

ATTACHMENT Q – DIPOLE VALIDATION

Validation Data (835MHz Brain)

Dipole 835 MHz

SAM I Phantom; Flat Section; Position: (90°,90°); Frequency: 835 MHz

Probe: ET3DV6 - SN1798; ConvF(6.60,6.60,6.60); Crest factor: 1.0; Brain 835 MHz: $\sigma = 0.90$

mho/m $\epsilon_r = 41.8$ $\rho = 1.00$ g/cm³

Cubes (2): SAR (1g): 9.76 mW/g ± 0.01 dB, SAR (10g): 6.24 mW/g ± 0.01 dB

Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0

Powerdrift: -0.02 dB

Comment:

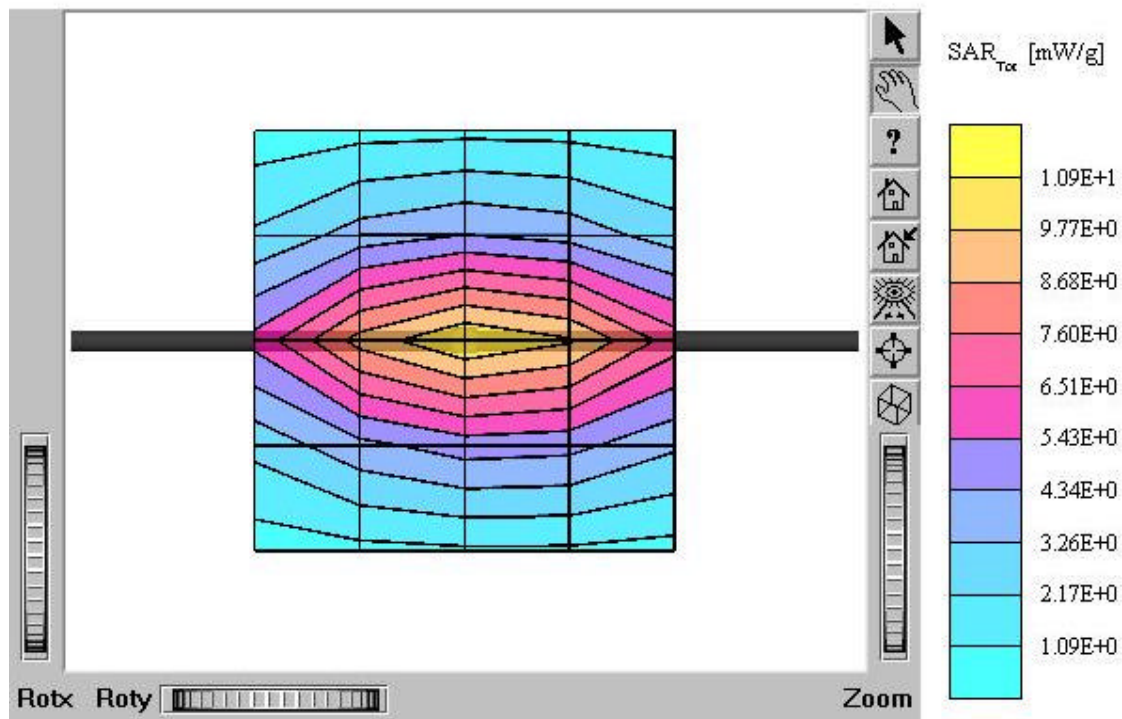
835MHz Brain Dipole Validation (D835V2/ S.N: 441)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature: 21.2°C

Date Tested : December 1, 2003



Validation Data (835MHz Brain)

Dipole 835 MHz

SAM I Phantom: Flat Section: Position: (90°,90°); Frequency: 835 MHz

Probe: ET3DV6 - SN1798; ConvF(6.60,6.60,6.60); Crest factor: 1.0; Brain 835 MHz: $\sigma = 0.90$

mho/m $\epsilon_r = 41.9$ $\rho = 1.00$ g/cm³

Cubes (2): SAR (1g): 9.78 mW/g ± 0.02 dB, SAR (10g): 6.23 mW/g ± 0.00 dB

Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0

Powerdrift: -0.02 dB

Comment:

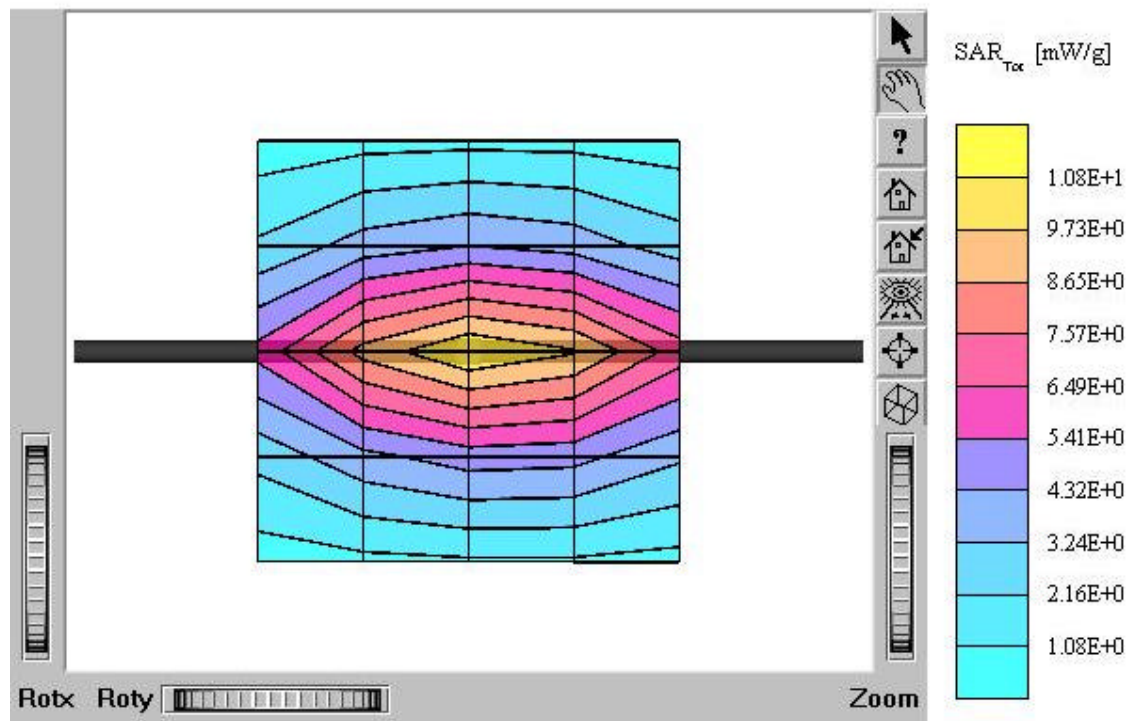
835MHz Brain Dipole Validation (D835V2/ S.N: 441)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature: 21.5°C

Date Tested : December 2, 2003



Validation Data (835MHz Brain)

Dipole 835 MHz

SAM I Phantom; Flat Section; Position: (90°,90°); Frequency: 835 MHz

Probe: ET3DV6 - SN1798; ConvF(6.60,6.60,6.60); Crest factor: 1.0; Brain 835 MHz: $\sigma = 0.89$

mho/m $\epsilon_r = 41.8$ $\rho = 1.00$ g/cm³

Cubes (2): SAR (1g): 10.0 mW/g ± 0.01 dB, SAR (10g): 6.37 mW/g ± 0.01 dB

Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0

Powerdrift: -0.02 dB

Comment:

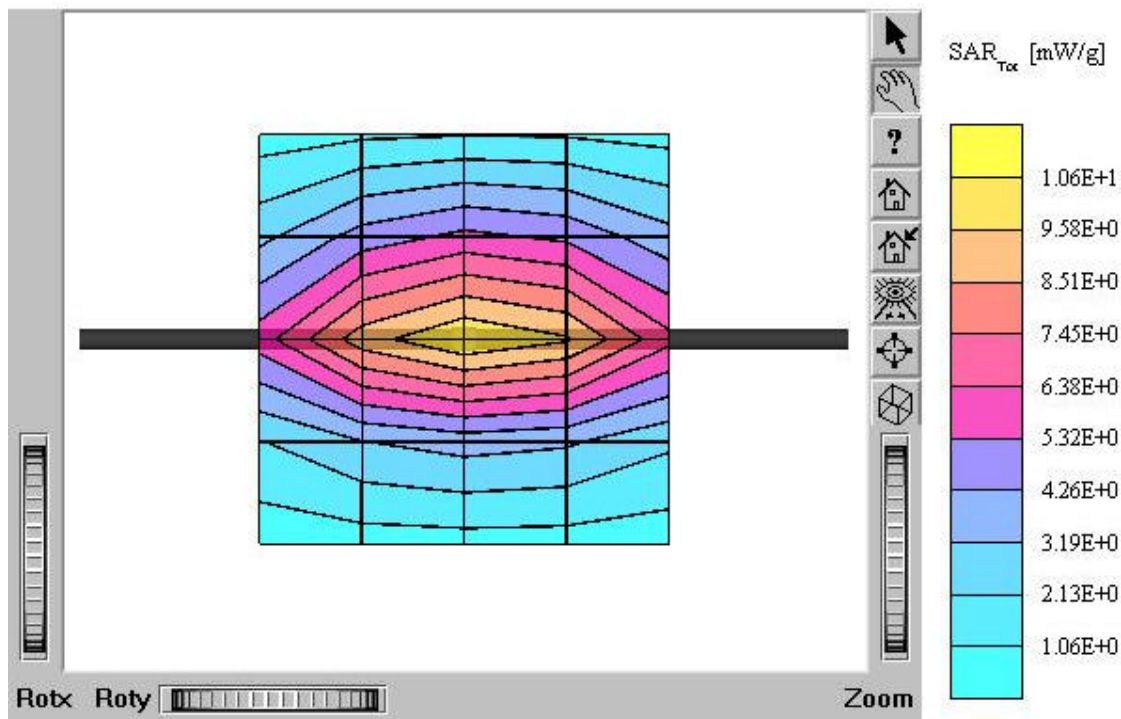
835MHz Brain Dipole Validation (D835V2/ S.N: 441)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature: 21.7°C

