

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

FOR

EXPRESSCARD WIRELESS MODEM

MODEL NUMBER: AirCard 880E

FCC ID: N7NAC880E

REPORT NUMBER: 07U11121-1

ISSUE DATE: JULY 5, 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
	07/05/07	Initial Issue	T. Chan

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME:		SIERRA WIRELESS 13811 WIRELESS WAY RICHMOND, BC V6V 3A4, CANADA		
EUT DESCRIPTION:	EXPRESSCARD W	EXPRESSCARD WIRELESS MODEM		
MODEL:	AirCard 880E	AirCard 880E		
SERIAL NUMBER:	01976	01976		
DATE TESTED:	JUNE 21-22, 2007			
	APPLICABLE	STANDARDS		
STANDAR	RD	TEST RESULTS		
FCC PART 22 SUI	BPART H	NO NON-COMPLIANCE NOTED		
FCC PART 24 SU	BPART 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:

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shi mekenni

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 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 a multiband wireless modem operating on the GSM/GPRS/EDGE/UMTS network. In the US and Canada, only cellular and PCS bands are used for GSM/GPRS/EDGE/UMTS operation, so this test report only contains data for these two bands (850MHz and 1900MHz). The EUT was tested in all modes of operation: GMSK, 8PSK, and WCDMA modulation.

5.2. MAXIMUM OUTPUT POWER

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

	/ •··· •·· • · · · · · · · · · · · · · ·		Ballal
Frequency Range	Modulation	ERP	ERP
		Peak Power	Peak Power
(MHz)		(dBm)	(mW)
824.2 - 848.8	GPRS	28.80	758.58
824.2 - 848.8	EGPRS	26.80	478.63
826.4 - 846.6	WCDMA	25.90	389.05
826.4 - 846.6	HSDPA	26.00	398.11

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

Frequency Range	Modulation	EIRP	EIRP
		Peak Power	Peak Power
(MHz)		(dBm)	(mW)
1850.2 - 1909.8	GPRS	29.30	851.14
1850.2 - 1909.8	EGPRS	27.00	501.19
1852.4 - 1907.6	WCDMA	27.10	512.86
1852.4 - 1907.6	HSDPA	27.60	575.44

NOTE: RBW=VBW=8MHz

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5.3. SOFTWARE AND FIRMWARE

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

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"

<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

<u>HSDPA</u>

- 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:
 - 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

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5.4. WORST-CASE CONFIGURATION AND MODE

Based on all test cases, GPRS has the worst case between GPRS & EGPRS modulations. The worst-case channel is determined as the channel with the highest output power. The highest measured output power was at high channel for CELL band and low channel for PCS band the worst case on HSDPA mode for WCDMA modulation

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

Test Peripherals					
Device Type	Manufacturer	Model Number	Serial Number	FCC ID	
Laptop	HP	Pavilion	2CA6312Z0T	DoC	
AC Adapter	HP	PA-1650-02C	3408869504	DoC	
Communications Test Set	Agilent	E5515C	GB46160222	DoC	

I/O CABLES

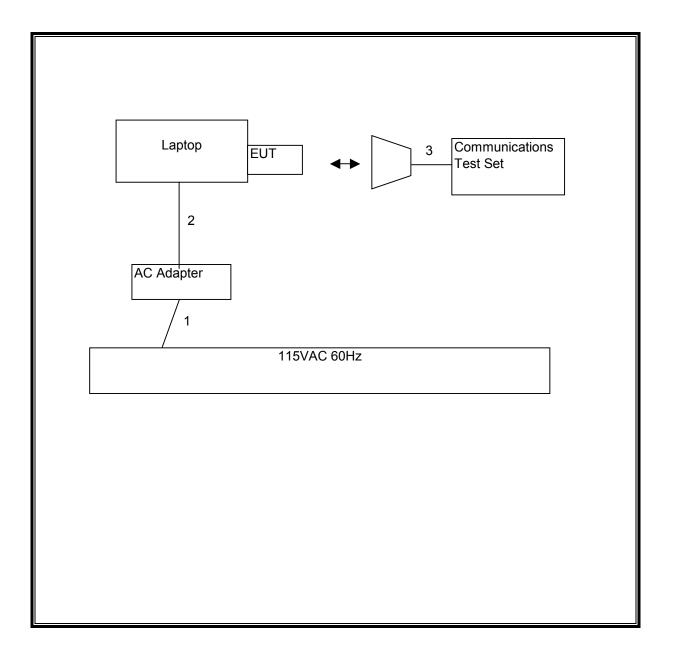
	I/O CABLE LIST							
Cable	Port	# of	Connector	Cable	Cable	Remarks		
No.		Identical	Туре	Туре	Length			
		Ports						
1	AC	1	US 115V	Un-shielded	2 m	NA		
2	DC	1	DC	Un-shielded	2m	Ferrite on DC end		
3	RF In/Out	1	SMA	Un-shielded	1m	NA		

TEST SETUP

The EUT is connected directly to the laptop during the tests. The Wireless Communication test set exercised the EUT.

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RADIATED TEST SETUP DIAGRAM



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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, Bilog 30 MHz ~ 2 Ghz	Sunol Sciences	JB1	A121003	09/06/07	
Antenna, Horn 1 ~ 18 GHz	EMCO	3115	6717	04/15/08	
Antenna Biconical	EMCO	5116	9103163	03/11/08	
Antenna, Horn 1 ~ 18 GHz	EMCO	3115	6717	04/15/08	
Signal Generator 2 -40 GHz	R & S	SMP04	DE 34210	06/02/08	
Signal Generator 1024 MHz	R & S	SMY01	DE 12311	05/11/08	
Dipole	EMCO	3121C-DB2	22435	05/07/08	
2.7GHz HPF	MicroTronic	HPM13194	2	CNR	
1.5GHz HPF	MicroTronic	HPM13195	1	CNR	
Communication Test Set	Agilent	E5515C	91936	06/29/08	

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7. LIMITS AND RESULTS

7.1. RADIATED 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	ERP	ERP
		Peak Power	Peak Power
	(MHz)	(dBm)	(mW)
Low	824.2	28.80	758.58
Middle	837	28.70	741.31
High	848.8	27.90	616.60

1900 MHz GPRS Mode

Channel	Frequency	EIRP	EIRP
		Peak Power	Peak Power
	(MHz)	(dBm)	(mW)
Low	1850.2	29.30	851.14
Middle	1880.00	28.70	741.31
High	1909.8	28.20	660.69

NOTE: RBW=VBW=8MHz.

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850 MHz EGPRS Mode

Channel	Frequency	ERP	ERP
		Peak Power	Peak Power
	(MHz)	(dBm)	(mW)
Low	824.2	26.80	478.63
Middle	837	26.50	446.68
High	848.8	26.30	426.58

1900 MHz EGPRS Mode

Channel	Frequency	EIRP	EIRP
		Peak Power	Peak Power
	(MHz)	(dBm)	(mW)
Low	1850.2	27.00	501.19
Middle	1880.00	26.60	457.09
High	1909.8	25.60	363.08

850 MHz WCDMA Modulation

Channel	Frequency	ERP	ERP
		Peak Power	Peak Power
	(MHz)	(dBm)	(mW)
Low	826.4	24.10	257.04
Middle	836.4	25.90	389.05
High	846.6	25.80	380.19

1900 MHz WCDMA Modulation

Channel	Frequency	EIRP	EIRP
		Peak Power	Peak Power
	(MHz)	(dBm)	(mW)
Low	1852.4	27.10	512.86
Middle	1880.00	26.40	436.52
High	1907.6	25.80	380.19

NOTE: RBW=VBW=8MHz

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850 MHz WCDMA+HSDPA Modulation

Channel	Frequency	ERP	ERP
		Peak Power	Peak Power
	(MHz)	(dBm)	(mW)
Low	826.4	24.70	295.12
Middle	836.4	26.00	398.11
High	846.6	24.40	275.42

1900 MHz WCDMA+HSDPA Modulation

Channel	Frequency	EIRP	EIRP
		Peak Power	Peak Power
	(MHz)	(dBm)	(mW)
Low	1852.4	27.60	575.44
Middle	1880.00	26.80	478.63
High	1907.6	26.20	416.87

NOTE: RBW=VBW=8MHz

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GPRS Output Power (ERP)

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

APTOP
DE

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	102.5	v	28.9	0.5	0.0	28.4	38.5	-10.0	
824.20	104.6	Η	29.3	0.5	0.0	28.8	38.5	-9.6	
Mid Ch									
837.00	101.7	v	28.7	6.0	0.0	28.1	38.5	-10.3	
837.00	104.4	H	29.3	0.0	0.0	28.7	38.5	-9.8	
High Ch									
848.80	101.8	v	28.6	0.7	0.0	27.9	38.5	-10.5	
848.80	102.8	н	27.3	0.7	0.0	26.6	38.5	-11.9	

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EGPRS Output Power (ERP)

	<u> </u>	e e	ution Measurer						
Complianc	e Certificatio	n Services, I	Morgan Hill 5m	Chamber	Site				
Company:		SIERRA WIRE	LESS						
Project #:		07u11121							
Date:		6/21/2007							
Test Engir	ieer:	MENGISTU M	EKURIA						
Configurat	ion:	EUT WITH SU	PPORT LAPTOP						
Mode:		TX 850MHz, E0	FRS MODE						
Test Equip	ment:								
		and 5m Chai	nber N-type Cal	ble (Setup	this one for	testing EU	T)		
			and 4ft SMA Ca	· •		-	-,		
	in Dipole int	,		ore march		//001002			
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	<u> </u>			· /			· /		
824.20	100.0	v	26.4	0.5	0.0	25.9	38.5	-12.5	
824.20	102.6	Н	27.3	0.5	0.0	26.8	38.5	-11.6	
Mid Ch									
837.00	99.3	v	26.3	0.6	0.0	25.7	38.5	-12.7	
837.00	102.2	H	27.1	0.6	0.0	26.5	38.5	-12.0	
High Ch									
848.80	99.0	v	25.8	0.7	0.0	25.1	38.5	-13.3	
848.80	102.5	H	27.0	0.7	0.0	26.3	38.5	-12.1	
Rev. 1.24.7									

