

## **ATTACHMENT Q – DIPOLE VALIDATION**

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## ■ Validation Data (835MHz Brain)

### Dipole 835 MHz

SAM 1 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/cm<sup>3</sup>

Cubes (2): SAR (1g): 10.4 mW/g  $\pm 0.02$  dB, SAR (10g): 6.64 mW/g  $\pm 0.02$  dB

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

Powerdrift: -0.01 dB

Comment:

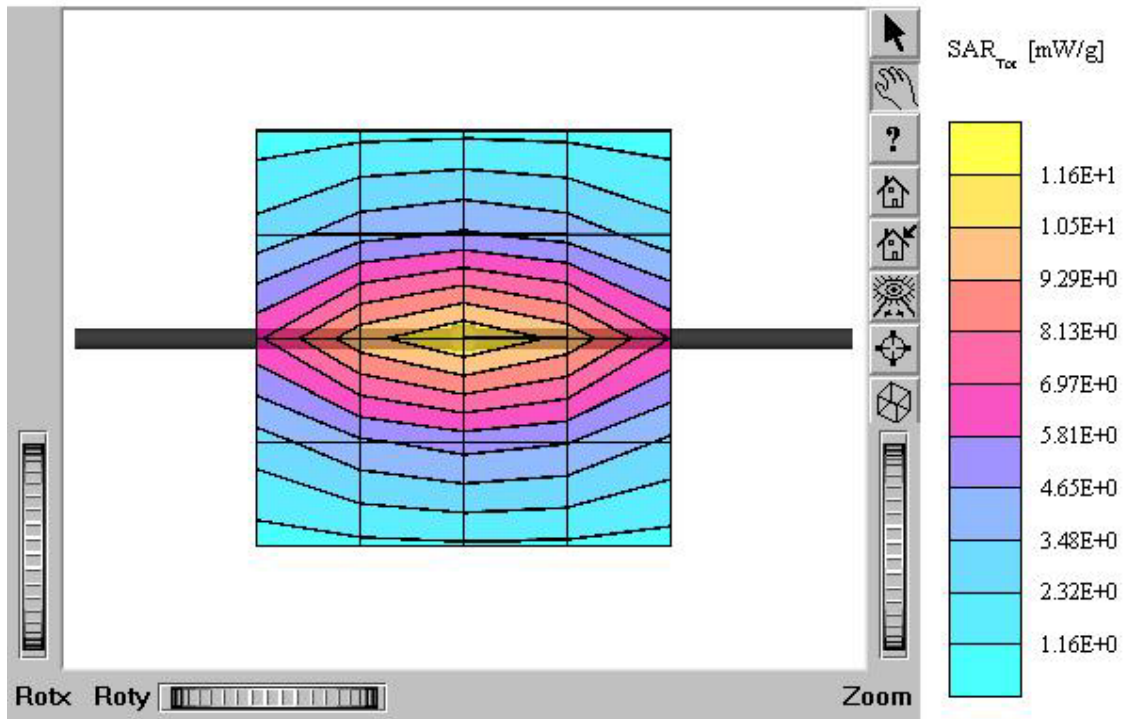
835MHz Brain Dipole Validation (D835V2/ S.N: 441)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature: 21.4°C

Date Tested : December 22, 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  $\epsilon_r = 41.8$   $\rho = 1.00$  g/cm<sup>3</sup>

Cubes (2): SAR (1g): 10.0 mW/g  $\pm 0.01$  dB, SAR (10g): 6.36 mW/g  $\pm 0.03$  dB

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

Powerdrift: 0.00 dB

Comment:

