Kyocera Wireless Corp.
KWC S14

SPECIFIC ABSORPTION RATE (SAR)

REPORT

(Additional SAR information)

1 INTRODUCTION

This additional SAR test report is generated in response to a request for additional technical information by Tim Johnson of AmericanTCB, in regards to the Permissive Change (Class II) approval of the model 5135. Per the comment #3, comment #5 and #8 from Tim Johnson, the SAR evaluation for 835MHz muscle has been re-performed. The highest SAR values in 1900 MHz muscle have been re-checked for each body-worn accessory. The z-axis scans have been conducted for the worst cases. All results are reported in this document.

The test device and place are as same as in the original submittal,

EUT Type:	*Trimode, CDMA(PCS), CDMA and Analog (Cellular) Phone*
Trade Name:	*Kyocera Wireless Corp.*
Model:	*KWC-S14*
Tx Frequency :	*824.04 – 848.97 and 1851.25 – 1908.75 MHz*
Modulation:	*CDMA and Analog*
Antenna:	*Retracting whip w/ helix*
FCC Classification:	*Non-Broadcast Transmitter Held to Ear*
Application Type:	*Certification*
Serial Number :	*15907927163*
FCC ID:	*OVFKWC-5135*
Place of Test:	*KWC, 10300 Campus Point Drive, Lab AA-136, San Diego, CA, USA*
Date of Test:	*March 4, 2003*
FCC Rule Part:	*47 CFR 2.1093; OET Bulletin 65, Sup. C; 47 CFR 22; 47 CFR 24*

Testing has been carried out in accordance with:
IEEE P1528-200X Draft 6.5

2 COMMENT # 3

The conductivity measured in the SAR report for 835MHz Muscle testing exceeded the 5% allowed tolerance. Note that Feb 02 and Apr 02 TCB training workshop notes report the update the IEEE Std 1528 that 10% tolerance applies only to dielectric constant not conductivity.

The SAR evaluation for 835MHz muscle has been re-performed to show the compliance of S14. The parameters of the muscle liquid used for the re-testing were 0.94 mho/m for conductivity and 55.2 for permittivity. Both conductivity and permittivity were within the allowed tolerance specified in IEEE Std 1528. The test data is listed in the following table.

Waist Level SAR with KWC Body Worn Holster CV90-B1680

Mode	Channel # / Frequency (MHz)	Conducted Power Before Test (dBm)	SAR, Average over 1g (mW/g)	
			Antenna Retracted	Antenna Extended
FM 835	991/824.04	25.06	0.217	0.376
	383/836.49	25.15	0.303	0.548
	799/848.97	24.98	0.311	0.511
Cellular CDMA 835	1013/824.70	25.08	0.228	0.394
	383/836.49	25.09	0.291	0.596
	777/848.31	25.02	0.360	0.582

Waist Level SAR with KWC Body Worn Leather Case CA90-B1691M

Mode	Channel # / Frequency (MHz)	Conducted Power Before Test (dBm)	SAR, Average over 1g (mW/g)	
			Antenna Retracted	Antenna Extended
FM 835	991/824.04	25.03	0.200	0.350
	383/836.49	25.03	0.276	0.551
	799/848.97	24.94	0.231	0.451
Cellular CDMA 835	1013/824.70	25.03	0.201	0.324
	383/836.49	25.15	0.241	0.485
	777/848.31	25.02	0.251	0.375

Waist Level SAR with 13.5mm Air Separation

Mode	Channel # / Frequency (MHz)	Conducted Power Before Test (dBm)	SAR, Average over 1g (mW/g)	
			Antenna Retracted	Antenna Extended
FM 835	991/824.04	25.05	0.235	0.393
	383/836.49	25.03	0.312	0.605
	799/848.97	24.97	0.309	0.554
Cellular CDMA 835	1013/824.70	25.17	0.219	0.379
	383/836.49	25.12	0.276	0.561
	777/848.31	25.16	0.288	0.491

The test set-up and measurement uncertainties for the testing are the same as in the original SAR report. Please refer to the original submittal.

The validation test printout, SAR distribution printout and the probe certification are attached to the report as appendix A, B and C, accordingly.

3 COMMENT # 5

The calibration for the Probe (ET3DV6) used in SAR testing does not include information regarding Body tissues. Please provide this information. (Note ConvF=6.6,6.6,6.6 for 835 MHz, 4.77,4.77,4.77 for 1900 MHz).

The probe (ET3DV6, #1618) used in SAR testing was not calibrated for body tissues by using the measurement method. We used the equations provided by Speag to estimate the conversion factors of the probe for 835 MH z muscle and 1900 MHz muscle based on the head ConvF. (That was, 3% less than the head ConvF for 835MHz and 10% less than the head ConvF for 1900MHz).

In order to re-confirm the compliance, we have re-done some testing for muscle with a probe calibrated for both head and muscle. The following testing has been re-performed.

- *A complete set of SAR testing for 835MHz muscle*
- *Referring to the original submittal, section 8.2 (see Appendix D), the highest SAR value per body-worn accessory for 1900MHz muscle, including,*

- *With KWC body worn holster CV90-B1680, antenna retracted, Ch600*
- *With KWC body worn leather case CA90-B1691M, antenna retracted, Ch600*
- *With 13.5mm air separation, antenna retracted, Ch1175*

Results

Mode	Channel # / Frequency (MHz)	Conducted Power Before Test (dBm)	SAR, Average over 1g (mW/g) Antenna Retracted	Accessory
PCS CDMA 1900	600/1880	22.03	0.263	Holster CV90-B1680
	600/1880	22.09	0.260	Leather case CA90-B1681M
	1175/1908.75	22.14	0.235	13.5 mm air separation

Since the SAR values in the original scans were low, only above tests have been re-conducted. The SAR distribution printouts are attached in the appendix B of this report.

4 COMMENT # 8

Z-axis plots were not provide maximum SAR locations. Please provide.

The SAR testing has been re-conducted for the worst case per band per location (i.e., left head and right head). Referring to the original report, section 8.1 (see appendix D), those worst cases are,

- *Left Head, Cheek Position, Antenna Extended, Cellular Band, FM mode, Ch799*
- *Left Head, Cheek Position, Antenna Retracted, PCS band, CDMA mode, Ch600*
- *Right head, Cheek Position, Antenna Extended, Cellular Band, CDMA mode, Ch777*
- *Right head, Cheek Position, Antenna Rectracted, PCS band, CDMA mode, Ch600*

Totally 4 of Z-axis plots and associated validations have been provided and included in the appendix A and B, accordingly.

APPENDIX A: VALIDATION TEST PRINTOUT

The validation on 03-04-03 for 835MHz was for the device testing in muscle and head. Our validation data was 1.02 mW/g. The target value provided by Speag is 1.04 mW/g.

The validation on 03-12-03 for 835MHz was for the device testing in head. Our validation data was 1.03 mW/g. The target value provided by Speag is 1.04 mW/g.

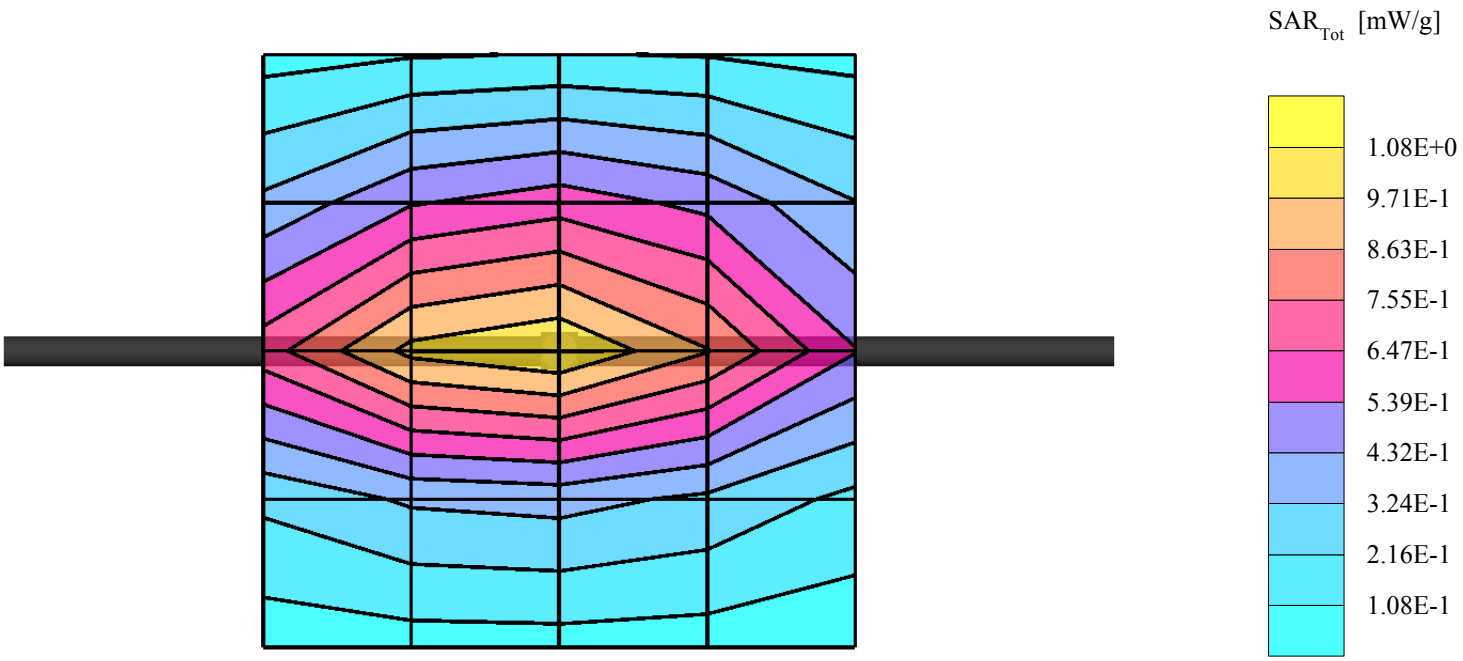
The validation on 03-04-03 for 1900 MHz was for the device testing in head liquid. Our validation data was 4.56 mW/g. The target value provided by Speag is 4.56 mW/g.

The validation on 03-06-03 for 1900MHz was for the device testing in muscle. Our validation data was 4.43 mW/g. The target value provided by Speag is 4.56 mW/g.

The printout and manufactory validations are attached in the proceeding pages.

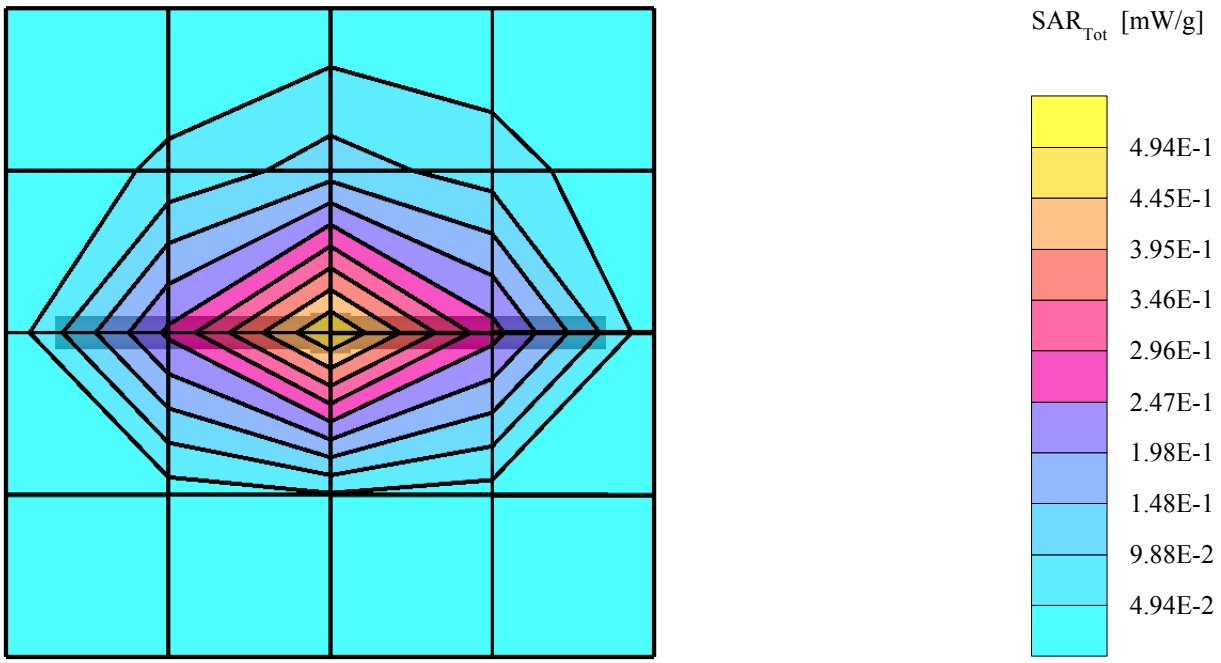
Dipole validation:

for f < 1 GHz, distance to the liquid d = 10 mm
for f > 1 GHz, distance to the liquid d=15 mm
Dipole 835 MHz
SAM Phantom; Flat Section; Position: (90°,90°); Frequency: 835 MHz
Probe: ET3DV6 - SN1712; ConvF(6.50,6.50,6.50); Crest factor: 1.0; Head 835 MHz: σ = 0.87 mho/m ε_r = 41.3 ρ = 1.00 g/cm^3
Cubes (2): SAR (1g): 1.02 mW/g ± 0.00 dB, SAR (10g): 0.649 mW/g ± 0.00 dB, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: -0.13 dB



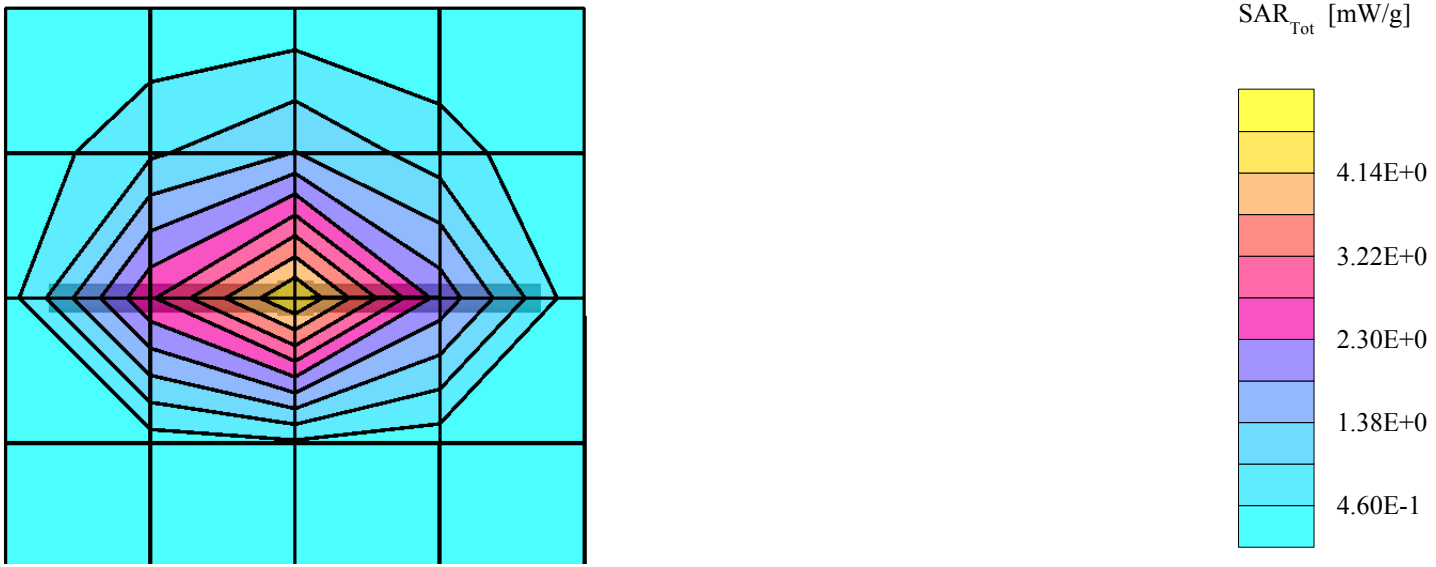
Dipole validation:

for f < 1 GHz, distance to the liquid d = 10 mm
for f > 1 GHz, distance to the liquid d=15 mm
Dipole 1900 MHz
SAM Phantom; Flat Section; Position: (90°,90°); Frequency: 1900 MHz
Probe: ET3DV6 - SN1712; ConvF(5.40,5.40,5.40); Crest factor: 1.0; Head 1900 MHz: σ = 1.43 mho/m ε_r = 39.9 ρ = 1.00 g/cm^3
Cubes (2): SAR (1g): 4.56 mW/g ± 0.02 dB, SAR (10g): 0.235 mW/g ± 0.03 dB, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: -0.02 dB



