



# SAR TEST REPORT

No. 2009EEE00540

For

HUAWEI Technologies Co., Ltd.

WCDMA/GPRS/GSM/EDGE Mobile Phone with Bluetooth

U3315

With

Hardware Version: HD2U330M VER.B

Software Version: V100R001C01B129

FCCID: QISU3305

Issued Date: 2009-02-12



No. DAT-P-114/01-01

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.

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## 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

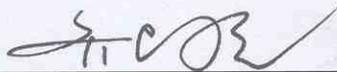
Project Leader: Qi Dianyuan  
Test Engineer: Lin Xiaojun  
Testing Start Date: February 8, 2009  
Testing End Date: February 9, 2009

### 1.4 Signature



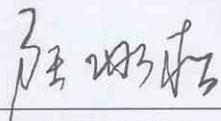
Lin Xiaojun

(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, Shenzhen, Guangdong  
City: Shenzhen  
Postal Code: 518129  
Country: China  
Telephone: 010—82836505/010-82836728  
Fax: 010—82836567

### 2.2 Manufacturer Information

Company Name: HUAWEI Technologies Co., Ltd.  
Address /Post: Bantian, Longgang District, Shenzhen, Guangdong  
City: Shenzhen  
Postal Code: 518129  
Country: China  
Telephone: 010—82836505/010-82836728  
Fax: 010—82836567

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

#### 3.1 About EUT

Description: WCDMA/GPRS/GSM/EDGE Mobile Phone with Bluetooth  
Model: U3315  
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	356743020000548	HD2U330M VER.B	V100R001C01B129

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

#### 3.3 Internal Identification of AE used during the test

AE ID*	Description	Model	SN	Manufacturer
AE1	Travel Adapter	CHG5065-3C	HKY8B0401581	HUAWEI technologies Co., Ltd
AE2	Battery	HBU570	FMT8A1203809Y	Shenzhen FMT 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 50360–2006:** 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 1.2kps AMR is less than 0.25dB higher than that measured in 12.2kbps RMC. For body SAR measurement, the multiple DPDCH<sub>n</sub> configurations are also not required, because the EUT can't support it.

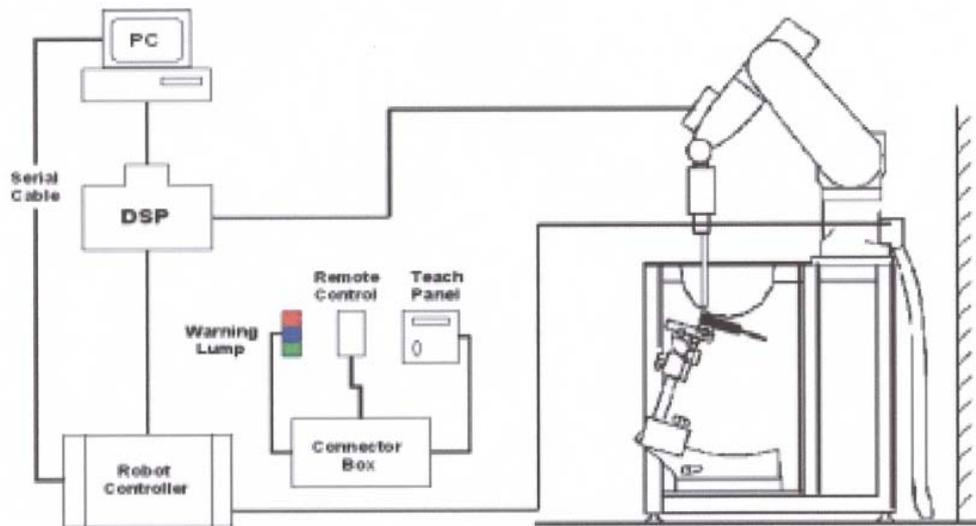
#### 5.1.2 SAR Measurement Procedures for GSM 850MHz and GSM 1900MHZ

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  $\pm 0.02\text{mm}$ . 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  $\pm 10\%$ . The spherical isotropy was evaluated and found to be better than  $\pm 0.25\text{dB}$ .

#### ES3DV3 Probe Specification

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



**Picture 2: ES3DV3 E-field Probe**

Dynamic Range	5 $\mu$ W/g to > 100 mW/g; Linearity: $\pm$ 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  $\pm$  10%. The spherical isotropy was evaluated and found to be better than  $\pm$  0.25dB. The sensitivity parameters (NormX, NormY, NormZ), the diode compression parameter (DCP) and the conversion factor (ConvF) of the probe are tested.

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

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

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

Where:  $\Delta t$  = Exposure time (30 seconds),  
C = Heat capacity of tissue (brain or muscle),  
 $\Delta T$  = Temperature increase due to RF exposure.

Or

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

Where:

$\sigma$  = Simulated tissue conductivity,  
 $\rho$  = Tissue density ( $\text{kg/m}^3$ ).



**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±0.1 mm
Filling Volume	Approx. 20 liters
Dimensions	810 x 1000 x 500 mm (H x L x W)
Available	Special



## 5.6 Equivalent Tissues

**Picture 5: Generic Twin Phantom**

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

**Table 1. Composition of the Head Tissue Equivalent Matter**

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

**Table 2. Composition of the Body Tissue Equivalent Matter**

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

## 5.7 System Specifications

### 5.7.1 Robotic System Specifications

#### Specifications

**Positioner:** Stäubli Unimation Corp. Robot Model: RX90L

**Repeatability:**  $\pm 0.02$  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**

	Conducted Power		
<b>WCDMA 850 (12.2kbps RMC)</b>	<b>Channel 4132 (826.4MHz)</b>	<b>Channel 4182 (836.4MHz)</b>	<b>Channel 4233 (846.6MHz)</b>
Before Test (dBm)	22.53	22.44	22.29
After Test (dBm)	22.52	22.45	22.28
<b>WCDMA 1900 (12.2kbps RMC)</b>	<b>Channel 9262 (1852.4MHz)</b>	<b>Channel 9400 (1880MHz)</b>	<b>Channel 9538 (1907.6MHz)</b>
Before Test (dBm)	22.40	22.15	22.58
After Test (dBm)	22.39	22.16	22.59
<b>WCDMA 850 (64kbps AMR)</b>	<b>Channel 4132 (826.4MHz)</b>	<b>Channel 4182 (836.4MHz)</b>	<b>Channel 4233 (846.6MHz)</b>
Before Test (dBm)	22.52	22.44	22.27
After Test (dBm)	22.51	22.46	22.28
<b>WCDMA 1900 (64kbps AMR)</b>	<b>Channel 9262 (1852.4MHz)</b>	<b>Channel 9400 (1880MHz)</b>	<b>Channel 9538 (1907.6MHz)</b>
Before Test (dBm)	22.41	22.14	22.59
After Test (dBm)	22.40	22.15	22.60
<b>GSM 850MHz</b>	<b>Channel 128 (824.2MHz)</b>	<b>Channel 190 (836.6MHz)</b>	<b>Channel 251 (848.8MHz)</b>
Before Test (dBm)	32.51	32.78	32.41
After Test (dBm)	32.50	32.79	32.42
<b>GSM 1900MHz</b>	<b>Channel 512 (1850.2MHz)</b>	<b>Channel 661 (1880MHz)</b>	<b>Channel 810 (1909.8MHz)</b>
Before Test (dBm)	28.70	28.78	28.60
After Test (dBm)	28.71	28.79	28.61
<b>GSM 850MHz GPRS</b>	<b>Channel 128 (824.2MHz)</b>	<b>Channel 190 (836.6MHz)</b>	<b>Channel 251 (848.8MHz)</b>
Before Test (dBm)	32.50	32.77	32.40
After Test (dBm)	32.49	32.78	32.41
<b>GSM 1900MHz GPRS</b>	<b>Channel 512 (1850.2MHz)</b>	<b>Channel 661 (1880MHz)</b>	<b>Channel 810 (1909.8MHz)</b>
Before Test (dBm)	28.71	28.77	28.59
After Test (dBm)	28.69	28.76	28.60
<b>GSM 850MHz EGPRS</b>	<b>Channel 128 (824.2MHz)</b>	<b>Channel 190 (836.6MHz)</b>	<b>Channel 251 (848.8MHz)</b>
Before Test (dBm)	26.71	26.76	26.57
After Test (dBm)	26.70	26.75	26.58
<b>GSM 1900MHz EGPRS</b>	<b>Channel 512 (1850.2MHz)</b>	<b>Channel 661 (1880MHz)</b>	<b>Channel 810 (1909.8MHz)</b>
Before Test (dBm)	25.25	25.00	25.77

After Test (dBm)	25.26	25.01	25.78
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### 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 26 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 <b>Feb 8,2009</b> 1900 MHz <b>Feb 9,2009</b>			
/	<b>Frequency</b>	<b>Permittivity <math>\epsilon</math></b>	<b>Conductivity <math>\sigma</math> (S/m)</b>
<b>Target value</b>	850 MHz	41.5	0.90
	1900 MHz	40.0	1.40
<b>Measurement value (Average of 10 tests)</b>	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 <b>Feb 8,2009</b> 1900 MHz <b>Feb 9,2009</b>			
/	<b>Frequency</b>	<b>Permittivity <math>\epsilon</math></b>	<b>Conductivity <math>\sigma</math> (S/m)</b>
<b>Target value</b>	850 MHz	55.2	0.97
	1900 MHz	53.3	1.52
<b>Measurement value (Average of 10 tests)</b>	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 <b>Feb 8,2009</b> 1900 MHz <b>Feb 9,2009</b>				
<b>Liquid parameters</b>	Dipole calibration Target value	<b>Frequency</b>	<b>Permittivity <math>\epsilon</math></b>	<b>Conductivity <math>\sigma</math> (S/m)</b>
		835 MHz	39.9	0.88
	Actural Measurement value	835 MHz	40.4	0.90
		1900 MHz	39.2	1.42
<b>Verification results</b>	<b>Frequency</b>	<b>Target value (W/kg)</b>	<b>Measured value (W/kg)</b>	<b>Deviation</b>

		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) – Slide down

Limit of SAR (W/kg)	10 g Average	1 g Average	Power Drift (dB)
	2.0	1.6	
Test Case	Measurement Result (W/kg)		
	10 g Average	1 g Average	
Left hand, Touch cheek, Top frequency(See Fig.1)	0.191	0.255	-0.159
Left hand, Touch cheek, Mid frequency(See Fig.3)	0.147	0.196	0.014
Left hand, Touch cheek, Bottom frequency(See Fig.5)	0.176	0.233	0.170
Left hand, Tilt 15 Degree, Top frequency(See Fig.7)	0.143	0.197	0.069
Left hand, Tilt 15 Degree, Mid frequency(See Fig.9)	0.113	0.155	-0.092
Left hand, Tilt 15 Degree, Bottom frequency(See Fig.11)	0.119	0.162	0.200
Right hand, Touch cheek, Top frequency(See Fig.13)	0.191	0.252	-0.127
Right hand, Touch cheek, Mid frequency(See Fig.15)	0.144	0.190	-0.168
Right hand, Touch cheek, Bottom frequency(See Fig.17)	0.170	0.224	0.200
Right hand, Tilt 15 Degree, Top frequency(See Fig.19)	0.130	0.178	0.091
Right hand, Tilt 15 Degree, Mid frequency(See Fig.21)	0.121	0.165	-0.104
Right hand, Tilt 15 Degree, Bottom frequency(See Fig.23)	0.141	0.194	-0.200

Table 8: SAR Values (Head, WCDMA 850 MHz Band) – Slide up

Limit of SAR (W/kg)	10 g Average	1 g Average	Power Drift (dB)
	2.0	1.6	
Test Case	Measurement Result (W/kg)		
	10 g Average	1 g Average	
Left hand, Touch cheek, Top frequency(See Fig.25)	0.417	0.577	-0.134
Left hand, Touch cheek, Mid frequency(See Fig.27)	0.400	0.545	0.037
Left hand, Touch cheek, Bottom frequency(See Fig.29)	0.347	0.475	0.103
Left hand, Tilt 15 Degree, Top frequency(See Fig.31)	0.209	0.289	-0.102
Left hand, Tilt 15 Degree, Mid frequency(See Fig.33)	0.220	0.303	-0.023
Left hand, Tilt 15 Degree, Bottom frequency(See Fig.35)	0.188	0.256	-0.142
Right hand, Touch cheek, Top frequency(See Fig.37)	0.417	0.565	-0.188
Right hand, Touch cheek, Mid frequency(See Fig.39)	0.402	0.546	-0.058

Right hand, Touch cheek, Bottom frequency(See Fig.41)	0.347	0.474	-0.022
Right hand, Tilt 15 Degree, Top frequency(See Fig.43)	0.229	0.316	-0.192
Right hand, Tilt 15 Degree, Mid frequency(See Fig.45)	0.231	0.317	-0.157
Right hand, Tilt 15 Degree, Bottom frequency(See Fig.47)	0.193	0.265	0.009

**Table 9: SAR Values (Body, WCDMA 850 MHz Band) – Slide down**

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.49)	0.290	0.429	-0.097
Body, Towards Ground, Mid frequency (See Fig.51)	0.218	0.318	0.080
Body, Towards Ground, Bottom frequency (See Fig.53)	0.276	0.404	0.131
Body, Towards Phantom, Top frequency (See Fig.55)	0.134	0.183	-0.013
Body, Towards Phantom, Mid frequency (See Fig.57)	0.096	0.131	-0.038
Body, Towards Phantom, Bottom frequency (See Fig.59)	0.119	0.162	0.177

**Table 10: SAR Values (Body, WCDMA 850 MHz Band) – Slide up**

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.61)	0.509	0.710	0.112
Body, Towards Ground, Mid frequency (See Fig.63)	0.502	0.700	0.036
Body, Towards Ground, Bottom frequency (See Fig.65)	0.500	0.697	-0.012
Body, Towards Phantom, Top frequency (See Fig.67)	0.450	0.622	-0.107
Body, Towards Phantom, Mid frequency (See Fig.69)	0.448	0.617	0.080
Body, Towards Phantom, Bottom frequency (See Fig.71)	0.424	0.584	0.071
Body, Towards Ground, Top frequency with Headset(See Fig.73)	0.484	0.672	-0.058

#### 7.4 Summary of Measurement Results (WCDMA 1900)

**Table 11: SAR Values (Head, WCDMA 1900 MHz Band) – Slide down**

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.75)	0.321	0.496	-0.014
Left hand, Touch cheek, Mid frequency(See Fig.77)	0.398	0.615	0.034
Left hand, Touch cheek, Bottom frequency(See Fig.79)	0.389	0.601	0.095
Left hand, Tilt 15 Degree, Top frequency(See Fig.81)	0.217	0.382	0.150
Left hand, Tilt 15 Degree, Mid frequency(See Fig.83)	0.234	0.409	0.149
Left hand, Tilt 15 Degree, Bottom frequency(See Fig.85)	0.208	0.362	0.145
Right hand, Touch cheek, Top frequency(See Fig.87)	0.294	0.463	0.147
Right hand, Touch cheek, Mid frequency(See Fig.89)	0.357	0.566	0.059
Right hand, Touch cheek, Bottom frequency(See Fig.91)	0.339	0.537	0.122
Right hand, Tilt 15 Degree, Top frequency(See Fig.93)	0.246	0.450	-0.089
Right hand, Tilt 15 Degree, Mid frequency(See Fig.95)	0.254	0.458	0.186
Right hand, Tilt 15 Degree, Bottom frequency(See Fig.97)	0.229	0.408	0.107

**Table 12: SAR Values (Head, WCDMA 1900 MHz Band) – Slide up**

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.99)	0.222	0.377	0.032
Left hand, Touch cheek, Mid frequency(See Fig.101)	0.274	0.458	0.069
Left hand, Touch cheek, Bottom frequency(See Fig.103)	0.283	0.471	-0.049
Left hand, Tilt 15 Degree, Top frequency(See Fig.105)	0.140	0.233	-0.071
Left hand, Tilt 15 Degree, Mid frequency(See Fig.107)	0.171	0.273	0.097
Left hand, Tilt 15 Degree, Bottom frequency(See Fig.109)	0.167	0.264	0.076
Right hand, Touch cheek, Top frequency(See Fig.111)	0.162	0.265	-0.123
Right hand, Touch cheek, Mid frequency(See Fig.113)	0.212	0.343	-0.200
Right hand, Touch cheek, Bottom frequency(See Fig.115)	0.211	0.341	-0.045
Right hand, Tilt 15 Degree, Top frequency(See Fig.117)	0.161	0.275	-0.080
Right hand, Tilt 15 Degree, Mid frequency(See Fig.119)	0.193	0.323	-0.173
Right hand, Tilt 15 Degree, Bottom frequency(See Fig.121)	0.190	0.313	0.034

**Table 13: SAR Values (Body, WCDMA 1900 MHz Band) – Slide down**

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.123)	0.309	0.562	0.000
Body, Towards Ground, Mid frequency (See Fig.125)	0.349	0.641	0.063
Body, Towards Ground, Bottom frequency (See Fig.127)	0.309	0.565	0.110

Body, Towards Phantom, Top frequency (See Fig.129)	0.092	0.142	-0.028
Body, Towards Phantom, Mid frequency (See Fig.131)	0.103	0.157	0.174
Body, Towards Phantom, Bottom frequency (See Fig.133)	0.093	0.141	0.052

**Table 14: SAR Values (Body, WCDMA 1900 MHz Band) – Slide up**

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.135)	0.202	0.335	0.075
Body, Towards Ground, Mid frequency (See Fig.137)	0.243	0.393	0.107
Body, Towards Ground, Bottom frequency (See Fig.139)	0.238	0.378	0.043
Body, Towards Phantom, Top frequency (See Fig.141)	0.164	0.261	0.198
Body, Towards Phantom, Mid frequency (See Fig.143)	0.183	0.291	-0.018
Body, Towards Phantom, Bottom frequency (See Fig.145)	0.168	0.265	-0.017
Body, Towards Ground, Mid frequency with Headset(See Fig.147)	0.328	0.612	0.073

## 7.5 Summary of Measurement Results (GSM 850)

**Table 15: SAR Values (Head, GSM 850 MHz Band) – Slide down**

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.149)	0.126	0.166	0.185
Left hand, Touch cheek, Mid frequency(See Fig.151)	0.133	0.174	-0.076
Left hand, Touch cheek, Bottom frequency(See Fig.153)	0.160	0.209	0.196
Left hand, Tilt 15 Degree, Top frequency(See Fig.155)	0.081	0.110	0.028
Left hand, Tilt 15 Degree, Mid frequency(See Fig.157)	0.088	0.120	-0.014
Left hand, Tilt 15 Degree, Bottom frequency(See Fig.159)	0.108	0.147	0.200
Right hand, Touch cheek, Top frequency(See Fig.161)	0.111	0.147	-0.200
Right hand, Touch cheek, Mid frequency(See Fig.163)	0.117	0.155	-0.005
Right hand, Touch cheek, Bottom frequency(See Fig.165)	0.144	0.189	-0.102
Right hand, Tilt 15 Degree, Top frequency(See Fig.167)	0.083	0.114	-0.070
Right hand, Tilt 15 Degree, Mid frequency(See Fig.169)	0.090	0.123	-0.070
Right hand, Tilt 15 Degree, Bottom frequency(See Fig.171)	0.112	0.151	0.064

**Table 16: SAR Values (Head, GSM 850 MHz Band) – Slide up**

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.173)	0.401	0.553	-0.150
Left hand, Touch cheek, Mid frequency(See Fig.175)	0.459	0.631	-0.034
Left hand, Touch cheek, Bottom frequency(See Fig.177)	0.420	0.575	-0.038
Left hand, Tilt 15 Degree, Top frequency(See Fig.179)	0.207	0.286	0.005
Left hand, Tilt 15 Degree, Mid frequency(See Fig.181)	0.247	0.341	0.053
Left hand, Tilt 15 Degree, Bottom frequency(See Fig.183)	0.201	0.275	-0.200
Right hand, Touch cheek, Top frequency(See Fig.185)	0.435	0.597	-0.200
Right hand, Touch cheek, Mid frequency(See Fig.187)	0.477	0.650	-0.099
Right hand, Touch cheek, Bottom frequency(See Fig.189)	0.411	0.561	0.029
Right hand, Tilt 15 Degree, Top frequency(See Fig.191)	0.232	0.323	-0.022
Right hand, Tilt 15 Degree, Mid frequency(See Fig.193)	0.268	0.369	0.016
Right hand, Tilt 15 Degree, Bottom frequency(See Fig.195)	0.207	0.283	0.090

**Table 17: SAR Values (Body, GSM 850 MHz Band) – Slide down**

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.197)	0.234	0.343	-0.200
Body, Towards Ground, Mid frequency with GPRS (See Fig.199)	0.251	0.365	-0.107
Body, Towards Ground, Bottom frequency with GPRS (See Fig.201)	0.290	0.435	-0.044
Body, Towards Phantom, Top frequency with GPRS (See Fig.203)	0.095	0.129	-0.033
Body, Towards Phantom, Mid frequency with GPRS (See Fig.205)	0.105	0.142	-0.139
Body, Towards Phantom, Bottom frequency with GPRS (See Fig.207)	0.118	0.159	-0.072

