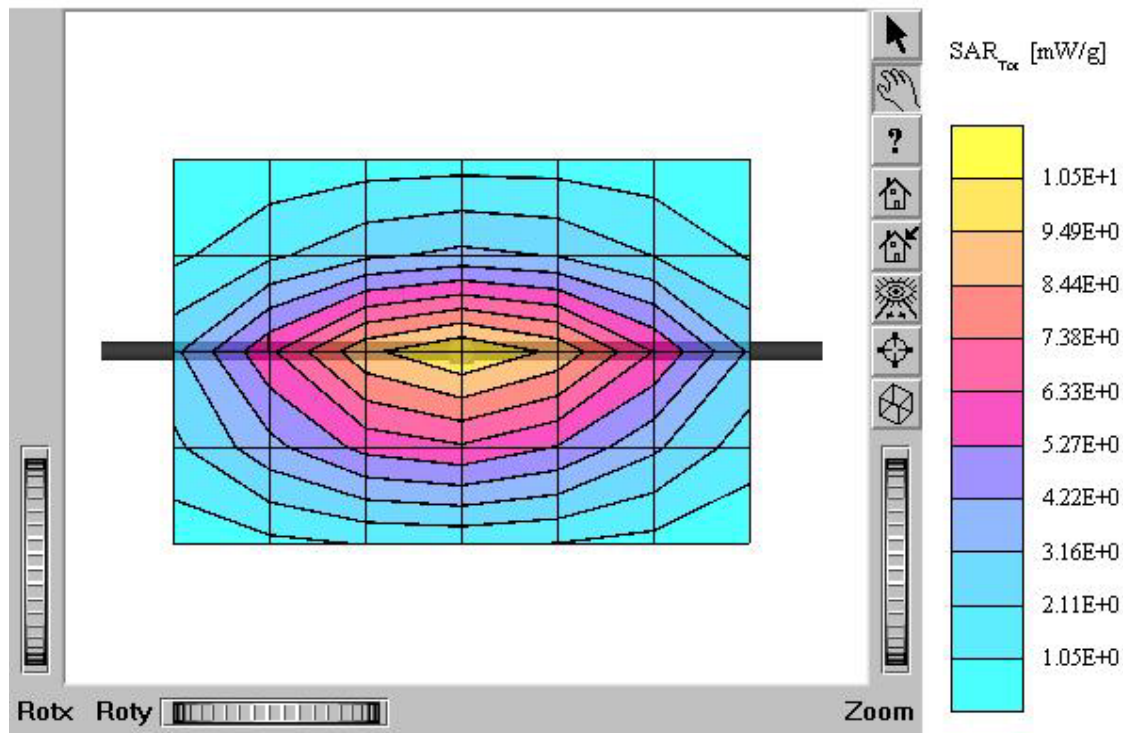


ATTACHMENT Q – DIPOLE VALIDATION

■ 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: $s = 0.89$
 $\rho_{ho}/m\ e_r = 42.6$ $r = 1.00$ g/cm³
Cubes (2): SAR (1g): 9.98 mW/g ± 0.04 dB, SAR (10g): 6.37 mW/g ± 0.04 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: 21.7°C
Date Tested : November 8, 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: $s = 0.89$

$\rho_{\text{ho/m e}} = 42.4$ $r = 1.00$ g/cm³

Cubes (2): SAR (1g): $9.91 \text{ mW/g} \pm 0.02 \text{ dB}$, SAR (10g): $6.31 \text{ mW/g} \pm 0.03 \text{ dB}$

Coarse: $D_x = 20.0$, $D_y = 20.0$, $D_z = 10.0$

Powerdrift: -0.03 dB

Comment:

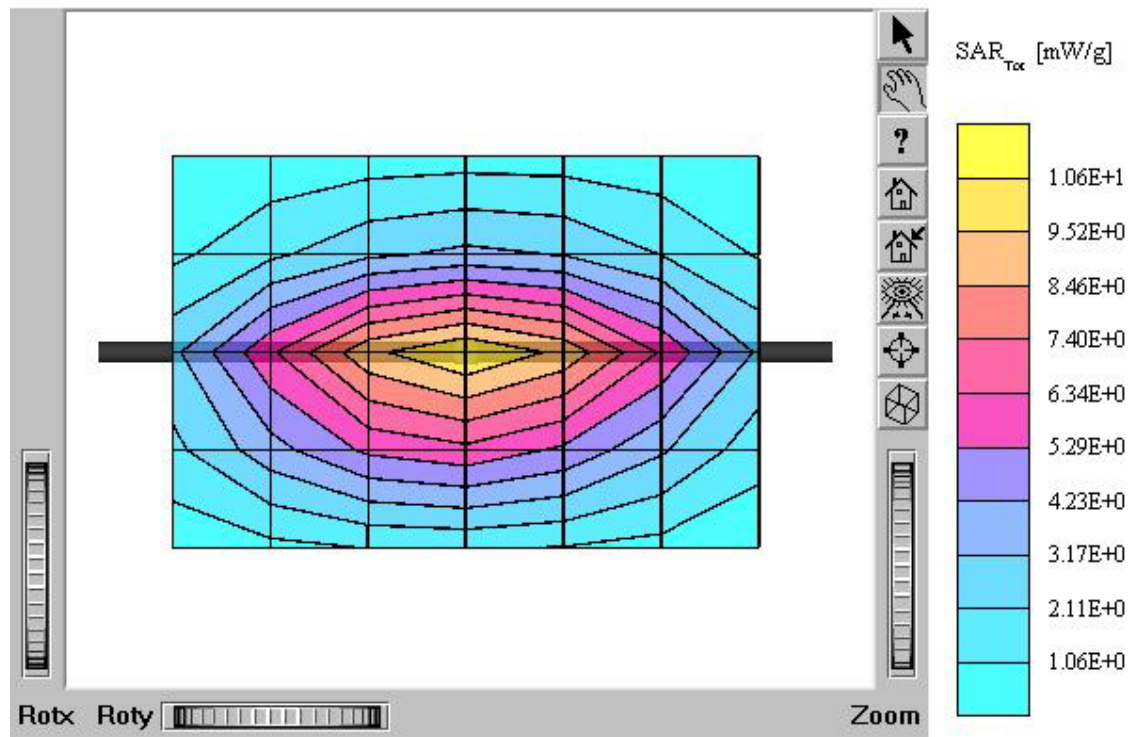
835MHz Brain Dipole Validation (D835V2/ S.N: 441)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature : 21.5°C

