

ATTACHMENT Q – DIPOLE VALIDATION

■ Validation Data (835MHz Brain)

Dipole 835 MHz

SAM 1 Phantom: Flat Section; Position: (90°,90°); Frequency: 835 MHz

Probe: ET3DV6 - SN1608; ConvF(6.50,6.50,6.50); Crest factor: 1.0; Brain 835 MHz: $\sigma = 0.89$

mho/m $\epsilon_r = 43.1$ $\rho = 1.00$ g/cm³

Cubes (2): SAR (1g): 10.1 mW/g ± 0.00 dB, SAR (10g): 6.44 mW/g ± 0.01 dB

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

Powerdrift: 0.01 dB

Comment:

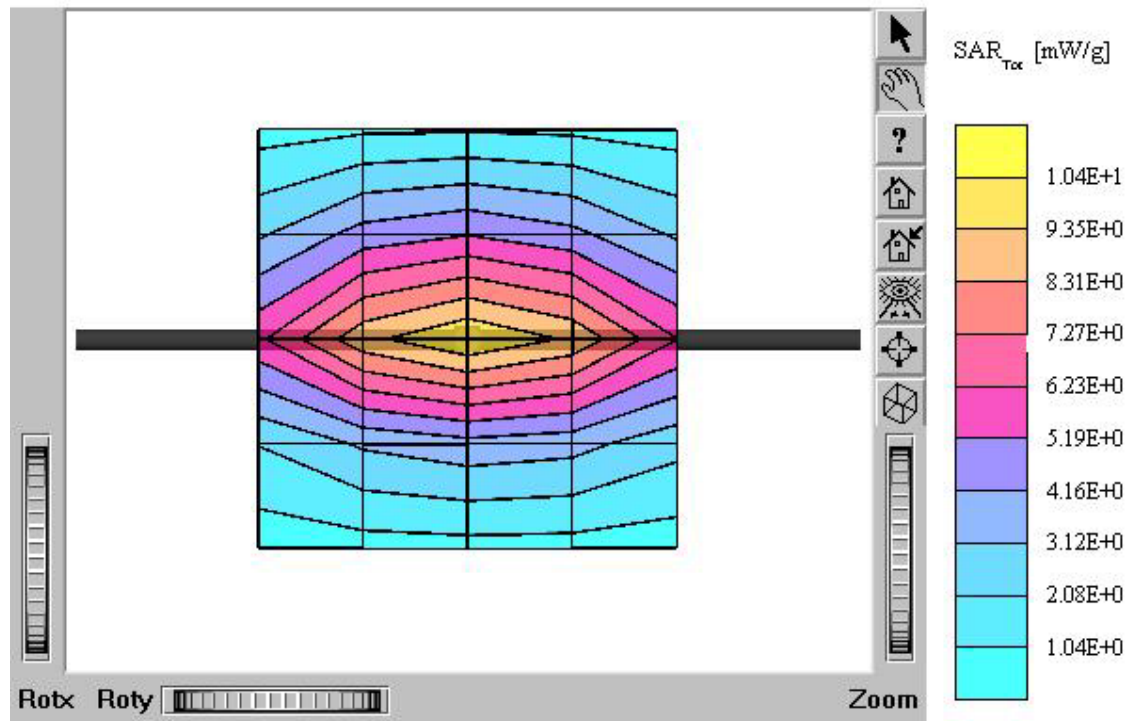
835MHz Brain Dipole Validation (D835V2/ S.N: 441)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature: 21.5 °C

Date Tested : July 21, 2003



■ Validation Data (835MHz Brain)

Dipole 835 MHz

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

Probe: ET3DV6 - SN1608; ConvF(6.50,6.50,6.50); Crest factor: 1.0; Brain 835 MHz: $\sigma = 0.89$

mho/m $\epsilon_r = 43.0$ $\rho = 1.00$ g/cm³

Cubes (2): SAR (1g): 10.1 mW/g ± 0.03 dB, SAR (10g): 6.44 mW/g ± 0.03 dB

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

Powerdrift: 0.03 dB

Comment:

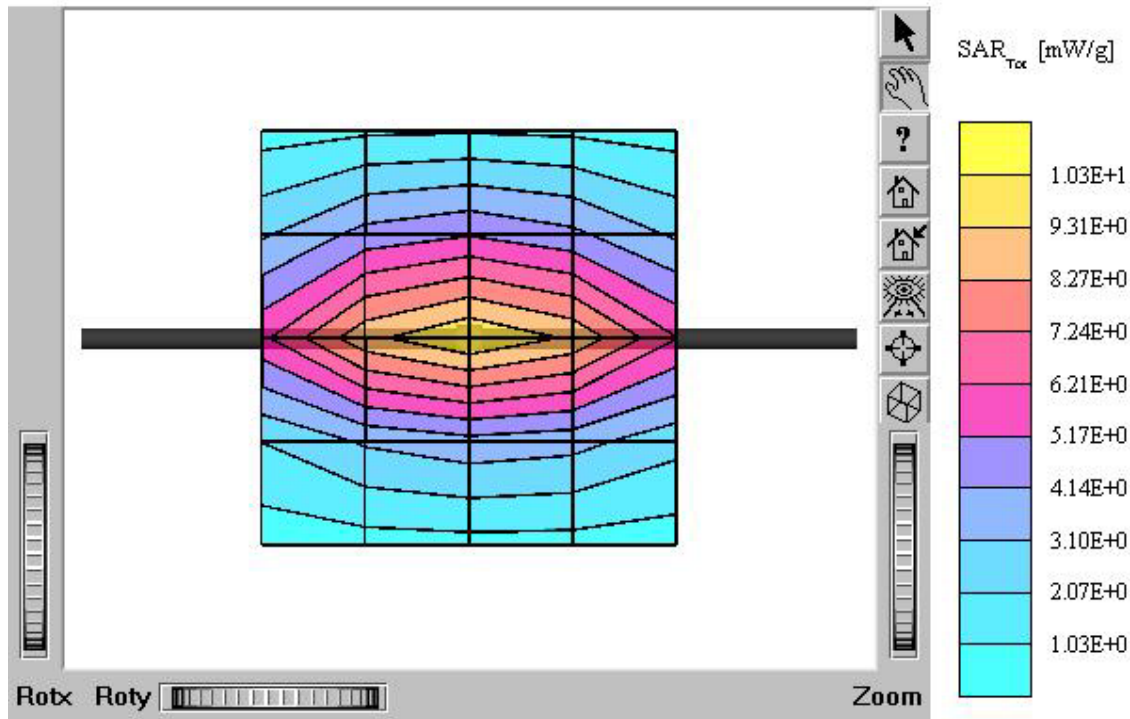
835MHz Brain Dipole Validation (D835V2/ S.N: 441)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature: 21.5 °C

Date Tested : July 22, 2003



■ Validation Data (1900MHz Brain)

Dipole 1900 MHz

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

Probe: ET3DV6 - SN1608; ConvF(5.20,5.20,5.20); Crest factor: 1.0; Brain 1900 MHz: $\sigma = 1.43$

mho/m $\epsilon_r = 39.1$ $\rho = 1.00$ g/cm³

Cubes (2): SAR (1g): 10.0 mW/g ± 0.01 dB, SAR (10g): 5.08 mW/g ± 0.01 dB

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

Powerdrift: 0.02 dB

Comment:

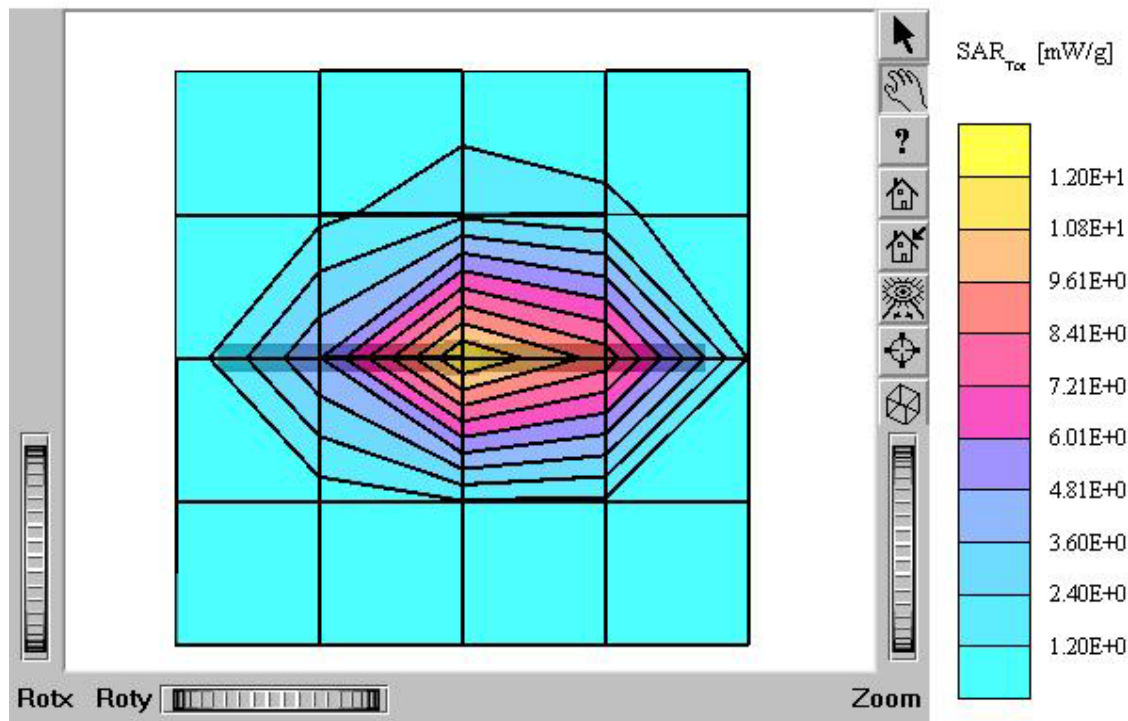
1900 MHz Brain Dipole Validation (D1900V2/ S.N: 5d032)

Antenna Input Power: 24 dBm (0.25 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature: 21.6 °C

Date Tested : July 23, 2003



Dipole 835 MHz

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

Probe: ET3DV6 - SN1608; ConvP(6.50,6.50,6.50); Crest factor: 1.0; Brain 835 MHz: $\sigma = 0.89$ mho/m $\epsilon_r = 43.1$ $\rho = 1.00$ g/cm³Cubes (2): SAR (1g): 10.1 mW/g ± 0.00 dB, SAR (10g): 6.44 mW/g ± 0.01 dB

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

Comment:

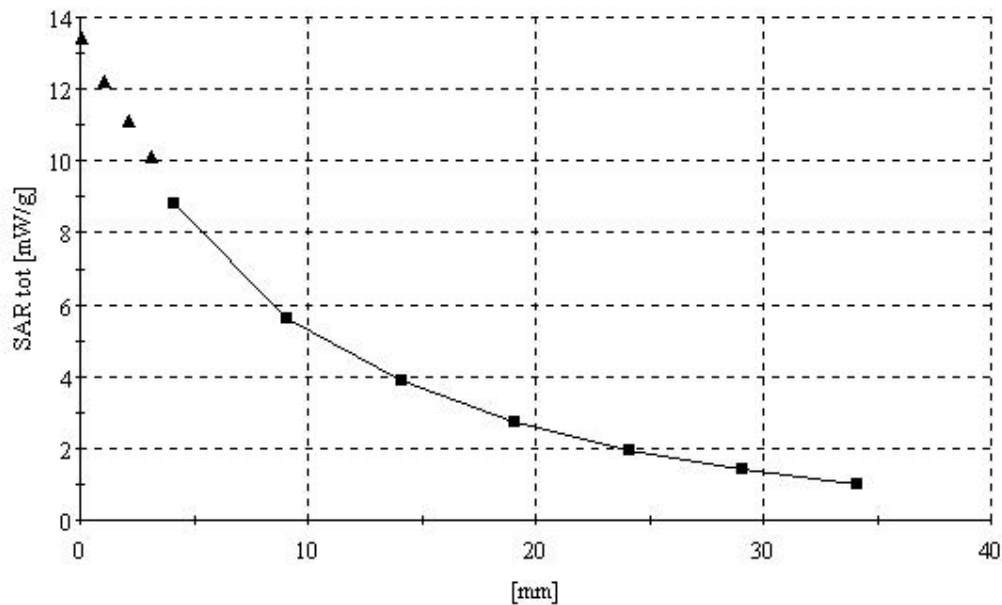
835MHz Brain Dipole Validation (D835V2/ S.N: 441)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature: 21.5 °C

Date Tested : July 21, 2003



Dipole 835 MHz

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

Probe: ET3DV6 - SN1608; ConvF(6.50,6.50,6.50); Crest factor: 1.0; Brain 835 MHz: $\sigma = 0.89$ mho/m $\epsilon_r = 43.0$ $\rho = 1.00$ g/cm³Cubes (2): SAR (1g): 10.1 mW/g ± 0.03 dB, SAR (10g): 6.44 mW/g ± 0.03 dB

