

## **ATTACHMENT Q – DIPOLE VALIDATION**

## ■ Validation Data (835MHz Head)

Test Laboratory: HCT

835 Dipole Validation test: Input power(1W)

Liquid Temperature : 21.8 °C

Date Tested : May 1, 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:  $f = 835 \text{ MHz}$ ;  $\sigma = 0.894 \text{ mho/m}$ ;  $\epsilon_r = 41.7$ ;  $\rho = 1000 \text{ kg/m}^3$

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 (101x101x1):** Measurement grid:  $dx=10\text{mm}$ ,  $dy=10\text{mm}$

Maximum value of SAR (interpolated) = 10.2 mW/g

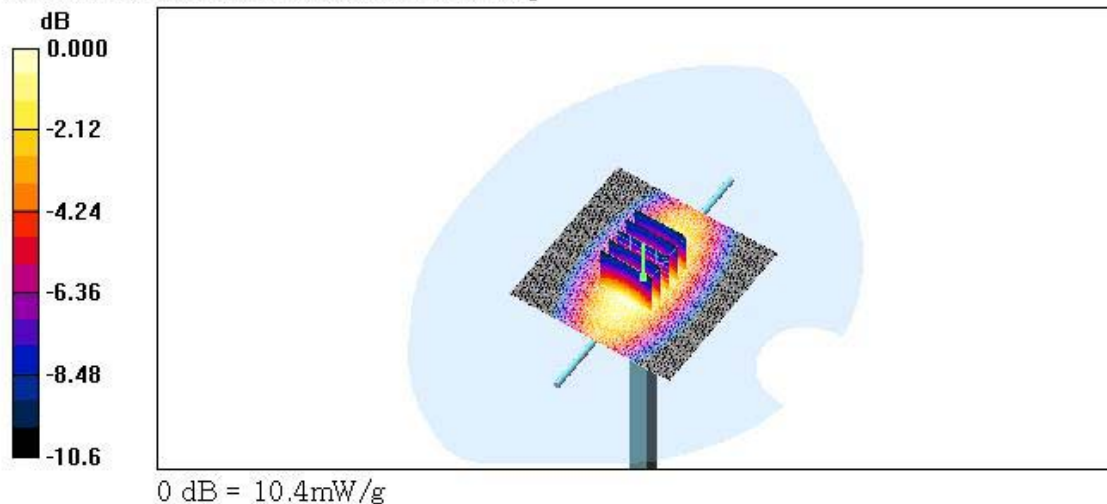
**Validatoin 835 MHz/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $dx=8\text{mm}$ ,  $dy=8\text{mm}$ ,  $dz=5\text{mm}$

Reference Value = 110.2 V/m; Power Drift = 0.043 dB

Peak SAR (extrapolated) = 14.1 W/kg

**SAR(1 g) = 9.55 mW/g; SAR(10 g) = 6.24 mW/g**

Maximum value of SAR (measured) = 10.4 mW/g



## ■ Validation Data (1900MHz Head)

Test Laboratory: HCT

1900 Dipole Validation test: Input power(1W)

Liquid Temperature : 21.7 °C

Date Tested : May 2, 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;  $\sigma = 1.45$  mho/m;  $\epsilon_r = 40$ ;  $\rho = 1000$  kg/m<sup>3</sup>

