



**FCC CFR47 PART 22 SUBPART H  
AND PART 24 SUBPART E  
CLASS II PERMISSIVE CHANGE  
CERTIFICATION TEST REPORT**

**FOR**

**850/900/1800/1900 MHZ QUADBAND MODULE**

**MODEL NUMBER: MC8765**

**FCC ID: N7NMC8765**

**REPORT NUMBER: 06U10631-1**

**ISSUE DATE: OCTOBER 20, 2006**

*Prepared for*  
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**NVLAP<sup>®</sup>**  
**LAB CODE:200065-0**

Revision History

Rev.	Issue Date	Revisions	Revised By
--	10/20/06	Initial Issue	Thu

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## 1. ATTESTATION OF TEST RESULTS

**COMPANY NAME:** SIERRA WIRELESS  
3811 WIRELESS WAY  
RICHMOND, BC V6V 3A4, CANADA

**EUT DESCRIPTION:** 850/900/1800/1900 MHZ QUADBAND MODULE

**MODEL:** MC8765

**SERIAL NUMBER:** LV-00236

**DATE TESTED:** OCTOBER 10-13, 2006

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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THU CHAN  
EMC SUPERVISOR  
COMPLIANCE CERTIFICATION SERVICES

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CHIN PANG  
EMC ENGINEER  
COMPLIANCE CERTIFICATION SERVICES

## 2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with TIA/EIA 603C (2004), 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 Quad-Band Module and manufactured by Sierra Wireless, Inc.

Only the 850/1900 MHz frequency bands were investigated under this project, and the test result documented in this report only applies to EUT operating in the 850/1900 MHz frequency bands. This device contains 900 MHz / 1800 MHz functions but these frequency bands are not operational in the U.S. territories.

### 5.2. CLASS II PERMISSIVE CHANGE DESCRIPTION

The changes filed under this application are as follows:

Add MC8765-GSM/EDGE/WCDMA Module in LENOVO THINKPAD X60 TABLET.

### 5.3. MAXIMUM OUTPUT POWER

Maximum conducted output power has been verified to be the same as indicated on the original grant. The transmitter has maximum ERP and EIRP output powers as follows:

#### Part 22 (824 - 849MHz) & Part 24 (1850 - 1910MHz) Authorized Band:

Frequency Range (MHz)	Modulation	ERP Peak Power (dBm)	ERP Peak Power (mW)
824.2 - 848.75	GSM	28.20	660.69
824.2 - 848.75	EDGE	26.90	489.78
826.5 - 846.6	WCDMA	22.00	158.49

Frequency Range (MHz)	Modulation	EIRP Peak Power (dBm)	EIRP Peak Power (mW)
1850.25 - 1909.8	GSM	31.50	1412.54
1850.25 - 1909.8	EDGE	32.10	1621.81
1852.4 - 1907.6	WCDMA	28.90	776.25

NOTE: RBW=VBW=8MHz

## 5.4. SOFTWARE AND FIRMWARE

The test utility software used during testing was Procomm Plus 4.8 @ Copyright 1999 by Symantec Corporation, Build 71 for GSM and EDGE modulations, and the communication test set is used for WCDMA modulation to configure as below:

The following settings were used to configure the Wireless Communications Test Set, Agilent 8960 Series 10, E5515C.

Instrument Information: ( by printing SYSTEM CONFIG )

Application: WCDMA Lap App C  
E6703C C.03.11  
Format: WCDMA

Call Control: ( by pressing CALL SETUP )

2 of 4 Cell Parameters: PS Domain Information > Present  
ATT (IMSI Attach) Flag State > Set  
4 of 4 Security Info: Security Parameter - System Operations > None

**Call Params:** (by press CALL SETUP)

1 of 3  
Channel Type: 12.2k RMC  
Paging Service: RB Test Mode

**HSDPA Parameters:**

1 of 2  
HSDPA RB Test Mode Setup  
FRC Type > H-Set 5 QPSK  
CN Domain > PS Domain  
Uplink 64k DTCH for HSDPA Loopback State > On  
HS-DSCH Data Pattern > CCITT PRBS15  
RLC Header on HS-DSCH > Present

Channel (UARFCN) Params: DL Channel: 4357 / 4407 / 4458  
UL Channel: 4132 / 4182 / 4233  
UL Sep (Band) > 400MHz (Band 4)  
Freq Band Ind > On

2 of 3  
DL DTCH Data: ALL ONES  
RLC Reestablish: Off  
Call Limit State: Off  
Call Drop Timer: Off  
SRB Config.: 13.6k DCCH  
3 of 3  
UE Target Power: -5 dBm  
UL CL Pwr Ctrl Params: Active bits (Select "All Up bits" after linked to get maximum power)  
DL Channel: 9662 / 9800 / 9938 / 4357 / 4407 / 4458  
UL Channel: 9262 / 9400 / 9538 / 4132 / 4182 / 4233

## 5.5. WORST-CASE CONFIGURATION AND MODE

Based on previous experiment, GPRS 1 slot has the worst case between GSM & GPRS modulations, and the HSDPA mode for WCDMA modulation, also the worst-case configuration has been evaluated at Y portable position @ 850MHz band and mobile position @ 1900MHz have a higher readings by comparing the fundamental ERP / EIRP output power on both mobile and portable configurations.

