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MEASUREMENT REPORT FCC Part 27 / IC RSS-199

Applicant Name:
Novatel Wireless Inc.
9645 Scranton Road, Suite 205
San Diego, CA 92121-3030
United States

Date of Testing:
August 18 - 26, 2010, June 2011
Test Site/Location:
PCTEST Lab., Columbia, MD, USA
Test Report Serial No.:
0Y1008161369.PKR

FCC ID:	NBZNRM-CC208
APPLICANT:	NOVATEL WIRELESS INC.

Application Type: Certification
FCC Classification: PCS Licensed Transmitter (PCB)
FCC Rule Part(s): §2; §27 Subpart M
IC Specification(s): RSS-199 Issue 1
EUT Type: Cellular/PCS CDMA/EvDO and WiMAX PC Card/Express Card Transceiver
Model(s): CC208
Tx Frequency Range: 2498.5 - 2687.5MHz (5MHz BW - WiMAX), 2501 - 2685MHz (10MHz BW - WiMAX)
Max. RF Output Power: 0.385 W EIRP (5MHz BW WiMAX, QPSK) (25.85 dBm)
0.384 W EIRP (5MHz BW WiMAX, 16-QAM) (25.84 dBm)
0.465 W EIRP (10MHz BW WiMAX, QPSK) (26.67 dBm)
0.457 W EIRP (10MHz BW WiMAX, 16-QAM) (26.6 dBm)
Emission Designator(s): 4M58G7D (5MHz BW, QPSK), 4M58W7D (5MHz BW, 16-QAM)
9M16G7D (10MHz BW, QPSK), 9M14W7D (10MHz BW, 16-QAM)
Test Device Serial No.: *identical prototype* [S/N: SC260710600064, SC260710600086]

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.

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 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

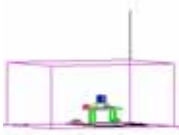


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T A B L E O F C O N T E N T S

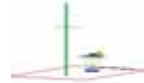
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MEASUREMENT REPORT

FCC Part 27



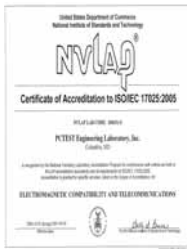
§2.1033 General Information



APPLICANT: Novatel Wireless Inc.
APPLICANT ADDRESS: 9645 Scranton Road, Suite 205
 San Diego, CA 92121-3030
TEST SITE: PCTEST ENGINEERING LABORATORY, INC.
TEST SITE ADDRESS: 6660-B Dobbin Road, Columbia, MD 21045 USA
FCC RULE PART(S): §2; §27(M)
IC SPECIFICATION(S): RSS-199 Issue 1
BASE MODEL: CC208
FCC ID: NBZNRM-CC208
FCC CLASSIFICATION: PCS Licensed Transmitter (PCB)
MODE: 5MHz and 10MHz Bandwidth WiMAX
FREQUENCY TOLERANCE: Emission must remain in band
Test Device Serial No.: SC260710600064, Production Pre-Production Engineering
 SC260710600086
DATE(S) OF TEST: August 18 - 26, 2010, June 2011
TEST REPORT S/N: 0Y1008161369.PKR

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 and the Industry Canada Certification and Engineering Bureau.

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 Intern't'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.

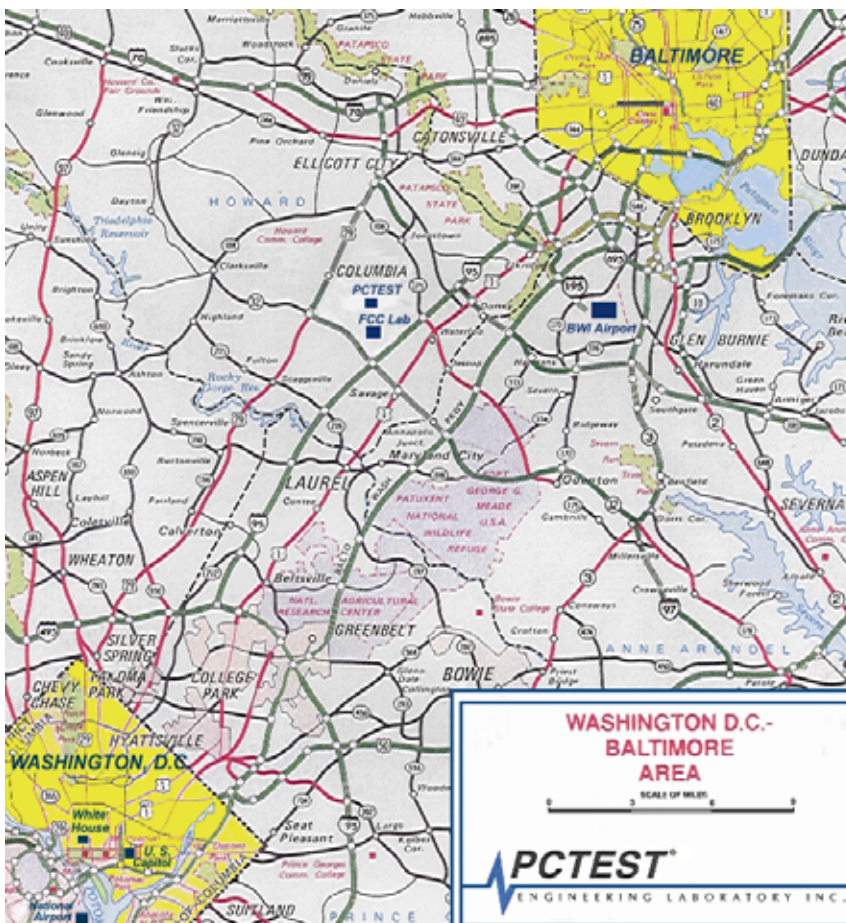


Figure 1-1. Map of the Greater Baltimore and Metropolitan Washington, D.C. area

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2.0 PRODUCT INFORMATION

2.1 Equipment Description

The Equipment Under Test (EUT) is the **Novatel Cellular/PCS CDMA/EvDO and WiMAX PC Card/Express Card Transceiver FCC ID: NBZNRM-CC208**. The test data contained in this report pertains only to the emissions due to the EUT's WiMAX function. The EUT consisted of the following component(s):

Trade Name / Base Model	FCC ID	Description
Novatel / Model: CC208	NBZNRM-CC208	Cellular/PCS CDMA/EvDO and WiMAX PC Card/Express Card Transceiver

Table 2-1. EUT Equipment Description

Each of the available modulation (QPSK, 16-QAM), zone type (PUSC, BAMC), and channel bandwidth (5MHz, 10MHz) configurations were tested for both the main and diversity antenna to determine the configuration producing the worst case emissions.

2.2 Support Equipment

The following equipment was used to support the testing of the EUT:

1	Toshiba Notebook PC w/ AC Power Adapter	Model: PSAA8U-0ER02K (DoC) 1.74m Shielded cable 1.71m AC cord	S/N: 66178609Q
2	Dynex USB PC Camera	Model: DX-WC101 (DoC) 2.07m Shielded USB Cable	S/N: 122D05AC

Table 2-2. Test Support Equipment

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.

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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.

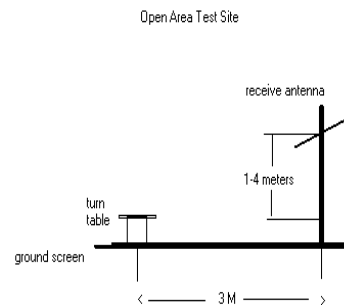


Figure 3-1. Diagram of 3-meter outdoor test range

Deviation from Measurement Procedure.....None

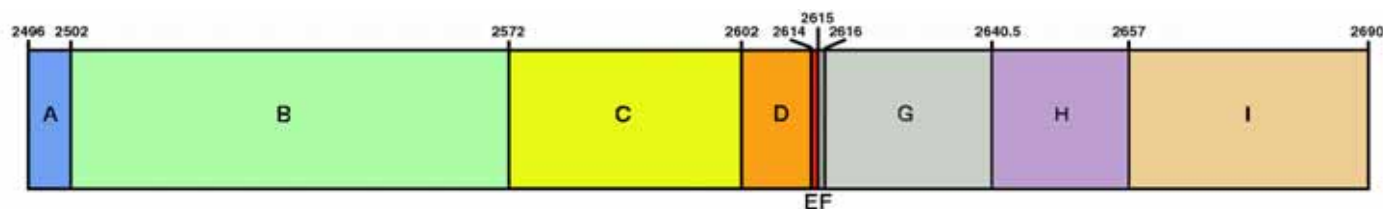
3.2 Occupied Bandwidth

§2.1049, RSS-Gen (4.6.1)

The occupied bandwidth, that is the frequency bandwidth such that, below its lower and above its 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 EBS/BRS - Frequency Blocks

§27.5(i)



BLOCK A: 2496MHz – 2502MHz (BRS)	BLOCK B: 2502MHz – 2572MHz (EBS)	BLOCK C: 2572MHz – 2602MHz (EBS)
BLOCK D: 2602MHz – 2614MHz (BRS)	BLOCK E: 2614MHz – 2615MHz (BRS)	BLOCK F: 2615MHz – 2616MHz (EBS)
BLOCK G: 2616MHz – 2640.5MHz (BRS)	BLOCK H: 2640.5MHz – 2657MHz (EBS)	BLOCK I: 2657MHz – 2690MHz (BRS)

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3.4 Spurious and Harmonic Emissions at Antenna Terminal §2.1051, §27.53(m)(4)(6); RSS-199 (4.5)

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.

3.5 Radiated Spurious and Harmonic Emissions §2.1053, §27.50(h)(2), §27.53(m)(4)(6); RSS-199 (4.4) RSS-199 (4.5)

Spurious and harmonic radiated emissions are measured outdoors at our 3-meter test range. The equipment under test is placed on a wooden turntable 3-meters from the receive antenna. The receive antenna height and turntable rotations were adjusted for the highest reading on the receive spectrum analyzer. 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 spectrum analyzer reading. This level is recorded. 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 configurations and the worst case radiated spurious emissions were found while the unit was transmitting from the main antenna using a 10MHz channel with QPSK modulation and PUSC zone type.

3.6 Frequency Stability / Temperature Variation §2.1055, §27.54; RSS-199 (4.3)



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 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.

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.

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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
-	No.165	(30MHz - 1000MHz) RG58 Coax Cable	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	11713A	Attenuation/Switch Driver	12/2/2009	Annual	12/2/2010	3439A02645
Agilent	8447D	Broadband Amplifier	3/18/2010	Annual	3/18/2011	1937A03348
Agilent	8449B	(1-26.5GHz) Pre-Amplifier	12/2/2009	Annual	12/2/2010	3008A00985
Agilent	85650A	Quasi-Peak Adapter	12/2/2009	Annual	12/2/2010	3303A01872
Agilent	8566B	(100Hz-22GHz) Spectrum Analyzer	12/2/2009	Annual	12/2/2010	3638A08713
Agilent	E4407B	ESA Spectrum Analyzer	3/30/2010	Annual	3/30/2011	US39210313
Agilent	E8257D	(250kHz-20GHz) Signal Generator	3/30/2010	Annual	3/30/2011	MY45470194
Agilent	N9020A	MXA Signal Analyzer	10/22/2009	Annual	10/22/2010	US46470561
Anritsu	ML2495A	Power Meter	10/12/2009	Annual	10/12/2010	941001
Emco	3115	Horn Antenna (1-18GHz)	4/8/2010	Biennial	4/8/2012	9205-3874
Emco	3116	Horn Antenna (18 - 40GHz)	9/9/2008	Triennial	9/9/2011	9203-2178
MiniCircuits	VHF-3100+	High Pass Filter	N/A		N/A	30721
Sunol	DRH-118	Horn Antenna (1 - 18GHz)	5/14/2009	Biennial	5/14/2011	A050307
Sunol	JB5	Bi-Log Antenna (30M - 5GHz)	7/17/2009	Biennial	7/17/2011	A051107

Table 4-1. Test Equipment

Note:

All test equipment shown above was calibrated while used during testing.

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5.0 SAMPLE CALCULATIONS

Emission Designator

QPSK Modulation

Emission Designator = 9M62G7D

WiMAX BW = 9.62 MHz

G = Phase Modulation

7 = Quantized/Digital Info

D = Amplitude/Angle Modulated

16QAM Modulation

Emission Designator = 9M45W7D

WiMAX BW = 9.45 MHz

W = Cases not covered above, in which an emission consists of the main carrier modulated, either simultaneously or in a pre-established sequence, in a combination of two or more of the following modes: amplitude, angle, pulse



7 = Quantized/Digital Info

D = Amplitude/Angle Modulated

Spurious Radiated Emission – WiMAX Band

Example: Middle Channel WiMAX Mode 2nd Harmonic (5200 MHz)

The receive analyzer 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 receive analyzer. The loss of the cable between the signal generator and the terminals of the substituted antenna is 3.2 dB at 5200 MHz. So 4.9 dB is added to the signal generator reading of -30.00 dBm yielding -25.1 dBm. The fundamental EIRP was 25.501 dBm so this harmonic was 25.501 dBm - (-25.1) = 50.6 dBc.

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6.0 TEST RESULTS

6.1 Summary



Company Name: Novatel Wireless Inc.
 FCC ID: NBZNRM-CC208
 FCC Classification: PCS Licensed Transmitter (PCB)
 Mode(s): WiMAX

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
TRANSMITTER MODE (Tx)					
2.1049, 27.53(m)(6)	Occupied Bandwidth	N/A	CONDUCTED	PASS	Sections 7.0, 8.0
2.1051, 27.53(m)(4)(6)	Band Edge	< 43 + 10log ₁₀ (P[Watts]) within 5.5MHz from the band edge		PASS	Sections 7.0, 8.0
2.1051, 27.53(m)(4)(6)	Conducted Spurious Emissions	< 55 + 10log ₁₀ (P[Watts]) for all emissions greater than 5.5MHz from the band edge		PASS	Sections 7.0, 8.0
2.1046	Transmitter Conducted Output Power Measurements	N/A		PASS	Section 6.2
27.50(h)(2)	Equivalent Isotropic Radiated Power	< 2 Watts max. EIRP	RADIATED	PASS	Section 6.3
2.1053, 27.53(m)(4)	Undesirable Emissions	< 55 + 10log ₁₀ (P[Watts]) for all out-of-band emissions		PASS	Section 6.4
2.1055, 27.54	Frequency Stability	Fundamental emissions must stay within the allotted band		PASS	Section 6.5
RECEIVER MODE (Rx) / DIGITAL EMISSIONS					
15.107	AC Conducted Emissions 150kHz – 30MHz	< FCC 15.107 limits	LINE CONDUCTED	PASS	Pt. 15B Test Report
15.109	General Field Strength Limits (Restricted Bands and Radiated Emissions Limits)	< FCC 15.109 limits	RADIATED (30MHz-1GHz) (1-25 GHz)	PASS	Pt. 15B Test Report

Table 6-1. Summary of Test Results

Note:

Part 27 testing for this device was performed with a PUSC uplink waveform.

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6.2 Transmitter Conducted Output Power

§2.1046

The Novatel Cellular/PCS CDMA/EvDO and WiMAX PC Card/Express Card Transceiver FCC ID: NBZNRM-CC208 was powered through an extender board that was supplied with 3.3VDC. Through use of software installed on the PC and the Agilent E6651A WiMAX Mobile Test Set, the EUT was set to transmit at maximum power to perform all RF measurements. Since the unit does not transmit at 100% duty cycle, a trigger from the E6651A test set was provided to the spectrum analyzer in order to perform the measurements only while the unit was transmitting. All available modulation, zone type, channel bandwidth, and antenna configurations were investigated. The WiMAX conducted powers are reported below as well as a test setup diagram.

Bandwidth	Frequency [MHz]	QPSK (CTC) 1/2		16QAM (CTC) 1/2	
		Main Antenna [dBm]	Diversity Antenna [dBm]	Main Antenna [dBm]	Diversity Antenna [dBm]
5MHz	2498.50	23.47	23.56	23.44	23.52
	2593.00	23.62	23.38	23.57	23.31
	2687.50	23.37	23.48	23.35	23.44
10MHz	2501.00	23.52	23.41	23.49	23.36
	2593.00	23.44	23.25	23.43	23.23
	2685.00	23.43	23.39	23.38	23.31

Table 6-2. WiMAX Conducted Output Power (PUSC)

Bandwidth	Frequency [MHz]	QPSK (CTC) 1/2		16QAM (CTC) 1/2	
		Main Antenna [dBm]	Diversity Antenna [dBm]	Main Antenna [dBm]	Diversity Antenna [dBm]
5MHz	2498.50	22.71	22.77	22.68	22.63
	2593.00	22.54	22.66	22.63	22.67
	2687.50	22.51	22.81	22.72	22.66
10MHz	2501.00	23.02	22.82	23.05	22.44
	2593.00	22.61	22.65	22.44	22.49
	2685.00	22.52	22.75	22.61	22.56

Table 6-3. WiMAX Conducted Output Power (BAMC)

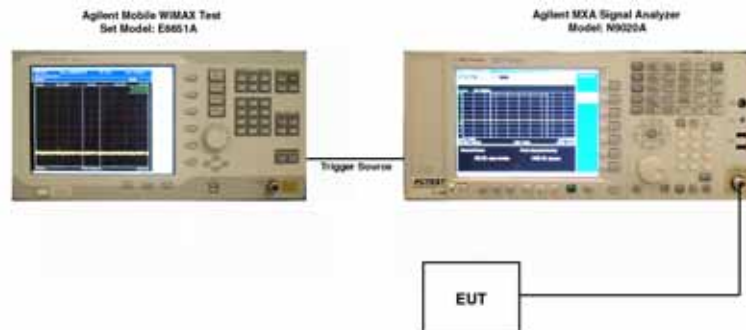




Figure 6-1. WiMAX Conducted Power Test Setup Diagram

FCC ID: NBZNRM-CC208		FCC Pt. 27 WiMAX MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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6.3 Equivalent Isotropic Radiated Power Output Data

§27.50(h)(2); RSS-199 (4.4)

Frequency [MHz]	Antenna	Bandwidth [MHz]	Modulation	Measured Level [dBm]	Substitute Level [dBm]	Antenna Gain [dBi]	Pol [H/V]	EIRP [dBm]	EIRP [Watts]	Power Source
2498.50	Main	5.00	QPSK	-23.780	14.14	8.90	H	23.04	0.201	DC
2593.00	Main	5.00	QPSK	-21.870	16.13	9.06	H	25.19	0.330	DC
2687.50	Main	5.00	QPSK	-22.390	15.45	9.21	H	24.66	0.293	DC
2498.50	Main	5.00	16-QAM	-23.840	14.08	8.90	H	22.98	0.199	DC
2593.00	Main	5.00	16-QAM	-21.930	16.07	9.06	H	25.13	0.326	DC
2687.50	Main	5.00	16-QAM	-22.410	15.43	9.21	H	24.64	0.291	DC
2498.50	Diversity	5.00	QPSK	-25.910	12.01	8.90	H	20.91	0.123	DC
2593.00	Diversity	5.00	QPSK	-22.190	15.81	9.06	H	24.87	0.307	DC
2687.50	Diversity	5.00	QPSK	-21.200	16.64	9.21	H	25.85	0.385	DC
2498.50	Diversity	5.00	16-QAM	-25.980	11.94	8.90	H	20.84	0.121	DC
2593.00	Diversity	5.00	16-QAM	-22.070	15.93	9.06	H	24.99	0.316	DC
2687.50	Diversity	5.00	16-QAM	-21.210	16.63	9.21	H	25.84	0.384	DC
2501.00	Main	10.00	QPSK	-24.430	13.49	8.90	H	22.39	0.173	DC
2593.00	Main	10.00	QPSK	-22.400	15.60	9.06	H	24.66	0.292	DC
2685.00	Main	10.00	QPSK	-21.790	16.05	9.21	H	25.26	0.336	DC
2501.00	Main	10.00	16-QAM	-24.440	13.48	8.90	H	22.38	0.173	DC
2593.00	Main	10.00	16-QAM	-22.450	15.55	9.06	H	24.61	0.289	DC
2685.00	Main	10.00	16-QAM	-21.840	16.00	9.21	H	25.21	0.332	DC
2501.00	Diversity	10.00	QPSK	-24.260	13.66	8.90	H	22.56	0.180	DC
2593.00	Diversity	10.00	QPSK	-22.610	15.39	9.06	H	24.45	0.279	DC
2685.00	Diversity	10.00	QPSK	-20.380	17.46	9.21	H	26.67	0.465	DC
2501.00	Diversity	10.00	16-QAM	-24.310	13.61	8.90	H	22.51	0.178	DC
2593.00	Diversity	10.00	16-QAM	-22.740	15.26	9.06	H	24.32	0.270	DC
2685.00	Diversity	10.00	16-QAM	-20.450	17.39	9.21	H	26.60	0.457	DC



Table 6-4. Equivalent Isotropic Radiated Power Output Data

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 unit was tested while placed into an extender board being supplied with 3.3VDC. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning.

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6.4 WiMAX Radiated Measurements

§2.1053, §27.53(m)(4); RSS-199 (4.5)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 2498.50 MHz
 CHANNEL: LBS
 MEASURED OUTPUT POWER: 25.190 dBm = 0.330 W
 MODULATION SIGNAL: WiMAX (Internal)
 DISTANCE: 3 meters
 LIMIT: $55 + 10 \log_{10} (W) =$ 50.19 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
4997.00	-72.35	11.20	-61.15	H	86.3
7495.50	-67.03	11.10	-55.92	H	81.1
9994.00	-91.21	12.55	-78.65	H	103.8
12492.50	-88.72	12.70	-76.01	H	101.2
14991.00	-84.58	11.64	-72.94	H	98.1



Table 6-5. Radiated Spurious Data (5MHz Bandwidth WiMAX, QPSK, Main Antenna)

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 unit was tested while placed into an extender board being supplied with 3.3VDC. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. This device was tested under all configurations and the worst case radiated spurious emissions were found while the unit was transmitting from the main antenna using a 10MHz channel with QPSK modulation and PUSC zone type.

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WiMAX Radiated Measurements (Cont'd)
§2.1053, §27.53(m)(4); RSS-199 (4.5)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 2593.00 MHz
 CHANNEL: MBS
 MEASURED OUTPUT POWER: 25.190 dBm = 0.330 W
 MODULATION SIGNAL: WiMAX (Internal)
 DISTANCE: 3 meters
 LIMIT: $55 + 10 \log_{10} (W) =$ 50.19 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
5186.00	-68.30	10.91	-57.39	H	82.6
7779.00	-65.56	11.34	-54.22	H	79.4
10372.00	-90.02	12.83	-77.19	H	102.4
12965.00	-82.62	13.10	-69.52	H	94.7
15558.00	-79.61	14.98	-64.63	H	89.8



Table 6-6. Radiated Spurious Data (5MHz Bandwidth WiMAX, QPSK, Main Antenna)

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 unit was tested while placed into an extender board being supplied with 3.3VDC. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. This device was tested under all configurations and the worst case radiated spurious emissions were found while the unit was transmitting from the main antenna using a 10MHz channel with QPSK modulation and PUSC zone type.

