



MOTOROLA



CGISS EME Test Laboratory

8000 West Sunrise Blvd
Fort Lauderdale, FL. 33322

S.A.R. EME Compliance Test Report (Part 2 of 2)

Attention: Federal Communication Commission
Date of Report: July 3, 2002
Report Revision: Rev. O
Device Manufacturer: Motorola
Device Model: H58XAH6RR7AN; i88s & i58sr
Device Description: 1:6, 2:6, 81:120 TDM; 64 QAM, 16 QAM & QPSK Modulation; 0.6Watt Pulse Average; GPS Capability
FCC ID: AZ489FT5815

Test Period: 5/22/02 – 6/25/02

Test Engineer: Kim Uong
Lead Test Engineer

Author: Michael Sailsman
EME Regulatory Affairs Liaison

Note: Based on the information and the testing results provided herein, the undersigned certifies that when used as stated in the operating instructions supplied, said product complies with the national and international reference standards and guidelines listed in section 2.0 of this report.

/s/ Ken Enger

Senior Resource Manager, Product Safety and EME Director

7/3/02

Date Approved

APPENDIX A
Power Slump Data/Shortened S.A.R. Scan

Power Slump by mode of operation
SNN5717C/NTN9345A Battery

	813 MHz / 1:3	813 MHz / 81:120
Time	power(mw)	power(mw)
0	0.707	0.713
2	0.691	0.676
4	0.690	0.644
6	0.657	0.618
8	0.641	0.604
10	0.641	0.578
12	0.642	0.579
14	0.644	0.569
16	0.637	0.562
18	0.621	0.543
20	0.622	0.537
22	0.608	0.530
24	0.608	0.531
26	0.613	0.530
28	0.606	0.525
30	0.605	0.506
32	0.605	0.497
34	0.605	0.478
36	0.605	0.371
38	0.588	0.000
40	0.578	0.000

Shortened Cube Scan

FCC ID: AZ489FT5815; I88s_800MHz_Phone_Left Ear; Test Date: 06/11/02

Motorola CGISS EME Lab

Run #: R2_02061103

Tx freq: 813.5125

Simulated tissue temp: 21.5

Start power: 0.680 Watts; End Power: 0.614 Watts

Antenna position: IN Battery kit: SNN5706A (NTN9346A)

Carry Accessories: none

Audio/data accessories: none

SAM - Expanded Phantom; Left Hand Section; Position: (90°, 59°);

Probe: ET3DV6 - SN1383; ConvF(6.70,6.70,6.70); Probe cal date: 02/21/02; Crest factor: 3.0; IEEE

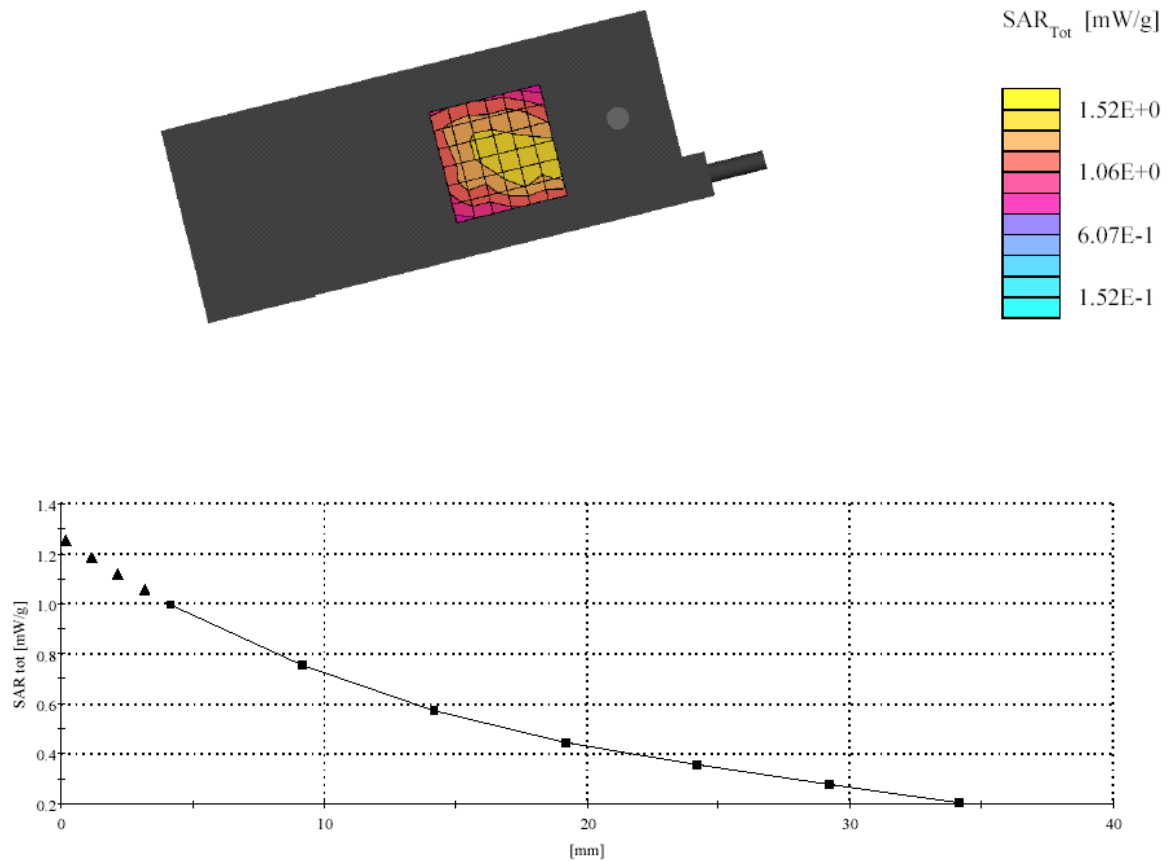
HEAD 813MHz: $\sigma =$

0.89 mho/m $\epsilon = 41.8$ $\rho = 1.00$ g/cm³; DAE: DAE3V1SN374 cal date 02/11/02

Cube 7x7x7: SAR (1g): 1.05 mW/g, SAR (10g): 0.739 mW/g, (Worst-case extrapolation)

Cube 7x7x7: Dx = 5.0, Dy = 5.0, Dz = 5.0; SAR (1g): 1.05 mW/g, SAR (10g): 0.739 mW/g

Motorola



Shortened Cube Scan Continued

FCC ID: AZ489FT5815; i88s_800MHz_Abdomen Data mode; Test Date: 06/17/02

Motorola CGISS EME Lab

Run #: R2_02061705

Tx freq: 813.5125

Simulated tissue temp:21.5

start power :0.68 Watts; End power: 0.548 Watts

Antenna position: OUT Battery kit: SNN5717C (NTN9345A)

Carry Accessories:NTN9478A, carry holder w/ NTN9544A belclip

Audio/data accessories:NKN6544A, data cable

Audio/data accessories:NTN8496A, Head set

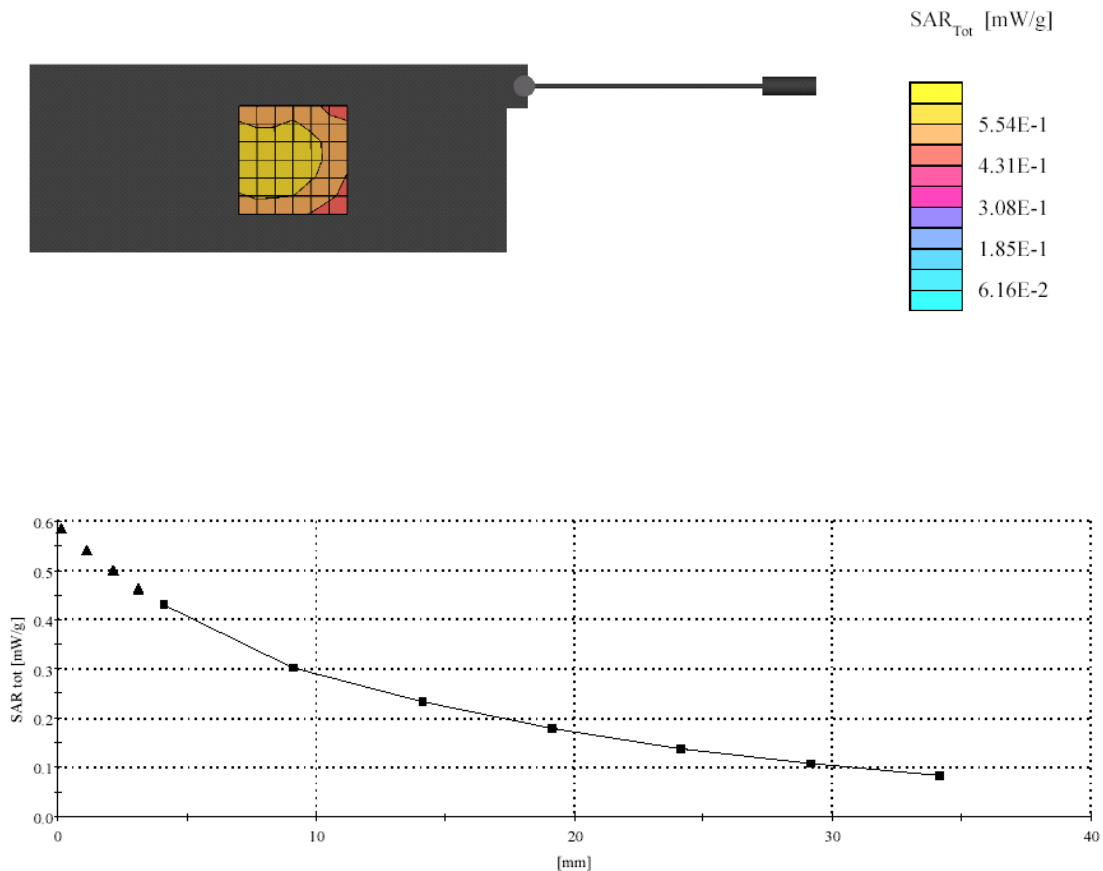
Flat Phantom; Flat_abdomen Section; Position: (90°,90°);

Probe: ET3DV6 - SN1383; ConvF(6.50,6.50,6.50); Probe cal date: 02/21/02; Crest factor: 1.5; FCC Body 813: $\sigma = 0.96$

mho/m $\epsilon = 53.6$ $\rho = 1.00$ g/cm³; DAE: DAE3V1SN374 cal date 2/11/02

Cube 7x7x7: SAR (1g): 0.420 mW/g, SAR (10g): 0.304 mW/g * Max outside, (Worst-case extrapolation)

Cube 7x7x7: Dx = 5.0, Dy = 5.0, Dz = 5.0; SAR (1g): 0.420 mW/g, SAR (10g): 0.304 mW/g * Max outside



APPENDIX B

Data Results

FCC ID: AZ489FT5815; i88s_900MHz_Phone_Left Ear; Test Date: 05/28/02
Motorola CGISS EME Laboratory

Run #: R2_02052808

Tx freq: 899.00625

Simulated tissue temp:21.4

Start power:0.678 Watts End power:0.682 Watts

Antenna position: IN Battery kit: SNN5717C (NTN9345A)

Carry Accessories: none

Audio/data accessories: none

SAM - Expanded Phantom; Left Hand Section; Position: (90°,59°);

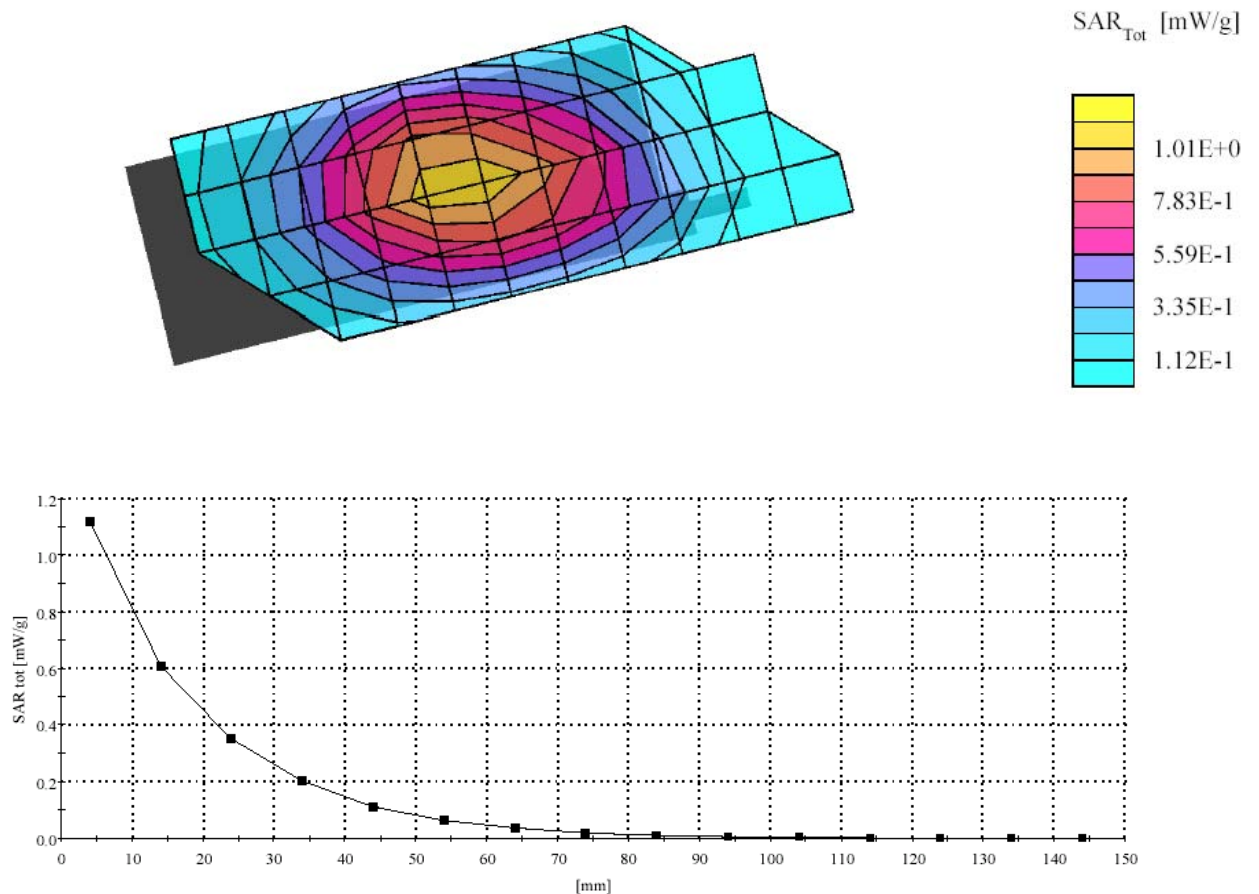
Probe: ET3DV6 - SN1383; ConvF(6.60,6.60,6.60); Probe cal date: 02/21/02; Crest factor: 3.0; IEEE

HEAD 899MHz: $\sigma =$

0.98 mho/m $\epsilon = 40.2$ $\rho = 1.00$ g/cm³; DAE: DAE3V1SN374 cal date 2/11/02

Cube 7x7x7: SAR (1g): 1.07 mW/g, SAR (10g): 0.750 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0; Max at 69.0, 31.5, 4.0



FCC ID: AZ489FT5815; i88s_900MHz_Phone_Left Ear_15D; Test Date: 05/29/02

Motorola CGISS EME Laboratory

Run #: R2_02052903

Tx freq: 901.98125

Simulated tissue temp:21.3

Start power: 0.670 Watts; End power: 0.674 Watts

Antenna position: OUT, 15D tilted Battery kit: SNN5717C (NTN9345A)

Carry Accessories: none

Audio/data accessories: none

SAM - Expanded Phantom; Left Hand Section; Position: (90°,59°);

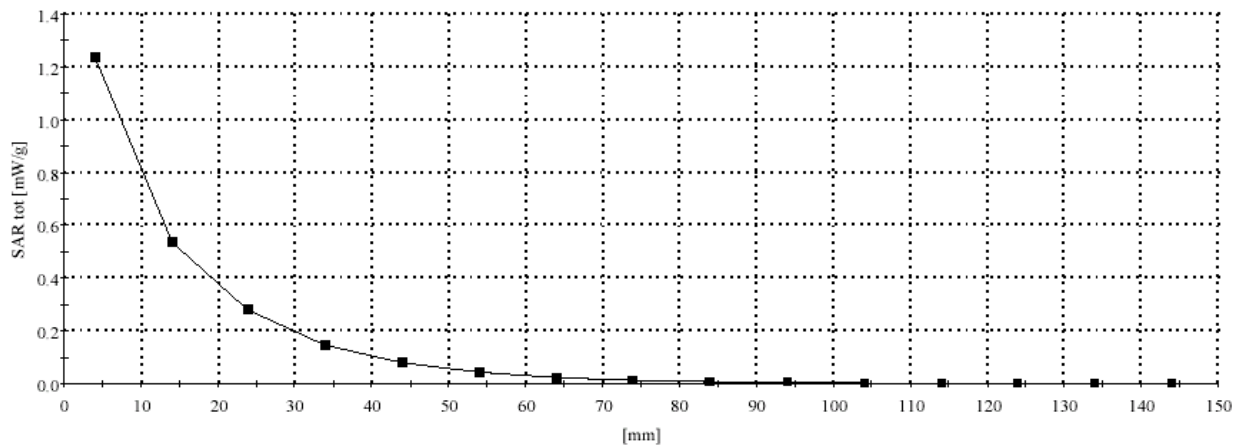
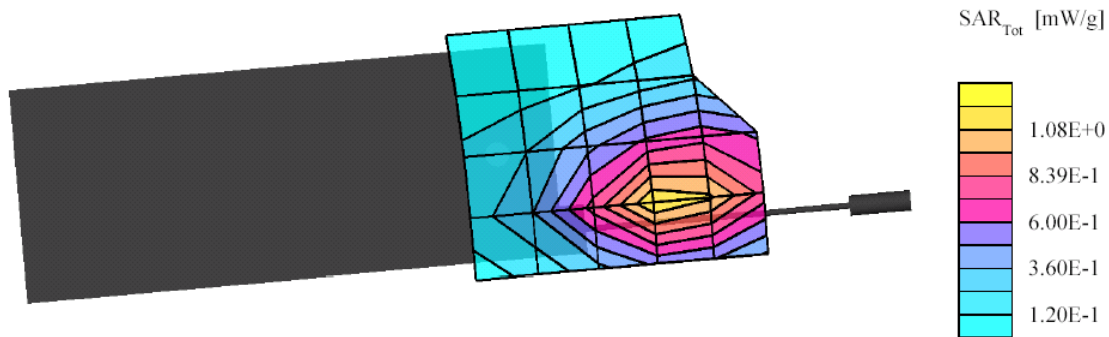
Probe: ET3DV6 - SN1383; ConvF(6.60,6.60,6.60); Probe cal date: 02/21/02; Crest factor: 3.0; IEEE

HEAD 899MHz: $\sigma =$

0.97 mho/m $\epsilon = 39.7$ $\rho = 1.00$ g/cm³; DAE: DAE3V1SN374 cal date2/11/02

Cube 7x7x7: SAR (1g): 1.12 mW/g, SAR (10g): 0.685 mW/g * Max outside, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0; Max at 165.0, 15.0, 4.0



FCC ID: AZ489FT5815; i88s_900MHz_Phone_Left Ear; Test Date: 05/22/02
Motorola CGISS EME Laboratory

Run #: R2_02052206

Tx freq: 899.00625

Simulated tissue temp:21.5

Start power:0.674 Watts; End power:0.682Watts

Antenna position: OUT Battery kit: SNN5717C (NTN9345A)

Carry Accessories: none

Audio/data accessories: none

SAM - Expanded Phantom; Left Hand Section; Position: (90°,59°);

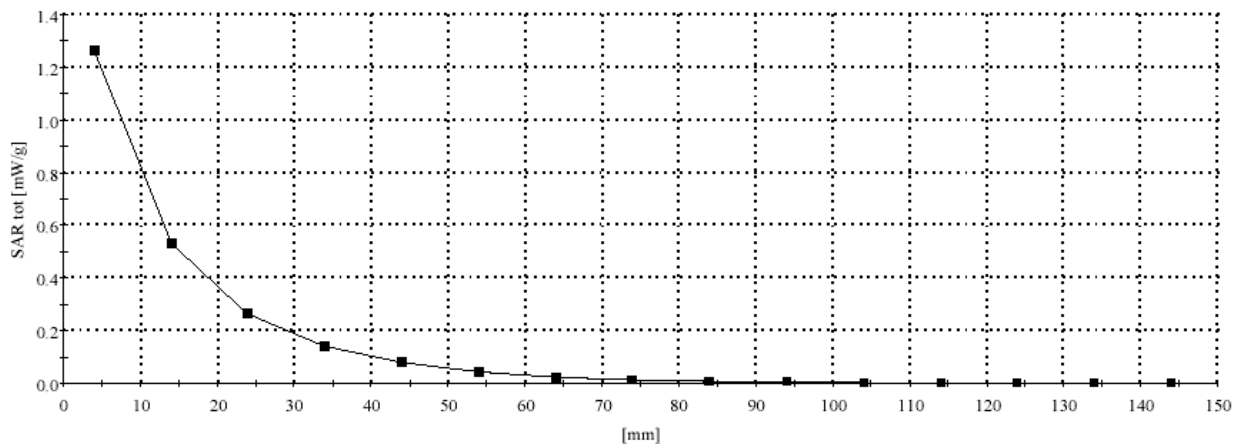
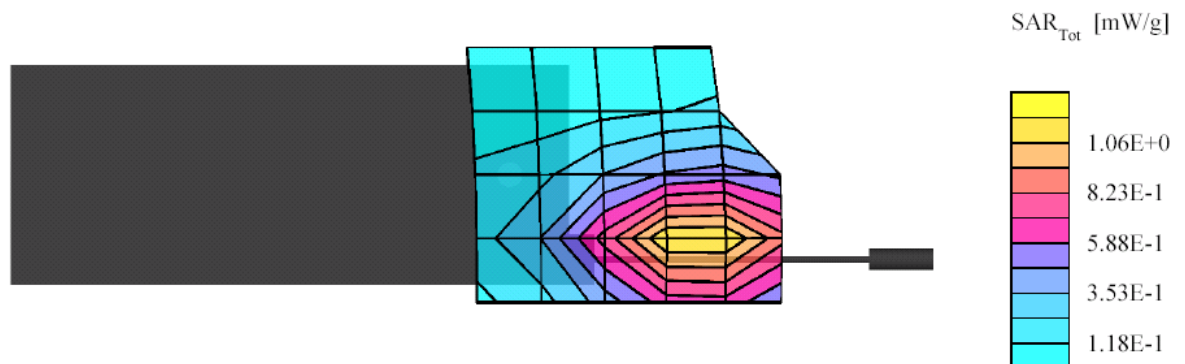
Probe: ET3DV6 - SN1383; ConvF(6.60,6.60,6.60); Probe cal date: 02/21/02; Crest factor: 3.0; IEEE

HEAD 899MHz: $\sigma =$

0.95 mho/m $\epsilon = 39.6$ $\rho = 1.00$ g/cm³; DAE: DAE3V1SN374 cal date 2/11/02

Cube 7x7x7: SAR (1g): 1.14 mW/g, SAR (10g): 0.697 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0; Max at 165.0, 15.0, 4.0



FCC ID: AZ489FT5815; i88s_900MHz_Phone_Right Ear; Test Date: 05/29/02
Motorola CGISS EME Laboratory

Run #: R2_02052904

Tx freq: 899.00625

Simulated tissue temp:21.3

Start power: 0.673 Watts; End power: 0.681 Watts

Antenna position: IN Battery kit: SNN5717C (NTN9345A)

Carry Accessories: none

Audio/data accessories: none

SAM - Expanded Phantom; Right Hand Section; Position: (90°,301°);

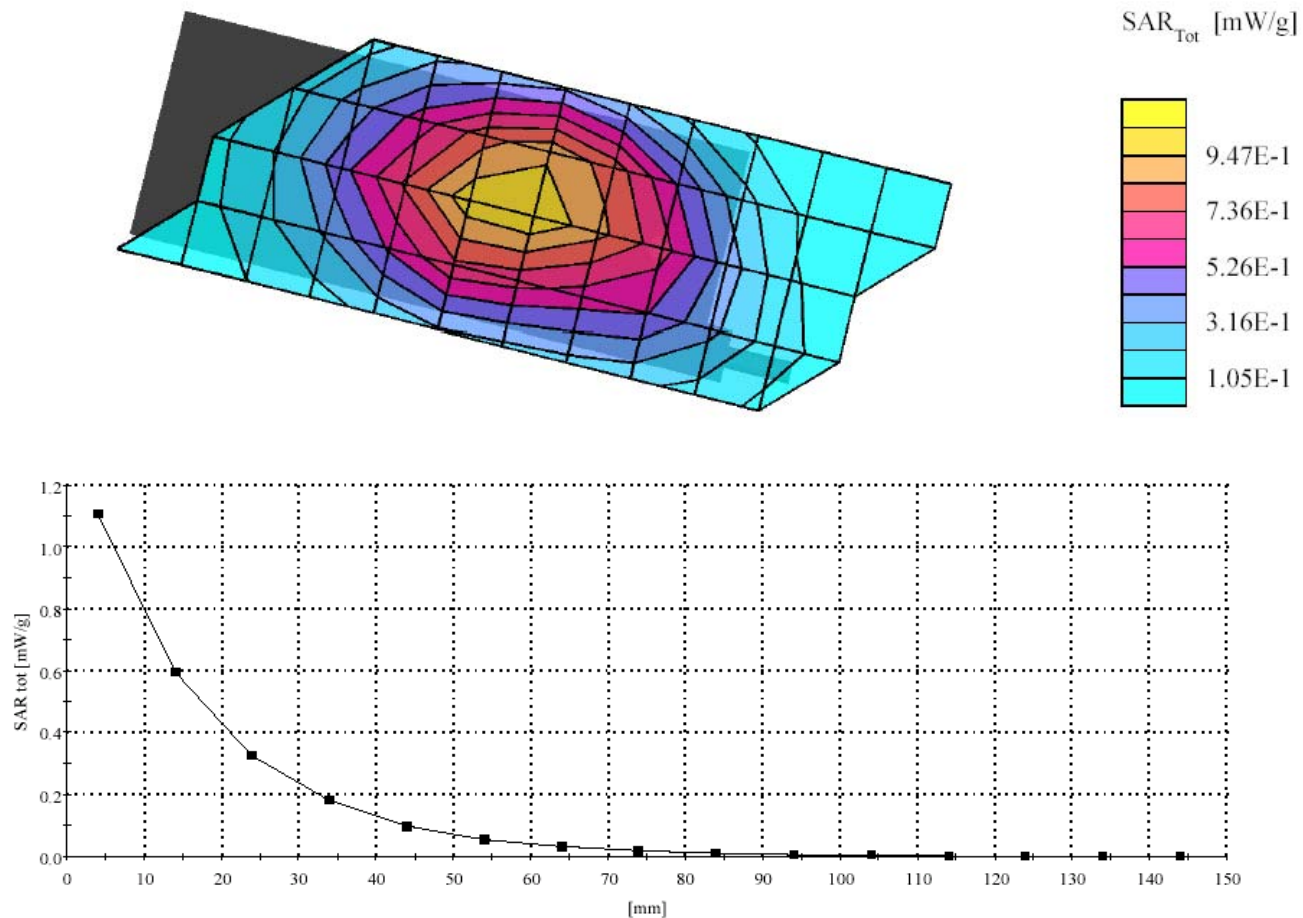
Probe: ET3DV6 - SN1383; ConvF(6.60,6.60,6.60); Probe cal date: 02/21/02; Crest factor: 3.0; IEEE

HEAD 899MHz: $\sigma =$

0.97 mho/m $\epsilon = 39.7$ $\rho = 1.00$ g/cm³; DAE3V1SN374 cal date 2/11/02

Cube 7x7x7: SAR (1g): 1.03 mW/g, SAR (10g): 0.721 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0; Max at 100.5, 33.0, 4.0



FCC ID: AZ489FT5815; i88s_900MHz_Phone_Right Ear; Test Date: 05/30/02
Motorola CGISS EME Laboratory

Run #: R2_02053003

Tx freq: 896.00625

Simulated tissue temp: 21.8

Start power: 0.67 Watts; End power: 0.669 Watts

Antenna position: IN Battery kit: SNN5717C (NTN9345A)

Carry Accessories: none

Audio/data accessories: none

SAM - Expanded Phantom; Right Hand Section; Position: (90°,301°);

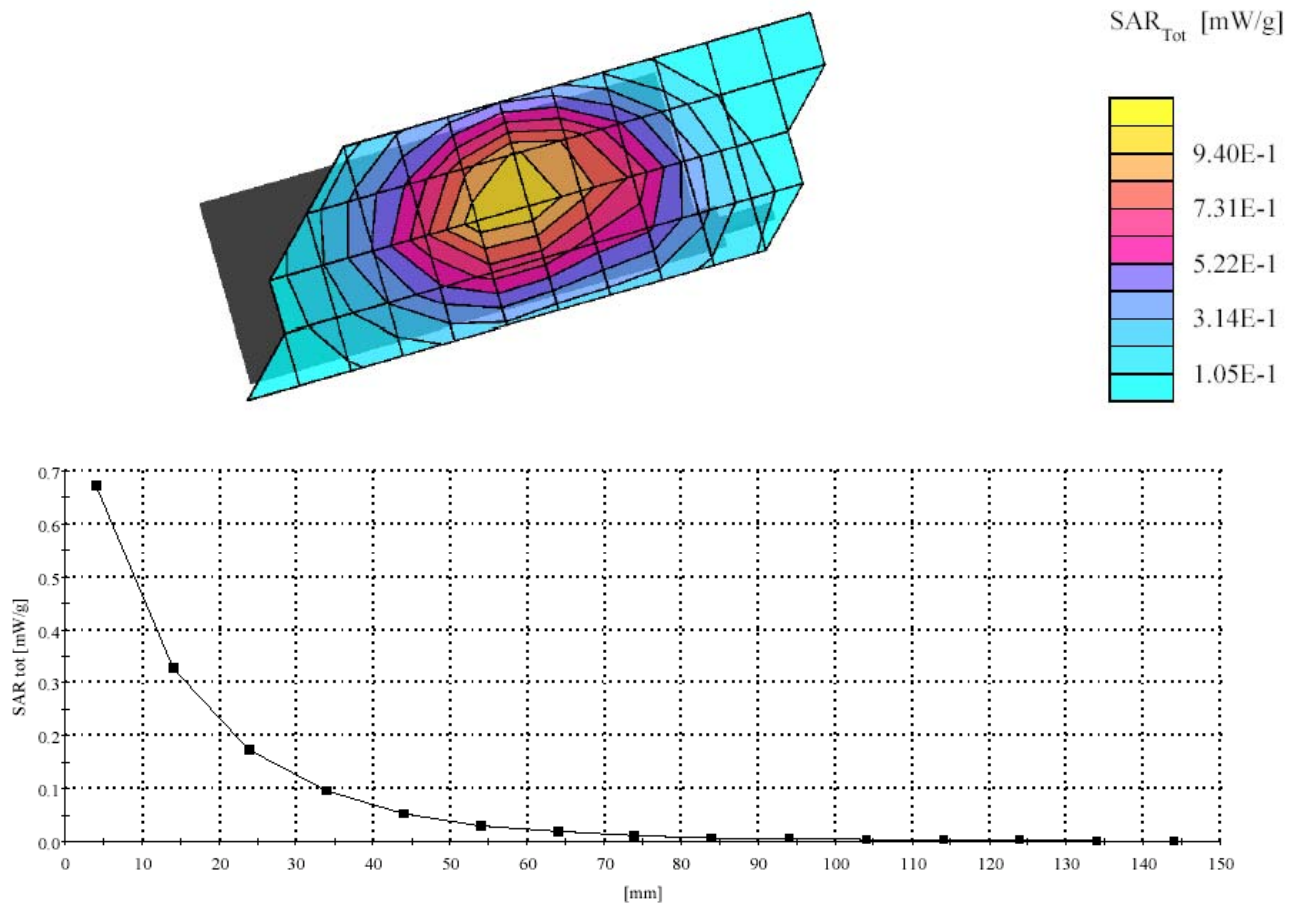
Probe: ET3DV6 - SN1383; ConvF(6.60,6.60,6.60); Probe cal date: 02/21/02; Crest factor: 3.0; IEEE

