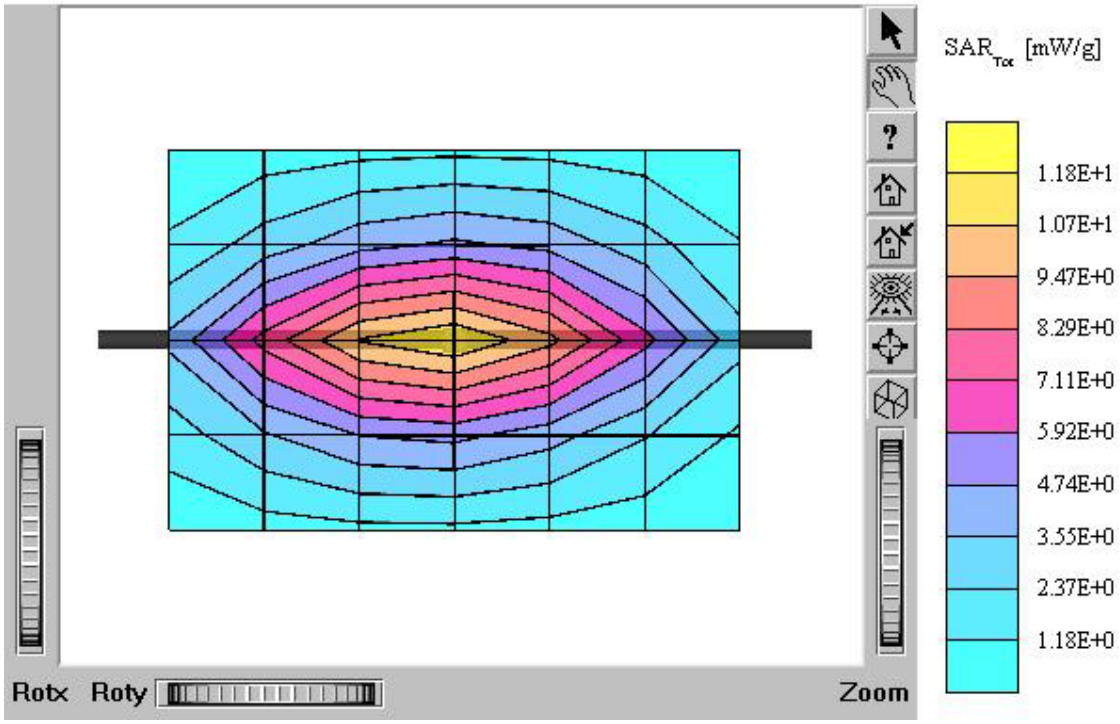
ATTACHMENT Q – DIPOLE VALIDATION

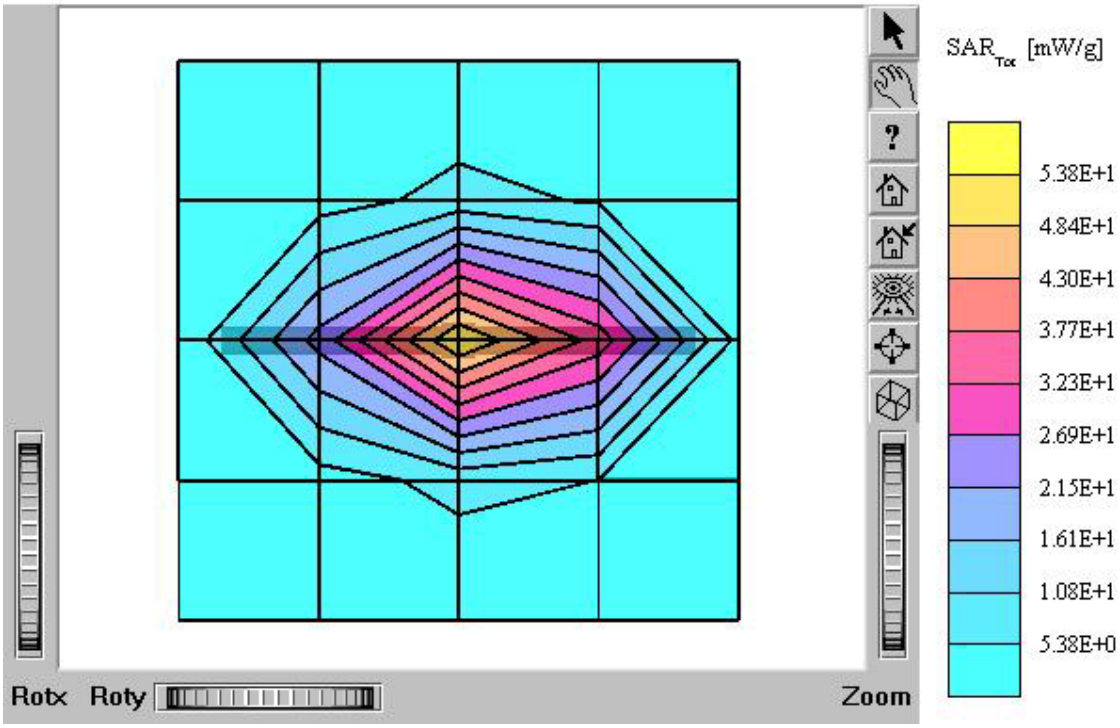
■ Validation Data (835MHz Brain)

