# SAR TEST REPORT

## No. 2010SAR00082

**For**

**TCT Mobile Limited**

**GSM850/PCS1900 dualband Mobile Phone**

**Pearl A**

**OT-223A**

**With**

**Hardware Version: PIO**

**Software Version: V191**

**FCCID: RAD147**

**Issued Date: 2010-08-27**

Deutscher Akkreditierungs Rat

***No.*** **DGA-PL-114/01-02**

**Note:**

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

**Test Laboratory:**

TMC Beijing, Telecommunication Metrology Center of MIIT

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# TABLE OF CONTENT

# 1 Test Laboratory

## 1.1 Testing Location

| | |
|---|---|
| Company Name: | TMC Beijing, Telecommunication Metrology Center of MIIT |
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| Postal Code: | 100191 |
| Telephone: | +86-10-62304633 |
| Fax: | +86-10-62304793 |

## 1.2 Testing Environment

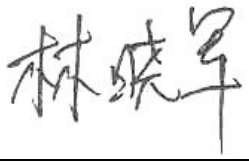
| | |
|---|---|
| Temperature: | 18°C~25 °C, |
| Relative humidity: | 30%~ 70% |
| Ground system resistance: | < 0.5 Ω |

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

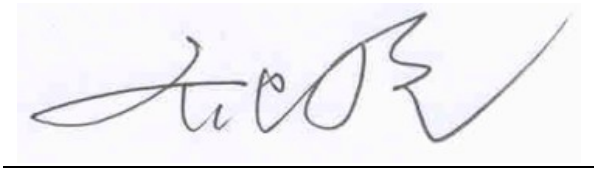
| | |
|---|---|
| Project Leader: | Qi Dianyuan |
| Test Engineer: | Lin Xiaojun |
| Testing Start Date: | August 14, 2010 |
| Testing End Date: | August 15, 2010 |

## 1.4 Signature



**Lin Xiaojun**

**(Prepared this test report)**



**Qi Dianyuan**

**(Reviewed this test report)**

**Xiao Li**

**Deputy Director of the laboratory**

**(Approved this test report)**

# 2 Client Information

## 2.1 Applicant Information

| | |
|---|---|
| Company Name: | TCT Mobile Limited |
| Address /Post: | 4/F, South Building,No.2966, Jinke Road, Zhangjiang High-Tech Park, Pudong, Shanghai, 201203, P.R.China |
| City: | Shanghai |
| Postal Code: | 201203 |
| Country: | P. R. China |
| Contact Person: | Gong Zhizhou |
| Contact Email | zhizhou.gong@jrdcom.com |
| Telephone: | 0086-21-61460890 |
| Fax: | 0086-21-61460602 |

## 2.2 Manufacturer Information

| | |
|---|---|
| Company Name: | TCT Mobile Limited |
| Address /Post: | 4/F, South Building,No.2966, Jinke Road, Zhangjiang High-Tech Park, Pudong, Shanghai, 201203, P.R.China |
| City: | Shanghai |
| Postal Code: | 201203 |
| Country: | P. R. China |
| Contact Person: | Gong Zhizhou |
| Contact Email | zhizhou.gong@jrdcom.com |
| Telephone: | 0086-21-61460890 |
| Fax: | 0086-21-61460602 |

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

## 3.1 About EUT

| | |
|---|---|
| EUT Description: | GSM850/PCS1900 dualband Mobile Phone |
| Model Name: | Pearl A |
| Marketing Name: | OT-223A |
| GSM Frequency Band: | GSM 850 / PCS 1900 |

## 3.2 Internal Identification of EUT used during the test

| EUT ID* | SN or IMEI | HW Version | SW Version |
|---|---|---|---|
| EUT1 | 012398000020093 | PIO | V191 |

*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 | Battery | CAB2170000C2 | BAK2010052007476 | BAK |
| AE2 | Battery | CAB2170000C1 | B31796023CA | BYD |
| AE3 | Battery | CAB30M0000C2 | BAK2009101000206 | BAK |
| AE4 | Battery | CAB30M0000C1 | B0630653C3A | BYD |
| AE5 | Stereo headset | CCA30B4010C0 | \ | SHUNDA |
| AE6 | Stereo headset | CCA30B4010C2 | \ | JUWEI |
| AE7 | Stereo headset | CCA30B4000C0 | \ | SHUNDA |
| AE8 | Stereo headset | CCA30B4000C2 | \ | JUWEI |
| AE9 | Stereo headset | CCA30B4010C4 | \ | quancheng |

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

# 4 CHARACTERISTICS OF THE TEST

## 4.1 Applicable Limit Regulations

**EN 50360–2001:** Product standard for the measurement of Specific Absorption Rate related to human exposure to electromagnetic fields from mobile phones.
It specifies the maximum exposure limit of **2.0 W/kg** as averaged over any 10 gram of tissue for portable devices being used within 20 cm of the user in the uncontrolled environment.
**ANSI C95.1–1999:** IEEE Standard for Safety Levels with Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz.
It specifies the maximum exposure limit of **1.6 W/kg** as averaged over any 1 gram of tissue for portable devices being used within 20 cm of the user in the uncontrolled environment.

## 4.2 Applicable Measurement Standards

**EN 62209-1–2006:** Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Human models, instrumentation, and procedures –Part 1:

Procedure to determine the specific absorption rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz).
**IEEE 1528–2003:** Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Body Due to Wireless Communications Devices: Experimental Techniques.
**OET Bulletin 65 (Edition 97-01) and Supplement C(Edition 01-01):** Additional Information for Evaluating Compliance of Mobile and Portable Devices with FCC Limits.
**IEC 62209-1:** Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Human models, instrumentation, and procedures –Part 1:Procedure to determine the Specific Absorption Rate (SAR) for hand-held devices used in close proximity to the ear (frequency range of 300 MHz to 3 GHz)

# 5 OPERATIONAL CONDITIONS DURING TEST

## 5.1 Schematic Test Configuration

During SAR test, EUT is in Traffic Mode (Channel Allocated) at Normal Voltage Condition. A communication link is set up with a System Simulator (SS) by air link, and a call is established. The Absolute Radio Frequency Channel Number (ARFCN) is allocated to 128, 190 and 251 respectively in the case of GSM 850 MHz, or to 512, 661 and 810 respectively in the case of PCS 1900 MHz. The EUT is commanded to operate at maximum transmitting power.

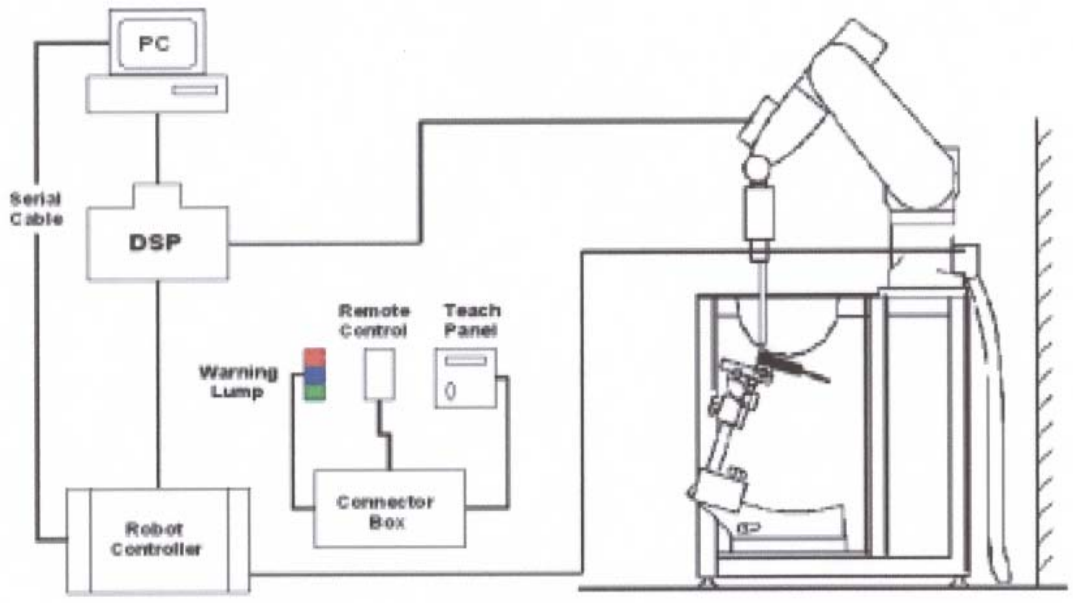
The EUT shall use its internal transmitter. The antenna(s), battery and accessories shall be those specified by the manufacturer. The EUT battery must be fully charged and checked periodically during the test to ascertain uniform power output. If a wireless link is used, the antenna connected to the output of the base station simulator shall be placed at least 50 cm away from the handset. The signal transmitted by the simulator to the antenna feeding point shall be lower than the output power level of the handset by at least 30 dB.

For the condition of Multi-Batteries, we pretest the EUT on one point with different batteries in the case of head measurement, and select one battery with highest value to become the normal battery. Perform the measurement with normal battery and find the point with highest value. Then, Retest on this point with the other batteries. Repeat the above process in the case of body measurement.

## 5.2 SAR Measurement Set-up

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

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




**Picture 2: SAR Lab Test Measurement Set-up**

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

## 5.3 Dasy4 E-field Probe System

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

### ES3DV3 Probe Specification

| | |
|---|---|
| Construction | Symmetrical design with triangular core |
| | Interleaved sensors |
| | Built-in shielding against static charges |
| | PEEK enclosure material (resistant to organic |

| | |
|---|---|
| | solvents, e.g., DGBE) |
| Calibration | Basic Broad Band Calibration in air<br>Conversion Factors (CF) for HSL 900 and HSL 1810<br>Additional CF for other liquids and frequencies upon request |
| Frequency | 10 MHz to 4 GHz; Linearity: ± 0.2 dB (30 MHz to 4 GHz) |
| Directivity | ± 0.2 dB in HSL (rotation around probe axis)<br>± 0.3 dB in tissue material (rotation normal to probe axis) |
| Dynamic Range | 5 µW/g to > 100 mW/g; Linearity: ± 0.2 dB |
| Dimensions | Overall length: 330 mm (Tip: 20 mm)<br>Tip diameter: 3.9 mm (Body: 12 mm)<br>Distance from probe tip to dipole centers: 2.0 mm |
| Application | General dosimetry up to 4 GHz<br>Dosimetry in strong gradient fields<br>Compliance tests of mobile phones |

**Picture 3: ES3DV3 E-field**

**Picture4:ES3DV3 E-field probe**

## 5.4 E-field Probe Calibration

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

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

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

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

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

**Picture 5: 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 repeatable positioned according to the FCC and CENELEC specifications. The device holder can be locked at different phantom locations (left head, right head, flat phantom).

### 5.5.2 Phantom

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

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

**Picture 6: Generic Twin Phantom**

## 5.6 Equivalent Tissues

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

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

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

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

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

## 5.7 System Specifications

**Specifications**

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

**Data Acquisition Electronic (DAE) System**

**Cell Controller**

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

**Data Converter**

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

# 6 LABORATORY ENVIRONMENT

**Table 3: 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 surroundi 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 for the EUT. In all cases, the measured 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 max output power. The channel power was measured with Agilent Spectrum Analyzer E4440A. These measurements were done at low, middle and high channels.

### 7.2.2 Measurement result

The conducted power for GSM 850/1900 is as following:

| | | | |
|---|---|---|---|
| **GSM 850MHZ** | **Conducted Power (dBm)** | | |
| | **Channel 251(848.8MHz)** | **Channel 190(836.6MHz)** | **Channel 128(824.2MHz)** |
| | 32.08 | 32.07 | 32.13 |
| **GSM 1900MHZ** | **Conducted Power (dBm)** | | |
| | **Channel 810(1909.8MHz)** | **Channel 661(1880MHz)** | **Channel 512(1850.2MHz)** |
| | 29.59 | 29.65 | 29.62 |

### 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 10 to Table 19 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 4: Dielectric Performance of Head Tissue Simulating Liquid**

| Measurement is made at temperature 23.0 °C and relative humidity 42%.<br>Liquid temperature during the test: 22.5°C<br>Measurement Date : 850 MHz **August 14, 2010** 1900 MHz **August 15, 2010** | | | |
|---|---|---|---|
| / | **Frequency** | **Permittivity ε** | **Conductivity σ (S/m)** |
| **Target value** | 850 MHz | 41.5 | 0.90 |
| | 1900 MHz | 40.0 | 1.40 |
| **Measurement value (Average of 10 tests)** | 850 MHz | 40.5 | 0.88 |
| | 1900 MHz | 39.3 | 1.39 |

**Table 5: Dielectric Performance of Body Tissue Simulating Liquid**

| Measurement is made at temperature 23.0 °C and relative humidity 42%.<br>Liquid temperature during the test: 22.5°C<br>Measurement Date : 850 MHz **August 14, 2010** 1900 MHz **August 15, 2010** | | | |
|---|---|---|---|
| / | **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 | 54.1 | 0.96 |
| | 1900 MHz | 52.3 | 1.53 |

## 8.2 System Validation

**Table 6: System Validation of Head**

| Measurement is made at temperature 23.0 °C and relative humidity 42%.<br>Liquid temperature during the test: 22.5°C<br>Measurement Date : 850 MHz **August 14, 2010** 1900 MHz **August 15, 2010** | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Liquid parameters** | Dipole calibration Target value | **Frequency** | | **Permittivity ε** | | **Conductivity σ (S/m)** | |
| | | 835 MHz | | 41.6 | | 0.92 | |
| | | 1900 MHz | | 39.6 | | 1.40 | |
| | Actural Measurement value | 835 MHz | | 40.6 | | 0.86 | |
| | | 1900 MHz | | 39.3 | | 1.39 | |
| **Verification results** | **Frequency** | **Target value (W/kg)** | | **Measured value (W/kg)** | | **Deviation** | |
| | | **10 g Average** | **1 g Average** | **10 g Average** | **1 g Average** | **10 g Average** | **1 g Average** |
| | 835 MHz | 1.54 | 2.38 | 1.51 | 2.34 | -1.95% | -1.68% |
| | 1900 MHz | 5.05 | 9.91 | 4.92 | 9.66 | -2.57% | -2.52% |

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

**Table 7: System Validation of Body**

| Measurement is made at temperature 23.0 °C and relative humidity 42%.<br>Liquid temperature during the test: 22.5°C<br>Measurement Date : 850 MHz **August 14, 2010** 1900 MHz **August 15, 2010** | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Liquid parameters** | Dipole calibration Target value | **Frequency** | | **Permittivity ε** | | **Conductivity σ (S/m)** | |
| | | 835 MHz | | 54.5 | | 0.97 | |
| | | 1900 MHz | | 52.5 | | 1.51 | |
| | Actural Measurement value | 835 MHz | | 54.2 | | 0.94 | |
| | | 1900 MHz | | 52.3 | | 1.53 | |
| **Verification results** | **Frequency** | **Target value (W/kg)** | | **Measured value (W/kg)** | | **Deviation** | |
| | | **10 g Average** | **1 g Average** | **10 g Average** | **1 g Average** | **10 g Average** | **1 g Average** |
| | 835 MHz | 1.57 | 2.41 | 1.52 | 2.36 | -3.18% | -2.07% |
| | 1900 MHz | 5.24 | 10.4 | 5.11 | 10.2 | -2.48% | -1.92% |

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

## 8.3 Evaluation of Multi-Batteries

**Table 8: Pretest SAR Values (EGSM 850 MHz Band)**

| **Limit of SAR (W/kg)** | **10 g Average** | **1 g Average** |
|---|---|---|
| | 2.0 | 1.6 |
| **Test Case** | **Measurement Result (W/kg)** | |
| | **10 g Average** | **1 g Average** |
| Right hand, Touch cheek, Mid frequency (CAB2170000C1) | 0.580 | 0.904 |
| Right hand, Touch cheek, Mid frequency (CAB2170000C2) | 0.542 | 0.831 |
| Right hand, Touch cheek, Mid frequency (CAB30M0000C1) | 0.560 | 0.840 |
| Right hand, Touch cheek, Mid frequency (CAB30M0000C2) | 0.604 | 0.920 |

**Note: According to the values in the above table, the battery, CAB30M0000C2, is the normal battery. We'll perform the head measurement with this battery and retest on highest value point with others.**

**Table 9: Pretest SAR Values (EGSM 850 MHz Band-Body)**

| **Limit of SAR (W/kg)** | **10 g Average** | **1 g Average** |
|---|---|---|
| | 2.0 | 1.6 |
| **Test Case** | **Measurement Result (W/kg)** | |
| | **10 g Average** | **1 g Average** |

| | | |
|---|---|---|
| Body, Towards Ground, Mid frequency (CAB2170000C1) | 0.461 | 0.645 |
| Body, Towards Ground, Mid frequency (CAB2170000C2) | 0.468 | 0.658 |
| Body, Towards Ground, Mid frequency (CAB30M0000C1) | 0.458 | 0.645 |
| Body, Towards Ground, Mid frequency (CAB30M0000C2) | 0.466 | 0.654 |

**Note: According to the values in the above table, the battery, CAB2170000C2, is the normal battery. We'll perform the body measurement with this battery and retest on highest value point with others.**

## 8.4 Summary of Measurement Results

**Table 10: SAR Values (850MHz-Head) - with battery CAB30M0000C2**

| **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) | 0.458 | 0.672 | -0.168 |
| Left hand, Touch cheek, Mid frequency (See Fig.2) | 0.478 | 0.682 | 0.132 |
| Left hand, Touch cheek, Bottom frequency (See Fig.3) | 0.410 | 0.574 | 0.101 |
| Left hand, Tilt 15 Degree, Top frequency (See Fig.4) | 0.293 | 0.403 | 0.055 |
| Left hand, Tilt 15 Degree, Mid frequency (See Fig.5) | 0.301 | 0.409 | -0.120 |
| Left hand, Tilt 15 Degree, Bottom frequency (See Fig.6) | 0.269 | 0.363 | -0.018 |
| Right hand, Touch cheek, Top frequency (See Fig.7) | 0.602 | 0.914 | 0.179 |
| Right hand, Touch cheek, Mid frequency (See Fig.8) | 0.604 | 0.920 | 0.133 |
| Right hand, Touch cheek, Bottom frequency (See Fig.9) | 0.544 | 0.827 | 0.116 |
| Right hand, Tilt 15 Degree, Top frequency (See Fig.10) | 0.321 | 0.438 | 0.029 |
| Right hand, Tilt 15 Degree, Mid frequency (See Fig.11) | 0.331 | 0.447 | 0.059 |
| Right hand, Tilt 15 Degree, Bottom frequency (See Fig.12) | 0.309 | 0.418 | -0.037 |

**Table 11: SAR Values (1900MHz-Head) - with battery CAB30M0000C2**

| **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.13) | 0.584 | 1 | -0.187 |
| Left hand, Touch cheek, Mid frequency (See Fig.14) | 0.528 | 0.892 | -0.142 |

| | | | |
|---|---|---|---|
| Left hand, Touch cheek, Bottom frequency (See Fig.15) | 0.452 | 0.754 | -0.122 |
| Left hand, Tilt 15 Degree, Top frequency (See Fig.16) | 0.093 | 0.177 | -0.069 |
| Left hand, Tilt 15 Degree, Mid frequency (See Fig.17) | 0.124 | 0.231 | -0.003 |
| Left hand, Tilt 15 Degree, Bottom frequency (See Fig.18) | 0.154 | 0.278 | -0.144 |
| Right hand, Touch cheek, Top frequency (See Fig.19) | 0.459 | 0.733 | -0.184 |
| Right hand, Touch cheek, Mid frequency (See Fig.20) | 0.437 | 0.696 | -0.178 |
| Right hand, Touch cheek, Bottom frequency (See Fig.21) | 0.380 | 0.597 | 0.151 |
| Right hand, Tilt 15 Degree, Top frequency (See Fig.22) | 0.118 | 0.232 | -0.109 |
| Right hand, Tilt 15 Degree, Mid frequency (See Fig.23) | 0.163 | 0.313 | -0.083 |
| Right hand, Tilt 15 Degree, Bottom frequency(See Fig.24) | 0.179 | 0.332 | 0.150 |

**Table 12: SAR Values (1900MHz-Head) - with battery CAB2170000C1**

| **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) | 0.556 | 0.922 | -0.110 |

**Table 13: SAR Values (1900MHz-Head) - with battery CAB2170000C2**

| **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.26) | 0.547 | 0.912 | -0.051 |

**Table 14: SAR Values (1900MHz-Head) - with battery CAB30M0000C1**

| **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.27) | 0.558 | 0.926 | -0.086 |

**Table 15: SAR Values (850MHz-Body) - with battery CAB2170000C2**

| Limit of SAR (W/kg) | 10 g Average | 1g 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.28) | 0.440 | 0.617 | 0.00761 |
| Body, Towards Ground, Mid frequency (See Fig.29) | 0.468 | 0.658 | 0.00363 |
| Body, Towards Ground, Bottom frequency (See Fig.30) | 0.412 | 0.575 | -0.077 |
| Body, Towards Ground, Mid frequency with Headset_CCA30B4010C0 (See Fig.31) | 0.317 | 0.447 | 0.024 |
| Body, Towards Ground, Mid frequency with Headset_CCA30B4010C2 (See Fig.32) | 0.348 | 0.489 | 0.186 |
| Body, Towards Ground, Mid frequency with Headset_CCA30B4010C4 (See Fig.33) | 0.324 | 0.451 | 0.104 |
| Body, Towards Ground, Mid frequency with Headset_CCA30B4000C0 (See Fig.34) | 0.327 | 0.457 | 0.045 |
| Body, Towards Ground, Mid frequency with Headset_CCA30B4000C2 (See Fig.35) | 0.279 | 0.389 | 0.073 |

**Table 16: SAR Values (1900MHz-Body) - with battery CAB2170000C2**

| Limit of SAR (W/kg) | 10 g Average | 1g 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.36) | 0.271 | 0.437 | -0.172 |
| Body, Towards Ground, Mid frequency (See Fig.37) | 0.248 | 0.394 | -0.081 |
| Body, Towards Ground, Bottom frequency (See Fig.38) | 0.201 | 0.318 | 0.119 |
| Body, Towards Ground, Top frequency with Headset_CCA30B4010C0 (See Fig.39) | 0.244 | 0.392 | -0.104 |
| Body, Towards Ground, Top frequency with Headset_CCA30B4010C2 (See Fig.40) | 0.230 | 0.368 | -0.134 |
| Body, Towards Ground, Top frequency with Headset_CCA30B4010C4 (See Fig.41) | 0.215 | 0.343 | -0.050 |

| | | | |
|---|---|---|---|
| Body, Towards Ground, Top frequency with Headset_CCA30B4000C0 (See Fig.42) | 0.226 | 0.360 | -0.018 |
| Body, Towards Ground, Top frequency with Headset_CCA30B4000C2 (See Fig.43) | 0.225 | 0.358 | 0.009 |

**Table 17: SAR Values (850MHz-Body) - with battery CAB2170000C1**

| **Limit of SAR (W/kg)** | **10 g Average** | **1g 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.44) | 0.461 | 0.645 | -0.00182 |

**Table 18: SAR Values (850MHz-Body) - with battery CAB30M0000C1**

| **Limit of SAR (W/kg)** | **10 g Average** | **1g 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.45) | 0.458 | 0.645 | -0.137 |

**Table 19: SAR Values (850MHz-Body) - with battery CAB30M0000C2**

| **Limit of SAR (W/kg)** | **10 g Average** | **1g 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.46) | 0.466 | 0.654 | -0.089 |

### 8.5 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 4.2 of this report. Maximum localized SAR is below exposure limits specified in the relevant standards cited in Clause 4.1 of this test report.

## 9 Measurement Uncertainty

| No. | Error Description | Type | Tolerance (±%) | Probability Distribution | Divisor | $c_i$ | Standard Uncertainty (%) $u_i'$ (%) | Degree of freedom $V_{eff}$ or $v_i$ |
|---|---|---|---|---|---|---|---|---|
| 1 | System repeatability | A | 0.5 | N | 1 | 1 | 0.5 | 9 |
| | Measurement system | | | | | | | |
| 2 | —probe calibration | B | 3.5 | N | 1 | 1 | 3.5 | ∞ |
| 3 | —axial isotropy of the probe | B | 4.7 | R | $\sqrt{3}$ | 0.5 | 4.3 | ∞ |
| 4 | —hemisphere isotropy of the probe | B | 9.4 | R | $\sqrt{3}$ | | | |
| 5 | —space resolution | B | 0 | R | $\sqrt{3}$ | 1 | 0 | ∞ |
| 6 | —boundary effect | B | 11.0 | R | $\sqrt{3}$ | 1 | 6.4 | ∞ |
| 7 | —probe linearity | B | 4.7 | R | $\sqrt{3}$ | 1 | 2.7 | ∞ |
| 8 | —detection limit | B | 1.0 | R | $\sqrt{3}$ | 1 | 0.6 | ∞ |
| 9 | —readout electronics | B | 1.0 | N | 1 | 1 | 1.0 | ∞ |
| 10 | —RF Ambient Conditions | B | 3.0 | R | $\sqrt{3}$ | 1 | 1.73 | ∞ |
| 11 | — Probe Positioner Mechanical Tolerance | B | 0.4 | R | $\sqrt{3}$ | 1 | 0.2 | ∞ |
| 12 | — Probe Positioning with respect to Phantom Shell | B | 2.9 | R | $\sqrt{3}$ | 1 | 1.7 | ∞ |
| 13 | —Extrapolation, interpolation and Integration Algorithms for Max. SAR Evaluation | B | 3.9 | R | $\sqrt{3}$ | 1 | 2.3 | ∞ |
| | Test sample Related | | | | | | | |
| 14 | —Test Sample Positioning | A | 4.9 | N | 1 | 1 | 4.9 | 5 |
| 15 | —Device Holder | A | 6.1 | N | 1 | 1 | 6.1 | 5 |

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 16 | ─Output Power Variation - SAR drift measurement | B | 5.0 | R | $\sqrt{3}$ | 1 | 2.9 | ∞ |
| | Phantom and Tissue Parameters | | | | | | | |
| 17 | ─ Phantom Uncertainty (shape and thickness tolerances) | B | 1.0 | R | $\sqrt{3}$ | 1 | 0.6 | ∞ |
| 18 | ─ liquid conductivity (deviation from target) | B | 5.0 | R | $\sqrt{3}$ | 0.6 | 1.7 | ∞ |
| 19 | ─ liquid conductivity (measurement error) | A | 0.23 | N | 1 | 1 | 0.23 | 9 |
| 20 | -liquid permittivity (deviation from target) | B | 5.0 | R | $\sqrt{3}$ | 0.6 | 1.7 | ∞ |
| 21 | ─ liquid permittivity (measurement error) | A | 0.46 | N | 1 | 1 | 0.46 | 9 |
| Combined standard uncertainty | | $u_c^{'} = \sqrt{\sum_{i=1}^{21} c_i^2 u_i^2}$ | | / | | | 12.2 | 88.7 |
| Expanded uncertainty (confidence interval of 95 %) | | $u_e = 2u_c$ | | N | k=2 | | 24.4 | / |

# 10 MAIN TEST INSTRUMENTS

**Table 20: List of Main Instruments**

| No. | Name | Type | Serial Number | Calibration Date | Valid Period |
|---|---|---|---|---|---|
| 01 | Network analyzer | HP 8753E | US38433212 | August 29,2009 | One year |
| 02 | Power meter | NRVD | 101253 | September 4, 2009 | One year |
| 03 | Power sensor | NRV-Z5 | 100333 | | |
| 04 | Signal Generator | E4433B | US37230472 | September 3, 2009 | One Year |
| 05 | Amplifier | VTL5400 | 0505 | No Calibration Requested | |
| 06 | BTS | CMU 200 | 105948 | August 24, 2009 | One year |
| 07 | E-field Probe | SPEAG ES3DV3 | 3149 | September 25, 2009 | One year |
| 08 | DAE | SPEAG DAE4 | 771 | November 19, 2009 | One year |
| 09 | Dipole Validation Kit | SPEAG D835V2 | 443 | February 26, 2010 | Two years |
| 10 | Dipole Validation Kit | SPEAG D1900V2 | 541 | February 26, 2010 | Two years |

***END OF REPORT BODY***

# ANNEX A MEASUREMENT PROCESS

The evaluation was performed with the following procedure:

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

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

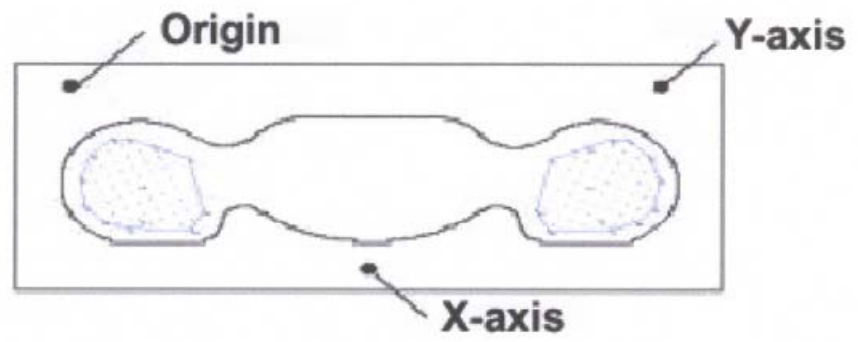
Step 3: Around this point, a volume of 30 mm x 30 mm x 30 mm was assessed by measuring 7 x 7x 7 points. On this basis of this data set, the spatial peak SAR value was evaluated with the following procedure:

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

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

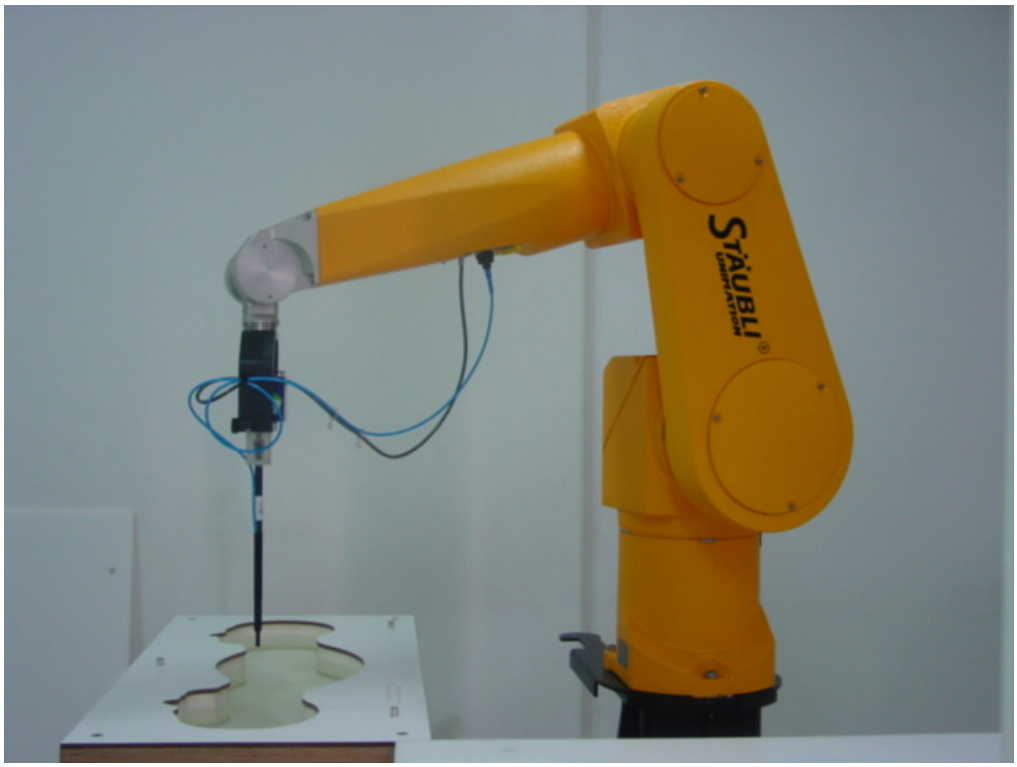
c. All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.