Dipole validation:

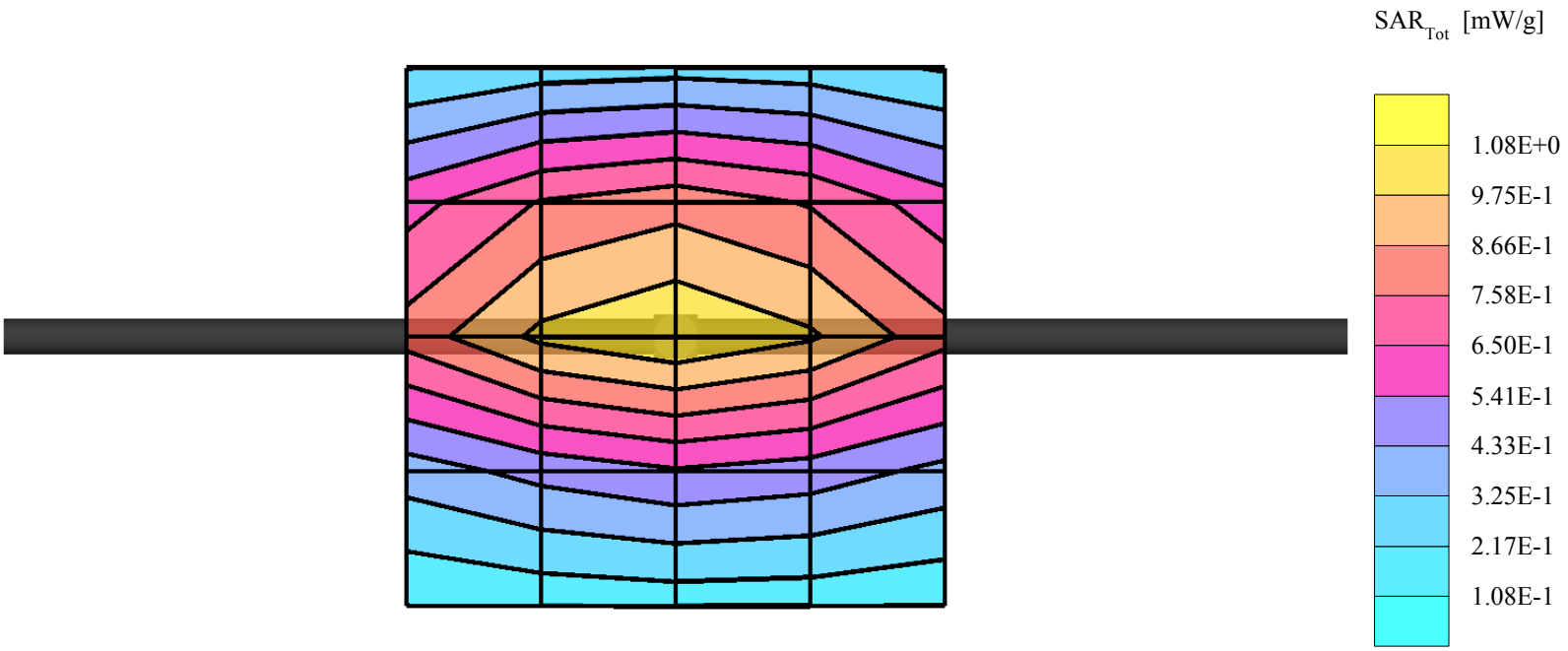
for f < 1 GHz, distance to the liquid d = 10 mm
for f > 1 GHz, distance to the liquid d=15 mm
Dipole 1900 MHz
SAM; Flat
Probe: ET3DV6 - SN1712; ConvF(5.40,5.40,5.40); Crest factor: 1.0; Head 1900 MHz: σ = 1.47 mho/m ε_r = 39.1 ρ = 1.00 g/cm^3
Cubes (2): ,Peak: 8.44 mW/g ± 0.02 dB, SAR (1g): 4.43 mW/g ± 0.00 dB, SAR (10g): 2.27 mW/g ± 0.03 dB, (Worst-case extrapolation)
Penetration depth: 8.0 (7.5, 9.0) [mm]
Powerdrift: 0.01 dB



Dipole 835MHz

Dipole validation:

for f < 1 GHz, distance to the liquid d = 10 mm
for f > 1 GHz, distance to the liquid d=15 mm
SAM Phantom; Flat Section; Position: (90°,90°); Frequency: 835 MHz
Probe: ET3DV6 - SN1712; ConvF(6.50,6.50,6.50); Crest factor: 1.0; 835 MHz Brain: σ = 0.86 mho/m ε_r = 41.6 ρ = 1.00 g/cm^3
Cubes (2): SAR (1g): 1.03 mW/g ± 0.04 dB, SAR (10g): 0.654 mW/g ± 0.05 dB, (Worst-case extrapolation)
Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0
Powerdrift: 0.00 dB



Schmid & Partner
Engineering AG

Zeughausstrasse 43, 8004 Zurich, Switzerland, Phone +41 1 245 97 00, Fax +41 1 245 97 79

Calibration Certificate

835 MHz System Validation Dipole

Type:	**D835V2**
Serial Number:	**453**
Place of Calibration:	**Zurich**
Date of Calibration:	**February 11, 2002**
Calibration Interval:	**24 months**

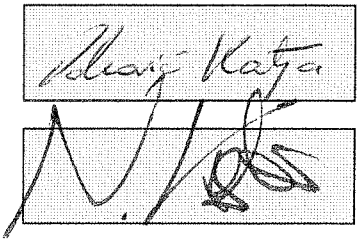
asset # 039931

Schmid & Partner Engineering AG hereby certifies, that this device has been calibrated on the date indicated above. The calibration was performed in accordance with specifications and procedures of Schmid & Partner Engineering AG.

Wherever applicable, the standards used in the calibration process are traceable to international standards. In all other cases the standards of the Laboratory for EMF and Microwave Electronics at the Swiss Federal Institute of Technology (ETH) in Zurich, Switzerland have been applied.

Calibrated by:

Approved by:



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Engineering AG

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DASY

Dipole Validation Kit

Type: D835V2

Serial: 453

Manufactured: January 31, 2002
Calibrated: February 11, 2002

1. Measurement Conditions

The measurements were performed in the flat section of the SAM twin phantom filled with head simulating solution of the following electrical parameters at 835 MHz:

Relative Dielectricity	**41.9**	± 5%
Conductivity	**0.89 mho/m**	± 5%

The DASY3 System (Software version 3.1c) with a dosimetric E-field probe ET3DV6 (SN:1507, Conversion factor 6.5 at 900 MHz) was used for the measurements.

The dipole was mounted on the small tripod so that the dipole feedpoint was positioned below the center marking of the flat phantom section and the dipole was oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 15mm from dipole center to the solution surface. The included distance holder was used during measurements for accurate distance positioning.

The coarse grid with a grid spacing of 20mm was aligned with the dipole. The 5x5x7 fine cube was chosen for cube integration. Probe isotropy errors were cancelled by measuring the SAR with normal and 90° turned probe orientations and averaging.
The dipole input power (forward power) was 250mW ± 3 %. The results are normalized to 1W input power.

2. SAR Measurement

Standard SAR-measurements were performed with the phantom according to the measurement conditions described in section 1. The results have been normalized to a dipole input power of 1W (forward power). The resulting averaged SAR-values are:

averaged over 1 cm^3 (1 g) of tissue:	**10.4 mW/g**
averaged over 10 cm^3 (10 g) of tissue:	**6.64 mW/g**

Note: If the liquid parameters for validation are slightly different from the ones used for initial calibration, the SAR-values will be different as well.

3. Dipole Impedance and Return Loss

The impedance was measured at the SMA-connector with a network analyzer and numerically transformed to the dipole feedpoint. The transformation parameters from the SMA-connector to the dipole feedpoint are:

Electrical delay:	**1.375 ns**	(one direction)
Transmission factor:	**0.987**	(voltage transmission, one direction)

The dipole was positioned at the flat phantom sections according to section 1 and the distance holder was in place during impedance measurements.

Feedpoint impedance at 835 MHz:	Re{Z} = **49.4 Ω**
	Im {Z} = **-3.8 Ω**
Return Loss at 835 MHz	**-28.4 dB**

4. Handling

Do not apply excessive force to the dipole arms, because they might bend. Bending of the dipole arms stresses the soldered connections near the feedpoint leading to a damage of the dipole.

5. Design

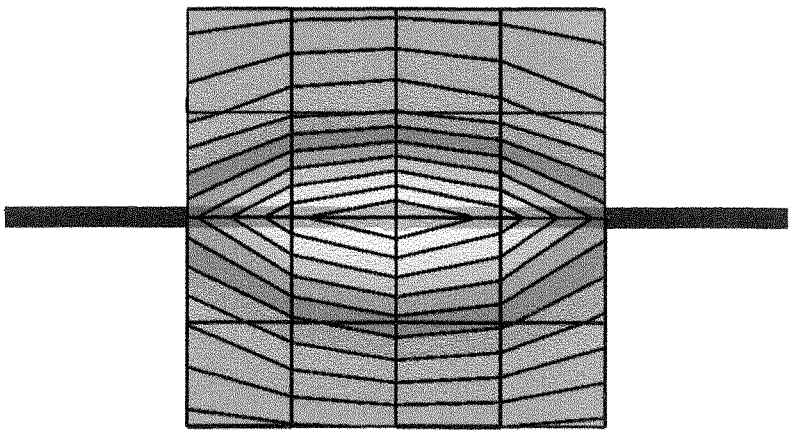
The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.

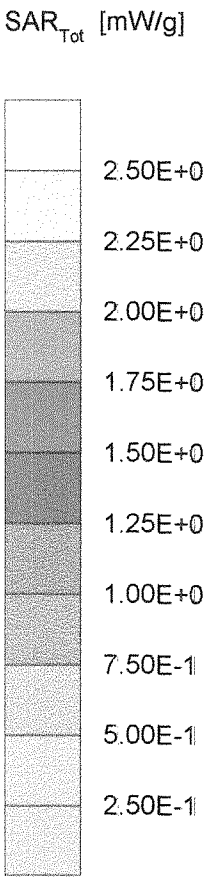
6. Power Test

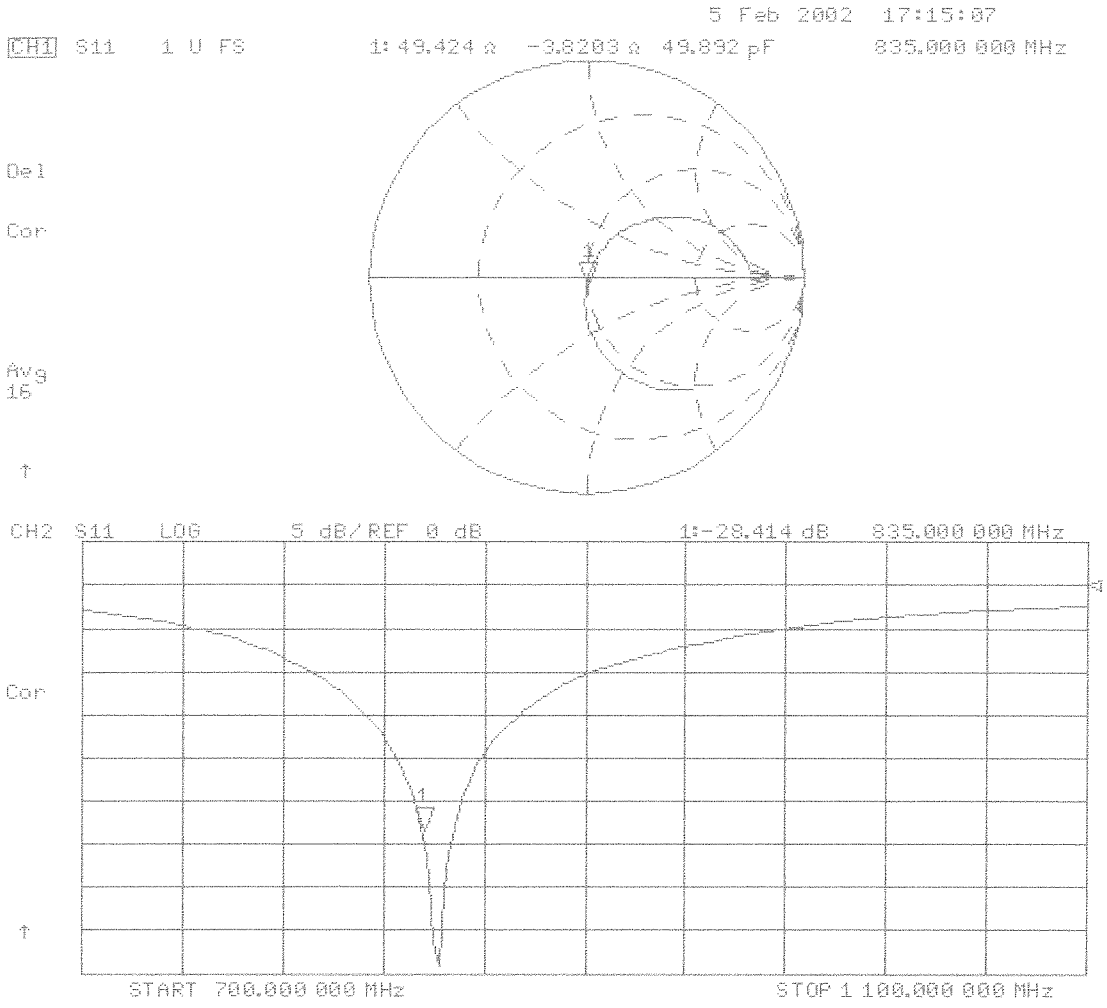
After long term use with 100W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

lidation Dipole D835V2 SN:453, d = 15 mm

quency: 835 MHz; Antenna Input Power: 250 [mW]
M Phantom; Flat Section; Grid Spacing: Dx = 20.0, Dy = 20.0, Dz = 10.0
be: ET3DV6 - SN1507; ConvF(6.50,6.50,6.50) at 900 MHz; IEEE1528 835 MHz; σ = 0.89 mho/m ε_r = 41.9 ρ = 1.00 g/cm^3
es (2): Peak: 4.16 mW/g ± 0.00 dB, SAR (1g): 2.60 mW/g ± 0.01 dB, SAR (10g): 1.66 mW/g ± 0.02 dB, (Worst-case extrapolation)
etration depth: 12.0 (10.6, 13.8) [mm]
verdrift: -0.00 dB






5 Feb 2002 17:15:07
CH1 S11 1 U FS
1: 49.424 Ω -3.8203 Ω 49.892 pF
835.000 000 MHz
Del
Cor
Avg
16
↑
CH2 S11 LOG 5 dB/ REF 0 dB
1: -28.414 dB 835.000 000 MHz
Cor
↑
START 700.000 000 MHz
STOP 1 100.000 000 MHz

Schmid & Partner
Engineering AG

Zeughausstrasse 43, 8004 Zurich, Switzerland, Phone +41 1 245 97 00, Fax +41 1 245 97 79

Calibration Certificate

1900 MHz System Validation Dipole

Type:	**D1900V2**
Serial Number:	**5d005**
Place of Calibration:	**Zurich**
Date of Calibration:	**February 20, 2002**
Calibration Interval:	**24 months**

asset #
039930

Schmid & Partner Engineering AG hereby certifies, that this device has been calibrated on the date indicated above. The calibration was performed in accordance with specifications and procedures of Schmid & Partner Engineering AG.

Wherever applicable, the standards used in the calibration process are traceable to international standards. In all other cases the standards of the Laboratory for EMF and Microwave Electronics at the Swiss Federal Institute of Technology (ETH) in Zurich, Switzerland have been applied.

Calibrated by:	
Approved by:	

Schmid & Partner
Engineering AG

Zeughausstrasse 43, 8004 Zurich, Switzerland, Phone +41 1 245 97 00, Fax +41 1 245 97 79

DASY3

Dipole Validation Kit

Type: D1900V2

Serial: 5d005

Manufactured: February 14, 2002
Calibrated: February 20, 2002

1. Measurement Conditions

The measurements were performed in the flat section of the new generic twin phantom filled with brain simulating sugar solution of the following electrical parameters at 1900 MHz:

Relative permitivity	**39.1**	± 5%
Conductivity	**1.47 mho/m**	± 10%

The DASY3 System (Software version 3.1d) with a dosimetric E-field probe ET3DV6 (SN:1507, conversion factor 5.3) was used for the measurements.

