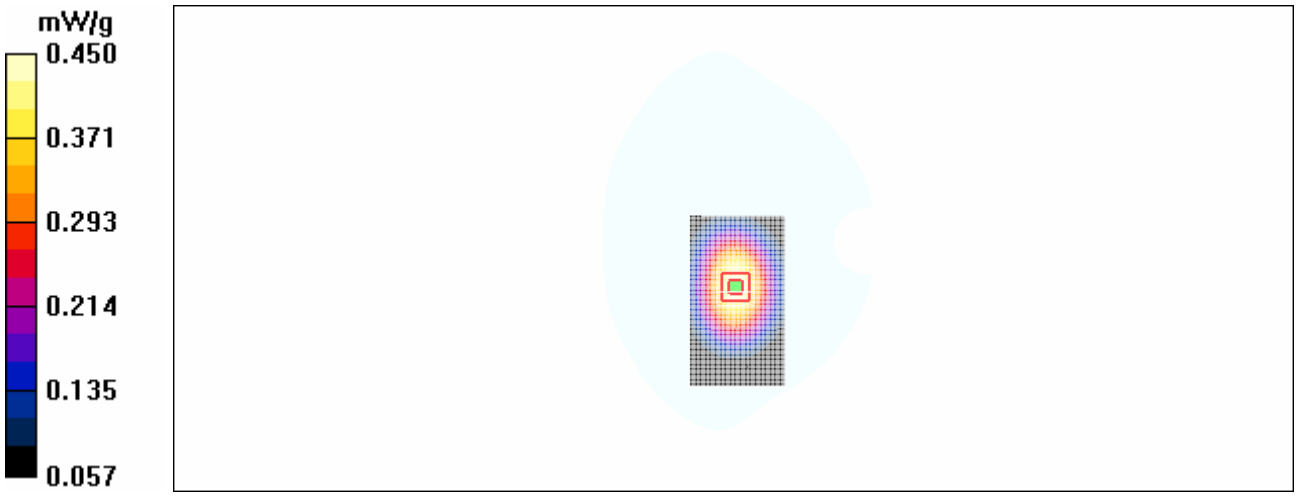


Figure 53 Body, Towards the Phantom, GSM850 GPRS, Channel 190

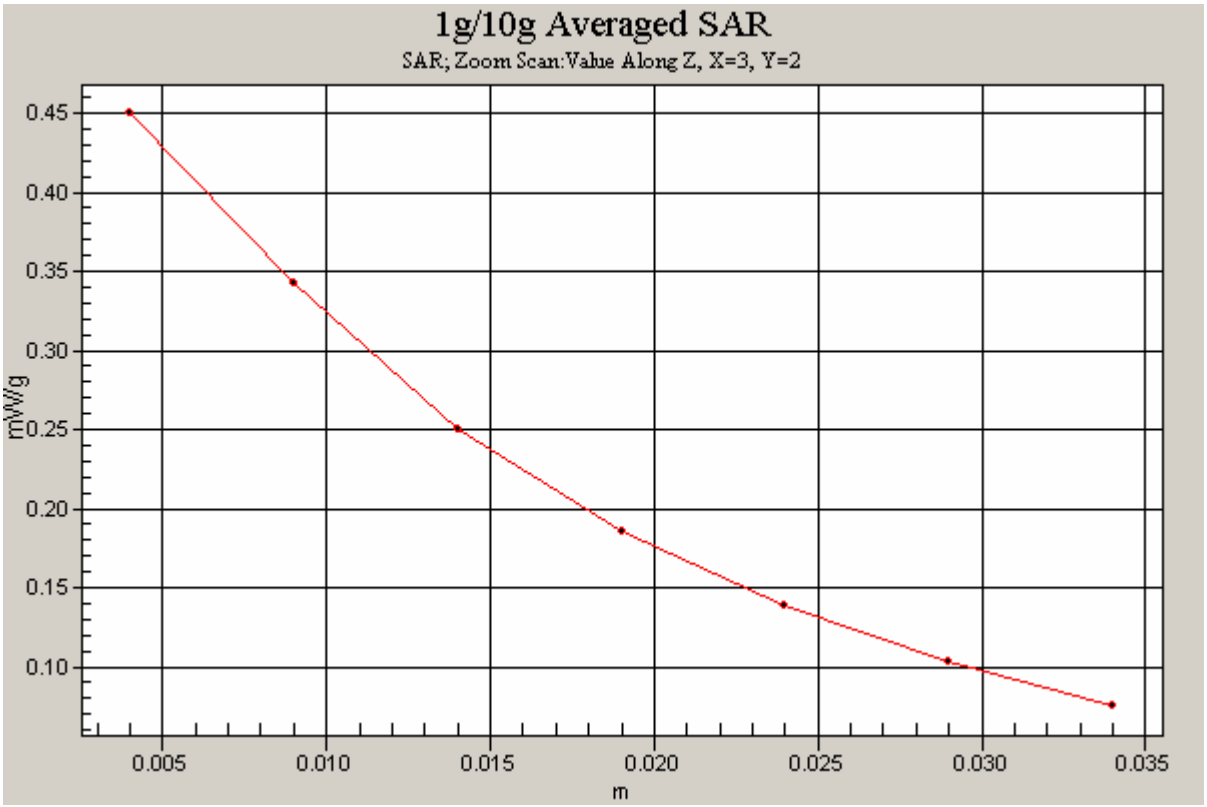


Figure 54 Z-Scan at power reference point (Body, Towards the Phantom, GSM 850 GPRS, Channel 190)

GSM 850 GPRS Towards the Phantom Low

Communication System: GSM850 + GPRS(2Up); Frequency: 824.2 MHz;Duty Cycle: 1:4
Medium parameters used (interpolated): f = 824.2 MHz; σ = 0.984 mho/m; ε_r = 56; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(6.52, 6.52, 6.52);
Electronics: DAE3 Sn452;
Towards phantom, Low frequency /Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.346 mW/g

Towards phantom, Low frequency Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.5 V/m; Power Drift = -0.070 dB
Peak SAR (extrapolated) = 0.414 W/kg
SAR(1 g) = 0.326 mW/g; SAR(10 g) = 0.234 mW/g
Maximum value of SAR (measured) = 0.349 mW/g

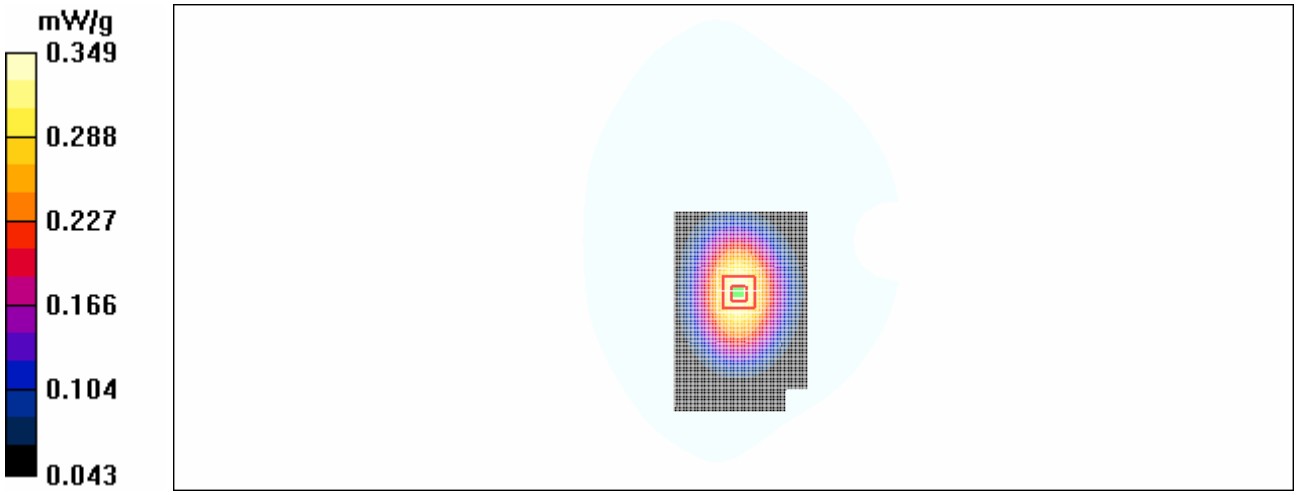


Figure 55 Body, Towards the Phantom, GSM850 GPRS, Channel 128

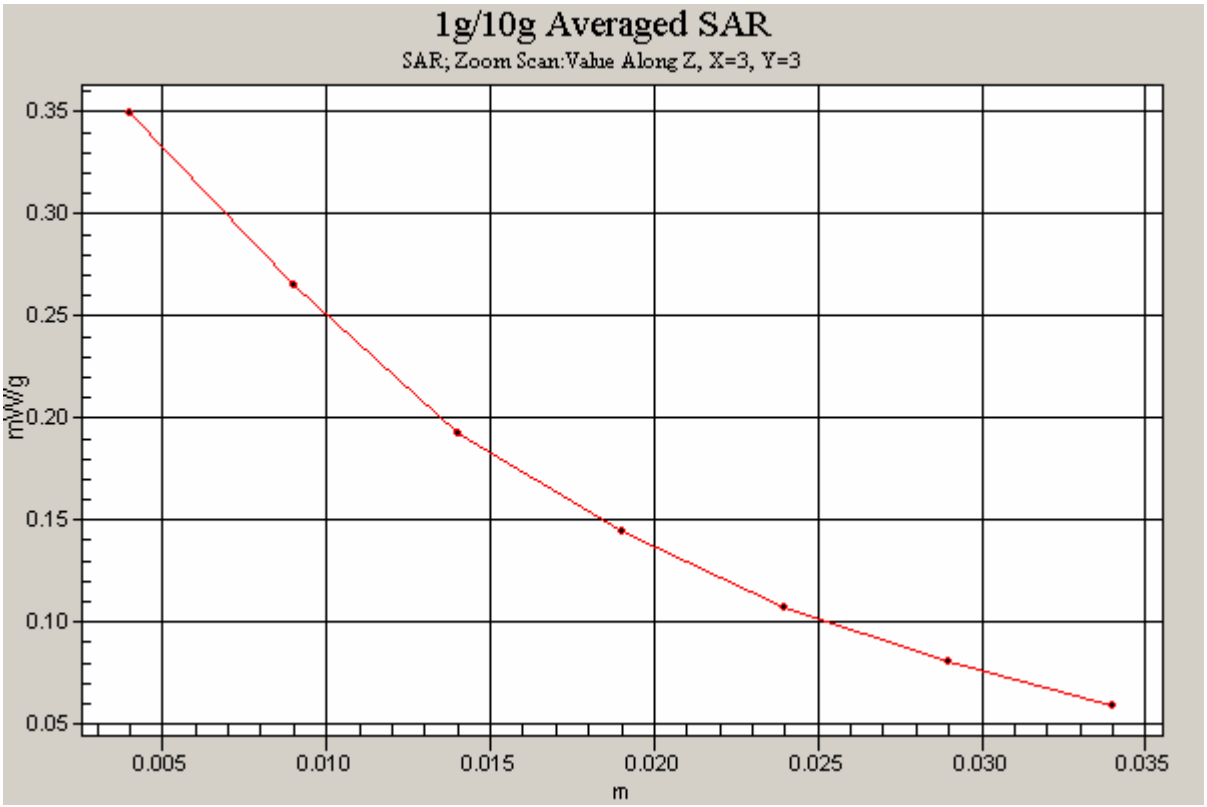


Figure 56 Z-Scan at power reference point (Body, Towards the Phantom, GSM 850 GPRS, Channel 128)

GSM 1900 Left Cheek High

Communication System: GSM 1900; Frequency: 1909.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1910 MHz; σ = 1.43 mho/m; ε_r = 40.3; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(5.15, 5.15, 5.15);
Electronics: DAE3 Sn452;
Cheek High/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.404 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.7 V/m; Power Drift = -0.006 dB
Peak SAR (extrapolated) = 0.559 W/kg
SAR(1 g) = 0.366 mW/g; SAR(10 g) = 0.209 mW/g
Maximum value of SAR (measured) = 0.412 mW/g

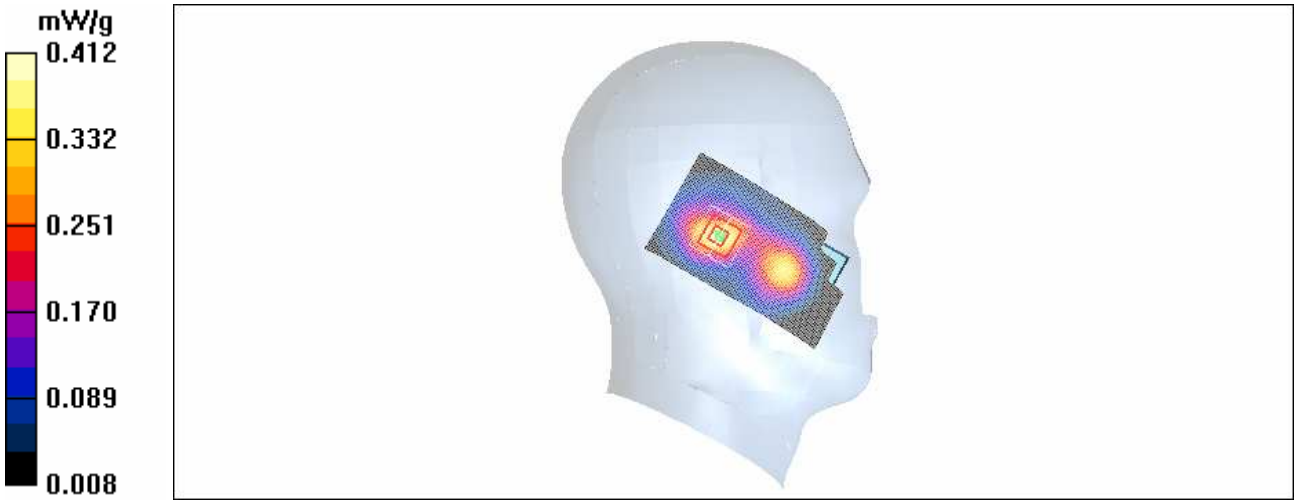


Figure 57 Left Hand Touch Cheek GSM 1900 Channel 810

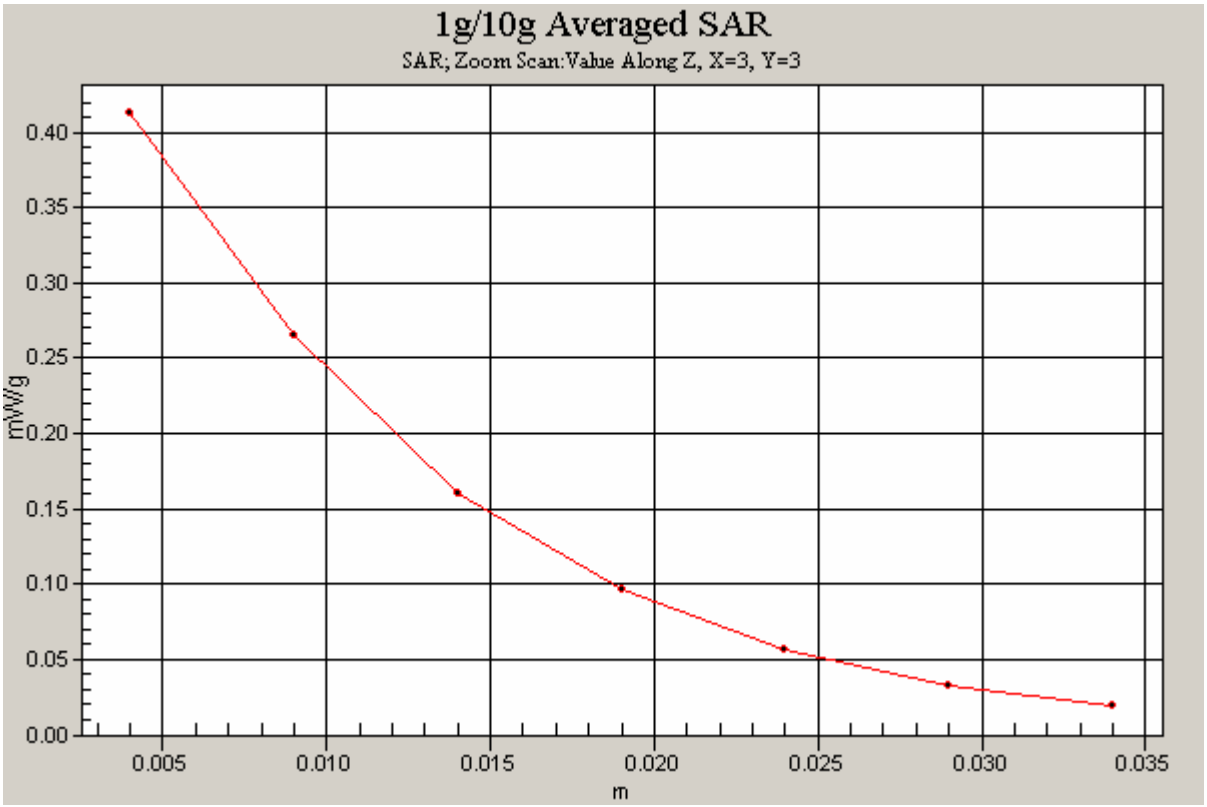


Figure 58 Z-Scan at power reference point (Left Hand Touch Cheek GSM 1900 Channel 810)

GSM 1900 Left Cheek Middle

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.39 mho/m; ε_r = 40.4; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(5.15, 5.15, 5.15);
Electronics: DAE3 Sn452;
Cheek Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.480 mW/g

Cheek Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.5 V/m; Power Drift = -0.035 dB
Peak SAR (extrapolated) = 0.660 W/kg
SAR(1 g) = 0.437 mW/g; SAR(10 g) = 0.249 mW/g
Maximum value of SAR (measured) = 0.483 mW/g

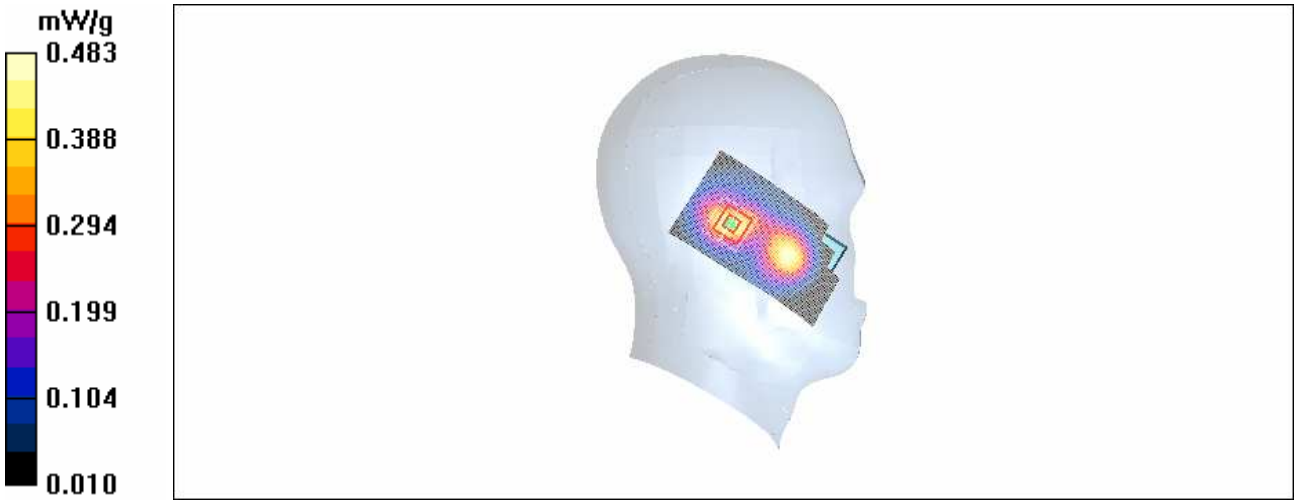


Figure 59 Left Hand Touch Cheek GSM 1900 Channel 661

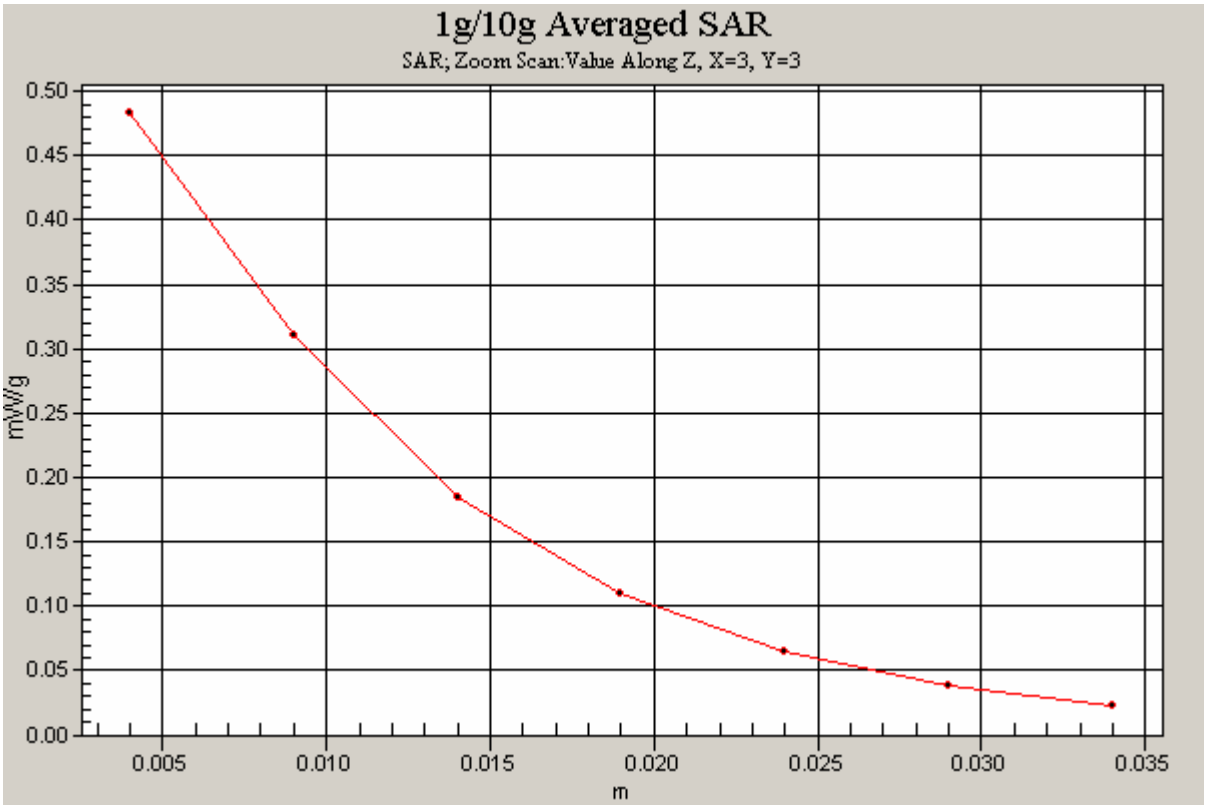


Figure 60 Z-Scan at power reference point (Left Hand Touch Cheek GSM 1900 Channel 661)

