



CONFORMANCE TEST REPORT FOR HUMAN EXPOSURE TO ELECTROMAGNETIC FIELDS

Report No.: SRTC2012-H024-E0016

Product Name: GSM/GPRS Digital Mobile Phone

Product Model: ZTE-G R253

Applicant: ZTE Corporation

Manufacturer: ZTE Corporation

Specification: FCC OET Bulletin 65 (Edition 97-01)

Supplement C (Edition 01-01)

47CFR 2.1093

FCC ID: Q78-GR253

The State Radio_monitoring_center Testing Center (SRTC)

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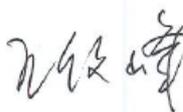
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Executive summary

Test report no.:	SRTC2012-H024-E0016
Product Model:	ZTE-G R253
Date of test:	2012.3.20
Date of report:	2012.3.24
Laboratory:	The State Radio_monitoring_center Testing Center (SRTC)
Test has been Carried out in accordance with:	<p>47CFR §2.1093</p> <p>Radiofrequency Radiation Exposure Evaluation: Portable Devices</p> <p>FCC OET Bulletin 65 (Edition 97-01), Supplement C (Edition 01-01)</p> <p>Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields</p> <p>RSS-102</p> <p>Evaluation Procedure for Mobile and Portable Radio Transmitters with Respect to Health Canada's Safety Code 6 for Exposure of Humans to Radio Frequency Fields</p> <p>IEEE 1528 - 2003</p> <p>IEEE Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Technique</p>
Documentation:	The documentation of the testing performed on the tested devices is archived for 5 years at SRTC

Result summary:

Mode	CH/f(MHz)	Power (dBm)	Position	Sar Limit (1g avg) (mW/g)	Measured value (1g avg)(mW/g)	Result
GPRS850	251/848.8	30.39	Towards phantom	1.6	0.887	PASS

<p>This Test Report Is Issued by:</p> <p>Mr. Song Qizhu Director of the test lab</p> 	<p>Checked by:</p> <p>Mr. Wang Junfeng Deputy director of the test lab</p> 
<p>Tested by:</p> <p>Mr. Zhang Helun Test engineer</p> 	<p>Issued date:</p> <p>2012.3.27</p>

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1. General information

1.1 Notes of the test report

The test report may only be reproduced or published in full. Reproduction or publication of extracts from the report requires the prior written permission of The State Radio_monitoring_center Testing Center (SRTC).

The test results relate only to individual items of the samples which have been tested.

1.2 Information about the testing laboratory

Company: The State Radio_monitoring_center Testing Center (SRTC)
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1.3 Applicant's details

Company: ZTE Corporation
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Country or Region: P.R.China
Grantee Code: Q78
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1.4 Manufacturer's details

Company: ZTE Corporation
Address: ZTE Plaza, Keji Road South, Hi-Tech, Industrial Park,
Nanshan District, 518057
City: Shenzhen
Country or Region: P.R.China
Contacted person: Li Dezi
Tel: +86-021-68895196
Fax: +86-021-50801070
Email: li.dezi@zte.com.cn

1.5 Test details

Period of test	2012.3.20
Batteries used in testing	Li-Lon/Li-3706T42P3h553447/ZTE CORPORATION
State of sample	production unit
Device class/Multislot class DTM	Class B/12 N/A
H/W Version S/W Version	GMAJb ZTE-CN-9S-P120A40V0.0.1
IMEI	862780010004350

1.6 Maximum Results

The maximum measured SAR values for Head configuration and Body Worn configuration are given in section 1.6.1 and 1.6.2 respectively. The device conforms to the requirements of the standard(s) when the maximum measured SAR value is less than or equal to the limit.

1.6.1 Head Configuration

Mode	CH/f(MHz)	Power (dBm)	Position	Sar Limit (1g avg) (mW/g)	Measured value (1g avg)(mW/g)	Result
GSM850	189/836.4	31.26	Left cheek	1.6	0.648	PASS
GSM1900	512/1850.2	28.72	Left cheek	1.6	0.720	PASS

1.6.2 Body Worn Configuration

Mode	CH/f(MHz)	Power	Position	Sar Limit (1g avg) (mW/g)	Measured value (1g avg)(mW/g)	Result
GPRS 850	251/848.8	30.39	Towards phantom	1.6	0.887	PASS
GPRS1900	661/1880.0	27.28	Towards ground	1.6	0.527	PASS

2. DESCRIPTION OF THE DEVICE UNDER TEST

Device category	production unit
Exposure enviroment	General population/uncontrolled

Modes and Bands of operation	GSM 850	GSM 1900
Modulation Mode	GMSK	GMSK
Duty Cycle	1/8	1/8
Transmitter Frequency Range(MHz)	824-849	1850-1910

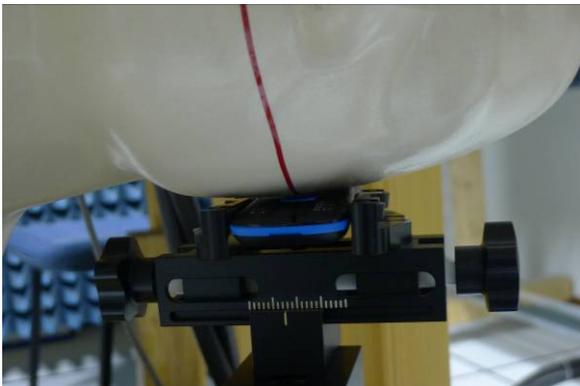
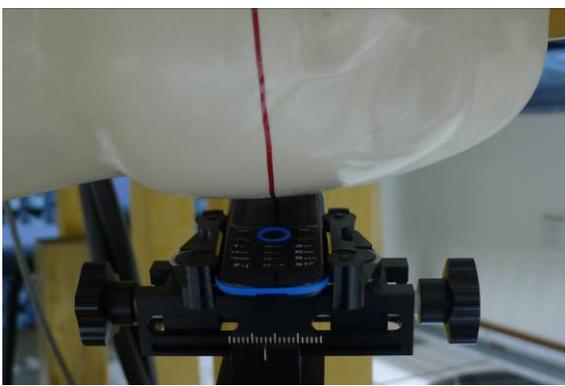
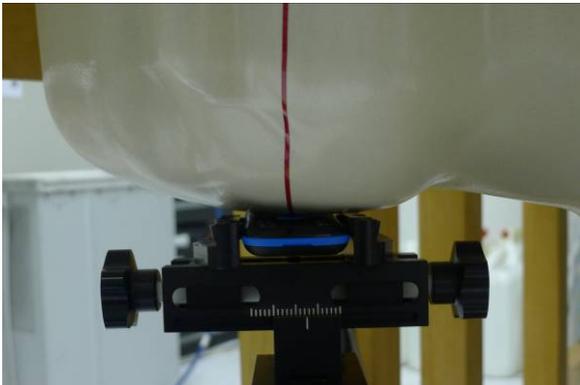
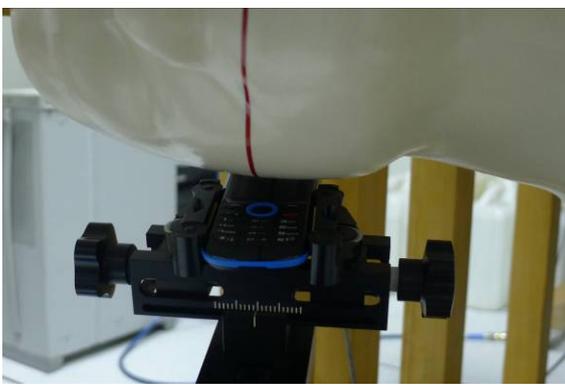
2.1 Description of the Antenna

The device has an internal antenna.

2.2 Picture of the EUT



2.3 Test Positions for the Device under test

	
<p>Cheek position, left side</p>	<p>Tilt position, left side</p>
	
<p>Cheek position, Right side</p>	<p>Tilt position, Right side</p>
	
<p>FLAT position (towards ground)</p>	<p>SPACER 15 mm</p>

2.4 Picture to demonstrate the required liquid depth

the liquid depth in the used SAM phantoms



Liquid depth for SAR Measurement

3 TEST CONDITIONS

3.1 Temperature and Humidity

Ambient temperature (° C)	21.0 to 23.0
Ambient humidity (RH %)	30 to 45

3.2 Test Signal, Frequencies and Output Power

The device was put into operation by using a call tester. Communication between the device and the call tester was established by air link.

The device output power was set to maximum power level for all tests; a fully charged battery was used for every test sequence.

In all operating bands the measurements were performed on lowest, middle and highest channels.

4. DESCRIPTION OF THE TEST EQUIPMENT

4.1 Measurement System and Components

The measurements were performed using an automated near-field scanning system, DASY4, manufactured by Schmid & Partner Engineering AG (SPEAG) in Switzerland. The SAR extrapolation algorithm used in all measurements was the 'advanced extrapolation' algorithm.

The following table lists calibration dates of SPEAG components:

Test Equipment	Serial Number	Calibration interval	Calibration expiry
DAE4	720	1 year	2013.2.7
Dosimetric E-field Probe ES3DV3	3128	1 year	2013.2.3
Dipole Validation Kit, D900V2	171	1 year	2012.06.11
Dipole Validation Kit, D1800V2	2d084	1 year	2012.06.11
DASY4 software Version	4.7	N/A	N/A

Additional test equipment used in testing:

Test Equipment	Model	Serial Number	Calibration interval	Calibration expiry
Signal Generator	E4428C	MY45280865	1year	2012.08.20
Amplifier	5S1G4	0323472	N/A	N/A
Power meter	E4417A	MY45101004	1year	2012.08.19
Power Sensor	E9300B	MY41496001	1year	2012.08.19
Power Sensor	E9300B	MY41496003	1year	2012.08.19
Call Tester	8960	GB43194054	1year	2012.08.20
Network Analyzer	8714ET	US40372083	1year	2012.08.20
Dielectric Probe Kit	85070D	US33030365	N/A	N/A

The information of Isotropic E-field Probe Type ES3DV3

Construction	Symmetrical design with triangular core Interleaved sensors Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., DGBE)
Calibration	Calibration certificate in Appendix C
Frequency	10 MHz to 4 GHz; Linearity: ± 0.2 dB (30 MHz to 4 GHz)
Optical Surface Detection	± 0.2 mm repeatability in air and clear liquids over diffuse reflecting surfaces
Dimensions	Overall length: 330 mm (Tip: 20 mm) Tip diameter: 3.9 mm (Body: 12 mm) Distance from probe tip to dipole centers: 2.0 mm
Dynamic Range	5 μ W/g to > 100 mW/g; Linearity: ± 0.2 dB
Application	General dosimetry up to 4 GHz Dosimetry in strong gradient fields Compliance tests of mobile phones

4.2 Phantoms

The phantom used for all tests i.e. for both system checks and device testing, was the twinheaded "SAM Phantom", manufactured by SPEAG. The phantom conforms to the requirements of IEEE 1528 - 2003.