The dipole feedpoint was positioned below the center marking and oriented parallel to the body axis (the long side of the phantom). The standard measuring distance was 10mm from dipole center to the solution surface. The included distance holder was used during measurements for accurate distance positioning.

The coarse grid with a grid spacing of 20mm was aligned with the dipole. The 5x5x7 fine cube was chosen for cube integration. Probe isotropy errors were cancelled by measuring the SAR with normal and 90° turned probe orientations and averaging.
The dipole input power (forward power) was 250mW ± 3 %. The results are normalized to 1W input power.

2. SAR Measurement

Standard SAR-measurements were performed with the head phantom according to the measurement conditions described in section 1. The results (see figure) have been normalized to a dipole input power of 1W (forward power). The resulting averaged SAR-values are:

averaged over 1 cm^3 (1 g) of tissue:	**45.6 mW/g**
averaged over 10 cm^3 (10 g) of tissue:	**23.1 mW/g**

Note: If the liquid parameters for validation are slightly different from the ones used for initial calibration, the SAR-values will be different as well. The estimated sensitivities of SAR-values and penetration depths to the liquid parameters are listed in the DASY Application Note 4: 'SAR Sensitivities'.

3. Dipole Impedance and Return Loss

The impedance was measured at the SMA-connector with a network analyzer and numerically transformed to the dipole feedpoint. The transformation parameters from the SMA-connector to the dipole feedpoint are:

Electrical delay:	**1.182 ns**	(one direction)
Transmission factor:	**0.996**	(voltage transmission, one direction)

The dipole was positioned at the flat phantom sections according to section 1 and the distance holder was in place during impedance measurements.

Feedpoint impedance at 1900 MHz:	Re{Z} = **50.9 Ω**
	Im {Z} = **2.4 Ω**
Return Loss at 1900 MHz	**- 32.0 dB**

4. Handling

Do not apply excessive force to the dipole arms, because they might bend. Bending of the dipole arms stresses the soldered connections near the feedpoint leading to a damage of the dipole.

Small end caps have been added to the dipole arms in order to improve matching when loaded according to the position as explained in Section 1. The SAR data are not affected by this change. The overall dipole length is still according to the Standard.

5. Design

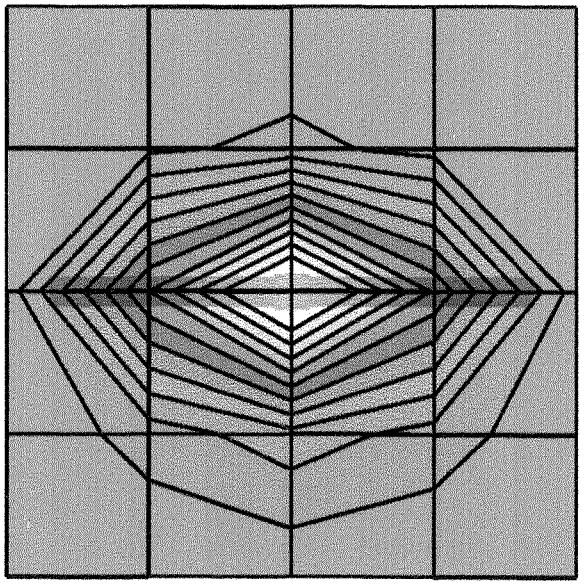
The dipole is made of standard semirigid coaxial cable. The center conductor of the feeding line is directly connected to the second arm of the dipole. The antenna is therefore short-circuited for DC-signals.

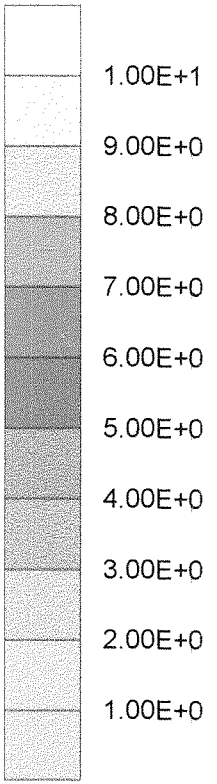
6. Power Test

After long term use with 40W radiated power, only a slight warming of the dipole near the feedpoint can be measured.

ılidation Dipole D1900V2 SN:5d005, d = 10 mm

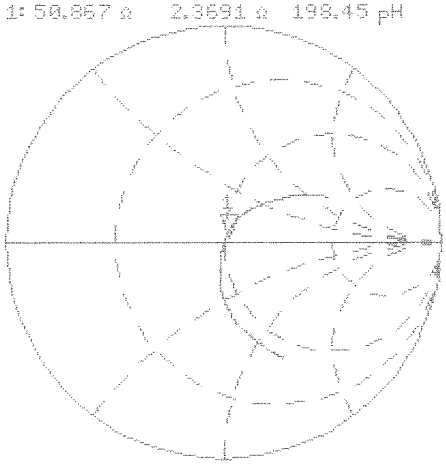
quency: 1900 MHz; Antenna Input Power: 250 [mW]
M Phantom; Flat Section; Grid Spacing: Dx = 20.0, Dy = 20.0, Dz = 10.0
be: ET3DV6 - SN1507; ConvF(5.30,5.30,5.30) at 1800 MHz; IEEE1528 1900 MHz ; σ = 1.47 mho/m ε_r = 39.1 ρ = 1.00 g/cm^3
)es (2): Peak: 21.9 mW/g ± 0.03 dB, SAR (1g): 11.4 mW/g ± 0.03 dB, SAR (10g): 5.78 mW/g ± 0.02 dB, (Worst-case extrapolation)
ıetration depth: 7.8 (7.4, 8.7) [mm]
verdrift: -0.02 dB





20 Feb 2002 17:43:08

CH1 S11 1 U FS 1: 50.867 Ω 2.3691 Ω 198.45 pH 1 900.000 000 MHz



Del

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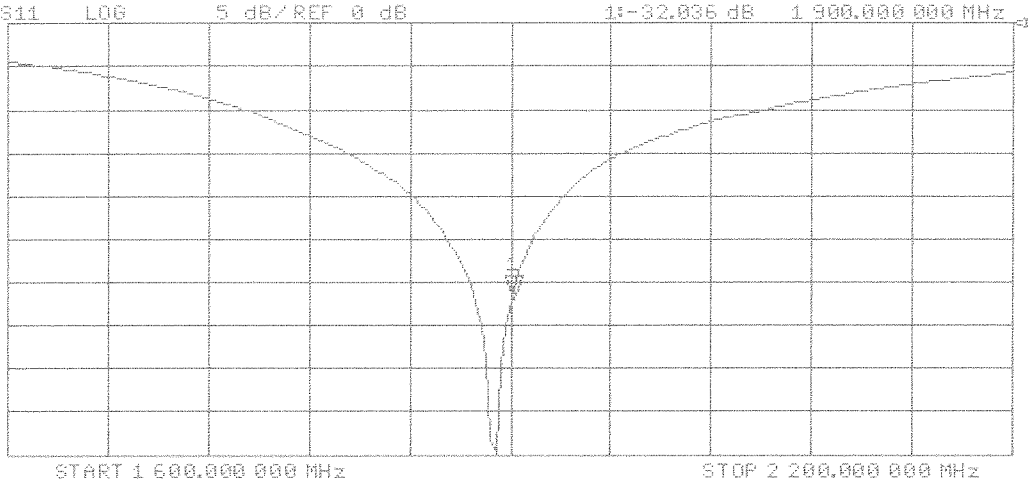
Avg
16

↑

CH2 S11 LOG 5 dB/ REF 0 dB 1:-32.036 dB 1 900.000 000 MHz



Cor

Avg
16

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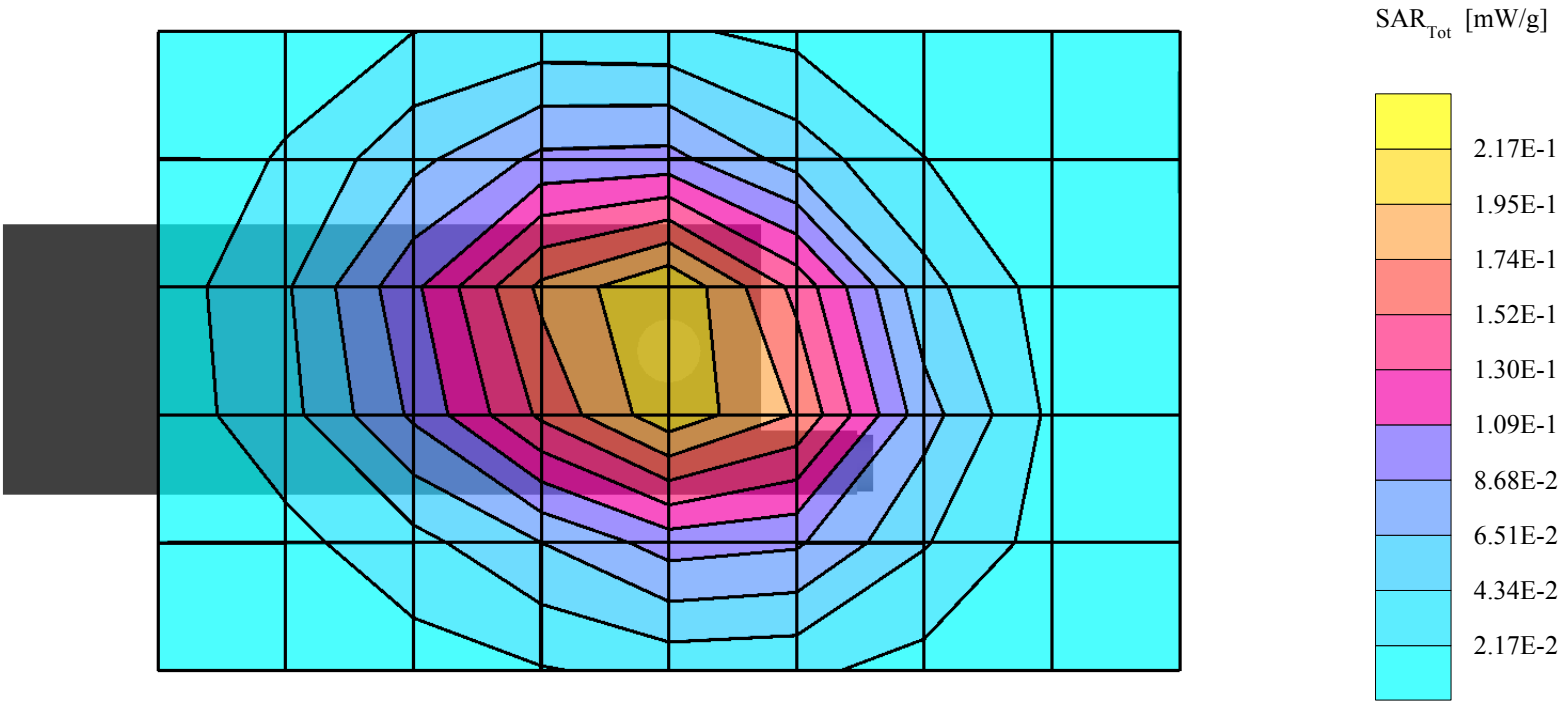
START 1 600.000 000 MHz STOP 2 200.000 000 MHz

APPENDIX B: SAR DISTRIBUTION PRINTOUT

Muscle SAR distribution printouts are follows.

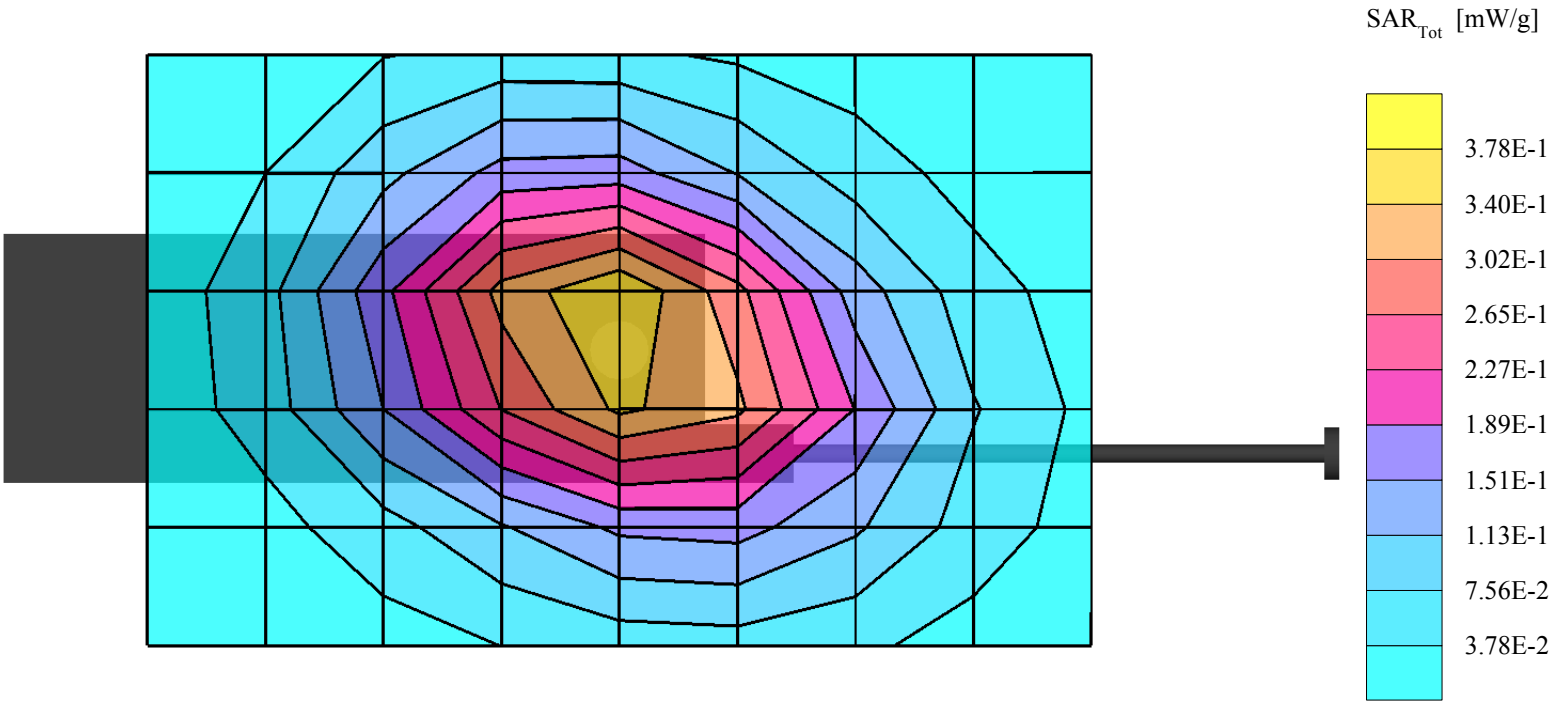
FM ch991, Flat with Kyocera Belt Clip, 03-04-03

Temp: 22.2C Humidity:34%
S14
SAM Phantom; Flat Section; Position: (90°,90°); Frequency: 835 MHz
Probe: ET3DV6 - SN1712; ConvF(6.30,6.30,6.30); Crest factor: 1.0; Muscle 835 MHz: σ = 0.94 mho/m ε_r = 55.2 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.217 mW/g, SAR (10g): 0.155 mW/g, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: -0.03 dB



