

SAR Compliance Test Report

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Measurements made by:	Lili Nie		
Tested device:	RH-49		
FCC ID:	PPIRH-49	IC:	661U-RH-49
Supplement reports:	-		
Testing has been carried out in accordance with:	47CFR §2.1093 Radiofrequency Radiation Exposure Evaluation: Portable Devices FCC OET Bulletin 65 (Edition 97-01), Supplement C (Edition 01-01) Evaluating Compliance with FCC Guidelines for Human Exposure to Radiofrequency Electromagnetic Fields RSS-102 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 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		
Documentation:	The documentation of the testing performed on the tested devices is archived for 15 years at TCC Copenhagen.		
Test results:	The tested device complies with the requirements in respect of all parameters subject to the test. The test results and statements relate only to the items tested. The test report shall not be reproduced except in full, without written approval of the laboratory.		
Date and signatures:	June 21, 2004		
For the contents:	 Leif Funch Klysner Test Engineer		

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1. SUMMARY OF SAR TEST REPORT

1.1 Test Details

Period of test	June 4, 2004 to June 10, 2004
SN, HW and SW numbers of tested device	IMEI: 004400/28/179308/1 HW: 4115 SW: 3.06.1 DUT#234062
Batteries used in testing	BL-5B, DUT#234063, DUT#234064, DUT#234065
Headsets used in testing	Loopset, LPS-4 DUT#233864
Other accessories used in testing	Active Back cover DUT#233865
State of sample	Prototype unit
Notes	

1.2 Maximum Results

The maximum measured SAR values for Head configuration and Body Worn configuration are given in section 1.2.1 and 1.2.2 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.

1.2.1 Head Configuration

Mode	Ch / f (MHz)	ERP	Position	SAR limit (1g avg)	Measured SAR value (1g avg)	Result
GSM850	251 / 848.8	28.65 dBm	Left, Cheek	1.6 W/kg	1.01 W/kg	PASSED

Mode	Ch / f (MHz)	EIRP	Position	SAR limit (1g avg)	Measured SAR value (1g avg)	Result
GSM1900	661 / 1880.0	26.51 dBm	Left, Cheek	1.6 W/kg	0.67 W/kg	PASSED

1.2.2 Body Worn Configuration

Mode	Ch / f (MHz)	ERP	Separation distance	SAR limit (1g avg)	Measured SAR value (1g avg)	Result
GPRS850	190 / 836.6	24.40 dBm	2.2 cm	1.6 W/kg	0.59 W/kg	PASSED

Mode	Ch / f (MHz)	EIRP	Separation distance	SAR limit (1g avg)	Measured SAR value (1g avg)	Result
GPRS1900	810 / 1909.8	24.47 dBm	2.2 cm	1.6 W/kg	1.04 W/kg	PASSED

1.2.3 Maximum Drift

Maximum drift during measurements	0.40 dB
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1.2.4 Measurement Uncertainty

Extended Uncertainty (k=2) 95%	± 29.1 %
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2. DESCRIPTION OF THE DEVICE UNDER TEST

Device category	Portable
Exposure environment	General population

Modes and Bands of Operation	GSM 850	GSM 1900	GPRS (GSM)	EGPRS(EDGE)
Modulation Mode	GMSK	GMSK	GMSK	8PSK
Duty Cycle	1/8	1/8	1/8 or 2/8	
Transmitter Frequency Range (MHz)	824.2 – 848.8	1850.2 - 1909.8	824.2 – 848.8 / 1850.2 - 1909.8	824.2 – 848.8 / 1850.2 - 1909.8

Outside of USA and Canada, the transmitter of the device is capable of operating also in GSM1800, which are not part of this filing.

2.1 Picture of the Device



2.2 Description of the Antenna

The device has an internal PIFA antenna.

3. TEST CONDITIONS

3.1 Temperature and Humidity

Period of measurement:	June 4, 2004 to June 10, 2004
Ambient temperature (°C):	22 ±1
Ambient humidity (RH %):	45 ±10

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.

The power output was measured by a separate test laboratory on the same unit as used for SAR testing.

4. DESCRIPTION OF THE TEST EQUIPMENT

4.1 Measurement System and Components

The measurements were performed using an automated near-field scanning system, DASY 3 software version 3.1d, manufactured by Schmid & Partner Engineering AG (SPEAG) in Switzerland. The SAR extrapolation algorithm used in all measurements on the device was the 'worst-case extrapolation' algorithm.

The following table lists calibration dates of SPEAG components:

Test Equipment	Serial Number	Calibration interval	Calibration expiry
DASY3 DAE V1	501	12 months	01/2005
E-field Probe ET3DV6R	1429	12 months	01/2005
Dipole Validation Kit, D835V2	476	24 months	02/2005
Dipole Validation Kit, D1900V2	5d026	24 months	02/2005

Additional test equipment used in testing:

Test Equipment	Model	Serial Number	Calibration interval	Calibration expiry
Signal Generator	SMIQ03B	826046/034	36 months	02/2007
Amplifier	ZHL-42W	E012903	-	-
Power Meter	NRVD	840297/008	24 months	11/2005
Power Sensor	NRV-Z51	100184	24 months	11/2005
Call Tester	4400M	0411216	-	-
Vector Network Analyzer	AT8753ES	MY40001091	12 months	09/2004
Dielectric Probe Kit	HP85070B	US33020403	-	-

4.1.1 Isotropic E-field Probe 1429

Construction	Symmetrical design with triangular core Built-in shielding against static charges PEEK enclosure material (resistant to organic solvents, e.g., butyl diglycol)
Calibration	Calibration certificate in Appendix C
Frequency	10 MHz to 3 GHz (dosimetry); Linearity: ± 0.2 dB (30 MHz to 3 GHz)
Directivity	± 0.2 dB in HSL (rotation around probe axis) ± 0.4 dB in HSL (rotation normal to probe axis)
Dynamic Range	5 μ W/g to > 100 mW/g; Linearity: ± 0.2 dB
Dimensions	Overall length: 330 mm Tip length: 16 mm Body diameter: 12 mm Tip diameter: 6.8 mm
Application	Distance from probe tip to dipole centers: 2.7 mm General dosimetry up to 3 GHz Compliance tests of mobile phones Fast automatic scanning in arbitrary phantoms

4.2 Phantoms

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

Validation tests were 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 Simulating Liquids

Recommended values for the dielectric parameters of the simulating liquids are given in IEEE 1528 - 2003 and FCC Supplement C to OET Bulletin 65. All tests were carried out using liquids 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 liquid was 15.0 ± 0.5 cm measured from the ear reference point during validation and device measurements.

4.3.1 Liquid Recipes

The following recipes were used for Head and Body liquids:

800MHz band

Ingredient	Head (% by weight)	Body (% by weight)
Deionised Water	45.43	64.78
Diacetin	53.31	34.28
Salt	1.13	0.79
Preservative	0.12	0.15

1900MHz band

Ingredient	Head (% by weight)	Body (% by weight)
Deionised Water	54.88	69.02
Butyl Diglycol	44.91	30.76
Salt	0.21	0.22

4.3.2 Verification of the System

The manufacturer calibrates the probes annually. Dielectric parameters of the simulating liquids were measured every day using the dielectric probe kit and the network analyser. A SAR measurement was made following the determination of the dielectric parameters of the liquids, 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 validation results (dielectric parameters and SAR values) are given in the table below.

System verification, head tissue simulant

<i>f</i> [MHz]	Description	SAR [W/kg], 1g	Dielectric Parameters		Temp [°C]
			ϵ_r	σ [S/m]	
835	Reference result	2.41	41.5	0.89	N/A
	± 10% window	2.17 – 2.65			
	June 4, 2004	2.61	40.7	0.93	22 ±1
1900	Reference result	10.4	38.6	1.46	N/A
	± 10% window	9.4 – 11.4			
	June 4, 2004	9.80	38.4	1.49	22 ±1
	June 7, 2004	10.0	38.8	1.48	22 ±1

System verification, body tissue simulant

<i>f</i> [MHz]	Description	SAR [W/kg], 1g	Dielectric Parameters		Temp [°C]
			ϵ_r	σ [S/m]	
835	Reference result	2.53	54.0	0.96	N/A
	± 10% window	2.28 – 2.78			
	June 9, 2004	2.45	55.9	0.98	22 ±1
	June 10, 2004	2.53	55.9	0.99	22 ±1
1900	Reference result	10.6	51.2	1.59	N/A
	± 10% window	9.5 – 11.7			
	June 8, 2004	10.2	51.1	1.58	22 ±1
	June 9, 2004	10.3	51.1	1.59	22 ±1

Plots of the Verification scans are given in Appendix A.

4.3.3 Tissue Simulants used in the Measurements

Head tissue simulant measurements

f [MHz]	Description	Dielectric Parameters		Temp [°C]
		ϵ_r	σ [S/m]	
836	Recommended value	41.5	0.90	N/A
	$\pm 5\%$ window	39.4 – 43.6	0.86 – 0.95	
	June 4, 2004	40.7	0.93	22 $\pm$ 1
1880	Recommended value	40.0	1.40	N/A
	$\pm 5\%$ window	38.0 – 42.0	1.33 – 1.47	
	June 4, 2004	38.5	1.47	22 $\pm$ 1
	June 7, 2004	38.8	1.46	22 $\pm$ 1

Body tissue simulant measurements

f [MHz]	Description	Dielectric Parameters		Temp [°C]
		ϵ_r	σ [S/m]	
836	Recommended value	55.2	0.97	N/A
	$\pm 5\%$ window	52.4 – 58.0	0.92 – 1.02	
	June 9, 2004	55.9	0.98	22 $\pm$ 1
	June 10, 2004	55.9	0.99	22 $\pm$ 1
1880	Recommended value	53.3	1.52	N/A
	$\pm 5\%$ window	50.6 – 56.0	1.44 – 1.60	
	June 8, 2004	51.1	1.58	22 $\pm$ 1
	June 9, 2004	51.1	1.57	22 $\pm$ 1

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

A Nokia designed spacer (illustrated below) was used to position the device within the SPEAG holder. The spacer positions the device so that the holder has minimal effect on the test results but still holds the device securely. The spacer was removed before the tests.



Nokia spacer

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".



Photo of the device in “cheek” position



Photo of the device in “tilt” position

5.2.2 Body Worn Configuration

The device was placed in the SPEAG holder using the Nokia spacer and placed below the flat section of the phantom. The distance between the device and the phantom was kept at the separation distance indicated in the photo below 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 gave higher results.



Photo of the device positioned for Body SAR measurement. The spacer was removed for the tests.

5.3 Scan Procedures

First coarse scans were used for determination of the field distribution. Next a cube scan, 5x5x7 points covering a volume of 32x32x30mm 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 coarse scan and again at the end of the cube scan.

5.4 SAR Averaging Methods

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

The interpolation of the points was done with a 3d-Spline. The 3d-Spline comprised three one-dimensional splines with the "Not a knot" -condition [W. Gander, Computermathematik, p. 141-150] (x, y and z -directions) [Numerical Recipes in C, Second Edition, p 123].

The extrapolation was based on least square algorithm [W. Gander, Computermathematik, p.168-180]. Through the points in the first 30 mm in all z-axis, a fourth order polynomial was calculated. This polynomial was then used to evaluate the points between the phantom surface and the probe tip. The points, calculated from the phantom surface, were at 1mm spacing.

