

ATTACHMENT Q – DIPOLE VALIDATION

■ Validation Data (835MHz Brain)

Dipole 835 MHz

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

Probe: ET3DV6 - SN1607; ConvF(6.22,6.22,6.22); Crest factor: 1.0; Head 835 MHz: $\sigma = 0.89$ mho/m $\epsilon_r = 42.7$ $\rho = 1.00$ g/cm³Cubes (2): SAR (1g): 10.2 mW/g ± 0.00 dB, SAR (10g): 6.44 mW/g ± 0.07 dB

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

Powerdrift: 0.03 dB

Comment:

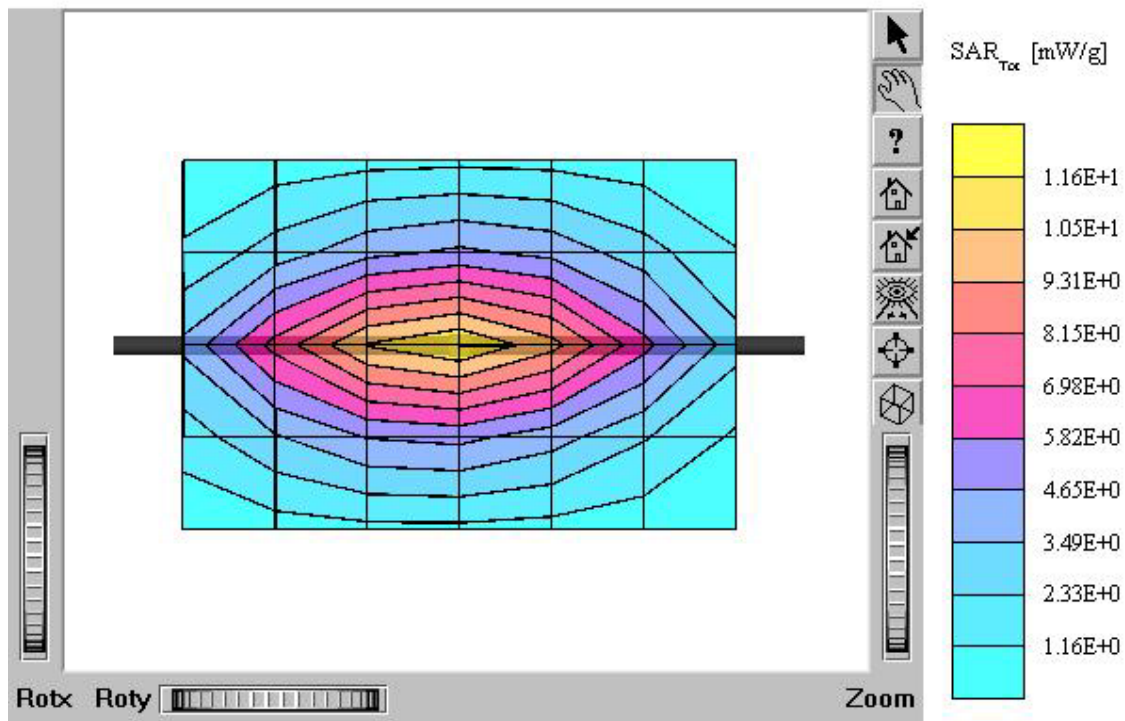
835MHz Brain Dipole Validation (D835V2/ S.N: 441)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature: 21.6°C

Date Tested : June 02, 2004



■ Validation Data (835MHz Brain)

Dipole 835 MHz

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

Probe: ET3DV6 - SN1607; ConvF(6.22,6.22,6.22); Crest factor: 1.0; Head 835 MHz: $\sigma = 0.89$

mho/m $\epsilon_r = 42.6$ $\rho = 1.00$ g/cm³

Cubes (2): SAR (1g): 10.2 mW/g ± 0.00 dB, SAR (10g): 6.45 mW/g ± 0.07 dB

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

Powerdrift: 0.00 dB

Comment:

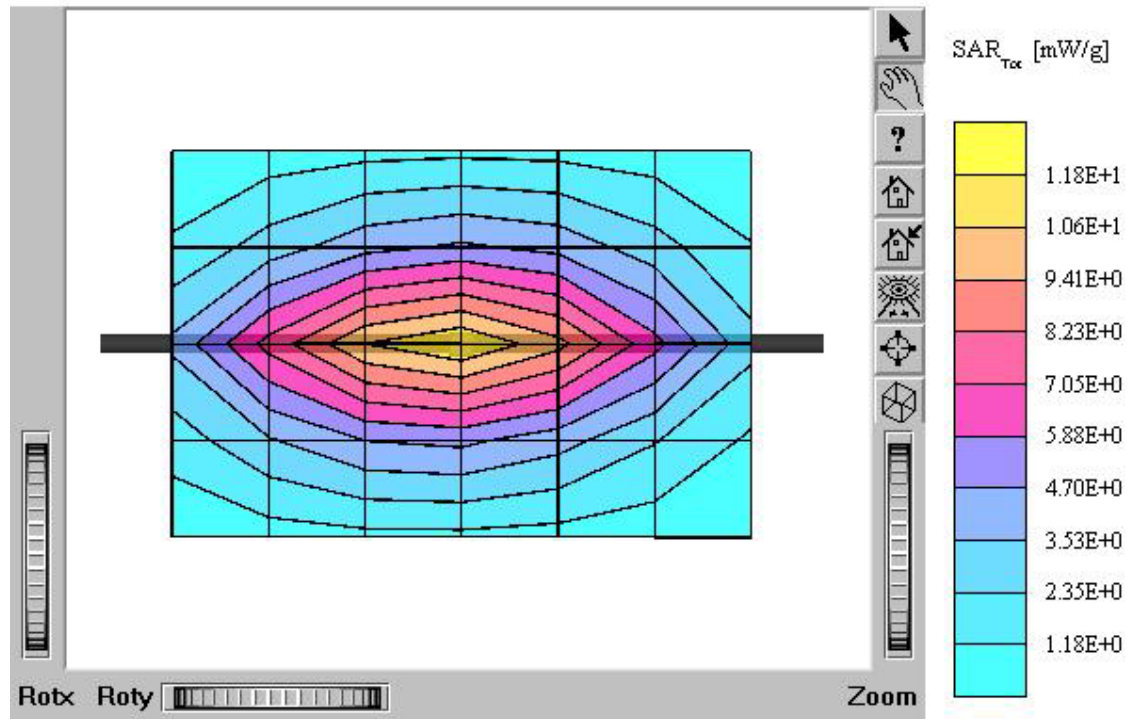
835MHz Brain Dipole Validation (D835V2/ S.N: 441)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature: 21.4°C

Date Tested : June 03, 2004



■ Validation Data (1900MHz Brain)

Dipole 1900 MHz

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

Probe: ET3DV6 - SN1609; ConvF(5.29,5.29,5.29); Crest factor: 1.0; Brain 1900 MHz: $\sigma = 1.41$

mho/m $\epsilon_r = 40.5$ $\rho = 1.00$ g/cm³

Cubes (2): SAR (1g): 41.6 mW/g ± 0.03 dB, SAR (10g): 21.1 mW/g ± 0.03 dB

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

Powerdrift: 0.03 dB

Comment:

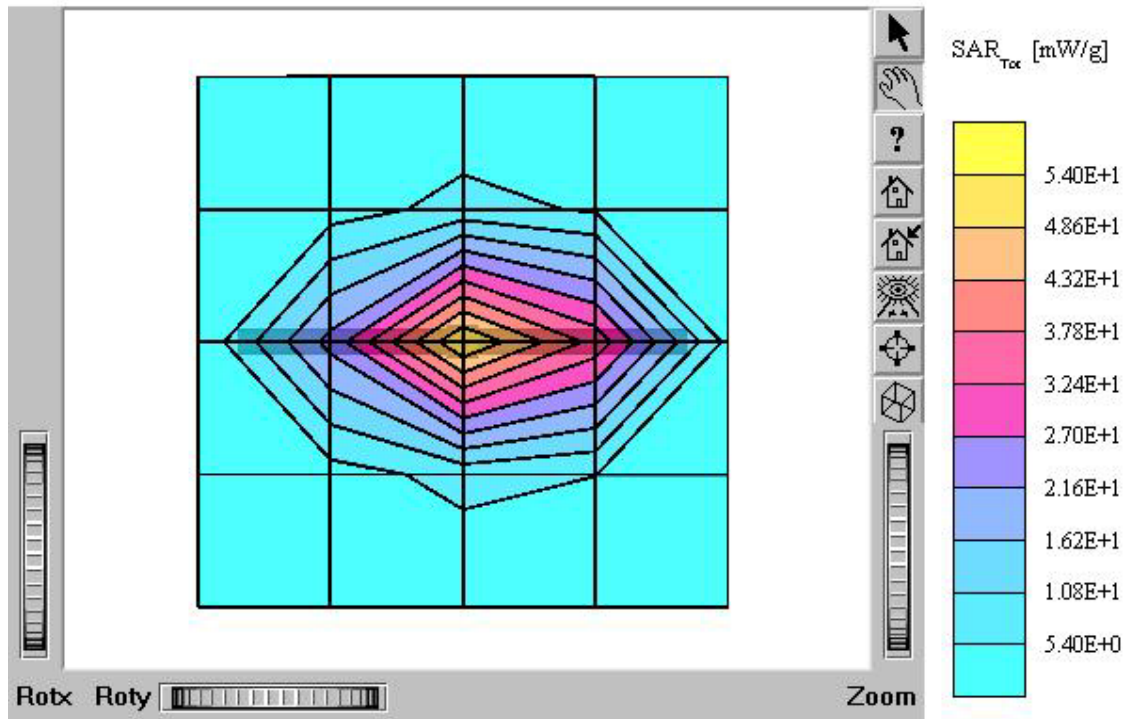
1900 MHz Brain Dipole Validation (D1900V2/ S.N: 5d032)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature: 21.4°C

Date Tested : June 04, 2004



Dipole 835 MHz

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

Probe: ET3DV6 - SN1607; ConvF(6.22,6.22,6.22); Crest factor: 1.0; Head 835 MHz: $\sigma = 0.89$ mho/m $\epsilon_r = 42.7$ $\rho = 1.00$ g/cm³Cubes (2): SAR (1g): 10.2 mW/g ± 0.00 dB, SAR (10g): 6.44 mW/g ± 0.07 dB

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

Comment:

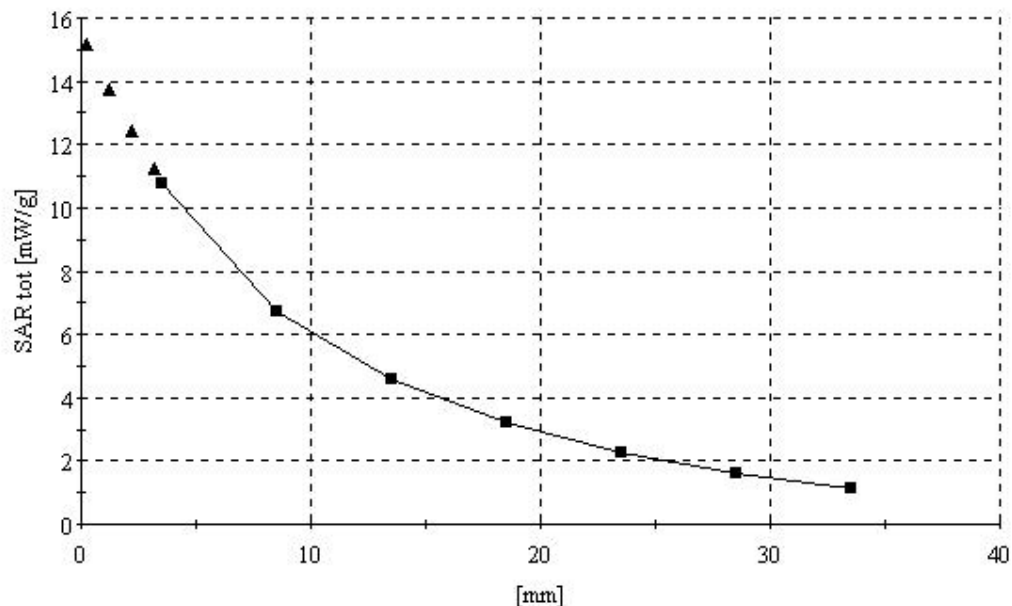
835MHz Brain Dipole Validation (D835V2/ S.N: 441)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature: 21.6°C