GSM 1900 Left Cheek Low

Communication System: GSM 1900; Frequency: 1850.2 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.36 mho/m; ε_r = 40.4; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(5.15, 5.15, 5.15);
Electronics: DAE3 Sn452;
Cheek Low/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.499 mW/g

Cheek Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.1 V/m; Power Drift = -0.059 dB
Peak SAR (extrapolated) = 0.586 W/kg
SAR(1 g) = 0.444 mW/g; SAR(10 g) = 0.275 mW/g
Maximum value of SAR (measured) = 0.485 mW/g

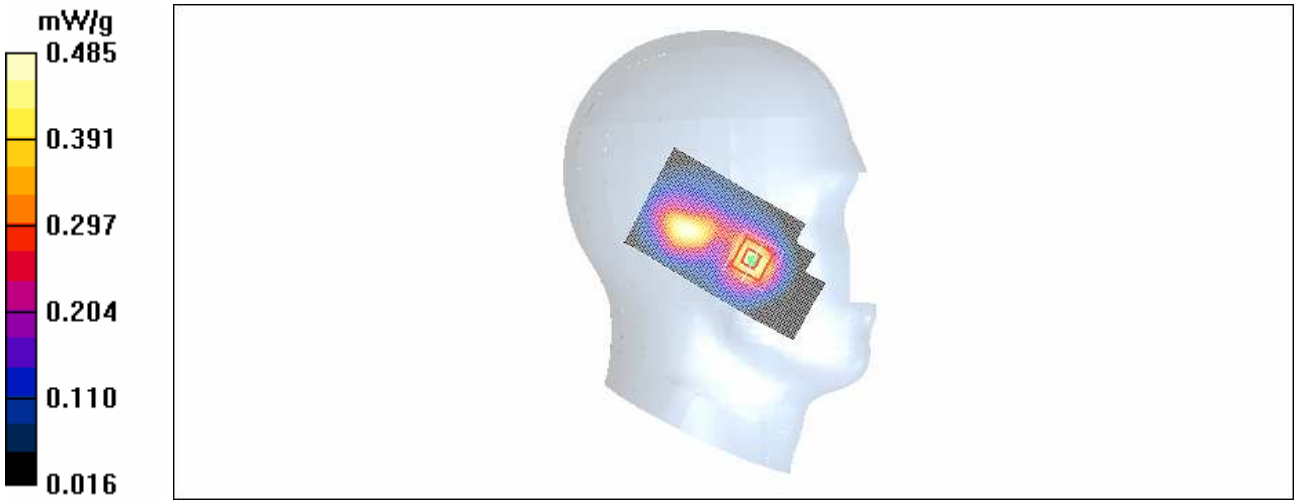


Figure 61 Left Hand Touch Cheek GSM 1900 Channel 512

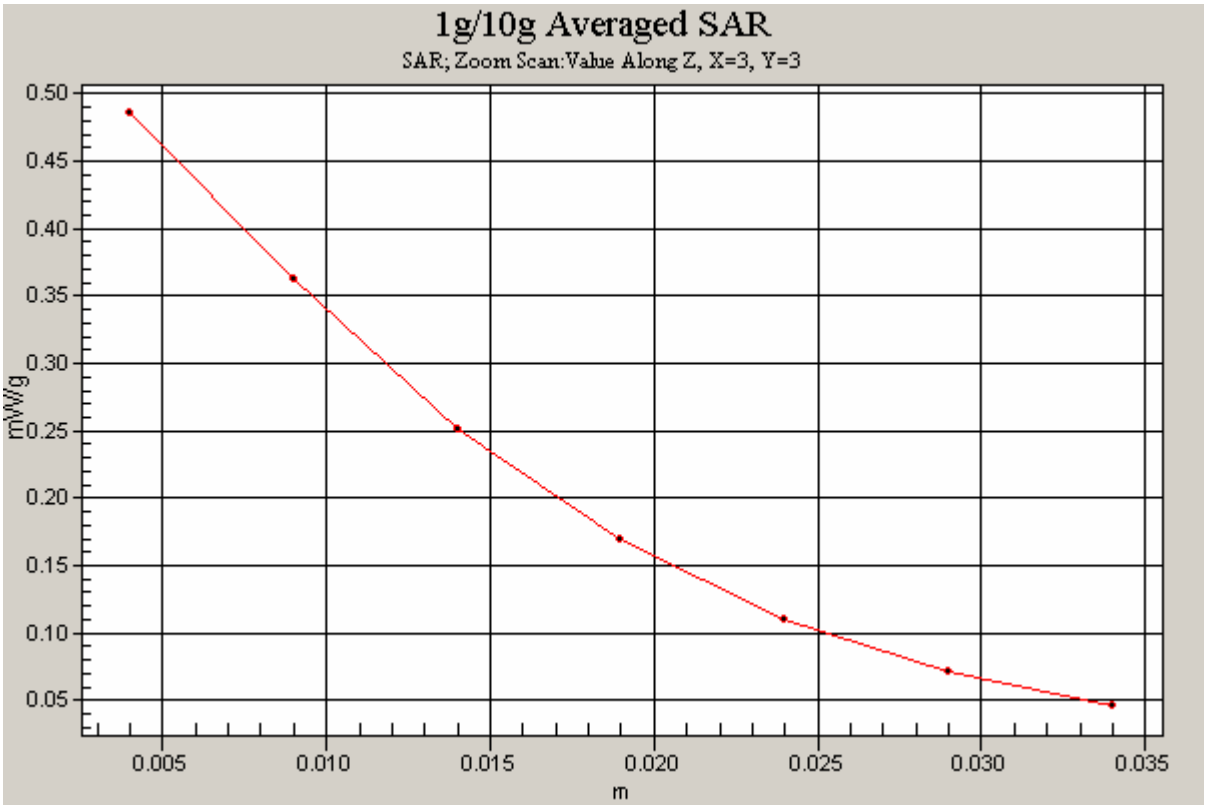


Figure 62 Z-Scan at power reference point (Left Hand Touch Cheek GSM 1900 Channel 512)

GSM 1900 Left Tilt High

Communication System: GSM 1900; Frequency: 1909.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1910 MHz; σ = 1.43 mho/m; ε_r = 40.3; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(5.15, 5.15, 5.15);
Electronics: DAE3 Sn452;
Tilt High/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.405 mW/g

Tilt High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.3 V/m; Power Drift = 0.023 dB
Peak SAR (extrapolated) = 0.567 W/kg
SAR(1 g) = 0.344 mW/g; SAR(10 g) = 0.189 mW/g
Maximum value of SAR (measured) = 0.383 mW/g

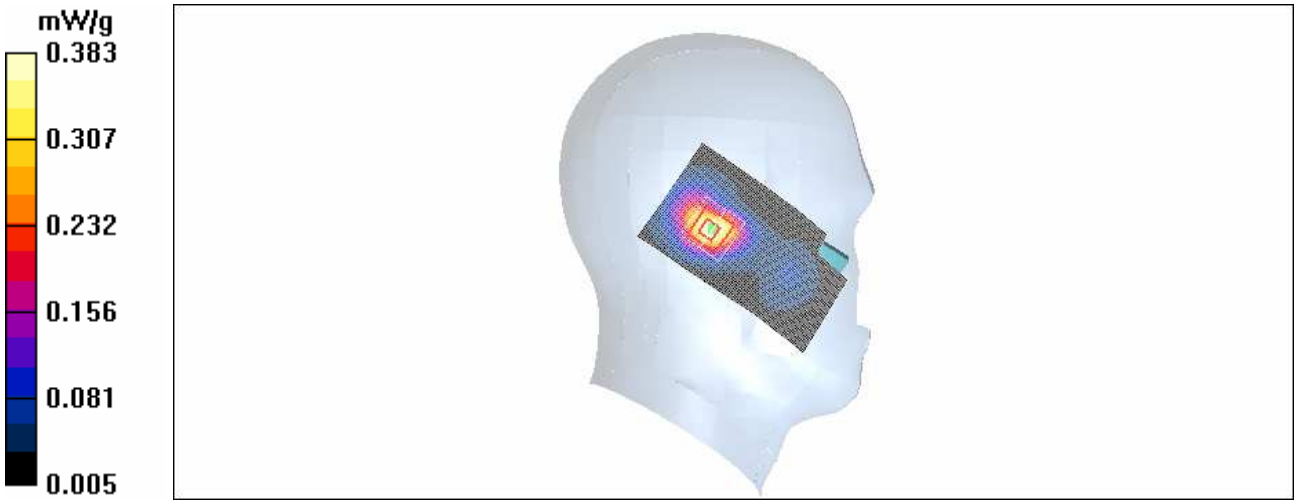


Figure63 Left Hand Tilt 15°GSM 1900 Channel 810

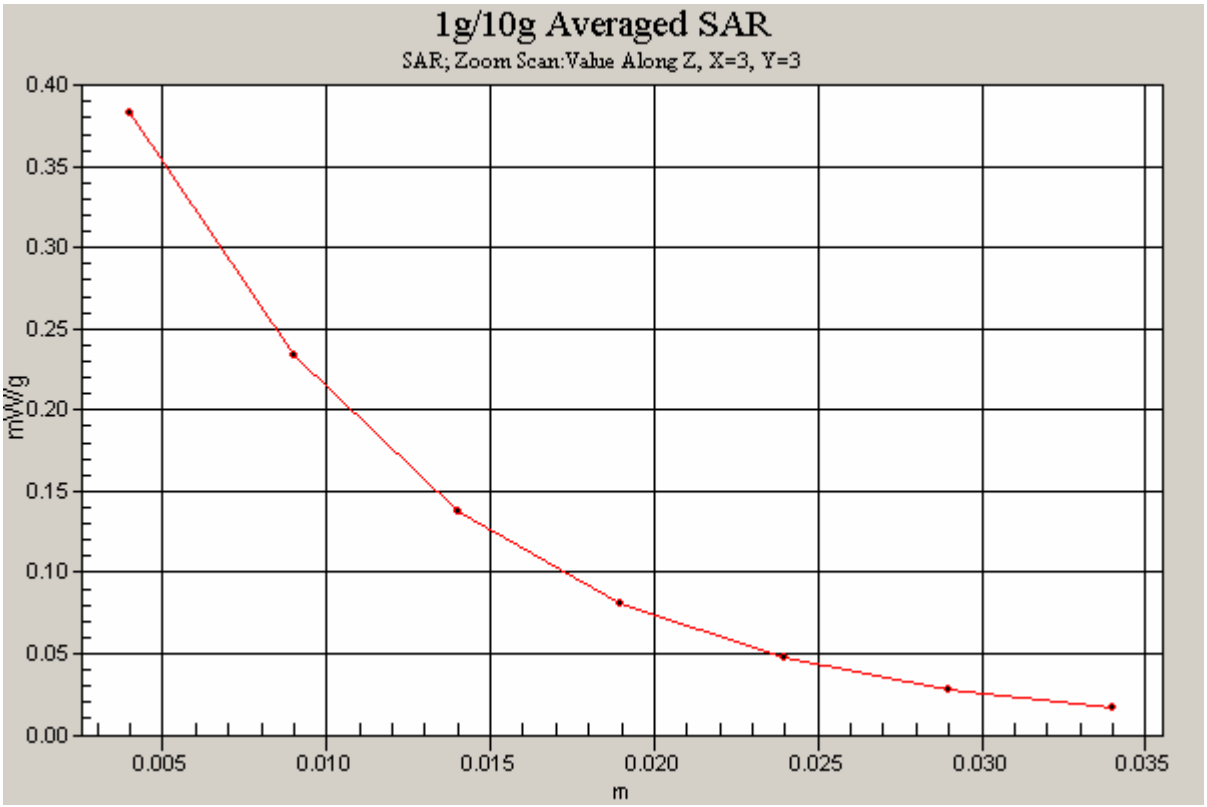


Figure 64 Z-Scan at power reference point (Left Hand Tilt 15°GSM 1900 Channel 810)

GSM 1900 Left Tilt Middle

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.39 mho/m; ε_r = 40.4; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(5.15, 5.15, 5.15);
Electronics: DAE3 Sn452;
Tilt Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.525 mW/g

Tilt Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.7 V/m; Power Drift = -0.005 dB
Peak SAR (extrapolated) = 0.717 W/kg
SAR(1 g) = 0.450 mW/g; SAR(10 g) = 0.249 mW/g
Maximum value of SAR (measured) = 0.506 mW/g

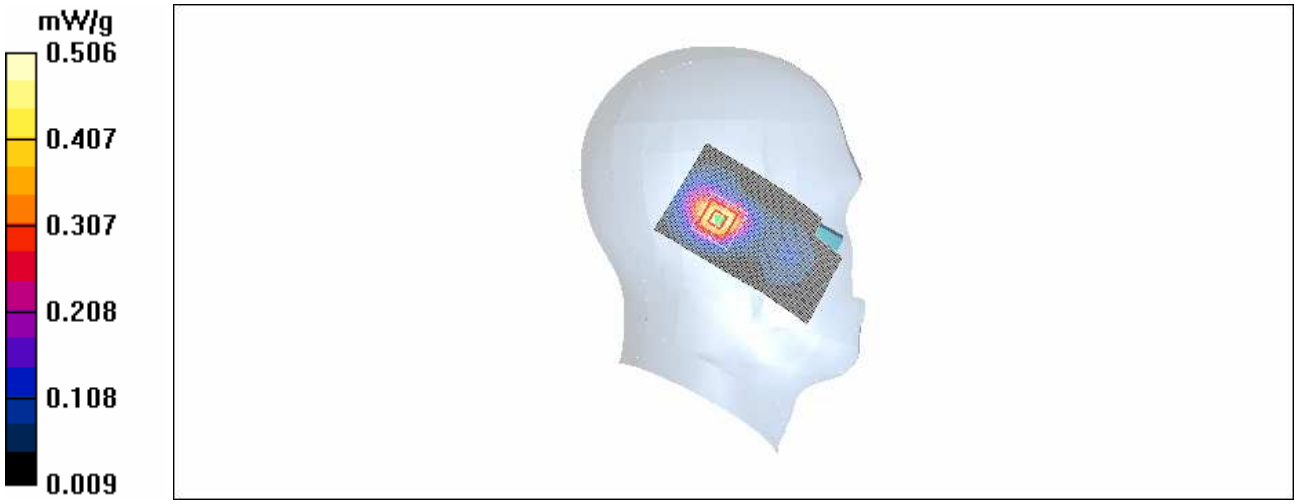


Figure65 Left Hand Tilt 15°GSM 1900 Channel 661

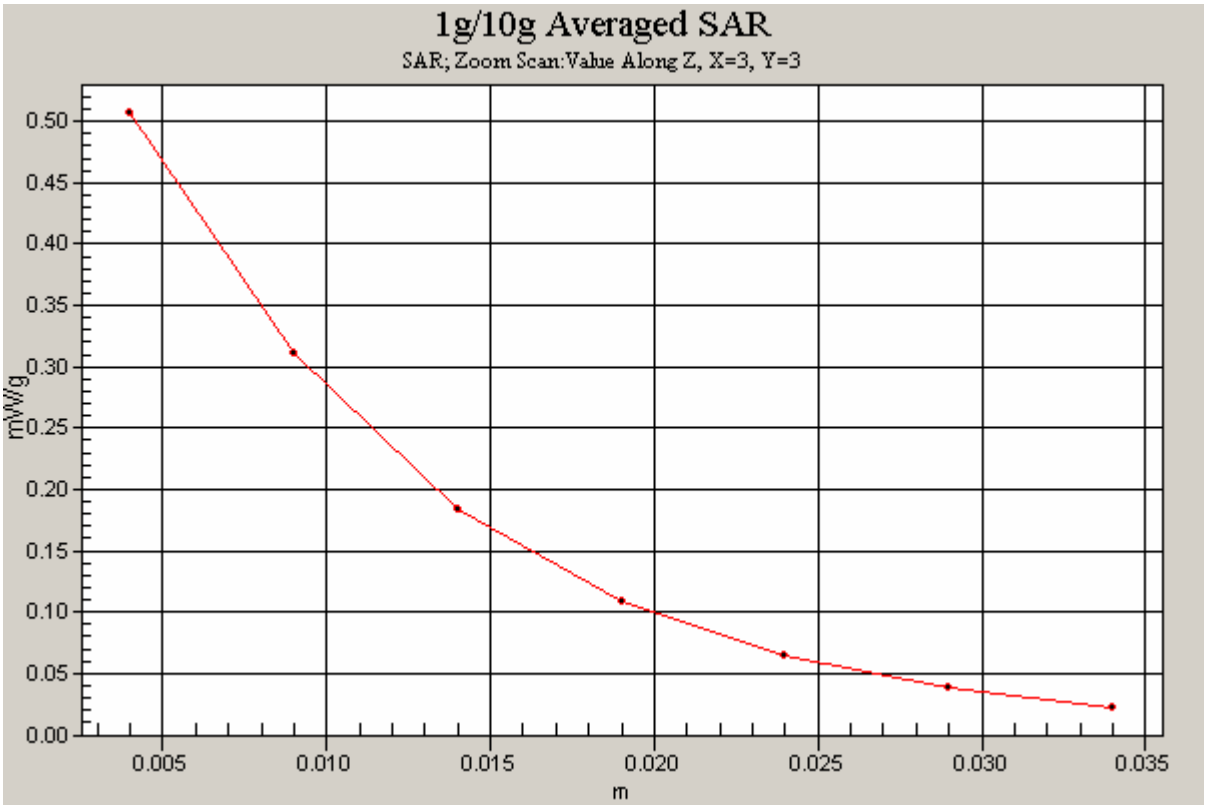


Figure 66 Z-Scan at power reference point (Left Hand Tilt 15°GSM 1900 Channel 661)

GSM 1900 Left Tilt Low

Communication System: GSM 1900; Frequency: 1850.2 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.36 mho/m; ε_r = 40.4; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(5.15, 5.15, 5.15);
Electronics: DAE3 Sn452;
Tilt Low/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.573 mW/g

Tilt Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.6 V/m; Power Drift = 0.020 dB
Peak SAR (extrapolated) = 0.779 W/kg
SAR(1 g) = 0.488 mW/g; SAR(10 g) = 0.270 mW/g
Maximum value of SAR (measured) = 0.547 mW/g

