



PCTEST ENGINEERING LABORATORY, INC.

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MEASUREMENT REPORT

FCC Part 22, 24 & 27

Applicant Name:

Samsung Electronics, Co. Ltd.
18600 Broadwick St.
Rancho Dominguez, CA 90220
United States

Date of Testing:

Jan. 23-30, Feb. 23-29, 2012

Test Site/Location:

PCTEST Lab., Columbia, MD, USA

Test Report Serial No.:

0Y1201230105.A3L

FCC ID :

A3LSCHLC11R

APPLICANT:

SAMSUNG ELECTRONICS, CO. LTD.

Application Type:

Certification

FCC Classification:

PCS Licensed Transmitter (PCB)

FCC Rule Part(s):

§2; §22; §24; §27

EUT Type:

Portable Wireless Router

Model(s):

SCH-LC11R

Test Device Serial No.:

identical prototype [S/N: FCC#7 EMC(1)]

Mode	Tx Frequency (MHz)	Emission Designator	Modulation	ERP/EIRP	
				Max. Power (W)	Max. Power (dBm)
LTE Band 12	701.5 - 713.5	4M49G7D	QPSK	0.065	18.14
LTE Band 12	701.5 - 713.5	4M50W7D	16QAM	0.053	17.23
LTE Band 12	704 - 711	8M98G7D	QPSK	0.062	17.90
LTE Band 12	704 - 711	8M98W7D	16QAM	0.051	17.08
LTE Band 5	824.7 - 848.3	1M07G7D	QPSK	0.125	20.98
LTE Band 5	824.7 - 848.3	1M08W7D	16QAM	0.096	19.84
LTE Band 5	825.5 - 847.5	2M68G7D	QPSK	0.139	21.44
LTE Band 5	825.5 - 847.5	2M68W7D	16QAM	0.109	20.39
LTE Band 5	826.5 - 846.5	4M47G7D	QPSK	0.097	19.85
LTE Band 5	826.5 - 846.5	4M47W7D	16QAM	0.078	18.93
LTE Band 4	1712.5 - 1752.5	4M48G7D	QPSK	0.228	23.57
LTE Band 4	1712.5 - 1752.5	4M49W7D	16QAM	0.173	22.37
LTE Band 4	1715 - 1750	8M96G7D	QPSK	0.254	24.04
LTE Band 4	1715 - 1750	8M95W7D	16QAM	0.189	22.76
LTE Band 2	1850.7 - 1909.3	1M08G7D	QPSK	0.158	21.98
LTE Band 2	1850.7 - 1909.3	1M08W7D	16QAM	0.120	20.78
LTE Band 2	1851.5 - 1908.5	2M69G7D	QPSK	0.257	24.10
LTE Band 2	1851.5 - 1908.5	2M68W7D	16QAM	0.197	22.94
LTE Band 2	1852.5 - 1907.5	4M48G7D	QPSK	0.345	25.38
LTE Band 2	1852.5 - 1907.5	4M49W7D	16QAM	0.299	24.75

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in §2.947. Test results reported herein relate only to the item(s) tested. Test results reported herein relate only to the item(s) tested. I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

PCTEST certifies that no party to this application has been subject to a denial of Federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. 862.



Randy Ortanez
President



FCC ID: A3LSCHLC11R	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)				Reviewed by: Quality Manager
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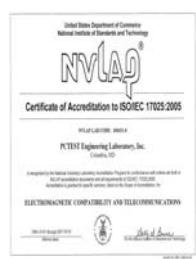
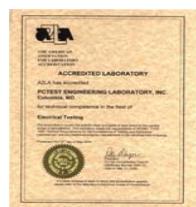


§2.1033 General Information

APPLICANT: Samsung Electronics, Co. Ltd.
APPLICANT ADDRESS: 18600 Broadwick St.
TEST SITE: Rancho Dominguez, CA 90220, United States
TEST SITE ADDRESS: PCTEST ENGINEERING LABORATORY, INC.
FCC RULE PART(S): 6660-B Dobbin Road, Columbia, MD 21045 USA
BASE MODEL: §2; §22; §24; §27
FCC ID: SCH-LC11R
FCC CLASSIFICATION: A3LSCHLC11R
FREQUENCY TOLERANCE: PCS Licensed Transmitter (PCB)
Test Device Serial No.: ±0.00025 % (2.5 ppm)
DATE(S) OF TEST: FCC#7 EMC(1) Production Pre-Production Engineering
TEST REPORT S/N: Jan. 23-30, Feb. 23-29, 2012
TEST REPORT S/N: 0Y1201230105.A3L

Test Facility / Accreditations

Measurements were performed at PCTEST Engineering Lab. located in Columbia, MD 21045, U.S.A.



- PCTEST facility is an FCC registered (PCTEST Reg. No. 90864) test facility with the site description report on file and has met all the requirements specified in Section 2.948 of the FCC Rules and Industry Canada (2451A-1).
- PCTEST Lab is accredited to ISO 17025 by U.S. National Institute of Standards and Technology (NIST) under the National Voluntary Laboratory Accreditation Program (NVLAP Lab code: 100431-0) in EMC, FCC and Telecommunications.
- PCTEST Lab is accredited to ISO 17025-2005 by the American Association for Laboratory Accreditation (A2LA) in Specific Absorption Rate (SAR) testing, Hearing Aid Compatibility (HAC) testing, CTIA Test Plans, and wireless testing for FCC and Industry Canada Rules.
- PCTEST Lab is a recognized U.S. Conformity Assessment Body (CAB) in EMC and R&TTE (n.b. 0982) under the U.S.-EU Mutual Recognition Agreement (MRA).
- PCTEST TCB is a Telecommunication Certification Body (TCB) accredited to ISO/IEC Guide 65 by the American National Standards Institute (ANSI) in all scopes of FCC Rules and Industry Canada Standards (RSS).
- PCTEST facility is an IC registered (2451A-1) test laboratory with the site description on file at Industry Canada.
- PCTEST is a CTIA Authorized Test Laboratory (CATL) for AMPS, CDMA, and EVDO wireless devices and for Over-the-Air (OTA) Antenna Performance testing for AMPS, CDMA, GSM, GPRS, EGPRS, UMTS (W-CDMA), CDMA 1xEVDO, and CDMA 1xRTT.

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1.0 INTRODUCTION

1.1 Scope

Measurement and determination of electromagnetic emissions (EME) of radio frequency devices including intentional and/or unintentional radiators for compliance with the technical rules and regulations of the Federal Communications Commission.

1.2 Testing Facility

The map below shows the location of the PCTEST LABORATORY, its proximity to the FCC Laboratory, the Columbia vicinity area, the Baltimore-Washington Interntl (BWI) airport, the city of Baltimore and the Washington, DC area. (See Figure 1-1).

These measurement tests were conducted at the PCTEST Engineering Laboratory, Inc. facility in New Concept Business Park, Guilford Industrial Park, Columbia, Maryland. The site address is 6660-B Dobbin Road, Columbia, MD 21045. The test site is one of the highest points in the Columbia area with an elevation of 390 feet above mean sea level. The site coordinates are 39° 11'15" N latitude and 76° 49'38" W longitude. The facility is 1.5 miles North of the FCC laboratory, and the ambient signal and ambient signal strength are approximately equal to those of the FCC laboratory. There are no FM or TV transmitters within 15 miles of the site. The detailed description of the measurement facility was found to be in compliance with the requirements of § 2.948 according to ANSI C63.4-2003 on January 28, 2009.

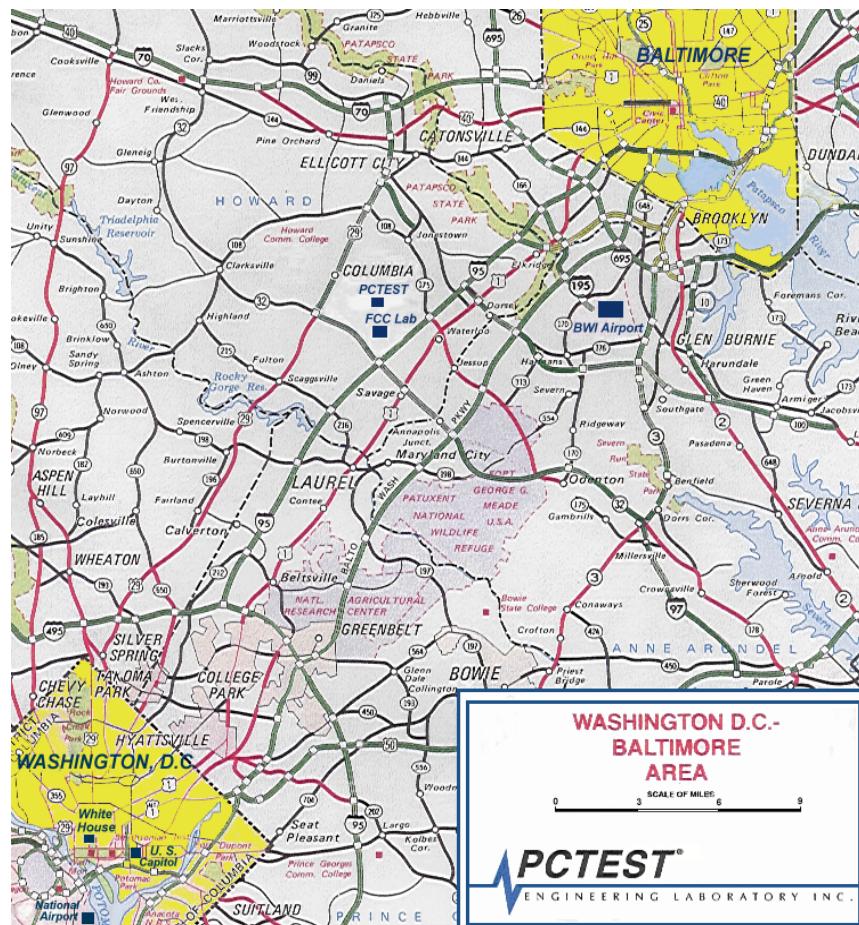


Figure 1-1. Map of the Greater Baltimore and Metropolitan Washington, D.C. area

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2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Samsung Portable Wireless Router FCC ID: A3LSCHLC11R**. The test data contained in this report pertains only to the emissions due to the EUT's LTE function. The EUT consisted of the following component(s):

Trade Name / Base Model	FCC ID	Description
Samsung / Model: SCH-LC11R	A3LSCHLC11R	Portable Wireless Router

Table 2-1. EUT Equipment Description

2.2 Device Capabilities

This device contains the following capabilities:

850/1900 CDMA/EvDO (BC0, BC1), Band 2, 4, 5, 12 LTE, 802.11b/g/n WLAN

2.3 EMI Suppression Device(s)/Modifications

No EMI suppression device(s) were added and no modifications were made during testing.

2.4 Labeling Requirements

Per 2.925

The FCC identifier shall be permanently affixed to the equipment and shall be readily visible to the purchaser at the time of purchase..

Per 15.19; Docket 95-19

In addition to this requirement, a device subject to certification shall be labeled as follows:

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

The label shall be permanently affixed at a conspicuous location on the device; instruction manual or pamphlet supplied to the user and be readily visible to the purchaser at the time of purchase. However, when the device is so small wherein placement of the label with specified statement is not practical, only the trade name and FCC ID must be displayed on the device per Section 15.19(b)(2).

Please see attachment for FCC ID label and label location.

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3.0 DESCRIPTION OF TESTS

3.1 Measurement Procedure

The radiated spurious measurements were made outdoors at a 3-meter test range (See Figure 3-1). The equipment under test is placed on a wooden turntable 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotations were adjusted for the highest reading on the receive spectrum analyzer. This power level was recorded using a broadband average power meter. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same receive spectrum analyzer reading. This level is recorded with the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic antenna are taken into consideration.

Deviation from Measurement Procedure.....None

3.2 Occupied Bandwidth

§2.1049, RSS-Gen (4.6.1)

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upperfrequency limits, the mean powers radiated are each equal to 0.5 percent of the total mean power radiated by a given emission shall be measured. The span of the analyzer shall be set to capture all products of the odulation process, including the emission skirts. The resolution bandwidth shall be set to as close to 1 percent of the selected span as is possible without being below 1 percent. The video bandwidth shall be set to 3 times the resolution bandwidth. Video averaging is not permitted. Where practical, a sampling detector shall be used since a peak or, peak hold, may produce a wider bandwidth than actual. The trace data points are recovered and are directly summed in linear terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5 percent of the total is reached and that frequency recorded. The process is repeated for the highest frequency data points. This frequency is recorded. The span between the two recorded frequencies is the occupied bandwidth.

3.3 Block A Frequency Range

§27.5(c)

698-746 MHz band. The following frequencies are available for licensing pursuant to this part in the 698-746 MHz band: (1) Three paired channel blocks of 12 megahertz each are available for assignment as follows:

Block A: 698-704 MHz and 728-734 MHz;
 Block B: 704-710 MHz and 734-740 MHz; and
 Block C: 710-716 MHz and 740-746 MHz.

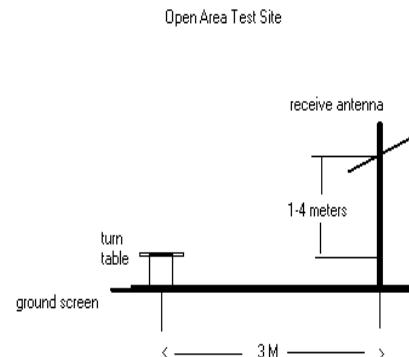
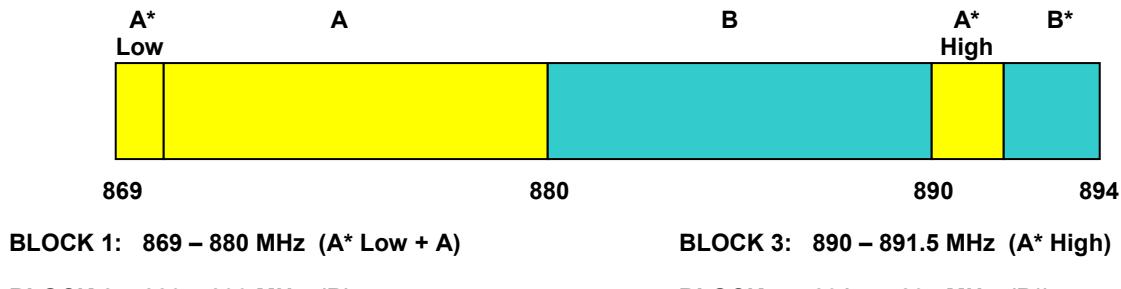


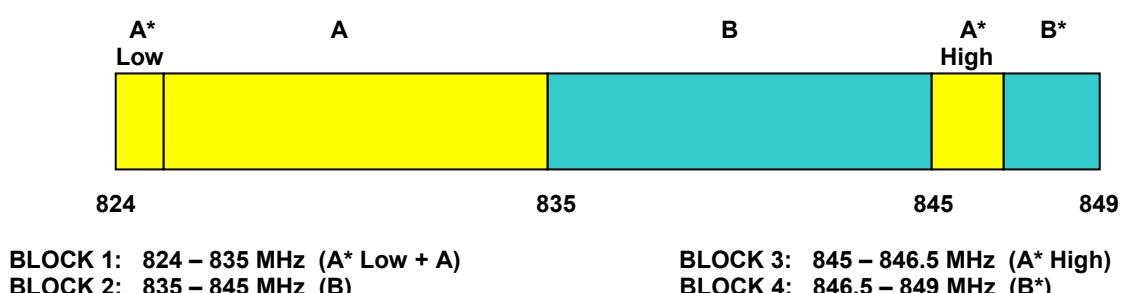
Figure 3-1. Diagram of 3-meter outdoor test range

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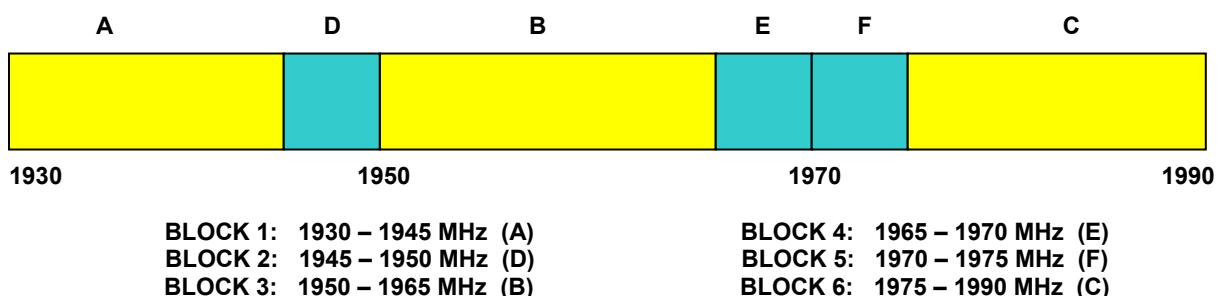
3.4 Cellular - Base Frequency Blocks



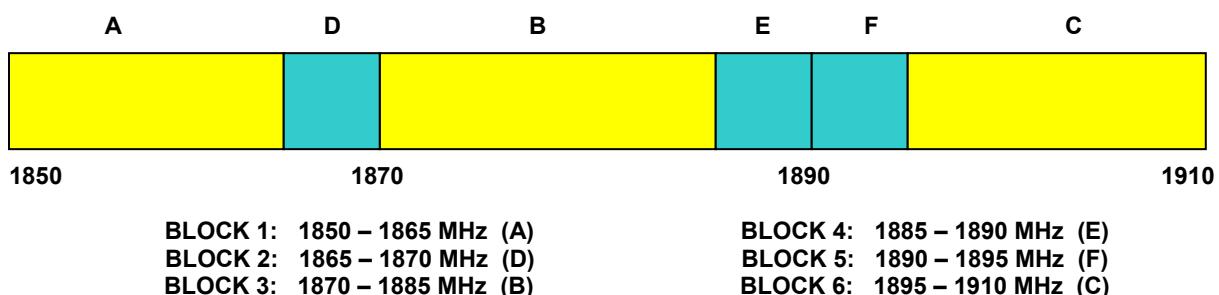
3.5 Cellular - Mobile Frequency Blocks



3.6 PCS - Base Frequency Blocks



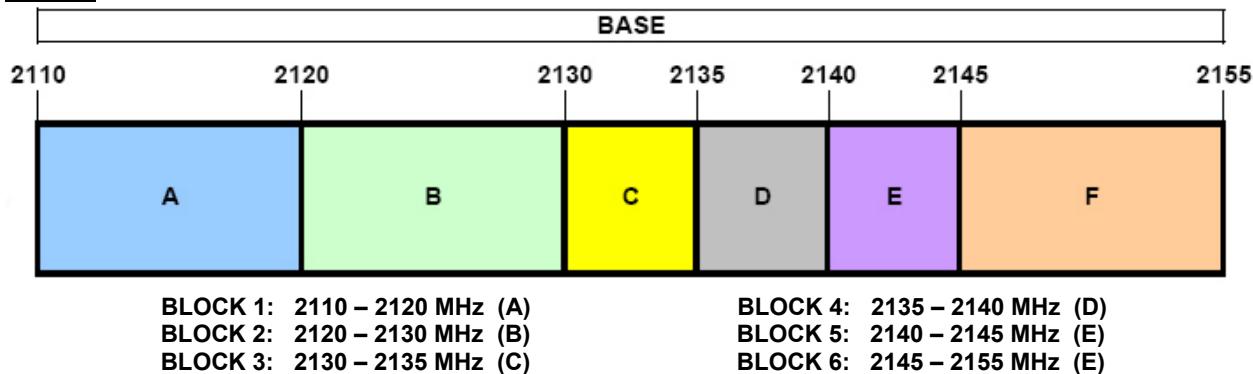
3.7 PCS - Mobile Frequency Blocks



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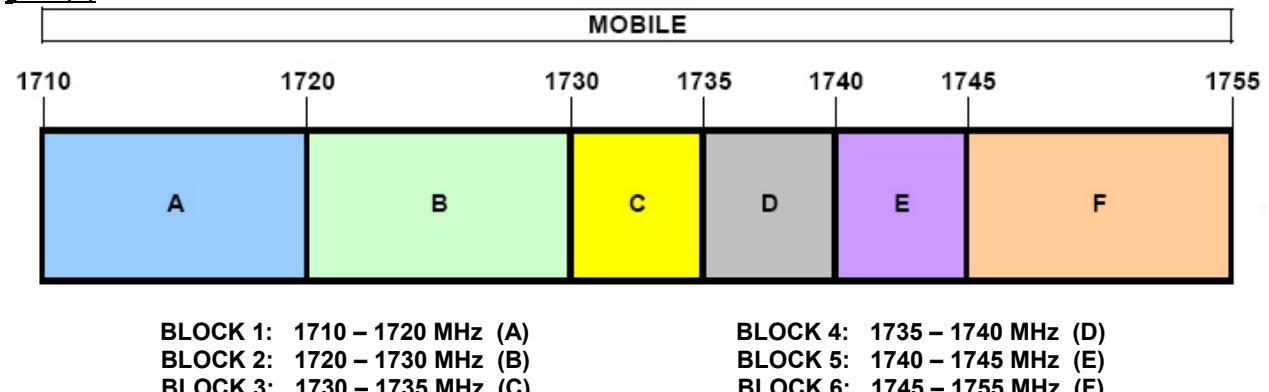
3.8 AWS - Base Frequency Blocks

§27.5(h)



3.9 AWS - Mobile Frequency Blocks

§27.5(h)



3.10 Spurious and Harmonic Emissions at Antenna Terminal

§2.1051, 22.917(a), 24.238(a), §27.53(g), §27.53(h); RSS-132 (4.5.1), RSS-133 (6.5.1)

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. On any frequency outside a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least $43 + 10 \log(P)$ dB. For Bands 5 and 12, Compliance with these rules is based on the use of measurement instrumentation employing a resolution bandwidth of 100 kHz or greater. For Bands 2 and 4, compliance with these provisions 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. 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 emission are attenuated at least 26 dB below the transmitter power.

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3.11 Radiated Power and Radiated Spurious Emissions

§2.1053, 22.917(a), 24.238(a), §27.53(g), §27.53(h); RSS-132(4.5.1.2), RSS-133 (6.5.1)

Radiated power and radiated spurious emissions are measured outdoors at our 3-meter test range. The equipment under test is placed on a wooden turntable 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotations were adjusted for the highest reading on the receive spectrum analyzer. This level is then measured with a broadband average power meter. The spectrum is scanned from the lowest frequency generated in the equipment up to a frequency including its 10th harmonic. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator with the level of the signal generator being adjusted to obtain the same receive average power meter reading. This spurious level is recorded with the power meter. For readings above 1 GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

3.12 Peak-Average Ratio

§24.232(d), §27.50(d)(5), RSS-133 (6.4)

A peak to average ratio measurement is performed at the conducted port of the EUT. For CDMA signals, the spectrum analyzers Complementary Cumulative Distribution Function (CCDF) measurement profile is used to determine the largest deviation between the average and the peak power of the EUT in a given bandwidth. The CCDF curve shows how much time the peak waveform spends at or above a given average power level. The percent of time the signal spends at or above the level defines the probability for that particular power level.

3.13 Frequency Stability / Temperature Variation

§2.1055, §22.355, §24.235, §27.54, RSS-132 (4.3), RSS-133 (6.3)

The frequency stability of the transmitter is measured by:

- Temperature:** The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.
- Primary Supply Voltage:** The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.

Specification – For Band 5, the frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5 ppm) of the center frequency. For Bands 2, 4 and 12, the frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

Time Period and Procedure:

- The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).
- The equipment is turned on in a “standby” condition for one minute before applying power to the transmitter. Measurement of the carrier frequency of the transmitter is made within one minute after applying power to the transmitter.
- Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A sufficient stabilization period at each temperature shall be used prior to each frequency requirement.

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4.0 TEST EQUIPMENT CALIBRATION DATA

Test Equipment Calibration is traceable to the National Institute of Standards and Technology (NIST).

Manufacturer	Model	Description	Cal Date	Cal Interval	Cal Due	Serial Number
-	RE1	Radiated Emissions Cable Set	6/7/2011	Annual	6/7/2012	N/A
-	LTx1	Licensed Transmitter Cable Set	1/25/2012	Annual	1/25/2013	N/A
Agilent	8449B	(1-26.5GHz) Pre-Amplifier	2/8/2011	Annual	2/8/2012	3008A00985
Agilent	E8257D	(250kHz-20GHz) Signal Generator	4/8/2011	Annual	4/8/2012	MY45470194
Agilent	N9038A	MXE EMI Receiver	8/5/2011	Annual	8/5/2012	MY51210133
Agilent	8648D	(9kHz-4GHz) Signal Generator	10/10/2011	Annual	10/10/2012	3613A00315
Agilent	N9020A	MXA Signal Analyzer	10/10/2011	Annual	10/10/2012	US46470561
Anritsu	MA2411B	Pulse Sensor	10/13/2011	Annual	10/13/2012	1027293
Anritsu	ML2495A	Power Meter	10/13/2011	Annual	10/13/2012	1039008
Espec	ESX-2CA	Environmental Chamber	4/21/2011	Annual	4/21/2012	17620
ETS Lindgren	3160-09	18-26.5 GHz Standard Gain Horn	5/31/2011	Annual	5/31/2012	135427
ETS Lindgren	3117	1-18 GHz DRG Horn (Medium)	7/22/2011	Annual	7/22/2012	125518
Pasternack	PE2208-6	Bidirectional Coupler	6/3/2011	Annual	6/3/2012	N/A
Rohde & Schwarz	CMU200	Base Station Simulator	4/19/2011	Annual	4/19/2012	107826
Rohde & Schwarz	ESU26	EMI Test Receiver	4/27/2011	Annual	4/27/2012	100342
Rohde & Schwarz	CMW500	LTE Radio Communication Tester	8/5/2011	Annual	8/5/2012	112347
Schwarzbeck	UHA 9105	Dipole Antenna (400 - 1GHz) Tx	10/3/2011	Biennial	10/3/2013	91052522TX
Schwarzbeck	UHA 9105	Dipole Antenna (400 - 1GHz) Rx	10/3/2011	Biennial	10/3/2013	91052523RX
Schwarzbeck	VULB-9161SE	Trilog Super Broadband Test Antenna	11/8/2011	Biennial	11/8/2013	9161-4075
Sunol	DRH-118	Horn Antenna (1-18 GHz)	6/17/2011	Biennial	6/17/2013	A042511
Sunol	DRH-118	Horn Antenna (1 - 18GHz)	7/5/2011	Biennial	7/5/2013	A050307

Table 4-1. Test Equipment

Note: All conducted plots that were measured using the LTx1 cable set were taken after January 25, 2012.

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5.0 SAMPLE CALCULATIONS

Emission Designator

QPSK Modulation

Emission Designator = 8M62G7D

LTE BW = 8.62 MHz

G = Phase Modulation

7 = Quantized/Digital Info

D = Amplitude/Angle Modulated

16QAM Modulation

Emission Designator = 8M45W7D

LTE BW = 8.45 MHz

W = Amplitude/Angle Modulated

7 = Quantized/Digital Info

D = Combination (Audio/Data)

Spurious Radiated Emission – LTE Band

Example: Middle Channel LTE Mode 2nd Harmonic (1564 MHz)

The average receive power meter reading at 3 meters with the EUT on the turntable was -81.0 dBm. The gain of the substituted antenna is 8.1 dBi. The signal generator connected to the substituted antenna terminals is adjusted to produce a reading of -81.0 dBm on the power meter. The loss of the cable between the signal generator and the terminals of the substituted antenna is 2.0 dB at 1564 MHz. So 6.1 dB is added to the signal generator reading of -30.9 dBm yielding -24.80 dBm. The fundamental EIRP was 25.501 dBm so this harmonic was 25.501 dBm - (-24.80).

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6.0 TEST RESULTS

6.1 Summary

Company Name: Samsung Electronics, Co. Ltd.
 FCC ID: A3LSCHLC11R
 FCC Classification: PCS Licensed Transmitter (PCB)
 Mode(s): LTE

FCC Part Section(s)	RSS Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
TRANSMITTER MODE (TX)						
2.1049	RSS-Gen (4.6.1) RSS-133 (2.3)	Occupied Bandwidth	N/A	CONDUCTED	PASS	Section 7.0
2.1051, 22.917(a), 24.238(a), 27.53(g), 27.53(h)	RSS-133 (6.5.1)	Band Edge / Conducted Spurious Emissions	< $43 + 10\log_{10}(P[\text{Watts}])$ at Band Edge and for all out-of-band emissions		PASS	Section 7.0
24.232(d), 27.50(d)(5)	RSS-133 (6.4)	Peak-Average Ratio	< 13 dB		PASS	Section 7.0
2.1046	RSS-132 (4.4) RSS-133 (4.1)	Transmitter Conducted Output Power	N/A		PASS	SAR Report
22.913(a)(2)	RSS-132 (4.4) [SRSP-503(5.1.3)]	Effective Radiated Power (Band 5)	< 7 Watts max. ERP	RADIATED	PASS	Section 6.2
27.50(c)(10)		Effective Radiated Power (Band 12)	< 3 Watts max. ERP		PASS	Section 6.2
24.232(c)	RSS-133 (6.4) [SRSP-510 (5.1.2)]	Equivalent Isotropic Radiated Power (Band 2)	< 2 Watts max. EIRP		PASS	Section 6.2
27.50(d)(4)		Equivalent Isotropic Radiated Power (Band 4)	< 1 Watts max. EIRP		PASS	Section 6.2
2.1053, 22.917(a), 24.238(a), 27.53(g), 27.53(h)	RSS-132 (4.5.1) RSS-133 (6.5.1)	Undesirable Emissions	< $43 + 10\log_{10}(P[\text{Watts}])$ for all out-of-band emissions		PASS	Section 6.4, 6.5, 6.6, 6.7
2.1055, 27.54, 22.355, 24.235	RSS-132 (4.3) RSS-133 (6.3)	Frequency Stability	< 2.5 ppm		PASS	Section 6.8, 6.9, 6.10, 6.11

Table 6-1. Summary of Test Results

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6.2 Effective Radiated Power Output Data

§22.913(a)(2), §27.50(c)(10),

	Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	RB Size/Offset	Measured Level [dBm]	Substitute Level [dBm]	Antenna Gain [dBi]	Pol [H/V]	ERP [dBm]	ERP [Watts]	Battery
Band XII LTE	701.50	5	QPSK	12 / 6	-17.78	16.10	0.00	H	16.10	0.041	Standard
	707.50	5	QPSK	1 / 24	-15.74	18.14	0.00	H	18.14	0.065	Standard
	713.50	5	QPSK	1 / 24	-15.86	18.02	0.00	H	18.02	0.063	Standard
	701.50	5	16-QAM	12 / 6	-18.45	15.43	0.00	H	15.43	0.035	Standard
	707.50	5	16-QAM	1 / 24	-16.65	17.23	0.00	H	17.23	0.053	Standard
	713.50	5	16-QAM	1 / 24	-17.01	16.87	0.00	H	16.87	0.049	Standard
	704.00	10	QPSK	1 / 49	-16.04	17.84	0.00	H	17.84	0.061	Standard
	707.50	10	QPSK	1 / 49	-15.98	17.90	0.00	H	17.90	0.062	Standard
	711.00	10	QPSK	1 / 49	-16.18	17.70	0.00	H	17.70	0.059	Standard
	704.00	10	16-QAM	1 / 49	-17.20	16.68	0.00	H	16.68	0.047	Standard
	707.50	10	16-QAM	1 / 49	-16.80	17.08	0.00	H	17.08	0.051	Standard
	711.00	10	16-QAM	1 / 49	-17.58	16.30	0.00	H	16.30	0.043	Standard

Table 6-2. Effective Radiated Power Output Data (Band 12)

	Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	RB Size/Offset	Measured Level [dBm]	Substitute Level [dBm]	Antenna Gain [dBi]	Pol [H/V]	ERP [dBm]	ERP [Watts]	Battery
Band V LTE	824.70	1.4	QPSK	3 / 2	-23.41	17.28	0.00	V	17.28	0.053	Standard
	836.50	1.4	QPSK	3 / 2	-19.97	20.72	0.00	V	20.72	0.118	Standard
	848.30	1.4	QPSK	1 / 0	-19.71	20.98	0.00	V	20.98	0.125	Standard
	824.70	1.4	16-QAM	3 / 2	-24.50	16.25	0.00	V	16.25	0.042	Standard
	836.50	1.4	16-QAM	3 / 2	-21.15	19.60	0.00	V	19.60	0.091	Standard
	848.30	1.4	16-QAM	1 / 0	-20.91	19.84	0.00	V	19.84	0.096	Standard
	825.50	3	QPSK	1 / 14	-22.64	18.11	0.00	V	18.11	0.065	Standard
	836.50	3	QPSK	1 / 0	-20.40	20.35	0.00	V	20.35	0.108	Standard
	847.50	3	QPSK	1 / 0	-19.31	21.44	0.00	V	21.44	0.139	Standard
	825.50	3	16-QAM	1 / 14	-23.35	17.40	0.00	V	17.40	0.055	Standard
	836.50	3	16-QAM	1 / 0	-21.57	19.18	0.00	V	19.18	0.083	Standard
	847.50	3	16-QAM	1 / 0	-20.36	20.39	0.00	V	20.39	0.109	Standard
Band V LTE	826.50	5	QPSK	1 / 24	-20.94	19.81	0.00	V	19.81	0.096	Standard
	836.50	5	QPSK	1 / 0	-20.90	19.85	0.00	V	19.85	0.097	Standard
	846.50	5	QPSK	12 / 6	-21.22	19.53	0.00	V	19.53	0.090	Standard
	826.50	5	16-QAM	1 / 24	-21.82	18.93	0.00	V	18.93	0.078	Standard
	836.50	5	16-QAM	1 / 0	-21.99	18.76	0.00	V	18.76	0.075	Standard
	846.50	5	16-QAM	12 / 6	-22.09	18.66	0.00	V	18.66	0.073	Standard

Table 6-3. Effective Radiated Power Output Data (Band 5)

NOTES:

Equivalent Isotropic Radiated Power Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. This level is recorded using the power meter. The conducted power at the terminals of the dipole is measured. The ERP is recorded.

The EUT was tested in three orthogonal planes and in all possible test configurations and modulations. The worst case test configuration was found in the horizontal setup for Bands 2, 4, and 12 and in the vertical setup for Band 5. All possible modulations, configurations, RB sizes and offsets were tested and the worst case settings are described in the table above. The data reported in the table above was measured in this test setup.

