PCTEST ENGINEERING LABORATORY, INC.
6660-B Dobbin Road, Columbia, MD 21045 USA
Tel. 410.290.6652 / Fax 410.290.6554
http://www.pctestlab.com

MEASUREMENT REPORT
FCC Part 24 & 27

Applicant Name:
LG Electronics USA
1000 Sylvan Avenue
Englewood Cliffs, NJ 07632
United States

Date of Testing:
May 19-23, 2011
Test Site/Location:
PCTEST Lab., Columbia, MD, USA
Test Report Serial No.:
0Y1105170893.BEJ

FCC ID: **BEJMS910**

APPLICANT: **LG ELECTRONICS USA**

Application Type:	Certification
FCC Classification:	PCS Licensed Transmitter Held to Ear (PCE)
FCC Rule Part(s):	§2; §24, §27
EUT Type:	Cellular/AWS/PCS CDMA/EvDO and AWS/PCS LTE Phone with BT and WLAN
Model(s):	MS910, LG-MS910
Tx Frequency Range:	1710.7 - 1754.3MHz (AWS), 1850.7 - 1909.3MHz (PCS)
Max. RF Output Power:	0.289 W EIRP (1.4MHz BW, QPSK, AWS Band) (24.61 dBm) 0.24 W EIRP (1.4MHz BW, 16-QAM,AWS Band) (23.81 dBm) 0.316 W EIRP (3MHz BW, QPSK, AWS Band) (25 dBm) 0.234 W EIRP (3MHz BW, 16-QAM,AWS Band) (23.7 dBm) 0.162 W EIRP (5MHz BW, QPSK, AWS Band) (22.51 dBm) 0.158 W EIRP (5MHz BW, 16-QAM, AWS Band) (21.99 dBm) 0.296 W EIRP (10MHz BW, QPSK, AWS Band) (24.71 dBm) 0.262 W EIRP (10MHz BW, 16-QAM, AWS Band) (24.19 dBm) 0.207 W EIRP (1.4MHz BW, QPSK, PCS Band) (23.15 dBm) 0.188 W EIRP (1.4MHz BW, 16-QAM, PCS Band) (22.75 dBm) 0.172 W EIRP (3MHz BW, QPSK, PCS Band) (22.76 dBm) 0.136 W EIRP (3MHz BW, 16-QAM, PCS Band) (22.16 dBm) 0.226 W EIRP (5MHz BW, QPSK, PCS Band) (23.66 dBm) 0.176 W EIRP (5MHz BW, 16-QAM, PCS Band) (22.56 dBm) 0.202 W EIRP (10MHz BW, QPSK, PCS Band) (23.06 dBm) 0.172 W EIRP (10MHz BW, 16-QAM, PCS Band) (22.35 dBm)
Emission Designator(s):	1M11G7D (1.4MHz BW, QPSK, AWS), 1M11W7D (1.4MHz BW, 16-QAM, AWS), 2M72G7D (3MHz BW, QPSK, AWS), 2M72W7D (3MHz BW, 16-QAM, AWS), 4M49G7D (5MHz BW, QPSK, AWS), 4M50W7D (5MHz BW, 16-QAM, AWS), 8M95G7D (10MHz BW, QPSK, AWS), 8M95W7D (10MHz BW, 16-QAM, AWS) 1M08G7D (1.4MHz BW, QPSK, PCS), 1M08W7D (1.4MHz BW, 16-QAM, PCS), 2M68G7D (3MHz BW, QPSK, PCS), 2M68W7D (3MHz BW, 16-QAM, PCS), 4M47G7D (5MHz BW, QPSK, PCS), 4M49W7D (5MHz BW, 16-QAM, PCS), 8M96G7D (10MHz BW, QPSK, PCS), 8M94W7D (10MHz BW, 16-QAM, PCS)
Test Device Serial No.:	*identical prototype* [S/N: N/A]

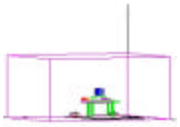
Test results reported herein relate only to the item(s) tested. I attest to the accuracy of data. All measurements reported herein were performed by me or were made under my supervision and are correct to the best of my knowledge and belief. I assume full responsibility for the completeness of these measurements and vouch for the qualifications of all persons taking them.

Grant Conditions: Power output listed is EIRP for Part 24 and Part 27.

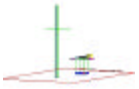
PCTEST certifies that no party to this application has been subject to a denial of Federal benefits that includes FCC benefits pursuant to Section 5301 of the Anti-Drug Abuse Act of 1988, 21 U.S.C. 862.

Randy Ortanez
President

TABLE OF CONTENTS



MEASUREMENT REPORT
FCC Part 24 & 27



§2.1033 General Information

APPLICANT:	LG Electronics USA
APPLICANT ADDRESS:	1000 Sylvan Avenue Englewood Cliffs, NJ 07632, United States
TEST SITE:	PCTEST ENGINEERING LABORATORY, INC.
TEST SITE ADDRESS:	6660-B Dobbin Road, Columbia, MD 21045 USA
FCC RULE PART(S):	§2; §24, §27
BASE MODEL:	MS910
FCC ID:	BEJMS910
FCC CLASSIFICATION:	PCS Licensed Transmitter Held to Ear (PCE)
EMISSION DESIGNATOR(S):	1M11G7D (1.4MHz BW, QPSK, AWS), 1M11W7D (1.4MHz BW, 16-QAM, AWS), 2M72G7D (3MHz BW, QPSK, AWS), 2M72W7D (3MHz BW, 16-QAM, AWS), 4M49G7D (5MHz BW, QPSK, AWS), 4M50W7D (5MHz BW, 16-QAM, AWS), 8M95G7D (10MHz BW, QPSK, AWS), 8M95W7D (10MHz BW, 16-QAM, AWS), 1M08G7D (1.4MHz BW, QPSK, PCS), 1M08W7D (1.4MHz BW, 16-QAM, PCS), 2M68G7D (3MHz BW, QPSK, PCS), 2M68W7D (3MHz BW, 16-QAM, PCS), 4M47G7D (5MHz BW, QPSK, PCS), 4M49W7D (5MHz BW, 16-QAM, PCS), 8M96G7D (10MHz BW, QPSK, PCS), 8M94W7D (10MHz BW, 16-QAM, PCS)
FREQUENCY TOLERANCE:	±0.00025 % (2.5 ppm)
Test Device Serial No.:	N/A ☐ Production ☒ Pre-Production ☐ Engineering
DATE(S) OF TEST:	May 19-23, 2011
TEST REPORT S/N:	0Y1105170893.BEJ

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.

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 are, the Baltimore-Washington Internt'l (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.

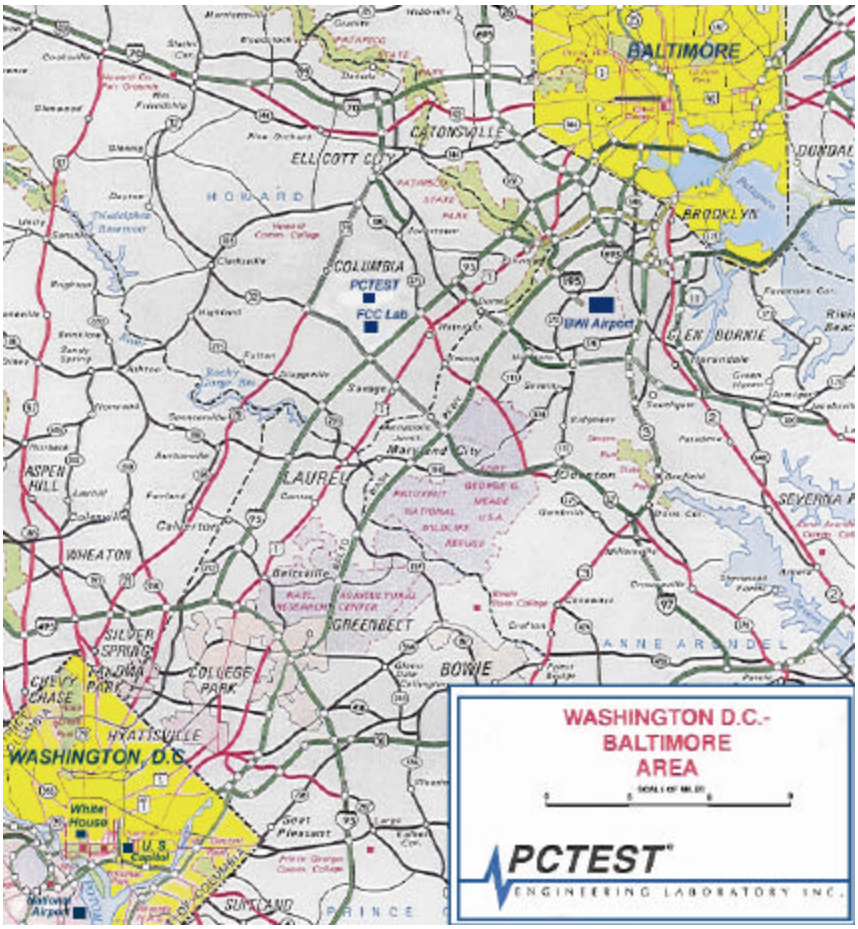


Figure 1-1. Map of the Greater Baltimore and Metropolitan Washington, D.C. area

2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **LG Cellular/AWS/PCS CDMA/EvDO and AWS/PCS LTE Phone with BT and WLAN FCC ID: BEJMS910**. 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
LG / Model: MS910	BEJMS910	Cellular/AWS/PCS CDMA/EvDO and AWS/PCS LTE Phone with BT and WLAN

Table 2-1. EUT Equipment Description

2.2 EMI Suppression Device(s)/Modifications

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

2.3 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.

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

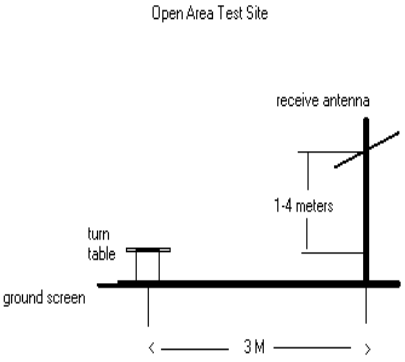


Figure 3-1. Diagram of 3-meter outdoor test range

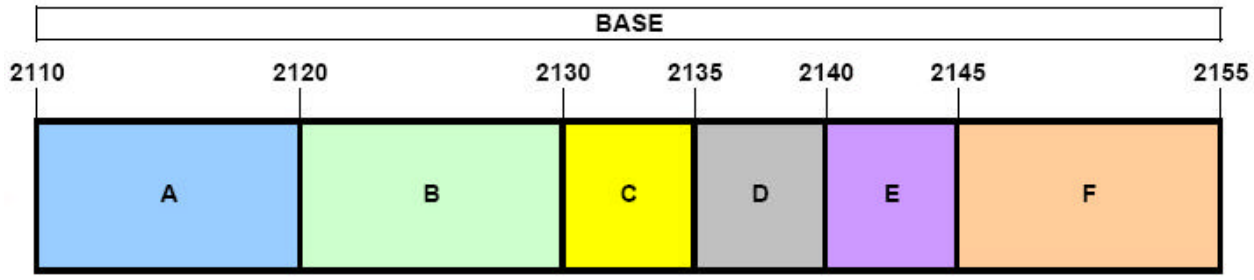
3.2 Occupied Bandwidth Emission Limits

§2.1049, 24.238(a)(b), §27.53(h)(1)

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its upper frequency 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 modulation 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 AWS - Base Frequency Blocks

§27.5(h)



BLOCK 1: 2110 – 2120 MHz (A)

BLOCK 2: 2120 – 2130 MHz (B)

BLOCK 3: 2130 – 2135 MHz (C)

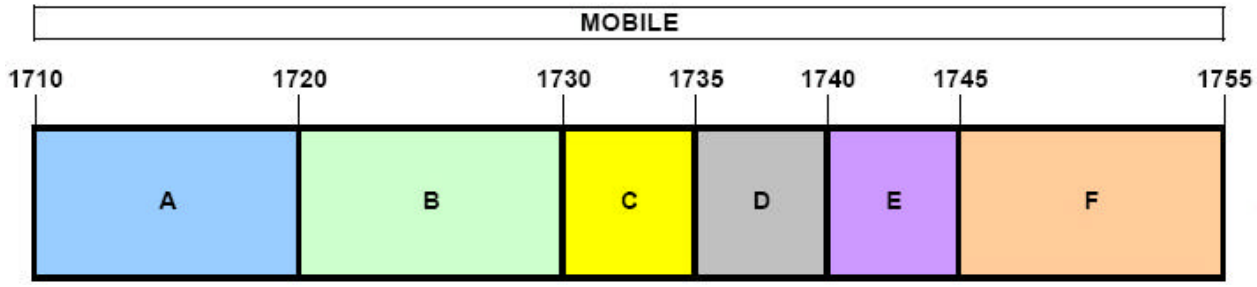
BLOCK 4: 2135 – 2140 MHz (D)

BLOCK 5: 2140 – 2145 MHz (E)

BLOCK 6: 2145 – 2155 MHz (F)

3.4 AWS - Mobile Frequency Blocks

§27.5(h)



BLOCK 1: 1710 – 1720 MHz (A)

BLOCK 2: 1720 – 1730 MHz (B)

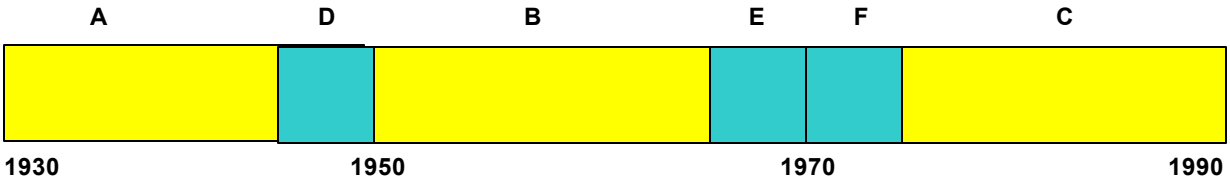
BLOCK 3: 1730 – 1735 MHz (C)

BLOCK 4: 1735 – 1740 MHz (D)

BLOCK 5: 1740 – 1745 MHz (E)

BLOCK 6: 1745 – 1755 MHz (F)

3.5 PCS - Base Frequency Blocks



BLOCK 1: 1930 – 1945 MHz (A)

BLOCK 2: 1945 – 1950 MHz (D)

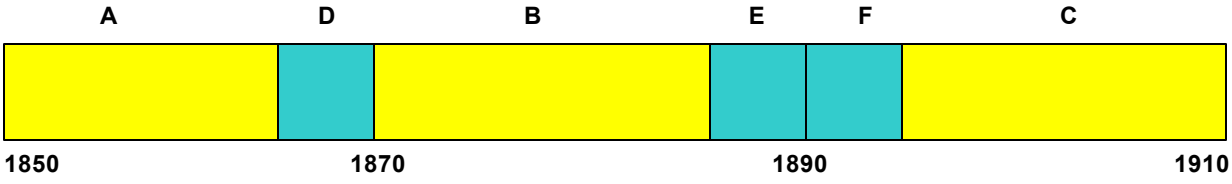
BLOCK 3: 1950 – 1965 MHz (B)

BLOCK 4: 1965 – 1970 MHz (E)

BLOCK 5: 1970 – 1975 MHz (F)

BLOCK 6: 1975 – 1990 MHz (C)

3.6 PCS - Mobile Frequency Blocks



BLOCK 1: 1850 – 1865 MHz (A)

BLOCK 2: 1865 – 1870 MHz (D)

BLOCK 3: 1870 – 1885 MHz (B)

BLOCK 4: 1885 – 1890 MHz (E)

BLOCK 5: 1890 – 1895 MHz (F)

BLOCK 6: 1895 – 1910 MHz (C)

3.7 Spurious and Harmonic Emissions at Antenna Terminal

§2.1051, 24.238(a), §27.53(h)

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. 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.

3.8 Radiated Power and Radiated Spurious Emissions

§2.1053, 24.232(c), 24.238(a), §27.53(h)

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. This device was tested under all modulations and channel bandwidth configurations and the worst case emissions are reported in Band 2 using 5Mhz Bandwidth, and in Band 4 using 3MHz Bandwidth. For both Band 2 and 4, the worst case emissions employed 1RB (with offset 0) and QPSK modulation.

3.9 Peak-Average Ratio

§24.232(d), §27.50(d)(5)

A peak to average ratio measurement is performed at the conducted port of the EUT. 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.

3.10 Frequency Stability / Temperature Variation

§2.1055, 24.235, §27.54

The frequency stability of the transmitter is measured by:

a.) **Temperature:** The temperature is varied from -30°C to +50°C in 10°C increments using an environmental chamber.

b.) **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 – The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block. The frequency stability of the transmitter shall be maintained within ±0.00025% (±2.5 ppm) of the center frequency.

Time Period and Procedure:

1. The carrier frequency of the transmitter is measured at room temperature (20°C to provide a reference).

2. 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.

3. Frequency measurements are made at 10°C intervals ranging from -30°C to +50°C. A period of at least one half-hour is provided to allow stabilization of the equipment at each temperature level.

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
-	263-10dB	(DC-18GHz) 10 dB Attenuator	N/A		N/A	N/A
-	No.166	(1000-26500MHz) Microwave RF Cable	N/A		N/A	N/A
-	No.167	(100kHz - 100MHz) RG58 Coax Cable	N/A		N/A	N/A
Agilent	8449B	(1-26.5GHz) Pre-Amplifier	2/8/2011	Annual	2/8/2012	3008A00985
Agilent	85650A	Quasi-Peak Adapter	4/7/2011	Annual	4/7/2012	3303A01872
Agilent	85650A	Quasi-Peak Adapter	4/7/2011	Annual	4/7/2012	2043A00301
Agilent	8566B	(100Hz-22GHz) Spectrum Analyzer	4/7/2011	Annual	4/7/2012	3638A08713
Agilent	8648D	(9kHz-4GHz) Signal Generator	10/13/2010	Annual	10/13/2011	3613A00315
Agilent	E4407B	ESA Spectrum Analyzer	4/5/2011	Annual	4/5/2012	US39210313
Agilent	E4432B	ESG-D Series Signal Generator	9/10/2009	Annual	9/10/2010	US40053896
Agilent	E4448A	PSA (3Hz-50GHz) Spectrum Analyzer	11/30/2010	Annual	11/30/2011	US42510244
Agilent	E5515C	Wireless Communications Test Set	10/11/2010	Annual	10/11/2011	GB46110872
Agilent	E5515C	Wireless Communications Test Set	10/8/2010	Annual	10/8/2011	GB46310798
Agilent	E5515C	Wireless Communications Test Set	8/13/2010	Annual	8/13/2011	GB41450275
Agilent	E8257D	(250kHz-20GHz) Signal Generator	4/8/2011	Annual	4/8/2012	MY45470194
Agilent	E8267C	Vector Signal Generator	10/11/2010	Annual	10/11/2011	US42340152
Agilent	N9020A	MXA Signal Analyzer	9/8/2010	Annual	9/8/2011	US46470561
Agilent	E5515C	Wireless Communications Test Set	2/8/2011	Annual	2/8/2012	GB45360985
Anritsu	ML2495A	Power Meter	10/13/2010	Annual	10/13/2011	941001
Anritsu	MA2411B	Pulse Sensor	N/A	Annual		1027293
Compliance Design	Roberts	Dipole Set	4/7/2010	Biennial	4/7/2012	146
Compliance Design	Roberts	Dipole Set	4/7/2010	Biennial	4/7/2012	147
Emco	3115	Horn Antenna (1-18GHz)	10/14/2009	Biennial	10/14/2011	9704-5182
Emco	3115	Horn Antenna (1-18GHz)	4/8/2010	Biennial	4/8/2012	9205-3874
Espec	ESX-2CA	Environmental Chamber	2/8/2011	Annual	2/8/2012	17620
Gigatronics	80701A	(0.05-18GHz) Power Sensor	10/11/2010	Annual	10/11/2011	1833460
Gigatronics	8651A	Universal Power Meter	10/11/2010	Annual	10/11/2011	8650319
K & L	11SH10	Band Pass Filter	N/A	Annual	N/A	1300/4000
K & L	11SH10	Band Pass Filter	N/A	Annual	N/A	4000/12000
MiniCircuits	VHF-1300+	High Pass Filter	N/A		N/A	30716
MiniCircuits	VHF-3100+	High Pass Filter	N/A		N/A	30721
Pasternack	PE2208-6	Bidirectional Coupler	N/A		N/A	N/A
Rohde & Schwarz	FSQ 26	Spectrum Analyzer	8/28/2010	Annual	8/28/2011	200452
Rohde & Schwarz	CMW500	LTE Radio Communication Tester	8/30/2010	Annual	8/30/2011	100976
Rohde & Schwarz	CMW500	LTE Radio Communication Tester	3/11/2011	Annual	3/11/2012	103962
Schwarzbeck	UHA9105	Dipole Antenna (400 - 1GHz) Rx	7/17/2009	Biennial	7/17/2011	9105-2404
Schwarzbeck	UHA9105	Dipole Antenna (400 - 1GHz) Tx	7/17/2009	Biennial	7/17/2011	9105-2403
Sunol	DRH-118	Horn Antenna (1 - 18GHz)	6/14/2009	Biennial	6/14/2011	A050307
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	7/17/2009	Biennial	7/17/2011	A051107

Table 4-1. Test Equipment

5.0 SAMPLE CALCULATIONS

Emission Designator

Emission Designator = 4M25G7D

QPSK BW = 4.25 MHz
G = Phase Modulation
7 = Two or more channels containing quantized or digital information
D = Data transmission, telemetry, telecommand

Emission Designator = 3M35D7W

16-QAM BW = 3.35 MHz
D = Quadrature Amplitude Modulation
7 = Two or more channels containing quantized or digital information
W = Combination (Audio/Data) (Measured at the 99.75% power bandwidth)

Spurious Radiated Emission – AWS Band

Example: Channel 20150 AWS Mode 2nd Harmonic (3460.0 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 terminal 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 3460.0 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) = 50.3 dBc.

