

AT4 wireless, S.A.

Parque Tecnológico de Andalucía,
 c/ Severo Ochoa nº 2
 29590 Campanillas/ Málaga/ España
 Tel. 952 61 91 00 - Fax 952 61 91 13
 MÁLAGA, C.I.F. A29 507 456
 Registro Mercantil de Málaga, Tomo 1169,
 Libro 82, Folio 133, Hoja MA3729

TEST REPORT

REFERENCE STANDARDS:

FCC 47CFR Part 2.1093

FCC OET Bulletin 65, Supplement C (Edition 01-01)

NIE :	29994RET.003
Approved by (name / position & signature)	J.C. Soler / Consultant
Elaboration date	2009-07-09
Identification of item tested	GSM / UMTS PHONE
Trademark	---
Model and/or type reference	P7000
Serial number	IMEI TAC: 01203300
Other identification of the product	FCC ID: JYCP7000
Final HW version	HW: 1.0
Final SW version	SW: 08102009 (SV:10)
Features	3.7 Li-ion rechargeable battery, GSM/GPRS/EDGE 850/900/1800/1900, UMTS/HSDPA FDD I, II and V
Description	GSM/GPRS/EDGE, UMTS/HSDPA Mobile Phone with Bluetooth
Applicant	Pantech Co., Ltd
Address.....	Pantech Bldg, 1-2, DMC, Sangam-dong, Mapogo, 121-792 Seoul, Korea
CIF/NIF/Passport.....	---
Contact person:	Mr. B.W. Kim
Telephone / Fax	Phone: +82- (0) 2-2030-1200 / Fax: +82- (0) 2-2030-2519
e-mail:	---
Test samples supplier	Same as applicant
Manufacturer	Same as applicant

Test method requested	See Standard
Standard	<ol style="list-style-type: none"> 1. FCC 47 CFR Part 2.1093. Radiofrequency radiation exposure evaluation: portable devices. 2. FCC OET Bulletin 65, Supplement C (Edition 01-01), “Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields”. 3. FCC OET KDB 450824 – SAR Probe Calibration and System Verification Considerations for measurements at 150 MHz – 3 GHz (January 2007). 4. FCC OET KDB 941225 D01 – SAR Measurement Procedures for 3G Devices (October 2007). 5. FCC OET KDB 941225 D03 – Recommended SAR Test Reduction Procedures for GSM/GPRS/EDGE.
Test procedure	Same as standards.
Non-standardized test method	N/A
Used instrumentation	<ol style="list-style-type: none"> 1. Dosimetric E-fierd probe SPEAG ES3DV3 2. Data acquisition device SPEAG DAE4 3. Electro-optical converter SPEAG EOC3 4. 900 MHz dipole validation kit SPEAG D900V2 5. 1800MHz dipole validation kit SPEAG D1800V2 6. Robot STÄUBLI RX60BL 7. Robot controller STÄUBLI CM7MB 8. SAM head-body simulator SPEAG Twin SAM V4.0 9. SAR measurement software SPEAG DASY4 V4.7 Build 80 10. Measurement server SPEAG DASY4 SE UMS 001 DC 11. Head and Body Tissue Equivalent Liquids for 900MHz and 1800MHz bands 12. Universal Radio Communication Tester R&S CMU 200 13. Vector network analyzer Agilent E5071C 14. Dielectric probe kit Agilent 85070C 15. Power meter R&S NRVD 16. Power sensor R&S NRV-Z51 17. Power sensor R&S NRV-Z1 18. RF Generator Agilent ESG E4438C 19. Dual directional coupler NARDA FSCM 99899 20. Dual directional coupler HP 778D. 21. Power amplifier MITEQ AMF-4D-00400600-50-30P 22. Handset positioner SPEAG Device Holder

Report template No.: FDT08_11

IMPORTANT: No parts of this report may be reproduced or quoted out of context, in any form or by any means, except in full, without the previous written permission of. AT4 wireless.

INDEX

Competences and guarantees	4
General conditions	4
Uncertainty	4
Usage of samples.....	5
Testing period	5
Environmental conditions	5
Summary	6
Remarks and comments	6
Testing verdicts	6
APPENDIX A: Test Configuration.....	7
APPENDIX B: Test results.....	17
APPENDIX C: Measurements Reports	33
APPENDIX D: Photographs	68
APPENDIX E: Calibration Data.....	73

Competences and guarantees

AT4 wireless is a testing laboratory competent to carry out the tests described in this report.

In order to assure the traceability to other national and international laboratories, AT4 wireless has a calibration and maintenance programme for its measurement equipment.

AT4 wireless guarantees the reliability of the data presented in this report, which is the result of the measurements and the tests performed to the item under test on the date and under the conditions stated on the report and, it is based on the knowledge and technical facilities available at AT4 wireless at the time of performance of the test.

AT4 wireless is liable to the client for the maintenance of the confidentiality of all information related to the item under test and the results of the test.

General conditions

1. This report is only referred to the item that has undergone the test.
2. This report does not constitute or imply on its own an approval of the product by the Certification Bodies or competent Authorities.
3. This document is only valid if complete; no partial reproduction can be made without previous written permission of AT4 wireless.
4. This test report cannot be used partially or in full for publicity and/or promotional purposes without previous written permission of AT4 wireless and the Accreditation Bodies.

Uncertainty

Uncertainty (factor $k=2$) was calculated according to the following documents:

1. FCC OET Bulletin 65, Supplement C (Edition 01-01), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields".

Usage of samples

Samples undergoing test have been selected by: **the client**.

Sample M/01 is composed of the following elements:

<u>Control N°</u>	<u>Description</u>	<u>Model</u>	<u>Serial N°</u>	<u>Date of reception</u>
29994/39	Mobile handset	P7000	IMEI TAC: 01203300	2009-07-03
29994/23	Battery	PBR-55B	DC09052113D8	2009-06-18
29994/24	Battery	PBR-55B	DC09052113D8	2009-06-18
29994/41	Battery	PBR-55B	DC09052113D8	2009-07-03

1. Sample M/01 has undergone the test(s) specified in subclause "Test method requested".

Testing period

The performed test started on 2009-07-04 and finished on 2009-07-09.

The tests have been performed at AT4 wireless.

Environmental conditions

In the chamber for measurements, the following limits were not exceeded during the test:

Temperature	Min. = 22.3 °C Max. = 24.8 °C
Relative humidity	Min. = 34.5 % Max. = 46.9 %

Summary

Considering the results of the performed test according to FCC 47CFR Part 2.1093, the item under test is **IN COMPLIANCE** with the requested specifications specified in the standards.

The maximum 1g volume averaged SAR found during this test has been 0.92 W/kg, for the body worn position and GPRS 850 MHz band.

NOTE: The results presented in this Test Report apply only to the particular item under test established in page 1 of this document, as presented for test on the date(s) shown in section, "USAGE OF SAMPLES, TESTING PERIOD AND ENVIRONMENTAL CONDITIONS".

Remarks and comments

1: Testing of the lower and highest channels is not necessary according to the "2 dB" rule specified in the FCC OET Bulletin 65, Supplement C (Edition 01-01), "Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields".

2: EDGE mode tested only for one position due to testing reductions mentioned in FCC OET KDB 941225 D03 – Recommended SAR Test Reduction Procedures for GSM/GPRS/EDGE.

3: Testing of HSDPA mode is not required according to FCC OET KDB 941225 D01 – SAR Measurement Procedures for 3G Devices (October 2007).

Testing verdicts

Not applicable: NA

Pass.....: P

Fail: F

Not measured.....: NM

850 MHz band

FCC 47CFR Part 2.1093 Paragraph	VERDICT			
	NA	P	F	NM
(d)(2) GSM		P		
(d)(2) GPRS		P		
(d)(2) EDGE		P		
(d)(2) WCDMA Band V		P		
(d)(2) HSDPA Band V	NA ³			

3: See Remarks and Comments.

1900 MHz band

FCC 47CFR Part 2.1093 Paragraph	VERDICT			
	NA	P	F	NM
(d)(2) GSM		P		
(d)(2) GPRS		P		
(d)(2) EDGE		P		
(d)(2) WCDMA Band II		P		
(d)(2) HSDPA Band II	NA ³			

3: See Remarks and Comments.

APPENDIX A: Test Configuration

INDEX

1. GENERAL INTRODUCTION	9
1.1. Application Standard.....	9
1.2. General requirements	9
1.3. Measurement system requirements.....	9
1.4. Phantom requirements.....	9
1.5. Measurement Liquids requirements.	10
2. MEASUREMENT SYSTEM.....	11
2.1. Measurement System.....	11
2.2. Test Positions of device relative to body.....	12
2.3. Test to be performed	13
2.4. Description of interpolation/extrapolation scheme.....	14
2.5. Determination of the largest peak spatial-average SAR.....	14
2.6. System Validation	14
3. UNCERTAINTY	15
4. SAR LIMIT	16

1. GENERAL INTRODUCTION

1.1. Application Standard

The Federal Communications Commission (FCC) sets the limits for General Population / Uncontrolled exposure to radio frequency electromagnetic fields for transmitting devices designed to be used within 20 centimetres of the body of the user under FCC 47 CFR Part 2.1093 - “Radiofrequency radiation exposure evaluation: portable devices”, paragraph (d)(2).

Specific requirements and procedure for SAR assessment are describe under FCC OET Bulletin 65, Supplement C (Edition 01-01), “Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields”, and all the documents referred at the beginning of this document.

1.2. General requirements

The SAR measurement has been performed continuing the following considerations and environment conditions:

- The ambient temperature shall be in the range of 18°C to 25°C and the variation shall not exceed +/-2°C during the test.
- The ambient humidity shall be in the range of and 30% - 70%.
- The device battery shall be fully charged before each measurement.

1.3. Measurement system requirements

The measurement system used for SAR tests fulfils the procedural and technical requirements described at the reference standards used.

1.4. Phantom requirements

The phantom is a simplified representation of the human anatomy and comprised of material with electrical properties similar to the corresponding tissues in human body. The human model has the following proportions:

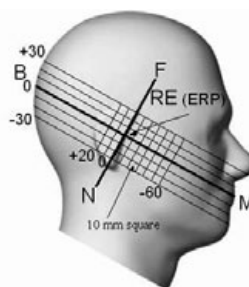


Figure 1: Proportions of Phantom

The shell model is a shaped container and it has the representation shown in the following figure:

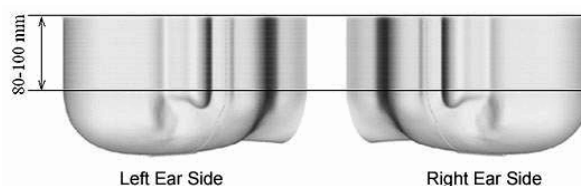


Figure 2: Proportions and shape of Phantom shell

1.5. Measurement Liquids requirements.

The liquids used to simulate the human tissues, must fulfil the requirements of the dielectric properties required. These target dielectric properties per FCC OET KDB 450824 instructions come from the dipole and probe calibration data which are included in Appendix B, Section 3, of this document.

2. MEASUREMENT SYSTEM

2.1. Measurement System

Manufacturer	Device	Type
Schmid & Partner Engineering AG	Dosimetric E-Fiel Probe	ES3DV3
Schmid & Partner Engineering AG	Data Acquisition Electronics	DAE4
Schmid & Partner Engineering AG	Electro-Optical Converter	EOC5
Schmid & Partner Engineering AG	900 MHz System Validation Dipole	D900V2
Schmid & Partner Engineering AG	1800 MHz System Validation Dipole	D1800V2
Stäubli	Robot	RX60BL
Stäubli	Robot controller	CM7MB
Schmid & Partner Engineering AG	SAM head-body simulator	TWIN SAM V4.0
Schmid & Partner Engineering AG	Measurement Software	DASY V4.7 Build 80
Schmid & Partner Engineering AG	Measurement Server	DASY4 SE UMS 001 DC
Rohde & Schwarz	Universal Radio Communication Tester	CMU 200
Agilent	Vector Network Analyser	E5071C
Agilent	Dielectric Probe Kit	85070C
Rohde & Schwarz	Power Meter	NRVD
Rohde & Schwarz	Power Sensor	NRV-Z51
Rohde & Schwarz	Power Sensor	NRV-Z1
Agilent	RF Generator	ESG E4438C
NARDA	Dual directional coupler	FSCM 99899
HP	Dual directional coupler	778D
MITEQ	Power amplifier	AMF-4D-00400600-50-30P
Schmid & Partner Engineering AG	Handset Positioner	SD000 HD1 HA

Table 1: Measurement Equipment

2.2. Test Positions of device relative to body

The standard FCC OET Bulletin 65, Supplement C (Edition 01-01) requires two test positions for the handset in the head. These positions are the "cheek" position and the "tilted" position. The tests positions used are described below. The handset should be tested in both positions (left and right sides) in the SAM phantom.

The EUT shall be placed in the Phantom in such way that the main point of the mobile terminal (acoustic output) coincides with the reference point located at the Phantom's ear.

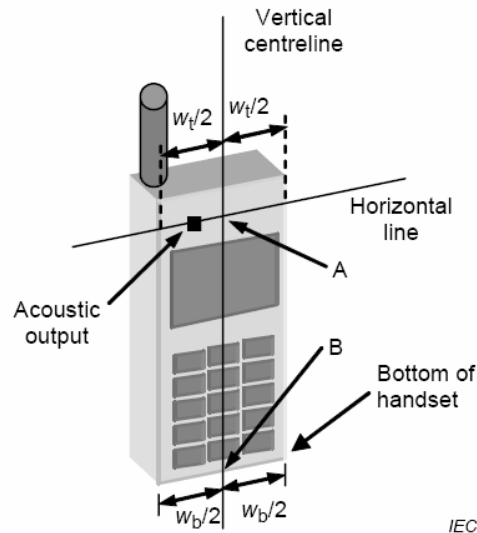


Figure 3: EUT's basic scheme

SAR measurements will be performed for the following configurations as indicated in the reference standard:

- Right side of Phantom, Cheek position.
- Right side of Phantom, 15° Tilted position.
- Left side of Phantom, Cheek position.
- Left side of Phantom, 15° Tilted position.

Definition of the "cheek" position

The "cheek" position relative to Phantom is described as follows:

1. - Position the device with the vertical centre line of the body of the device and the horizontal line crossing the centre of the ear piece in a plane parallel to the sagittal plane of the Phantom. While maintaining the device in this plane, align the centre line with the reference plane containing the three ear and mouth reference points (M, RE and LE).
2. - Translate the mobile phone box towards the Phantom until the ear-piece touches the ear reference point (RE or LE). While maintaining the device in the reference plane, move the bottom of the box until any point of the front side is in contact with the cheek of the Phantom.

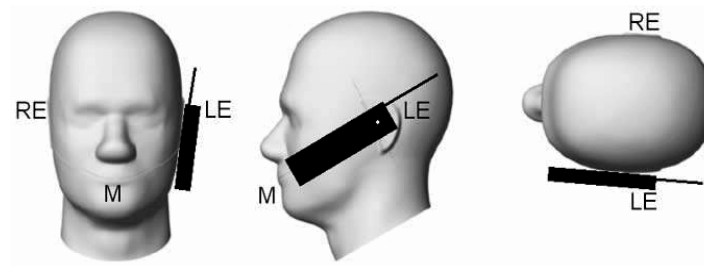


Figure 4: “Cheek” position of EUT

Definition of the tilted position:

The "15° tilted" position relative to Phantom is described as follows:

1. - Position the device in the “cheek” position described above.
2. - While maintaining the device in the reference plane described above and pivoting against the ear, move it outward away from the mouth by an angle of 15 degrees.

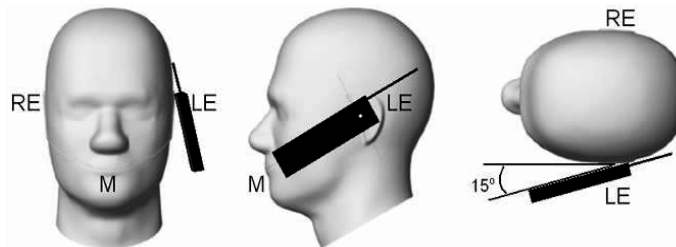


Figure 5: “Tilted” position of EUT

Also, according to the FCC OET Bulletin 65, Supplement C (Edition 01-01), for devices that are designed to operate in body-worn configurations SAR compliance should be evaluated using a flat phantom.

2.3. Test to be performed

Test shall be performed at both phone positions previously described, on each side of the head (left and right side) and using the centre frequency of each operating band.

Additionally, the configuration giving to the maximum mass averaged SAR shall be used to test the low-end and the high-end frequencies of each transmitting band. Thus, the tests to be performed in mobile phones are as follows:

- Measurements at Central Channel of application band:
 1. SAR measurement at the left side of Phantom and the cheek position of the EUT.
 2. SAR measurement at the left side of Phantom and the tilted 15° position of the EUT.
 3. SAR measurement at the right side of Phantom and the cheek position of the EUT.
 4. SAR measurement at the right side of Phantom and the tilted 15° position of the EUT.
- Measurements at Low Channel of application band:

SAR measurement at the side and position where the maximum SAR level, measured at Central channel, was found.
- Measurements at High Channel of application band:

SAR measurement at the side and position where the maximum SAR level, measured at Central channel, was found.

As noted above, measurements shall be performed using a flat phantom for body worn configuration. EUT will be placed at the center of flat phantom. The EUT position using during the body SAR tests will be that where maximum peak SAR was found. Low and high channels for each band should be tested at this position.

If the mobile phone is also designed to transmit with other configurations (antenna fully extended/retracted, keypad cover opened/closed...), all tests described above shall be performed for each configuration. When considering multi-mode and multi-band mobile phones, all of the above tests shall be performed at each transmitting mode/band with the corresponding maximum peak power level.

2.4. Description of interpolation/extrapolation scheme

The local SAR inside the Phantom is measured using small dipole sensing elements inside a probe element. The probe tip must not be in contact with the Phantoms surface in order to minimise measurement errors, but the highest local SAR is obtained from measurements at a certain distances from the shell trough extrapolation. The accurate assessment of the maximum SAR averaged over 1gr. requires a very fine resolution in the three dimensional scanned data array. Since the measurements have to be performed over a limited time, the measured data have to be interpolated to provide an array of sufficient resolution.

The interpolation of 2D area scan is used after the initial area scan, at a fixed distance from the Phantom shell wall. The initial scan data are collected with approx. 15 mm spatial resolution and this interpolation is used to find the location of the local maximum for positioning the subsequent 3D scanning to within a 1mm resolution.

For the 3D scan, data are collected on a spatially regular 3D grid having 5 mm steps in both directions. After the data collection by the SAR probe, the data are extrapolated in the depth direction to assign values to points in the 3D array closer to the shell wall. A notional extrapolation value is also assigned to the first point outside the shell wall so that subsequent interpolation schemes will be applicable right up to the shell wall boundary.

2.5. Determination of the largest peak spatial-average SAR

To determine the maximum value of the peak spatial-average SAR of a EUT, all device positions, configurations and operational modes should be tested for each frequency band.

According to FCC OET Bulletin 65, Supplement C (Edition 01-01), the averaging volume shall be chosen as 1gr. of contiguous tissue. The cubic volumes, over which the SAR measurements are averaged after extrapolation and interpolation, are chosen in order to include the highest values of local SAR.

The maximum SAR level for the EUT will be the maximum level obtained of the performed measurements, and indicated in the previous points.

2.6. System Validation

Prior to the SAR measurements, system verification is done daily to verify the system accuracy. FCC OET Bulletin 65 – Supplement C, Appendix D “SAR measurement procedures” Paragraph “System Verification” specifies, a complete SAR evaluation is done using a half-wavelength dipole as source with the frequency of the mid-band channel of the operating band, or within 10% of this channel.

The measured one-gram SAR should be within 10% of the expected target values specified in the calibration certificate of the dipole, for the specific tissue and frequency used.

3. UNCERTAINTY

Uncertainty for 300 MHz – 3 GHz

ERROR SOURCES	Uncertainty value (%)	Probability distribution	Divisor	(c _i) 1g	(c _i) 10g	Standard uncertainty (1g)	Standard uncertainty (10g)	V _i V _{eff}
Measurement Equipment								
Probe Calibration	±5.9%	Normal	1	1	1	±5.90 %	±5.90%	∞
Axial Isotropy	±4.7%	Rectangular	√3	0.7	0.7	±1.92%	±1.92%	∞
Hemispherical Isotropy	±9.6%	Rectangular	√3	0.7	0.7	±3.92%	±3.92%	∞
Boundary effect	±1.0%	Rectangular	√3	1	1	±0.58%	±0.58%	∞
Linearity	±4.7%	Rectangular	√3	1	1	±2.71%	±2.71%	∞
System detection limits	±1.0%	Rectangular	√3	1	1	±0.58%	±0.58%	∞
Readout electronics	±1.0%	Normal	1	1	1	±1.00%	±1.00%	∞
Response time	±0.8%	Rectangular	√3	1	1	±0.46%	±0.46%	∞
Integration time	±2.6%	Rectangular	√3	1	1	±1.50%	±1.50%	∞
RF Ambient conditions	±3.0%	Rectangular	√3	1	1	±1.73%	±1.73%	∞
Probe positioner	±0.4%	Rectangular	√3	1	1	±0.23%	±0.23%	∞
Probe positioning	±2.9%	Rectangular	√3	1	1	±1.67%	±1.67%	∞
Maximum SAR evaluation	±1.0%	Rectangular	√3	1	1	±0.58%	±0.58%	∞
Test Sample Related								
Device positioning	±2.9%	Normal	1	1	1	±2.90%	±2.90%	145
Device Holder	±3.6%	Normal	1	1	1	±3.60%	±3.60%	5
Power Drift	±5.0%	Rectangular	√3	1	1	±2.89%	±2.89%	∞
Phantom and Setup								
Phantom uncertainty	±4.0%	Rectangular	√3	1	1	±2.31%	±2.31%	∞
Liquid conductivity (deviation from target)	±5.0%	Rectangular	√3	0.64	0.43	±1.85%	±1.24%	∞
Liquid conductivity (measurement error)	±2.5%	Normal	1	0.64	0.43	±1.60%	±1.08%	∞
Liquid permittivity (deviation from target)	±5.0%	Rectangular	√3	0.60	0.49	±1.73%	±1.41%	∞
Liquid permittivity (measurement error)	±2.5%	Normal	1	0.60	0.49	±1.50%	±1.23%	∞
Combined standard uncertainty	$u_c = \sqrt{\sum_{i=1}^m c_i^2 \cdot u_i^2}$					±10.85%	±10.62%	330
Expanded uncertainty (confidence interval of 95%)	$u_e = 2.00 u_c$					±21.71%	±21.24%	

Table 2: Uncertainty Assessment for 300 MHz - 3 GHz

4. SAR LIMIT

Having a worst case measurement, the SAR limit is valid for general population/uncontrolled exposure.

