

## 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:  $\sigma = 0.90$

mho/m  $\epsilon_r = 41.5$   $\rho = 1.00$  g/cm<sup>3</sup>

Cubes (2): SAR (1g): 10.2 mW/g  $\pm 0.00$  dB, SAR (10g): 6.45 mW/g  $\pm 0.07$  dB

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

Powerdrift: 0.01 dB

Comment:

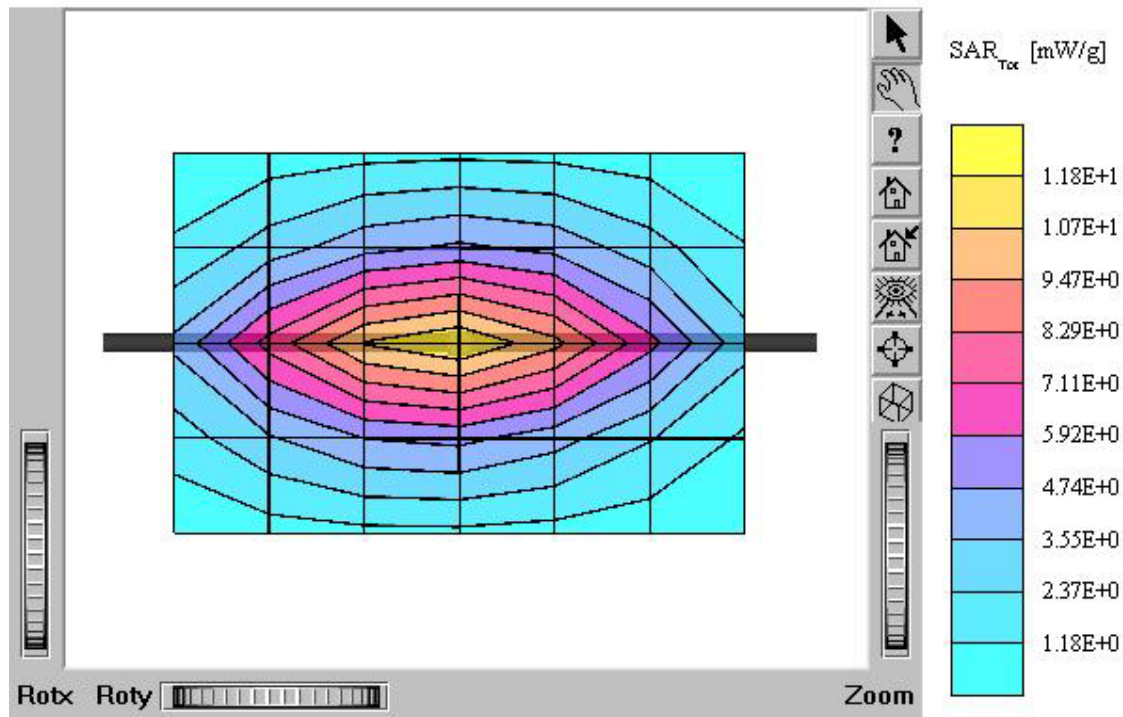
835MHz Brain Dipole Validation (D835V2/ S.N: 441)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature: 21.7°C

Date Tested : June 07, 2004



## ■ Validation Data (835MHz Brain)

### Dipole 1900 MHz

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

Probe: ET3DV6 - SN1609; ConvF(5.29,5.29,5.29); Crest factor: 1.0; Brain 1900 MHz:  $\sigma = 1.41$

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

Cubes (2): SAR (1g): 41.9 mW/g  $\pm 0.00$  dB, SAR (10g): 21.1 mW/g  $\pm 0.01$  dB

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

Powerdrift: -0.08 dB

Comment:

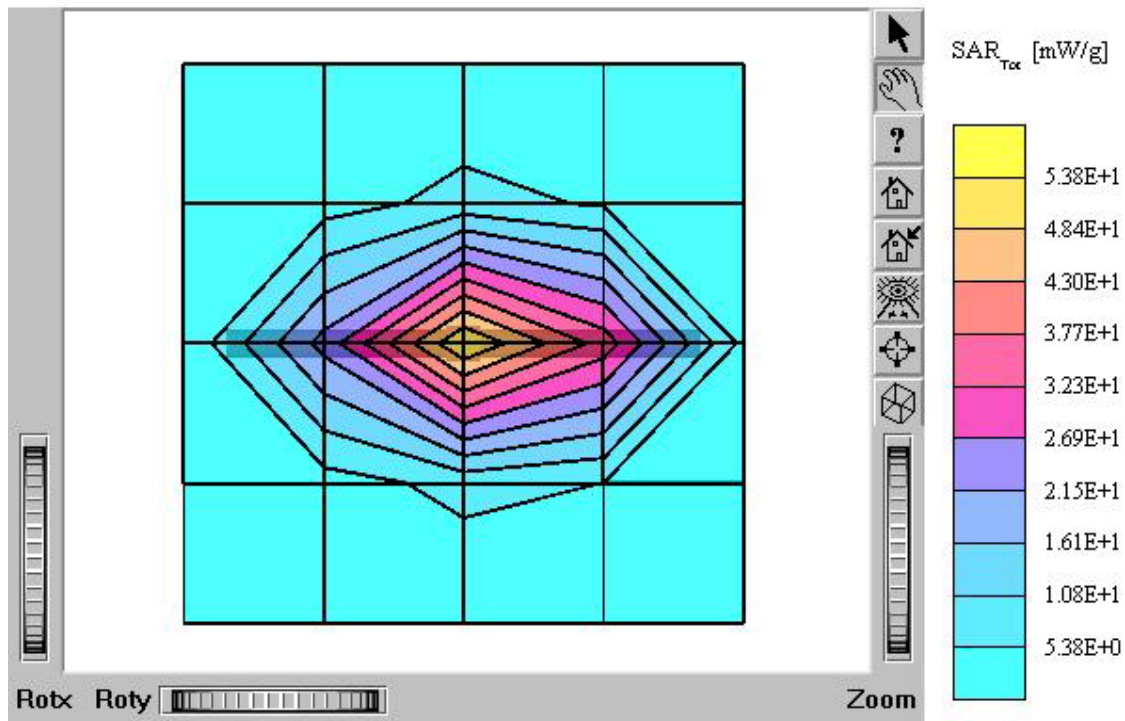
1900 MHz Brain Dipole Validation (D1900V2/ S.N: 5d032)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature: 21.3°C

Date Tested : June 08, 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:  $\sigma = 0.90$ mho/m  $\epsilon_r = 41.5$   $\rho = 1.00$  g/cm<sup>3</sup>

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Z-Axis: Dx = 0.0, Dy = 0.0, Dz = 5.0

## Comment:

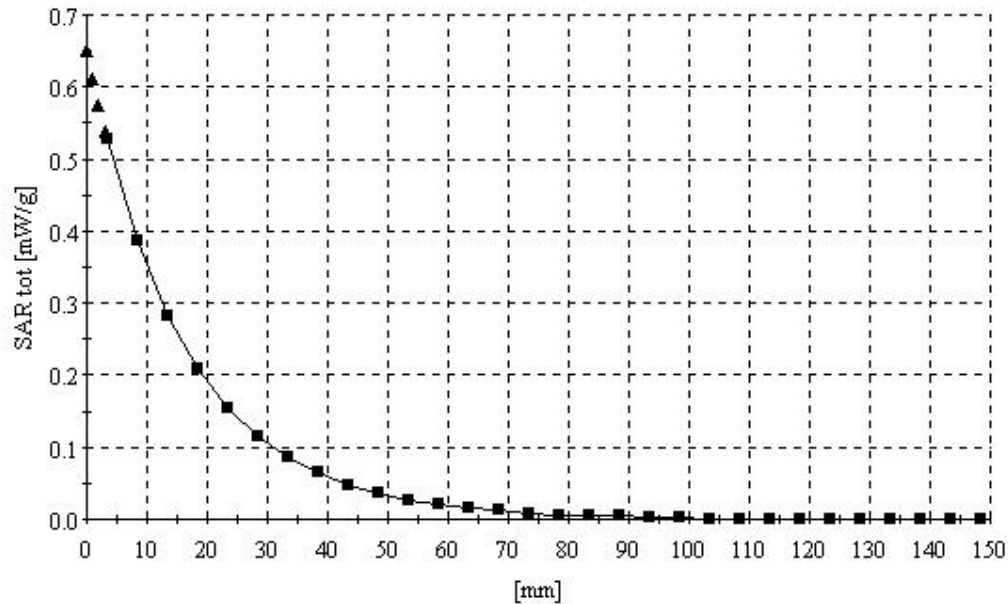
835MHz Brain Dipole Validation (D835V2/ S.N: 441)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature: 21.7°C