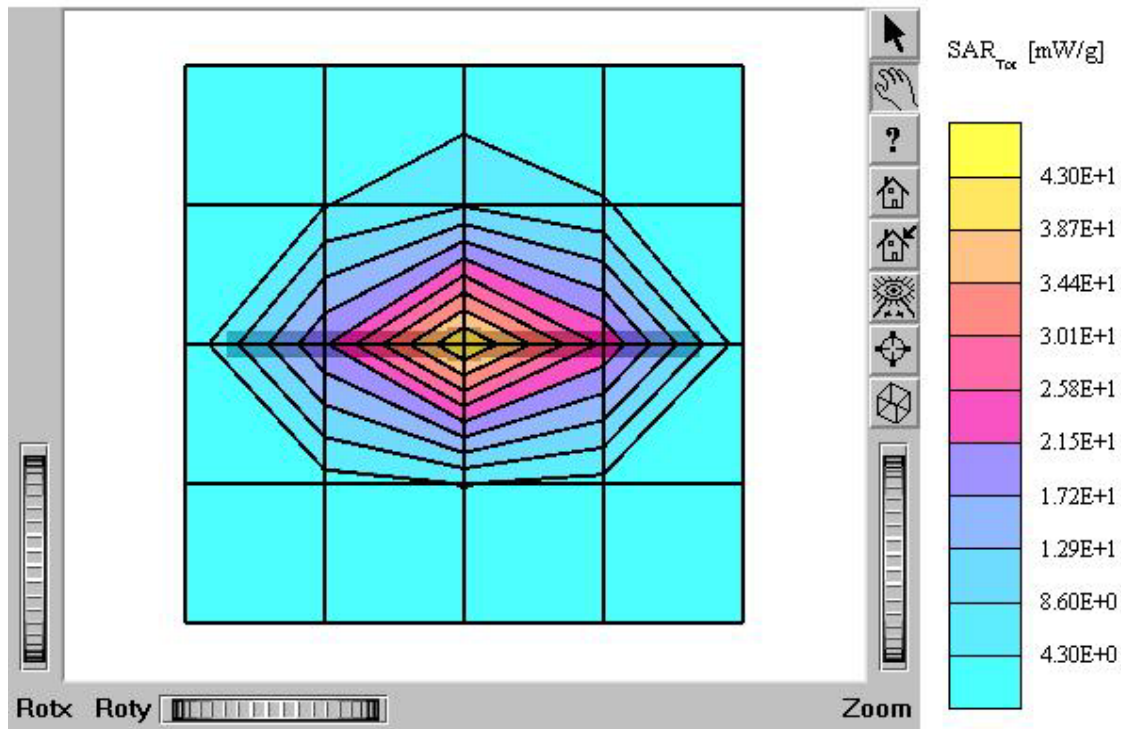
Date Tested : November 9, 2004



■ Validation Data (1900MHz Brain)

Dipole 1900 MHz

SAM II Phantom; Flat Section; Position: (90°, 90°); Frequency: 1900 MHz
Probe: ET3DV6 - SN1609; ConvF(5.34, 5.34, 5.34); Crest factor: 1.0; Brain 1900 MHz: $s = 1.39$
 $\rho_{\text{ho/m e}} = 40.3$ $r = 1.00$ g/cm³
Cubes (2): SAR (1g): 42.0 mW/g ± 0.10 dB, SAR (10g): 21.5 mW/g ± 0.12 dB
Coarse: $D_x = 20.0$, $D_y = 20.0$, $D_z = 10.0$
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 : November 10, 2004



Dipole 835 MHz

SAM II Phantom; Section; Position; ; Frequency: 835 MHz

Probe: ET3DV6 - SN1607; ConvF(6.22,6.22,6.22); Crest factor: 1.0; Head 835 MHz: $s = 0.89$
 ρ_{ho}/m $e_r = 42.6$ $r = 1.00$ g/cm^3

.

Z-Axis: $D_x = 0.0$, $D_y = 0.0$, $D_z = 5.0$

Comment:

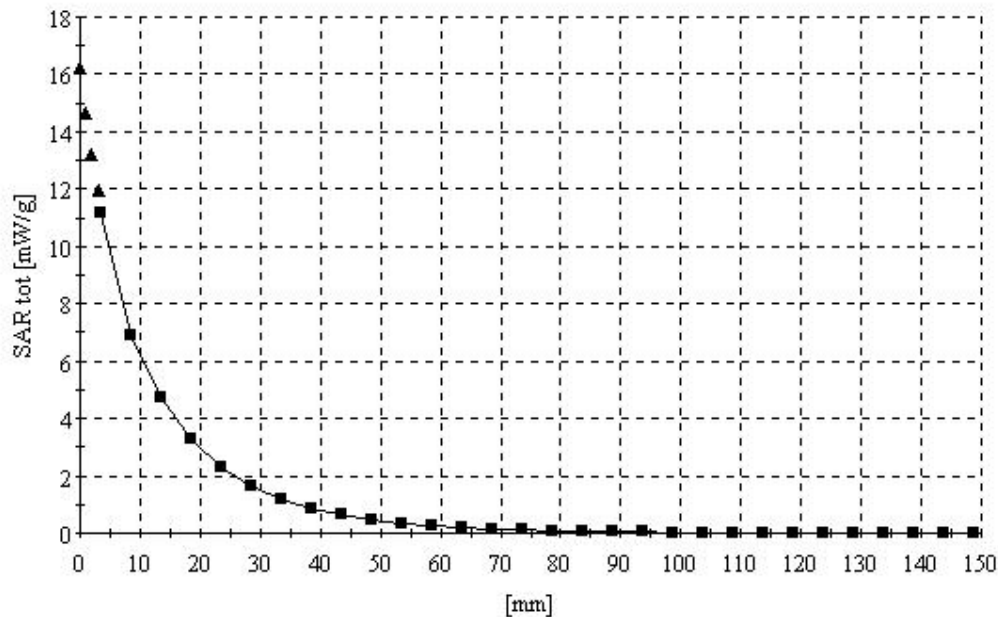
835MHz Brain Dipole Validation (D835V2/ S.N: 441)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature: 21.7°C

Date Tested : November 8, 2004



Dipole 835 MHz

SAM II Phantom; Section; Position; ; Frequency: 835 MHz

Probe: ET3DV6 - SN1607; ConvF(6.22,6.22,6.22); Crest factor: 1.0; Head 835 MHz: $s = 0.89$
 $\rho_{ho/m} e_r = 42.4$ $r = 1.00$ g/cm³

.

