信息产业部通信计量中心
Telecommunication Metrology Center of MII

Deutscher Akkreditierungs Rat

No. DAT-P-114/01-01

No. L0442

TEST REPORT

No. 2007EEE00107-1

FCCID	QISE660A
Test name	Electromagnetic Field (Specific Absorption Rate)
Product	HSDPA/UMTS/EDGE/GPRS/GSM Dual-mode 7-band Data Card
Model	E660A
Client	HUAWEI Technologies Co., Ltd.
Type of test	Non Type approval

Telecommunication Metrology Center

of Ministry of Information Industry

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Product name	HSDPA/UMTS/EDGE/GPRS/GSM Dual-mode 7-band Data Card	Sample Model	E660A
Client	HUAWEI Technologies Co., Ltd.	Type of test	Non Type Approval
Factory	HUAWEI Technologies Co., Ltd.	Sampling arrival date	March 5th, 2007
Manufacturer	HUAWEI Technologies Co., Ltd.		
Sampling/ Sending sample	Sending sample	Sample sent by	Xie Yan
Sampling location	/	Sampling person	/
Sample quantity	1	Sample matrix	/
Series number of the Sample	/		
Manufacture date	/	Manufacture location	China, Shenzhen
Test basis	**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. **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. **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. **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. **Vodafone SAR_Data_cards_V1.1:**Global Test Specification for Terminals for Performance Measurements –Performance TST- Specific Absorption Rate (SAR) for Data Cards and External Antennas.		
Test 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 5.2 of this test report. Maximum localized SAR is below exposure limits specified in the relevant standards cited in Clause 5.1 of this test report. General Judgment: **Pass** (Stamp) **Date of issue: March 13th, 2007**		
Note	The test results relate only to the items tested of the sample(s).		

Approved by (Lu Bingsong) **Deputy Director of the laboratory** **Reviewed by** (Wang Hongbo) **Tested by** (Sun Qian)

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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, Shenzhen, Guangdong
City	Shenzhen
Postal Code	518129
Country	China
Telephone	0755-28780808
Fax	0755-28780808

Table 2: Manufacturer

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

3.2 Constituents of EUT

Table 3: Constituents of Samples

Description	Model	Serial Number	Manufacturer
HSDPA/UMTS/EDGE/GPRS/GSM Dual-mode 7-band Data Card	E660A	\	HUAWEI Technologies Co., Ltd.

Picture 1: Constituents of the sample

3.3 General Description

Equipment Under Test (EUT) are an HSDPA/UMTS/EDGE/GPRS/GSM Dual-mode 7-band Data Card and an external antenna. SAR is tested respectively for WCDMA 850MHz, WCDMA 1900MHz, HSDPA 850, HSDPA 1900, GSM 850MHz and 1900MHz with 3 different Laptops for the datacard. The EUT has GPRS function, which class is 12. In the report 2007EEE00107, when the EUT was tested in test position 1, the assistant laptop was not in direct contact against the phantom bottom. So, in this report we only do the tests in test position 1 for all the bands.

The sample under test was selected by the Client.
Components list please refer to documents of the manufacturer.

4 OPERATIONAL CONDITIONS DURING TEST

4.1 Schematic Test Configuration

During SAR test, EUT is in Traffic Mode (Channel Allocated) at Normal Voltage Condition. A communication link is set up with a System Simulator (SS) by air link, and a call is established. At the same time, the RF power is monitored by instruments. The EUT is commanded to operate at maximum transmitting power.

And according to the "2 dB rule" specified in the OET Bulletin 65 (Edition 97-01) and Supplement C(Edition 01-01), **" If the SAR measured at the middle channel for each test configuration (left, right, Cheek/Touch, Tile/Ear, extended and retracted) is at least 2.0 dB lower than the SAR limit, testing at the high and low channels is optional for such test configuration(s)"**. Then The Absolute Radio Frequency Channel Number (ARFCN) is firstly allocated to 4182, 9400, 190 and 661 respectively in the case of WCDMA(HSDPA) 850MHz, WCDMA (HSDPA)1900MHz, GSM 850MHz and GSM 1900MHz.

The EUT only has the data transfer function, but does not have the speech transfer function, the tests in the band of 850MHz and 1900MHz are only performed in the mode of GPRS. Since the GPRS class is 12 for this EUT, it has at most 4 timeslots in uplink. According to specification 51010, the maximum power of the GSM can do the power reduction for the multislot. The allowed power reduction in the multislot configuration is as followed:

Number of timeslots in uplink assignment	Permissible nominal reduction of maximum output power, (dB)
1	0
2	0 to 3,0
3	1,8 to 4,8
4	3,0 to 6,0

For this EUT, the tests for GSM 850 GPRS and GSM 1900 GPRS band will be performed under the following 4 situations with one assistant laptop first:
1) using 1 timeslot in uplink with the power is 33 dBm for 850MHz and 30 dBm for 1900MHz
2) using 2 timeslots in uplink with the power reduced 2dB
3) using 3 timeslots in uplink with the power reduced 4dB
4) using 4 timeslots in uplink with the power reduced 6dB
After drawn the worst case, the tests will be performed in the same situation with another two laptops.

For each channel, the datacard is tested at the following test position:
Test Position 1: The EUT is plugged in the PCMCIA slot of the portable computer. The back side of the laptop is directed to touch the bottom of the flat phantom tightly.（Picture 2）

Picture 2: Test position of EUT

During the test of the datacard, three Laptops are used as the test assistant to help to setup communication, whose type are IBM T41 (See Picture 3-a and 3-b), Dell LATIDUE D600 (See Picture 3-c and 3-d), and HP compaq nc6130 ((See Picture 3-e and 3-f).

Picture 3-a: Close

Picture 3-b: Open

Picture 3-c: Close

Picture 3-d: Open

Picture 3-e: Close

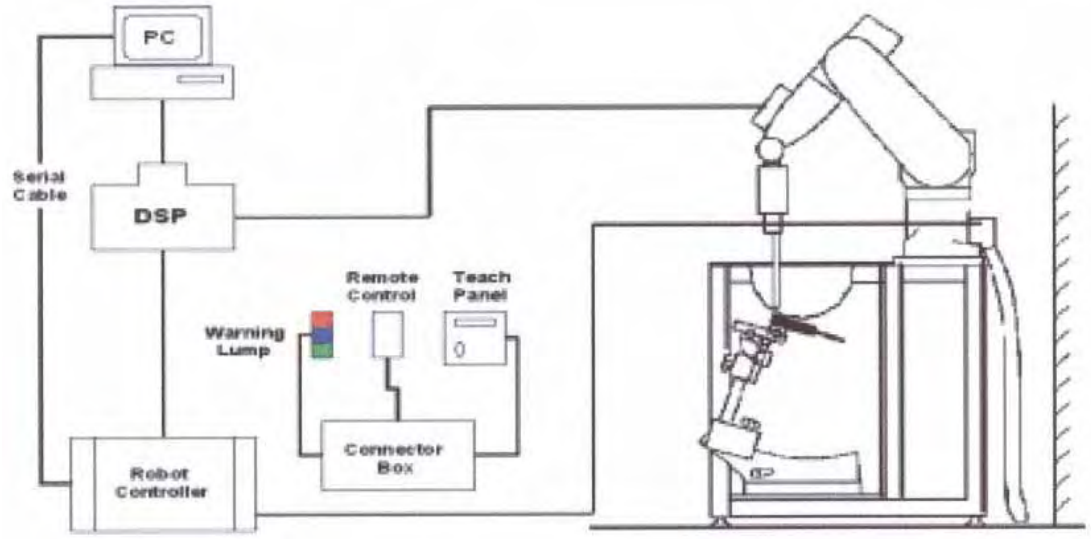
Picture 3-f: Open

Picture 3: Three laptops as test assistants

4.2 SAR Measurement Set-up

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

A cell controller system contains the power supply, robot controller, teaches pendant (Joystick), and remote control, is used to drive the robot motors. The PC consists of the Micron Pentium III 800 MHz computer with Windows 2000 system and SAR Measurement Software DASY4 Professional, A/D interface card, monitor, mouse, and keyboard. The Stäubli Robot is connected to the cell controller to allow software manipulation of the robot. A data acquisition electronic (DAE) circuit performs the signal amplification, signal multiplexing, AD-conversion, offset measurements, mechanical surface detection, collision detection, etc. is connected to the Electro-optical coupler (EOC). The EOC performs the conversion from the optical into digital electric signal of the DAE and transfers data to the PC plug-in card.



Picture 4: SAR Lab Test Measurement Set-up

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

4.3 Dasy4 E-field Probe System

The SAR measurements were conducted with the dosimetric probe ET3DV6 (manufactured by SPEAG), designed in the classical triangular configuration and optimized for dosimetric evaluation. The probe has been calibrated according to the standard procedure with an accuracy of better than ± 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 450MHz, 900MHz and 1.8GHz (accuracy±8%) Calibration for other liquids and frequencies upon request
Frequency	I 0 MHz to > 6 GHz; Linearity: ±0.2 dB

Picture 5: ET3DV6 E-field Probe

	(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

Picvure 6: ET3DV6 E-field

4.4 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.

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

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,

Picture 7: Device Holder

ρ = Tissue density (kg/m^3).

Note: Please see Annex E to check the probe calibration certificate.

4.5 Other Test Equipment

4.5.1 Device Holder for Transmitters

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

4.5.2 Phantom

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

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

Picture 8: Generic Twin Phantom

4.6 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 4 shows the detail solution. It's satisfying the latest tissue dielectric parameters requirements proposed by the IEEE 1528.

Table 4. 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

4.7 System Specifications

4.7.1 Robotic System Specifications

Specifications

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

Data Acquisition Electronic (DAE) System

Cell Controller
Processor: Pentium III
Clock Speed: 800 MHz
Operating System: Windows 2000
Data Converter
Features: Signal Amplifier, multiplexer, A/D converter, and control logic
Software: DASY4 software
Connecting Lines: Optical downlink for data and status info.
Optical uplink for commands and clock

5 CHARACTERISTICS OF THE TEST

5.1 Applicable Limit Regulations

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

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

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

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

5.2 Applicable Measurement Standards

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

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

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

IEC 62209-2 (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.

Vodafone SAR_Data_cards_V1.1: Global Test Specification for Terminals for Performance Measurements –Performance TST- Specific Absorption Rate (SAR) for Data Cards and External Antennas.

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

6 LABORATORY ENVIRONMENT

Table 5: The Ambient Conditions during EMF Test

Temperature	Min. = 15 °C, Max. = 30 °C
Relative humidity	Min. = 30%, Max. = 70%
Ground system resistance	< 0.5 Ω
Ambient noise is checked and found very low and in compliance with requirement of standards. Reflection of surrounding objects is minimized and in compliance with requirement of standards.	

7 CONDUCTED OUTPUT POWER MEASUREMENT

7.1 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.

7.2 Conducted Power

7.2.1 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 3 channels both before SAR test and after SAR test for each test band.

7.2.2 Measurement result

Table 6: Conducted Power Measurement Results

	Conducted Power		
WCDMA 850	**Channel 4132 (826.4MHz)**	**Channel 4182 (836.4MHz)**	**Channel 4233 (846.6MHz)**
Before Test (dBm)	22.87	22.96	22.94
After Test (dBm)	22.83	22.91	22.90
WCDMA 1900	**Channel 9262 (1852.4MHz)**	**Channel 9400 (1880MHz)**	**Channel 9538 (1907.6MHz)**
Before Test (dBm)	23.64	23.65	23.54
After Test (dBm)	23.61	23.64	23.56
HSDPA 850	**Channel 4132 (826.4MHz)**	**Channel 4182 (836.4MHz)**	**Channel 4233 (846.6MHz)**
Before Test (dBm)	21.78	21.86	21.69
After Test (dBm)	21.77	21.87	21.65
HSDPA 1900	**Channel 9262 (1852.4MHz)**	**Channel 9400 (1880MHz)**	**Channel 9538 (1907.6MHz)**
Before Test (dBm)	21.68	21.79	21.65
After Test (dBm)	21.69	21.76	21.63
850MHz	**Channel 128 (824.2MHz)**	**Channel 190 (836.6MHz)**	**Channel 251 (848.8MHz)**
Before Test (dBm)	32.78	32.87	32.74
After Test (dBm)	32.72	32.88	32.71
1900MHZ	**Channel 512 (1850.2MHz)**	**Channel 661 (1880MHz)**	**Channel 810 (1909.8MHz)**
Before Test (dBm)	29.00	29.24	29.17
After Test (dBm)	29.01	29.22	29.15

7.2.3 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 9 to Table 14 labeled as: (Power Drift [dB]). This ensures that the power drift during one measurement is within 5%.

8 TEST RESULTS

8.1 Dielectric Performance

Table 7: Dielectric Performance of Body Tissue Simulating Liquid

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

8.2 System Validation

Table 8: System Validation

Measurement is made at temperature 23.3 ℃, relative humidity 49%, input power 250 mW. Liquid temperature during the test: 22.5℃					
Liquid parameters		**Frequency**	**Permittivity ε**		**Conductivity σ (S/m)**
		835 MHz	41.7		0.88
		1900 MHz	39.2		1.45
Verification results	**Frequency**	**Target value (W/kg)**		**Measurement value (W/kg)**	
		10 g Average	**1 g Average**	**10 g Average**	**1 g Average**
	835 MHz	1.55	2.375	1.62	2.48
	1900 MHz	5.31	10.1	5.27	9.91

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

8.3 Summary of Measurement Results

Table 9: SAR Values (WCDMA 850)

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**	
Flat Phantom, Mid frequency, with **IBM** Laptop (See Figure 1)	0.050	0.080	-0.029
Flat Phantom, Mid frequency, with **Dell** Laptop (See Figure 3)	0.034	0.051	-0.125
Flat Phantom, Mid frequency, with **HP** Laptop (See Figure 5)	0.041	0.065	-0.155

Table 10: SAR Values (HSDPA 850)

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**	
Flat Phantom, Mid frequency, with **IBM** Laptop (See Figure 7)	0.506	0.821	-0.173
Flat Phantom, Mid frequency, with **Dell** Laptop (See Figure 9)	0.370	0.559	0.127
Flat Phantom, Mid frequency, with **HP** Laptop (See Figure 11)	0.513	0.829	-0.041

Table 11: SAR Values (WCDMA 1900)

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**	
Flat Phantom, Mid frequency, with **IBM** Laptop (See Figure 13)	0.086	0.161	-0.157
Flat Phantom, Mid frequency, with **Dell** Laptop (See Figure 15)	0.024	0.044	0.109
Flat Phantom, Mid frequency, with **HP** Laptop (See Figure 17)	0.021	0.051	0.182

Table 12: SAR Values (HSDPA 1900)

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**	
Flat Phantom, Mid frequency, with **IBM** Laptop (See Figure 19)	0.471	0.888	0.168
Flat Phantom, Mid frequency, with **Dell** Laptop (See Figure 21)	0.197	0.345	0.200
Flat Phantom, Mid frequency, with **HP** Laptop (See Figure 23)	0.237	0.421	0.117

Table 13: SAR Values (850 MHZ GPRS)

Limit of SAR (W/kg)	10 g Average	1 g Average	Power Drift (dB)
	2.0	1.6	
Test Case	**Measurement Result (W/kg)**		
	10 g Average	**1 g Average**	
Flat Phantom, Mid frequency, **4** timeslots in uplink with **IBM** Laptop (See Figure 25)	0.468	0.756	0.004
Flat Phantom, Mid frequency, **3** timeslots in uplink with **IBM** Laptop (See Figure 27)	0.556	0.897	0.073
Flat Phantom, Mid frequency, **2** timeslots in uplink with **IBM** Laptop (See Figure 29)	0.609	0.982	-0.041
Flat Phantom, Mid frequency, **1** timeslots in uplink with **IBM** Laptop (See Figure 31)	0.504	0.812	0.200
Flat Phantom, Mid frequency, **2** timeslots in uplink with **Dell** Laptop (See Figure 33)	0.572	0.860	-0.078
Flat Phantom, Mid frequency, **2** timeslots in uplink with **HP** Laptop (See Figure 35)	0.572	0.906	-0.076

Table 14: SAR Values (1900 MHZ GPRS)

Limit of SAR (W/kg)	10 g Average	1 g Average	Power Drift (dB)
	2.0	1.6	
Test Case	**Measurement Result (W/kg)**		
	10 g Average	**1 g Average**	
Flat Phantom, Mid frequency, **4** timeslots in uplink with **IBM** Laptop (See Figure 37)	0.268	0.510	-0.021
Flat Phantom, Mid frequency, **3** timeslots in uplink with **IBM** Laptop (See Figure 39)	0.315	0.596	0.028
Flat Phantom, Mid frequency, **2** timeslots in uplink with **IBM** Laptop (See Figure 41)	0.330	0.620	0.011
Flat Phantom, Mid frequency, **1** timeslots in uplink with **IBM** Laptop (See Figure 43)	0.261	0.491	0.116
Flat Phantom, Mid frequency, **2** timeslots in uplink with **Dell** Laptop (See Figure 45)	0.125	0.217	-0.200
Flat Phantom, Mid frequency, **2** timeslots in uplink with **HP** Laptop (See Figure 47)	0.174	0.296	-0.175

8.4 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 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.

9 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 values	B	5.0	R	√3	0.6	1.7	∞
20	Liquid Permittivity - measurement uncertainty	B	5.0	N	1	0.6	1.7	M
	Combined Standard Uncertainty			RSS			11.25	
	Expanded Uncertainty (95% CONFIDENCE INTERVAL)			K=2			22.5	

10 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 30,2006	One year
02	Power meter	NRVD	101253	June 20, 2006	One year
03	Power sensor	NRV-Z5	100333		
04	Power sensor	NRV-Z6	100011	September 2, 2006	One year
05	Signal Generator	E4433B	US37230472	September 4, 2006	One Year
06	Amplifier	VTL5400	0505	No Calibration Requested	
07	BTS	CMU 200	105948	August 15, 2006	One year
08	E-field Probe	SPEAG ET3DV6	1736	December 1, 2006	One year
09	DAE	SPEAG DAE3	536	July 11, 2006	One year

10 TEST PERIOD

The test is performed from March 8th, 2007 to March 9th, 2007.

11 TEST LOCATION

The test is performed at Radio Communication & Electromagnetic Compatibility Laboratory of Telecommunication Metrology Center of Ministry of Information Industry of The People's Republic of China

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.

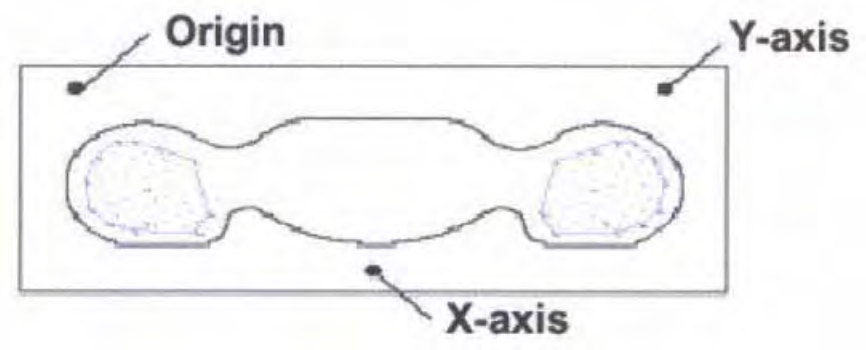
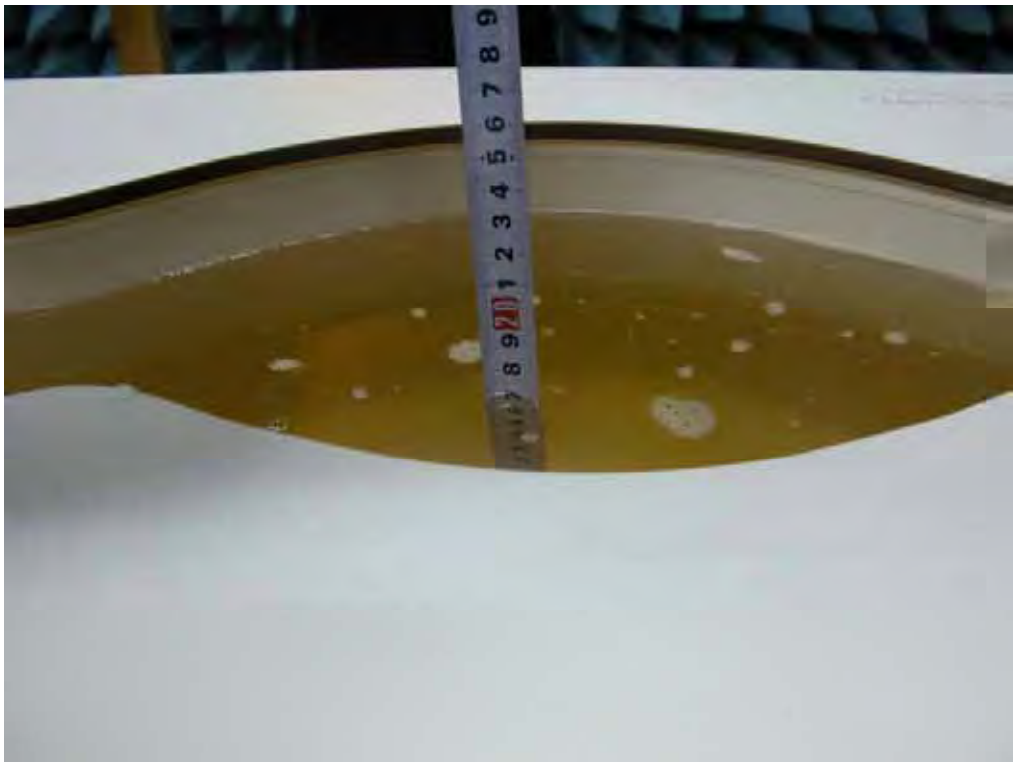


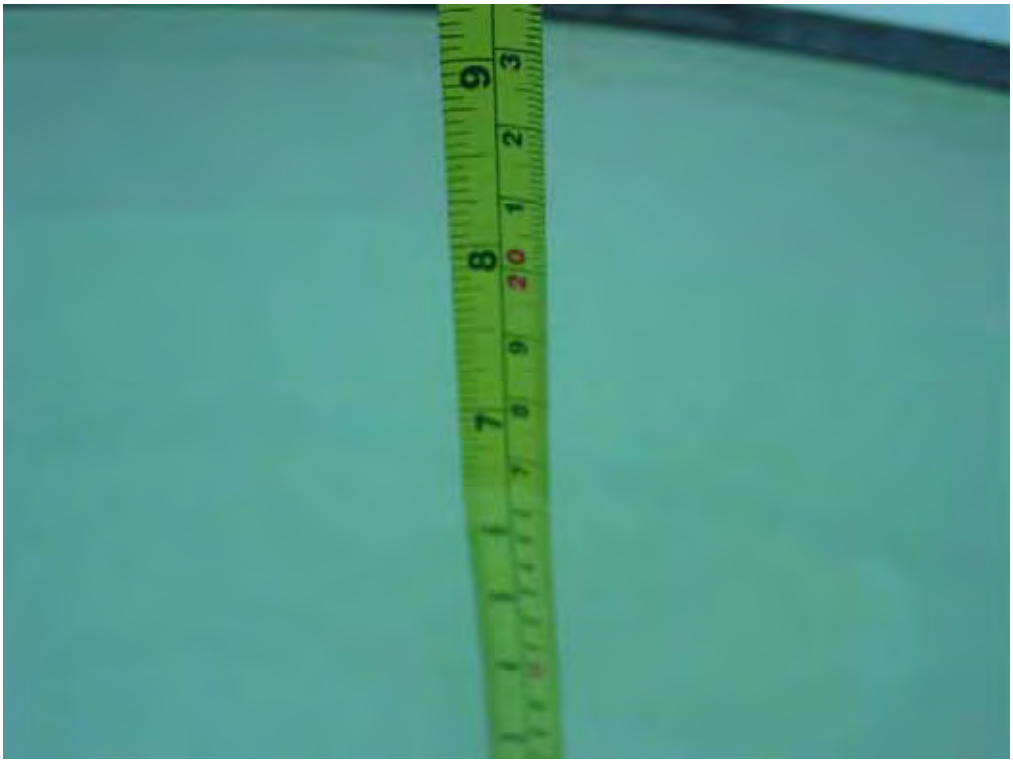
Figure A: SAR Measurement Points in Area Scan

ANNEX B： TEST LAYOUT

Picture B1: Specific Absorption Rate Test Layout



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



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

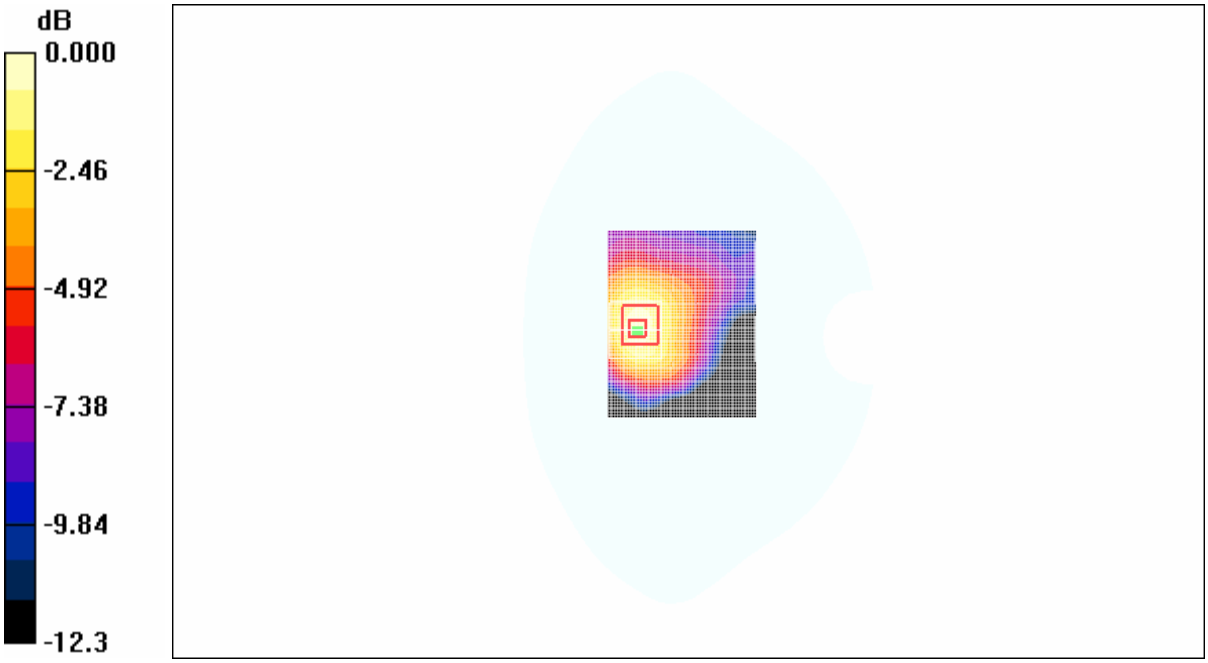
ANNEX C: GRAPH RESULTS

WCDMA 850 Test Position 1 with IBM Laptop

Date/Time: 2007-3-8 16:57:15
Electronics: DAE3 Sn536
Medium: 850 Body
Medium parameters used (interpolated):σ = 1.00 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C
Communication System: 850 Frequency: 836.4 MHz Duty Cycle: 1:1
Probe: ET3DV6 - SN1736 ConvF(6.45, 6.45, 6.45)

