



RADIATED SPURIOUS EMISSIONS PORTIONS OF

FCC CFR47 PART 22 SUBPART H

FCC CFR47 PART 24 SUBPART E

FCC CFR47 PART 27 SUBPART L

**CERTIFICATION TEST REPORT
FOR**

USB MODEM

FCC MODEL NUMBER: AIRCARD 313U

FCC ID: N7NAC313U

REPORT NUMBER: 10U13021-3

ISSUE DATE: JANUARY 03, 2011

Prepared for

**SIERRA WIRELESS INC.
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RICHMOND, BC V6V 3A4, CANADA**

Prepared by

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Revision History

Rev.	Issue Date	Revisions	Revised By
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1. ATTESTATION OF TEST RESULTS

COMPANY NAME: SIERRA WIRELESS INC.
3811 WIRELESS WAY
RICHMOND; BC V6V 3A4; CANADA

EUT DESCRIPTION: USB MODEM

MODEL: AIRCARD313U

SERIAL NUMBER: 2

DATE TESTED: DECEMBER 13 TO 23, 2010

APPLICABLE STANDARDS		TEST RESULTS
STANDARD		
FCC PART 22H, 24E, AND 27L		PASS (Radiated Portion)

Compliance Certification Services, Inc. (UL 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 UL 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.

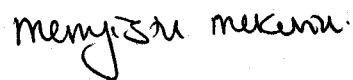
Note: The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein. This document may not be altered or revised in any way unless done so by UL CCS and all revisions are duly noted in the revisions section. Any alteration of this document not carried out by UL CCS 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 UL CCS By:



THU CHAN
ENGINEERING MANAGER
UL CCS

Tested By:



MENGISTU MEKURIA
EMC ENGINEER
UL CCS

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, FCC CFR Part 24, FCC Part 27, RSS-132 Issue 2, RSS-133 Issue 5 and RSS-139 Issue 2.

3. FACILITIES AND ACCREDITATION

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

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

4. CALIBRATION AND UNCERTAINTY

4.1. MEASURING INSTRUMENT CALIBRATION

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

4.2. 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)

$$36.5 \text{ dBuV} + 18.7 \text{ dB/m} + 0.6 \text{ dB} - 26.9 \text{ dB} = 28.9 \text{ dBuV/m}$$

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 GSM/EDGE quad-band, UMTS tri-band, and LTE dual-band USB Modem that is manufactured by Sierra Wireless.

5.2. MAXIMUM OUTPUT POWER

The transmitter has a maximum ERP & EIRP output powers as follows:

GPRS

824 to 849 MHz Authorized Band

Frequency Range (MHz)	Modulation	ERP Peak Power (dBm)	ERP Peak Power (mW)
Low CH - 824.2	GPRS	27.9	616.6
Mid CH - 836.6		28.9	776.2
High CH - 848.8		28.9	776.2

1850 to 1910 MHz Authorized Band

Frequency Range (MHz)	Modulation	EIRP Peak Power (dBm)	EIRP Peak Power (mW)
Low CH - 1850.2	GPRS	29.6	912.0
Mid CH - 1880.00		29.6	912.0
High CH - 1909.8		31.1	1288.2

EGPRS

824 to 849 MHz Authorized Band

Frequency Range (MHz)	Modulation	ERP Peak Power (dBm)	ERP Peak Power (mW)
Low CH - 824.2	EGPRS	25.7	371.5
Mid CH - 836.6		26.6	457.1
High CH - 848.8		26.7	467.7

1850 to 1910 MHz Authorized Band

Frequency Range (MHz)	Modulation	EIRP Peak Power (dBm)	EIRP Peak Power (mW)
Low CH - 1850.2	EGPRS	26.6	457.1
Mid CH - 1880.00		28.6	724.4
High CH - 1909.8		28.3	676.1

WCDMA

824 to 849 MHz Authorized Band

Frequency Range (MHz)	Modulation	ERP Peak Power (dBm)	ERP Peak Power (mW)
Low CH - 826.4	WCDMA	20.6	114.8
Mid CH - 836.6		21.3	134.9
High CH - 846.6		21.7	147.9

1850 to 1910 MHz Authorized Band

Frequency Range (MHz)	Modulation	EIRP Peak Power (dBm)	EIRP Peak Power (mW)
Low CH - 1854.2	WCDMA	25.6	363.1
Mid CH - 1880.00		26.8	478.6
High CH - 1907.6		27.8	602.6

LTE BAND 17

706.5 to 713.5 MHz Authorized Band

Frequency Range (MHz)	Modulation	ERP Peak Power (dBm)	ERP Peak Power (mW)
Low CH - 706.5	5 MHz BAND-QPSK	25.8	380.2
Mid CH - 710.0		24.0	251.2
High CH - 713.5		24.0	251.2

709.0 to 711.0 MHz Authorized Band

Frequency Range (MHz)	Modulation	ERP Peak Power (dBm)	ERP Peak Power (mW)
Low CH - 709.0	10 MHz BAND-QPSK	25.3	338.8
Mid CH - 710.0		24.2	263.0
High CH - 711.0		25.6	363.1

706.5 to 713.5 MHz Authorized Band

Frequency Range (MHz)	Modulation	ERP Peak Power (dBm)	ERP Peak Power (mW)
Low CH - 706.5	5 MHz BAND-16QAM	26.0	398.1
Mid CH - 710.0		24.3	269.2
High CH - 713.5		24.5	281.8

709.0 to 711.0 MHz Authorized Band

Frequency Range (MHz)	Modulation	ERP Peak Power (dBm)	ERP Peak Power (mW)
Low CH - 709.0	10 MHz BAND-16QAM	25.4	346.7
Mid CH - 710.0		25.2	331.1
High CH - 711.0		25.5	354.8

LTE BAND 4

Frequency Range (MHz)	Modulation	EIRP Peak Power (dBm)	EIRP Peak Power (mW)
Low CH - 1712.5	5 MHz BAND-QPSK	25.9	389.0
Mid CH - 1732.5		25.8	380.2
High CH - 1752.5		25.0	316.2

1715.1 to 1749.9 MHz Authorized Band

Frequency Range (MHz)	Modulation	EIRP Peak Power (dBm)	EIRP Peak Power (mW)
Low CH - 1715.1	10 MHz BAND-QPSK	27.2	524.8
Mid CH - 1732.5		25.6	363.1
High CH - 1749.9		25.8	380.2

1712.5 to 1752.5 MHz Authorized Band

Frequency Range (MHz)	Modulation	EIRP Peak Power (dBm)	EIRP Peak Power (mW)
Low CH - 1712.5	5 MHz BAND-16QAM	25.3	338.8
Mid CH - 1732.5		26.2	416.9
High CH - 1752.5		25.1	323.6

1715.1 to 1749.9 MHz Authorized Band

Frequency Range (MHz)	Modulation	EIRP Peak Power (dBm)	EIRP Peak Power (mW)
Low CH - 1715.1	10 MHz BAND-16QAM	26.6	457.1
Mid CH - 1732.5		26.0	398.1
High CH - 1749.9		26.0	398.1

5.3. SOFTWARE AND FIRMWARE

The EUT is linked with Agilent /HP E5515C and R&S CMW500 Communication Test Sets.

5.4. WORST-CASE CONFIGURATION AND MODE

The worst-position is the EUT with highest emissions. To determine the worst-case, the EUT was investigated for horizontal and vertical-Positions, after the investigations, the worst-position was turned out to be horizontal-position for Cell band and band 17 and vertical-position PCS band and band 4.

Based on the conducted output power measurement date GPRS, EGPRS, WCDMA, and LTE are chosen as worst case from each modulation group.