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

Comment:

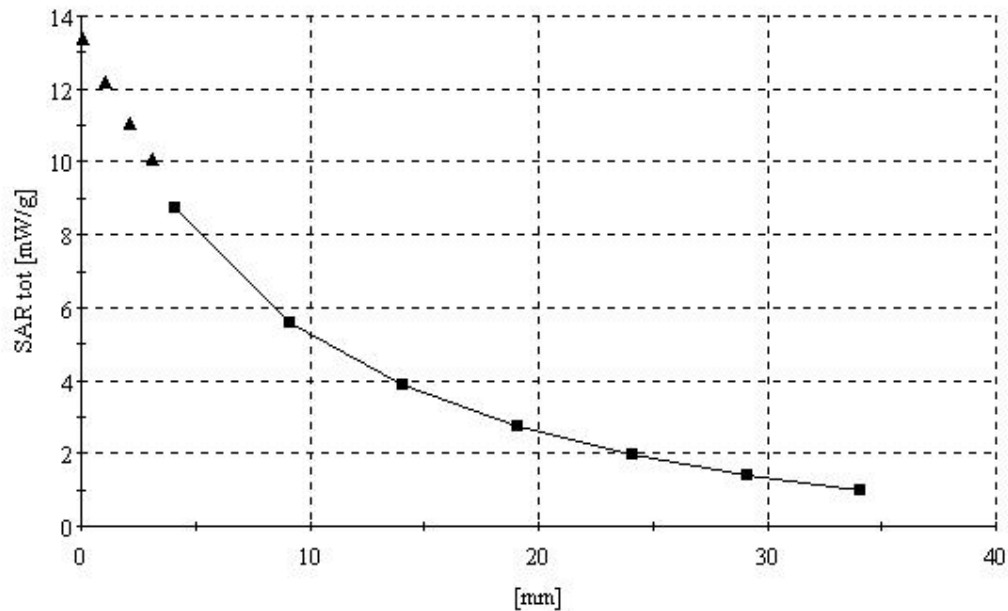
835MHz Brain Dipole Validation (D835V2/ S.N: 441)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature: 21.5 °C

Date Tested : July 22, 2003



Dipole 1900 MHz

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

Probe: ET3DV6 - SN1608; ConvF(5.20,5.20,5.20); Crest factor: 1.0; Brain 1900 MHz: $\sigma = 1.43$ mho/m $\epsilon_r = 39.1$ $\rho = 1.00$ g/cm³Cubes (2): SAR (1g): 10.0 mW/g ± 0.01 dB, SAR (10g): 5.08 mW/g ± 0.01 dB

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

Comment:

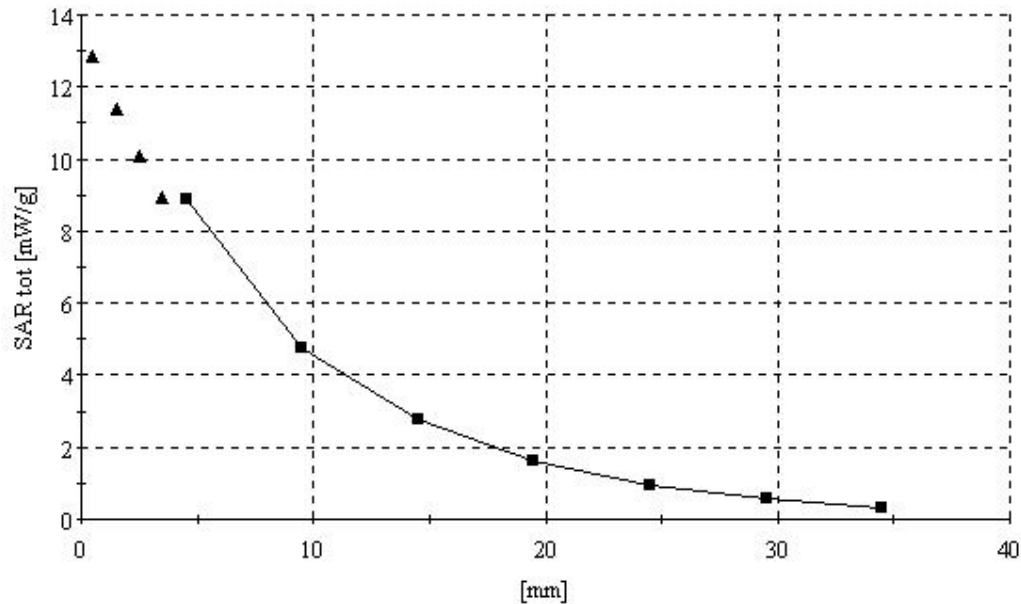
1900 MHz Brain Dipole Validation (D1900V2/ S.N: 5d017)

