SAR TEST REPORT

No. 2009EEE00869

For

HUAWEI Technologies Co., Ltd.

HSDPA/UMTS/GPRS/GSM/EDGE Mobile Phone with Bluetooth

U9105

With

Hardware Version: HD1U910Q Ver.A

Software Version: U9105V100R001ENGC01B112

FCCID: QISU9105

Issued Date: 2009-03-03

Deutscher Akkreditierungs Rat

No. **DAT-P-114/01-01**

CNAS 检 测 CNAS L0442

Note:

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

Test Laboratory:

TMC Beijing, Telecommunication Metrology Center of Ministry of Information Industry

No. 52, Huayuan Bei Road, Haidian District, Beijing, P. R. China 100083.

Tel:+86(0)10-62303288-2084, Fax:+86(0)10-62304793 Email:welcome@emcite.com www.emcite.com

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TABLE OF CONTENT

1 Test Laboratory

1.1 Testing Location

Company Name:	TMC Beijing, Telecommunication Metrology Center of MII
Address:	No 52, Huayuan beilu, Haidian District, Beijing,P.R.China
Postal Code:	100083
Telephone:	+86-10-62303288
Fax:	+86-10-62304793

1.2 Testing Environment

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

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

1.3 Project Data

Project Leader:	Qi Dianyuan
Test Engineer:	Lin Jun
Testing Start Date:	February 24, 2009
Testing End Date:	February 25, 2009

1.4 Signature

Lin Jun
(Prepared this test report)

Qi Dianyuan
(Reviewed this test report)

Lu Bingsong
Deputy Director of the laboratory
(Approved this test report)

2 Client Information

2.1 Applicant Information

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

2.2 Manufacturer Information

Company Name:	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 Equipment Under Test (EUT) and Ancillary Equipment (AE)

3.1 About EUT

Description:	HSDPA/UMTS/GPRS/GSM/EDGE Mobile Phone with Bluetooth
Model:	U9105
Test Frequency Band:	WCDMA850/WCDMA1900/GSM 850/GSM 1900
GPRS Class:	10

3.2 Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version
EUT1	359742020001271	HD1U910Q Ver.A	U9105V100R001ENGC01B112

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

3.3 Internal Identification of AE used during the test

AE ID*	Description	Model	SN	Manufacturer
AE1	AC Adapter	HS-050040U2	HKA8A1712290	HUAWEI technologies Co., Ltd
AE2	Battery	HBP5A	FMT870702037S	HUAWEI technologies Co., Ltd

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

4 CHARACTERISTICS OF THE TEST

4.1 Applicable Limit Regulations

EN 50360–2001: Product standard for the measurement of Specific Absorption Rate related to human exposure to electromagnetic fields from mobile phones.

It specifies the maximum exposure limit of **2.0 W/kg** as averaged over any 10 gram of tissue for portable devices being used within 20 cm of the user in the uncontrolled environment.

ANSI C95.1–1999: IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.

It specifies the maximum exposure limit of **1.6 W/kg** as averaged over any 1 gram of tissue for portable devices being used within 20 cm of the user in the uncontrolled environment.

4.2 Applicable Measurement Standards

EN 62209-1–2006: Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Human models, instrumentation, and procedures –Part 1: Procedure to determine the specific absorption rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz).

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

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

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

IEC 62209-2 (Draft): Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Human models, instrumentation, and procedures – Part 2: Procedure to determine the Specific Absorption Rate (SAR)in the head and body for 30MHz to 6GHz Handheld and Body-Mounted Devices used in close proximity to the Body.

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

5 OPERATIONAL CONDITIONS DURING TEST

5.1 Schematic Test Configuration

5.1.1 SAR Measurement Procedures for WCDMA 850MHz and WCDMA 1900MHZ

For the SAR tests at WCDMA 850MHz and WCDMA 1900MHz, a communication link is set up with a System Simulator (SS) by air link. The maximum output power were verified on high, middle and low channels for each test band according to section 5.2 of 3GPP TS 34.121 using 12.2kbps RMC and AMR with TPC set to all “1’s”

(Please see 6.2.2 Table 3 for the above detailed power measurement results.)

Head and body SAR are both measured using the 12.2kbps RMC with TPC bits configured to all “1”s, and not required for 12.2kbps AMR, because the maximum output power for 12.2kps AMR is less than 0.25dB higher than that measured in 12.2kbps RMC. For body SAR measurement, the multiple $DPDCH_n$ configurations are also not required, because the EUT can’t support it.

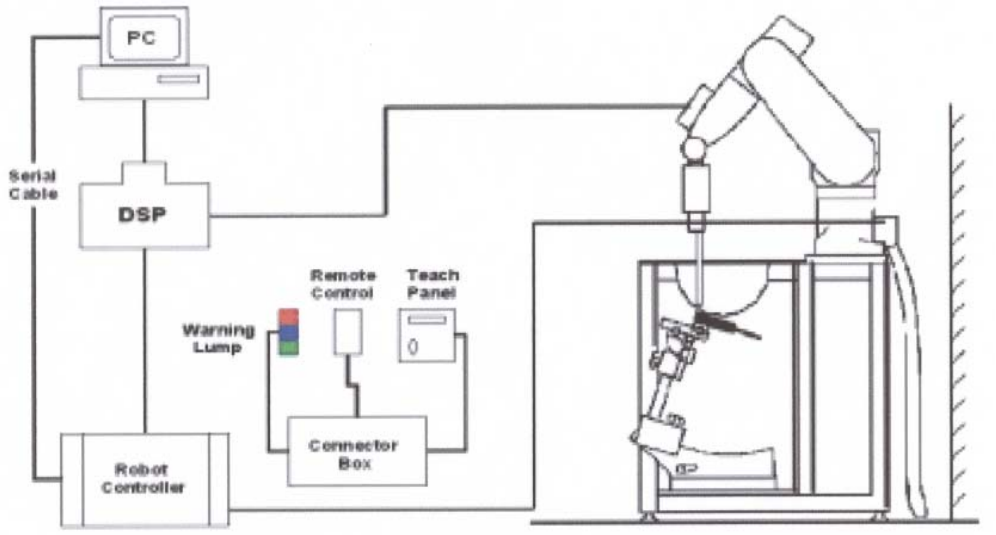
5.1.2 SAR Measurement Procedures for GSM 850MHz and GSM 1900MHZ

For the SAR tests at GSM 850 and GSM 1900, a communication link is set up with a System Simulator (SS) by air link. The EUT is commanded to operate at maximum transmitting power.

5.2 SAR Measurement Set-up

These measurements were performed with the automated near-field scanning system DASY4 Professional from Schmid & Partner Engineering AG (SPEAG). The system is based on a high precision robot (working range greater than 0.9m) which positions the probes with a positional repeatability of better than ± 0.02mm. Special E-field 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.



Picture 1: SAR Lab Test Measurement Set-up

The DAE consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain-switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. Transmission to the PC-card is accomplished through an optical downlink for data and status information and an optical uplink for commands and clock lines. The mechanical probe mounting device includes two different sensor systems for frontal and sidewise probe contacts. They are also used for mechanical surface detection and probe collision detection. The robot uses its own controller with a built in VME-bus computer.

5.3 Dasy4 E-field Probe System

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

ES3DV3 Probe Specification

Construction	Symmetrical design with triangular core Interleaved sensors Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	Basic Broad Band Calibration in air Conversion Factors (CF) for HSL 900 and HSL 1810 Additional CF for other liquids and frequencies upon request
Frequency	10 MHz to 4 GHz; Linearity: ± 0.2 dB (30 MHz to 4 GHz)
Directivity	± 0.2 dB in HSL (rotation around probe axis) ± 0.3 dB in tissue material (rotation normal to probe axis)

Picture 2: ES3DV3 E-field Probe

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

Picture3:ES3DV3 E-field probe

5.4 E-field Probe Calibration

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

The free space E-field from amplified probe outputs is determined in a test chamber. This is performed in a TEM cell for frequencies bellow 1 GHz, and in a wave guide above 1 GHz for free space. For the free space calibration, the probe is placed in the volumetric center of the cavity and at the proper orientation with the field. The probe is then rotated 360 degrees.

E-field temperature correlation calibration is performed in a flat phantom filled with the appropriate simulated brain tissue. The measured free space E-field in the medium correlates to temperature rise in a dielectric medium. For temperature correlation calibration a RF transparent thermistor-based temperature probe is used in conjunction with the E-field probe.

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

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

Or

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

Where:
σ = Simulated tissue conductivity,
ρ = Tissue density (kg/m^3).

Picture 4: Device Holder

5.5 Other Test Equipment

5.5.1 Device Holder for Transmitters

In combination with the Generic Twin Phantom V3.0, the Mounting Device (POM) enables the rotation of the mounted transmitter in spherical coordinates whereby the rotation points is the ear opening. The devices can be easily, accurately, and repeatably positioned according to the FCC and CENELEC specifications. The device holder can be locked at different phantom locations (left head, right head, flat phantom).

5.5.2 Phantom

The Generic Twin Phantom is constructed of a fiberglass shell integrated in a wooden table. The shape of the shell is based on data from an anatomical study designed to determine the maximum exposure in at least 90% of all users. It enables the dosimetric evaluation of left and right hand phone usage as well as body mounted usage at the flat phantom region. A cover prevents the evaporation of the liquid. Reference markings on the Phantom allow the complete setup of all predefined phantom positions and measurement grids by manually teaching three points in the robot.

Shell Thickness	2±0. l mm
Filling Volume	Approx. 20 liters
Dimensions	810 x l000 x 500 mm (H x L x W)
Available	Special

Picture 5: Generic Twin Phantom

5.6 Equivalent Tissues

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

Table 1. Composition of the Head Tissue Equivalent Matter

MIXTURE %	FREQUENCY 850MHz
Water	41.45
Sugar	56.0
Salt	1.45
Preventol	0.1
Cellulose	1.0
Dielectric Parameters Target Value	f=850MHz ε=41.5 σ=0.90
MIXTURE %	FREQUENCY 1900MHz
Water	55.242
Glycol monobutyl	44.452
Salt	0.306
Dielectric Parameters Target Value	f=1900MHz ε=40.0 σ=1.40

Table 2. Composition of the Body Tissue Equivalent Matter

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

5.7 System Specifications

5.7.1 Robotic System Specifications

Specifications

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

Data Acquisition Electronic (DAE) System

Cell Controller

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

Data Converter

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

6 CONDUCTED OUTPUT POWER MEASUREMENT

6.1 Summary

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

6.2 Conducted Power

6.2.1 Measurement Methods

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

6.2.2 Measurement result

Table 3: Conducted Power Measurement Results

WCDMA 1900 (12.2kbps RMC)	**Conducted Power**		
	Channel 512 (1850.2MHz)	**Channel 661 (1880MHz)**	**Channel 810 (1909.8MHz)**
Before Test (dBm)	22.8	22.89	22.90
After Test (dBm)	22.77	22.89	22.88
WCDMA 1900 (64kbps RMC)	**Conducted Power**		
	Channel 512 (1850.2MHz)	**Channel 661 (1880MHz)**	**Channel 810 (1909.8MHz)**
Before Test (dBm)	22.85	22.78	22.8
After Test (dBm)	22.82	22.76	22.8
WCDMA 1900 (144kbps RMC)	**Conducted Power**		
	Channel 512 (1850.2MHz)	**Channel 661 (1880MHz)**	**Channel 810 (1909.8MHz)**
Before Test (dBm)	22.83	22.84	22.79
After Test (dBm)	22.80	22.82	22.76
WCDMA 1900 (384kbps RMC)	**Conducted Power**		
	Channel 512 (1850.2MHz)	**Channel 661 (1880MHz)**	**Channel 810 (1909.8MHz)**
Before Test (dBm)	22.8	22.76	22.78
After Test (dBm)	22.8	22.79	22.76
HSDPA 1900 (βc/βd=2/15)	**Conducted Power**		
	Channel 512 (1850.2MHz)	**Channel 661 (1880MHz)**	**Channel 810 (1909.8MHz)**
Before Test (dBm)	22.96	22.97	22.89
After Test (dBm)	22.95	22.97	22.9
HSDPA 1900 (βc/βd=12/15)	**Conducted Power**		
	Channel 512 (1850.2MHz)	**Channel 661 (1880MHz)**	**Channel 810 (1909.8MHz)**
Before Test (dBm)	21.78	21.77	21.8
After Test (dBm)	21.73	21.81	21.78
HSDPA 1900 (βc/βd=15/8)	**Conducted Power**		
	Channel 512 (1850.2MHz)	**Channel 661 (1880MHz)**	**Channel 810 (1909.8MHz)**
Before Test (dBm)	21.38	21.4	21.34
After Test (dBm)	21.35	21.35	21.39
HSDPA 1900 (βc/βd=15/4)	**Conducted Power**		
	Channel 512 (1850.2MHz)	**Channel 661 (1880MHz)**	**Channel 810 (1909.8MHz)**
Before Test (dBm)	20.35	20.4	20.41
After Test (dBm)	20.33	20.41	20.38

WCDMA 850 (12.2kbps RMC)	Conducted Power		
	Channel 4132 (826.4MHz)	Channel 4182 (836.4MHz)	Channel 4233 (846.6MHz)
Before Test (dBm)	22.61	22.75	22.58
After Test (dBm)	22.62	22.74	22.6
WCDMA 850 (64kbps AMR)	**Conducted Power**		
	Channel 4132 (826.4MHz)	**Channel 4182 (836.4MHz)**	**Channel 4233 (846.6MHz)**
Before Test (dBm)	22.63	22.76	22.60
After Test (dBm)	22.64	22.78	22.63
WCDMA 850 (144kbps RMC)	**Conducted Power**		
	Channel 4132 (826.4MHz)	**Channel 4182 (836.4MHz)**	**Channel 4233 (846.6MHz)**
Before Test (dBm)	21.01	20.95	20.98
After Test (dBm)	21.05	21	20.95
WCDMA 850 (384kbps RMC)	**Conducted Power**		
	Channel 4132 (826.4MHz)	**Channel 4182 (836.4MHz)**	**Channel 4233 (846.6MHz)**
Before Test (dBm)	22.63	22.76	22.6
After Test (dBm)	22.64	22.78	22.61
HSDPA 850 (βc/βd=2/15)	**Conducted Power**		
	Channel 4132 (826.4MHz)	**Channel 4182 (836.4MHz)**	**Channel 4233 (846.6MHz)**
Before Test (dBm)	22.46	22.5	22.53
After Test (dBm)	22.41	22.52	22.5
HSDPA 850 (βc/βd=12/15)	**Conducted Power**		
	Channel 4132 (826.4MHz)	**Channel 4182 (836.4MHz)**	**Channel 4233 (846.6MHz)**
Before Test (dBm)	21.20	21.24	21.21
After Test (dBm)	21.2	21.19	21.17
HSDPA 850 (βc/βd=15/8)	**Conducted Power**		
	Channel 4132 (826.4MHz)	**Channel 4182 (836.4MHz)**	**Channel 4233 (846.6MHz)**
Before Test (dBm)	20.85	20.88	20.9
After Test (dBm)	20.81	20.9	20.92
HSDPA 850 (βc/βd=15/4)	**Conducted Power**		
	Channel 4132 (826.4MHz)	**Channel 4182 (836.4MHz)**	**Channel 4233 (846.6MHz)**
Before Test (dBm)	19.83	19.89	19.92
After Test (dBm)	19.87	19.9	19.88
GSM 850MHz	**Conducted Power**		

	Channel 128 (824.2MHz)	Channel 190 (836.6MHz)	Channel 251 (848.8MHz
Before Test (dBm)	32.79	32.97	32.69
After Test (dBm)	32.76	33	32.70
GSM 850MHz GPRS	**Conducted Power**		
	Channel 128 (824.2MHz)	**Channel 190 (836.6MHz)**	**Channel 251 (848.8MHz**
Before Test (dBm)	32.77	32.99	32.7
After Test (dBm)	32.78	32.98	32.71
GSM 850MHz EGPRS	**Conducted Power**		
	Channel 128 (824.2MHz)	**Channel 190 (836.6MHz)**	**Channel 251 (848.8MHz**
Before Test (dBm)	27.03	27.25	26.98
After Test (dBm)	27.04	27.24	26.99
GSM 1900MHZ	**Conducted Power**		
	Channel 512 (1850.2MHz)	**Channel 661 (1880MHz)**	**Channel 810 (1909.8MHz)**
Before Test (dBm)	29.32	29.41	29.42
After Test (dBm)	29.3	29.38	29.37
GSM 1900MHz GPRS	**Conducted Power**		
	Channel 512 (1850.2MHz)	**Channel 661 (1880MHz)**	**Channel 810 (1909.8MHz)**
Before Test (dBm)	29.33	29.34	29.28
After Test (dBm)	29.31	29.3	29.25
GSM 1900MHZ EGPRS	**Conducted Power**		
	Channel 512 (1850.2MHz)	**Channel 661 (1880MHz)**	**Channel 810 (1909.8MHz)**
Before Test (dBm)	25.10	25.22	25.1
After Test (dBm)	25.12	25.18	25.06

Note: HSDPA body SAR are not required, because maximum average output power of each RF channel with HSDPA active is not 1/4 dB higher than that measured without HSDPA and the maximum SAR for WCDMA850 and WCDMA1900 are not above 75% of the SAR limit (see table 8 and 10 for the SAR measurement results).

6.2.3 Power Drift

To control the output power stability during the SAR test, DASY4 system calculates the power drift by measuring the E-field at the same location at the beginning and at the end of the measurement for each test position. These drift values can be found in Table 7 to Table 14 labeled as: (Power Drift [dB]). This ensures that the power drift during one measurement is within 5%.

7 TEST RESULTS

7.1 Dielectric Performance

Table 4: Dielectric Performance of Head Tissue Simulating Liquid

Measurement is made at temperature 23.3 °C and relative humidity 49%. Liquid temperature during the test: 22.5°C Measurement Date : 850 MHz **Feb 24,2009** 1900 MHz **Feb 25,2009**			
/	**Frequency**	**Permittivity ε**	**Conductivity σ (S/m)**
Target value	850 MHz	41.5	0.90
	1900 MHz	40.0	1.40
Measurement value (Average of 10 tests)	850 MHz	40.3	0.92
	1900 MHz	39.2	1.42

Table 5: Dielectric Performance of Body Tissue Simulating Liquid

Measurement is made at temperature 23.3 °C and relative humidity 49%. Liquid temperature during the test: 22.5°C Measurement Date : 850 MHz **Feb 24,2009** 1900 MHz **Feb 25,2009**			
/	**Frequency**	**Permittivity ε**	**Conductivity σ (S/m)**
Target value	850 MHz	55.2	0.97
	1900 MHz	53.3	1.52
Measurement value (Average of 10 tests)	850 MHz	53.7	1.00
	1900 MHz	52.3	1.56

7.2 System Validation

Table 6: System Validation

Measurement is made at temperature 23.3 °C, relative humidity 49%, input power 250 mW.
Liquid temperature during the test: 22.5°C
Measurement Date : 850 MHz **Feb 24,2009** 1900 MHz **Feb 25,2009**

Liquid parameters	Dipole calibration Target value	**Frequency**		**Permittivity ε**		**Conductivity σ (S/m)**	
		835 MHz		39.9		0.88	
		1900 MHz		38.9		1.38	
	Actural Measurement value	835 MHz		40.4		0.90	
		1900 MHz		39.2		1.42	
Verification results	**Frequency**	**Target value (W/kg)**		**Measured value (W/kg)**		**Deviation**	
		10 g Average	**1 g Average**	**10 g Average**	**1 g Average**	**10 g Average**	**1 g Average**
	835 MHz	1.60	2.48	1.62	2.50	1.25%	0.81%
	1900 MHz	5.09	9.73	5.27	9.91	3.54%	1.9%

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

7.3 Summary of Measurement Results (WCDMA 850)

Table 7: SAR Values (Head, WCDMA 850 MHz Band)

Limit of SAR (W/kg)	10 g Average	1 g Average	Power Drift (dB)
	2.0	1.6	
Test Case	Measurement Result		
	10 g Average	1 g Average	
Left hand, Touch cheek, Top frequency(See Fig.1)	0.511	0.740	-0.177
Left hand, Touch cheek, Mid frequency(See Fig.3)	0.642	0.947	-0.045
Left hand, Touch cheek, Bottom frequency(See Fig.5)	0.386	0.574	-0.00475
Left hand, Tilt 15 Degree, Mid frequency(See Fig.7)	0.422	0.660	-0.059
Right hand, Touch cheek, Top frequency(See Fig.9)	0.494	0.747	-0.103
Right hand, Touch cheek, Mid frequency(See Fig.11)	0.611	0.926	0.022
Right hand, Touch cheek, Bottom frequency(See Fig.13)	0.372	0.574	-0.023
Right hand, Tilt 15 Degree, Mid frequency(See Fig.15)	0.435	0.678	0.159

Table 8: SAR Values (Body, WCDMA 850 MHz Band)

Limit of SAR (W/kg)	10 g Average	1 g Average	Power Drift (dB)
	2.0	1.6	
Test Case	Measurement Result (W/kg)		
	10 g Average	1 g Average	
Body, Towards Ground, Top frequency (See Fig.17)	0.440	0.614	0.054
Body, Towards Ground, Mid frequency (See Fig.19)	0.408	0.569	0.00275
Body, Towards Ground, Bottom frequency (See Fig.21)	0.410	0.570	0.023
Body, Towards Phantom, Top frequency (See Fig.23)	0.241	0.343	-0.088
Body, Towards Phantom, Mid frequency (See Fig.25)	0.258	0.390	0.106
Body, Towards Phantom, Bottom frequency (See Fig.27)	0.153	0.247	-0.011
Body, Towards Ground, Top frequency with Headset(See Fig.29)	0.296	0.419	-0.097

7.4 Summary of Measurement Results (WCDMA 1900)

Table 9: SAR Values (Head, WCDMA 1900 MHz Band)

Limit of SAR (W/kg)	10 g Average	1 g Average	Power Drift (dB)
	2.0	1.6	
Test Case	Measurement Result (W/kg)		
	10 g Average	1 g Average	
Left hand, Touch cheek, Top frequency(See Fig. 31)	0.313	0.600	-0.011
Left hand, Touch cheek, Mid frequency(See Fig.33)	0.376	0.747	0.046

Left hand, Touch cheek, Bottom frequency(See Fig.35)	0.396	0.844	0.111
Left hand, Tilt 15 Degree, Mid frequency(See Fig.37)	0.257	0.483	0.108
Right hand, Touch cheek, Mid frequency(See Fig.39)	0.228	0.423	-0.144
Right hand, Tilt 15 Degree, Mid frequency(See Fig.41)	0.201	0.348	0.052

Table 10: SAR Values (Body, WCDMA 1900 MHz Band)

Limit of SAR (W/kg)	10 g Average	1 g Average	Power Drift (dB)
	2.0	1.6	
Test Case	Measurement Result (W/kg)		
	10 g Average	1 g Average	
Body, Towards Ground, Top frequency (See Fig.43)	0.408	0.699	0.174
Body, Towards Ground, Mid frequency (See Fig.45)	0.482	0.832	-0.00585
Body, Towards Ground, Bottom frequency (See Fig.47)	0.503	0.875	0.065
Body, Towards Phantom, Top frequency (See Fig.49)	0.081	0.132	-0.046
Body, Towards Phantom, Mid frequency (See Fig.51)	0.079	0.130	0.055
Body, Towards Phantom, Bottom frequency (See Fig.53)	0.092	0.150	0.192
Body, Towards Ground, Bottom frequency with Headset(See Fig.55)	0.505	0.888	-0.022

7.5 Summary of Measurement Results (GSM 850)

Table 11: SAR Values (Head, GSM 850 MHz Band)

Limit of SAR (W/kg)	10 g Average	1 g Average	Power Drift (dB)
	2.0	1.6	
Test Case	Measurement Result (W/kg)		
	10 g Average	1 g Average	
Left hand, Touch cheek, Top frequency(See Fig.57)	0.720	1.07	-0.024
Left hand, Touch cheek, Mid frequency(See Fig.59)	0.482	0.734	0.039
Left hand, Touch cheek, Bottom frequency(See Fig.61)	0.328	0.519	0.041
Left hand, Tilt 15 Degree, Mid frequency(See Fig.63)	0.369	0.586	0.107
Right hand, Touch cheek, Mid frequency(See Fig.65)	0.484	0.731	-0.110
Right hand, Tilt 15 Degree, Mid frequency(See Fig.67)	0.364	0.574	-0.050

Table 12: SAR Values (Body, GSM 850 MHz Band)

Limit of SAR (W/kg)	10 g Average	1 g Average	Power Drift (dB)
	2.0	1.6	
Test Case	Measurement Result (W/kg)		
	10 g Average	1 g Average	

Body, Towards Ground, Top frequency with GPRS(See Fig.69)	0.718	1.000	-0.128
Body, Towards Ground, Mid frequency with GPRS (See Fig.71)	0.659	0.915	-0.111
Body, Towards Ground, Bottom frequency with GPRS (See Fig.73)	0.623	0.863	0.079
Body, Towards Phantom, Top frequency with GPRS (See Fig.75)	0.431	0.611	-0.105
Body, Towards Phantom, Mid frequency with GPRS (See Fig.77)	0.418	0.589	-0.077
Body, Towards Phantom, Bottom frequency with GPRS (See Fig.79)	0.181	0.294	-0.042
Body, Towards Ground, Top frequency with EGPRS (See Fig.81)	0.300	0.419	-0.087
Body, Towards Ground, Top frequency with Headset(See Fig.83)	0.485	0.683	-0.016

7.6 Summary of Measurement Results (GSM 1900)

Table 13: SAR Values (Head, GSM 1900 MHz Band)

Limit of SAR (W/kg)	10 g Average	1 g Average	Power Drift (dB)
	2.0	1.6	
Test Case	Measurement Result (W/kg)		
	10 g Average	1 g Average	
Left hand, Touch cheek, Top frequency(See Fig.85)	0.214	0.414	-0.113
Left hand, Touch cheek, Mid frequency(See Fig.87)	0.263	0.536	-0.101
Left hand, Touch cheek, Bottom frequency(See Fig.89)	0.270	0.587	-0.184
Left hand, Tilt 15 Degree, Mid frequency(See Fig.91)	0.177	0.329	0.037
Right hand, Touch cheek, Mid frequency(See Fig.93)	0.149	0.281	-0.161
Right hand, Tilt 15 Degree, Mid frequency(See Fig.95)	0.122	0.217	0.092

Table 14: SAR Values (Body, GSM 1900 MHz Band)

Limit of SAR (W/kg)	10 g Average	1 g Average	Power Drift (dB)
	2.0	1.6	
Test Case	Measurement Result (W/kg)		
	10 g Average	1 g Average	
Body, Towards Ground, Top frequency with GPRS(See Fig.97)	0.408	0.696	-0.053
Body, Towards Ground, Mid frequency with GPRS (See Fig.99)	0.462	0.791	-0.144
Body, Towards Ground, Bottom frequency with GPRS (See Fig.101)	0.432	0.745	-0.094
Body, Towards Phantom, Top frequency with GPRS (See Fig.103)	0.087	0.142	-0.044
Body, Towards Phantom, Mid frequency with GPRS (See Fig.105)	0.082	0.136	-0.050
Body, Towards Phantom, Bottom frequency with GPRS (See Fig.107)	0.088	0.147	0.100
Body, Towards Ground, Mid frequency with EGPRS (See Fig.109)	0.250	0.436	0.115
Body, Towards Ground, Mid frequency with Headset(See Fig.111)	0.294	0.520	0.073

7.7 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 5.2 of this report. Maximum localized

SAR is below exposure limits specified in the relevant standards cited in Clause 5.1 of this test report.

