# FCC PART 24 EMC MEASUREMENT REPORT

| **Test Lab:** | **Applicant Information:** |
|---|---|
| **CELLTECH RESEARCH INC.**<br>Testing and Engineering Services<br>1955 Moss Court<br>Kelowna, B.C.<br>Canada V1Y 9L3<br>Phone: 250 - 860-3130<br>Fax: 250 - 860-3110<br>e-mail: info@celltechlabs.com<br>web site: www.celltechlabs.com | **SIERRA WIRELESS INC.**<br>13811 Wireless Way<br>Richmond, BC V6V 3A4 |

| | |
|---|---|
| **FCC Classification:** | **Part 24 Licensed Portable Transmitter Worn on Body (PCT)** |
| **FCC Rule Part(s):** | **§24(E), §2** |
| **FCC ID:** | **N7NAC750** |
| **Model(s):** | **AirCard 750** |
| **Serial No.:** | **T02031300251010** |
| **Equipment Type:** | **PCS GSM/GPRS PCMCIA Modem Card** |
| **Host Configuration(s):** | **Cassiopeia E200 PDA, Compaq iPaq 3650 PDA, HP Jornada 568 PDA** |
| **Tx Frequency Range:** | **1850.25 - 1909.875 MHz** |
| **Max. RF Output Power:** | **0.726 Watts EIRP (Cassiopeia E200 PDA)**<br>**0.575 Watts EIRP (Compaq iPaq 3650 PDA)**<br>**0.451 Watts EIRP (HP Jornada 568 PDA)** |
| **Modulation:** | **GMSK** |
| **Emission Designator:** | **271KGXW** |
| **Frequency Tolerance:** | **0.1 PPM** |
| **Antenna Type:** | **Omni-Directional Monopole** |
| **Power Supply:** | **From Host PDA** |

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in §2.947.

I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

*This test report shall not be reproduced partially, or in full, without the prior written approval of Celltech Research Inc. The results and statements contained in this report pertain only to the device(s) evaluated.*

**Shawn McMillen**
**General Manager**
**Celltech Research Inc.**

# TABLE OF CONTENTS

# FCC PART 24 EMC MEASUREMENT REPORT

## *1.1 SCOPE*

Measurement and determination of electromagnetic emissions (EME) from radio frequency devices for compliance with the technical rules and regulations of the Federal Communications Commission.

## *1.2 GENERAL INFORMATION - §2.1033(a)*

**APPLICANT:**

**SIERRA WIRELESS INC.**
13811 Wireless Way
Richmond, BC V6V 3A4

| | |
|---|---|
| **FCC ID** | **N7NAC750** |
| **Model(s)** | **AirCard 750** |
| **Serial No.** | **T02031300251010** |
| **EUT Type** | **PCS GSM/GPRS PCMCIA Modem Card with 3 PDAs** |
| **Host Configuration(s)** | **Cassiopeia E200 PDA**<br>**Compaq iPaq 3650 PDA**<br>**HP Jornada 568 PDA** |
| **FCC Classification** | **Licensed Portable Transmitter Worn on Body (PCT)** |
| **FCC Rule Part(s)** | **§24(E), §2** |
| **Tx Frequency Range** | **1850.25 - 1909.875 MHz** |
| **Modulation** | **GMSK** |
| **RF Conducted Output Power Tested** | **0.726 Watts EIRP (Cassiopeia E200 PDA)**<br>**0.575 Watts EIRP (Compaq iPaq 3650 PDA)**<br>**0.451 Watts EIRP (HP Jornada 568 PDA)** |
| **Emission Designator** | **271KGXW** |
| **Frequency Tolerance** | **0.1 PPM** |
| **Power Supply** | **From host PDA** |
| **Antenna Type** | **Omni-Directional Monopole** |

## *2.1 MEASUREMENT PROCEDURES*

## *2.2 RF OUTPUT POWER MEASUREMENT - §2.1046*

The conducted power was measured with a Gigatronics 8650A Universal Power Meter using modulated average power mode. An offset was entered into the power meter to correct for the losses of the attenuator and cable installed before the sensor input. The transmitter terminal was coupled to the power meter and the EUT was placed into test mode via internal software from the host device. All subsequent tests were performed using the same tune-up procedures.

## *2.3 EFFECTIVE ISOTROPIC RADIATED POWER OUTPUT - §24.232(b)*

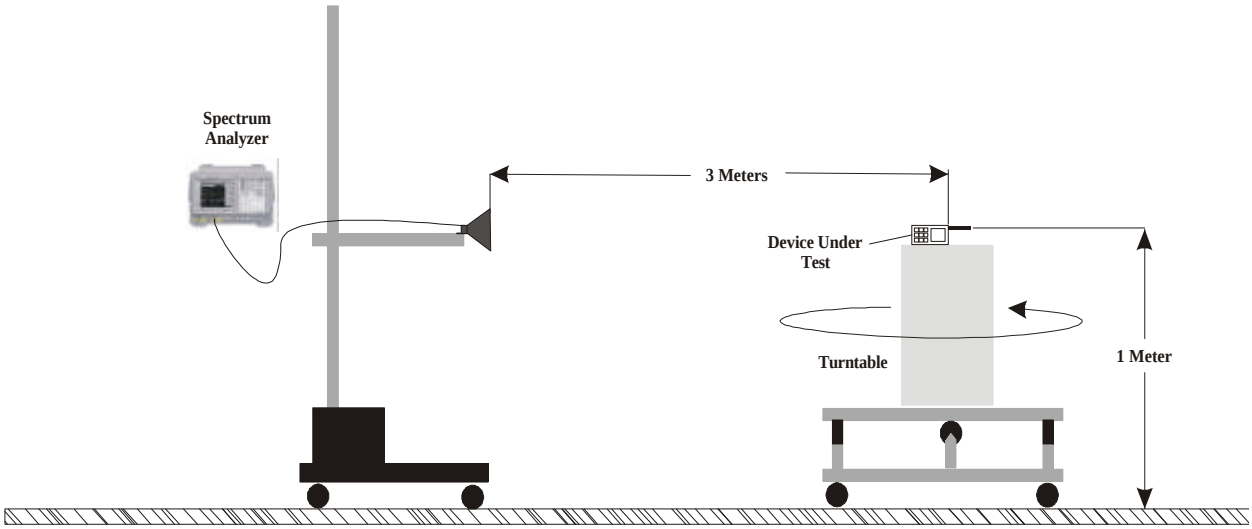
EIRP Measurements by Signal Substitution Method:

The EUT was placed on a turntable 3-meters from the receive antenna and placed into test mode via internal software from the host device at a full rated power. The field of maximum intensity was found by rotating the EUT approximately 360 degrees and changing the height of the receive antenna from 1 to 4 meters. Once a peak was found the spectrum analyzer was set to peak hold and the value of the emission was extracted. The field strength was recorded for each channel being tested, and for both EUT antenna polarizations and modes. A standard gain horn antenna was substituted in place of the EUT. The antenna was fed through a directional coupler and the power at the coupler port was monitored. A signal generator and power amplifier controlled the antenna, and the input level of the antenna was adjusted to the same field strength level as the EUT. The feed point for the antenna was then connected to a calibrated power meter and the power adjusted to read the same as the coupler port previously recorded, this is to account for any mismatch in impedance, which may occur at the horn antenna. The conducted power at the antenna feed point was recorded. The forward conducted power for the horn antenna was then determined and the EIRP level was determined by adding the horn forward conducted power and the antenna gain in dB.

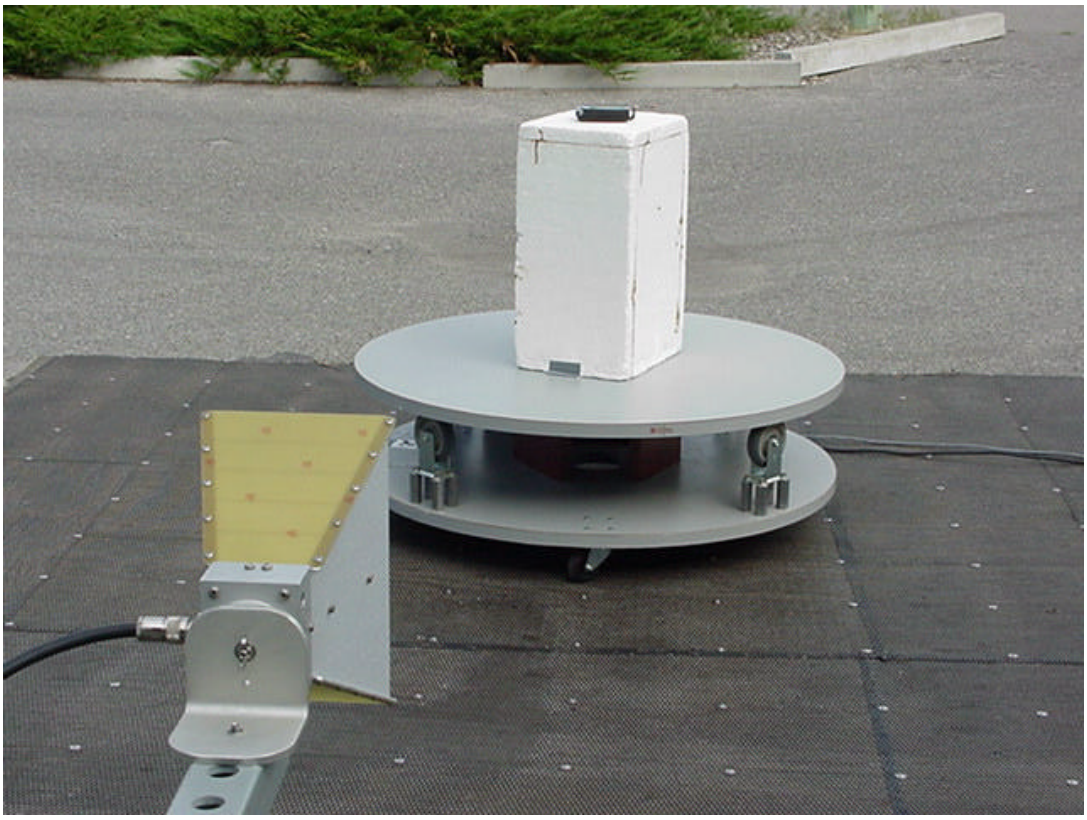
## *2.4 FIELD STRENGTH OF SPURIOUS RADIATION - §2.1053*

Radiated and harmonic emissions were measured on a 3-meter outdoor site and performed in accordance with TIA/EIA-603 Section 2.212. The EUT was placed into test mode via internal software from the host device at a full rated power. The EUT was placed on the turntable with the transmitter transmitting into a non-radiating load. A receiving antenna located 3 meters from the turntable received any signal radiated from the transmitter and its operating accessories. The receiving antenna was varied in height from 1 to 4 meters and the polarization was varied (horizontal and vertical) to determine the worst-case emission level. All spurious emissions made from the lowest radio frequency generated in the equipment to the tenth harmonic of the carrier were investigated.

## *2.5 RADIATED MEASUREMENT TEST SETUP*




**Radiated Measurement Test Setup Diagram**



**Radiated Measurement Test Setup Photograph**

## *3.1 TEST DATA*

## *3.2 EFFECTIVE ISOTROPIC RADIATED POWER OUTPUT - §24.232(b)*

| Test Date(s) | Host PDA | Freq. Tuned | EUT Conducted Power | Maximum Field Strength of EUT (Horiz. Pol.) | Polariz. | Horn Gain | Horn Forward Conducted Power | EIRP of EUT Horn Gain + Horn Forward Conducted Power | |
|---|---|---|---|---|---|---|---|---|---|
| | | MHz | dBm | dBm | H/V | dBi | dBm | dBm | Watts |
| 05/08/02 | Cassiopeia E200 | 1850.25 | 28.41 | - 10.17 | V | 6.55 | 21.16 | 27.71 | 0.590 |
| | Cassiopeia E200 | 1880.00 | 28.24 | - 10.19 | V | 6.58 | 21.63 | 28.21 | 0.662 |
| | Cassiopeia E200 | 1909.875 | 28.13 | - 10.46 | V | 6.61 | 22.00 | 28.61 | 0.726 |
| 06/04/02 | Compaq iPaq 3650 | 1850.25 | 28.33 | - 10.88 | H | 6.55 | 20.49 | 27.04 | 0.506 |
| | Compaq iPaq 3650 | 1880.00 | 28.09 | - 11.46 | H | 6.58 | 20.39 | 26.97 | 0.498 |
| | Compaq iPaq 3650 | 1909.875 | 27.96 | - 11.47 | H | 6.61 | 20.99 | 27.60 | 0.575 |
| 06/04/02 | HP Jornada 568 | 1850.25 | 28.13 | - 12.21 | H | 6.55 | 19.52 | 26.07 | 0.405 |
| | HP Jornada 568 | 1880.00 | 28.19 | - 12.77 | H | 6.58 | 19.32 | 25.90 | 0.389 |
| | HP Jornada 568 | 1909.875 | 28.14 | - 12.36 | H | 6.61 | 19.93 | 26.54 | 0.451 |

Notes:

1. EIRP measurements were performed for both horizontal and vertical antenna polarizations and the worst-case configuration is reported.

