

FCC CFR47 PART 22 SUBPART H FCC CFR47 PART 24 SUBPART E CLASS II PERMISSIVE CHANGE

CERTIFICATION TEST REPORT

FOR

USB MODEM WITH EXTERNAL MONOPOLE ANTENNA

MODEL NUMBER: AC250U

FCC ID: N7NAC250U

REPORT NUMBER: 10U13334-1

ISSUE DATE: AUGUST 10, 2010

Prepared for

SIERRA WIRELESS INC. 2200 FARADAY AVENUE, SUITE 150 CARLSBAD, CA 92008, U.S.A.

Prepared by

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NVLAP LAB CODE 200065-0

Revision History

	08/10/10	Initial Issue	T. Chan
Rev.	Issue Date	Revisions	Revised By

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1. ATTESTATION OF TEST RESULTS

COMPANY NAME:	SIERRA WIRELESS INC. 2200 FARADAY AVENUE, SUITE 150 CARLSBAD, CA 92008, U.S.A.
EUT DESCRIPTION:	USB MODEM WITH EXTERNAL MONOPOLE ANTENNA
MODEL:	AC250U
SERIAL NUMBER:	3
DATE TESTED:	AUGUST 03 - 06, 2010
	APPLICABLE STANDARDS
ST	ANDARD TEST RESULTS
FCC PAR	RT 22H and 24E PASS

Compliance Certification Services, Inc. (CCS) tested the above equipment in accordance with the requirements set forth in the above standards. All indications of Pass/Fail in this report are opinions expressed by CCS based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only. 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 CCS and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by CCS will constitute fraud and shall nullify the document. This report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, any agency of the Federal Government, or any agency of any government.

Approved & Released For CCS By:

THU CHAN ENGINEERING MANAGER COMPLIANCE CERTIFICATION SERVICES Tested By:

Chin Pany

CHIN PANG EMC ENGINEER COMPLIANCE CERTIFICATION SERVICES

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2. TEST METHODOLOGY

The tests documented in this report were performed in accordance with TIA-603-C, FCC CFR 47 Part 2, FCC CFR 47 Part 22, and FCC CFR Part 24.

3. FACILITIES AND ACCREDITATION

The test sites and measurement facilities used to collect data are located at 47173 Benicia Street, Fremont, California, USA.

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. SAMPLE CALCULATION

Where relevant, the following sample calculation is provided:

Field Strength (dBuV/m) = Measured Voltage (dBuV) + Antenna Factor (dB/m) + Cable Loss (dB) – Preamp Gain (dB)

36.5 dBuV + 18.7 dB/m + 0.6 dB - 26.9 dB = 28.9 dBuV/m

4.3. MEASUREMENT UNCERTAINTY

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

PARAMETER	UNCERTAINTY
Conducted Disturbance, 0.15 to 30 MHz	3.52 dB
Radiated Disturbance, 30 to 1000 MHz	4.94 dB

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

5. EQUIPMENT UNDER TEST

5.1. DESCRIPTION OF EUT

The EUT is a Multi band wireless modem operating on CDMA2000 1xRTT, EVDO and WiMax networks. The USB modem is manufactured by Sierra Wireless.

5.2. DESCRIPTION OF CLASS II PERMISSIVE CHANGE

The major change filed under this application is adding an external multi-band monopole antenna for AC250U.

5.3. MAXIMUM RF CONDUCTED OUTPUT POWER

The test measurement passed within \pm 0.5dBm of the original output power.

5.4. MAXIMUM RF RADIATED OUTPUT POWER

The transmitter has a maximum ERP / EIRP output power as follows:

Part 22 Cellular Band

Frequency range	Modulation ERP	RP	
(MHz)	wouldtion	dBm	mW
824.7 – 848.31	1xRTT (RC1, SO55)	26.9	489.8
824.7 – 848.31	EV-DO - REV A	27.1	512.9

Part 24 PCS Band

Frequency range	Modulation	RP	
(MHz)	wouldton	dBm	mW
1851.25 – 1908.8	1xRTT (RC1, SO55)	29.1	812.8
1851.25 – 1908.8	EV-DO - REV A	29.3	851.1

5.5. DESCRIPTION OF AVAILABLE ANTENNAS

The radio utilizes an external multi-band monopole antenna for the 800MHz and 1900MHz bands with a maximum peak gain of 0.2dBi for Cell band and 4.6dBi for PCS band.

5.6. SOFTWARE AND FIRMWARE

The firmware installed in the EUT during testing was P2A11600.

The EUT driver software installed during testing was Alta-MUX 0.55, software version, 2.7.