Date Tested : June 07, 2004



## Dipole 1900 MHz

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

Probe: ET3DV6 - SN1609; ConvF(5.29,5.29,5.29); Crest factor: 1.0; Brain 1900 MHz:  $\sigma = 1.41$ mho/m  $\epsilon_r = 40.2$   $\rho = 1.00$  g/cm<sup>3</sup>

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Z-Axis: Dx = 0.0, Dy = 0.0, Dz = 5.0

## Comment:

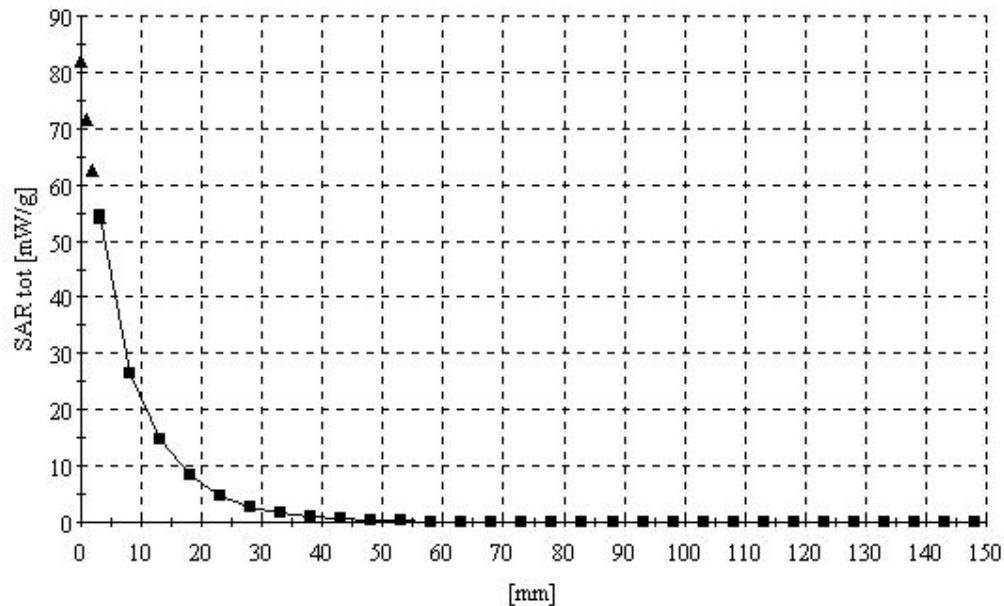
1900 MHz Brain Dipole Validation (D1900V2/ S.N: 5d032)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature: 21.3°C

Date Tested : June 08, 2004



## ■ Dielectric Parameter (835MHz Brain)

**Title : TX-170S****SubTitle : CDMA Brain**

June 07, 2004 09:23 AM

| Frequency      | e'      | e''     |
|----------------|---------|---------|
| 800.000000 MHz | 43.1695 | 19.3651 |
| 805.000000 MHz | 43.0628 | 19.3184 |
| 810.000000 MHz | 42.9989 | 19.3038 |
| 815.000000 MHz | 42.9232 | 19.2820 |
| 820.000000 MHz | 42.8361 | 19.2158 |
| 825.000000 MHz | 42.7319 | 19.1980 |
| 830.000000 MHz | 42.6850 | 19.1908 |
| 835.000000 MHz | 42.6682 | 19.1751 |
| 840.000000 MHz | 42.5316 | 19.1417 |
| 845.000000 MHz | 42.4587 | 19.1429 |
| 850.000000 MHz | 42.4388 | 19.1080 |
| 855.000000 MHz | 42.3611 | 19.1214 |
| 860.000000 MHz | 42.3019 | 19.0882 |
| 865.000000 MHz | 42.2736 | 19.0875 |
| 870.000000 MHz | 42.2046 | 19.1191 |
| 875.000000 MHz | 42.2048 | 19.1402 |
| 880.000000 MHz | 42.1261 | 19.1998 |
| 885.000000 MHz | 42.0731 | 19.1558 |
| 890.000000 MHz | 42.0278 | 19.1350 |
| 895.000000 MHz | 42.0213 | 19.1576 |
| 900.000000 MHz | 41.9414 | 19.1328 |