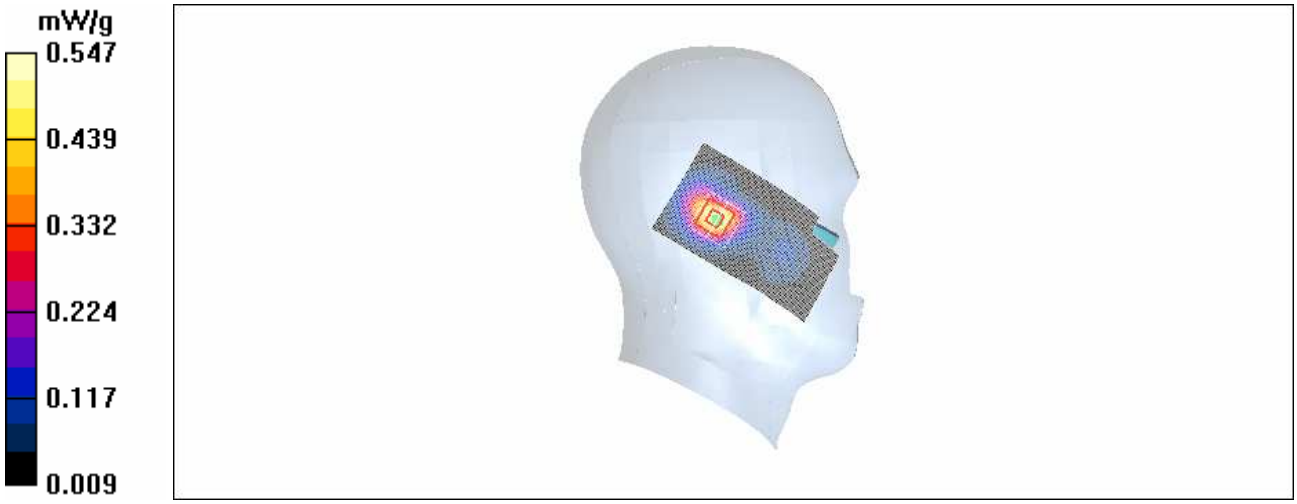


Figure67 Left Hand Tilt 15°GSM 1900 Channel 512

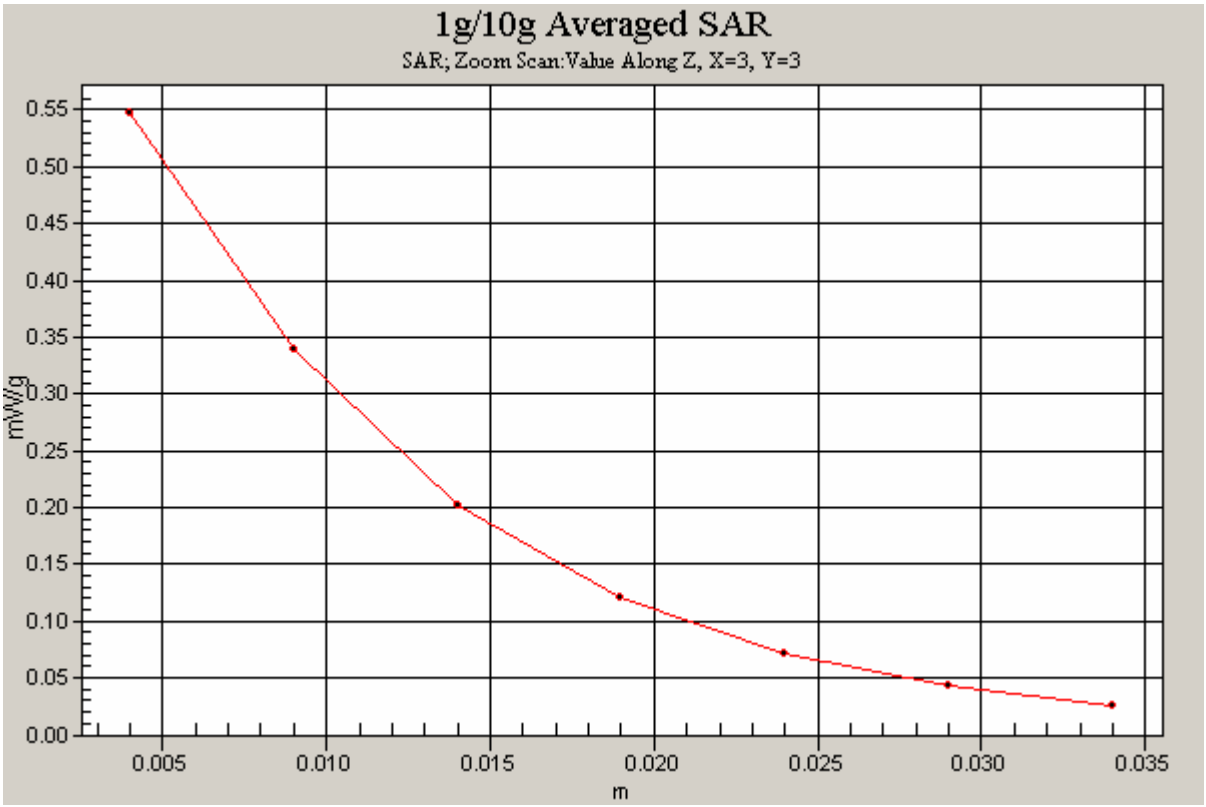


Figure 68 Z-Scan at power reference point (Left Hand Tilt 15°GSM 1900 Channel 512)

GSM 1900 Right Cheek High

Communication System: GSM 1900; Frequency: 1909.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1910 MHz; σ = 1.43 mho/m; ε_r = 40.3; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(5.15, 5.15, 5.15);
Electronics: DAE3 Sn452;
Cheek High/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.480 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.0 V/m; Power Drift = -0.002 dB
Peak SAR (extrapolated) = 0.740 W/kg
SAR(1 g) = 0.435 mW/g; SAR(10 g) = 0.232 mW/g
Maximum value of SAR (measured) = 0.491 mW/g

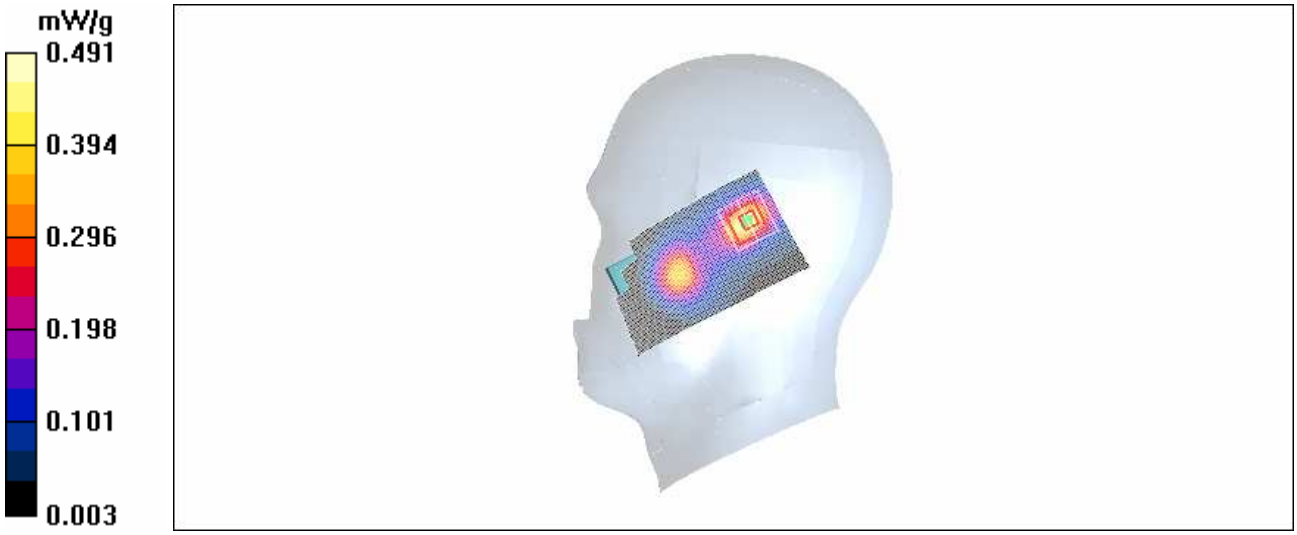


Figure 69 Right Hand Touch Cheek GSM 1900 Channel 810

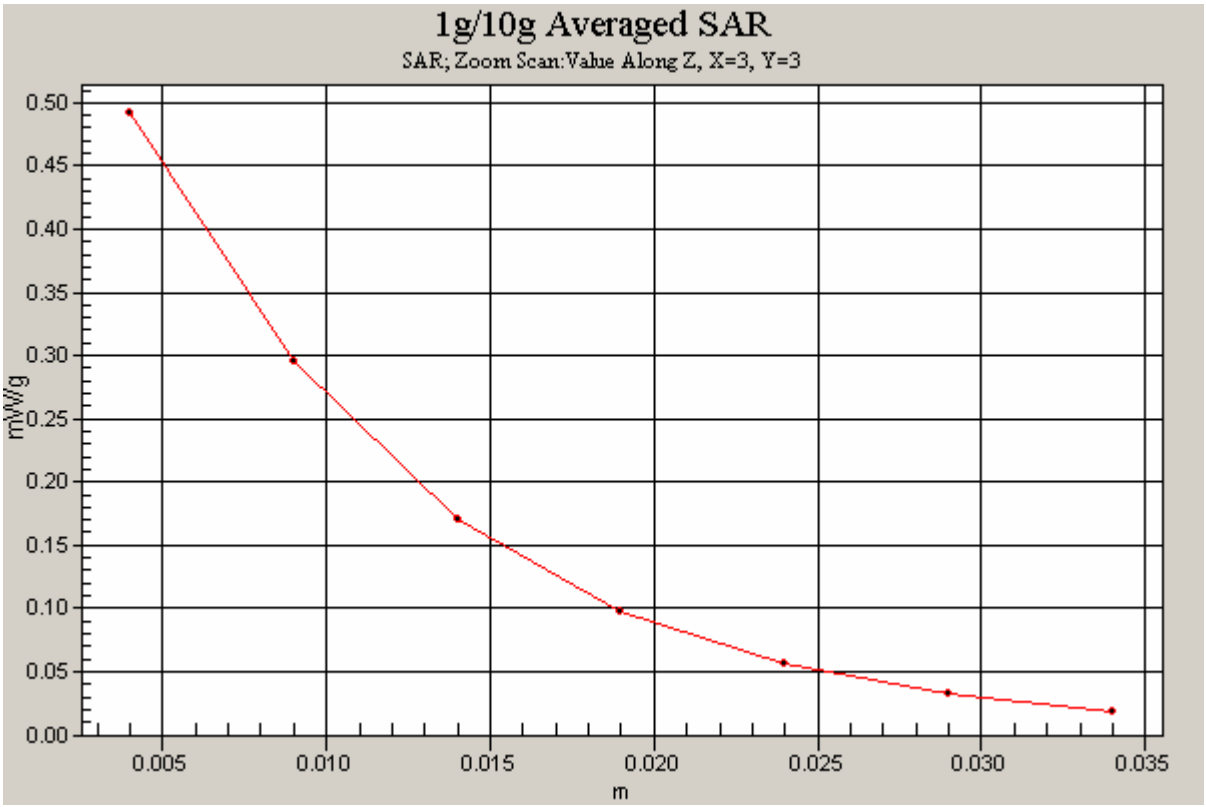


Figure 70 Z-Scan at power reference point (Right Hand Touch Cheek GSM 1900 Channel 810)

GSM 1900 Right Cheek Middle

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.39 mho/m; ε_r = 40.4; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(5.15, 5.15, 5.15);
Electronics: DAE3 Sn452;
Cheek Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.616 mW/g

Cheek Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.1 V/m; Power Drift = -0.032 dB
Peak SAR (extrapolated) = 0.924 W/kg
SAR(1 g) = 0.554 mW/g; SAR(10 g) = 0.294 mW/g
Maximum value of SAR (measured) = 0.628 mW/g

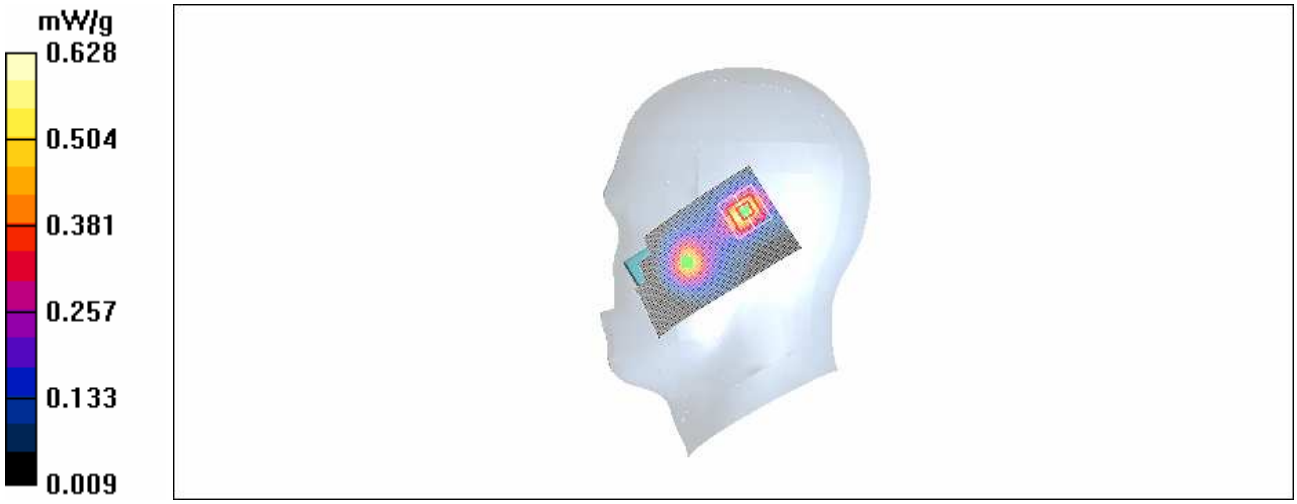


Figure 71 Right Hand Touch Cheek GSM 1900 Channel 661

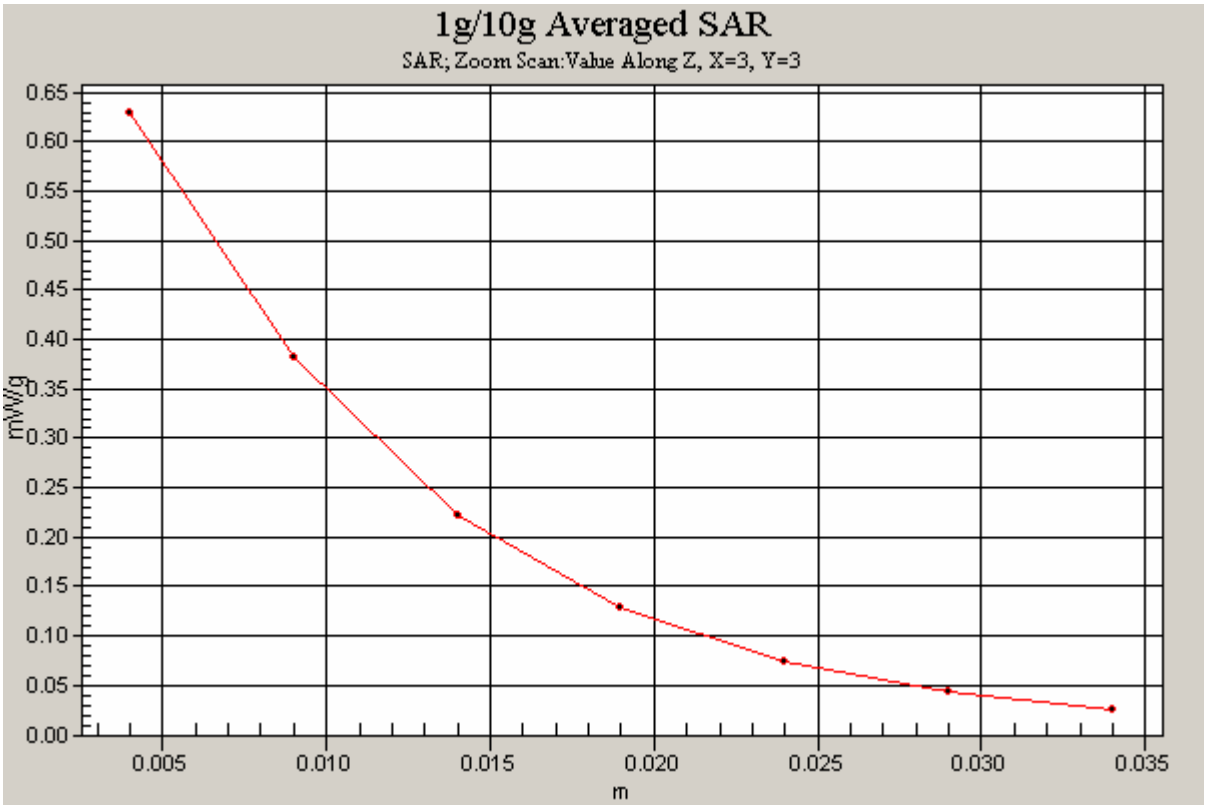


Figure 72 Z-Scan at power reference point (Right Hand Touch Cheek GSM 1900 Channel 661)

GSM 1900 Right Cheek Low

Communication System: GSM 1900; Frequency: 1850.2 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.36 mho/m; ε_r = 40.4; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(5.15, 5.15, 5.15);
Electronics: DAE3 Sn452;
Cheek Low/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.627 mW/g

Cheek Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.2 V/m; Power Drift = -0.005 dB
Peak SAR (extrapolated) = 0.935 W/kg
SAR(1 g) = 0.565 mW/g; SAR(10 g) = 0.300 mW/g
Maximum value of SAR (measured) = 0.639 mW/g

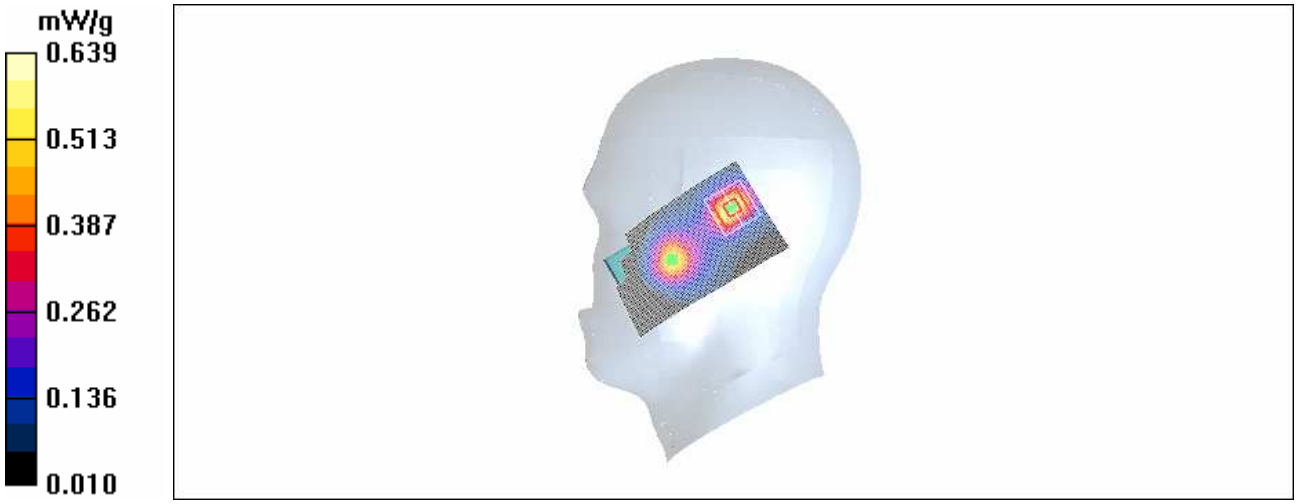


Figure 73 Right Hand Touch Cheek GSM 1900 Channel 512

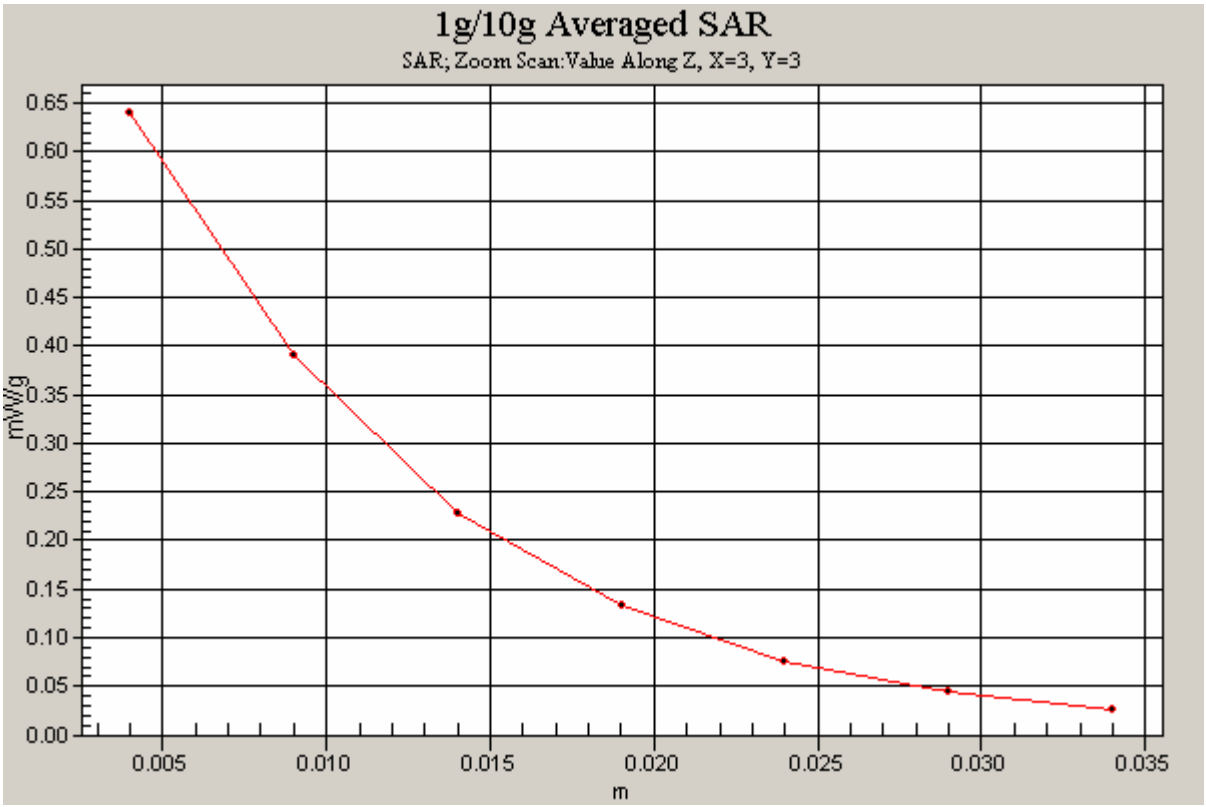


Figure 74 Z-Scan at power reference point (Right Hand Touch Cheek GSM 1900 Channel 512)

GSM 1900 Right Tilt High

Communication System: GSM 1900; Frequency: 1909.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1910 MHz; σ = 1.43 mho/m; ε_r = 40.3; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(5.15, 5.15, 5.15);
Electronics: DAE3 Sn452;
Tilt High/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.487 mW/g

Tilt High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.0 V/m; Power Drift = -0.025 dB
Peak SAR (extrapolated) = 0.719 W/kg
SAR(1 g) = 0.422 mW/g; SAR(10 g) = 0.222 mW/g
Maximum value of SAR (measured) = 0.474 mW/g

