

## 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/cm<sup>3</sup>

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

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

Powerdrift: 0.01 dB

Comment:

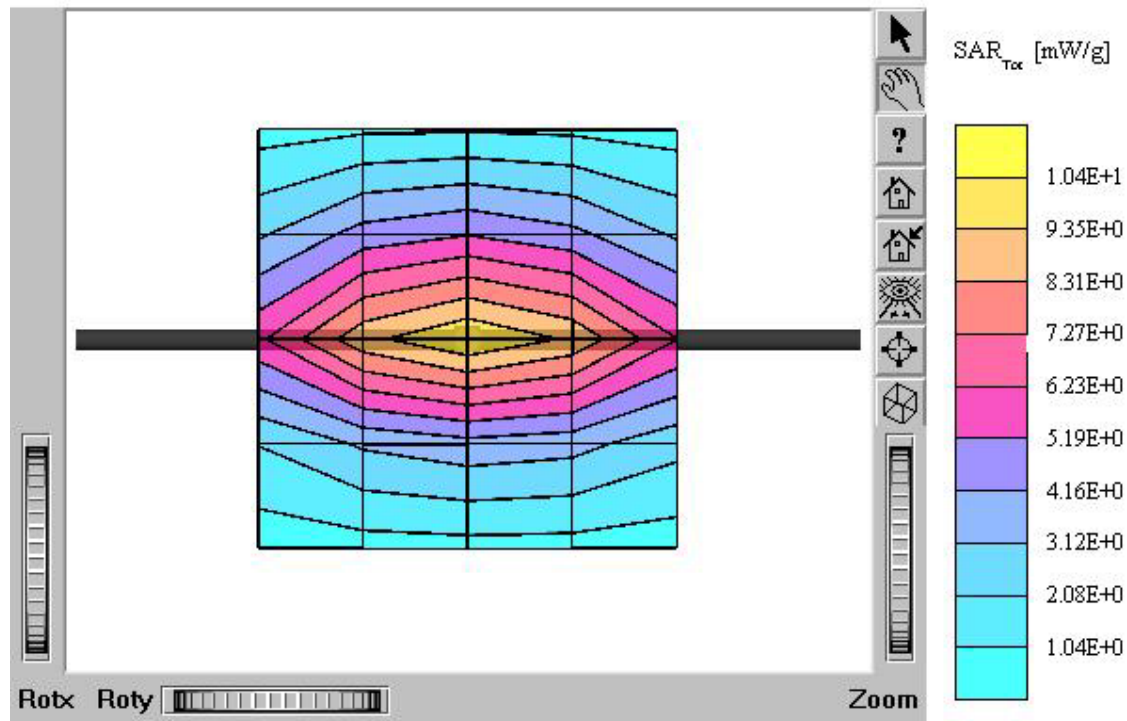
835MHz Brain Dipole Validation (D835V2/ S.N: 441)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature: 21.5 °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/cm<sup>3</sup>

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

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

Powerdrift: 0.03 dB

Comment:

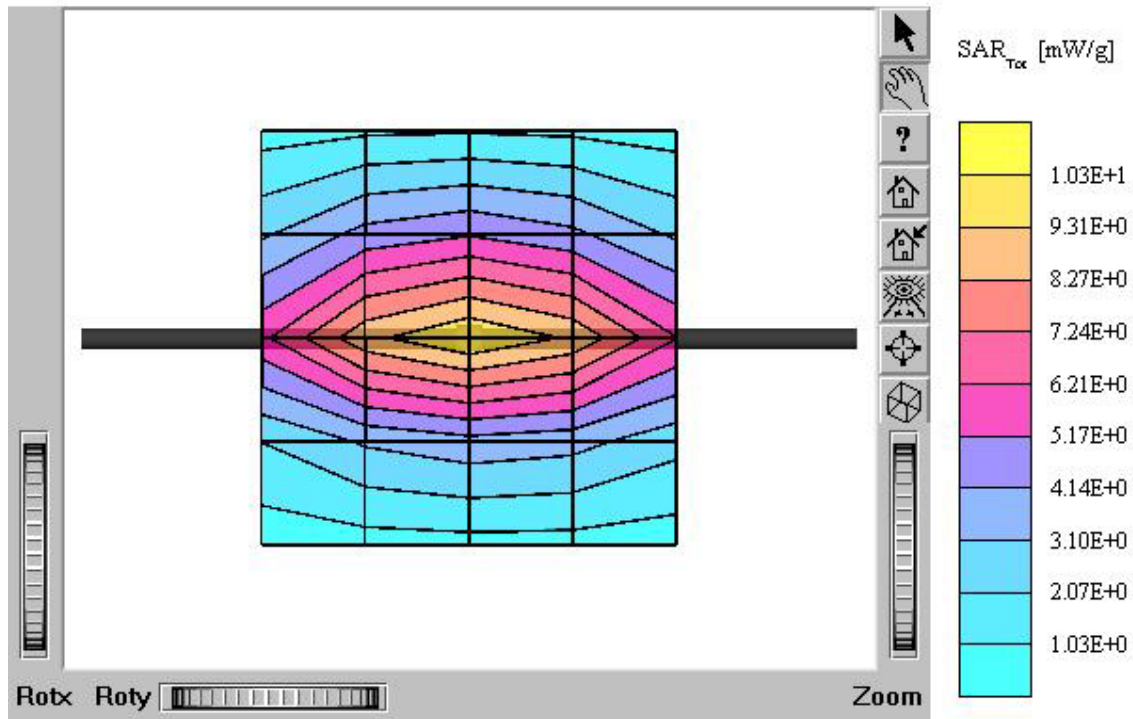
835MHz Brain Dipole Validation (D835V2/ S.N: 441)

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/cm<sup>3</sup>

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

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

Powerdrift: 0.02 dB

Comment:

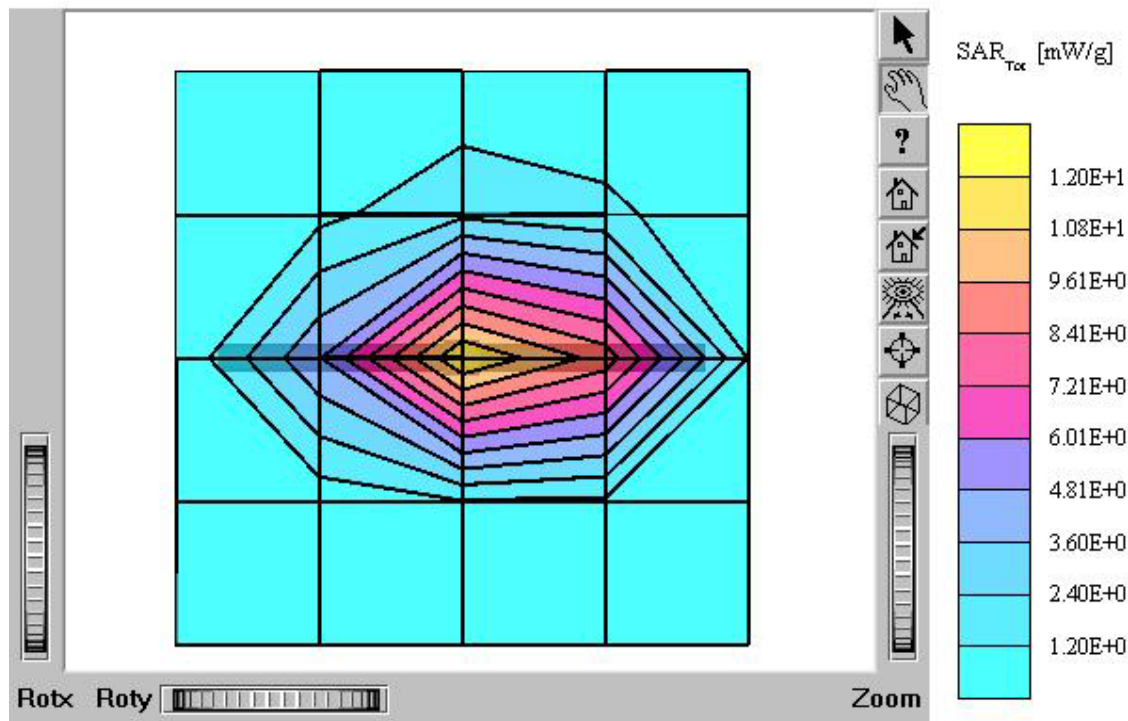
1900 MHz Brain Dipole Validation (D1900V2/ S.N: 5d032)