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WiMAX Radiated Measurements (Cont'd)
§2.1053, §27.53(m)(4); RSS-199 (4.5)

Field Strength of SPURIOUS Radiation

OPERATING FREQUENCY: 2687.50 MHz
 CHANNEL: UBS
 MEASURED OUTPUT POWER: 25.190 dBm = 0.330 W
 MODULATION SIGNAL: WiMAX (Internal)
 DISTANCE: 3 meters
 LIMIT: $55 + 10 \log_{10} (W) =$ 50.19 dBc

FREQUENCY (MHz)	LEVEL @ ANTENNA TERMINALS (dBm)	SUBSTITUTE ANTENNA GAIN (dBi)	SPURIOUS EMISSION LEVEL (dBm)	POL (H/V)	(dBc)
5375.00	-62.12	10.68	-51.44	H	76.6
8062.50	-59.09	11.51	-47.58	H	72.8
10750.00	-89.49	13.05	-76.45	H	101.6
13437.50	-81.52	13.13	-68.40	H	93.6
16125.00	-80.57	16.17	-64.41	H	89.6



Table 6-7. Radiated Spurious Data (5MHz Bandwidth WiMAX, QPSK, Main Antenna)

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 unit was tested while placed into an extender board being supplied with 3.3VDC. The EUT was tested in three orthogonal planes and in all possible test configurations and positioning. This device was tested under all configurations and the worst case radiated spurious emissions were found while the unit was transmitting from the main antenna using a 10MHz channel with QPSK modulation and PUSC zone type.

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6.5 5MHz BW WiMAX Frequency Stability Measurements
§2.1055, §27.54; RSS-199 (4.3)

OPERATING FREQUENCY: 2,593,000,000 Hz

CHANNEL: MBS



REFERENCE VOLTAGE: 3.3 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.30	+ 20 (Ref)	2,593,000,009	9	0.000000
100 %		- 30	2,593,000,025	25	0.000001
100 %		- 20	2,593,000,018	18	0.000001
100 %		- 10	2,593,000,004	4	0.000000
100 %		0	2,593,000,028	28	0.000001
100 %		+ 10	2,592,999,984	-16	-0.000001
100 %		+ 20	2,592,999,990	-10	0.000000
100 %		+ 30	2,593,000,005	5	0.000000
100 %		+ 40	2,592,999,989	-11	0.000000
100 %		+ 50	2,593,000,030	30	0.000001
115 %	3.80	+ 20	2,592,999,991	-9	0.000000
85 %	2.81	+ 20	2,593,000,013	13	0.000001

Table 6-8. Frequency Stability Data (5MHz BW WiMAX Mode)

Note:

The frequency deviation was measured to ensure that the channels emissions remained within the authorized band with varying temperature and voltage.

FCC ID: NBZNRM-CC208		FCC Pt. 27 WiMAX MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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6.6 10MHz BW WiMAX Frequency Stability Measurements
§2.1055, §27.54; RSS-199 (4.3)



OPERATING FREQUENCY: 2,593,000,000 Hz
 CHANNEL: MBS
 REFERENCE VOLTAGE: 3.3 VDC

VOLTAGE (%)	POWER (VDC)	TEMP (°C)	FREQUENCY (Hz)	Freq. Dev. (Hz)	Deviation (%)
100 %	3.30	+ 20 (Ref)	2,593,000,008	8	0.000000
100 %		- 30	2,593,000,013	13	0.000001
100 %		- 20	2,593,000,019	19	0.000001
100 %		- 10	2,593,000,024	24	0.000001
100 %		0	2,593,000,017	17	0.000001
100 %		+ 10	2,593,000,006	6	0.000000
100 %		+ 20	2,592,999,980	-20	-0.000001
100 %		+ 30	2,592,999,989	-11	0.000000
100 %		+ 40	2,592,999,985	-15	-0.000001
100 %		+ 50	2,593,000,014	14	0.000001
115 %	3.80	+ 20	2,593,000,011	11	0.000000
BATT. ENDPOINT	2.81	+ 20	2,593,000,016	16	0.000001

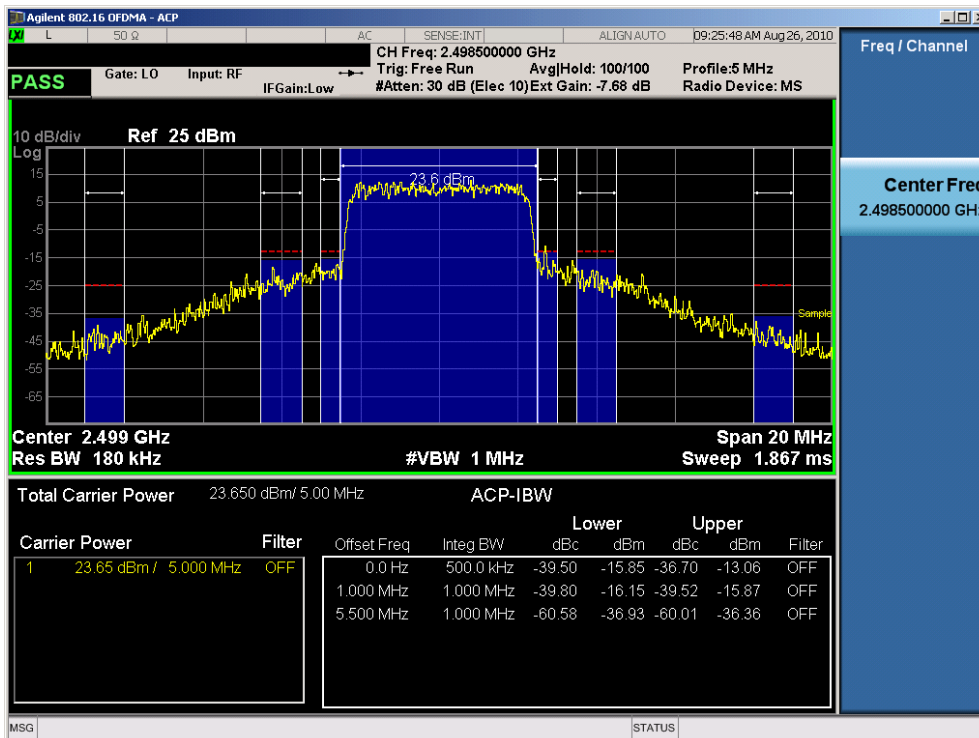
Table 6-9. Frequency Stability Data (10MHz BW WiMAX Mode)

Note:

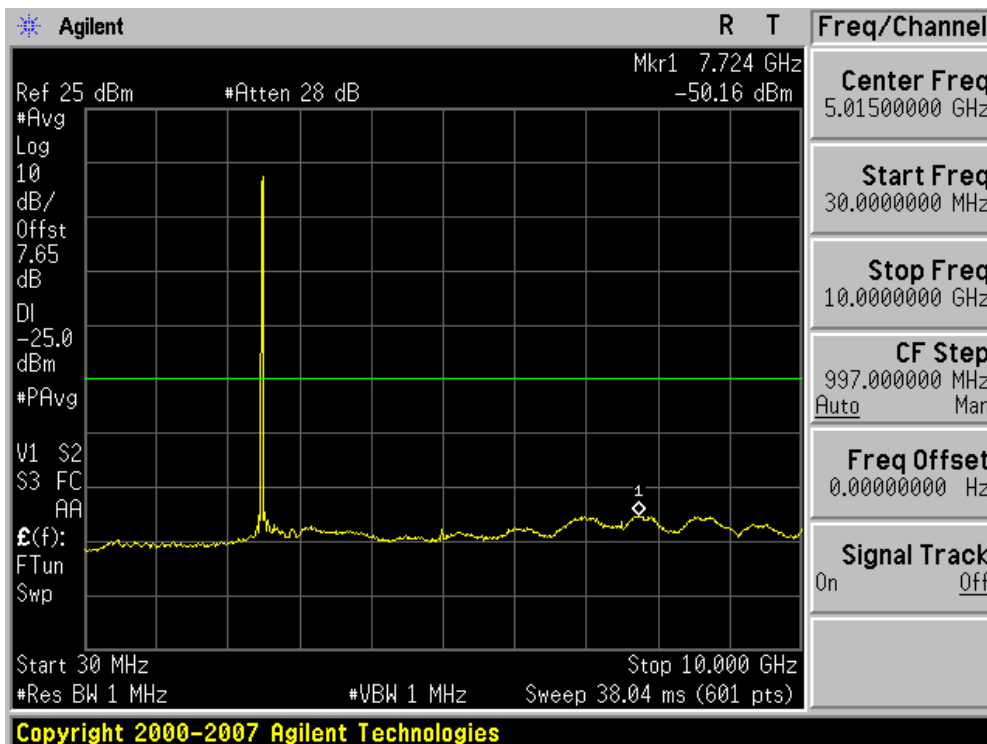
The frequency deviation was measured to ensure that the channels emissions remained within the authorized band with varying temperature and voltage.

FCC ID: NBZNRM-CC208		FCC Pt. 27 WiMAX MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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7.0 PLOT(S) OF EMISSIONS – 5MHZ BANDWIDTH

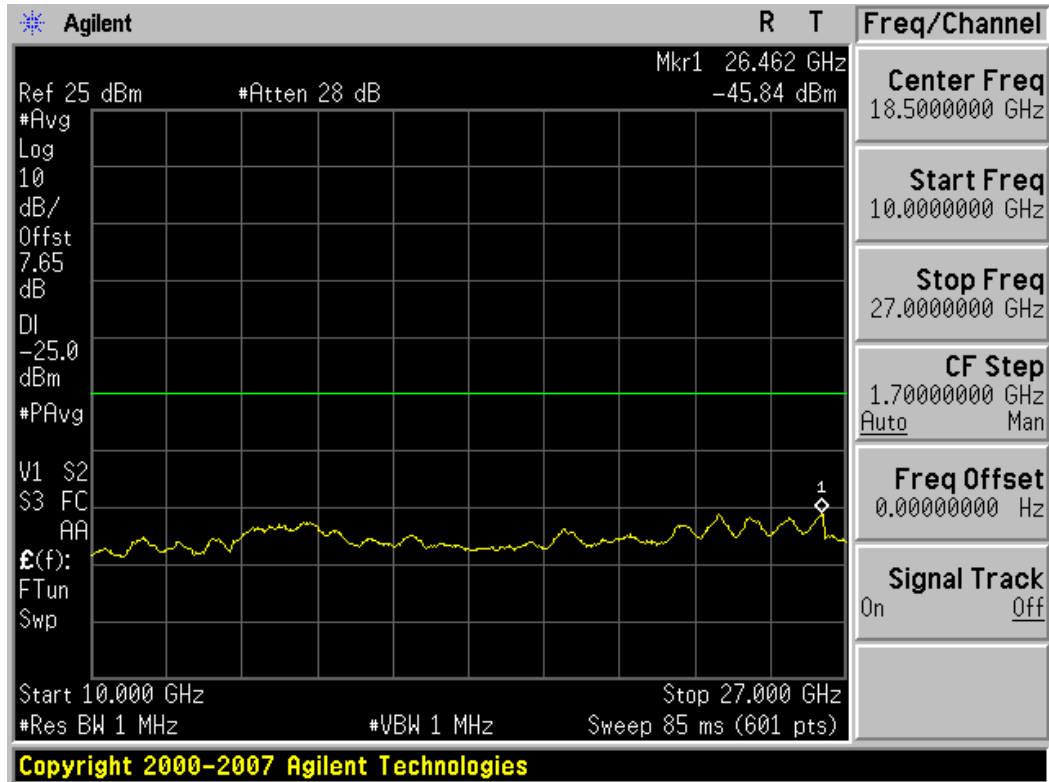


Plot 7-1. Emission Mask Plot (Low Ch., 5MHz BW, QPSK, Main Antenna)

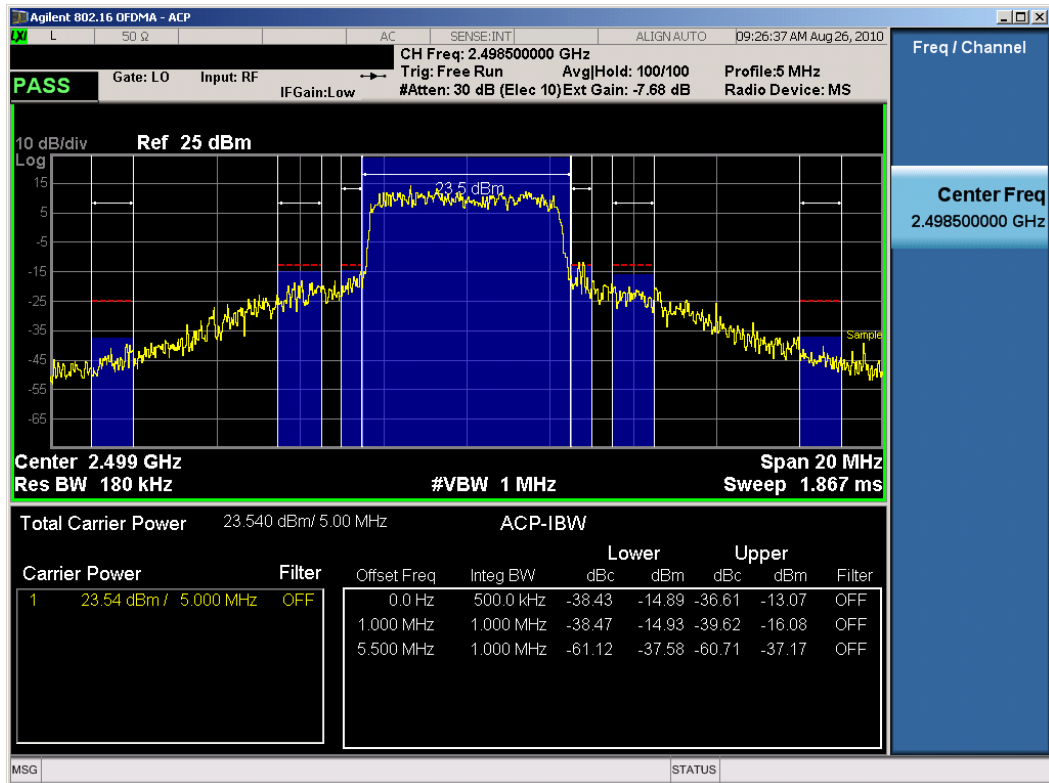


Plot 7-2. Conducted Spurious Plot (Low Ch., 5MHz BW, QPSK, Main Antenna)

FCC ID: NBZNRM-CC208		FCC Pt. 27 WiMAX MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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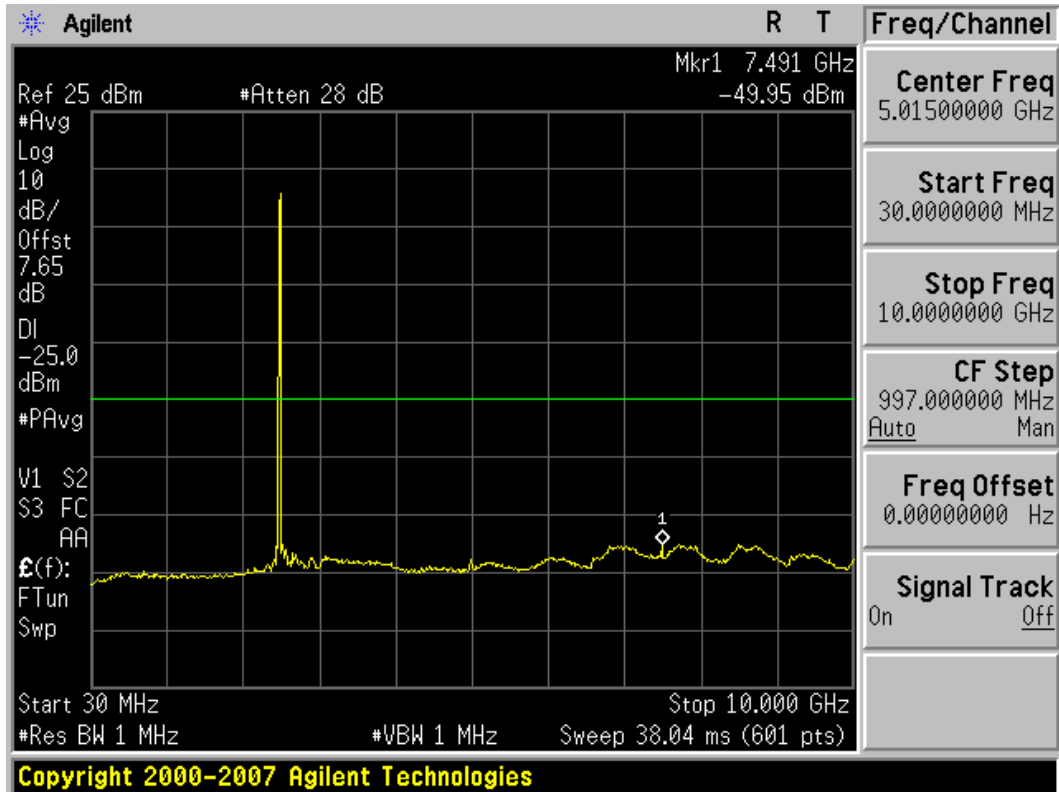


Plot 7-3. Conducted Spurious Plot (Low Ch., 5MHz BW, QPSK, Main Antenna)

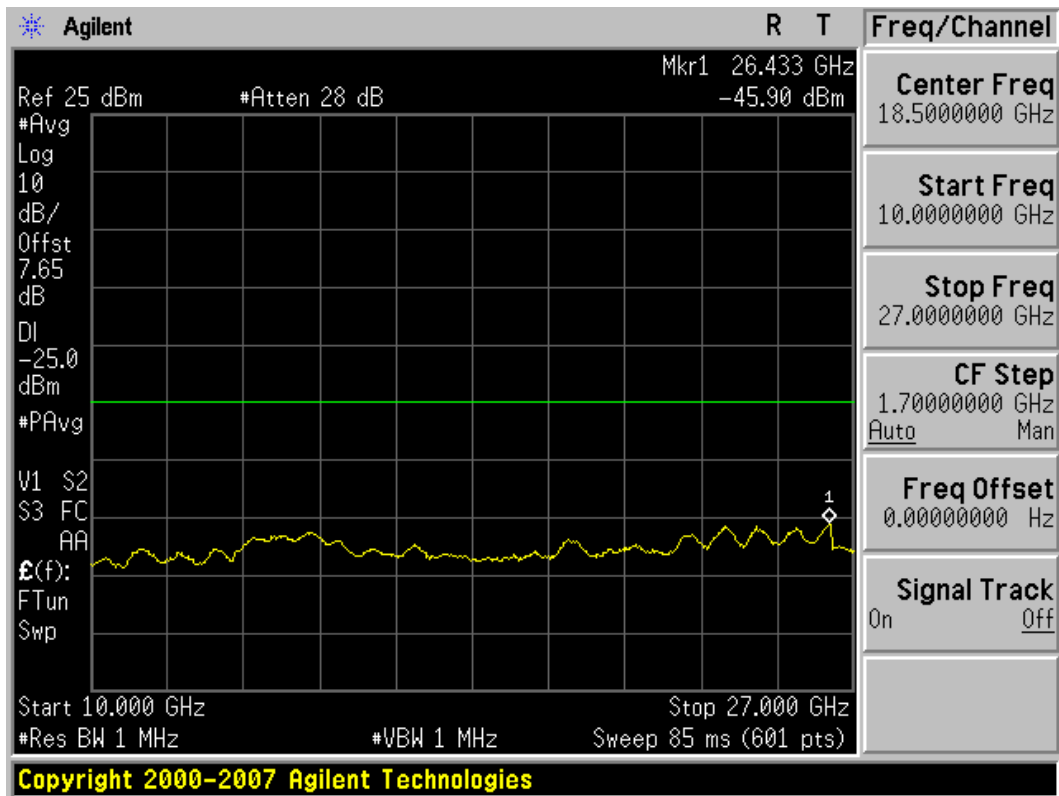


Plot 7-4. Emission Mask Plot (Low Ch., 5MHz BW, 16-QAM, Main Antenna)

FCC ID: NBZNRM-CC208		FCC Pt. 27 WiMAX MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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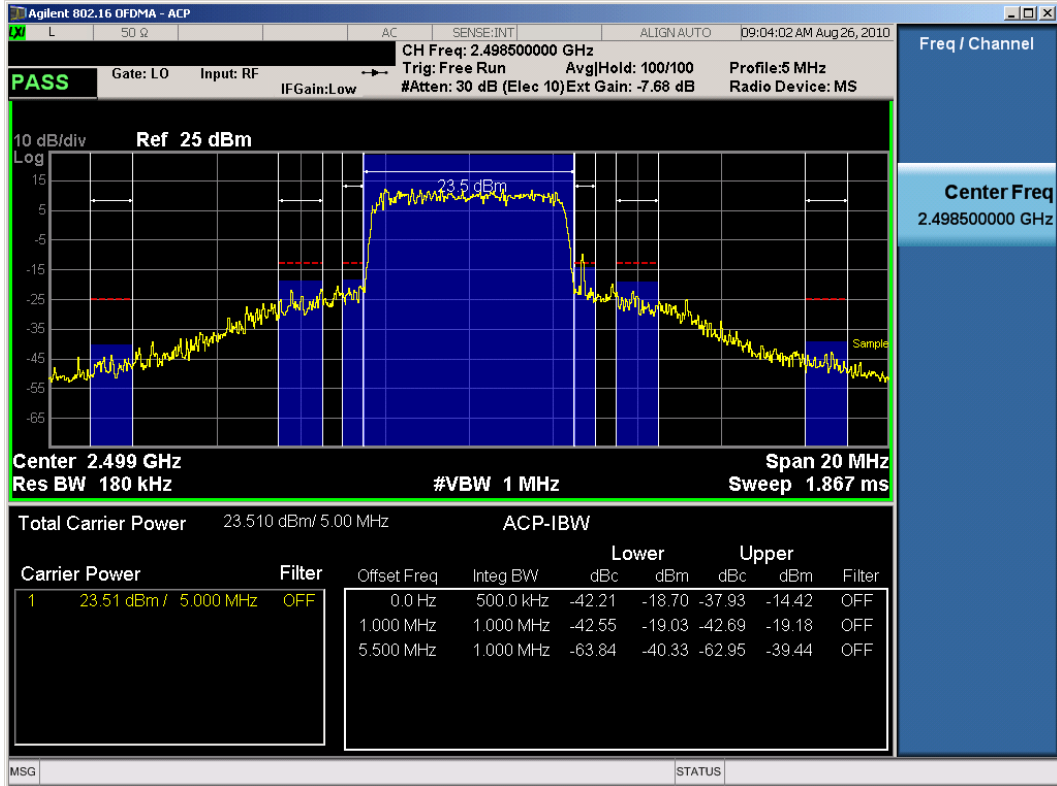