5.5. DESCRIPTION OF TEST SETUP

SUPPORT EQUIPMENT

PERIPHERAL SUPPORT EQUIPMENT LIST				
Description	Manufacturer	Model	Serial Number	FCC ID
LAPTOP	LENOVO	T60L3-AE514	936S-001Y	DoC
AC/DC Adapter	IBM	92P1111	11S92P1111Z1ZACV5C5OZX	DoC

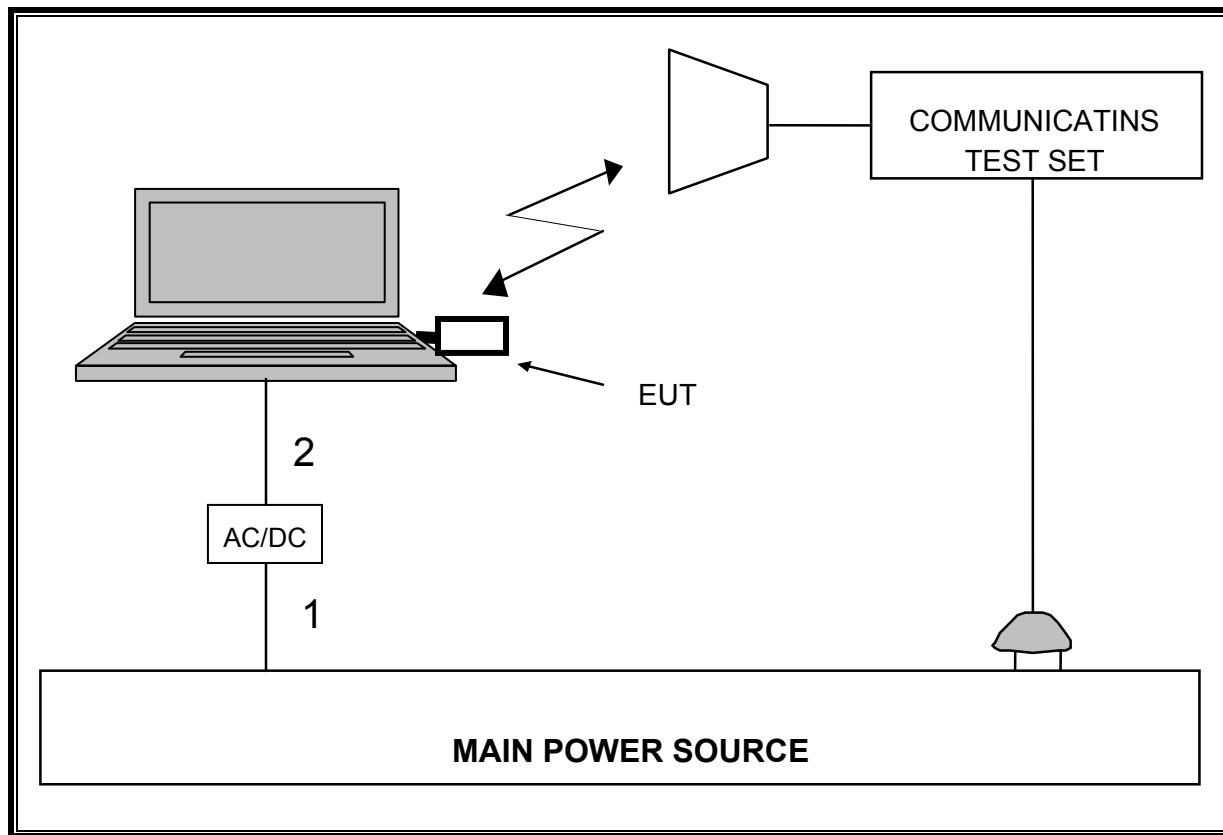
I/O CABLES

I/O CABLE LIST						
Cable No.	Port	# of Identical Ports	Connector Type	Cable Type	Cable Length	Remarks
1	AC Input	1	AC	Un-Shielded	1.0 m	N/A
2	DC output	1	DC	Un-Shielded	2.0 m	Ferrite at one end

TEST SETUP

The EUT is a USB Modem that is plugged into the support laptop, and Communications Test Set is used to link the device under test.

SETUP DIAGRAM FOR TESTS



6. TEST AND MEASUREMENT EQUIPMENT

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

TEST EQUIPMENT LIST				
Description	Manufacturer	Model	Asset	Cal Due
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01052	07/14/11
Preamplifier, 26.5 GHz	Agilent / HP	8449B	C01063	07/14/11
Antenna, Horn, 18 GHz	EMCO	3115	C00783	06/29/11
Antenna, Horn, 18 GHz	EMCO	3115	C00943	CNR
Antenna, Horn, 18 GHz	EMCO	3115	C00945	06/29/11
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01011	07/12/11
Antenna, Bilog, 2 GHz	Sunol Sciences	JB1	C01016	07/12/11
Dipole	Speag	D900V2	NA	11/16/11
Highpass Filter, 1.5 GHz	Micro-Tronics	HPM13193	N02689	CNR
Highpass Filter, 2.7 GHz	Micro-Tronics	HPM13194	N02687	CNR
Communications Test Set	Agilent / HP	E5515C	C01086	06/17/11
Communications Test Set	R&S	CMW500		10/21/11
Spectrum Analyzer, 26.5 GHz	Agilent / HP	E4440A	C01178	08/30/11
Spectrum Analyzer, 44 GHz	Agilent / HP	E4446A	C01069	03/05/11
Signal Generator, 20 GHz	Agilent / HP	83732B	C00774	07/14/12

7. LIMITS AND RESULTS

7.1. RADIATED OUTPUT POWER

LIMITS

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.

27.50 (c)(10) The following power and antenna height requirements apply to stations transmitting in the 698–746 MHz band: Portable stations (hand-held devices) are limited to 3 watts ERP.

27.50 (d)(4) The following power and antenna height requirements apply to stations transmitting in the 1710–1755 MHz and 2110–2155 MHz bands: Fixed, mobile, and portable (hand-held) stations operating in the 1710–1755 MHz band are limited to 1 watt EIRP.

TEST PROCEDURE

ANSI / TIA / EIA 603 Clause 2.2.17.

RESULTS

GPRS

CELL OUTPUT POWER (ERP)

High Frequency Substitution Measurement Compliance Certification Services Chamber A														
Company:	SIERRA WIRELESS													
Project #:	10U13530													
Date:	12/21/2010													
Test Engineer:	MENGISTU MEKURIA													
Configuration:	EUT WITH SUPPORT LAPTOP													
Mode:	TX, GPRS CELL BAND													
<u>Test Equipment:</u>														
Receiving: Sunol T122, and 3m Chamber N-type Cable (Setup this one for testing EUT)														
Substitution: Dipole S/N: 00022117, 6ft SMA Cable (SN # 208947003) Warehouse.														
f MHz	SA reading (dBm)	Ant. Pol. (H/V)	Path Loss (dBm)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes							
824.20	-12.0	V	34.8	22.8	38.5	-15.7								
824.20	-2.7	H	30.5	27.9	38.5	-10.6								
836.60	-11.4	V	33.1	21.7	38.5	-16.7								
836.60	-2.3	H	31.2	28.9	38.5	-9.6								
848.80	-11.1	V	32.1	21.1	38.5	-17.4								
848.80	-2.3	H	31.2	28.9	38.5	-9.5								
Rev. 1.24.7														

PCS OUTPUT POWER (EIRP)

Company:	SIERRA WIRELESS						
Project #:	10U13530						
Date:	12/21/2010						
Test Engineer:	MENGISTU MEKURIA						
Configuration:	EUT WITH SUPPORT LAPTOP						
Mode:	TX, GPRS PCS BAND						
Test Equipment:							
Receiving: Horn T73, and Camber A SMA Cables							
Substitution: Horn T72 Substitution, 6ft SMA Cable (208947003) Warehouse							
f GHz	SA reading (dBm)	Ant. Pol. (H/V)	Path Loss (dBm)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
1.850	-12.6	V	36.5	23.9	33.0	-9.1	
1.850	-6.3	H	35.8	29.6	33.0	-3.4	
1.880	-13.3	V	36.7	23.4	33.0	-9.6	
1.880	-6.9	H	36.5	29.6	33.0	-3.4	
1.910	-11.6	V	36.8	25.3	33.0	-7.7	
1.910	-5.6	H	36.7	31.1	33.0	-1.9	
Rev. 1.24.7							