Test Position 1/Area Scan (61x71x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.086 mW/g

Test Position 1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 4.89 V/m; Power Drift = -0.029 dB
Peak SAR (extrapolated) = 0.122 W/kg
SAR(1 g) = 0.080 mW/g; SAR(10 g) = 0.050 mW/g
Maximum value of SAR (measured) = 0.088 mW/g



0 dB = 0.088mW/g

Fig. 1 WCDMA 850 CH4182 with IBM Laptop

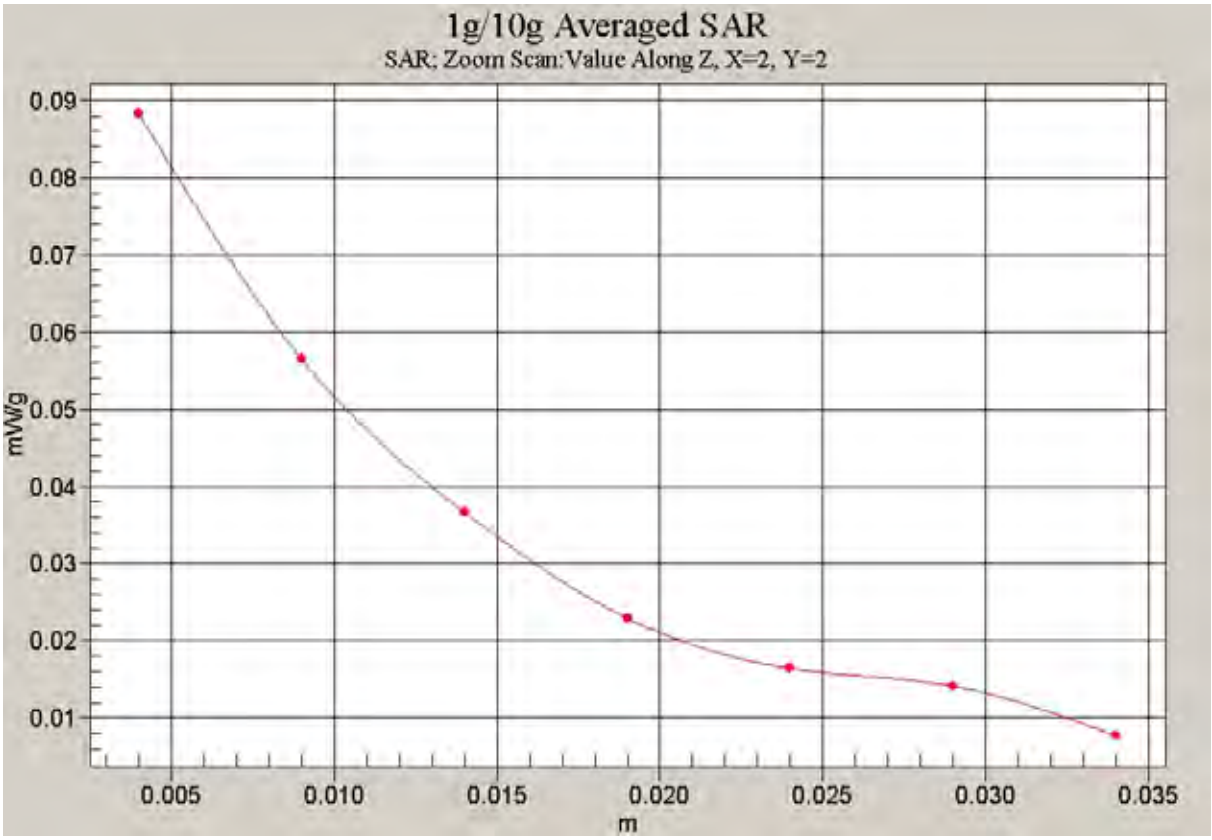


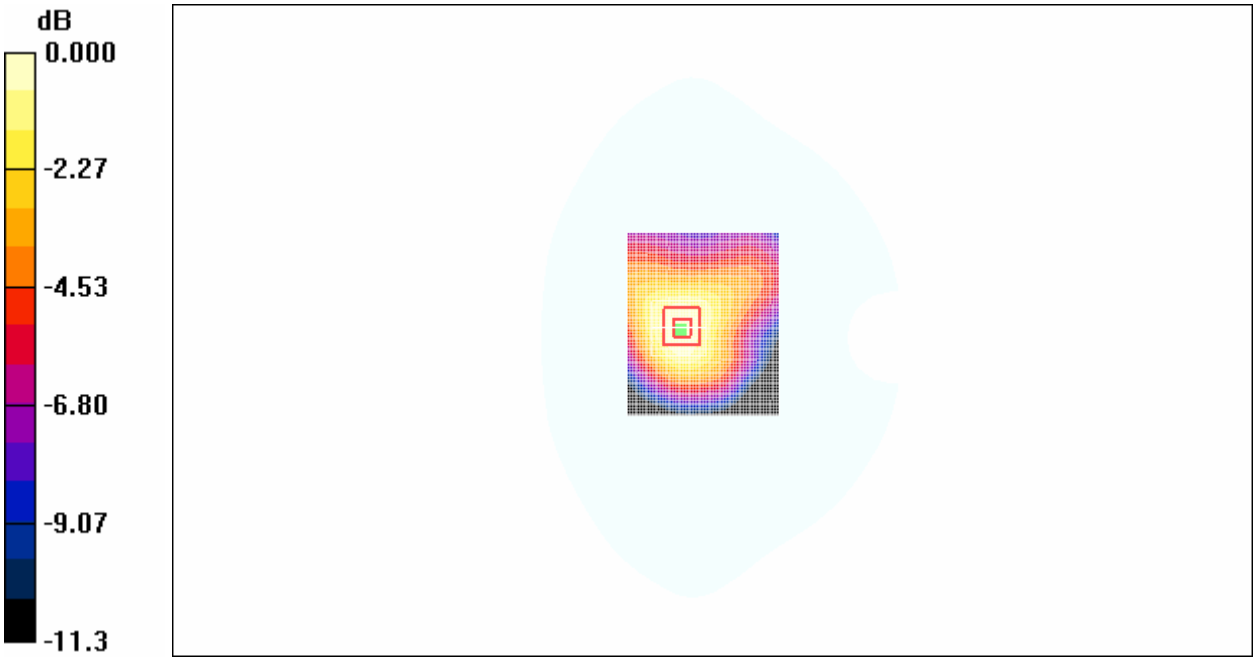
Fig.2 Z-Scan at power reference point (WCDMA 850 CH4182 with IBM Laptop)

WCDMA 850 Test Position 1 with Dell Laptop

Date/Time: 2007-3-8 17:16:09
Electronics: DAE3 Sn536
Medium: 850 Body
Medium parameters used (interpolated):σ = 1.00 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C
Communication System: 850 Frequency: 836.4 MHz Duty Cycle: 1:1
Probe: ET3DV6 - SN1736 ConvF(6.45, 6.45, 6.45)

Test Position 1/Area Scan (61x71x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.058 mW/g

Test Position 1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mmReference Value = 5.58 V/m; Power Drift = -0.125 dB
Peak SAR (extrapolated) = 0.074 W/kg
SAR(1 g) = 0.051 mW/g; SAR(10 g) = 0.034 mW/g
Maximum value of SAR (measured) = 0.055 mW/g



0 dB = 0.055mW/g

Fig. 3 WCDMA 850 CH4182 with Dell Laptop

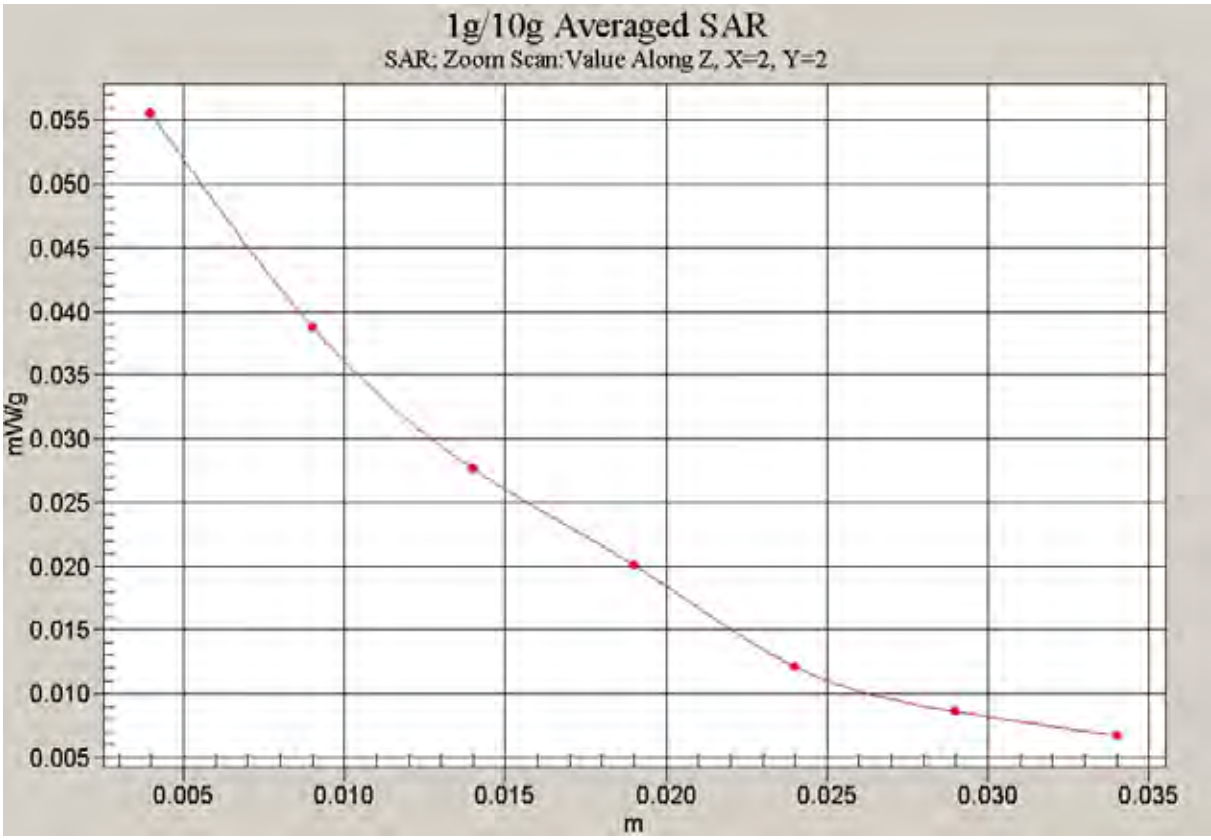


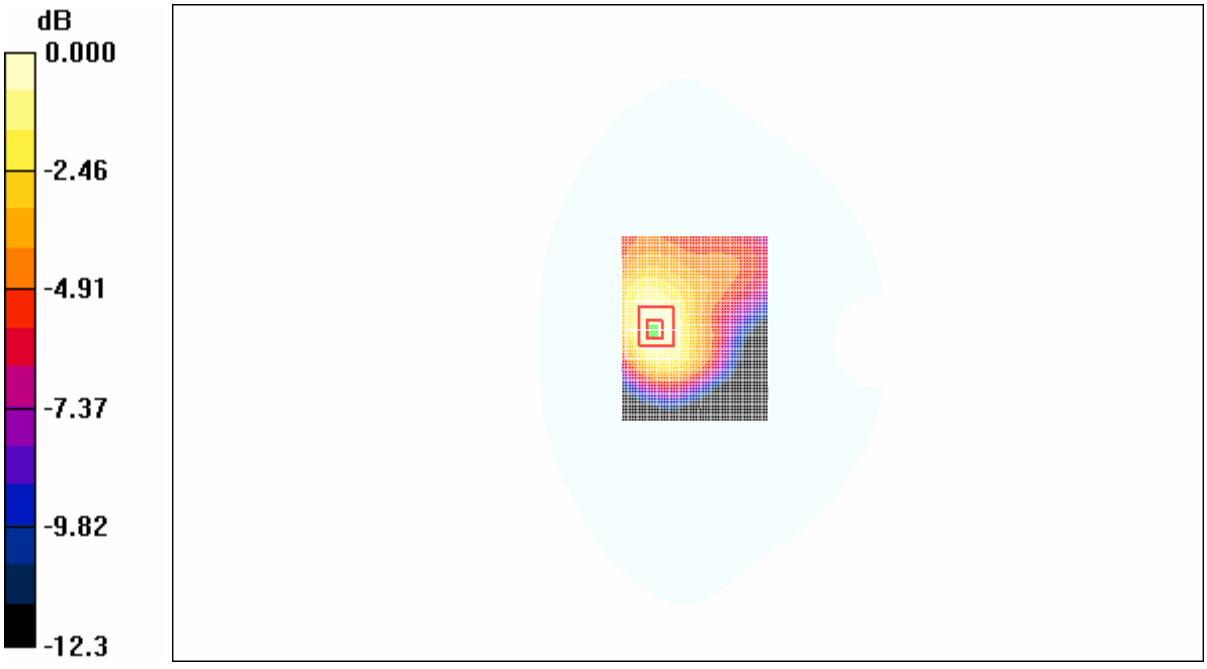
Fig.4 Z-Scan at power reference point (WCDMA 850 CH4182 with Dell Laptop)

WCDMA 850 Test Position 1 with HP Laptop

Date/Time: 2007-3-8 17:38:35
Electronics: DAE3 Sn536
Medium: 850 Body
Medium parameters used (interpolated):σ = 1.00 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C
Communication System: 850 Frequency: 836.4 MHz Duty Cycle: 1:1
Probe: ET3DV6 - SN1736 ConvF(6.45, 6.45, 6.45)

Test Position 1/Area Scan (61x71x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.074 mW/g

Test Position 1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.15 V/m; Power Drift = -0.155 dB
Peak SAR (extrapolated) = 0.106 W/kg
SAR(1 g) = 0.065 mW/g; SAR(10 g) = 0.041 mW/g
Maximum value of SAR (measured) = 0.070 mW/g



0 dB = 0.070mW/g

Fig. 5 WCDMA 850 CH4182 with HP Laptop

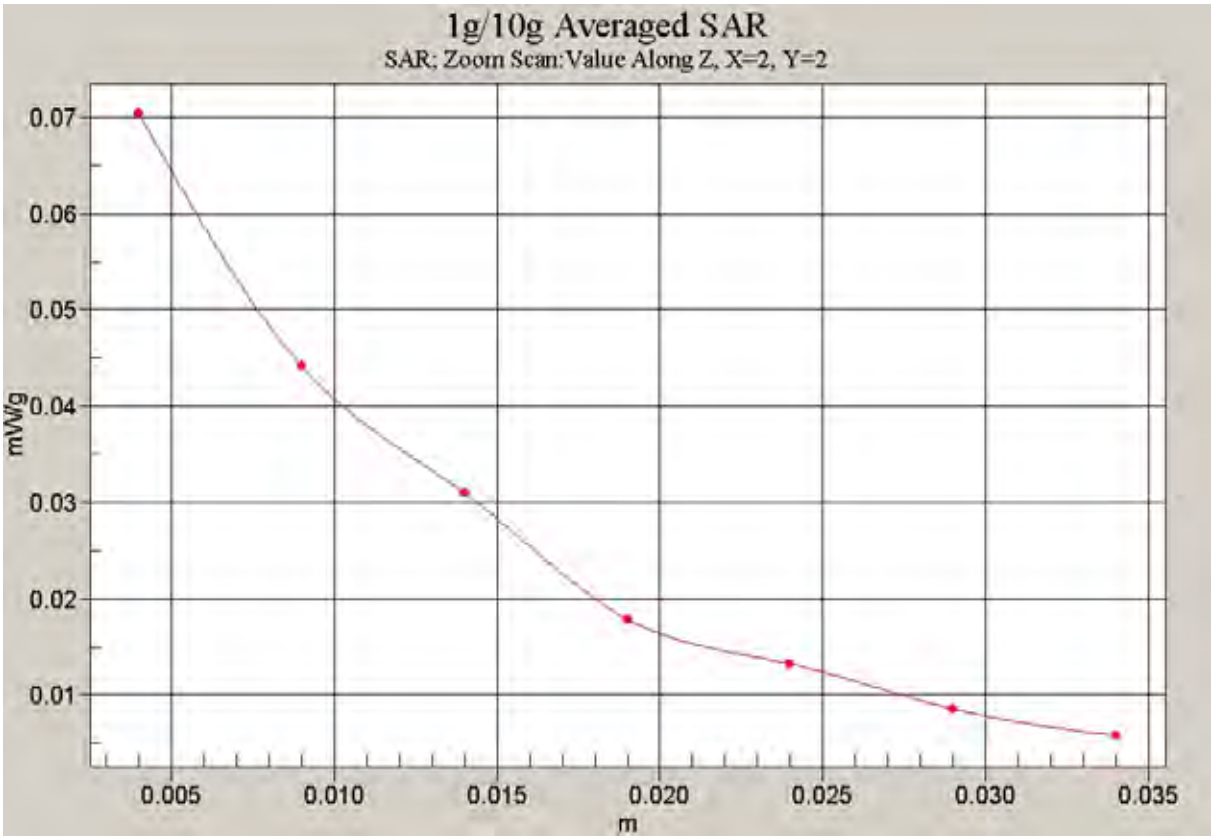


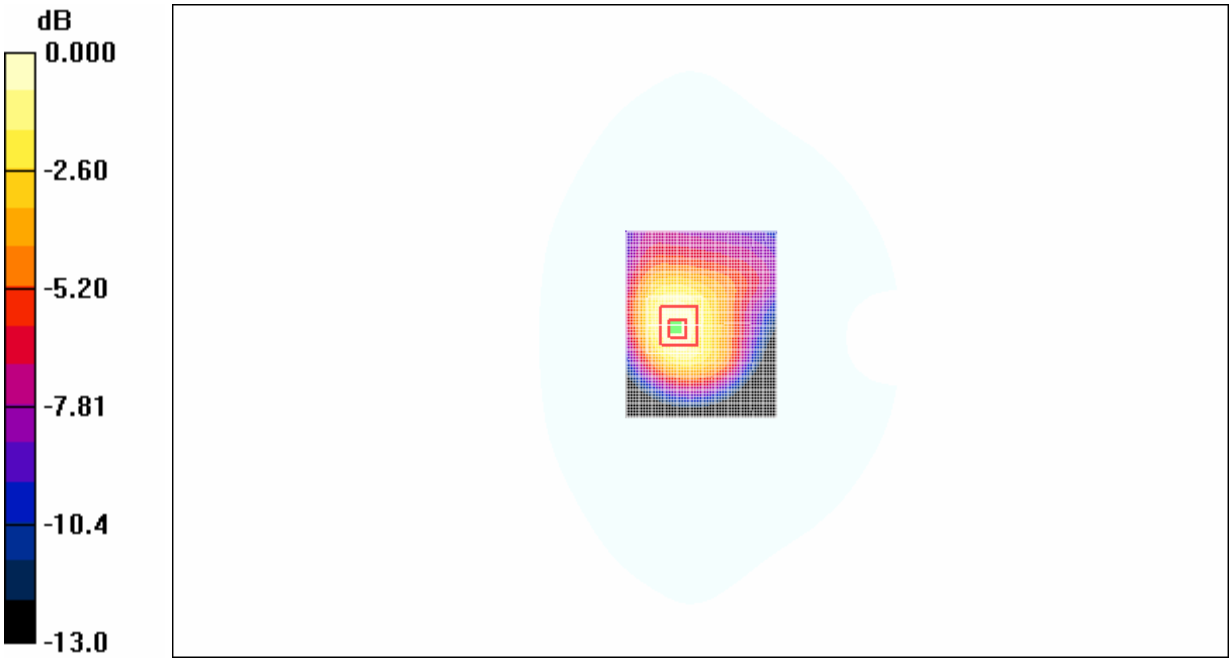
Fig.6 Z-Scan at power reference point (WCDMA 850 CH4182 with HP Laptop)

HSDPA 850 Test Position 1 with IBM Laptop

Date/Time: 2007-3-8 19:43:29
Electronics: DAE3 Sn536
Medium: 850 Body
Medium parameters used (interpolated):σ = 1.00 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C
Communication System: 850 Frequency: 836.4 MHz Duty Cycle: 1:2
Probe: ET3DV6 - SN1736 ConvF(6.45, 6.45, 6.45)

Test Position 1/Area Scan (61x71x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.943 mW/g

Test Position 1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 21.1 V/m; Power Drift = -0.173 dB
Peak SAR (extrapolated) = 1.31 W/kg
SAR(1 g) = 0.821 mW/g; SAR(10 g) = 0.506 mW/g
Maximum value of SAR (measured) = 0.895 mW/g



0 dB = 0.895mW/g

Fig.7 HSDPA 850 CH4182 with IBM Laptop

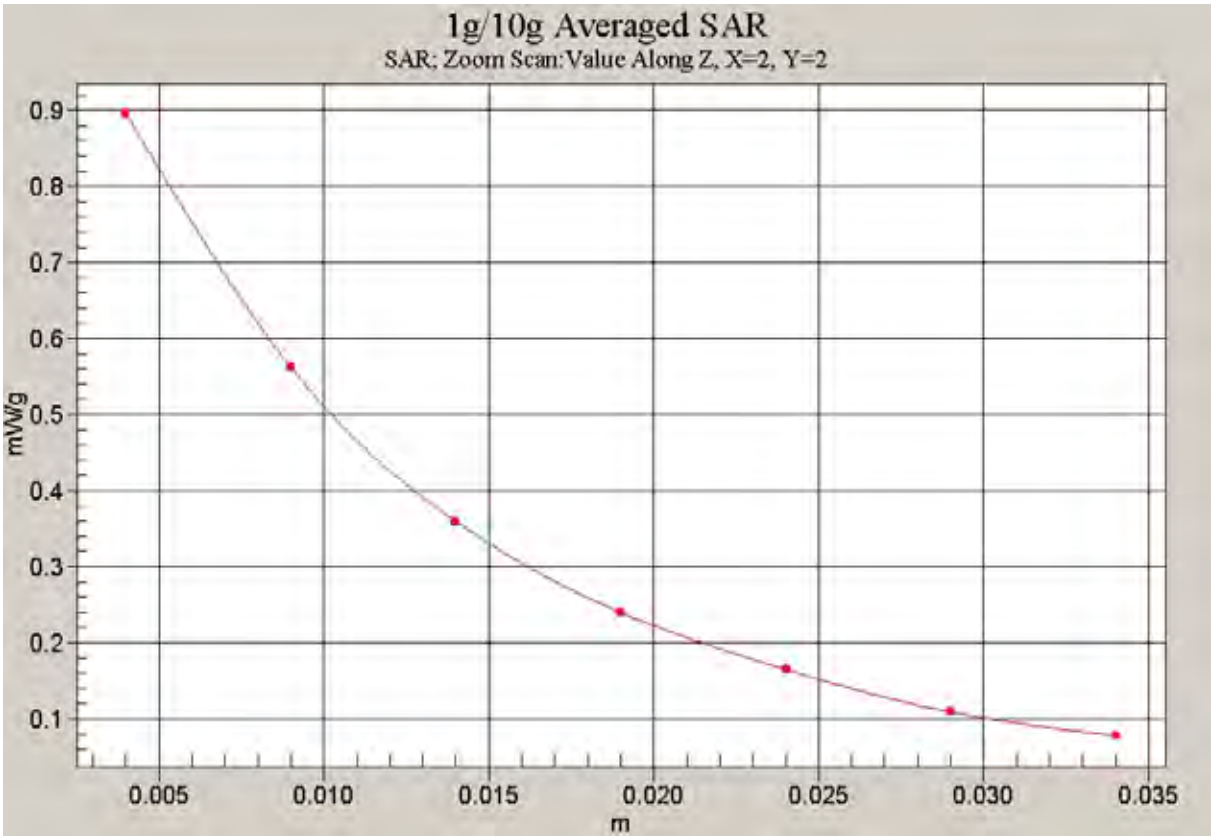


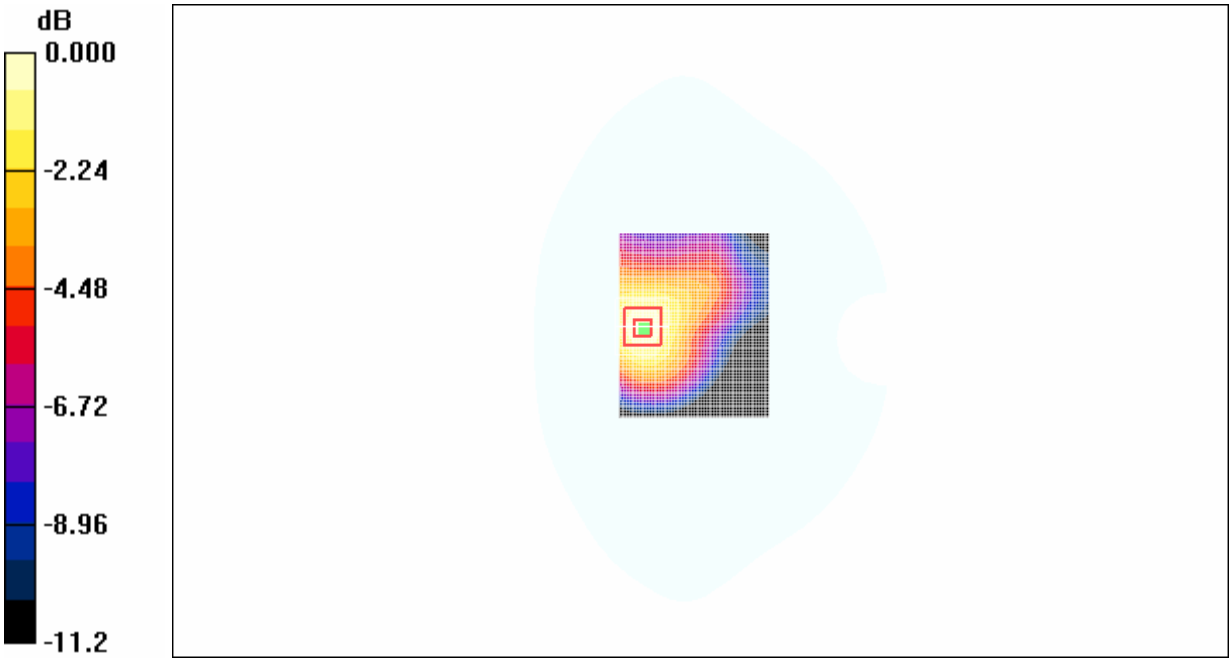
Fig.8 Z-Scan at power reference point (HSDPA 850 CH4182 with IBM Laptop)