**Table 18: SAR Values (Body, GSM 850 MHz Band) – Slide up**

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.209)	0.526	0.728	-0.138

Body, Towards Ground, Mid frequency with GPRS (See Fig.211)	0.590	0.811	-0.052
Body, Towards Ground, Bottom frequency with GPRS (See Fig.213)	0.649	0.890	-0.053
Body, Towards Phantom, Top frequency with GPRS (See Fig.215)	0.555	0.773	-0.034
Body, Towards Phantom, Mid frequency with GPRS (See Fig.217)	0.642	0.891	0.049
Body, Towards Phantom, Bottom frequency with GPRS (See Fig.219)	0.718	0.989	-0.014
Body, Towards Ground, Bottom frequency (See Fig.221)	0.580	0.808	-0.113
Body, Towards Ground, Bottom frequency with EGPRS (See Fig.223)	0.234	0.324	-0.042
Body, Towards Ground, Bottom frequency with Headset(See Fig.225)	0.562	0.782	-0.010

## 7.6 Summary of Measurement Results (GSM 1900)

Table 19: SAR Values (Head, GSM 1900 MHz Band) – Slide down

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.227)	0.136	0.220	-0.044
Left hand, Touch cheek, Mid frequency(See Fig.229)	0.190	0.289	0.017
Left hand, Touch cheek, Bottom frequency(See Fig.231)	0.179	0.270	0.008
Left hand, Tilt 15 Degree, Top frequency(See Fig.233)	0.136	0.243	-0.032
Left hand, Tilt 15 Degree, Mid frequency(See Fig.235)	0.150	0.266	-0.200
Left hand, Tilt 15 Degree, Bottom frequency(See Fig.237)	0.135	0.237	0.023
Right hand, Touch cheek, Top frequency(See Fig.239)	0.147	0.242	0.028
Right hand, Touch cheek, Mid frequency(See Fig.241)	0.170	0.279	0.026
Right hand, Touch cheek, Bottom frequency(See Fig.243)	0.150	0.245	-0.038
Right hand, Tilt 15 Degree, Top frequency(See Fig.245)	0.124	0.224	-0.011
Right hand, Tilt 15 Degree, Mid frequency(See Fig.247)	0.146	0.266	0.019
Right hand, Tilt 15 Degree, Bottom frequency(See Fig.249)	0.138	0.252	0.080

Table 20: SAR Values (Head, GSM 1900 MHz Band) – Slide up

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.251)	0.109	0.184	-0.200
Left hand, Touch cheek, Mid frequency(See Fig.253)	0.151	0.252	-0.200
Left hand, Touch cheek, Bottom frequency(See Fig.255)	0.165	0.274	0.003
Left hand, Tilt 15 Degree, Top frequency(See Fig.257)	0.073	0.117	0.052

Left hand, Tilt 15 Degree, Mid frequency(See Fig.259)	0.092	0.144	0.033
Left hand, Tilt 15 Degree, Bottom frequency(See Fig.261)	0.094	0.144	0.121
Right hand, Touch cheek, Top frequency(See Fig.263)	0.082	0.135	0.200
Right hand, Touch cheek, Mid frequency(See Fig.265)	0.112	0.183	0.045
Right hand, Touch cheek, Bottom frequency(See Fig.267)	0.119	0.192	0.046
Right hand, Tilt 15 Degree, Top frequency(See Fig.269)	0.081	0.133	0.037
Right hand, Tilt 15 Degree, Mid frequency(See Fig.271)	0.112	0.181	-0.028
Right hand, Tilt 15 Degree, Bottom frequency(See Fig.273)	0.113	0.186	-0.021

**Table 21: SAR Values (Body, GSM 1900 MHz Band) – Slide down**

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.275)	0.417	0.767	-0.012
Body, Towards Ground, Mid frequency with GPRS (See Fig.277)	0.449	0.835	0.030
Body, Towards Ground, Bottom frequency with GPRS (See Fig.279)	0.387	0.722	0.095
Body, Towards Phantom, Top frequency with GPRS (See Fig.281)	0.113	0.182	-0.046
Body, Towards Phantom, Mid frequency with GPRS (See Fig.283)	0.131	0.203	0.026
Body, Towards Phantom, Bottom frequency with GPRS (See Fig.285)	0.124	0.191	-0.125

**Table 22: SAR Values (Body, GSM 1900 MHz Band) – Slide up**

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.287)	0.203	0.324	0.008
Body, Towards Ground, Mid frequency with GPRS (See Fig.289)	0.325	0.527	-0.137
Body, Towards Ground, Bottom frequency with GPRS (See Fig.291)	0.334	0.539	0.200
Body, Towards Phantom, Top frequency with GPRS (See Fig.293)	0.145	0.232	0.033
Body, Towards Phantom, Mid frequency with GPRS (See Fig.295)	0.147	0.237	-0.030
Body, Towards Phantom, Bottom frequency with GPRS (See Fig.297)	0.157	0.252	-0.110
Body, Towards Ground, Mid frequency (See Fig.299)	0.204	0.371	-0.187
Body, Towards Ground, Mid frequency with EGPRS (See Fig.301)	0.152	0.278	-0.013
Body, Towards Ground, Mid frequency with Headset(See Fig.303)	0.196	0.351	-0.051

### 7.7 Summary of Measurement Results (Bluetooth function)

The distance between BT antenna and GSM antenna is >5cm. The location of the antennas inside mobile phone is shown below:



The output power of BT antenna is as following:

Channel	Ch 0 2402 MHz	Ch 39 2441 Mhz	Ch 78 2480 MHz
Peak Conducted Output Power(dBm)	-0.12	-0.63	-0.45

According to the output power measurement result and the distance between the two antennas, we can draw the conclusion that: stand-alone SAR and simultaneous transmission SAR are not required for BT transmitter, because the output power of BT transmitter is  $\leq 2P_{Ref}$  and its antenna is  $\geq 5\text{cm}$  from other antenna

With the request of the client, we perform the tests with dominant GSM transmitter and co-located Bluetooth transmitter both ON under the worst case for body tests.

**Table 23: SAR Values (WCDMA 850MHz Band-Body with Bluetooth) – Slide up**

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.305)	0.503	0.702	0.042

**Table 24: SAR Values (WCDMA 1900 MHz Band-Body with Bluetooth) – Slide up**

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, Mid frequency(See Fig.307)	0.363	0.666	0.040

**Table 25: SAR Values (GSM 850MHz Band-Body with Bluetooth) – Slide up**

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, Bottom frequency(See Fig.309)	0.599	0.834	0.022

**Table 26: SAR Values (GSM 1900 MHz Band-Body with Bluetooth) – Slide up**

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, Mid frequency(See Fig.311)	0.227	0.416	0.056

## 7.8 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 Body, Towards Phantom, Bottom frequency with GPRS (Table 18)**, and the value are: **0.718(10g), 0.989(1g)**

## 8 Measurement Uncertainty

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

**Table 27: 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	December 1, 2008	One year
09	DAE	SPEAG DAE4	771	November 20, 2008	One year
10	Dipole Validation Kit	SPEAG D835V2	443	February 19, 2007	Two years
11	Dipole Validation Kit	SPEAG D1900V2	541	February 20, 2007	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.

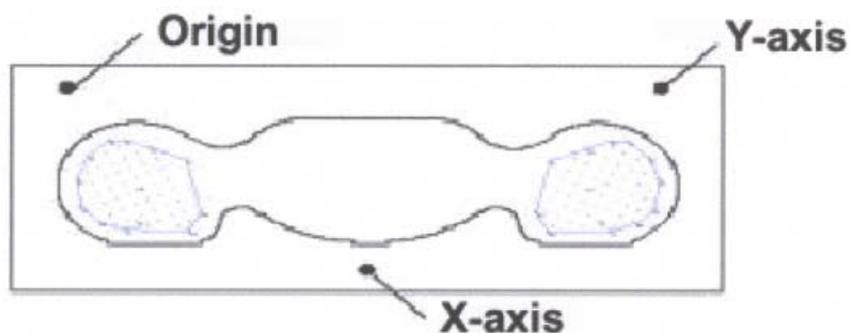
Step 3: Around this point, a volume of 30 mm x 30 mm x 30 mm was assessed by measuring 7 x 7 x 7 points. On this basis of this data set, the spatial peak SAR value was evaluated with the following procedure:

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.

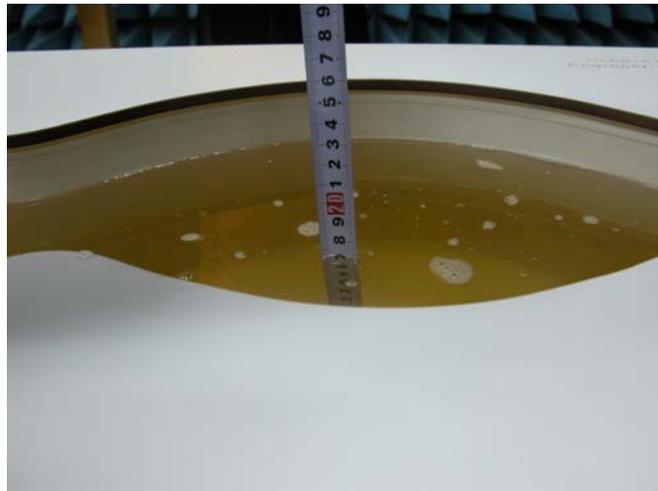


Picture A: SAR Measurement Points in Area Scan

## 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 – Slide down

Date/Time: 2009-2-8 6:31:20

Electronics: DAE4 Sn771

Medium: 850 HEAD

Medium parameters used (interpolated):  $f = 846.6$  MHz;  $\sigma = 0.917$  mho/m;  $\epsilon_r = 40.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3°C      Liquid 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 (51x91x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.267 mW/g

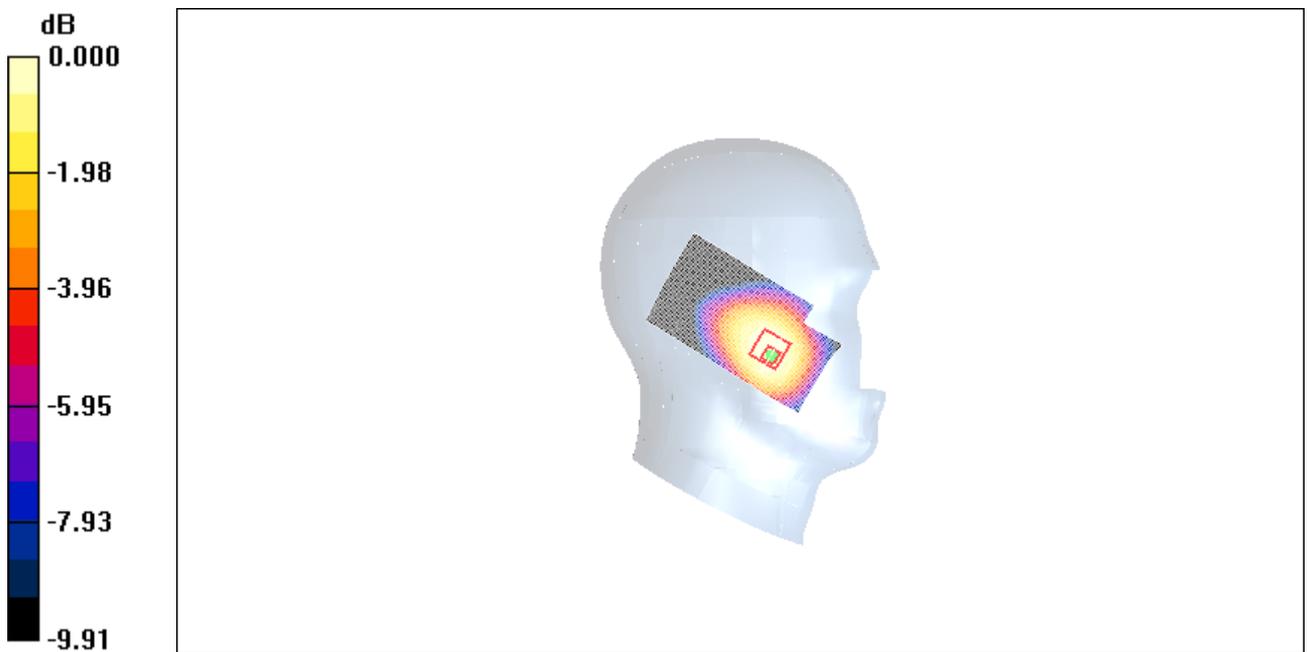
**Cheek High/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.34 V/m; Power Drift = -0.159 dB

Peak SAR (extrapolated) = 0.319 W/kg

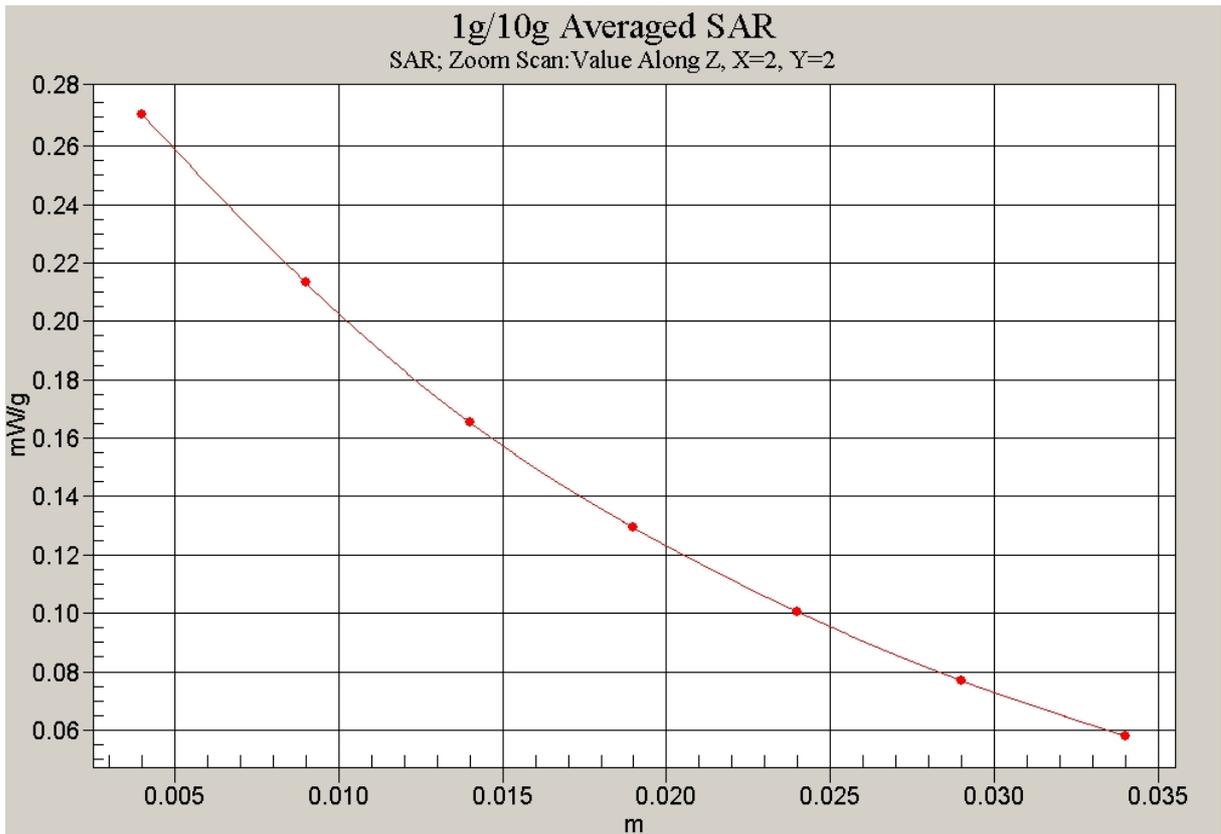
**SAR(1 g) = 0.255 mW/g; SAR(10 g) = 0.191 mW/g**

Maximum value of SAR (measured) = 0.271 mW/g



0 dB = 0.271mW/g

Fig. 1 Left Hand Touch Cheek WCDMA 850MHz CH4233 – Slide down



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

**WCDMA 850 Left Cheek Middle – Slide down**

Date/Time: 2009-2-8 6:44:15

Electronics: DAE4 Sn771

Medium: 850 HEAD

Medium parameters used (interpolated):  $f = 836.4$  MHz;  $\sigma = 0.907$  mho/m;  $\epsilon_r = 40.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3°C      Liquid 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 (51x91x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.203 mW/g

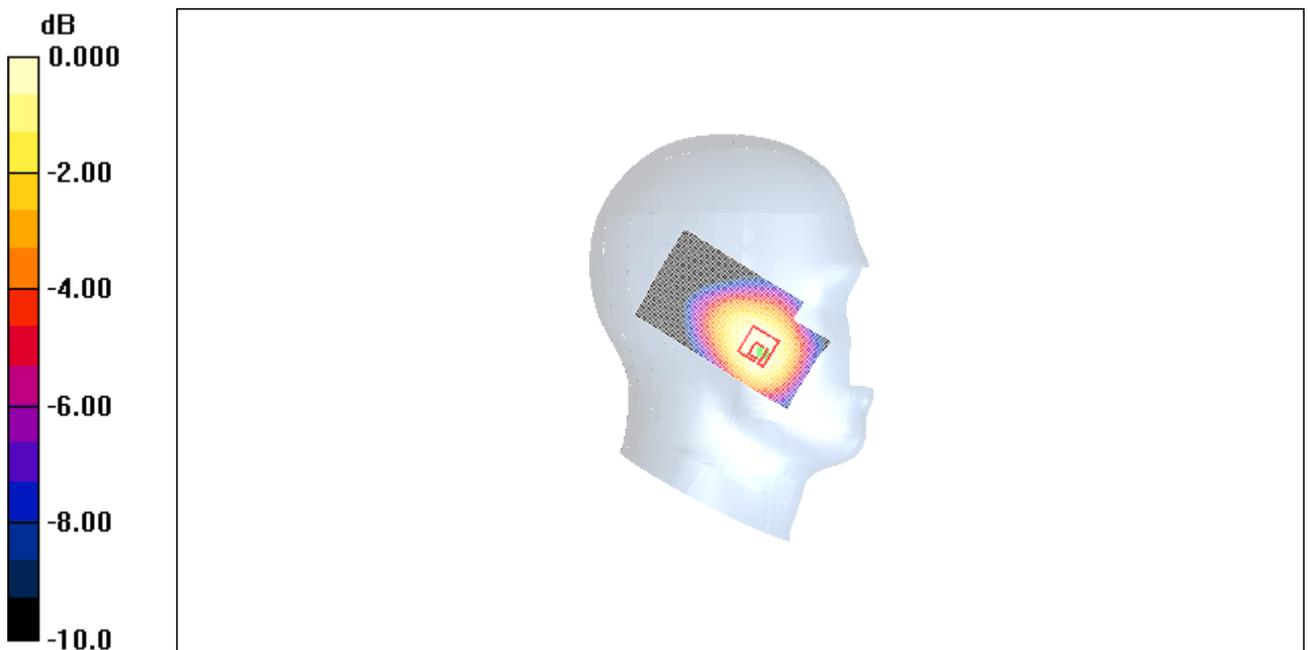
**Cheek Middle/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.13 V/m; Power Drift = 0.014 dB

Peak SAR (extrapolated) = 0.246 W/kg

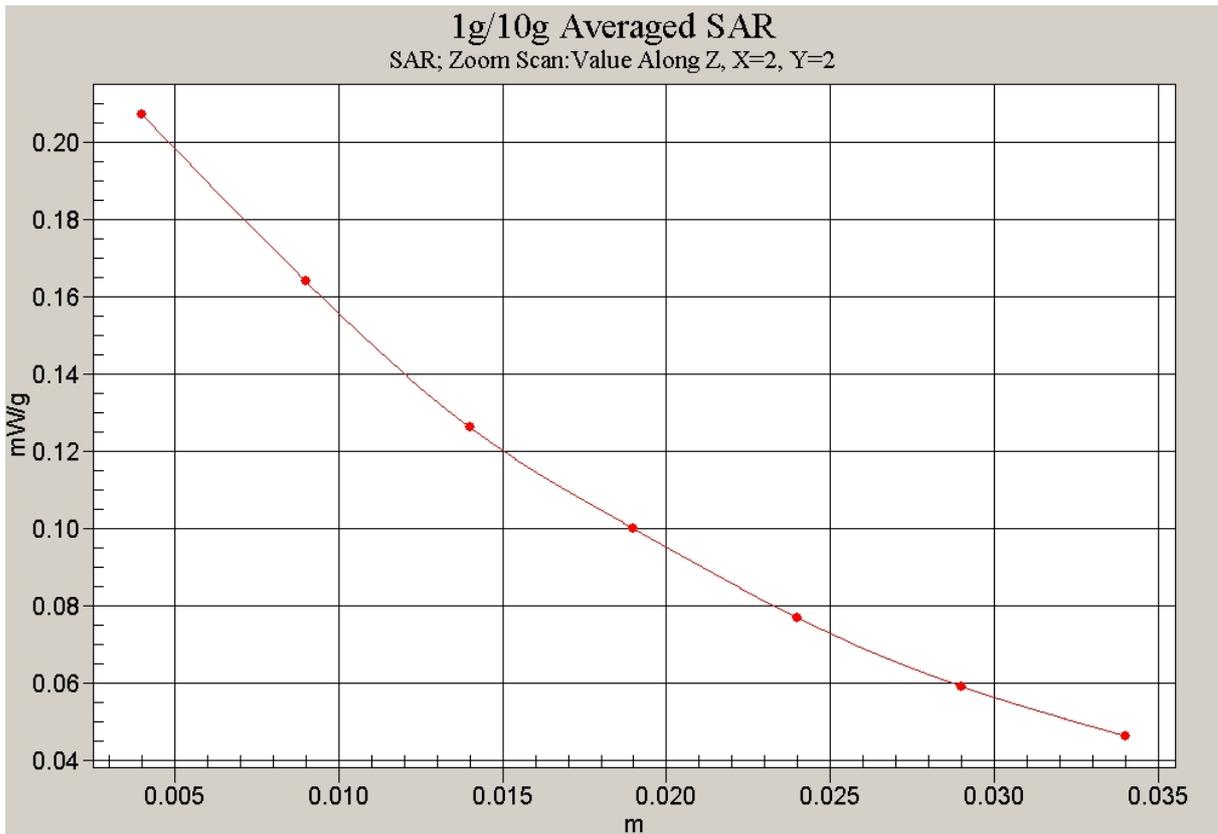
**SAR(1 g) = 0.196 mW/g; SAR(10 g) = 0.147 mW/g**

