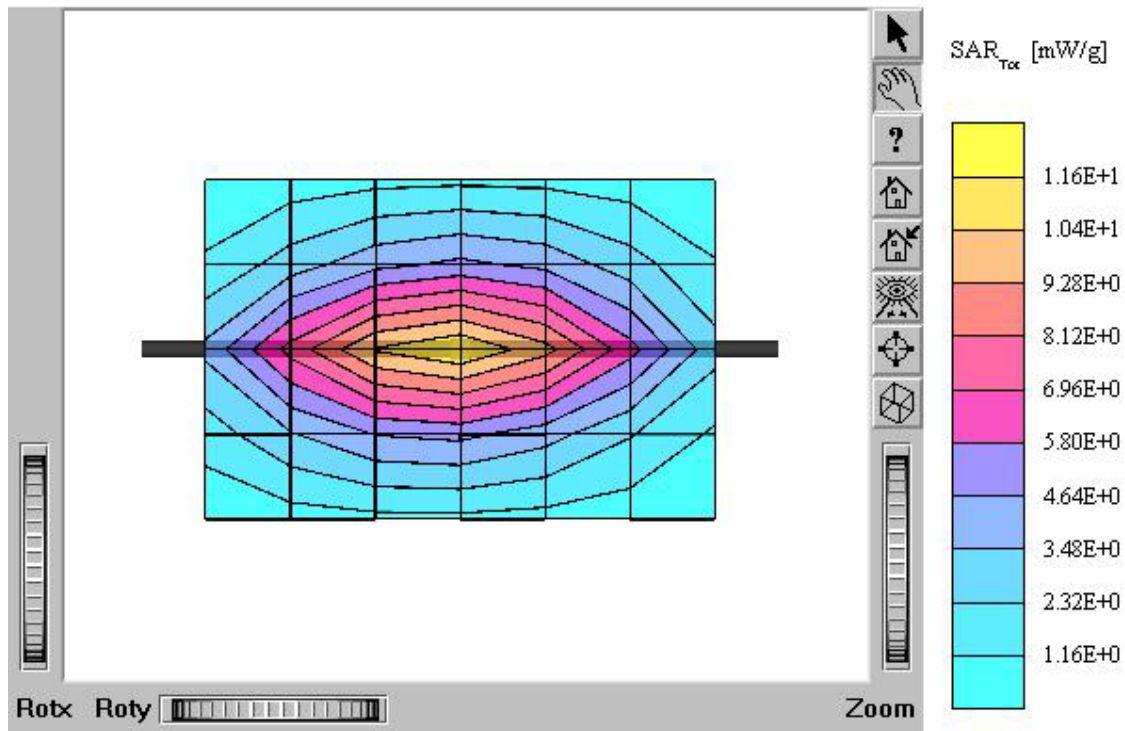


ATTACHMENT Q – DIPOLE VALIDATION

■ 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: $s = 0.89$
 $\rho_{\text{ho/m e}} = 42.9$ $r = 1.00$ g/cm^3
Cubes (2): SAR (1g): $10.1 \text{ mW/g} \pm 0.00 \text{ dB}$, SAR (10g): $6.50 \text{ mW/g} \pm 0.00 \text{ dB}$
Coarse: $D_x = 20.0$, $D_y = 20.0$, $D_z = 10.0$
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: 21.3°C
Date Tested : October 7, 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: $s = 1.39$

$\rho_{\text{ho/m}}$ $\epsilon_r = 40.3$ $r = 1.00$ g/cm^3

Cubes (2): SAR (1g): $42.0 \text{ mW/g} \pm 0.09 \text{ dB}$, SAR (10g): $21.4 \text{ mW/g} \pm 0.10 \text{ dB}$

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

Powerdrift: -0.00 dB

Comment:

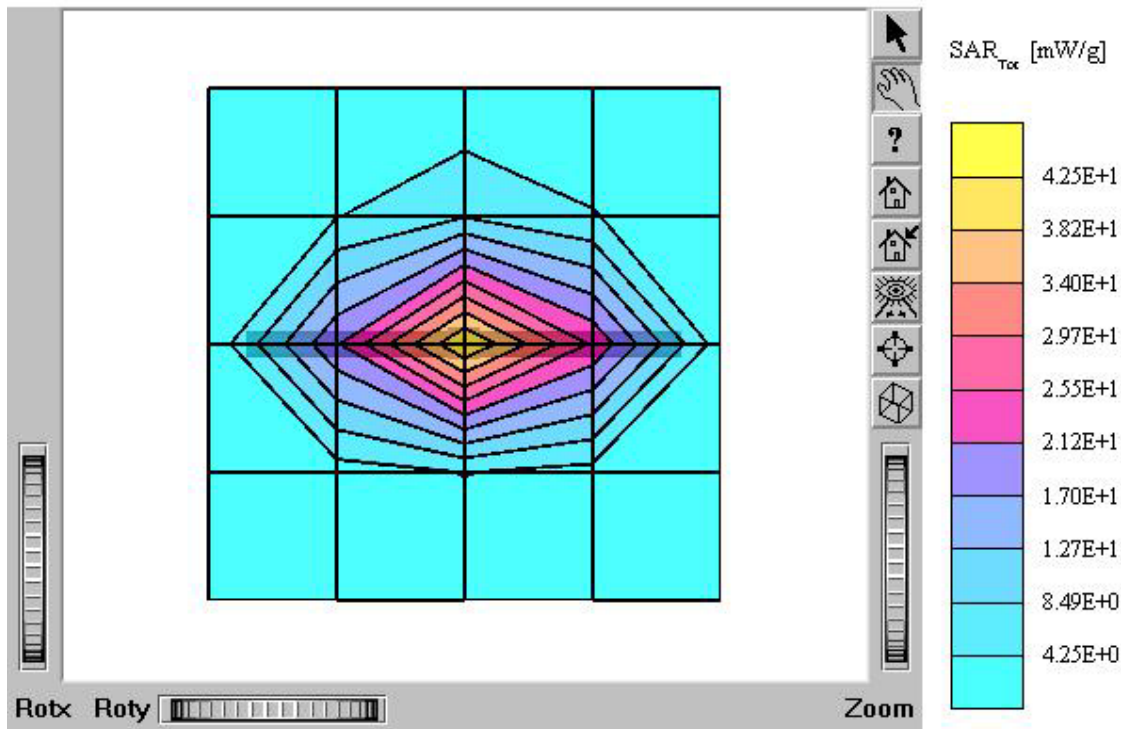
1900 MHz Brain Dipole Validation (D1900V2/ S.N: 5d032)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature: 21.3°C

Date Tested : October 7, 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: $s = 0.89$
 ρ_{ho}/m $e_r = 42.9$ $r = 1.00$ g/cm^3

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

Comment:

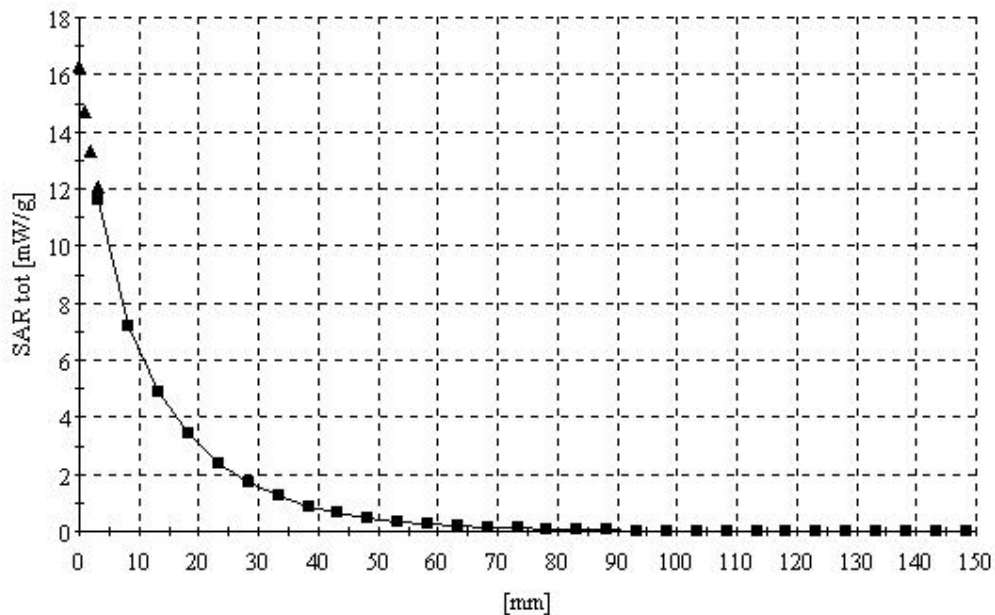
835MHz Brain Dipole Validation (D835V2/ S.N: 441)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature: 21.3°C