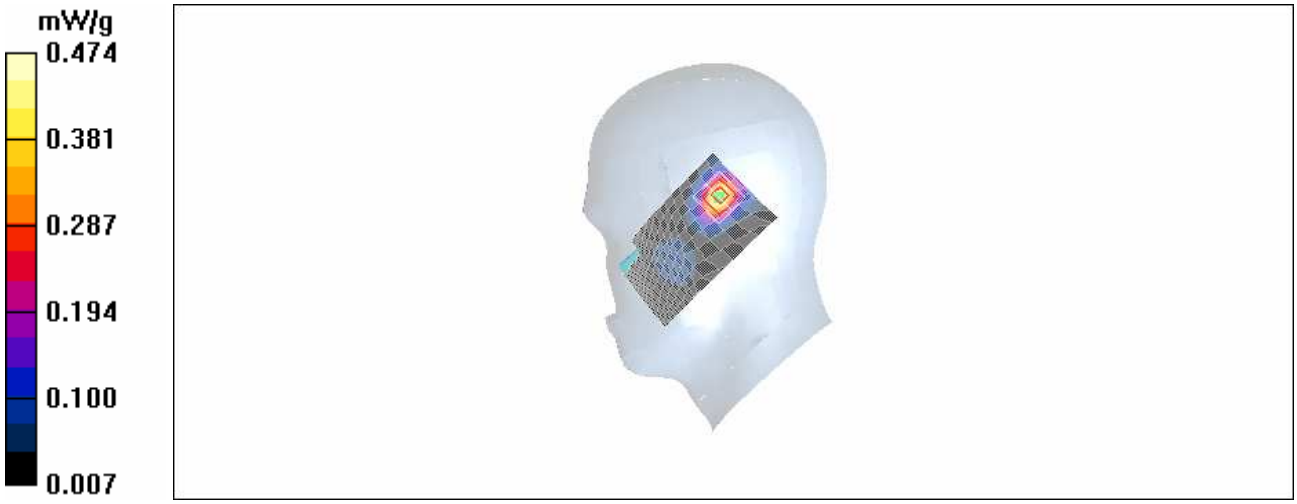


Figure 75 Right Hand Tilt 15°GSM 1900 Channel 810

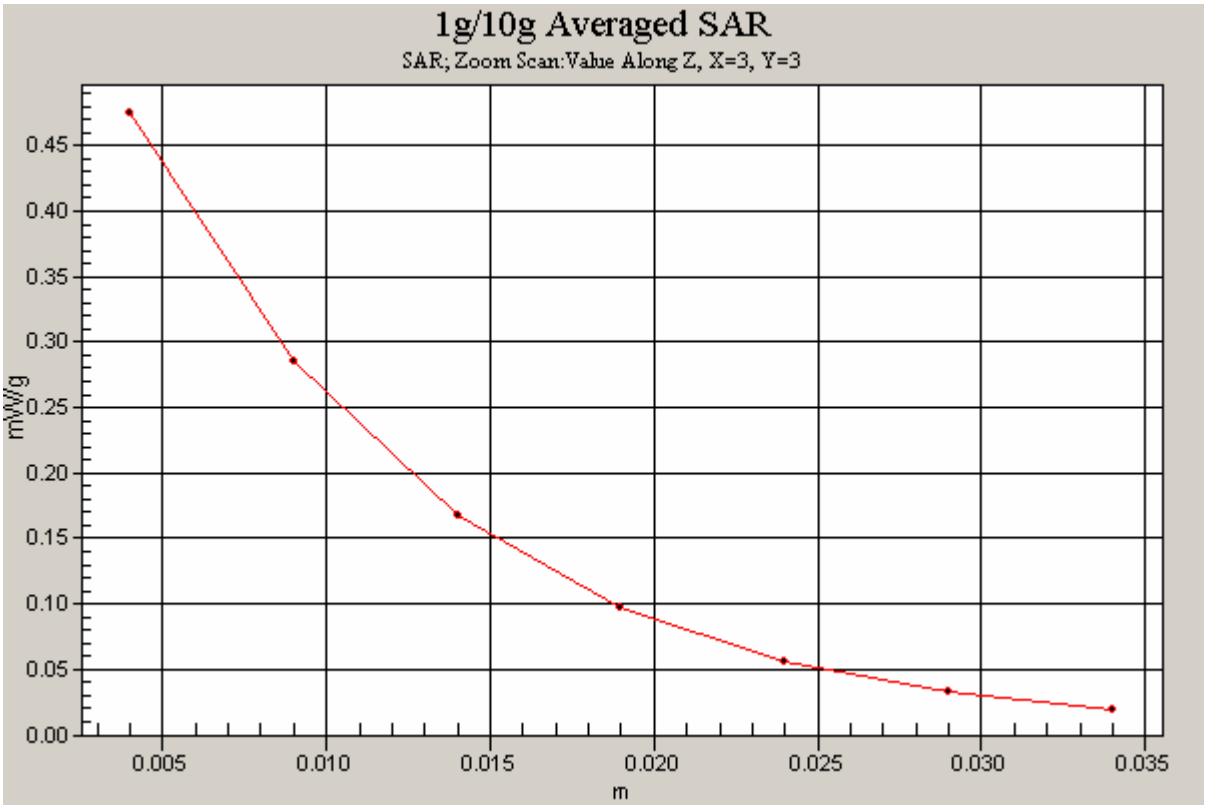


Figure 76 Z-Scan at power reference point (Right Hand Tilt 15°GSM 1900 Channel 810)

GSM 1900 Right Tilt Middle

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.39 mho/m; ε_r = 40.4; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(5.15, 5.15, 5.15);
Electronics: DAE3 Sn452;
Tilt Middle/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.662 mW/g

Tilt Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.5 V/m; Power Drift = 0.018 dB
Peak SAR (extrapolated) = 0.959 W/kg
SAR(1 g) = 0.570 mW/g; SAR(10 g) = 0.300 mW/g
Maximum value of SAR (measured) = 0.634 mW/g

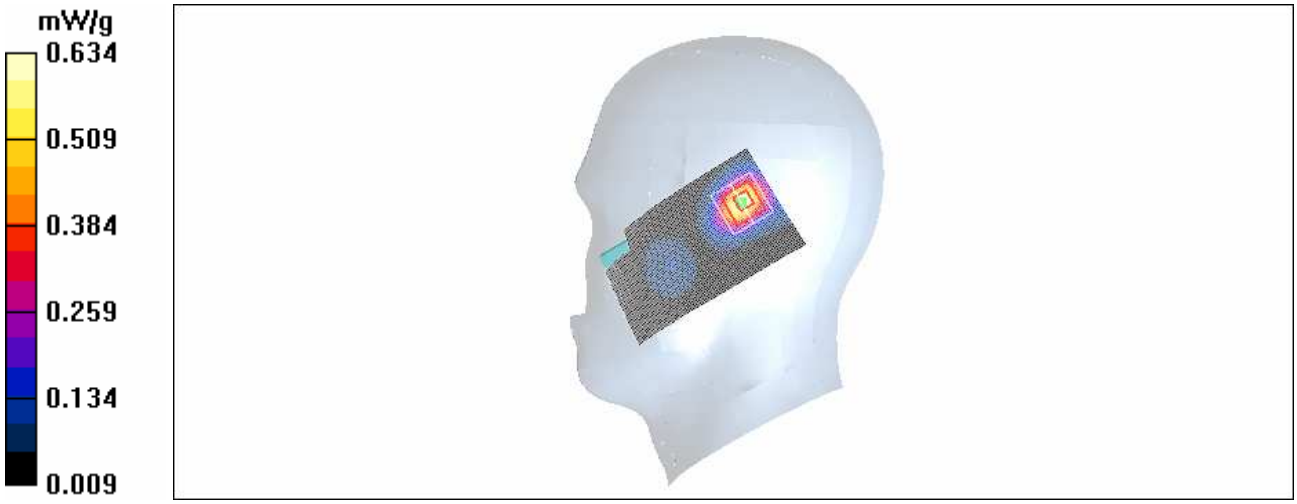


Figure77 Right Hand Tilt 15°GSM 1900 Channel 661

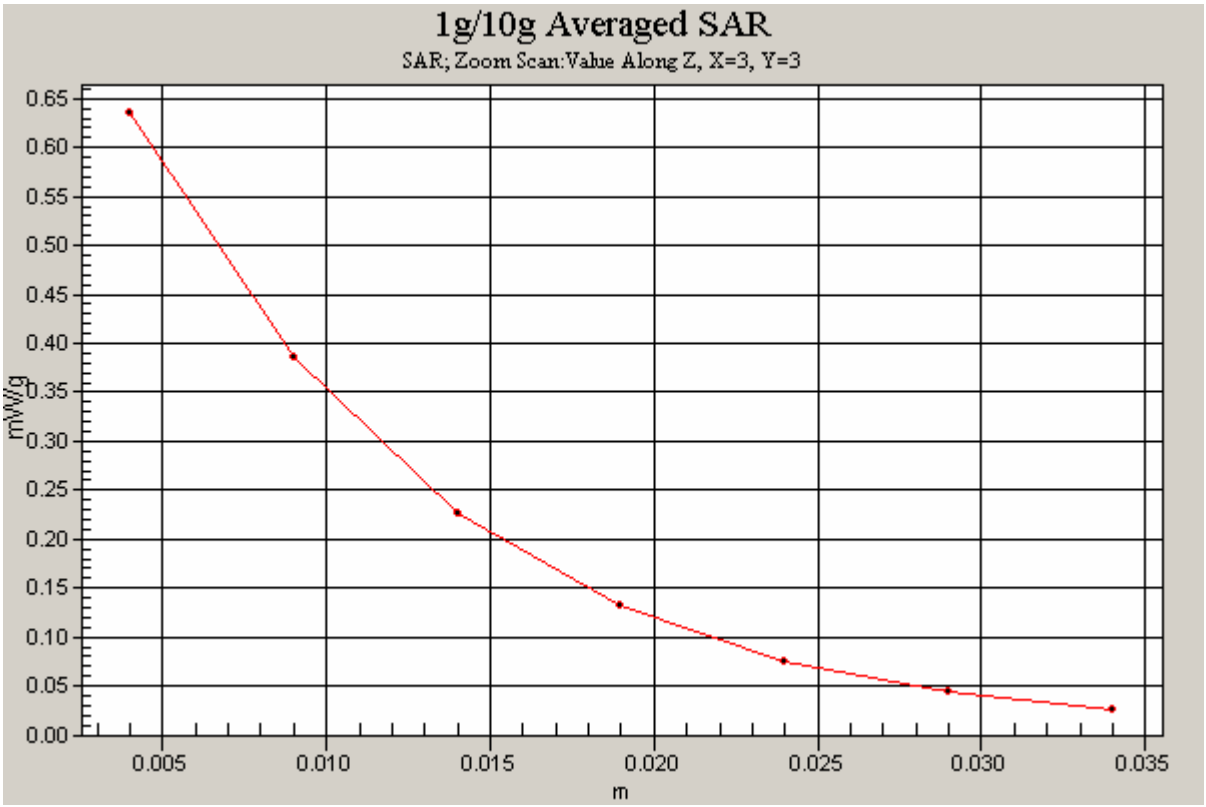


Figure 78 Z-Scan at power reference point (Right Hand Tilt 15°GSM 1900 Channel 661)

GSM 1900 Right Tilt Low

Communication System: GSM 1900; Frequency: 1850.2 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.36 mho/m; ε_r = 40.4; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(5.15, 5.15, 5.15);
Electronics: DAE3 Sn452;
Tilt Low/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.702 mW/g

Tilt Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.2 V/m; Power Drift = 0.005 dB
Peak SAR (extrapolated) = 1.03 W/kg
SAR(1 g) = 0.603 mW/g; SAR(10 g) = 0.316 mW/g
Maximum value of SAR (measured) = 0.675 mW/g

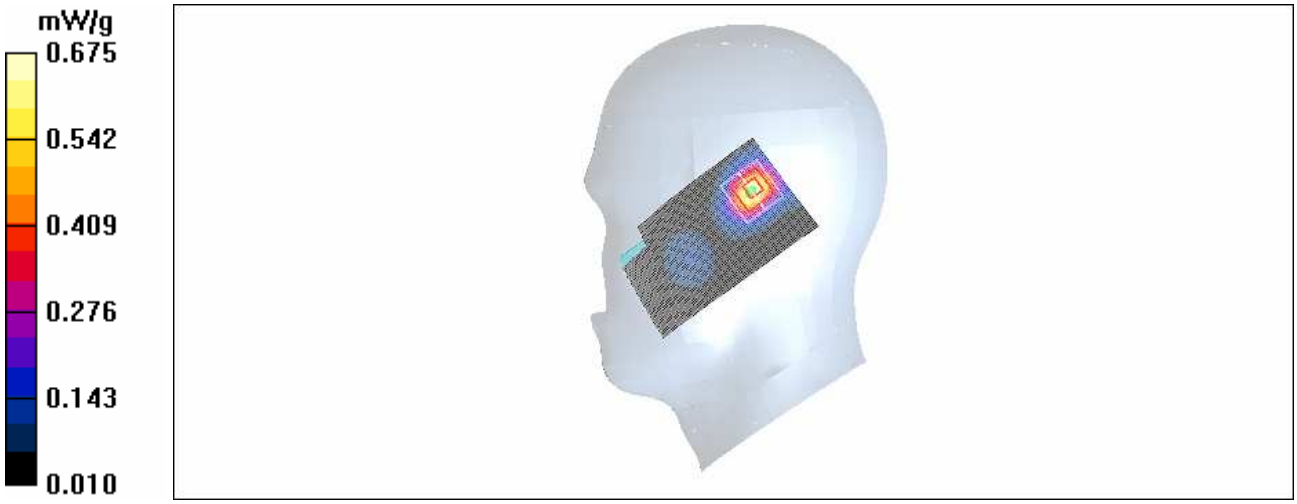


Figure79 Right Hand Tilt 15°GSM 1900 Channel 512

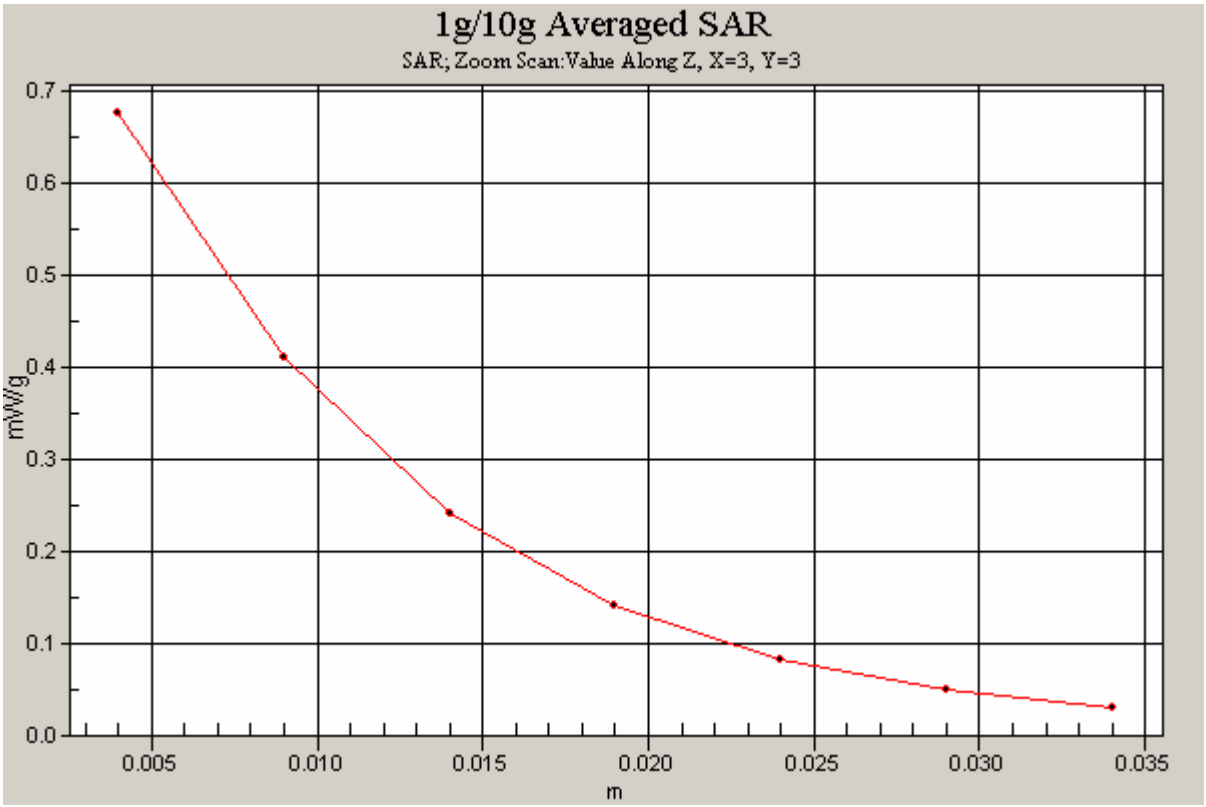


Figure80 Z-Scan at power reference point (Right Hand Tilt 15°GSM 1900 Channel 512)

GSM 1900 Towards the ground High

Communication System: GSM 1900; Frequency: 1909.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1910 MHz; σ = 1.53 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(4.64, 4.64, 4.64);
Electronics: DAE3 Sn452;
Towards ground, High frequency/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.268 mW/g

Towards ground, High frequency/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.1 V/m; Power Drift = -0.019 dB
Peak SAR (extrapolated) = 0.353 W/kg
SAR(1 g) = 0.247 mW/g; SAR(10 g) = 0.157 mW/g
Maximum value of SAR (measured) = 0.267 mW/g

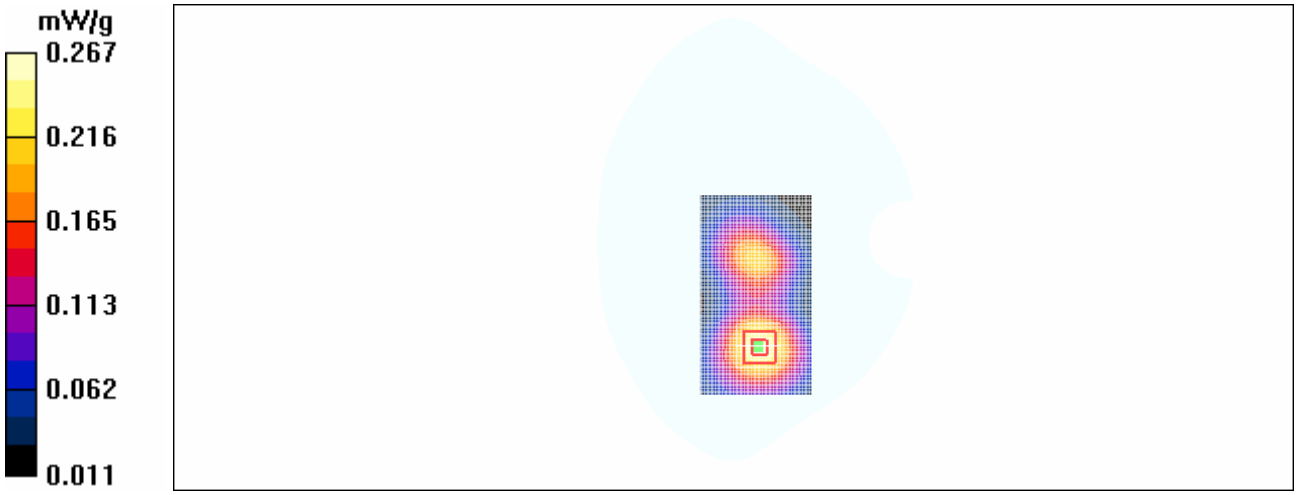


Figure 81 Body, Towards the ground, GSM 1900, Channel 810

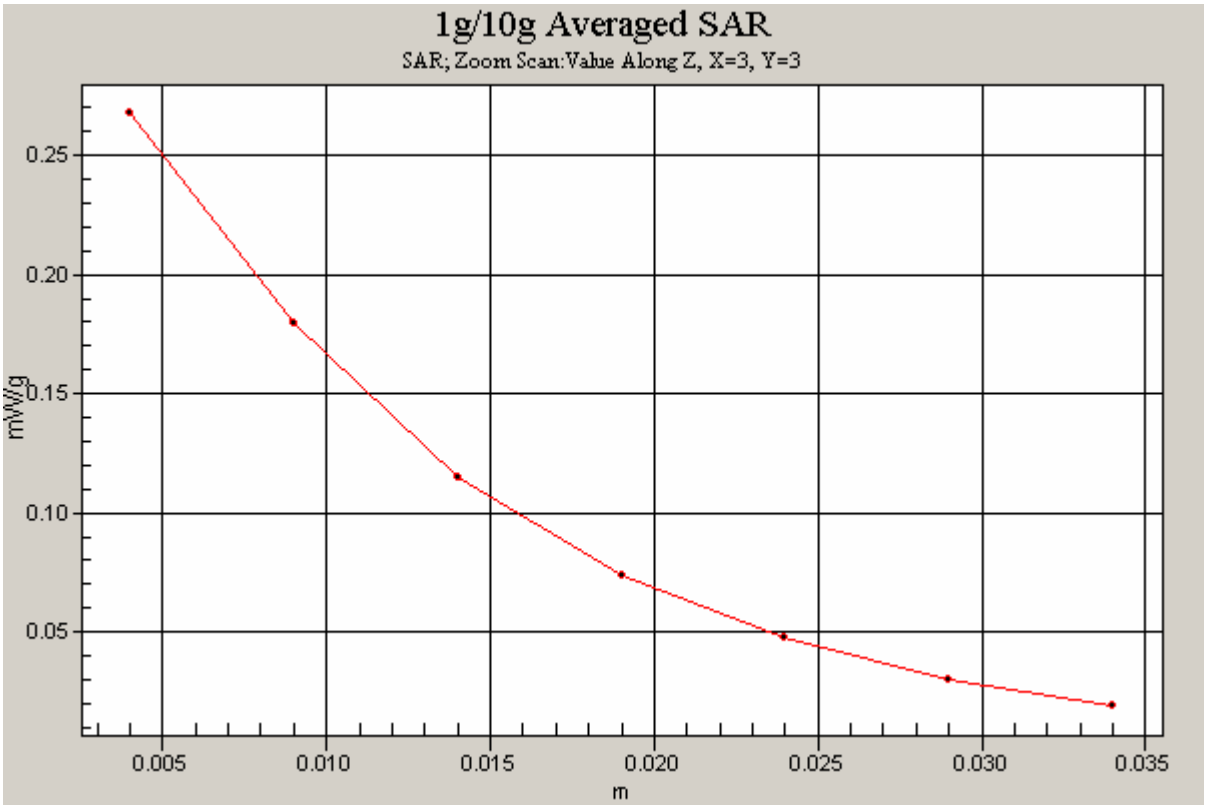


Figure 82 Z-Scan at power reference point (Body, Towards the ground, GSM 1900, Channel 810)

