



## **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**

**Prepared by  
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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

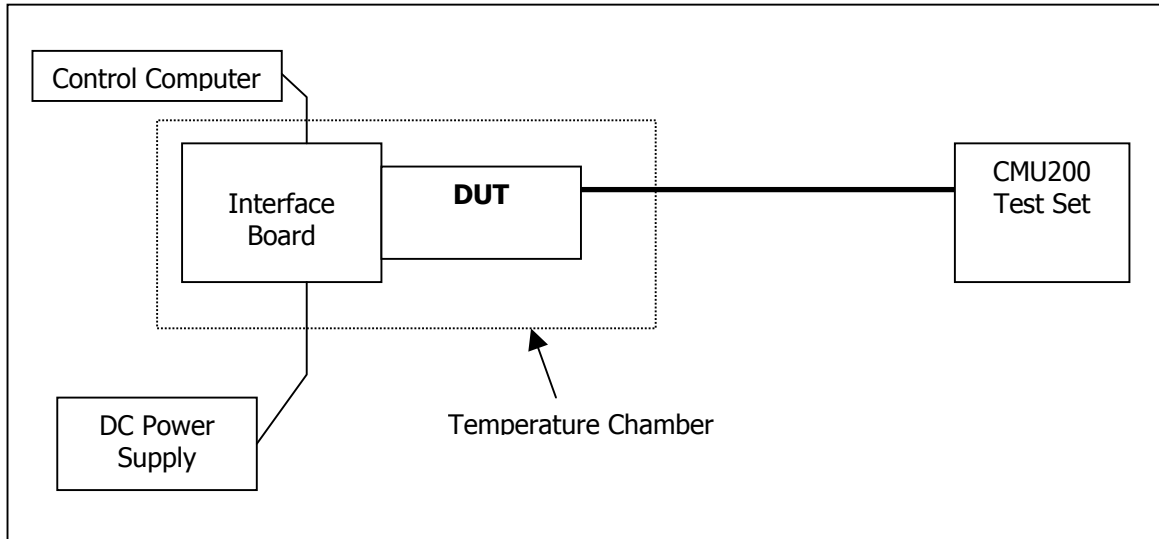
#### 4.1 Summary of Results

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



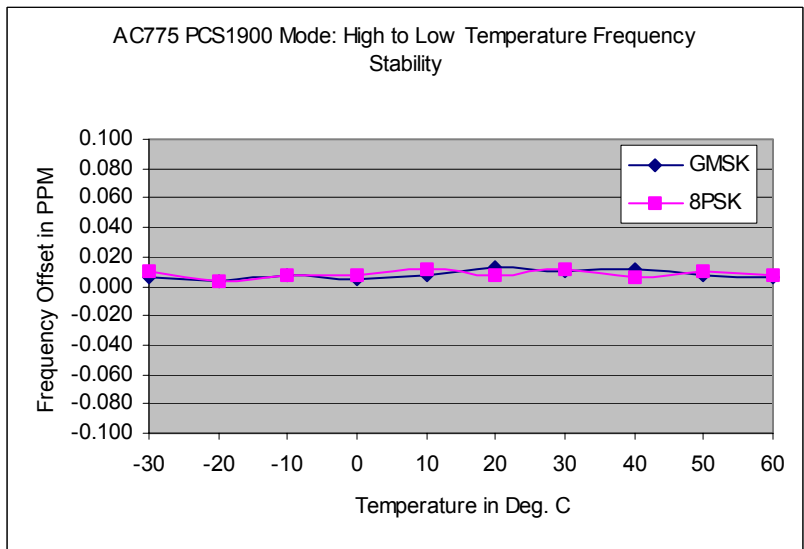
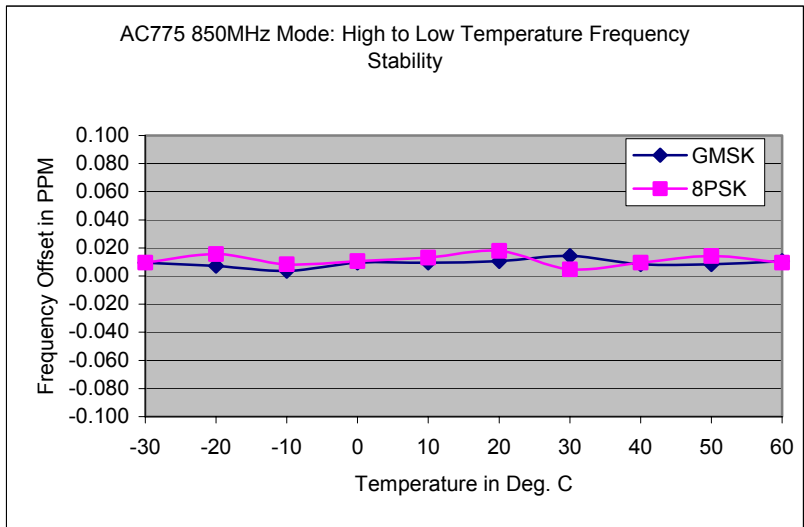
#### 4.3 Test Equipment