HEAD 899MHz: $\sigma =$

0.99 mho/m $\epsilon = 41.2$ $\rho = 1.00$ g/cm³; DAE: DAE3V1SN374 cal date 2/11/02

Cube 7x7x7: SAR (1g): 1.02 mW/g, SAR (10g): 0.720 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0; Max at 100.5, 33.0, 4.0



FCC ID: AZ489FT5815; i88s_900MHz_Phone_Right Ear 15D; Test Date: 05/30/02
Motorola CGISS EME Laboratory

Run #: R2_02053002

Tx freq: 899.00625

Simulated tissue temp:21.8

Start power: 0.672 Watts; End power:0.679 Watts

Antenna position: OUT, 15D Battery kit: SNN5717C(NTN9345A)

Carry Accessories: none

Audio/data accessories: none

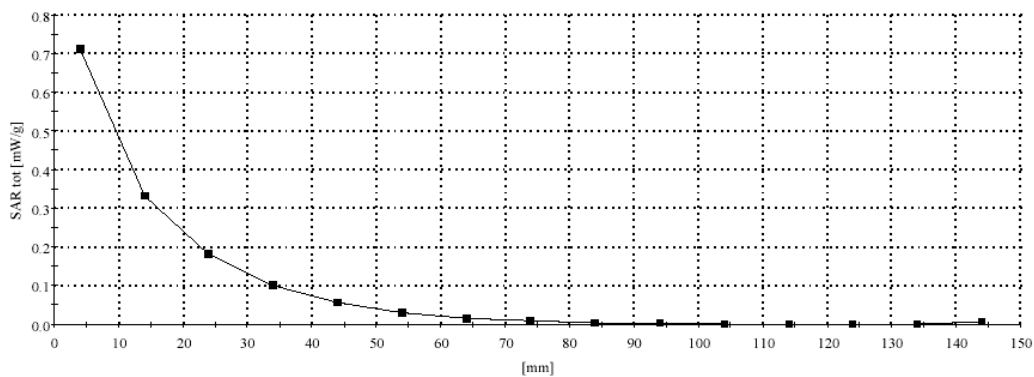
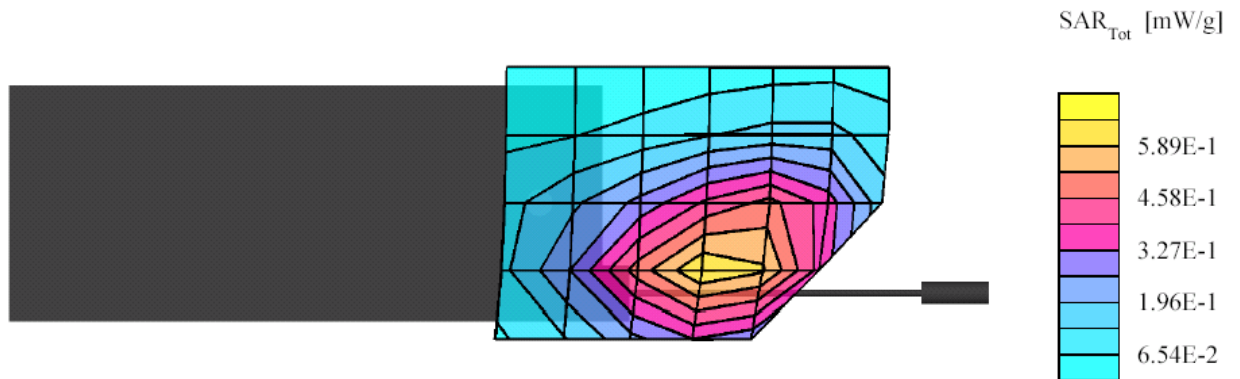
SAM - Expanded Phantom; Right Hand Section; Position: (90°,301°);

Probe: ET3DV6 - SN1383; ConvF(6.60,6.60,6.60); Probe cal date: 02/21/02; Crest factor: 3.0; IEEE

HEAD 899MHz: $\sigma = 0.99$ mho/m $\epsilon = 41.2$ $\rho = 1.00$ g/cm³; DAE: DAE3V1SN374 cal date2/11/02)

Cube 7x7x7: SAR (1g): 0.657 mW/g, SAR (10g): 0.420 mW/g * Max outside, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0; Max at 180.0, 15.0, 4.0



FCC ID: AZ489FT5815; i88s_900_PTT_Face; Test Date: 06/25/02

Motorola CGISS EME Laboratory

Run #: R2_02062503

Tx freq: 899.00625

Simulated tissue temp: 21.7

Start power: 0.665 Watts; End power: 0.665 Watts

Antenna position: IN Battery kit: SNN5717C (NTN9345A)

Carry Accessories: none

Audio/data accessories: none

SAM Phantom; Flat Section; Position: (90°, 90°);

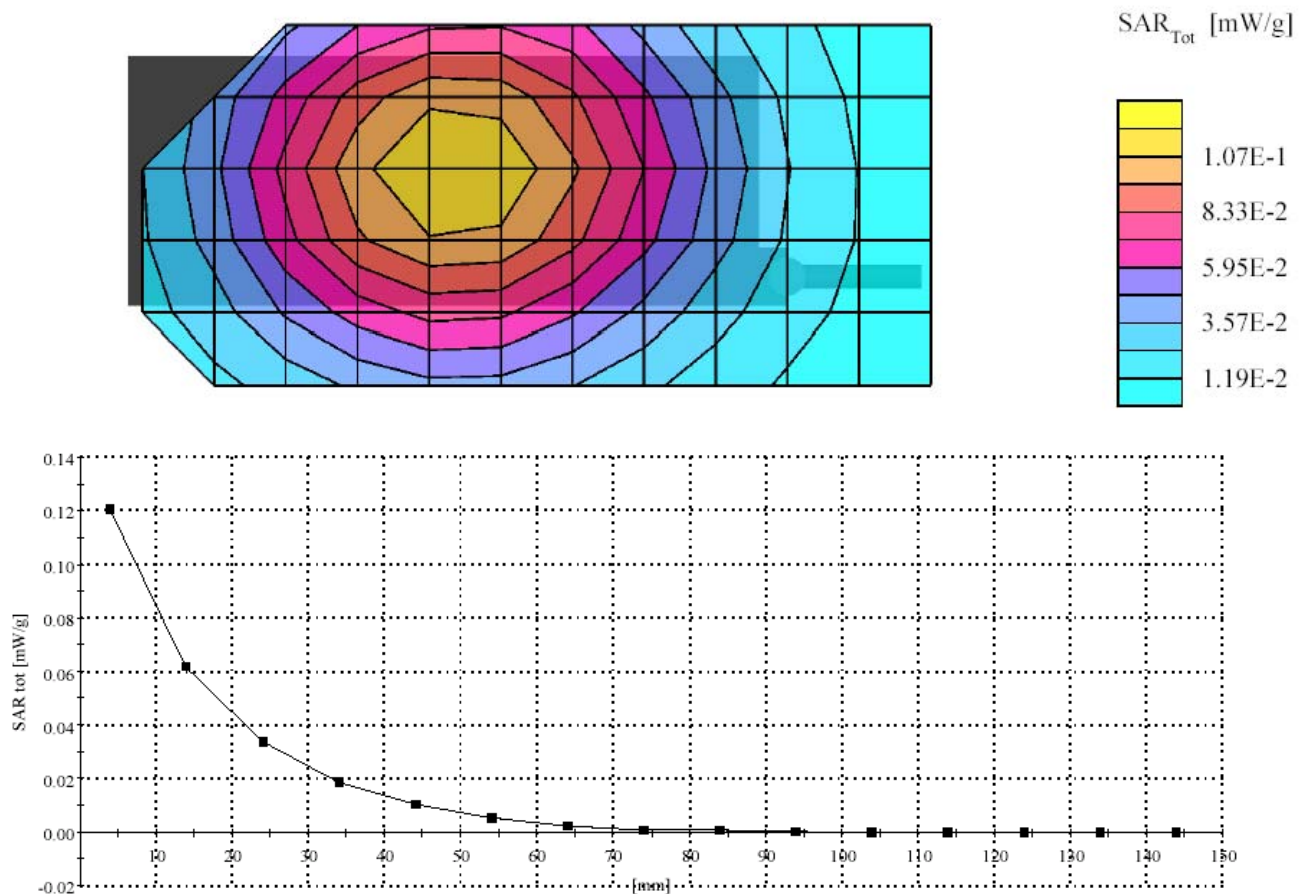
Probe: ET3DV6 - SN1383; ConvF(6.60,6.60,6.60); Probe cal date: 02/21/02; Crest factor: 6.0; IEEE

HEAD 899MHz: $\sigma =$

0.95 mho/m $\epsilon = 39.8$ $\rho = 1.00$ g/cm³; DAE: DAE3V1SN374 cal date 2/11/02

Cube 7x7x7: SAR (1g): 0.115 mW/g, SAR (10g): 0.0812 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0; Max at 30.0, 66.0, 4.0



FCC ID: AZ489FT5815; i88s_900MHz_Abdomen Phone; Test Date: 05/31/02

Motorola CGISS EME Laboratory

Run #: R2_02053104

Tx freq: 899.00625

Simulated tissue temp:21.9

start power :0.672 Watts; End power:0.678 Watts

Antenna position:IN Battery kit: SNN5705B (NTN9344A)

Carry Accessories:NTN9478A, leather case open keypad w/ NTN9544A belclip

Audio/data accessories:NTN8496A, head set

Flat Phantom; Flat_abdomen Section; Position: (90°,90°);

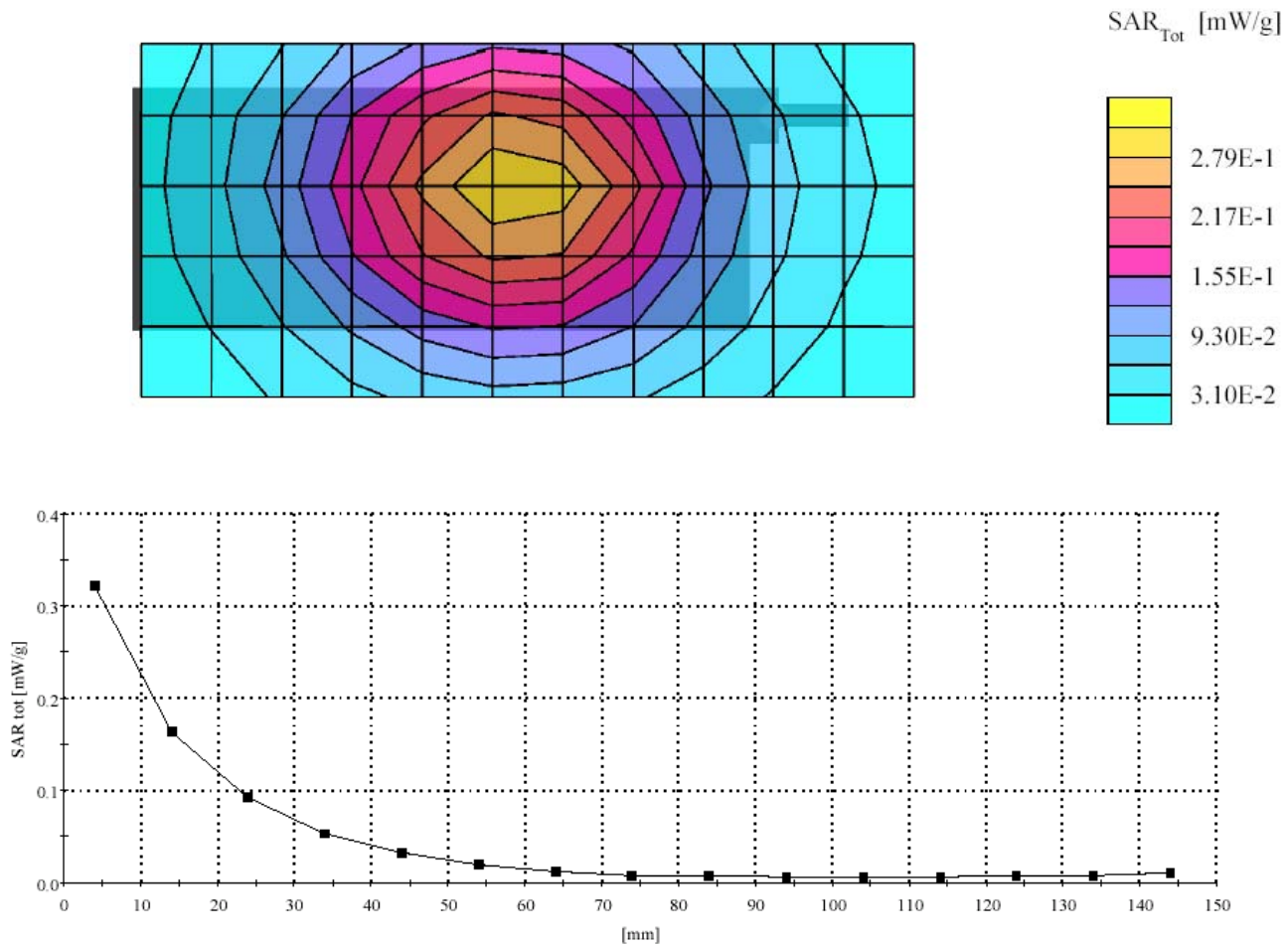
Probe: ET3DV6 - SN1383; ConvF(6.40,6.40,6.40); Probe cal date: 02/21/02; Crest factor: 3.0; FCC Body

899: $\sigma = 1.06$

mho/m $\epsilon = 52.5$ $\rho = 1.00$ g/cm³; DAE: DAE3V1SN374 cal date 2/11/02

Cube 7x7x7: SAR (1g): 0.298 mW/g, SAR (10g): 0.207 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0; Max at 30.0, 79.5, 4.0



FCC ID: AZ489FT5815; i88s_900MHz_Abdomen Phone; Test Date: 05/31/02

Motorola CGISS EME Laboratory

Run #: R2_02053110

Tx freq: 899.00625

Simulated tissue temp:21.9

start power :0.669 Watts; End power:0.675 Watts

Antenna position:IN Battery kit: SNN5705B (NTN9344A)

Carry Accessories:NTN9475A, carry holder

Audio/data accessories:NTN8496A, head set

Flat Phantom; Flat_abdomen Section; Position: (90°,90°);

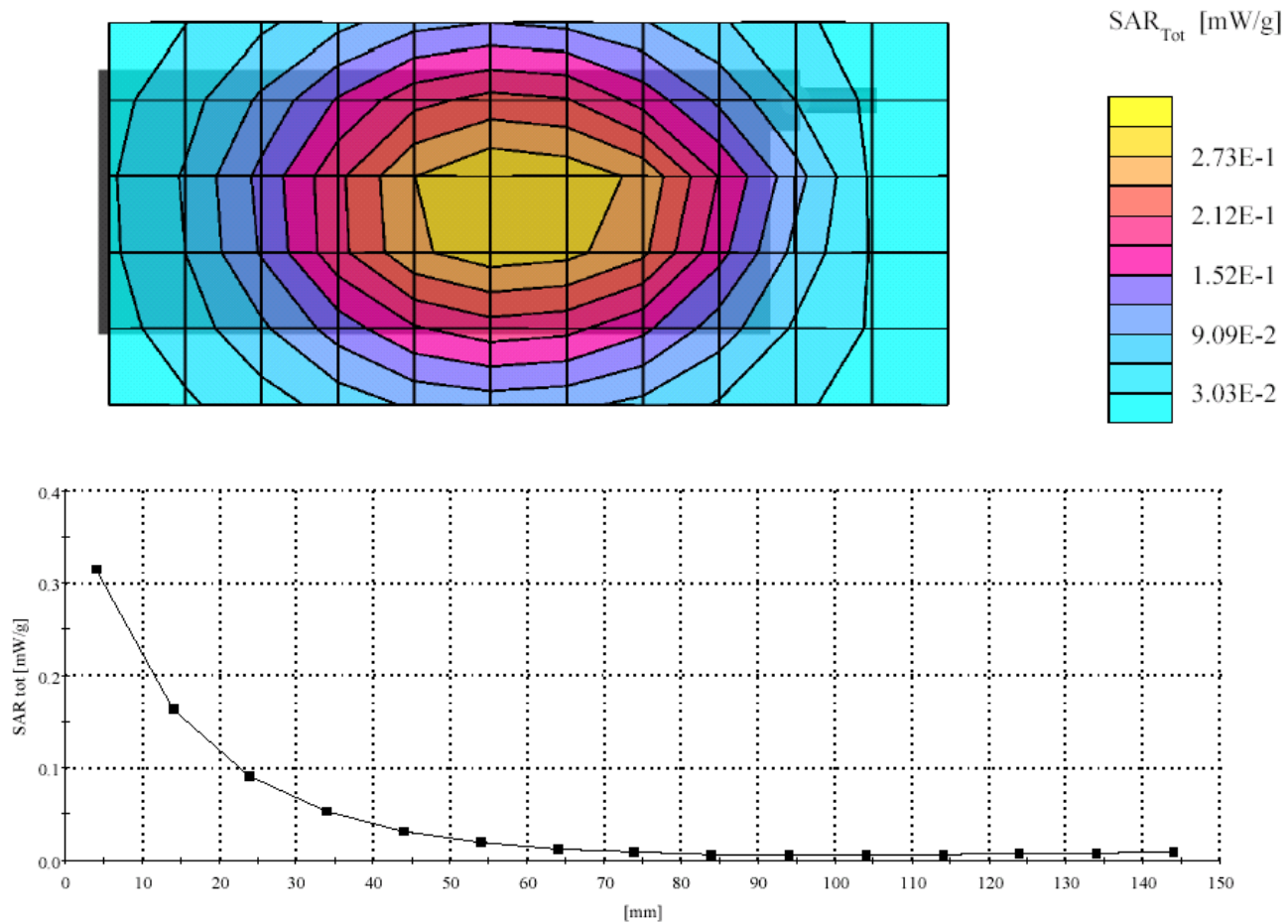
Probe: ET3DV6 - SN1383; ConvF(6.40,6.40,6.40); Probe cal date: 02/21/02; Crest factor: 3.0; FCC Body

899: $\sigma = 1.06$

mho/m $\epsilon = 52.5$ $\rho = 1.00$ g/cm³; DAE: DAE3V1SN374 (2/11/02)

Cube 7x7x7: SAR (1g): 0.296 mW/g, SAR (10g): 0.210 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0; Max at 36.0, 76.5, 4.0



FCC ID: AZ489FT3804; i88s_900MHz_Abdomen Phone; Test Date: 05/31/02
Motorola CGISS EME Laboratory

Run #: R2_02053114

Tx freq: 899.00625

Simulated tissue temp:21.9

start power :0.668 Watts; End power:0.676 Watts

Antenna position:IN Battery kit: SNN5705B (NTN9344A)

Carry Accessories:NTN9478A, leather case open keypad w/ NTN9544A belclip

Audio/data accessories:SYN8390B, earpiece

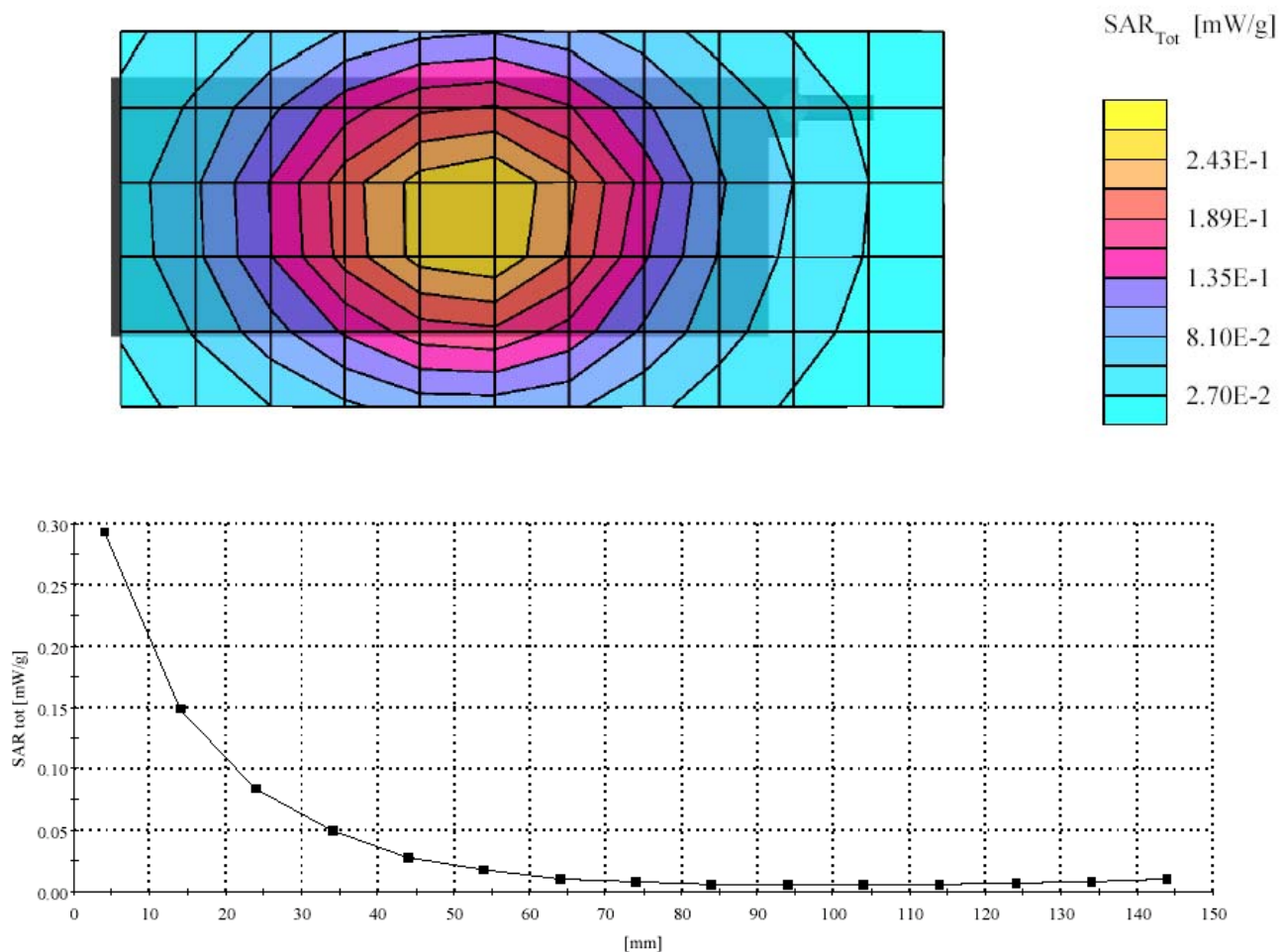
Flat Phantom; Flat_abdomen Section; Position: (90°,90°);

Probe: ET3DV6 - SN1383; ConvF(6.40,6.40,6.40); Probe cal date: 02/21/02; Crest factor: 3.0; FCC Body
899: $\sigma = 1.06$

mho/m $\epsilon = 52.5$ $\rho = 1.00$ g/cm³; DAE: DAE3V1SN374 cal date 2/11/02

Cube 7x7x7: SAR (1g): 0.273 mW/g, SAR (10g): 0.190 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0; Max at 37.5, 70.5, 4.0



FCC ID: AZ489FT5815; i88s_900MHz_Abdomen Phone; Test Date: 06/03/02

Motorola CGISS EME Laboratory

Run #: R2_02060304

Robot#: CGISS-2 Tester: K. Uong

Tx freq: 901.98125

Simulated tissue temp:22.2

start power :0.666 Watts; End power:0.671 Watts

Antenna position:IN Battery kit: SNN5705B (NTN9344A)

Carry Accessories:NTN9478A, leather case open keypad w/ NTN9544A belclip

Audio/data accessories:NTN8496A, Head set

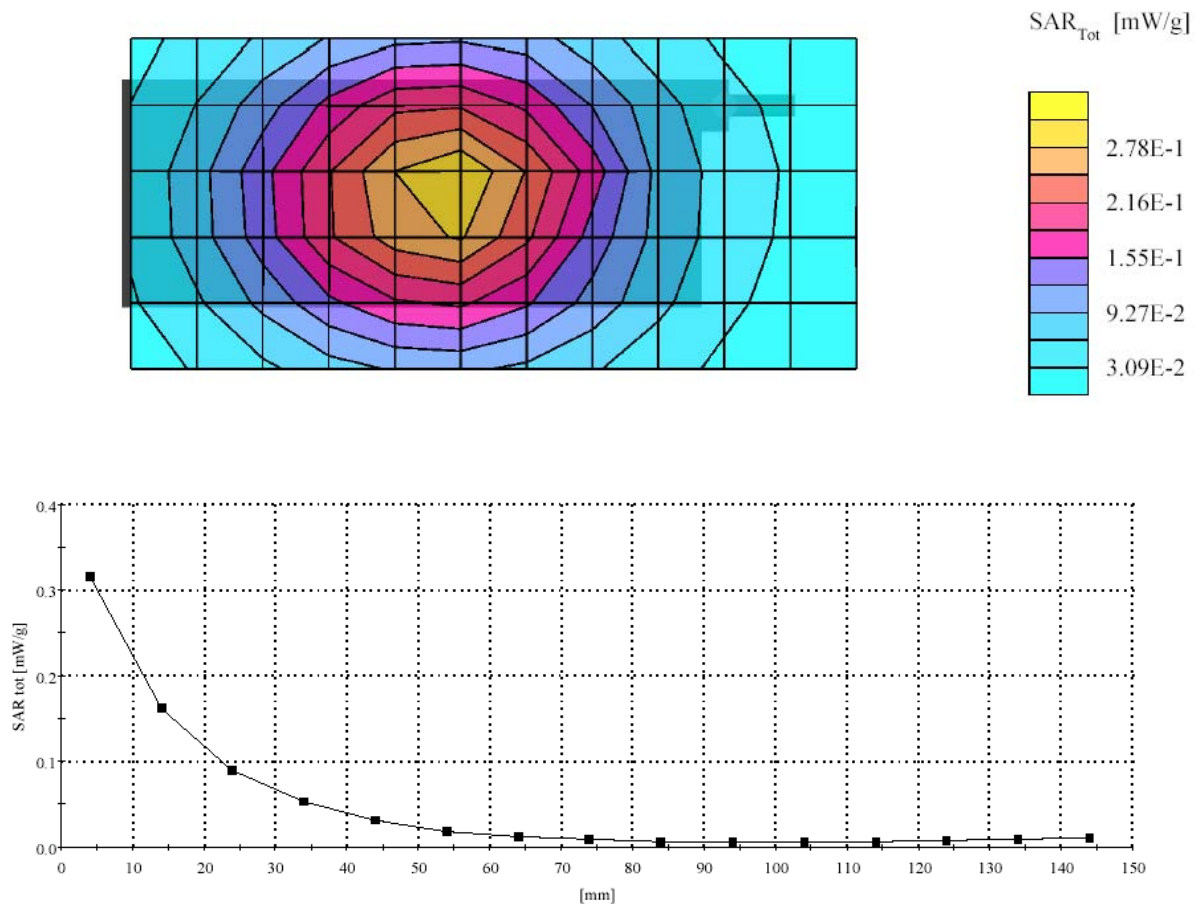
Flat Phantom; Flat_abdomen Section; Position: (90°,90°);

Probe: ET3DV6 - SN1383; ConvF(6.40,6.40,6.40); Probe cal date: 02/21/02; Crest factor: 3.0; FCC Body 899: $\sigma = 1.06$

mho/m $\epsilon = 52.4$ $\rho = 1.00$ g/cm³; DAE: DAE3V1SN374 cal date 2/11/02

Cube 7x7x7: SAR (1g): 0.296 mW/g, SAR (10g): 0.205 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0; Max at 34.5, 72.0, 4.0



FCC ID: AZ489FT5815; I88s_800MHz_Phone_Left Ear; Test Date: 06/03/02
Motorola CGISS EME Laboratory

Run #: R2_02060310

Tx freq: 813.5125

Simulated tissue temp: 22.2

Start power: 0.693 Watts; End power: 0.620 Watts

Antenna position: IN Battery kit: SNN5706A (NTN9346A)

Carry Accessories: none

Audio/data accessories: none

SAM - Expanded Phantom; Left Hand Section; Position: (90°, 59°);