Maximum value of SAR (measured) = 0.207 mW/g



0 dB = 0.207mW/g

**Fig. 3 Left Hand Touch Cheek WCDMA 850MHz CH4182 – Slide down**



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

**WCDMA 850 Left Cheek Low – Slide down**

Date/Time: 2009-2-8 6:57:27

Electronics: DAE4 Sn771

Medium: 850 HEAD

Medium parameters used (interpolated):  $f = 826.4$  MHz;  $\sigma = 0.897$  mho/m;  $\epsilon_r = 40.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3°C      Liquid 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 (51x91x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.239 mW/g

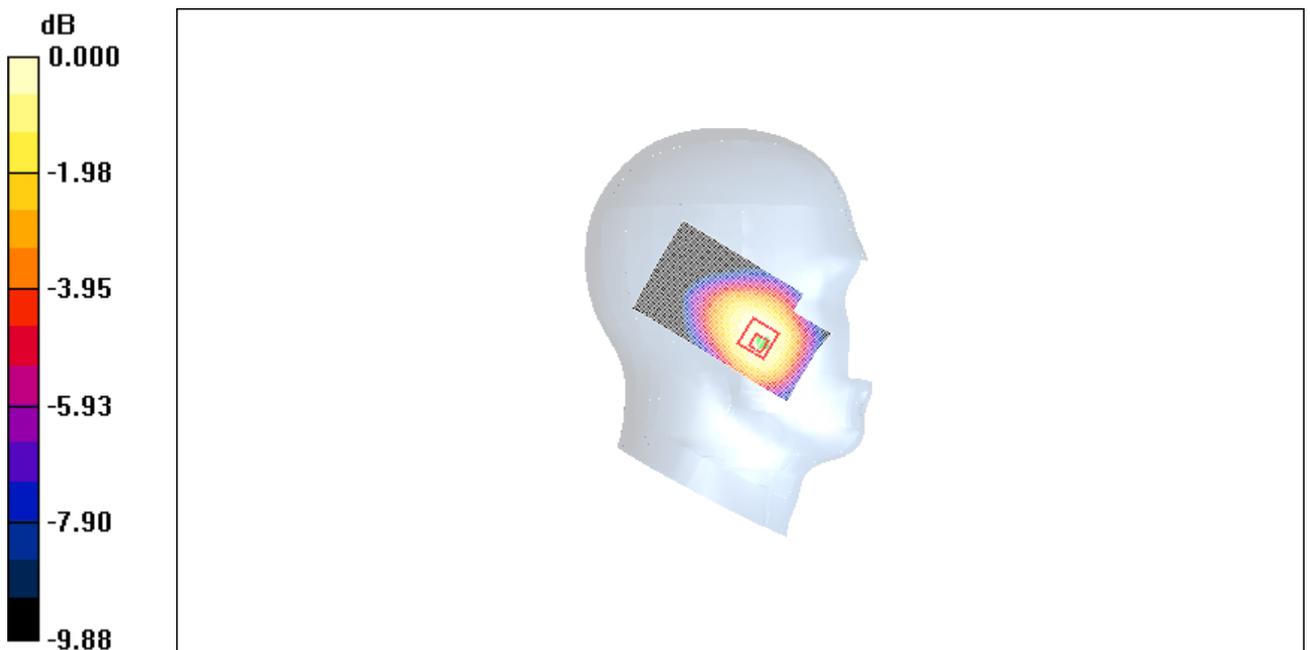
**Cheek Low/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.78 V/m; Power Drift = 0.170 dB

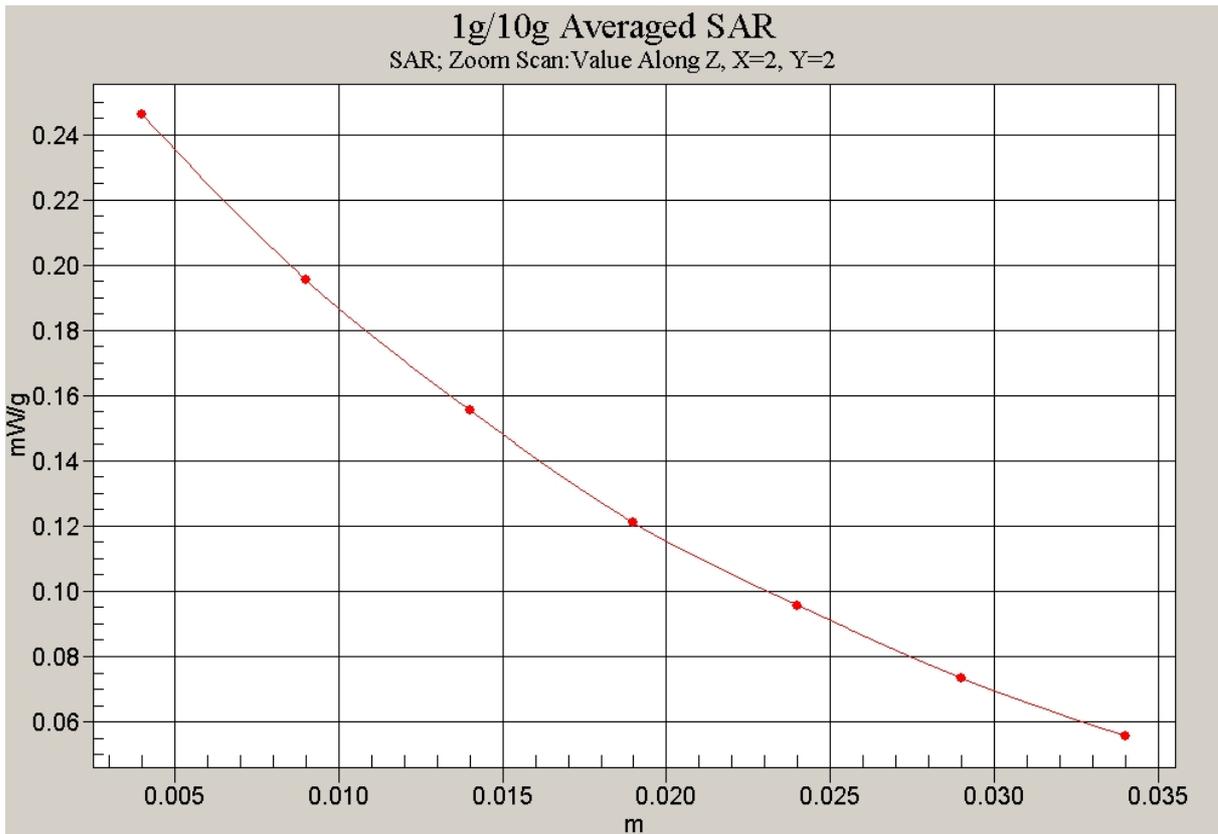
Peak SAR (extrapolated) = 0.292 W/kg

**SAR(1 g) = 0.233 mW/g; SAR(10 g) = 0.176 mW/g**

Maximum value of SAR (measured) = 0.246 mW/g



**Fig. 5 Left Hand Touch Cheek WCDMA 850MHz CH4132 – Slide down**



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

**WCDMA 850 Left Tilt High – Slide down**

Date/Time: 2009-2-8 7:10:42

Electronics: DAE4 Sn771

Medium: 850 HEAD

Medium parameters used (interpolated):  $f = 846.6$  MHz;  $\sigma = 0.917$  mho/m;  $\epsilon_r = 40.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3°C      Liquid 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)

**Tilt High/Area Scan (51x91x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.210 mW/g

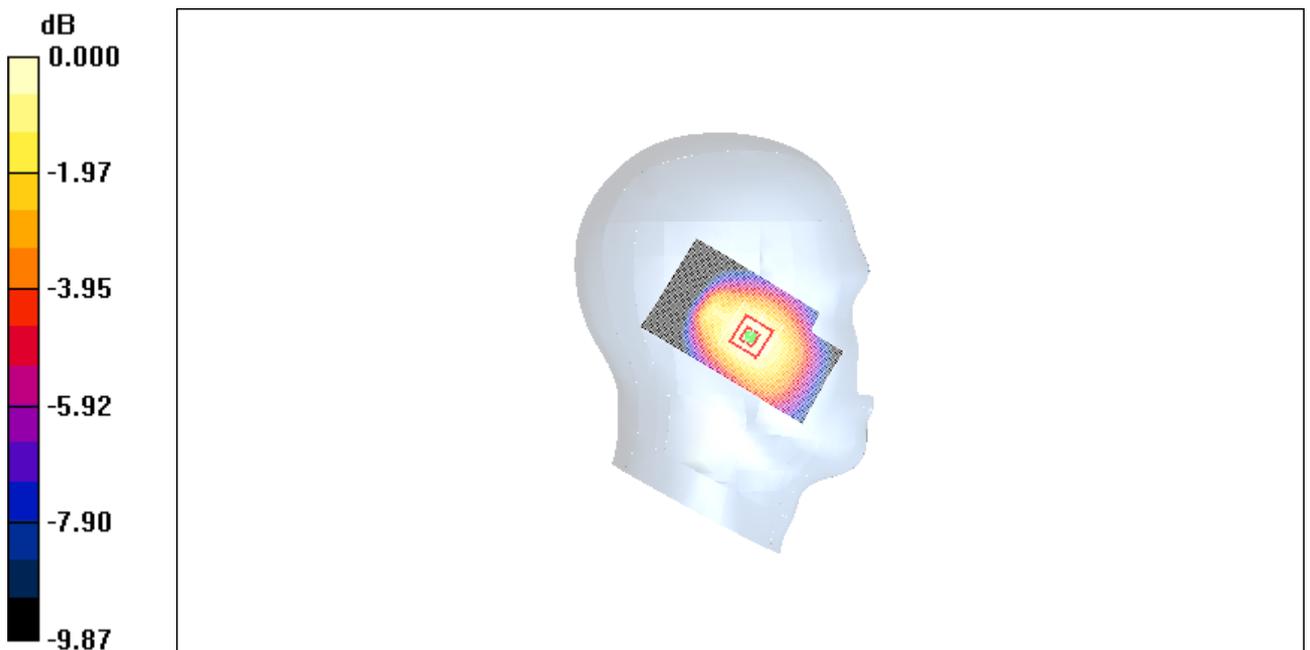
**Tilt High/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.6 V/m; Power Drift = 0.069 dB

Peak SAR (extrapolated) = 0.260 W/kg

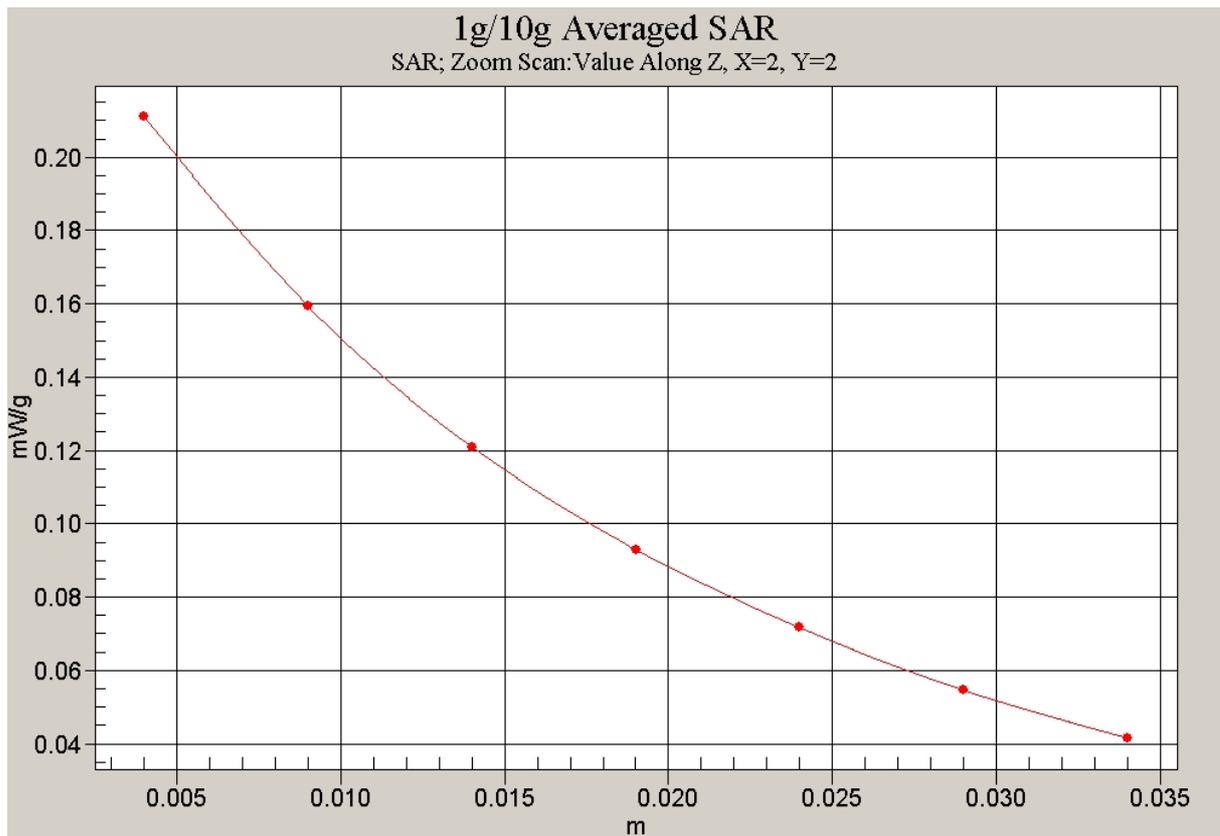
**SAR(1 g) = 0.197 mW/g; SAR(10 g) = 0.143 mW/g**

Maximum value of SAR (measured) = 0.211 mW/g



0 dB = 0.211mW/g

**Fig. 7 Left Hand Tilt 15°WCDMA 850MHz CH4233 – Slide down**



**Fig. 8 Z-Scan at power reference point (WCDMA 850MHz CH4233) – Slide down**

**WCDMA 850 Left Tilt Middle – Slide down**

Date/Time: 2009-2-8 7:23:03

Electronics: DAE4 Sn771

Medium: 850 HEAD

Medium parameters used (interpolated):  $f = 836.4$  MHz;  $\sigma = 0.907$  mho/m;  $\epsilon_r = 40.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3°C      Liquid 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 (51x91x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.165 mW/g

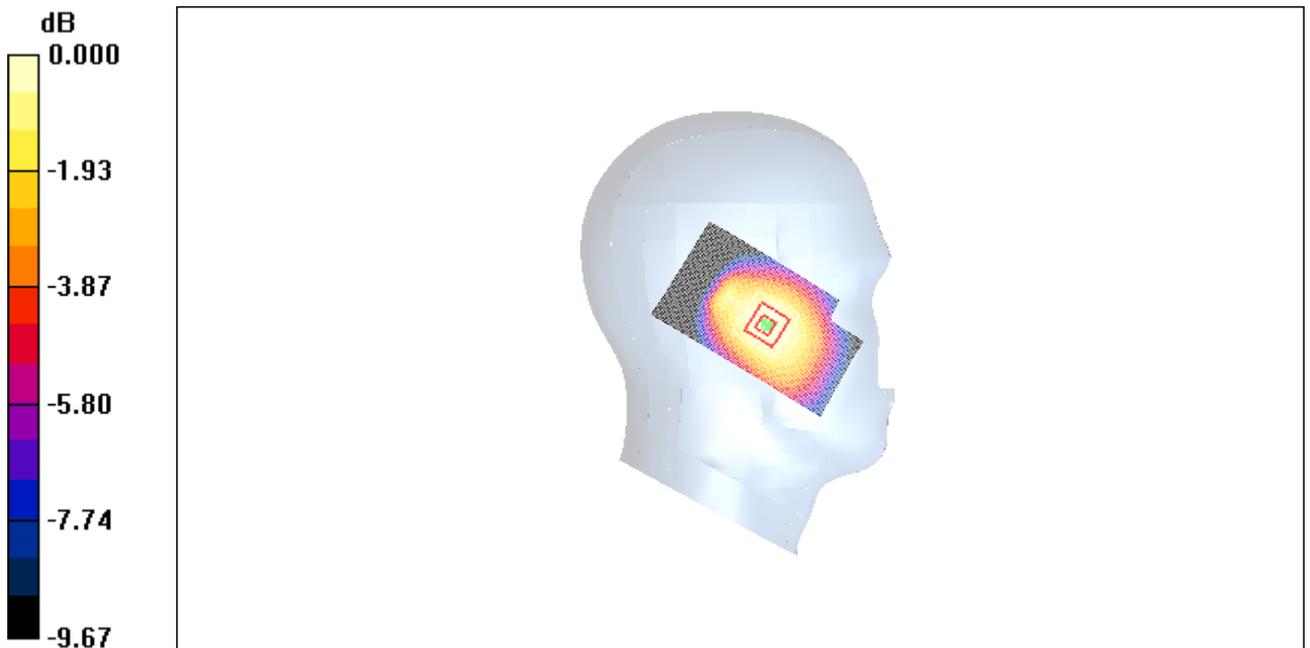
**Tilt Middle/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.4 V/m; Power Drift = -0.092 dB

Peak SAR (extrapolated) = 0.204 W/kg

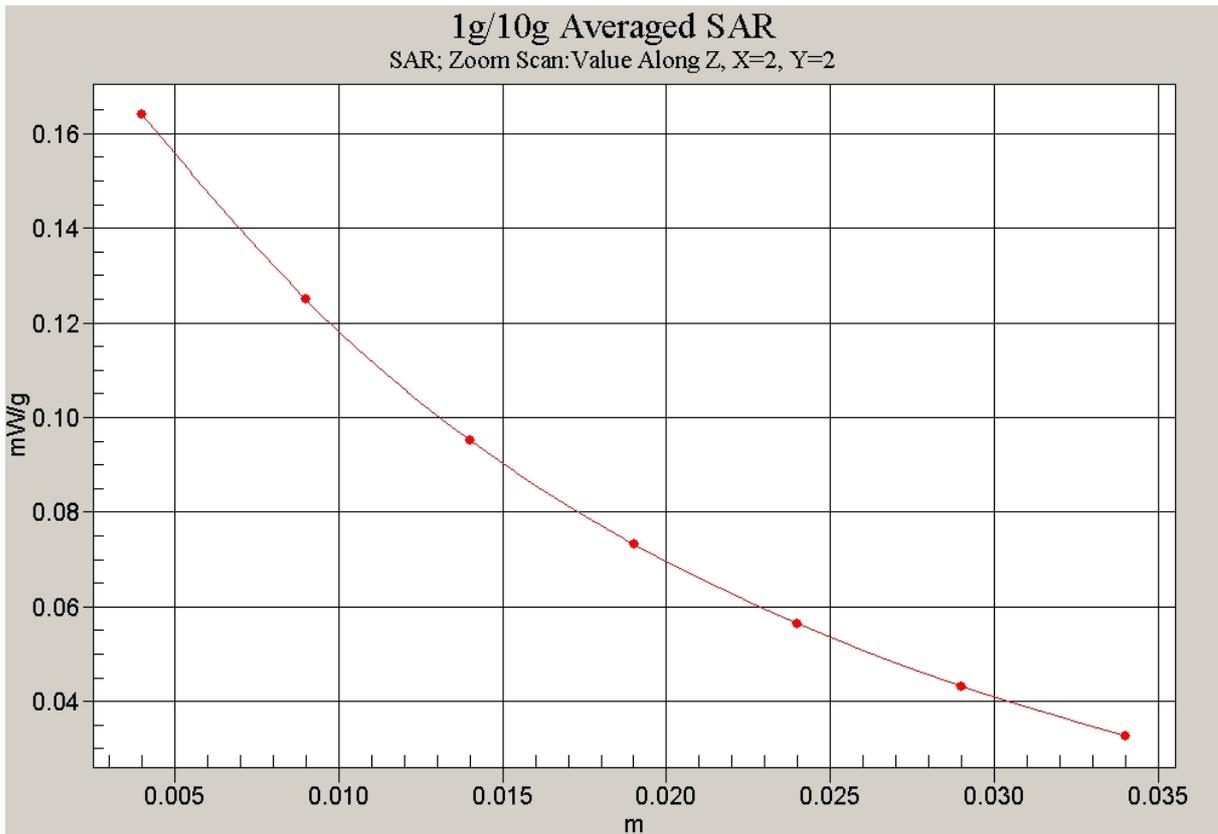
**SAR(1 g) = 0.155 mW/g; SAR(10 g) = 0.113 mW/g**