GSM 1900 Towards the ground Middle

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.51 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(4.64, 4.64, 4.64);
Electronics: DAE3 Sn452;
Towards ground, Middle frequency/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.343 mW/g

Towards ground, Middle frequency/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.0 V/m; Power Drift = -0.032 dB
Peak SAR (extrapolated) = 0.445 W/kg
SAR(1 g) = 0.313 mW/g; SAR(10 g) = 0.201 mW/g
Maximum value of SAR (measured) = 0.340 mW/g

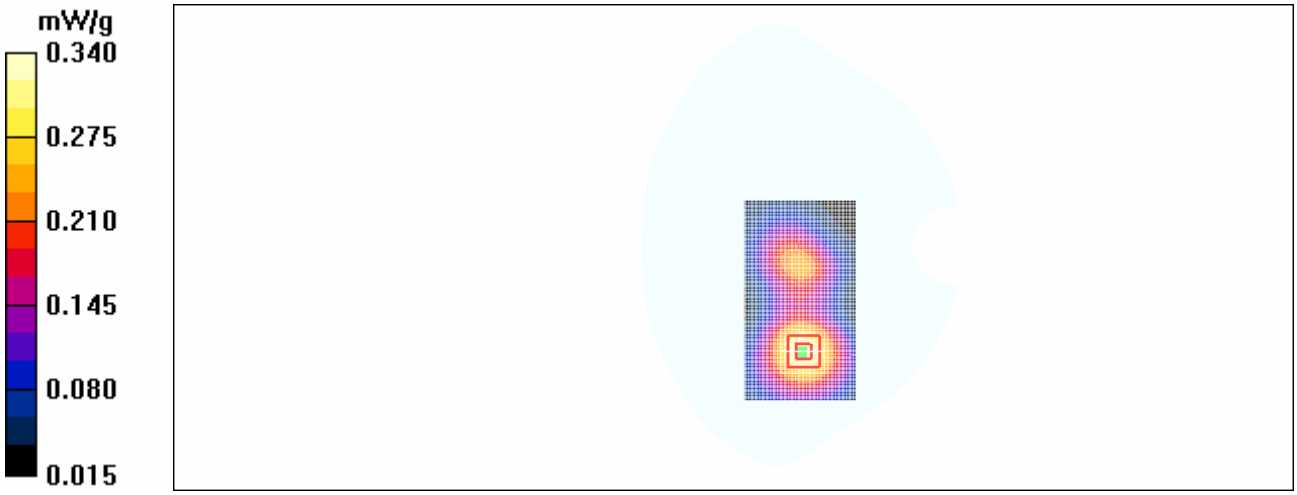


Figure 83 Body, Towards the ground, GSM 1900, Channel 661

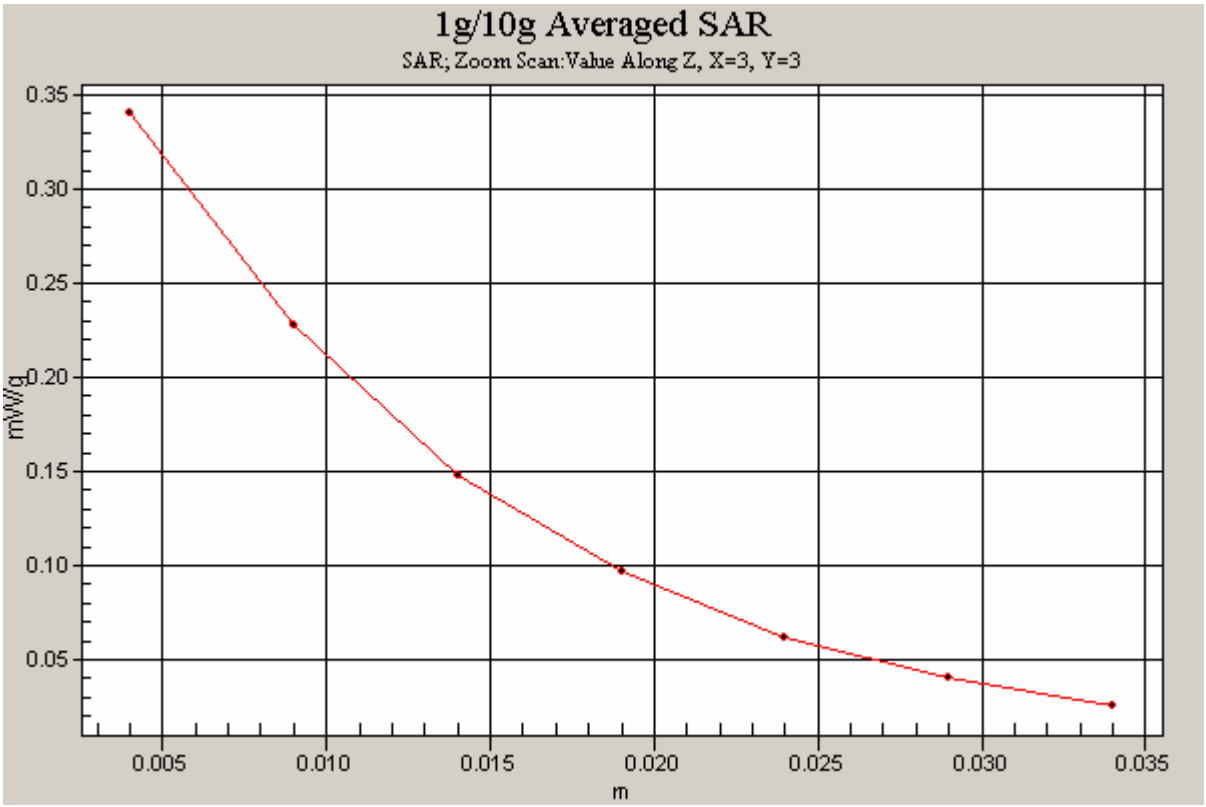


Figure 84 Z-Scan at power reference point (Body, Towards the ground, GSM 1900, Channel 661)

GSM 1900 Towards the ground Low

Communication System: GSM 1900; Frequency: 1850.2 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.45 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(4.64, 4.64, 4.64);
Electronics: DAE3 Sn452;
Towards ground, Low frequency/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.368 mW/g

Towards ground, Low frequency/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.9 V/m; Power Drift = 0.042 dB
Peak SAR (extrapolated) = 0.465 W/kg
SAR(1 g) = 0.335 mW/g; SAR(10 g) = 0.217 mW/g
Maximum value of SAR (measured) = 0.364 mW/g

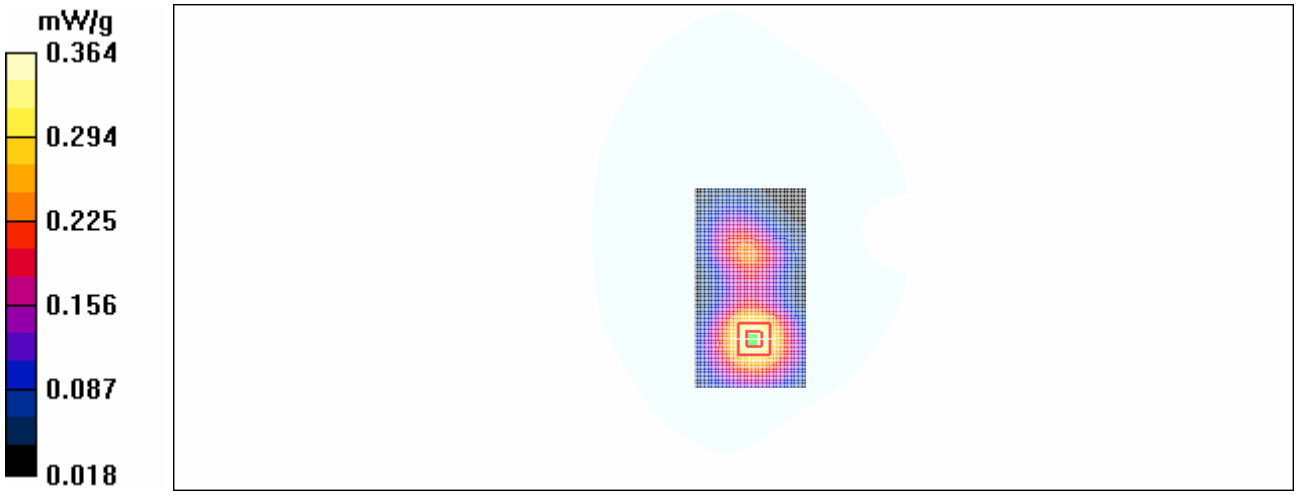


Figure 85 Body, Towards the ground, GSM 1900, Channel 512

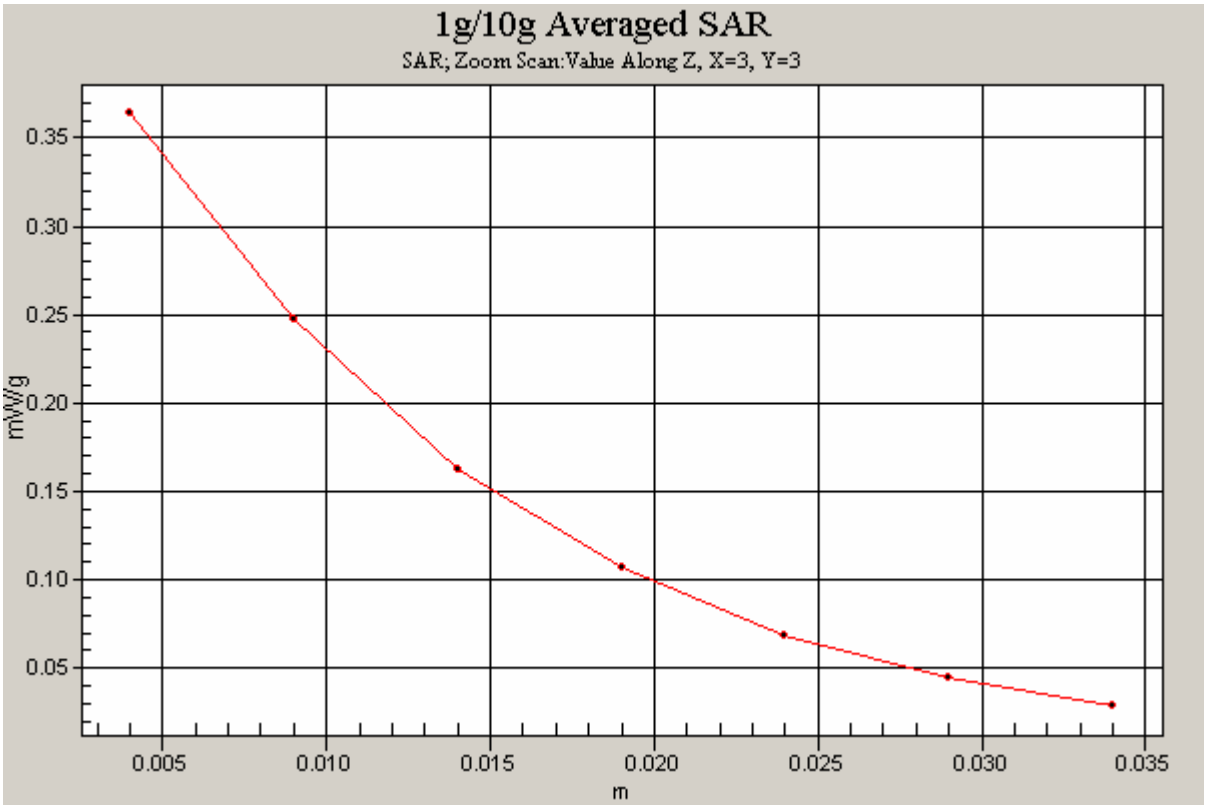


Figure 86 Z-Scan at power reference point (Body, Towards the ground, GSM 1900, Channel 512)

GSM 1900 Towards the Phantom High

Communication System: GSM 1900; Frequency: 1909.8 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1910 MHz; σ = 1.53 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(4.64, 4.64, 4.64);
Electronics: DAE3 Sn452;
Towards phantom, High frequency/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.123 mW/g

Towards phantom, High frequency/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.07 V/m; Power Drift = 0.035 dB
Peak SAR (extrapolated) = 0.164 W/kg
SAR(1 g) = 0.112 mW/g; SAR(10 g) = 0.070 mW/g
Maximum value of SAR (measured) = 0.121 mW/g

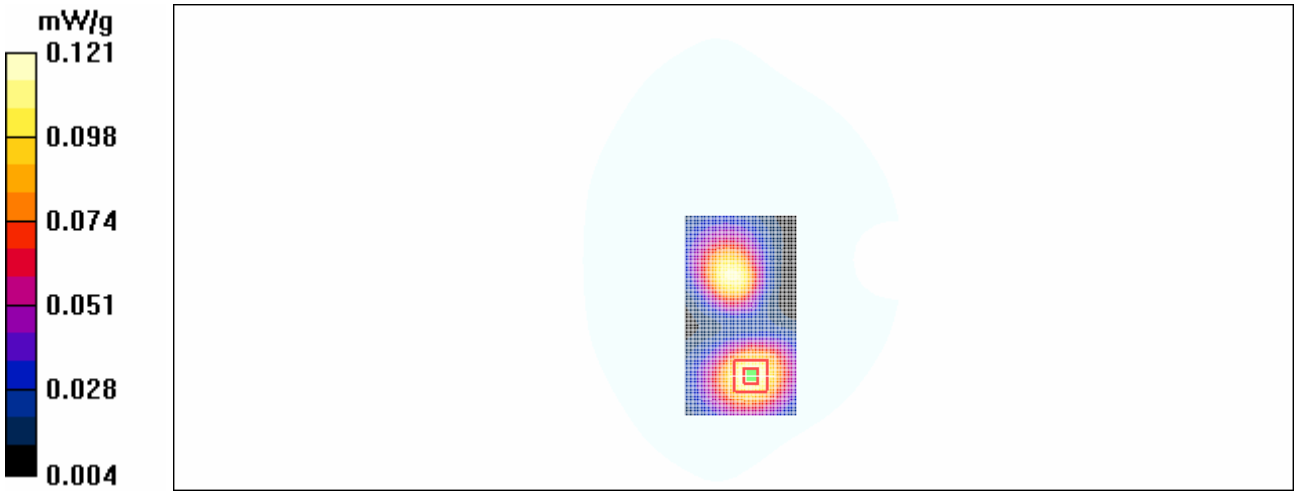


Figure87 Body, Towards the phantom, GSM 1900, Channel 810

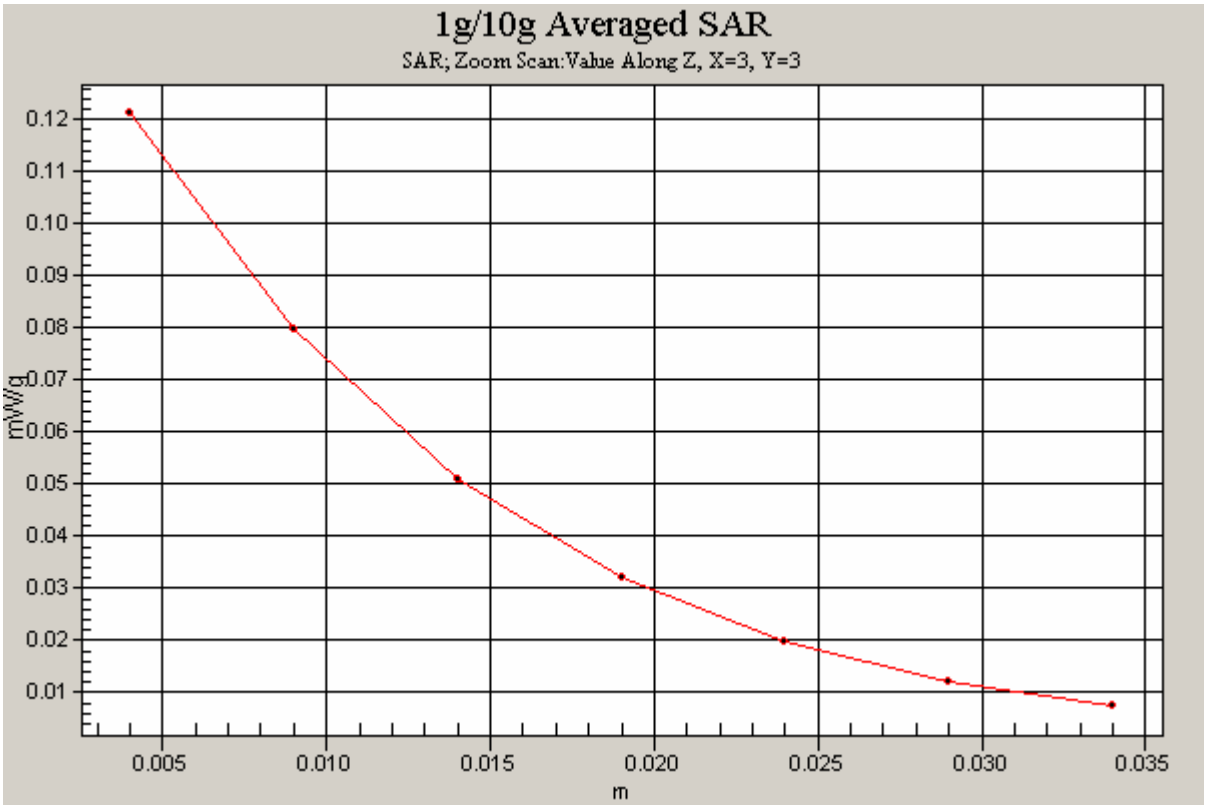


Figure 88 Z-Scan at power reference point (Body, Towards the phantom, GSM 1900, Channel 810)

GSM 1900 Towards the phantom Middle

Communication System: GSM 1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3
Medium parameters used: f = 1880 MHz; σ = 1.51 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(4.64, 4.64, 4.64);
Electronics: DAE3 Sn452;
Towards phantom, Middle frequency/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.164 mW/g

Towards phantom, Middle frequency/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.25 V/m; Power Drift = 0.015 dB
Peak SAR (extrapolated) = 0.214 W/kg
SAR(1 g) = 0.148 mW/g; SAR(10 g) = 0.093 mW/g
Maximum value of SAR (measured) = 0.160 mW/g

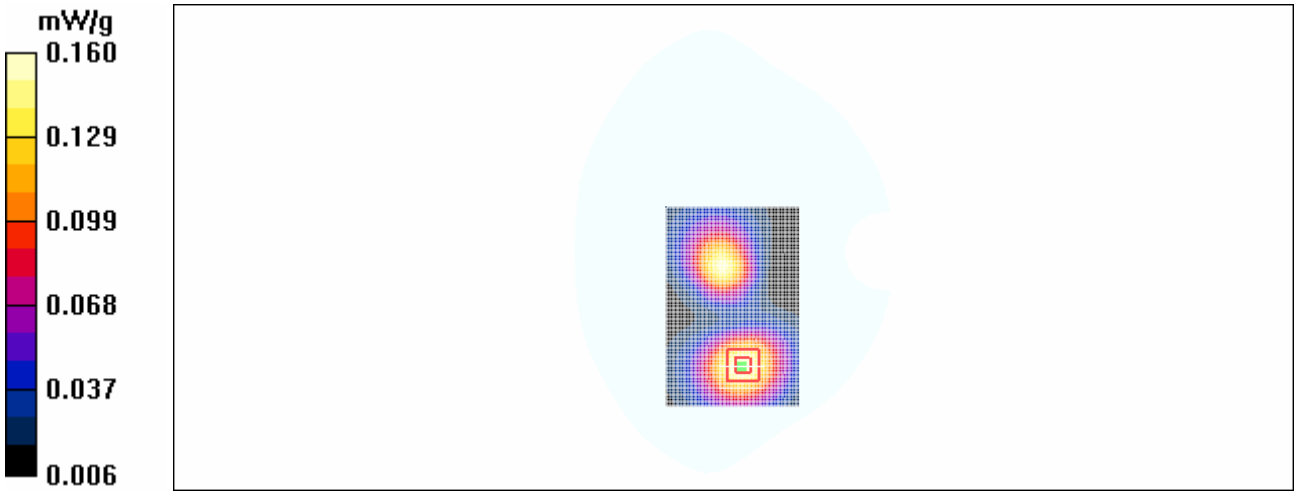


Figure 89 Body, Towards the phantom, GSM 1900, Channel 661

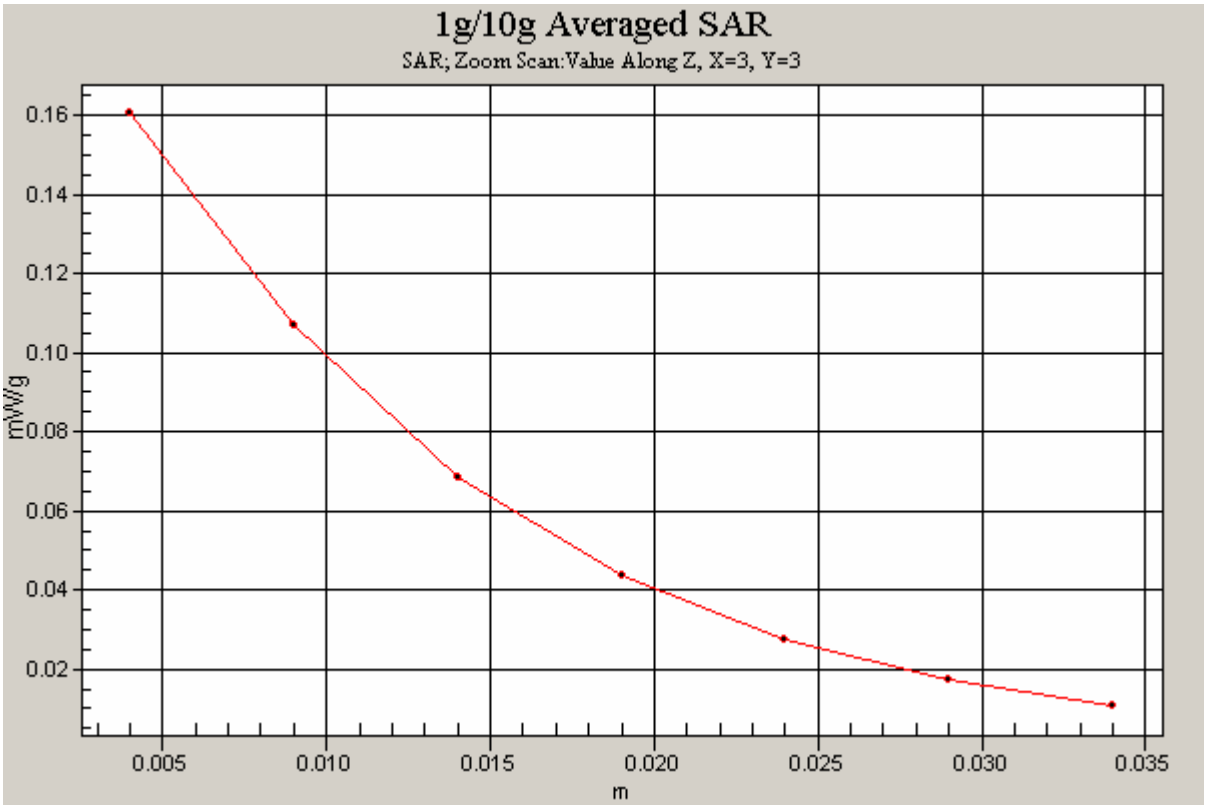


Figure90 Z-Scan at power reference point (Body, Towards the phantom, GSM 1900, Channel 661)