The maximum SAR values are obtained at the case of **GSM 850 Head, Left hand, Touch cheek, Top frequency (Table 11), and the value are: 0.720(10g), 1.07(1g)**

8 Measurement Uncertainty

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

	values							
20	Liquid Permittivity - measurement uncertainty	B	5.0	N	1	0.6	1.7	M
	Combined Standard Uncertainty			RSS			11.25	
	Expanded Uncertainty (95% CONFIDENCE INTERVAL)			K=2			22.5	

9 MAIN TEST INSTRUMENTS

Table 15: List of Main Instruments

No.	Name	Type	Serial Number	Calibration Date	Valid Period
01	Network analyzer	HP 8753E	US38433212	August 30,2008	One year
02	Power meter	NRVD	101253	June 20, 2008	One year
03	Power sensor	NRV-Z5	100333		
04	Power sensor	NRV-Z6	100011	September 2, 2008	One year
05	Signal Generator	E4433B	US37230472	September 4, 2008	One Year
06	Amplifier	VTL5400	0505	No Calibration Requested	
07	BTS	CMU 200	105948	August 15, 2008	One year
08	E-field Probe	SPEAG ES3DV3	3149	October 1, 2008	One year
09	DAE	SPEAG DAE4	771	November 20, 2008	One year
10	Dipole Validation Kit	SPEAG D835V2	443	February 18, 2009	Two years
11	Dipole Validation Kit	SPEAG D1900V2	541	February 19, 2009	Two years

END OF REPORT BODY

ANNEX A MEASUREMENT PROCESS

The evaluation was performed with the following procedure:

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

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

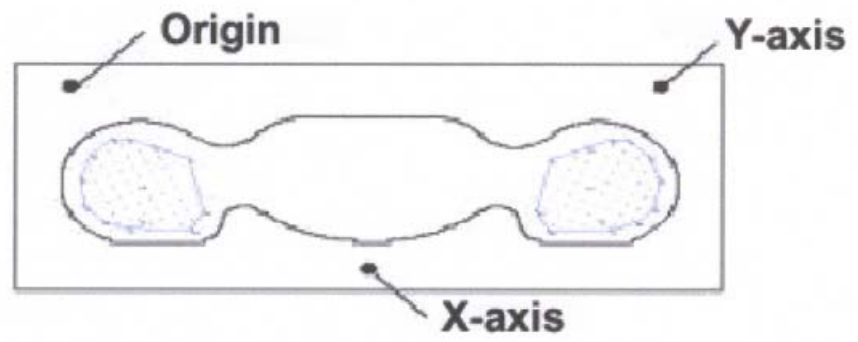
Step 3: Around this point, a volume of 30 mm x 30 mm x 30 mm was assessed by measuring 7 x 7x 7 points. On this basis of this data set, the spatial peak SAR value was evaluated with the following procedure:

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

b. The maximum interpolated value was searched with a straightforward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1g or 10g) were computed using the 3D-Spline interpolation algorithm. The 3D-spline is composed of three one-dimensional splines with the "Not a knot"-condition (in x ~ y and z-directions). The volume was integrated with the trapezoidal algorithm. One thousand points (10 x 10 x 10) were interpolated to calculate the average.

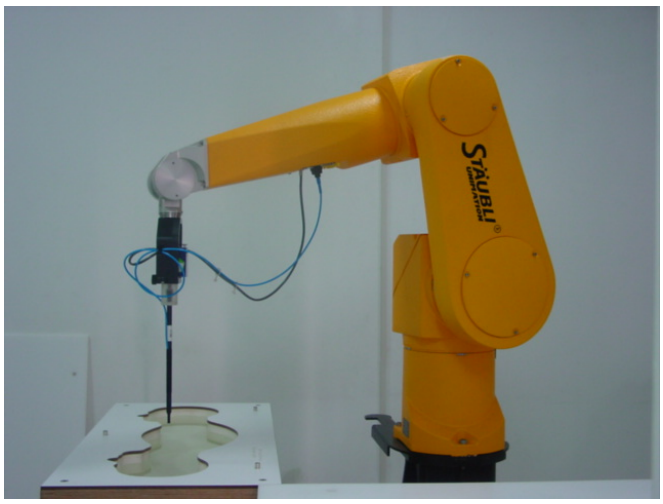
c. All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.

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

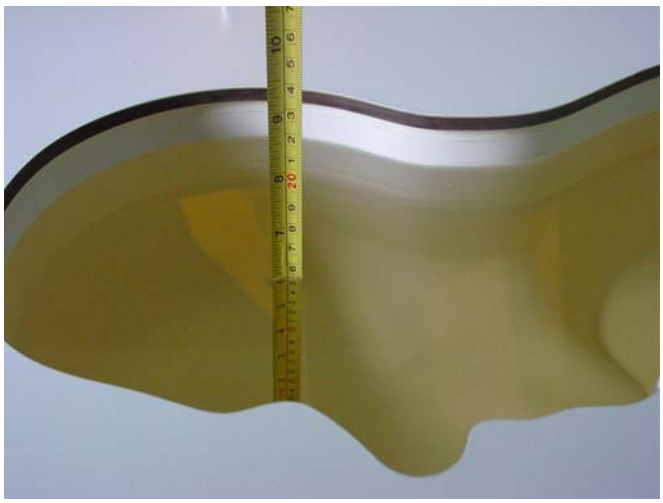


Picture A: SAR Measurement Points in Area Scan

ANNEX B TEST LAYOUT



Picture B1: Specific Absorption Rate Test Layout



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

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

Picture B4: Liquid depth in the Flat Phantom (850 MHz Body)

Picture B5: Liquid depth in the Flat Phantom (1900MHz Body)

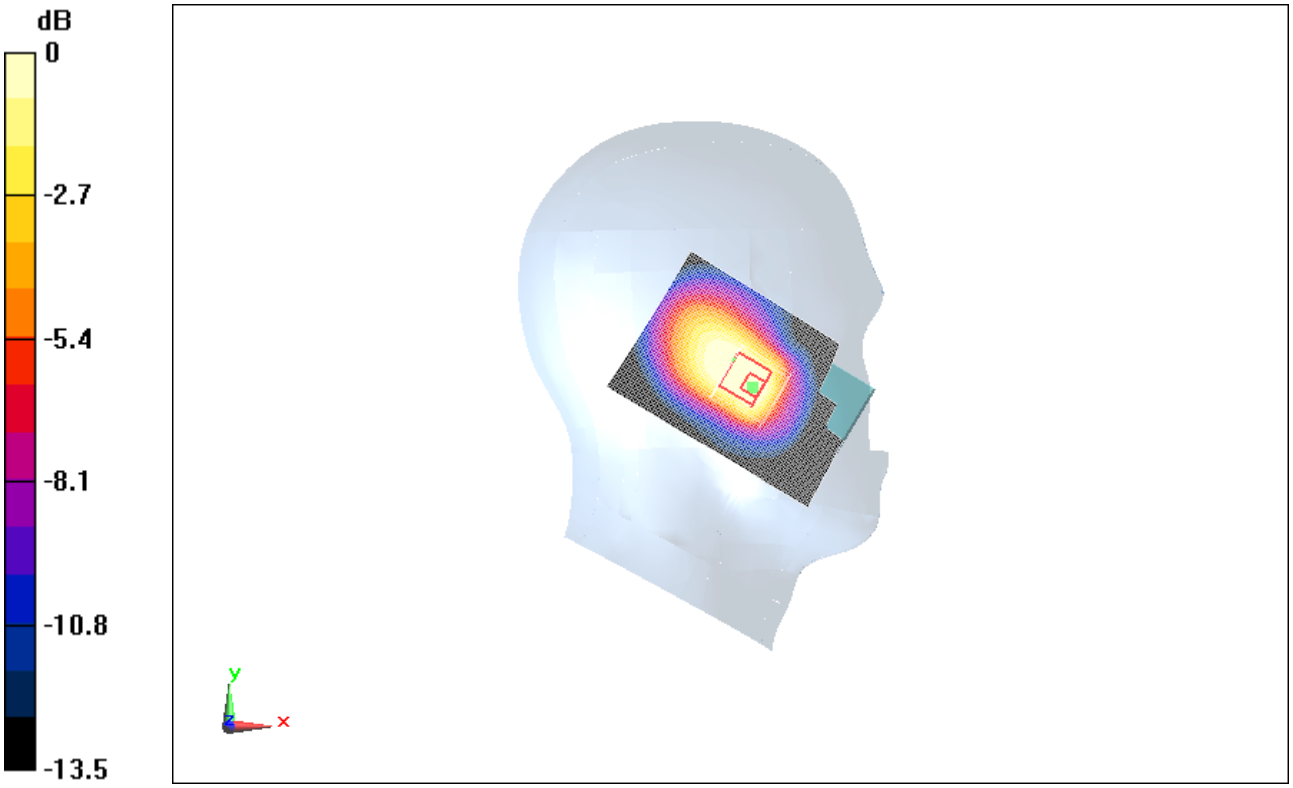
ANNEX C GRAPH RESULTS

WCDMA 850 Left Cheek High

Date/Time: 2009-2-24 7:56:41
Electronics: DAE4 Sn771
Medium: 850 HEAD
Medium parameters used (interpolated): f = 846.6 MHz; σ = 0.917 mho/m; ε_r = 40.3; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C
Communication System: WCDMA 850 Frequency: 846.6 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

Cheek High/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.889 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 22 V/m; Power Drift = -0.177 dB
Peak SAR (extrapolated) = 1.19 W/kg
SAR(1 g) = 0.740 mW/g; SAR(10 g) = 0.511 mW/g
Maximum value of SAR (measured) = 0.772 mW/g



0 dB = 0.772mW/g

Fig. 1 Left Hand Touch Cheek WCDMA 850MHz CH4233

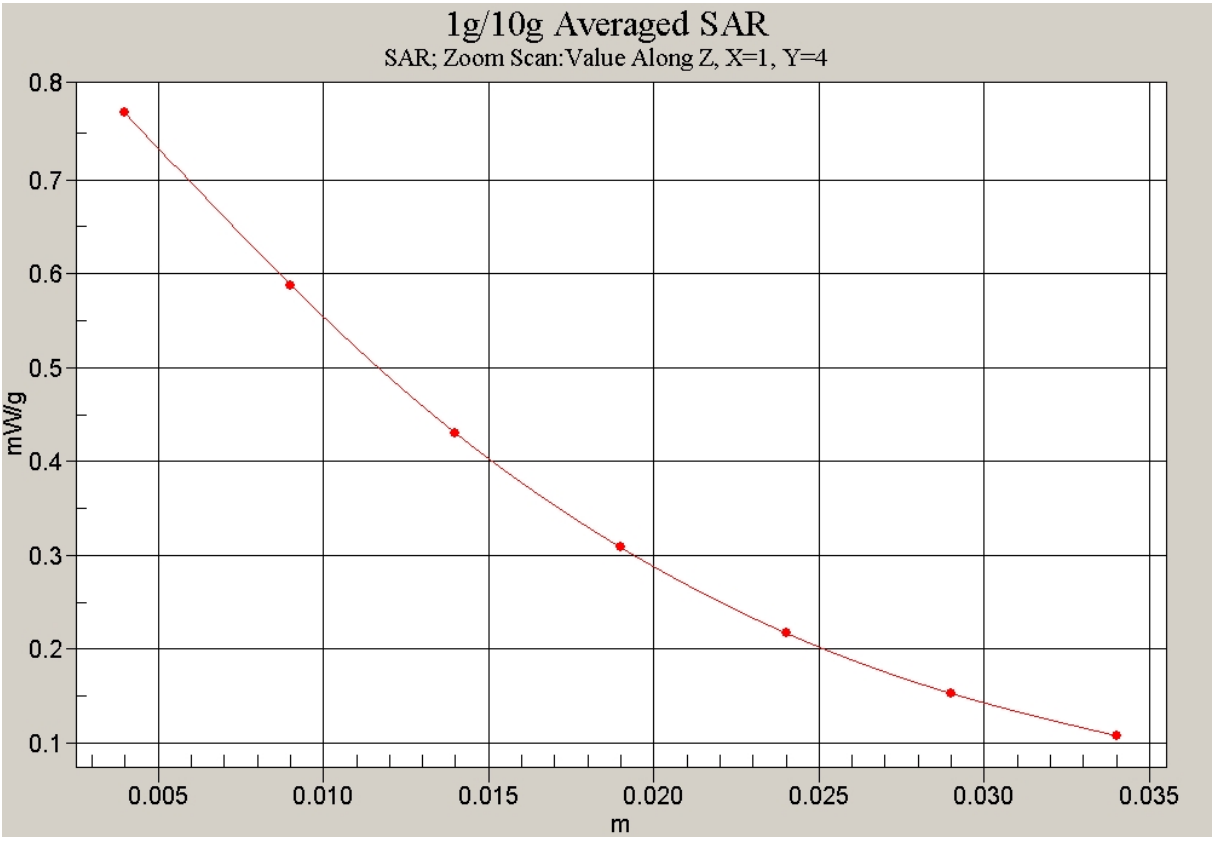
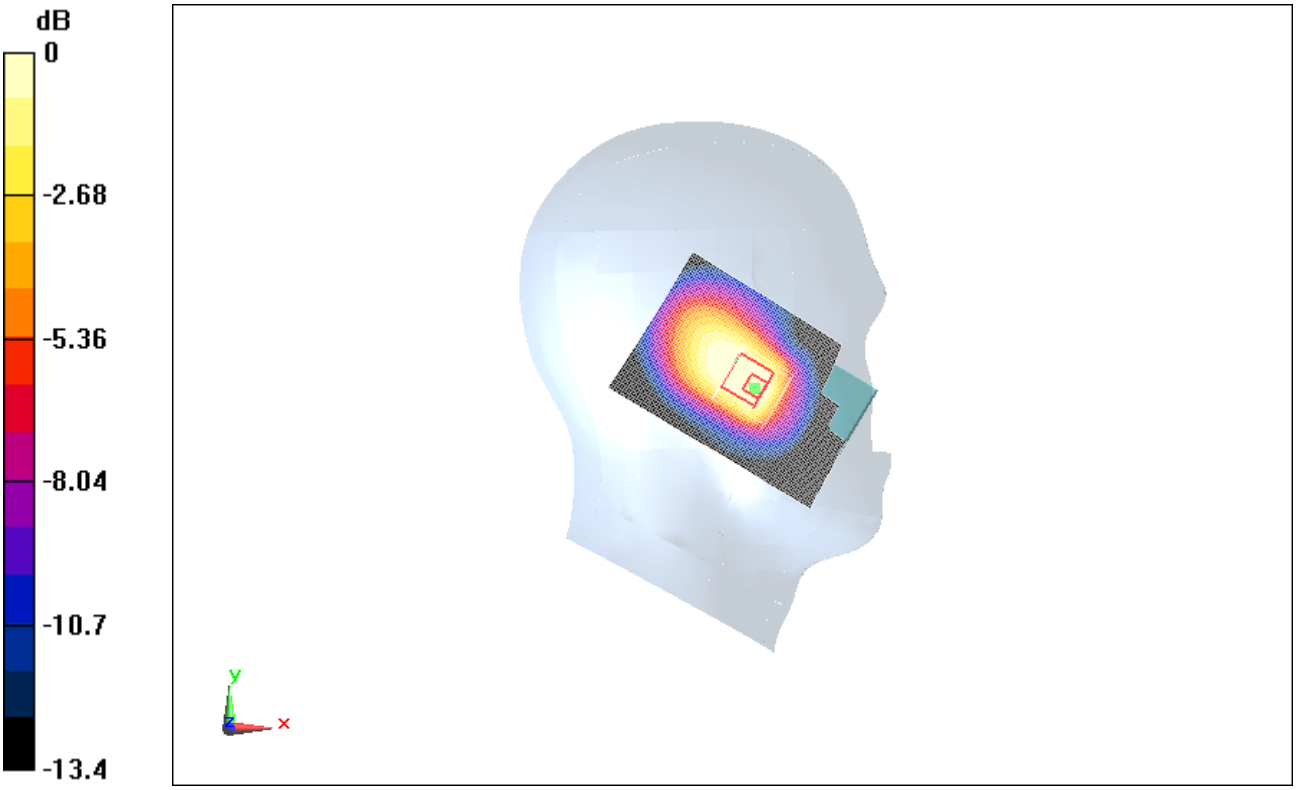


Fig. 2 Z-Scan at power reference point (WCDMA 850MHz CH4233)

WCDMA 850 Left Cheek Middle
Date/Time: 2009-2-24 8:10:32
Electronics: DAE4 Sn771
Medium: 850 HEAD
Medium parameters used (interpolated): f = 836.4 MHz; σ = 0.907 mho/m; ε_r = 40.4; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C
Communication System: WCDMA 850 Frequency: 836.4 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

Cheek Middle/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.15 mW/g

Cheek Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 23.8 V/m; Power Drift = -0.045 dB
Peak SAR (extrapolated) = 1.66 W/kg
SAR(1 g) = 0.947 mW/g; SAR(10 g) = 0.642 mW/g
Maximum value of SAR (measured) = 0.973 mW/g



0 dB = 0.973mW/g

Fig. 3 Left Hand Touch Cheek WCDMA 850MHz CH4182

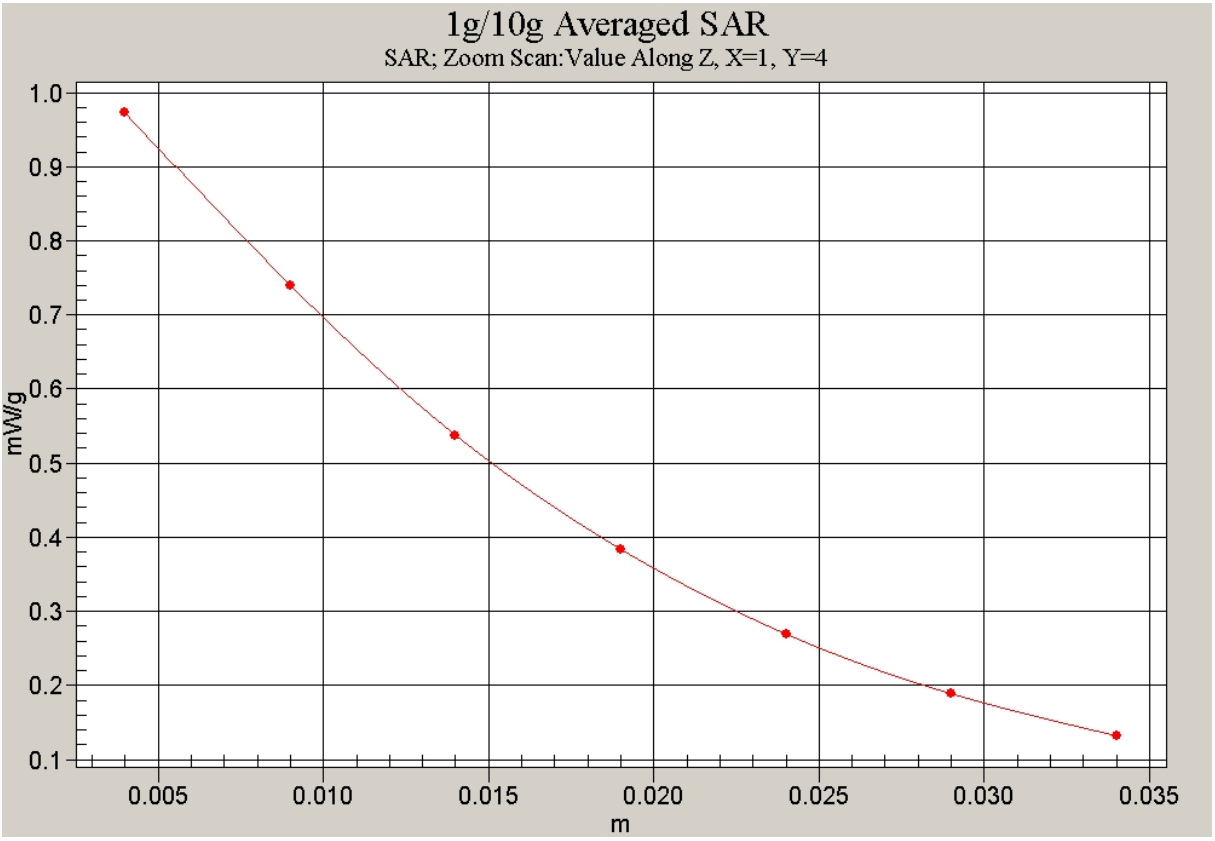
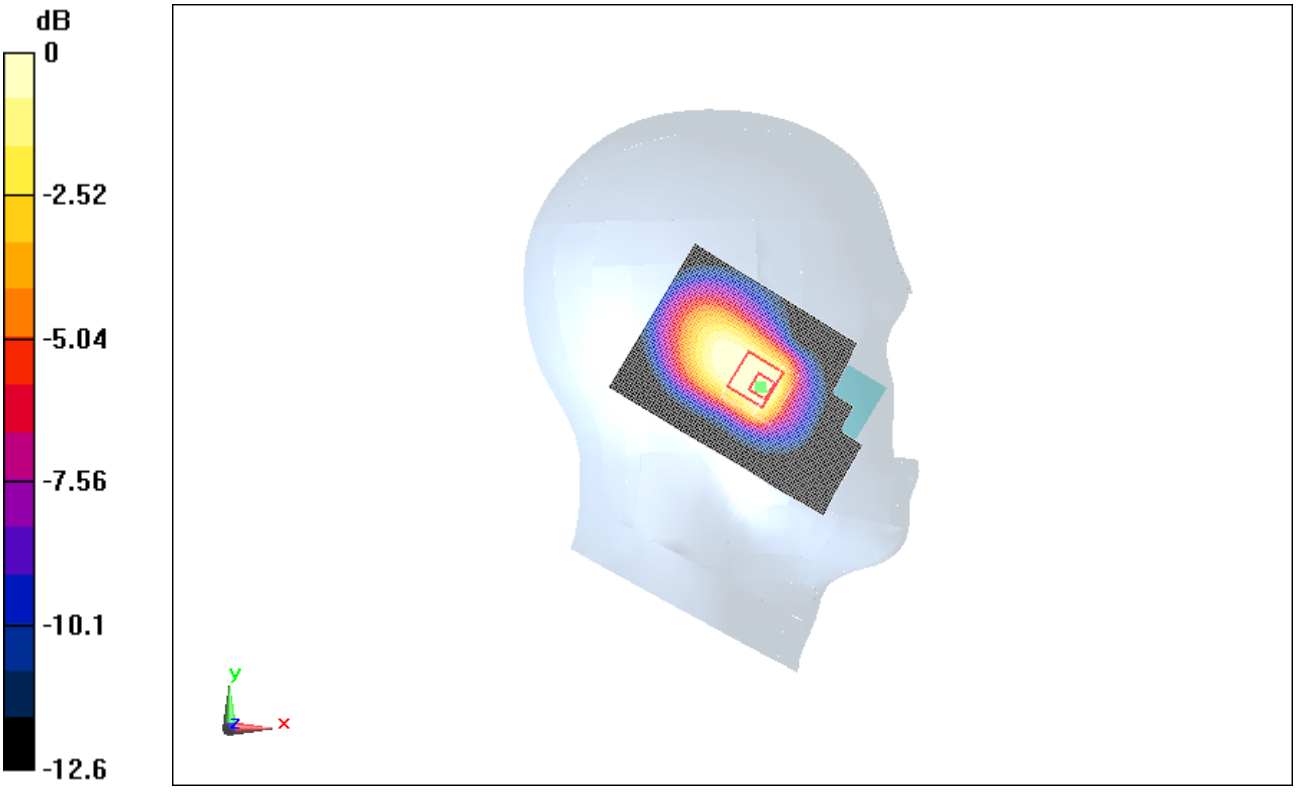


Fig. 4 Z-Scan at power reference point (WCDMA 850MHz CH4182)

WCDMA 850 Left Cheek Low
Date/Time: 2009-2-24 8:24:19
Electronics: DAE4 Sn771
Medium: 850 HEAD
Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.897 mho/m; ε_r = 40.4; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C
Communication System: WCDMA 850 Frequency: 826.4 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

Cheek Low/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.730 mW/g

Cheek Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.4 V/m; Power Drift = -0.00475 dB
Peak SAR (extrapolated) = 1.03 W/kg
SAR(1 g) = 0.574 mW/g; SAR(10 g) = 0.386 mW/g
Maximum value of SAR (measured) = 0.623 mW/g



