

ATTACHMENT Q – DIPOLE VALIDATION

■ Validation Data (835MHz Head)

Test Laboratory: HCT

850 Dipole Validation test: Input power(1W)

Liquid Temperature : 22.4 °C

Date Tested : June 09, 2006

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

Program Name: Validation 835 MHz

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

Medium parameters used: $f = 835 \text{ MHz}$; $\sigma = 0.875 \text{ mho/m}$; $\epsilon_r = 40.9$; $\rho = 1000 \text{ kg/m}^3$

Phantom section: Flat Section ; Measurement SW: DASY4, V4.6 Build 23

DASY4 Configuration:

- Probe: ET3DV6 - SN1609; ConvF(6.85, 6.85, 6.85); Calibrated: 2006-03-23

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

- Electronics: DAE4 Sn447; Calibrated: 2005-11-30

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

Validatoin 835 MHz/Area Scan (61x81x1): Measurement grid: $\Delta x = 15\text{mm}$, $\Delta y = 15\text{mm}$

Maximum value of SAR (interpolated) = 10.5 mW/g

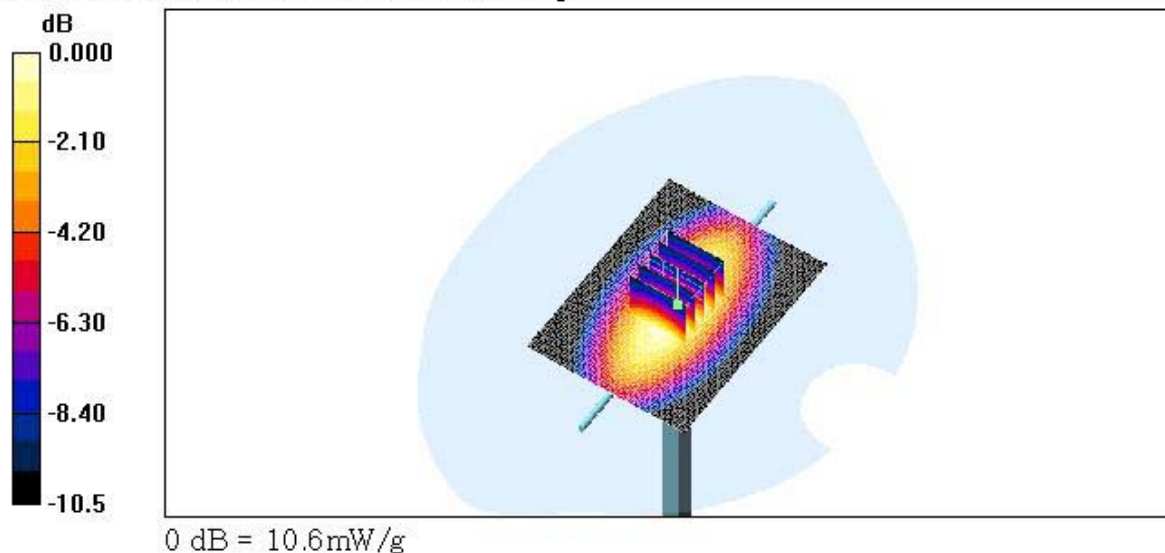
Validatoin 835 MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $\Delta x = 8\text{mm}$, $\Delta y = 8\text{mm}$, $\Delta z = 5\text{mm}$

Reference Value = 113.0 V/m; Power Drift = 0.004 dB

Peak SAR (extrapolated) = 14.4 W/kg

SAR(1 g) = 9.78 mW/g; SAR(10 g) = 6.4 mW/g

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



■ Validation Data (1900MHz Head)

Test Laboratory: HCT

1900 Dipole Validation test: Input power(1W)

Liquid Temperature : 22.4 °C

Date Tested : June 09, 2006

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

Program Name: Validation 1900 MHz

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

Medium parameters used: $f = 1900$ MHz; $\sigma = 1.46$ mho/m; $\epsilon_r = 38.3$; $\rho = 1000$ kg/m³