## ■ Dielectric Parameter (1900MHz Brain)

**Title : TX-170S****SubTitle : PCS Brain**

June 09, 2004 09:45 AM

| Frequency       | $\epsilon'$ | $\epsilon''$ |
|-----------------|-------------|--------------|
| 1.800000000 GHz | 41.2229     | 13.0350      |
| 1.810000000 GHz | 41.1850     | 13.0694      |
| 1.820000000 GHz | 41.1730     | 13.1179      |
| 1.830000000 GHz | 41.0790     | 13.1607      |
| 1.840000000 GHz | 41.0609     | 13.1670      |
| 1.850000000 GHz | 40.9806     | 13.2261      |
| 1.860000000 GHz | 40.9604     | 13.2767      |
| 1.870000000 GHz | 40.9286     | 13.2982      |
| 1.880000000 GHz | 40.8521     | 13.3281      |
| 1.890000000 GHz | 40.8187     | 13.3661      |
| 1.900000000 GHz | 40.7501     | 13.3762      |
| 1.910000000 GHz | 40.6798     | 13.4000      |
| 1.920000000 GHz | 40.6557     | 13.4593      |
| 1.930000000 GHz | 40.5612     | 13.4699      |
| 1.940000000 GHz | 40.5066     | 13.4931      |
| 1.950000000 GHz | 40.4402     | 13.5455      |
| 1.960000000 GHz | 40.3948     | 13.5959      |
| 1.970000000 GHz | 40.3612     | 13.6353      |
| 1.980000000 GHz | 40.3304     | 13.6640      |
| 1.990000000 GHz | 40.3133     | 13.6892      |
| 2.000000000 GHz | 40.2685     | 13.7456      |

## ■ Dielectric Parameter (835MHz Brain)

**Title : TX-170S****SubTitle : CDMA Body**

June 07, 2004 06:43 PM

| Frequency      | e'      | e''     |
|----------------|---------|---------|
| 800.000000 MHz | 56.5045 | 20.9732 |
| 805.000000 MHz | 56.4334 | 20.9548 |
| 810.000000 MHz | 56.3625 | 20.9027 |
| 815.000000 MHz | 56.3076 | 20.8904 |
| 820.000000 MHz | 56.2022 | 20.8749 |
| 825.000000 MHz | 56.1210 | 20.8899 |
| 830.000000 MHz | 55.9888 | 20.8686 |
| 835.000000 MHz | 55.8821 | 20.8219 |
| 840.000000 MHz | 55.7842 | 20.7947 |
| 845.000000 MHz | 55.7018 | 20.7182 |
| 850.000000 MHz | 55.6353 | 20.6804 |
| 855.000000 MHz | 55.6261 | 20.6753 |
| 860.000000 MHz | 55.4993 | 20.6724 |
| 865.000000 MHz | 55.5631 | 20.6280 |
| 870.000000 MHz | 55.5205 | 20.6681 |
| 875.000000 MHz | 55.4697 | 20.6843 |
| 880.000000 MHz | 55.4146 | 20.6595 |
| 885.000000 MHz | 55.3056 | 20.5504 |
| 890.000000 MHz | 55.2928 | 20.5733 |
| 895.000000 MHz | 55.2700 | 20.6473 |
| 900.000000 MHz | 55.1487 | 20.7081 |

■ Dielectric Parameter (1900MHz Muscle)**Title : TX-170S****SubTitle : PCS Body**