Date Tested : January 12, 2004



Validation Data (1900MHz Brain)

Dipole 1900 MHz

SAM II Phantom; Flat Section; Position: (90°,90°); Frequency: 1900 MHz

Probe: ET3DV6 - SN1798; ConvF(5.20,5.20,5.20); Crest factor: 1.0; Brain 1900 MHz: $\sigma = 1.43$

mho/m $\epsilon_r = 39.7$ $\rho = 1.00$ g/cm³

Cubes (2): SAR (1g): 40.7 mW/g ± 0.01 dB, SAR (10g): 20.8 mW/g ± 0.00 dB

Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0

Powerdrift: -0.04 dB

Comment:

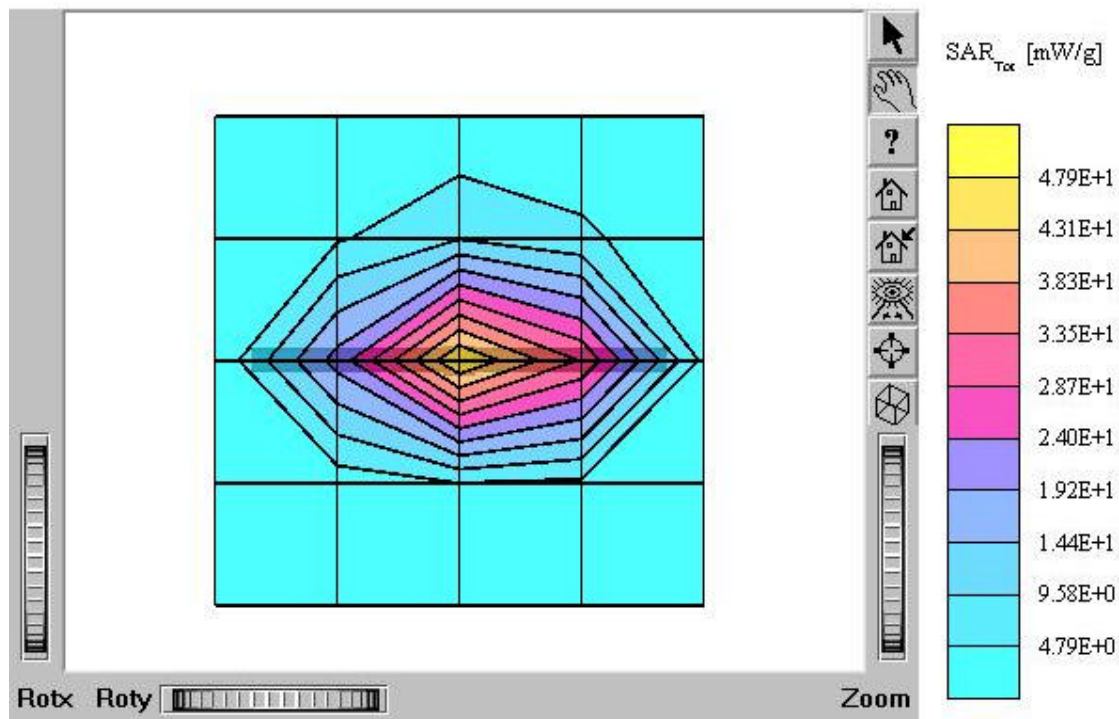
1900 MHz Brain Dipole Validation (D1900V2/ S.N: 5d032)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature: 21.4°C

Date Tested : December 3, 2003



Validation Data (1900MHz Brain)

Dipole 1900 MHz

SAM II Phantom; Flat Section; Position: (90°,90°); Frequency: 1900 MHz

Probe: ET3DV6 - SN1798; ConvF(5.20,5.20,5.20); Crest factor: 1.0; Brain 1900 MHz: $\sigma = 1.40$

mho/m $\epsilon_r = 40.3$ $\rho = 1.00$ g/cm³

Cubes (2): SAR (1g): 40.9 mW/g ± 0.06 dB, SAR (10g): 20.9 mW/g ± 0.04 dB

Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0

Powerdrift: 0.01 dB

Comment:

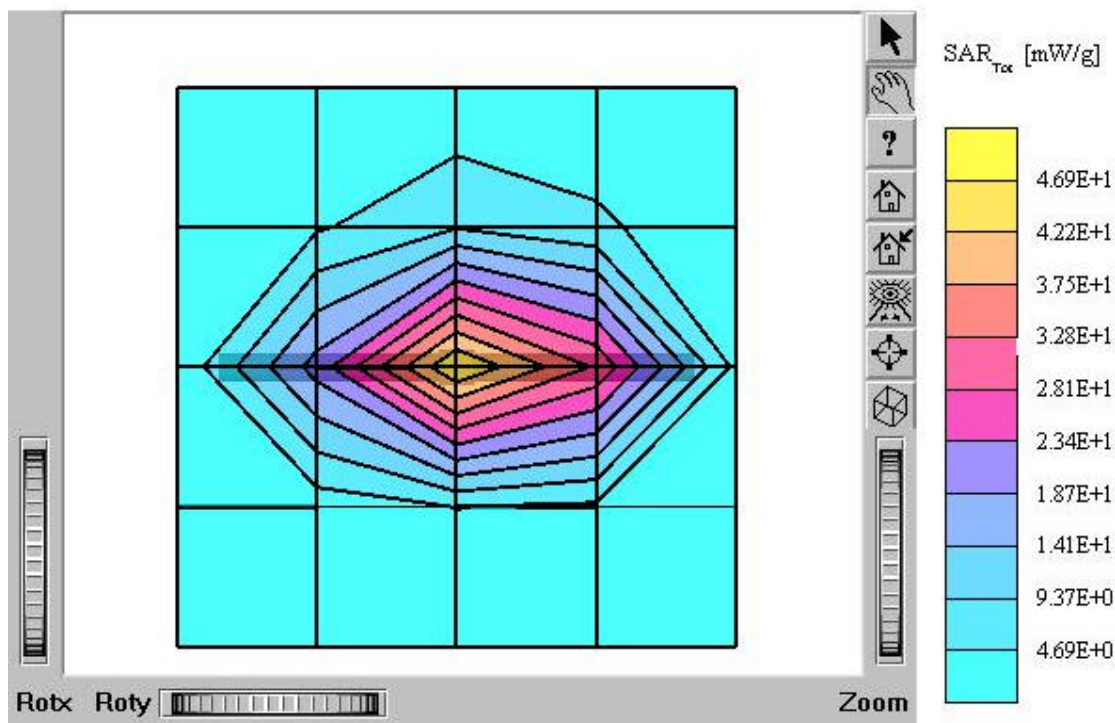
1900 MHz Brain Dipole Validation (D1900V2/ S.N: 5d032)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature: 21.7°C

Date Tested : January 12, 2004



Dipole 835 MHz

SAM I Phantom: Flat Section: Position: (90°,90°); Frequency: 835 MHz

Probe: ET3DV6 - SN1798; ConvF(6.60,6.60,6.60); Crest factor: 1.0; Brain 835 MHz: $\sigma = 0.90$

mho/m $\epsilon_r = 41.8$ $\rho = 1.00$ g/cm³

Cubes (2): SAR (1g): 9.76 mW/g ± 0.01 dB, SAR (10g): 6.24 mW/g ± 0.01 dB

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

Comment:

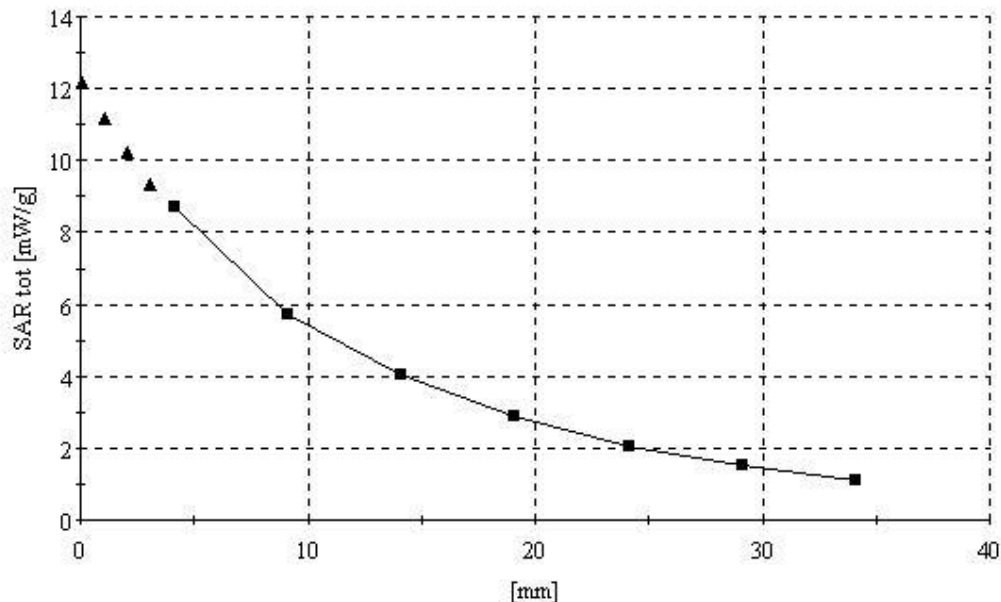
835MHz Brain Dipole Validation (D835V2/ S.N: 441)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature: 21.2°C

Date Tested : December 1, 2003



Dipole 835 MHz

SAM I Phantom; Flat Section; Position: (90°,90°); Frequency: 835 MHz

Probe: ET3DV6 - SN1798; ConvF(6.60,6.60,6.60); Crest factor: 1.0; Brain 835 MHz: $\sigma = 0.90$ mho/m $\epsilon_r = 41.9$ $\rho = 1.00$ g/cm³Cubes (2): SAR (1g): 9.78 mW/g ± 0.02 dB, SAR (10g): 6.23 mW/g ± 0.00 dB

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

Comment:

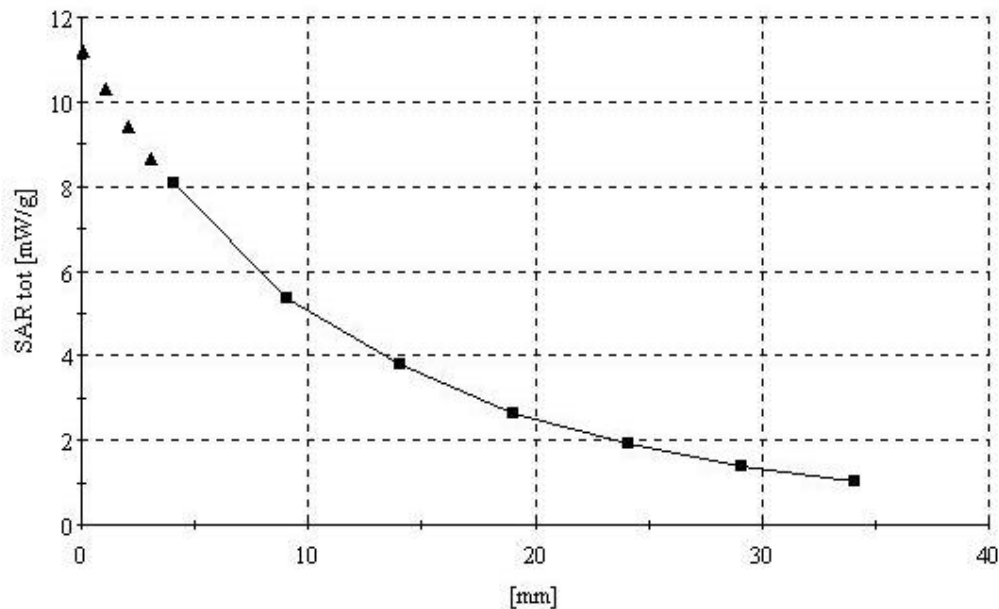
835MHz Brain Dipole Validation (D835V2/ S.N: 441)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature: 21.5°C

Date Tested : December 2, 2003



Dipole 835 MHz

SAM I Phantom; Flat Section; Position: (90°,90°); Frequency: 835 MHz

Probe: ET3DV6 - SN1798; ConvF(6.60,6.60,6.60); Crest factor: 1.0; Brain 835 MHz: $\sigma = 0.89$ mho/m $\epsilon_r = 41.8$ $\rho = 1.00$ g/cm³Cubes (2): SAR (1g): 10.0 mW/g ± 0.01 dB, SAR (10g): 6.37 mW/g ± 0.01 dB

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

Comment:

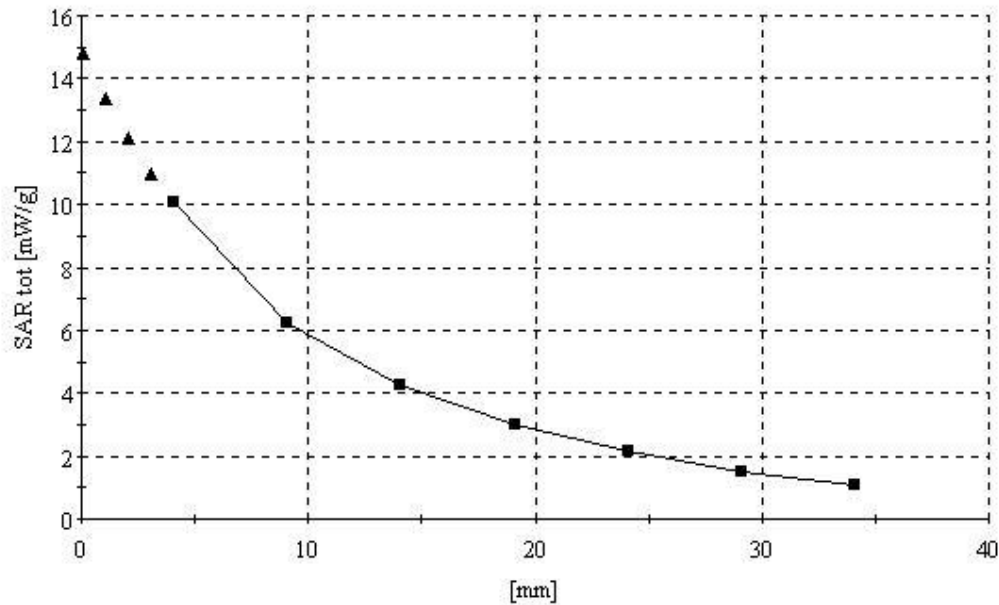
835MHz Brain Dipole Validation (D835V2/ S.N: 441)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature: 21.7°C

Date Tested : January 12, 2004



Dipole 1900 MHz

SAM II Phantom; Flat Section; Position: (90°,90°); Frequency: 1900 MHz

Probe: ET3DV6 - SN1798; ConvF(5.20,5.20,5.20); Crest factor: 1.0; Brain 1900 MHz: $\sigma = 1.43$

mho/m $\epsilon_r = 39.7$ $\rho = 1.00$ g/cm³

Cubes (2): SAR (1g): 40.7 mW/g ± 0.01 dB, SAR (10g): 20.8 mW/g ± 0.00 dB

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

Comment:

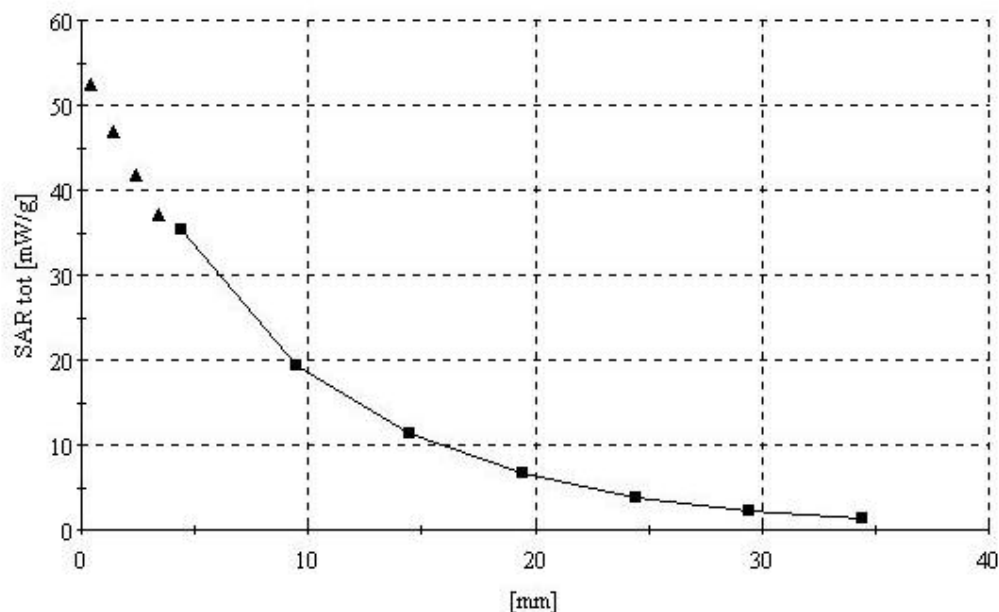
1900 MHz Brain Dipole Validation (D1900V2/ S.N: 5d032)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature: 21.4°C

Date Tested : December 3, 2003



Dipole 1900 MHz

SAM II Phantom; Flat Section; Position: (90°,90°); Frequency: 1900 MHz

Probe: ET3DV6 - SN1798; ConvF(5.20,5.20,5.20); Crest factor: 1.0; Brain 1900 MHz: $\sigma = 1.40$ mho/m $\epsilon_r = 40.3$ $\rho = 1.00$ g/cm³Cubes (2): SAR (1g): 40.9 mW/g ± 0.06 dB, SAR (10g): 20.9 mW/g ± 0.04 dB

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

Comment:

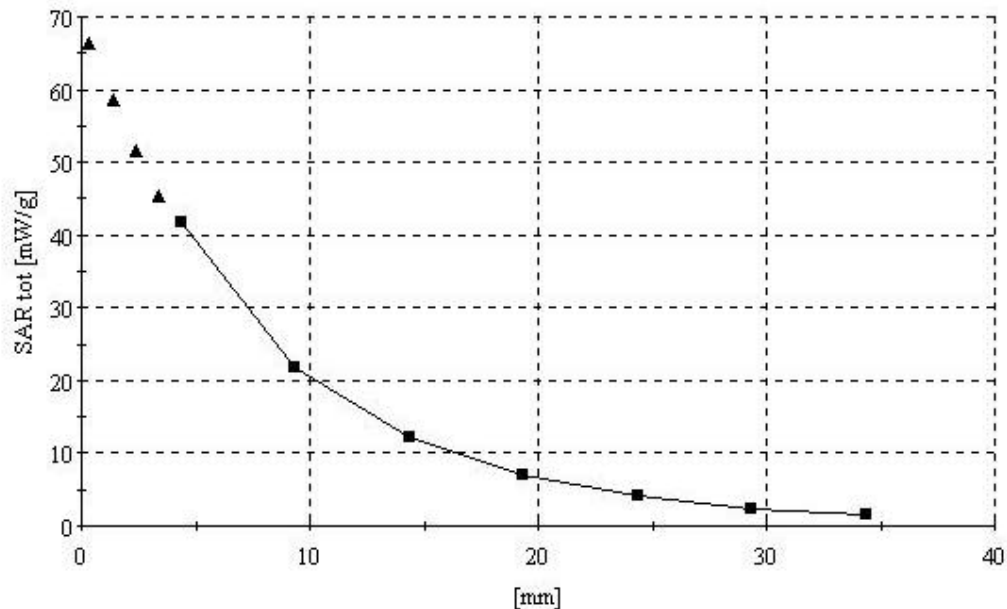
1900 MHz Brain Dipole Validation (D1900V2/ S.N: 5d032)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature: 21.7°C

Date Tested : January 12, 2004



! Dielectric Parameter (835MHz Brain)