The SAR values have to be averaged over a mass of 1 gr. (SAR_{1 gr.}) with the shape of a cube. This level couldn't exceed the values indicated in the application Standard:

Standard	SAR	SAR Limit (W/Kg)
FCC 47 CFR Part 2.1093 Paragraph (d)(2)	SAR _{1 gr.}	1.6

Table 3: SAR limit

APPENDIX B: Test results

INDEX

1.	TEST CONDITIONS.....	19
1.1.	Power supply (V):.....	19
1.2.	Temperature (°C):	19
1.3.	Test signal, Output Power and Frequencies	19
1.4.	Equipment and test configurations.....	19
2.	CONDUCTED AVERAGE POWER MEASUREMENTS.....	20
3.	TISSUE PARAMETERS MEASUREMENTS.....	21
4.	SYSTEM VALIDATION MEASUREMENTS	22
4.1.	Validation results in 850 MHz Band for Head TSL.....	22
4.2.	Validation results in 850 MHz Band for Body TSL.....	22
4.3.	Validation results in 1900 MHz Band for Head TSL.....	22
4.4.	Validation results in 1900 MHz Band for Body TSL.....	22
5.	MEASUREMENT RESULTS FOR SAR (SPECIFIC ABSORPTION RATE).....	23
5.1.	Summary maximum results for head measurements.....	23
5.2.	Summary maximum results for body measurements	24
5.3.	Results for GSM 850 MHz band.	25
5.4.	Results for GPRS 850 MHz band.	26
5.5.	Results for EGPRS 850 MHz band.	27
5.6.	Results for GSM 1900 MHz Band.....	28
5.7.	Results for GPRS 1900 MHz Band.....	29
5.8.	Results for EGPRS 1900 MHz Band	30
5.9.	Results for WCDMA Band II.....	31
5.10.	Results for WCDMA Band V	32

1. TEST CONDITIONS

1.1. Power supply (V):

$V_n = 3.7$ Li-ion rechargeable battery

Type of power supply = DC Voltage from rechargeable Li-Ion 3.7 V battery.

1.2. Temperature (°C):

$T_n = +22$ to $+25$

The subscript n indicates normal test conditions.

1.3. Test signal, Output Power and Frequencies

The device was put into operation by using a R&S CMU 200 as base station simulator.

The output power of the device was set to Power Control Level (PCL) maximum for all tests; a fully charged battery was used for every test sequence.

GPRS and EGPRS (EDGE) were configured to transmit two uplink time slots due to maximum conducted power was found in this configuration.

In all operating bands and test position, the measurements were performed on middle channels. In each band, for those positions with the maximum averaged SAR was found, measurements were performed on lowest and highest channels¹.

1: See remarks and comments

1.4. Equipment and test configurations

The equipment under test has two possible configurations: keypad cover opened/closed.

Measures under 'keypad cover open configuration' are not required because the EUT in this configuration is designed to be used with a separation distance of at least 20 centimetres of the user body.

Measures under 'keypad cover closed configuration' are considered as required measurements.

For body worn tests, the EUT was placed with its back face against the flat phantom surface which was found the worst case.

The separation distance between EUT and flat phantom surface was 20mm. This distance is due to the addition between 15mm defined by user manual and 5mm by generic user clothes depth.

2. CONDUCTED AVERAGE POWER MEASUREMENTS

Frequency band (MHz)	Channel	GSM (dBm)	GPRS (dBm) (2 TX Slot)	EGPRS (dBm) (2 TX Slot)
850	128	32.31	32.1	26.8
	190	32.49	32.5	26.5
	251	32.45	32.4	26.8
1900	512	29.2	29.2	25.6
	661	29.29	29.3	25.8
	810	28.7	28.8	25.4

Frequency band (MHz)	Channel	WCDMA (dBm)	HSDPA (dBm)
850	4132	23.09	21.65
	4183	23.57	21.75
	4233	23.38	22.00
1900	9262	23.25	21.85
	9400	23.35	22.04
	9538	23.38	21.92

3. TISSUE PARAMETERS MEASUREMENTS

Frequency (MHz)	Target Head Tissue: Parameters used in Probe Calibration		Target Head Tissue: Parameters used in Dipole Calibration		Measured Head Tissue		Measured Date
	Permittivity	Conductivity [S/m]	Permittivity	Conductivity [S/m]	Permittivity	Conductivity [S/m]	
835	41.5 ± 5%	0.90 ± 5%	-	-	40.2	0.89	2009-07-04
900	41.5 ± 5%	0.97 ± 5%	39.8 ± 6%	0.94 ± 6%	39.56	0.95	2009-07-04
1800	40.0 ± 5%	1.40 ± 5%	41.1 ± 6%	1.37 ± 6%	39.12	1.39	2009-07-05
1900	40.0 ± 5%	1.40 ± 5%	-	-	38.64	1.45	2009-07-05

Frequency (MHz)	Target Body Tissue: Parameters used in Probe Calibration		Target Body Tissue: Parameters used in Dipole Calibration		Measured Body Tissue		Measured Date
	Permittivity	Conductivity [S/m]	Permittivity	Conductivity [S/m]	Permittivity	Conductivity [S/m]	
835	55.2 ± 5%	0.97 ± 5%	-	-	54.68	1.01	2009-07-06
900	55.0 ± 5%	1.05 ± 5%	52.4 ± 6%	1.06 ± 6%	53.94	1.07	2009-07-06
1800	53.3 ± 5%	1.52 ± 5%	54.0 ± 6%	1.49 ± 6%	52.66	1.56	2009-07-07
1900	53.3 ± 5%	1.52 ± 5%	-	-	52.17	1.57	2009-07-07

Note: The dielectric properties have been measured by the contact probe method at 23° C.

4. SYSTEM VALIDATION MEASUREMENTS

4.1. Validation results in 850 MHz Band for Head TSL

SAR	Target SAR	Measured SAR	Drift (%)	Limit (%)
1 gr.	10.70	10.34	-3.33	± 10
10 gr.	6.92	6.66	-3.83	± 10

4.2. Validation results in 850 MHz Band for Body TSL

SAR	Target SAR	Measured SAR	Drift (%)	Limit (%)
1 gr.	11.00	11.17	1.58	± 10
10 gr.	7.16	7.30	2.00	± 10

4.3. Validation results in 1900 MHz Band for Head TSL

SAR	Target SAR	Measured SAR	Drift (%)	Limit (%)
1 gr.	38.90	38.82	-0.21	± 10
10 gr.	20.50	20.23	-1.33	± 10

4.4. Validation results in 1900 MHz Band for Body TSL

SAR	Target SAR	Measured SAR	Drift (%)	Limit (%)
1 gr.	39.20	39.82	1.59	± 10
10 gr.	20.80	20.87	0.35	± 10

5. MEASUREMENT RESULTS FOR SAR (SPECIFIC ABSORPTION RATE)

5.1. Summary maximum results for head measurements

Band	Side / Position	Channel (Frequency)	Measured SAR, value (1g avg) (W/Kg)	SAR limit (1g avg) (W/Kg)
GSM 850	Left / Cheek	CH 190 (836.6 MHz)	0.387	1.6
GPRS 850	Left / Cheek	CH 190 (836.6 MHz)	0.719	1.6
EDGE 850	Left / Cheek	CH 190 (836.6 MHz)	0.230	1.6
GSM 1900	Right / Cheek	CH 661 (1880 MHz)	0.339	1.6
GPRS 1900	Right / Cheek	CH 661 (1880 MHz)	0.573	1.6
EDGE 1900	Right / Cheek	CH 661 (1880 MHz)	0.272	1.6
WCDMA Band II	Right / Cheek	CH 9400 (1880 MHz)	0.555	1.6
WCDMA Band V	Right / Cheek	CH 4183 (836.6 MHz)	0.271	1.6

5.2. Summary maximum results for body measurements

Band	Side / Position	Channel (Frequency)	Measured SAR, value (1g avg) (W/Kg)	SAR limit (1g avg) (W/Kg)
GSM 850	Back Face	CH 190 (836.6 MHz)	0.506	1.6
GPRS 850	Back Face	CH 190 (836.6 MHz)	0.920	1.6
EDGE 850	Back Face	CH 190 (836.6 MHz)	0.294	1.6
GSM 1900	Back Face	CH 661 (1880 MHz)	0.189	1.6
GPRS 1900	Back Face	CH 661 (1880 MHz)	0.331	1.6
EDGE 1900	Back Face	CH 661 (1880 MHz)	0.167	1.6
WCDMA Band II	Back Face	CH 9400 (1880 MHz)	0.347	1.6
WCDMA Band V	Back Face	CH 4183 (836.6 MHz)	0.357	1.6

5.3. Results for GSM 850 MHz band.

- **Head measurements**

Side / Position	Channel (Frequency)	SAR Max. over 1gr (W/Kg)	Power Drift (%)	Limit (%)	Verdict
Right / Cheek	CH 190 (836.6 Mhz)	0.328	-1.32	±5	Pass
Right / 15° Tilted	CH 190 (836.6 Mhz)	0.284	0.81	±5	Pass
Left / Cheek	CH 190 (836.6 Mhz)	0.387	-0.44	±5	Pass
Left / 15° Tilted	CH 190 (836.6 Mhz)	0.295	-1.41	±5	Pass
-	CH 128 (824.2 Mhz)	NM ¹	-	±5	Pass
-	CH 251 (848.8 Mhz)	NM ¹	-	±5	Pass

1: See remarks and comments.

- **Body measurements**

Side / Position	Channel (Frequency)	SAR Max. over 1gr (W/Kg)	Power Drift (%)	Limit (%)	Verdict
Back Face	CH 190 (836.6 Mhz)	0.506	-0.17	±5	Pass
-	CH 128 (824.2 Mhz)	NM ¹	-	±5	Pass
-	CH 251 (848.8 Mhz)	NM ¹	-	±5	Pass

1: See remarks and comments.

5.4. Results for GPRS 850 MHz band.

- **Head measurements**

Side / Position	Channel (Frequency)	SAR Max. over 1gr (W/Kg)	Power Drift (%)	Limit (%)	Verdict
Right / Cheek	CH 190 (836.6 Mhz)	0.610	-2.79	±5	Pass
Right / 15° Tilted	CH 190 (836.6 Mhz)	0.500	-2.2	±5	Pass
Left / Cheek	CH 190 (836.6 Mhz)	0.719	-1.47	±5	Pass
Left / 15° Tilted	CH 190 (836.6 Mhz)	0.465	-1.26	±5	Pass
-	CH 128 (824.2 Mhz)	NM ¹	-	±5	Pass
-	CH 251 (848.8 Mhz)	NM ¹	-	±5	Pass

1: See remarks and comments

- **Body measurements**

Side / Position	Channel (Frequency)	SAR Max. over 1gr (W/Kg)	Power Drift (%)	Limit (%)	Verdict
Back Face	CH 190 (836.6 Mhz)	0.920	-2.11	±5	Pass
-	CH 128 (824.2 Mhz)	NM ¹	-	±5	Pass
-	CH 251 (848.8 Mhz)	NM ¹	-	±5	Pass

1: See remarks and comments

5.5. Results for EGPRS 850 MHz band.

- **Head measurements**

Side / Position	Channel (Frequency)	SAR Max. over 1gr (W/Kg)	Power Drift (%)	Limit (%)	Verdict
Right / Cheek	CH 190 (836.6 Mhz)	NM ²	-	±5	Pass
Right / 15° Tilted	CH 190 (836.6 Mhz)	NM ²	-	±5	Pass
Left / Cheek	CH 190 (836.6 Mhz)	0.230	-3.21	±5	Pass
Left / 15° Tilted	CH 190 (836.6 Mhz)	NM ²	-	±5	Pass
-	CH 128 (824.2 Mhz)	NM ²	-	±5	Pass
-	CH 251 (848.8 Mhz)	NM ²	-	±5	Pass

2: See remarks and comments

- **Body measurements**

Side / Position	Channel (Frequency)	SAR Max. over 1gr (W/Kg)	Power Drift (%)	Limit (%)	Verdict
Back Face	CH 190 (836.6 Mhz)	0.294	-0.19	±5	Pass
-	CH 128 (824.2 Mhz)	NM ¹	-	±5	Pass
-	CH 251 (848.8 Mhz)	NM ¹	-	±5	Pass

1: See remarks and comments

5.6. Results for GSM 1900 MHz Band

- **Head measurements**

Side / Position	Channel (Frequency)	SAR Max. over 1gr (W/Kg)	Power Drift (%)	Limit (%)	Verdict
Right / Cheek	CH 661 (1880 Mhz)	0.339	-0.08	±5	Pass
Right / 15° Tilted	CH 661 (1880 Mhz)	0.166	4.66	±5	Pass
Left / Cheek	CH 661 (1880 Mhz)	0.274	4.50	±5	Pass
Left / 15° Tilted	CH 661 (1880 Mhz)	0.204	-1.44	±5	Pass
-	CH 512 (1850.2 Mhz)	NM ¹	-	±5	Pass
-	CH 810 (1909.8 Mhz)	NM ¹	-	±5	Pass

1: See remarks and comments

- **Body measurements**

Side / Position	Channel (Frequency)	SAR Max. over 1gr (W/Kg)	Power Drift (%)	Limit (%)	Verdict
Back Face	CH 661 (1880 Mhz)	0.189	-0.49	±5	Pass
-	CH 512 (1850.2 Mhz)	NM ¹	-	±5	Pass
-	CH 810 (1909.8 Mhz)	NM ¹	-	±5	Pass

1: See remarks and comments

5.7. Results for GPRS 1900 MHz Band

- **Head measurements**

Side / Position	Channel (Frequency)	SAR Max. over 1gr (W/Kg)	Power Drift (%)	Limit (%)	Verdict
Right / Cheek	CH 661 (1880 Mhz)	0.573	0.26	±5	Pass
Right / 15° Tilted	CH 661 (1880 Mhz)	0.298	0.19	±5	Pass
Left / Cheek	CH 661 (1880 Mhz)	0.359	-3.07	±5	Pass
Left / 15° Tilted	CH 661 (1880 Mhz)	0.320	-2.78	±5	Pass
-	CH 512 (1850.2 Mhz)	NM ¹	-	±5	Pass
-	CH 810 (1909.8 Mhz)	NM ¹	-	±5	Pass

1: See remarks and comments

- **Body measurements**

Side / Position	Channel (Frequency)	SAR Max. over 1gr (W/Kg)	Power Drift (%)	Limit (%)	Verdict
Back Face	CH 661 (1880 Mhz)	0.331	-0.79	±5	Pass
-	CH 512 (1850.2 Mhz)	NM ¹	-	±5	Pass
-	CH 810 (1909.8 Mhz)	NM ¹	-	±5	Pass

1: See remarks and comments

5.8. Results for EGPRS 1900 MHz Band

- **Head measurements**

Side / Position	Channel (Frequency)	SAR Max. over 1gr (W/Kg)	Power Drift (%)	Limit (%)	Verdict
Right / Cheek	CH 661 (1880 Mhz)	0.272	-0.99	±5	Pass
Right / 15° Tilted	CH 661 (1880 Mhz)	NM ²	-	±5	Pass
Left / Cheek	CH 661 (1880 Mhz)	NM ²	-	±5	Pass
Left / 15° Tilted	CH 661 (1880 Mhz)	NM ²	-	±5	Pass
-	CH 512 (1850.2 Mhz)	NM ²	-	±5	Pass
-	CH 810 (1909.8 Mhz)	NM ²	-	±5	Pass

2: See remarks and comments

- **Body measurements**

Side / Position	Channel (Frequency)	SAR Max. over 1gr (W/Kg)	Power Drift (%)	Limit (%)	Verdict
Back Face	CH 661 (1880 Mhz)	0.167	0.17	±5	Pass
-	CH 512 (1850.2 Mhz)	NM ¹	-	±5	Pass
-	CH 810 (1909.8 Mhz)	NM ¹	-	±5	Pass

1: See remarks and comments

5.9. Results for WCDMA Band II

- **Head measurements**

Side / Position	Channel (Frequency)	SAR Max. over 1gr (W/Kg)	Power Drift (%)	Limit (%)	Verdict
Right / Cheek	CH 9400 (1880 Mhz)	0.555	-0.11	±5	Pass
Right / 15° Tilted	CH 9400 (1880 Mhz)	0.297	2.60	±5	Pass
Left / Cheek	CH 9400 (1880 Mhz)	0.447	1.67	±5	Pass
Left / 15° Tilted	CH 9400 (1880 Mhz)	0.339	0.99	±5	Pass
-	CH 9262 (1852.4 Mhz)	NM ¹	-	±5	Pass
-	CH 9538 (1907.6 Mhz)	NM ¹	-	±5	Pass

1: See remarks and comments

- **Body measurements**

Side / Position	Channel (Frequency)	SAR Max. over 1gr (W/Kg)	Power Drift (%)	Limit (%)	Verdict
Back Face	CH 9400 (1880 Mhz)	0.347	3.51	±5	Pass
-	CH 9262 (1852.4 Mhz)	NM ¹	-	±5	Pass
-	CH 9538 (1907.6 Mhz)	NM ¹	-	±5	Pass

1: See remarks and comments

5.10. Results for WCDMA Band V

- **Head measurements**

Side / Position	Channel (Frequency)	SAR Max. over 1gr (W/Kg)	Power Drift (%)	Limit (%)	Verdict
Right / Cheek	CH 4183 (836.6 Mhz)	0.219	-0.70	±5	Pass
Right / 15° Tilted	CH 4183 (836.6 Mhz)	0.167	-1.45	±5	Pass
Left / Cheek	CH 4183 (836.6 Mhz)	0.271	1.17	±5	Pass
Left / 15° Tilted	CH 4183 (836.6 Mhz)	0.181	-1.61	±5	Pass
-	CH 4132 (826.4 Mhz)	NM ¹	-	±5	Pass
-	CH 4233 (846.6 Mhz)	NM ¹	-	±5	Pass

1: See remarks and comments

- **Body measurements**

Side / Position	Channel (Frequency)	SAR Max. over 1gr (W/Kg)	Power Drift (%)	Limit (%)	Verdict
Back Face	CH 4183 (836.6 Mhz)	0.357	-2.51	±5	Pass
-	CH 4132 (826.4 Mhz)	NM ¹	-	±5	Pass
-	CH 4233 (846.6 Mhz)	NM ¹	-	±5	Pass

1: See remarks and comments

APPENDIX C: Measurements Reports

GSM 850 MHz – Right hand side – Cheek position – Middle Channel

DUT: Pantech-P7000; Type: Handset; Serial: IMEI TAC: 01203300
Program Name: GSM 850 (Right-Hand Side)

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
 Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.89$ mho/m; $\epsilon_r = 40.2$; $\rho = 1000$ kg/m³
 Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3052add; ConvF(6.29, 6.29, 6.29); Calibrated: 18/09/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 21/08/2007
- Phantom: SAM 12; Type: TWIN SAM V4.0;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Touch position - Middle/Area Scan (71x111x1): Measurement grid: dx=12mm, dy=12mm

Info: [Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.349 mW/g

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

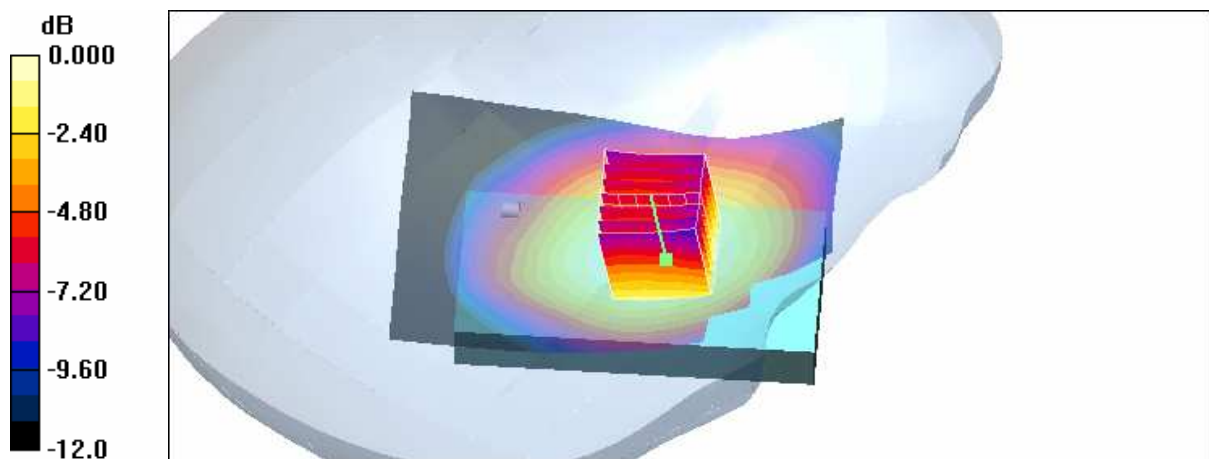
Reference Value = 9.16 V/m; Power Drift = -0.115 dB

Peak SAR (extrapolated) = 0.419 W/kg

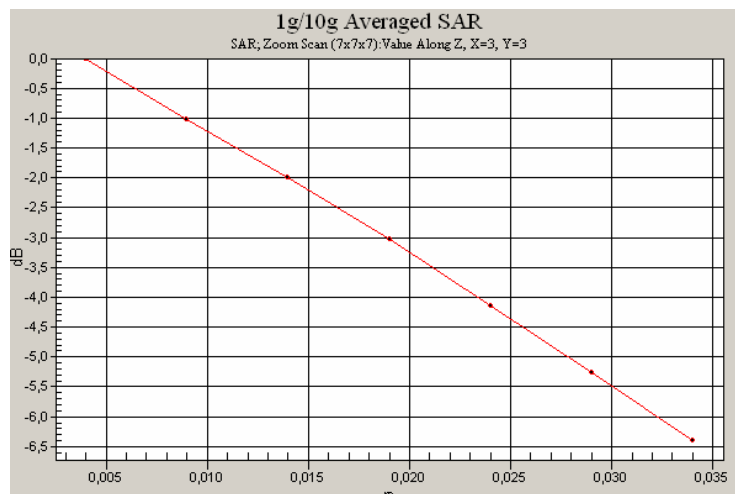
SAR(1 g) = 0.328 mW/g; SAR(10 g) = 0.248 mW/g

Info: [Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.347 mW/g



0 dB = 0.347mW/g



GSM 850 MHz – Right hand side – Tilt position – Middle Channel

DUT: Pantech-P7000; Type: Handset; Serial: IMEI TAC: 01203300

Program Name: GSM 850 (Right-Hand Side)

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3

Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.89$ mho/m; $\epsilon_r = 40.2$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3052add; ConvF(6.29, 6.29, 6.29); Calibrated: 18/09/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 21/08/2007
- Phantom: SAM 12; Type: TWIN SAM V4.0;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Reference Value = 12.5 V/m; Power Drift = 0.070 dB

Peak SAR (extrapolated) = 0.368 W/kg

SAR(1 g) = 0.284 mW/g; SAR(10 g) = 0.208 mW/g

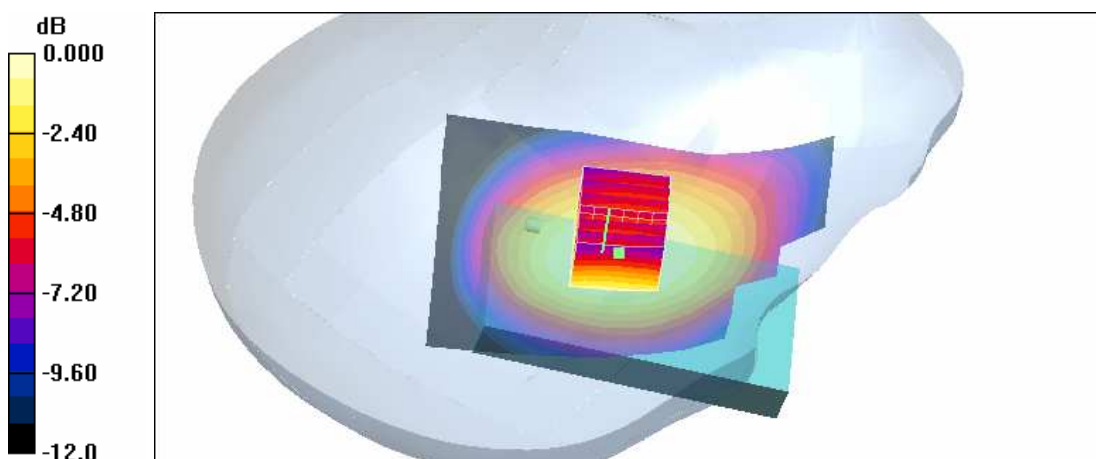
[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.300 mW/g