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: σ = 0.90 mho/m ε_r = 41.5 ρ = 1.00 g/cm^3
Cubes (2): SAR (1g): 10.2 mW/g ± 0.00 dB, SAR (10g): 6.45 mW/g ± 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℃
Date Tested : June 07, 2004



■ Validation Data (835MHz Brain)

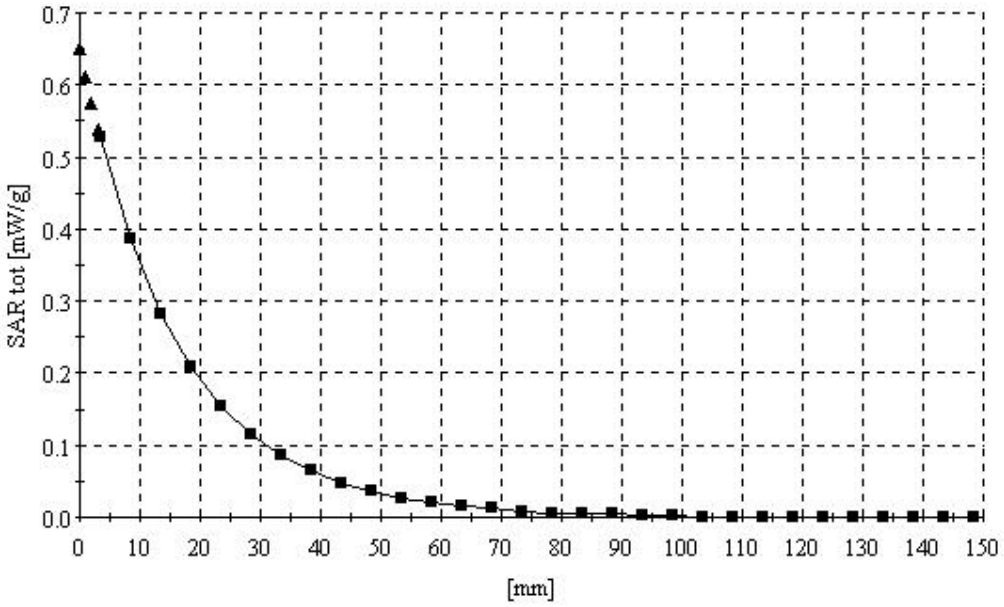
Dipole 1900 MHz
SAM II Phantom; Flat Section; Position: (90°,90°); Frequency: 1900 MHz
Probe: ET3DV6 - SN1609; ConvF(5.29,5.29,5.29); Crest factor: 1.0; Brain 1900 MHz: σ = 1.41 mho/m ε_r = 40.2 ρ = 1.00 g/cm^3
Cubes (2): SAR (1g): 41.9 mW/g ± 0.00 dB, SAR (10g): 21.1 mW/g ± 0.01 dB
Coarse: Dx = 20.0, 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℃
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: σ = 0.90 mho/m ε_r = 41.5 ρ = 1.00 g/cm^3
:
Z-Axis: Dx = 0.0, Dy = 0.0, Dz = 5.0