Plot 7-5. Conducted Spurious Plot (Low Ch., 5MHz BW, 16-QAM, Main Antenna)

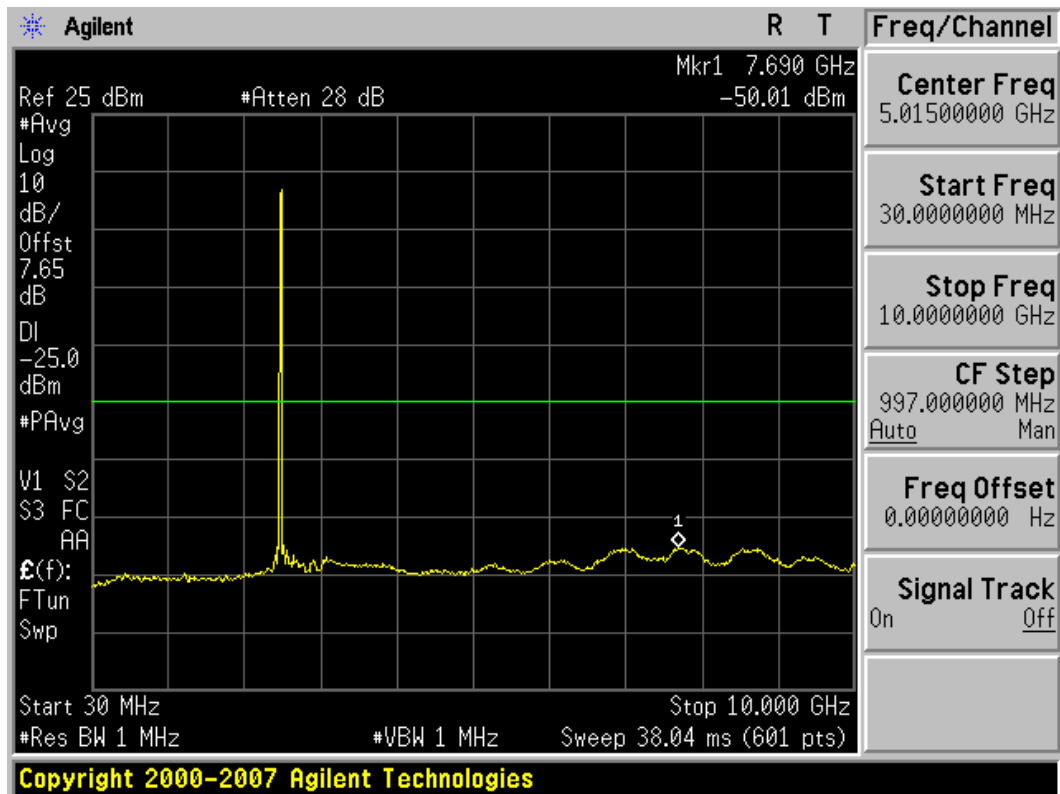


Plot 7-6. Conducted Spurious Plot (Low Ch., 5MHz BW, 16-QAM, Main Antenna)

FCC ID: NBZNRM-CC208		FCC Pt. 27 WiMAX MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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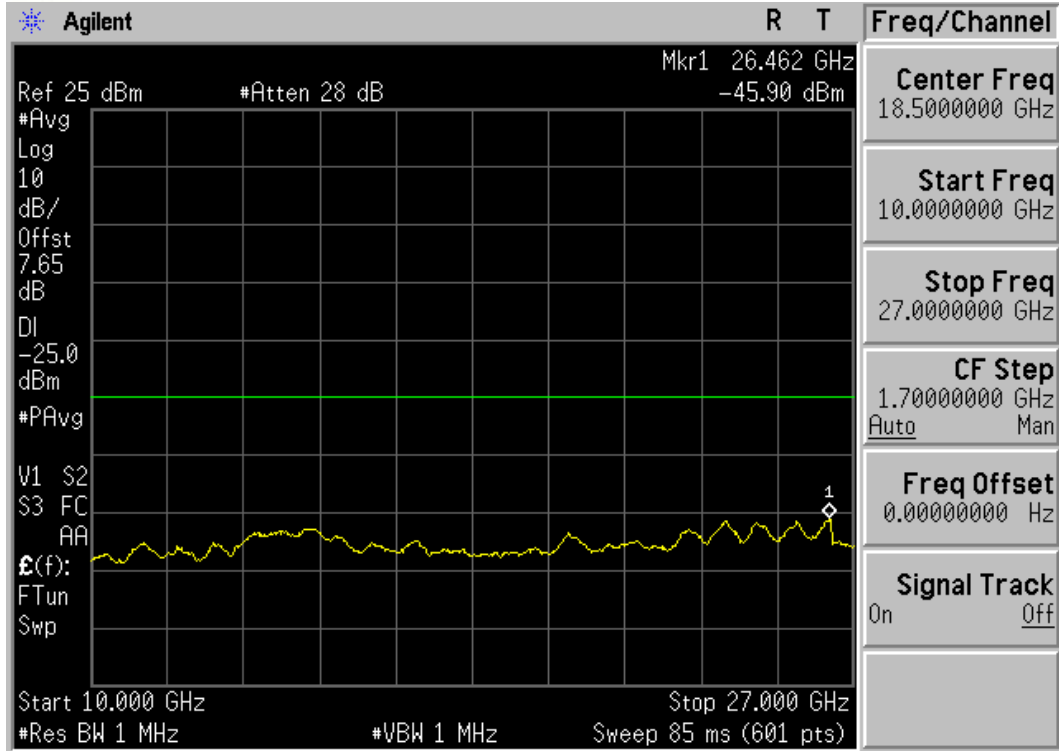


Plot 7-7. Emission Mask Plot (Low Ch., 5MHz BW, QPSK, Diversity Antenna)



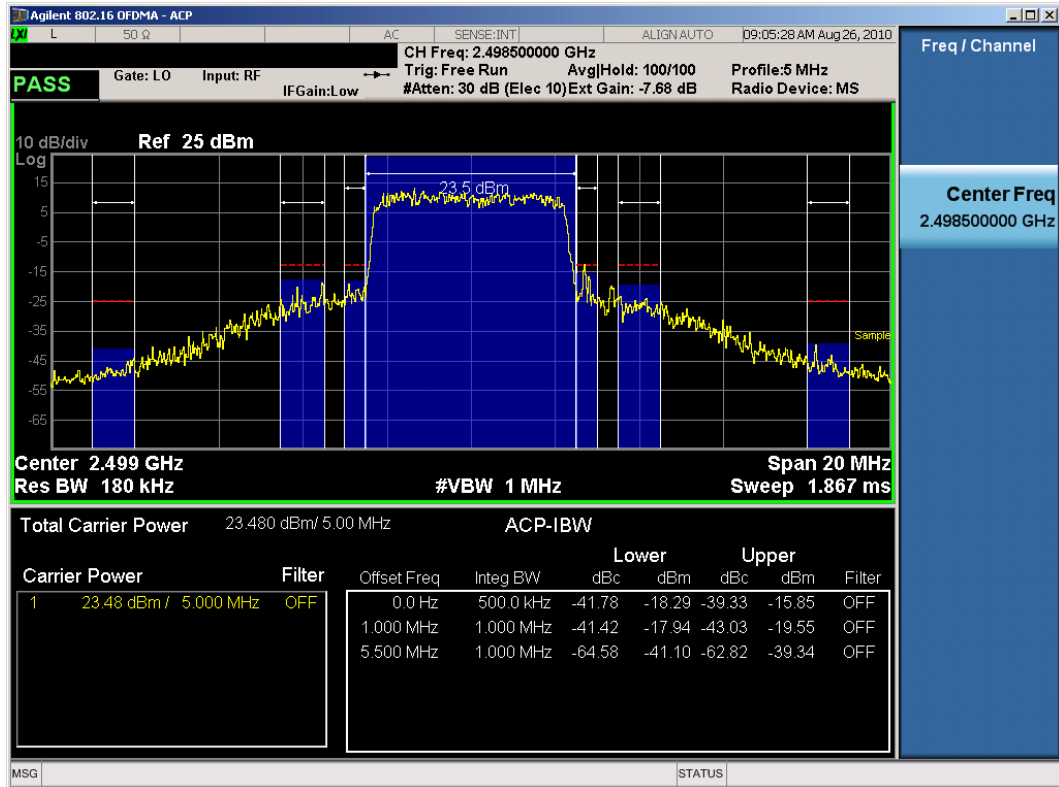
Plot 7-8. Conducted Spurious Plot (Low Ch., 5MHz BW, QPSK, Diversity Antenna)

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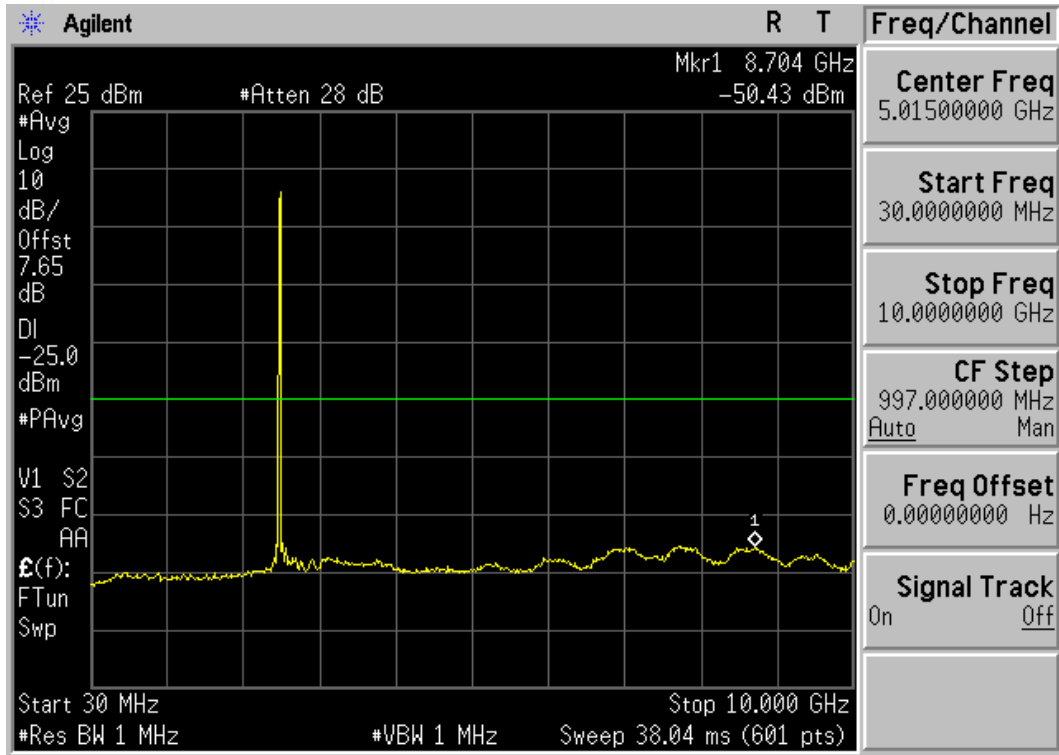
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Plot 7-9. Conducted Spurious Plot (Low Ch., 5MHz BW, QPSK, Diversity Antenna)



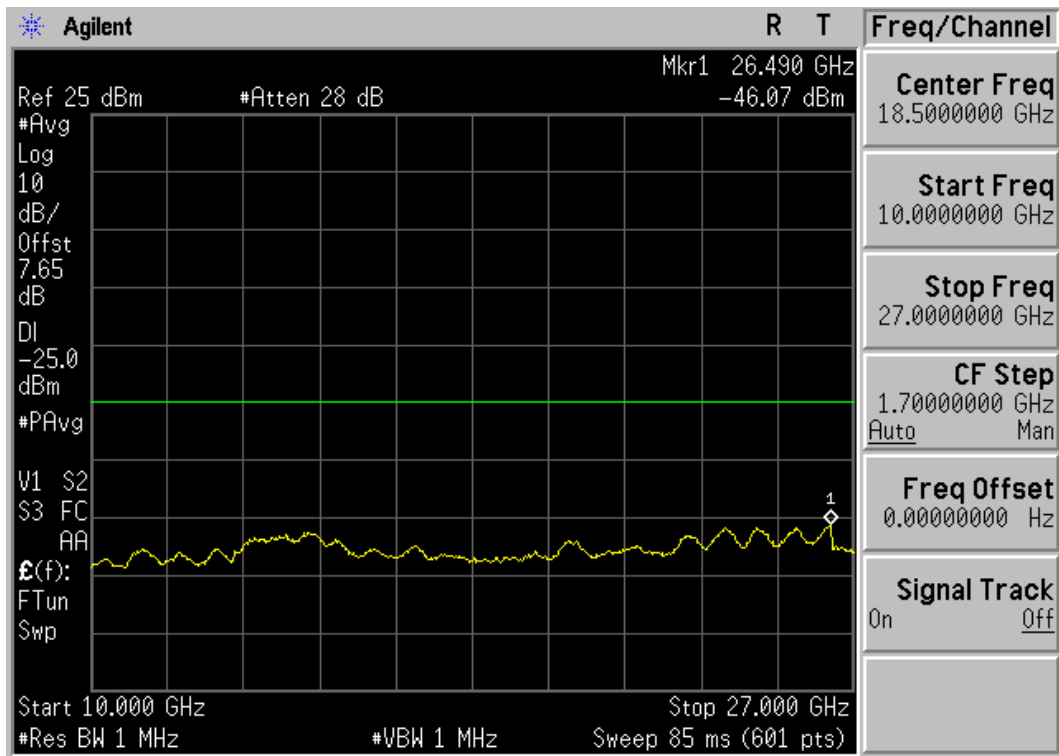
Plot 7-10. Emission Mask Plot (Low Ch., 5MHz BW, 16-QAM, Diversity Antenna)

FCC ID: NBZNRM-CC208		FCC Pt. 27 WiMAX MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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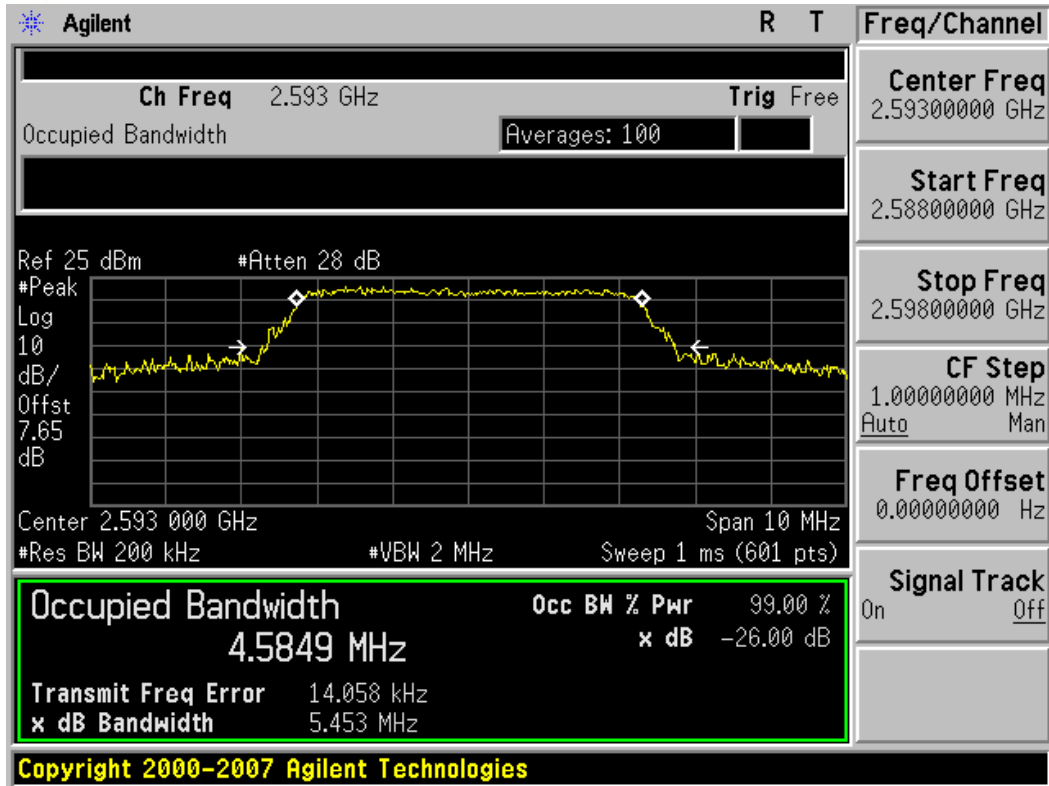
Plot 7-11. Conducted Spurious Plot (Low Ch., 5MHz BW, 16-QAM, Diversity Antenna)



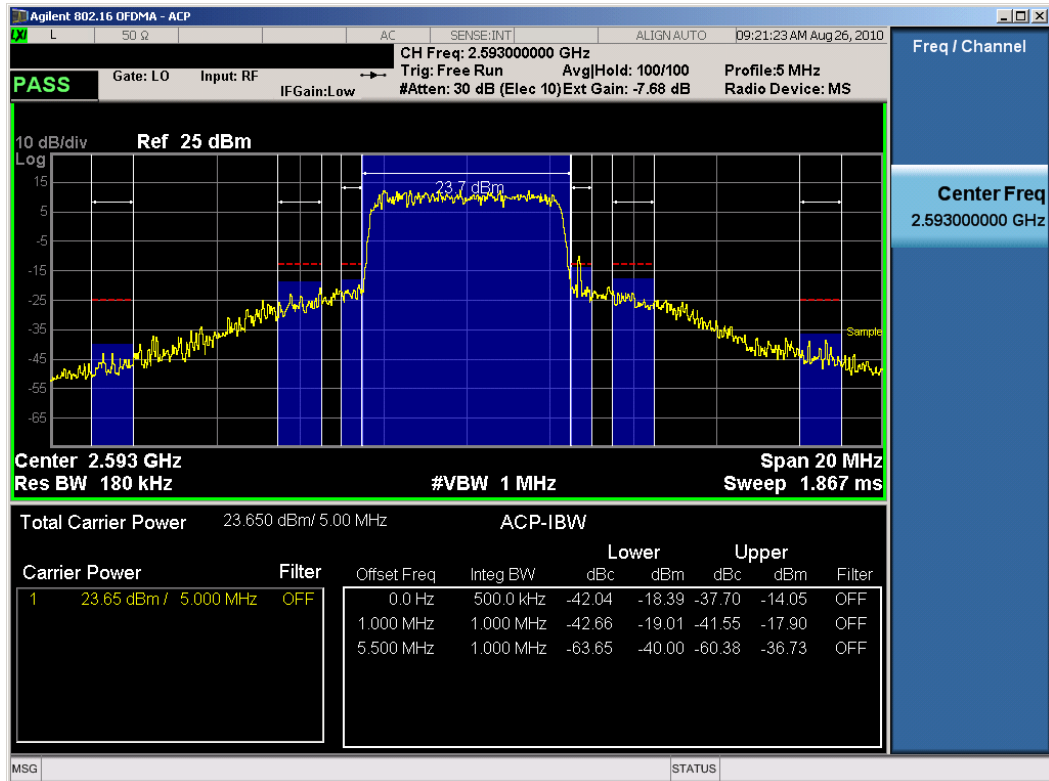
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Plot 7-12. Conducted Spurious Plot (Low Ch., 5MHz BW, 16-QAM, Diversity Antenna)

FCC ID: NBZNRM-CC208		FCC Pt. 27 WiMAX MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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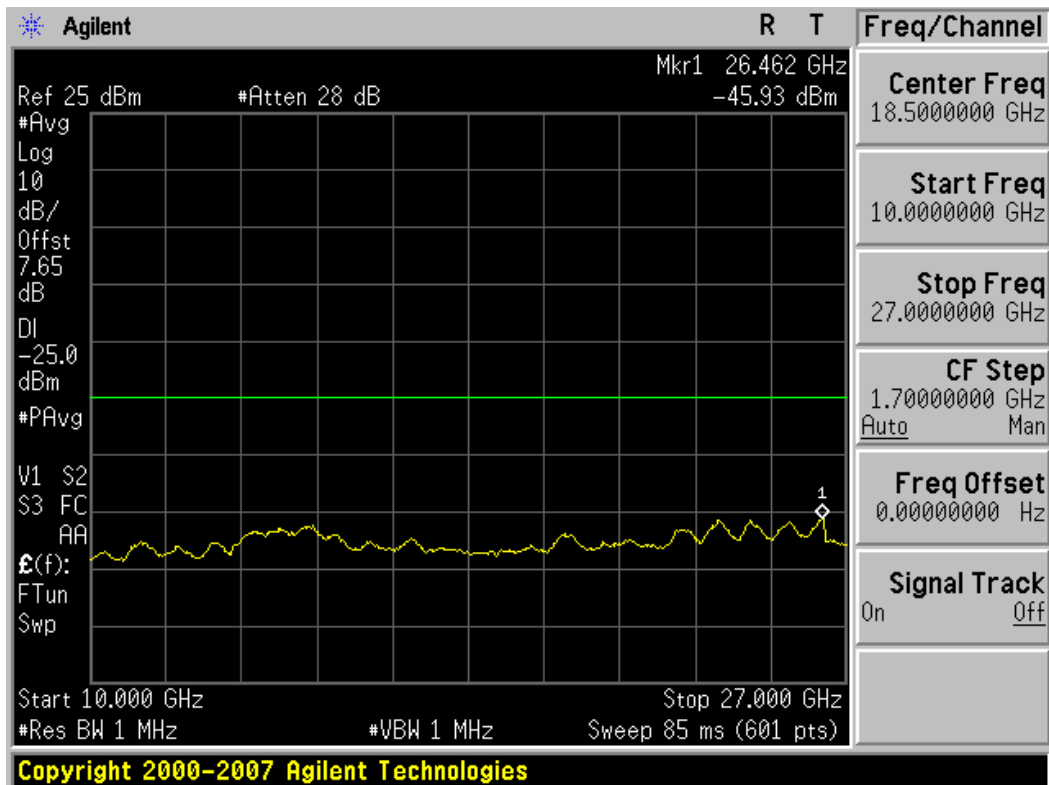
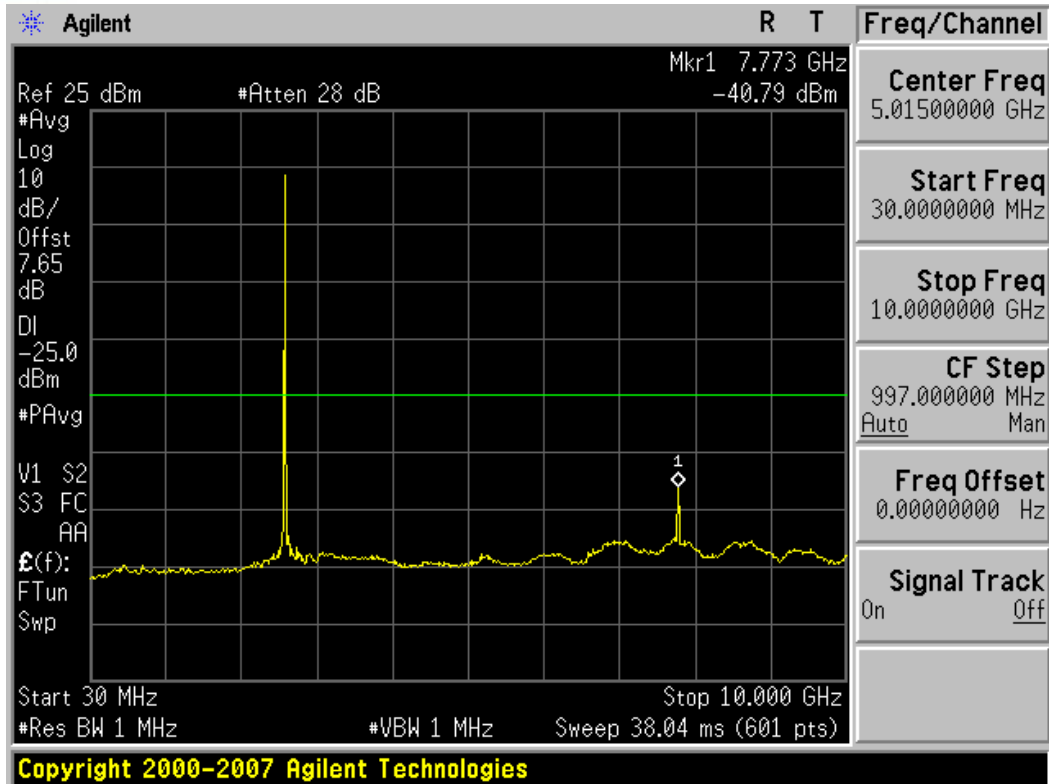