Maximum value of SAR (measured) = 0.164 mW/g



0 dB = 0.164mW/g

**Fig. 9 Left Hand Tilt 15°WCDMA 850MHz CH4182 – Slide down**



**Fig. 10 Z-Scan at power reference point (WCDMA 850MHz CH4182) – Slide down**

**WCDMA 850 Left Tilt Low – Slide down**

Date/Time: 2009-2-8 7:36:25

Electronics: DAE4 Sn771

Medium: 850 HEAD

Medium parameters used (interpolated):  $f = 826.4$  MHz;  $\sigma = 0.897$  mho/m;  $\epsilon_r = 40.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3°C      Liquid 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)

**Tilt Low/Area Scan (51x91x1):** Measurement grid: dx=10mm, dy=10mm

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

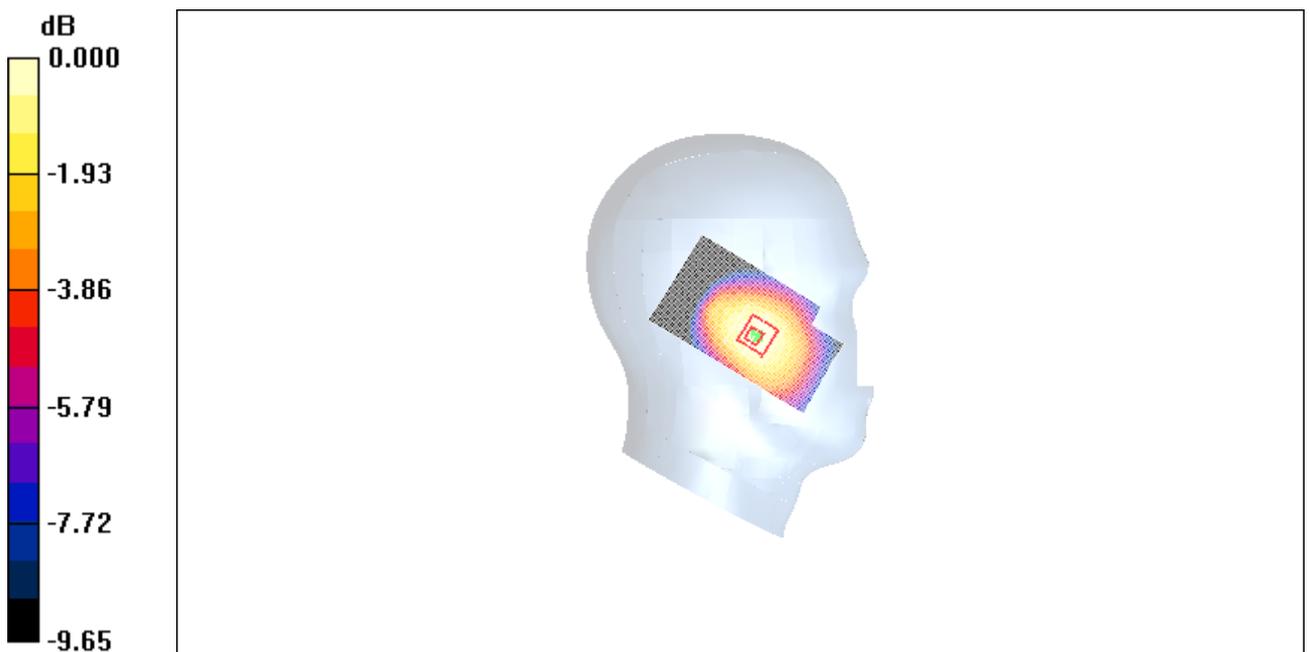
**Tilt Low/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 9.85 V/m; Power Drift = 0.200 dB

Peak SAR (extrapolated) = 0.211 W/kg

**SAR(1 g) = 0.162 mW/g; SAR(10 g) = 0.119 mW/g**

Maximum value of SAR (measured) = 0.171 mW/g



0 dB = 0.171mW/g

**Fig. 11 Left Hand Tilt 15°WCDMA 850MHz CH4132 – Slide down**

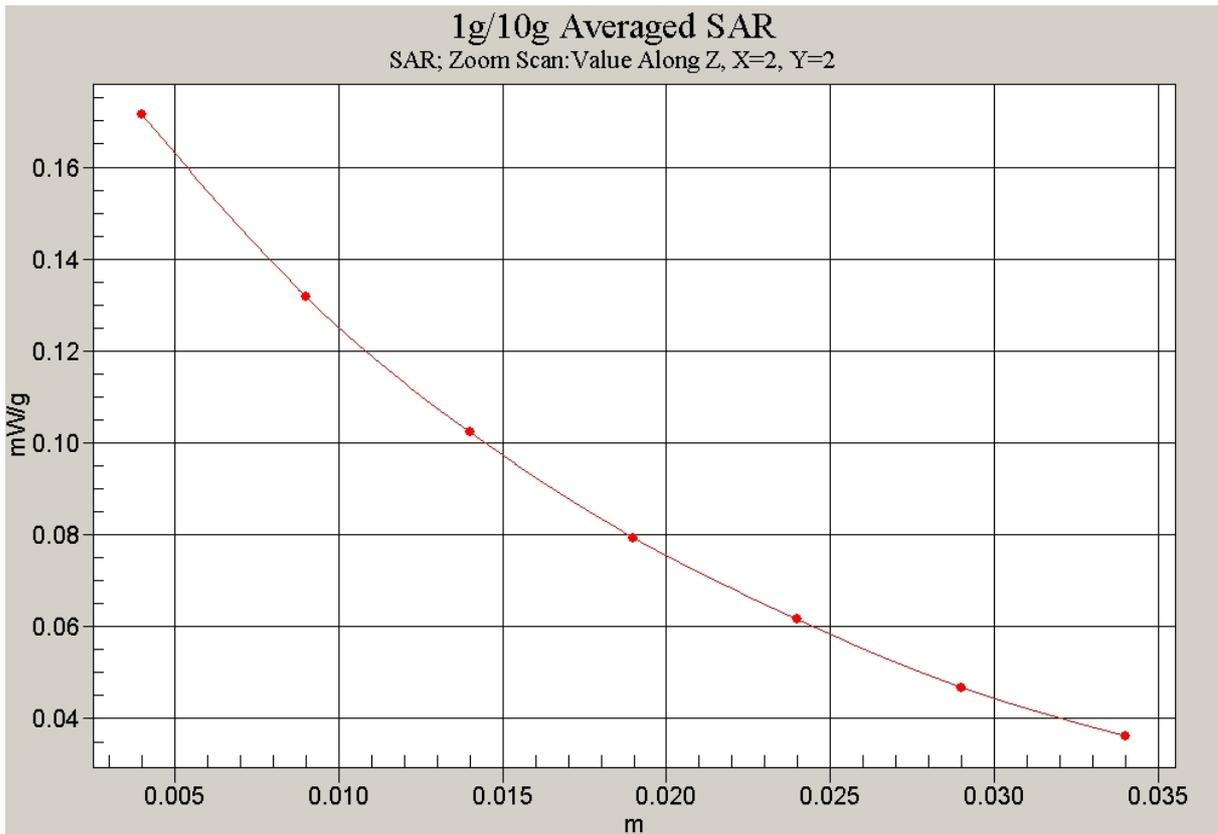


Fig. 12 Z-Scan at power reference point (WCDMA 850MHz CH4132) – Slide down

**WCDMA 850 Right Cheek High – Slide down**

Date/Time: 2009-2-8 7:49:31

Electronics: DAE4 Sn771

Medium: 850 HEAD

Medium parameters used (interpolated):  $f = 846.6$  MHz;  $\sigma = 0.917$  mho/m;  $\epsilon_r = 40.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3°C      Liquid 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 (51x91x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.273 mW/g

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

Reference Value = 9.38 V/m; Power Drift = -0.127 dB

Peak SAR (extrapolated) = 0.322 W/kg

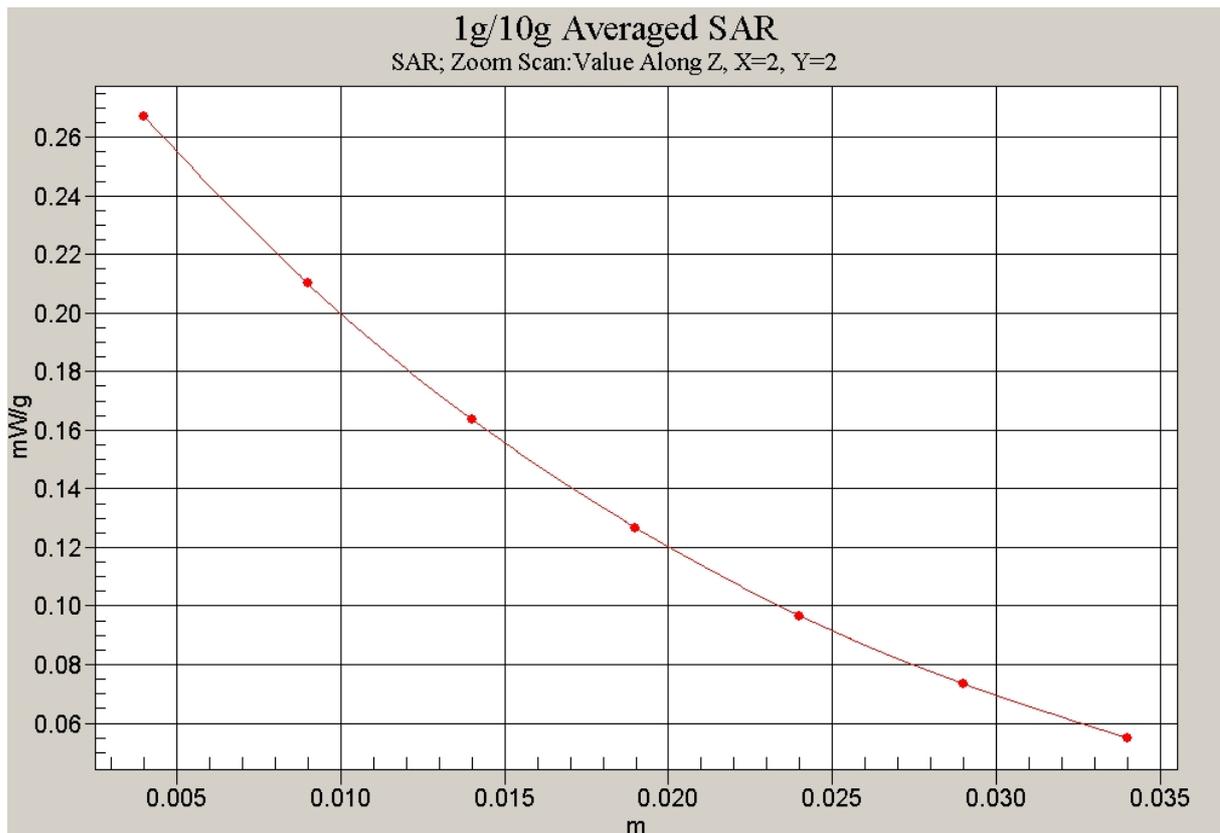
**SAR(1 g) = 0.252 mW/g; SAR(10 g) = 0.191 mW/g**

Maximum value of SAR (measured) = 0.267 mW/g



0 dB = 0.267mW/g

**Fig. 13 Right Hand Touch Cheek WCDMA 850MHz CH4233 – Slide down**



**Fig. 14 Z-Scan at power reference point (WCDMA 850MHz CH4233) – Slide down**

**WCDMA 850 Right Cheek Middle – Slide down**

Date/Time: 2009-2-8 8:02:26

Electronics: DAE4 Sn771

Medium: 850 HEAD

Medium parameters used (interpolated):  $f = 836.4$  MHz;  $\sigma = 0.907$  mho/m;  $\epsilon_r = 40.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3°C      Liquid 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 (51x91x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.207 mW/g

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

Reference Value = 8.23 V/m; Power Drift = -0.168 dB

Peak SAR (extrapolated) = 0.244 W/kg

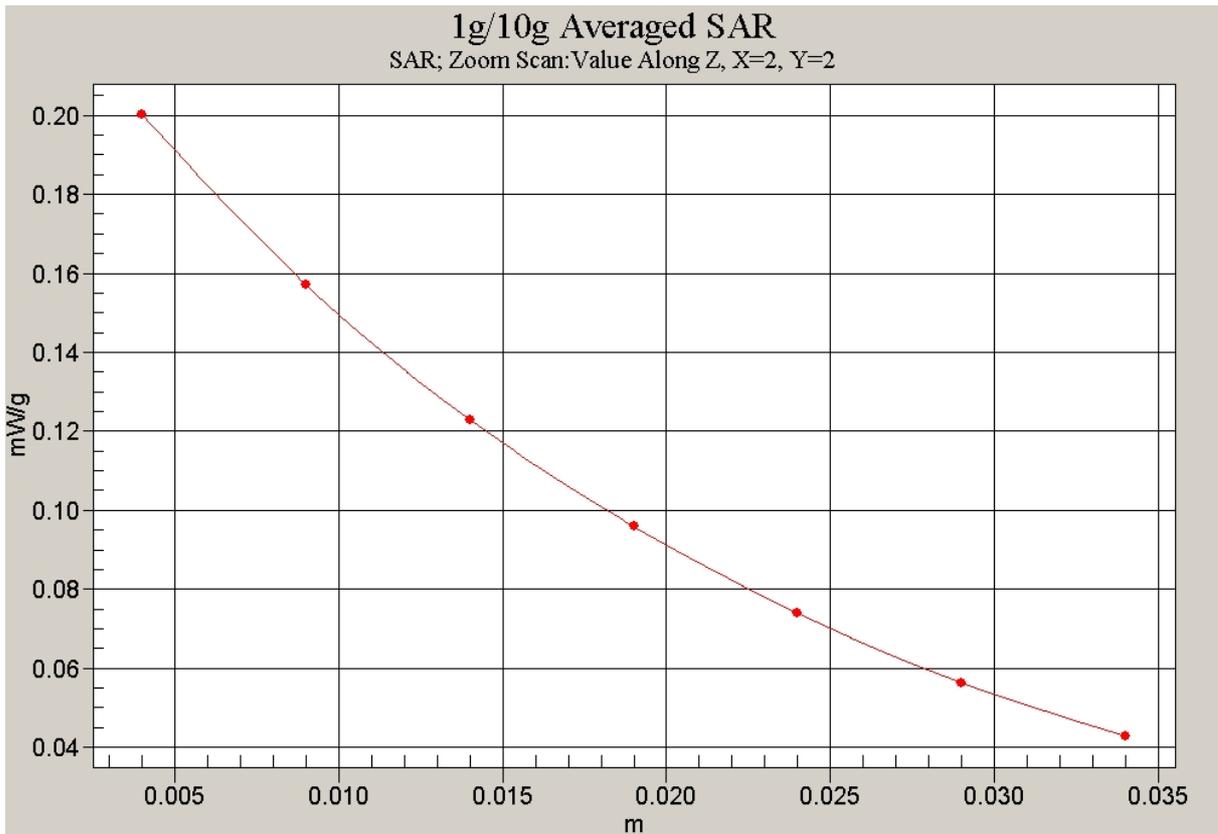
**SAR(1 g) = 0.190 mW/g; SAR(10 g) = 0.144 mW/g**

Maximum value of SAR (measured) = 0.199 mW/g



0 dB = 0.199mW/g

**Fig.15 Right Hand Touch Cheek WCDMA 850MHz CH4182 – Slide down**



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

**WCDMA 850 Right Cheek Low – Slide down**

Date/Time: 2009-2-8 8:15:47

Electronics: DAE4 Sn771

Medium: 850 HEAD

Medium parameters used (interpolated):  $f = 826.4$  MHz;  $\sigma = 0.897$  mho/m;  $\epsilon_r = 40.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3°C      Liquid 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 (51x91x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.236 mW/g

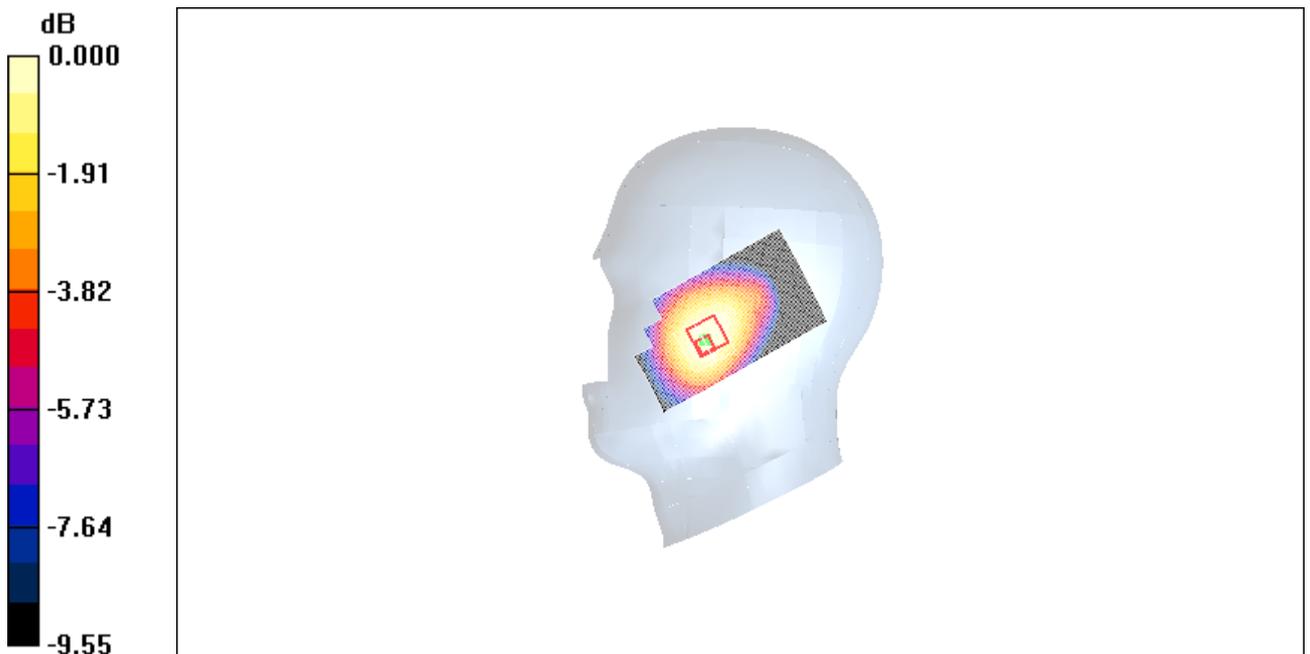
**Cheek Low/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.71 V/m; Power Drift = 0.200 dB

Peak SAR (extrapolated) = 0.291 W/kg

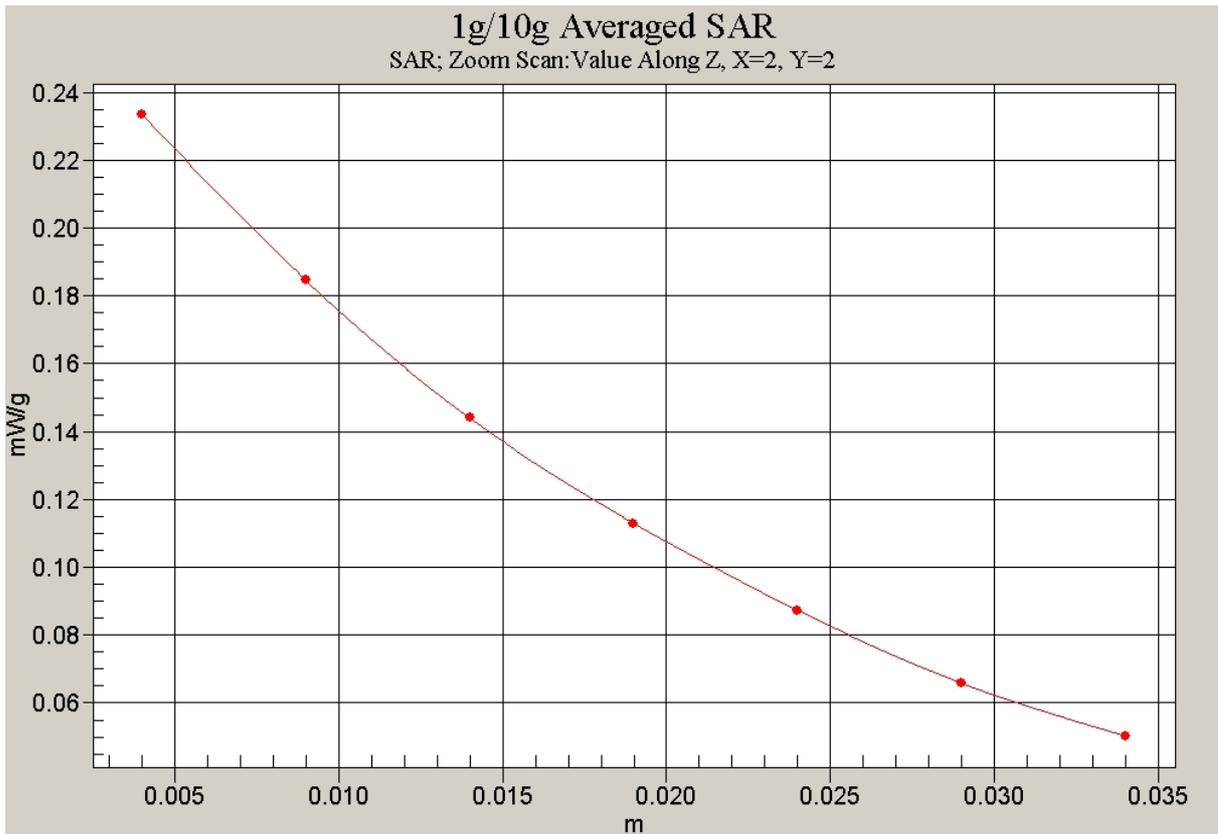
**SAR(1 g) = 0.224 mW/g; SAR(10 g) = 0.170 mW/g**