Date Tested : June 02, 2004



Dipole 835 MHz

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

Probe: ET3DV6 - SN1607; ConvF(6.22,6.22,6.22); Crest factor: 1.0; Head 835 MHz: $\sigma = 0.89$ mho/m $\epsilon_r = 42.6$ $\rho = 1.00$ g/cm³Cubes (2): SAR (1g): 10.2 mW/g ± 0.00 dB, SAR (10g): 6.45 mW/g ± 0.07 dB

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

Comment:

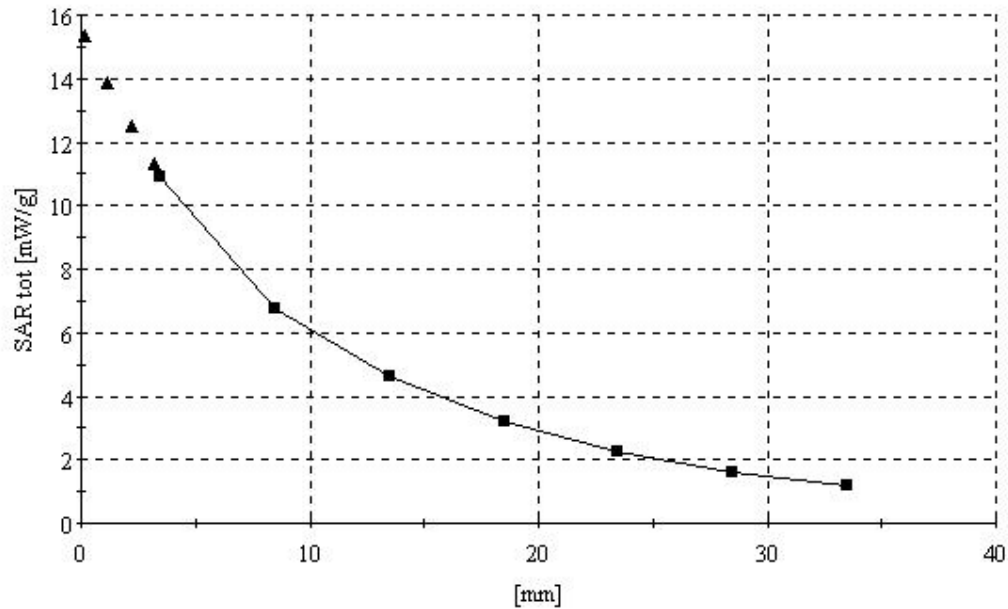
835MHz Brain Dipole Validation (D835V2/ S.N: 441)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature: 21.4°C

Date Tested : June 03, 2004



Dipole 1900 MHz

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

Probe: ET3DV6 - SN1609; ConvF(5.29,5.29,5.29); Crest factor: 1.0; Brain 1900 MHz: $\sigma = 1.41$ mho/m $\epsilon_r = 40.5$ $\rho = 1.00$ g/cm³Cubes (2): SAR (1g): 41.6 mW/g ± 0.03 dB, SAR (10g): 21.1 mW/g ± 0.03 dB

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

Comment:

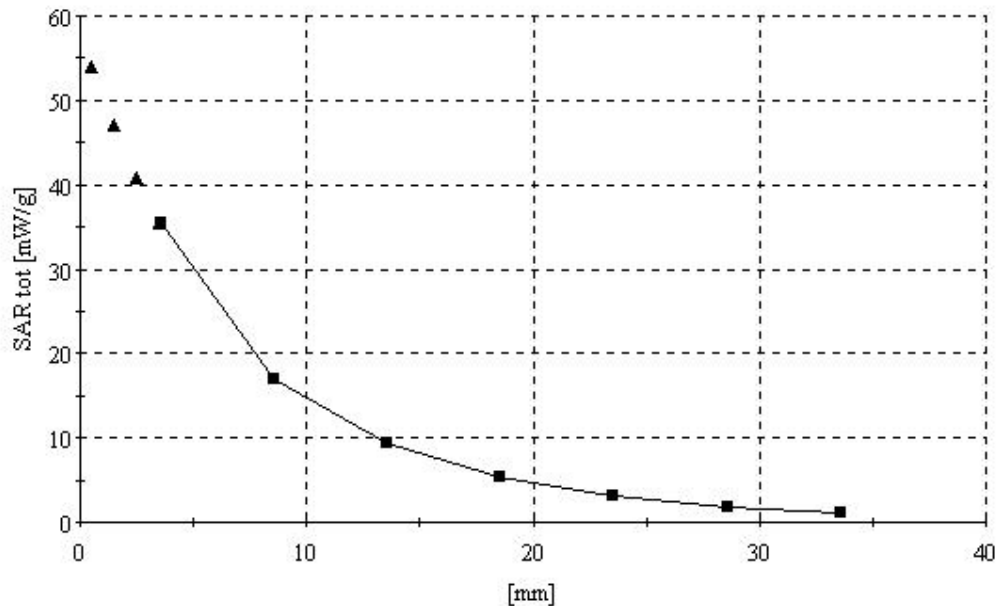
1900 MHz Brain Dipole Validation (D1900V2/ S.N: 5d032)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature: 21.4°C

Date Tested : June 04, 2004



■ Dielectric Parameter (835MHz Brain)

Title : TX-170SA**SubTitle : AMPS Brain**

June 02, 2004 09:59 AM

Frequency	e'	e''
800.000000 MHz	43.1544	19.4676
805.000000 MHz	43.0567	19.3744
810.000000 MHz	42.9973	19.3366
815.000000 MHz	42.9273	19.3346
820.000000 MHz	42.8480	19.2766
825.000000 MHz	42.7030	19.2648
830.000000 MHz	42.6696	19.2482
835.000000 MHz	42.6614	19.2614
840.000000 MHz	42.5138	19.2622
845.000000 MHz	42.4630	19.1938
850.000000 MHz	42.4271	19.2465
855.000000 MHz	42.3794	19.2194
860.000000 MHz	42.3219	19.2265
865.000000 MHz	42.3136	19.1883
870.000000 MHz	42.2379	19.2316
875.000000 MHz	42.1859	19.2474
880.000000 MHz	42.1399	19.2968
885.000000 MHz	42.1096	19.2606
890.000000 MHz	42.0399	19.2416
895.000000 MHz	41.9978	19.2446
900.000000 MHz	41.9698	19.1936

■ Dielectric Parameter (835MHz Brain)

Title : TX-170SA**SubTitle : CDMA Brain**

June 03, 2004 09:07 AM

Frequency	e'	e''
800.000000 MHz	43.0755	19.3804
805.000000 MHz	43.0068	19.3124
810.000000 MHz	42.9131	19.3063
815.000000 MHz	42.8292	19.3300
820.000000 MHz	42.7810	19.2100
825.000000 MHz	42.6988	19.2127
830.000000 MHz	42.6389	19.2146
835.000000 MHz	42.5639	19.1419
840.000000 MHz	42.4708	19.2221
845.000000 MHz	42.4049	19.1375
850.000000 MHz	42.3789	19.1878
855.000000 MHz	42.3000	19.1599
860.000000 MHz	42.2740	19.1685
865.000000 MHz	42.2159	19.1352
870.000000 MHz	42.1820	19.1462
875.000000 MHz	42.1143	19.1773
880.000000 MHz	42.1038	19.2267
885.000000 MHz	42.0602	19.2301
890.000000 MHz	42.0149	19.1589
895.000000 MHz	41.9418	19.1917
900.000000 MHz	41.9141	19.1410