Plot 7-13. Occupied Bandwidth Plot (Mid Ch., 5MHz BW, QPSK, Main Antenna)

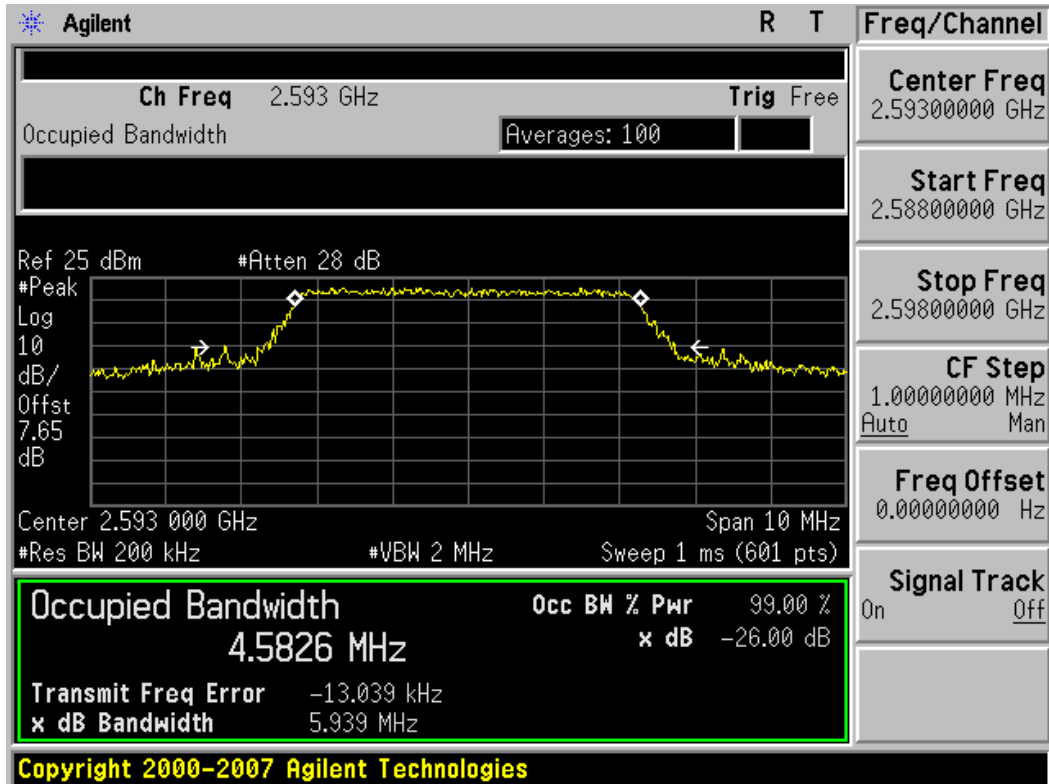


Plot 7-14. Emission Mask Plot (Mid Ch., 5MHz BW, QPSK, Main Antenna)

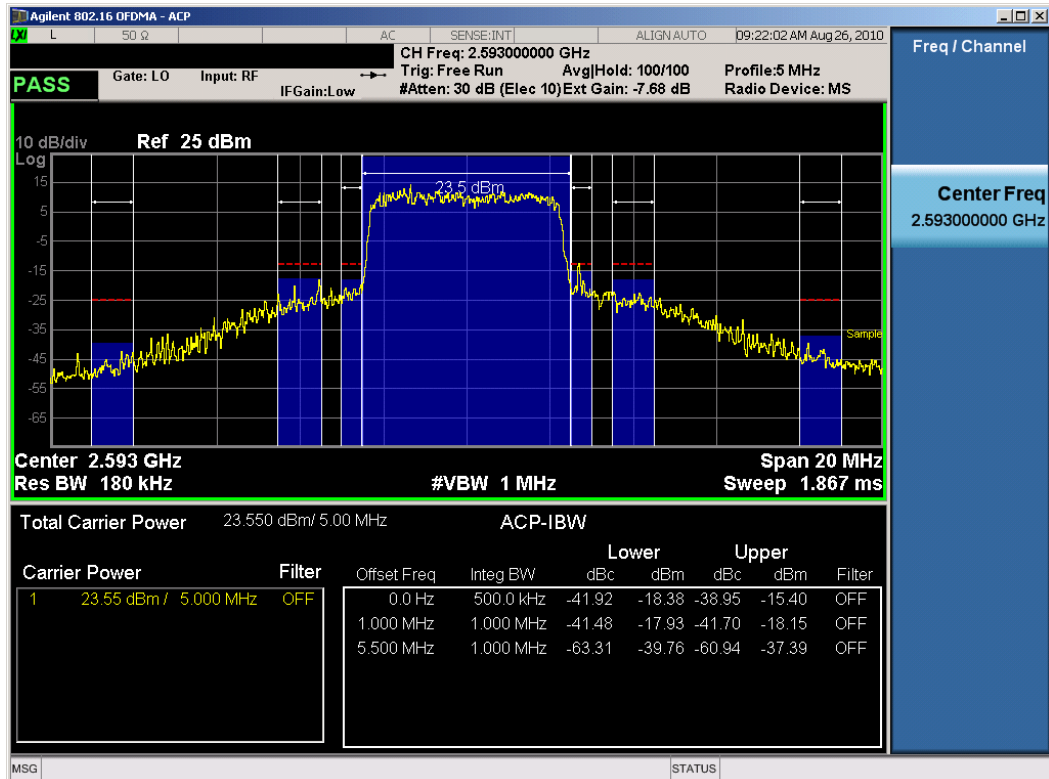
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Test Report S/N: 0Y1008161369.PKR	Test Dates: August 18 - 26, 2010, June 2011	EUT Type: Cellular/PCS CDMA/EvDO and WiMAX PC Card/Express Card Transceiver		Page 24 of 58



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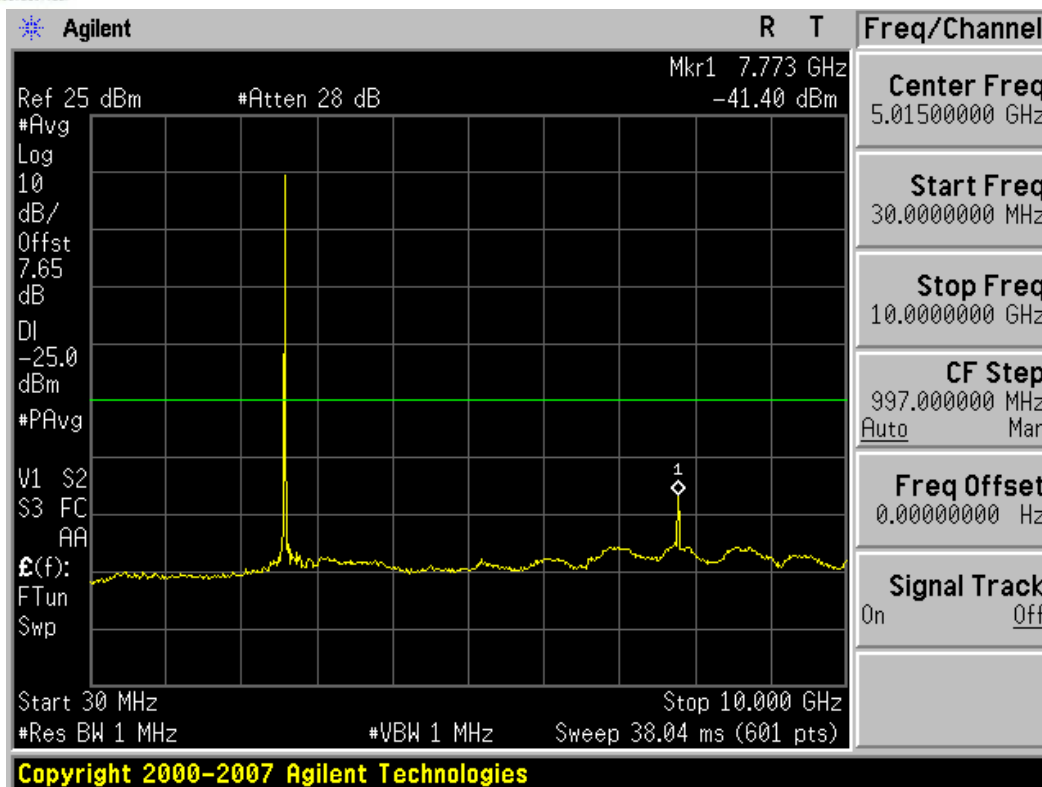


Plot 7-17. Occupied Bandwidth Plot (Mid Ch., 5MHz BW, 16-QAM, Main Antenna)

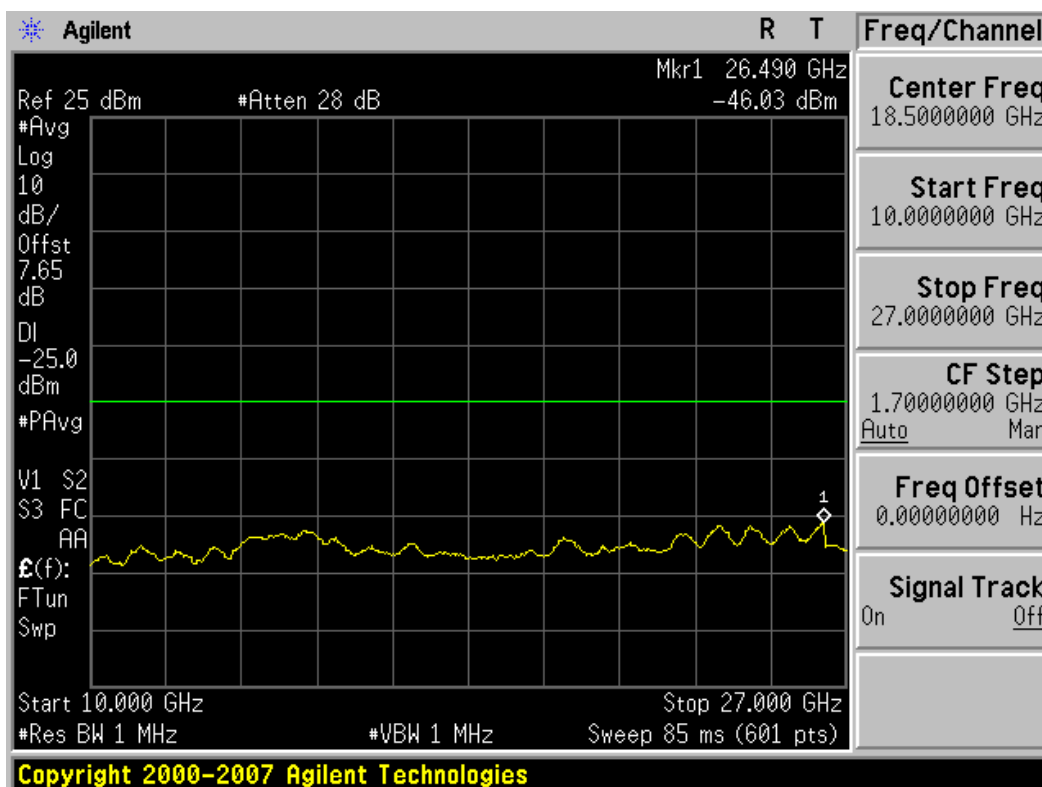


Plot 7-18. Emission Mask Plot (Mid Ch., 5MHz BW, 16-QAM, Main Antenna)

FCC ID: NBZNRM-CC208		FCC Pt. 27 WiMAX MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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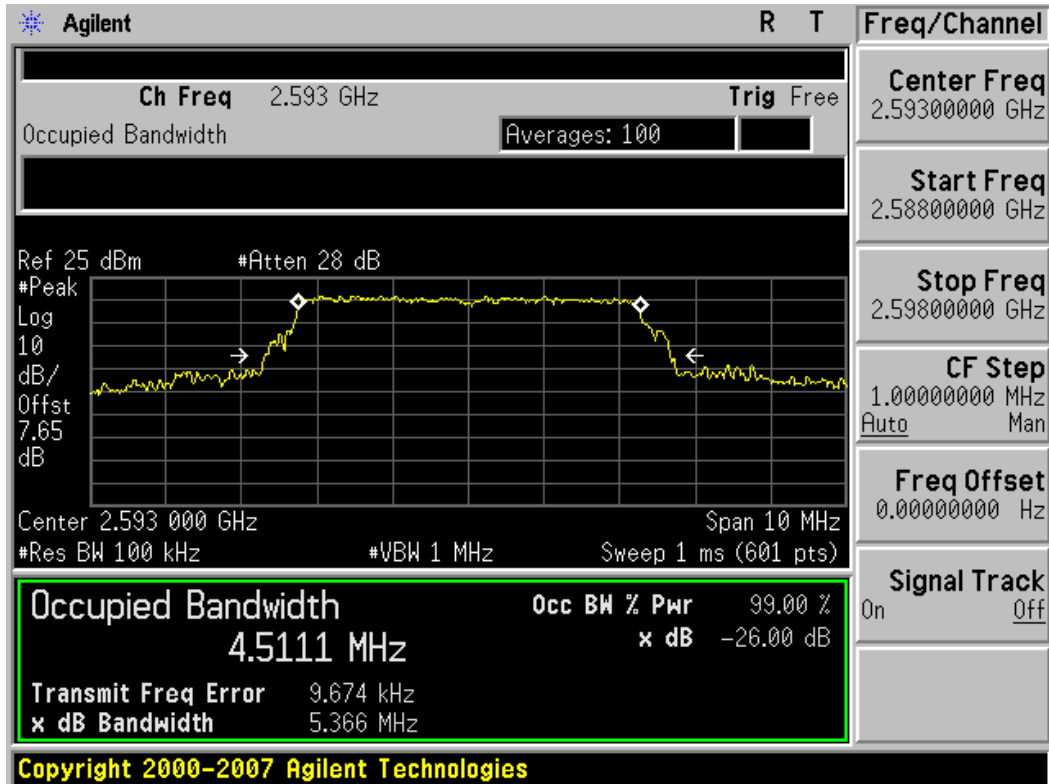


Plot 7-19. Conducted Spurious Plot (Mid Ch., 5MHz BW, 16-QAM, Main Antenna)

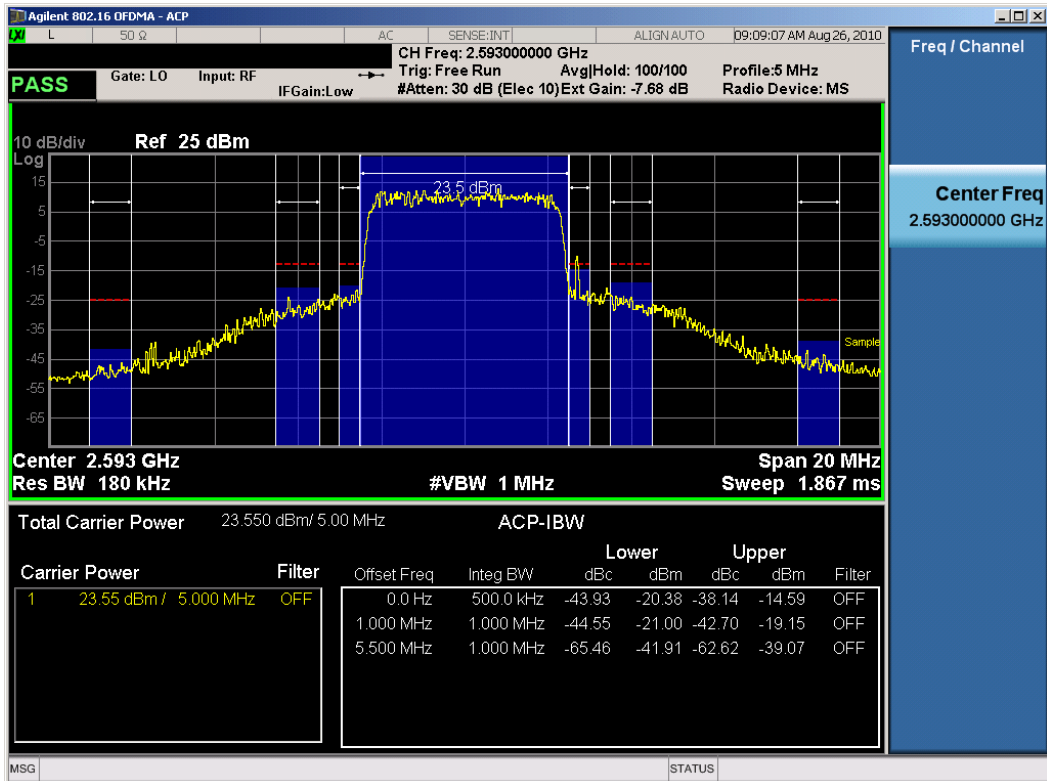


Plot 7-20. Conducted Spurious Plot (Mid Ch., 5MHz BW, 16-QAM, Main Antenna)

FCC ID: NBZNRM-CC208		FCC Pt. 27 WiMAX MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1008161369.PKR	Test Dates: August 18 - 26, 2010, June 2011	EUT Type: Cellular/PCS CDMA/EvDO and WiMAX PC Card/Express Card Transceiver		Page 27 of 58

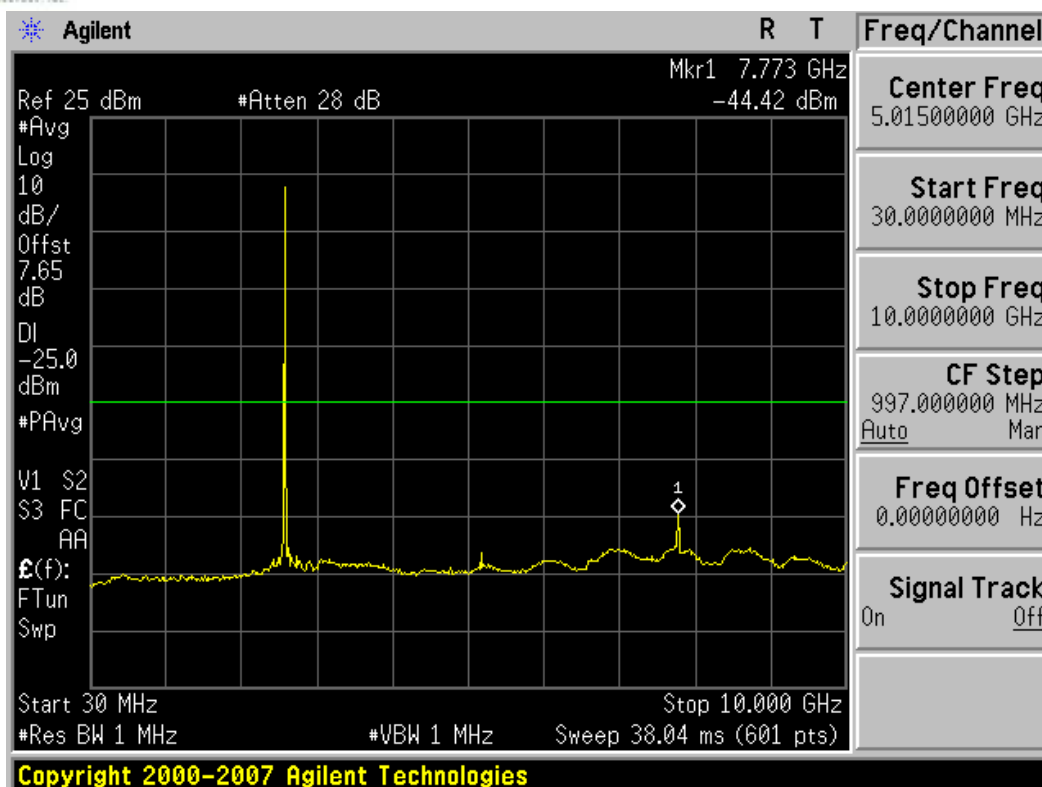


Plot 7-21. Occupied Bandwidth Plot (Mid Ch., 5MHz BW, QPSK, Diversity Antenna)