6.0 TEST RESULTS

6.1 Summary

Company Name: LG Electronics USA

FCC ID: BEJMS910

FCC Classification: PCS Licensed Transmitter Held to Ear (PCE)

Mode(s): LTE

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
TRANSMITTER MODE (TX)					
2.1049, 24.238(a), 27.53(h)(1)	Occupied Bandwidth	N/A	CONDUCTED	PASS	Sections 7.0, 8.0
2.1051, 24.238(a), 27.53(h)	Band Edge / Conducted Spurious Emissions	< 43 + 10log$_{10}$ (P[Watts]) at Band Edge and for all out-of-band emissions		PASS	Sections 7.0, 8.0
24.232(d), 27.50(d)(5)	Peak-Average Ratio	< 13 dB		PASS	Sections 7.0, 8.0
2.1046	Transmitter Conducted Output Power	N/A		PASS	Section 6.2
24.232(c)	Equivalent Isotropic Radiated Power (PCS)	< 2 Watts max. EIRP	RADIATED	PASS	Section 6.3
27.50(d)(2)	Equivalent Isotropic Radiated Power (AWS)	< 1 Watts max. EIRP		PASS	Section 6.3
2.1053, 24.238(a), 27.53(h)	Undesirable Emissions	< 43 + 10log$_{10}$ (P[Watts]) for all out-of-band emissions		PASS	Section 6.4, 6.5
2.1055, 24.235, 27.54	Frequency Stability	< 2.5 ppm		PASS	Section 6.6, 6.7

Table 6-1. Summary of Test Results

Notes:

- The plots in Section 7.0 and 8.0 indicate a test date of March 28, but these plots are applicable to this test report.
- All modes or operation were investigated, and the worse case conducted spurious emissions were reported in Section 7.0 and 8.0. Both QPSK and 16QAM were investigated; QPSK produced worse case emissions. Different Resource Block (RB) Sizes and offsets were also investigated; the worse case reported in Section 7.0 and 8.0 employed full RB sizes.

6.2 Transmitter Conducted Output Power

§2.1046

The **LG Cellular/AWS/PCS CDMA/EvDO and AWS/PCS LTE Phone with BT and WLAN FCC ID: BEJMS910** was connected to a Rohde & Schwarz CMW500 LTE eNodeB simulator. The EUT was configured to transmit continuously using different resource block configurations for 1.4MHz, 3MHz, 5MHz, and 10MHz channel bandwidths with QPSK and 16-QAM modulations in order to determine the maximum conducted output power.

Frequency [MHz]	Uplink Channel Number	BW [MHz]	RB Size	RB Offset	Mod	**Maximum Average Power [dBm]**
1710.7	19957	1.4	1	0	QPSK	23.28
1710.7	19957	1.4	1	5	QPSK	23.35
1710.7	19957	1.4	3	2	QPSK	23.02
1710.7	19957	1.4	6	0	QPSK	22.64
1710.7	19957	1.4	1	0	16-QAM	22.58
1710.7	19957	1.4	1	5	16-QAM	22.61
1710.7	19957	1.4	3	2	16-QAM	22.63
1710.7	19957	1.4	6	0	16-QAM	21.65
1711.5	19965	3	1	0	QPSK	23.14
1711.5	19965	3	1	14	QPSK	23.38
1711.5	19965	3	8	4	QPSK	22.78
1711.5	19965	3	15	0	QPSK	22.68
1711.5	19965	3	1	0	16-QAM	22.44
1711.5	19965	3	1	14	16-QAM	22.39
1711.5	19965	3	8	4	16-QAM	21.94
1711.5	19965	3	15	0	16-QAM	21.64
1712.5	19975	5	1	0	QPSK	23.25
1712.5	19975	5	1	24	QPSK	23.21
1712.5	19975	5	12	6	QPSK	22.75
1712.5	19975	5	25	0	QPSK	22.65
1712.5	19975	5	1	0	16-QAM	22.53
1712.5	19975	5	1	14	16-QAM	22.61
1712.5	19975	5	12	6	16-QAM	21.59
1712.5	19975	5	25	0	16-QAM	21.62
1715	20000	10	1	0	QPSK	23.41
1715	20000	10	1	49	QPSK	23.36
1715	20000	10	25	12	QPSK	22.78
1715	20000	10	50	0	QPSK	22.94
1715	20000	10	1	0	16-QAM	22.53
1715	20000	10	1	49	16-QAM	22.64
1715	20000	10	25	12	16-QAM	21.67
1715	20000	10	50	0	16-QAM	21.85

Table 6-2. Maximum Conducted Output Power (Low Channel, AWS Band)

Frequency [MHz]	Uplink Channel Number	BW [MHz]	RB Size	RB Offset	Mod	**Maximum Average Power [dBm]**
1850.7	18607	1.4	1	0	QPSK	22.88
1850.7	18607	1.4	1	5	QPSK	22.86
1850.7	18607	1.4	3	2	QPSK	22.79
1850.7	18607	1.4	6	0	QPSK	22.33
1850.7	18607	1.4	1	0	16-QAM	22.21
1850.7	18607	1.4	1	5	16-QAM	22.12
1850.7	18607	1.4	3	2	16-QAM	22.44
1850.7	18607	1.4	6	0	16-QAM	21.55
1851.5	18615	3	1	0	QPSK	22.91
1851.5	18615	3	1	14	QPSK	23.14
1851.5	18615	3	8	4	QPSK	22.26
1851.5	18615	3	15	0	QPSK	22.27
1851.5	18615	3	1	0	16-QAM	22.28
1851.5	18615	3	1	14	16-QAM	22.37
1851.5	18615	3	8	4	16-QAM	21.47
1851.5	18615	3	15	0	16-QAM	21.42
1852.5	18625	5	1	0	QPSK	23.04
1852.5	18625	5	1	24	QPSK	23.13
1852.5	18625	5	12	6	QPSK	22.41
1852.5	18625	5	25	0	QPSK	22.43
1852.5	18625	5	1	0	16-QAM	22.07
1852.5	18625	5	1	14	16-QAM	22.41
1852.5	18625	5	12	6	16-QAM	21.57
1852.5	18625	5	25	0	16-QAM	21.54
1855	18650	10	1	0	QPSK	23.01
1855	18650	10	1	49	QPSK	23.5
1855	18650	10	25	12	QPSK	22.57
1855	18650	10	50	0	QPSK	22.62
1855	18650	10	1	0	16-QAM	22.16
1855	18650	10	1	49	16-QAM	22.64
1855	18650	10	25	12	16-QAM	21.76
1855	18650	10	50	0	16-QAM	21.71

Table 6-3. Maximum Conducted Output Power (Low Channel, PCS Band)

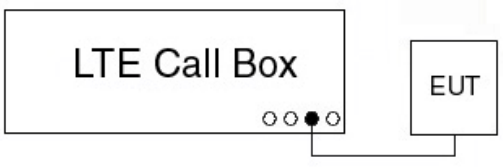


Figure 6-1. Test Setup Diagram

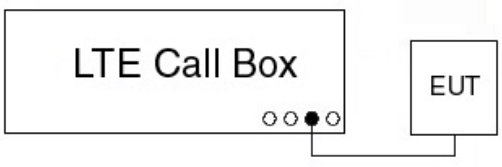


Figure 6-2. Test Setup Diagram

Transmitter Conducted Output Power (Cont'd)

§2.1046

Frequency [MHz]	Uplink Channel Number	BW[MHz]	RB Size	RB Offset	Mod	**Maximum Average Power [dBm]**
1732.5	20175	1.4	1	0	QPSK	23.37
1732.5	20175	1.4	1	5	QPSK	23.28
1732.5	20175	1.4	3	2	QPSK	23.27
1732.5	20175	1.4	6	0	QPSK	22.77
1732.5	20175	1.4	1	0	16-QAM	22.55
1732.5	20175	1.4	1	5	16-QAM	22.58
1732.5	20175	1.4	3	2	16-QAM	22.62
1732.5	20175	1.4	6	0	16-QAM	21.94
1732.5	20175	3	1	0	QPSK	23.42
1732.5	20175	3	1	14	QPSK	23.44
1732.5	20175	3	8	4	QPSK	22.8
1732.5	20175	3	15	0	QPSK	22.72
1732.5	20175	3	1	0	16-QAM	22.41
1732.5	20175	3	1	14	16-QAM	22.38
1732.5	20175	3	8	4	16-QAM	21.89
1732.5	20175	3	15	0	16-QAM	21.75
1732.5	20175	5	1	0	QPSK	23.42
1732.5	20175	5	1	24	QPSK	23.36
1732.5	20175	5	12	6	QPSK	22.71
1732.5	20175	5	25	0	QPSK	22.67
1732.5	20175	5	1	0	16-QAM	22.63
1732.5	20175	5	1	14	16-QAM	22.53
1732.5	20175	5	12	6	16-QAM	21.93
1732.5	20175	5	25	0	16-QAM	21.66
1732.5	20175	10	1	0	QPSK	23.54
1732.5	20175	10	1	49	QPSK	23.29
1732.5	20175	10	25	12	QPSK	22.67
1732.5	20175	10	50	0	QPSK	22.69
1732.5	20175	10	1	0	16-QAM	22.69
1732.5	20175	10	1	49	16-QAM	22.57
1732.5	20175	10	25	12	16-QAM	21.67
1732.5	20175	10	50	0	16-QAM	21.82

Table 6-4. Maximum Conducted Output Power (Mid Channel, AWS Band)

Frequency [MHz]	Uplink Channel Number	BW[M Hz]	RB Size	RB Offset	Mod	**Maximum Average Power [dBm]**
1880	18900	1.4	1	0	QPSK	22.91
1880	18900	1.4	1	5	QPSK	23.05
1880	18900	1.4	3	2	QPSK	22.87
1880	18900	1.4	6	0	QPSK	22.41
1880	18900	1.4	1	0	16-QAM	22.19
1880	18900	1.4	1	5	16-QAM	22.32
1880	18900	1.4	3	2	16-QAM	22.39
1880	18900	1.4	6	0	16-QAM	21.48
1880	18900	3	1	0	QPSK	22.88
1880	18900	3	1	14	QPSK	23.03
1880	18900	3	8	4	QPSK	22.3
1880	18900	3	15	0	QPSK	22.42
1880	18900	3	1	0	16-QAM	22.18
1880	18900	3	1	14	16-QAM	22.15
1880	18900	3	8	4	16-QAM	21.59
1880	18900	3	15	0	16-QAM	21.31
1880	18900	5	1	0	QPSK	23.04
1880	18900	5	1	24	QPSK	23.07
1880	18900	5	12	6	QPSK	22.45
1880	18900	5	25	0	QPSK	22.45
1880	18900	5	1	0	16-QAM	22.23
1880	18900	5	1	14	16-QAM	22.23
1880	18900	5	12	6	16-QAM	21.52
1880	18900	5	25	0	16-QAM	21.51
1880	18900	10	1	0	QPSK	23.03
1880	18900	10	1	49	QPSK	23.27
1880	18900	10	25	12	QPSK	22.5
1880	18900	10	50	0	QPSK	22.48
1880	18900	10	1	0	16-QAM	22.22
1880	18900	10	1	49	16-QAM	22.45
1880	18900	10	25	12	16-QAM	21.54
1880	18900	10	50	0	16-QAM	21.49

Table 6-5. Maximum Conducted Output Power (Mid Channel, PCS Band)

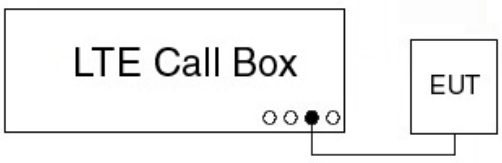


Figure 6-3. Test Setup Diagram

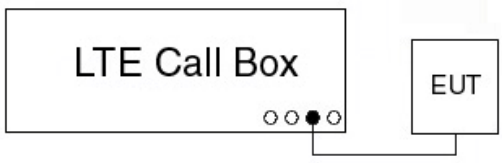


Figure 6-4. Test Setup Diagram

Transmitter Conducted Output Power (Cont'd)

§2.1046

Frequency [MHz]	Uplink Channel Number	BW[MHz]	RB Size	RB Offset	Mod	Maximum Average Power [dBm]
1754.3	20393	1.4	1	0	QPSK	22.94
1754.3	20393	1.4	1	5	QPSK	22.93
1754.3	20393	1.4	3	2	QPSK	22.82
1754.3	20393	1.4	6	0	QPSK	22.47
1754.3	20393	1.4	1	0	16-QAM	22.1
1754.3	20393	1.4	1	5	16-QAM	22.17
1754.3	20393	1.4	3	2	16-QAM	22.48
1754.3	20393	1.4	6	0	16-QAM	21.47
1753.5	20385	3	1	0	QPSK	22.89
1753.5	20385	3	1	14	QPSK	22.9
1753.5	20385	3	8	4	QPSK	22.46
1753.5	20385	3	15	0	QPSK	22.48
1753.5	20385	3	1	0	16-QAM	22.18
1753.5	20385	3	1	14	16-QAM	22.32
1753.5	20385	3	8	4	16-QAM	21.73
1753.5	20385	3	15	0	16-QAM	21.45
1752.5	20375	5	1	0	QPSK	23.07
1752.5	20375	5	1	24	QPSK	22.96
1752.5	20375	5	12	6	QPSK	22.53
1752.5	20375	5	25	0	QPSK	22.48
1752.5	20375	5	1	0	16-QAM	22.47
1752.5	20375	5	1	14	16-QAM	22.45
1752.5	20375	5	12	6	16-QAM	21.6
1752.5	20375	5	25	0	16-QAM	21.75
1750	20350	10	1	0	QPSK	23.47
1750	20350	10	1	49	QPSK	23.17
1750	20350	10	25	12	QPSK	22.62
1750	20350	10	50	0	QPSK	22.68
1750	20350	10	1	0	16-QAM	22.63
1750	20350	10	1	49	16-QAM	22.38
1750	20350	10	25	12	16-QAM	21.47
1750	20350	10	50	0	16-QAM	21.59

Table 6-6. Maximum Conducted Output Power (High Channel, AWS Band)

Frequency [MHz]	Uplink Channel Number	BW[MHz]	RB Size	RB Offset	Mod	Maximum Average Power [dBm]
1909.3	19193	1.4	1	0	QPSK	23.03
1909.3	19193	1.4	1	5	QPSK	22.78
1909.3	19193	1.4	3	2	QPSK	22.75
1909.3	19193	1.4	6	0	QPSK	22.43
1909.3	19193	1.4	1	0	16-QAM	22.34
1909.3	19193	1.4	1	5	16-QAM	22.1
1909.3	19193	1.4	3	2	16-QAM	22.34
1909.3	19193	1.4	6	0	16-QAM	21.63
1908.5	19185	3	1	0	QPSK	23.03
1908.5	19185	3	1	14	QPSK	22.91
1908.5	19185	3	8	4	QPSK	22.24
1908.5	19185	3	15	0	QPSK	22.32
1908.5	19185	3	1	0	16-QAM	22.31
1908.5	19185	3	1	14	16-QAM	22.23
1908.5	19185	3	8	4	16-QAM	21.76
1908.5	19185	3	15	0	16-QAM	21.33
1907.5	19175	5	1	0	QPSK	23.01
1907.5	19175	5	1	24	QPSK	22.93
1907.5	19175	5	12	6	QPSK	22.41
1907.5	19175	5	25	0	QPSK	22.4
1907.5	19175	5	1	0	16-QAM	22.13
1907.5	19175	5	1	24	16-QAM	22.06
1907.5	19175	5	12	6	16-QAM	21.56
1907.5	19175	5	25	0	16-QAM	21.53
1905	19150	10	1	0	QPSK	23.49
1905	19150	10	1	49	QPSK	23.01
1905	19150	10	25	12	QPSK	22.47
1905	19150	10	50	0	QPSK	22.58
1905	19150	10	1	0	16-QAM	22.61
1905	19150	10	1	49	16-QAM	22.25
1905	19150	10	25	12	16-QAM	21.71
1905	19150	10	50	0	16-QAM	21.71

Table 6-7. Maximum Conducted Output Power (High Channel, PCS Band)

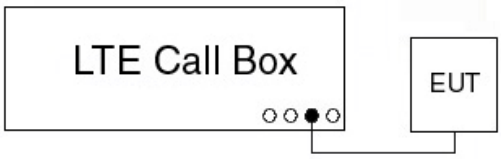


Figure 6-5. Test Setup Diagram

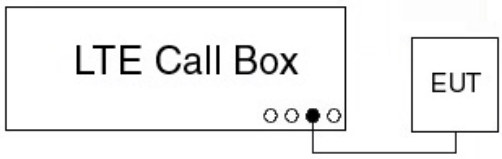


Figure 6-6. Test Setup Diagram

6.3 Equivalent Isotropic Radiated Power Output Data

§24.232(c), §27.50(d)(2)

	Frequency [MHz]	Channel Bandwidth [MHz]	Modulation	Measured Level [dBm]	Substitute Level [dBm]	Antenna Gain [dBi]	Pol [H/V]	EIRP [dBm]	EIRP [Watts]	Battery Type
AWS (UMTS Band IV)	1710.70	1.4	QPSK	-20.80	12.50	8.59	H	21.09	0.129	Standard
	1710.70	1.4	16-QAM	-21.40	11.90	8.59	H	20.49	0.112	Standard
	1732.50	1.4	QPSK	-20.20	13.10	8.60	H	21.70	0.148	Standard
	1732.50	1.4	16-QAM	-21.10	12.20	8.60	H	20.80	0.120	Standard
	1754.30	1.4	QPSK	-17.30	16.00	8.61	H	**24.61**	**0.289**	Standard
	1754.30	1.4	16-QAM	-18.10	15.20	8.61	H	**23.81**	**0.240**	Standard
	1711.50	3.0	QPSK	-19.00	14.30	8.59	H	22.89	0.195	Standard
	1711.50	3.0	16-QAM	-19.60	13.70	8.59	H	22.29	0.169	Standard
	1732.50	3.0	QPSK	-16.90	16.40	8.60	H	**25.00**	**0.316**	Standard
	1732.50	3.0	16-QAM	-18.20	15.10	8.60	H	**23.70**	**0.234**	Standard
	1753.50	3.0	QPSK	-17.90	15.40	8.61	H	24.01	0.252	Standard
	1753.50	3.0	16-QAM	-18.60	14.70	8.61	H	23.31	0.214	Standard
	1712.50	5.0	QPSK	-20.20	13.10	8.59	H	21.69	0.148	Standard
	1712.50	5.0	16-QAM	-19.90	13.40	8.59	H	21.99	0.158	Standard
	1732.50	5.0	QPSK	-19.80	13.50	8.60	H	22.10	0.162	Standard
	1732.50	5.0	16-QAM	-20.40	12.90	8.60	H	21.50	0.141	Standard
	1752.50	5.0	QPSK	-19.40	13.90	8.61	H	**22.51**	**0.178**	Standard
	1752.50	5.0	16-QAM	-20.10	13.20	8.61	H	**21.81**	**0.152**	Standard
	1715.00	10.0	QPSK	-17.60	15.70	8.59	H	24.29	0.269	Standard
	1732.50	10.0	16-QAM	-18.90	14.40	8.60	H	23.00	0.200	Standard
	1750.00	10.0	QPSK	-17.20	16.10	8.61	H	**24.71**	**0.296**	Standard
	1715.00	10.0	16-QAM	-17.70	15.60	8.59	H	**24.19**	**0.262**	Standard
	1732.50	10.0	QPSK	-19.80	13.50	8.60	H	22.10	0.162	Standard
	1750.00	10.0	16-QAM	-20.40	12.90	8.61	H	21.51	0.142	Standard

Table 6-8. Equivalent Isotropic Radiated Power Output Data (AWS Band)

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.

This device was tested under all modulations and channel bandwidth configurations and the worst case emissions are reported in Band 2 using 5Mhz Bandwidth, and in Band 4 using 3MHz Bandwidth. For both Band 2 and 4, the worst case emissions employed 1RB (with offset 0) and QPSK modulation. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the horizontal, slide out setup. The data reported in the table above was measured in this test setup.

Equivalent Isotropic Radiated Power Output Data (Cont'd)

§24.232(c), §27.50(d)(2)

	Frequency [MHz]	Channel Bandwidth [MHz]	Modulation	Measured Level [dBm]	Substitute Level [dBm]	Antenna Gain [dBi]	Pol [H/V]	EIRP [dBm]	EIRP [Watts]	Battery Type
PCS (UMTS Band II)	1850.70	1.4	QPSK	-18.30	14.50	8.65	H	**23.15**	**0.207**	Standard
	1850.70	1.4	16-QAM	-18.70	14.10	8.65	H	**22.75**	**0.188**	Standard
	1880.00	1.4	QPSK	-18.40	14.40	8.66	H	23.06	0.202	Standard
	1880.00	1.4	16-QAM	-19.00	13.80	8.66	H	22.46	0.176	Standard
	1909.30	1.4	QPSK	-23.20	9.60	8.67	H	18.27	0.067	Standard
	1909.30	1.4	16-QAM	-23.40	9.40	8.67	H	18.07	0.064	Standard
	1851.50	3.0	QPSK	-19.10	13.70	8.65	H	22.35	0.172	Standard
	1851.50	3.0	16-QAM	-20.10	12.70	8.65	H	21.35	0.136	Standard
	1880.00	3.0	QPSK	-18.70	14.10	8.66	H	**22.76**	**0.189**	Standard
	1880.00	3.0	16-QAM	-19.30	13.50	8.66	H	**22.16**	**0.164**	Standard
	1908.50	3.0	QPSK	-20.80	12.00	8.67	H	20.67	0.117	Standard
	1908.50	3.0	16-QAM	-21.30	11.50	8.67	H	20.17	0.104	Standard
	1852.50	5.0	QPSK	-17.90	14.90	8.65	H	23.55	0.226	Standard
	1852.50	5.0	16-QAM	-19.00	13.80	8.65	H	22.45	0.176	Standard
	1880.00	5.0	QPSK	-17.80	15.00	8.66	H	**23.66**	**0.232**	Standard
	1880.00	5.0	16-QAM	-18.90	13.90	8.66	H	**22.56**	**0.180**	Standard
	1907.50	5.0	QPSK	-19.70	13.10	8.67	H	21.77	0.150	Standard
	1907.50	5.0	16-QAM	-20.90	11.90	8.67	H	20.57	0.114	Standard
	1855.00	10.0	QPSK	-19.80	13.00	8.65	H	21.65	0.146	Standard
	1855.00	10.0	16-QAM	-19.10	13.70	8.65	H	**22.35**	**0.172**	Standard
	1880.00	10.0	QPSK	-18.40	14.40	8.66	H	**23.06**	**0.202**	Standard
	1880.00	10.0	16-QAM	-19.50	13.30	8.66	H	21.96	0.157	Standard
	1905.00	10.0	QPSK	-22.60	10.20	8.67	H	18.87	0.077	Standard
	1905.00	10.0	16-QAM	-22.80	10.00	8.67	H	18.67	0.074	Standard

Table 6-9. Equivalent Isotropic Radiated Power Output Data (PCS Band)

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.