■ Dielectric Parameter (1900MHz Brain)

Title : TX-170SA**SubTitle : PCS Brain**

June 04, 2004 09:29 AM

Frequency	e'	e''
1.800000000 GHz	41.0209	13.0272
1.810000000 GHz	40.9400	13.0559
1.820000000 GHz	40.9285	13.1144
1.830000000 GHz	40.8618	13.1559
1.840000000 GHz	40.8031	13.1743
1.850000000 GHz	40.7620	13.2272
1.860000000 GHz	40.7175	13.2398
1.870000000 GHz	40.6820	13.2922
1.880000000 GHz	40.6190	13.3233
1.890000000 GHz	40.5844	13.3450
1.900000000 GHz	40.5173	13.3613
1.910000000 GHz	40.4519	13.4008
1.920000000 GHz	40.4118	13.4357
1.930000000 GHz	40.3210	13.4508
1.940000000 GHz	40.2844	13.4869
1.950000000 GHz	40.2371	13.5273
1.960000000 GHz	40.2045	13.5787
1.970000000 GHz	40.1808	13.5974
1.980000000 GHz	40.1291	13.6560
1.990000000 GHz	40.0958	13.6874
2.000000000 GHz	40.0493	13.7279

■ Dielectric Parameter (835MHz Muscle)

Title : TX-170SA Body**SubTitle : AMPS Body**

June 02, 2004 09:19 PM

Frequency	e'	e''
800.000000 MHz	54.6238	21.7548
805.000000 MHz	54.6216	21.7375
810.000000 MHz	54.5454	21.7014
815.000000 MHz	54.5484	21.6937
820.000000 MHz	54.4997	21.6034
825.000000 MHz	54.4222	21.5860
830.000000 MHz	54.4539	21.5289
835.000000 MHz	54.3583	21.5465
840.000000 MHz	54.3166	21.4672
845.000000 MHz	54.2251	21.4291
850.000000 MHz	54.1995	21.3888
855.000000 MHz	54.1127	21.3284
860.000000 MHz	54.0343	21.2873
865.000000 MHz	53.9938	21.2863
870.000000 MHz	53.9212	21.2547
875.000000 MHz	53.8280	21.1941
880.000000 MHz	53.7549	21.2383
885.000000 MHz	53.6888	21.2692
890.000000 MHz	53.5570	21.2357
895.000000 MHz	53.4763	21.1675
900.000000 MHz	53.4646	21.2198

■ Dielectric Parameter (835MHz Muscle)

Title : TX-170SA**SubTitle : CDMA Body**

June 03, 2004 10:29 PM

Frequency	e'	e''
800.000000 MHz	54.5114	21.7602
805.000000 MHz	54.5098	21.7432
810.000000 MHz	54.4407	21.6935
815.000000 MHz	54.4505	21.6725
820.000000 MHz	54.3734	21.6267
825.000000 MHz	54.3742	21.5922
830.000000 MHz	54.3317	21.5292
835.000000 MHz	54.2561	21.5398
840.000000 MHz	54.2043	21.4316
845.000000 MHz	54.1240	21.4227
850.000000 MHz	54.0427	21.3491
855.000000 MHz	53.9924	21.2974
860.000000 MHz	53.9442	21.2779
865.000000 MHz	53.8817	21.2748
870.000000 MHz	53.8003	21.2470
875.000000 MHz	53.7538	21.1957
880.000000 MHz	53.6914	21.2254
885.000000 MHz	53.5759	21.2650
890.000000 MHz	53.5442	21.2300
895.000000 MHz	53.4555	21.2491
900.000000 MHz	53.4317	21.2431

■ Dielectric Parameter (1900MHz Muscle)