System checking was performed using the flat section, whilst Head SAR tests used the left and right head profile sections. Body SAR testing also used the flat section between the head profiles.

The SPEAG device holder (see Section 5.1) was used to position the device in all tests whilst a tripod was used to position the validation dipoles against the flat section of phantom.

4.3 Tissue Simulants

Recommended values for the dielectric parameters of the tissue simulants are given in IEEE 1528 - 2003 and FCC Supplement C to OET Bulletin 65. All tests were carried out using simulants whose dielectric parameters were within $\pm 5\%$ of the recommended values. All tests were carried out within 24 hours of measuring the dielectric parameters.

The depth of the tissue simulant was 15.0 ± 0.5 cm measured from the ear reference point during system checking and device measurements.

4.3.1 Tissue Simulant Recipes

The following recipe(s) were used for Head and Body tissue stimulant(s):

800MHz band

Ingredient	Head (% by weight)	Body (% by weight)
Water	40.29	50.75
Sugar	57.90	48.21
Nacl	1.38	0.94
Cellulose	0.24	0
Preventol	0.18	0.10

1900MHz band

Ingredient	Head (% by weight)	Body (% by weight)
Water	44.45	70.17
DGBE	55.24	29.44
Nacl	0.31	0.39

4.3.2 System Checking

The manufacturer calibrates the probes annually. Dielectric parameters of the tissue simulants were measured every day using the dielectric probe kit and the network analyser. A system check measurement was made following the determination of the dielectric parameters of the simulant, using the dipole validation kit. A power level of 250 mW was supplied to the dipole antenna, which was placed under the flat section of the twin SAM phantom. The system checking results (dielectric parameters and SAR values) are given in the table below. Test Date is 2012.3.20

System checking, head tissue simulant

		SAR _{1g} [w/kg]	ϵ_r	σ [S/m]	Temperature	
					Ambient[°C]	Liquid[°C]
900MHz	Target Value	10.8	41.5±2.1	0.97±0.05	15-30	-
	Measured Value	10.7	41.9	0.99	22.1	22.2

All SAR values are normalized to 1W forward power

		SAR _{1g} [w/kg]	ϵ_r	σ [S/m]	Temperature	
					Ambient[°C]	Liquid[°C]
1800MHz	Target Value	38.1	40±1.9	1.40±0.07	15-30	-
	Measured Value	38.5	41.0	1.35	22.3	22.1

All SAR values are normalized to 1W forward power

4.3.3 Tissue Simulants used in the Measurements

For the measurement of the following parameters the HP 85070D dielectric probe kit is used, representing the open-ended coaxial probe measurement procedure .Tested date is 2012.3.20

Head		ϵ_r	σ [S/m]	Temperature	
				Ambient [°C]	Liquid [°C]
900MHz	Recommended Value	41.5±2.1	0.97±0.05	15-30	-
	Measured Value	41.9	0.99	22.1	22.2
1800MHz	Recommended Value	40±1.9	1.40±0.07	15-30	-
	Measured Value	41.0	1.35	22.3	22.1

Body		ϵ_r	σ [S/m]	Temperature	
				Ambient [°C]	Liquid [°C]
900MHz	Recommended Value	55.0±2.8	1.05±0.05	15-30	-
	Measured Value	55.5	1.04	22.5	22.4
1800MHz	Recommended Value	53.3±2.7	1.52±0.08	15-30	-
	Measured Value	54.6	1.47	22.5	22.3

5. DESCRIPTION OF THE TEST PROCEDURE

5.1 Device Holder

The device was placed in the device holder (illustrated below) that is supplied by SPEAG as an integral part of the Dasy system.



Device holder supplied by SPEAG

5.2 Test positions

5.2.1 Against Phantom Head

Measurements were made in “cheek” and “tilt” positions on both the left hand and right hand sides of the phantom.

The positions used in the measurements were according to IEEE 1528 - 2003 "IEEE

Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head from Wireless Communications Devices: Measurement Techniques".

5.2.2 Body Worn Configuration

The device was placed in the SPEAG holder below the flat section of the phantom. The distance between the device and the phantom was kept at the separation distance using a separate flat spacer that was removed before the start of the measurements. The device was oriented with its antenna facing the phantom since this orientation gives higher results.

5.3 scan procedure

First, area scans were used for determination of the field distribution. Next, a zoom scan, a minimum of 7 x 7x7 points covering a volume of at least 30x30x30mm, was performed around the highest E-field value to determine the averaged SAR value. Drift was determined by measuring the same point at the start of the area scan and again at the end of the zoom scan.

5.4 SAR Averaging Methods

The maximum SAR value was averaged over a cube of tissue using interpolation and extrapolation.

The interpolation, extrapolation and maximum search routines within Dasy4 are all based on the modified Quadratic Shepard's method (Robert J. Renka, "Multivariate Interpolation Of Large Sets Of Scattered Data", University of North Texas ACM Transactions on Mathematical Software, vol. 14, no. 2, June 1988, pp. 139-148).

The interpolation scheme combines a least-square fitted function method with a weighted average method. A trivariate 3-D / bivariate 2-D quadratic function is computed for each measurement point and fitted to neighbouring points by a least-square method. For the zoom scan, inverse distance weighting is incorporated to fit distant points more accurately. The interpolating function is finally calculated as a weighted average of the quadratics.

In the zoom scan, the interpolation function is used to extrapolate the Peak SAR from the deepest measurement points to the inner surface of the phantom.

6. MEASUREMENT UNCERTAINTY

DASY4 Uncertainty Budget								
Error description	Uncertainty value	Prob. Dist.	Div.	(c_i) 1g	(c_i) 10g	Std.Unc (1g).	Std.Unc. (10g)	(v_i) V_{eff}
Measurement system								
Probe calibration	±5.9%	N	1	1	1	±5.9%	±5.9%	∞
Axial isotropy	±4.7%	R	$\sqrt{3}$	0.7	0.7	±1.9%	±1.9%	∞
Hemispherical isotropy	±9.6%	R	$\sqrt{3}$	0.7	0.7	±3.9%	±3.9%	∞
Boundary effects	±1.0%	R	$\sqrt{3}$	1	1	±0.6%	±0.6%	∞
Linearity	±4.7%	R	$\sqrt{3}$	1	1	±2.7%	±2.7%	∞
System detection limits	±1.0%	R	$\sqrt{3}$	1	1	±0.6%	±0.6%	∞
Readout electronics	±0.3%	N	1	1	1	±0.3%	±0.3%	∞
Response time	±0.8%	R	$\sqrt{3}$	1	1	±0.5%	±0.5%	∞
Integration time	±2.6%	R	$\sqrt{3}$	1	1	±1.5%	±1.5%	∞
RF ambient noise	±3.0%	R	$\sqrt{3}$	1	1	±1.7%	±1.7%	∞
RF ambient reflections	±3.0%	R	$\sqrt{3}$	1	1	±1.7%	±1.7%	∞
Probe positioner	±0.4%	R	$\sqrt{3}$	1	1	±0.2%	±0.2%	∞
Probe positioning	±2.9%	R	$\sqrt{3}$	1	1	±1.7%	±1.7%	∞
Max.SAR Eval.	±1.0%	R	$\sqrt{3}$	1	1	±0.6%	±0.6%	∞
Test Sample Related								
Device Positioning	±2.9%	N	1	1	1	±2.9%	±2.9%	145
Device holder	±3.6%	N	1	1	1	±3.6%	±3.6%	5
Power drift	±5.0%	R	$\sqrt{3}$	1	1	±2.9%	±2.9%	∞
Phantom and Setup								
Phantom uncertainty	±4.0%	R	$\sqrt{3}$	1	1	±2.3%	±2.3%	∞
Liquid conductivity(target)	±5.0%	R	$\sqrt{3}$	0.64	0.43	±1.8%	±1.2%	∞
Liquid conductivity(meas.)	±2.5%	N	1	0.64	0.43	±1.6%	±1.1%	∞
Liquid conductivity(target)	±5.0%	R	$\sqrt{3}$	0.6	0.49	±1.7%	±1.4%	∞
Liquid onductivity(means.)	±2.5%	N	1	0.6	0.49	±1.5%	±1.2%	∞
Combined std. Uncertainty						±10.9%	±10.7%	387
Expanded STD Uncertainty						±21.9%	±21.4%	

Table 6.1 – Measurement uncertainty evaluation

7. Test Results

7.1 Test result

The measured Head SAR values for the test device are tabulated below:

Mode: GSM 850

f_L (MHz)=824.2MHz f_M (MHz)=836.4 MHz f_H (MHz)= 848.8MHz

SAR Values (Head, 850MHz Band)

Limit of SAR (W/kg)	1 g Average
	1.6
Test Case	Measurement Result (mW/g)
	1 g Average
Left hand, Touch cheek, f_M	0.648
Left hand, Tilt 15 Degree, f_M	0.343
Right hand, Touch cheek, f_M	0.554
Right hand, Tilt 15 Degree, f_M	0.333

Mode:GSM850

f_L (MHz)=824.2MHz f_M (MHz)=836.4 MHz f_H (MHz)= 848.8MHz

SAR Values (Body, 850MHz Band)

Limit of SAR (W/kg)	1g Average
	1.6
Test Case	Measurement Result (mW/g)
	1g Average
Towards ground with a headset f_M	0.132
Towards phantom with a headset f_M	0.118
Towards ground/GPRS, 15mm spacer f_M	0.744
Towards phantom/GPRS, 15mm spacer f_H	0.887
Towards phantom/GPRS, 15mm spacer f_M	0.745
Towards phantom/GPRS, 15mm spacer f_L	0.543

Mode: GSM1900

f_L (MHz)=1850.2MHz f_M (MHz)=1880.0MHz f_H (MHz)=1909.8MHz

SAR Values (Head, 1900MHz Band)

Limit of SAR (W/kg)	1 g Average
	1.6
Test Case	Measurement Result (mW/g)
	1 g Average
Left hand, Touch cheek , f_H	0.720
Left hand, Touch cheek, f_M	0.719
Left hand, Touch cheek , f_L	0.685
Left hand, Tilt 15 Degree, f_M	0.392
Right hand, Touch cheek, f_M	0.672
Right hand, Tilt 15 Degree, f_M	0.458

Mode:GSM1900

f_L (MHz)=1850.2MHz f_M (MHz)=1880.0MHz f_H (MHz)=1909.8MHz

SAR Values (Body, 1900MHz Band)

