



**FCC CFR47 PART 22 SUBPART H
AND PART 24 SUBPART E
CERTIFICATION**

**TEST REPORT
FOR**

850/900/1800/1900 MHZ QUADBAND PC CARD

MODEL NUMBER: AirCard 860

FCC ID: N7NAC860

REPORT NUMBER: 05U3648-1

ISSUE DATE: SEPTEMBER 14, 2005

Prepared for
**SIERRA WIRELESS INC.
13811 WIRELESS WAY
RICHMOND, BC V6V 3A4, CANADA**

Prepared by
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d.b.a.
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Revision History

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SIERRA WIRELESS INC.
13811 WIRELESS WAY
RICHMOND, BC V6V 3A4, CANADA

EUT DESCRIPTION: 850/900/1800/1900 MHz QUADBAND PC CARD

MODEL: AirCard 860

SERIAL NUMBER: 001027000070211

DATE TESTED: September 02 - 09, 2005

APPLICABLE STANDARDS	
STANDARD	TEST RESULTS
FCC PART 22 SUBPART H	NO NON-COMPLIANCE NOTED
FCC PART 24 SUBPART E	NO NON-COMPLIANCE NOTED

Compliance Certification Services, Inc. tested the above equipment in accordance with the requirements set forth in the above standards. The test results show that the equipment tested is capable of demonstrating compliance with the requirements as documented in this report.

Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by Compliance Certification Services and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by Compliance Certification Services will constitute fraud and shall nullify the document. No part of this report may be used to claim product certification, approval, or endorsement by NVLAP, NIST, or any government agency.

Approved & Released For CCS By:

Tested By:



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EMC SUPERVISOR
COMPLIANCE CERTIFICATION SERVICES

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with TIA/EIA 603A (2001), ANSI C63.4-2003, FCC CFR 47 Part 2, FCC CFR 47 Part 15 and FCC CFR 47 Part 22H and 24E.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 561F Monterey Road, Morgan Hill, California, USA. The sites are constructed in conformance with the requirements of ANSI C63.4, ANSI C63.7 and CISPR Publication 22. All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

CCS is accredited by NVLAP, Laboratory Code 200065-0. The full scope of accreditation can be viewed at <http://www.ccsemc.com>.

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

The measuring equipment utilized to perform the tests documented in this report has been calibrated in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the apparatus:

PARAMETER	UNCERTAINTY
Radiated Emission, 30 to 200 MHz	+/- 3.3 dB
Radiated Emission, 200 to 1000 MHz	+4.5 / -2.9 dB
Radiated Emission, 1000 to 2000 MHz	+4.5 / -2.9 dB
Power Line Conducted Emission	+/- 2.9 dB

Uncertainty figures are valid to a confidence level of 95%.

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is an 850/900/1800/1900 MHz Quadband PC Card and manufactured by Sierra Wireless.

5.2. MAXIMUM OUTPUT POWER

The transmitter has maximum ERP and EIRP output powers as follows:

PART 22 824 to 849 MHz Authorized Band

Frequency Range (MHz)	Modulation	ERP Peak Power (dBm)	ERP Peak Power (mW)
826.4- 846.6	WCDMA	27.90	616.60
824.2 - 848.8	GSM	34.50	2818.38
824.2 - 848.8	EDGE	30.50	1122.02

PART 24 1850 to 1910 MHz Authorized Band

Frequency Range (MHz)	Modulation	EIRP Peak Power (dBm)	EIRP Peak Power (mW)
1852.4 - 1907.6	WCDMA	27.80	602.56
1850.2 - 1909.8	GSM	31.10	1288.25
1850.2 - 1909.8	EDGE	30.21	1049.54

NOTE: RBW=VBW=8MHz.

5.3. SOFTWARE AND FIRMWARE

The test utility software used during testing was Hyperterminal / ProcommPlus .

5.4. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
AC Adapter	COMPAG	PP2060	N/A	DoC
Laptop	COMPAG	PPP005L	N/A	DoC

