

## **ATTACHMENT Q – DIPOLE VALIDATION**

## ■ Validation Data (835MHz Head)

Test Laboratory: HCT

835 Dipole Validation test: Input power(1W)

Liquid Temperature : 21.2 °C

Date Tested : March 06, 2006

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

**Program Name: Validation**

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

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.889 \text{ mho/m}$ ;  $\epsilon_r = 41.8$ ;  $\rho = 1000 \text{ kg/m}^3$

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: DAE4 Sn447; Calibrated: 2005-11-30

- 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

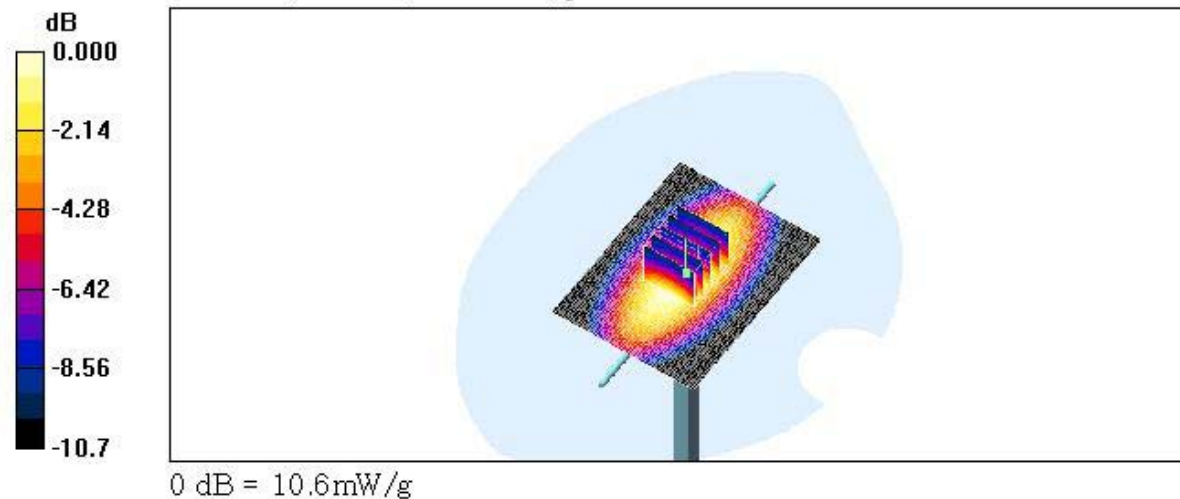
**Validation 835 MHz/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 113.1 V/m; Power Drift = -0.005 dB

Peak SAR (extrapolated) = 14.6 W/kg

**SAR(1 g) = 9.84 mW/g; SAR(10 g) = 6.43 mW/g**

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



## ■ Validation Data (835MHz Head)

Test Laboratory: HCT

835 Dipole Validation test: Input power(1W)

Liquid Temperature : 21.5 °C

Date Tested : March 07, 2006

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

**Program Name: Validation**

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

Medium parameters used:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.887 \text{ mho/m}$ ;  $\epsilon_r = 42$ ;  $\rho = 1000 \text{ kg/m}^3$

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: DAE4 Sn447; Calibrated: 2005-11-30

- 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) = 10.7 mW/g

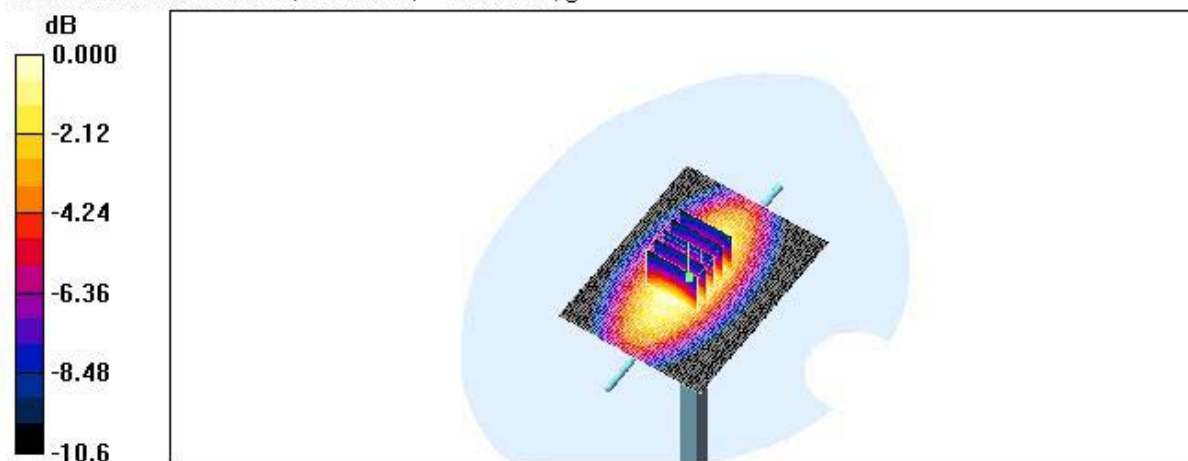
**Validation 835 MHz/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 112.4 V/m; Power Drift = 0.129 dB