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	Minnow	N/A	N/A

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## 4.4 Test Results

### High to Low Temperature Frequency Error

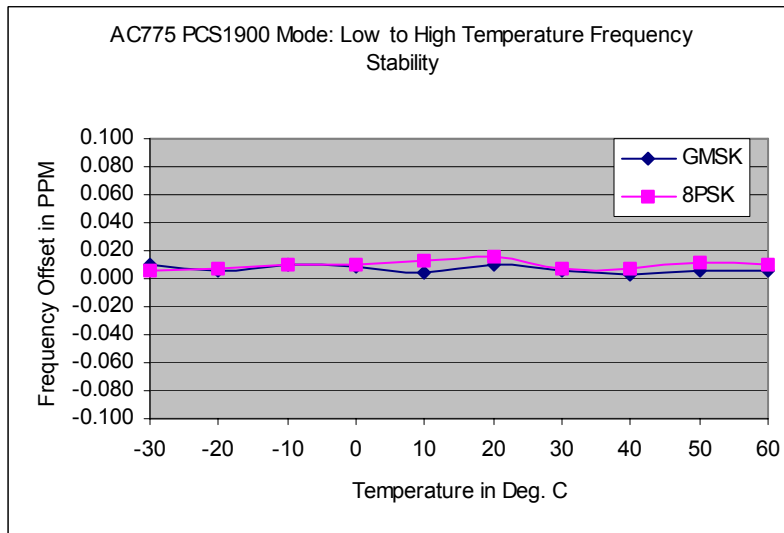
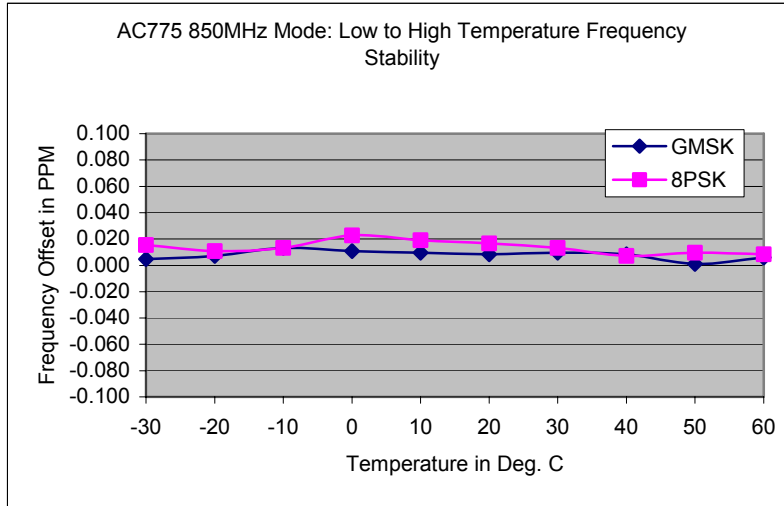


### High to Low Temperature Tabular Readings

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