### *3.3 FIELD STRENGTH OF SPURIOUS RADIATION - § 2.1053*

**EUT with Cassiopeia E200 PDA**

| | |
|---|---|
| Operating Frequency (MHz): | 1850.25 |
| Channel: | 512 (Low) |
| EUT Conducted Pwr. (dBm): | 28.41 |
| Measured EIRP (dBm): | 27.71 |
| Modulation: | GMSK |
| Distance: | 3 Meters |
| Limit: | 43 + 10 log (W) = 40.71 dBc |

| Frequency (MHz) | Field Strength of Spurious Radiation (dBm) | Horn Forward Cond. Pwr. (dBm) | Standard Gain Horn Antenna Gain (dBi) | POL (H/V) | EIRP (dBm) | ERP (dBm) | dBc |
|---|---|---|---|---|---|---|---|
| 3700.50 | -63.47 | -30.58 | 6.6 | V | -23.98 | -26.12 | 53.83 |
| 5550.75 | -65.38 | -27.58 | 7.8 | V | -19.78 | -21.92 | 49.63 |
| 7401.00 | -68.88 | -32.30 | 7.8 | V | -24.50 | -26.64 | 54.35 |
| 9251.25 | -72.43 | -34.41 | 7.6 | V | -26.81 | -28.95 | 56.66 |
| 11101.50 | -76.97 | -40.61 | 8.5 | V | -32.11 | -34.25 | 61.96 |
| 12951.75 | -80.14 | -42.26 | 8.8 | V | -33.46 | -35.60 | 63.31 |
| 14802.00 | -88.25 | -50.37 | 9.6 | V | -40.77 | -42.91 | 70.62 |
| 16652.25 | -94.61 | -56.78 | 9.0 | V | -47.78 | -49.92 | 77.63 |
| 18502.50 | -100.33 | -64.12 | 9.3 | V | -54.82 | -56.96 | 84.67 |

Notes:
1. Radiated spurious measurements were performed using Signal Substitution Method per ANSI/TIA/EIA-603 Section 2.212.
2. All other spurious emissions generated from the lowest frequency of the EUT to the tenth harmonic were investigated and found to be below the magnitude of each harmonic level.
3. Spurious emissions more than 20 dB below the limit are reported, though not required per §2.1051.

***FIELD STRENGTH OF SPURIOUS RADIATION - § 2.1053***

**EUT with Cassiopeia E200 PDA**

| | |
|---|---|
| Operating Frequency (MHz): | 1880.00 |
| Channel: | 661 (Mid) |
| EUT Conducted Pwr. (dBm): | 28.24 |
| Measured EIRP (dBm): | 28.21 |
| Modulation: | GMSK |
| Distance: | 3 Meters |
| Limit: | 43 + 10 log (W) = 41.21 dBc |

| **Frequency** (MHz) | **Field Strength of Spurious Radiation** (dBm) | **Horn Forward Cond. Pwr.** (dBm) | **Standard Gain Horn Antenna Gain** (dBi) | **POL** (H/V) | **EIRP** (dBm) | **ERP** (dBm) | **dBc** |
|---|---|---|---|---|---|---|---|
| 3760.00 | -65.87 | -32.98 | 6.6 | V | -26.38 | -28.52 | 56.73 |
| 5640.00 | -68.78 | -30.98 | 7.8 | V | -23.18 | -25.32 | 53.53 |
| 7520.00 | -73.93 | -37.35 | 7.8 | V | -29.55 | -31.69 | 59.90 |
| 9400.00 | -76.54 | -38.52 | 7.6 | V | -30.92 | -33.06 | 61.27 |
| 11280.00 | -80.62 | -44.26 | 8.5 | V | -35.76 | -37.90 | 66.11 |
| 13160.00 | -85.33 | -47.45 | 8.8 | V | -38.65 | -40.79 | 69.00 |
| 15040.00 | -90.16 | -52.28 | 9.6 | V | -42.68 | -44.82 | 73.03 |
| 16920.00 | -96.37 | -58.54 | 9.0 | V | -49.54 | -51.68 | 79.89 |
| 18800.00 | -101.05 | -64.84 | 9.3 | V | -55.54 | -57.68 | 85.89 |

Notes:
1. Radiated spurious measurements were performed using Signal Substitution Method per ANSI/TIA/EIA-603 Section 2.212.
2. All other spurious emissions generated from the lowest frequency of the EUT to the tenth harmonic were investigated and found to be below the magnitude of each harmonic level.
3. Spurious emissions more than 20 dB below the limit are reported, though not required per §2.1051.

***FIELD STRENGTH OF SPURIOUS RADIATION - § 2.1053***

**EUT with Cassiopeia E200 PDA**

| | |
|---|---|
| Operating Frequency (MHz): | 1909.875 |
| Channel: | 810 (High) |
| EUT Conducted Pwr. (dBm): | 28.13 |
| Measured EIRP (dBm): | 28.61 |
| Modulation: | GMSK |
| Distance: | 3 Meters |
| Limit: | 43 + 10 log (W) = 41.61 dBc |

| **Frequency** (MHz) | **Field Strength of Spurious Radiation** (dBm) | **Horn Forward Cond. Pwr.** (dBm) | **Standard Gain Horn Antenna Gain** (dBi) | **POL** (H/V) | **EIRP** (dBm) | **ERP** (dBm) | **dBc** |
|---|---|---|---|---|---|---|---|
| 3819.75 | -66.48 | -33.59 | 6.6 | V | -26.99 | -29.13 | 57.74 |
| 5729.63 | -72.63 | -34.83 | 7.8 | V | -27.03 | -29.17 | 57.78 |
| 7639.50 | -76.23 | -39.65 | 7.8 | V | -31.85 | -33.99 | 62.60 |
| 9549.38 | -81.16 | -43.14 | 7.6 | V | -35.54 | -37.68 | 66.29 |
| 11459.25 | -86.93 | -50.57 | 8.5 | V | -42.07 | -44.21 | 72.82 |
| 13369.13 | -92.72 | -54.84 | 8.8 | V | -46.04 | -48.18 | 76.79 |
| 15279.00 | -95.08 | -57.20 | 9.6 | V | -47.60 | -49.74 | 78.35 |
| 17188.88 | -99.36 | -61.53 | 9.0 | V | -52.53 | -54.67 | 83.28 |
| 19098.75 | -101.80 | -65.59 | 9.3 | V | -56.29 | -58.43 | 87.04 |