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

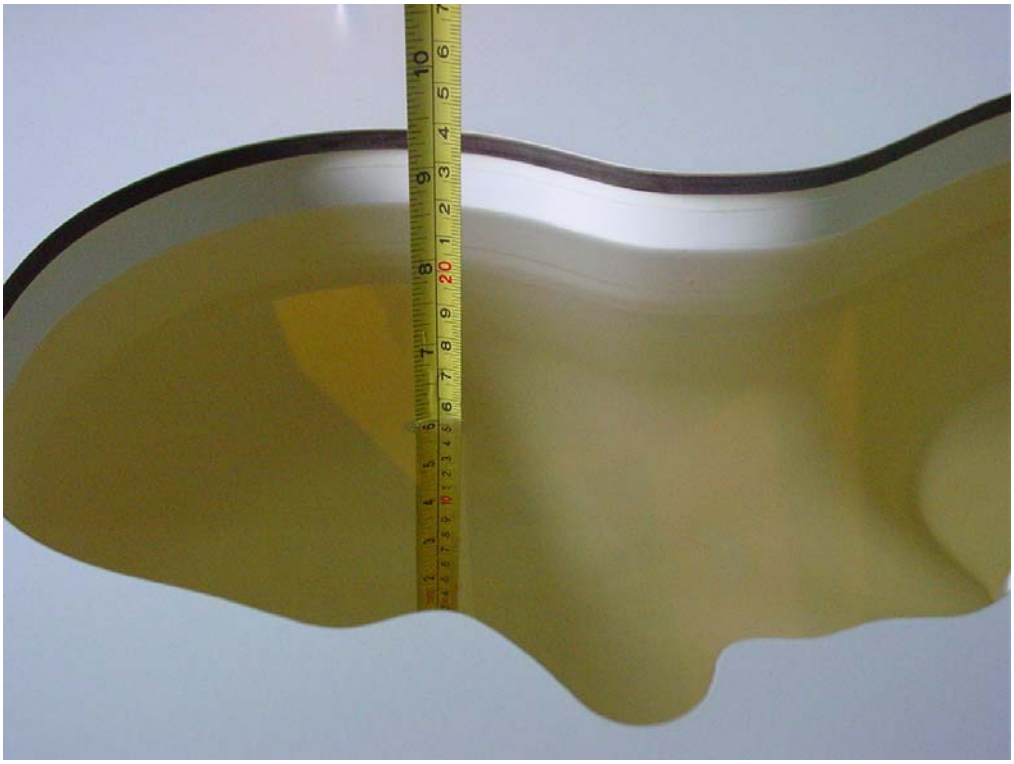



**Picture A: SAR Measurement Points in Area Scan**

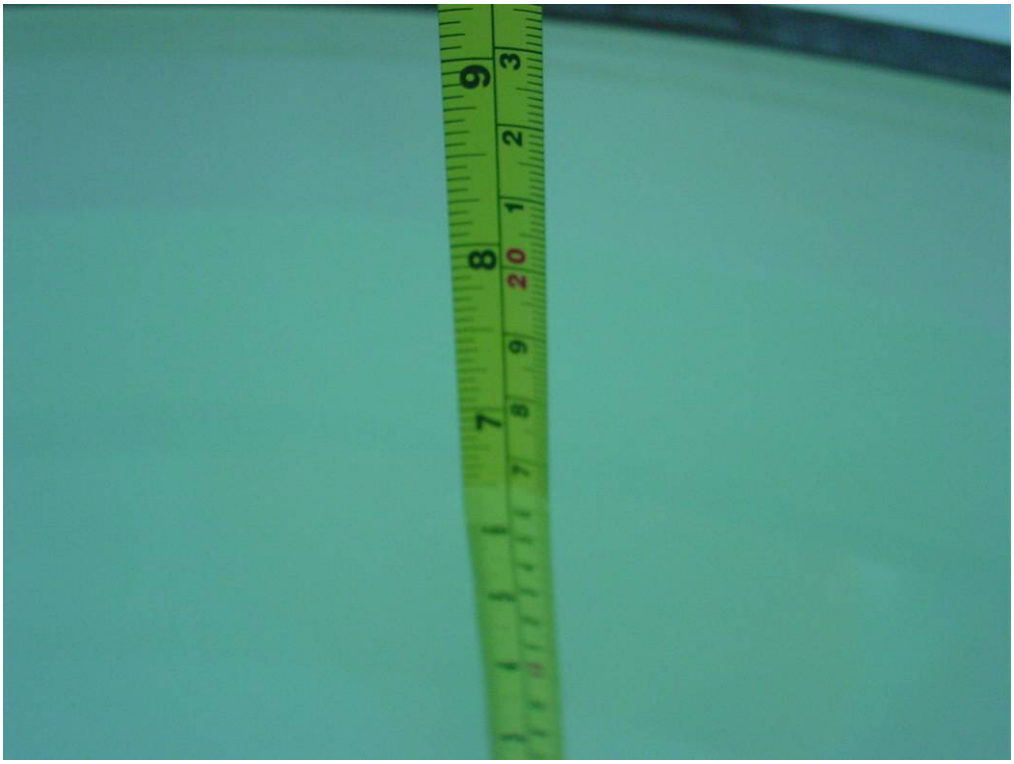
# ANNEX B TEST LAYOUT




**Picture B1: Specific Absorption Rate Test Layout**

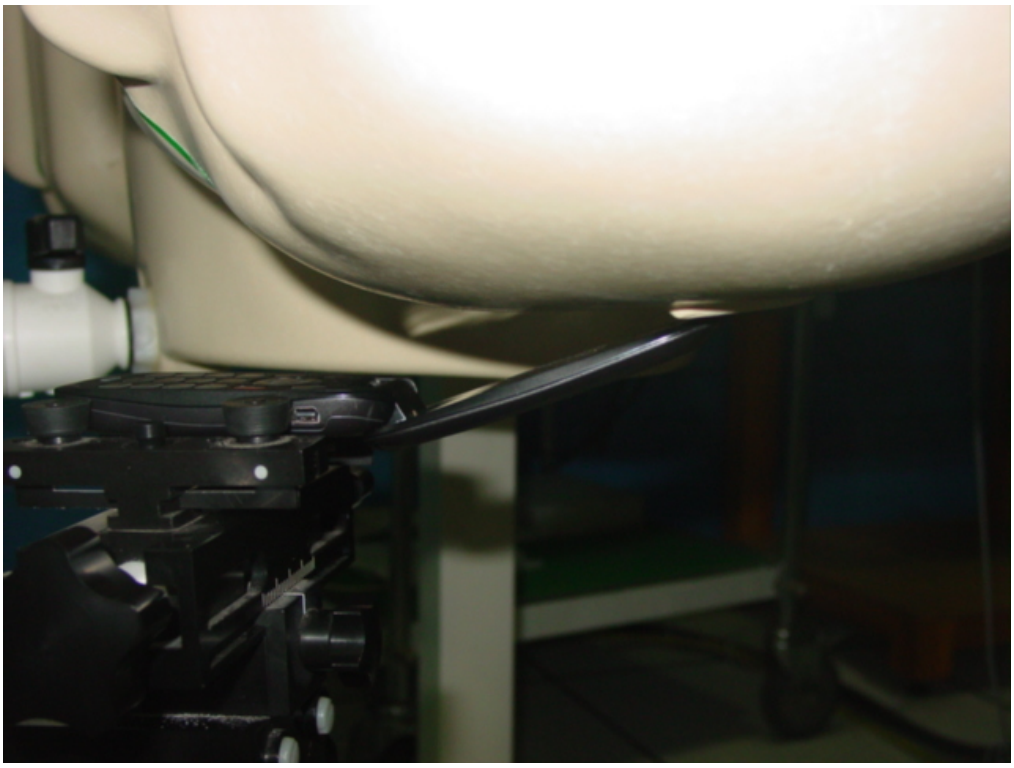


**Picture B2: Liquid depth in the Flat Phantom (850 MHz)**

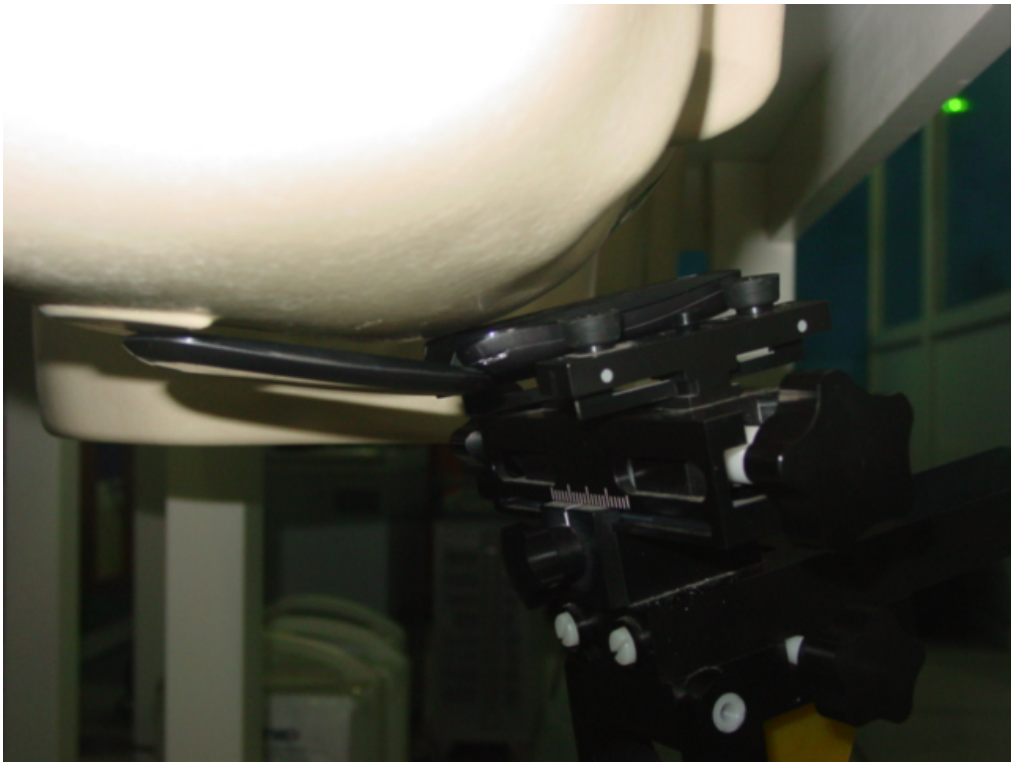


**Picture B3 Liquid depth in the Flat Phantom (1900MHz)**

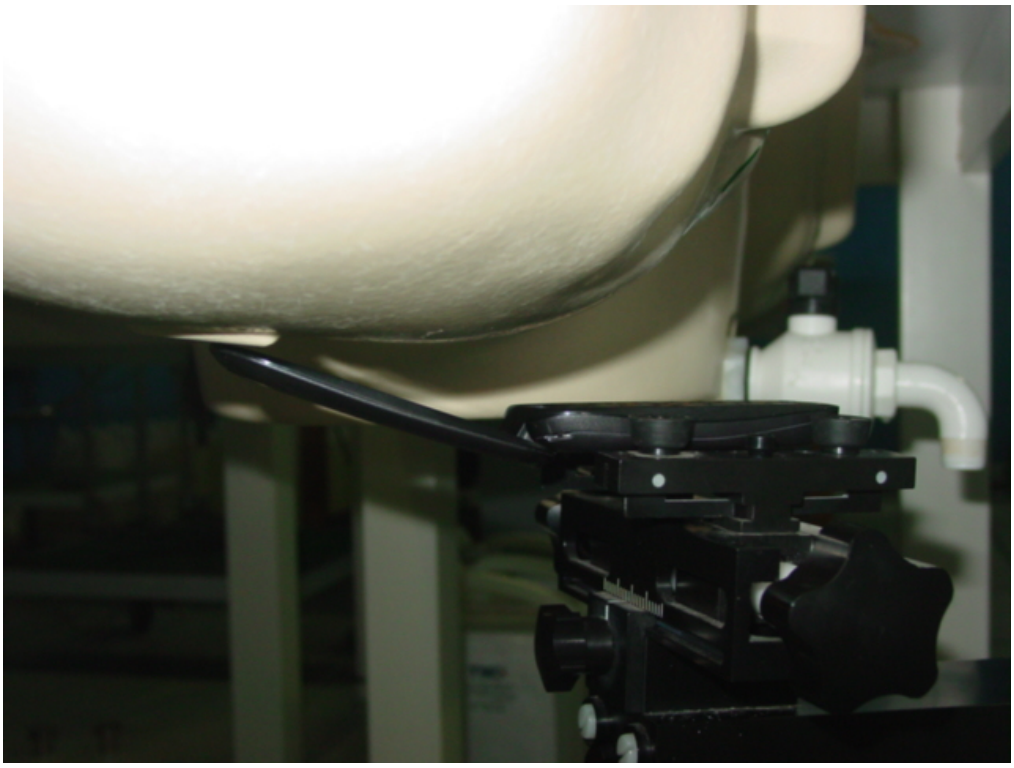
**Picture B4: Left Hand Touch Cheek Position**



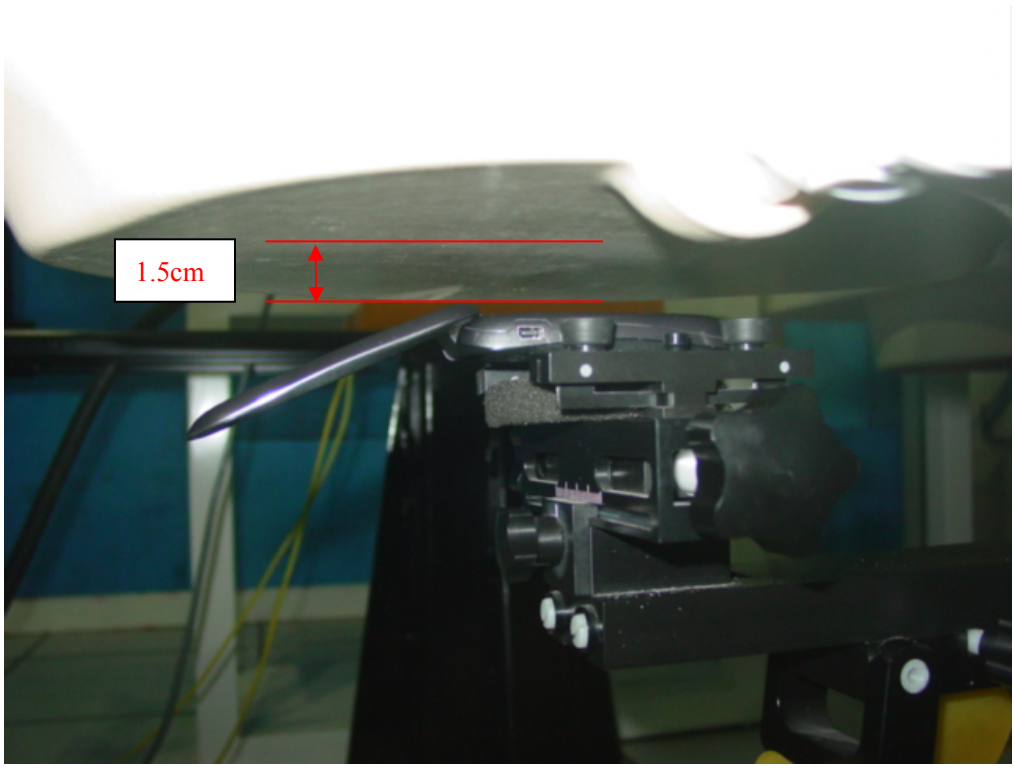
**Picture B5: Left Hand Tilt 15° Position**



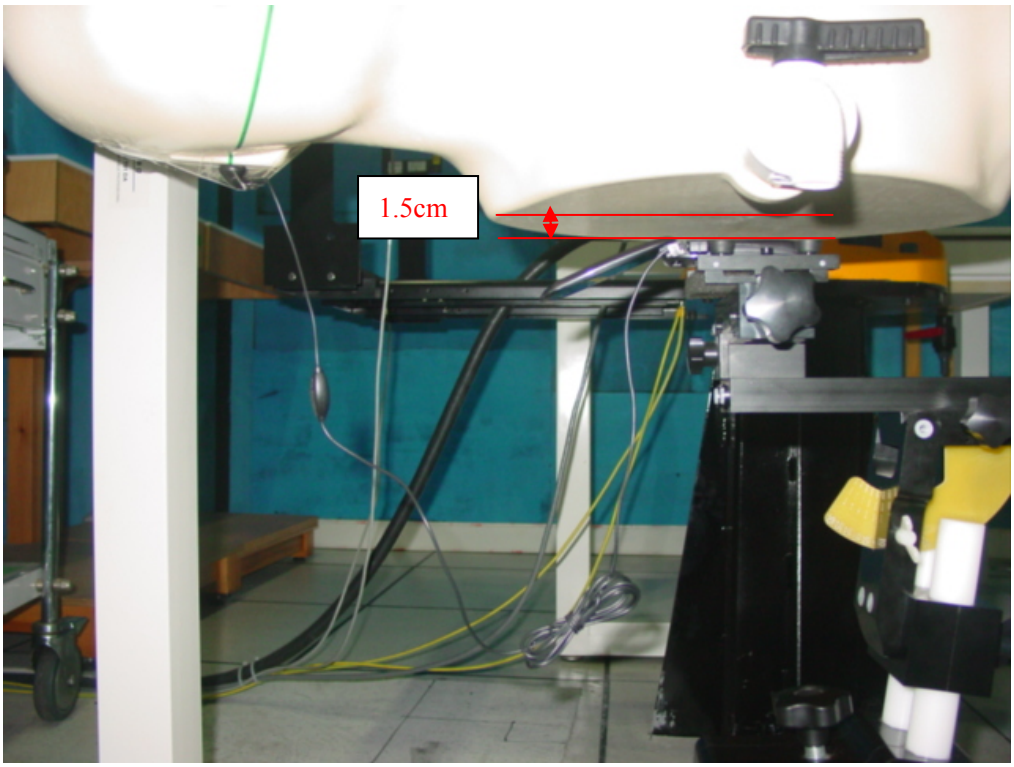
**Picture B6: Right Hand Touch Cheek Position**



**Picture B7: Right Hand Tilt 15° Position**




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




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

# ANNEX C GRAPH RESULTS

## 850 Left Cheek High

Date/Time: 2010-8-14 8:08:23
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 848.8 MHz; $\sigma$ = 0.88 mho/m; $\varepsilon r$ = 40.5; $\rho$ = 1000 kg/$m^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 Frequency: 848.8 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

**Cheek High/Area Scan (51x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.751 mW/g

**Cheek High/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.87 V/m; Power Drift = -0.168 dB
Peak SAR (extrapolated) = 1.04 W/kg
**SAR(1 g) = 0.672 mW/g; SAR(10 g) = 0.458 mW/g**
Maximum value of SAR (measured) = 0.706 mW/g

**Cheek High/Zoom Scan (5x5x7)/Cube 1:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.87 V/m; Power Drift = -0.168 dB
Peak SAR (extrapolated) = 0.861 W/kg
**SAR(1 g) = 0.634 mW/g; SAR(10 g) = 0.392 mW/g**
Maximum value of SAR (measured) = 0.685 mW/g

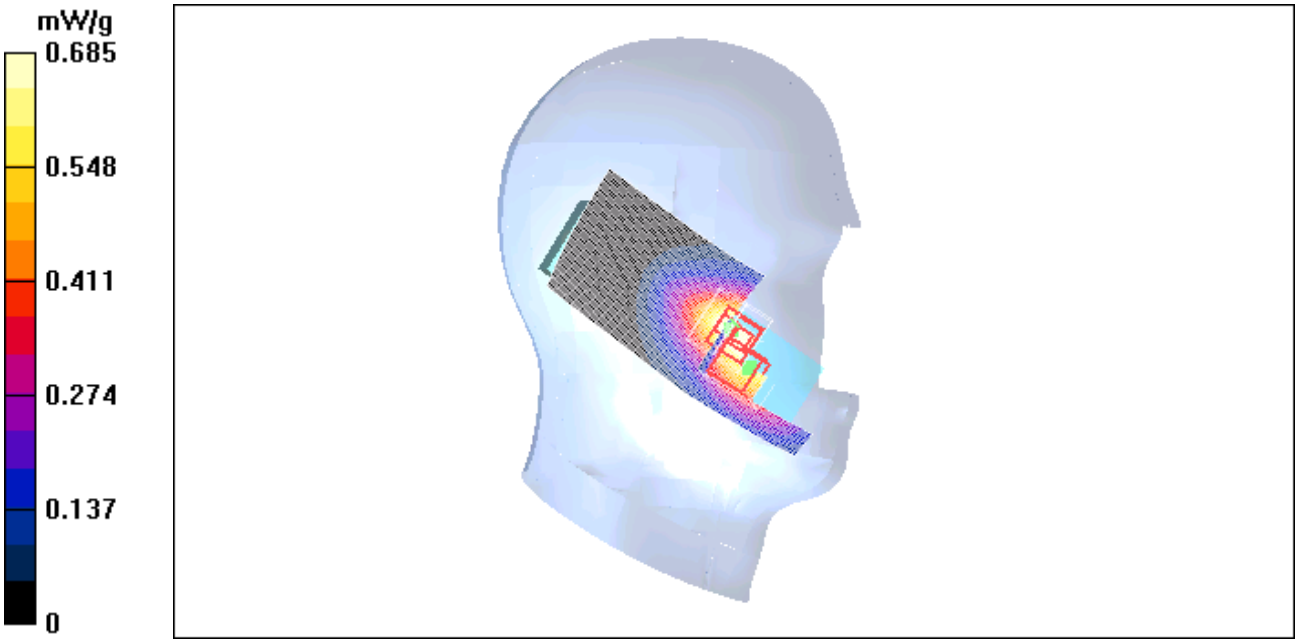



**Fig. 1 850MHz CH251**

**850 Left Cheek Middle**

Date/Time: 2010-8-14 8:22:46
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 836.6 MHz; $\sigma$ = 0.868 mho/m; $\varepsilon r$ = 40.6; $\rho$ = 1000 kg/$m^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 Frequency: 836.6 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

**Cheek Middle/Area Scan (51x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.724 mW/g

**Cheek Middle/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.46 V/m; Power Drift = 0.132 dB
Peak SAR (extrapolated) = 1.06 W/kg
**SAR(1 g) = 0.682 mW/g; SAR(10 g) = 0.478 mW/g**
Maximum value of SAR (measured) = 0.743 mW/g

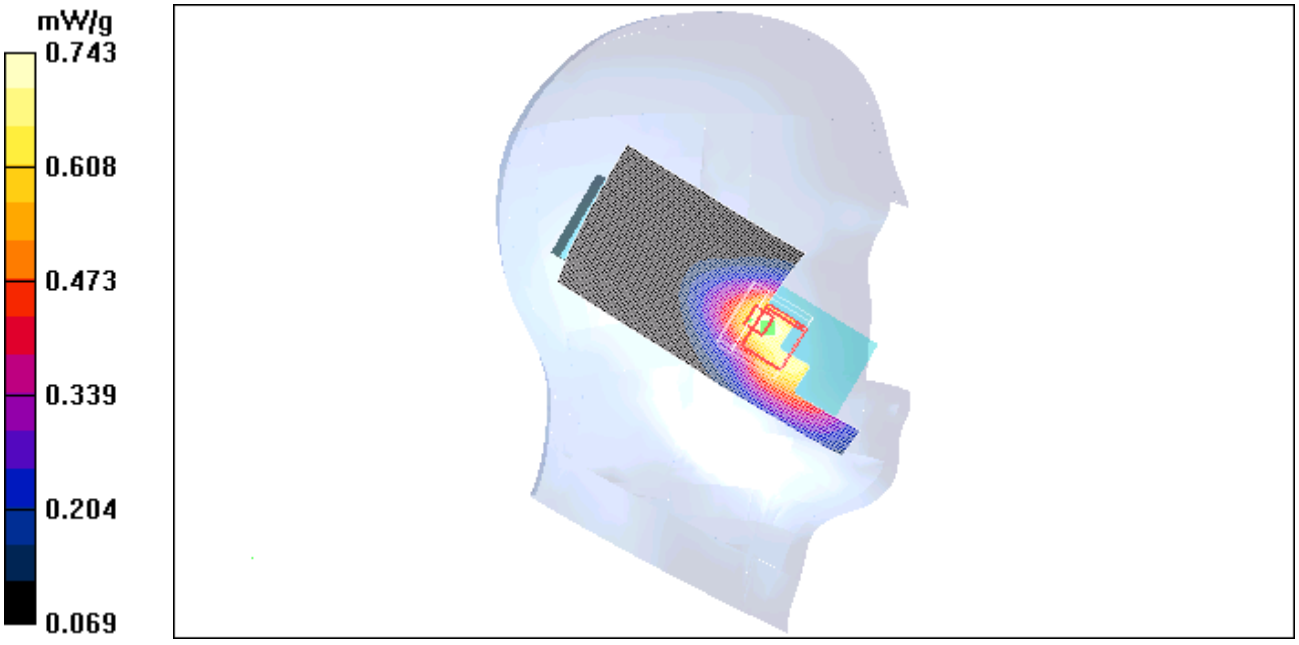



**Fig. 2 850 MHz CH190**

## 850 Left Cheek Low

Date/Time: 2010-8-14 8:37:11
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used: f = 825 MHz; $\sigma$ = 0.856 mho/m; $\varepsilon r$ = 40.6; $\rho$ = 1000 kg/m$^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 Frequency: 824.2 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