Limit of SAR (W/kg)	1g Average
	1.6
Test Case	Measurement Result (mW/g)
	1g Average
Towards ground with a headset f_M	0.320
Towards phantom with a headset f_M	0.312
Towards ground/GPRS, 15mm spacer f_M	0.527
Towards phantom/GPRS, 15mm spacer f_M	0.511

7.2 Conducted power

Mode	GSM850(Head) Duty cycle: 1:8(12.5%)			GSM1900(Head) Duty cycle: 1:8(12.5%)		
	Channel	128	189	251	512	661
Frequency(MHz)	824.2	836.4	848.8	1850.2	1880.0	1909.8
Measured Power(dBm)	31.25	31.26	31.18	28.72	28.78	28.67

GPRS Measured Power

Mode	GPRS850			GPRS1900		
	Channel	128	189	251	512	661
Frequency(MHz)	824.2	836.4	848.8	1850.2	1880.0	1909.8
4Downlink1uplink Power(dBm)	31.55	31.57	31.49	28.67	28.65	28.62
3Downlink2uplink Power(dBm)	30.45	30.47	30.39	27.30	27.28	27.25
2Downlink3uplink Power(dBm)	28.55	28.59	28.50	25.39	25.39	25.35
1Downlink4uplink Power(dBm)	27.00	27.07	26.96	23.87	23.86	23.82

GPRS Averaged Power

Mode	GPRS850			GPRS1900		
Channel	128	189	251	512	661	810
Frequency(MHz)	824.2	836.4	848.8	1850.2	1880.0	1909.8
4Downlink1uplink Power(dBm)	22.52	22.54	22.46	19.64	19.62	19.59
3Downlink2uplink Power(dBm)	24.43	24.45	24.37	21.28	21.26	21.23
2Downlink3uplink Power(dBm)	24.29	24.33	24.24	21.13	21.13	21.09
1Downlink4uplink Power(dBm)	23.99	24.06	23.95	20.86	20.85	20.81

Division Factors(for Measured Power and Averaged Power):

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

1TX-slot (4Downlink1uplink)= 1 transmit time slot out of 8 time slots=>
conducted power divided by (8/1) => -9.03dB

2TX-slots(3Downlink2uplink) = 2 transmit time slots out of 8 time slots=>
conducted power divided by (8/2) => -6.02dB

3TX-slots (2Downlink3uplink)= 3 transmit time slots out of 8 time slots=>
conducted power divided by (8/3) => -4.26dB

4TX-slots (1Downlink4uplink)= 4 transmit time slots out of 8 time slots=>
conducted power divided by (8/4) => -3.01dB

According to the conducted power as above, the body measurements are performed with 2Txslots(3Downlink2uplink) for GPRS.

APPENDIX A: SYSTEM CHECKING SCANS

SYSTEM CHECKING SCANS	900MHz
<p>DUT: Dipole 900 MHz; Type: D900V2; Serial: D900V2 - SN:171 Program Name: System Performance Check at 900 MHz</p> <p>Communication System: CW; Frequency: 900 MHz ;Duty Cycle: 1:1 Medium parameters used (interpolated): $f = 900 \text{ MHz}$; $\sigma = 0.99 \text{ mho/m}$; $\epsilon_r = 41.9$; $\rho = 1000 \text{ kg/m}^3$</p> <p>DASY4 Configuration:</p> <ul style="list-style-type: none"> - Probe: ES3DV3 - SN3128; ConvF(7.375, 7.783, 7.54); Calibrated: 2/3/2012 - Sensor-Surface: 4mm (Mechanical Surface Detection) - Electronics: DAE4 Sn720; Calibrated: 2/7/2012 - Phantom: SAM 1560; Type: SAM; Serial: 1560 - Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186 <p>$d=15\text{mm}$, $\text{Pin}=250\text{mW}$/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: $dx=5\text{mm}$, $dy=5\text{mm}$, $dz=5\text{mm}$ Reference Value = 54.7V/m; Power Drift = -0.095 dB Peak SAR (extrapolated) = 4.07 W/kg $\text{SAR}(1 \text{ g}) = 2.68 \text{ mW/g}$; $\text{SAR}(10 \text{ g}) = 1.61 \text{ mW/g}$ Maximum value of SAR (measured) = 2.8 mW/g</p> <div style="display: flex; align-items: flex-start;"> <div data-bbox="151 1332 271 1780" style="margin-right: 20px;"> <p>dB</p> <p>0.000 -3.62 -7.24 -10.9 -14.5 -18.1</p> </div> <div data-bbox="322 1332 1437 1780"> </div> </div> <p style="margin-top: 20px;">0 dB = 2.9 mW/g</p>	

SYSTEM CHECKING SCANS

1800 MHz

DUT: Dipole 1800 MHz; Type: D1800V2; Serial: D1800V2 - SN:2d084
Program Name: System Performance Check at 1800 MHz

Communication System: CW; Frequency: 1800 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 1800$ MHz; $\sigma = 1.35$ mho/m; $\epsilon_r = 41.0$; $\rho = 1000$ kg/m³
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ES3DV3 - SN3128; ConvF(5.767, 6.013, 5.888); Calibrated: 2/3/2012
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn720; Calibrated: 2/7/2012
- Phantom: SAM 1560; Type: SAM; Serial: 1560
- Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186

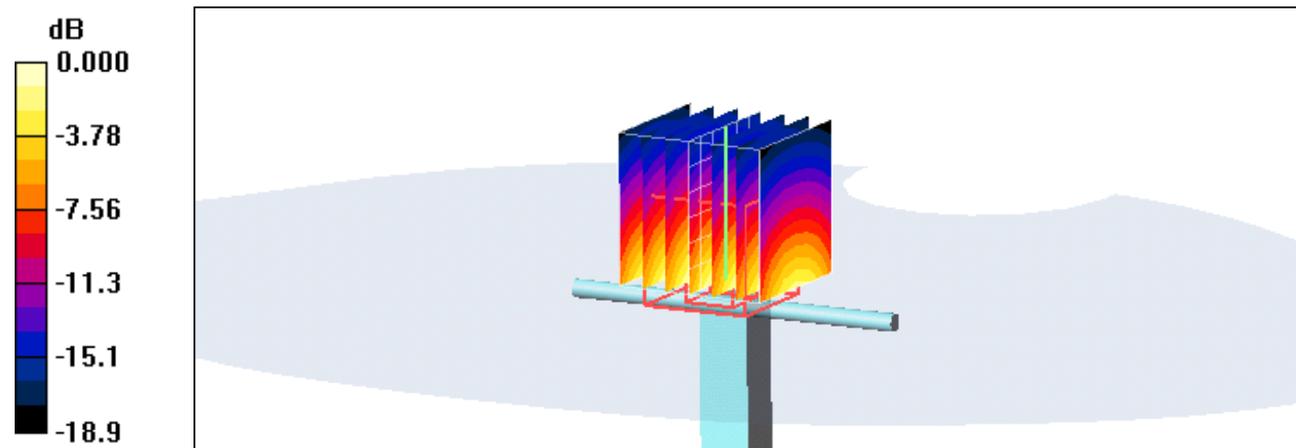
d=10mm, Pin=250mW/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm