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WCDMA Output Power (ERP)

- ompliant	e ceraneado		Fremont 5m Cha	111001 0110					
Company:		SIERRA WIREI	LESS						
Project #:		07u11121							
Date:		6/21/2007							
Test Engi	neer:	MENGISTU MI	KIIRIA						
Configurat			PPORT LAPTOP						
Mode:			CDMA MODE						
Peccipir: ~	Cuncl T122	and Sm Char	abor M trma Cal						
<u> </u>	on: Dipole S/N	: 00022117, :	nber N-type Cal and 4ft SMA Ca SG reading	ble Wareh		77081002		Margin	Notes
Substitutio	on: Dipole S/N SA reading	: 00022117, : Ant. Pol.	and 4ft SMA Ca SG reading	ble Wareh	ouse S/N: 1 Gain	77081002 ERP	Limit	Margin (dB)	Notes
Substitutio f MHz	on: Dipole S/N	: 00022117, :	and 4ft SMA Ca	ble Wareh	ouse S/N: 1	77081002		Margin (dB)	Notes
Substitutio f MHz	on: Dipole S/N SA reading	: 00022117, : Ant. Pol.	and 4ft SMA Ca SG reading	ble Wareh	ouse S/N: 1 Gain	77081002 ERP	Limit		Notes
Substitutio f MHz Low Ch	on: Dipole S/N SA reading (dBuV/m)	: 00022117, : Ant. Pol. (H/V)	and 4ft SMA Ca SG reading (dBm)	ble Wareh CL (dB)	ouse S/N: 1 Gain (dBd)	77081002 ERP (dBm)	Limit (dBm)	(dB)	Notes
Substitutio f MHz Low Ch 826.40 826.40	on: Dipole S/N SA reading (dBuV/m) 96.7	: 00022117, : Ant. Pol. (H/V) V	and 4ft SMA Ca SG reading (dBm) 23.1	ble Wareh CL (dB) 0 <i>5</i>	ouse S/N: 1 Gain (dBd) 0.0	77081002 ERP (dBm) 22.6	Limit (dBm) 38.5	(dB)	Notes
f MHz Low Ch 826.40 826.40 Mid Ch	on: Dipole S/N SA reading (dBuV/m) 96.7 99.9	: 00022117, : Ant. Pol. (H/V) V H	and 4ft SMA Ca SG reading (dBm) 23.1 24.6	ble Wareh CL (dB) 0.5 0.5	ouse S/N: 1 Gain (dBd) 0.0 0.0	77081002 ERP (dBm) 22.6 24.1	Limit (dBm) 38.5 38.5	(dB) -15.8 -14.3	Notes
Substitutio f MHz Low Ch 826.40	on: Dipole S/N SA reading (dBuV/m) 96.7	: 00022117, : Ant. Pol. (H/V) V	and 4ft SMA Ca SG reading (dBm) 23.1	ble Wareh CL (dB) 0 <i>5</i>	ouse S/N: 1 Gain (dBd) 0.0	77081002 ERP (dBm) 22.6	Limit (dBm) 38.5	(dB)	Notes
f MHz Low Ch 826.40 826.40 Mid Ch 836.40	n: Dipole S/N SA reading (dBuV/m) 96.7 99.9 98.1	: 00022117, ; Ant. Pol. (H/V) V H	and 4ft SMA Ca SG reading (dBm) 23.1 24.6 25.1	CL (dB) 0.5 0.5 0.6	ouse S/N: 1 Gain (dBd) 0.0 0.0	77081002 ERP (dBm) 22.6 24.1 24.5	Limit (dBm) 38.5 38.5 38.5	(dB) -15.8 -14.3 -13.9	Notes
f MHz Low Ch 826.40 826.40 826.40 Mid Ch 836.40 836.40	n: Dipole S/N SA reading (dBuV/m) 96.7 99.9 98.1	: 00022117, ; Ant. Pol. (H/V) V H	and 4ft SMA Ca SG reading (dBm) 23.1 24.6 25.1	CL (dB) 0.5 0.5 0.6	ouse S/N: 1 Gain (dBd) 0.0 0.0	77081002 ERP (dBm) 22.6 24.1 24.5	Limit (dBm) 38.5 38.5 38.5	(dB) -15.8 -14.3 -13.9	Notes
f MHz Low Ch 826.40 826.40 Mid Ch 836.40	n: Dipole S/N SA reading (dBuV/m) 96.7 99.9 98.1	: 00022117, ; Ant. Pol. (H/V) V H	and 4ft SMA Ca SG reading (dBm) 23.1 24.6 25.1	CL (dB) 0.5 0.5 0.6	ouse S/N: 1 Gain (dBd) 0.0 0.0	77081002 ERP (dBm) 22.6 24.1 24.5	Limit (dBm) 38.5 38.5 38.5	(dB) -15.8 -14.3 -13.9	Notes

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WCDMA+HSDPA Output Power (ERP)

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

Certification	services,	rremont.	Sm v	Chamber	ыı

Com	pany:	SIERRA WIRELESS
Proje	ct #:	07u11121
Date:		6/21/2007
Test	Engineer:	MENGISTU MEKURIA
Confi	iguration:	EUT WITH SUPPORT LAPTOP
Mode	e:	TX 850MHz, HSDPA MODE
1		

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)	
ow Ch									
826.40	97.1	v	23.5	0.5	0.0	23.0	38.5	-15.5	
826.40	100.5	H	25.2	0.5	0.0	24.7	38.5	-13.7	
Mid Ch									
836.40	98.0	v	25.0	0.6	0.0	24.4	38.5	-14.1	
836.40	101.7	H	26.6	0.0	0.0	26.0	38.5	-12.5	
High Ch			-			•			
846.60	96.4	v	23.2	0.7	0.0	22.5	38.5	-16.0	
846.60	100.6	н	25.1	0.7	0.0	24.4	38.5	-14.0	

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GPRS Output Power (EIRP)

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

SIERRA WIRELESS
07u11121
6/21/2007
MENGISTU MEKURIA
EUT WITH SUPPORT LAPTOP
TX 1900MHz, GPRS MODE

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 <i>.</i> 3	v	21.9	0.9	8.3	29.3	33.0	-3.7	
1.850	93.8	H	19.8	0.9	8.3	27.2	33.0	-5.8	
Mid Ch									
1.880	95.6	v	21.3	0.9	8.3	28.7	33.0	-4.3	
1.880	90 <i>.5</i>	H	15.7	0.9	8.3	23.1	33.0	-9.9	
High Ch									
1,910	94.0	v	20.7	0.9	8.4	28.2	33.0	-4.8	
1,910	90.2	н	17.4	0.9	8.4	24.9	33.0	-8.2	

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EGPRS Output Power (EIRP)

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

Company:	SIERRA WIRELESS
Project #:	07u11121
Date:	6/21/2007
Test Engineer:	MENGISTU MEKURIA
Configuration:	EUT WITH SUPPORT LAPTOP
Mode:	TX 1900MHz, EGPRS MODE

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	93.0	v	19.6	0.9	8.3	27.0	33.0	-6.0	
1.850	91.3	H	17.4	0.9	8.3	24.8	33.0	-8.2	
Mid Ch					•			••	
1.880	93 <i>5</i>	v	19.2	0.9	8.3	26.6	33.0	-6.4	
1.880	89.3	Н	14.5	0.9	8.3	21.9	33.0	-11.1	
High Ch									
1.910	91.4	v	18.1	0.9	8.4	25.6	33.0	-7.4	
1.910	88.7	н	15.9	0.9	8.4	23.4	33.0	-9.6	

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WCDMA Output Power (EIRP)

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

Company:	SIERRA WIRELESS
Project #:	07u11121
Date:	6/21/2007
Test Engineer:	MENGISTU MEKURIA
Configuration:	EUT WITH SUPPORT LAPTOP
Mode:	TX 1900MHz, WCDMA MODE

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									
1.852	93.1	v	19.7	0.9	8.3	27.1	33.0	-59	
1.852	91.6	H	17.7	0.9	8.3	25.1	33.0	-79	
Mid Ch									
1.880	93 <i>3</i>	v	19.0	0.9	8.3	26.4	33.0	-6.6	
1.880	90 <i>.</i> 9	H	16.1	0.9	8.3	23.5	33.0	-9.5	
High Ch									
1.908	91.6	v	18.3	0.9	8.4	25.8	33.0	-7.2	
1.908	90.1	Н	17.3	0.9	8.4	24.8	33.0	-8.2	

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WCDMA+HSDPA Output Power (EIRP)

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

Company:	SIERRA WIRELESS
Project #:	07u11121
Date:	6/21/2007
Test Engineer:	MENGISTU MEKURIA
Configuration:	EUT WITH SUPPORT LAPTOP
Mode:	TX 1900MHz, HSDPA MODE

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									
1.852	93.6	v	20.2	0.9	8.3	27.6	33.0	-5.4	
1.852	92.2	H	18.3	0.9	8.3	25.7	33.0	-73	
Mid Ch									
1.880	93.7	v	19.4	0.9	8.3	26.8	33.0	-6.2	
1.880	91.0	H	16.2	0.9	8.3	23.6	33.0	-9,4	
High Ch									
1.908	92.0	v	18.7	0.9	8.4	26.2	33.0	-6.8	
1.908	90 <i>.</i> 3	н	17.5	0.9	8.4	25.0	33.0	-8.0	

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7.2. FIELD STRENGTH OF SPURIOUS EMISSION

<u>LIMIT</u>

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 of 20dB below the system noise.