0 dB = 0.623mW/g

Fig. 5 Left Hand Touch Cheek WCDMA 850MHz CH4132

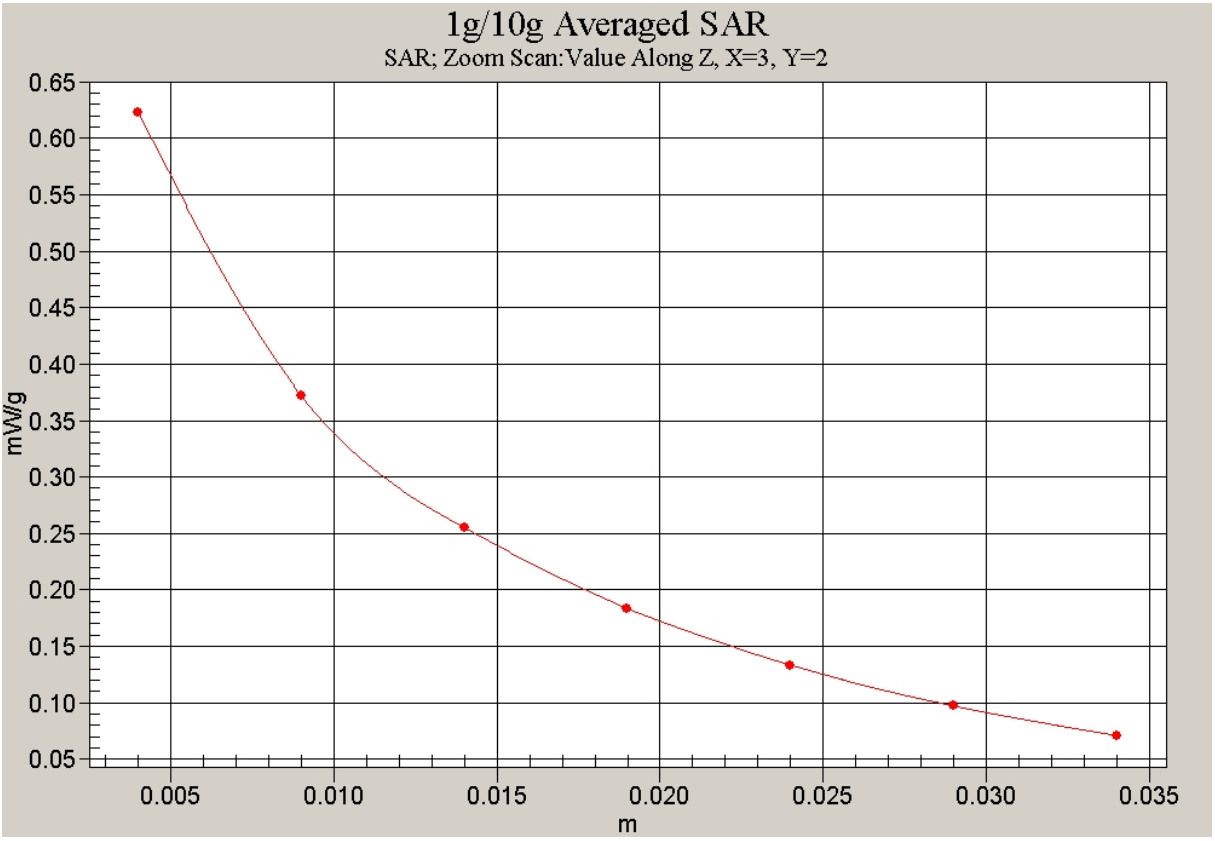
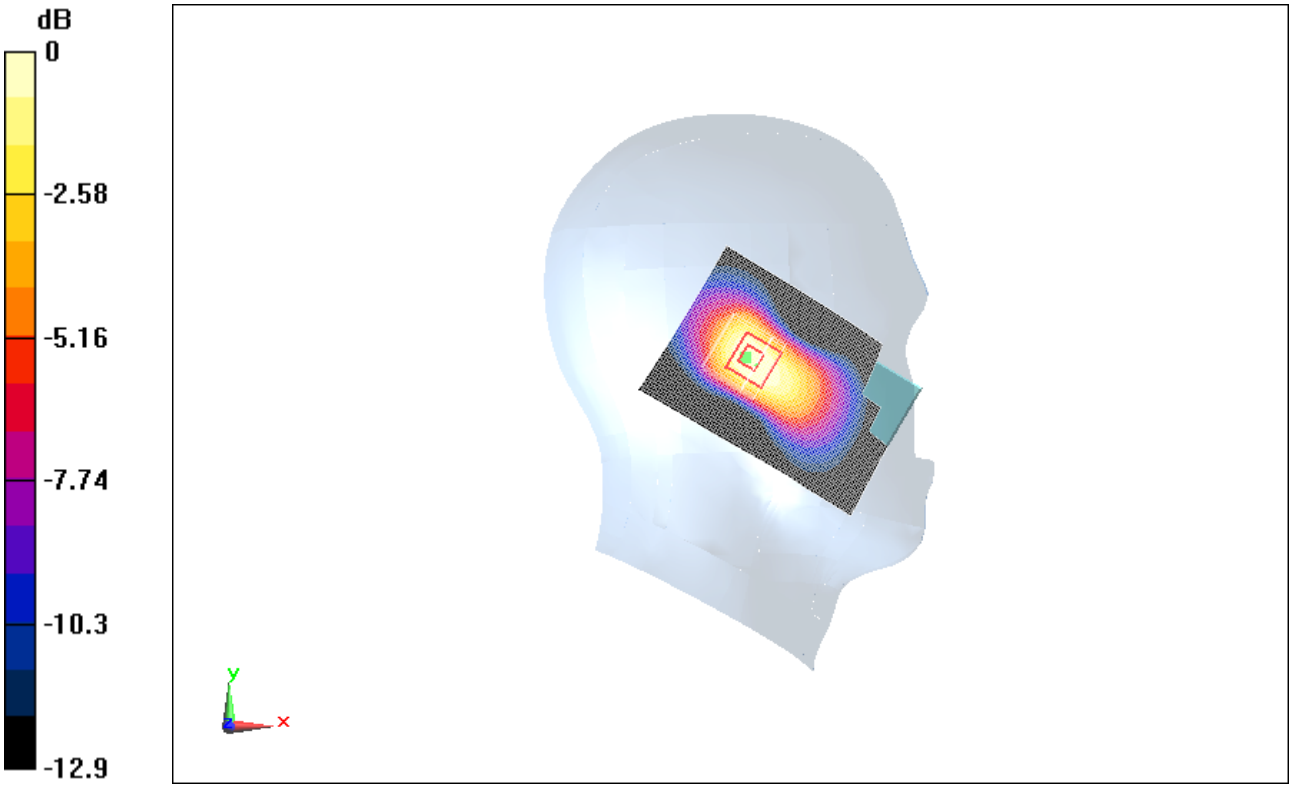


Fig. 6 Z-Scan at power reference point (WCDMA 850MHz CH4132)

WCDMA 850 Left Tilt Middle
Date/Time: 2009-2-24 8:38:44
Electronics: DAE4 Sn771
Medium: 850 HEAD
Medium parameters used (interpolated): f = 836.4 MHz; σ = 0.907 mho/m; ε_r = 40.4; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C
Communication System: WCDMA 850 Frequency: 836.4 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

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

Tilt Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 21 V/m; Power Drift = -0.059 dB
Peak SAR (extrapolated) = 0.922 W/kg
SAR(1 g) = 0.660 mW/g; SAR(10 g) = 0.422 mW/g
Maximum value of SAR (measured) = 0.686 mW/g



0 dB = 0.686mW/g

Fig. 7 Left Hand Tilt 15°WCDMA 850MHz CH4182

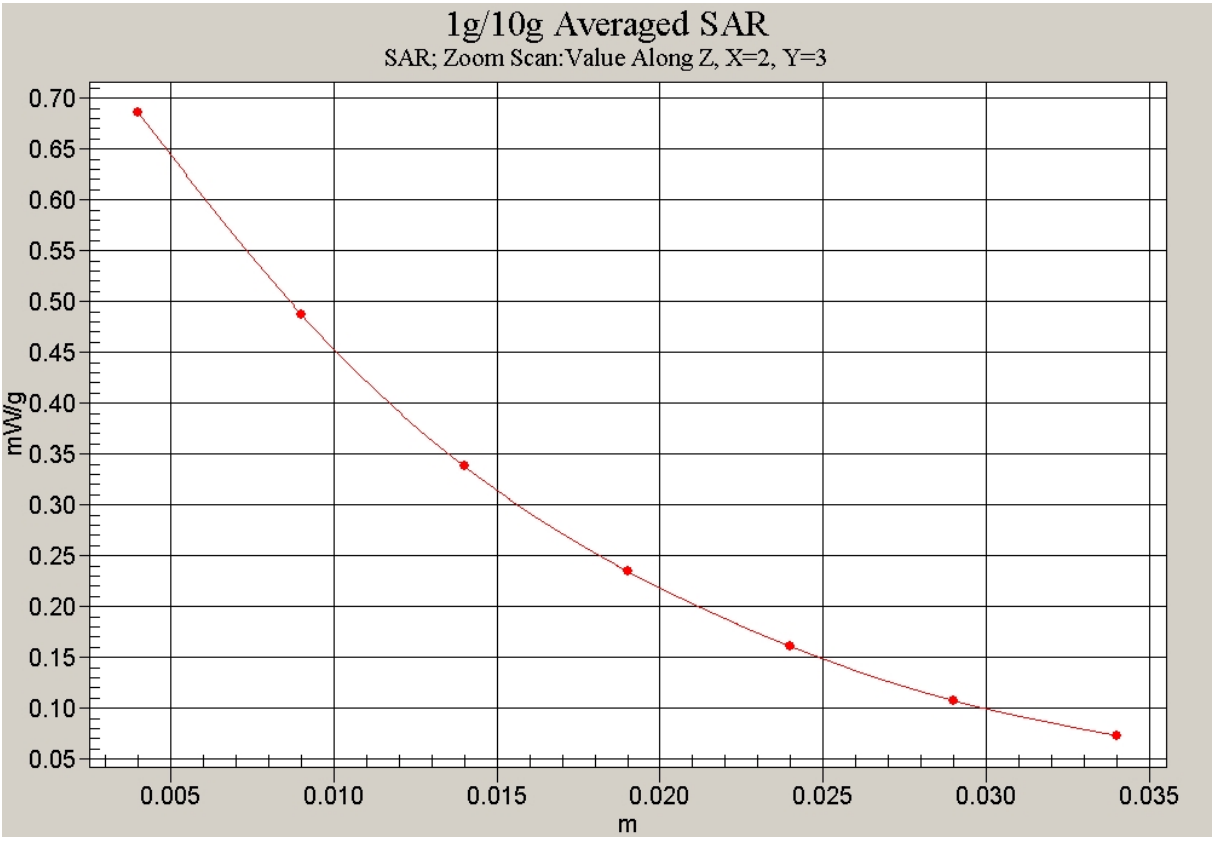


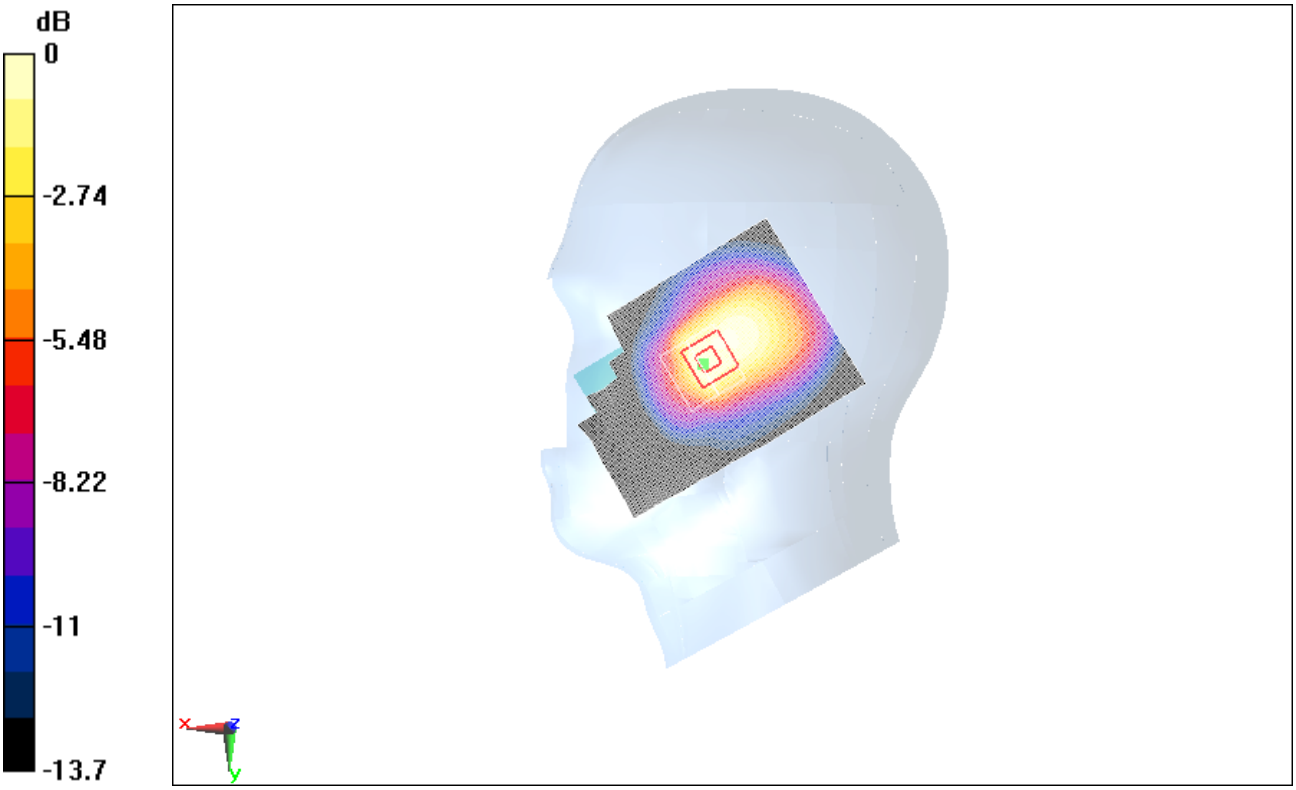
Fig. 8 Z-Scan at power reference point (WCDMA 850MHz CH4182)

WCDMA 850 Right Cheek High

Date/Time: 2009-2-24 15:08:21
Electronics: DAE4 Sn771
Medium: 850 HEAD
Medium parameters used (interpolated): f = 846.6 MHz; σ = 0.917 mho/m; ε_r = 40.3; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C
Communication System: WCDMA 850 Frequency: 846.6 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

Cheek High/Area Scan (101x141x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.868 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 23 V/m; Power Drift = -0.103 dB
Peak SAR (extrapolated) = 1.11 W/kg
SAR(1 g) = 0.747 mW/g; SAR(10 g) = 0.494 mW/g
Maximum value of SAR (measured) = 0.794 mW/g



0 dB = 0.794mW/g

Fig. 9 Left Hand Touch Cheek WCDMA 850MHz CH4233

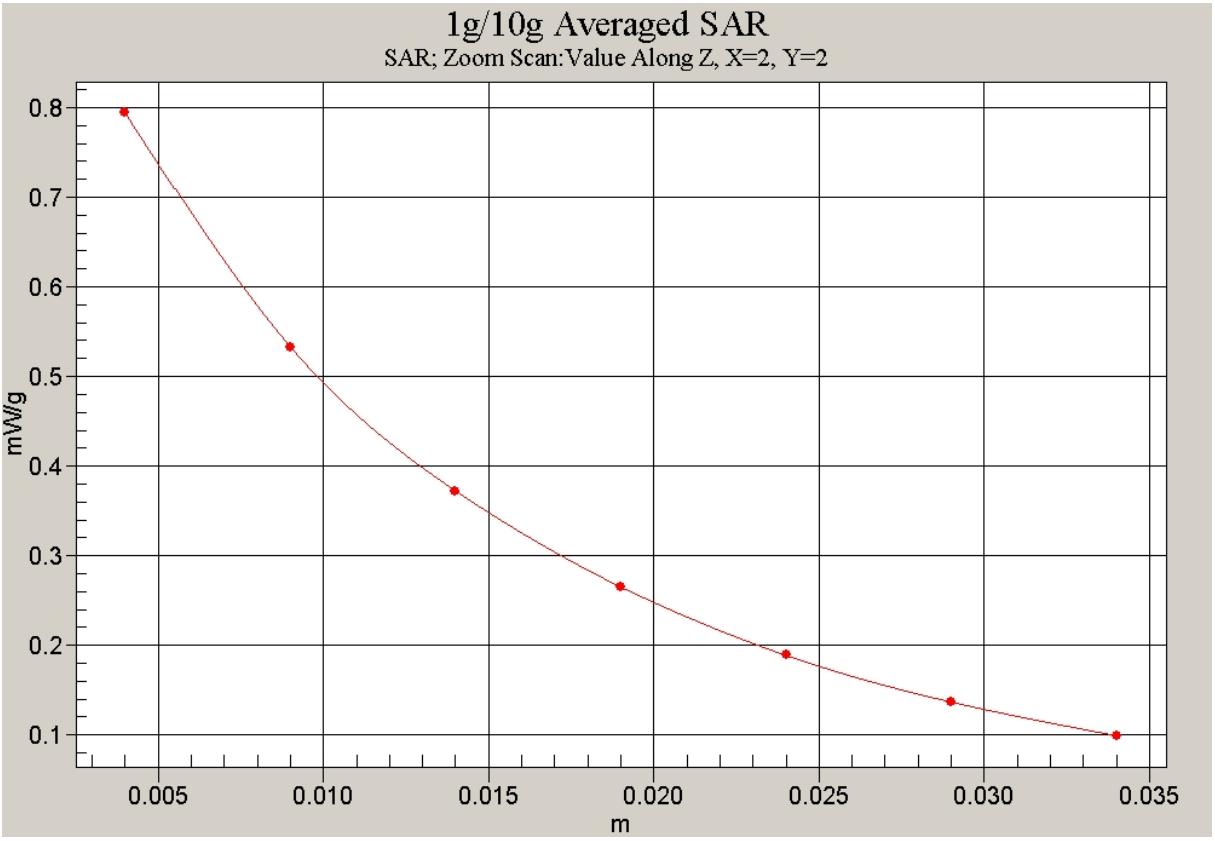
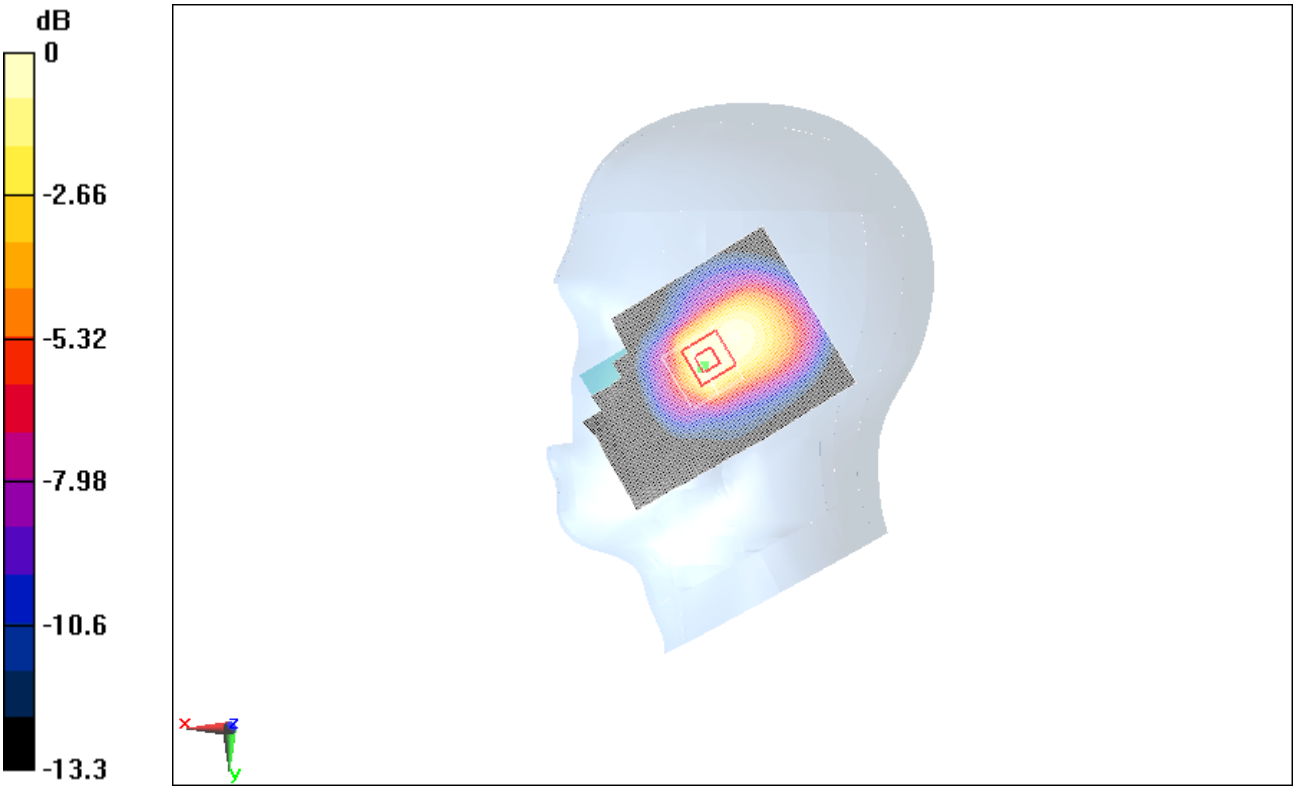


Fig. 10 Z-Scan at power reference point (WCDMA 850MHz CH4233)

WCDMA 850 Right Cheek Middle
Date/Time: 2009-2-24 8:52:30
Electronics: DAE4 Sn771
Medium: 850 HEAD
Medium parameters used (interpolated): f = 836.4 MHz; σ = 0.907 mho/m; ε_r = 40.4; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C
Communication System: WCDMA 850 Frequency: 836.4 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

Cheek Middle/Area Scan (101x141x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.09 mW/g

Cheek Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 25.2 V/m; Power Drift = 0.022 dB
Peak SAR (extrapolated) = 1.4 W/kg
SAR(1 g) = 0.926 mW/g; SAR(10 g) = 0.611 mW/g
Maximum value of SAR (measured) = 0.973 mW/g



0 dB = 0.973mW/g

Fig.11 Right Hand Touch Cheek WCDMA 850MHz CH4182

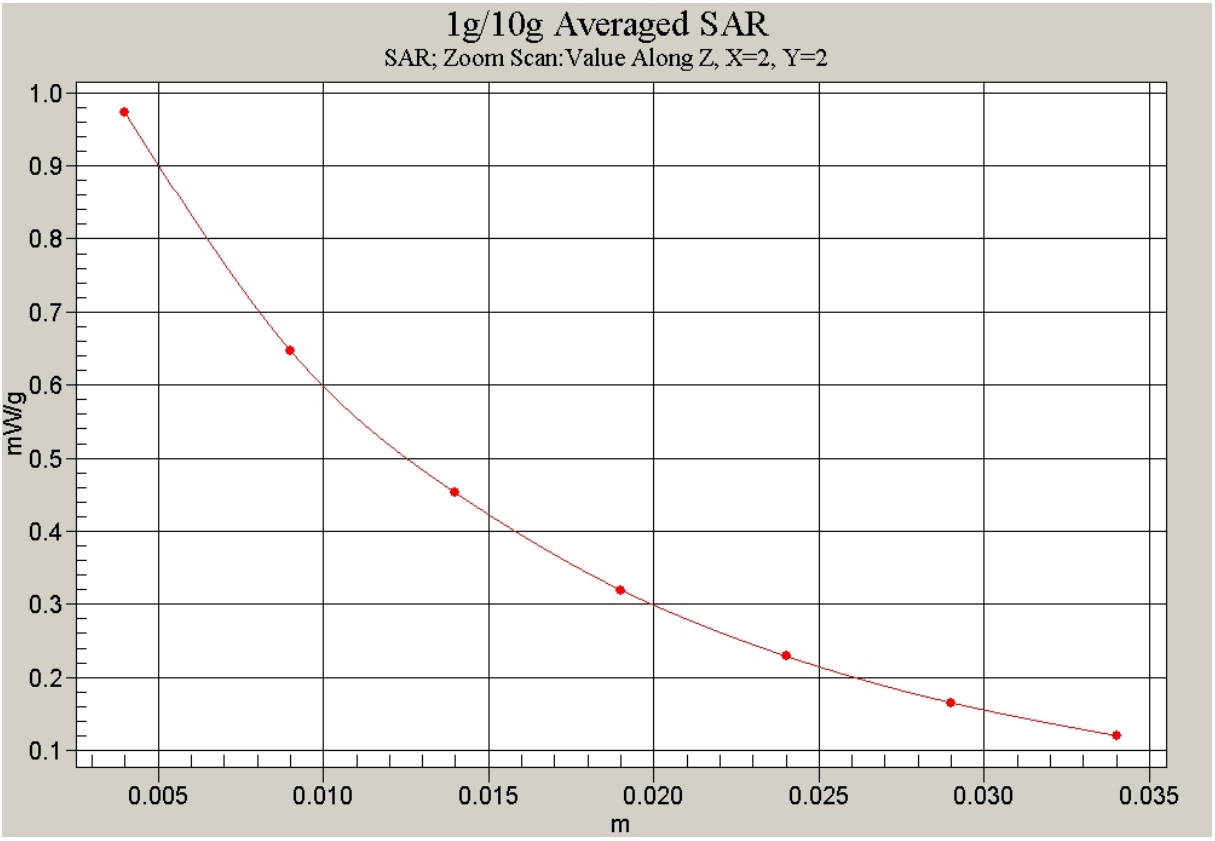


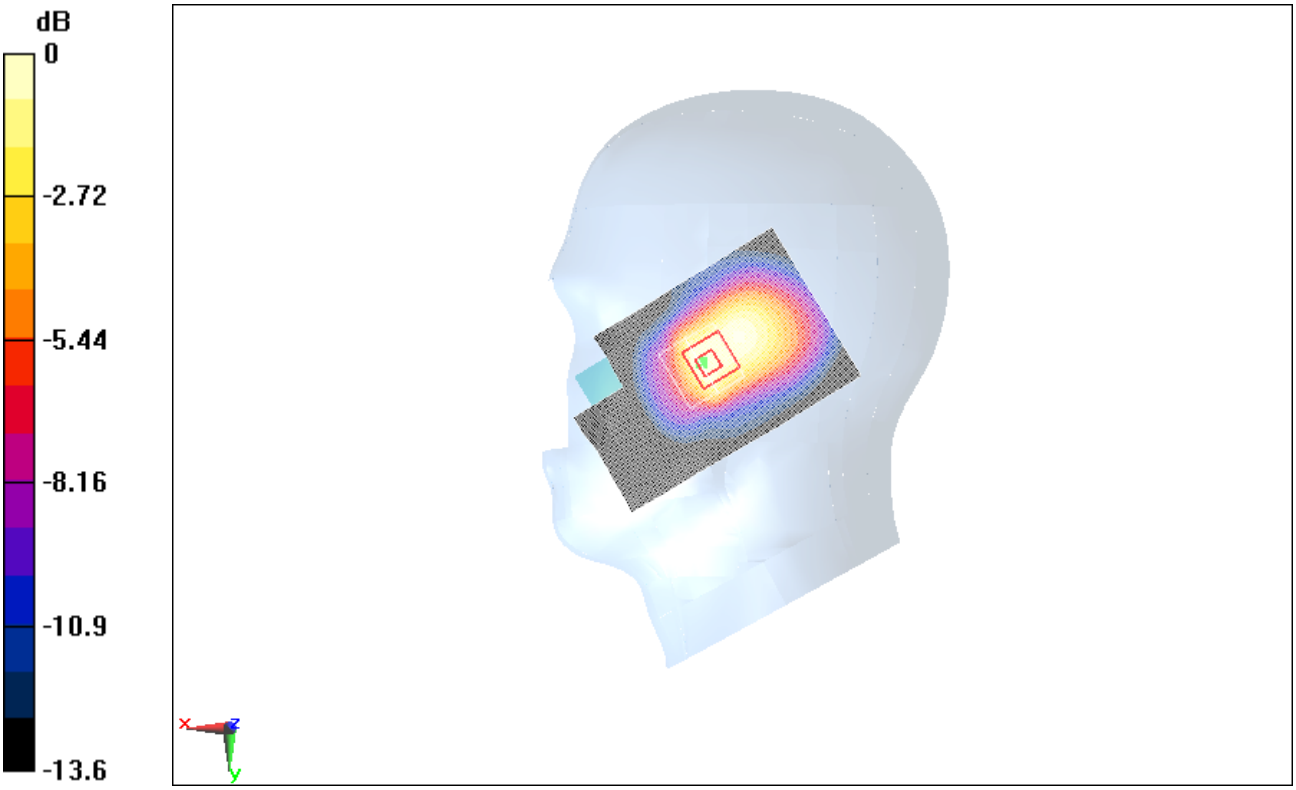
Fig. 12 Z-Scan at power reference point (WCDMA 850MHz CH4182)