GSM 1900 Towards the ground Low

Communication System: GSM 1900; Frequency: 1850.2 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.45 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(4.64, 4.64, 4.64);
Electronics: DAE3 Sn452;
Towards phantom, Low frequency/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.191 mW/g

Towards phantom, Low frequency/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.87 V/m; Power Drift = -0.014 dB
Peak SAR (extrapolated) = 0.245 W/kg
SAR(1 g) = 0.172 mW/g; SAR(10 g) = 0.109 mW/g
Maximum value of SAR (measured) = 0.186 mW/g

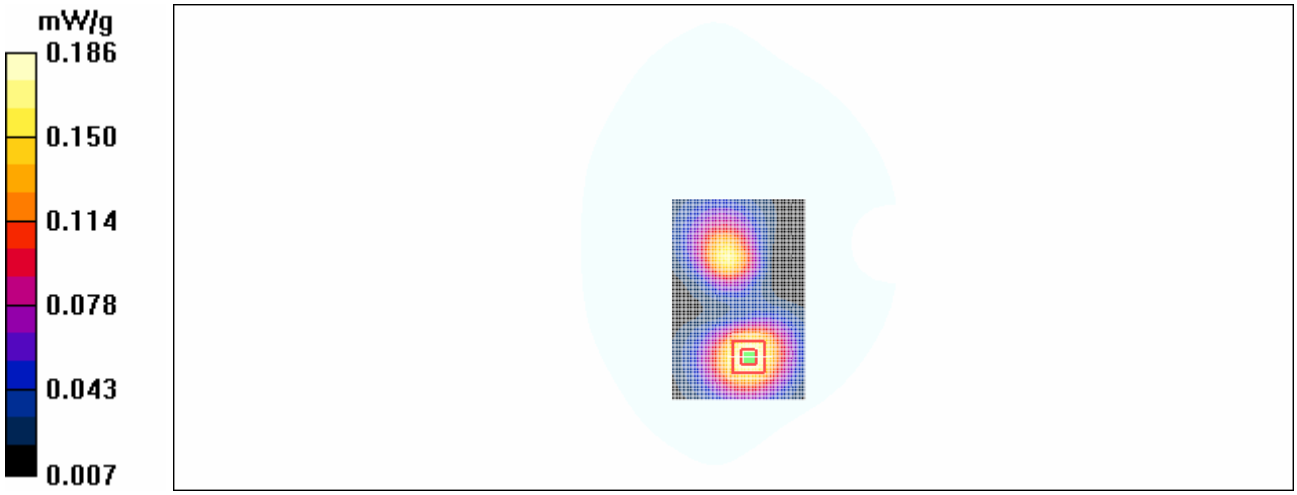


Figure91 Body, Towards the ground, GSM 1900, Channel 512

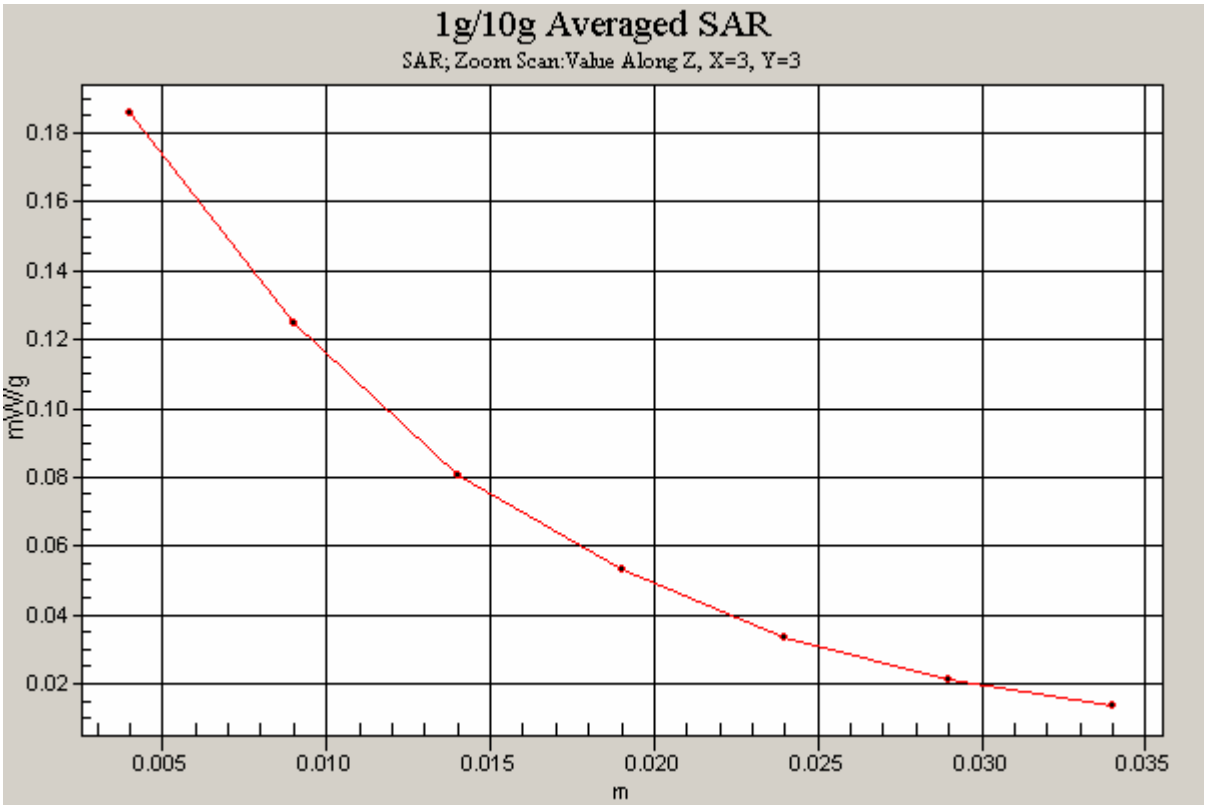


Figure 92 Z-Scan at power reference point (Body, Towards the ground, GSM 1900, Channel 512)

GSM 1900 Earphone Towards the ground Low

Communication System: GSM 1900; Frequency: 1850.2 MHz;Duty Cycle: 1:8.3
Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.45 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(4.64, 4.64, 4.64);
Electronics: DAE3 Sn452;
Towards ground, Low frequency/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.245 mW/g

Towards ground, Low frequency/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.1 V/m; Power Drift = -0.013 dB
Peak SAR (extrapolated) = 0.347 W/kg
SAR(1 g) = 0.227 mW/g; SAR(10 g) = 0.142 mW/g
Maximum value of SAR (measured) = 0.245 mW/g

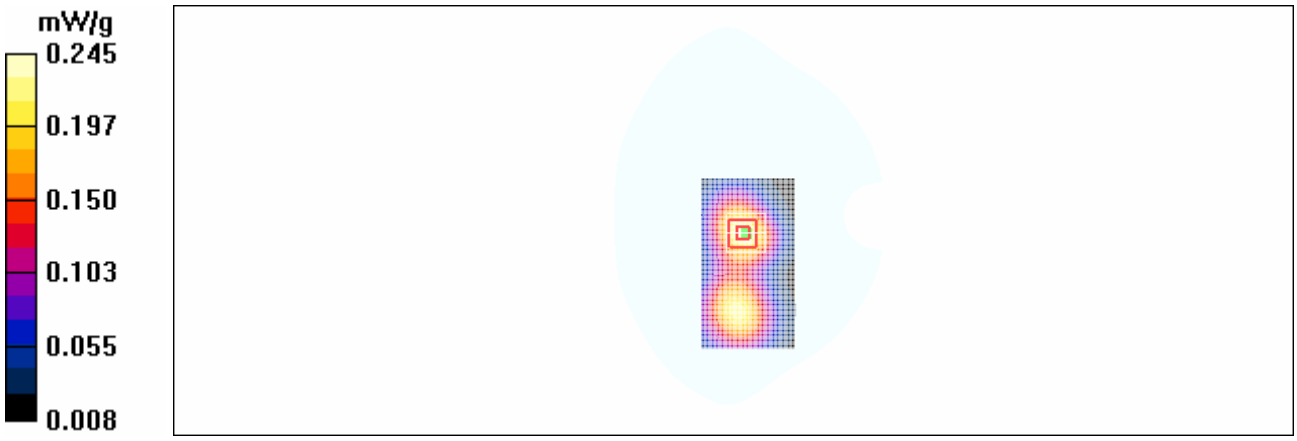


Figure93 Body with earphone, Towards the ground, GSM 1900, Channel 512

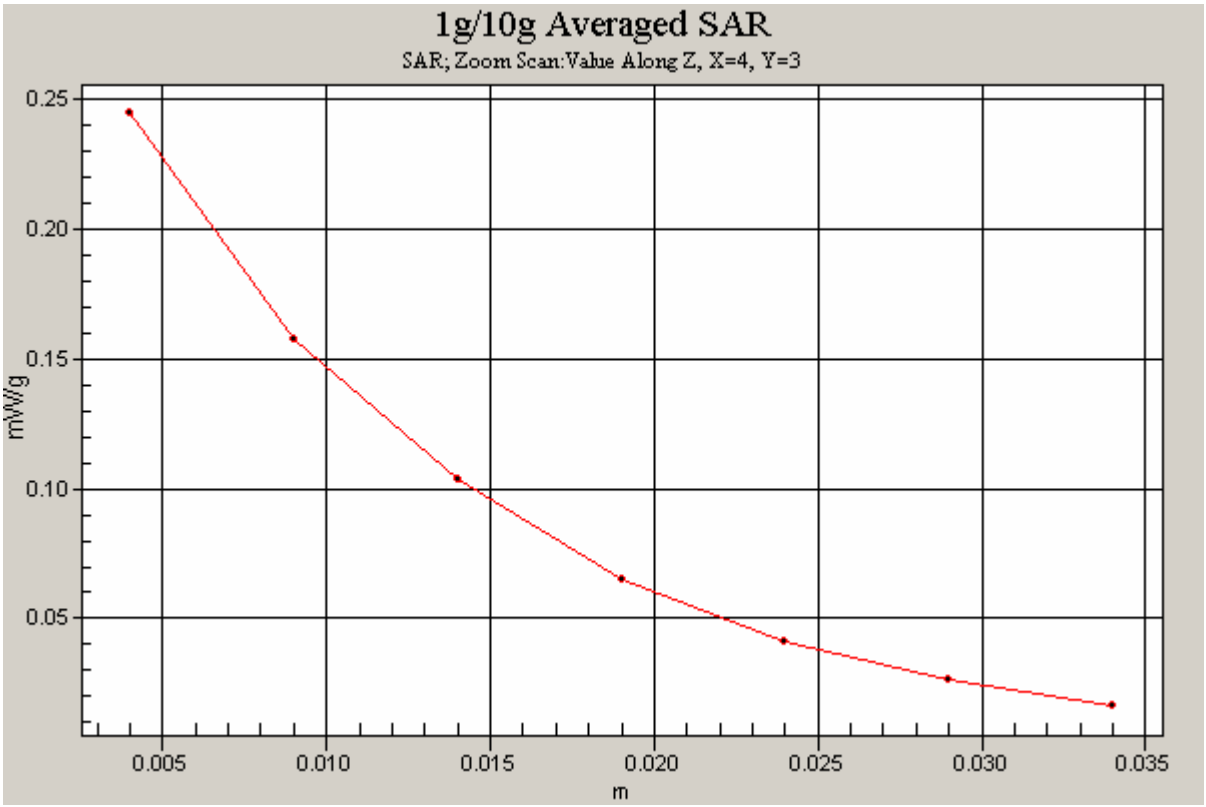


Figure 94 Z-Scan at power reference point (Body with earphone, Towards the ground, GSM 1900, Channel 512)

GSM 1900 GPRS Towards the ground High

Communication System: GSM 1900+GPRS(2Up); Frequency: 1909.8 MHz;Duty Cycle: 1:4
Medium parameters used: f = 1910 MHz; σ = 1.53 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(4.64, 4.64, 4.64);
Electronics: DAE3 Sn452;
Towards ground, High frequency/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.436 mW/g

Towards ground, High frequency/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.0 V/m; Power Drift = 0.010 dB
Peak SAR (extrapolated) = 0.596 W/kg
SAR(1 g) = 0.402 mW/g; SAR(10 g) = 0.258 mW/g
Maximum value of SAR (measured) = 0.428 mW/g

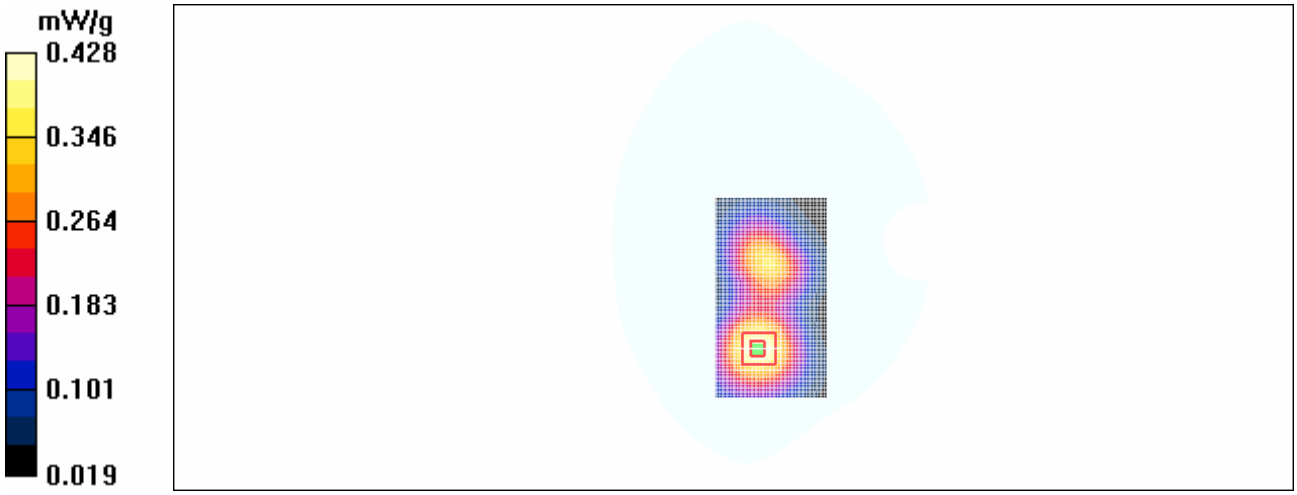


Figure 95 Body, Towards the ground, GSM 1900 GPRS, Channel 810

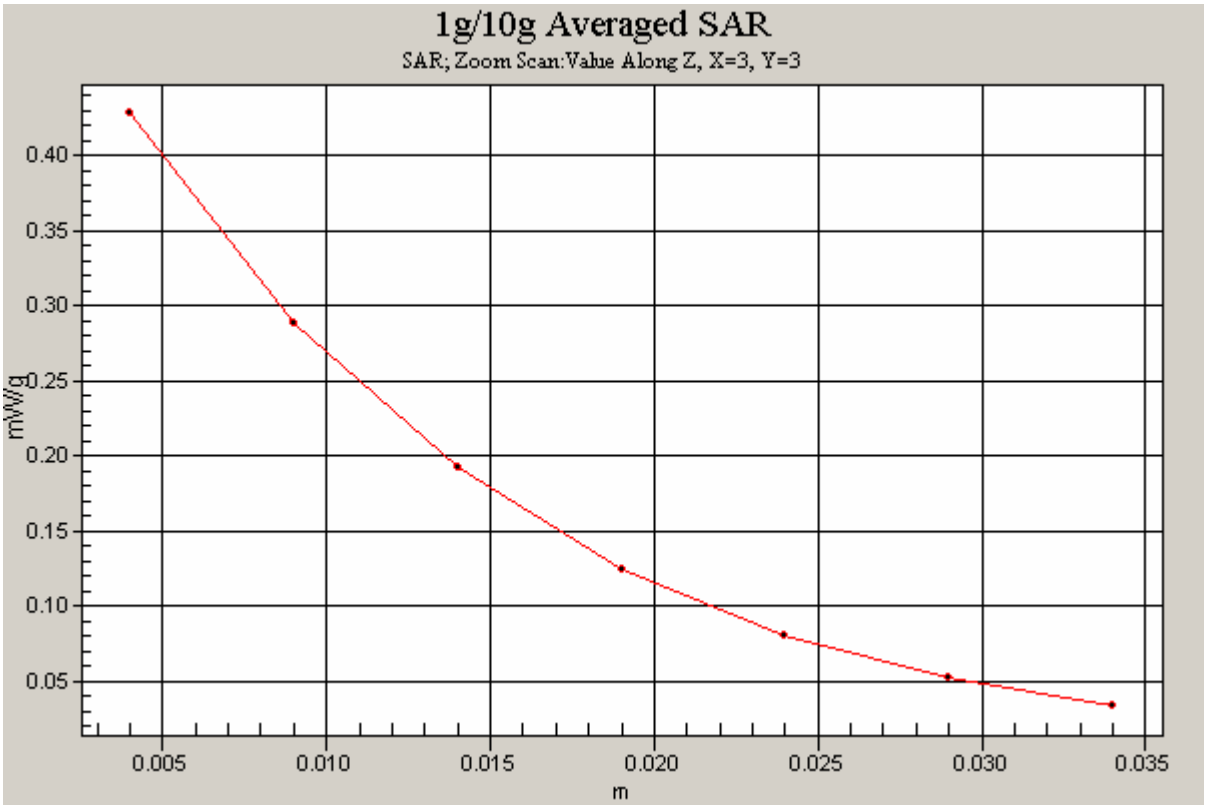


Figure96 Z-Scan at power reference point (Body, Towards the ground, GSM 1900 GPRS, Channel 810)

GSM 1900 GPRS Towards the ground Middle

Communication System: GSM 1900+GPRS(2Up); Frequency: 1880 MHz;Duty Cycle: 1:4
Medium parameters used: f = 1880 MHz; σ = 1.51 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(4.64, 4.64, 4.64);
Electronics: DAE3 Sn452;
Towards ground, Middle frequency/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.533 mW/g

Towards ground, Middle frequency/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.1 V/m; Power Drift = -0.057 dB
Peak SAR (extrapolated) = 0.727 W/kg
SAR(1 g) = 0.491 mW/g; SAR(10 g) = 0.316 mW/g
Maximum value of SAR (measured) = 0.530 mW/g

