SAR TEST REPORT

No. 2010SAR00064

For

TCT Mobile Limited

GSM/UMTS mobile phones

Opal A

OT-980A

With

Hardware Version: PIO2

Software Version: V233

FCCID: RAD130

Issued Date: 2010-08-24

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:

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TABLE OF CONTENT

1 Test Laboratory

1.1 Testing Location

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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.

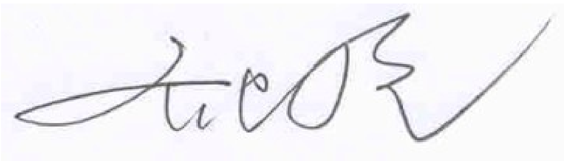
1.3 Project Data

Project Leader:	Qi Dianyuan
Test Engineer:	Lin Xiaojun
Testing Start Date:	July 22, 2010
Testing End Date:	July 26, 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

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2.2 Manufacturer Information

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Postal Code:	201203
Country:	P. R. China
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3 Equipment Under Test (EUT) and Ancillary Equipment (AE)

3.1 About EUT

EUT Description:	GSM/UMTS mobile phones
Model Name:	Opal A
Marketing Name:	OT-980A
Frequency Band:	GSM 850 / PCS 1900 / WCDMA850 / WCDMA1900

3.2 Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version
EUT1	012206000011139	PIO2	V233

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

3.3 Internal Identification of AE used during the test

AE ID*	Description	Model	SN	Manufacturer
AE1	Travel charger	CBA3170AG0C1	/	BYD
AE2	Travel charger	CBA3170AG0C2	/	TENPAO
AE3	Battery	CAB3170000C1	/	BYD
AE4	Headset	CCB3160A10C0	/	Shunda/Juwei

*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 62209-1-2005: 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)

KDB648474 D01 SAR Handsets Multi Xmiter and Ant, v01r05: SAR Evaluation Considerations for Handsets with Multiple Transmitters and Antennas.
KDB248227: SAR measurement procedures for 802.112abg transmitters.

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

5 OPERATIONAL CONDITIONS DURING TEST

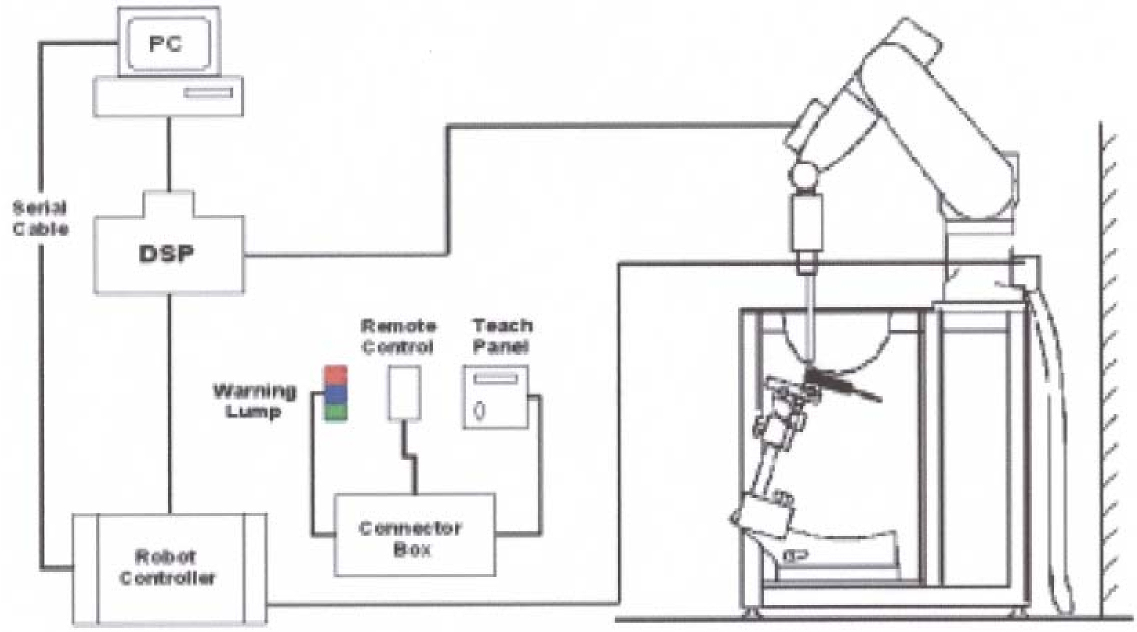
5.1 Schematic Test Configuration

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; 512, 661 and 810 respectively in the case of PCS 1900 MHz; 4132, 4182 and 4233 respectively in the case of WCDMA 850 MHz; 9262, 9400 and 9538 respectively in the case of WCDMA 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.

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

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

Or

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

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

Picture 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
MIXTURE %	FREQUENCY 2450MHz
Water	58.79
Glycol monobutyl	41.15
Salt	0.06
Dielectric Parameters Target Value	f=2450MHz ε=39.2 σ=1.80

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
MIXTURE %	FREQUENCY 2450MHz
Water	72.60
Glycol monobutyl	27.22
Salt	0.18
Dielectric Parameters Target Value	f=2450MHz ε=52.7 σ=1.95

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 maximum 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

Table 4: The conducted power for GSM 850/1900

GSM 850MHZ	Conducted Power (dBm)		
	Channel 251(848.8MHz)	**Channel 190(836.6MHz)**	**Channel 128(824.2MHz)**
	33.27	33.31	33.23
GSM 1900MHZ	**Conducted Power (dBm)**		
	Channel 810(1909.8MHz)	**Channel 661(1880MHz)**	**Channel 512(1850.2MHz)**
	30.31	30.15	29.82

Table 5: The conducted power for GPRS 850/1900 and EGPRS 850/1900

GSM 850 GPRS	Measured Power (dBm)			calculation	Averaged Power (dBm)		
	251	**190**	**128**		**251**	**190**	**128**
1 Txslot	32.2	32.1	32.0	-9.03dB	23.17	23.07	22.97
2 Txslots	30.4	30.3	30.2	-6.02dB	24.38	24.28	24.18
3Txslots	28.8	28.7	28.6	-4.26dB	24.54	24.44	24.34
4 Txslots	27.8	27.8	27.6	-3.01dB	**24.79**	**24.79**	**24.59**
GSM 850 EGPRS	Measured Power (dBm)			calculation	Averaged Power (dBm)		
	251	**190**	**128**		**251**	**190**	**128**
1 Txslot	26.8	26.7	26.6	-9.03dB	17.77	17.67	17.57
2 Txslots	26.8	26.7	26.6	-6.02dB	20.78	20.68	20.58
3Txslots	26.7	26.7	26.6	-4.26dB	22.44	22.44	22.34
4 Txslots	26.7	26.7	26.6	-3.01dB	**23.69**	**23.69**	**23.59**
PCS1900 GPRS	Measured Power (dBm)			calculation	Averaged Power (dBm)		
	810	**661**	**512**		**810**	**661**	**512**
1 Txslot	29.6	29.6	29.5	-9.03dB	20.57	20.57	20.47
2 Txslots	27.8	27.8	27.7	-6.02dB	21.78	21.78	21.68
3Txslots	26.3	26.3	26.2	-4.26dB	22.04	22.04	21.94
4 Txslots	25.3	25.3	25.2	-3.01dB	**22.29**	**22.29**	**22.19**
PCS1900 EGPRS	Measured Power (dBm)			calculation	Averaged Power (dBm)		
	810	**661**	**512**		**810**	**661**	**512**
1 Txslot	26.2	25.9	25.6	-9.03dB	17.17	16.87	16.57
2 Txslots	26.1	25.9	25.6	-6.02dB	20.08	19.88	19.58
3Txslots	26.1	25.8	25.5	-4.26dB	21.84	21.54	21.24
4 Txslots	25.6	25.3	25.0	-3.01dB	**22.59**	**22.29**	**21.99**

NOTES:

1) Division Factors

To average the power, the division factor is as follows:

1TX-slot = 1 transmit time slot out of 8 time slots=> conducted power divided by (8/1) => -9.03dB

2TX-slots = 2 transmit time slots out of 8 time slots=> conducted power divided by (8/2) => -6.02dB

3TX-slots = 3 transmit time slots out of 8 time slots=> conducted power divided by (8/3) => -4.26dB

4TX-slots = 4 transmit time slots out of 8 time slots=> conducted power divided by (8/4) => -3.01dB

According to the conducted power as above, the body measurements are performed with 4 Txslots for GPRS and EGPRS.

Table6: The conducted Power for WCDMA850/1900

Item	band	FDD V result		
	ARFCN	4233 (846.6MHz)	4182 (836.4MHz)	4132 (826.4MHz)
WCDMA	\	23.16	22.99	23.03
HSUPA	1	22.64	21.97	22.21
	2	20.99	20.94	20.51
	3	21.33	21.37	21.23
	4	21.09	21.12	21.09
	5	22.66	22.65	22.47
Item	band	FDD II result		
	ARFCN	9538 (1907.6MHz)	9400 (1880MHz)	9262 (1852.4MHz)
WCDMA	\	22.83	22.86	22.52
HSUPA	1	22.14	22.71	22.17
	2	21.32	21.37	21.25
	3	21.66	22.11	21.58
	4	21.59	22.06	21.30
	5	23.09	23.19	23.08

Note: HSUPA body SAR are not required, because maximum average output power of each RF channel with HSUPA active is not 1/4 dB higher than that measured without HSUPA and the maximum SAR for WCDMA850 and WCDMA1900 are not above 75% of the SAR limit (see table 15 to table 18 and table 25 to table 30 for the SAR measurement results).

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 11 to Table 38 labeled as: (Power Drift [dB]). This ensures that the power drift during one measurement is within 5%.

8 TEST RESULTS

8.1 Dielectric Performance

Table 7: Dielectric Performance of Head Tissue Simulating Liquid

Measurement is made at temperature 23.0 °C and relative humidity 40%.
Liquid temperature during the test: 22.5°C
Measurement Date : 850 MHz **July 25, 2010** 1900 MHz **July 26, 2010** 2450 MHz **July 24, 2010**

/	Frequency	Permittivity ε	Conductivity σ (S/m)
Target value	850 MHz	41.5	0.90
	1900 MHz	40.0	1.40
	2450 MHz	39.2	1.80
Measurement value (Average of 10 tests)	850 MHz	41.7	0.91
	1900 MHz	40.4	1.41

	2450 MHz	39.5	1.82

Table 8: Dielectric Performance of Body Tissue Simulating Liquid

Measurement is made at temperature 23.0 °C and relative humidity 40%.
Liquid temperature during the test: 22.5°C
Measurement Date : 850 MHz **July 22, 2010** 1900 MHz **July 23, 2010** 2450 MHz **July 24, 2010**

/	**Frequency**	**Permittivity ε**	**Conductivity σ (S/m)**
Target value	850 MHz	55.2	0.97
	1900 MHz	53.3	1.52
	2450 MHz	52.7	1.95
Measurement value (Average of 10 tests)	850 MHz	54.8	0.95
	1900 MHz	52.9	1.53
	2450 MHz	52.5	1.97

8.2 System Validation

Table 9: System Validation of Head

Measurement is made at temperature 23.0 °C and relative humidity 40%.
Liquid temperature during the test: 22.5°C
Measurement Date : 850 MHz **July 25, 2010** 1900 MHz **July 26, 2010** 2450 MHz **July 24, 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	
		2450 MHz		40.5		1.85	
	Actural Measurement value	835 MHz		41.9		0.90	
		1900 MHz		40.4		1.41	
		2450 MHz		39.5		1.82	
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	1.48	2.29	-3.40%	-3.78%
	1900 MHz	5.05	9.91	4.97	9.61	-1.58%	-3.03%
	2450 MHz	5.91	13.07	5.8	12.8	-1.86%	-2.07%

Table 10: System Validation of Body

Measurement is made at temperature 23.0 °C and relative humidity 40%.
Liquid temperature during the test: 22.5°C
Measurement Date : 850 MHz **July 22, 2010** 1900 MHz **July 23, 2010** 2450 MHz **July 24, 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

		2450 MHz		51.8		1.93
	Actural Measurement value	835 MHz		55.0		0.94
		1900 MHz		52.9		1.53
		2450 MHz		52.5		1.97
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	1.53	2.37	-2.55%	-1.66%
	1900 MHz	5.24	10.4	5.12	10.2	-2.29%	-1.96%
	2450 MHz	5.82	12.78	5.9	12.9	1.37%	0.94%

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

8.3 Summary of Measurement Results (GSM, GPRS, EGPRS and WCDMA)

Table 11: SAR Values (GSM 850MHz-Head Slide down)

Limit of SAR (W/kg)	**10 g Average**	**1 g Average**	**Power Drift (dB)**
	2.0	1.6	
Test Case	**Measurement Result (W/kg)**		
	10 g Average	**1 g Average**	
Left hand, Touch cheek, Top frequency (See Fig.1)	0.365	0.484	-0.109
Left hand, Touch cheek, Mid frequency (See Fig.2)	0.317	0.417	0.104
Left hand, Touch cheek, Bottom frequency (See Fig.3)	0.252	0.328	0.009
Left hand, Tilt 15 Degree, Top frequency (See Fig.4)	0.233	0.308	-0.008
Left hand, Tilt 15 Degree, Mid frequency (See Fig.5)	0.210	0.277	-0.020
Left hand, Tilt 15 Degree, Bottom frequency (See Fig.6)	0.171	0.225	0.028
Right hand, Touch cheek, Top frequency (See Fig.7)	0.385	0.521	-0.010
Right hand, Touch cheek, Mid frequency (See Fig.8)	0.343	0.465	0.097
Right hand, Touch cheek, Bottom frequency (See Fig.9)	0.276	0.371	-0.175
Right hand, Tilt 15 Degree, Top frequency (See Fig.10)	0.227	0.298	-0.149
Right hand, Tilt 15 Degree, Mid frequency (See Fig.11)	0.207	0.270	0.008
Right hand, Tilt 15 Degree, Bottom frequency (See Fig.12)	0.180	0.234	-0.129

Table 12: SAR Values (GSM 850MHz-Head Slide up)

Limit of SAR (W/kg)	10 g Average	1 g Average	Power Drift (dB)
	2.0	1.6	
Test Case	Measurement Result (W/kg)		
	10 g Average	1 g Average	
Left hand, Touch cheek, Top frequency (See Fig.13)	0.293	0.385	-0.109
Left hand, Touch cheek, Mid frequency (See Fig.14)	0.240	0.311	-0.123
Left hand, Touch cheek, Bottom frequency (See Fig.15)	0.193	0.249	-0.132
Left hand, Tilt 15 Degree, Top frequency (See Fig.16)	0.181	0.237	-0.190
Left hand, Tilt 15 Degree, Mid frequency (See Fig.17)	0.155	0.203	-0.032
Left hand, Tilt 15 Degree, Bottom frequency (See Fig.18)	0.130	0.170	0.006
Right hand, Touch cheek, Top frequency (See Fig.19)	0.320	0.428	-0.026
Right hand, Touch cheek, Mid frequency (See Fig.20)	0.255	0.341	-0.124
Right hand, Touch cheek, Bottom frequency (See Fig.21)	0.212	0.283	0.156
Right hand, Tilt 15 Degree, Top frequency (See Fig.22)	0.173	0.227	0.016
Right hand, Tilt 15 Degree, Mid frequency (See Fig.23)	0.141	0.184	0.045
Right hand, Tilt 15 Degree, Bottom frequency(See Fig.24)	0.123	0.160	0.079

Table 13: SAR Values (PCS 1900MHz-Head Slide down)

Limit of SAR (W/kg)	10 g Average	1 g Average	Power Drift (dB)
	2.0	1.6	
Test Case	Measurement Result (W/kg)		
	10 g Average	1 g Average	
Left hand, Touch cheek, Top frequency (See Fig.25)	0.204	0.343	0.032
Left hand, Touch cheek, Mid frequency (See Fig.26)	0.198	0.332	0.020
Left hand, Touch cheek, Bottom frequency (See Fig.27)	0.189	0.319	0.197
Left hand, Tilt 15 Degree, Top frequency (See Fig.28)	0.158	0.251	-0.032
Left hand, Tilt 15 Degree, Mid frequency (See Fig.29)	0.126	0.196	0.037
Left hand, Tilt 15 Degree, Bottom frequency (See Fig.30)	0.112	0.176	0.002
Right hand, Touch cheek, Top frequency (See Fig.31)	0.176	0.286	-0.182
Right hand, Touch cheek, Mid frequency (See Fig.32)	0.179	0.289	-0.028
Right hand, Touch cheek, Bottom frequency (See Fig.33)	0.193	0.310	-0.042
Right hand, Tilt 15 Degree, Top frequency (See Fig.34)	0.170	0.289	-0.122
Right hand, Tilt 15 Degree, Mid frequency (See Fig.35)	0.135	0.226	0.003
Right hand, Tilt 15 Degree, Bottom frequency(See Fig.36)	0.116	0.190	0.093

Table 14: SAR Values (PCS 1900MHz-Head Slide up)

Limit of SAR (W/kg)	10 g Average	1 g Average	Power Drift (dB)
	2.0	1.6	
Test Case	Measurement Result (W/kg)		
	10 g Average	1 g Average	
Left hand, Touch cheek, Top frequency (See Fig.37)	0.117	0.187	-0.124
Left hand, Touch cheek, Mid frequency (See Fig.38)	0.108	0.170	-0.054
Left hand, Touch cheek, Bottom frequency (See Fig.39)	0.109	0.173	0.140
Left hand, Tilt 15 Degree, Top frequency (See Fig.40)	0.097	0.161	-0.103
Left hand, Tilt 15 Degree, Mid frequency (See Fig.41)	0.085	0.141	-0.150
Left hand, Tilt 15 Degree, Bottom frequency (See Fig.42)	0.093	0.151	-0.077
Right hand, Touch cheek, Top frequency (See Fig.43)	0.186	0.312	-0.138
Right hand, Touch cheek, Mid frequency (See Fig.44)	0.176	0.296	-0.018
Right hand, Touch cheek, Bottom frequency (See Fig.45)	0.179	0.298	0.059
Right hand, Tilt 15 Degree, Top frequency (See Fig.46)	0.086	0.138	0.040
Right hand, Tilt 15 Degree, Mid frequency (See Fig.47)	0.078	0.123	0.056
Right hand, Tilt 15 Degree, Bottom frequency(See Fig.48)	0.080	0.127	0.040

Table 15: SAR Values (WCDMA 850MHz-Head Slide down)