Antenna Input Power: 24 dBm (0.25 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature: 21.6 °C

Date Tested : July 23, 2003



■ Dielectric Parameter (835MHz Brain)

Title : TX-95C**SubTitle : Brain**

July 21, 2003 09:43 AM

Frequency	e'	e''
800.000000 MHz	43.9387	19.3017
805.000000 MHz	43.8247	19.2446
810.000000 MHz	43.6693	19.1895
815.000000 MHz	43.5274	19.1747
820.000000 MHz	43.3944	19.1474
825.000000 MHz	43.2830	19.1519
830.000000 MHz	43.1788	19.1760
835.000000 MHz	43.0621	19.1879
840.000000 MHz	42.9705	19.1719
845.000000 MHz	42.9191	19.2177
850.000000 MHz	42.8767	19.2190
855.000000 MHz	42.8946	19.3164
860.000000 MHz	42.8982	19.2932
865.000000 MHz	42.9445	19.3085
870.000000 MHz	42.9627	19.3318
875.000000 MHz	42.9962	19.3703
880.000000 MHz	43.0121	19.3830
885.000000 MHz	43.0240	19.3814
890.000000 MHz	43.0312	19.3307
895.000000 MHz	43.0189	19.2813
900.000000 MHz	42.9672	19.2645

■ Dielectric Parameter (835MHz Brain)

Title : TX-95C**SubTitle : Brain**

July 22, 2003 09:05 AM

Frequency	e'	e''
800.000000 MHz	43.7698	19.2075
805.000000 MHz	43.7041	19.1267
810.000000 MHz	43.5508	19.1151
815.000000 MHz	43.4478	19.1222
820.000000 MHz	43.3075	19.1242
825.000000 MHz	43.2380	19.1436
830.000000 MHz	43.1759	19.1662
835.000000 MHz	43.0034	19.1311
840.000000 MHz	42.9552	19.1554
845.000000 MHz	42.8705	19.1588
850.000000 MHz	42.8834	19.2066
855.000000 MHz	42.8188	19.2352
860.000000 MHz	42.8624	19.2420
865.000000 MHz	42.8475	19.2246
870.000000 MHz	42.8397	19.1950
875.000000 MHz	42.8447	19.2736
880.000000 MHz	42.8740	19.2628
885.000000 MHz	42.8740	19.2708
890.000000 MHz	42.8115	19.2376
895.000000 MHz	42.7973	19.1798
900.000000 MHz	42.7590	19.1400

■ Dielectric Parameter (1900MHz Brain)

Title : TX-95C**SubTitle : Brain**

July 23, 2003 09:45 AM

Frequency	e'	e''
1.700000000 GHz	39.8194	12.8358
1.710000000 GHz	39.7080	12.8336
1.720000000 GHz	39.6811	12.8790
1.730000000 GHz	39.6761	12.8961
1.740000000 GHz	39.6564	12.9492
1.750000000 GHz	39.6348	12.9756
1.760000000 GHz	39.5698	12.9939
1.770000000 GHz	39.0662	12.8578
1.780000000 GHz	38.8251	12.8009
1.790000000 GHz	38.7915	12.8437
1.800000000 GHz	39.1126	13.0213
1.810000000 GHz	39.3039	13.1290
1.820000000 GHz	39.2739	13.1818
1.830000000 GHz	39.1362	13.1439
1.840000000 GHz	38.7951	13.0431
1.850000000 GHz	38.9866	13.1791
1.860000000 GHz	39.1214	13.3216
1.870000000 GHz	39.1331	13.3779
1.880000000 GHz	39.1178	13.4506
1.890000000 GHz	39.1194	13.4767
1.900000000 GHz	39.0624	13.5070
1.910000000 GHz	39.0224	13.5386
1.920000000 GHz	38.8130	13.5335
1.930000000 GHz	38.7212	13.4932
1.940000000 GHz	38.6144	13.4693
1.950000000 GHz	38.5756	13.4816
1.960000000 GHz	38.6839	13.5625
1.970000000 GHz	38.6778	13.5999
1.980000000 GHz	38.6099	13.6075
1.990000000 GHz	38.5497	13.6250
2.000000000 GHz	38.5752	13.7053

