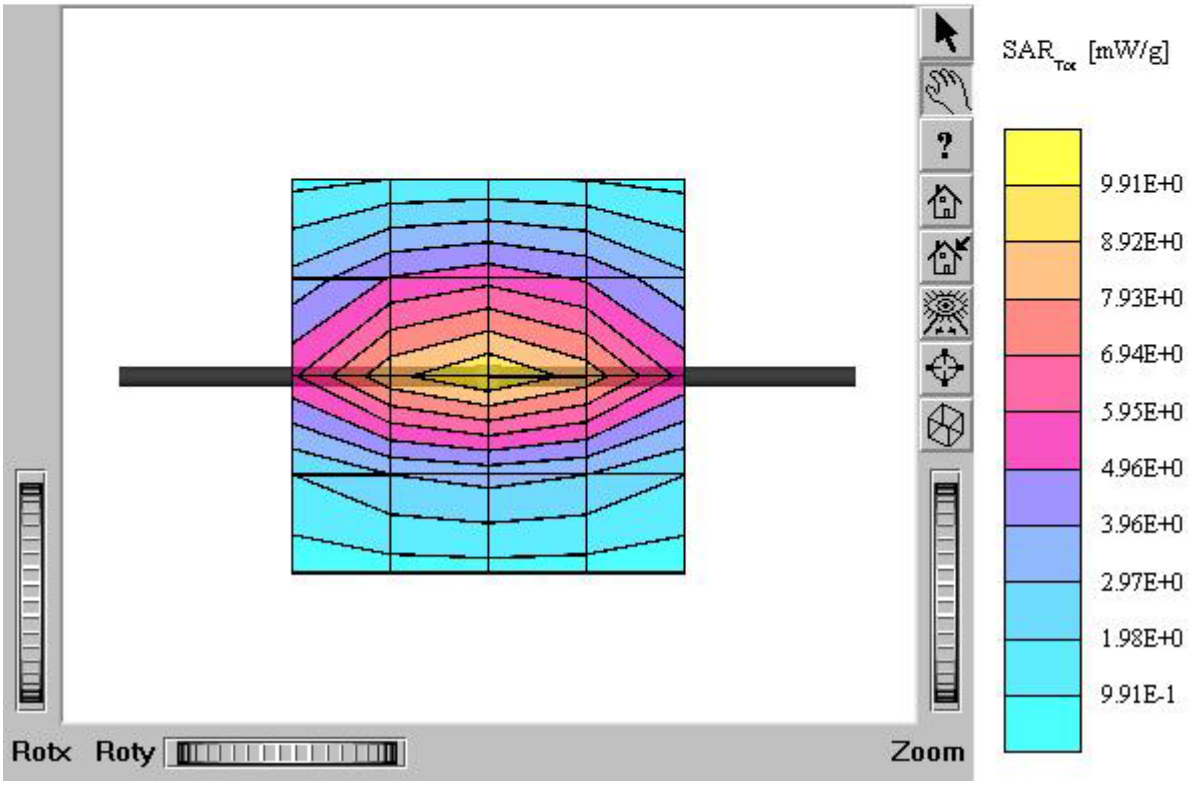
ATTACHMENT Q – DIPOLE VALIDATION

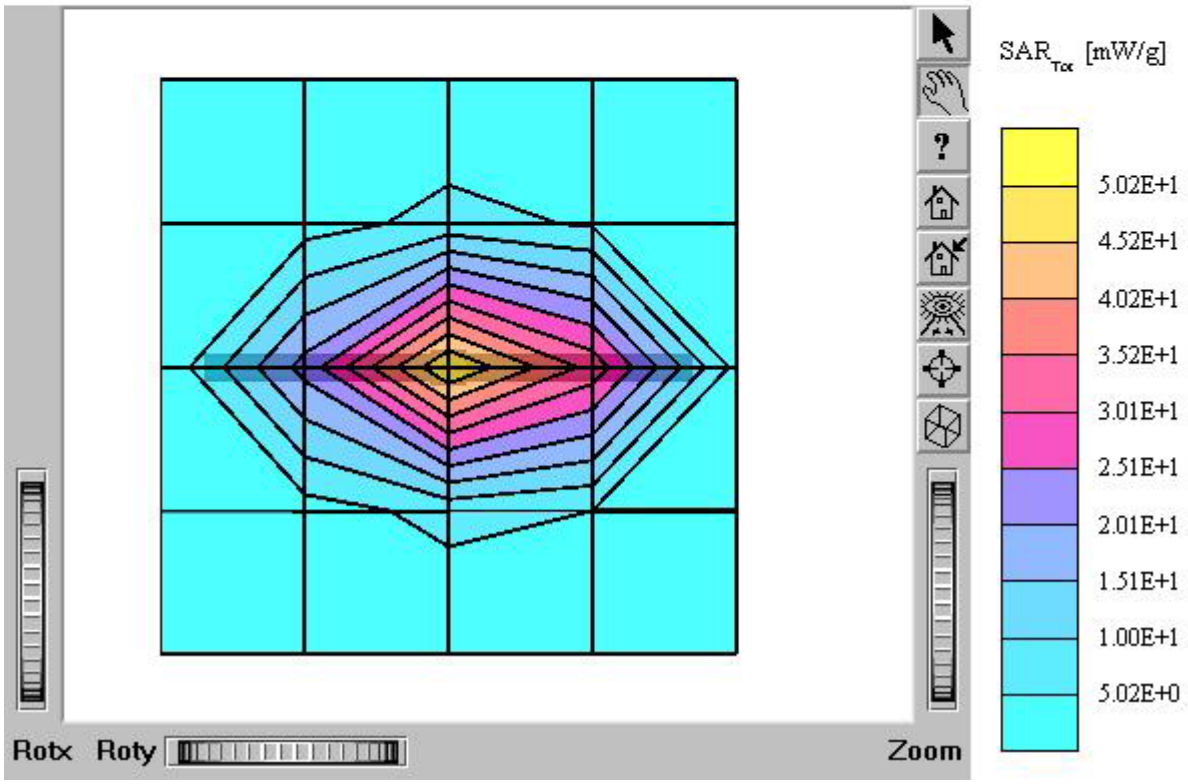
■ Validation Data (835MHz Brain)

Dipole 835 MHz
SAM I Phantom; Flat Section; Position: (90°,90°); Frequency: 835 MHz
Probe: ET3DV6 - SN1609; ConvF(6.63,6.63,6.63); Crest factor: 