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5.7. WORST-CASE CONFIGURATION AND MODE

The worst-position was the EUT with highest emissions, to determine the worst-case, Worst case modes:

- For Cellular and PCS band: 1xRTT (RC1 SO55)
- For Cellular and PCS band: CDMA2000 1xEV-DO Revision A (Rev. A)

5.8. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

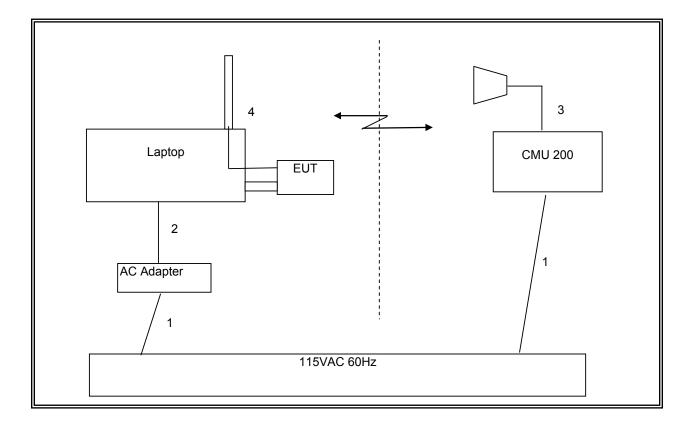
	PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID	
Laptop	IBM	Thinkpad T60	ZZ89085	DoC	
AC Adapter	IBM	92P1158	570002150B	DoC	
Monopole Antenna	Sierra Wireless	NA	NA	NA	

I/O CABLES (RF RADIATED TEST)

			I/O CABLE LIST			
Cable No.	Port	# of Identica Ports	Connector Type	Cable Type	Cable Length	Remarks
1	AC	2	US 115V	Un-shielded	2m	NA
2	DC	1	DC	Un-shielded	2m	NA
3	RF In/Out	1	Horn	Un-shielded	2m	NA
4	Antenna Port	1	Monopole Antenna	Un-shielded	0.2m	NA

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SETUP DIAGRAM FOR RDIATED TESTS



TEST SETUP

The EUT is a stand-alone device. The Wireless Communication test set exercised the EUT.

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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	Asset	Cal Due	
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01063	08/04/11	
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01016	07/14/11	
Antenna, Horn, 18 GHz	EMCO	3115	C00783	07/29/11	
Communication Test Set	R&S	CMU 200	C01131	02/27/11	
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01178	08/31/10	
Highpass Filter, 2.7 GHz	Micro-Tronics	HPM13194	N02687	CNR	
Highpass Filter, 1.5 GHz	Micro-Tronics	HPM13193	N02688	CNR	

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7. RADIATED TEST RESULTS

7.1. RADIATED POWER (ERP & EIRP)

RULE PART(S)

FCC: §2.1046, §22.913, §24.232

<u>LIMITS</u>

22.913(a) - The ERP of mobile transmitters and auxiliary test transmitters must not exceed 7 Watts.

24.232(c) - 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 603C

MODES TESTED

- 1xRTT RC1, SO55
- CDMA2000 1xEV-DO Revision A (Rev. A)

RESULTS for Cellular Band (ERP)

				ERP
Mode	Channel	f (MHz)	dBm	mW
1xRTT	1013	824.70	26.60	457.09
(RC1, SO55)	384	836.52	26.90	489.78
(RC1, 3000)	777	848.31	26.40	436.52
	1013	824.70	27.00	501.19
EVDO-REV A	384	836.52	27.10	512.86
	777	848.31	26.50	446.68

RESULTS for PCS Band (EIRP)

			EIRP (Sta	ndard Cover)
Mode	Channel	f (MHz)	dBm	mW
1xRTT	25	1851.25	28.80	758.58
(RC1, SO55)	600	1880.00	29.10	812.83
(RC1, 3055)	1175	1908.75	28.60	724.44
	25	1851.25	28.40	691.83
EVDO-REV A	600	1880.00	29.30	851.14
	1175	1908.75	28.70	741.31

ERP for 1xRTT Mode (Cellular Band)

High Frequency Substitution Measurement Compliance Certification Services Chamber B

Company: Sierra Wireless Project #: 10U13334 Date: 8/3/2010 Test Engineer: Chin Pang Configuration:EUT and Laptop with external monopole antenna Mode:TX, CDMA2000 1xRTT

Test Equipment:

Receiving: Sunol T130, and 3m Chamber N-type Cable (Setup this one for testing EUT) Substitution: Dipole S/N: 00022117, 6ft SMA Cable (SN # 208947003) Warehouse.