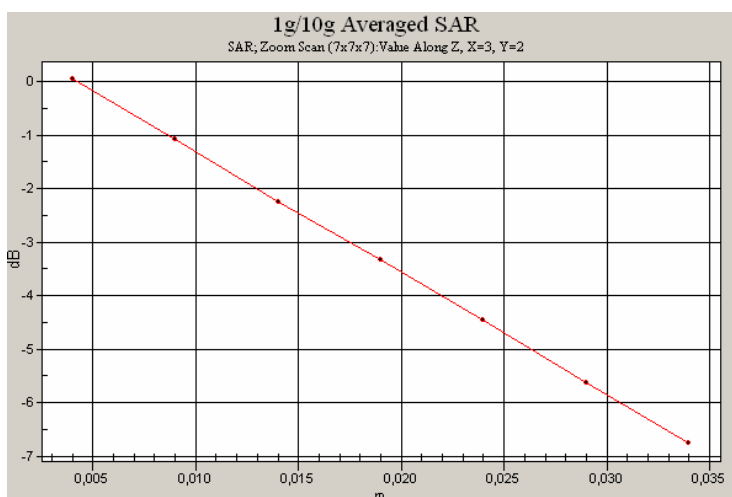
Tilt position - Middle/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.297 mW/g



0 dB = 0.297mW/g



GSM 850 MHz – Left hand side – Cheek position – Middle Channel

DUT: Pantech-P7000; Type: Handset; Serial: IMEI TAC: 01203300
Program Name: GSM 850 (Left-Hand Side)

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
 Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.89$ mho/m; $\epsilon_r = 40.2$; $\rho = 1000$ kg/m³
 Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3052add; ConvF(6.29, 6.29, 6.29); Calibrated: 18/09/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 21/08/2007
- Phantom: SAM 12; Type: TWIN SAM V4.0;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Touch position - Middle/Area Scan (71x111x1): Measurement grid: dx=12mm, dy=12mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.405 mW/g

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

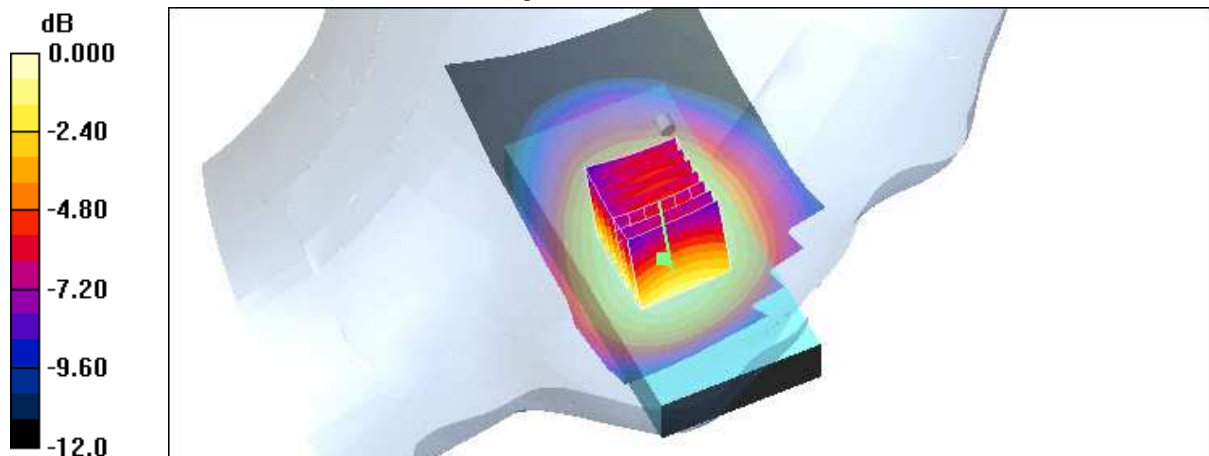
Reference Value = 8.77 V/m; Power Drift = -0.039 dB

Peak SAR (extrapolated) = 0.489 W/kg

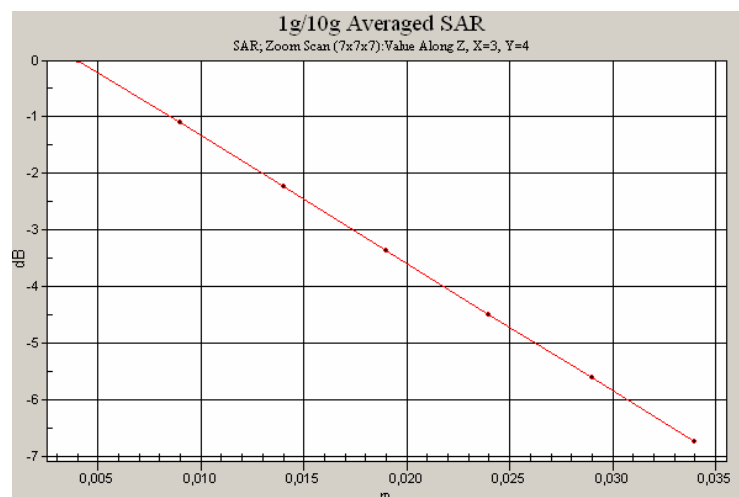
SAR(1 g) = 0.387 mW/g; SAR(10 g) = 0.287 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.403 mW/g



0 dB = 0.403mW/g



GSM 850 MHz – Left hand side – Tilt position – Middle Channel

DUT: Pantech-P7000; Type: Handset; Serial: IMEI TAC: 01203300
Program Name: GSM 850 (Left-Hand Side)

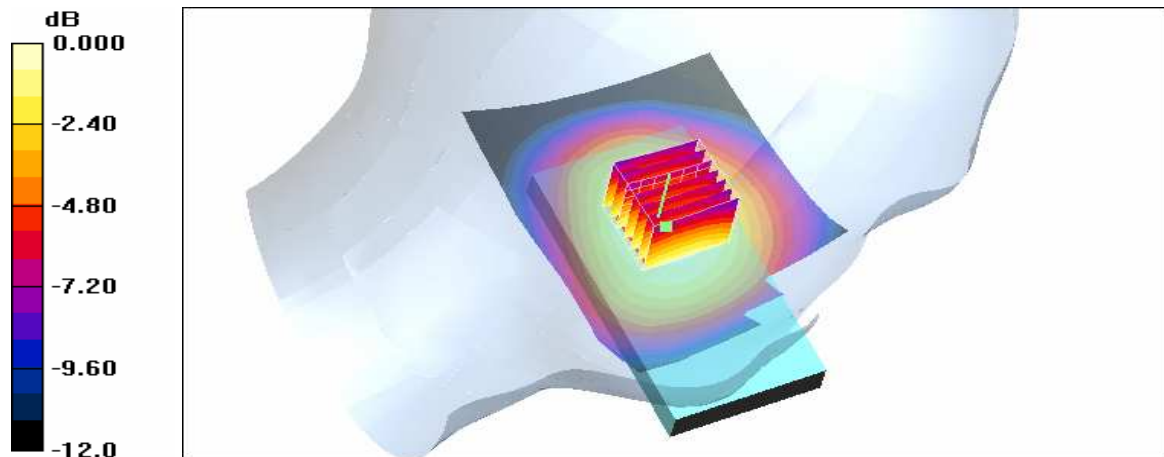
Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
 Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.89$ mho/m; $\epsilon_r = 40.2$; $\rho = 1000$ kg/m³
 Phantom section: Left Section

DASY4 Configuration:

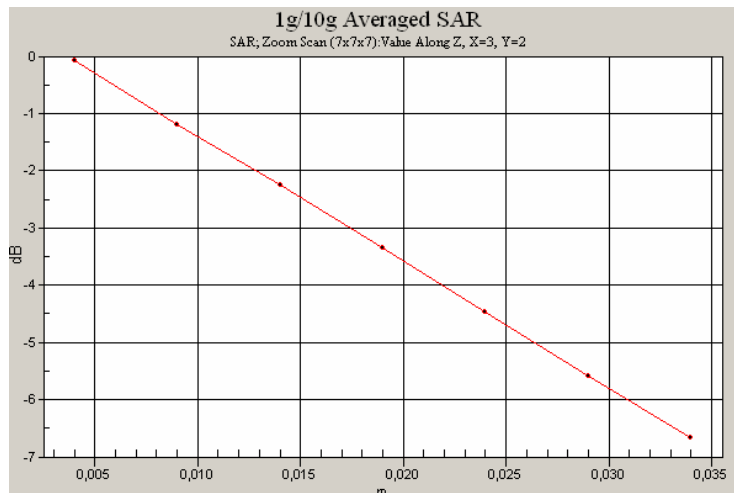
- Probe: ES3DV3 - SN3052add; ConvF(6.29, 6.29, 6.29); Calibrated: 18/09/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 21/08/2007
- Phantom: SAM 12; Type: TWIN SAM V4.0;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Tilt position - Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 12.7 V/m; Power Drift = -0.123 dB
 Peak SAR (extrapolated) = 0.371 W/kg
SAR(1 g) = 0.295 mW/g; SAR(10 g) = 0.219 mW/g
[Info: Interpolated medium parameters used for SAR evaluation.](#)
 Maximum value of SAR (measured) = 0.309 mW/g

Tilt position - Middle/Area Scan (61x91x1): Measurement grid: dx=15mm, dy=15mm
[Info: Interpolated medium parameters used for SAR evaluation.](#)
 Maximum value of SAR (interpolated) = 0.315 mW/g



0 dB = 0.315mW/g



GSM 850 MHz – Body – Back Face position – Middle Channel

DUT: Pantech-P7000; Type: Handset; Serial: IMEI TAC: 01203300
Program Name: GSM 850 (Body)

Communication System: GSM 850; Frequency: 836.6 MHz; Duty Cycle: 1:8.3
 Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 1.01$ mho/m; $\epsilon_r = 54.7$; $\rho = 1000$ kg/m³
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3052add; ConvF(6.07, 6.07, 6.07); Calibrated: 18/09/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 21/08/2007
- Phantom: SAM 12; Type: TWIN SAM V4.0;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Back face - Middle/Area Scan (71x121x1): Measurement grid: dx=10mm, dy=10mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.585 mW/g

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

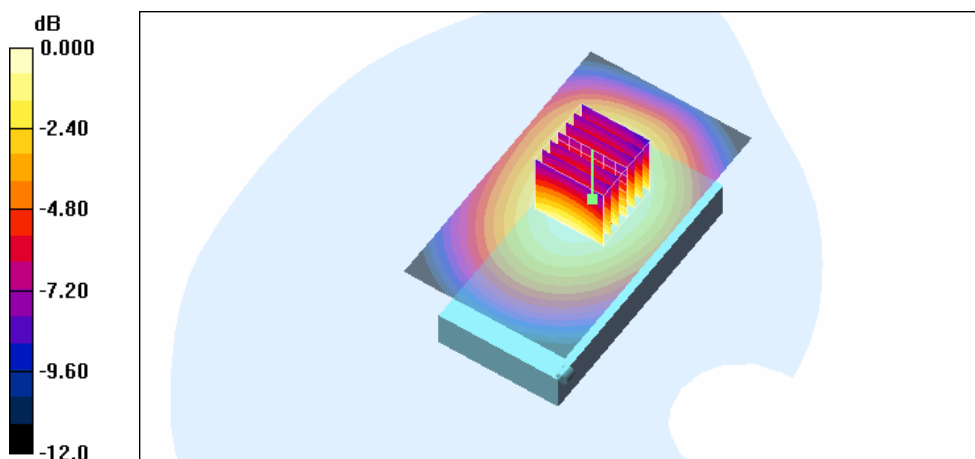
Reference Value = 12.1 V/m; Power Drift = -0.015 dB

Peak SAR (extrapolated) = 0.667 W/kg

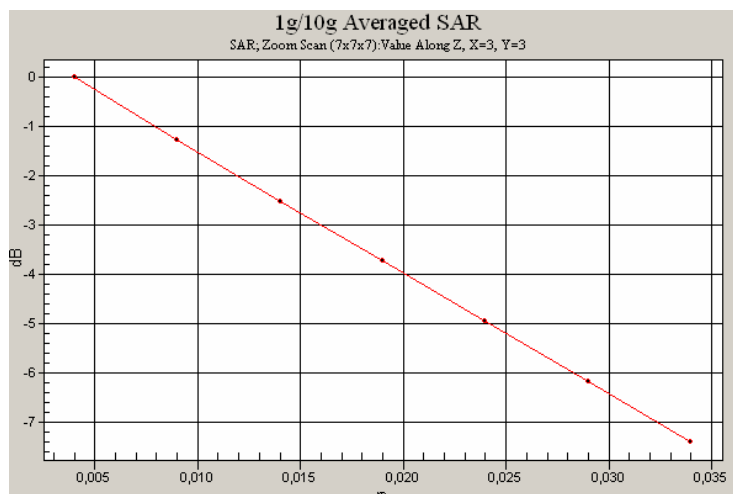
SAR(1 g) = 0.506 mW/g; SAR(10 g) = 0.366 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.538 mW/g



0 dB = 0.538mW/g



GPRS 850 MHz – Right hand side – Cheek position – Middle Channel

DUT: Pantech-P7000; Type: Handset; Serial: IMEI TAC: 01203300
Program Name: GPRS 850 (Right-Hand Side)

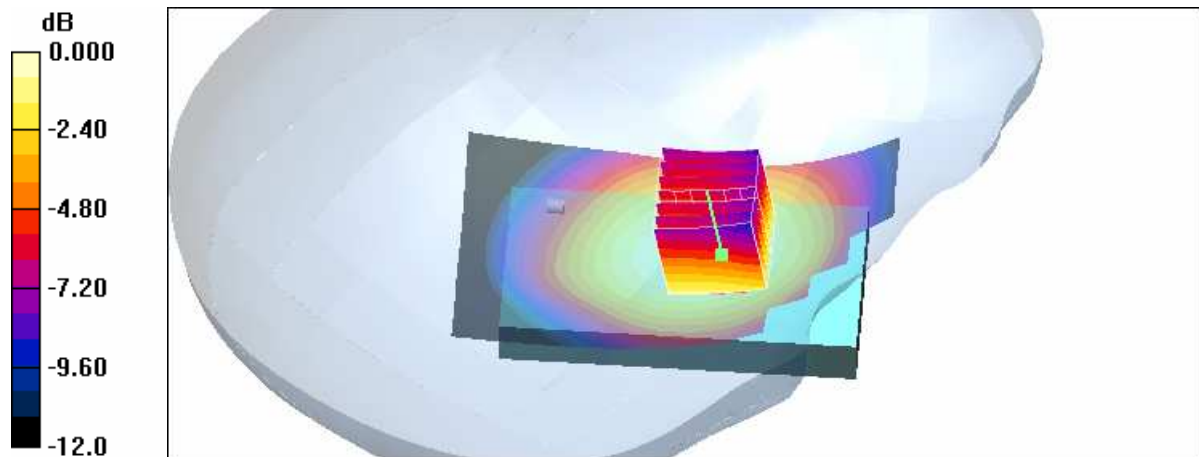
Communication System: GPRS 850 (2 Timeslots); Frequency: 836.6 MHz; Duty Cycle: 1:4
 Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.89$ mho/m; $\epsilon_r = 40.2$; $\rho = 1000$ kg/m³
 Phantom section: Right Section

DASY4 Configuration:

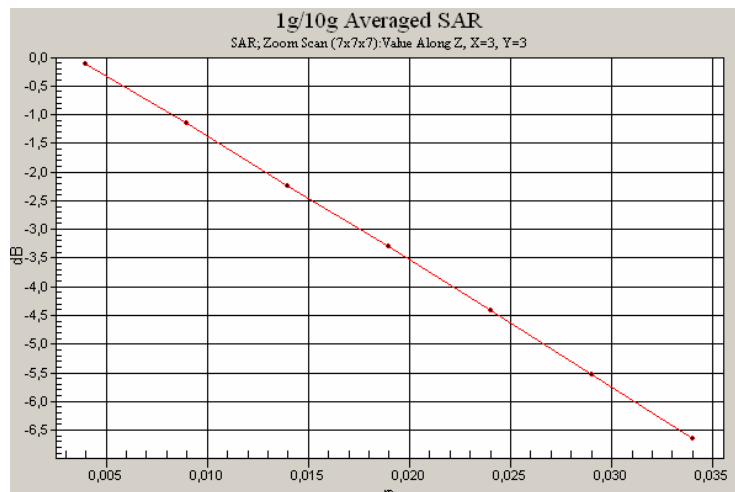
- Probe: ES3DV3 - SN3052add; ConvF(6.29, 6.29, 6.29); Calibrated: 18/09/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 21/08/2007
- Phantom: SAM 12; Type: TWIN SAM V4.0;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Touch position - Middle 2/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 12.6 V/m; Power Drift = -0.246 dB
 Peak SAR (extrapolated) = 0.762 W/kg
SAR(1 g) = 0.610 mW/g; SAR(10 g) = 0.460 mW/g
[Info: Interpolated medium parameters used for SAR evaluation.](#)
 Maximum value of SAR (measured) = 0.643 mW/g

Touch position - Middle 2/Area Scan (61x111x1): Measurement grid: dx=12mm, dy=12mm
[Info: Interpolated medium parameters used for SAR evaluation.](#)
 Maximum value of SAR (interpolated) = 0.661 mW/g



0 dB = 0.661mW/g



GPRS 850 MHz – Right hand side – Tilt position – Middle Channel

DUT: Pantech-P7000; Type: Handset; Serial: IMEI TAC: 01203300
Program Name: GPRS 850 (Right-Hand Side)

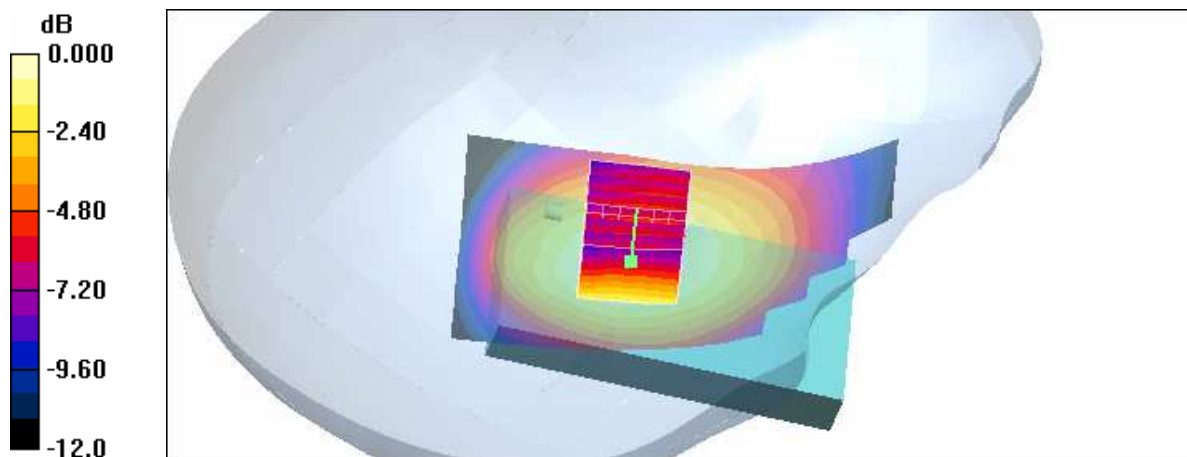
Communication System: GPRS 850 (2 Timeslots); Frequency: 836.6 MHz; Duty Cycle: 1:4
 Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.89$ mho/m; $\epsilon_r = 40.2$; $\rho = 1000$ kg/m³
 Phantom section: Right Section

DASY4 Configuration:

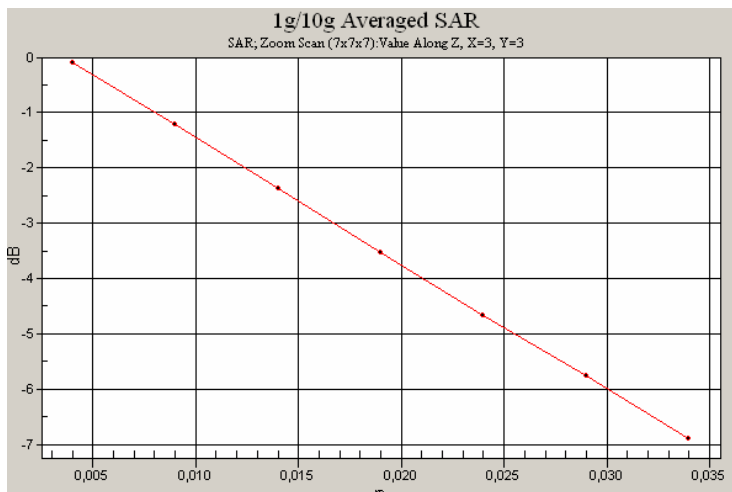
- Probe: ES3DV3 - SN3052add; ConvF(6.29, 6.29, 6.29); Calibrated: 18/09/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 21/08/2007
- Phantom: SAM 12; Type: TWIN SAM V4.0;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Tilt position - Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 18.5 V/m; Power Drift = -0.193 dB
 Peak SAR (extrapolated) = 0.650 W/kg
SAR(1 g) = 0.500 mW/g; SAR(10 g) = 0.365 mW/g
[Info: Interpolated medium parameters used for SAR evaluation.](#)
 Maximum value of SAR (measured) = 0.532 mW/g

Tilt position - Middle/Area Scan (61x111x1): Measurement grid: dx=12mm, dy=12mm
[Info: Interpolated medium parameters used for SAR evaluation.](#)
 Maximum value of SAR (interpolated) = 0.543 mW/g



0 dB = 0.543mW/g



GPRS 850 MHz – Left hand side – Cheek position – Middle Channel

DUT: Pantech-P7000; Type: Handset; Serial: IMEI TAC: 01203300
Program Name: GPRS 850 (Left-Hand Side)

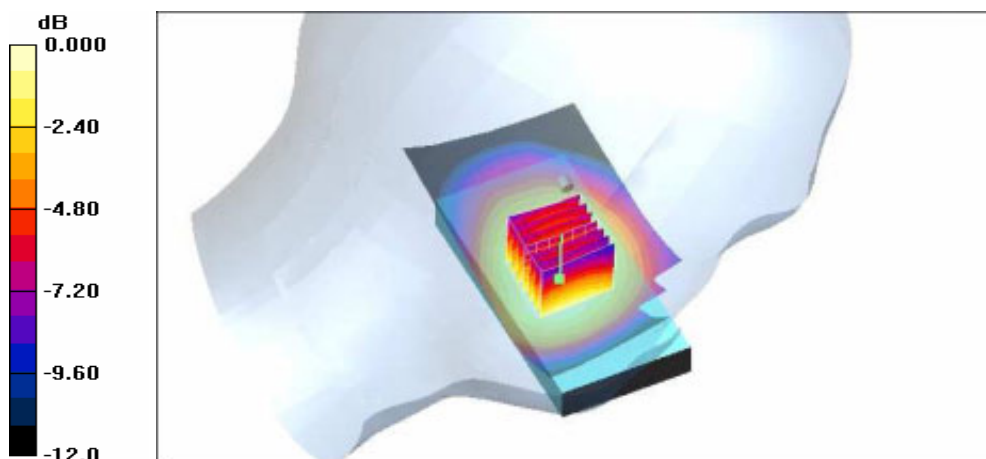
Communication System: GPRS 850 (2 Timeslots); Frequency: 836.6 MHz; Duty Cycle: 1:4
 Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.89$ mho/m; $\epsilon_r = 40.2$; $\rho = 1000$ kg/m³
 Phantom section: Left Section