WCDMA 850 Right Cheek Low

Date/Time: 2009-2-24 15:24:10
Electronics: DAE4 Sn771
Medium: 850 HEAD
Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.897 mho/m; ε_r = 40.4; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C
Communication System: WCDMA 850 Frequency: 826.4 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

Cheek Low/Area Scan (91x141x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.706 mW/g

Cheek Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.8 V/m; Power Drift = -0.023 dB
Peak SAR (extrapolated) = 0.929 W/kg
SAR(1 g) = 0.574 mW/g; SAR(10 g) = 0.372 mW/g
Maximum value of SAR (measured) = 0.625 mW/g



0 dB = 0.625mW/g

Fig. 13 Left Hand Touch Cheek WCDMA 850MHz CH4132

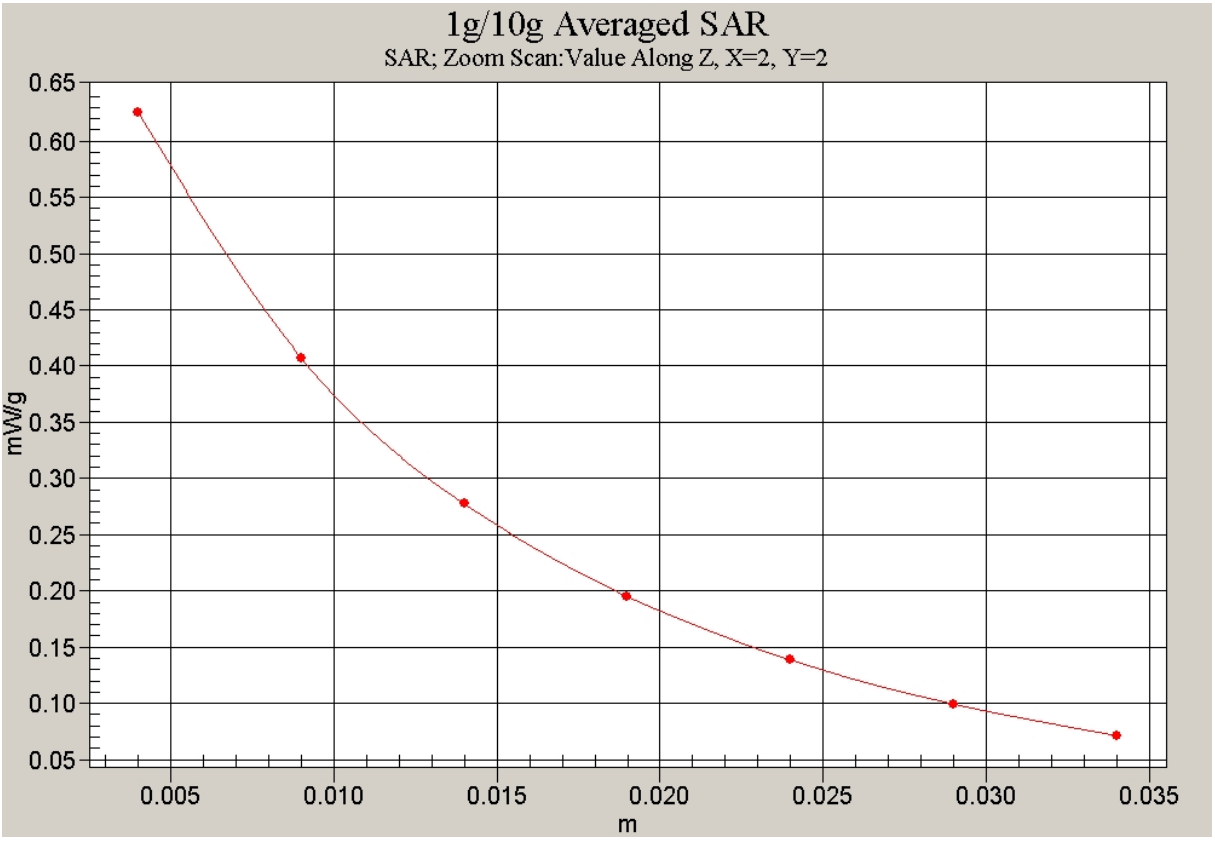
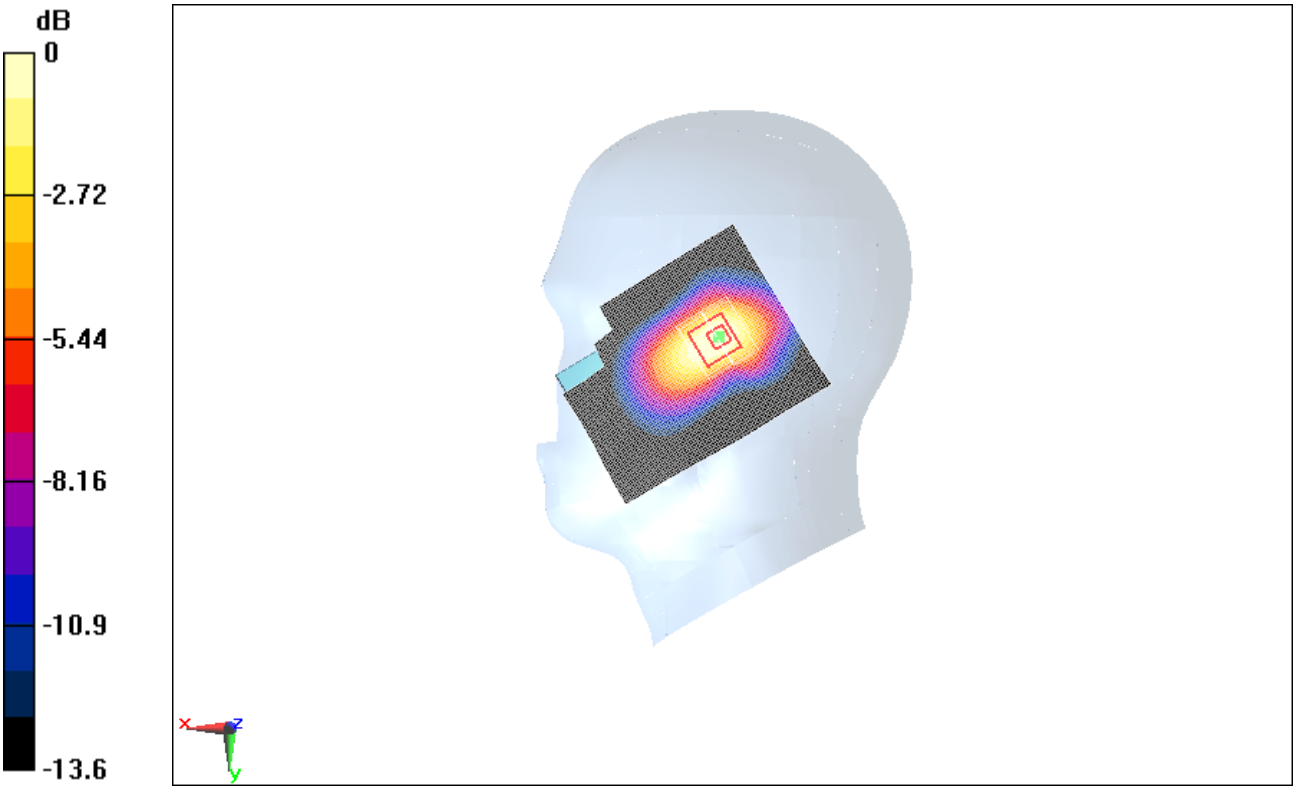


Fig. 14 Z-Scan at power reference point (WCDMA 850MHz CH4132)

WCDMA 850 Right Tilt Middle
Date/Time: 2009-2-24 9:06:26
Electronics: DAE4 Sn771
Medium: 850 HEAD
Medium parameters used (interpolated): f = 836.4 MHz; σ = 0.907 mho/m; ε_r = 40.4; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C
Communication System: WCDMA 850 Frequency: 836.4 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

Tilt Middle/Area Scan (71x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.825 mW/g

Tilt Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 23.4 V/m; Power Drift = 0.159 dB
Peak SAR (extrapolated) = 0.955 W/kg
SAR(1 g) = 0.678 mW/g; SAR(10 g) = 0.435 mW/g
Maximum value of SAR (measured) = 0.729 mW/g



0 dB = 0.729mW/g

Fig. 15 Right Hand Tilt 15°WCDMA 850MHz CH4182

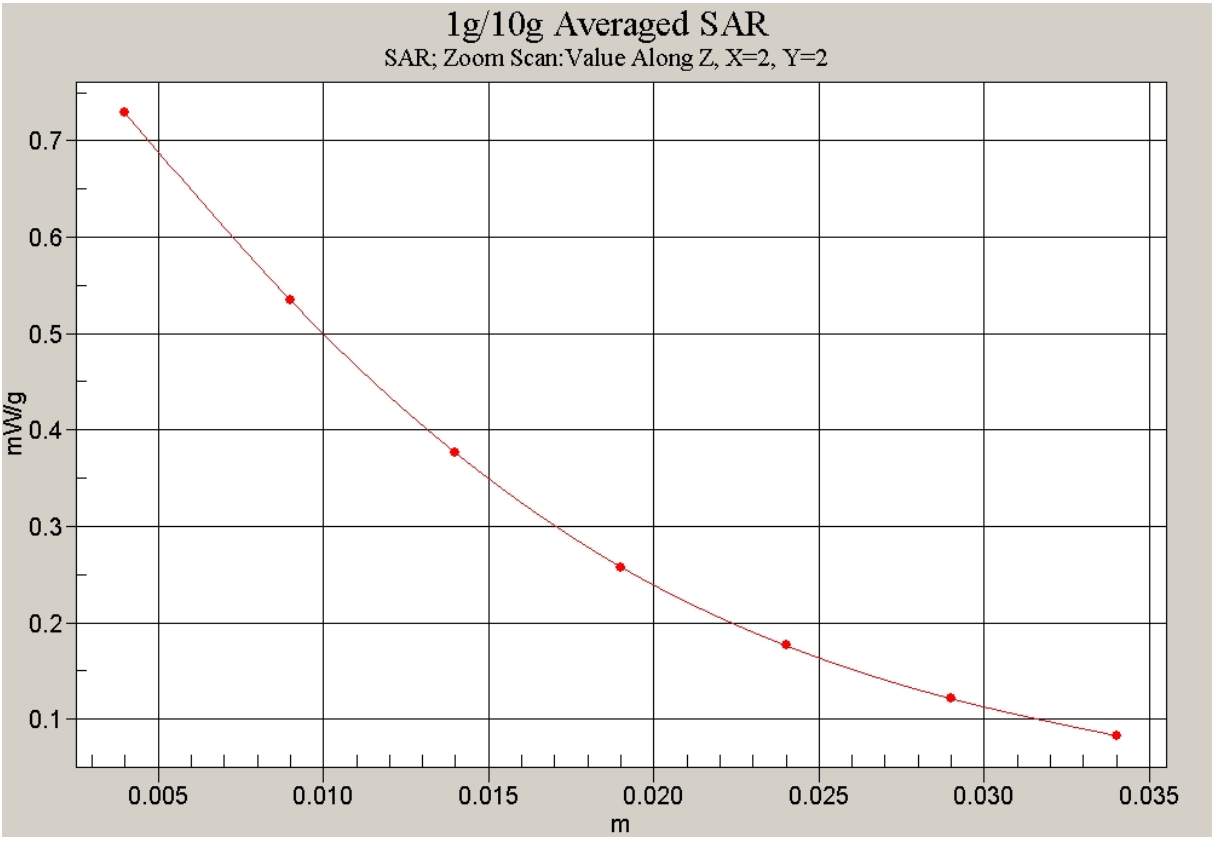
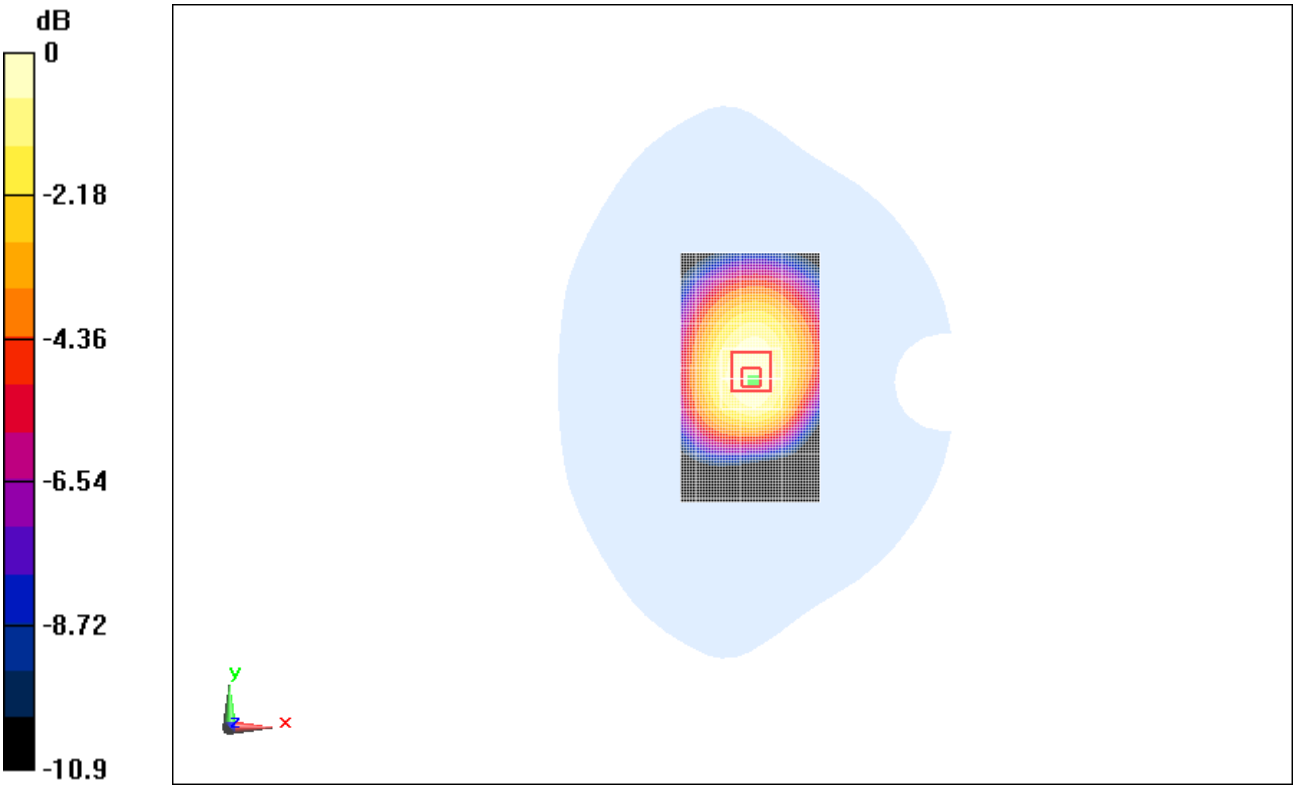


Fig. 16 Z-Scan at power reference point (WCDMA 850MHz CH4182)

WCDMA 850 Body Toward Ground High
Date/Time: 2009-2-24 9:23:09
Electronics: DAE4 Sn771
Medium: 850 Body
Medium parameters used (interpolated): f = 846.6 MHz; σ = 1.00 mho/m; ε_r = 53.7; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C
Communication System: WCDMA 850 Frequency: 846.6 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

Towards Ground High/Area Scan (51x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.669 mW/g

Towards Ground High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 25.6 V/m; Power Drift = 0.054 dB
Peak SAR (extrapolated) = 0.816 W/kg
SAR(1 g) = 0.614 mW/g; SAR(10 g) = 0.440 mW/g
Maximum value of SAR (measured) = 0.654 mW/g



0 dB = 0.654mW/g

Fig. 17 WCDMA850 MHz, Body, Towards Ground, CH4233

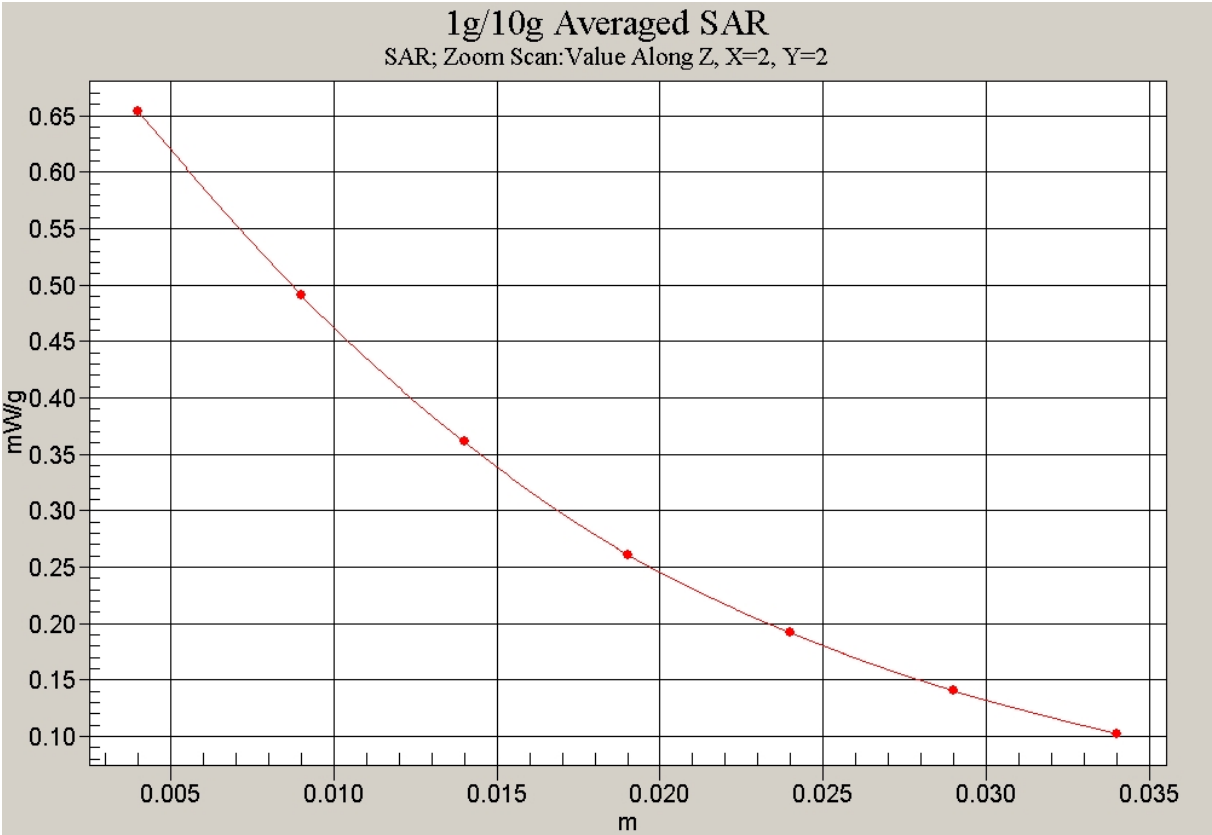
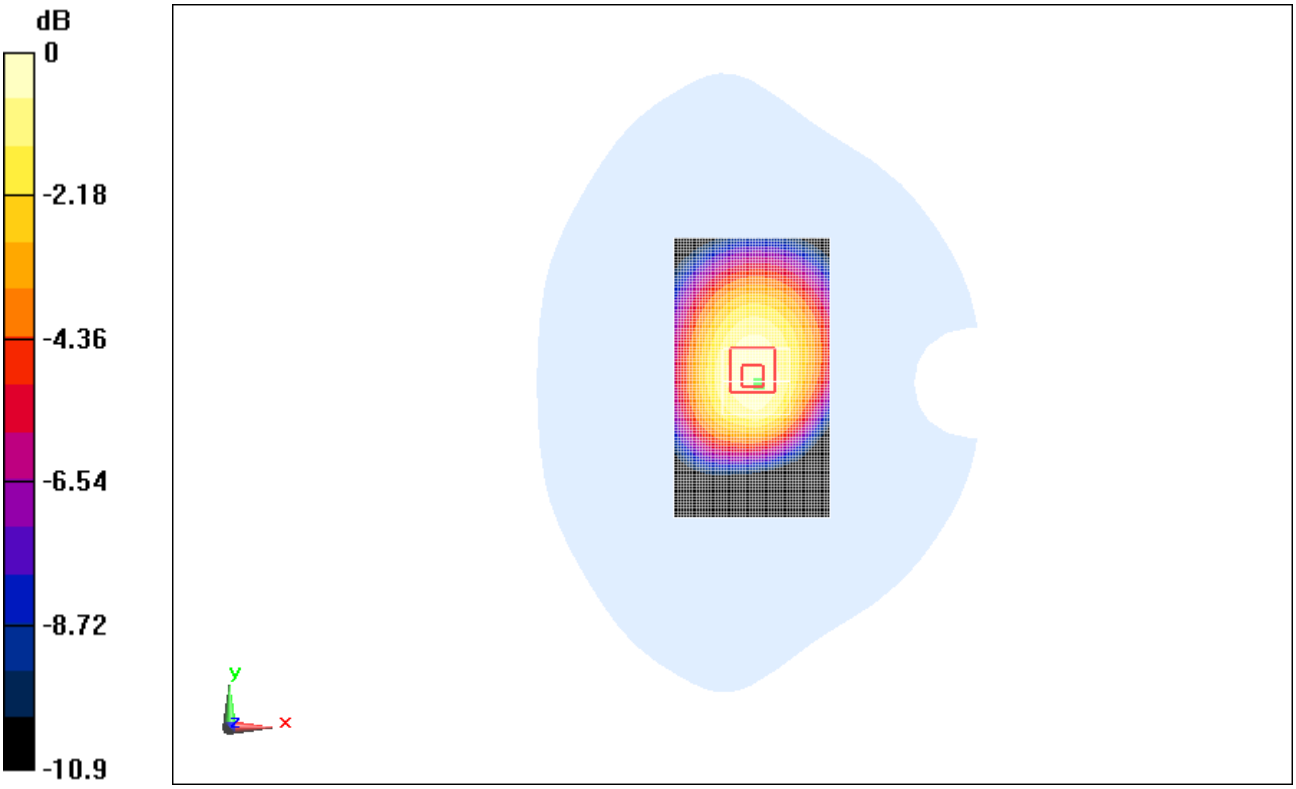


Fig. 18 Z-Scan at power reference point (WCDMA850 MHz, Body, Towards Ground, CH4233)

WCDMA 850 Body Toward Ground Middle
Date/Time: 2009-2-24 9:37:11
Electronics: DAE4 Sn771
Medium: 850 Body
Medium parameters used (interpolated): f = 836.4 MHz; σ = 0.99 mho/m; ε_r = 53.8; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C
Communication System: WCDMA 850 Frequency: 836.4 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

Towards Ground Middle/Area Scan (51x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.608 mW/g

Towards Ground Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.6 V/m; Power Drift = 0.00275 dB
Peak SAR (extrapolated) = 0.747 W/kg
SAR(1 g) = 0.569 mW/g; SAR(10 g) = 0.408 mW/g
Maximum value of SAR (measured) = 0.603 mW/g