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

**Dipole 1900MHz Validation/Area Scan (61x61x1):** Measurement grid:  $\Delta x = 15$ mm,  $\Delta y = 15$ mm

Maximum value of SAR (interpolated) = 45.5 mW/g

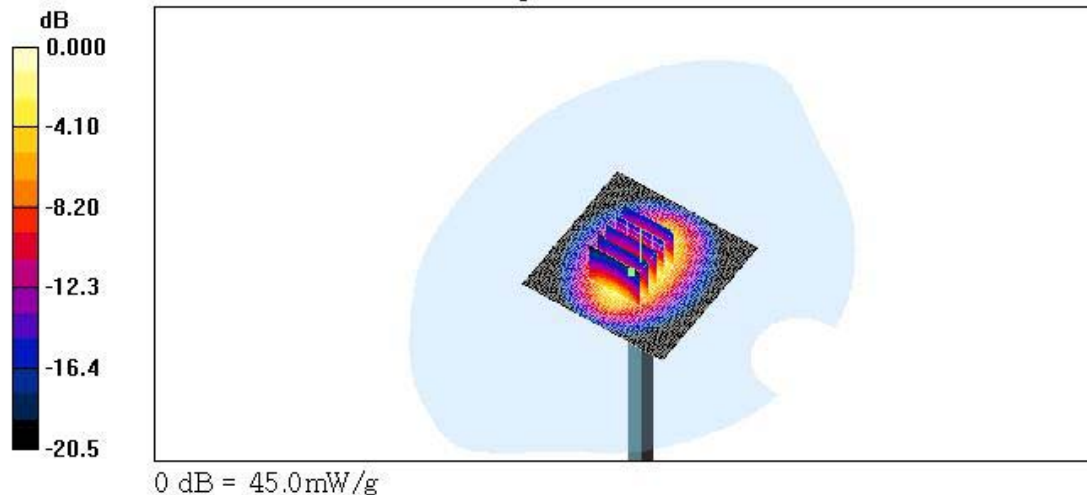
**Dipole 1900MHz Validation/Zoom Scan (5x5x7)/Cube 0:** Measurement grid:  $\Delta x = 8$ mm,  $\Delta y = 8$ mm,  $\Delta z = 5$ mm

Reference Value = 184.5 V/m; Power Drift = -0.031 dB

Peak SAR (extrapolated) = 73.5 W/kg

**SAR(1 g) = 39.9 mW/g; SAR(10 g) = 20.4 mW/g**

Maximum value of SAR (measured) = 45.0 mW/g



**■ Dielectric Parameter (835MHz Head)****Title : Nokia 6215i****SubTitle : CDMA835 Head**

May 01, 2006 03:55 AM

| Frequency      | e'      | e''     |
|----------------|---------|---------|
| 800.000000 MHz | 42.3430 | 19.3750 |
| 805.000000 MHz | 42.3143 | 19.3197 |
| 810.000000 MHz | 42.1870 | 19.3354 |
| 815.000000 MHz | 42.0958 | 19.3199 |
| 820.000000 MHz | 42.0289 | 19.2714 |
| 825.000000 MHz | 41.9331 | 19.2689 |
| 830.000000 MHz | 41.8429 | 19.2810 |
| 835.000000 MHz | 41.7291 | 19.2420 |
| 840.000000 MHz | 41.6666 | 19.2313 |
| 845.000000 MHz | 41.5364 | 19.1983 |
| 850.000000 MHz | 41.4912 | 19.2042 |
| 855.000000 MHz | 41.4292 | 19.1840 |
| 860.000000 MHz | 41.3749 | 19.1517 |
| 865.000000 MHz | 41.2918 | 19.1587 |
| 870.000000 MHz | 41.2206 | 19.1320 |
| 875.000000 MHz | 41.1158 | 19.1257 |
| 880.000000 MHz | 41.0957 | 19.0599 |
| 885.000000 MHz | 40.9836 | 19.1068 |
| 890.000000 MHz | 40.8873 | 19.1341 |
| 895.000000 MHz | 40.8682 | 19.0642 |
| 900.000000 MHz | 40.7820 | 19.0345 |