HSDPA 850 Datacard Test Position 1 with Dell Laptop

Date/Time: 2007-3-8 19:28:01
Electronics: DAE3 Sn536
Medium: 850 Body
Medium parameters used (interpolated):σ = 1.00 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C
Communication System: 850 Frequency: 836.4 MHz Duty Cycle: 1:2
Probe: ET3DV6 - SN1736 ConvF(6.45, 6.45, 6.45)

Test Position 1/Area Scan (61x71x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.593 mW/g

Test Position 1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.7 V/m; Power Drift = 0.127 dB
Peak SAR (extrapolated) = 0.802 W/kg
SAR(1 g) = 0.559 mW/g; SAR(10 g) = 0.370 mW/g
Maximum value of SAR (measured) = 0.603 mW/g



0 dB = 0.603mW/g

Fig.9 HSDPA 850 CH4182 with Dell Laptop

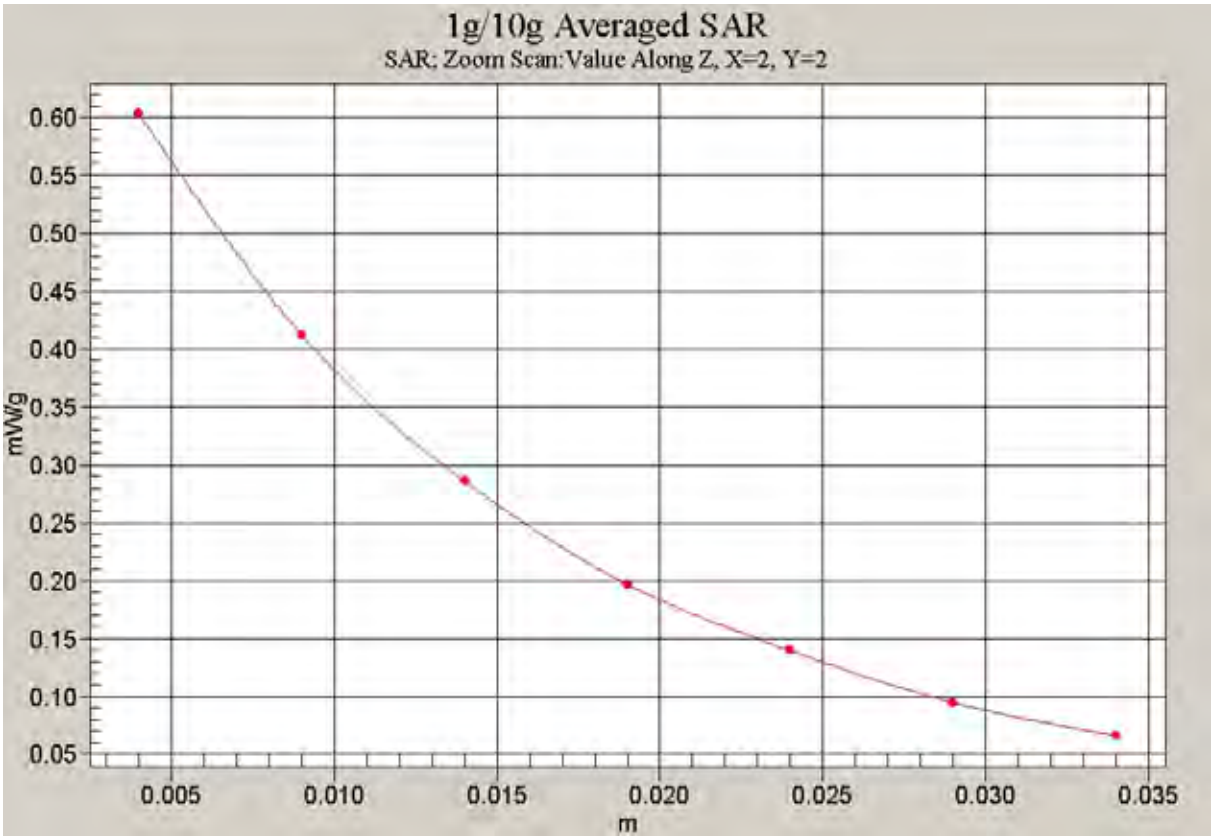


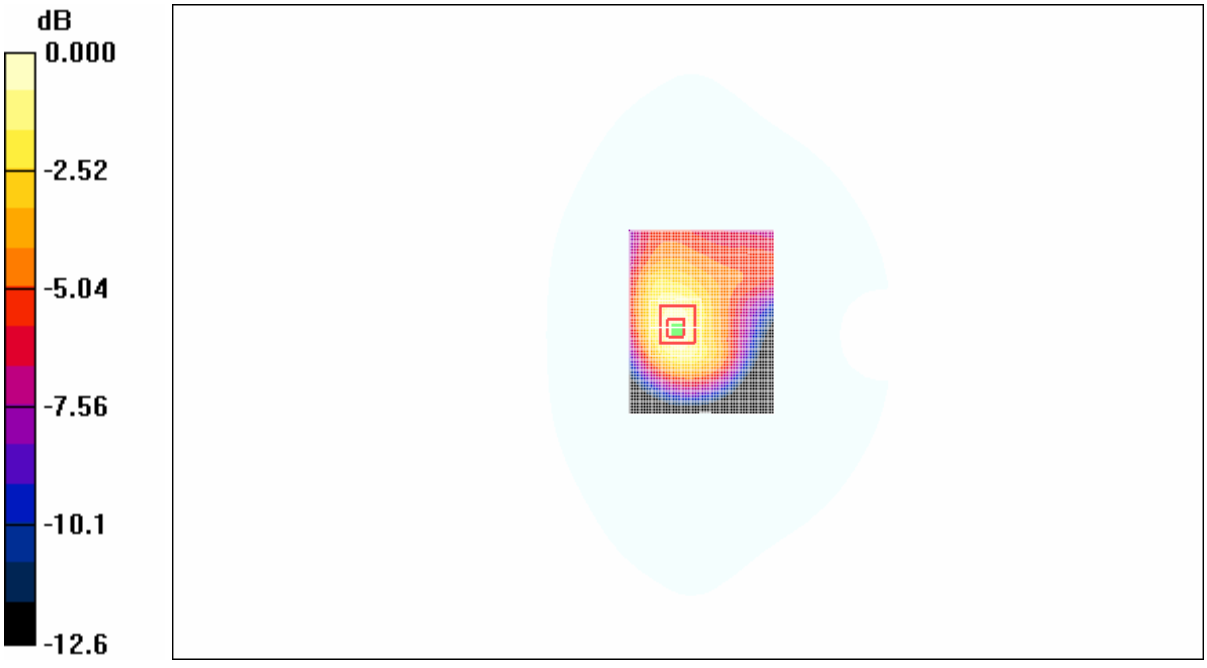
Fig.10 Z-Scan at power reference point (HSDPA 850 CH4182 with Dell Laptop)

HSDPA 850 Datacard Test Position 1 with HP Laptop

Date/Time: 2007-3-8 19:13:01
Electronics: DAE3 Sn536
Medium: 850 Body
Medium parameters used (interpolated):σ = 1.00 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C
Communication System: 850 Frequency: 836.4 MHz Duty Cycle: 1:2
Probe: ET3DV6 - SN1736 ConvF(6.45, 6.45, 6.45)

Test Position 1/Area Scan (61x71x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.896 mW/g

Test Position 1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 20.1 V/m; Power Drift = -0.041 dB
Peak SAR (extrapolated) = 1.32 W/kg
SAR(1 g) = 0.829 mW/g; SAR(10 g) = 0.513 mW/g
Maximum value of SAR (measured) = 0.907 mW/g



0 dB = 0.907mW/g

Fig.11 HSDPA 850 CH4182 with HP Laptop

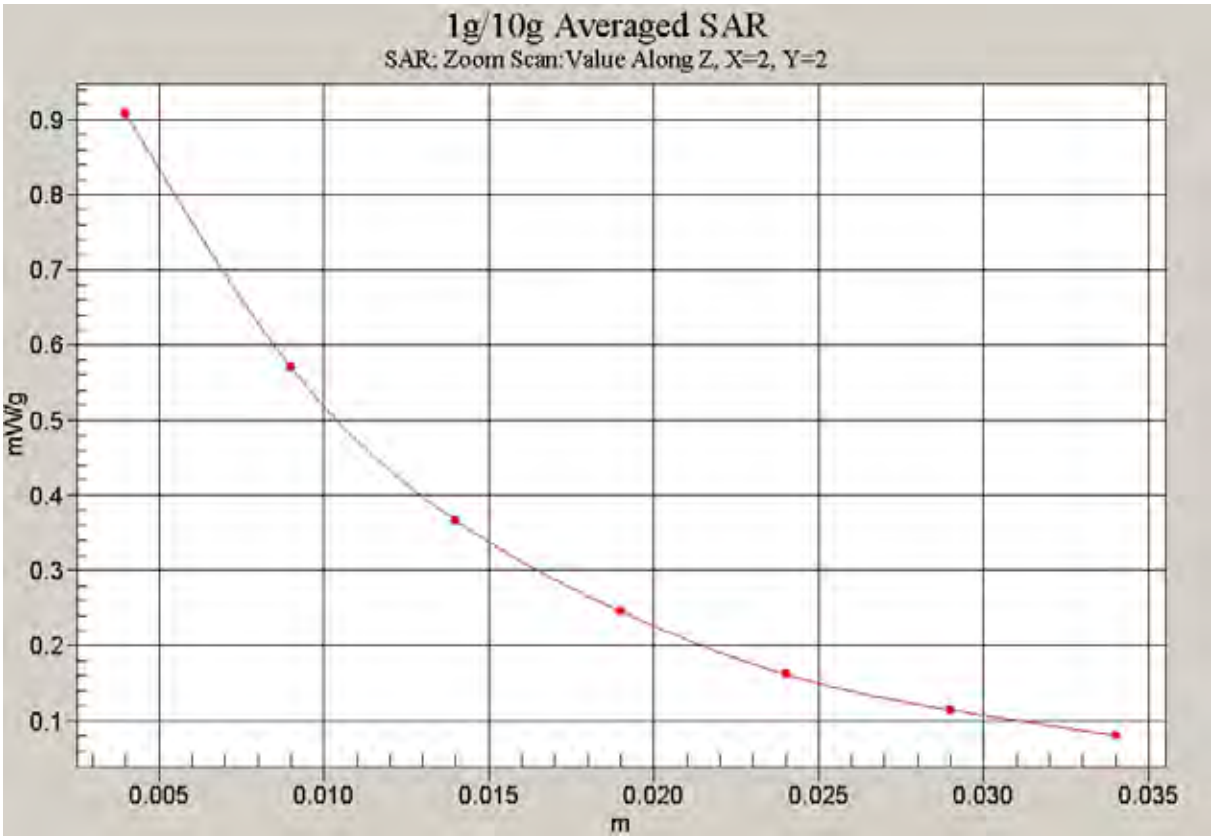


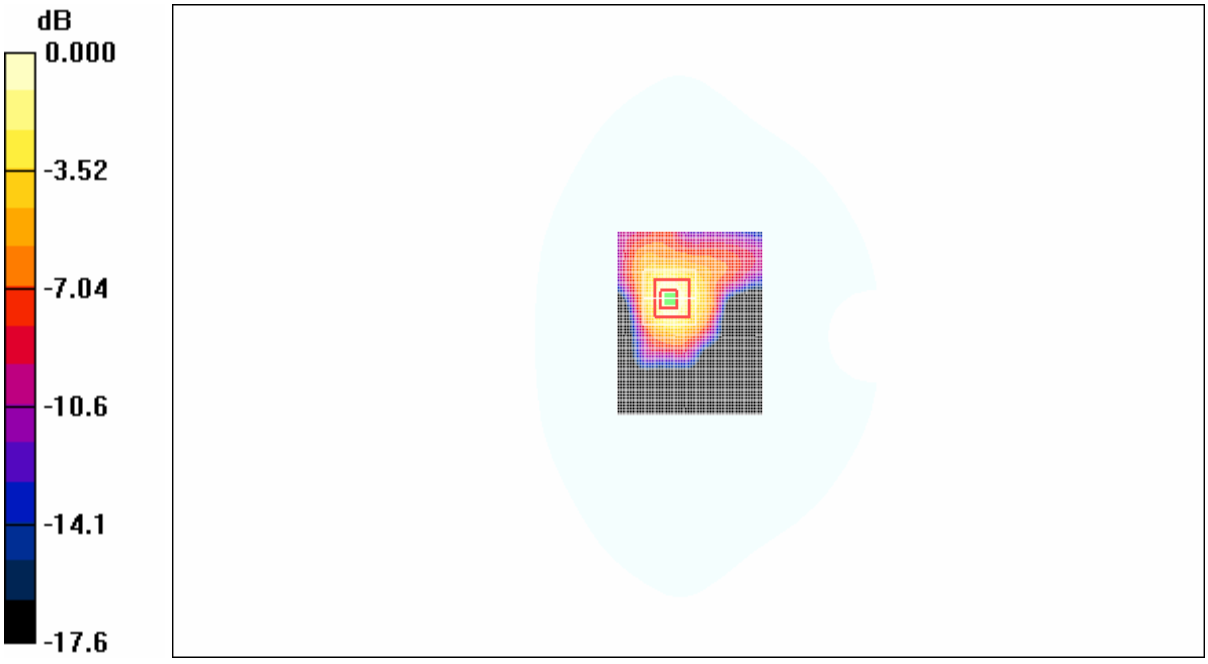
Fig.12 Z-Scan at power reference point (HSDPA 850 CH4182 with HP Laptop)

WCDMA 1900 Datacard Test Position 1 with IBM Laptop

Date/Time: 2007-3-9 16:35:36
Electronics: DAE3 Sn536
Medium: 1900 Body
Medium parameters used:σ = 1.57 mho/m; ε_r = 51.5; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C
Communication System: 1900MHz Frequency: 1880 MHz Duty Cycle: 1:1
Probe: ET3DV6 - SN1736 ConvF(4.88, 4.88, 4.88)

Test Position 1/Area Scan (61x71x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.194 mW/g

Test Position 2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 3.81 V/m; Power Drift = -0.157 dB
Peak SAR (extrapolated) = 0.302 W/kg
SAR(1 g) = 0.161 mW/g; SAR(10 g) = 0.086 mW/g
Maximum value of SAR (measured) = 0.181 mW/g



0 dB = 0.181mW/g

Fig. 13 WCDMA 1900 CH9400 with IBM Laptop

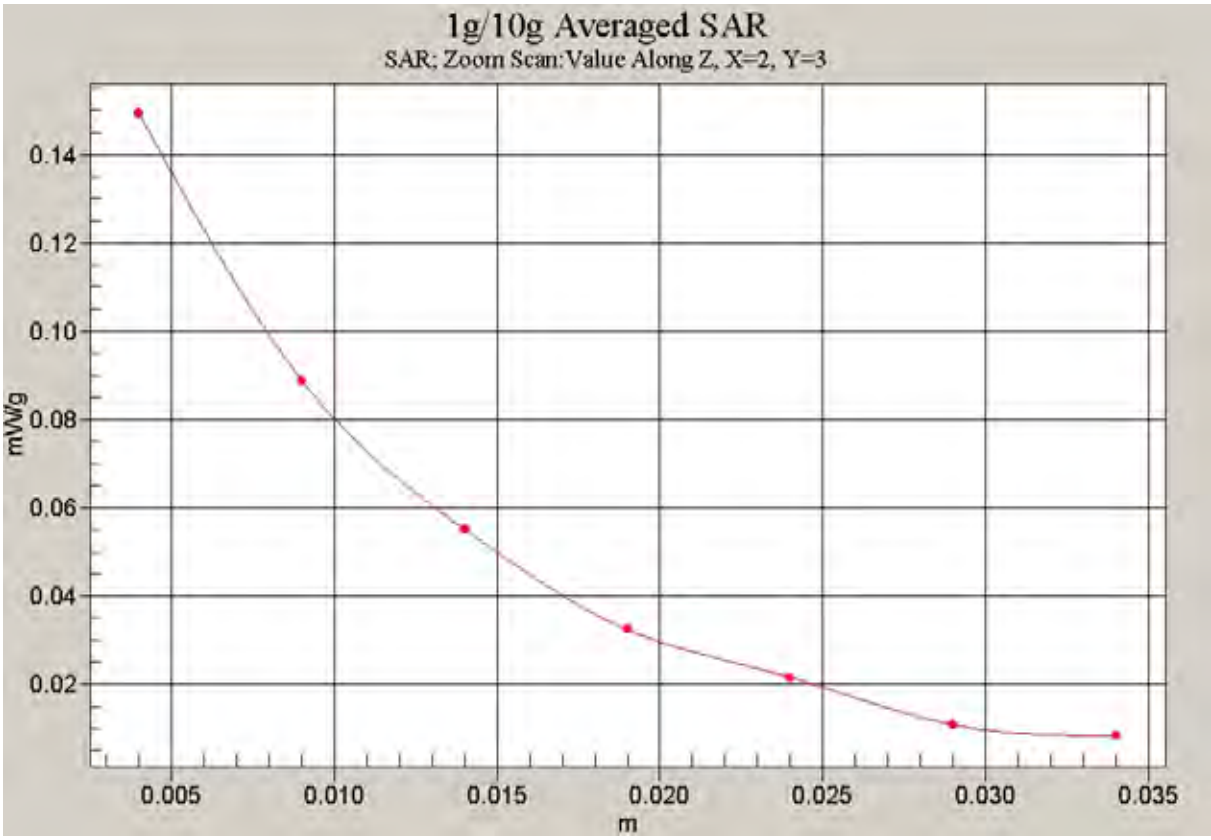


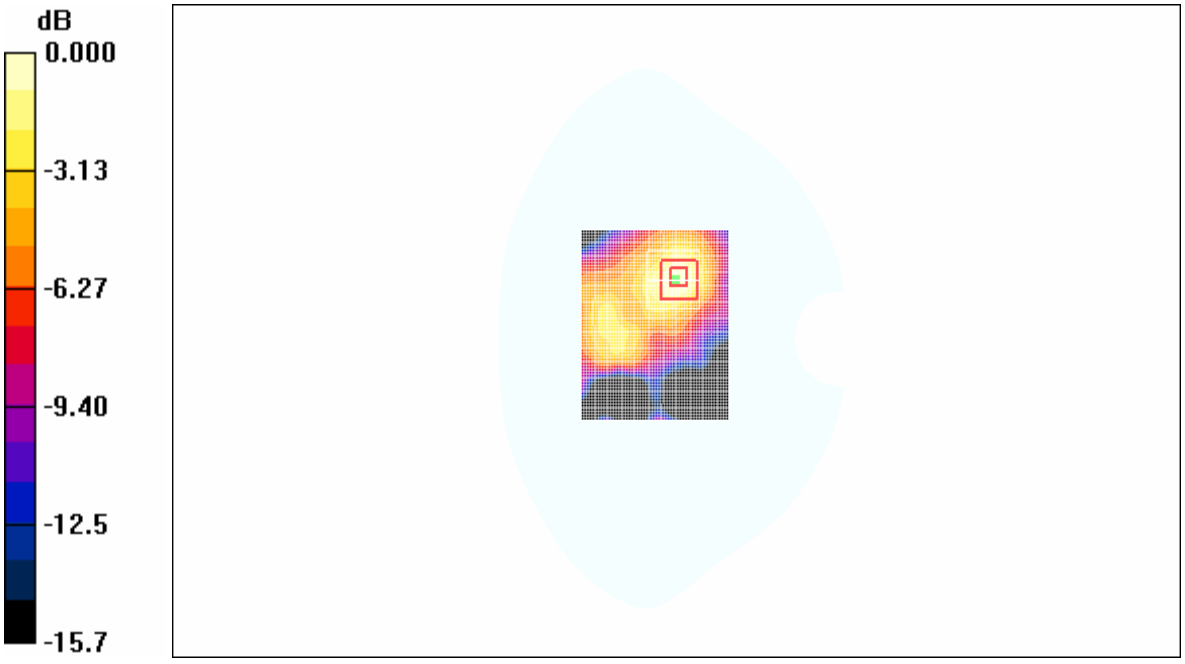
Fig.14 Z-Scan at power reference point (WCDMA 1900 CH9400 with IBM Laptop)

WCDMA 1900 Datacard Test Position 1 with Dell Laptop

Date/Time: 2007-3-9 16:20:01
Electronics: DAE3 Sn536
Medium: 1900 Body
Medium parameters used:σ = 1.57 mho/m; ε_r = 51.5; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C
Communication System: 1900MHz Frequency: 1880 MHz Duty Cycle: 1:1
Probe: ET3DV6 - SN1736 ConvF(4.88, 4.88, 4.88)

Test Position 1/Area Scan (61x71x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.054 mW/g

Test Position 1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.65 V/m; Power Drift = 0.109 dB
Peak SAR (extrapolated) = 0.113 W/kg
SAR(1 g) = 0.044 mW/g; SAR(10 g) = 0.024 mW/g
Maximum value of SAR (measured) = 0.050 mW/g



0 dB = 0.050mW/g

Fig. 15 WCDMA 1900 CH9400 with Dell Laptop

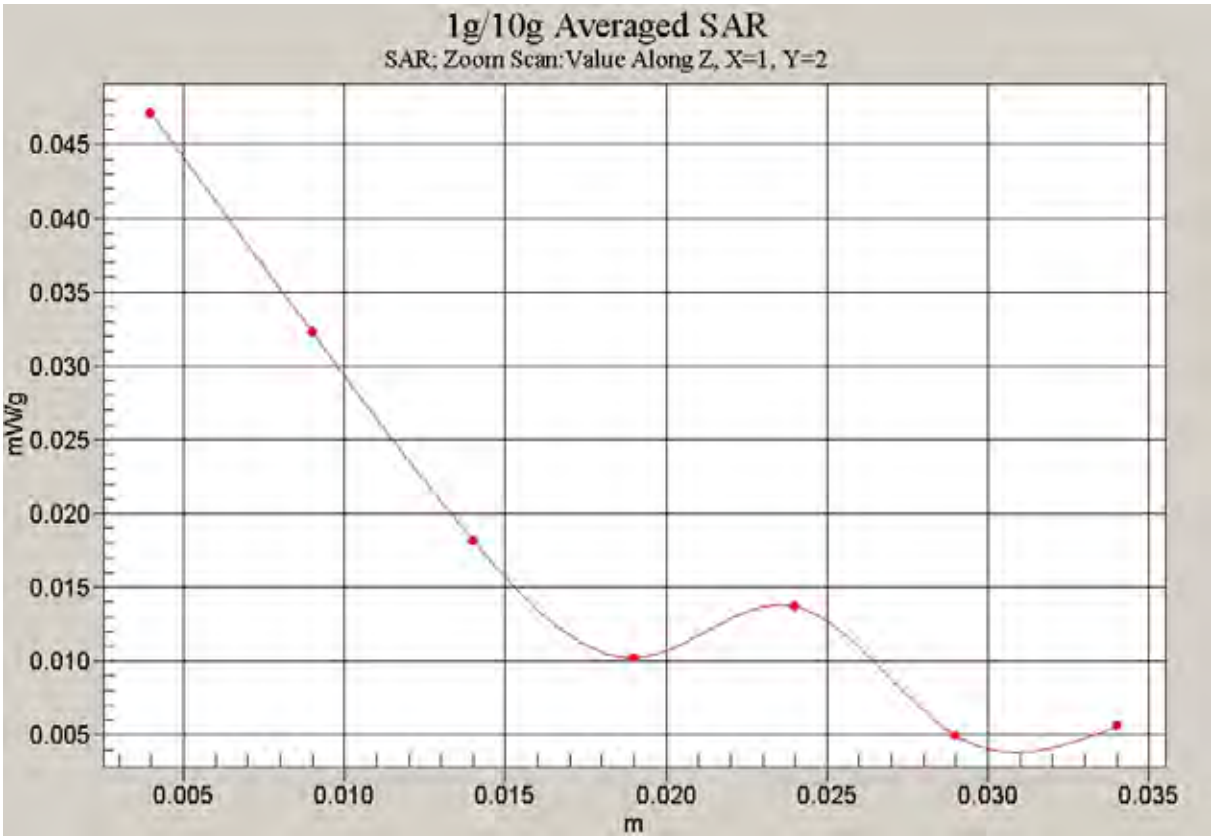


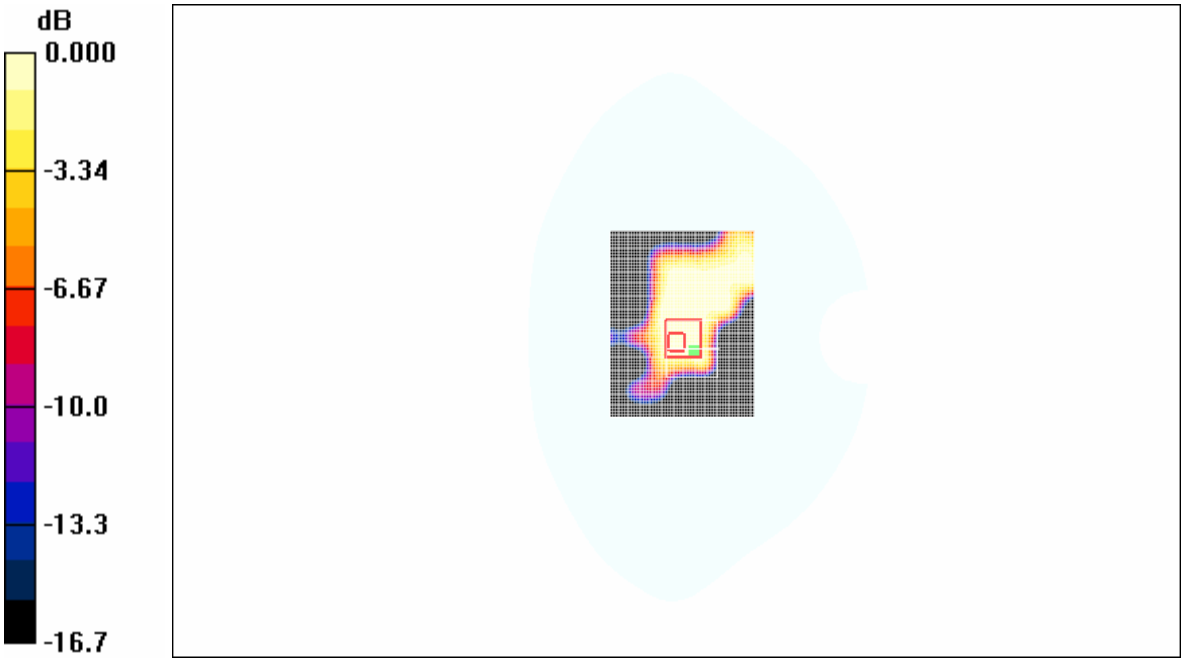
Fig.16 Z-Scan at power reference point (WCDMA 1900 CH9400 with Dell Laptop)