Reference Value = 90.5 V/m; Power Drift = 0.012 dB

Peak SAR (extrapolated) = 18.1 W/kg

SAR(1 g) = 9.63 mW/g; SAR(10 g) = 5.05 mW/g

Maximum value of SAR (measured) = 11.0 mW/g

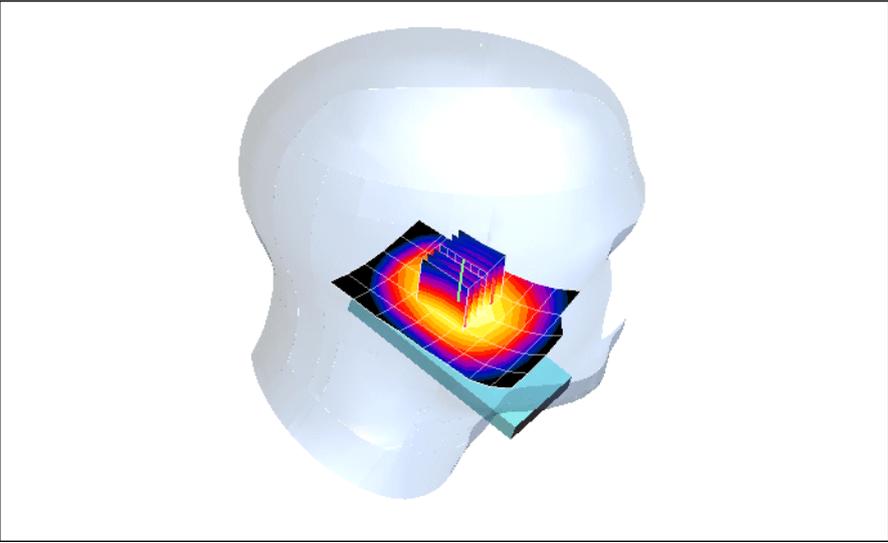


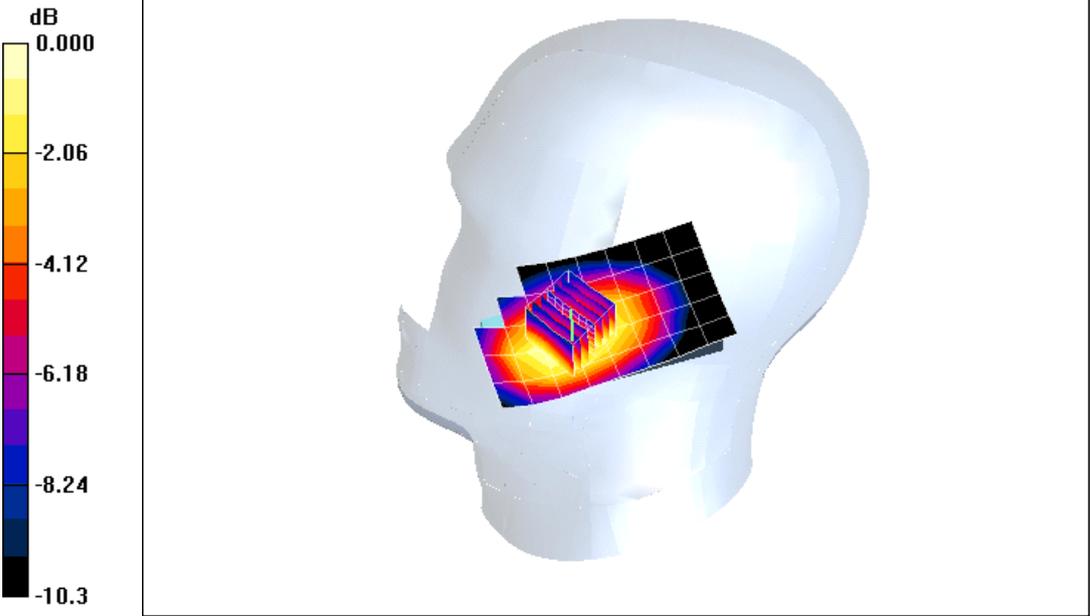
0 dB = 11.0 mW/g

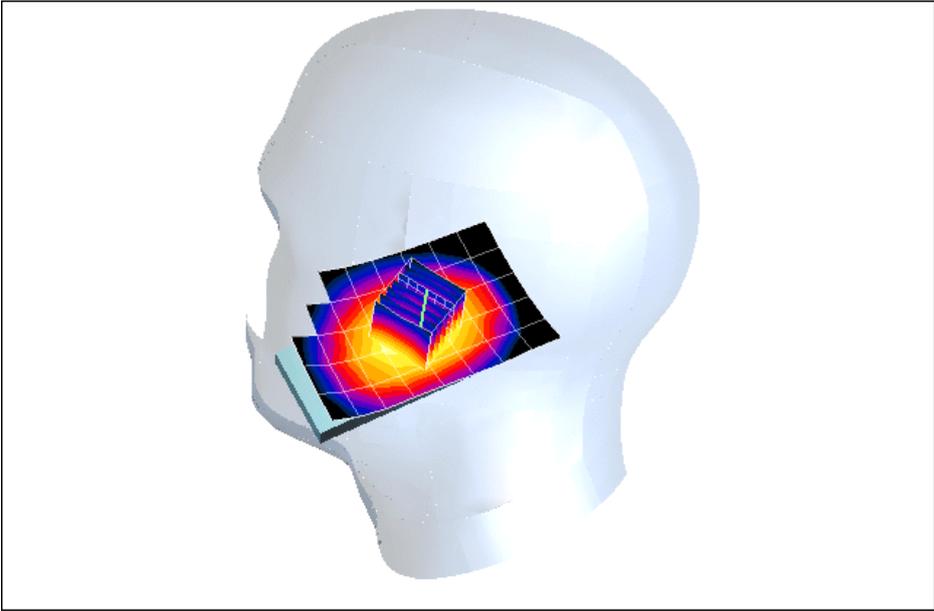
APPENDIX B: MEASUREMENT SCANS

GSM (850MHz/head)

Left Side	Cheek	836.4 MHz
<p>Communication System: GSM 850; Frequency: 836.4 MHz; Duty Cycle: 1:8.3 Medium parameters used (interpolated): $f = 836.4$ MHz; $\sigma = 0.894$ mho/m; $\epsilon_r = 41$; $\rho = 1000$ kg/m³ Phantom section: Left Section</p> <p>DASY4 Configuration: - Probe: ES3DV3 - SN3128; ConvF(7.375, 7.783, 7.54); Calibrated: 2/3/2012 - Sensor-Surface: 4mm (Mechanical Surface Detection) - Electronics: DAE4 Sn720; Calibrated: 2/7/2012 - Phantom: SAM 1560; Type: SAM; Serial: 1560 - Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186</p> <p>Touch position - Middle/Area Scan (6x9x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.687 mW/g</p> <p>Touch position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 13.9 V/m; Power Drift = -0.079 dB Peak SAR (extrapolated) = 0.852 W/kg SAR(1 g) = 0.648 mW/g; SAR(10 g) = 0.459 mW/g Maximum value of SAR (measured) = 0.684 mW/g</p>		
<div style="display: flex; align-items: center;"> <div style="margin-right: 20px;"> <p>dB</p> <p>0.000</p> <p>-2.08</p> <p>-4.16</p> <p>-6.24</p> <p>-8.32</p> <p>-10.4</p> </div> </div> <p style="text-align: center;">0 dB = 0.684mW/g</p>		

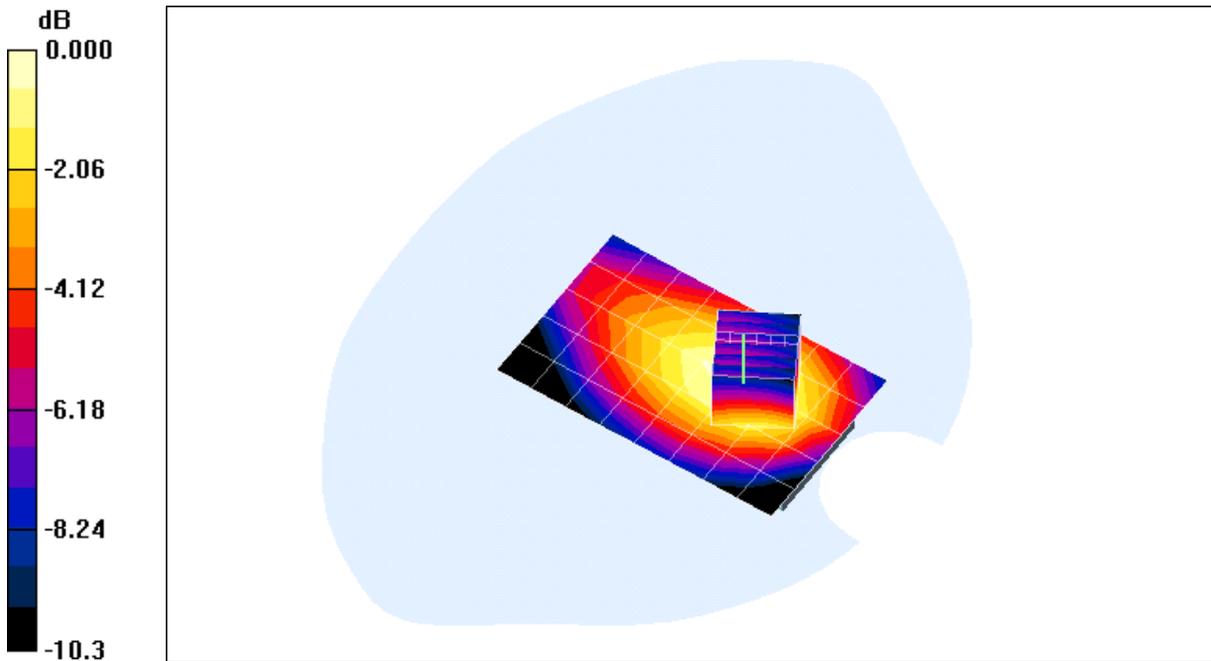
Left Side	Tilt	836.4 MHz
<p>Communication System: GSM 850; Frequency: 836.4 MHz; Duty Cycle: 1:8.3 Medium parameters used (interpolated): $f = 836.4$ MHz; $\sigma = 0.894$ mho/m; $\epsilon_r = 41$; $\rho = 1000$ kg/m³ Phantom section: Left Section</p> <p>DASY4 Configuration: - Probe: ES3DV3 - SN3128; ConvF(7.375, 7.783, 7.54); Calibrated: 2/3/2012 - Sensor-Surface: 4mm (Mechanical Surface Detection) - Electronics: DAE4 Sn720; Calibrated: 2/7/2012 - Phantom: SAM 1560; Type: SAM; Serial: 1560 - Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186</p> <p>Tilt position - Middle/Area Scan (6x9x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.356 mW/g</p> <p>Tilt position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 15.1 V/m; Power Drift = 0.035 dB Peak SAR (extrapolated) = 0.449 W/kg SAR(1 g) = 0.343 mW/g; SAR(10 g) = 0.247 mW/g Maximum value of SAR (measured) = 0.366 mW/g</p>		
<div style="display: flex; align-items: center;"> <div style="margin-right: 20px;"> <p>dB</p> <p>0.000</p> <p>-1.92</p> <p>-3.84</p> <p>-5.77</p> <p>-7.69</p> <p>-9.61</p> </div>  </div> <p style="text-align: center;">0 dB = 0.366mW/g</p>		

Right Side	Cheek	836.4 MHz
<p>Communication System: GSM 850; Frequency: 836.4 MHz; Duty Cycle: 1:8.3 Medium parameters used (interpolated): $f = 836.4$ MHz; $\sigma = 0.894$ mho/m; $\epsilon_r = 41$; $\rho = 1000$ kg/m³ Phantom section: Right Section</p> <p>DASY4 Configuration: - Probe: ES3DV3 - SN3128; ConvF(7.375, 7.783, 7.54); Calibrated: 2/3/2012 - Sensor-Surface: 4mm (Mechanical Surface Detection) - Electronics: DAE4 Sn720; Calibrated: 2/7/2012 - Phantom: SAM 1560; Type: SAM; Serial: 1560 - Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186</p> <p>Touch position - Middle/Area Scan (6x9x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.588 mW/g</p> <p>Touch position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 12.4 V/m; Power Drift = -0.070 dB Peak SAR (extrapolated) = 0.715 W/kg SAR(1 g) = 0.554 mW/g; SAR(10 g) = 0.395 mW/g Maximum value of SAR (measured) = 0.589 mW/g</p>		
 <p style="text-align: center;">0 dB = 0.589mW/g</p>		

Right Side	Tilt	836.4 MHz
<p>Communication System: GSM 850; Frequency: 836.4 MHz; Duty Cycle: 1:8.3 Medium parameters used (interpolated): $f = 836.4$ MHz; $\sigma = 0.894$ mho/m; $\epsilon_r = 41$; $\rho = 1000$ kg/m³ Phantom section: Right Section</p> <p>DASY4 Configuration: - Probe: ES3DV3 - SN3128; ConvF(7.375, 7.783, 7.54); Calibrated: 2/3/2012 - Sensor-Surface: 4mm (Mechanical Surface Detection) - Electronics: DAE4 Sn720; Calibrated: 2/7/2012 - Phantom: SAM 1560; Type: SAM; Serial: 1560 - Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186</p> <p>Tilt position - Middle/Area Scan (6x9x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.340 mW/g</p> <p>Tilt position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 14.6 V/m; Power Drift = 0.092 dB Peak SAR (extrapolated) = 0.440 W/kg SAR(1 g) = 0.333 mW/g; SAR(10 g) = 0.239 mW/g Maximum value of SAR (measured) = 0.354 mW/g</p>		
<div style="display: flex; align-items: center;"> <div style="margin-right: 20px;"> <p>dB</p> <p>0.000</p> <p>-1.79</p> <p>-3.58</p> <p>-5.37</p> <p>-7.16</p> <p>-8.95</p> </div>  </div> <p style="text-align: center;">0 dB = 0.354mW/g</p>		