0 dB = 0.603mW/g

Fig. 19 WCDMA850 MHz, Body, Towards Ground, CH4182

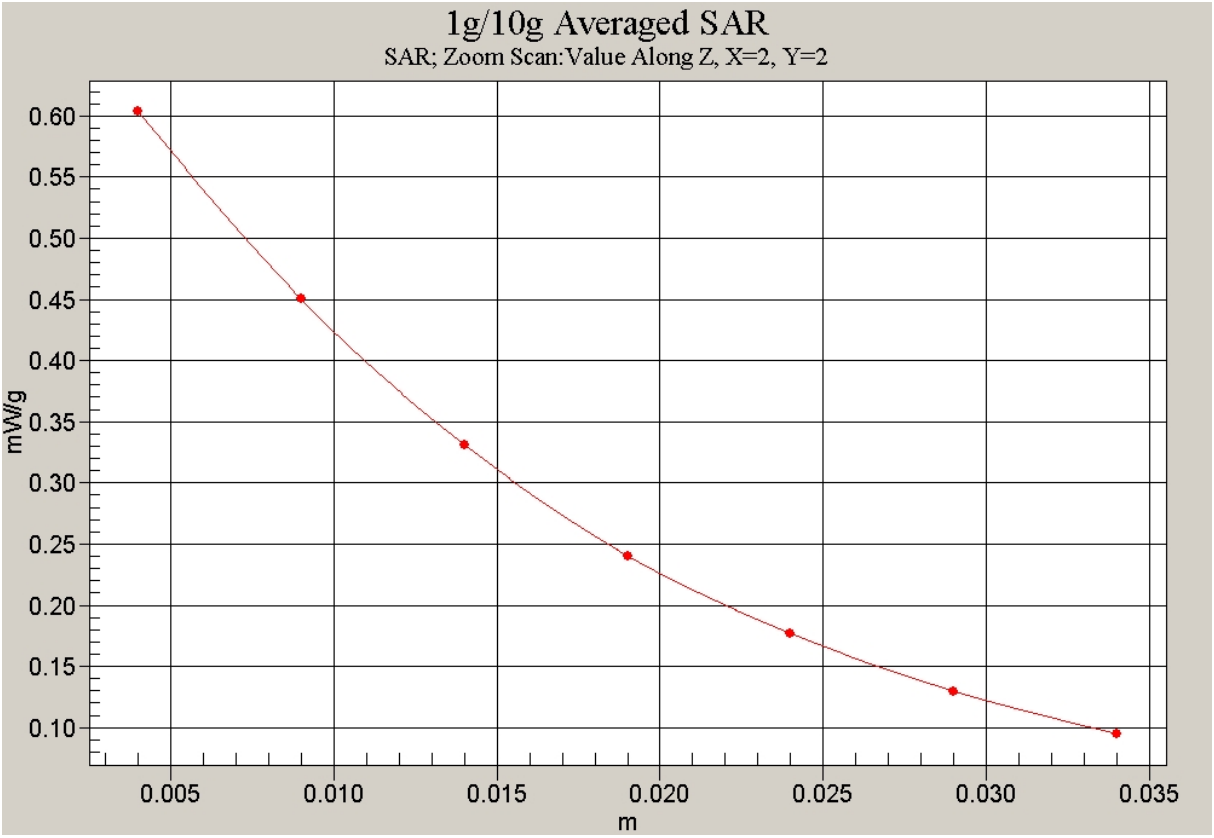
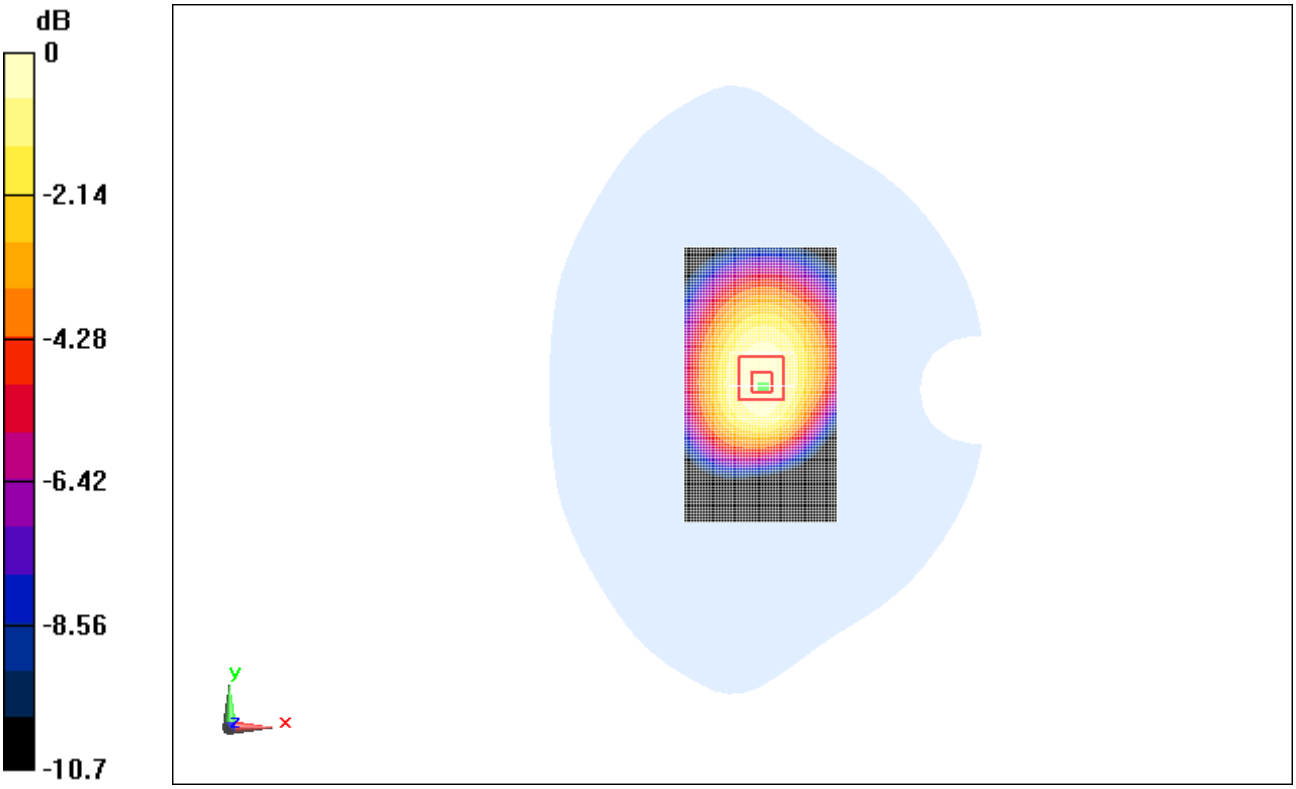


Fig. 20 Z-Scan at power reference point (WCDMA850 MHz, Body, Towards Ground, CH4182)

WCDMA 850 Body Toward Ground Low
Date/Time: 2009-2-24 9:51:22
Electronics: DAE4 Sn771
Medium: 850 Body
Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.975 mho/m; ε_r = 53.9; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C
Communication System: WCDMA 850 Frequency: 826.4 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

Towards Ground Low/Area Scan (51x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.610 mW/g

Towards Ground Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.8 V/m; Power Drift = 0.023 dB
Peak SAR (extrapolated) = 0.743 W/kg
SAR(1 g) = 0.570 mW/g; SAR(10 g) = 0.410 mW/g
Maximum value of SAR (measured) = 0.604 mW/g



0 dB = 0.604mW/g

Fig. 21 WCDMA850 MHz, Body, Towards Ground, CH4132

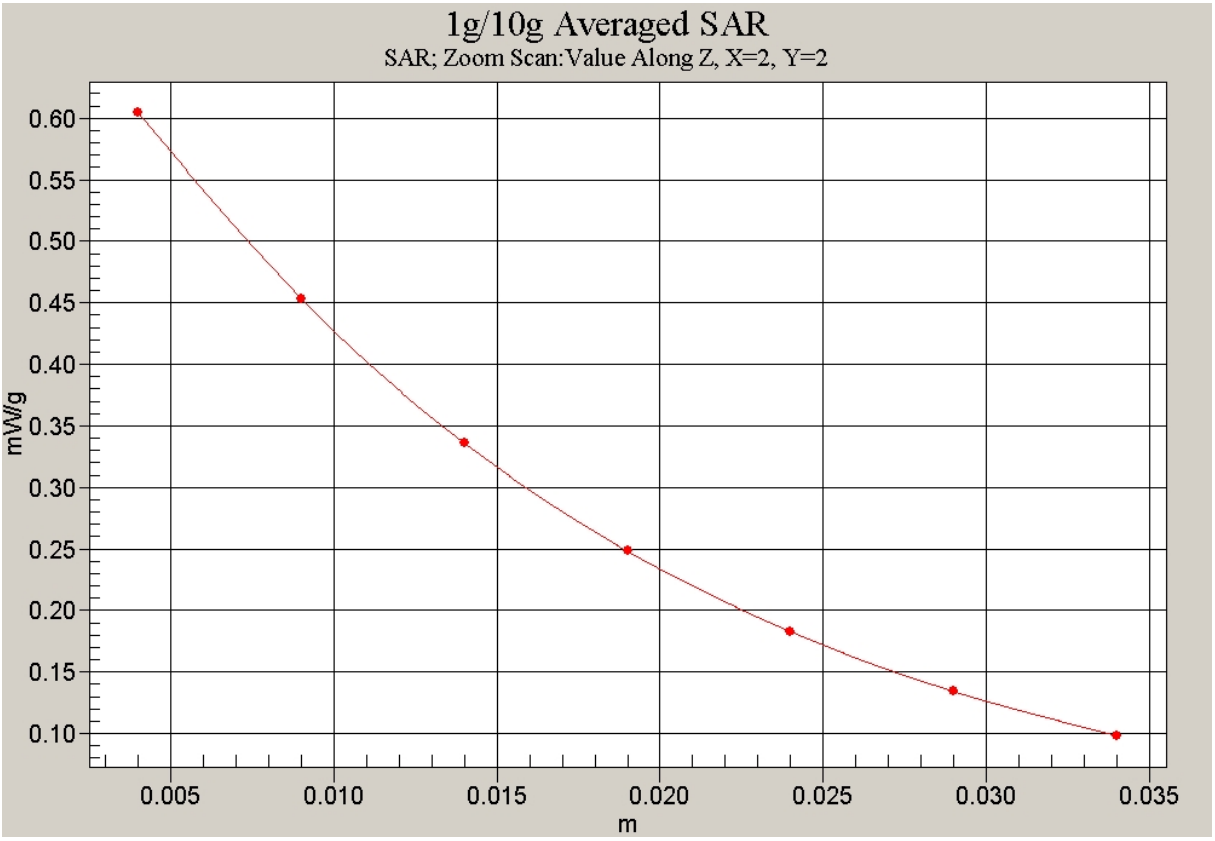
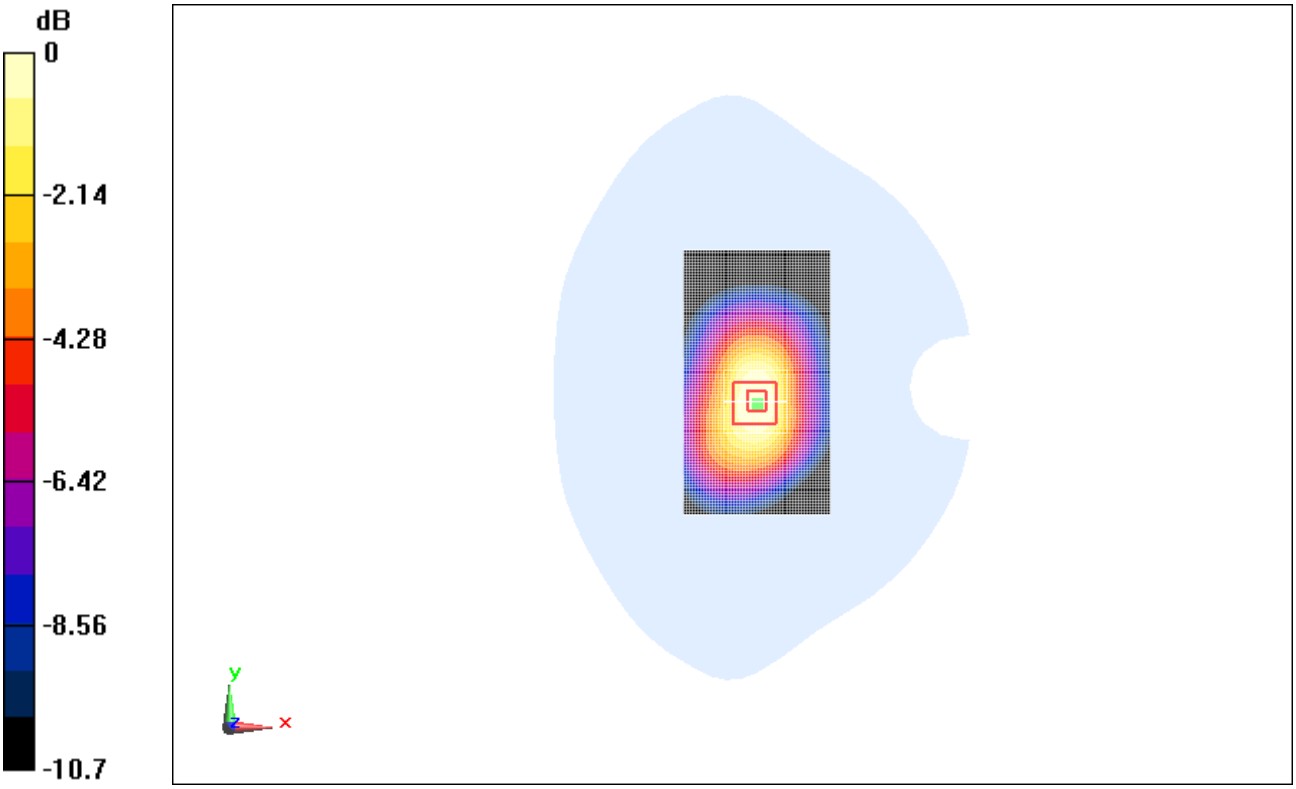


Fig. 22 Z-Scan at power reference point (WCDMA850 MHz, Body, Towards Ground, CH4132)

WCDMA 850 Body Toward Phantom High
Date/Time: 2009-2-24 10:05:57
Electronics: DAE4 Sn771
Medium: 850 Body
Medium parameters used (interpolated): f = 846.6 MHz; σ = 1.00 mho/m; ε_r = 53.7; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C
Communication System: WCDMA 850 Frequency: 846.6 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

Towards Phantom High/Area Scan (51x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.386 mW/g

Towards Phantom High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.5 V/m; Power Drift = -0.088 dB
Peak SAR (extrapolated) = 0.422 W/kg
SAR(1 g) = 0.343 mW/g; SAR(10 g) = 0.241 mW/g
Maximum value of SAR (measured) = 0.366 mW/g



0 dB = 0.366mW/g

Fig. 23 WCDMA850 MHz, Body, Towards Phantom, CH4233

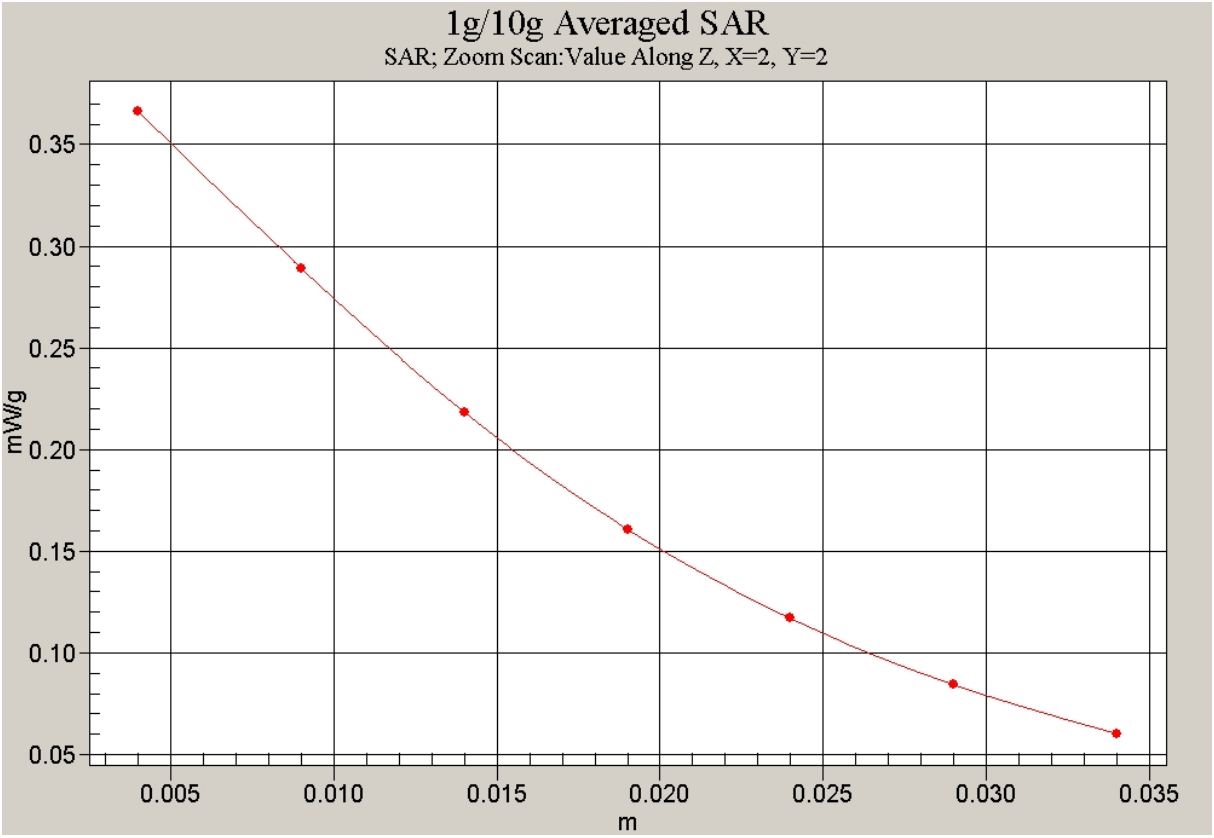
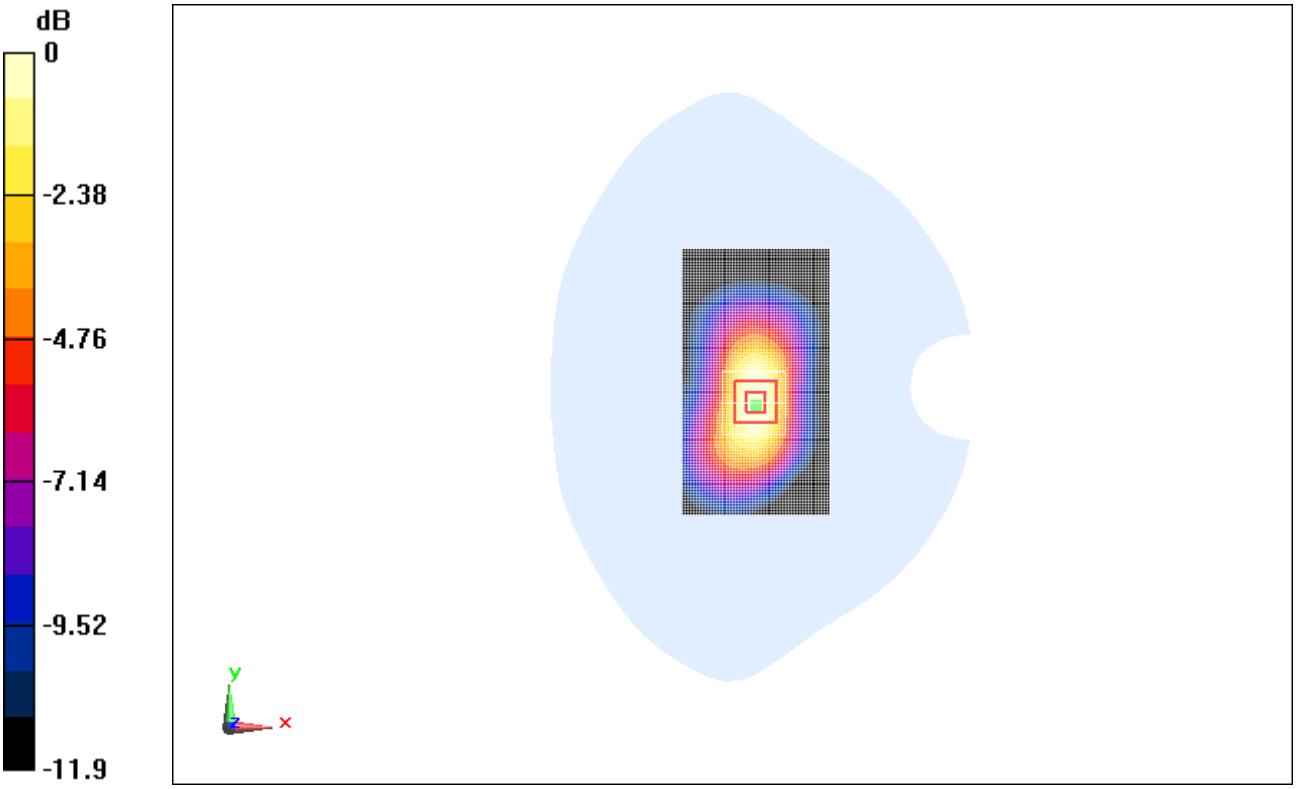


Fig. 24 Z-Scan at power reference point(WCDMA850 MHz, Body, Towards Phantom,CH4233)

WCDMA 850 Body Toward Phantom Middle
Date/Time: 2009-2-24 10:19:31
Electronics: DAE4 Sn771
Medium: 850 Body
Medium parameters used (interpolated): f = 836.4 MHz; σ = 0.99 mho/m; ε_r = 53.8; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C
Communication System: WCDMA 850 Frequency: 836.4 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

Towards Phantom Middle/Area Scan (51x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.453 mW/g

Towards Phantom Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 20 V/m; Power Drift = 0.106 dB
Peak SAR (extrapolated) = 0.508 W/kg
SAR(1 g) = 0.390 mW/g; SAR(10 g) = 0.258 mW/g
Maximum value of SAR (measured) = 0.420 mW/g



0 dB = 0.420mW/g

Fig. 25 WCDMA850 MHz, Body, Towards Phantom, CH4182

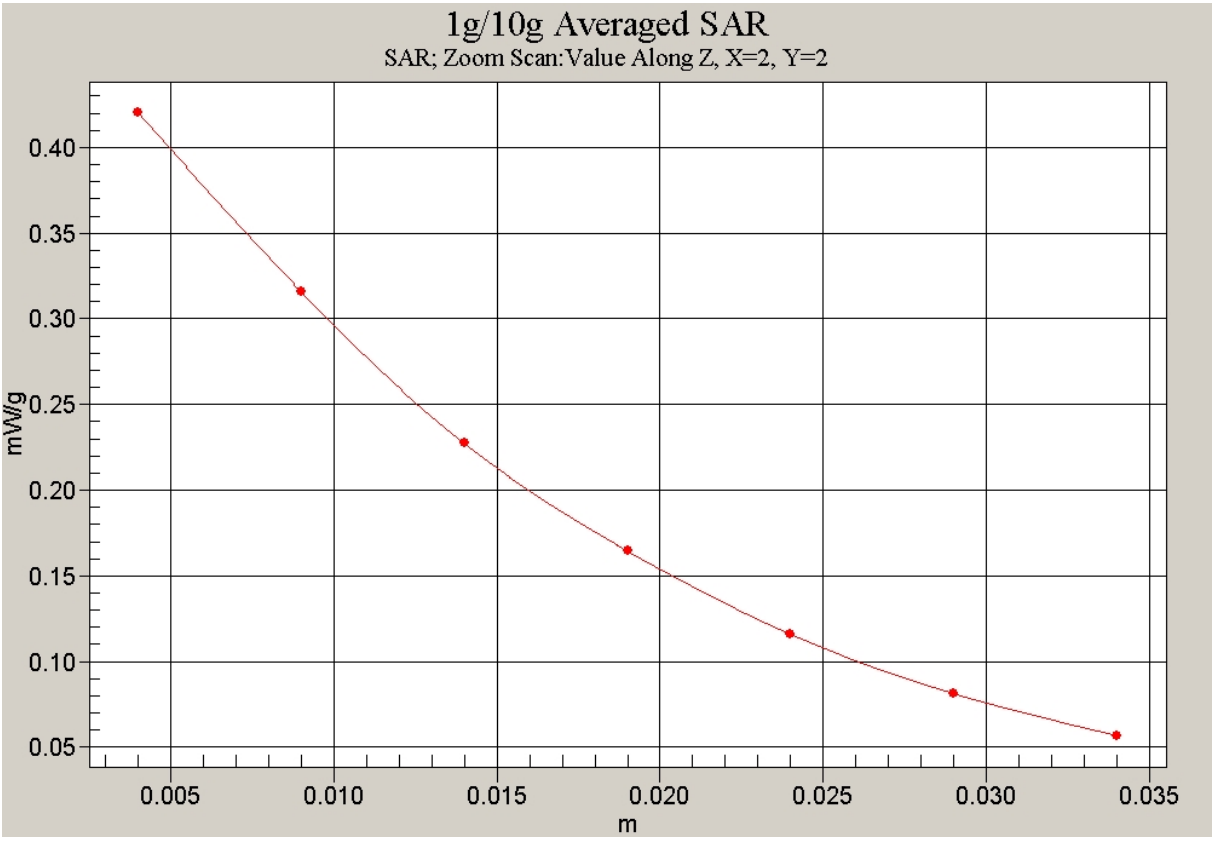
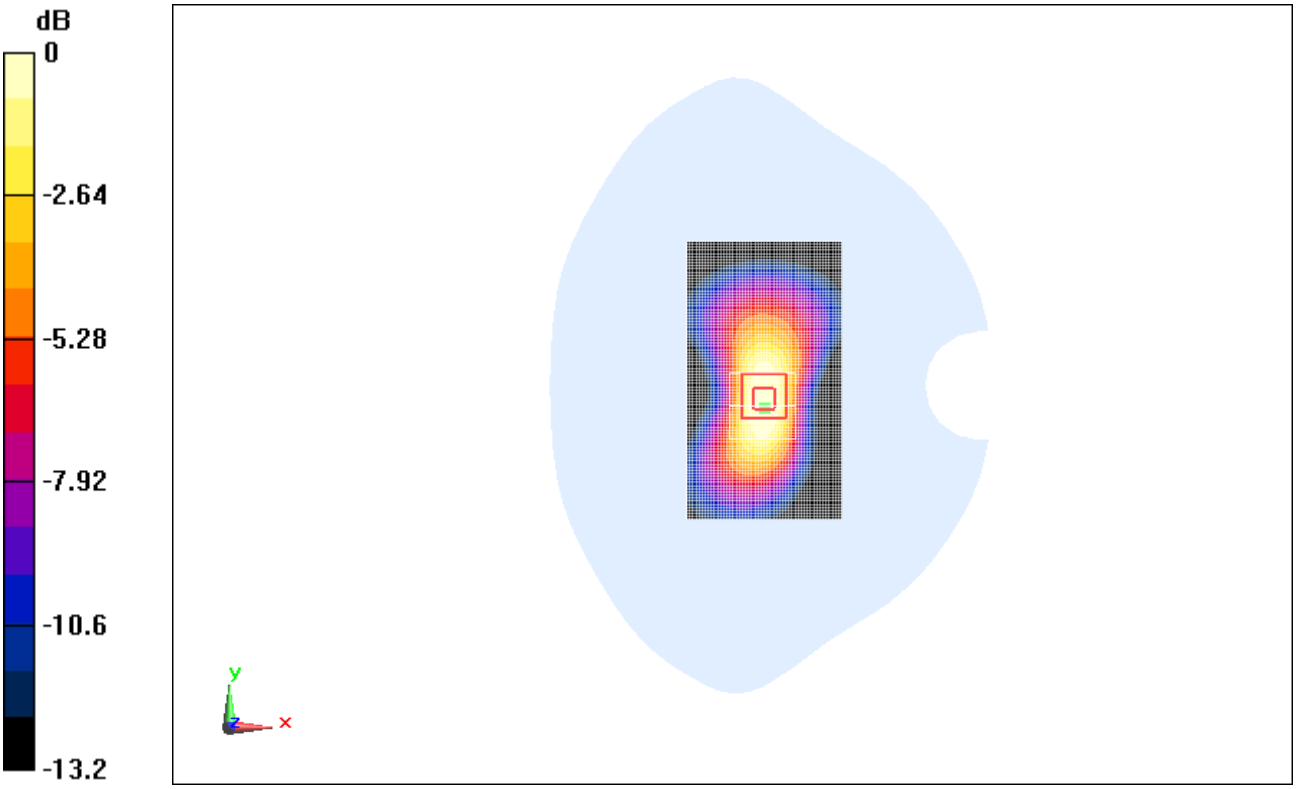