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CELL Band GPRS Spurious & Harmonic (ERP)

omplian	ice Certificati	on Services	, Fremont 5m B-	Chamber						
Company		SIERRA WIRE	LESS							
Project #:		07u11121								
Date:		6/22/2007								
Test Engi		MENGISTU M								
Configura Madai			IPPORT LAPTOP							
Mode:		TX 850MHz, G	FRS MODE							
Test Equi	ipment:									
F	EMCO Horn 1-	18GHz		Horn >	18GHz			Limit		
T6	i0; S/N: 2238 @)3m 🗸				•	FCC	22	-	High Pass Filter
, Hi F	Frequency Cables		1							
		(2~3ft)	(4~6ft) 🔽 (12	(ff)	1	Pre-amplifer l	-26 GHz		Pre-amplifer	26-40 GHz
	(2.10)	(2 - 510)				T145 Agilent	3008A 🖵			•
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)	
Low Ch	· · · · · · · · · · · · · · · · · · ·	/		/			,/		,_,	
2.473	71.8	v	-30.1	49	93	7.1	-27.9	-13.0	-14.9	
3.297	55.9	V	-42.5	5.6	9.4	73	-40.8	-13.0	-27.8	
8.242	49.6	v	-38.8	8.7	12.2	10.0	-37.5	-13.0	-24.5	
9.066 9.890	63.1 48.0	v	-25.2 -38.3	9.1 9.9	12.7 12.8	10.5 10.6	-23.7 -37.6	-13.0 -13.0	-10.7 -24.6	
2.473	48.J 72.6	H H	-38_3 -29.1	4.9	9.3	10.6 7.1	-37.0	-13.0	-24.0 -13.8	
3.297	72.0 51.9	H	-46.4	5.6	9.4	7.3	-44.7	-13.0	-13.8	
8.242	47.4	H	-39.8	8.7	12.2	10.0	-38.4	-13.0	-25.4	
9.066	59 <i>.</i> 5	Н	-28.7	9.1	12.7	10.5	-27.3	-13.0	-14.3	
Mid Ch										
2.511	67.6	v	-34.2	49	9.3	7.1	-31.9	-13.0	-18.9	
3.348	50.9	v	-47.3	5.6	9.5	73	-45.6	-13.0	-32.6	
5.859	45.5	v 	-46.7	75	115	9,4	-44.9	-13.0	-31.9	
8.367	49.4	V	-39.0	8.7	12.2	10.1	-37.6	-13.0	-24.6	
9.207 10.044	57.4 49.0	v	-30.5 -36.2	9.2 10.1	12.7 12.9	10.5 10.7	-29.2 -35.6	-13.0 -13.0	-16.2 -22.6	
2 <i>5</i> 11	49.0 68.2	ч Н	-30.2	4.9	93	7.1	-35.0	-13.0	-18.1	
4.185	49.6	H	-45.6	6.4	10.0	79	-44.0	-13.0	-31.0	
8.367	47.6	H	-39.6	8.7	12.2	10.1	-38.2	-13.0	-25.2	
9.207	56.7	H	-31.3	9.2	12.7	10.5	-30.0	-13.0	-17.0	
10.044	43.9	H	-40.3	10.1	129	10.7	-39.7	-13.0	-26.7	
Hi Ch							-			
2.546	63.8	v	-37.8	49	93	7.1	-35.6	-13.0	-22.6	
4.244	51.4	v	-44.1	6.4	10.1	8.0	-42.5	-13.0	-29.5	
5.942	49.3	v	-42.9	7.6	11.6	95	-41.0	-13.0	-28.0	
7.639	48.2	<u>v</u>	-40.4	8.4	12,0	9.8	-38.9	-13.0	-25.9	
8.488	49.9	V V	-38.5	8.8	12.3	10.2	-37.1	-13.0	-24.1	
9.337 2.546	57.7 65.3	 Н	-30.0 -36.0	9.4 4.9	12.7 9.3	10.6 7.1	-28.8 -33.8	-13.0 -13.0	-15.8 -20.8	
2.540 4.244	48.9	н Н	-36.0	4.9 6.4	9.3	7.1	-33.8	-13.0	-20.8	
7.639	46.9	H	-40.2 -43.1	8.4	12.0	9.8	-44.0	-13.0	-28.7	
8.488	49.2	H	-38.0	8.8	12.3	10.2	-36.6	-13.0	-23.6	
9.337	56.8	H	-30.8	9.4	12.7	10.6	-29.6	-13.0	-16.6	
	Í						1		1	[

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CELL Band EGPRS Spurious & Harmonic (ERP)

Compa	ny:	SIERRA WIRE	LESS							
roject		07u11121								
ate:		6/22/2007								
	0	MENGISTU M								
			PPORT LAPTOP							
/Iode:		TX 850MHz, E0	JPRS MODE							
est E	quipment:									
	EMCO Horn 1-	18GHz		Horn >	18GHz			Limit		
Γ	T60; S/N: 2238 @]3m 🔻				•	FCC	22	•	✓ High Pass Filter
Г	Hi Frequency Cables								D	26 40 011-
	□ (2 ft) □	(2~3ft) 🗖	(4∼6ft) 🔽 (12	ft)	_	Pre-amplifer 1 T145 Agilent:		Г	Pre-amplifer	20-40 GHZ
L						1145 Aguent.	3000A	L		•
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)	
Low Ch 2.390	60.3	v	-41.9	4.8	9.2	7.1	-39.7	-13.0	-26.7	
2.473	63.6	v	-38.3	4.9	93	7.1	-36.1	-13.0	-23.1	
.297	56.0	v	-42.4	5.6	9.4	73	-40.7	-13.0	-27.7	
.242	45.5	V 	-42.9	8.7	12.2	10.0	-41.5	-13.0	-28.5	
.066	58.4	V	-29.9	9.1	12.7	10.5	-28.5	-13.0	-15.5	
390 473	55.0 63.7	H H	-47.0 -38.0	4.8	9.2 9.3	7.1 7.1	-44.8 -35.8	-13.0 -13.0	-31.8	
.297	51.2	н Н	-36.0	4.9 5.6	9.5	7.1	-35.0	-13.0	-22.6	
.242	44.8	H	-42.4	8.7	12.2	10.0	-41.0	-13.0	-28.0	
.066	58.3	H	-30.0	9.1	12.7	10.5	-28.5	-13.0	-15.5	
lid Ch										
ла ся :511	61.4	v	-40.3	49	93	7.1	-38.1	-13.0	-25.1	
348	47.3	v	-50.9	5.6	95	73	-49.2	-13.0	-36.2	
240	48.7	v	-46.9	6.4	10.0	79	-45.3	-13.0	-32.3	
.185		v	-42.0	8.7	12.2	10.1	-40.6	-13.0	-27.6	
.185 .367	46.4			9.2	12.7	10.5	-29.3	-13.0 -13.0	-16.3	
.185 .367 .207	57.3	v	-30.6		0.2					
.185 .367 .207 .511	57.3 60.9	V H	-40.6	49	9 <u>3</u> 05	7.1	-38.4			
.185 .367 .207 .511 .348	57.3 60.9 45.3	V H H	-40.6 -52.8	49 5.6	9.3 9.5 10.0	73	-51.2	-13.0	-38.2	
.185 .367 .207 .511 .348 .185	57.3 60.9	V H	-40.6	49	95	• • • • • • • • • • • • • • • • • • •				
.185 .367 .207 .511 .348 .185 .367	57.3 60.9 45.3 49.7	V H H H	-40.6 -52.8 -45.5	49 5.6 6.4	9 <i>5</i> 10.0	73 79	-51.2 -44.0	-13.0 -13.0	-38.2 -31.0	
.185 .367 .207 .511 .348 .185 .367 .207 li Ch	57.3 60.9 45.3 49.7 46.0 55.0	V H H H H	-40.6 -52.8 -45.5 -41.1 -32.9	4.9 5.6 6.4 8.7 9.2	95 100 122 12.7	73 79 10.1 105	-51.2 -44.0 -39.8 -31.6	-13.0 -13.0 -13.0 -13.0	-38.2 -31.0 -26.8 -18.6	
.185 .367 .207 .511 .348 .185 .367 .207 li Ch .546	573 609 453 497 460 550 550 584	V H H H H Y	-40.6 -52.8 -45.5 -41.1 -32.9 	49 56 64 8.7 9.2 49	95 10.0 12.2 12.7 9.3	7.3 7.9 10.1 10.5 7.1	-51 2 -44 0 -39 8 -31.6 -41.0	-130 -130 -130 -130 -130	-38.2 -31.0 -26.8 -18.6 -28.0	
185 367 207 511 348 .185 367 207 ii Ch 546 244	573 609 453 497 460 550 584 479	V H H H H V V	-40.6 -52.8 -45.5 -41.1 -32.9 -43.1 -43.1 -47.6	4.9 5.6 6.4 8.7 9.2 4.9 6.4	95 100 122 12.7 93 10.1	7.3 7.9 10.1 10.5 7.1 8.0	-51 2 -44 0 -39 8 -31.6 -41.0 -46.0	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	-38.2 -31.0 -26.8 -18.6 -28.0 -33.0	
185 367 207 511 348 185 367 207 ii Ch 546 244 639	573 609 453 497 460 550 584 479 469	V H H H H V V V	-40.6 -52.8 -45.5 -41.1 -32.9 -43.1 -47.6 -41.7	4.9 5.6 6.4 8.7 9.2 4.9 6.4 8.4	95 100 122 12.7 93 10.1 12.0	7.3 7.9 10.1 10.5 7.1 8.0 9.8	-51.2 -44.0 -39.8 -31.6 -41.0 -40.0 -40.2	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	-38.2 -31.0 -26.8 -18.6 -28.0 -33.0 -27.2	
185 367 207 511 348 .185 367 207 6 Ch 546 244 639 488	573 609 453 497 460 550 584 479	V H H H H V V	-40.6 -52.8 -45.5 -41.1 -32.9 -43.1 -43.1 -47.6	4.9 5.6 6.4 8.7 9.2 4.9 6.4	95 100 122 12.7 93 10.1	7.3 7.9 10.1 10.5 7.1 8.0	-51 2 -44 0 -39 8 -31.6 -41.0 -46.0	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	-38.2 -31.0 -26.8 -18.6 -28.0 -33.0	
185 367 207 511 348 .185 367 207 6 Li Ch 546 244 639 488 546	573 609 453 497 460 550 584 479 469 468	V H H H H V V V V V	-40.6 -52.8 -45.5 -41.1 -32.9 -43.1 -47.6 -41.7 -41.5	4.9 5.6 6.4 8.7 9.2 4.9 6.4 8.4 8.8	95 100 122 12.7 93 10.1 120 123	7.3 7.9 10.1 10.5 7.1 8.0 9.8 10.2	-51.2 -44.0 -39.8 -31.6 -41.0 -46.0 -40.2 -40.1	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	-38.2 -31.0 -26.8 -18.6 -28.0 -33.0 -27.2 -27.1	
1.185 3.367 2.207 2.511 3.348 4.185 3.367 9.207 Hi Ch 2.546 4.244 7.639 3.488 2.546 4.244 7.639	573 609 453 497 460 550 584 479 469 468 576 475 442	V H H H Y V V V V V H H H	-40.6 -52.8 -45.5 -41.1 -32.9 -43.1 -47.6 -41.7 -41.5 -43.7 -47.6 -43.6	4.9 5.6 6.4 8.7 9.2 4.9 6.4 8.8 4.9 6.4 8.8 4.9 6.4 8.4	95 100 122 12.7 93 10.1 120 123 93 10.1 120	73 79 10.1 10.5 7.1 8.0 9.8 10.2 7.1 8.0 9.8	-51.2 -44.0 -39.8 -31.6 -41.0 -40.2 -40.1 -41.5 -46.0 -42.1	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	-38.2 -31.0 -26.8 -18.6 -28.0 -33.0 -27.2 -27.1 -28.5 -33.0 -29.1	
.185 .367 .207 .511 .348 .185 .367 .207 .207 .207 .207 .244 .244 .639 .488 .244 .244	57.3 60.9 45.3 49.7 46.0 55.0 58.4 47.9 46.9 46.9 46.8 57.6 47.5	V H H H V V V V V V H H	-40.6 -52.8 -45.5 -41.1 -32.9 -43.1 -47.6 -41.7 -41.7 -41.5 -43.7 -47.6	49 56 64 8.7 9.2 49 64 84 88 49 64	95 100 122 12.7 93 10.1 120 123 93 10.1	73 79 10.1 105 7.1 8.0 9.8 10.2 7.1 8.0	-51.2 -44.0 -39.8 -31.6 -41.0 -46.0 -40.2 -40.1 -41.5 -46.0	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	-38.2 -31.0 -26.8 -18.6 -28.0 -33.0 -27.2 -27.1 -28.5 -33.0	