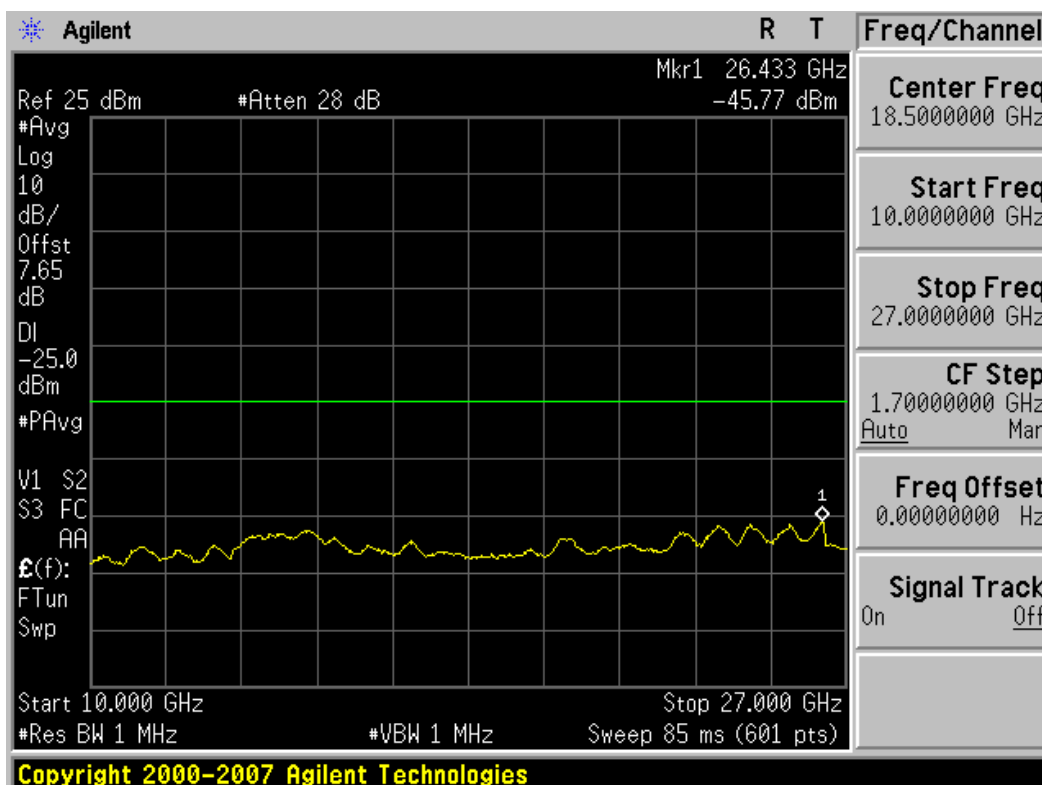


Plot 7-22. Emission Mask Plot (Mid Ch., 5MHz BW, QPSK, Diversity Antenna)

FCC ID: NBZNRM-CC208		FCC Pt. 27 WiMAX MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1008161369.PKR	Test Dates: August 18 - 26, 2010, June 2011	EUT Type: Cellular/PCS CDMA/EvDO and WiMAX PC Card/Express Card Transceiver		Page 28 of 58

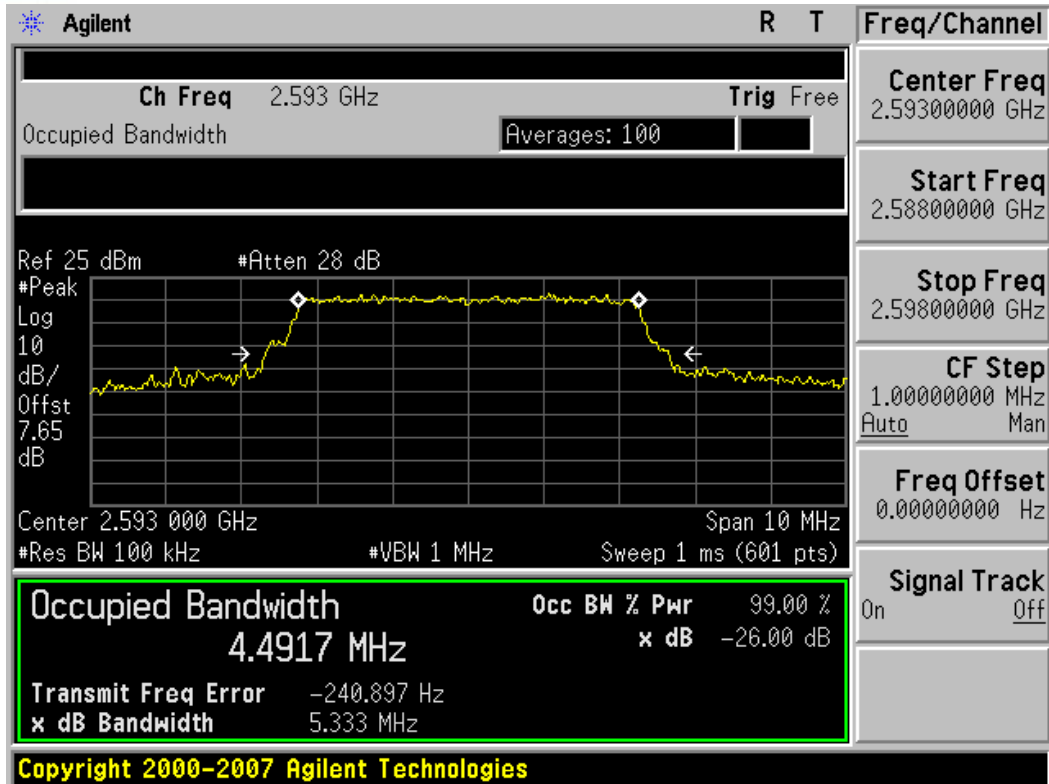


Plot 7-23. Conducted Spurious Plot (Mid Ch., 5MHz BW, QPSK, Diversity Antenna)

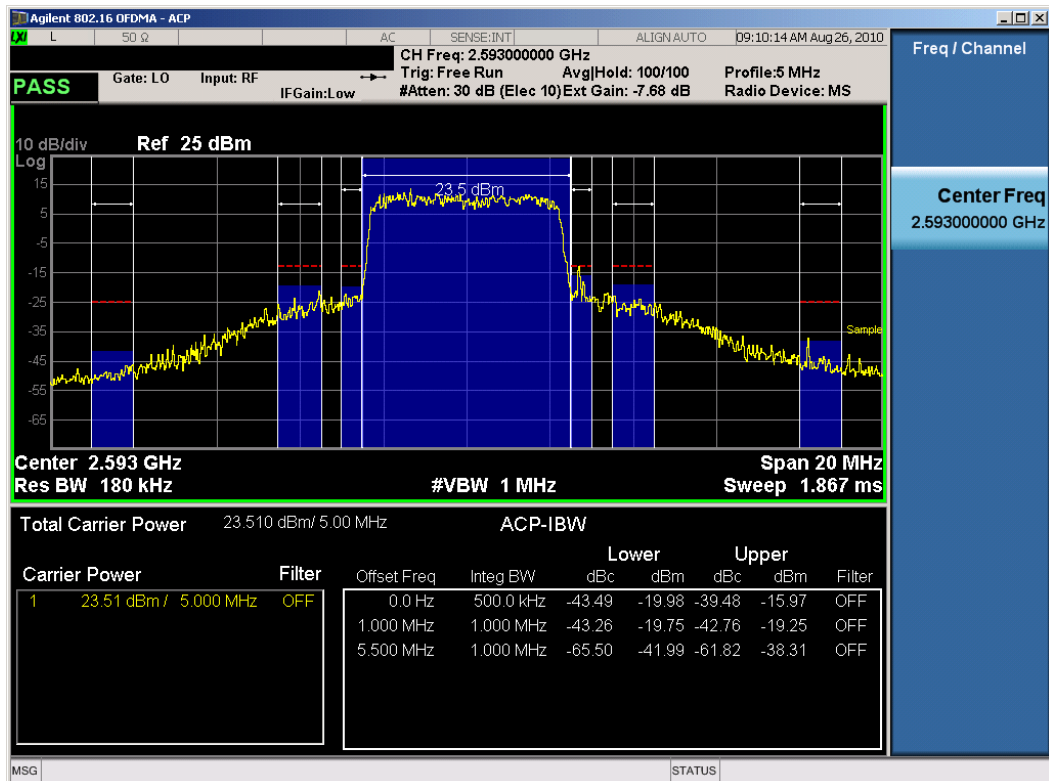


Plot 7-24. Conducted Spurious Plot (Mid Ch., 5MHz BW, QPSK, Diversity Antenna)

FCC ID: NBZNRM-CC208		FCC Pt. 27 WiMAX MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1008161369.PKR	Test Dates: August 18 - 26, 2010, June 2011	EUT Type: Cellular/PCS CDMA/EvDO and WiMAX PC Card/Express Card Transceiver		Page 29 of 58

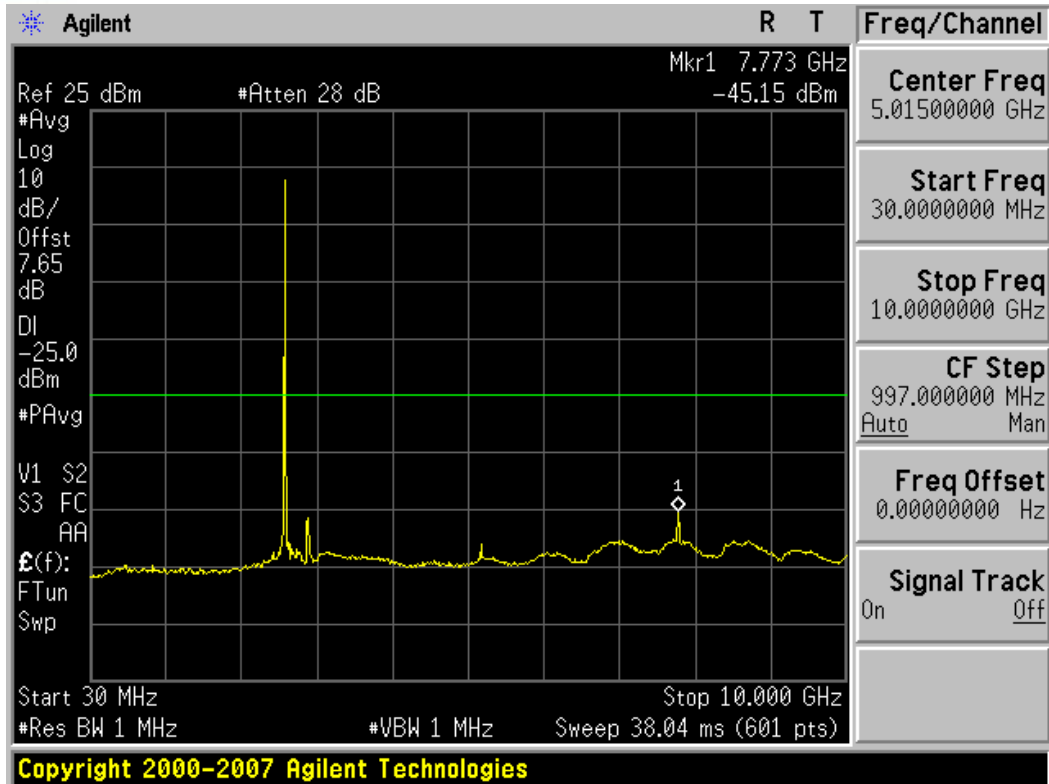


Plot 7-25. Occupied Bandwidth Plot (Mid Ch., 5MHz BW, 16-QAM, Diversity Antenna)

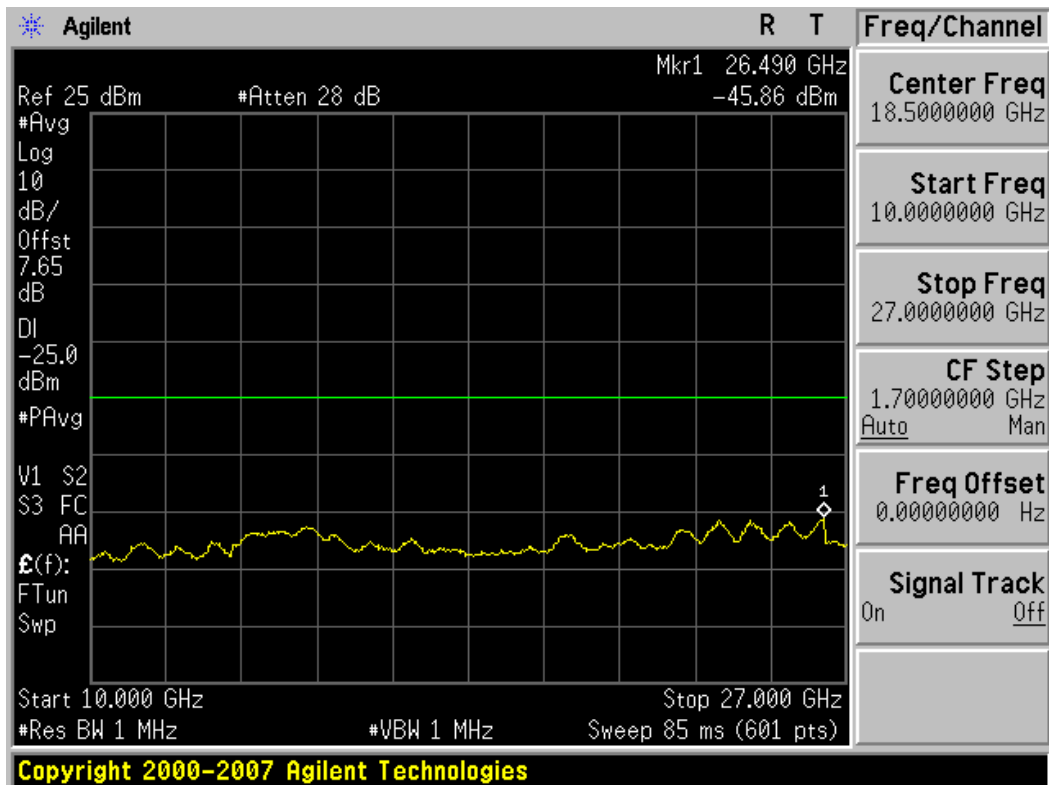


Plot 7-26. Emission Mask Plot (Mid Ch., 5MHz BW, 16-QAM, Diversity Antenna)

FCC ID: NBZNRM-CC208		FCC Pt. 27 WiMAX MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1008161369.PKR	Test Dates: August 18 - 26, 2010, June 2011	EUT Type: Cellular/PCS CDMA/EvDO and WiMAX PC Card/Express Card Transceiver		Page 30 of 58

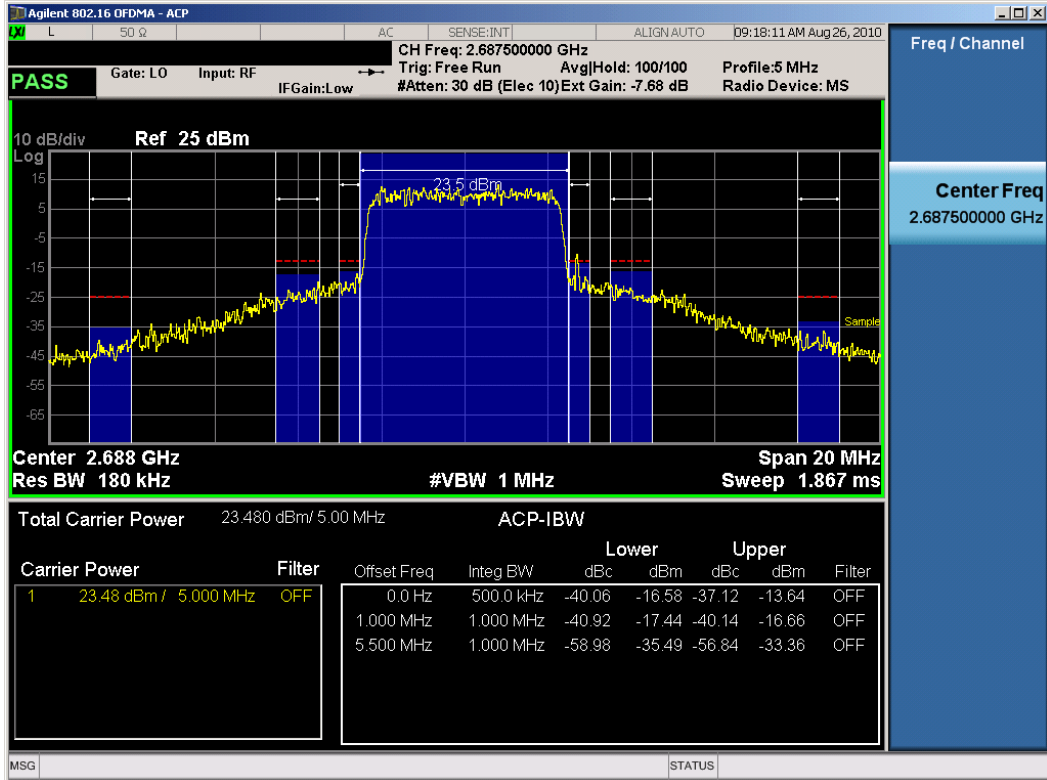


Plot 7-27. Conducted Spurious Plot (Mid Ch., 5MHz BW, 16-QAM, Diversity Antenna)

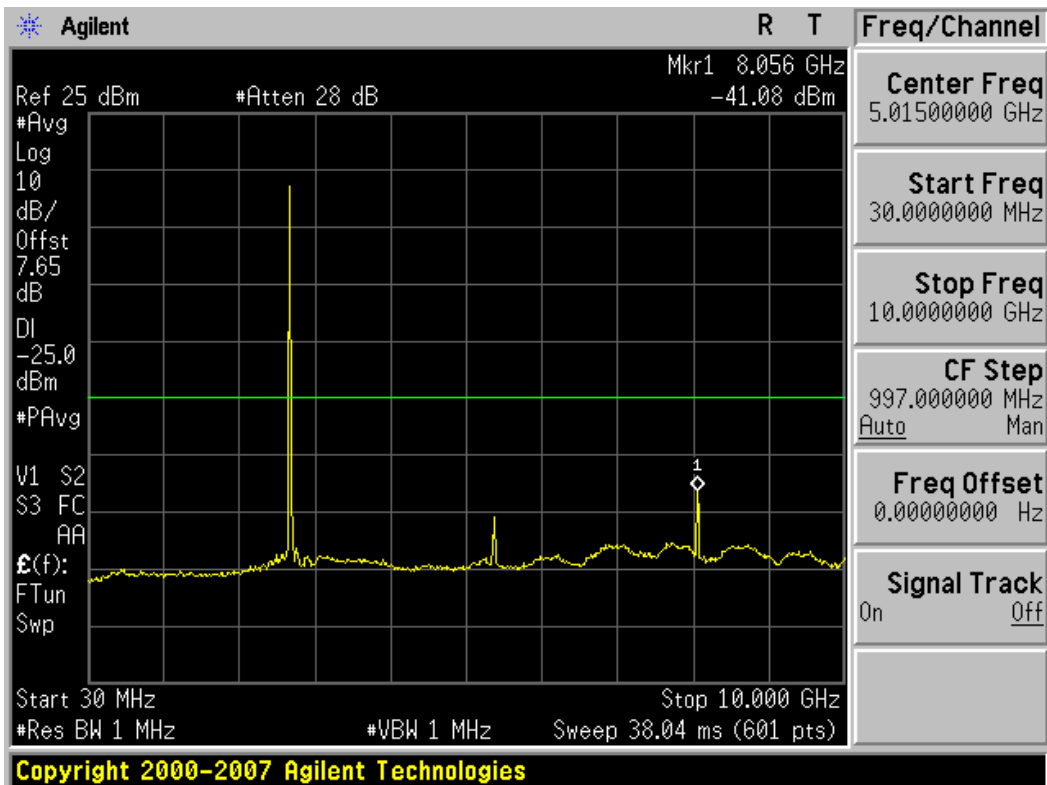


Plot 7-28. Conducted Spurious Plot (Mid Ch., 5MHz BW, 16-QAM, Diversity Antenna)

FCC ID: NBZNRM-CC208		FCC Pt. 27 WiMAX MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1008161369.PKR	Test Dates: August 18 - 26, 2010, June 2011	EUT Type: Cellular/PCS CDMA/EvDO and WiMAX PC Card/Express Card Transceiver		Page 31 of 58

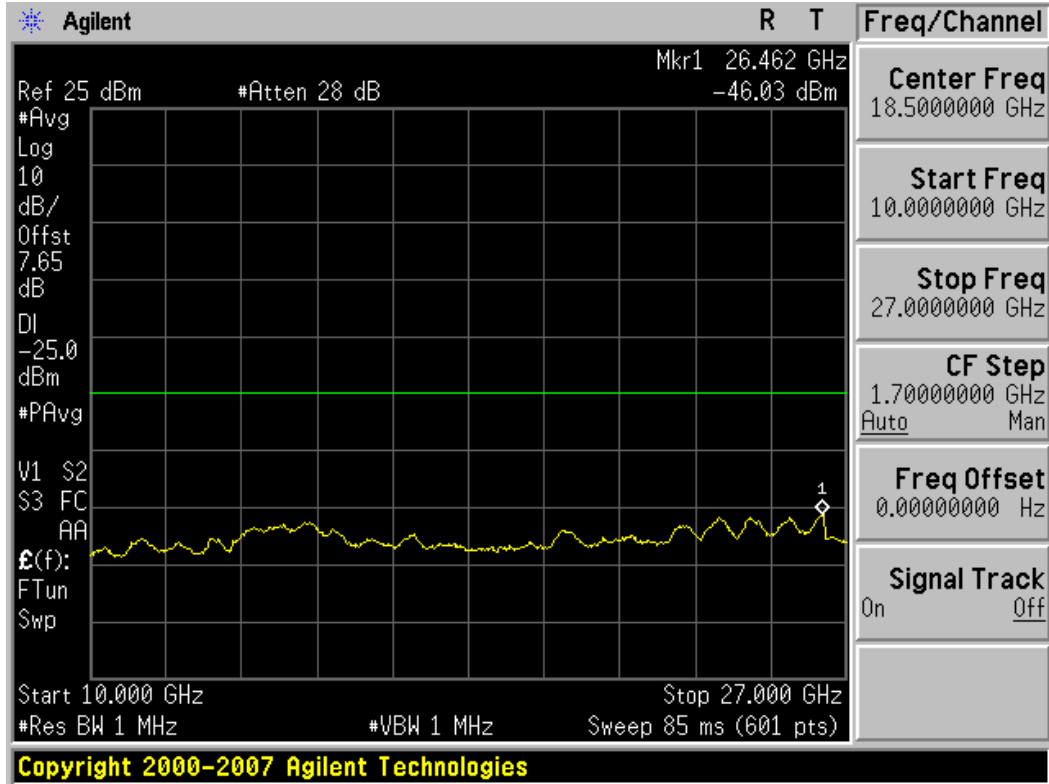


Plot 7-29. Emission Mask Plot (High Ch., 5MHz BW, QPSK, Main Antenna)