## 5.6. DESCRIPTION OF TEST SETUP

### SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
ACAdapter	LENOVO	92P1155	9HW0529000072	DoC
Laptop	LENOVO	814Q-02G	LV-00236	DoC
Wireless Communications Test Set	Agilent	E5515C	GB42361381	NA
Antenna, Horn 1 ~ 18 GHz	ETS	3117	29310	NA

### I/O CABLES

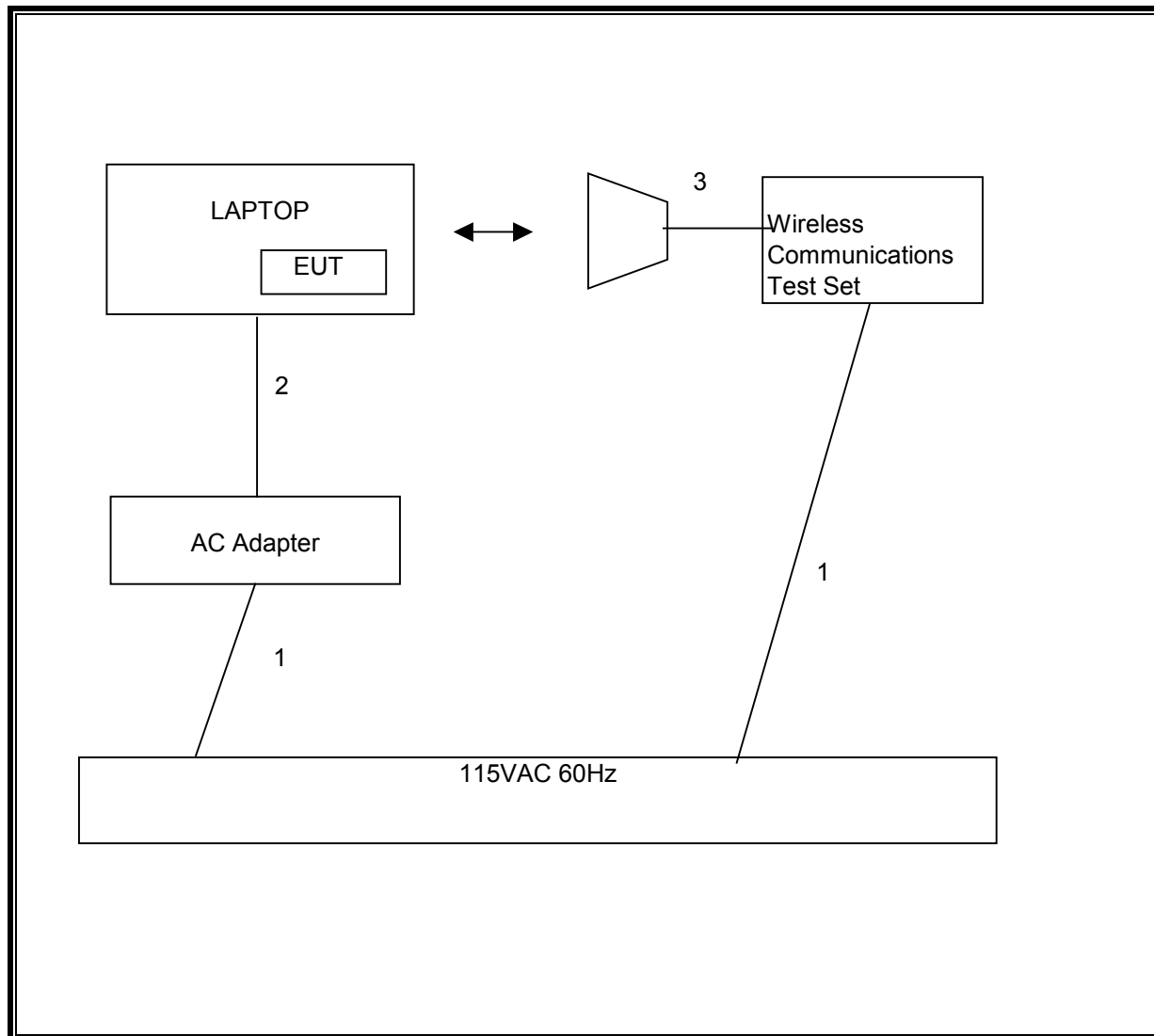
I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	AC	1	US 115V	Un-shielded	1m	N/A
2	DC	1	DC	Un-shielded	2m	N/A
3	RF Out	1	Horn	Un-shielded	2m.	Setup Link between EUT and Test Set

