

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

FOR

PC CARD WIRELESS MODEM

MODEL NUMBER: AirCard 881

FCC ID: N7NAC881

REPORT NUMBER: 07U10987-1

ISSUE DATE: APRIL 22, 2007

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

Prepared by **COMPLIANCE CERTIFICATION SERVICES 47173 BENICIA STREET** FREMONT, CA 94538, USA **TEL: (510) 771-1000** FAX: (510) 661-0888



NVLAP LAB CODE 200065-0

Revision History

	Issue		
Rev.	Date	Revisions	Revised By
	04/22/07	Initial Issue	T. Chan

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME:	SIERRA WIRELESS 13811 WIRELESS WAY RICHMOND, BC V6V 3	
EUT DESCRIPTION:	PC CARD WIRELESS N	AODEM
MODEL:	AirCard 881	
SERIAL NUMBER:	S4108270208E3	
DATE TESTED:	APRIL 12-16, 2007	
	APPLICABLE STAN	NDARDS
STANDARD)	TEST RESULTS
FCC PART 22 SUBI	PART H	NO NON-COMPLIANCE NOTED
FCC PART 24 SUBI	PART 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:

" huj

THU CHAN EMC SUPERVISOR COMPLIANCE CERTIFICATION SERVICES Tested By:

MENGISTU MEKURIA EMC ENGINEER COMPLIANCE CERTIFICATION SERVICES

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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 47173 Benicia Street, Fremont, 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 <u>http://www.ccsemc.com</u>.

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
Radiated Emission, Above to 2000 MHz	+/- 4.3 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 850/900/1800/1900/2100 MHz multi-band PC Card Wireless Modem and is manufactured by Sierra Wireless, Inc.

The module supports GSM, GPRS, EGPRS and UMTS. Device capabilities are documented in the theory of operation

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/2100 MHz functions but these frequency bands are not operational in the U.S. territories.

5.2. SOFTWARE AND FIRMWARE

This procedure assumes the Agilent 8960 Test Set has the following applications installed and with valid license.

GPRS Mode

- Call Setup > Shift & Preset
- Active Cell > Active Cell (GPRS)
- Connection Type > ETSI Type A
- BCH Parameters > Cell Band > PCS or GSM850 (US band)
- TCH Parameters > Traffic Band > PCS or GSM850 (US band)
 - > MS TX Level > 3 (33dBm for Cell band); 3 (30dBm for PCS band)
- PDTCH > Multislot Config > 1 Down, 4 Up
 - > MS TX Level > 3 (33dBm Cell band); 3 (30dBm PCS band)

> Coding Scheme > CS-4

• Press "Start Data Connection"

EGPRS Mode

- Call Setup > Shift & Preset
- Active Cell > Active Cell (EGPRS)
- Connection Type > ETSI Type A
- BCH Parameters > Cell Band > PCS or GSM850 (US band)
- TCH Parameters > Traffic Band > PCS or GSM850 (US band)

> MS TX Level > 6 (27dBm Cell band); 5 (26dBm PCS band)

- PDTCH > Multislot Config > 1 Down, 4 Up
 - > MS TX Level > 6 (27dBm Cell band); 5 (26dBm PCS band)
 - > Modulation Coding Scheme > Downlink > As Uplink

> Uplink > MSC-5 (8PSK)

Press "Start Data Connection" and you will see "Transferring"

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<u>UMTS</u>

- Call Setup > Shift & Preset
- Cell Parameters: PS Domain Information > Present
 - ATT (IMSI Attach) Flag State > Set
- Security Parameter System Operations > None
- Channel Type:
 - RMC: 12.2k, 64k, 144k, or 384k
 - AMC: 12.2 UL / 64/ DL AM RMC, 12.2 UL / 144/ DL AM RMC, or 12.2 UL / 384/ DL AM RMC,
- Paging Service: RB Test Mode
- Channel (UARFCN) Parms:

PCS band Cell band

- DL Channel: 9662 / 9800 / 9938 / 4357 / 4407 / 4458
- UL Channel: 9262 / 9400 / 9538 / 4132 / 4182 / 4233
- DL DTCH Data: All Ones
- RLC Reestablish: Off
- Call Limit State: Off
- Call Drop Timer: Off
- SRB Config.: 13.6k DCCH
- UE Target Power: 25 dBm
 - UL CL Power Ctrl Parameters
 - UL CL Power Ctrl Mode: All Up Bits

HSDPA

- Uplink Parameter:
 - UPLINK DPCH Bc / Bd Control: Manual
 - Manual Uplink DPCH Bc: 9
 - Manual Uplink DPCH Bd: 15
- Channel Type: 12.2k+HSDPA
- HSDPA Parameters:
 - o HSDPA RB Test Mode Setup
 - HS–DSCH Configuration Type: FRC
 - FRC Type: H-Set 3
 - CN Domain: CS Domain
 - Uplink 64k DTCH for HSDPA Loopback State: On
 - HS-DSCH Data Pattern: All Ones
 - RLC Header on HS-DSCH: Present
 - HSDPA Uplink Parameters
 - DeltaACK: 5
 - DeltaNACK: 5
 - DeltaCQI: 2

5.3. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST					
Description	Manufacturer	Model	Serial Number	FCC ID	
AC Adapter	SONY	PCG691L	147774951 0618578	DoC	
Communications Test Set	Agilent	E5515C	10092	DoC	
Laptop	SONY	PCGA-AC16V6	3000007	DoC	

I/O CABLES

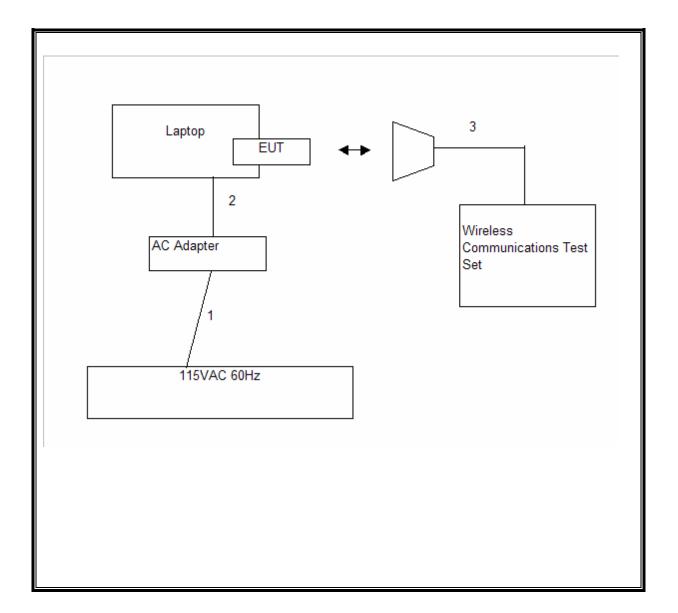
I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	AC	1	US 115V	Un-shielded	2m	NA
2	DC	1	DC	Un-shielded	2m	NA
3	RF In/Out	1	Horn	Un-shielded	3m	NA

TEST SETUP

The EUT is installed in a Sony Laptop during the test. The Wireless Communication test set exercised the EUT.