Phantom section: Flat Section ; Measurement SW: DASY4, V4.6 Build 23

DASY4 Configuration:

- Probe: ET3DV6 - SN1609; ConvF(5.16, 5.16, 5.16); Calibrated: 2006-03-23
- Sensor-Surface: 4mm (Mechanical Surface Detection)
- Electronics: DAE4 Sn447; Calibrated: 2005-11-30
- Phantom: SAM 1800/1900 MHz; Type: SAM

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

Maximum value of SAR (interpolated) = 50.0 mW/g

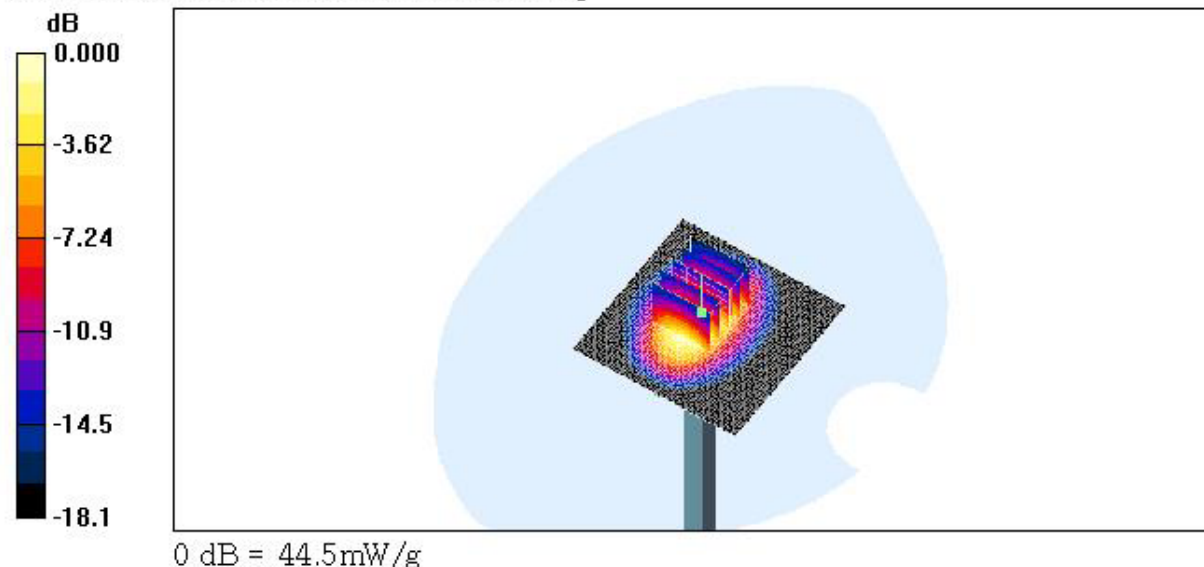
Validation 1900MHz/Zoom Scan (5x5x7)/Cube 0: Measurement grid: $dx=8$ mm, $dy=8$ mm, $dz=5$ mm

Reference Value = 185.3 V/m; Power Drift = -0.005 dB

Peak SAR (extrapolated) = 70.0 W/kg

SAR(1 g) = 40 mW/g; SAR(10 g) = 21.2 mW/g

Maximum value of SAR (measured) = 44.5 mW/g



■ Dielectric Parameter (850MHz Head)

Title : SP-115C

SubTitle : GSM850head

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Frequency	e'	e''
800.000000 MHz	41.2470	18.8988
805.000000 MHz	41.1434	18.8694
810.000000 MHz	41.1293	18.8487
815.000000 MHz	41.0632	18.8315
820.000000 MHz	41.0329	18.8050
825.000000 MHz	40.9580	18.8648
830.000000 MHz	40.8972	18.8363
835.000000 MHz	40.8848	18.8472
840.000000 MHz	40.8622	18.8191
845.000000 MHz	40.8140	18.8087
850.000000 MHz	40.7884	18.8025
855.000000 MHz	40.6820	18.7985
860.000000 MHz	40.6648	18.7800
865.000000 MHz	40.6401	18.7332
870.000000 MHz	40.5825	18.7468
875.000000 MHz	40.5470	18.7642
880.000000 MHz	40.4593	18.7714
885.000000 MHz	40.3635	18.7112
890.000000 MHz	40.3189	18.7217
895.000000 MHz	40.2161	18.6995
900.000000 MHz	40.1484	18.6578