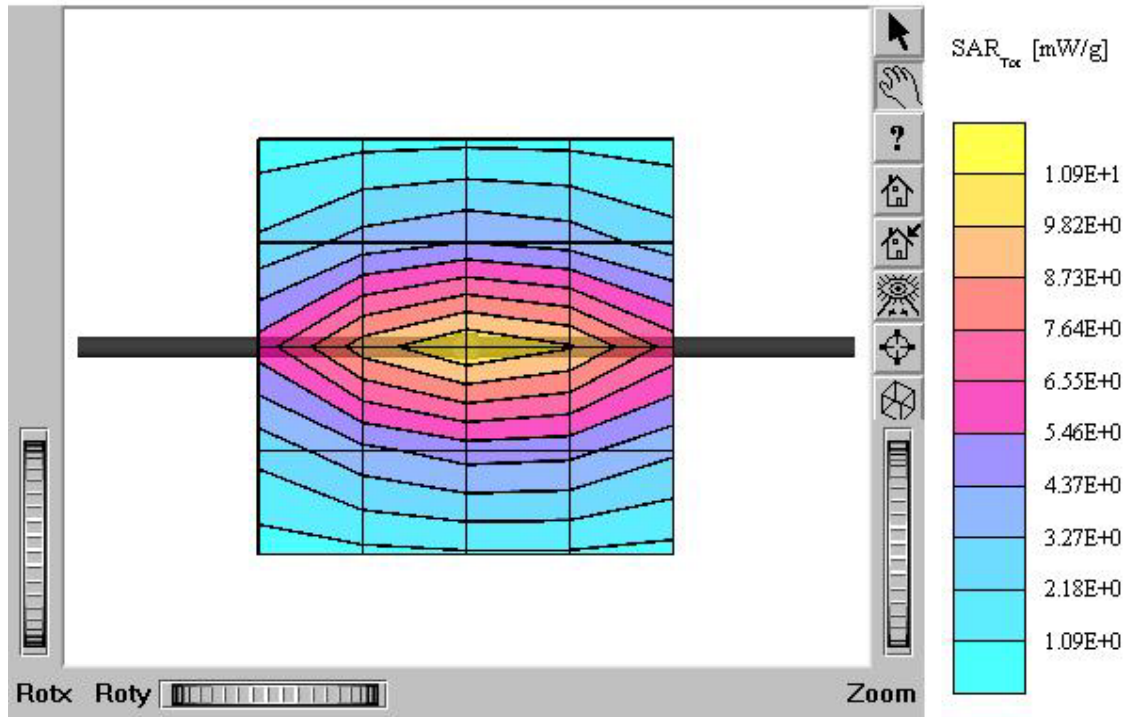
835MHz Brain Dipole Validation (D835V2/ S.N: 441)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature : 21.5°C

Date Tested : December 23, 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:  $\sigma = 1.44$

mho/m  $\epsilon_r = 38.6$   $\rho = 1.00$  g/cm<sup>3</sup>

Cubes (2): SAR (1g): 40.9 mW/g  $\pm 0.02$  dB, SAR (10g): 20.9 mW/g  $\pm 0.00$  dB

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

Powerdrift: -0.05 dB

Comment:

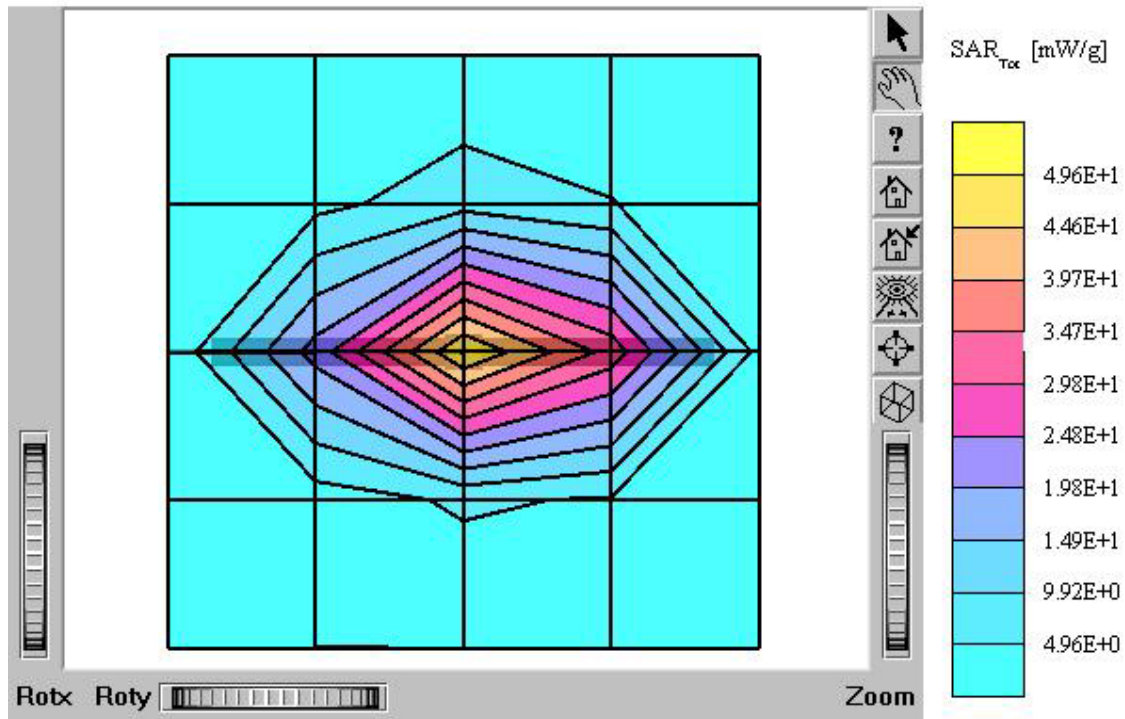
1900 MHz Brain Dipole Validation (D1900V2/ S.N: 5d032)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature : 21.3°C