June 09, 2004 07:43 PM

| Frequency       | e'      | e''     |
|-----------------|---------|---------|
| 1.850000000 GHz | 53.6878 | 14.8178 |
| 1.855000000 GHz | 53.6443 | 14.8086 |
| 1.860000000 GHz | 53.5993 | 14.8379 |
| 1.865000000 GHz | 53.5437 | 14.8549 |
| 1.870000000 GHz | 53.4798 | 14.8540 |
| 1.875000000 GHz | 53.4114 | 14.8759 |
| 1.880000000 GHz | 53.3989 | 14.8617 |
| 1.885000000 GHz | 53.3615 | 14.8521 |
| 1.890000000 GHz | 53.3086 | 14.8533 |
| 1.895000000 GHz | 53.2737 | 14.8456 |
| 1.900000000 GHz | 53.2340 | 14.8719 |
| 1.905000000 GHz | 53.1991 | 14.8792 |
| 1.910000000 GHz | 53.1635 | 14.8654 |
| 1.915000000 GHz | 53.1505 | 14.8675 |
| 1.920000000 GHz | 53.1402 | 14.9037 |
| 1.925000000 GHz | 53.1770 | 14.9033 |
| 1.930000000 GHz | 53.1733 | 14.9297 |
| 1.935000000 GHz | 53.2001 | 14.9605 |
| 1.940000000 GHz | 53.1705 | 14.9894 |
| 1.945000000 GHz | 53.1920 | 15.0213 |
| 1.950000000 GHz | 53.2043 | 15.0583 |

## ■ Validation Data (1900MHz Brain)

### Dipole 1900 MHz

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

Probe: ET3DV6 - SN1607; ConvF(5.10,5.10,5.10); Crest factor: 1.0; Brain 1900 MHz:  $\sigma = 1.39$

mho/m  $\epsilon_r = 40.3$   $\rho = 1.00$  g/cm<sup>3</sup>

Cubes (2): SAR (1g): 41.7 mW/g  $\pm 0.01$  dB, SAR (10g): 21.0 mW/g  $\pm 0.01$  dB

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

Powerdrift: 0.00 dB

Comment:

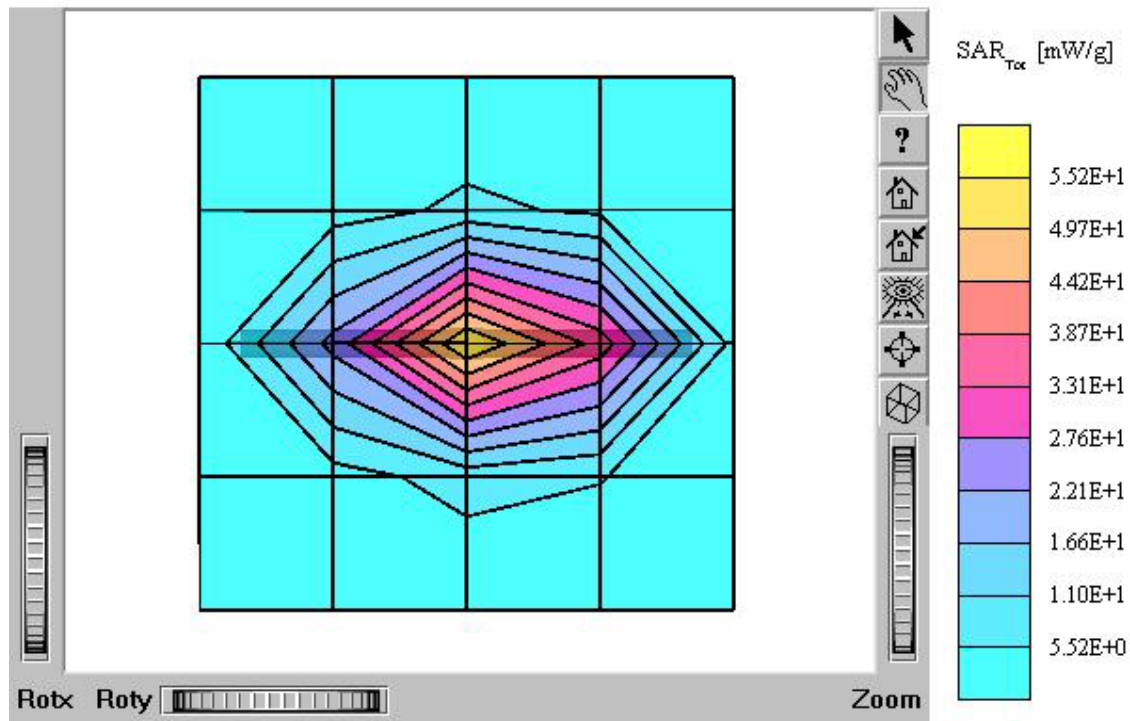
1900 MHz Brain Dipole Validation (D1900V2/ S.N: 5d032)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature: 21.5°C