GSM with headset (850MHz/Flat)

FLAT	Towards ground	836.4 MHz
<p>Communication System: GSM 850; Frequency: 836.4 MHz; Duty Cycle: 1:8.3 Medium parameters used: $f = 836.41 \text{ MHz}$; $\sigma = 0.96 \text{ mho/m}$; $\epsilon_r = 55.9$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Flat Section</p> <p>DASY4 Configuration: - Probe: ES3DV3 - SN3128; ConvF(7.149, 7.54, 7.336); Calibrated: 2/3/2012 - Sensor-Surface: 4mm (Mechanical Surface Detection) - Electronics: DAE4 Sn720; Calibrated: 2/7/2012 - Phantom: SAM 1560; Type: SAM; Serial: 1560 - Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186</p> <p>Towards ground- Middle/Area Scan (6x9x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.139 mW/g</p> <p>Towards ground- Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 10.1 V/m; Power Drift = 0.025 dB Peak SAR (extrapolated) = 0.173 W/kg SAR(1 g) = 0.132 mW/g; SAR(10 g) = 0.095 mW/g Maximum value of SAR (measured) = 0.140 mW/g</p> <div data-bbox="199 1310 1388 1892"> </div> <p>0 dB = 0.140mW/g</p>		

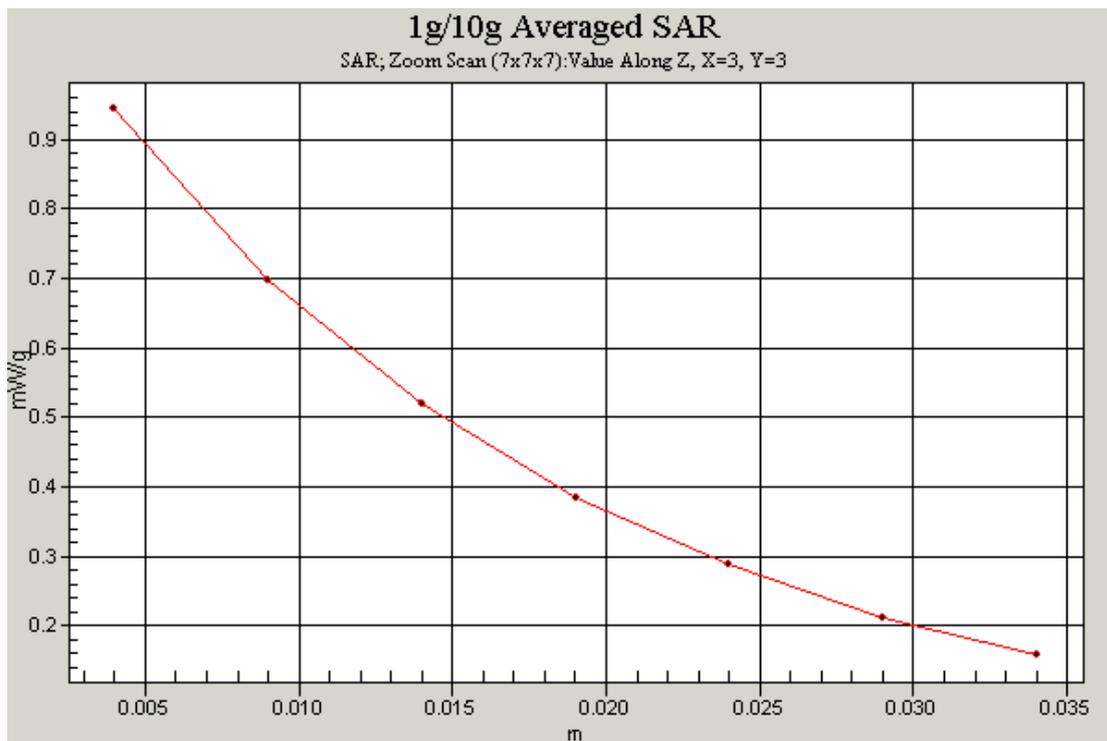
FLAT	Towards phantom	836.4 MHz
<p>Communication System: GSM 850; Frequency: 836.4 MHz; Duty Cycle: 1:8.3 Medium parameters used: $f = 836.41$ MHz; $\sigma = 0.96$ mho/m; $\epsilon_r = 55.9$; $\rho = 1000$ kg/m³ Phantom section: Flat Section</p> <p>DASY4 Configuration:</p> <ul style="list-style-type: none"> - Probe: ES3DV3 - SN3128; ConvF(7.149, 7.54, 7.336); Calibrated: 2/3/2012 - Sensor-Surface: 4mm (Mechanical Surface Detection) - Electronics: DAE4 Sn720; Calibrated: 2/7/2012 - Phantom: SAM 1560; Type: SAM; Serial: 1560 - Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186 <p>Towards phantom - Middle/Area Scan (6x9x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.124 mW/g</p> <p>Towards phantom - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 9.38 V/m; Power Drift = 0.049 dB Peak SAR (extrapolated) = 0.153 W/kg SAR(1 g) = 0.118 mW/g; SAR(10 g) = 0.085 mW/g Maximum value of SAR (measured) = 0.126 mW/g</p>		
 <p style="text-align: center;">0 dB = 0.126mW/g</p>		

GPRS (850MHz/Flat)

FLAT	Towards phantom	824.2 MHz
<p>Communication System: GSM 850; Frequency: 824.2 MHz; Duty Cycle: 1:8.3 Medium parameters used (interpolated): $f = 824.2$ MHz; $\sigma = 0.95$ mho/m; $\epsilon_r = 56$; $\rho = 1000$ kg/m³ Phantom section: Flat Section</p> <p>DASY4 Configuration: - Probe: ES3DV3 - SN3128; ConvF(7.149, 7.54, 7.336); Calibrated: 2/3/2012 - Sensor-Surface: 4mm (Mechanical Surface Detection) - Electronics: DAE4 Sn720; Calibrated: 2/7/2012 - Phantom: SAM 1560; Type: SAM; Serial: 1560 - Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186</p> <p>Towards phantom - Low GPRS 2/Area Scan (6x9x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.573 mW/g</p> <p>Towards phantom - Low GPRS 2/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 18.3 V/m; Power Drift = -0.102 dB Peak SAR (extrapolated) = 0.707 W/kg SAR(1 g) = 0.543 mW/g; SAR(10 g) = 0.389 mW/g Maximum value of SAR (measured) = 0.574 mW/g</p> <div data-bbox="268 1339 1323 1910"> </div>		

FLAT	Towards phantom	836.4 MHz
<p>Communication System: GSM 850; Frequency: 836.4 MHz; Duty Cycle: 1:8.3 Medium parameters used: $f = 836.41 \text{ MHz}$; $\sigma = 0.96 \text{ mho/m}$; $\epsilon_r = 55.9$; $\rho = 1000 \text{ kg/m}^3$ Phantom section: Flat Section</p> <p>DASY4 Configuration: - Probe: ES3DV3 - SN3128; ConvF(7.149, 7.54, 7.336); Calibrated: 2/3/2012 - Sensor-Surface: 4mm (Mechanical Surface Detection) - Electronics: DAE4 Sn720; Calibrated: 2/7/2012 - Phantom: SAM 1560; Type: SAM; Serial: 1560 - Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186</p> <p>Towards phantom - Middle GPRS/Area Scan (6x9x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.783 mW/g</p> <p>Towards phantom - Middle GPRS/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 22.4 V/m; Power Drift = -0.029 dB Peak SAR (extrapolated) = 0.991 W/kg SAR(1 g) = 0.745 mW/g; SAR(10 g) = 0.531 mW/g Maximum value of SAR (measured) = 0.794 mW/g</p> <div data-bbox="245 1308 1342 1899"> </div> <p>0 dB = 0.794mW/g</p>		

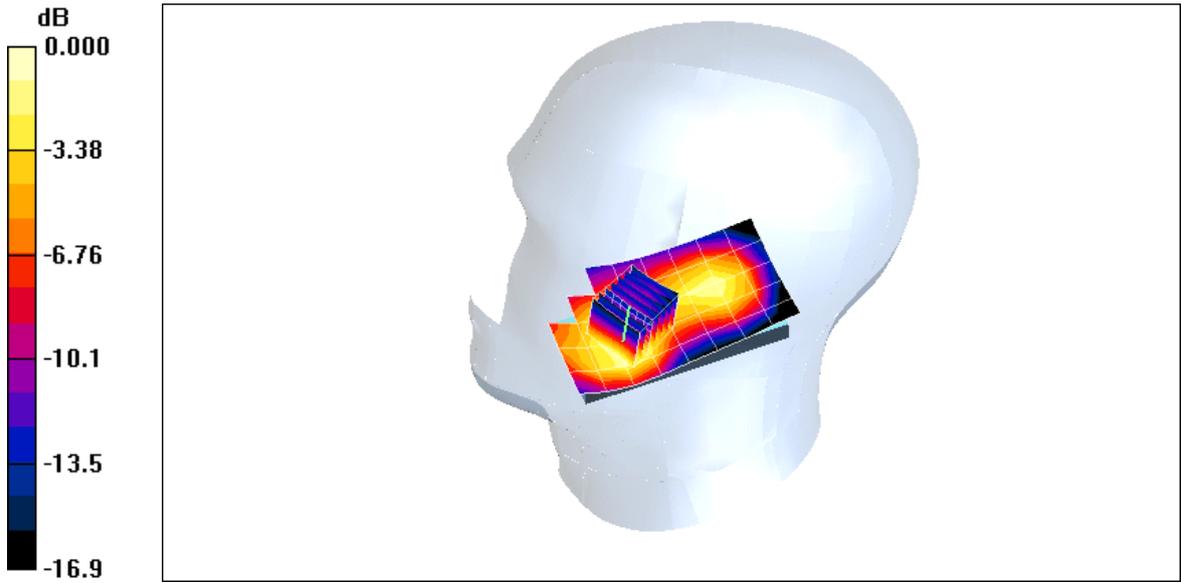
FLAT	Towards phantom	848.8 MHz
<p>Communication System: GSM 850; Frequency: 848.8 MHz; Duty Cycle: 1:8.3 Medium parameters used (interpolated): $f = 848.8$ MHz; $\sigma = 0.969$ mho/m; $\epsilon_r = 55.8$; $\rho = 1000$ kg/m³ Phantom section: Flat Section</p> <p>DASY4 Configuration: - Probe: ES3DV3 - SN3128; ConvF(7.149, 7.54, 7.336); Calibrated: 2/3/2012 - Sensor-Surface: 4mm (Mechanical Surface Detection) - Electronics: DAE4 Sn720; Calibrated: 2/7/2012 - Phantom: SAM 1560; Type: SAM; Serial: 1560 - Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186</p> <p>Towards phantom - High GPRS/Area Scan (6x9x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.940 mW/g</p> <p>Towards phantom - High GPRS/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 26.9 V/m; Power Drift = -0.105 dB Peak SAR (extrapolated) = 1.18 W/kg SAR(1 g) = 0.887 mW/g; SAR(10 g) = 0.632 mW/g Maximum value of SAR (measured) = 0.943 mW/g</p> <div data-bbox="236 1339 1356 1948"> </div> <p>0 dB = 0.943mW/g</p>		