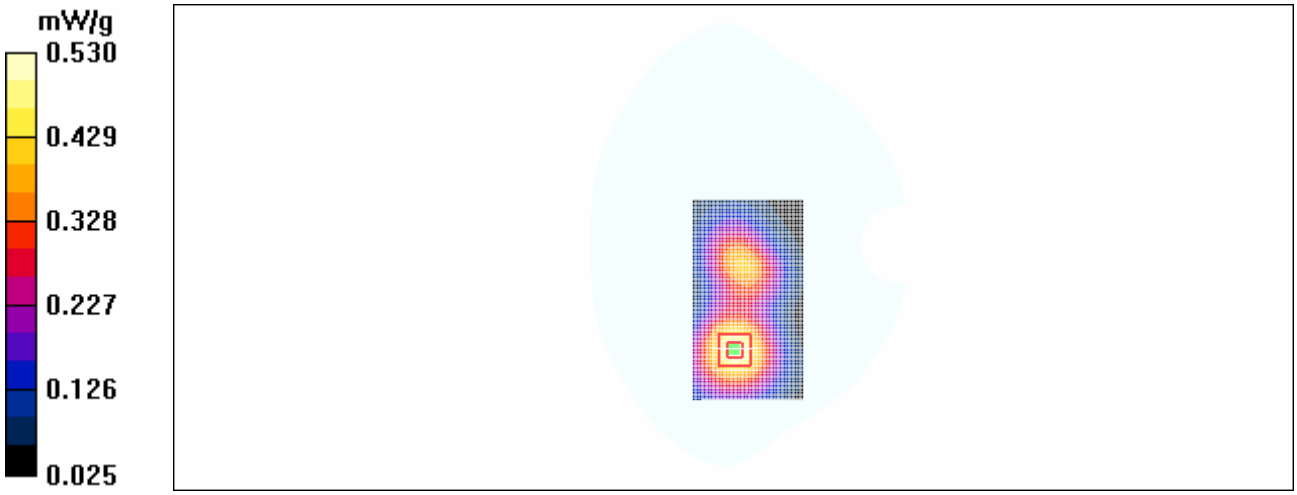


Figure97 Body, Towards the ground, GSM 1900 GPRS, Channel 661

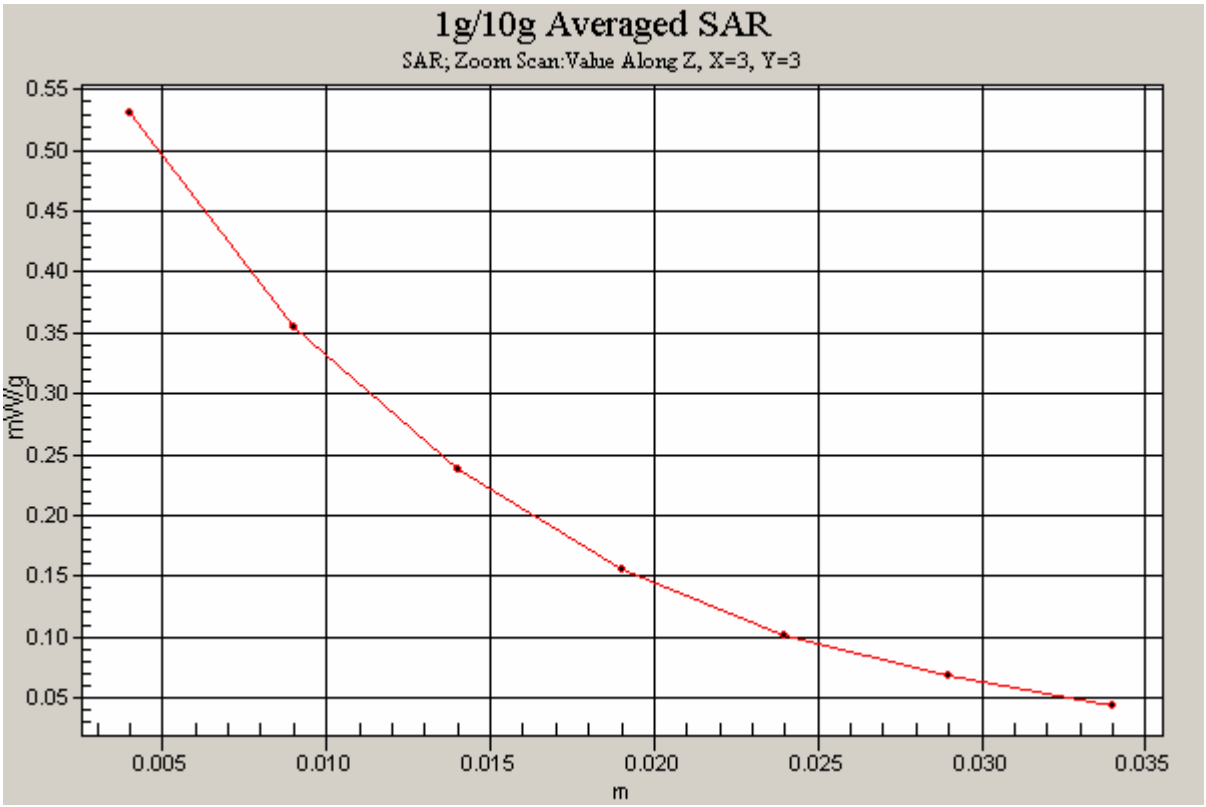


Figure 98 Z-Scan at power reference point (Body, Towards the ground, GSM 1900 GPRS, Channel 661)

GSM 1900 GPRS Towards the ground Low

Communication System: GSM 1900+GPRS(2Up); Frequency: 1850.2 MHz;Duty Cycle: 1:4
Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.45 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(4.64, 4.64, 4.64);
Electronics: DAE3 Sn452;
Towards ground, Low frequency/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.543 mW/g

Towards ground, Low frequency/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.8 V/m; Power Drift = -0.055 dB
Peak SAR (extrapolated) = 0.723 W/kg
SAR(1 g) = 0.501 mW/g; SAR(10 g) = 0.326 mW/g
Maximum value of SAR (measured) = 0.535 mW/g

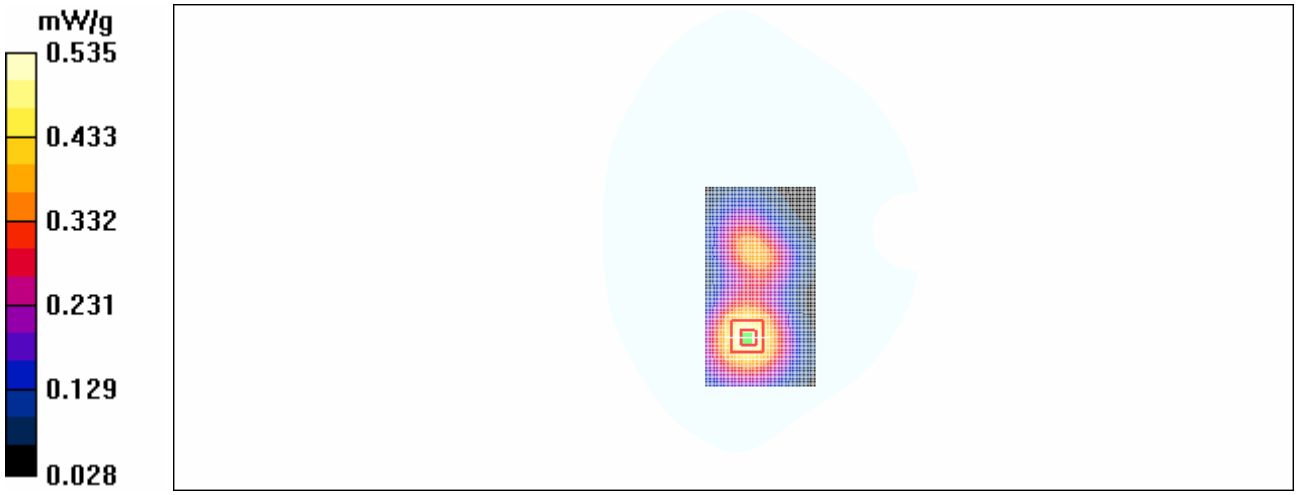


Figure 99 Body, Towards the ground, GSM 1900 GPRS, Channel 512

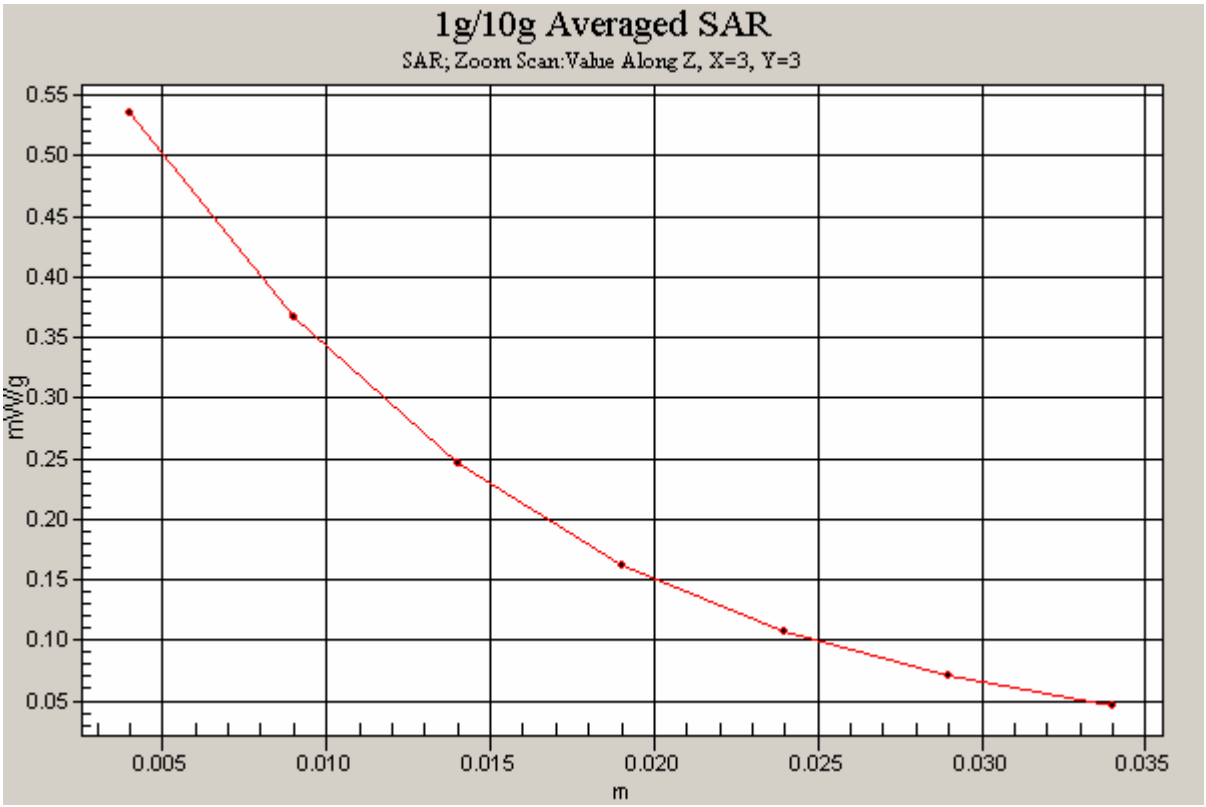


Figure100 Z-Scan at power reference point (Body, Towards the ground, GSM 1900 GPRS, Channel 512)

GSM 1900 GPRS Towards the Phantom High

Communication System: GSM 1900+GPRS(2Up); Frequency: 1909.8 MHz;Duty Cycle: 1:4
Medium parameters used: f = 1910 MHz; σ = 1.53 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(4.64, 4.64, 4.64);
Electronics: DAE3 Sn452;
Towards phantom, High frequency/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.233 mW/g

Towards phantom, High frequency/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.4 V/m; Power Drift = -0.006 dB
Peak SAR (extrapolated) = 0.326 W/kg
SAR(1 g) = 0.212 mW/g; SAR(10 g) = 0.132 mW/g
Maximum value of SAR (measured) = 0.228 mW/g

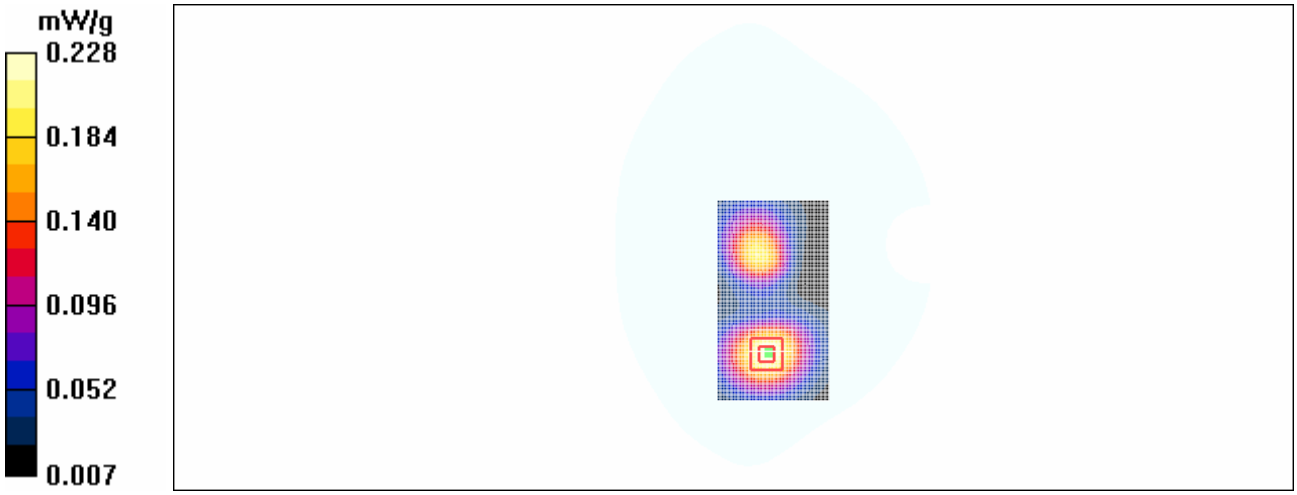


Figure 101 Body, Towards the phantom, GSM 1900 GPRS, Channel 810

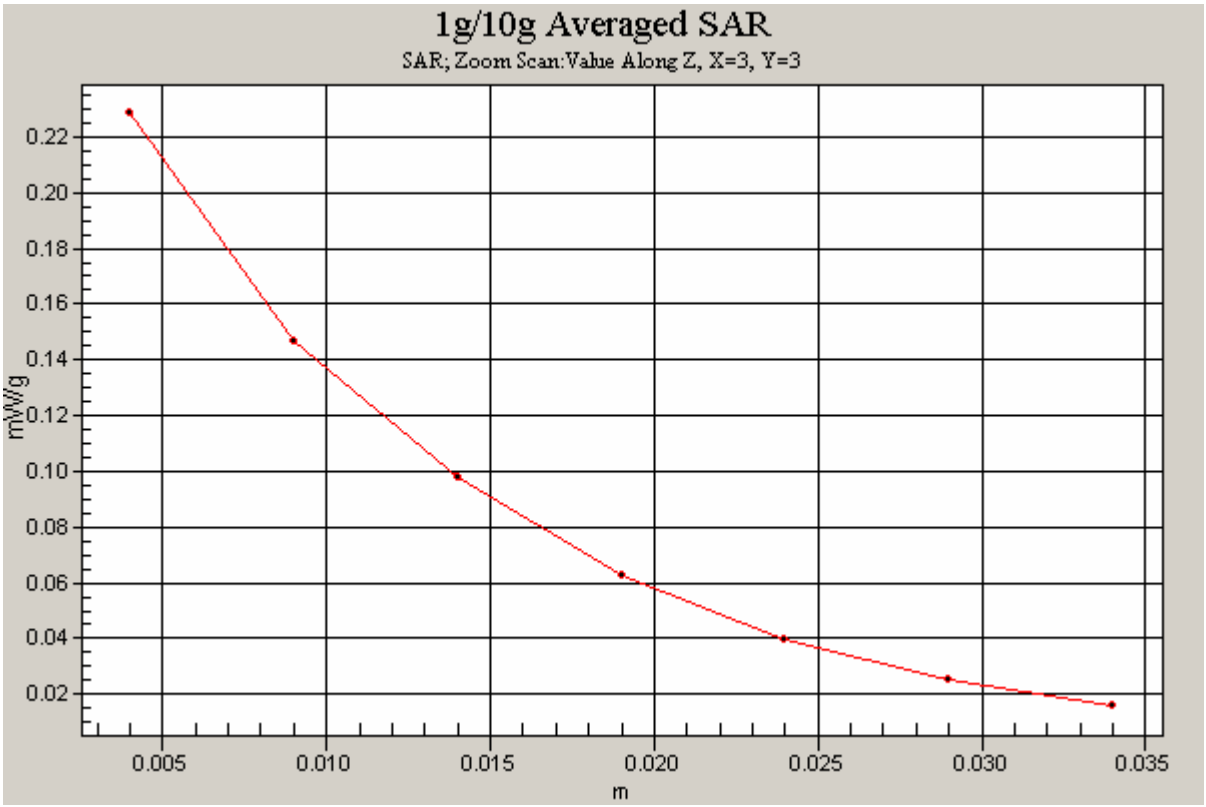


Figure 102 Z-Scan at power reference point (Body, Towards the phantom, GSM 1900 GPRS, Channel 810)

GSM 1900 GPRS Towards the phantom Middle

Communication System: GSM 1900+GPRS(2Up); Frequency: 1880 MHz;Duty Cycle: 1:4
Medium parameters used: f = 1880 MHz; σ = 1.51 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(4.64, 4.64, 4.64);
Electronics: DAE3 Sn452;
Towards phantom, Middle frequency/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.321 mW/g

Towards phantom, Middle frequency/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.9 V/m; Power Drift = -0.158 dB
Peak SAR (extrapolated) = 0.435 W/kg
SAR(1 g) = 0.288 mW/g; SAR(10 g) = 0.181 mW/g
Maximum value of SAR (measured) = 0.310 mW/g

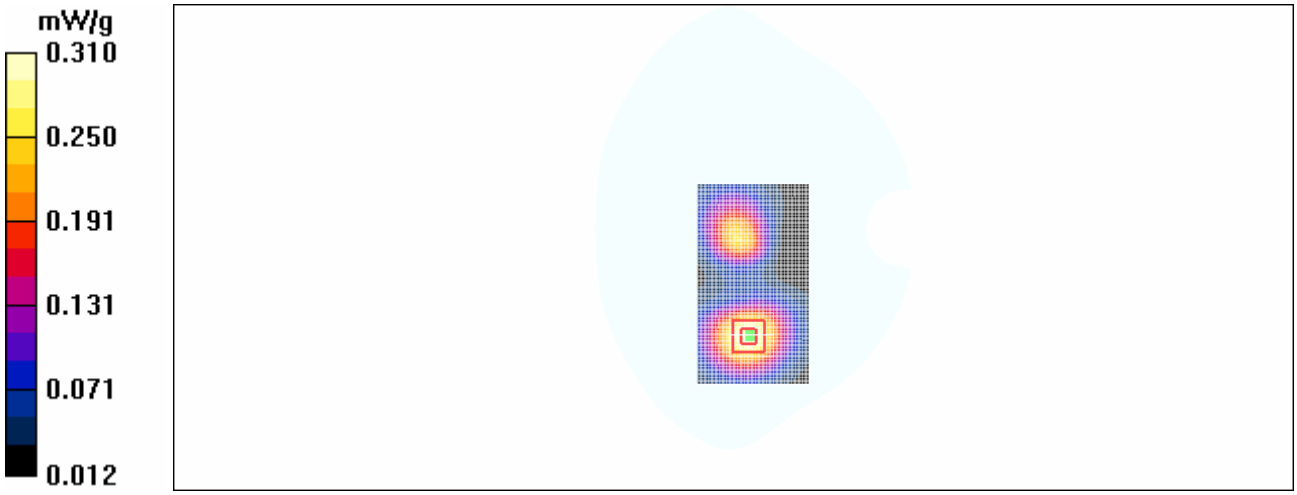


Figure103 Body, Towards the phantom, GSM 1900 GPRS, Channel 661

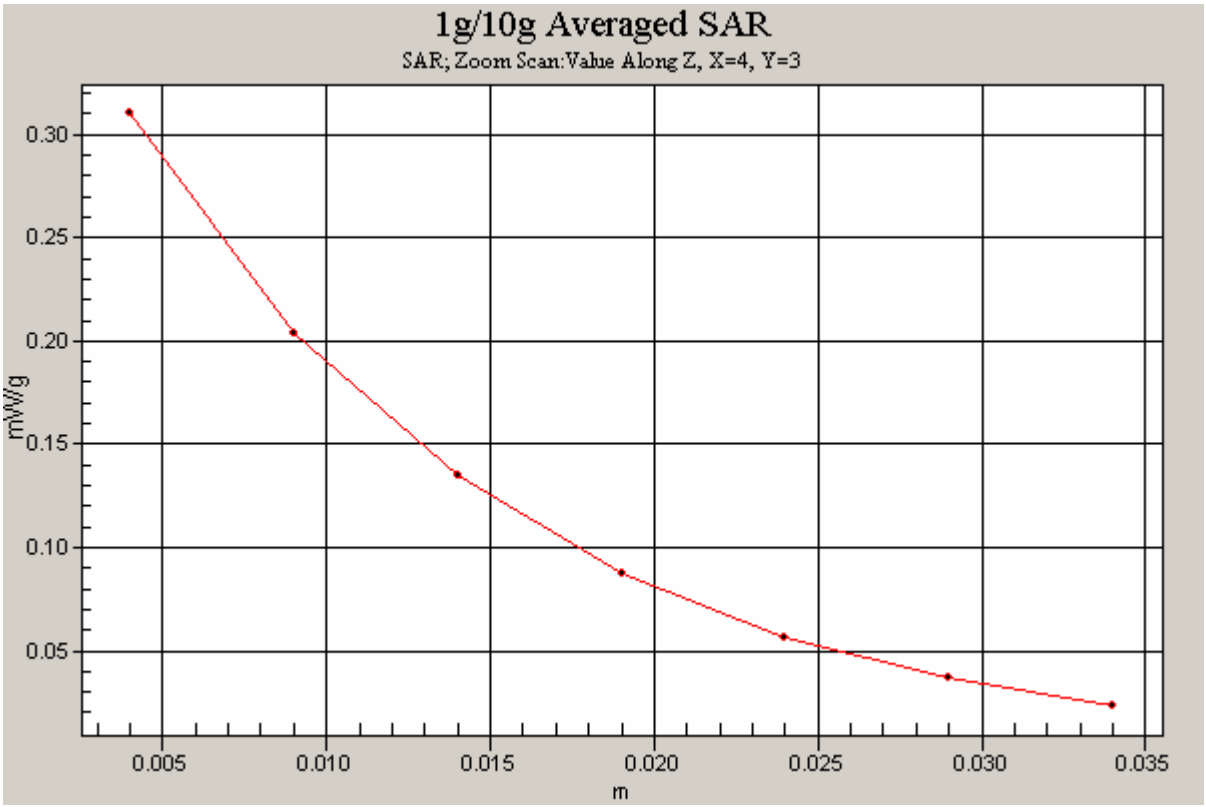


Figure 104 Z-Scan at power reference point (Body, Towards the phantom, GSM 1900 GPRS, Channel 661)