Z-Axis: $D_x = 0.0$, $D_y = 0.0$, $D_z = 5.0$

Comment:

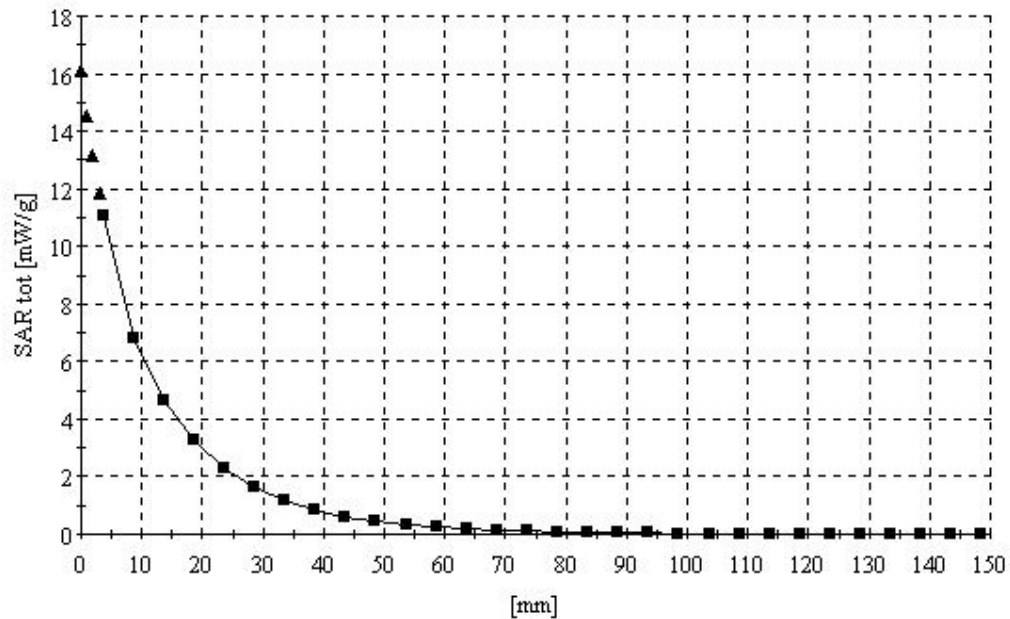
835MHz Brain Dipole Validation (D835V2/ S.N: 441)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature : 21.5°C

Date Tested : November 9, 2004



Dipole 1900 MHz

SAM II Phantom; Section; Position; ; Frequency: 1900 MHz

Probe: ET3DV6 - SN1609; ConvF(5.34,5.34,5.34); Crest factor: 1.0; Brain 1900 MHz: $s = 1.39$
 $\rho_{ho}/m\ e_r = 40.3\ r = 1.00\ g/cm^3$

:

Z-Axis: $D_x = 0.0, D_y = 0.0, D_z = 5.0$

Comment:

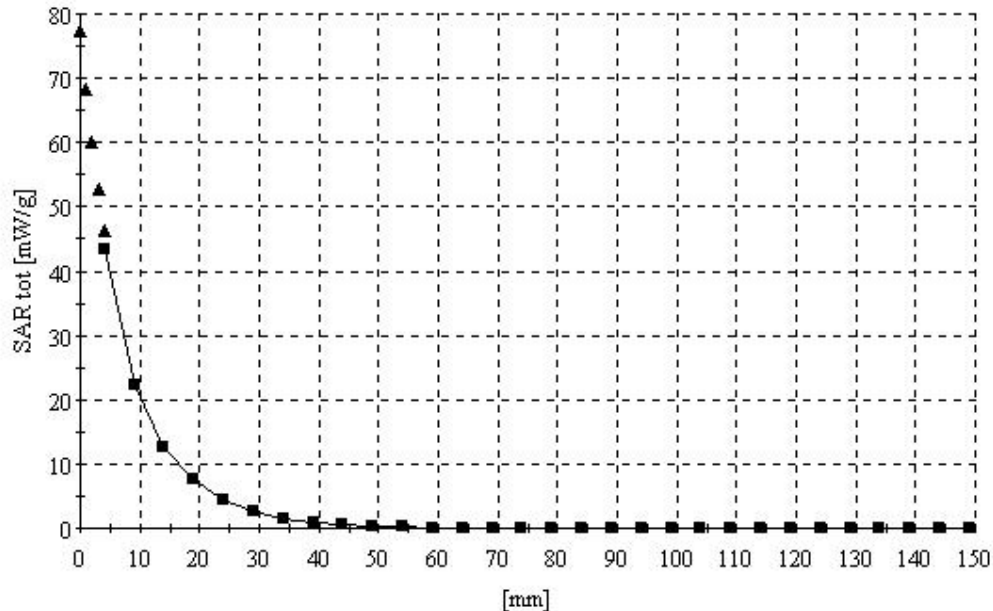
1900 MHz Brain Dipole Validation (D1900V2/ S.N: 5d032)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature : 21.7°C

Date Tested : November 10, 2004



■ Dielectric Parameter (835MHz Brain)

Title : TX-180A**SubTitle : AMPS BRAIN**

November 09, 2004 09:14 AM

Frequency	e'	e''
800.000000 MHz	43.1419	19.3837
805.000000 MHz	43.0914	19.3430
810.000000 MHz	42.9560	19.3050
815.000000 MHz	42.9061	19.2976
820.000000 MHz	42.7963	19.3020
825.000000 MHz	42.7086	19.2472
830.000000 MHz	42.6626	19.2608
835.000000 MHz	42.5500	19.2407
840.000000 MHz	42.4736	19.2318
845.000000 MHz	42.4437	19.1994
850.000000 MHz	42.3709	19.2317
855.000000 MHz	42.2718	19.2405
860.000000 MHz	42.2009	19.2002
865.000000 MHz	42.1555	19.1734
870.000000 MHz	42.0789	19.1767
875.000000 MHz	42.0946	19.2136
880.000000 MHz	41.9828	19.1769
885.000000 MHz	41.9383	19.1761
890.000000 MHz	41.9378	19.2022
895.000000 MHz	41.8466	19.1407
900.000000 MHz	41.7912	19.1287

■ Dielectric Parameter (835MHz Brain)

Title : TX-180A**SubTitle : CDMA BRAIN**

November 09, 2004 09:19 AM

Frequency	e'	e''
800.000000 MHz	43.0438	18.9529
805.000000 MHz	42.9398	18.9947
810.000000 MHz	42.8277	18.9632
815.000000 MHz	42.7355	18.9590
820.000000 MHz	42.6776	19.0522
825.000000 MHz	42.5979	19.0446
830.000000 MHz	42.5495	19.0496
835.000000 MHz	42.4192	19.0780
840.000000 MHz	42.3641	19.1060
845.000000 MHz	42.3968	19.1816
850.000000 MHz	42.2336	19.1884
855.000000 MHz	42.2281	19.2325
860.000000 MHz	42.1931	19.2436
865.000000 MHz	42.1749	19.2394
870.000000 MHz	42.1528	19.1854
875.000000 MHz	42.1264	19.1839
880.000000 MHz	42.0431	19.1589
885.000000 MHz	41.9997	19.1627
890.000000 MHz	41.9588	19.1057
895.000000 MHz	41.9250	19.0372
900.000000 MHz	41.8608	18.9984

■ Dielectric Parameter (1900MHz Brain)

Title : TX-180A**SubTitle : PCS BRAIN**

November 10, 2004 09:19 AM

Frequency	e'	e''
1.800000000 GHz	40.8431	12.9300
1.810000000 GHz	40.7721	12.9597
1.820000000 GHz	40.7798	13.0343
1.830000000 GHz	40.6971	13.0747
1.840000000 GHz	40.6493	13.1052
1.850000000 GHz	40.6327	13.1583
1.860000000 GHz	40.5956	13.1730
1.870000000 GHz	40.5860	13.2002
1.880000000 GHz	40.4961	13.2042
1.890000000 GHz	40.4644	13.2399
1.900000000 GHz	40.3360	13.2042
1.910000000 GHz	40.2598	13.2458
1.920000000 GHz	40.1829	13.2525
1.930000000 GHz	40.1037	13.2761
1.940000000 GHz	40.0605	13.3207
1.950000000 GHz	39.9911	13.3772
1.960000000 GHz	39.9836	13.4751
1.970000000 GHz	39.9720	13.5075
1.980000000 GHz	39.9483	13.5421
1.990000000 GHz	39.9619	13.5690
2.000000000 GHz	39.9228	13.5993