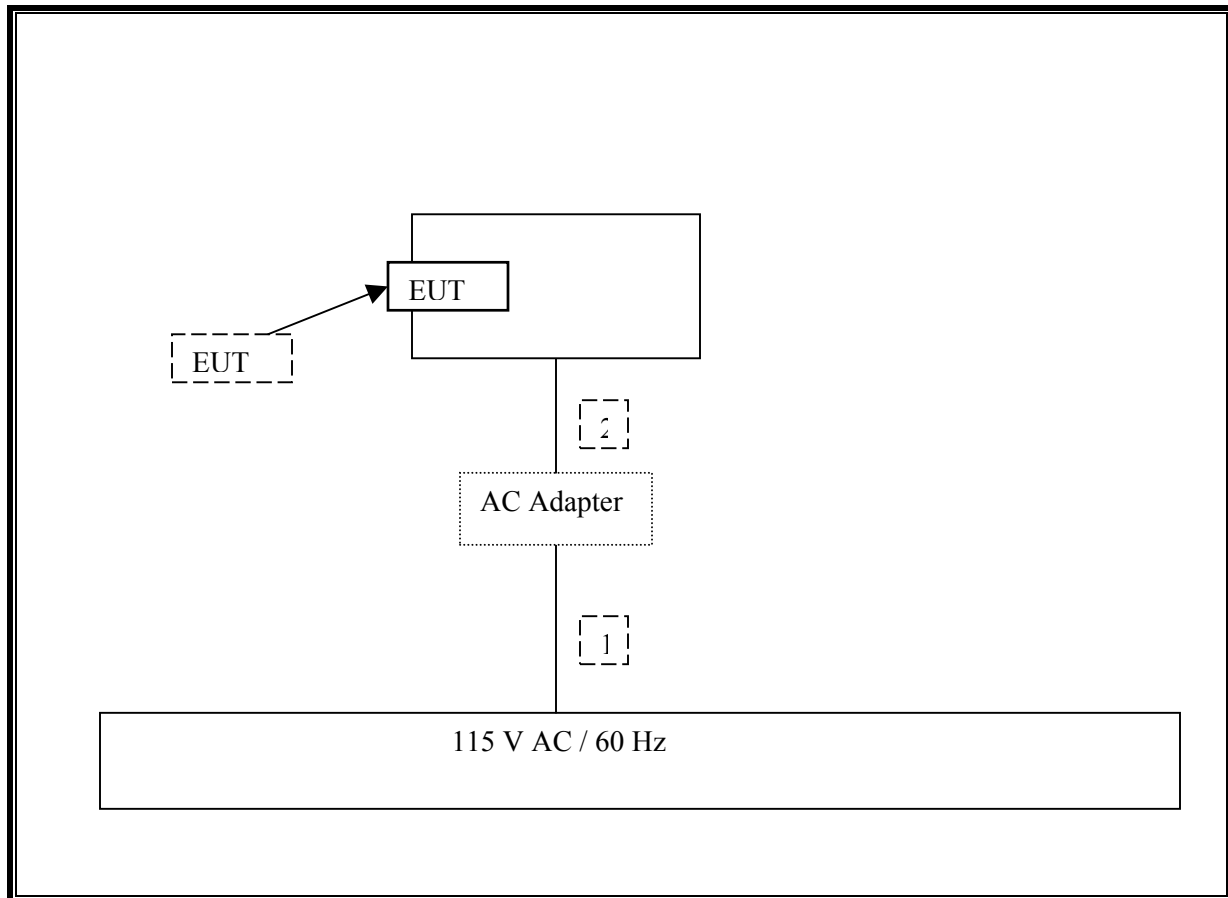
I/O CABLES

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	AC	1	US 115V	Un-shielded	2m	NA
2	DC	1	DC	Un-shielded	0.5m	NA

TEST SETUP

The EUT is installed in to a laptop during the tests. The test software exercised the EUT.

SETUP DIAGRAM FOR TESTS



6. TEST AND MEASUREMENT EQUIPMENT

The following test and measurement equipment was utilized for the tests documented in this report:

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	Cal Due
EMI Receiver, 9 kHz ~ 2.9 GHz	HP	8542E	3942A00286	11/21/2005
RF Filter Section	HP	85420E	3705A00256	11/21/05
30MHz---- 2Ghz	Sunol Sciences	JB1 Antenna	A121003	12/22/05
Preamplifier, 1300MHz	HP	8447D	2944A06833	8/17/06
30MHz---- 2Ghz	Sunol Sciences	JB1 Antenna	A121003	9/22/05
Antenna, Horn 1 ~ 18 GHz	EMCO	3117	29301	9/12/05
Antenna, Horn 1 ~ 18 GHz	EMCO	3115	6717	9/12/05
Amplifier 1-26GHz	MITEQ	NSP2600-SP	924341	8/17/06
Spectrum Analyzer, 26.5 GHz	HP	8593EM	3710A00205	1/6/06
Dipole	EMCO	3121C-DB2	22435	3/25/06
Signal Generator 2 -40 GHz	R & S	SMP04	DE 34210	5/2/06
Peak Power Meter	Agilent	E4416A	GB41291160	2/9/06
Peak / Average Power Sensor	Agilent	E9327A	US40440755	2/10/06

7. LIMITS AND RESULTS

7.1. RF POWER OUTPUT

LIMIT

22.913(a) The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.
24.232(b) Mobile/portable stations are limited to 2 watts e.i.r.p. peak power and the equipment must employ means to limit the power to the minimum necessary for successful communications.

TEST PROCEDURE

ANSI / TIA / EIA 603 Clause 2.2.17

RESULTS

No non-compliance noted.