This device was tested under all modulations and channel bandwidth configurations and the worst case emissions are reported in Band 2 using 5Mhz Bandwidth, and in Band 4 using 3MHz Bandwidth. For both Band 2 and 4, the worst case emissions employed 1RB (with offset 0) and QPSK modulation. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the horizontal, slide out setup. The data reported in the table above was measured in this test setup.

6.4 AWS LTE Radiated Measurements

§2.1053, §27.53(h)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY:	1711.50	MHz		
CHANNEL:	19965			
MEASURED OUTPUT POWER:	25.000	dBm	=	0.316 W
MODULATION SIGNAL:	QPSK			
BANDWIDTH:	3	MHz		
DISTANCE:	3	meters		
LIMIT:	43 + 10 $\log_{10}$ (W) =	38.00	dBc	

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3423.00	-47.82	9.70	-38.12	H	63.1
5134.50	-53.03	11.01	-42.03	H	67.0
6846.00	-86.46	11.18	-75.28	H	100.3
8557.50	-83.48	11.63	-71.85	H	96.9
10269.00	-82.48	12.74	-69.74	H	94.7

Table 6-10. Radiated Spurious Data (3MHz BW, QPSK, AWS Band – Ch. 19965)

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 in Band 2 using 5Mhz Bandwidth, and in Band 4 using 3MHz Bandwidth. For both Band 2 and 4, the worst case emissions employed 1RB (with offset 0) and QPSK modulation. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the horizontal setup. The data reported in the table above was measured in this test setup.

AWS LTE Radiated Measurements (Cont'd)

§2.1053, §27.53(h)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY:	1732.50	MHz		
CHANNEL:	20175			
MEASURED OUTPUT POWER:	25.000	dBm	=	0.316 W
MODULATION SIGNAL:	QPSK			
BANDWIDTH:	3	MHz		
DISTANCE:	3	meters		
LIMIT:	43 + 10 $\log_{10}$ (W) =	38.00	dBc	

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3465.00	-51.25	9.70	-41.55	H	66.5
5197.50	-52.68	10.92	-41.76	H	66.8
6930.00	-86.10	11.08	-75.02	H	100.0
8662.50	-83.35	11.76	-71.59	H	96.6
10395.00	-82.43	12.83	-69.60	H	94.6

Table 6-11. Radiated Spurious Data (3MHz BW, QPSK, AWS Band – 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 in Band 2 using 5Mhz Bandwidth, and in Band 4 using 3MHz Bandwidth. For both Band 2 and 4, the worst case emissions employed 1RB (with offset 0) and QPSK modulation. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the horizontal setup. The data reported in the table above was measured in this test setup.

AWS LTE Radiated Measurements (Cont'd)

§2.1053, §27.53(h)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY:	1753.50	MHz		
CHANNEL:	20385			
MEASURED OUTPUT POWER:	25.000	dBm	=	0.316 W
MODULATION SIGNAL:	QPSK			
BANDWIDTH:	3	MHz		
DISTANCE:	3	meters		
LIMIT:	43 + 10 $\log_{10}$ (W) =	38.00	dBc	

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3507.00	-52.02	9.69	-42.33	H	67.3
5260.50	-52.92	10.83	-42.09	H	67.1
7014.00	-85.79	11.00	-74.79	H	99.8
8767.50	-83.22	11.88	-71.34	H	96.3
10521.00	-82.33	12.91	-69.42	H	94.4

Table 6-12. Radiated Spurious Data (3MHz BW, QPSK, AWS Band – Ch. 20385)

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 in Band 2 using 5Mhz Bandwidth, and in Band 4 using 3MHz Bandwidth. For both Band 2 and 4, the worst case emissions employed 1RB (with offset 0) and QPSK modulation. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the horizontal setup. The data reported in the table above was measured in this test setup.

6.5 PCS LTE Radiated Measurements

§2.1053, 24.238(a)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY:	1852.50	MHz		
CHANNEL:	18625			
MEASURED OUTPUT POWER:	23.660	dBm	=	0.232 W
MODULATION SIGNAL:	QPSK			
BANDWIDTH:	5	MHz		
DISTANCE:	3	meters		
LIMIT:	43 + 10 log$_{10}$ (W) =	36.66	dBc	

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3705.00	-51.85	9.49	-42.36	H	67.4
5557.50	-51.29	10.40	-40.89	H	65.9
7410.00	-85.28	11.08	-74.20	H	99.2
9262.50	-83.23	12.26	-70.96	H	96.0
11115.00	-80.69	13.19	-67.50	H	92.5

Table 6-13. Radiated Spurious Data (5MHz BW, QPSK, PCS Band – 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 in Band 2 using 5Mhz Bandwidth, and in Band 4 using 3MHz Bandwidth. For both Band 2 and 4, the worst case emissions employed 1RB (with offset 0) and QPSK modulation. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the horizontal setup. The data reported in the table above was measured in this test setup.

PCS LTE Radiated Measurements (Cont'd)

§2.1053, 24.238(a)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY:	1880.00	MHz		
CHANNEL:	18900			
MEASURED OUTPUT POWER:	23.660	dBm	=	0.232 W
MODULATION SIGNAL:	QPSK			
BANDWIDTH:	5	MHz		
DISTANCE:	3	meters		
LIMIT:	43 + 10 $\log_{10}$ (W) =	36.66	dBc	

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3760.00	-50.47	9.43	-41.04	H	66.0
5640.00	-50.09	10.24	-39.85	H	64.8
7520.00	-85.15	11.12	-74.04	H	99.0
9400.00	-83.38	12.32	-71.06	H	96.1
11280.00	-80.02	13.17	-66.85	H	91.9

Table 6-14. Radiated Spurious Data (5MHz BW, QPSK, PCS Band – 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 in Band 2 using 5Mhz Bandwidth, and in Band 4 using 3MHz Bandwidth. For both Band 2 and 4, the worst case emissions employed 1RB (with offset 0) and QPSK modulation. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the horizontal setup. The data reported in the table above was measured in this test setup.

PCS LTE Radiated Measurements (Cont'd)

§2.1053, 24.238(a)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY:	1907.50	MHz		
CHANNEL:	19175			
MEASURED OUTPUT POWER:	23.660	dBm	=	0.232 W
MODULATION SIGNAL:	QPSK			
BANDWIDTH:	5	MHz		
DISTANCE:	3	meters		
LIMIT:	43 + 10 $\log_{10}$ (W) =	36.66	dBc	

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
3815.00	-51.00	9.37	-41.62	H	66.6
5722.50	-47.49	10.08	-37.41	H	62.4
7630.00	-85.09	11.21	-73.88	H	98.9
9537.50	-83.40	12.38	-71.03	H	96.0
11445.00	-79.37	13.15	-66.22	H	91.2

Table 6-15. Radiated Spurious Data (5MHz BW, QPSK, PCS Band – Ch. 19175)

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 in Band 2 using 5Mhz Bandwidth, and in Band 4 using 3MHz Bandwidth. For both Band 2 and 4, the worst case emissions employed 1RB (with offset 0) and QPSK modulation. This unit was tested with its standard battery. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. The worst case test configuration was found in the horizontal setup. The data reported in the table above was measured in this test setup.

6.6 AWS CDMA Frequency Stability Measurements

§2.1055, §27.54

OPERATING FREQUENCY: 1,732,500,000 Hz

CHANNEL: 20175

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)	1,732,499,996	-4	0.000000
100 %		- 30	1,732,500,012	12	0.000001
100 %		- 20	1,732,500,012	12	0.000001
100 %		- 10	1,732,499,990	-10	-0.000001
100 %		0	1,732,499,983	-17	-0.000001
100 %		+ 10	1,732,500,014	14	0.000001
100 %		+ 20	1,732,500,003	3	0.000000
100 %		+ 30	1,732,499,997	-3	0.000000
100 %		+ 40	1,732,499,992	-8	0.000000
100 %		+ 50	1,732,500,019	19	0.000001
115 %	4.26	+ 20	1,732,499,987	-13	-0.000001
BATT. ENDPOINT	3.42	+ 20	1,732,499,990	-10	-0.000001

Table 6-16. Frequency Stability Data (3MHz BW, QPSK, AWS Band – Ch. 20175)

AWS CDMA Frequency Stability Measurements (Cont'd)

§2.1055, §27.54

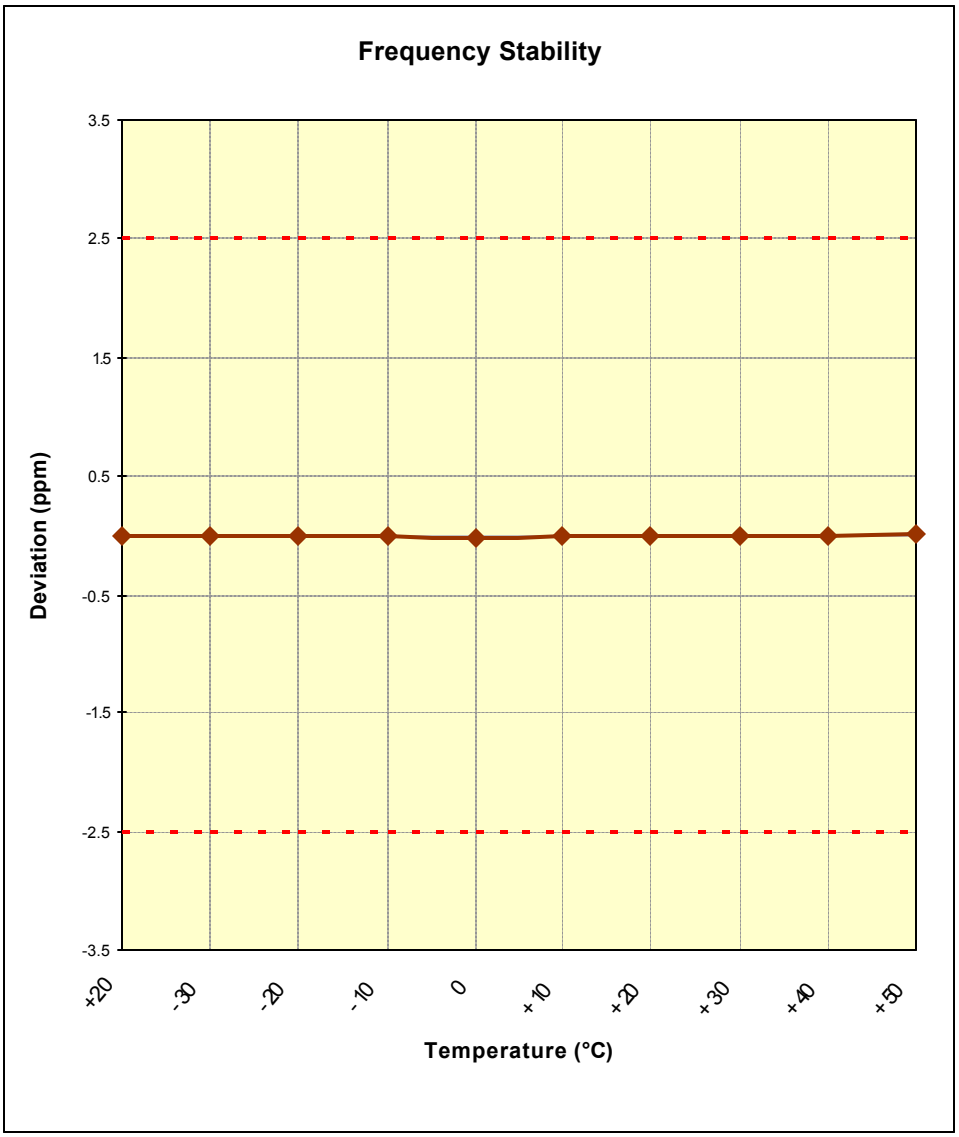


Figure 6-7. Frequency Stability Graph (3MHz BW, QPSK, AWS Band – Ch. 20175)

6.7 PCS LTE Frequency Stability Measurements

§2.1055, §24.235

OPERATING FREQUENCY: 1,880,000,000 Hz

CHANNEL: 18900

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)	1,880,000,004	4	0.000000
100 %		- 30	1,879,999,987	-13	-0.000001
100 %		- 20	1,879,999,990	-10	-0.000001
100 %		- 10	1,879,999,986	-14	-0.000001
100 %		0	1,880,000,020	20	0.000001
100 %		+ 10	1,879,999,980	-20	-0.000001
100 %		+ 20	1,879,999,991	-9	0.000000
100 %		+ 30	1,880,000,016	16	0.000001
100 %		+ 40	1,879,999,985	-15	-0.000001
100 %		+ 50	1,879,999,987	-13	-0.000001
115 %	4.26	+ 20	1,879,999,984	-16	-0.000001
BATT. ENDPOINT	3.42	+ 20	1,879,999,999	-1	0.000000

Table 6-17. Frequency Stability Data (3MHz BW, QPSK, PCS Band – Ch. 18900)

PCS LTE Frequency Stability Measurements (Cont'd)

§2.1055, §24.235

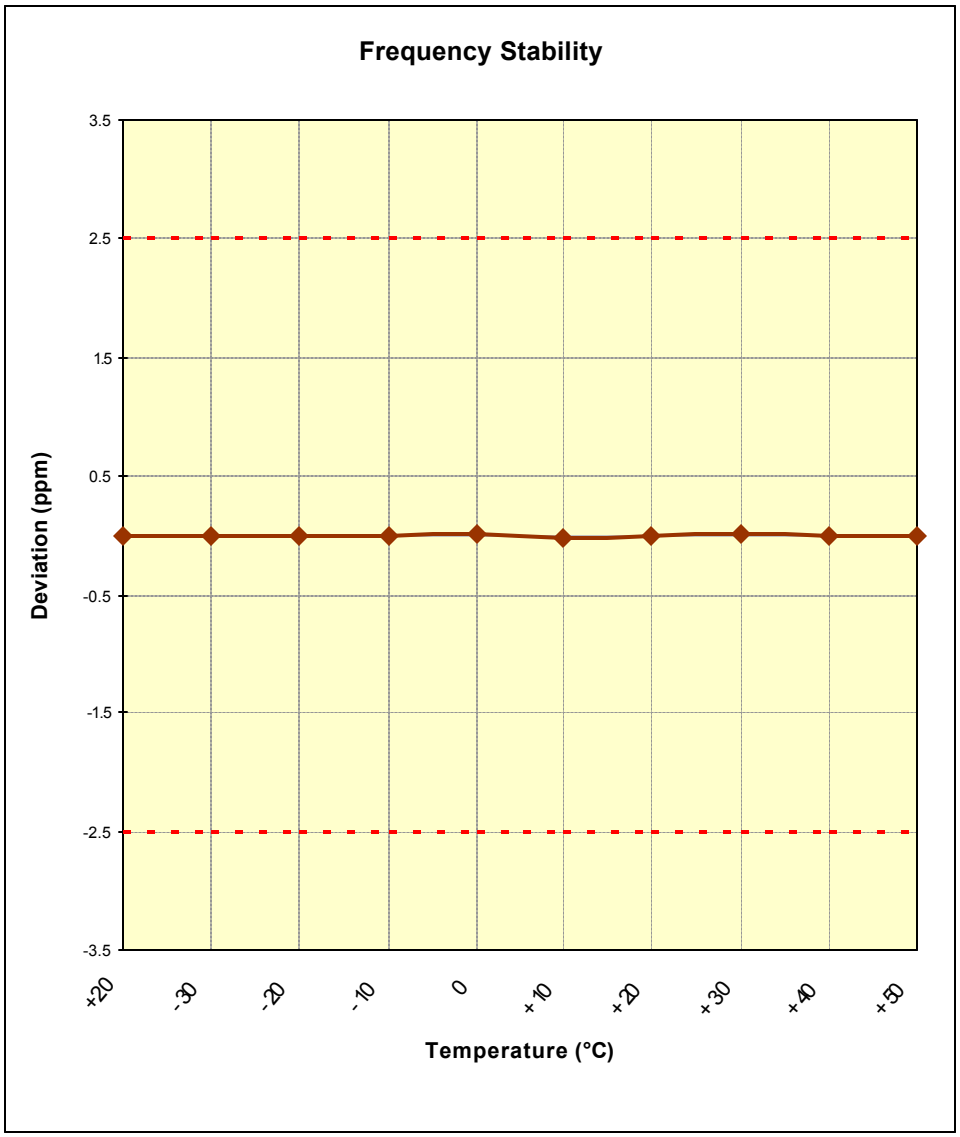
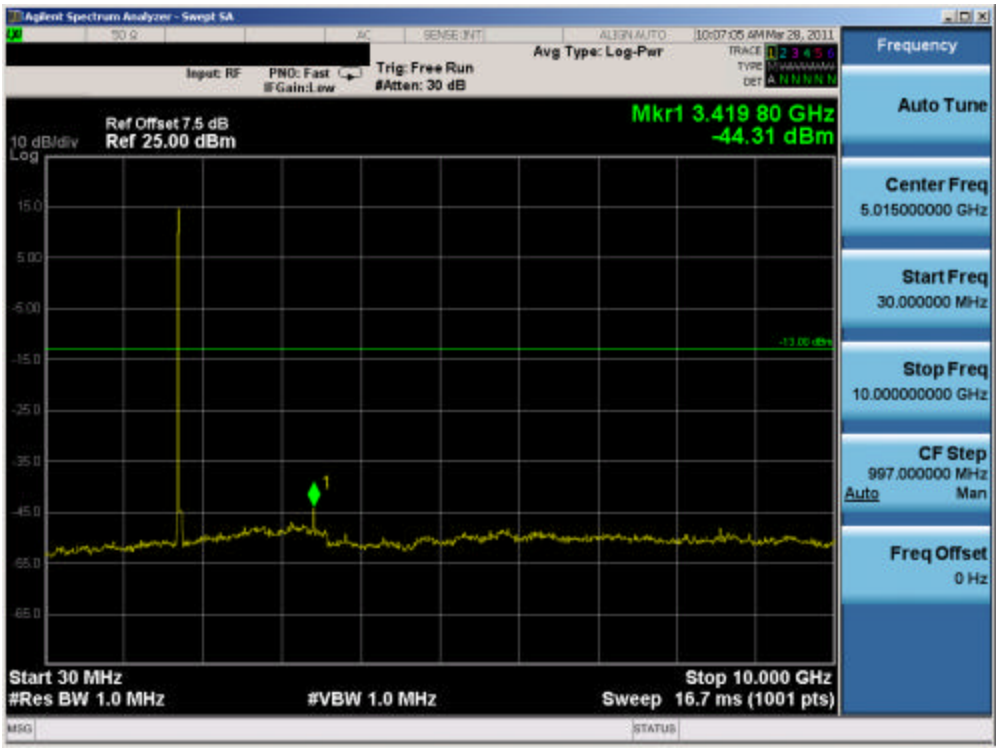
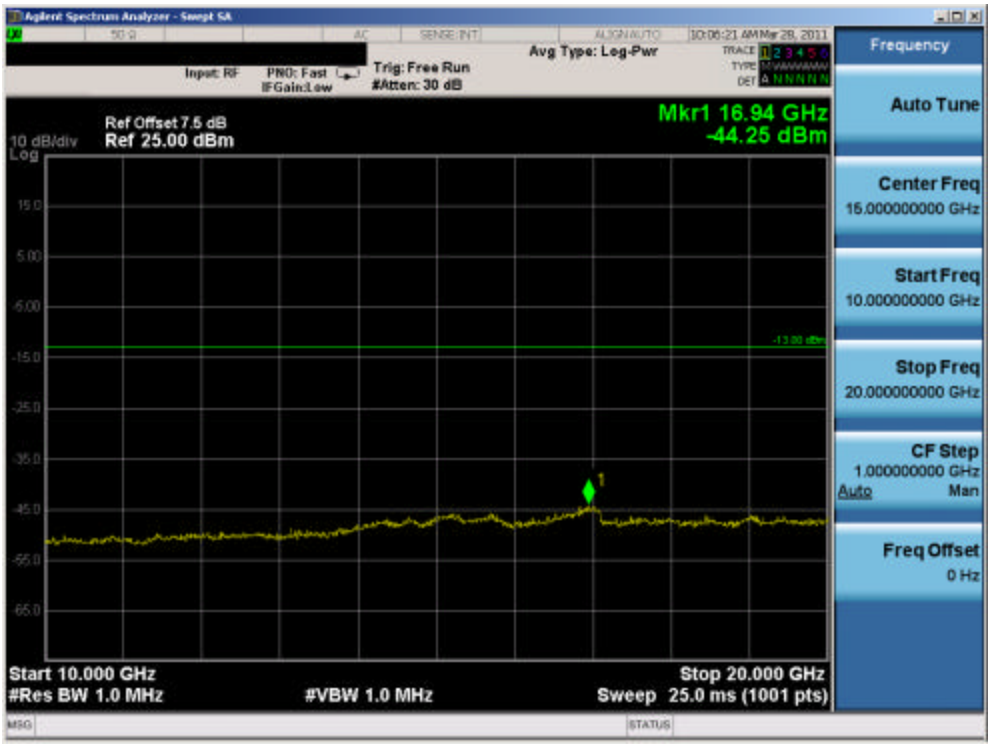


