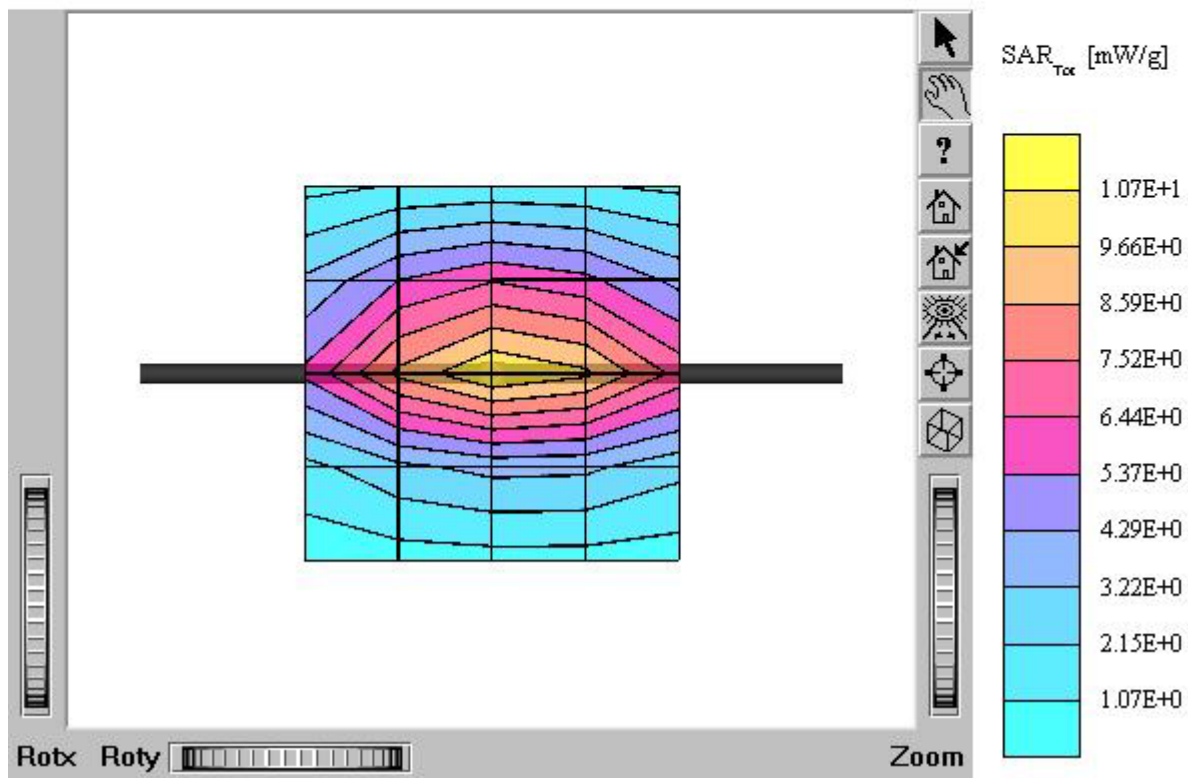


ATTACHMENT Q – DIPOLE VALIDATION

■ Validation Data (835MHz Brain)

Dipole 835 MHz

SAM 1 Phantom; Flat Section; Position: (90°,90°); Frequency: 835 MHz
Probe: ET3DV6 - SN1609; ConvF(6.63,6.63,6.63); Crest factor: 1.0; Brain 835 MHz: $s = 0.89$
 $\text{mho/m } e_r = 42.4$ $r = 1.00 \text{ g/cm}^3$
Cubes (2): SAR (1g): $9.97 \text{ mW/g} \pm 0.02 \text{ dB}$, SAR (10g): $6.39 \text{ mW/g} \pm 0.01 \text{ dB}$
Coarse: $D_x = 20.0$, $D_y = 20.0$, $D_z = 10.0$
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: 21.3°C
Date Tested : November 20, 2004