PART 22 - 850 MHz Cellular Band Output Power (ERP)

WCDMA

09/01/05 30-1000 MHz_Fundamental Substitution Measurement Compliance Certification Services, Morgan Hill 5m Chamber Site										
Test Engr: Vien Tran Project #: 05U3648 Company: Sierra Wireless EUT Descrip.: 850/900/1800/1900 MHz Quadband PC CARD EUT M/N: Aircard 860 Test Target: FCC 22 & RSS-132 Mode Oper: Tx, WCDMA 850MHz Band_Low, Mid & Hi Channels Fundamental Substitution										
Test Equipment:										
Bilog Antenna		Cable		Pre-amplifier 8447D		Limit				
5m Chamber Sunol Bilog ▾		5m Chamber Cable ▾		▾		ERP ▾				
f MHz	SA reading (dBuV/m)	Ant. Pol. (H/V)	SG reading (dBm)	CL (dB)	Gain (dBi)	Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
LOW CH										
826.40	103.8	V	27.3	0.5	2.2	0.0	26.8	38.5	-11.7	
826.40	101.0	H	25.8	0.5	2.2	0.0	25.3	38.5	-13.2	
MID CH										
837.00	105.4	V	28.3	0.5	2.2	0.0	27.8	38.5	-10.7	
837.00	102.7	H	26.9	0.5	2.2	0.0	26.4	38.5	-12.1	
HI CH										
846.60	105.3	V	28.4	0.5	2.2	0.0	27.9	38.5	-10.6	
846.60	104.9	H	28.0	0.5	2.2	0.0	27.5	38.5	-11.0	

GSM (GPRS)

09/01/05 30-1000 MHz Fundamental Substitution Measurement Compliance Certification Services, Morgan Hill 5m Chamber Site											
Test Engr: Vien Tran Project #: 05U3648 Company: Sierra Wireless EUT Descrip.: 850/900/1800/1900 MHz Quadband PC CARD EUT M/N: AIRCARD 860 Test Target: FCC 22 / RSS 132 Mode Oper: Tx, GSM 850MHz Band_Low, Mid & Hi Channels Fundamental Substitution											
Test Equipment:											
Bilog Antenna			Cable			Pre-amplifer 8447D			Limit		
5m Chamber Sunol Bilog ▾			5m Chamber Cable ▾			▾			ERP ▾		

f MHz	SA reading (dBuV/m)	Ant. Pol. (H/V)	SG reading (dBm)	CL (dB)	Gain (dBi)	Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
LOW CH										
824.20	109.3	V	32.8	0.5	2.2	0.0	32.3	38.5	-6.2	
824.20	101.2	H	26.0	0.5	2.2	0.0	25.5	38.5	-13.0	
MID CH										
837.00	110.7	V	33.6	0.5	2.2	0.0	33.1	38.5	-5.4	
837.00	107.6	H	31.8	0.5	2.2	0.0	31.3	38.5	-7.2	
HI CH										
848.80	111.9	V	35.0	0.5	2.2	0.0	34.5	38.5	-4.0	
848.80	108.3	H	31.4	0.5	2.2	0.0	30.9	38.5	-7.6	

EDGE

09/01/05 30-1000 MHz Fundamental Substitution Measurement
Compliance Certification Services, Morgan Hill 5m Chamber Site

Test Engr: Vien Tran
Project #:05U3648
Company:Sierra Wireless
EUT Descrip.: 850/900/1800/1900 MHz Quadband PC CARD
EUT M/N: AIRCARD 860
Test Target:FCC 22 & RSS-132
Mode Oper:Tx, EDGE 850MHz Band_Low, Mid & Hi Channels Fundamental Substitution

Test Equipment:

Bilog Antenna	Cable	Pre-amplifier 8447D	Limit
5m Chamber Sunol Bilog	5m Chamber Cable		ERP

f MHz	SA reading (dBuV/m)	Ant. Pol. (H/V)	SG reading (dBm)	CL (dB)	Gain (dBi)	Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
LOW CH										
824.20	106.5	V	30.0	0.5	2.2	0.0	29.5	38.5	-9.0	
824.20	104.2	H	29.0	0.5	2.2	0.0	28.5	38.5	-10.0	
MID CH										
837.00	108.1	V	31.0	0.5	2.2	0.0	30.5	38.5	-8.0	
837.00	105.0	H	29.2	0.5	2.2	0.0	28.7	38.5	-9.8	
HI CH										
848.80	107.2	V	30.3	0.5	2.2	0.0	29.8	38.5	-8.7	
848.80	105.0	H	28.1	0.5	2.2	0.0	27.6	38.5	-10.9	

PART 24 - 1900 MHz PCS Band Output Power (EIRP)

WCDMA

09/02/05 **High Frequency Fundamental Measurement**
Compliance Certification Services, Morgan Hill 5m Chamber Site

Test Engr: Vien Tran
Project #:05U3648
Company:Sierra Wireless
EUT Descrip.: 850/900/1800/1900 MHz Quadband PC CARD
EUT M/N: AIRCARD 860
Test Target:FCC 24 & RSS-133
Mode Oper:Tx, WCDMA 1900MHz Band _ Low, Mid & Hi Channels Fundamental Substitution

Test Equipment:

EMCO Horn 1-18GHz
T60; S/N: 2238 @3m

Horn > 18GHz

Limit
EIRP

☒ High Pass Filter

☐ (2 ft)
☐ (2 ~ 3 ft)
☒ (4 ~ 6 ft)
☐ (12 ft)