6. MEASUREMENT UNCERTAINTY

Table 6.1 – Measurement uncertainty evaluation

Uncertainty Component	Section in IEEE 1528	Tol. (%)	Prob Dist	Div	G_i	$G_i \cdot U_i$ (%)	V_i
Measurement System							
Probe Calibration	E2.1	±4.8	N	1	1	±4.8	∞
Axial Isotropy	E2.2	±4.7	R	√3	$(1-c_p)^{1/2}$	±1.9	∞
Hemispherical Isotropy	E2.2	±9.6	R	√3	$(c_p)^{1/2}$	±3.9	∞
Boundary Effect	E2.3	±8.3	R	√3	1	±4.8	∞
Linearity	E2.4	±4.7	R	√3	1	±2.7	∞
System Detection Limits	E2.5	±1.0	R	√3	1	±0.6	∞
Readout Electronics	E2.6	±1.0	N	1	1	±1.0	∞
Response Time	E2.7	±0.8	R	√3	1	±0.5	∞
Integration Time	E2.8	±2.6	R	√3	1	±1.5	∞
RF Ambient Conditions - Noise	E6.1	±3.0	R	√3	1	±1.7	∞
RF Ambient Conditions - Reflections	E6.1	±3.0	R	√3	1	±1.7	∞
Probe Positioner Mechanical Tolerance	E6.2	±0.4	R	√3	1	±0.2	∞
Probe Positioning with respect to Phantom Shell	E6.3	±2.9	R	√3	1	±1.7	∞
Extrapolation, interpolation and Integration Algorithms for Max. SAR Evaluation	E5.2	±3.9	R	√3	1	±2.3	∞
Test sample Related							
Test Sample Positioning	E4.2.1	±6.0	N	1	1	±6.0	11
Device Holder Uncertainty	E4.1.1	±5.0	N	1	1	±5.0	7
Output Power Variation - SAR drift measurement	6.6.3	±10.0	R	√3	1	±5.8	∞
Phantom and Tissue Parameters							
Phantom Uncertainty (shape and thickness tolerances)	E3.1	±4.0	R	√3	1	±2.3	∞
Liquid Conductivity Target - tolerance	E3.2	±5.0	R	√3	0.64	±1.8	∞
Liquid Conductivity - measurement uncertainty	E3.3	±5.5	N	1	0.64	±3.5	5
Liquid Permittivity Target tolerance	E3.2	±5.0	R	√3	0.6	±1.7	∞
Liquid Permittivity - measurement uncertainty	E3.3	±2.9	N	1	0.6	±1.7	5
Combined Standard Uncertainty			RSS			±14.5	187
Coverage Factor for 95%			k=2				
Expanded Standard Uncertainty						±29.1	

7. RESULTS

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

GSM850 Head SAR results

Position		SAR, averaged over 1g (W/kg)		
		Ch 128 824.2 MHz	Ch 190 897.4 MHz	Ch 251 848.8 MHz
Power level		27.17 dBm	27.95 dBm	28.65 dBm
Left	Cheek	0.62	0.80	1.01
	Tilt		0.47	
Right	Cheek		0.75	
	Tilt		0.40	
Highest SAR Configuration repeated with active back cover		0.56	0.72	0.92

GSM1900 Head SAR results

Position		SAR, averaged over 1g (W/kg)		
		Ch 512 1850.2 MHz	Ch 661 1880.0 MHz	Ch 810 1909.8 MHz
Power level		25.64 dBm	26.51 dBm	26.80 dBm
Left	Cheek	0.61	0.67	0.62
	Tilt		0.45	
Right	Cheek		0.48	
	Tilt		0.39	
Highest SAR Configuration repeated with active back cover		0.50	0.54	0.48

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

GPRS850 Body SAR results

Mode and Band	Body-worn location setup	SAR, averaged over 1g (W/kg)		
		Ch 128 824.2 MHz	Ch 190 897.4 MHz	Ch 251 848.8 MHz
2-slot GPRS850	Powerlevel	23.69 dBm	24.40 dBm	25.29 dBm
	Without headset	0.55	0.59	0.58
	Loopset LPS-4	0.30	0.39	0.34
2-slot GPRS850	Highest SAR Configuration repeated with active back cover	0.40	0.47	0.47
GSM850	Powerlevel	27.17 dBm	27.95 dBm	28.65 dBm
	Without headset	-	0.52	-

GPRS1900 Body SAR results

Mode and Band	Body-worn location setup	SAR, averaged over 1g (W/kg)		
		Ch 512 1850.2 MHz	Ch 661 1880.0 MHz	Ch 810 1909.8 MHz
2-slot GPRS1900	Powerlevel	23.19 dBm	23.97 dBm	24.47 dBm
	Without headset	0.65	0.78	1.04
	Loopset LPS-4	0.65	0.90	1.01
2-slot GPRS1900	Highest SAR Configuration repeated with active back cover	0.43	0.53	0.72
GSM1900	Powerlevel	25.64 dBm	26.51 dBm	26.80 dBm
	Without headset	-	0.77	-

Plots of the Measurement scans are given in Appendix B.

APPENDIX A: VALIDATION SCANS

See the following pages.

Dipole 835 MHz

Continous Wave, 835 MHz; Crest factor: 1.0

Phantom: SAM Low Band; Section:

Medium Name: Head 835 MHz: $\sigma = 0.93 \text{ mho/m}$ $\epsilon_r = 40.7$ $\rho = 1.00 \text{ g/cm}^3$

Probe: ET3DV6R - SN1429; ConvF(6.09,6.09,6.09)

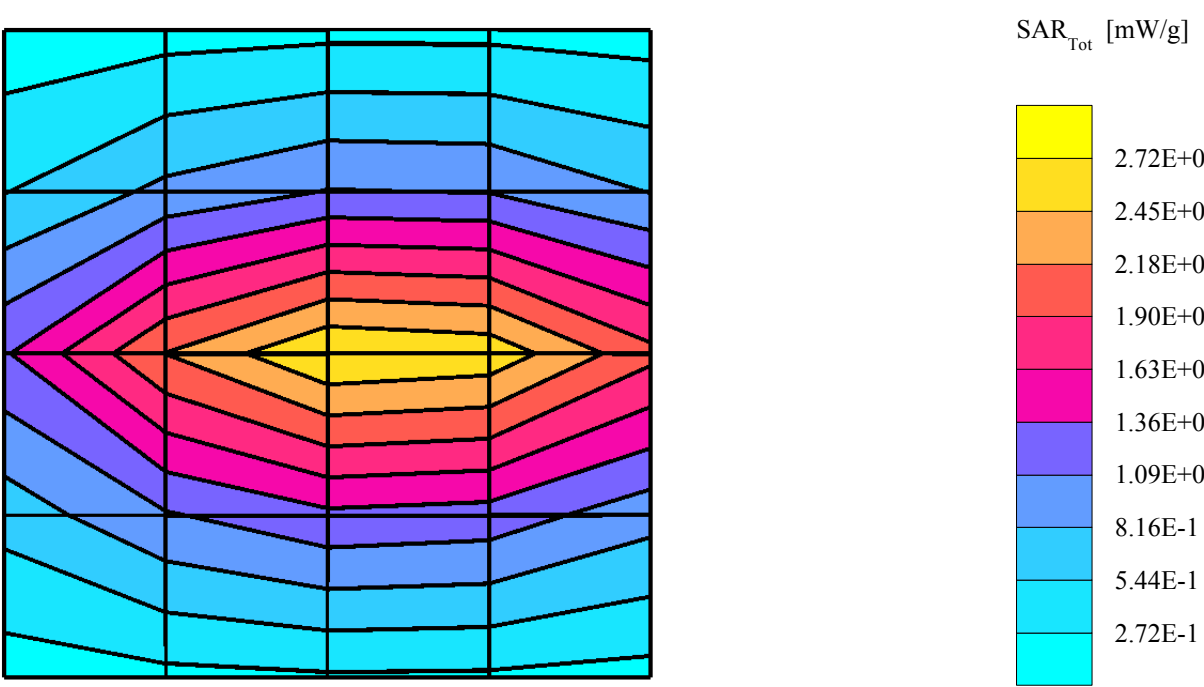
Cube 5x5x7: SAR (1g): 2.61 mW/g, SAR (10g): 1.70 mW/g, (Advanced extrapolation)

Antenna out: Dx = 20.0, Dy = 20.0, Dz = 10.0

Powerdrift: 0.11 dB

Temperature (°C) = 22 ±1

Filename: Head - 04-06-04 - 1



Dipole 1900 MHz

Continous Wave, 1900 MHz; Crest factor: 1.0

Phantom: SAM High Band; Section:

Medium Name: Head 1900 MHz: $\sigma = 1.49 \text{ mho/m}$ $\epsilon_r = 38.4$ $\rho = 1.00 \text{ g/cm}^3$

Probe: ET3DV6R - SN1429; ConvF(4.87,4.87,4.87)

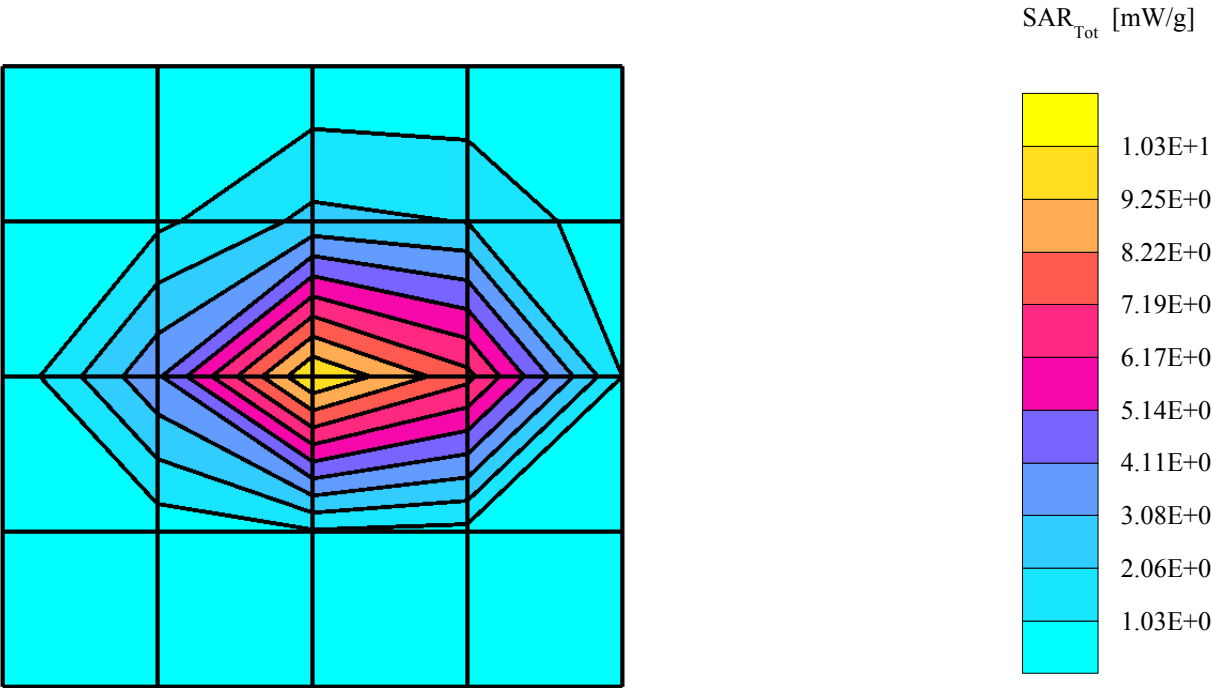
Cube 5x5x7: SAR (1g): 9.80 mW/g, SAR (10g): 5.16 mW/g, (Advanced extrapolation)

Area Scan: Dx = 20.0, Dy = 20.0, Dz = 10.0

Powerdrift: 0.20 dB

Temperature (°C) = 22 ±1

Filename: Head - 04-06-04 - 1



Dipole 1900 MHz

Continous Wave, 1900 MHz; Crest factor: 1.0

Phantom: SAM High Band; Section:

Medium Name: Head 1900 MHz: $\sigma = 1.48 \text{ mho/m}$ $\epsilon_r = 38.8$ $\rho = 1.00 \text{ g/cm}^3$

Probe: ET3DV6R - SN1429; ConvF(4.87,4.87,4.87)