Fig. 26 Z-Scan at power reference point(WCDMA850 MHz, Body, Towards Phantom,CH4182)

WCDMA 850 Body Toward Phantom Low
Date/Time: 2009-2-24 10:33:28
Electronics: DAE4 Sn771
Medium: 850 Body
Medium parameters used (interpolated): f = 826.4 MHz; σ = 0.975 mho/m; ε_r = 53.9; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C
Communication System: WCDMA 850 Frequency: 826.4 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

Towards Phantom Low/Area Scan (51x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.313 mW/g

Towards Phantom Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.2 V/m; Power Drift = -0.011 dB
Peak SAR (extrapolated) = 0.351 W/kg
SAR(1 g) = 0.247 mW/g; SAR(10 g) = 0.153 mW/g
Maximum value of SAR (measured) = 0.264 mW/g



0 dB = 0.264mW/g

Fig. 27 WCDMA850 MHz, Body, Towards Phantom, CH4132

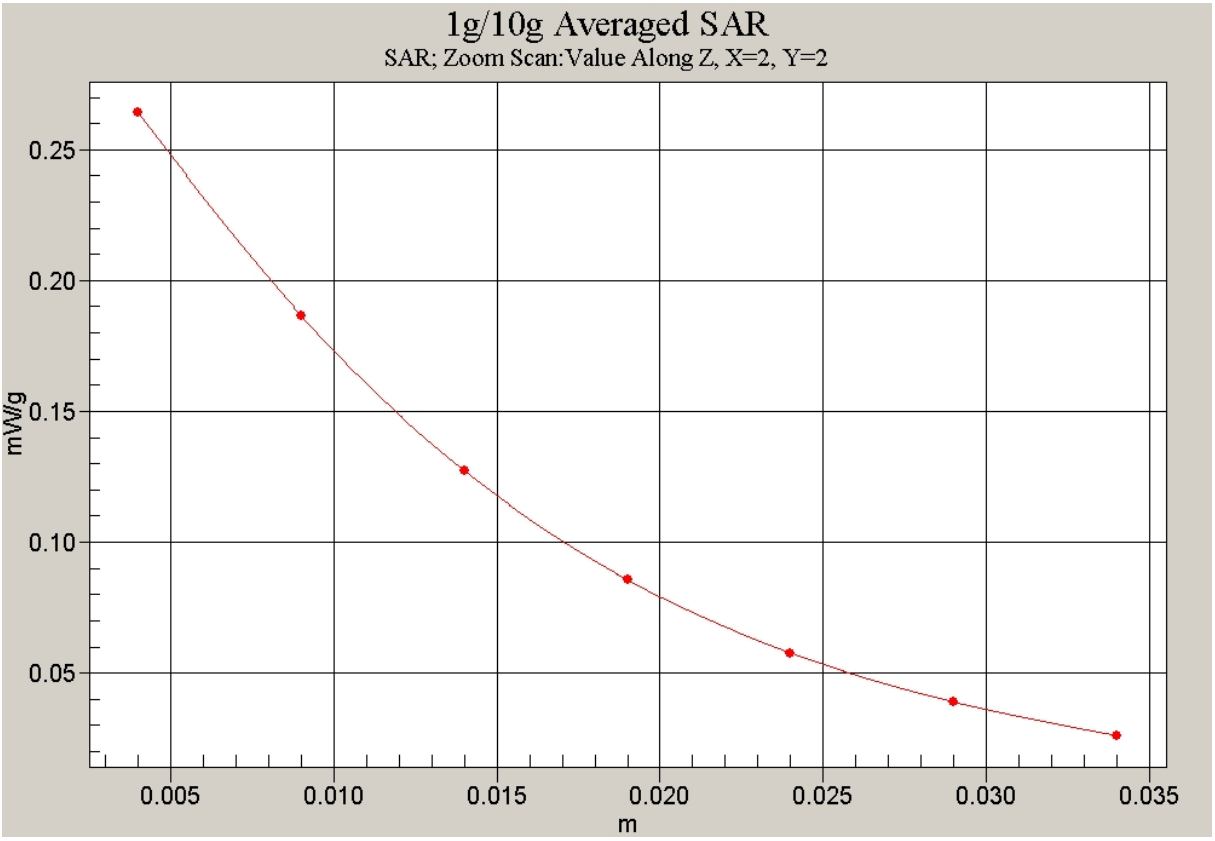
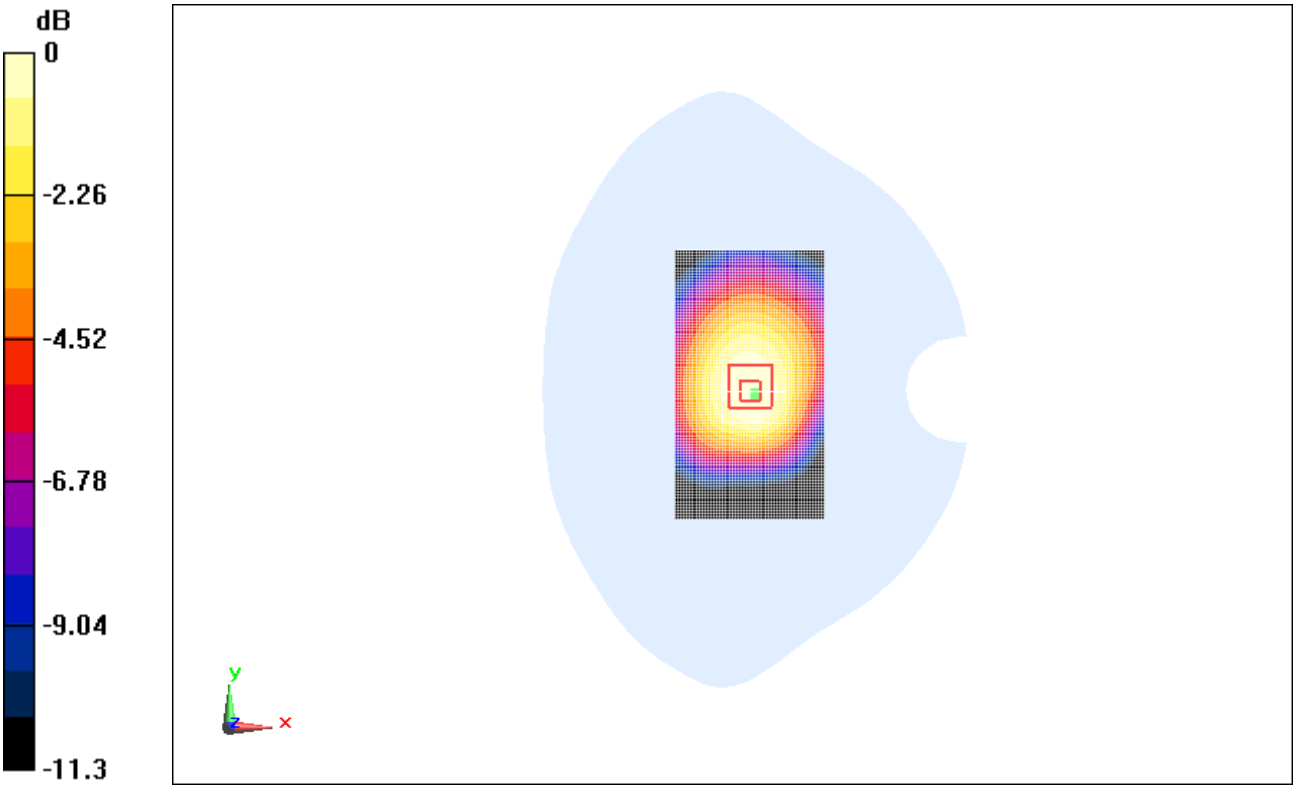


Fig. 28 Z-Scan at power reference point (WCDMA850 MHz,Body, Towards Phantom,CH4132)

WCDMA 850 Body Toward Ground High with Headset
Date/Time: 2009-2-24 11:03:35
Electronics: DAE4 Sn771
Medium: 850 Body
Medium parameters used (interpolated): f = 846.6 MHz; σ = 1.00 mho/m; ε_r = 53.7; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C
Communication System: WCDMA 850 Frequency: 846.6 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

Towards Ground High with earphone/Area Scan (51x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.467 mW/g

Towards Ground High with earphone/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 21.5 V/m; Power Drift = -0.097 dB
Peak SAR (extrapolated) = 0.570 W/kg
SAR(1 g) = 0.419 mW/g; SAR(10 g) = 0.296 mW/g
Maximum value of SAR (measured) = 0.445 mW/g



0 dB = 0.445mW/g

Fig. 29 WCDMA850 MHz, Body, Towards Ground, CH4233

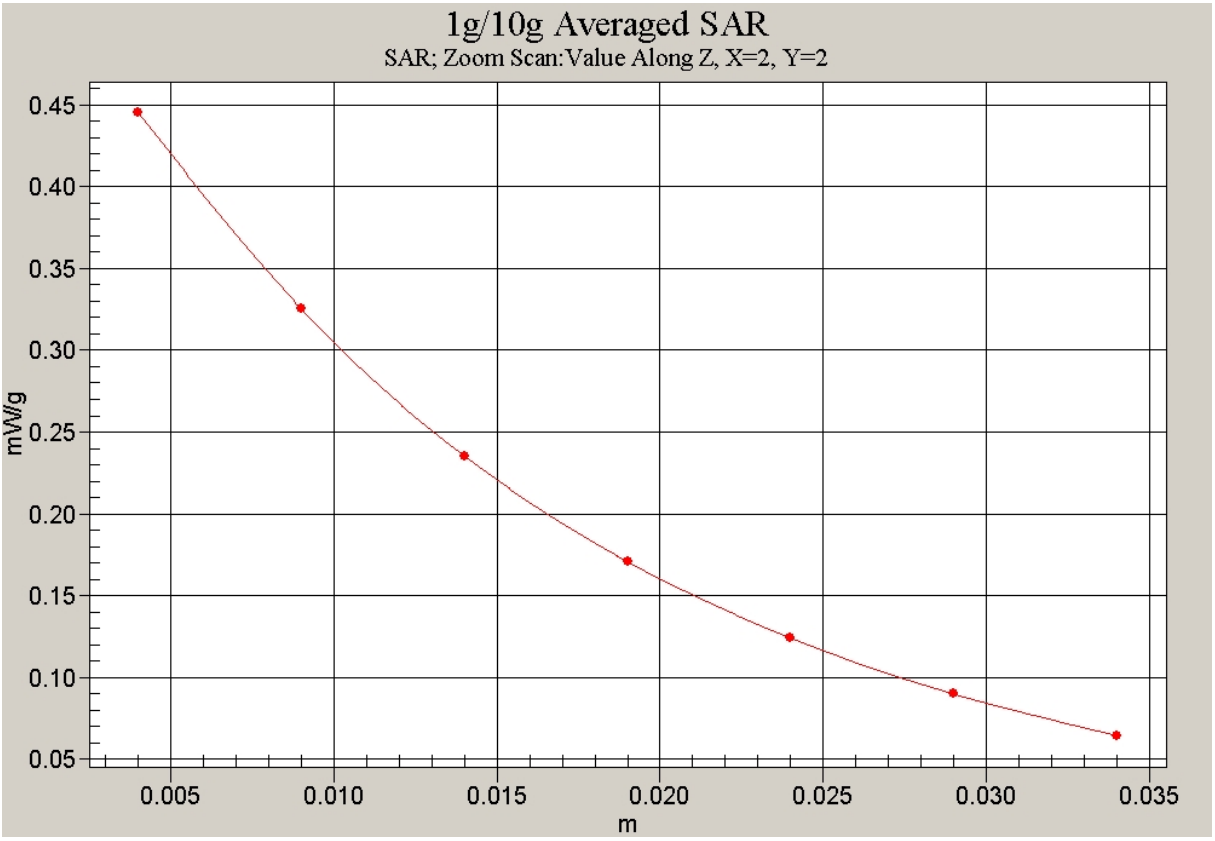


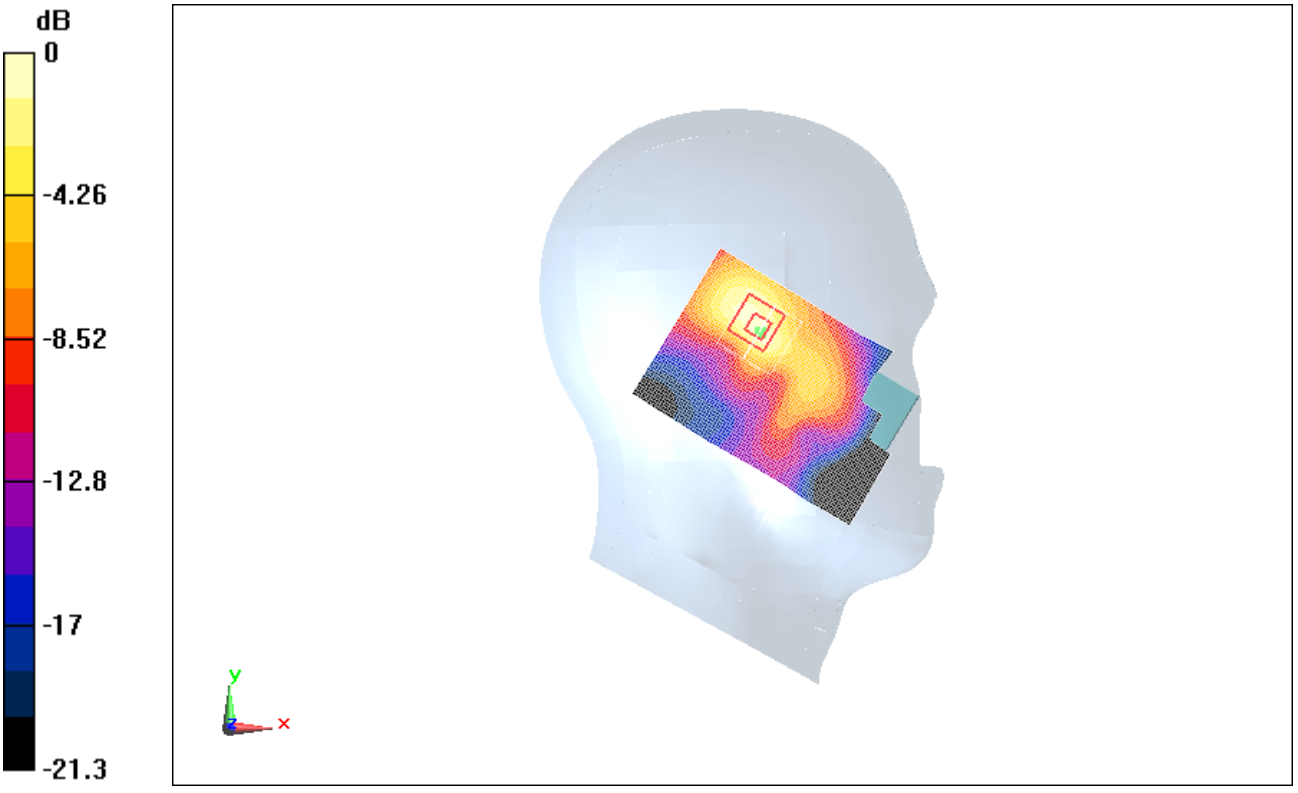
Fig. 30 Z-Scan at power reference point (WCDMA850 MHz, Body, Towards Ground, CH4233)

WCDMA 1900 Left Cheek High

Date/Time: 2009-2-25 8:03:14
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used (interpolated): f = 1907.6 MHz; σ = 1.43 mho/m; ε_r = 39.2; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C
Communication System: WCDMA 1900 Frequency: 1907.6 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

Cheek High/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.593 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.47 V/m; Power Drift = -0.011 dB
Peak SAR (extrapolated) = 1 W/kg
SAR(1 g) = 0.600 mW/g; SAR(10 g) = 0.313 mW/g
Maximum value of SAR (measured) = 0.681 mW/g



0 dB = 0.681mW/g

Fig. 31 Left Hand Touch Cheek WCDMA 1900MHz CH9538

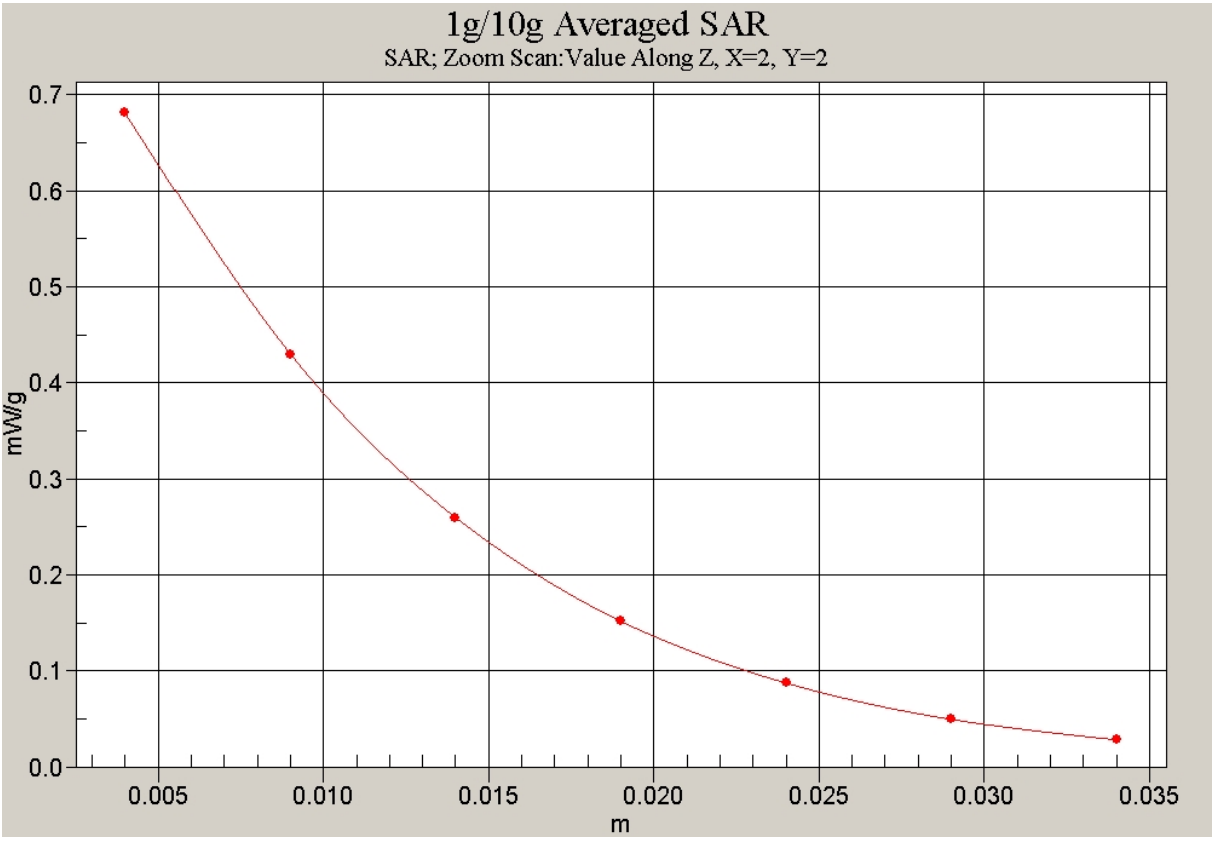
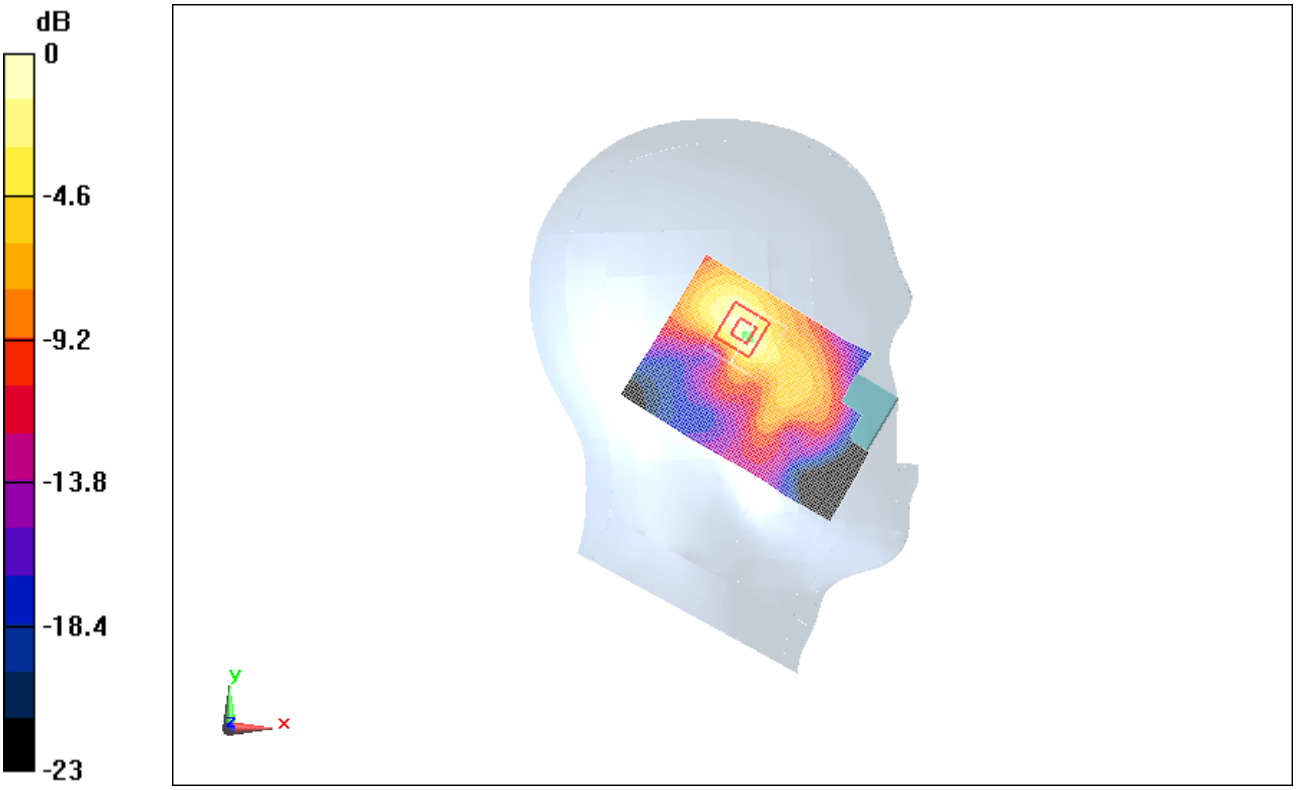


Fig. 32 Z-Scan at power reference point (WCDMA 1900MHz CH9538)

WCDMA 1900 Left Cheek Middle
Date/Time: 2009-2-25 8:17:23
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.41 mho/m; ε_r = 39.2; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C
Communication System: WCDMA 1900 Frequency: 1880 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

Cheek Middle/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.753 mW/g

Cheek Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.56 V/m; Power Drift = 0.046 dB
Peak SAR (extrapolated) = 1.28 W/kg
SAR(1 g) = 0.747 mW/g; SAR(10 g) = 0.376 mW/g
Maximum value of SAR (measured) = 0.862 mW/g