**■ Dielectric Parameter (1900MHz Head)****Title : Nokia 6215i****SubTitle : PCS1900 Head**

May 02, 2006 10:13 AM

| Frequency       | e'      | e''     |
|-----------------|---------|---------|
| 1.800000000 GHz | 40.4058 | 13.3309 |
| 1.810000000 GHz | 40.3271 | 13.4027 |
| 1.820000000 GHz | 40.2854 | 13.4577 |
| 1.830000000 GHz | 40.2457 | 13.5816 |
| 1.840000000 GHz | 40.2603 | 13.7015 |
| 1.850000000 GHz | 40.2843 | 13.7753 |
| 1.860000000 GHz | 40.2530 | 13.8412 |
| 1.870000000 GHz | 40.2265 | 13.8220 |
| 1.880000000 GHz | 40.1679 | 13.8267 |
| 1.890000000 GHz | 40.0933 | 13.7395 |
| 1.900000000 GHz | 40.0240 | 13.6922 |
| 1.910000000 GHz | 39.9491 | 13.6582 |
| 1.920000000 GHz | 39.8285 | 13.6578 |
| 1.930000000 GHz | 39.7801 | 13.6794 |
| 1.940000000 GHz | 39.7322 | 13.7723 |
| 1.950000000 GHz | 39.6766 | 13.8554 |
| 1.960000000 GHz | 39.6839 | 13.9592 |
| 1.970000000 GHz | 39.7072 | 14.0935 |
| 1.980000000 GHz | 39.6999 | 14.1529 |
| 1.990000000 GHz | 39.6968 | 14.1768 |
| 2.000000000 GHz | 39.6662 | 14.1541 |

**■ Dielectric Parameter (835MHz Body)****Title : Nokia 6215i****SubTitle : CDMA835 Body**

May 01, 2006 03:05 PM

| Frequency      | $\epsilon'$ | $\epsilon''$ |
|----------------|-------------|--------------|
| 800.000000 MHz | 55.1849     | 21.3720      |
| 805.000000 MHz | 55.1416     | 21.3465      |
| 810.000000 MHz | 55.1001     | 21.3544      |
| 815.000000 MHz | 55.0489     | 21.3320      |
| 820.000000 MHz | 55.0393     | 21.3283      |
| 825.000000 MHz | 54.9630     | 21.2931      |
| 830.000000 MHz | 54.8634     | 21.3116      |
| 835.000000 MHz | 54.8043     | 21.3152      |
| 840.000000 MHz | 54.8214     | 21.3125      |
| 845.000000 MHz | 54.7620     | 21.3383      |
| 850.000000 MHz | 54.6965     | 21.3443      |
| 855.000000 MHz | 54.6406     | 21.3143      |
| 860.000000 MHz | 54.5987     | 21.2900      |
| 865.000000 MHz | 54.5331     | 21.2859      |
| 870.000000 MHz | 54.4910     | 21.2837      |
| 875.000000 MHz | 54.3745     | 21.2943      |
| 880.000000 MHz | 54.3707     | 21.2882      |
| 885.000000 MHz | 54.3185     | 21.2106      |
| 890.000000 MHz | 54.2446     | 21.2110      |
| 895.000000 MHz | 54.1585     | 21.1638      |
| 900.000000 MHz | 54.0954     | 21.1187      |

■ Dielectric Parameter (1900MHz Body)**Title : Nokia 6215i****SubTitle : PCS1900 Body**

May 02, 2006 04:15 PM

| Frequency       | e'      | e''     |
|-----------------|---------|---------|
| 1.800000000 GHz | 53.4037 | 13.7691 |
| 1.810000000 GHz | 53.3943 | 13.8372 |
| 1.820000000 GHz | 53.3522 | 13.8904 |
| 1.830000000 GHz | 53.2786 | 13.9464 |
| 1.840000000 GHz | 53.2247 | 13.9853 |
| 1.850000000 GHz | 53.1444 | 14.0085 |
| 1.860000000 GHz | 53.0476 | 14.0472 |
| 1.870000000 GHz | 52.9619 | 14.1240 |
| 1.880000000 GHz | 52.9081 | 14.1654 |
| 1.890000000 GHz | 52.8064 | 14.2473 |
| 1.900000000 GHz | 52.7908 | 14.3055 |
| 1.910000000 GHz | 52.7241 | 14.3966 |
| 1.920000000 GHz | 52.7256 | 14.4723 |
| 1.930000000 GHz | 52.7063 | 14.5310 |
| 1.940000000 GHz | 52.6701 | 14.5769 |
| 1.950000000 GHz | 52.6248 | 14.5918 |
| 1.960000000 GHz | 52.5108 | 14.6469 |
| 1.970000000 GHz | 52.4618 | 14.6882 |
| 1.980000000 GHz | 52.3784 | 14.6762 |
| 1.990000000 GHz | 52.2669 | 14.7463 |
| 2.000000000 GHz | 52.1702 | 14.8032 |