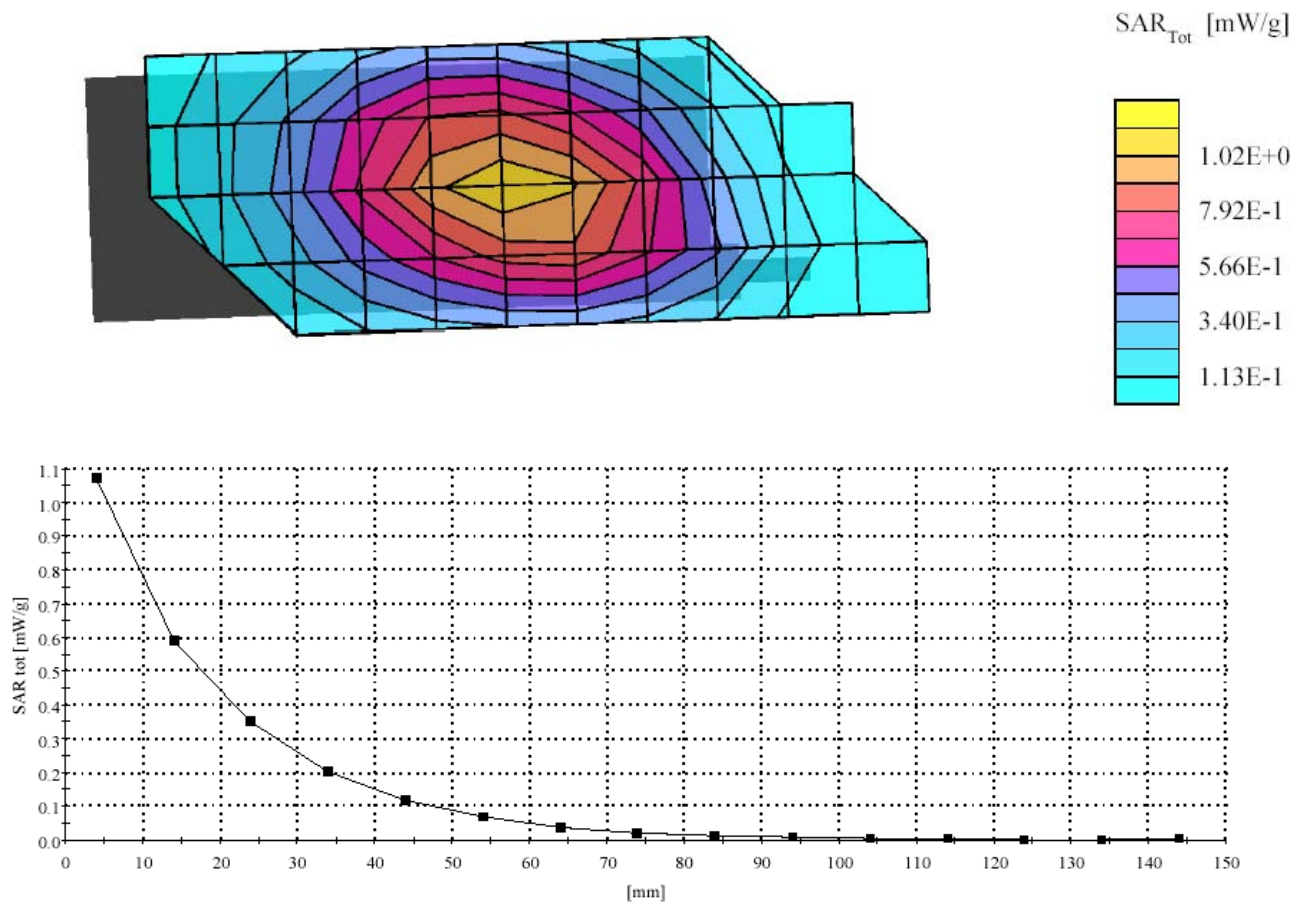
Probe: ET3DV6 - SN1383; ConvF(6.70, 6.70, 6.70); Probe cal date: 02/21/02; Crest factor: 3.0; IEEE

HEAD 813MHz: $\sigma =$

0.91 mho/m $\epsilon = 42.5$ $\rho = 1.00$ g/cm³; DAE: DAE3V1SN374 cal date 2/11/02

Cube 7x7x7: SAR (1g): 1.07 mW/g, SAR (10g): 0.752 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0; Max at 76.5, 30.0, 4.0



FCC ID: AZ489FT5815; I88s_800MHz_Phone_Left Ear; Test Date: 06/04/02

Motorola CGISS EME Laboratory

Run #: R2_02060403

Tx freq: 806.0125 Simulated tissue temp:21.0

Start power:0.680 Watts; End power: 0.540 Watts

Antenna position: IN Battery kit: SNN5706A (NTN9346A)

Carry Accessories: none

Audio/data accessories: none

SAM - Expanded Phantom; Left Hand Section; Position: (90°,59°);

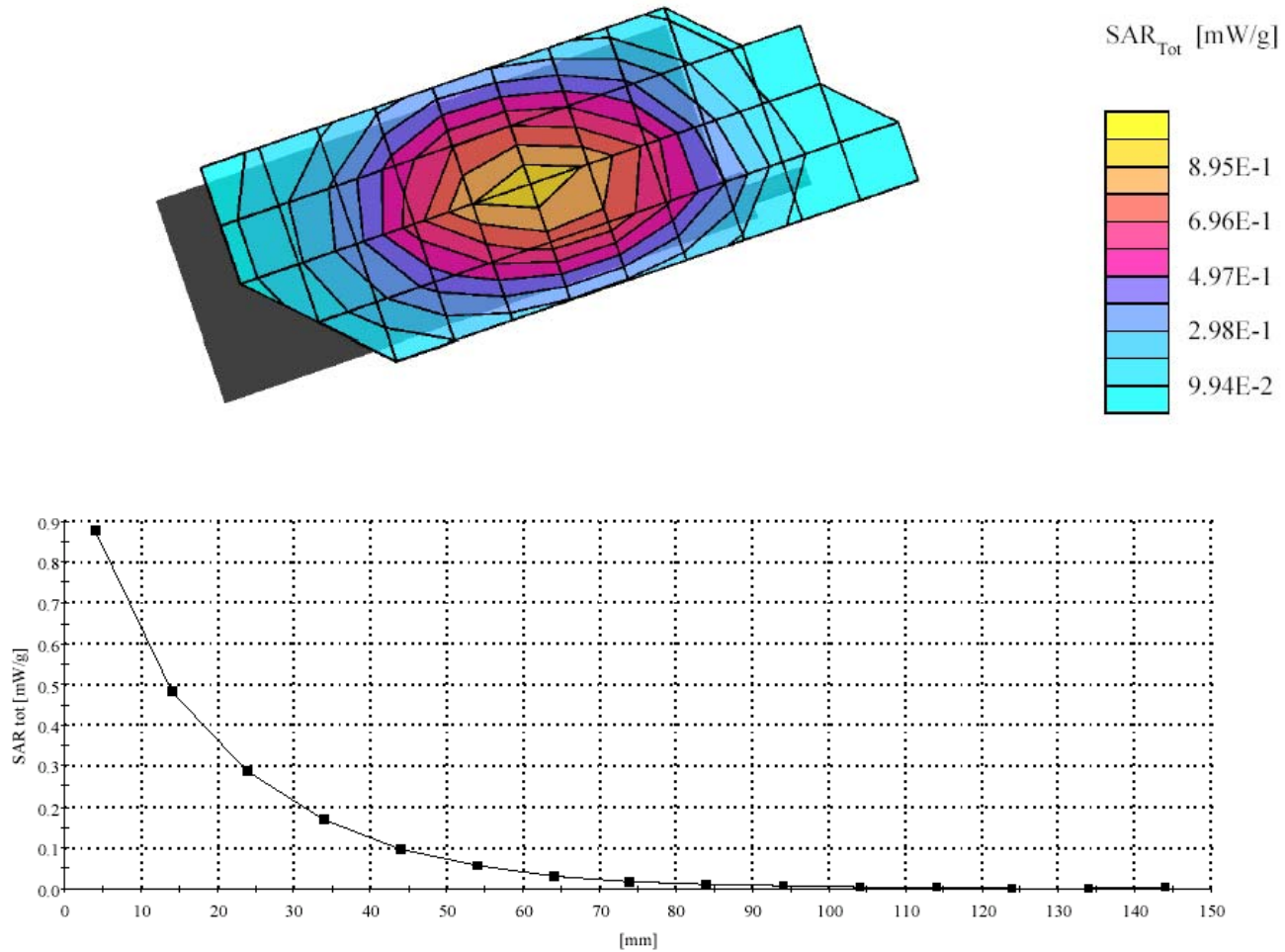
Probe: ET3DV6 - SN1383; ConvF(6.70,6.70,6.70); Probe cal date: 02/21/02; Crest factor: 3.0; IEEE

HEAD 813MHz: $\sigma =$

0.89 mho/m $\epsilon = 41.2$ $\rho = 1.00$ g/cm³; DAE: DAE3V1SN374 cal date 2/11/02

Cube 7x7x7: SAR (1g): 0.866 mW/g, SAR (10g): 0.621 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0; Max at 75.0, 28.5, 4.0



FCC ID: AZ489FT5815; I88s_800MHz_Phone_Left Ear_15D; Test Date: 06/04/02

Motorola CGISS EME Laboratory

Run #: R2_02060402

Tx freq: 813.5125

Simulated tissue temp: 21.0

Start power: 0.680 Watts; End power: 0.603 Watts

Antenna position: OUT, 15Degree Battery kit: SNN5706A (NTN9343A)

Carry Accessories: none

Audio/data accessories: none

SAM - Expanded Phantom; Left Hand Section; Position: (90°, 59°);

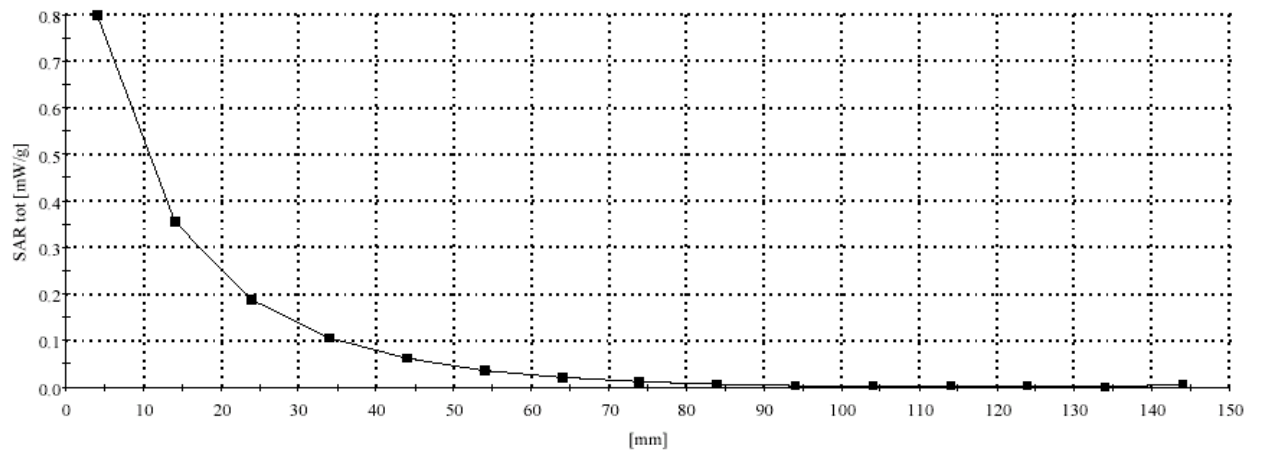
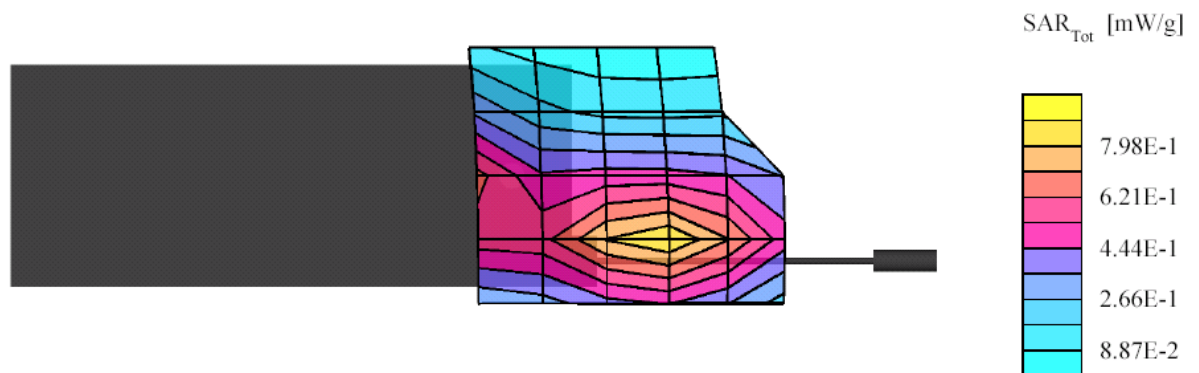
Probe: ET3DV6 - SN1383; ConvF(6.70,6.70,6.70); Probe cal date: 02/21/02; Crest factor: 3.0; IEEE

HEAD 813MHz: $\sigma =$

0.89 mho/m $\epsilon = 41.2$ $\rho = 1.00$ g/cm³; DAE: DAE3V1SN374 cal date 2/11/02

Cube 7x7x7: SAR (1g): 0.790 mW/g, SAR (10g): 0.502 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0; Max at 162.0, 15.0, 4.0



FCC ID: AZ489FT5815; I88s_800MHz_Phone_Right Ear; Test Date: 06/10/02
Motorola CGISS EME Laboratory

Run #: R2_02061003

Robot#: CGISS-2 Tester: K. Uong

Tx freq: 813.5125

Simulated tissue temp:21.3

Start power:0.679 End power:0.593

Antenna position:IN Battery kit: SNN5705B(NTN9344A)

Carry Accessories: none

Audio/data accessories: none

SAM - Expanded Phantom; Right Hand Section; Position: (90°,301°);

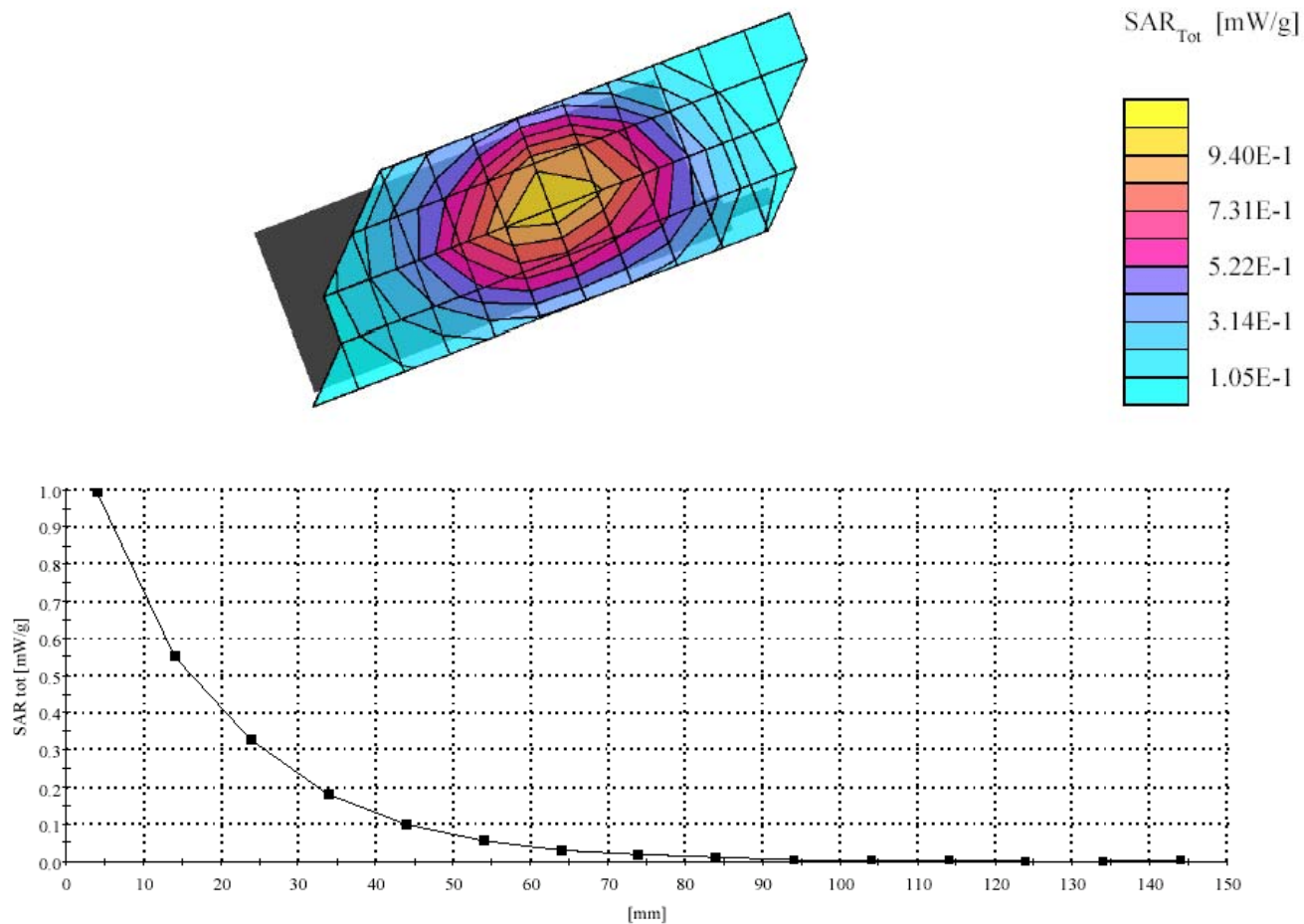
Probe: ET3DV6 - SN1383; ConvF(6.70,6.70,6.70); Probe cal date: 02/21/02; Crest factor: 3.0; IEEE

HEAD 813MHz: $\sigma =$

0.88 mho/m $\epsilon = 40.6$ $\rho = 1.00$ g/cm³; DAE: DAE3V1SN374 cal date 2/11/02

Cube 7x7x7: SAR (1g): 0.980 mW/g, SAR (10g): 0.704 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0; Max at 106.5, 34.5, 4.0



FCC ID: AZ489FT5815; I88s_800MHz_Phone_Right Ear; Test Date: 06/10/02
Motorola CGISS EME Laboratory

Run #: R2_02061013

Tx freq: 824.9875

Simulated tissue temp:21.5

Start power:0.672 Watts; End power:0.648 Watts

Antenna position:IN Battery kit: SNN5705B(NTN9344A)

Carry Accessories: none

Audio/data accessories: none

SAM - Expanded Phantom; Right Hand Section; Position: (90°,301°);

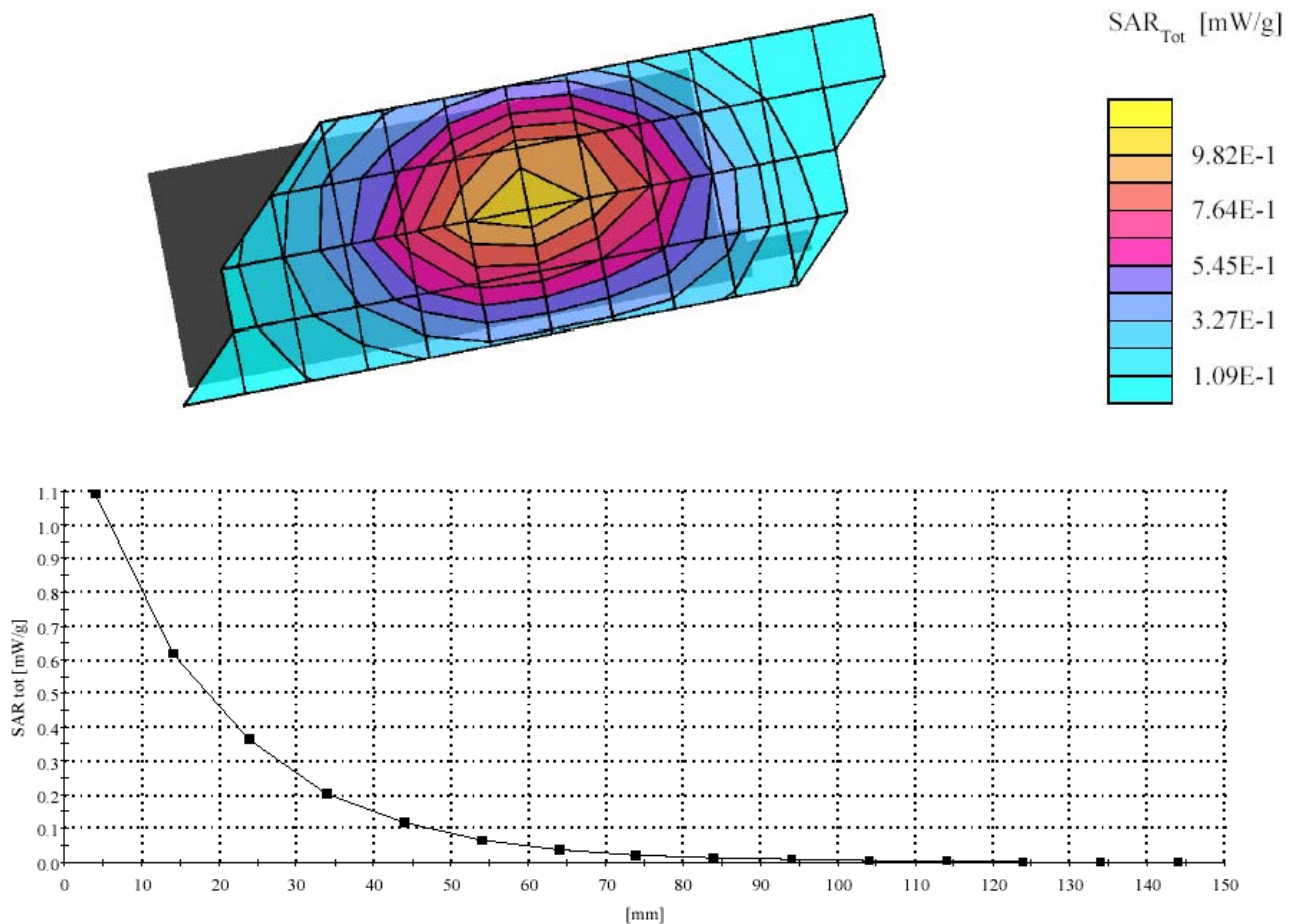
Probe: ET3DV6 - SN1383; ConvF(6.70,6.70,6.70); Probe cal date: 02/21/02; Crest factor: 3.0; IEEE

HEAD 813MHz: $\sigma=$

0.88 mho/m $\epsilon = 40.6$ $\rho = 1.00$ g/cm³; DAE: DAE3V1SN374 cal date 2/11/02

Cube 7x7x7: SAR (1g): 1.05 mW/g, SAR (10g): 0.747 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0; Max at 105.0, 33.0, 4.0



FCC ID: AZ489FT5815; I88s_800MHz_Phone_Right Ear; Test Date: 06/10/02

Motorola CGISS EME Laboratory

Run #: R2_02061010

Tx freq: 813.5125

Simulated tissue temp:21.5

Start power:0.675Watts; End power:0.604 Watts

Antenna position:OUT, 15D tilted Battery kit: SNN5705B(NTN9344A)

Carry Accessories: none

Audio/data accessories: none

SAM - Expanded Phantom; Right Hand Section; Position: (90°,301°);

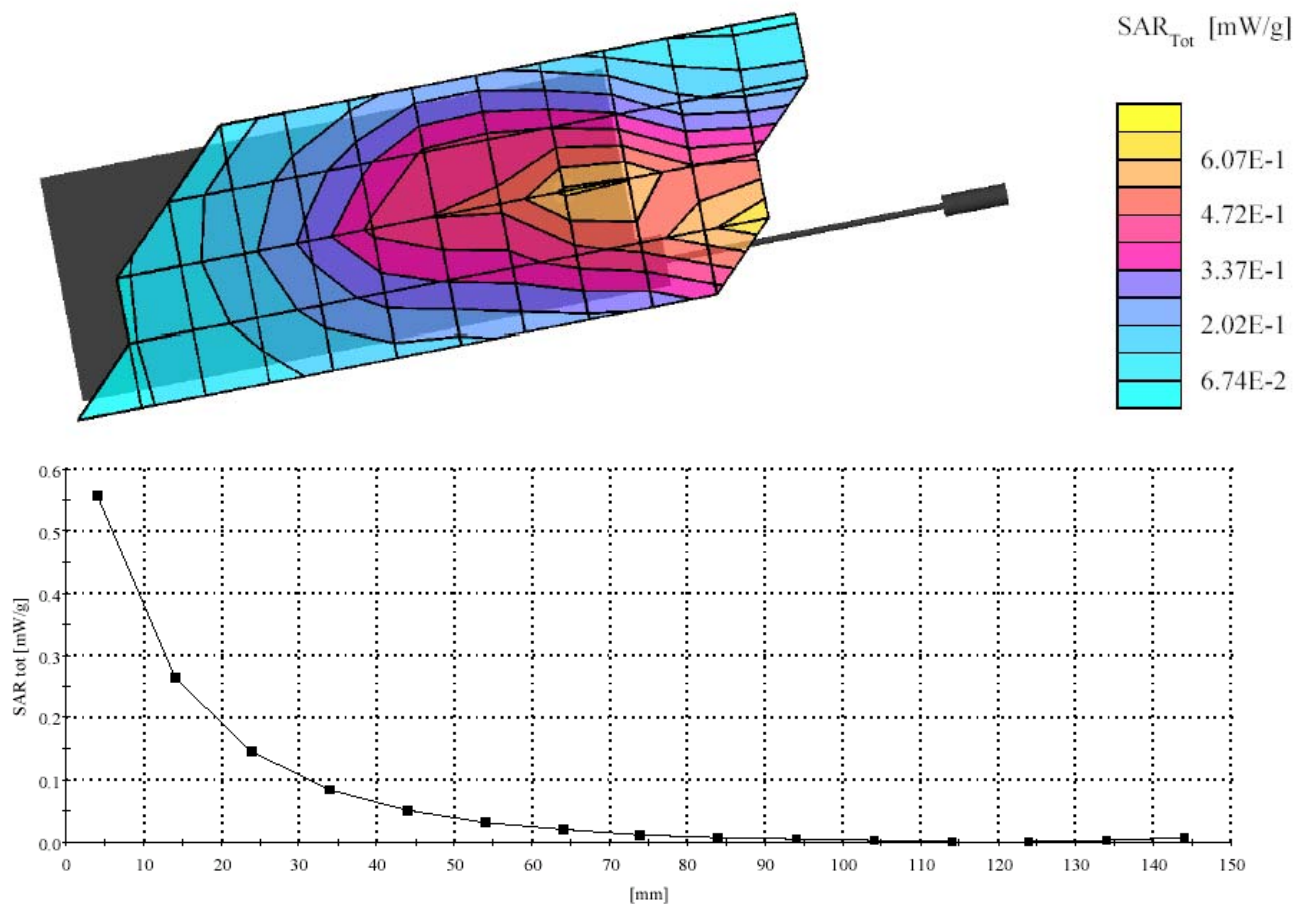
Probe: ET3DV6 - SN1383; ConvF(6.70,6.70,6.70); Probe cal date: 02/21/02; Crest factor: 3.0; IEEE

HEAD 813MHz: $\sigma =$

0.88 mho/m $\epsilon = 40.6$ $\rho = 1.00$ g/cm³; DAE: DAE3V1SN374 cal date 2/11/02

Cube 7x7x7: SAR (1g): 0.550 mW/g, SAR (10g): 0.338 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0; Max at 180.0, 15.0, 4.0



FCC ID: AZ489FT5815; i88s_800_PTT_Face; Test Date: 06/11/02

Motorola CGISS EME Laboratory

Run #: R2_02061104

Tx freq: 806.0125

Simulated tissue temp:21.3

Start power:0.680 Watts; End power: 0.61 Watts

Antenna position: IN Battery kit: SNN5706A (NTN9346A)

Carry Accessories: none

Audio/data accessories: none

SAM Phantom; Flat Section; Position: (90°,90°);

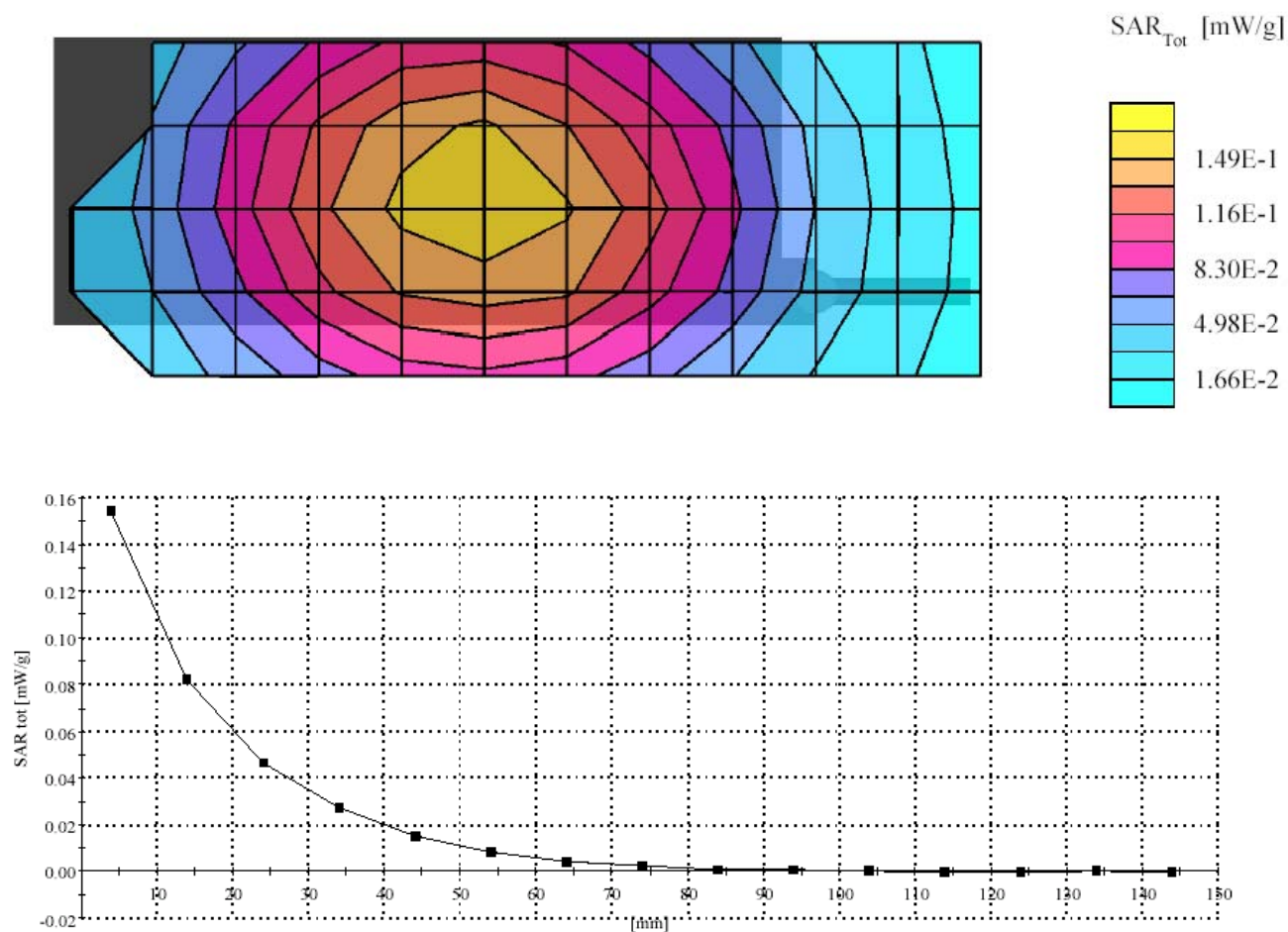
Probe: ET3DV6 - SN1383; ConvF(6.70,6.70,6.70); Probe cal date: 02/21/02; Crest factor: 6.0; IEEE