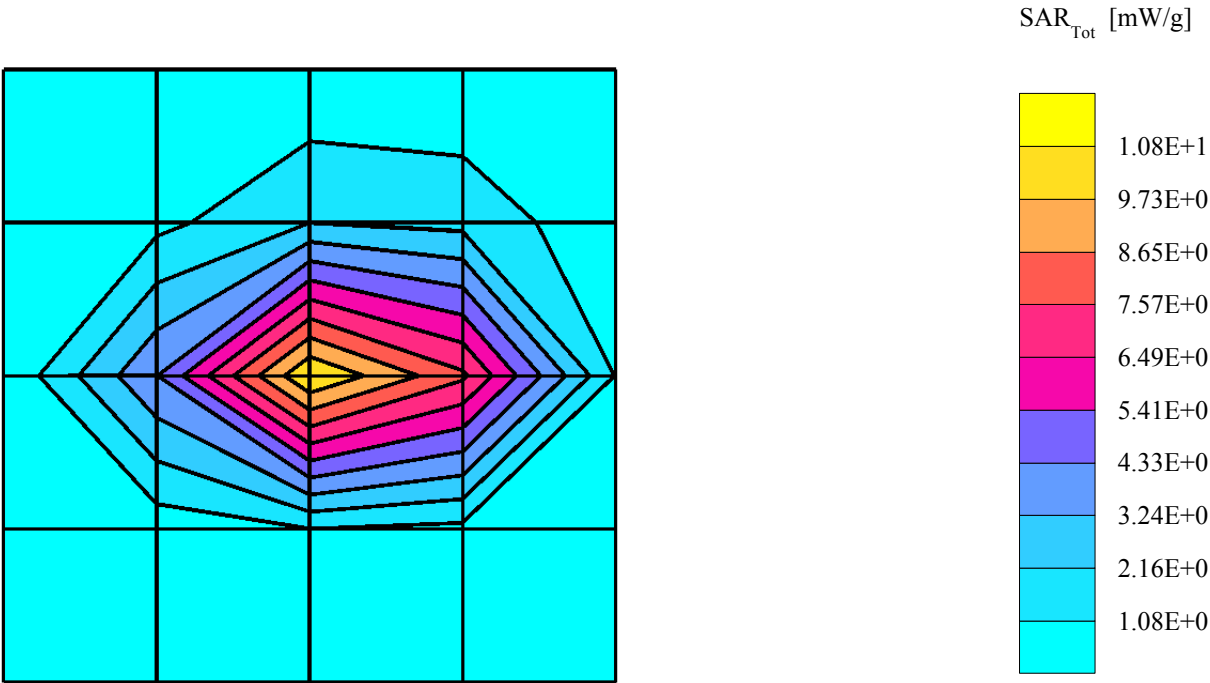
Cube 5x5x7: SAR (1g): 10.0 mW/g, SAR (10g): 5.26 mW/g, (Advanced extrapolation)

Area Scan: Dx = 20.0, Dy = 20.0, Dz = 10.0

Powerdrift: 0.18 dB

Temperature (°C) = 22 ±1

Filename: Head - 07-06-04 - 1



Dipole 835 MHz

Continous Wave, 835 MHz; Crest factor: 1.0

Phantom: SAM Low Band; Section:

Medium Name: Body 835 MHz: $\sigma = 0.98 \text{ mho/m}$ $\epsilon_r = 55.9$ $\rho = 1.00 \text{ g/cm}^3$

Probe: ET3DV6R - SN1429; ConvF(5.91,5.91,5.91)

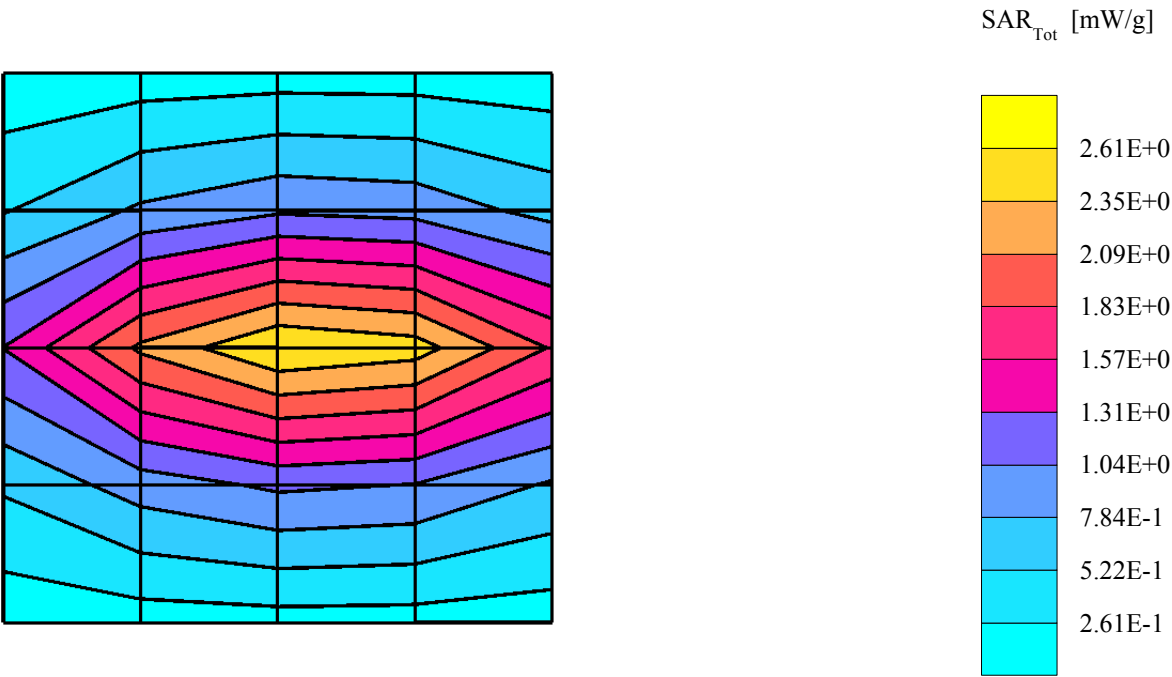
Cube 5x5x7: SAR (1g): 2.45 mW/g, SAR (10g): 1.62 mW/g, (Advanced extrapolation)

Antenna out: Dx = 20.0, Dy = 20.0, Dz = 10.0

Powerdrift: 0.08 dB

Temperature (°C) = 22 ±1

Filename: Body - 09-06-04 - 1



Dipole 835 MHz

Continous Wave, 835 MHz; Crest factor: 1.0

Phantom: SAM Low Band; Section:

Medium Name: Body 835 MHz: $\sigma = 0.99 \text{ mho/m}$ $\epsilon_r = 55.9$ $\rho = 1.00 \text{ g/cm}^3$

Probe: ET3DV6R - SN1429; ConvF(5.91,5.91,5.91)

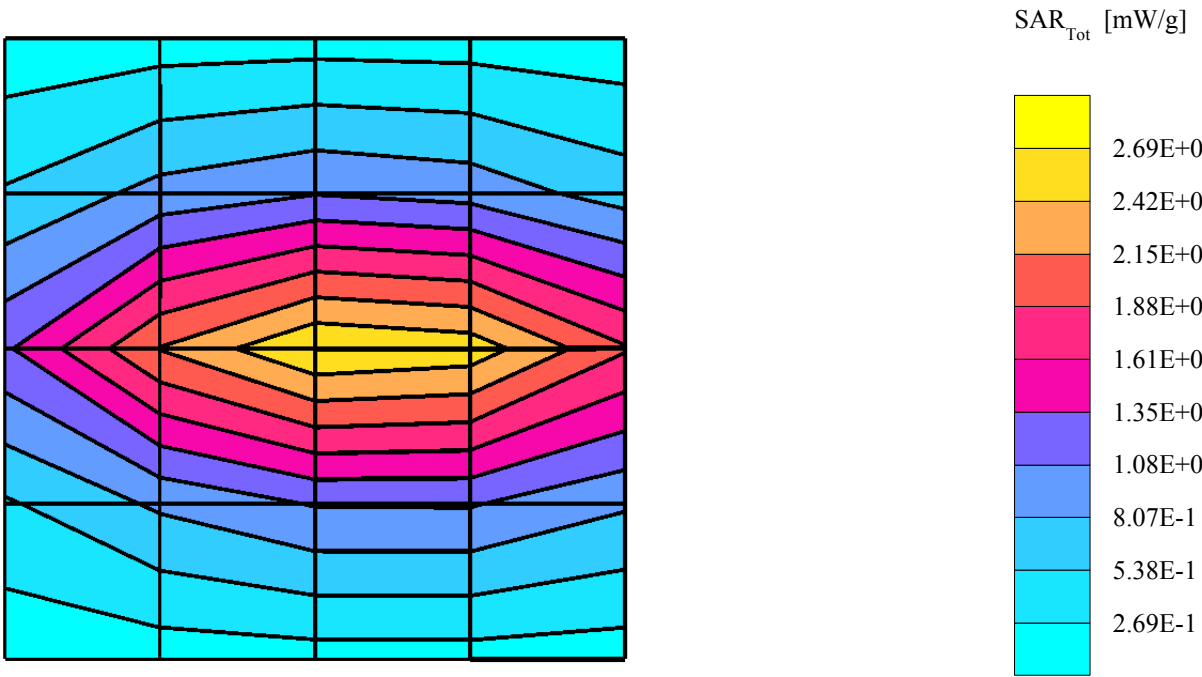
Cube 5x5x7: SAR (1g): 2.53 mW/g, SAR (10g): 1.67 mW/g, (Advanced extrapolation)

Antenna out: Dx = 20.0, Dy = 20.0, Dz = 10.0

Powerdrift: 0.04 dB

Temperature (°C) = 22 ±1

Filename: Body - 10-06-04 - 1



Dipole 1900 MHz

Continous Wave, 1900 MHz; Crest factor: 1.0

Phantom: SAM Body; Section:

Medium Name: Body 1900 MHz: $\sigma = 1.58 \text{ mho/m}$ $\epsilon_r = 51.1$ $\rho = 1.00 \text{ g/cm}^3$

Probe: ET3DV6R - SN1429; ConvF(4.33,4.33,4.33)

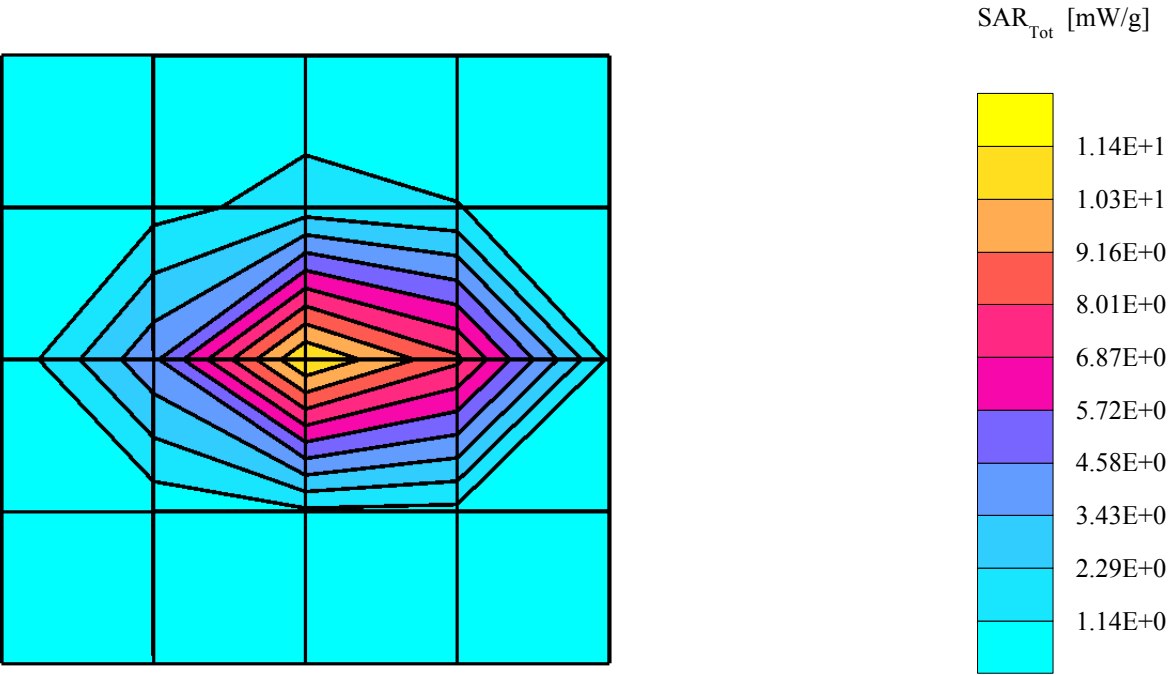
Cube 5x5x7: SAR (1g): 10.2 mW/g, SAR (10g): 5.43 mW/g, (Advanced extrapolation)

Area Scan: Dx = 20.0, Dy = 20.0, Dz = 10.0

Powerdrift: 0.05 dB

Temperature (°C) = 22 ±1

Filename: Body - 08-06-04 - 1



Dipole 1900 MHz

Continous Wave, 1900 MHz; Crest factor: 1.0

Phantom: SAM Body; Section:

Medium Name: Body 1900 MHz: $\sigma = 1.59 \text{ mho/m}$ $\epsilon_r = 51.1$ $\rho = 1.00 \text{ g/cm}^3$

Probe: ET3DV6R - SN1429; ConvF(4.33,4.33,4.33)

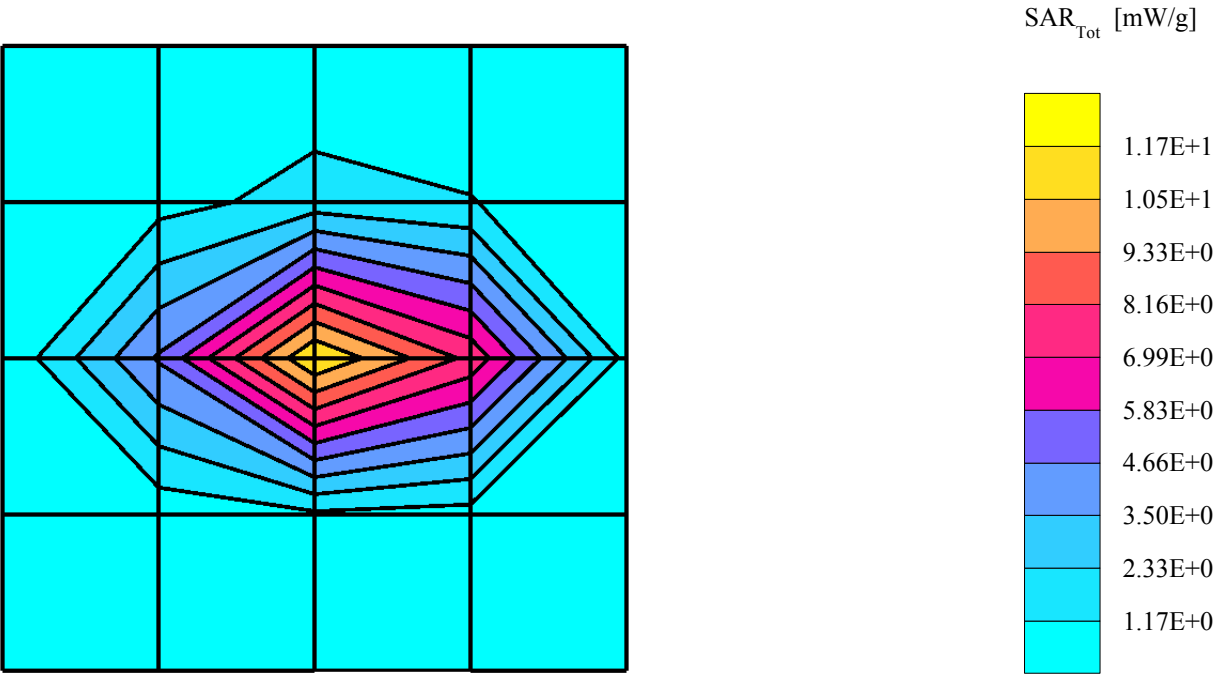
Cube 5x5x7: SAR (1g): 10.3 mW/g, SAR (10g): 5.44 mW/g, (Advanced extrapolation)

Area Scan: Dx = 20.0, Dy = 20.0, Dz = 10.0

Powerdrift: 0.06 dB

Temperature (°C) = 22 ±1

Filename: Body - 09-06-04 - 1



APPENDIX B: MEASUREMENT SCANS

See the following pages.

RH-49

Mode: GSM; CH 128 = 824.2 MHz; Crest factor: 8.0

Phantom: SAM Low Band; Section: Left Hand

Medium Name: Head 835 MHz: $\sigma = 0.93 \text{ mho/m}$ $\epsilon_r = 40.7$ $\rho = 1.00 \text{ g/cm}^3$

Probe: ET3DV6R - SN1429; ConvF(6.09,6.09,6.09)

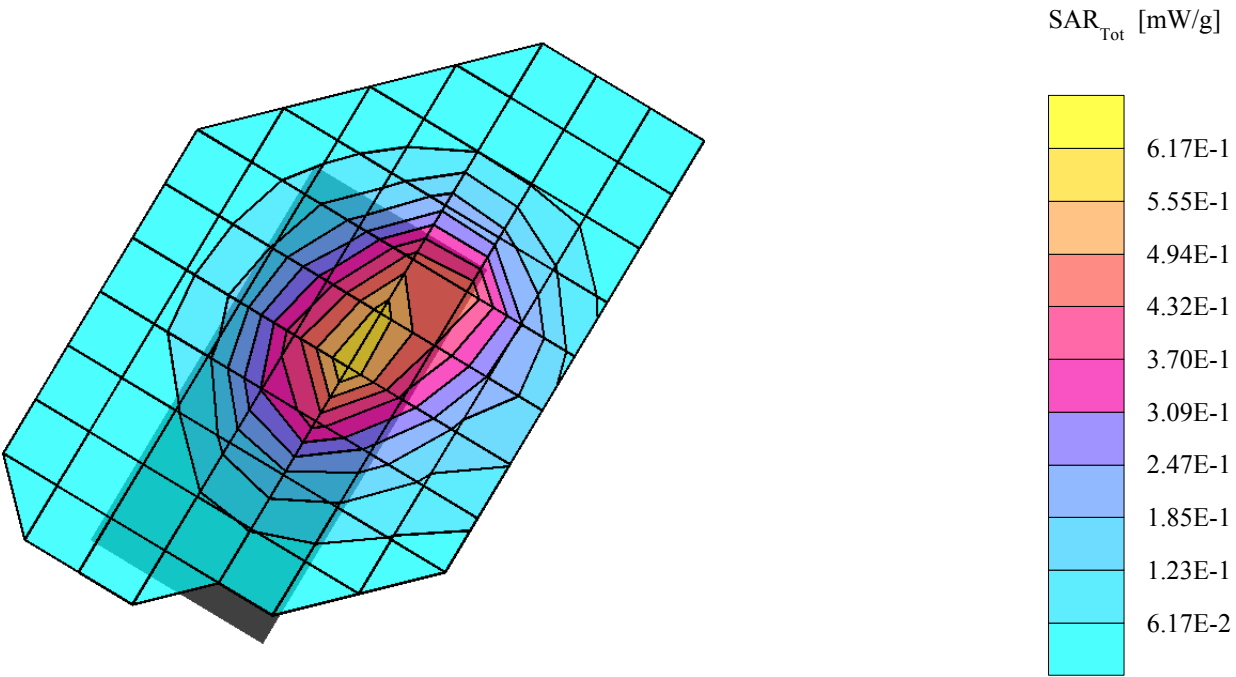
Cube 5x5x7: SAR (1g): 0.619 mW/g, SAR (10g): 0.411 mW/g, (Worst-case extrapolation)

Antenna out: Dx = 15.0, Dy = 15.0, Dz = 10.0

Powerdrift: 0.15 dB

Temperature (°C) = 22 ±1

Filename: Left-Cheek-GSM850-Antenna in-CH 128



RH-49

Mode: GSM; CH 190 = 836.6 MHz; Crest factor: 8.0

Phantom: SAM Low Band; Section: Left Hand

Medium Name: Head 835 MHz: $\sigma = 0.93 \text{ mho/m}$ $\epsilon_r = 40.7$ $\rho = 1.00 \text{ g/cm}^3$

Probe: ET3DV6R - SN1429; ConvF(6.09,6.09,6.09)

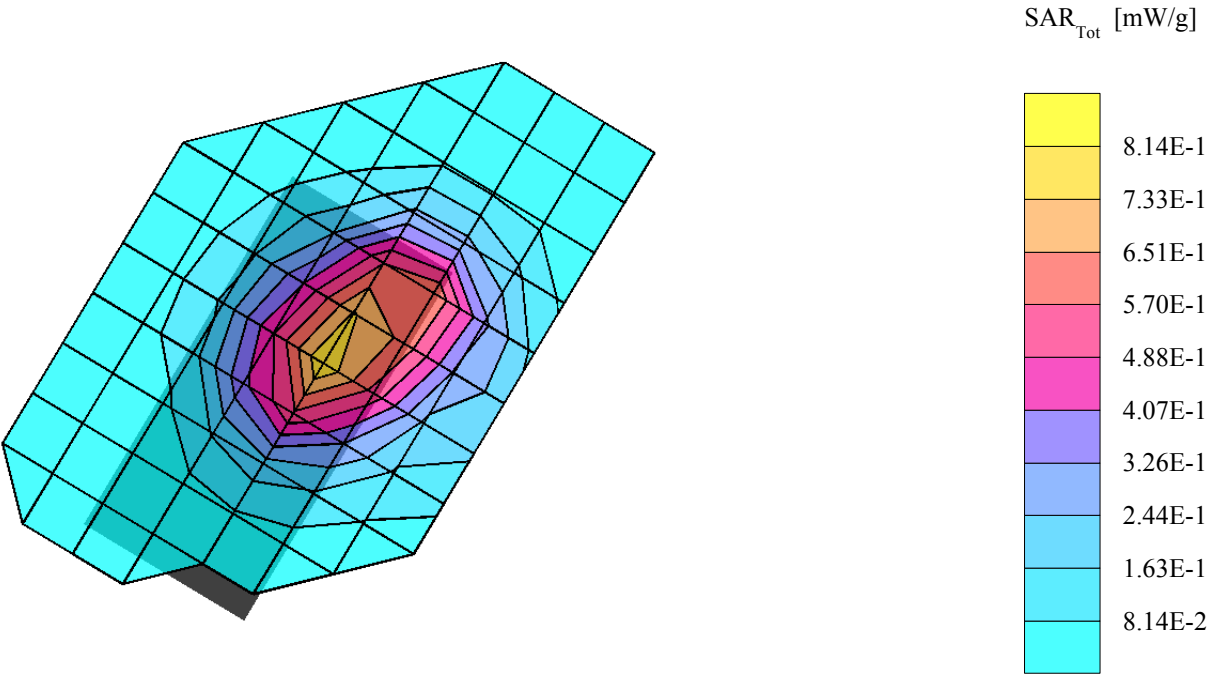
Cube 5x5x7: SAR (1g): 0.795 mW/g, SAR (10g): 0.535 mW/g, (Worst-case extrapolation)

Antenna out: Dx = 15.0, Dy = 15.0, Dz = 10.0

Powerdrift: 0.13 dB

Temperature (°C) = 22 ±1

Filename: Left-Cheek-GSM850-Antenna in-CH 190



RH-49

Mode: GSM; CH 251 = 848.8 MHz; Crest factor: 8.0

Phantom: SAM Low Band; Section: Left Hand

Medium Name: Head 835 MHz: $\sigma = 0.93 \text{ mho/m}$ $\epsilon_r = 40.7$ $\rho = 1.00 \text{ g/cm}^3$

Probe: ET3DV6R - SN1429; ConvF(6.09,6.09,6.09)