WCDMA 1900 Datacard Test Position 1 with HP Laptop

Date/Time: 2007-3-9 15:55:34
Electronics: DAE3 Sn536
Medium: 1900 Body
Medium parameters used:σ = 1.57 mho/m; ε_r = 51.5; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C
Communication System: 1900MHz Frequency: 1880 MHz Duty Cycle: 1:1
Probe: ET3DV6 - SN1736 ConvF(4.88, 4.88, 4.88)

Test Position 1/Area Scan (61x71x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.081 mW/g

Test Position 1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.04 V/m; Power Drift = 0.182 dB
Peak SAR (extrapolated) = 0.152 W/kg
SAR(1 g) = 0.051 mW/g; SAR(10 g) = 0.021 mW/g
Maximum value of SAR (measured) = 0.055 mW/g



0 dB = 0.055mW/g

Fig.17 WCDMA 1900 CH9400 with HP Laptop

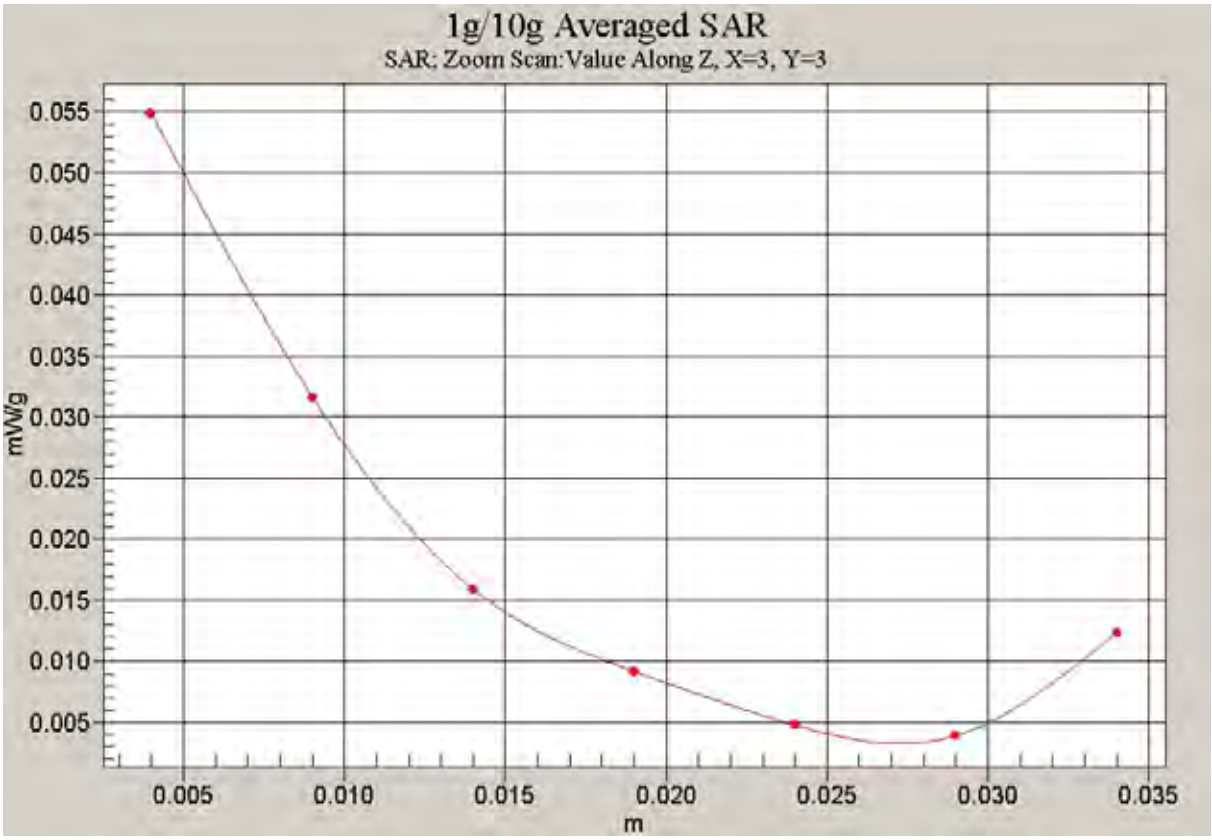


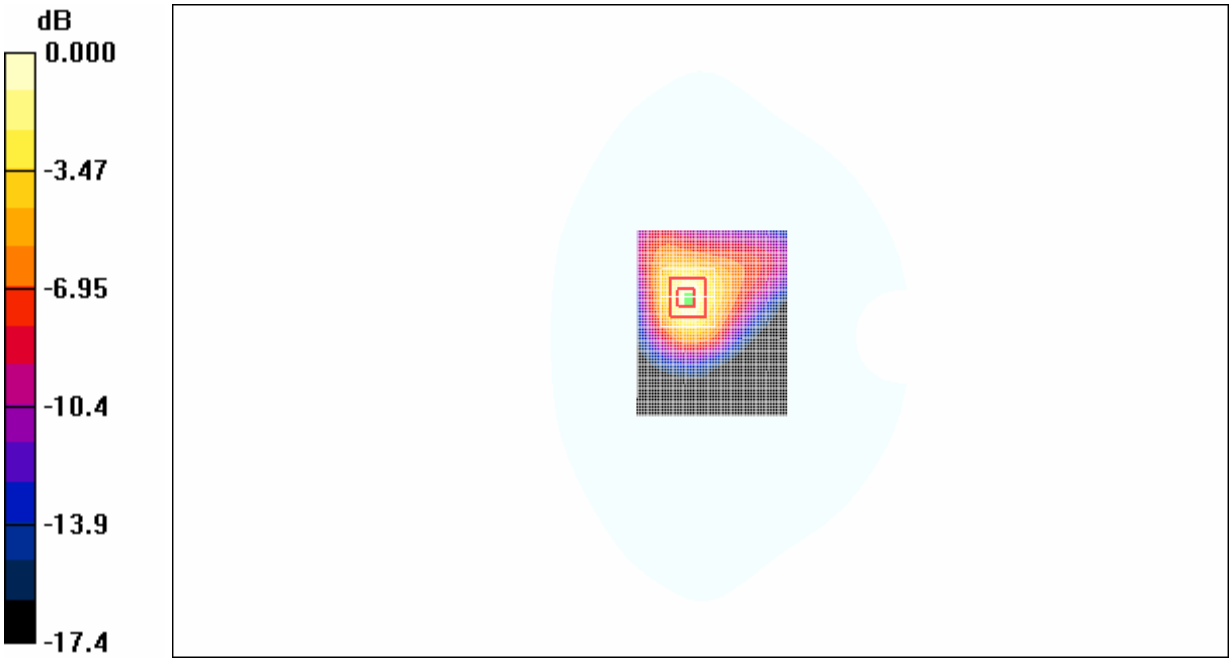
Fig.18 Z-Scan at power reference point (WCDMA 1900 CH9400 with HP Laptop)

HSDPA 1900 Test Position 1 with IBM Laptop

Date/Time: 2007-3-9 18:06:38
Electronics: DAE3 Sn536
Medium: 1900 Body
Medium parameters used:σ = 1.57 mho/m; ε_r = 51.5; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C
Communication System: 1900MHz Frequency: 1880 MHz Duty Cycle: 1:2
Probe: ET3DV6 - SN1736 ConvF(4.88, 4.88, 4.88)

Test Position 1/Area Scan (61x71x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.991 mW/g

Test Position 1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.10 V/m; Power Drift = 0.168 dB
Peak SAR (extrapolated) = 1.70 W/kg
SAR(1 g) = 0.888 mW/g; SAR(10 g) = 0.471 mW/g
Maximum value of SAR (measured) = 0.975 mW/g



0 dB = 0.975mW/g

Fig.19 HSDPA 1900 CH9400 with IBM Laptop

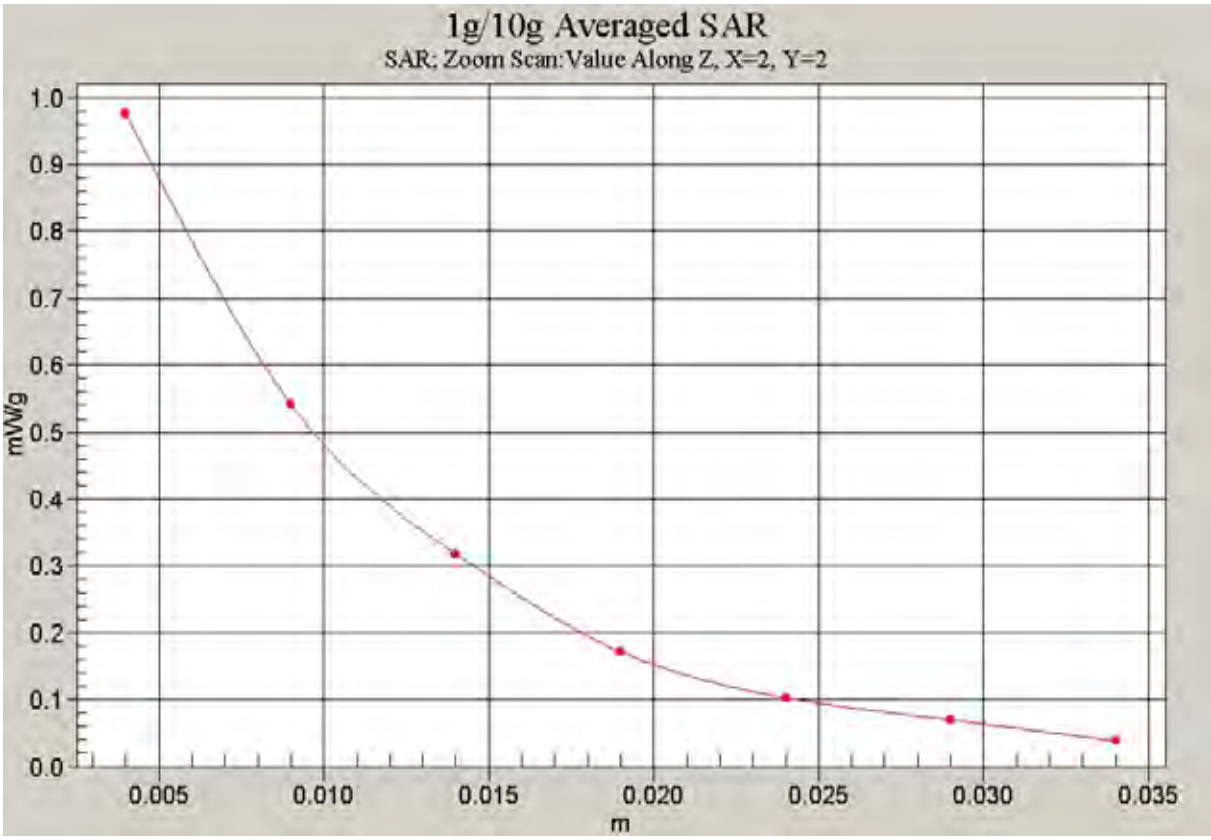


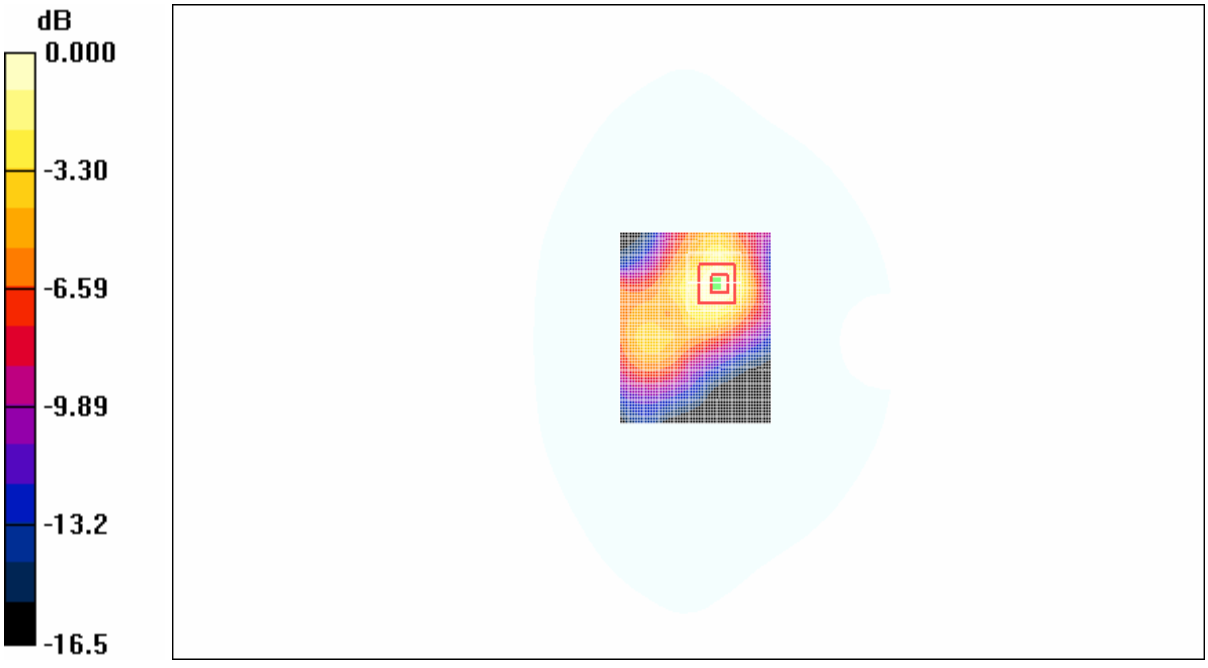
Fig.20 Z-Scan at power reference point (HSDPA 1900 CH9400 with IBM Laptop)

HSDPA 1900 Test Position 1 with Dell Laptop

Date/Time: 2007-3-9 18:29:58
Electronics: DAE3 Sn536
Medium: 1900 Body
Medium parameters used:σ = 1.57 mho/m; ε_r = 51.5; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C
Communication System: 1900MHz Frequency: 1880 MHz Duty Cycle: 1:2
Probe: ET3DV6 - SN1736 ConvF(4.88, 4.88, 4.88)

Test Position 1/Area Scan (61x71x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.396 mW/g

Test Position 1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.97 V/m; Power Drift = 0.200 dB
Peak SAR (extrapolated) = 0.595 W/kg
SAR(1 g) = 0.345 mW/g; SAR(10 g) = 0.197 mW/g
Maximum value of SAR (measured) = 0.363 mW/g



0 dB = 0.363mW/g

Fig.21 HSDPA 1900 CH9400 with Dell Laptop

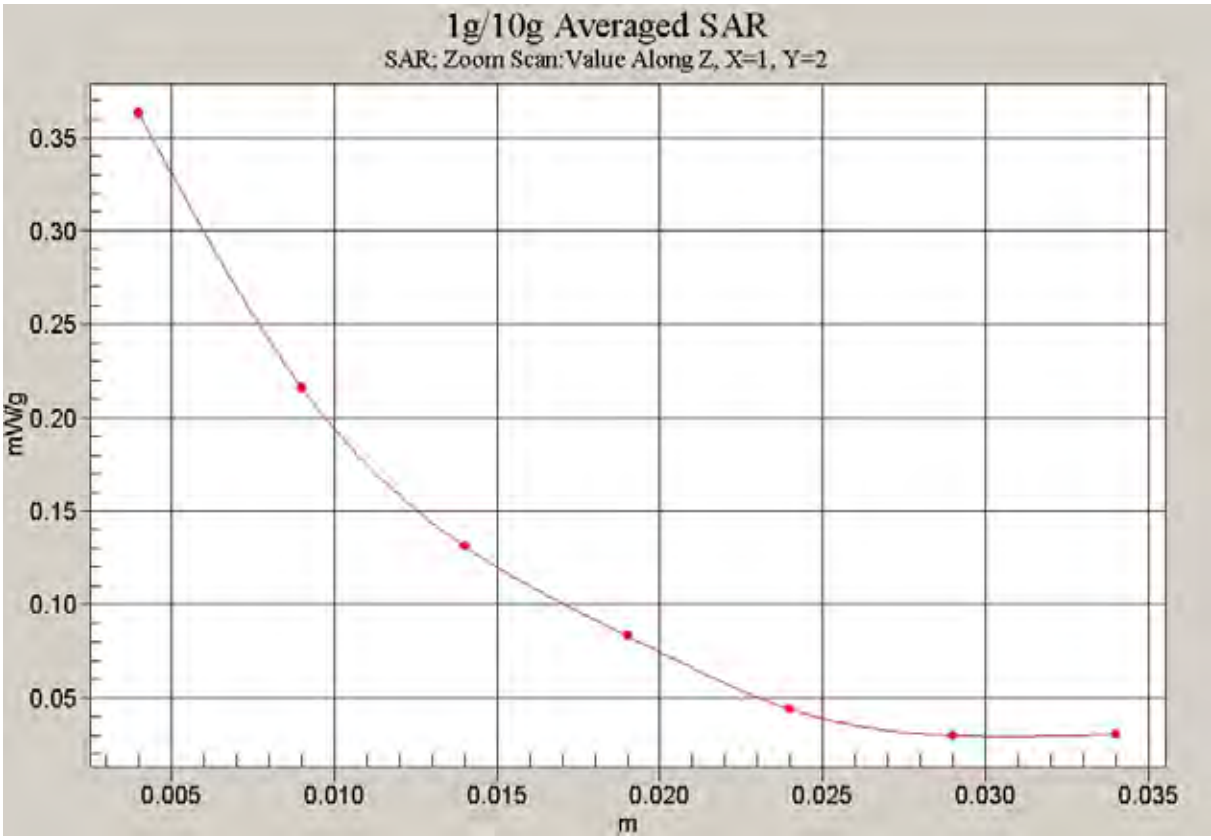


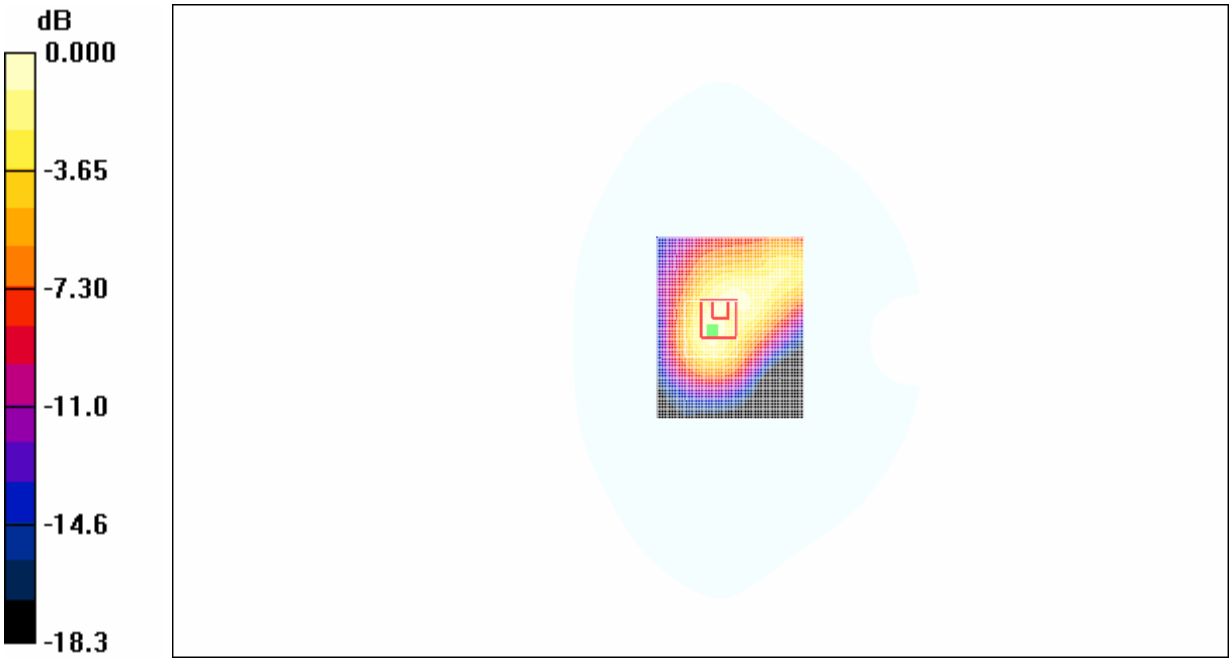
Fig.22 Z-Scan at power reference point (HSDPA 1900 CH9400 with Dell Laptop)

HSDPA 1900 Datacard Test Position 1 with HP Laptop

Date/Time: 2007-3-9 18:46:57
Electronics: DAE3 Sn536
Medium: 1900 Body
Medium parameters used:σ = 1.57 mho/m; ε_r = 51.5; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C
Communication System: 1900MHz Frequency: 1880 MHz Duty Cycle: 1:2
Probe: ET3DV6 - SN1736 ConvF(4.88, 4.88, 4.88)

Test Position 1/Area Scan (61x71x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.467 mW/g

Test Position 1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.9 V/m; Power Drift = 0.117 dB
Peak SAR (extrapolated) = 0.771 W/kg
SAR(1 g) = 0.421 mW/g; SAR(10 g) = 0.237 mW/g
Maximum value of SAR (measured) = 0.510 mW/g



0 dB = 0.510mW/g

Fig.23 HSDPA 1900 CH9400 with HP Laptop

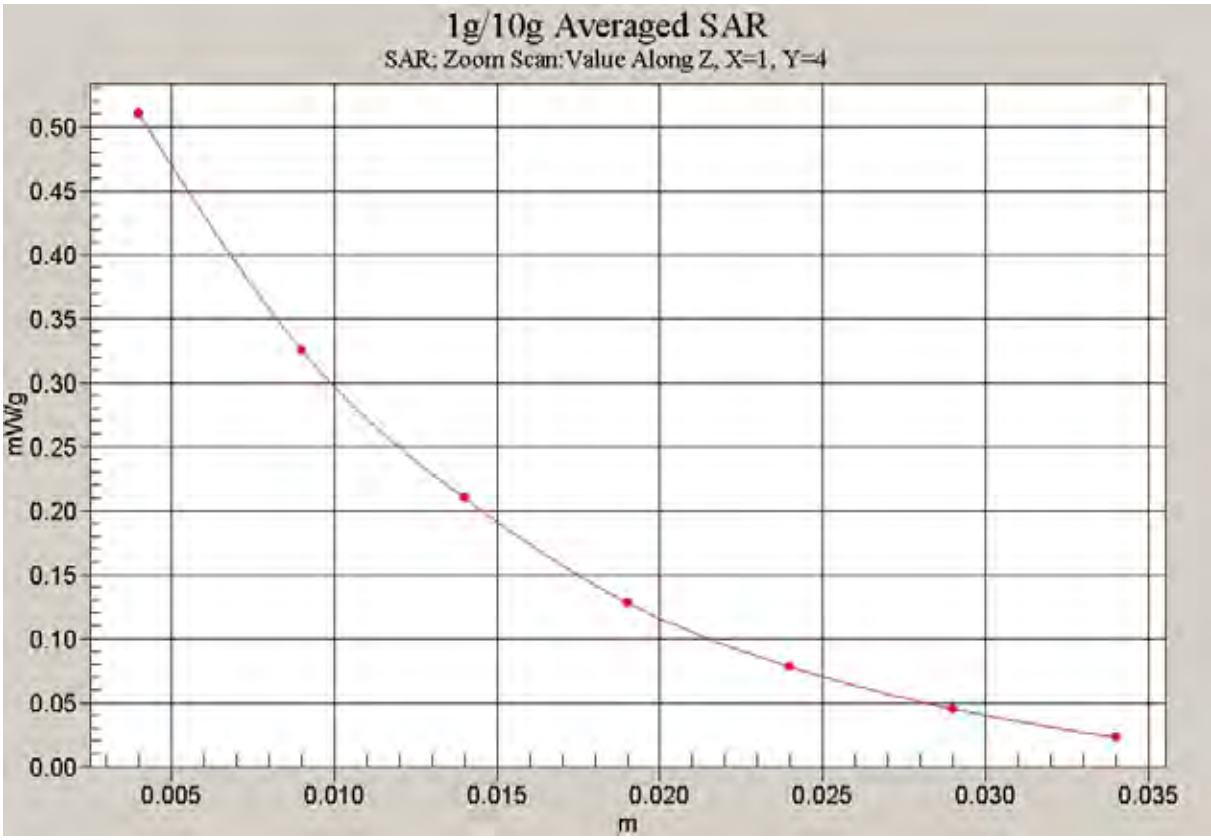


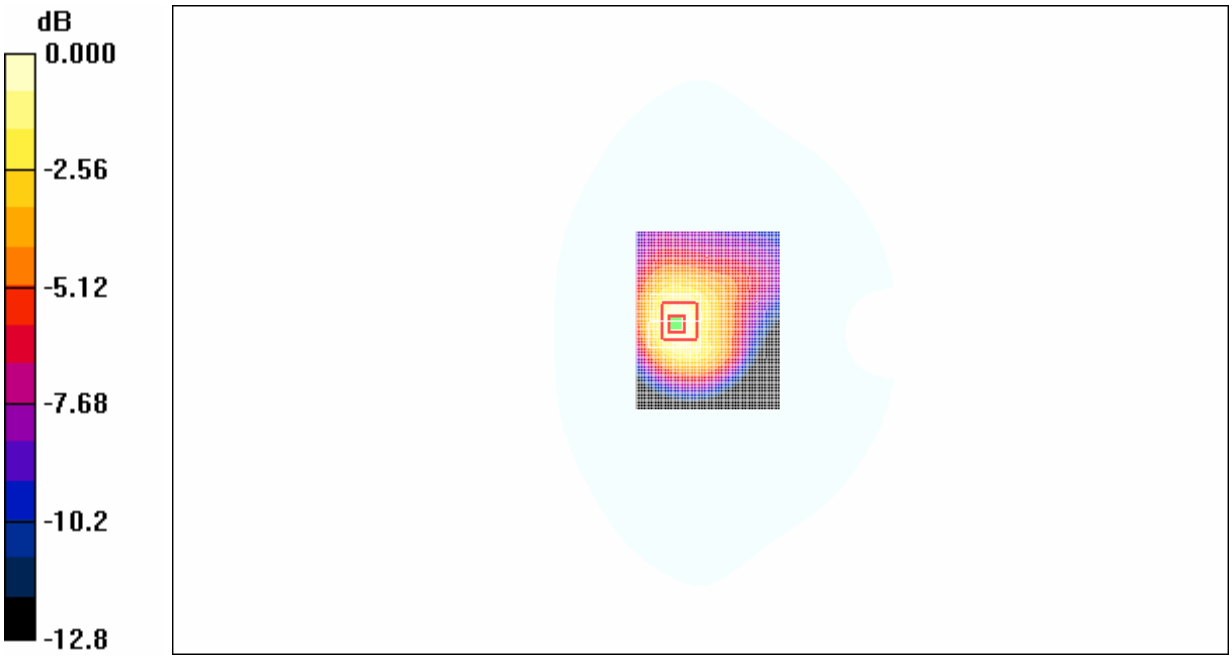
Fig.24 Z-Scan at power reference point (HSDPA 1900 CH9400 with HP Laptop)