Title : TX-170SA**SubTitle : PCS Body**

June 04, 2004 10:06 PM

Frequency	e'	e''
1.850000000 GHz	53.6996	14.8146
1.855000000 GHz	53.6801	14.7910
1.860000000 GHz	53.6189	14.8350
1.865000000 GHz	53.5739	14.8718
1.870000000 GHz	53.4833	14.8619
1.875000000 GHz	53.4313	14.8614
1.880000000 GHz	53.3954	14.8539
1.885000000 GHz	53.3598	14.8463
1.890000000 GHz	53.2977	14.8414
1.895000000 GHz	53.2660	14.8490
1.900000000 GHz	53.2481	14.8515
1.905000000 GHz	53.2229	14.8572
1.910000000 GHz	53.1678	14.8541
1.915000000 GHz	53.1356	14.8594
1.920000000 GHz	53.1447	14.8849
1.925000000 GHz	53.1582	14.8989
1.930000000 GHz	53.1701	14.9107
1.935000000 GHz	53.1985	14.9510
1.940000000 GHz	53.1822	14.9747
1.945000000 GHz	53.1564	15.0147
1.950000000 GHz	53.1958	15.0185

■ Validation Data (1900MHz Brain)

Dipole 1900 MHz

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

Probe: ET3DV6 - SN1607; ConvF(5.10,5.10,5.10); Crest factor: 1.0; Brain 1900 MHz: $\sigma = 1.39$

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

Cubes (2): SAR (1g): 41.7 mW/g ± 0.01 dB, SAR (10g): 21.0 mW/g ± 0.01 dB

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

Powerdrift: 0.00 dB

Comment:

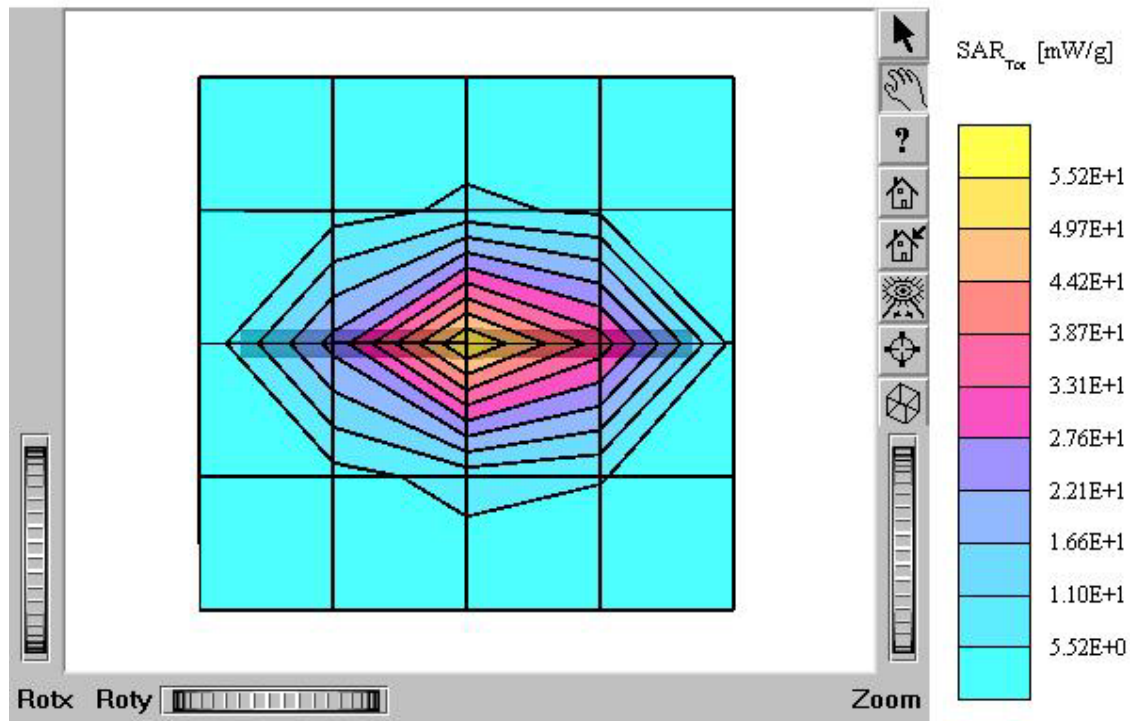
1900 MHz Brain Dipole Validation (D1900V2/ S.N: 5d032)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature: 21.5°C