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SETUP DIAGRAM FOR TESTS



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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, Horn 1 ~ 18 GHz	ETS	3117	29301	04/22/07	
EMI Test Receiver	R & S	ESHS 20	827129/006	06/03/07	
LISN, 10 kHz ~ 30 MHz	FCC	LISN-50/250-25-2	2023	08/30/07	
Quasi-Peak Adaptor	Agilent / HP	85650A	3145A01654	01/21/08	
SA RF Section, 1.5 GHz	Agilent / HP	85680B	2814A04227	01/07/08	
SA Display Section 2	Agilent / HP	85662A	2816A16696	04/07/08	
Preamplifier, 1300 MHz	Agilent / HP	8447D	1937A02062	01/23/08	
Antenna, Bilog 30 MHz ~ 2 Ghz	Sunol Sciences	JB1	A121003	09/03/07	
Preamplifier, $1 \sim 26.5 \text{ GHz}$	Agilent / HP	8449B	3008A00561	10/03/07	
Spectrum Analyzer 3 Hz ~ 44 GHz	Agilent / HP	E4446A	MY43360112	05/03/07	
Wireless Communications Test Set	Agilent	E5515C	10092	10/19/07	
2.7GHz HPF	MicroTronic	HPM13194	2	CNR	
1.5GHz HPF	MicroTronic	HPM13195	1	CNR	
Signal Generator 2 -40 GHz	R & S	SMP04	DE 34210	06/02/07	
Signal Generator 1024 MHz	R & S	SMY01	DE 12311	05/11/07	
Dipole	EMCO	3121C-DB2	22435	06/25/07	

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7. LIMITS AND RESULTS

7.1. RADIATED OUTPUT POWER

<u>LIMIT</u>

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.

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850 MHz GPRS Mode

Channel	Frequency	ERP	ERP
		Peak Power	Peak Power
	(MHz)	(dBm)	(mW)
Low	824.2	30.50	1122.02
Middle	837	29.90	977.24
High	848.8	29.20	831.76

850 MHz EGPRS Mode

Channel	Frequency	ERP	ERP
		Peak Power	Peak Power
	(MHz)	(dBm)	(mW)
Low	824.2	25.60	363.08
Middle	837	25.00	316.23
High	848.8	24.30	269.15

850 MHz WCDMA Modulation

Channel	Frequency	ERP	ERP
		Peak Power	Peak Power
	(MHz)	(dBm)	(mW)
Low	826.4	23.80	239.88
Middle	836.4	23.20	208.93
High	846.6	22.80	190.55

850 MHz WCDMA+HSDPA Modulation

Channel	Frequency	ERP	ERP
		Peak Power	Peak Power
	(MHz)	(dBm)	(mW)
Low	826.4	24.60	288.40
Middle	836.4	23.70	234.42
High	846.6	23.10	204.17

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1900 MHz GPRS Mode

Channel	Frequency	EIRP	EIRP
		Peak Power	Peak Power
	(MHz)	(dBm)	(mW)
Low	1850.2	29.20	831.76
Middle	1880.00	28.90	776.25
High	1909.8	28.60	724.44

1900 MHz EGPRS Mode

Channel	Frequency	EIRP	EIRP
		Peak Power	Peak Power
	(MHz)	(dBm)	(mW)
Low	1850.2	25.80	380.19
Middle	1880.00	25.90	389.05
High	1909.8	25.40	346.74

1900 MHz WCDMA Modulation

Channel	Frequency	EIRP	EIRP
		Peak Power	Peak Power
	(MHz)	(dBm)	(mW)
Low	1852.4	23.70	234.42
Middle	1880.00	23.30	213.80
High	1907.6	23.50	223.87

1900 MHz WCDMA+HSDPA Modulation

Channel	Frequency	EIRP	EIRP
		Peak Power	Peak Power
	(MHz)	(dBm)	(mW)
Low	1852.40	24.70	295.12
Middle	1880.00	24.40	275.42
High	1907.60	24.50	281.84

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GSM850 GPRS Output Power (ERP)

High Frequency Substitution Measurement Compliance Certification Services, Fremontl 5m Chamber Site

Company: Sierra Wireless Project #: 07U10987 Date: 04/12/2007 Test Engineer: Mengistu Mekuria Configuration: EUT With Support PC Mode: CELL TX, GPRS

Test Equipment:

Receiving: Sunol T122, and 5m Chamber N-type Cable (Setup this one for testing EUT) Substitution: Dipole S/N: 00022117, and 4ft SMA Cable Warehouse S/N: 177081002

f			SG reading	CL	Gain	ERP	Limit	Margin	Notes
MHz	(dBuV/m)	(H/V)	(dBm)	(dB)	(dBd)	(dBm)	(dBm)	(dB)	
low Ch									
824.20	104.2	V	30.6	0.5	0.0	30.1	38.5	-8.3	
824.20	107.5	H	31.0	0.5	0.0	30.5	38.5	-7.9	
Mid Ch					•				
836.50	104.0	V	30.2	0.6	0.0	29.6	38.5	-8.8	
836.50	107.3	H	30.5	0.6	0.0	29.9	38.5	-8.6	
High Ch					•				
848.80	103.5	V	29.9	0.7	0.0	29.2	38.5	-9.3	
848.80	106.0	H	29.4	0.7	0.0	28.7	38.5	-9.8	

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GSM850 EGPRS Output Power (ERP)

High Frequency Substitution Measurement Compliance Certification Services, Fremont 5m Chamber Site

Company: Sierra Wireless Project #: 07U10987 Date: 04/12/2007 Test Engineer: Mengistu Mekuria Configuration: EUT With Support PC Mode: CELL TX, EGPRS

Test Equipment:

Receiving: Sunol T122, and 5m Chamber N-type Cable (Setup this one for testing EUT) Substitution: Dipole S/N: 00022117, and 4ft SMA Cable Warehouse S/N: 177081002

f	SA reading	Ant. Pol.	SG reading	CL	Gain	ERP	Limit	Margin	Notes
MHz	(dBuV/m)	(H/V)	(dBm)	(dB)	(dBd)	(dBm)	(dBm)	(dB)	
Low Ch									
824.20	99.3	V	25.7	0.5	0.0	25.2	38.5	-13.3	
824.20	102.6	H	26.1	0.5	0.0	25.6	38.5	-12.8	
Mid Ch					•				
836.50	99.0	V	25.2	0.6	0.0	24.6	38.5	-13.8	
836.50	102.4	H	25.6	0.6	0.0	25.0	38.5	-13.5	
High Ch									
848.80	98.6	V	25.0	0.7	0.0	24.3	38.5	-14.2	
848.80	101.1	Н	24.5	0.7	0.0	23.8	38.5	-14.7	

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Cell Band WCDMA Output Power (ERP)

High Frequency Substitution Measurement Compliance Certification Services, Fremont 5m Chamber Site

Company: Sierra Wireless Project #: 07U10987 Date: 04/16/2007 Test Engineer: Mengistu Mekuria Configuration: EUT With Support PC Mode: CELL TX, WCDMA

<u>Test Equipment:</u> Receiving: Sunol T122, and 5m Chamber N-type Cable (Setup this one for testing EUT) Substitution: Dipole S/N: 00022117, and 4ft SMA Cable Warehouse S/N: 177081002

f	SA reading		SG reading	CL	Gain	ERP	Limit	Margin	Notes
MHz	(dBuV/m)	(H/V)	(dBm)	(dB)	(dBd)	(dBm)	(dBm)	(dB)	
Low Ch									
826.40	97.6	V	24.0	0.5	0.0	23.5	38.5	-15.0	
826.40	100.8	H	24.3	0.5	0.0	23.8	38.5	-14.7	
Mid Ch									
836.40	97.2	V	23.4	0.6	0.0	22.8	38.5	-15.6	
836.40	100.6	H	23.8	0.6	0.0	23.2	38.5	-15.2	
High Ch									
846.60	96.7	V	23.1	0.7	0.0	22.4	38.5	-16.1	
846.60	100.1	Н	23.5	0.7	0.0	22.8	38.5	-15.7	

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Cell Band WCDMA+HSDPA Output Power (ERP)

High Frequency Substitution Measurement Compliance Certification Services, Fremont 5m Chamber Site

Company: Sierra Wireless Project #: 07U10987 Date: 04/16/2007 Test Engineer: Mengistu Mekuria Configuration: EUT With Support PC Mode: CELL TX, WCDMA + HSDPA