Title : TX-60P
SubTitle : AMPS Brain
December 01, 2003 09:36 AM

Frequency	e'	e''
800.000000 MHz	42.2498	19.6732
805.000000 MHz	42.1559	19.6127
810.000000 MHz	42.0799	19.6132
815.000000 MHz	42.0695	19.5742
820.000000 MHz	42.0170	19.5365
825.000000 MHz	41.9175	19.5178
830.000000 MHz	41.8558	19.4784
835.000000 MHz	41.7727	19.4719
840.000000 MHz	41.7144	19.4377
845.000000 MHz	41.6323	19.3900
850.000000 MHz	41.5554	19.3934
855.000000 MHz	41.4687	19.3585
860.000000 MHz	41.4633	19.3523
865.000000 MHz	41.3462	19.3476
870.000000 MHz	41.2964	19.3238
875.000000 MHz	41.2206	19.2776
880.000000 MHz	41.1542	19.2949
885.000000 MHz	41.0629	19.3094
890.000000 MHz	41.0214	19.2845
895.000000 MHz	40.9787	19.2703
900.000000 MHz	40.8348	19.2466

! Dielectric Parameter (835MHz Brain)

Title : TX-60P
SubTitle : CDMA Brain
December 02, 2003 09:33 AM

Frequency	e'	e''
800.000000 MHz	42.4530	19.6177
805.000000 MHz	42.3533	19.5803
810.000000 MHz	42.2607	19.5634
815.000000 MHz	42.2248	19.5527
820.000000 MHz	42.1582	19.4866
825.000000 MHz	42.1239	19.4760
830.000000 MHz	42.0125	19.5085
835.000000 MHz	41.8938	19.4905
840.000000 MHz	41.8807	19.4326
845.000000 MHz	41.7866	19.4192
850.000000 MHz	41.7309	19.4264
855.000000 MHz	41.6529	19.3884
860.000000 MHz	41.6004	19.3643
865.000000 MHz	41.5083	19.3417
870.000000 MHz	41.4377	19.3542
875.000000 MHz	41.4122	19.3435
880.000000 MHz	41.3239	19.3058
885.000000 MHz	41.2868	19.3191
890.000000 MHz	41.2217	19.2855
895.000000 MHz	41.1753	19.2619
900.000000 MHz	41.0241	19.2499

! Dielectric Parameter (835MHz Brain)

Title: TX-60P

SubTitle: 835 Brain

January 12, 2004 09:26 AM

Frequency	e'	e''
800.000000 MHz	42.2969	19.3658
805.000000 MHz	42.2510	19.3263
810.000000 MHz	42.1759	19.2953
815.000000 MHz	42.0804	19.3027
820.000000 MHz	42.0305	19.2389
825.000000 MHz	41.9062	19.1914
830.000000 MHz	41.8433	19.2069
835.000000 MHz	41.8446	19.2411
840.000000 MHz	41.6763	19.2286
845.000000 MHz	41.6506	19.1972
850.000000 MHz	41.6008	19.2249
855.000000 MHz	41.5205	19.1786
860.000000 MHz	41.4507	19.1299
865.000000 MHz	41.4510	19.1435
870.000000 MHz	41.3335	19.1706
875.000000 MHz	41.2873	19.2278
880.000000 MHz	41.2508	19.2112
885.000000 MHz	41.1865	19.1828
890.000000 MHz	41.1350	19.1611
895.000000 MHz	41.0550	19.1582
900.000000 MHz	41.0153	19.1534

Dielectric Parameter (1900MHz Brain)**Title : TX-60P****SubTitle : PCS CDMA Brain**

December 03, 2002 08:41 AM

Frequency	e'	e''
1.700000000 GHz	40.5324	12.9795
1.710000000 GHz	40.4620	13.0403
1.720000000 GHz	40.4345	13.0915
1.730000000 GHz	40.4072	13.1300
1.740000000 GHz	40.3553	13.1612
1.750000000 GHz	40.3464	13.1637
1.760000000 GHz	40.3074	13.1504
1.770000000 GHz	40.2698	13.1733
1.780000000 GHz	40.2198	13.1486
1.790000000 GHz	40.1500	13.1700
1.800000000 GHz	40.1104	13.1885
1.810000000 GHz	40.0649	13.2351
1.820000000 GHz	40.0368	13.2680
1.830000000 GHz	39.9743	13.3313
1.840000000 GHz	39.9513	13.3730
1.850000000 GHz	39.8977	13.4309
1.860000000 GHz	39.8537	13.4586
1.870000000 GHz	39.8385	13.5012
1.880000000 GHz	39.8149	13.4862
1.890000000 GHz	39.7667	13.5110
1.900000000 GHz	39.7170	13.5129
1.910000000 GHz	39.6900	13.4976
1.920000000 GHz	39.5990	13.5152
1.930000000 GHz	39.5507	13.5143
1.940000000 GHz	39.5140	13.5477
1.950000000 GHz	39.4725	13.6078
1.960000000 GHz	39.4499	13.6231
1.970000000 GHz	39.4294	13.6753
1.980000000 GHz	39.4112	13.7378
1.990000000 GHz	39.3572	13.7536
2.000000000 GHz	39.3413	13.7938