Date Tested : July 19, 2004



Dipole 1900 MHz

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

Probe: ET3DV6 - SN1607; ConvF(5.10,5.10,5.10); Crest factor: 1.0; Brain 1900 MHz: $\sigma = 1.39$ $\rho = 1.00 \text{ g/cm}^3$ Cubes (2): SAR (1g): $41.7 \text{ mW/g} \pm 0.01 \text{ dB}$, SAR (10g): $21.0 \text{ mW/g} \pm 0.01 \text{ dB}$

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

Comment:

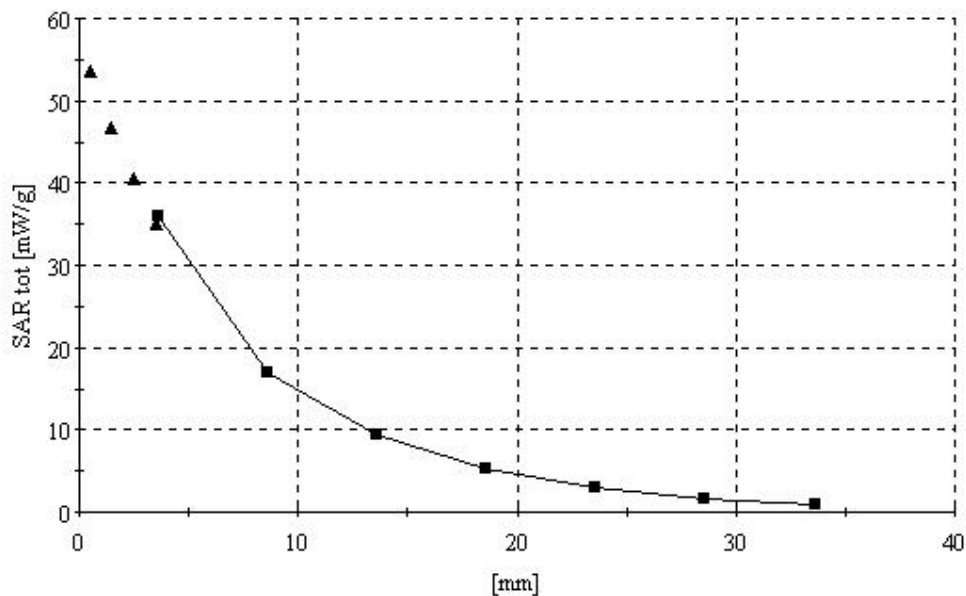
1900 MHz Brain Dipole Validation (D1900V2/ S.N: 5d032)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature: 21.5°C

Date Tested : July 19, 2004



■ Dielectric Parameter (1900MHz Brain)

Title : TX-170SA
SubTitle : 1900MHz BRAIN
July 19, 2004 01:22 PM

Frequency	e'	e''
1.800000000 GHz	40.7924	12.8883
1.810000000 GHz	40.7378	12.9538
1.820000000 GHz	40.7342	12.9961
1.830000000 GHz	40.6400	13.0470
1.840000000 GHz	40.6159	13.0718
1.850000000 GHz	40.5680	13.1331
1.860000000 GHz	40.5381	13.1495
1.870000000 GHz	40.4956	13.1772
1.880000000 GHz	40.4152	13.1725
1.890000000 GHz	40.3573	13.1956
1.900000000 GHz	40.2688	13.1793
1.910000000 GHz	40.2060	13.2094
1.920000000 GHz	40.1512	13.2495
1.930000000 GHz	40.0467	13.2574
1.940000000 GHz	40.0112	13.2912
1.950000000 GHz	39.9494	13.3457
1.960000000 GHz	39.9500	13.4295
1.970000000 GHz	39.9201	13.4656
1.980000000 GHz	39.8897	13.4992
1.990000000 GHz	39.8900	13.5413
2.000000000 GHz	39.8542	13.5462