Limit of SAR (W/kg)	10 g Average	1 g Average	Power Drift (dB)
	2.0	1.6	
Test Case	Measurement Result (W/kg)		
	10 g Average	1 g Average	
Left hand, Touch cheek, Top frequency (See Fig.49)	0.325	0.418	-0.090
Left hand, Touch cheek, Mid frequency (See Fig.50)	0.279	0.360	-0.129
Left hand, Touch cheek, Bottom frequency (See Fig.51)	0.271	0.348	0.028
Left hand, Tilt 15 Degree, Top frequency (See Fig.52)	0.227	0.299	-0.020
Left hand, Tilt 15 Degree, Mid frequency (See Fig.53)	0.211	0.276	-0.139
Left hand, Tilt 15 Degree, Bottom frequency (See Fig.54)	0.201	0.262	-0.023
Right hand, Touch cheek, Top frequency (See Fig.55)	0.374	0.497	0.010
Right hand, Touch cheek, Mid frequency (See Fig.56)	0.321	0.426	-0.157
Right hand, Touch cheek, Bottom frequency (See Fig.57)	0.322	0.427	0.036
Right hand, Tilt 15 Degree, Top frequency (See Fig.58)	0.241	0.317	-0.051
Right hand, Tilt 15 Degree, Mid frequency (See Fig.59)	0.233	0.307	-0.124
Right hand, Tilt 15 Degree, Bottom frequency(See Fig.60)	0.218	0.287	0.023

Table 16: SAR Values (WCDMA 850MHz-Head Slide up)

Limit of SAR (W/kg)	10 g Average	1 g Average	Power Drift (dB)
	2.0	1.6	
Test Case	**Measurement Result (W/kg)**		
	10 g Average	**1 g Average**	
Left hand, Touch cheek, Top frequency (See Fig.61)	0.309	0.391	0.063
Left hand, Touch cheek, Mid frequency (See Fig.62)	0.331	0.419	-0.044
Left hand, Touch cheek, Bottom frequency (See Fig.63)	0.232	0.293	0.139
Left hand, Tilt 15 Degree, Top frequency (See Fig.64)	0.172	0.225	-0.166
Left hand, Tilt 15 Degree, Mid frequency (See Fig.65)	0.201	0.264	-0.073
Left hand, Tilt 15 Degree, Bottom frequency (See Fig.66)	0.172	0.226	-0.031
Right hand, Touch cheek, Top frequency (See Fig.67)	0.315	0.421	0.128
Right hand, Touch cheek, Mid frequency (See Fig.68)	0.363	0.484	0.021
Right hand, Touch cheek, Bottom frequency (See Fig.69)	0.260	0.347	0.048
Right hand, Tilt 15 Degree, Top frequency (See Fig.70)	0.192	0.253	-0.034
Right hand, Tilt 15 Degree, Mid frequency (See Fig.71)	0.230	0.302	0.031
Right hand, Tilt 15 Degree, Bottom frequency(See Fig.72)	0.152	0.200	-0.028

Table 17: SAR Values (WCDMA 1900MHz-Head Slide down)

Limit of SAR (W/kg)	10 g Average	1 g Average	Power Drift (dB)
	2.0	1.6	
Test Case	**Measurement Result (W/kg)**		
	10 g Average	**1 g Average**	
Left hand, Touch cheek, Top frequency (See Fig.73)	0.537	0.883	-0.161
Left hand, Touch cheek, Mid frequency (See Fig.74)	0.413	0.796	-0.132
Left hand, Touch cheek, Bottom frequency (See Fig.75)	0.418	0.693	-0.161
Left hand, Tilt 15 Degree, Top frequency (See Fig.76)	0.245	0.387	-0.193
Left hand, Tilt 15 Degree, Mid frequency (See Fig.77)	0.280	0.440	-0.106
Left hand, Tilt 15 Degree, Bottom frequency (See Fig.78)	0.214	0.338	-0.109
Right hand, Touch cheek, Top frequency (See Fig.79)	0.435	0.694	-0.024
Right hand, Touch cheek, Mid frequency (See Fig.80)	0.434	0.702	-0.169
Right hand, Touch cheek, Bottom frequency (See Fig.81)	0.424	0.684	-0.104
Right hand, Tilt 15 Degree, Top frequency (See Fig.82)	0.311	0.514	-0.141
Right hand, Tilt 15 Degree, Mid frequency (See Fig.83)	0.239	0.395	-0.166
Right hand, Tilt 15 Degree, Bottom frequency(See Fig.84)	0.215	0.342	-0.069

Table 18: SAR Values (WCDMA 1900MHz-Head Slide up)

Limit of SAR (W/kg)	10 g Average	1 g Average	Power Drift (dB)
	2.0	1.6	
Test Case	Measurement Result (W/kg)		
	10 g Average	1 g Average	
Left hand, Touch cheek, Top frequency (See Fig.85)	0.248	0.394	-0.152
Left hand, Touch cheek, Mid frequency (See Fig.86)	0.229	0.363	0.025
Left hand, Touch cheek, Bottom frequency (See Fig.87)	0.215	0.342	-0.099
Left hand, Tilt 15 Degree, Top frequency (See Fig.88)	0.218	0.360	-0.106
Left hand, Tilt 15 Degree, Mid frequency (See Fig.89)	0.184	0.303	-0.002
Left hand, Tilt 15 Degree, Bottom frequency (See Fig.90)	0.172	0.281	-0.050
Right hand, Touch cheek, Top frequency (See Fig.91)	0.338	0.569	0.006
Right hand, Touch cheek, Mid frequency (See Fig.92)	0.295	0.492	-0.131
Right hand, Touch cheek, Bottom frequency (See Fig.93)	0.288	0.476	-0.138
Right hand, Tilt 15 Degree, Top frequency (See Fig.94)	0.178	0.288	0.142
Right hand, Tilt 15 Degree, Mid frequency (See Fig.95)	0.155	0.247	-0.158
Right hand, Tilt 15 Degree, Bottom frequency (See Fig.96)	0.168	0.267	0.151

Table 19: SAR Values (GSM 850MHz-Body Slide down)

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	
Towards Phantom, Top frequency with GPRS (See Fig.97)	0.499	0.668	-0.131
Towards Phantom, Mid frequency with GPRS (See Fig.98)	0.461	0.648	-0.093
Towards Phantom, Bottom frequency with GPRS (See Fig.99)	0.409	0.554	-0.104
Towards Ground, Top frequency with GPRS (See Fig.100)	0.779	1.11	-0.154
Towards Ground, Mid frequency with GPRS (See Fig.101)	0.766	1.06	-0.060
Towards Ground, Bottom frequency with GPRS (See Fig.102)	0.666	0.914	0.009

Table 20: SAR Values (GSM 850MHz-Body Slide up)

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	
Towards Phantom, Top frequency with GPRS (See Fig.103)	0.521	0.718	-0.132
Towards Phantom, Mid frequency with GPRS (See Fig.104)	0.506	0.678	-0.143
Towards Phantom, Bottom frequency with GPRS (See Fig.105)	0.507	0.677	-0.144
Towards Ground, Top frequency with GPRS (See Fig.106)	0.596	0.815	-0.156
Towards Ground, Mid frequency with GPRS (See Fig.107)	0.591	0.802	0.005
Towards Ground, Bottom frequency with GPRS (See Fig.108)	0.574	0.778	-0.016

Table 21: SAR Values (GSM 850MHz-Body Slide down with EGPRS and Headset)

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	
Towards Ground, Top frequency with EGPRS (See Fig.109)	0.603	0.846	-0.097
Towards Ground, Top frequency with Headset (See Fig.110)	0.477	0.662	0.073

Table 22: SAR Values (PCS 1900MHz-Body Slide down)

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	
Towards Phantom, Top frequency with GPRS (See Fig.111)	0.172	0.279	-0.078
Towards Phantom, Mid frequency with GPRS (See Fig.112)	0.148	0.236	0.159
Towards Phantom, Bottom frequency with GPRS (See Fig.113)	0.139	0.222	-0.054
Towards Ground, Top frequency with GPRS (See Fig.114)	0.294	0.506	0.130
Towards Ground, Mid frequency with GPRS (See Fig.115)	0.278	0.476	0.033

Towards Ground, Bottom frequency with GPRS (See Fig.116)	0.267	0.457	-0.185

Table 23: SAR Values (PCS 1900MHz-Body Slide up)

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	
Towards Phantom, Top frequency with GPRS (See Fig.117)	0.112	0.176	0.154
Towards Phantom, Mid frequency with GPRS (See Fig.118)	0.102	0.162	0.084
Towards Phantom, Bottom frequency with GPRS (See Fig.119)	0.103	0.223	-0.123
Towards Ground, Top frequency with GPRS (See Fig.120)	0.250	0.436	-0.158
Towards Ground, Mid frequency with GPRS (See Fig.121)	0.218	0.380	0.003
Towards Ground, Bottom frequency with GPRS (See Fig.122)	0.221	0.381	0.177

Table 24: SAR Values (PCS 1900MHz-Body Slide down with EGPRS and Headset)

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	
Towards Ground, Top frequency with EGPRS (See Fig.123)	0.294	0.499	-0.024
Towards Ground, Top frequency with Headset (See Fig.124)	0.222	0.382	0.156

Table 25: SAR Values (WCDMA 850MHz-Body Slide down)

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	
Towards Phantom, Top frequency (See Fig.125)	0.361	0.482	-0.117
Towards Phantom, Mid frequency (See Fig.126)	0.298	0.398	0.029

Towards Phantom, Bottom frequency (See Fig.127)	0.333	0.443	-0.034
Towards Ground, Top frequency (See Fig.128)	0.573	0.794	0.037
Towards Ground, Mid frequency (See Fig.129)	0.445	0.614	0.004
Towards Ground, Bottom frequency (See Fig.130)	0.521	0.718	0.145

Table 26: SAR Values (WCDMA 850MHz-Body Slide up)

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	
Towards Phantom, Top frequency (See Fig.131)	0.393	0.525	0.023
Towards Phantom, Mid frequency (See Fig.132)	0.440	0.588	-0.061
Towards Phantom, Bottom frequency (See Fig.133)	0.311	0.413	-0.165
Towards Ground, Top frequency (See Fig.134)	0.444	0.602	0.112
Towards Ground, Mid frequency (See Fig.135)	0.486	0.657	-0.006
Towards Ground, Bottom frequency (See Fig.136)	0.390	0.527	0.039

Table 27: SAR Values (WCDMA 850MHz-Body Slide down with Headset)

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	
Towards Ground, Top frequency with Headset (See Fig.137)	0.490	0.681	0.007

Table 28: SAR Values (WCDMA 1900MHz-Body Slide down)

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	

Towards Phantom, Top frequency (See Fig.138)	0.252	0.404	-0.136
Towards Phantom, Mid frequency (See Fig.139)	0.205	0.329	-0.179
Towards Phantom, Bottom frequency (See Fig.140)	0.187	0.299	-0.063
Towards Ground, Top frequency (See Fig.141)	0.317	0.540	0.006
Towards Ground, Mid frequency (See Fig.142)	0.331	0.562	-0.037
Towards Ground, Bottom frequency (See Fig.143)	0.434	0.757	-0.141

Table 29: SAR Values (WCDMA 1900MHz-Body Slide up)

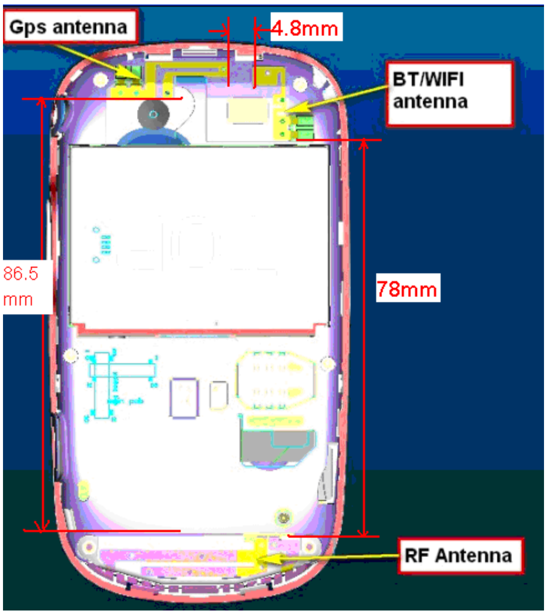
Limit of SAR (W/kg)	10 g Average	1g Average	Power Drift (dB)
	2.0	1.6	
Test Case	Measurement Result (W/kg)		
	10 g Average	1 g Average	
Towards Phantom, Top frequency (See Fig.144)	0.171	0.266	-0.182
Towards Phantom, Mid frequency (See Fig.145)	0.138	0.213	-0.120
Towards Phantom, Bottom frequency (See Fig.146)	0.158	0.245	0.149
Towards Ground, Top frequency (See Fig.147)	0.262	0.443	0.151
Towards Ground, Mid frequency (See Fig.148)	0.288	0.487	-0.192
Towards Ground, Bottom frequency (See Fig.149)	0.337	0.575	-0.149

Table 30: SAR Values (WCDMA 1900MHz-Body Slide down with Headset)

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	
Towards Ground, Bottom frequency with Headset (See Fig.150)	0.327	0.559	0.044

8.4 Summary of Measurement Results (Bluetooth and WiFi function)

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



The output power of BT antenna is as following:

Channel	Ch 0 (2402 MHz)	Ch 39 (2441 MHz)	Ch 78 (2480 MHz)
Peak Conducted Output Power(dBm)	-2.43	-0.80	-0.53

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

The conducted power for WiFi is as following:

802.11b（dBm）

Channel\data rate	1Mbps	2Mbps	5.5Mbps	11Mbps
1	15.49	15.52	15.63	15.65
6	15.47	15.45	15.62	15.57
11	15.60	15.59	15.77	15.64

802.11g（dBm）

Channel\data rate	6Mbps	9Mbps	12Mbps	18Mbps	24Mbps	36Mbps	48Mbps	54Mbps
1	15.79	15.74	15.72	15.61	15.64	15.53	15.43	15.49
6	15.82	15.56	15.47	15.64	15.83	15.84	15.34	15.49
11	15.50	15.38	15.61	15.62	15.62	15.81	15.51	15.52

According to the conducted power measurement result, we can draw the conclusion that: stand-alone SAR for WiFi should be performed. Then, simultaneous transmission SAR for WiFi is considered with measurement results of GSM and WiFi.

SAR is not required for 802.11g channels if the output power is less than 0.25dB higher than that measured on the corresponding 802.11b channels, and for each frequency band, testing at higher data rates and higher order modulations is not required when the maximum average output power for each of these configurations is less than 0.25dB higher than those measured at the lowest data rate. According to the above conducted power, the EUT should be tested for “802.11b, 1Mbps, channel 11” and “802.11g, 6Mbps, channel 6，36Mbps, channel 11 ”.

Table 31: SAR Values (WIFI 802.b -Head Slide down)

Limit of SAR (W/kg)	**10 g Average**	**1 g Average**	**Power Drift (dB)**
	2.0	1.6	
Test Case	**Measurement Result (W/kg)**		
	10 g Average	**1 g Average**	
Left hand, Touch cheek, 1Mbps,channel 11 (See Fig.151)	0.033	0.061	-0.120
Left hand, Tilt 15 Degree, 1Mbps,channel 11 (See Fig.152)	0.033	0.064	-0.126
Right hand, Touch cheek, 1Mbps,channel 11 (See Fig.153)	0.027	0.051	0.183
Right hand, Tilt 15 Degree, 1Mbps,channel 11 (See Fig.154)	0.028	0.053	-0.084

Table 32: SAR Values (WIFI 802.b -Head Slide up)

Limit of SAR (W/kg)	**10 g Average**	**1 g Average**	**Power Drift (dB)**
	2.0	1.6	
Test Case	**Measurement Result (W/kg)**		
	10 g Average	**1 g Average**	
Left hand, Touch cheek, 1Mbps,channel 11 (See Fig.155)	0.00484	0.012	0.095
Left hand, Tilt 15 Degree, 1Mbps,channel 11 (See Fig.156)	0.00677	0.015	-0.167
Right hand, Touch cheek, 1Mbps,channel 11 (See Fig.157)	0.0049	0.011	0.148
Right hand, Tilt 15 Degree, 1Mbps,channel 11 (See Fig.158)	0.00519	0.012	0.195

Table 33: SAR Values (WIFI 802.g -Head Slide down)

Limit of SAR (W/kg)	**10 g Average**	**1 g Average**	**Power Drift (dB)**
	2.0	1.6	
Test Case	**Measurement Result (W/kg)**		
	10 g Average	**1 g Average**	
Left hand, Touch cheek, 6Mbps,channel 6 (See Fig.159)	0.039	0.072	0.072
Left hand, Tilt 15 Degree, 6Mbps,channel 6 (See Fig.160)	0.045	0.088	0.180

Right hand, Touch cheek, 6Mbps,channel 6 (See Fig.161)	0.036	0.067	-0.183
Right hand, Tilt 15 Degree, 6Mbps,channel 6 (See Fig.162)	0.035	0.066	-0.106
Left hand, Touch cheek, 36Mbps,channel 11 (See Fig.163)	0.031	0.061	0.138
Left hand, Tilt 15 Degree, 36Mbps,channel 11 (See Fig.164)	0.028	0.055	0.180
Right hand, Touch cheek, 36Mbps,channel 11 (See Fig.165)	0.026	0.050	-0.062
Right hand, Tilt 15 Degree, 36Mbps,channel 11 (See Fig.166)	0.026	0.050	0.143

Table 34: SAR Values (WIFI 802.g -Head Slide up)

Limit of SAR (W/kg)	**10 g Average**	**1 g Average**	**Power Drift (dB)**
	2.0	1.6	
Test Case	**Measurement Result (W/kg)**		
	10 g Average	**1 g Average**	
Left hand, Touch cheek, 6Mbps,channel 6 (See Fig.167)	0.00768	0.018	0.114
Left hand, Tilt 15 Degree, 6Mbps,channel 6 (See Fig.168)	0.00698	0.017	0.197
Right hand, Touch cheek, 6Mbps,channel 6 (See Fig.169)	0.00725	0.013	0.138
Right hand, Tilt 15 Degree, 6Mbps,channel 6 (See Fig.170)	0.0533	0.013	0.196
Left hand, Touch cheek, 36Mbps,channel 11 (See Fig.171)	0.00517	0.015	-0.116
Left hand, Tilt 15 Degree, 36Mbps,channel 11 (See Fig.172)	0.00627	0.017	-0.017
Right hand, Touch cheek, 36Mbps,channel 11 (See Fig.173)	0.00337	0.011	0.163
Right hand, Tilt 15 Degree, 36Mbps,channel 11 (See Fig.174)	0.00445	0.010	-0.010

Table 35: SAR Values (WIFI 802.b -Body Slide down)

Limit of SAR (W/kg)	**10 g Average**	**1 g Average**	**Power Drift (dB)**
	2.0	1.6	
Test Case	**Measurement Result (W/kg)**		
	10 g Average	**1 g Average**	
Toward phantom, 1Mbps,channel 11 (See Fig.175)	0.012	0.024	0.104
Toward ground, 1Mbps,channel 11 (See Fig.176)	0.024	0.051	-0.187

Table 36: SAR Values (WIFI 802.b - Body Slide up)

Limit of SAR (W/kg)	10 g Average	1 g Average	Power Drift (dB)
	2.0	1.6	
Test Case	Measurement Result (W/kg)		
	10 g Average	1 g Average	
Toward phantom, 1Mbps,channel 11 (See Fig.177)	0.00317	0.00676	-0.158
Toward ground, 1Mbps,channel 11 (See Fig.178)	0.024	0.049	0.125

Table 37: SAR Values (WIFI 802.g - Body Slide down)

Limit of SAR (W/kg)	10 g Average	1 g Average	Power Drift (dB)
	2.0	1.6	
Test Case	Measurement Result (W/kg)		
	10 g Average	1 g Average	
Toward phantom, 6Mbps,channel 6 (See Fig.179)	0.00912	0.019	0.174
Toward ground, 6Mbps,channel 6 (See Fig.180)	0.015	0.034	0.158
Toward phantom, 36Mbps,channel 11 (See Fig.181)	0.010	0.021	0.180
Toward ground, 36Mbps,channel 11 (See Fig.182)	0.018	0.041	-0.140

Table 38: SAR Values (WIFI 802.g - Body Slide up)

Limit of SAR (W/kg)	10 g Average	1 g Average	Power Drift (dB)
	2.0	1.6	
Test Case	Measurement Result (W/kg)		
	10 g Average	1 g Average	
Toward phantom, 6Mbps,channel 6 (See Fig.183)	0.00228	0.00708	0.168
Toward ground, 6Mbps,channel 6 (See Fig.184)	0.021	0.044	-0.029
Toward phantom, 36Mbps,channel 11 (See Fig.185)	0.000968	0.00354	-0.199
Toward ground, 36Mbps,channel 11 (See Fig.186)	0.026	0.057	-0.019

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 39: 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	113312	August 10, 2010	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.