Date Tested : October 7, 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: $s = 1.39$
 $\rho_{\text{ho/m}} e_r = 40.3$ $r = 1.00$ g/cm³

.

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

Comment:

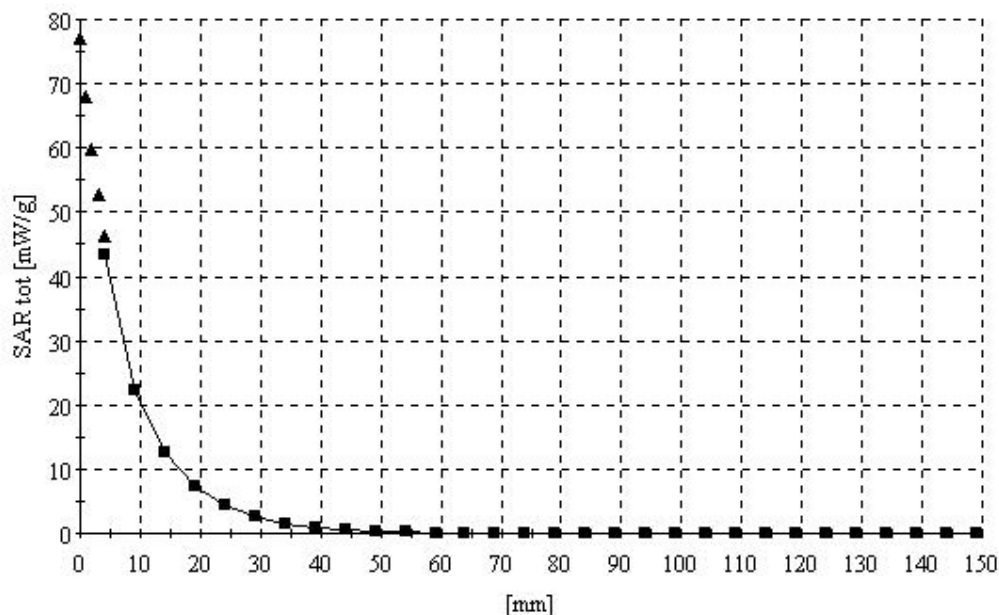
1900 MHz Brain Dipole Validation (D1900V2/ S.N: 5d032)

Antenna Input Power: 30 dBm (1 W)

HCT Co., Ltd. Brain Tissue Simulating Liquid

Liquid Temperature: 21.3°C

Date Tested : October 7, 2004



■ Dielectric Parameter (835MHz Brain)

Title : S510**SubTitle : GSM850 Brain**

October 07, 2004 09:04 AM

Frequency	e'	e''
800.000000 MHz	43.5243	19.5391
805.000000 MHz	43.4302	19.4653
810.000000 MHz	43.3703	19.3936
815.000000 MHz	43.2287	19.4107
820.000000 MHz	43.1945	19.2904
825.000000 MHz	43.0792	19.2585
830.000000 MHz	43.0053	19.1625
835.000000 MHz	42.9397	19.2023
840.000000 MHz	42.8100	19.1976
845.000000 MHz	42.7698	19.1360
850.000000 MHz	42.6790	19.1834
855.000000 MHz	42.6327	19.1659
860.000000 MHz	42.5655	19.1445
865.000000 MHz	42.5510	19.1591
870.000000 MHz	42.4891	19.2182
875.000000 MHz	42.4536	19.2590
880.000000 MHz	42.4668	19.2898
885.000000 MHz	42.3664	19.2437
890.000000 MHz	42.3637	19.2840
895.000000 MHz	42.3046	19.3011
900.000000 MHz	42.2144	19.2781