<u>Test Equipment:</u> Receiving: Sunol T122, and 5m Chamber N-type Cable (Setup this one for testing EUT) Substitution: Dipole S/N: 00022117, and 4ft SMA Cable Warehouse S/N: 177081002

f	SA reading		SG reading	CL	Gain	ERP	Limit	Margin	Notes
MHz	(dBuV/m)	(H/V)	(dBm)	(dB)	(dBd)	(dBm)	(dBm)	(dB)	
Low Ch									
826.40	98.0	V	24.4	0.5	0.0	23.9	38.5	-14.5	
826.40	101.6	H	25.1	0.5	0.0	24.6	38.5	-13.8	
Mid Ch					•				
836.40	97.7	V	24.0	0.6	0.0	23.4	38.5	-15.1	
836.40	101.1	H	24.3	0.6	0.0	23.7	38.5	-14.7	
High Ch									
846.60	97.0	V	23.4	0.7	0.0	22.7	38.5	-15.8	
846.60	100.4	H	23.8	0.7	0.0	23.1	38.5	-15.4	

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GSM1900 Band GPRS Output Power (EIRP)

High Frequency Fundamental Measurement Compliance Certification Services, Fremont 5m Chamber Site

Company: Sierra Wireless Project #: 07U10987 Date: 04/12/2007 Test Engineer: Mengistu Mekuria Configuration: EUT With Support PC Mode: PCS TX, GPRS

Test Equipment:

Receiving: Horn T73, and 12ft S/N: 197209005 (Setup this one for testing EUT) Substitution: Horn T60 Substitution, 4ft SMA Cable Warehouse S/N: 177081002

f	SA reading	Ant. Pol.	SG reading	CL	Gain	EIRP	Limit	Margin	Notes
GHz	(dBuV/m)	(H/V)	(dBm)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
Low Ch									
1.850	95.2	V	21.8	0.9	8.3	29.2	33.0	-3.8	
1.850	93.2	H	19.3	0.9	8.3	26.7	33.0	-6.4	
Mid Ch									
1.880	95.8	V	21.5	0.9	8.3	28.9	33.0	-4.1	
1.880	92.0	H	17.2	0.9	8.3	24.6	33.0	-8.4	
High Ch									
1.910	94.4	V	21.1	0.9	8.4	28.6	33.0	-4.4	
1.910	90.7	H	17.9	0.9	8.4	25.3	33.0	-7.7	

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GSM1900 Band EGPRS Output Power (EIRP)

High Frequency Fundamental Measurement Compliance Certification Services, Fremont 5m Chamber Site

Company: Sierra Wireless Project #: 07U10987 Date: 04/12/2007 Test Engineer: Mengistu Mekuria Configuration: EUT With Support PC Mode: PCS TX, EGPRS

Test Equipment:

Receiving: Horn T73, and 12ft S/N: 197209005 (Setup this one for testing EUT) Substitution: Horn T60 Substitution, 4ft SMA Cable Warehouse S/N: 177081002

f GHz	SA reading (dBuV/m)	Ant. Pol. (H/V)	SG reading (dBm)	CL (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Cg	((/	()	()	((/	()		
1.850	91.8	V	18.4	0.9	8.3	25.8	33.0	-7.2	
1.850	90.2	H	16.3	0.9	8.3	23.7	33.0	-9.3	
Mid Ch									
1.880	92.8	V	18.5	0.9	8.3	25.9	33.0	-7.1	
1.880	89.1	H	14.3	0.9	8.3	21.7	33.0	-11.3	
High Ch									
1.910	91.2	V	17.9	0.9	8.4	25.4	33.0	-7.6	
1.910	87.8	H	15.0	0.9	8.4	22.5	33.0	-10.6	

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PCS Band WCDMA Output Power (EIRP)

High Frequency Fundamental Measurement Compliance Certification Services, Fremont 5m Chamber Site

Company: Sierra Wireless Project #: 07U10987 Date: 04/16/2007 Test Engineer: Mengistu Mekuria Configuration: EUT With Support PC Mode: PCS TX, WCDMA

Test Equipment:

Receiving: Horn T73, and 12ft S/N: 197209005 (Setup this one for testing EUT) Substitution: Horn T60 Substitution, 4ft SMA Cable Warehouse S/N: 177081002

f GHz	SA reading (dBuV/m)	Ant. Pol. (H/V)	SG reading (dBm)	CL (dB)	Gain (dBi)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Ch									
1.852	89.7	V	16.3	0.9	8.3	23.7	33.0	-9.3	
1.852	87.8	H	13.9	0.9	8.3	21.3	33.0	-11.7	
Mid Ch			-						
1.880	90. 2	V	15.9	0.9	8.3	23.3	33.0	- 9. 7	
1.880	88.6	H	13.8	0.9	8.3	21.2	33.0	-11.8	
High Ch									
1.908	89.3	V	16.0	0.9	8.4	23.5	33.0	-9.5	
1.908	86.7	H	13.9	0.9	8.4	21.4	33.0	-11.7	

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PCS Band WCDMA + HSDPA Output Power (EIRP)

High Frequency Fundamental Measurement Compliance Certification Services, Fremont 5m Chamber Site

Company: Sierra Wireless Project #: 07U10987 Date: 04/16/2007 Test Engineer: Mengistu Mekuria Configuration: EUT With Support PC Mode: PCS TX, WCDMA + HSDPA

<u>Test Equipment:</u> Receiving: Horn T73, and 12ft S/N: 197209005 (Setup this one for testing EUT) Substitution: Horn T60 Substitution, 4ft SMA Cable Warehouse S/N: 177081002

f	SA reading	Ant. Pol.	SG reading	CL	Gain	EIRP	Limit	Margin	Notes
GHz	(dBuV/m)	(H/V)	(dBm)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
Low Ch									
1.852	90.7	V	17.3	0.9	8.3	24.7	33.0	-8.3	
1.852	88.6	H	14.7	0.9	8.3	22.1	33.0	-10.9	
Mid Ch									
1.880	91.3	V	17.0	0.9	8.3	24.4	33.0	-8.6	
1.880	89.4	H	14.6	0.9	8.3	22.0	33.0	-11.0	
High Ch									
1.908	90.3	V	17.0	0.9	8.4	24.5	33.0	-8.5	
1.908	87.8	H	15.0	0.9	8.4	22.5	33.0	-10.6	

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7.2. FIELD STRENGTH OF SPURIOUS RADIATION

LIMIT

22.917 (a) 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 (b), & FCC 24.238 (b)

RESULTS

No non-compliance noted.

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GSM850 GPRS Spurious & Harmonic (ERP)

Cellular Harmonic Substitution Measurement Compliance Certification Services, Fremont Immunity Chamber

 Company:
 Sierra Wireless

 Project #:
 07U10987

 Date:
 April 12th 2007

 Test Engine
 Anoop Singh

 Configuratio
 EUT Only

 Mode:
 TX,GSM 850, GPRS

Test Equipment:

Receiving: Horn T60, Pre-amp T145, CAN SMA Cables 3 & 12 ft (Setup this one for testing EUT) S/N: 187207004 & 187308840 Substitution: Horn T59, 6ft SMA Cable Warehouse S/N: 187215001

f GHz	SA reading (dBuV/m)	Ant. Pol. (H/V)	SG reading (dBm)	CL (dB)	Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Channel	824.2MHz								
1.648	57.3	V	-49.7	0.8	7.7	-42.8	-13.0	-29.8	
2.473	53.5	V	-56.4	1.0	9.4	-48.0	-13.0	-35.0	
1.648	58.4	H	-47.3	1.2	9.7	-38.8	-13.0	-25.8	
2.473	53.8	H	-50.9	1.3	9.9	-42.3	-13.0	-29.3	
Mid Channel	837.0MHz								
1.674	53.2	V	-52.5	0.8	7.7	-45.7	-13.0	-32.7	
2.511	53.3	V	-56.5	1.0	9.4	-48.1	-13.0	-35.1	
1.674	56.5	H	-49.2	0.8	7.7	-42.4	-13.0	-29.4	
2.511	55.1	H	-54.0	1.0	9.4	-45.6	-13.0	-32.6	
High Channel	848.8MHz								
1.698	56.2	V	-52.7	0.8	7.8	-45.8	-13.0	-32.8	
2.546	54.8	V	-54.5	1.0	9.4	-46.1	-13.0	-33.1	
1.698	53.7	H	-52.3	1.2	9.7	-43.8	-13.0	-30.8	
2.546	54.5	H	-50.8	1.4	10.1	-42.1	-13.0	-29.1	