Pre-amplifier 1-26GHz

Pre-amplifier 26-40GHz

f GHz	SA reading (dBuV/m)	Ant. Pol. (H/V)	SG reading (dBm)	CL (dB)	Gain (dBi)	Gain (dBd)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
LOW CH										
1.852	93.7	V	20.4	0.9	8.3	6.1	27.8	33.0	-5.2	
1.852	83.5	H	8.2	0.9	8.3	6.1	15.6	33.0	-17.4	
MID CH										
1.880	94.0	V	20.2	0.9	8.3	6.2	27.7	33.0	-5.3	
1.880	85.8	H	9.8	0.9	8.3	6.2	17.2	33.0	-15.8	
HI CH										
1.908	92.5	V	17.2	0.9	8.4	6.2	24.7	33.0	-8.3	
1.908	81.4	H	5.1	0.9	8.4	6.2	12.6	33.0	-20.4	

GSM (GPRS)

09/02/05 High Frequency Fundamental Measurement Compliance Certification Services, Morgan Hill 5m Chamber Site											
Test Engr: Vien Tran Project #: 05U3648 Company: Sierra Wireless EUT Descr.: 850/900/1800/1900 MHz Quadband PC CARD EUT M/N: AIRCARD 860 Test Target: FCC 24 & RSS-133 Mode Oper: Tx, GSM (GPRS) 1900MHz Band _ Low, Mid & Hi Channels Fundamental Substitution											
Test Equipment:											
EMCO Horn 1-18GHz T60; S/N: 2238 @3m			Horn > 18GHz			Limit EIRP		<input checked="" type="checkbox"/> High Pass Filter			
Hi Frequency Cables <input type="checkbox"/> (2 ft) <input type="checkbox"/> (2 ~ 3 ft) <input checked="" type="checkbox"/> (4 ~ 6 ft) <input type="checkbox"/> (12 ft)				Pre-amplifier 1-26GHz		Pre-amplifier 26-40GHz					
f GHz	SA reading (dBuV/m)	Ant. Pol. (H/V)	SG reading (dBm)	CL (dB)	Gain (dBi)	Gain (dBd)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes	
LOW CH											
1.850	96.9	V	23.7	0.9	8.3	6.1	31.1	33.0	-1.9		
1.850	86.3	H	10.7	0.9	8.3	6.1	18.1	33.0	-14.9		
MID CH											
1.880	97.1	V	23.1	0.9	8.3	6.2	30.6	33.0	-2.4		
1.880	87.5	H	10.4	0.9	8.3	6.2	17.8	33.0	-15.2		
HI CH											
1.910	96.8	V	21.2	0.9	8.4	6.2	28.7	33.0	-4.3		
1.910	88.6	H	12.0	0.9	8.4	6.2	19.5	33.0	-13.5		

EDGE

09/02/05 **High Frequency Fundamental Measurement**
Compliance Certification Services, Morgan Hill 5m Chamber Site

Test Engr: Vien Tran
Project #:05U3648
Company:Sierra Wireless
EUT Descrip.: 850/900/1800/1900 MHz Quadband PC CARD
EUT M/N: AIRCARD 860
Test Target:FCC 24 & RSS-133
Mode Oper:Tx, EDGE 1900MHz Band _ Low, Mid & Hi Channels Fundamental Substitution

Test Equipment:

EMCO Horn 1-18GHz

T60; S/N: 2238 @3m

Horn > 18GHz

Limit

EIRP

☒ High Pass Filter

Hi Frequency Cables

☐ (2 ft)
☐ (2 ~ 3 ft)
☒ (4 ~ 6 ft)
☐ (12 ft)

Pre-amplifier 1-26GHz

Pre-amplifier 26-40GHz

f GHz	SA reading (dBuV/m)	Ant. Pol. (H/V)	SG reading (dBm)	CL (dB)	Gain (dBi)	Gain (dBd)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
LOW CH										
1.850	95.9	V	22.8	0.9	8.3	6.1	30.2	33.0	-2.8	
1.850	85.4	H	9.8	0.9	8.3	6.1	17.2	33.0	-15.8	
MID CH										
1.880	95.9	V	22.0	0.9	8.3	6.2	29.4	33.0	-3.6	
1.880	86.2	H	9.1	0.9	8.3	6.2	16.5	33.0	-16.5	
HI CH										
1.910	95.1	V	19.5	0.9	8.4	6.2	27.0	33.0	-6.0	
1.910	83.2	H	6.6	0.9	8.4	6.2	14.1	33.0	-18.9	

7.2. FIELD STRENGTH OF SPURIOUS EMISSION

LIMIT

§22.917 (e) and §24.238 (a) Out of band emissions. The power of any emission outside of the authorized operating frequency ranges must be attenuated below the transmitting power (P) by a factor of at least $43 + 10 \log (P)$ dB.

TEST PROCEDURE

ANSI / TIA / EIA 603 Clause 3.2.12, FCC 22.917 (h), & FCC 24.238 (b)

RESULTS

No non-compliance noted.