**Cheek Low/Area Scan (51x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.597 mW/g

**Cheek Low/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.79 V/m; Power Drift = 0.101 dB
Peak SAR (extrapolated) = 0.892 W/kg
**SAR(1 g) = 0.574 mW/g; SAR(10 g) = 0.410 mW/g**
Maximum value of SAR (measured) = 0.608 mW/g

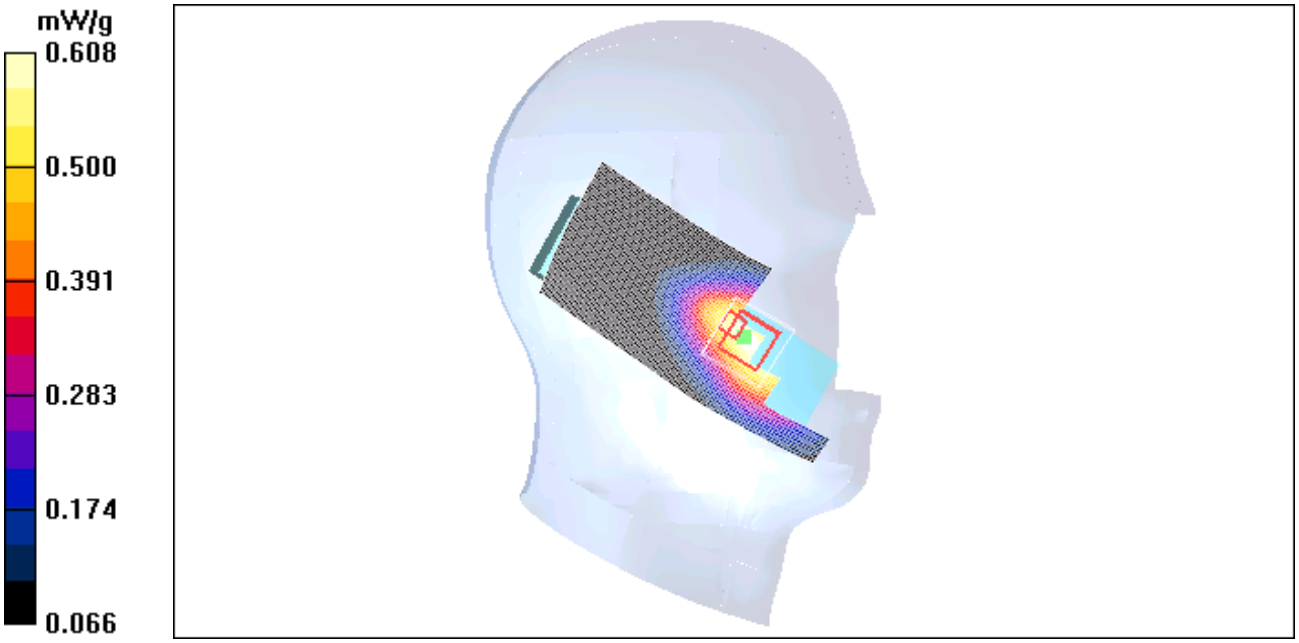



**Fig. 3 850 MHz CH128**

**850 Left Tilt High**

Date/Time: 2010-8-14 8:51:47
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 848.8 MHz; $\sigma$ = 0.88 mho/m; $\varepsilon r$ = 40.5; $\rho$ = 1000 kg/$m^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 Frequency: 848.8 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

**Tilt High/Area Scan (51x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.425 mW/g

**Tilt High/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.63 V/m; Power Drift = 0.055 dB
Peak SAR (extrapolated) = 0.546 W/kg
**SAR(1 g) = 0.403 mW/g; SAR(10 g) = 0.293 mW/g**
Maximum value of SAR (measured) = 0.428 mW/g

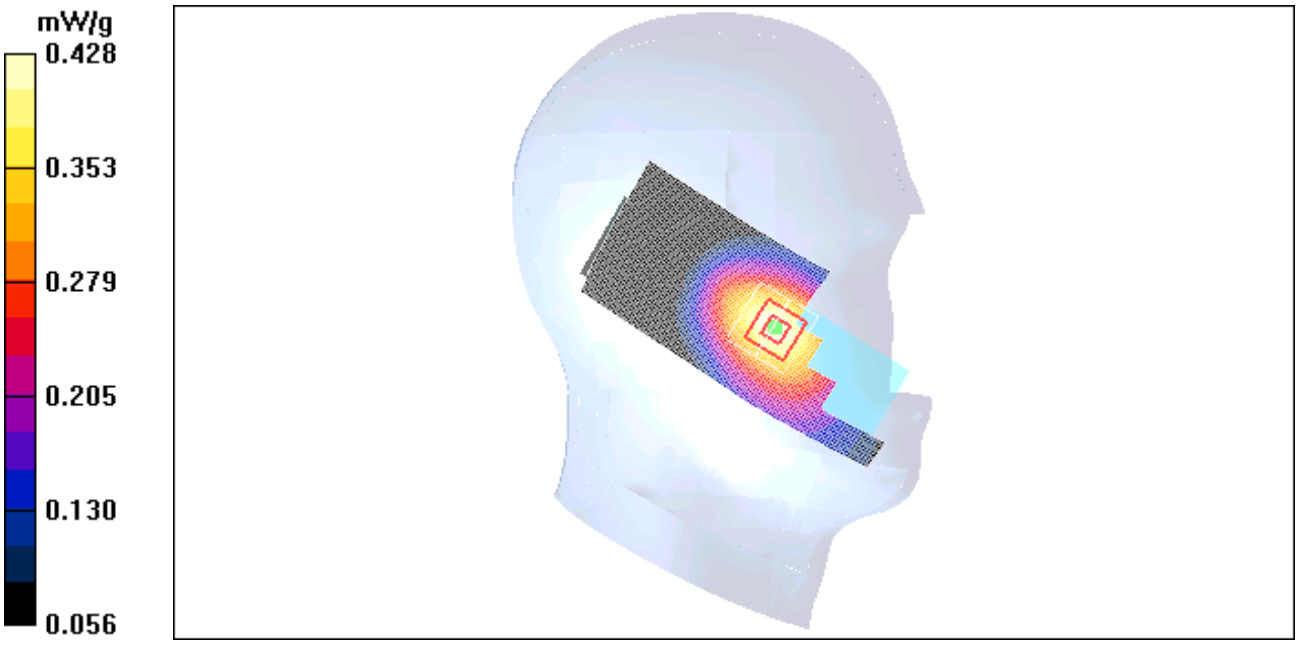



**Fig.4 850 MHz CH251**

**850 Left Tilt Middle**

Date/Time: 2010-8-14 9:06:15
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 836.6 MHz; $\sigma$ = 0.868 mho/m; $\varepsilon r$ = 40.6; $\rho$ = 1000 kg/$m^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 Frequency: 836.6 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

**Tilt Middle/Area Scan (51x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.431 mW/g

**Tilt Middle/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.71 V/m; Power Drift = -0.120 dB
Peak SAR (extrapolated) = 0.549 W/kg
**SAR(1 g) = 0.409 mW/g; SAR(10 g) = 0.301 mW/g**
Maximum value of SAR (measured) = 0.435 mW/g

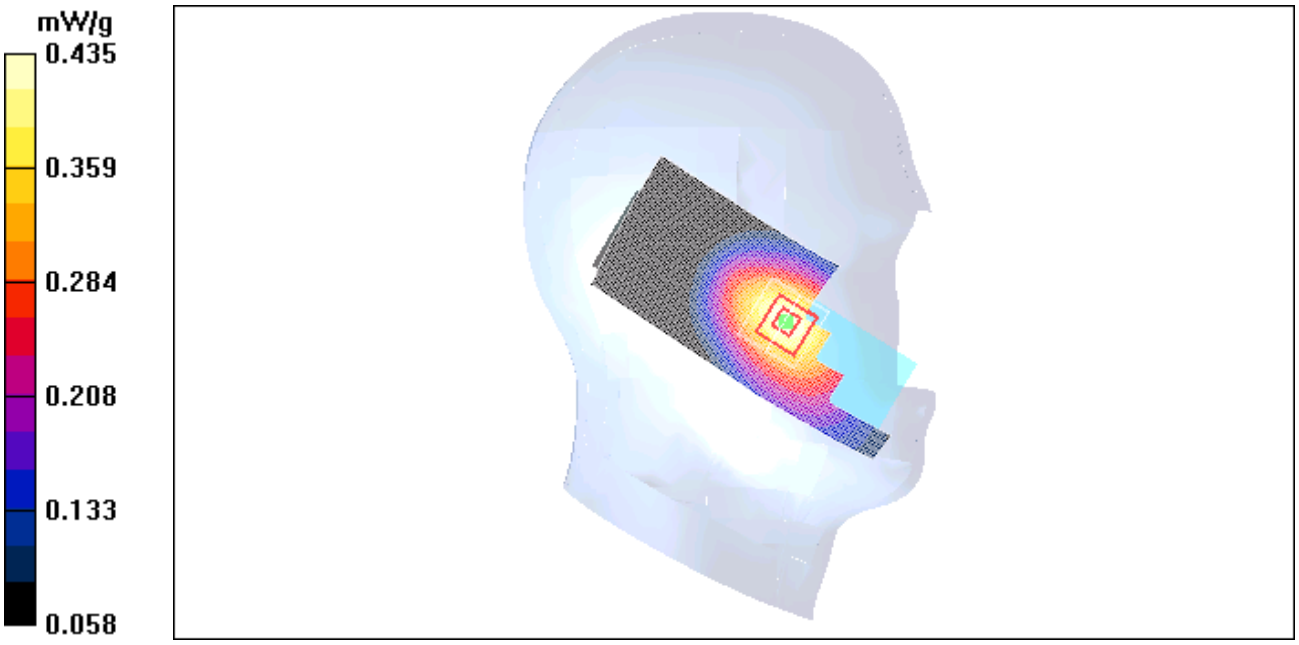



**Fig.5 850 MHz CH190**

**850 Left Tilt Low**

Date/Time: 2010-8-14 9:20:36
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used: f = 825 MHz; $\sigma$ = 0.856 mho/m; $\varepsilon r$ = 40.6; $\rho$ = 1000 kg/$m^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 Frequency: 824.2 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

**Tilt Low/Area Scan (51x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.377 mW/g

**Tilt Low/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.39 V/m; Power Drift = -0.018 dB
Peak SAR (extrapolated) = 0.483 W/kg
**SAR(1 g) = 0.363 mW/g; SAR(10 g) = 0.269 mW/g**
Maximum value of SAR (measured) = 0.385 mW/g

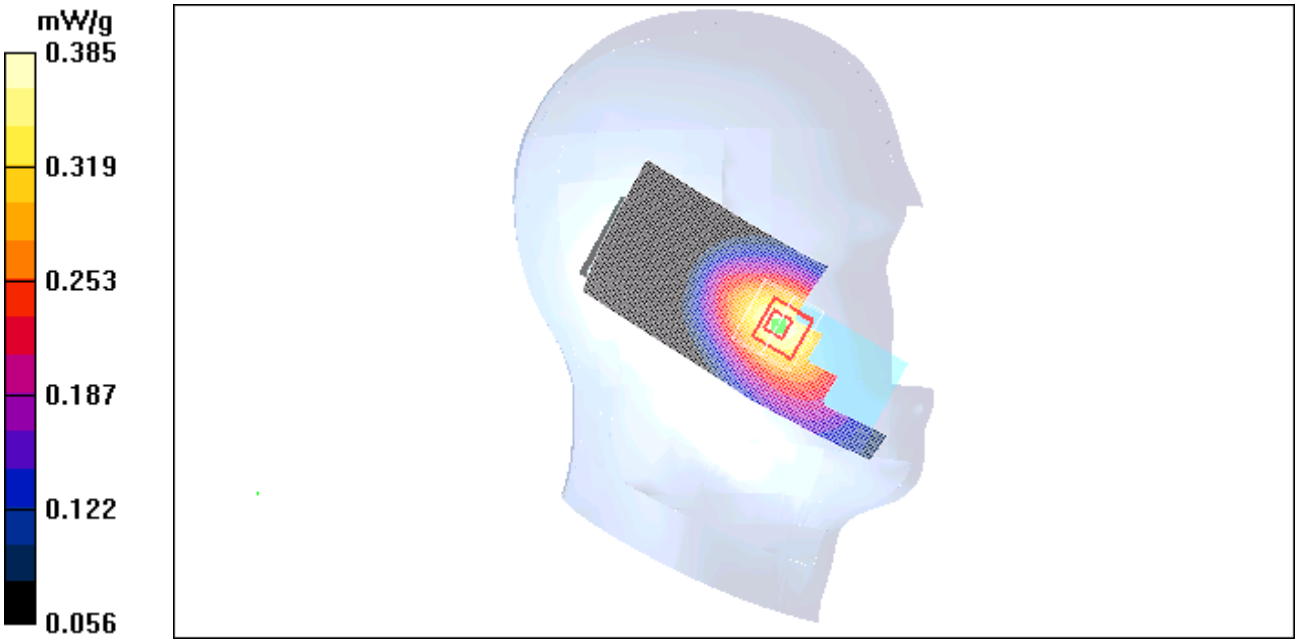



**Fig. 6 850 MHz CH128**

**850 Right Cheek High**

Date/Time: 2010-8-14 9:35:09
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 848.8 MHz; $\sigma$ = 0.88 mho/m; $\varepsilon r$ = 40.5; $\rho$ = 1000 kg/$m^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 Frequency: 848.8 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

**Cheek High/Area Scan (51x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.985 mW/g

**Cheek High/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.22 V/m; Power Drift = 0.179 dB
Peak SAR (extrapolated) = 1.52 W/kg
**SAR(1 g) = 0.914 mW/g; SAR(10 g) = 0.602 mW/g**
Maximum value of SAR (measured) = 0.966 mW/g

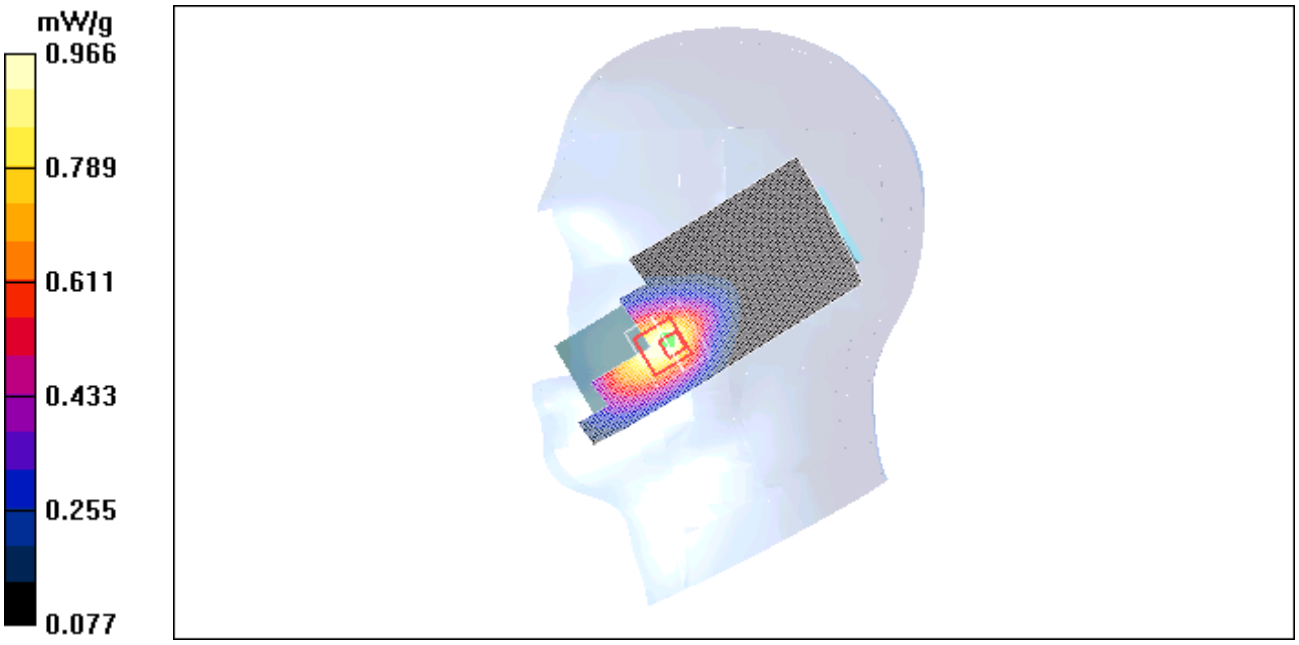



**Fig. 7 850 MHz CH251**

**850 Right Cheek Middle**

Date/Time: 2010-8-14 9:49:22
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 836.6 MHz; $\sigma$ = 0.868 mho/m; $\varepsilon r$ = 40.6; $\rho$ = 1000 kg/$m^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 Frequency: 836.6 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

**Cheek Middle/Area Scan (51x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.946 mW/g

**Cheek Middle/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.98 V/m; Power Drift = 0.133 dB
Peak SAR (extrapolated) = 1.49 W/kg
**SAR(1 g) = 0.920 mW/g; SAR(10 g) = 0.604 mW/g**
Maximum value of SAR (measured) = 0.988 mW/g

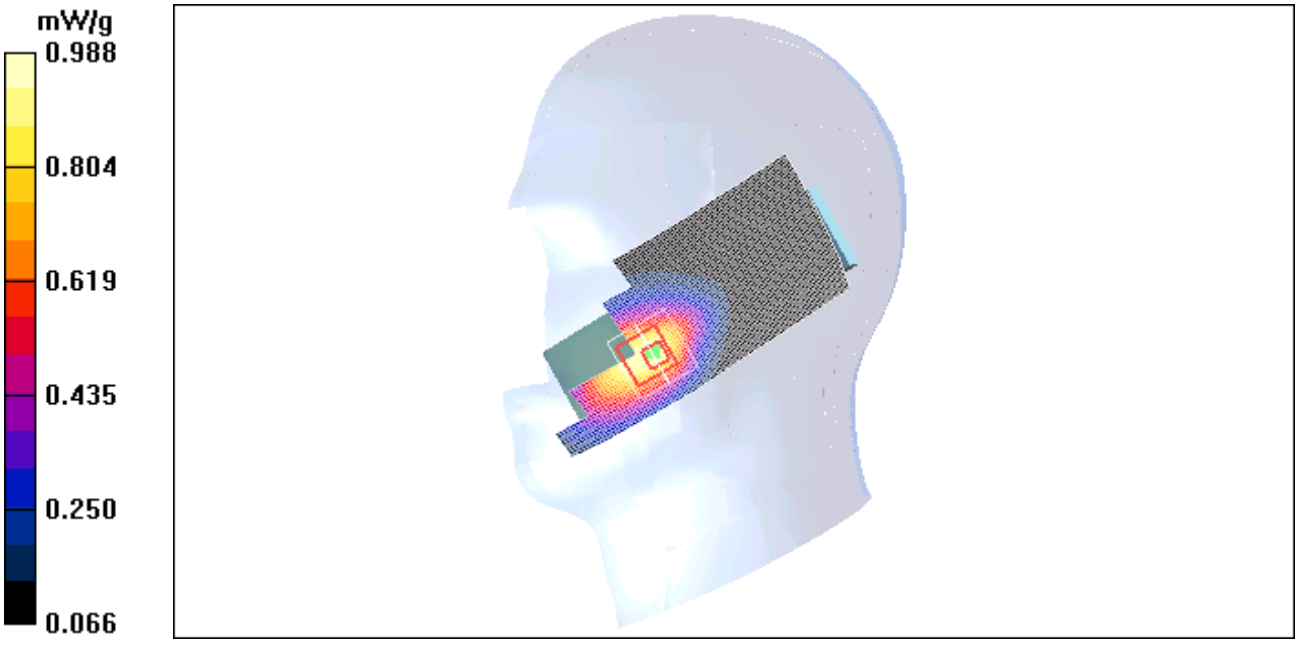



**Fig. 8 850 MHz CH190**

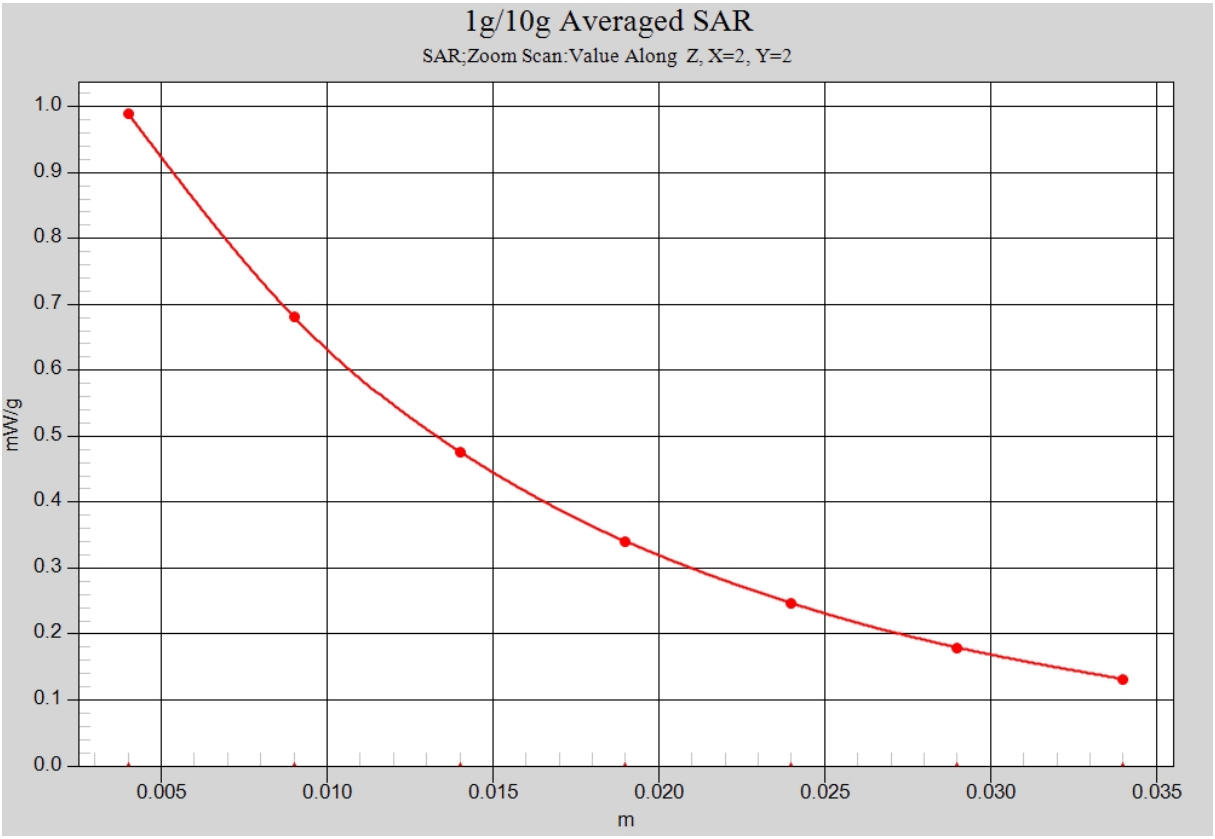



**Fig. 8-1 Z-Scan at power reference point (850 MHz CH190)**

**850 Right Cheek Low**

Date/Time: 2010-8-14 10:03:43
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used: f = 825 MHz; $\sigma$ = 0.856 mho/m; $\varepsilon r$ = 40.6; $\rho$ = 1000 kg/$m^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 Frequency: 824.2 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

**Cheek Low/Area Scan (51x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.879 mW/g

**Cheek Low/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 2.02 V/m; Power Drift = 0.116 dB
Peak SAR (extrapolated) = 1.37 W/kg
**SAR(1 g) = 0.827 mW/g; SAR(10 g) = 0.544 mW/g**
Maximum value of SAR (measured) = 0.860 mW/g

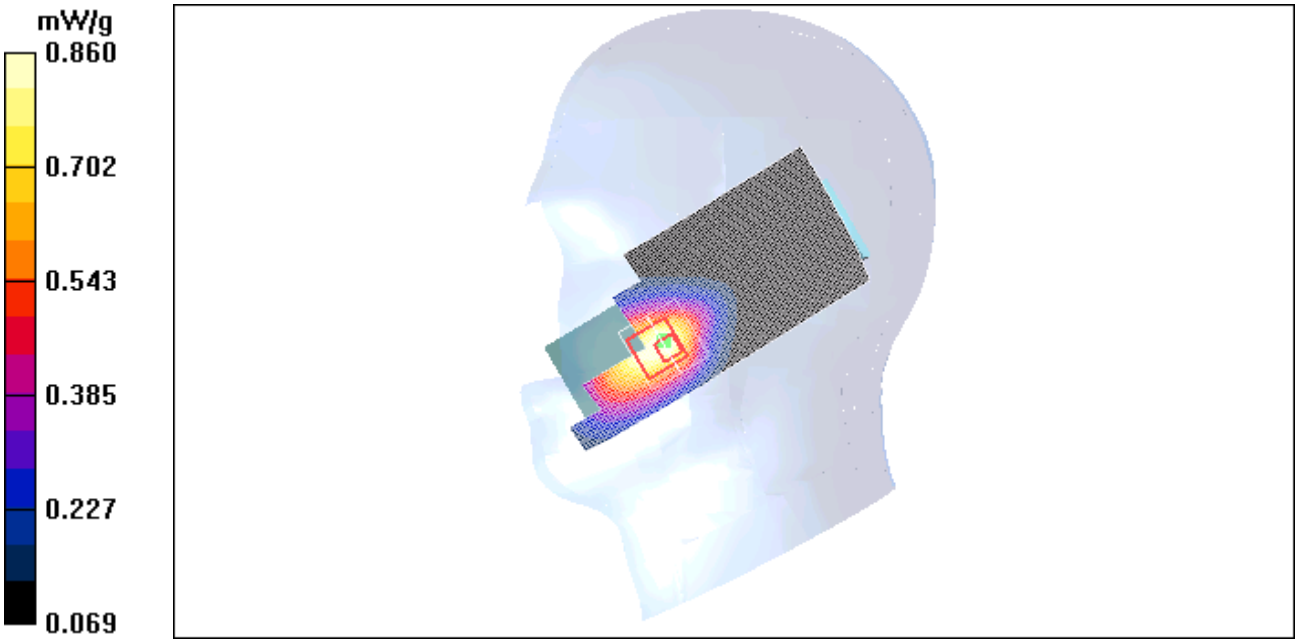



**Fig. 9 850 MHz CH128**

**850 Right Tilt High**

Date/Time: 2010-8-14 10:18:10
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 848.8 MHz; $\sigma$ = 0.88 mho/m; $\varepsilon r$ = 40.5; $\rho$ = 1000 kg/$m^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 Frequency: 848.8 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

**Tilt High/Area Scan (51x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.470 mW/g

**Tilt High/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.42 V/m; Power Drift = 0.029 dB
Peak SAR (extrapolated) = 0.585 W/kg
**SAR(1 g) = 0.438 mW/g; SAR(10 g) = 0.321 mW/g**
Maximum value of SAR (measured) = 0.464 mW/g