1.0; Brain 835 MHz: s = 0.88 mho/m e, = 42.5 r = 1.00 g/cm³
Cubes (2): SAR (1g): 10.2 mW/g ± 0.15 dB, SAR (10g): 6.52 mW/g ± 0.14 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: 21.8°c
Date Tested : November 15, 2004



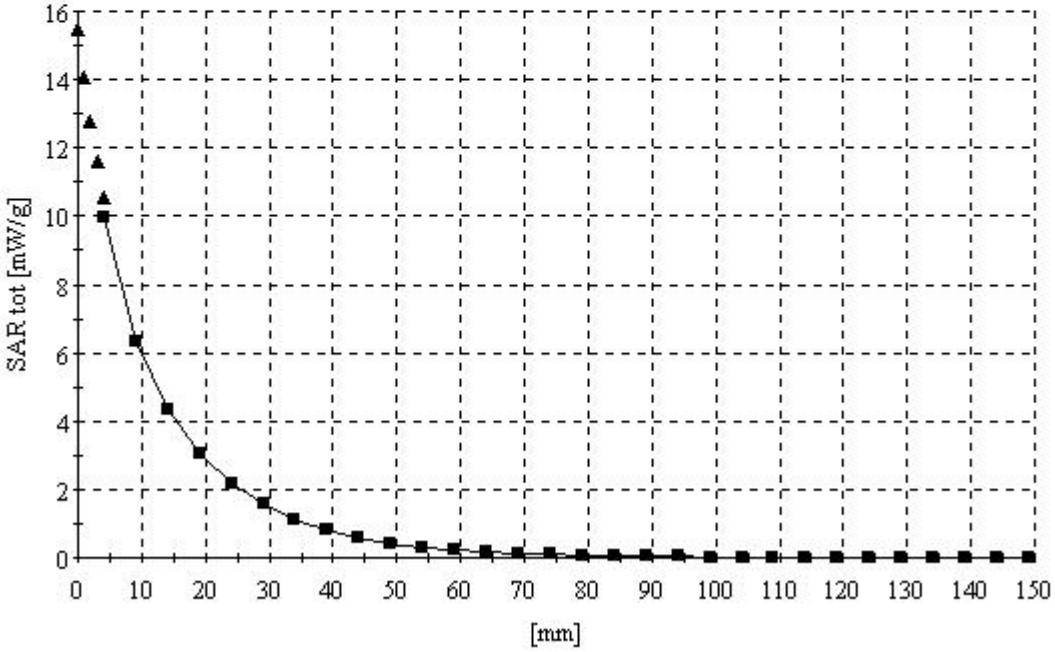
■ Validation Data (1900MHz Brain)