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GSM850 EGPRS Spurious & Harmonic (ERP)

Cellular Harmonic Substitution Measurement Compliance Certification Services, Fremont Immunity Chamber

Company: Sierra Wireless Project #: 07U10987 Date: April 12th 2007 Test Engine Anoop Singh Configuratio EUT Only Mode: TX,GSM 850, EGPRS

Test Equipment:

Receiving: Horn T60, Pre-amp T145, CAN SMA Cables 3 & 12 ft (Setup this one for testing EUT) S/N: 187207004 & 187308840 Substitution: Horn T59, 6ft SMA Cable Warehouse S/N: 187215001

f GHz	SA reading (dBuV/m)	Ant. Pol. (H/V)	SG reading (dBm)	CL (dB)	Gain (dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
Low Channel	824.2MHz								
1.648	57.5	V	-49.4	0.8	7.7	-42.5	-13.0	-29.5	
2.473	56.8	V	-53.1	1.0	9.4	-44.8	-13.0	-31.8	
1.648	59.4	H	-46.3	1.2	9.7	-37.8	-13.0	-24.8	
2.473	58.7	H	-46.1	1.3	9.9	-37.4	-13.0	-24.4	
Mid Channel	837.0MHz								
1.674	55.0	V	-50.7	0.8	7.7	-43.9	-13.0	-30.9	
2.511	56.4	V	-53.4	1.0	9.4	-45.0	-13.0	-32.0	
1.674	55.5	H	-50.2	0.8	7.7	-43.3	-13.0	-30.3	
2.511	57.0	H	-52.1	1.0	9.4	-43.7	-13.0	-30.7	
High Channel	848.8MHz								
1.698	54.5	V	-54.4	0.8	7.8	-47.5	-13.0	-34.5	
2.546	53.6	V	-55.7	1.0	9.4	-47.3	-13.0	-34.3	
1.698	55.5	Н	-50.6	1.2	9.7	-42.1	-13.0	-29.1	
2.546	56.0	H	-49.3	1.4	10.1	-40.6	-13.0	-27.6	
			-						

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CELL Band WCDMA Spurious & Harmonic (ERP)