Date Tested : December 24, 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:  $\sigma = 1.39$

mho/m  $\epsilon_r = 40.2$   $\rho = 1.00$  g/cm<sup>3</sup>

Cubes (2): SAR (1g): 40.8 mW/g  $\pm 0.08$  dB, SAR (10g): 20.9 mW/g  $\pm 0.07$  dB

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

Powerdrift: 0.04 dB

Comment:

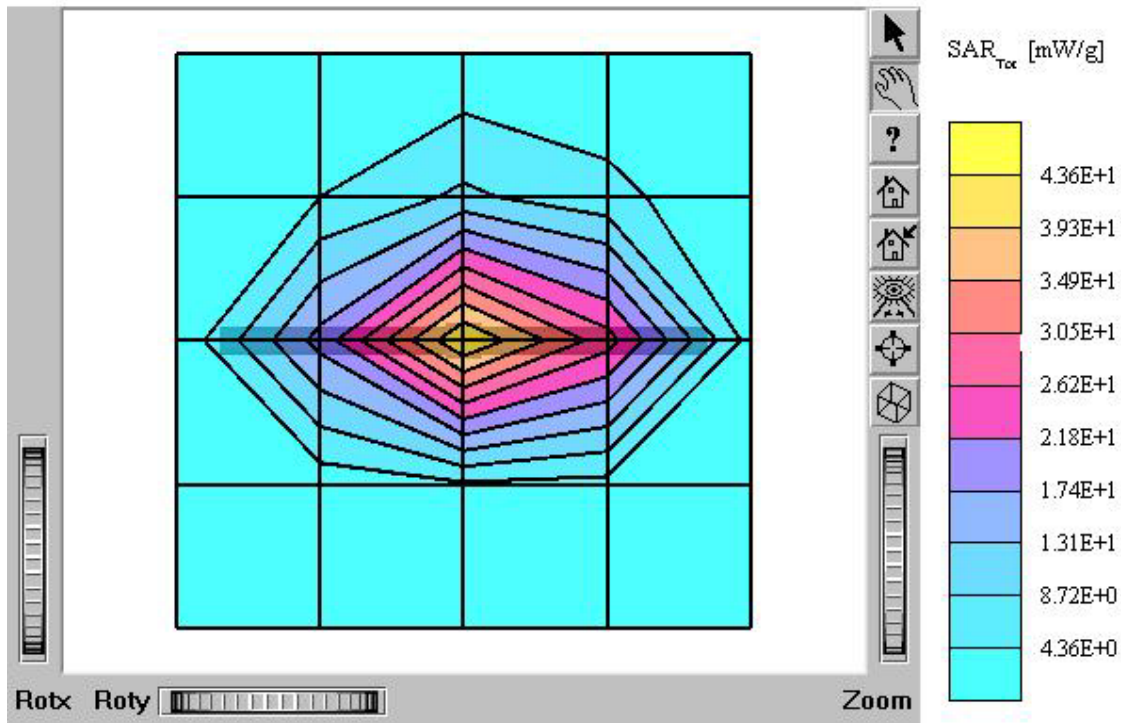
1900 MHz Brain Dipole Validation (D1900V2/ S.N: 5d032)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature: 21.7 °C