Figure 6-8. Frequency Stability Graph (3MHz BW, QPSK, PCS Band – Ch. 18900)

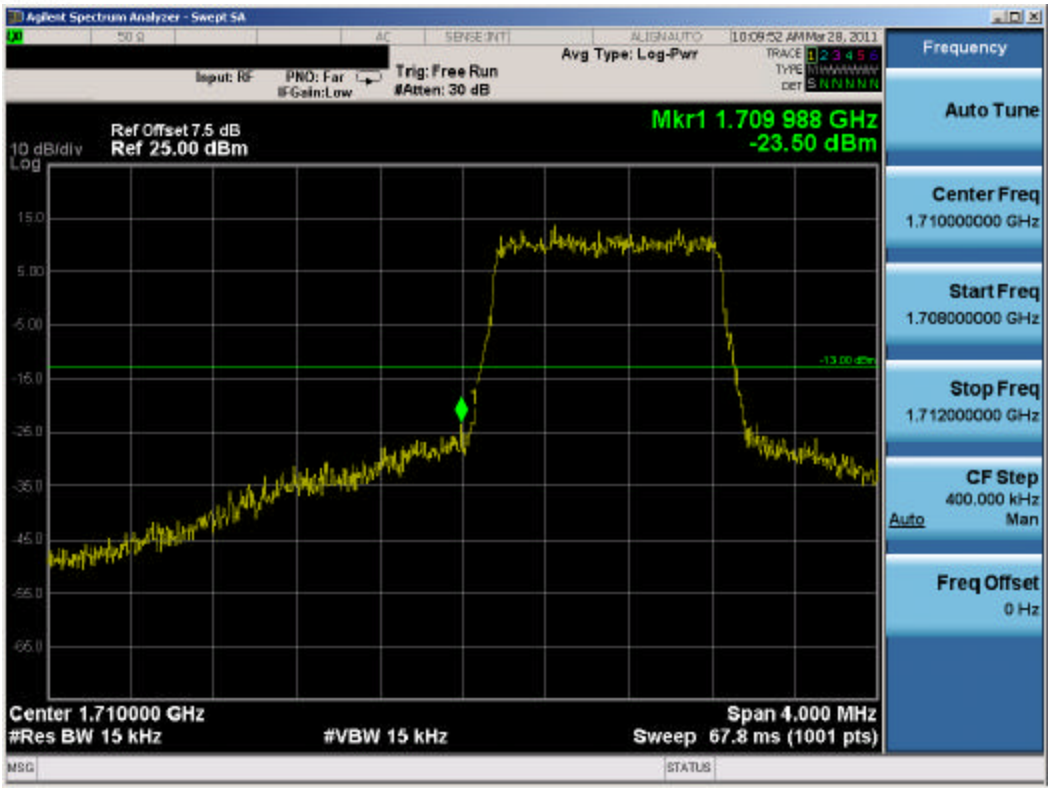
7.0 PLOT(S) OF EMISSIONS – AWS BAND



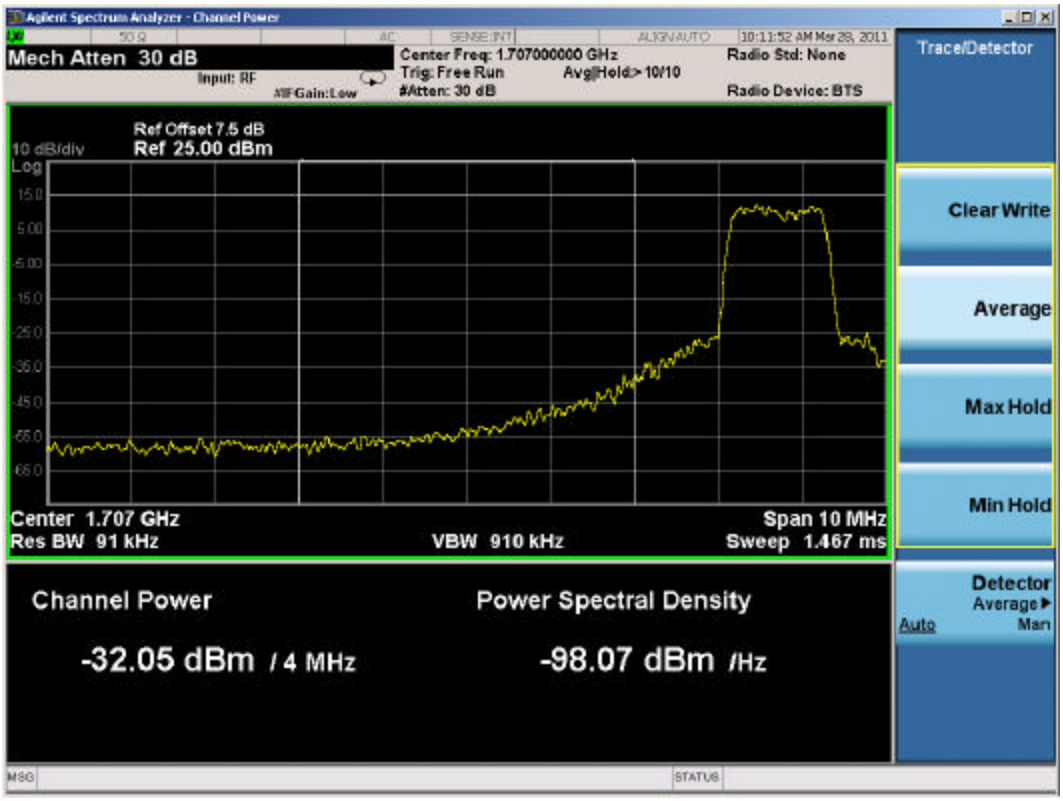
Plot 7-1. Conducted Spurious Plot (1.4MHz BW, QPSK, AWS Band – Low Channel)



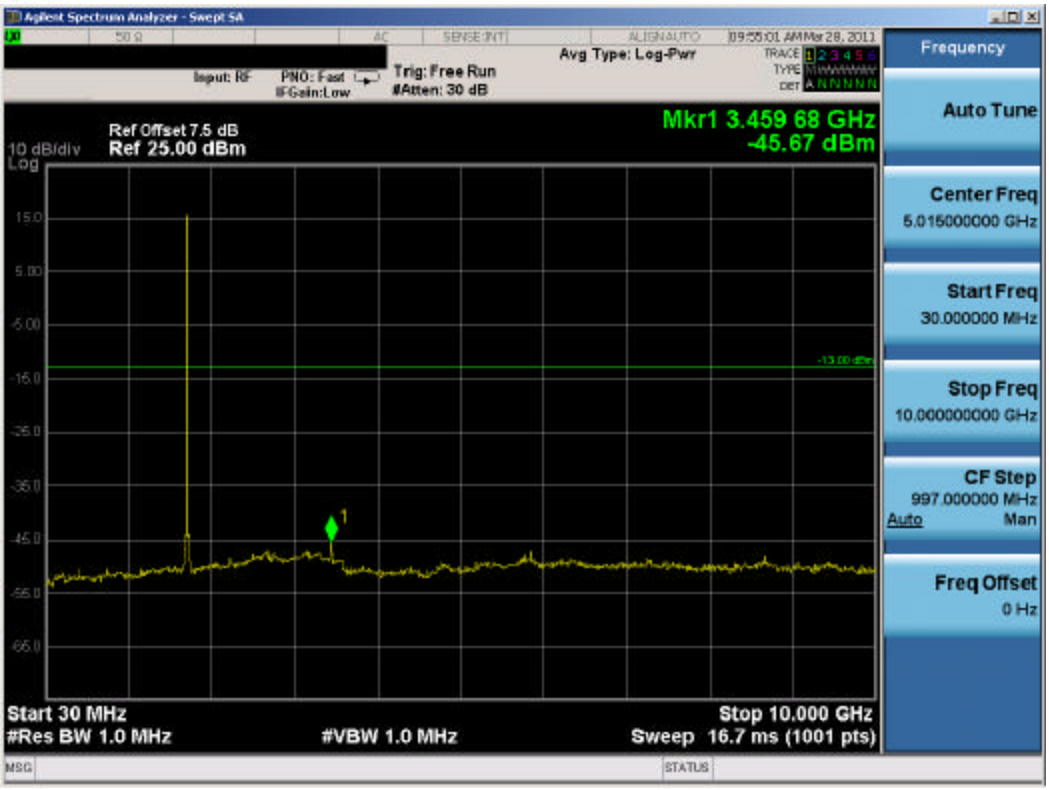
Plot 7-2. Conducted Spurious Plot (1.4MHz BW, QPSK, AWS Band – Low Channel)



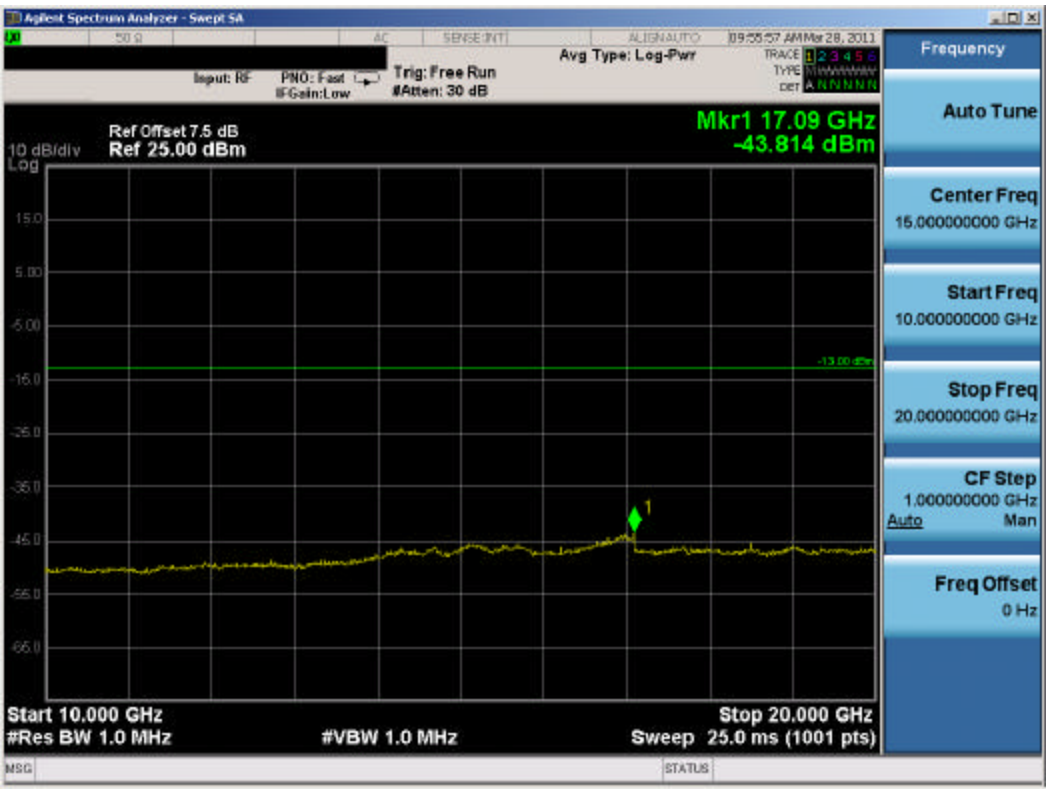
Plot 7-3. Band Edge Plot (1.4MHz BW, QPSK, AWS Band – Low Channel)



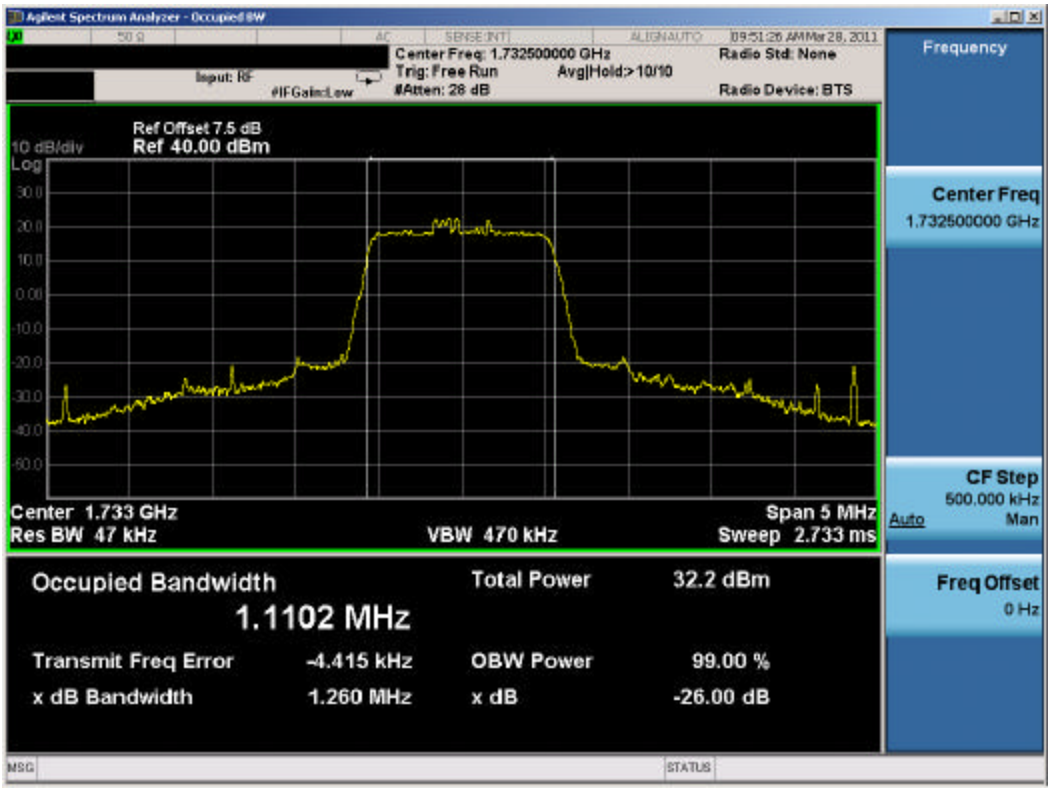
Plot 7-4. Extended Band Edge Plot (1.4MHz BW, QPSK, AWS Band – Low Channel)



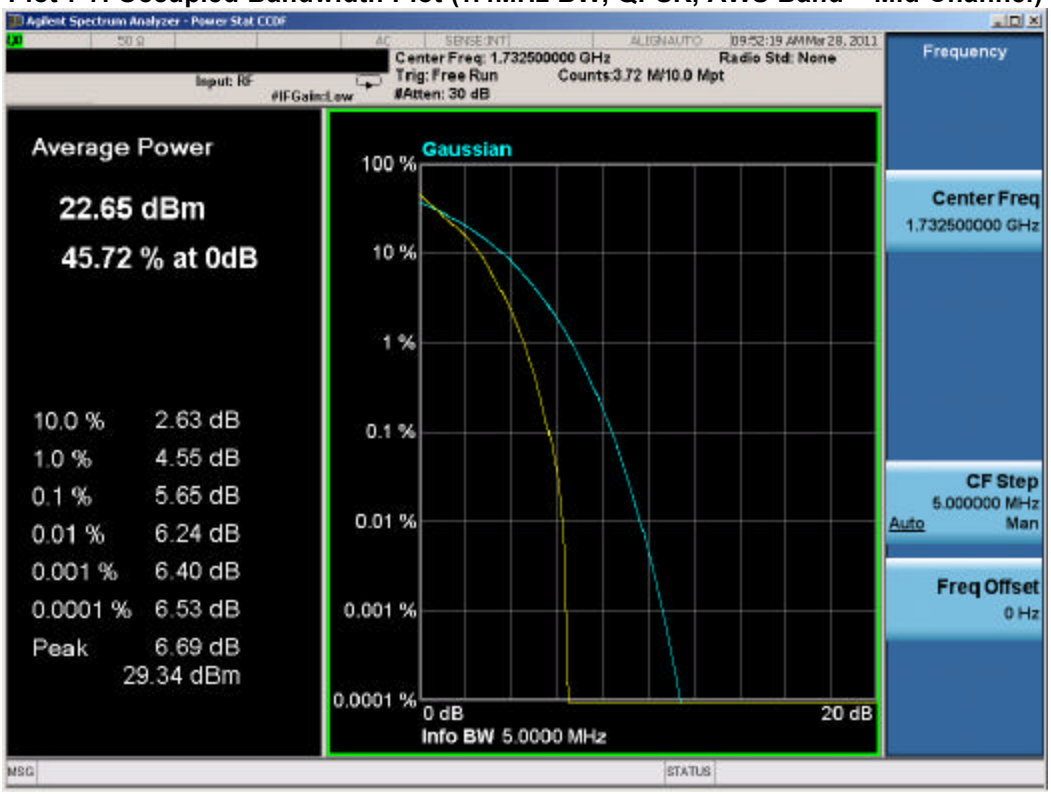
Plot 7-5. Conducted Spurious Plot (1.4MHz BW, QPSK, AWS Band – Mid Channel)



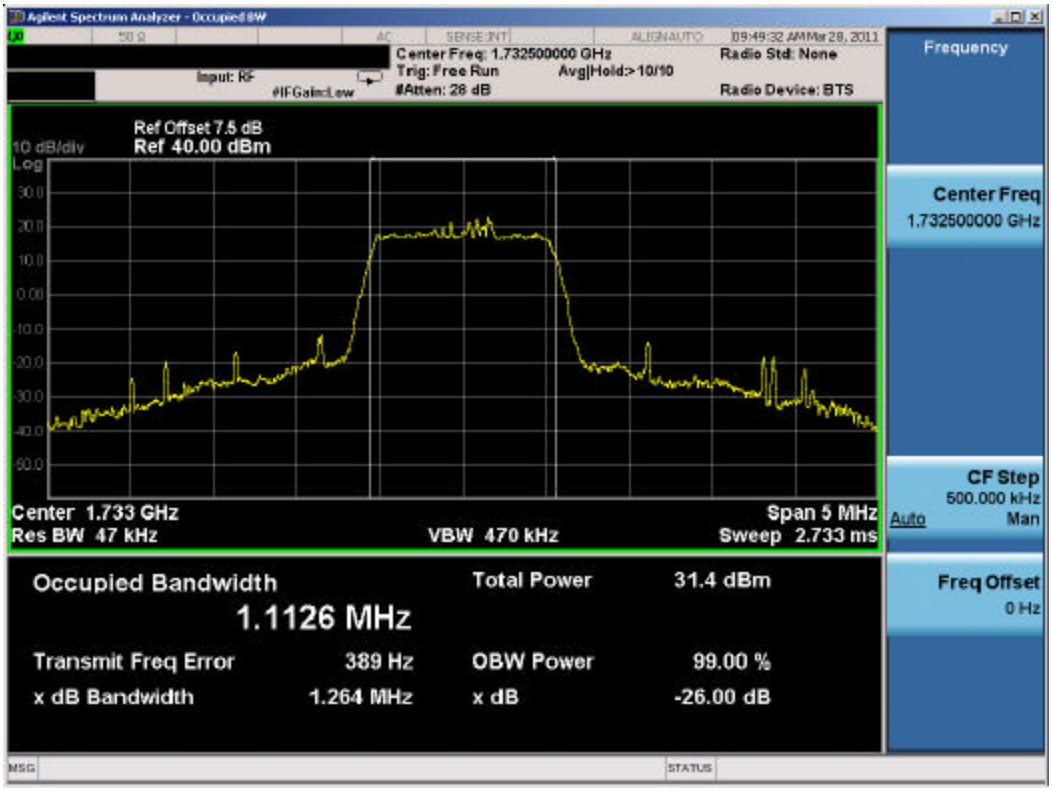
Plot 7-6. Conducted Spurious Plot (1.4MHz BW, QPSK, AWS Band – Mid Channel)



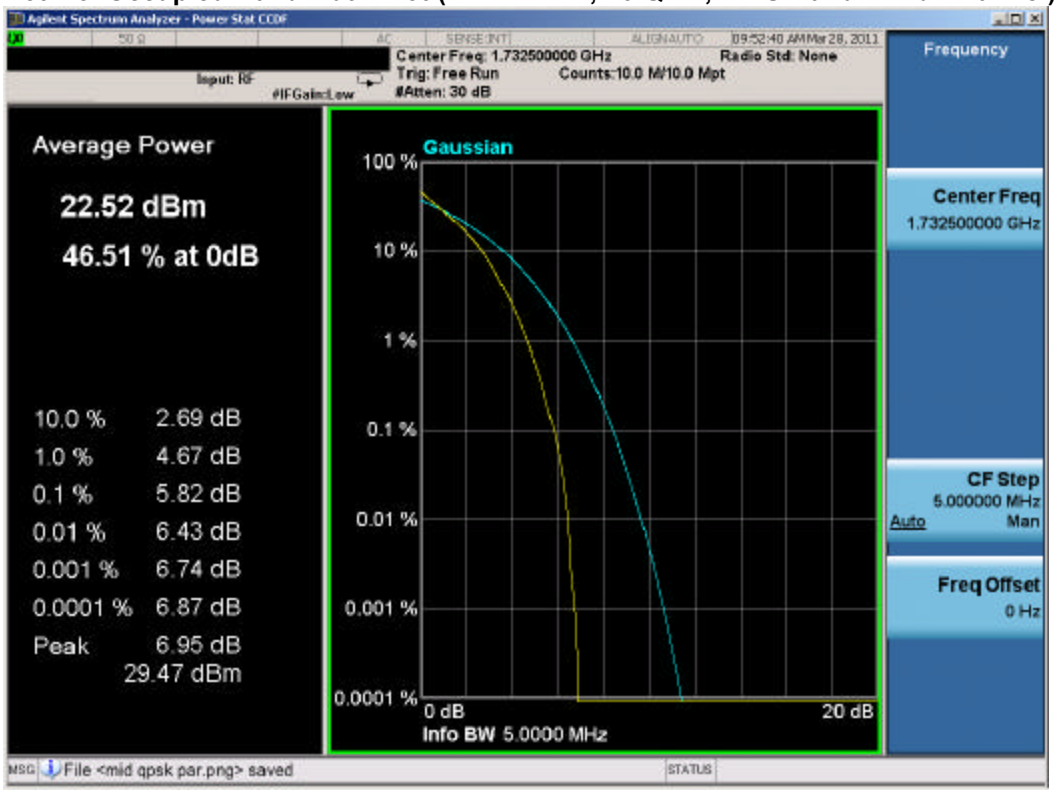
Plot 7-7. Occupied Bandwidth Plot (1.4MHz BW, QPSK, AWS Band – Mid Channel)