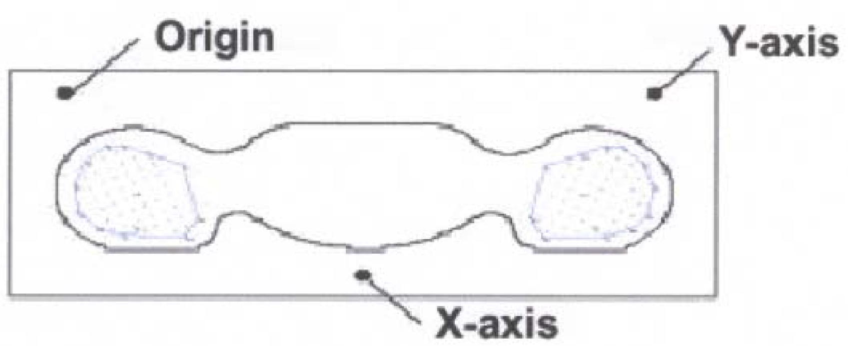
Step 3: Around this point, a volume of 30 mm x 30 mm x 30 mm was assessed by measuring 7 x 7x 7 points. On this basis of this data set, the spatial peak SAR value was evaluated with the following procedure:

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.

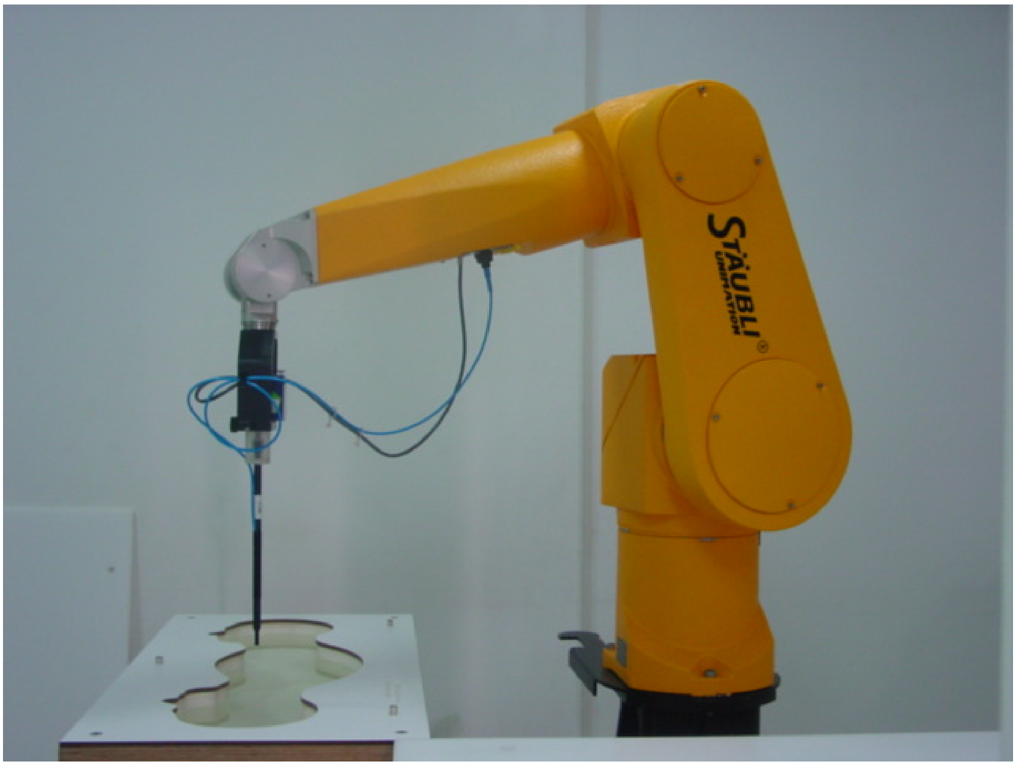
c. All neighboring volumes were evaluated until no neighboring volume with a higher average value was found.

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.

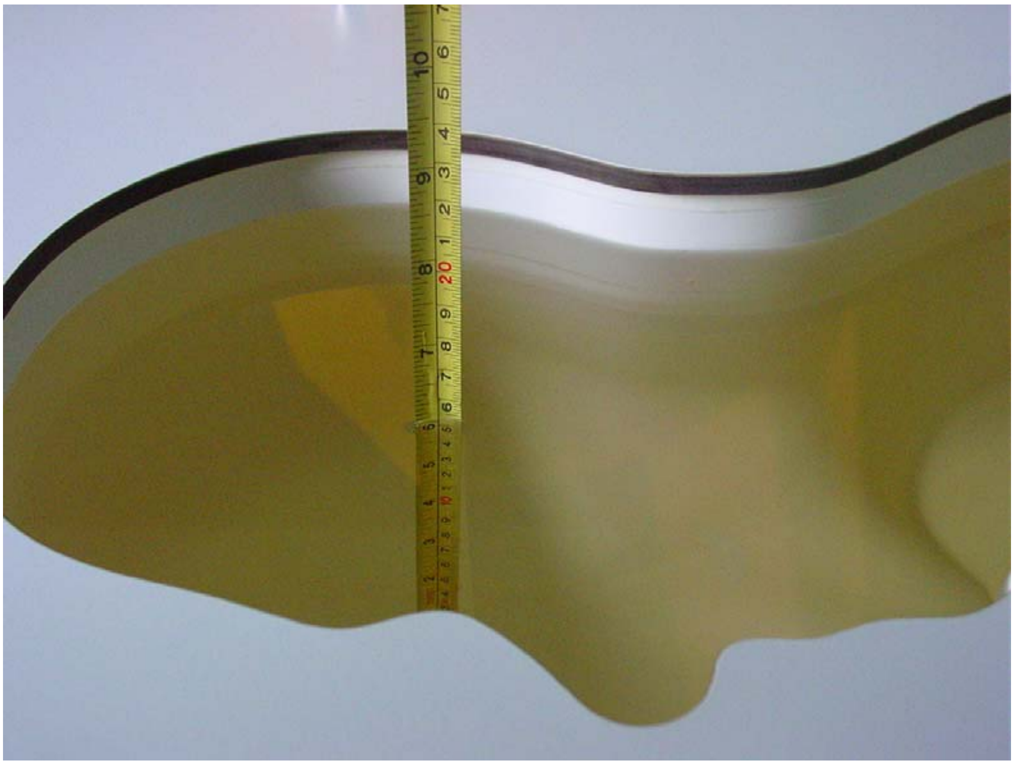


Picture A: SAR Measurement Points in Area Scan

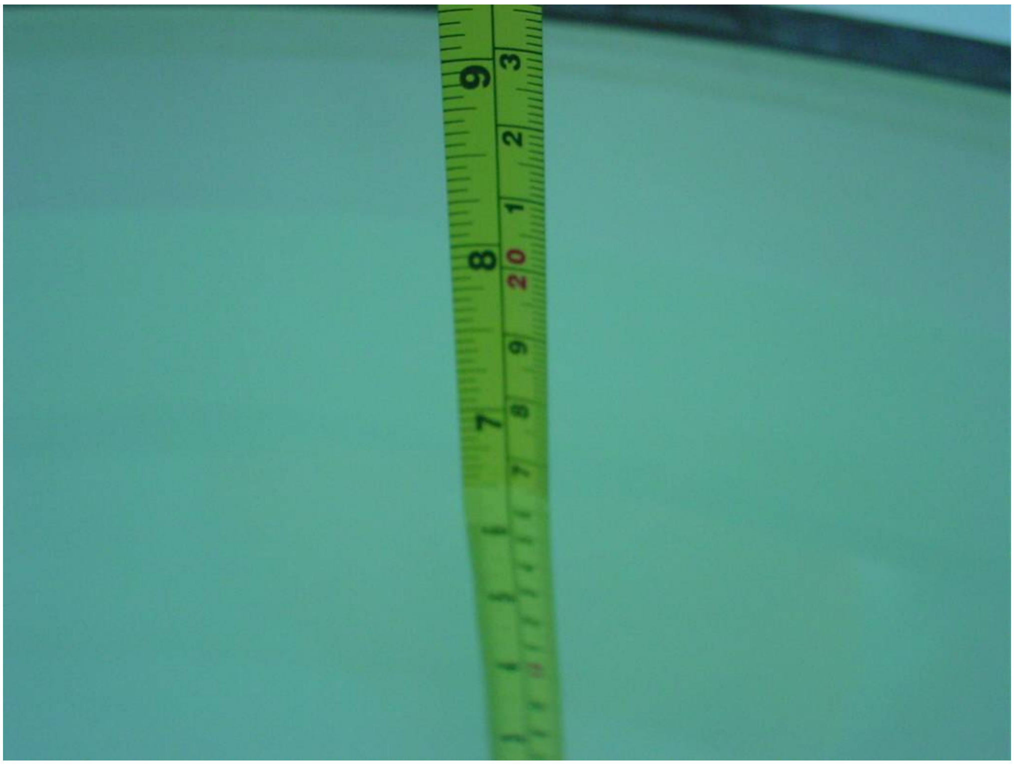
ANNEX B TEST LAYOUT



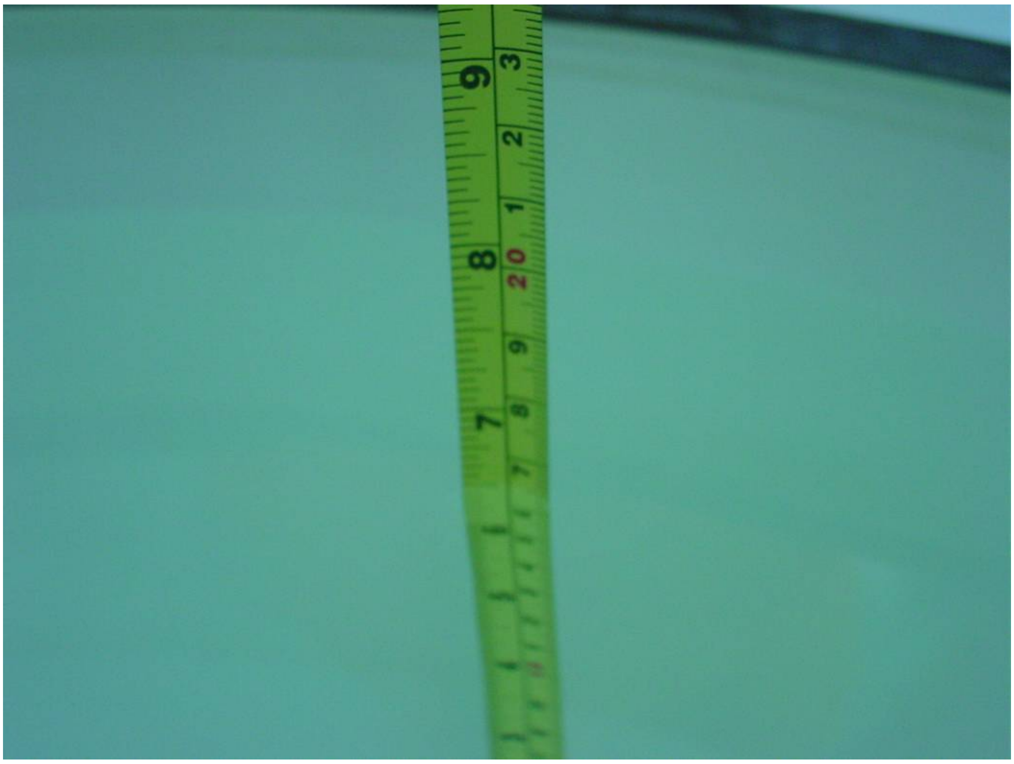
Picture B1: Specific Absorption Rate Test Layout



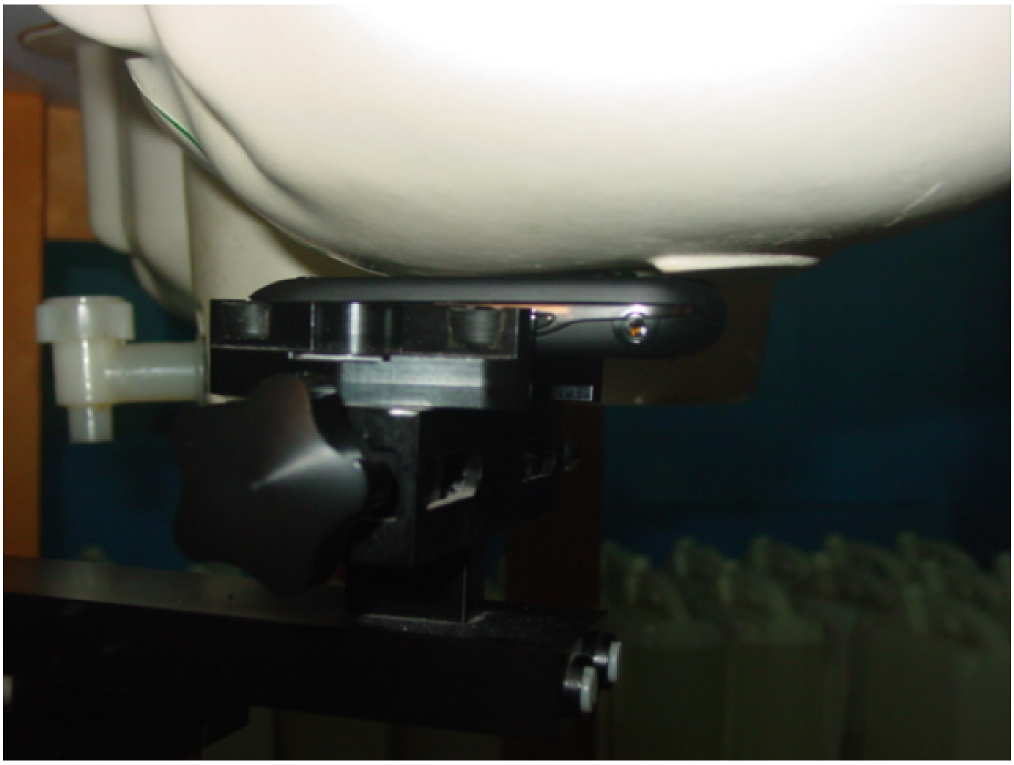
Picture B2: Liquid depth in the Head Phantom (850 MHz)



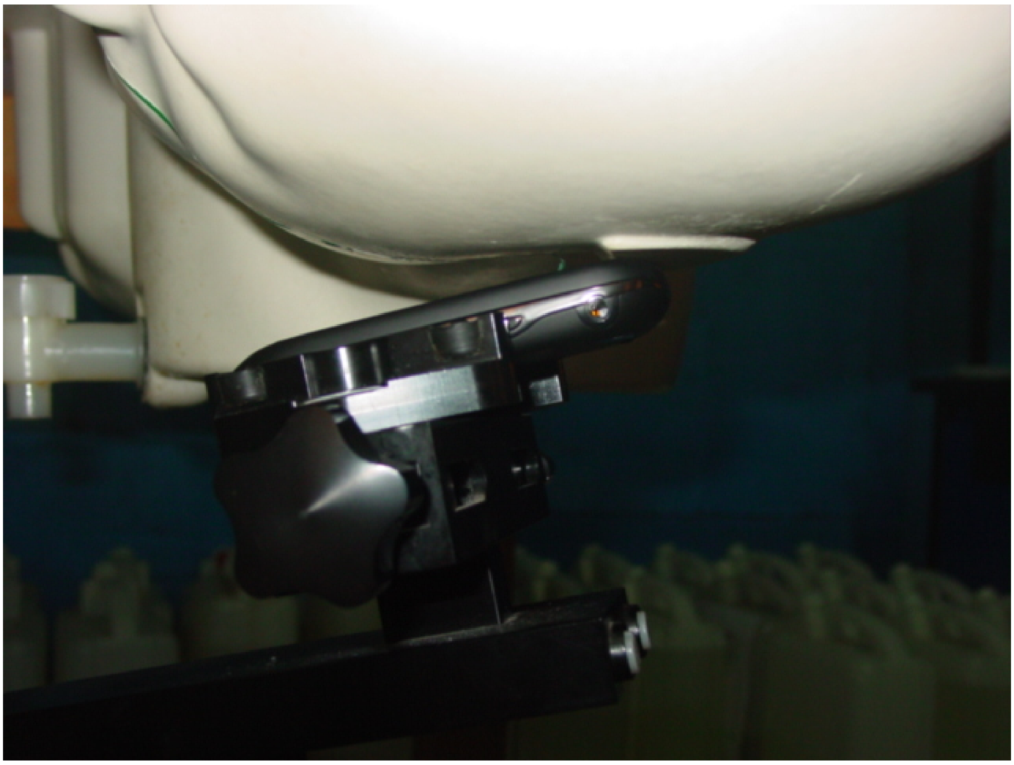
Picture B3 Liquid depth in the Flat Phantom (1900MHz)