Date Tested : January 29, 2004



### Dipole 835 MHz

SAM 1 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/cm<sup>3</sup>

Cubes (2): SAR (1g): 10.4 mW/g  $\pm 0.02$  dB, SAR (10g): 6.64 mW/g  $\pm 0.02$  dB

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

#### Comment:

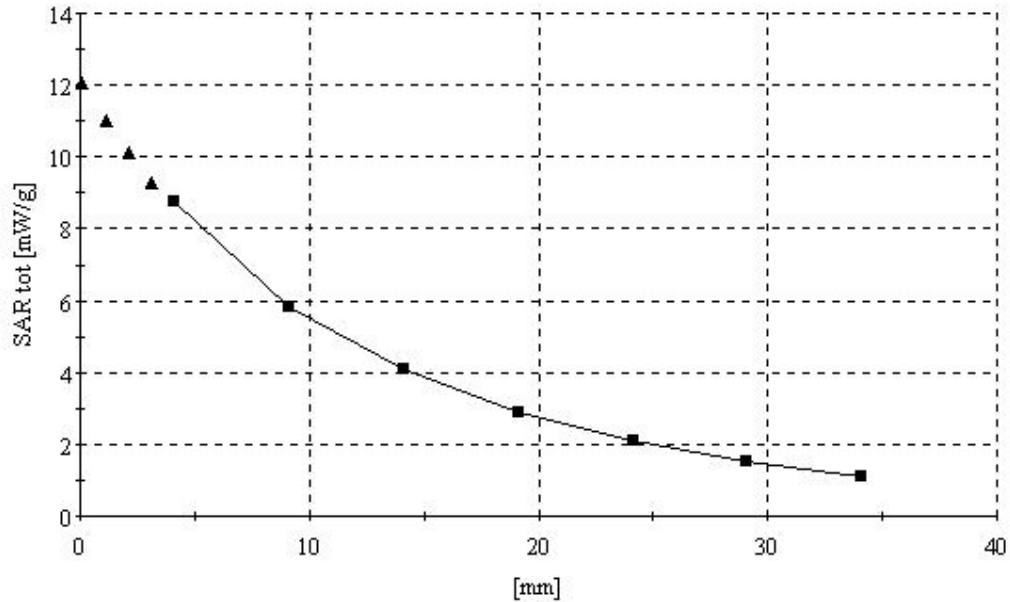
835MHz Brain Dipole Validation (D835V2/ S.N: 441)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature: 21.4°C

Date Tested : December 22, 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  $\epsilon_r = 41.8$   $\rho = 1.00$  g/cm<sup>3</sup>

Cubes (2): SAR (1g): 10.0 mW/g  $\pm$  0.01 dB, SAR (10g): 6.36 mW/g  $\pm$  0.03 dB

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

### Comment:

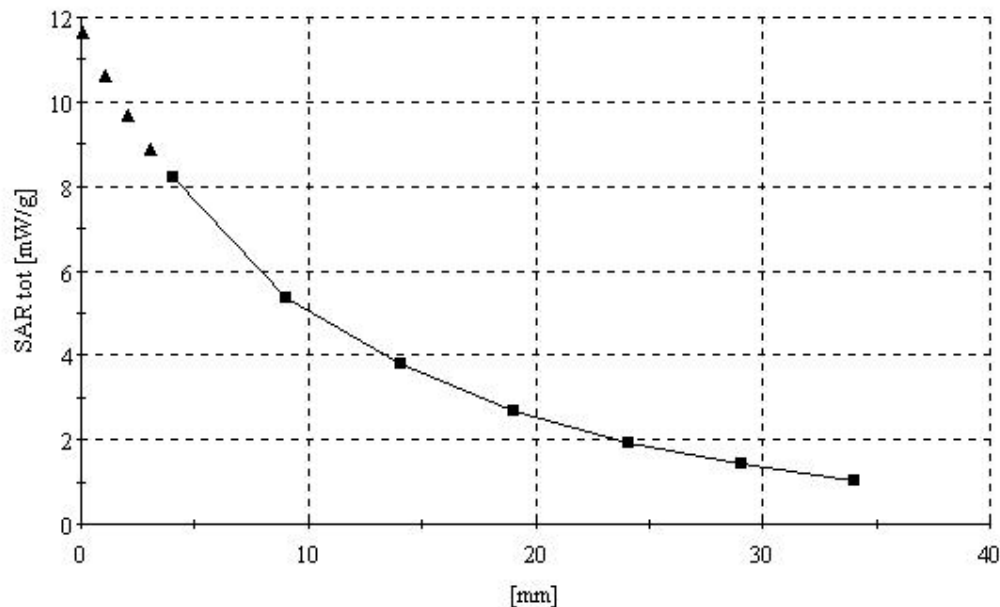
835MHz Brain Dipole Validation (D835V2/ S.N: 441)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature : 21.5°C