DASY4 Configuration:

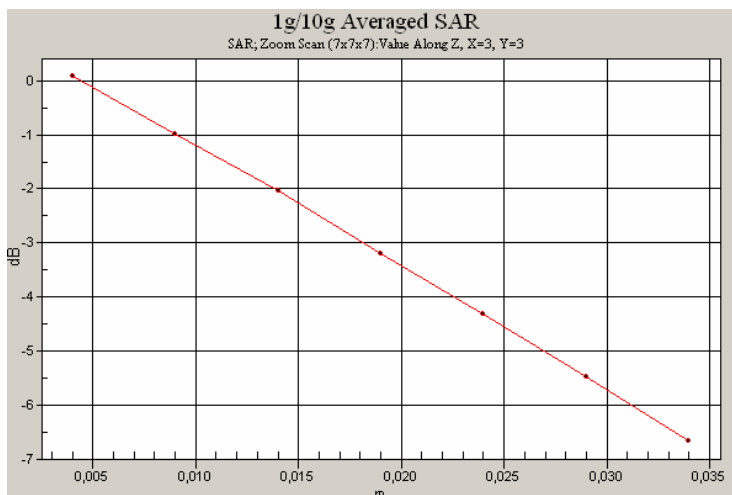
- Probe: ES3DV3 - SN3052add; ConvF(6.29, 6.29, 6.29); Calibrated: 18/09/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 21/08/2007
- Phantom: SAM 12; Type: TWIN SAM V4.0;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Touch position - Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 13.5 V/m; Power Drift = -0.129 dB
 Peak SAR (extrapolated) = 0.920 W/kg
SAR(1 g) = 0.719 mW/g; SAR(10 g) = 0.534 mW/g
[Info: Interpolated medium parameters used for SAR evaluation.](#)
 Maximum value of SAR (measured) = 0.764 mW/g

Touch position - Middle 2/Area Scan (61x111x1): Measurement grid: dx=12mm, dy=12mm
[Info: Interpolated medium parameters used for SAR evaluation.](#)
 Maximum value of SAR (interpolated) = 0.752 mW/g



0 dB = 0.752mW/g



GPRS 850 MHz – Left hand side – Tilt position – Middle Channel

DUT: Pantech-P7000; Type: Handset; Serial: IMEI TAC: 01203300
Program Name: GPRS 850 (Left-Hand Side)

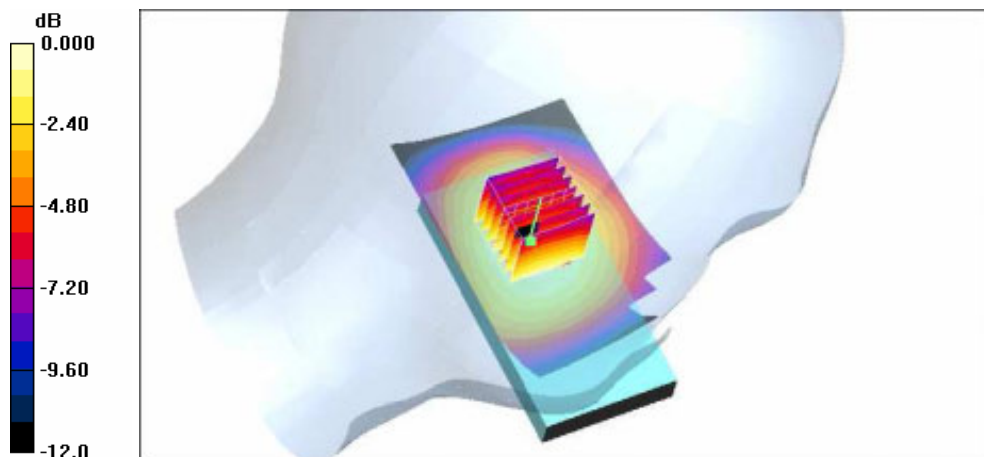
Communication System: GPRS 850 (2 Timeslots); Frequency: 836.6 MHz; Duty Cycle: 1:4
 Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.89$ mho/m; $\epsilon_r = 40.2$; $\rho = 1000$ kg/m³
 Phantom section: Left Section

DASY4 Configuration:

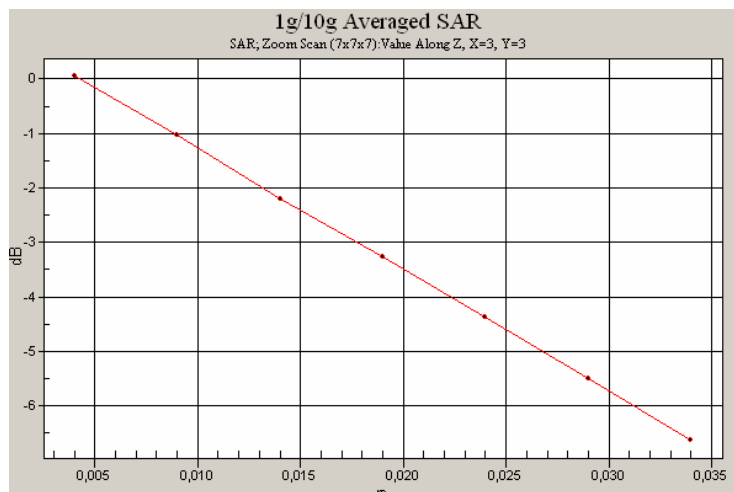
- Probe: ES3DV3 - SN3052add; ConvF(6.29, 6.29, 6.29); Calibrated: 18/09/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 21/08/2007
- Phantom: SAM 12; Type: TWIN SAM V4.0;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Tilt position - Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
 Reference Value = 17.2 V/m; Power Drift = -0.110 dB
 Peak SAR (extrapolated) = 0.602 W/kg
SAR(1 g) = 0.465 mW/g; SAR(10 g) = 0.343 mW/g
[Info: Interpolated medium parameters used for SAR evaluation.](#)
 Maximum value of SAR (measured) = 0.495 mW/g

Tilt position - Middle/Area Scan (61x111x1): Measurement grid: dx=12mm, dy=12mm
[Info: Interpolated medium parameters used for SAR evaluation.](#)
 Maximum value of SAR (interpolated) = 0.490 mW/g



0 dB = 0.490mW/g



GPRS 850 MHz – Body – Back Face position – Middle Channel

DUT: Pantech-P7000; Type: Handset; Serial: IMEI TAC: 01203300
Program Name: GPRS 850 (Body)

Communication System: GPRS 850 (2 Timeslots); Frequency: 836.6 MHz; Duty Cycle: 1:4
 Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 1.01$ mho/m; $\epsilon_r = 54.7$; $\rho = 1000$ kg/m³
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3052add; ConvF(6.07, 6.07, 6.07); Calibrated: 18/09/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 21/08/2007
- Phantom: SAM 12; Type: TWIN SAM V4.0;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Back face - Middle/Area Scan (71x121x1): Measurement grid: dx=10mm, dy=10mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.999 mW/g

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

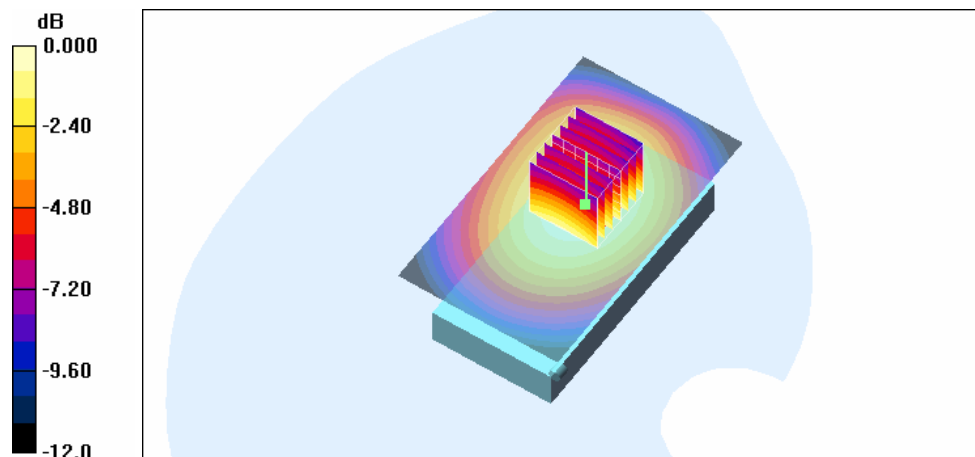
Reference Value = 16.3 V/m; Power Drift = -0.185 dB

Peak SAR (extrapolated) = 1.21 W/kg

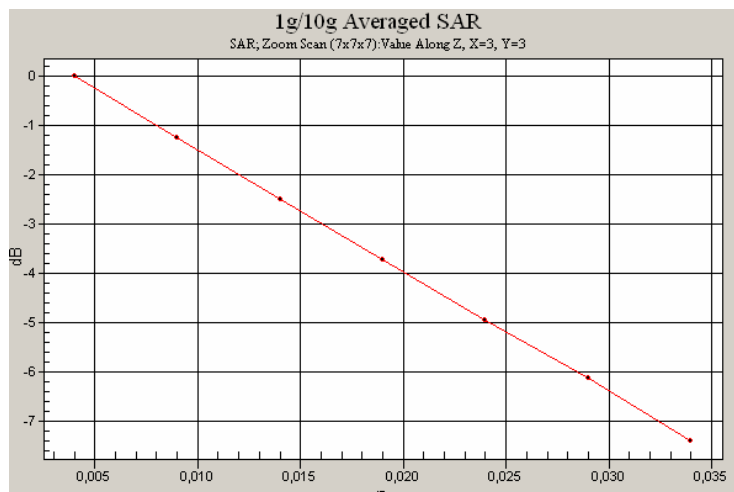
SAR(1 g) = 0.920 mW/g; SAR(10 g) = 0.666 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.978 mW/g



0 dB = 0.978mW/g



EGPRS 850 MHz – Left hand side – Cheek position – Middle Channel

DUT: Pantech-P7000; Type: Handset; Serial: IMEI TAC: 01203300
Program Name: EGPRS 850 (Left-Hand Side)

Communication System: EDGE850 (2 Timeslots); Frequency: 836.6 MHz; Duty Cycle: 1:4
 Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.89$ mho/m; $\epsilon_r = 40.2$; $\rho = 1000$ kg/m³
 Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3052add; ConvF(6.29, 6.29, 6.29); Calibrated: 18/09/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 21/08/2007
- Phantom: SAM 12; Type: TWIN SAM V4.0;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Touch position - Middle/Area Scan (71x111x1): Measurement grid: dx=12mm, dy=12mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

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

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

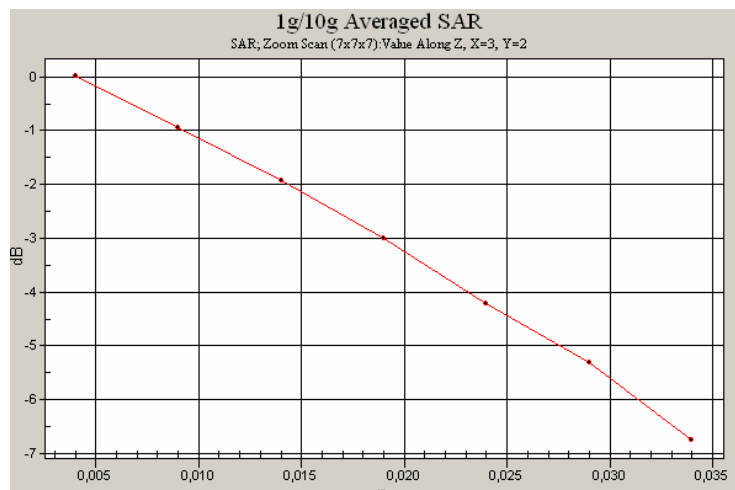
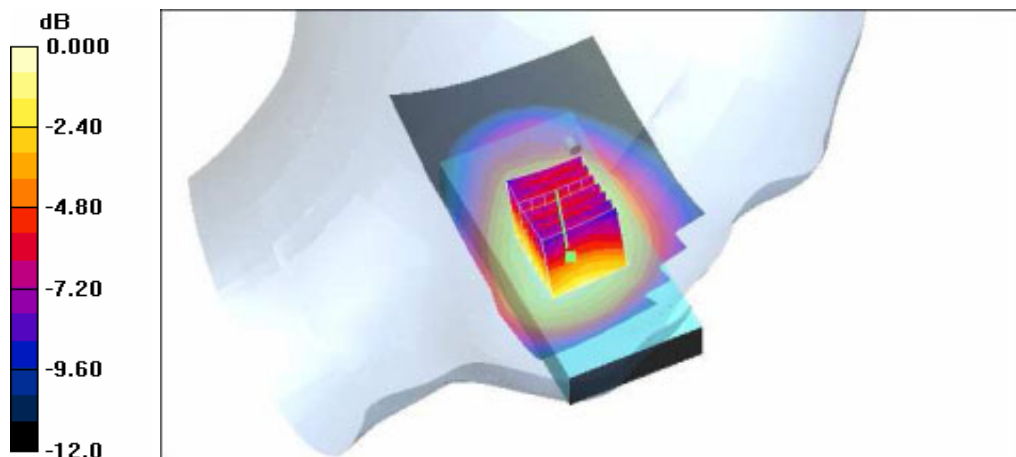
Reference Value = 7.25 V/m; Power Drift = -0.283 dB

Peak SAR (extrapolated) = 0.305 W/kg

SAR(1 g) = 0.230 mW/g; SAR(10 g) = 0.170 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.249 mW/g



EGPRS 850 MHz – Body – Back Face position – Middle Channel

DUT: Pantech-P7000; Type: Handset; Serial: IMEI TAC: 01203300
Program Name: EGPRS 850 (Body)

Communication System: EDGE850 (2 Timeslots); Frequency: 836.6 MHz; Duty Cycle: 1:4
 Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 1.01$ mho/m; $\epsilon_r = 54.7$; $\rho = 1000$ kg/m³
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3052add; ConvF(6.07, 6.07, 6.07); Calibrated: 18/09/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 21/08/2007
- Phantom: SAM 12; Type: TWIN SAM V4.0;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Back face - Middle/Area Scan (71x121x1): Measurement grid: dx=10mm, dy=10mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.299 mW/g

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

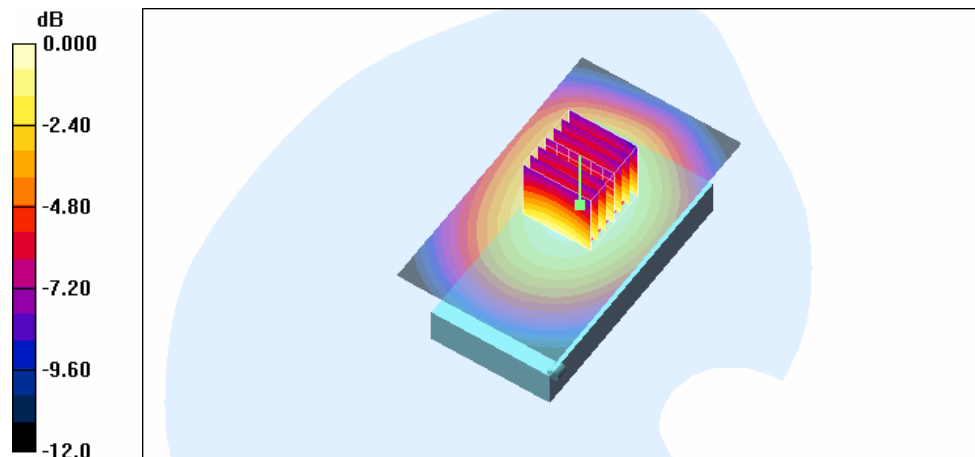
Reference Value = 9.14 V/m; Power Drift = -0.016 dB

Peak SAR (extrapolated) = 0.372 W/kg

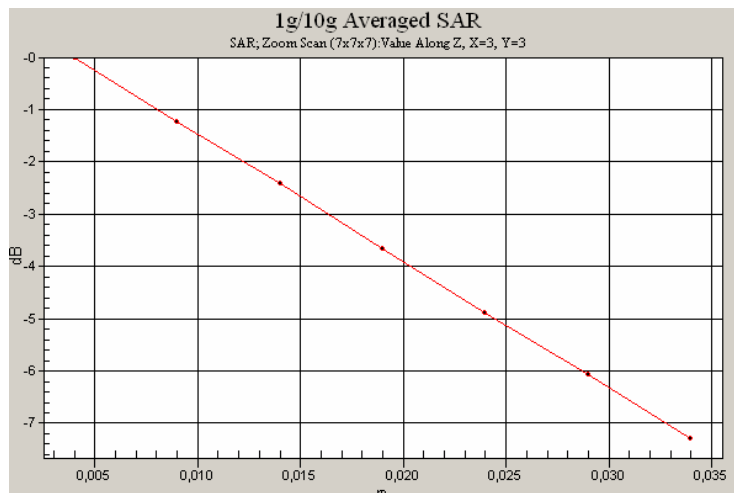
SAR(1 g) = 0.283 mW/g; SAR(10 g) = 0.206 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.300 mW/g



0 dB = 0.300mW/g



GSM 1900 MHz – Right hand side – Cheek position – Middle Channel

DUT: Pantech-P7000; Type: Handset; Serial: IMEI TAC: 01203300

Program Name: GSM 1900 (Right-Hand Side)

Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 38.8$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3052add; ConvF(4.81, 4.81, 4.81); Calibrated: 18/09/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 21/08/2007
- Phantom: SAM 12; Type: TWIN SAM V4.0;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Touch position - Middle/Area Scan (61x111x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (interpolated) = 0.380 mW/g

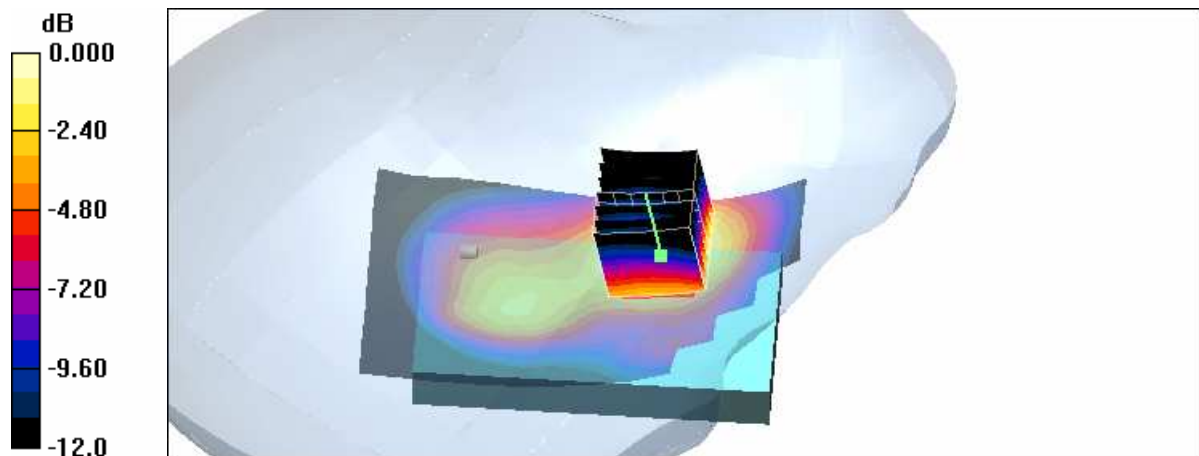
Touch position - Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.84 V/m; Power Drift = -0.007 dB

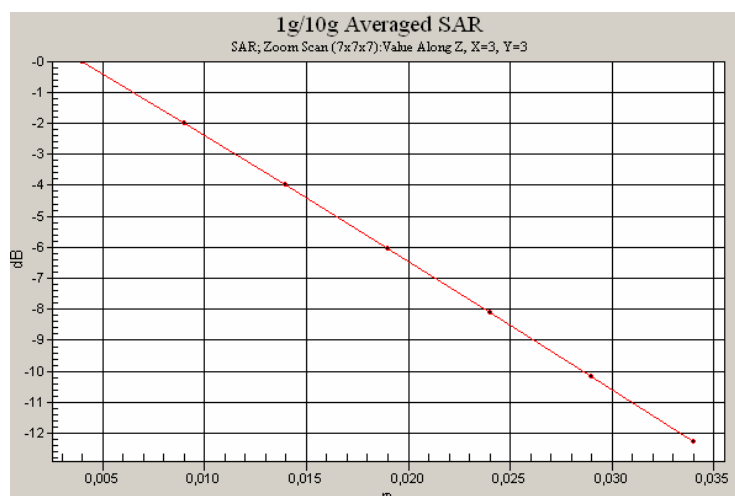
Peak SAR (extrapolated) = 0.535 W/kg

SAR(1 g) = 0.339 mW/g; SAR(10 g) = 0.196 mW/g

Maximum value of SAR (measured) = 0.373 mW/g



0 dB = 0.373mW/g



GSM 1900 MHz – Right hand side – Tilt position – Middle Channel

DUT: Pantech-P7000; Type: Handset; Serial: IMEI TAC: 01203300

Program Name: GSM 1900 (Right-Hand Side)

Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 38.8$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3052add; ConvF(4.81, 4.81, 4.81); Calibrated: 18/09/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 21/08/2007
- Phantom: SAM 12; Type: TWIN SAM V4.0;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Reference Value = 9.88 V/m; Power Drift = 0.396 dB