Peak SAR (extrapolated) = 14.8 W/kg

**SAR(1 g) = 9.93 mW/g; SAR(10 g) = 6.48 mW/g**

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



0 dB = 10.7mW/g

## ■ Validation Data (1900MHz Head)

Test Laboratory: HCT

1900 Dipole Validation test: Input power(1W)

Liquid Temperature : 21.4 °C

Date Tested : March 08, 2006

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

**Program Name: Validation**

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

Medium parameters used:  $f = 1900$  MHz;  $\sigma = 1.44$  mho/m;  $\epsilon_r = 40$ ;  $\rho = 1000$  kg/m<sup>3</sup>

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: DAE4 Sn447; Calibrated: 2005-11-30

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

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

Maximum value of SAR (interpolated) = 47.4 mW/g

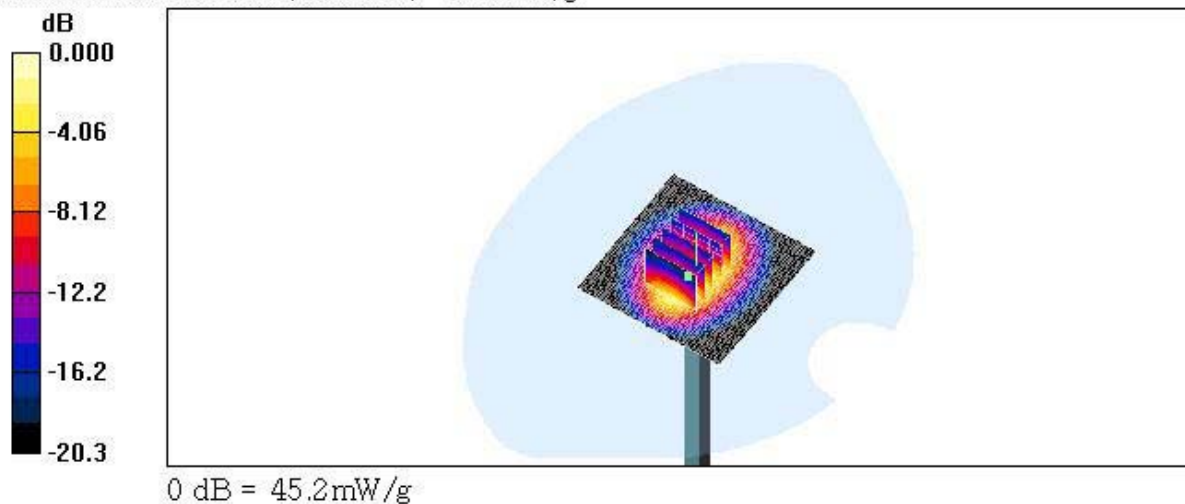
**Dipole 1900MHz Validation/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8$ mm,  $dy=8$ mm,  $dz=5$ mm

Reference Value = 185.9 V/m; Power Drift = -0.057 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) = 45.2 mW/g