Maximum value of SAR (measured) = 0.233 mW/g



0 dB = 0.233mW/g

**Fig. 17 Right Hand Touch Cheek WCDMA 850MHz CH4132 – Slide down**



**Fig. 18 Z-Scan at power reference point (WCDMA 850MHz CH4132) – Slide down**

**WCDMA 850 Right Tilt High – Slide down**

Date/Time: 2009-2-8 8:28:13

Electronics: DAE4 Sn771

Medium: 850 HEAD

Medium parameters used (interpolated):  $f = 846.6$  MHz;  $\sigma = 0.917$  mho/m;  $\epsilon_r = 40.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3°C      Liquid 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)

**Tilt High/Area Scan (51x91x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.186 mW/g

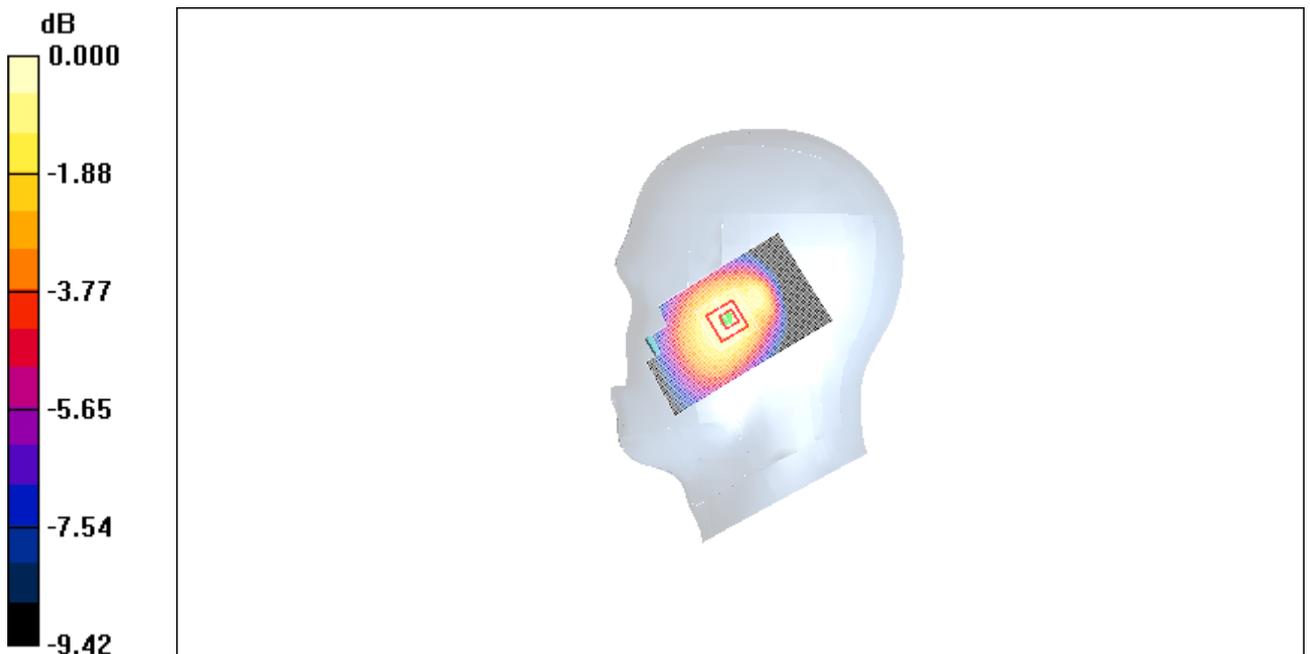
**Tilt High/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.6 V/m; Power Drift = 0.091 dB

Peak SAR (extrapolated) = 0.226 W/kg

**SAR(1 g) = 0.178 mW/g; SAR(10 g) = 0.130 mW/g**

Maximum value of SAR (measured) = 0.189 mW/g



0 dB = 0.189mW/g

**Fig. 19 Right Hand Tilt 15°WCDMA 850MHz CH4233 – Slide down**

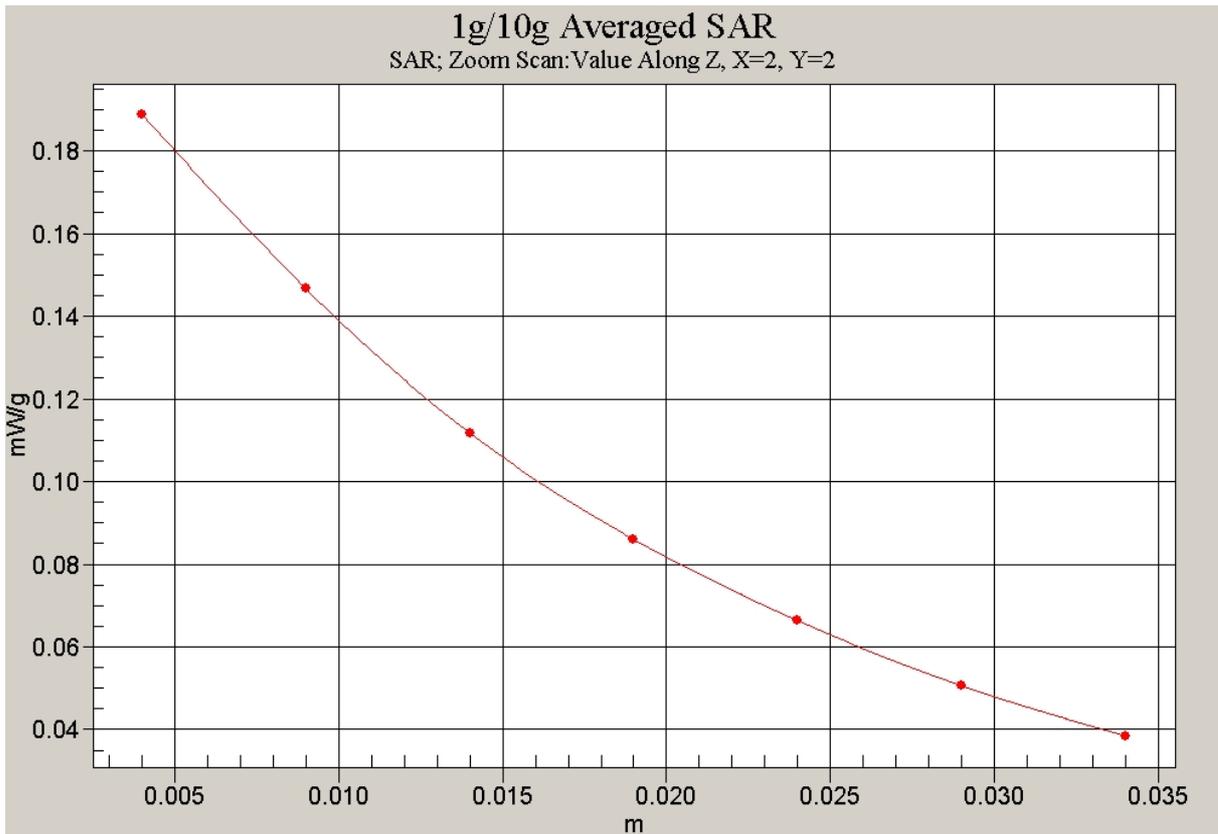


Fig. 20 Z-Scan at power reference point (WCDMA 850MHz CH4233) – Slide down

**WCDMA 850 Right Tilt Middle – Slide down**

Date/Time: 2009-2-8 8:41:09

Electronics: DAE4 Sn771

Medium: 850 HEAD

Medium parameters used (interpolated):  $f = 836.4$  MHz;  $\sigma = 0.907$  mho/m;  $\epsilon_r = 40.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3°C      Liquid 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 (51x91x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.179 mW/g

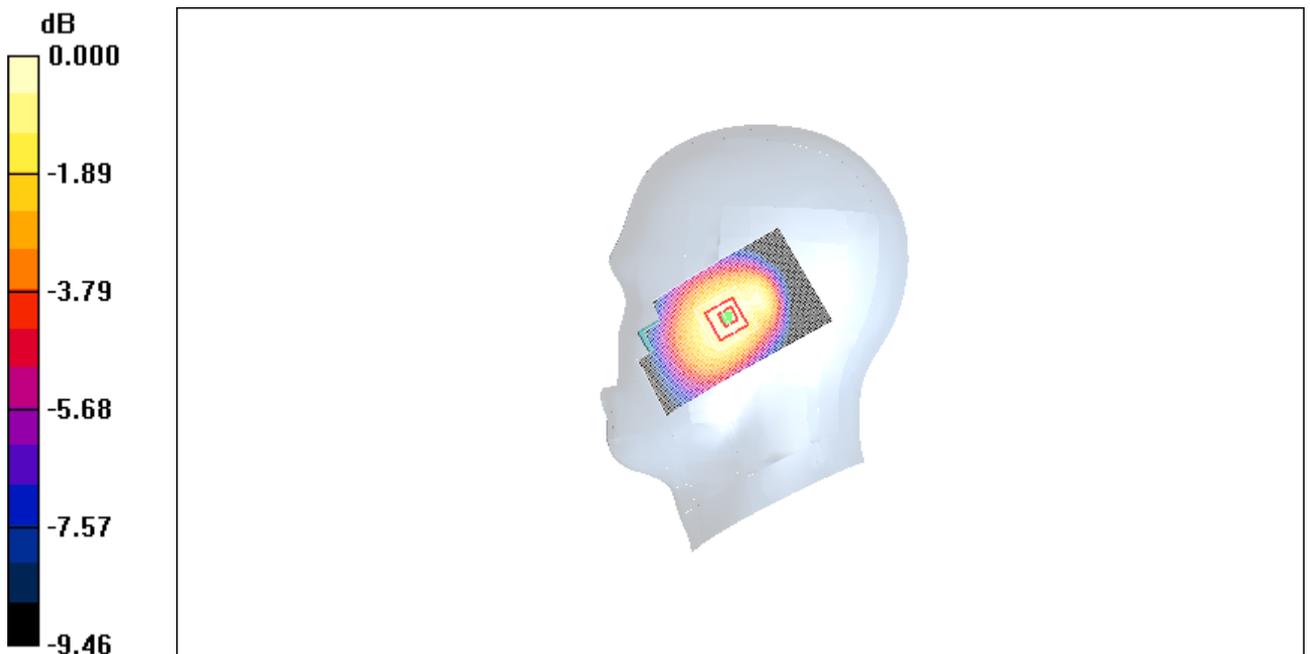
**Tilt Middle/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.7 V/m; Power Drift = -0.104 dB

Peak SAR (extrapolated) = 0.216 W/kg

**SAR(1 g) = 0.165 mW/g; SAR(10 g) = 0.121 mW/g**

Maximum value of SAR (measured) = 0.175 mW/g



0 dB = 0.175mW/g

**Fig. 21 Right Hand Tilt 15°WCDMA 850MHz CH4182 – Slide down**

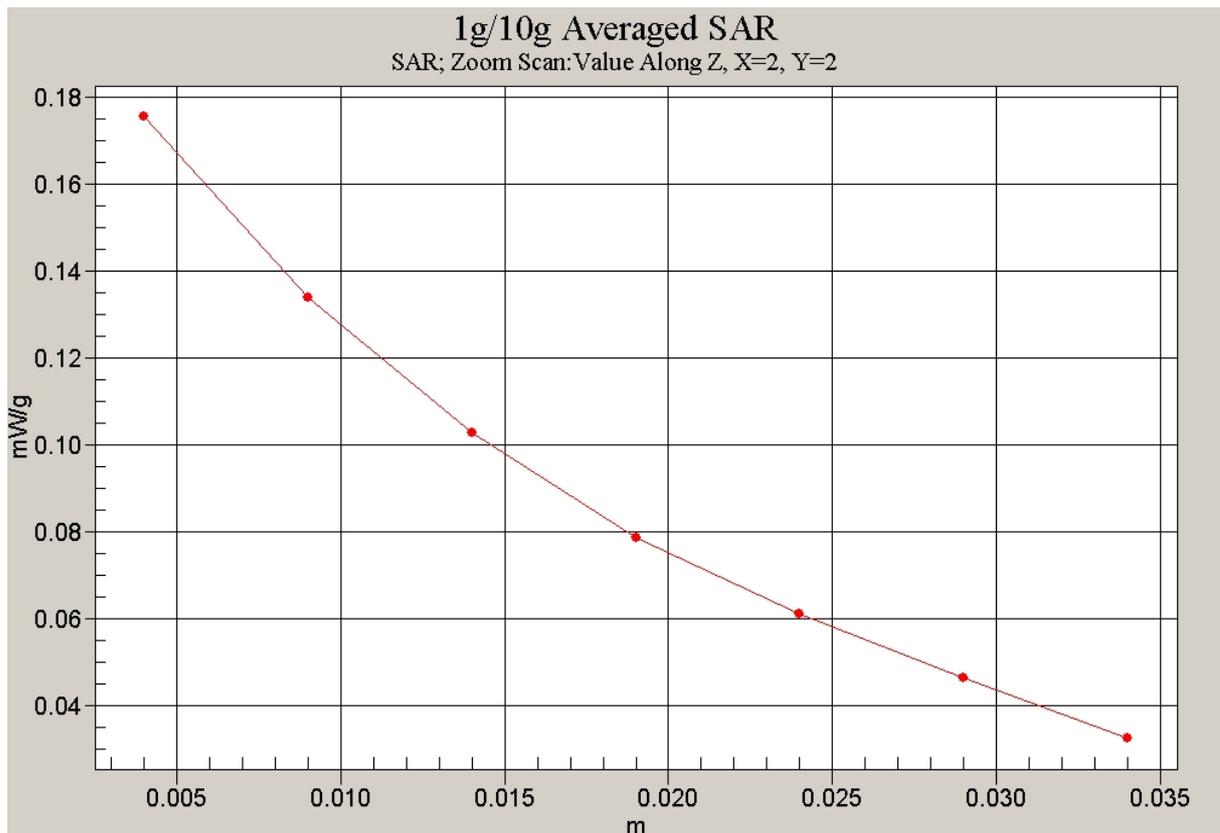


Fig. 22 Z-Scan at power reference point (WCDMA 850MHz CH4182) – Slide down

**WCDMA 850 Right Tilt Low – Slide down**

Date/Time: 2009-2-8 8:54:44

Electronics: DAE4 Sn771

Medium: 850 HEAD

Medium parameters used (interpolated):  $f = 826.4$  MHz;  $\sigma = 0.897$  mho/m;  $\epsilon_r = 40.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3°C      Liquid 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)

**Tilt Low/Area Scan (51x91x1):** Measurement grid: dx=10mm, dy=10mm

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

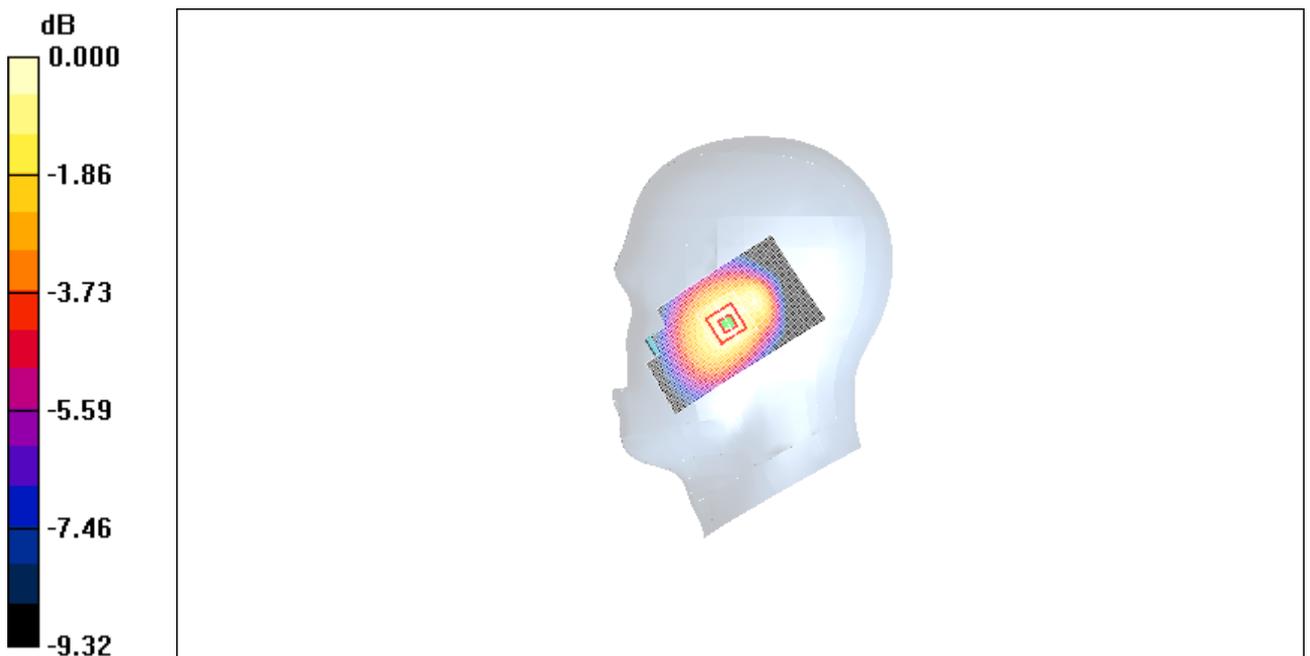
**Tilt Low/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.5 V/m; Power Drift = -0.200 dB

Peak SAR (extrapolated) = 0.256 W/kg

**SAR(1 g) = 0.194 mW/g; SAR(10 g) = 0.141 mW/g**

Maximum value of SAR (measured) = 0.207 mW/g



0 dB = 0.207mW/g

**Fig. 23 Right Hand Tilt 15°WCDMA 850MHz CH4132 – Slide down**

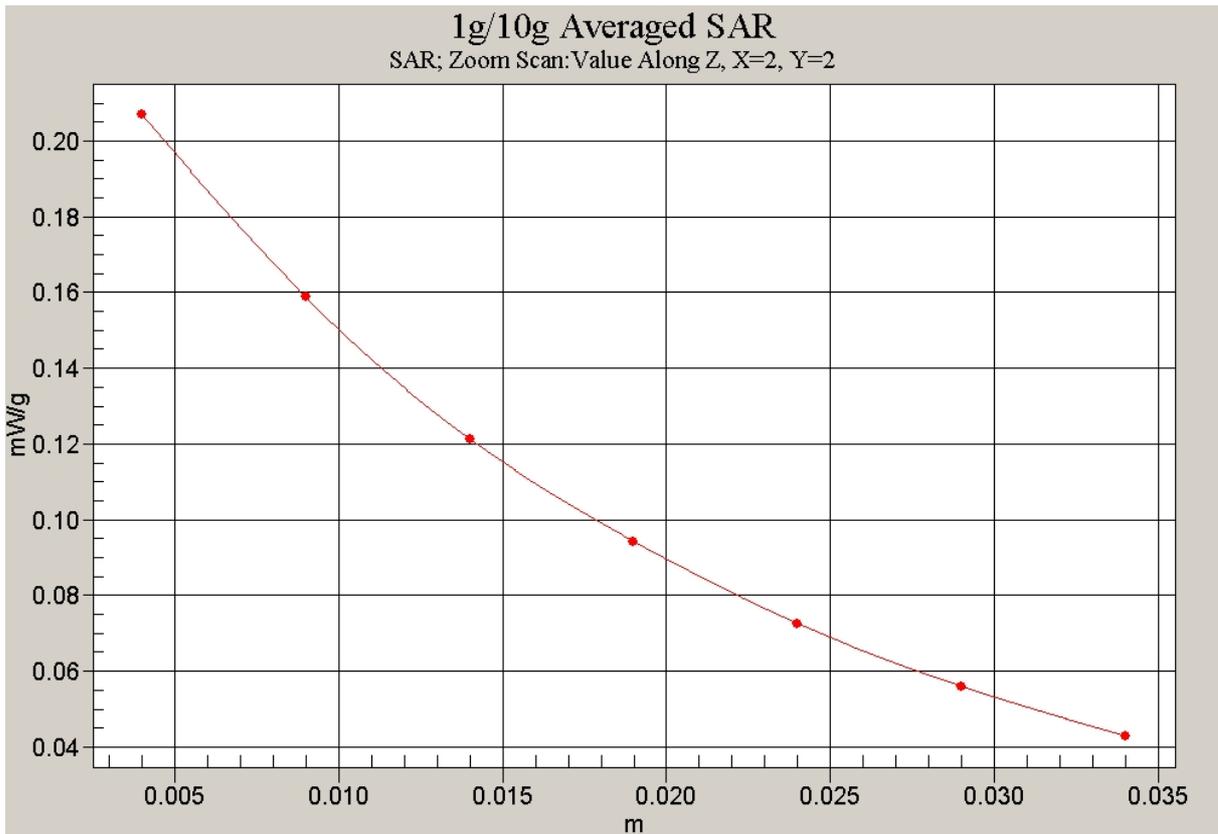


Fig. 24 Z-Scan at power reference point (WCDMA 850MHz CH4132) – Slide down

**WCDMA 850 Left Cheek High – Slide up**

Date/Time: 2009-2-8 9:09:20

Electronics: DAE4 Sn771

Medium: 850 HEAD

Medium parameters used (interpolated):  $f = 846.6$  MHz;  $\sigma = 0.917$  mho/m;  $\epsilon_r = 40.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3°C      Liquid 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 (51x101x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.622 mW/g