PART 22 - 850 MHz Cellular Band Spurious & Harmonic (ERP), 30-1000MHz

NO EMISSIONS WERE DETECTED ABOVE NOISE FOR WCDMA, GSM, & EDGE
MODULATIONS

PART 22 - 850MHz Cellular Band Spurious & Harmonic (ERP) – Above 1 GHz

WCDMA

09/02/05 **High Frequency Measurement**
Compliance Certification Services, Morgan Hill 5m Chamber Site

Test Engr: Vien Tran
Project #:05U3648
Company:Sierra Wireless
EUT Descrip.: 850/900/1800/1900 MHz Quadband PC CARD
EUT M/N: AIRCARD 860
Test Target:FCC 22 & RSS 132
Mode Oper:Tx, WCDMA 850MHz Band _ Low, Mid, & Hi channels Harmonic Spur Substitution_EPR

Test Equipment:

EMCO Horn 1-18GHz
T73; S/N: 6717 @3m

Horn > 18GHz

Limit
FCC 22

☒ High Pass Filter

Hi Frequency Cables
☐ (2 ft) ☐ (2 ~ 3 ft) ☒ (4 ~ 6 ft) ☒ (12 ft)

Pre-amplifier 1-26GHz
T34 HP 8449B

Pre-amplifier 26-40GHz

f GHz	SA reading (dBuV/m)	Ant. Pol. (H/V)	SG reading (dBm)	CL (dB)	Gain (dBi)	Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
LOW CH 826.4 MHz										
1.653	50.0	V	-55.1	2.1	8.3	6.2	-51.0	-13.0	-38.0	
2.472	46.0	V	-54.5	2.6	9.7	7.6	-49.5	-13.0	-36.5	
1.653	46.7	H	-57.7	2.1	8.3	6.2	-53.6	-13.0	-40.6	
2.472	45.0	H	-55.3	2.6	9.7	7.6	-50.3	-13.0	-37.3	
MID CH 837 MHz										
1.673	51.5	V	-53.4	2.1	8.4	6.2	-49.3	-13.0	-36.3	
2.511	46.6	V	-53.7	2.6	9.7	7.5	-48.7	-13.0	-35.7	
1.673	45.0	H	-59.2	2.1	8.4	6.2	-55.1	-13.0	-42.1	
2.511	49.0	H	-51.1	2.6	9.7	7.5	-46.1	-13.0	-33.1	
HI CH 846.6 MHz										
1.693	53.5	V	-51.3	2.1	8.4	6.3	-47.2	-13.0	-34.2	
2.539	49.3	V	-50.8	2.6	9.7	7.5	-45.9	-13.0	-32.9	
1.693	48.0	H	-56.1	2.1	8.4	6.3	-52.0	-13.0	-39.0	
2.539	46.0	H	-53.9	2.6	9.7	7.5	-49.0	-13.0	-36.0	
NO OTHER EMISSIONS WERE DETECTED AFTER 3RD HARMONIC										

GSM (GPRS)

09/02/05 High Frequency Measurement Compliance Certification Services, Morgan Hill 5m Chamber Site										
Test Engr: Vien Tran Project #: 05U3648 Company: Sierra Wireless EUT Descr.: 850/900/1800/1900 MHz Quadband PC CARD EUT M/N: AIRCARD 860 Test Target: FCC 22 & RSS-132 Mode Oper: Tx, GSM (GPRS) 850MHz Band _ Low, Mid, & Hi channels Harmonic Spur_Substitution_ERP										
Test Equipment:										
EMCO Horn 1-18GHz T73; S/N: 6717 @3m		Horn > 18GHz		Limit FCC 22		<input checked="" type="checkbox"/> High Pass Filter				
Hi Frequency Cables <input type="checkbox"/> (2 ft) <input type="checkbox"/> (2 ~ 3 ft) <input checked="" type="checkbox"/> (4 ~ 6 ft) <input checked="" type="checkbox"/> (12 ft)				Pre-amplifier 1-26GHz T34 HP 8449B		Pre-amplifier 26-40GHz				
f GHz	SA reading (dBuV/m)	Ant. Pol. (H/V)	SG reading (dBm)	CL (dB)	Gain (dBi)	Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
LOW CH 824.2 MHz										
1.648	69.9	V	-35.2	2.1	8.3	6.2	-31.1	-13.0	-18.1	
2.473	74.8	V	-25.7	2.6	9.7	7.6	-20.7	-13.0	-7.7	
1.648	66.4	H	-38.0	2.1	8.3	6.2	-33.9	-13.0	-20.9	
2.473	71.2	H	-29.1	2.6	9.7	7.6	-24.1	-13.0	-11.1	
MID CH 837 MHz										
1.674	69.7	V	-35.2	2.1	8.4	6.2	-31.1	-13.0	-18.1	
2.511	75.0	V	-25.3	2.6	9.7	7.5	-20.3	-13.0	-7.3	
1.673	63.0	H	-41.2	2.1	8.4	6.2	-37.1	-13.0	-24.1	
2.511	71.0	H	-29.1	2.6	9.7	7.5	-24.1	-13.0	-11.1	
HI CH 848.8 MHz										
1.698	68.0	V	-36.8	2.1	8.4	6.3	-32.6	-13.0	-19.6	
2.546	74.3	V	-25.8	2.6	9.7	7.5	-20.9	-13.0	-7.9	
1.698	65.8	H	-38.3	2.1	8.4	6.3	-34.1	-13.0	-21.1	
2.546	70.0	H	-29.9	2.6	9.7	7.5	-25.0	-13.0	-12.0	
NO OTHER EMISSIONS WERE DETECTED AFTER 3RD HARMONIC										