EGPRS

CELL OUTPUT POWER (ERP)

High Frequency Substitution Measurement Compliance Certification Services Chamber A													
Company:		SIERRA WIRELESS											
Project #:		10U13530											
Date:		12/21/2010											
Test Engineer:		MENGISTU MEKURIA											
Configuration:		EUT WITH SUPPORT LAPTOP											
Mode:		TX, EGPRS CELL BAND											
<u>Test Equipment:</u>													
Receiving: Sunol T122, and 3m Chamber N-type Cable (Setup this one for testing EUT)													
Substitution: Dipole S/N: 00022117, 6ft SMA Cable (SN # 208947003) Warehouse.													
f MHz	SA reading (dBm)	Ant. Pol. (H/V)	Path Loss (dBm)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes						
824.20	-13.6	V	34.8	21.2	38.5	-17.2							
824.20	-4.9	H	30.5	25.7	38.5	-12.8							
836.60	-12.8	V	33.1	20.3	38.5	-18.1							
836.60	-4.6	H	31.2	26.6	38.5	-11.9							
848.80	-12.6	V	32.1	19.6	38.5	-18.9							
848.80	-4.5	H	31.2	26.7	38.5	-11.7							
Rev. 1.24.7													

PCS OUTPUT POWER (EIRP)

High Frequency Fundamental Measurement Compliance Certification Services Chamber A														
Company:	SIERRA WIRELESS													
Project #:	10U13530													
Date:	12/21/2010													
Test Engineer:	MENGISTU MEKURIA													
Configuration:	EUT WITH SUPPORT LAPTOP													
Mode:	TX, EGPRS PCS BAND													
<u>Test Equipment:</u>														
Receiving: Horn T73, and Camber B SMA Cables														
Substitution: Horn T72 Substitution, 6ft SMA Cable (208947003) Warehouse														
f GHz	SA reading (dBm)	Ant. Pol. (H/V)	Path Loss (dBm)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes							
1.850	-12.6	V	36.5	23.9	33.0	-9.1								
1.850	-9.3	H	35.8	26.6	33.0	-6.4								
	2.1													
1.880	-13.3	V	36.7	23.4	33.0	-9.6								
1.880	-7.9	H	36.5	28.6	33.0	-4.4								
	2.1													
1.910	-13.7	V	36.8	23.1	33.0	-9.9								
1.910	-8.4	H	36.7	28.3	33.0	-4.7								

Rev. 1.24.7

WCDMA

CELL OUTPUT POWER (ERP)

High Frequency Substitution Measurement Compliance Certification Services Chamber A														
Company:	SIERRA WIRELESS													
Project #:	10U13530													
Date:	12/27/2010													
Test Engineer:	MENGISTU MEKURIA													
Configuration:	EUT WITH SUPPORT LAPTOP													
Mode:	TX, WCDMA CELL BAND													
<u>Test Equipment:</u>														
Receiving: Sunol T122, and 3m Chamber N-type Cable (Setup this one for testing EUT)														
Substitution: Dipole S/N: 00022117, 6ft SMA Cable (SN # 208947003) Warehouse.														
f MHz	SA reading (dBm)	Ant. Pol. (H/V)	Path Loss (dBm)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes							
826.40	-16.6	V	34.8	18.2	38.5	-20.3								
826.40	-10.0	H	30.5	20.6	38.5	-17.9								
836.60	-16.0	V	33.1	17.1	38.5	-21.3								
836.60	-9.8	H	31.2	21.3	38.5	-17.1								
846.60	-16.3	V	32.1	15.9	38.5	-22.6								
846.60	-9.5	H	31.2	21.7	38.5	-16.7								
Rev. 1.24.7														

PCS OUTPUT POWER (EIRP)

High Frequency Fundamental Measurement Compliance Certification Services Chamber A														
Company:	SIERRA WIRELESS													
Project #:	10U13530													
Date:	12/21/2010													
Test Engineer:	MENGISTU MEKURIA													
Configuration:	EUT WITH SUPPORT LAPTOP													
Mode:	TX, WCDMA PCS BAND													
<u>Test Equipment:</u>														
Receiving: Horn T73, and Camber B SMA Cables														
Substitution: Horn T72 Substitution, 6ft SMA Cable (208947003) Warehouse														
f GHz	SA reading (dBm)	Ant. Pol. (H/V)	Path Loss (dBm)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes							
1.852	-16.5	V	39.8	23.3	33.0	-9.7								
1.852	-13.5	H	39.1	25.6	33.0	-7.4								
1.880	-17.3	V	40.0	22.7	33.0	-10.3								
1.880	-13.0	H	39.8	26.8	33.0	-6.2								
1.908	-17.1	V	40.1	23.0	33.0	-10.0								
1.908	-12.2	H	40.0	27.8	33.0	-5.2								

Rev. 1.24.7

LTE

BAND 17, QPSK 5 MHz BANDWIDTH (ERP)

High Frequency Substitution Measurement Compliance Certification Services Chamber A														
Company:	SIERRA WIRELESS													
Project #:	10U13530													
Date:	12/20/2010													
Test Engineer:	MENGISTU MEKURIA													
Configuration:	EUT WITH SUPPORT LAPTOP													
Mode:	TX, QPSK_5MHZ BW_RB1_LTE BAND													
<u>Test Equipment:</u>														
Receiving: Sunol T122, and 3m Chamber N-type Cable (Setup this one for testing EUT)														
Substitution: Dipole S/N: 00022117, 6ft SMA Cable (SN # 208947003) Warehouse.														
f MHz	SA reading (dBm)	Ant. Pol. (H/V)	Path Loss (dBm)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes							
706.50	-10.7	V	34.8	24.0	34.8	-10.8								
706.50	-4.8	H	30.5	25.8	34.8	-9.0								
710.00	-12.7	V	33.1	20.4	34.8	-14.4								
710.00	-7.2	H	31.2	24.0	34.8	-10.8								
713.50	-11.8	V	32.1	20.3	34.8	-14.5								
713.50	-7.2	H	31.2	24.0	34.8	-10.8								
Rev. 1.24.7														

BAND 17, QPSK 10 MHz BANDWIDTH (ERP)

High Frequency Substitution Measurement Compliance Certification Services Chamber A													
Company:		SIERRA WIRELESS											
Project #:		10U13530											
Date:		12/20/2010											
Test Engineer:		MENGISTU MEKURIA											
Configuration:		EUT WITH SUPPORT LAPTOP											
Mode:		TX, QPSK_10MHZ BW_RB12_LTE BAND											
<u>Test Equipment:</u>													
Receiving: Sunol T122, and 3m Chamber N-type Cable (Setup this one for testing EUT)													
Substitution: Dipole S/N: 00022117, 6ft SMA Cable (SN # 208947003) Warehouse.													
f MHz	SA reading (dBm)	Ant. Pol. (H/V)	Path Loss (dBm)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes						
709.00	-9.9	V	34.8	24.8	34.8	-10.0							
709.00	-5.3	H	30.5	25.3	34.8	-9.5							
710.00	-12.2	V	33.1	20.9	34.8	-13.9							
710.00	-7.0	H	31.2	24.2	34.8	-10.6							
711.00	-10.5	V	32.1	21.6	34.8	-13.2							
711.00	-5.7	H	31.2	25.6	34.8	-9.2							
Rev. 1.24.7													

BAND 17, 16QAM 5 MHz BANDWIDTH (ERP)

High Frequency Substitution Measurement Compliance Certification Services Chamber A													
Company:		SIERRA WIRELESS											
Project #:		10U13530											
Date:		12/20/2010											
Test Engineer:		MENGISTU MEKURIA											
Configuration:		EUT WITH SUPPORT LAPTOP											
Mode:		TX, 16QAM_5MHZ BW_RB1_LTE BAND											
Test Equipment:													
Receiving: Sunol T122, and 3m Chamber N-type Cable (Setup this one for testing EUT)													
Substitution: Dipole S/N: 00022117, 6ft SMA Cable (SN # 208947003) Warehouse.													
f MHz	SA reading (dBm)	Ant. Pol. (H/V)	Path Loss (dBm)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes						
706.50	-10.5	V	34.8	24.3	34.8	-10.5							
706.50	-4.5	H	30.5	26.0	34.8	-8.8							
710.00	-12.3	V	33.1	20.8	34.8	-14.0							
710.00	-6.8	H	31.2	24.3	34.8	-10.5							
713.50	-11.6	V	32.1	20.5	34.8	-14.3							
713.50	-6.7	H	31.2	24.5	34.8	-10.3							
Rev. 1.24.7													