■ Dielectric Parameter (850MHz Body)

Title : SP-115C

SubTitle : GSM850Body

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Frequency	e'	e''
800.000000 MHz	56.0956	20.6999
805.000000 MHz	55.9515	20.6657
810.000000 MHz	55.8293	20.6243
815.000000 MHz	55.8250	20.5627
820.000000 MHz	55.7263	20.6374
825.000000 MHz	55.6228	20.6188
830.000000 MHz	55.5087	20.6269
835.000000 MHz	55.4683	20.6352
840.000000 MHz	55.4144	20.6046
845.000000 MHz	55.3593	20.5968
850.000000 MHz	55.3842	20.6239
855.000000 MHz	55.3156	20.6320
860.000000 MHz	55.2954	20.6215
865.000000 MHz	55.2613	20.5732
870.000000 MHz	55.1960	20.5805
875.000000 MHz	55.1948	20.5572
880.000000 MHz	55.1066	20.5950
885.000000 MHz	55.0778	20.5243
890.000000 MHz	55.0395	20.4949
895.000000 MHz	54.9757	20.4392
900.000000 MHz	54.9165	20.3927

■ Dielectric Parameter (1900MHz Head)

Title : SP-115C

SubTitle : GSM1900head

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Frequency	e'	e''
1.800000000 GHz	38.6336	13.5574
1.810000000 GHz	38.6458	13.5812
1.820000000 GHz	38.5881	13.6070
1.830000000 GHz	38.5402	13.6421
1.840000000 GHz	38.5102	13.6548
1.850000000 GHz	38.4695	13.6828
1.860000000 GHz	38.4102	13.7073
1.870000000 GHz	38.3653	13.7145
1.880000000 GHz	38.3068	13.7509
1.890000000 GHz	38.2761	13.7823
1.900000000 GHz	38.2535	13.7675
1.910000000 GHz	38.2119	13.7969
1.920000000 GHz	38.1620	13.8345
1.930000000 GHz	38.1421	13.8478
1.940000000 GHz	38.0964	13.8510
1.950000000 GHz	38.0611	13.8508
1.960000000 GHz	38.0151	13.8779
1.970000000 GHz	38.0071	13.9130
1.980000000 GHz	37.9307	13.9163
1.990000000 GHz	37.9261	13.9579
2.000000000 GHz	37.8823	13.9727

■ Dielectric Parameter (1900MHz Body)

Title : SP-115C
SubTitle : GSM1900body
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Frequency	e'	e''
1.800000000 GHz	53.1112	14.1976
1.810000000 GHz	53.1076	14.2405
1.820000000 GHz	53.0711	14.2974
1.830000000 GHz	53.0346	14.3765
1.840000000 GHz	53.0218	14.4384
1.850000000 GHz	53.0042	14.5046
1.860000000 GHz	52.9774	14.5537
1.870000000 GHz	52.9384	14.5666
1.880000000 GHz	52.9005	14.5826
1.890000000 GHz	52.8422	14.5702
1.900000000 GHz	52.7796	14.5515
1.910000000 GHz	52.7245	14.5629
1.920000000 GHz	52.6346	14.5781
1.930000000 GHz	52.6141	14.5840
1.940000000 GHz	52.5795	14.6506
1.950000000 GHz	52.5331	14.7140
1.960000000 GHz	52.5380	14.7948
1.970000000 GHz	52.5499	14.8727
1.980000000 GHz	52.5080	14.9148
1.990000000 GHz	52.5051	14.9235
2.000000000 GHz	52.4807	14.9495