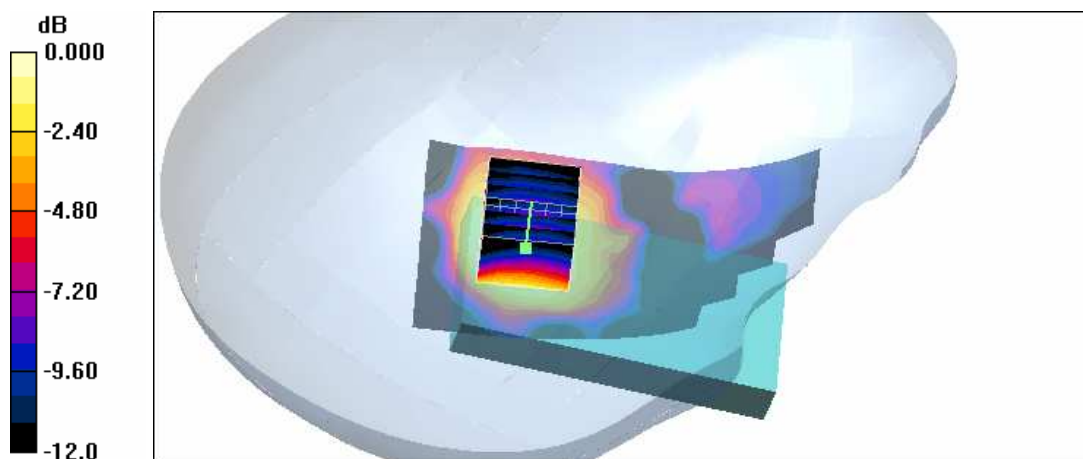
Peak SAR (extrapolated) = 0.259 W/kg

SAR(1 g) = 0.166 mW/g; SAR(10 g) = 0.103 mW/g

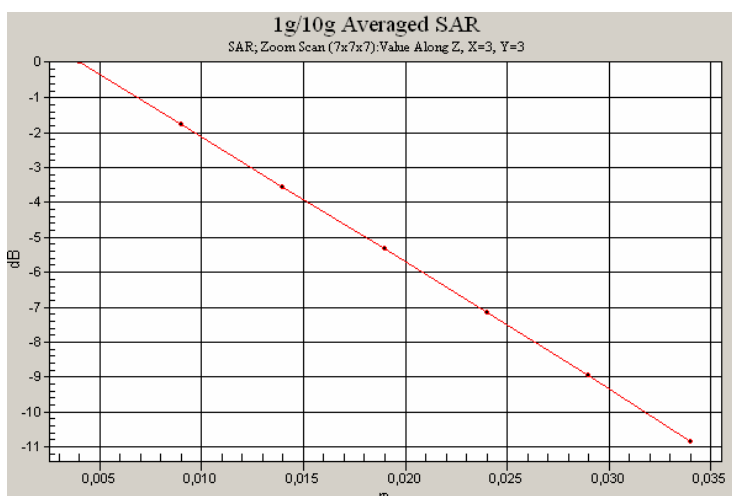
Maximum value of SAR (measured) = 0.178 mW/g

Tilt position - Middle/Area Scan (61x111x1): Measurement grid: dx=12mm, dy=12mm

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



0 dB = 0.179mW/g



GSM 1900 MHz – Left hand side – Check position – Middle Channel

DUT: Pantech-P7000; Type: Handset; Serial: IMEI TAC: 01203300
Program Name: GSM 1900 (Left-Hand Side)

Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3
 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 38.8$; $\rho = 1000$ kg/m³
 Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3052add; ConvF(4.81, 4.81, 4.81); Calibrated: 18/09/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 21/08/2007
- Phantom: SAM 12; Type: TWIN SAM V4.0;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Touch position - Middle/Area Scan (61x111x1): Measurement grid: $dx=12$ mm, $dy=12$ mm
 Maximum value of SAR (interpolated) = 0.299 mW/g

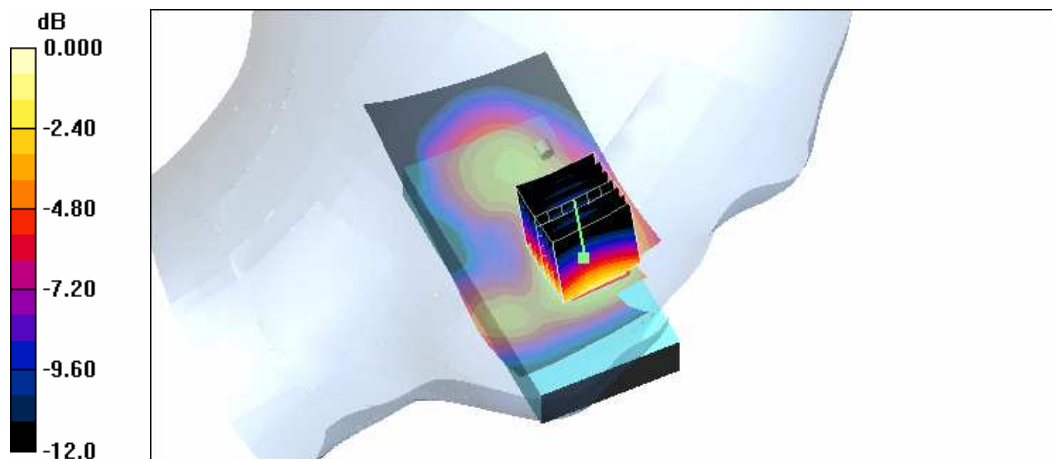
Touch position - Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5$ mm, $dy=5$ mm, $dz=5$ mm

Reference Value = 7.91 V/m; Power Drift = 0.382 dB

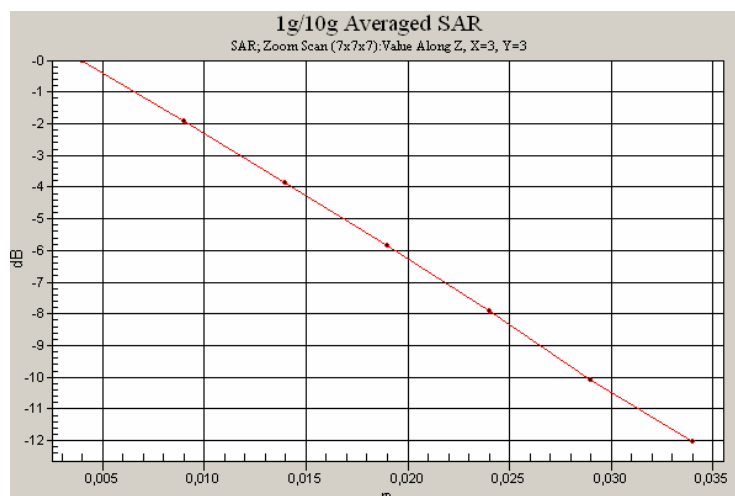
Peak SAR (extrapolated) = 0.428 W/kg

SAR(1 g) = 0.274 mW/g; SAR(10 g) = 0.162 mW/g

Maximum value of SAR (measured) = 0.303 mW/g



0 dB = 0.303mW/g



GSM 1900 MHz – Left hand side – Tilt position – Middle Channel

DUT: Pantech-P7000; Type: Handset; Serial: IMEI TAC: 01203300
Program Name: GSM 1900 (Left-Hand Side)

Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3
 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 38.8$; $\rho = 1000$ kg/m³
 Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3052add; ConvF(4.81, 4.81, 4.81); Calibrated: 18/09/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 21/08/2007
- Phantom: SAM 12; Type: TWIN SAM V4.0;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Reference Value = 11.8 V/m; Power Drift = -0.126 dB

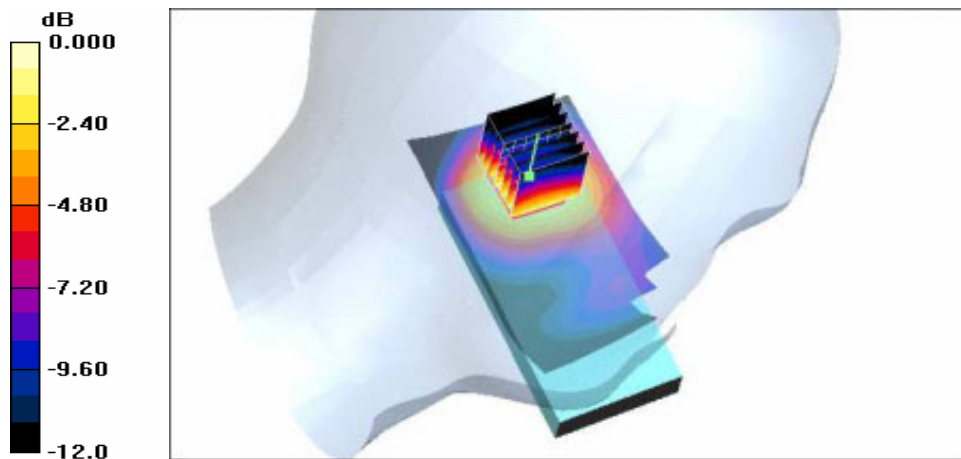
Peak SAR (extrapolated) = 0.320 W/kg

SAR(1 g) = 0.204 mW/g; SAR(10 g) = 0.124 mW/g

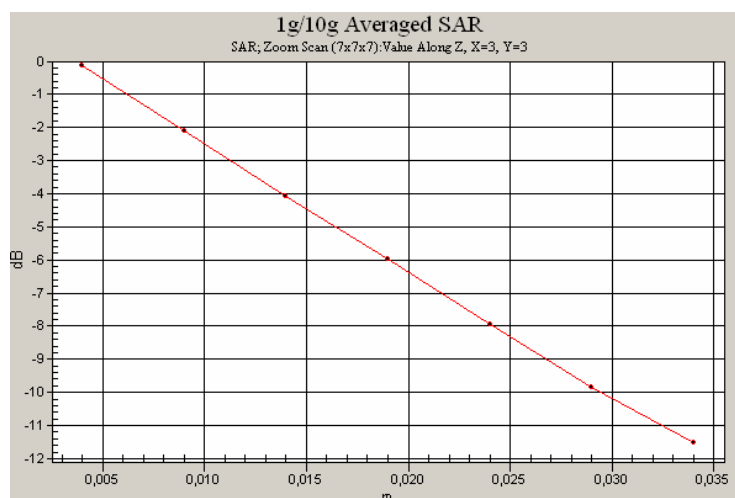
Maximum value of SAR (measured) = 0.221 mW/g

Tilt position - Middle/Area Scan (61x11x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (interpolated) = 0.227 mW/g



0 dB = 0.227mW/g



GSM 1900 MHz – Body – Back Face position – Middle Channel

DUT: Pantech-P7000; Type: Handset; Serial: IMEI TAC: 01203300

Program Name: GSM 1900 (Body)

Communication System: PCS 1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3
 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 52.3$; $\rho = 1000$ kg/m³
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3052add; ConvF(4.54, 4.54, 4.54); Calibrated: 18/09/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 21/08/2007
- Phantom: SAM 12; Type: TWIN SAM V4.0;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Back face - Middle/Area Scan (71x121x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.209 mW/g

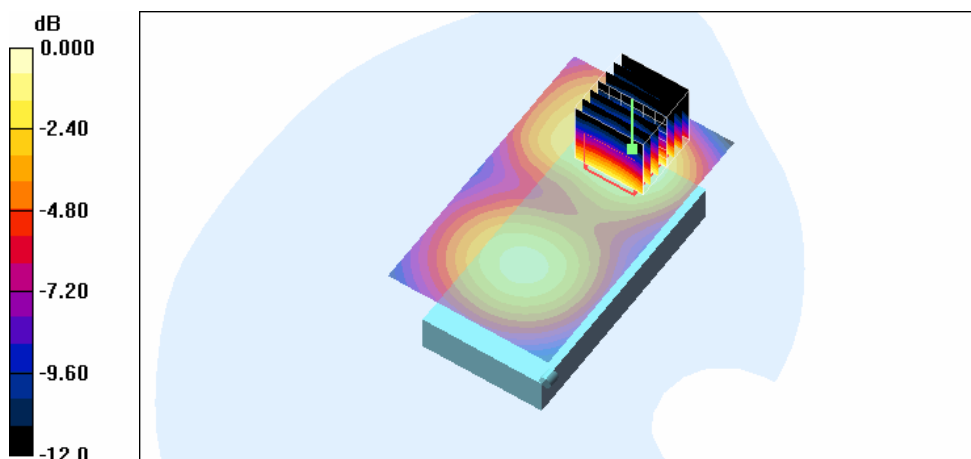
Back face - Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 8.32 V/m; Power Drift = -0.043 dB

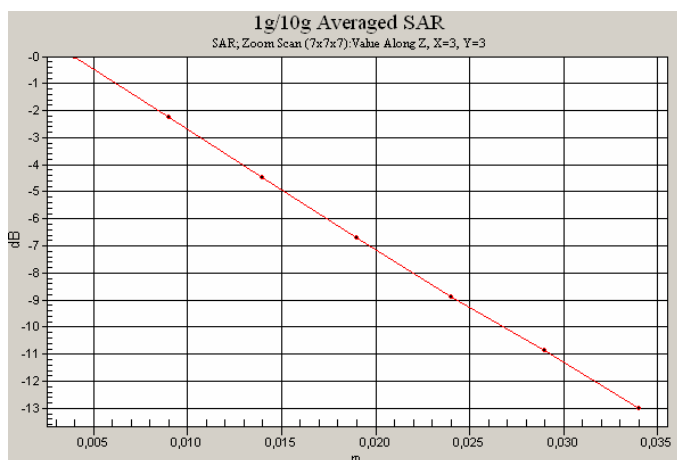
Peak SAR (extrapolated) = 0.318 W/kg

SAR(1 g) = 0.189 mW/g; SAR(10 g) = 0.112 mW/g

Maximum value of SAR (measured) = 0.206 mW/g



0 dB = 0.206mW/g



GPRS 1900 MHz – Right hand side – Cheek position – Middle Channel

DUT: Pantech-P7000; Type: Handset; Serial: IMEI TAC: 01203300

Program Name: GPRS 1900 (Right-Hand Side)

Communication System: GPRS 1900 (2 Timeslots); Frequency: 1880 MHz; Duty Cycle: 1:4

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 38.8$; $\rho = 1000$ kg/m³

Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3052add; ConvF(4.81, 4.81, 4.81); Calibrated: 18/09/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 21/08/2007
- Phantom: SAM 12; Type: TWIN SAM V4.0;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Touch position - Middle/Area Scan (61x111x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (interpolated) = 0.637 mW/g

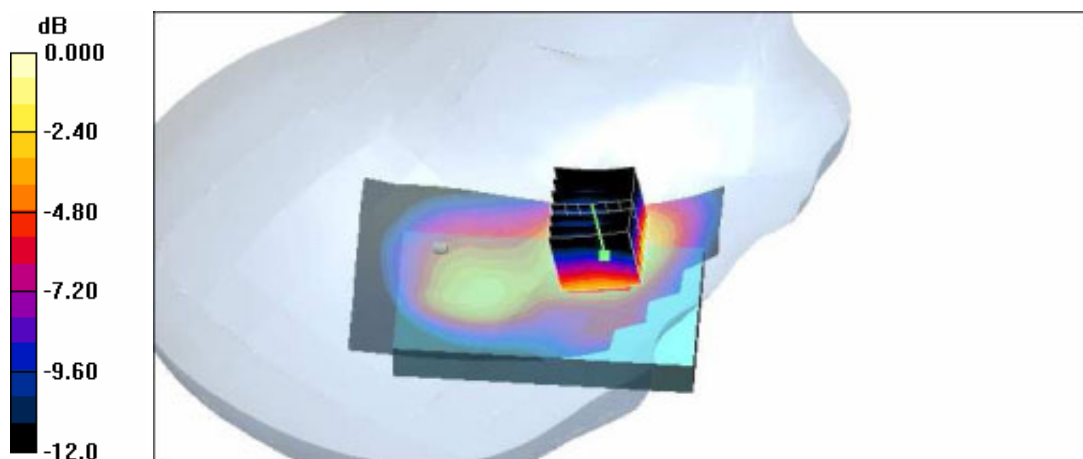
Touch position - Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.3 V/m; Power Drift = 0.022 dB

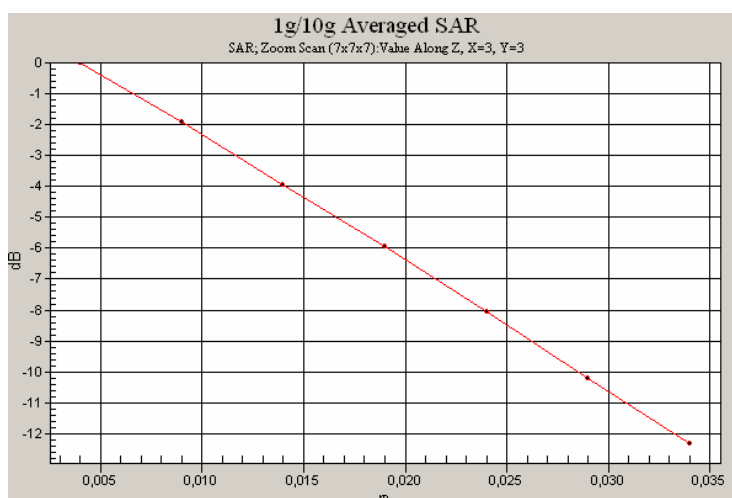
Peak SAR (extrapolated) = 0.884 W/kg

SAR(1 g) = 0.573 mW/g; SAR(10 g) = 0.336 mW/g

Maximum value of SAR (measured) = 0.632 mW/g



0 dB = 0.632mW/g



GPRS 1900 MHz – Right hand side – Tilt position – Middle Channel

DUT: Pantech-P7000; Type: Handset; Serial: IMEI TAC: 01203300
Program Name: GPRS 1900 (Right-Hand Side)

Communication System: GPRS 1900 (2 Timeslots); Frequency: 1880 MHz; Duty Cycle: 1:4
 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 38.8$; $\rho = 1000$ kg/m³
 Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3052add; ConvF(4.81, 4.81, 4.81); Calibrated: 18/09/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 21/08/2007
- Phantom: SAM 12; Type: TWIN SAM V4.0;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Reference Value = 13.3 V/m; Power Drift = 0.017 dB

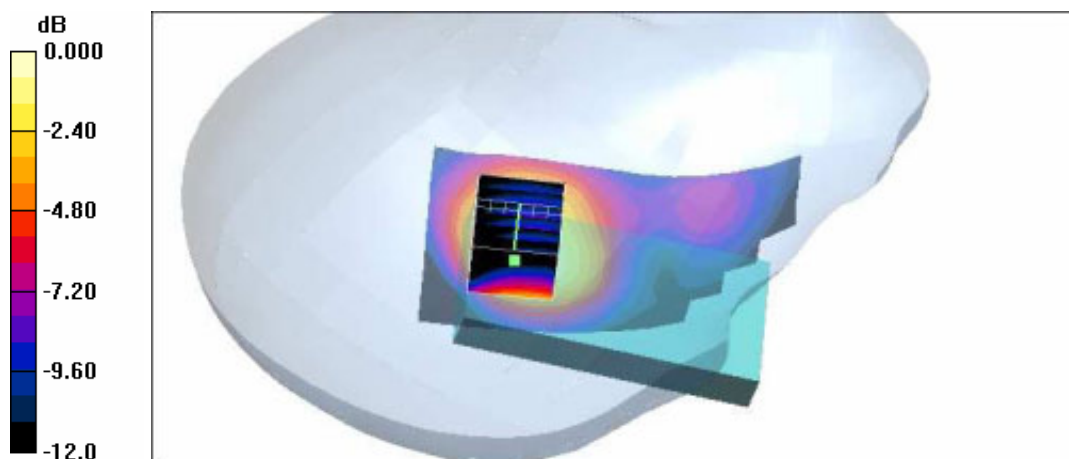
Peak SAR (extrapolated) = 0.449 W/kg

SAR(1 g) = 0.298 mW/g; SAR(10 g) = 0.185 mW/g

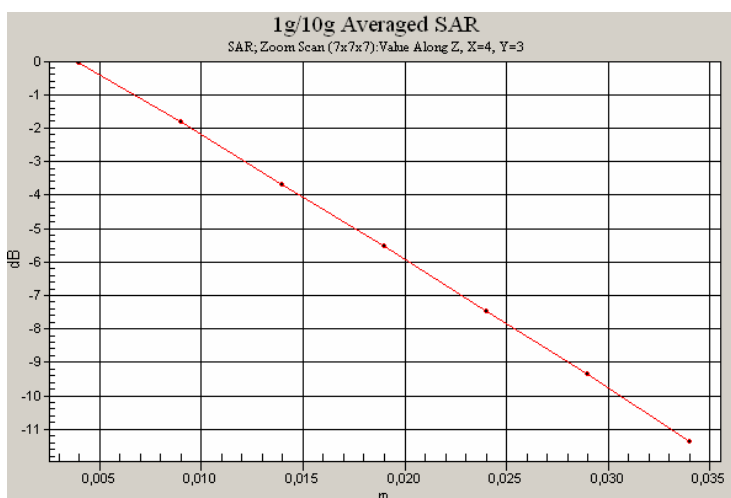
Maximum value of SAR (measured) = 0.320 mW/g

Tilt position - Middle/Area Scan (61x111x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (interpolated) = 0.325 mW/g



0 dB = 0.325mW/g



GPRS 1900 MHz – Left hand side – Cheek position – Middle Channel

DUT: Pantech-P7000; Type: Handset; Serial: IMEI TAC: 01203300

Program Name: GPRS 1900 (Left-Hand Side)

Communication System: GPRS 1900 (2 Timeslots); Frequency: 1880 MHz; Duty Cycle: 1:4

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 38.8$; $\rho = 1000$ kg/m³

Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3052add; ConvF(4.81, 4.81, 4.81); Calibrated: 18/09/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 21/08/2007
- Phantom: SAM 12; Type: TWIN SAM V4.0;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Touch position - Middle/Area Scan (61x111x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (interpolated) = 0.385 mW/g

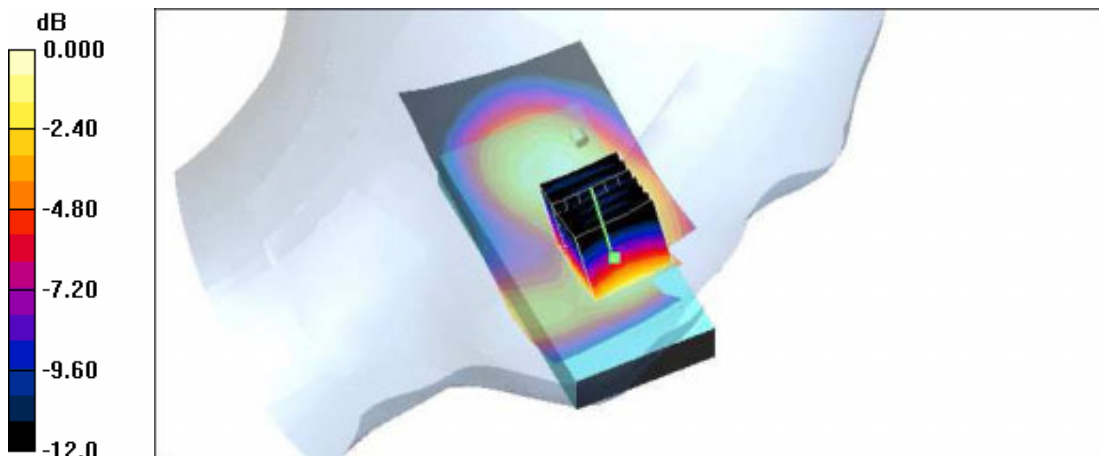
Touch position - Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.6 V/m; Power Drift = -0.271 dB

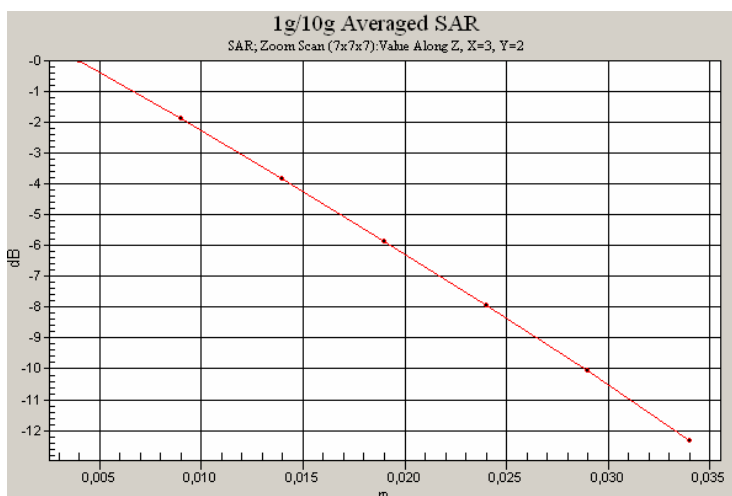
Peak SAR (extrapolated) = 0.549 W/kg

SAR(1 g) = 0.359 mW/g; SAR(10 g) = 0.216 mW/g

Maximum value of SAR (measured) = 0.391 mW/g



0 dB = 0.391mW/g



GPRS 1900 MHz – Left hand side – Tilt position – Middle Channel

DUT: Pantech-P7000; Type: Handset; Serial: IMEI TAC: 01203300
Program Name: GPRS 1900 (Left-Hand Side)