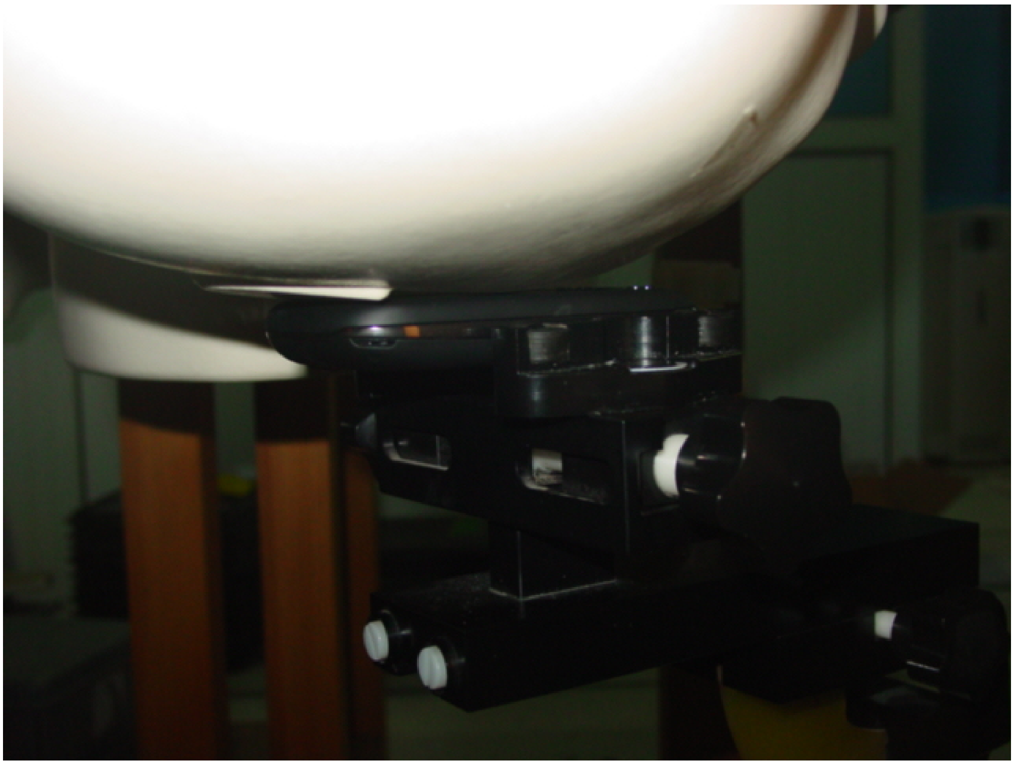
Picture B4 Liquid depth in the Flat Phantom (2450MHz)



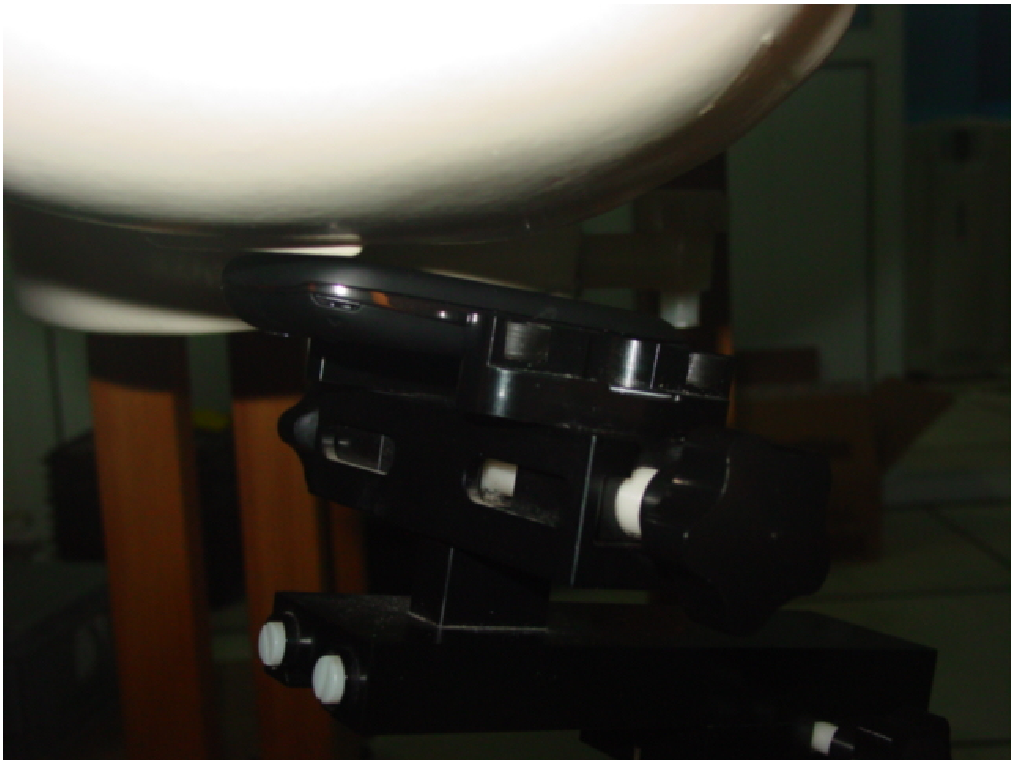
Picture B5: Left Hand Touch Cheek Position – Slide down



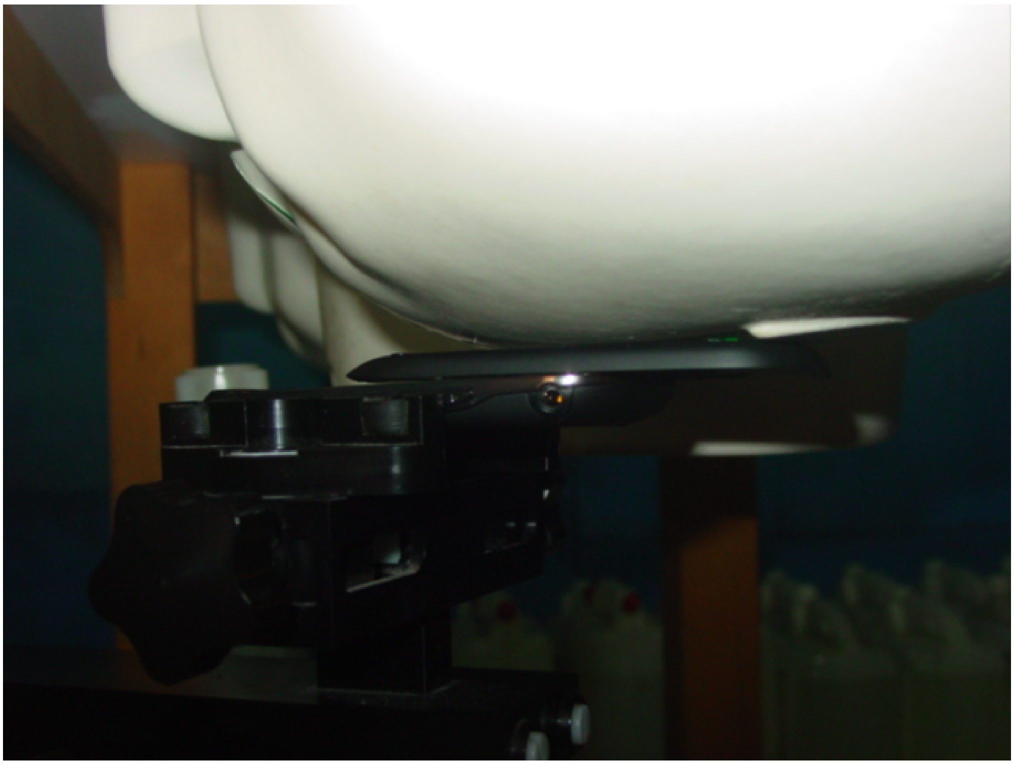
Picture B6: Left Hand Tilt 15° Position – Slide down



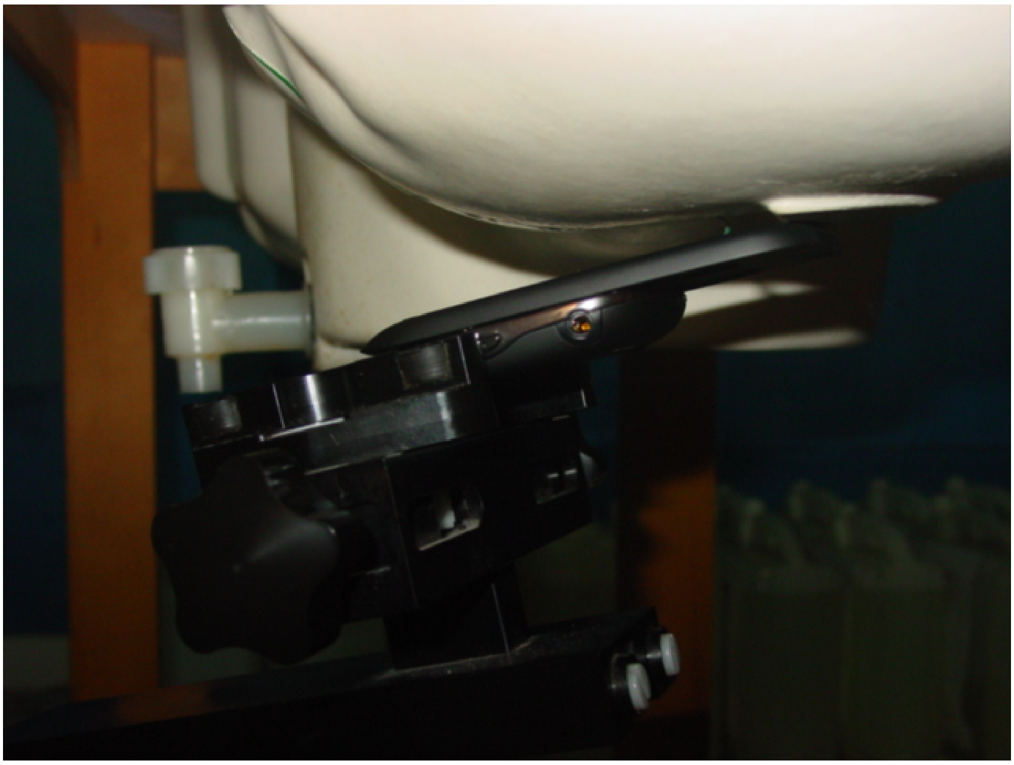
Picture B7: Right Hand Touch Cheek Position – Slide down



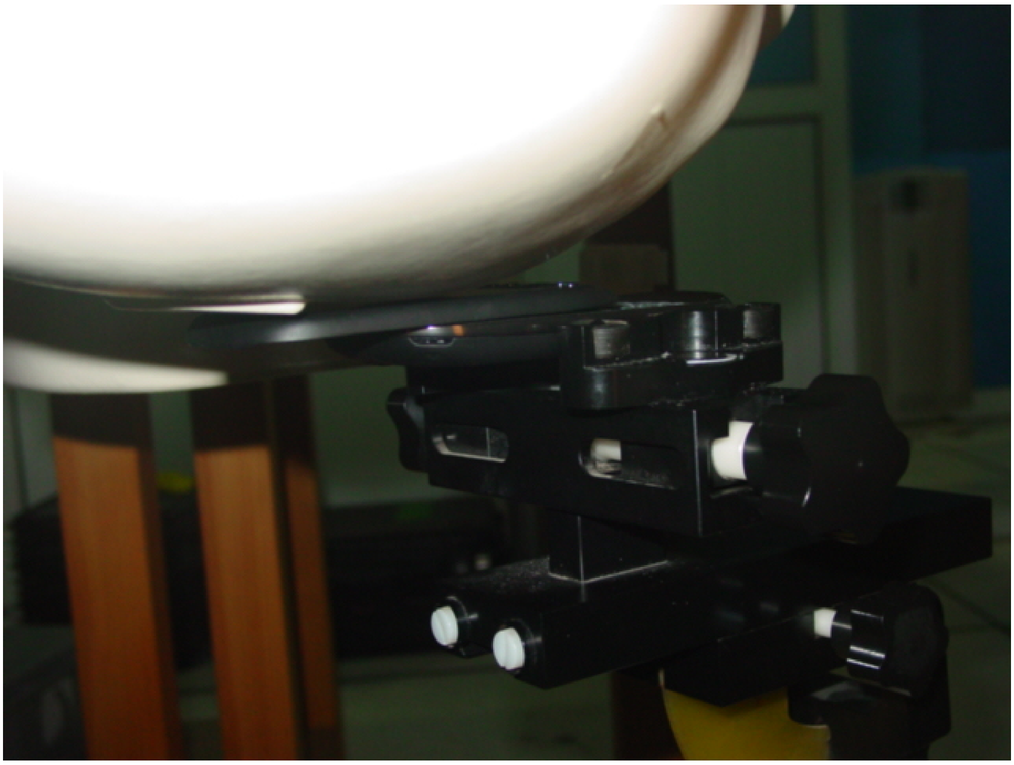
Picture B8: Right Hand Tilt 15° Position – Slide down



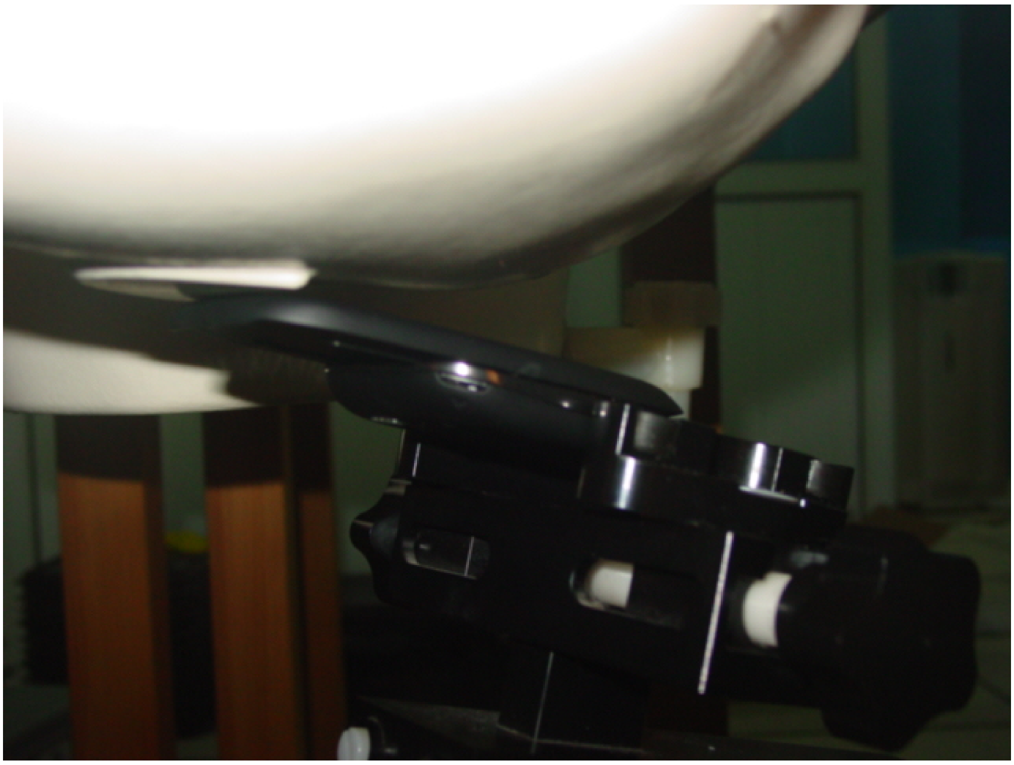
Picture B9: Left Hand Touch Cheek Position – Slide up



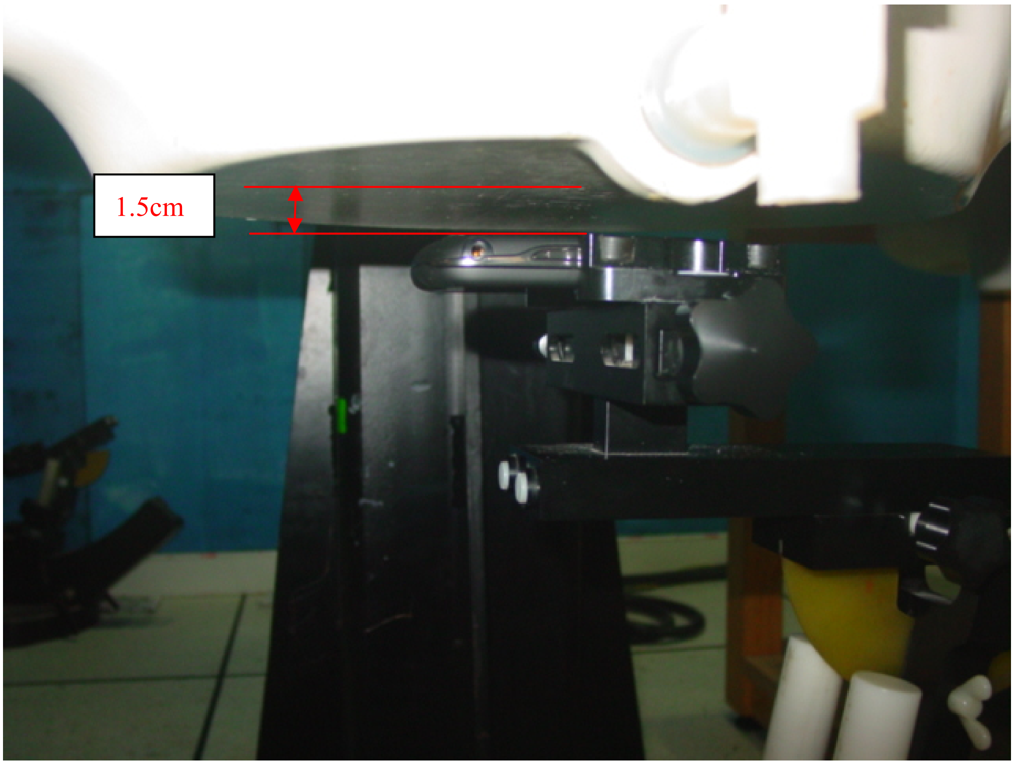
Picture B10: Left Hand Tilt 15° Position – Slide up