ompany roject # ate: 04/ est Eng onfigura		on Services, ess stu Mekuria ith Support P								
est Equ	iipment:									
	EMCO Horn 1-1	SGHz		Horn >	18GHz			Limit		
	60; S/N: 2238 @					•	ERP		•	✓ High Pass Filter
Г	Frequency Cables					Pre-amplifer 1			Pre-amplifer	26.40CHz
Γ	(2 ft)	(2 ~ 3 ft)	(4 ~ 6 ft) 🔽 (1	2 ft)	_	T34 HP 8449		Г	TTO ampinor	
f	SA reading	Ant. Pol.	SG reading	CL	Gain		- EDD			
	•		-		1	Gain	ERP	Limit	Margin	Notes
GHz	(dBuV/m)	(H/V)	(dBm)	(dB)	(dBi)	(dBd)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes
GHz ow Ch 82	(dBuV/m)	(H/V)	(dBm)	(dB)	(dBi)	(dBd)	(dBm)	(dBm)	(dB)	Notes
GHz ow Ch 82 .648	(dBuV/m) 6.4MHz 50.3	(H/V) H	(dBm) -54.9	(dB) 3.8	(dBi) 7.1	(dBd) 4.9	(dBm) -53.8	(dBm) -13.0	(dB) -40.8	Notes
GHz ow Ch 82 .648 .653	(dBuV/m) 6.4MHz 50.3 49.4	(H/V) H H	(dBm) -54.9 -55.8	(dB) 3.8 3.8	(dBi) 7.1 7.1	(dBd) 4.9 4.9	(dBm) -53.8 -54.7	(dBm) -13.0 -13.0	(dB) -40.8 -41.7	Notes
GHz ow Ch 82 .648 .653	(dBuV/m) 6.4MHz 50.3	(H/V) H	(dBm) -54.9	(dB) 3.8	(dBi) 7.1	(dBd) 4.9	(dBm) -53.8	(dBm) -13.0	(dB) -40.8	Notes
GHz ow Ch 82 .648 .653 .653	(dBuV/m) 6.4MHz 50.3 49.4 50.6	(H/V) H H	(dBm) -54.9 -55.8	(dB) 3.8 3.8	(dBi) 7.1 7.1	(dBd) 4.9 4.9	(dBm) -53.8 -54.7	(dBm) -13.0 -13.0	(dB) -40.8 -41.7	Notes
GHz ow Ch 82 .648 .653 .653 lid Ch 83	(dBuV/m) 6.4MHz 50.3 49.4 50.6	(H/V) H H	(dBm) -54.9 -55.8	(dB) 3.8 3.8	(dBi) 7.1 7.1	(dBd) 4.9 4.9	(dBm) -53.8 -54.7	(dBm) -13.0 -13.0	(dB) -40.8 -41.7	Notes
GHz ow Ch 82 .648 .653 .653 fid Ch 83 .648 .673	(dBuV/m) 6.4MHz 50.3 49.4 50.6 6.4MHz 50.6 48.7	(H/V) H H V H H H	(dBm) -54.9 -55.8 -55.3	(dB) 3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.9	(dBi) 7.1 7.1 7.1 7.1 7.1 7.1 7.2	(dBd) 4.9 4.9 4.9 4.9 4.9 5.0	(dBm) -53.8 -54.7 -54.2 -53.5 -55.3	(dBm) -13.0 -13.0 -13.0 -13.0 -13.0	(dB) -40.8 -41.7 -41.2 -40.5 -42.3	Notes
GHz .ow Ch 82 .648 .653 .653 .653 .648 .648 .673 .656	(dBuV/m) 6.4MHz 50.3 49.4 50.6 6.4MHz 50.6 48.7 49.3	(H/V) H V H H V V	(dBm) -54.9 -55.8 -55.3 -54.6 -56.4 -56.6	(dB) 3.8 3.8 3.8 3.8 3.8 3.8 3.9 3.9	(dBi) 7.1 7.1 7.1 7.1 7.1 7.2 7.1	(dBd) 4.9 4.9 4.9 4.9 4.9 5.0 4.9	(dBm) -53.8 -54.7 -54.2 -53.5 -55.3 -55.3 -55.5	(dBm) -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	(dB) -40.8 -41.7 -41.2 -40.5 -42.3 -42.5	Notes
GHz ow Ch 82 .648 .653 .653 .653 .648 .648 .673 .656	(dBuV/m) 6.4MHz 50.3 49.4 50.6 6.4MHz 50.6 48.7	(H/V) H H V H H H	(dBm) -54.9 -55.8 -55.3 -54.6 -56.4	(dB) 3.8 3.8 3.8 3.8 3.8 3.8 3.8 3.9	(dBi) 7.1 7.1 7.1 7.1 7.1 7.1 7.2	(dBd) 4.9 4.9 4.9 4.9 4.9 5.0	(dBm) -53.8 -54.7 -54.2 -53.5 -55.3	(dBm) -13.0 -13.0 -13.0 -13.0 -13.0	(dB) -40.8 -41.7 -41.2 -40.5 -42.3	Notes
GHz ow Ch 82 .648 .653 .653 .653 .648 .673 .656 .673	(dBuV/m) 6.4MHz 50.3 49.4 50.6 6.4MHz 50.6 48.7 49.3 46.1	(H/V) H V H H V V	(dBm) -54.9 -55.8 -55.3 -54.6 -56.4 -56.6	(dB) 3.8 3.8 3.8 3.8 3.8 3.8 3.9 3.9	(dBi) 7.1 7.1 7.1 7.1 7.1 7.2 7.1	(dBd) 4.9 4.9 4.9 4.9 4.9 5.0 4.9	(dBm) -53.8 -54.7 -54.2 -53.5 -55.3 -55.3 -55.5	(dBm) -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	(dB) -40.8 -41.7 -41.2 -40.5 -42.3 -42.5	Notes
GHz ow Ch 82 .648 .653 .653 .653 .648 .673 .656 .673 .656 .673 .656	(dBuV/m) 6.4MHz 50.3 49.4 50.6 6.4MHz 6.4MHz 49.3 46.1 6.0000 6.4MHz	(H/V) H H V H H V V V	(dBm) -54.9 -55.8 -55.3 -54.6 -56.4 -56.6 -59.7	(dB) 3.8 3.8 3.8 3.8 3.9 3.9 3.9 3.9 3.9	(dBi) 7.1 7.1 7.1 7.1 7.1 7.2 7.1 7.2 7.1 7.2	(dBd) 4.9 4.9 4.9 5.0 4.9 5.0 5.0	(dBm) -53.8 -54.7 -54.2 -53.5 -55.3 -55.5 -58.6	(dBm) -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	(dB) -40.8 -41.7 -41.2 -40.5 -42.3 -42.5 -45.6	Notes
GHz ow Ch 82 .648 .653 .653 .653 .648 .673 .656 .673 .656 .673 .656 .673 .656 .673	(dBuV/m) 6.4MHz 50.3 49.4 50.6 6.4MHz 50.6 48.7 49.3 46.1 -6MHz 50.8	(H/V) H H H V V V V H	(dBm) -54.9 -55.8 -55.3 -54.6 -56.4 -56.6 -59.7 -54.4	(dB) 3.8 3.8 3.8 3.8 3.9 3.9 3.9 3.9 3.9 3.9	(dBi) 7.1 7.1 7.1 7.1 7.2 7.1 7.2 7.1 7.2 7.1	(dBd) 4.9 4.9 4.9 5.0 4.9 5.0 4.9 5.0 4.9	(dBm) -53.8 -54.7 -54.2 -53.5 -55.3 -55.3 -55.5 -58.6 -53.3	(dBm) -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	(dB) -40.8 -41.7 -41.2 -40.5 -42.3 -42.5 -45.6 -40.3	Notes
GHz ow Ch 82 .648 .653 .653 .653 .648 .673 .656 .673 .656 .673 .656 .673 .656 .673	(dBuV/m) 6.4MHz 50.3 49.4 50.6 6.4MHz 50.6 48.7 49.3 46.1 .6MHz 50.8 47.3	(H/V) H H H V V V V H H H	(dBm) -54.9 -55.8 -55.3 -54.6 -56.4 -56.4 -56.6 -59.7 -54.4 -57.7	(dB) 3.8 3.8 3.8 3.8 3.9 3.9 3.9 3.9 3.9 3.9 3.9 3.9	(dBi) 7.1 7.1 7.1 7.1 7.1 7.1 7.2 7.1 7.2 7.1 7.2 7.1 7.2	(dBd) 4.9 4.9 4.9 5.0 4.9 5.0 4.9 5.0 4.9 5.1	(dBm) -53.8 -54.7 -54.2 -53.5 -55.3 -55.3 -55.5 -58.6 -58.6 -53.3 -56.6	(dBm) -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	(dB) -40.8 -41.7 -41.2 -40.5 -42.3 -42.5 -42.5 -45.6 -40.3 -43.6	Notes
GHz ow Ch 82 .648 .653 .653 .648 .673 .648 .673 .656 .673 .648 .648 .693 .648	(dBuV/m) 6.4MHz 50.3 49.4 50.6 6.4MHz 50.6 48.7 49.3 46.1 .6MHz 50.8 47.3 48.7	(H/V) H H V V V V V H H V V	(dBm) -54.9 -55.8 -55.3 -54.6 -56.6 -56.6 -59.7 - -54.4 -57.7 -57.2	(dB) 3.8 3.8 3.8 3.8 3.9 3.9 3.9 3.9 3.9 3.9 3.9 3.9	(dBi) 7.1 7.1 7.1 7.1 7.1 7.2 7.1 7.2 7.1 7.2 7.1 7.2 7.1	(dBd) 4.9 4.9 5.0 4.9 5.0 4.9 5.0 4.9 5.1 4.9	(dBm) -53.8 -54.7 -54.2 -53.5 -55.3 -55.5 -58.6 -53.3 -56.6 -56.1	(dBm) -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	(dB) -40.8 -41.7 -41.2 -40.5 -42.3 -42.5 -45.6 -40.3 -43.6 -43.1	Notes
	(dBuV/m) 6.4MHz 50.3 49.4 50.6 6.4MHz 50.6 48.7 49.3 46.1 .6MHz 50.8 47.3	(H/V) H H H V V V V H H H	(dBm) -54.9 -55.8 -55.3 -54.6 -56.4 -56.4 -56.6 -59.7 -54.4 -57.7	(dB) 3.8 3.8 3.8 3.8 3.9 3.9 3.9 3.9 3.9 3.9 3.9 3.9	(dBi) 7.1 7.1 7.1 7.1 7.1 7.1 7.2 7.1 7.2 7.1 7.2 7.1 7.2	(dBd) 4.9 4.9 4.9 5.0 4.9 5.0 4.9 5.0 4.9 5.1	(dBm) -53.8 -54.7 -54.2 -53.5 -55.3 -55.3 -55.5 -58.6 -58.6 -53.3 -56.6	(dBm) -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	(dB) -40.8 -41.7 -41.2 -40.5 -42.3 -42.5 -42.5 -45.6 -40.3 -43.6	Notes
GHz .ow Ch 82 .648 .653 .653 .648 .673 .656 .673 Hi Ch 846 .648 .648 .648 .648	(dBuV/m) 6.4MHz 50.3 49.4 50.6 6.4MHz 50.6 48.7 49.3 46.1 .6MHz 50.8 47.3 48.7	(H/V) H H V V V V V H H V V	(dBm) -54.9 -55.8 -55.3 -54.6 -56.6 -56.6 -59.7 - -54.4 -57.7 -57.2	(dB) 3.8 3.8 3.8 3.8 3.9 3.9 3.9 3.9 3.9 3.9 3.9 3.9	(dBi) 7.1 7.1 7.1 7.1 7.1 7.2 7.1 7.2 7.1 7.2 7.1 7.2 7.1	(dBd) 4.9 4.9 5.0 4.9 5.0 4.9 5.0 4.9 5.1 4.9	(dBm) -53.8 -54.7 -54.2 -53.5 -55.3 -55.5 -58.6 -53.3 -56.6 -56.1	(dBm) -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	(dB) -40.8 -41.7 -41.2 -40.5 -42.3 -42.5 -45.6 -40.3 -43.6 -43.1	Notes

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CELL Band WCDMA+HSPDA Spurious & Harmonic (ERP)