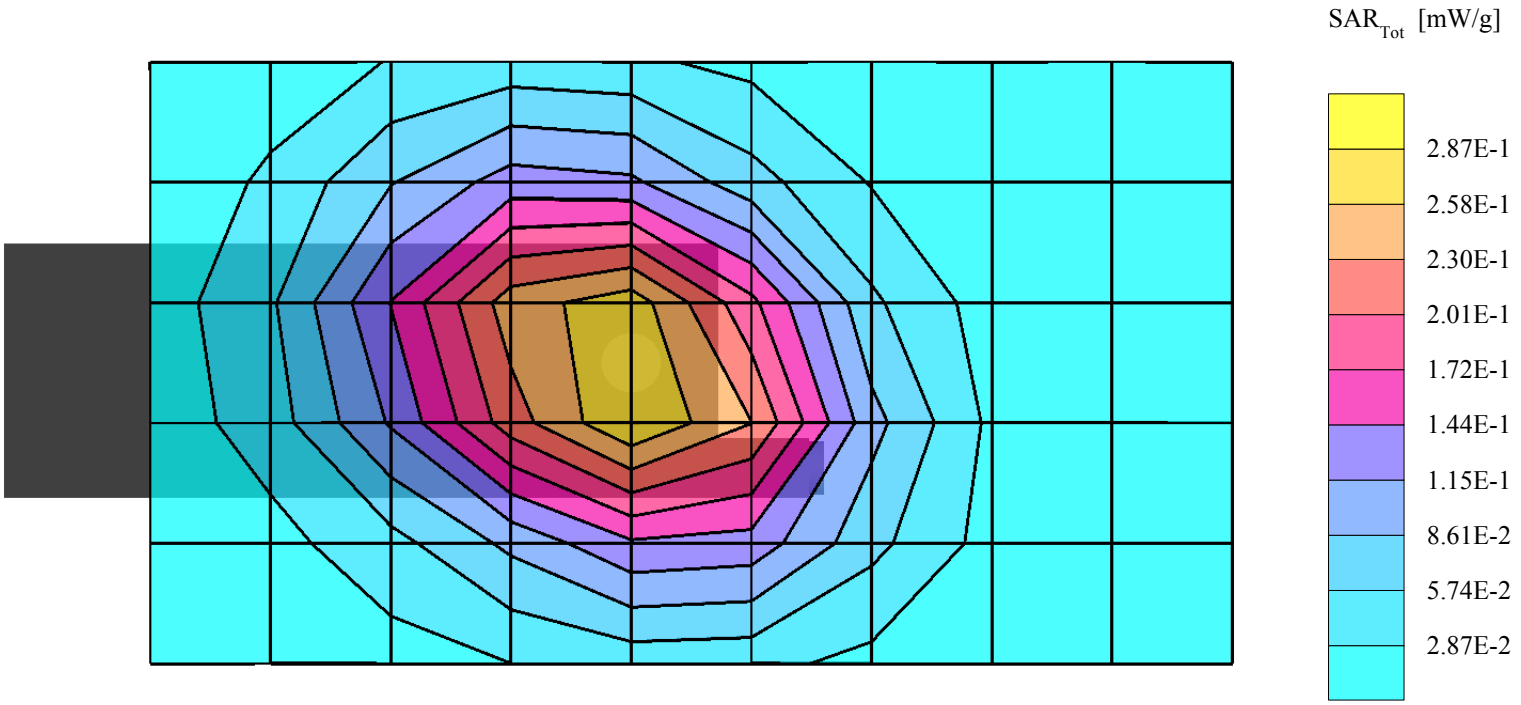
FM ch991, Flat with Kyocera Belt Clip, 03-04-03

Temp: 22.2C Humidity:34%
S14
SAM Phantom; Flat Section; Position: (90°,90°); Frequency: 835 MHz
Probe: ET3DV6 - SN1712; ConvF(6.30,6.30,6.30); Crest factor: 1.0; Muscle 835 MHz: σ = 0.94 mho/m ε_r = 55.2 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.376 mW/g, SAR (10g): 0.268 mW/g, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: -0.15 dB



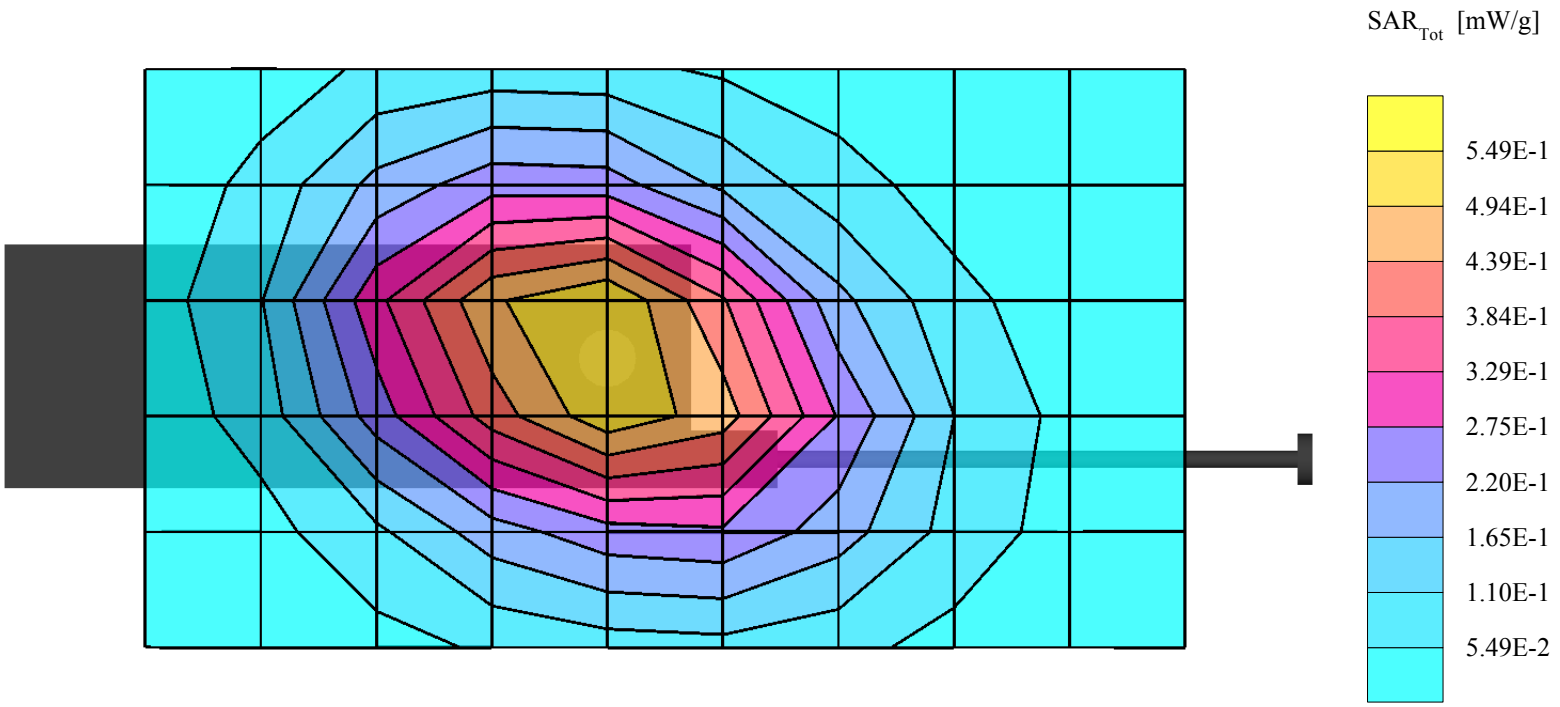
FM ch383, Flat with Kyocera Belt Clip, 03-04-03

Temp: 22.2C Humidity:34%
S14
SAM Phantom; Flat Section; Position: (90°,90°); Frequency: 835 MHz
Probe: ET3DV6 - SN1712; ConvF(6.30,6.30,6.30); Crest factor: 1.0; Muscle 835 MHz: σ = 0.94 mho/m ε_r = 55.2 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.303 mW/g, SAR (10g): 0.215 mW/g, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: -0.04 dB



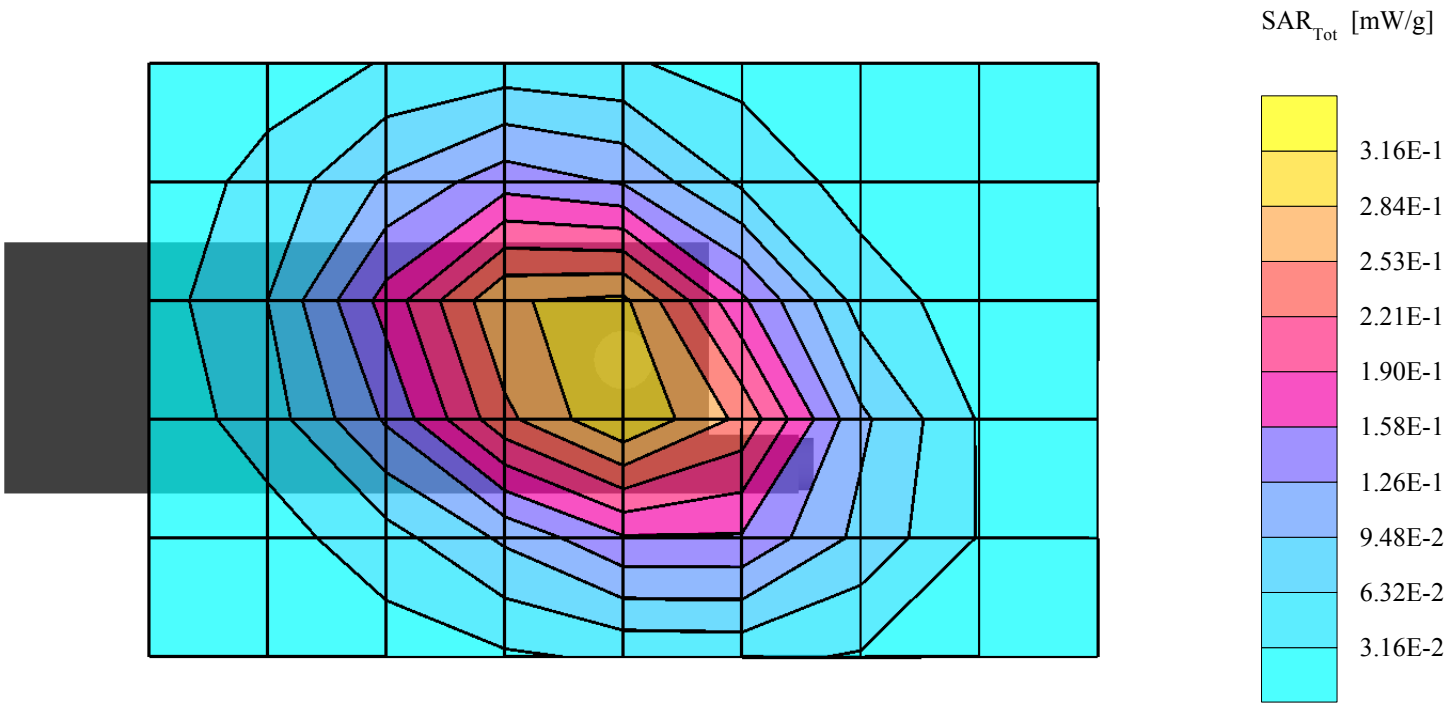
FM ch383, Flat with Kyocera Belt Clip, 03-04-03

Temp: 22.2C Humidity:34%
S14
SAM Phantom; Flat Section; Position: (90°,90°); Frequency: 835 MHz
Probe: ET3DV6 - SN1712; ConvF(6.30,6.30,6.30); Crest factor: 1.0; Muscle 835 MHz: σ = 0.94 mho/m ε_r = 55.2 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.548 mW/g, SAR (10g): 0.388 mW/g, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: 0.04 dB



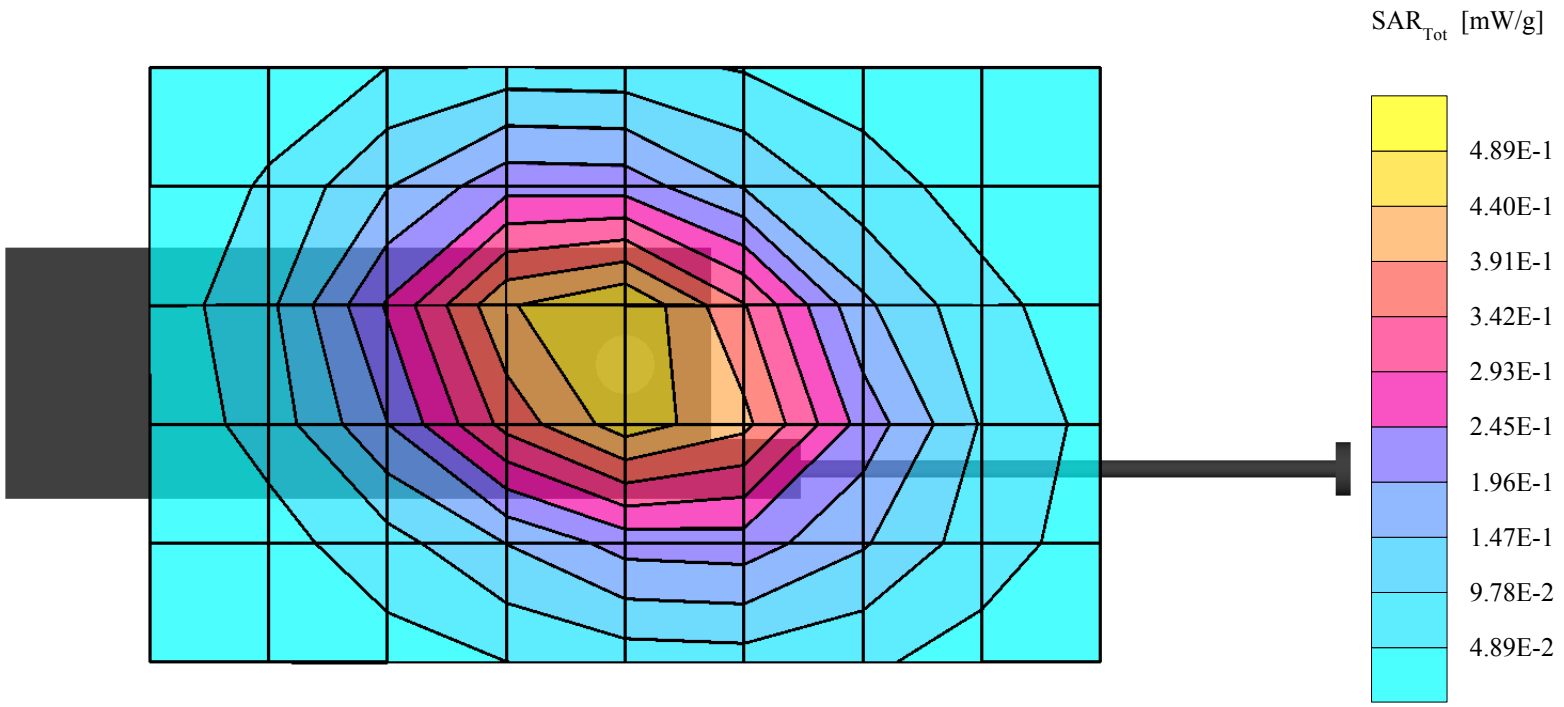
FM ch799, Flat with Kyocera Belt Clip, 03-04-03

Temp: 22.2C Humidity:34%
S14
SAM Phantom; Flat Section; Position: (90°,90°); Frequency: 835 MHz
Probe: ET3DV6 - SN1712; ConvF(6.30,6.30,6.30); Crest factor: 1.0; Muscle 835 MHz: σ = 0.94 mho/m ε_r = 55.2 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.311 mW/g, SAR (10g): 0.220 mW/g, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: -0.31 dB



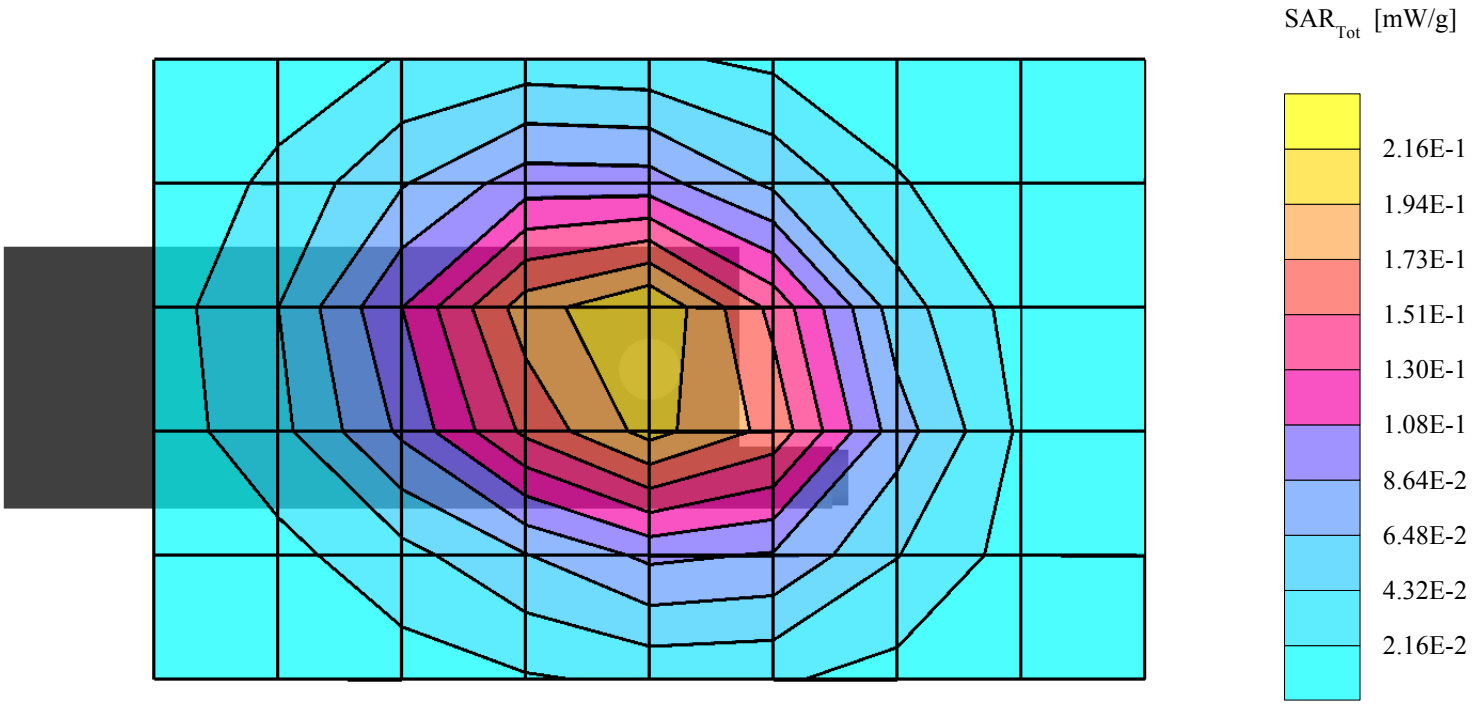
FM ch799, Flat with Kyocera Belt Clip, 03-04-03