f	SA reading	Ant. Pol.	Path Loss	ERP	Limit	Margin	Notes
MHz	(dBm)	(H/∨)	(dBm)	(dBm)	(dBm)	(dB)	
Low Ch							
824.70	-6.0	v	32.6	26.6	38.5	-11.9	
824.70	-6.6	Н	30.4	23.8	38.5	-14.7	
Mid Ch							
836.52	-5.8	v	32.7	26.9	38.5	-11.6	
836.52	-6.7	Н	30.7	24.0	38.5	-14.4	
High Ch							
848.31	-5.6	v	32.0	26.4	38.5	-12.1	
848.31	-8.5	Н	30.8	22.3	38.5	-16.2	

ERP for CDMA2000 1xEV-DO Rev. A (Cellular Band)

High Frequency Substitution Measurement Compliance Certification Services Chamber B

Company: Sierra Wireless Project #: 10U13334 Date: 8/3/2010 Test Engineer: Chin Pang Configuration:EUT and Laptop with external monopole antenna Mode:TX, CDMA2000 EVDO Rev A

Test Equipment:

Receiving: Sunol T130, and 3m Chamber N-type Cable (Setup this one for testing EUT) Substitution: Dipole S/N: 00022117, 6ft SMA Cable (SN # 208947003) Warehouse.

f	SA reading	Ant. Pol.	Path Loss	ERP	Limit	Margin	Notes
MHz	(dBm)	(H/∨)	(dBm)	(dBm)	(dBm)	(dB)	
Low Ch							
824.70	-5.6	v	32.6	27.0	38.5	-11.5	
824.70	-5.5	Н	30.4	24.9	38.5	-13.6	
Mid Ch							
836.52	-5.6	v	32.7	27.1	38.5	-11.4	
836.52	-5.9	н	30.7	24.9	38.5	-13.6	
High Ch							
848.31	-5.5	v	32.0	26.5	38.5	-12.0	
848.31	-6.0	Н	30.8	24.8	38.5	-13.7	

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EIRP for 1xRTT Mode (PCS Band)

High Frequency Fundamental Measurement Compliance Certification Services Chamber B

Company:Sierra Wireless Project #:10U13334 Date: 8/3/10 Test Engineer: Chin Pang Configuration:EUT and Laptop with external monopole antenna Mode:TX, PCS CDMA2000 1xRTT

Test Equipment:

Receiving: Horn T59, and Camber B SMA Cables Substitution: Horn T72 Substitution, 6ft SMA Cable (208947003) Warehouse

f	SA reading	Ant. Pol.	Path Loss	EIRP	Limit	Delta	Notes
GHz	(dBm)	(H/∨)	(dBm)	(dBm)	(dBm)	(dB)	
Low Ch							
1.851	-11.4	v	40.2	28.8	33.0	-4.2	
1.851	-13.2	Н	39.5	26.3	33.0	-6.7	
Mid Ch							
1.880	-11.1	V	40.3	29.1	33.0	-3.9	
1.880	-13.0	н	40.1	27.1	33.0	-5.9	
High Ch							
1.909	-11.6	v	40.2	28.6	33.0	-4.4	
1.909	-14.4	Н	40.1	25.7	33.0	-7.3	

EIRP for CDMA2000 1xEV-DO Rev. A

High Frequency Fundamental Measurement Compliance Certification Services Chamber B

Company:Sierra Wireless Project #:10U13334 Date: 8/3/10 Test Engineer: Chin Pang Configuration:EUT and Laptop with external monopole antenna Mode:TX, PCS CDMA2000 EVDO Rev A

Test Equipment:

Receiving: Horn T59, and Camber B SMA Cables Substitution: Horn T72 Substitution, 6ft SMA Cable (208947003) Warehouse

f	SA reading	Ant. Pol.	Path Loss	EIRP	Limit	Delta	Notes
GHz	(dBm)	(H/∨)	(dBm)	(dBm)	(dBm)	(dB)	
Low Ch							
1.851	-11.8	v	40.2	28.4	33.0	-4.6	
1.851	-14.8	Н	39.5	24.7	33.0	-8.3	
Mid Ch							
1.880	-11.0	V	40.3	29.3	33.0	-3.8	
1.880	-12.8	Н	40.1	27.3	33.0	-5.7	
High Ch							
1.909	-11.5	v	40.2	28.7	33.0	4.3	*
1.909	-13.2	Н	40.1	26.9	33.0	-6.1	

7.2. FIELD STRENGTH OF SPURIOUS RADIATION

RULE PART(S)

FCC: §2.1053, §22.917, §24.238

LIMIT

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

For Cellular equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. In the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 100 kHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

For PCS equipment - Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the fundamental emission of the transmitter may be employed. A narrower resolution bandwidth is permitted in all cases to improve measurement accuracy provided the measured power is integrated over the full required measurement bandwidth (i.e. 1 MHz or 1 percent of emission bandwidth, as specified). The emission bandwidth is defined as the width of the signal between two points, one below the carrier center frequency and one above the carrier center frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power.