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6.3 Equivalent Isotropic Radiated Power Output Data

§24.232(c); §27.50(d)(4)

	Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	RB Size/Offset	Measured Level [dBm]	Substitute Level [dBm]	Antenna Gain [dBi]	Pol [H/V]	EIRP [dBm]	EIRP [Watts]	Battery
Band IV LTE	1712.50	5	QPSK	1 / 24	-16.91	15.24	8.33	H	23.57	0.228	Standard
	1732.50	5	QPSK	1 / 0	-18.51	13.64	8.23	H	21.87	0.154	Standard
	1752.50	5	QPSK	1 / 0	-18.10	14.05	8.12	H	22.17	0.165	Standard
	1712.50	5	16-QAM	1 / 24	-18.11	14.04	8.33	H	22.37	0.173	Standard
	1732.50	5	16-QAM	1 / 0	-19.31	12.84	8.23	H	21.07	0.128	Standard
	1752.50	5	16-QAM	1 / 0	-18.85	13.30	8.12	H	21.42	0.139	Standard
	1715.00	10	QPSK	1 / 0	-16.44	15.71	8.33	H	24.04	0.254	Standard
	1732.50	10	QPSK	1 / 0	-16.51	15.64	8.23	H	23.87	0.244	Standard
	1750.00	10	QPSK	1 / 0	-17.90	14.25	8.12	H	22.37	0.173	Standard
	1715.00	10	16-QAM	1 / 0	-17.72	14.43	8.33	H	22.76	0.189	Standard
	1732.50	10	16-QAM	1 / 0	-17.90	14.25	8.23	H	22.48	0.177	Standard
	1750.00	10	16-QAM	1 / 0	-18.88	13.27	8.12	H	21.39	0.138	Standard

Table 6-4. Equivalent Isotropic Radiated Power Output Data (Band 4)

	Frequency [MHz]	Channel Bandwidth [MHz]	Mod.	RB Size/Offset	Measured Level [dBm]	Substitute Level [dBm]	Antenna Gain [dBi]	Pol [H/V]	EIRP [dBm]	EIRP [Watts]	Battery
Band II LTE	1850.70	1.4	QPSK	3 / 2	-18.52	14.03	7.95	H	21.98	0.158	Standard
	1880.00	1.4	QPSK	3 / 2	-19.04	13.51	7.99	H	21.50	0.141	Standard
	1909.30	1.4	QPSK	3 / 2	-22.76	9.79	8.06	H	17.85	0.061	Standard
	1850.70	1.4	16-QAM	3 / 2	-19.72	12.83	7.95	H	20.78	0.120	Standard
	1880.00	1.4	16-QAM	3 / 2	-20.04	12.51	7.99	H	20.50	0.112	Standard
	1909.30	1.4	16-QAM	3 / 2	-23.42	9.13	8.06	H	17.19	0.052	Standard
	1851.50	3	QPSK	1 / 0	-16.40	16.15	7.95	H	24.10	0.257	Standard
	1880.00	3	QPSK	1 / 14	-19.16	13.39	7.99	H	21.38	0.137	Standard
	1908.50	3	QPSK	1 / 0	-22.69	9.86	8.06	H	17.92	0.062	Standard
	1851.50	3	16-QAM	1 / 0	-17.56	14.99	7.95	H	22.94	0.197	Standard
	1880.00	3	16-QAM	1 / 14	-20.34	12.21	7.99	H	20.20	0.105	Standard
	1908.50	3	16-QAM	1 / 0	-23.15	9.40	8.06	H	17.46	0.056	Standard
	1852.50	5	QPSK	1 / 0	-16.63	15.92	7.95	H	23.87	0.244	Standard
	1880.00	5	QPSK	1 / 24	-17.19	15.36	7.99	H	23.35	0.216	Standard
	1907.50	5	QPSK	12 / 6	-15.23	17.32	8.06	H	25.38	0.345	Standard
	1852.50	5	16-QAM	1 / 0	-17.58	14.97	7.95	H	22.92	0.196	Standard
	1880.00	5	16-QAM	1 / 24	-17.78	14.77	7.99	H	22.76	0.189	Standard
	1907.50	5	16-QAM	12 / 6	-15.86	16.69	8.06	H	24.75	0.299	Standard

Table 6-5. Equivalent Isotropic Radiated Power Output Data (Band 2)

NOTES:

Equivalent Isotropic Radiated Power Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004.

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. A Horn antenna was substituted in place of the EUT. This Horn antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. This level is recorded using the power meter. The conducted power at the terminals of the Horn antenna is measured. The difference between the gain of the horn and an isotropic antenna is taken into consideration and the EIRP is recorded.

The EUT was tested in three orthogonal planes and in all possible test configurations and modulations. The worst case test configuration was found in the horizontal setup for Bands 2, 4, and 12 and in the vertical setup for Band 5. All possible modulations, configurations, RB sizes and offsets were tested and the worst case settings are described in the table above. The data reported in the table above was measured in this test setup.

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6.4 Band 12 Radiated Measurements

§2.1053, §27.53(g)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 701.50 MHz
 CHANNEL: 23025
 MEASURED OUTPUT POWER: 16.10 dBm = 0.041 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 29.10 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
1403.00	-58.65	5.86	-52.79	H	68.9
2104.50	-48.39	6.68	-41.71	H	57.8
2806.00	-94.84	8.07	-86.77	H	102.9
3507.50	-91.38	7.67	-83.71	H	99.8
4209.00	-89.51	8.09	-81.41	H	97.5
4910.50	-88.29	9.00	-79.29	H	95.4

Table 6-6. Radiated Spurious Data (Ch. 23025)

NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all modulations and channel bandwidth configurations and the worst case emissions are reported at the maximum channel BW and respective settings for QPSK for all bands. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations, modulations, RB sizes and offsets and positioning. The worst case test configuration was found in the horizontal setup with an RB size of 1 and offset of 0. The data reported in the table above was measured in this test setup.

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Band 12 Radiated Measurements

§2.1053, §27.53(q)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 707.50 MHz
 CHANNEL: 23090
 MEASURED OUTPUT POWER: 18.14 dBm = 0.065 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 31.14 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
1415.00	-58.17	5.91	-52.27	H	70.4
2122.50	-52.78	6.70	-46.08	H	64.2
2830.00	-94.71	8.05	-86.66	H	104.8
3537.50	-91.41	7.75	-83.66	H	101.8
4245.00	-89.75	8.29	-81.47	H	99.6
4952.50	-88.06	8.98	-79.08	H	97.2

Table 6-7. Radiated Spurious Data (Ch. 23090)

NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all modulations and channel bandwidth configurations and the worst case emissions are reported at the maximum channel BW and respective settings for QPSK for all bands. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations, modulations, RB sizes and offsets and positioning. The worst case test configuration was found in the horizontal setup with an RB size of 1 and offset of 0. The data reported in the table above was measured in this test setup.

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Band 12 Radiated Measurements

§2.1053, §27.53(g)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 713.50 MHz
 CHANNEL: 23155
 MEASURED OUTPUT POWER: 18.02 dBm = 0.063 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 31.02 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
1427.00	-58.40	5.96	-52.44	H	70.5
2140.50	-54.67	6.72	-47.95	H	66.0
2854.00	-94.59	8.04	-86.55	H	104.6
3567.50	-91.44	7.83	-83.61	H	101.6
4281.00	-89.98	8.48	-81.50	H	99.5
4994.50	-87.84	8.96	-78.88	H	96.9

Table 6-8. Radiated Spurious Data (Ch. 23155)

NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all modulations and channel bandwidth configurations and the worst case emissions are reported at the maximum channel BW and respective settings for QPSK for all bands. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations, modulations, RB sizes and offsets and positioning. The worst case test configuration was found in the horizontal setup with an RB size of 1 and offset of 0. The data reported in the table above was measured in this test setup.

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6.5 Band 5 Radiated Measurements

§2.1053, §22.917(a)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 825.50 MHz
 CHANNEL: 20425
 MEASURED OUTPUT POWER: 18.110 dBm = 0.065 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 3 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 31.11 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
1651.00	-51.58	6.33	-45.25	V	63.4
2476.50	-93.60	6.81	-86.79	V	104.9
3302.00	-49.81	7.12	-42.69	V	60.8
4127.50	-88.84	7.63	-81.21	V	99.3
4953.00	-88.01	8.97	-79.04	V	97.1
5778.50	-85.76	9.21	-76.55	V	94.7

Table 6-9. Radiated Spurious Data (Ch. 20425)

NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004.

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all modulations and channel bandwidth configurations and the worst case emissions are reported at the maximum channel BW and respective settings for QPSK for all bands. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations, modulations, RB sizes and offsets and positioning. The worst case test configuration was found in the horizontal setup with an RB size of 1 and offset of 0. The data reported in the table above was measured in this test setup.

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Band 5 Radiated Measurements

§2.1053, §22.917(a)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 836.50 MHz
 CHANNEL: 20525
 MEASURED OUTPUT POWER: 20.350 dBm = 0.108 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 3 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 33.35 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
1673.00	-44.37	6.29	-38.08	V	58.4
2509.50	-93.54	6.84	-86.69	V	107.0
3346.00	-50.65	7.24	-43.42	V	63.8
4182.50	-89.32	7.96	-81.36	V	101.7
5019.00	-87.61	8.90	-78.71	V	99.1
5855.50	-85.54	9.20	-76.34	V	96.7

Table 6-10. Radiated Spurious Data (Ch. 20525)

NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all modulations and channel bandwidth configurations and the worst case emissions are reported at the maximum channel BW and respective settings for QPSK for all bands. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations, modulations, RB sizes and offsets and positioning. The worst case test configuration was found in the horizontal setup with an RB size of 1 and offset of 0. The data reported in the table above was measured in this test setup.

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Band 5 Radiated Measurements

§2.1053, §22.917(a)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 847.50 MHz
 CHANNEL: 20625
 MEASURED OUTPUT POWER: 21.440 dBm = 0.139 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 3 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 34.44 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBd)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
1695.00	-49.07	6.25	-42.81	V	64.3
2542.50	-93.56	6.92	-86.64	V	108.1
3390.00	-50.33	7.35	-42.97	V	64.4
4237.50	-89.69	8.24	-81.45	V	102.9
5085.00	-87.00	8.72	-78.27	V	99.7
5932.50	-85.25	9.15	-76.09	V	97.5

Table 6-11. Radiated Spurious Data (Ch. 20625)

NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all modulations and channel bandwidth configurations and the worst case emissions are reported at the maximum channel BW and respective settings for QPSK for all bands. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations, modulations, RB sizes and offsets and positioning. The worst case test configuration was found in the horizontal setup with an RB size of 1 and offset of 0. The data reported in the table above was measured in this test setup.

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6.6 Band 4 Radiated Measurements

§2.1053, §27.53(h)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1715.00 MHz
 CHANNEL: 19975
 MEASURED OUTPUT POWER: 24.040 dBm = 0.254 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 37.04 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3430.00	-49.15	9.61	-39.53	V	63.6
5145.00	-51.54	10.79	-40.75	V	64.8
6860.00	-39.28	10.60	-28.68	V	52.7
8575.00	-82.56	11.55	-71.00	V	95.0
10290.00	-81.36	12.71	-68.65	V	92.7
12005.00	-73.11	12.17	-60.94	V	85.0

Table 6-12. Radiated Spurious Data (Ch. 19975)

NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all modulations and channel bandwidth configurations and the worst case emissions are reported at the maximum channel BW and respective settings for QPSK for all bands. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations, modulations, RB sizes and offsets and positioning. The worst case test configuration was found in the horizontal setup with an RB size of 1 and offset of 0. The data reported in the table above was measured in this test setup.

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Band 4 Radiated Measurements

§2.1053, §27.53(h)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1732.50 MHz
 CHANNEL: 20175
 MEASURED OUTPUT POWER: 23.870 dBm = 0.244 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 36.87 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3465.00	-51.02	9.72	-41.30	V	65.2
5197.50	-47.63	10.75	-36.87	V	60.7
6930.00	-39.13	10.75	-28.39	V	52.3
8662.50	-82.59	11.70	-70.89	V	94.8
10395.00	-81.02	12.66	-68.36	V	92.2
12127.50	-72.03	12.02	-60.01	V	83.9

Table 6-13. Radiated Spurious Data (Ch. 20175)

NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all modulations and channel bandwidth configurations and the worst case emissions are reported at the maximum channel BW and respective settings for QPSK for all bands. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations, modulations, RB sizes and offsets and positioning. The worst case test configuration was found in the horizontal setup with an RB size of 1 and offset of 0. The data reported in the table above was measured in this test setup.

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Band 4 Radiated Measurements

§2.1053, §27.53(h)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1750.00 MHz
 CHANNEL: 20375
 MEASURED OUTPUT POWER: 22.370 dBm = 0.173 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 10 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 35.37 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3500.00	-47.09	9.83	-37.27	V	59.6
5250.00	-52.13	10.88	-41.25	V	63.6
7000.00	-39.26	10.92	-28.35	V	50.7
8750.00	-82.71	11.89	-70.82	V	93.2
10500.00	-80.66	12.62	-68.04	V	90.4
12250.00	-71.67	12.19	-59.48	V	81.9

Table 6-14. Radiated Spurious Data (Ch. 20375)

NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all modulations and channel bandwidth configurations and the worst case emissions are reported at the maximum channel BW and respective settings for QPSK for all bands. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations, modulations, RB sizes and offsets and positioning. The worst case test configuration was found in the horizontal setup with an RB size of 1 and offset of 0. The data reported in the table above was measured in this test setup.

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6.7 Band 2 Radiated Measurements

§2.1053, §24.238(a)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY:	1852.50	MHz			
CHANNEL:	18625				
MEASURED OUTPUT POWER:	23.870	dBm	=	0.244	W
MODULATION SIGNAL:	QPSK				
BANDWIDTH:	5	MHz			
DISTANCE:	3	meters			
LIMIT:	$43 + 10 \log_{10} (W) = 36.87$ dBc				

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3705.00	-47.30	9.93	-37.37	H	61.2
5557.50	-49.19	10.96	-38.23	H	62.1
7410.00	-84.40	10.80	-73.60	H	97.5
9262.50	-82.97	12.33	-70.64	H	94.5
11115.00	-78.38	13.06	-65.32	H	89.2
12967.50	-70.34	12.62	-57.72	H	81.6

Table 6-15. Radiated Spurious Data (Ch. 18625)

NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all modulations and channel bandwidth configurations and the worst case emissions are reported at the maximum channel BW and respective settings for QPSK for all bands. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations, modulations, RB sizes and offsets and positioning. The worst case test configuration was found in the horizontal setup with an RB size of 1 and offset of 0. The data reported in the table above was measured in this test setup.

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Band 2 Radiated Measurements

§2.1053, §24.238(a)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1880.00 MHz
 CHANNEL: 18900
 MEASURED OUTPUT POWER: 23.350 dBm = 0.216 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 36.35 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3760.00	-47.22	9.60	-37.61	H	61.0
5640.00	-48.98	11.16	-37.82	H	61.2
7520.00	-84.69	11.08	-73.61	H	97.0
9400.00	-82.74	12.22	-70.51	H	93.9
11280.00	-78.10	13.23	-64.87	H	88.2
13160.00	-70.30	12.71	-57.59	H	80.9

Table 6-16. Radiated Spurious Data (Ch. 18900)

NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all modulations and channel bandwidth configurations and the worst case emissions are reported at the maximum channel BW and respective settings for QPSK for all bands. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations, modulations, RB sizes and offsets and positioning. The worst case test configuration was found in the horizontal setup with an RB size of 1 and offset of 0. The data reported in the table above was measured in this test setup.

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Band 2 Radiated Measurements

§2.1053, §24.238(a)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 1907.50 MHz
 CHANNEL: 19176
 MEASURED OUTPUT POWER: 25.380 dBm = 0.345 W
 MODULATION SIGNAL: QPSK
 BANDWIDTH: 5 MHz
 DISTANCE: 3 meters
 LIMIT: $43 + 10 \log_{10} (W) =$ 38.38 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3815.00	-47.14	9.32	-37.82	H	63.2
5722.50	-49.95	11.32	-38.63	H	64.0
7630.00	-84.90	11.35	-73.55	H	98.9
9537.50	-82.94	12.40	-70.54	H	95.9
11445.00	-77.93	13.33	-64.60	H	90.0
13352.50	-70.60	13.00	-57.60	H	83.0

Table 6-17. Radiated Spurious Data (Ch. 19176)

NOTES:

Radiated Spurious Emission Measurements by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

The EUT was placed on a wooden turn table 80cm above the ground plane and 3 meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. Final power measurements are made with a broadband average power meter. A half-wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the level of the signal generator was adjusted to obtain the same spectrum analyzer reading. This spurious level is recorded using the power meter. For readings above 1GHz, the above procedure is repeated using horn antennas and the difference between the gain of the horn and an isotropic or dipole antenna are taken into consideration.

This device was tested under all modulations and channel bandwidth configurations and the worst case emissions are reported at the maximum channel BW and respective settings for QPSK for all bands. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations, modulations, RB sizes and offsets and positioning. The worst case test configuration was found in the horizontal setup with an RB size of 1 and offset of 0. The data reported in the table above was measured in this test setup.

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6.8 Band 12 Frequency Stability Measurements

§2.1055, §27.54, RSS-133 (6.3)

OPERATING FREQUENCY: 707,500,000 Hz

CHANNEL: 23090

REFERENCE VOLTAGE: 3.7 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.70	+ 20 (Ref)	707,500,020	20	0.000003
100 %		- 30	707,500,020	20	0.000003
100 %		- 20	707,499,979	-21	-0.000003
100 %		- 10	707,499,985	-15	-0.000002
100 %		0	707,500,020	20	0.000003
100 %		+ 10	707,500,027	27	0.000004
100 %		+ 20	707,499,990	-10	-0.000001
100 %		+ 30	707,499,982	-18	-0.000003
100 %		+ 40	707,500,013	13	0.000002
100 %		+ 50	707,500,022	22	0.000003
115 %	4.26	+ 20	707,500,016	16	0.000002
85 %	3.15	+ 20	707,499,980	-20	-0.000003

Table 6-18. Frequency Stability Data (Band 12)

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

Note: Carrier Frequency Stability Measurements performed according to ANSI/TI/EIA-603-C-2004, Aug. 17, 2004

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Band 12 Frequency Stability Measurements (Cont'd)

§2.1055, §27.54, RSS-133 (6.3)

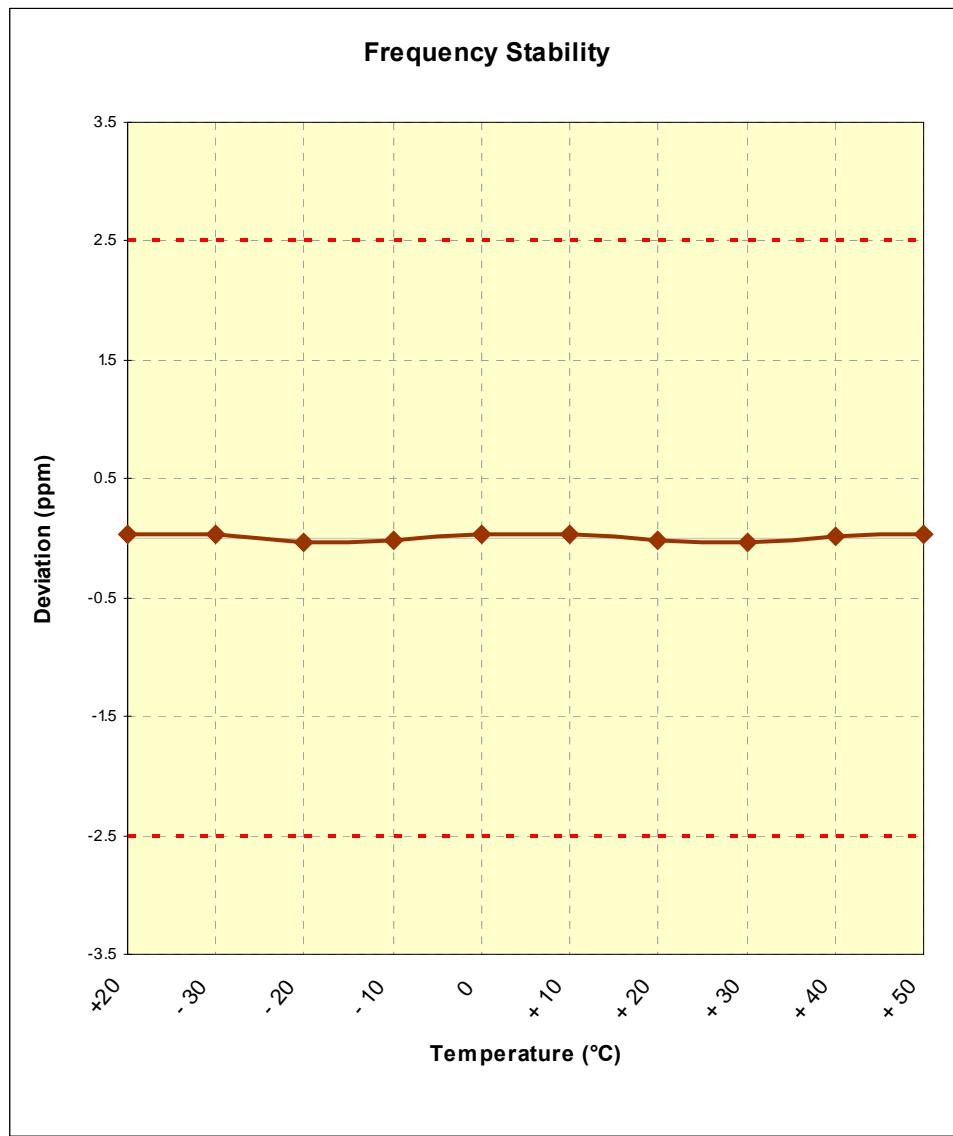


Figure 6-1. Frequency Stability Graph (Band 12)

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

Note: Carrier Frequency Stability Measurements performed according to ANSI/TI/EIA-603-C-2004, Aug. 17, 2004

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Band 5 Frequency Stability Measurements

§2.1055, §22.355

OPERATING FREQUENCY: 836,500,000 Hz

CHANNEL: 20525

REFERENCE VOLTAGE: 3.7 VDC

DEVIATION LIMIT: ± 0.00025 % or 2.5 ppm

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.70	+ 20 (Ref)	836,499,977	-23	-0.000003
100 %		- 30	836,500,020	20	0.000002
100 %		- 20	836,500,022	22	0.000003
100 %		- 10	836,500,023	23	0.000003
100 %		0	836,499,981	-19	-0.000002
100 %		+ 10	836,500,021	21	0.000003
100 %		+ 20	836,499,981	-19	-0.000002
100 %		+ 30	836,500,021	21	0.000003
100 %		+ 40	836,500,019	19	0.000002
100 %		+ 50	836,500,018	18	0.000002
115 %	4.26	+ 20	836,500,020	20	0.000002
85 %	3.15	+ 20	836,499,974	-26	-0.000003

Table 6-19. Frequency Stability Data (Band 5)

Note: Carrier Frequency Stability Measurements performed according to ANSI/TI/EIA-603-C-2004, Aug. 17, 2004

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Band 5 Frequency Stability Measurements (Cont'd)

§2.1055, §22.355

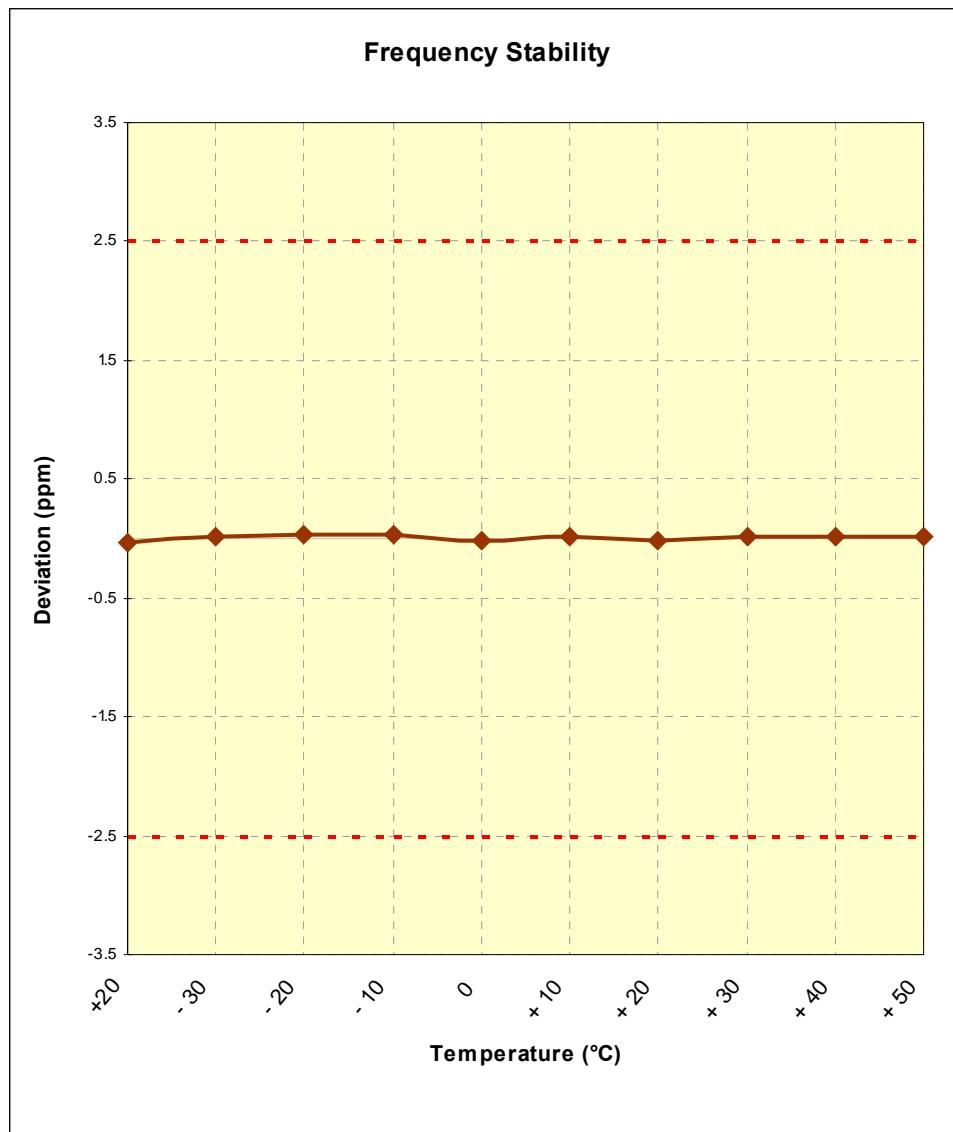


Figure 6-2. Frequency Stability Graph (Band 5)

Note: Carrier Frequency Stability Measurements performed according to ANSI/TI/EIA-603-C-2004, Aug. 17, 2004

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Band 4 Frequency Stability Measurements

§2.1055, §27.54, RSS-133 (6.3)

OPERATING FREQUENCY: 1,732,500,000 Hz

CHANNEL: 20175

REFERENCE VOLTAGE: 3.7 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.70	+ 20 (Ref)	1,732,499,983	-17	-0.000001
100 %		- 30	1,732,500,017	17	0.000001
100 %		- 20	1,732,500,021	21	0.000001
100 %		- 10	1,732,500,023	23	0.000001
100 %		0	1,732,499,983	-17	-0.000001
100 %		+ 10	1,732,500,019	19	0.000001
100 %		+ 20	1,732,499,990	-10	-0.000001
100 %		+ 30	1,732,499,981	-19	-0.000001
100 %		+ 40	1,732,500,014	14	0.000001
100 %		+ 50	1,732,500,020	20	0.000001
115 %		+ 20	1,732,500,022	22	0.000001
85 %	3.15	+ 20	1,732,499,977	-23	-0.000001

Table 6-20. Frequency Stability Data (Band 4)

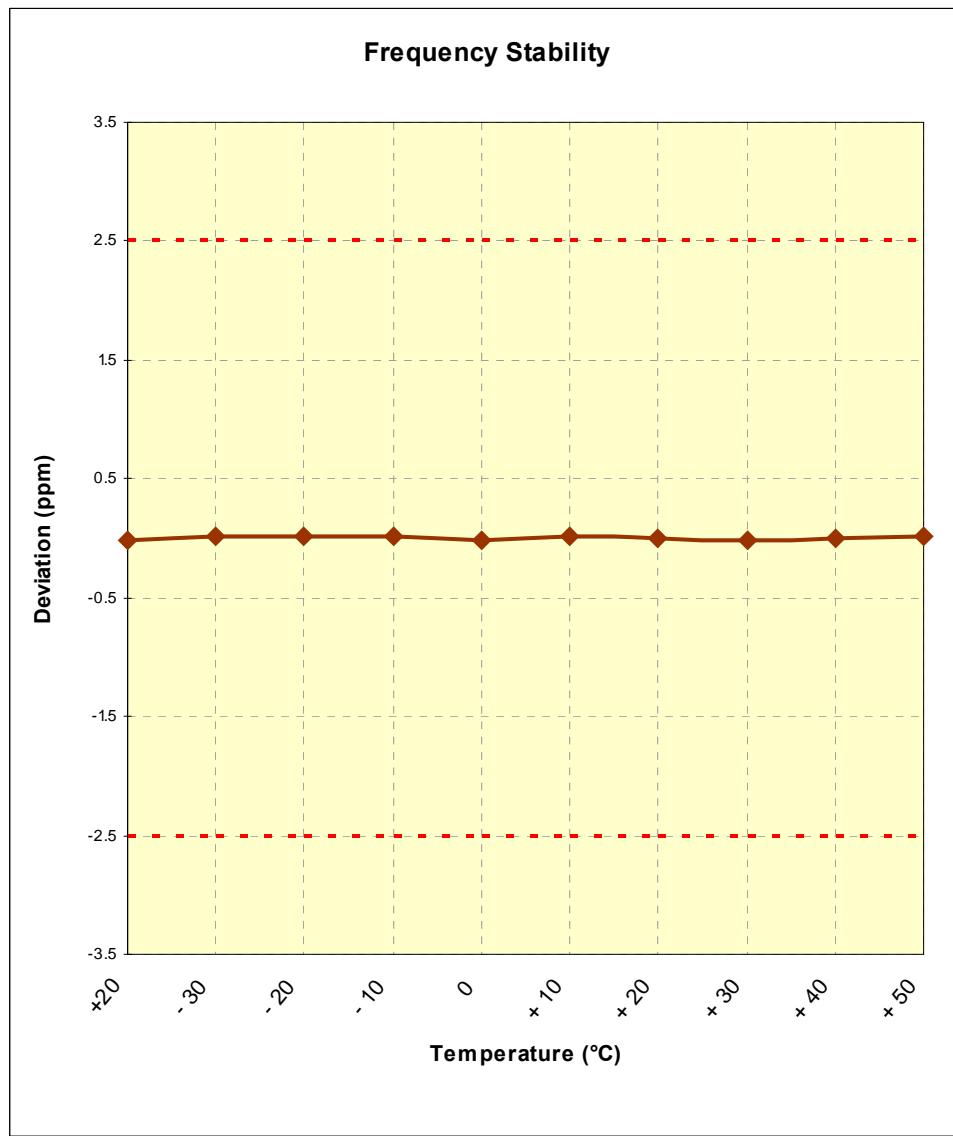
The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

Note: Carrier Frequency Stability Measurements performed according to ANSI/TI/EIA-603-C-2004, Aug. 17, 2004

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Band 4 Frequency Stability Measurements (Cont'd)

§2.1055, §27.54; RSS-133 (6.3)



The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

Note: Carrier Frequency Stability Measurements performed according to ANSI/TI/EIA-603-C-2004, Aug. 17, 2004

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6.9 Band 2 Frequency Stability Measurements

§2.1055, §24.235

OPERATING FREQUENCY: 1,880,000,000 Hz

CHANNEL: 18900

REFERENCE VOLTAGE: 3.7 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.70	+ 20 (Ref)	1,879,999,978	-22	-0.000001
100 %		- 30	1,880,000,023	23	0.000001
100 %		- 20	1,880,000,022	22	0.000001
100 %		- 10	1,880,000,023	23	0.000001
100 %		0	1,879,999,983	-17	-0.000001
100 %		+ 10	1,880,000,019	19	0.000001
100 %		+ 20	1,879,999,980	-20	-0.000001
100 %		+ 30	1,879,999,981	-19	-0.000001
100 %		+ 40	1,880,000,018	18	0.000001
100 %		+ 50	1,880,000,018	18	0.000001
115 %		+ 20	1,880,000,023	23	0.000001
85 %	3.15	+ 20	1,879,999,978	-22	-0.000001

Table 6-21. Frequency Stability Data (Band 2)

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

Note: Carrier Frequency Stability Measurements performed according to ANSI/TI/EIA-603-C-2004, Aug. 17, 2004

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Band 2 Frequency Stability Measurements (Cont'd)

§2.1055, §24.235

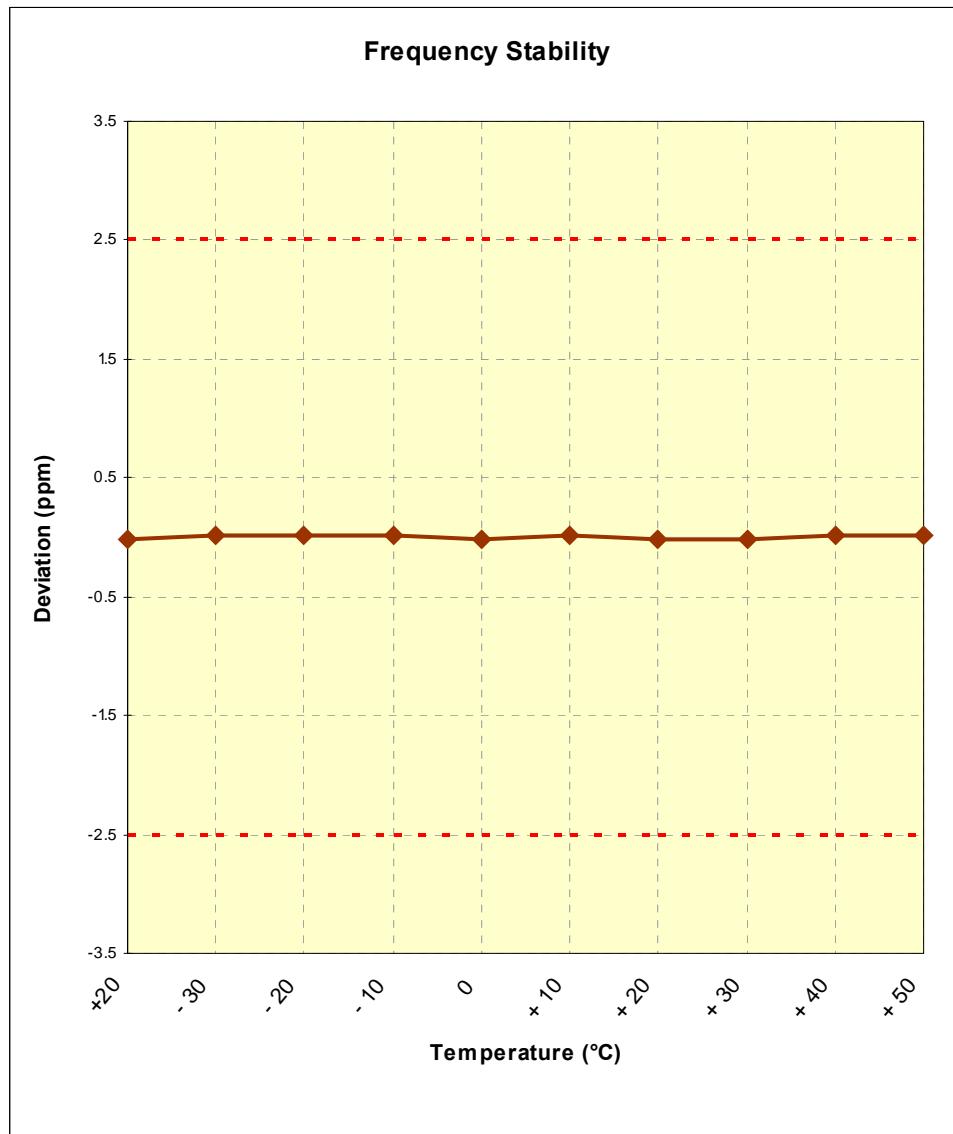


Figure 6-3. Frequency Stability Graph (Band 2)

The frequency stability shall be sufficient to ensure that the fundamental emissions stay within the authorized bands of operation.

