

ATTACHMENT Q – DIPOLE VALIDATION

■ Validation Data (835MHz Head)

Test Laboratory: HCT

835 Dipole Validation test: Input power(1W)

Liquid Temperature : 21.6 °C

Date Tested : March 29, 2006

DUT: Dipole 835 MHz; Type: D835V2 - SN:441

Program Name: Validation

Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.884 \text{ mho/m}$; $\epsilon_r = 41$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1607; ConvF(6.18, 6.18, 6.18); Calibrated: 2005-08-30

- Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn446; Calibrated: 2006-03-17

- Phantom: SAM 835/900 MHz; Type: SAM

Validation 835 MHz/Area Scan (61x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 10.6 mW/g

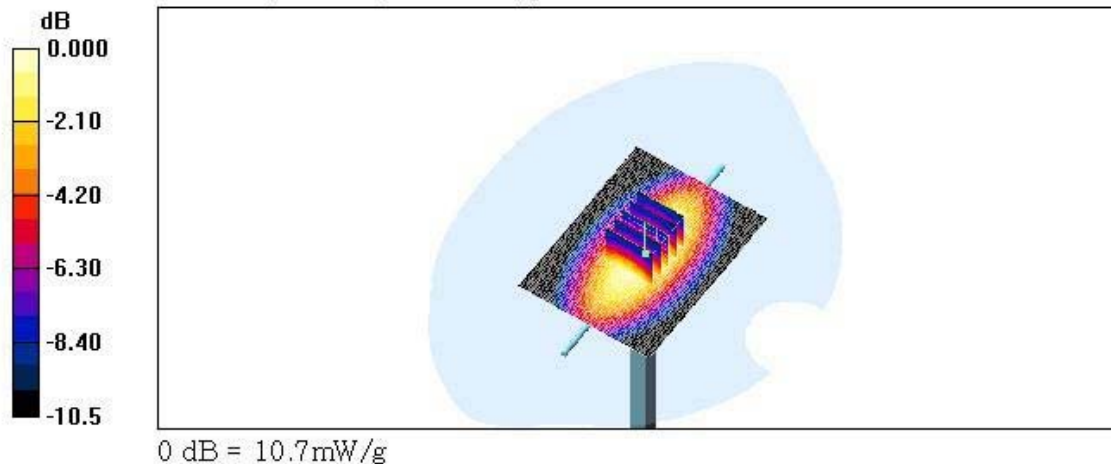
Validation 835 MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 113.5 V/m; Power Drift = -0.031 dB

Peak SAR (extrapolated) = 14.4 W/kg

SAR(1 g) = 9.9 mW/g; SAR(10 g) = 6.53 mW/g

Maximum value of SAR (measured) = 10.7 mW/g



■ Validation Data (1900MHz Head)

Test Laboratory: HCT

1900 Dipole Validation test: Input power(1W)

Liquid Temperature : 21.4 °C

Date Tested : March 30, 2006

DUT: Dipole 1900 MHz; Type: D1900V2 - SN:5d032

Program Name: Validation

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.45 \text{ mho/m}$; $\epsilon_r = 40$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1607; ConvF(5.14, 5.14, 5.14); Calibrated: 2005-08-30

- Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn446; Calibrated: 2006-03-17

- Phantom: SAM 1800/1900 MHz; Type: SAM

Dipole 1900MHz Validation/Area Scan (61x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 46.4 mW/g