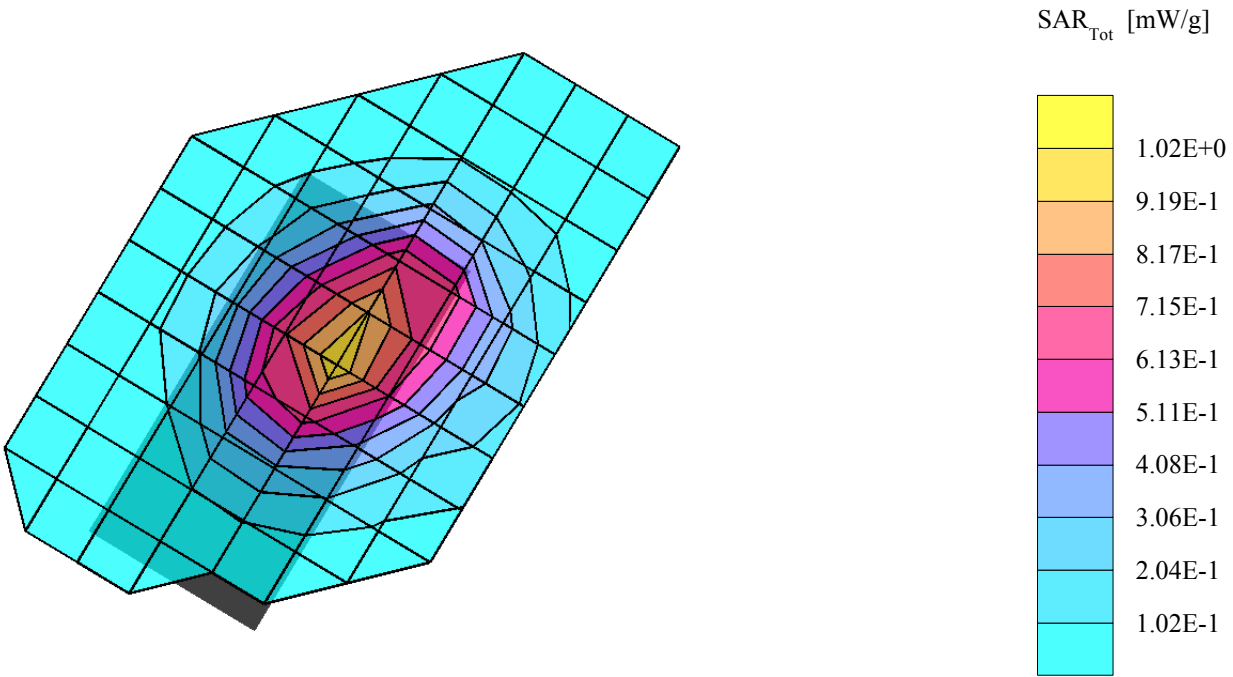
Cube 5x5x7: SAR (1g): 1.01 mW/g, SAR (10g): 0.677 mW/g, (Worst-case extrapolation)

Antenna out: Dx = 15.0, Dy = 15.0, Dz = 10.0

Powerdrift: -0.01 dB

Temperature (°C) = 22 ±1

Filename: Left-Cheek-GSM850-Antenna in-CH 251



RH-49

Mode: GSM; CH 251 = 848.8 MHz; Crest factor: 8.0

Phantom: SAM Low Band; Section: Left Hand

Medium Name: Head 835 MHz: $\sigma = 0.93 \text{ mho/m}$ $\epsilon_r = 40.7$ $\rho = 1.00 \text{ g/cm}^3$

Probe: ET3DV6R - SN1429; ConvF(6.09,6.09,6.09)

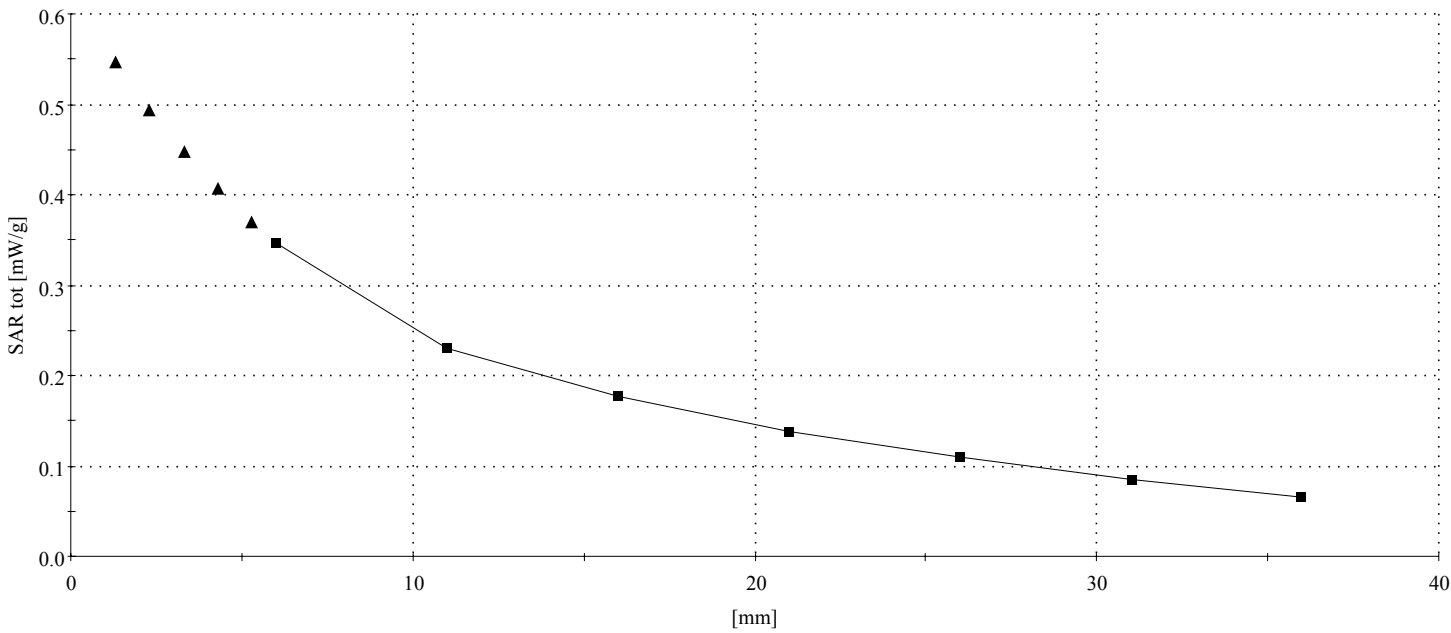
Cube 5x5x7: SAR (1g): 1.01 mW/g, SAR (10g): 0.677 mW/g, (Worst-case extrapolation)

Cube 5x5x7: Dx = 8.0, Dy = 8.0, Dz = 5.0

Powerdrift: -0.01 dB

Temperature (°C) = 22 ±1

Filename: Left-Cheek-GSM850-Antenna in-CH 251



RH-49

Mode: GSM; CH 512 = 1850.2 MHz; Crest factor: 8.0

Phantom: SAM High Band; Section: Left Hand

Medium Name: Head 1900 MHz: $\sigma = 1.46 \text{ mho/m}$ $\epsilon_r = 38.8$ $\rho = 1.00 \text{ g/cm}^3$

Probe: ET3DV6R - SN1429; ConvF(4.87,4.87,4.87)

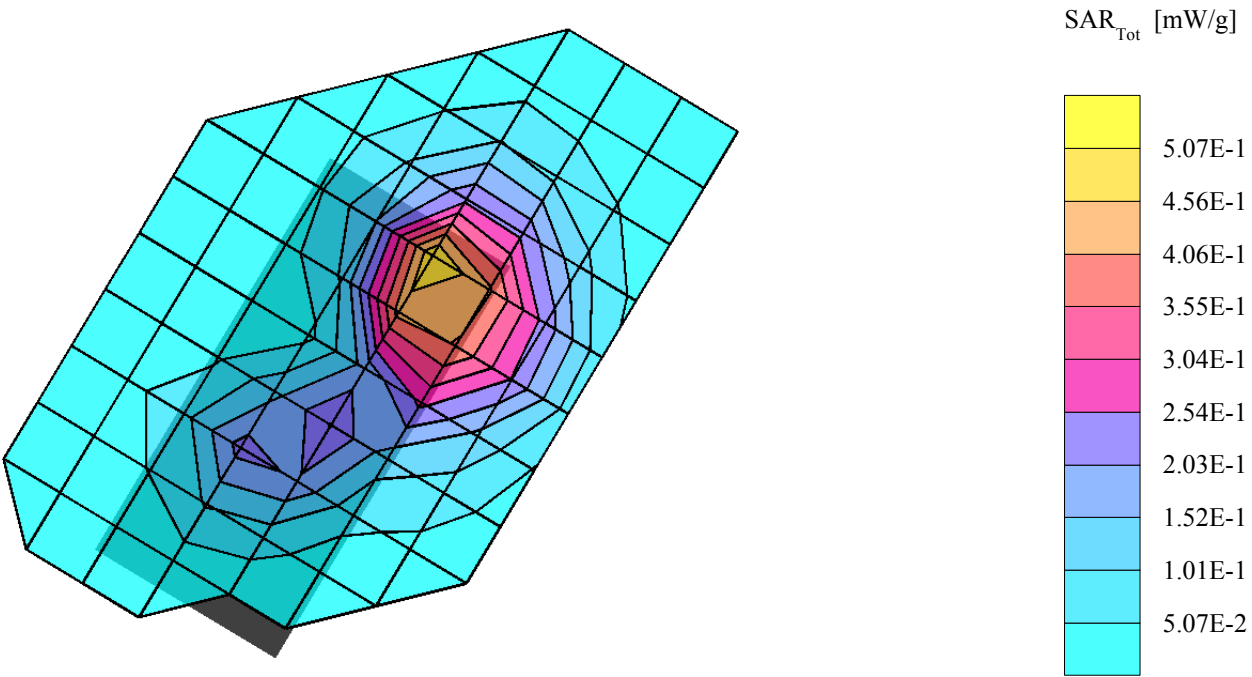
Cube 5x5x7: SAR (1g): 0.612 mW/g, SAR (10g): 0.322 mW/g, (Worst-case extrapolation)

Coarse Scan: Dx = 15.0, Dy = 15.0, Dz = 10.0

Powerdrift: 0.13 dB

Temperature (°C) = 22 ±1

Filename: Left-Cheek-GSM1900-Antenna in-CH 512



RH-49

Mode: GSM; CH 661 = 1880.0 MHz; Crest factor: 8.0

Phantom: SAM High Band; Section: Left Hand

Medium Name: Head 1900 MHz: $\sigma = 1.47$ mho/m $\epsilon_r = 38.5$ $\rho = 1.00$ g/cm³

Probe: ET3DV6R - SN1429; ConvF(4.87,4.87,4.87)

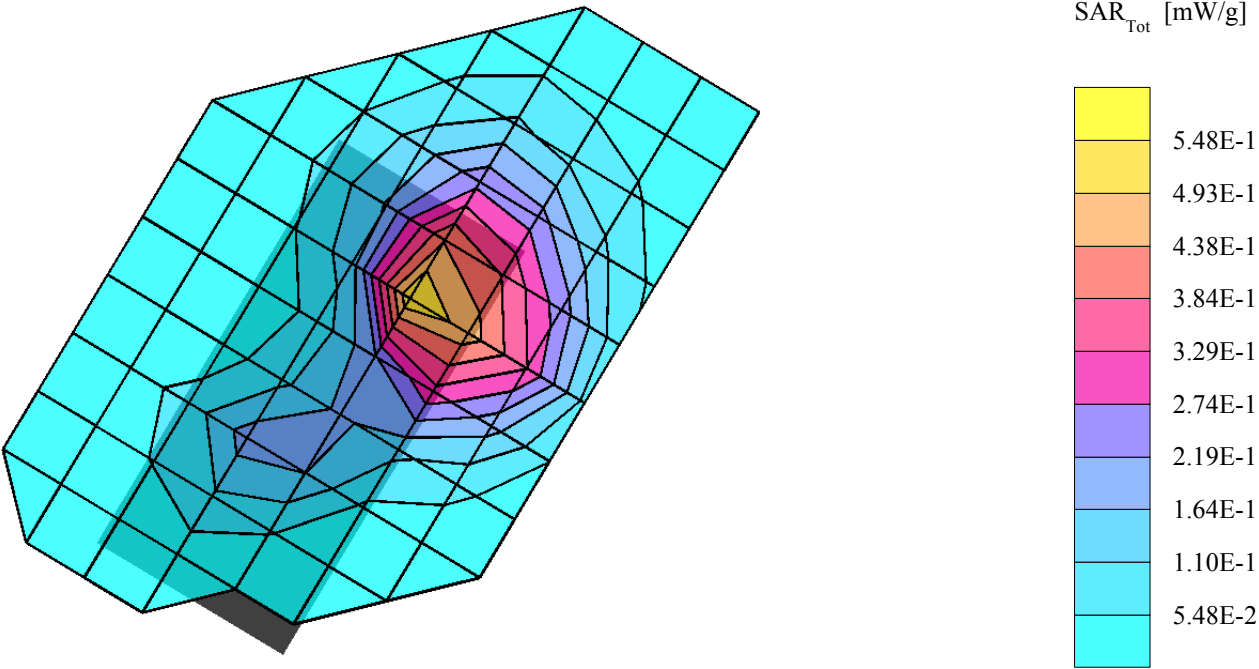
Cube 5x5x7: SAR (1g): 0.668 mW/g, SAR (10g): 0.346 mW/g, (Worst-case extrapolation)