Note: Carrier Frequency Stability Measurements performed according to ANSI/TI/EIA-603-C-2004, Aug. 17, 2004

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7.0 PLOT(S) OF EMISSIONS

Note: For all out-of-band spurious emissions, the RB sizes and offsets that produced the worst case emissions are indicated in the plot captions. For all band edge emissions whose spurious limits are subject to the rules of Parts 22, 24, and 27 (Bands 5, 2, and 4, respectively, but excluding Band 12), a resolution bandwidth of at least 1% of the emission bandwidth is used to measure the band edge. An exception was made in Band 2 and 5 for BW = 1.4MHz where RBW =10kHz was used. For those measurements, a bandwidth correction factor was applied to the worst case emissions. For Band 12, a RBW of 30 kHz was used to demonstrate compliance at the band edge.

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BAND 5 – 1.4MHz BW

Note: The following plots show worst case emissions for band edge plots with RBW = 10kHz. A minimum of 11kHz or 1% of Mid Occupied Bandwidth for 1.4MHz is required for compliance. The table below applies a Bandwidth correction factor of $10 \times \log(11\text{kHz}/10\text{kHz}) = 0.4\text{dBm}$ to worst case emissions observed in the band edge plots. It is observed that emissions exhibit compliance.

	BE	BW (MHz)	RB Size/Offset	RBW = 10kHz	BWCF	RBW = 11kHz	Limit	Margin
QPSK	Low	1.4	1 / 0	-25.98	0.4	-25.58	-13	12.58
16QAM	Low	1.4	1 / 0	-26.05	0.4	-25.65	-13	12.65
QPSK	Low	1.4	6 / 0	-36.19	0.4	-35.79	-13	22.79
16QAM	Low	1.4	6 / 0	-37.24	0.4	-36.84	-13	23.84
QPSK	High	1.4	1 / 5	-26.03	0.4	-25.63	-13	12.63
16QAM	High	1.4	1 / 5	-26.33	0.4	-25.93	-13	12.93
QPSK	High	1.4	6 / 0	-37.03	0.4	-36.63	-13	23.63
16QAM	High	1.4	6 / 0	-36.42	0.4	-36.02	-13	23.02



Plot 7-1. Lower Band Edge Plot (QPSK – RB Size 1, Offset 0)

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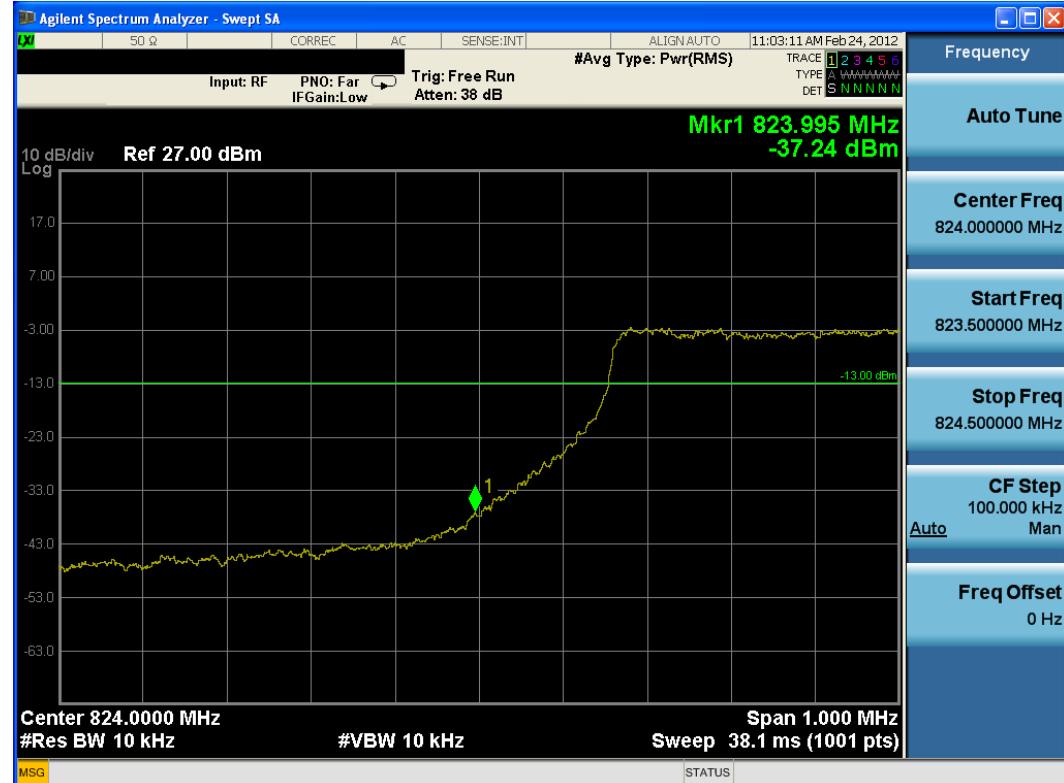


Plot 7-2. Lower Band Edge Plot (16-QAM – RB Size 1, Offset 0)



Plot 7-3. Lower Band Edge Plot (QPSK – RB Size 6)

FCC ID: A3LSCHLC11R		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1201230105.A3L	Test Dates: Jan. 23-30, Feb. 23-29, 2012	EUT Type: Portable Wireless Router		Page 37 of 167

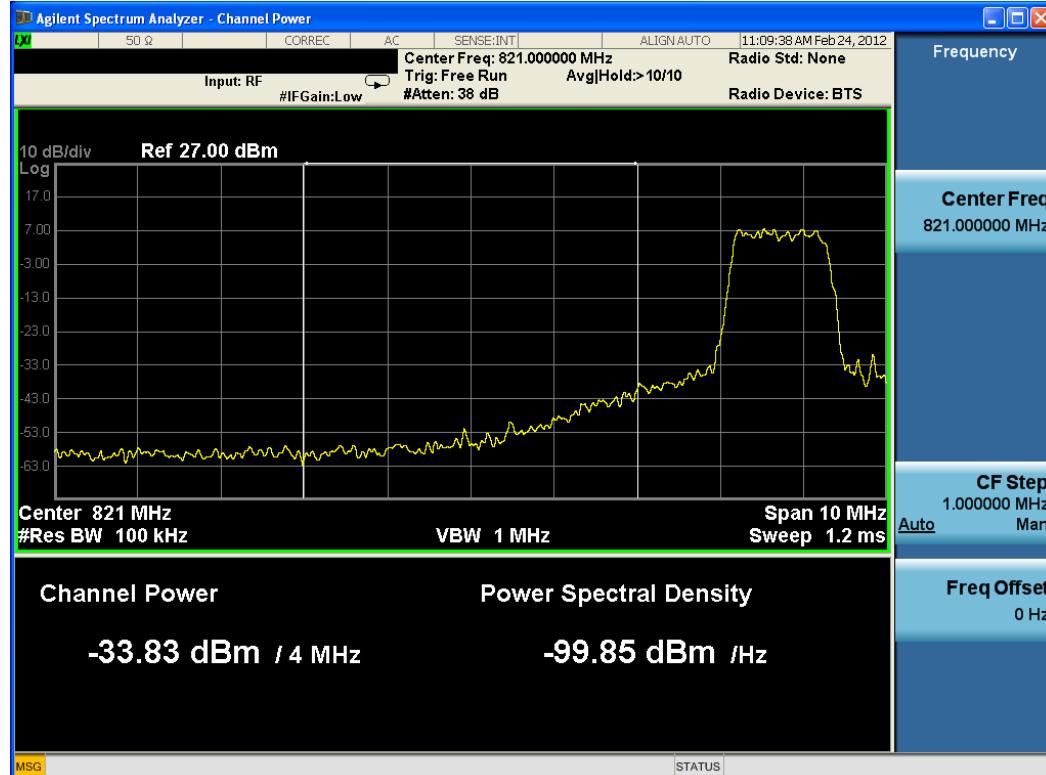


Plot 7-4. Lower Band Edge Plot (16QAM – RB Size 6)

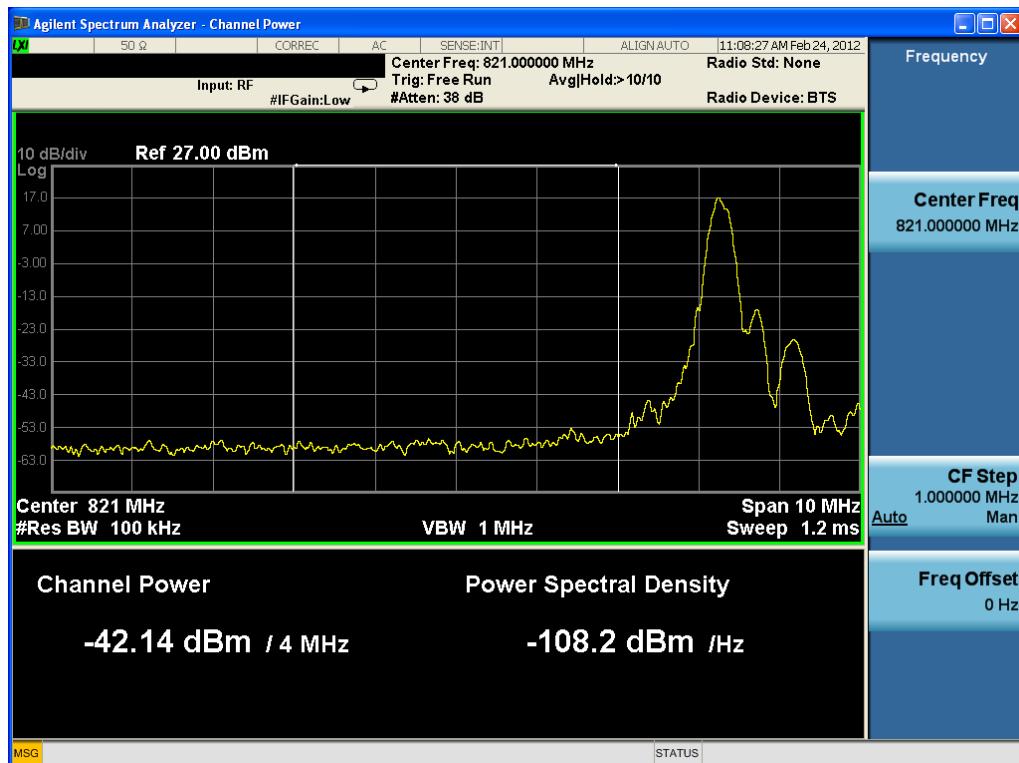


Plot 7-5. Lower Emission Mask (819 – 823MHz) Plot (QPSK – RB Size 6)

FCC ID: A3LSCHLC11R		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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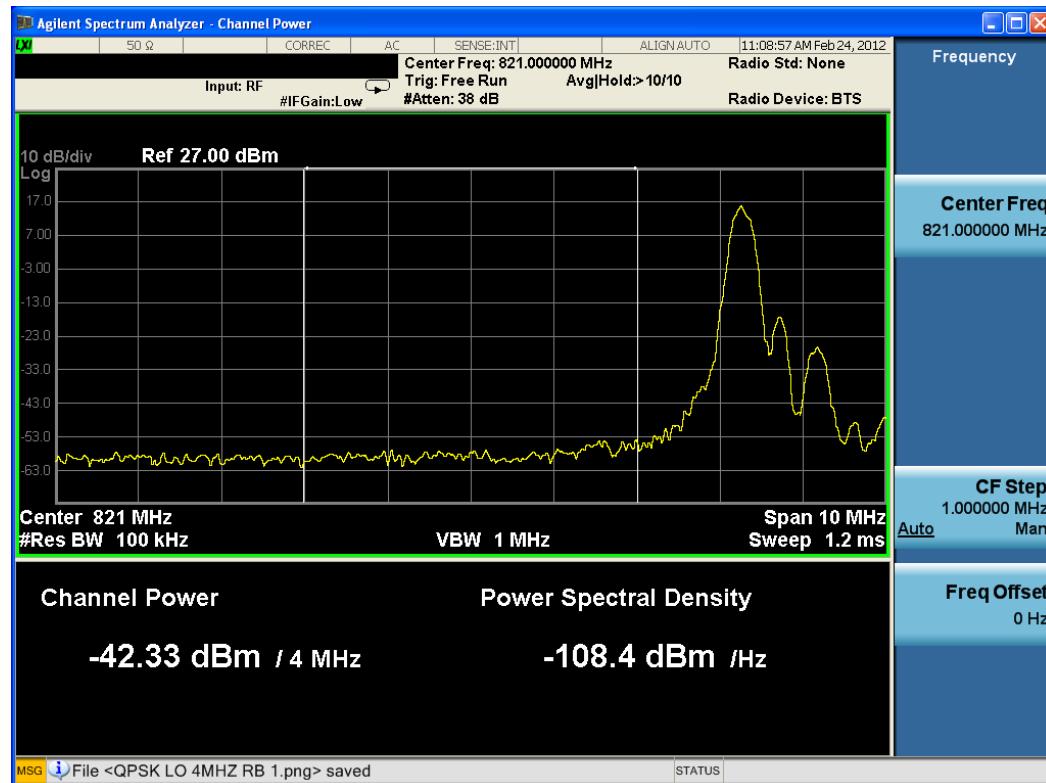


Plot 7-6. Lower Emission Mask (819 – 823MHz) Plot (16-QAM – RB Size 6)

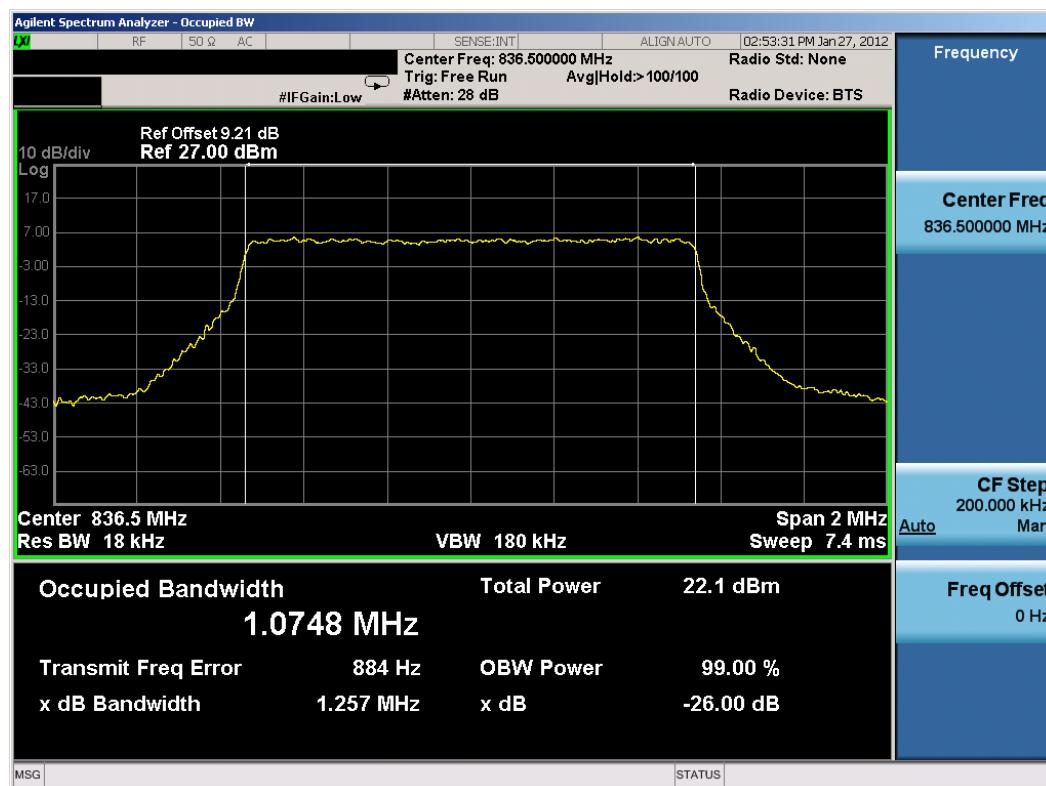


Plot 7-7. Lower Emission Mask Plot (QPSK – RB Size 1, Offset 0)

FCC ID: A3LSCHLC11R		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1201230105.A3L	Test Dates: Jan. 23-30, Feb. 23-29, 2012	EUT Type: Portable Wireless Router		Page 39 of 167

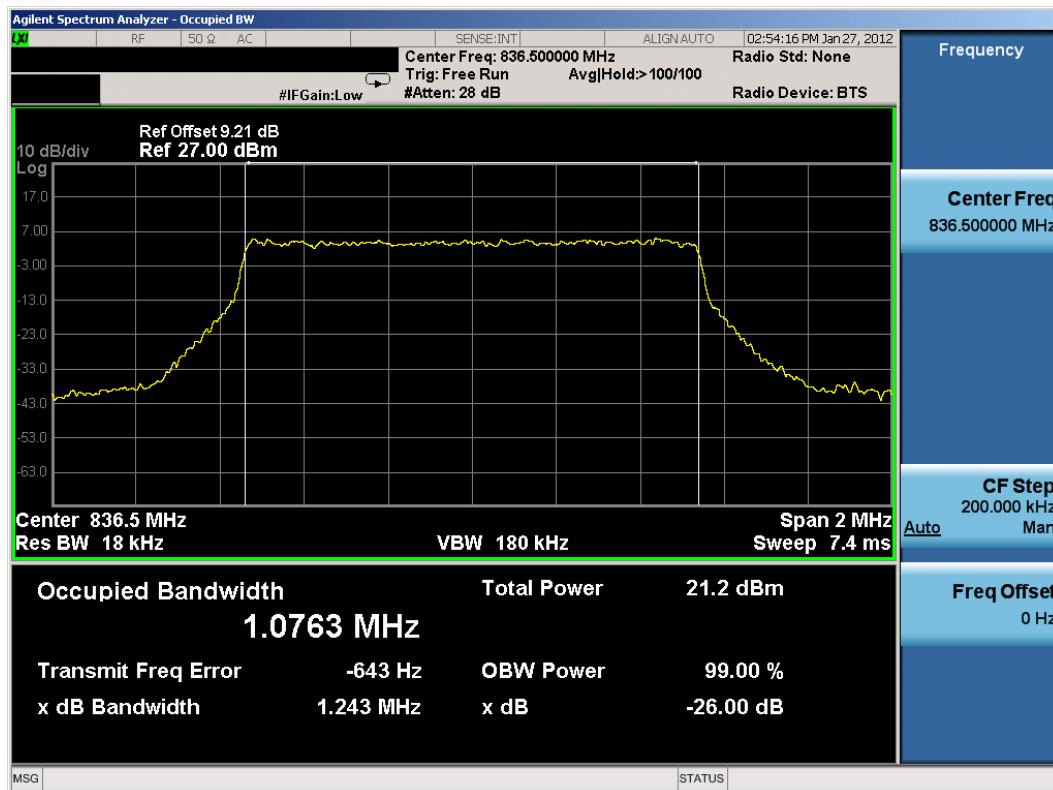


Plot 7-8. Lower Emission Mask Plot (16QAM – RB Size 1, Offset 0)

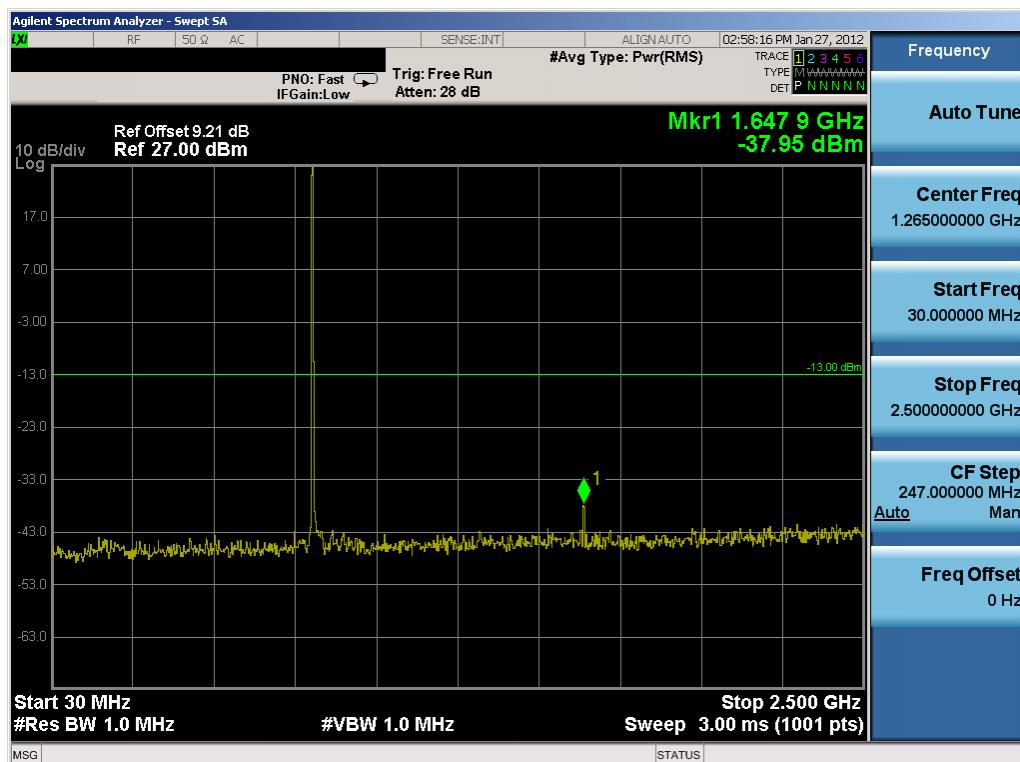


Plot 7-9. Occupied Bandwidth Plot (QPSK – RB Size 6)

FCC ID: A3LSCHLC11R		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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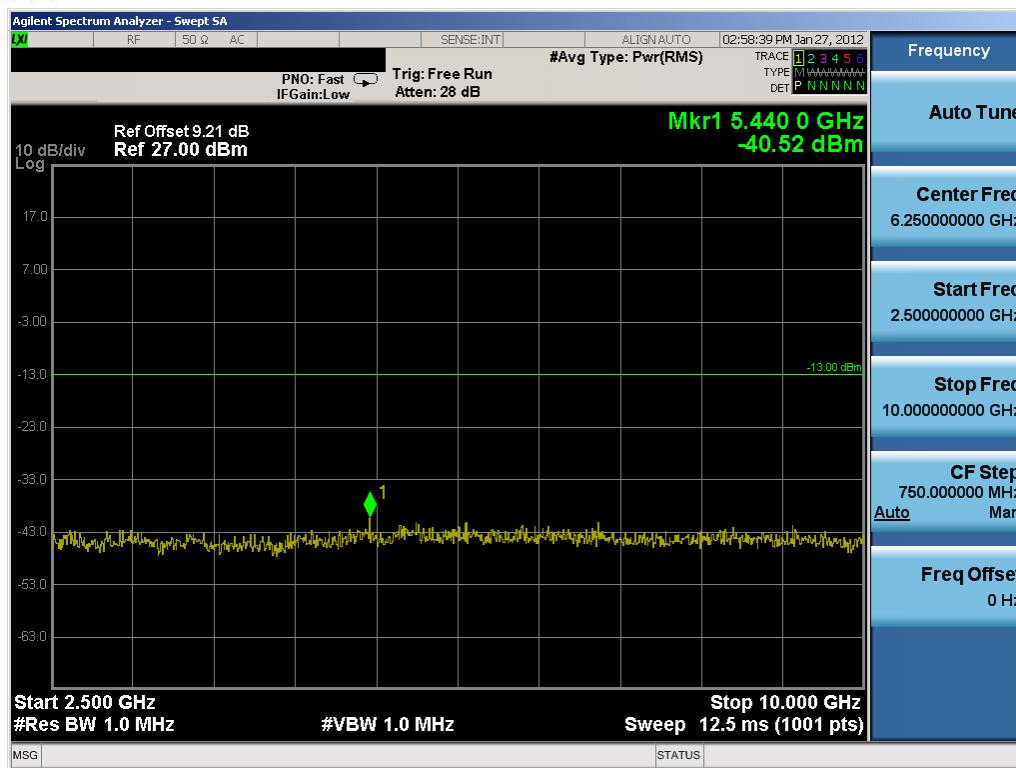


Plot 7-10. Occupied Bandwidth Plot (16-QAM – RB Size 6)

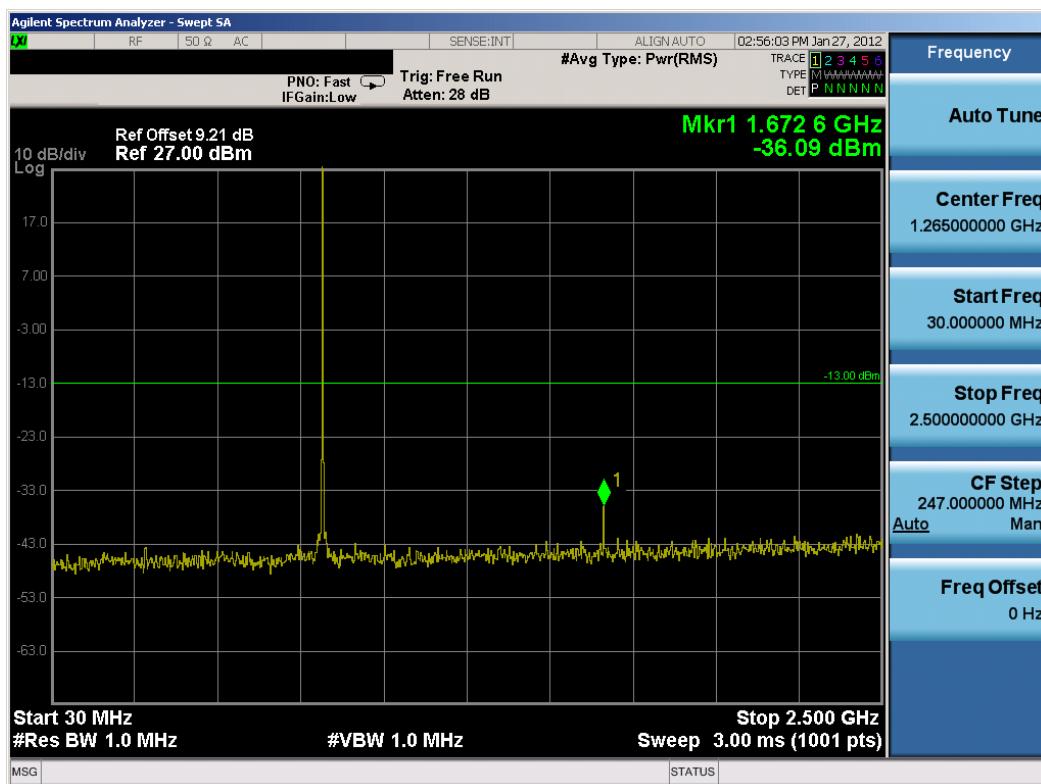


Plot 7-11. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Low Channel)

FCC ID: A3LSCHLC11R		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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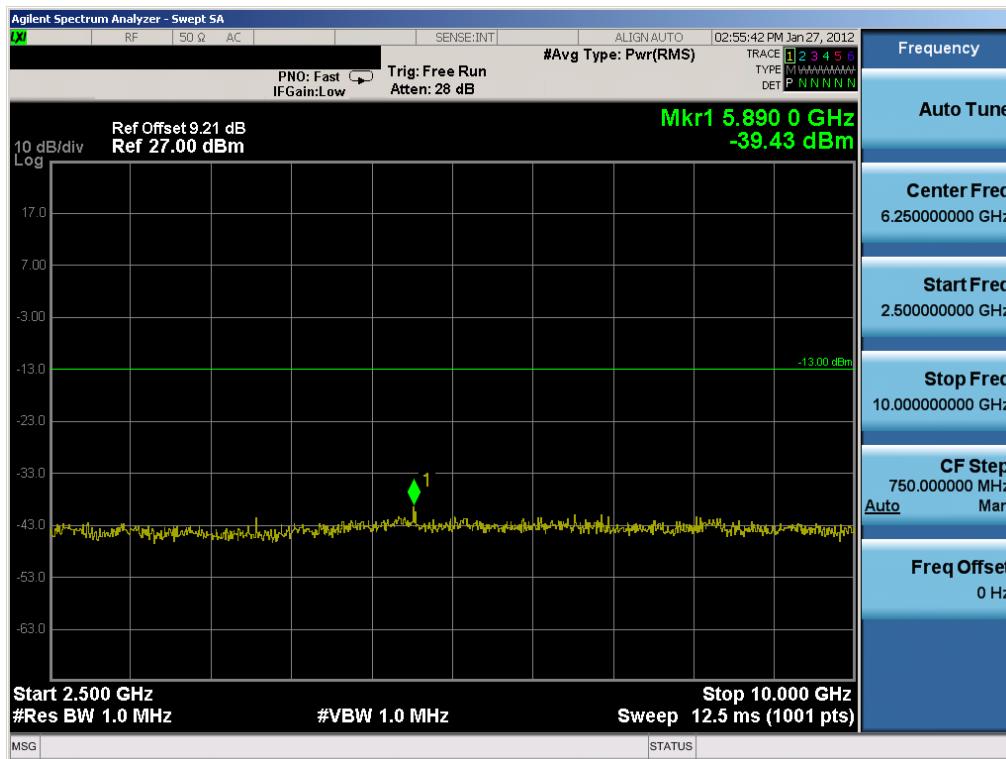


Plot 7-12. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Low Channel)

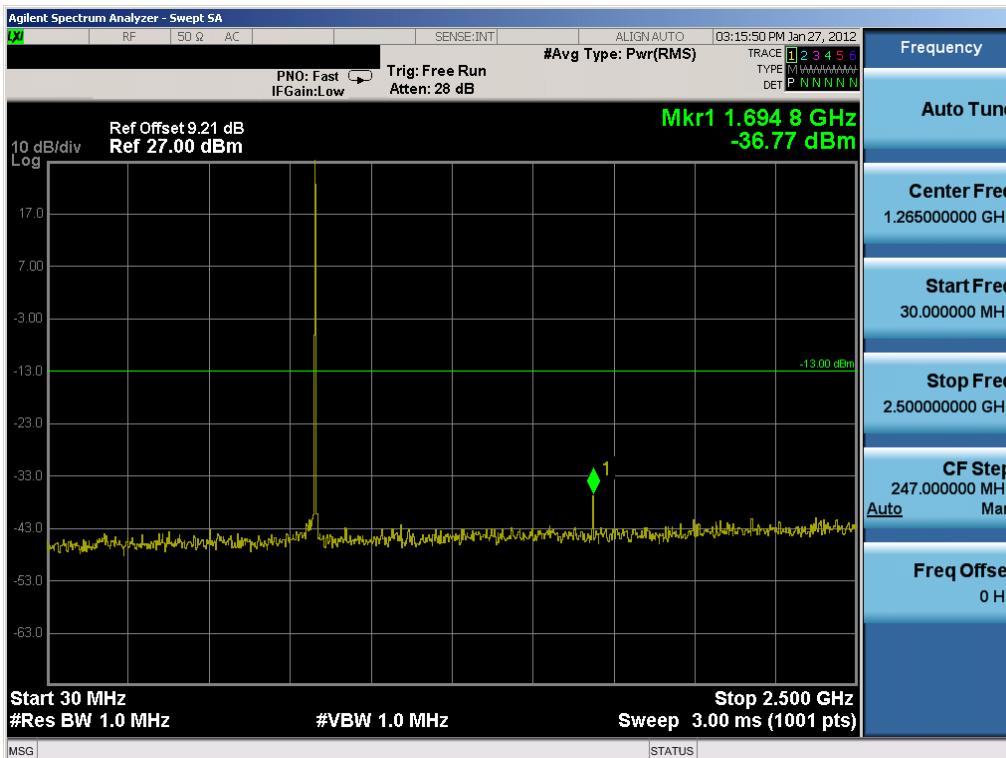


Plot 7-13. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Mid Channel)

FCC ID: A3LSCHLC11R		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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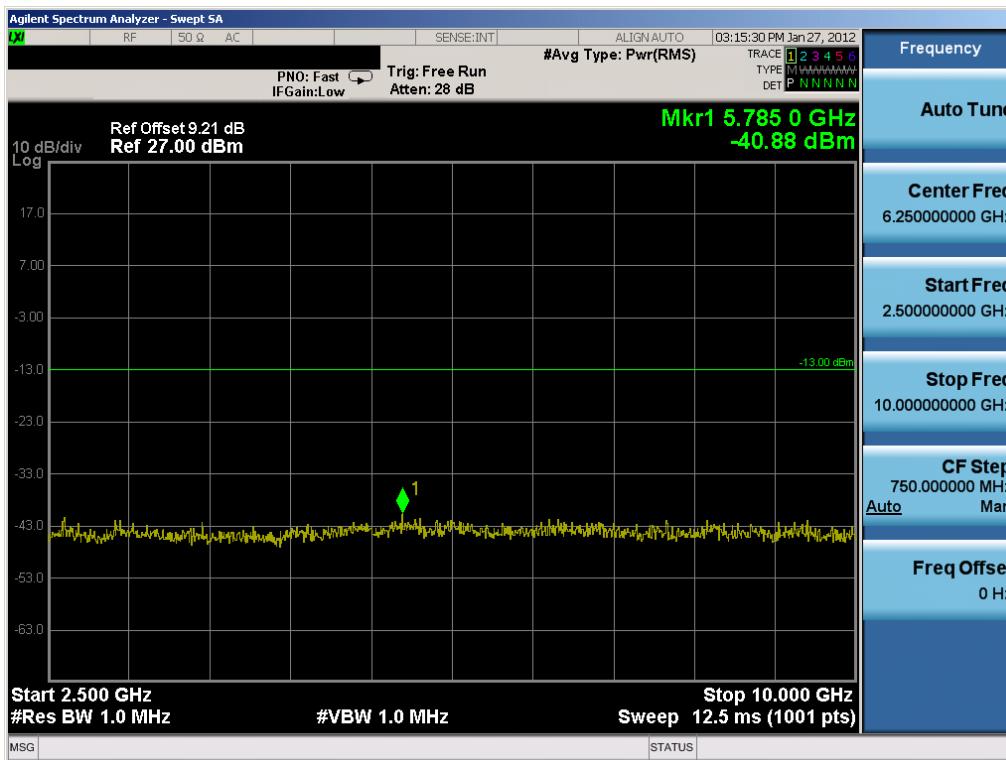


Plot 7-14. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Mid Channel)