Communication System: GPRS 1900 (2 Timeslots); Frequency: 1880 MHz; Duty Cycle: 1:4
 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 38.8$; $\rho = 1000$ kg/m³
 Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3052add; ConvF(4.81, 4.81, 4.81); Calibrated: 18/09/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 21/08/2007
- Phantom: SAM 12; Type: TWIN SAM V4.0;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Reference Value = 13.9 V/m; Power Drift = -0.245 dB

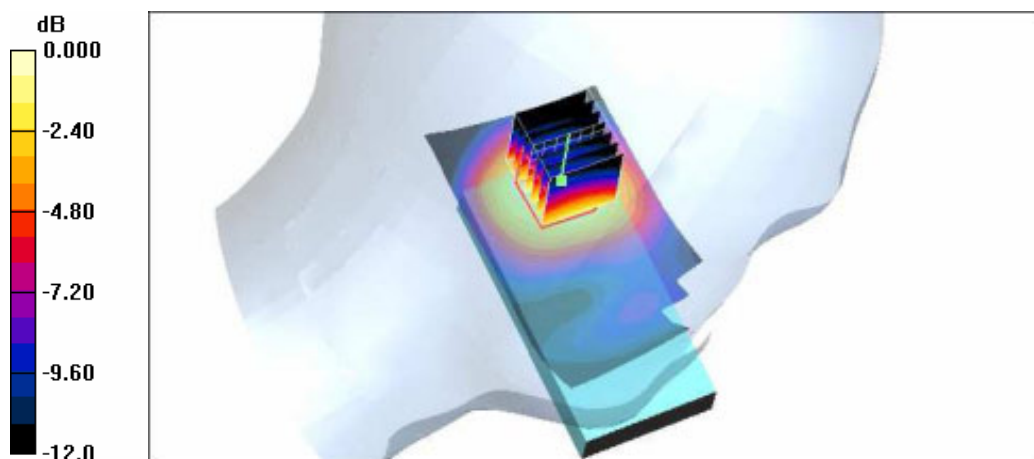
Peak SAR (extrapolated) = 0.504 W/kg

SAR(1 g) = 0.320 mW/g; SAR(10 g) = 0.195 mW/g

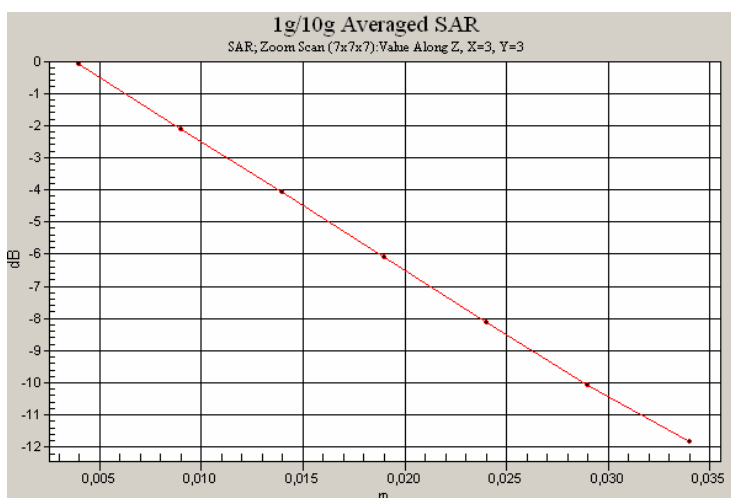
Maximum value of SAR (measured) = 0.346 mW/g

Tilt position - Middle/Area Scan (61x111x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (interpolated) = 0.355 mW/g



0 dB = 0.355mW/g



GPRS 1900 MHz – Body – Back Face position – Middle Channel

DUT: Pantech-P7000; Type: Handset; Serial: IMEI TAC: 01203300

Program Name: GPRS 1900 (Body)

Communication System: GPRS 1900 (2 Timeslots); Frequency: 1880 MHz; Duty Cycle: 1:4

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 52.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3052add; ConvF(4.54, 4.54, 4.54); Calibrated: 18/09/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 21/08/2007
- Phantom: SAM 12; Type: TWIN SAM V4.0;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Back face - Middle/Area Scan (71x121x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.379 mW/g

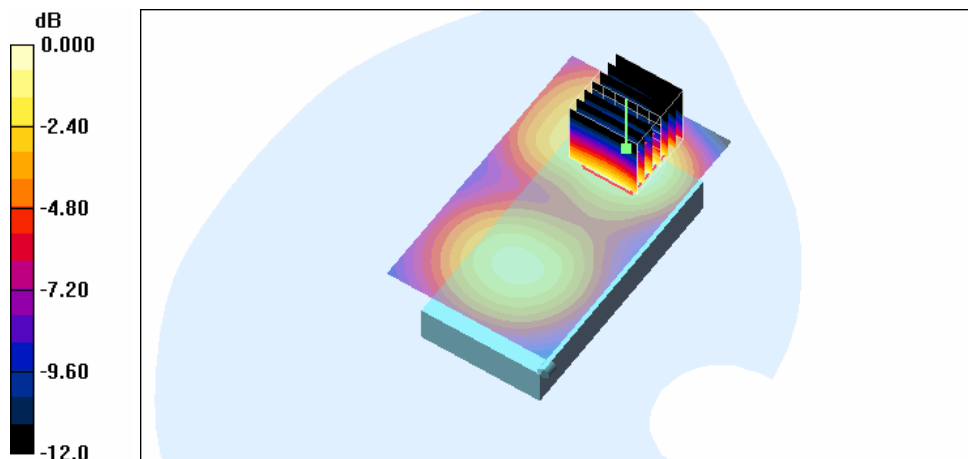
Back face - Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 11.5 V/m; Power Drift = -0.069 dB

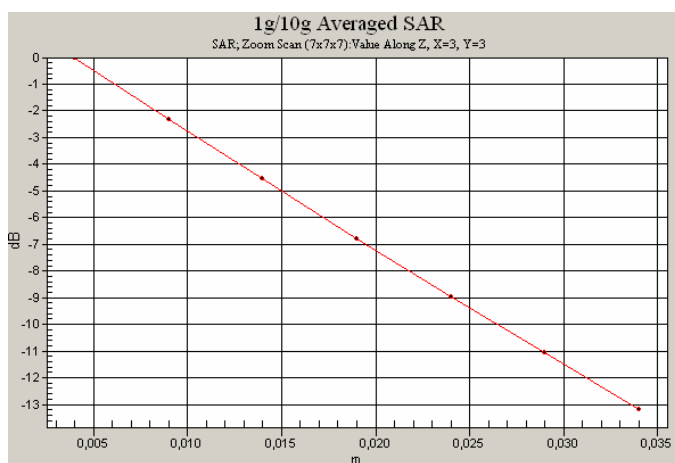
Peak SAR (extrapolated) = 0.563 W/kg

SAR(1 g) = 0.331 mW/g; SAR(10 g) = 0.195 mW/g

Maximum value of SAR (measured) = 0.361 mW/g



0 dB = 0.361mW/g



EGPRS 850 MHz – Right hand side – Cheek position – Middle Channel

DUT: Pantech-P7000; Type: Handset; Serial: IMEI TAC: 01203300

Program Name: EGPRS 1900 (Right-Hand Side)

Communication System: EGPRS 1900 (2 Timeslots); Frequency: 1880 MHz; Duty Cycle: 1:4
 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 38.8$; $\rho = 1000$ kg/m³
 Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3052add; ConvF(4.81, 4.81, 4.81); Calibrated: 18/09/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 21/08/2007
- Phantom: SAM 12; Type: TWIN SAM V4.0;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Touch position - Middle/Area Scan (61x111x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (interpolated) = 0.300 mW/g

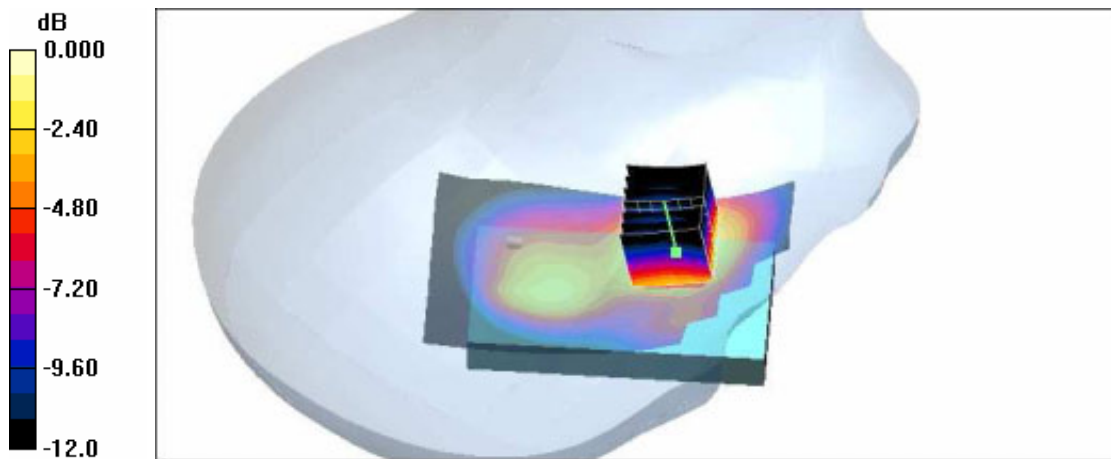
Touch position - Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.23 V/m; Power Drift = -0.087 dB

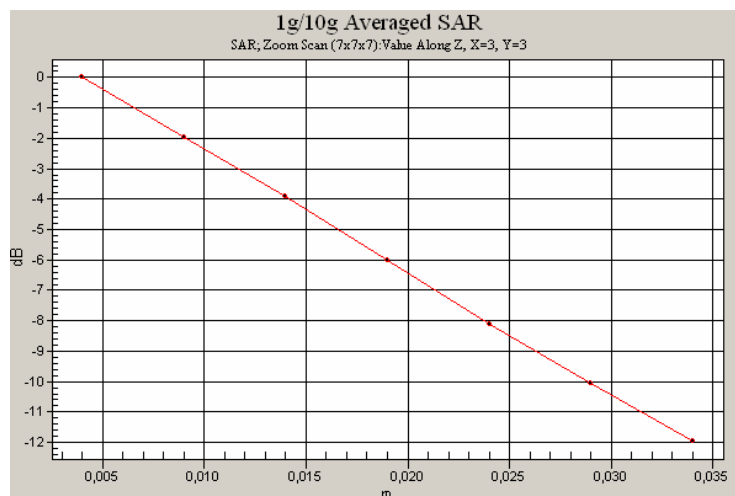
Peak SAR (extrapolated) = 0.427 W/kg

SAR(1 g) = 0.272 mW/g; SAR(10 g) = 0.159 mW/g

Maximum value of SAR (measured) = 0.302 mW/g



0 dB = 0.302mW/g



EGPRS 1900 MHz – Body – Back Face position – Middle Channel

DUT: Pantech-P7000; Type: Handset; Serial: IMEI TAC: 01203300

Program Name: EGPRS 1900 (Body)

Communication System: EDGE 1900 (2 Timeslots); Frequency: 1880 MHz; Duty Cycle: 1:4

Medium parameters used: $f = 1880$ MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 52.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3052add; ConvF(4.54, 4.54, 4.54); Calibrated: 18/09/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 21/08/2007
- Phantom: SAM 12; Type: TWIN SAM V4.0;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Back face - Middle/Area Scan (71x121x1): Measurement grid: dx=10mm, dy=10mm

Maximum value of SAR (interpolated) = 0.184 mW/g

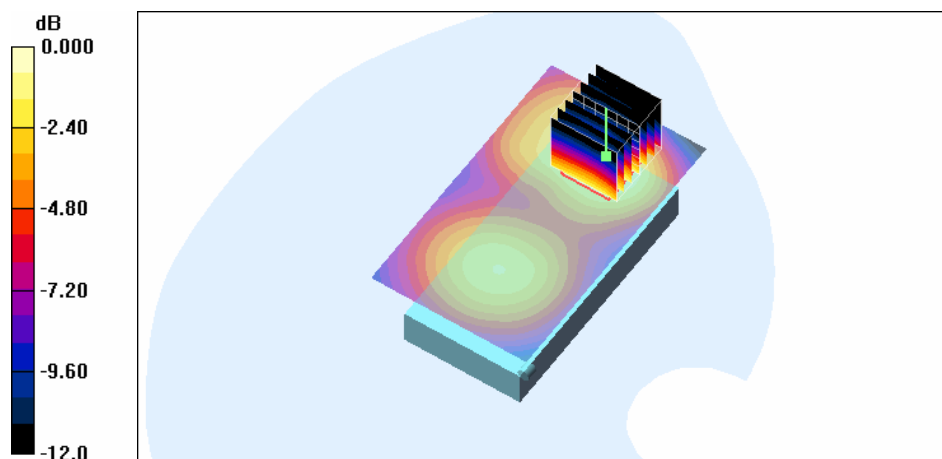
Back face - Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 7.75 V/m; Power Drift = 0.015 dB

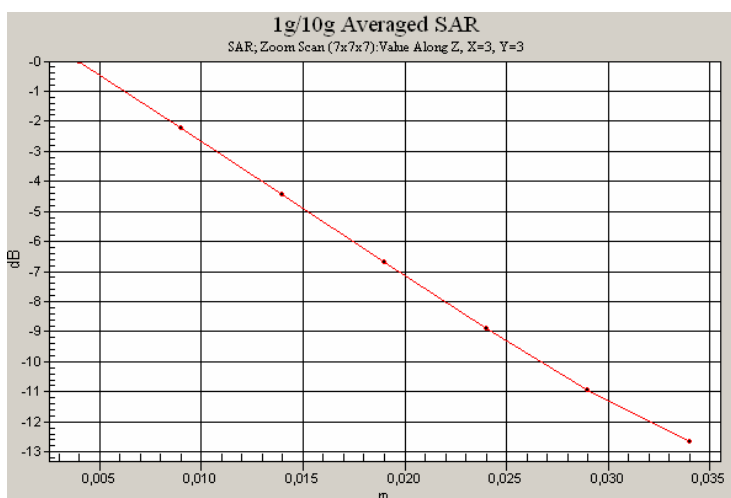
Peak SAR (extrapolated) = 0.278 W/kg

SAR(1 g) = 0.167 mW/g; SAR(10 g) = 0.098 mW/g

Maximum value of SAR (measured) = 0.181 mW/g



0 dB = 0.181mW/g



WCDMA Band II – Right hand side – Cheek position – Middle Channel

DUT: Pantech-P7000; Type: Handset; Serial: IMEI TAC: 01203300

Program Name: WCDMA Band II (Right-Hand Side)

Communication System: W-CDMA Band II; Frequency: 1880 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 38.8$; $\rho = 1000$ kg/m³
 Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3052add; ConvF(4.81, 4.81, 4.81); Calibrated: 18/09/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 21/08/2007
- Phantom: SAM 12; Type: TWIN SAM V4.0;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Touch position - Middle/Area Scan (61x111x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (interpolated) = 0.610 mW/g

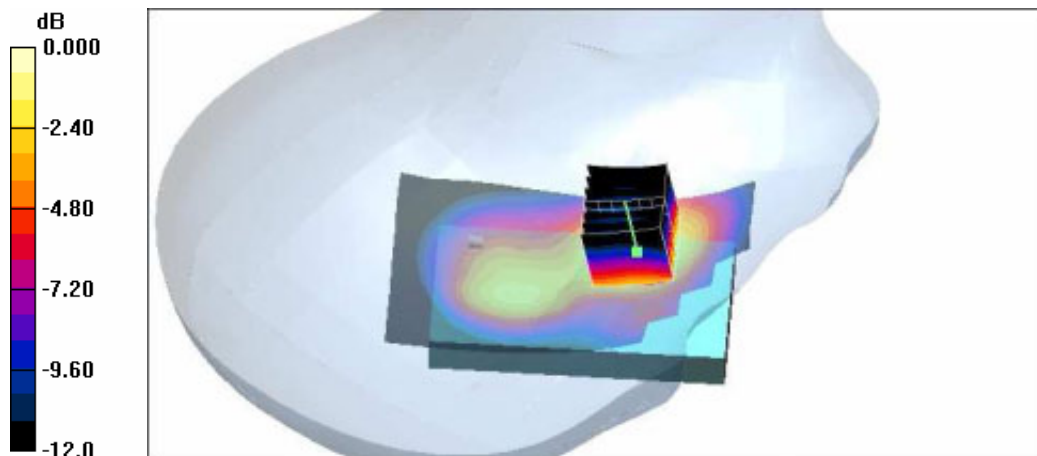
Touch position - Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 10.1 V/m; Power Drift = -0.009 dB

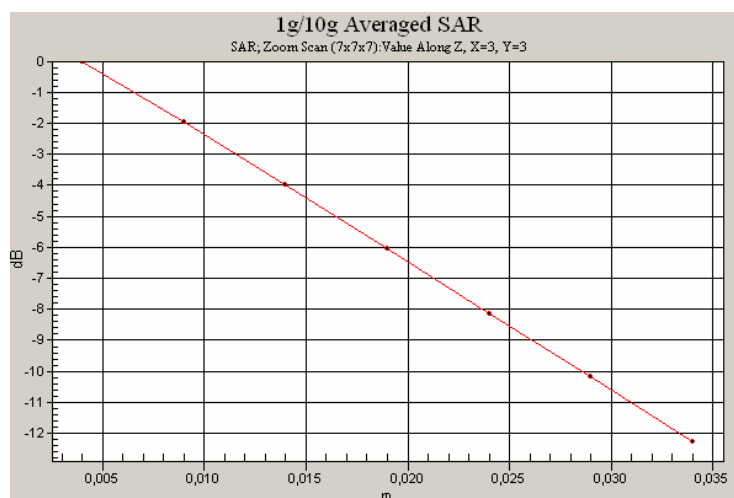
Peak SAR (extrapolated) = 0.889 W/kg

SAR(1 g) = 0.555 mW/g; SAR(10 g) = 0.324 mW/g

Maximum value of SAR (measured) = 0.612 mW/g



0 dB = 0.612mW/g



WCDMA Band II – Right hand side – Tilt position – Middle Channel

DUT: Pantech-P7000; Type: Handset; Serial: IMEI TAC: 01203300
Program Name: WCDMA Band II (Right-Hand Side)

Communication System: W-CDMA Band II; Frequency: 1880 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 38.8$; $\rho = 1000$ kg/m³
 Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3052add; ConvF(4.81, 4.81, 4.81); Calibrated: 18/09/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 21/08/2007
- Phantom: SAM 12; Type: TWIN SAM V4.0;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Reference Value = 13.2 V/m; Power Drift = 0.223 dB

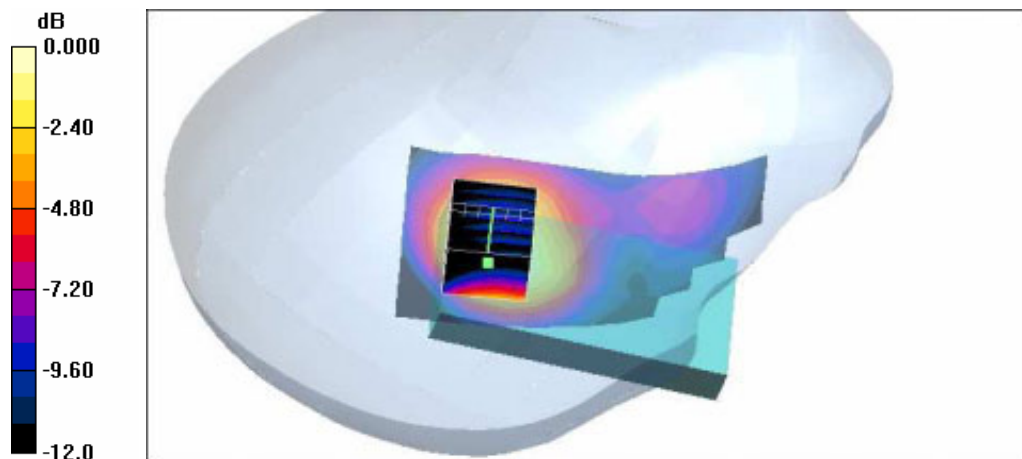
Peak SAR (extrapolated) = 0.452 W/kg

SAR(1 g) = 0.297 mW/g; SAR(10 g) = 0.183 mW/g

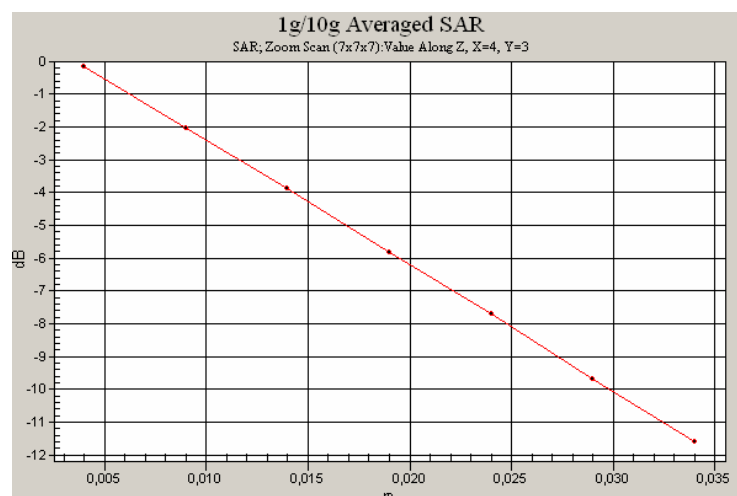
Maximum value of SAR (measured) = 0.321 mW/g

Tilt position - Middle/Area Scan (61x11x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (interpolated) = 0.334 mW/g



0 dB = 0.334mW/g



WCDMA Band II – Left hand side – Cheek position – Middle Channel

DUT: Pantech-P7000; Type: Handset; Serial: IMEI TAC: 01203300
Program Name: WCDMA BAND II (Left-Hand Side)

Communication System: W-CDMA Band II; Frequency: 1880 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 38.8$; $\rho = 1000$ kg/m³
 Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3052add; ConvF(4.81, 4.81, 4.81); Calibrated: 18/09/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 21/08/2007
- Phantom: SAM 12; Type: TWIN SAM V4.0;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Reference Value = 10.2 V/m; Power Drift = 0.144 dB