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CELL Band WCDMA Spurious & Harmonic (ERP)

Complian			ution Measurer Fremont 5m B-							
compilan	ee oeraneaa	on pervices,	Tremont Shi D	enamber						
Company		SIERRA WIREI	LESS							
Project #:		07u11121								
Date:		6/22/2007								
Test Engi		MENGISTU MI								
Configura		EUT WITH SUI								
Mode:		TX 850MHz, W	CDMA MODE							
Test Equi	ipment:									
I	MCO Horn 1-1	18GHz		Horn >	18GHz			Limit		
T6	i0; S/N: 2238 @	3m -				-	FCC	22	-	High Pass Filter
	-, (
	Frequency Cables					Pre-amplifer l	-26GHz		Pre-amplifer 2	6-40 GHz
	(2 ft)	(2~3ft)	(4~6ft) 🔽 (12	ft)		T145 Agilent:	3008A 🗸	Γ		•
	GA 11	4 4 D I	aa r	CT.	a :	a :	EDD	. . .		DT 4
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)	
Low Ch										
2.479	50.2 52.0	V	-51.7	4.9	93	7.1	-49.5	-13.0	-36.5	
2.719 4.000	53.0 53.2	v v	-47.7 -42.5	5.1 6.2	9 <u>.3</u> 9.8	7.1	-45.7 -41.1	-13.0 -13.0	-32.7 -28.1	
4.000 2.400	53.2 55.4	H H	-42.5 -46.6	0.2 4.8	9.8 9.3	7.7	-41.1 -44.3	-13.0	-28.1 -31.3	
2.400 2.479	46.6	н	-40.0	4.0	93	7.1	-44.5	-13.0	-31.5	
4.000	48.3	H	-47.1	6.2	9.8	7.7	-45.6	-13.0	-32.6	
Mid Ch										
2.400	59.9	<u>v</u>	-42.3	4.8	9.3	7.1	-40.0	-13.0	-27.0	
2.509	49.2	V	-52.5	4.9	93	7.1	-50.3	-13.0	-37.3	
4.000 1.673	52.6 51.5	 Н	-43.2 -51.9	6.2 3.9	9.8 7.2	7.7	-41.7 -50.8	-13.0 -13.0	-28.7 -37.8	
2.400	55.7	H H	-46.3	4.8	93	5.0 7.1	-50.8	-13.0	-37.8	
2.509	46.2	H	-55.3	4.9	93	7.1	-53.1	-13.0	-40.1	
4.000	48.0	H	-47.4	6.2	9.8	7.7	-46.0	-13.0	-33.0	
11: Cl.										
Hi Ch 1.729	52.3	v	-51.7	39	73	5.2	-50.4	-13.0	-37.4	
2.390	59.3	v	-43.0	4.8	9.2	7.1	-30.4	-13.0	-27.7	
2.594	48.7	v	-52.6	5.0	93	7.1	-50.5	-13.0	-37.5	
4.000	53.0	V	-42.7	6.2	9.8	7.7	-41.2	-13.0	-28.2	
1.729	50.3	H	-53.0	39	73	5.2	-51.7	-13.0	-38.7	
2.390	56.0	Н	-46.0	4.8	9.2	7.1	-43.7	-13.0	-30.7	
2.594	45.9	H	-55.3	5.0	93	7.1	-53.1	-13.0	-40.1	
4.000	48.4	H	-47.0	6.2	9.8	7.7	-45.5	-13.0	-32.5	
					•					
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Rev. 4.12.7										
το V. Π .ΙΔ./										

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CELL Band WCDMA+HSDPA Spurious & Harmonic (ERP)