Notes:
1. Radiated spurious measurements were performed using Signal Substitution Method per ANSI/TIA/EIA-603 Section 2.212.
2. All other spurious emissions generated from the lowest frequency of the EUT to the tenth harmonic were investigated and found to be below the magnitude of each harmonic level.
3. Spurious emissions more than 20 dB below the limit are reported, though not required per §2.1051.

***FIELD STRENGTH OF SPURIOUS RADIATION - § 2.1053***

**EUT with Compaq iPaq 3650 PDA**

| | |
|---|---|
| Operating Frequency (MHz): | 1850.25 |
| Channel: | 512 (Low) |
| EUT Conducted Pwr. (dBm): | 28.33 |
| Measured EIRP (dBm): | 27.04 |
| Modulation: | GMSK |
| Distance: | 3 Meters |
| Limit: | 43 + 10 log (W) = 40.04 dBc |

| **Frequency** (MHz) | **Field Strength of Spurious Radiation** (dBm) | **Horn Forward Cond. Pwr.** (dBm) | **Standard Gain Horn Antenna Gain** (dBi) | **POL** (H/V) | **EIRP** (dBm) | **ERP** (dBm) | **dBc** |
|---|---|---|---|---|---|---|---|
| 3700.50 | -68.30 | -35.41 | 6.6 | H | -28.81 | -30.95 | 57.99 |
| 5550.75 | -73.21 | -35.41 | 7.8 | H | -27.61 | -29.75 | 56.79 |
| 7401.00 | -77.45 | -40.87 | 7.8 | H | -33.07 | -35.21 | 62.25 |
| 9251.25 | -80.39 | -42.37 | 7.6 | H | -34.77 | -36.91 | 63.95 |
| 11101.50 | -84.60 | -48.24 | 8.5 | H | -39.74 | -41.88 | 68.92 |
| 12951.75 | -89.55 | -51.67 | 8.8 | H | -42.87 | -45.01 | 72.05 |
| 14802.00 | -93.72 | -55.84 | 9.6 | H | -46.24 | -48.38 | 75.42 |
| 16652.25 | -98.05 | -60.22 | 9.0 | H | -51.22 | -53.36 | 80.40 |
| 18502.50 | -101.64 | -65.43 | 9.3 | H | -56.13 | -58.27 | 85.31 |

Notes:
1. Radiated spurious measurements were performed using Signal Substitution Method per ANSI/TIA/EIA-603 Section 2.212.
2. All other spurious emissions generated from the lowest frequency of the EUT to the tenth harmonic were investigated and found to be below the magnitude of each harmonic level.
3. Spurious emissions more than 20 dB below the limit are reported, though not required per §2.1051.

***FIELD STRENGTH OF SPURIOUS RADIATION - § 2.1053***

**EUT with Compaq iPaq 3650 PDA**

| | |
|---|---|
| Operating Frequency (MHz): | 1880.00 |
| Channel: | 661 (Mid) |
| EUT Conducted Pwr. (dBm): | 28.09 |
| Measured EIRP (dBm): | 26.97 |
| Modulation: | GMSK |
| Distance: | 3 Meters |
| Limit: | 43 + 10 log (W) = 39.97 dBc |

| **Frequency** (MHz) | **Field Strength of Spurious Radiation** (dBm) | **Horn Forward Cond. Pwr.** (dBm) | **Standard Gain Horn Antenna Gain** (dBi) | **POL** (H/V) | **EIRP** (dBm) | **ERP** (dBm) | **dBc** |
|---|---|---|---|---|---|---|---|
| 3760.00 | -70.19 | -37.30 | 6.6 | H | -30.70 | -32.84 | 59.81 |
| 5640.00 | -73.84 | -36.04 | 7.8 | H | -28.24 | -30.38 | 57.35 |
| 7520.00 | -76.37 | -39.79 | 7.8 | H | -31.99 | -34.13 | 61.10 |
| 9400.00 | -81.78 | -43.76 | 7.6 | H | -36.16 | -38.30 | 65.27 |
| 11280.00 | -85.63 | -49.27 | 8.5 | H | -40.77 | -42.91 | 69.88 |
| 13160.00 | -88.44 | -50.56 | 8.8 | H | -41.76 | -43.90 | 70.87 |
| 15040.00 | -91.30 | -53.42 | 9.6 | H | -43.82 | -45.96 | 72.93 |
| 16920.00 | -96.25 | -58.42 | 9.0 | H | -49.42 | -51.56 | 78.53 |
| 18800.00 | -100.06 | -63.85 | 9.3 | H | -54.55 | -56.69 | 83.66 |

Notes:
1. Radiated spurious measurements were performed using Signal Substitution Method per ANSI/TIA/EIA-603 Section 2.212.
2. All other spurious emissions generated from the lowest frequency of the EUT to the tenth harmonic were investigated and found to be below the magnitude of each harmonic level.
3. Spurious emissions more than 20 dB below the limit are reported, though not required per §2.1051.