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/cm<sup>3</sup>Cubes (2): SAR (1g): 10.1 mW/g  $\pm 0.00$  dB, SAR (10g): 6.44 mW/g  $\pm 0.01$  dB

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

## Comment:

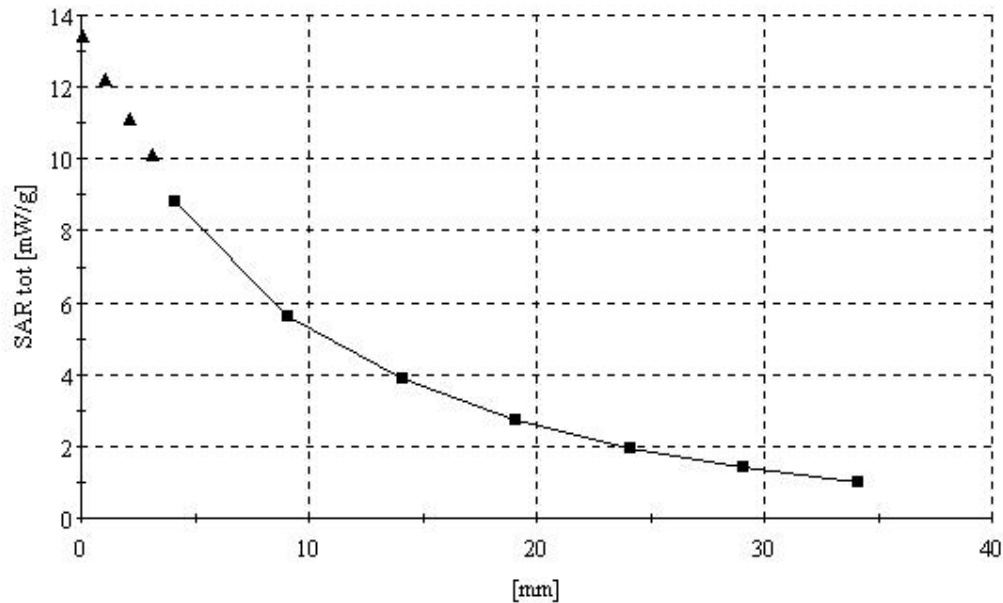
835MHz Brain Dipole Validation (D835V2/ S.N: 441)

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/cm<sup>3</sup>Cubes (2): SAR (1g): 10.1 mW/g  $\pm 0.03$  dB, SAR (10g): 6.44 mW/g  $\pm 0.03$  dB