Date Tested : December 23, 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:  $\sigma = 1.44$

mho/m  $\epsilon_r = 38.6$   $\rho = 1.00$  g/cm<sup>3</sup>

Cubes (2): SAR (1g): 40.9 mW/g  $\pm$  0.02 dB, SAR (10g): 20.9 mW/g  $\pm$  0.00 dB

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

### Comment:

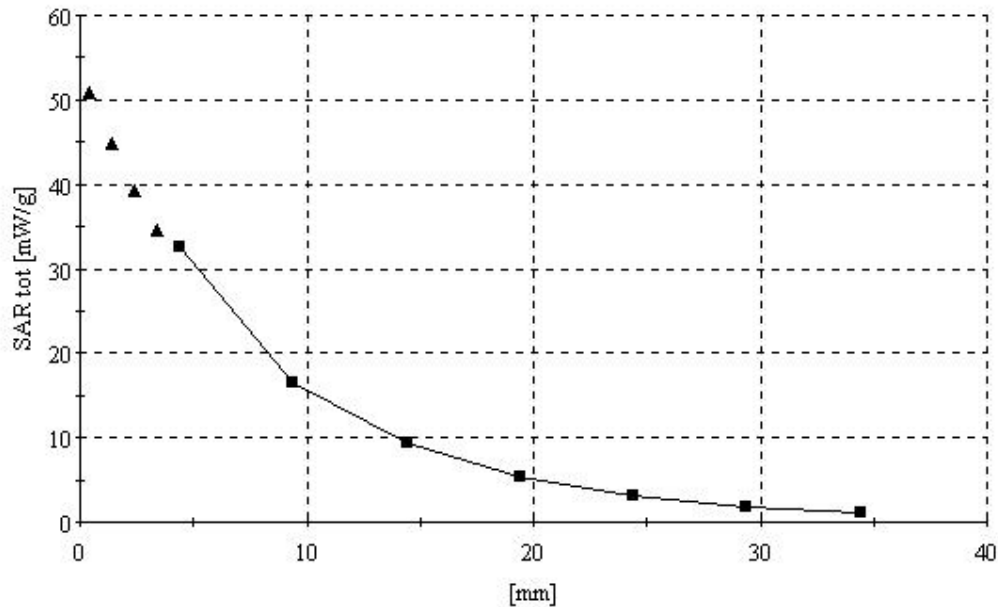
1900 MHz Brain Dipole Validation (D1900V2/ S.N: 5d032)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature : 21.3°C

Date Tested : December 24, 2003





■ Dielectric Parameter (835MHz Brain)

**Title : TX-120C**

**SubTitle : AMPS Brain**

December 22, 2003 09:41 AM

Frequency	e'	e''
800.000000 MHz	42.2821	19.5116
805.000000 MHz	42.2090	19.4896
810.000000 MHz	42.1253	19.5035
815.000000 MHz	42.1045	19.4678
820.000000 MHz	42.0228	19.4227
825.000000 MHz	41.9344	19.4067
830.000000 MHz	41.8350	19.4418
835.000000 MHz	41.7980	19.4121
840.000000 MHz	41.7174	19.3740
845.000000 MHz	41.6531	19.3528
850.000000 MHz	41.6048	19.3482
855.000000 MHz	41.5328	19.3299
860.000000 MHz	41.4931	19.3129
865.000000 MHz	41.3662	19.2395
870.000000 MHz	41.3056	19.2499
875.000000 MHz	41.2713	19.2426
880.000000 MHz	41.2024	19.2354
885.000000 MHz	41.1180	19.2230
890.000000 MHz	41.0274	19.2028
895.000000 MHz	41.0157	19.1598
900.000000 MHz	40.9161	19.1532