BAND 17, 16QAM 10 MHz BANDWIDTH (ERP)

High Frequency Substitution Measurement Compliance Certification Services Chamber A													
Company:		SIERRA WIRELESS											
Project #:		10U13530											
Date:		12/20/2010											
Test Engineer:		MENGISTU MEKURIA											
Configuration:		EUT WITH SUPPORT LAPTOP											
Mode:		TX, 16QAM_10MHZ BW_RB12_LTE BAND											
<u>Test Equipment:</u>													
Receiving: Sunol T122, and 3m Chamber N-type Cable (Setup this one for testing EUT)													
Substitution: Dipole S/N: 00022117, 6ft SMA Cable (SN # 208947003) Warehouse.													
f MHz	SA reading (dBm)	Ant. Pol. (H/V)	Path Loss (dBm)	ERP (dBm)	Limit (dBm)	Margin (dB)	Notes						
709.00	-10.1	V	34.8	24.7	34.8	-10.1							
709.00	-5.2	H	30.5	25.4	34.8	-9.4							
710.00	-11.2	V	33.1	21.9	34.8	-12.9							
710.00	-6.0	H	31.2	25.2	34.8	-9.6							
711.00	-10.4	V	32.1	21.7	34.8	-13.1							
711.00	-5.7	H	31.2	25.5	34.8	-9.3							
Rev. 1.24.7													

BAND 4, QPSK 5 MHz BANDWIDTH (EIRP)

High Frequency Fundamental Measurement Compliance Certification Services Chamber A														
Company:	SIERRA WIRELESS													
Project #:	10U13530													
Date:	12/19/2010													
Test Engineer:	MENGISTU MEKURIA													
Configuration:	EUT WITH SUPPORT LAPTOP													
Mode:	TX, QPSK_5MHZ BW_RB1_LTE BAND													
<u>Test Equipment:</u>														
Receiving: Horn T73, and Camber B SMA Cables														
Substitution: Horn T72 Substitution, 6ft SMA Cable (208947003) Warehouse														
f GHz	SA reading (dBm)	Ant. Pol. (H/V)	Path Loss (dBm)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes							
1.713	-14.6	V	36.5	21.9	30.0	-8.1								
1.713	-9.9	H	35.8	25.9	30.0	-4.1								
1.733	-15.5	V	36.7	21.2	30.0	-8.9								
1.733	-10.7	H	36.5	25.8	30.0	-4.2								
1.753	-16.0	V	36.8	20.9	30.0	-9.2								
1.753	-11.7	H	36.7	25.0	30.0	-5.0								
Rev. 1.24.7														

BAND 4, QPSK 10 MHz BANDWIDTH (EIRP)

High Frequency Fundamental Measurement Compliance Certification Services Chamber A														
Company:	SIERRA WIRELESS													
Project #:	10U13530													
Date:	12/19/2010													
Test Engineer:	MENGISTU MEKURIA													
Configuration:	EUT WITH SUPPORT LAPTOP													
Mode:	TX, QPSK_10MHZ BW_RB12_LTE BAND													
<u>Test Equipment:</u>														
Receiving: Horn T73, and Camber B SMA Cables														
Substitution: Horn T72 Substitution, 6ft SMA Cable (208947003) Warehouse														
f GHz	SA reading (dBm)	Ant. Pol. (H/V)	Path Loss (dBm)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes							
1.715	-13.9	V	36.5	22.6	30.0	-7.4								
1.715	-8.6	H	35.8	27.2	30.0	-2.8								
1.733	-15.0	V	36.7	21.6	30.0	-8.4								
1.733	-10.9	H	36.5	25.6	30.0	-4.4								
1.750	-15.4	V	36.8	21.4	30.0	-8.6								
1.750	-10.9	H	36.7	25.8	30.0	-4.2								

Rev. 1.24.7

BAND 4, 16QAM 5 MHz BANDWIDTH (EIRP)

High Frequency Fundamental Measurement Compliance Certification Services Chamber A														
Company:	SIERRA WIRELESS													
Project #:	10U13530													
Date:	12/19/2010													
Test Engineer:	MENGISTU MEKURIA													
Configuration:	EUT WITH SUPPORT LAPTOP													
Mode:	TX, 16QAM_5MHZ BW_RB1_LTE BAND													
<u>Test Equipment:</u>														
Receiving: Horn T73, and Chamber B SMA Cables														
Substitution: Horn T72 Substitution, 6ft SMA Cable (208947003) Warehouse														
f GHz	SA reading (dBm)	Ant. Pol. (H/V)	Path Loss (dBm)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes							
1.713	-14.1	V	36.5	22.4	30.0	-7.6								
1.713	-10.5	H	35.8	25.3	30.0	-4.7								
1.733	-15.0	V	36.7	21.6	30.0	-8.4								
1.733	-10.3	H	36.5	26.2	30.0	-3.8								
1.753	-15.8	V	36.8	21.1	30.0	-9.0								
1.753	-11.6	H	36.7	25.1	30.0	-4.9								

Rev. 1.24.7

BAND 4, 16QAM 10 MHz BANDWIDTH (EIRP)

High Frequency Fundamental Measurement Compliance Certification Services Chamber A														
Company:	SIERRA WIRELESS													
Project #:	10U13530													
Date:	12/19/2010													
Test Engineer:	MENGISTU MEKURIA													
Configuration:	EUT WITH SUPPORT LAPTOP													
Mode:	TX, 16QAM_10MHZ BW_RB12_LTE BAND													
<u>Test Equipment:</u>														
Receiving: Horn T73, and Camber B SMA Cables														
Substitution: Horn T72 Substitution, 6ft SMA Cable (208947003) Warehouse														
f GHz	SA reading (dBm)	Ant. Pol. (H/V)	Path Loss (dBm)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes							
1.715	-13.4	V	36.5	23.1	30.0	-6.9								
1.715	-9.2	H	35.8	26.6	30.0	-3.4								
1.733	-14.5	V	36.7	22.1	30.0	-7.9								
1.733	-10.5	H	36.5	26.0	30.0	-4.1								
1.750	-15.2	V	36.8	21.6	30.0	-8.4								
1.750	-10.7	H	36.7	26.0	30.0	-4.1								

Rev. 1.24.7

7.2. FIELD STRENGTH OF SPURIOUS RADIATION

LIMIT

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

§27.53 (g) For operations in the 698–746 MHz band, the power of any emission outside a licensee's frequency band(s) of operation shall be attenuated below the transmitter power (P) within the licensed band(s) of operation, measured in watts, by at least $43 + 10 \log (P)$ dB.

§27.53 (h) For operations in the 1710–1755 MHz and 2110–2155 MHz bands, the power of any emission outside a licensee's frequency block shall be attenuated below the transmitter power (P) by at least $43 + 10 \log_{10}(P)$ dB.

TEST PROCEDURE

ANSI / TIA / EIA 603 Clause 3.2.12 & FCC 22.917 (b), FCC 24.238 (b), & FCC 27.53 (g), (h)(1)(2)(3).