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 = 1.41 mho/m e_r = 39.5 r = 1.00 g/cm³
Cubes (2): SAR (1g): 41.9 mW/g ± 0.02 dB, SAR (10g): 21.1 mW/g ± 0.02 dB
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: -0.04 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: 21.4℃
Date Tested : November 16, 2004



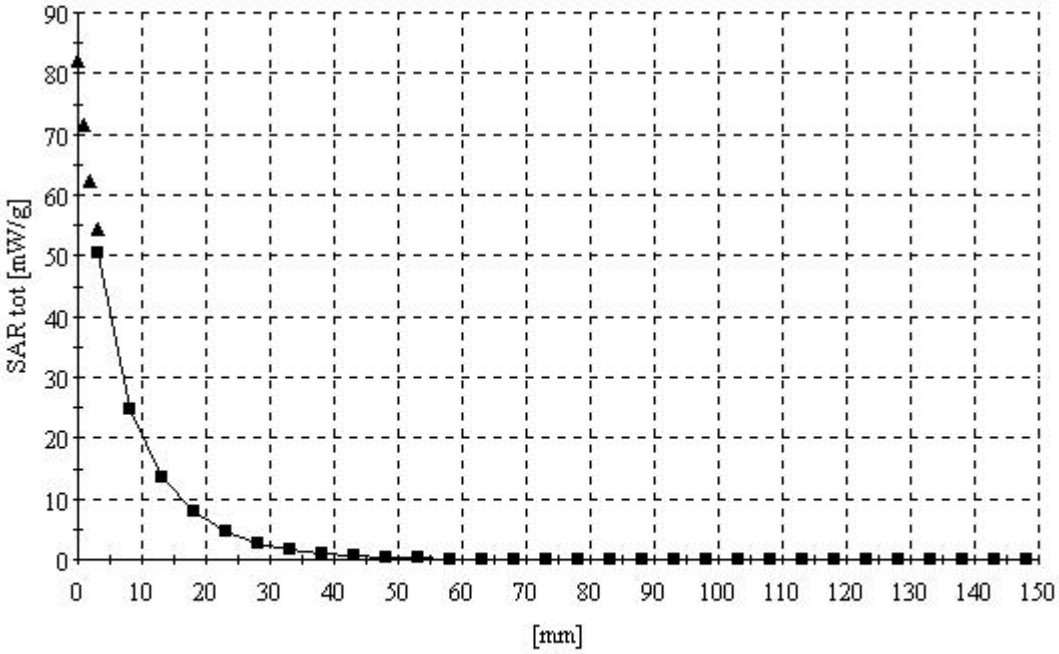
Dipole 835 MHz
SAM I Phantom; Section; Position: ; Frequency: 835 MHz
Probe: ET3DV6 - SN1609; ConvF(6.63,6.63,6.63); Crest factor: 1.0; Brain 835 MHz: s = 0.88 mho/m e_r = 42.5 r = 1.00 g/cm³
:
Z-Axis: Dx = 0.0, Dy = 0.0, Dz = 5.0