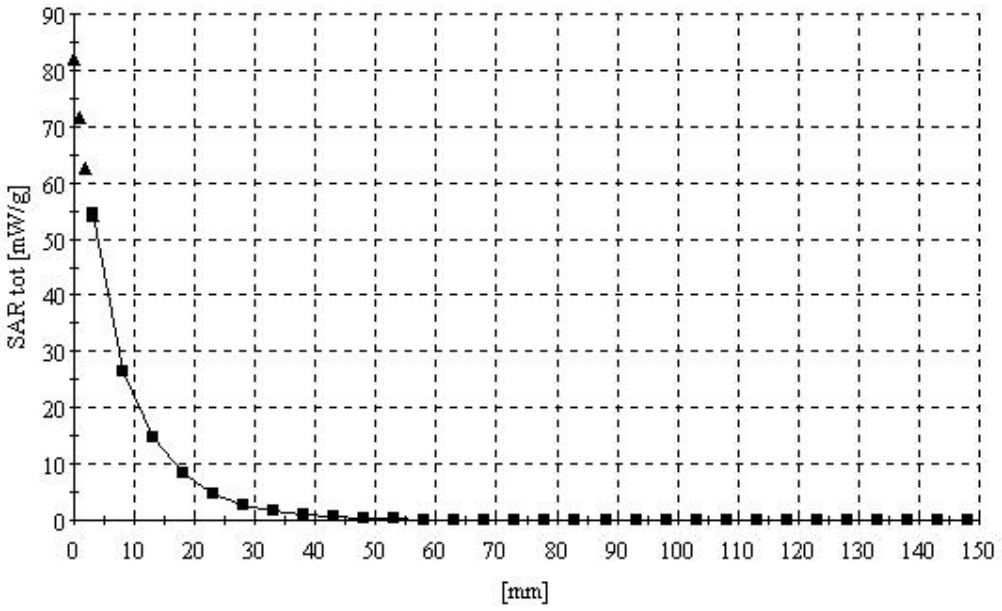
Comment:
835MHz Brain Dipole Validation (D835V2/ S.N: 441)
Antenna Input Power: 30 dBm (1 W)
HCT Co., Ltd. Brain Tissue Simulating Liquid
Liquid Temperature: 21.7℃
Date Tested : June 07, 2004



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: σ = 1.41 mho/m ε_r = 40.2 ρ = 1.00 g/cm^3
;
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℃
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	e'	e''
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