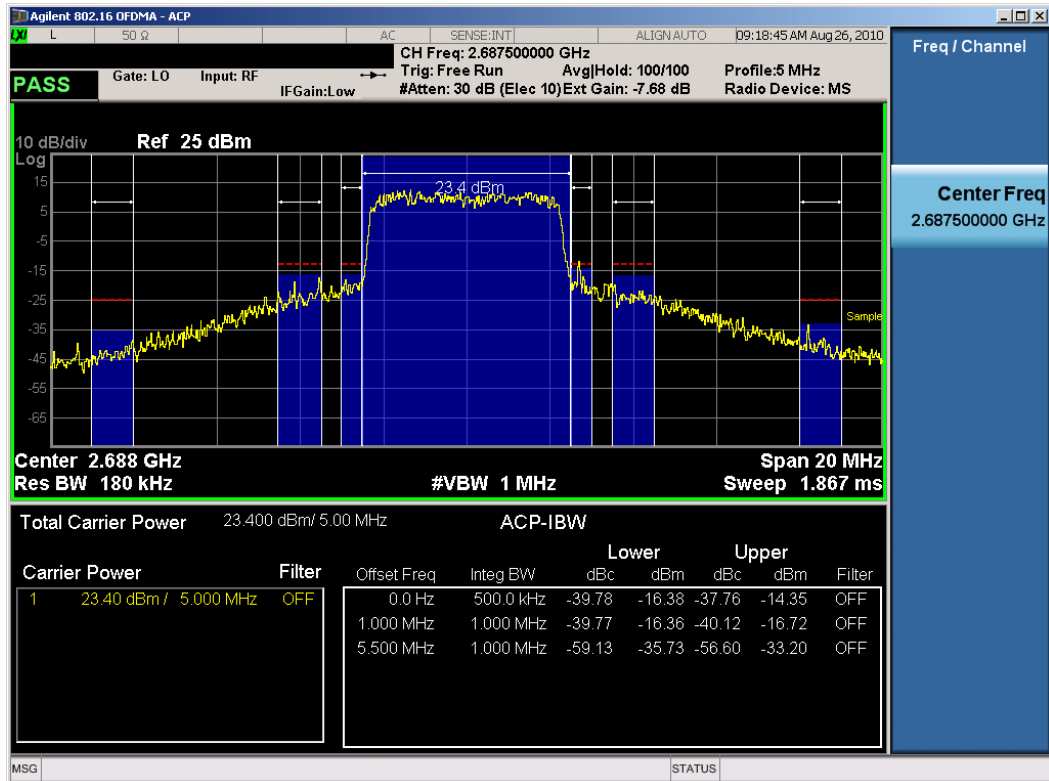


Plot 7-30. Conducted Spurious Plot (High Ch., 5MHz BW, QPSK, Main Antenna)

FCC ID: NBZNRM-CC208		FCC Pt. 27 WiMAX MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1008161369.PKR	Test Dates: August 18 - 26, 2010, June 2011	EUT Type: Cellular/PCS CDMA/EvDO and WiMAX PC Card/Express Card Transceiver		Page 32 of 58

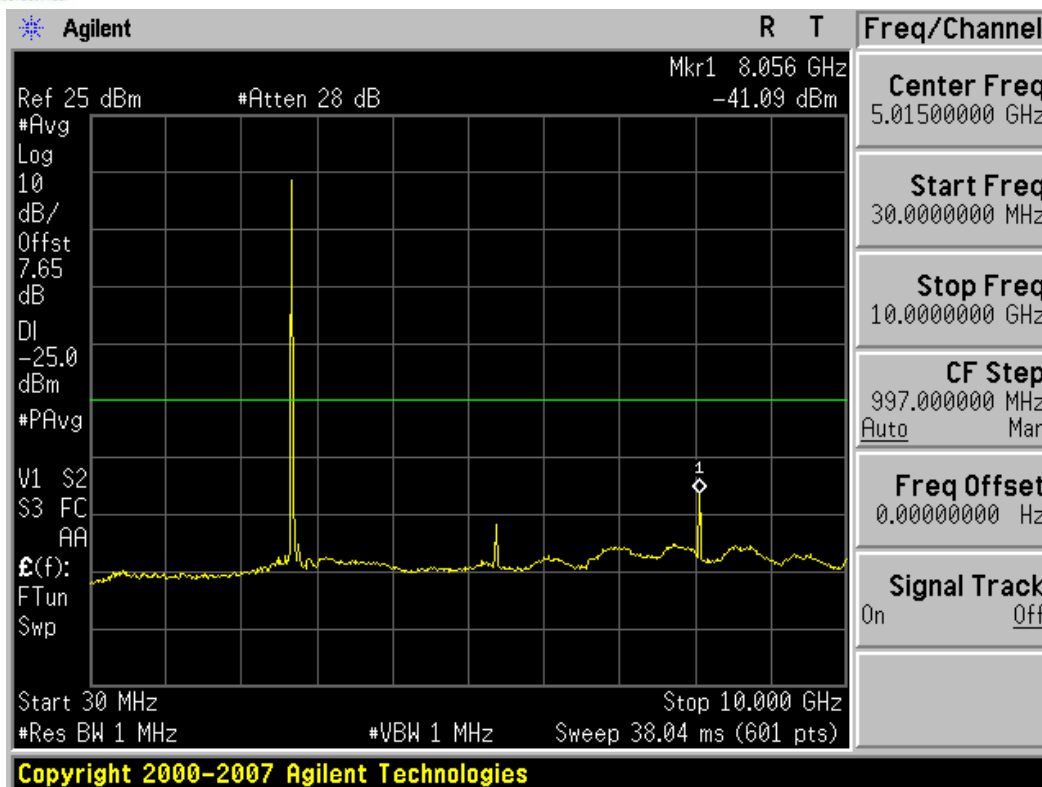


Plot 7-31. Conducted Spurious Plot (High Ch., 5MHz BW, QPSK, Main Antenna)

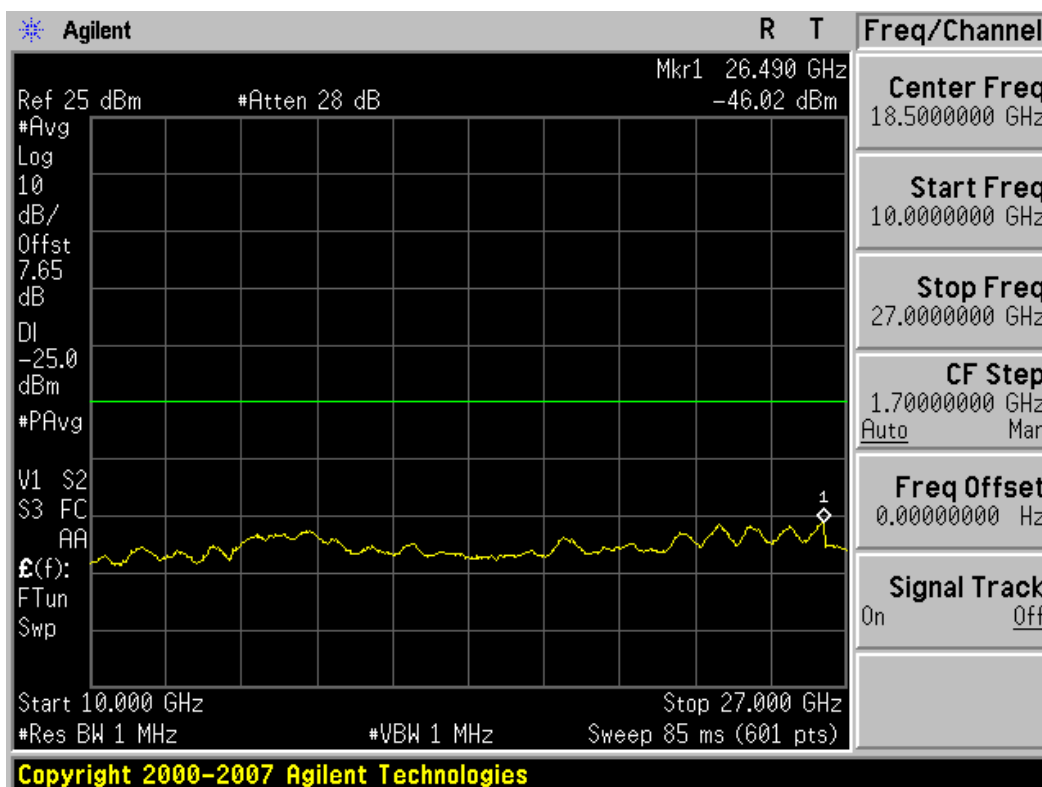


Plot 7-32. Emission Mask Plot (High Ch., 5MHz BW, 16-QAM, Main Antenna)

FCC ID: NBZNRM-CC208		FCC Pt. 27 WiMAX MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1008161369.PKR	Test Dates: August 18 - 26, 2010, June 2011	EUT Type: Cellular/PCS CDMA/EvDO and WiMAX PC Card/Express Card Transceiver		Page 33 of 58

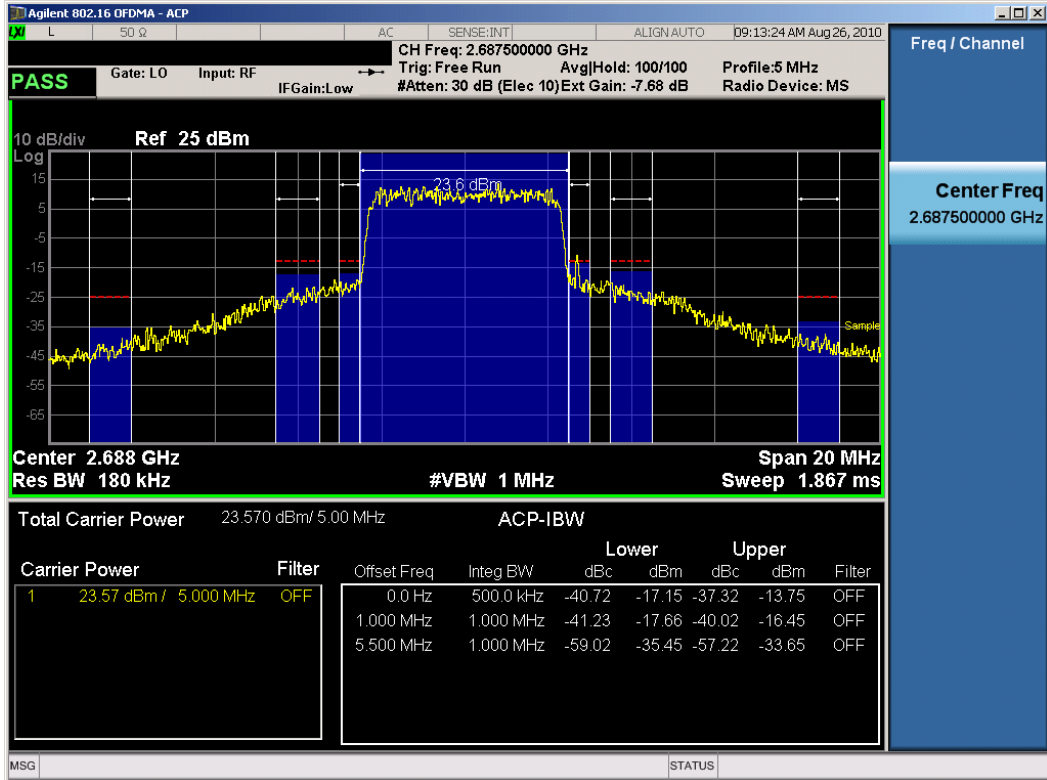


Plot 7-33. Conducted Spurious Plot (High Ch., 5MHz BW, 16-QAM, Main Antenna)

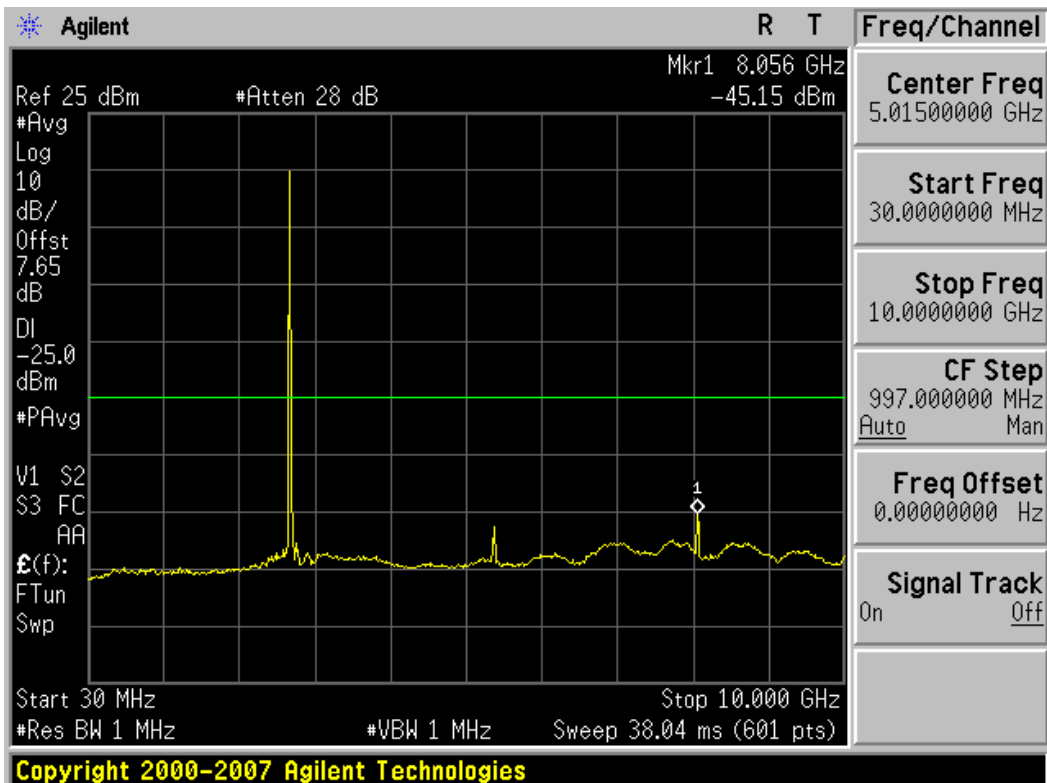


Plot 7-34. Conducted Spurious Plot (High Ch., 5MHz BW, 16-QAM, Main Antenna)

FCC ID: NBZNRM-CC208		FCC Pt. 27 WIMAX MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1008161369.PKR	Test Dates: August 18 - 26, 2010, June 2011	EUT Type: Cellular/PCS CDMA/EvDO and WIMAX PC Card/Express Card Transceiver		Page 34 of 58

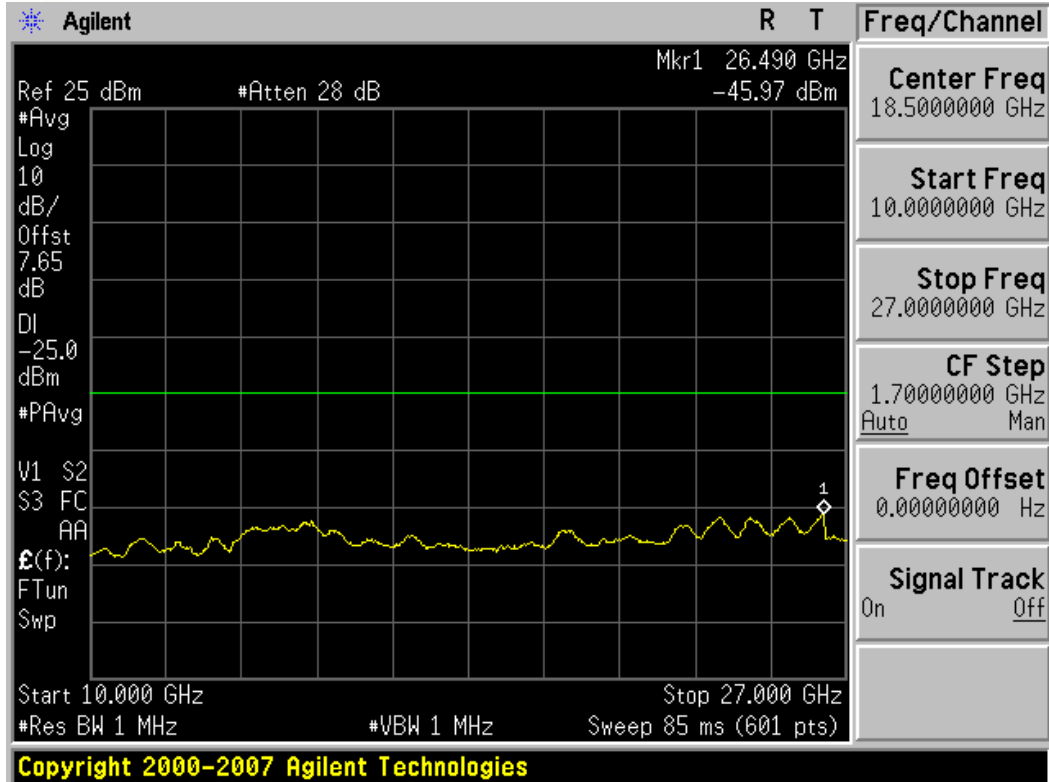


Plot 7-35. Emission Mask Plot (High Ch., 5MHz BW, QPSK, Diversity Antenna)

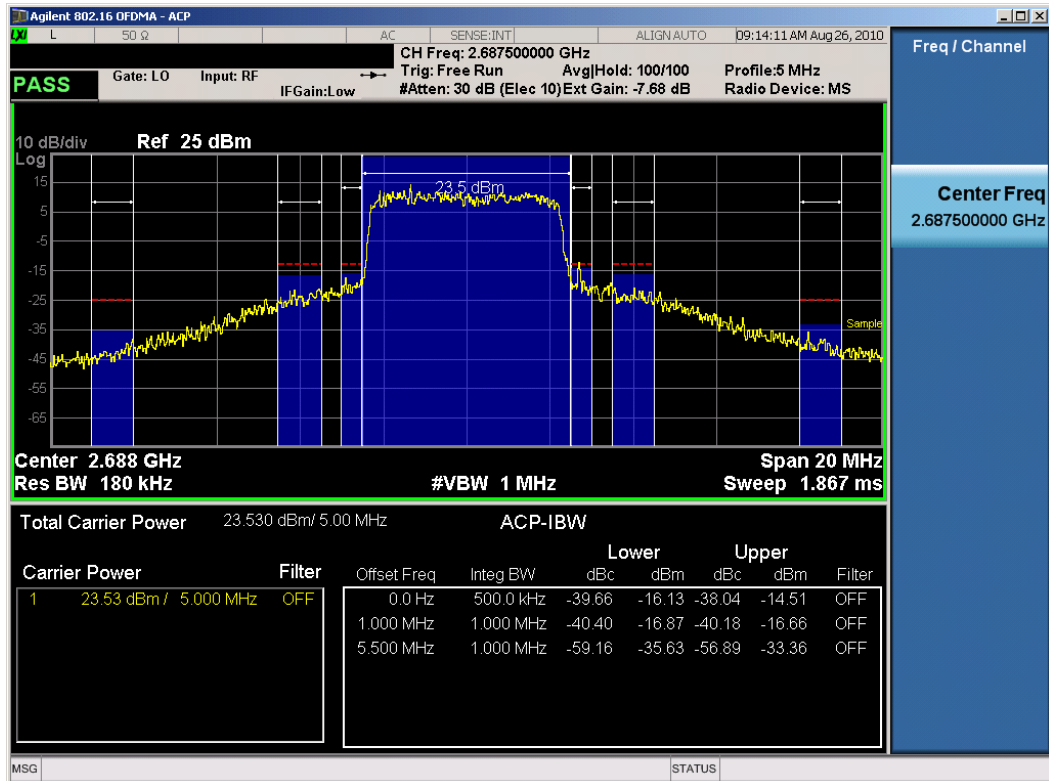


Plot 7-36. Conducted Spurious Plot (High Ch., 5MHz BW, QPSK, Diversity Antenna)

FCC ID: NBZNRM-CC208		FCC Pt. 27 WiMAX MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1008161369.PKR	Test Dates: August 18 - 26, 2010, June 2011	EUT Type: Cellular/PCS CDMA/EvDO and WiMAX PC Card/Express Card Transceiver		Page 35 of 58

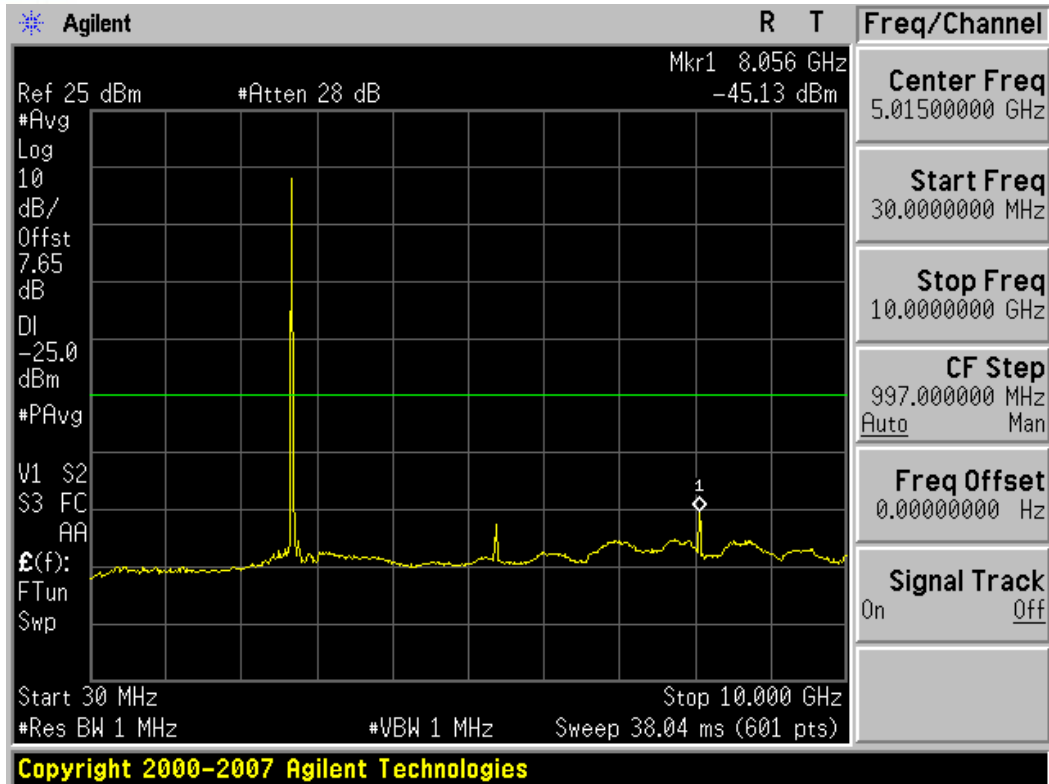


Plot 7-37. Conducted Spurious Plot (High Ch., 5MHz BW, QPSK, Diversity Antenna)