■ Validation Data (835MHz Brain)

Dipole 835 MHz

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

Probe: ET3DV6 - SN1609; ConvF(6.63,6.63,6.63); Crest factor: 1.0; Brain 835 MHz: $s = 0.88$

mho/m $\epsilon_r = 42.4$ $\rho = 1.00$ g/cm³

Cubes (2): SAR (1g): 10.0 mW/g $\pm$ 0.00 dB, SAR (10g): 6.39 mW/g $\pm$ 0.01 dB

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

Powerdrift: -0.01 dB

Comment:

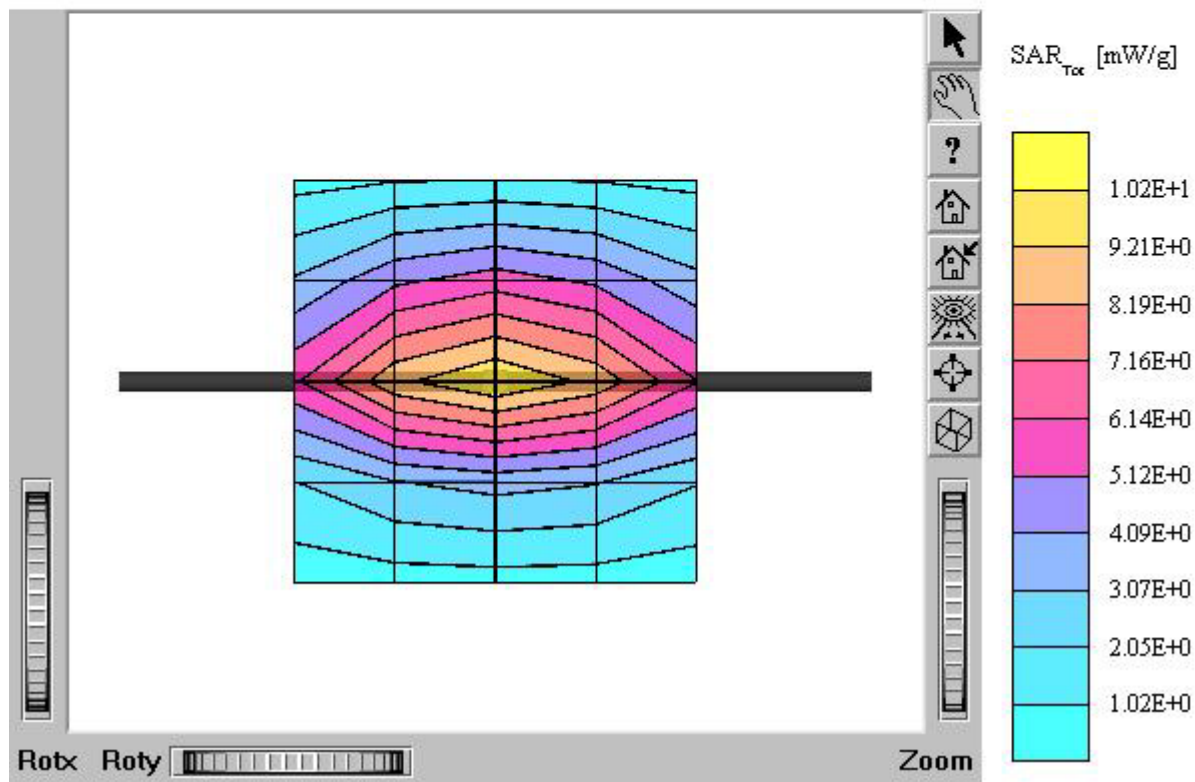
835MHz Brain Dipole Validation (D835V2/ S.N: 441)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature : 21.4°C

Date Tested : November 21, 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: $s = 1.40$

mho/m $\epsilon_r = 39.6$ $\rho = 1.00$ g/cm^3

Cubes (2): SAR (1g): $42.6 \text{ mW/g} \pm 0.04 \text{ dB}$, SAR (10g): $21.6 \text{ mW/g} \pm 0.04 \text{ dB}$