***FIELD STRENGTH OF SPURIOUS RADIATION - § 2.1053***

**EUT with Compaq iPaq 3650 PDA**

| | |
|---|---|
| Operating Frequency (MHz): | 1909.875 |
| Channel: | 810 (High) |
| EUT Conducted Pwr. (dBm): | 27.96 |
| Measured EIRP (dBm): | 27.60 |
| Modulation: | GMSK |
| Distance: | 3 Meters |
| Limit: | 43 + 10 log (W) = 40.60 dBc |

| **Frequency** (MHz) | **Field Strength of Spurious Radiation** (dBm) | **Horn Forward Cond. Pwr.** (dBm) | **Standard Gain Horn Antenna Gain** (dBi) | **POL** (H/V) | **EIRP** (dBm) | **ERP** (dBm) | **dBc** |
|---|---|---|---|---|---|---|---|
| 3819.75 | -71.54 | -38.65 | 6.6 | H | -32.05 | -34.19 | 61.79 |
| 5729.63 | -74.37 | -36.57 | 7.8 | H | -28.77 | -30.91 | 58.51 |
| 7639.50 | -77.14 | -40.56 | 7.8 | H | -32.76 | -34.90 | 62.50 |
| 9549.38 | -80.07 | -42.05 | 7.6 | H | -34.45 | -36.59 | 64.19 |
| 11459.25 | -84.90 | -48.54 | 8.5 | H | -40.04 | -42.18 | 69.78 |
| 13369.13 | -89.57 | -51.69 | 8.8 | H | -42.89 | -45.03 | 72.63 |
| 15279.00 | -93.18 | -55.30 | 9.6 | H | -45.70 | -47.84 | 75.44 |
| 17188.88 | -97.71 | -59.88 | 9.0 | H | -50.88 | -53.02 | 80.62 |
| 19098.75 | -100.63 | -64.42 | 9.3 | H | -55.12 | -57.26 | 84.86 |

Notes:
1. Radiated spurious measurements were performed using Signal Substitution Method per ANSI/TIA/EIA-603 Section 2.212.
2. All other spurious emissions generated from the lowest frequency of the EUT to the tenth harmonic were investigated and found to be below the magnitude of each harmonic level.
3. Spurious emissions more than 20 dB below the limit are reported, though not required per §2.1051.

***FIELD STRENGTH OF SPURIOUS RADIATION - § 2.1053***

**EUT with HP Jornada 568 PDA**

| | |
|---|---|
| Operating Frequency (MHz): | 1850.25 |
| Channel: | 512 (Low) |
| EUT Conducted Pwr. (dBm): | 28.13 |
| Measured EIRP (dBm): | 26.07 |
| Modulation: | GMSK |
| Distance: | 3 Meters |
| Limit: | 43 + 10 log (W) = 39.07 dBc |

| **Frequency** (MHz) | **Field Strength of Spurious Radiation** (dBm) | **Horn Forward Cond. Pwr.** (dBm) | **Standard Gain Horn Antenna Gain** (dBi) | **POL** (H/V) | **EIRP** (dBm) | **ERP** (dBm) | **dBc** |
|---|---|---|---|---|---|---|---|
| 3700.50 | -72.45 | -39.56 | 6.6 | H | -32.96 | -35.10 | 61.17 |
| 5550.75 | -77.80 | -40.00 | 7.8 | H | -32.20 | -34.34 | 60.41 |
| 7401.00 | -82.63 | -46.05 | 7.8 | H | -38.25 | -40.39 | 66.46 |
| 9251.25 | -86.19 | -48.17 | 7.6 | H | -40.57 | -42.71 | 68.78 |
| 11101.50 | -89.06 | -52.70 | 8.5 | H | -44.20 | -46.34 | 72.41 |
| 12951.75 | -92.48 | -54.60 | 8.8 | H | -45.80 | -47.94 | 74.01 |
| 14802.00 | -95.22 | -57.34 | 9.6 | H | -47.74 | -49.88 | 75.95 |
| 16652.25 | -99.71 | -61.88 | 9.0 | H | -52.88 | -55.02 | 81.09 |
| 18502.50 | -101.97 | -65.76 | 9.3 | H | -56.46 | -58.60 | 84.67 |

Notes:
1. Radiated spurious measurements were performed using Signal Substitution Method per ANSI/TIA/EIA-603 Section 2.212.
2. All other spurious emissions generated from the lowest frequency of the EUT to the tenth harmonic were investigated and found to be below the magnitude of each harmonic level.
3. Spurious emissions more than 20 dB below the limit are reported, though not required per §2.1051.

***FIELD STRENGTH OF SPURIOUS RADIATION - § 2.1053***

**EUT with HP Jornada 568 PDA**

| | |
|---|---|
| Operating Frequency (MHz): | 1880.00 |
| Channel: | 661 (Mid) |
| EUT Conducted Pwr. (dBm): | 28.19 |
| Measured EIRP (dBm): | 25.90 |
| Modulation: | GMSK |
| Distance: | 3 Meters |
| Limit: | 43 + 10 log (W) = 38.90 dBc |

| **Frequency** (MHz) | **Field Strength of Spurious Radiation** (dBm) | **Horn Forward Cond. Pwr.** (dBm) | **Standard Gain Horn Antenna Gain** (dBi) | **POL** (H/V) | **EIRP** (dBm) | **ERP** (dBm) | **dBc** |
|---|---|---|---|---|---|---|---|
| 3760.00 | -72.48 | -39.59 | 6.6 | H | -32.99 | -35.13 | 61.03 |
| 5640.00 | -75.95 | -38.15 | 7.8 | H | -30.35 | -32.49 | 58.39 |
| 7520.00 | -79.11 | -42.53 | 7.8 | H | -34.73 | -36.87 | 62.77 |
| 9400.00 | -83.60 | -45.58 | 7.6 | H | -37.98 | -40.12 | 66.02 |
| 11280.00 | -86.89 | -50.53 | 8.5 | H | -42.03 | -44.17 | 70.07 |
| 13160.00 | -89.38 | -51.50 | 8.8 | H | -42.70 | -44.84 | 70.74 |
| 15040.00 | -93.40 | -55.52 | 9.6 | H | -45.92 | -48.06 | 73.96 |
| 16920.00 | -96.63 | -58.80 | 9.0 | H | -49.80 | -51.94 | 77.84 |
| 18800.00 | -100.18 | -63.97 | 9.3 | H | -54.67 | -56.81 | 82.71 |

Notes:
1. Radiated spurious measurements were performed using Signal Substitution Method per ANSI/TIA/EIA-603 Section 2.212.
2. All other spurious emissions generated from the lowest frequency of the EUT to the tenth harmonic were investigated and found to be below the magnitude of each harmonic level.
3. Spurious emissions more than 20 dB below the limit are reported, though not required per §2.1051.