RESULTS

GPRS

CELL SPURIOUS & HARMONIC (ERP)

Compliance Certification Services Above 1GHz High Frequency Substitution Measurement											
Company:	SIERRA WIRELESS										
Project #:	10U13530										
Date:	12/29/2010										
Test Engineer:	MENGISTU MEKURIA										
Configuration:	EUT WITH SUPPORT LAPTOP										
Mode:	TX, CELL BAND, GPRS MODE										
Chamber	Pre-amplifier			Filter			Limit				
5m Chamber A	T144 8449B			Filter 1			FCC PART 22				
f GHz	SA reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Path Loss (dB)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes	
Low Channel (824.20 MHz)											
1.648	-39.6	V	3.0	36.8	38.2	1.0	-39.9	-13.0	-26.9		
2.473	-39.1	V	3.0	41.7	37.5	1.0	-33.9	-13.0	-20.9		
3.297	-61.7	V	3.0	44.0	37.1	1.0	-53.8	-13.0	-40.8		
4.121	-61.1	V	3.0	45.9	36.5	1.0	-50.8	-13.0	-37.8		
1.648	-42.3	H	3.0	36.5	38.2	1.0	-42.9	-13.0	-29.9		
2.473	-41.5	H	3.0	40.0	37.5	1.0	-38.1	-13.0	-25.1		
3.297	-61.2	H	3.0	43.9	37.1	1.0	-53.5	-13.0	-40.5		
4.121	-61.8	H	3.0	46.2	36.5	1.0	-51.2	-13.0	-38.2		
Mid Channel (836.60 MHz)											
1.673	-46.2	V	3.0	37.1	38.1	1.0	-46.2	-13.0	-33.2		
2.510	-40.6	V	3.0	41.9	37.5	1.0	-35.2	-13.0	-22.2		
3.346	-57.2	V	3.0	44.1	37.1	1.0	-49.2	-13.0	-36.2		
4.183	-59.4	V	3.0	46.1	36.5	1.0	-48.8	-13.0	-35.8		
1.673	-40.4	H	3.0	36.8	38.1	1.0	-40.7	-13.0	-27.7		
2.510	-39.1	H	3.0	40.1	37.5	1.0	-35.4	-13.0	-22.4		
3.346	-59.2	H	3.0	44.0	37.1	1.0	-51.2	-13.0	-38.2		
4.183	-61.3	H	3.0	46.4	36.5	1.0	-50.4	-13.0	-37.4		
Hi Channel (848.80 MHz)											
1.698	-47.8	V	3.0	37.4	38.1	1.0	-47.5	-13.0	-34.5		
2.546	-41.3	V	3.0	42.0	37.5	1.0	-35.8	-13.0	-22.8		
3.395	-61.8	V	3.0	44.2	37.1	1.0	-53.6	-13.0	-40.6		
4.244	-63.9	V	3.0	46.2	36.5	1.0	-53.2	-13.0	-40.2		
1.698	-43.7	H	3.0	37.0	38.1	1.0	-43.7	-13.0	-30.7		
2.546	-51.4	H	3.0	40.4	37.5	1.0	-47.5	-13.0	-34.5		
3.395	-62.1	H	3.0	44.1	37.1	1.0	-54.0	-13.0	-41.0		
4.244	-61.4	H	3.0	46.6	36.5	1.0	-50.3	-13.0	-37.3		

Rev. 03.03.09

PCS Spurious & Harmonic (EIRP)

Compliance Certification Services Above 1GHz High Frequency Substitution Measurement											
Company:		SIERRA WIRELESS									
Project #:		10U13530									
Date:		12/29/2010									
Test Engineer:		MENGISTU MEKURIA									
Configuration:		EUT WITH SUPPORT LAPTOP									
Mode:		TX, PCS BAND, GPRS MODE									
Chamber			Pre-amplifier			Filter			Limit		
5m Chamber B			T145 8449B			Filter 1			FCC PART 24		
f GHz	SA reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Path Loss (dB)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	
Low Channel (1850.20 MHz)											
3.700	-55.3	H	3.0	45.3	35.4	1.0	-44.3	-13.0	-31.3		
5.551	-47.6	H	3.0	50.0	35.4	1.0	-32.0	-13.0	-19.0		
7.401	-66.3	H	3.0	53.0	35.7	1.0	-48.1	-13.0	-35.1		
3.700	-54.0	V	3.0	45.1	35.4	1.0	-43.3	-13.0	-30.3		
5.551	-44.1	V	3.0	49.2	35.4	1.0	-29.3	-13.0	-16.3		
7.401	-67.9	V	3.0	51.3	35.7	1.0	-51.3	-13.0	-38.3		
Mid Channel (1880.00 MHz)											
3.760	-56.9	H	3.0	45.5	35.3	1.0	-45.7	-13.0	-32.7		
5.640	-47.9	H	3.0	50.2	35.4	1.0	-32.2	-13.0	-19.2		
7.520	-64.7	H	3.0	53.1	35.7	1.0	-46.3	-13.0	-33.3		
3.760	-56.3	V	3.0	45.3	35.3	1.0	-45.3	-13.0	-32.3		
5.640	-43.9	V	3.0	49.3	35.4	1.0	-29.0	-13.0	-16.0		
7.520	-67.3	V	3.0	51.4	35.7	1.0	-50.5	-13.0	-37.5		
Hi Channel (1909.80 MHz)											
3.820	-62.8	H	3.0	45.7	35.3	1.0	-51.3	-13.0	-38.3		
5.729	-54.0	H	3.0	50.3	35.4	1.0	-38.2	-13.0	-25.2		
7.639	-66.3	H	3.0	53.2	35.7	1.0	-47.7	-13.0	-34.7		
3.820	-59.3	V	3.0	45.4	35.3	1.0	-48.2	-13.0	-35.2		
5.729	-46.2	V	3.0	49.4	35.4	1.0	-31.2	-13.0	-18.2		
7.639	-67.2	V	3.0	51.6	35.7	1.0	-50.3	-13.0	-37.3		

Rev. 03.03.09

EGPRS

CELL SPURIOUS & HARMONIC (ERP)

Compliance Certification Services Above 1GHz High Frequency Substitution Measurement											
Company:	SIERRA WIRELESS										
Project #:	10U13530										
Date:	12/29/2010										
Test Engineer:	MENGISTU MEKURIA										
Configuration:	EUT WITH SUPPORT LAPTOP										
Mode:	TX, CELL BAND, EGPRS MODE										
Chamber			Pre-amplifier			Filter			Limit		
5m Chamber A			T144 8449B			Filter 1			FCC PART 22		
f GHz	SA reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Path Loss (dB)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes	
Low Channel (824.20 MHz)											
1.648	-47.1	V	3.0	36.8	38.2	1.0	-47.5	-13.0	34.5		
2.473	-53.1	V	3.0	41.7	37.5	1.0	-47.8	-13.0	34.8		
1.648	-43.3	H	3.0	36.5	38.2	1.0	-43.9	-13.0	30.9		
2.473	-55.4	H	3.0	40.0	37.5	1.0	-51.9	-13.0	38.9		
Mid Channel (836.60 MHz)											
1.673	-50.3	V	3.0	37.1	38.1	1.0	-50.3	-13.0	37.3		
2.510	-57.6	V	3.0	41.9	37.5	1.0	-52.2	-13.0	39.2		
1.673	-46.4	H	3.0	36.8	38.1	1.0	-46.8	-13.0	33.8		
2.510	-56.2	H	3.0	40.1	37.5	1.0	-52.5	-13.0	39.5		
Hi Channel (848.80 MHz)											
1.698	-46.9	V	3.0	37.4	38.1	1.0	-46.6	-13.0	33.6		
2.546	-51.6	V	3.0	42.0	37.5	1.0	-46.1	-13.0	33.1		
1.698	-42.3	H	3.0	37.0	38.1	1.0	-42.4	-13.0	29.4		
2.546	-53.1	H	3.0	40.4	37.5	1.0	-49.2	-13.0	36.2		
Rev. 03.03.09											

PCS Spurious & Harmonic (EIRP)