GSM 1900 GPRS Towards the phantom Low

Communication System: GSM 1900+GPRS(2Up); Frequency: 1850.2 MHz;Duty Cycle: 1:4
Medium parameters used (interpolated): f = 1850.2 MHz; σ = 1.45 mho/m; ε_r = 52.6; ρ = 1000 kg/m^3
Probe: ET3DV6 - SN1531; ConvF(4.64, 4.64, 4.64);
Electronics: DAE3 Sn452;
Towards phantom, Low frequency/Area Scan (51x91x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.337 mW/g

Towards phantom, Low frequency/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.9 V/m; Power Drift = -0.011 dB
Peak SAR (extrapolated) = 0.466 W/kg
SAR(1 g) = 0.307 mW/g; SAR(10 g) = 0.193 mW/g
Maximum value of SAR (measured) = 0.331 mW/g

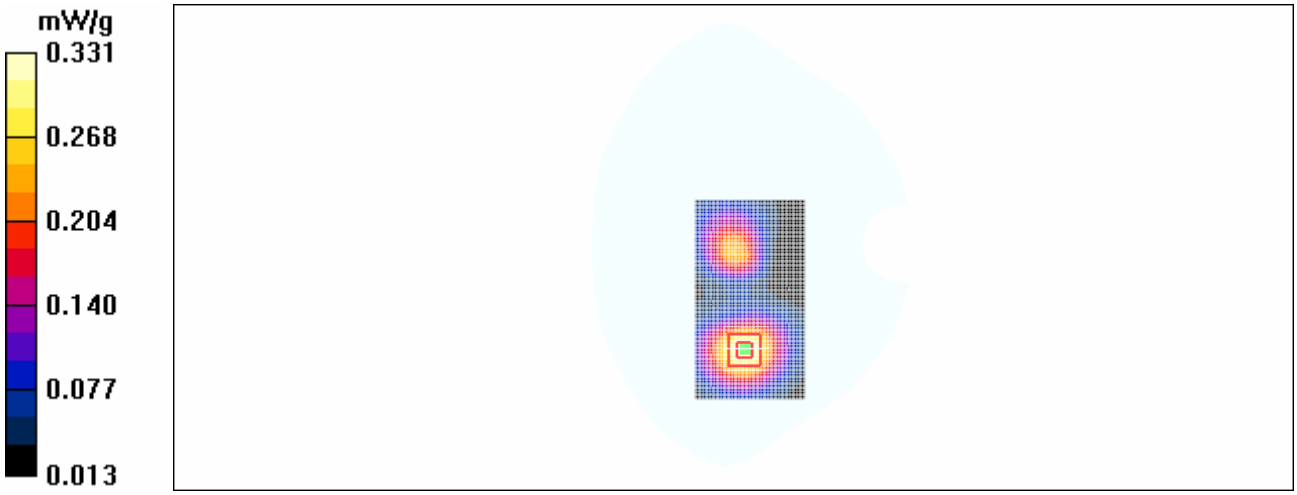


Figure 105 Body, Towards the phantom, GSM 1900 GPRS, Channel 512

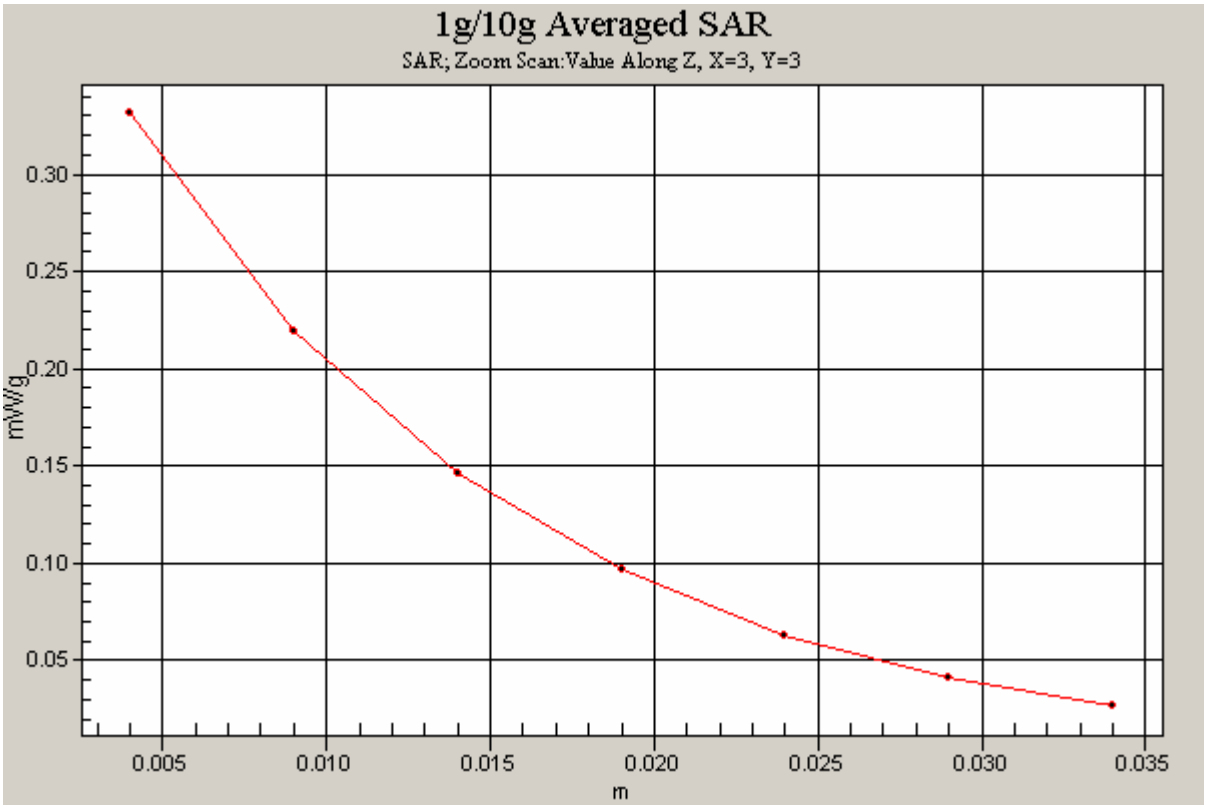


Figure106 Z-Scan at power reference point (Body, Towards the phantom, GSM 1900 GPRS, Channel 512)

ANNEX D： SYSTEM VALIDATION RESULTS

System Performance Check at 835 MHz

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

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium: Head 835MHz

Medium parameters used: f = 835 MHz; σ = 0.899 mho/m; ε_r = 42.8; ρ = 1000 kg/m^3

- Probe: ET3DV6 - SN1531; ConvF(6.85, 6.85, 6.85);
- Electronics: DAE3 Sn452;

d=15mm, Pin=250mW/Area Scan (61x81x1): Measurement grid: dx=15mm, dy=15mm

Maximum value of SAR (interpolated) = 2.54 mW/g

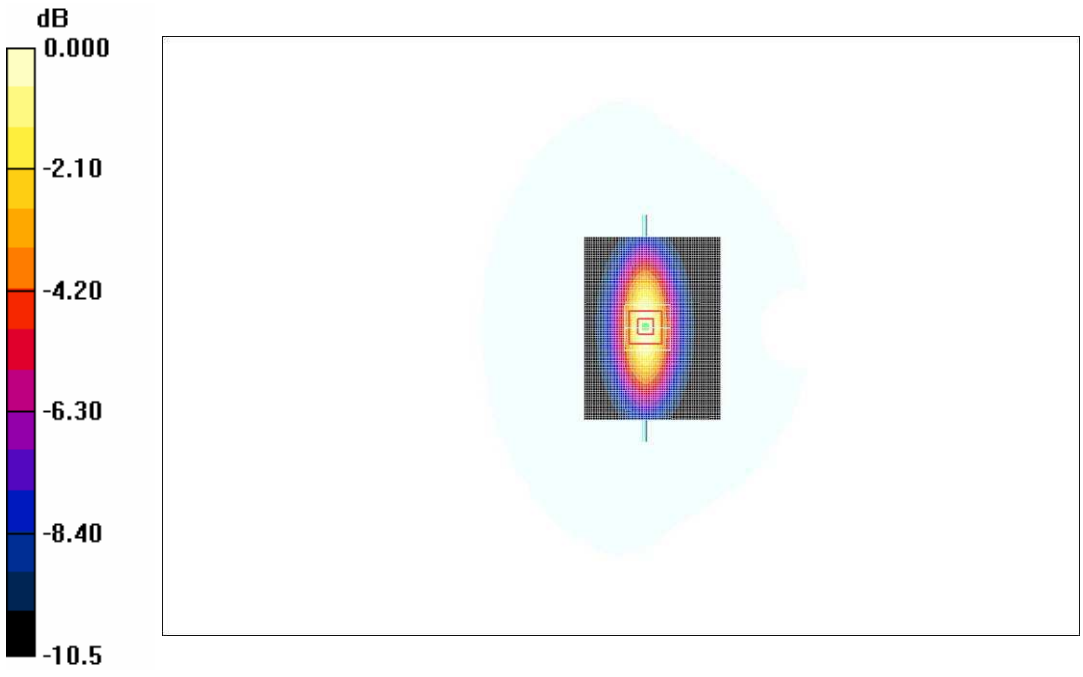
d=15mm, Pin=250mW/Zoom Scan (7x7x7) /Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 55.0 V/m; Power Drift = -0.061 dB

Peak SAR (extrapolated) = 3.44 W/kg

SAR(1 g) = 2.34 mW/g; SAR(10 g) = 1.53 mW/g

Maximum value of SAR (measured) = 2.52 mW/g



0 dB = 2.52mW/g

Figure 107 System Performance Check 835MHz 250mW

System Performance Check at 1900 MHz

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:5d018

Communication System: CW; Frequency: 1900 MHz;Duty Cycle: 1:1

Medium parameters used: f = 1900 MHz; σ = 1.42 mho/m; ε_r = 39.7; ρ = 1000 kg/m^3

Probe: ET3DV6 - SN1531; ConvF(5.15, 5.15, 5.15);

Electronics: DAE3 Sn452;

d=10mm, Pin=250mW 2/Area Scan (101x121x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 10.8 mW/g

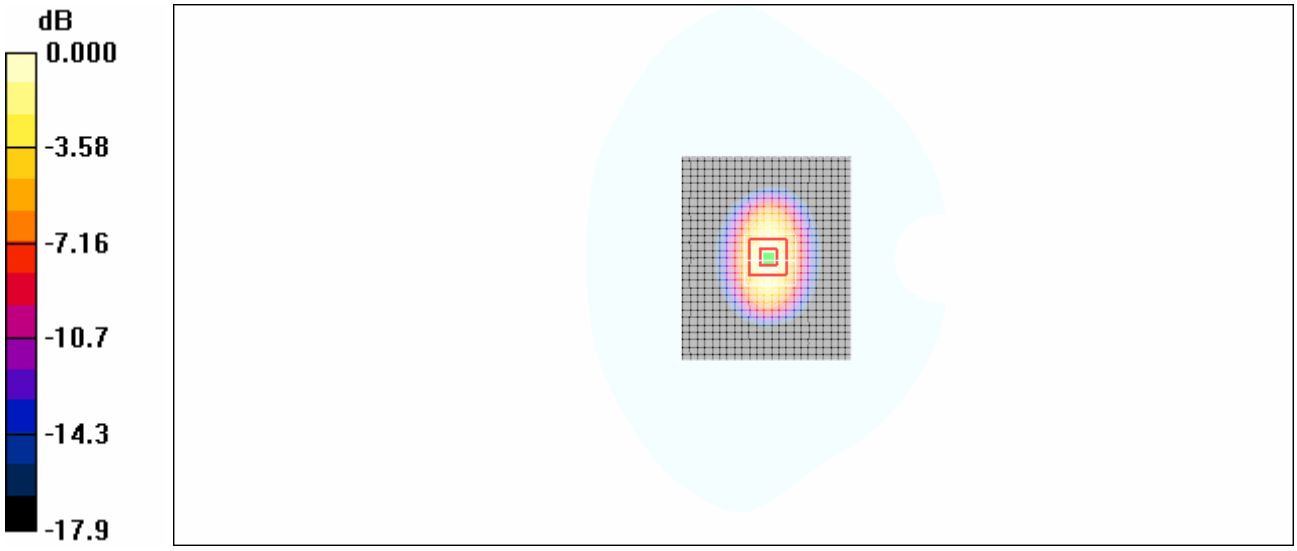
d=10mm, Pin=250mW 2/Zoom Scan (7x7x7) /Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 92.8 V/m; Power Drift = -0.018 dB

Peak SAR (extrapolated) = 16.0 W/kg

SAR(1 g) = 9.36 mW/g; SAR(10 g) = 4.93 mW/g

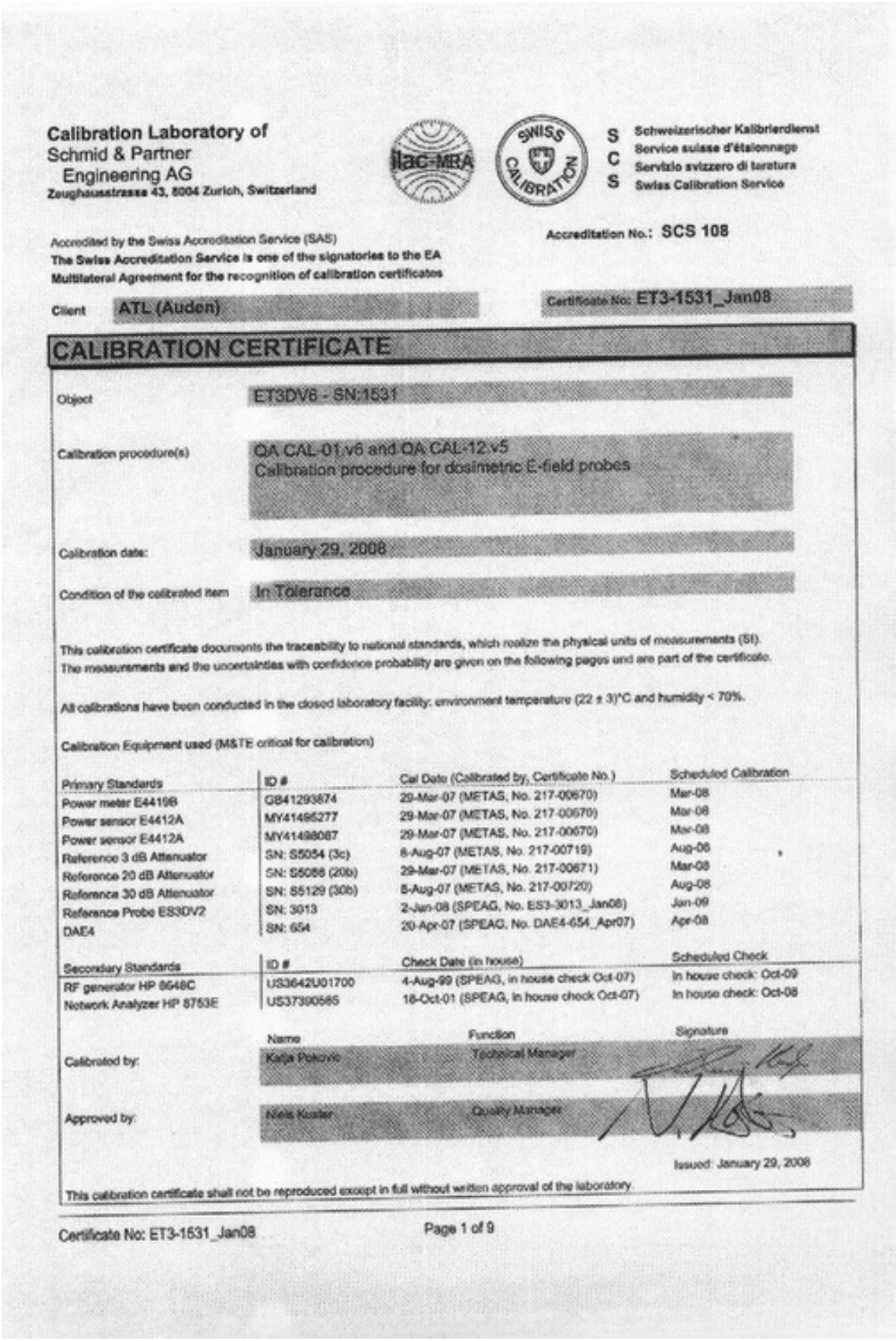
Maximum value of SAR (measured) = 10.7 mW/g



0 dB = 10.7mW/g

Figure 108 System Performance Check 1900MHz 250mW

ANNEX E： PROBE CALIBRATION CERTIFICATE



Calibration Laboratory of
Schmid & Partner
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Accreditation No.: SCS 108

Client ATL (Auden)

Certificate No: ET3-1531_Jan08

CALIBRATION CERTIFICATE

Object ET3DV6 - SN:1531

Calibration procedure(s) QA CAL-01.v6 and QA CAL-12.v5
Calibration procedure for dosimetric E-field probes

Calibration date: January 29, 2008

Condition of the calibrated item In Tolerance

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

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

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Power sensor E4412A	MY41495277	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Power sensor E4412A	MY41498087	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Reference 3 dB Attenuator	SN: S5054 (3c)	8-Aug-07 (METAS, No. 217-00719)	Aug-08
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-07 (METAS, No. 217-00671)	Mar-08
Reference 30 dB Attenuator	SN: S5129 (30b)	8-Aug-07 (METAS, No. 217-00720)	Aug-08
Reference Probe ES3DV2	SN: 3013	2-Jan-08 (SPEAG, No. ES3-3013_Jan08)	Jan-09
DAE4	SN: 654	20-Apr-07 (SPEAG, No. DAE4-654_Apr07)	Apr-08

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

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

Issued: January 29, 2008

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

Certificate No: ET3-1531_Jan08 Page 1 of 9

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Accreditation No.: SCS 108

Glossary:

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

Calibration is Performed According to the Following Standards:

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

Methods Applied and Interpretation of Parameters:

- *NORMx,y,z:* Assessed for E-field polarization ϑ = 0 (f ≤ 900 MHz in TEM-cell; f > 1800 MHz: R22 waveguide). NORMx,y,z are only intermediate values, i.e., the uncertainties of NORMx,y,z does not effect the E^2-field uncertainty inside TSL (see below *ConvF*).
- *NORM(f)x,y,z = NORMx,y,z * frequency_response* (see Frequency Response Chart). This linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the stated uncertainty of *ConvF*.
- *DCPx,y,z:* DCP are numerical linearization parameters assessed based on the data of power sweep (no uncertainty required). DCP does not depend on frequency nor media.
- *ConvF and Boundary Effect Parameters:* Assessed in flat phantom using E-field (or Temperature Transfer Standard for f ≤ 800 MHz) and inside waveguide using analytical field distributions based on power measurements for f > 800 MHz. The same setups are used for assessment of the parameters applied for boundary compensation (alpha, depth) of which typical uncertainty values are given. These parameters are used in DASY4 software to improve probe accuracy close to the boundary. The sensitivity in TSL corresponds to *NORMx,y,z * ConvF* whereby the uncertainty corresponds to that given for *ConvF*. A frequency dependent *ConvF* is used in DASY version 4.4 and higher which allows extending the validity from ± 50 MHz to ± 100 MHz.
- *Spherical isotropy (3D deviation from isotropy):* in a field of low gradients realized using a flat phantom exposed by a patch antenna.
- *Sensor Offset*: The sensor offset corresponds to the offset of virtual measurement center from the probe tip (on probe axis). No tolerance required.

ET3DV6 SN:1531 January 29, 2008

Probe ET3DV6

SN:1531

Manufactured:	July 15, 2000
Last calibrated:	January 22, 2007
Recalibrated:	January 29, 2008

Calibrated for DASY Systems

(Note: non-compatible with DASY2 system!)

ET3DV6 SN:1531 January 29,2008

DASY - Parameters of Probe: ET3DV6 SN:1531

Sensitivity in Free Space[A]

Diode Compression[B]

NormX	1.52 ± 10.1%	μV/(V/m)²	DCP X	95 mV
NormY	1.66 ± 10.1%	μV/(V/m)²	DCP Y	94 mV
NormZ	1.71 ± 10.1%	μV/(V/m)²	DCP Z	93 mV

Sensitivity in Tissue Simulating Liquid (Conversion Factors)

Please see Page 8.

Boundary Effect

TSL 900 MHz Typical SAR gradient: 5 % per mm

Sensor Center to Phantom Surface Distance		3.7 mm	4.7 mm
SAR_{be} [%]	Without Correction Algorithm	8.3	4.5
SAR_{be} [%]	With Correction Algorithm	0.7	0.0

TSL 1750 MHz Typical SAR gradient: 10 % per mm

Sensor Center to Phantom Surface Distance		3.7 mm	4.7 mm
SAR_{be} [%]	Without Correction Algorithm	11.9	8.0
SAR_{be} [%]	With Correction Algorithm	0.5	0.1

Sensor Offset

Probe Tip to Sensor Center	2.7 mm

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

[A] The uncertainties of NormX,Y,Z do not affect the E^2-field uncertainty inside TSL (see Page 8).
[B] Numerical linearization parameter: uncertainty not required.