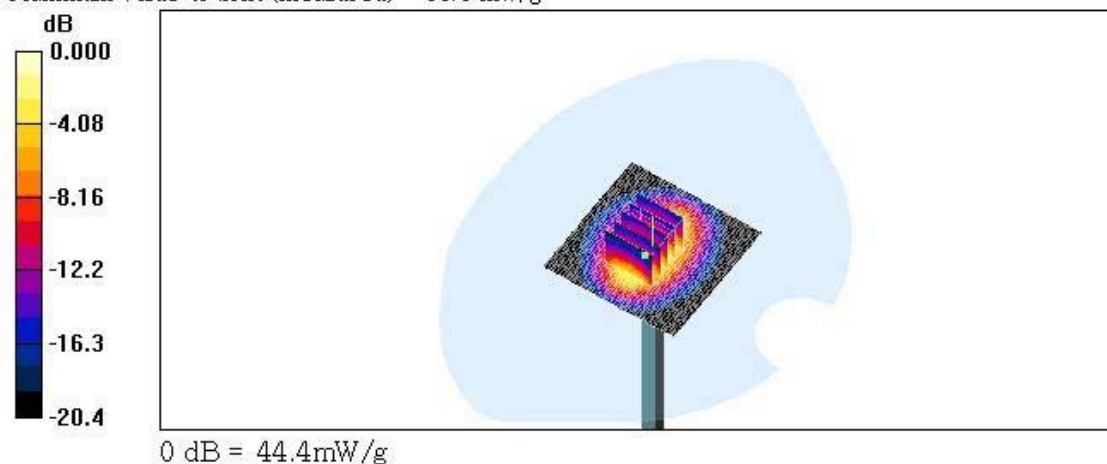
Dipole 1900MHz Validation/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 187.1 V/m; Power Drift = -0.016 dB

Peak SAR (extrapolated) = 71.6 W/kg

SAR(1 g) = 39.4 mW/g; SAR(10 g) = 20.2 mW/g

Maximum value of SAR (measured) = 44.4 mW/g



■ Validation Data (835MHz Head)

835 Dipole Validation test: Input power(1W)
Liquid Temperature : 21.7 °C
Date Tested : April 17, 2006

DUT: Dipole 835 MHz; Type: D835V2; Serial: D835V2 - SN:xxx
Program Name: Validation

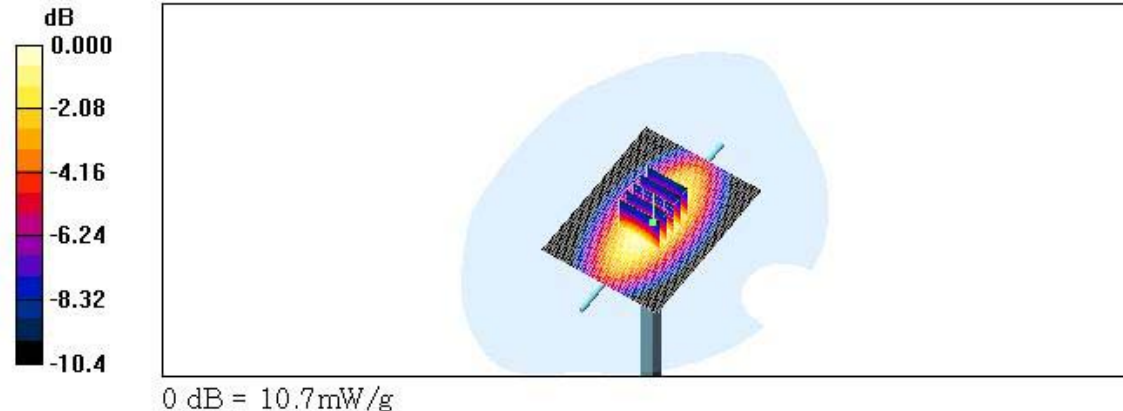
Communication System: CW; Frequency: 835 MHz; Duty Cycle: 1:1
Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.89 \text{ mho/m}$; $\epsilon_r = 42.1$; $\rho = 1000 \text{ kg/m}^3$
Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1607; ConvF(6.18, 6.18, 6.18); Calibrated: 2005-08-30
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE3 Sn446; Calibrated: 2006-03-17
- Phantom: SAM 835/900 MHz; Type: SAM

Validation 835 MHz/Area Scan (61x81x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$
Maximum value of SAR (interpolated) = 10.6 mW/g

Validation 835 MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$
Reference Value = 113.2 V/m; Power Drift = -0.036 dB
Peak SAR (extrapolated) = 14.3 W/kg
SAR(1 g) = 9.87 mW/g; SAR(10 g) = 6.52 mW/g
Maximum value of SAR (measured) = 10.7 mW/g



■ Validation Data (1900MHz Head)

