



## **Partial Test Report**

### **Updated Frequency Versus Temperature Data**

For

**850/900/1800/1900 MHz GSM/EDGE PC CARD  
WIRELESS MODEM**

**Model: AIRCARD 775**

**FCC ID: N7NAC775**

**IC: 2417C-AC775**

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**Test Date(s): December 6, 2005**

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### 1 Introduction and Purpose

This document provides updated FCC test data for the AC755 wireless modem. The original submission for the AC775 contained data for 2.1055, Frequency Stability Versus Temperature, for a range of -20C to +60C. This latest data adds new results down to -30C. For completeness, the entire range of -30C to +60C was tested.

### 2 Test Summary

| FCC RULE | DESCRIPTION OF TEST                    | RESULT   | PAGE |
|----------|--|----------|------|
| 2.1055   | Frequency Stability versus Temperature | Complies | 5    |

The tests described in this report were performed by Mr. Darryl Simpson at:

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### 3 Description of Equipment Under Test

The Sierra Wireless Inc. model AirCard 775 is a quad-band PCMCIA card wireless modem operating on the GSM/GPRS/EDGE network. In the US and Canada, only cellular and PCS bands are used for GSM/GPRS operation, so this test report only contains data for these two bands (850MHz and 1900MHz). The EUT was tested in both modes of operation: GMSK modulation and 8-PSK modulation. The EUT is a production sample and the serial number is:

X04091500950010



## 4 Frequency Stability Versus Temperature

### FCC 2.1055

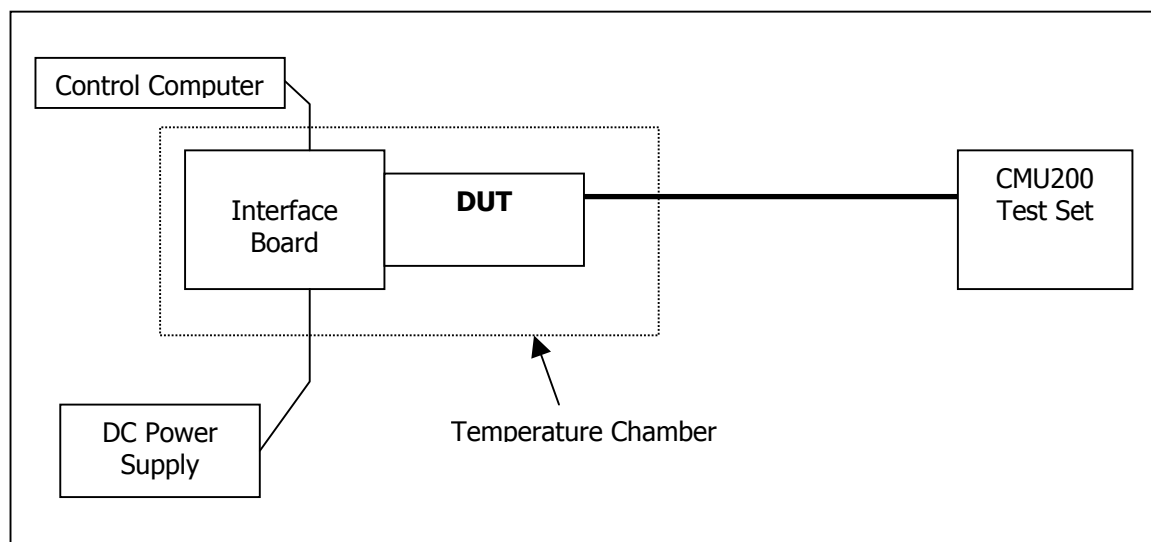
#### 4.1 Summary of Results

The AC755 Frequency Stability versus temperature meets the requirement of being within  $\pm 0.1$ ppm of the received base station frequency over the range of  $-30^{\circ}\text{C}$  to  $+50^{\circ}\text{C}$ .

#### 4.2 Test Procedure

The AC755 was placed inside the temperature chamber and connected to the CMU200 in a call. The transmitting frequency error is measured at 25 degrees C, then the temperature is set to  $+60^{\circ}\text{C}$  and allowed to stabilize. After sufficient soak time, the transmitting frequency error is measured. The temperature is decreased by 10 degrees, allowed to stabilize and soak, then the measurement is repeated. This is repeated until  $-30^{\circ}\text{C}$  is completed. The process is then repeated back up to  $+60^{\circ}\text{C}$ . Frequency metering included internal averaging of the CMU200 to stabilize the reading. Reference power supply voltage for these tests is 5.0 volts.