EDGE

09/06/05 High Frequency Measurement Compliance Certification Services, Morgan Hill 5m Chamber Site Test Engr: Vien Tran Project #:05U3648 Company:Sierra Wireless EUT Descr.: 850/900/1800/1900 MHz Quadband PC CARD EUT M/N: Aircard 860 Test Target:FCC 22 & RSS-132 Mode Oper:Tx, EDGE 850MHz Band _ Low, Mid, & Hi channels Harmonic Spur_Substitution_ERP										
Test Equipment:										
EMCO Horn 1-18GHz T73; S/N: 6717 @3m		Horn > 18GHz		Limit FCC 22		<input checked="" type="checkbox"/> High Pass Filter				
Hi Frequency Cables <input type="checkbox"/> (2 ft) <input checked="" type="checkbox"/> (2 ~ 3 ft) <input type="checkbox"/> (4 ~ 6 ft) <input checked="" type="checkbox"/> (12 ft)				Pre-amplifier 1-26GHz T34 HP 8449B		Pre-amplifier 26-40GHz				
f GHz	SA reading (dBuV/m)	Ant. Pol. (H/V)	SG reading (dBm)	CL (dB)	Gain (dBi)	Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
LOW CH 824.2 MHz										
1.648	60.5	V	-45.1	1.6	8.3	6.2	-40.5	-13.0	-27.5	
2.473	55.0	V	-46.2	1.9	9.7	7.6	-40.5	-13.0	-27.5	
1.648	53.5	H	-51.4	1.6	8.3	6.2	-46.8	-13.0	-33.8	
2.473	48.5	H	-52.5	1.9	9.7	7.6	-46.8	-13.0	-33.8	
MID CH 837 MHz										
1.674	59.2	V	-46.3	1.6	8.4	6.2	-41.6	-13.0	-28.6	
2.511	53.5	V	-47.5	1.9	9.7	7.5	-41.8	-13.0	-28.8	
1.673	52.6	H	-52.2	1.6	8.4	6.2	-47.5	-13.0	-34.5	
2.511	48.1	H	-52.7	1.9	9.7	7.5	-47.0	-13.0	-34.0	
HI CH 848.8 MHz										
1.698	61.2	V	-44.1	1.6	8.4	6.3	-39.4	-13.0	-26.4	
2.546	56.3	V	-44.5	2.0	9.7	7.5	-38.9	-13.0	-25.9	
1.698	54.1	H	-50.5	1.6	8.4	6.3	-45.8	-13.0	-32.8	
2.546	49.2	H	-51.4	2.0	9.7	7.5	-45.8	-13.0	-32.8	
NO OTHER EMISSIONS WERE DETECTED AFTER 3RD HARMONIC										

PART 24 - 1900 MHz PCS Band Spurious & Harmonic (ERP), 30-1000MHz

NO EMISSIONS WERE DETECTED ABOVE NOISE FOR WCDMA, GSM, & EDGE
MODULATIONS

PART 24 - 1900 MHzPCS Band Spurious & Harmonic (EIRP):- Above 1 GHz

WCDMA

09/06/05 High Frequency Measurement Compliance Certification Services, Morgan Hill 5m Chamber Site											
Test Engr: Vien Tran Project #:05U3648 Company:Sierra Wireless EUT Descrip.: 850/900/1800/1900 MHz Quadband PC CARD EUT M/N: AIRCARD 860 Test Target:FCC 24 & RSS-133 Mode Oper:Tx, WCDMA 1900MHz Band _ Low, Mid, & Hi channels _Harmonic Spur Substitution EIRP											
Test Equipment:											
EMCO Horn 1-18GHz T73; S/N: 6717 @3m			Horn > 18GHz			Limit FCC 24		<input checked="" type="checkbox"/> High Pass Filter			
Hi Frequency Cables <input type="checkbox"/> (2 ft) <input checked="" type="checkbox"/> (2 ~ 3 ft) <input type="checkbox"/> (4 ~ 6 ft) <input checked="" type="checkbox"/> (12 ft)				Pre-amplifier 1-26GHz T34 HP 8449B		Pre-amplifier 26-40GHz					
f GHz	SA reading (dBuV/m)	Ant. Pol. (H/V)	SG reading (dBm)	CL (dB)	Gain (dBi)	Gain (dBd)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes	
LOW CH 1852.4 MHz											
3.705	46.6	V	-49.7	2.4	10.1	8.0	-42.0	-13.0	-29.0		
5.557	43.6	V	-47.3	3.2	11.0	8.8	-39.5	-13.0	-26.5		
3.705	45.7	H	-50.5	2.4	10.1	8.0	-42.8	-13.0	-29.8		
5.557	43.0	H	-46.9	3.2	11.0	8.8	-39.1	-13.0	-26.1		
MID CH 1880 MHz											
3.760	47.3	V	-48.8	2.5	10.2	8.0	-41.1	-13.0	-28.1		
5.640	44.5	V	-46.3	3.3	11.1	8.9	-38.5	-13.0	-25.5		
3.760	46.3	H	-49.7	2.5	10.2	8.0	-42.0	-13.0	-29.0		
5.640	44.0	H	-45.8	3.3	11.1	8.9	-38.0	-13.0	-25.0		
HI CH 1907.6 MHz											
3.815	48.3	V	-47.6	2.5	10.2	8.0	-39.9	-13.0	-26.9		
5.723	45.5	V	-45.3	3.3	11.2	9.0	-37.4	-13.0	-24.4		
3.815	47.9	H	-47.9	2.5	10.2	8.0	-40.2	-13.0	-27.2		
5.723	45.2	H	-44.6	3.3	11.2	9.0	-36.7	-13.0	-23.7		
NO OTHER EMISSIONS WERE DETECTED AFTER 3RD HARMONIC											