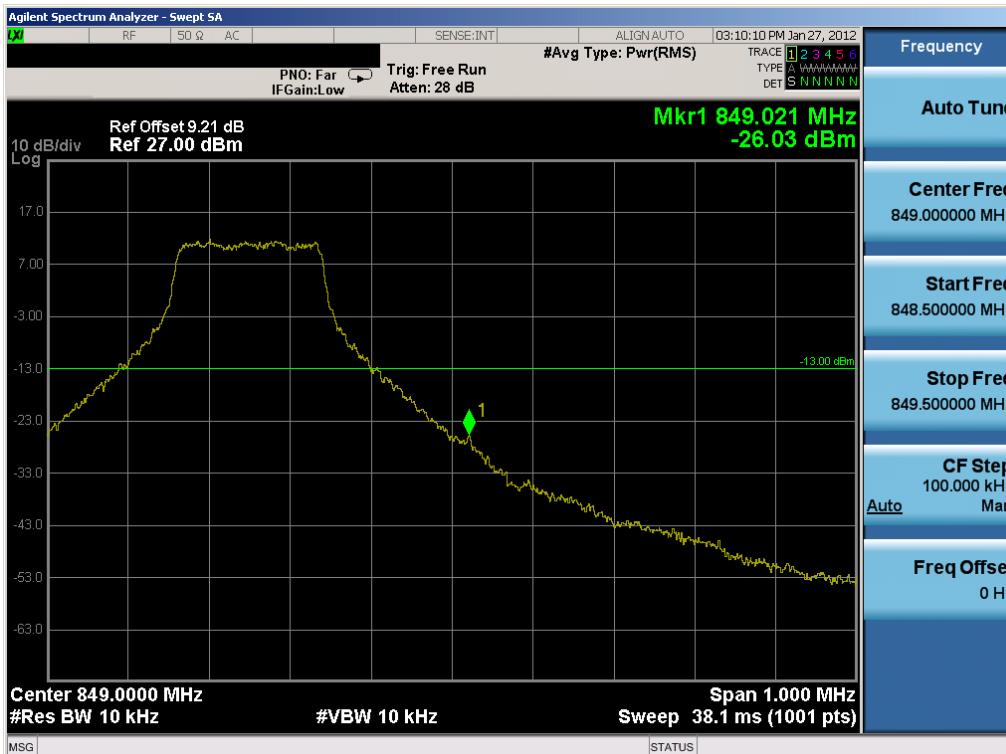


Plot 7-15. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – High Channel)

FCC ID: A3LSCHLC11R		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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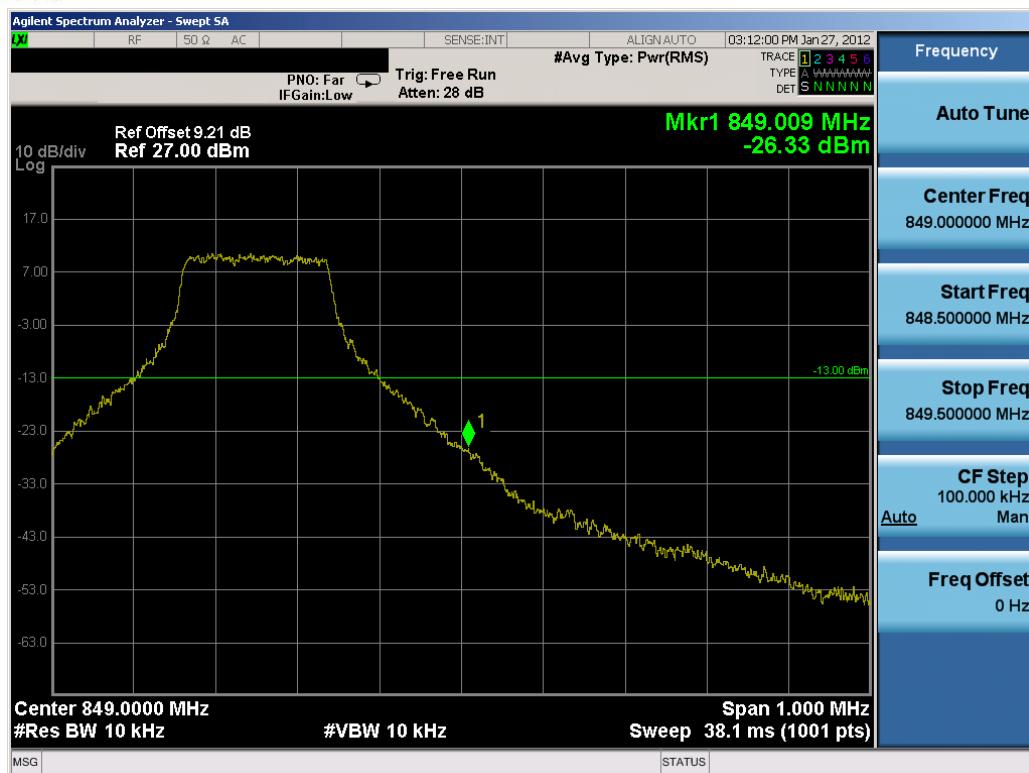


Plot 7-16. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – High Channel)



Plot 7-17. Upper Band Edge Plot (QPSK – RB Size 1, Offset 5)

FCC ID: A3LSCHLC11R		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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Plot 7-18. Upper Band Edge Plot (16-QAM – RB Size 1, Offset 5)



Plot 7-19. Upper Band Edge Plot (QPSK – RB Size 6)

FCC ID: A3LSCHLC11R	 FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)			Reviewed by: Quality Manager
Test Report S/N: 0Y1201230105.A3L	Test Dates: Jan. 23-30, Feb. 23-29, 2012	EUT Type: Portable Wireless Router		Page 45 of 167

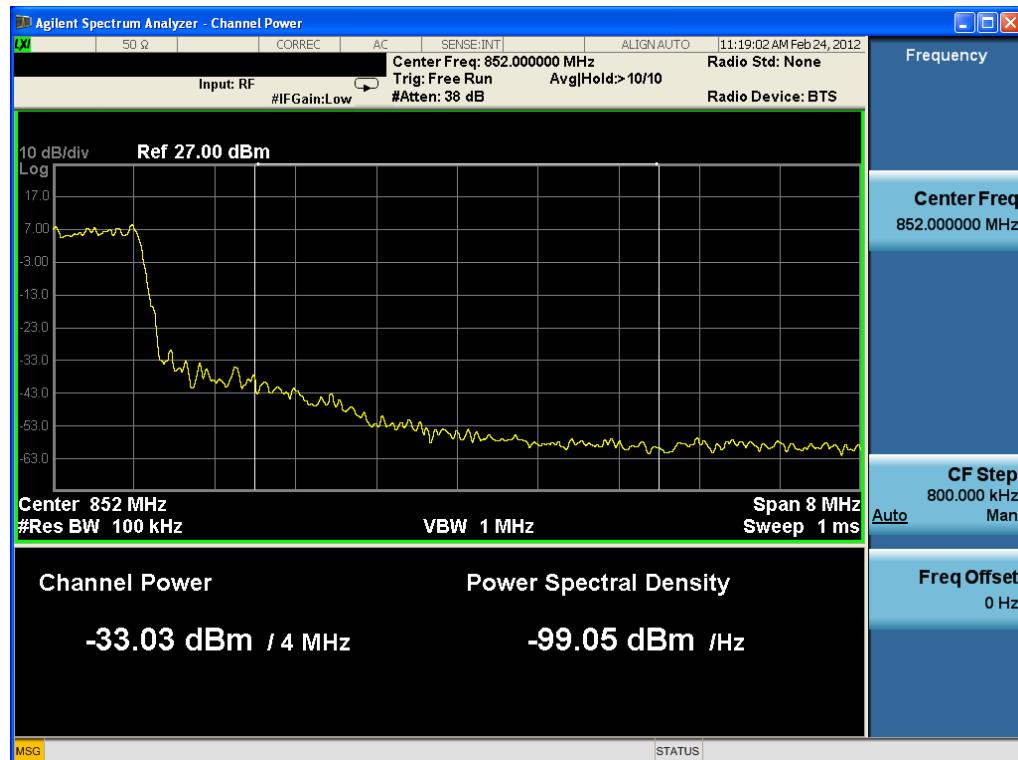


Plot 7-20. Upper Band Edge Plot (16-QAM – RB Size 6)

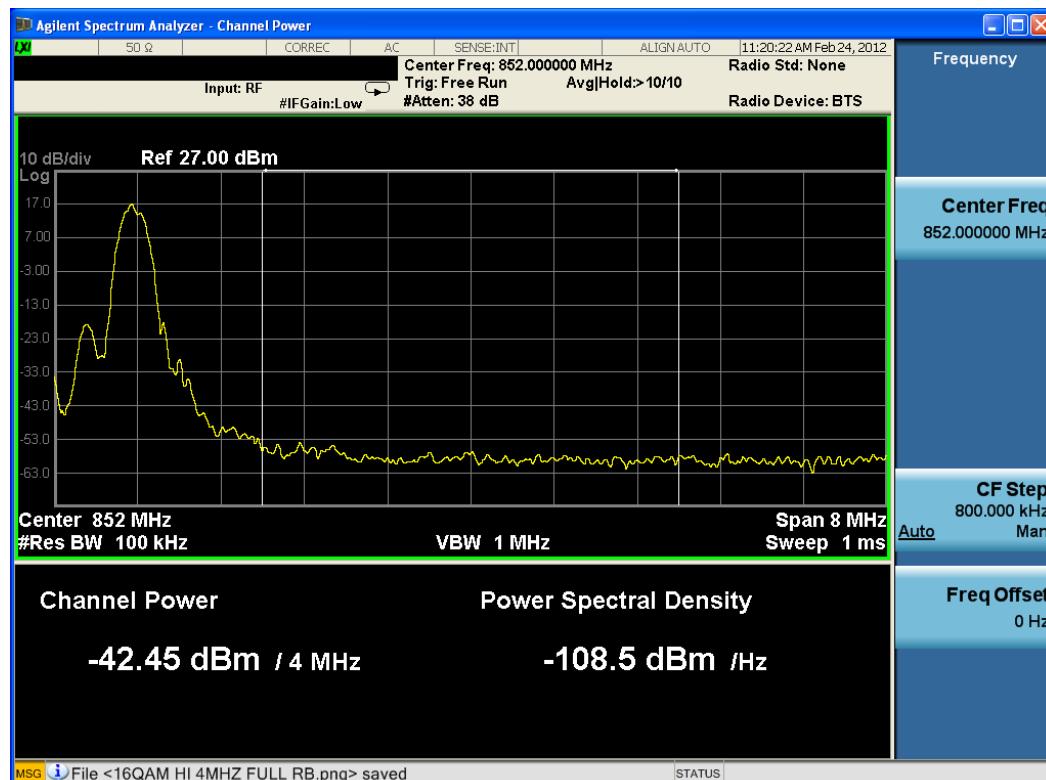


Plot 7-21. Upper Emission Mask (850 – 854MHz) Plot (QPSK – RB Size 6)

FCC ID: A3LSCHLC11R	 FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)			Reviewed by: Quality Manager
Test Report S/N: 0Y1201230105.A3L	Test Dates: Jan. 23-30, Feb. 23-29, 2012	EUT Type: Portable Wireless Router		Page 46 of 167

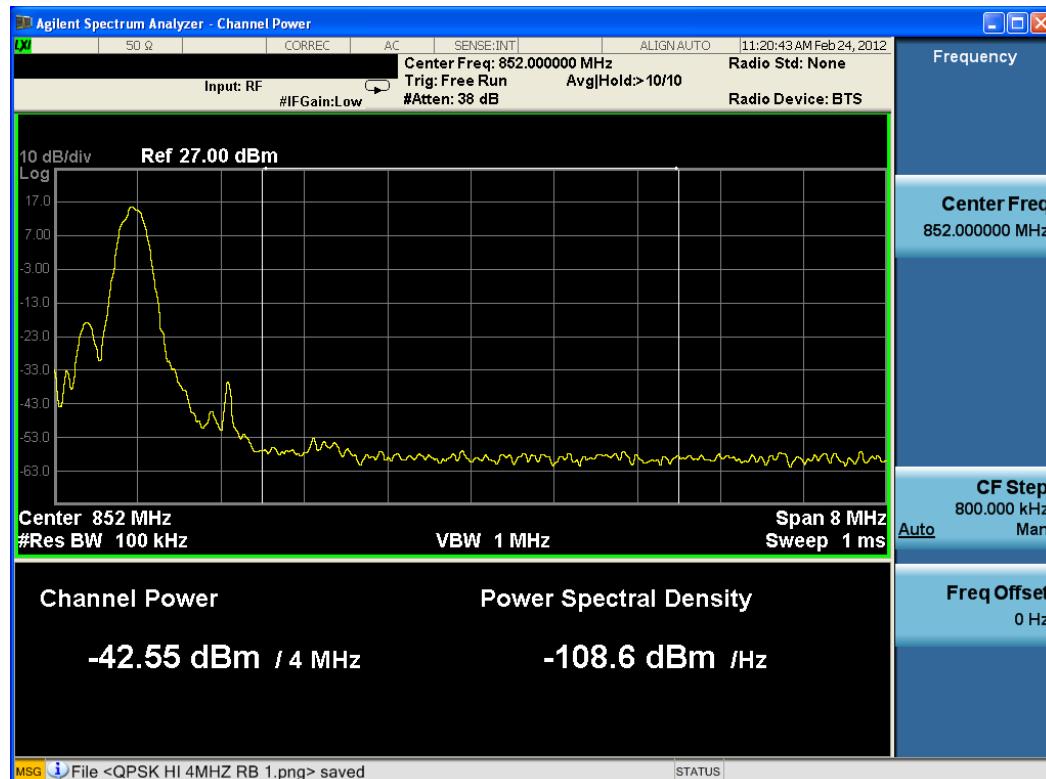


Plot 7-22. Upper Emission Mask (850 – 854MHz) Plot (16-QAM – RB Size 6)



Plot 7-23. Upper Emission Mask (850 – 854MHz) Plot (QPSK – RB Size 1, Offset 5)

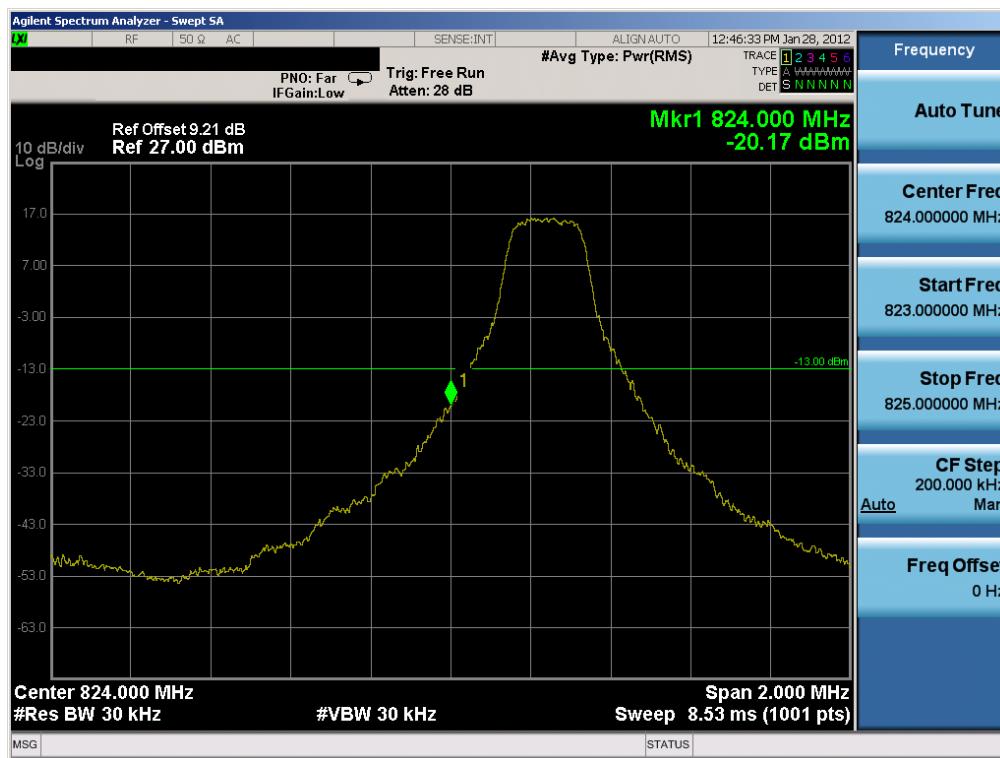
FCC ID: A3LSCHLC11R		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1201230105.A3L	Test Dates: Jan. 23-30, Feb. 23-29, 2012	EUT Type: Portable Wireless Router		Page 47 of 167



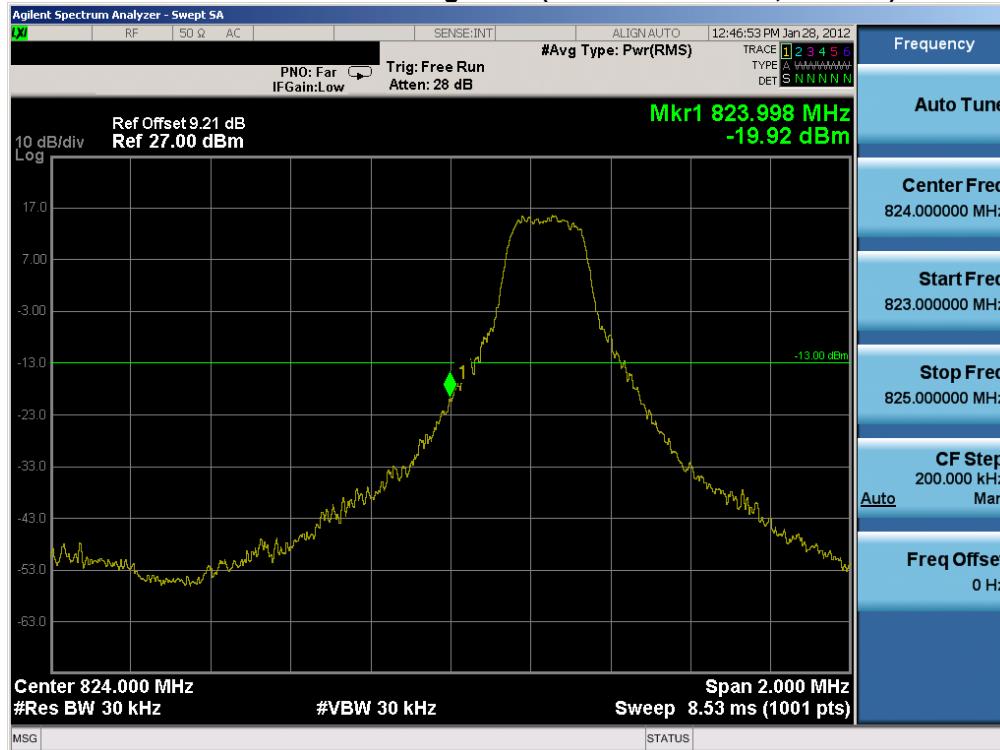
Plot 7-24. Upper Emission Mask (850 – 854MHz) Plot (16-QAM – RB Size 1, Offset 5)

FCC ID: A3LSCHLC11R		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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BAND 5 – 3 MHZ BW

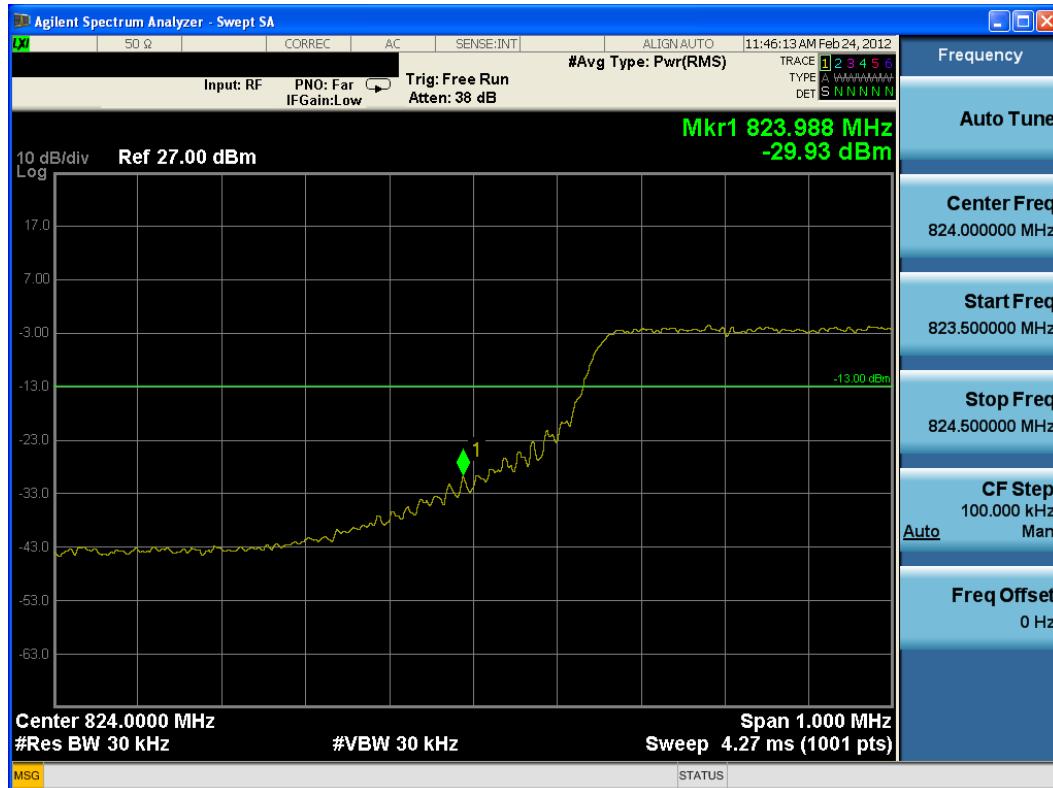


Plot 7-25. Lower Band Edge Plot (QPSK – RB Size 1, Offset 0)

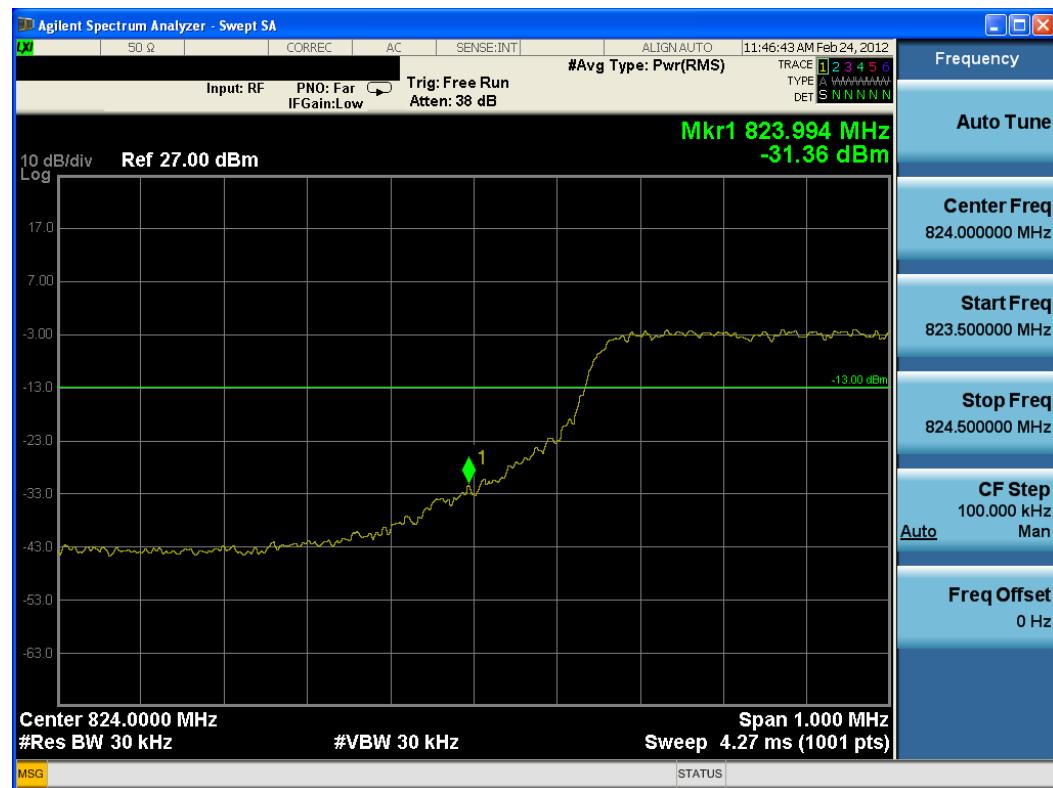


Plot 7-26. Lower Band Edge Plot (16-QAM – RB Size 1, Offset 0)

FCC ID: A3LSCHLC11R		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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Plot 7-27. Lower Band Edge Plot (QPSK – RB Size 15)

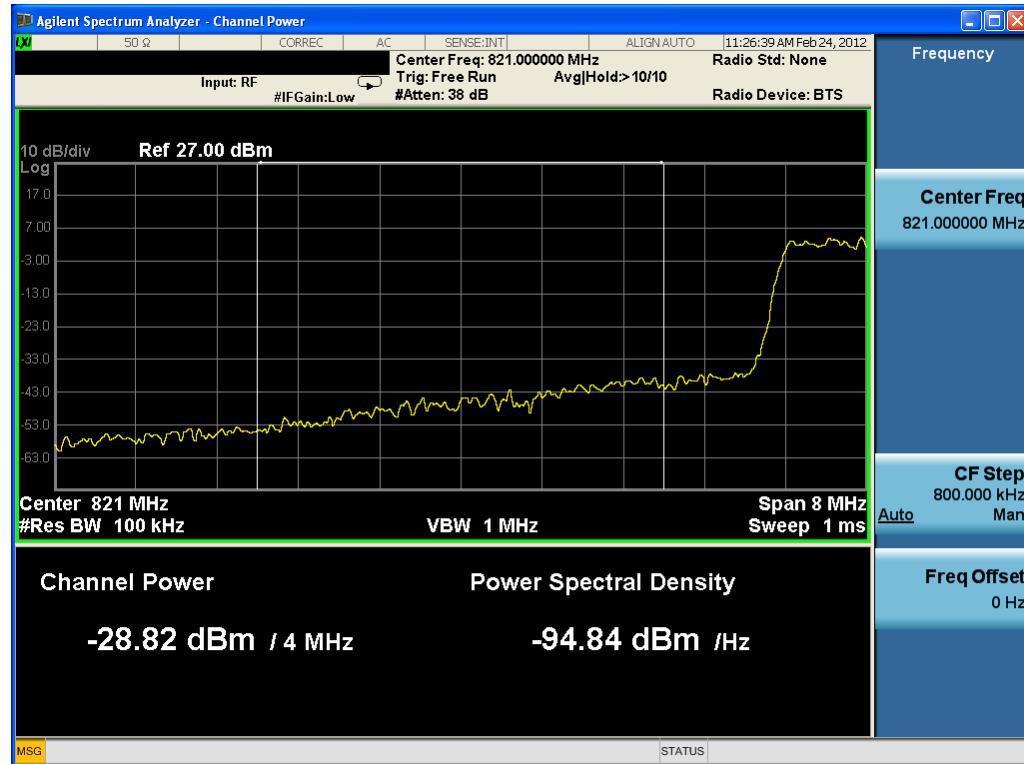


Plot 7-28. Lower Band Edge Plot (16-QAM – RB Size 15)

FCC ID: A3LSCHLC11R		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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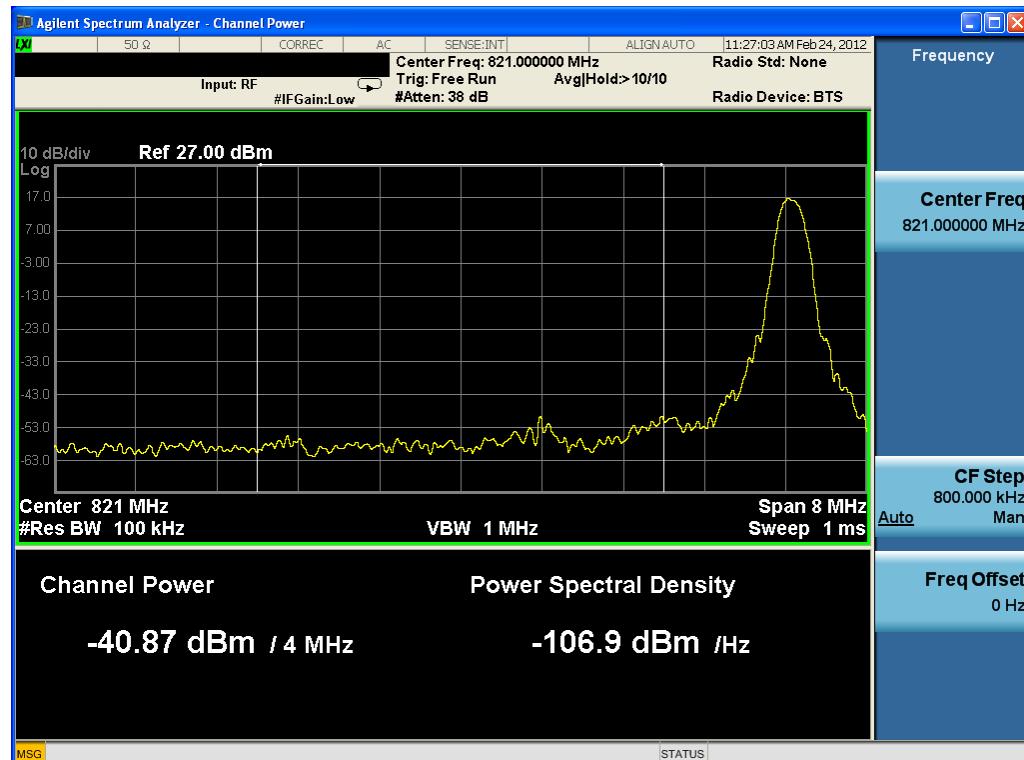


Plot 7-29. Lower Emission Mask (819 – 823MHz) Plot (QPSK – RB Size 15)

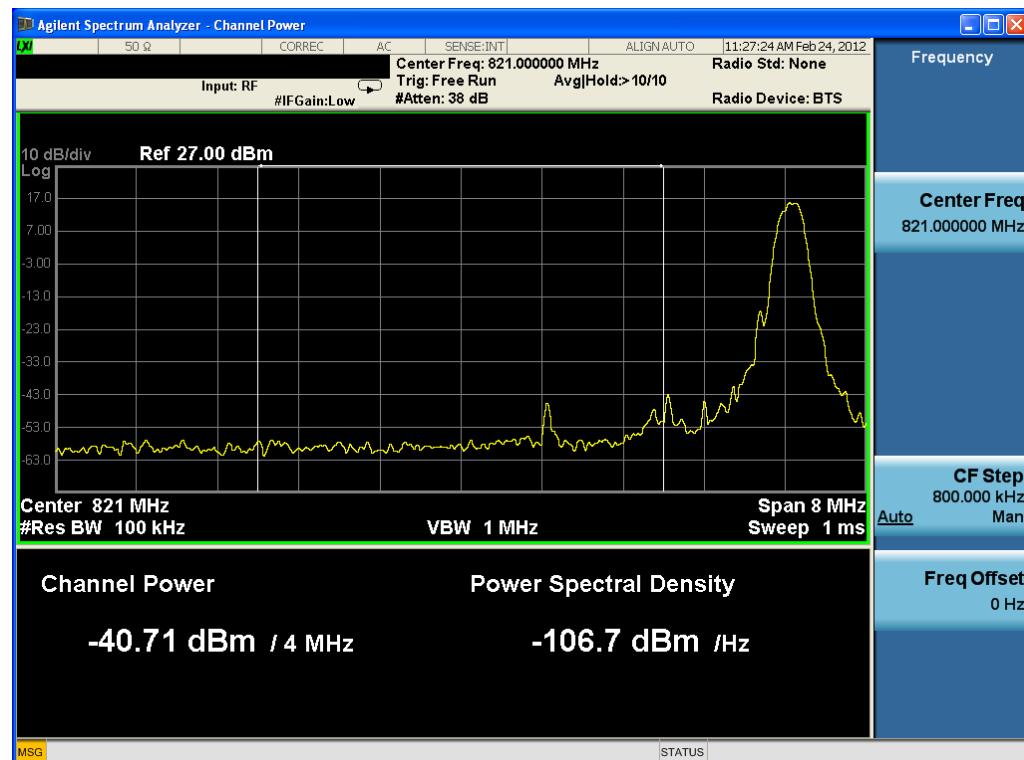


Plot 7-30. Lower Emission Mask (819 – 823MHz) Plot (16-QAM – RB Size 15)

FCC ID: A3LSCHLC11R	 FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)			Reviewed by: Quality Manager
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Plot 7-31. Lower Emission Mask (819 – 823MHz) Plot (QPSK – RB Size 1, Offset 0)

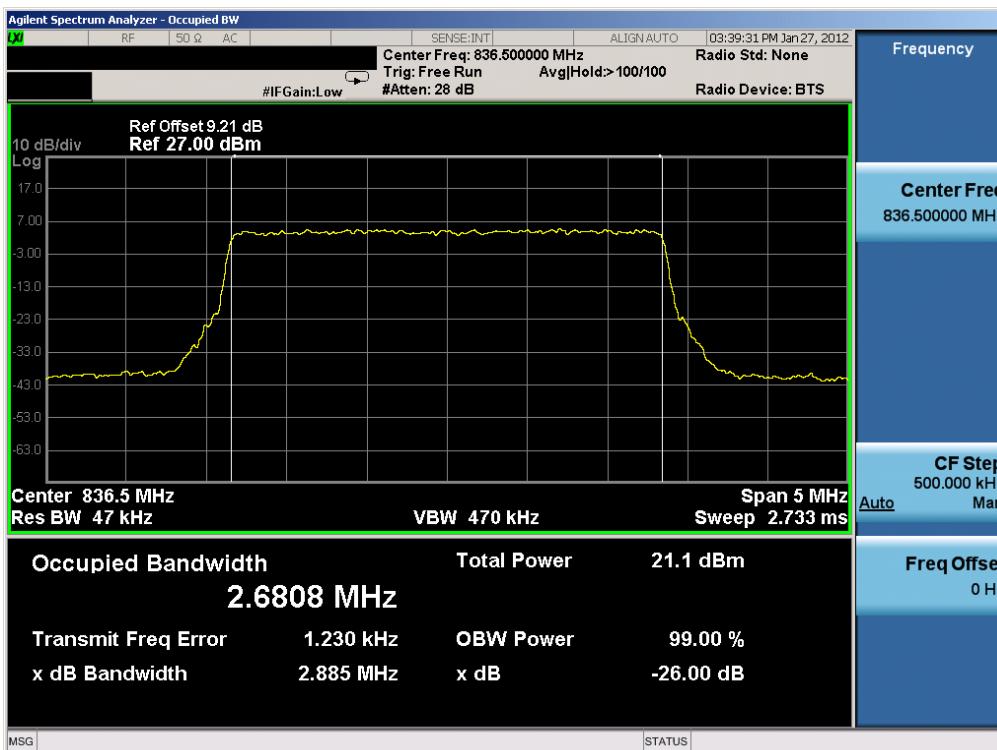


Plot 7-32. Lower Emission Mask (819 – 823MHz) Plot (16QAM – RB Size 1, Offset 0)