**■ Dielectric Parameter (835MHz Head)****Title : CDM7075A****SubTitle : AMPS 835 Head**

March 06, 2006 09:00 AM

| Frequency             | e'             | e''            |
|-----------------------|----------------|----------------|
| 800.000000 MHz        | 42.4617        | 19.2117        |
| 805.000000 MHz        | 42.4304        | 19.1902        |
| 810.000000 MHz        | 42.2869        | 19.1892        |
| 815.000000 MHz        | 42.2332        | 19.1960        |
| 820.000000 MHz        | 42.1499        | 19.1310        |
| 825.000000 MHz        | 42.0518        | 19.1613        |
| 830.000000 MHz        | 41.9569        | 19.1222        |
| <b>835.000000 MHz</b> | <b>41.8366</b> | <b>19.1382</b> |
| 840.000000 MHz        | 41.8080        | 19.1390        |
| 845.000000 MHz        | 41.6494        | 19.0830        |
| 850.000000 MHz        | 41.6337        | 19.1222        |
| 855.000000 MHz        | 41.5231        | 19.0437        |
| 860.000000 MHz        | 41.4858        | 19.0377        |
| 865.000000 MHz        | 41.4076        | 19.0640        |
| 870.000000 MHz        | 41.3478        | 19.0444        |
| 875.000000 MHz        | 41.2341        | 19.0104        |
| 880.000000 MHz        | 41.2236        | 18.9974        |
| 885.000000 MHz        | 41.1187        | 19.0372        |
| 890.000000 MHz        | 41.0889        | 19.0049        |
| 895.000000 MHz        | 41.0219        | 18.9790        |
| 900.000000 MHz        | 40.9831        | 18.9452        |

## ■ Dielectric Parameter (835MHz Body)

Title : CDM7075A

SubTitle : AMPS 835 Body

March 06, 2006 02:25 PM

| Frequency      | e'      | e''     |
|----------------|---------|---------|
| 800.000000 MHz | 55.0105 | 21.1718 |
| 805.000000 MHz | 54.9605 | 21.1275 |
| 810.000000 MHz | 54.8816 | 21.0941 |
| 815.000000 MHz | 54.8084 | 21.1041 |
| 820.000000 MHz | 54.8094 | 21.0984 |
| 825.000000 MHz | 54.7257 | 21.1180 |
| 830.000000 MHz | 54.6615 | 21.1860 |
| 835.000000 MHz | 54.5852 | 21.1420 |
| 840.000000 MHz | 54.6053 | 21.2058 |
| 845.000000 MHz | 54.5491 | 21.2095 |
| 850.000000 MHz | 54.5420 | 21.2823 |
| 855.000000 MHz | 54.5319 | 21.2574 |
| 860.000000 MHz | 54.4589 | 21.3215 |
| 865.000000 MHz | 54.4294 | 21.3255 |
| 870.000000 MHz | 54.4196 | 21.3219 |
| 875.000000 MHz | 54.3440 | 21.2846 |
| 880.000000 MHz | 54.2637 | 21.2871 |
| 885.000000 MHz | 54.2261 | 21.2732 |
| 890.000000 MHz | 54.1824 | 21.2142 |
| 895.000000 MHz | 54.0823 | 21.1306 |
| 900.000000 MHz | 53.9815 | 21.0693 |

**■ Dielectric Parameter (835MHz Head)****Title : CDM7075A****SubTitle : CDMA 835 Head**

March 07, 2006 09:22 AM

| Frequency      | e'      | e''     |
|----------------|---------|---------|
| 800.000000 MHz | 42.5527 | 19.0670 |
| 805.000000 MHz | 42.5564 | 19.0579 |
| 810.000000 MHz | 42.4304 | 19.0848 |
| 815.000000 MHz | 42.3576 | 19.0648 |
| 820.000000 MHz | 42.2661 | 19.0505 |
| 825.000000 MHz | 42.2026 | 19.0553 |
| 830.000000 MHz | 42.0912 | 19.0738 |
| 835.000000 MHz | 42.0022 | 19.0914 |
| 840.000000 MHz | 41.9382 | 19.0079 |
| 845.000000 MHz | 41.8187 | 18.9828 |
| 850.000000 MHz | 41.7595 | 18.9826 |
| 855.000000 MHz | 41.6809 | 18.9469 |
| 860.000000 MHz | 41.6170 | 18.9589 |
| 865.000000 MHz | 41.6134 | 18.9636 |
| 870.000000 MHz | 41.4705 | 18.9071 |
| 875.000000 MHz | 41.3790 | 18.9176 |
| 880.000000 MHz | 41.3655 | 18.8803 |
| 885.000000 MHz | 41.2599 | 18.9205 |
| 890.000000 MHz | 41.1785 | 18.8687 |
| 895.000000 MHz | 41.1582 | 18.8691 |
| 900.000000 MHz | 41.0923 | 18.8138 |