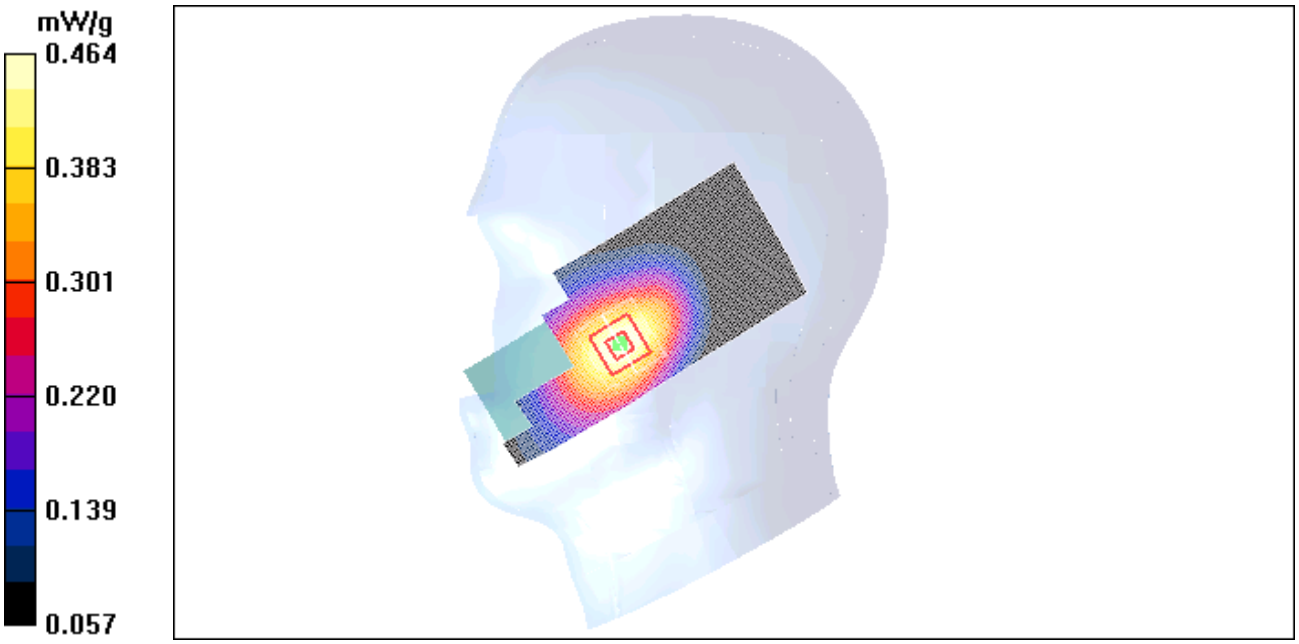



**Fig.10 850 MHz CH251**

**850 Right Tilt Middle**

Date/Time: 2010-8-14 10:32:35
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 836.6 MHz; $\sigma$ = 0.868 mho/m; $\varepsilon r$ = 40.6; $\rho$ = 1000 kg/$m^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 Frequency: 836.6 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

**Tilt Middle/Area Scan (51x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.473 mW/g

**Tilt Middle/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.27 V/m; Power Drift = 0.059 dB
Peak SAR (extrapolated) = 0.588 W/kg
**SAR(1 g) = 0.447 mW/g; SAR(10 g) = 0.331 mW/g**
Maximum value of SAR (measured) = 0.470 mW/g

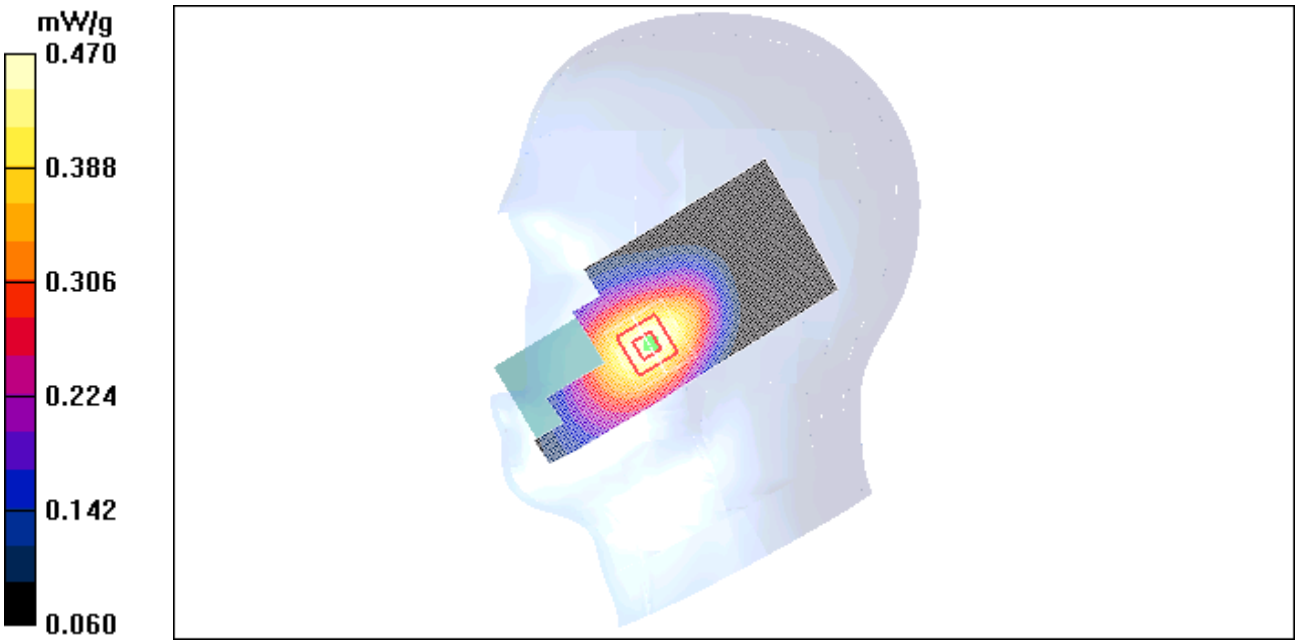



**Fig.11 850 MHz CH190**

**850 Right Tilt Low**

Date/Time: 2010-8-14 10:46:58
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used: f = 825 MHz; $\sigma$ = 0.856 mho/m; $\varepsilon r$ = 40.6; $\rho$ = 1000 kg/$m^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 Frequency: 824.2 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

**Tilt Low/Area Scan (51x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.438 mW/g

**Tilt Low/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.87 V/m; Power Drift = -0.037 dB
Peak SAR (extrapolated) = 0.559 W/kg
**SAR(1 g) = 0.418 mW/g; SAR(10 g) = 0.309 mW/g**
Maximum value of SAR (measured) = 0.443 mW/g

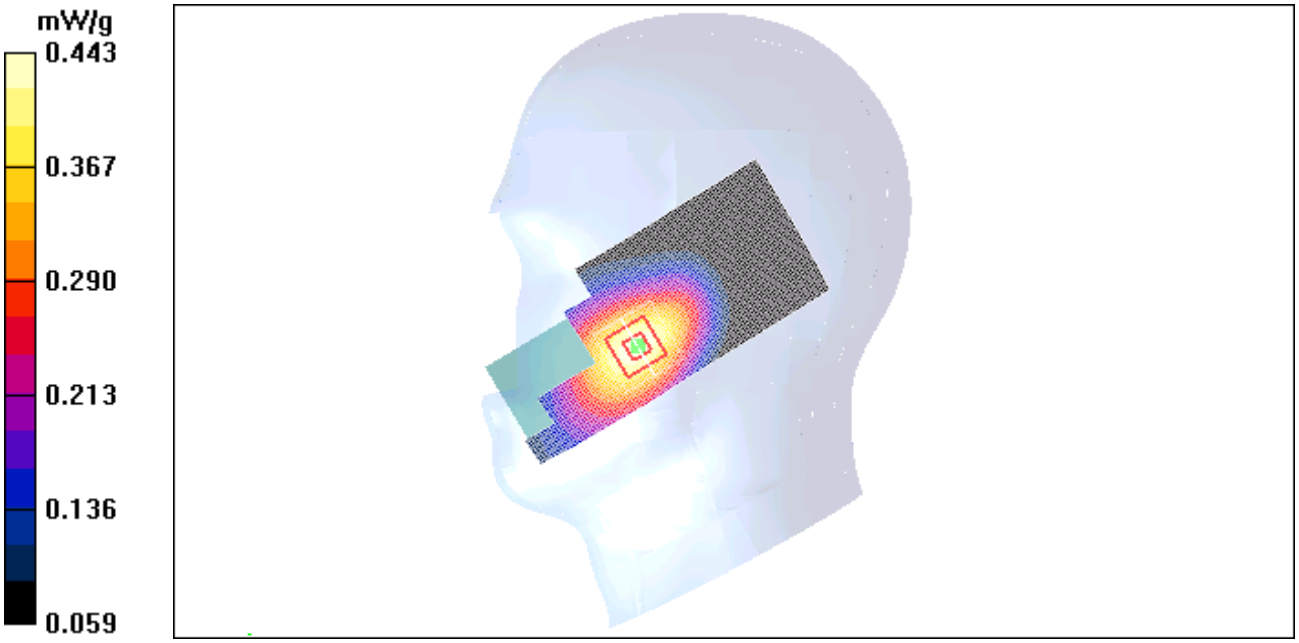



**Fig. 12 850 MHz CH128**

**1900 Left Cheek High**

Date/Time: 2010-8-15 8:09:21
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used: f = 1910 MHz; $\sigma$ = 1.40 mho/m; $\varepsilon r$ = 39.2; $\rho$ = 1000 kg/m$^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900MHz Frequency: 1909.8 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

**Cheek High/Area Scan (51x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 1.07 mW/g

**Cheek High/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.66 V/m; Power Drift = -0.187 dB
Peak SAR (extrapolated) = 1.54 W/kg
**SAR(1 g) = 1 mW/g; SAR(10 g) = 0.584 mW/g**
Maximum value of SAR (measured) = 1.09 mW/g

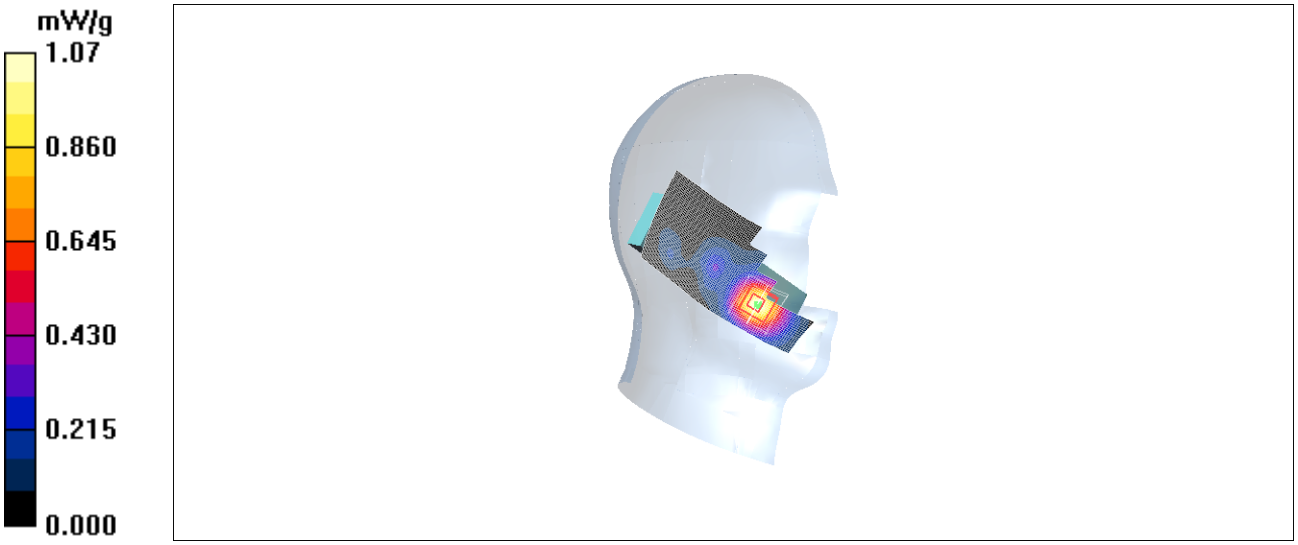



**Fig. 13 1900 MHz CH810**

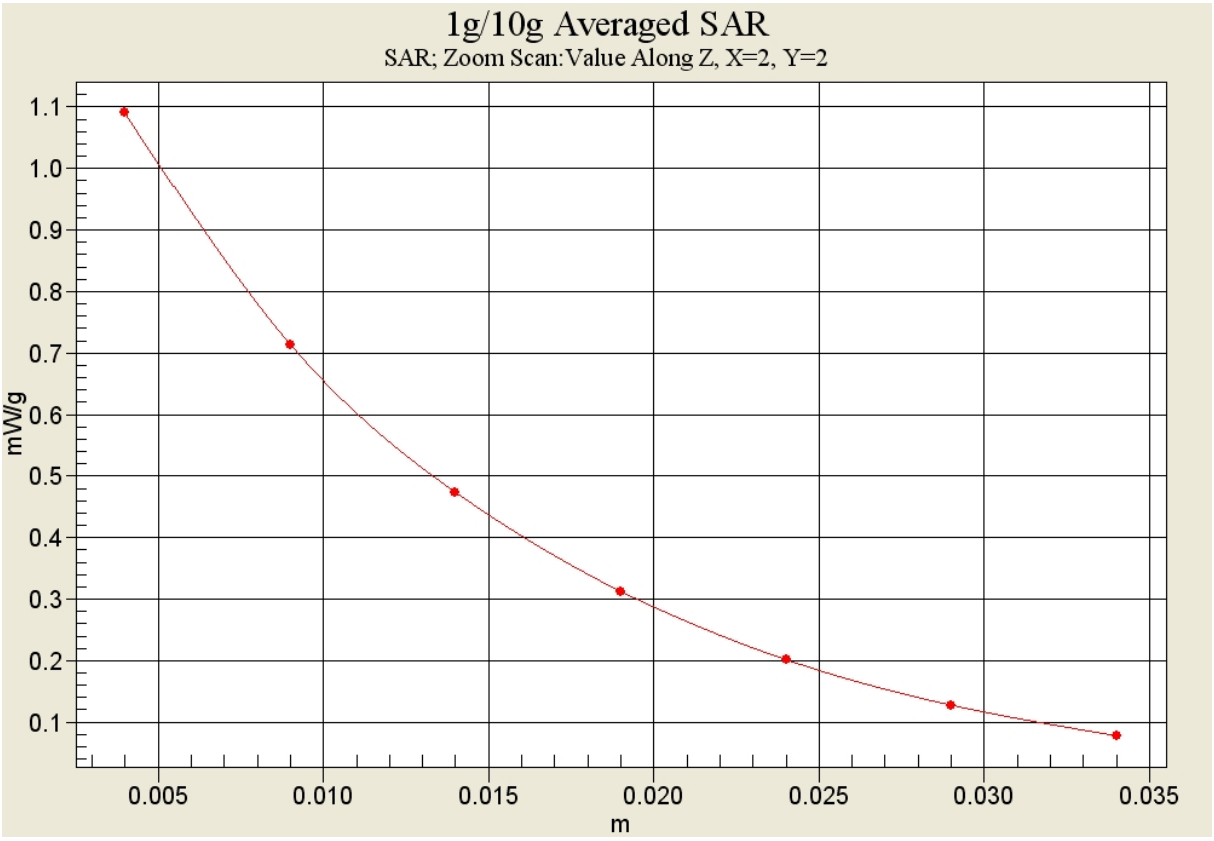



**Fig. 13-1 Z-Scan at power reference point (1900 MHz CH810)**

## 1900 Left Cheek Middle

Date/Time: 2010-8-15 8:23:45
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used: f = 1880 MHz; $\sigma$ = 1.38 mho/m; $\varepsilon r$ = 39.3; $\rho$ = 1000 kg/$m^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900MHz Frequency: 1880 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

**Cheek Middle/Area Scan (51x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.949 mW/g

**Cheek Middle/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.26 V/m; Power Drift = -0.142 dB
Peak SAR (extrapolated) = 1.36 W/kg
**SAR(1 g) = 0.892 mW/g; SAR(10 g) = 0.528 mW/g**
Maximum value of SAR (measured) = 0.978 mW/g

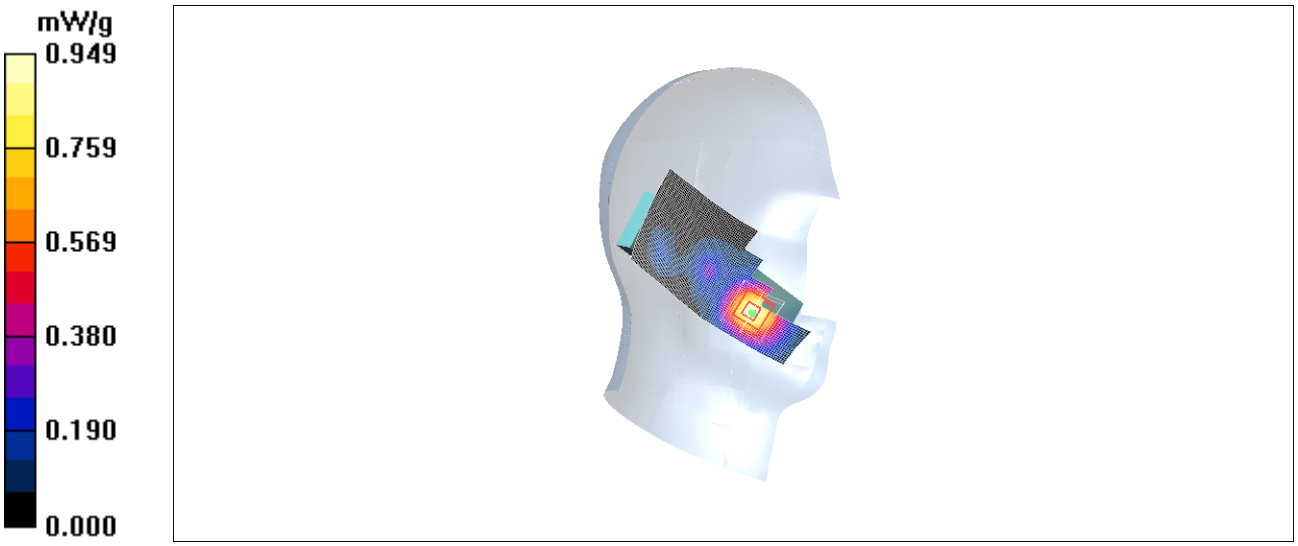



**Fig. 14 1900 MHz CH661**

**1900 Left Cheek Low**

Date/Time: 2010-8-15 8:38:07
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used (interpolated): f = 1850.2 MHz; $\sigma$ = 1.35 mho/m; $\varepsilon r$ = 39.4; $\rho$ = 1000 kg/$m^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900MHz Frequency: 1850.2 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

**Cheek Low/Area Scan (51x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.816 mW/g

**Cheek Low/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.92 V/m; Power Drift = -0.122 dB
Peak SAR (extrapolated) = 1.14 W/kg
**SAR(1 g) = 0.754 mW/g; SAR(10 g) = 0.452 mW/g**
Maximum value of SAR (measured) = 0.825 mW/g

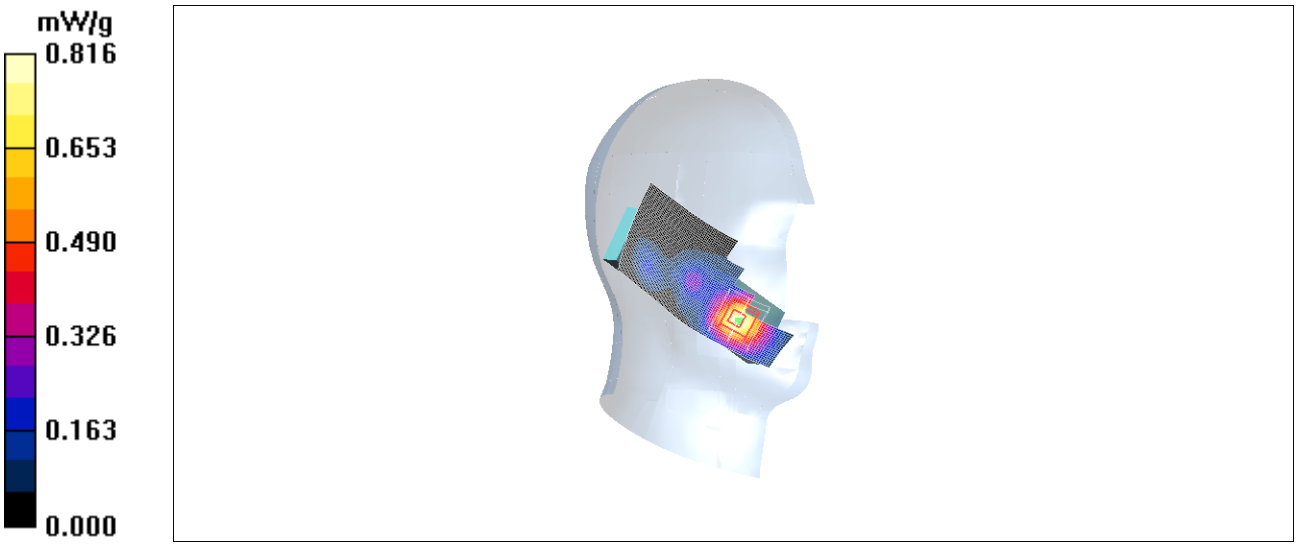



**Fig. 15 1900 MHz CH512**

**1900 Left Tilt High**

Date/Time: 2010-8-15 8:52:40
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used: f = 1910 MHz; $\sigma$ = 1.40 mho/m; $\varepsilon r$ = 39.2; $\rho$ = 1000 kg/m$^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900MHz Frequency: 1909.8 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

**Tilt High/Area Scan (51x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.208 mW/g

**Tilt High/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.48 V/m; Power Drift = -0.069 dB
Peak SAR (extrapolated) = 0.313 W/kg
**SAR(1 g) = 0.177 mW/g; SAR(10 g) = 0.093 mW/g**
Maximum value of SAR (measured) = 0.195 mW/g

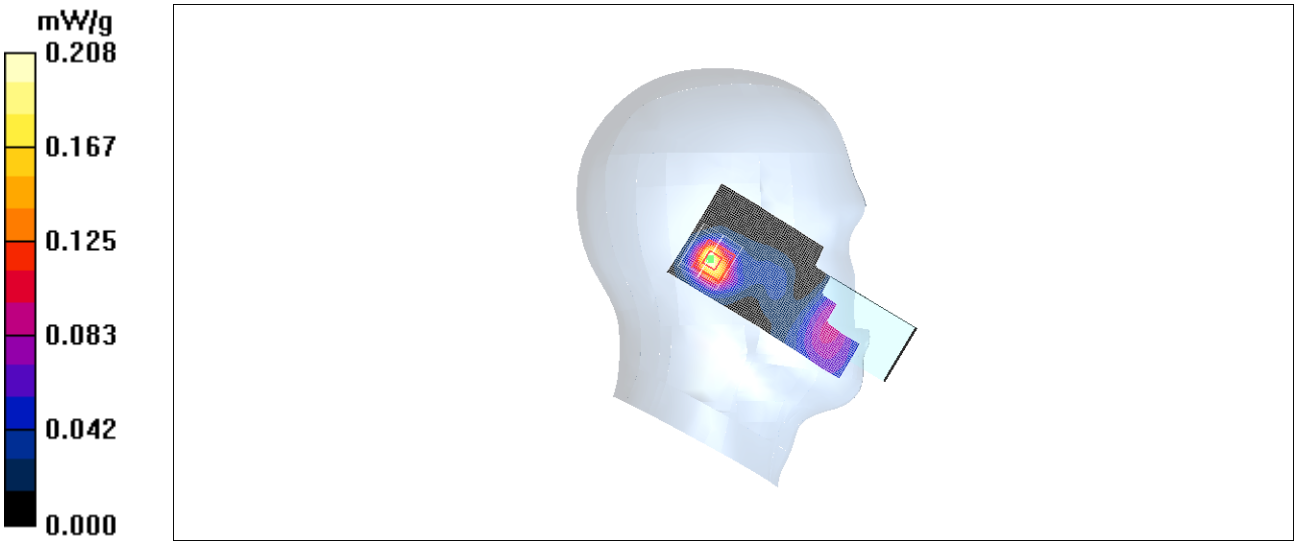



**Fig.16 1900 MHz CH810**

**1900 Left Tilt Middle**

Date/Time: 2010-8-15 9:07:03
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used: f = 1880 MHz; $\sigma$ = 1.38 mho/m; $\varepsilon r$ = 39.3; $\rho$ = 1000 kg/m$^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900MHz Frequency: 1880 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

**Tilt Middle/Area Scan (51x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.267 mW/g

**Tilt Middle/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.62 V/m; Power Drift = -0.003 dB
Peak SAR (extrapolated) = 0.396 W/kg
**SAR(1 g) = 0.231 mW/g; SAR(10 g) = 0.124 mW/g**
Maximum value of SAR (measured) = 0.254 mW/g

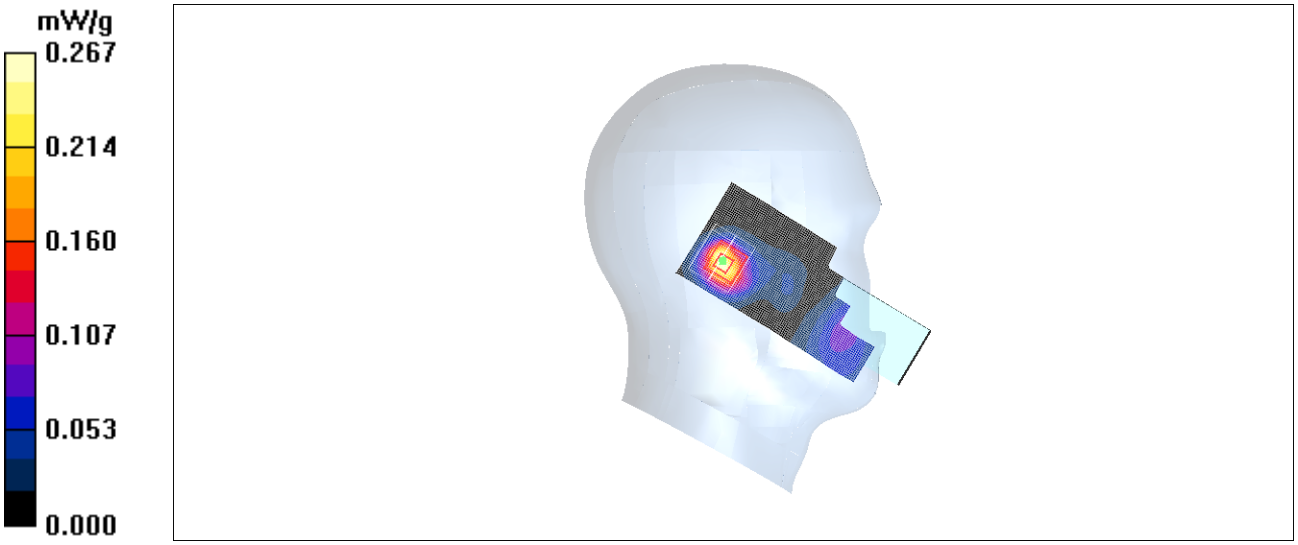



**Fig. 17 1900 MHz CH661**

**1900 Left Tilt Low**

Date/Time: 2010-8-15 9:21:29
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used (interpolated): f = 1850.2 MHz; $\sigma$ = 1.35 mho/m; $\varepsilon r$ = 39.4; $\rho$ = 1000 kg/$m^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900MHz Frequency: 1850.2 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

**Tilt Low/Area Scan (51x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.321 mW/g

**Tilt Low/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.8 V/m; Power Drift = -0.144 dB
Peak SAR (extrapolated) = 0.464 W/kg
**SAR(1 g) = 0.278 mW/g; SAR(10 g) = 0.154 mW/g**
Maximum value of SAR (measured) = 0.306 mW/g