MODES TESTED

- 1xRTT RC1, SO55
- CDMA2000 1xEV-DO Revision A (Rev. A)

RESULTS

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1xRTT Mode (Cellular Band)

rra Wirele 13334	\$\$				Services				
13334	\$\$	ADOVE IGH	z High Fre	quency Su	bstitution	Measure	nent		
	ng I Laptop witi	h external mo	nopole ante	enna					
Chambe	r	Pr	e-amplifer			Filter		Li	mit
namber B	-	T145 a	8449B	-	Filter	1	-	Part 22	-
			Path Loss (dB)		Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
WHz									
-53.8	Н	3.0	37.2	35.5	1.0	-51.1	-13.0	-38.1	
-02.3	V	3.0	41./	35.4	1.0	-55.0	-13.0	42.0	
MHz									
	Н	3.0	37.5	35.5	1.0	-52.6	-13.0	-39.6	
-61.0	H	3.0	39.9	35.4	1.0	-55.5	-13.0	-42.5	
-50.6	V	3.0	37.1	35.5	1.0	-48.0	-13.0	-35.0	
-57.0	٧	3.0	41.8	35.4	1.0	49.6	-13.0	-36.6	
		[[
				25.5	10	50.0	12.0		
	Chamber namber B reading (dBm) WHz 53.8 63.0 54.0 62.3 MHz -55.5 56.10 -50.6	reading Ant. Pol. (dBm) (H/V) MHz - -53.8 H -63.0 H -54.0 V -62.3 V	Chamber Pr namber B T145 f reading Ant. Pol. Distance (dBm) (H/V) (m) MHz	Chamber Pre-amplifer namber B T145 8449B reading Ant. Pol. (dBm) Distance (dBm) (H/V) (m) (dBm) (H/V) (m) (dB) MHz - 53.8 H 3.0 37.2 63.0 H 54.0 V 55.5 H 55.5 H 50.6 V 57.0 V 57.0 V 57.0 V 57.0 H 3.0 37.1 57.0 V 54.0 H 57.0 V 57.0 V 57.0 H 3.0 37.1 57.0 H 3.0 37.1 57.0 H 3.0 40.1 51.2 V 3.0	Pre-amplifer T145 8449B T145 8449B	Pre-amplifer Filter namber B T145 8449B Filter reading Ant. Pol. (dBm) Distance (m) Path Loss (dB) Filter (dBm) (H/V) (m) (dB) Filter 53.8 H 3.0 37.2 35.5 1.0 63.0 H 3.0 39.8 35.4 1.0 54.0 V 3.0 36.8 35.5 1.0 62.3 V 3.0 36.8 35.5 1.0 55.5 H 3.0 37.5 35.5 1.0 55.5 H 3.0 37.1 35.5 1.0 55.5 H 3.0 37.1 35.5 1.0 57.0 V 3.0 41.8 35.4 1.0 57.0 V 3.0 37.1 35.5 1.0 57.0 V 3.0 37.7 35.5 1.0 57.0 V 3.0 37.7 35.5 1.0	Pre-amplifer Filter namber B T145 8449B Filter reading Ant. Pol. (dBm) Distance (m) Path Loss (dB) Filter (dBm) (H/V) (m) (dB) (dB) (dB) 412 - - - - - 53.8 H 3.0 37.2 35.5 1.0 51.1 63.0 H 3.0 39.8 35.4 1.0 57.6 54.0 V 3.0 36.8 35.5 1.0 51.7 62.3 V 3.0 37.5 35.5 1.0 51.7 55.5 H 3.0 37.5 35.5 1.0 52.6 61.0 H 3.0 37.1 35.5 1.0 48.0 57.0 V 3.0 41.8 35.4 1.0 49.6 57.0 V 3.0 41.8 35.4 1.0 48.0 57.0 V 3.0 41.8	Pre-amplifer Filter namber B T145 8449B Filter reading Ant. Pol. (dBm) Distance Path Loss Preamp (dBm) (H/V) (m) (dB) (dB) (dB) 40 (dB) (dB) (dB) (dB) (dB) (dB) 412 (dB) (dB) (dB) 51.1 -13.0 53.8 H 3.0 37.2 35.5 1.0 51.1 -13.0 63.0 H 3.0 39.8 35.4 1.0 57.6 -13.0 54.0 V 3.0 36.8 35.5 1.0 51.7 -13.0 62.3 V 3.0 37.5 35.5 1.0 52.6 -13.0 55.5 H 3.0 37.1 35.5 1.0 52.6 -13.0 55.5 H 3.0 37.1 35.5 1.0 48.0 -13.0 57.0 V 3.0 41.8 35.4	Pre-amplifer Filter Li namber B T145 8449B Filter 1 Part 22 reading Ant. Pol. (dBm) Distance Path Loss Preamp Filter 1 Part 22 reading Ant. Pol. (dBm) Distance Path Loss Preamp C(dB) (dB) (dB