### TEST SETUP

The EUT is installed inside the laptop during the tests. The ProcommPlus or Wireless Communication test set 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
Antenna, Bilog 30 MHz ~ 2 Ghz	Sunol Sciences	JB1	A121003	12/3/06
Antenna, Horn 1 ~ 18 GHz	EMCO	3115	6717	4/22/07
EMI Receiver, 9 kHz ~ 2.9 GHz	Agilent / HP	8542E	3942A00286	2/4/07
RF Filter Section	Agilent / HP	85420E	3705A00256	2/4/07
Peak Power Meter	Agilent / HP	E4416A	GB41291160	12/2/07
Peak / Average Power Sensor	Agilent	E9327A	US40440755	12/2/07
Antenna, Horn 1 ~ 18 GHz	EMCO	3115	6717	4/22/07
Signal Generator 2 -40 GHz	R & S	SMP04	DE 34210	6/2/07
Signal Generator 1024 MHz	R & S	SMY01	DE 12311	5/11/07
Dipole	EMCO	3121C-DB2	22435	5/7/07
2.7GHz HPF	MicroTronic	HPM13194	2	CNR
1.5GHz HPF	MicroTronic	HPM13195	1	CNR
Communication Test Set	Agilent	E5515C	91936	4/8/07
Power Splitter	HP	11667B	324	CNR

## **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.

850 MHz GPRS Mode

Channel	Frequency (MHz)	ERP Peak Power (dBm)	ERP Peak Power (mW)
Low	824.2	26.30	426.58
Middle	836.5	28.20	660.69
High	848.8	25.20	331.13

1900 MHz GPRS Mode

Channel	Frequency (MHz)	EIRP Peak Power (dBm)	EIRP Peak Power (mW)
Low	1850.2	29.10	812.83
Middle	1880.00	31.50	1412.54
High	1909.8	29.60	912.01

NOTE: RBW=VBW=8MHz.

850 MHz EDGE Mode

Channel	Frequency (MHz)	ERP Peak Power (dBm)	ERP Peak Power (mW)
Low	824.2	26.90	489.78
Middle	836.5	24.80	302.00
High	848.8	24.40	275.42

1900 MHz EDGE Mode

Channel	Frequency (MHz)	EIRP Peak Power (dBm)	EIRP Peak Power (mW)
Low	1850.2	30.00	1000.00
Middle	1880.00	32.10	1621.81
High	1909.8	29.60	912.01

850 MHz WCDMA Modulation

Channel	Frequency (MHz)	ERP Peak Power (dBm)	ERP Peak Power (mW)
Low	826.5	20.50	112.20
Middle	836.5	22.00	158.49
High	846.6	20.80	120.23

1900 MHz WCDMA Modulation

Channel	Frequency (MHz)	EIRP Peak Power (dBm)	EIRP Peak Power (mW)
Low	1852.4	27.20	524.81
Middle	1880.00	28.90	776.25
High	1907.6	27.10	512.86

NOTE: RBW=VBW=8MHz

**GSM850 Output Power (ERP)**

**Cellular Fundamental Substitution Measurement**  
**Compliance Certification Services, Morgan Hill Immunity Chamber**

Company:Sierra Wireless Inc.  
Project #:06U10631  
Date:10/10/2006  
Test Engineer:William Zhuang  
Configuration:Worst Case, Y Position  
Mode:Tx On, GSM850

**Test Equipment:**

Receiving: EMCO LP T17, and 12 ft Chin SMA Cable (Setup this one for testing EUT)  
Substitution: Dipole ETS S/N: 1629, and 6ft SMA Cable Warehouse S/N: 208947 002

f MHz	SA reading (dBuV/m)	Ant. Pol. (H/V)	SG reading (dBm)	CL (dB)	Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
<b>Low Channel</b>									
824.70	101.2	V	26.8	0.5	0.0	26.3	38.5	-12.2	Y Position
824.70	99.7	H	25.4	0.5	0.0	24.9	38.5	-13.5	Y Position
<b>Mid Channel</b>									
836.52	103.4	V	28.8	0.6	0.0	28.2	38.5	-10.2	Y Position
836.52	101.0	H	26.5	0.6	0.0	25.9	38.5	-12.5	Y Position
<b>High Channel</b>									
848.31	100.5	V	25.9	0.7	0.0	25.2	38.5	-13.3	Y Position
848.31	99.1	H	24.5	0.7	0.0	23.8	38.5	-14.7	Y Position