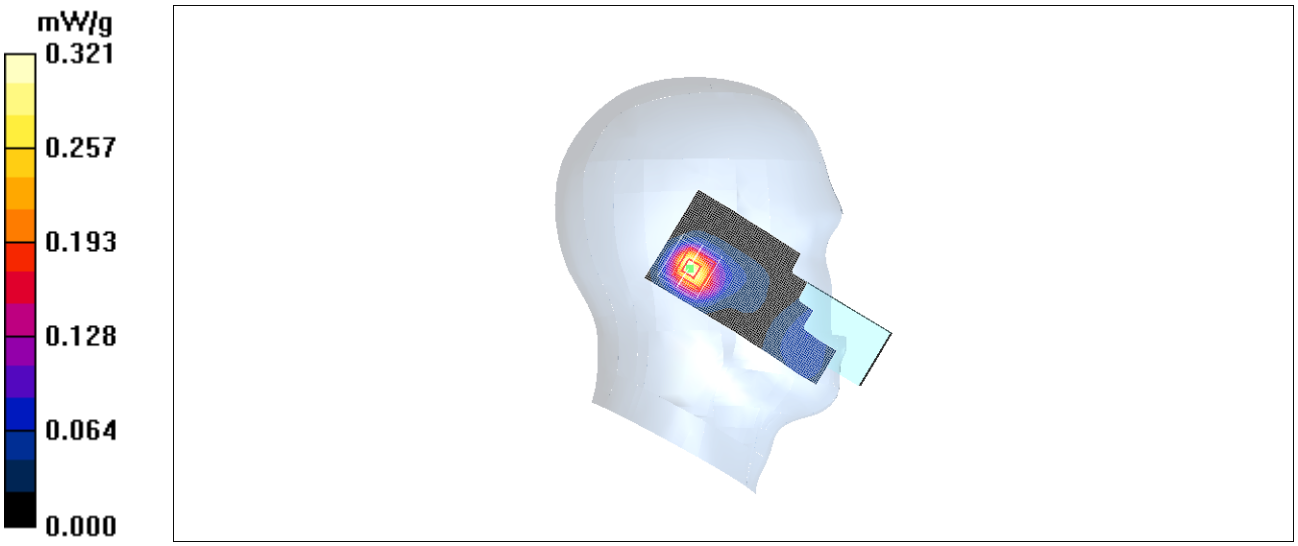



**Fig. 18 1900 MHz CH512**

## 1900 Right Cheek High

Date/Time: 2010-8-15 9:35:58
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used: f = 1910 MHz; $\sigma$ = 1.40 mho/m; $\varepsilon r$ = 39.2; $\rho$ = 1000 kg/m$^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900MHz Frequency: 1909.8 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

**Cheek High/Area Scan (51x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.784 mW/g

**Cheek High/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.33 V/m; Power Drift = -0.184 dB
Peak SAR (extrapolated) = 1.03 W/kg
**SAR(1 g) = 0.733 mW/g; SAR(10 g) = 0.459 mW/g**
Maximum value of SAR (measured) = 0.776 mW/g

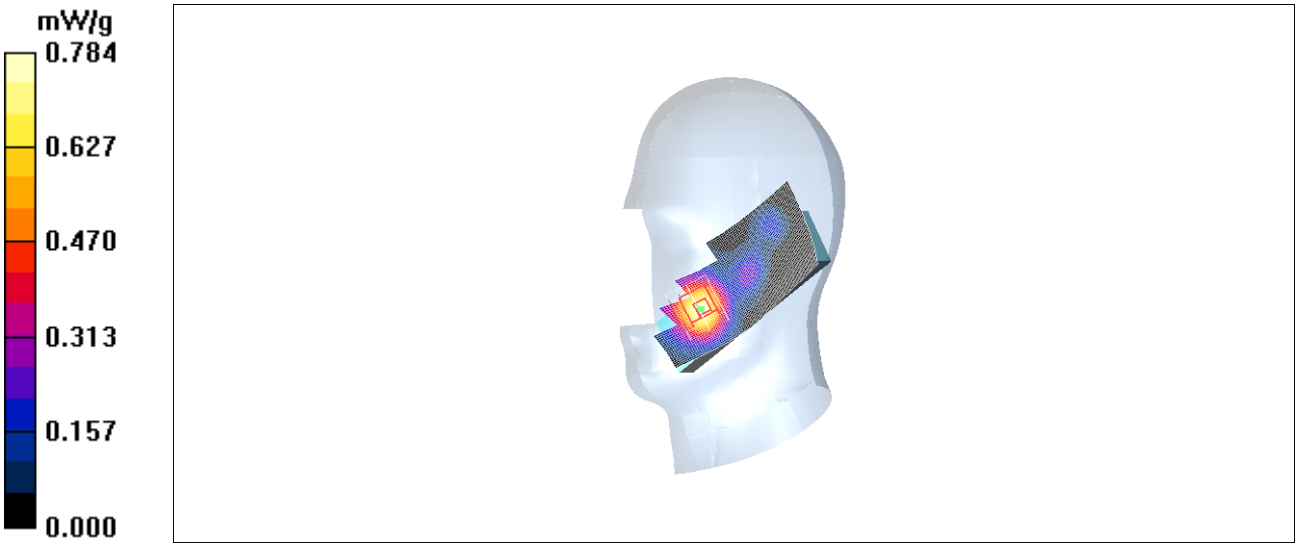



**Fig. 19 1900 MHz CH810**

**1900 Right Cheek Middle**

Date/Time: 2010-8-15 9:50:19
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used: f = 1880 MHz; $\sigma$ = 1.38 mho/m; $\varepsilon r$ = 39.3; $\rho$ = 1000 kg/$m^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900MHz Frequency: 1880 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

**Cheek Middle/Area Scan (51x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.750 mW/g

**Cheek Middle/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.56 V/m; Power Drift = -0.178 dB
Peak SAR (extrapolated) = 0.976 W/kg
**SAR(1 g) = 0.696 mW/g; SAR(10 g) = 0.437 mW/g**
Maximum value of SAR (measured) = 0.739 mW/g

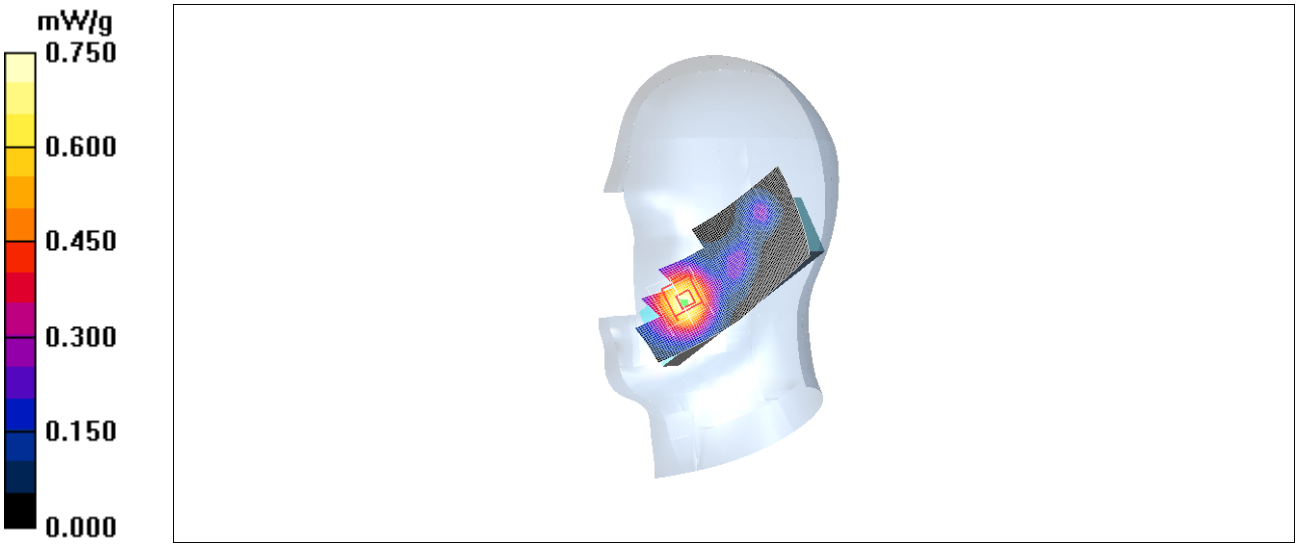



**Fig. 20 1900 MHz CH661**

**1900 Right Cheek Low**

Date/Time: 2010-8-15 10:04:34
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used (interpolated): f = 1850.2 MHz; $\sigma$ = 1.35 mho/m; $\varepsilon r$ = 39.4; $\rho$ = 1000 kg/$m^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900MHz Frequency: 1850.2 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

**Cheek Low/Area Scan (51x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.650 mW/g

**Cheek Low/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.68 V/m; Power Drift = 0.151 dB
Peak SAR (extrapolated) = 0.832 W/kg
**SAR(1 g) = 0.597 mW/g; SAR(10 g) = 0.380 mW/g**
Maximum value of SAR (measured) = 0.633 mW/g

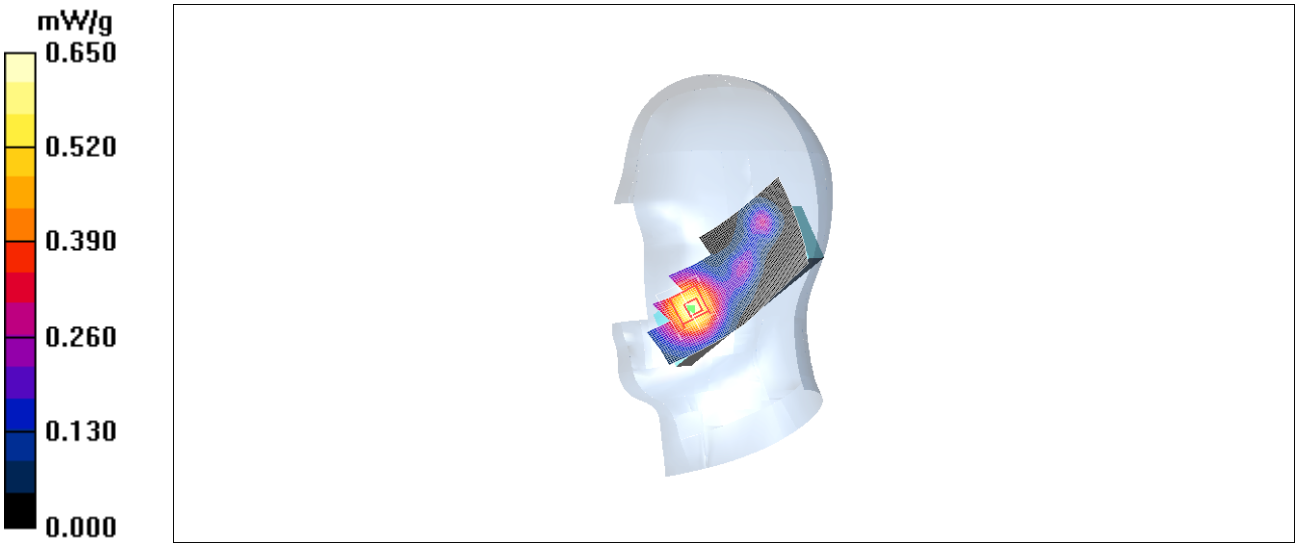



**Fig. 21 1900 MHz CH512**

**1900 Right Tilt High**

Date/Time: 2010-8-15 10:19:00
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used: f = 1910 MHz; $\sigma$ = 1.40 mho/m; $\varepsilon r$ = 39.2; $\rho$ = 1000 kg/m$^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900MHz Frequency: 1909.8 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

**Tilt High/Area Scan (51x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.278 mW/g

**Tilt High/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 5.71 V/m; Power Drift = -0.109 dB
Peak SAR (extrapolated) = 0.423 W/kg
**SAR(1 g) = 0.232 mW/g; SAR(10 g) = 0.118 mW/g**
Maximum value of SAR (measured) = 0.250 mW/g

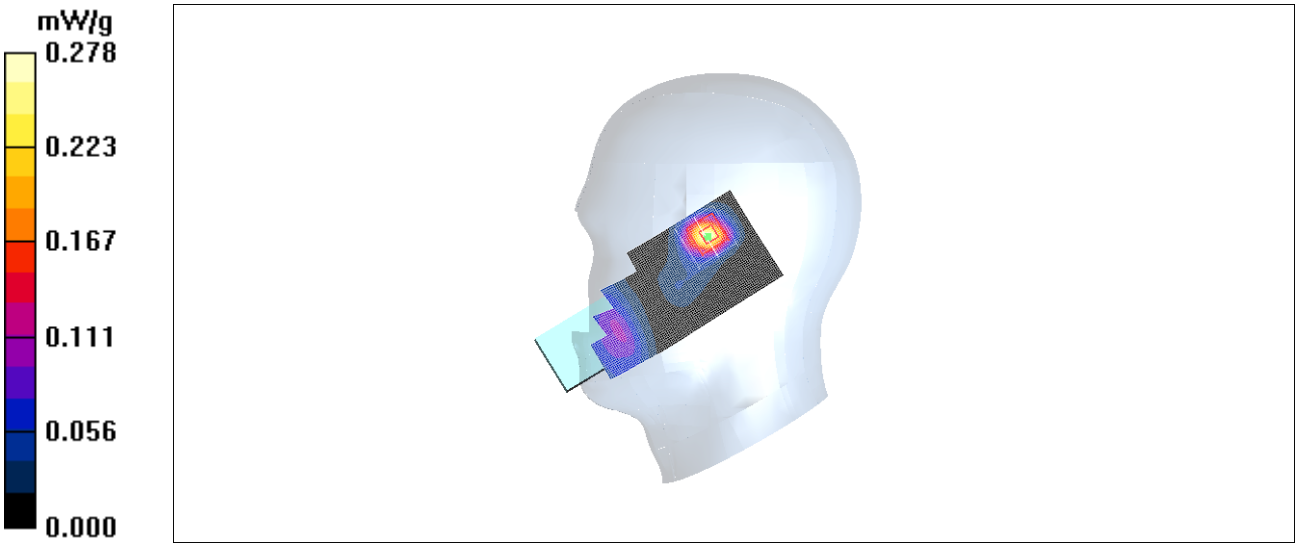



**Fig. 22 1900 MHz CH810**

**1900 Right Tilt Middle**
Date/Time: 2010-8-15 10:33:25
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used: f = 1880 MHz; $\sigma$ = 1.38 mho/m; $\varepsilon r$ = 39.3; $\rho$ = 1000 kg/m$^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900MHz Frequency: 1880 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

**Tilt Middle/Area Scan (51x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.359 mW/g

**Tilt Middle/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.80 V/m; Power Drift = -0.083 dB
Peak SAR (extrapolated) = 0.554 W/kg
**SAR(1 g) = 0.313 mW/g; SAR(10 g) = 0.163 mW/g**
Maximum value of SAR (measured) = 0.333 mW/g

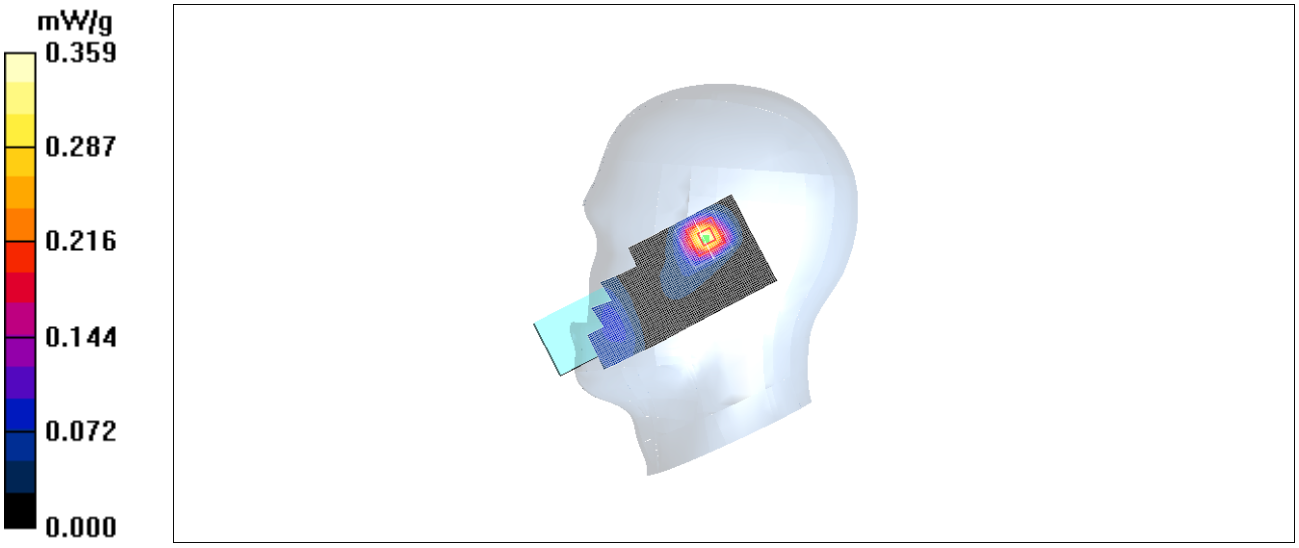



**Fig.23 1900 MHz CH661**

**1900 Right Tilt Low**

Date/Time: 2010-8-15 10:47:44
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used (interpolated): f = 1850.2 MHz; $\sigma$ = 1.35 mho/m; $\varepsilon r$ = 39.4; $\rho$ = 1000 kg/$m^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900MHz Frequency: 1850.2 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

**Tilt Low/Area Scan (51x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.398 mW/g

**Tilt Low/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.07 V/m; Power Drift = 0.150 dB
Peak SAR (extrapolated) = 0.573 W/kg
**SAR(1 g) = 0.332 mW/g; SAR(10 g) = 0.179 mW/g**
Maximum value of SAR (measured) = 0.361 mW/g

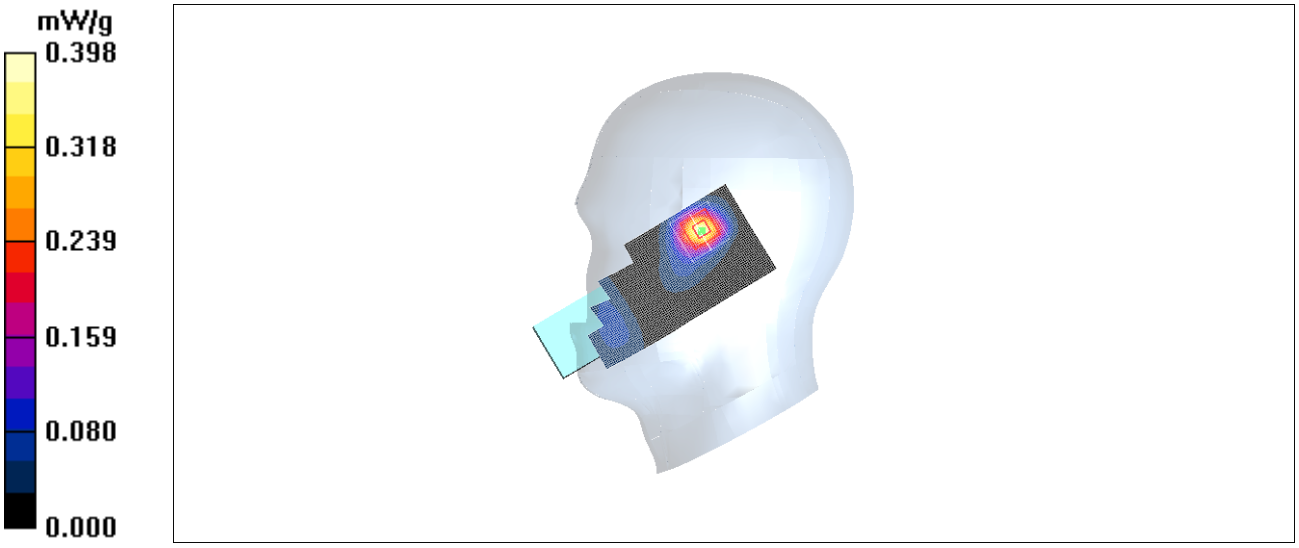



**Fig.24 1900 MHz CH512**

**1900 Left Cheek High with battery CAB2170000C1**

Date/Time: 2010-8-15 11:04:12
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used: f = 1910 MHz; $\sigma$ = 1.40 mho/m; $\varepsilon r$ = 39.2; $\rho$ = 1000 kg/m$^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900MHz Frequency: 1909.8 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

**Cheek High/Area Scan (51x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.969 mW/g

**Cheek High/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.00 V/m; Power Drift = -0.110 dB
Peak SAR (extrapolated) = 1.32 W/kg
**SAR(1 g) = 0.922 mW/g; SAR(10 g) = 0.556 mW/g**
Maximum value of SAR (measured) = 0.991 mW/g

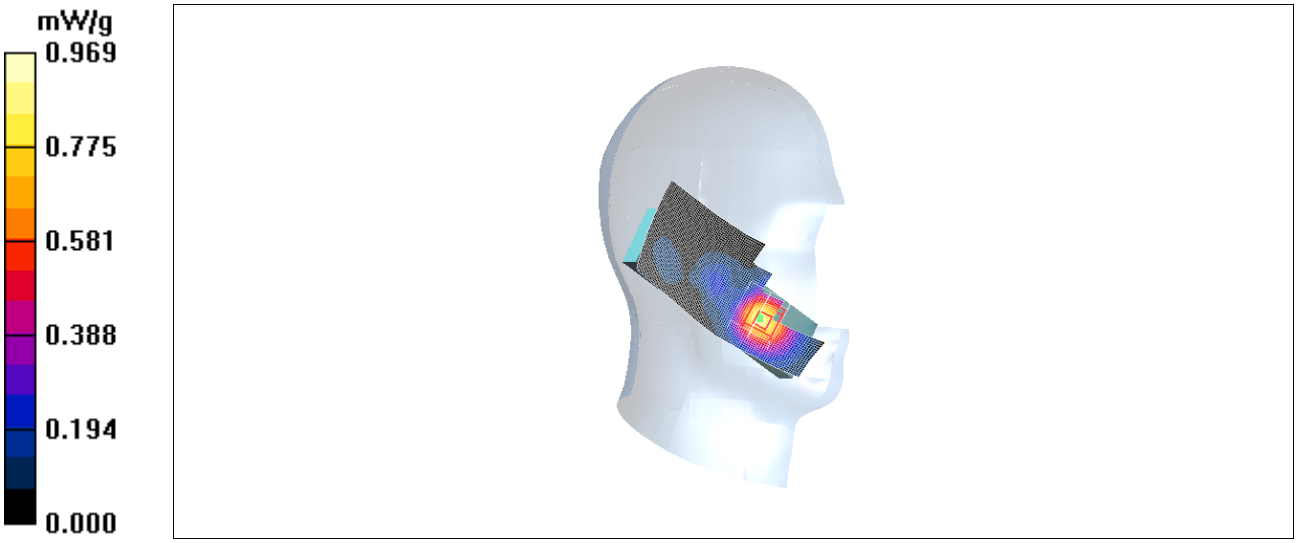



**Fig. 25 1900 MHz CH810**

**1900 Left Cheek High with battery CAB2170000C2**

Date/Time: 2010-8-15 11:20:38
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used: f = 1910 MHz; $\sigma$ = 1.40 mho/m; $\varepsilon r$ = 39.2; $\rho$ = 1000 kg/m$^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900MHz Frequency: 1909.8 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

**Cheek High/Area Scan (51x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.955 mW/g

**Cheek High/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.78 V/m; Power Drift = -0.051 dB
Peak SAR (extrapolated) = 1.32 W/kg
**SAR(1 g) = 0.912 mW/g; SAR(10 g) = 0.547 mW/g**
Maximum value of SAR (measured) = 0.998 mW/g

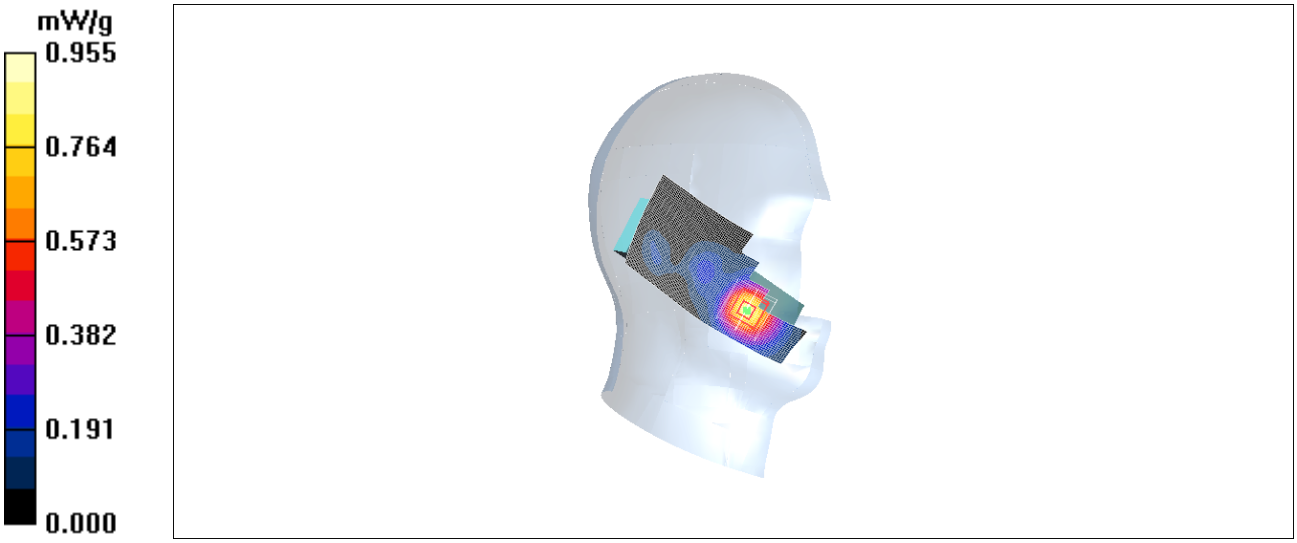



**Fig. 26 1900 MHz CH810**

**1900 Left Cheek High with battery CAB30M0000C1**

Date/Time: 2010-8-15 11:37:07
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used: f = 1910 MHz; $\sigma$ = 1.40 mho/m; $\varepsilon r$ = 39.2; $\rho$ = 1000 kg/m$^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900MHz Frequency: 1909.8 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

**Cheek High/Area Scan (51x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.978 mW/g

**Cheek High/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.72 V/m; Power Drift = -0.086 dB
Peak SAR (extrapolated) = 1.34 W/kg
**SAR(1 g) = 0.926 mW/g; SAR(10 g) = 0.558 mW/g**
Maximum value of SAR (measured) = 0.999 mW/g

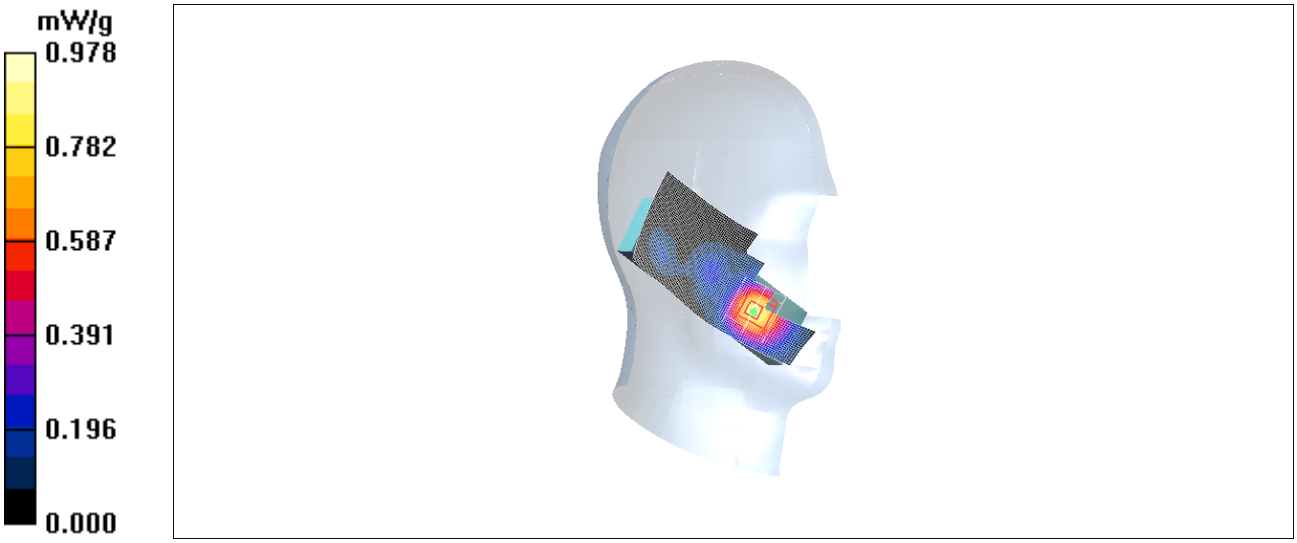



**Fig. 27 1900 MHz CH810**

**850 Body Towards Ground High**

Date/Time: 2010-8-14 13:43:07
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used (interpolated): f = 848.8 MHz; $\sigma$ = 0.96 mho/m; $\varepsilon r$ = 54.1; $\rho$ = 1000 kg/$m^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 Frequency: 848.8 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