! Dielectric Parameter (1900MHz Brain)**Title: TX-60P****SubTitle:1900 Brain**

January 12, 2004 09:14 AM

Frequency	ϵ'	ϵ''
1.800000000 GHz	40.7352	12.9241
1.810000000 GHz	40.6541	12.9666
1.820000000 GHz	40.6630	13.0380
1.830000000 GHz	40.5774	13.1019
1.840000000 GHz	40.5745	13.1498
1.850000000 GHz	40.5403	13.1751
1.860000000 GHz	40.5287	13.2101
1.870000000 GHz	40.5306	13.2360
1.880000000 GHz	40.4894	13.2356
1.890000000 GHz	40.4508	13.2698
1.900000000 GHz	40.3357	13.2403
1.910000000 GHz	40.2542	13.2555
1.920000000 GHz	40.1814	13.2773
1.930000000 GHz	40.0932	13.3188
1.940000000 GHz	40.0173	13.3584
1.950000000 GHz	39.9801	13.4141
1.960000000 GHz	39.9522	13.4725
1.970000000 GHz	39.9571	13.5293
1.980000000 GHz	39.9613	13.5657
1.990000000 GHz	39.9739	13.6169
2.000000000 GHz	39.9552	13.6036

! Dielectric Parameter (835MHz Muscle)

Title : TX-60P

SubTitle : AMPS Body

December 01, 2003 09:52 AM

Frequency	e'	e''
800.000000 MHz	54.4068	21.6257
805.000000 MHz	54.4114	21.5621
810.000000 MHz	54.3339	21.5845
815.000000 MHz	54.3504	21.5507
820.000000 MHz	54.2570	21.5061
825.000000 MHz	54.2658	21.5088
830.000000 MHz	54.2461	21.5382
835.000000 MHz	54.1849	21.4663
840.000000 MHz	54.1441	21.3877
845.000000 MHz	54.0904	21.3913
850.000000 MHz	54.0044	21.3633
855.000000 MHz	54.0031	21.3260
860.000000 MHz	53.9040	21.3147
865.000000 MHz	53.8557	21.2631
870.000000 MHz	53.8320	21.2457
875.000000 MHz	53.7721	21.2154
880.000000 MHz	53.6914	21.2254
885.000000 MHz	53.5794	21.2742
890.000000 MHz	53.5427	21.1990
895.000000 MHz	53.4510	21.1563
900.000000 MHz	53.4413	21.1870

! Dielectric Parameter (835MHz Muscle)

Title : TX-60P
SubTitle : CMDA Body
December 02, 2003 09:57 AM

Frequency	e'	e''
800.000000 MHz	54.2605	21.6316
805.000000 MHz	54.2736	21.6222
810.000000 MHz	54.1962	21.6109
815.000000 MHz	54.1665	21.5716
820.000000 MHz	54.1187	21.5110
825.000000 MHz	54.1107	21.4813
830.000000 MHz	54.0731	21.4902
835.000000 MHz	54.0039	21.4552
840.000000 MHz	53.9472	21.3611
845.000000 MHz	53.8731	21.3073
850.000000 MHz	53.8562	21.2875
855.000000 MHz	53.7937	21.2305
860.000000 MHz	53.7345	21.2377
865.000000 MHz	53.6682	21.1939
870.000000 MHz	53.5783	21.1703
875.000000 MHz	53.5271	21.1326
880.000000 MHz	53.4859	21.1605
885.000000 MHz	53.3669	21.1757
890.000000 MHz	53.3132	21.1505
895.000000 MHz	53.2331	21.1357
900.000000 MHz	53.2298	21.1543

Dielectric Parameter (1900MHz Muscle)**Title : TX-60P****SubTitle : PCS CDMA Body**

December 03, 2003 09:04 AM

Frequency	ϵ'	ϵ''
1.700000000 GHz	52.7949	14.2658
1.710000000 GHz	52.7433	14.2996
1.720000000 GHz	52.7439	14.3683
1.730000000 GHz	52.6786	14.3844
1.740000000 GHz	52.6756	14.3938
1.750000000 GHz	52.6704	14.3940
1.760000000 GHz	52.6518	14.3980
1.770000000 GHz	52.6109	14.3733
1.780000000 GHz	52.5756	14.4097
1.790000000 GHz	52.5223	14.4179
1.800000000 GHz	52.4618	14.4327
1.810000000 GHz	52.4641	14.4849
1.820000000 GHz	52.3935	14.5382
1.830000000 GHz	52.3288	14.5831
1.840000000 GHz	52.3115	14.6635
1.850000000 GHz	52.2624	14.6922
1.860000000 GHz	52.2330	14.7041
1.870000000 GHz	52.2202	14.7449
1.880000000 GHz	52.1935	14.7801
1.890000000 GHz	52.1744	14.7691
1.900000000 GHz	52.1150	14.7476
1.910000000 GHz	52.0339	14.7644
1.920000000 GHz	51.9811	14.7706
1.930000000 GHz	51.9711	14.7709
1.940000000 GHz	51.9447	14.8221
1.950000000 GHz	51.8736	14.9005
1.960000000 GHz	51.8336	14.9364
1.970000000 GHz	51.8016	14.9903
1.980000000 GHz	51.7363	15.0256
1.990000000 GHz	51.7397	15.0328
2.000000000 GHz	51.7248	15.0683