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CDMA2000 1xEV-DO Rev. A (Cellular Band)

sate:8/3/10 est Engineer:Chin Pang ionfiguration:EUT and Laptop with external monopole antenna Inder T, Cell, CDMA2000 EVDO Rev A Filter Filter Limit Pre-amplifer Filter Limit Delta Mere-amplifer Filter 1 Limit Delta GHz (dBm) (H/V) (m) (dB)	mit T Notes	Part 22	•		F	enna	onopole ante		d Laptop with	ineer:Chin Pa ation:EUT and	est Eng onfigura
figuration:EUT and Laptop with external monopole antenna lode:TX, Cell, CDMA2000 EVDO Rev A Pre-amplifer Filter Filter Limit Finter Filter Limit Part 22 f SA reading Ant. Pol. Distance Part Loss Pre-amplifer Filter Limit Part 22 f SA reading Ant. Pol. Distance Path Loss Pre-amplifer Filter EIRP Limit Delta GHz (dBm) (H/V) Distance Path Loss Pre-amplifer Filter EIRP Limit Delta GHz (dBm) (dH) (dB) (dB) (dB) 30.3 30.3 2.474 48.4 H 3.0 37.2 35.5 1.0 43.3 13.0 30.0 1.649 44.5 V 3.0 36.8 35.5 1.0 42.2 13.0 29.2 2.474 44.8 V 3.0 37.5 35.5 1.0 42.6 13.	•	Part 22	Ŧ		F	enna	onopole ante		d Laptop with	ation:EUT and	onfigura
Chamber Pre-amplifer Filter Limit 5m Chamber B - T145 8449B - Filter 1 - Part 22 f SA reading Ant. Pol. (dBm) Distance Path Loss Preamp Filter Limit Part 22 f SA reading Ant. Pol. (dBm) Distance Path Loss Preamp Filter EIRP Limit Delta (dBm) (dB) ow Ch. 824.7MHz -	•	Part 22	•		F			Rev A	2000 EVDO R	, Cell, CDMA2	ode:TX
Filter 1 Part 22 f SA reading (dBm) Ant. Pol. (H/V) Distance (m) Path Loss (dB) Preamp (dB) Filter (dB) EIRP (dBm) Limit (dBm) Delta (dB) owe Ch. 824.7MHz -	•	Part 22	•		F						
f SA reading Ant. Pol. Distance Path Loss Preamp Filter EIRP Limit Delta GHz (dBm) (H/V) (m) (dB) (•	Part 22	-		F						
f SA reading (dBm) Ant. Pol. (H/V) Distance (m) Path Loss (dB) Preamp (dB) Filter (dB) EIRP (dBm) Limit (dBm) Delta (dB) wCh. 824.7MHz -	Notes		•	1 ·	Filter			Pre-amplifer			
GHz (dBm) (H/V) (m) (dB) (dB) (dB) (dBm) (dBm) (dBm) (dBm) 0w Ch, 824.7MHz	Notes	Delta			Filter '	-	8449B	T145 a	3 -	n Chamber E	5n
GHz (dBm) (H/V) (m) (dB) (dB) (dB) (dBm) (dBm) (dBm) (dBm) (dBm) uw Ch, 824.7MHz	notes		Limit		Filtor	Broomn	Dath Laga	Distance	Ant Dol	SA reading	-
We Ch, 824.7MHz Constraint Constraint <thconstraint< th=""> Constrain</thconstraint<>										-	-
2.474 .48.4 H 3.0 39.8 35.4 1.0 .43.0 .13.0 .30.0 1.649 .44.5 V 3.0 36.8 .35.5 1.0 .42.2 .13.0 .29.2 2.474 .44.8 V 3.0 41.7 .35.4 1.0 .37.5 .13.0 .29.2 2.474 .44.8 V 3.0 41.7 .35.4 1.0 .37.5 .13.0 .24.5 d Ch, 836.52MHz		(42)	(42.11)	(42.11)	(42)	(42)	(42)	(,	(1.1.1)		