FCC ID: A3LSCHLC11R	 FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)			Reviewed by: Quality Manager
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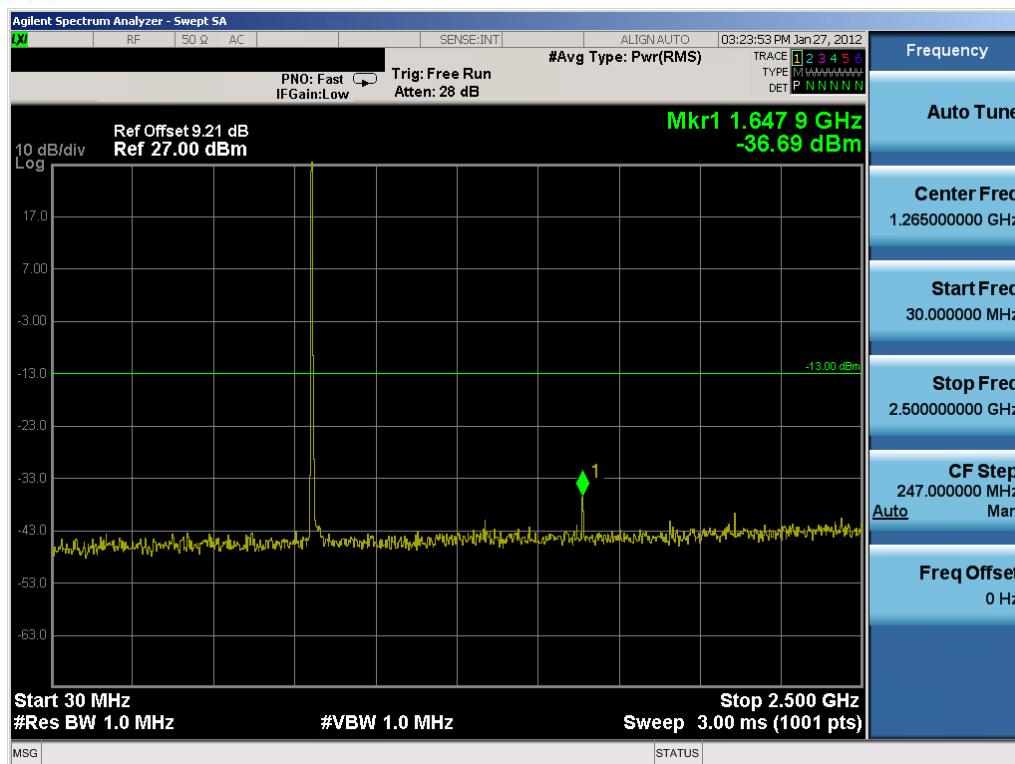


Plot 7-33. Occupied Bandwidth Plot (QPSK – RB Size 15)

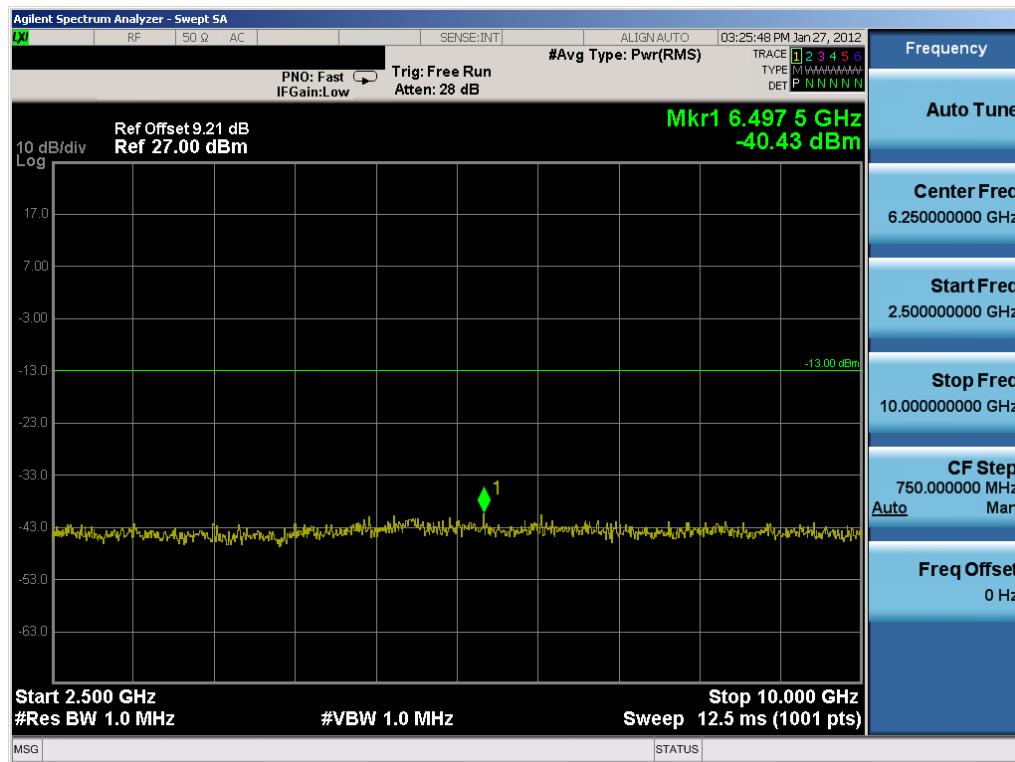


Plot 7-34. Occupied Bandwidth Plot (16-QAM – RB Size 15)

FCC ID: A3LSCHLC11R		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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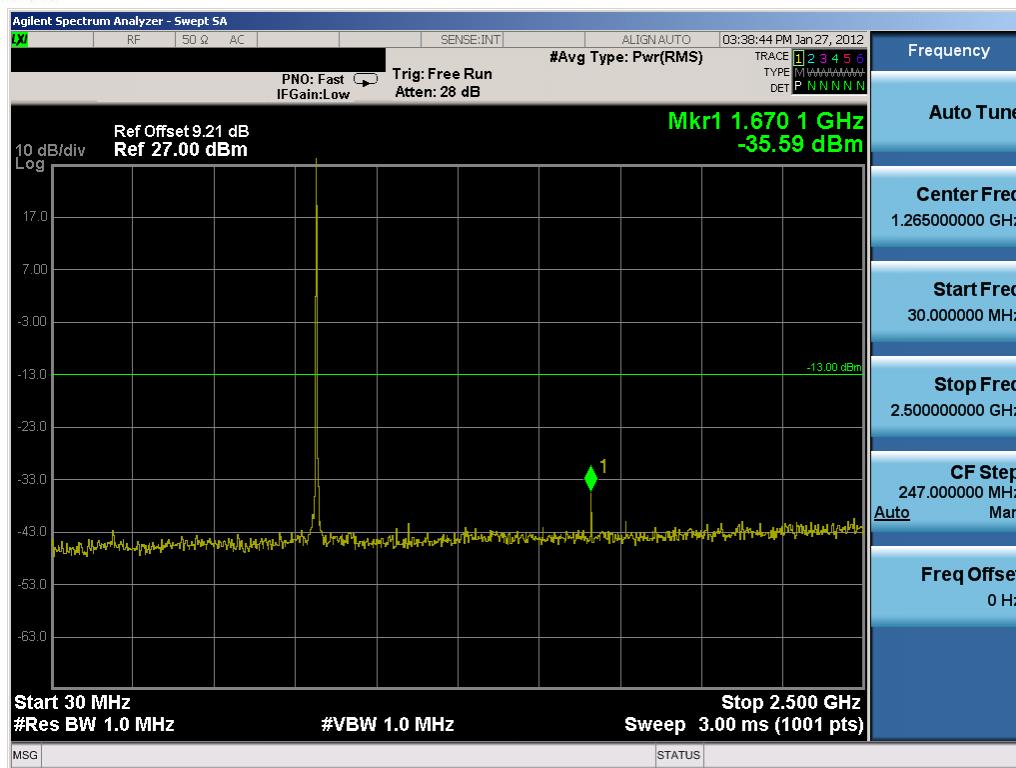


Plot 7-35. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 14 – Low Channel)

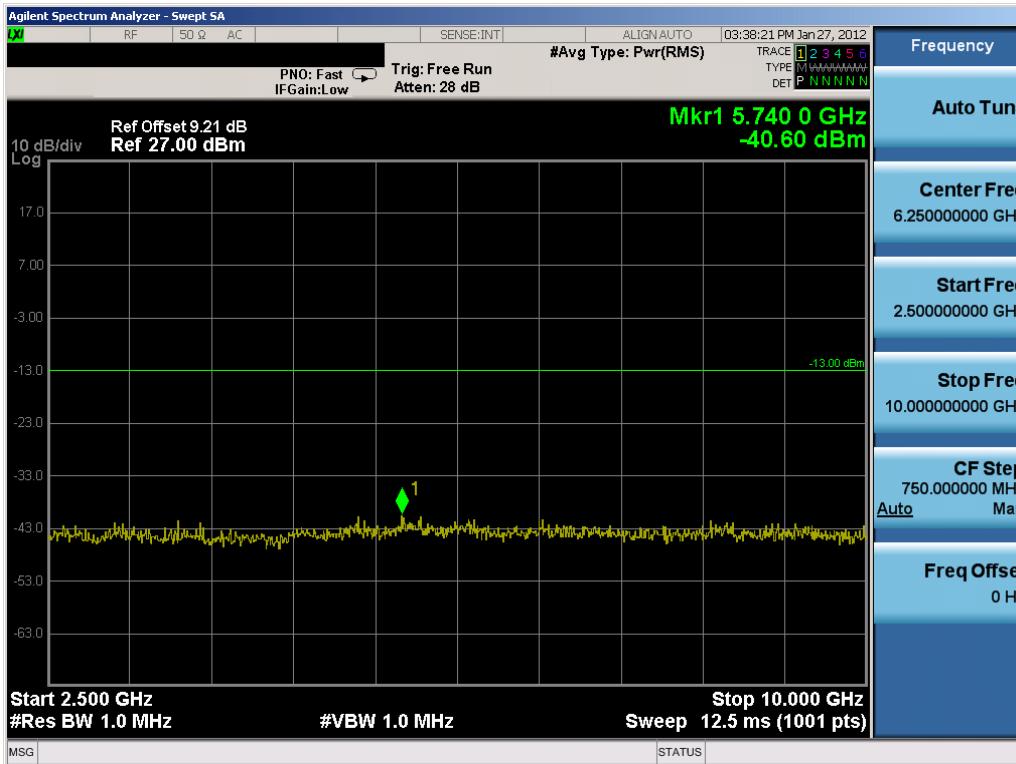


Plot 7-36. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 14 – Low Channel)

FCC ID: A3LSCHLC11R		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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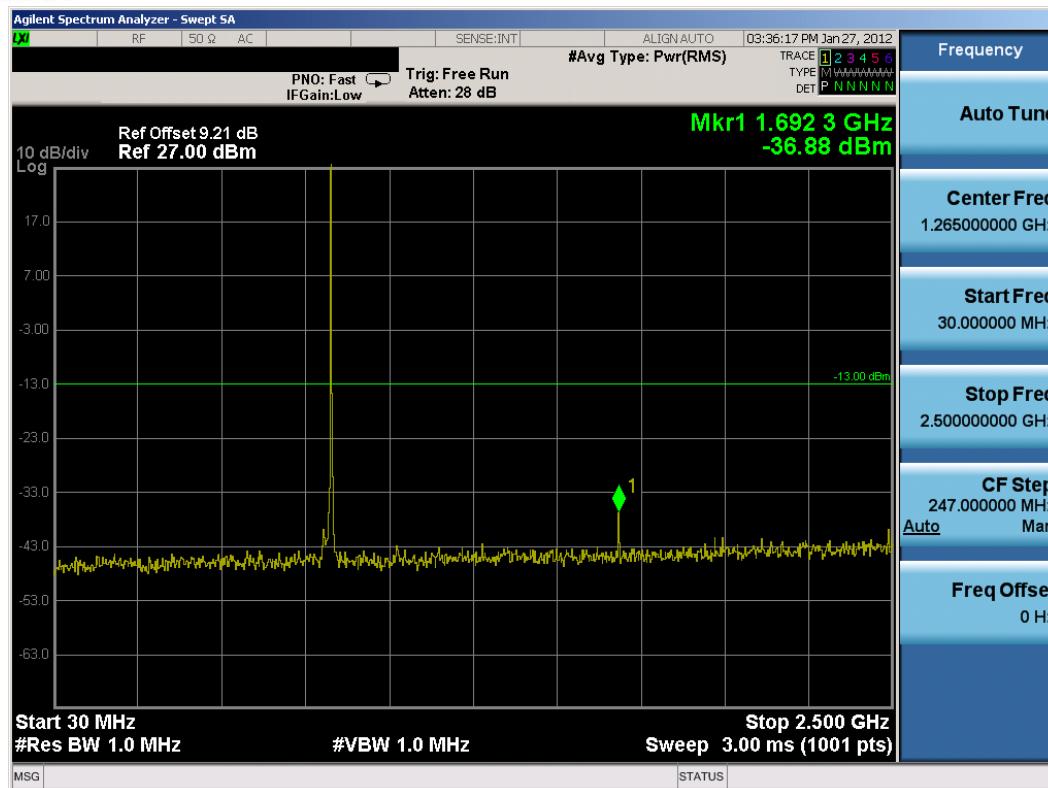


Plot 7-37. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 14 – Mid Channel)

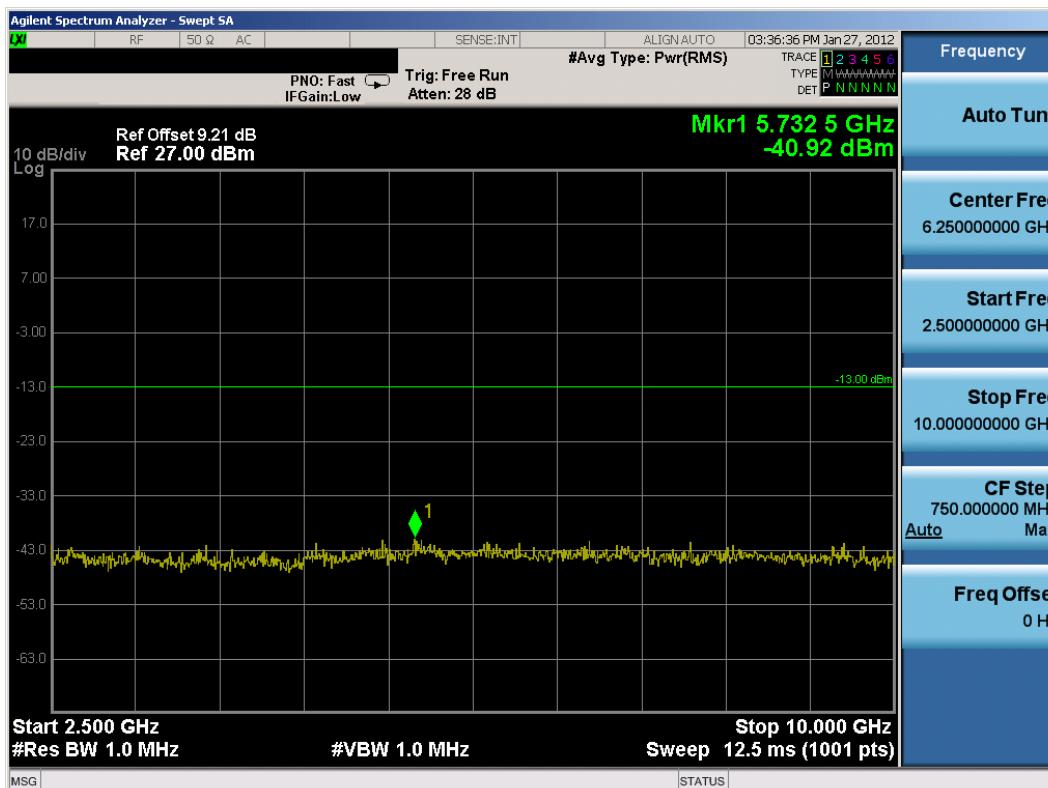


Plot 7-38. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 14 – Mid Channel)

FCC ID: A3LSCHLC11R	 PCTEST Engineering Laboratory, Inc.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1201230105.A3L	Test Dates: Jan. 23-30, Feb. 23-29, 2012	EUT Type: Portable Wireless Router		Page 55 of 167

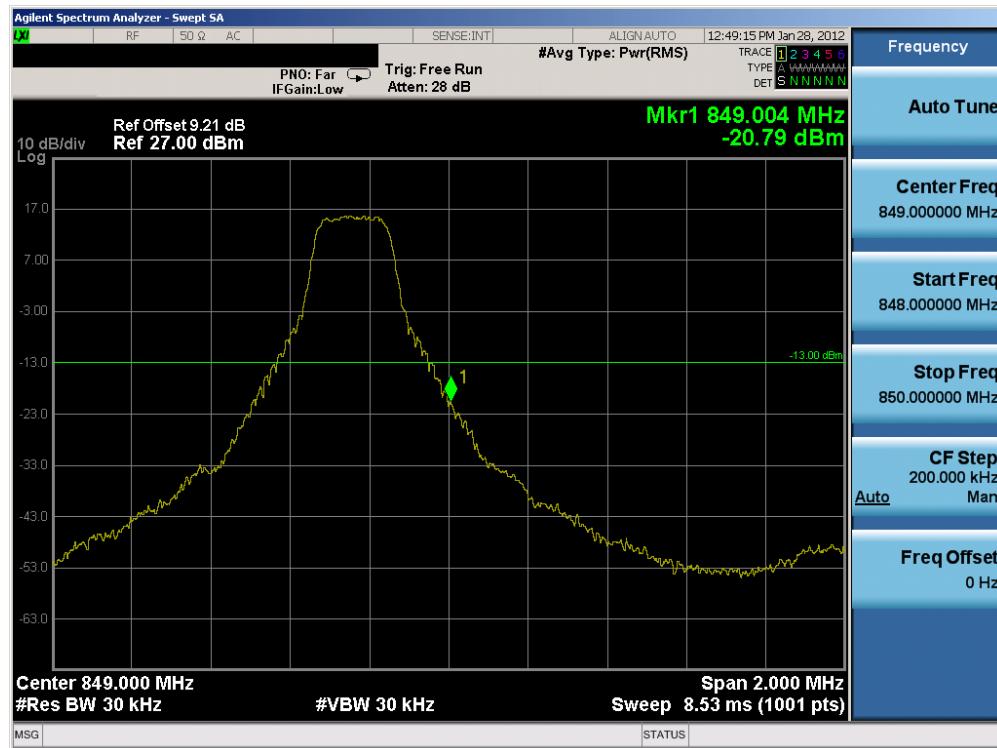


Plot 7-39. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 14 – High Channel)

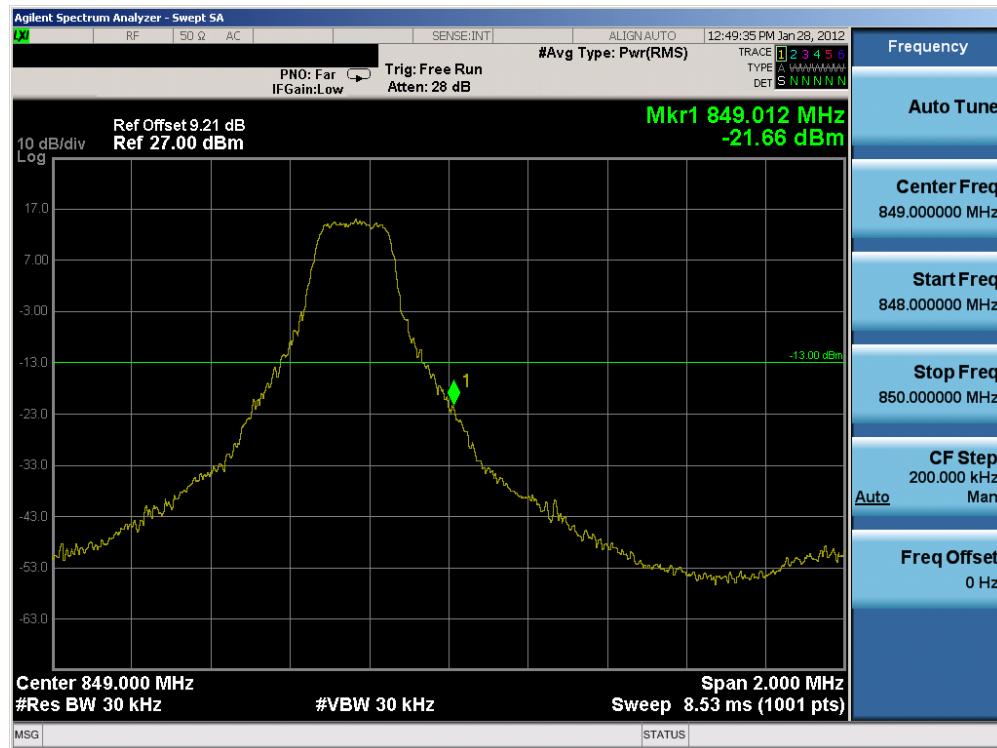


Plot 7-40. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 14 – High Channel)

FCC ID: A3LSCHLC11R		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manager
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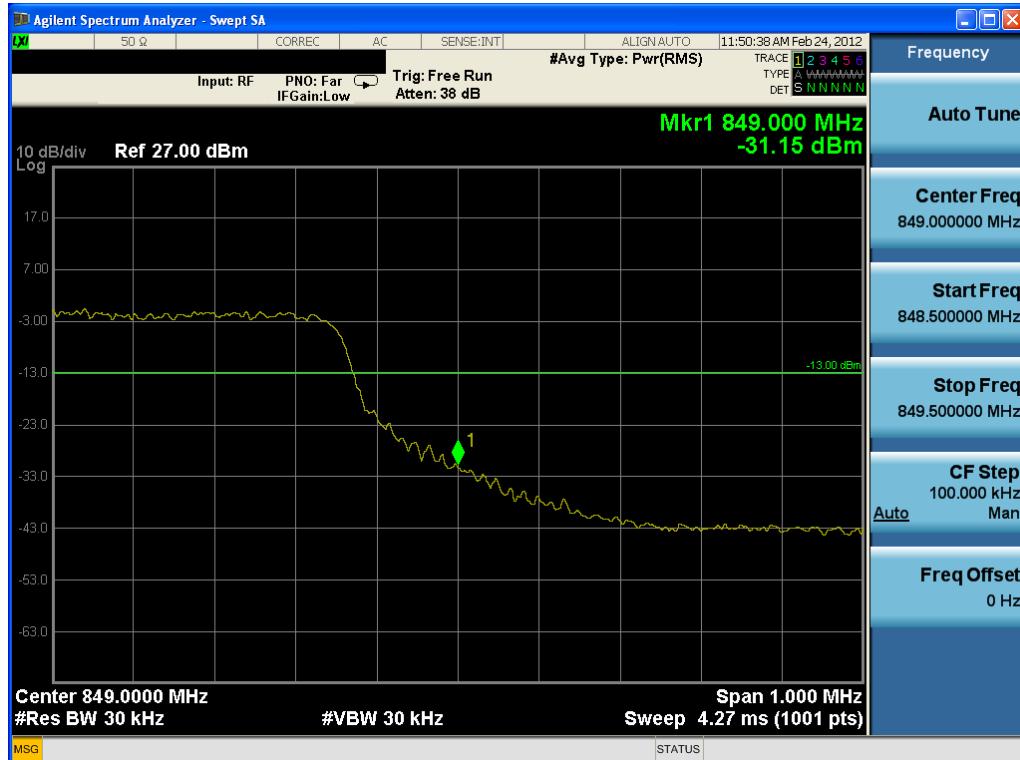


Plot 7-41. Upper Band Edge Plot (QPSK – RB Size 1, Offset 14)

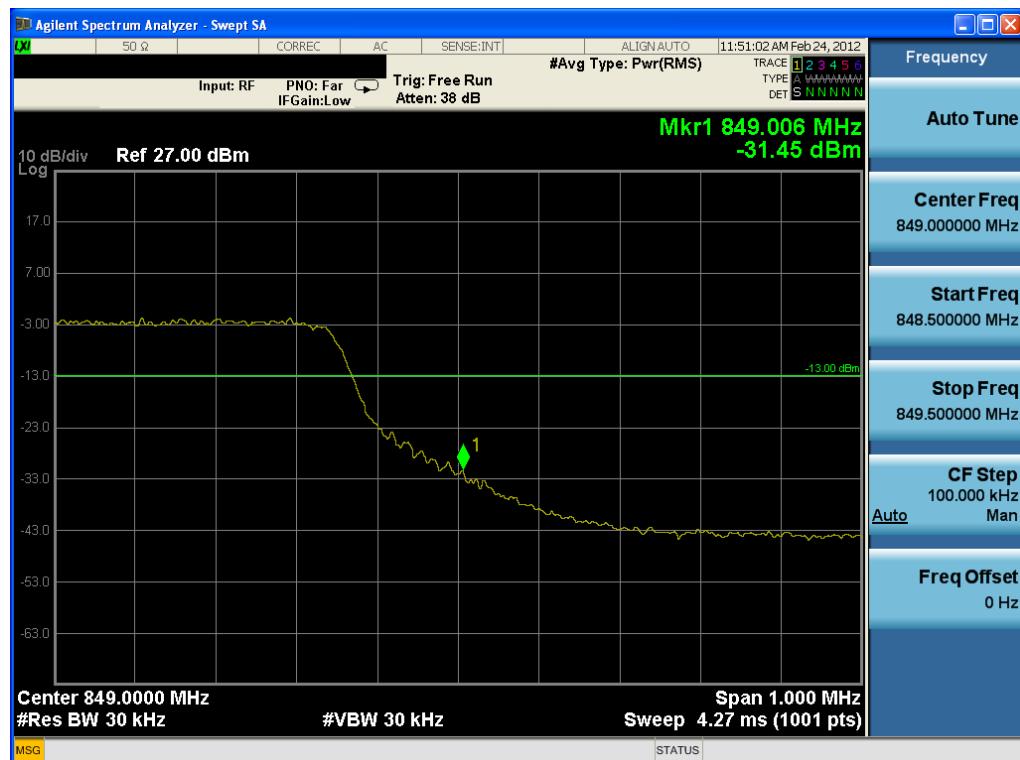


Plot 7-42. Upper Band Edge Plot (16-QAM – RB Size 1, Offset 14)

FCC ID: A3LSCHLC11R		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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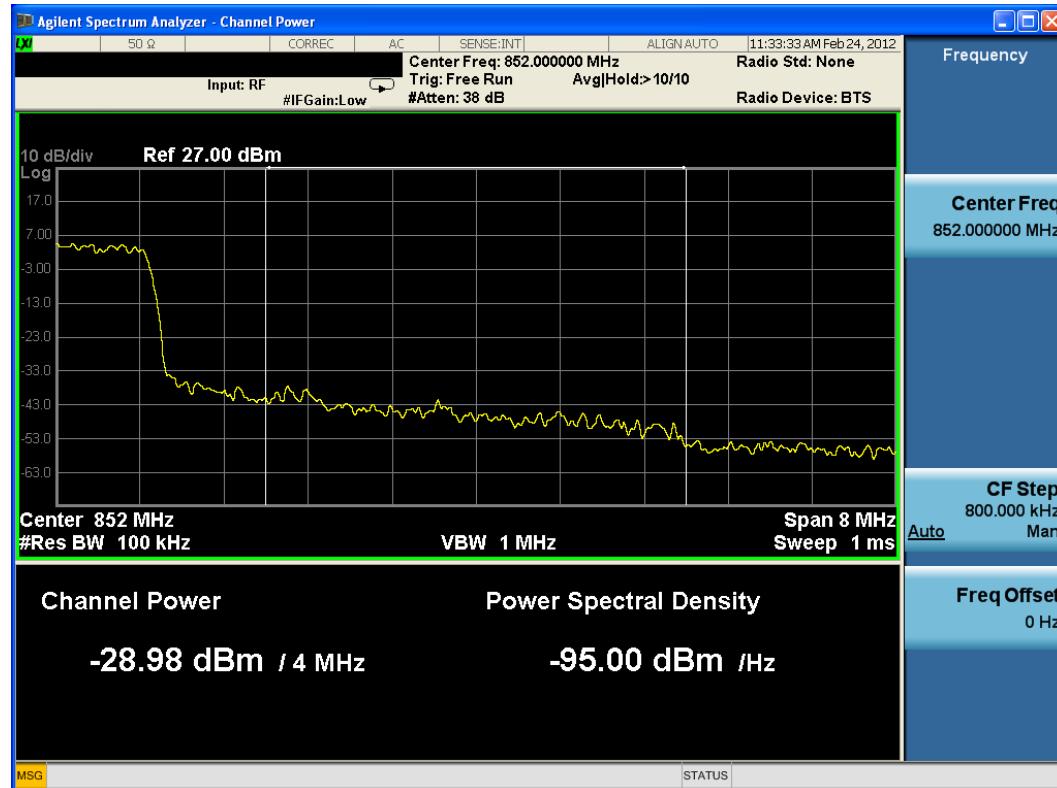


Plot 7-43. Upper Band Edge Plot (QPSK – RB Size 15)



Plot 7-44. Upper Band Edge Plot (16-QAM – RB Size 15)

FCC ID: A3LSCHLC11R		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1201230105.A3L	Test Dates: Jan. 23-30, Feb. 23-29, 2012	EUT Type: Portable Wireless Router		Page 58 of 167

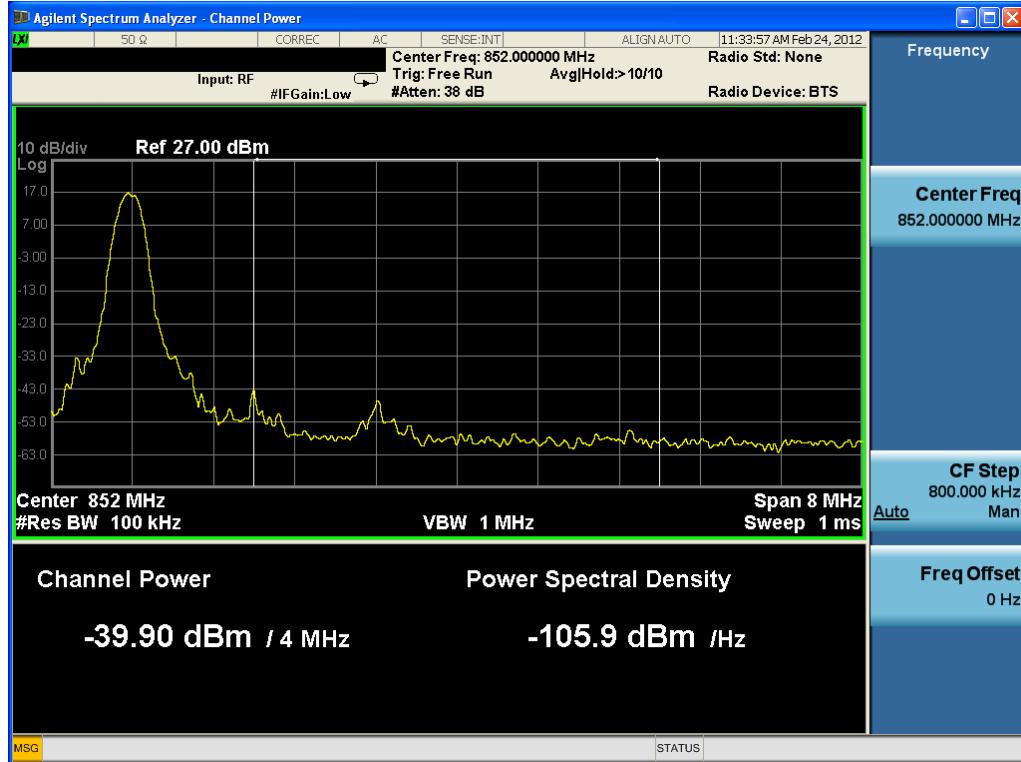


Plot 7-45. Upper Emission Mask (850 – 854MHz) Plot (QPSK – RB Size 15)

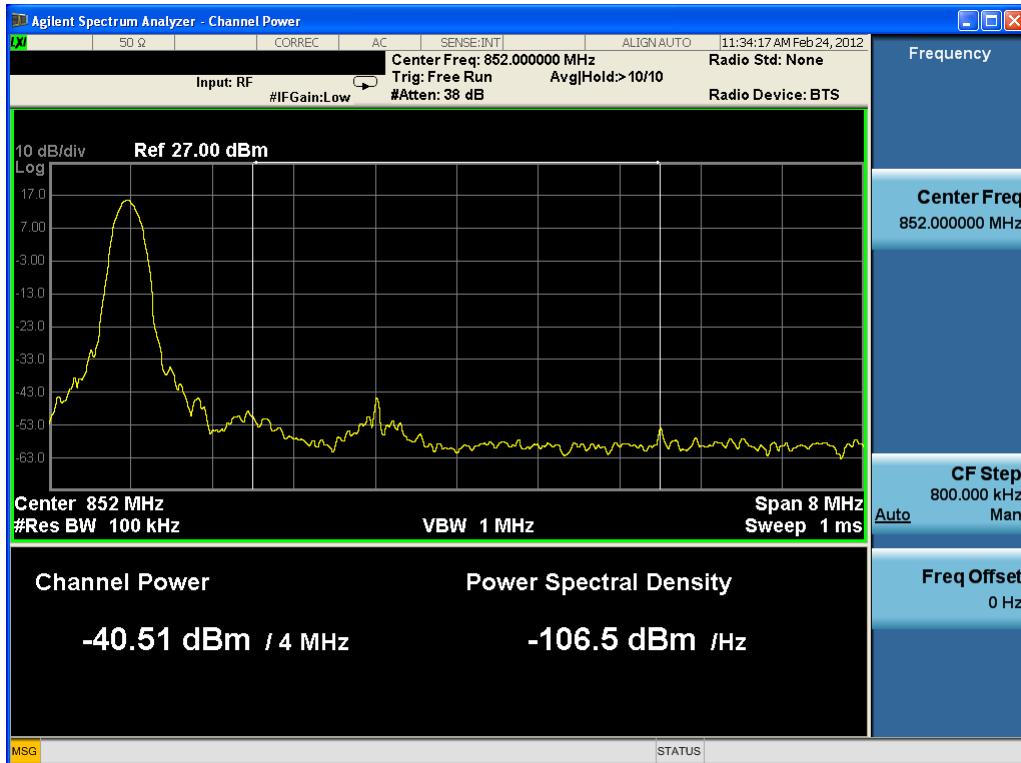


Plot 7-46. Upper Emission Mask (850 – 854MHz) Plot (16-QAM – RB Size 15)

FCC ID: A3LSCHLC11R		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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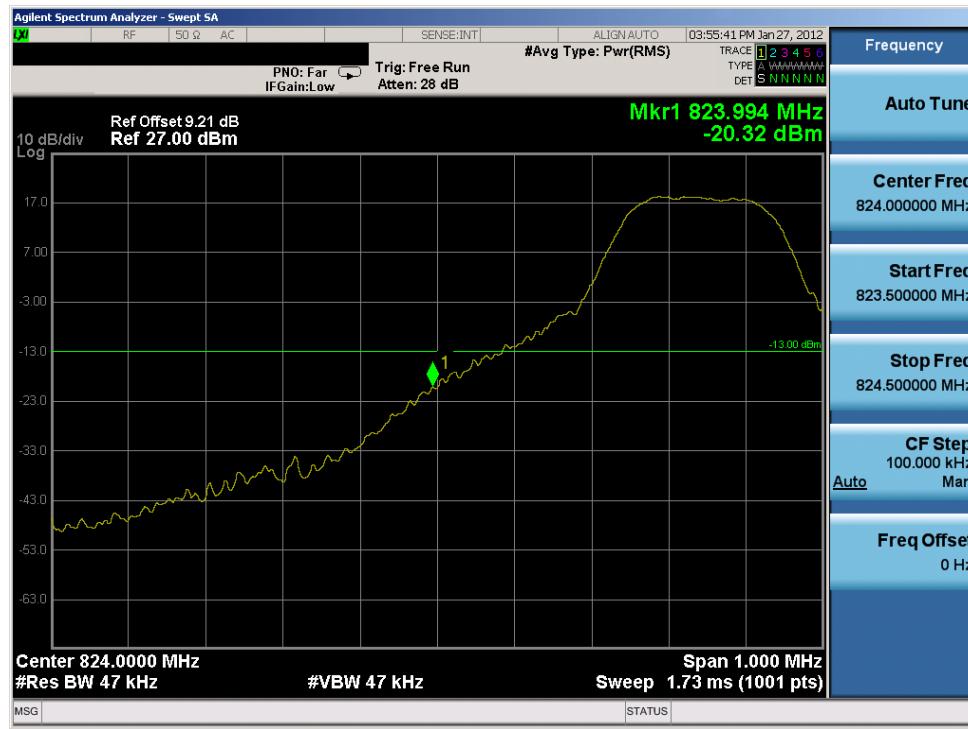
Plot 7-47. Upper Emission Mask (850 – 854MHz) Plot (QPSK – RB Size 1, Offset 14)