**Toward Ground High/Area Scan (51x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.659 mW/g

**Toward Ground High/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.5 V/m; Power Drift = 0.00761 dB
Peak SAR (extrapolated) = 0.827 W/kg
**SAR(1 g) = 0.617 mW/g; SAR(10 g) = 0.440 mW/g**
Maximum value of SAR (measured) = 0.653 mW/g

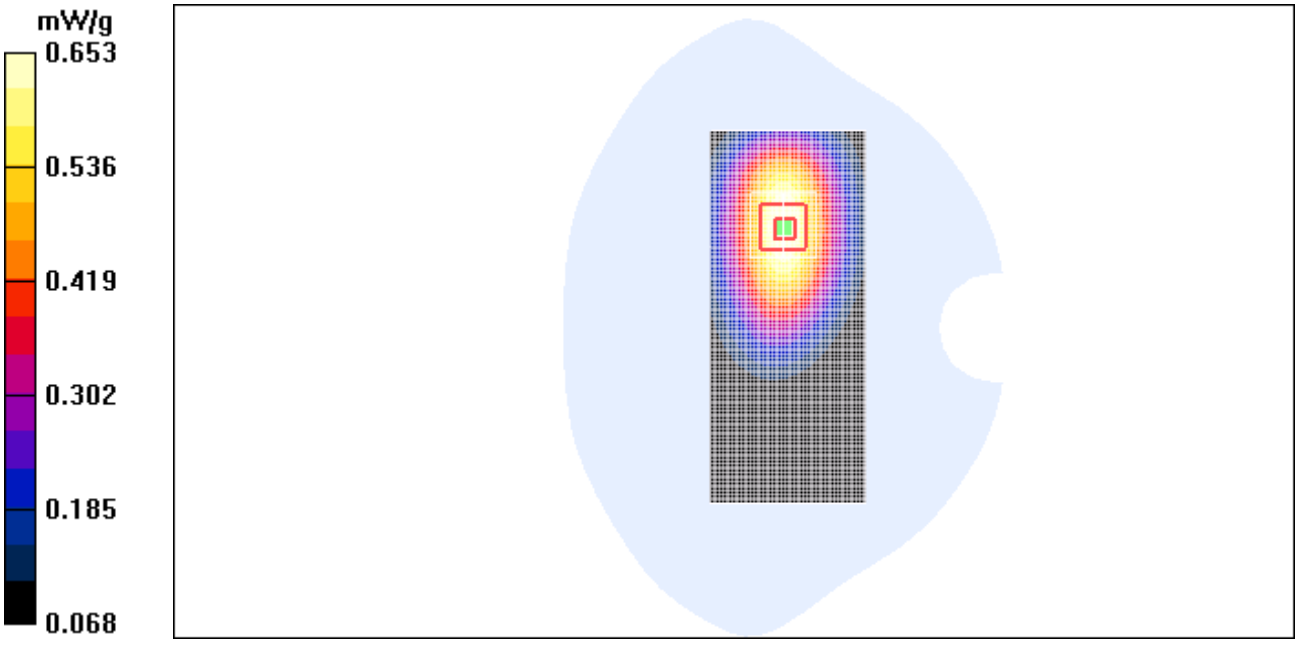



**Fig. 28 850 MHz CH251**

**850 Body Towards Ground Middle**

Date/Time: 2010-8-14 13:58:31
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used (interpolated): f = 836.6 MHz; $\sigma$ = 0.95 mho/m; $\varepsilon r$ = 54.2; $\rho$ = 1000 kg/$m^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 Frequency: 836.6 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

**Toward Ground Middle/Area Scan (51x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.712 mW/g

**Toward Ground Middle/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 21.7 V/m; Power Drift = 0.00363 dB
Peak SAR (extrapolated) = 0.881 W/kg
**SAR(1 g) = 0.658 mW/g; SAR(10 g) = 0.468 mW/g**
Maximum value of SAR (measured) = 0.696 mW/g

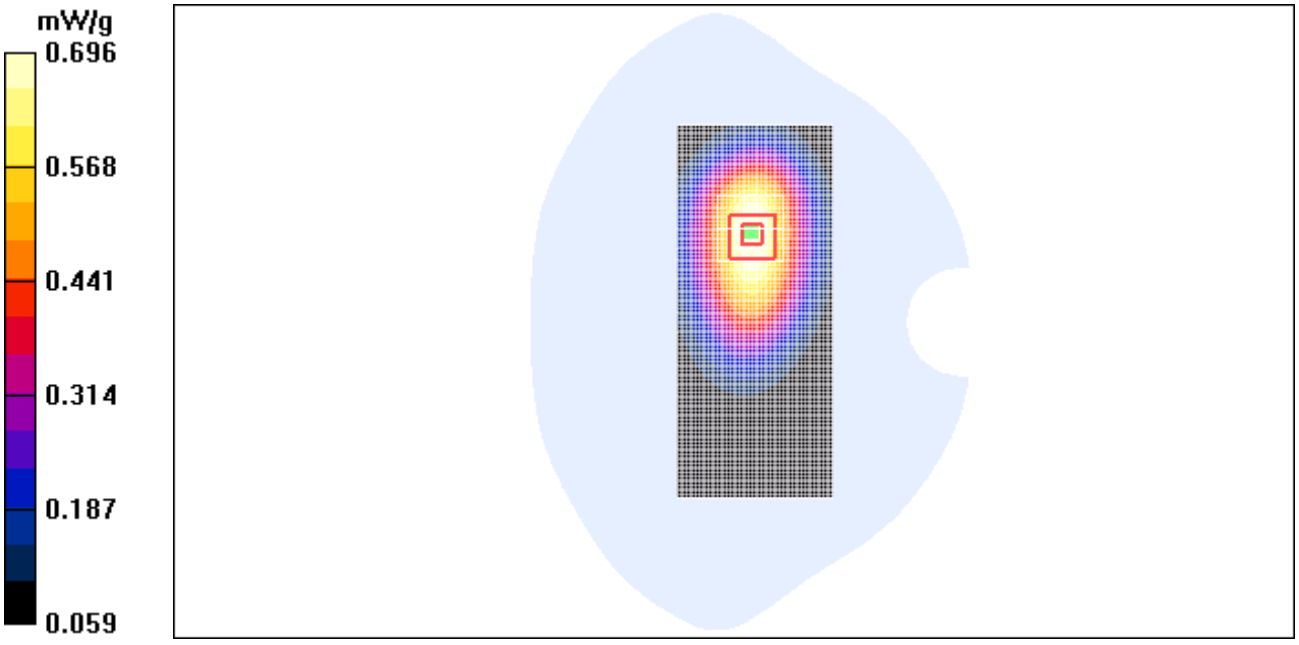



**Fig. 29 850 MHz CH190**

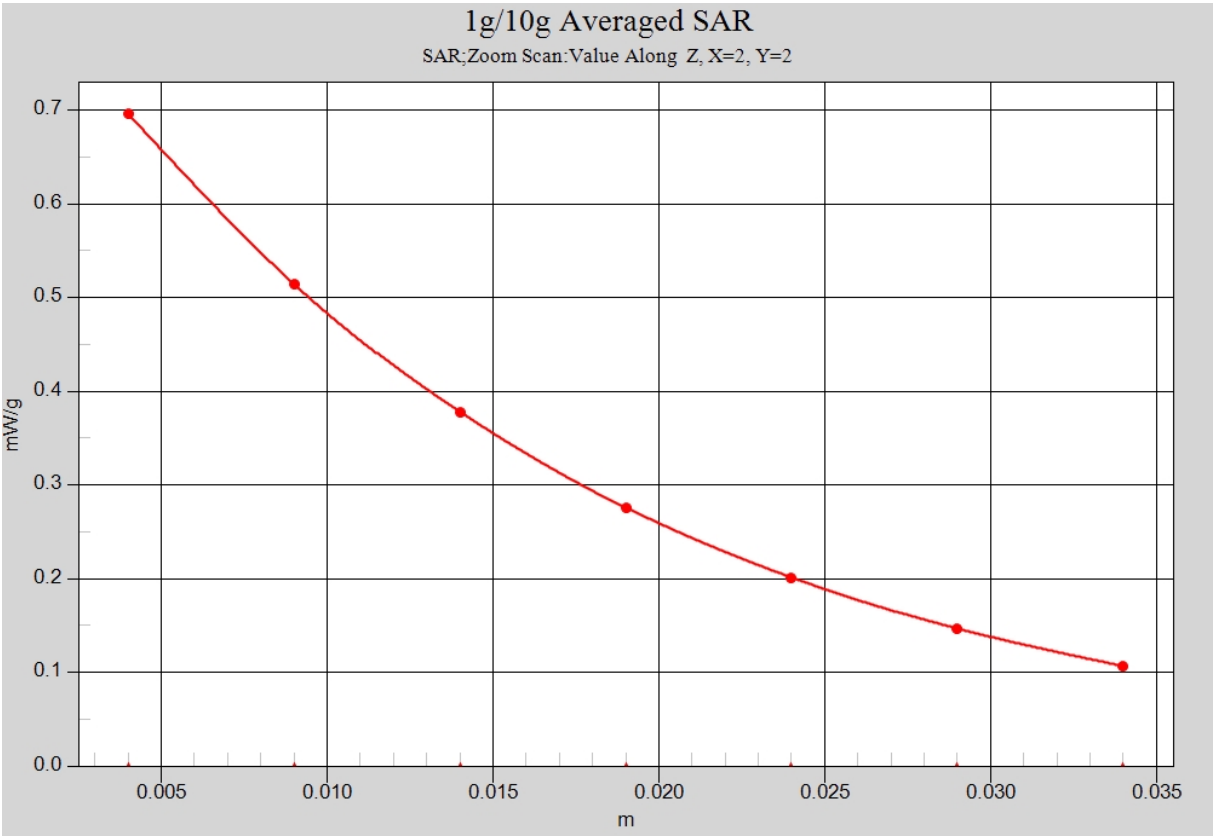



**Fig. 29-1 Z-Scan at power reference point (850 MHz CH190)**

**850 Body Towards Ground Low**

Date/Time: 2010-8-14 14:13:55
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used: f = 825 MHz; $\sigma$ = 0.933 mho/m; $\varepsilon r$ = 54.3; $\rho$ = 1000 kg/$m^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 Frequency: 824.2 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

**Toward Ground Low/Area Scan (51x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.617 mW/g

**Toward Ground Low/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.3 V/m; Power Drift = -0.077 dB
Peak SAR (extrapolated) = 0.763 W/kg
**SAR(1 g) = 0.575 mW/g; SAR(10 g) = 0.412 mW/g**
Maximum value of SAR (measured) = 0.608 mW/g

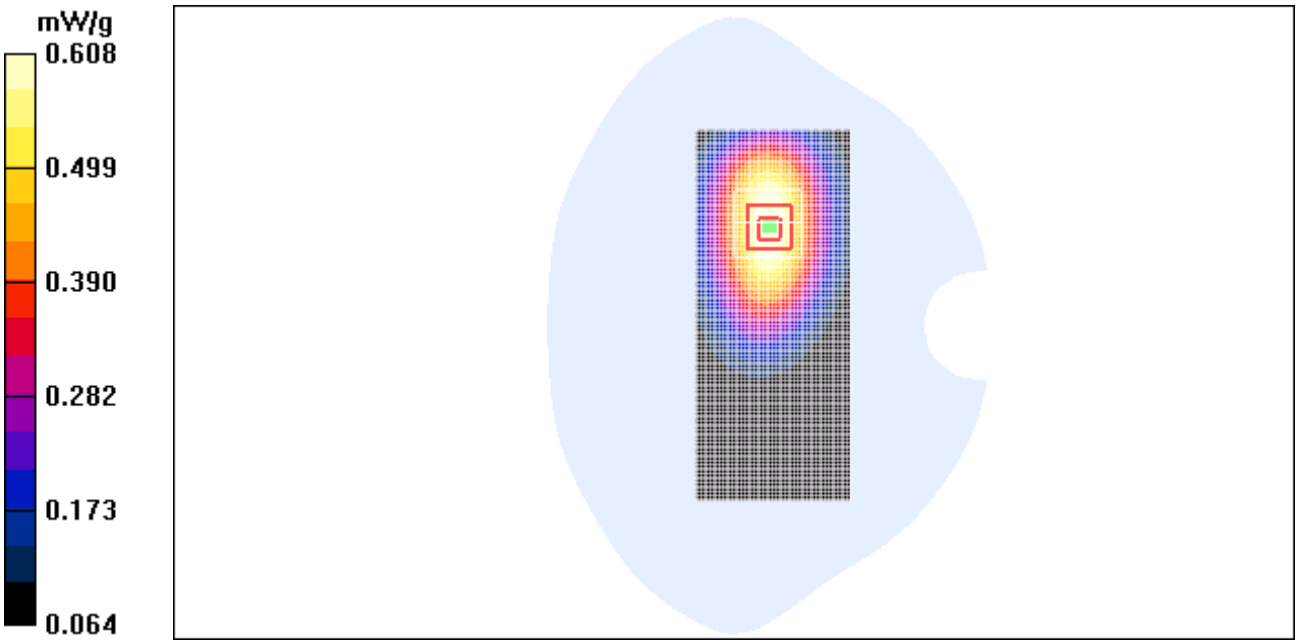



**Fig. 30 850 MHz CH128**

**850 Body Towards Ground Middle with Headset_CCA30B4010C0**

Date/Time: 2010-8-14 14:30:14
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used (interpolated): f = 836.6 MHz; $\sigma$ = 0.95 mho/m; $\varepsilon r$ = 54.2; $\rho$ = 1000 kg/$m^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 Frequency: 836.6 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

**Toward Ground Middle/Area Scan (51x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.481 mW/g

**Toward Ground Middle/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.5 V/m; Power Drift = 0.024 dB
Peak SAR (extrapolated) = 0.605 W/kg
**SAR(1 g) = 0.447 mW/g; SAR(10 g) = 0.317 mW/g**
Maximum value of SAR (measured) = 0.473 mW/g

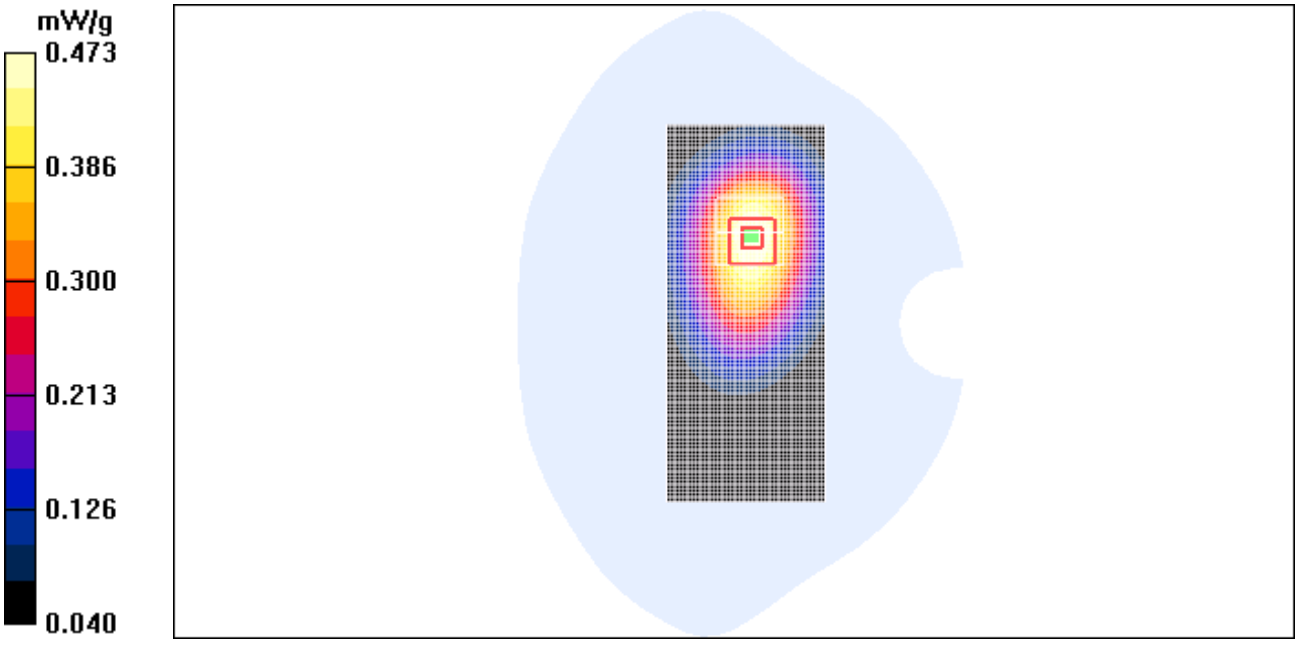



**Fig. 31 850 MHz CH190**

**850 Body Towards Ground Middle with Headset_CCA30B4010C2**

Date/Time: 2010-8-14 14:46:39
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used (interpolated): f = 836.6 MHz; $\sigma$ = 0.95 mho/m; $\varepsilon r$ = 54.2; $\rho$ = 1000 kg/$m^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 Frequency: 836.6 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

**Toward Ground Middle/Area Scan (51x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.536 mW/g

**Toward Ground Middle/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.9 V/m; Power Drift = 0.186 dB
Peak SAR (extrapolated) = 0.654 W/kg
**SAR(1 g) = 0.489 mW/g; SAR(10 g) = 0.348 mW/g**
Maximum value of SAR (measured) = 0.517 mW/g

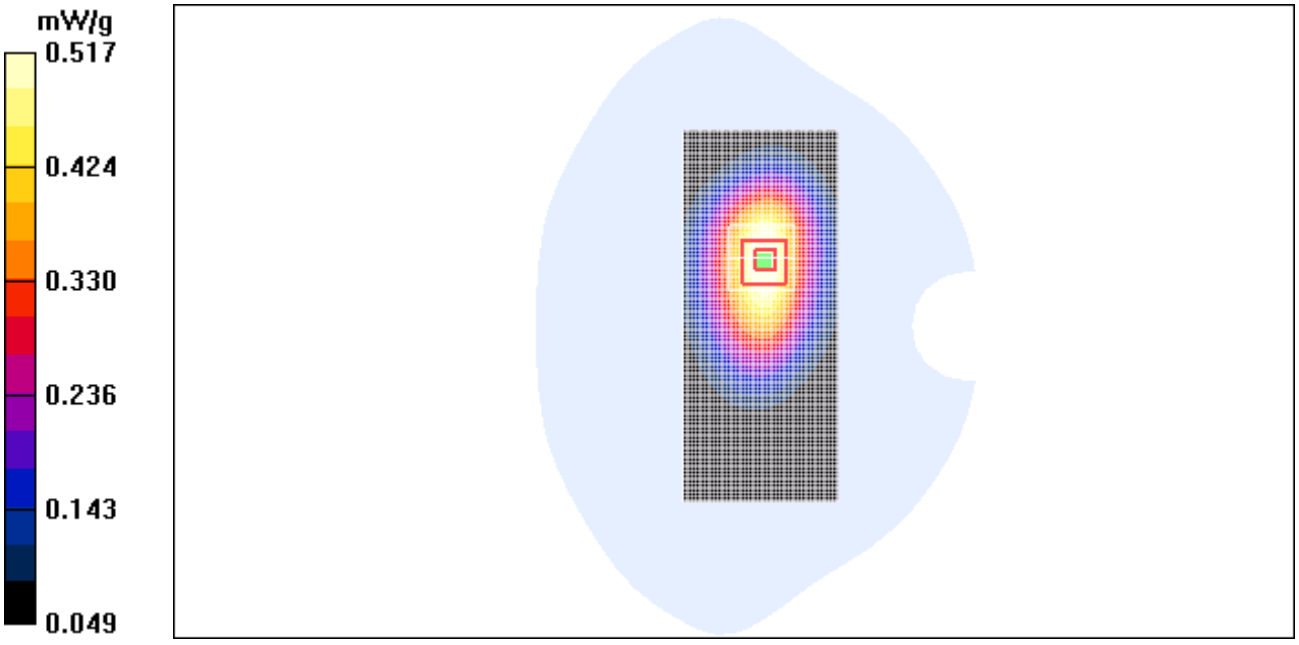



**Fig. 32 850 MHz CH190**

**850 Body Towards Ground Middle with Headset_CCA30B4010C4**

Date/Time: 2010-8-14 15:03:04
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used (interpolated): f = 836.6 MHz; $\sigma$ = 0.95 mho/m; $\varepsilon r$ = 54.2; $\rho$ = 1000 kg/$m^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 Frequency: 836.6 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

**Toward Ground Middle/Area Scan (61x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.465 mW/g

**Toward Ground Middle/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.3 V/m; Power Drift = 0.104 dB
Peak SAR (extrapolated) = 0.592 W/kg
**SAR(1 g) = 0.451 mW/g; SAR(10 g) = 0.324 mW/g**
Maximum value of SAR (measured) = 0.479 mW/g

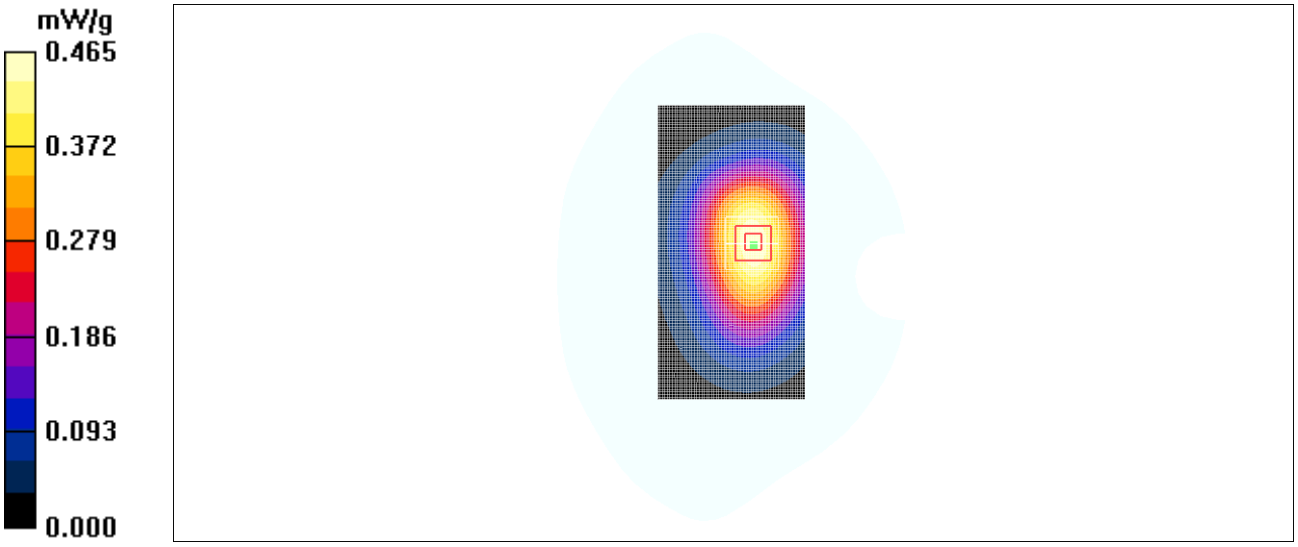



**Fig. 33 850 MHz CH190**

**850 Body Towards Ground Middle with Headset_CCA30B4000C0**
Date/Time: 2010-8-14 15:19:33
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used (interpolated): f = 836.6 MHz; $\sigma$ = 0.95 mho/m; $\varepsilon r$ = 54.2; $\rho$ = 1000 kg/$m^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 Frequency: 836.6 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

**Toward Ground Middle/Area Scan (61x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.484 mW/g

**Toward Ground Middle/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.7 V/m; Power Drift = 0.045 dB
Peak SAR (extrapolated) = 0.609 W/kg
**SAR(1 g) = 0.457 mW/g; SAR(10 g) = 0.327 mW/g**
Maximum value of SAR (measured) = 0.486 mW/g

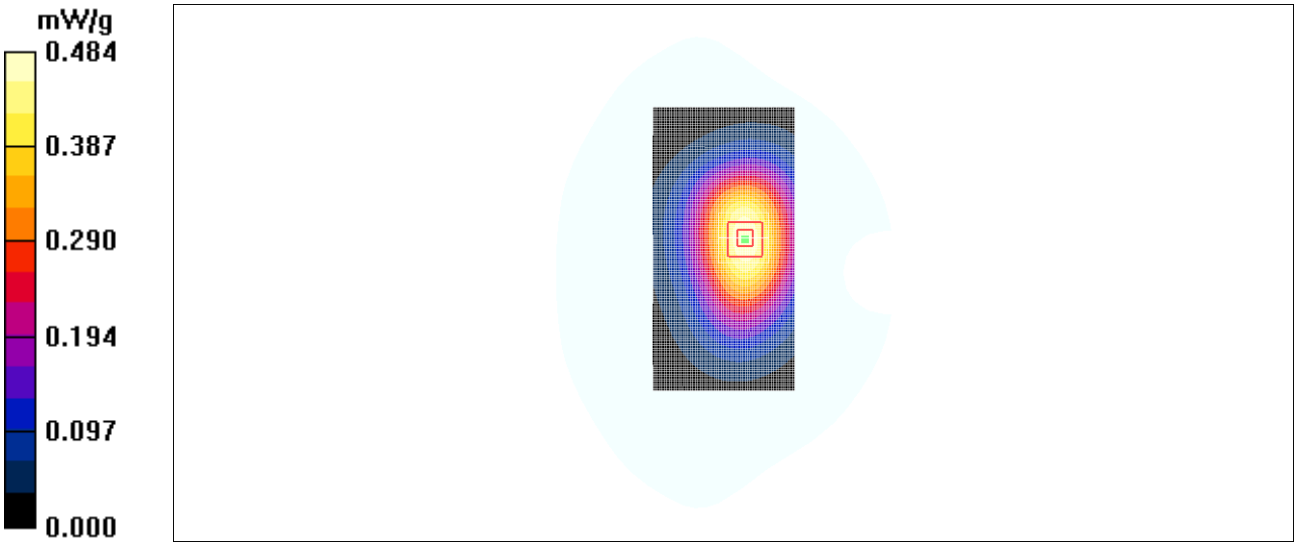



**Fig. 34 850 MHz CH190**

**850 Body Towards Ground Middle with Headset_CCA30B4000C2**

Date/Time: 2010-8-14 15:35:50
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used (interpolated): f = 836.6 MHz; $\sigma$ = 0.95 mho/m; $\varepsilon r$ = 54.2; $\rho$ = 1000 kg/$m^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 Frequency: 836.6 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

**Toward Ground Middle/Area Scan (61x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.407 mW/g

**Toward Ground Middle/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.3 V/m; Power Drift = 0.073 dB
Peak SAR (extrapolated) = 0.516 W/kg
**SAR(1 g) = 0.389 mW/g; SAR(10 g) = 0.279 mW/g**
Maximum value of SAR (measured) = 0.412 mW/g