**EDGE850 Output Power (ERP)**

**Cellular Fundamental Substitution Measurement**  
**Compliance Certification Services, Morgan Hill Immunity Chamber**

Company: Sierra Wireless Inc.  
Project #: 06U10631  
Date: 10/10/2006  
Test Engineer: William Zhuang  
Configuration: Worst Case, Y Position  
Mode: Tx On, EDGE850

**Test Equipment:**

Receiving: EMCO LP T17, and 12 ft Chin SMA Cable (Setup this one for testing EUT)  
Substitution: Dipole ETS S/N: 1629, and 6ft SMA Cable Warehouse S/N: 208947 002

f MHz	SA reading (dBuV/m)	Ant. Pol. (H/V)	SG reading (dBm)	CL (dB)	Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
<b>Low Channel</b>									
824.70	101.8	V	27.4	0.5	0.0	26.9	38.5	-11.5	Y Position
824.70	97.0	H	22.7	0.5	0.0	22.2	38.5	-16.3	Y Position
<b>Mid Channel</b>									
836.52	100.0	V	25.4	0.6	0.0	24.8	38.5	-13.6	Y Position
836.52	97.4	H	22.9	0.6	0.0	22.3	38.5	-16.2	Y Position
<b>High Channel</b>									
848.31	99.7	V	25.1	0.7	0.0	24.4	38.5	-14.1	Y Position
848.31	95.8	H	21.2	0.7	0.0	20.5	38.5	-18.0	Y Position

**WCDMA Output Power (ERP)**

**Cellular Fundamental Substitution Measurement**  
**Compliance Certification Services, Morgan Hill Immunity Chamber**

Company:Sierra Wireless Inc.  
Project #:06U10631  
Date:10/10/2006  
Test Engineer:William Zhuang  
Configuration:Worst Case, Y Position  
Mode:Tx On, WCDMA850

**Test Equipment:**

Receiving: EMCO LP T17, and 12 ft Chin SMA Cable (Setup this one for testing EUT)  
Substitution: Dipole ETS S/N: 1629, and 6ft SMA Cable Warehouse S/N: 208947 002

f MHz	SA reading (dBuV/m)	Ant. Pol. (H/V)	SG reading (dBm)	CL (dB)	Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
<b>Low Channel</b>									
824.70	95.4	V	21.0	0.5	0.0	20.5	38.5	-18.0	Y Position
824.70	93.6	H	19.3	0.5	0.0	18.8	38.5	-19.7	Y Position
<b>Mid Channel</b>									
836.52	97.1	V	22.6	0.6	0.0	22.0	38.5	-16.5	Y Position
836.52	94.2	H	19.8	0.6	0.0	19.2	38.5	-19.3	Y Position
<b>High Channel</b>									
848.31	96.0	V	21.5	0.7	0.0	20.8	38.5	-17.7	Y Position
848.31	95.3	H	20.7	0.7	0.0	20.0	38.5	-18.5	Y Position



**GSM1900 Output Power (EIRP)**

**PCS Fundamental Substitution Measurement**  
**Compliance Certification Services, Morgan Hill Immunity Chamber**

Company: Sierra Wireless Inc.  
Project #: 06U10631  
Date: 10/10/2006  
Test Engineer: William Zhuang  
Configuration: Worst Case, Mobile Configuration  
Mode: Tx On, GSM1900

**Test Equipment:**

Receiving: Horn T59, and Chin SMA Cables 2 & 12 ft (Setup this one for testing EUT)  
Substitution: Horn T60, and 6ft SMA Cable Warehouse S/N: 208947 002

f GHz	SA reading (dBuV/m)	Ant. Pol. (H/V)	SG reading (dBm)	CL (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
<b>Low Channel</b>									
1.850	93.7	V	19.7	0.9	8.3	27.1	33.0	-5.9	Mobil Position
1.850	97.7	H	21.7	0.9	8.3	29.1	33.0	-3.9	Mobil Position
<b>Mid Channel</b>									
1.880	94.6	V	21.5	0.9	8.3	28.9	33.0	-4.1	Mobil Position
1.880	98.9	H	24.1	0.9	8.3	31.5	33.0	-1.5	Mobil Position
<b>High Channel</b>									
1.910	93.7	V	20.4	0.9	8.4	27.9	33.0	-5.1	Mobil Position
1.910	97.2	H	22.1	0.9	8.4	29.6	33.0	-3.4	Mobil Position

**EDGE1900 Output Power (EIRP)**

**PCS Fundamental Substitution Measurement  
Compliance Certification Services, Morgan Hill Immunity Chamber**

Company: Sierra Wireless Inc.  
Project #: 06U10631  
Date: 10/10/2006  
Test Engineer: William Zhuang  
Configuration: Worst Case, Mobile Configuration  
Mode: Tx On, EDGE1900