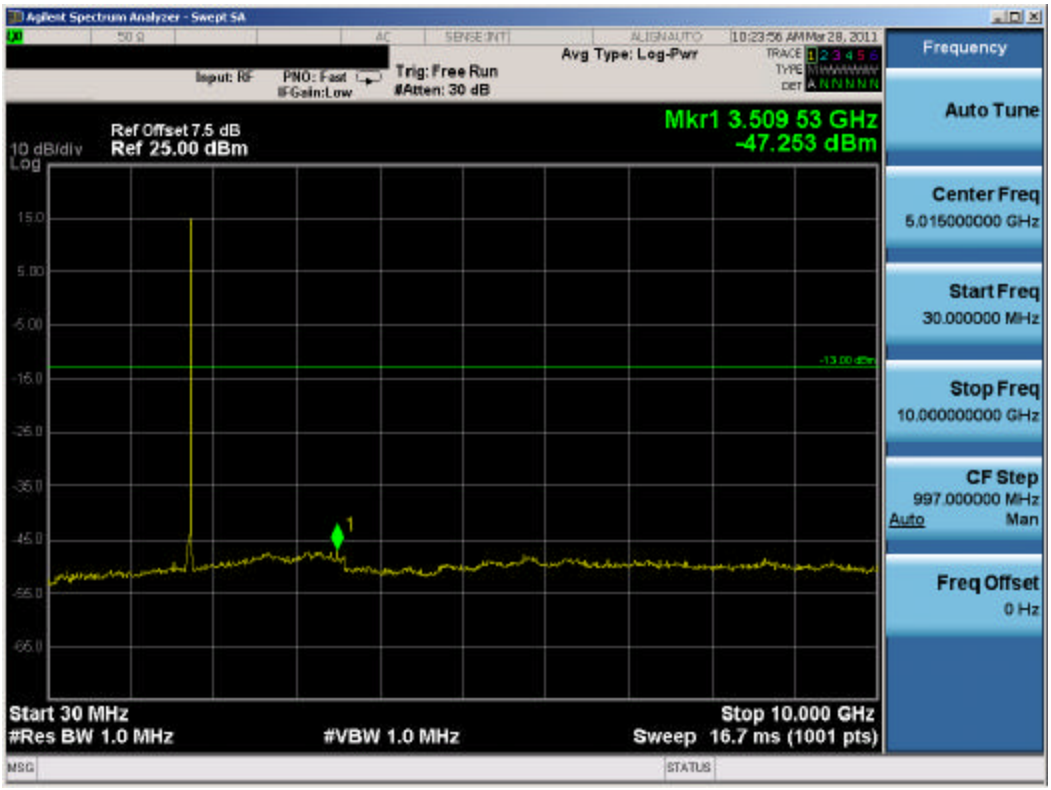
Plot 7-8. Peak-Average Ratio Plot (1.4MHz BW, QPSK, AWS Band – Mid Channel)



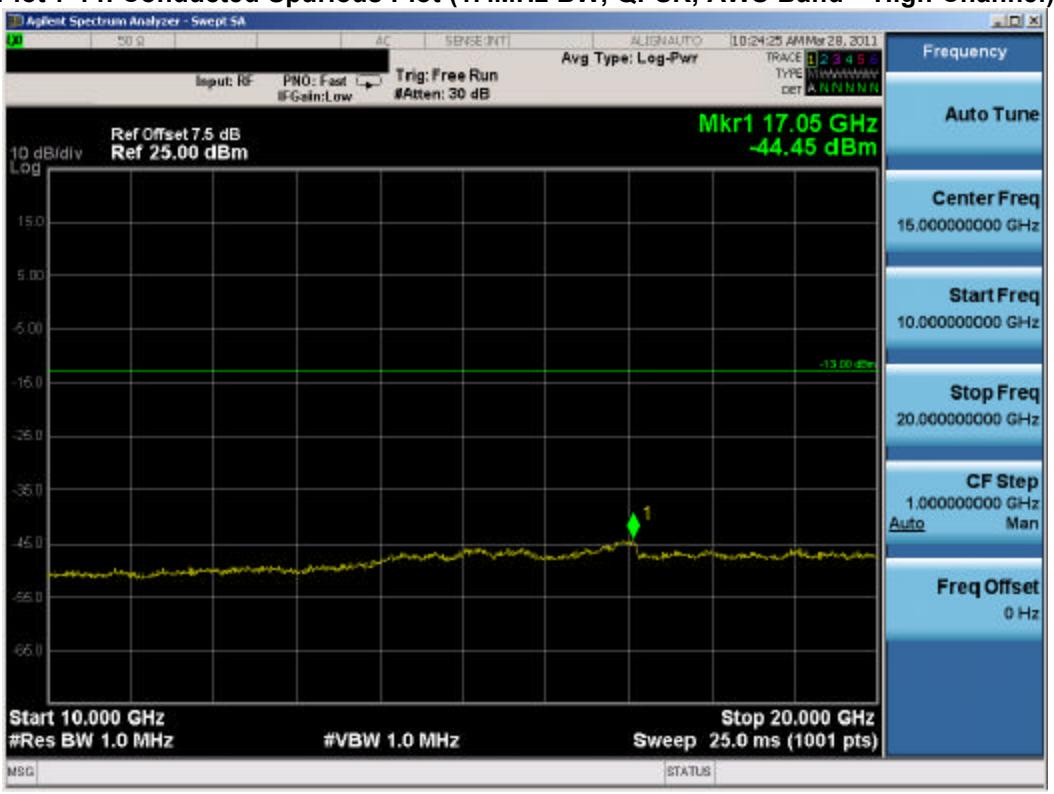
Plot 7-9. Occupied Bandwidth Plot (1.4MHz BW, 16-QAM, AWS Band – Mid Channel)



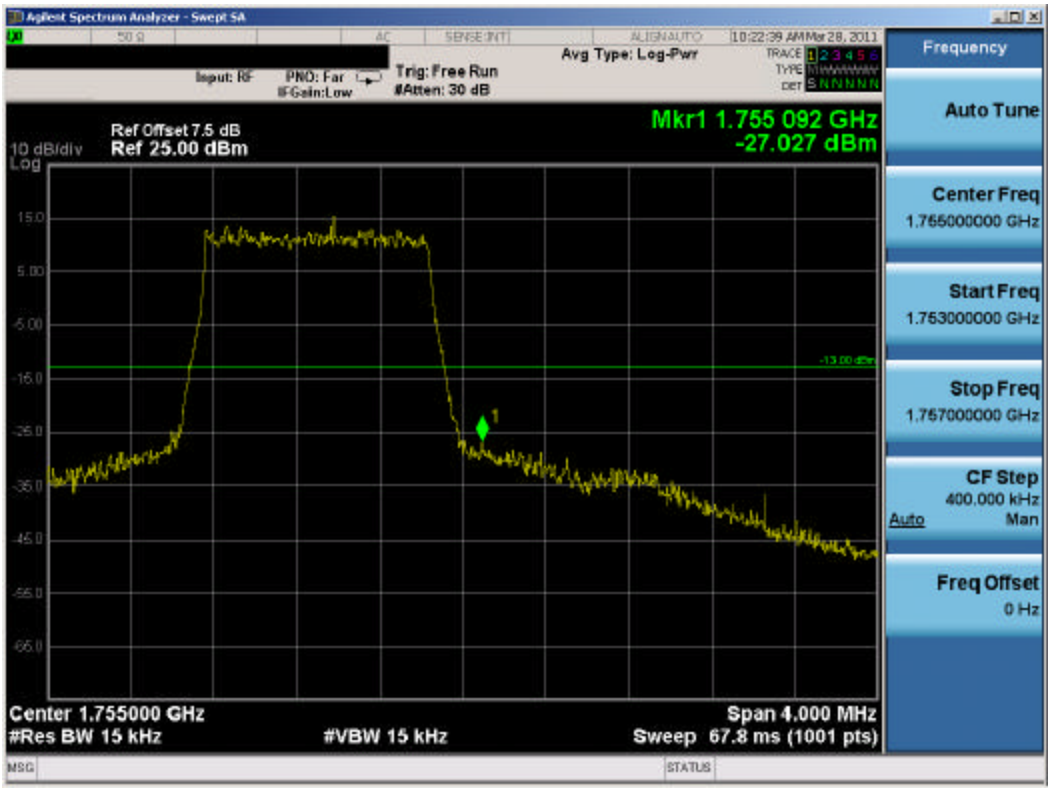
Plot 7-10. Peak-Average Ratio Plot (1.4MHz BW, 16-QAM, AWS Band – Mid Channel)



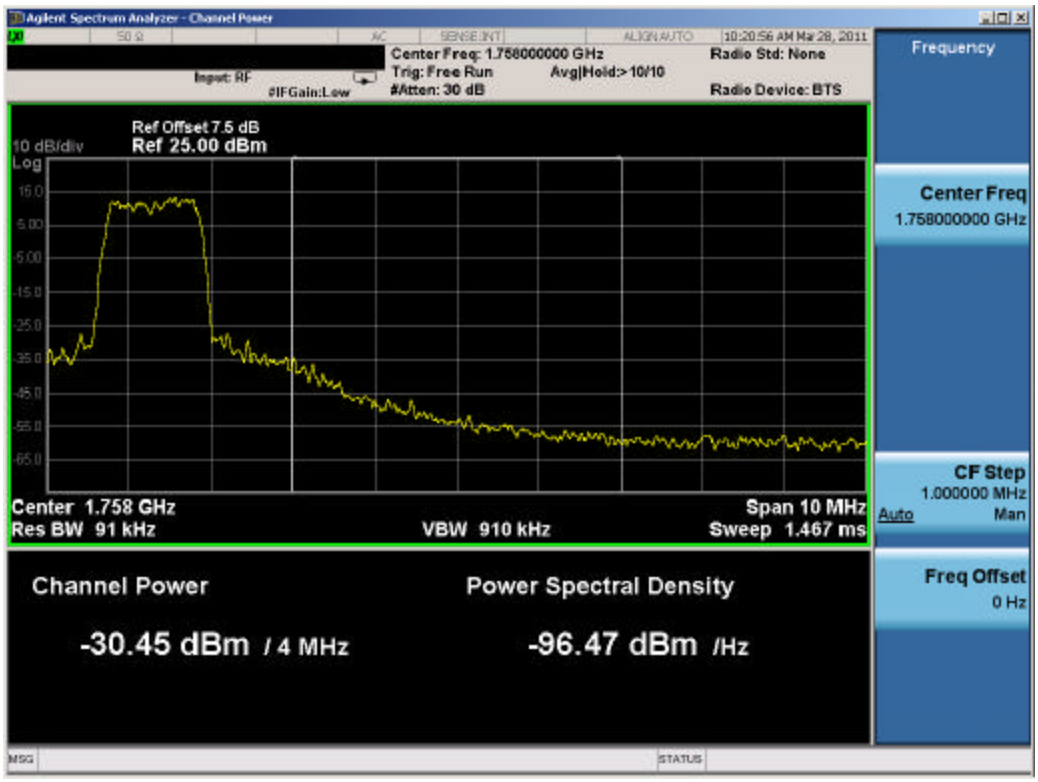
Plot 7-11. Conducted Spurious Plot (1.4MHz BW, QPSK, AWS Band – High Channel)



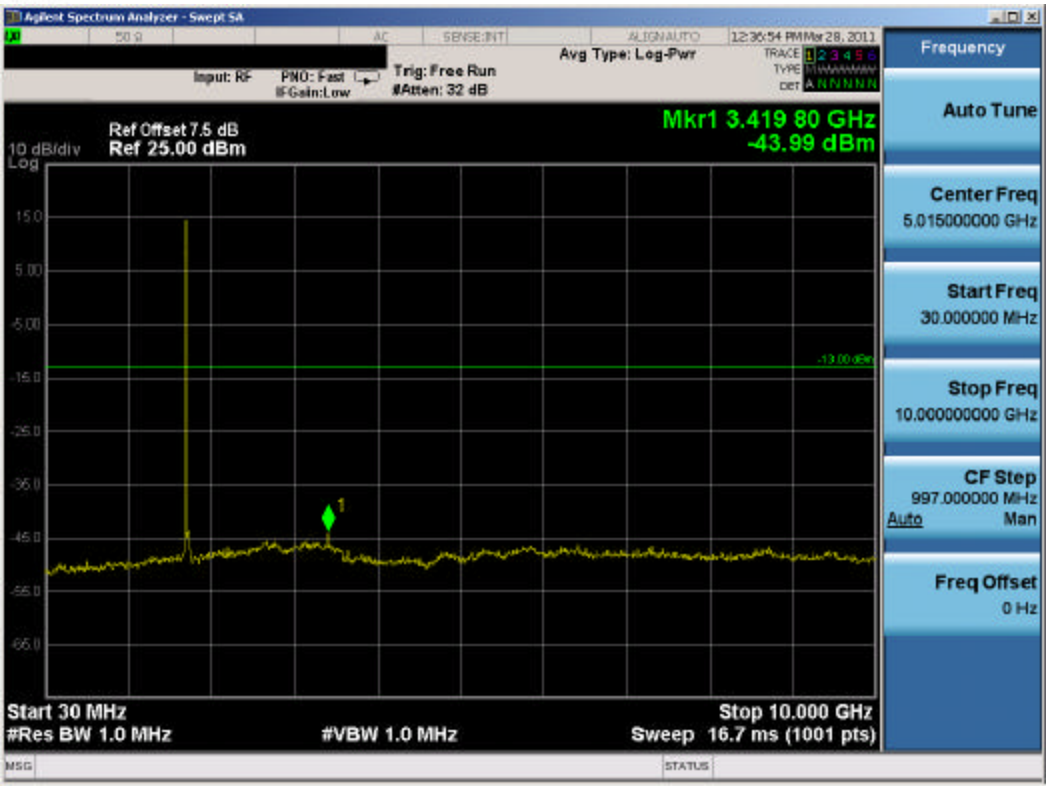
Plot 7-12. Conducted Spurious Plot (1.4MHz BW, QPSK, AWS Band – High Channel)



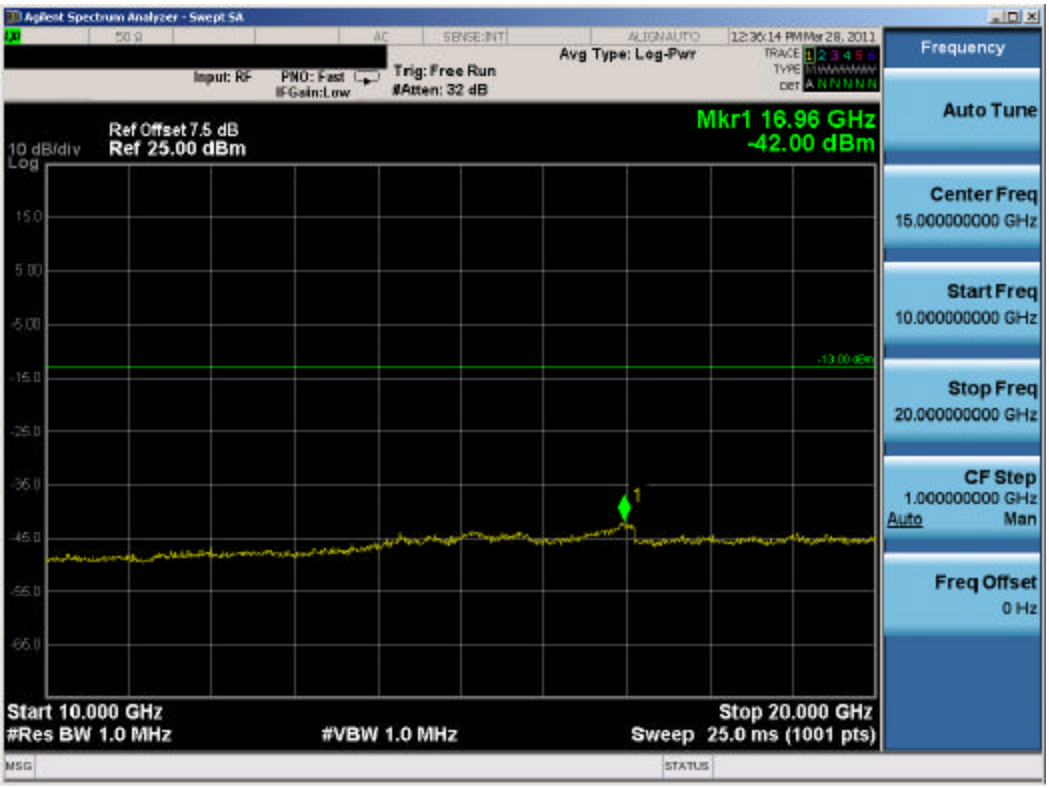
Plot 7-13. Band Edge Plot (1.4MHz BW, QPSK, AWS Band – High Channel)



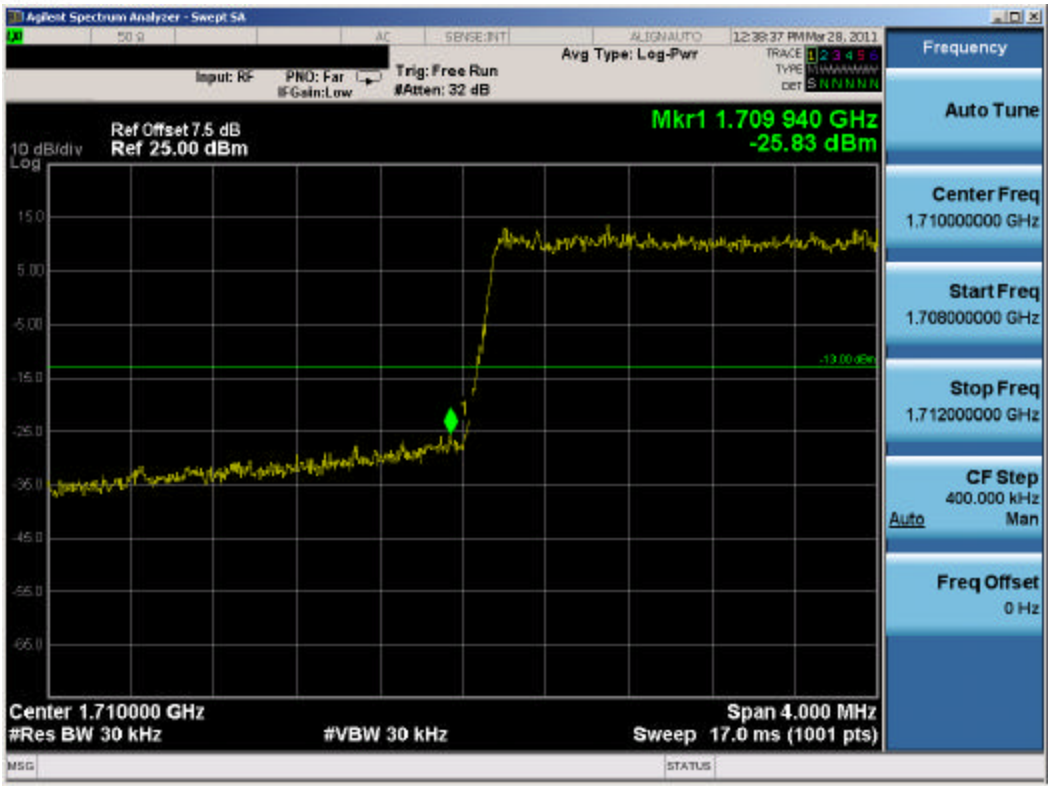
Plot 7-14. Extended Band Edge Plot (1.4MHz BW, QPSK, AWS Band – High Channel)



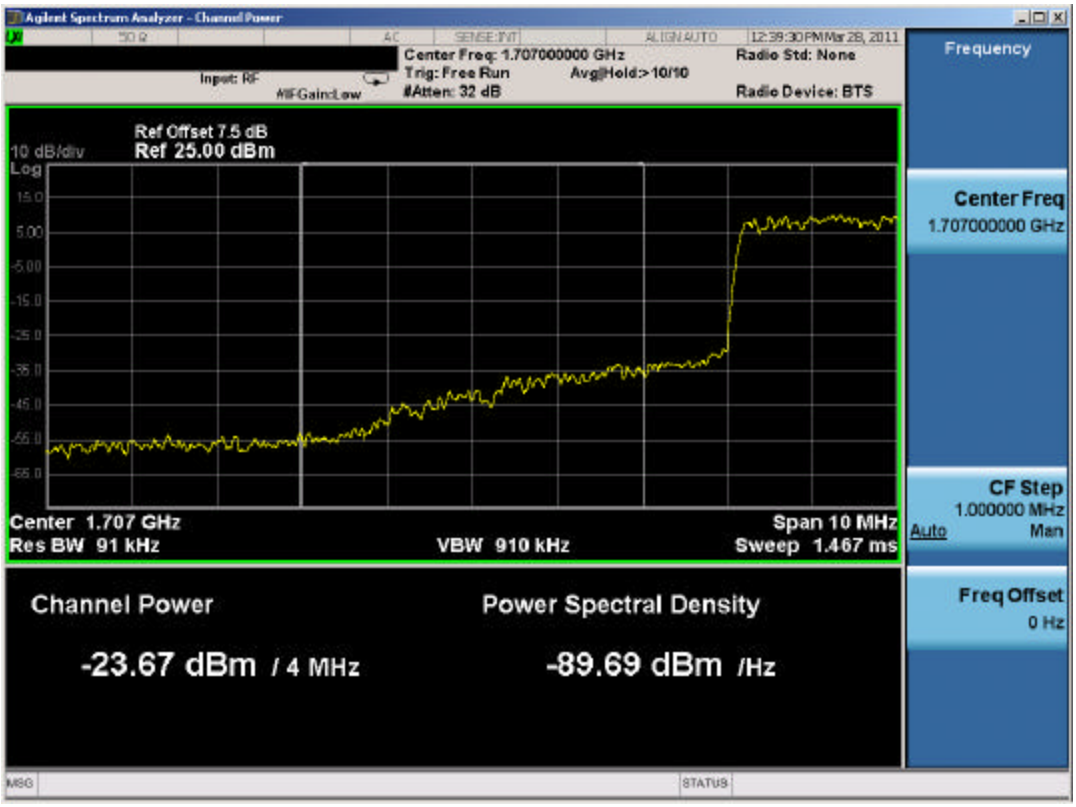
Plot 7-15. Conducted Spurious Plot (3MHz BW, QPSK, AWS Band – Low Channel)