GSM (GPRS)

09/06/05 High Frequency Measurement											
Compliance Certification Services, Morgan Hill 5m Chamber Site											
Test Engr: Vien Tran Project #:05U3648 Company:Sierra Wireless EUT Descrip.: 850/900/1800/1900 MHz Quadband PC CARD EUT M/N: AIRCARD 860 Test Target:FCC 24 & RSS-133 Mode Oper:Tx, GSM (GPRS) 1900MHz Band _ Low, Mid, & Hi channels _Harmonic Spur Substitution EIRP											
Test Equipment:											
EMCO Horn 1-18GHz T73; S/N: 6717 @3m			Horn > 18GHz			Limit FCC 24		<input checked="" type="checkbox"/> High Pass Filter			
Hi Frequency Cables <input type="checkbox"/> (2 ft) <input checked="" type="checkbox"/> (2 ~ 3 ft) <input type="checkbox"/> (4 ~ 6 ft) <input checked="" type="checkbox"/> (12 ft)				Pre-amplifier 1-26GHz T34 HP 8449B		Pre-amplifier 26-40GHz					
f GHz	SA reading (dBuV/m)	Ant. Pol. (H/V)	SG reading (dBm)	CL (dB)	Gain (dBi)	Gain (dBd)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes	
LOW CH 1850.2 MHz											
3.700	70.3	V	-26.0	2.4	10.1	8.0	-18.3	-13.0	-5.3		
5.557	48.8	V	-42.1	3.2	11.0	8.8	-34.3	-13.0	-21.3		
7.400	65.3	V	-22.9	3.7	11.7	9.5	-15.0	-13.0	-2.0		
9.251	53.5	V	-34.4	4.2	12.2	10.0	-26.4	-13.0	-13.4		
11.101	43.0	V	-43.1	4.7	13.3	11.2	-34.5	-13.0	-21.5		
3.700	64.5	H	-31.7	2.4	10.1	8.0	-24.0	-13.0	-11.0		
5.557	44.3	H	-45.6	3.2	11.0	8.8	-37.8	-13.0	-24.8		
7.400	59.6	H	-27.8	3.7	11.7	9.5	-19.9	-13.0	-6.9		
9.251	44.9	H	-43.0	4.2	12.2	10.0	-35.0	-13.0	-22.0		
11.101	43.0	H	-42.5	4.7	13.3	11.2	-33.9	-13.0	-20.9		
MID CH 1880 MHz											
3.760	68.5	V	-27.6	2.5	10.2	8.0	-19.9	-13.0	-6.9		
5.640	61.5	V	-29.3	3.3	11.1	8.9	-21.5	-13.0	-8.5		
7.520	58.0	V	-30.0	3.7	11.6	9.5	-22.1	-13.0	-9.1		
9.400	57.8	V	-30.1	4.2	12.3	10.1	-22.0	-13.0	-9.0		
11.280	47.0	V	-38.8	4.8	13.3	11.1	-30.4	-13.0	-17.4		
3.760	62.1	H	-33.9	2.5	10.2	8.0	-26.2	-13.0	-13.2		
5.640	46.3	H	-43.5	3.3	11.1	8.9	-35.7	-13.0	-22.7		
7.520	55.0	H	-32.2	3.7	11.6	9.5	-24.3	-13.0	-11.3		
9.400	47.2	H	-40.6	4.2	12.3	10.1	-32.6	-13.0	-19.6		
11.280	43.0	H	-42.2	4.8	13.3	11.1	-33.8	-13.0	-20.8		
HI CH 1909.8 MHz											
3.820	64.5	V	-31.4	2.5	10.2	8.0	-23.7	-13.0	-10.7		
5.729	56.9	V	-33.8	3.3	11.2	9.0	-26.0	-13.0	-13.0		
7.639	56.3	V	-31.4	3.8	11.5	9.4	-23.6	-13.0	-10.6		
9.549	56.3	V	-31.5	4.3	12.4	10.2	-23.4	-13.0	-10.4		
11.458	45.0	V	-40.6	4.8	13.2	11.1	-32.2	-13.0	-19.2		
3.820	58.3	H	-37.5	2.5	10.2	8.0	-29.8	-13.0	-16.8		
5.729	57.5	H	-32.2	3.3	11.2	9.0	-24.4	-13.0	-11.4		
7.639	51.1	H	-35.8	3.8	11.5	9.4	-28.0	-13.0	-15.0		
9.549	45.8	H	-42.0	4.3	12.4	10.2	-33.9	-13.0	-20.9		
11.458	42.0	H	-43.0	4.8	13.2	11.1	-34.6	-13.0	-21.6		