**Test Equipment:**

Receiving: Horn T59, and Chin SMA Cables 2 & 12 ft (Setup this one for testing EUT)  
Substitution: Horn T60, and 6ft SMA Cable Warehouse S/N: 208947 002

f GHz	SA reading (dBuV/m)	Ant. Pol. (H/V)	SG reading (dBm)	CL (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
<b>Low Channel</b>									
1.850	93.6	V	19.7	0.9	8.3	27.1	33.0	-5.9	Mobil Position
1.850	98.6	H	22.6	0.9	8.3	30.0	33.0	-3.0	Mobil Position
<b>Mid Channel</b>									
1.880	94.8	V	21.7	0.9	8.3	29.1	33.0	-3.9	Mobil Position
1.880	99.5	H	24.7	0.9	8.3	32.1	33.0	-0.9	Mobil Position
<b>High Channel</b>									
1.910	93.5	V	20.2	0.9	8.4	27.7	33.0	-5.3	Mobil Position
1.910	97.3	H	22.2	0.9	8.4	29.6	33.0	-3.4	Mobil Position

**WCDMA1900 Output Power (EIRP)**

**PCS Fundamental Substitution Measurement  
Compliance Certification Services, Morgan Hill Immunity Chamber**

Company: Sierra Wireless Inc.  
Project #: 06U10631  
Date: 10/10/2006  
Test Engineer: William Zhuang  
Configuration: Worst Case, Mobile Configuration  
Mode: Tx On, WCDMA Mode

**Test Equipment:**

Receiving: Horn T59, and Chin SMA Cables 2 & 12 ft (Setup this one for testing EUT)  
Substitution: Horn T60, and 6ft SMA Cable Warehouse S/N: 208947 002

f GHz	SA reading (dBuV/m)	Ant. Pol. (H/V)	SG reading (dBm)	CL (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
<b>Low Channel</b>									
1.850	92.1	V	18.1	0.9	8.3	25.5	33.0	-7.5	Mobil Position
1.850	95.8	H	19.8	0.9	8.3	27.2	33.0	-5.8	Mobil Position
<b>Mid Channel</b>									
1.880	90.7	V	17.6	0.9	8.3	25.0	33.0	-8.0	Mobil Position
1.880	96.2	H	21.4	0.9	8.3	28.9	33.0	-4.1	Mobil Position
<b>High Channel</b>									
1.910	91.5	V	18.2	0.9	8.4	25.7	33.0	-7.3	Mobil Position
1.910	94.7	H	19.6	0.9	8.4	27.1	33.0	-5.9	Mobil Position

## **7.2. FIELD STRENGTH OF SPURIOUS RADIATION**

### **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.

Note: No emissions were found within 30-1000MHz & after the third harmonic of 20dB below the system noise.

**GSM850 Spurious & Harmonic (ERP)**

High Frequency Substitution Measurement										
Compliance Certification Services, Morgan Hill 5m Chamber Site										
Company: Sierra Wireless Inc.										
Project #: 06U10631										
Date: 10/11/2006										
Test Engineer: Chin Pang										
Configuration: Worst Case, Y Position.										
Mode: TX, GSM850										
Test Equipment:										
EMCO Horn 1-18GHz		Horn > 18GHz		Limit		<input type="checkbox"/> High Pass Filter				
T120; S/N: 29310 @ 3m				FCC 22						
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)				T145 Agilent 3008A						
f GHz	SA reading (dBuV/m)	Ant. Pol. (H/V)	SG reading (dBm)	CL (dB)	Gain (dBi)	Gain (dBd)	ERP ERP	Limit (dBm)	Margin (dB)	Notes
Low Ch. 824.2MHz										
1.648	73.0	V	-30.2	1.6	3.8	1.7	-30.1	-13.0	-17.1	
2.472	66.0	V	-36.9	1.9	6.3	4.2	-34.7	-13.0	-21.7	
3.297	55.0	V	-47.4	2.3	7.6	5.5	-44.2	-13.0	-31.2	
4.122	50.0	V	-52.9	2.6	9.5	7.3	-48.2	-13.0	-35.2	
1.648	71.0	H	-31.5	1.6	3.8	1.7	-31.4	-13.0	-18.4	
2.472	67.0	H	-35.7	1.9	6.3	4.2	-33.5	-13.0	-20.5	
3.297	53.0	H	-49.3	2.3	7.6	5.5	-46.1	-13.0	-33.1	
4.122	48.0	H	-54.6	2.6	9.5	7.3	-49.9	-13.0	-36.9	
Mid Ch. 837MHz										
1.674	73.4	V	-29.8	1.6	3.9	1.8	-29.6	-13.0	-16.6	
2.510	67.0	V	-35.8	1.9	6.4	4.2	-33.6	-13.0	-20.6	
3.347	57.0	V	-45.5	2.3	7.8	5.6	-42.1	-13.0	-29.1	
4.184	51.6	V	-51.3	2.6	9.5	7.4	-46.6	-13.0	-33.6	
1.674	70.8	H	-31.6	1.6	3.9	1.8	-31.5	-13.0	-18.5	
2.510	66.6	H	-36.0	1.9	6.4	4.2	-33.8	-13.0	-20.8	
3.347	55.3	H	-47.1	2.3	7.8	5.6	-43.7	-13.0	-30.7	
4.184	47.0	H	-55.6	2.6	9.5	7.4	-50.8	-13.0	-37.8	
High Ch. 848.8MHz										
1.698	72.7	V	-30.4	1.6	4.0	1.8	-30.2	-13.0	-17.2	
2.546	65.0	V	-37.8	2.0	6.4	4.3	-35.5	-13.0	-22.5	
3.395	53.5	V	-49.0	2.3	7.9	5.7	-45.6	-13.0	-32.6	
4.244	49.0	V	-53.8	2.7	9.6	7.4	-49.1	-13.0	-36.1	
1.698	68.0	H	-34.4	1.6	4.0	1.8	-34.2	-13.0	-21.2	
2.546	65.0	H	-37.6	2.0	6.4	4.3	-35.3	-13.0	-22.3	
3.395	51.0	H	-51.4	2.3	7.9	5.7	-48.0	-13.0	-35.0	
4.244	46.0	H	-56.5	2.7	9.6	7.4	-51.8	-13.0	-38.8	