HEAD 813MHz: $\sigma =$

0.89 mho/m $\epsilon = 41.8$ $\rho = 1.00$ g/cm³; DAE: DAE3V1SN374 cal date 2/11/02

Cube 7x7x7: SAR (1g): 0.148 mW/g, SAR (10g): 0.107 mW/g * Max outside, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0; Max at 27.0, 73.5, 4.0



FCC ID: AZ489FT5815; i88s_800MHz_Abdomen Data mode; Test Date: 06/12/02

Motorola CGISS EME Laboratory

Run #: R2_02061203

Tx freq: 813.5125

Simulated tissue temp:21.9

start power :0.670 End power:0.568

Antenna position: OUT Battery kit: SNN5705B (NTN9344A)

Carry Accessories:NTN9478A, leather case open keypad w/ NTN9544A belclip

Audio/data accessories:NKN6540A, data cable

Flat Phantom; Flat_abdomen Section; Position: (90°,90°);

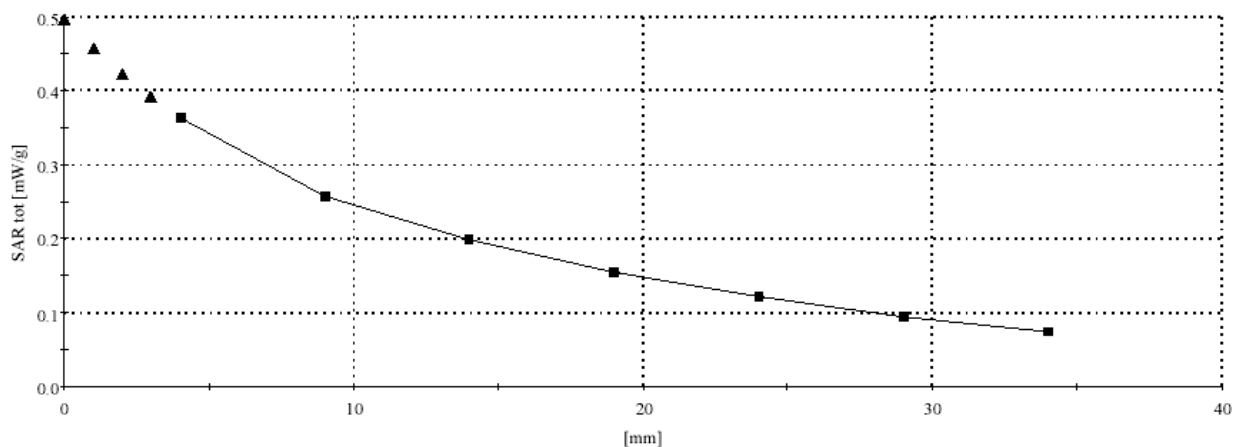
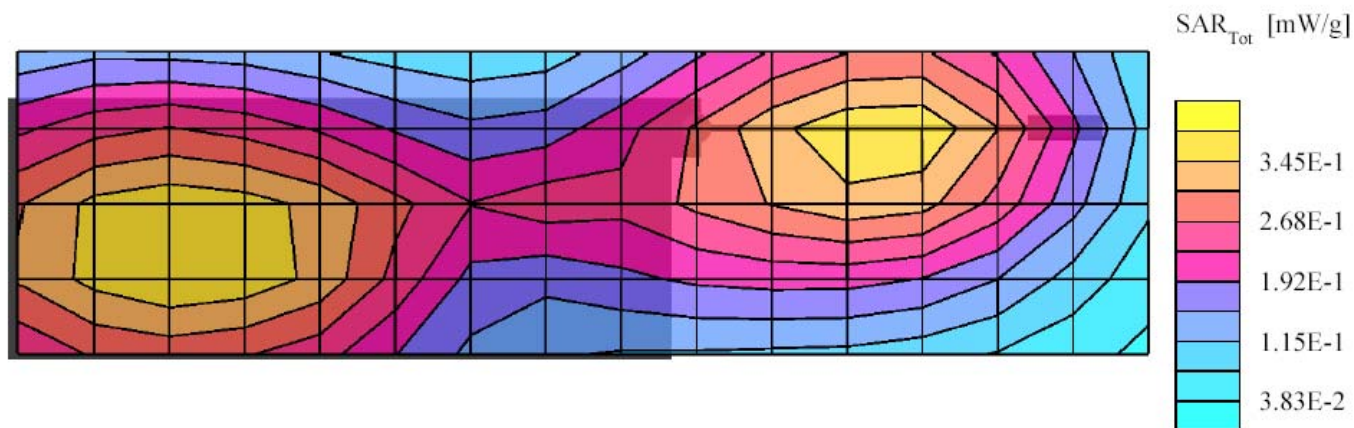
Probe: ET3DV6 - SN1383; ConvF(6.50,6.50,6.50); Probe cal date: 02/21/02; Crest factor: 1.5; FCC Body

813: $\sigma = 0.97$

mho/m $\epsilon = 53.9$ $\rho = 1.00$ g/cm³; DAE: DAE3V1SN374 cal date 2/11/02

Cube 7x7x7: SAR (1g): 0.348 mW/g, SAR (10g): 0.251 mW/g * Max outside, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0; Max at 39.0, 31.5, 4.0



FCC ID: AZ489FT5815; i88s_800MHz_Abdomen Data mode; Test Date: 06/13/02
Motorola CGISS EME Laboratory

Run #: R2_02061303

Tx freq: 813.5125

Simulated tissue temp:21.7

start power :0.68 Watts; End power:0.534 Watts

Antenna position: OUT Battery kit: SNN5717C (NTN9345A)

Carry Accessories:NTN9475A, carry holder w/ NTN9544A belclip

Audio/data accessories:NKN6540A, data cable

Flat Phantom; Flat_abdomen Section; Position: (90°,90°);

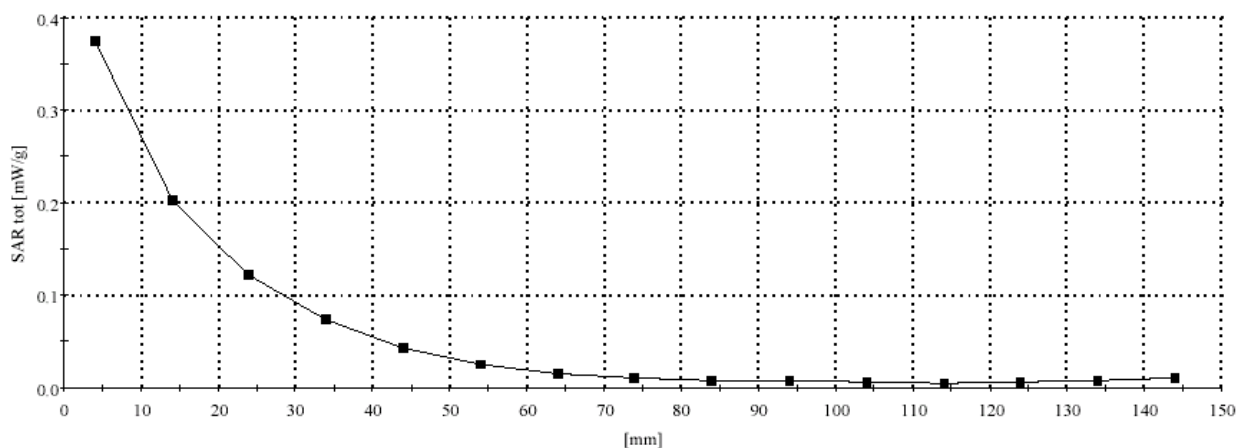
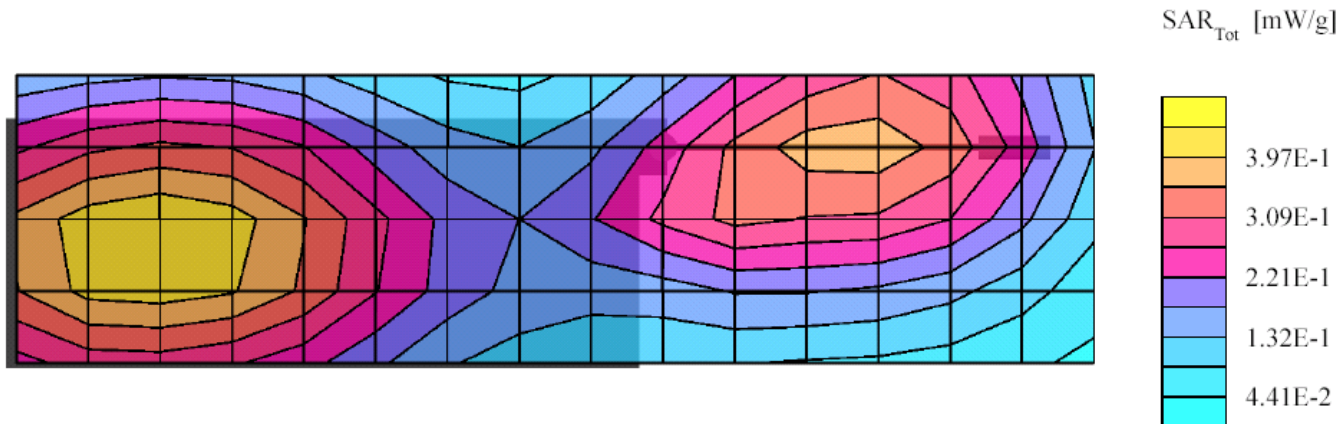
Probe: ET3DV6 - SN1383; ConvF(6.50,6.50,6.50); Probe cal date: 02/21/02; Crest factor: 1.5; FCC Body

813: $\sigma = 0.96$

mho/m $\epsilon = 53.7$ $\rho = 1.00$ g/cm³; DAE: DAE3V1SN374 cal date 2/11/02

Cube 7x7x7: SAR (1g): 0.366 mW/g, SAR (10g): 0.263 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0; Max at 34.5, 28.5, 4.0



FCC ID: AZ489FT5815; i88s_800MHz_Abdomen Data mode; Test Date: 06/13/02
Motorola CGISS EME Laboratory

Run #: R2_02061305

Tx freq: 813.5125

Simulated tissue temp:21.9

start power :0.675 Watts; End power:0.537 Watts

Antenna position: OUT Battery kit: SNN5717C (NTN9345A)

Carry Accessories:NTN9478A, carry holder w/ NTN9544A belclip

Audio/data accessories:NKN6544A, data cable

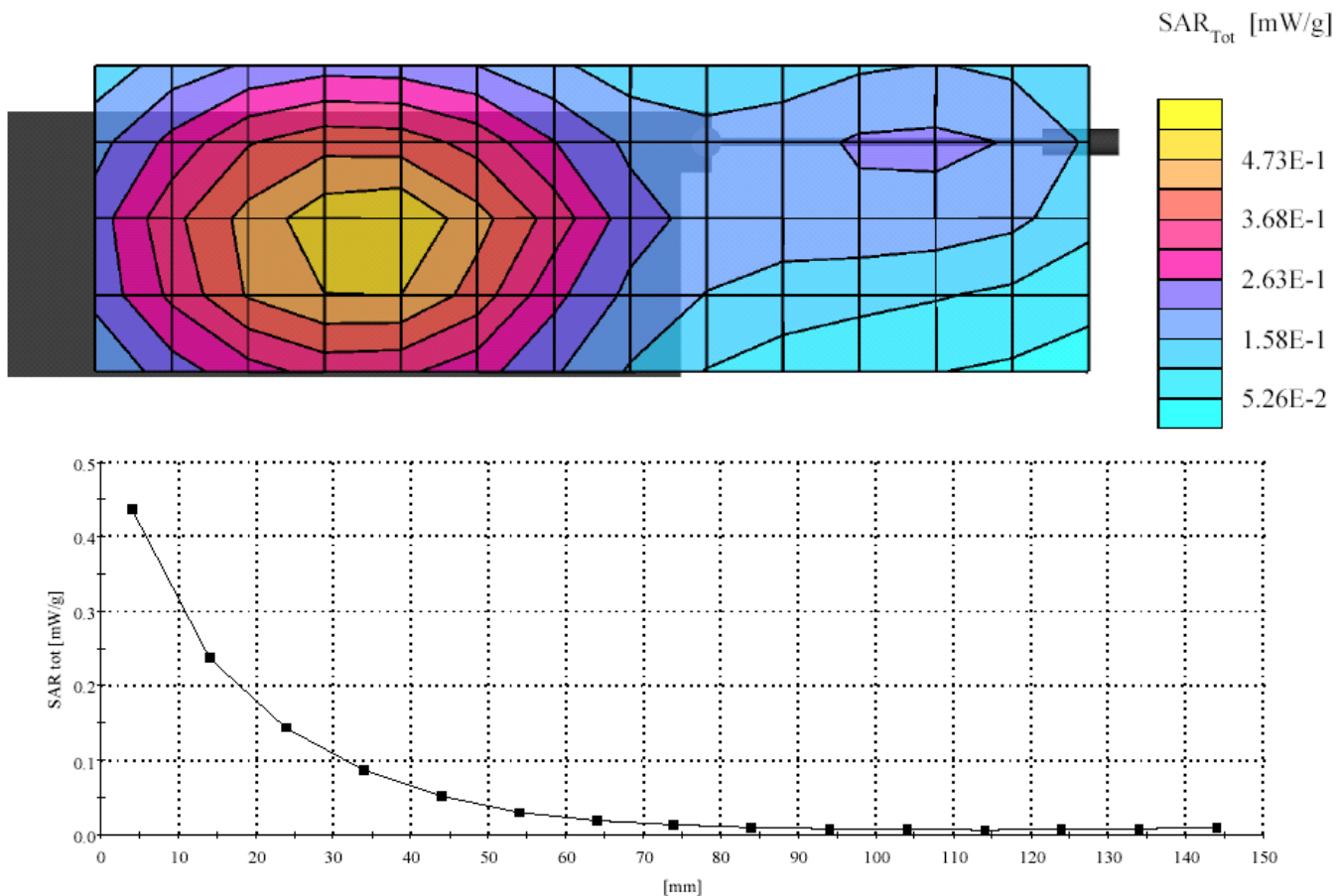
Flat Phantom; Flat_abdomen Section; Position: (90°,90°);

Probe: ET3DV6 - SN1383; ConvF(6.50,6.50,6.50); Probe cal date: 02/21/02; Crest factor: 1.5; FCC Body
813: $\sigma = 0.96$

mho/m $\epsilon = 53.7$ $\rho = 1.00$ g/cm³; DAE: DAE3V1SN374 (2/11/02)

Cube 7x7x7: SAR (1g): 0.438 mW/g, SAR (10g): 0.316 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0; Max at 33.0, 55.5, 4.0



FCC ID: AZ489FT5815; i88s_800MHz_Abdomen Data mode; Test Date: 06/13/02
Motorola CGISS EME Laboratory

Run #: R2_02061309

Tx freq: 806.0125

Simulated tissue temp:22.1

start power :0.67 Watts; End power:0.499 Watts

Antenna position: OUT Battery kit: SNN5717C (NTN9345A)

Carry Accessories:NTN9478A, carry holder w/ NTN9544A belclip

Audio/data accessories:NKN6544A, data cable

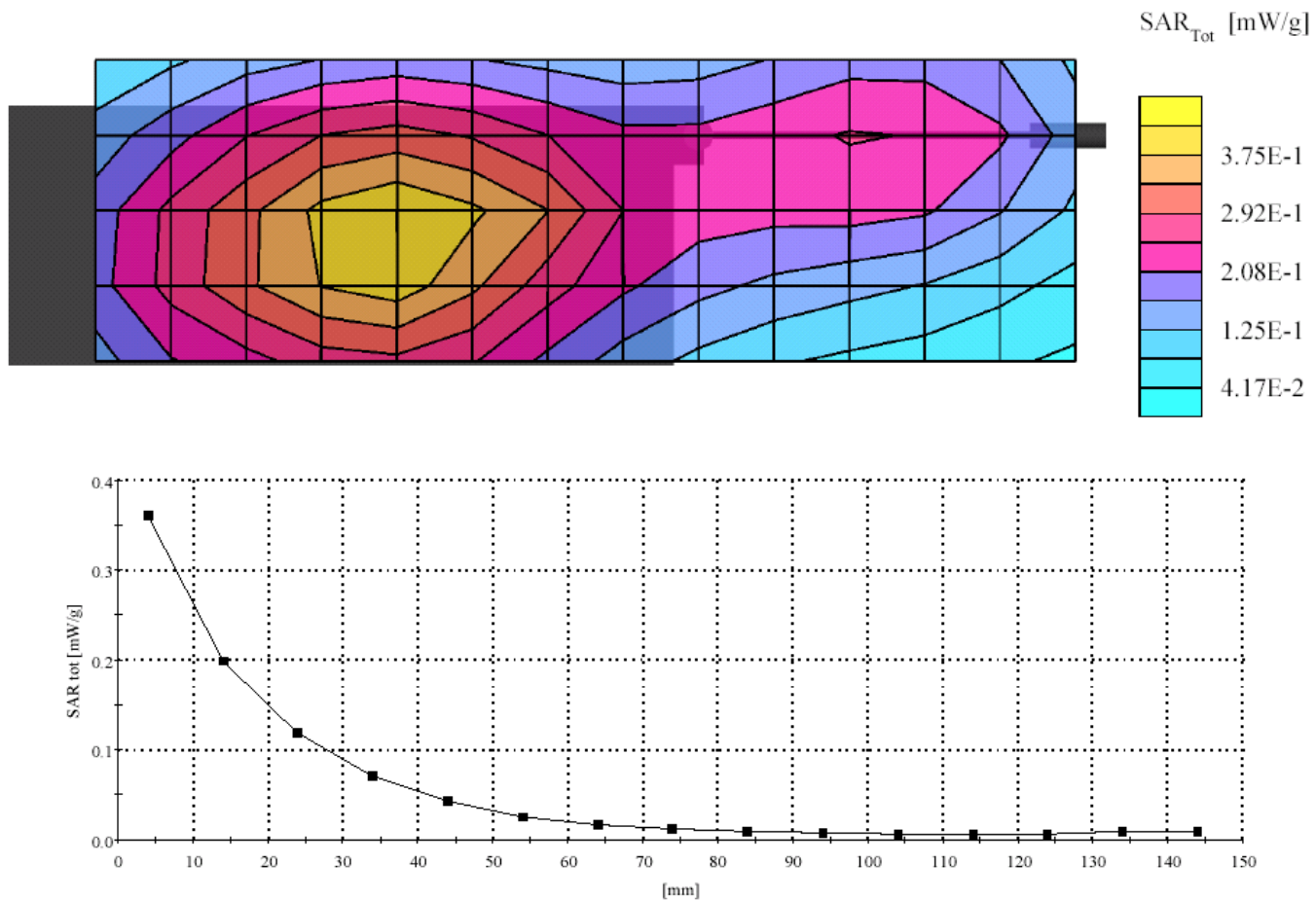
Flat Phantom; Flat_abdomen Section; Position: (90°,90°);

Probe: ET3DV6 - SN1383; ConvF(6.50,6.50,6.50); Probe cal date: 02/21/02; Crest factor: 1.5; FCC Body
813: $\sigma = 0.96$

mho/m $\epsilon = 53.7$ $\rho = 1.00$ g/cm³; DAE: DAE3V1SN374 cal date 2/11/02

Cube 7x7x7: SAR (1g): 0.365 mW/g, SAR (10g): 0.263 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0; Max at 36.0, 58.5, 4.0



FCC ID: AZ489FT5815; i88s_800MHz_Abdomen Data mode; Test Date: 06/17/02
Motorola CGISS EME Laboratory

Run #: R2_02061704

Tx freq: 813.5125

Simulated tissue temp:21.5

start power :0.67 Watts; End power:0.53 Watts

Antenna position: OUT Battery kit: SNN5717C (NTN9345A)

Carry Accessories:None, Back facing phantom, Radio's body is @ 2.5cm from phantom

Audio/data accessories: None

Flat Phantom; Flat_abdomen Section; Position: (90°,90°);

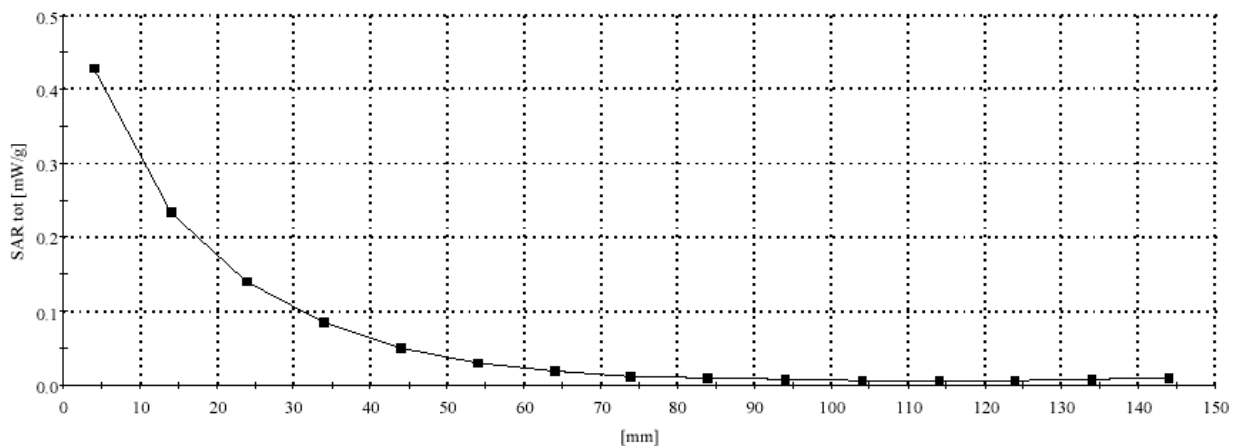
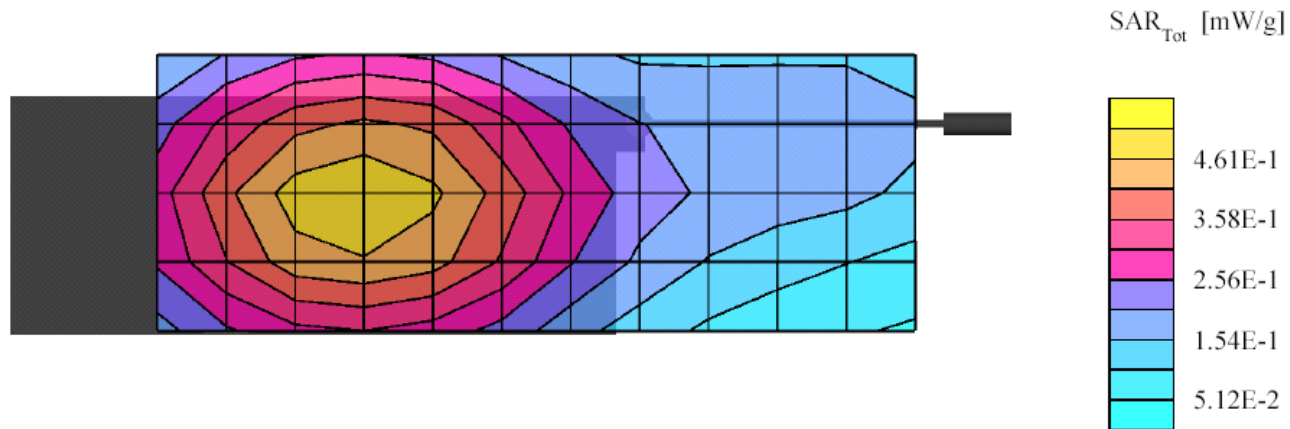
Probe: ET3DV6 - SN1383; ConvF(6.50,6.50,6.50); Probe cal date: 02/21/02; Crest factor: 1.5; FCC Body

813: $\sigma = 0.96$

mho/m $\epsilon = 53.6$ $\rho = 1.00$ g/cm³; DAE: DAE3V1SN374 (2/11/02)

Cube 7x7x7: SAR (1g): 0.429 mW/g, SAR (10g): 0.309 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0; Max at 31.5, 43.5, 4.0



FCC ID: AZ489FT5815; i88s_800MHz_Abdomen Phone mode; Test Date: 06/14/02
Motorola CGISS EME Laboratory

Run #: R2_02061404

Tx freq: 813.5125

Simulated tissue temp:21.9

start power :0.669 Watts; End power:0.600 Watts

Antenna position: IN Battery kit: SNN5717C (NTN9345A)

Carry Accessories:NTN9478A, cary holder w/ NTN9544A belclip

Audio/data accessories:SYN8390B, audio cable

Flat Phantom; Flat_abdomen Section; Position: (90°,90°);

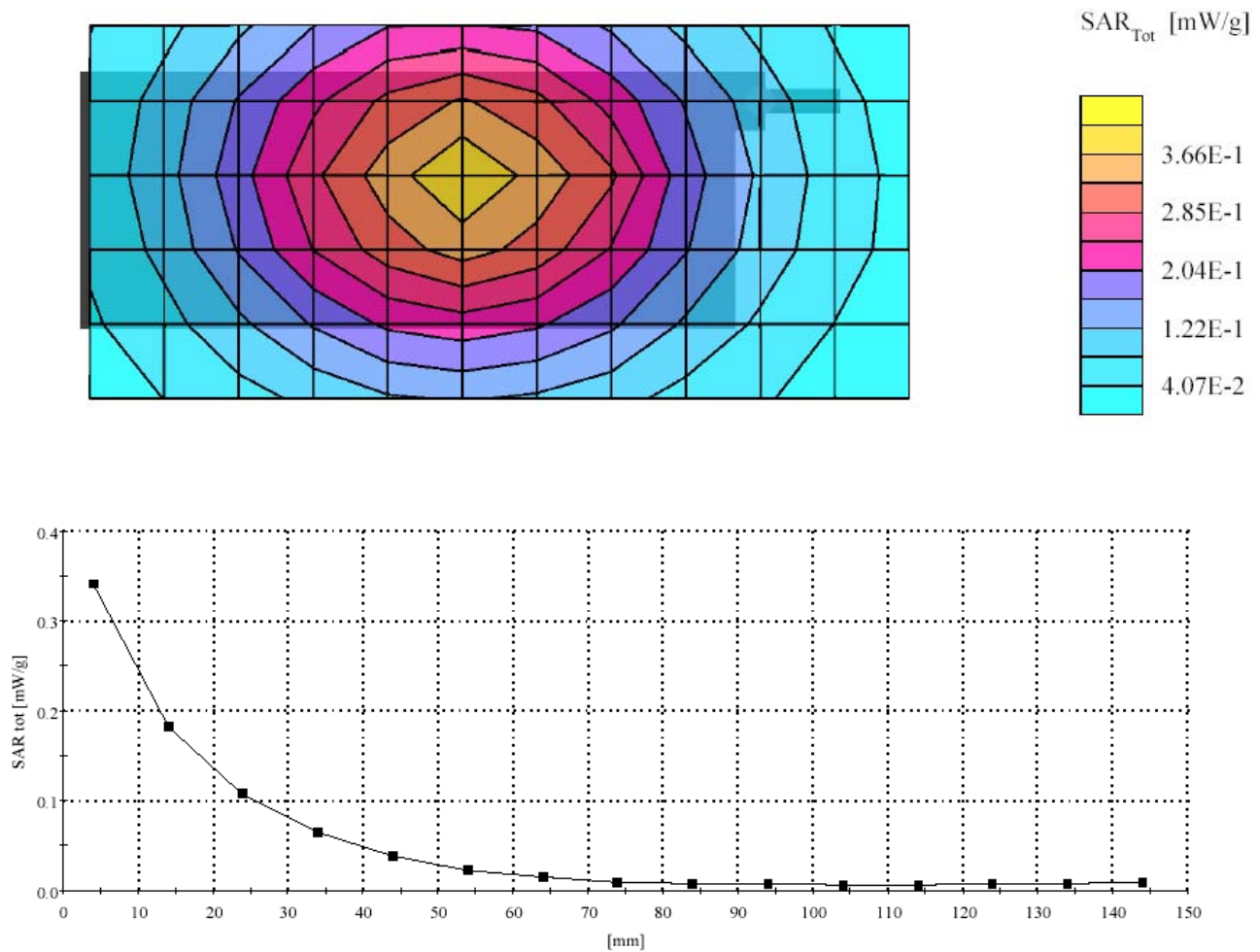
Probe: ET3DV6 - SN1383; ConvF(6.50,6.50,6.50); Probe cal date: 02/21/02; Crest factor: 3.0; FCC Body

813: $\sigma = 0.96$

mho/m $\epsilon = 53.8$ $\rho = 1.00$ g/cm³; DAE: DAE3V1SN374 cal date 2/11/02

Cube 7x7x7: SAR (1g): 0.342 mW/g, SAR (10g): 0.245 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0; Max at 30.0, 75.0, 4.0



FCC ID: AZ489FT5815; i58sr_900MHz_Phone_Left Ear ; Test Date: 06/20/02
Motorola CGISS EME Laboratory

Run #: R2_02062002

Tx freq: 899.00625

Simulated tissue temp:21.4

Start power:0.665 Watts; End power:0.654 Watts

Antenna position: IN Battery kit: SNN5717C (NTN9345A)

Carry Accessories: none

Audio/data accessories: none

SAM - Expanded Phantom; Left Hand Section; Position: (90°,59°);