***FIELD STRENGTH OF SPURIOUS RADIATION - § 2.1053***

**EUT with HP Jornada 568 PDA**

| | |
|---|---|
| Operating Frequency (MHz): | 1909.875 |
| Channel: | 810 (High) |
| EUT Conducted Pwr. (dBm): | 28.14 |
| Measured EIRP (dBm): | 26.54 |
| Modulation: | GMSK |
| Distance: | 3 Meters |
| Limit: | 43 + 10 log (W) = 39.54 dBc |

| **Frequency** (MHz) | **Field Strength of Spurious Radiation** (dBm) | **Horn Forward Cond. Pwr.** (dBm) | **Standard Gain Horn Antenna Gain** (dBi) | **POL** (H/V) | **EIRP** (dBm) | **ERP** (dBm) | **dBc** |
|---|---|---|---|---|---|---|---|
| 3819.75 | -74.08 | -41.19 | 6.6 | H | -34.59 | -36.73 | 63.27 |
| 5729.63 | -78.93 | -41.13 | 7.8 | H | -33.33 | -35.47 | 62.01 |
| 7639.50 | -81.60 | -45.02 | 7.8 | H | -37.22 | -39.36 | 65.90 |
| 9549.38 | -85.13 | -47.11 | 7.6 | H | -39.51 | -41.65 | 68.19 |
| 11459.25 | -88.67 | -52.31 | 8.5 | H | -43.81 | -45.95 | 72.49 |
| 13369.13 | -92.40 | -54.52 | 8.8 | H | -45.72 | -47.86 | 74.40 |
| 15279.00 | -95.65 | -57.77 | 9.6 | H | -48.17 | -50.31 | 76.85 |
| 17188.88 | -98.77 | -60.94 | 9.0 | H | -51.94 | -54.08 | 80.62 |
| 19098.75 | -101.41 | -65.20 | 9.3 | H | -55.90 | -58.04 | 84.58 |

Notes:
1. Radiated spurious measurements were performed using Signal Substitution Method per ANSI/TIA/EIA-603 Section 2.212.
2. All other spurious emissions generated from the lowest frequency of the EUT to the tenth harmonic were investigated and found to be below the magnitude of each harmonic level.
3. Spurious emissions more than 20 dB below the limit are reported, though not required per §2.1051.

## *4.1 TEST EQUIPMENT*

| Type | Model | Calibration Due Date | Serial No. |
|---|---|---|---|
| HP Signal Generator | 8648D (9kHz-4.0GHz) | Feb 2003 | 3847A00611 |
| Rohde & Schwarz Signal Generator | SMR40 (10MHz-40GHz) | Nov 2002 | 835537/022 |
| Gigatronics Power Meter | 8652A | Feb 2003 | 1835272 |
| Gigatronics Power Sensor | 80701A (0.05-18GHz) | Feb 2003 | 1833535 |
| Gigatronics Power Sensor | 80701A (0.05-18GHz) | Feb 2003 | 1833542 |
| Amplifier Research Power Amp. | 5S1G4 (5W, 800MHz-4.2GHz) | N/A | 26235 |
| Microwave System Amplifier | HP 83017A (0.5-26.5GHz) | N/A | 3123A00587 |
| Network Analyzer | HP 8753E (30kHz-3GHz) | Feb 2003 | US38433013 |
| Audio Analyzer | HP 8903B | Nov 2002 | 3729A18691 |
| Modulation Analyzer | HP 8901A | July 2002 | 3749A07154 |
| Frequency Counter | HP 53181A (3GHz) | May 2003 | 3736A05175 |
| DC Power Supply | HP E3611A | N/A | KR83015294 |
| Multi-Device Controller | EMCO 2090 | N/A | 9912-1484 |
| Mini Mast | EMCO 2075 | N/A | 0001-2277 |
| Turntable | EMCO 2080-1.2/1.5 | N/A | 0002-1002 |
| Double Ridged Horn Antenna | ETS 3115 (1-18GHz) | Oct. 2002 | 6267 |
| Double Ridged Horn Antenna | ETS 3115 (1-18GHz) | Oct. 2002 | 6276 |
| Horn Antenna | Chase BBHA 9120-A (0.7-4.8GHz) | Sept 2002 | 9120A-239 |
| Horn Antenna | Chase BBHA 9120-A (0.7-4.8GHz) | Sept 2002 | 9120A-240 |
| Roberts Dipoles | Compliance Design (2 sets) 3121C | June 2003 | |
| Spectrum Analyzer | HP 8594E | Feb 2003 | 3543A02721 |
| Spectrum Analyzer | HP E4408B | Nov 2002 | US39240170 |
| Shielded Screen Room | Lindgren R.F. 18W-2/2-0 | N/A | 16297 |
| Environmental Chamber | ESPEC ECT-2 (Temperature/Humidity) | Feb 2003 | 0510154-B |

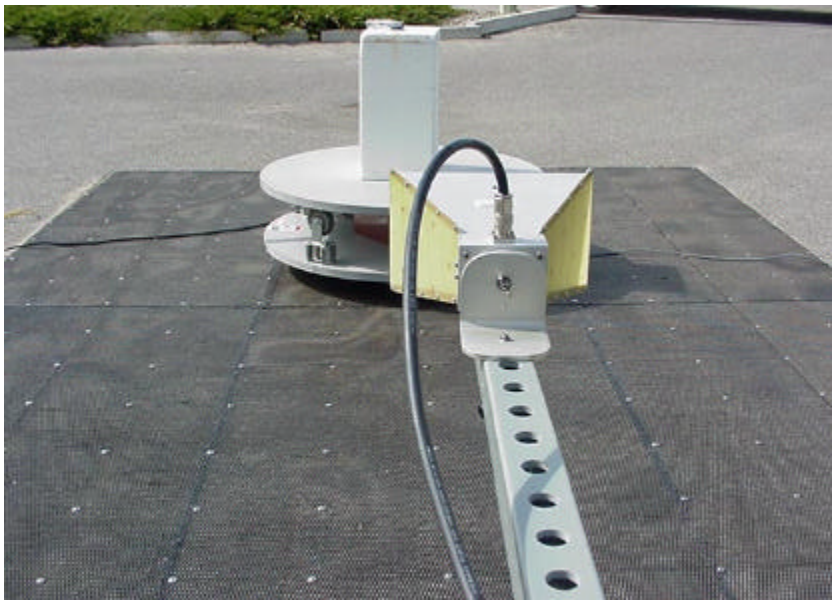
## *5.1 CONCLUSION*

The data in this measurement report shows that the SIERRA WIRELESS INC. Model: AirCard 750 PCS GSM/GPRS PCMCIA Modem Card FCC ID: N7NAC750 with three (3) host PDAs as described in this report complies with the requirements of FCC Rule Parts §24 and §2.