Temp: 22.2C Humidity:34%
S14
SAM Phantom; Flat Section; Position: (90°,90°); Frequency: 835 MHz
Probe: ET3DV6 - SN1712; ConvF(6.30,6.30,6.30); Crest factor: 1.0; Muscle 835 MHz: σ = 0.94 mho/m ε_r = 55.2 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.511 mW/g, SAR (10g): 0.346 mW/g * Max outside, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: -0.00 dB



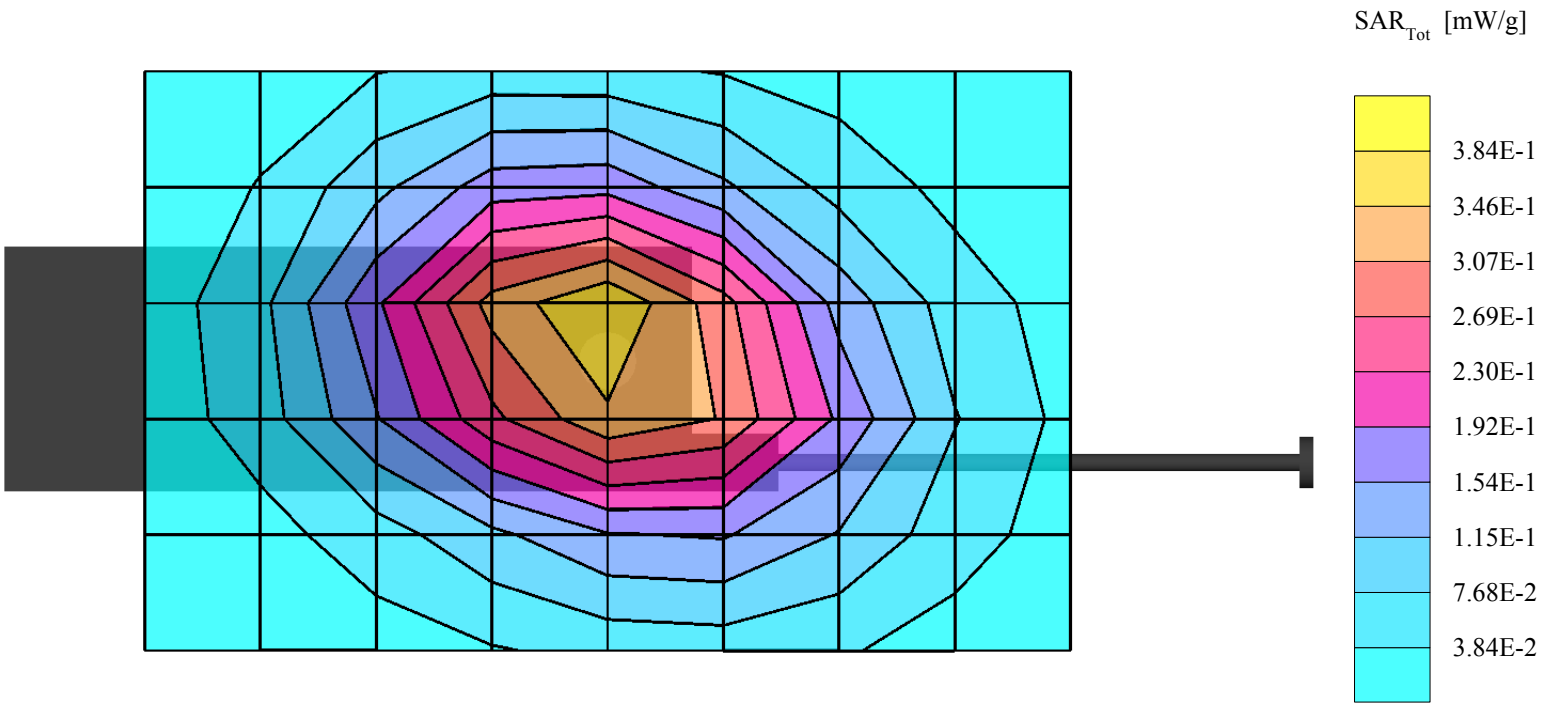
CDMA ch1013 Flat with Kyocera Belt Clip, 03-04-03

Temp: 22.2C Humidity:34%
S14
SAM Phantom; Flat Section; Position: (90°,90°); Frequency: 835 MHz
Probe: ET3DV6 - SN1712; ConvF(6.30,6.30,6.30); Crest factor: 1.0; Muscle 835 MHz: σ = 0.94 mho/m ε_r = 55.2 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.228 mW/g, SAR (10g): 0.161 mW/g, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: 0.03 dB



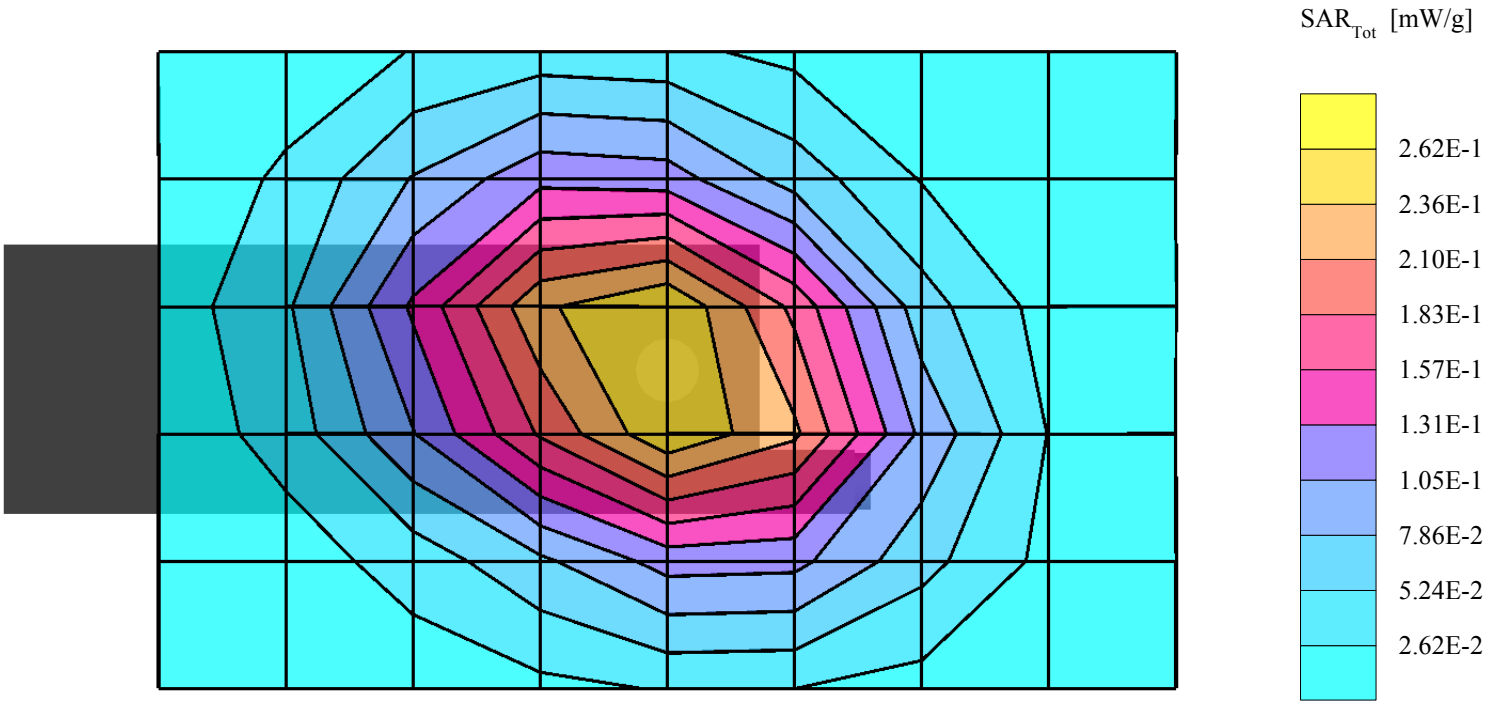
CDMA ch1013 Flat with Kyocera Belt Clip, 03-04-03

Temp: 22.2C Humidity:34%
S14
SAM Phantom; Flat Section; Position: (90°,90°); Frequency: 835 MHz
Probe: ET3DV6 - SN1712; ConvF(6.30,6.30,6.30); Crest factor: 1.0; Muscle 835 MHz: σ = 0.94 mho/m ε_r = 55.2 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.394 mW/g, SAR (10g): 0.278 mW/g, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: 0.12 dB



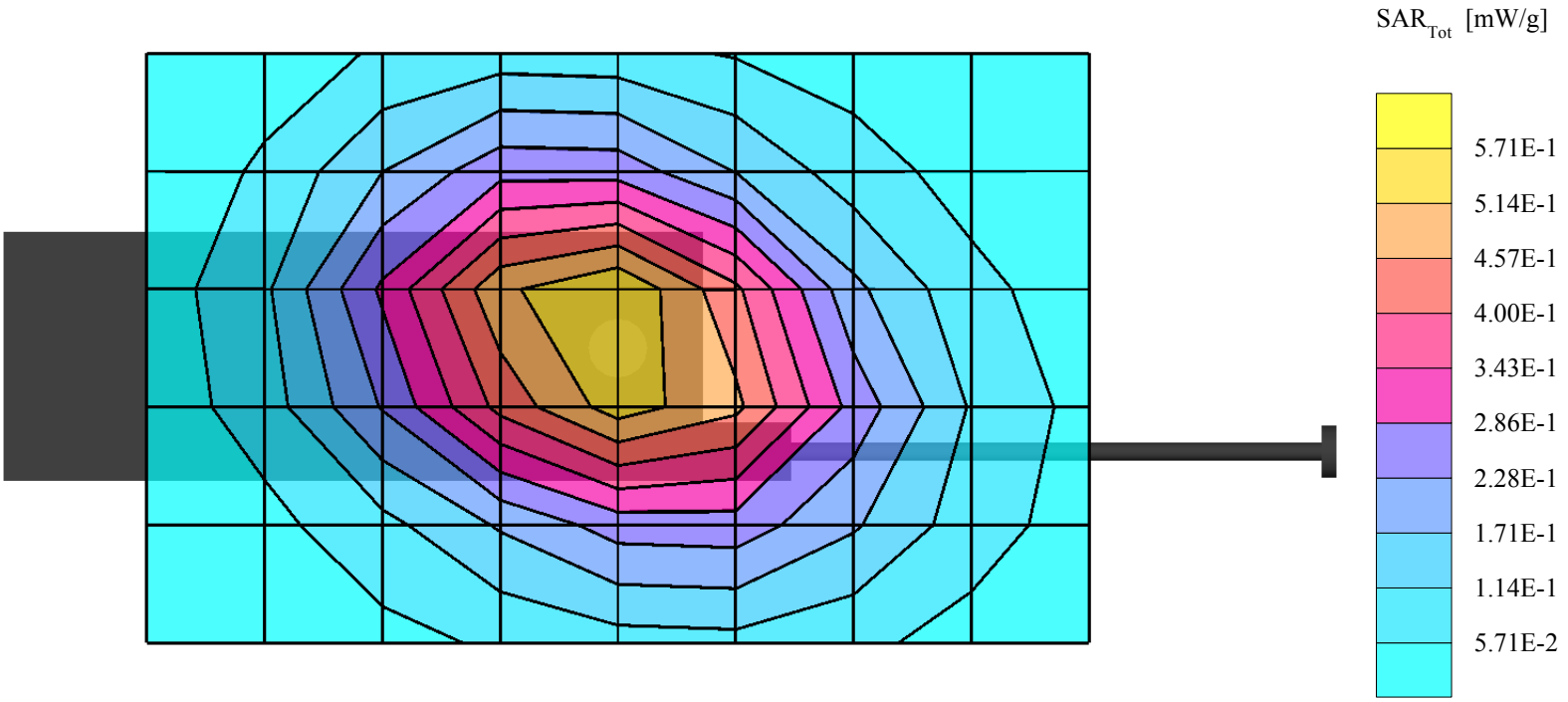
CDMA ch383 Flat with Kyocera Belt Clip, 03-04-03

Temp: 22.2C Humidity:34%
S14
SAM Phantom; Flat Section; Position: (90°,90°); Frequency: 835 MHz
Probe: ET3DV6 - SN1712; ConvF(6.30,6.30,6.30); Crest factor: 1.0; Muscle 835 MHz: σ = 0.94 mho/m ε_r = 55.2 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.291 mW/g, SAR (10g): 0.204 mW/g, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: 0.32 dB



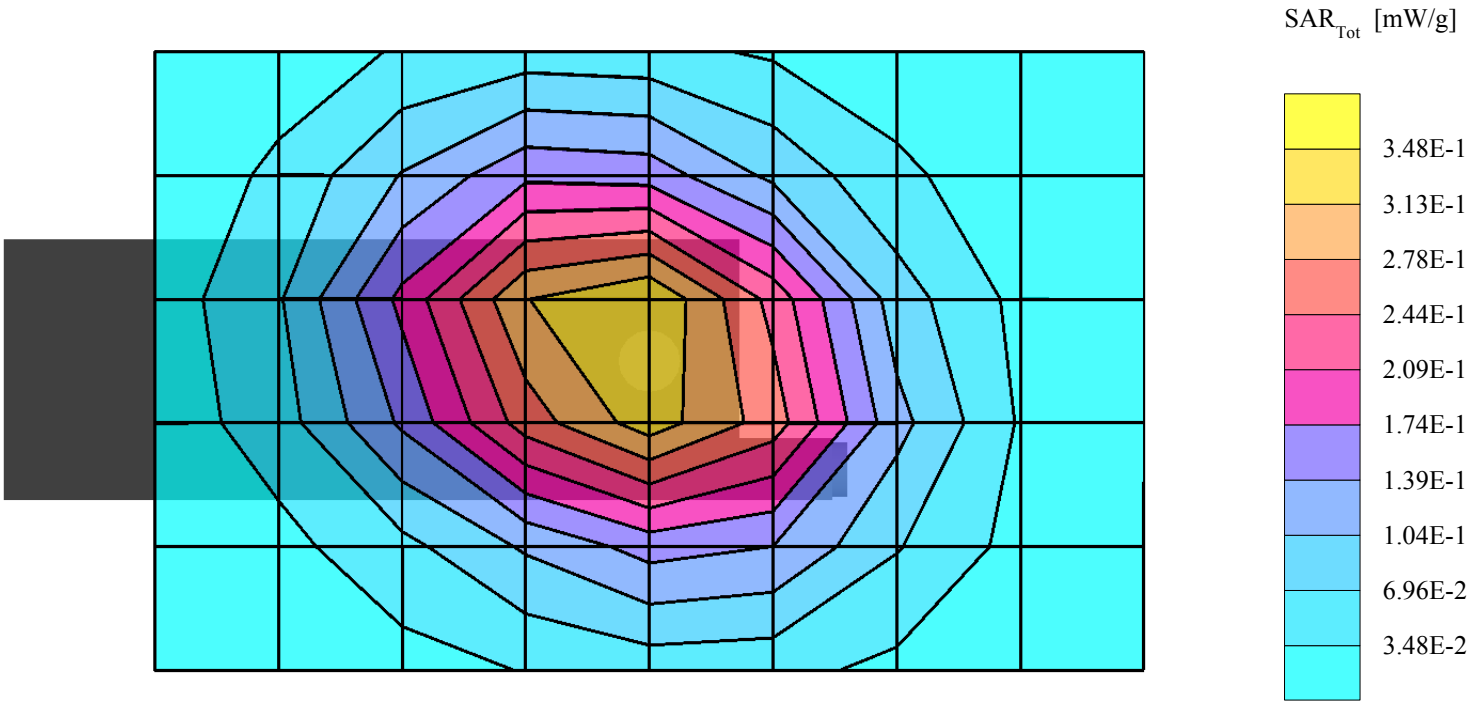
CDMA ch383 Flat with Kyocera Belt Clip, 03-04-03