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: 21.8℃
Date Tested : November 15, 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 = 1.41 mho/m e_r = 39.5 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: 21.4℃
Date Tested : November 16, 2004



■ Dielectric Parameter (835MHz Brain)

Title : G902

SubTitle : GSM850 Brain

November 15, 2004 09:09 AM

Frequency	e'	e''
800.000000 MHz	43.0826	18.9748
805.000000 MHz	42.9989	18.9348
810.000000 MHz	42.8849	18.9364
815.000000 MHz	42.8066	18.9068
820.000000 MHz	42.7236	19.0072
825.000000 MHz	42.6093	18.9724
830.000000 MHz	42.5383	19.0105
835.000000 MHz	42.4637	19.0127
840.000000 MHz	42.3502	19.0577
845.000000 MHz	42.3690	19.0853
850.000000 MHz	42.2992	19.1278
855.000000 MHz	42.2373	19.1575
860.000000 MHz	42.1709	19.1678
865.000000 MHz	42.1932	19.1623
870.000000 MHz	42.1296	19.1413
875.000000 MHz	42.0911	19.1335
880.000000 MHz	42.0218	19.1046
885.000000 MHz	41.9679	19.1069
890.000000 MHz	41.9478	19.0690
895.000000 MHz	41.8874	18.9788
900.000000 MHz	41.8261	18.9494

■ Dielectric Parameter (1900MHz Brain)

Title : G902
SubTitle : GSM1900 Brain
November 16, 2004 09:12 AM

Frequency	e'	e''
1.800000000 GHz	39.9306	12.9941
1.806666667 GHz	39.8699	13.0092
1.813333333 GHz	39.8036	13.0733
1.820000000 GHz	39.7841	13.1481
1.826666667 GHz	39.7738	13.1777
1.833333333 GHz	39.7527	13.2230
1.840000000 GHz	39.7988	13.2928
1.846666667 GHz	39.7793	13.3338
1.853333333 GHz	39.7825	13.3665
1.860000000 GHz	39.8044	13.3993
1.866666667 GHz	39.7724	13.4268
1.873333333 GHz	39.7710	13.4260
1.880000000 GHz	39.7182	13.4518
1.886666667 GHz	39.6859	13.4199
1.893333333 GHz	39.6153	13.4067
1.900000000 GHz	39.5237	13.3925
1.906666667 GHz	39.4681	13.3825
1.913333333 GHz	39.3754	13.3877
1.920000000 GHz	39.3132	13.4210
1.926666667 GHz	39.2421	13.4484
1.933333333 GHz	39.1813	13.4724
1.940000000 GHz	39.1680	13.5188
1.946666667 GHz	39.0997	13.5656
1.953333333 GHz	39.0962	13.6115
1.960000000 GHz	39.0948	13.6912

■ Dielectric Parameter (835MHz Muscle)