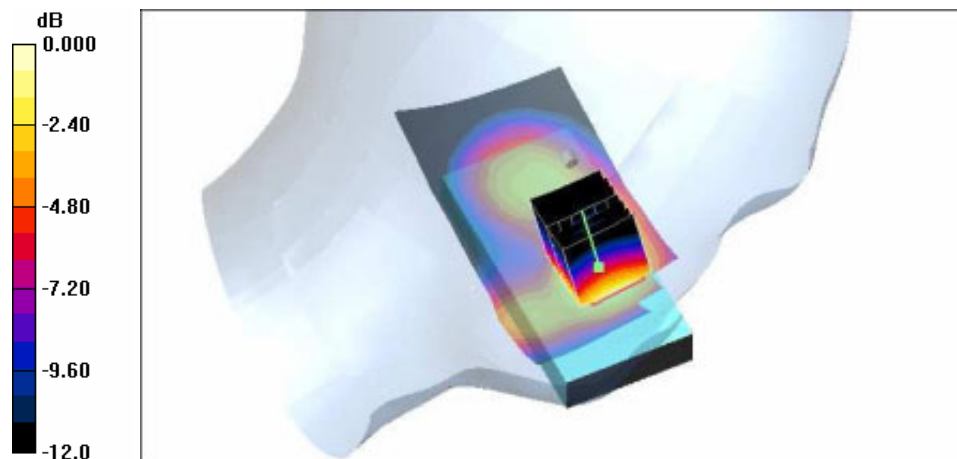
Peak SAR (extrapolated) = 0.702 W/kg

SAR(1 g) = 0.447 mW/g; SAR(10 g) = 0.262 mW/g

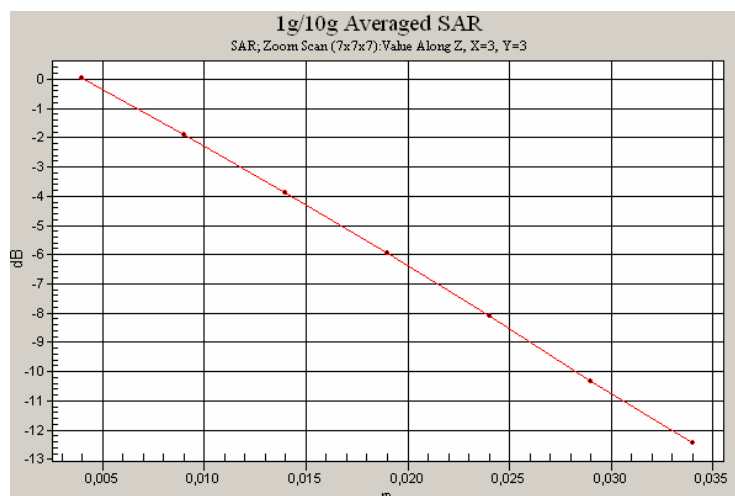
Maximum value of SAR (measured) = 0.496 mW/g

Touch position - Middle/Area Scan (61x11x1): Measurement grid: dx=12mm, dy=12mm

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



0 dB = 0.493mW/g



WCDMA Band II – Left hand side – Tilt position – Middle Channel

DUT: Pantech-P7000; Type: Handset; Serial: IMEI TAC: 01203300
Program Name: WCDMA BAND II (Left-Hand Side)

Communication System: W-CDMA Band II; Frequency: 1880 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 38.8$; $\rho = 1000$ kg/m³
 Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3052add; ConvF(4.81, 4.81, 4.81); Calibrated: 18/09/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 21/08/2007
- Phantom: SAM 12; Type: TWIN SAM V4.0;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Reference Value = 14.3 V/m; Power Drift = 0.086 dB

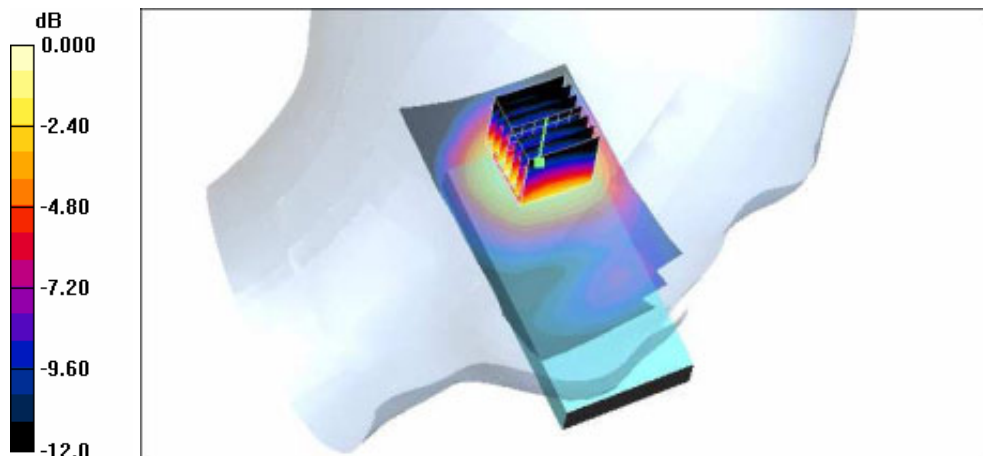
Peak SAR (extrapolated) = 0.540 W/kg

SAR(1 g) = 0.339 mW/g; SAR(10 g) = 0.205 mW/g

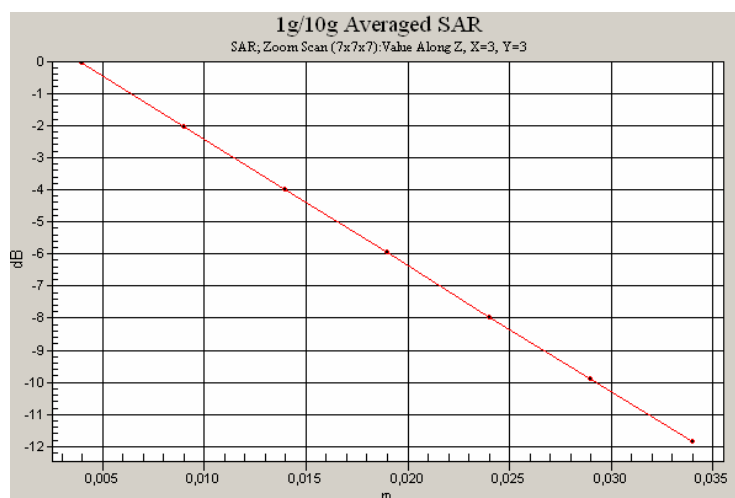
Maximum value of SAR (measured) = 0.367 mW/g

Tilt position - Middle/Area Scan (61x11x1): Measurement grid: dx=12mm, dy=12mm

Maximum value of SAR (interpolated) = 0.373 mW/g



0 dB = 0.373mW/g



WCDMA Band II – Body – Back Face position – Middle Channel

DUT: Pantech-P7000; Type: Handset; Serial: IMEI TAC: 01203300

Program Name: WCDMA Band II (Body)

Communication System: W-CDMA 1800 (Band II); Frequency: 1880 MHz; Duty Cycle: 1:1
 Medium parameters used: $f = 1880 \text{ MHz}$; $\sigma = 1.57 \text{ mho/m}$; $\epsilon_r = 52.3$; $\rho = 1000 \text{ kg/m}^3$
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3052add; ConvF(4.54, 4.54, 4.54); Calibrated: 18/09/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 21/08/2007
- Phantom: SAM 12; Type: TWIN SAM V4.0;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Back face - Middle/Area Scan (71x121x1): Measurement grid: $dx=10\text{mm}$, $dy=10\text{mm}$

Maximum value of SAR (interpolated) = 0.359 mW/g

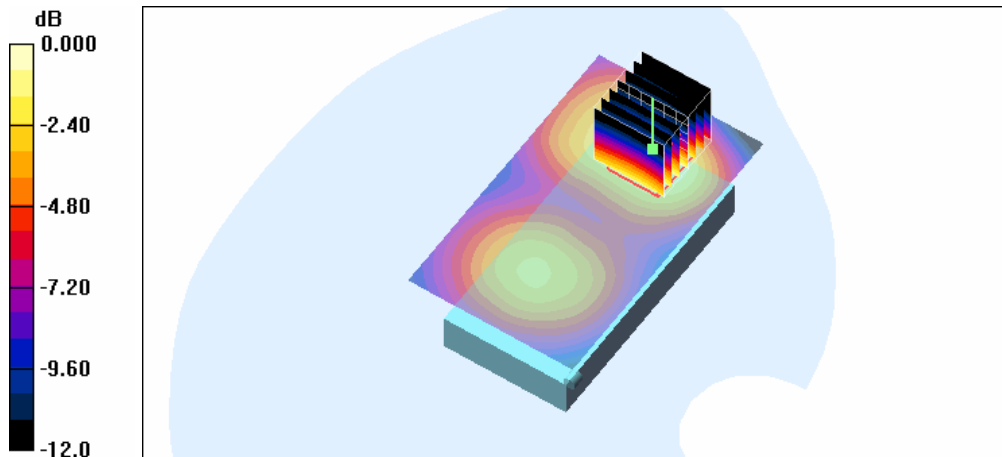
Back face - Middle/Zoom Scan (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$

Reference Value = 10.2 V/m; Power Drift = **not measured**

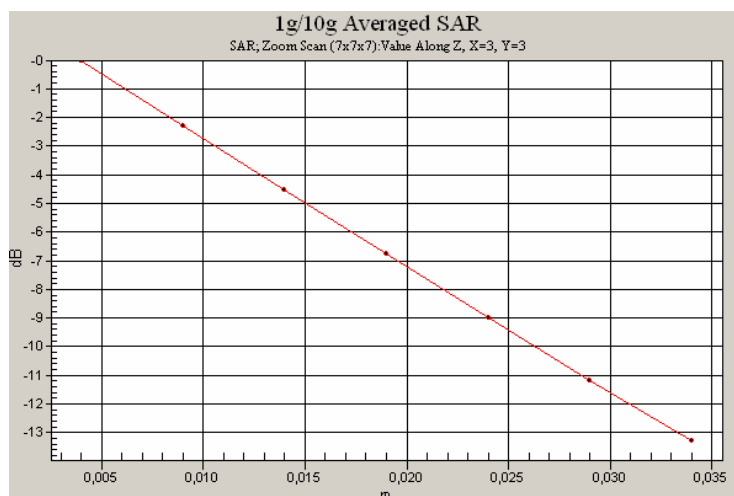
Peak SAR (extrapolated) = 0.584 W/kg

SAR(1 g) = 0.347 mW/g; SAR(10 g) = 0.204 mW/g

Maximum value of SAR (measured) = 0.379 mW/g



0 dB = 0.379mW/g



WCDMA Band V – Right hand side – Cheek position – Middle Channel

DUT: Pantech-P7000; Type: Handset; Serial: IMEI TAC: 01203300
Program Name: WCDMA BAND V (Right-Hand Side)

Communication System: W-CDMA 850 (Band V); Frequency: 836.6 MHz; Duty Cycle: 1:1
 Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.89$ mho/m; $\epsilon_r = 40.2$; $\rho = 1000$ kg/m³
 Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3052add; ConvF(6.29, 6.29, 6.29); Calibrated: 18/09/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 21/08/2007
- Phantom: SAM 12; Type: TWIN SAM V4.0;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Reference Value = 7.36 V/m; Power Drift = -0.061 dB

Peak SAR (extrapolated) = 0.273 W/kg

SAR(1 g) = 0.219 mW/g; SAR(10 g) = 0.166 mW/g

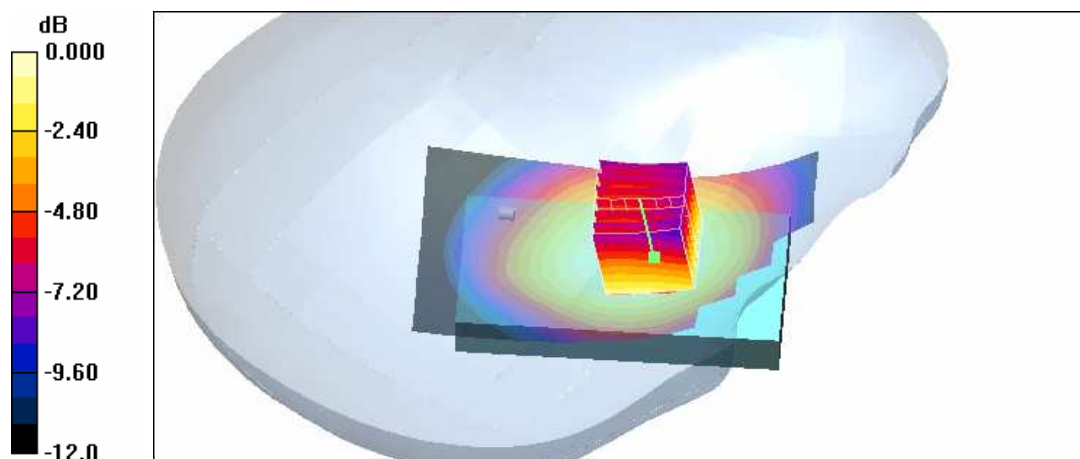
[Info: Interpolated medium parameters used for SAR evaluation.](#)

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

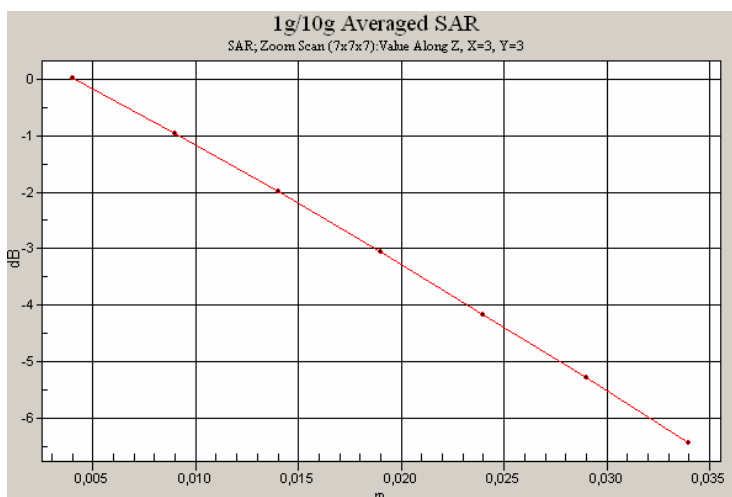
Touch position - Middle/Area Scan (61x111x1): Measurement grid: dx=12mm, dy=12mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.232 mW/g



0 dB = 0.232mW/g



WCDMA Band V – Right hand side – Tilt position – Middle Channel

DUT: Pantech-P7000; Type: Handset; Serial: IMEI TAC: 01203300
Program Name: WCDMA BAND V (Right-Hand Side)

Communication System: W-CDMA 850 (Band V); Frequency: 836.6 MHz; Duty Cycle: 1:1
 Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.89$ mho/m; $\epsilon_r = 40.2$; $\rho = 1000$ kg/m³
 Phantom section: Right Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3052add; ConvF(6.29, 6.29, 6.29); Calibrated: 18/09/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 21/08/2007
- Phantom: SAM 12; Type: TWIN SAM V4.0;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Reference Value = 10.4 V/m; Power Drift = -0.127 dB

Peak SAR (extrapolated) = 0.215 W/kg

SAR(1 g) = 0.167 mW/g; SAR(10 g) = 0.123 mW/g

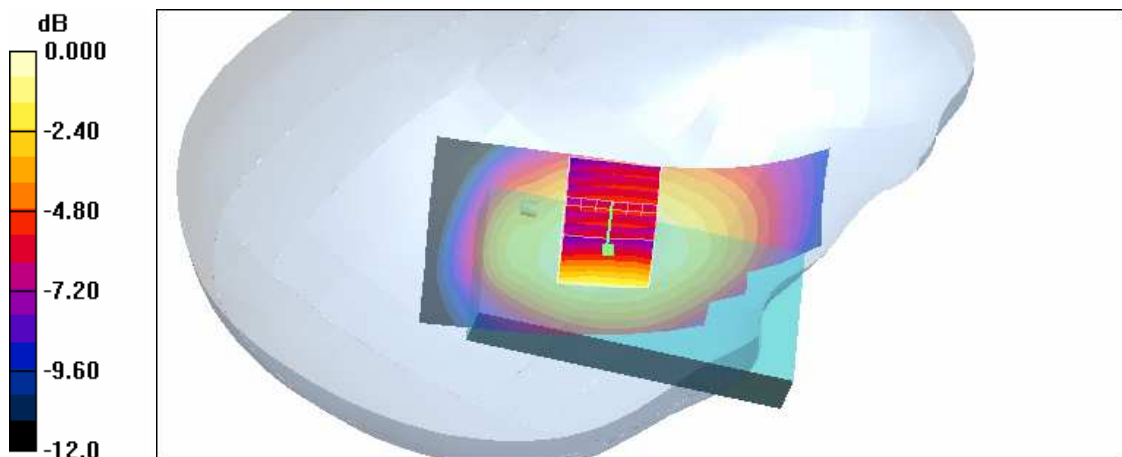
[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.177 mW/g

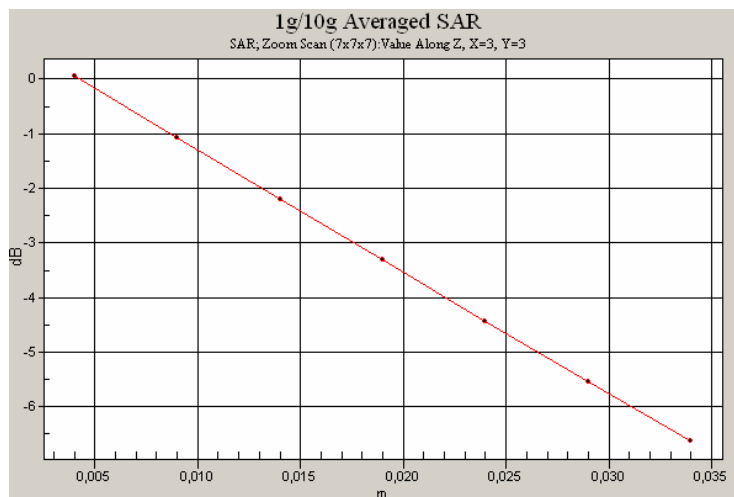
Tilt position - Middle/Area Scan (61x11x1): Measurement grid: dx=12mm, dy=12mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

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



0 dB = 0.175mW/g



WCDMA Band V – Left hand side – Cheek position – Middle Channel

DUT: Pantech-P7000; Type: Handset; Serial: IMEI TAC: 01203300
Program Name: WCDMA BAND V (Left-Hand Side)

Communication System: W-CDMA 850 (Band V); Frequency: 836.6 MHz; Duty Cycle: 1:1
 Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.89$ mho/m; $\epsilon_r = 40.2$; $\rho = 1000$ kg/m³
 Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3052add; ConvF(6.29, 6.29, 6.29); Calibrated: 18/09/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 21/08/2007
- Phantom: SAM 12; Type: TWIN SAM V4.0;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Reference Value = 7.69 V/m; Power Drift = 0.101 dB

Peak SAR (extrapolated) = 0.339 W/kg

SAR(1 g) = 0.271 mW/g; SAR(10 g) = 0.203 mW/g

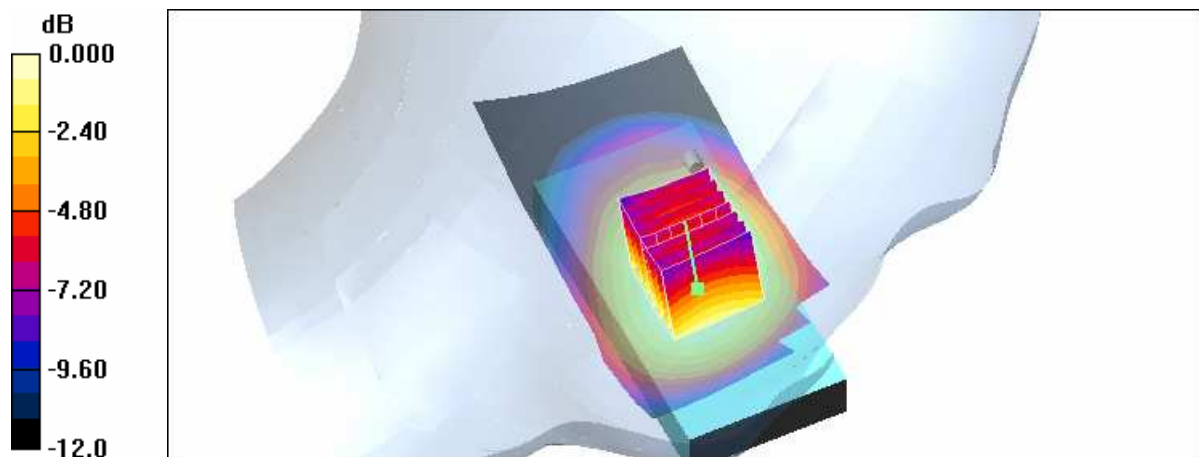
[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.285 mW/g

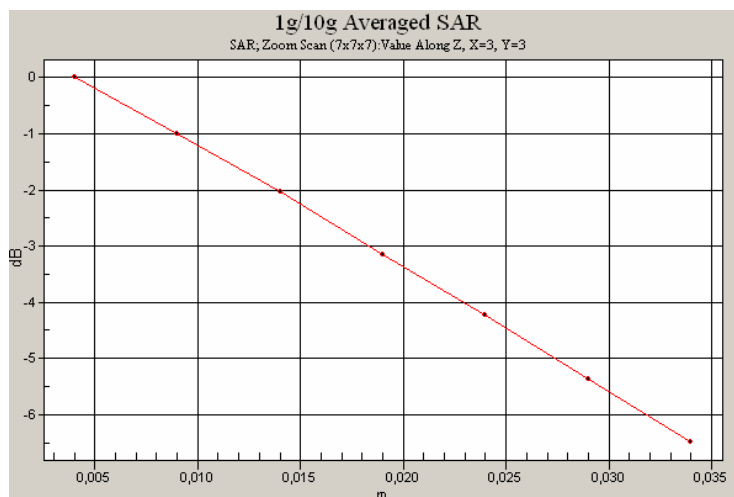
Touch position - Middle/Area Scan (61x111x1): Measurement grid: dx=12mm, dy=12mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.285 mW/g



0 dB = 0.285mW/g



WCDMA Band V – Left hand side – Tilt position – Middle Channel

DUT: Pantech-P7000; Type: Handset; Serial: IMEI TAC: 01203300
Program Name: WCDMA BAND V (Left-Hand Side)

Communication System: W-CDMA 850 (Band V); Frequency: 836.6 MHz; Duty Cycle: 1:1
 Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 0.89$ mho/m; $\epsilon_r = 40.2$; $\rho = 1000$ kg/m³
 Phantom section: Left Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3052add; ConvF(6.29, 6.29, 6.29); Calibrated: 18/09/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 21/08/2007
- Phantom: SAM 12; Type: TWIN SAM V4.0;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

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

Reference Value = 11.4 V/m; Power Drift = -0.141 dB

Peak SAR (extrapolated) = 0.235 W/kg

SAR(1 g) = 0.181 mW/g; SAR(10 g) = 0.133 mW/g

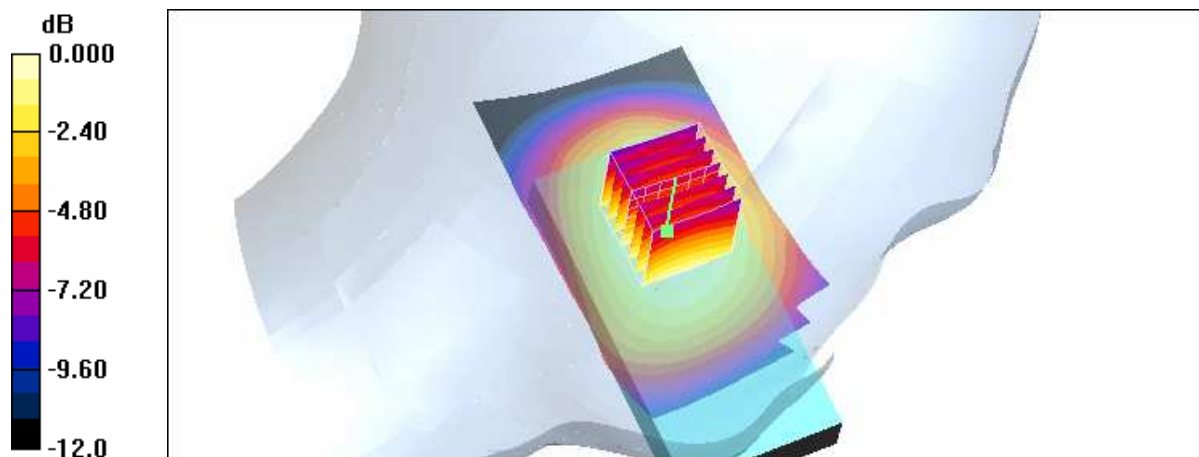
[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.191 mW/g