■ Dielectric Parameter (835MHz Brain)

Title : TX-120C

SubTitle : CDMA Brain

December 23, 2003 09:39 AM

Frequency	e'	e''
800.000000 MHz	42.2249	19.5817
805.000000 MHz	42.1274	19.5880
810.000000 MHz	42.0633	19.5529
815.000000 MHz	42.0140	19.5680
820.000000 MHz	41.9605	19.5255
825.000000 MHz	41.8840	19.4739
830.000000 MHz	41.7690	19.4709
835.000000 MHz	41.7754	19.4816
840.000000 MHz	41.7020	19.4308
845.000000 MHz	41.6157	19.4051
850.000000 MHz	41.5403	19.3769
855.000000 MHz	41.4128	19.3435
860.000000 MHz	41.3886	19.3429
865.000000 MHz	41.2988	19.2896
870.000000 MHz	41.2668	19.2917
875.000000 MHz	41.2206	19.2776
880.000000 MHz	41.1513	19.2503
885.000000 MHz	41.0562	19.2863
890.000000 MHz	40.9700	19.2797
895.000000 MHz	40.9340	19.2536
900.000000 MHz	40.8386	19.2257

■ Dielectric Parameter (1900MHz Brain)

Title : TX-120C

SubTitle : PCS CDMA Brain

December 24, 2003 08:35 AM

Frequency	e'	e''
1.700000000 GHz	39.4289	13.1103
1.710000000 GHz	39.3873	13.1556
1.720000000 GHz	39.3793	13.2033
1.730000000 GHz	39.3765	13.2414
1.740000000 GHz	39.3354	13.2644
1.750000000 GHz	39.2935	13.2573
1.760000000 GHz	39.2869	13.2512
1.770000000 GHz	39.2275	13.2578
1.780000000 GHz	39.1739	13.2824
1.790000000 GHz	39.1058	13.3159
1.800000000 GHz	39.0250	13.3511
1.810000000 GHz	38.9765	13.3975
1.820000000 GHz	38.9437	13.4376
1.830000000 GHz	38.8881	13.4823
1.840000000 GHz	38.8621	13.5242
1.850000000 GHz	38.8344	13.5463
1.860000000 GHz	38.8311	13.5772
1.870000000 GHz	38.7481	13.6122
1.880000000 GHz	38.7227	13.6418
1.890000000 GHz	38.6726	13.6393
1.900000000 GHz	38.5991	13.6546
1.910000000 GHz	38.5297	13.6649
1.920000000 GHz	38.4695	13.6786
1.930000000 GHz	38.4065	13.7092
1.940000000 GHz	38.3827	13.7444
1.950000000 GHz	38.3141	13.7993
1.960000000 GHz	38.2799	13.8326
1.970000000 GHz	38.3109	13.8707
1.980000000 GHz	38.2623	13.9277
1.990000000 GHz	38.1837	13.9316
2.000000000 GHz	38.1362	13.9506

■ Dielectric Parameter (1900MHz Brain)

**Title : TX-120C**

**SubTitle : PCS CDMA Brain**

January 29, 2004 03:17 PM

Frequency	$e'$	$e''$
1.800000000 GHz	40.6477	12.8624
1.810000000 GHz	40.5480	12.9385
1.820000000 GHz	40.5475	12.9949
1.830000000 GHz	40.4763	13.0382
1.840000000 GHz	40.4837	13.0740
1.850000000 GHz	40.4760	13.1314
1.860000000 GHz	40.4394	13.1465
1.870000000 GHz	40.4468	13.1997
1.880000000 GHz	40.3939	13.1953
1.890000000 GHz	40.3294	13.1988
1.900000000 GHz	40.2443	13.2013
1.910000000 GHz	40.1604	13.2036
1.920000000 GHz	40.1058	13.2259
1.930000000 GHz	39.9992	13.2799
1.940000000 GHz	39.9502	13.2843
1.950000000 GHz	39.9016	13.3628
1.960000000 GHz	39.8819	13.4249
1.970000000 GHz	39.8562	13.4496
1.980000000 GHz	39.8472	13.5190
1.990000000 GHz	39.8557	13.5558
2.000000000 GHz	39.8370	13.5727