-	ıy: Sierra Wirel #: 07U10987 4/16/2007									
est En	gineer: Mengis									
-	ration: EUT Wi									
lode: (CELL TX, WCI	DMA + HSD	PA							
est Eq	uipment:									
	EMCO Horn 1-	18GHz		Horn >	18GHz			Limit		High Pass Filter
T	I 60; S/N: 2238 @	3m 👻				-	ERP		-	fign rass ritter
1	-						1			
Г۳	Hi Frequency Cables								Pre-amplifer 20	C 40CHz
	□ (2 ft) □	(2 ~ 3 ft)	(4 ~ 6 ft) ▼ (12	(ft)		Pre-amplifer 1	26GHz	_	Pre-ampilier 20	J-40Ghz
		(2 513)	(*****			T34 HP 84491	в 🗸			•
f	SA reading	Ant. Pol.	SG reading	CL	Gain	Gain	ERP	Limit	Margin	Notes
GHz	(dBuV/m)	(H/V)	(dBm)	(dB)	(dBi)	(dBd)	(dBm)	(dBm)	(dB)	
	26.4MHz									
.648	52.4	H	-52.8	3.8	7.1	4.9	-51.7	-13.0	-38.7	
.653	49.2	H V	-55.9	3.8	7.1	4.9	-54.9	-13.0	-41.9	
.653	50.4	V	-55.4	3.8	7.1	4.9	-54.3	-13.0	-41.3	
fid Ch 83	36.4MHz		-		•					
.648	51.7	H	-53.5	3.8	7.1	4.9	-52.4	-13.0	-39.4	
.673	48.6	H	-56.5	3.9	7.2	5.0	-55.4	-13.0	-42.4	
	50.5	V	-55.4	3.9	7.1	4.9	-54.3	-13.0	-41.3	
	46.5	V	-59.3	3.9	7.2	5.0	-58.2	-13.0	-45.2	
	60.UL-									
.673		H	-53.7	3.8	7.1	4.9	-52.7	-13.0	-39.7	
.673 li Ch 846			-55.6	3.9	7.1	5.1	-52.7	-13.0	-39.7	
.673 li Ch 846 .648	51.4	н		3.8	7.1	4.9	-54.9	-13.0	-41.9	
.673 li Ch 846 .648 .693		H V	-56.0			5.1	-56.8	-13.0	-43.8	
.673 Hi Ch 846 .648 .693 .648	51.4 48.4		-56.0 -58.0	3.9	7.2				•••	
1.673 Hi Ch 846 1.648 1.693 1.648	51.4 48.4 49.9	V			7.2			<u>i</u>		
1.656 1.673 Hi Ch 846 1.648 1.693 1.648 1.693	51.4 48.4 49.9	V			7.2					
.673 Hi Ch 846 .648 .693 .648	51.4 48.4 49.9	V			7.2					
.673 Ii Ch 846 .648 .693 .648 .693	51.4 48.4 49.9 47.8	V			7.2					
.673 li Ch 846 .648 .693 .648 .693	51.4 48.4 49.9 47.8	VVV		3.9	7.2					

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GSM1900 Band GPRS Spurious & Harmonic (EIRP)

PCS Harmonic Substitution Measurement Compliance Certification Services, Fremont Immunity Chamber

 Company:
 Sierra Wireless

 Project #:
 07U10987

 Date:
 April 12th 2007

 Test Engineer:
 Anoop Singh

 Configuration:
 EUT Only

 Mode:
 TX,GSM 1900, GPRS

Test Equipment:

Receiving: Horn T60, Pre-amp T145, SMA Cables 3 & 12 ft (Setup this one for testing EUT) S/N: 187207004 & 187308840 Substitution: Horn T59, 6ft SMA Cable Warehouse S/N: 187215001

f	SA reading	Ant. Pol.	SG reading	CL	Gain	EIRP	Limit	Margin	Notes
GHz	(dBuV/m)	(H/V)	(dBm)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
Low Channel	1850.2MHz								
3.700	52.1	V	-52.5	0.9	9.7	-43.7	-13.0	-30.7	
5.551	52.6	V	-50.0	1.3	11.0	-40.3	-13.0	-27.3	
3.700	53.4	H	-47.6	1.4	12.0	-37.0	-13.0	-24.0	
5.551	52.9	H	-44.3	1.9	12.7	-33.5	-13.0	-20.5	
Mid Channel	1880MHz								
3.760	52.1	V	-52.7	0.9	9.7	-43.9	-13.0	-30.9	
5.640	51.9	V	-51.3	1.4	11.2	-41.5	-13.0	-28.5	
3.760	52.4	H	-48.7	1.4	12.0	-38.2	-13.0	-25.2	
5.640	51.6	H	-46.3	1.9	12.7	-35.5	-13.0	-22.5	
High Channel	1909.8MHz								
3.820	51.2	V	-52.8	0.9	9.7	-44.0	-13.0	-31.0	
5.729	50.9	V	-52.6	1.4	11.3	-42.7	-13.0	-29.7	
3.820	52.0	H	-48.5	1.5	12.0	-38.0	-13.0	-25.0	
5.729	50.5	H	-46.9	1.9	12.7	-36.0	-13.0	-23.0	
			-						
			-						
No other frequency	y was detected abov	e the nosie floo	r				i		

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GSM1900 Band EGPRS Spurious & Harmonic (EIRP)