1.649 44.5 V 3.0 36.8 35.5 1.0 42.2 13.0 29.2 2.474 44.8 V 3.0 41.7 35.4 1.0 37.5 13.0 29.2 id Ch, 836.52MHz					1.0					-46.0	1.649
2.474 .44.8 V 3.0 41.7 35.4 1.0 .37.5 .13.0 .24.5 d Ch, 836.52MHz <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></t<>											
d Ch, 836.52MHz 3.0 37.5 35.5 1.0 42.6 13.0 29.6 1.673 45.5 H 3.0 37.5 35.4 1.0 38.5 13.0 25.5 1.673 45.2 V 3.0 37.1 35.5 1.0 42.6 13.0 29.6 2.510 42.5 V 3.0 37.1 35.5 1.0 42.6 13.0 29.6 2.510 42.5 V 3.0 41.8 35.4 1.0 35.1 -13.0 -22.6 gh Ch, 848.31MHz - - 1.697 -51.5 H 3.0 37.7 35.5 1.0 48.3 -13.0 -35.3											
1.673 .45.5 H 3.0 37.5 35.5 1.0 .42.6 .13.0 .29.6 2.510 .44.0 H 3.0 39.9 35.4 1.0 .38.5 .13.0 .25.5 1.673 .45.2 V 3.0 37.1 35.5 1.0 .42.6 .13.0 .29.6 2.510 .42.5 V 3.0 37.1 35.5 1.0 .42.6 .13.0 .29.6 2.510 .42.5 V 3.0 37.1 35.5 1.0 .42.6 .13.0 .29.6 2.510 .42.5 V 3.0 37.1 35.4 1.0 .35.1 .13.0 .22.1 gh Ch, 848.31MHz		, -24.5	-13.0	-37.5	1.0	35.4	41./	3.0	V	-44.8	2.4/4
1.673 .45.5 H 3.0 37.5 35.5 1.0 .42.6 .13.0 .29.6 2.510 .44.0 H 3.0 39.9 35.4 1.0 .38.5 .13.0 .25.5 1.673 .45.2 V 3.0 37.1 35.5 1.0 .42.6 .13.0 .29.6 2.510 .42.5 V 3.0 37.1 35.5 1.0 .42.6 .13.0 .29.6 2.510 .42.5 V 3.0 37.1 35.5 1.0 .42.6 .13.0 .29.6 2.510 .42.5 V 3.0 37.1 35.4 1.0 .35.1 .13.0 .22.1 gh Ch, 848.31MHz										6.52MHz	d Ch. 83
2.510 .44.0 H 3.0 39.9 35.4 1.0 .38.5 .13.0 .25.5 1.673 .45.2 V 3.0 37.1 35.5 1.0 .42.6 .13.0 .29.6 2.510 .42.5 V 3.0 41.8 35.4 1.0 .35.1 .13.0 .29.6 2.510 .42.5 V 3.0 41.8 35.4 1.0 .35.1 .13.0 .22.1 gh Ch, 848.31MHz		-29.6	-13.0	42.6	1.0	35.5	37.5	3.0	Н		
2.510 .42.5 V 3.0 41.8 35.4 1.0 .35.1 .13.0 .22.1 gh Ch, 848.31MHz			-13.0		1.0	35.4	39.9		Н		
gh Ch, 848.31MHz 1.697 -51.5 H 3.0 37.7 35.5 1.0 48.3 -13.0 -35.3					1.0		37.1			-45.2	
1.697 51.5 H 3.0 37.7 35.5 1.0 48.3 13.0 35.3		-22.1	-13.0	-35.1	1.0	35.4	41.8	3.0	V	-42.5	2.510
1.697 51.5 H 3.0 37.7 35.5 1.0 48.3 13.0 35.3										19 21MU-	ah Ch 9
		35.3	13.0	48.3	10	35.5	37.7	3.0	Н		
2.545 45.4 H 3.0 40.1 35.4 1.0 39.7 13.0 26.7		-26.7	-13.0	-39.7	1.0	35.4	40.1	3.0	H	45.4	2.545
1.697 45.0 V 3.0 37.4 35.5 1.0 42.1 13.0 29.1											
2.545 45.2 V 3.0 42.0 35.4 1.0 37.7 -13.0 -24.7						35.4			V		
		.24.7		· · · · · ·			1210	1	-		21010
		-24.7	-15.0	[[
te: No other emisions were detected above the system noise floor.		-24.7	-10.0	[v. 03.03.