0 dB = 0.862mW/g

Fig. 33 Left Hand Touch Cheek WCDMA 1900MHz CH9400

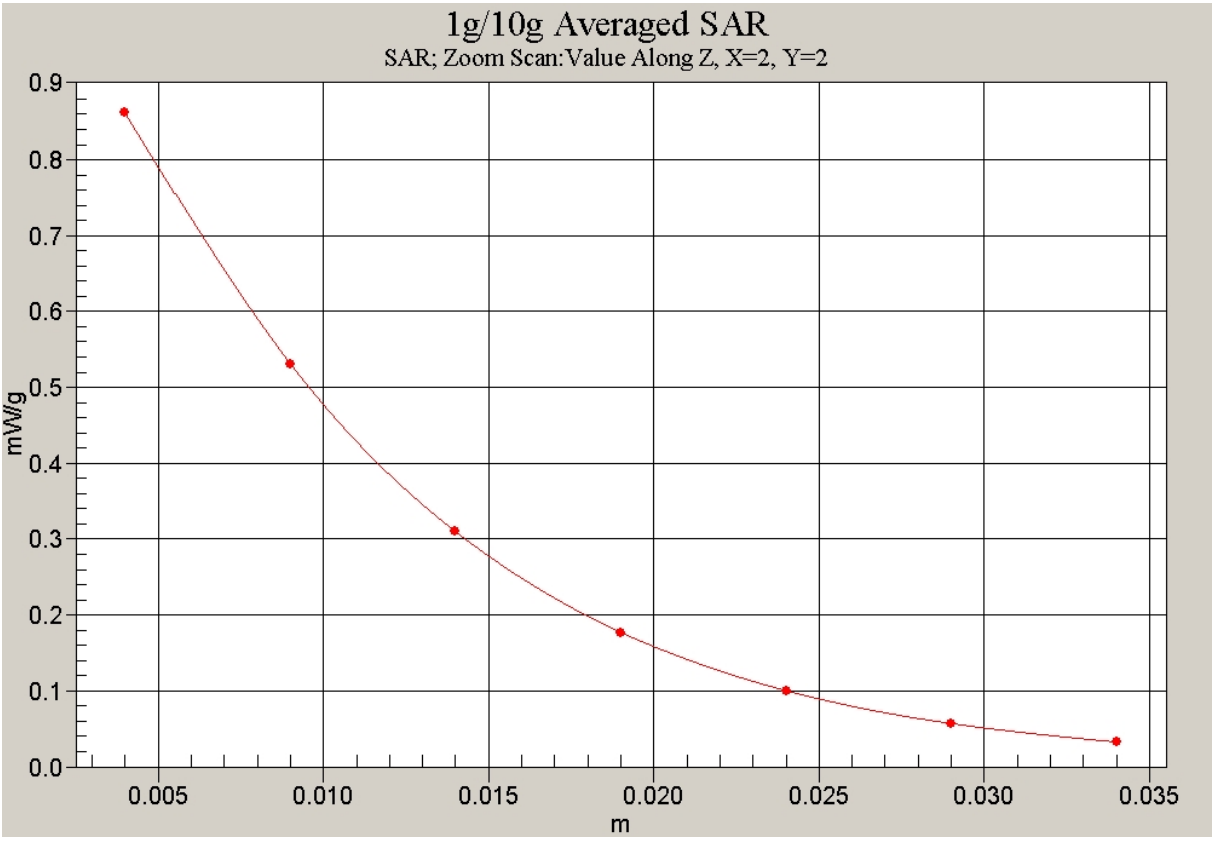
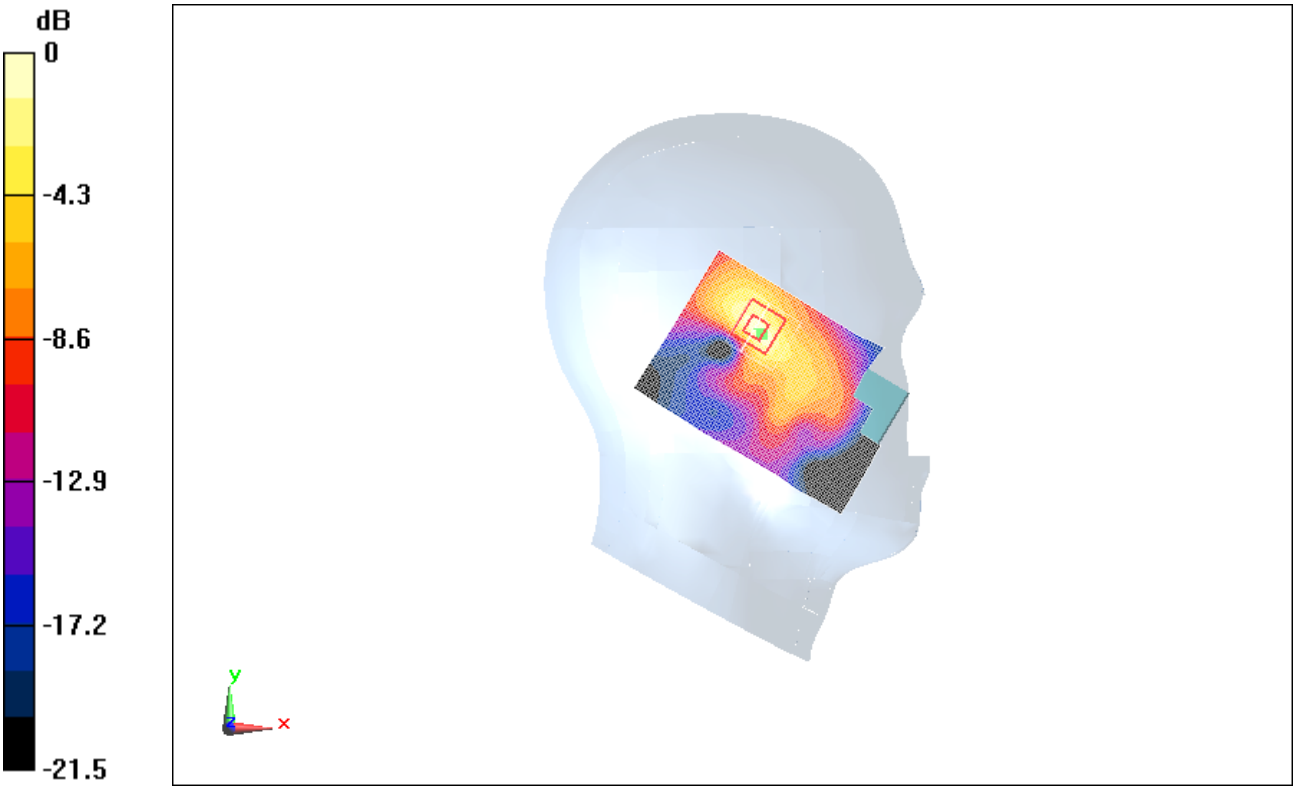


Fig. 34 Z-Scan at power reference point (WCDMA 1900MHz CH9400)

WCDMA 1900 Left Cheek Low
Date/Time: 2009-2-25 8:31:45
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.38 mho/m; ε_r = 39.3; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C
Communication System: WCDMA 1900 Frequency: 1852.4 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

Cheek Low/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.857 mW/g

Cheek Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.03 V/m; Power Drift = 0.111 dB
Peak SAR (extrapolated) = 1.53 W/kg
SAR(1 g) = 0.844 mW/g; SAR(10 g) = 0.396 mW/g
Maximum value of SAR (measured) = 0.977 mW/g



0 dB = 0.977mW/g

Fig. 35 Left Hand Touch Cheek WCDMA 1900MHz CH9262

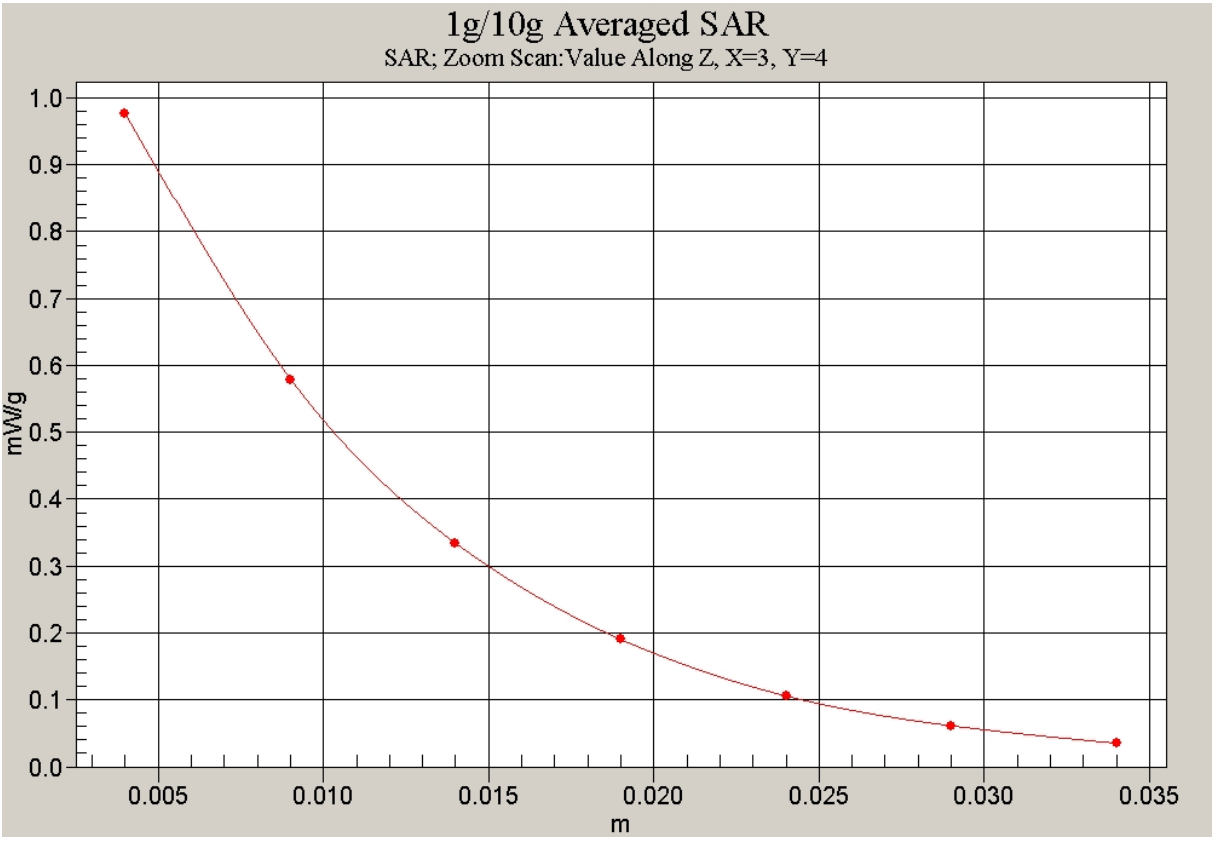


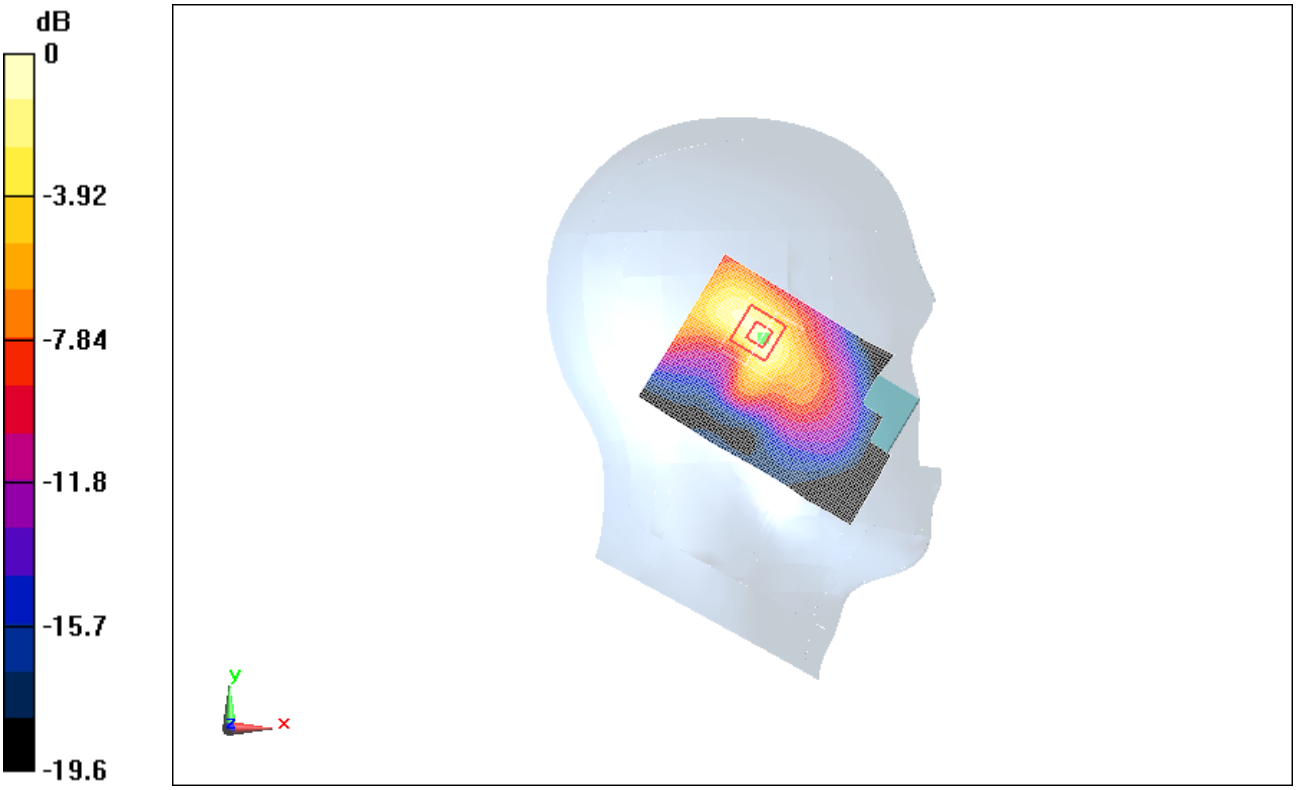
Fig. 36 Z-Scan at power reference point (WCDMA 1900MHz CH9262)

WCDMA 1900 Left Tilt Middle

Date/Time: 2009-2-25 8:45:08
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.41 mho/m; ε_r = 39.2; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C
Communication System: WCDMA 1900 Frequency: 1880 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

Tilt Middle/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.495 mW/g

Tilt Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7 V/m; Power Drift = 0.108 dB
Peak SAR (extrapolated) = 0.786 W/kg
SAR(1 g) = 0.483 mW/g; SAR(10 g) = 0.257 mW/g
Maximum value of SAR (measured) = 0.557 mW/g



0 dB = 0.557mW/g

Fig. 37 Left Hand Tilt 15°WCDMA 1900MHz CH9400

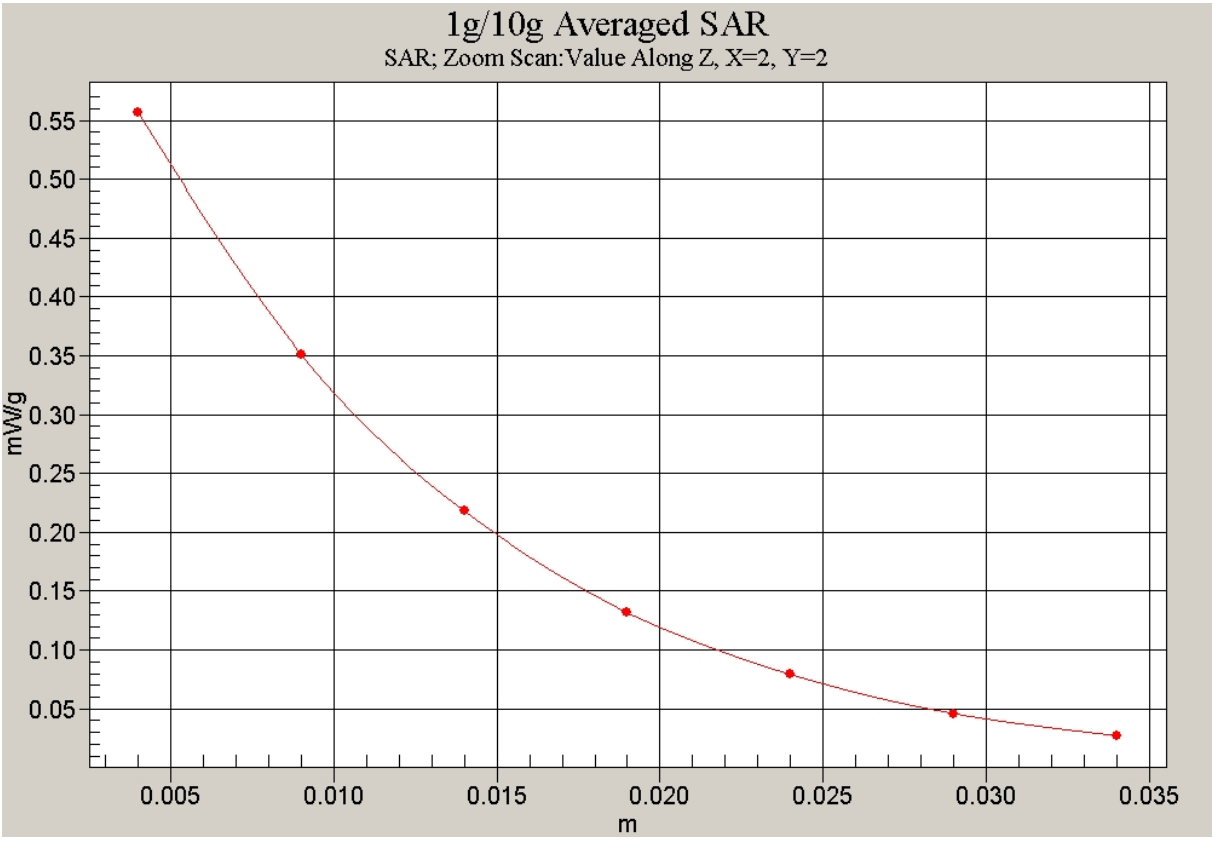


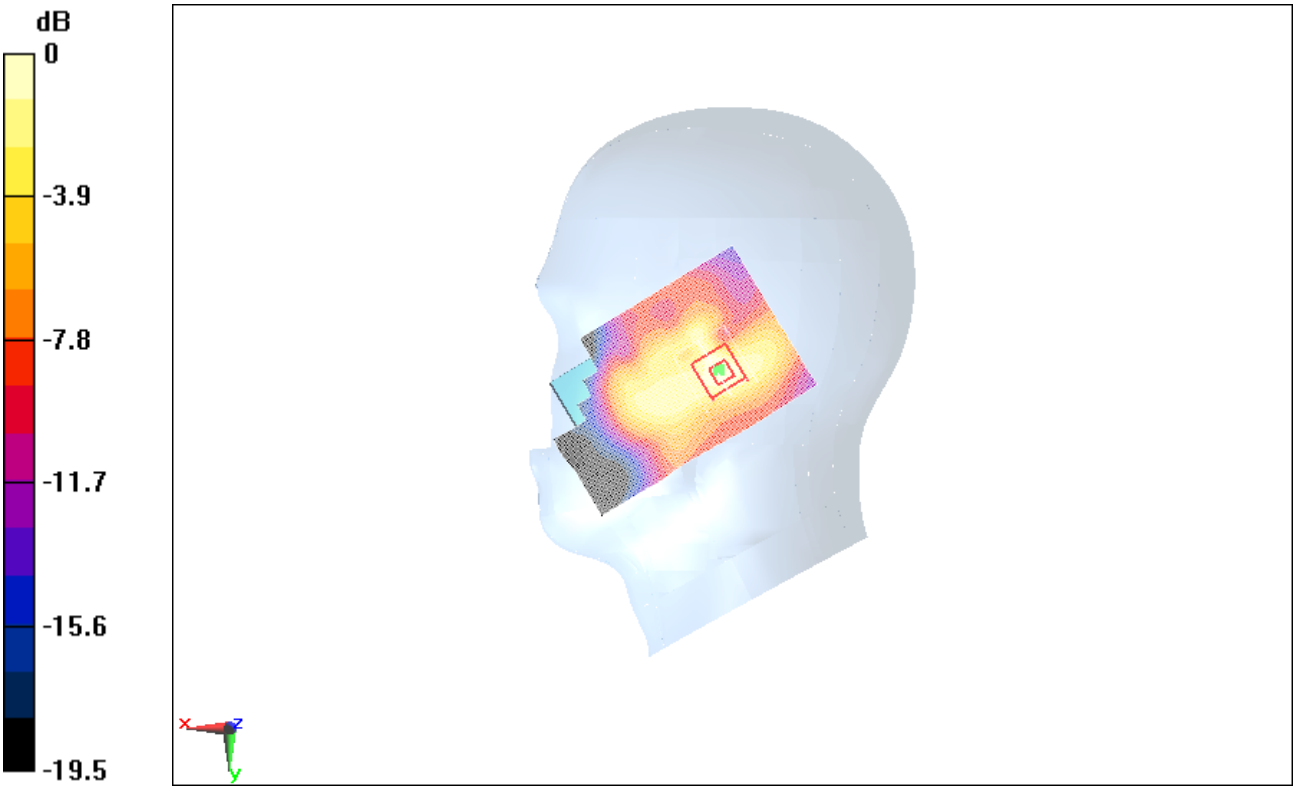
Fig. 38 Z-Scan at power reference point (WCDMA 1900MHz CH9400)

WCDMA 1900 Right Cheek Middle

Date/Time: 2009-2-25 8:59:26
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.41 mho/m; ε_r = 39.2; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C
Communication System: WCDMA 1900 Frequency: 1880 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

Cheek Middle/Area Scan (91x141x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.488 mW/g

Cheek Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.44 V/m; Power Drift = -0.144 dB
Peak SAR (extrapolated) = 0.694 W/kg
SAR(1 g) = 0.423 mW/g; SAR(10 g) = 0.228 mW/g
Maximum value of SAR (measured) = 0.481 mW/g



0 dB = 0.481mW/g

Fig.39 Right Hand Touch Cheek WCDMA 1900MHz CH9400

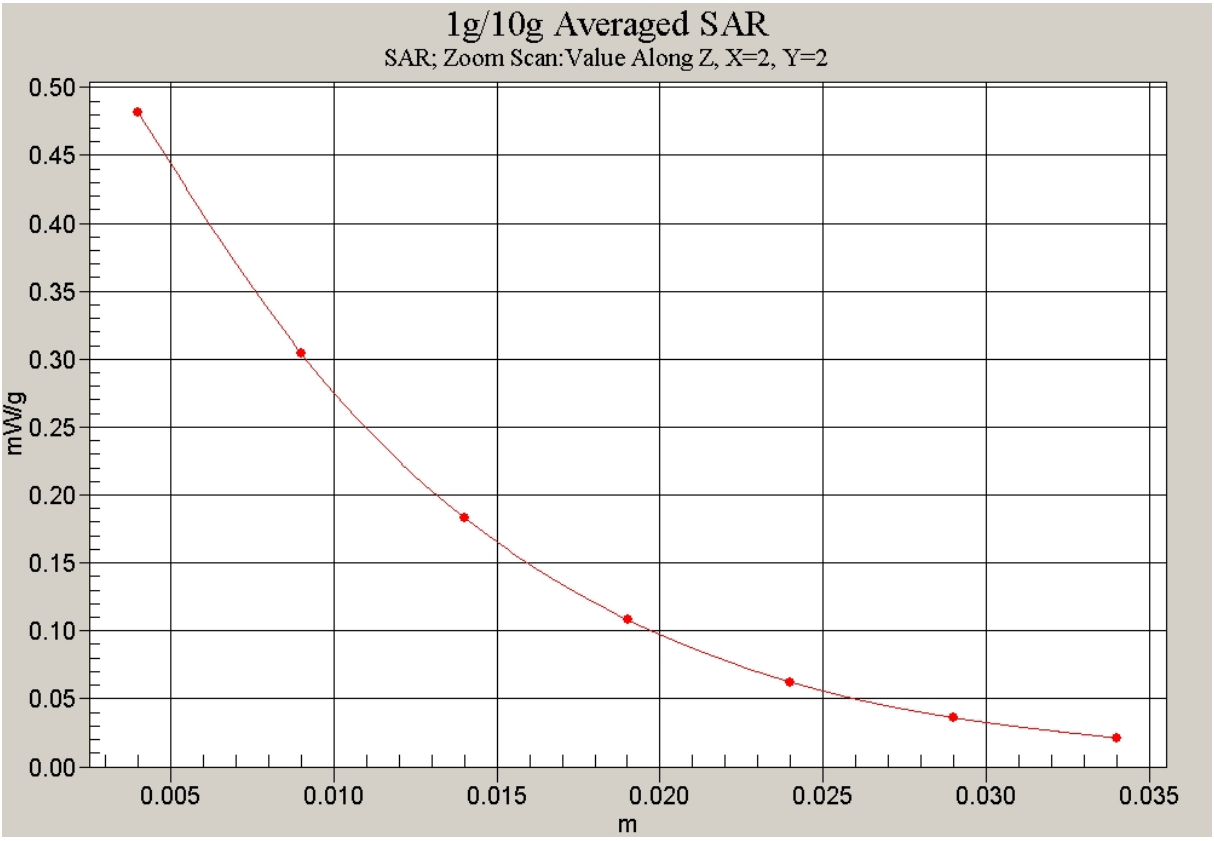
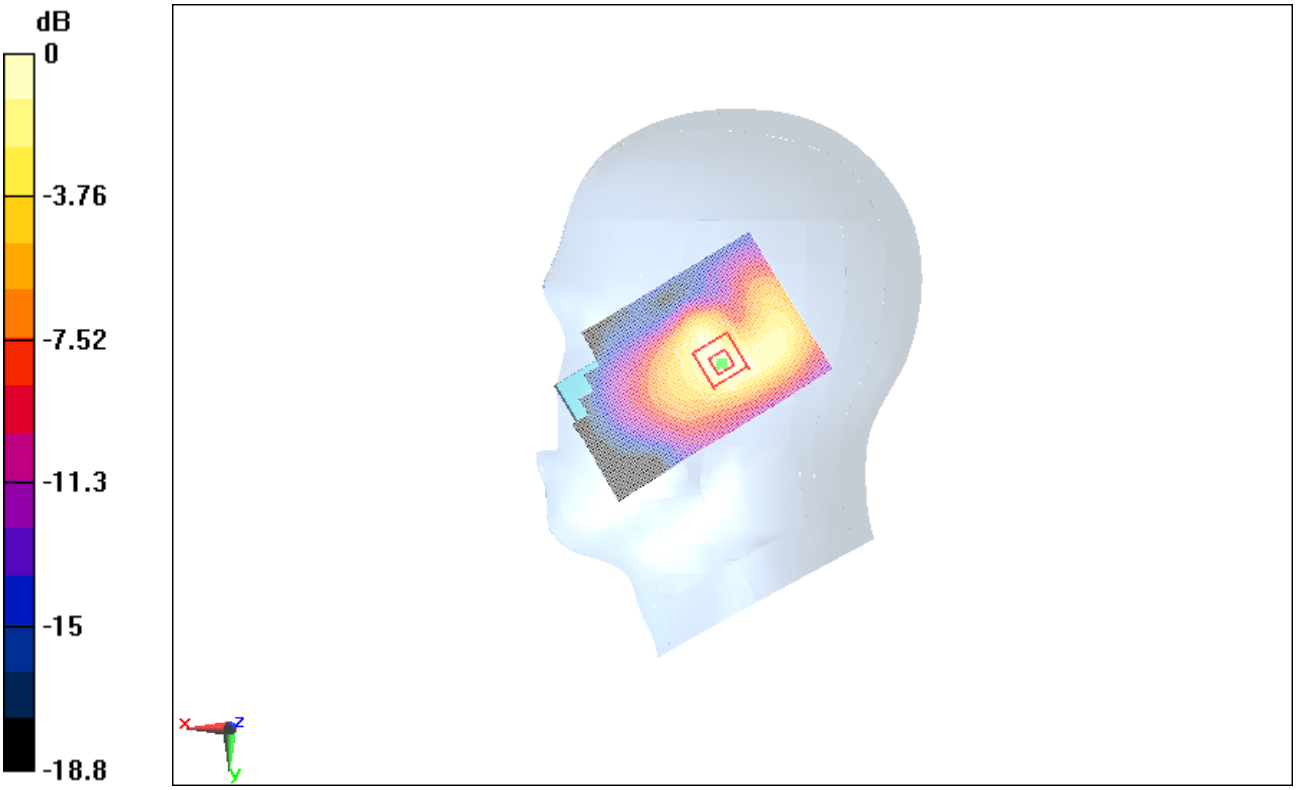