■ Dielectric Parameter (1900MHz Brain)

Title : S510**SubTitle : GSM1900 Brain**

October 07, 2004 04:19 PM

Frequency	e'	e''
1.800000000 GHz	40.7875	12.9097
1.810000000 GHz	40.7213	12.9519
1.820000000 GHz	40.6982	13.0067
1.830000000 GHz	40.6364	13.0797
1.840000000 GHz	40.6153	13.0995
1.850000000 GHz	40.5606	13.1500
1.860000000 GHz	40.5644	13.1810
1.870000000 GHz	40.5276	13.1987
1.880000000 GHz	40.4877	13.2006
1.890000000 GHz	40.4498	13.2223
1.900000000 GHz	40.3235	13.2034
1.910000000 GHz	40.2586	13.2167
1.920000000 GHz	40.1870	13.2677
1.930000000 GHz	40.0844	13.2919
1.940000000 GHz	40.0242	13.3241
1.950000000 GHz	39.9801	13.3696
1.960000000 GHz	39.9501	13.4561
1.970000000 GHz	39.9433	13.4913
1.980000000 GHz	39.9239	13.5409
1.990000000 GHz	39.9171	13.5553
2.000000000 GHz	39.9106	13.5900

■ Dielectric Parameter (835MHz Muscle)

Title : S510**SubTitle : GSM850 Body**

October 07, 2004 01:39 PM

Frequency	e'	e''
800.000000 MHz	56.2657	20.9463
805.000000 MHz	56.2312	20.8699
810.000000 MHz	56.1561	20.8659
815.000000 MHz	56.1702	20.8852
820.000000 MHz	56.0895	20.8441
825.000000 MHz	56.0413	20.8416
830.000000 MHz	55.8754	20.8336
835.000000 MHz	55.7715	20.7641
840.000000 MHz	55.7080	20.7685
845.000000 MHz	55.5945	20.6386
850.000000 MHz	55.5774	20.6152
855.000000 MHz	55.4875	20.5983
860.000000 MHz	55.4590	20.5689
865.000000 MHz	55.4590	20.5824
870.000000 MHz	55.3612	20.5909
875.000000 MHz	55.3499	20.5978
880.000000 MHz	55.2750	20.5763
885.000000 MHz	55.0806	20.4915
890.000000 MHz	55.0213	20.5022
895.000000 MHz	54.9867	20.5716
900.000000 MHz	54.9515	20.6616

■ Dielectric Parameter (1900MHz Muscle)

Title : S510**SubTitle : GSM1900 Body**

October 07, 2004 07:59 PM

Frequency	e'	e''
1.800000000 GHz	52.0964	13.3051
1.806666667 GHz	52.0507	13.3413
1.813333333 GHz	52.0265	13.4056
1.820000000 GHz	51.9704	13.4438
1.826666667 GHz	51.9832	13.4906
1.833333333 GHz	51.9189	13.5293
1.840000000 GHz	51.8956	13.5896
1.846666667 GHz	51.8858	13.6312
1.853333333 GHz	51.8537	13.7278
1.860000000 GHz	51.8148	13.7664
1.866666667 GHz	51.7878	13.8091
1.873333333 GHz	51.7900	13.8758
1.880000000 GHz	51.7357	13.9215
1.886666667 GHz	51.7582	13.9525
1.893333333 GHz	51.7015	13.9972
1.900000000 GHz	51.6804	14.0529
1.906666667 GHz	51.6509	14.1020
1.913333333 GHz	51.6357	14.1420
1.920000000 GHz	51.5928	14.1503
1.926666667 GHz	51.5785	14.1933
1.933333333 GHz	51.5657	14.2173
1.940000000 GHz	51.5238	14.2785
1.946666667 GHz	51.5157	14.3019
1.953333333 GHz	51.5020	14.3839
1.960000000 GHz	51.4847	14.3875