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

Powerdrift: 0.07 dB

Comment:

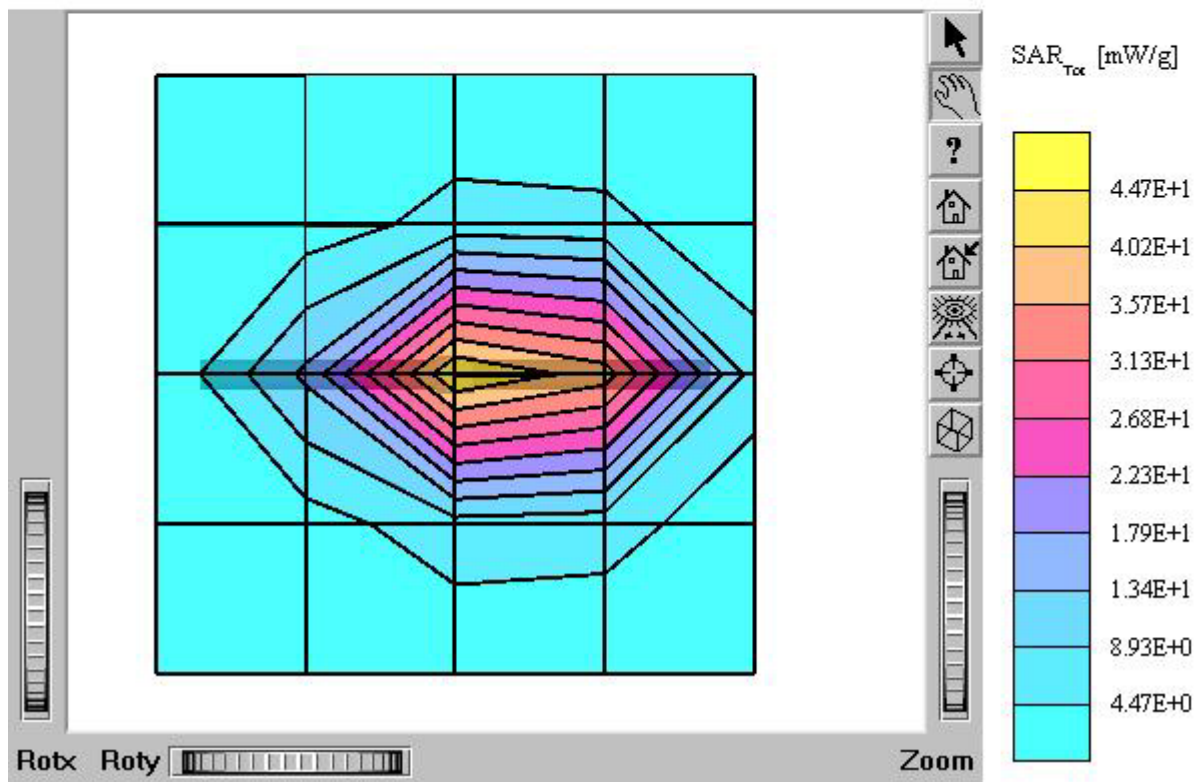
1900 MHz Brain Dipole Validation (D1900V2/ S.N: 5d032)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature : 21.5°C