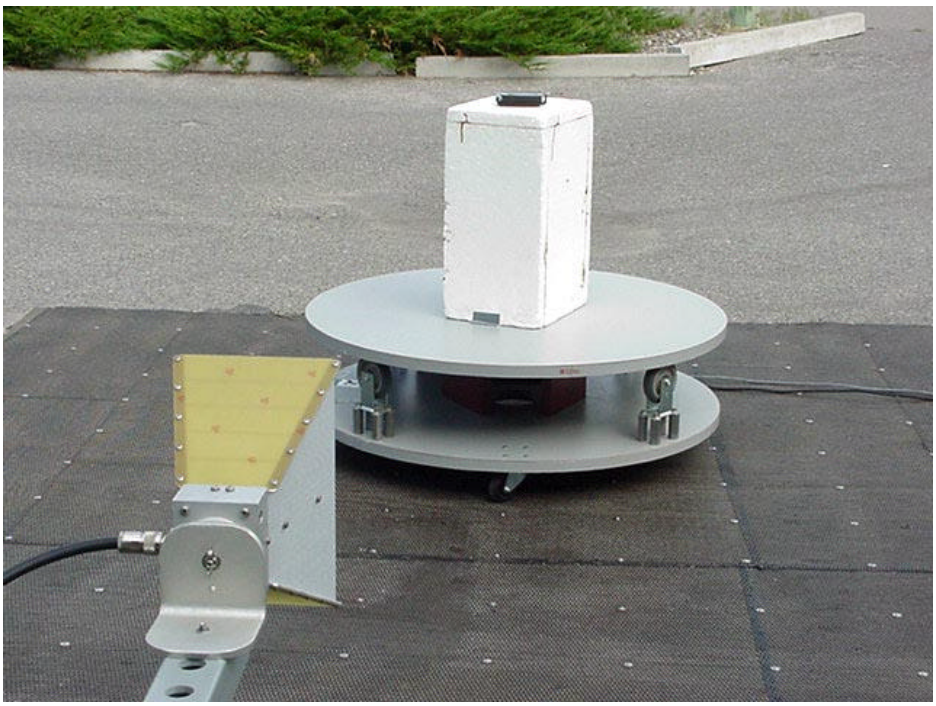
## *APPENDIX A - RADIATED TEST SETUP PHOTOGRAPHS*