■ Dielectric Parameter (835MHz Muscle)

Title : TX-95C**SubTitle : Body**

July 21, 2003 08:56 AM

Frequency	e'	e''
800.000000 MHz	54.5052	21.2260
805.000000 MHz	54.4214	21.2066
810.000000 MHz	54.3283	21.1572
815.000000 MHz	54.2330	21.0981
820.000000 MHz	54.1948	21.0696
825.000000 MHz	54.1105	21.0192
830.000000 MHz	54.0240	21.0201
835.000000 MHz	54.0092	20.9565
840.000000 MHz	53.9282	20.9506
845.000000 MHz	53.9169	20.9520
850.000000 MHz	53.9051	20.9208
855.000000 MHz	53.8536	20.9262
860.000000 MHz	53.8244	20.9016
865.000000 MHz	53.7735	20.8747
870.000000 MHz	53.7201	20.8383
875.000000 MHz	53.7149	20.9118
880.000000 MHz	53.6533	20.8628
885.000000 MHz	53.6098	20.8445
890.000000 MHz	53.6364	20.8149
895.000000 MHz	53.5382	20.7867
900.000000 MHz	53.5274	20.8188

■ Dielectric Parameter (835MHz Muscle)

Title : TX-95C**SubTitle : Body**

July 22, 2003 09:56 AM

Frequency	e'	e''
800.000000 MHz	54.4604	21.0027
805.000000 MHz	54.3162	21.0060
810.000000 MHz	54.3147	20.9928
815.000000 MHz	54.2463	20.9474
820.000000 MHz	54.1484	20.9411
825.000000 MHz	54.0776	20.8976
830.000000 MHz	54.0178	20.9117
835.000000 MHz	53.9435	20.8373
840.000000 MHz	53.8846	20.8022
845.000000 MHz	53.8696	20.7948
850.000000 MHz	53.8423	20.7810
855.000000 MHz	53.8312	20.7505
860.000000 MHz	53.7877	20.7752
865.000000 MHz	53.7685	20.7477
870.000000 MHz	53.6682	20.7297
875.000000 MHz	53.7129	20.6835
880.000000 MHz	53.6535	20.7249
885.000000 MHz	53.5969	20.7016
890.000000 MHz	53.5995	20.6925
895.000000 MHz	53.5320	20.6633
900.000000 MHz	53.4924	20.6759

■ Dielectric Parameter (1900MHz Muscle)

Title : TX-95C

SubTitle : Body

July 23, 2003 09:51 AM

Frequency	e'	e''
1.700000000 GHz	52.7645	14.2827
1.710000000 GHz	52.7237	14.3117
1.720000000 GHz	52.6906	14.3748
1.730000000 GHz	52.6681	14.4074
1.740000000 GHz	52.6422	14.4065
1.750000000 GHz	52.6433	14.4054
1.760000000 GHz	52.5868	14.4118
1.770000000 GHz	52.5669	14.4208
1.780000000 GHz	52.5311	14.4215
1.790000000 GHz	52.4828	14.4657
1.800000000 GHz	52.4358	14.4619
1.810000000 GHz	52.4332	14.5294
1.820000000 GHz	52.3505	14.5641
1.830000000 GHz	52.3134	14.6324
1.840000000 GHz	52.2823	14.6924
1.850000000 GHz	52.2449	14.7219
1.860000000 GHz	52.2116	14.7373
1.870000000 GHz	52.1942	14.7605
1.880000000 GHz	52.1540	14.8006
1.890000000 GHz	52.1346	14.7972
1.900000000 GHz	52.0676	14.8152
1.910000000 GHz	51.9898	14.8112
1.920000000 GHz	51.9480	14.8293
1.930000000 GHz	51.9153	14.8359
1.940000000 GHz	51.8955	14.8743
1.950000000 GHz	51.8196	14.9394
1.960000000 GHz	51.8076	14.9782
1.970000000 GHz	51.7779	15.0267
1.980000000 GHz	51.7259	15.0568
1.990000000 GHz	51.7030	15.0816
2.000000000 GHz	51.6921	15.1134