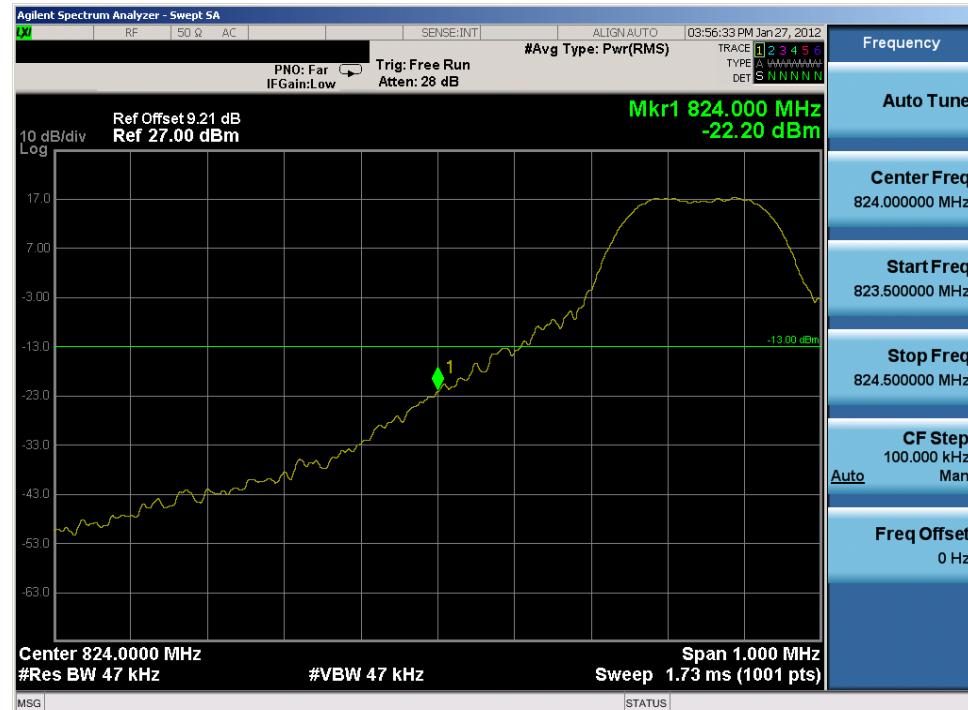
Plot 7-48. Upper Emission Mask (850 – 854MHz) Plot (QPSK – RB Size 1, Offset 14)

FCC ID: A3LSCHLC11R		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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BAND 5 – 5 MHZ BW



Plot 7-49. Lower Band Edge Plot (QPSK – RB Size 1. Offset 0)



Plot 7-50. Lower Band Edge Plot (16-QAM – RB Size 1, Offset 0)

FCC ID: A3LSCHLC11R	 PCTEST Engineering Laboratory, Inc.	FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)			Reviewed by: Quality Manager
Test Report S/N: 0Y1201230105.A3L	Test Dates: Jan. 23-30, Feb. 23-29, 2012	EUT Type: Portable Wireless Router			Page 61 of 167



Plot 7-51. Lower Band Edge Plot (QPSK – RB Size 25)



Plot 7-52. Lower Band Edge Plot (QPSK – RB Size 25)

FCC ID: A3LSCHLC11R		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)	Reviewed by: Quality Manager
Test Report S/N: 0Y1201230105.A3L	Test Dates: Jan. 23-30, Feb. 23-29, 2012	EUT Type: Portable Wireless Router	Page 62 of 167

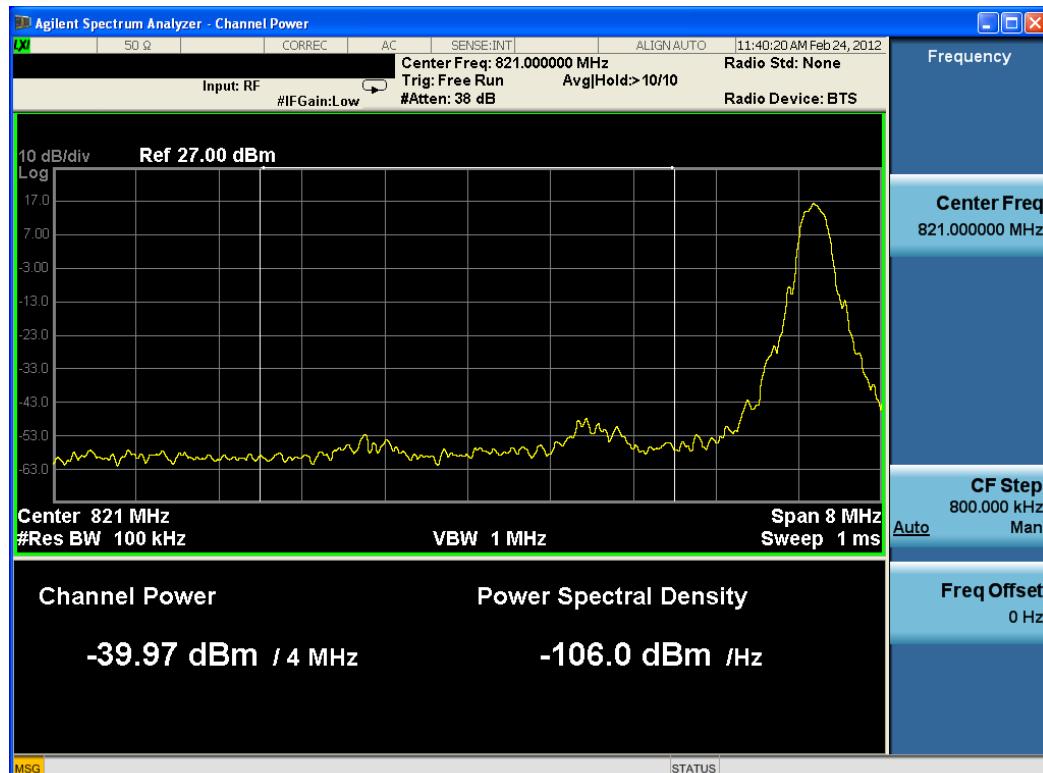


Plot 7-53. Lower Emission Mask (819 – 823MHz) Plot (QPSK – RB Size 25)

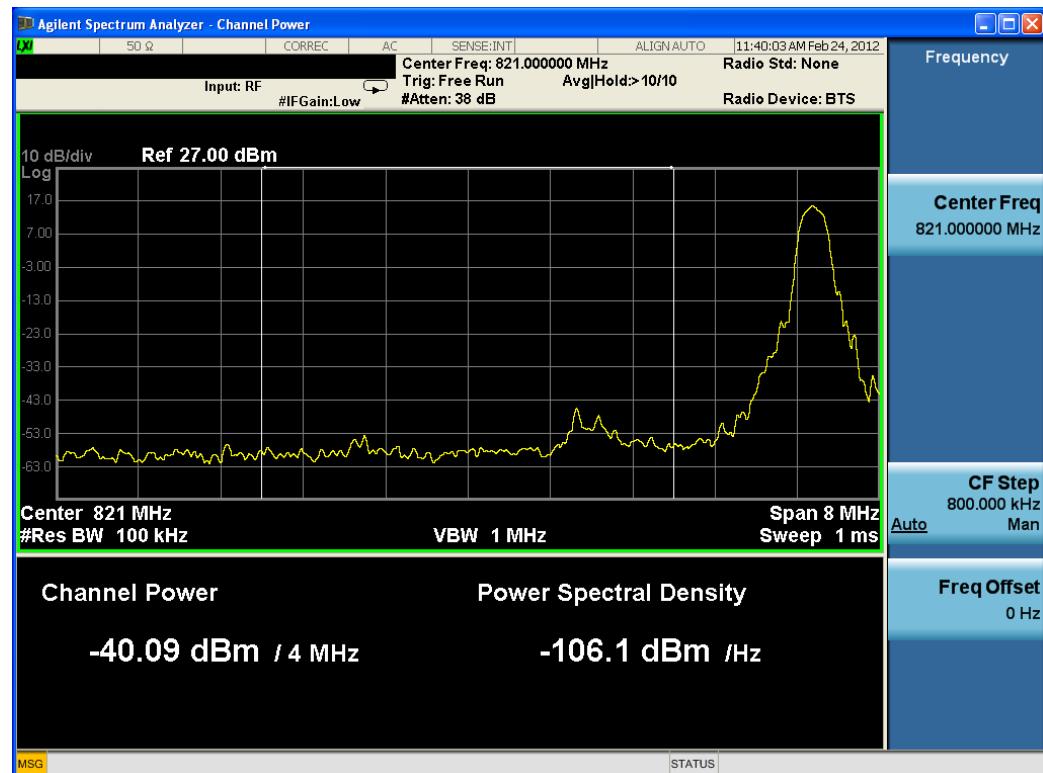


Plot 7-54. Lower Emission Mask (819 – 823MHz) Plot (16-QAM – RB Size 25)

FCC ID: A3LSCHLC11R		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1201230105.A3L	Test Dates: Jan. 23-30, Feb. 23-29, 2012	EUT Type: Portable Wireless Router		Page 63 of 167

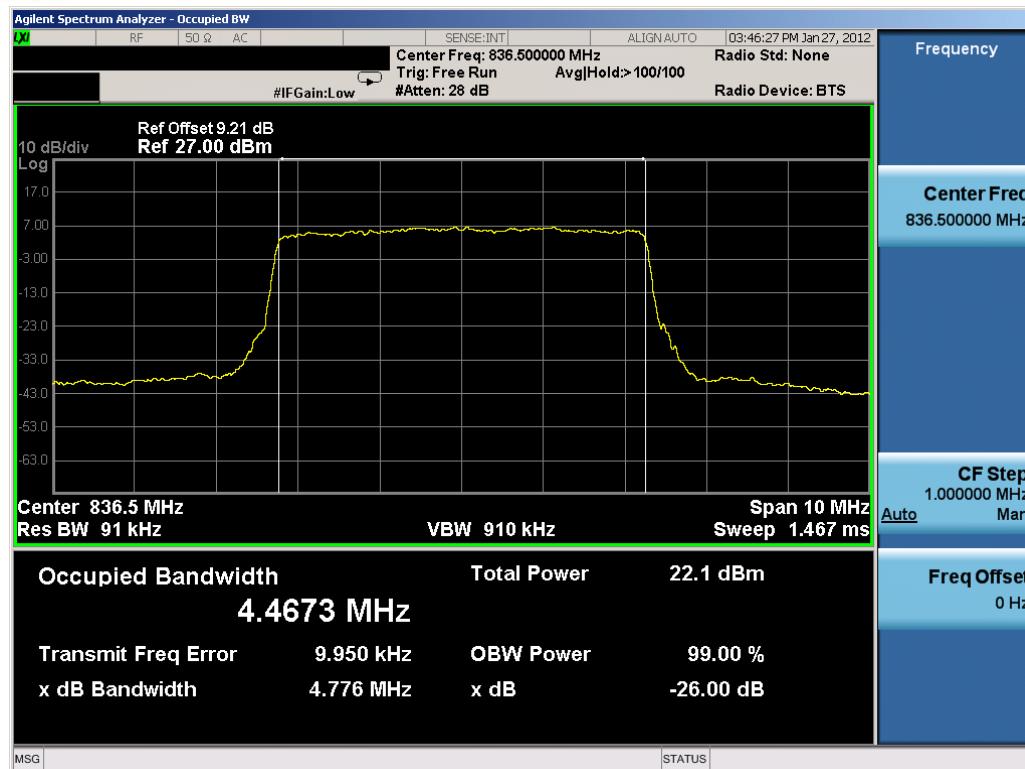


Plot 7-55. Lower Emission Mask (819 – 823MHz) Plot (QPSK – RB Size 1, Offset 24)

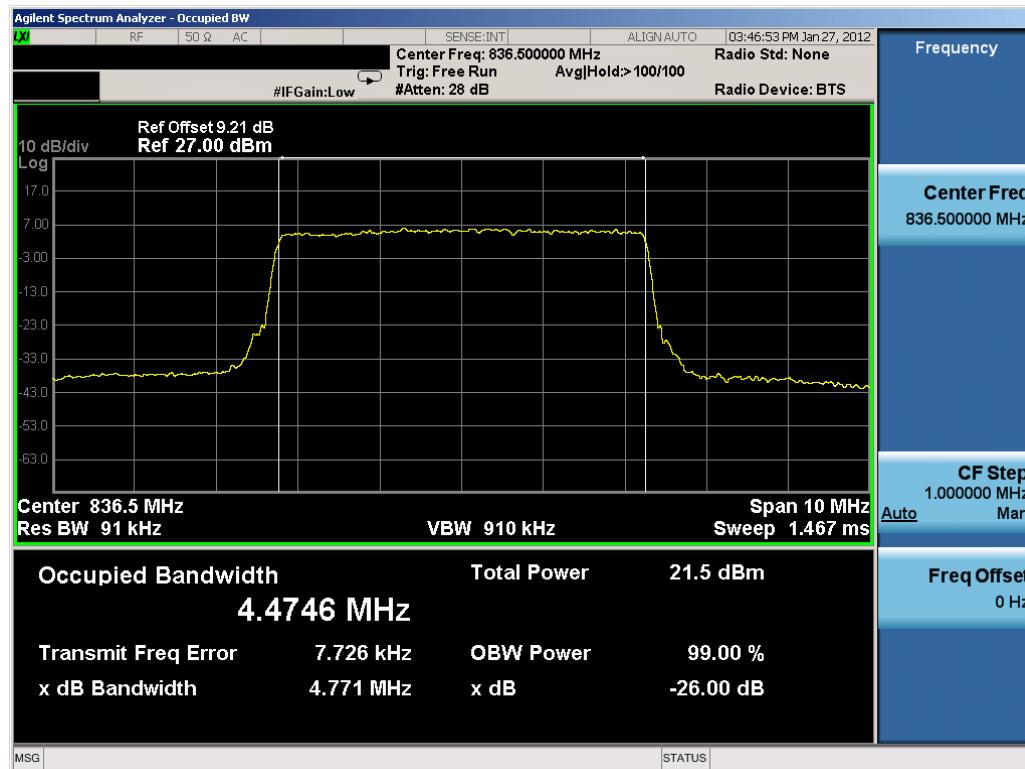


Plot 7-56. Lower Emission Mask (819 – 823MHz) Plot (16-QAM – RB Size 1, Offset 24)

FCC ID: A3LSCHLC11R		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1201230105.A3L	Test Dates: Jan. 23-30, Feb. 23-29, 2012	EUT Type: Portable Wireless Router		Page 64 of 167

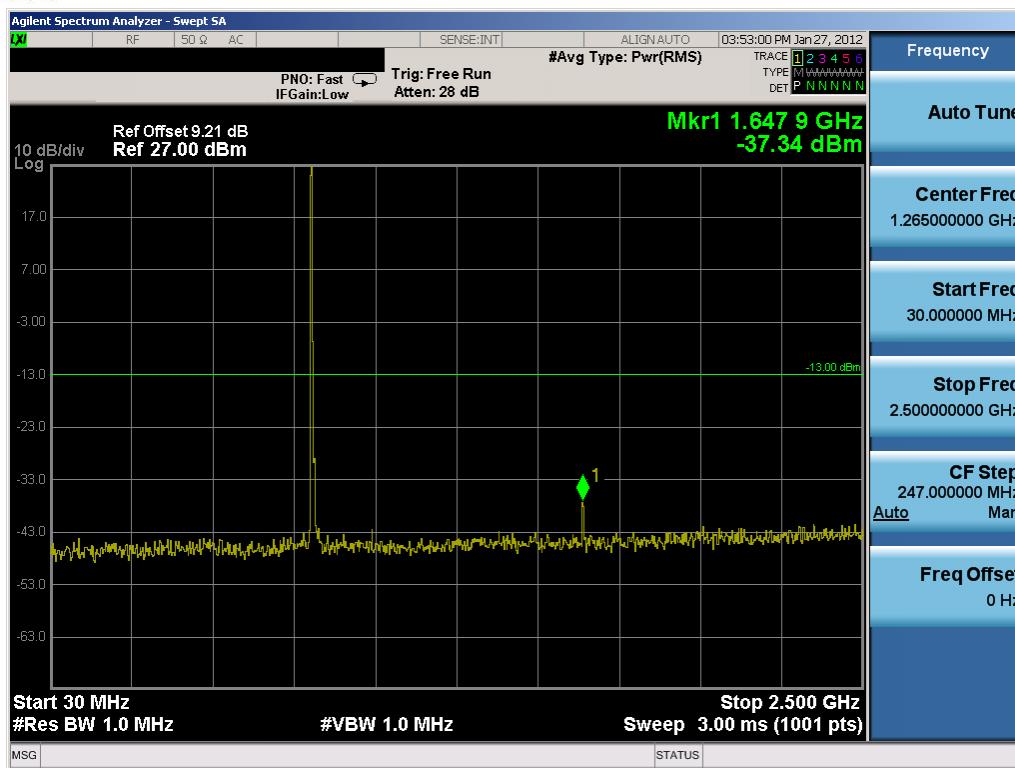


Plot 7-57. Occupied Bandwidth Plot (QPSK – RB Size 25)

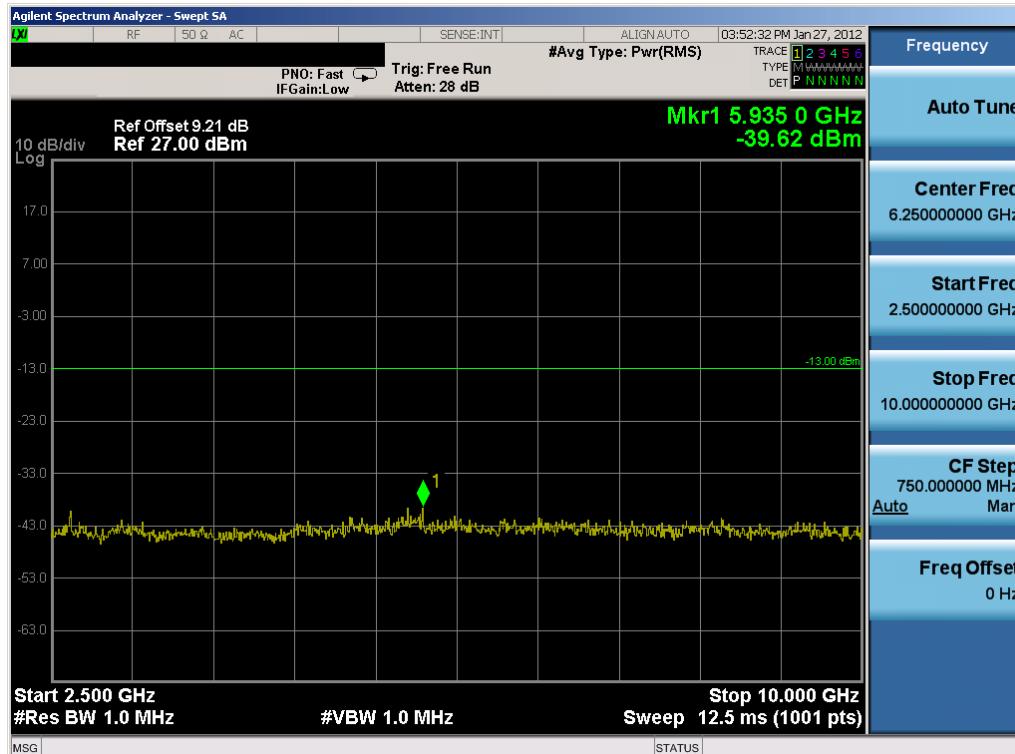


Plot 7-58. Occupied Bandwidth Plot (16-QAM – RB Size 25)

FCC ID: A3LSCHLC11R		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1201230105.A3L	Test Dates: Jan. 23-30, Feb. 23-29, 2012	EUT Type: Portable Wireless Router		Page 65 of 167

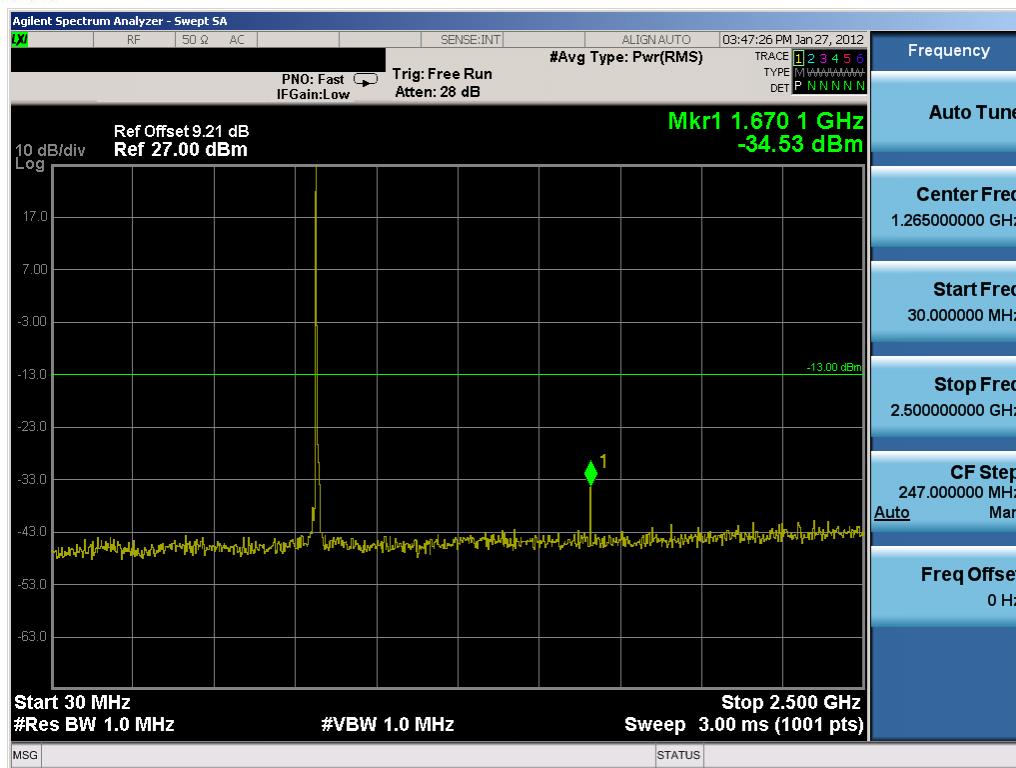


Plot 7-59. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Low Channel)

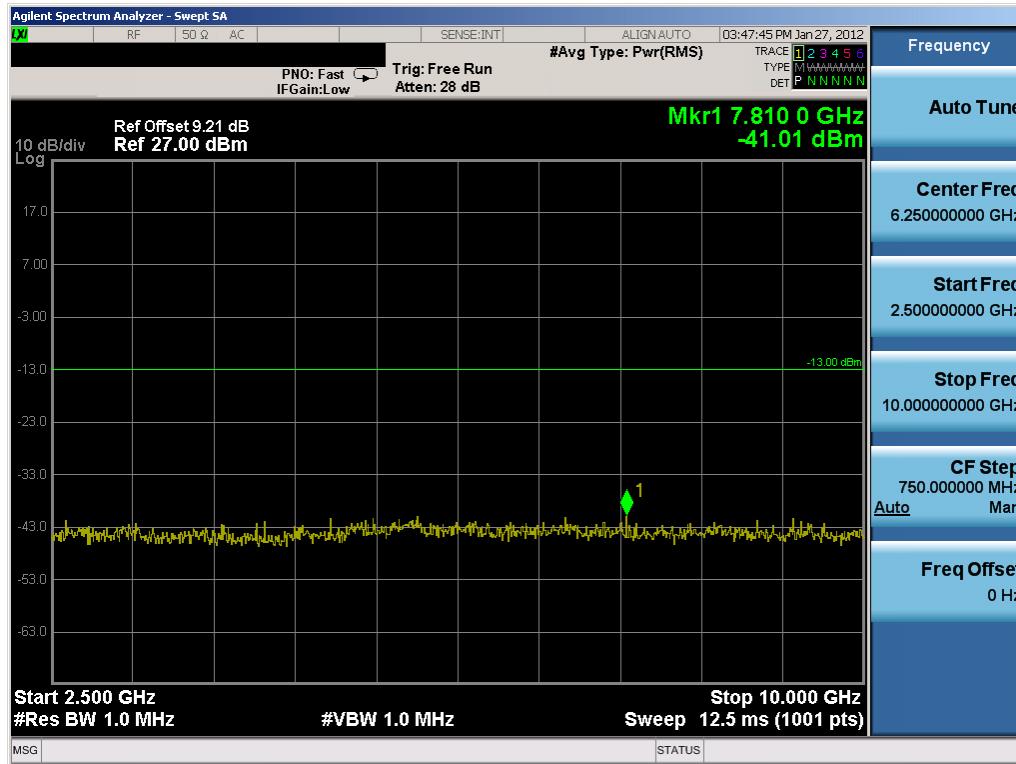


Plot 7-60. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Low Channel)

FCC ID: A3LSCHLC11R		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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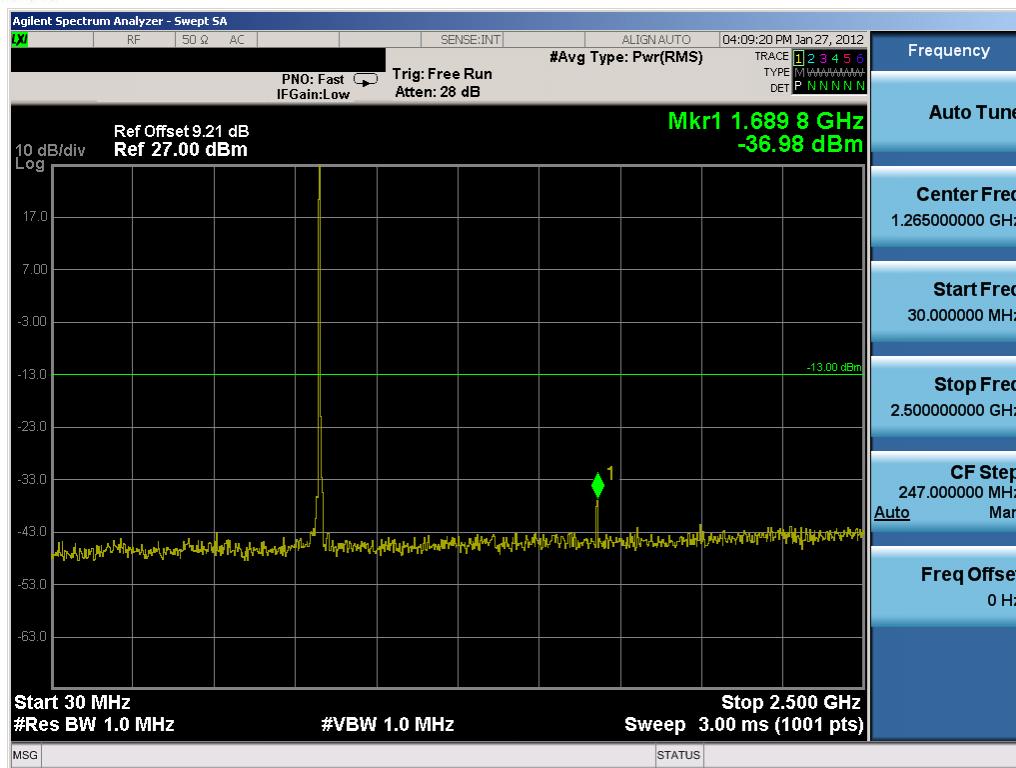


Plot 7-61. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Mid Channel)

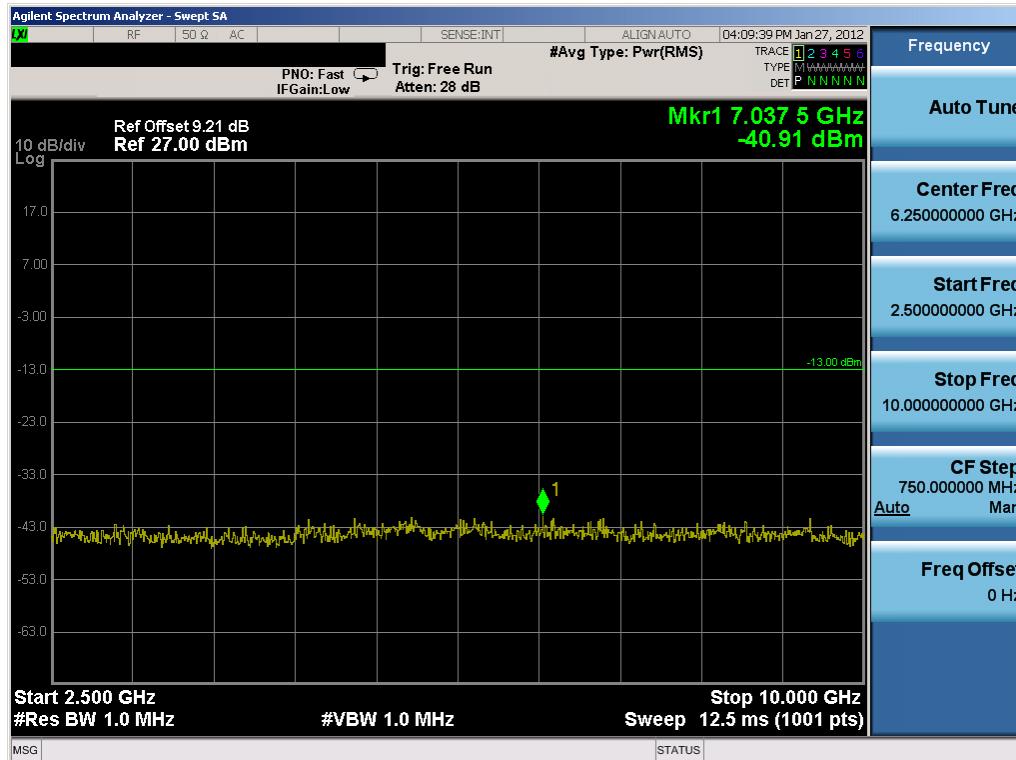


Plot 7-62 Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – Mid Channel)

FCC ID: A3LSCHLC11R		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1201230105.A3L	Test Dates: Jan. 23-30, Feb. 23-29, 2012	EUT Type: Portable Wireless Router		Page 67 of 167

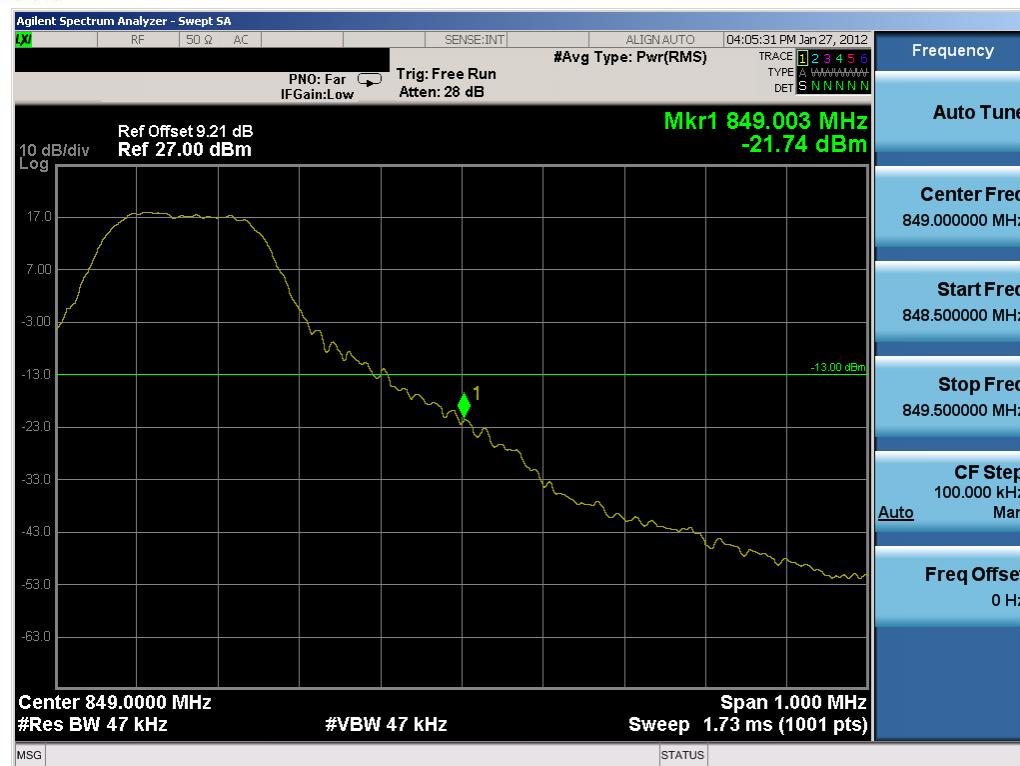


Plot 7-63. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – High Channel)



Plot 7-64. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 0 – High Channel)

FCC ID: A3LSCHLC11R		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1201230105.A3L	Test Dates: Jan. 23-30, Feb. 23-29, 2012	EUT Type: Portable Wireless Router		Page 68 of 167

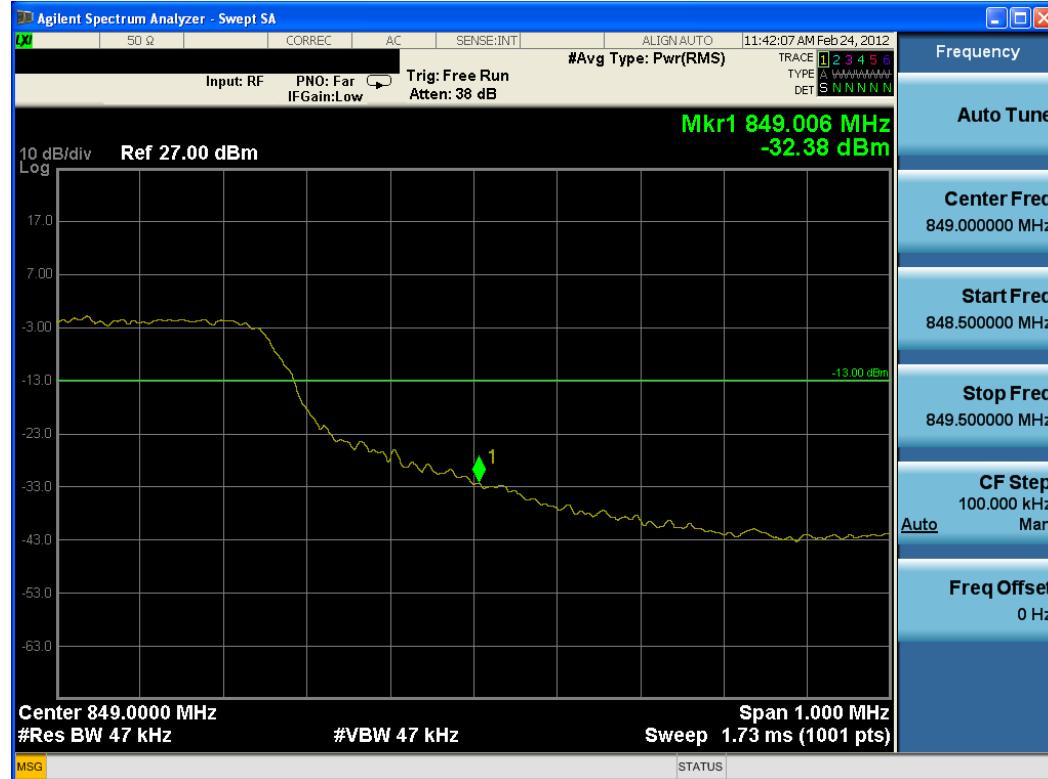


Plot 7-65. Upper Band Edge Plot (QPSK – RB Size 1, Offset 24)