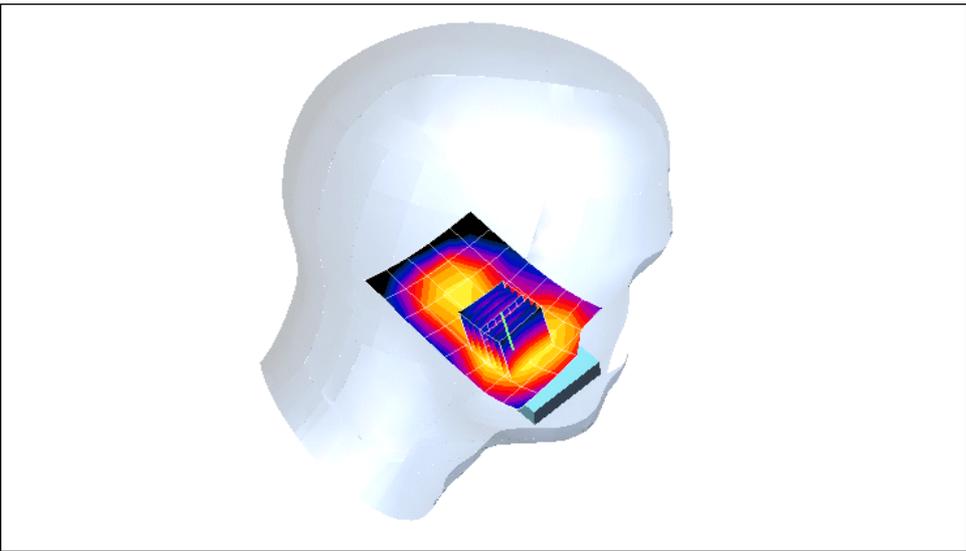
Z-Scan at power reference point (850 MHz CH251)

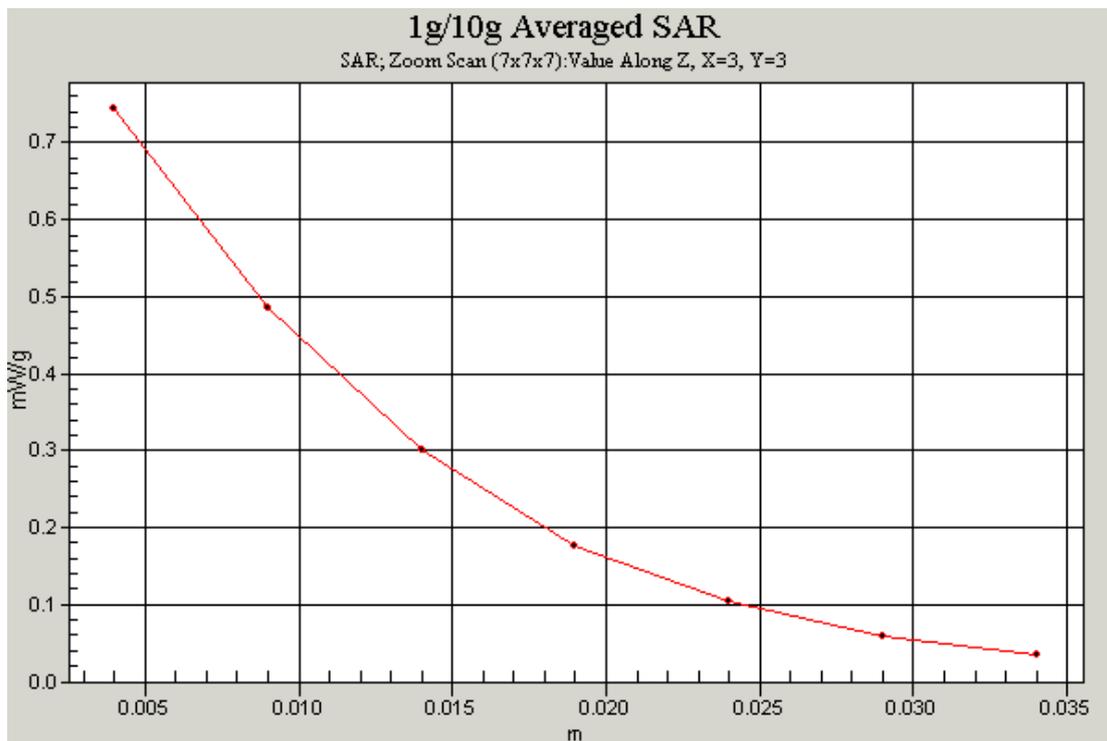
FLAT	Towards ground	836.4 MHz
<p>Communication System: GSM 850; Frequency: 836.4 MHz; Duty Cycle: 1:8.3 Medium parameters used: $f = 836.41$ MHz; $\sigma = 0.96$ mho/m; $\epsilon_r = 55.9$; $\rho = 1000$ kg/m³ Phantom section: Flat Section</p> <p>DASY4 Configuration: - Probe: ES3DV3 - SN3128; ConvF(7.149, 7.54, 7.336); Calibrated: 2/3/2012 - Sensor-Surface: 4mm (Mechanical Surface Detection) - Electronics: DAE4 Sn720; Calibrated: 2/7/2012 - Phantom: SAM 1560; Type: SAM; Serial: 1560 - Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186</p> <p>Towards ground - Middle GPRS/Area Scan (6x9x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.773 mW/g</p> <p>Towards ground - Middle GPRS/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 23.1 V/m; Power Drift = -0.088 dB Peak SAR (extrapolated) = 1.01 W/kg SAR(1 g) = 0.744 mW/g; SAR(10 g) = 0.525 mW/g Maximum value of SAR (measured) = 0.798 mW/g</p> <div data-bbox="220 1294 1369 1870"> </div>		

GSM (1900MHz/Head)

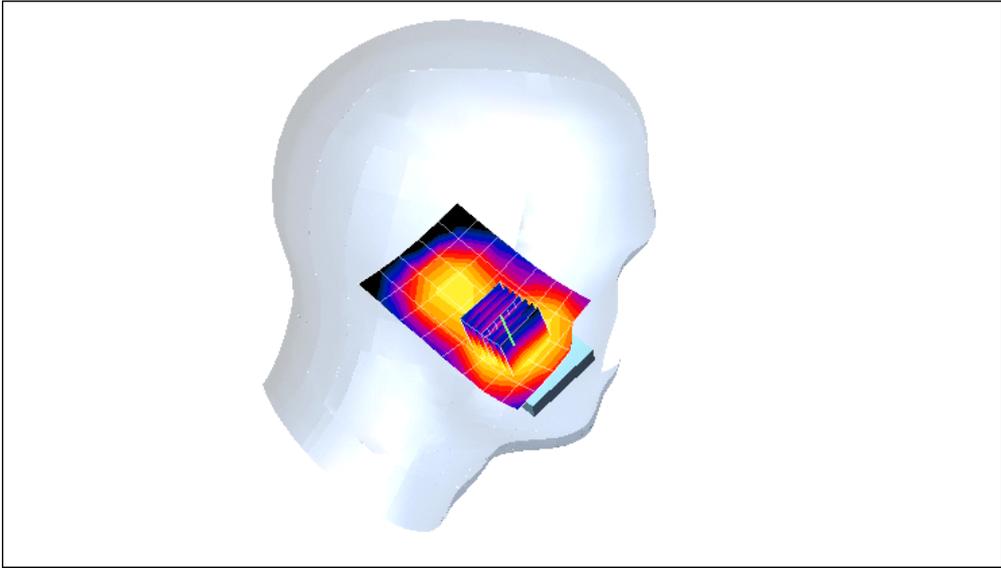
Right Side	Cheek	1880.0 MHz
<p>Communication System: PCS1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3 Medium parameters used (interpolated): $f = 1880$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 38.5$; $\rho = 1500$ kg/m³ Phantom section: Right Section</p> <p>DASY4 Configuration: - Probe: ES3DV3 - SN3128; ConvF(5.438, 5.759, 5.595); Calibrated: 2/3/2012 - Sensor-Surface: 4mm (Mechanical Surface Detection) - Electronics: DAE4 Sn720; Calibrated: 2/7/2012 - Phantom: SAM 1559; Type: SAM; Serial: 1559 - Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186</p> <p>Touch position - Middle/Area Scan (6x9x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.609 mW/g</p> <p>Touch position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 21.1 V/m; Power Drift = 0.011 dB Peak SAR (extrapolated) = 1.00 W/kg SAR(1 g) = 0.672 mW/g; SAR(10 g) = 0.418 mW/g Maximum value of SAR (measured) = 0.690 mW/g</p>		
 <p>0 dB = 0.690mW/g</p>		

Right Side	Tilt	1880.0 MHz
<p>Communication System: PCS1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3 Medium parameters used (interpolated): $f = 1880$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 38.5$; $\rho = 1500$ kg/m³ Phantom section: Right Section</p> <p>DASY4 Configuration: - Probe: ES3DV3 - SN3128; ConvF(5.438, 5.759, 5.595); Calibrated: 2/3/2012 - Sensor-Surface: 4mm (Mechanical Surface Detection) - Electronics: DAE4 Sn720; Calibrated: 2/7/2012 - Phantom: SAM 1559; Type: SAM; Serial: 1559 - Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186</p> <p>Tilt position - Middle/Area Scan (6x9x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.452 mW/g</p> <p>Tilt position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 21.4 V/m; Power Drift = 0.007 dB Peak SAR (extrapolated) = 0.686 W/kg SAR(1 g) = 0.458 mW/g; SAR(10 g) = 0.284 mW/g Maximum value of SAR (measured) = 0.468 mW/g</p> <div data-bbox="220 1310 1369 1877"> </div> <p>0 dB = 0.468mW/g</p>		