Title : G902
SubTitle : GSM850 Body
November 16, 2004 03:47 PM

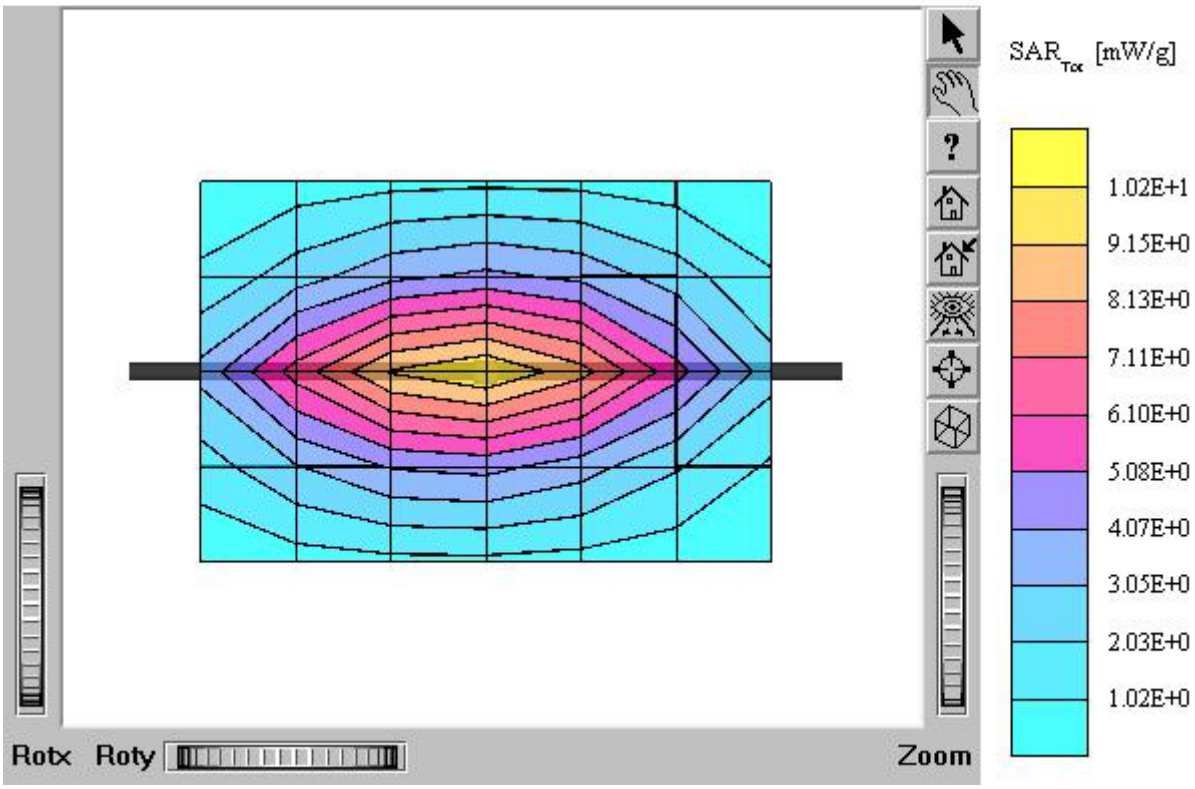
Frequency	e'	e''
800.000000 MHz	56.2829	20.8371
805.000000 MHz	56.2792	20.7839
810.000000 MHz	56.2038	20.7802
815.000000 MHz	56.1964	20.7739
820.000000 MHz	56.1025	20.7887
825.000000 MHz	56.0272	20.7742
830.000000 MHz	55.9154	20.7628
835.000000 MHz	55.7749	20.6853
840.000000 MHz	55.7218	20.6310
845.000000 MHz	55.5593	20.5753
850.000000 MHz	55.6140	20.5684
855.000000 MHz	55.5107	20.5459
860.000000 MHz	55.4241	20.5067
865.000000 MHz	55.4204	20.5112
870.000000 MHz	55.3841	20.4853
875.000000 MHz	55.3013	20.5153
880.000000 MHz	55.2301	20.5302
885.000000 MHz	55.0991	20.4046
890.000000 MHz	55.0560	20.4039
895.000000 MHz	55.0230	20.5044
900.000000 MHz	54.8935	20.5697

■ Dielectric Parameter (1900MHz Muscle)