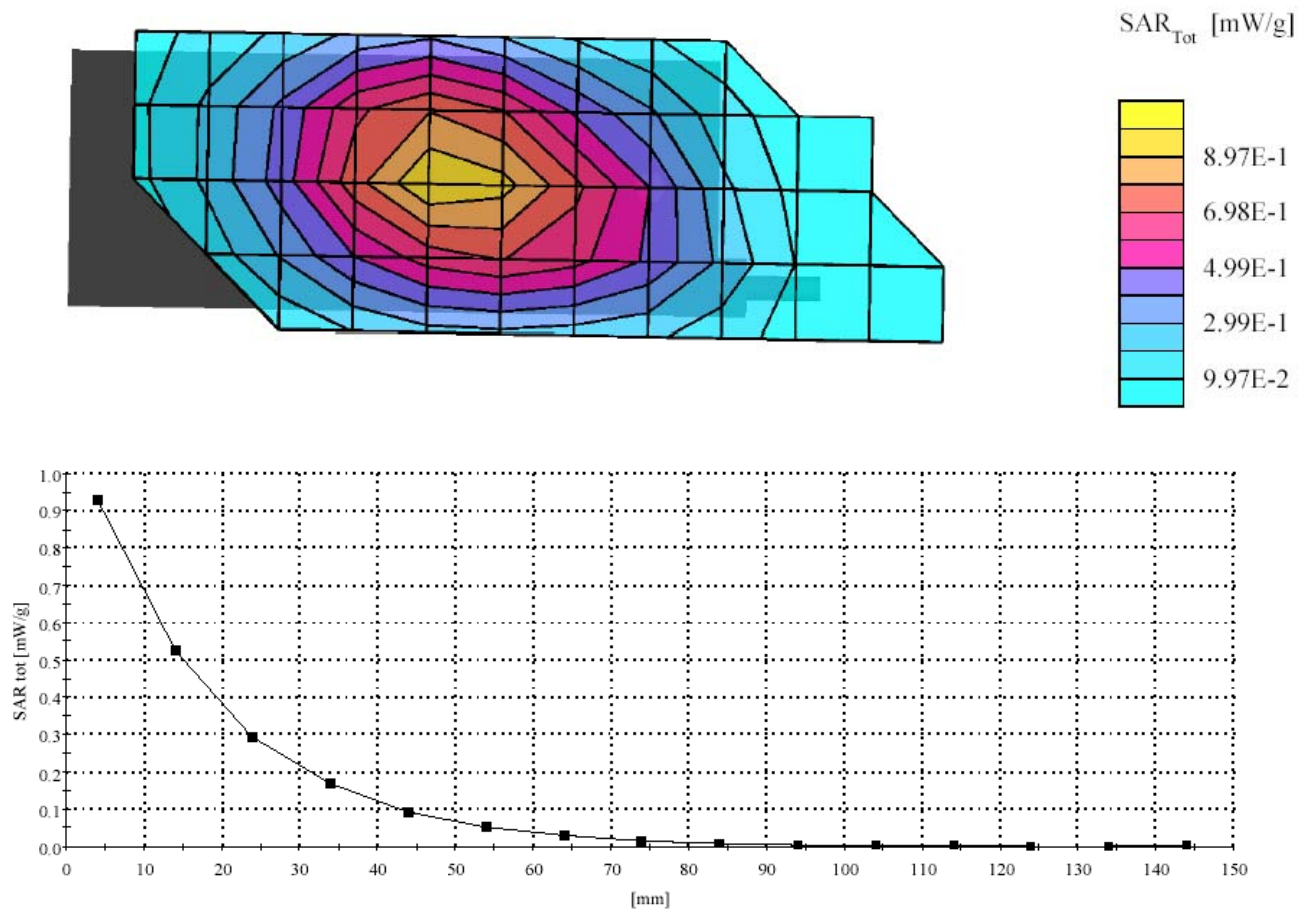
Probe: ET3DV6 - SN1383; ConvF(6.60,6.60,6.60); Probe cal date: 02/21/02; Crest factor: 3.0; IEEE

HEAD 899MHz: $\sigma =$

0.95 mho/m $\epsilon = 39.5$ $\rho = 1.00$ g/cm³; DAE: DAE3V1SN374 cal date 2/11/02

Cube 7x7x7: SAR (1g): 0.936 mW/g, SAR (10g): 0.656 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0; Max at 63.0, 31.5, 4.0



FCC ID: AZ489FT5815; i58sr_900MHz_Phone_Right Ear ; Test Date: 06/20/02
Motorola CGISS EME Laboratory

Run #: R2_02062005

Tx freq: 899.00625

Simulated tissue temp:21.7

Start power:0.665 Watts; End power:0.674 Watts

Antenna position: IN Battery kit: SNN5717C (NTN9345A)

Carry Accessories: none

Audio/data accessories: none

SAM - Expanded Phantom; Right Hand Section; Position: (90°,301°);

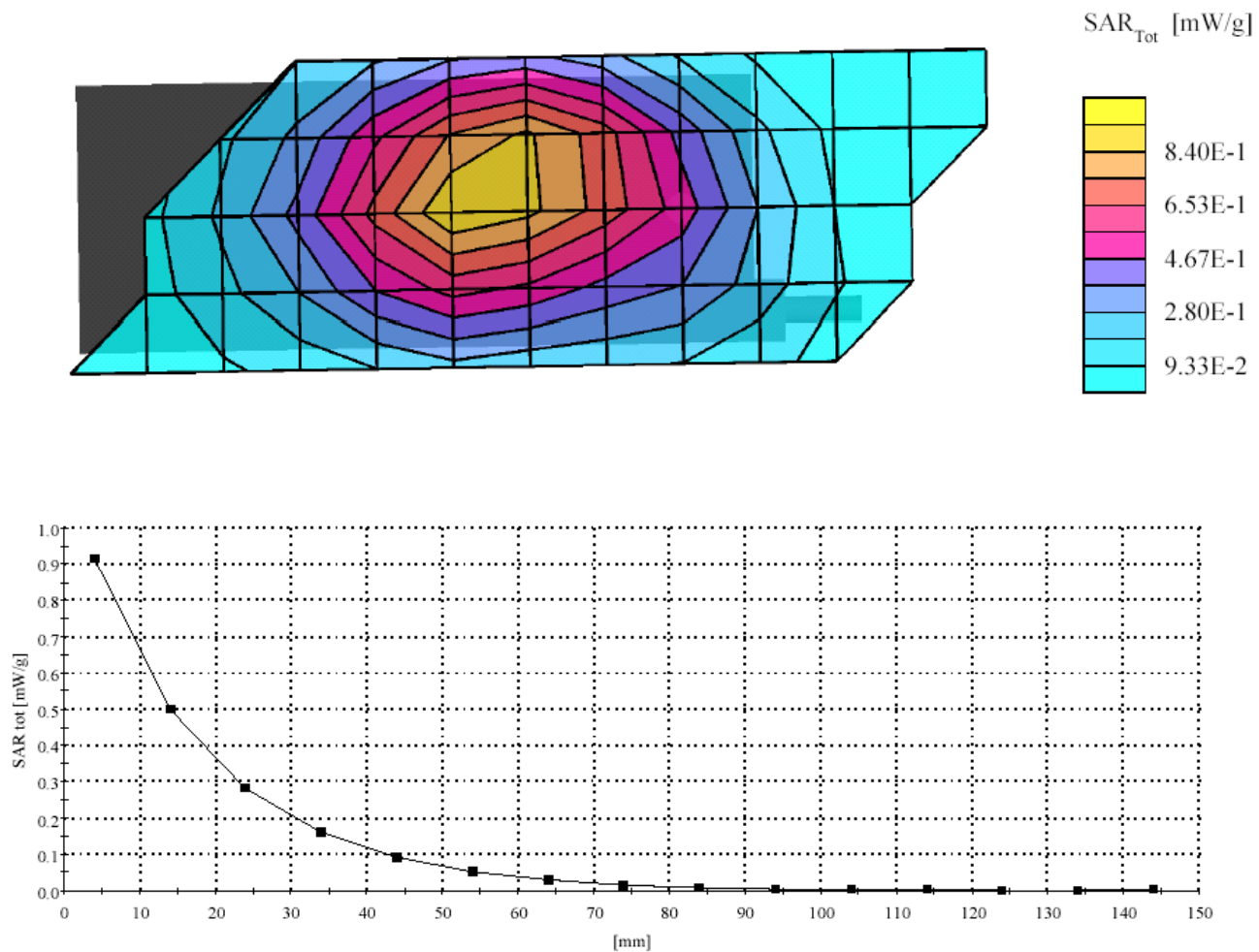
Probe: ET3DV6 - SN1383; ConvF(6.60,6.60,6.60); Probe cal date: 02/21/02; Crest factor: 3.0; IEEE

HEAD 899MHz: $\sigma =$

0.95 mho/m $\epsilon = 39.5$ $\rho = 1.00$ g/cm³; DAE: DAE3V1SN374 cal date 2/11/02

Cube 7x7x7: SAR (1g): 0.910 mW/g, SAR (10g): 0.639 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0; Max at 94.5, 33.0, 4.0



FCC ID: AZ489FT5815; i58sr_900_PTT_Face; Test Date: 06/25/02
Motorola CGISS EME Laboratory

Run #: R2_02062502

Tx freq: 899.00625

Simulated tissue temp:21.7

Start power:0.655 Watts; End power:0.660 Watts

Antenna position: IN Battery kit: SNN5717C (NTN9345A)

Carry Accessories: none

Audio/data accessories: none

SAM Phantom; Flat Section; Position: (90°,90°);

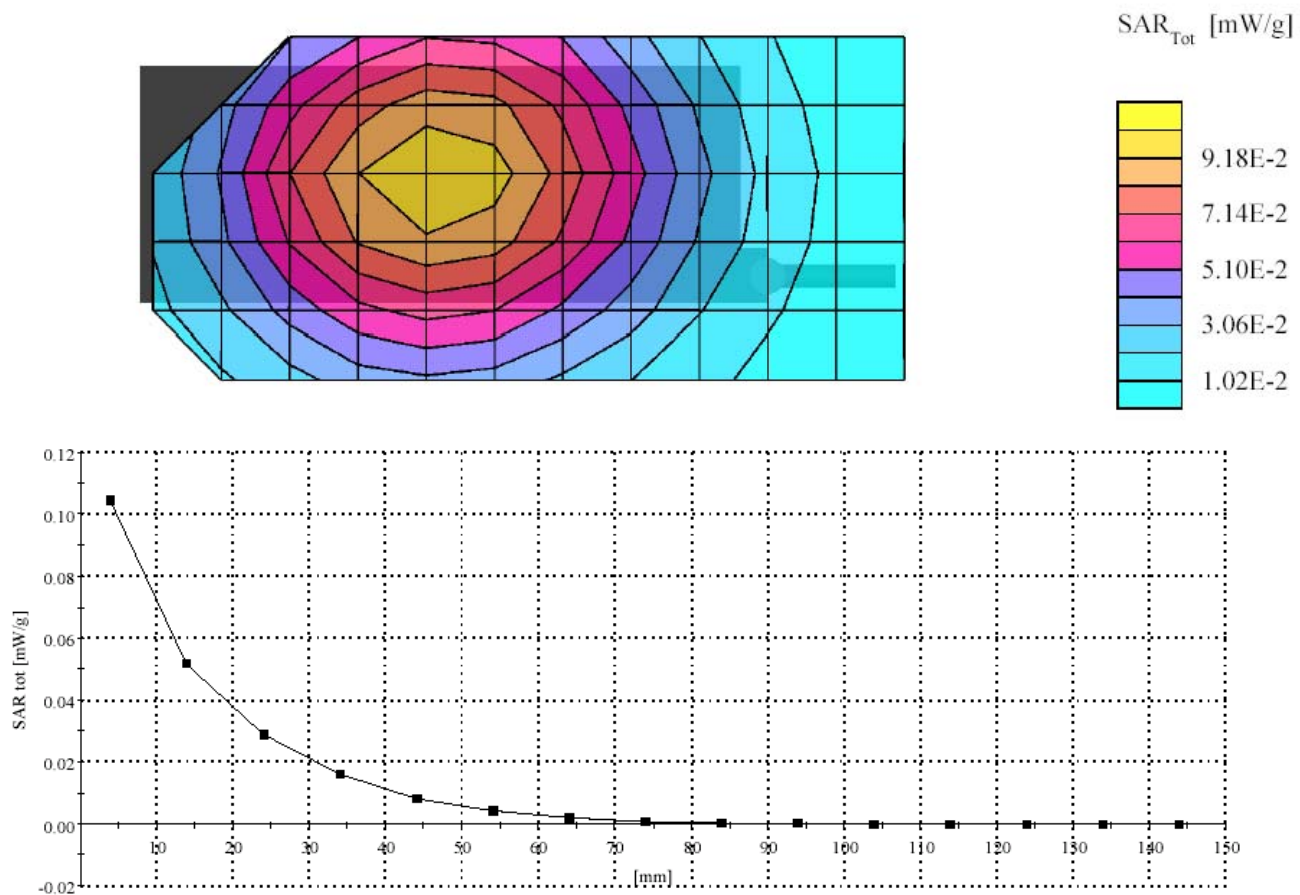
Probe: ET3DV6 - SN1383; ConvF(6.60,6.60,6.60); Probe cal date: 02/21/02; Crest factor: 6.0; IEEE

HEAD 899MHz: $\sigma =$

0.95 mho/m $\epsilon = 39.8$ $\rho = 1.00$ g/cm³; DAE: DAE3V1SN374 (2/11/02)

Cube 7x7x7: SAR (1g): 0.0976 mW/g, SAR (10g): 0.0690 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0; Max at 31.5, 63.0, 4.0



FCC ID: AZ489FT5815; i58sr_900MHz_Abdomen Phone mode; Test Date: 06/24/02
Motorola CGISS EME Laboratory

Run #: R2_02062408

Tx freq: 899.00625

Simulated tissue temp:21.9

start power :0.665 Watts; End power:0.675 Watts

Antenna position: IN Battery kit: SNN5705B (NTN9344A)

Carry Accessories:NTN9478A, leather case open keypad w/ NTN9544A belclip

Audio/data accessories:NTN8496A, Head set

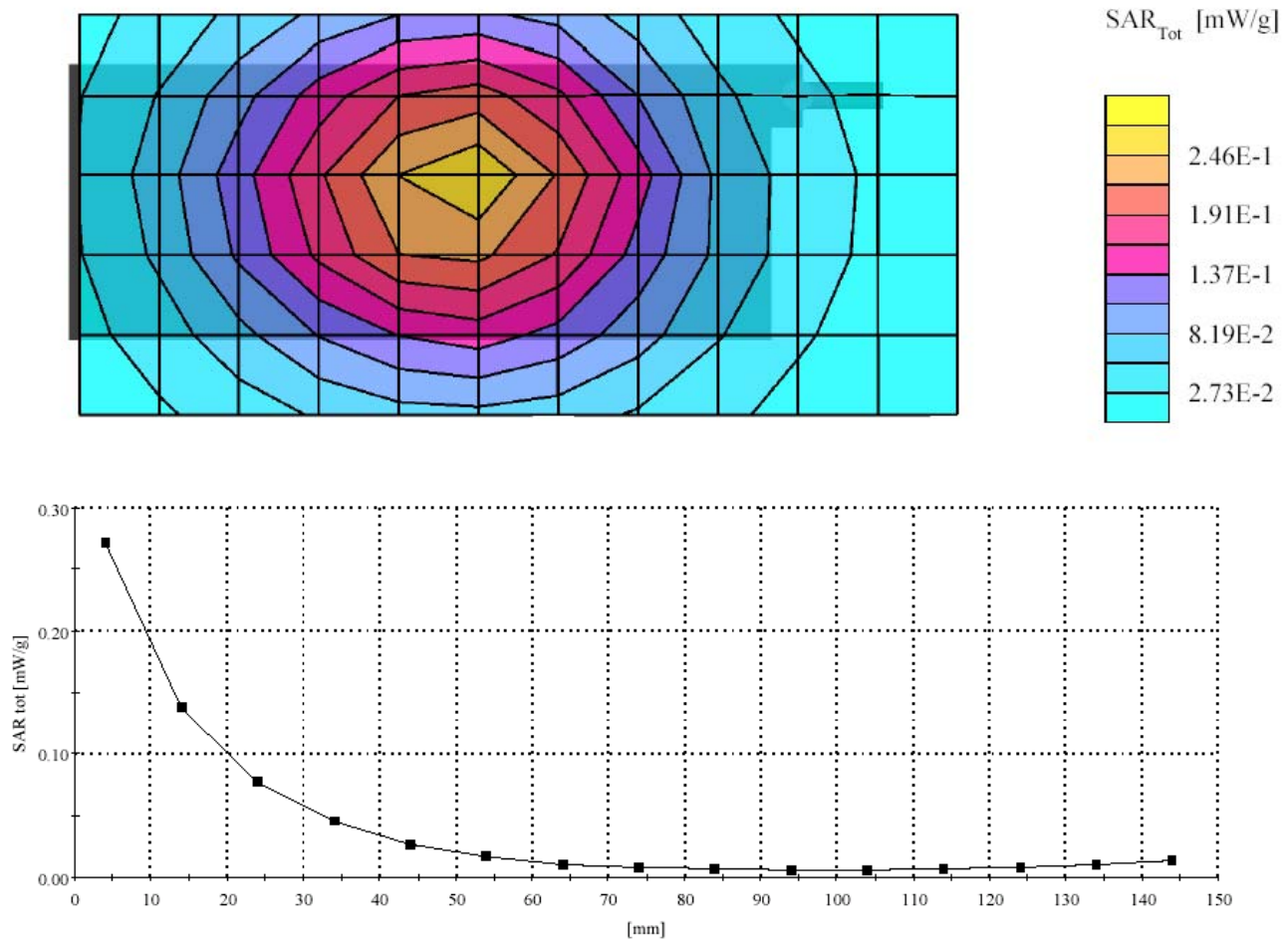
Flat Phantom; Flat_abdomen Section; Position: (90°,90°);

Probe: ET3DV6 - SN1383; ConvF(6.40,6.40,6.40); Probe cal date: 02/21/02; Crest factor: 3.0; FCC Body
899: $\sigma = 1.04$

mho/m $\epsilon = 52.6$ $\rho = 1.00$ g/cm³; DAE: DAE3V1SN374 (2/11/02)

Cube 7x7x7: SAR (1g): 0.257 mW/g, SAR (10g): 0.177 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0; Max at 31.5, 72.0, 4.0



FCC ID: AZ489FT5815; i58sr_800MHz_Phone_Left Ear; Test Date: 06/21/02
Motorola CGISS EME Laboratory

Run #: R2_02062102

Tx freq: 813.5125

Simulated tissue temp: 21.3

Start power: 0.687 Watts End power: 0.619 Watts

Antenna position: IN Battery kit: SNN5706A (NTN9346A)

Carry Accessories: none

Audio/data accessories: none

SAM - Expanded Phantom; Left Hand Section; Position: (90°, 59°);

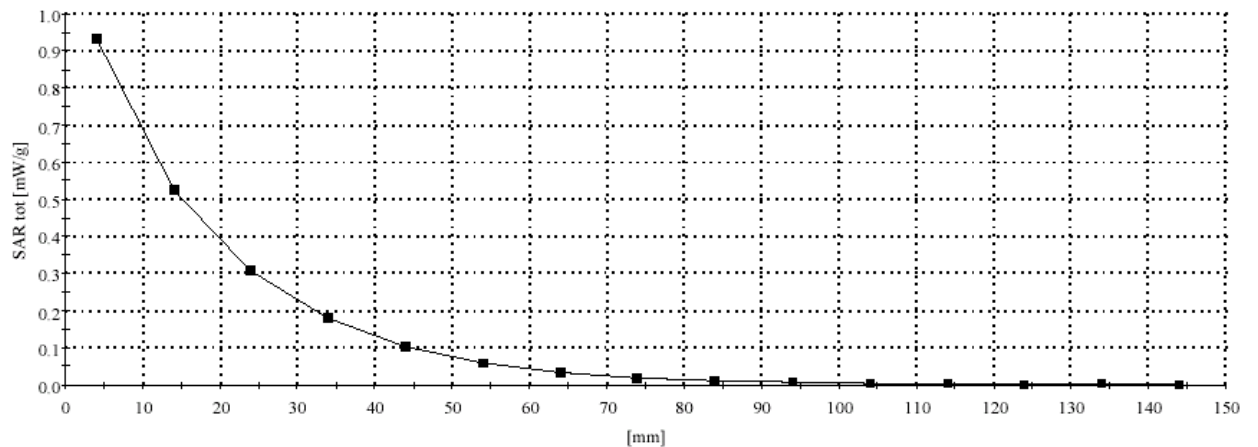
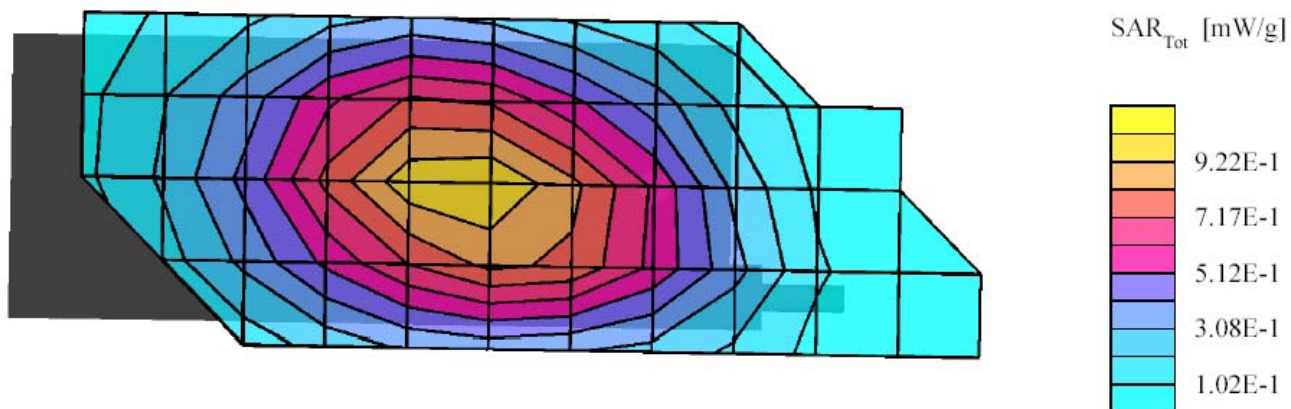
Probe: ET3DV6 - SN1383; ConvF(6.70, 6.70, 6.70); Probe cal date: 02/21/02; Crest factor: 3.0; IEEE

HEAD 813MHz: $\sigma =$

0.87 mho/m $\epsilon = 40.6$ $\rho = 1.00$ g/cm³; DAE: DAE3V1SN374 cal date 2/11/02

Cube 7x7x7: SAR (1g): 0.918 mW/g, SAR (10g): 0.649 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0; Max at 70.5, 28.5, 4.0



FCC ID: AZ489FT5815; i58sr_800MHz_Phone_Right Ear; Test Date: 06/21/02
Motorola CGISS EME Laboratory

Run #: R2_02062106

Tx freq: 813.5125

Simulated tissue temp: 21.5

Start power: 0.677 Watts; End power: 0.632 Watts

Antenna position: IN Battery kit: SNN5705B (NTN9344A)

Carry Accessories: none

Audio/data accessories: none

SAM - Expanded Phantom; Right Hand Section; Position: (90°, 301°);

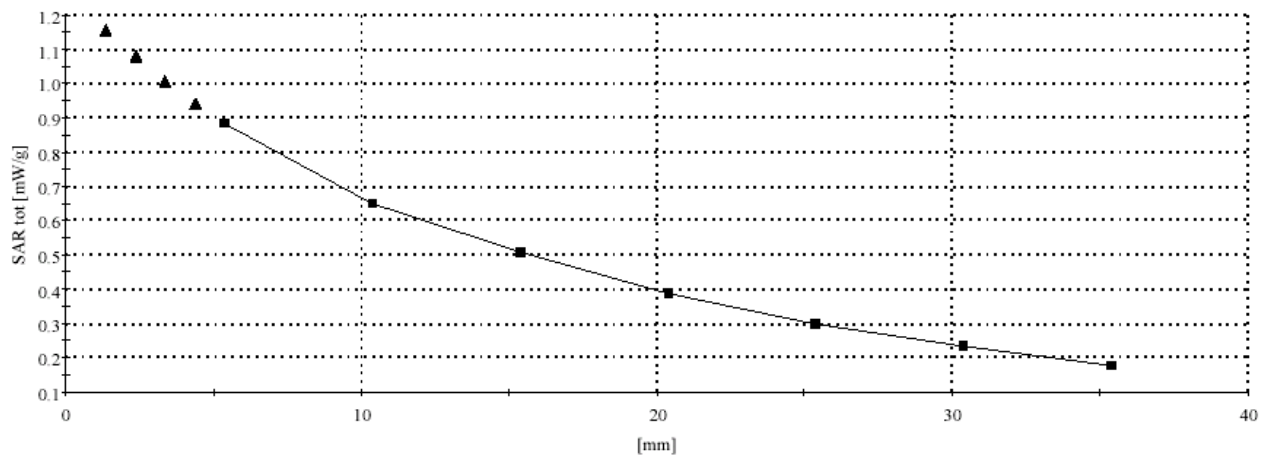
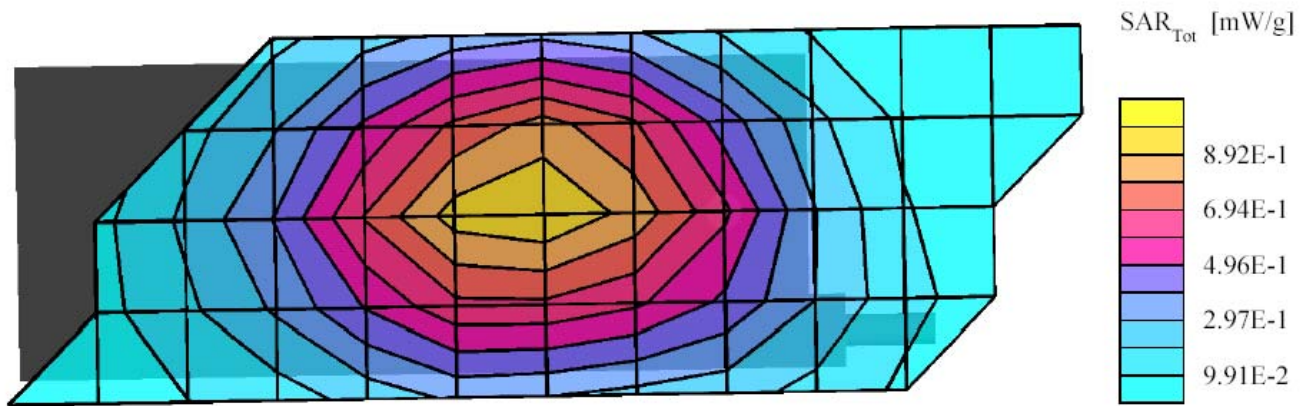
Probe: ET3DV6 - SN1383; ConvF(6.70, 6.70, 6.70); Probe cal date: 02/21/02; Crest factor: 3.0; IEEE

HEAD 813MHz: $\sigma =$

0.87 mho/m $\epsilon = 40.6$ $\rho = 1.00$ g/cm³; DAE: DAE3V1SN374 cal date 2/11/02

Cube 7x7x7: SAR (1g): 0.907 mW/g, SAR (10g): 0.648 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0; Max at 102.0, 31.5, 4.0



FCC ID: AZ489FT5815; i58sr_800_PTT_Face; Test Date: 06/24/02

Motorola CGISS EME Laboratory

Run #: R2_02062405

Tx freq: 806.0125

Simulated tissue temp: 21.7

Start power: 0.70 Watts; End power: 0.689 Watts

Antenna position: IN Battery kit: SNN5706A (NTN9346A)

Carry Accessories: none

Audio/data accessories: none

SAM Phantom; Flat Section; Position: (90°, 90°);

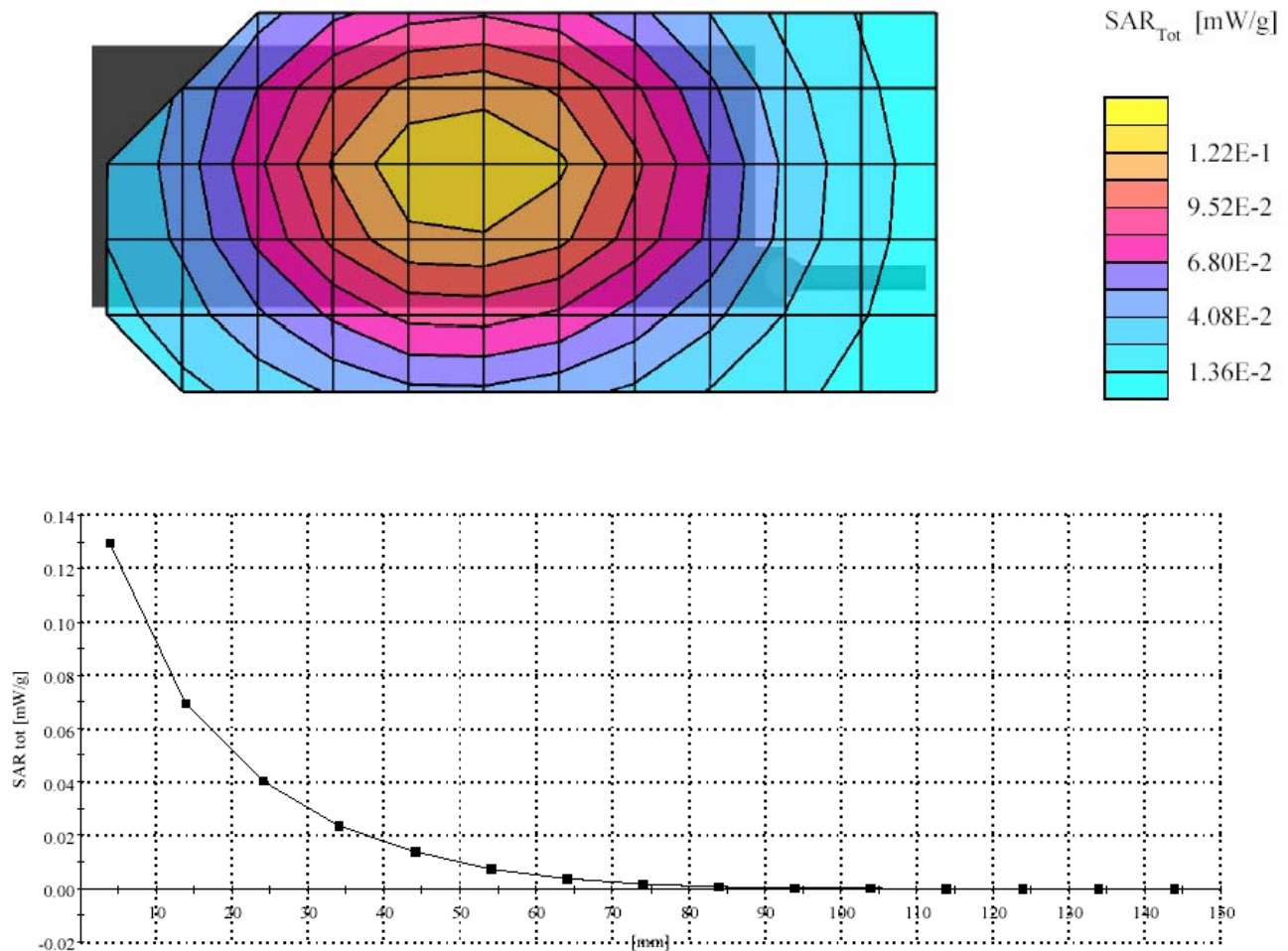
Probe: ET3DV6 - SN1383; ConvF(6.70,6.70,6.70); Probe cal date: 02/21/02; Crest factor: 6.0; IEEE

HEAD 813MHz: $\sigma =$

0.87 mho/m $\epsilon = 40.6$ $\rho = 1.00$ g/cm³; DAE: DAE3V1SN374 cal date 2/11/02

Cube 7x7x7: SAR (1g): 0.128 mW/g, SAR (10g): 0.0916 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0; Max at 31.5, 70.5, 4.0