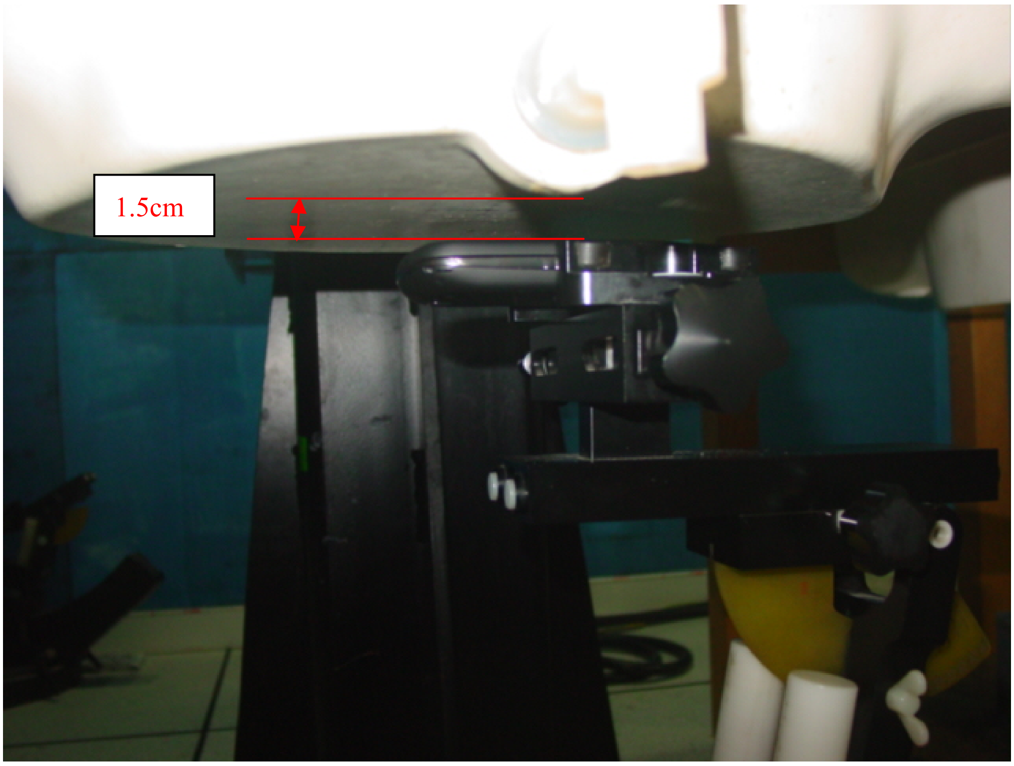
Picture B11: Right Hand Touch Cheek Position – Slide up



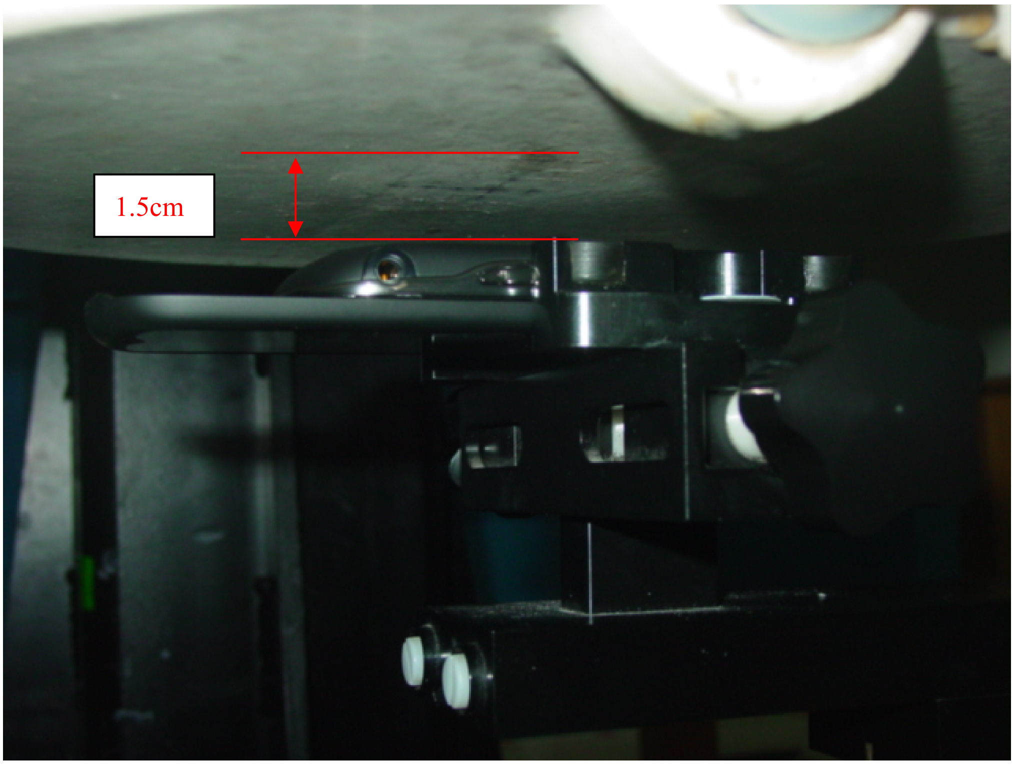
Picture B12: Right Hand Tilt 15° Position – Slide up



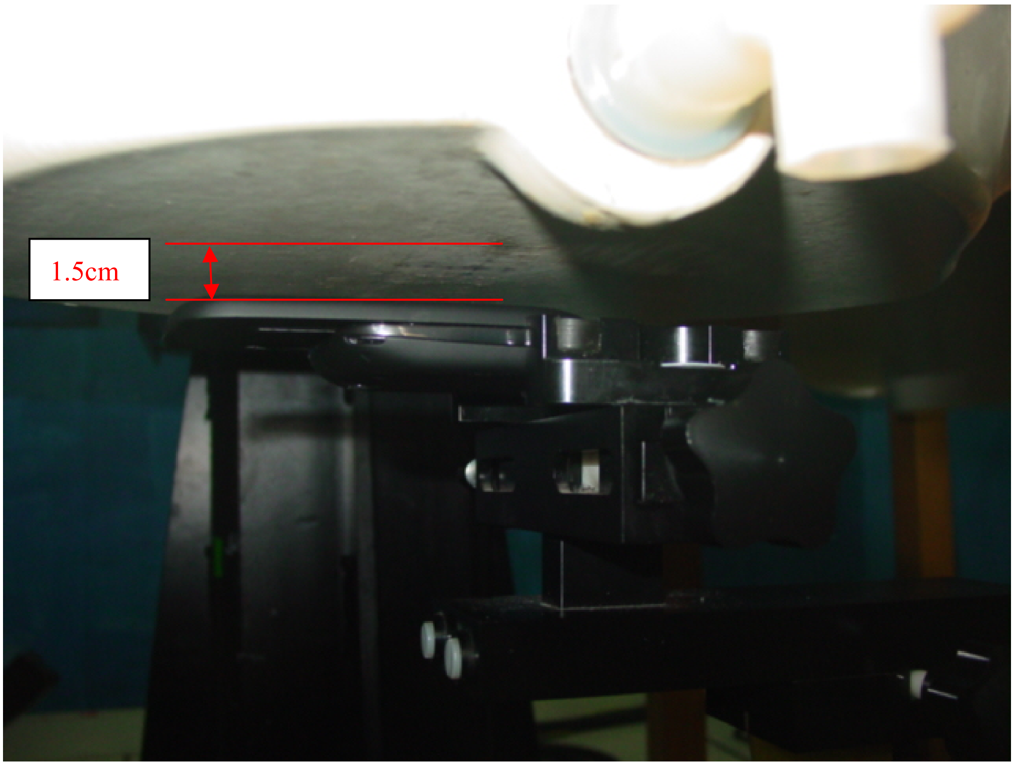
Picture B13: Body-worn Position (towards ground, the distance from handset to the bottom of the Phantom is 1.5cm) – Slide down



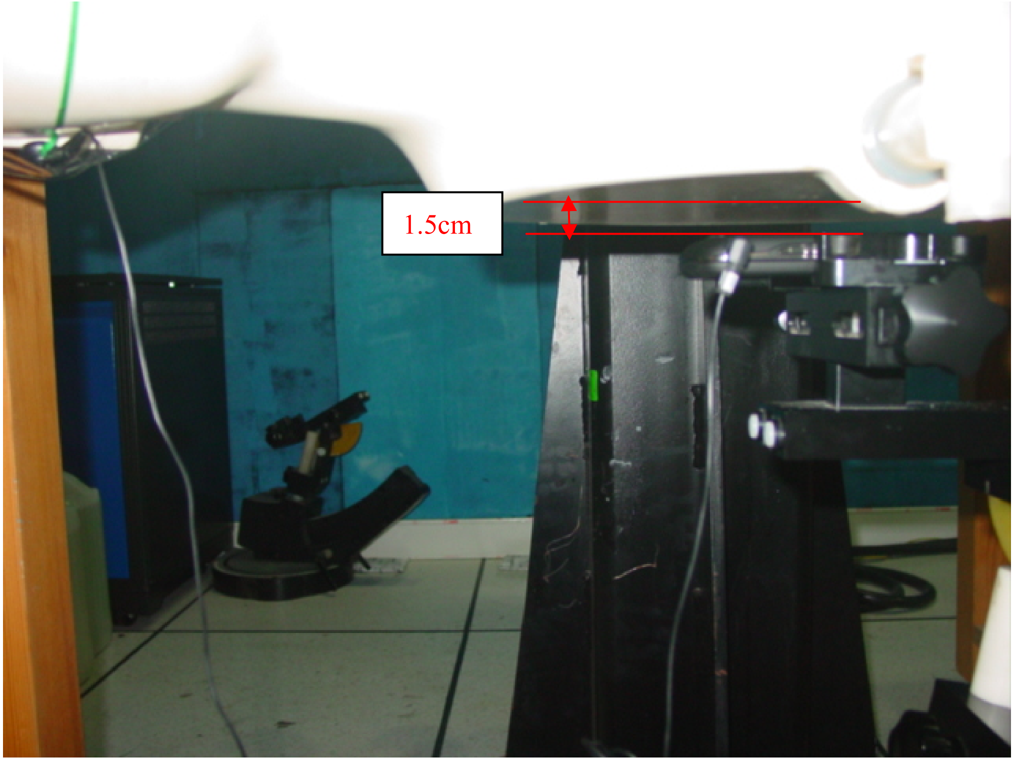
Picture B14: Body-worn Position (towards phantom, the distance from handset to the bottom of the Phantom is 1.5cm) – Slide down



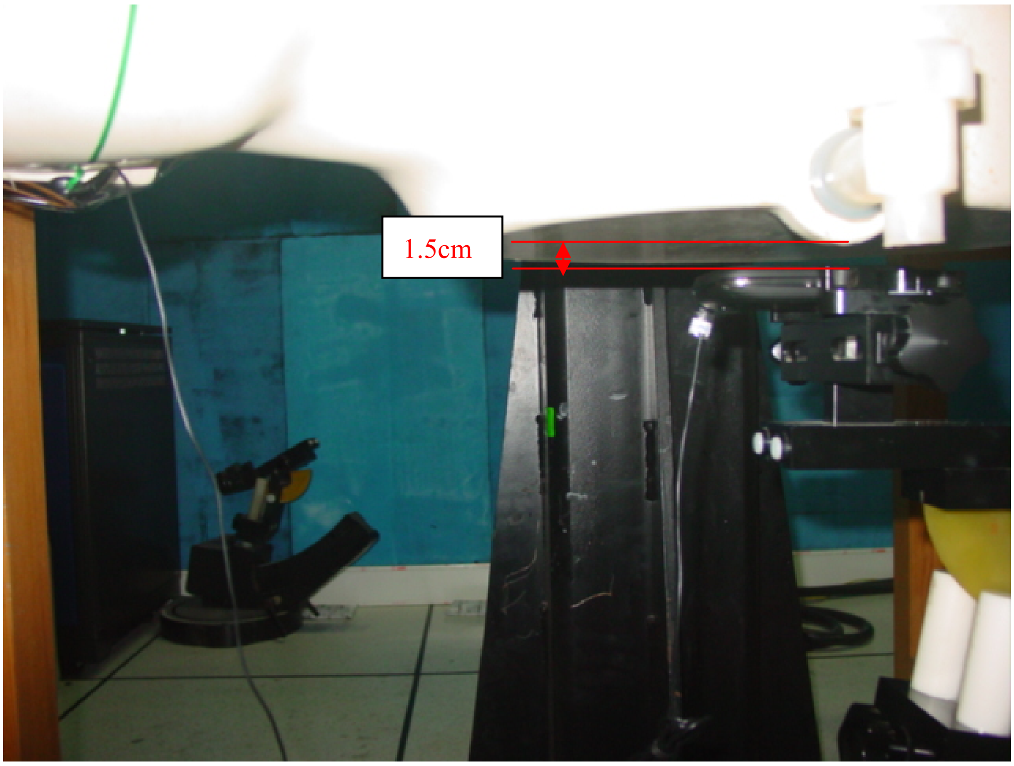
Picture B15: Body-worn Position (towards ground, the distance from handset to the bottom of the Phantom is 1.5cm) – Slide up



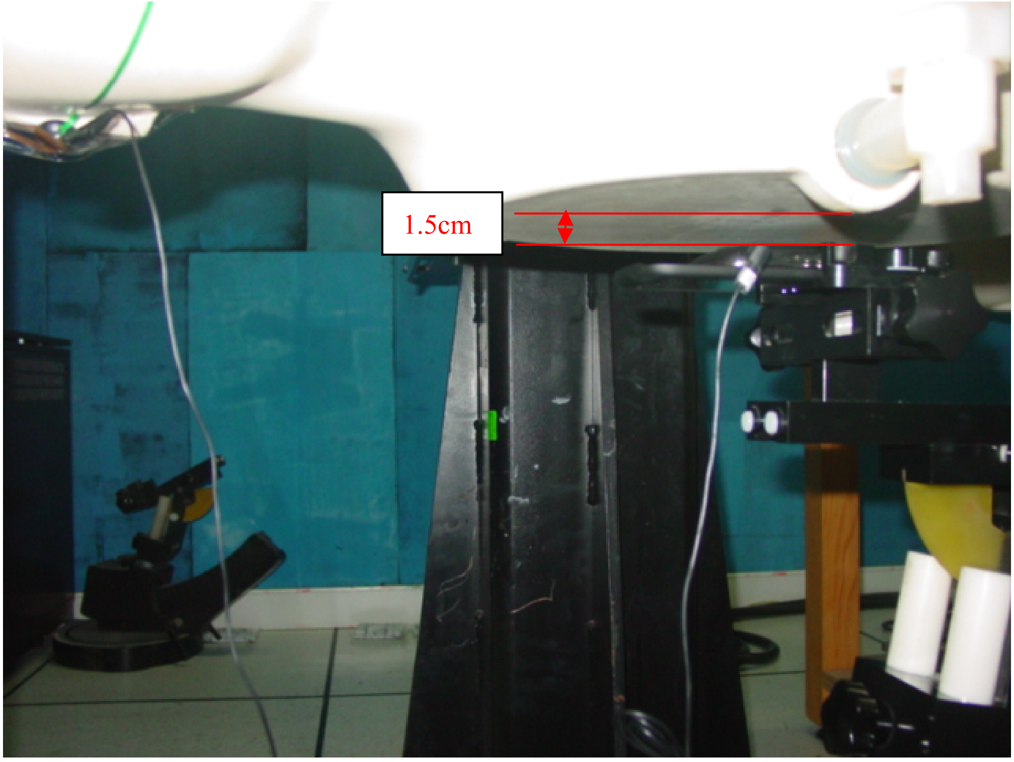
Picture B16: Body-worn Position (towards phantom, the distance from handset to the bottom of the Phantom is 1.5cm) – Slide up



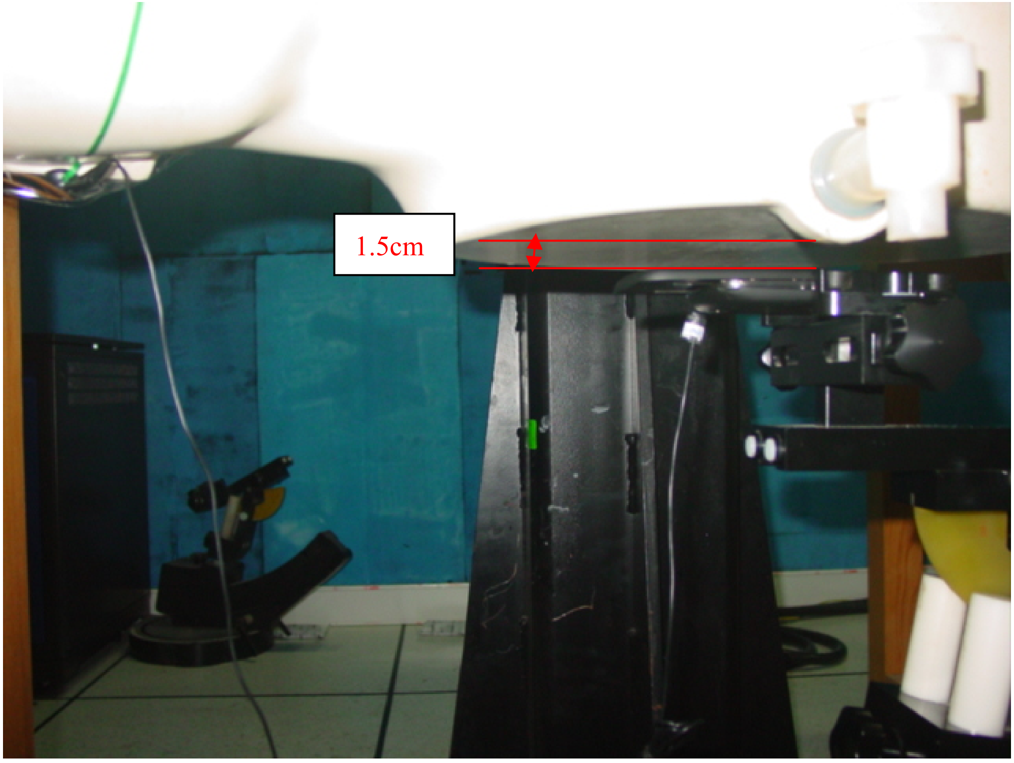
Picture B17: Body-worn Position with Headset (towards ground, the distance from handset to the bottom of the Phantom is 1.5cm) – Slide down



Picture B18: Body-worn Position with Headset (towards phantom, the distance from handset to the bottom of the Phantom is 1.5cm) – Slide down



Picture B19: Body-worn Position with Headset (towards ground, the distance from handset to the bottom of the Phantom is 1.5cm) – Slide up



Picture B20: Body-worn Position with Headset (towards phantom, the distance from handset to the bottom of the Phantom is 1.5cm) – Slide up

ANNEX C GRAPH RESULTS

850 Left Cheek High- Slide down

Date/Time: 2010-7-25 8:10:41
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 848.8 MHz; σ = 0.90 mho/m; εr = 41.8; ρ = 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 (61x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.527 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.61 V/m; Power Drift = -0.109 dB
Peak SAR (extrapolated) = 0.617 W/kg
SAR(1 g) = 0.484 mW/g; SAR(10 g) = 0.365 mW/g
Maximum value of SAR (measured) = 0.511 mW/g