850MHz GPRS Test Position 1 with IBM Laptop (4 timeslots in uplink)

Date/Time: 2007-3-8 16:34:25
Electronics: DAE3 Sn536
Medium: 850 Body
Medium parameters used (interpolated):σ = 1.00 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C
Communication System: 850 Class 12 Frequency: 836.6 MHz Duty Cycle: 1:2
Probe: ET3DV6 - SN1736 ConvF(6.45, 6.45, 6.45)

Test Position 1/Area Scan (61x71x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.830 mW/g

Test Position 1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.2 V/m; Power Drift = 0.004 dB
Peak SAR (extrapolated) = 0.901 W/kg
SAR(1 g) = 0.756 mW/g; SAR(10 g) = 0.468 mW/g
Maximum value of SAR (measured) = 0.823 mW/g



0 dB = 0.823mW/g

Fig.25 850MHz GPRS CH190 with IBM Laptop (4 timeslots in uplink)

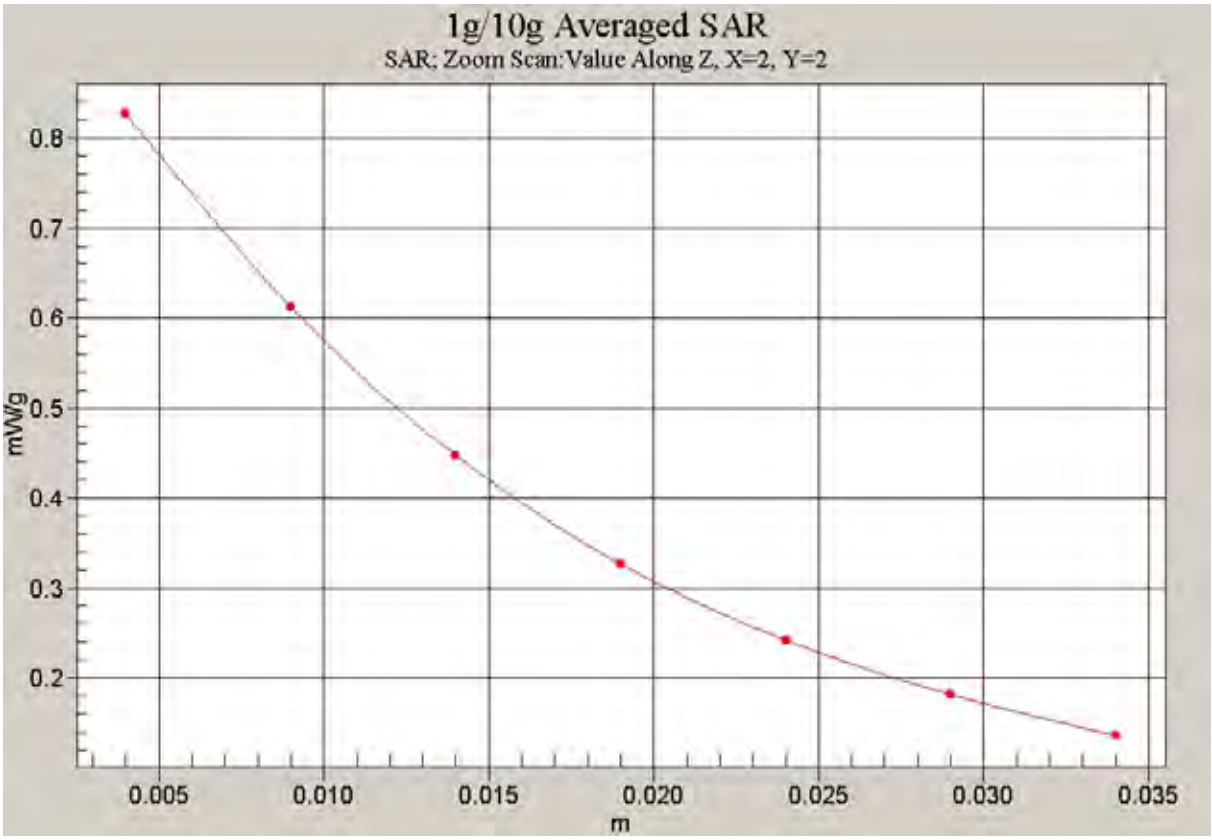


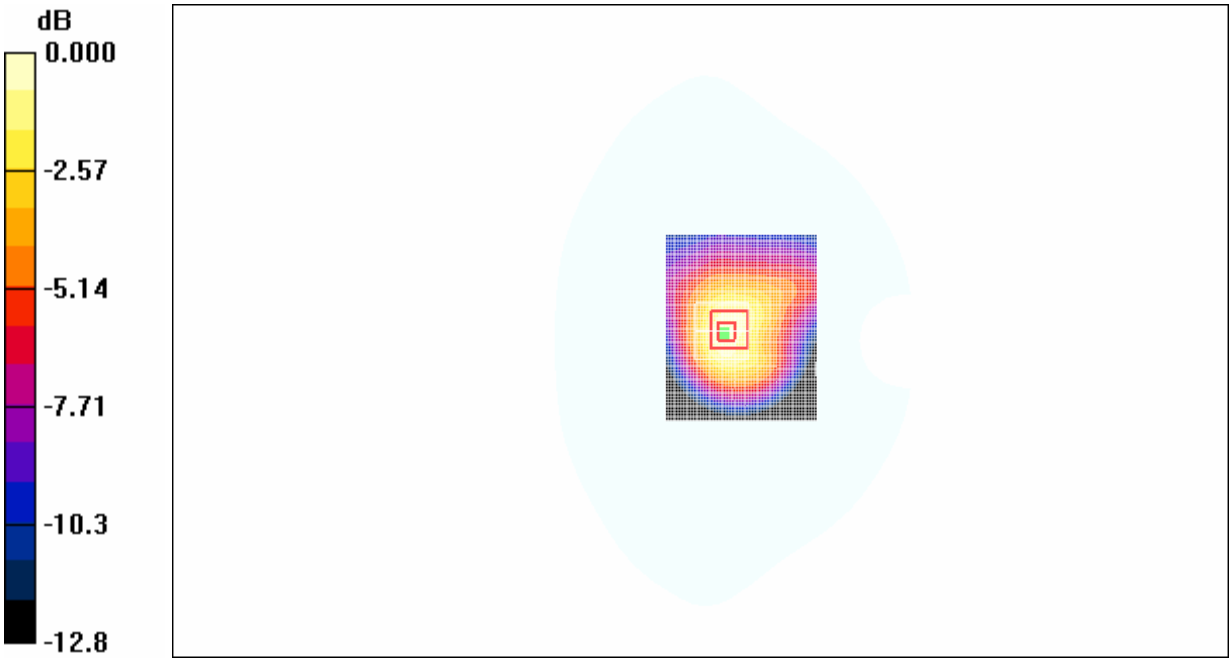
Fig.26 Z-Scan at power reference point (850MHz GPRS CH190 with IBM Laptop -4 timeslots in uplink)

850MHz GPRS Test Position 1 with IBM Laptop (3 timeslots in uplink)

Date/Time: 2007-3-8 15:37:28
Electronics: DAE3 Sn536
Medium: 850 Body
Medium parameters used (interpolated):σ = 1.00 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C
Communication System: 850 Class 12 Frequency: 836.6 MHz Duty Cycle: 1:2.67
Probe: ET3DV6 - SN1736 ConvF(6.45, 6.45, 6.45)

Test Position 1/Area Scan (61x71x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.938 mW/g

Test Position 1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 20.2 V/m; Power Drift = 0.073 dB
Peak SAR (extrapolated) = 1.03 W/kg
SAR(1 g) = 0.897 mW/g; SAR(10 g) = 0.556 mW/g
Maximum value of SAR (measured) = 0.914 mW/g



0 dB = 0.914mW/g

Fig.27 850MHz GPRS CH190 with IBM Laptop (3 timeslots in uplink)

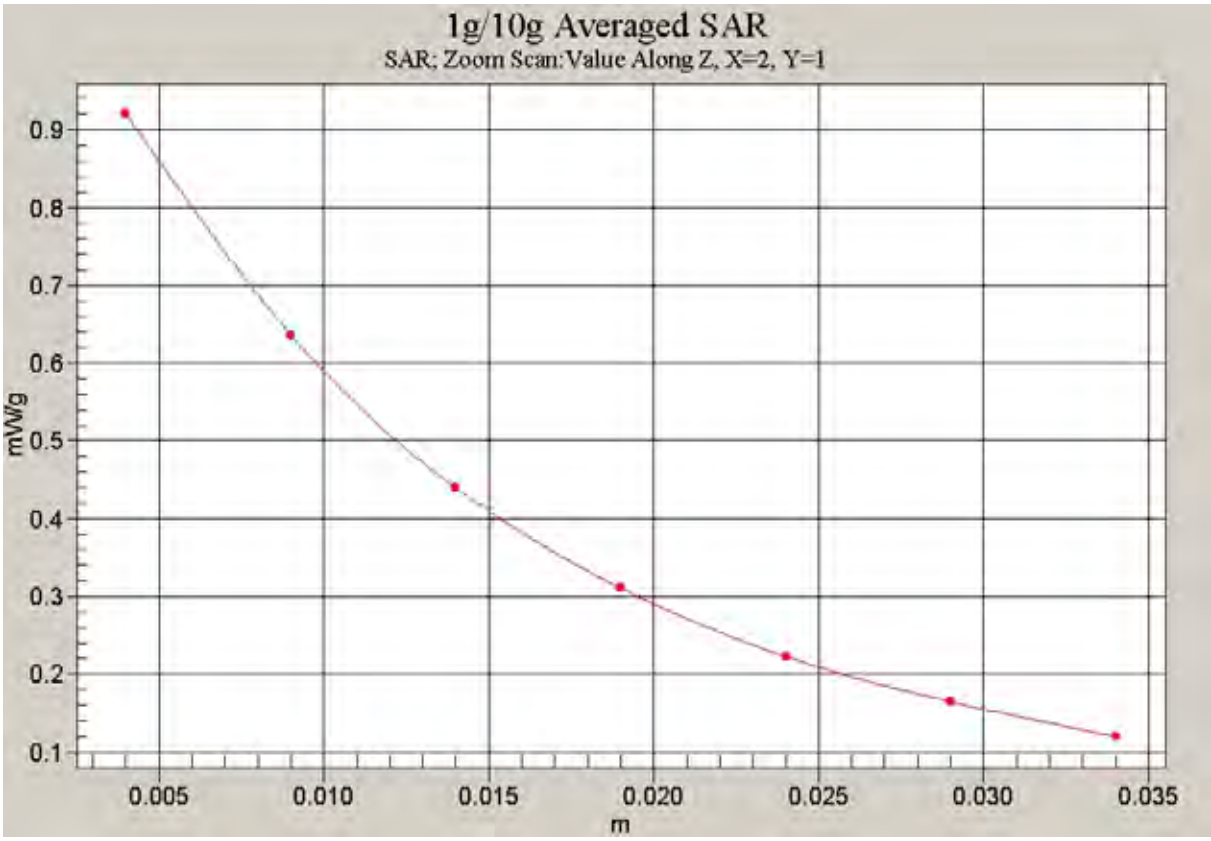


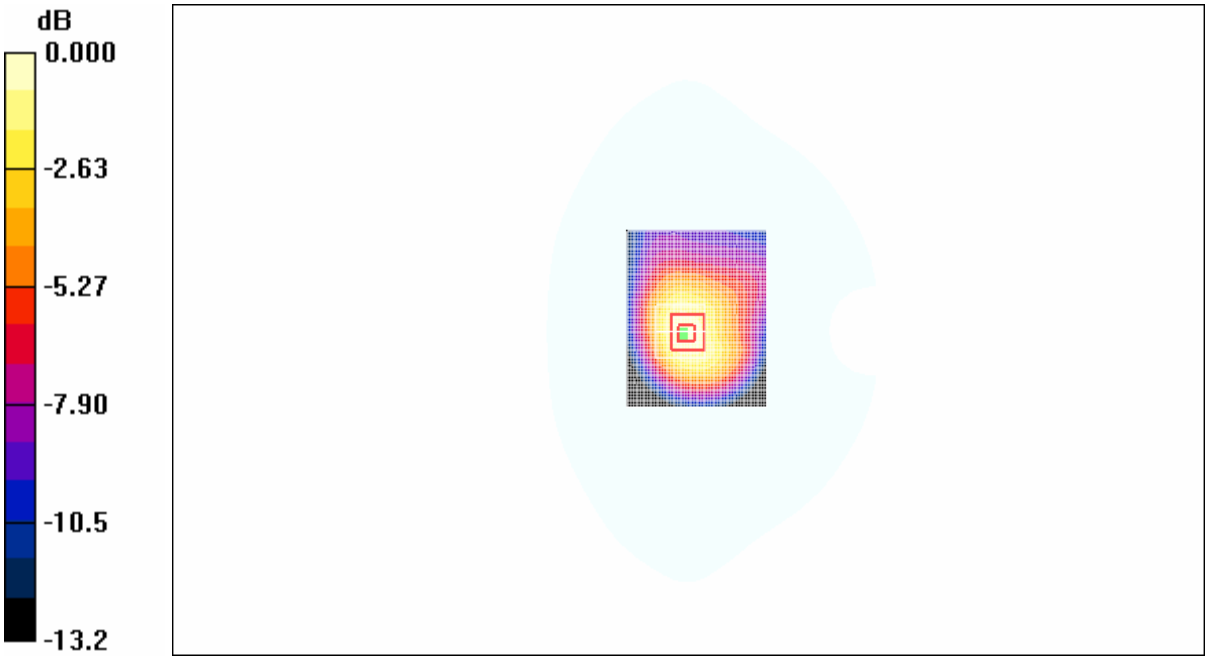
Fig.28 Z-Scan at power reference point (850MHz GPRS CH190 with IBM Laptop -3 timeslots in uplink)

850MHz GPRS Test Position 1 with IBM Laptop (2 timeslots in uplink)

Date/Time: 2007-3-8 14:23:36
Electronics: DAE3 Sn536
Medium: 850 Body
Medium parameters used (interpolated):σ = 1.00 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C
Communication System: 850 Class 12 Frequency: 836.6 MHz Duty Cycle: 1:4
Probe: ET3DV6 - SN1736 ConvF(6.45, 6.45, 6.45)

Test Position 1/Area Scan (61x71x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.05 mW/g

Test Position 1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 26.8 V/m; Power Drift = -0.041 dB
Peak SAR (extrapolated) = 1.54 W/kg
SAR(1 g) = 0.982 mW/g; SAR(10 g) = 0.609 mW/g
Maximum value of SAR (measured) = 1.05 mW/g



0 dB = 1.05mW/g

Fig.29 850MHz GPRS CH190 with IBM Laptop (2 timeslots in uplink)

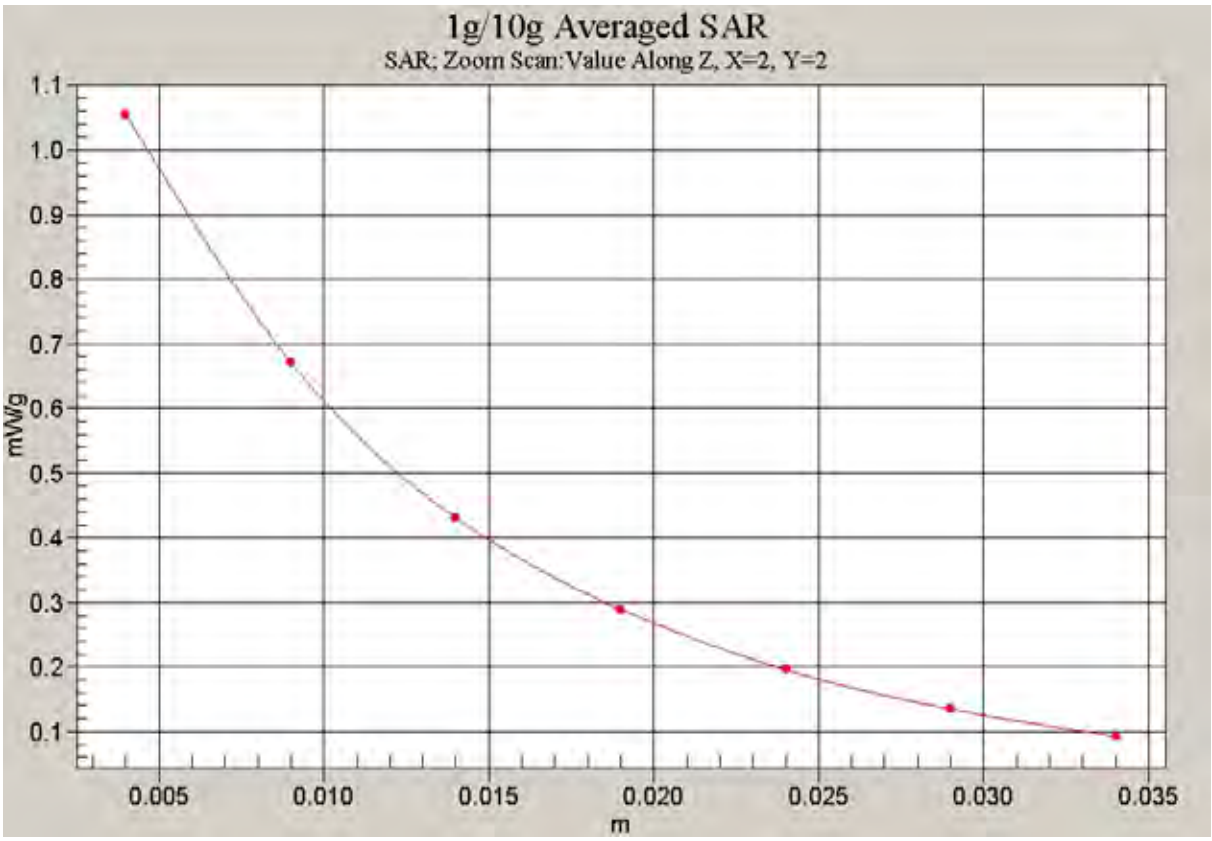


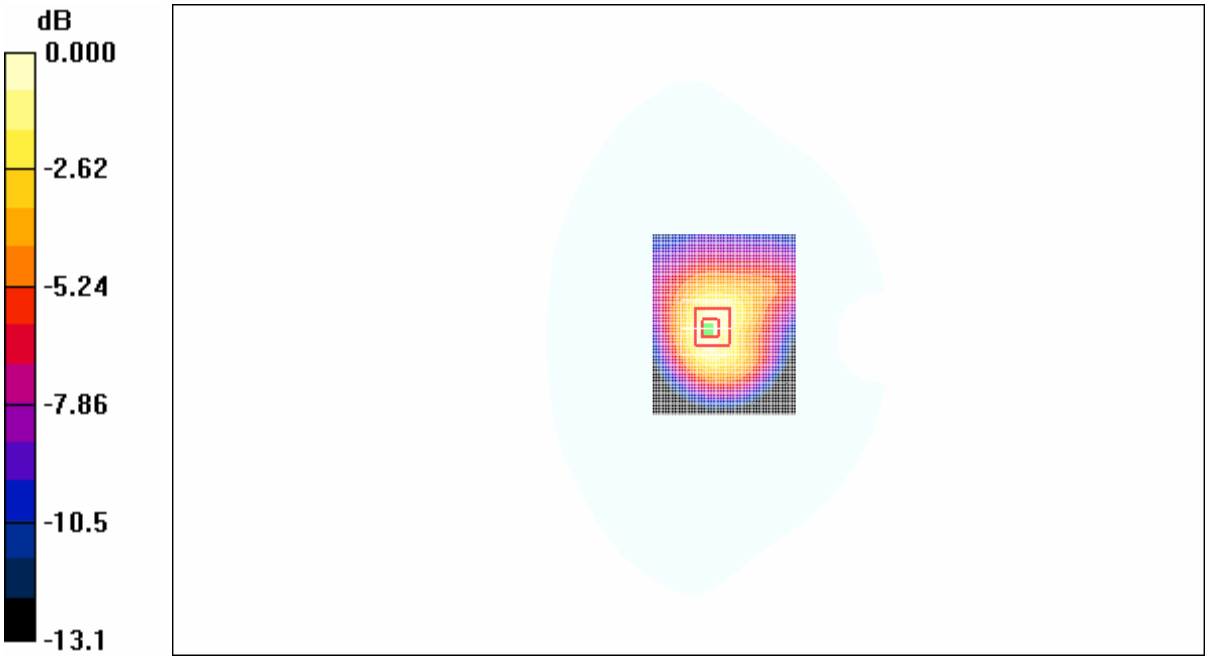
Fig.30 Z-Scan at power reference point
(850MHz GPRS CH190 with IBM Laptop -2 timeslots in uplink)

850MHz GPRS Test Position 1 with IBM Laptop (1 timeslot in uplink)

Date/Time: 2007-3-8 16:13:52
Electronics: DAE3 Sn536
Medium: 850 Body
Medium parameters used (interpolated):σ = 1.00 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C
Communication System: 850 Glass 12 Frequency: 836.6 MHz Duty Cycle: 1:8
Probe: ET3DV6 - SN1736 ConvF(6.45, 6.45, 6.45)

Test Position 1/Area Scan (61x71x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.874 mW/g

Test Position 1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.9 V/m; Power Drift = 0.200 dB
Peak SAR (extrapolated) = 0.967 W/kg
SAR(1 g) = 0.812 mW/g; SAR(10 g) = 0.504 mW/g
Maximum value of SAR (measured) = 0.844 mW/g



0 dB = 0.844mW/g

Fig.31 850MHz GPRS CH190 with IBM Laptop (1 timeslot in uplink)