Rev. 5.1.6

Note: No other emissions were detected above the system noise floor.

# EDGE850 Spurious & Harmonic (ERP)

High Frequency Substitution Measurement										
Compliance Certification Services, Morgan Hill 5m Chamber Site										
Company: Sierra Wireless Inc.										
Project #: 06U10631										
Date: 10/11/2006										
Test Engineer: Chin Pang										
Configuration: Worst Case, Y position.										
Mode: TX, EDGE 850										
Test Equipment:										
EMCO Horn 1-18GHz		Horn > 18GHz		Limit		High Pass Filter				
T120; S/N: 29310 @3m				FCC 22						
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)				T145 Agilent 3008A						
f GHz	SA reading (dBuV/m)	Ant. Pol. (H/V)	SG reading (dBm)	CL (dB)	Gain (dBi)	Gain (dBd)	ERP ERP	Limit (dBm)	Margin (dB)	Notes
Low Ch, 824.2MHz										
1.648	68.0	V	-35.2	1.6	3.8	1.7	-35.1	-13.0	-22.1	
2.472	60.0	V	-42.9	1.9	6.3	4.2	-40.7	-13.0	-27.7	
3.297	48.0	V	-54.4	2.3	7.6	5.5	-51.2	-13.0	-38.2	
1.648	65.0	H	-37.5	1.6	3.8	1.7	-37.4	-13.0	-24.4	
2.472	63.6	H	-39.1	1.9	6.3	4.2	-36.9	-13.0	-23.9	
3.297	45.8	H	-56.5	2.3	7.6	5.5	-53.3	-13.0	-40.3	
Mid Ch, 837MHz										
1.674	70.0	V	-33.2	1.6	3.9	1.8	-33.0	-13.0	-20.0	
2.510	63.0	V	-39.8	1.9	6.4	4.2	-37.6	-13.0	-24.6	
3.347	51.5	V	-51.0	2.3	7.8	5.6	-47.6	-13.0	-34.6	
1.674	67.5	H	-34.9	1.6	3.9	1.8	-34.8	-13.0	-21.8	
2.510	61.3	H	-41.3	1.9	6.4	4.2	-39.1	-13.0	-26.1	
3.347	48.0	H	-54.4	2.3	7.8	5.6	-51.0	-13.0	-38.0	
High Ch, 848.8MHz										
1.698	67.6	V	-35.5	1.6	4.0	1.8	-35.3	-13.0	-22.3	
2.546	64.0	V	-38.8	2.0	6.4	4.3	-36.5	-13.0	-23.5	
3.395	47.8	V	-54.7	2.3	7.9	5.7	-51.3	-13.0	-38.3	
1.698	66.0	H	-36.4	1.6	4.0	1.8	-36.2	-13.0	-23.2	
2.546	62.0	H	-40.6	2.0	6.4	4.3	-38.3	-13.0	-25.3	
3.395	46.2	H	-56.2	2.3	7.9	5.7	-52.8	-13.0	-39.8	
Rev. 5.1.6										
Note: No other emissions were detected above the system noise floor.										