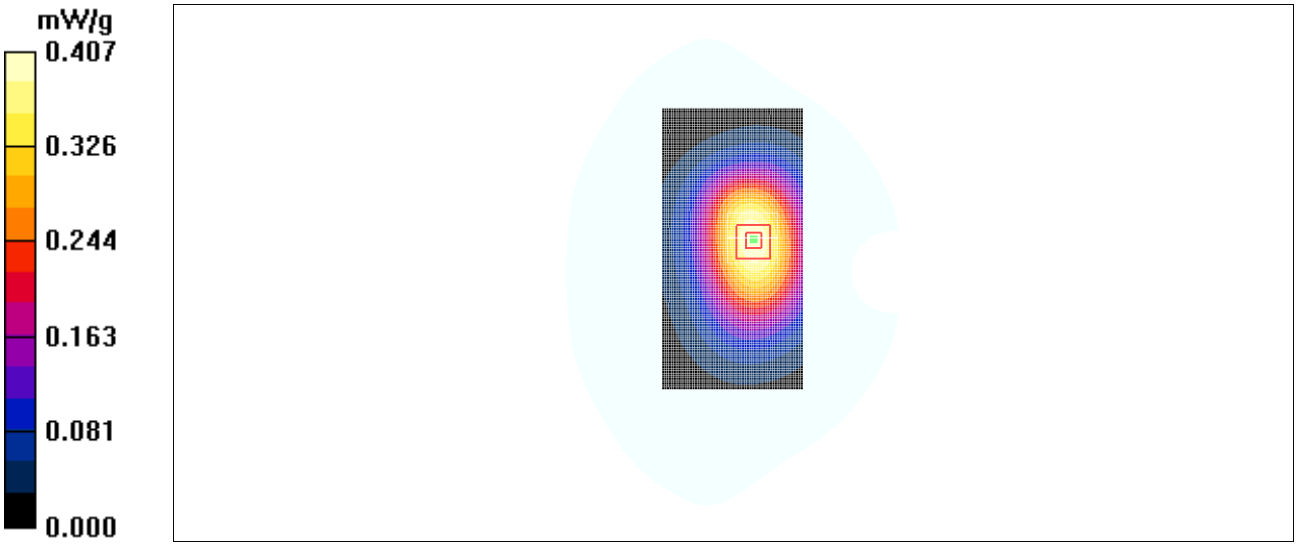



**Fig. 35 850 MHz CH190**

**1900 Body Towards Ground High**

Date/Time: 2010-8-15 13:41:22
Electronics: DAE4 Sn771
Medium: Body 1900 MHz
Medium parameters used: f = 1910 MHz; $\sigma$ = 1.54 mho/m; $\varepsilon r$ = 52.3; $\rho$ = 1000 kg/$m^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900 Frequency: 1909.8 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(4.68, 4.68, 4.68)

**Toward Ground High/Area Scan (61x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.480 mW/g

**Toward Ground High/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.7 V/m; Power Drift = -0.172 dB
Peak SAR (extrapolated) = 0.680 W/kg
**SAR(1 g) = 0.437 mW/g; SAR(10 g) = 0.271 mW/g**
Maximum value of SAR (measured) = 0.468 mW/g

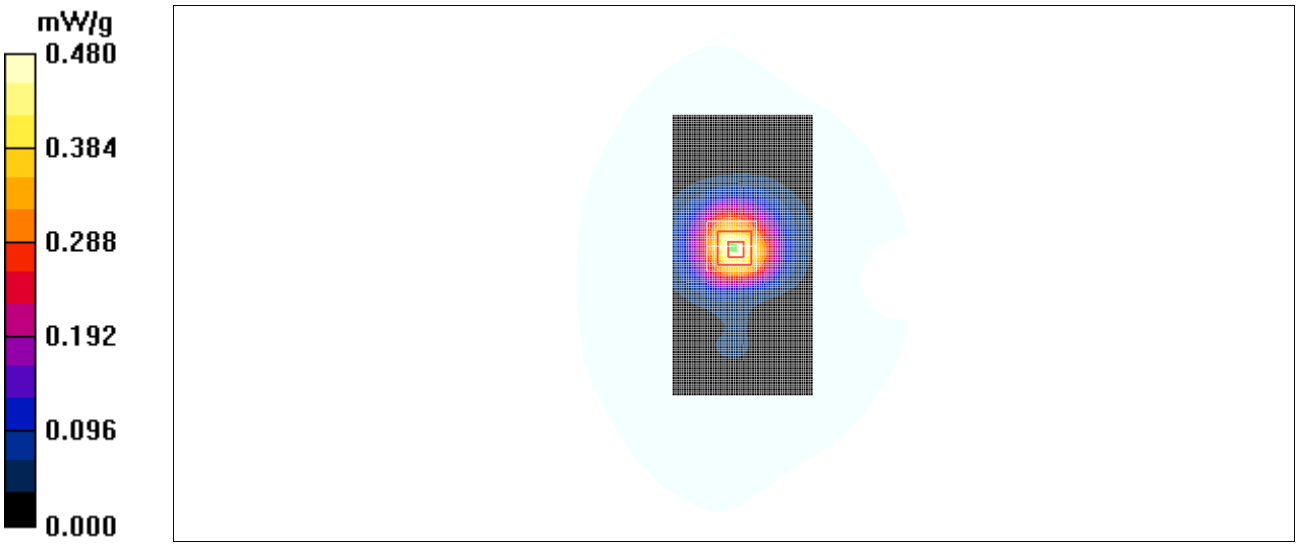



**Fig. 36 1900 MHz CH810**

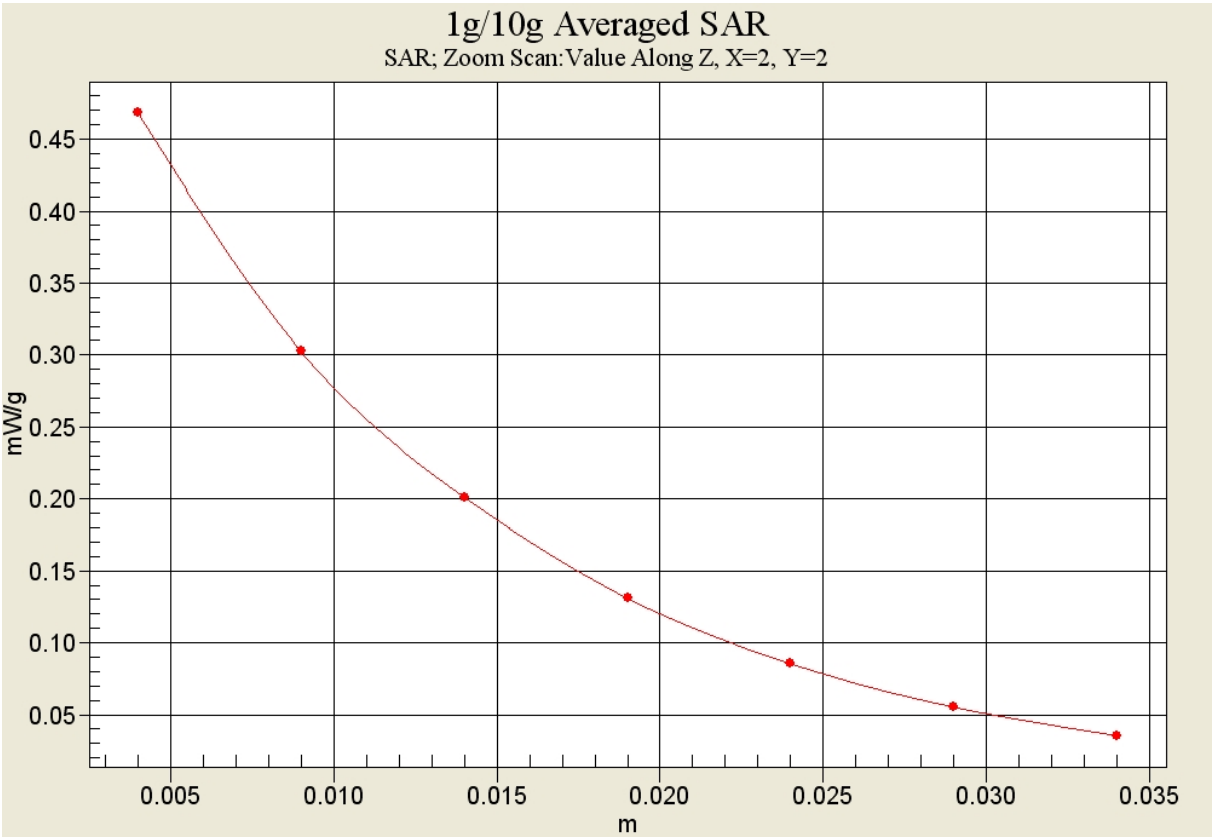



**Fig. 36-1 Z-Scan at power reference point (1900 MHz CH810)**

**1900 Body Towards Ground Middle**

Date/Time: 2010-8-15 13:56:42
Electronics: DAE4 Sn771
Medium: Body 1900 MHz
Medium parameters used: f = 1880 MHz; $\sigma$ = 1.51 mho/m; $\varepsilon r$ = 52.4; $\rho$ = 1000 kg/$m^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900 Frequency: 1880 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(4.68, 4.68, 4.68)

**Toward Ground Middle/Area Scan (61x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.433 mW/g

**Toward Ground Middle/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.5 V/m; Power Drift = -0.081 dB
Peak SAR (extrapolated) = 0.608 W/kg
**SAR(1 g) = 0.394 mW/g; SAR(10 g) = 0.248 mW/g**
Maximum value of SAR (measured) = 0.422 mW/g

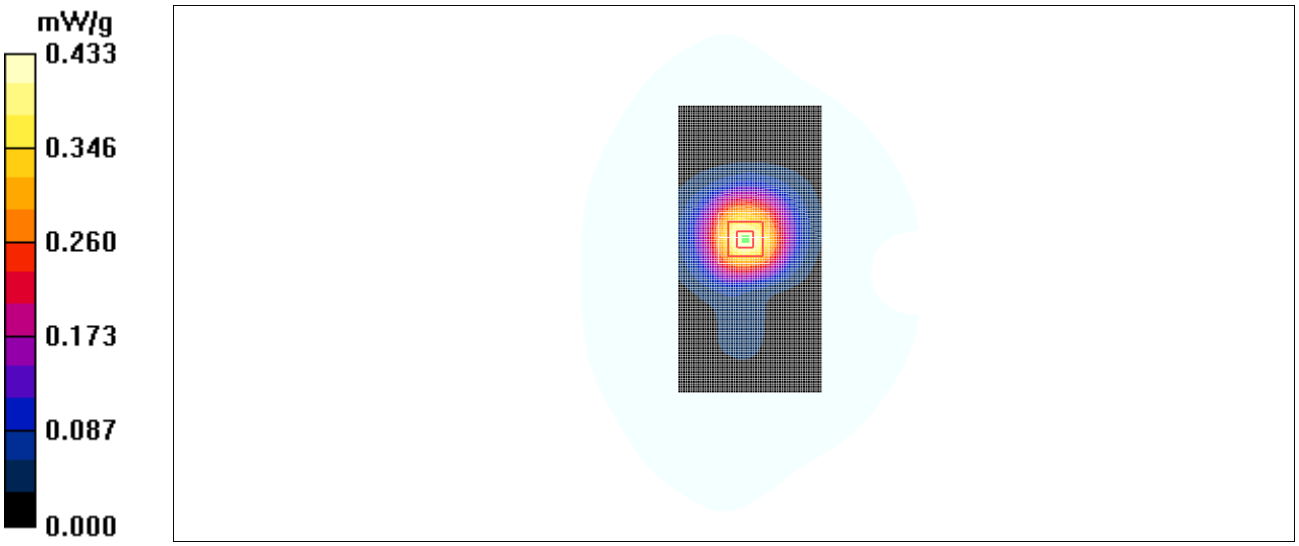



**Fig. 37 1900 MHz CH661**

**1900 Body Towards Ground Low**

Date/Time: 2010-8-15 14:12:05
Electronics: DAE4 Sn771
Medium: Body 1900 MHz
Medium parameters used (interpolated): f = 1850.2 MHz; $\sigma$ = 1.49 mho/m; $\varepsilon r$ = 52.4; $\rho$ = 1000 kg/$m^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900 Frequency: 1850.2 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(4.68, 4.68, 4.68)

**Toward Ground Low/Area Scan (61x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.336 mW/g

**Toward Ground Low/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.1 V/m; Power Drift = 0.119 dB
Peak SAR (extrapolated) = 0.492 W/kg
**SAR(1 g) = 0.318 mW/g; SAR(10 g) = 0.201 mW/g**
Maximum value of SAR (measured) = 0.341 mW/g

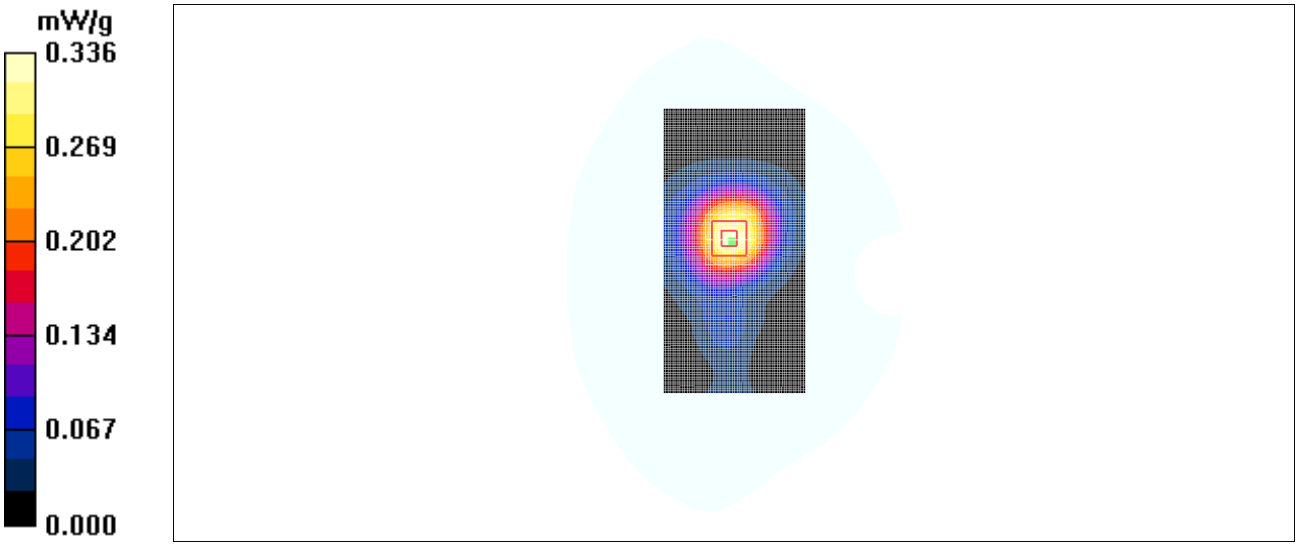



**Fig. 38 1900 MHz CH512**

**1900 Body Towards Ground High with Headset_CCA30B4010C0**

Date/Time: 2010-8-15 14:29:02
Electronics: DAE4 Sn771
Medium: Body 1900 MHz
Medium parameters used: f = 1910 MHz; $\sigma$ = 1.54 mho/m; $\varepsilon r$ = 52.3; $\rho$ = 1000 kg/$m^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900 Frequency: 1909.8 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(4.68, 4.68, 4.68)

**Toward Ground High/Area Scan (61x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.429 mW/g

**Toward Ground High/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.6 V/m; Power Drift = -0.104 dB
Peak SAR (extrapolated) = 0.611 W/kg
**SAR(1 g) = 0.392 mW/g; SAR(10 g) = 0.244 mW/g**
Maximum value of SAR (measured) = 0.423 mW/g

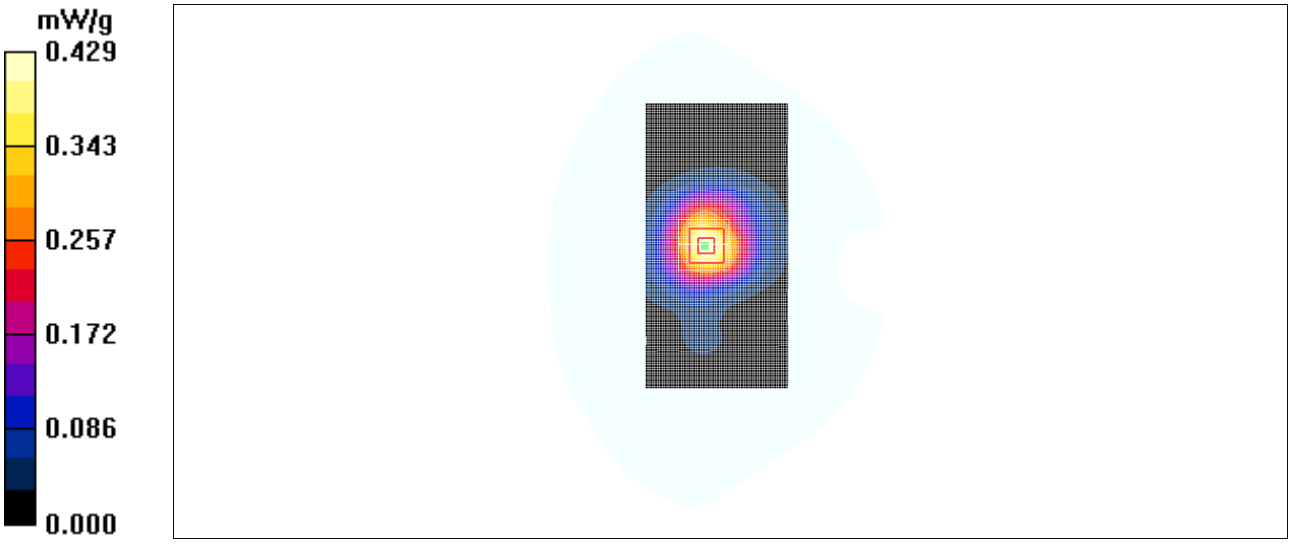



**Fig. 39 1900 MHz CH810**

**1900 Body Towards Ground High with Headset_CCA30B4010C2**

Date/Time: 2010-8-15 14:45:33
Electronics: DAE4 Sn771
Medium: Body 1900 MHz
Medium parameters used: f = 1910 MHz; $\sigma$ = 1.54 mho/m; $\varepsilon r$ = 52.3; $\rho$ = 1000 kg/$m^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900 Frequency: 1909.8 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(4.68, 4.68, 4.68)

**Toward Ground High/Area Scan (61x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.405 mW/g

**Toward Ground High/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.5 V/m; Power Drift = -0.134 dB
Peak SAR (extrapolated) = 0.575 W/kg
**SAR(1 g) = 0.368 mW/g; SAR(10 g) = 0.230 mW/g**
Maximum value of SAR (measured) = 0.395 mW/g

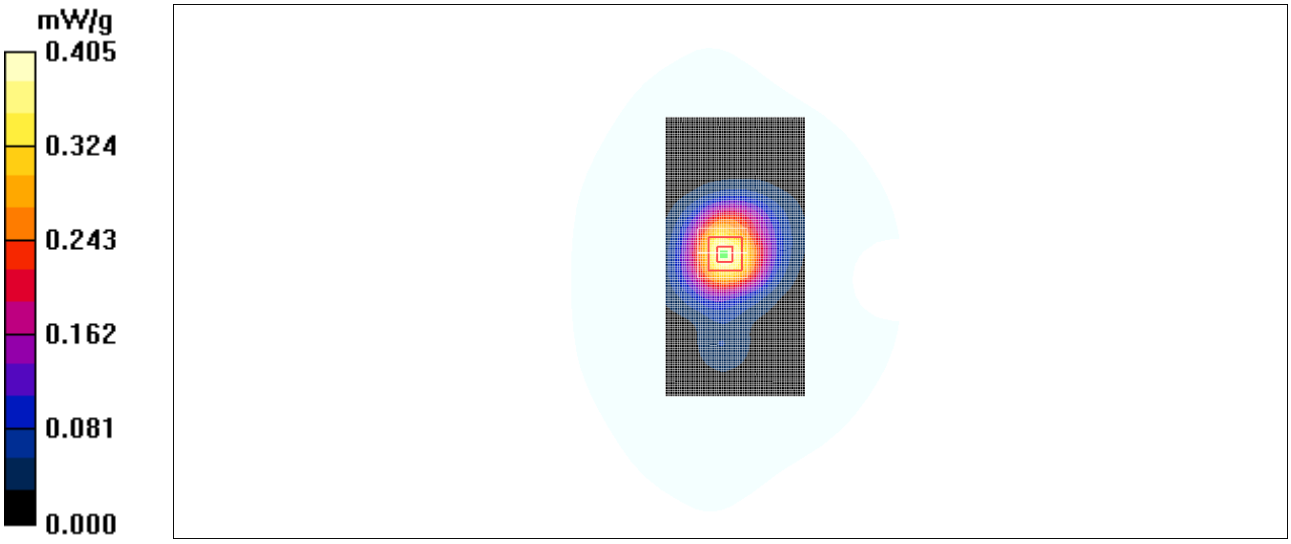



**Fig. 40 1900 MHz CH810**

**1900 Body Towards Ground High with Headset_CCA30B4010C4**

Date/Time: 2010-8-15 15:01:56
Electronics: DAE4 Sn771
Medium: Body 1900 MHz
Medium parameters used: f = 1910 MHz; $\sigma$ = 1.54 mho/m; $\varepsilon r$ = 52.3; $\rho$ = 1000 kg/$m^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900 Frequency: 1909.8 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(4.68, 4.68, 4.68)

**Toward Ground High/Area Scan (61x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.367 mW/g

**Toward Ground High/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.2 V/m; Power Drift = -0.050 dB
Peak SAR (extrapolated) = 0.536 W/kg
**SAR(1 g) = 0.343 mW/g; SAR(10 g) = 0.215 mW/g**
Maximum value of SAR (measured) = 0.369 mW/g

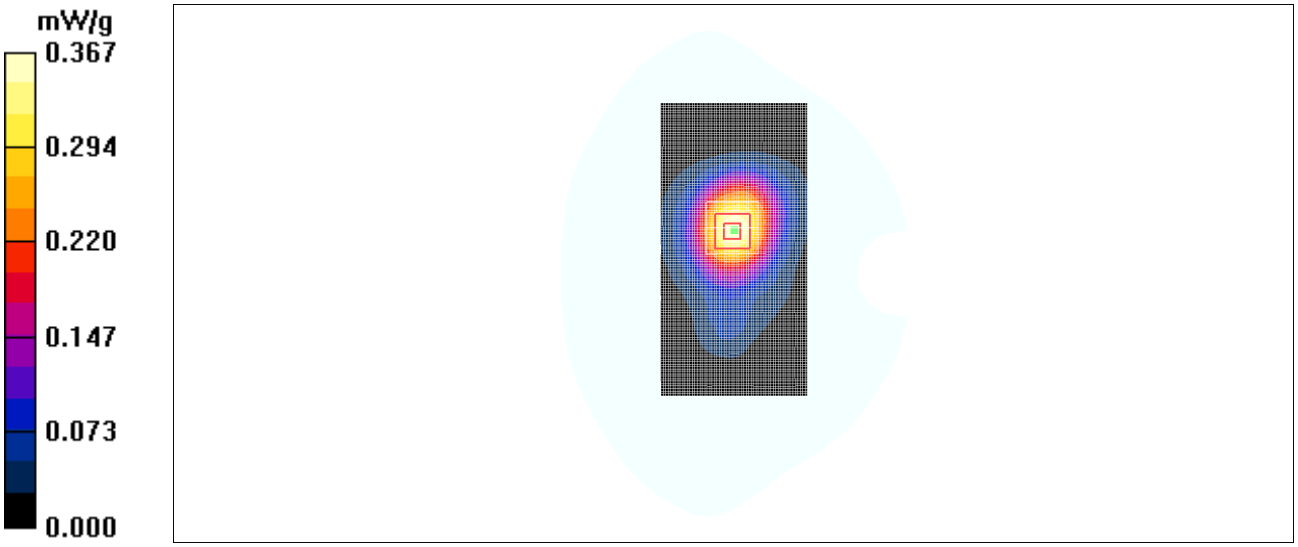



**Fig. 41 1900 MHz CH810**

**1900 Body Towards Ground High with Headset_CCA30B4000C0**

Date/Time: 2010-8-15 15:18:10
Electronics: DAE4 Sn771
Medium: Body 1900 MHz
Medium parameters used: f = 1910 MHz; $\sigma$ = 1.54 mho/m; $\varepsilon r$ = 52.3; $\rho$ = 1000 kg/$m^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900 Frequency: 1909.8 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(4.68, 4.68, 4.68)

**Toward Ground High/Area Scan (61x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.387 mW/g

**Toward Ground High/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.44 V/m; Power Drift = -0.018 dB
Peak SAR (extrapolated) = 0.560 W/kg
**SAR(1 g) = 0.360 mW/g; SAR(10 g) = 0.226 mW/g**
Maximum value of SAR (measured) = 0.385 mW/g

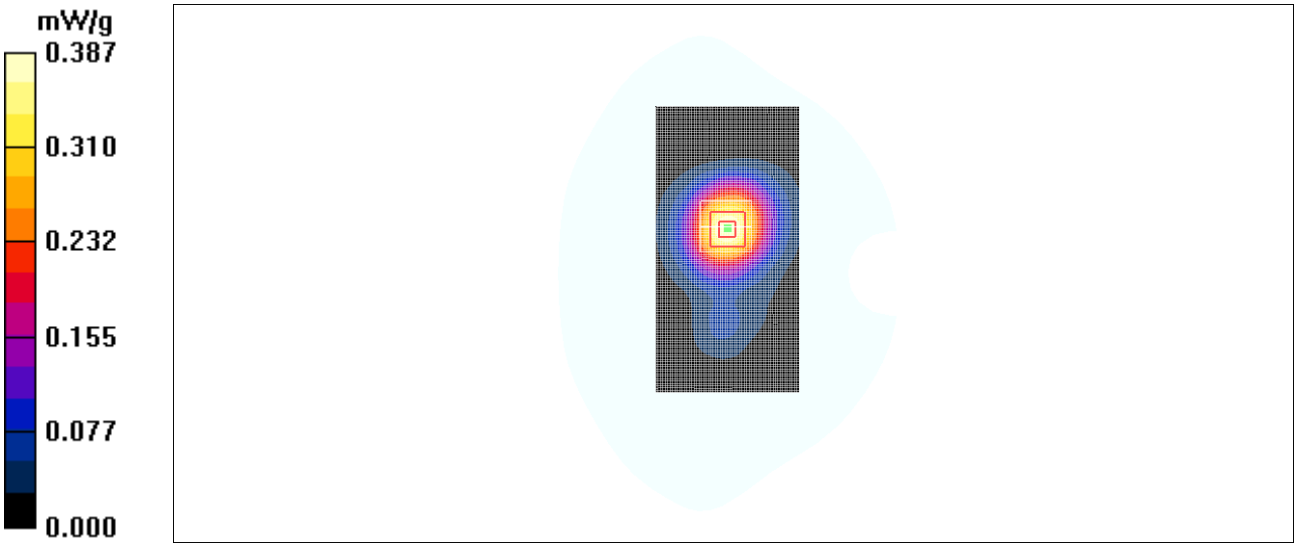



**Fig. 42 1900 MHz CH810**

**1900 Body Towards Ground High with Headset_CCA30B4000C2**

Date/Time: 2010-8-15 15:34:41
Electronics: DAE4 Sn771
Medium: Body 1900 MHz
Medium parameters used: f = 1910 MHz; $\sigma$ = 1.54 mho/m; $\varepsilon r$ = 52.3; $\rho$ = 1000 kg/$m^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 1900 Frequency: 1909.8 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(4.68, 4.68, 4.68)

**Toward Ground High/Area Scan (61x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.388 mW/g

**Toward Ground High/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.53 V/m; Power Drift = 0.009 dB
Peak SAR (extrapolated) = 0.553 W/kg
**SAR(1 g) = 0.358 mW/g; SAR(10 g) = 0.225 mW/g**
Maximum value of SAR (measured) = 0.386 mW/g