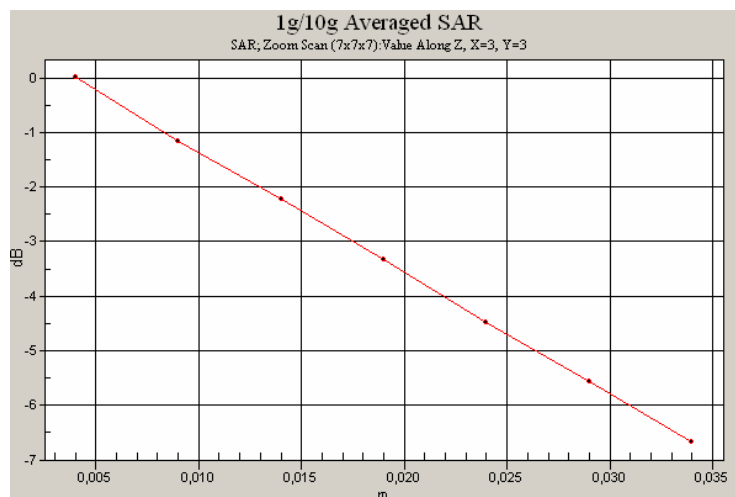
Tilt position - Middle/Area Scan (61x11x1): Measurement grid: dx=12mm, dy=12mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.191 mW/g



0 dB = 0.191mW/g



WCDMA Band V – Body – Back Face position – Middle Channel

DUT: Pantech-P7000; Type: Handset; Serial: IMEI TAC: 01203300

Program Name: Compliance Testing:WCDMA Band V (Body)

Communication System: W-CDMA 850 (Band V); Frequency: 836.6 MHz;Duty Cycle: 1:1
 Medium parameters used (interpolated): $f = 836.6$ MHz; $\sigma = 1.01$ mho/m; $\epsilon_r = 54.7$; $\rho = 1000$ kg/m³
 Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3052add; ConvF(6.07, 6.07, 6.07); Calibrated: 18/09/2007
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn669; Calibrated: 21/08/2007
- Phantom: SAM 12; Type: TWIN SAM V4.0;
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

Back face - Middle/Area Scan (71x121x1): Measurement grid: dx=10mm, dy=10mm

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (interpolated) = 0.391 mW/g

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

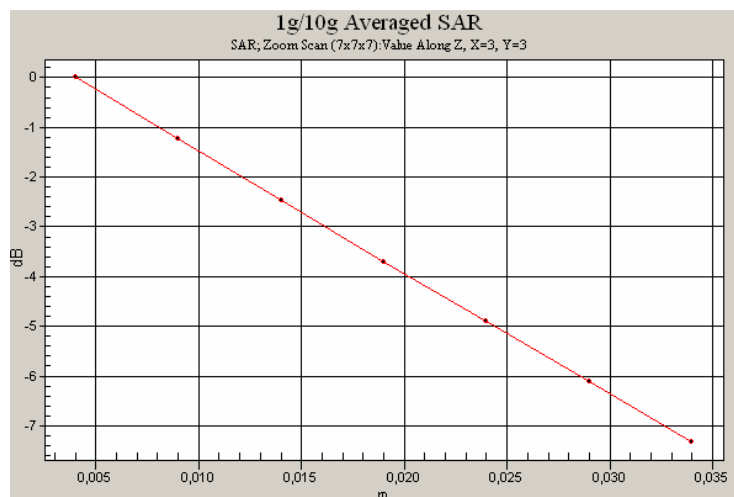
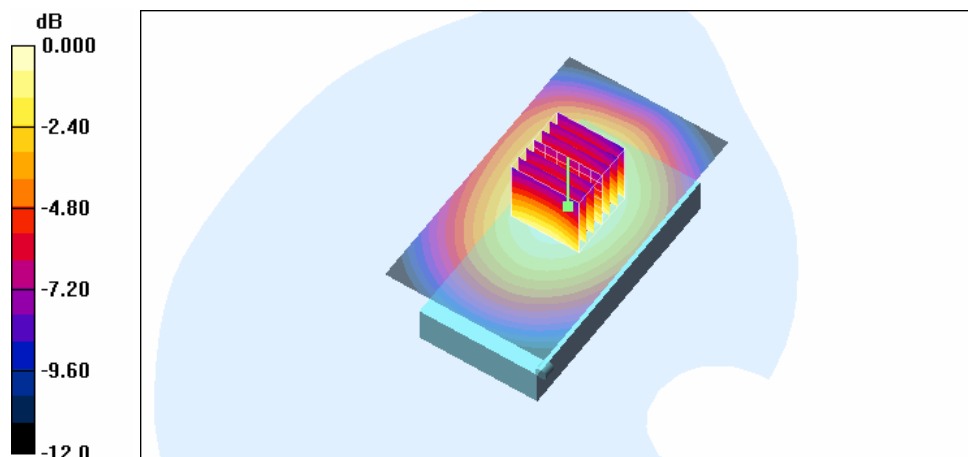
Reference Value = 10.4 V/m; Power Drift = -0.221 dB

Peak SAR (extrapolated) = 0.468 W/kg

SAR(1 g) = 0.357 mW/g; SAR(10 g) = 0.259 mW/g

[Info: Interpolated medium parameters used for SAR evaluation.](#)

Maximum value of SAR (measured) = 0.378 mW/g



APPENDIX E: Calibration Data

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



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

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

Accreditation No.: **SCS 108**

Client **Fractus**

Certificate No: **ES3-3052_Aug07**

CALIBRATION CERTIFICATE

Object **ES3DV3 - SN:3052**

Calibration procedure(s) **QA CAL-01.v6
Calibration procedure for dosimetric E-field probes**

Calibration date: **August 22, 2007**


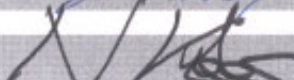
Condition of the calibrated item **In Tolerance**

This calibration certificate 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 in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Power sensor E4412A	MY41495277	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Power sensor E4412A	MY41498087	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Reference 3 dB Attenuator	SN: S5054 (3c)	8-Aug-07 (METAS, No. 217-00719)	Aug-08
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-07 (METAS, No. 217-00671)	Mar-08
Reference 30 dB Attenuator	SN: S5129 (30b)	8-Aug-07 (METAS, No. 217-00720)	Aug-08
Reference Probe ES3DV2	SN: 3013	4-Jan-07 (SPEAG, No. ES3-3013_Jan07)	Jan-08
DAE4	SN: 654	20-Apr-07 (SPEAG, No. DAE4-654_Apr07)	Apr-08
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (SPEAG, in house check Nov-05)	In house check: Nov-07
Network Analyzer HP 8753E	US37390585	18-Oct-01 (SPEAG, in house check Oct-06)	In house check: Oct-07

	Name	Function	Signature
Calibrated by:	Katja Pokovic	Technical Manager	
Approved by:	Nils Kuster	Quality Manager	

Issued: August 23, 2007

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

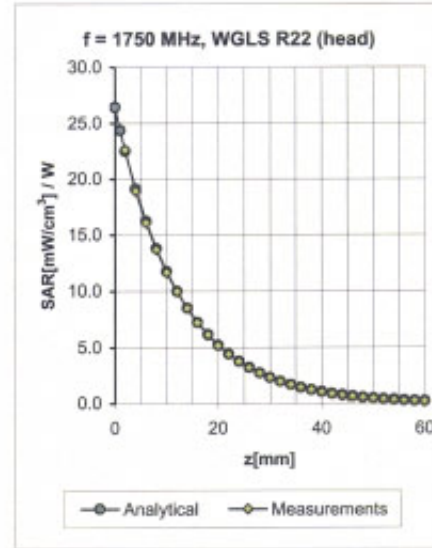
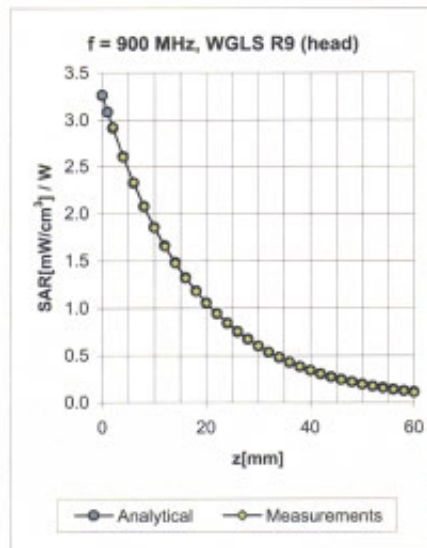
Certificate No: ES3-3052_Aug07

Page 1 of 9

ES3DV3 SN:3052

August 22, 2007

Conversion Factor Assessment



f [MHz]	Validity [MHz] ^c	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
900	± 50 / ± 100	Head	41.5 ± 5%	0.97 ± 5%	1.00	1.06	6.15 ± 11.0% (k=2)
1750	± 50 / ± 100	Head	40.1 ± 5%	1.37 ± 5%	0.59	1.43	4.92 ± 11.0% (k=2)

^c The validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

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



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

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

Accreditation No.: **SCS 108**

Client **Fractus**

Certificate No: **ES3-3052_Sep07**

CALIBRATION CERTIFICATE

Object **ES3DV3 - SN:3052**

Calibration procedure(s) **QA CAL-01.v6
Calibration procedure for dosimetric E-field probes**

Calibration date: **September 18, 2007 (Additional Conversion Factors)**


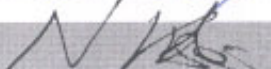
Condition of the calibrated item **In Tolerance**

This calibration certificate 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 in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter E4419B	GB41293874	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Power sensor E4412A	MY41495277	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Power sensor E4412A	MY41499087	29-Mar-07 (METAS, No. 217-00670)	Mar-08
Reference 3 dB Attenuator	SN: S5054 (3c)	8-Aug-07 (METAS, No. 217-00719)	Aug-08
Reference 20 dB Attenuator	SN: S5086 (20b)	29-Mar-07 (METAS, No. 217-00671)	Mar-08
Reference 30 dB Attenuator	SN: S5129 (30b)	8-Aug-07 (METAS, No. 217-00720)	Aug-08
Reference Probe ES3DV2	SN: 3013	4-Jan-07 (SPEAG, No. ES3-3013_Jan07)	Jan-08
DAE4	SN: 654	20-Apr-07 (SPEAG, No. DAE4-654_Apr07)	Apr-08
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
RF generator HP 8648C	US3642U01700	4-Aug-99 (SPEAG, in house check Nov-05)	In house check: Nov-07
Network Analyzer HP 8753E	US37390585	18-Oct-01 (SPEAG, in house check Oct-06)	In house check: Oct-07

	Name	Function	Signature
Calibrated by:	Katja Pokovic	Technical Manager	
Approved by:	Nils Kuster	Quality Manager	

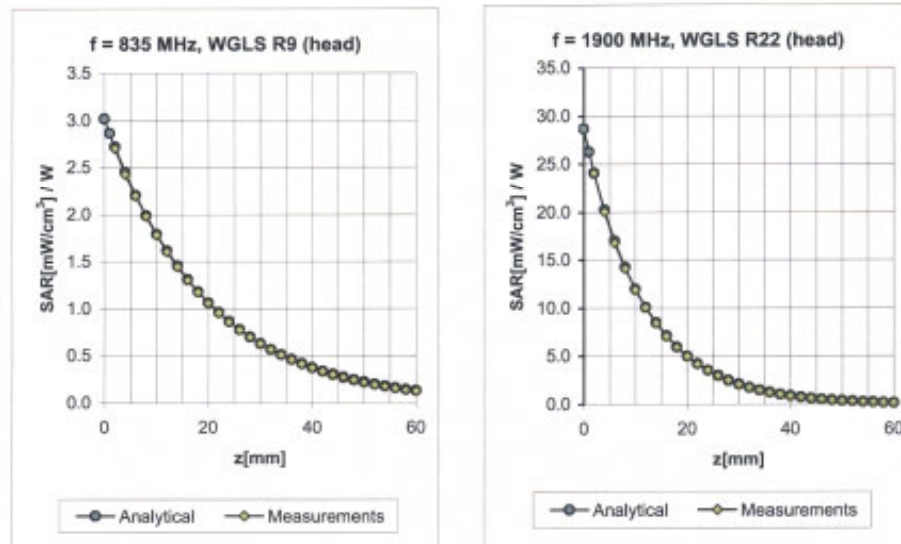
Issued: September 19, 2007

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

Certificate No: ES3-3052_Sep07

Page 1 of 5

Conversion Factor Assessment



f [MHz]	Validity [MHz] ^C	TSL	Permittivity	Conductivity	Alpha	Depth	ConvF Uncertainty
835	± 50 / ± 100	Head	41.5 ± 5%	0.90 ± 5%	0.95	1.15	6.29 ± 11.0% (k=2)
1900	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.80	1.18	4.81 ± 11.0% (k=2)
2000	± 50 / ± 100	Head	40.0 ± 5%	1.40 ± 5%	0.75	1.21	4.59 ± 11.0% (k=2)
2450	± 50 / ± 100	Head	39.2 ± 5%	1.80 ± 5%	0.84	1.10	4.32 ± 11.8% (k=2)
835	± 50 / ± 100	Body	55.2 ± 5%	0.97 ± 5%	0.90	1.23	6.07 ± 11.0% (k=2)
900	± 50 / ± 100	Body	55.0 ± 5%	1.05 ± 5%	0.95	1.18	5.79 ± 11.0% (k=2)
1750	± 50 / ± 100	Body	53.4 ± 5%	1.49 ± 5%	0.64	1.42	4.72 ± 11.0% (k=2)
1900	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.63	1.39	4.54 ± 11.0% (k=2)
2000	± 50 / ± 100	Body	53.3 ± 5%	1.52 ± 5%	0.66	1.32	4.26 ± 11.0% (k=2)
2450	± 50 / ± 100	Body	52.7 ± 5%	1.95 ± 5%	0.40	1.30	4.07 ± 11.8% (k=2)

^C The validity of ± 100 MHz only applies for DASY v4.4 and higher (see Page 2). The uncertainty is the RSS of the ConvF uncertainty at calibration frequency and the uncertainty for the indicated frequency band.

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



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

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

Accreditation No.: **SCS 108**

Client **Fractus**

Certificate No: **DAE4-669_Aug07**

CALIBRATION CERTIFICATE

Object **DAE4 - SD 000 D04 BA - SN: 669**

Calibration procedure(s) **QA CAL-06.v12
Calibration procedure for the data acquisition electronics (DAE)**

Calibration date: **August 21, 2007**


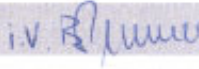
Condition of the calibrated item **In Tolerance**

This calibration certificate 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 in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Fluke Process Calibrator Type 702	SN: 6295803	13-Oct-06 (Elcal AG, No: 5492)	Oct-07
Keithley Multimeter Type 2001	SN: 0810278	03-Oct-06 (Elcal AG, No: 5478)	Oct-07
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Calibrator Box V1.1	SE UMS 006 AB 1004	25-Jun-07 (SPEAG, in house check)	In house check Jun-08

	Name	Function	Signature
Calibrated by:	Dominique Steffen	Technician	
Approved by:	Fin Bornholt	R&D Director	

Issued: August 21, 2007

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

Certificate No: DAE4-669_Aug07

Page 1 of 5

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



S Schweizerischer Kalibrierdienst
S 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 **AT4 Wireless**

Certificate No: **D900V2-1d007_Jun09**

CALIBRATION CERTIFICATE

Object **D900V2 - SN: 1d007**

Calibration procedure(s) **QA CAL-05.v7
Calibration procedure for dipole validation kits**

Calibration date: **June 16, 2009**



Condition of the calibrated item **In Tolerance**

This calibration certificate 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 in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	08-Oct-08 (No. 217-00898)	Oct-09
Power sensor HP 8481A	US37292783	08-Oct-08 (No. 217-00898)	Oct-09
Reference 20 dB Attenuator	SN: 5086 (20g)	31-Mar-09 (No. 217-01025)	Mar-10
Type-N mismatch combination	SN: 5047.2 / 06327	31-Mar-09 (No. 217-01029)	Mar-10
Reference Probe ES3DV2	SN: 3025	30-Apr-09 (No. ES3-3025_Apr09)	Apr-10
DAE4	SN: 601	07-Mar-09 (No. DAE4-601_Mar09)	Mar-10
Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-07)	In house check: Oct-09
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-08)	In house check: Oct-09

	Name	Function	Signature
Calibrated by:	Jeton Kastrat	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: June 17, 2009

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

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V5.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V4.9	
Distance Dipole Center - TSL	15 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	900 MHz \pm 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	41.5	0.97 mho/m
Measured Head TSL parameters	(22.0 \pm 0.2) °C	39.8 \pm 6 %	0.94 mho/m \pm 6 %
Head TSL temperature during test	(22.0 \pm 0.2) °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	Condition	
SAR measured	250 mW input power	2.65 mW / g
SAR normalized	normalized to 1W	10.6 mW / g
SAR for nominal Head TSL parameters ¹	normalized to 1W	10.7 mW /g \pm 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	1.71 mW / g
SAR normalized	normalized to 1W	6.84 mW / g
SAR for nominal Head TSL parameters ¹	normalized to 1W	6.92 mW /g \pm 16.5 % (k=2)

¹ Correction to nominal TSL parameters according to d), chapter "SAR Sensitivities"

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	55.0	1.05 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	52.4 ± 6 %	1.06 mho/m ± 6 %
Body TSL temperature during test	(22.0 ± 0.2) °C	----	----

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	Condition	
SAR measured	250 mW input power	2.80 mW / g
SAR normalized	normalized to 1W	11.2 mW / g
SAR for nominal Body TSL parameters ²	normalized to 1W	11.0 mW / g ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	1.81 mW / g
SAR normalized	normalized to 1W	7.24 mW / g
SAR for nominal Body TSL parameters ²	normalized to 1W	7.16 mW / g ± 16.5 % (k=2)

² Correction to nominal TSL parameters according to d), chapter "SAR Sensitivities"

**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 **AT4 Wireless**

Certificate No: **D1800V2-2d099_Jun09**

CALIBRATION CERTIFICATE

Object: **D1800V2 - SN: 2d099**

Calibration procedure(s): **QA CAL-05.v7
Calibration procedure for dipole validation kits**

Calibration date: **June 18, 2009**

Condition of the calibrated item: **In Tolerance**

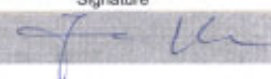

This calibration certificate documents the traceability to national standards, which realize the physical units of measurements (SI).
The measurements and the uncertainties with confidence probability are given on the following pages and are part of the certificate.

All calibrations have been conducted in the closed laboratory facility: environment temperature (22 ± 3)°C and humidity < 70%.

Calibration Equipment used (M&TE critical for calibration)

Primary Standards	ID #	Cal Date (Calibrated by, Certificate No.)	Scheduled Calibration
Power meter EPM-442A	GB37480704	08-Oct-08 (No. 217-00898)	Oct-09
Power sensor HP 8481A	US37292783	08-Oct-08 (No. 217-00898)	Oct-09
Reference 20 dB Attenuator	SN: 5086 (20g)	31-Mar-09 (No. 217-01025)	Mar-10
Type-N mismatch combination	SN: 5047.2 / 06327	31-Mar-09 (No. 217-01029)	Mar-10
Reference Probe ES3DV2	SN: 3025	30-Apr-09 (No. ES3-3025_Apr09)	Apr-10
DAE4	SN: 601	07-Mar-09 (No. DAE4-601_Mar09)	Mar-10

Secondary Standards	ID #	Check Date (in house)	Scheduled Check
Power sensor HP 8481A	MY41092317	18-Oct-02 (in house check Oct-07)	In house check: Oct-09
RF generator R&S SMT-06	100005	4-Aug-99 (in house check Oct-07)	In house check: Oct-09
Network Analyzer HP 8753E	US37390585 S4206	18-Oct-01 (in house check Oct-08)	In house check: Oct-09

	Name	Function	Signature
Calibrated by:	Jeton Kastrati	Laboratory Technician	
Approved by:	Katja Pokovic	Technical Manager	

Issued: June 19, 2009

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

Measurement Conditions

DASY system configuration, as far as not given on page 1.

DASY Version	DASY5	V5.0
Extrapolation	Advanced Extrapolation	
Phantom	Modular Flat Phantom V5.0	
Distance Dipole Center - TSL	10 mm	with Spacer
Zoom Scan Resolution	dx, dy, dz = 5 mm	
Frequency	1800 MHz \pm 1 MHz	

Head TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Head TSL parameters	22.0 °C	40.0	1.40 mho/m
Measured Head TSL parameters	(22.0 \pm 0.2) °C	41.1 \pm 6 %	1.37 mho/m \pm 6 %
Head TSL temperature during test	(22.0 \pm 0.2) °C	----	----

SAR result with Head TSL

SAR averaged over 1 cm ³ (1 g) of Head TSL	condition	
SAR measured	250 mW input power	9.53 mW /g
SAR normalized	normalized to 1W	38.1 mW /g
SAR for nominal Head TSL parameters [†]	normalized to 1W	38.9 mW / g \pm 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Head TSL	condition	
SAR measured	250 mW input power	5.07 mW /g
SAR normalized	normalized to 1W	20.3 mW /g
SAR for nominal Head TSL parameters [†]	normalized to 1W	20.5 mW / g \pm 16.5 % (k=2)

[†] Correction to nominal TSL parameters according to d), chapter "SAR Sensitivities"

Body TSL parameters

The following parameters and calculations were applied.

	Temperature	Permittivity	Conductivity
Nominal Body TSL parameters	22.0 °C	53.3	1.52 mho/m
Measured Body TSL parameters	(22.0 ± 0.2) °C	54.0 ± 6 %	1.49 mho/m ± 6 %
Body TSL temperature during test	(22.2 ± 0.2) °C	---	---

SAR result with Body TSL

SAR averaged over 1 cm ³ (1 g) of Body TSL	condition	
SAR measured	250 mW input power	9.66 mW /g
SAR normalized	normalized to 1W	38.6 mW /g
SAR for nominal Body TSL parameters ²	normalized to 1W	39.2 mW / g ± 17.0 % (k=2)

SAR averaged over 10 cm ³ (10 g) of Body TSL	condition	
SAR measured	250 mW input power	5.17 mW /g
SAR normalized	normalized to 1W	20.7 mW /g
SAR for nominal Body TSL parameters ²	normalized to 1W	20.8 mW / g ± 16.5 % (k=2)

² Correction to nominal TSL parameters according to d), chapter "SAR Sensitivities"