■ Dielectric Parameter (835MHz Muscle)

Title : TX-120C

SubTitle : AMPS Body

December 22, 2003 09:10 AM

Frequency	e'	e''
800.000000 MHz	54.1562	21.4971
805.000000 MHz	54.1452	21.4519
810.000000 MHz	54.0618	21.4552
815.000000 MHz	54.0432	21.4469
820.000000 MHz	54.0462	21.4027
825.000000 MHz	54.0039	21.3861
830.000000 MHz	53.9545	21.3778
835.000000 MHz	53.8956	21.3401
840.000000 MHz	53.8641	21.3146
845.000000 MHz	53.7975	21.2805
850.000000 MHz	53.7870	21.2478
855.000000 MHz	53.7164	21.2268
860.000000 MHz	53.6753	21.1951
865.000000 MHz	53.6163	21.1704
870.000000 MHz	53.5583	21.1457
875.000000 MHz	53.4727	21.1159
880.000000 MHz	53.4322	21.1173
885.000000 MHz	53.3081	21.1189
890.000000 MHz	53.2920	21.0954
895.000000 MHz	53.2210	21.0774
900.000000 MHz	53.1673	21.0741

## ■ Dielectric Parameter (835MHz Muscle)

Title : TX-120C

SubTitle : CDMA Body

December 23, 2003 09:09 AM

Frequency	e'	e''
800.000000 MHz	54.2462	21.5910
805.000000 MHz	54.2385	21.5552
810.000000 MHz	54.1848	21.5471
815.000000 MHz	54.2057	21.5238
820.000000 MHz	54.1477	21.4670
825.000000 MHz	54.1028	21.4284
830.000000 MHz	54.0686	21.4474
835.000000 MHz	54.0491	21.4276
840.000000 MHz	53.9773	21.3831
845.000000 MHz	53.9523	21.3438
850.000000 MHz	53.8957	21.3056
855.000000 MHz	53.8532	21.2734
860.000000 MHz	53.8376	21.2531
865.000000 MHz	53.7567	21.2574
870.000000 MHz	53.6558	21.2053
875.000000 MHz	53.6457	21.1781
880.000000 MHz	53.5274	21.2137
885.000000 MHz	53.4694	21.1946
890.000000 MHz	53.4057	21.1991
895.000000 MHz	53.3532	21.1207
900.000000 MHz	53.3242	21.1280

■ Dielectric Parameter (1900MHz Muscle)

Title : TX-120C

SubTitle : PCS CDMA Body

December 24, 2003 09:09 AM

Frequency	e'	e''
1.700000000 GHz	52.8396	14.3034
1.710000000 GHz	52.7843	14.3143
1.720000000 GHz	52.7576	14.3536
1.730000000 GHz	52.7281	14.3734
1.740000000 GHz	52.6641	14.3887
1.750000000 GHz	52.6744	14.3944
1.760000000 GHz	52.6396	14.4008
1.770000000 GHz	52.5720	14.4094
1.780000000 GHz	52.5771	14.4374
1.790000000 GHz	52.5388	14.4548
1.800000000 GHz	52.4849	14.4856
1.810000000 GHz	52.4945	14.5206
1.820000000 GHz	52.4346	14.5609
1.830000000 GHz	52.3787	14.5908
1.840000000 GHz	52.3558	14.6396
1.850000000 GHz	52.2952	14.6636
1.860000000 GHz	52.2678	14.7025
1.870000000 GHz	52.2209	14.7335
1.880000000 GHz	52.1912	14.7857
1.890000000 GHz	52.1478	14.7676
1.900000000 GHz	52.1237	14.7974
1.910000000 GHz	52.0585	14.7997
1.920000000 GHz	52.0093	14.8098
1.930000000 GHz	52.0027	14.8175
1.940000000 GHz	51.9640	14.8511
1.950000000 GHz	51.8963	14.8940
1.960000000 GHz	51.8803	14.9326
1.970000000 GHz	51.8388	14.9917
1.980000000 GHz	51.7536	15.0059
1.990000000 GHz	51.7714	15.0246
2.000000000 GHz	51.7327	15.0501