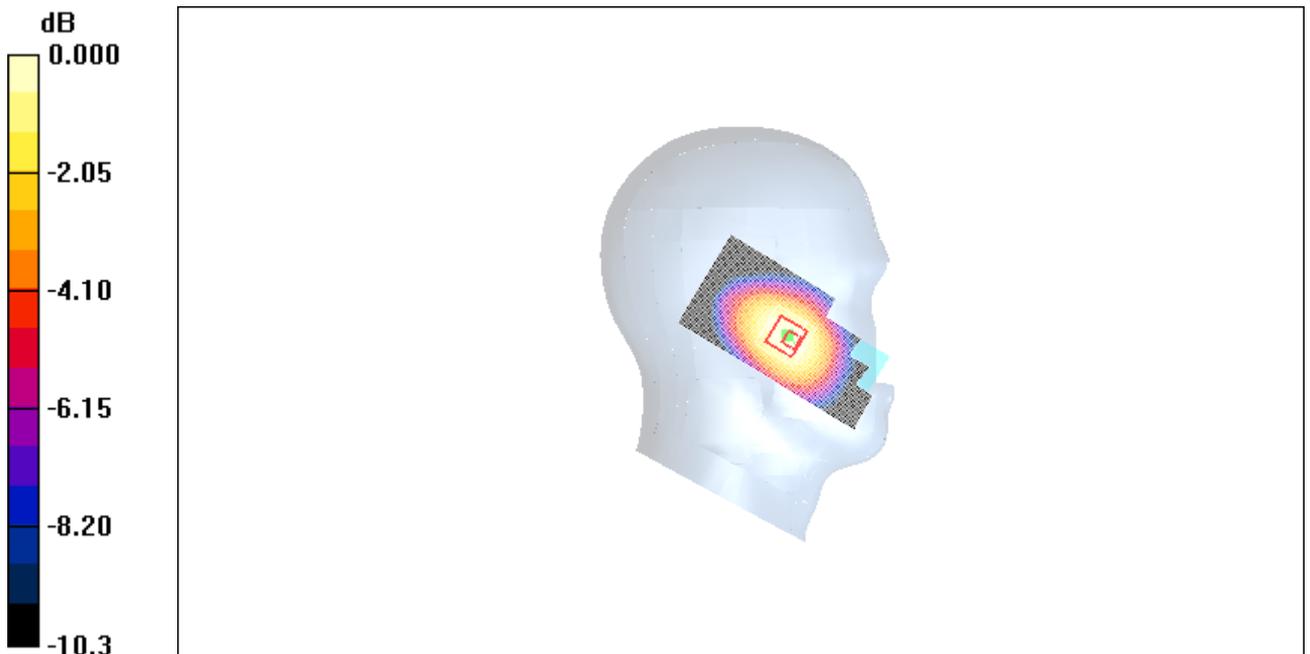
**Cheek High/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 13.0 V/m; Power Drift = -0.134 dB

Peak SAR (extrapolated) = 0.759 W/kg

**SAR(1 g) = 0.577 mW/g; SAR(10 g) = 0.417 mW/g**

Maximum value of SAR (measured) = 0.619 mW/g



0 dB = 0.619mW/g

**Fig. 25 Left Hand Touch Cheek WCDMA 850MHz CH4233 – Slide up**

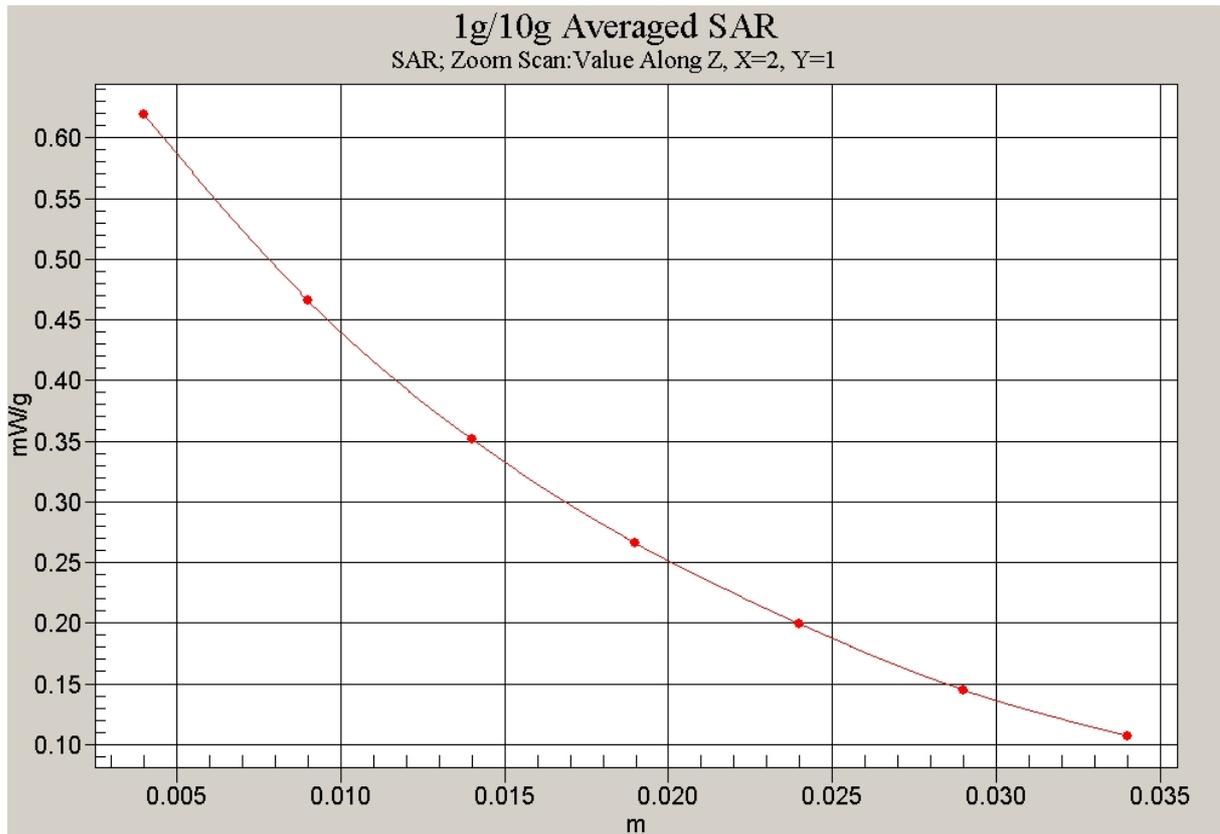


Fig. 26 Z-Scan at power reference point (WCDMA 850MHz CH4233) – Slide up

**WCDMA 850 Left Cheek Middle – Slide up**

Date/Time: 2009-2-8 9:23:32

Electronics: DAE4 Sn771

Medium: 850 HEAD

Medium parameters used (interpolated):  $f = 836.4$  MHz;  $\sigma = 0.907$  mho/m;  $\epsilon_r = 40.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3°C      Liquid 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 (51x101x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.576 mW/g

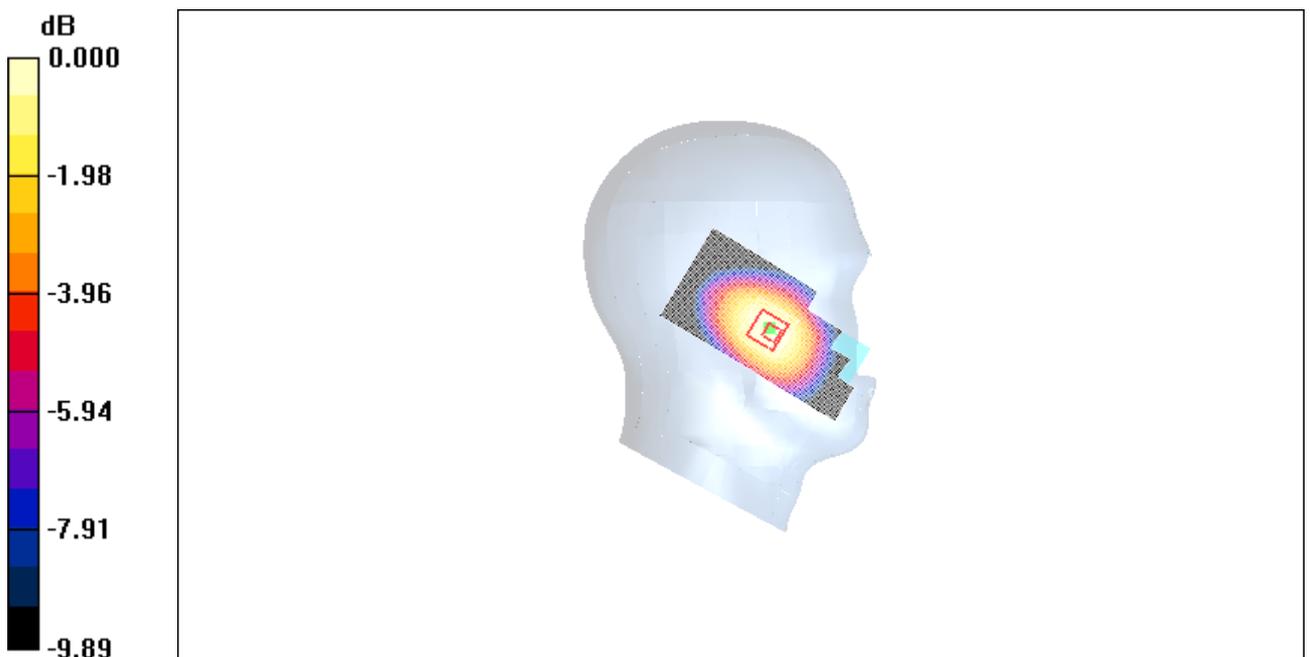
**Cheek Middle/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.9 V/m; Power Drift = 0.037 dB

Peak SAR (extrapolated) = 0.702 W/kg

**SAR(1 g) = 0.545 mW/g; SAR(10 g) = 0.400 mW/g**

Maximum value of SAR (measured) = 0.571 mW/g



**Fig. 27 Left Hand Touch Cheek WCDMA 850MHz CH4182 – Slide up**

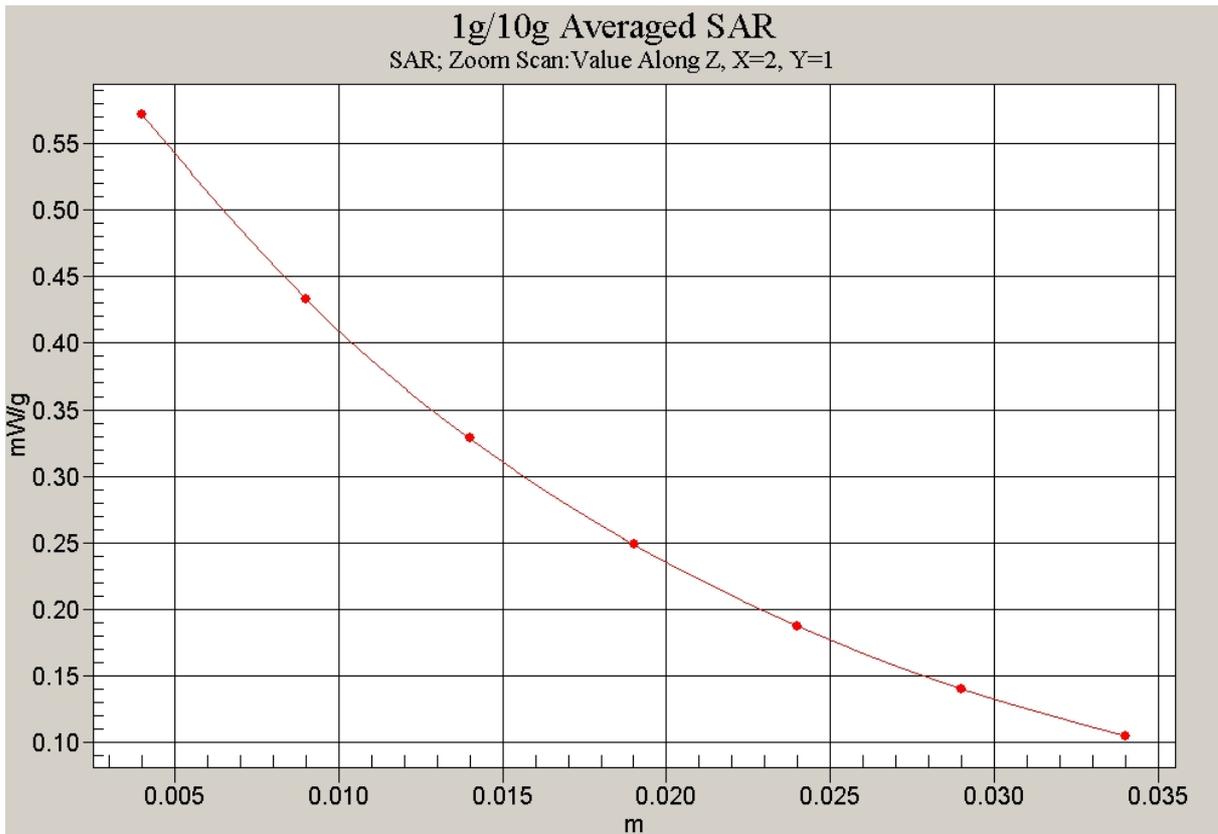


Fig. 28 Z-Scan at power reference point (WCDMA 850MHz CH4182) – Slide up

**WCDMA 850 Left Cheek Low – Slide up**

Date/Time: 2009-2-8 9:37:27

Electronics: DAE4 Sn771

Medium: 850 HEAD

Medium parameters used (interpolated):  $f = 826.4$  MHz;  $\sigma = 0.897$  mho/m;  $\epsilon_r = 40.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3°C      Liquid 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 (51x101x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.498 mW/g

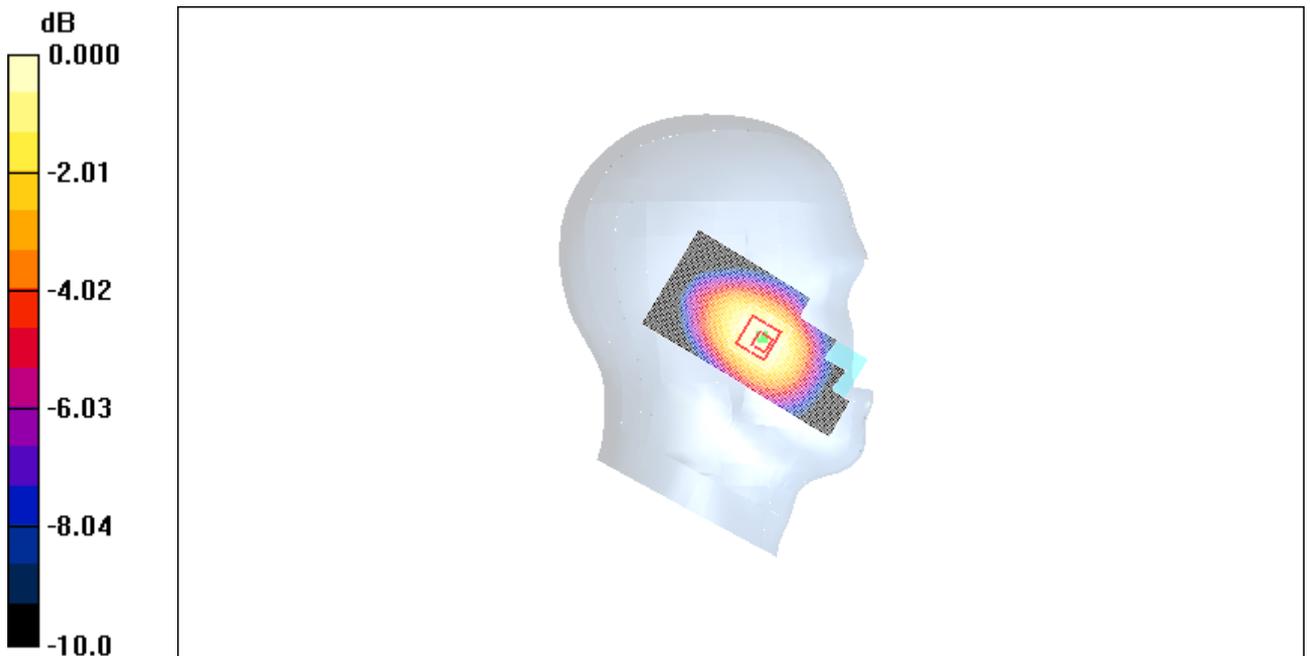
**Cheek Low/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.3 V/m; Power Drift = 0.103 dB

Peak SAR (extrapolated) = 0.618 W/kg

**SAR(1 g) = 0.475 mW/g; SAR(10 g) = 0.347 mW/g**

Maximum value of SAR (measured) = 0.496 mW/g



0 dB = 0.496mW/g

**Fig. 29 Left Hand Touch Cheek WCDMA 850MHz CH4132 – Slide up**

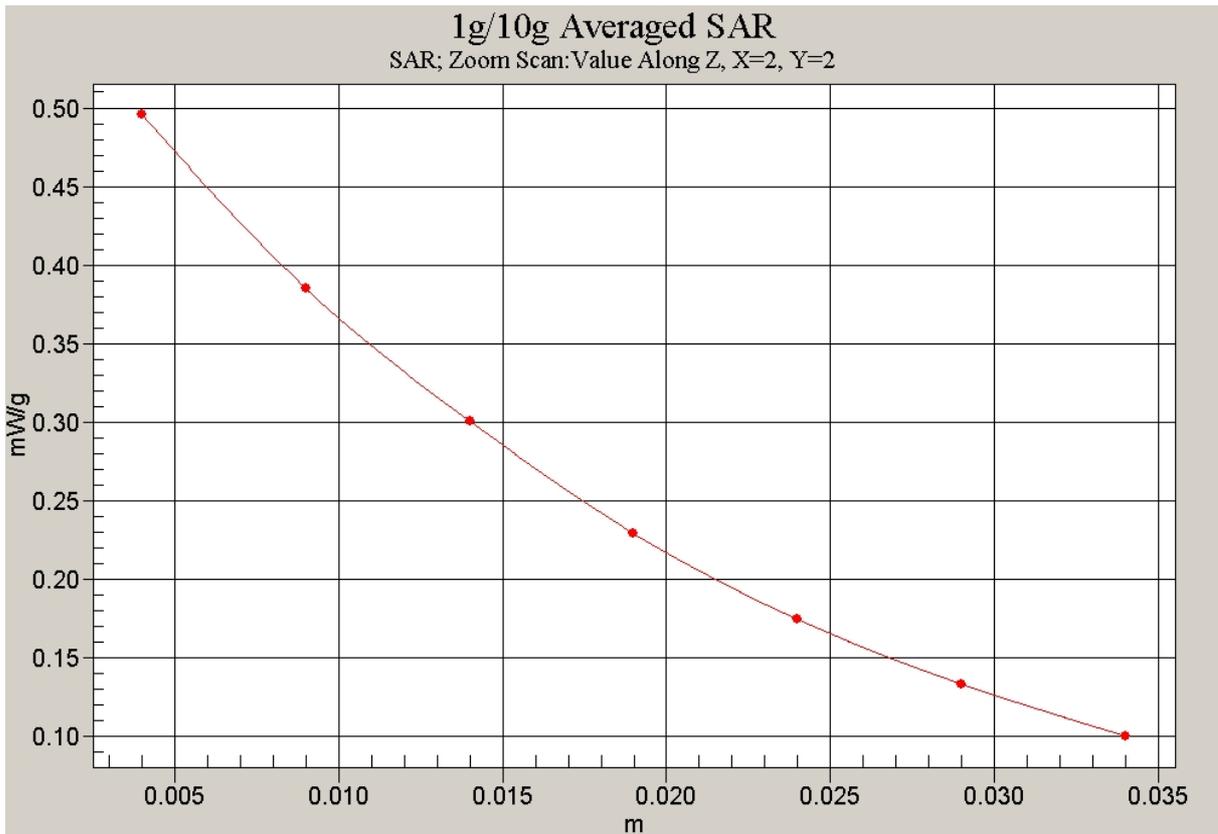


Fig. 30 Z-Scan at power reference point (WCDMA 850MHz CH4132) – Slide up

**WCDMA 850 Left Tilt High – Slide up**

Date/Time: 2009-2-8 9:50:57

Electronics: DAE4 Sn771

Medium: 850 HEAD

Medium parameters used (interpolated):  $f = 846.6$  MHz;  $\sigma = 0.917$  mho/m;  $\epsilon_r = 40.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3°C      Liquid 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)