## ■ Dielectric Parameter (835MHz Body)

Title : CDM7075A

SubTitle : CDMA 835 Body

March 07, 2006 01:40 PM

| Frequency      | e'      | e''     |
|----------------|---------|---------|
| 800.000000 MHz | 55.1016 | 21.2990 |
| 805.000000 MHz | 55.0888 | 21.2631 |
| 810.000000 MHz | 55.0239 | 21.2688 |
| 815.000000 MHz | 55.0272 | 21.2723 |
| 820.000000 MHz | 55.0058 | 21.2676 |
| 825.000000 MHz | 54.9007 | 21.2602 |
| 830.000000 MHz | 54.8098 | 21.2869 |
| 835.000000 MHz | 54.7874 | 21.2994 |
| 840.000000 MHz | 54.7888 | 21.3137 |
| 845.000000 MHz | 54.6729 | 21.3058 |
| 850.000000 MHz | 54.6342 | 21.3241 |
| 855.000000 MHz | 54.5953 | 21.3096 |
| 860.000000 MHz | 54.5752 | 21.3423 |
| 865.000000 MHz | 54.5286 | 21.3308 |
| 870.000000 MHz | 54.4945 | 21.2931 |
| 875.000000 MHz | 54.3526 | 21.2653 |
| 880.000000 MHz | 54.3692 | 21.2568 |
| 885.000000 MHz | 54.2788 | 21.2314 |
| 890.000000 MHz | 54.2043 | 21.2162 |
| 895.000000 MHz | 54.1132 | 21.1289 |
| 900.000000 MHz | 54.0557 | 21.0714 |



## ■ Dielectric Parameter (1900MHz Head)

Title : CDM7075A

SubTitle : PCS 1900 Head

March 09, 2006 08:55 AM

| Frequency       | $\epsilon'$ | $\epsilon''$ |
|-----------------|-------------|--------------|
| 1.800000000 GHz | 40.3648     | 13.2643      |
| 1.810000000 GHz | 40.2800     | 13.3219      |
| 1.820000000 GHz | 40.2438     | 13.4104      |
| 1.830000000 GHz | 40.2197     | 13.5643      |
| 1.840000000 GHz | 40.2190     | 13.6696      |
| 1.850000000 GHz | 40.2385     | 13.7799      |
| 1.860000000 GHz | 40.2034     | 13.8301      |
| 1.870000000 GHz | 40.1912     | 13.8142      |
| 1.880000000 GHz | 40.1389     | 13.7909      |
| 1.890000000 GHz | 40.0895     | 13.7149      |
| 1.900000000 GHz | 39.9915     | 13.6652      |
| 1.910000000 GHz | 39.9092     | 13.6243      |
| 1.920000000 GHz | 39.7848     | 13.5908      |
| 1.930000000 GHz | 39.7226     | 13.6278      |
| 1.940000000 GHz | 39.6866     | 13.6983      |
| 1.950000000 GHz | 39.6384     | 13.8242      |
| 1.960000000 GHz | 39.6442     | 13.9351      |
| 1.970000000 GHz | 39.6470     | 14.0565      |
| 1.980000000 GHz | 39.6836     | 14.1549      |
| 1.990000000 GHz | 39.6659     | 14.1177      |
| 2.000000000 GHz | 39.6295     | 14.1258      |

**Dielectric Parameter (1900MHz Body)****Title : CDM7075A****SubTitle : PCS 1900 Body**

March 09, 2006 02:36 PM

| Frequency       | e'      | e''     |
|-----------------|---------|---------|
| 1.800000000 GHz | 52.7580 | 13.5008 |
| 1.810000000 GHz | 52.6881 | 13.6465 |
| 1.820000000 GHz | 52.6343 | 13.7533 |
| 1.830000000 GHz | 52.5684 | 13.8637 |
| 1.840000000 GHz | 52.5298 | 13.9650 |
| 1.850000000 GHz | 52.4643 | 14.0328 |
| 1.860000000 GHz | 52.4005 | 14.0672 |
| 1.870000000 GHz | 52.3732 | 14.0876 |
| 1.880000000 GHz | 52.2707 | 14.0823 |
| 1.890000000 GHz | 52.1767 | 14.0883 |
| 1.900000000 GHz | 52.0760 | 14.1049 |
| 1.910000000 GHz | 51.9997 | 14.1147 |
| 1.920000000 GHz | 51.9123 | 14.1889 |
| 1.930000000 GHz | 51.8746 | 14.2720 |
| 1.940000000 GHz | 51.8377 | 14.3691 |
| 1.950000000 GHz | 51.8598 | 14.4692 |
| 1.960000000 GHz | 51.8337 | 14.5532 |
| 1.970000000 GHz | 51.8293 | 14.6350 |
| 1.980000000 GHz | 51.7954 | 14.6410 |
| 1.990000000 GHz | 51.7649 | 14.6978 |
| 2.000000000 GHz | 51.7388 | 14.6971 |