■ Dielectric Parameter (835MHz Muscle)

Title : TX-180A**SubTitle : AMPS BODY**

November 08, 2004 04:45 PM

Frequency	e'	e''
800.000000 MHz	56.2177	20.8152
805.000000 MHz	56.2181	20.7723
810.000000 MHz	56.1344	20.7153
815.000000 MHz	56.1359	20.7626
820.000000 MHz	56.0496	20.7523
825.000000 MHz	55.9298	20.7382
830.000000 MHz	55.8094	20.7472
835.000000 MHz	55.7094	20.6880
840.000000 MHz	55.6352	20.6640
845.000000 MHz	55.5078	20.5840
850.000000 MHz	55.5101	20.5537
855.000000 MHz	55.4750	20.5379
860.000000 MHz	55.3509	20.5134
865.000000 MHz	55.3570	20.5144
870.000000 MHz	55.3190	20.5108
875.000000 MHz	55.2799	20.5558
880.000000 MHz	55.2282	20.5522
885.000000 MHz	55.0726	20.3780
890.000000 MHz	55.0359	20.4330
895.000000 MHz	55.0066	20.4899
900.000000 MHz	54.9422	20.5605

■ Dielectric Parameter (835MHz Muscle)

Title : TX-180A**SubTitle : CDMA BODY**

November 09, 2004 04:45 PM

Frequency	e'	e''
800.000000 MHz	56.3168	20.8361
805.000000 MHz	56.3003	20.8103
810.000000 MHz	56.2311	20.7928
815.000000 MHz	56.1865	20.7776
820.000000 MHz	56.0692	20.7899
825.000000 MHz	56.0284	20.7626
830.000000 MHz	55.9154	20.7628
835.000000 MHz	55.8186	20.7130
840.000000 MHz	55.7135	20.6672
845.000000 MHz	55.6063	20.6121
850.000000 MHz	55.5591	20.5677
855.000000 MHz	55.4997	20.5175
860.000000 MHz	55.4204	20.4973
865.000000 MHz	55.4167	20.5018
870.000000 MHz	55.3934	20.4816
875.000000 MHz	55.3374	20.5118
880.000000 MHz	55.2301	20.5302
885.000000 MHz	55.0991	20.4046
890.000000 MHz	55.0596	20.4130
895.000000 MHz	55.0139	20.5080
900.000000 MHz	54.9351	20.5948

■ Dielectric Parameter (1900MHz Muscle)

Title : TX-180A**SubTitle : PCS BODY**

November 10, 2004 04:35 PM

Frequency	e'	e''
1.800000000 GHz	51.5247	12.9711
1.806666667 GHz	51.4976	13.0008
1.813333333 GHz	51.5504	13.0864
1.820000000 GHz	51.4808	13.1345
1.826666667 GHz	51.4640	13.1976
1.833333333 GHz	51.3708	13.2276
1.840000000 GHz	51.3800	13.2652
1.846666667 GHz	51.3425	13.3290
1.853333333 GHz	51.3579	13.4000
1.860000000 GHz	51.3313	13.4861
1.866666667 GHz	51.2641	13.5688
1.873333333 GHz	51.2322	13.6175
1.880000000 GHz	51.2213	13.6973
1.886666667 GHz	51.2235	13.7586
1.893333333 GHz	51.1935	13.8061
1.900000000 GHz	51.2128	13.9439
1.906666667 GHz	51.1783	13.9918
1.913333333 GHz	51.0924	14.0399
1.920000000 GHz	51.1060	14.1194
1.926666667 GHz	51.1120	14.1775
1.933333333 GHz	51.1220	14.2073
1.940000000 GHz	51.0718	14.2632
1.946666667 GHz	51.0092	14.2847
1.953333333 GHz	50.9903	14.3302
1.960000000 GHz	51.0015	14.4155