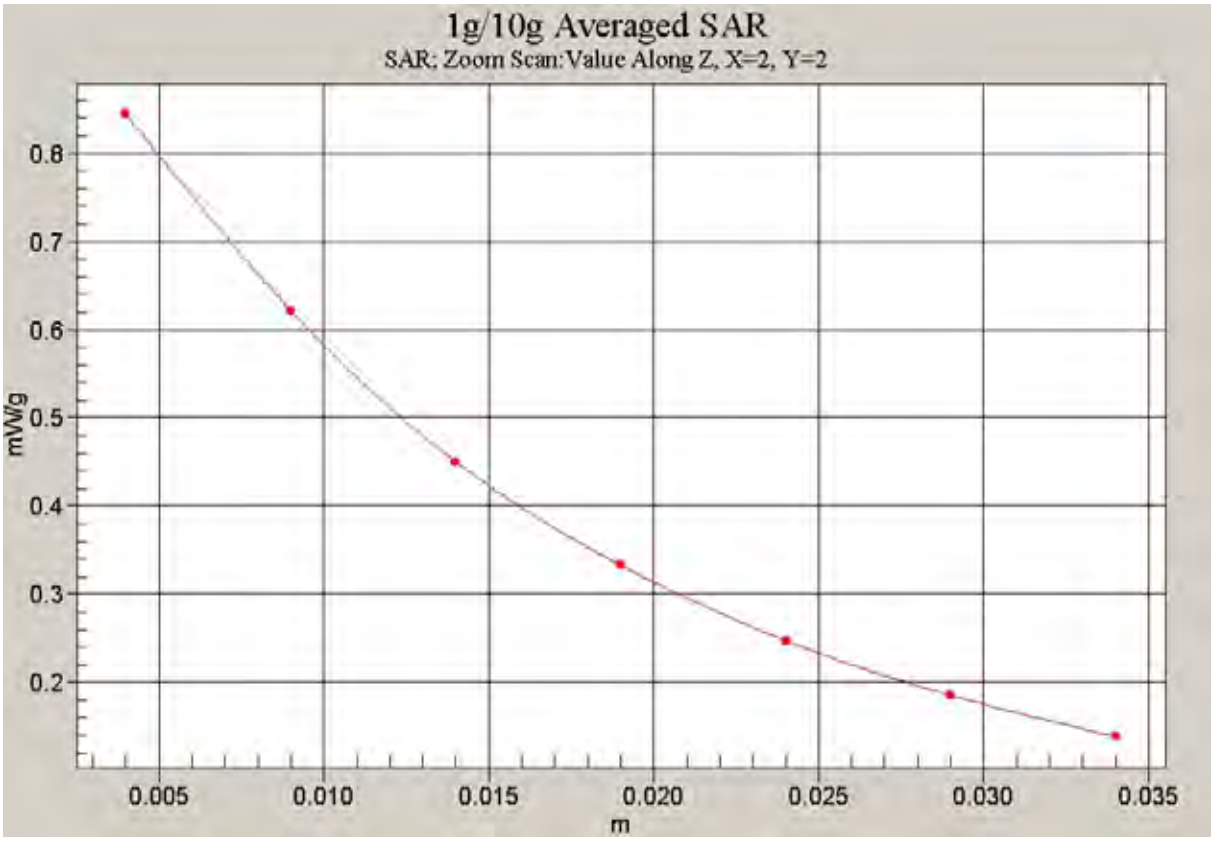


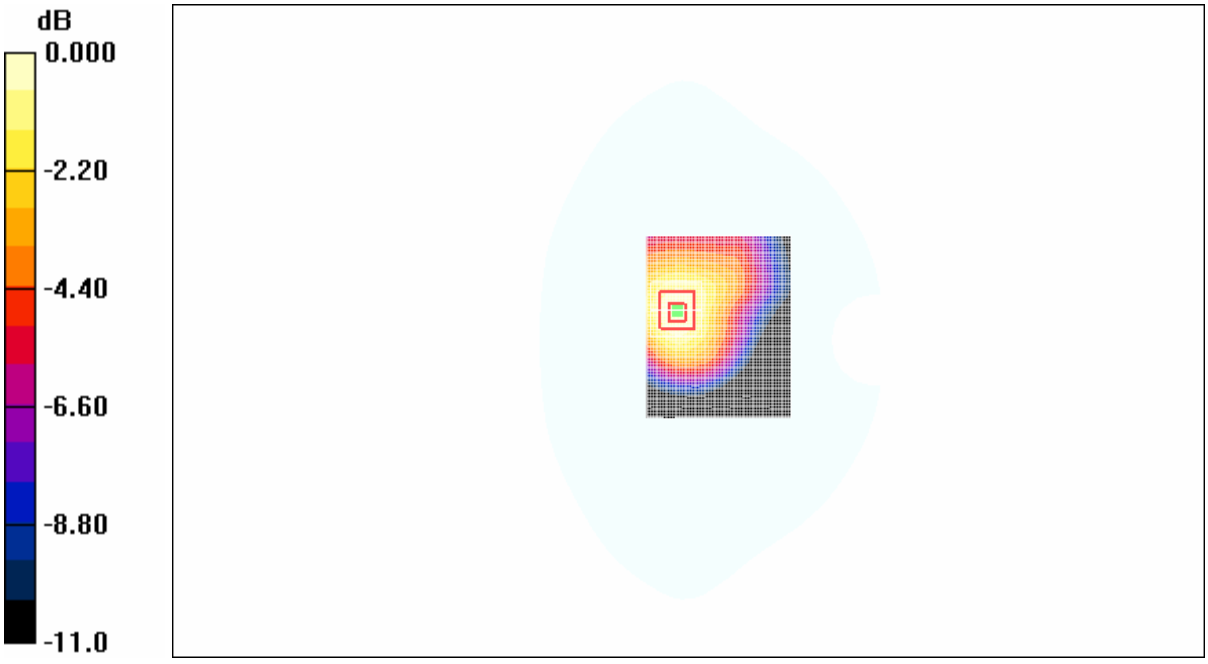
Fig.32 Z-Scan at power reference point
(850MHz GPRS CH190 with IBM Laptop -1 timeslot in uplink)

850MHz GPRS Test Position 1 with Dell Laptop (2 timeslots in uplink)

Date/Time: 2007-3-8 17:52:11
Electronics: DAE3 Sn536
Medium: 850 Body
Medium parameters used (interpolated):σ = 1.00 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C
Communication System: 850 Class 12 Frequency: 836.6 MHz Duty Cycle: 1:4
Probe: ET3DV6 - SN1736 ConvF(6.45, 6.45, 6.45)

Test Position 1/Area Scan (61x71x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.958 mW/g

Test Position 1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 22.4 V/m; Power Drift = -0.078 dB
Peak SAR (extrapolated) = 1.20 W/kg
SAR(1 g) = 0.860 mW/g; SAR(10 g) = 0.572 mW/g
Maximum value of SAR (measured) = 0.929 mW/g



0 dB = 0.929mW/g

Fig.33 850MHz GPRS CH190 with Dell Laptop (2 timeslots in uplink)

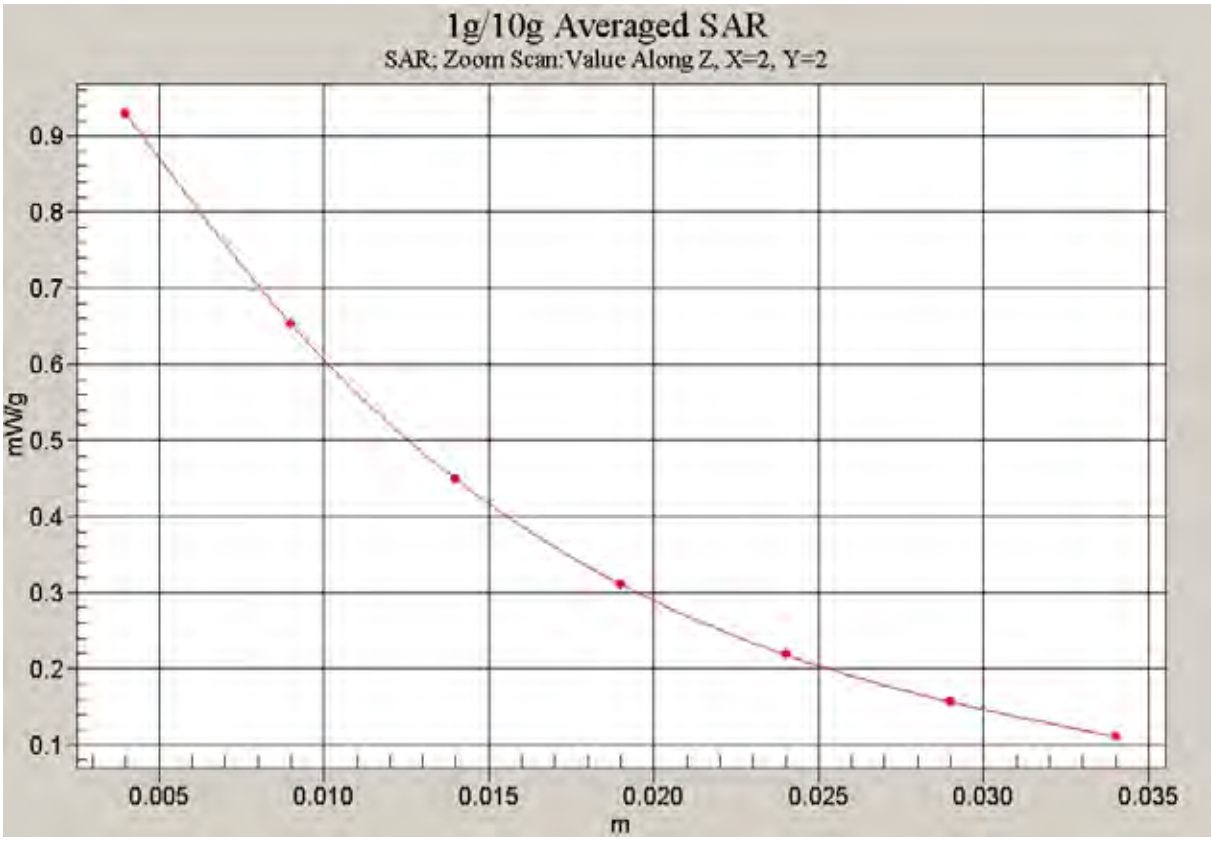


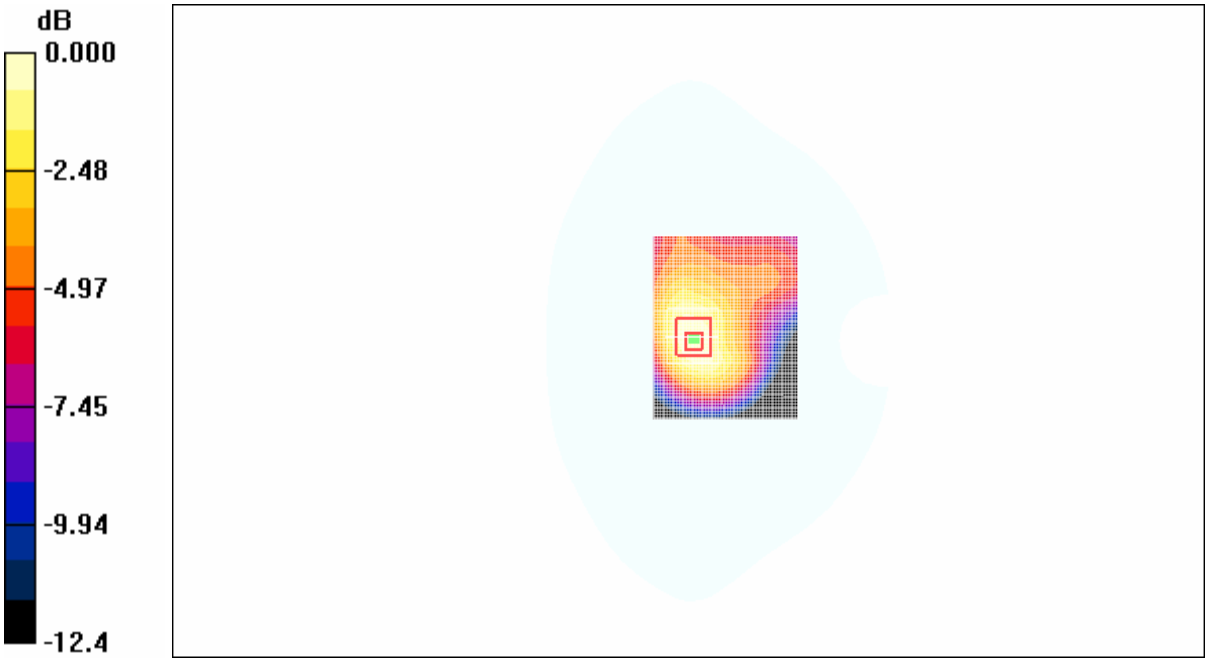
Fig.34 Z-Scan at power reference point
(850MHz GPRS CH190 with Dell Laptop -2 timeslots in uplink)

850MHz GPRS Test Position 1 with HP Laptop (2 timeslots in uplink)

Date/Time: 2007-3-8 20:22:43
Electronics: DAE3 Sn536
Medium: 850 Body
Medium parameters used (interpolated):σ = 1.00 mho/m; ε_r = 53.4; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C
Communication System: 850 Class 12 Frequency: 836.6 MHz Duty Cycle: 1:4
Probe: ET3DV6 - SN1736 ConvF(6.45, 6.45, 6.45)

Test Position 1/Area Scan (61x71x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.992 mW/g

Test Position 1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 26.9 V/m; Power Drift = -0.076 dB
Peak SAR (extrapolated) = 1.39 W/kg
SAR(1 g) = 0.906 mW/g; SAR(10 g) = 0.572 mW/g
Maximum value of SAR (measured) = 0.983 mW/g



0 dB = 0.983mW/g

Fig.35 850MHz GPRS CH190 with HP Laptop (2 timeslots in uplink)

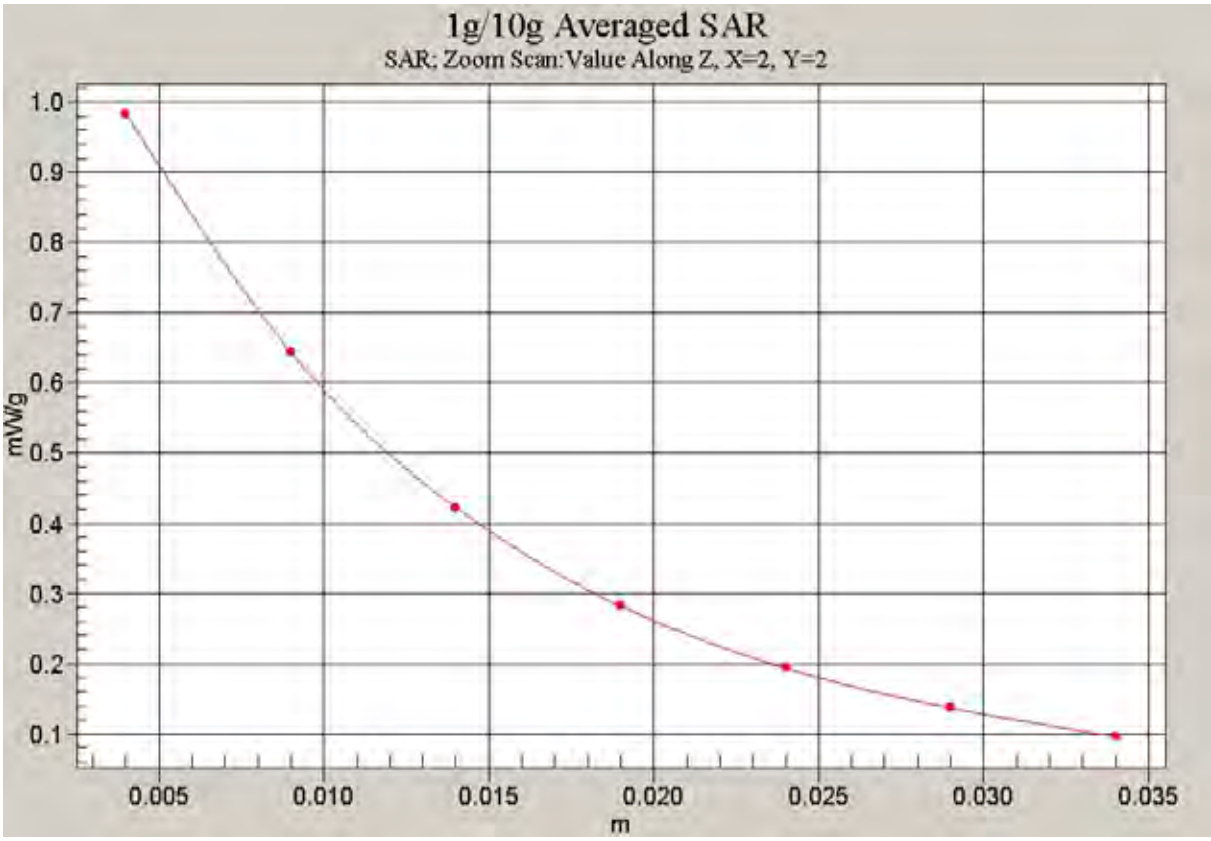


Fig.36 Z-Scan at power reference point
(850MHz GPRS CH190 with HP Laptop -2 timeslots in uplink)

1900MHz GPRS Test Position 1 with IBM Laptop (4 timeslots in uplink)

Date/Time: 2007-3-9 14:19:15

Electronics: DAE3 Sn536

Medium: 1900 Body

Medium parameters used:σ = 1.57 mho/m; ε_r = 51.5; ρ = 1000 kg/m^3

Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C

Communication System: GSM 1900MHz GPRS Class 12 Frequency: 1880 MHz Duty Cycle: 1:2

Probe: ET3DV6 - SN1736 ConvF(4.88, 4.88, 4.88)

Test Position 1/Area Scan (61x71x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.579 mW/g

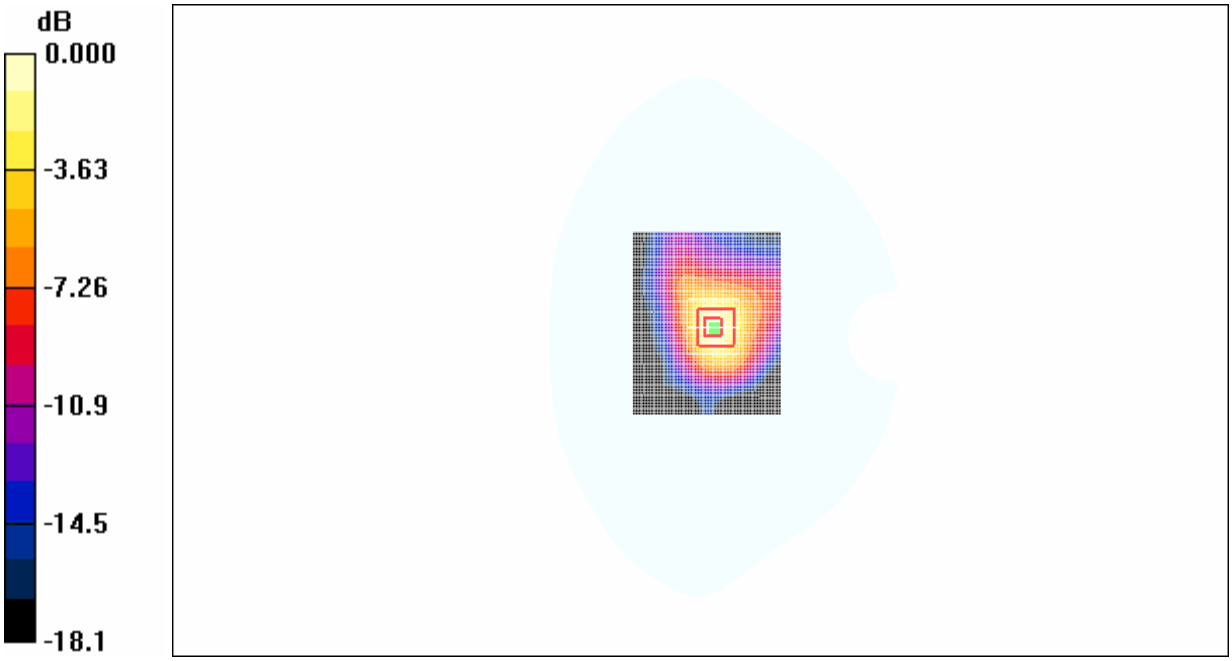
Test Position 1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 18.1 V/m; Power Drift = -0.021 dB

Peak SAR (extrapolated) = 0.944 W/kg

SAR(1 g) = 0.510 mW/g; SAR(10 g) = 0.268 mW/g

Maximum value of SAR (measured) = 0.580 mW/g



0 dB = 0.580mW/g

Fig.37 1900MHz GPRS CH190 with IBM Laptop (4 timeslots in uplink)

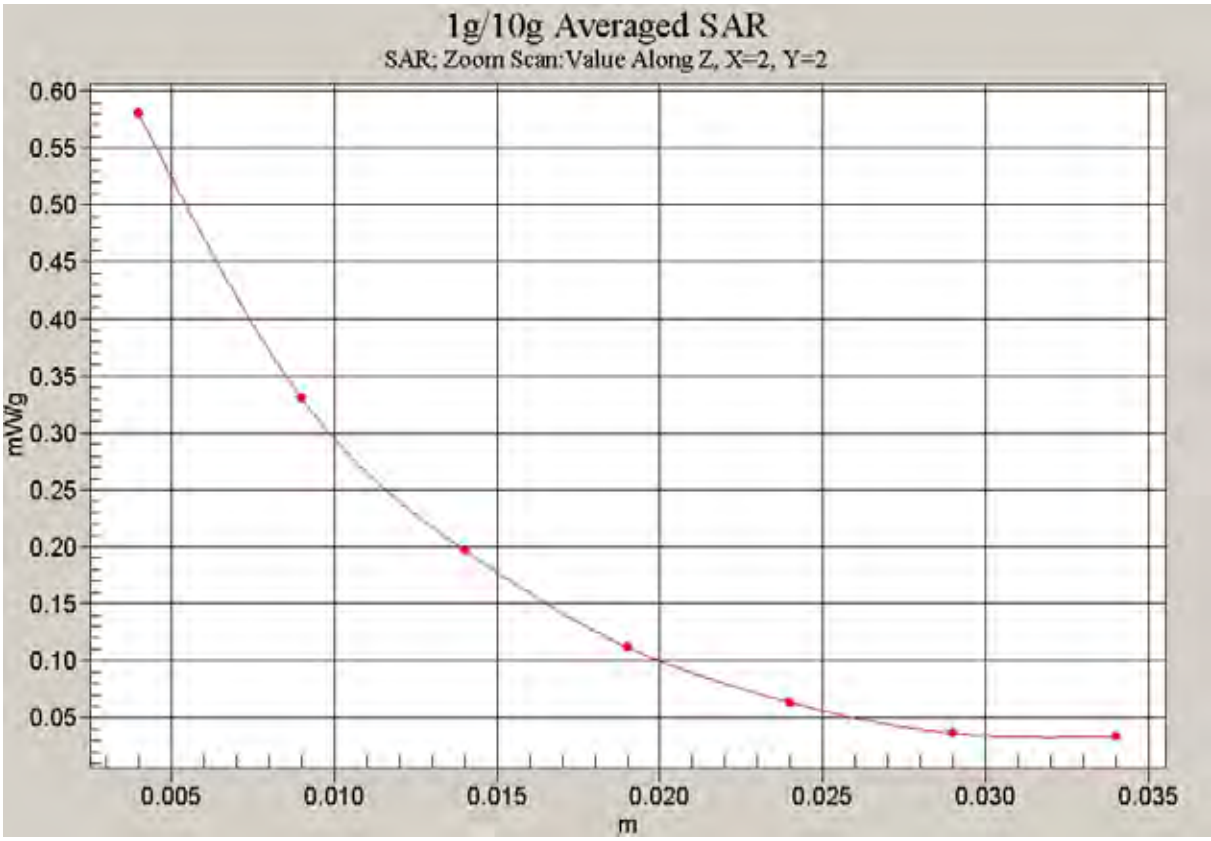


Fig.38 Z-Scan at power reference point
(1900MHz GPRS CH190 with IBM Laptop-4 timeslots in uplink)

1900MHz GPRS Test Position 1 with IBM Laptop (3 timeslots in uplink)

Date/Time: 2007-3-9 13:53:01

Electronics: DAE3 Sn536

Medium: 1900 Body

Medium parameters used:σ = 1.57 mho/m; ε_r = 51.5; ρ = 1000 kg/m^3

Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C

Communication System: GSM 1900MHz GPRS Class 12 Frequency: 1880 MHz Duty Cycle: 1:2.67

Probe: ET3DV6 - SN1736 ConvF(4.88, 4.88, 4.88)

Test Position 1/Area Scan (61x71x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.682 mW/g

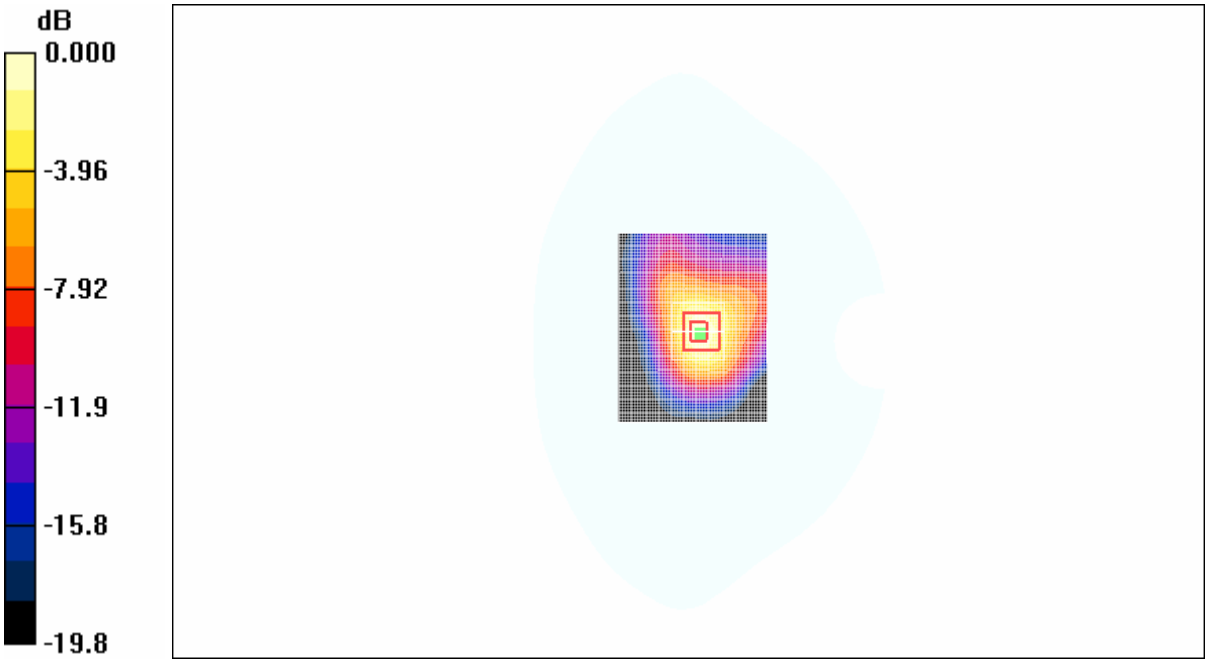
Test Position 1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 19.8 V/m; Power Drift = 0.028 dB

Peak SAR (extrapolated) = 1.15 W/kg

SAR(1 g) = 0.596 mW/g; SAR(10 g) = 0.315 mW/g

Maximum value of SAR (measured) = 0.666 mW/g



0 dB = 0.666mW/g

Fig.39 1900MHz GPRS CH190 with IBM Laptop (3 timeslots in uplink)