1900 Dipole Validation test: Input power(1W)

Liquid Temperature : 21.7 °C

Date Tested : April 17, 2006

DUT: Dipole 1900 MHz; Type: D1900V2; Serial: D1900V2 - SN:xxx

Program Name: Validation

Communication System: CW; Frequency: 1900 MHz; Duty Cycle: 1:1

Medium parameters used: $f = 1900 \text{ MHz}$; $\sigma = 1.45 \text{ mho/m}$; $\epsilon_r = 39.9$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section

DASY4 Configuration:

- Probe: ET3DV6 - SN1607; ConvF(5.14, 5.14, 5.14); Calibrated: 2005-08-30

- Sensor-Surface: 4mm (Mechanical Surface Detection)

- Electronics: DAE3 Sn446; Calibrated: 2006-03-17

- Phantom: SAM 1800/1900 MHz; Type: SAM

Dipole 1900MHz Validation/Area Scan (61x61x1): Measurement grid: $dx=15\text{mm}$, $dy=15\text{mm}$

Maximum value of SAR (interpolated) = 47.1 mW/g

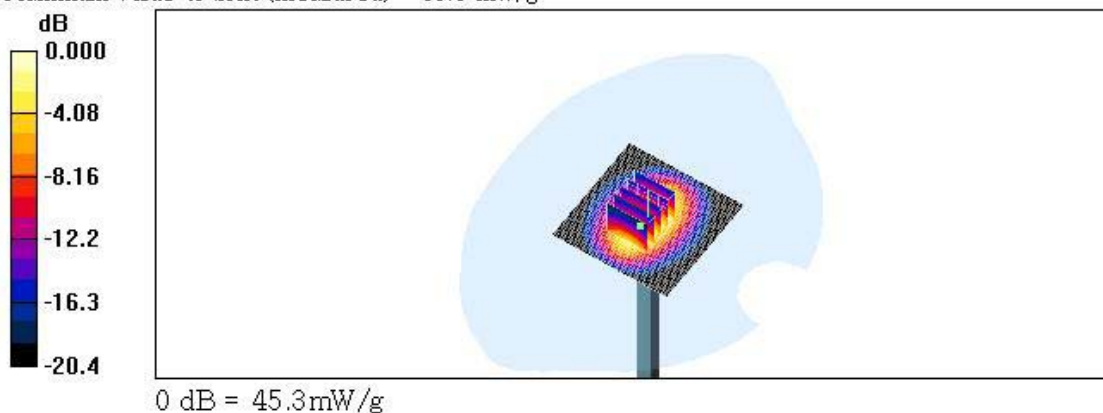
Dipole 1900MHz Validation/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8\text{mm}$, $dy=8\text{mm}$, $dz=5\text{mm}$

Reference Value = 189.2 V/m; Power Drift = 0.050 dB

Peak SAR (extrapolated) = 73.2 W/kg

SAR(1 g) = 40.4 mW/g; SAR(10 g) = 20.7 mW/g

Maximum value of SAR (measured) = 45.3 mW/g



■ Dielectric Parameter (835MHz Head)

Title : PC-8200N

SubTitle : CDMA835 Head

March 29, 2006 03:57 AM

Frequency	e'	e''
800.000000 MHz	41.6742	19.1970
805.000000 MHz	41.6216	19.1620
810.000000 MHz	41.3683	19.2571
815.000000 MHz	41.1844	19.2798
820.000000 MHz	41.2760	19.0151
825.000000 MHz	41.1829	18.8562
830.000000 MHz	41.0488	19.0052
835.000000 MHz	40.9801	19.0410
840.000000 MHz	40.7572	19.3072
845.000000 MHz	40.7101	19.1074
850.000000 MHz	40.7315	18.8147
855.000000 MHz	40.7120	18.7593
860.000000 MHz	40.6789	19.0112
865.000000 MHz	40.5468	18.9428
870.000000 MHz	40.2774	19.2084
875.000000 MHz	40.3309	19.0679
880.000000 MHz	40.3804	18.7589
885.000000 MHz	40.3377	18.6737
890.000000 MHz	40.1699	18.9636
895.000000 MHz	40.1294	18.9127
900.000000 MHz	39.8446	19.1403

■ Dielectric Parameter (1900MHz Head)