Compliance Certification Services Above 1GHz High Frequency Substitution Measurement											
Company:		SIERRA WIRELESS									
Project #:		10U13530									
Date:		12/29/2010									
Test Engineer:		MENGISTU MEKURIA									
Configuration:		EUT WITH SUPPORT LAPTOP									
Mode:		TX, PCS BAND, EGPRS MODE									
Chamber			Pre-amplifier			Filter			Limit		
5m Chamber B			T145 8449B			Filter 1			FCC PART 24		
f GHz	SA reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Path Loss (dB)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	
Low Channel (1850.20 MHz)											
3.700	-62.1	H	3.0	45.3	35.4	1.0	-51.1	-13.0	38.1		
5.551	-50.4	H	3.0	50.0	35.4	1.0	-34.8	-13.0	-21.8		
3.700	-60.0	V	3.0	45.1	35.4	1.0	-49.2	-13.0	36.2		
5.551	-47.8	V	3.0	49.2	35.4	1.0	-33.0	-13.0	-20.0		
Mid Channel (1880.00 MHz)											
3.760	-58.4	H	3.0	45.5	35.3	1.0	-47.2	-13.0	34.2		
5.640	-50.8	H	3.0	50.2	35.4	1.0	-35.1	-13.0	-22.1		
3.760	-56.7	V	3.0	45.3	35.3	1.0	-45.8	-13.0	32.8		
5.640	-44.7	V	3.0	49.3	35.4	1.0	-29.9	-13.0	-16.9		
Hi Channel (1909.80 MHz)											
3.820	-58.5	H	3.0	45.7	35.3	1.0	-47.1	-13.0	34.1		
5.729	-52.4	H	3.0	50.3	35.4	1.0	-36.5	-13.0	-23.5		
3.820	-61.0	V	3.0	45.4	35.3	1.0	-49.9	-13.0	-36.9		
5.729	-49.9	V	3.0	49.4	35.4	1.0	-35.0	-13.0	-22.0		
Rev. 03.03.09											

WCDMA

CELL SPURIOUS & HARMONIC (ERP)

Compliance Certification Services Above 1GHz High Frequency Substitution Measurement											
Company:		SIERRA WIRELESS									
Project #:		10U13530									
Date:		12/28/2010									
Test Engineer:		MENGISTU MEKURIA									
Configuration:		EUT WITH SUPPORT LAPTOP									
Mode:		TX, CELL BAND, WCDMA MODE									
Chamber			Pre-amplifier			Filter			Limit		
5m Chamber B			T145 8449B			Filter 1			FCC PART 22		
f GHz	SA reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Path Loss (dB)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes	
Low Channel (826.40 MHz)											
1.653	-48.4	H	3.0	37.3	35.5	1.0	-45.7	-13.0	-32.7		
2.479	-56.0	H	3.0	39.8	35.4	1.0	-50.5	-13.0	-37.5		
1.653	-51.4	V	3.0	36.8	35.5	1.0	-49.1	-13.0	-36.1		
2.479	-60.6	V	3.0	41.7	35.4	1.0	-53.3	-13.0	-40.3		
Mid Channel (836.40 MHz)											
1.673	-51.8	H	3.0	37.5	35.5	1.0	-48.9	-13.0	-35.9		
2.509	-55.0	H	3.0	39.9	35.4	1.0	-49.5	-13.0	-36.5		
1.673	-54.8	V	3.0	37.1	35.5	1.0	-52.2	-13.0	-39.2		
2.509	-59.6	V	3.0	41.8	35.4	1.0	-52.2	-13.0	-39.2		
Hi Channel (846.60 MHz)											
1.693	-49.4	H	3.0	37.7	35.5	1.0	-46.3	-13.0	-33.3		
2.540	-53.7	H	3.0	40.1	35.4	1.0	-48.0	-13.0	-35.0		
1.693	-52.4	V	3.0	37.4	35.5	1.0	-49.5	-13.0	-36.5		
2.540	-58.3	V	3.0	41.9	35.4	1.0	-50.8	-13.0	-37.8		
Rev. 03.03.09											

PCS Spurious & Harmonic (EIRP)

Compliance Certification Services Above 1GHz High Frequency Substitution Measurement											
Company:		SIERRA WIRELESS									
Project #:		10U13530									
Date:		12/28/2010									
Test Engineer:		MENGISTU MEKURIA									
Configuration:		EUT WITH SUPPORT LAPTOP									
Mode:		TX, PCS BAND, WCDMA MODE									
Chamber			Pre-amplifier			Filter			Limit		
5m Chamber B			T145 8449B			Filter 1			FCC PART 24		
f GHz	SA reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Path Loss (dB)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes	
Low Channel (1852.40 MHz)											
3.705	-61.0	H	3.0	45.3	35.4	1.0	50.0	-13.0	37.0		
5.557	-64.8	H	3.0	50.0	35.4	1.0	49.2	-13.0	36.2		
3.705	-58.9	V	3.0	45.1	35.4	1.0	48.1	-13.0	35.1		
5.557	-63.9	V	3.0	49.2	35.4	1.0	49.1	-13.0	36.1		
Mid Channel (1880.00 MHz)											
3.760	-60.6	H	3.0	45.5	35.3	1.0	49.4	-13.0	36.4		
5.640	-64.8	H	3.0	50.2	35.4	1.0	49.1	-13.0	36.1		
3.760	-57.7	V	3.0	45.3	35.3	1.0	46.8	-13.0	33.8		
5.640	-63.1	V	3.0	49.3	35.4	1.0	48.2	-13.0	35.2		
Hi Channel (1907.60 MHz)											
3.815	-59.5	H	3.0	45.7	35.3	1.0	48.1	-13.0	35.1		
5.723	-62.3	H	3.0	50.3	35.4	1.0	46.4	-13.0	33.4		
3.815	-57.0	V	3.0	45.4	35.3	1.0	45.9	-13.0	32.9		
5.723	-61.0	V	3.0	49.4	35.4	1.0	46.1	-13.0	33.1		
Rev. 03.03.09											

LTE

BAND 17, QPSK 5 MHz BANDWIDTH (ERP)

Compliance Certification Services Above 1GHz High Frequency Substitution Measurement										
Chamber		Pre-amplifier		Filter		Limit				
5m Chamber A		T144 8449B		Filter 1		FCC PART 27				
f GHz	SA reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Path Loss (dB)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Channel (706.5 MHz)										
1.413	-56.1	H	3.0	34.5	38.6	1.0	-59.1	-13.0	46.1	
2.120	-58.3	H	3.0	39.9	37.6	1.0	-55.0	-13.0	42.0	
4.239	-59.9	H	3.0	46.5	36.5	1.0	-48.8	-13.0	35.8	
1.413	-58.3	V	3.0	34.4	38.6	1.0	-61.5	-13.0	48.5	
2.120	-59.1	V	3.0	40.9	37.6	1.0	-54.8	-13.0	41.8	
4.239	-62.3	V	3.0	46.2	36.5	1.0	-51.6	-13.0	38.6	
Mid Channel										
1.420	-55.8	H	3.0	34.6	38.5	1.0	-58.8	-13.0	45.8	
2.130	-58.2	H	3.0	39.9	37.6	1.0	-54.9	-13.0	41.9	
4.260	-59.5	H	3.0	46.6	36.5	1.0	-48.4	-13.0	35.4	
1.420	-56.0	V	3.0	34.5	38.5	1.0	-59.1	-13.0	46.1	
2.130	-59.3	V	3.0	41.0	37.6	1.0	-55.0	-13.0	42.0	
4.260	-65.2	V	3.0	46.3	36.5	1.0	-54.4	-13.0	41.4	
Hi Channel										
1.427	-53.0	H	3.0	34.6	38.5	1.0	-55.9	-13.0	42.9	
2.141	-55.7	H	3.0	39.9	37.6	1.0	-52.4	-13.0	39.4	
4.281	-60.3	H	3.0	46.7	36.5	1.0	-49.1	-13.0	36.1	
1.427	-58.8	V	3.0	34.5	38.5	1.0	-61.8	-13.0	48.8	
2.141	-61.8	V	3.0	41.0	37.6	1.0	-57.4	-13.0	44.4	
4.281	-64.4	V	3.0	46.3	36.5	1.0	-53.6	-13.0	40.6	

Rev. 03.03.09

BAND 17, QPSK 10 MHz BANDWIDTH (ERP)