**Tilt High/Area Scan (51x101x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.298 mW/g

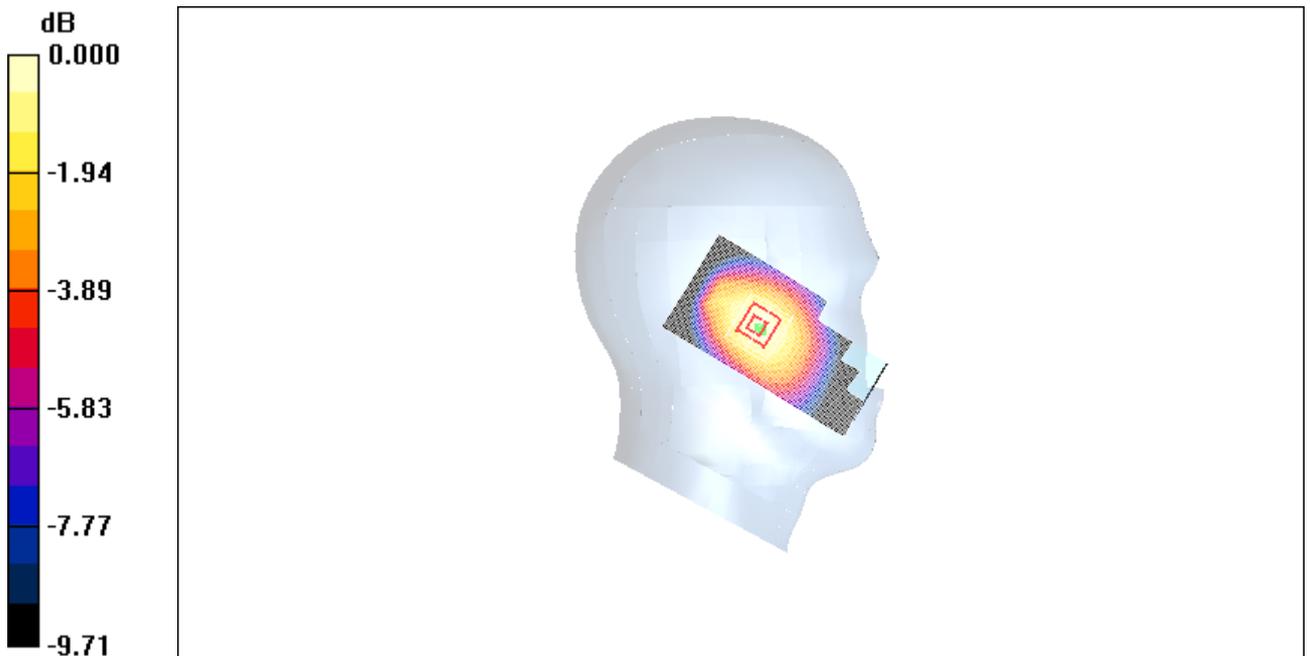
**Tilt High/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 14.7 V/m; Power Drift = -0.102 dB

Peak SAR (extrapolated) = 0.374 W/kg

**SAR(1 g) = 0.289 mW/g; SAR(10 g) = 0.209 mW/g**

Maximum value of SAR (measured) = 0.306 mW/g



0 dB = 0.306mW/g

**Fig. 31 Left Hand Tilt 15°WCDMA 850MHz CH4233 – Slide up**

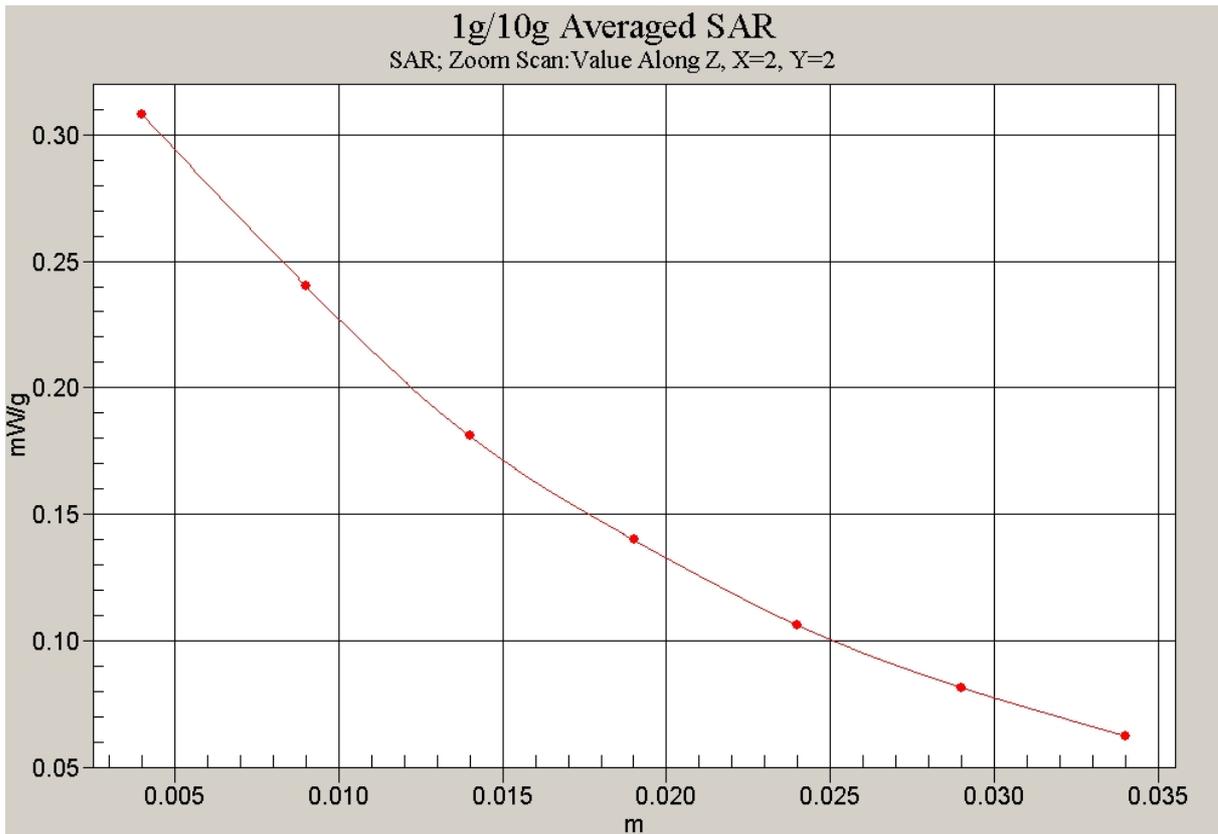


Fig. 32 Z-Scan at power reference point (WCDMA 850MHz CH4233) – Slide up

**WCDMA 850 Left Tilt Middle – Slide up**

Date/Time: 2009-2-8 10:04:21

Electronics: DAE4 Sn771

Medium: 850 HEAD

Medium parameters used (interpolated):  $f = 836.4$  MHz;  $\sigma = 0.907$  mho/m;  $\epsilon_r = 40.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3°C      Liquid 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 (51x101x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.317 mW/g

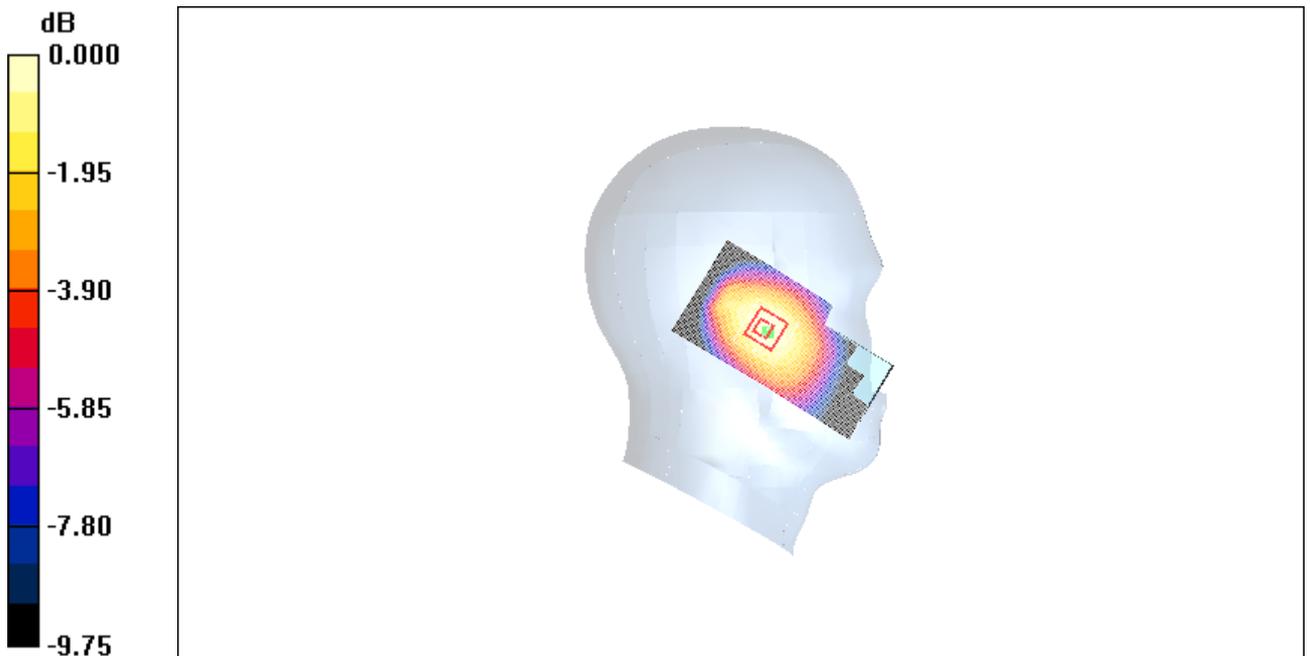
**Tilt Middle/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 15.1 V/m; Power Drift = -0.023 dB

Peak SAR (extrapolated) = 0.396 W/kg

**SAR(1 g) = 0.303 mW/g; SAR(10 g) = 0.220 mW/g**

Maximum value of SAR (measured) = 0.322 mW/g



0 dB = 0.322mW/g

**Fig. 33 Left Hand Tilt 15°WCDMA 850MHz CH4182 – Slide up**

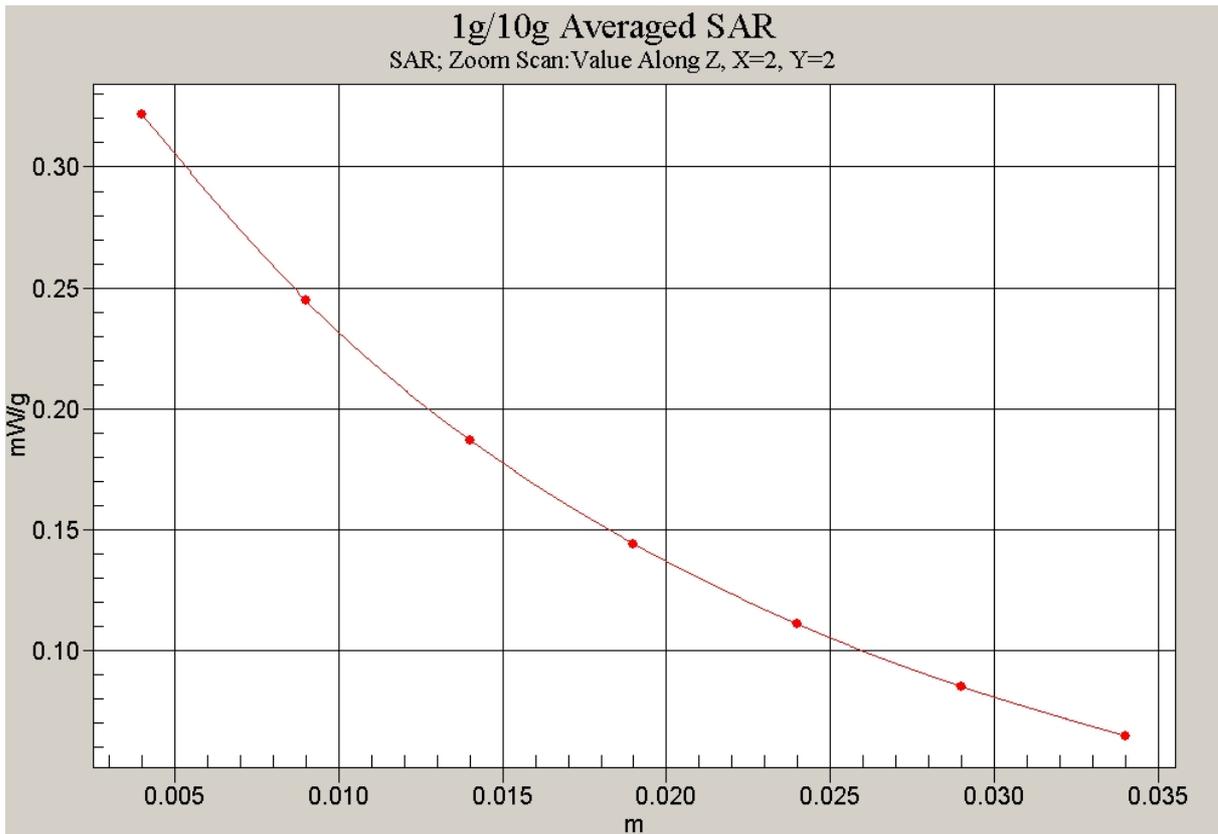


Fig. 34 Z-Scan at power reference point (WCDMA 850MHz CH4182) – Slide up

**WCDMA 850 Left Tilt Low – Slide up**

Date/Time: 2009-2-8 10:18:04

Electronics: DAE4 Sn771

Medium: 850 HEAD

Medium parameters used (interpolated):  $f = 826.4$  MHz;  $\sigma = 0.897$  mho/m;  $\epsilon_r = 40.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3°C      Liquid 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)

**Tilt Low/Area Scan (51x101x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.265 mW/g

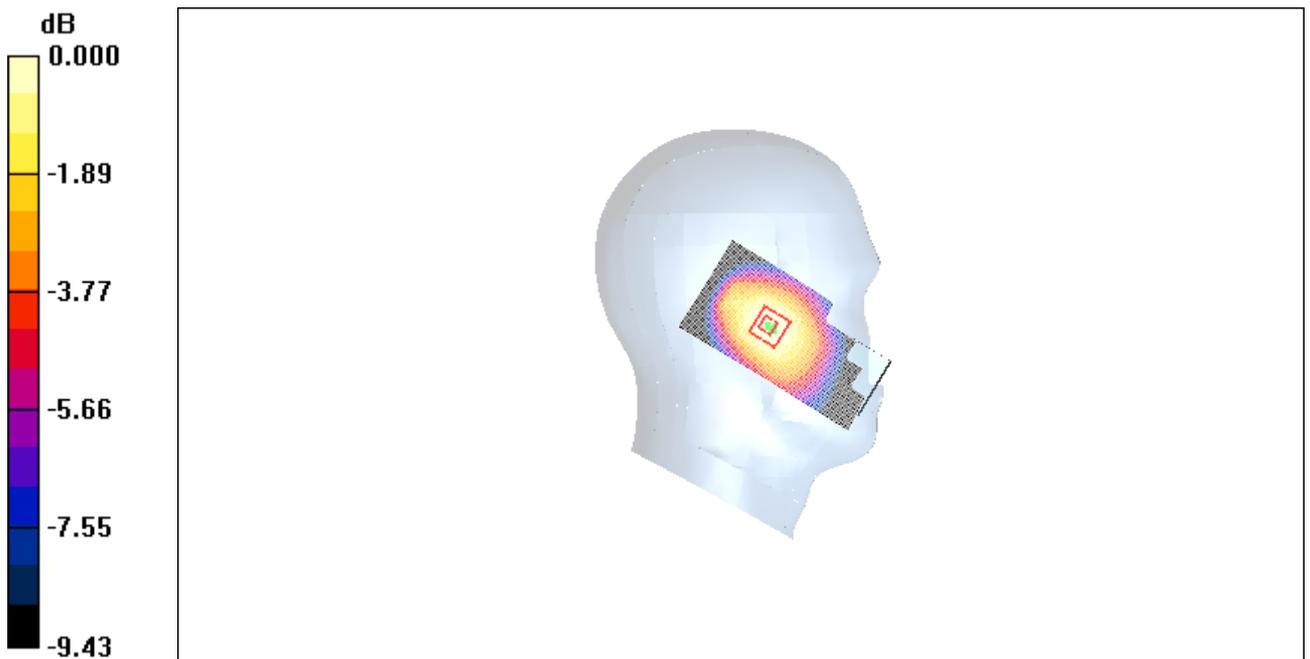
**Tilt Low/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 14.1 V/m; Power Drift = -0.142 dB

Peak SAR (extrapolated) = 0.333 W/kg

**SAR(1 g) = 0.256 mW/g; SAR(10 g) = 0.188 mW/g**

Maximum value of SAR (measured) = 0.270 mW/g



0 dB = 0.270mW/g

**Fig. 35 Left Hand Tilt 15°WCDMA 850MHz CH4132 – Slide up**

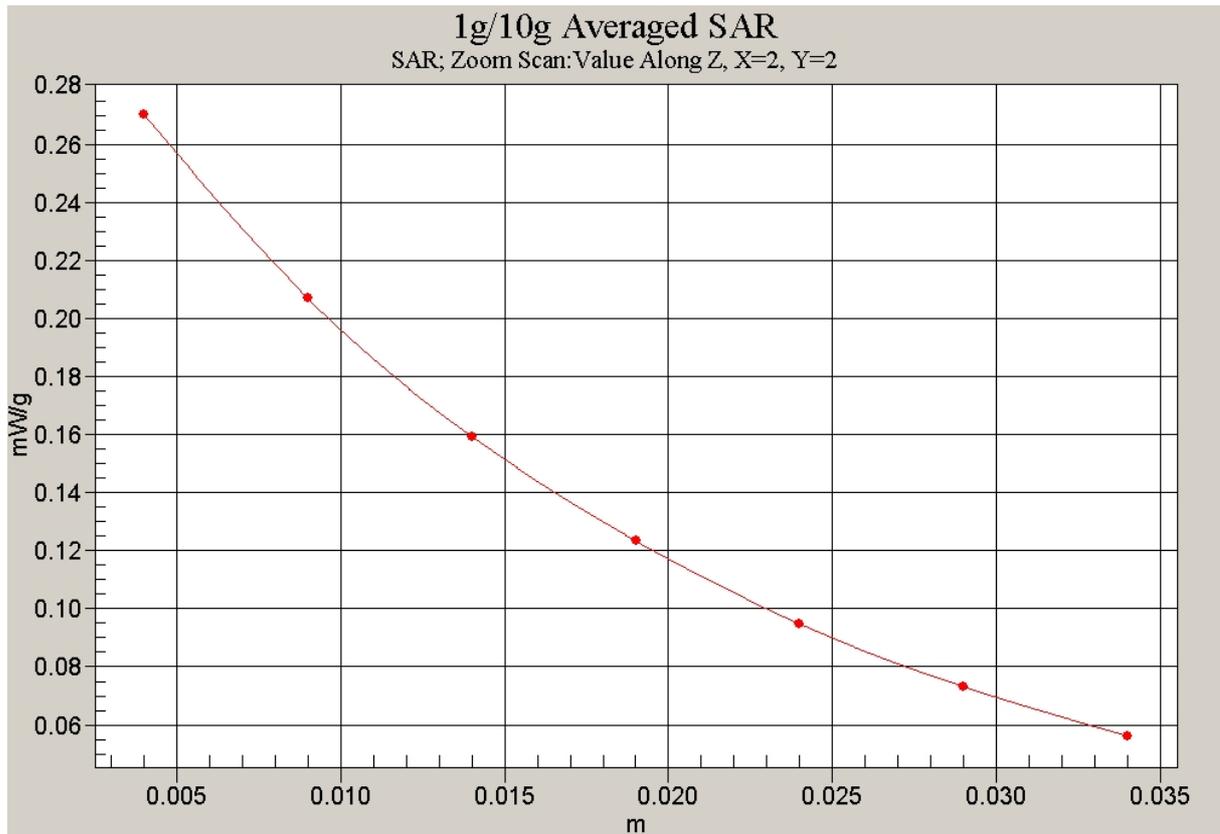


Fig. 36 Z-Scan at power reference point (WCDMA 850MHz CH4132) – Slide up

**WCDMA 850 Right Cheek High – Slide up**

Date/Time: 2009-2-8 10:32:23

Electronics: DAE4 Sn771

Medium: 850 HEAD

Medium parameters used (interpolated):  $f = 846.6$  MHz;  $\sigma = 0.917$  mho/m;  $\epsilon_r = 40.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3°C      Liquid 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 (51x101x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.624 mW/g