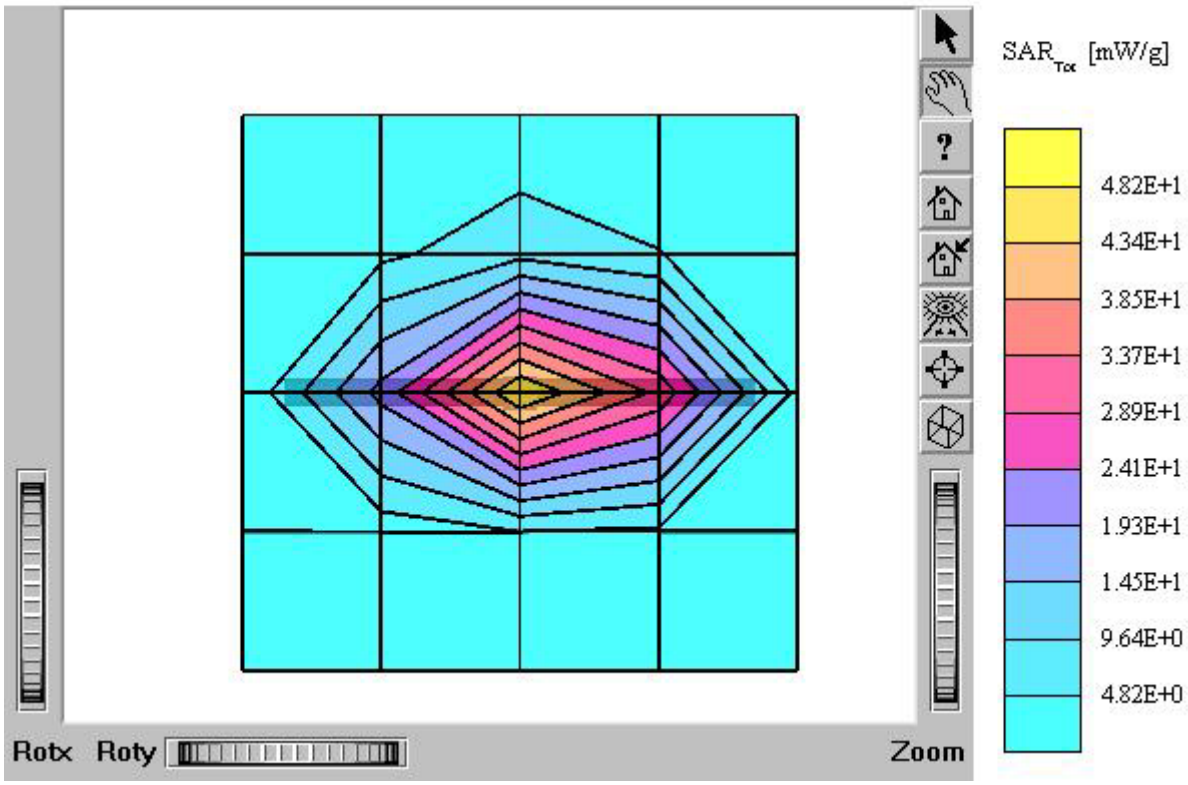
Title : G902
SubTitle : GSM1900 Body
November 16, 2004 03:37 PM

Frequency	e'	e''
1.800000000 GHz	51.6347	12.9424
1.806666667 GHz	51.6014	13.0193
1.813333333 GHz	51.5969	13.0789
1.820000000 GHz	51.5644	13.1623
1.826666667 GHz	51.5386	13.1942
1.833333333 GHz	51.4870	13.2236
1.840000000 GHz	51.4439	13.2987
1.846666667 GHz	51.4519	13.3336
1.853333333 GHz	51.4269	13.4392
1.860000000 GHz	51.4088	13.5107
1.866666667 GHz	51.3647	13.5590
1.873333333 GHz	51.3198	13.6293
1.880000000 GHz	51.3091	13.7052
1.886666667 GHz	51.2943	13.7952
1.893333333 GHz	51.2718	13.8711
1.900000000 GHz	51.2778	13.9499
1.906666667 GHz	51.2633	14.0082
1.913333333 GHz	51.2390	14.0859
1.920000000 GHz	51.1963	14.1024
1.926666667 GHz	51.1908	14.1670
1.933333333 GHz	51.2105	14.2195
1.940000000 GHz	51.2002	14.2532
1.946666667 GHz	51.1493	14.2955
1.953333333 GHz	51.1264	14.3443
1.960000000 GHz	51.1151	14.3932

Dipole 835 MHz
SAM II Phantom; Flat Section; Position: (90°,90°); Frequency: 835 MHz
Probe: ET3DV6 - SN1609; ConvF(6.63,6.63,6.63); Crest factor: 1.0; Head 835 MHz: s = 0.89 mho/m e_r = 42.5 r = 1.00 g/cm³
Cubes (2): SAR (1g): 10.2 mW/g ± 0.00 dB, SAR (10g): 6.44 mW/g ± 0.06 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℃
Date Tested : December 8, 2004