Compliance Certification Services Above 1GHz High Frequency Substitution Measurement										
Company:		SIERRA WIRELESS								
Project #:		10U13530								
Date:		12/20/2010								
Test Engineer:		MENGISTU MEKURIA								
Configuration:		EUT WITH SUPPORT LAPTOP								
Mode:		TX, QPSK_10MHZ BW_RB12_LTE BAND								
Chamber			Pre-amplifier			Filter			Limit	
5m Chamber B			T145 8449B			Filter 1			FCC PART 27	
f GHz	SA reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Path Loss (dB)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Channel (709.0 MHz)										
1.418	-57.4	H	3.0	35.2	35.7	1.0	-56.9	-13.0	43.9	
2.127	-59.9	H	3.0	40.4	35.4	1.0	-53.9	-13.0	40.9	
4.254	-61.5	H	3.0	47.0	35.2	1.0	-48.8	-13.0	35.8	
1.418	-59.2	V	3.0	34.1	35.7	1.0	-59.9	-13.0	46.9	
2.127	-62.1	V	3.0	41.5	35.4	1.0	-55.0	-13.0	42.0	
4.254	-64.1	V	3.0	46.5	35.2	1.0	-51.8	-13.0	38.8	
Mid Channel (710.0 MHz)										
1.420	-57.1	H	3.0	35.2	35.7	1.0	-56.6	-13.0	43.6	
2.130	-61.1	H	3.0	40.4	35.4	1.0	-55.1	-13.0	42.1	
4.260	-62.1	H	3.0	47.0	35.2	1.0	-49.3	-13.0	36.3	
1.420	-59.5	V	3.0	34.1	35.7	1.0	-60.1	-13.0	47.1	
2.130	-60.9	V	3.0	41.5	35.4	1.0	-53.8	-13.0	40.8	
4.260	-63.5	V	3.0	46.5	35.2	1.0	-51.3	-13.0	38.3	
Hi Channel (711.0 MHz)										
1.422	-56.3	H	3.0	35.2	35.7	1.0	-55.9	-13.0	42.9	
2.133	-60.6	H	3.0	40.3	35.4	1.0	-54.6	-13.0	41.6	
4.266	-62.4	H	3.0	47.0	35.2	1.0	-49.6	-13.0	36.6	
1.422	-57.9	V	3.0	34.1	35.7	1.0	-58.5	-30.0	-28.5	
2.133	-61.3	V	3.0	41.5	35.4	1.0	-54.2	-13.0	41.2	
4.266	-65.6	V	3.0	46.5	35.2	1.0	-53.4	-13.0	40.4	

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BAND 17, 16QAM 5 MHz BANDWIDTH (ERP)

Compliance Certification Services Above 1GHz High Frequency Substitution Measurement										
Company:		SIERRA WIRELESS								
Project #:		10U13530								
Date:		12/19/2010								
Test Engineer:		MENGISTU MEKURIA								
Configuration:		EUT WITH SUPPORT LAPTOP								
Mode:		TX, 16QAM_5MHZ BW_RB1_LTE BAND								
Chamber			Pre-amplifier			Filter			Limit	
5m Chamber A			T144 8449B			Filter 1			FCC PART 27	
f GHz	SA reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Path Loss (dB)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Channel (706.5 MHz)										
1.413	-54.7	H	3.0	34.5	38.6	1.0	-57.7	-13.0	44.7	
2.120	-57.1	H	3.0	39.9	37.6	1.0	-53.8	-13.0	40.8	
4.239	-61.6	H	3.0	46.5	36.5	1.0	-50.5	-13.0	37.5	
1.413	-59.7	V	3.0	34.4	38.6	1.0	-62.9	-13.0	49.9	
2.120	-60.4	V	3.0	40.9	37.6	1.0	-56.1	-13.0	43.1	
4.239	-63.2	V	3.0	46.2	36.5	1.0	-52.5	-13.0	39.5	
Mid Channel (710.0 MHz)										
1.420	-57.5	H	3.0	34.6	38.5	1.0	-60.5	-13.0	47.5	
2.130	-59.6	H	3.0	39.9	37.6	1.0	-56.3	-13.0	43.3	
4.260	-60.8	H	3.0	46.6	36.5	1.0	-49.7	-13.0	36.7	
1.420	-56.9	V	3.0	34.5	38.5	1.0	-60.0	-13.0	47.0	
2.130	-57.9	V	3.0	41.0	37.6	1.0	-53.6	-13.0	40.6	
4.260	-64.0	V	3.0	46.3	36.5	1.0	-53.2	-13.0	40.2	
Hi Channel (713.5 MHz)										
1.427	-54.4	H	3.0	34.6	38.5	1.0	-57.3	-13.0	44.3	
2.141	-57.0	H	3.0	39.9	37.6	1.0	-53.7	-13.0	40.7	
4.281	-61.2	H	3.0	46.7	36.5	1.0	-50.0	-13.0	37.0	
1.427	-57.4	V	3.0	34.5	38.5	1.0	-60.4	-13.0	47.4	
2.141	-60.6	V	3.0	41.0	37.6	1.0	-56.2	-13.0	43.2	
4.281	-66.1	V	3.0	46.3	36.5	1.0	-55.3	-13.0	42.3	

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BAND 17, 16QAM 10 MHz BANDWIDTH (ERP)

Compliance Certification Services Above 1GHz High Frequency Substitution Measurement											
Company:		SIERRA WIRELESS									
Project #:		10U13530									
Date:		12/20/2010									
Test Engineer:		MENGISTU MEKURIA									
Configuration:		EUT WITH SUPPORT LAPTOP									
Mode:		TX, 16QAM_10MHz BW_RB12_LTE BAND									
Chamber			Pre-amplifier			Filter			Limit		
5m Chamber B			T145 8449B			Filter 1			FCC PART 27		
f GHz	SA reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Path Loss (dB)	Preamp (dB)	Filter (dB)	ERP (dBm)	Limit (dBm)	Delta (dB)	Notes	
Low Channel (709.0 MHz)											
1.418	-56.2	H	3.0	35.2	35.7	1.0	-55.7	-13.0	42.7		
2.127	-58.2	H	3.0	40.4	35.4	1.0	-52.2	-13.0	39.2		
4.254	-62.9	H	3.0	47.0	35.2	1.0	-50.2	-13.0	37.2		
1.418	-58.2	V	3.0	34.1	35.7	1.0	-58.9	-13.0	45.9		
2.127	-59.4	V	3.0	41.5	35.4	1.0	-52.3	-13.0	39.3		
4.254	-64.5	V	3.0	46.5	35.2	1.0	-52.2	-13.0	39.2		
Mid Channel (710.0 MHz)											
1.420	-56.1	H	3.0	35.2	35.7	1.0	-55.6	-13.0	42.6		
2.130	-58.4	H	3.0	40.4	35.4	1.0	-52.4	-13.0	39.4		
4.260	-62.5	H	3.0	47.0	35.2	1.0	-49.7	-13.0	36.7		
1.420	-58.3	V	3.0	34.1	35.7	1.0	-58.9	-13.0	45.9		
2.130	-59.2	V	3.0	41.5	35.4	1.0	-52.1	-13.0	39.1		
4.260	-64.9	V	3.0	46.5	35.2	1.0	-52.7	-13.0	39.7		
Hi Channel (711.0 MHz)											
1.422	-54.6	H	3.0	35.2	35.7	1.0	-54.2	-13.0	41.2		
2.133	-62.0	H	3.0	40.3	35.4	1.0	-56.0	-13.0	43.0		
4.266	-61.4	H	3.0	47.0	35.2	1.0	-48.6	-13.0	35.6		
1.422	-55.2	V	3.0	34.1	35.7	1.0	-55.8	-30.0	25.8		
2.133	-61.7	V	3.0	41.5	35.4	1.0	-54.6	-13.0	41.6		
4.266	-64.4	V	3.0	46.5	35.2	1.0	-52.2	-13.0	39.2		

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BAND 4, QPSK 5 MHz BANDWIDTH (EIRP)