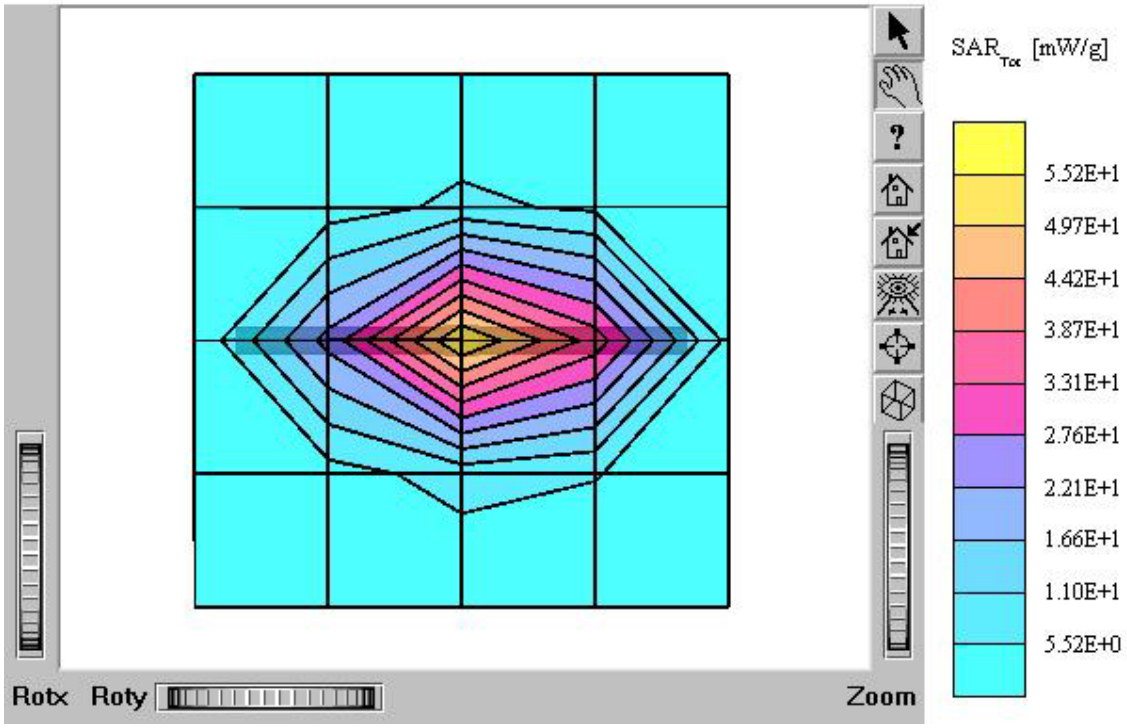
■ Dielectric Parameter (1900MHz Muscle)

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)

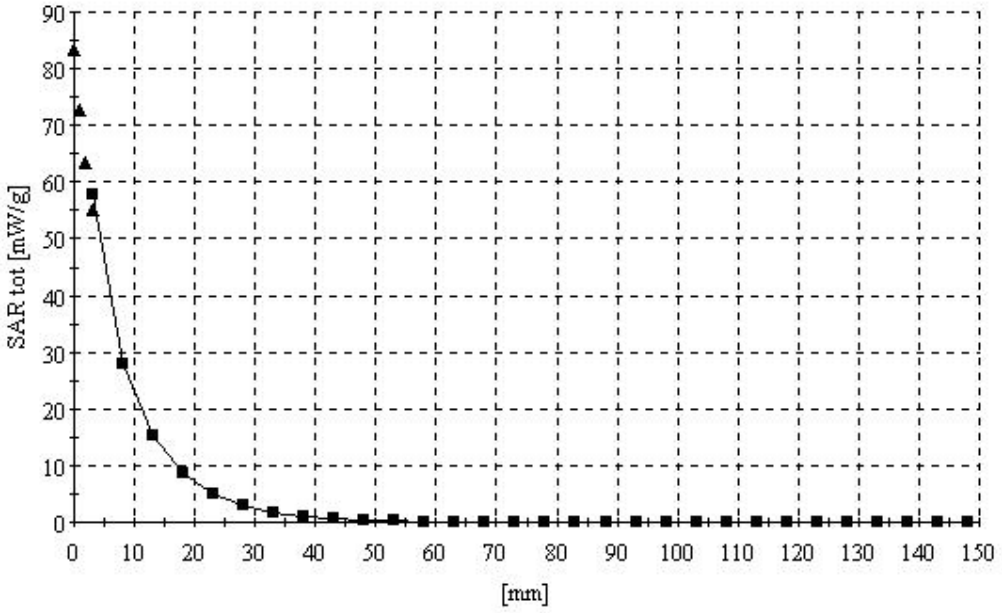
Dipole 1900 MHz
SAM II Phantom; Flat Section; Position: (90°,90°); Frequency: 1900 MHz
Probe: ET3DV6 - SN1607; ConvF(5.10,5.10,5.10); Crest factor: 1.0; Brain 1900 MHz: σ = 1.39 mho/m ε_r = 40.3 ρ = 1.00 g/cm^3
Cubes (2): SAR (1g): 41.7 mW/g ± 0.01 dB, SAR (10g): 21.0 mW/g ± 0.01 dB
Coarse: Dx = 20.0, 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℃
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: σ = 1.39 mho/m ε_r = 40.3 ρ = 1.00 g/cm^3
;
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℃
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