Temp: 22.2C Humidity:34%
S14
SAM Phantom; Flat Section; Position: (90°,90°); Frequency: 835 MHz
Probe: ET3DV6 - SN1712; ConvF(6.30,6.30,6.30); Crest factor: 1.0; Muscle 835 MHz: σ = 0.94 mho/m ε_r = 55.2 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.596 mW/g, SAR (10g): 0.425 mW/g, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: 0.04 dB



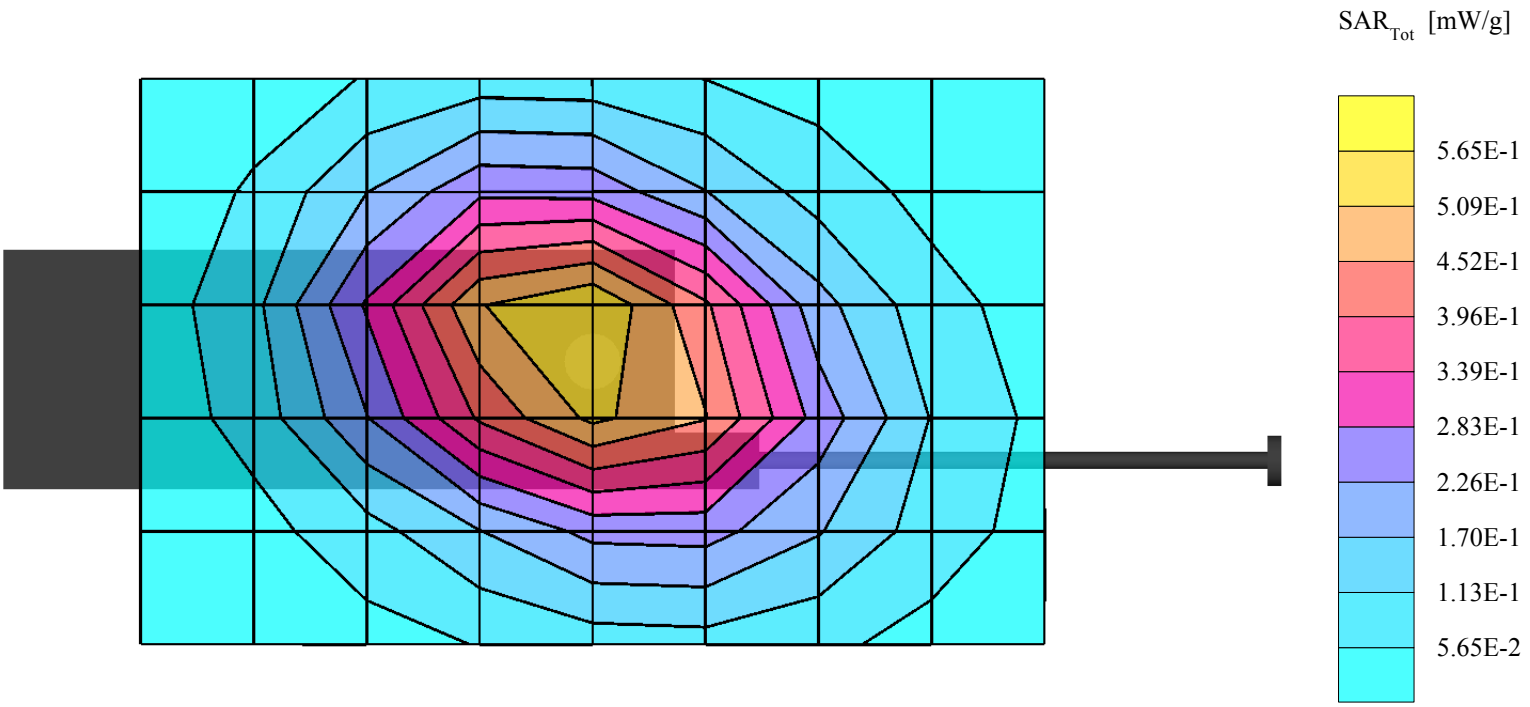
CDMA ch777 Flat with Kyocera Belt Clip, 03-04-03

Temp: 22.2C Humidity:34%
S14
SAM Phantom; Flat Section; Position: (90°,90°); Frequency: 835 MHz
Probe: ET3DV6 - SN1712; ConvF(6.30,6.30,6.30); Crest factor: 1.0; Muscle 835 MHz: σ = 0.94 mho/m ε_r = 55.2 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.360 mW/g, SAR (10g): 0.254 mW/g, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: -0.06 dB



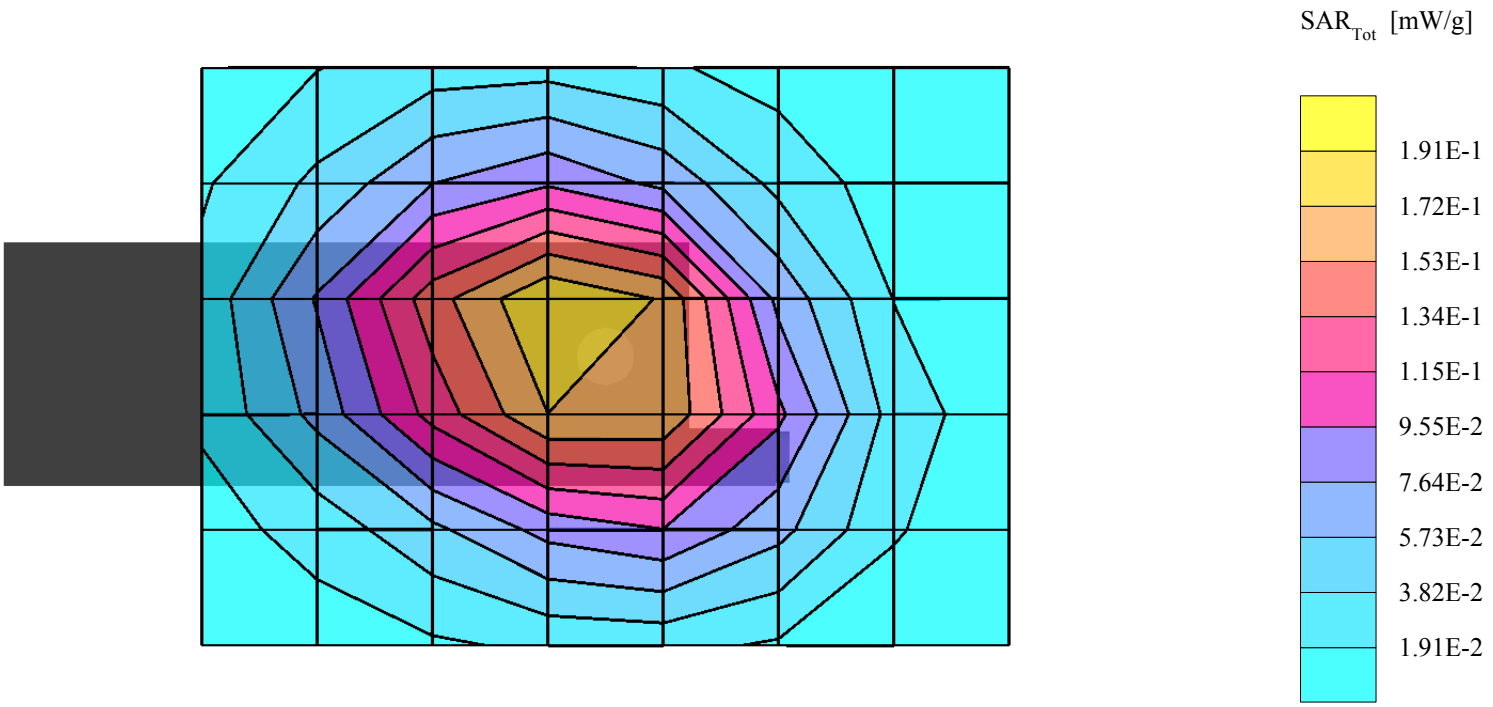
CDMA ch777 Flat with Kyocera Belt Clip, 03-04-03

Temp: 22.2C Humidity:34%
S14
SAM Phantom; Flat Section; Position: (90°,90°); Frequency: 835 MHz
Probe: ET3DV6 - SN1712; ConvF(6.30,6.30,6.30); Crest factor: 1.0; Muscle 835 MHz: σ = 0.94 mho/m ε_r = 55.2 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.582 mW/g, SAR (10g): 0.410 mW/g, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: -0.01 dB



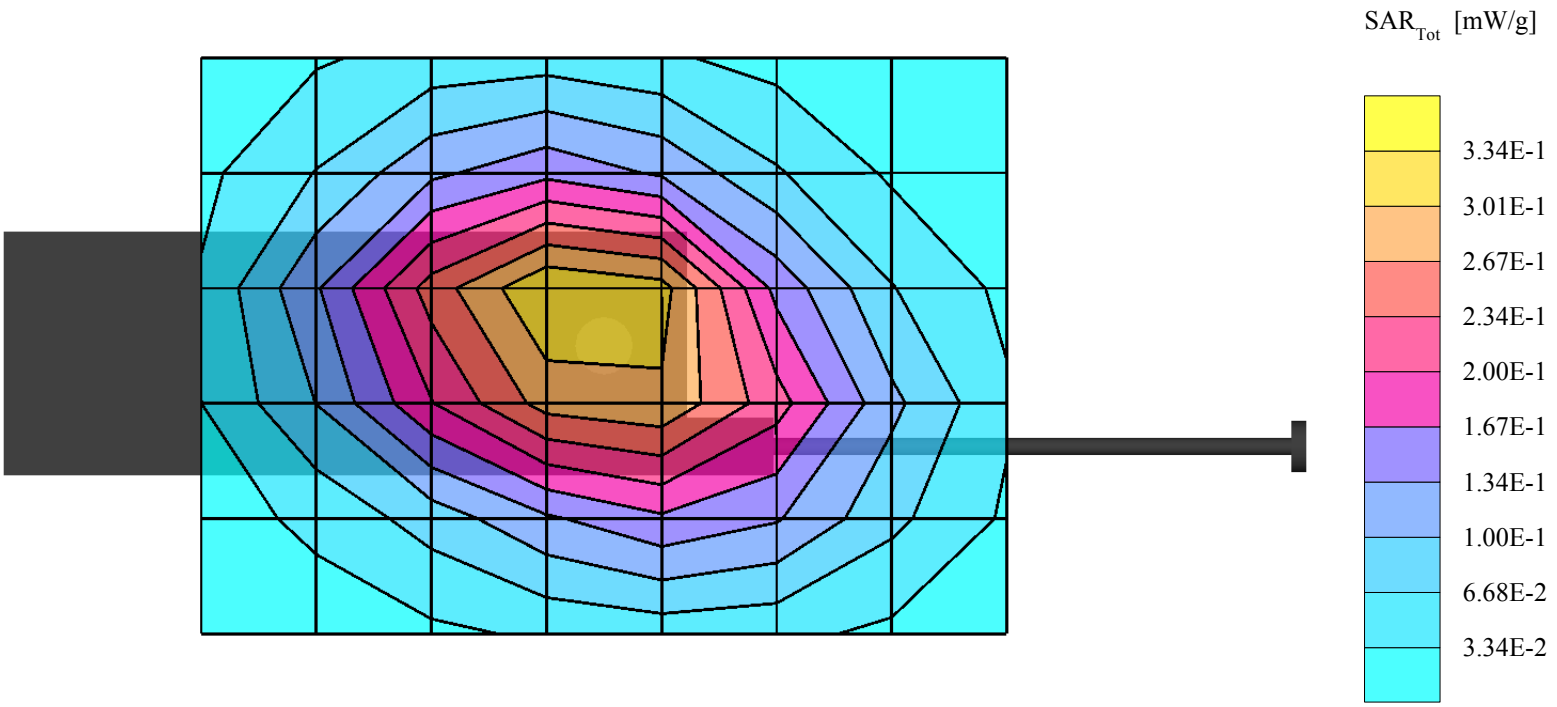
FMch991, Flat with Leather Belt Clip, 03-04-03

Temp: 22.2C Humidity:34%
S14
SAM Phantom; Flat Section; Position: (90°,90°); Frequency: 835 MHz
Probe: ET3DV6 - SN1712; ConvF(6.30,6.30,6.30); Crest factor: 1.0; Muscle 835 MHz: σ = 0.94 mho/m ε_r = 55.2 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.200 mW/g, SAR (10g): 0.141 mW/g, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: 0.17 dB



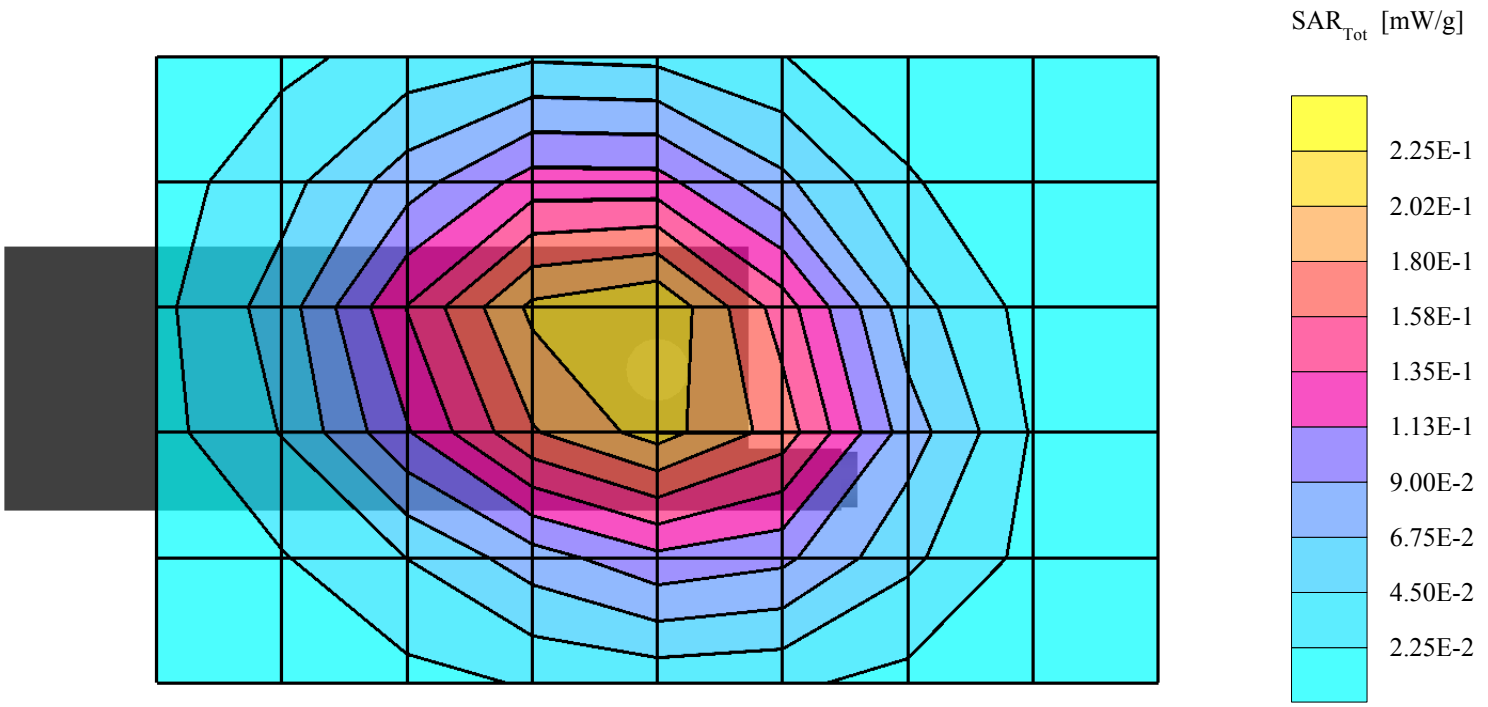
FMch991, Flat with Leather Belt Clip, 03-04-03