Title : PC-8200N

SubTitle : PCS1900 Head

March 30, 2006 09:27 AM

Frequency	e'	e''
1.800000000 GHz	40.4369	13.3117
1.810000000 GHz	40.3387	13.3772
1.820000000 GHz	40.2945	13.4185
1.830000000 GHz	40.2369	13.5383
1.840000000 GHz	40.2528	13.6362
1.850000000 GHz	40.2690	13.7607
1.860000000 GHz	40.2365	13.8152
1.870000000 GHz	40.1989	13.8214
1.880000000 GHz	40.1622	13.8273
1.890000000 GHz	40.0987	13.7572
1.900000000 GHz	40.0239	13.7013
1.910000000 GHz	39.9588	13.6639
1.920000000 GHz	39.8632	13.6471
1.930000000 GHz	39.8271	13.6695
1.940000000 GHz	39.7759	13.7347
1.950000000 GHz	39.7022	13.8267
1.960000000 GHz	39.6888	13.9174
1.970000000 GHz	39.6949	14.0483
1.980000000 GHz	39.6856	14.1270
1.990000000 GHz	39.6741	14.1211
2.000000000 GHz	39.6560	14.1433

■ Dielectric Parameter (835MHz Body)

Title : PC-8200N

SubTitle : CDMA835 BODY

March 29, 2006 01:39 PM

Frequency	ϵ'	ϵ''
800.000000 MHz	55.0958	21.1869
805.000000 MHz	55.1202	21.1609
810.000000 MHz	55.0377	21.1507
815.000000 MHz	55.0072	21.1557
820.000000 MHz	54.9935	21.1880
825.000000 MHz	54.9062	21.1689
830.000000 MHz	54.8772	21.2286
835.000000 MHz	54.7657	21.2410
840.000000 MHz	54.7780	21.2847
845.000000 MHz	54.7367	21.2709
850.000000 MHz	54.7108	21.2952
855.000000 MHz	54.6977	21.2926
860.000000 MHz	54.6001	21.3220
865.000000 MHz	54.6156	21.2759
870.000000 MHz	54.5486	21.2938
875.000000 MHz	54.4325	21.2505
880.000000 MHz	54.4220	21.2416
885.000000 MHz	54.3810	21.2074
890.000000 MHz	54.3035	21.1456
895.000000 MHz	54.2224	21.1386
900.000000 MHz	54.1283	21.0428

■ Dielectric Parameter (1900MHz Body)

Title : PC-8200N

SubTitle : PCS1900 BODY

March 30, 2006 02:15 PM

Frequency	e'	e''
1.800000000 GHz	52.8653	13.7264
1.810000000 GHz	52.8376	13.7736
1.820000000 GHz	52.8407	13.8663
1.830000000 GHz	52.7923	13.9136
1.840000000 GHz	52.7821	13.9853
1.850000000 GHz	52.7311	13.9920
1.860000000 GHz	52.6688	14.0527
1.870000000 GHz	52.6085	14.1012
1.880000000 GHz	52.5525	14.1319
1.890000000 GHz	52.4668	14.1793
1.900000000 GHz	52.4360	14.2135
1.910000000 GHz	52.3774	14.3096
1.920000000 GHz	52.3558	14.4080
1.930000000 GHz	52.3266	14.4526
1.940000000 GHz	52.3113	14.5097
1.950000000 GHz	52.2976	14.5547
1.960000000 GHz	52.2500	14.5922
1.970000000 GHz	52.1963	14.6286
1.980000000 GHz	52.1351	14.6476
1.990000000 GHz	52.0541	14.6968
2.000000000 GHz	52.0210	14.7225

■ Dielectric Parameter (835MHz Head)

Title : PC-8200N

SubTitle : 835MHz HEAD

April 17, 2006 10:01 AM

Frequency	e'	e''
800.000000 MHz	42.6535	19.2353
805.000000 MHz	42.6385	19.1978
810.000000 MHz	42.5094	19.2138
815.000000 MHz	42.4330	19.2584
820.000000 MHz	42.4110	19.1487
825.000000 MHz	42.3467	19.1901
830.000000 MHz	42.2501	19.1875
835.000000 MHz	42.1147	19.1542
840.000000 MHz	42.0708	19.1062
845.000000 MHz	41.9411	19.0833
850.000000 MHz	41.9006	19.0769
855.000000 MHz	41.7722	19.0134
860.000000 MHz	41.7214	19.0005
865.000000 MHz	41.6365	19.0080
870.000000 MHz	41.5408	19.0086
875.000000 MHz	41.4020	18.9615
880.000000 MHz	41.3600	18.9473
885.000000 MHz	41.2476	18.9642
890.000000 MHz	41.2110	18.9788
895.000000 MHz	41.1352	18.9256
900.000000 MHz	41.1012	18.9101