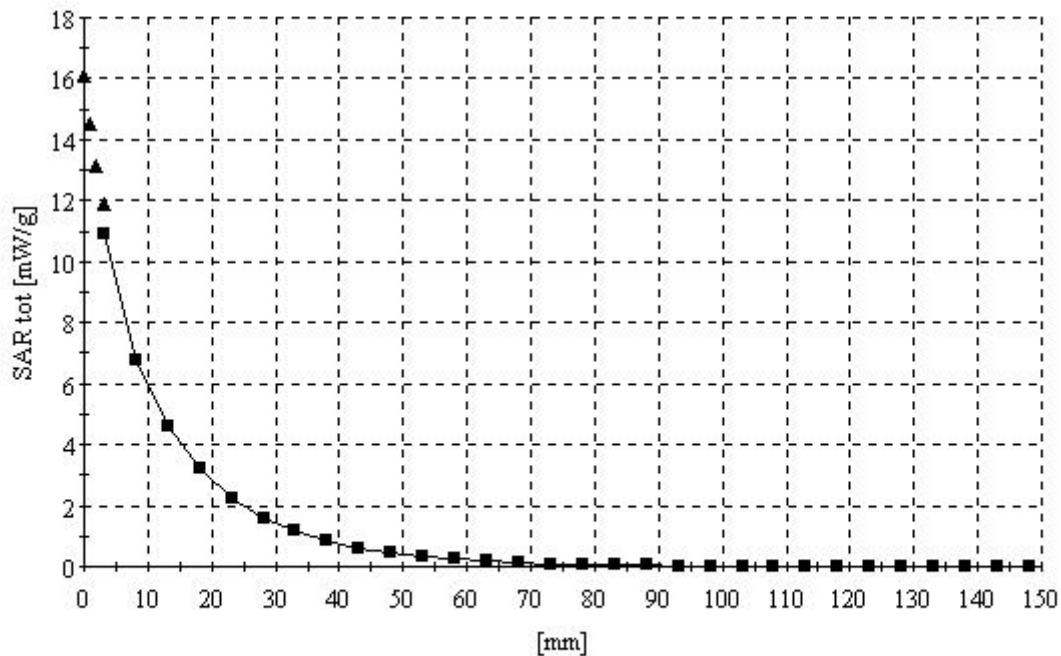
Date Tested : November 22, 2004



Dipole 835 MHz

SAM I Phantom; Section; Position: ; Frequency: 835 MHz
Probe: ET3DV6 - SN1609; ConvF(6.63,6.63,6.63); Crest factor: 1.0; Brain 835 MHz: $s = 0.89$
 $\rho_{\text{ho/m}} e_r = 42.4$ $r = 1.00$ g/cm^3
.
Z-Axis: $D_x = 0.0$, $D_y = 0.0$, $D_z = 5.0$

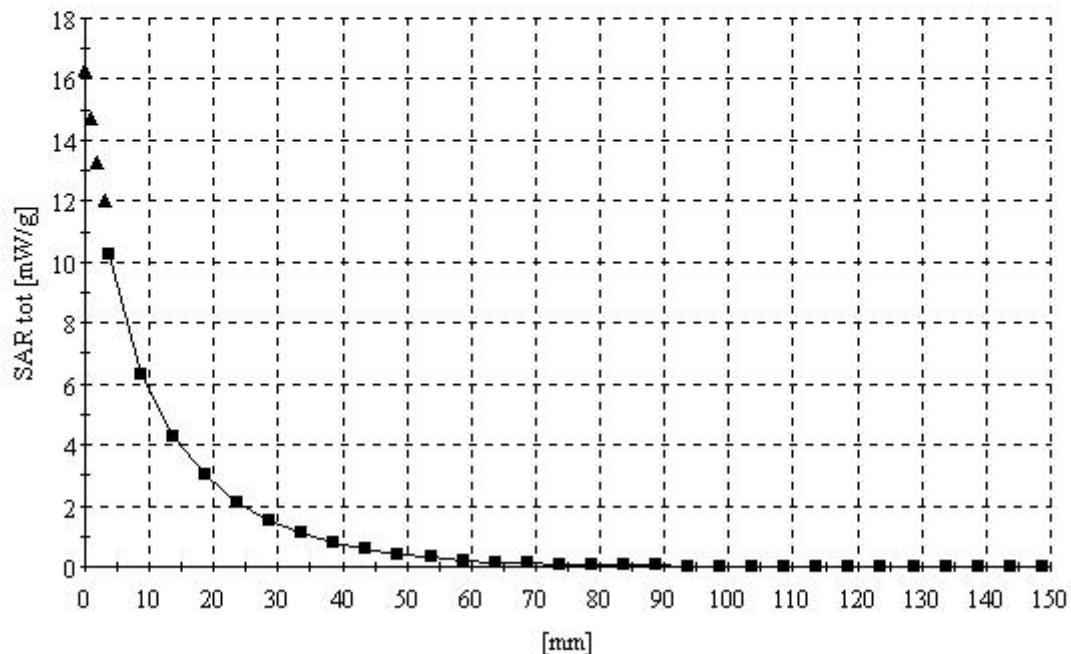
Comment:
835MHz Brain Dipole Validation (D835V2/ S.N: 441)
Antenna Input Power: 30 dBm (1 W)
HCT Co., Ltd. Brain Tissue Simulating Liquid
Liquid Temperature: 21.3°C
Date Tested : November 20, 2004