#### Test Setup

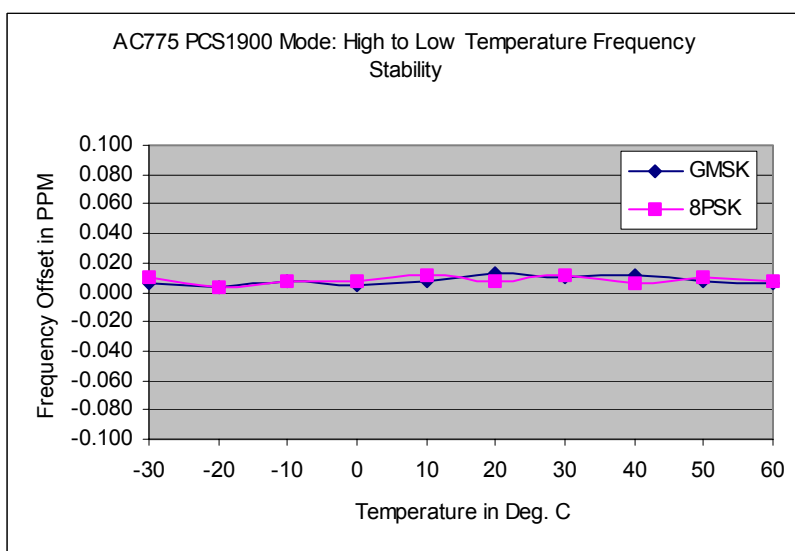
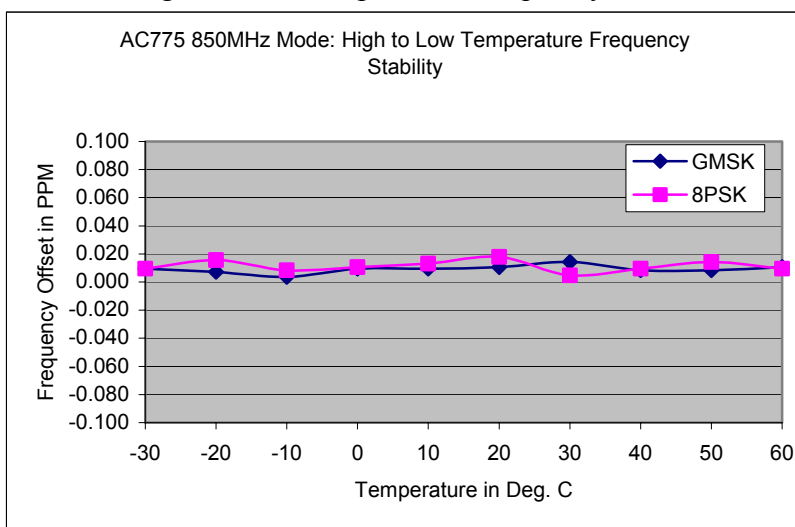


#### 4.3 Test Equipment

| EQUIPMENT         | MANUFACTURER    | MODEL NO.  | SERIAL NO. | CAL. DATE      |
|-------------------|-----------------|------------|------------|----------------|
| Control Computer  | TC              | Generic PC | 100488     | N/A            |
| Wireless Test Set | Rohde & Schwarz | CMU200     | 836766/030 | N/A            |
| Spectrum Analyzer | Rohde & Schwarz | FSP 30GHz  | US41421268 | Sept. 12, 2003 |
| DC Power Supply   | HP              | E3631A     | 100060     | N/A            |
| Interface Board   | Shop built      | Minnnow    | N/A        | N/A            |