EDGE

09/06/05 High Frequency Measurement										
Compliance Certification Services, Morgan Hill 5m Chamber Site										
Test Engr: Vien Tran Project #:05U3648 Company:Sierra Wireless EUT Descrip.: 850/900/1800/1900 MHz Quadband PC CARD EUT M/N: AIRCARD 860 Test Target:FCC 24 & RSS-133 Mode Oper:Tx, EDGE 1900MHz Band _ Low, Mid, & Hi channels_Harmonic Spur Substitution EIRP										
Test Equipment:										
EMCO Horn 1-18GHz		Horn > 18GHz		Limit		<input checked="" type="checkbox"/> High Pass Filter				
T73; S/N: 6717 @3m				FCC 24						
Hi Frequency Cables				Pre-amplifier 1-26GHz		Pre-amplifier 26-40GHz				
<input type="checkbox"/> (2 ft) <input checked="" type="checkbox"/> (2 ~ 3 ft) <input type="checkbox"/> (4 ~ 6 ft) <input checked="" type="checkbox"/> (12 ft)				T34 HP 8449B						
f GHz	SA reading (dBuV/m)	Ant. Pol. (H/V)	SG reading (dBm)	CL (dB)	Gain (dBi)	Gain (dBd)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
LOW CH 1850.2 MHz										
3.700	72.0	V	-24.3	2.4	10.1	8.0	-16.6	-13.0	-3.6	
5.557	47.0	V	-43.9	3.2	11.0	8.8	-36.1	-13.0	-23.1	
7.400	63.4	V	-24.8	3.7	11.7	9.5	-16.9	-13.0	-3.9	
9.251	53.5	V	-34.4	4.2	12.2	10.0	-26.4	-13.0	-13.4	
11.101	44.0	V	-42.1	4.7	13.3	11.2	-33.5	-13.0	-20.5	
3.700	64.5	H	-31.7	2.4	10.1	8.0	-24.0	-13.0	-11.0	
5.557	43.4	H	-46.5	3.2	11.0	8.8	-38.7	-13.0	-25.7	
7.400	58.3	H	-29.1	3.7	11.7	9.5	-21.2	-13.0	-8.2	
9.251	45.3	H	-42.6	4.2	12.2	10.0	-34.6	-13.0	-21.6	
11.101	43.0	H	-42.5	4.7	13.3	11.2	-33.9	-13.0	-20.9	
MID CH 1880 MHz										
3.760	67.9	V	-28.2	2.5	10.2	8.0	-20.5	-13.0	-7.5	
5.640	52.6	V	-38.2	3.3	11.1	8.9	-30.4	-13.0	-17.4	
7.520	66.0	V	-22.0	3.7	11.6	9.5	-14.1	-13.0	-1.1	
9.400	56.5	V	-31.4	4.2	12.3	10.1	-23.3	-13.0	-10.3	
11.280	45.0	V	-40.8	4.8	13.3	11.1	-32.4	-13.0	-19.4	
3.760	60.0	H	-36.0	2.5	10.2	8.0	-28.3	-13.0	-15.3	
5.640	44.0	H	-45.8	3.3	11.1	8.9	-38.0	-13.0	-25.0	
7.520	55.6	H	-31.6	3.7	11.6	9.5	-23.7	-13.0	-10.7	
9.400	46.5	H	-41.4	4.2	12.3	10.1	-33.3	-13.0	-20.3	
11.280	43.0	H	-42.2	4.8	13.3	11.1	-33.8	-13.0	-20.8	
HI CH 1909.8 MHz										
3.820	64.0	V	-31.9	2.5	10.2	8.0	-24.2	-13.0	-11.2	
5.729	48.3	V	-42.4	3.3	11.2	9.0	-34.6	-13.0	-21.6	
7.639	62.2	V	-25.5	3.8	11.5	9.4	-17.7	-13.0	-4.7	
9.549	64.0	V	-23.8	4.3	12.4	10.2	-15.7	-13.0	-2.7	
11.458	44.6	V	-41.0	4.8	13.2	11.1	-32.6	-13.0	-19.6	
3.820	58.8	H	-37.0	2.5	10.2	8.0	-29.3	-13.0	-16.3	
5.729	43.4	H	-46.3	3.3	11.2	9.0	-38.5	-13.0	-25.5	
7.639	54.5	H	-32.4	3.8	11.5	9.4	-24.6	-13.0	-11.6	
9.549	44.1	H	-43.7	4.3	12.4	10.2	-35.6	-13.0	-22.6	
11.458	42.6	H	-42.4	4.8	13.2	11.1	-34.0	-13.0	-21.0	
NO OTHER EMISSIONS WERE DETECTED AFTER 5TH HARMONIC										