Dipole 835 MHz

SAM I Phantom; Section; Position: ; Frequency: 835 MHz
Probe: ET3DV6 - SN1609; ConvF(6.63,6.63,6.63); Crest factor: 1.0; Brain 835 MHz: $s = 0.88$
 $\rho_{\text{ho/m e}_r} = 42.4$ $r = 1.00$ 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 : 21.4°C
Date Tested : November 21, 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: $s = 1.40$
 $\rho_{\text{ho/m}} e_r = 39.6$ $r = 1.00$ g/cm^3

:

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

Comment:

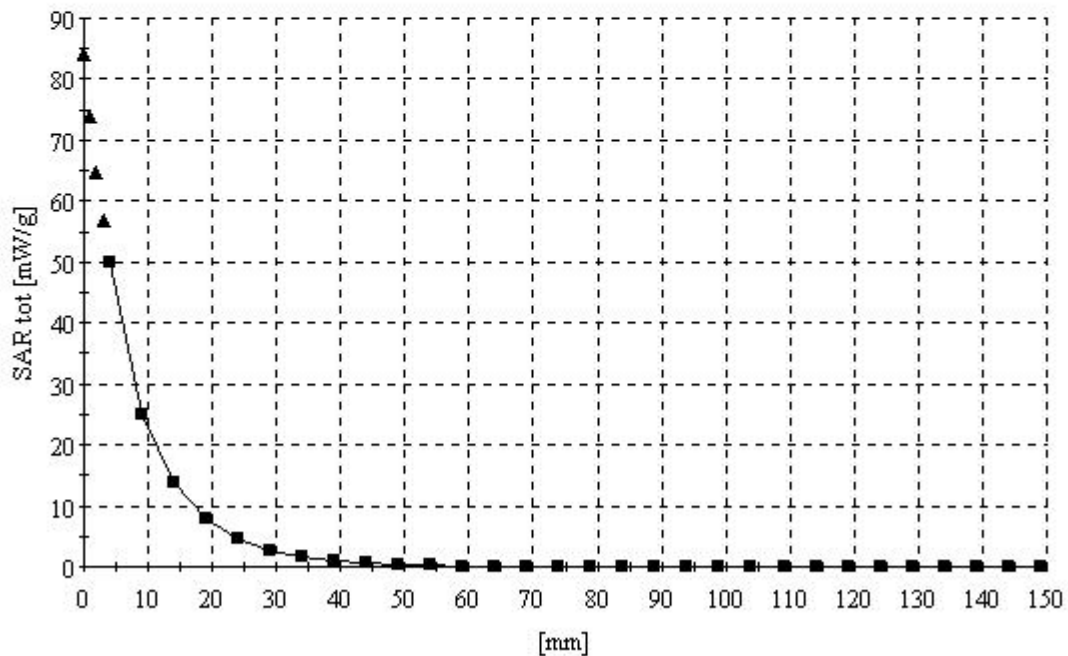
1900 MHz Brain Dipole Validation (D1900V2/ S.N: 5d032)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature : 21.5°C