High Frequency Substitution Measurement Compliance Certification Services, Fremont 5m B-Chamber											
Сотприа	nce Ceruncau	ion services,	Fremont Sin B-	Chamber							
Company	y:	SIERRA WIREI	LESS								
Project #	ź:	07u11121									
Date:		6/22/2007									
Test Eng	-	MENGISTU MI									
Configur			PPORT LAPTOP								
Mode:		TX 850MHz, H	SDPA MODE								
Test Equ	<u>upment:</u>										
	EMC O Horn 1-	18GHz		Horn >	18GHz			Limit		_	
Т	'60; S/N: 2238 @)3m 🗸				•	FCC	22	-	✓ High Pass Filter	
ГНі	i Frequency Cables								D 110	AC 1007	
	(2 ft)	(2~3ft) □	(4~6ft) 🔽 (12	(A)	1	Pre-amplifer l	-26GHz		Pre-amplifer	20-40GHz	
1	(2 ft)	(2~3R)	(4~01)	с п.)		T145 Agilent :	3008A 👻			•	
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)		
Low Ch				••							
1.653	50.7	v v	-53.5	3.8	7.1	4.9	-52.4 -39.5	-13.0	-39.4		
2.388 2.479	60.5 50.1	v V	-41.8 -51.8	4.8 4.9	9.2 9.3	7.1 7.1	-39.5	-13.0 -13.0	-26.5 -36.6		
4.000	53.3	v	-42.5	6.2	9.8	7.7	-41.0	-13.0	-28.0		
1.653	50.3	H	-53.1	3.8	7.1	49	-52.0	-13.0	-39.0		
2.388	55.8	H	-46.2	4.8	9.2	7.1	-44.0	-13.0	-31.0		
2.479	47.4	H	-54.3	4.9	93	7.1	-52.0	-13.0	-39.0		
			-47.2	6.2	9.8	7.7	-45.7	-13.0	-32.7		
	48.2	H									
4.000		H				•					
4.000 Mid Ch 1.673	48.2 51.5	v	-52.6	3.9	7.2	5.0	-51.5	-13.0	-38.5		
4.000 Mid Ch 1.673 2.388	48.2 51.5 59.0	v v	-52.6 -43.3	4.8	9.2	7.1	-41.0	-13.0	-28.0		
4.000 Mid Ch 1.673 2.388 2.509	48.2 51.5 59.0 49.8	V V V	-52.6 -43.3 -51.9	4.8 4.9	9.2 9.3	7.1 7.1	-41.0 -49.7	-13.0 -13.0	-28.0 -36.7		
4.000 Mid Ch 1.673 2.388 2.509 4.000	48.2 51.5 59.0 49.8 53.6	V V V V	-52.6 -43.3 -51.9 -42.1	4.8 4.9 6.2	9.2 9.3 9.8	7.1 7.1 7.7	-41.0 -49.7 -40.7	-13.0 -13.0 -13.0	-28.0 -36.7 -27.7		
4.000 Mid Ch 1.673 2.388 2.509 4.000 1.673	48.2 51.5 59.0 49.8 53.6 50.6	V V V V H	-52.6 -43.3 -51.9 -42.1 -52.8	4.8 4.9 6.2 3.9	92 93 98 72	7.1 7.1 7.7 5.0	-41.0 -49.7 -40.7 -51.6	-13.0 -13.0 -13.0 -13.0	-28.0 -36.7 -27.7 -38.6		
4.000 Mid Ch 1.673 2.388 2.509 4.000 1.673 2.400	48.2 51.5 59.0 49.8 53.6	V V V V	-52.6 -43.3 -51.9 -42.1	4.8 4.9 6.2	9.2 9.3 9.8	7.1 7.1 7.7	-41.0 -49.7 -40.7	-13.0 -13.0 -13.0	-28.0 -36.7 -27.7		
4.000 Mid Ch 1.673 2.388 2.509 4.000 1.673 2.400 2.509	48.2 51.5 59.0 49.8 53.6 50.6 55.2	V V V V H H	-52.6 -43.3 -51.9 -42.1 -52.8 -46.8	48 49 62 39 48	92 93 98 72 93	7.1 7.1 7.7 5.0 7.1	-41.0 -49.7 -40.7 -51.6 -44.5	-13.0 -13.0 -13.0 -13.0 -13.0	-28.0 -36.7 -27.7 -38.6 -31.5		
4.000 Mid Ch 1.673 2.388 2.509 4.000 1.673 2.400 2.509 4.000	48.2 51.5 59.0 49.8 53.6 50.6 55.2 46.6	V V V H H H	-52.6 -43.3 -51.9 -42.1 -52.8 -46.8 -54.9	48 49 62 39 48 49	92 93 98 72 93 93	7.1 7.1 7.7 5.0 7.1 7.1	-41.0 -49.7 -40.7 -51.6 -44.5 -52.7	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	-28.0 -36.7 -27.7 -38.6 -31.5 -39.7		
4.000 Mid Ch 1.673 2.388 2.509 4.000 1.673 2.400 2.509 4.000 Hi Ch	48.2 51.5 59.0 49.8 53.6 50.6 55.2 46.6 48.7	V V V H H H	-52.6 -43.3 -51.9 -42.1 -52.8 -46.8 -54.9 -46.7	48 49 62 39 48 49 62	92 93 98 72 93 93 93 98	7.1 7.1 7.7 5.0 7.1 7.1 7.7	-41.0 -49.7 -40.7 -51.6 -44.5 -52.7 -45.2	-130 -130 -130 -130 -130 -130 -130	-28.0 -36.7 -27.7 -38.6 -31.5 -39.7 -32.2		
4.000 Mid Ch 1.673 2.388 2.509 4.000 1.673 2.400 2.509 4.000 Hi Ch 1.729	48.2 51.5 59.0 49.8 53.6 50.6 55.2 46.6 48.7 53.0	V V V H H H V	-52.6 -43.3 -51.9 -42.1 -52.8 -46.8 -54.9 -46.7 -51.0	48 49 62 39 48 49 62 39	92 93 98 72 93 93 98 98 73	7.1 7.1 7.7 5.0 7.1 7.1 7.1 7.7 5.2	-41.0 -49.7 -40.7 -51.6 -44.5 -52.7 -45.2 -45.2	-130 -130 -130 -130 -130 -130 -130 -130	-28.0 -36.7 -27.7 -38.6 -31.5 -39.7 -32.2 -36.8		
4 J000 Mid Ch 1 673 2 388 2 509 4 J000 1 673 2 400 2 509 4 J000 Hi Ch 1.729 2 388	48.2 51.5 59.0 49.8 53.6 50.6 55.2 46.6 48.7	V V V H H H	-52.6 -43.3 -51.9 -42.1 -52.8 -46.8 -54.9 -46.7	48 49 62 39 48 49 62	92 93 98 72 93 93 93 98	7.1 7.1 7.7 5.0 7.1 7.1 7.7	-41.0 -49.7 -40.7 -51.6 -44.5 -52.7 -45.2	-130 -130 -130 -130 -130 -130 -130	-28.0 -36.7 -27.7 -38.6 -31.5 -39.7 -32.2		
4.000 Mid Ch 1.673 2.388 2.509 4.000 1.673 2.400 2.509 4.000 Hi Ch 1.729 2.388 2.594	48.2 51.5 59.0 49.8 53.6 50.6 55.2 46.6 48.7 53.0 59.3	V V V H H H Y V	-52.6 -433 -51.9 -42.1 -52.8 -46.8 -54.9 -46.7 -51.0 -51.0 -42.9	48 49 62 39 48 49 62 62 39 48	92 93 98 72 93 93 93 98 73 98	7.1 7.1 7.7 5.0 7.1 7.1 7.1 7.7 5.2 7.1	-41.0 -49.7 -40.7 -51.6 -44.5 -52.7 -45.2 -45.2 -49.8 -40.6	-130 -130 -130 -130 -130 -130 -130 -130	-28.0 -36.7 -27.7 -38.6 -31.5 -39.7 -32.2 -36.8 -27.6		
4 J000 Mid Ch 1 673 2 388 2 509 4 J000 1 673 2 400 2 509 4 J000 Hi Ch 1.729 2 388 2 594 4 J000 1.729	48.2 51.5 59.0 49.8 53.6 50.6 55.2 46.6 48.7 53.0 59.3 49.2 53.1 51.9	V V V H H H Y V V V V V V V	-52.6 -433 -51.9 -42.1 -52.8 -46.8 -54.9 -46.7 -51.0 -42.9 -52.1 -42.7 -51.3	48 49 62 39 48 49 62 62 39 48 50 62 39	92 93 98 72 93 93 93 98 73 98 73	7.1 7.1 7.7 5.0 7.1 7.1 7.1 7.7 5.2 7.1 7.1 7.7 5.2	-41.0 -49.7 -40.7 -51.6 -44.5 -52.7 -45.2 -49.8 -49.8 -49.8 -40.6 -50.0 -41.2 -50.1	-130 -130 -130 -130 -130 -130 -130 -130	-28.0 -36.7 -27.7 -38.6 -31.5 -39.7 -32.2 -36.8 -27.6 -37.0 -28.2 -37.1		
4.000 Mid Ch 1.673 2.388 2.509 4.000 1.673 2.400 2.509 4.000 Hi Ch 1.729 2.388 2.594 4.000 1.729 2.388	482 515 590 498 536 506 552 466 48.7 530 593 492 53.1 51.9 55.1	V V V H H H V V V V V V V H H	-52.6 -433 -51.9 -42.1 -52.8 -46.8 -54.9 -46.7 -51.0 -42.9 -52.1 -42.9 -52.1 -42.7 -51.3 -47.0	48 49 62 39 48 49 62 39 48 50 62 39 48 50 62 39 48	92 93 98 72 93 93 98 73 92 93 98 73 92	7.1 7.1 7.7 5.0 7.1 7.1 7.1 7.7 5.2 7.1 7.1 7.7 5.2 7.1	-41.0 -49.7 -40.7 -51.6 -44.5 -52.7 -45.2 -49.8 -40.6 -50.0 -41.2 -50.1 -44.7	-130 -130 -130 -130 -130 -130 -130 -130	-28.0 -36.7 -27.7 -38.6 -31.5 -39.7 -32.2 -36.8 -27.6 -37.0 -28.2 -37.1 -31.7		
4.000 Mid Ch 1.673 2.388 2.509 4.000 1.673 2.400 2.509 4.000 Hi Ch 1.729 2.388 2.594 4.000 1.729 2.390 2.394	482 515 590 498 536 552 466 48.7 530 59.3 49.2 53.1 51.9 55.1 46.8	V V V H H H H V V V V V V H H H	-52.6 -43.3 -51.9 -42.1 -52.8 -46.8 -54.9 -46.7 -51.0 -42.9 -52.1 -42.7 -51.3 -47.0 -54.3	48 49 62 39 48 49 62 39 48 50 62 39 48 50 62 39 48 50	92 93 98 72 93 93 98 73 92 93 98 73 92 93 98 73 92 93	7.1 7.1 7.7 5.0 7.1 7.1 7.1 7.7 5.2 7.1 7.1 7.7 5.2 7.1 7.1	-41.0 -49.7 -40.7 -51.6 -44.5 -52.7 -45.2 -45.2 -45.2 -49.8 -40.6 -50.0 -41.2 -50.1 -44.7 -52.2	-130 -130 -130 -130 -130 -130 -130 -130	-28.0 -36.7 -27.7 -38.6 -31.5 -39.7 -32.2 -36.8 -27.6 -37.0 -28.2 -37.1 -31.7 -39.2		
4.000 Mid Ch 1.673 2.388 2.509 4.000 1.673 2.400 2.509 4.000 Hi Ch 1.729 2.388 2.594 4.000 1.729 2.388	482 515 590 498 536 506 552 466 48.7 530 593 492 53.1 51.9 55.1	V V V H H H V V V V V V V H H	-52.6 -433 -51.9 -42.1 -52.8 -46.8 -54.9 -46.7 -51.0 -42.9 -52.1 -42.9 -52.1 -42.7 -51.3 -47.0	48 49 62 39 48 49 62 39 48 50 62 39 48 50 62 39 48	92 93 98 72 93 93 98 73 92 93 98 73 92	7.1 7.1 7.7 5.0 7.1 7.1 7.1 7.7 5.2 7.1 7.1 7.7 5.2 7.1	-41.0 -49.7 -40.7 -51.6 -44.5 -52.7 -45.2 -49.8 -40.6 -50.0 -41.2 -50.1 -44.7	-130 -130 -130 -130 -130 -130 -130 -130	-28.0 -36.7 -27.7 -38.6 -31.5 -39.7 -32.2 -36.8 -27.6 -37.0 -28.2 -37.1 -31.7		

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PCS Band GPRS Spurious & Harmonic (EIRP)

	High Frequ	iency Substi	tution Measure	nent						
Complia	nce Certificat	ion Services	, Fremont 5m B	Chamber						
Company Project # Date: Test Eng Configur Mode:	≠: gineer:	SIERRA WIRE 07u11121 6/22/2007 MENGISTU M EUT WITH SU TX 1900MHz,	IEKURIA JPPORT LAPTOP							
<u>Test Equ</u>	<u> iipment:</u>									
	EMCO Horn 1-	18GHz		Horn >	• 18GHz			Limit		✓ High Pass Filter
Т	60; S/N: 2238 (23m 🔻				•	FCC	24	•	
	i Frequency Cables		(4~6ft) ▼ (12	2 0)		Pre-amplifer l	-26GHz		Pre-amplifer	26-40 GHz
		(2~311)	(4~01)	. 11)		T145 Agilent:	3008A 🖵			•
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 3.700 4.000	51.7 53.3	v v	-45.2 -42.5	59 6.2	9.7 9.8	7.5 7.7	-41.5 -38.9	-13.0 -13.0	-28.5 -25.9	
7.401 9.251	47.4 60.6	v v v	-42.5 -41.8 -27.3	8.3 9.3	12.0 12.7	9.8 10.5	-38.1 -23.9	-13.0 -13.0 -13.0	-25.9 -25.1 -10.9	······
3.700 7.401	51.6 45.5	H H	-45.3 -42.8	59 83	9.7 12.0	7.5 9.8	-41.6 -39.1	-13.0 -13.0	-28.6 -26.1	
9.251 Mid Ch	59.5	H	-28.4	9.3	12.7	10.5	-25.0	-13.0	-12.0	······
3.760 4.000	52.7 53.0	v v	-44.1 -42.7	6.0 6.2	9.7 9.8	7.5 7.7	-40.4 -39.1	-13.0 -13.0	-27.4 -26.1	
7.520 9.400 3.760	49.5 56.8 51.5	V V H	-39.4 -30.7 -45.2	8.3 9.4 6.0	12.0 12.7 9.7	9.8 10.6 7.5	-35.7 -27.4 -41.5	-13.0 -13.0 -13.0	-22.7 -14.4 -28.5	
7 <i>.</i> 520 9.400	47.3 53.9	H H	-40.9 -33.6	8.3 9.4	12.0 12.7	9.8 10.6	-37.2 -30.3	-13.0 -13.0	-24.2 -17.3	
Hi Ch 3.820	53.5	v	-43.1	ይን	9.7	7.6	-39.4	-13.0	-26.4	
4.000 7.639 9.549	52.9 51.1 52.1	V V V	-42.8 -37.6 -35.1	6.2 8.4 9.6	9.8 12.0 12.7	7.7 9.8 10.6	-39.2 -34.0 -31.9	-13.0 -13.0 -13.0	-26.2 -21.0 -18.9	
3.820 7.639	52 <i>5</i> 46.7	H H	-43.9 -41.1	6.D 8.4	9.7 12.0	7.6 9.8	-40.2 -37.5	-13.0 -13.0	-27.2 -24.5	
9.549	50.4	H	-36.7	9.6	12.7	10.6	-33.6	-13.0	-20.6	
D 4402										
Rev. 4.12.7										