# RADIATED TEST SETUP PHOTOGRAPHS

## EUT with Cassiopeia E200 PDA

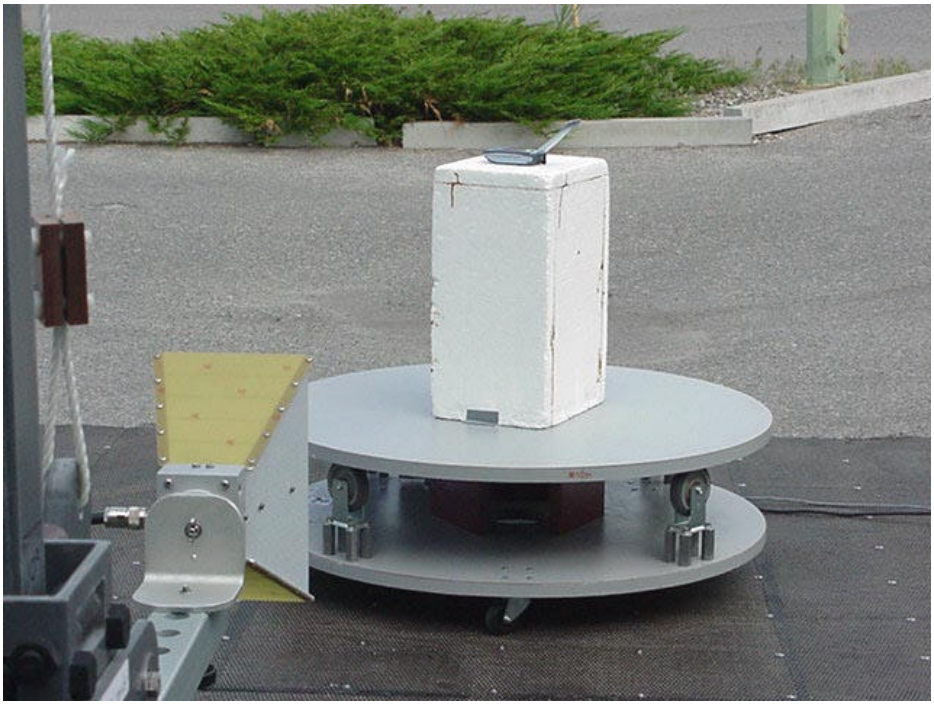


# RADIATED TEST SETUP PHOTOGRAPHS
## EUT with Compaq iPaq 3650 PDA



# RADIATED TEST SETUP PHOTOGRAPHS

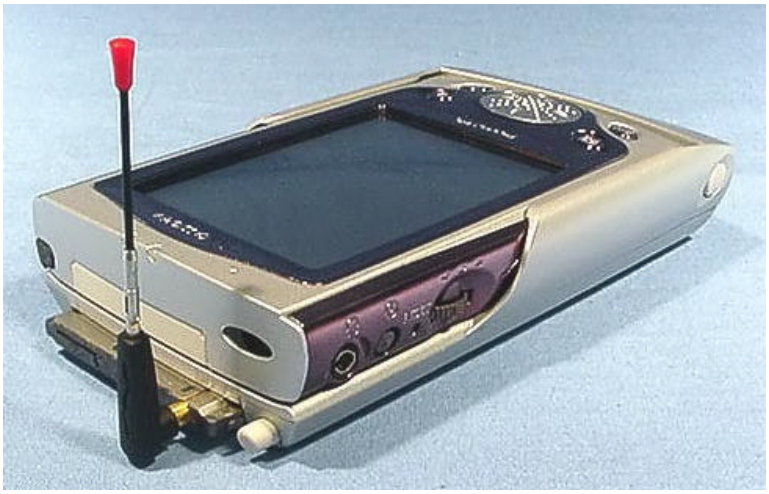
## EUT with HP Jornada 568 PDA



## *APPENDIX B - EUT PHOTOGRAPHS*

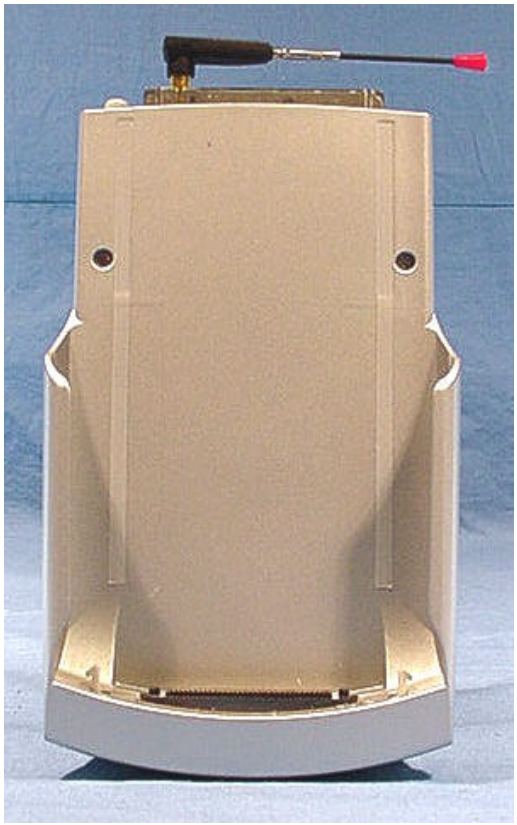
# EUT PHOTOGRAPHS
## with Cassiopeia E200 PDA

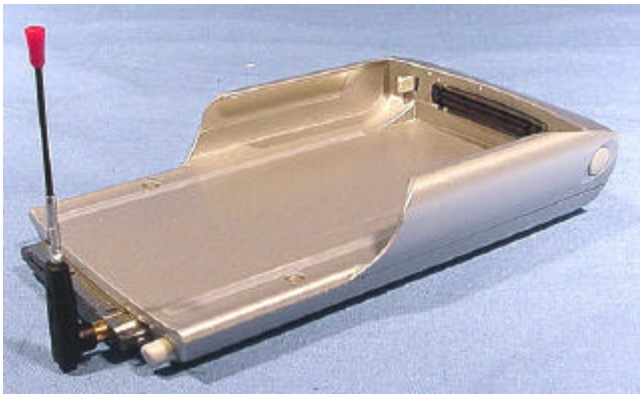


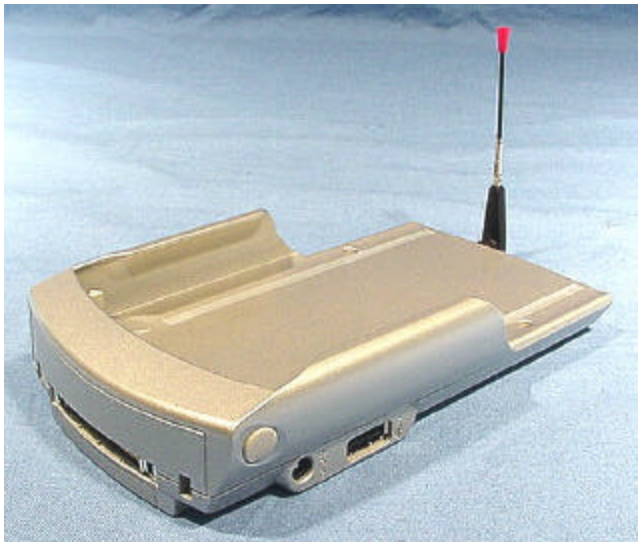


# EUT PHOTOGRAPHS
## with Cassiopeia E200 PDA



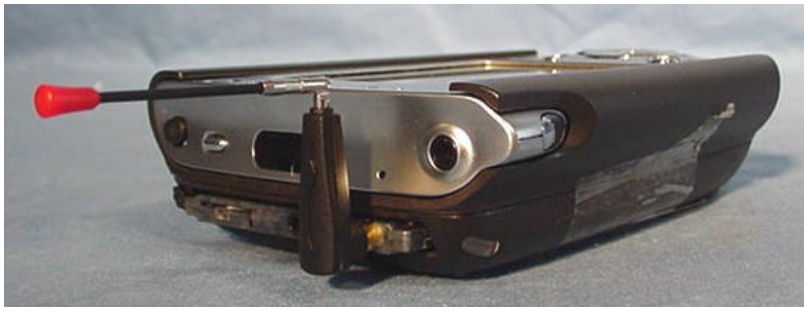


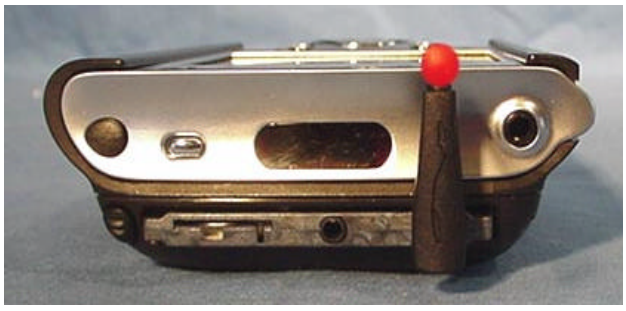




# EUT PHOTOGRAPHS
## with Compaq iPaq 3650 PDA

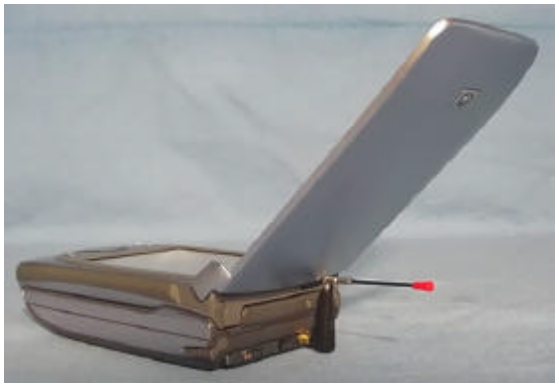






# EUT PHOTOGRAPHS
## with HP Jornada 568 PDA


# EUT PHOTOGRAPHS
## with HP Jornada 568 PDA

# EUT PHOTOGRAPHS
## Sierra Wireless AirCard 750