	PCS Harmonic	: Substitution	n Measurement						
Compliance Ce	rtification Servio	ces, Fremont	Immunity Char	nber					
Company:	Sierra Wireless								
Project #:	07U10987								
Date:	April 12th 2007								
Test Engineer:	-								
Configuration:	EUT Only								
Mode:	TX.GSM 1900, EG	PPS							
Test Equipment	t:								
	n T60, Pre-amp	T145 SMA	Cables 3 & 12 ff	(Setup this	one for tes	ting FUT) 9	S/N· 1872	07004 & 18730	8840
<u> </u>	orn T59, 6ft SMA			· ·					0010
Substitution: Ho	orn 159, on SML	A Cable war	enouse 5/IN: 18/	215001					
f	SA reading	Ant. Pol.	SG reading	CL	Gain	EIRP	Limit	Margin	Not
GHz	(dBuV/m)	(H/V)	(dBm)	(dB)	(dBi)	(dBm)	(dBm)	(dB)	
Low Channel	1850.2MHz								
3.700	53.2	V	-51.4	0.9	9.7	-42.6	-13.0	-29.6	
	52.6	V	-50.0	1.3	11.0	-40.4	-13.0	-27.4	
5.551	····\$	V H	-50.0 -47.5	1.3 1.4	11.0 12.0	-40.4 -36.9	-13.0 -13.0	-27.4 -23.9	
5.551 3.700	52.6		····						
5.551 3.700 5.551	52.6 53.5 53.1	H	-47.5	1.4	12.0	-36.9	-13.0	-23.9	
5.551 3.700 5.551 Mid Channel 1	52.6 53.5	H H	-47.5 -44.1	1.4 1.9	12.0 12.7	-36.9	-13.0 -13.0	-23.9 -20.3	
5.551 3.700 5.551 Mid Channel 1 3.760	52.6 53.5 53.1 880MHz 53.1	H H V	-47.5 -44.1 -51.7	1.4 1.9 0.9	12.0 12.7 9.7	-36.9 -33.3 -42.9	-13.0 -13.0 -13.0	-23.9 -20.3 -29.9	
5.551 3.700 5.551 Mid Channel 1 3.760 5.640	52.6 53.5 53.1 880MHz	H H V V	-47.5 -44.1 -51.7 -51.1	1.4 1.9	12.0 12.7 9.7 11.2	-36.9 -33.3 -42.9 -41.3	-13.0 -13.0	-23.9 -20.3 -29.9 -28.3	
5.551 3.700 5.551 Mid Channel 1 3.760 5.640 3.760	52.6 53.5 53.1 880MHz 53.1 52.1 53.5	H H V V H	-47.5 -44.1 -51.7 -51.1 -47.6	1.4 1.9 0.9 1.4 1.4	12.0 12.7 9.7 11.2 12.0	-36.9 -33.3 -42.9 -41.3 -37.1	-13.0 -13.0 -13.0 -13.0 -13.0	-23.9 -20.3 -29.9 -28.3 -24.1	
5.551 3.700 5.551 Mid Channel 1 3.760 5.640 3.760	52.6 53.5 53.1 880MHz 53.1 52.1	H H V V	-47.5 -44.1 -51.7 -51.1	1.4 1.9 0.9 1.4	12.0 12.7 9.7 11.2	-36.9 -33.3 -42.9 -41.3	-13.0 -13.0 -13.0 -13.0	-23.9 -20.3 -29.9 -28.3	
5.551 3.700 5.551 <u>Mid Channel</u> 1 3.760 5.640 3.760 5.640	52.6 53.5 53.1 880MHz 53.1 53.1 53.5 52.7	H H V V H	-47.5 -44.1 -51.7 -51.1 -47.6	1.4 1.9 0.9 1.4 1.4	12.0 12.7 9.7 11.2 12.0	-36.9 -33.3 -42.9 -41.3 -37.1	-13.0 -13.0 -13.0 -13.0 -13.0	-23.9 -20.3 -29.9 -28.3 -24.1	
5.551 3.700 5.551 Mid Channel 1 3.760 5.640 3.760 5.640 High Channel	52.6 53.5 53.1 880MHz 53.1 52.1 53.5 52.7 1909.8MHz	H H V V H H	-47.5 -44.1 -51.7 -51.1 -47.6 -45.2	1.4 1.9 0.9 1.4 1.4 1.9	12.0 12.7 9.7 11.2 12.0 12.7	-36.9 -33.3 -42.9 -41.3 -37.1 -34.3	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0	-23.9 -20.3 -29.9 -28.3 -24.1 -21.3	
5.551 3.700 5.551 Mid Channel 1 3.760 5.640 3.760 5.640 High Channel 3.820	52.6 53.5 53.1 880MHz 53.1 52.1 53.5 52.7 1909.8MHz 53.2	H H V V H H Y	-47.5 -44.1 -51.7 -51.1 -47.6 -45.2 -50.8	1.4 1.9 0.9 1.4 1.4 1.9 0.9	12.0 12.7 9.7 11.2 12.0 12.7 9.7	-36.9 -33.3 -42.9 -41.3 -37.1 -34.3 -42.0	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	-23.9 -20.3 -29.9 -28.3 -24.1 -21.3 -29.0	
5.551 3.700 5.551 Mid Channel 1 3.760 5.640 3.760 5.640 High Channel 3.820 5.729	52.6 53.5 53.1 880MHz 53.1 52.1 53.5 52.7 1909.8MHz 53.2 53.2 52.6	H H V V H H V V V	-47.5 -44.1 -51.7 -51.1 -47.6 -45.2 -50.8 -51.0	1.4 1.9 0.9 1.4 1.4 1.9 0.9 1.4	12.0 12.7 9.7 11.2 12.0 12.7 9.7 11.3	-36.9 -33.3 -42.9 -41.3 -37.1 -34.3 -42.0 -41.0	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	-23.9 -20.3 -29.9 -28.3 -24.1 -21.3 -29.0 -28.0	
5.551 3.700 5.551 Mid Channel 1 3.760 5.640 3.760 5.640 3.760 5.640 3.760 5.640 3.760 5.640 3.729 3.820	52.6 53.5 53.1 53.1 53.1 53.1 53.5 52.7 1909.8MHz 53.2 52.6 52.9	H H V V H H V V V H	-47.5 -44.1 -51.7 -51.7 -47.6 -45.2 -50.8 -51.0 -47.6	1.4 1.9 0.9 1.4 1.4 1.9 0.9 1.4 1.5	12.0 12.7 9.7 11.2 12.0 12.7 9.7 11.3 12.0	-36.9 -33.3 -42.9 -41.3 -37.1 -34.3 -42.0 -41.0 -37.0	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	-23.9 -20.3 -29.9 -28.3 -24.1 -21.3 -29.0 -28.0 -24.0	
5.551 3.700 5.551 Mid Channel 1 3.760 5.640 3.760 5.640 3.760 5.640 3.760 5.640 3.760 5.640 3.729 3.820	52.6 53.5 53.1 880MHz 53.1 52.1 53.5 52.7 1909.8MHz 53.2 53.2 52.6	H H V V H H V V V	-47.5 -44.1 -51.7 -51.1 -47.6 -45.2 -50.8 -51.0	1.4 1.9 0.9 1.4 1.4 1.9 0.9 1.4	12.0 12.7 9.7 11.2 12.0 12.7 9.7 11.3	-36.9 -33.3 -42.9 -41.3 -37.1 -34.3 -42.0 -41.0	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	-23.9 -20.3 -29.9 -28.3 -24.1 -21.3 -29.0 -28.0	
5.551 3.700 5.551	52.6 53.5 53.1 53.1 53.1 53.1 53.5 52.7 1909.8MHz 53.2 52.6 52.9	H H V V H H V V V H	-47.5 -44.1 -51.7 -51.7 -47.6 -45.2 -50.8 -51.0 -47.6	1.4 1.9 0.9 1.4 1.4 1.9 0.9 1.4 1.5	12.0 12.7 9.7 11.2 12.0 12.7 9.7 11.3 12.0	-36.9 -33.3 -42.9 -41.3 -37.1 -34.3 -42.0 -41.0 -37.0	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	-23.9 -20.3 -29.9 -28.3 -24.1 -21.3 -29.0 -28.0 -24.0	
5.551 3.700 5.551 Mid Channel 1 3.760 5.640 3.760 5.640 3.760 5.640 3.760 5.640 3.760 5.640 3.729 3.820	52.6 53.5 53.1 53.1 53.1 53.1 53.5 52.7 1909.8MHz 53.2 52.6 52.9	H H V V H H V V V H	-47.5 -44.1 -51.7 -51.7 -47.6 -45.2 -50.8 -51.0 -47.6	1.4 1.9 0.9 1.4 1.4 1.9 0.9 1.4 1.5	12.0 12.7 9.7 11.2 12.0 12.7 9.7 11.3 12.0	-36.9 -33.3 -42.9 -41.3 -37.1 -34.3 -42.0 -41.0 -37.0	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	-23.9 -20.3 -29.9 -28.3 -24.1 -21.3 -29.0 -28.0 -24.0	

No other frequency was detected above the nosie floor

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PCS Band WCDMA Spurious & Harmonic (EIRP)