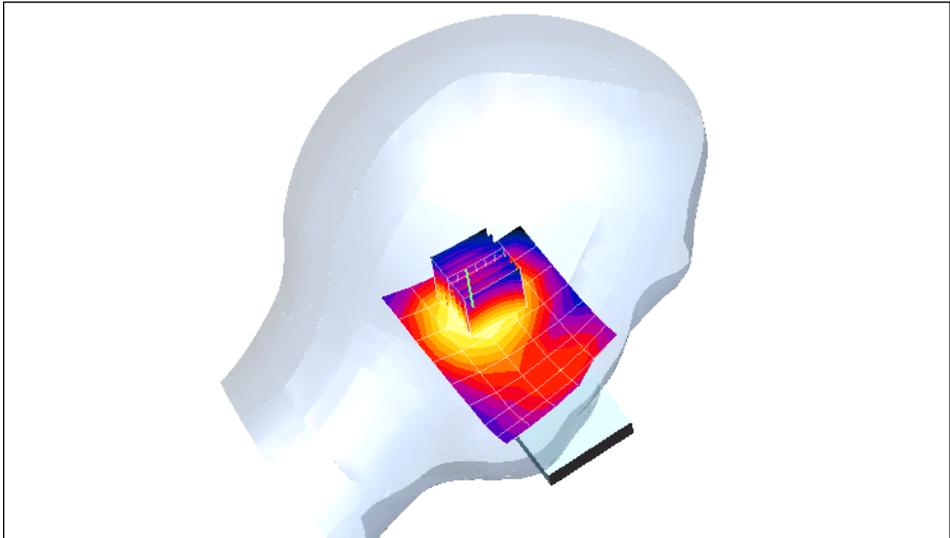
Left Side	Cheek	1850.2 MHz
<p>Communication System: PCS1900; Frequency: 1850.2 MHz; Duty Cycle: 1:8.3 Medium parameters used (interpolated): $f = 1850.2$ MHz; $\sigma = 1.41$ mho/m; $\epsilon_r = 38.6$; $\rho = 1500$ kg/m³ Phantom section: Left Section</p> <p>DASY4 Configuration: - Probe: ES3DV3 - SN3128; ConvF(5.438, 5.759, 5.595); Calibrated: 2/3/2012 - Sensor-Surface: 4mm (Mechanical Surface Detection) - Electronics: DAE4 Sn720; Calibrated: 2/7/2012 - Phantom: SAM 1559; Type: SAM; Serial: 1559 - Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186</p> <p>Touch position - Low/Area Scan (6x9x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.751 mW/g</p> <p>Touch position - Low/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 19.9 V/m; Power Drift = -0.104 dB Peak SAR (extrapolated) = 1.02 W/kg SAR(1 g) = 0.720 mW/g; SAR(10 g) = 0.444 mW/g Maximum value of SAR (measured) = 0.744 mW/g</p>		
<div style="display: flex; align-items: center;"> <div style="margin-right: 20px;"> <p>dB</p> <p>0.000</p> <p>-3.40</p> <p>-6.80</p> <p>-10.2</p> <p>-13.6</p> <p>-17.0</p> </div>  </div> <p style="text-align: center;">0 dB = 0.744mW/g</p>		



Z-Scan at power reference point (1900 MHz CH512)

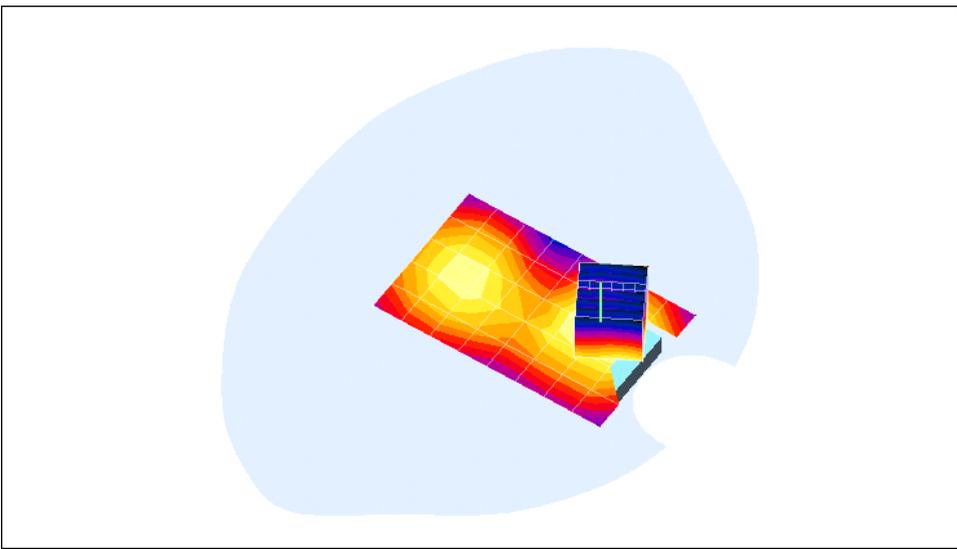
Left Side	Cheek	1880.0 MHz
<p>Communication System: PCS1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3 Medium parameters used (interpolated): $f = 1880$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 38.5$; $\rho = 1500$ kg/m³ Phantom section: Left Section</p> <p>DASY4 Configuration: - Probe: ES3DV3 - SN3128; ConvF(5.438, 5.759, 5.595); Calibrated: 2/3/2012 - Sensor-Surface: 4mm (Mechanical Surface Detection) - Electronics: DAE4 Sn720; Calibrated: 2/7/2012 - Phantom: SAM 1559; Type: SAM; Serial: 1559 - Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186</p> <p>Touch position - Middle/Area Scan (6x9x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.662 mW/g</p> <p>Touch position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 18.4 V/m; Power Drift = 0.093 dB Peak SAR (extrapolated) = 1.04 W/kg SAR(1 g) = 0.719 mW/g; SAR(10 g) = 0.443 mW/g Maximum value of SAR (measured) = 0.754 mW/g</p>		
<div style="display: flex; align-items: center;"> <div style="margin-right: 20px;"> <p>dB</p> <p>0.000</p> <p>-3.64</p> <p>-7.28</p> <p>-10.9</p> <p>-14.6</p> <p>-18.2</p> </div>  </div> <p style="text-align: center;">0 dB = 0.754mW/g</p>		

Left Side	Cheek	1909.8 MHz
<p>Communication System: PCS1900; Frequency: 1909.8 MHz; Duty Cycle: 1:8.3 Medium parameters used: $f = 1910.2$ MHz; $\sigma = 1.46$ mho/m; $\epsilon_r = 38.5$; $\rho = 1500$ kg/m³ Phantom section: Left Section</p> <p>DASY4 Configuration: - Probe: ES3DV3 - SN3128; ConvF(5.438, 5.759, 5.595); Calibrated: 2/3/2012 - Sensor-Surface: 4mm (Mechanical Surface Detection) - Electronics: DAE4 Sn720; Calibrated: 2/7/2012 - Phantom: SAM 1559; Type: SAM; Serial: 1559 - Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186</p> <p>Touch position - High/Area Scan (6x9x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.656 mW/g</p> <p>Touch position - High/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 18.6 V/m; Power Drift = -0.099 dB Peak SAR (extrapolated) = 1.01 W/kg SAR(1 g) = 0.685 mW/g; SAR(10 g) = 0.412 mW/g Maximum value of SAR (measured) = 0.704 mW/g</p> <div data-bbox="207 1232 1380 1814"> </div>		

Left Side	Tilt	1880.0 MHz
<p>Communication System: PCS1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3 Medium parameters used (interpolated): $f = 1880$ MHz; $\sigma = 1.44$ mho/m; $\epsilon_r = 38.5$; $\rho = 1500$ kg/m³ Phantom section: Left Section</p> <p>DASY4 Configuration: - Probe: ES3DV3 - SN3128; ConvF(5.438, 5.759, 5.595); Calibrated: 2/3/2012 - Sensor-Surface: 4mm (Mechanical Surface Detection) - Electronics: DAE4 Sn720; Calibrated: 2/7/2012 - Phantom: SAM 1559; Type: SAM; Serial: 1559 - Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186</p> <p>Tilt position - Middle/Area Scan (6x9x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.387 mW/g</p> <p>Tilt position - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 20.1 V/m; Power Drift = -0.015 dB Peak SAR (extrapolated) = 0.568 W/kg SAR(1 g) = 0.392 mW/g; SAR(10 g) = 0.247 mW/g Maximum value of SAR (measured) = 0.405 mW/g</p>		
<div style="display: flex; align-items: center;"> <div style="margin-right: 20px;"> <p>dB</p> <p>0.000</p> <p>-3.84</p> <p>-7.68</p> <p>-11.5</p> <p>-15.4</p> <p>-19.2</p> </div>  </div> <p style="text-align: center;">0 dB = 0.405mW/g</p>		

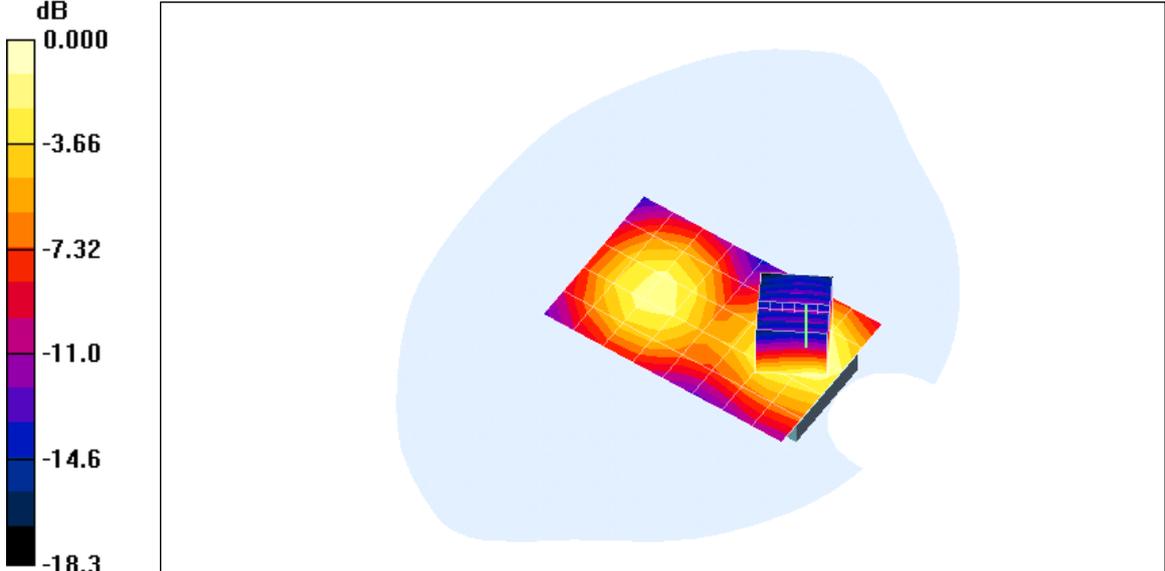
GSM with headset (1900MHz/Flat)