■ Dielectric Parameter (1900MHz Head)

Title : PC-8200N

SubTitle : 1900MHz HEAD

April 17, 2006 11:31 AM

Frequency	e'	e''
1.800000000 GHz	40.2951	13.3501
1.810000000 GHz	40.2416	13.4128
1.820000000 GHz	40.1901	13.4468
1.830000000 GHz	40.1649	13.5497
1.840000000 GHz	40.1490	13.6405
1.850000000 GHz	40.1292	13.7030
1.860000000 GHz	40.1198	13.7557
1.870000000 GHz	40.0626	13.7690
1.880000000 GHz	39.9998	13.7622
1.890000000 GHz	39.9375	13.6983
1.900000000 GHz	39.8719	13.6794
1.910000000 GHz	39.8210	13.6635
1.920000000 GHz	39.7449	13.6942
1.930000000 GHz	39.7189	13.7223
1.940000000 GHz	39.6679	13.7966
1.950000000 GHz	39.6223	13.8674
1.960000000 GHz	39.6072	13.9062
1.970000000 GHz	39.5814	14.0113
1.980000000 GHz	39.5531	14.0705
1.990000000 GHz	39.5155	14.0739
2.000000000 GHz	39.4917	14.0832

■ Dielectric Parameter (835MHz Body)

Title : PC-8200N

SubTitle : 835MHz BODY

April 17, 2006 03:31 PM

Frequency	e'	e''
800.000000 MHz	55.0488	21.2151
805.000000 MHz	55.0297	21.1935
810.000000 MHz	54.9396	21.1296
815.000000 MHz	54.9277	21.1846
820.000000 MHz	54.9004	21.1940
825.000000 MHz	54.8180	21.1566
830.000000 MHz	54.7577	21.2061
835.000000 MHz	54.6918	21.1909
840.000000 MHz	54.7079	21.2447
845.000000 MHz	54.6068	21.2757
850.000000 MHz	54.5923	21.3289
855.000000 MHz	54.5595	21.3014
860.000000 MHz	54.5193	21.3094
865.000000 MHz	54.4954	21.3003
870.000000 MHz	54.4420	21.3241
875.000000 MHz	54.3397	21.2596
880.000000 MHz	54.3036	21.2663
885.000000 MHz	54.2056	21.2069
890.000000 MHz	54.1900	21.1795
895.000000 MHz	54.0878	21.1179
900.000000 MHz	54.0269	21.0514

■ Dielectric Parameter (1900MHz Body)

Title : PC-8200N

SubTitle : 1900MHz BODY

April 17, 2006 02:26 PM

Frequency	e'	e''
1.800000000 GHz	52.2894	13.5918
1.810000000 GHz	52.2467	13.6765
1.820000000 GHz	52.2022	13.7521
1.830000000 GHz	52.1447	13.8429
1.840000000 GHz	52.1516	13.9389
1.850000000 GHz	52.1117	13.9825
1.860000000 GHz	52.0814	14.0467
1.870000000 GHz	52.0695	14.1090
1.880000000 GHz	52.0388	14.1918
1.890000000 GHz	52.0163	14.2852
1.900000000 GHz	52.0647	14.3510
1.910000000 GHz	52.0824	14.4119
1.920000000 GHz	51.9672	14.4465
1.930000000 GHz	52.0093	14.4706
1.940000000 GHz	52.1249	14.4985
1.950000000 GHz	52.1642	14.5350
1.960000000 GHz	52.1110	14.5819
1.970000000 GHz	52.1072	14.6332
1.980000000 GHz	52.0946	14.6390
1.990000000 GHz	52.0684	14.7155
2.000000000 GHz	52.0012	14.7056