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PCS Band EGPRS Spurious & Harmonic (EIRP)

Complia			ution Measure Fremont 5m B							
Compilar	nee oeraneaa	ion services,	Tremont Shi B	enamoer						
Company	r	SIERRA WIREI	ESS							
Project #	5									
Date: Toot From	Date: 6/22/2007 Test Engineer: MENGISTU MEKURIA Configuration: EUT WITH SUPPORT LAPTOP									
Mode:		TX 1900MHz, E								
wione:		I A 1900MHZ, E	OFRS MODE							
Test Equ	<u>iipment:</u>									
								Limit		
1	EMC O Horn 1-	18GHz		Horn >	18GHz					✓ High Pass Filter
Т	60; S/N: 2238 @)3m 👻				-	FCC	24	-	- inght wo that
,		_	,							
	i Frequency Cables					Pre-amplifer l	-26GHz		Pre-amplifer	26-40GHz
	(2 ft)	(2 ~ 3 ft)	(4~6 ft) 🔽 (12	2 ft)	_	T145 Agilent:		Г		
						Ū				
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)	
Low Ch							ļ			
										:
	47.7	v	-49.2	59	9.7	75	-45.5	-13.0	-32.5	
4.000	53.5	v	-42.3	6.2	9.8	7.7	-38.7	-13.0	-25.7	
4.000 7.401	53.5 47.5	v v	-42.3 -41.7	6.2 8.3	9.8 12.0	7.7 9.8	-38.7 -38.0	-13.0 -13.0	-25.7 -25.0	
4.000 7.401 9.251	53.5 47.5 57.5	V V V	-42.3 -41.7 -30.3	62 83 93	9.8 12.0 12.7	7.7 9.8 10.5	-38.7 -38.0 -26.9	-13.0 -13.0 -13.0	-25.7 -25.0 -13.9	
4.000 7.401 9.251 3.700	53.5 47.5	v v	-42.3 -41.7	6.2 8.3	9.8 12.0	7.7 9.8	-38.7 -38.0	-13.0 -13.0	-25.7 -25.0	
4.000 7.401 9.251 3.700 7.401	535 475 575 468	V V V H	-42.3 -41.7 -30.3 -50.1	62 83 93 59	9.8 12.0 12.7 9.7	7.7 9.8 10.5 7.5	-38.7 -38.0 -26.9 -46.4	-13.0 -13.0 -13.0 -13.0	-25.7 -25.0 -13.9 -33.4	
4,000 7,401 9,251 3,700 7,401 9,251	535 475 575 468 459	V V V H H	-42.3 -41.7 -30.3 -50.1 -42.5	62 83 93 59 83	9.8 12.0 12.7 9.7 12.0	7.7 9.8 10.5 7.5 9.8	-38.7 -38.0 -26.9 -46.4 -38.7	-13.0 -13.0 -13.0 -13.0 -13.0	-25.7 -25.0 -13.9 -33.4 -25.7	
4,000 7,401 9,251 3,700 7,401 9,251 Mid Ch	535 475 575 468 459	V V V H H	-42.3 -41.7 -30.3 -50.1 -42.5	62 83 93 59 83	9.8 12.0 12.7 9.7 12.0	7.7 9.8 10.5 7.5 9.8	-38.7 -38.0 -26.9 -46.4 -38.7	-13.0 -13.0 -13.0 -13.0 -13.0	-25.7 -25.0 -13.9 -33.4 -25.7	
4.000 7.401 9.251 3.700 7.401 9.251 Mid Ch 3.760	53.5 47.5 57.5 46.8 45.9 58.3 	V V H H V V V	-42.3 -41.7 -30.3 -50.1 -42.5 -29.5	6.2 8.3 9.3 5.9 8.3 9.3 6.0 6.2	98 120 127 9.7 120 12.7	7.7 98 105 75 98 105	-38.7 -38.0 -26.9 -46.4 -38.7 -26.1 -44.7 -38.8	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	-25.7 -25.0 -13.9 -33.4 -25.7 -13.1	
4.000 7.401 9.251 3.700 7.401 9.251 Mid Ch 3.760 4.000 7.520	53.5 47.5 57.5 46.8 45.9 58.3 48.3 53.4 46.0	V V H H V V V V V	-423 -41.7 -30.3 -50.1 -42.5 -29.5 	62 83 93 59 83 93 60 60 62 83	98 120 12.7 9.7 120 12.7 9.7 9.7 9.8 120	7.7 9.8 10.5 7.5 9.8 10.5 7.5 7.5 7.7 9.8	-38.7 -38.0 -26.9 -46.4 -38.7 -26.1 -44.7 -38.8 -39.2	-130 -130 -130 -130 -130 -130 -130 -130	-25.7 -25.0 -13.9 -33.4 -25.7 -13.1 -31.7 -25.8 -26.2	
4.000 7.401 9.251 3.700 7.401 9.251 Mid Ch 3.760 4.000 7.520 9.400	53.5 47.5 57.5 46.8 45.9 58.3 48.3 53.4 46.0 52.5	V V H H V V V V V	-42.3 -41.7 -30.3 -50.1 -42.5 -29.5 -29.5 -48.4 -42.4 -42.9 -35.0	62 83 93 59 83 93 60 60 62 83 94	98 120 127 9.7 120 12.7 9.7 9.7 9.8 120 12.7	7.7 9.8 10.5 7.5 9.8 10.5 7.5 7.7 9.8 10.6	-38.7 -38.0 -26.9 -46.4 -38.7 -26.1 -44.7 -38.8 -39.2 -31.7	-130 -130 -130 -130 -130 -130 -130 -130	-25.7 -25.0 -13.9 -33.4 -25.7 -13.1 -31.7 -25.8 -26.2 -18.7	
4.000 7.401 9.251 3.700 7.401 9.251 Mid Ch 3.760 4.000 7.520 9.400 3.760	53.5 47.5 57.5 46.8 45.9 58.3 48.3 53.4 46.0 52.5 48.1	V V H H V V V V V V V H	-423 -41.7 -30.3 -50.1 -42.5 -29.5 -48.4 -42.4 -42.4 -42.9 -35.0 -48.6	6.2 8.3 9.3 5.9 8.3 9.3 6.0 6.2 8.3 9.4 6.0	98 120 127 9.7 120 127 9.7 9.7 9.8 120 127 9.7	7.7 9.8 10.5 7.5 9.8 10.5 7.5 7.5 7.7 9.8 10.6 7.5	-38.7 -38.0 -26.9 -46.4 -38.7 -26.1 -44.7 -38.8 -39.2 -31.7 -44.9	-130 -130 -130 -130 -130 -130 -130 -130	-25.7 -25.0 -13.9 -33.4 -25.7 -13.1 -31.7 -25.8 -26.2 -18.7 -31.9	
4.000 7.401 9.251 3.700 7.401 9.251 Mid Ch 3.760 7.520 9.400 3.760 7.520	53.5 47.5 57.5 46.8 45.9 58.3 48.3 53.4 46.0 52.5	V V H H V V V V V	-42.3 -41.7 -30.3 -50.1 -42.5 -29.5 -29.5 -48.4 -42.4 -42.9 -35.0	62 83 93 59 83 93 60 60 62 83 94	98 120 127 9.7 120 12.7 9.7 9.7 9.8 120 12.7	7.7 9.8 10.5 7.5 9.8 10.5 7.5 7.7 9.8 10.6	-38.7 -38.0 -26.9 -46.4 -38.7 -26.1 -44.7 -38.8 -39.2 -31.7	-130 -130 -130 -130 -130 -130 -130 -130	-25.7 -25.0 -13.9 -33.4 -25.7 -13.1 -31.7 -25.8 -26.2 -18.7	
3.700 4.000 7.401 9.251 3.700 7.401 9.251 3.700 7.401 9.251 Mid Ch 3.760 4.000 7.520 9.400 7.520 9.400	53.5 47.5 57.5 46.8 45.9 58.3 48.3 53.4 46.0 52.5 48.1 44.9	V V H H V V V V V V V H H	-42.3 -41.7 -30.3 -50.1 -42.5 -29.5 	62 83 93 59 83 93 60 60 62 83 94 60 83	98 120 12.7 9.7 120 12.7 9.7 9.8 120 12.7 9.7 120	7.7 9.8 10.5 7.5 9.8 10.5 7.5 7.7 9.8 10.6 7.5 9.8	-38.7 -38.0 -26.9 -46.4 -38.7 -26.1 - -44.7 -38.8 -39.2 -31.7 -44.9 -39.5	-130 -130 -130 -130 -130 -130 -130 -130	-25.7 -25.0 -13.9 -33.4 -25.7 -13.1 -31.7 -25.8 -26.2 -18.7 -31.9 -26.5	