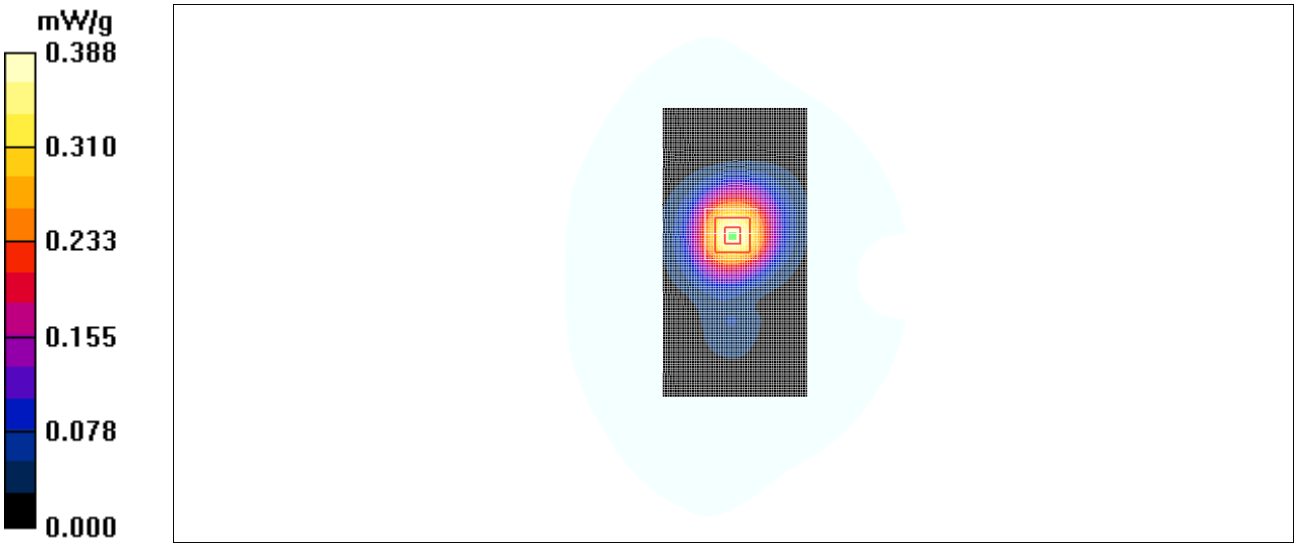



**Fig. 43 1900 MHz CH810**

**850 Body Towards Ground Middle with battery CAB2170000C1**

Date/Time: 2010-8-14 15:54:17
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used (interpolated): f = 836.6 MHz; $\sigma$ = 0.95 mho/m; $\varepsilon r$ = 54.2; $\rho$ = 1000 kg/$m^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 Frequency: 836.6 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

**Toward Ground Middle/Area Scan (51x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.686 mW/g

**Toward Ground Middle/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 23.4 V/m; Power Drift = -0.00182 dB
Peak SAR (extrapolated) = 0.859 W/kg
**SAR(1 g) = 0.645 mW/g; SAR(10 g) = 0.461 mW/g**
Maximum value of SAR (measured) = 0.681 mW/g

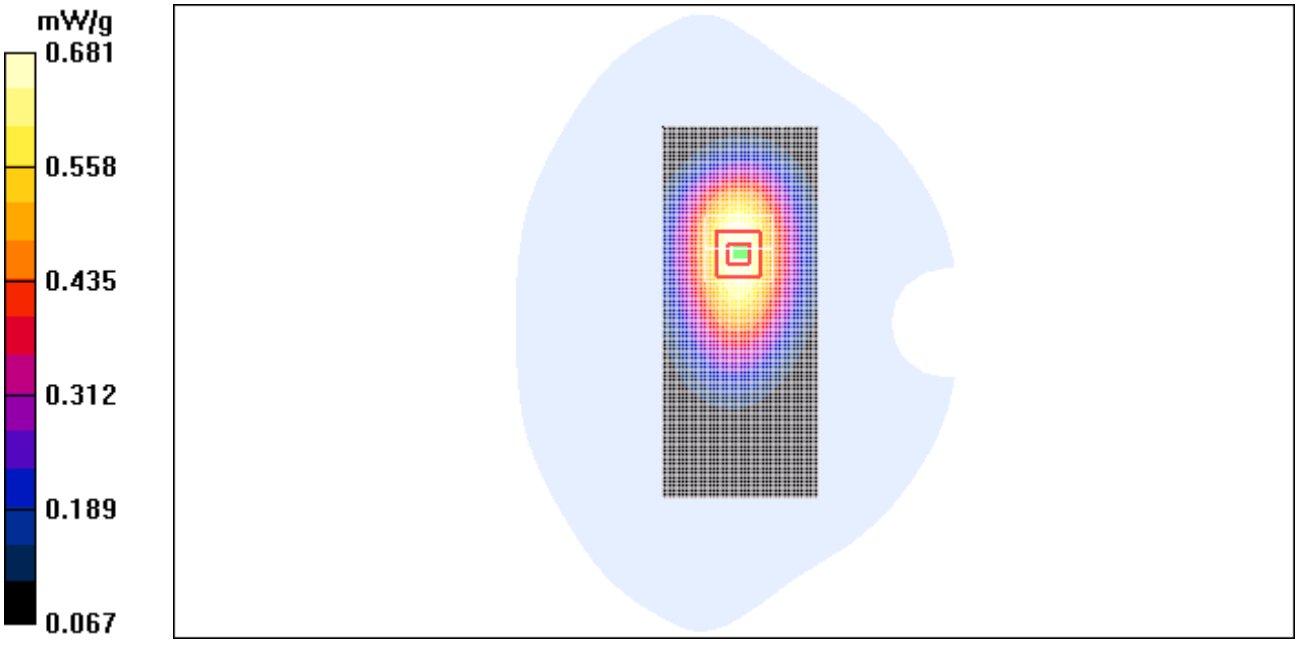



**Fig. 44 850 MHz CH190**

**850 Body Towards Ground Middle with battery CAB30M0000C1**

Date/Time: 2010-8-14 16:11:36
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used (interpolated): f = 836.6 MHz; $\sigma$ = 0.95 mho/m; $\varepsilon r$ = 54.2; $\rho$ = 1000 kg/$m^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 Frequency: 836.6 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

**Toward Ground Middle/Area Scan (51x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.702 mW/g

**Toward Ground Middle/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 22.6 V/m; Power Drift = -0.137 dB
Peak SAR (extrapolated) = 0.868 W/kg
**SAR(1 g) = 0.645 mW/g; SAR(10 g) = 0.458 mW/g**
Maximum value of SAR (measured) = 0.684 mW/g

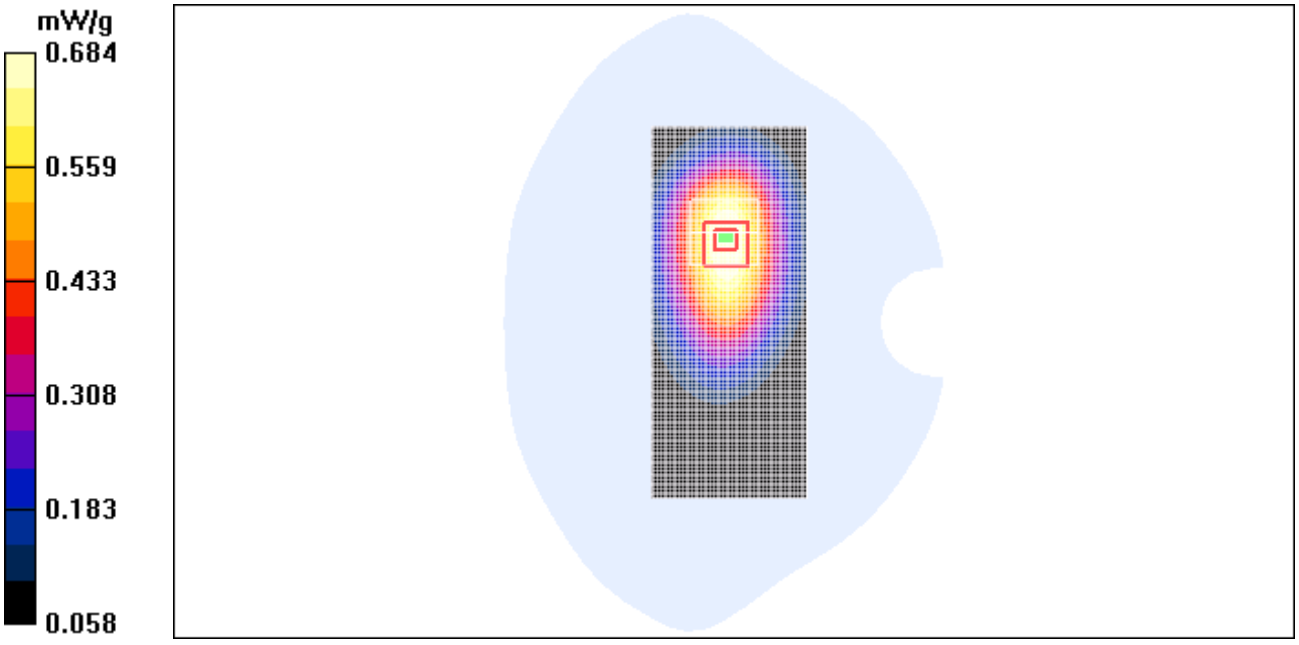



**Fig. 45 850 MHz CH190**

**850 Body Towards Ground Middle with battery CAB30M0000C2**

Date/Time: 2010-8-14 16:28:49
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used (interpolated): f = 836.6 MHz; $\sigma$ = 0.95 mho/m; $\varepsilon r$ = 54.2; $\rho$ = 1000 kg/$m^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: GSM 850 Frequency: 836.6 MHz Duty Cycle: 1:8.3
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

**Toward Ground Middle/Area Scan (51x121x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.703 mW/g

**Toward Ground Middle/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 24.6 V/m; Power Drift = -0.089 dB
Peak SAR (extrapolated) = 0.879 W/kg
**SAR(1 g) = 0.654 mW/g; SAR(10 g) = 0.466 mW/g**
Maximum value of SAR (measured) = 0.695 mW/g

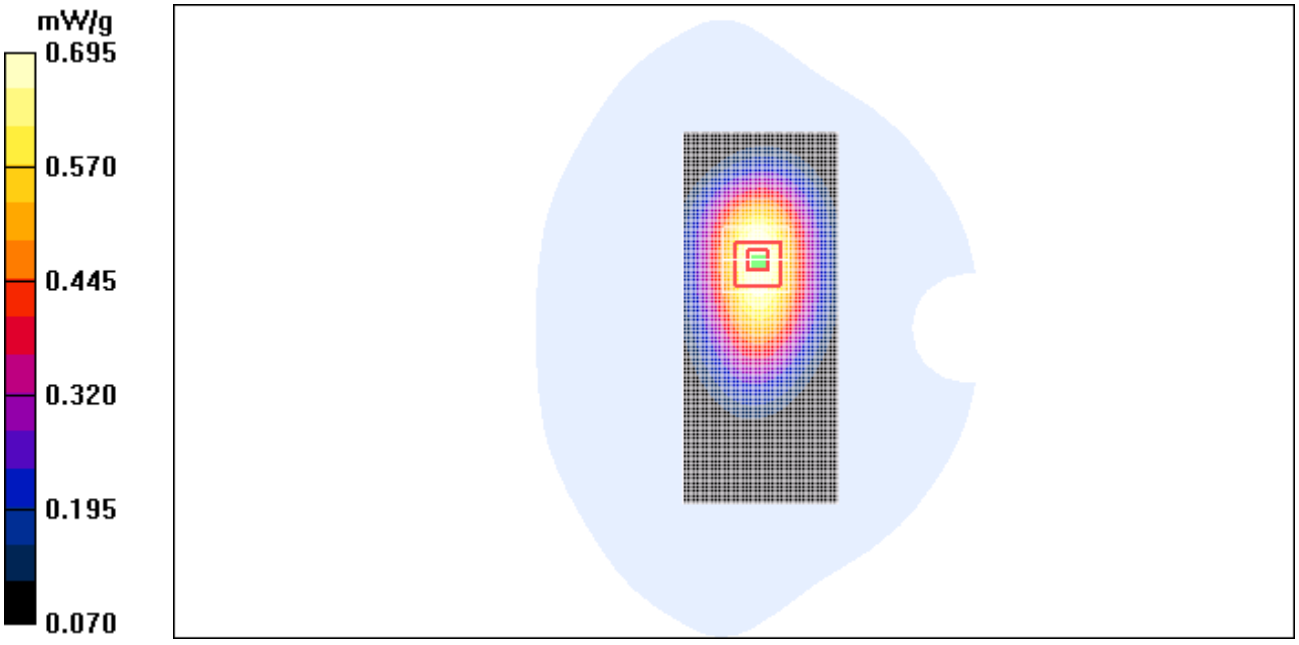



**Fig. 46 850 MHz CH190**

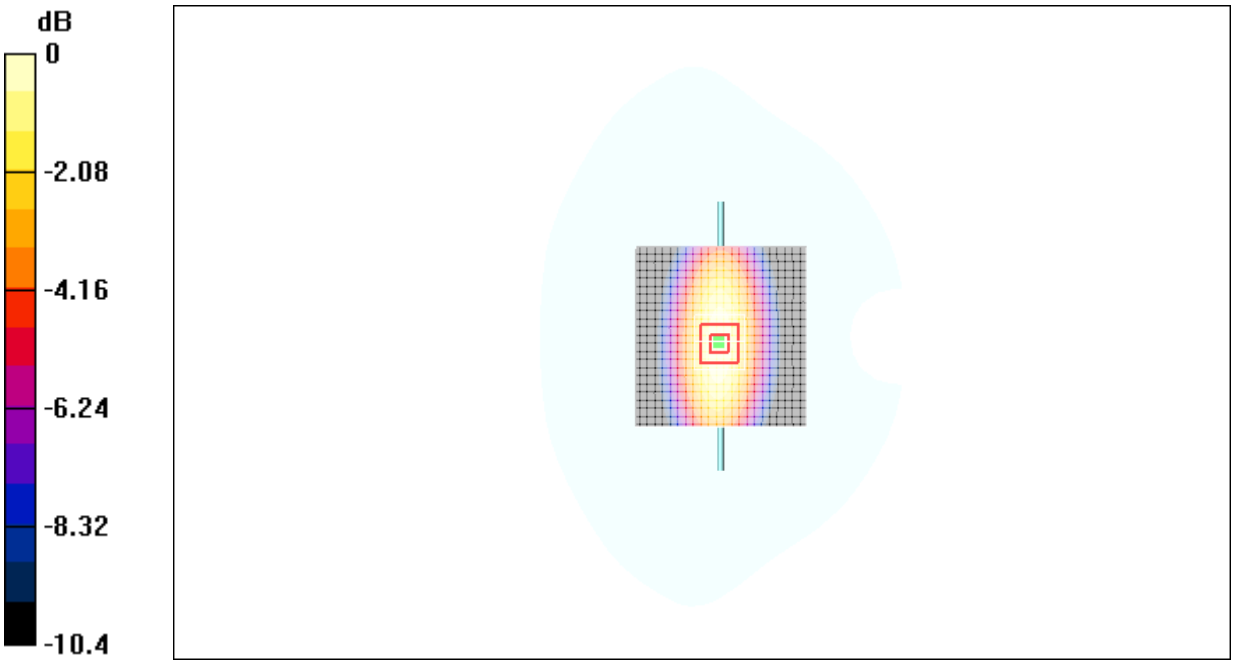
# ANNEX D SYSTEM VALIDATION RESULTS

## 835MHz

Date/Time: 2010-8-14 7:26:31
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used: f = 835 MHz; $\sigma$ = 0.86 mho/m; $\varepsilon_r$ = 40.6; $\rho$ = 1000 kg/$m^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: CW Frequency: 835 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.56, 6.56, 6.56)

**System Validation /Area Scan (101x101x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 2.57 mW/g

**System Validation /Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 55.3 V/m; Power Drift = -0.077 dB
Peak SAR (extrapolated) = 3.40 W/kg
**SAR(1 g) = 2.34 mW/g; SAR(10 g) = 1.51 mW/g**
Maximum value of SAR (measured) = 2.48 mW/g




0 dB = 2.48mW/g

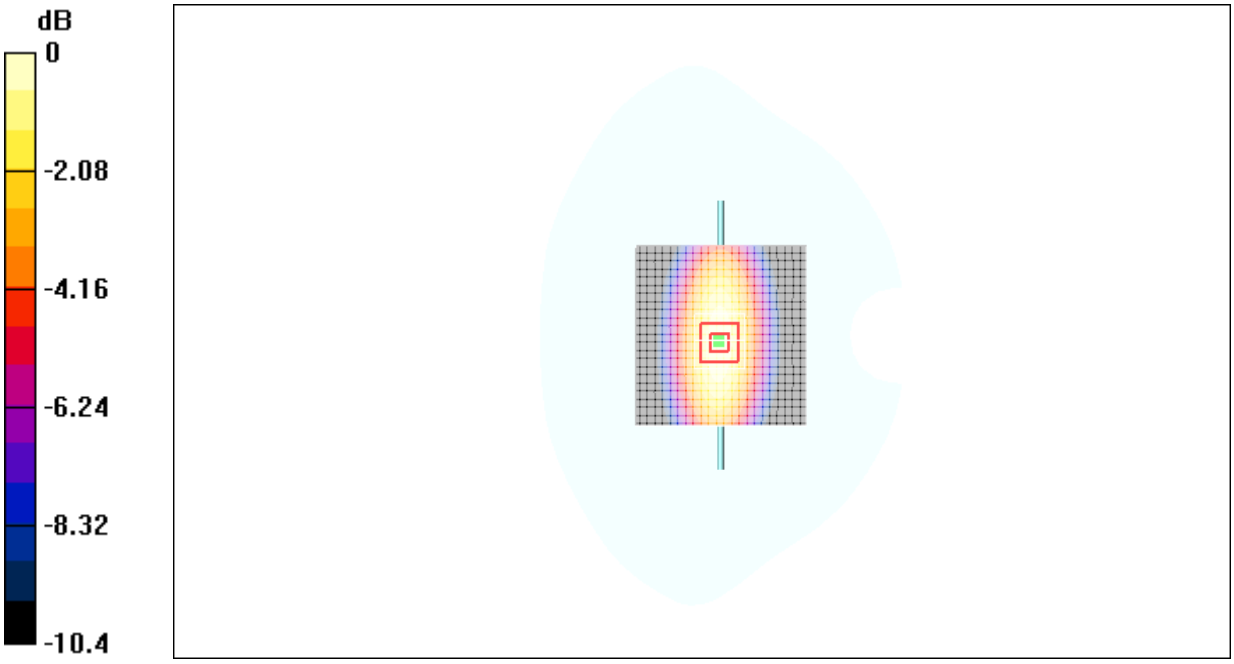
**Fig.47 validation 835MHz 250mW**

## 835MHz

Date/Time: 2010-8-14 13:14:50
Electronics: DAE4 Sn771
Medium: Body 850 MHz
Medium parameters used: f = 835 MHz; $\sigma$ = 0.94 mho/m; $\varepsilon_r$ = 54.2; $\rho$ = 1000 kg/$m^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: CW Frequency: 835 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(6.22, 6.22, 6.22)

**System Validation /Area Scan (101x101x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 2.55 mW/g

**System Validation /Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 51.3 V/m; Power Drift = -0.058 dB
Peak SAR (extrapolated) = 3.37 W/kg
**SAR(1 g) = 2.36 mW/g; SAR(10 g) = 1.52 mW/g**
Maximum value of SAR (measured) = 2.42 mW/g




0 dB = 2.42mW/g

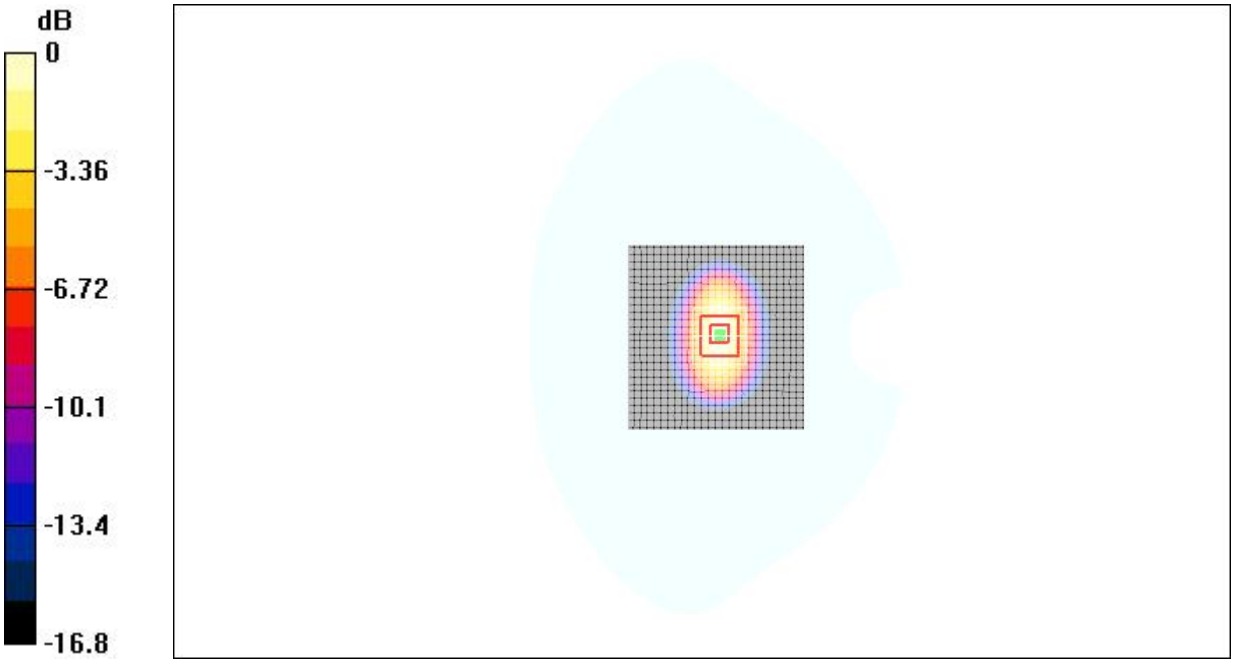
**Fig.48 validation 835MHz 250mW**

## 1900MHz

Date/Time: 2010-8-15 7:25:24
Electronics: DAE4 Sn771
Medium: Head 1900 MHz
Medium parameters used: f = 1900 MHz; $\sigma$ = 1.39 mho/m; $\varepsilon_r$ = 39.3; $\rho$ = 1000 kg/m$^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: CW Frequency: 1900 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(5.03, 5.03, 5.03)

**System Validation/Area Scan (101x101x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 11.3 mW/g

**System Validation/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 87.5 V/m; Power Drift = -0.049 dB
Peak SAR (extrapolated) = 14.7 W/kg
**SAR(1 g) = 9.66 mW/g; SAR(10 g) = 4.92 mW/g**
Maximum value of SAR (measured) = 10.3 mW/g




0 dB = 10.3mW/g

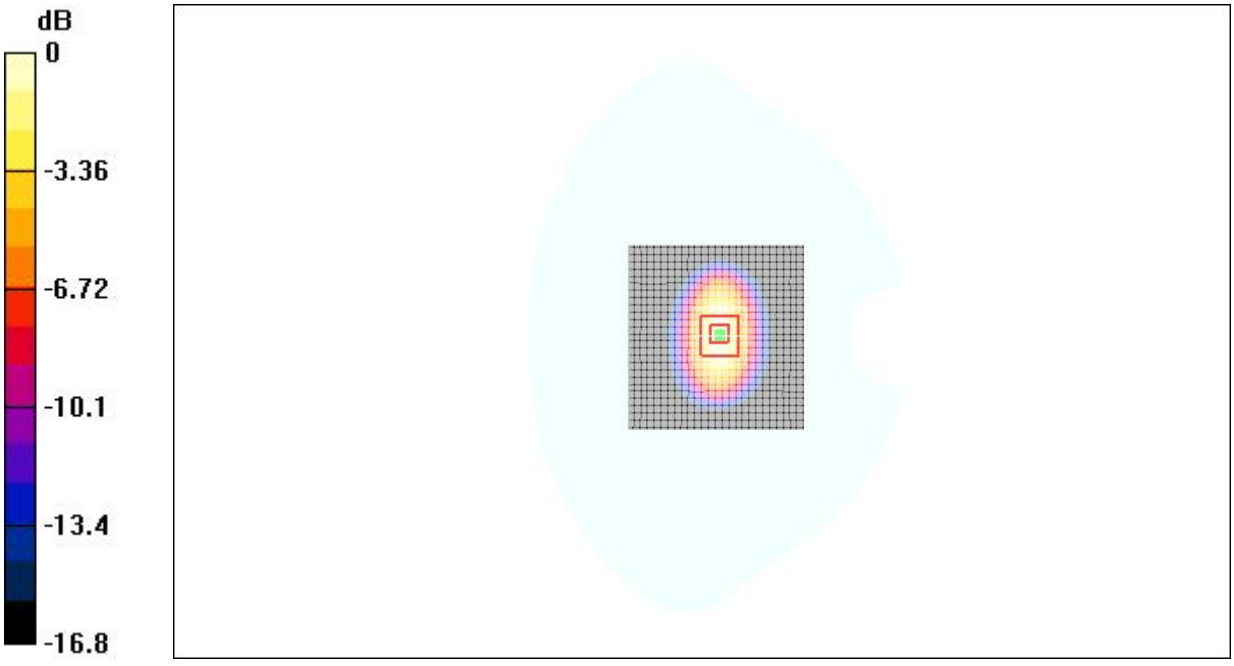
**Fig.49 validation 1900MHz 250mW**

## 1900MHz

Date/Time: 2010-8-15 13:15:46
Electronics: DAE4 Sn771
Medium: Body 1900 MHz
Medium parameters used: f = 1900 MHz; $\sigma$ = 1.53 mho/m; $\varepsilon_r$ = 52.3; $\rho$ = 1000 kg/m$^3$
Ambient Temperature:23.0°C Liquid Temperature: 22.5°C
Communication System: CW Frequency: 1900 MHz Duty Cycle: 1:1
Probe: ES3DV3 - SN3149 ConvF(4.68, 4.68, 4.68)

**System Validation/Area Scan (101x101x1):** Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 11.4 mW/g

**System Validation/Zoom Scan (7x7x7)/Cube 0:** Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 91.0 V/m; Power Drift = 0.075 dB
Peak SAR (extrapolated) = 15.9 W/kg
**SAR(1 g) = 10.2 mW/g; SAR(10 g) = 5.11 mW/g**
Maximum value of SAR (measured) = 10.6 mW/g




0 dB = 10.6mW/g

**Fig.50 validation 1900MHz 250mW**

# ANNEX E PROBE CALIBRATION CERTIFICATE

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 Accreditation Service (SAS)
The Swiss Accreditation Service is one of the signatories to the EA
Multilateral Agreement for the recognition of calibration certificates

Accreditation No.: SCS 108

Client TMC China Certificate No: ES3DV3-3149_Sep09

## CALIBRATION CERTIFICATE

| | |
|---|---|
| Object | ES3DV3-SN: 3149 |
| Calibration procedure(s) | QA CAL-01.v6<br>Calibration procedure for dosimetric E-field probes |
| Calibration date: | September 25, 2009 |
| Condition of the calibrated item | In Tolerance |

This calibration certify documents the traceability to national standards, which realize the physical units of measurements(SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.
All calibrations have been conducted 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 | GB41293874 | 5-May-09 (METAS, NO. 251-00388) | May-10 |
| Power sensor E4412A | MY41495277 | 5-May-09 (METAS, NO. 251-00388) | May-10 |
| Reference 3 dB Attenuator | SN:S5054 (3c) | 10-Aug-09 (METAS, NO. 251-00403) | Aug-10 |
| Reference 20 dB Attenuator | SN:S5086 (20b) | 3-May-09 (METAS, NO. 251-00389) | May-10 |
| Reference 30 dB Attenuator | SN:S5129 (30b) | 10-Aug-09 (METAS, NO. 251-00404) | Aug-10 |
| DAE4 | SN:617 | 10-Jun-09 (SPEAG, NO.DAE4-907_Jun09) | Jun-10 |
| Reference Probe ES3DV2 | SN: 3013 | 12-Jan-09 (SPEAG, NO. ES3-3013_Jan09) | Jan-10 |

| Secondary Standards | ID# | Check Data (in house) | Scheduled Calibration |
|---|---|---|---|
| RF generator HP8648C | US3642U01700 | 4-Aug-99(SPEAG, in house check Oct-07) | In house check: Oct-09 |
| Network Analyzer HP 8753E | US37390585 | 18-Oct-01(SPEAG, in house check Nov-07) | In house check: Nov-09 |

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

Issued: September 25, 2009

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