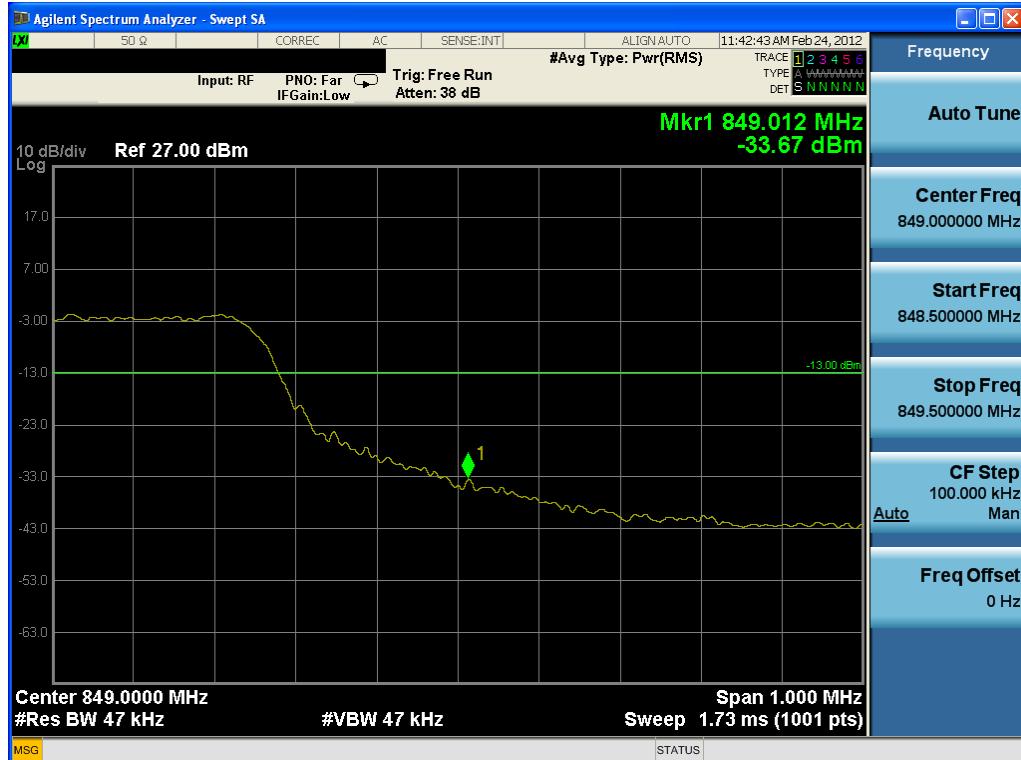


Plot 7-66. Upper Band Edge Plot (16-QAM – RB Size 1, Offset 24)

FCC ID: A3LSCHLC11R		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1201230105.A3L	Test Dates: Jan. 23-30, Feb. 23-29, 2012	EUT Type: Portable Wireless Router		Page 69 of 167

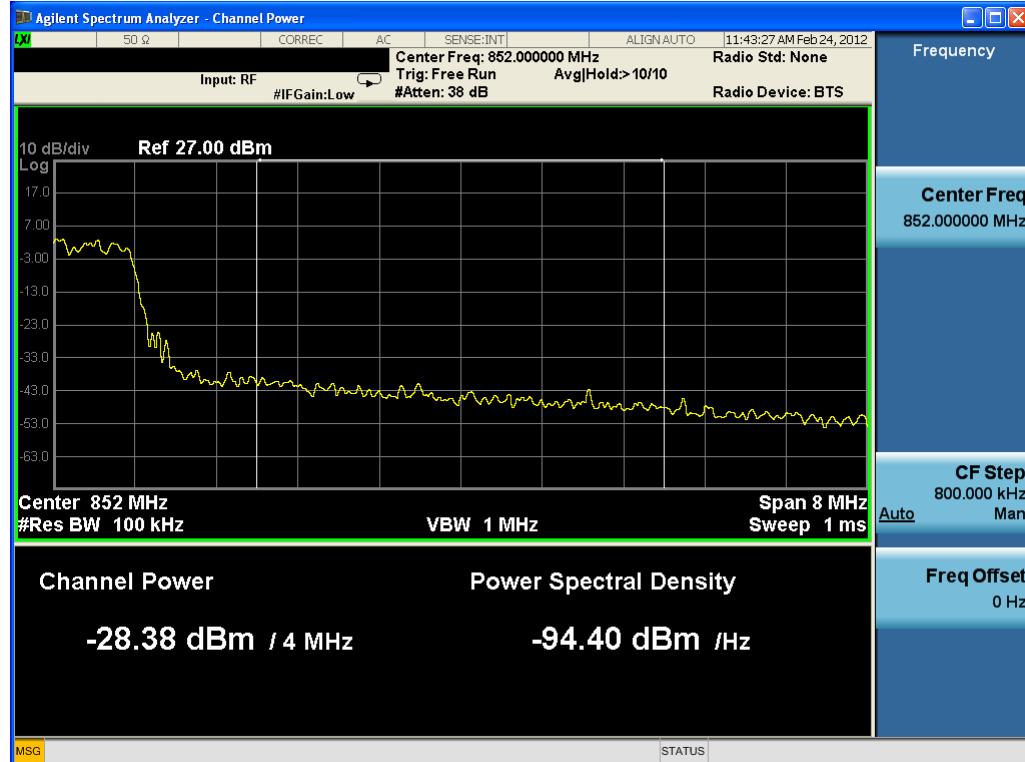


Plot 7-67. Upper Band Edge Plot (QPSK – RB Size 25)

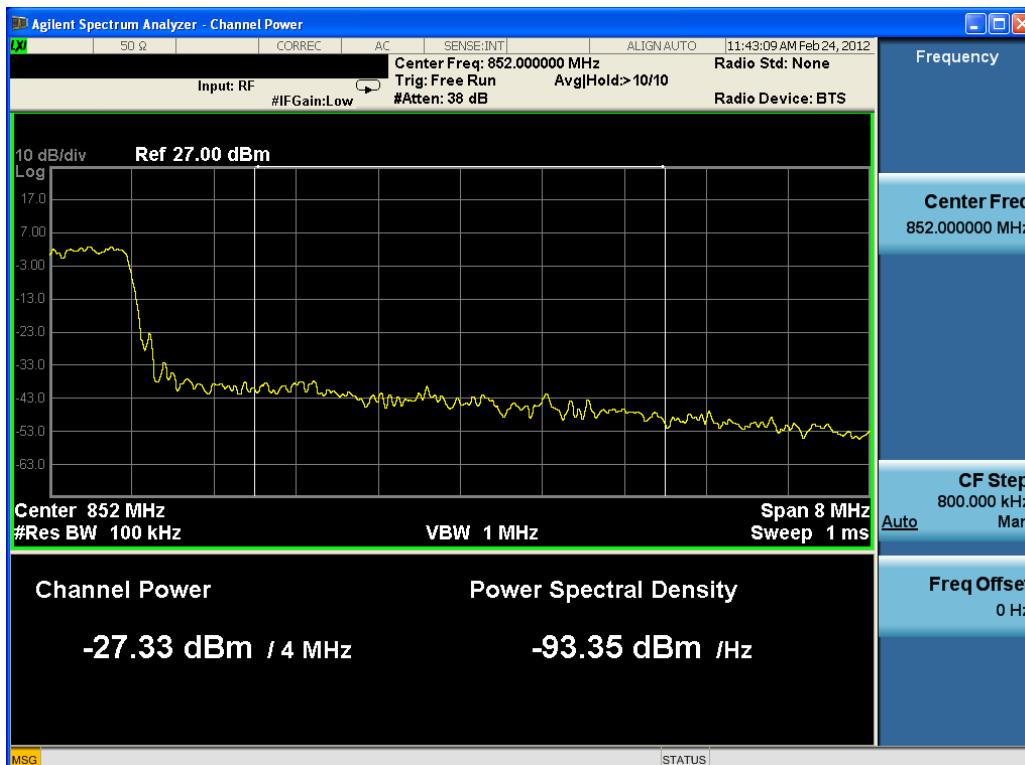


Plot 7-68. Upper Band Edge Plot (16-QAM – RB Size 25)

FCC ID: A3LSCHLC11R		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1201230105.A3L	Test Dates: Jan. 23-30, Feb. 23-29, 2012	EUT Type: Portable Wireless Router		Page 70 of 167

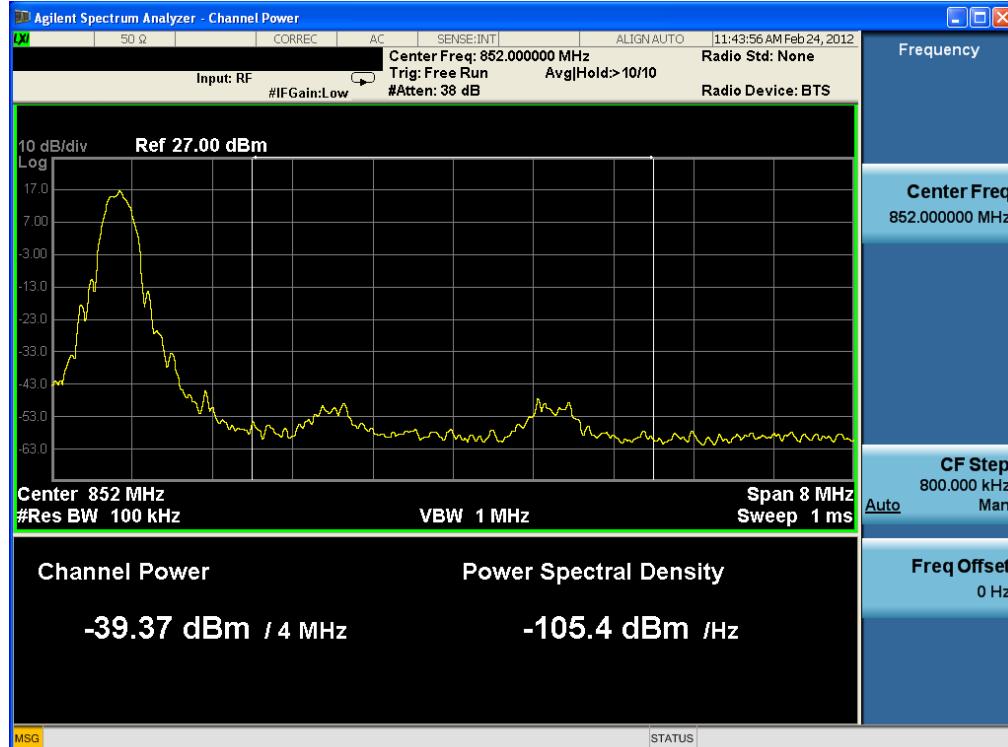


Plot 7-69. Upper Emission Mask (850 – 854MHz) Plot (QPSK – RB Size 25)

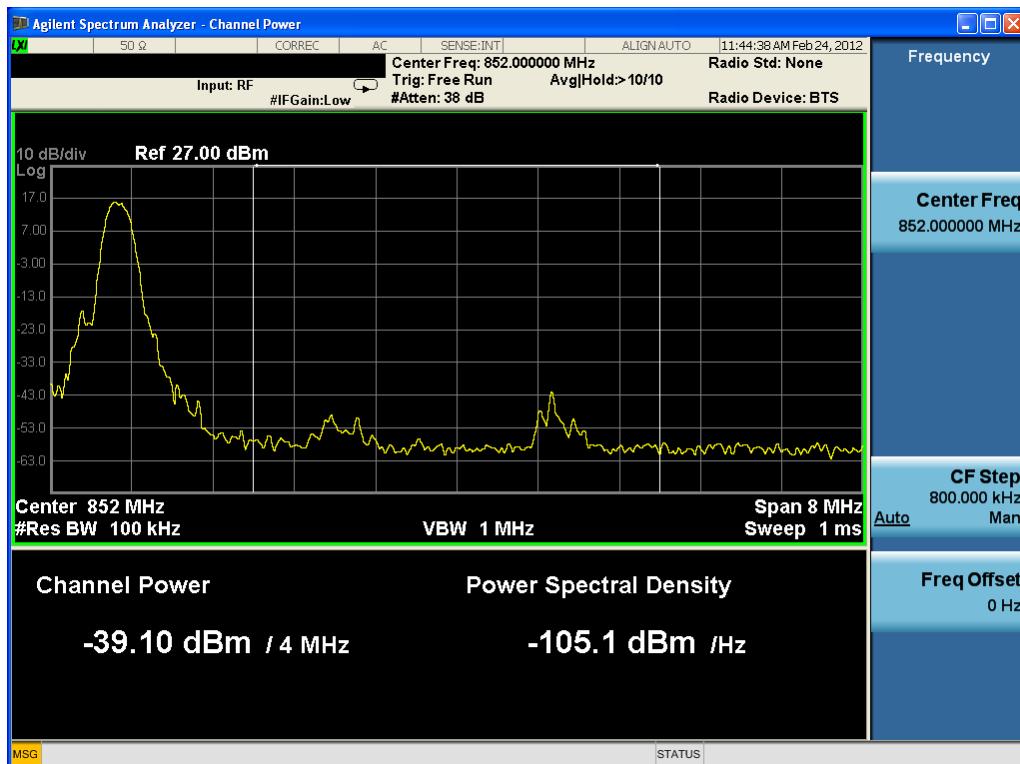


Plot 7-70. Upper Emission Mask (850 – 854MHz) Plot (16-QAM – RB Size 25)

FCC ID: A3LSCHLC11R		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1201230105.A3L	Test Dates: Jan. 23-30, Feb. 23-29, 2012	EUT Type: Portable Wireless Router		Page 71 of 167



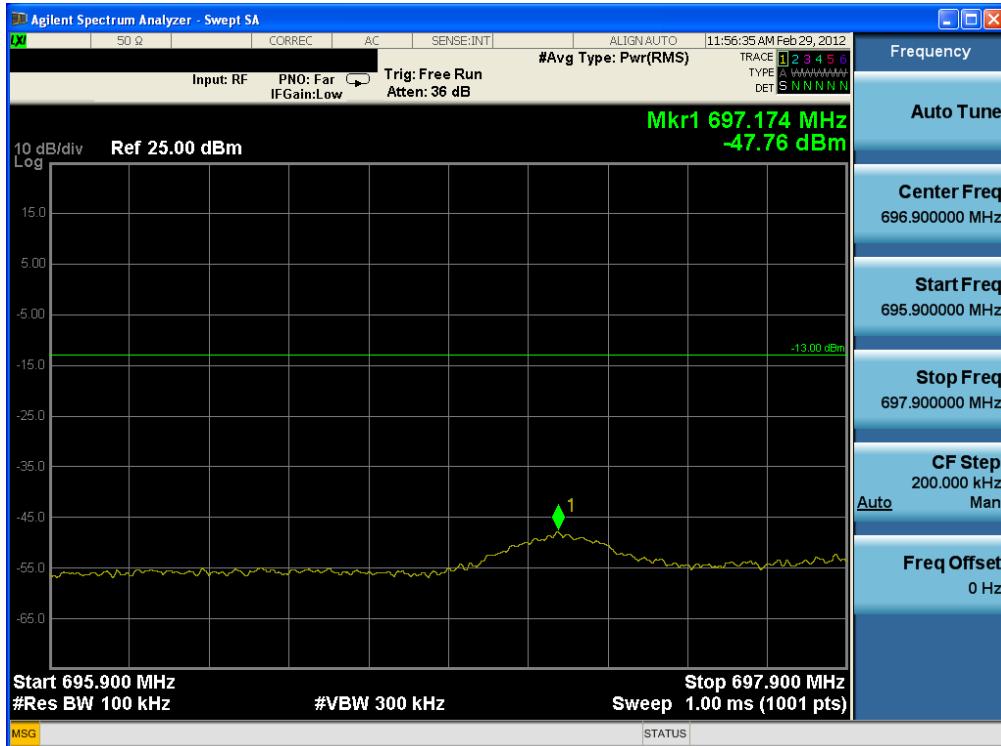
Plot 7-71. Upper Emission Mask (850 – 854MHz) Plot (QPSK – RB Size 1, Offset 24)



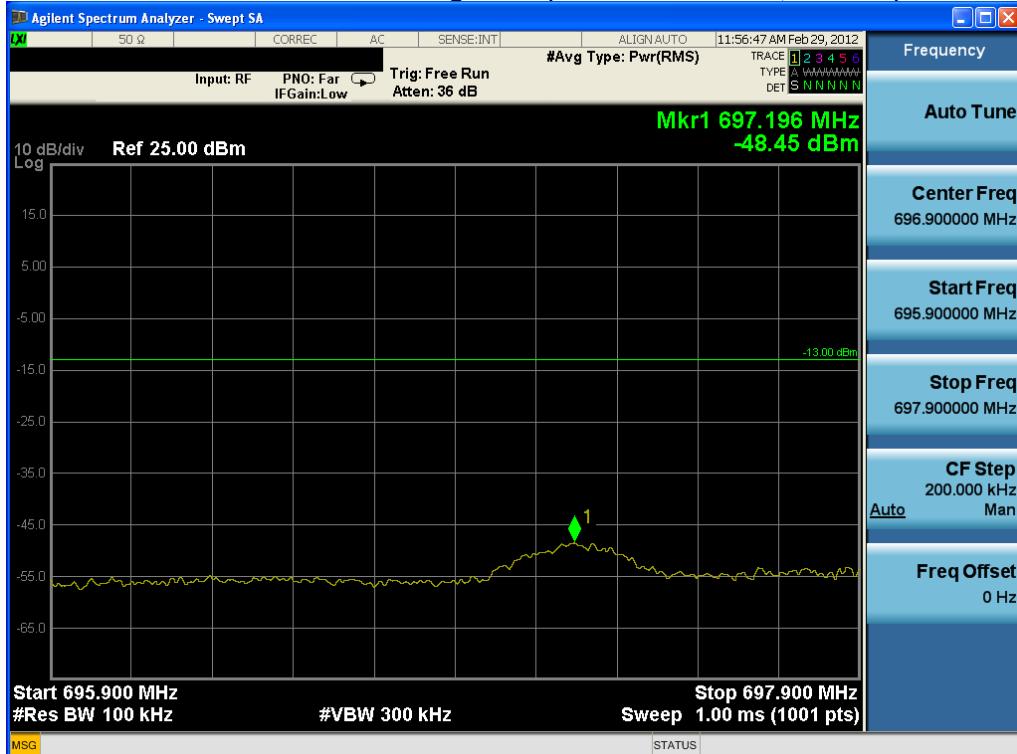
Plot 7-72. Upper Emission Mask (850 – 854MHz) Plot (16-QAM – RB Size 1, Offset 24)

FCC ID: A3LSCHLC11R		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1201230105.A3L	Test Dates: Jan. 23-30, Feb. 23-29, 2012	EUT Type: Portable Wireless Router		Page 72 of 167

BAND 12 – 5 MHZ BW

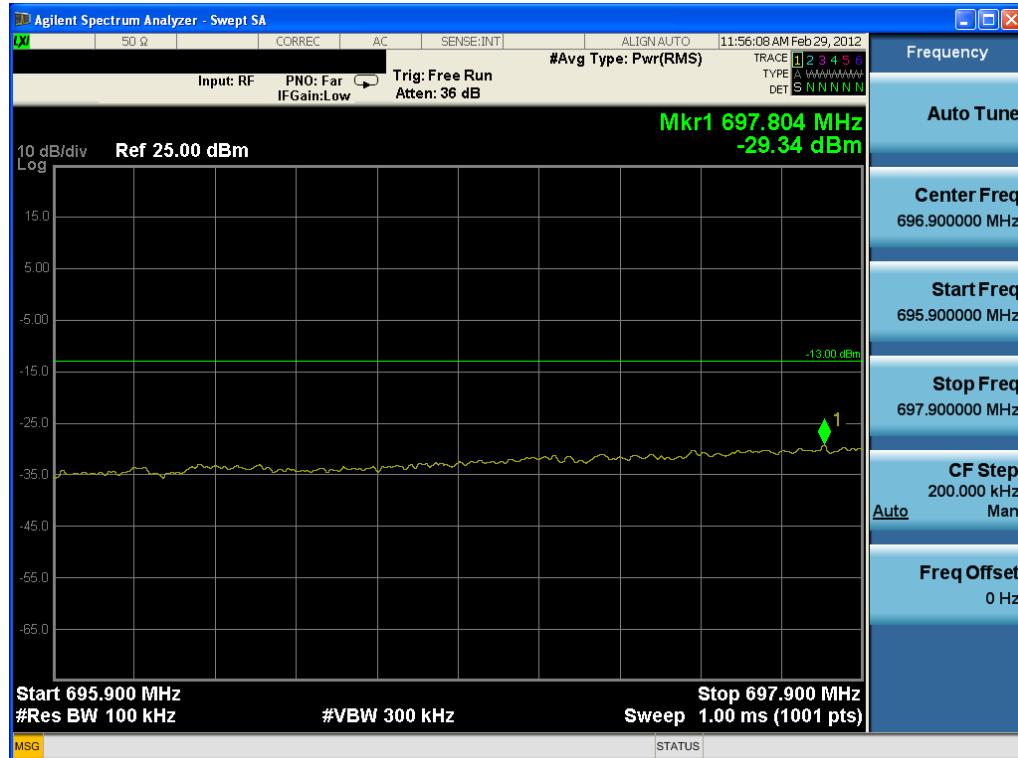


Plot 7-73. Lower Band Edge Plot (QPSK – RB Size 1, Offset 0)

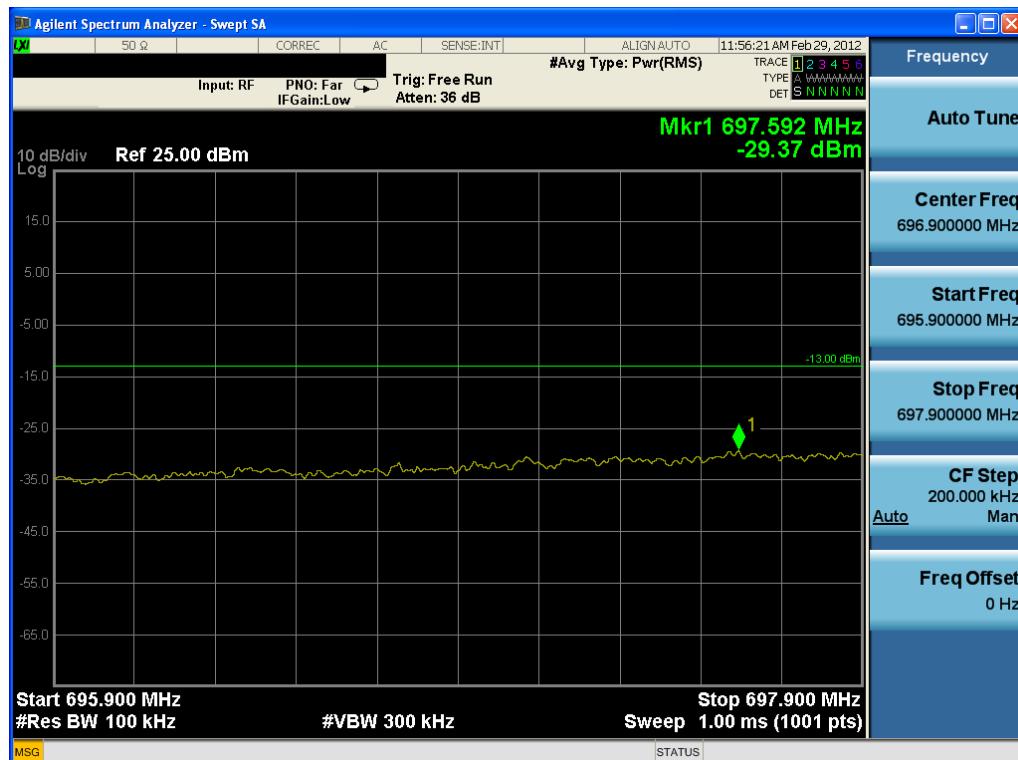


Plot 7-74. Lower Band Edge Plot (16QAM – RB Size 1, Offset 0)

FCC ID: A3LSCHLC11R	 FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)			Reviewed by: Quality Manager
Test Report S/N: 0Y1201230105.A3L	Test Dates: Jan. 23-30, Feb. 23-29, 2012	EUT Type: Portable Wireless Router		Page 73 of 167

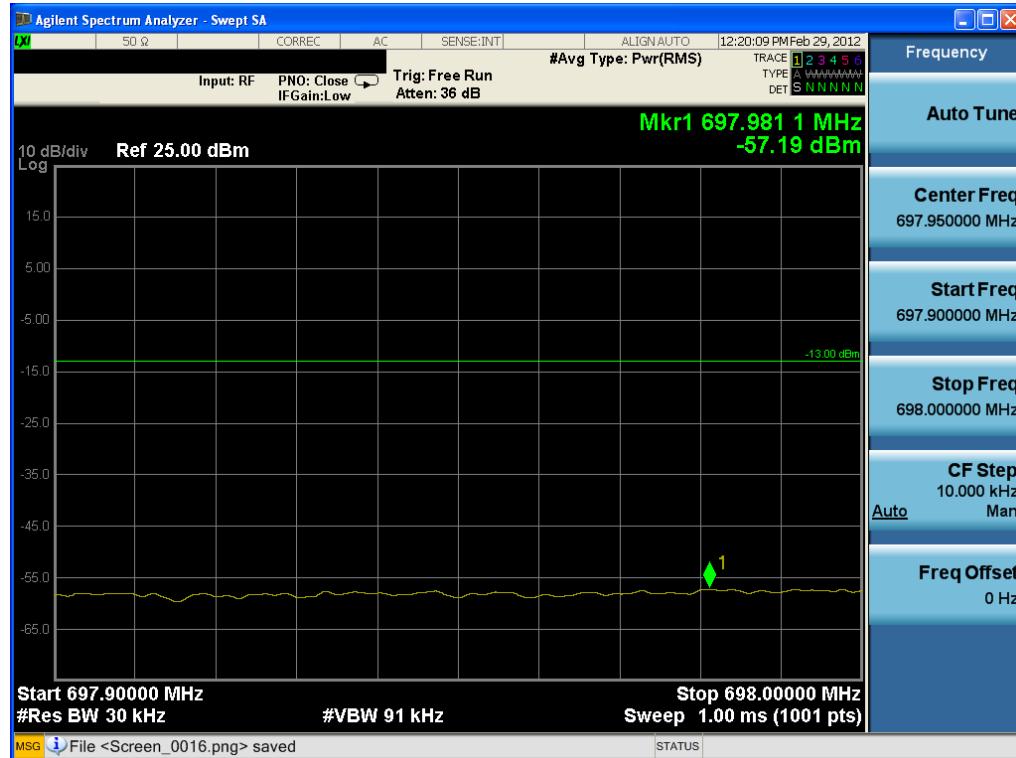


Plot 7-75. Lower Band Edge Plot (QPSK – RB Size 25)

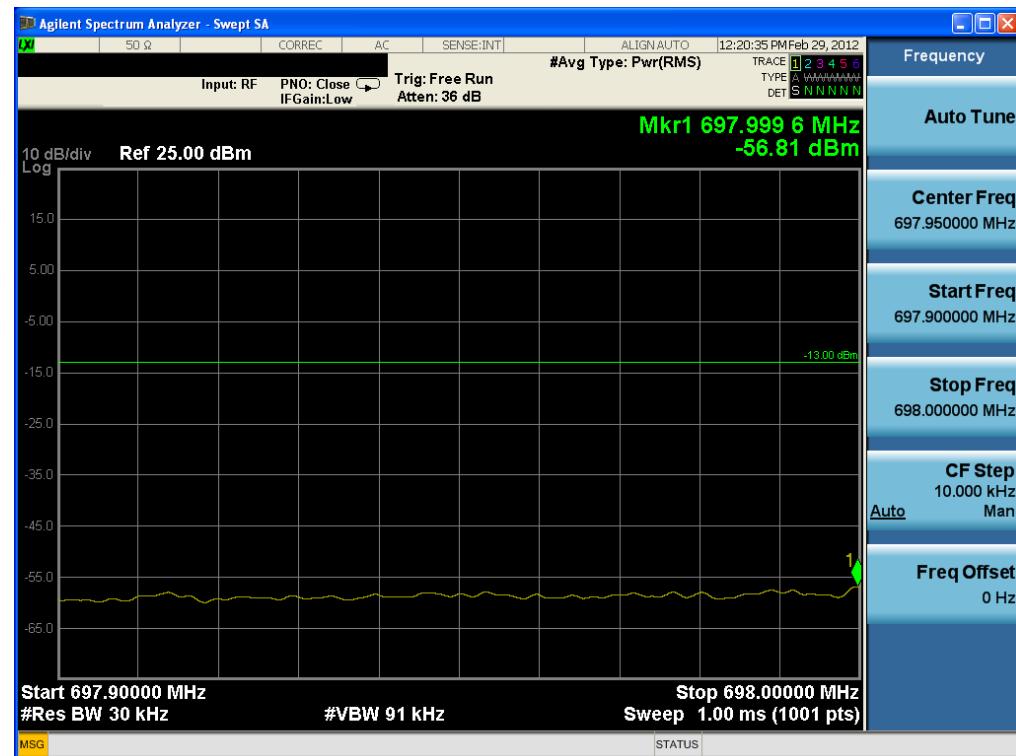


Plot 7-76. Lower Band Edge Plot (16QAM – RB Size 25)

FCC ID: A3LSCHLC11R		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1201230105.A3L	Test Dates: Jan. 23-30, Feb. 23-29, 2012	EUT Type: Portable Wireless Router		Page 74 of 167

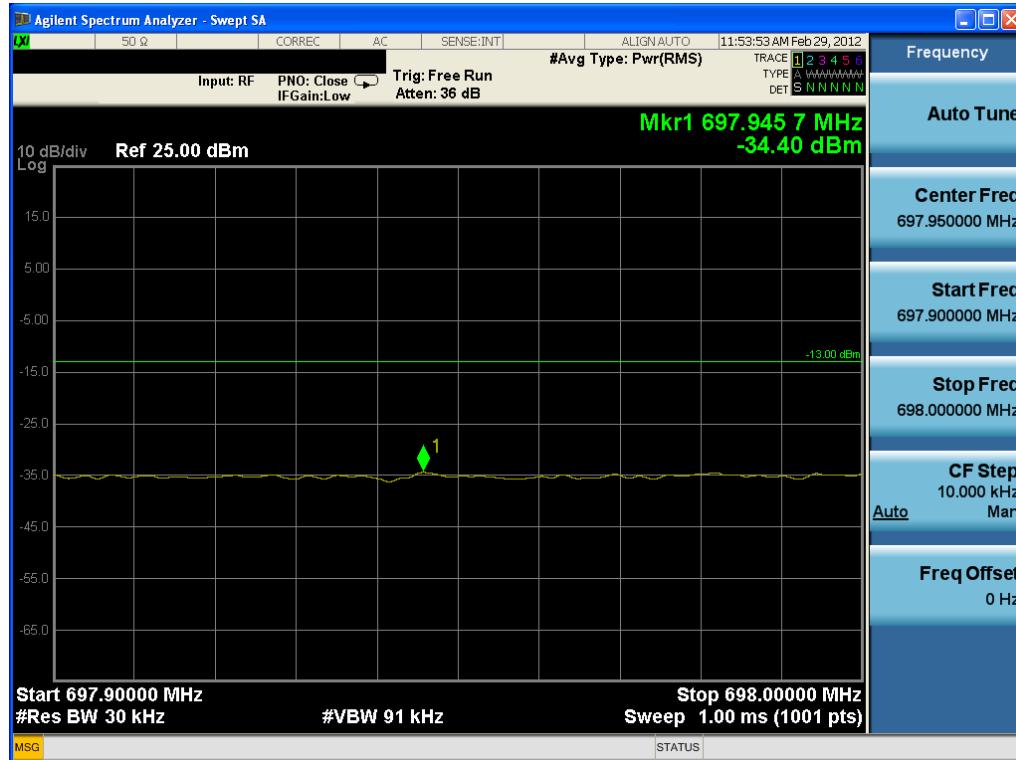


Plot 7-77. Lower Band Edge Plot (QPSK – RB Size 1, Offset 0)

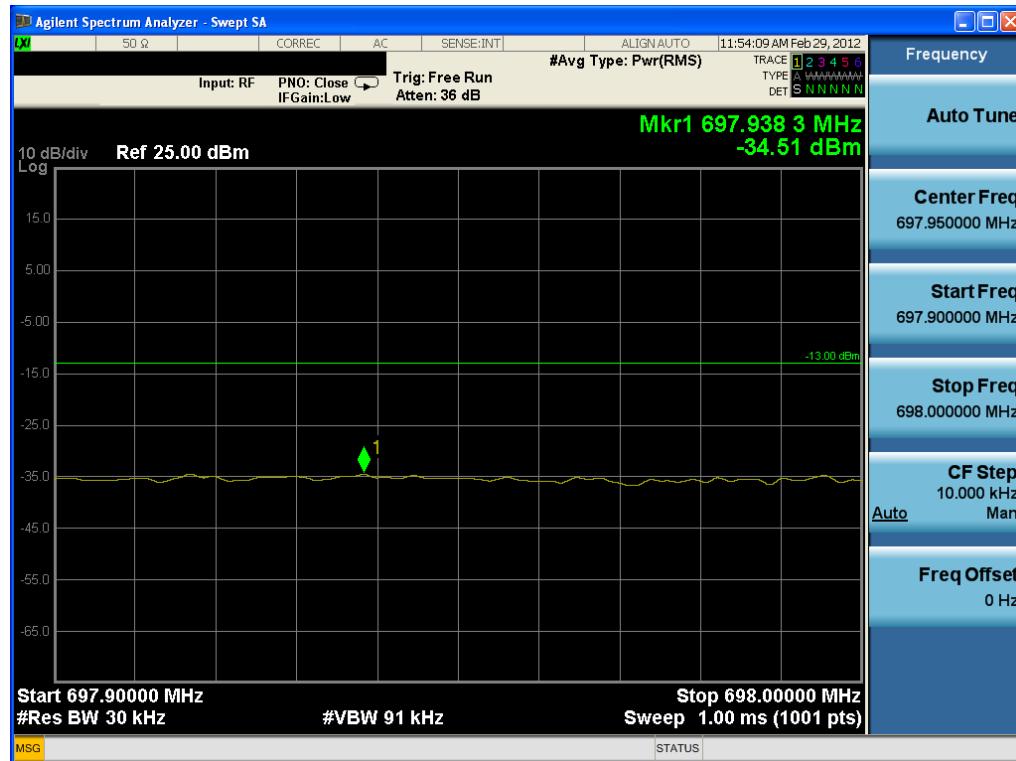


Plot 7-78. Lower Band Edge Plot (16QAM – RB Size 1, Offset 0)