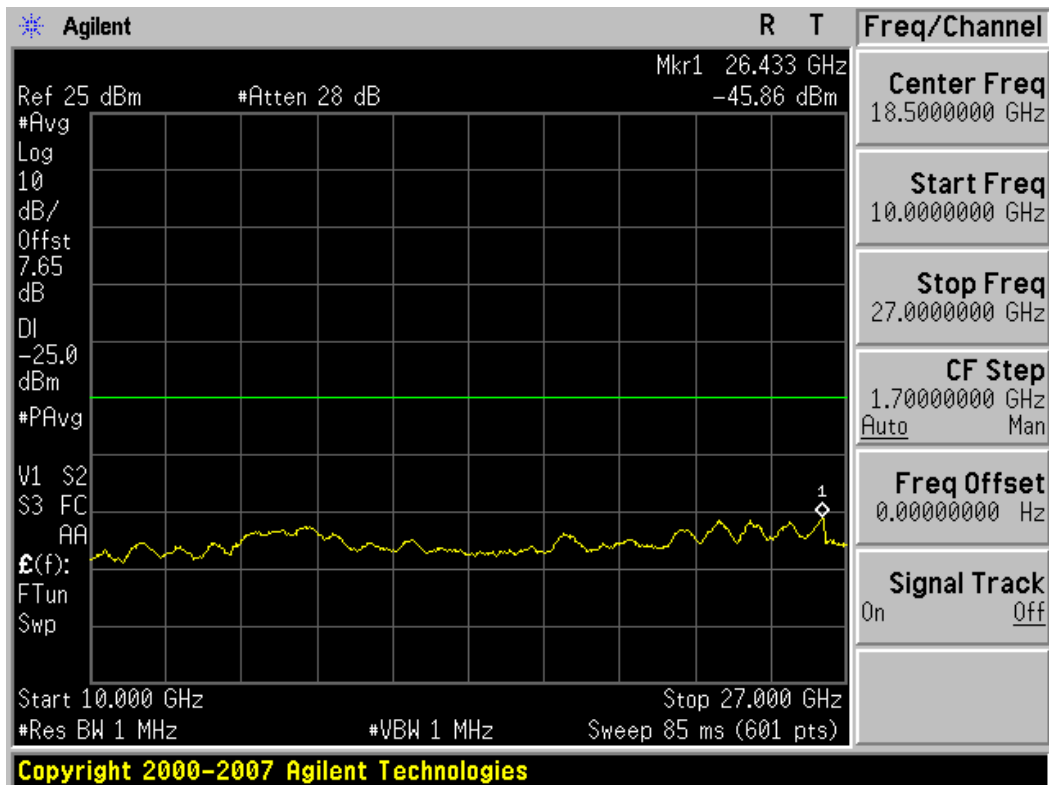


Plot 7-38. Emission Mask Plot (High Ch., 5MHz BW, 16-QAM, Diversity Antenna)

FCC ID: NBZNRM-CC208		FCC Pt. 27 WiMAX MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1008161369.PKR	Test Dates: August 18 - 26, 2010, June 2011	EUT Type: Cellular/PCS CDMA/EvDO and WiMAX PC Card/Express Card Transceiver		Page 36 of 58



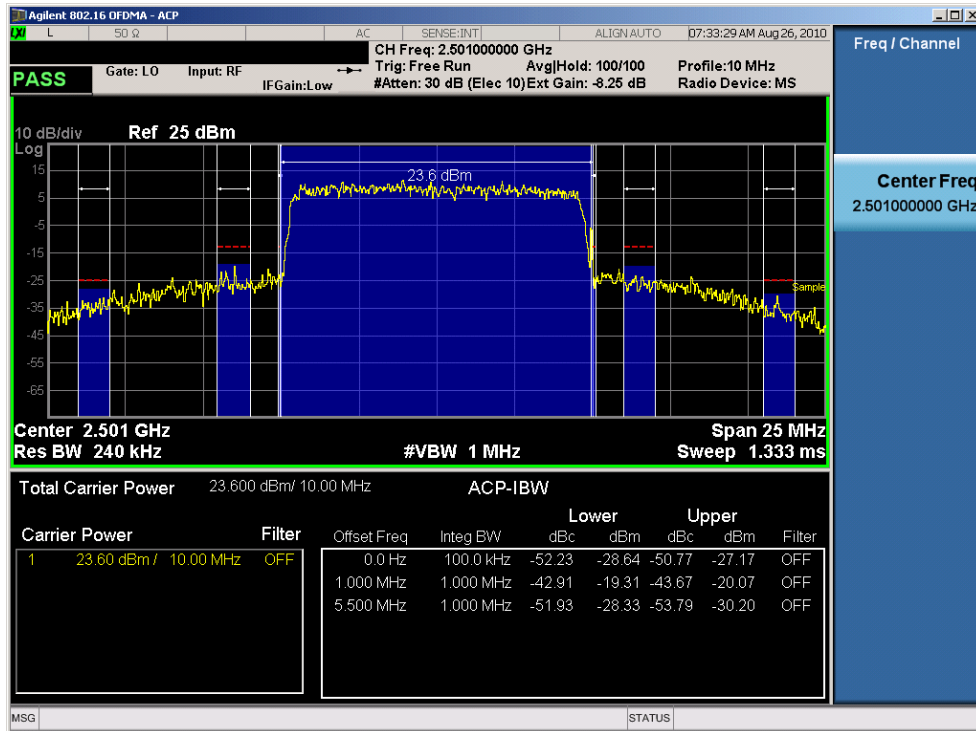
Plot 7-39. Conducted Spurious Plot (High Ch., 5MHz BW, 16-QAM, Diversity Antenna)



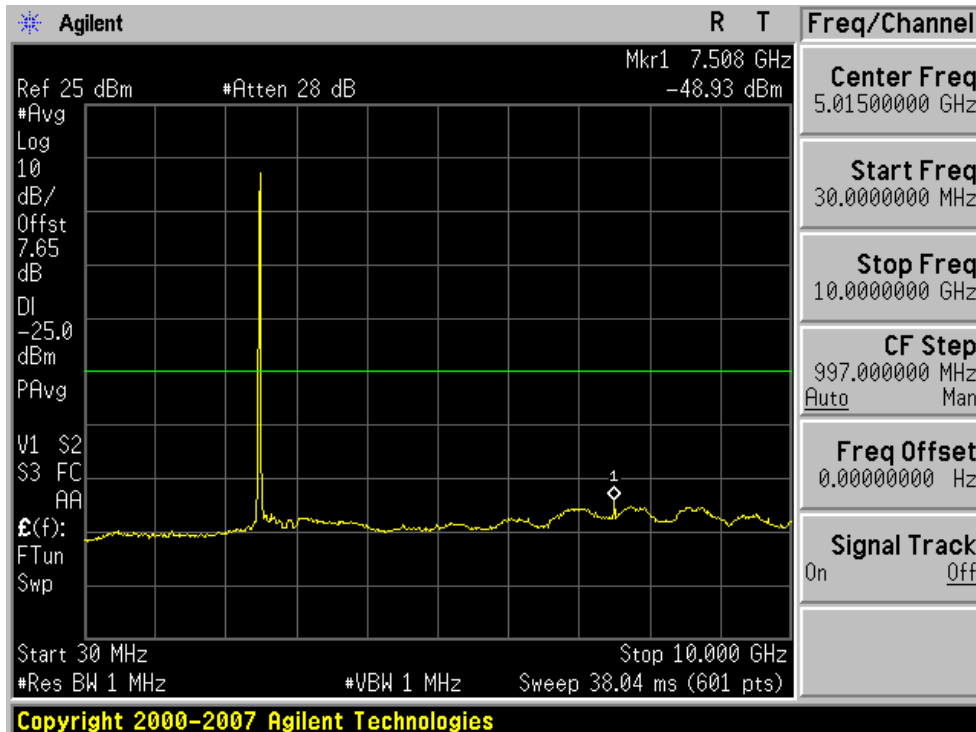
Plot 7-40. Conducted Spurious Plot (High Ch., 5MHz BW, 16-QAM, Diversity Antenna)

FCC ID: NBZNRM-CC208		FCC Pt. 27 WiMAX MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1008161369.PKR	Test Dates: August 18 - 26, 2010, June 2011	EUT Type: Cellular/PCS CDMA/EvDO and WiMAX PC Card/Express Card Transceiver		Page 37 of 58

8.0 PLOT(S) OF EMISSIONS – 10MHz BANDWIDTH

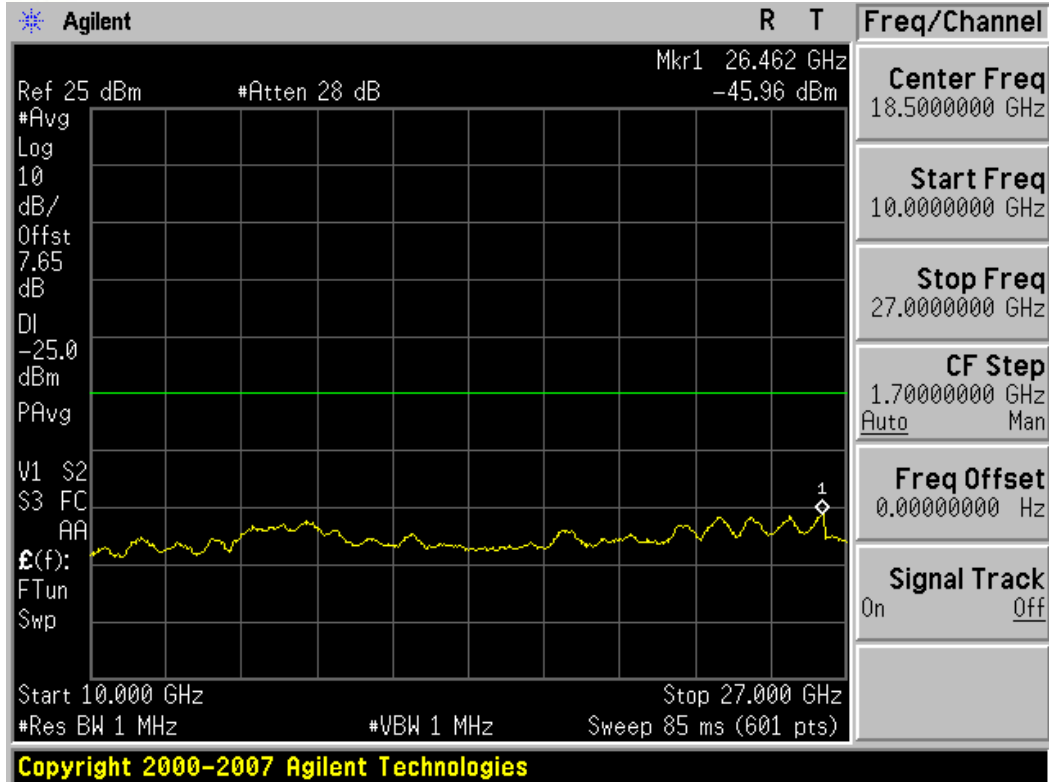


Plot 8-1. Emission Mask Plot (Low Ch., 10MHz BW, QPSK, Main Antenna)

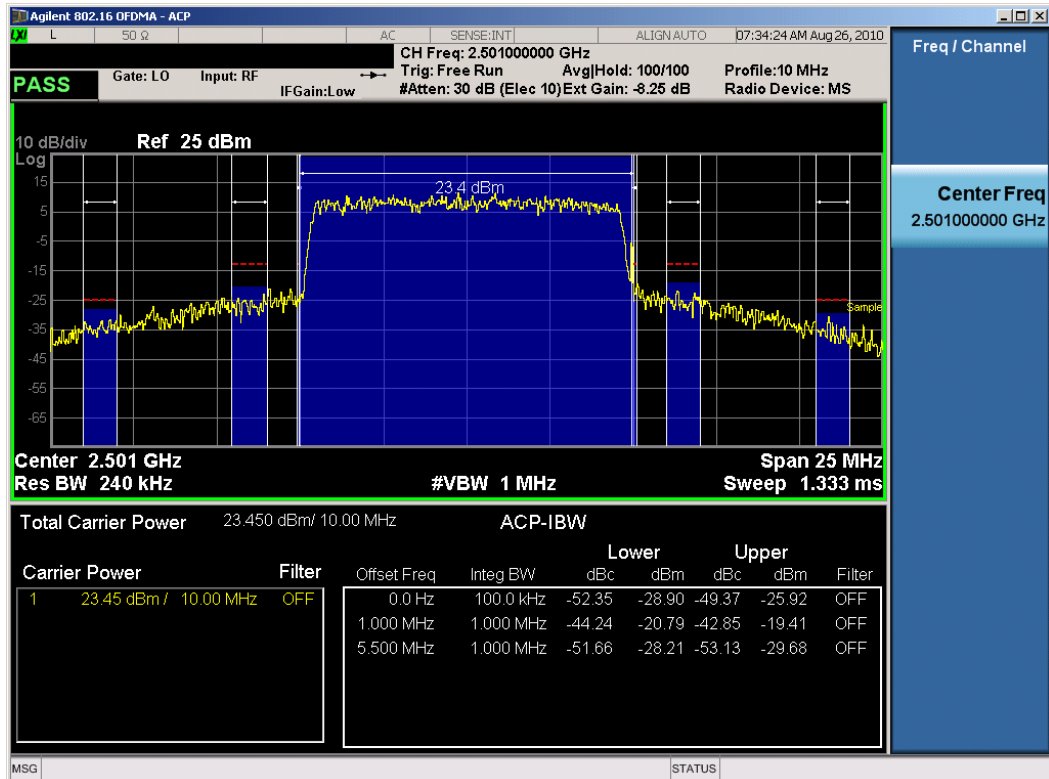


Plot 8-2. Conducted Spurious Plot (Low Ch., 10MHz BW, QPSK, Main Antenna)

FCC ID: NBZNRM-CC208		FCC Pt. 27 WiMAX MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1008161369.PKR	Test Dates: August 18 - 26, 2010, June 2011	EUT Type: Cellular/PCS CDMA/EvDO and WiMAX PC Card/Express Card Transceiver		Page 38 of 58

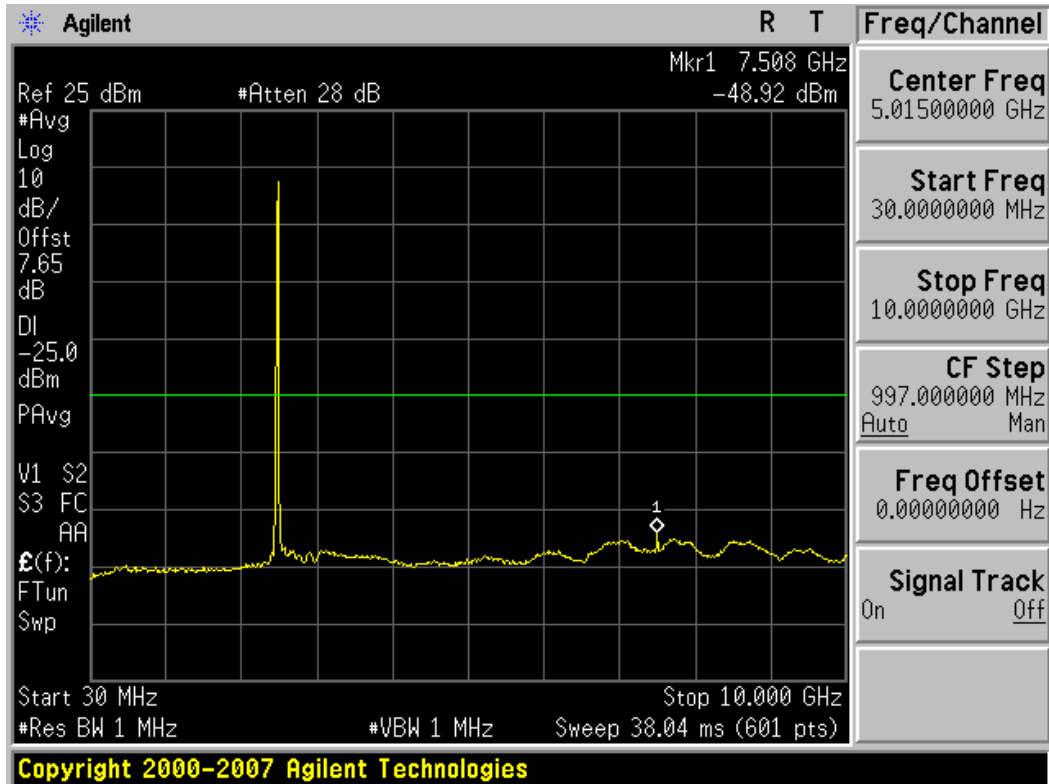


Plot 8-3. Conducted Spurious Plot (Low Ch., 10MHz BW, QPSK, Main Antenna)

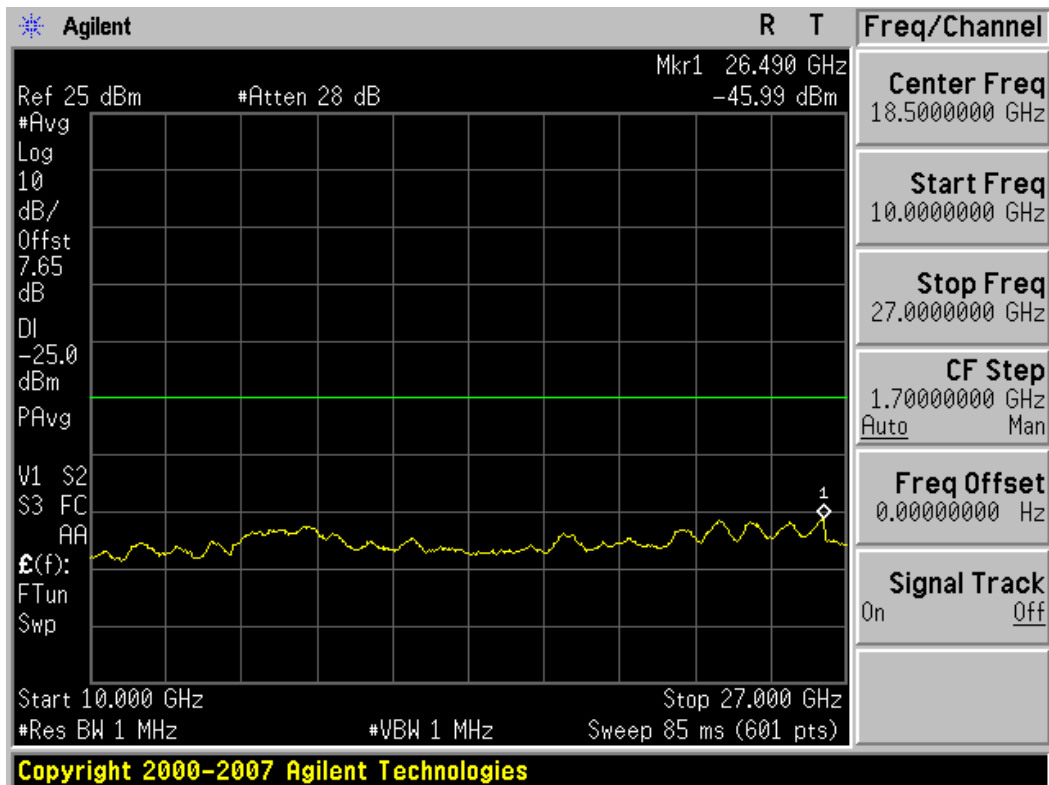


Plot 8-4. Emission Mask Plot (Low Ch., 10MHz BW, 16-QAM, Main Antenna)

FCC ID: NBZNRM-CC208		FCC Pt. 27 WiMAX MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1008161369.PKR	Test Dates: August 18 - 26, 2010, June 2011	EUT Type: Cellular/PCS CDMA/EvDO and WiMAX PC Card/Express Card Transceiver		Page 39 of 58

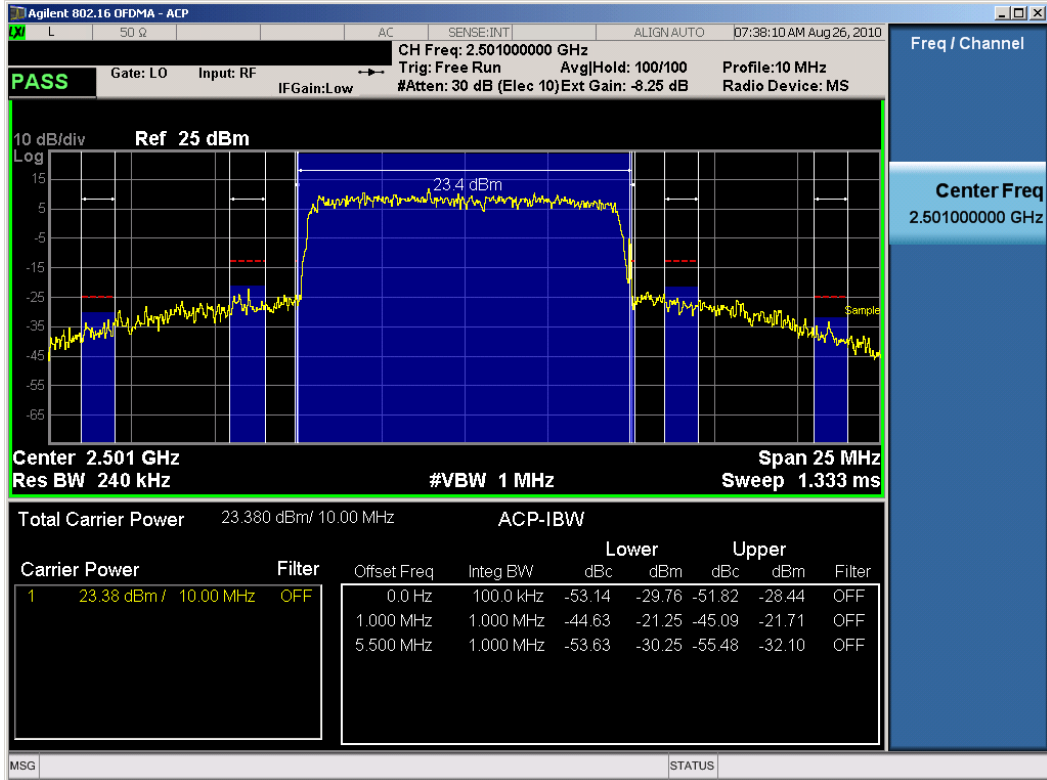


Plot 8-5. Conducted Spurious Plot (Low Ch., 10MHz BW, 16-QAM, Main Antenna)