**WCDMA850 Spurious & Harmonic (ERP)**

High Frequency Substitution Measurement										
Compliance Certification Services, Morgan Hill 5m Chamber Site										
Company: Sierra Wireless Inc.										
Project #: 06U10631										
Date: 10/11/2006										
Test Engineer: Chin Pang										
Configuration: Worst Case, Y position										
Mode: TX, WCDMA850										
Test Equipment:										
EMCO Horn 1-18GHz		Horn > 18GHz		Limit		High Pass Filter				
T120; S/N: 29310 @ 3m				FCC 22						
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)				T145 Agilent 3008A						
f GHz	SA reading (dBuV/m)	Ant. Pol. (H/V)	SG reading (dBm)	CL (dB)	Gain (dBi)	Gain (dBd)	ERP ERP	Limit (dBm)	Margin (dB)	Notes
Low Ch, 826.4MHz										
1.652	59.6	V	-43.6	1.6	3.9	1.7	-43.5	-13.0	-30.5	
2.479	52.0	V	-50.9	1.9	6.3	4.2	-48.6	-13.0	-35.6	
3.306	48.0	V	-54.4	2.3	7.7	5.5	-51.2	-13.0	-38.2	
1.652	58.0	H	-44.5	1.6	3.9	1.7	-44.4	-13.0	-31.4	
2.479	53.0	H	-49.7	1.9	6.3	4.2	-47.4	-13.0	-34.4	
3.306	47.8	H	-54.5	2.3	7.7	5.5	-51.3	-13.0	-38.3	
Mid Ch, 836.4MHz										
1.672	60.0	V	-43.2	1.6	3.9	1.8	-43.0	-13.0	-30.0	
2.509	54.0	V	-48.8	1.9	6.4	4.2	-46.6	-13.0	-33.6	
3.345	48.0	V	-54.5	2.3	7.8	5.6	-51.1	-13.0	-38.1	
1.672	58.4	H	-44.1	1.6	3.9	1.8	-43.9	-13.0	-30.9	
2.509	52.0	H	-50.6	1.9	6.4	4.2	-48.4	-13.0	-35.4	
3.345	47.3	H	-55.1	2.3	7.8	5.6	-51.7	-13.0	-38.7	
High Ch, 846.6MHz										
1.693	59.2	V	-43.9	1.6	3.9	1.8	-43.7	-13.0	-30.7	
2.539	50.0	V	-52.8	1.9	6.4	4.2	-50.5	-13.0	-37.5	
3.386	48.0	V	-54.5	2.3	7.9	5.7	-51.1	-13.0	-38.1	
1.693	57.5	H	-44.9	1.6	3.9	1.8	-44.7	-13.0	-31.7	
2.539	50.0	H	-52.6	1.9	6.4	4.2	-50.3	-13.0	-37.3	
3.386	47.5	H	-54.9	2.3	7.9	5.7	-51.5	-13.0	-38.5	
Rev. 5.1.6										
Note: No other emissions were detected above the system noise floor.										

**GSM1900 Spurious & Harmonic (EIRP)**

<b>Company:</b> Sierra Wireless Inc. <b>Project #:</b> 06U10631 <b>Date:</b> 10/11/2006 <b>Test Engineer:</b> Chin Pang <b>Configuration:</b> Mobile Config. <b>Mode:</b> TX, GSM1900										
<b>Test Equipment:</b>										
<div style="border: 1px solid black; padding: 2px; width: fit-content;">EMCO Horn 1-18GHz</div> <div style="border: 1px solid black; padding: 2px; width: fit-content;">T120; S/N: 29310 @3m</div>		<div style="border: 1px solid black; padding: 2px; width: fit-content;">Horn &gt; 18GHz</div> <div style="border: 1px solid black; padding: 2px; width: fit-content;"></div>		<div style="border: 1px solid black; padding: 2px; width: fit-content;">Limit</div> <div style="border: 1px solid black; padding: 2px; width: fit-content;">FCC 24</div>		<div style="border: 1px solid black; padding: 2px; width: fit-content;"><input type="checkbox"/> High Pass Filter</div>				
<div style="border: 1px solid black; padding: 2px;"> 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) </div>				<div style="border: 1px solid black; padding: 2px; width: fit-content;">Pre-amplifier 1-26GHz</div> <div style="border: 1px solid black; padding: 2px; width: fit-content;">T145 Agilent 3008A</div>		<div style="border: 1px solid black; padding: 2px; width: fit-content;">Pre-amplifier 26-40GHz</div> <div style="border: 1px solid black; padding: 2px; width: fit-content;"></div>				
f GHz	SA reading (dBuV/m)	Ant. Pol. (H/V)	SG reading (dBm)	CL (dB)	Gain (dBi)	Gain (dBd)	ERP EIRP	Limit (dBm)	Margin (dB)	Notes
<b>Low Ch, 1850.23MHz</b>										
3.700	59.5	V	-43.3	2.4	8.6	6.5	-39.3	-13.0	-26.3	
5.550	54.6	V	-46.7	3.2	11.1	8.9	-41.0	-13.0	-28.0	
7.400	51.0	V	-49.0	3.7	12.4	10.2	-42.5	-13.0	-29.5	
3.700	60.0	H	-42.7	2.4	8.6	6.5	-38.7	-13.0	-25.7	
5.550	55.4	H	-44.9	3.2	11.1	8.9	-39.2	-13.0	-26.2	
7.400	48.6	H	-50.6	3.7	12.4	10.2	-44.1	-13.0	-31.1	
<b>Mid Ch, 1880MHz</b>										
3.760	58.6	V	-44.2	2.5	8.8	6.6	-40.1	-13.0	-27.1	
5.640	53.5	V	-47.7	3.3	11.1	8.9	-42.1	-13.0	-29.1	
7.520	49.0	V	-51.1	3.7	12.5	10.4	-44.4	-13.0	-31.4	
3.760	59.0	H	-43.7	2.5	8.8	6.6	-39.6	-13.0	-26.6	
5.640	54.0	H	-46.2	3.3	11.1	8.9	-40.6	-13.0	-27.6	
7.520	47.8	H	-51.5	3.7	12.5	10.4	-44.8	-13.0	-31.8	
<b>High Ch, 1909.75MHz</b>										
3.820	60.4	V	-42.5	2.5	8.9	6.7	-38.3	-13.0	-25.3	
5.729	55.3	V	-45.9	3.3	11.1	9.0	-40.2	-13.0	-27.2	
7.639	50.5	V	-49.6	3.8	12.6	10.5	-42.9	-13.0	-29.9	
3.820	61.0	H	-41.8	2.5	8.9	6.7	-37.6	-13.0	-24.6	
5.729	54.7	H	-45.5	3.3	11.1	9.0	-39.8	-13.0	-26.8	
7.639	50.0	H	-49.3	3.8	12.6	10.5	-42.6	-13.0	-29.6	
Rev. 5.1.6 Note: No other emissions were detected above the system noise floor.										