#### 4.4 Test Results

##### High to Low Temperature Frequency Error



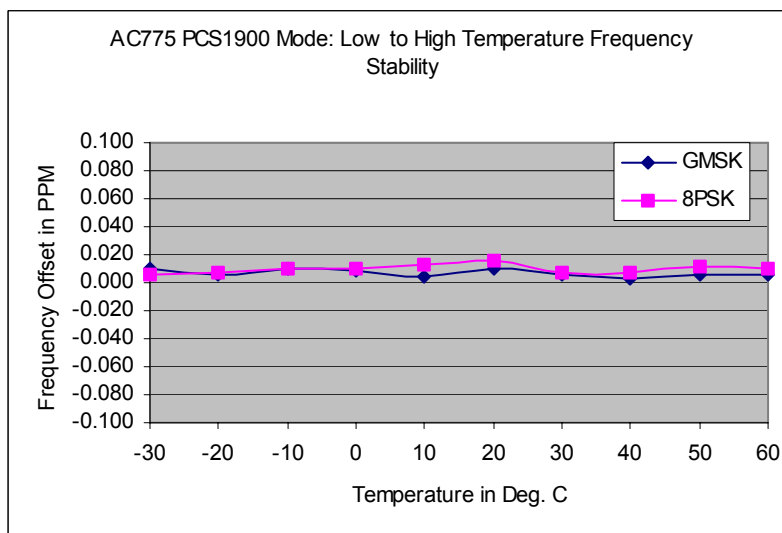
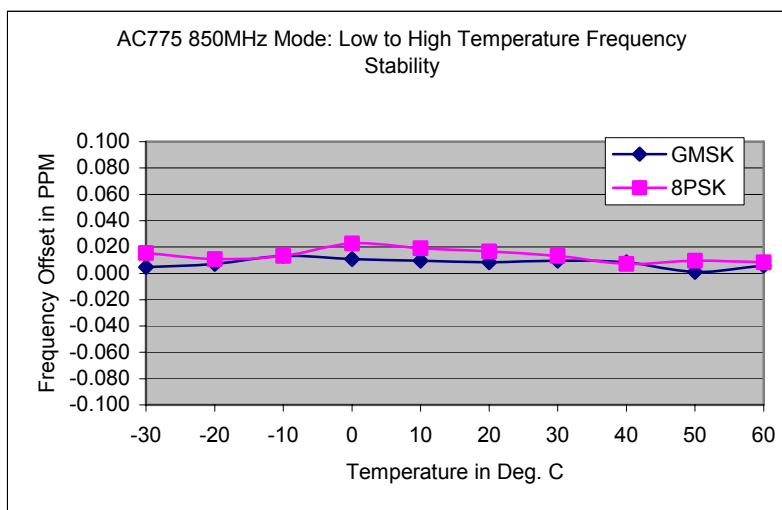
##### High to Low Temperature Tabular Readings

| Temp (C) | 850MHz, GMSK |             | 850MHz, 8PSK |             | 1900MHz, GMSK |             | 1900MHz, 8PSK |             |
|----------|--------------|-------------|--------------|-------------|---------------|-------------|---------------|-------------|
|          | Freq. (Hz)   | Freq. (ppm) | Freq. (Hz)   | Freq. (ppm) | Freq. (Hz)    | Freq. (ppm) | Freq. (Hz)    | Freq. (ppm) |
| 60       | 9            | 0.011       | 8            | 0.010       | 11            | 0.006       | 14            | 0.007       |
| 50       | 7            | 0.008       | 12           | 0.014       | 14            | 0.007       | 19            | 0.010       |
| 40       | 7            | 0.008       | 8            | 0.010       | 21            | 0.011       | 12            | 0.006       |
| 30       | 12           | 0.014       | 4            | 0.005       | 19            | 0.010       | 21            | 0.011       |
| 20       | 9            | 0.011       | 15           | 0.018       | 24            | 0.013       | 14            | 0.007       |
| 10       | 8            | 0.010       | 11           | 0.013       | 13            | 0.007       | 22            | 0.012       |
| 0        | 8            | 0.010       | 9            | 0.011       | 10            | 0.005       | 13            | 0.007       |
| -10      | 3            | 0.004       | 7            | 0.008       | 14            | 0.007       | 13            | 0.007       |
| -20      | 6            | 0.007       | 13           | 0.016       | 7             | 0.004       | 6             | 0.003       |
| -30      | 8            | 0.010       | 8            | 0.010       | 11            | 0.006       | 18            | 0.010       |

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## Low to High Temperature Frequency Error



## Low to High Temperature Tabular Readings

| Temp. (C) | 850MHz, GMSK |             | 850MHz, 8PSK |             | 1900MHz, GMSK |             | 1900MHz, 8PSK |             |
|-----------|--------------|-------------|--------------|-------------|---------------|-------------|---------------|-------------|
|           | Freq. (Hz)   | Freq. (ppm) | Freq. (Hz)   | Freq. (ppm) | Freq. (Hz)    | Freq. (ppm) | Freq. (Hz)    | Freq. (ppm) |
| -30       | 4            | 0.005       | 13           | 0.016       | 18            | 0.010       | 10            | 0.005       |
| -20       | 6            | 0.007       | 9            | 0.011       | 11            | 0.006       | 13            | 0.007       |
| -10       | 11           | 0.013       | 11           | 0.013       | 19            | 0.010       | 18            | 0.010       |
| 0         | 9            | 0.011       | 19           | 0.023       | 17            | 0.009       | 20            | 0.011       |
| 10        | 8            | 0.010       | 16           | 0.019       | 7             | 0.004       | 25            | 0.013       |
| 20        | 7            | 0.008       | 14           | 0.017       | 18            | 0.010       | 29            | 0.015       |
| 30        | 8            | 0.010       | 11           | 0.013       | 11            | 0.006       | 14            | 0.007       |
| 40        | 7            | 0.008       | 6            | 0.007       | 5             | 0.003       | 13            | 0.007       |
| 50        | 1            | 0.001       | 8            | 0.010       | 11            | 0.006       | 21            | 0.011       |
| 60        | 5            | 0.006       | 7            | 0.008       | 12            | 0.006       | 18            | 0.010       |