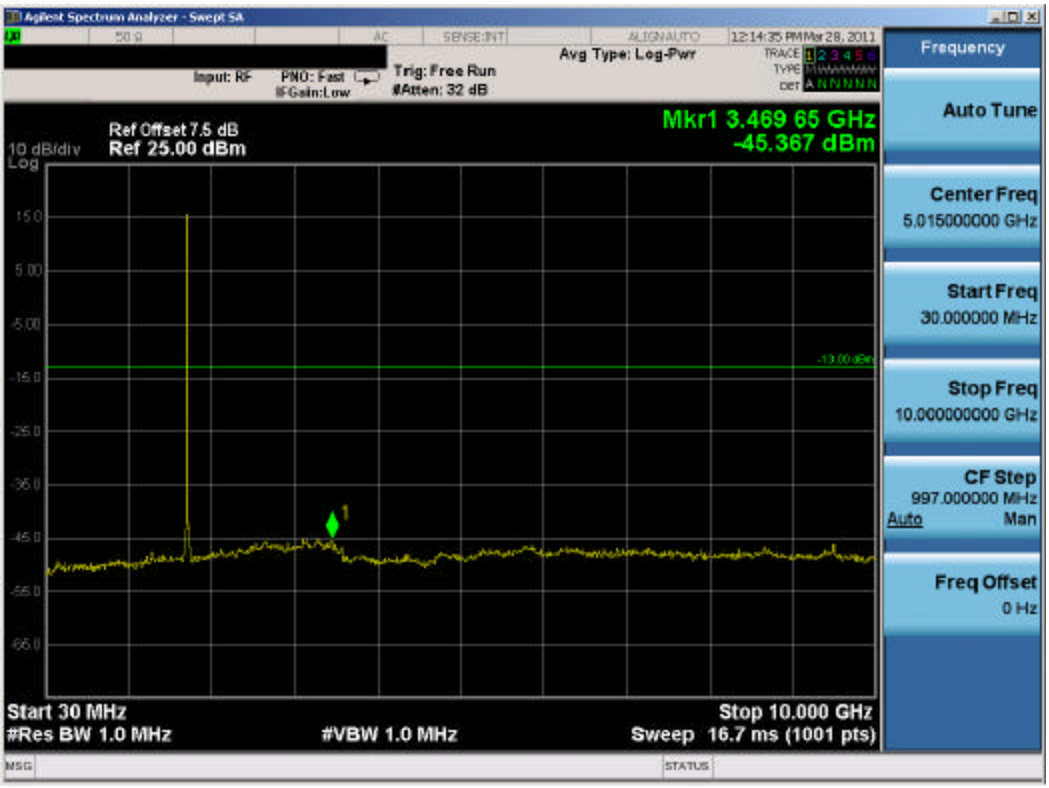
Plot 7-16. Conducted Spurious Plot (3MHz BW, QPSK, AWS Band – Low Channel)



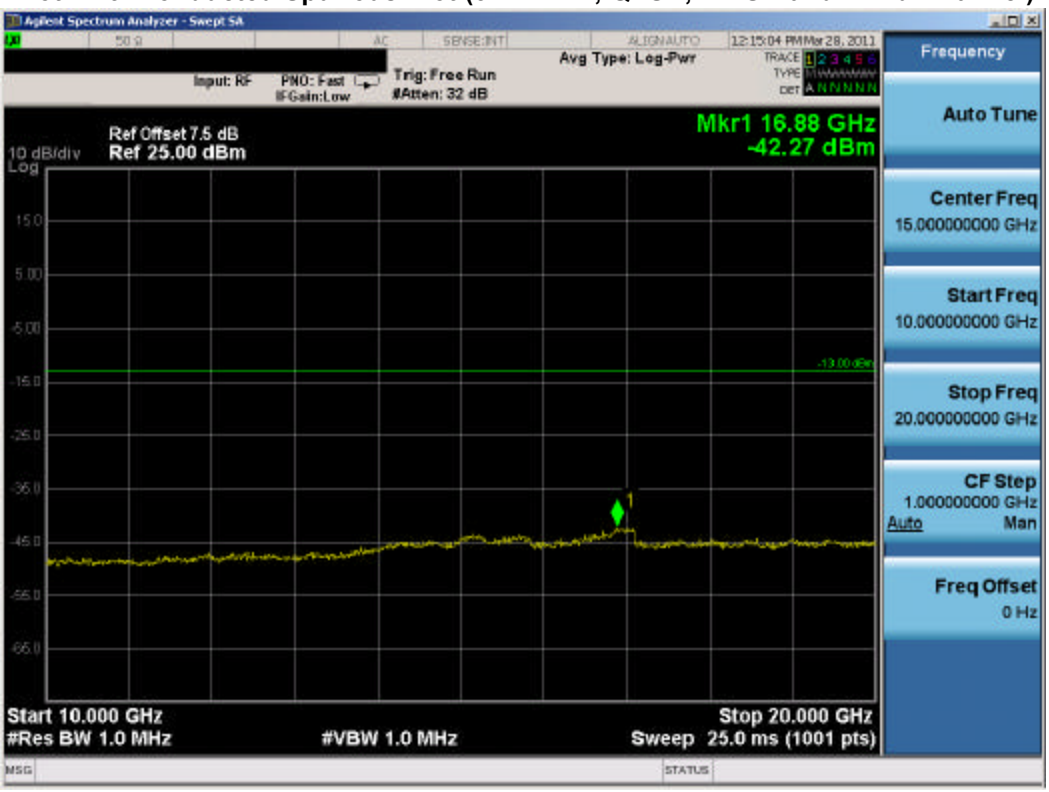
Plot 7-17. Band Edge Plot (3MHz BW, QPSK, AWS Band – Low Channel)



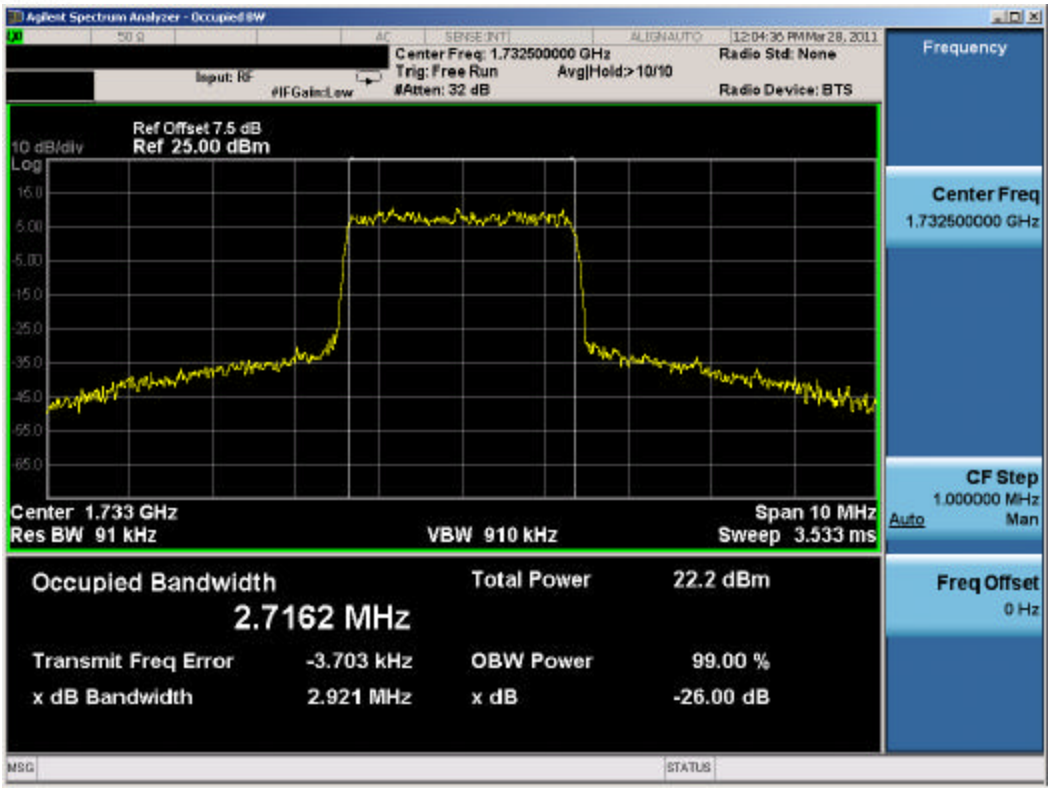
Plot 7-18. Extended Band Edge Plot (3MHz BW, QPSK, AWS Band – Low Channel)



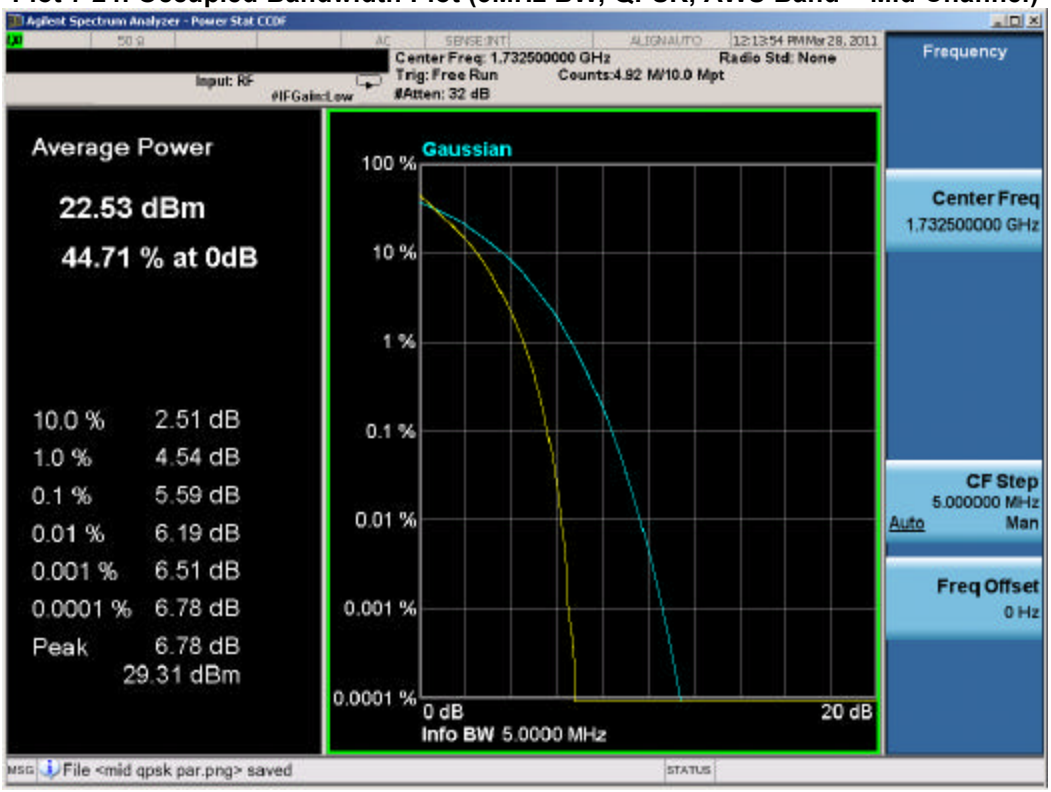
Plot 7-19. Conducted Spurious Plot (3MHz BW, QPSK, AWS Band – Mid Channel)



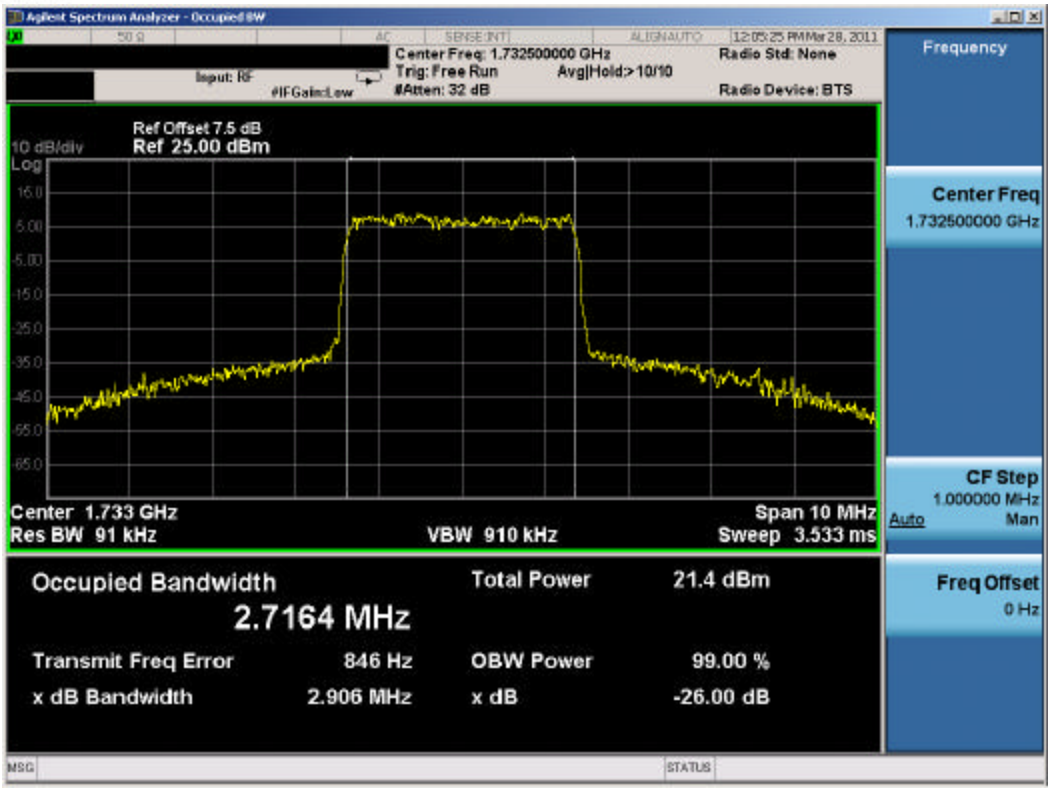
Plot 7-20. Conducted Spurious Plot (3MHz BW, QPSK, AWS Band – Mid Channel)



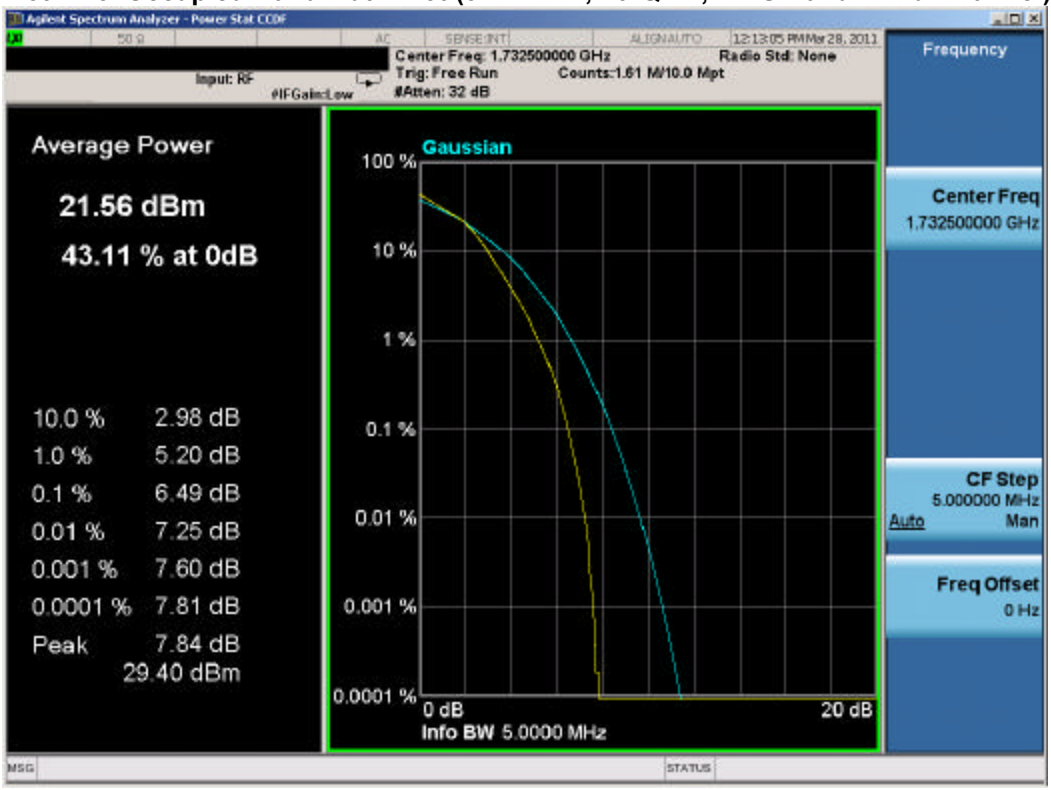
Plot 7-21. Occupied Bandwidth Plot (3MHz BW, QPSK, AWS Band – Mid Channel)



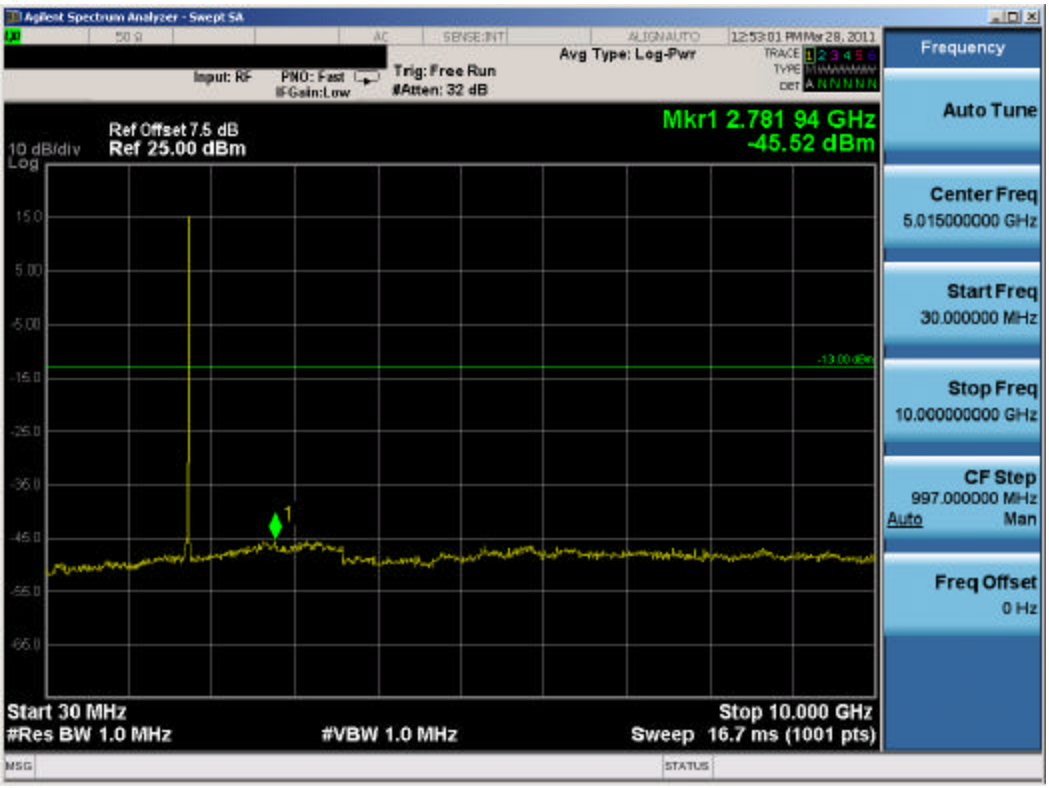
Plot 7-22. Peak-Average Ratio Plot (3MHz BW, QPSK, AWS Band – Mid Channel)