			ution Measurer							
omplia	nce Certificati	on Services,	Fremont 5m B	-Chamber						
omnany	: Sierra Wirel	220								
	: 07U10987									
	16/2007									
-	ineer: Mengis									
	ation: EUT Wi CS TX, WCDM		C							
toue: F	C5 IA, WCDA	A A								
lest Equ	ipment:									
								Limit		
]	EMCO Horn 1-1	8GHz		Horn >	18GHz					High Pass Filter
Т	60; S/N: 2238 @	3m 👻				-	EIRF	•	-	
1			1				,		_	
۲ Hi	Frequency Cables					Pre-amplifer 1	-26GHz		Pre-amplifer 2	26-40GHz
	(2 ft)	(2 ~ 3 ft)	(4 ~ 6 ft) ▼ (12	2 ft)	_	T34 HP 84491		Г		
						134 HP 84491	в <u>–</u>			•
f	GA									
I	SA reading	Ant. Pol.	SG reading	CL	Gain	Gain	EIRP	Limit	Margin	Notes
I GHz	(dBuV/m)	Ant. Pol. (H/V)	SG reading (dBm)	CL (dB)	Gain (dBi)	Gain (dBd)	EIRP (dBm)	Limit (dBm)	Margin (dB)	Notes
GHz Low Ch 18	(dBuV/m) 52.4MHz	(H/V)	(dBm)	(dB)	(dBi)	(dBd)	(dBm)	(dBm)	(dB)	Notes
GHz Low Ch 18 3.705	(dBuV/m) 52.4MHz 42.2	(H/V) H	(dBm) -55.0	(dB) 5.9	(dBi) 9.7	(dBd) 7.5	(dBm) -51.3	(dBm) -13.0	(dB) -38.3	Notes
GHz Low Ch 18 3.705	(dBuV/m) 52.4MHz	(H/V)	(dBm)	(dB)	(dBi)	(dBd)	(dBm)	(dBm)	(dB)	Notes
GHz Low Ch 18 3.705 3.705 Mid Ch 18	(dBuV/m) 52.4MHz 42.2 41.6	(H/V) H	(dBm) -55.0	(dB) 5.9	(dBi) 9.7	(dBd) 7.5	(dBm) -51.3 -52.0	(dBm) -13.0 -13.0	(dB) -38.3 -39.0	Notes
GHz .ow Ch 18: .705 .705 .705 .4id Ch 18: .760	(dBuV/m) 52.4MHz 42.2 41.6 80.0MHz 41.9	(H/V) H V H	(dBm) -55.0 -55.7 -55.1	(dB) 5.9 5.9 6.0	(dBi) 9.7 9.7 9.7	(dBd) 7.5 7.5 7.5	(dBm) -51.3 -52.0 -51.4	(dBm) -13.0 -13.0 -13.0	(dB) -38.3 -39.0 -38.4	Notes
GHz .ow Ch 18: .705 .705 .705 .4id Ch 18: .760	(dBuV/m) 52.4MHz 42.2 41.6 80.0MHz	(H/V) H V	(dBm) -55.0 -55.7	(dB) 5.9 5.9	(dBi) 9.7 9.7	(dBd) 7.5 7.5	(dBm) -51.3 -52.0	(dBm) -13.0 -13.0	(dB) -38.3 -39.0	Notes
GHz ow Ch 18: 3.705 3.705 4.705 4.705 4.705 4.705 4.705 5.760	(dBuV/m) 52.4MHz 42.2 41.6 80.0MHz 41.9 40.8	(H/V) H V H	(dBm) -55.0 -55.7 -55.1	(dB) 5.9 5.9 6.0	(dBi) 9.7 9.7 9.7	(dBd) 7.5 7.5 7.5	(dBm) -51.3 -52.0 -51.4	(dBm) -13.0 -13.0 -13.0	(dB) -38.3 -39.0 -38.4	Notes
GHz Low Ch 18: 3.705 3.705 Mid Ch 18: 3.760 3.760 3.760 Hi Ch 1907 3.815	(dBuV/m) 52.4MHz 42.2 41.6 80.0MHz 41.9 40.8 7.6MHz 41.5	(H/V) H V H V H	(dBm) -55.0 -55.7 -55.1 -56.3 -55.2	(dB) 5.9 5.9 6.0 6.0 6.0	(dBi) 9.7 9.7 9.7 9.7 9.7 9.7 9.7	(dBd) 7.5 7.5 7.5 7.5 7.5 7.5	(dBm) -51.3 -52.0 -51.4 -52.6 -51.6	(dBm) -13.0 -13.0 -13.0 -13.0 -13.0	(dB) -38.3 -39.0 -38.4 -39.6 -38.6	Notes
GHz ow Ch 18: .705 .705 .705 .705 .760 .760 .760	(dBuV/m) 52.4MHz 42.2 41.6 80.0MHz 41.9 40.8 7.6MHz	(H/V) H V H V	(dBm) -55.0 -55.7 -55.1 -56.3	(dB) 5.9 5.9 6.0 6.0	(dBi) 9.7 9.7 9.7 9.7	(dBd) 7.5 7.5 7.5 7.5 7.5	(dBm) -51.3 -52.0 -51.4 -52.6	(dBm) -13.0 -13.0 -13.0 -13.0	(dB) -38.3 -39.0 -38.4 -39.6	Notes
GHz .ow Ch 18: .705 .705 .705 .760 .760 .760 	(dBuV/m) 52.4MHz 42.2 41.6 80.0MHz 41.9 40.8 7.6MHz 41.5	(H/V) H V H V H	(dBm) -55.0 -55.7 -55.1 -56.3 -55.2	(dB) 5.9 5.9 6.0 6.0 6.0	(dBi) 9.7 9.7 9.7 9.7 9.7 9.7 9.7	(dBd) 7.5 7.5 7.5 7.5 7.5 7.5	(dBm) -51.3 -52.0 -51.4 -52.6 -51.6	(dBm) -13.0 -13.0 -13.0 -13.0 -13.0	(dB) -38.3 -39.0 -38.4 -39.6 -38.6	Notes

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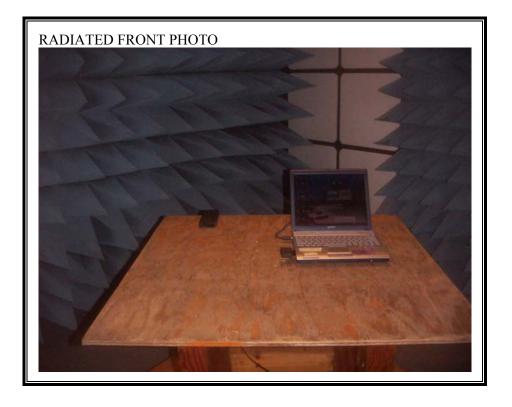
PCS Band WCDMA+HSPDA Spurious & Harmonic (EIRP)

12			ution Measure							
ompiiai	nce Certificati	on Services,	Fremont 5m B	-Chamber						
omnany	: Sierra Wirel	855								
	: 07U10987	000								
) ate: 04/	/16/2007									
	gineer: Mengis									
	ation: EUT Wi									
Iode: P	CS TX, WCDM	MA + HSDP	A							
est Equ	ipment:									
	EMCO Horn 1-]	INCIT-		Horn >	19011-			Limit		
				Horn >	ToGHZ		EIRP	•	F	High Pass Filter
T	60; S/N: 2238 @	3m 👻				-	LIKP		•	
	Frequency Cables					Pre-amplifer l	-26GHz		Pre-amplifer 26	5-40GHz
	(2 ft)	(2 ~ 3 ft)	(4 ~ 6 ft) 🔽 (1	2 ft)		T34 HP 8449	P	Г		
						134 III 84491	в т			•
f	SA reading	Ant. Pol.	SG reading	CL	Gain	Gain	EIRP	Limit	Margin	Notes
GHz	(dBuV/m)	(H/V)	(dBm)	(dB)	(dBi)	(dBd)	(dBm)	(dBm)	(dB)	
ow Ch 18	52.4MHz									
.705	55.3	H	-41.9	5.9	9.7	7.5	-38.2	-13.0	-25.2	
.705	50.2	V	-47.1	5.9	9.7	7.5	-43.4	-13.0	-30.4	
								•		
	80.0MHz						-36.6	-13.0	-23.6	
id Ch 18	80.0MHz 56.7	Н	-40.3	6.0	9.7	7.5	-30.0	-10.0		
lid Ch 18 .760		H V	-40.3 -45.8	6.0 6.0	9.7 9.7	7.5	-42.1	-13.0	-29.1	
lid Ch 18 .760 .760	56.7 51.3							÷		
	56.7 51.3							÷		
fid Ch 18 .760 .760 li Ch 190'	56.7 51.3 7.6MHz	v	-45.8	6.0	9.7	7.5	-42.1	-13.0	-29.1	
id Ch 18 760 760 i Ch 190' 815	56.7 51.3 7.6MHz 56.0	V H	-45.8 -40.7	6.0 6.0	9.7 9.7	7.5 7.6	-42.1 -37.1	-13.0 -13.0	-29.1 -24.1	

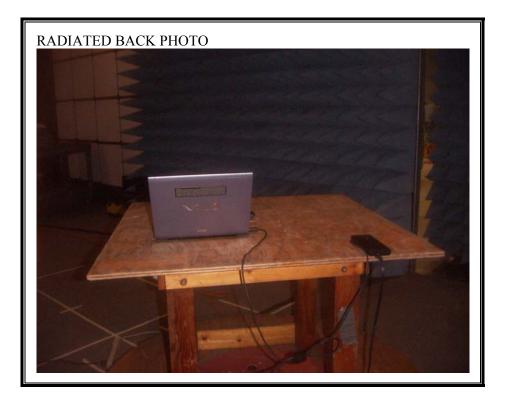
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8. SETUP PHOTOS

RADIATED RF MEASUREMENT SETUP FOR MOBILE CONFIGURATION



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END OF REPORT

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