Date Tested : November 22, 2004



■ Dielectric Parameter (835MHz Brain)

Title : TX-110C**SubTitle : AMPS BRAIN**

November 20, 2004 03:55 AM

Frequency	e'	e''
800.000000 MHz	42.9708	19.0822
805.000000 MHz	42.8806	19.0546
810.000000 MHz	42.7917	19.0272
815.000000 MHz	42.6942	19.0028
820.000000 MHz	42.6379	19.1008
825.000000 MHz	42.5333	19.0417
830.000000 MHz	42.4782	19.0593
835.000000 MHz	42.4192	19.0780
840.000000 MHz	42.3488	19.0895
845.000000 MHz	42.3581	19.1198
850.000000 MHz	42.2871	19.1936
855.000000 MHz	42.2087	19.1658
860.000000 MHz	42.1737	19.1773
865.000000 MHz	42.1633	19.1302
870.000000 MHz	42.0584	19.1419
875.000000 MHz	42.0361	19.1193
880.000000 MHz	41.9454	19.1021
885.000000 MHz	41.8784	19.0934
890.000000 MHz	41.8605	19.0452
895.000000 MHz	41.8152	18.9708
900.000000 MHz	41.7144	18.9734

■ Dielectric Parameter (835MHz Brain)

Title : TX-110C**SubTitle : CDMA BRAIN**

November 21, 2004 03:46 AM

Frequency	e'	e''
800.000000 MHz	42.9129	18.9131
805.000000 MHz	42.8470	18.9339
810.000000 MHz	42.7254	18.9056
815.000000 MHz	42.7060	18.8922
820.000000 MHz	42.6284	18.9914
825.000000 MHz	42.5250	18.9750
830.000000 MHz	42.4866	19.0146
835.000000 MHz	42.4178	19.0363
840.000000 MHz	42.3488	19.0895
845.000000 MHz	42.3829	19.1334
850.000000 MHz	42.2568	19.1609
855.000000 MHz	42.2182	19.1630
860.000000 MHz	42.1480	19.1951
865.000000 MHz	42.1217	19.1629
870.000000 MHz	42.0733	19.1579
875.000000 MHz	42.0500	19.1659
880.000000 MHz	41.9699	19.0999
885.000000 MHz	41.9024	19.0561
890.000000 MHz	41.8761	19.0305
895.000000 MHz	41.8116	18.9918
900.000000 MHz	41.7598	18.9596

■ Dielectric Parameter (1900MHz Brain)

Title : TX-110C**SubTitle : PCS BRAIN**

November 22, 2004 09:10 AM

Frequency	e'	e''
1.800000000 GHz	39.9564	12.8872
1.806666667 GHz	39.8875	12.9439
1.813333333 GHz	39.8372	12.9801
1.820000000 GHz	39.8133	13.0334
1.826666667 GHz	39.8097	13.0891
1.833333333 GHz	39.7782	13.1620
1.840000000 GHz	39.7870	13.1916
1.846666667 GHz	39.8005	13.2422
1.853333333 GHz	39.8175	13.2783
1.860000000 GHz	39.8122	13.3162
1.866666667 GHz	39.7617	13.3196
1.873333333 GHz	39.7741	13.3551
1.880000000 GHz	39.7970	13.3687
1.886666667 GHz	39.7382	13.3567
1.893333333 GHz	39.6439	13.3349
1.900000000 GHz	39.5781	13.3102
1.906666667 GHz	39.4740	13.2898
1.913333333 GHz	39.3800	13.2842
1.920000000 GHz	39.2957	13.3201
1.926666667 GHz	39.2519	13.3537
1.933333333 GHz	39.1850	13.3641
1.940000000 GHz	39.1769	13.4190
1.946666667 GHz	39.1541	13.4863
1.953333333 GHz	39.1760	13.5537
1.960000000 GHz	39.1767	13.6143