FLAT	Towards ground	1880 MHz
<p>Communication System: PCS1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 53.5$; $\rho = 1000$ kg/m³ Phantom section: Flat Section</p> <p>DASY4 Configuration: - Probe: ES3DV3 - SN3128; ConvF(5.271, 5.584, 5.501); Calibrated: 2/3/2012 - Sensor-Surface: 4mm (Mechanical Surface Detection) - Electronics: DAE4 Sn720; Calibrated: 2/7/2012 - Phantom: SAM 1559; Type: SAM; Serial: 1559 - Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186</p> <p>Towards ground- Middle/Area Scan (6x9x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.326 mW/g</p> <p>Towards ground- Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 8.68 V/m; Power Drift = 0.128 dB Peak SAR (extrapolated) = 0.534 W/kg SAR(1 g) = 0.320 mW/g; SAR(10 g) = 0.183 mW/g Maximum value of SAR (measured) = 0.353 mW/g</p> <div data-bbox="236 1305 1356 1859"> </div>		

FLAT	Towards phantom	1880 MHz
<p>Communication System: PCS1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 53.5$; $\rho = 1000$ kg/m³ Phantom section: Flat Section</p> <p>DASY4 Configuration: - Probe: ES3DV3 - SN3128; ConvF(5.271, 5.584, 5.501); Calibrated: 2/3/2012 - Sensor-Surface: 4mm (Mechanical Surface Detection) - Electronics: DAE4 Sn720; Calibrated: 2/7/2012 - Phantom: SAM 1559; Type: SAM; Serial: 1559 - Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186</p> <p>Towards phantom - Middle/Area Scan (6x9x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.337 mW/g</p> <p>Towards phantom - Middle/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 10.9 V/m; Power Drift = 0.030 dB Peak SAR (extrapolated) = 0.533 W/kg SAR(1 g) = 0.312 mW/g; SAR(10 g) = 0.175 mW/g Maximum value of SAR (measured) = 0.342 mW/g</p>		
<div style="display: flex; align-items: center;"> <div style="margin-right: 20px;"> <p>dB</p> <p>0.000</p> <p>-3.46</p> <p>-6.92</p> <p>-10.4</p> <p>-13.8</p> <p>-17.3</p> </div>  </div> <p style="text-align: center;">0 dB = 0.342mW/g</p>		

GPRS (1900MHz/Flat)

FLAT	Towards ground	1880 MHz
<p>Communication System: PCS1900; Frequency: 1880 MHz; Duty Cycle: 1:8.3 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 53.5$; $\rho = 1000$ kg/m³ Phantom section: Flat Section</p> <p>DASY4 Configuration: - Probe: ES3DV3 - SN3128; ConvF(5.271, 5.584, 5.501); Calibrated: 2/3/2012 - Sensor-Surface: 4mm (Mechanical Surface Detection) - Electronics: DAE4 Sn720; Calibrated: 2/7/2012 - Phantom: SAM 1559; Type: SAM; Serial: 1559 - Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186</p> <p>Towards ground- Middle GPRS/Area Scan (6x9x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.553 mW/g</p> <p>Towards ground- Middle GPRS/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 12.3 V/m; Power Drift = 0.101 dB Peak SAR (extrapolated) = 0.877 W/kg SAR(1 g) = 0.527 mW/g; SAR(10 g) = 0.300 mW/g Maximum value of SAR (measured) = 0.580 mW/g</p> <div data-bbox="215 1339 1375 1915"> </div>		

FLAT	Towards phantom	1880 MHz
<p>Communication System: PCS1900; Frequency: 1880 MHz;Duty Cycle: 1:8.3 Medium parameters used: $f = 1880$ MHz; $\sigma = 1.57$ mho/m; $\epsilon_r = 53.5$; $\rho = 1000$ kg/m³ Phantom section: Flat Section</p>		
<p>DASY4 Configuration: - Probe: ES3DV3 - SN3128; ConvF(5.271, 5.584, 5.501); Calibrated: 2/3/2012 - Sensor-Surface: 4mm (Mechanical Surface Detection) - Electronics: DAE4 Sn720; Calibrated: 2/7/2012 - Phantom: SAM 1559; Type: SAM; Serial: 1559 - Measurement SW: DASY4, V4.7 Build 80; Postprocessing SW: SEMCAD, V1.8 Build 186</p>		
<p>Towards phantom- Middle GPRS/Area Scan (6x9x1): Measurement grid: dx=15mm, dy=15mm Maximum value of SAR (measured) = 0.516 mW/g</p>		
<p>Towards phantom- Middle GPRS/Zoom Scan (7x7x7) (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm Reference Value = 13.8 V/m; Power Drift = 0.089 dB Peak SAR (extrapolated) = 0.887 W/kg SAR(1 g) = 0.511 mW/g; SAR(10 g) = 0.288 mW/g Maximum value of SAR (measured) = 0.558 mW/g</p>		
		
<p>0 dB = 0.558mW/g</p>		

APPENDIX C: RELEVANT PAGES FROM PROBE CALIBRATION REPORT(S)

The State Radio_monitoring_center Testing Center

Calibration Certificate



Instrument Dosimetric E-field Probe

Type/Model ES3DV3

Manufacturer Schmid & Partner Engineering AG

Serial No SN:3128

Name of Client The State Radio_monitoring_center Testing Center

Address of Client No.80 Bei Lishi Road XiCheng District

Calibration Date 2012.2.3

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

Approved by  

Tel: +86-10-68009202 68009203 Fax: +86-10-68009205 68009195
Add: No.80 Bei Lishi Road, Xi Cheng District Beijing 100037, P.R.China

Page 1 of 6 Certificate No.SRTC2012-CAL002-001

The State Radio_monitoring_center Testing Center

Reference documents of the measurement(Code, Name)	
SRTC3003-V1.0.0 Working procedure for calibration——SAR testing system	
Place and environmental condition of the measurement	
Temperature 23.8℃	Humidity 38.2%
Location SRTC226 room	

Primary Calibration Equipment used	Model/Type	ID#	Cal Date	Scheduled Calibration
Power meter	E4417A	SN: MY45101004	2011.8	2012.8
Power sensor	E9300B	SN: MY41496001	2011.8	2012.8
Power sensor	E9300B	SN: MY41496003	2011.8	2012.8
Reference DAE	DAE4	SN: 725	2011.10	2012.10
Signal generator	SML03	SN:103514	2010.8	2012.8
Network analyzer	8714ET	SN:US40372083	2011.8	2012.8
Secondary Calibration Equipment used	Model/Type	ID#		
Waveguide	WGLS R9	SN:1006		
Waveguide	WGLS R14	SN:1003		
Waveguide	WGLS R22	SN:1006		

The State Radio_monitoring_center Testing Center

Note:

1. 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.

2. This calibration certificate is not permitted to be reproduced except in full without written the approval of the only laboratory.

3. SRTC is responsible for the whole of certificate only with stamp of SRTC.

4. The calibration results would be valid only for the items calibration.

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Glossary

TSL	Tissue Simulating Liquid
NORM _{x, y, z}	The sensitivity in free space
ConvF	The sensitivity of the TSL/The sensitivity in free space
DCP	Diode Compression Point
Angle φ	φ rotation around probe axis
Angle θ	θ rotation around an axis that is in the plane normal to probe axis i.e. $\theta=0$, means that is normal to probe axis

Calibration is preformed according to the Following Standards

IEEE Std 1528-2003

IEC 62209-1-2005

Federal Communication Commission Office of Engineering & Technology (FCC OET)

Methods Applied and Interpretation of Parameters

- NORM_{x, y, z}: Assessed for E-field polarization $\theta=0$ for XY sensors and $\theta=90$ for Z sensor
- NORM(f)_{x, y, z}= NORM_{x, y, z} * frequency_response. And this linearization is implemented in DASY4 software versions later than 4.2. The uncertainty of the frequency response is included in the states uncertainty of ConvF.
- DCP_{x,y,z}: DCP are numerical linearization parameters assessed based on the data of power sweep(no uncertainty required). DCP does not depend on frequency and medium.
- ConvF and boundary effect: Assessed in flat phantom using E-field and inside waveguide using analytical field distributions based on power measurements for $f > 800\text{MHz}$.The same setups are used for assessment of the parameters applied for boundary compensation(alpha,depth)of which typical uncertainty values are given. A frequency dependent ConvF is used in DASY version 4.4 and higher which allows extending the validity from $\pm 50\text{MHz}$ to $\pm 100\text{MHz}$.
- Spherical isotropy: in a locally homogeneous field realized using an open waveguide setup.

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The State Radio_monitoring_center Testing Center

Measurement Conditions

DASY versions	DSAY 5	V52.8.0.692
Model	Flat phantom	—

Probe Sensitivity Parameters

	Value	Unit
Axis X	1.00	$\mu V / (V / m)^2$
Axis Y	1.00	$\mu V / (V / m)^2$
Axis Z	1.00	$\mu V / (V / m)^2$

1. Diode Compression Point

	Value	Unit	Uncertainty (k=2)
Axis X	100.0	mV	10.82%
Axis Y	100.6	mV	10.82%
Axis Z	100.7	mV	10.82%

2. Probe Conversion Factors: Head Tissue Liquid

Frequency (MHz)	Validity (MHz)	Permittivity	Conductivity (mho/m)	Alpha	Depth (mm)	ConvFx/ ConvFy / ConvFz $\mu V / (V / m)^2$			Uncertainty (k = 2)
900	±100	42.72	0.968	0.411	1.582	7.375	7.783	7.540	13.02%
1800	±100	39.61	1.354	0.386	1.760	5.767	6.013	5.888	13.02%
1900	±100	39.11	1.463	0.313	2.161	5.438	5.759	5.595	13.02%
2450	±100	38.30	1.890	0.406	1.755	3.770	3.979	3.882	13.02%

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3. Probe Conversion Factors: Body Tissue Liquid

Frequency (MHz)	Validity (MHz)	Permittivity	Conductivity (mho/m)	Alpha	Depth (mm)	ConvFx/ ConvFy/ConvFz $\mu V/(V/m)^2$			Uncertainty (k=2)
900	±100	54.48	1.055	0.405	1.643	7.149	7.540	7.336	13.02%
1800	±100	53.74	1.567	0.370	2.095	6.056	6.383	6.220	13.02%
1900	±100	53.40	1.679	0.301	2.577	5.271	5.584	5.501	13.02%
2450	±100	52.70	1.950	0.494	1.585	3.783	4.000	3.888	13.02%

4. Probe Isotropy

	Value	Unit	Uncertainty(k=2)
Axial Isotropy	-0.18	dB	10.18%
Spherical Isotropy	-0.20	dB	10.18%

Calibrated by 张赫佐

Checked by 刘佳