Fig. 40 Z-Scan at power reference point (WCDMA 1900MHz CH9400)

WCDMA 1900 Right Tilt Middle
Date/Time: 2009-2-25 9:13:44
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.41 mho/m; ε_r = 39.2; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C
Communication System: WCDMA 1900 Frequency: 1880 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

Tilt Middle/Area Scan (91x141x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.390 mW/g

Tilt Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.1 V/m; Power Drift = 0.052 dB
Peak SAR (extrapolated) = 0.544 W/kg
SAR(1 g) = 0.348 mW/g; SAR(10 g) = 0.201 mW/g
Maximum value of SAR (measured) = 0.384 mW/g



0 dB = 0.384mW/g

Fig. 41 Right Hand Tilt 15°WCDMA 1900MHz CH9400

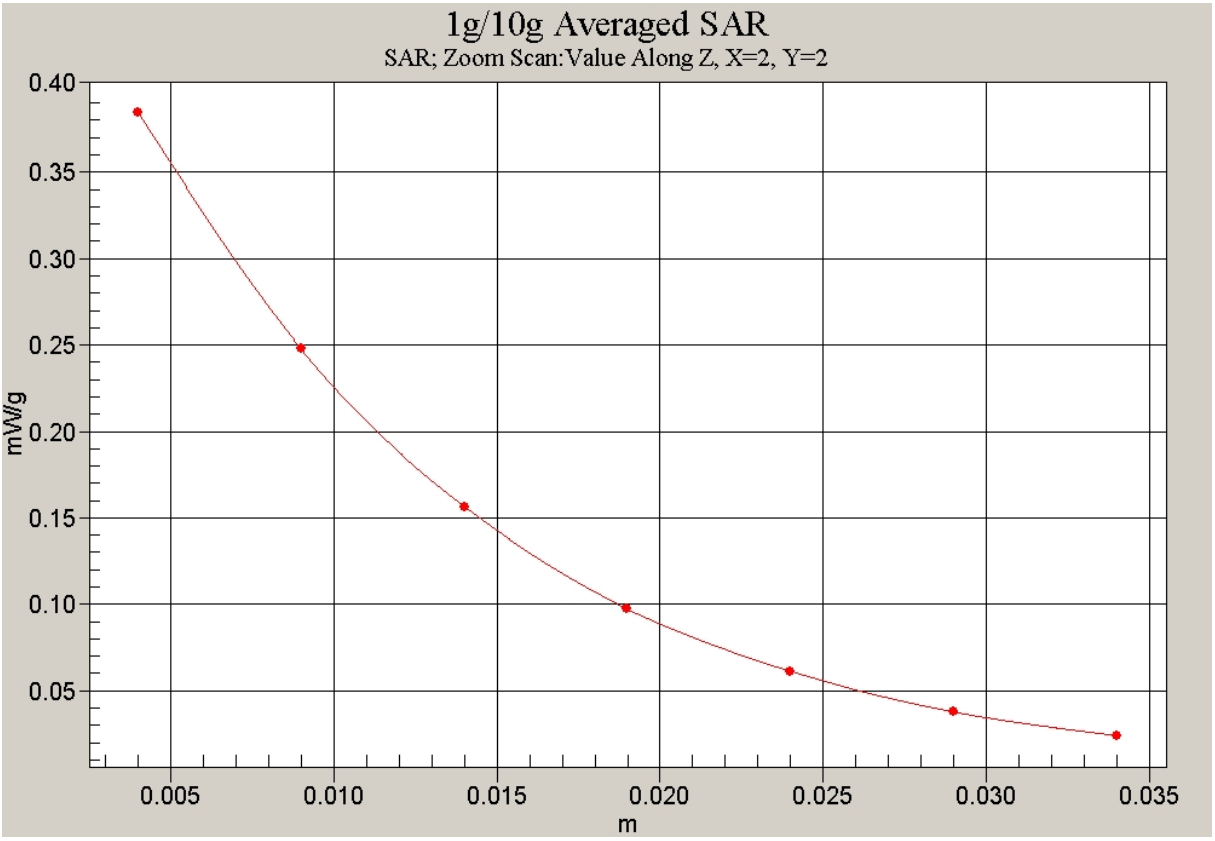


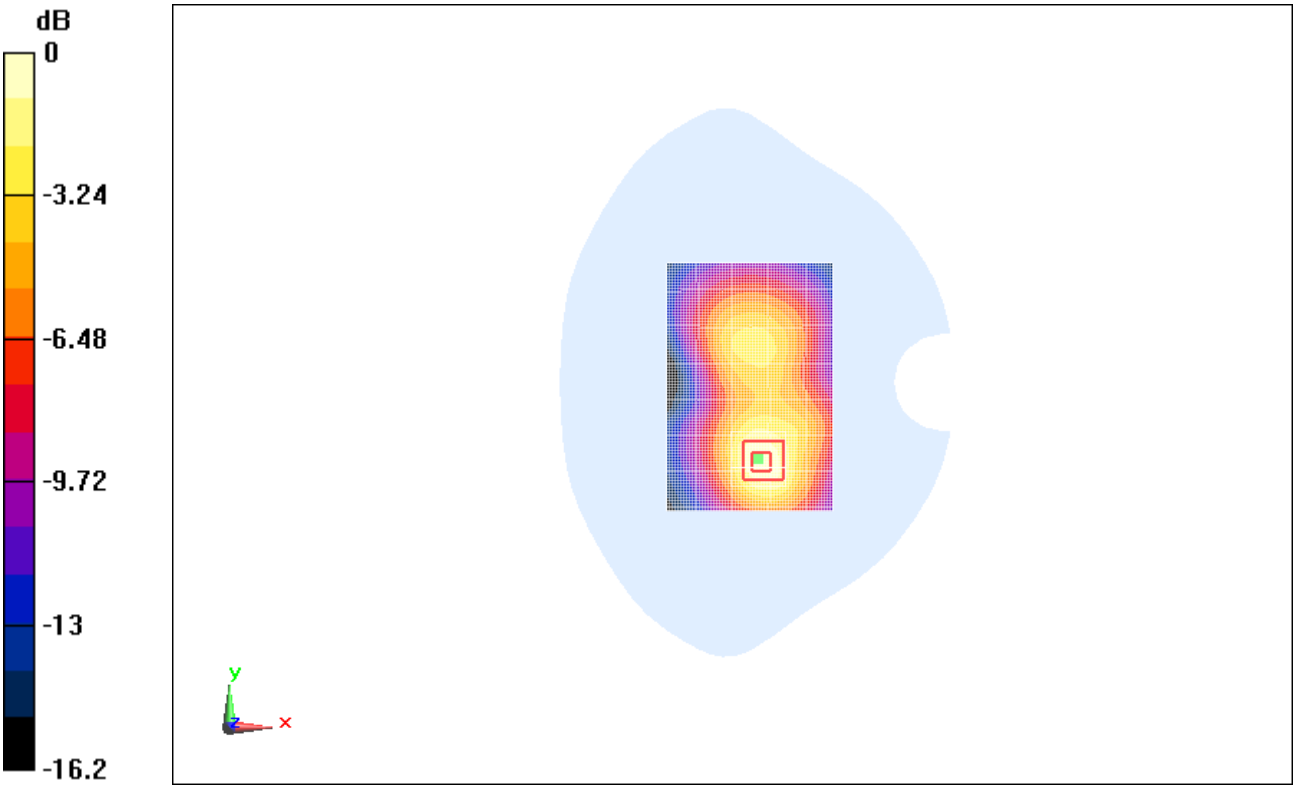
Fig. 42 Z-Scan at power reference point (WCDMA 1900MHz CH9400)

WCDMA 1900 Body Toward Ground High

Date/Time: 2009-2-25 9:28:29
Electronics: DAE4 Sn771
Medium: Body 1900 MHz
Medium parameters used (interpolated): f = 1907.6 MHz; σ = 1.56 mho/m; ε_r = 52.3; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C
Communication System: WCDMA 1900 Frequency: 1907.6 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(4.68, 4.68, 4.68)

Toward Ground High/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.806 mW/g

Toward Ground High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14 V/m; Power Drift = 0.174 dB
Peak SAR (extrapolated) = 1.16 W/kg
SAR(1 g) = 0.699 mW/g; SAR(10 g) = 0.408 mW/g
Maximum value of SAR (measured) = 0.742 mW/g



0 dB = 0.742mW/g

Fig. 43 WCDMA 1900MHz, Body, Towards Ground, CH9538

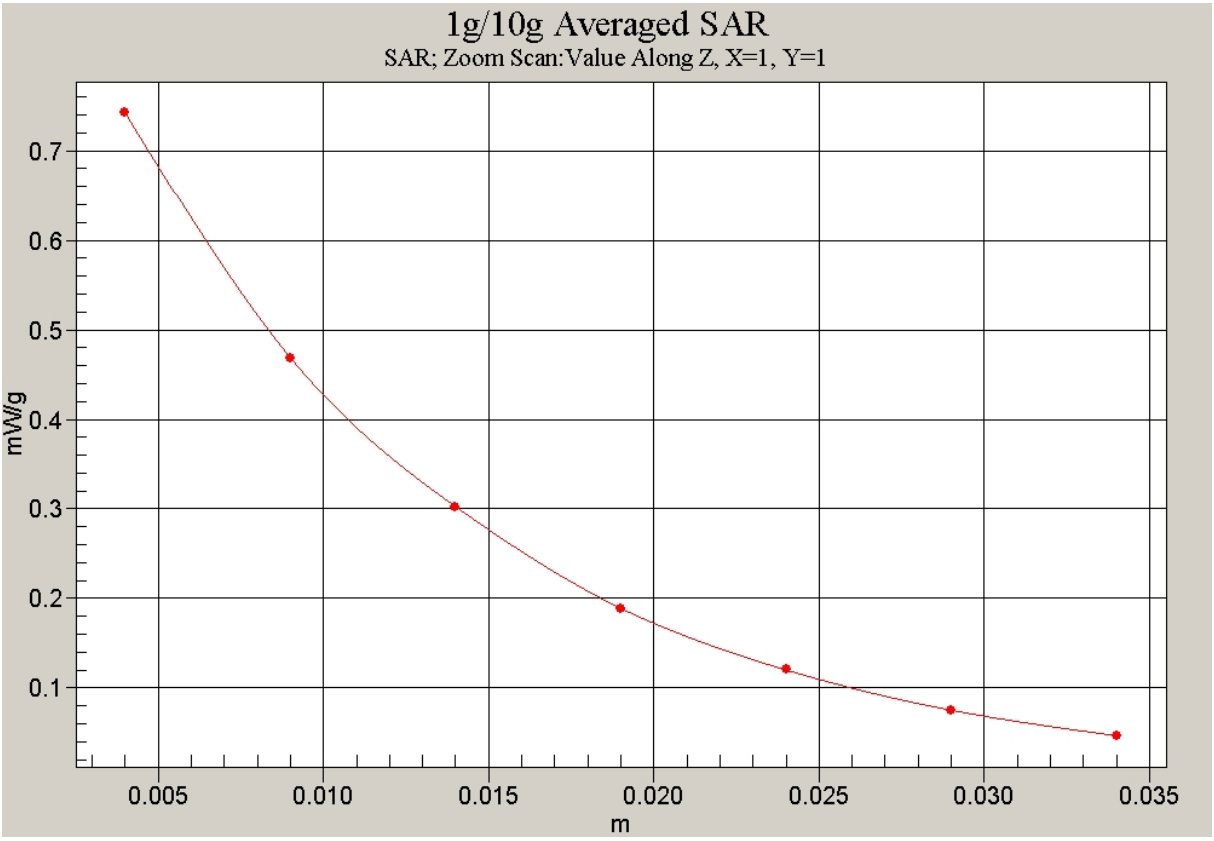
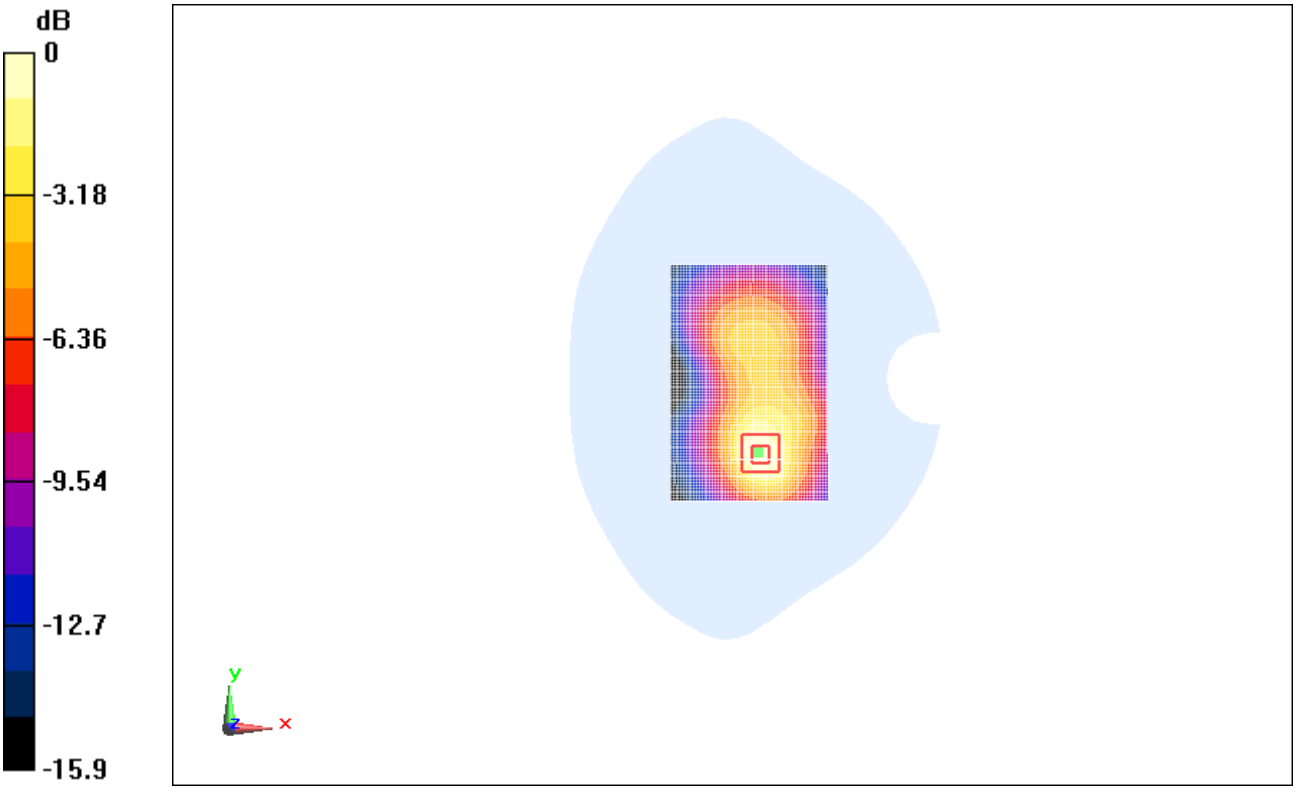


Fig. 44 Z-Scan at power reference point(WCDMA 1900MHz,Body,Towards Ground,CH9538)

WCDMA 1900 Body Toward Ground Middle
Date/Time: 2009-2-25 9:42:16
Electronics: DAE4 Sn771
Medium: Body 1900 MHz
Medium parameters used: f = 1880 MHz; σ = 1.54 mho/m; ε_r = 52.4; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C
Communication System: WCDMA 1900 Frequency: 1880 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(4.68, 4.68, 4.68)

Toward Ground Middle/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.951 mW/g

Toward Ground Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15 V/m; Power Drift = -0.00585 dB
Peak SAR (extrapolated) = 1.39 W/kg
SAR(1 g) = 0.832 mW/g; SAR(10 g) = 0.482 mW/g
Maximum value of SAR (measured) = 0.873 mW/g



0 dB = 0.873mW/g

Fig. 45 WCDMA 1900MHz, Body, Towards Ground, CH9400

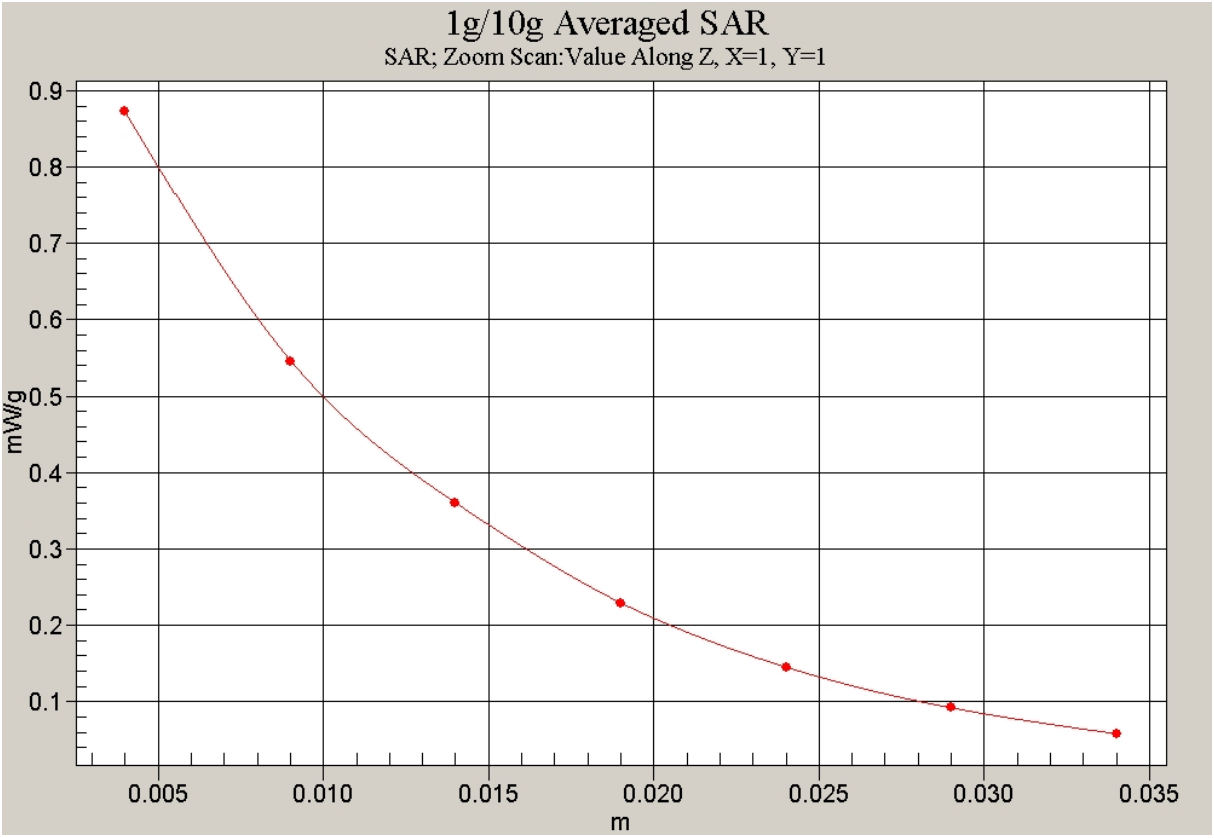
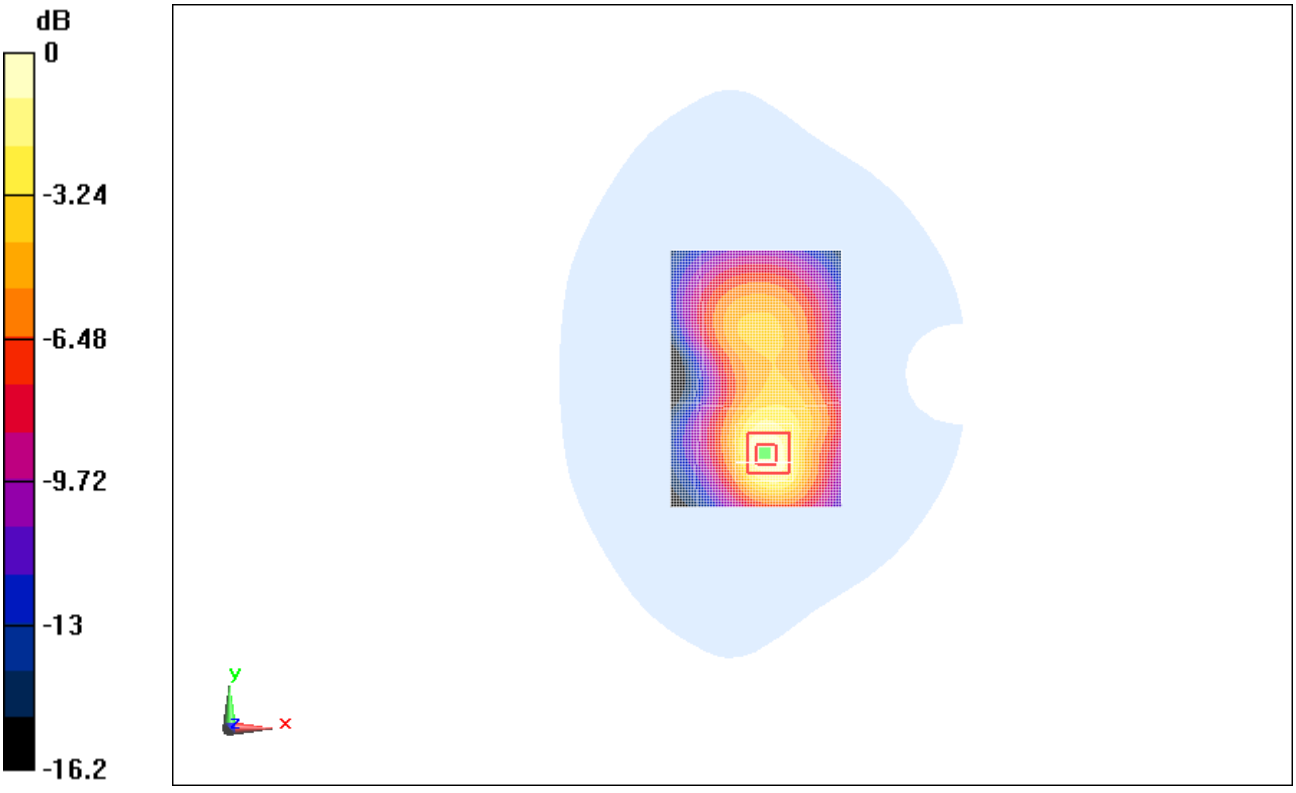


Fig. 46 Z-Scan at power reference point(WCDMA 1900MHz,Body,Towards Ground,CH9400)

WCDMA 1900 Body Toward Ground Low
Date/Time: 2009-2-25 9:56:47
Electronics: DAE4 Sn771
Medium: Body 1900 MHz
Medium parameters used (interpolated): f = 1852.4 MHz; σ = 1.53 mho/m; ε_r = 52.4; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C
Communication System: WCDMA 1900 Frequency: 1852.4 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(4.68, 4.68, 4.68)

Toward Ground Low/Area Scan (61x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.985 mW/g

Toward Ground Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 14.3 V/m; Power Drift = 0.065 dB
Peak SAR (extrapolated) = 1.45 W/kg
SAR(1 g) = 0.875 mW/g; SAR(10 g) = 0.503 mW/g
Maximum value of SAR (measured) = 0.899 mW/g



0 dB = 0.899mW/g

Fig. 47 WCDMA 1900MHz, Body, Towards Ground, CH9262