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1xRTT Mode (PCS Band)

			Above 1GF	Iz High Free	quency Su	ostitution	Measure	nent		
	Sierra Wirele 10U13334	\$\$								
ate:8/3/1										
	neer:Chin Pa									
	tion:EUT and PCS, CDMA2		h external m	onopole ante	enna					
oue.i.x,	100,0011142									
			р	re-amplifer			Filter			mit
	Chambe	r		•						mit
5m	n Chamber B	-	T145	8449B	-	Filter	1	•	Part 24	•
f	SA reading	Ant. Pol.	Distance	Path Loss	Preamp	Filter	EIRP	Limit	Delta	Notes
GHz	(dBm)	(H/V)	(m)	(dB)	(dB)	(dB)	(dBm)	(dBm)	(dB)	
ow Ch, 18 3.703	51.25MHz -65.2	Н	3.0	45.3	35.4	1.0	-54.2	-13.0	41.2	
5.554	-67.0	H	3.0	45.5 50.0	35.4	1.0	-54.2	-13.0	-38.4	
3.703	-65.0	V	3.0	45.1	35.4	1.0	-54.2	-13.0	41.2	
5.554	-66.5	۷	3.0	49.2	35.4	1.0	-51.7	-13.0	-38.7	
lid Ch, 18	80Mbz									
3.760	-63.2	Н	3.0	45.5	35.3	1.0	-52.0	-13.0	-39.0	
5.640	-67.2	Н	3.0	50.2	35.4	1.0	-51.5	-13.0	-38.5	
3.760	-62.5	V	3.0	45.3	35.3 35.4	1.0	-51.6	-13.0	-38.6	
5.640	-67.0	V	3.0	49.3	30.4	1.0	-52.1	-13.0	-39.1	
	008.75MHz									
3.818	-66.0	Н	3.0	45.7	35.3	1.0	-54.6	-13.0	41.6	
5.726 3.818	-66.5 -65.0	H V	3.0 3.0	50.3 45.4	35.4 35.3	1.0 1.0	-50.6 -53.9	-13.0 -13.0	-37.6 -40.9	
5.726	-67.0	V	3.0	45.4	35.3	1.0	-55.5	-13.0	-40.9	
				<u> </u>			Ľ			
	<u> </u>		<u> </u>				<u> </u>	1		

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CDMA2000 1xEV-DO Rev. A (PCS Band)