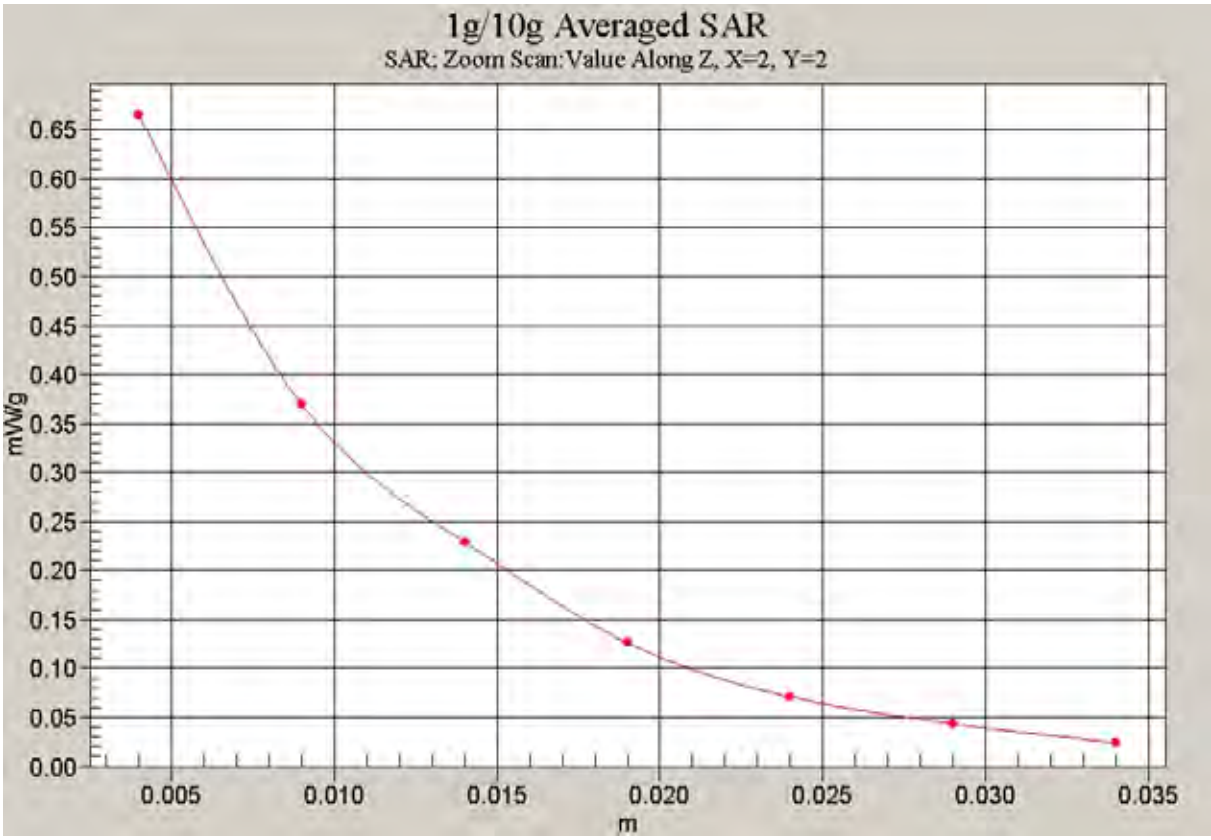


Fig.40 Z-Scan at power reference point
(1900MHz GPRS CH190 with IBM Laptop-3 timeslots in uplink)

1900MHz GPRS Test Position 1 with IBM Laptop (2 timeslots in uplink)

Date/Time: 2007-3-9 13:24:24

Electronics: DAE3 Sn536

Medium: 1900 Body

Medium parameters used:σ = 1.57 mho/m; ε_r = 51.5; ρ = 1000 kg/m^3

Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C

Communication System: GSM 1900MHz GPRS Class 12 Frequency: 1880 MHz Duty Cycle: 1:4

Probe: ET3DV6 - SN1736 ConvF(4.88, 4.88, 4.88)

Test Position 1/Area Scan (61x71x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.722 mW/g

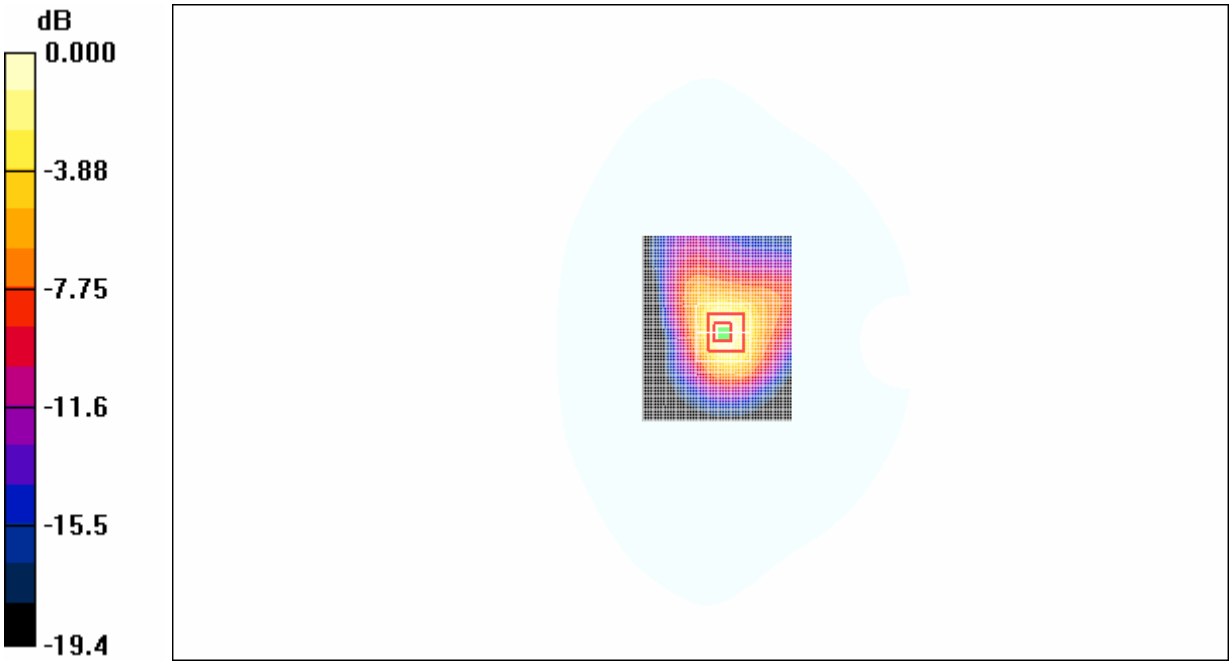
Test Position 1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 20.3 V/m; Power Drift = 0.011 dB

Peak SAR (extrapolated) = 1.13 W/kg

SAR(1 g) = 0.620 mW/g; SAR(10 g) = 0.330 mW/g

Maximum value of SAR (measured) = 0.694 mW/g



0 dB = 0.694mW/g

Fig.41 1900MHz GPRS CH190 with IBM Laptop (2 timeslots in uplink)

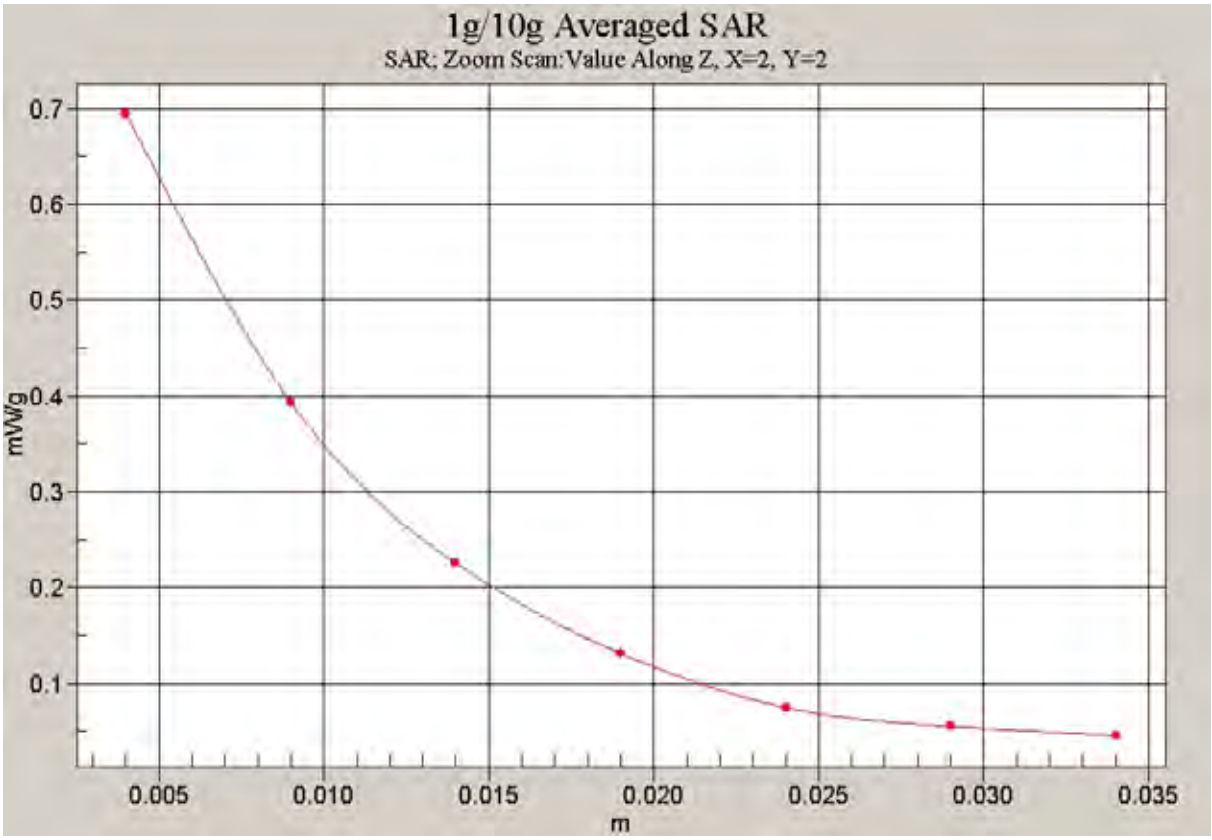


Fig.42 Z-Scan at power reference point
(1900MHz GPRS CH190 with IBM Laptop-2 timeslots in uplink)

1900MHz GPRS Test Position 1 with IBM Laptop (1 timeslot in uplink)

Date/Time: 2007-3-9 13:11:21

Electronics: DAE3 Sn536

Medium: 1900 Body

Medium parameters used:σ = 1.57 mho/m; ε_r = 51.5; ρ = 1000 kg/m^3

Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C

Communication System: GSM 1900MHz GPRS Class 12 Frequency: 1880 MHz Duty Cycle: 1:8

Probe: ET3DV6 - SN1736 ConvF(4.88, 4.88, 4.88)

Test Position 1/Area Scan (61x71x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.560 mW/g

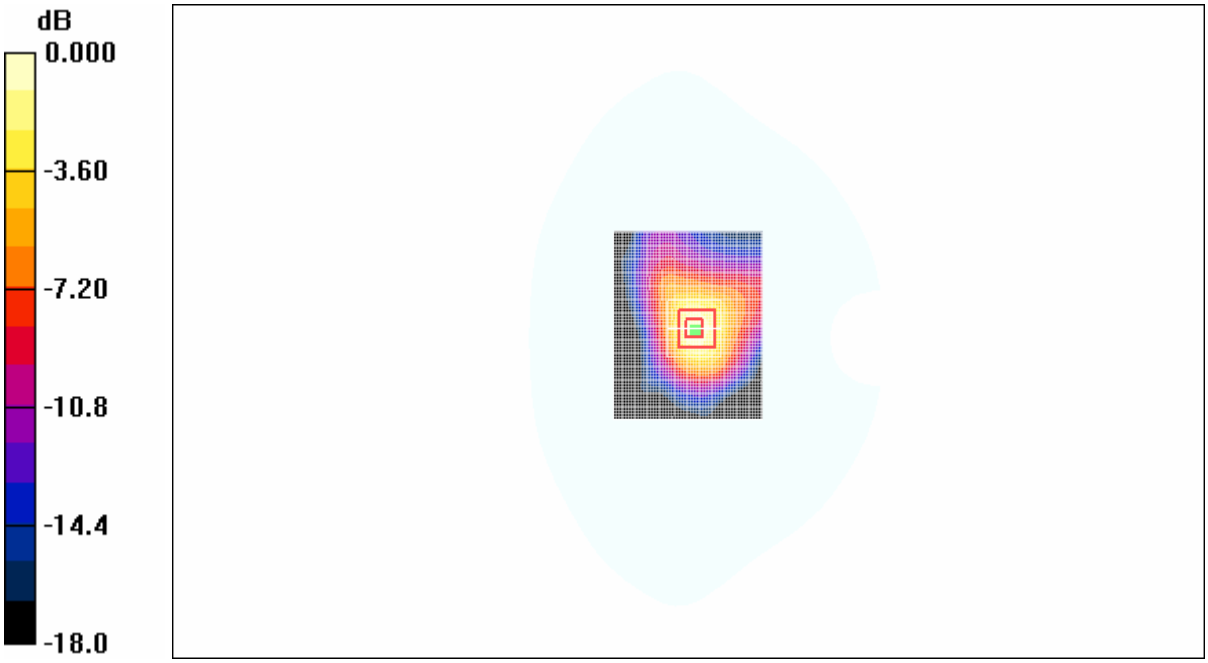
Test Position 1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 17.8 V/m; Power Drift = 0.116 dB

Peak SAR (extrapolated) = 0.909 W/kg

SAR(1 g) = 0.491 mW/g; SAR(10 g) = 0.261 mW/g

Maximum value of SAR (measured) = 0.551 mW/g



0 dB = 0.551mW/g

Fig.43 1900MHz GPRS CH190 with IBM Laptop (1 timeslot in uplink)

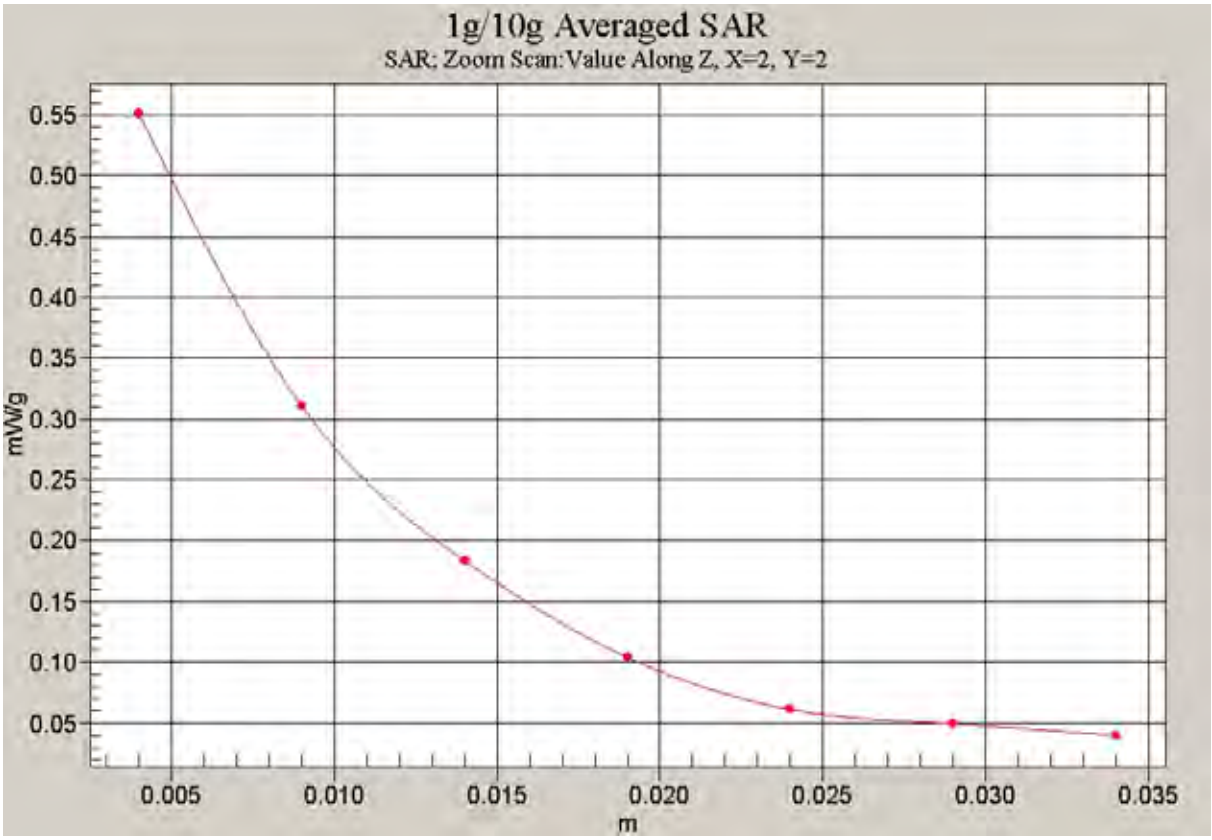


Fig.44 Z-Scan at power reference point
(1900MHz GPRS CH190 with IBM Laptop-1 timeslot in uplink)

1900MHz GPRS Test Position 1 with Dell Laptop (2 timeslots in uplink)

Date/Time: 2007-3-9 14:48:34

Electronics: DAE3 Sn536

Medium: 1900 Body

Medium parameters used:σ = 1.57 mho/m; ε_r = 51.5; ρ = 1000 kg/m^3

Ambient Temperature:23.3°C Liqiud Temperature: 22.5°C

Communication System: GSM 1900MHz GPRS Class 12 Frequency: 1880 MHz Duty Cycle: 1:4

Probe: ET3DV6 - SN1736 ConvF(4.88, 4.88, 4.88)

Test Position 1/Area Scan (61x71x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.229 mW/g

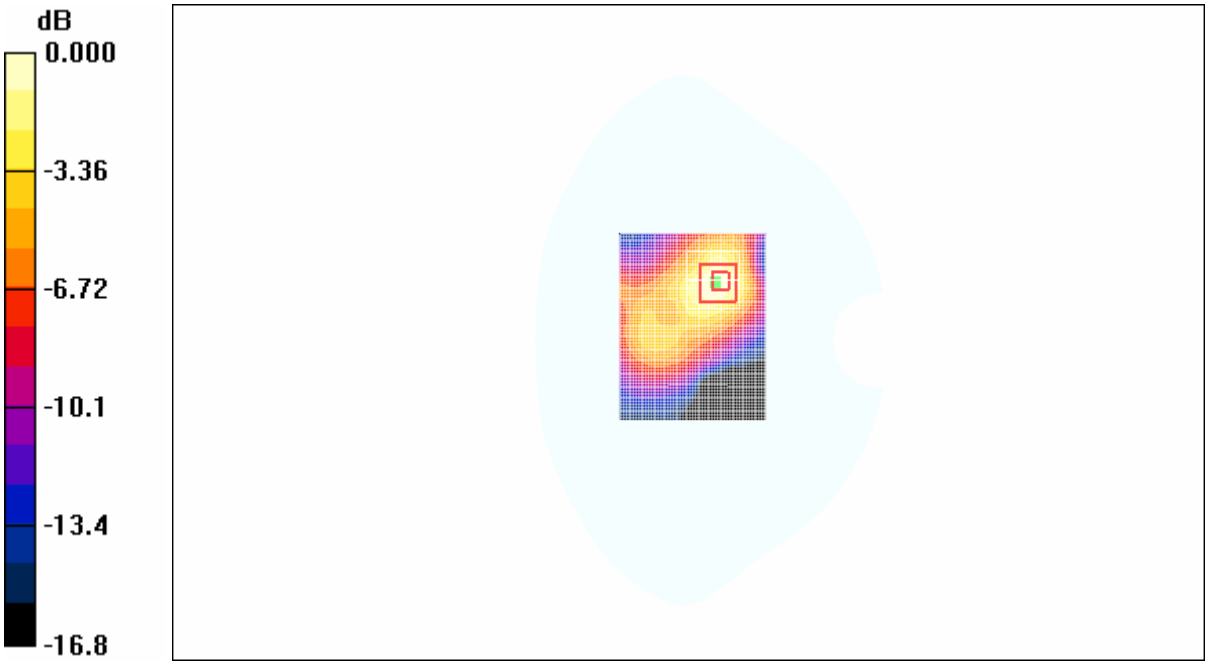
Test Position 1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 5.60 V/m; Power Drift = -0.200 dB

Peak SAR (extrapolated) = 0.362 W/kg

SAR(1 g) = 0.217 mW/g; SAR(10 g) = 0.125 mW/g

Maximum value of SAR (measured) = 0.238 mW/g



0 dB = 0.238mW/g

Fig.45 1900MHz GPRS CH190 with Dell Laptop (2 timeslots in uplink)

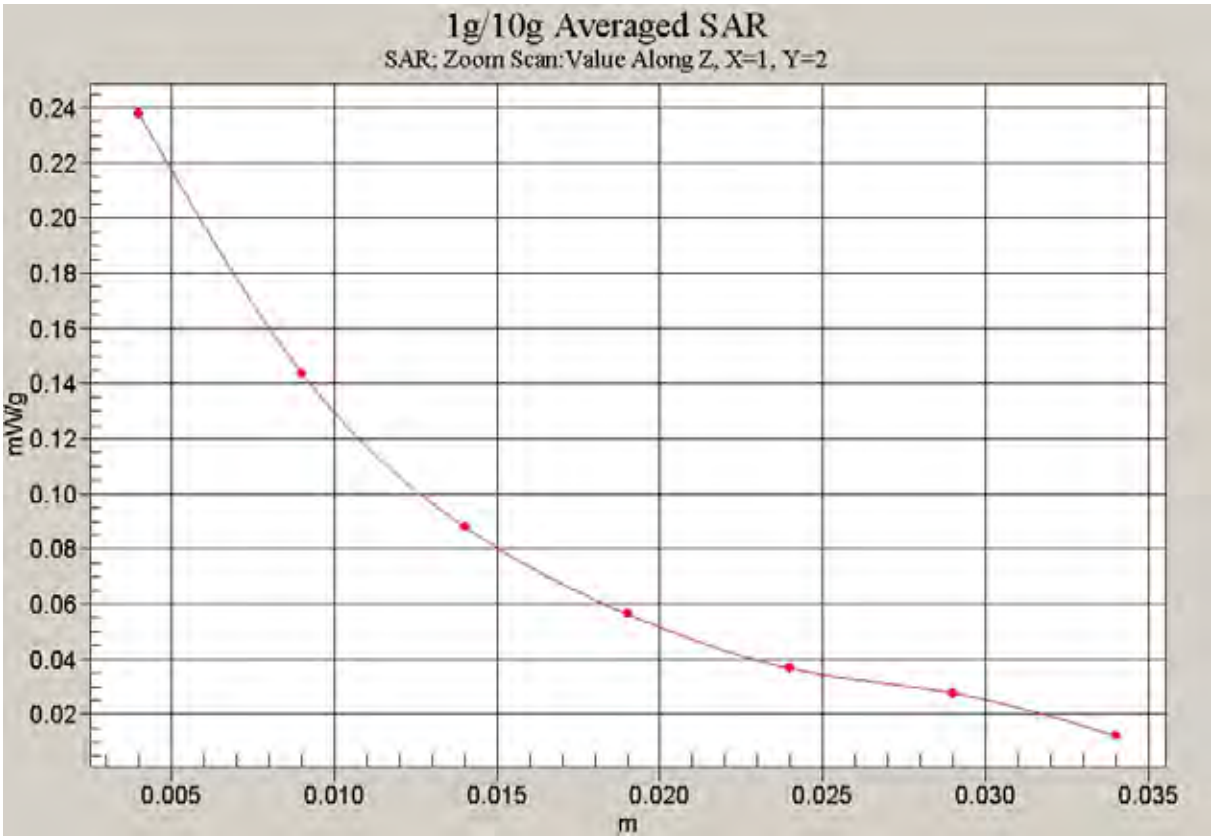


Fig.46 Z-Scan at power reference point
(1900MHz GPRS CH190 with Dell Laptop-2 timeslots in uplink)

1900MHz GPRS Test Position 1 with HP Laptop (2 timeslots in uplink)

Date/Time: 2007-3-9 15:11:35

Electronics: DAE3 Sn536

Medium: 1900 Body

Medium parameters used:σ = 1.57 mho/m; ε_r = 51.5; ρ = 1000 kg/m^3

Ambient Temperature:23.3^{o}C Liqiud Temperature: 22.5^{o}C

Communication System: GSM 1900MHz GPRS Class 12 Frequency: 1880 MHz Duty Cycle: 1:4

Probe: ET3DV6 - SN1736 ConvF(4.88, 4.88, 4.88)

Test Position 1/Area Scan (61x71x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.327 mW/g

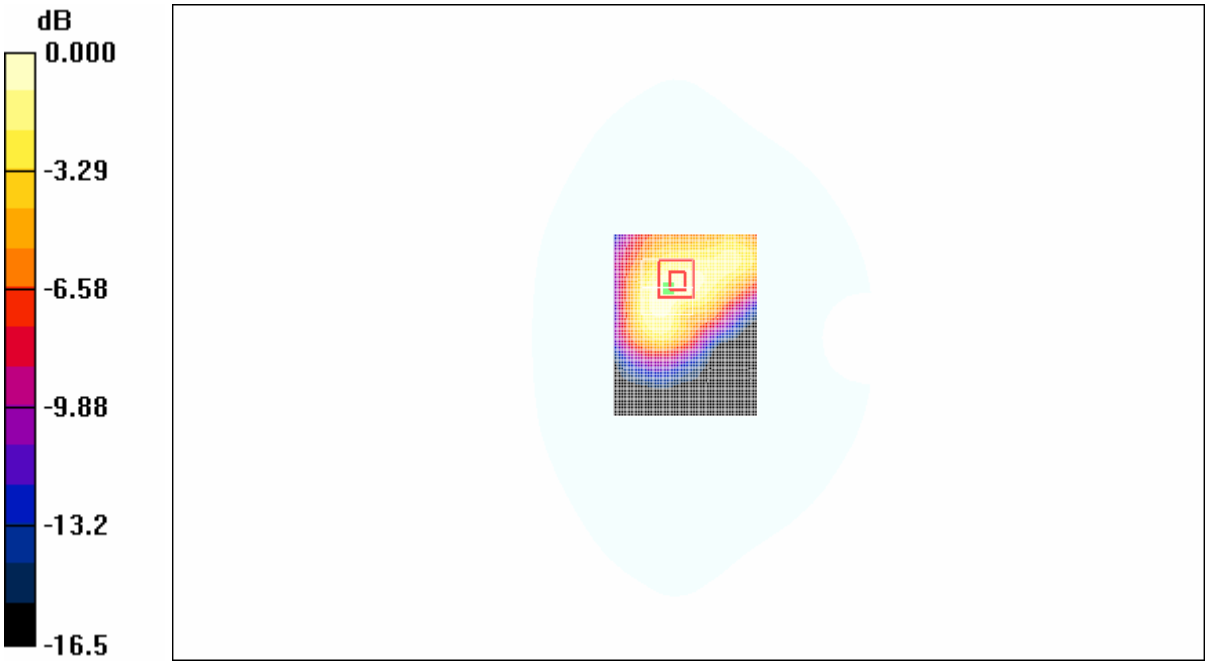
Test Position 1/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 4.94 V/m; Power Drift = -0.175 dB