FCC ID: A3LSCHLC11R		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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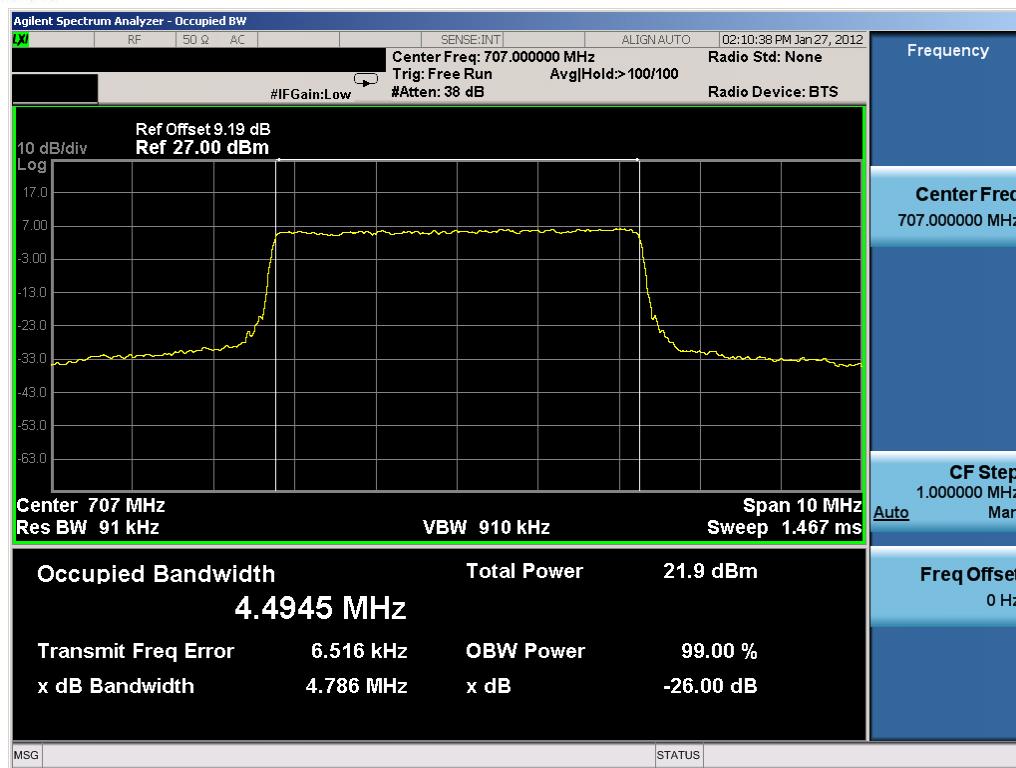


Plot 7-79. Lower Band Edge Plot (QPSK – RB Size 25)

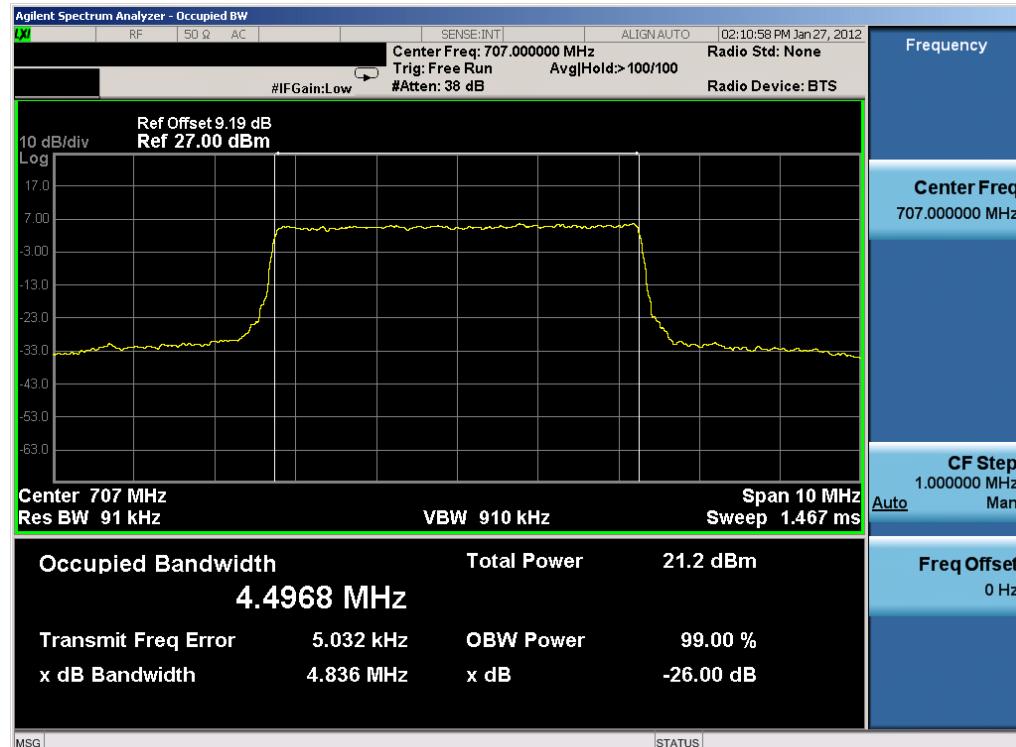


Plot 7-80. Lower Band Edge Plot (16QAM – RB Size 25)

FCC ID: A3LSCHLC11R		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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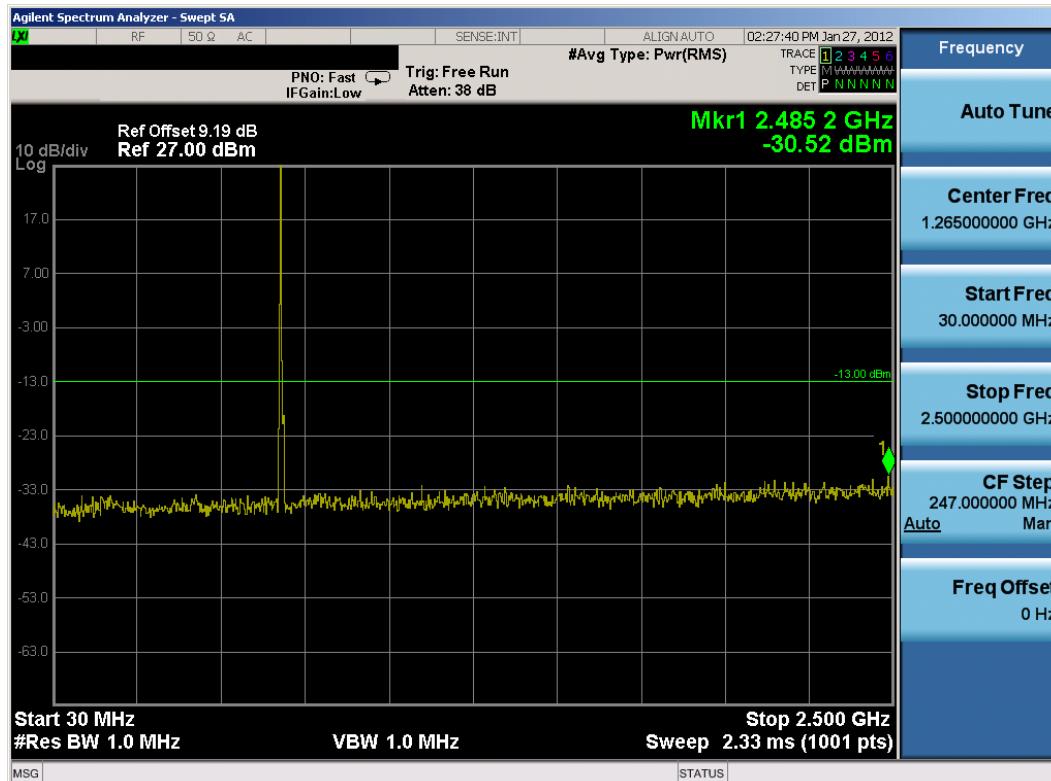


Plot 7-81. Occupied Bandwidth Plot (QPSK – RB Size 25)

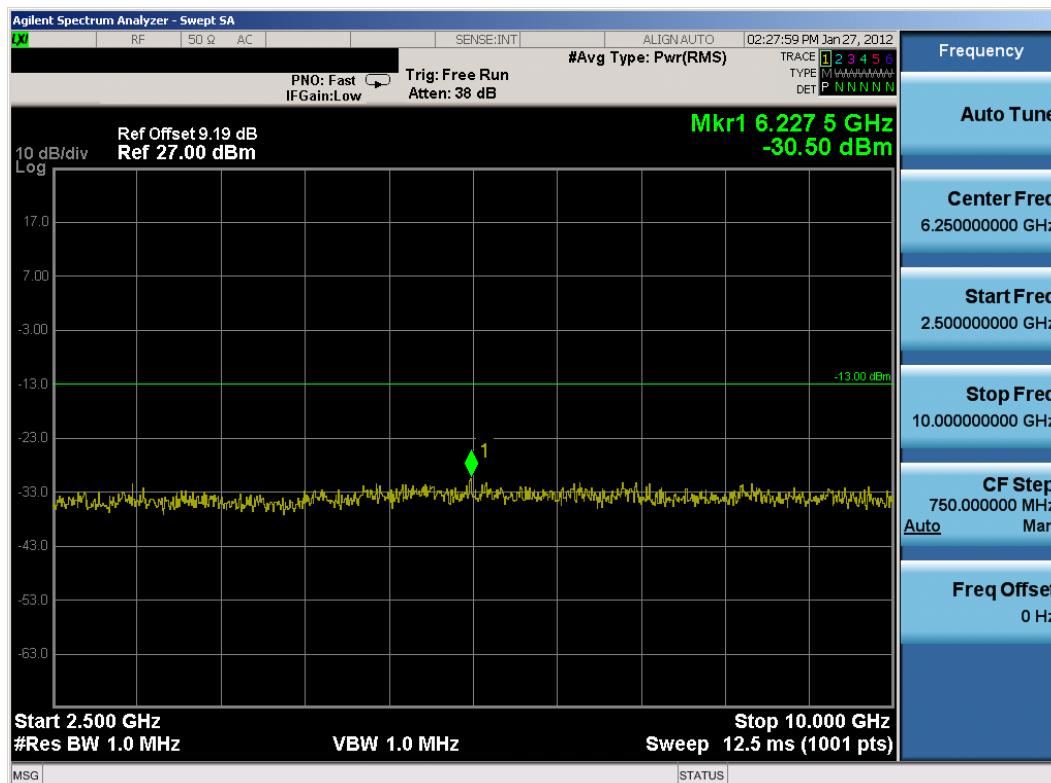


Plot 7-82. Occupied Bandwidth Plot (16-QAM – RB Size 25)

FCC ID: A3LSCHLC11R		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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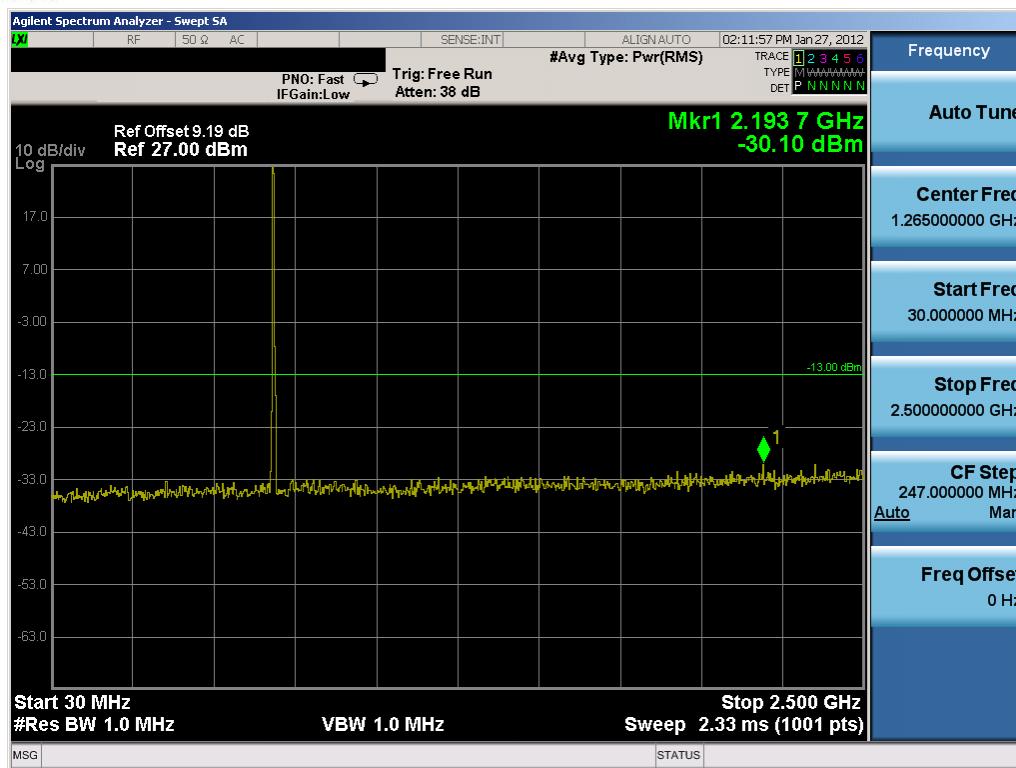


Plot 7-83. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 24 – Low Channel)

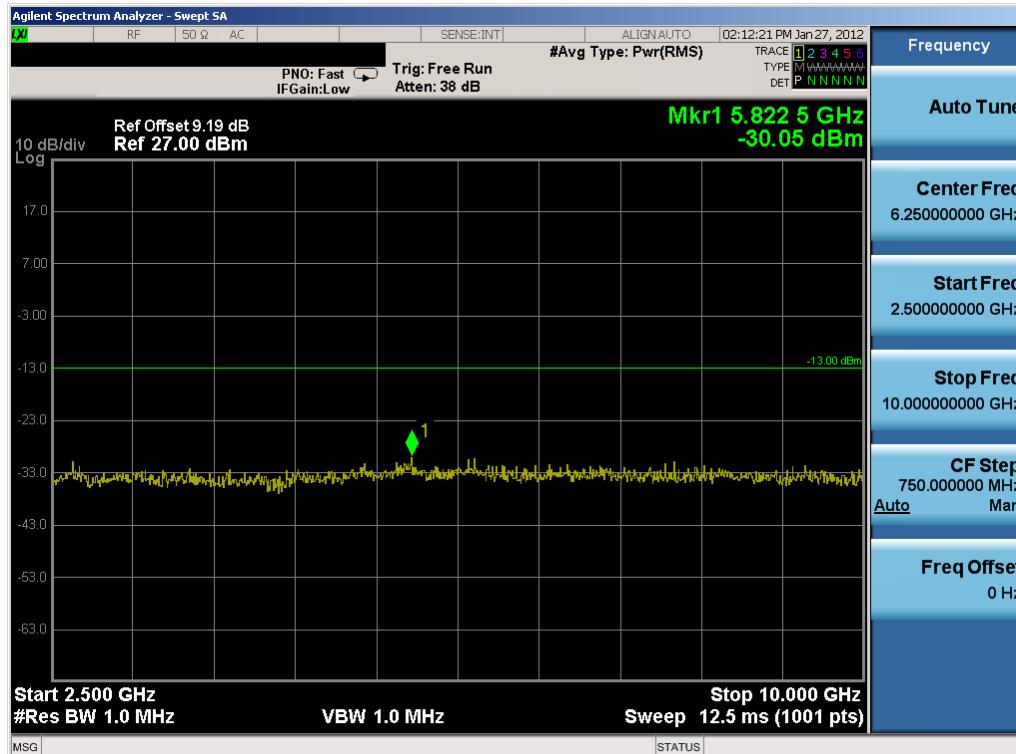


Plot 7-84. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 24 – Low Channel)

FCC ID: A3LSCHLC11R		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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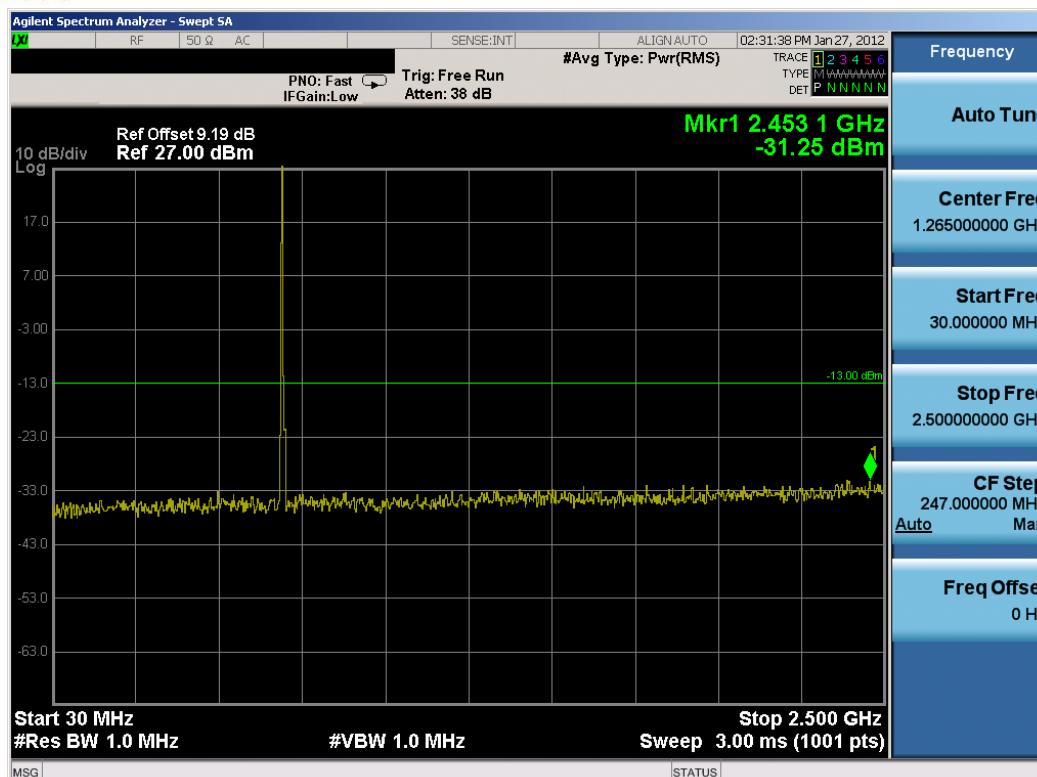


Plot 7-85. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 24 – Mid Channel)

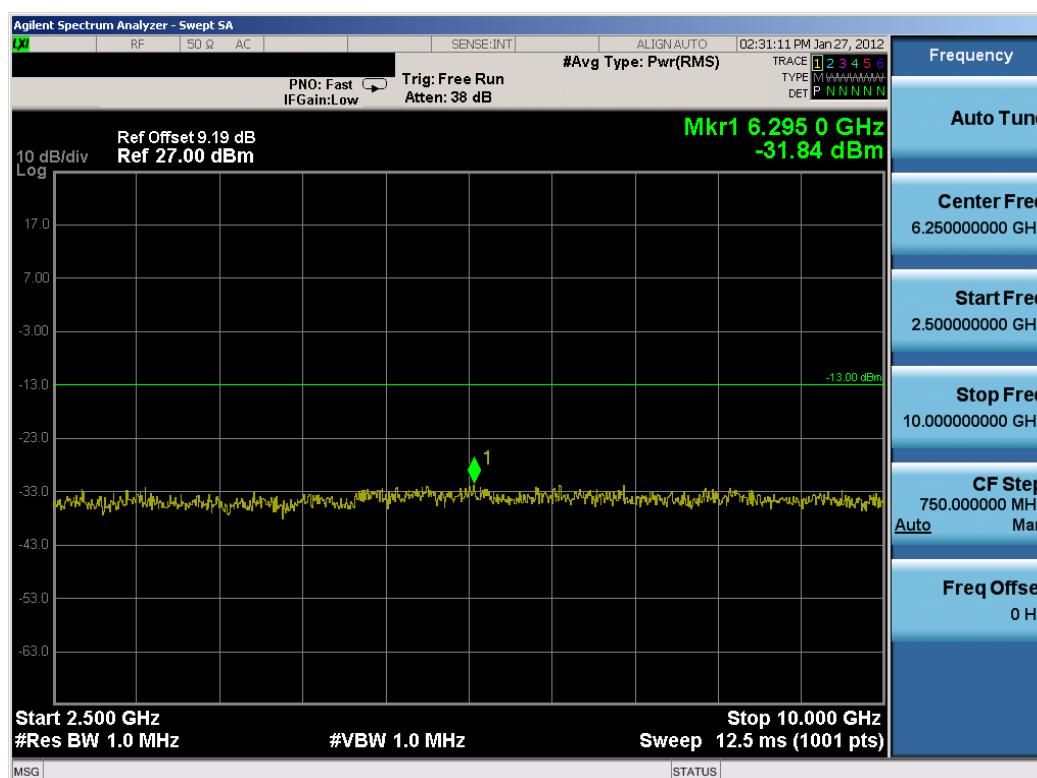


Plot 7-86. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 24 – Mid Channel)

FCC ID: A3LSCHLC11R		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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Plot 7-87. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 24 – High Channel)

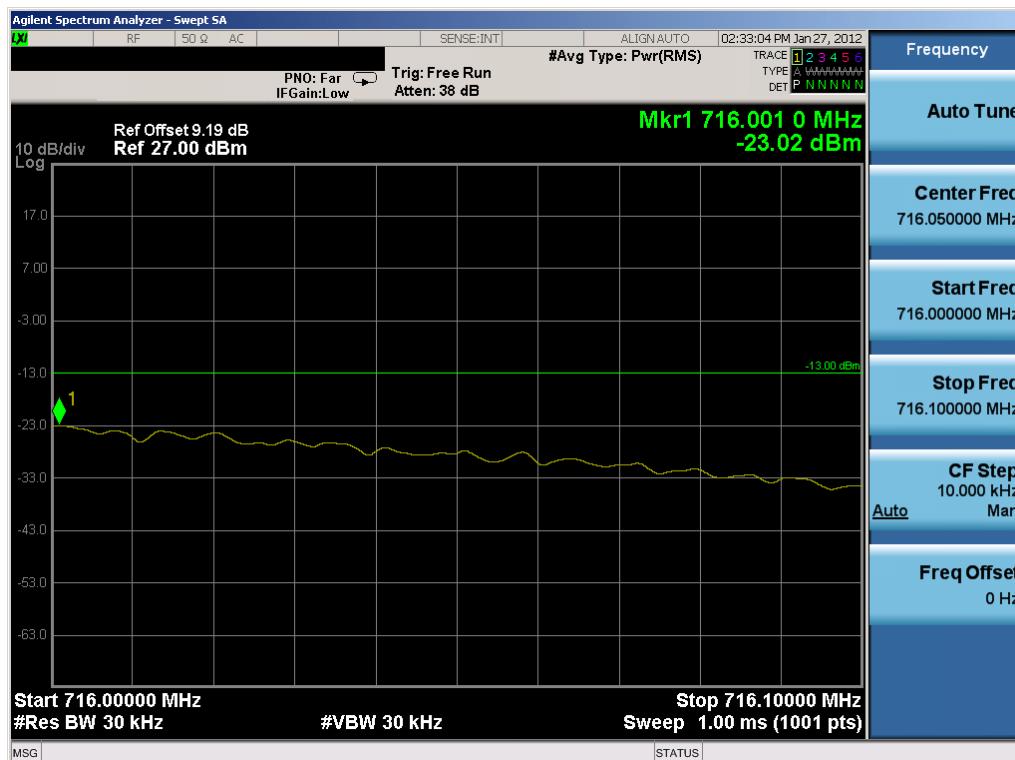


Plot 7-88. Conducted Spurious Plot (QPSK – RB Size 1, RB Offset 24 – High Channel)

FCC ID: A3LSCHLC11R		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1201230105.A3L	Test Dates: Jan. 23-30, Feb. 23-29, 2012	EUT Type: Portable Wireless Router		Page 80 of 167

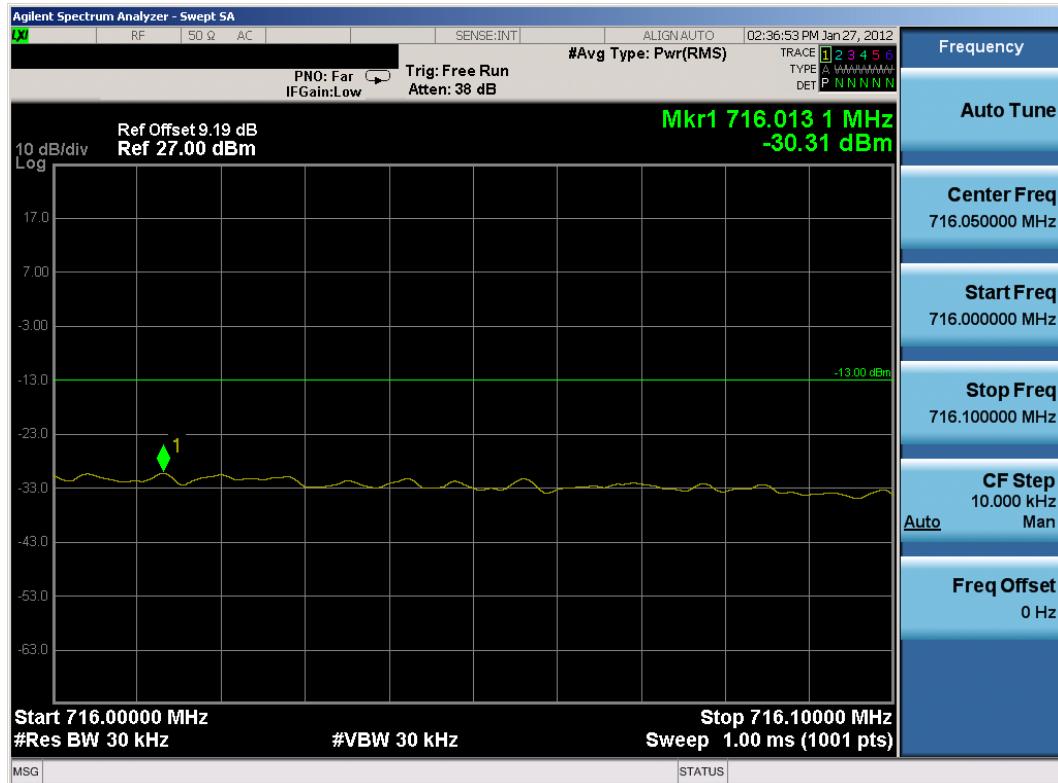


Plot 7-89. Upper Band Edge Plot (QPSK – RB Size 1, Offset 24)

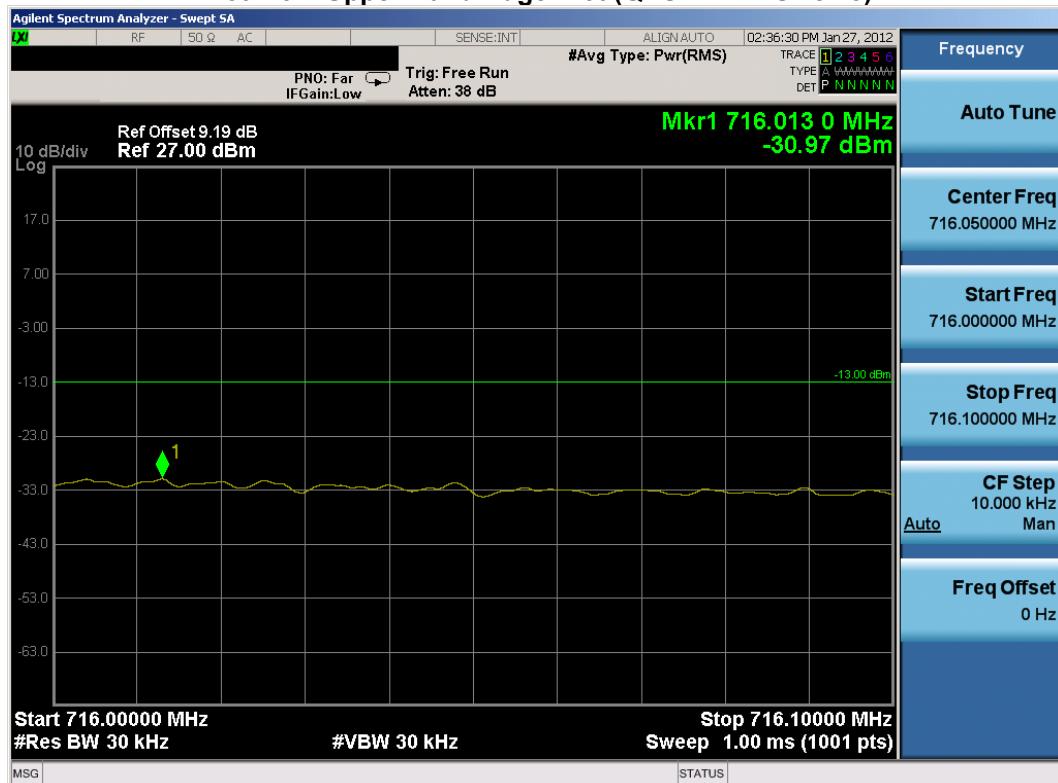


Plot 7-90. Upper Band Edge Plot (16QAM – RB Size 1, Offset 24)

FCC ID: A3LSCHLC11R		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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Plot 7-91. Upper Band Edge Plot (QPSK – RB Size 25)



Plot 7-91. Upper Band Edge Plot (16QAM– RB Size 25)

FCC ID: A3LSCHLC11R		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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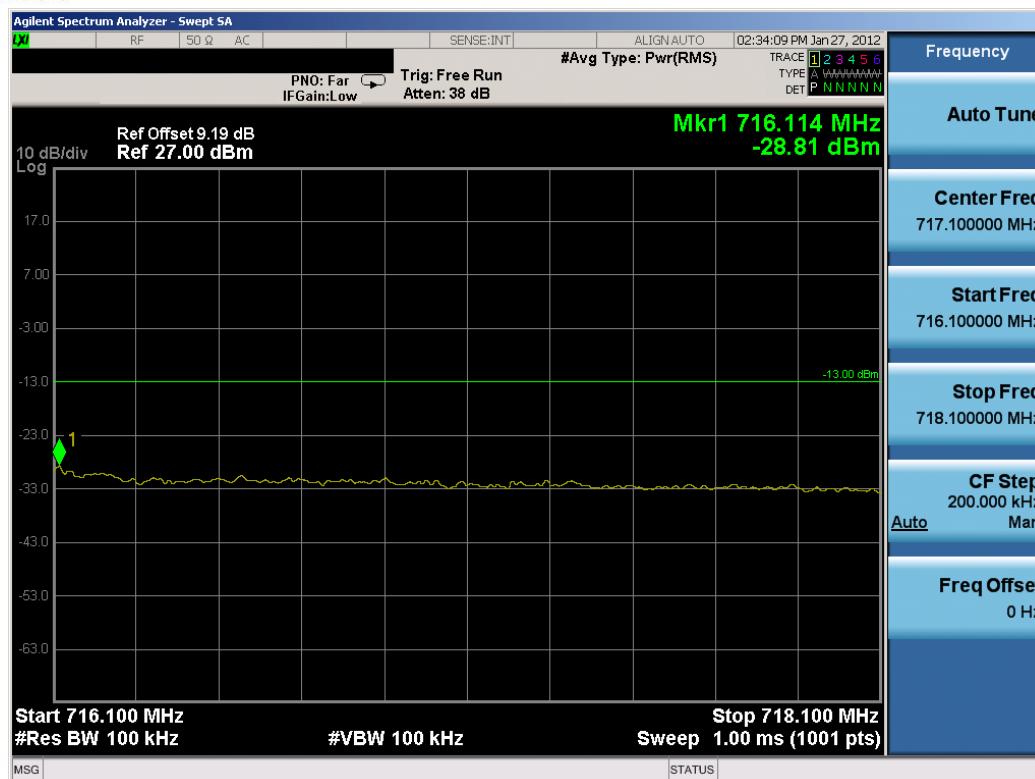


Plot 7-92. Upper Band Edge Plot (QPSK – RB Size 1, Offset 24)

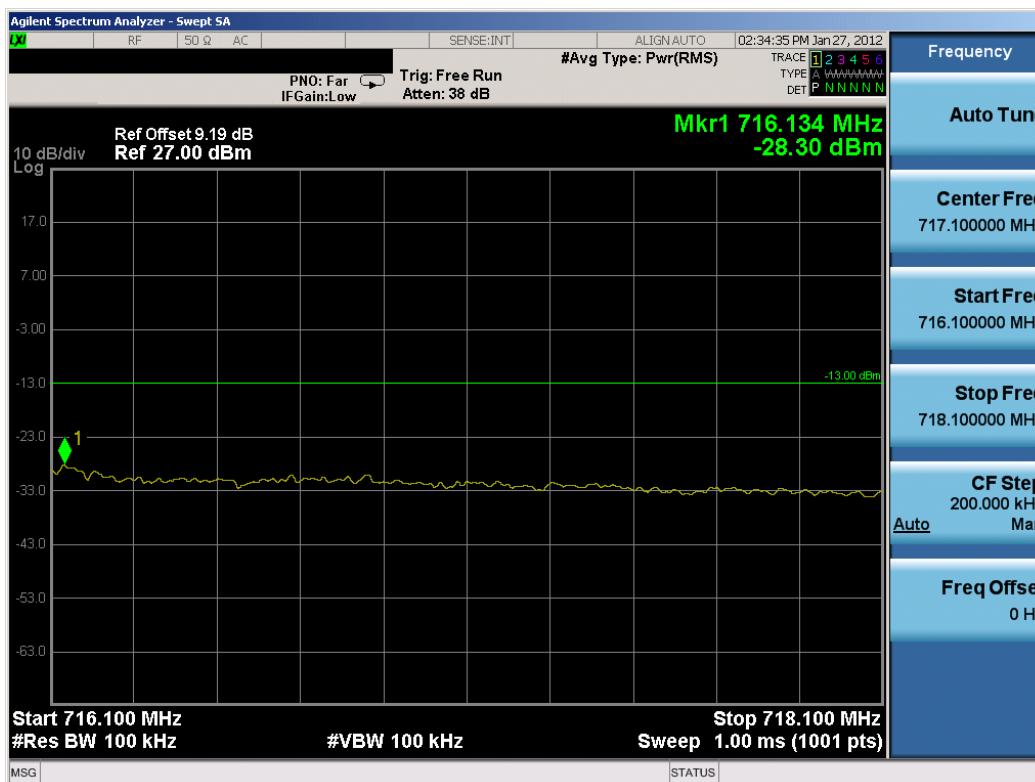


Plot 7-93. Upper Band Edge Plot (16-QAM – RB Size 1, Offset 24)

FCC ID: A3LSCHLC11R	 FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)			Reviewed by: Quality Manager
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Plot 7-94. Upper Band Edge Plot (QPSK – RB Size 25)



Plot 7-95. Upper Band Edge Plot (16QAM – RB Size 25)

FCC ID: A3LSCHLC11R		FCC Pt. 22-24-27 LTE MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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