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

## Comment:

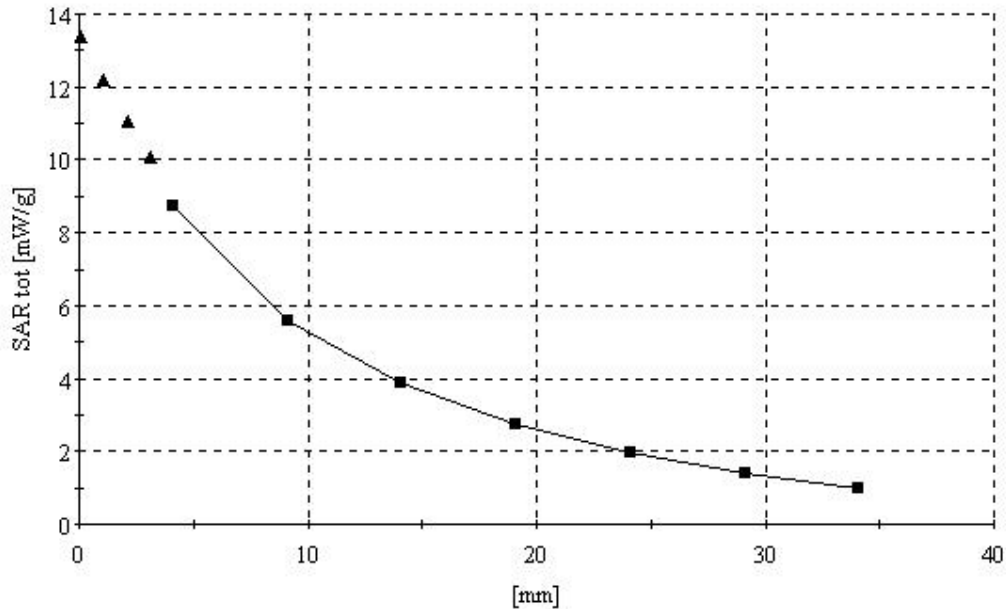
835MHz Brain Dipole Validation (D835V2/ S.N: 441)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature: 21.5 °C

Date Tested : 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/cm<sup>3</sup>Cubes (2): SAR (1g): 10.0 mW/g  $\pm 0.01$  dB, SAR (10g): 5.08 mW/g  $\pm 0.01$  dB

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

## Comment:

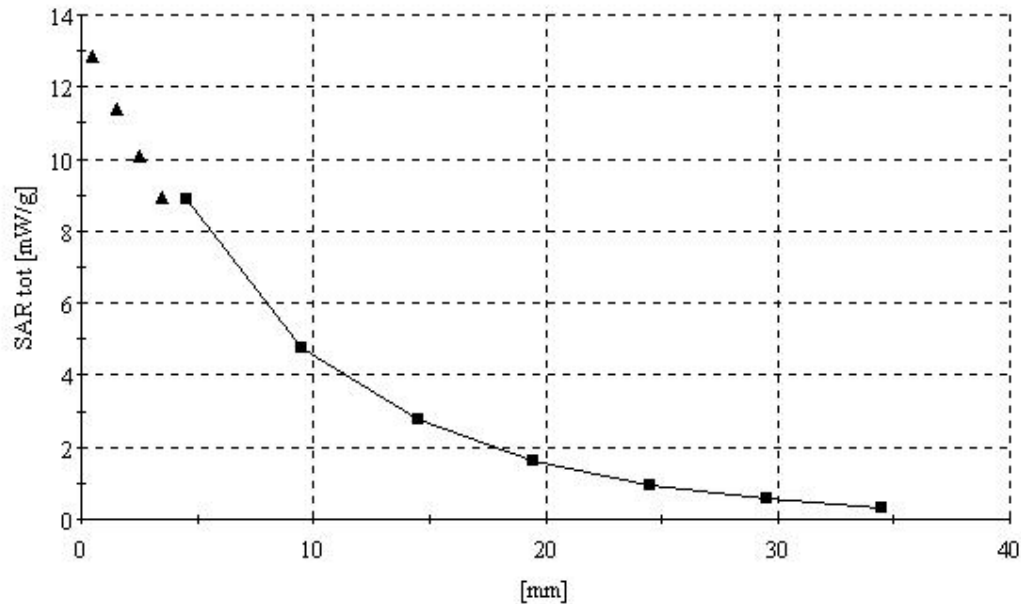
1900 MHz Brain Dipole Validation (D1900V2/ S.N: 5d017)

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 |