FCC ID: AZ489FT5815; i58sr_800MHz_Abdomen Data mode; Test Date: 06/24/02

Motorola CGISS EME Laboratory

Run #: R2_02062412

Tx freq: 813.5125

Simulated tissue temp: 21.9

start power : 0.688 Watts; End power: 0.502 Watts

Antenna position: OUT Battery kit: SNN5717C (NTN9345A)

Carry Accessories: None, Back radio at 2.5cm

Audio/data accessories: None

Flat Phantom; Flat_abdomen Section; Position: (90°, 90°);

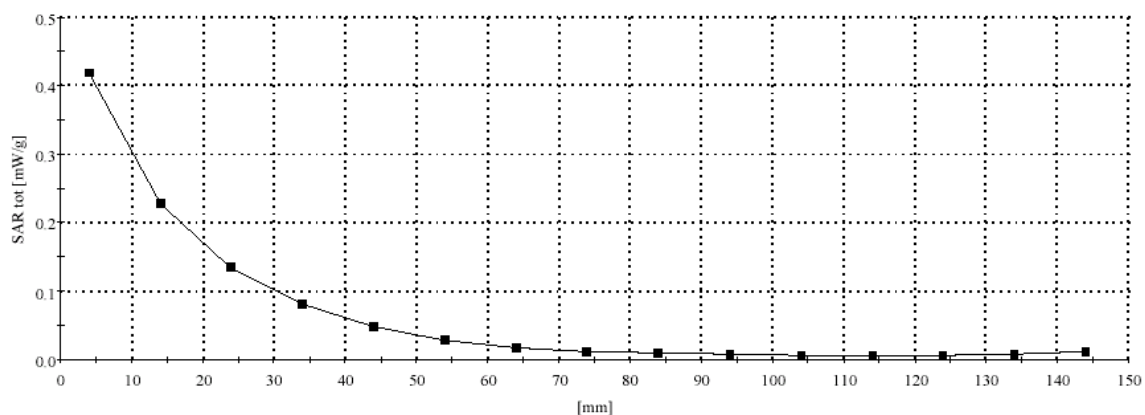
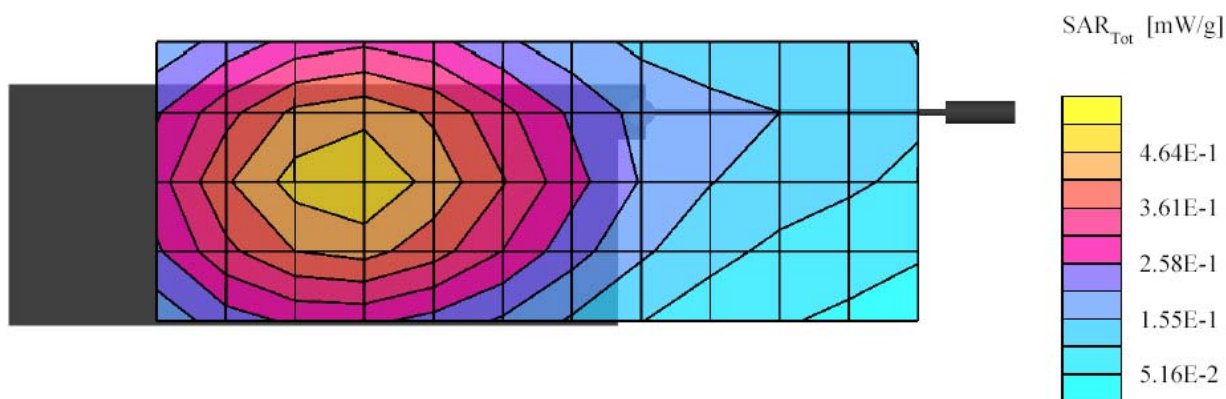
Probe: ET3DV6 - SN1383; ConvF(6.50,6.50,6.50); Probe cal date: 02/21/02; Crest factor: 1.5; FCC Body

813: $\sigma = 0.95$

mho/m $\epsilon = 53.4$ $\rho = 1.00$ g/cm³; DAE: DAE3V1SN374 cal date 2/11/02

Cube 7x7x7: SAR (1g): 0.425 mW/g, SAR (10g): 0.310 mW/g, (Worst-case extrapolation)

Coarse: Dx = 15.0, Dy = 15.0, Dz = 10.0; Max at 30.0, 42.0, 4.0



APPENDIX C
Dipole System Performance Check Results

Dipole D835V2 SN426; Test Date:05/22/02

Motorola CGISS EME Lab

Run #: 02052201

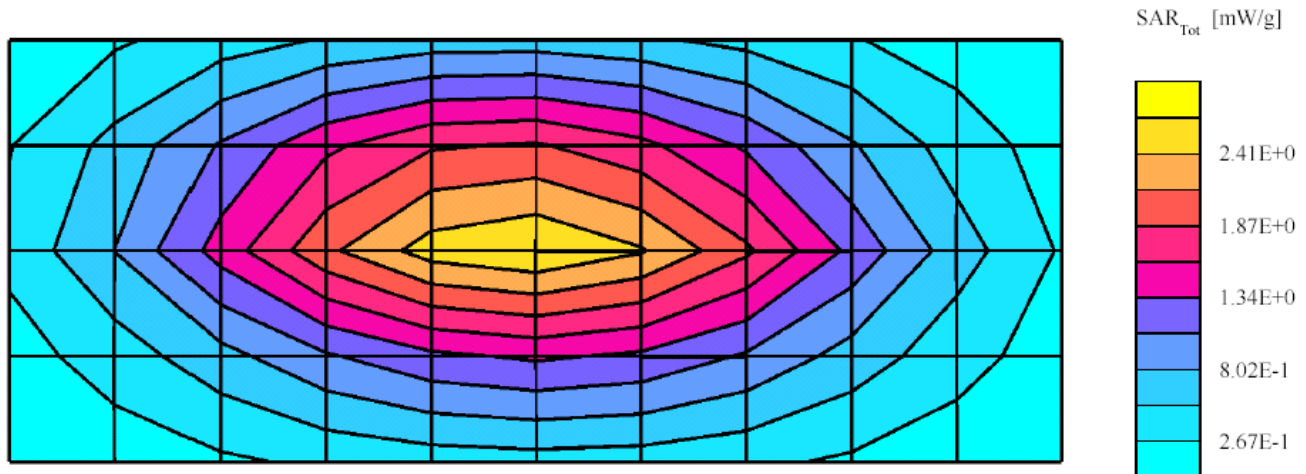
Tx Freq: 835MHz

Simulated tissue temp: 21.1C

Start power: 250mW

Target: 10.2mW/g for 1g-SAR, 6.56mW/g for 10g-SAR, +/-12.1% from SPEAG Dipole certificate 2/11/02
10.04mW/g for 1g-SAR , 6.44mW/g for 10g-SAR, +/-10% from system performance target 4/19/02.

SAM; Probe: ET3DV6 - SN1383;Probe Cal Date: 02/21/02ConvF(6.70,6.70,6.70); Crest factor: 1.0; IEEE
Head 835MHz : $\sigma = 0.89$ mho/m $\epsilon = 40.4$ $\rho = 1.00$ g/cm³; DAE: DAE3V1 SN374 =cal date 2/11/02
Cube 7x7x7: Peak: 4.07 mW/g, SAR (1g): 2.52 mW/g, SAR (10g): 1.61 mW/g, (Worst-case extrapolation)
Penetration depth: 11.7 (10.3, 13.6) [mm]
Power Drift: -0.03 dB



Dipole D835V2 SN426; Test Date:05/22/02

Motorola CGISS EME Lab

Run #: 02052207

Tx Freq: 835MHz

Simulated tissue temp:21.9 C

Start power: 250mW

Target:10.5mW/g for 1g-SAR, 6.8mW/g for 10g-SAR, +/-12.1% from SPEAG Dipole certificate 2/11/02

10.65mW/g for 1g SAR, 6.79mW/g for 10g SAR, +/- 10% from system performance target 5/20/02

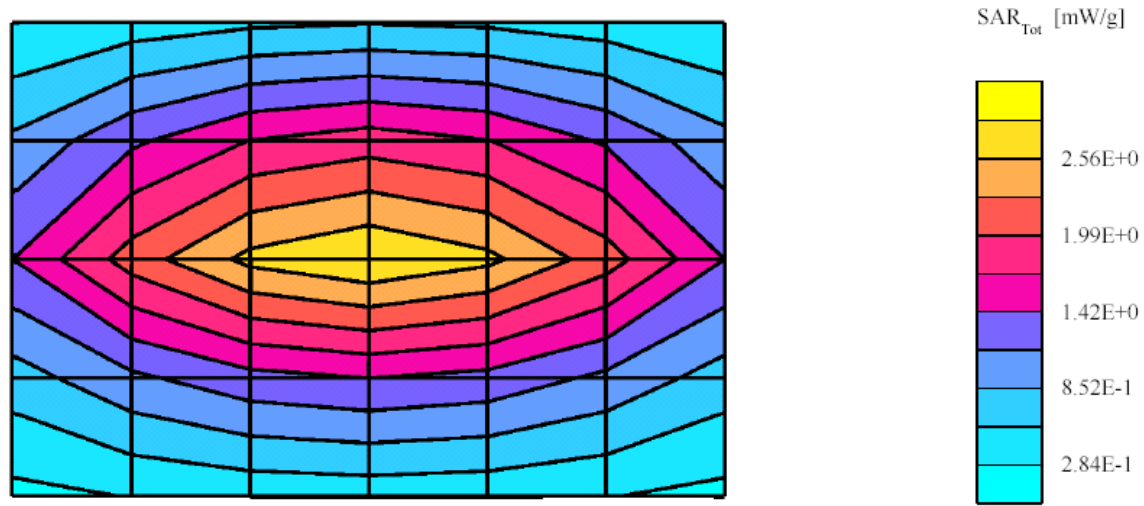
Flat; Probe: ET3DV6 - SN1383;Probe Cal Date: 02/21/02ConvF(6.50,6.50,6.50); Crest factor: 1.0; FCC

Body 835: $\sigma = 0.98$ mho/m $\epsilon_r = 53.2$ $n = 1.00$ g/cm³; DAE: DAE3V1 SN374 cal date 2/11/02

Cube 7x7x7: Peak: 4.20 mW/g, SAR (1g): 2.63 mW/g, SAR (10g): 1.68 mW/g, (Worst-case extrapolation)

Penetration depth: 12.2 (10.7, 14.1) [mm]

Power drift: -0.06 dB



Dipole D835V2 SN426; Test Date:05/28/02

Motorola CGISS EME Lab

Run #: 02052801

Tx Freq: 835MHz

Simulated tissue temp:21.4 C

Start power: 250mW

Target:

10.2mW/g for 1g-SAR, 6.56mW/g for 10g-SAR, +/-12.1% from SPEAG Dipole certificate 2/11/02

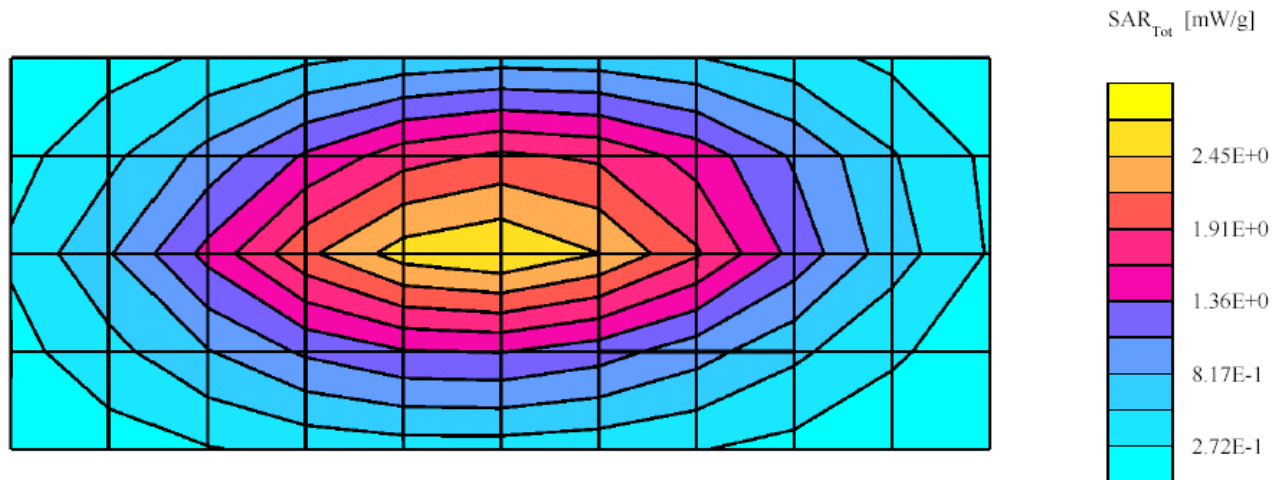
10.04mW/g for 1g-SAR , 6.44mW/g for 10g-SAR, +/-10% from system performance target 4/19/02.

SAM; Probe: ET3DV6 - SN1383;Probe Cal Date: 02/21/02ConvF(6.70,6.70,6.70); Crest factor: 1.0; IEEE

Head 835MHz : $\sigma = 0.92$ mho/m $\rho = 41.0$ $\rho = 1.00$ g/cm³; DAE: DAE3V1 SN374 cal date 2/11/02

Cubes (2): Peak: 4.15 mW/g ± 0.00 dB, SAR (1g): 2.57 mW/g ± 0.00 dB, SAR (10g): 1.64 mW/g ± 0.00 dB, (Worst-case extrapolation) Penetration depth: 11.7 (10.3, 13.6) [mm]

Power drift: -0.03 dB



Dipole D835V2 SN426; Test Date:06/28/02

Motorola CGISS EME Lab

Run #: 02052801

Tx Freq: 835MHz

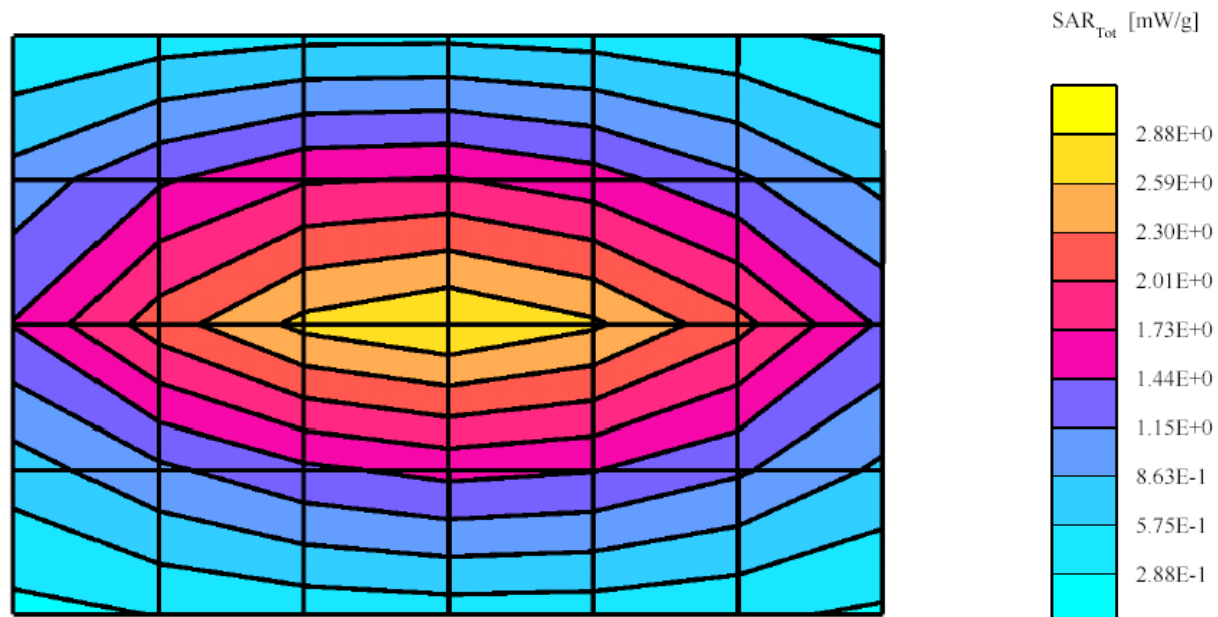
Simulated tissue temp:21.4 C

Flat; Probe: ET3DV6 - SN1383;Probe Cal Date: 02/21/02ConvF(6.50,6.50,6.50); Crest factor: 1.0; FCC
Body 835: $\sigma = 0.99$ mho/m $\epsilon_r = 53.6$ $\rho = 1.00$ g/cm³

Cubes (2): Peak: 4.24 mW/g ± 0.01 dB, SAR (1g): 2.66 mW/g ± 0.01 dB, SAR (10g): 1.71 mW/g ± 0.00
dB, (Worst-case extrapolation)

Penetration depth: 12.3 (10.8, 14.2) [mm]

Power drift: -0.02 dB



Dipole D835V2 SN426; Test Date:05/29/02

Motorola CGISS EME Lab

Run #: 02052901

Tx Freq: 835MHz

Simulated tissue temp: 21.3 C

Start power: 250mW

Target:

10.2mW/g for 1g-SAR, 6.56mW/g for 10g-SAR, +/-12.1% from SPEAG Dipole certificate 2/11/02

10.04mW/g for 1g-SAR , 6.44mW/g for 10g-SAR, +/-10% from system performance target 4/19/02.

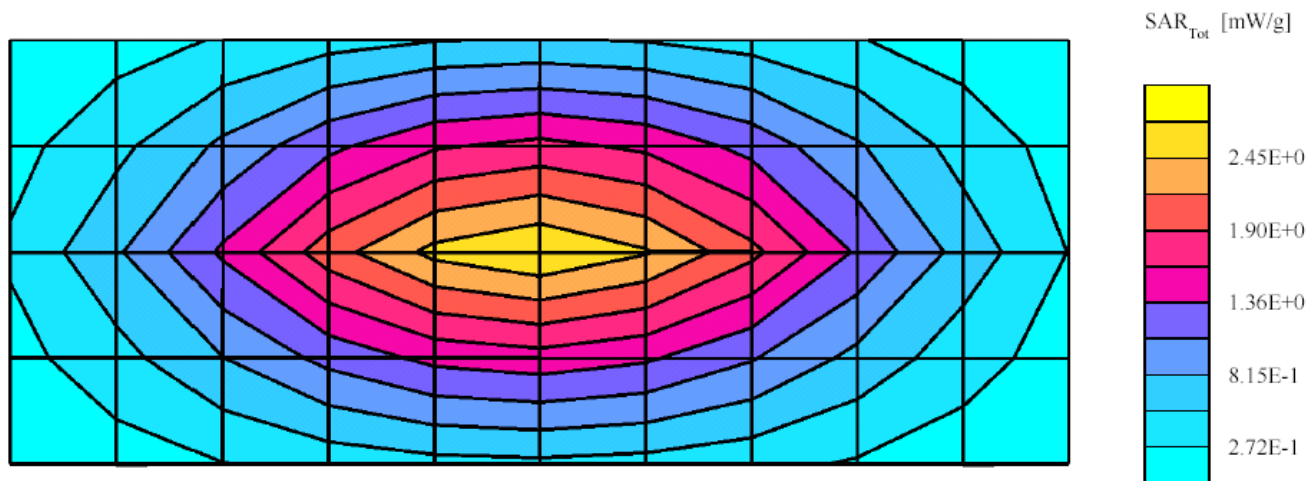
SAM; Probe: ET3DV6 - SN1383;Probe Cal Date: 02/21/02ConvF(6.70,6.70,6.70); Crest factor: 1.0; IEEE

Head 835MHz : $\sigma = 0.91$ mho/m $\rho = 40.5$ g/cm³; DAE: DAE3V1 SN374 cal date 2/11/02

Cube 7x7x7: Peak: 4.05 mW/g, SAR (1g): 2.51 mW/g, SAR (10g): 1.59 mW/g, (Worst-case extrapolation)

Penetration depth: 11.7 (10.3, 13.5) [mm]

Power drift: -0.01 dB



Dipole D835V2 SN426; Test Date:05/30/02

Motorola CGISS EME Lab

Run #: 02053001

Tx Freq: 835MHz

Simulated tissue temp: 21.8 C

Start power: 250mW

Target:

10.2mW/g for 1g-SAR, 6.56mW/g for 10g-SAR, +/-12.1% from SPEAG Dipole certificate 2/11/02

10.04mW/g for 1g-SAR , 6.44mW/g for 10g-SAR, +/-10% from system performance target 4/19/02.

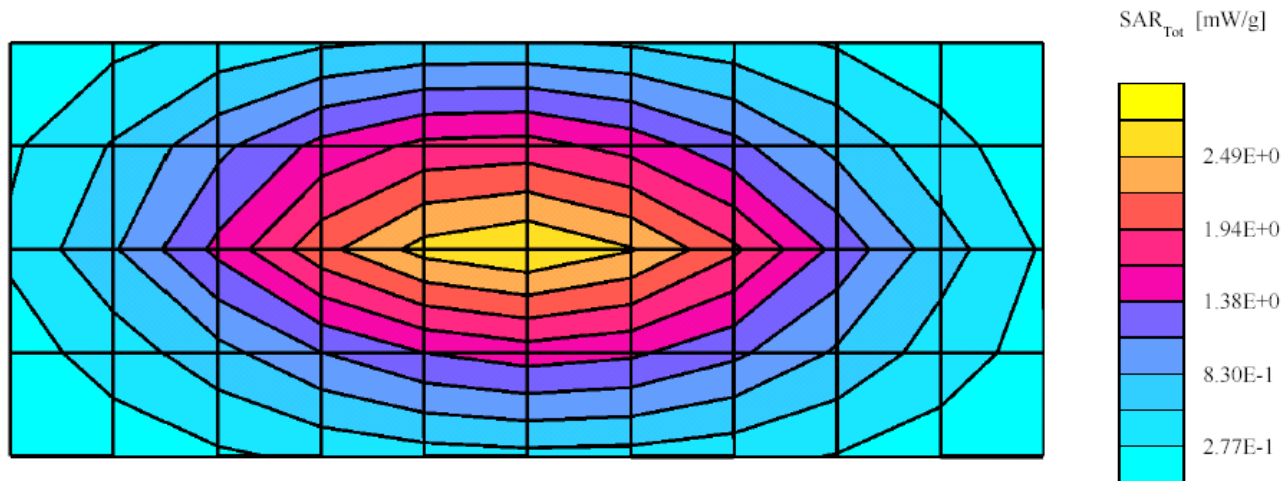
SAM; Probe: ET3DV6 - SN1383;Probe Cal Date: 02/21/02ConvF(6.70,6.70,6.70); Crest factor: 1.0; IEEE

Head 835MHz : $\sigma = 0.93$ mho/m $\rho = 41.9$ $\rho = 1.00$ g/cm³; DAE: DAE3V1 SN374 cal date 2/11/02

Cube 7x7x7: Peak: 4.12 mW/g, SAR (1g): 2.56 mW/g, SAR (10g): 1.63 mW/g, (Worst-case extrapolation)

Penetration depth: 11.7 (10.3, 13.5) [mm]

Power drift: -0.02 dB



Dipole D835V2 SN426; Test Date:05/31/02

Motorola CGISS EME Lab

Run #: 02053101

Tx Freq: 835MHz

Simulated tissue temp: 22.0C

Start power: 250mW

Target:10.5mW/g for 1g-SAR, 6.8mW/g for 10g-SAR, +/-12.1% from SPEAG Dipole certificate 2/11/02

10.65mW/g for 1g SAR, 6.79mW/g for 10g SAR, +/- 10% from system performance target 5/20/02

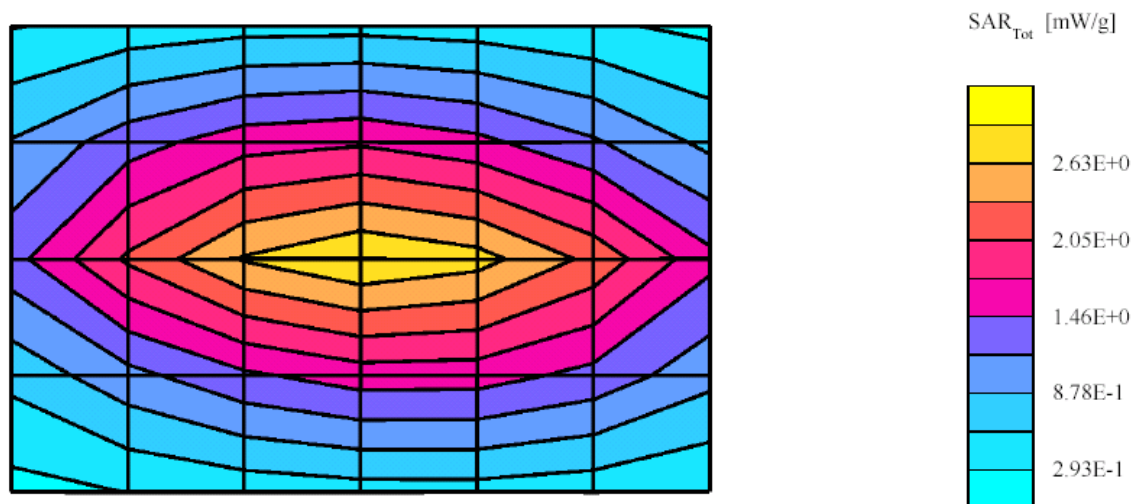
Flat; Probe: ET3DV6 - SN1383;Probe Cal Date: 02/21/02ConvF(6.50,6.50,6.50); Crest factor: 1.0; FCC

Body 835: $\sigma = 1.00$ mho/m $\epsilon_r = 53.1$ $\rho = 1.00$ g/cm³; DAE: DAE3V1 SN374 cal date 2/11/02

Cube 7x7x7: Peak: 4.33 mW/g, SAR (1g): 2.71 mW/g, SAR (10g): 1.73 mW/g, (Worst-case extrapolation)

Penetration depth: 12.2 (10.6, 14.2) [mm]

Power drift: -0.02 dB



Dipole D835V2 SN426; Test Date:06/03/02

Motorola CGISS EME Lab

Run #: 02060307

Tx Freq: 835MHz

Simulated tissue temp: 22.2 C

Start power: 250mW

Target:

10.2mW/g for 1g-SAR, 6.56mW/g for 10g-SAR, +/-12.1% from SPEAG Dipole certificate 2/11/02

10.04mW/g for 1g-SAR , 6.44mW/g for 10g-SAR, +/-10% from system performance target 4/19/02.

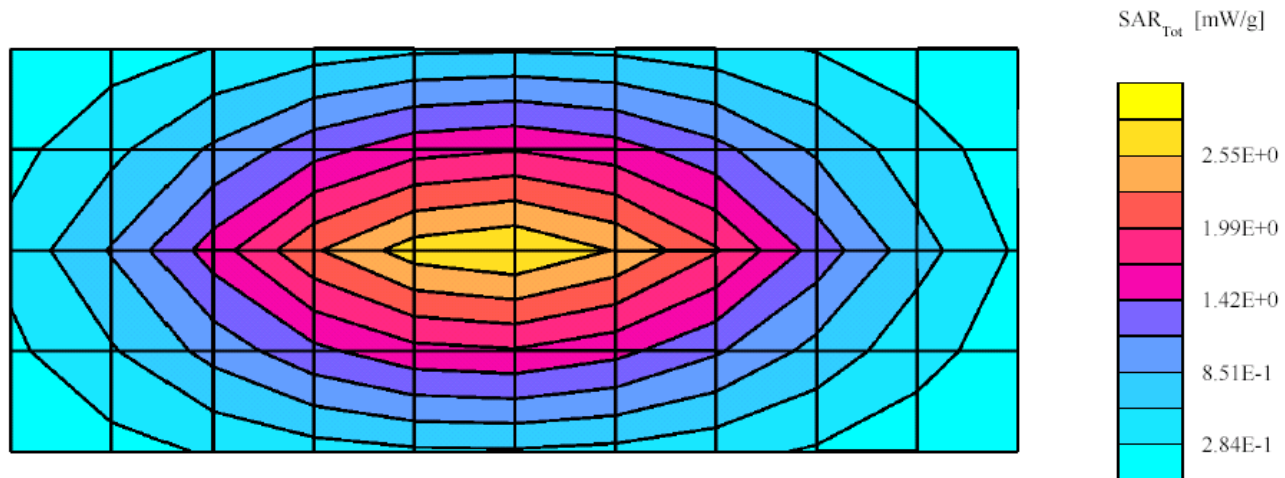
SAM; Probe: ET3DV6 - SN1383;Probe Cal Date: 02/21/02ConvF(6.70,6.70,6.70); Crest factor: 1.0; IEEE

Head 835MHz : $\sigma = 0.94$ mho/m $\hat{r} = 42.3$ $\hat{n} = 1.00$ g/cm³; DAE: DAE3V1 SN374 cal date 2/11/02

Cube 7x7x7: Peak: 4.26 mW/g, SAR (1g): 2.63 mW/g, SAR (10g): 1.67 mW/g, (Worst-case extrapolation)

Penetration depth: 11.7 (10.3, 13.6) [mm]

Power drift: -0.04 dB



Dipole D835V2 SN426. Test Date:06/03/02

Motorola CGISS EME Lab

Run #: 02060301

Tx Freq: 835MHz

Simulated tissue temp: 22.2C

Start power: 250mW

Target: 10.5mW/g for 1g-SAR, 6.8mW/g for 10g-SAR, +/-12.1% from SPEAG Dipole certificate 2/11/02

10.65mW/g for 1g SAR, 6.79mW/g for 10g SAR, +/- 10% from system performance target 5/20/02

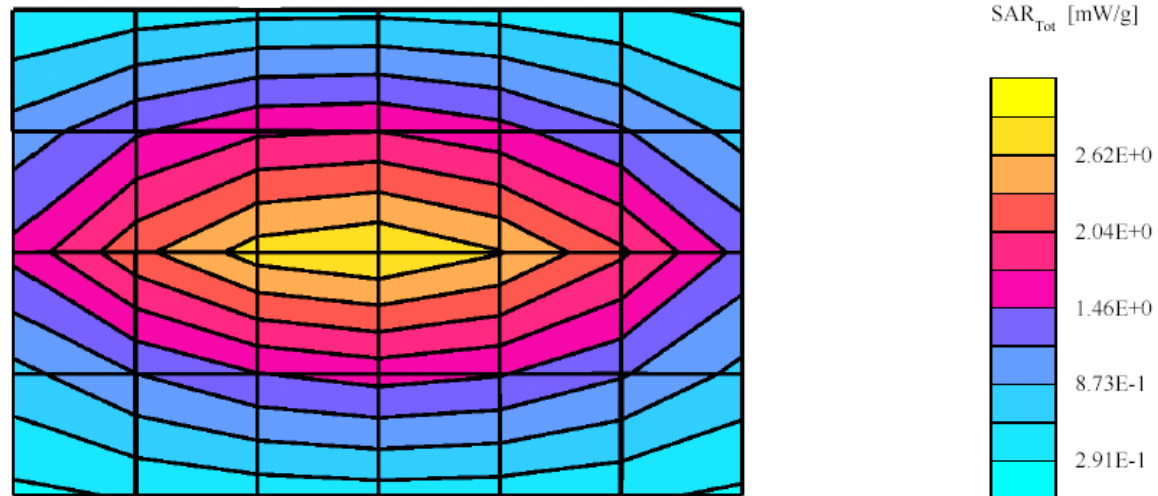
Flat; Probe: ET3DV6 - SN1383; Probe Cal Date: 02/21/02 ConvF(6.50,6.50,6.50); Crest factor: 1.0; FCC

Body 835: $\sigma = 1.00$ mho/m $\epsilon_r = 52.9$ $n = 1.00$ g/cm³; DAE: DAE3V1 SN374 cal date 2/11/02

Cube 7x7x7: Peak: 4.29 mW/g, SAR (1g): 2.69 mW/g, SAR (10g): 1.72 mW/g, (Worst-case extrapolation)

Penetration depth: 12.2 (10.7, 14.2) [mm]

Power drift: -0.02 dB



Dipole D835V2 SN426; Test Date:06/04/02

Motorola CGISS EME Lab

Run #: 02060401

Tx Freq: 835MHz

Simulated tissue temp: 21.0 C

Start power: 250mW

Target:

10.2mW/g for 1g-SAR, 6.56mW/g for 10g-SAR, +/-12.1% from SPEAG Dipole certificate 2/11/02

10.04mW/g for 1g-SAR, 6.44mW/g for 10g-SAR, +/-10% from system performance target 4/19/02.