Date Tested : July 19, 2004



## Dipole 1900 MHz

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

Probe: ET3DV6 - SN1607; ConvF(5.10,5.10,5.10); Crest factor: 1.0; Brain 1900 MHz:  $\sigma = 1.39$ mho/m  $\epsilon_r = 40.3$   $\rho = 1.00$  g/cm<sup>3</sup>

:

Z-Axis: Dx = 0.0, Dy = 0.0, Dz = 5.0

## Comment:

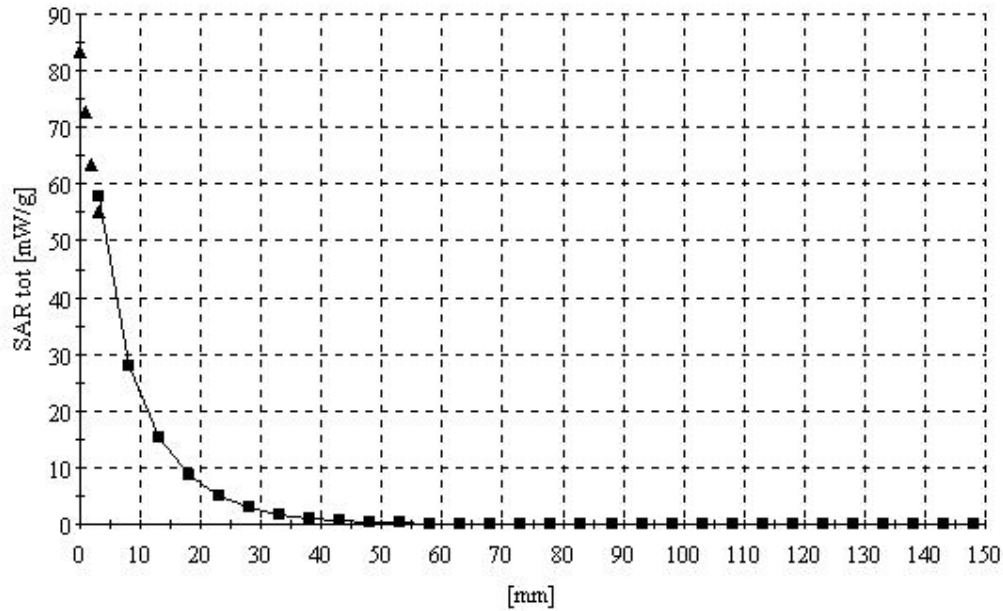
1900 MHz Brain Dipole Validation (D1900V2/ S.N: 5d032)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature: 21.5°C

Date Tested : July 19, 2004



■ Dielectric Parameter (1900MHz Brain)**Title : TX-170S****SubTitle : 1900MHz BRAIN**

July 19, 2004 01:22 PM

| Frequency       | e'      | e''     |
|-----------------|---------|---------|
| 1.800000000 GHz | 40.7924 | 12.8883 |
| 1.810000000 GHz | 40.7378 | 12.9538 |
| 1.820000000 GHz | 40.7342 | 12.9961 |
| 1.830000000 GHz | 40.6400 | 13.0470 |
| 1.840000000 GHz | 40.6159 | 13.0718 |
| 1.850000000 GHz | 40.5680 | 13.1331 |
| 1.860000000 GHz | 40.5381 | 13.1495 |
| 1.870000000 GHz | 40.4956 | 13.1772 |
| 1.880000000 GHz | 40.4152 | 13.1725 |
| 1.890000000 GHz | 40.3573 | 13.1956 |
| 1.900000000 GHz | 40.2688 | 13.1793 |
| 1.910000000 GHz | 40.2060 | 13.2094 |
| 1.920000000 GHz | 40.1512 | 13.2495 |
| 1.930000000 GHz | 40.0467 | 13.2574 |
| 1.940000000 GHz | 40.0112 | 13.2912 |
| 1.950000000 GHz | 39.9494 | 13.3457 |
| 1.960000000 GHz | 39.9500 | 13.4295 |
| 1.970000000 GHz | 39.9201 | 13.4656 |
| 1.980000000 GHz | 39.8897 | 13.4992 |
| 1.990000000 GHz | 39.8900 | 13.5413 |
| 2.000000000 GHz | 39.8542 | 13.5462 |