4.000 7.401 9.251 3.700 7.401 9.251 Mid Ch 3.760 7.520 9.400 3.760 7.520 9.400 Hi Ch	53.5 47.5 57.5 46.8 45.9 58.3 48.3 53.4 46.0 52.5 48.1 44.9 53.6	V V H H H H H V V V V V H H H	-423 -41.7 -30.3 -50.1 -42.5 -29.5 -48.4 -42.4 -42.9 -35.0 -48.6 -43.2 -33.9	6.2 8.3 9.3 5.9 8.3 9.3 6.0 6.2 8.3 9.4 6.0 8.3 9.4	98 120 12.7 9.7 120 12.7 9.7 9.8 120 12.7 9.7 120 12.7	7.7 9.8 10.5 7.5 9.8 10.5 7.5 7.7 9.8 10.6 7.5 9.8 10.6	-38.7 -38.0 -26.9 -46.4 -38.7 -26.1 -44.7 -38.8 -39.2 -31.7 -44.9 -39.5 -30.6	-130 -130 -130 -130 -130 -130 -130 -130	-25.7 -25.0 -13.9 -33.4 -25.7 -13.1 -31.7 -25.8 -26.2 -18.7 -31.9 -26.5 -17.6	
4 000 7 401 9 251 3 700 7 401 9 251 Mid Ch 3 760 4 000 7 520 9 400 7 520 9 400 Hi Ch 3 820	53.5 47.5 57.5 46.8 45.9 58.3 48.3 53.4 46.0 52.5 48.1 44.9 53.6 49.6	V V H H H H H V V V V V V V V V V V V V	-423 -41.7 -30.3 -50.1 -42.5 -29.5 -48.4 -42.4 -42.9 -35.0 -48.6 -43.2 -33.9 -46.9	6.2 83 93 59 83 93 60 6.2 83 94 60 83 94 60	98 120 12.7 9.7 120 12.7 9.7 9.8 120 12.7 9.7 120 12.7 9.7	7.7 9.8 10.5 7.5 9.8 10.5 7.5 7.7 9.8 10.6 7.5 9.8 10.6 7.5 9.8	-38.7 -38.0 -26.9 -46.4 -38.7 -26.1 -44.7 -38.8 -39.2 -31.7 -44.9 -39.5 -30.6 -43.3	-130 -130 -130 -130 -130 -130 -130 -130	-25.7 -25.0 -13.9 -33.4 -25.7 -13.1 -31.7 -25.8 -26.2 -17.6 -31.9 -26.5 -17.6 -30.3	
4 000 7 401 9 251 3 700 7 401 9 251 Mid Ch 3 760 4 000 7 520 9 400 7 520 9 400 Hi Ch 3 820 4 000	53.5 47.5 57.5 46.8 45.9 58.3 48.3 53.4 46.0 52.5 48.1 44.9 53.6	V V H H H H H V V V V V H H H	-423 -41.7 -30.3 -50.1 -42.5 -29.5 -48.4 -42.4 -42.9 -35.0 -48.6 -43.2 -33.9	6.2 8.3 9.3 5.9 8.3 9.3 6.0 6.2 8.3 9.4 6.0 8.3 9.4	98 120 12.7 9.7 120 12.7 9.7 9.8 120 12.7 9.7 120 12.7	7.7 9.8 10.5 7.5 9.8 10.5 7.5 7.7 9.8 10.6 7.5 9.8 10.6	-38.7 -38.0 -26.9 -46.4 -38.7 -26.1 -44.7 -38.8 -39.2 -31.7 -44.9 -39.5 -30.6	-130 -130 -130 -130 -130 -130 -130 -130	-25.7 -25.0 -13.9 -33.4 -25.7 -13.1 -31.7 -25.8 -26.2 -18.7 -31.9 -26.5 -17.6	
4 .000 7 .401 9 .251 3.700 7 .401 9 .251 Mid Ch 3.760 4 .000 7 .520 9 .400 3.760 9 .400 9 .400 Hi Ch 3 .820 9 .400 7 .520 9 .400 9 .400 7 .520 9 .400 7 .520 7	53.5 47.5 57.5 46.8 45.9 58.3 48.3 53.4 46.0 52.5 48.1 44.9 53.6 49.6 53.3	V V H H H H H V V V V V H H H Y V	-423 -41.7 -30.3 -50.1 -42.5 -29.5 	6.2 8.3 9.3 5.9 8.3 9.3 6.0 6.2 8.3 9.4 6.0 8.3 9.4 6.0 8.3 9.4 6.0 8.3 9.4	98 120 12.7 9.7 120 12.7 9.7 9.8 120 12.7 9.7 120 12.7 9.7 120 12.7 9.7 9.8	7.7 9.8 10.5 7.5 9.8 10.5 7.5 7.7 9.8 10.6 7.5 9.8 10.6 7.5 9.8 10.6 7.5 9.8	-38.7 -38.0 -26.9 -46.4 -38.7 -26.1 -44.7 -38.8 -39.2 -31.7 -44.9 -39.5 -30.6 -43.3 -38.9	-130 -130 -130 -130 -130 -130 -130 -130	-25.7 -25.0 -13.9 -33.4 -25.7 -13.1 -31.7 -25.8 -26.2 -17.6 -30.3 -25.9	
4 000 7 401 9 251 3.700 7 401 9 251 Mid Ch 3.760 4 000 7 520 9 400 3.760 3.760 3.760 4 000 7 520 9 400 16 Ch 3.820 Hi Ch 3.820 4 000 9 549 9 549 9 549 3 820	53.5 47.5 57.5 46.8 45.9 58.3 48.3 53.4 46.0 52.5 48.1 44.9 53.6 49.6 53.3 47.7 52.2 50.3	V V H H H H V V V V V V V V V V V V V V	-42.3 -41.7 -30.3 -50.1 -42.5 -29.5 	6.2 8.3 9.3 5.9 8.3 9.3 6.0 6.2 8.3 9.4 6.0 8.3 9.4 6.0 6.2 8.3 9.4 6.0 6.2 8.3 9.4 6.0 6.2 6.0 6.2 6.0 6.0 6.2 8.3 9.4 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0	98 120 12.7 9.7 12.0 12.7 9.7 9.8 120 12.7 9.7 120 12.7 9.7 120 12.7 9.7 9.8 120 12.7 9.7	7.7 98 105 75 98 105 75 7.7 98 106 75 98 106 75 98 106 75 98	-38.7 -38.0 -26.9 -46.4 -38.7 -26.1 -44.7 -38.8 -39.2 -39.2 -30.6 -30.6 -43.3 -38.9 -37.4 -31.8 -42.4	-130 -130 -130 -130 -130 -130 -130 -130	-25.7 -25.0 -13.9 -33.4 -25.7 -13.1 -31.7 -25.8 -26.2 -17.6 -31.9 -26.5 -17.6 -30.3 -25.9 -24.4 -18.8 -29.4	
4 000 7 401 9 251 3 700 7 401 9 251 Mid Ch 3 760 4 000 7 520 9 400 7 520 9 400 Hi Ch 3 820 4 000 7 639 9 549 9 549 10 10 10 10 10 10 10 10 10 10	53.5 47.5 57.5 46.8 45.9 58.3 48.3 53.4 46.0 52.5 48.1 44.9 53.6 53.3 49.6 53.3 47.7 52.2 50.3 44.9	V V H H H V V V V V V V V V V V V V V V	-42.3 -41.7 -30.3 -50.1 -42.5 -29.5 	6.2 8.3 9.3 5.9 8.3 9.3 6.0 6.2 8.3 9.4 6.0 8.3 8.4 9.6 8.4 9.6 8.4 9.6 8.4 9.6 8.4 9.6 8.4	98 120 12.7 9.7 120 12.7 9.7 9.8 120 12.7 9.7 120 12.7 9.7 120 12.7 9.7 120	7.7 9.8 10.5 7.5 9.8 10.5 7.5 7.7 9.8 10.6 7.5 9.8 10.6 7.5 9.8 10.6 7.6 9.8	-38.7 -38.0 -26.9 -46.4 -38.7 -26.1 -44.7 -38.8 -39.2 -31.7 -44.9 -39.5 -30.6 -43.3 -38.9 -37.4 -31.8 -42.4 -39.4	-130 -130 -130 -130 -130 -130 -130 -130	-25.7 -25.0 -13.9 -33.4 -25.7 -13.1 -31.7 -25.8 -26.2 -17.6 -31.9 -26.5 -17.6 -30.3 -25.9 -24.4 -18.8 -29.4 -26.4	
4.000 7.401 9.251 3.700 7.401 9.251 Mid Ch 3.760 7.520 9.400 3.760 7.520	53.5 47.5 57.5 46.8 45.9 58.3 48.3 53.4 46.0 52.5 48.1 44.9 53.6 49.6 53.3 47.7 52.2 50.3	V V H H H H V V V V V V V V V V V V V V	-423 -41.7 -30.3 -50.1 -425 -29.5 -48.4 -42.5 -35.0 -48.6 -43.2 -35.0 -48.6 -43.2 -33.9 -46.9 -42.5 -41.0 -355.0 -46.1	6.2 8.3 9.3 5.9 8.3 9.3 6.0 6.2 8.3 9.4 6.0 8.3 9.4 6.0 6.2 8.3 9.4 6.0 6.2 8.3 9.4 6.0 6.2 6.0 6.2 6.0 6.0 6.2 8.3 9.4 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0 6.0	98 120 12.7 9.7 12.0 12.7 9.7 9.8 120 12.7 9.7 120 12.7 9.7 120 12.7 9.7 9.8 120 12.7 9.7	7.7 9.8 10.5 7.5 9.8 10.5 7.5 7.7 9.8 10.6 7.5 9.8 10.6 7.5 9.8 10.6 7.7 9.8 10.6 7.7 9.8 10.6 7.7	-38.7 -38.0 -26.9 -46.4 -38.7 -26.1 -44.7 -38.8 -39.2 -39.2 -30.6 -30.6 -43.3 -38.9 -37.4 -31.8 -42.4	-130 -130 -130 -130 -130 -130 -130 -130	-25.7 -25.0 -13.9 -33.4 -25.7 -13.1 -31.7 -25.8 -26.2 -17.6 -31.9 -26.5 -17.6 -30.3 -25.9 -24.4 -18.8 -29.4	

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PCS Band WCDMA Spurious & Harmonic (EIRP)