Coarse Scan: Dx = 15.0, Dy = 15.0, Dz = 10.0

Powerdrift: 0.24 dB

Temperature (°C) = 22 ±1

Filename: Left-Cheek-GSM1900-Antenna in-CH 661



RH-49

Mode: GSM; CH 661 = 1880.0 MHz; Crest factor: 8.0

Phantom: SAM High Band; Section: Left Hand

Medium Name: Head 1900 MHz: $\sigma = 1.47$ mho/m $\epsilon_r = 38.5$ $\rho = 1.00$ g/cm³

Probe: ET3DV6R - SN1429; ConvF(4.87,4.87,4.87)

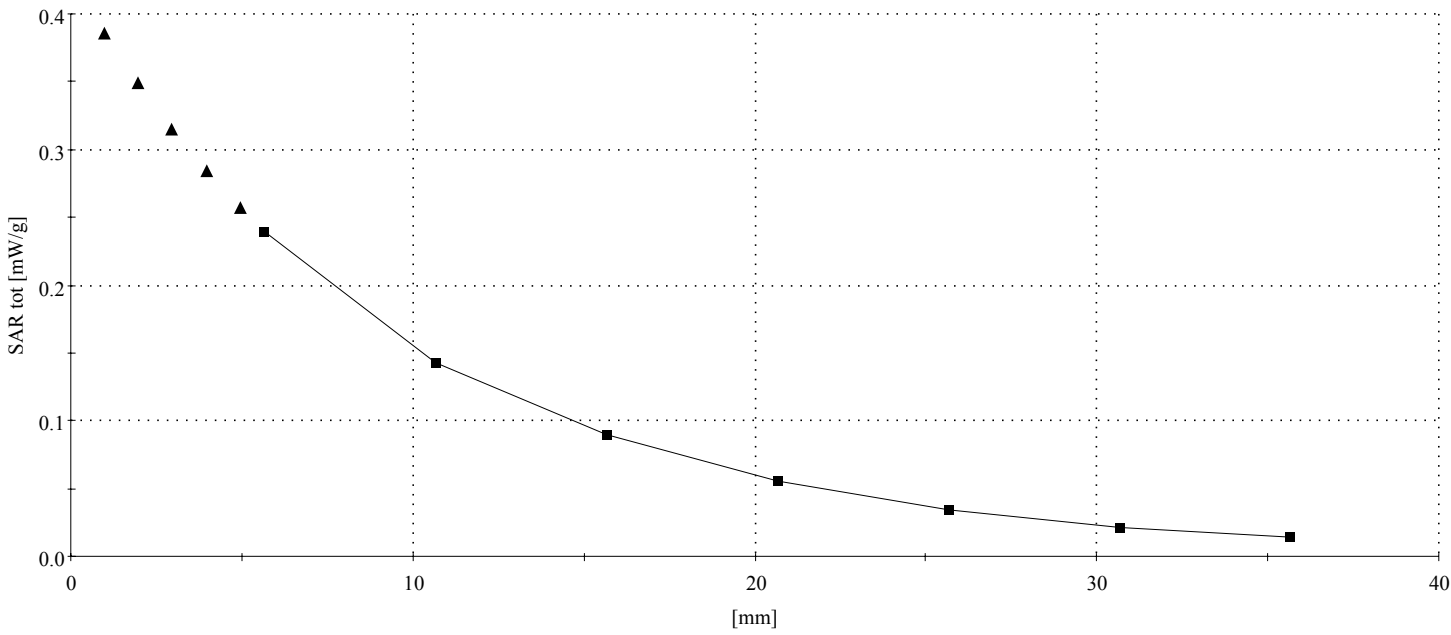
Cube 5x5x7: SAR (1g): 0.668 mW/g, SAR (10g): 0.346 mW/g, (Worst-case extrapolation)

Cube 5x5x7: Dx = 8.0, Dy = 8.0, Dz = 5.0

Powerdrift: 0.24 dB

Temperature (°C) = 22 ±1

Filename: Left-Cheek-GSM1900-Antenna in-CH 661



RH-49

Mode: GSM; CH 810 = 1909.8 MHz; Crest factor: 8.0

Phantom: SAM High Band; Section: Left Hand

Medium Name: Head 1900 MHz: $\sigma = 1.47$ mho/m $\epsilon_r = 38.5$ $\rho = 1.00$ g/cm³

Probe: ET3DV6R - SN1429; ConvF(4.87,4.87,4.87)

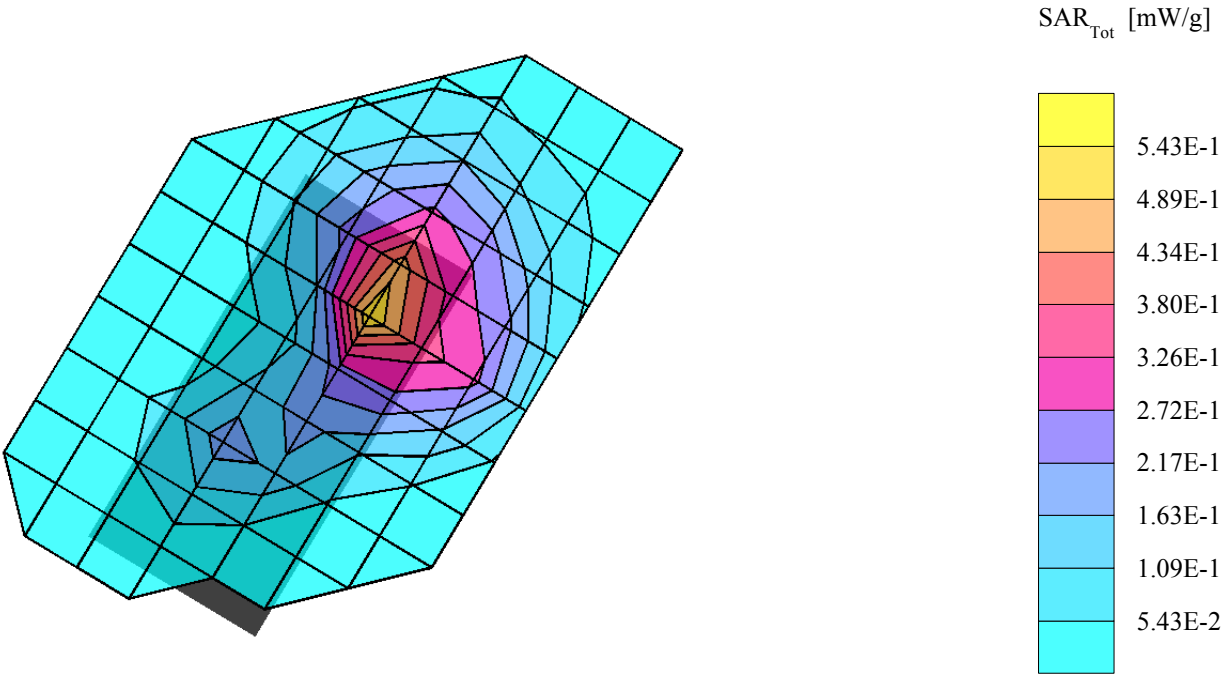
Cube 5x5x7: SAR (1g): 0.618 mW/g, SAR (10g): 0.323 mW/g, (Worst-case extrapolation)

Coarse Scan: Dx = 15.0, Dy = 15.0, Dz = 10.0

Powerdrift: 0.40 dB

Temperature (°C) = 22 ±1

Filename: Left-Cheek-GSM1900-Antenna in-CH 810



RH-49

Mode: GPRS, 1 Downlink 2 Uplink; CH 128 = 824.2 MHz; Crest factor: 4.0

Phantom: SAM Low Band; Section: Flat

Medium Name: Body 835 MHz: $\sigma = 0.99 \text{ mho/m}$ $\epsilon_r = 55.9$ $\rho = 1.00 \text{ g/cm}^3$

Probe: ET3DV6R - SN1429; ConvF(5.91,5.91,5.91)

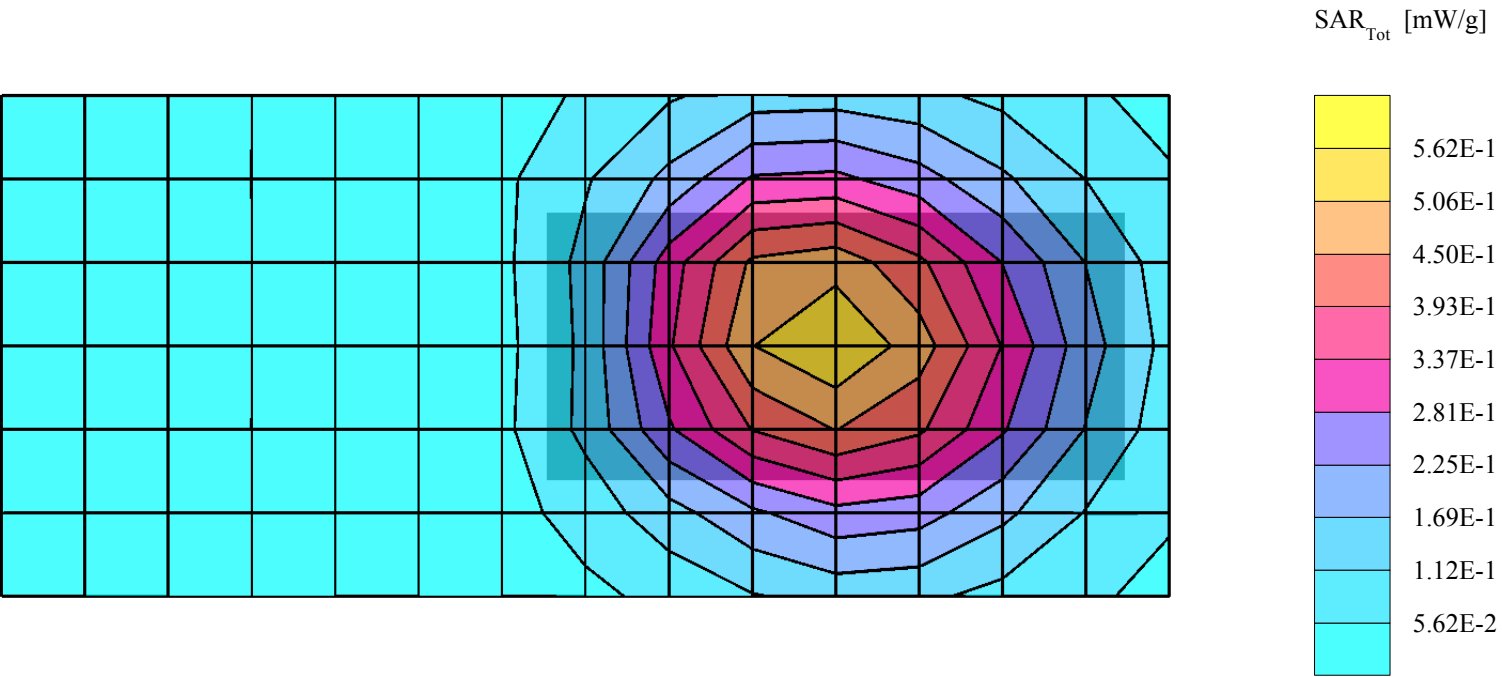
Cube 5x5x7: SAR (1g): 0.553 mW/g, SAR (10g): 0.392 mW/g, (Worst-case extrapolation)

Body: Dx = 15.0, Dy = 15.0, Dz = 10.0

Powerdrift: -0.16 dB

Temperature (°C) = 22 ±1

Filename: Body-GPRS850-Antenna in-CH 128



RH-49

Mode: GPRS, 1 Downlink 2 Uplink; CH 190 = 836.6 MHz; Crest factor: 4.0

Phantom: SAM Low Band; Section: Flat

Medium Name: Body 835 MHz: $\sigma = 0.98 \text{ mho/m}$ $\epsilon_r = 55.9$ $\rho = 1.00 \text{ g/cm}^3$

Probe: ET3DV6R - SN1429; ConvF(5.91,5.91,5.91)