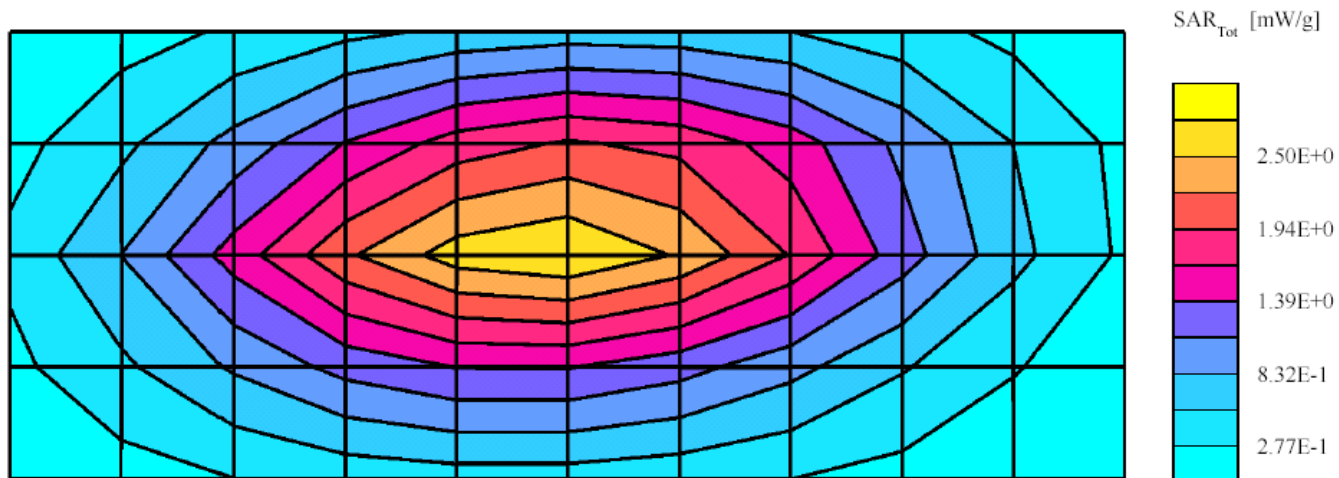
SAM; Probe: ET3DV6 - SN1383; Probe Cal Date: 02/21/02 ConvF(6.70,6.70,6.70); Crest factor: 1.0; IEEE

Head 835MHz : $\sigma = 0.92$ mho/m $\rho = 40.9$ g/cm³; DAE: DAE3V1 SN374 cal date 2/11/02

Cube 7x7x7: Peak: 4.21 mW/g, SAR (1g): 2.60 mW/g, SAR (10g): 1.66 mW/g, (Worst-case extrapolation)

Penetration depth: 11.7 (10.3, 13.6) [mm]

Power drift: -0.03 dB



Dipole D835V2 SN426; Test Date:06/10/02

Motorola CGISS EME Lab

Run #: 02061001

Tx Freq: 835MHz

Simulated tissue temp: 21.3 C

Start power: 250mW

Target:

10.2mW/g for 1g-SAR, 6.56mW/g for 10g-SAR, +/-12.1% from SPEAG Dipole certificate 2/11/02

10.04mW/g for 1g-SAR , 6.44mW/g for 10g-SAR, +/-10% from system performance target 4/19/02.

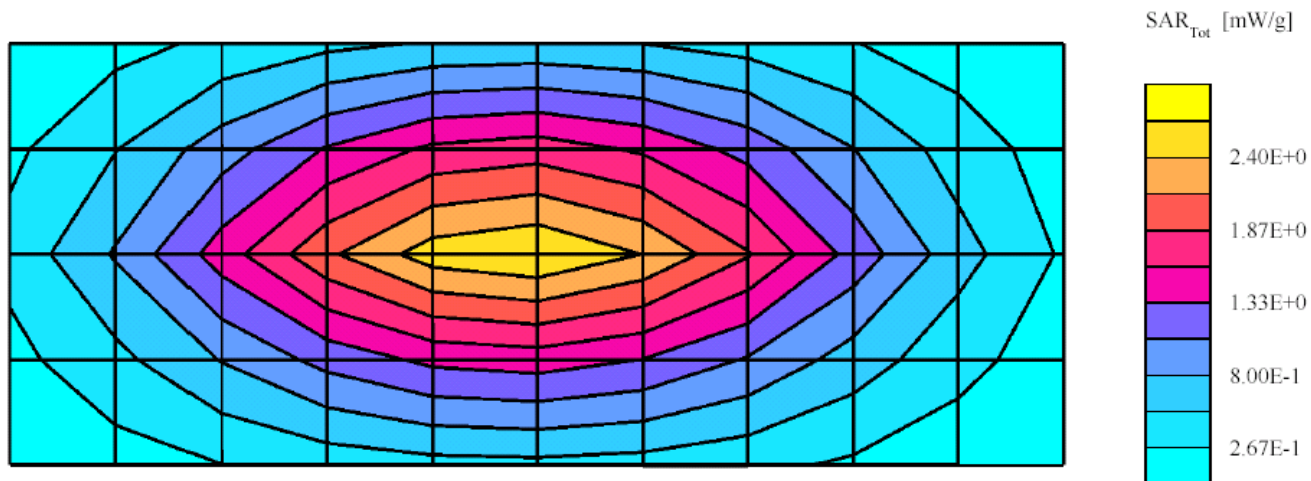
SAM; Probe: ET3DV6 - SN1383;Probe Cal Date: 02/21/02ConvF(6.70,6.70,6.70); Crest factor: 1.0; IEEE

Head 835MHz : $\sigma = 0.90$ mho/m $\rho = 40.4$ g/cm³; DAE: DAE3V1 SN374 (2/11/02)

Cubes (2): Peak: 4.07 mW/g ± 0.01 dB, SAR (1g): 2.53 mW/g ± 0.00 dB, SAR (10g): 1.61 mW/g ± 0.01 dB, (Worst-case extrapolation)

Penetration depth: 11.7 (10.3, 13.5) [mm]

Power drift: 0.04 dB



Dipole D835V2 SN426; Test Date:06/11/02

Motorola CGISS EME Lab

Run #: 02061101

Tx Freq: 835MHz

Simulated tissue temp: 21.5 C

Start power: 250mW

Target:

10.2mW/g for 1g-SAR, 6.56mW/g for 10g-SAR, +/-12.1% from SPEAG Dipole certificate 2/11/02

10.04mW/g for 1g-SAR, 6.44mW/g for 10g-SAR, +/-10% from system performance target 4/19/02.

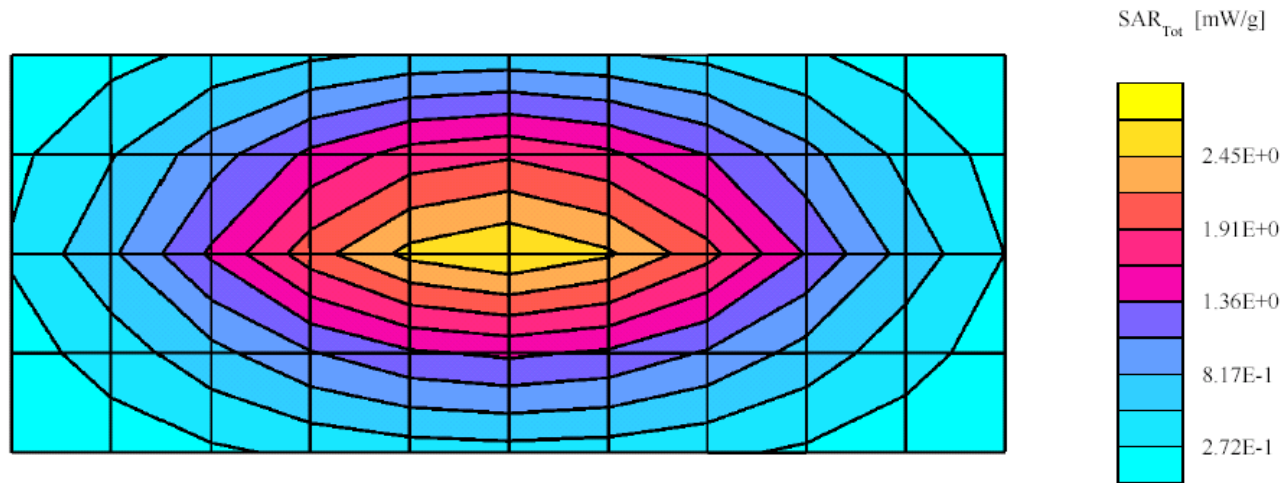
SAM; Probe: ET3DV6 - SN1383; Probe Cal Date: 02/21/02 ConvF(6.70,6.70,6.70); Crest factor: 1.0; IEEE

Head 835MHz : $\sigma = 0.91$ mho/m $\epsilon_r = 41.5$ $n = 1.00$ g/cm³; DAE: DAE3V1 SN374 cal date 2/11/02

Cubes (2): Peak: 4.08 mW/g ± 0.00 dB, SAR (1g): 2.53 mW/g ± 0.00 dB, SAR (10g): 1.61 mW/g ± 0.00 dB, (Worst-case extrapolation)

Penetration depth: 11.7 (10.3, 13.5) [mm]

Power drift: -0.04 dB



Dipole D835V2 SN426; Test Date:06/12/02

Motorola CGISS EME Lab

Run #: 02061201

Tx Freq: 835MHz

Simulated tissue temp:21.9 C

Start power: 250mW

Target:10.5mW/g for 1g-SAR, 6.8mW/g for 10g-SAR, +/-12.1% from SPEAG Dipole certificate 2/11/02

10.65mW/g for 1g SAR, 6.79mW/g for 10g SAR, +/- 10% from system performance target 5/20/02

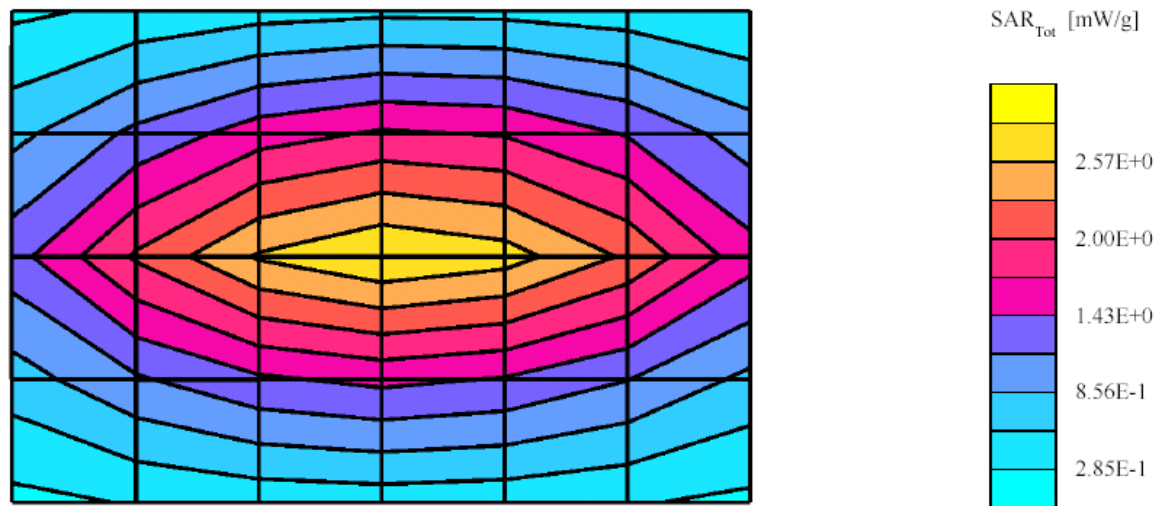
Flat; Probe: ET3DV6 - SN1383;Probe Cal Date: 02/21/02ConvF(6.50,6.50,6.50); Crest factor: 1.0; FCC

Body 835: $\sigma = 0.99$ mho/m $\epsilon_r = 53.7$ $n = 1.00$ g/cm³; DAE: DAE3V1 SN374 cal date 2/11/02

Cubes (2): Peak: 4.22 mW/g ± 0.01 dB, SAR (1g): 2.64 mW/g ± 0.01 dB, SAR (10g): 1.69 mW/g ± 0.01 dB, (Worst-case extrapolation)

Penetration depth: 12.2 (10.7, 14.2) [mm]

Power drift: -0.02 dB



Dipole D835V2 SN426; Test Date:06/13/02

Motorola CGISS EME Lab

Run #: 02061301

Tx Freq: 835MHz

Simulated tissue temp:21.7 C

Start power: 250mW

Target:10.5mW/g for 1g-SAR, 6.8mW/g for 10g-SAR, +/-12.1% from SPEAG Dipole certificate 2/11/02

10.65mW/g for 1g SAR, 6.79mW/g for 10g SAR, +/- 10% from system performance target 5/20/02

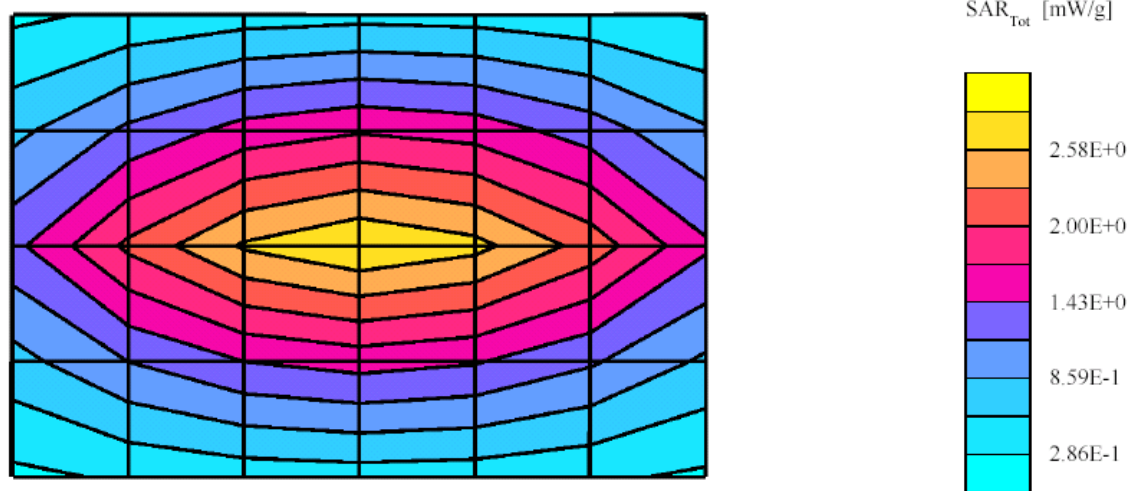
Flat; Probe: ET3DV6 - SN1383;Probe Cal Date: 02/21/02ConvF(6.50,6.50,6.50); Crest factor: 1.0; FCC

Body 835: $\sigma = 0.98$ mho/m $\rho = 53.5$ $\rho = 1.00$ g/cm³; DAE: DAE3V1 SN374 (2/11/02)

Cubes (2): Peak: 4.21 mW/g ± 0.02 dB, SAR (1g): 2.64 mW/g ± 0.01 dB, SAR (10g): 1.69 mW/g ± 0.01 dB, (Worst-case extrapolation)

Penetration depth: 12.2 (10.7, 14.2) [mm]

Power drift: -0.04 dB



Dipole D835V2 SN426; Test Date:06/14/02

Motorola CGISS EME Lab

Run #: 02061401

Tx Freq: 835MHz

Simulated tissue temp:21.7 C

Start power: 250mW

Target:10.5mW/g for 1g-SAR, 6.8mW/g for 10g-SAR, +/-12.1% from SPEAG Dipole certificate 2/11/02
10.65mW/g for 1g SAR, 6.79mW/g for 10g SAR, +/- 10% from system performance target 5/20/02

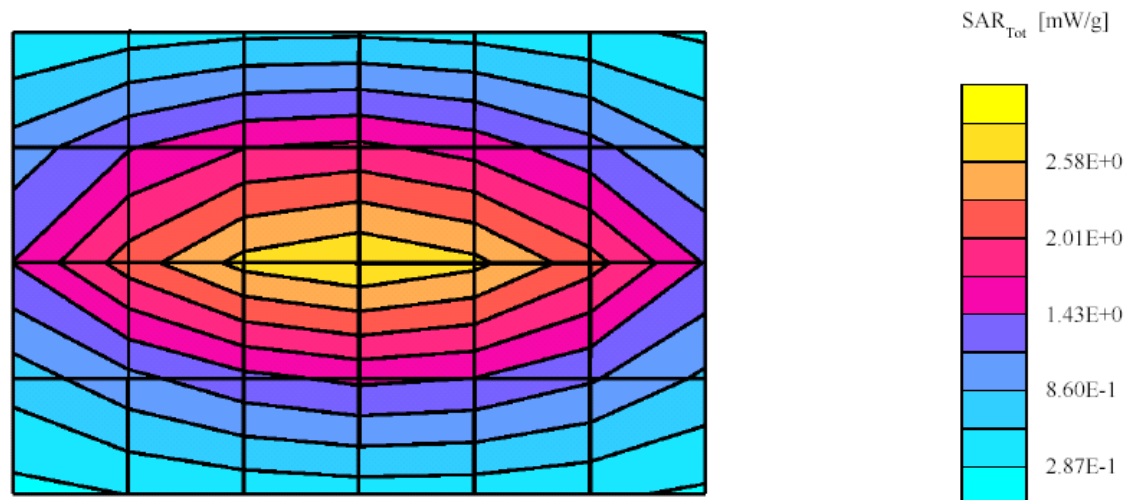
Flat; Probe: ET3DV6 - SN1383;Probe Cal Date: 02/21/02ConvF(6.50,6.50,6.50); Crest factor: 1.0; FCC

Body 835: $\sigma = 0.99$ mho/m $\epsilon_r = 53.6$ $n = 1.00$ g/cm³; DAE: DAE3V1 SN374 (2/11/02)

Cubes (2): Peak: 4.26 mW/g ± 0.01 dB, SAR (1g): 2.67 mW/g ± 0.01 dB, SAR (10g): 1.71 mW/g ± 0.01 dB, (Worst-case extrapolation)

Penetration depth: 12.2 (10.7, 14.1) [mm]

Power drift: -0.06 dB



Dipole D835V2 SN426; Test Date:06/17/02

Motorola CGISS EME Lab

Run #: 02061701

Tx Freq: 835MHz

Simulated tissue temp:21.7 C

Start power: 250mW

Target:10.5mW/g for 1g-SAR, 6.8mW/g for 10g-SAR, +/-12.1% from SPEAG Dipole certificate 2/11/02

10.65mW/g for 1g SAR, 6.79mW/g for 10g SAR, +/- 10% from system performance target 5/20/02

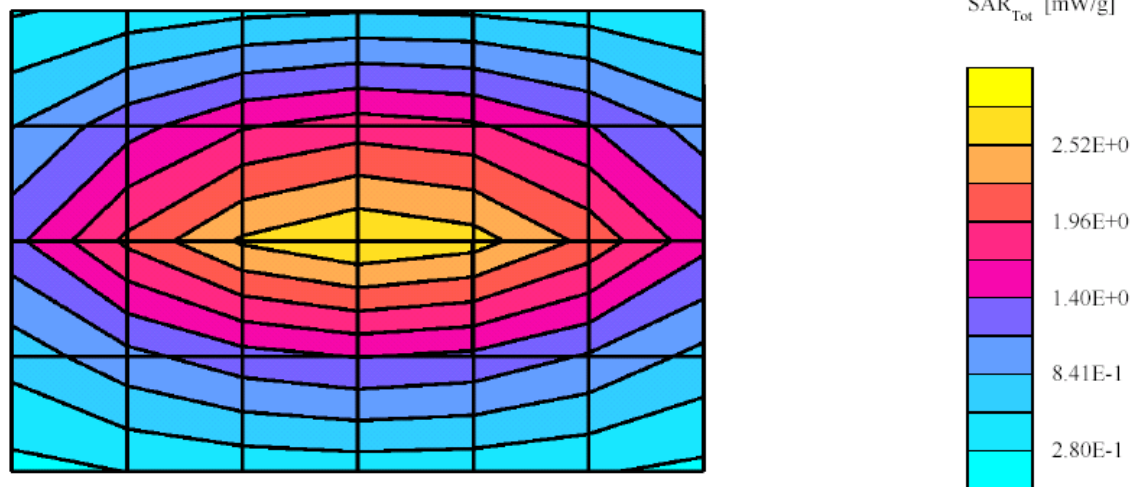
Flat; Probe: ET3DV6 - SN1383;Probe Cal Date: 02/21/02ConvF(6.50,6.50,6.50); Crest factor: 1.0; FCC

Body 835: $\sigma = 0.98$ mho/m $\epsilon_r = 53.4$ $\rho = 1.00$ g/cm³; DAE: DAE3V1 SN374 cal date 2/11/02

Cubes (2): Peak: 4.20 mW/g ± 0.02 dB, SAR (1g): 2.63 mW/g ± 0.01 dB, SAR (10g): 1.68 mW/g ± 0.01 dB, (Worst-case extrapolation)

Penetration depth: 12.2 (10.7, 14.1) [mm]

Power drift: -0.04 dB



Dipole D835V2 SN426; Test Date:06/17/02

Motorola CGISS EME Lab

Run #: 02061706

Tx Freq: 835MHz

Simulated tissue temp: 21.3 C

Start power: 250mW

Target:

10.2mW/g for 1g-SAR, 6.56mW/g for 10g-SAR, +/-12.1% from SPEAG Dipole certificate 2/11/02

10.04mW/g for 1g-SAR , 6.44mW/g for 10g-SAR, +/-10% from system performance target 4/19/02.

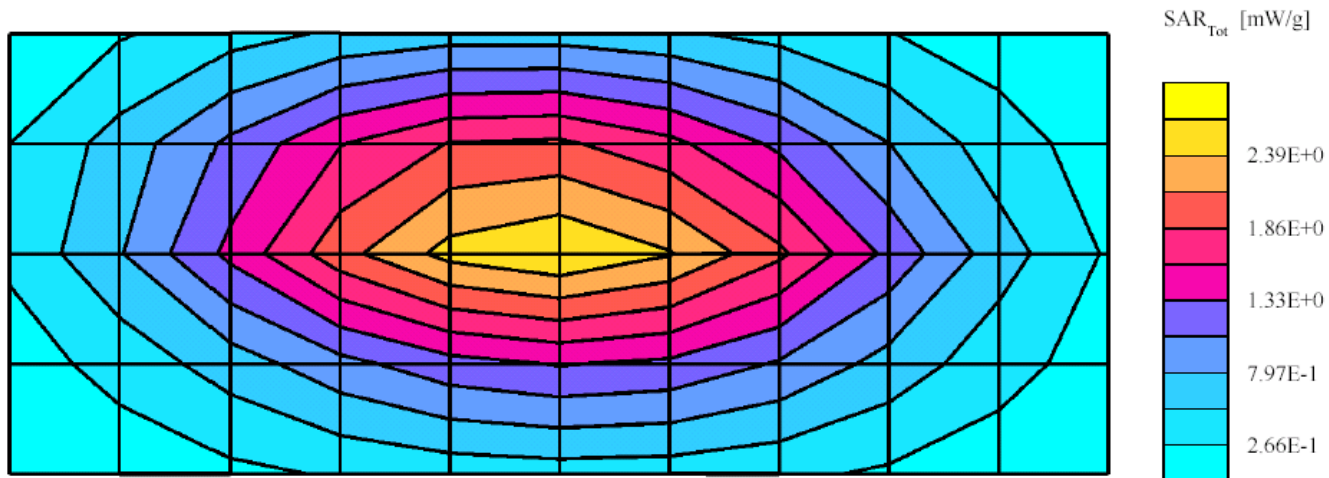
SAM; Probe: ET3DV6 - SN1383;Probe Cal Date: 02/21/02ConvF(6.70,6.70,6.70); Crest factor: 1.0; IEEE

Head 835MHz : $\sigma = 0.90$ mho/m $\hat{a}r = 40.8$ $\hat{n} = 1.00$ g/cm³; DAE: DAE3V1 SN374 (2/11/02)

Cubes (2): Peak: 4.07 mW/g ± 0.01 dB, SAR (1g): 2.52 mW/g ± 0.01 dB, SAR (10g): 1.61 mW/g ± 0.01 dB, (Worst-case extrapolation)

Penetration depth: 11.7 (10.3, 13.6) [mm]

Power drift: -0.04 dB



Dipole D835V2 SN426; Test Date:06/19/02

Motorola CGISS EME Lab

Run #: 020611901

Tx Freq: 835MHz Simulated tissue temp: 21.4 C

Start power: 250mW

Target:

10.2mW/g for 1g-SAR, 6.56mW/g for 10g-SAR, +/-12.1% from SPEAG Dipole certificate 2/11/02

10.04mW/g for 1g-SAR , 6.44mW/g for 10g-SAR, +/-10% from system performance target 4/19/02.

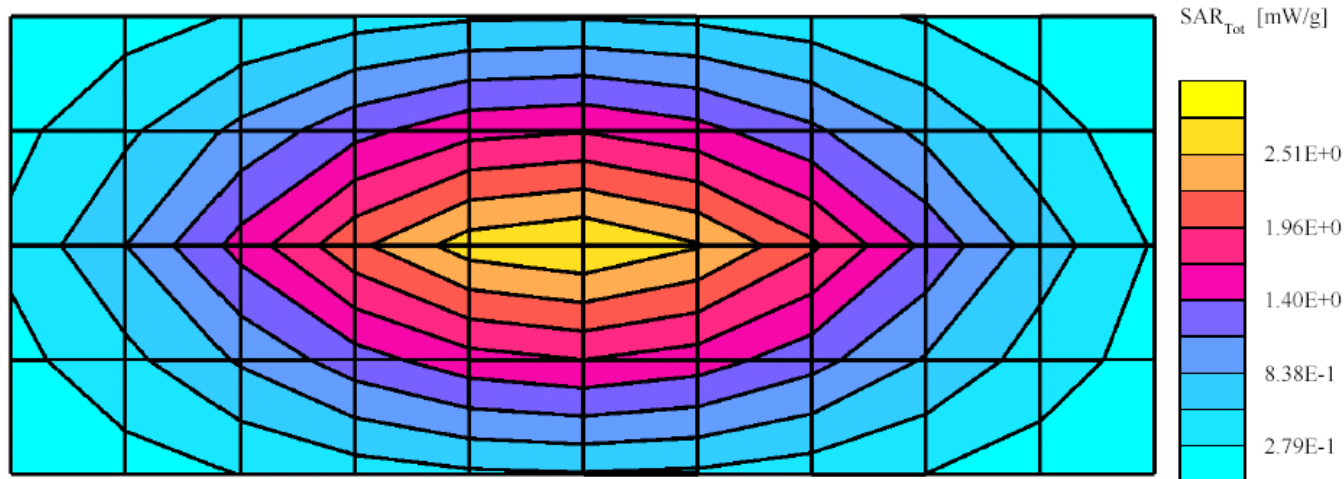
SAM; Probe: ET3DV6 - SN1383;Probe Cal Date: 02/21/02ConvF(6.70,6.70,6.70); Crest factor: 1.0; IEEE

Head 835MHz : $\sigma = 0.92$ mho/m $\rho = 41.7$ g/cm³; DAE: DAE3V1 SN374 cal date 2/11/02

Cubes (2): Peak: 4.18 mW/g ± 0.00 dB, SAR (1g): 2.59 mW/g ± 0.00 dB, SAR (10g): 1.65 mW/g ± 0.00 dB, (Worst-case extrapolation)

Penetration depth: 11.7 (10.3, 13.5) [mm]

Power drift: -0.03 dB



Dipole D835V2 SN426; Test Date:06/20/02

Motorola CGISS EME Lab

Run #: 02062001

Tx Freq: 835MHz

Simulated tissue temp: 21.4 C

Start power: 250mW

Target:

10.2mW/g for 1g-SAR, 6.56mW/g for 10g-SAR, +/-12.1% from SPEAG Dipole certificate 2/11/02

10.04mW/g for 1g-SAR, 6.44mW/g for 10g-SAR, +/-10% from system performance target 4/19/02.