3.703 60.6 H 3.0 45.3 35.4 1.0 49.6 .13.0 .36.6 5.554 58.2 H 3.0 50.0 35.4 1.0 42.6 .13.0 29.6 3.703 58.6 V 3.0 45.1 35.4 1.0 47.8 .13.0 .34.8 5.554 59.1 V 3.0 49.2 35.4 1.0 44.3 .13.0 .34.8 5.554 59.1 V 3.0 49.2 35.4 1.0 44.3 .13.0 .34.8 5.554 59.1 V 3.0 49.2 35.4 1.0 44.3 .13.0 .31.3 lid Ch, 1880MHz				Above 1GH	12 mgmmo	quonoy ou	sontation	modouro	none		
Chamber Pre-amplifer Filter Limit 5m Chamber B T145 8449B Filter Filter 1 Part 24 f SA reading Ant. Pol. Distance Path Loss Preamp Filter EIRP Limit Part 24 gHz (dBm) (H/V) (m) Output Outpu<	Project# Date:8/3/ Fest Eng Configur	:10U13334 10 jineer:Chin Pa ration:EUT and	ng I Laptop wit		onopole ante	enna					
f SA reading (dBm) Ant. Pol. (H/V) Distance (m) Path Loss (dB) Preamp (dB) Filter (dB) EIRP (dBm) Limit (dBm) Delta (dB) Notes	/lode:1)				re-amplifer			Filter		Lim	it
GHz (dBm) (H/V) (m) (dB) (dB) (dBm)	5	m Chamber B	-	T145	8449B	•	Filter	1	-	Part 24	-
Low Ch, 1851.25MHz 1		-			1	•			1		Notes
3.703 -60.6 H 3.0 45.3 35.4 1.0 49.6 -13.0 -36.6 5.554 -58.2 H 3.0 50.0 35.4 1.0 42.6 -13.0 29.6 3.703 -58.6 V 3.0 45.1 35.4 1.0 47.8 -13.0 34.8 5.554 -59.1 V 3.0 49.2 35.4 1.0 44.3 -13.0 -34.8 5.554 -59.1 V 3.0 49.2 35.4 1.0 44.3 -13.0 -34.8 5.554 -59.1 V 3.0 49.2 35.4 1.0 44.3 -13.0 -32.2 3.760 -56.4 H 3.0 45.5 35.3 1.0 43.6 -13.0 -29.1 3.760 -56.4 H 3.0 50.2 35.4 1.0 43.6 -13.0 -29.1 5.640 -58.2 V 3.0 49.3 35.4 1.0 43.3 -13.0 -30.3 3.610 -58.2 V			(11	1		(
3.703 -58.6 V 3.0 45.1 35.4 1.0 47.8 -13.0 -34.8 5.554 -59.1 V 3.0 49.2 35.4 1.0 44.3 -13.0 -31.3 Mid Ch, 1880MHz			Н	3.0	45.3	35.4	1.0	49.6	-13.0	-36.6	
5.554 .59.1 V 3.0 49.2 35.4 1.0 44.3 .13.0 .31.3 Mid Ch, 1880MHz <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td><td></td></td<>											
Mid Ch, 1880MHz											
5.640 -59.3 H 3.0 50.2 35.4 1.0 43.6 -13.0 -30.6 3.760 -53.0 V 3.0 45.3 35.3 1.0 42.1 -13.0 -29.1 5.640 -58.2 V 3.0 49.3 35.4 1.0 43.3 -13.0 -30.3 High Ch, 1908.75MHz	5.554	-59.1	V	3.0	49.2	35.4	1.0	44.3	-13.0	-31.3	
3.760 -56.4 H 3.0 45.5 35.3 1.0 45.2 -13.0 -32.2 5.640 -59.3 H 3.0 50.2 35.4 1.0 43.6 -13.0 -30.6 3.760 -53.0 V 3.0 45.3 35.3 1.0 42.1 -13.0 -29.1 5.640 -58.2 V 3.0 49.3 35.4 1.0 43.3 -13.0 -29.1 5.640 -58.2 V 3.0 49.3 35.4 1.0 43.3 -13.0 -30.3 High Ch, 1908.75MHz	RICL 4	200111-			[
5.640 -59.3 H 3.0 50.2 35.4 1.0 43.6 -13.0 -30.6 3.760 -53.0 V 3.0 45.3 35.3 1.0 42.1 -13.0 -29.1 5.640 -58.2 V 3.0 49.3 35.4 1.0 43.3 -13.0 -30.3 High Ch, 1908.75MHz			Ц	2.0	45.5	25.2	10	45.2	12.0	22.2	
3.760 -53.0 V 3.0 45.3 35.3 1.0 42.1 -13.0 -29.1 5.640 -58.2 V 3.0 49.3 35.4 1.0 43.3 -13.0 -30.3 High Ch, 1908.75MHz 3.818 -55.8 H 3.0 45.7 35.3 1.0 44.4 -13.0 -31.4 5.726 -58.8 H 3.0 50.3 35.4 1.0 44.2.9 -13.0 29.9 3.818 -53.5 V 3.0 45.4 35.3 1.0 42.4 -13.0 -29.4											
5.640 -58.2 V 3.0 49.3 35.4 1.0 43.3 -13.0 -30.3 High Ch, 1908.75MHz											
High Ch, 1908.75MHz H 3.0 45.7 35.3 1.0 44.4 -13.0 -31.4 5.726 58.8 H 3.0 50.3 35.4 1.0 42.9 -13.0 29.9 3.818 -53.5 V 3.0 45.4 35.3 1.0 42.4 -13.0 29.9											
3.818 -55.8 H 3.0 45.7 35.3 1.0 44.4 -13.0 -31.4 5.726 -58.8 H 3.0 50.3 35.4 1.0 42.9 -13.0 -29.9 3.818 -53.5 V 3.0 45.4 35.3 1.0 42.4 -13.0 -29.4								Y			
5.726 -58.8 H 3.0 50.3 35.4 1.0 42.9 -13.0 -29.9 3.818 -53.5 V 3.0 45.4 35.3 1.0 42.4 -13.0 -29.4	ligh Ch, '										
3.818 -53.5 V 3.0 45.4 35.3 1.0 42.4 -13.0 -29.4											
	5./26	-58.0	V	3.0	49.4	JJ.4	1.0	43.1	-13.0	-30.1	
				Y	-		,	·	·		
					[[[(

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