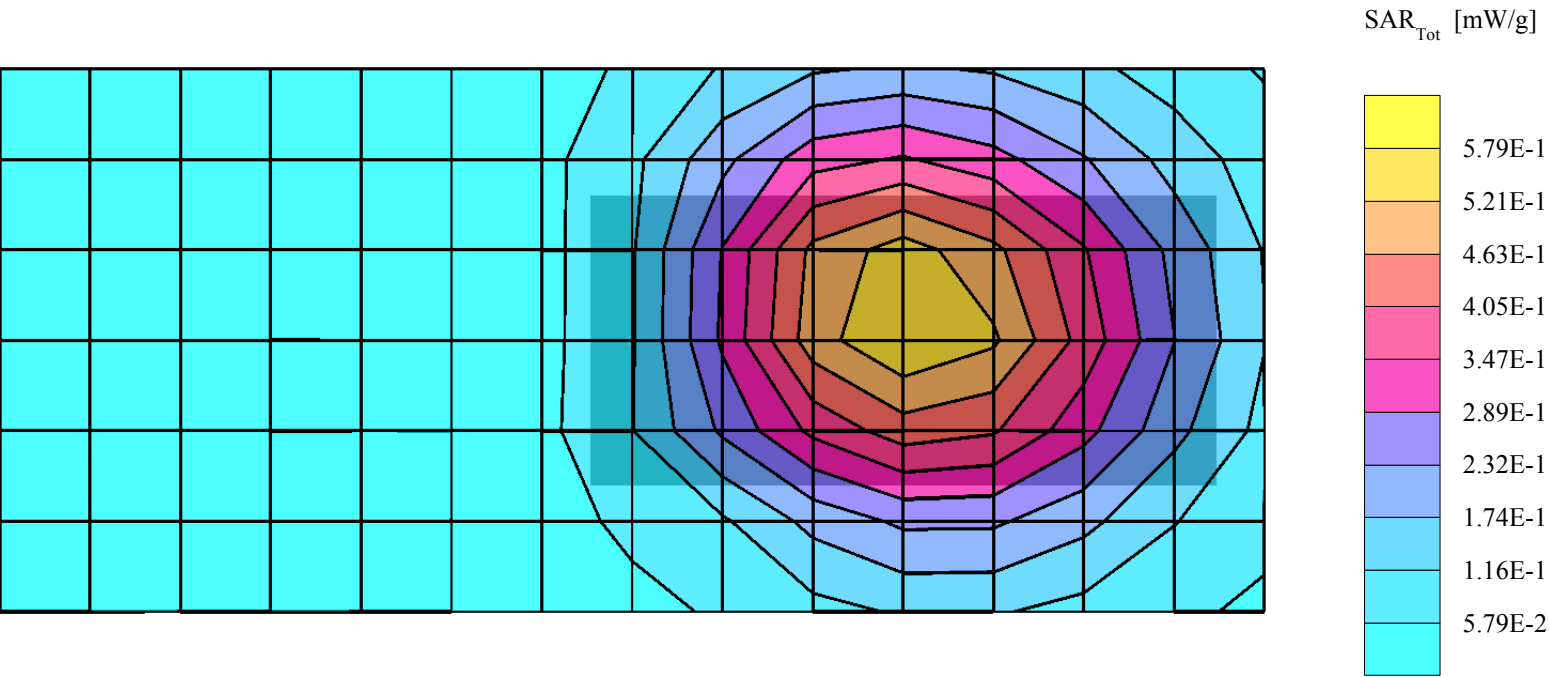
Cube 5x5x7: SAR (1g): 0.586 mW/g, SAR (10g): 0.414 mW/g, (Worst-case extrapolation)

Body: Dx = 15.0, Dy = 15.0, Dz = 10.0

Powerdrift: -0.11 dB

Temperature (°C) = 22 ±1

Filename: Body-GPRS850-Antenna in-CH 190



RH-49

Mode: GPRS, 1 Downlink 2 Uplink; CH 190 = 836.6 MHz; Crest factor: 4.0

Phantom: SAM Low Band; Section: Flat

Medium Name: Body 835 MHz: $\sigma = 0.98 \text{ mho/m}$ $\epsilon_r = 55.9$ $\rho = 1.00 \text{ g/cm}^3$

Probe: ET3DV6R - SN1429; ConvF(5.91,5.91,5.91)

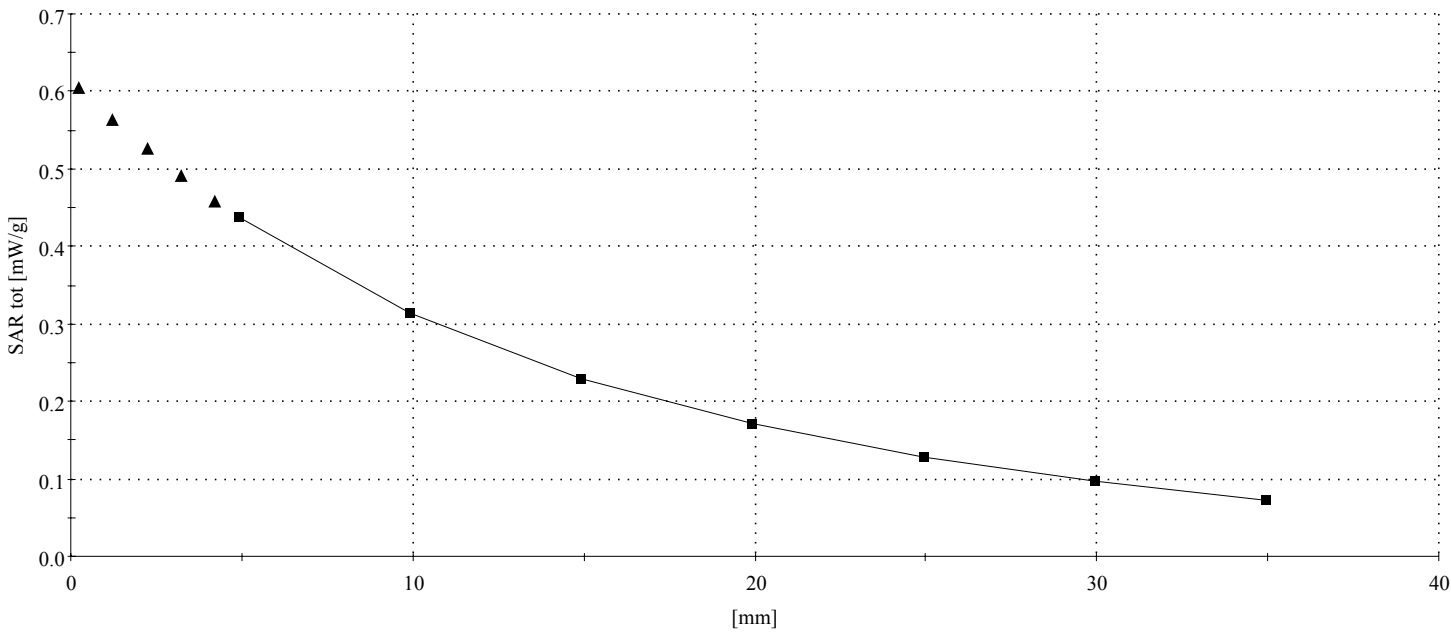
Cube 5x5x7: SAR (1g): 0.586 mW/g, SAR (10g): 0.414 mW/g, (Worst-case extrapolation)

Cube 5x5x7: Dx = 8.0, Dy = 8.0, Dz = 5.0

Powerdrift: -0.11 dB

Temperature (°C) = 22 ±1

Filename: Body-GPRS850-Antenna in-CH 190



RH-49

Mode: GPRS, 1 Downlink 2 Uplink; CH 251 = 848.8 MHz; Crest factor: 4.0

Phantom: SAM Low Band; Section: Flat

Medium Name: Body 835 MHz: $\sigma = 0.98 \text{ mho/m}$ $\epsilon_r = 55.9$ $\rho = 1.00 \text{ g/cm}^3$

Probe: ET3DV6R - SN1429; ConvF(5.91,5.91,5.91)

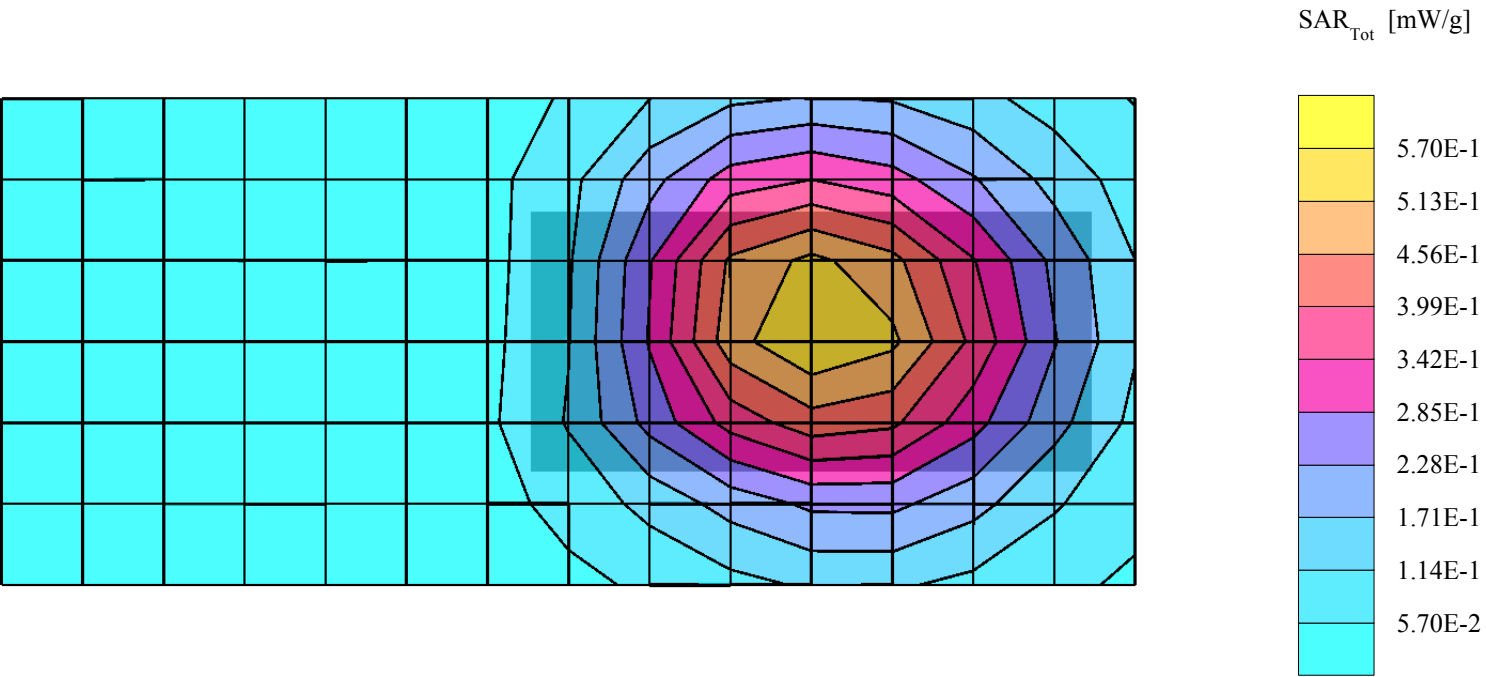
Cube 5x5x7: SAR (1g): 0.579 mW/g, SAR (10g): 0.410 mW/g, (Worst-case extrapolation)

Body: Dx = 15.0, Dy = 15.0, Dz = 10.0

Powerdrift: -0.12 dB

Temperature (°C) = 22 ±1

Filename: Body-GPRS850-Antenna in-CH 251



RH-49

Mode: GPRS, 1 Downlink 2 Uplink; CH 512 = 1850.2 MHz; Crest factor: 4.0

Phantom: SAM Body; Section: Flat

Medium Name: Body 1900 MHz: $\sigma = 1.56 \text{ mho/m}$ $\epsilon_r = 51.2$ $\rho = 1.00 \text{ g/cm}^3$

Probe: ET3DV6R - SN1429; ConvF(4.33,4.33,4.33)