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

Reference Value = 13.6 V/m; Power Drift = -0.188 dB

Peak SAR (extrapolated) = 0.727 W/kg

**SAR(1 g) = 0.565 mW/g; SAR(10 g) = 0.417 mW/g**

Maximum value of SAR (measured) = 0.596 mW/g



0 dB = 0.596mW/g

**Fig. 37 Right Hand Touch Cheek WCDMA 850MHz CH4233 – Slide up**

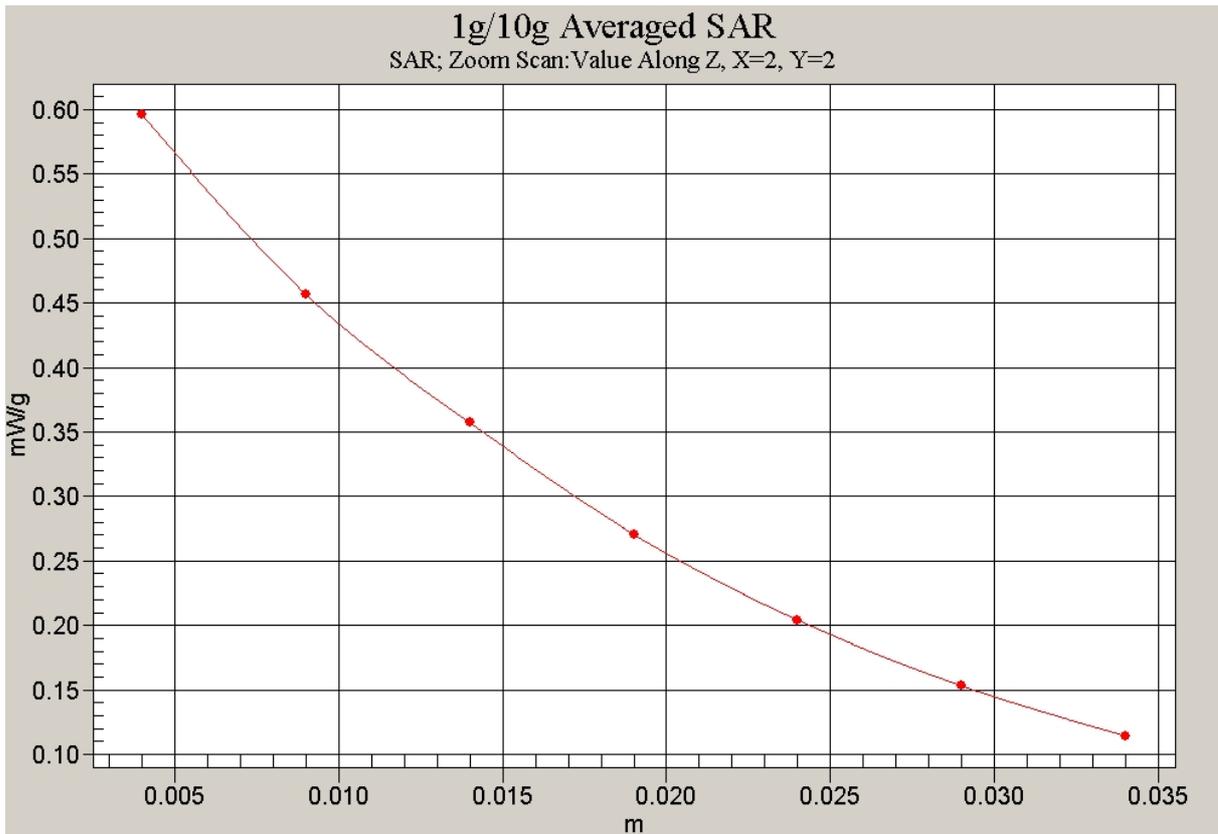


Fig. 38 Z-Scan at power reference point (WCDMA 850MHz CH4233) – Slide up

**WCDMA 850 Right Cheek Middle – Slide up**

Date/Time: 2009-2-8 10:46:29

Electronics: DAE4 Sn771

Medium: 850 HEAD

Medium parameters used (interpolated):  $f = 836.4$  MHz;  $\sigma = 0.907$  mho/m;  $\epsilon_r = 40.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3°C      Liquid 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 (51x101x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.581 mW/g

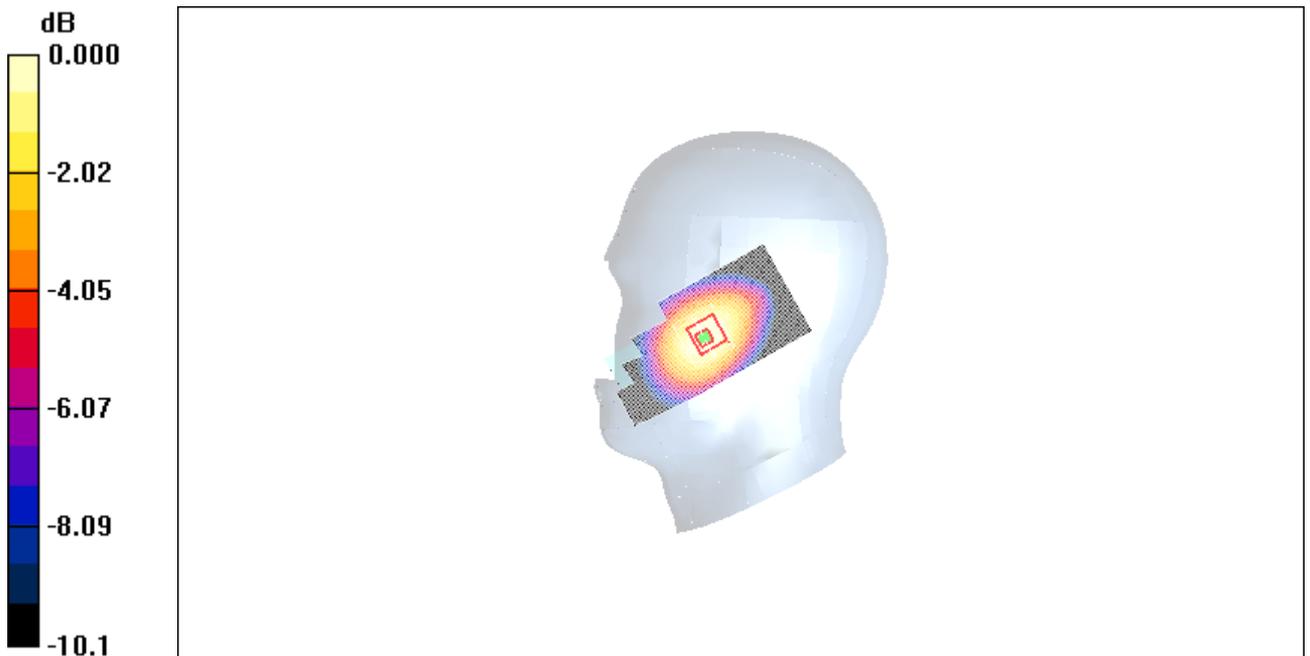
**Cheek Middle/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 12.7 V/m; Power Drift = -0.058 dB

Peak SAR (extrapolated) = 0.692 W/kg

**SAR(1 g) = 0.546 mW/g; SAR(10 g) = 0.402 mW/g**

Maximum value of SAR (measured) = 0.576 mW/g



0 dB = 0.576mW/g

**Fig.39 Right Hand Touch Cheek WCDMA 850MHz CH4182 – Slide up**

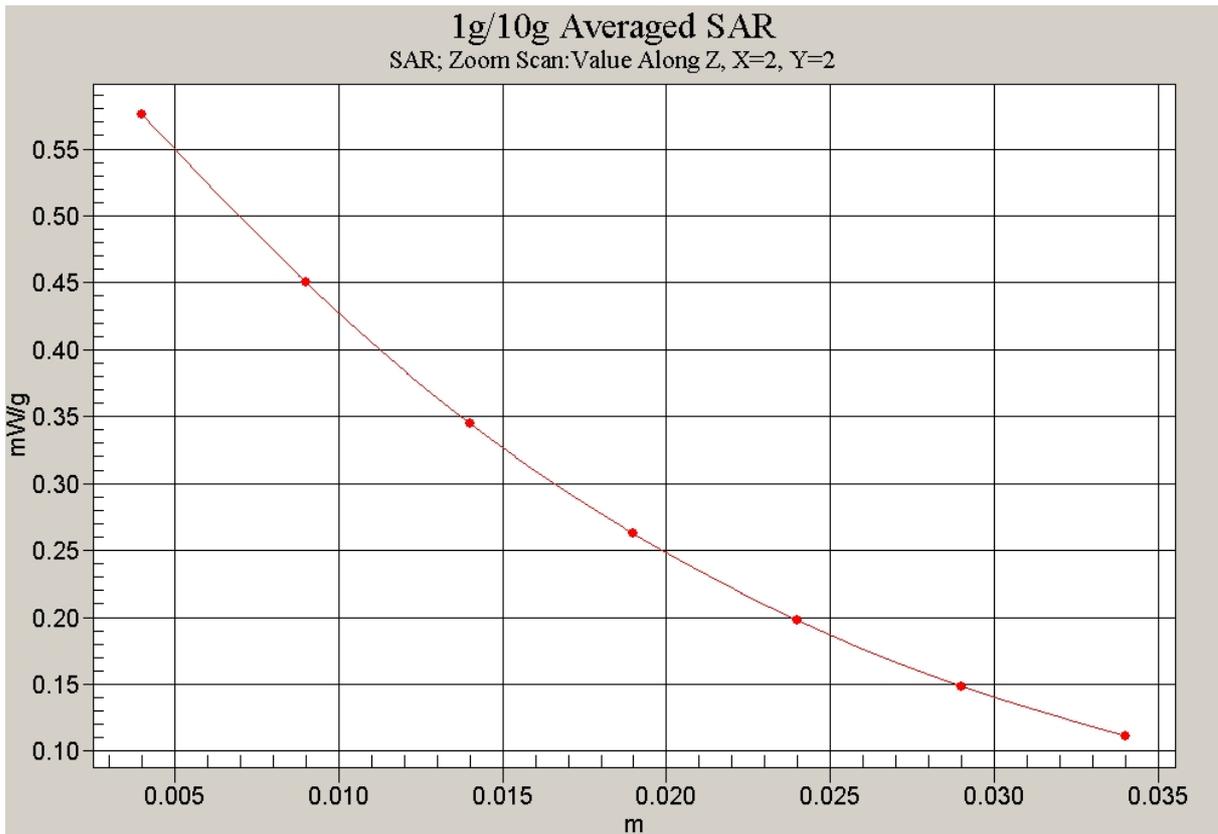


Fig. 40 Z-Scan at power reference point (WCDMA 850MHz CH4182) – Slide up

**WCDMA 850 Right Cheek Low – Slide up**

Date/Time: 2009-2-8 10:59:37

Electronics: DAE4 Sn771

Medium: 850 HEAD

Medium parameters used (interpolated):  $f = 826.4$  MHz;  $\sigma = 0.897$  mho/m;  $\epsilon_r = 40.4$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3°C      Liquid 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 (51x101x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.507 mW/g

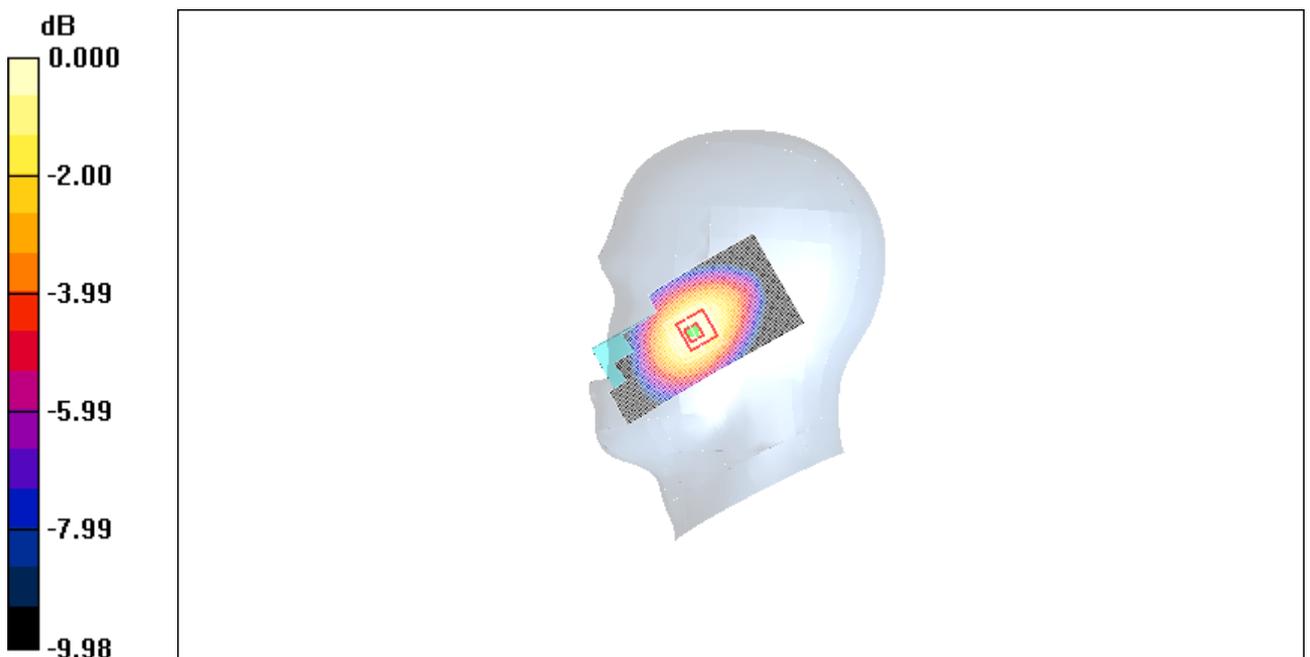
**Cheek Low/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.8 V/m; Power Drift = -0.022 dB

Peak SAR (extrapolated) = 0.592 W/kg

**SAR(1 g) = 0.474 mW/g; SAR(10 g) = 0.347 mW/g**

Maximum value of SAR (measured) = 0.504 mW/g



0 dB = 0.504mW/g

**Fig. 41 Right Hand Touch Cheek WCDMA 850MHz CH4132 – Slide up**

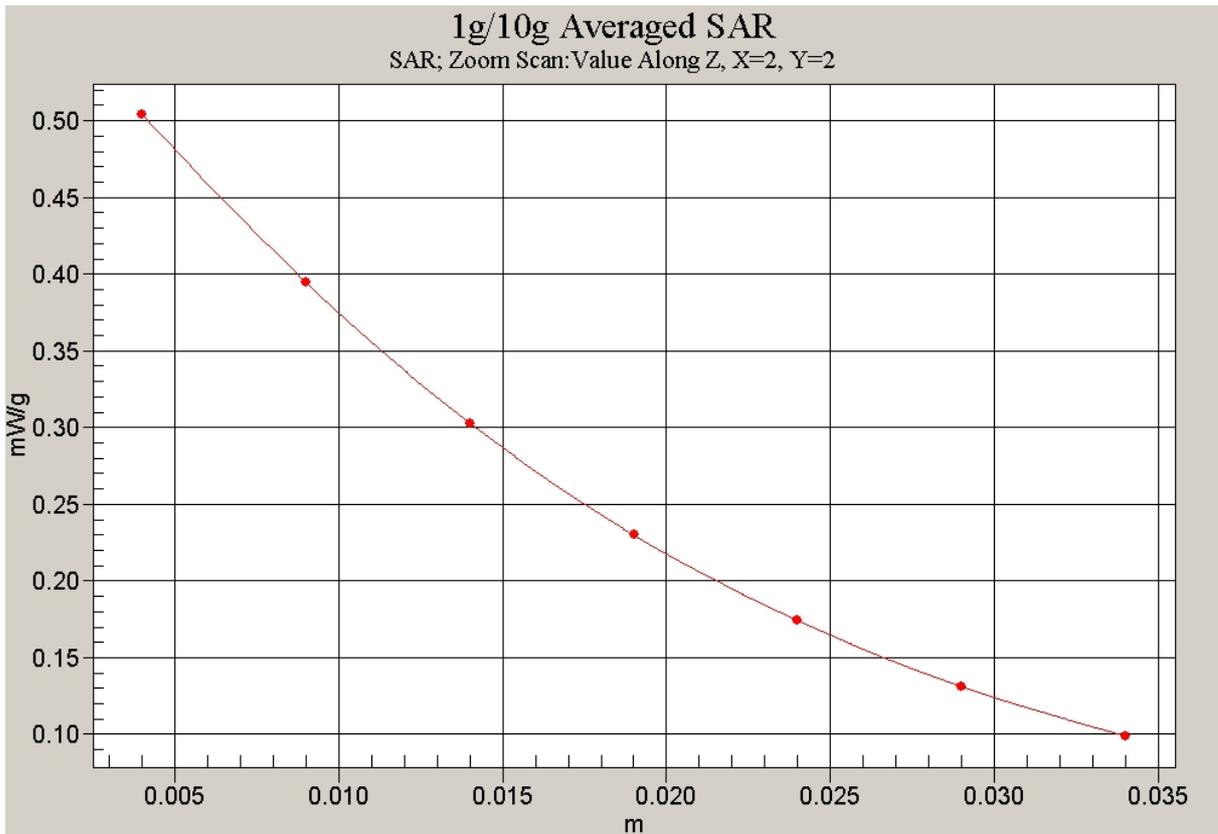


Fig. 42 Z-Scan at power reference point (WCDMA 850MHz CH4132) – Slide up

**WCDMA 850 Right Tilt High – Slide up**

Date/Time: 2009-2-8 11:13:46

Electronics: DAE4 Sn771

Medium: 850 HEAD

Medium parameters used (interpolated):  $f = 846.6$  MHz;  $\sigma = 0.917$  mho/m;  $\epsilon_r = 40.3$ ;  $\rho = 1000$  kg/m<sup>3</sup>

Ambient Temperature: 23.3°C      Liquid 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)

**Tilt High/Area Scan (51x101x1):** Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.332 mW/g

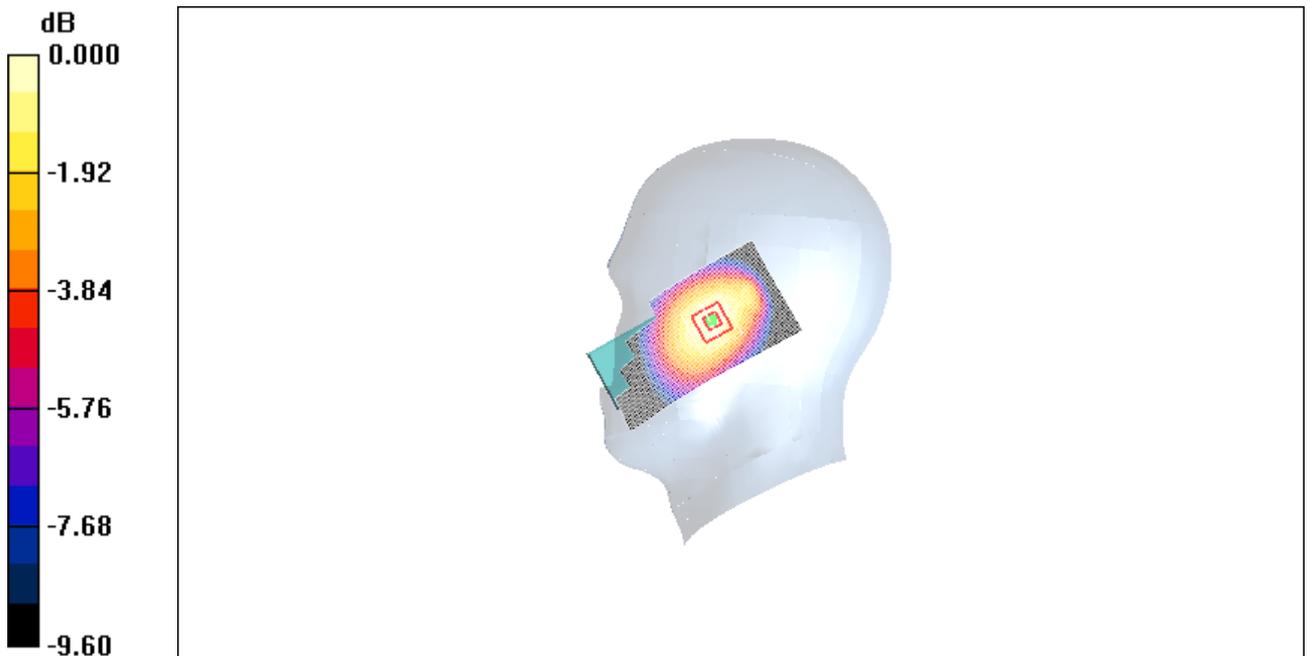
**Tilt High/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 14.8 V/m; Power Drift = -0.192 dB

Peak SAR (extrapolated) = 0.404 W/kg

**SAR(1 g) = 0.316 mW/g; SAR(10 g) = 0.229 mW/g**

Maximum value of SAR (measured) = 0.336 mW/g



0 dB = 0.336mW/g

**Fig. 43 Right Hand Tilt 15°WCDMA 850MHz CH4233 – Slide up**