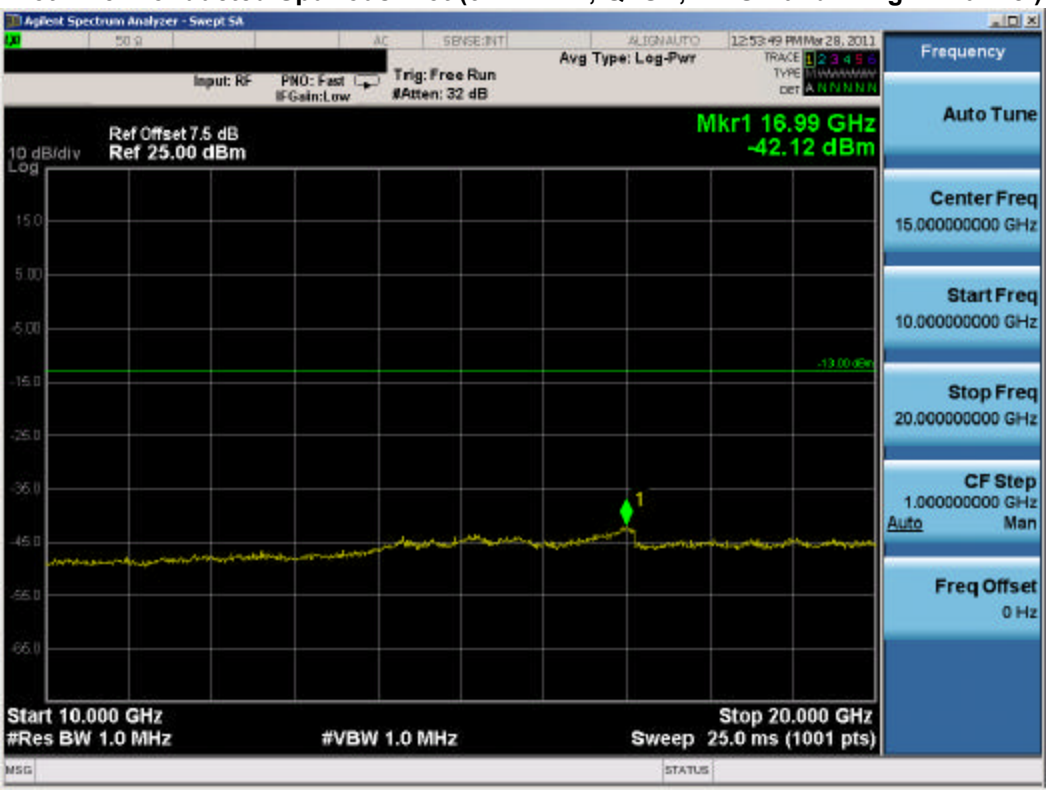
Plot 7-23. Occupied Bandwidth Plot (3MHz BW, 16-QAM, AWS Band – Mid Channel)



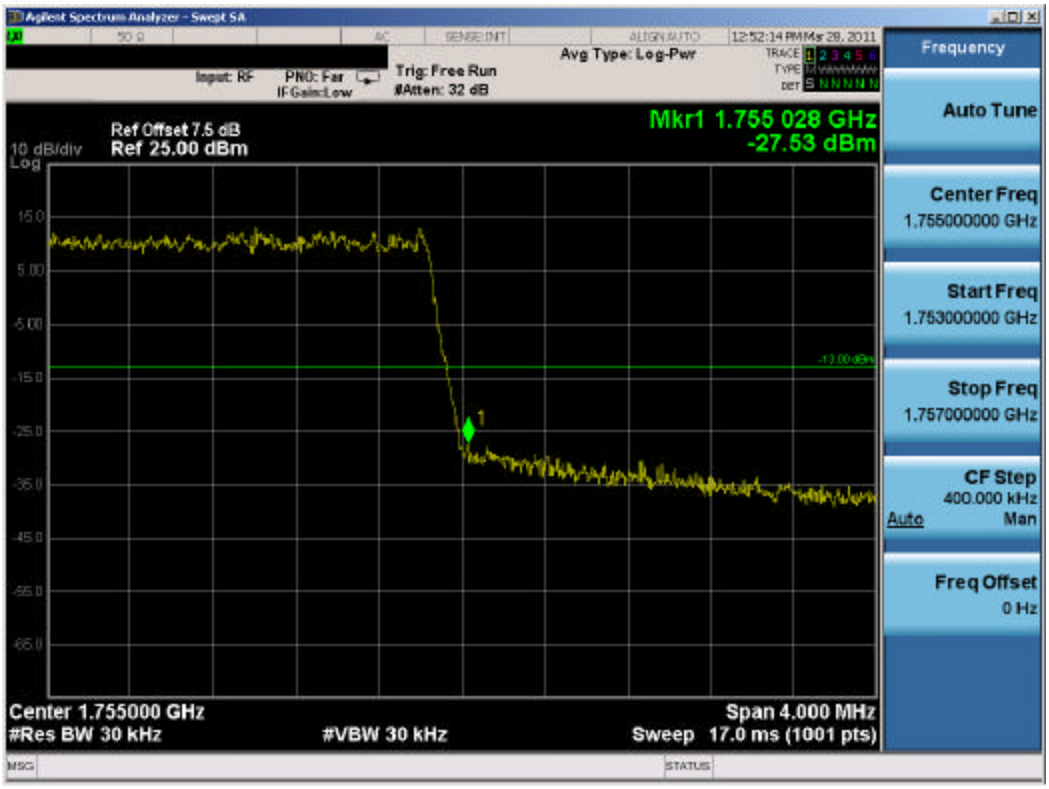
Plot 7-24. Peak-Average Ratio Plot (3MHz BW, 16-QAM, AWS Band – Mid Channel)



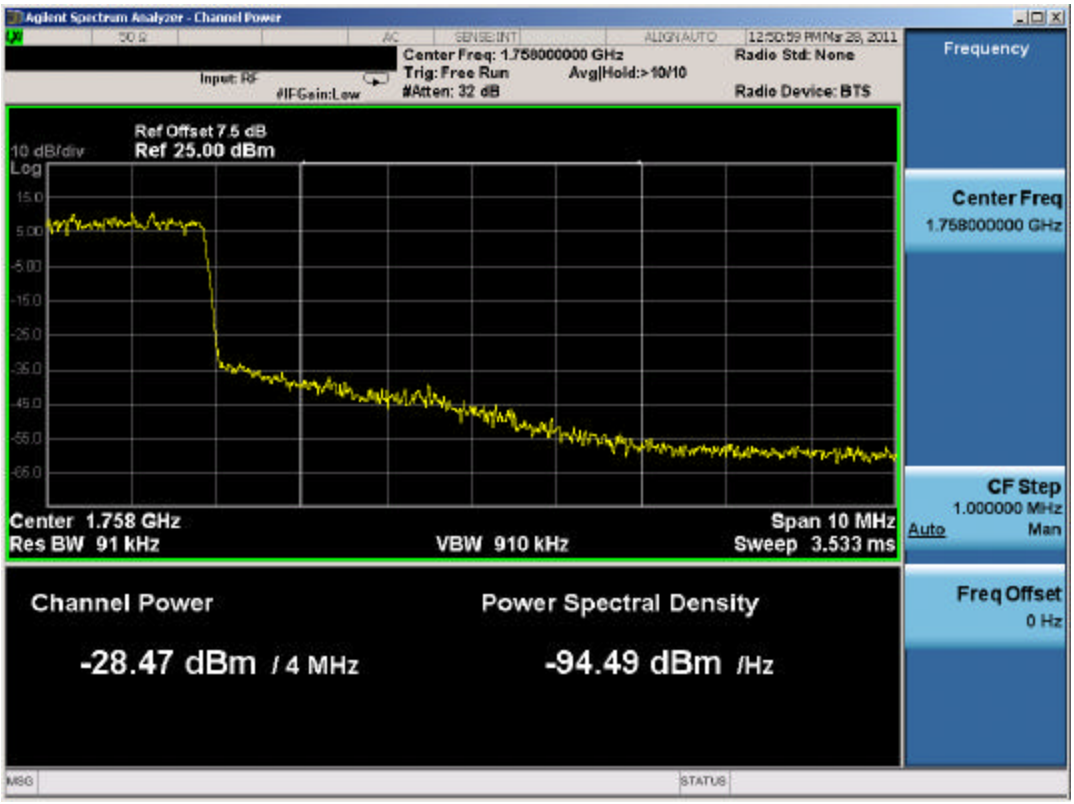
Plot 7-25. Conducted Spurious Plot (3MHz BW, QPSK, AWS Band – High Channel)



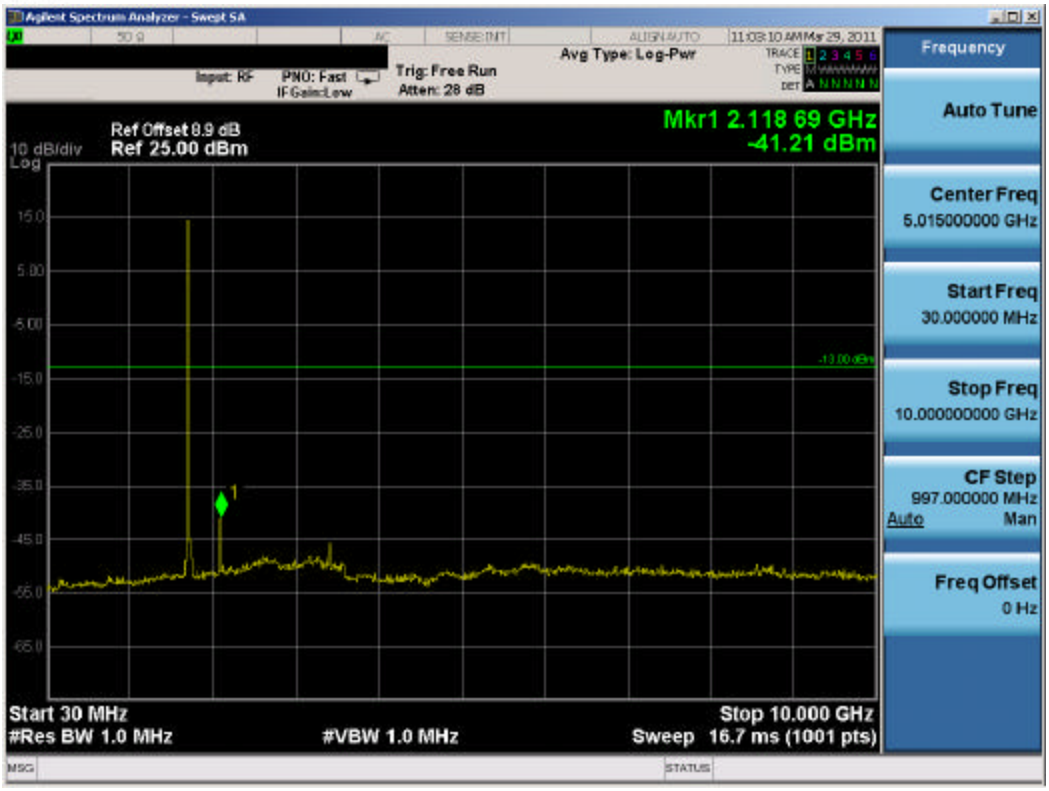
Plot 7-26. Conducted Spurious Plot (3MHz BW, QPSK, AWS Band – High Channel)



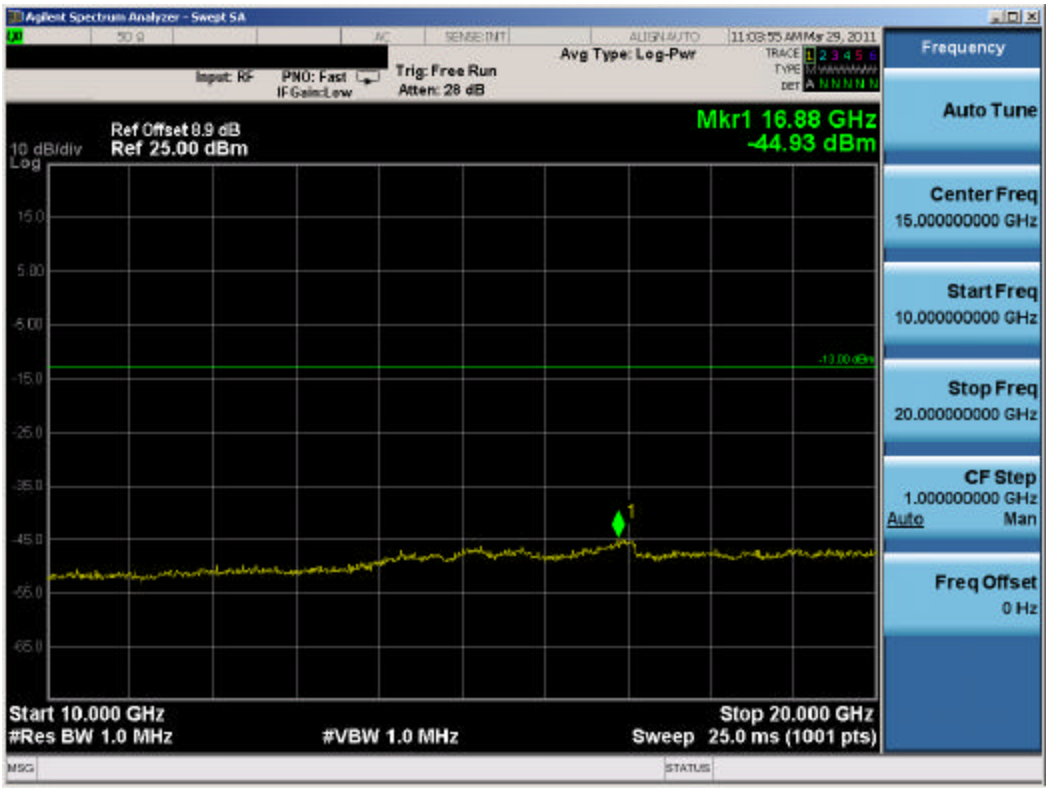
Plot 7-27. Band Edge Plot (3MHz BW, QPSK, AWS Band – High Channel)



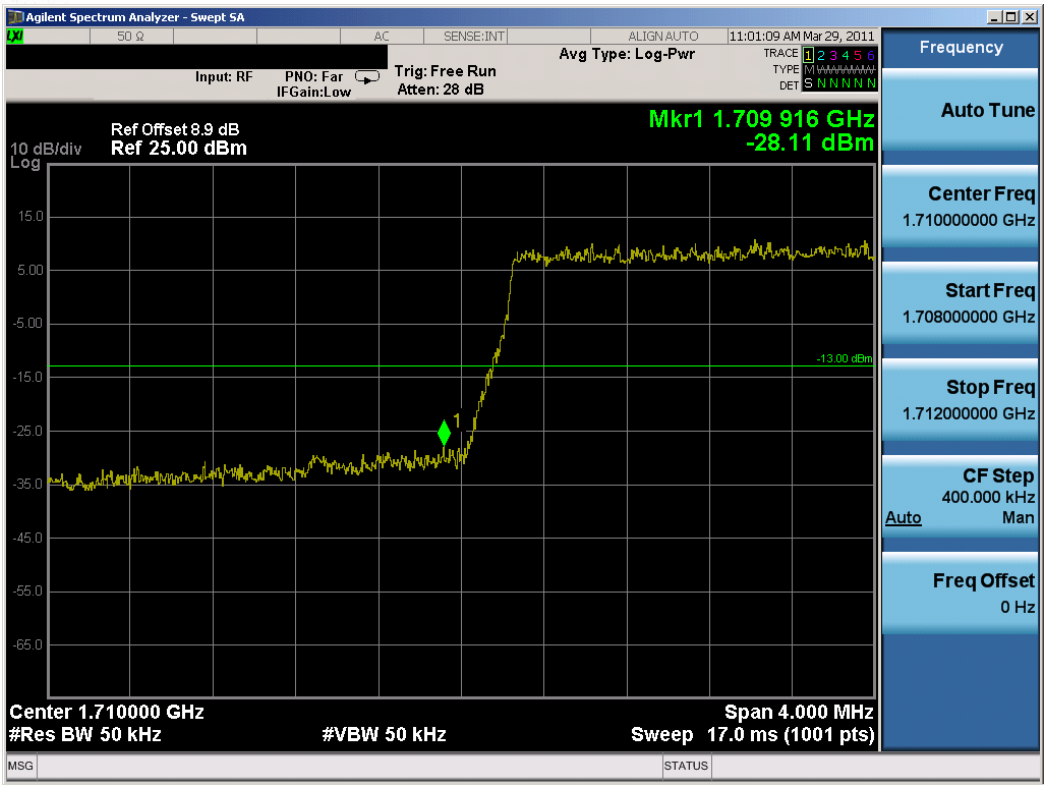
Plot 7-28. Extended Band Edge Plot (3MHz BW, QPSK, AWS Band – High Channel)



Plot 7-29. Conducted Spurious Plot (5MHz BW, QPSK, AWS Band – Low Channel)

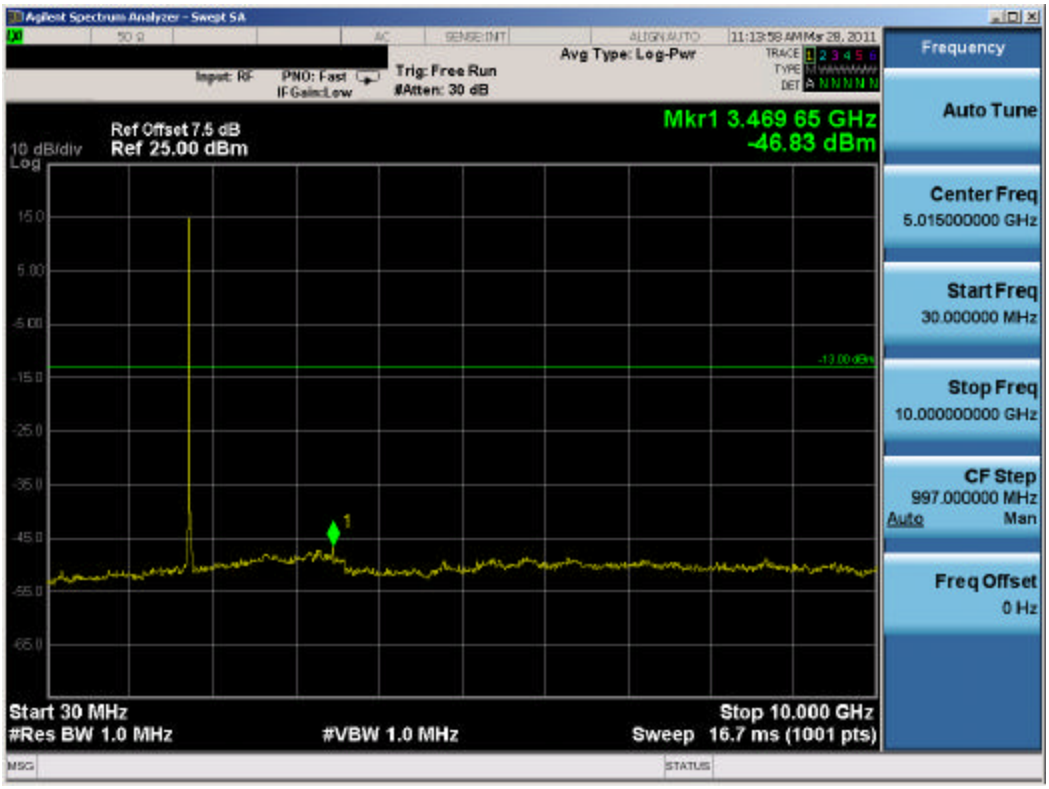


Plot 7-30. Conducted Spurious Plot (5MHz BW, QPSK, AWS Band – Low Channel)

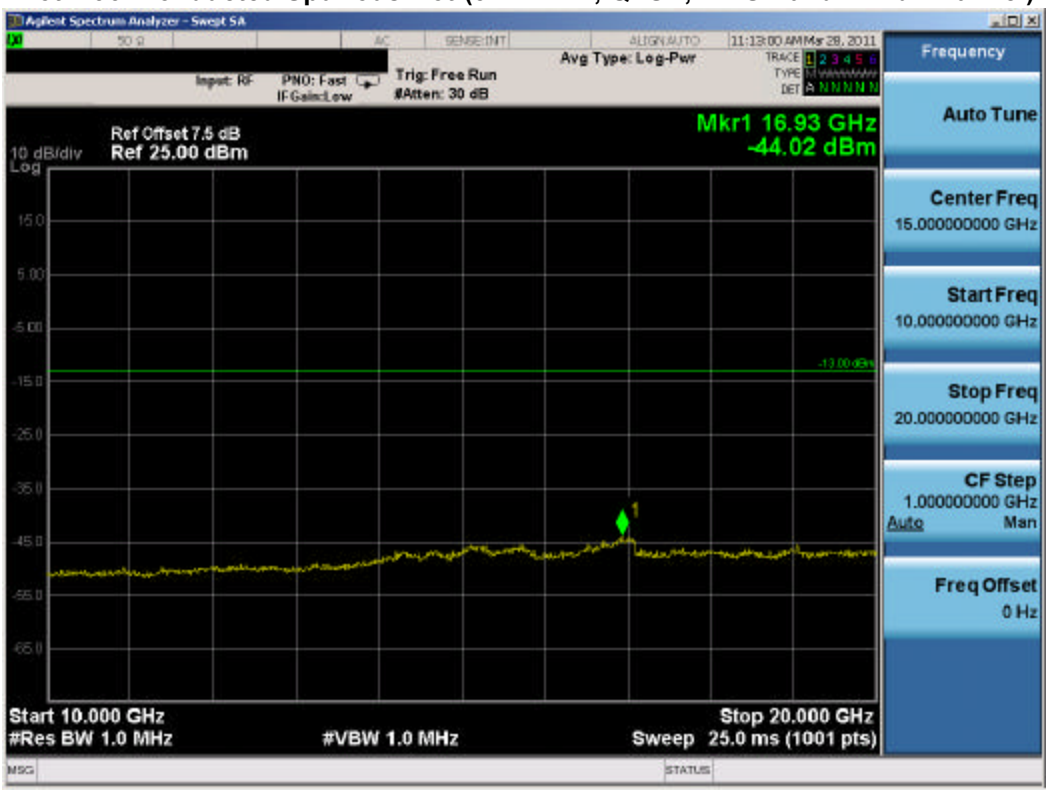


Plot 7-31. Band Edge Plot (5MHz BW, QPSK, AWS Band – Low Channel)