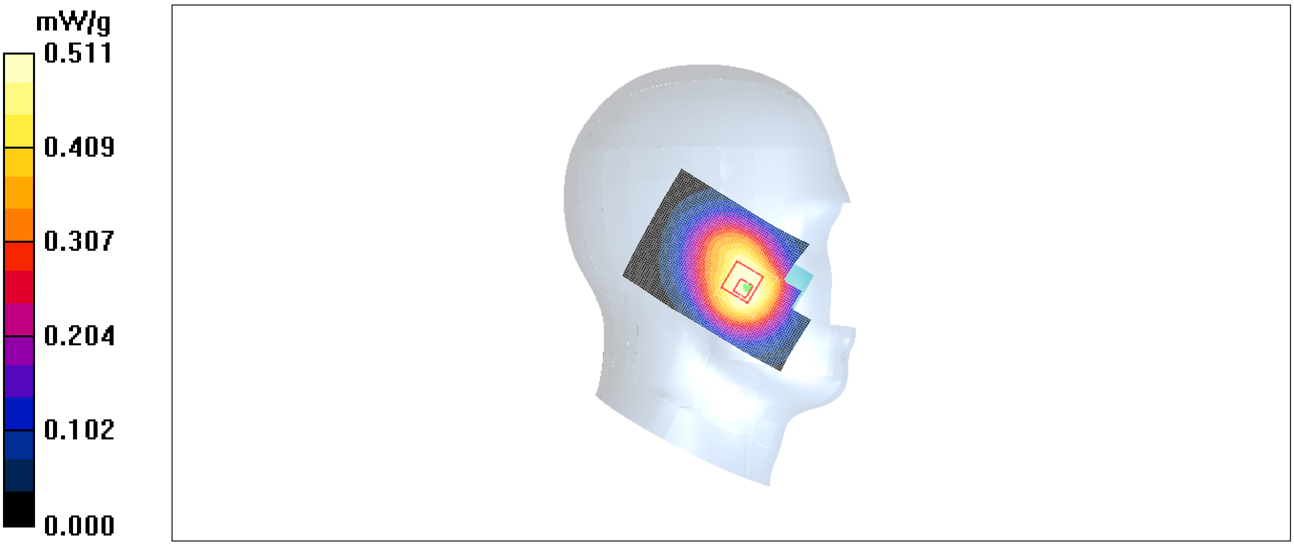


Fig. 1 850MHz CH251

850 Left Cheek Middle-Slide down
Date/Time: 2010-7-25 8:24:57
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.90 mho/m; εr = 41.9; ρ = 1000 kg/m^3
Ambient Temperature:23.0^{o}C Liquid Temperature: 22.5^{o}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 (61x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.433 mW/g

Cheek Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.04 V/m; Power Drift = 0.104 dB
Peak SAR (extrapolated) = 0.531 W/kg
SAR(1 g) = 0.417 mW/g; SAR(10 g) = 0.317 mW/g
Maximum value of SAR (measured) = 0.441 mW/g

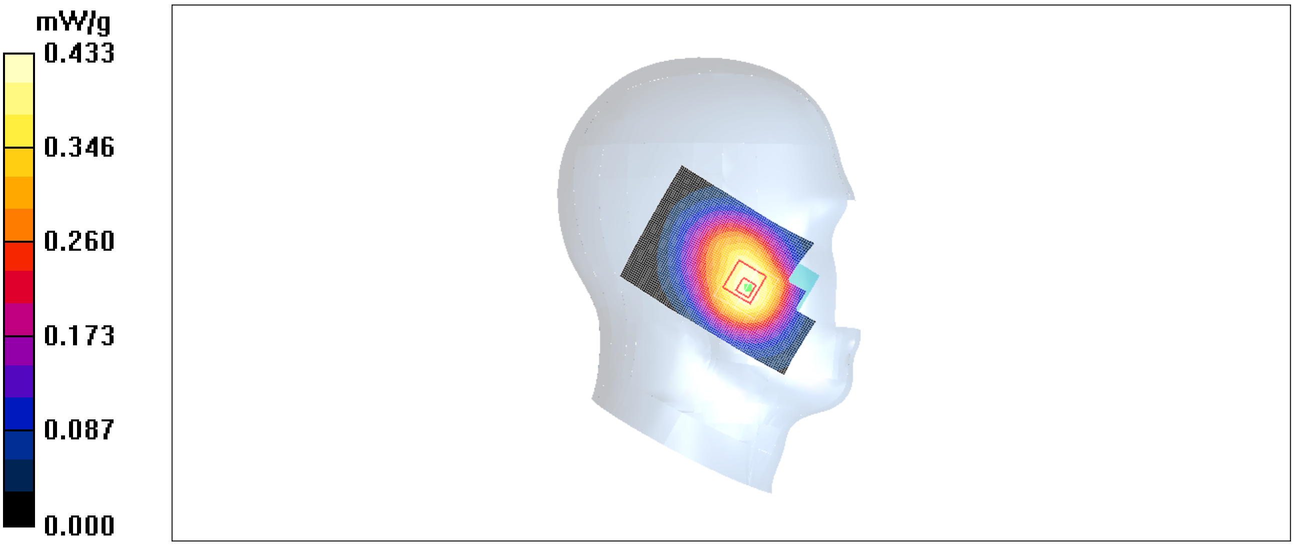


Fig. 2 850 MHz CH190

850 Left Cheek Low-Slide down

Date/Time: 2010-7-25 8:39:14
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used: f = 825 MHz; σ = 0.88 mho/m; εr = 42.1; ρ = 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 (61x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.338 mW/g

Cheek Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 8.45 V/m; Power Drift = 0.009 dB
Peak SAR (extrapolated) = 0.421 W/kg
SAR(1 g) = 0.328 mW/g; SAR(10 g) = 0.252 mW/g
Maximum value of SAR (measured) = 0.344 mW/g

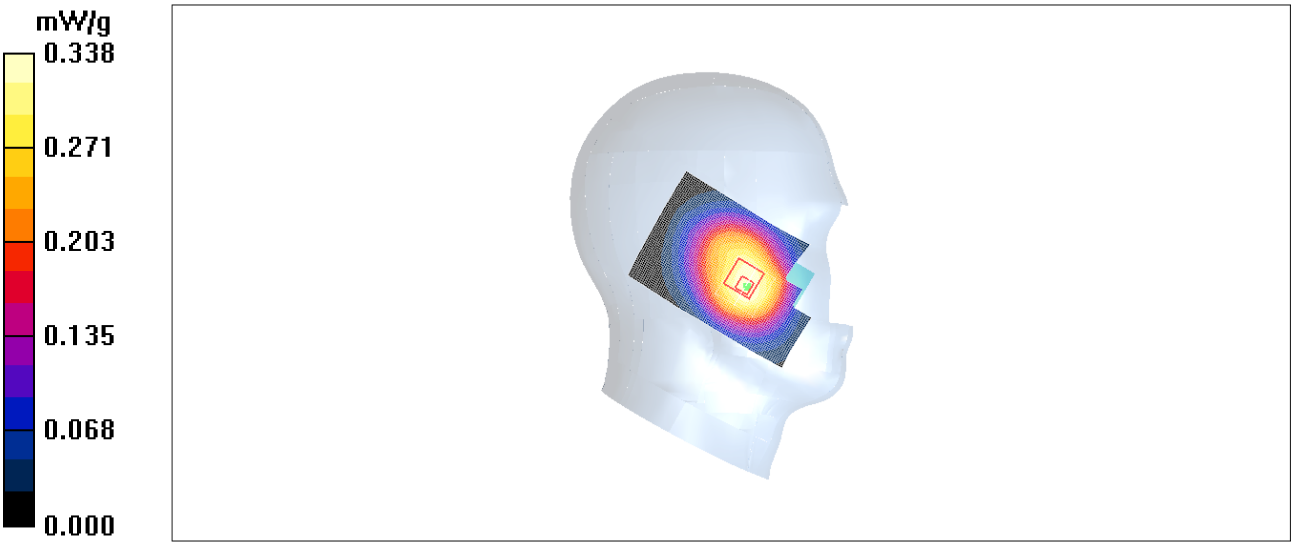


Fig. 3 850 MHz CH128

850 Left Tilt High-Slide down

Date/Time: 2010-7-25 8:53:38
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 848.8 MHz; σ = 0.90 mho/m; εr = 41.8; ρ = 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 (61x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.322 mW/g

Tilt High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.7 V/m; Power Drift = -0.008 dB
Peak SAR (extrapolated) = 0.385 W/kg
SAR(1 g) = 0.308 mW/g; SAR(10 g) = 0.233 mW/g
Maximum value of SAR (measured) = 0.324 mW/g

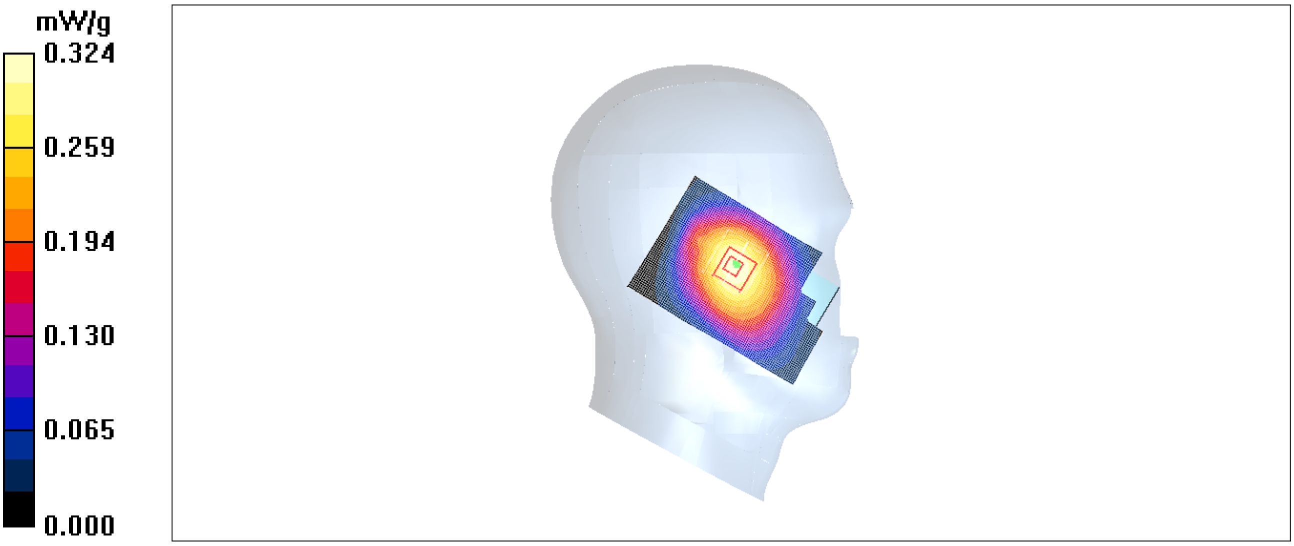


Fig.4 850 MHz CH251

850 Left Tilt Middle-Slide down
Date/Time: 2010-7-25 9:07:52
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.90 mho/m; εr = 41.9; ρ = 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 (61x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.289 mW/g

Tilt Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.2 V/m; Power Drift = -0.020 dB
Peak SAR (extrapolated) = 0.345 W/kg
SAR(1 g) = 0.277 mW/g; SAR(10 g) = 0.210 mW/g
Maximum value of SAR (measured) = 0.293 mW/g

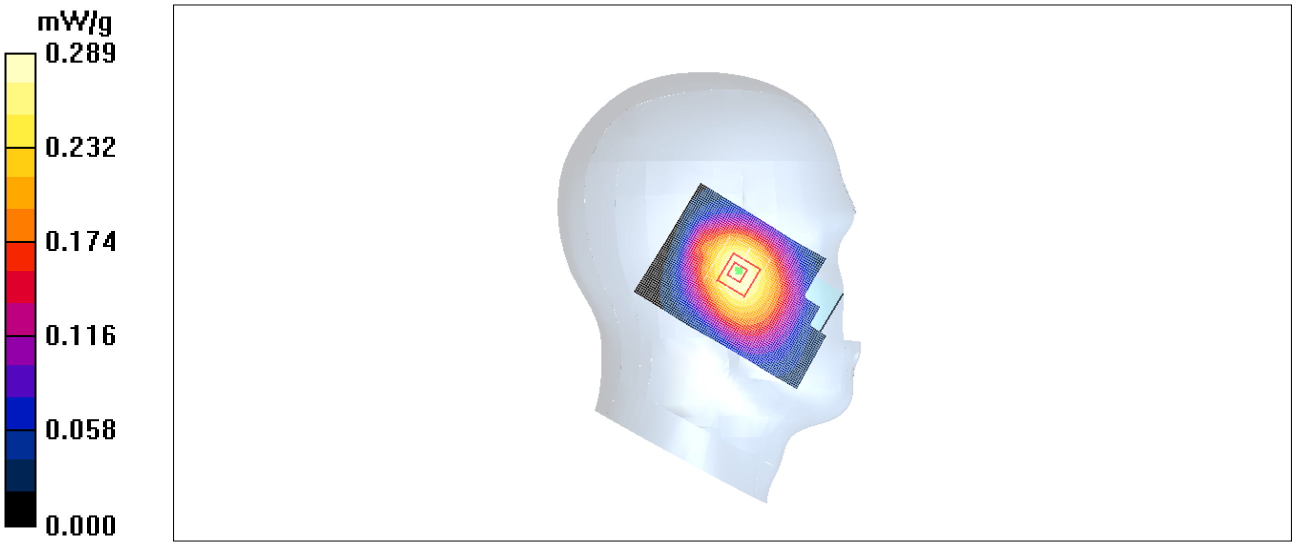


Fig.5 850 MHz CH190

850 Left Tilt Low-Slide down

Date/Time: 2010-7-25 9:22:14
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used: f = 825 MHz; σ = 0.88 mho/m; εr = 42.1; ρ = 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 (61x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.232 mW/g

Tilt Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.3 V/m; Power Drift = 0.028 dB
Peak SAR (extrapolated) = 0.278 W/kg
SAR(1 g) = 0.225 mW/g; SAR(10 g) = 0.171 mW/g
Maximum value of SAR (measured) = 0.238 mW/g

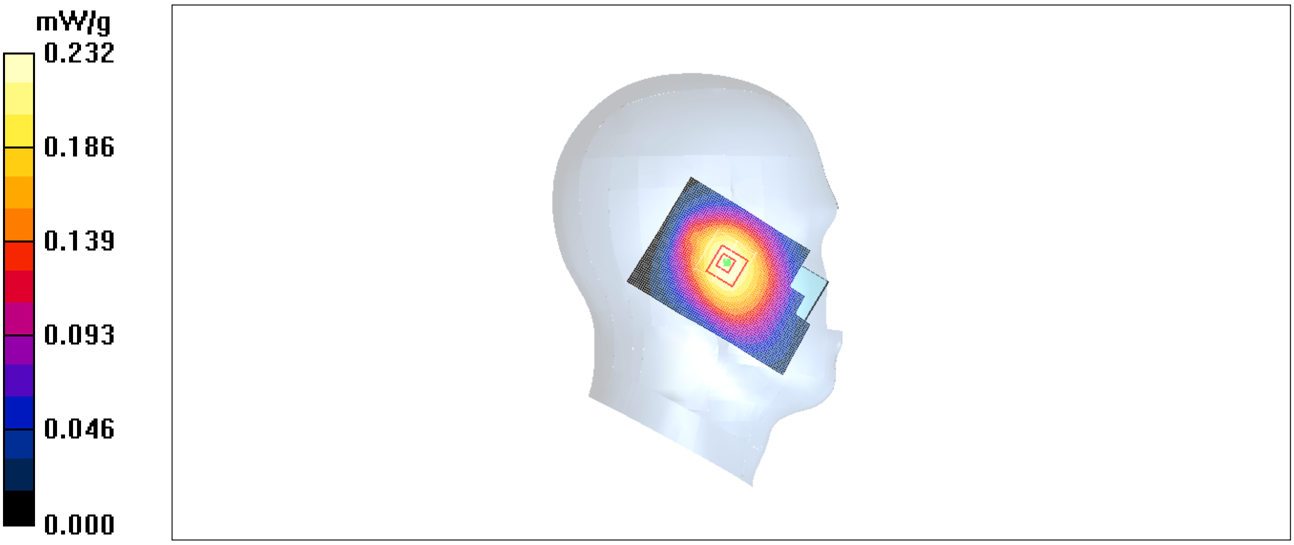


Fig. 6 850 MHz CH128

850 Right Cheek High-Slide down

Date/Time: 2010-7-25 9:37:01

Electronics: DAE4 Sn771

Medium: Head 850 MHz

Medium parameters used (interpolated): f = 848.8 MHz; σ = 0.90 mho/m; εr = 41.8; ρ = 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 (61x91x1): Measurement grid: dx=10mm, dy=10mm