Temp: 22.2C Humidity:34%
S14
SAM Phantom; Flat Section; Position: (90°,90°); Frequency: 835 MHz
Probe: ET3DV6 - SN1712; ConvF(6.30,6.30,6.30); Crest factor: 1.0; Muscle 835 MHz: σ = 0.94 mho/m ε_r = 55.2 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.350 mW/g, SAR (10g): 0.245 mW/g, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: -0.11 dB



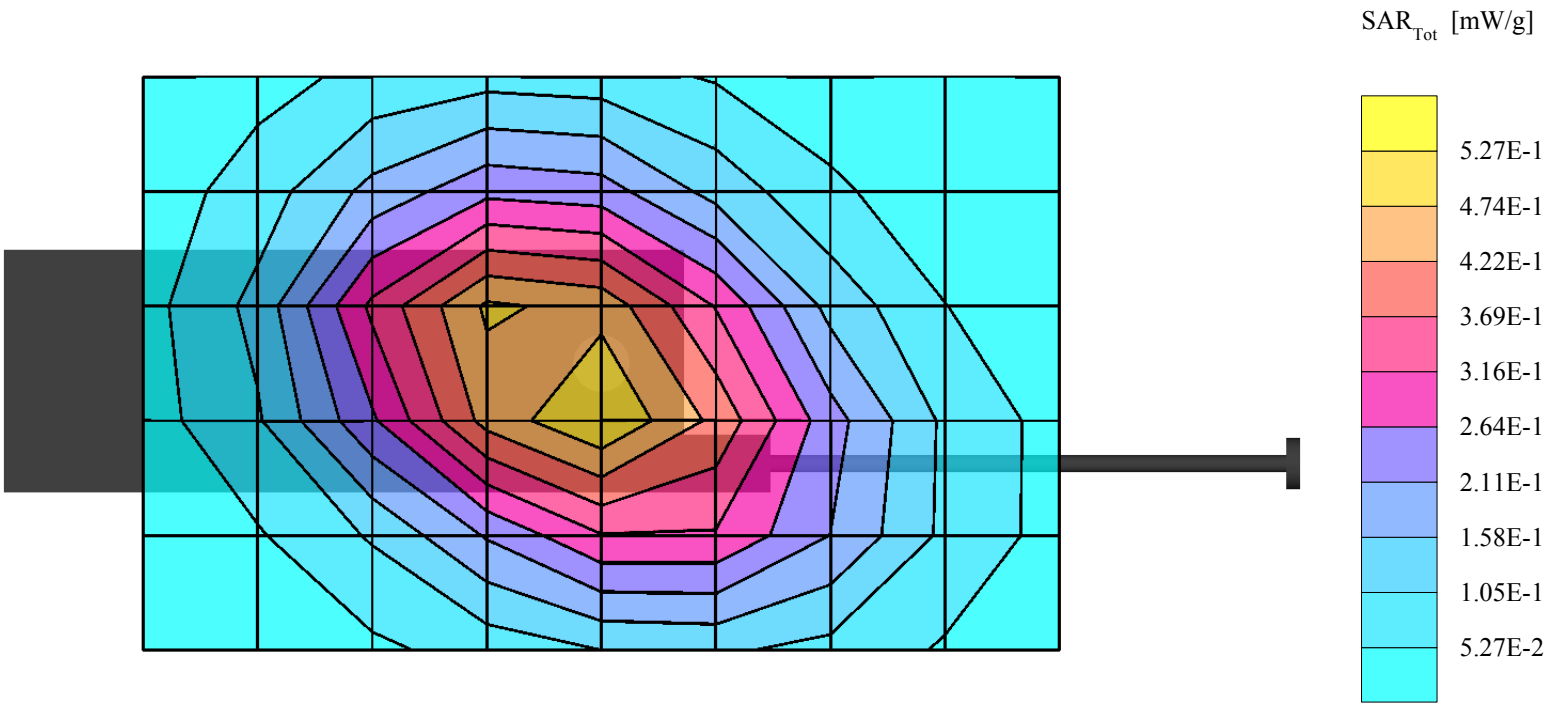
FMch383, Flat with Leather Belt Clip, 03-04-03

Temp: 22.2C Humidity:34%
S14
SAM Phantom; Flat Section; Position: (90°,90°); Frequency: 835 MHz
Probe: ET3DV6 - SN1712; ConvF(6.30,6.30,6.30); Crest factor: 1.0; Muscle 835 MHz: σ = 0.94 mho/m ε_r = 55.2 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.276 mW/g, SAR (10g): 0.195 mW/g, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: 0.01 dB



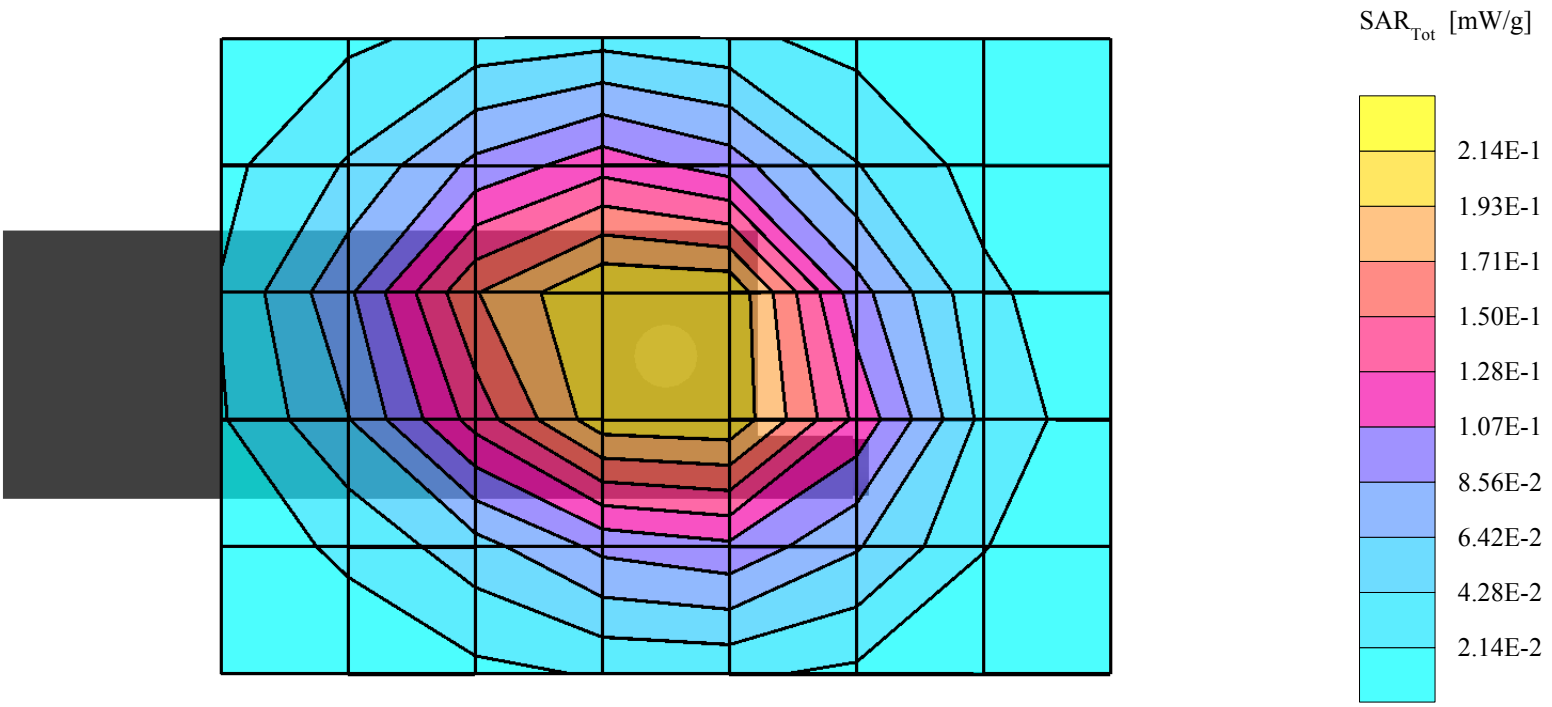
FMch383, Flat with Leather Belt Clip, 03-04-03

Temp: 22.2C Humidity:34%
S14
SAM Phantom; Flat Section; Position: (90°,90°); Frequency: 835 MHz
Probe: ET3DV6 - SN1712; ConvF(6.30,6.30,6.30); Crest factor: 1.0; Muscle 835 MHz: σ = 0.94 mho/m ε_r = 55.2 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.551 mW/g, SAR (10g): 0.391 mW/g, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: 0.09 dB



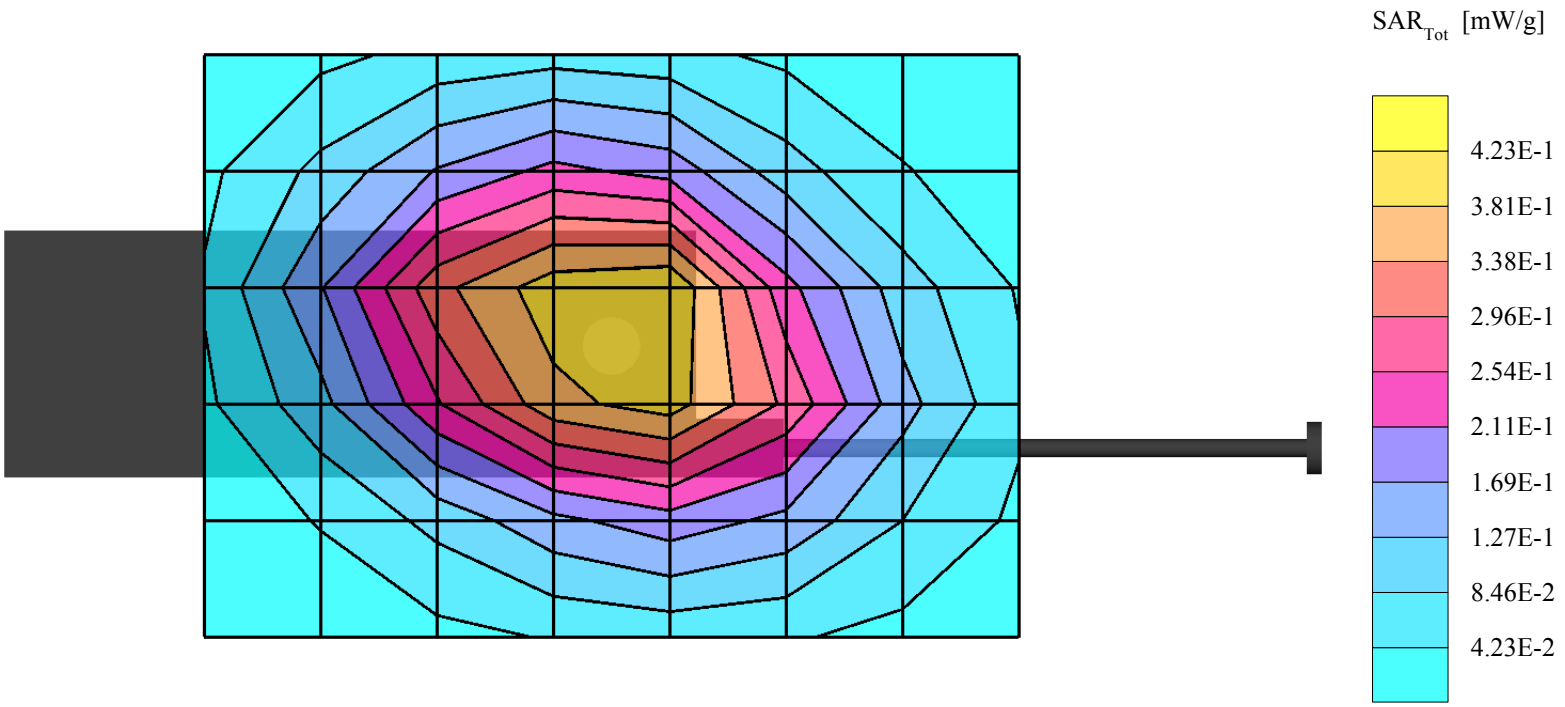
FMch799, Flat with Leather Belt Clip, 03-04-03

Temp: 22.2C Humidity:34%
S14
SAM Phantom; Flat Section; Position: (90°,90°); Frequency: 835 MHz
Probe: ET3DV6 - SN1712; ConvF(6.30,6.30,6.30); Crest factor: 1.0; Muscle 835 MHz: σ = 0.94 mho/m ε_r = 55.2 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.231 mW/g, SAR (10g): 0.163 mW/g * Max outside, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: -0.19 dB



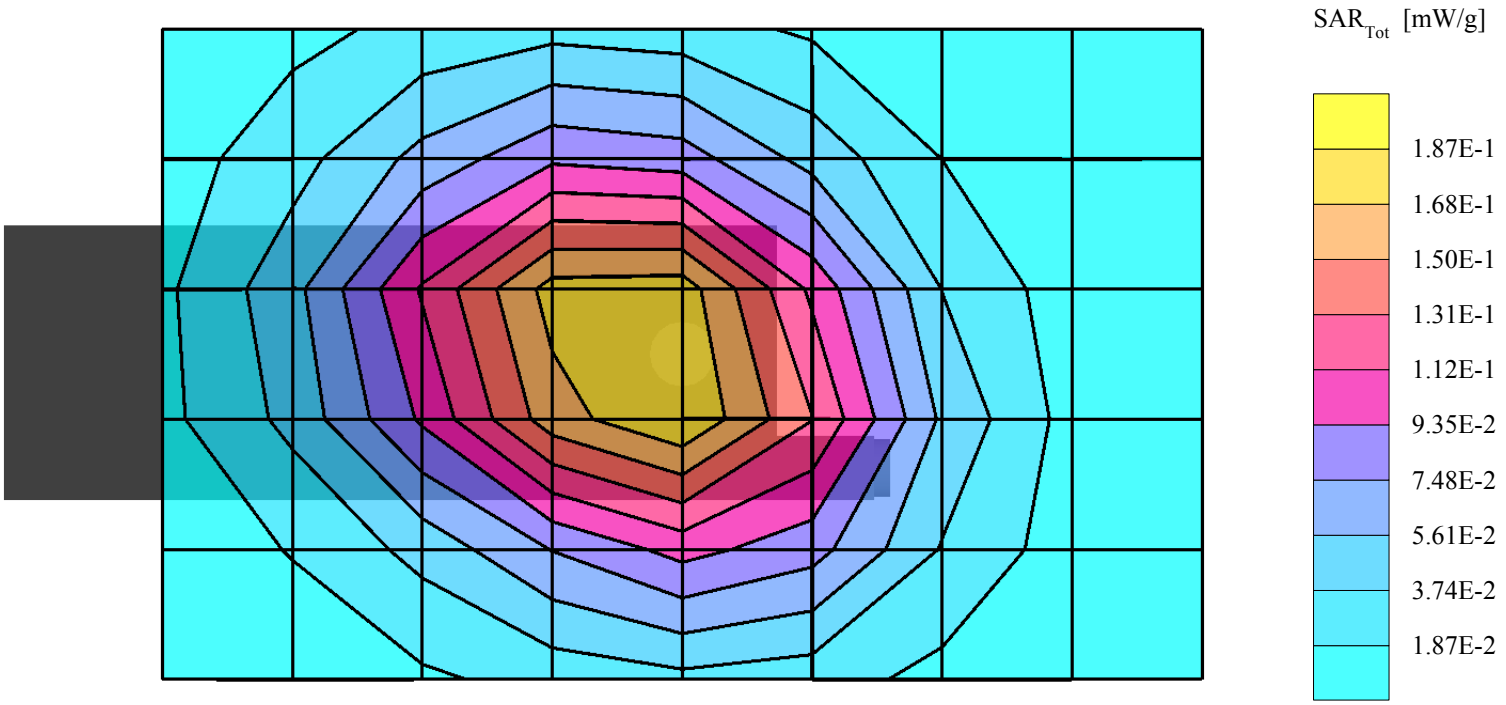
FMch799, Flat with Leather Belt Clip, 03-04-03

Temp: 22.2C Humidity:34%
S14
SAM Phantom; Flat Section; Position: (90°,90°); Frequency: 835 MHz
Probe: ET3DV6 - SN1712; ConvF(6.30,6.30,6.30); Crest factor: 1.0; Muscle 835 MHz: σ = 0.94 mho/m ε_r = 55.2 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.415 mW/g, SAR (10g): 0.294 mW/g, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: -0.17 dB