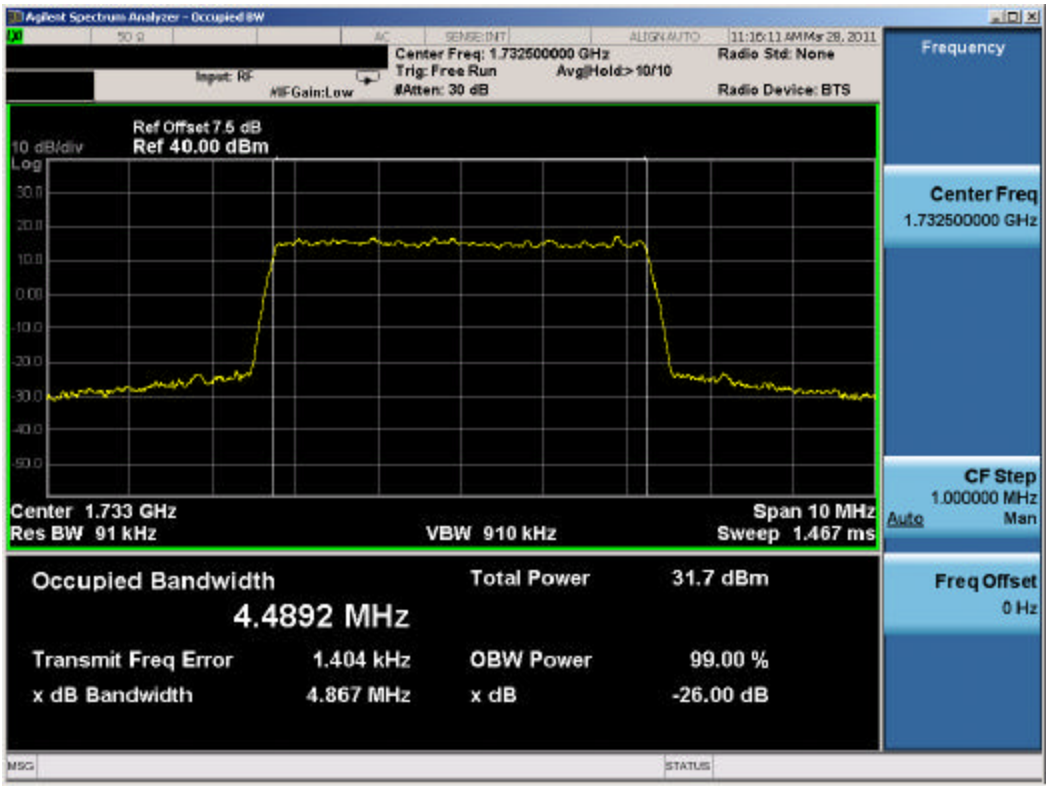
Plot 7-32. Extended Band Edge Plot (5MHz BW, QPSK, AWS Band – Low Channel)



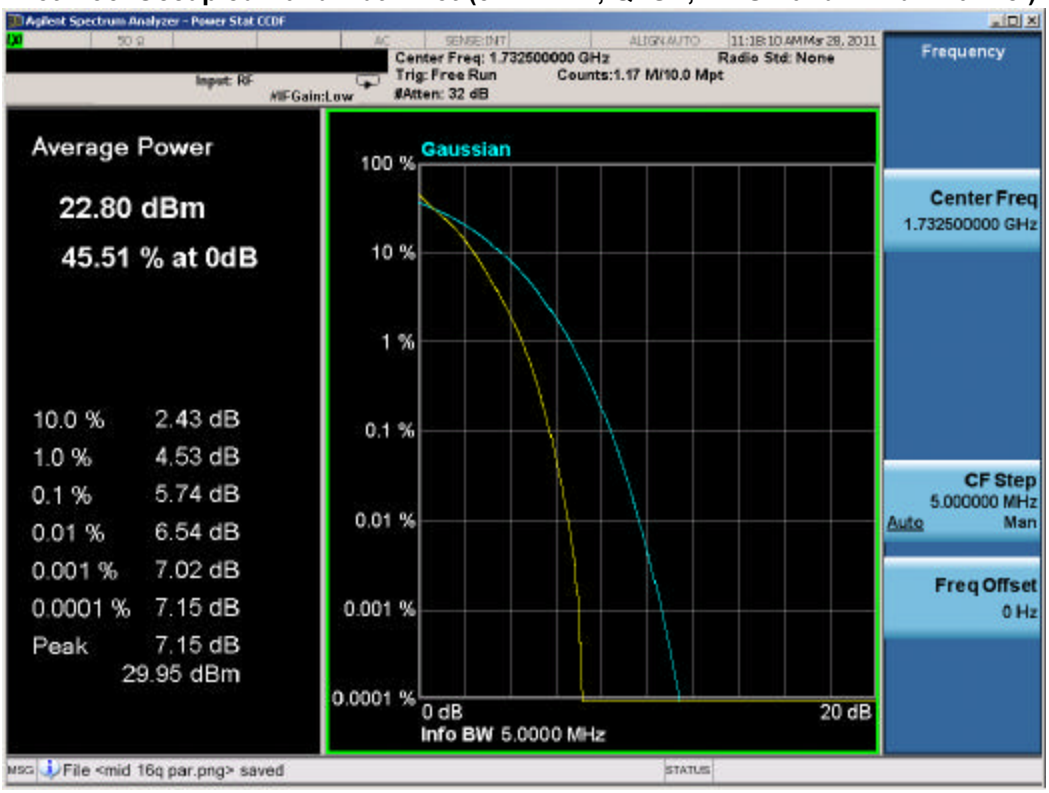
Plot 7-33. Conducted Spurious Plot (5MHz BW, QPSK, AWS Band – Mid Channel)



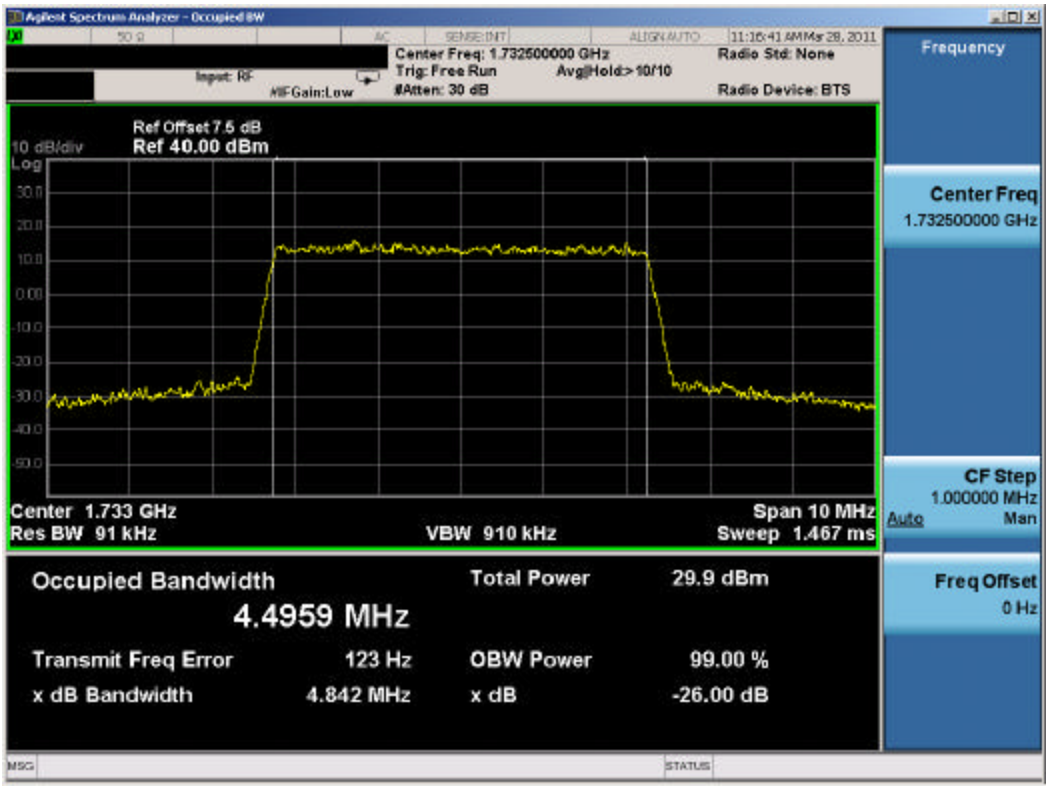
Plot 7-34. Conducted Spurious Plot (5MHz BW, QPSK, AWS Band – Mid Channel)



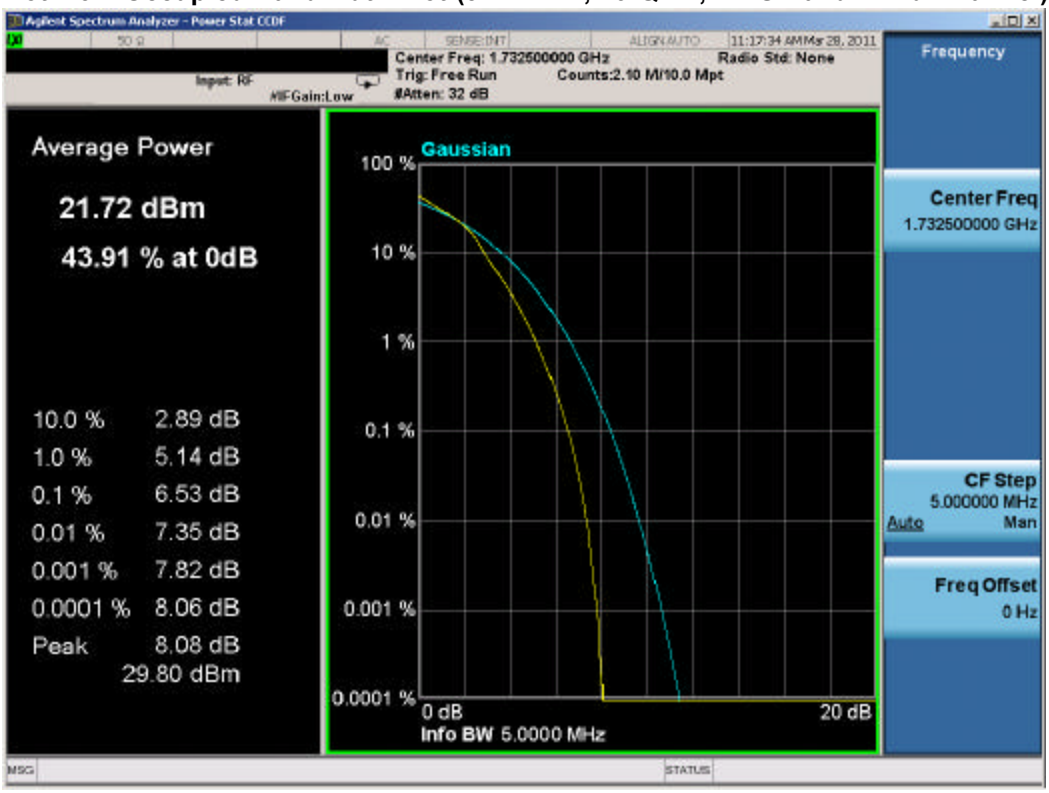
Plot 7-35. Occupied Bandwidth Plot (5MHz BW, QPSK, AWS Band – Mid Channel)



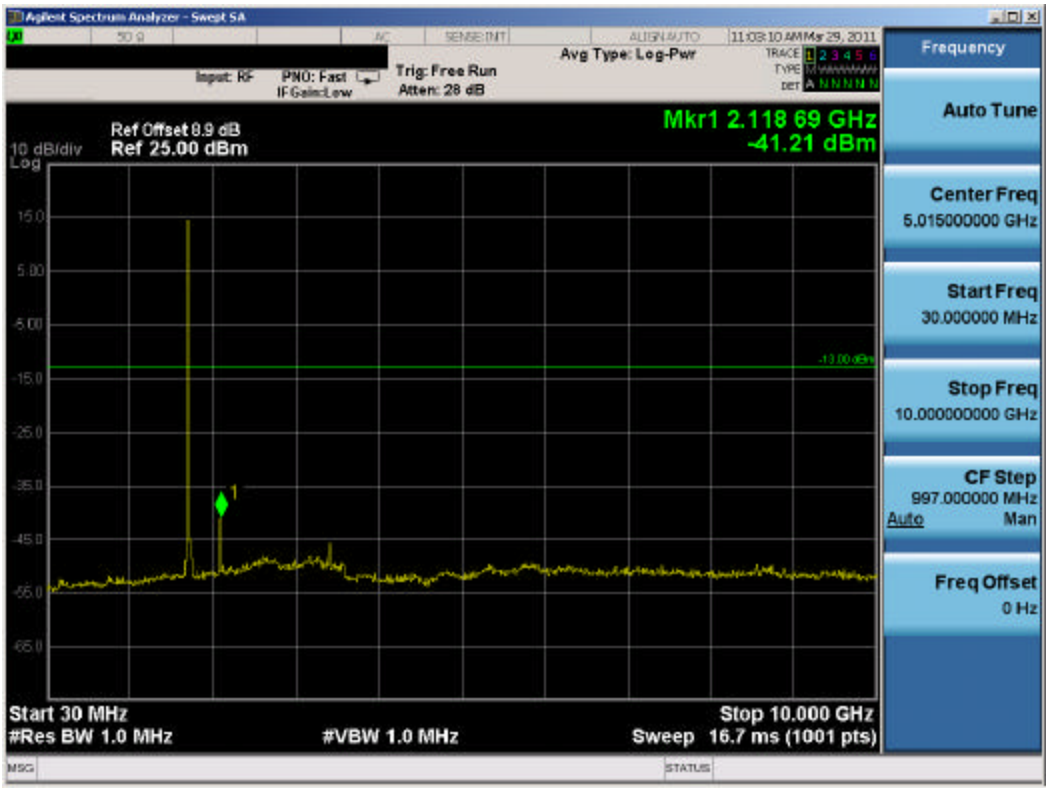
Plot 7-36. Peak-Average Ratio Plot (5MHz BW, QPSK, AWS Band – Mid Channel)



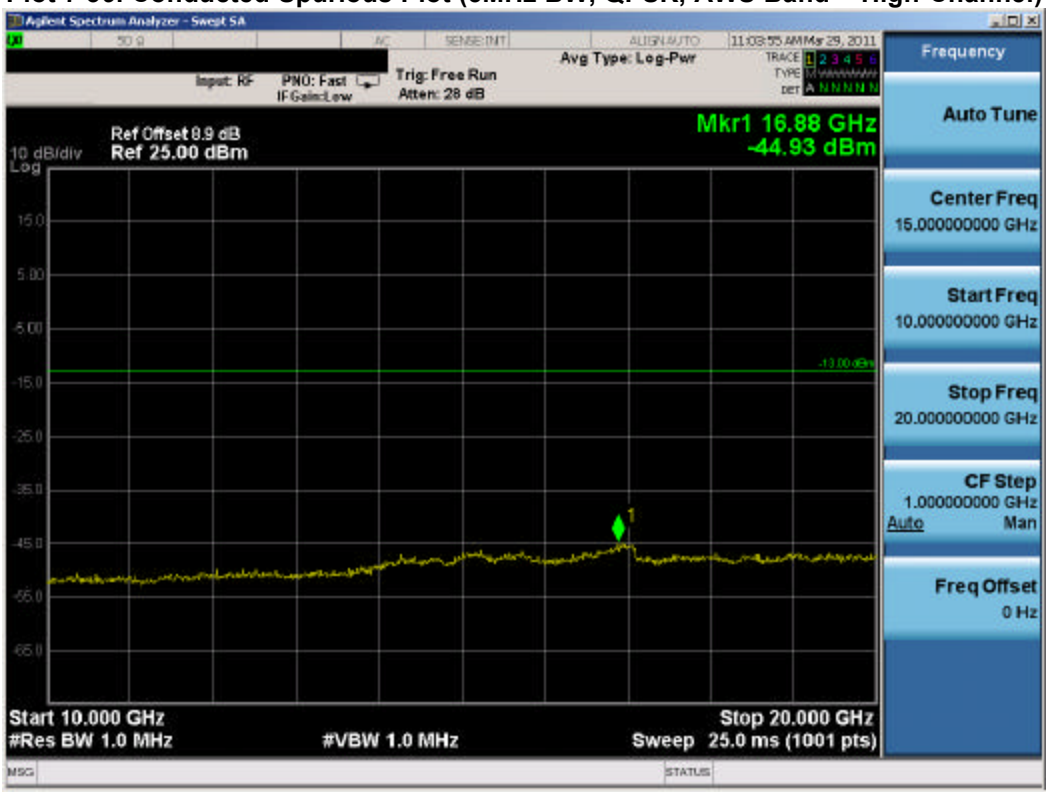
Plot 7-37. Occupied Bandwidth Plot (5MHz BW, 16-QAM, AWS Band – Mid Channel)



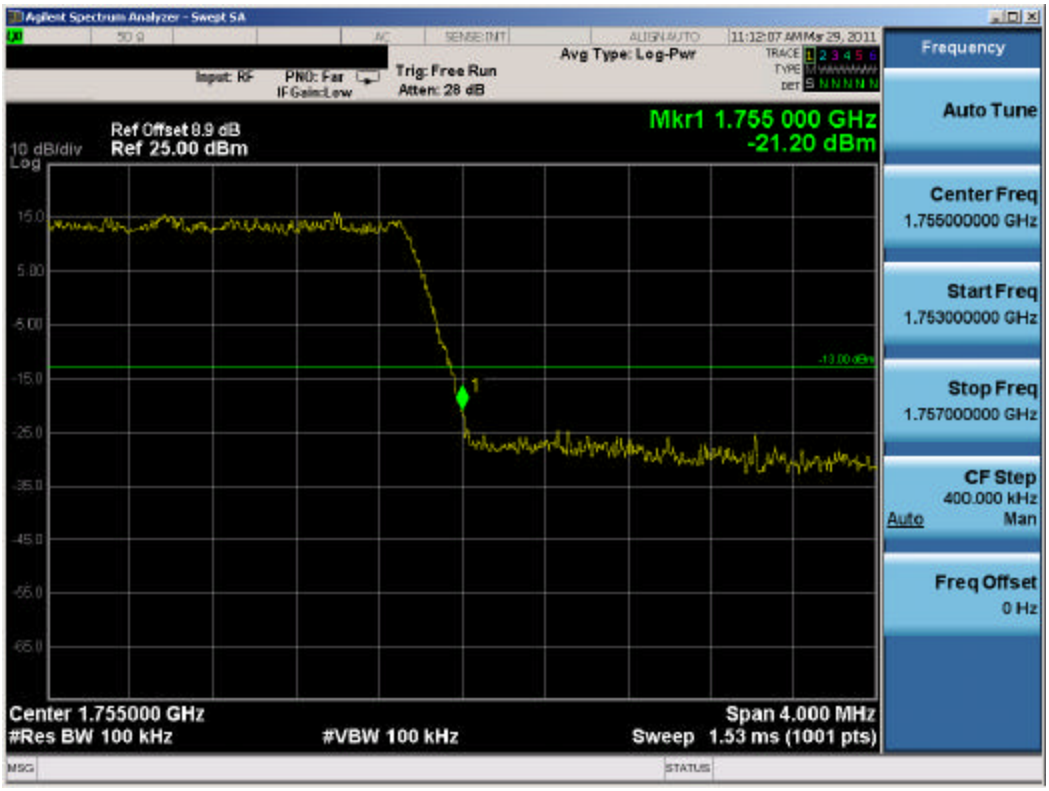
Plot 7-38. Peak-Average Ratio Plot (5MHz BW, 16-QAM, AWS Band – Mid Channel)



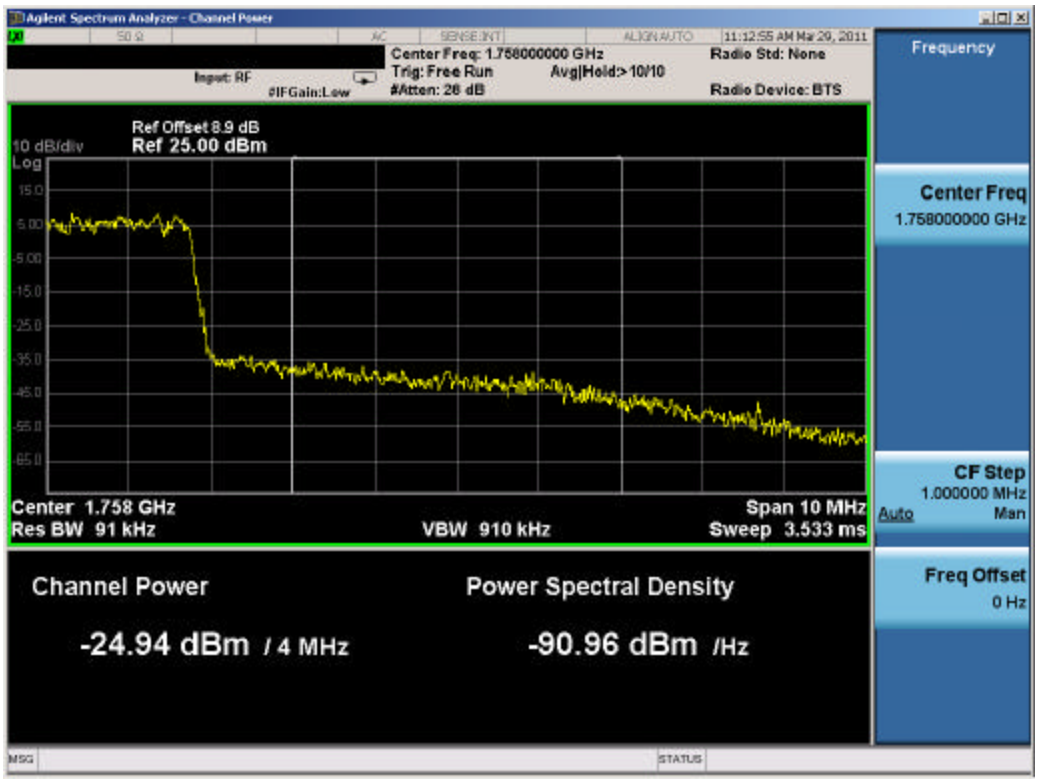
Plot 7-39. Conducted Spurious Plot (5MHz BW, QPSK, AWS Band – High Channel)



Plot 7-40. Conducted Spurious Plot (5MHz BW, QPSK, AWS Band – High Channel)



Plot 7-41. Band Edge Plot (5MHz BW, QPSK, AWS Band – High Channel)



Plot 7-42. Extended Band Edge Plot (5MHz BW, QPSK, AWS Band – High Channel)