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

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

Reference Value = 8.46 V/m; Power Drift = -0.010 dB

Peak SAR (extrapolated) = 0.689 W/kg

SAR(1 g) = 0.521 mW/g; SAR(10 g) = 0.385 mW/g

Maximum value of SAR (measured) = 0.553 mW/g

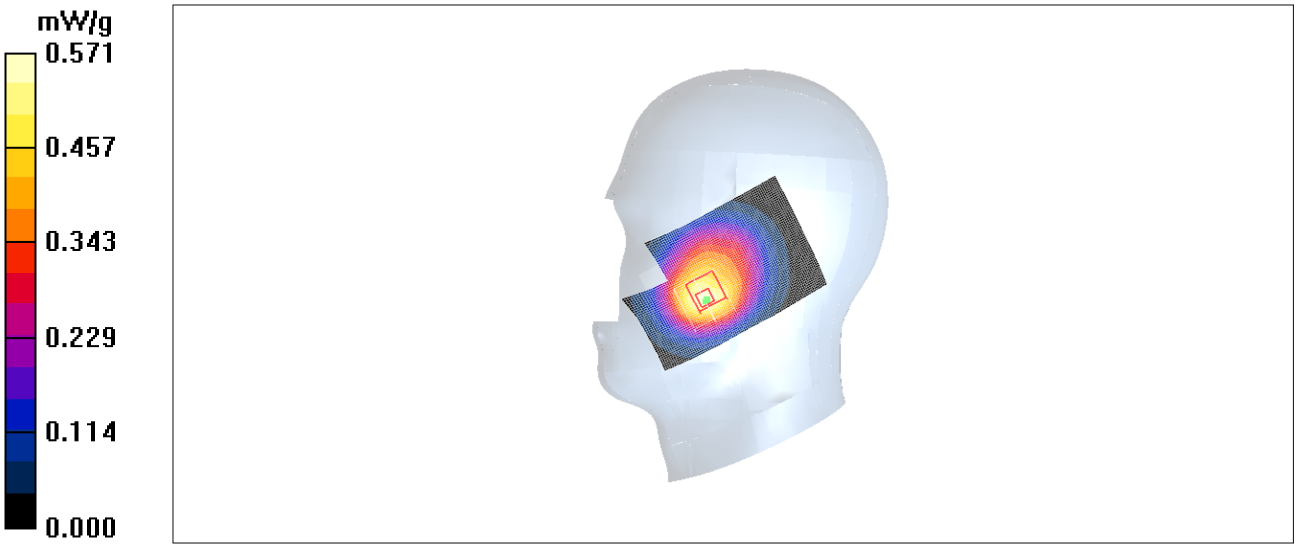


Fig. 7 850 MHz CH251

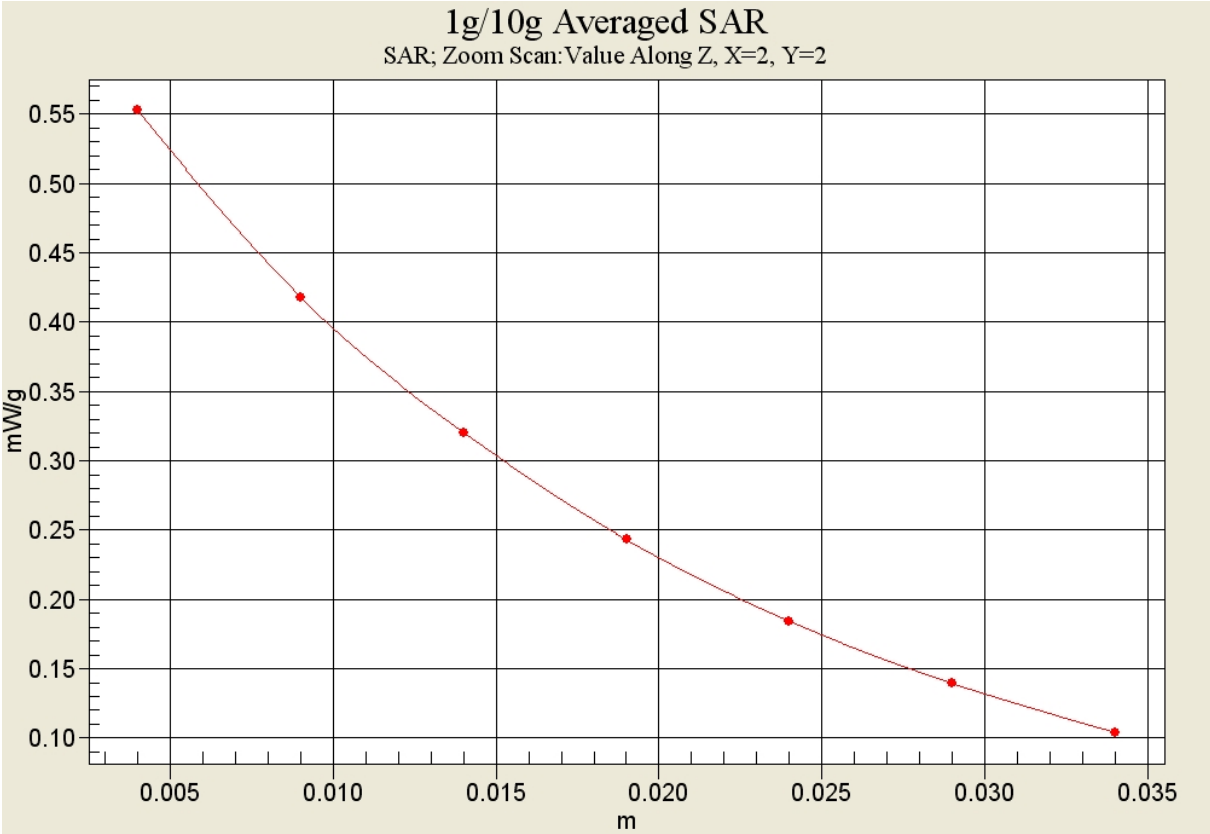


Fig. 7-1 Z-Scan at power reference point (850 MHz CH251)

850 Right Cheek Middle-Slide down

Date/Time: 2010-7-25 9:51:20

Electronics: DAE4 Sn771

Medium: Head 850 MHz

Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.90 mho/m; εr = 41.9; ρ = 1000 kg/m^3

Ambient Temperature:23.0^{o}C   Liquid Temperature: 22.5^{o}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 (61x91x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.500 mW/g

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

Reference Value = 7.94 V/m; Power Drift = 0.097 dB

Peak SAR (extrapolated) = 0.615 W/kg

SAR(1 g) = 0.465 mW/g; SAR(10 g) = 0.343 mW/g

Maximum value of SAR (measured) = 0.493 mW/g

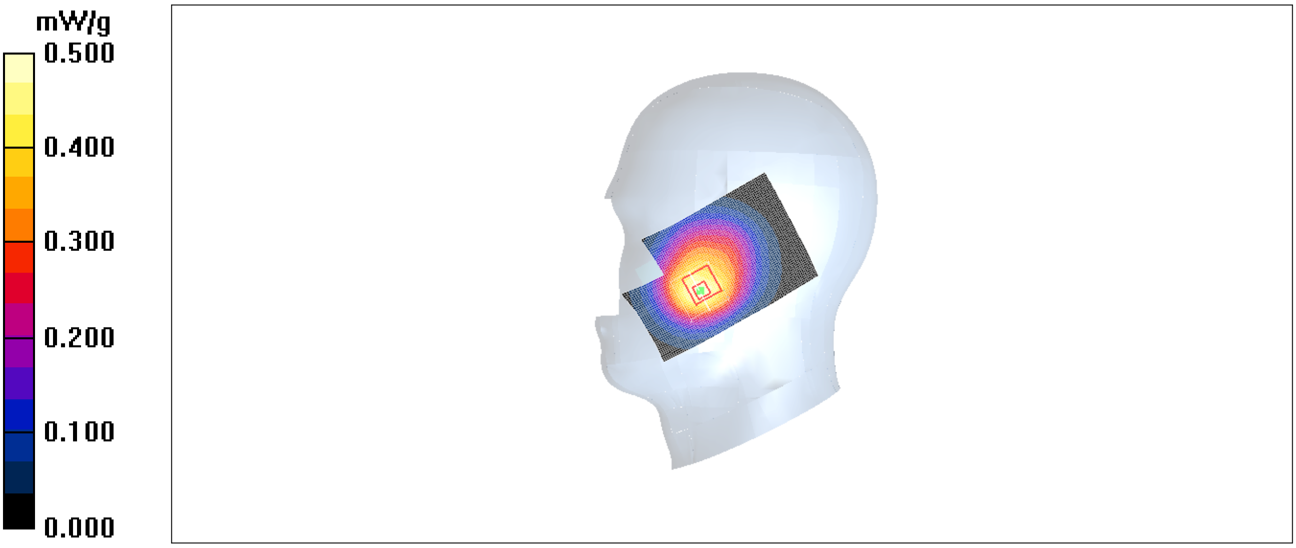


Fig. 8   850 MHz CH190

850 Right Cheek Low-Slide down

Date/Time: 2010-7-25 10:05:41
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used: f = 825 MHz; σ = 0.88 mho/m; εr = 42.1; ρ = 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 (61x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.411 mW/g

Cheek Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.41 V/m; Power Drift = -0.175 dB
Peak SAR (extrapolated) = 0.486 W/kg
SAR(1 g) = 0.371 mW/g; SAR(10 g) = 0.276 mW/g
Maximum value of SAR (measured) = 0.390 mW/g

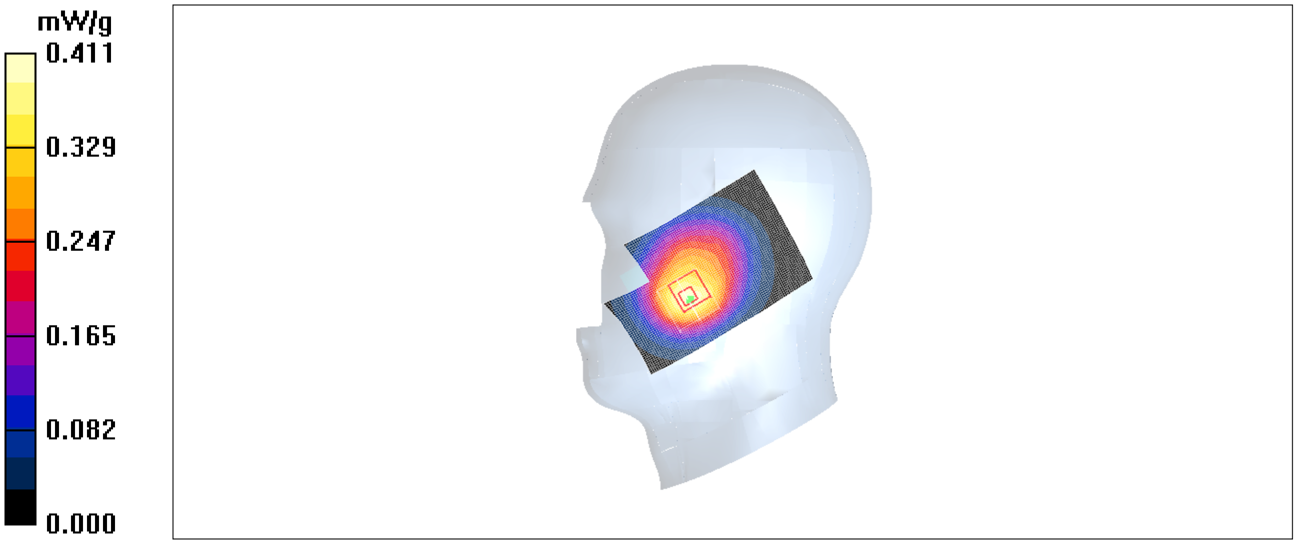


Fig. 9 850 MHz CH128

850 Right Tilt High-Slide down

Date/Time: 2010-7-25 10:20:06
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 848.8 MHz; σ = 0.90 mho/m; εr = 41.8; ρ = 1000 kg/m^3
Ambient Temperature:23.0^{o}C Liquid Temperature: 22.5^{o}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 (61x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.317 mW/g

Tilt High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 12.0 V/m; Power Drift = -0.149 dB
Peak SAR (extrapolated) = 0.366 W/kg
SAR(1 g) = 0.298 mW/g; SAR(10 g) = 0.227 mW/g
Maximum value of SAR (measured) = 0.316 mW/g

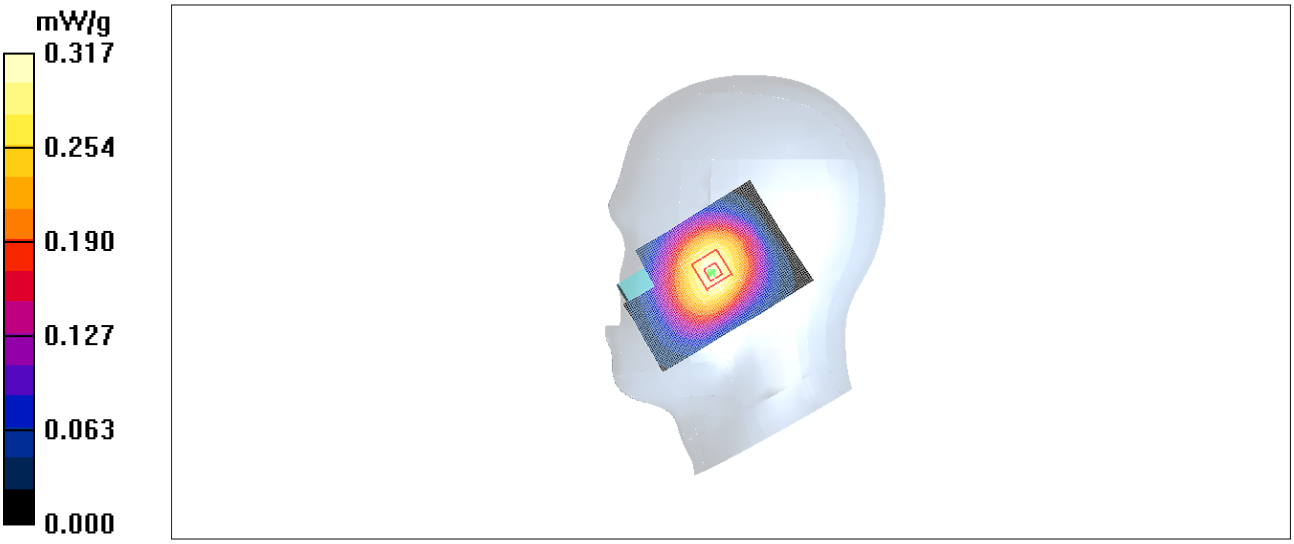


Fig.10 850 MHz CH251

850 Right Tilt Middle-Slide down
Date/Time: 2010-7-25 10:34:21
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.90 mho/m; εr = 41.9; ρ = 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 (61x91x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.285 mW/g

Tilt Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 11.5 V/m; Power Drift = 0.008 dB
Peak SAR (extrapolated) = 0.330 W/kg
SAR(1 g) = 0.270 mW/g; SAR(10 g) = 0.207 mW/g
Maximum value of SAR (measured) = 0.279 mW/g

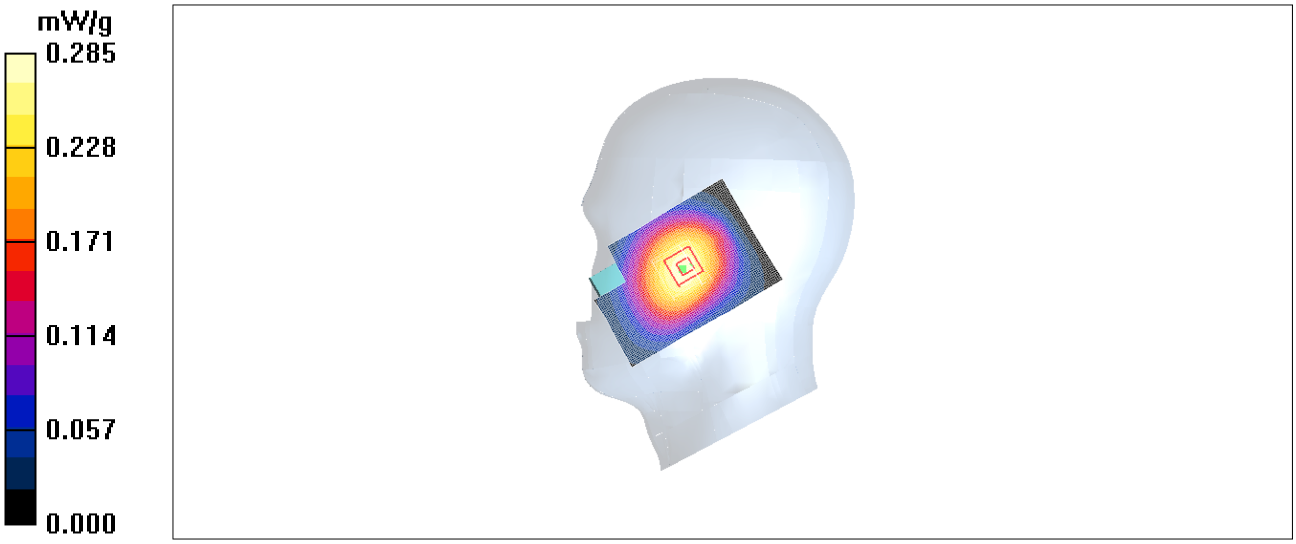


Fig.11 850 MHz CH190

850 Right Tilt Low-Slide down

Date/Time: 2010-7-25 10:48:39

Electronics: DAE4 Sn771

Medium: Head 850 MHz

Medium parameters used: f = 825 MHz; σ = 0.88 mho/m; εr = 42.1; ρ = 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 (61x91x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.245 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 = -0.129 dB

Peak SAR (extrapolated) = 0.286 W/kg

SAR(1 g) = 0.234 mW/g; SAR(10 g) = 0.180 mW/g

Maximum value of SAR (measured) = 0.244 mW/g

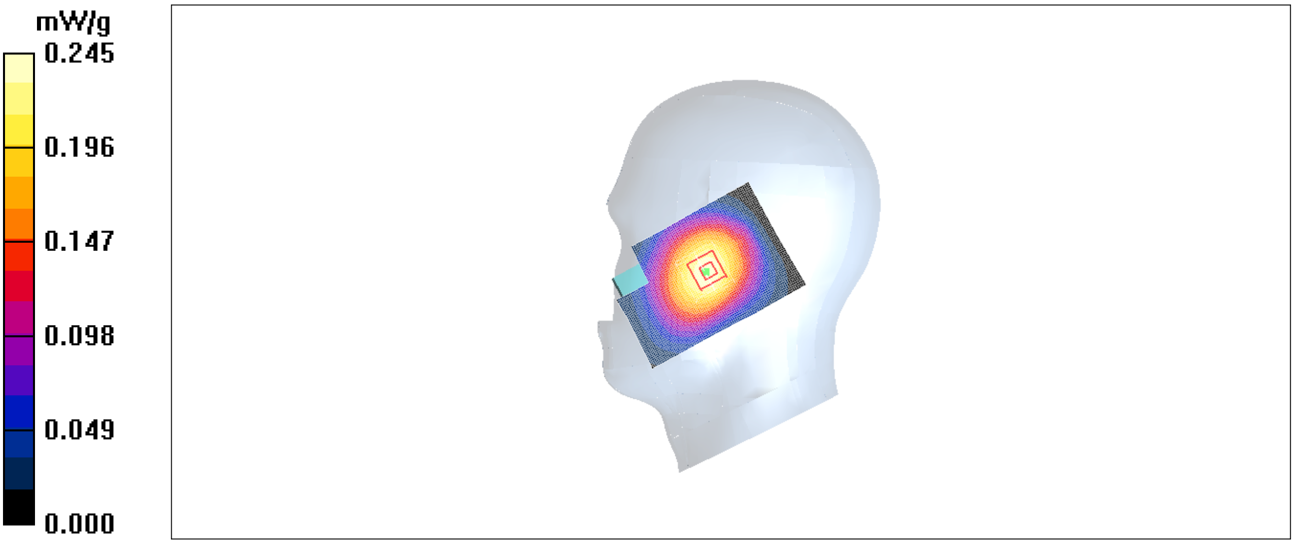


Fig. 12 850 MHz CH128

850 Left Cheek High- Slide up

Date/Time: 2010-7-25 11:03:41
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 848.8 MHz; σ = 0.90 mho/m; εr = 41.8; ρ = 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 (61x111x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.412 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 7.03 V/m; Power Drift = -0.109 dB
Peak SAR (extrapolated) = 0.493 W/kg
SAR(1 g) = 0.385 mW/g; SAR(10 g) = 0.293 mW/g
Maximum value of SAR (measured) = 0.401 mW/g