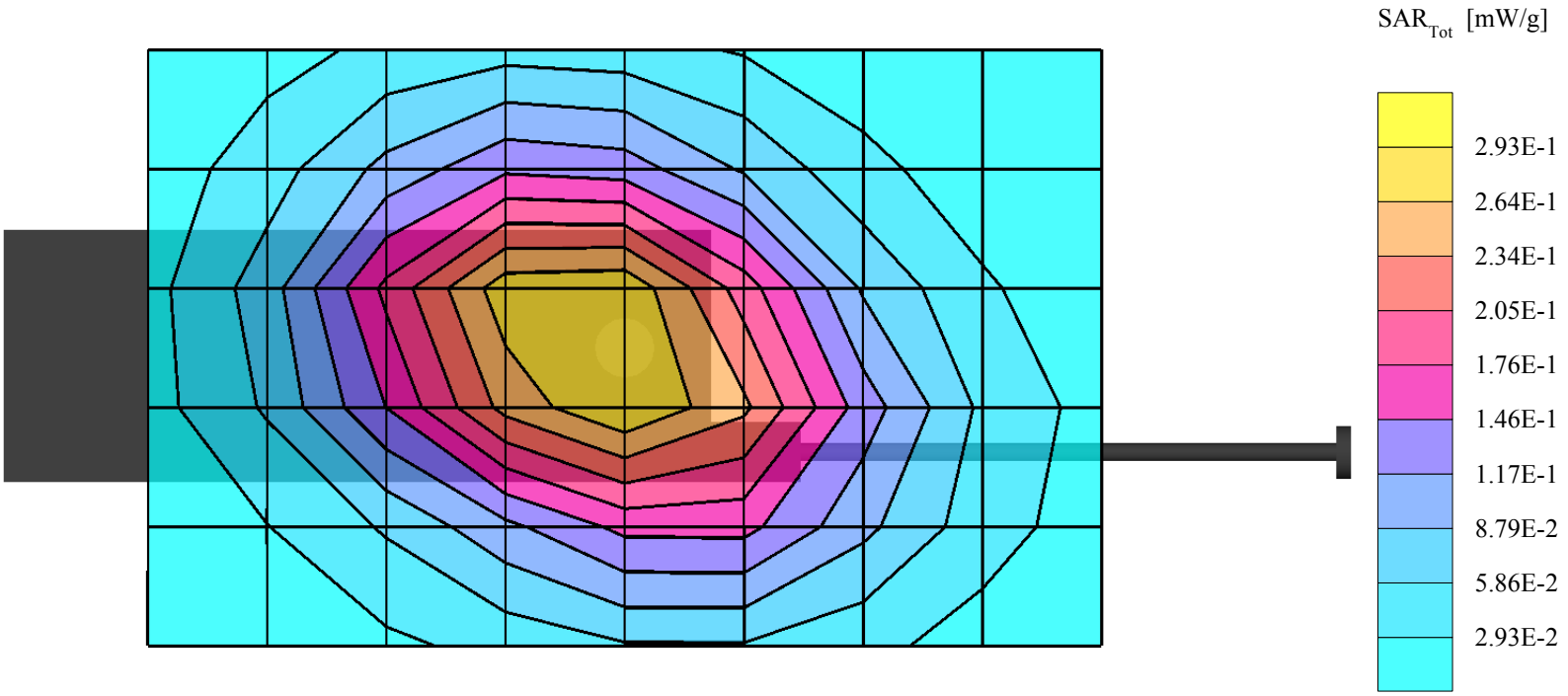
CDMA ch1013, Flat with Leather Belt Clip, 03-04-03

Temp: 22.2C Humidity:34%
S14
SAM Phantom; Flat Section; Position: (90°,90°); Frequency: 835 MHz
Probe: ET3DV6 - SN1712; ConvF(6.30,6.30,6.30); Crest factor: 1.0; Muscle 835 MHz: σ = 0.94 mho/m ε_r = 55.2 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.201 mW/g, SAR (10g): 0.135 mW/g * Max outside, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: -0.01 dB



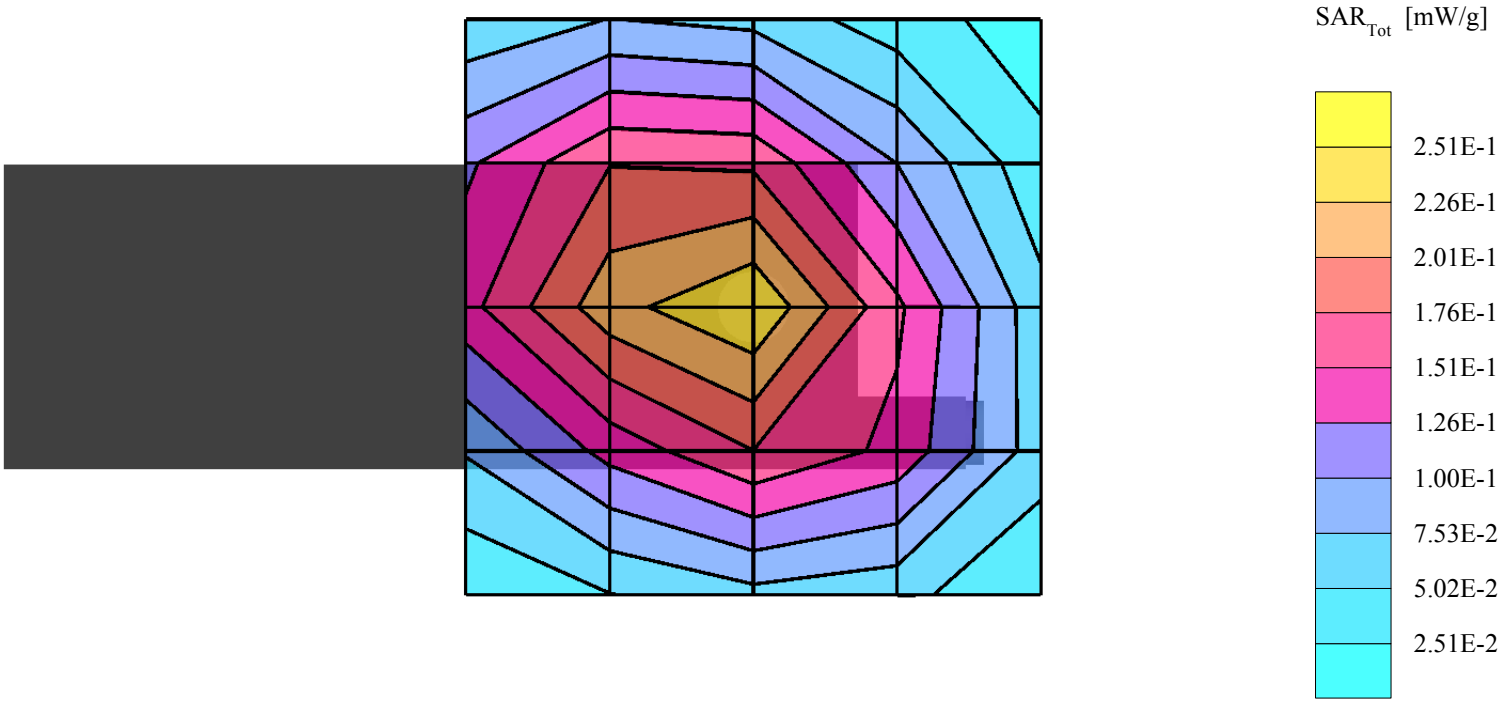
CDMA ch1013, Flat with Leather Belt Clip, 03-04-03

Temp: 22.2C Humidity:34%
S14
SAM Phantom; Flat Section; Position: (90°,90°); Frequency: 835 MHz
Probe: ET3DV6 - SN1712; ConvF(6.30,6.30,6.30); Crest factor: 1.0; Muscle 835 MHz: σ = 0.94 mho/m ε_r = 55.2 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.324 mW/g, SAR (10g): 0.229 mW/g, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: 0.14 dB



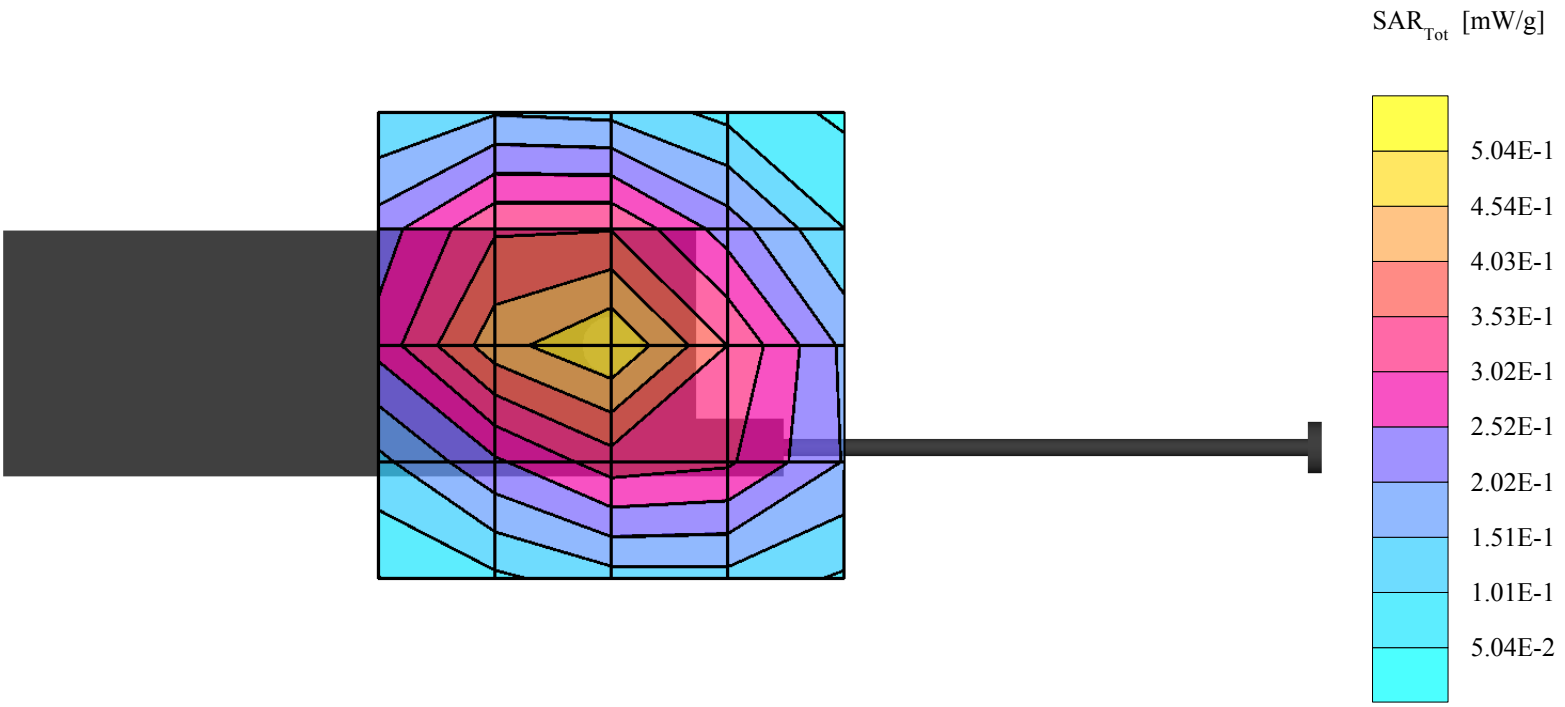
CDMA ch383, Flat with Leather Belt Clip, 03-04-03

Temp: 22.2C Humidity:34%
S14
SAM Phantom; Flat Section; Position: (90°,90°); Frequency: 835 MHz
Probe: ET3DV6 - SN1712; ConvF(6.30,6.30,6.30); Crest factor: 1.0; Muscle 835 MHz: σ = 0.94 mho/m ε_r = 55.2 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.241 mW/g, SAR (10g): 0.170 mW/g, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: -0.08 dB



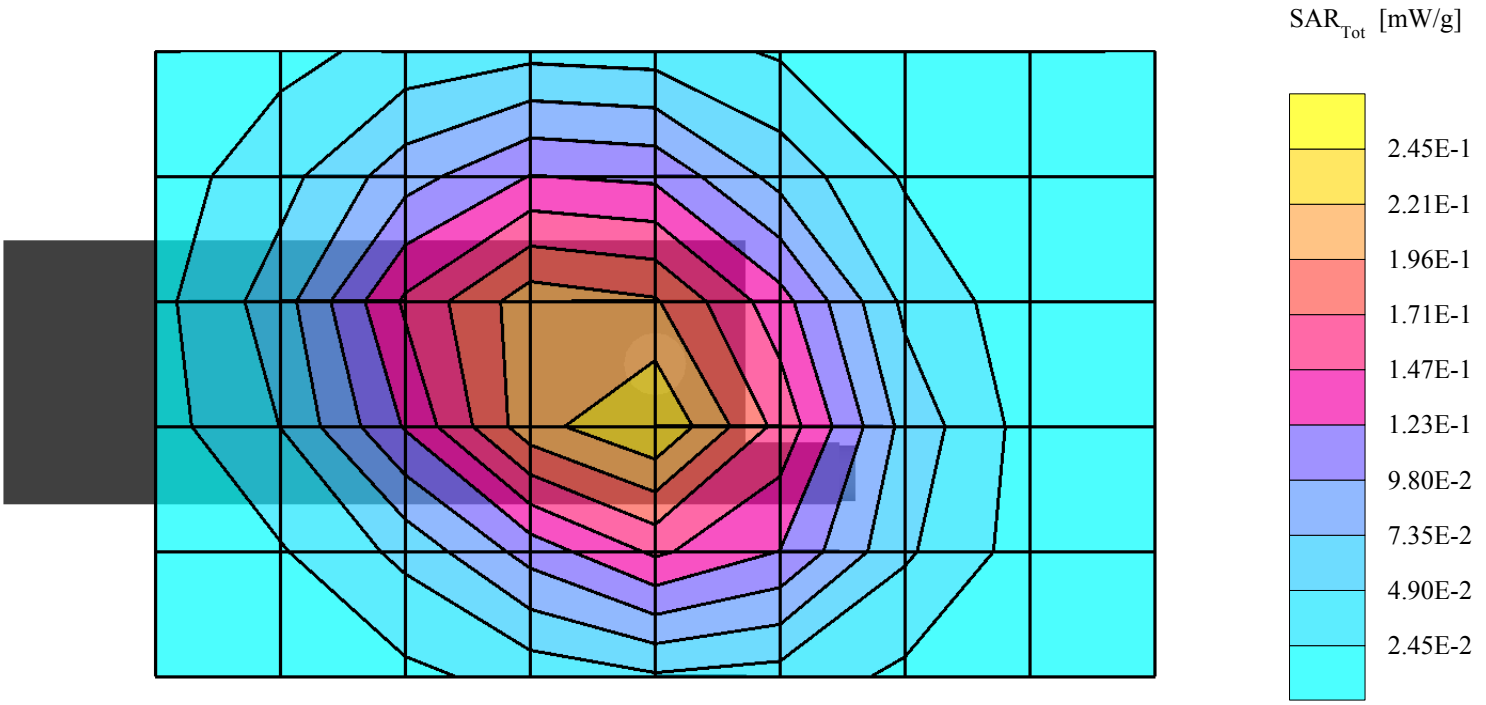
CDMA ch383, Flat with Leather Belt Clip, 03-04-03

Temp: 22.2C Humidity:34%
S14
SAM Phantom; Flat Section; Position: (90°,90°); Frequency: 835 MHz
Probe: ET3DV6 - SN1712; ConvF(6.30,6.30,6.30); Crest factor: 1.0; Muscle 835 MHz: σ = 0.94 mho/m ε_r = 55.2 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.485 mW/g, SAR (10g): 0.341 mW/g, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: 0.20 dB



CDMA ch777, Flat with Leather Belt Clip, 03-04-03

Temp: 22.2C Humidity:34%
S14
SAM Phantom; Flat Section; Position: (90°,90°); Frequency: 835 MHz
Probe: ET3DV6 - SN1712; ConvF(6.30,6.30,6.30); Crest factor: 1.0; Muscle 835 MHz: σ = 0.94 mho/m ε_r = 55.2 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.251 mW/g, SAR (10g): 0.177 mW/g, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: 0.27 dB



CDMA ch777, Flat with Leather Belt Clip, 03-04-03

Temp: 22.2C Humidity:34%
S14
SAM Phantom; Flat Section; Position: (90°,90°); Frequency: 835 MHz
Probe: ET3DV6 - SN1712; ConvF(6.30,6.30,6.30); Crest factor: 1.0; Muscle 835 MHz: σ = 0.94 mho/m ε_r = 55.2 ρ = 1.00 g/cm^3
Cube 7x7x7: SAR (1g): 0.375 mW/g, SAR (10g): 0.133 mW/g, (Worst-case extrapolation)
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: -0.03 dB