Compliance Certification Services Above 1GHz High Frequency Substitution Measurement										
Company:		SIERRA WIRELESS								
Project #:		10U13530								
Date:		12/19/2010								
Test Engineer:		MENGISTU MEKURIA								
Configuration:		EUT WITH SUPPORT LAPTOP								
Mode:		TX, QPSK_5MHZ BW_RB1_LTE BAND								
Chamber			Pre-amplifier			Filter			Limit	
5m Chamber A			T144 8449B			Filter 1			FCC PART 27	
f GHz	SA reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Path Loss (dB)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Channel (1712.5 MHz)										
3.425	-63.1	H	3.0	44.2	37.0	1.0	-54.9	-30.0	-24.9	
5.138	-62.5	H	3.0	49.2	36.3	1.0	-48.6	-30.0	-18.6	
3.425	-67.2	V	3.0	44.3	37.0	1.0	-58.9	-30.0	-28.9	
5.138	-60.3	V	3.0	48.6	36.3	1.0	-47.0	-30.0	-17.0	
Mid Channel (1732.5 MHz)										
3.465	-62.1	H	3.0	44.3	37.0	1.0	-53.8	-13.0	-40.8	
5.198	-62.0	H	3.0	49.3	36.2	1.0	-47.9	-13.0	-34.9	
3.465	-66.5	V	3.0	44.4	37.0	1.0	-58.1	-13.0	-45.1	
5.198	-59.4	V	3.0	48.8	36.2	1.0	-45.9	-13.0	-32.9	
Hi Channel (1752.5 MHz)										
3.505	-61.5	H	3.0	44.4	37.0	1.0	-53.0	-13.0	-40.0	
5.258	-61.1	H	3.0	49.4	36.3	1.0	-46.9	-13.0	-33.9	
3.505	-65.3	V	3.0	44.5	37.0	1.0	-56.8	-13.0	-43.8	
5.258	-59.8	V	3.0	48.9	36.3	1.0	-46.1	-13.0	-33.1	
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BAND 4, QPSK 10 MHz BANDWIDTH (EIRP)

Compliance Certification Services Above 1GHz High Frequency Substitution Measurement										
Company:		SIERRA WIRELESS								
Project #:		10U13530								
Date:		12/19/2010								
Test Engineer:		MENGISTU MEKURIA								
Configuration:		EUT WITH SUPPORT LAPTOP								
Mode:		TX, QPSK_10MHZ BW_RB12_LTE BAND								
Chamber			Pre-amplifier			Filter			Limit	
5m Chamber A			T144 8449B			Filter 1			FCC PART 27	
f GHz	SA reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Path Loss (dB)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Channel (1715.1 MHz)										
3.430	-63.9	H	3.0	44.2	37.0	1.0	-55.7	-13.0	42.7	
5.145	-65.3	H	3.0	49.2	36.3	1.0	-51.4	-13.0	38.4	
3.430	-63.8	V	3.0	44.3	37.0	1.0	-55.6	-13.0	42.6	
5.145	-64.2	V	3.0	48.6	36.3	1.0	-50.8	-13.0	37.8	
Mid Channel (1732.5 MHz)										
3.465	-63.5	H	3.0	44.3	37.0	1.0	-55.1	-13.0	42.1	
5.198	-64.5	H	3.0	49.3	36.2	1.0	-50.4	-13.0	37.4	
3.465	-63.5	V	3.0	44.4	37.0	1.0	-55.2	-13.0	42.2	
5.198	-64.7	V	3.0	48.8	36.2	1.0	-51.2	-13.0	38.2	
Hi Channel (1749.9 MHz)										
3.500	-61.4	H	3.0	44.4	37.0	1.0	-53.0	-13.0	40.0	
5.250	-62.0	H	3.0	49.4	36.3	1.0	-47.9	-13.0	34.9	
3.500	-61.0	V	3.0	44.5	37.0	1.0	-52.5	-13.0	39.5	
5.250	-62.9	V	3.0	48.9	36.3	1.0	-49.3	-13.0	36.3	
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BAND 4, 16QAM 5 MHz BANDWIDTH (EIRP)

Compliance Certification Services Above 1GHz High Frequency Substitution Measurement										
Company:		SIERRA WIRELESS								
Project #:		10U13530								
Date:		12/19/2010								
Test Engineer:		MENGISTU MEKURIA								
Configuration:		EUT WITH SUPPORT LAPTOP								
Mode:		TX, 16QAM_5MHZ BW_RB1_LTE BAND								
Chamber			Pre-amplifier			Filter			Limit	
5m Chamber A			T144 8449B			Filter 1			FCC PART 27	
f GHz	SA reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Path Loss (dB)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Channel (1712.5 MHz)										
3.425	-62.6	H	3.0	44.2	37.0	1.0	-54.4	-13.0	-41.4	
5.138	-62.0	H	3.0	49.2	36.3	1.0	-48.1	-13.0	-35.1	
3.425	-61.2	V	3.0	44.3	37.0	1.0	-52.9	-13.0	-39.9	
5.138	-60.3	V	3.0	48.6	36.3	1.0	-46.9	-13.0	-33.9	
Mid Channel (1732.5 MHz)										
3.465	-61.9	H	3.0	44.3	37.0	1.0	-53.6	-13.0	-40.6	
5.198	-61.8	H	3.0	49.3	36.2	1.0	-47.7	-13.0	-34.7	
3.465	-60.5	V	3.0	44.4	37.0	1.0	-52.1	-13.0	-39.1	
5.198	-60.6	V	3.0	48.8	36.2	1.0	-47.1	-13.0	-34.1	
Hi Channel (1752.5 MHz)										
3.505	-61.2	H	3.0	44.4	37.0	1.0	-52.8	-13.0	-39.8	
5.258	-61.2	H	3.0	49.4	36.3	1.0	-47.0	-13.0	-34.0	
3.505	-59.4	V	3.0	44.5	37.0	1.0	-50.9	-13.0	-37.9	
5.258	-59.4	V	3.0	48.9	36.3	1.0	-45.7	-13.0	-32.7	
		V								
		V								
Rev. 03.03.09										

BAND 4, 16QAM 10 MHz BANDWIDTH (EIRP)

Compliance Certification Services Above 1GHz High Frequency Substitution Measurement										
Company:	SIERRA WIRELESS									
Project #:	10U13530									
Date:	12/19/2010									
Test Engineer:	MENGISTU MEKURIA									
Configuration:	EUT WITH SUPPORT LAPTOP									
Mode:	TX, 16QAM_10MHz BW_RB12_LTE BAND									
Chamber			Pre-amplifier			Filter			Limit	
5m Chamber A			T144 8449B			Filter 1			FCC PART 27	
f GHz	SA reading (dBm)	Ant. Pol. (H/V)	Distance (m)	Path Loss (dB)	Preamp (dB)	Filter (dB)	EIRP (dBm)	Limit (dBm)	Delta (dB)	Notes
Low Channel (1715.1 MHz)										
3.430	-63.9	H	3.0	44.2	37.0	1.0	-55.7	-13.0	42.7	
5.145	-64.3	H	3.0	49.2	36.3	1.0	-50.4	-13.0	37.4	
3.430	-63.6	V	3.0	44.3	37.0	1.0	-55.3	-13.0	42.3	
5.145	-64.6	V	3.0	48.6	36.3	1.0	-51.2	-13.0	38.2	
Mid Channel (1732.5 MHz)										
3.465	-63.3	H	3.0	44.3	37.0	1.0	-54.9	-13.0	41.9	
5.198	-65.1	H	3.0	49.3	36.2	1.0	-51.0	-13.0	38.0	
3.465	-62.8	V	3.0	44.4	37.0	1.0	-54.4	-13.0	41.4	
5.198	-64.1	V	3.0	48.8	36.2	1.0	-50.6	-13.0	37.6	
Hi Channel (1749.9 MHz)										
3.500	-62.5	H	3.0	44.4	37.0	1.0	-54.0	-13.0	41.0	
5.250	-64.0	H	3.0	49.4	36.3	1.0	-49.8	-13.0	36.8	
3.500	-61.2	V	3.0	44.5	37.0	1.0	-52.7	-13.0	39.7	
5.250	-63.0	V	3.0	48.9	36.3	1.0	-49.4	-13.0	36.4	
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