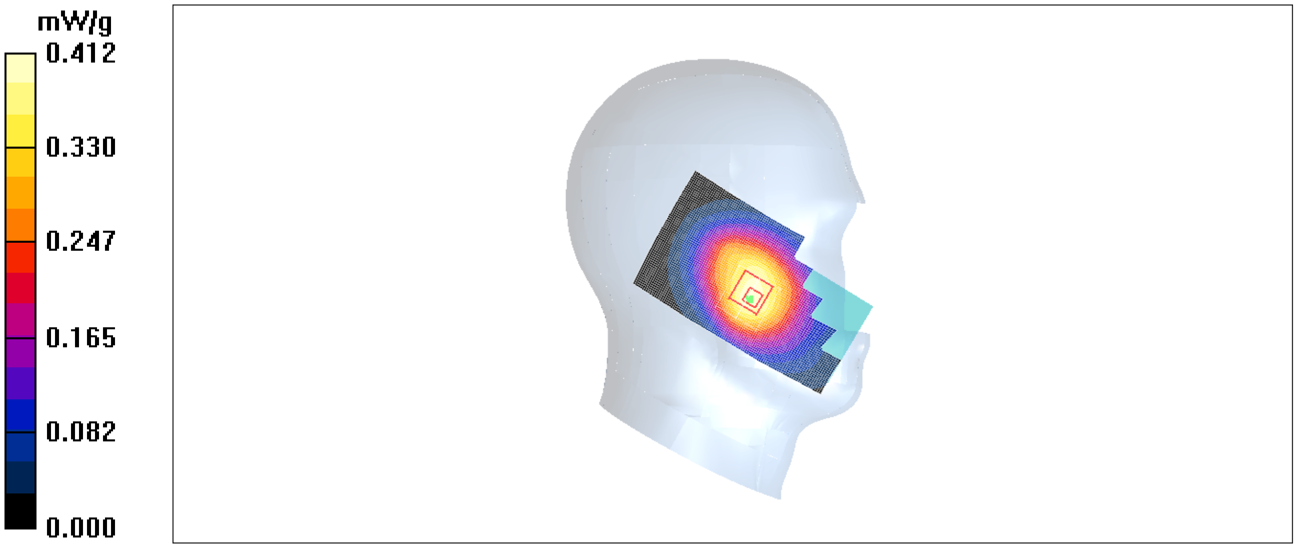


Fig. 13 850MHz CH251

850 Left Cheek Middle-Slide up

Date/Time: 2010-7-25 11:20:57
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.90 mho/m; εr = 41.9; ρ = 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 (61x111x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.328 mW/g

Cheek Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.61 V/m; Power Drift = -0.123 dB
Peak SAR (extrapolated) = 0.393 W/kg
SAR(1 g) = 0.311 mW/g; SAR(10 g) = 0.240 mW/g
Maximum value of SAR (measured) = 0.324 mW/g

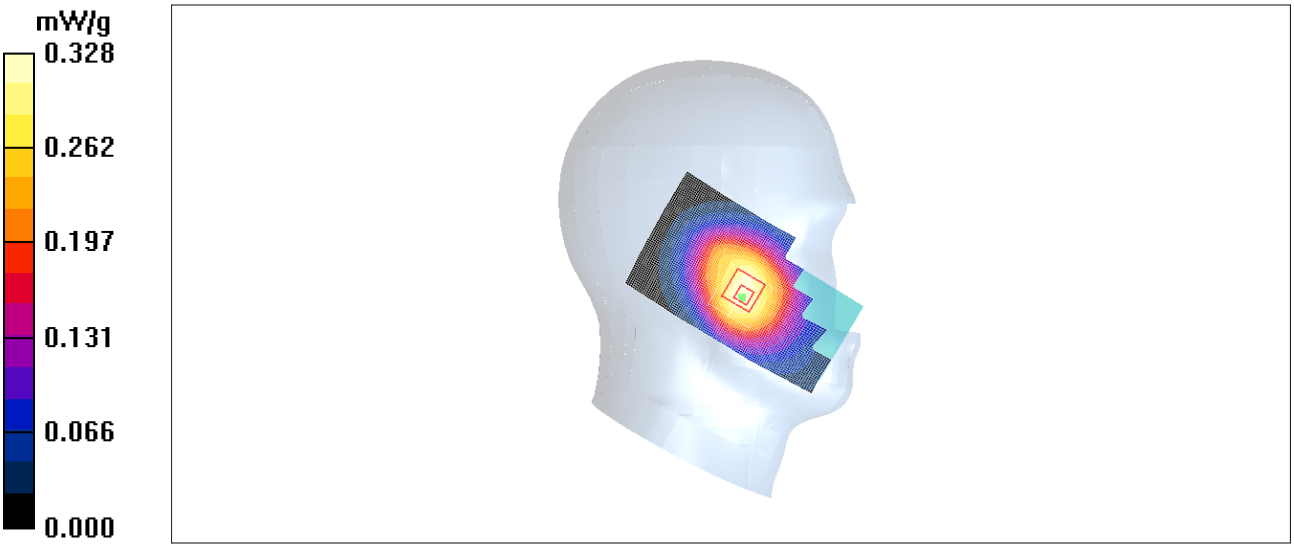


Fig. 14   850 MHz CH190

850 Left Cheek Low-Slide up
Date/Time: 2010-7-25 11:37:14
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used: f = 825 MHz; σ = 0.88 mho/m; εr = 42.1; ρ = 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 (61x111x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.264 mW/g

Cheek Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.04 V/m; Power Drift = -0.132 dB
Peak SAR (extrapolated) = 0.314 W/kg
SAR(1 g) = 0.249 mW/g; SAR(10 g) = 0.193 mW/g
Maximum value of SAR (measured) = 0.258 mW/g

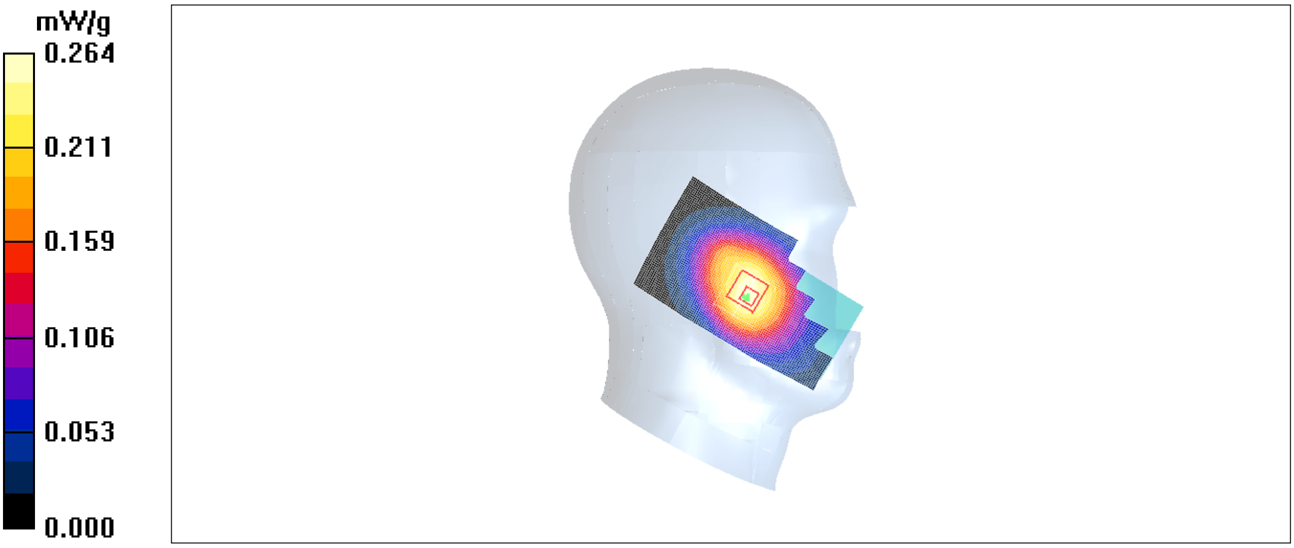


Fig. 15 850 MHz CH128

850 Left Tilt High-Slide up
Date/Time: 2010-7-25 11:54:38
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 848.8 MHz; σ = 0.90 mho/m; εr = 41.8; ρ = 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 (61x111x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.252 mW/g

Tilt High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.7 V/m; Power Drift = -0.190 dB
Peak SAR (extrapolated) = 0.289 W/kg
SAR(1 g) = 0.237 mW/g; SAR(10 g) = 0.181 mW/g
Maximum value of SAR (measured) = 0.249 mW/g

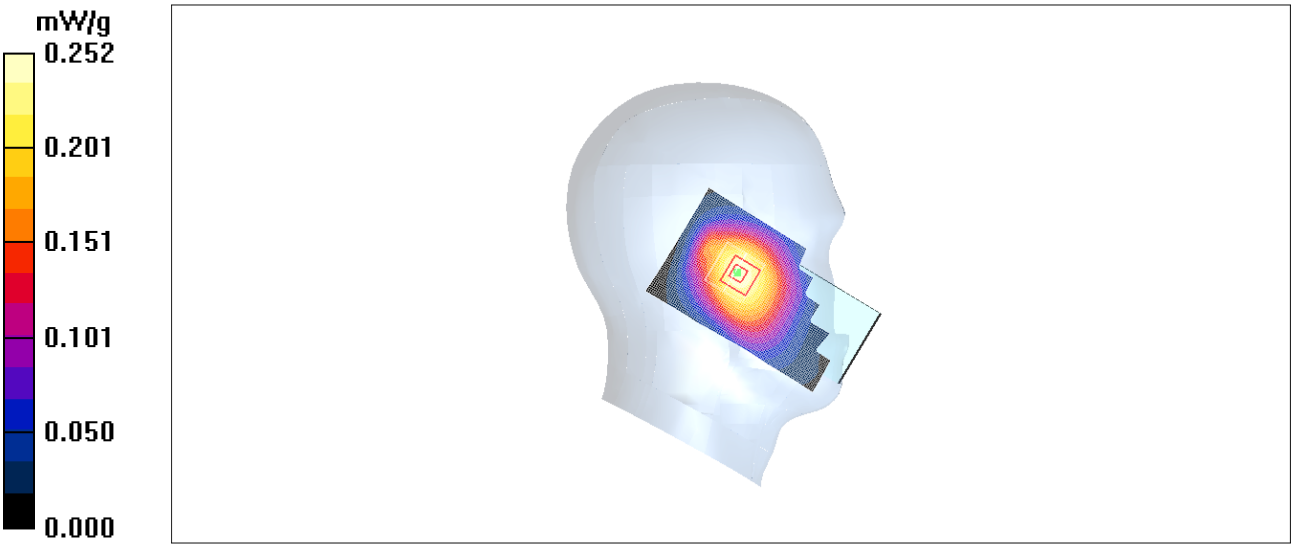


Fig.16 850 MHz CH251

850 Left Tilt Middle-Slide up

Date/Time: 2010-7-25 12:10:52
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 836.6 MHz; σ = 0.90 mho/m; εr = 41.9; ρ = 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 (61x111x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.211 mW/g

Tilt Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.88 V/m; Power Drift = -0.032 dB
Peak SAR (extrapolated) = 0.251 W/kg
SAR(1 g) = 0.203 mW/g; SAR(10 g) = 0.155 mW/g
Maximum value of SAR (measured) = 0.214 mW/g

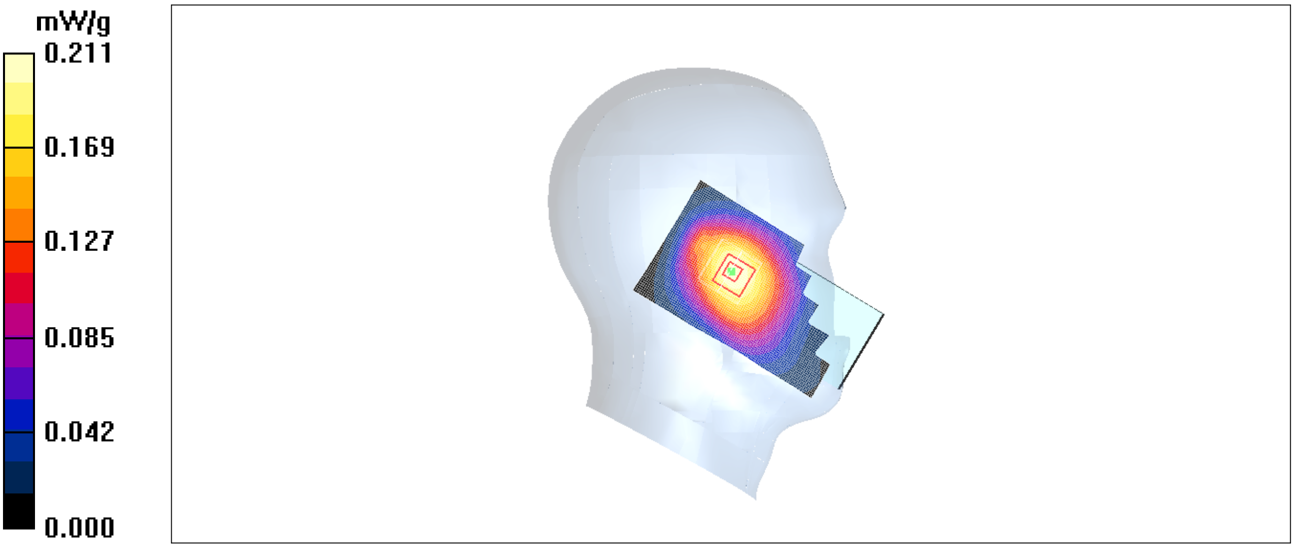


Fig.17 850 MHz CH190

850 Left Tilt Low-Slide up

Date/Time: 2010-7-25 12:27:14
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used: f = 825 MHz; σ = 0.88 mho/m; εr = 42.1; ρ = 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 (61x111x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.180 mW/g

Tilt Low/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 9.32 V/m; Power Drift = 0.006 dB
Peak SAR (extrapolated) = 0.207 W/kg
SAR(1 g) = 0.170 mW/g; SAR(10 g) = 0.130 mW/g
Maximum value of SAR (measured) = 0.178 mW/g

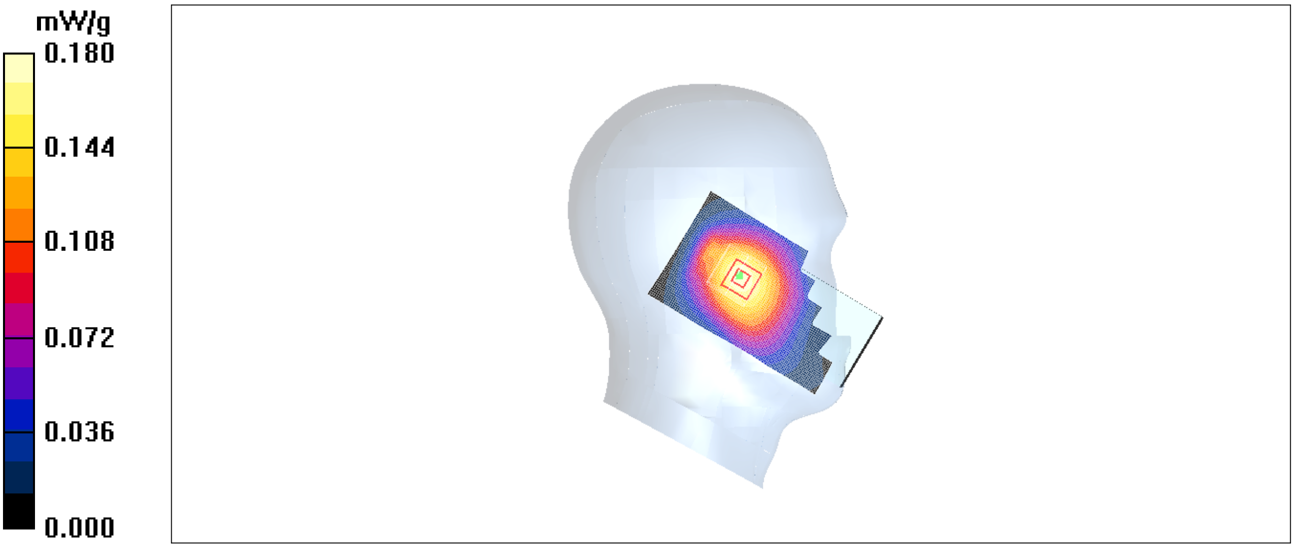


Fig. 18 850 MHz CH128

850 Right Cheek High-Slide up

Date/Time: 2010-7-25 12:44:01
Electronics: DAE4 Sn771
Medium: Head 850 MHz
Medium parameters used (interpolated): f = 848.8 MHz; σ = 0.90 mho/m; εr = 41.8; ρ = 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 (61x111x1): Measurement grid: dx=10mm, dy=10mm
Maximum value of SAR (interpolated) = 0.457 mW/g

Cheek High/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 6.88 V/m; Power Drift = -0.026 dB
Peak SAR (extrapolated) = 0.563 W/kg
SAR(1 g) = 0.428 mW/g; SAR(10 g) = 0.320 mW/g
Maximum value of SAR (measured) = 0.450 mW/g

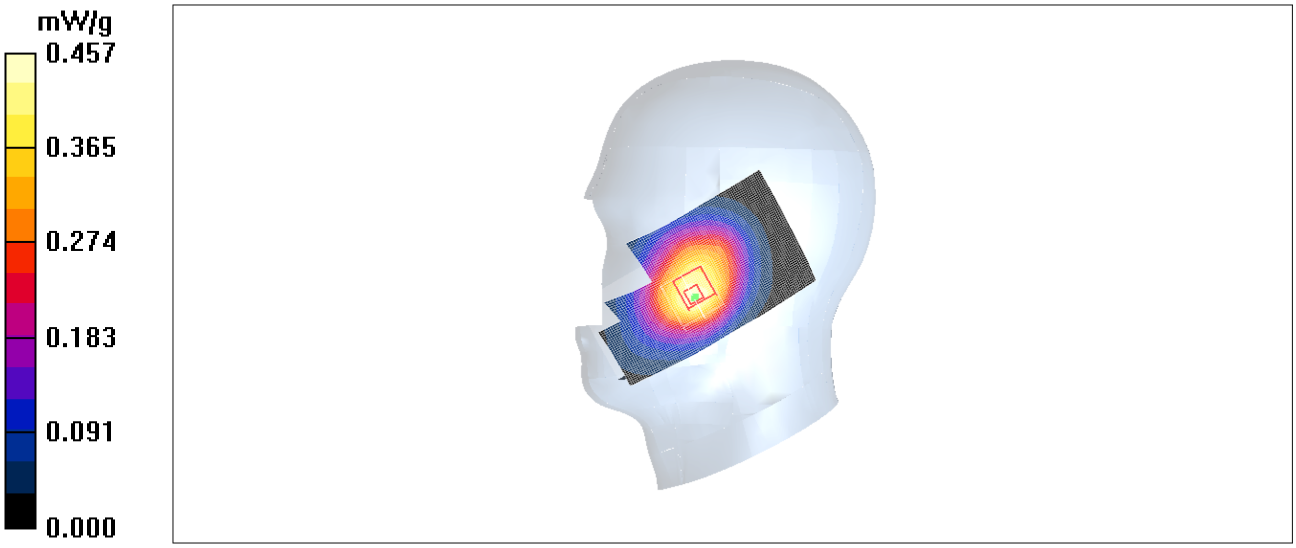


Fig. 19 850 MHz CH251