■ Dielectric Parameter (835MHz Muscle)

Title : TX-110C**SubTitle**

November 20, 2004 04:44 PM

Frequency	e'	e''
800.000000 MHz	56.3031	20.8297
805.000000 MHz	56.3077	20.8303
810.000000 MHz	56.1801	20.7777
815.000000 MHz	56.2137	20.7900
820.000000 MHz	56.0926	20.7924
825.000000 MHz	56.0381	20.7142
830.000000 MHz	55.9118	20.7530
835.000000 MHz	55.8076	20.6840
840.000000 MHz	55.7099	20.6576
845.000000 MHz	55.6240	20.5725
850.000000 MHz	55.5328	20.5560
855.000000 MHz	55.4793	20.4928
860.000000 MHz	55.4168	20.4878
865.000000 MHz	55.4485	20.5002
870.000000 MHz	55.4177	20.4613
875.000000 MHz	55.3041	20.5089
880.000000 MHz	55.1971	20.5007
885.000000 MHz	55.0607	20.4146
890.000000 MHz	55.0505	20.4166
895.000000 MHz	55.0066	20.4899
900.000000 MHz	54.9441	20.5912

■ Dielectric Parameter (835MHz Muscle)

Title : TX-110C**SubTitle : CDMA BODY**

November 21, 2004 04:16 PM

Frequency	e'	e''
800.000000 MHz	53.8385	20.2346
805.000000 MHz	53.8074	20.2374
810.000000 MHz	53.7156	20.1608
815.000000 MHz	53.6491	20.1208
820.000000 MHz	53.5771	20.0778
825.000000 MHz	53.5217	20.0625
830.000000 MHz	53.4818	20.1023
835.000000 MHz	53.3372	20.0156
840.000000 MHz	53.2564	19.9507
845.000000 MHz	53.2229	19.9234
850.000000 MHz	53.0943	19.8991
855.000000 MHz	53.0345	19.8823
860.000000 MHz	52.9900	19.8173
865.000000 MHz	52.9672	19.8088
870.000000 MHz	52.8615	19.7465
875.000000 MHz	52.8104	19.7700
880.000000 MHz	52.7552	19.7793
885.000000 MHz	52.7128	19.7367
890.000000 MHz	52.6938	19.7533
895.000000 MHz	52.6279	19.6994
900.000000 MHz	52.5789	19.6602

■ Dielectric Parameter (1900MHz Muscle)

Title : TX-110C**SubTitle : PCS BODY**

November 22, 2004 05:42 PM

Frequency	e'	e''
1.800000000 GHz	51.6089	13.1053
1.806666667 GHz	51.5823	13.1059
1.813333333 GHz	51.6065	13.2155
1.820000000 GHz	51.6165	13.2239
1.826666667 GHz	51.5808	13.3100
1.833333333 GHz	51.5333	13.3356
1.840000000 GHz	51.4290	13.3925
1.846666667 GHz	51.4387	13.4576
1.853333333 GHz	51.4565	13.4981
1.860000000 GHz	51.4189	13.5794
1.866666667 GHz	51.3801	13.6619
1.873333333 GHz	51.3285	13.7203
1.880000000 GHz	51.3075	13.8123
1.886666667 GHz	51.3263	13.9082
1.893333333 GHz	51.2779	13.9503
1.900000000 GHz	51.3131	14.0457
1.906666667 GHz	51.2873	14.1069
1.913333333 GHz	51.2109	14.1814
1.920000000 GHz	51.2231	14.2194
1.926666667 GHz	51.2251	14.3198
1.933333333 GHz	51.2418	14.3290
1.940000000 GHz	51.2017	14.4037
1.946666667 GHz	51.1755	14.3987
1.953333333 GHz	51.0675	14.4895
1.960000000 GHz	51.0800	14.5098