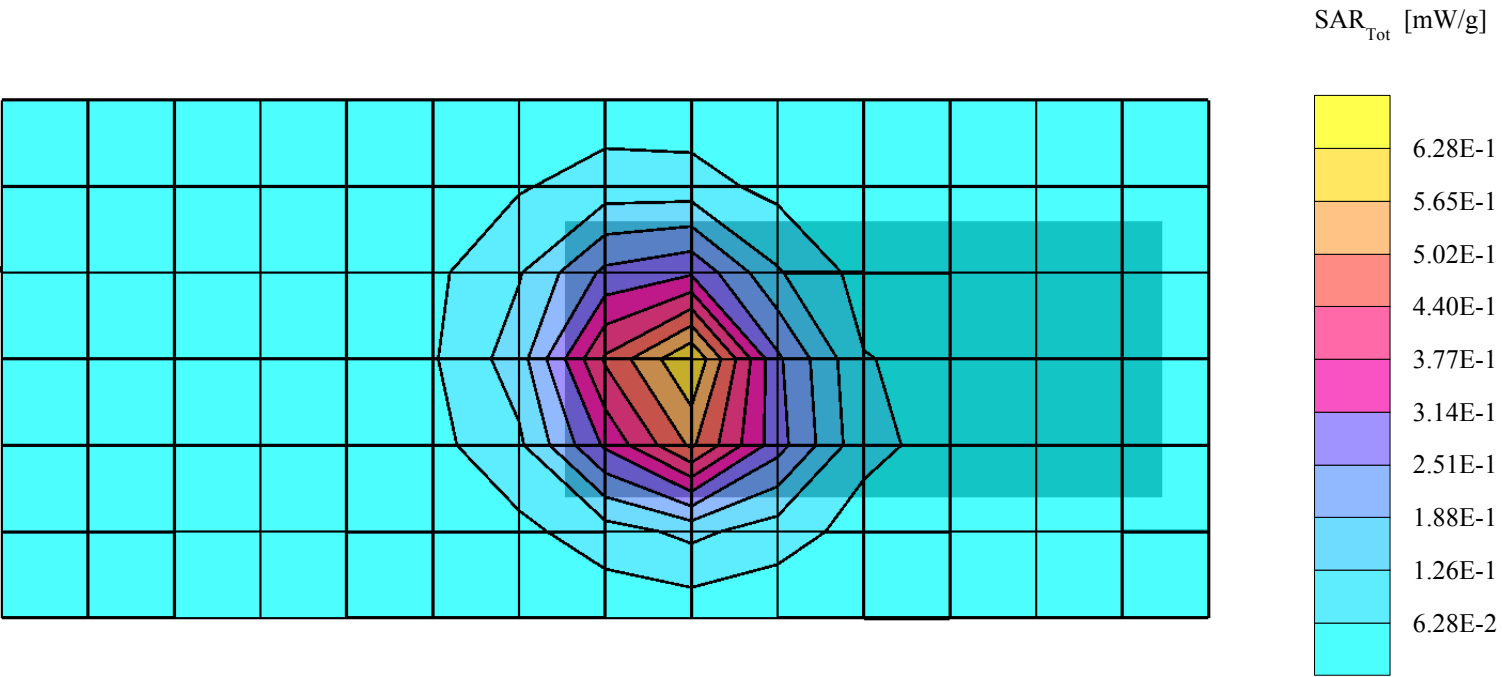
Cube 5x5x7: SAR (1g): 0.648 mW/g, SAR (10g): 0.369 mW/g, (Worst-case extrapolation)

Body: Dx = 15.0, Dy = 15.0, Dz = 10.0

Powerdrift: -0.07 dB

Temperature (°C) = 22 ±1

Filename: Body-GPRS1900-Antenna in-CH 512



RH-49

Mode: GPRS, 1 Downlink 2 Uplink; CH 661 = 1880.0 MHz; Crest factor: 4.0

Phantom: SAM Body; Section: Flat

Medium Name: Body 1900 MHz: $\sigma = 1.56 \text{ mho/m}$ $\epsilon_r = 51.2$ $\rho = 1.00 \text{ g/cm}^3$

Probe: ET3DV6R - SN1429; ConvF(4.33,4.33,4.33)

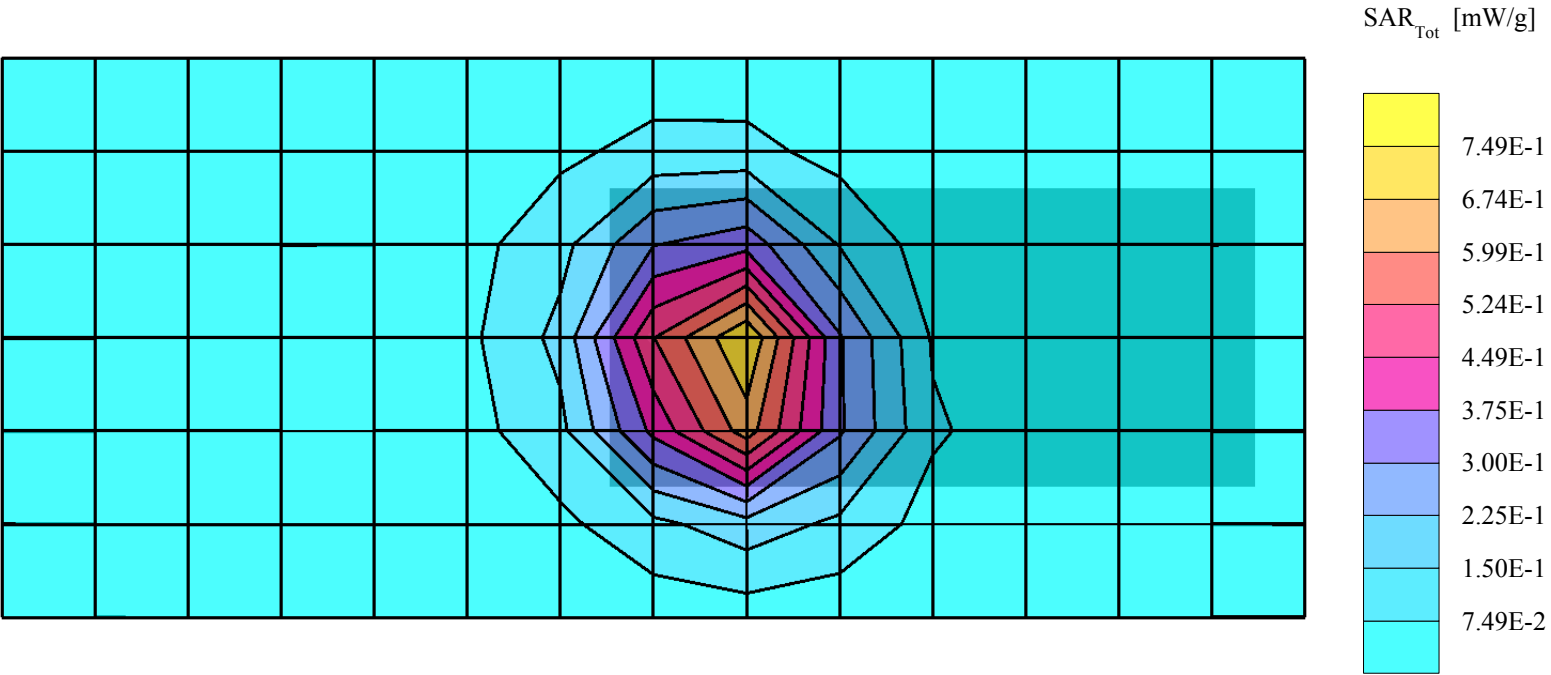
Cube 5x5x7: SAR (1g): 0.777 mW/g, SAR (10g): 0.438 mW/g, (Worst-case extrapolation)

Body: Dx = 15.0, Dy = 15.0, Dz = 10.0

Powerdrift: -0.11 dB

Temperature (°C) = 22 ±1

Filename: Body-GPRS1900-Antenna in-CH 661



RH-49

Mode: GPRS, 1 Downlink 2 Uplink; CH 810 = 1909.8 MHz; Crest factor: 4.0

Phantom: SAM Body; Section: Flat

Medium Name: Body 1900 MHz: $\sigma = 1.57$ mho/m $\epsilon_r = 51.1$ $\rho = 1.00$ g/cm³

Probe: ET3DV6R - SN1429; ConvF(4.33,4.33,4.33)

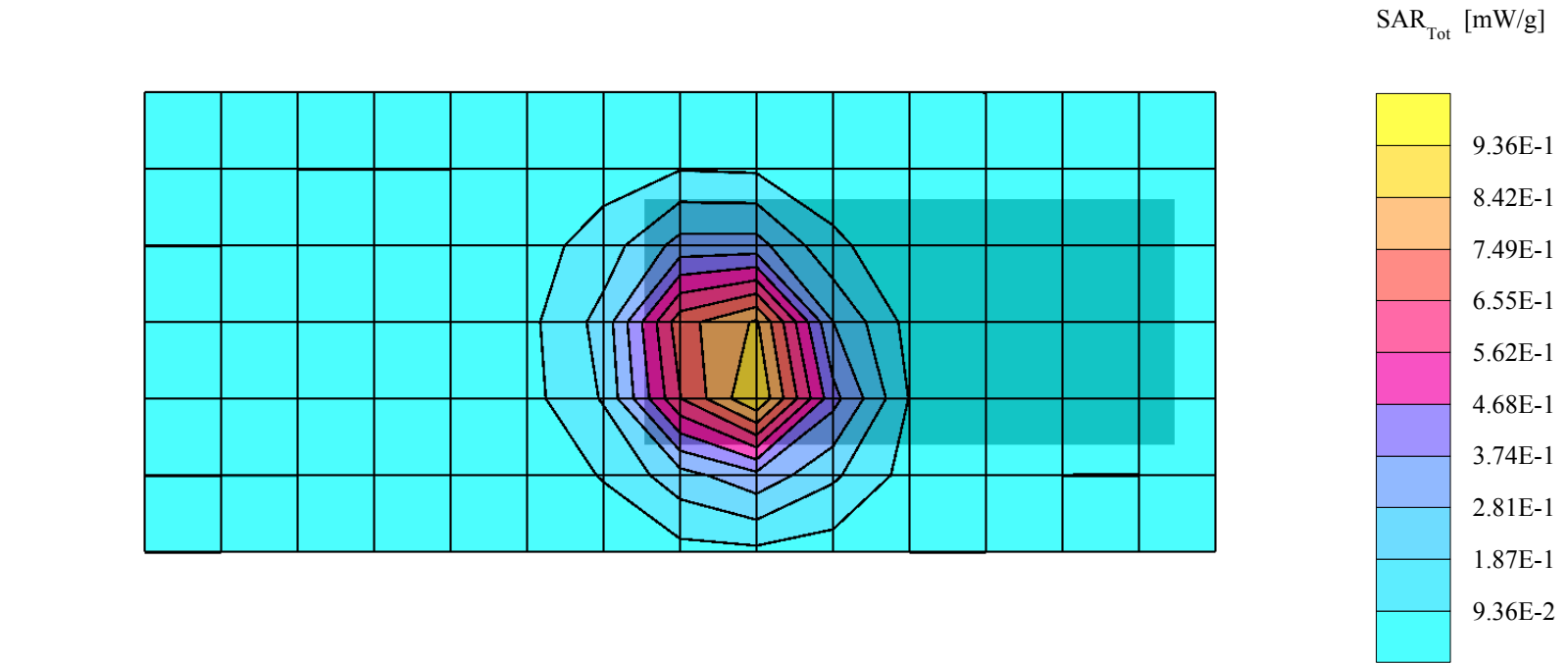
Cube 5x5x7: SAR (1g): 1.04 mW/g, SAR (10g): 0.576 mW/g, (Worst-case extrapolation)

Body: Dx = 15.0, Dy = 15.0, Dz = 10.0

Powerdrift: -0.05 dB

Temperature (°C) = 22 ±1

Filename: Body-GPRS1900-Antenna in-CH 810



RH-49

Mode: GPRS, 1 Downlink 2 Uplink; CH 810 = 1909.8 MHz; Crest factor: 4.0

Phantom: SAM Body; Section: Flat

Medium Name: Body 1900 MHz: $\sigma = 1.57 \text{ mho/m}$ $\epsilon_r = 51.1$ $\rho = 1.00 \text{ g/cm}^3$

Probe: ET3DV6R - SN1429; ConvF(4.33,4.33,4.33)

Cube 5x5x7: SAR (1g): 1.04 mW/g, SAR (10g): 0.576 mW/g, (Worst-case extrapolation)

Cube 5x5x7: Dx = 8.0, Dy = 8.0, Dz = 5.0

Powerdrift: -0.05 dB

Temperature (°C) = 22 ±1

Filename: Body-GPRS1900-Antenna in-CH 810