# EDGE1900 Spurious & Harmonic (EIRP)

High Frequency Substitution Measurement										
Compliance Certification Services, Morgan Hill 5m Chamber Site										
Company: Sierra Wireless Inc.										
Project #: 06U10631										
Date: 10/11/2006										
Test Engineer: Chin Pang										
Configuration: Mobile Config.										
Mode: TX, EDGE1900										
Test Equipment:										
EMCO Horn 1-18GHz		Horn > 18GHz		Limit		High Pass Filter				
T120; S/N: 29310 @ 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)				T145 Agilent 3008A						
f GHz	SA reading (dBuV/m)	Ant. Pol. (H/V)	SG reading (dBm)	CL (dB)	Gain (dBi)	Gain (dBd)	ERP EIRP	Limit (dBm)	Margin (dB)	Notes
Low Ch, 1850.23MHz										
3.700	53.0	V	-49.8	2.4	8.6	6.5	-45.8	-13.0	-32.8	
5.550	45.0	V	-56.3	3.2	11.1	8.9	-50.6	-13.0	-37.6	
7.400	45.0	V	-55.0	3.7	12.4	10.2	-48.5	-13.0	-35.5	
3.700	54.0	H	-48.7	2.4	8.6	6.5	-44.7	-13.0	-31.7	
5.550	46.0	H	-54.3	3.2	11.1	8.9	-48.6	-13.0	-35.6	
7.400	45.0	H	-54.2	3.7	12.4	10.2	-47.7	-13.0	-34.7	
Mid Ch, 1880MHz										
3.760	55.1	V	-47.7	2.5	8.8	6.6	-43.6	-13.0	-30.6	
5.640	47.0	V	-54.2	3.3	11.1	8.9	-48.6	-13.0	-35.6	
7.520	45.0	V	-55.1	3.7	12.5	10.4	-48.4	-13.0	-35.4	
3.760	56.0	H	-46.7	2.5	8.8	6.6	-42.6	-13.0	-29.6	
5.640	47.6	H	-52.6	3.3	11.1	8.9	-47.0	-13.0	-34.0	
7.520	46.0	H	-53.3	3.7	12.5	10.4	-46.6	-13.0	-33.6	
High Ch, 1909.75MHz										
3.820	56.0	V	-46.9	2.5	8.9	6.7	-42.7	-13.0	-29.7	
5.729	46.3	V	-54.9	3.3	11.1	9.0	-49.2	-13.0	-36.2	
7.639	45.2	V	-54.9	3.8	12.6	10.5	-48.2	-13.0	-35.2	
3.820	57.5	H	-45.3	2.5	8.9	6.7	-41.1	-13.0	-28.1	
5.729	47.5	H	-52.7	3.3	11.1	9.0	-47.0	-13.0	-34.0	
7.639	45.3	H	-54.0	3.8	12.6	10.5	-47.3	-13.0	-34.3	
Rev. 5.1.6										
Note: No other emissions were detected above the system noise floor.										