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 = 1.41 mho/m e_r = 39.3 r = 1.00 g/cm³
Cubes (2): SAR (1g): 40.2 mW/g ± 0.02 dB, SAR (10g): 20.3 mW/g ± 0.00 dB
Coarse: Dx = 20.0, Dy = 20.0, Dz = 10.0
Powerdrift: 0.01 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 : December 8, 2004



Title : G902

SubTitle : GSM850 Brain

December 08, 2004 08:47 AM

Frequency	e'	e''
800.000000 MHz	43.0810	19.2042
805.000000 MHz	43.0463	19.1819
810.000000 MHz	42.8810	19.1533
815.000000 MHz	42.8484	19.1312
820.000000 MHz	42.7655	19.1930
825.000000 MHz	42.6778	19.1761
830.000000 MHz	42.6095	19.1489
835.000000 MHz	42.5055	19.1586
840.000000 MHz	42.4375	19.1793
845.000000 MHz	42.4148	19.2077
850.000000 MHz	42.3310	19.2017
855.000000 MHz	42.2758	19.2186
860.000000 MHz	42.1931	19.2436
865.000000 MHz	42.1799	19.1867
870.000000 MHz	42.0789	19.1767
875.000000 MHz	42.0780	19.1576
880.000000 MHz	41.9912	19.1542
885.000000 MHz	41.9185	19.1267
890.000000 MHz	41.8890	19.1067
895.000000 MHz	41.8182	19.0795
900.000000 MHz	41.7874	19.0505

Title : G902

SubTitle : GSM1900 Brain

December 08, 2004 01:13 PM

Frequency	e'	e''
1.800000000 GHz	39.6826	13.0053
1.806666667 GHz	39.6466	13.0303
1.813333333 GHz	39.5859	13.0733
1.820000000 GHz	39.5531	13.1506
1.826666667 GHz	39.5391	13.1983
1.833333333 GHz	39.5269	13.2478
1.840000000 GHz	39.5440	13.2850
1.846666667 GHz	39.5729	13.3598
1.853333333 GHz	39.5544	13.3766
1.860000000 GHz	39.5751	13.4168
1.866666667 GHz	39.5549	13.4435
1.873333333 GHz	39.5722	13.4526
1.880000000 GHz	39.5194	13.4401
1.886666667 GHz	39.4735	13.4472
1.893333333 GHz	39.4170	13.4227
1.900000000 GHz	39.3332	13.4011
1.906666667 GHz	39.2570	13.4046
1.913333333 GHz	39.1813	13.4171
1.920000000 GHz	39.1089	13.4338
1.926666667 GHz	39.0405	13.4510
1.933333333 GHz	38.9762	13.4690
1.940000000 GHz	38.9292	13.5404
1.946666667 GHz	38.8929	13.5817
1.953333333 GHz	38.8762	13.6249
1.960000000 GHz	38.9067	13.6815

Title : G902

SubTitle : GSM850 Body

December 08, 2004 10:56 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

Title : G902

SubTitle : GSM1900 Body

December 08, 2004 02:43 PM

Frequency	e'	e''
1.850000000 GHz	53.8445	15.0245
1.855000000 GHz	53.8313	15.0317
1.860000000 GHz	53.7833	15.0409
1.865000000 GHz	53.7562	15.0684
1.870000000 GHz	53.6592	15.0635
1.875000000 GHz	53.5943	15.0484
1.880000000 GHz	53.5844	15.0164
1.885000000 GHz	53.5088	14.9970
1.890000000 GHz	53.4471	14.9763
1.895000000 GHz	53.3941	14.9406
1.900000000 GHz	53.3340	14.9486
1.905000000 GHz	53.3067	14.9559
1.910000000 GHz	53.2527	14.9221
1.915000000 GHz	53.2357	14.9276
1.920000000 GHz	53.2220	14.9522
1.925000000 GHz	53.2222	14.9674
1.930000000 GHz	53.2428	15.0076
1.935000000 GHz	53.2534	15.0756
1.940000000 GHz	53.2237	15.1081
1.945000000 GHz	53.2287	15.1299
1.950000000 GHz	53.2649	15.1956