Company Project # Date: Test Eng Configur: Mode: <u>Test Equ</u>	: (ineer:) ation:)									
T	EMCO Horn 1-18GHz T60; S/N: 2238 @3m			Horn >	18GHz	•	Limit FCC 24		•	High Pass Filter
	Frequency Cables	(2 ~ 3 ft) 🔽	(4~6 ft) ▼ (12	(fl)	_	Pre-amplifer l T145 Agilent		Γ	Pre-amplifer 26	5-40 GHz
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
			1							
.705	46.2	V	-50.7	59	9.7	75	-47.0	-13.0	-34.0	
.705 .000	53.0	V	-42.7	6.2	9.8	7.7	-39.1	-13.0	-26.1	
3.705 4.000 3.705			···•				·\$			
Low Ch 3.705 4.000 3.705 4.000 Mid Ch	53.D 45.3	V H	-42.7 -51.5	6.2 5.9	9.8 9.7	7.7 7.5	-39.1 -47.8	-13.0 -13.0	-26.1 -34.8	
3.705 4.000 3.705 4.000 Mid Ch	53.0 45.3 46.5	V H H	-42.7 -51.5 -49.0	6.2 5.9 6.2	9.8 9.7 9.8	7.7 75 7.7	-39.1 -47.8 -45.3	-13.0 -13.0 -13.0	-26.1 -34.8 -32.3	
3.705 4.000 3.705 4.000 Mid Ch 3.760	53.0 45.3 46.5 47.6	V H H	-42.7 -51.5 -49.0 -49.1	62 59 62 6.0	9.8 9.7 9.8 9.7	7.7 75 7.7 7.5	-39.1 -47.8 -45.3 -45.4	-13.0 -13.0 -13.0 -13.0	-26.1 -34.8 -32.3 -32.4	
3.705 4.000 3.705 4.000 Mid Ch	53.0 45.3 46.5	V H H	-42.7 -51.5 -49.0	6.2 5.9 6.2	9.8 9.7 9.8	7.7 75 7.7	-39.1 -47.8 -45.3	-13.0 -13.0 -13.0	-26.1 -34.8 -32.3	
3.705 4.000 3.705 4.000 Wid Ch 3.760 4.000	53.0 45.3 46.5 47.6 54.4	V H H V V	-42.7 -51.5 -49.0 -49.1 -41.3	6.2 5.9 6.2 6.0 6.2	9.8 9.7 9.8 9.7 9.7 9.7 9.8	7.7 7.5 7.7 7.7 7.5 7.7	-39.1 -47.8 -45.3 -45.4 -45.4 -37.7	-130 -130 -130 -130 -130 -130	-26.1 -34.8 -32.3 -32.4 -32.4 -24.7	
3.705 4.000 3.705 4.000 Mid Ch 3.760 4.000 3.760 4.000	53.0 45.3 46.5 47.6 54.4 43.6	V H H V V V V	-42.7 -51.5 -49.0 -49.1 -41.3 -53.2	6.2 59 6.2 6.0 6.0 6.2 6.0	98 9.7 98 9.7 9.8 9.7 9.7	7.7 7.5 7.7 7.5 7.5 7.7 7.5	-39.1 -47.8 -45.3 -45.4 -45.4 -37.7 -49.5	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	-26.1 -34.8 -32.3 -32.4 -32.4 -24.7 -36.5	
1.705 1.000 1.705 1.000 Mid Ch 1.760 1.000 1.760 1.000 1.000 Hi Ch	53.0 45.3 46.5 47.6 54.4 43.6	V H H V V V V	-42.7 -51.5 -49.0 -49.1 -41.3 -53.2	6.2 59 6.2 6.0 6.0 6.2 6.0	98 9.7 98 9.7 9.8 9.7 9.7	7.7 7.5 7.7 7.5 7.5 7.7 7.5	-39.1 -47.8 -45.3 -45.4 -45.4 -37.7 -49.5	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0 -13.0	-26.1 -34.8 -32.3 -32.4 -32.4 -24.7 -36.5	
1.705 1.000 1.705 1.000 Aid Ch 1.760 1.000 1.760 1.000 1.000 Hi Ch 1.815	53.0 45.3 46.5 47.6 54.4 43.6 46.8	V H H V V V H	-42.7 -51.5 -49.0 -49.1 -41.3 -53.2 -48.7	6.2 5.9 6.2 6.0 6.2 6.0 6.2 6.0	98 9.7 98 9.7 9.8 9.7 9.8 9.7 9.8	7.7 75 7.7 75 7.7 7.5 7.7	-39.1 -47.8 -45.3 -45.4 -37.7 -49.5 -45.0	-130 -130 -130 -130 -130 -130 -130	-26.1 -34.8 -32.3 -32.4 -24.7 -36.5 -32.0	
8.705 4.000 3.705 4.000 Mid Ch 8.760 4.000 3.760 4.000 Hi Ch 8.815 4.000	53.0 45.3 46.5 47.6 54.4 43.6 46.8 59.2	V H H V V V H	-42.7 -51.5 -49.0 -49.1 -41.3 -53.2 -48.7 -37.3	6.2 5.9 6.2 6.0 6.2 6.0 6.2 6.0	98 97 98 9.7 98 9.7 98 9.7 98	7.7 7.5 7.7 7.5 7.7 7.5 7.7 7.5 7.7 7.5	-39.1 -47.8 -45.3 -45.4 -37.7 -49.5 -45.0 -33.7	-130 -130 -130 -130 -130 -130 -130 -130	-26.1 -34.8 -32.3 -32.4 -24.7 -36.5 -32.0 -20.7	
3.705 4.000 3.705 4.000 Mid Ch 3.760 4.000 3.760	53.0 45.3 46.5 47.6 54.4 43.6 46.8 59.2 53.3	V H H V V V H V V V V V V V V	-42.7 -51.5 -49.0 -49.1 -41.3 -53.2 -48.7 	6.2 59 6.2 6.0 6.2 6.0 6.2 6.0 6.2 6.0 6.2	98 97 98 97 98 97 98 97 98 97 98 97 98	7.7 7.5 7.7 7.5 7.7 7.5 7.7 7.5 7.7 7.5 7.7	-39.1 -47.8 -45.3 -45.4 -37.7 -49.5 -45.0 -33.7 -38.8	-130 -130 -130 -130 -130 -130 -130 -130	-26.1 -34.8 -32.3 -32.4 -24.7 -36.5 -32.0 -20.7 -25.8	

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PCS Band WCDMA+HSDPA Spurious & Harmonic (EIRP)

Company Project # Date: Test Eng Configur Mode: <u>Test Equ</u>	i: (gineer:) ation:)	SIERRA WIREI 07ul 1121 6/22/2007 MENGISTU MI EUT WITH SUJ TX 1900MHz, F	EKURIA PPORT LAPTOP							
_	EMC O Horn 1-1 60; S/N: 2238 @			Horn >	18GHz	•	FCC	Limit 24	•	High Pass Filter
	Frequency Cables	(2 ~ 3 ft)	(4~6 ft) ▼ (12	: ft)	_	Pre-amplifer 1 T145 Agilent			Pre-amplifer 26-	40 GHz
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										
3.705	44.9	V	-52.0	59	9.7	75	-48.3	-13.0	-35.3	
4.000	52.6 43.5	 Н	-43.2 -53.3	6.2 5.9	9.8 9.7	7.7 7.5	-39.5 -49.6	-13.0 -13.0	-26.5 -36.6	
700	433		-53.5	62	9.8 9.8	7.7	-45.1	-13.0	-30.0	
	46.8	H								
1.000	46.8	H								
4.000 Mid Ch			-50.8	60	07	75	.47.1	-130	-34.1	
3.700 4.000 Mid Ch 3.760 4.000	46.0	v	-50.8 -42.8	6.D 6.2	9.7 9.8	75 7.7	-47.1 -39.2	-13.0 -13.0	-34.1 -26.2	
4.000 Mid Ch			-50.8 -42.8 -53.5	6.D 6.2 6.D	9.7 9.8 9.7	75 7.7 75	-47.1 -39.2 -49.8	-13.0 -13.0 -13.0	-34.1 -26.2 -36.8	
4.000 Mid Ch 3.760 4.000	46.D 53.D	v v	-42.8	6.2	9.8	7.7	-39.2	-13.0	-26.2	
4.000 Mid Ch 3.760 4.000 3.760 4.000	46.0 53.0 43.2	V V V	-42.8 -53.5	6.2 6.0	9.8 9.7	7.7 7.5	-39.2 -49.8	-13.0 -13.0	-26.2 -36.8	
4.000 Mid Ch 3.760 4.000 3.760 4.000 Hi Ch	46.D 53.D 43.2 46.1	V V V H	-428 -53.5 -49.4	6.2 6.0 6.2	9.8 9.7 9.8	7.7 75 7.7	-39.2 -49.8 -45.8	-13.0 -13.0 -13.0	-26.2 -36.8 -32.8	
4.000 Mid Ch 3.760 4.000 3.760 4.000 Hi Ch 3.815	46.0 53.0 43.2	V V V	-42.8 -53.5	6.2 6.0	9.8 9.7	7.7 7.5	-39.2 -49.8	-13.0 -13.0	-26.2 -36.8	
4.000 Mid Ch 3.760 4.000 3.760 4.000 Hi Ch 3.815 4.000	46.0 53.0 43.2 46.1 57.3	V V V H	-42.8 -53.5 -49.4 -39.2	6.2 6.0 6.2 6.0	9.8 9.7 9.8 9.7	7.7 7.5 7.7 7.6	-39.2 -49.8 -45.8 -35.6	-13.0 -13.0 -13.0 -13.0	-26.2 -36.8 -32.8 -22.6	
4.000 Wid Ch 3.760 4.000 3.760	46.0 53.0 43.2 46.1 57.3 53.4	V V H V V	-42.8 -53.5 -49.4 -39.2 -42.4	6.2 6.0 6.2 6.0 6.0 6.2	9.8 9.7 9.8 9.7 9.8 9.7 9.7 9.8	7.7 7.5 7.7 7.6 7.7	-39.2 -49.8 -45.8 -35.6 -35.7	-13.0 -13.0 -13.0 -13.0 -13.0 -13.0	-26.2 -36.8 -32.8 -22.6 -25.7	

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