Peak SAR (extrapolated) = 0.476 W/kg

SAR(1 g) = 0.296 mW/g; SAR(10 g) = 0.174 mW/g

Maximum value of SAR (measured) = 0.311 mW/g



0 dB = 0.311mW/g

Fig.47 1900MHz GPRS CH190 with HP Laptop (2 timeslots in uplink)

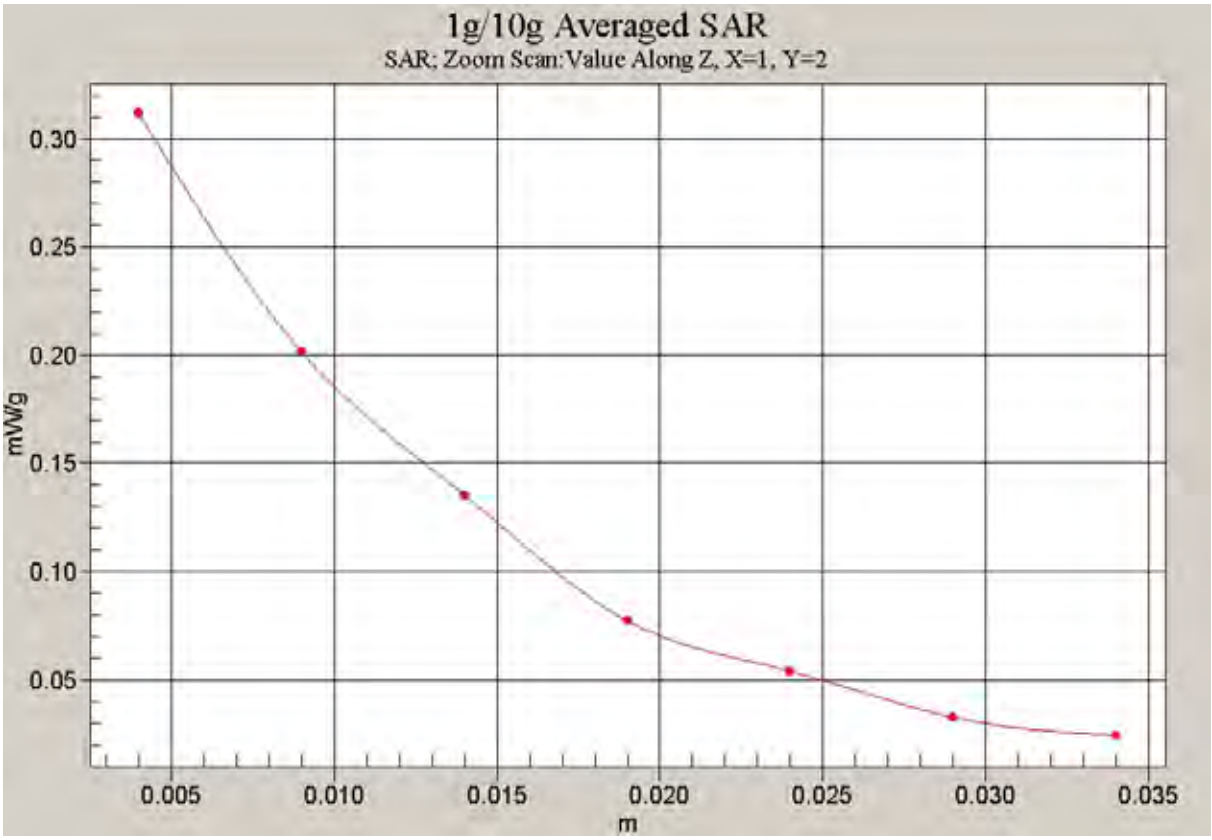


Fig.48 Z-Scan at power reference point
(1900MHz GPRS CH190 with HP Laptop-2 timeslots in uplink)

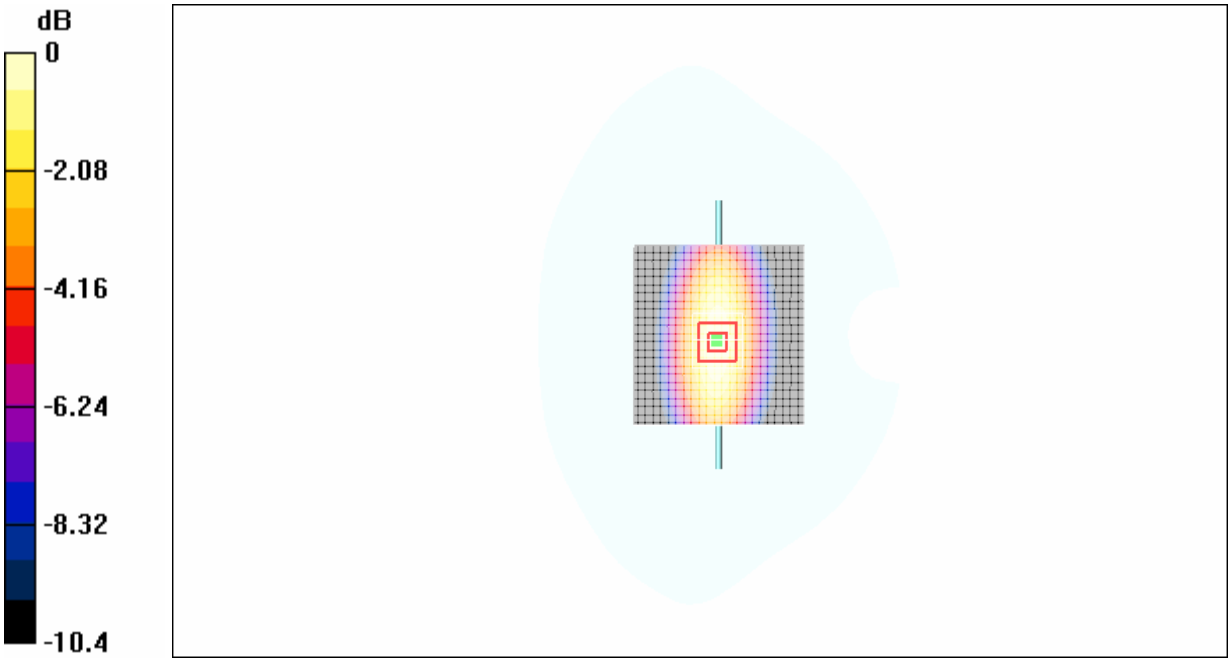
ANNEX D: SYSTEM VALIDATION RESULTS

835MHzDAE589Probe1736

Date/Time: 2007-3-8 08:34:39
Electronics: DAE3 Sn536
Medium: 835 Head
Medium parameters used (interpolated): σ = 0.88 mho/m; ε_r = 41.7; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.3°C
Communication System: CW Frequency: 835 MHz Duty Cycle: 1:1
Probe: ET3DV6 - SN1736 ConvF(6.51, 6.51, 6.51)

835MHz/Area Scan (101x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 2.68 mW/g

835MHz/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 56.8 V/m; Power Drift = -0.0 dB
Peak SAR (extrapolated) = 3.67 W/kg
SAR(1 g) = 2.48 mW/g; SAR(10 g) = 1.62 mW/g
Maximum value of SAR (measured) = 2.69 mW/g



0 dB = 2.69mW/g

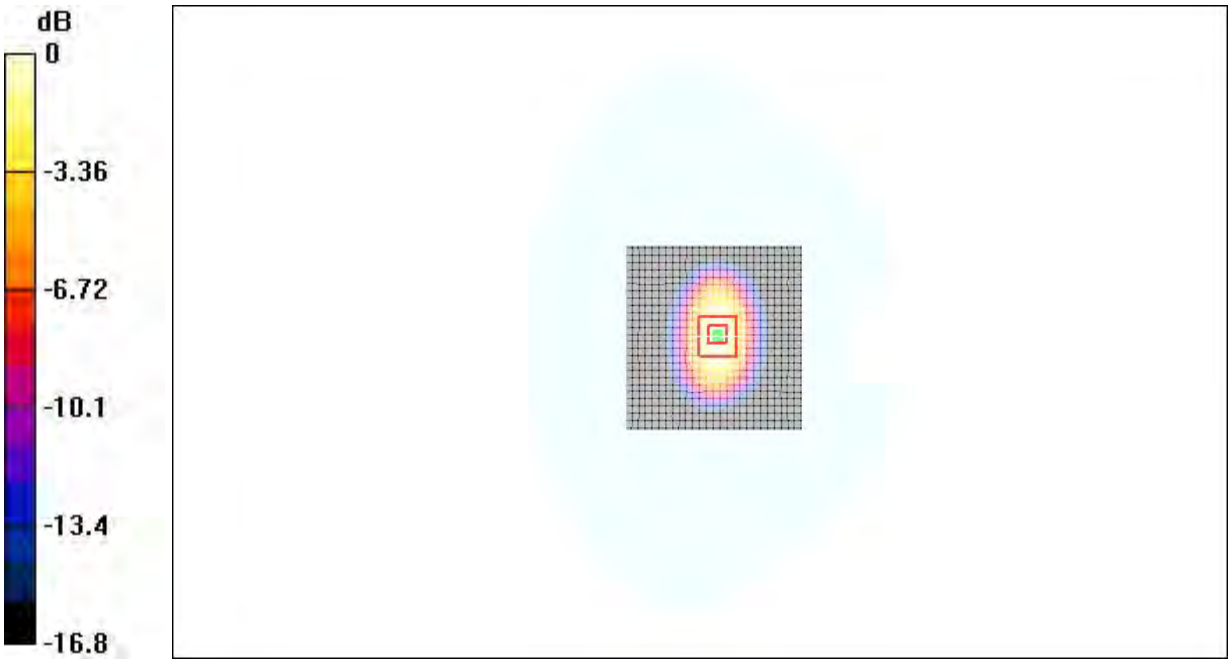
Fig.49 validation 835MHz 250mW

1900MHzDAE536Probe1736

Date/Time: 2007-3-9 08:15:45
Electronics: DAE3 Sn536
Medium: 1900 Head
Medium parameters used (interpolated): σ = 1.45 mho/m; ε_r = 39.2; ρ = 1000 kg/m^3
Ambient Temperature:23.3°C Liqiud Temperature: 22.3°C
Communication System: CW Frequency: 1900 MHz Duty Cycle: 1:1
Probe: ET3DV6 - SN1736 ConvF(5.4, 5.4, 5.4)

System Validation/Area Scan (101x101x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 11.2 mW/g

System Validation/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 92.1 V/m; Power Drift = 0.1 dB
Peak SAR (extrapolated) = 16.9 W/kg
SAR(1 g) = 9.91 mW/g; SAR(10 g) = 5.27 mW/g
Maximum value of SAR (measured) = 11.3 mW/g



0 dB = 11.3mW/g

Fig.50 validation 1900MHz 250mW

ANNEX E： PROBE CALIBRATION CERTIFICATE

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Swizerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accreditation No.: SCS 108

Accredited by the Swiss Federal Office of metrology and Accreditation
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Client TMC China Certificate No: ET3DV6-1736_Dec06

CALIBRATION CERTIFICATE

Object	**ET3DV6-SN: 1736**
Calibration procedure(s)	**QA CAL-01.v5** **Calibration procedure for dosimetric E-field probes**
Calibration date:	**December 1, 2006**
Condition of the calibrated item	**In Tolerance**

This calibration certify documents the traceability to national standards, which realize the physical units of measurements(SI).
All calibrations have been conducted at an environment temperature (22±3)°C and humidity<70%

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID#	Cal Data (Calibrated by, Certification NO.)	Scheduled Calibration
Power meter E4419B	GB341293874	22-May-06 (METAS, NO. 251-00466)	May-07
Power sensor E4412A	MY41495277	22-May-06 (METAS, NO. 251-00466)	May-07
Power sensor E4412A	MY41498087	22-May-06 (METAS, NO. 251-00466)	May-07
Reference 20 dB Attenuator	SN:S5086 (20b)	22-May-06 (METAS, NO. 251-00467)	May-07
Reference Probe ES3DV2	SN:S5086 (20b)	22-May-06 (METAS, NO. 251-00467)	May-07
DAE4	SN:3013	13-Jan-06 (SPEAG, NO. ES3-3013_Jan06)	Jan-07
Reference Probe ES3DV2	SN: 907	11-Jun-06 (SPEAG, NO.DAE4-907_Jun06)	Jun-07

Secondary Standards	ID#	Check Data (in house)	Scheduled Calibration
RF generator HP8648C	US3642U01700	4-Dec-05(SPEAG, in house check Dec-03)	In house check: Dec-09
Network Analyzer HP 8753E	US37390585	10-Nov-05(SPEAG, NO. DAE4-901_Nov-04)	In house check: Nov-09

	Name	Function	Signature
Calibrated by:	Nico Vetterli	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Director	

Issued: December 1, 2006

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

Calibration Laboratory of
Schmid & Partner
Engineering AG
Zeughausstrasse 43, 8004 Zurich, Switzerland

S Schweizerischer Kalibrierdienst
C Service suisse d'étalonnage
S Servizio svizzero di taratura
S Swiss Calibration Service

Accredited by the Swiss Federal Office of Metrology and Accreditation
The Swiss Accreditation Service is one of the signatories to the EA Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Glossary:

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

Calibration is Performed According to the Following Standards:

a) IEEE Std 1528-2003, "IEEE Recommended Practice for Determining the Peak Spatial-Averaged Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques", December 2003
b) CENELEC EN 50361, "Basic standard for the measurement of Specific Absorption Rate related to human exposure to electromagnetic fields from mobile phones (300 MHz - 3 GHz), July 2001

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.

Probe ET3DV6

SN: 1736

Manufactured:	September 27, 2002
Last calibrated:	November 25, 2005
Recalibrated:	December 1, 2006

Calibrated for DASY System

DASY - Parameters of Probe: ET3DV6 SN:1736

Sensitivity in Free Space[A] Diode Compression[B]

NormX	**1.97** ± 10.1%	$\mu V/(V/m)^2$	DCP X	**93** mV
NormY	**1.75** ± 10.1%	$\mu V/(V/m)^2$	DCP Y	**93** mV
NormZ	**1.97** ± 10.1%	$\mu V/(V/m)^2$	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	9.6	5.0
SAR_{be} [%]	With Correction Algorithm	0.1	0.3

TSL **1810 MHz** **Typical SAR gradient: 10 % per mm**

Sensor Center to Phantom Surface Distance		**3.7 mm**	**4.7 mm**
SAR_{be} [%]	Without Correction Algorithm	13.2	8.8
SAR_{be} [%]	With Correction Algorithm	0.6	0.1

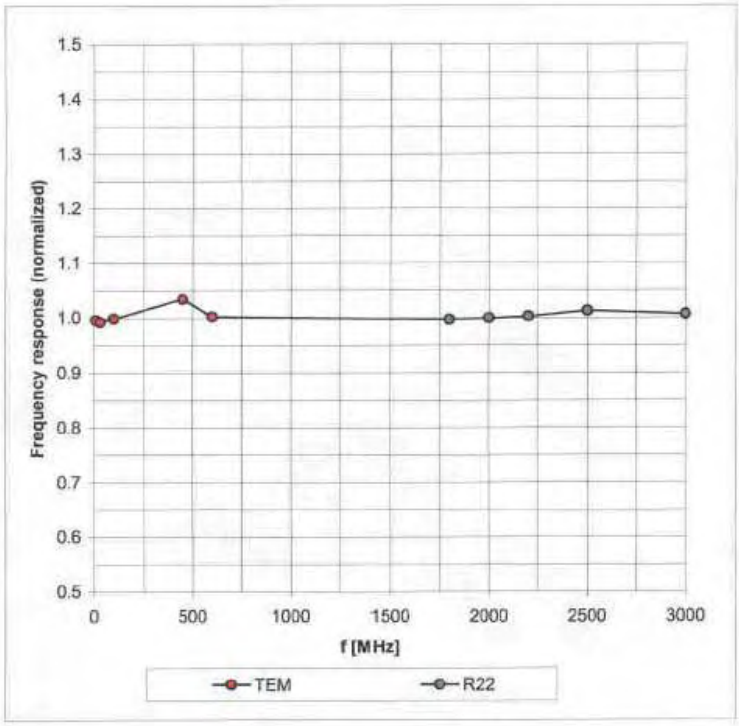
Sensor Offset

Probe Tip to Sensor Center	**2.7** mm

ET3DV6 SN: 1736 December 1, 2006

Frequency Response of E-Field

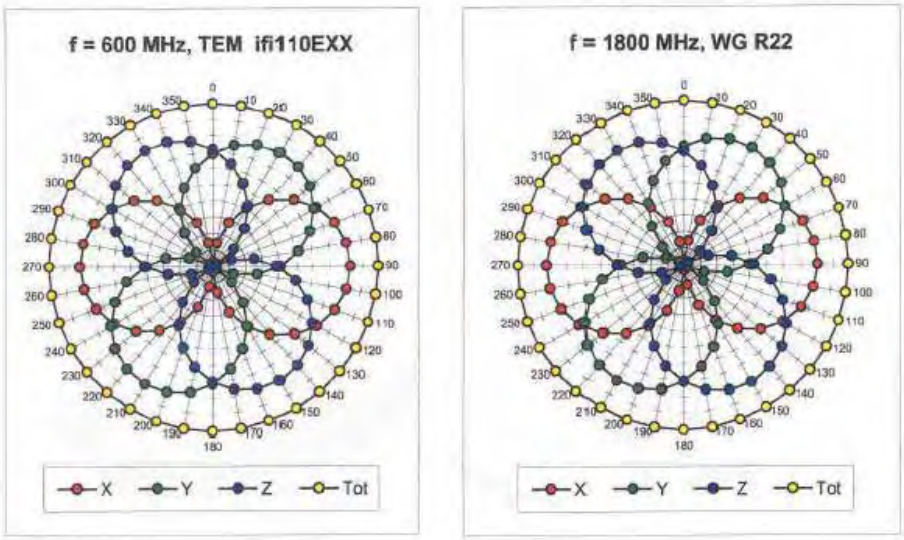
(TEM-Cell:ifi110 EXX, Waveguide: R22)

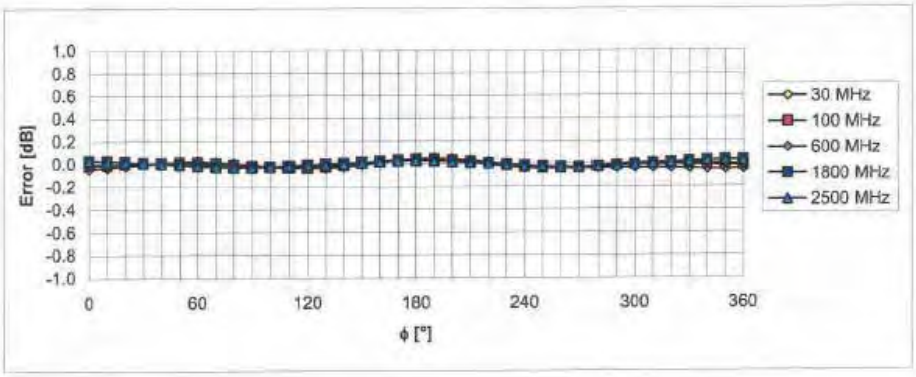


Uncertainty of Frequency Response of E-field: ± 6.3% (k=2)

ET3DV6 SN: 1736 December 1, 2006

Receiving Pattern (ϕ), ϑ = 0°



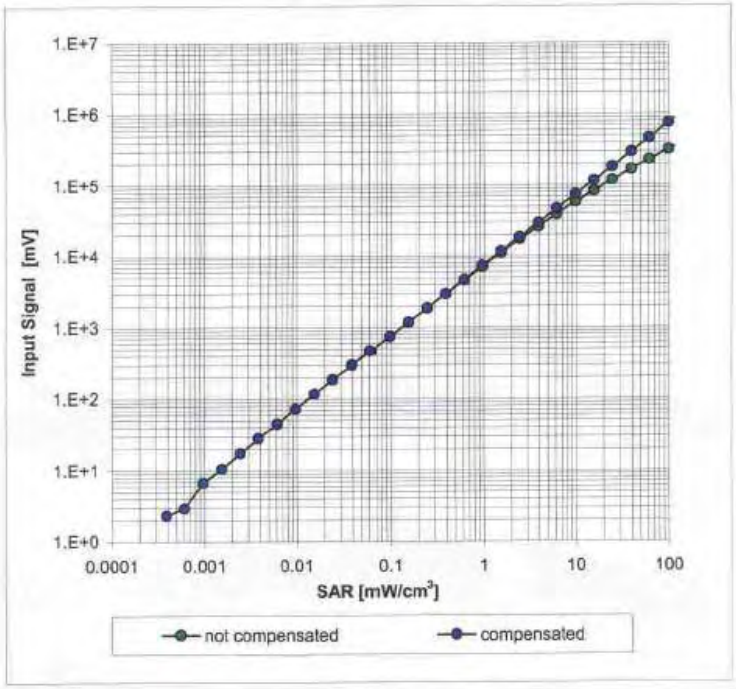


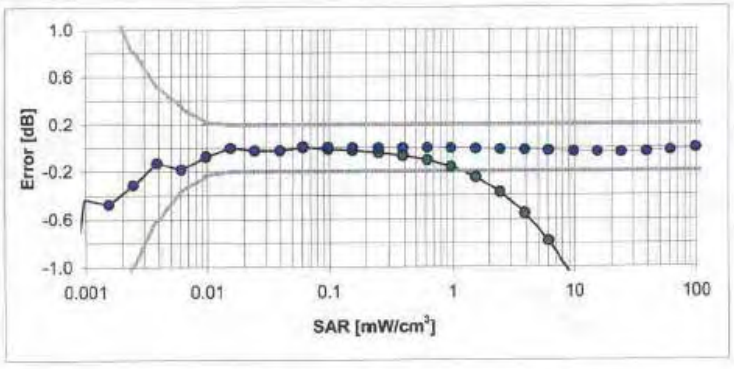
Uncertainty of Axial Isotropy Assessment: ± 0.5% (k=2)

ET3DV6 SN: 1736 December 1, 2006

Dynamic Range f(SAR_{head})

(Waveguide R22, f = 1800 MHz)

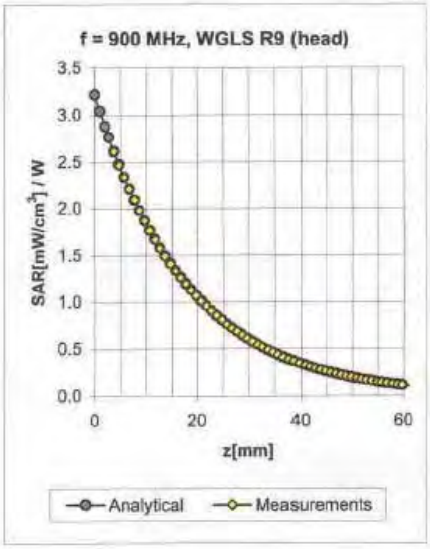


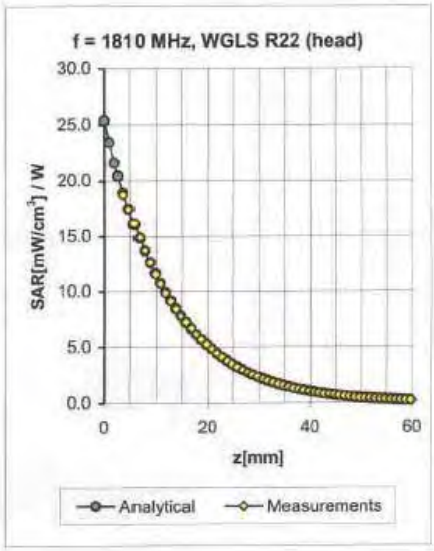


Uncertainty of Linearity Assessment: ± 0.6% (k=2)

ET3DV6 SN: 1736 December 1, 2006

Conversion Factor Assessment



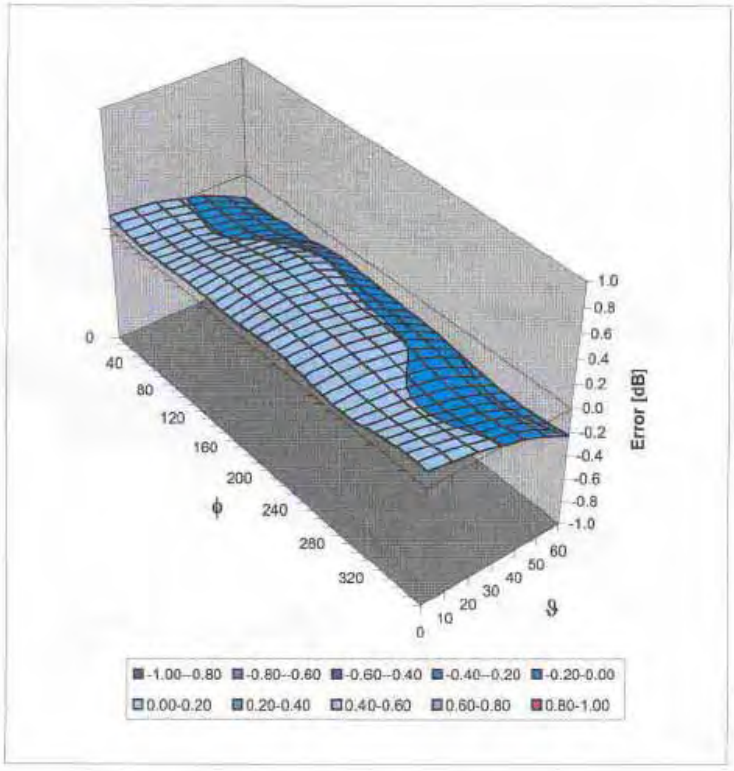


f [MHz]	Validity [MHz][C]	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	0.56	1.85	6.51 ± 11.0% (k=2)
1810	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.57	2.47	5.40 ± 11.0% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.62	2.29	4.67 ± 11.8% (k=2)
450	± 50 / ± 100	Body	56.7 ± 5%	0.94 ± 5%	0.12	1.61	7.74 ± 13.3% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.47	2.15	6.45 ± 11.0% (k=2)
1810	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.53	2.78	4.88 ± 11.0% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.65	2.11	4.35 ± 11.8% (k=2)

ET3DV6 SN: 1736 December 1, 2006

Deviation from Isotropy in HSL

Error (ϕ, ϑ), f = 900 MHz



Uncertainty of Spherical Isotropy Assessment: ± 2.6% (k=2)