SAM; Probe: ET3DV6 - SN1383; Probe Cal Date: 02/21/02 ConvF(6.70,6.70,6.70); Crest factor: 1.0; IEEE

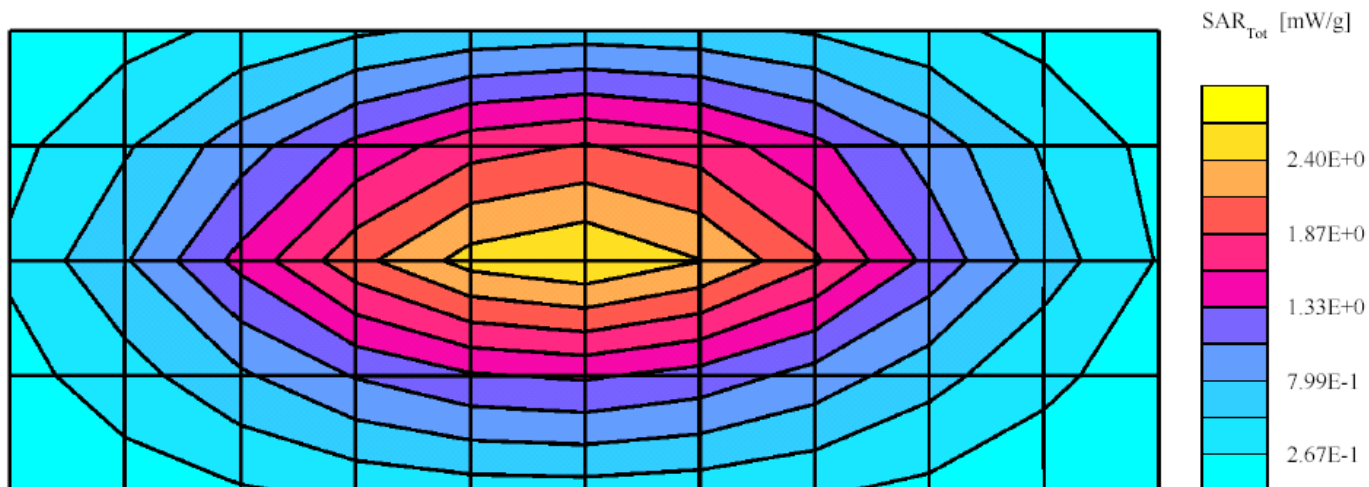
Head 835MHz : $\sigma = 0.89$ mho/m $\epsilon_r = 40.3$ $n =$

1.00 g/cm³; DAE: DAE3V1 SN374 cal date 2/11/02

Cubes (2): Peak: 4.04 mW/g ± 0.00 dB, SAR (1g): 2.51 mW/g ± 0.00 dB, SAR (10g): 1.60 mW/g ± 0.00 dB, (Worst-case extrapolation)

Penetration depth: 11.7 (10.3, 13.6) [mm]

Power drift: -0.04 dB



Dipole D835V2 SN426; Test Date:06/21/02

Motorola CGISS EME Lab

Run #: 02062101

Tx Freq: 835MHz

Simulated tissue temp: 21.3 C

Start power: 250mW

Target:

10.2mW/g for 1g-SAR, 6.56mW/g for 10g-SAR, +/-12.1% from SPEAG Dipole certificate 2/11/02

10.04mW/g for 1g-SAR , 6.44mW/g for 10g-SAR, +/-10% from system performance target 4/19/02.

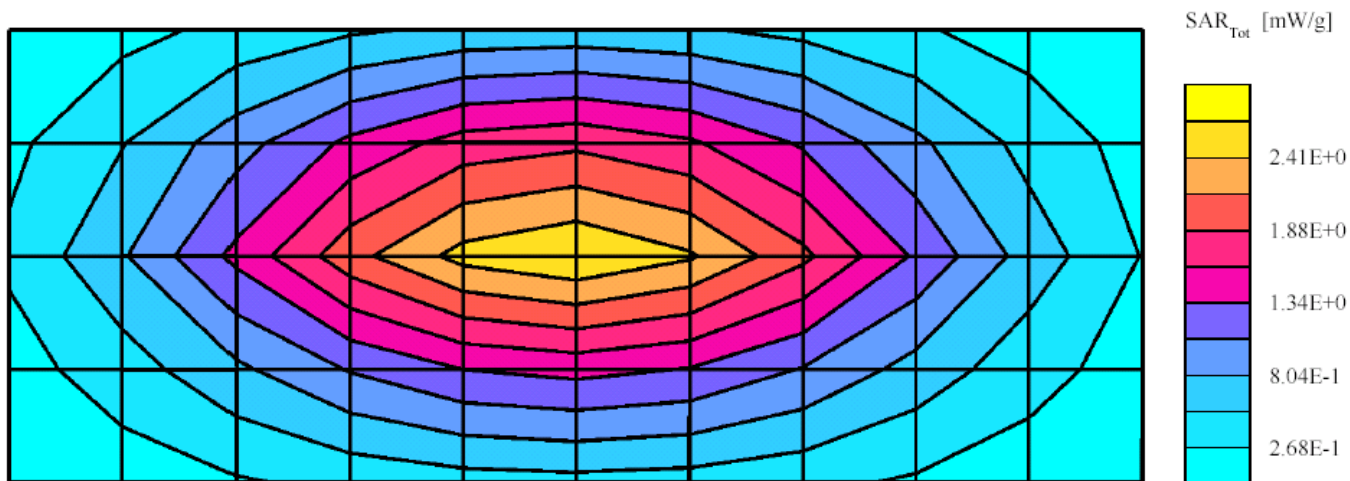
SAM; Probe: ET3DV6 - SN1383;Probe Cal Date: 02/21/02ConvF(6.70,6.70,6.70); Crest factor: 1.0; IEEE

Head 835MHz : $\sigma = 0.89$ mho/m $\rho_r = 40.4$ $\rho = 1.00$ g/cm³; DAE: DAE3V1 SN374 cal date 2/11/02

Cubes (2): Peak: 4.05 mW/g ± 0.01 dB, SAR (1g): 2.51 mW/g ± 0.01 dB, SAR (10g): 1.59 mW/g ± 0.01 dB, (Worst-case extrapolation)

Penetration depth: 11.7 (10.3, 13.6) [mm]

Power drift: -0.04 dB



Dipole D835V2 SN426; Test Date:06/24/02

Motorola CGISS EME Lab

Run #: 02062401

Tx Freq: 835MHz

Simulated tissue temp: 21.5 C

Start power: 500mW

Target:

10.2mW/g for 1g-SAR, 6.56mW/g for 10g-SAR, +/-12.1% from SPEAG Dipole certificate 2/11/02

10.04mW/g for 1g-SAR , 6.44mW/g for 10g-SAR, +/-10% from system performance target 4/19/02.

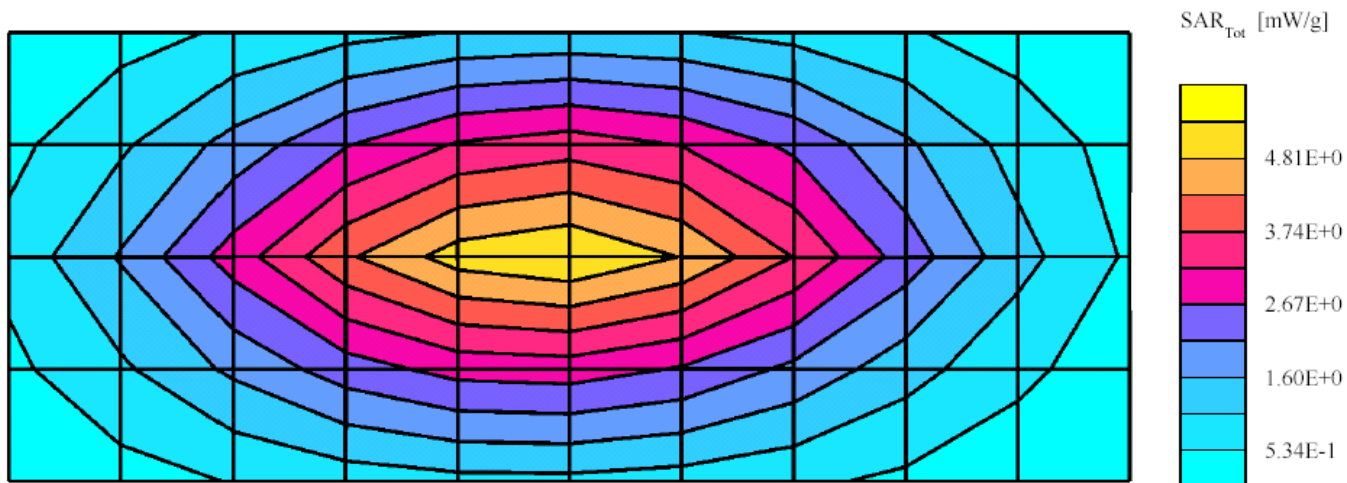
SAM; Probe: ET3DV6 - SN1383;Probe Cal Date: 02/21/02ConvF(6.70,6.70,6.70); Crest factor: 1.0; IEEE

Head 835MHz : $\sigma = 0.89$ mho/m $\epsilon_r = 40.3$ $n = 1.00$ g/cm³; DAE: DAE3V1 SN374 cal date 2/11/02

Cubes (2): Peak: 8.01 mW/g ± 0.01 dB, SAR (1g): 4.97 mW/g ± 0.01 dB, SAR (10g): 3.16 mW/g ± 0.01 dB, (Worst-case extrapolation)

Penetration depth: 11.7 (10.4, 13.5) [mm]

Power drift: -0.01 dB



Dipole D835V2 SN426; Test Date:06/24/02

Motorola CGISS EME Lab

Run #: 02062407

Tx Freq: 835MHz

Simulated tissue temp:21.9 C

Start power: 250mW

Target:10.5mW/g for 1g-SAR, 6.8mW/g for 10g-SAR, +/-12.1% from SPEAG Dipole certificate 2/11/02
10.65mW/g for 1g SAR, 6.79mW/g for 10g SAR, +/- 10% from system performance target 5/20/02

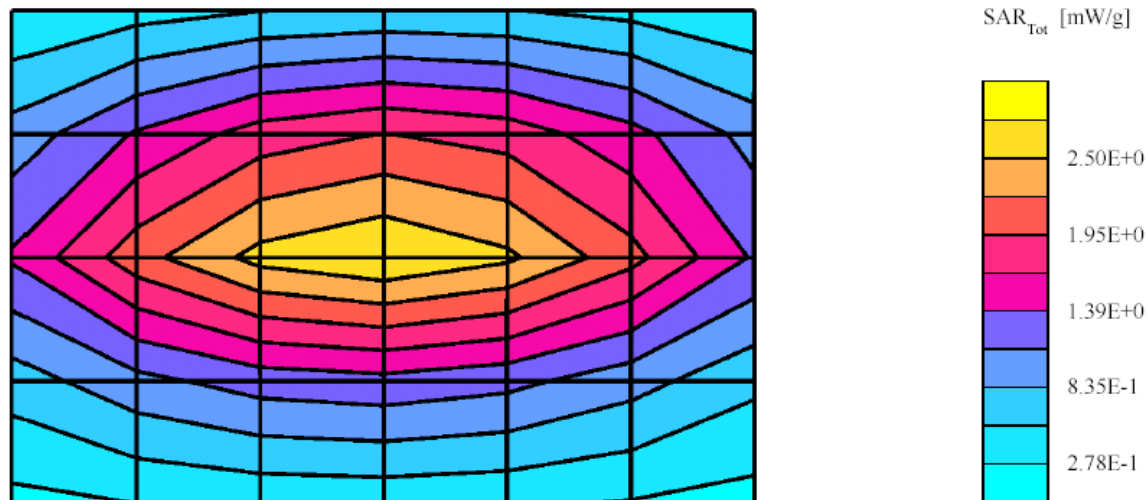
Flat; Probe: ET3DV6 - SN1383;Probe Cal Date: 02/21/02ConvF(6.50,6.50,6.50); Crest factor: 1.0; FCC

Body 835: $\sigma = 0.98$ mho/m $\epsilon_r = 53.2$ $n = 1.00$ g/cm³; DAE: DAE3V1 SN374 cal date 2/11/02

Cubes (2): Peak: 4.20 mW/g ± 0.00 dB, SAR (1g): 2.63 mW/g ± 0.00 dB, SAR (10g): 1.69 mW/g ± 0.00 dB, (Worst-case extrapolation)

Penetration depth: 12.2 (10.7, 14.2) [mm]

Power drift: -0.06 dB



Dipole D835V2 SN426; Test Date:06/25/02

Motorola CGISS EME Lab

Run #: 02062501

Tx Freq: 835MHz

Simulated tissue temp: 21.7 C

Start power: 250mW

Target:

10.2mW/g for 1g-SAR, 6.56mW/g for 10g-SAR, +/-12.1% from SPEAG Dipole certificate 2/11/02

10.04mW/g for 1g-SAR , 6.44mW/g for 10g-SAR, +/-10% from system performance target 4/19/02.

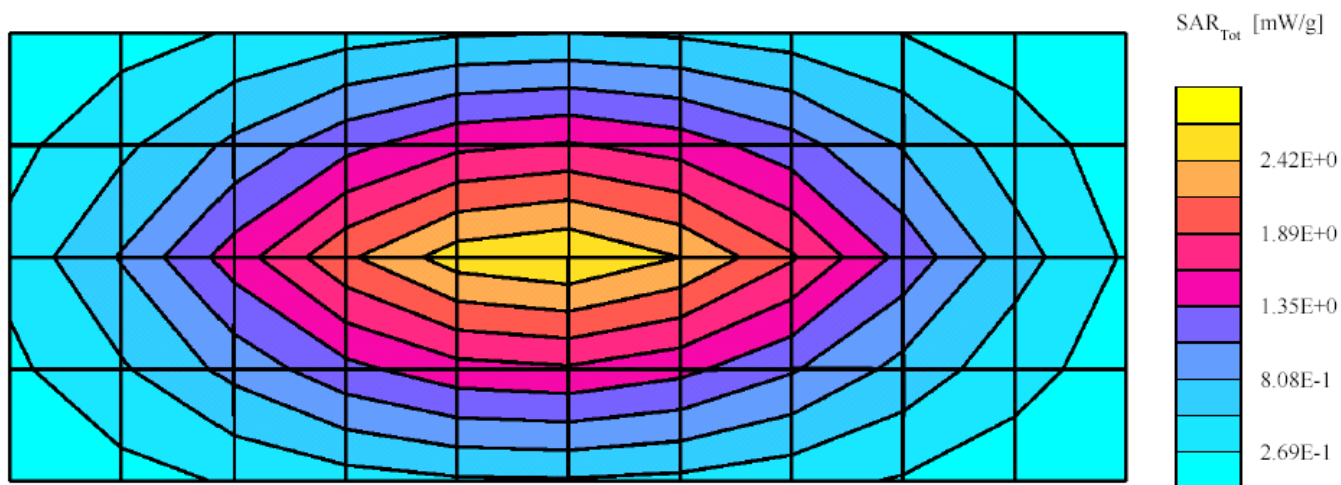
SAM; Probe: ET3DV6 - SN1383;Probe Cal Date: 02/21/02ConvF(6.70,6.70,6.70); Crest factor: 1.0; IEEE

Head 835MHz : $\sigma = 0.89$ mho/m $\epsilon_r = 40.4$ $n = 1.00$ g/cm³; DAE: DAE3V1 SN374 cal date 2/11/02

Cubes (2): Peak: 4.01 mW/g ± 0.00 dB, SAR (1g): 2.49 mW/g ± 0.00 dB, SAR (10g): 1.59 mW/g ± 0.00 dB, (Worst-case extrapolation)

Penetration depth: 11.8 (10.4, 13.6) [mm]

Power drift: -0.03 dB



SYSTEM PERFORMANCE CHECK TARGET SAR

Date:	<u>5/20/02</u>	Frequency (MHz):	<u>835</u>
Lab Location:	<u>CGISS</u>	Mixture Type:	<u>FCC Body</u>
Robot System:	<u>CGISS 2</u>	Ambient Temp.(°C):	<u>21.9</u>
Probe Serial #:	<u>1383</u>	Tissue Temp.(°C):	<u>21.0</u>
DAE Serial #:	<u>374 V2</u>		

Tissue Characteristics		Phantom Type/SN:	<u>ACL40232002B</u>
Permittivity:	<u>53.2</u>	Distance (mm):	<u>15</u>
Conductivity:	<u>0.97</u>		

Reference Source: 835 (Dipole)
Reference SN: 426

Power to Dipole: 250 mW

Measured SAR Value: 2.65 mW/g, 1.69 mW/g (10g avg.)
Power Drift: -0.02 dB

New Target/Measured
SAR Value: 10.65 mW/g, 6.79 mW/g (10g avg.)
(normalized to 1.0 W,
with drift compensation)

Test performed by: Kim Uong Initial: KU

Dipole D835V2 SN426; Test date:05/20/02

Run #: 02052001

Phantom #ACL40232002B/S11

Model#: SPEAG dipole D835V2 SN426

Robot#: CGISS-2

DAE: DAE3V1 SN374 (2/11/02)

Tester: Kim Uong

Tx Freq: 835MHz

Simulated tissue temp: 21.0C

Start power: 250mW

Target:

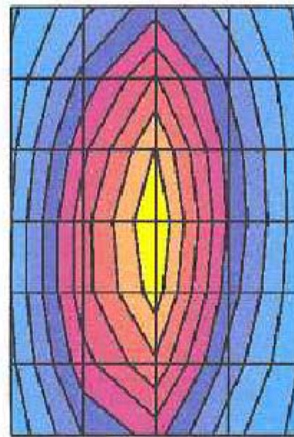
10.5mW/g for 1g-SAR, 6.8mW/g for 10g-SAR, +/-12.1% from SPEAG Dipole certificate 2/11/02

Flat; Probe: ET3DV6 - SNI383; ConvF(6.50,6.50,6.50); Crest factor: 1.0; FCC Body 835: $\sigma = 0.97$ mho/m $\epsilon_r = 53.2$ $\rho = 1.00$ g/cm³

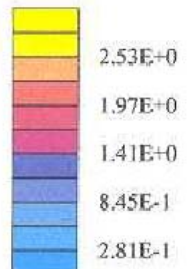
Cube 7x7x7: Peak: 4.25 mW/g, SAR (1g): 2.65 mW/g, SAR (10g): 1.69 mW/g, (Worst-case extrapolation)

Penetration depth: 12.1 (10.6, 14.1) [mm]

Powerdrift: -0.02 dB



SAR_{tot} [mW/g]



Motorola CGISS EME Lab

SYSTEM PERFORMANCE CHECK TARGET SAR

Date: 4/19/02 Frequency (MHz): 835
Lab Location: CGISS Mixture Type: IEEE Head
Robot System: CGISS-3 Ambient Temp.(°C): 22.0
Probe Serial #: 1393 Tissue Temp. (°C): 21.2
DAE Serial #: 406

Tissue Characteristics Phantom Type/SN: SAMTP1022
Permittivity: 40.3 Distance: 15mm
Conductivity: 0.92

Reference Source: D835V2 (Dipole)
Reference SN: 426

Power to Dipole: 250 mW

Measured SAR Value: 2.51 mW/g, 1.61 mW/g (10g avg.)
Power Drift: 0 dB

New Target/Measured
SAR Value: 10.04 mW/g, 6.44 mW/g (10g avg.)
(normalized to 1.0 W,
with drift compensation)

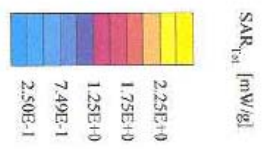
Test performed by: Jim Fortier Initial: 

JF 2/18/02

Dipole D835V2 SN426; Test date:04/19/02

Run #: Sys Val R3 020419-03a Phantom #SAMTP1022
Model #: SPEAG D835V2 SN: 426
Robot: CGISS-3 Tester: J. Fortier
TX Freq: 835 MHz Sim Tissue Temp: 21.8 (Celsius)
Start Power: 250mW
DAE3: SN:406 DAE Cal Date: 02/08/02

- Comments-
IEEE1528 Target at 1W is 9.5 mW/g (1g)
SAR calculated is 10.04 mW/g. Percent from target (including drift) for 1g is +5.7 %
SAR: Probe: ET3DV6 - SN1393 SPEAG; ConvF(7.20,7.20); Crest factor: 1.0; IEEE HEAD 835MHz: $\sigma = 0.92 \text{ mho/m}$ $\epsilon_r = 40.3$ $\rho = 1.00 \text{ g/cm}^3$
Cube TXRX7: Peak: 3.95 mW/g; SAR (1g) 2.51 mW/g; SAR (10g) 1.61 mW/g; (Worst-case extrapolation)
Penetration depth: 12.0 (11.0, 13.3) [mm]
Powerdft: 0.00 dB



APPENDIX D
Calibration Certificates

Schmid & Partner Engineering AG

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

Calibration Certificate

Dosimetric E-Field Probe

Type:

ET3DV6

Serial Number:

1383

Place of Calibration:

Zurich

Date of Calibration:

February 21, 2002

Calibration Interval:

12 months

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:

Philippe Kofler

Approved by:

[Signature]

Schmid & Partner Engineering AG

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

Additional Conversion Factors for Dosimetric E-Field Probe

Type:

ET3DV6

Serial Number:

1383

Place of Assessment:

Zurich

Date of Assessment:

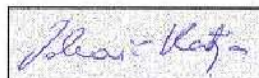
February 25, 2002

Probe Calibration Date:

February 22, 2002

Schmid & Partner Engineering AG hereby certifies that conversion factor(s) of this probe have been evaluated on the date indicated above. The assessment was performed using the FDTD numerical code SEMCAD of Schmid & Partner Engineering AG. Since the evaluation is coupled with measured conversion factors, it has to be recalculated yearly, i.e., following the re-calibration schedule of the probe. The uncertainty of the numerical assessment is based on the extrapolation from measured value at 900 MHz or at 1800 MHz.

Assessed by:



Dosimetric E-Field Probe ET3DV6 SN:1383

Conversion factor (– standard deviation)

150 MHz	ConvF	8.3 ± 8%	$\epsilon_r = 61.9$ $\sigma = 0.80 \text{ mho/m}$ (body tissue)
236 MHz	ConvF	8.2 ± 8%	$\epsilon_r = 59.8$ $\sigma = 0.87 \text{ mho/m}$ (body tissue)
300 MHz	ConvF	8.0 ± 8%	$\epsilon_r = 58.2$ $\sigma = 0.92 \text{ mho/m}$ (body tissue)
350 MHz	ConvF	7.9 ± 8%	$\epsilon_r = 57.7$ $\sigma = 0.93 \text{ mho/m}$ (body tissue)
450 MHz	ConvF	7.7 ± 8%	$\epsilon_r = 56.7$ $\sigma = 0.94 \text{ mho/m}$ (body tissue)
784 MHz	ConvF	6.6 ± 8%	$\epsilon_r = 55.4$ $\sigma = 0.97 \text{ mho/m}$ (body tissue)
835 MHz	ConvF	6.5 ± 8%	$\epsilon_r = 55.2$ $\sigma = 0.97 \text{ mho/m}$ (body tissue)
900 MHz	ConvF	6.4 ± 8%	$\epsilon_r = 55.0$ $\sigma = 1.05 \text{ mho/m}$ (body tissue)
1450 MHz	ConvF	5.5 ± 8%	$\epsilon_r = 54.0$ $\sigma = 1.30 \text{ mho/m}$ (body tissue)
1500 MHz	ConvF	5.4 ± 8%	$\epsilon_r = 53.9$ $\sigma = 1.33 \text{ mho/m}$ (body tissue)
1800 MHz	ConvF	5.0 ± 8%	$\epsilon_r = 53.3$ $\sigma = 1.52 \text{ mho/m}$ (body tissue)
1900 MHz	ConvF	4.8 ± 8%	$\epsilon_r = 53.3$ $\sigma = 1.52 \text{ mho/m}$ (body tissue)
2450 MHz	ConvF	4.1 ± 8%	$\epsilon_r = 52.7$ $\sigma = 1.95 \text{ mho/m}$ (body tissue)

Dosimetric E-Field Probe ET3DV6 SN:1383

Conversion factor (– standard deviation)

150 MHz	ConvF	9.1 ± 8 %	$\epsilon_r = 52.3$ $\sigma = 0.76 \text{ mho/m}$ (head tissue)
236 MHz	ConvF	8.3 ± 8 %	$\epsilon_r = 48.3$ $\sigma = 0.82 \text{ mho/m}$ (head tissue)
300 MHz	ConvF	7.9 ± 8 %	$\epsilon_r = 45.3$ $\sigma = 0.87 \text{ mho/m}$ (head tissue)
350 MHz	ConvF	7.7 ± 8 %	$\epsilon_r = 44.7$ $\sigma = 0.87 \text{ mho/m}$ (head tissue)
400 MHz	ConvF	7.6 ± 8 %	$\epsilon_r = 44.4$ $\sigma = 0.87 \text{ mho/m}$ (head tissue - CENELEC)
450 MHz	ConvF	7.5 ± 8 %	$\epsilon_r = 43.5$ $\sigma = 0.87 \text{ mho/m}$ (head tissue)
784 MHz	ConvF	6.8 ± 8 %	$\epsilon_r = 41.8$ $\sigma = 0.90 \text{ mho/m}$ (head tissue)
835 MHz	ConvF	6.7 ± 8 %	$\epsilon_r = 41.5$ $\sigma = 0.90 \text{ mho/m}$ (head tissue)
835 MHz	ConvF	6.7 ± 8 %	$\epsilon_r = 42.5$ $\sigma = 0.98 \text{ mho/m}$ (head tissue - CENELEC)
835 MHz	ConvF	6.6 ± 8 %	$\epsilon_r = 44.3$ $\sigma = 0.80 \text{ mho/m}$ (brain tissue)
900 MHz	ConvF	6.6 ± 8 %	$\epsilon_r = 41.5$ $\sigma = 0.97 \text{ mho/m}$ (head tissue)
900 MHz	ConvF	6.6 ± 8 %	$\epsilon_r = 42.3$ $\sigma = 0.99 \text{ mho/m}$ (head tissue - CENELEC)

Dosimetric E-Field Probe ET3DV6 SN:1383

Conversion factor ($\pm$ standard deviation)

1450 MHz	ConvF	5.9 $\pm$ 8 %	$\epsilon_r = 40.5$ $\sigma = 1.20$ mho/m (head tissue)
1900 MHz	ConvF	5.2 $\pm$ 8 %	$\epsilon_r = 40.0$ $\sigma = 1.40$ mho/m (head tissue)
1900 MHz	ConvF	5.4 $\pm$ 8 %	$\epsilon_r = 40.5$ $\sigma = 1.80$ mho/m (brain tissue)
2450 MHz	ConvF	4.5 $\pm$ 8 %	$\epsilon_r = 39.2$ $\sigma = 1.80$ mho/m (head tissue)

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:

426

Place of Calibration:

Zurich

Date of Calibration:

February 11, 2002

Calibration Interval:

24 months

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:

Maria Katya

Approved by:

N. K.

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 3.1d) with a dosimetric E-field probe ET3DV6 (SN:1507, Conversion factor 6.5) 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:

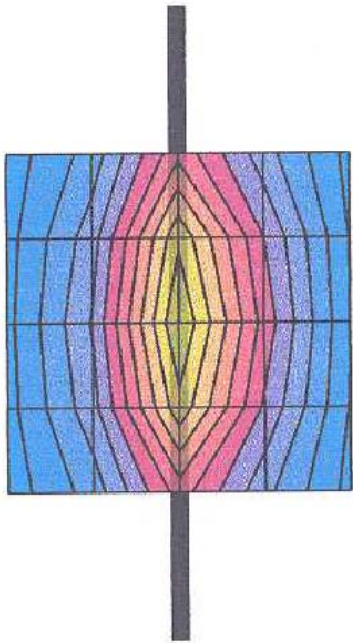
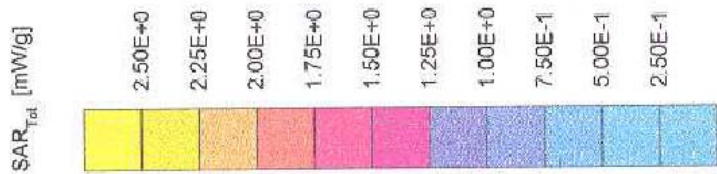
averaged over 1 cm ³ (1 g) of tissue:	10.2 mW/g
averaged over 10 cm ³ (10 g) of tissue:	6.56 mW/g

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.

02/11/02

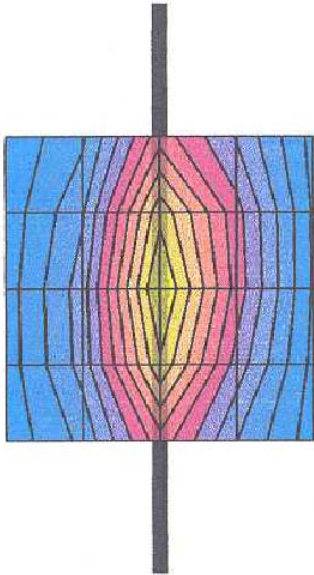
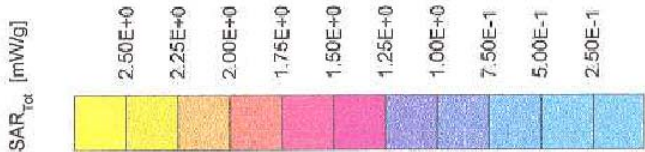
Validation Dipole D835V2 SN:426, d = 15 mm

Frequency: 835 MHz; Antenna Input Power: 250 [mW]
SAM Phantom; Flat Section; Grid Spacing: Dx = 20.0, Dy = 20.0, Dz = 10.0
Probe: ET3DV6 - SN1507; ConvF(6.50,6.50,6.50) at 900 MHz; IEEE1528 835 MHz; $\sigma = 0.89$ mho/m $\epsilon_r = 41.9$ $\rho = 1.00$ g/cm³
Cubes (2): Peak: 4.09 mW/g ± 0.04 dB, SAR (1g): 2.56 mW/g ± 0.03 dB, SAR (10g): 1.64 mW/g ± 0.02 dB, (Worst-case extrapolation)
Penetration depth: 11.9 (10.5, 13.8) [mm]
Powerdrift: -0.00 dB



Validation Dipole D835V2 SN:426, d = 15 mm

Frequency: 835 MHz; Antenna Input Power: 250 [mW]
SAM Phantom; Flat Section; Grid Spacing: Dx = 20.0, Dy = 20.0, Dz = 10.0
Probe: ET3DV6 - SN1507; ConvF(6.20,6.20,6.20) at 900 MHz; Muscle 835 MHz; $\sigma = 0.96$ mho/m $\epsilon_r = 55.4$ $\rho = 1.00$ g/cm³
Cubes (2): Peak: 4.16 mW/g ± 0.01 dB, SAR (1g): 2.63 mW/g ± 0.00 dB, SAR (10g): 1.70 mW/g ± 0.01 dB, (Worst-case extrapolation)
Penetration depth: 12.5 (11.0, 14.4) [mm]
Powerdrift: -0.01 dB



Appendix E

Illustration of Body-worn Accessories



Photo 1.
NTN9475A
Includes
NTN9544A & NTN9545A
Side View



Photo 2.
NTN9475A
Includes
NTN9544A & NTN9545A
Back View



Photo 3.
NTN9475A
Includes
NTN9544A & NTN9545A
User positioned



Photo 4.
NTN9478A
Front view



Photo 5.
NTN9478A
Side view



Photo 6.
NTN9478A
Back view



Photo 7.
NTN9478A
User positioned

Appendix F
Justification for not testing accessory options

Audio Accessories

Model	Tested ?	Justification
SYN7875C	No	Similar to SYN7875B
SYN8146C	No	Similar to SYN8496B

Body Worn

Model	Tested ?	Justification
NTN9479A	No	Similar to NTN9478A. NTN9479A has a transparent plastic window over the display. NTN9478A does not have any window over the display. Both models uses NTN9544A belt clip