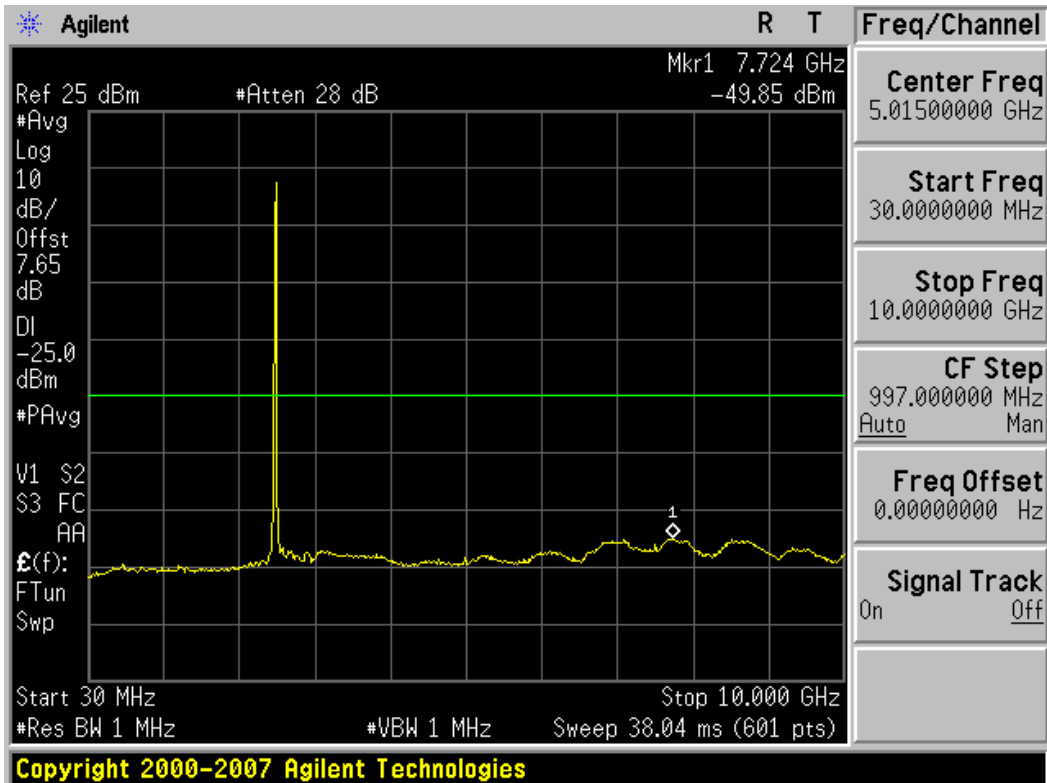


Plot 8-6. Conducted Spurious Plot (Low Ch., 10MHz BW, 16-QAM, Main Antenna)

FCC ID: NBZNRM-CC208		FCC Pt. 27 WiMAX MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1008161369.PKR	Test Dates: August 18 - 26, 2010, June 2011	EUT Type: Cellular/PCS CDMA/EvDO and WiMAX PC Card/Express Card Transceiver		Page 40 of 58

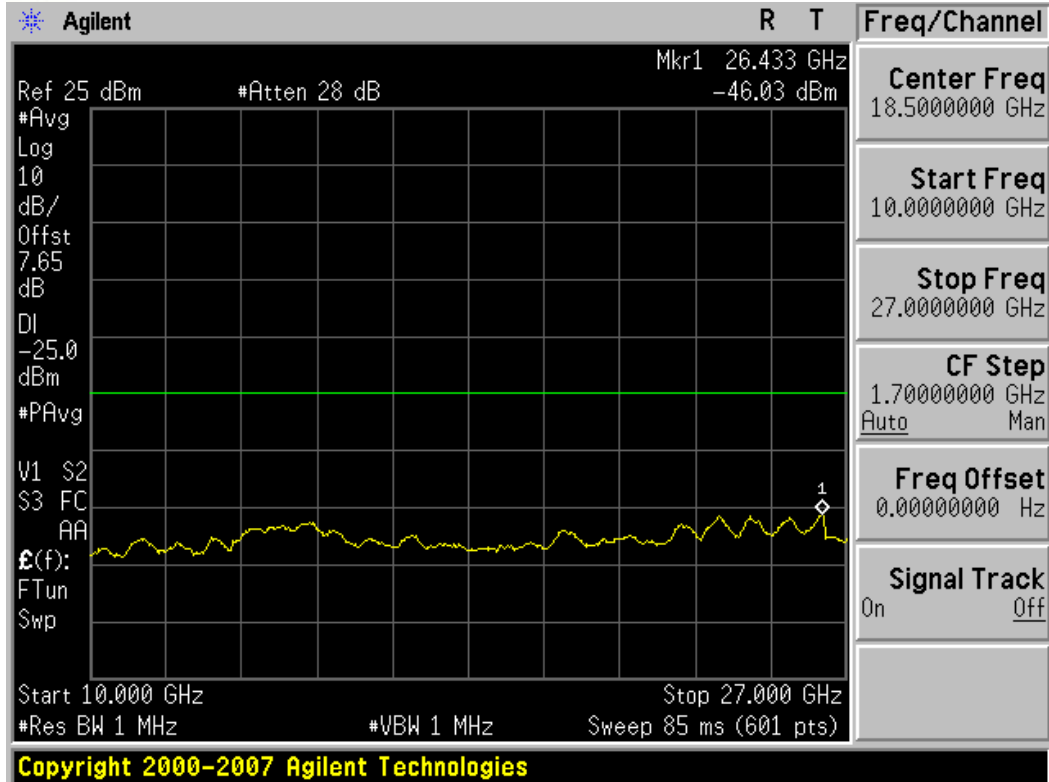


Plot 8-7. Emission Mask Plot (Low Ch., 10MHz BW, QPSK, Diversity Antenna)

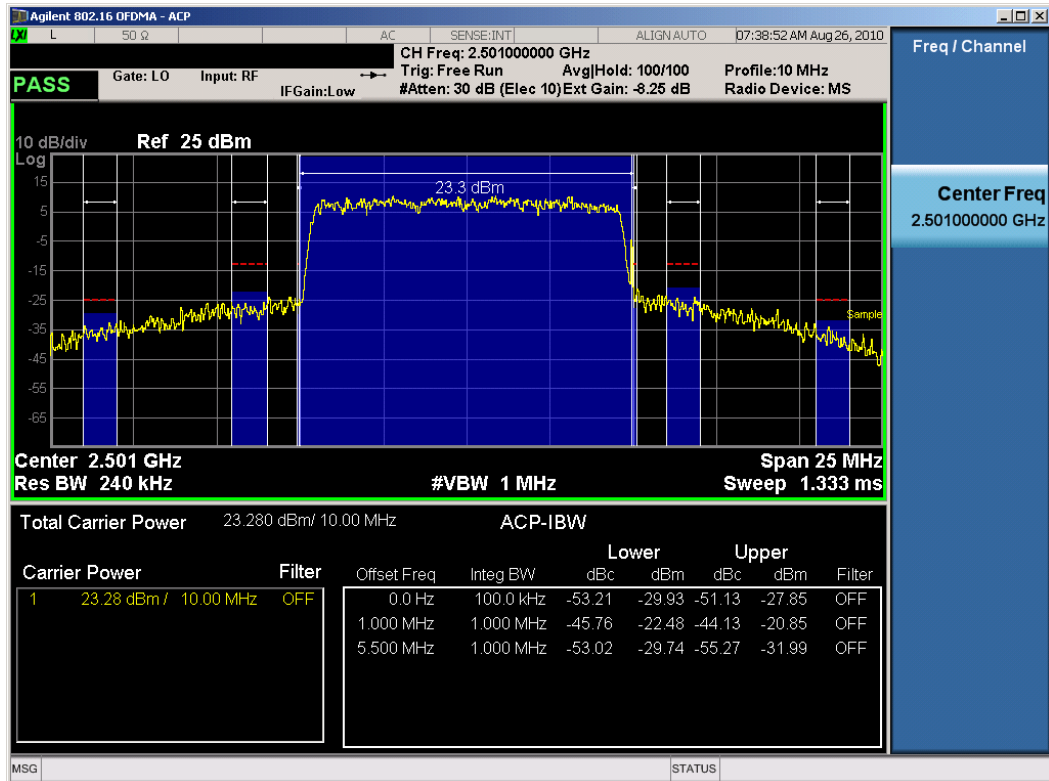


Plot 8-8. Conducted Spurious Plot (Low Ch., 10MHz BW, QPSK, Diversity Antenna)

FCC ID: NBZNRM-CC208		FCC Pt. 27 WiMAX MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1008161369.PKR	Test Dates: August 18 - 26, 2010, June 2011	EUT Type: Cellular/PCS CDMA/EvDO and WiMAX PC Card/Express Card Transceiver		Page 41 of 58

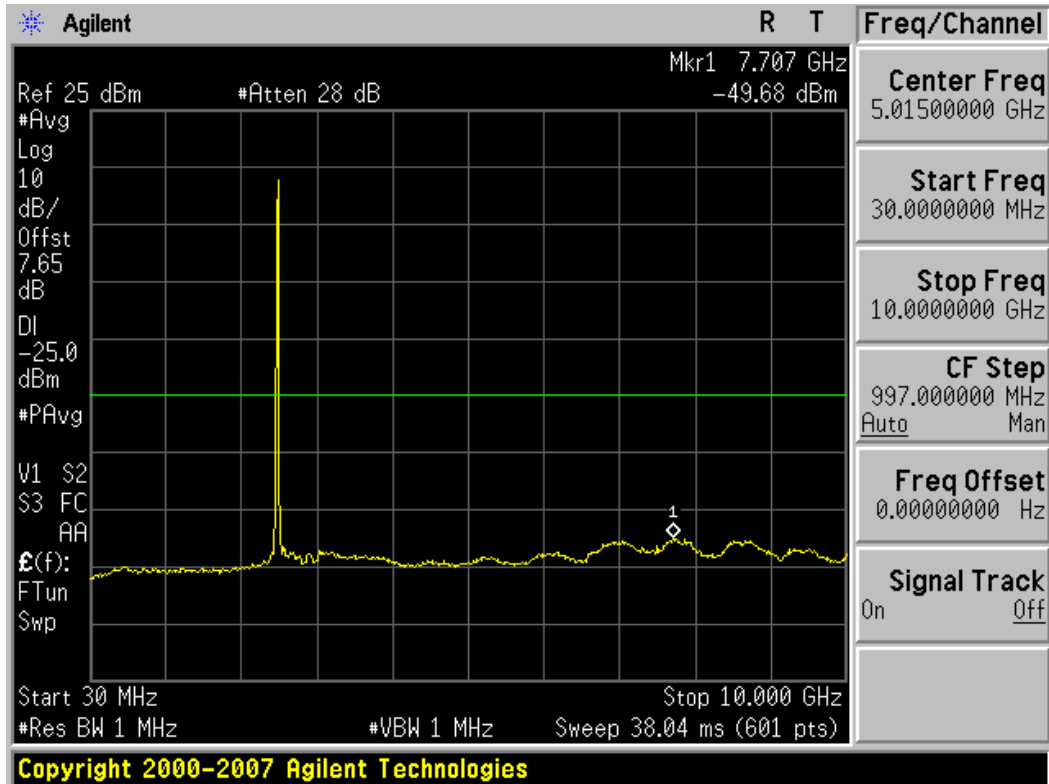


Plot 8-9. Conducted Spurious Plot (Low Ch., 10MHz BW, QPSK, Diversity Antenna)

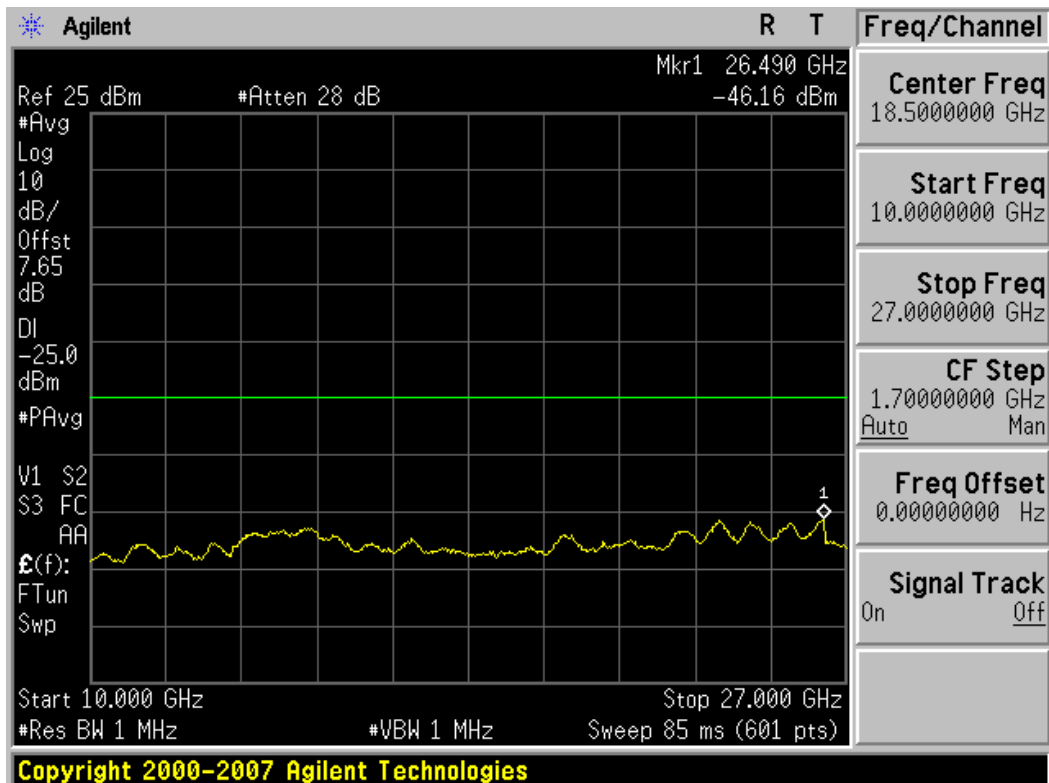


Plot 8-10. Emission Mask Plot (Low Ch., 10MHz BW, 16-QAM, Diversity Antenna)

FCC ID: NBZNRM-CC208		FCC Pt. 27 WiMAX MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1008161369.PKR	Test Dates: August 18 - 26, 2010, June 2011	EUT Type: Cellular/PCS CDMA/EvDO and WiMAX PC Card/Express Card Transceiver		Page 42 of 58

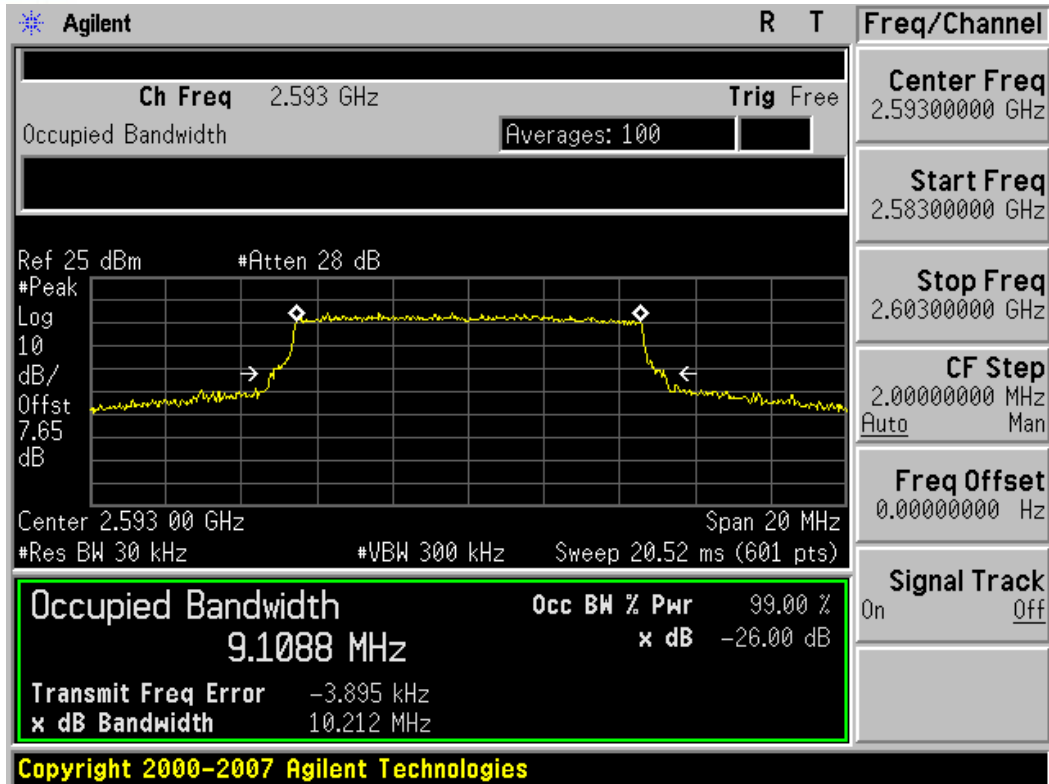


Plot 8-11. Conducted Spurious Plot (Low Ch., 10MHz BW, 16-QAM, Diversity Antenna)

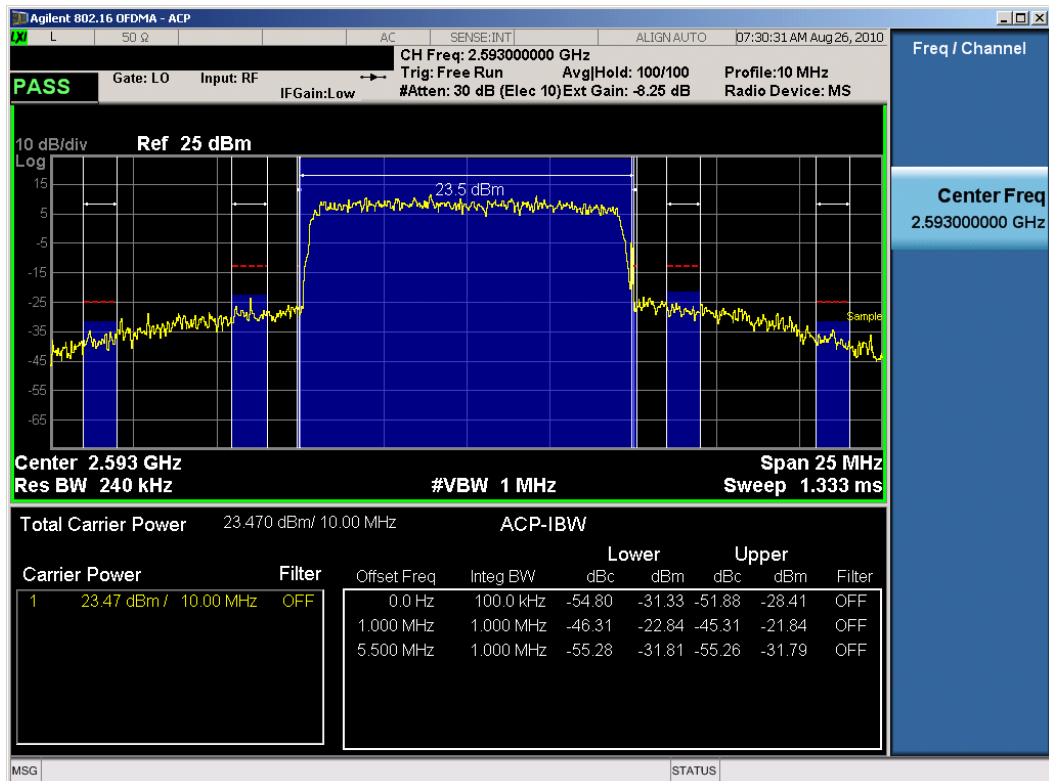


Plot 8-12. Conducted Spurious Plot (Low Ch., 10MHz BW, 16-QAM, Diversity Antenna)

FCC ID: NBZNRM-CC208		FCC Pt. 27 WiMAX MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1008161369.PKR	Test Dates: August 18 - 26, 2010, June 2011	EUT Type: Cellular/PCS CDMA/EvDO and WiMAX PC Card/Express Card Transceiver		Page 43 of 58

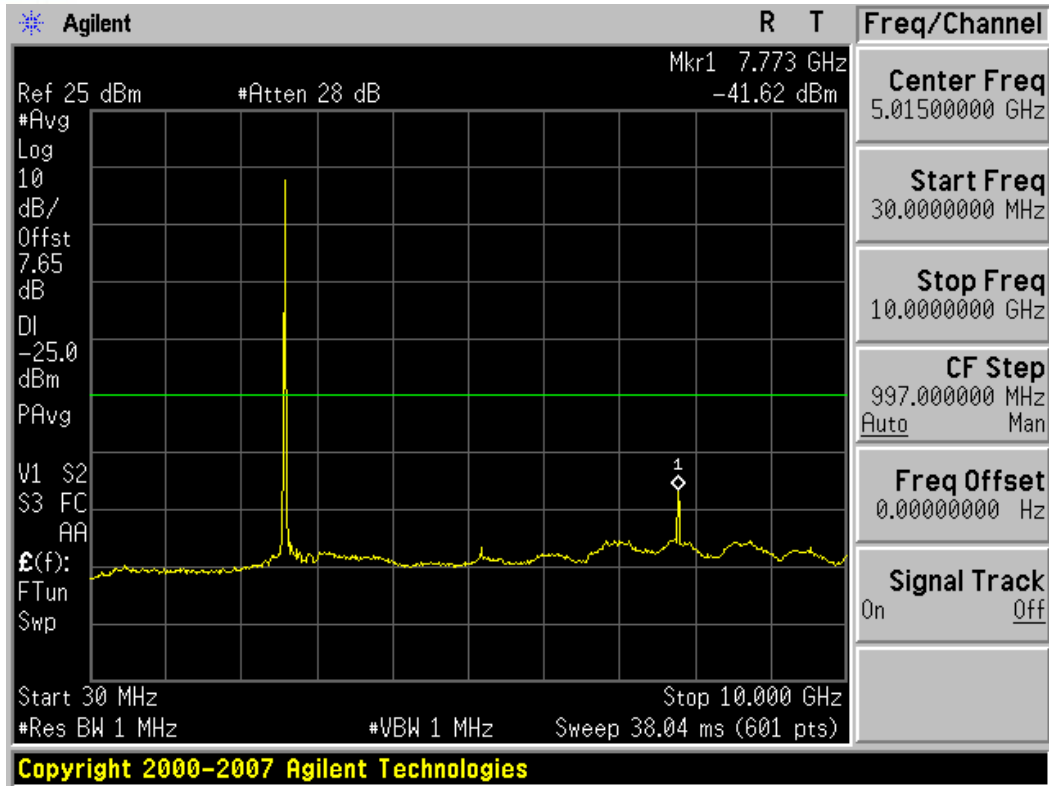


Plot 8-13. Occupied Bandwidth Plot (Mid Ch., 10MHz BW, QPSK, Main Antenna)

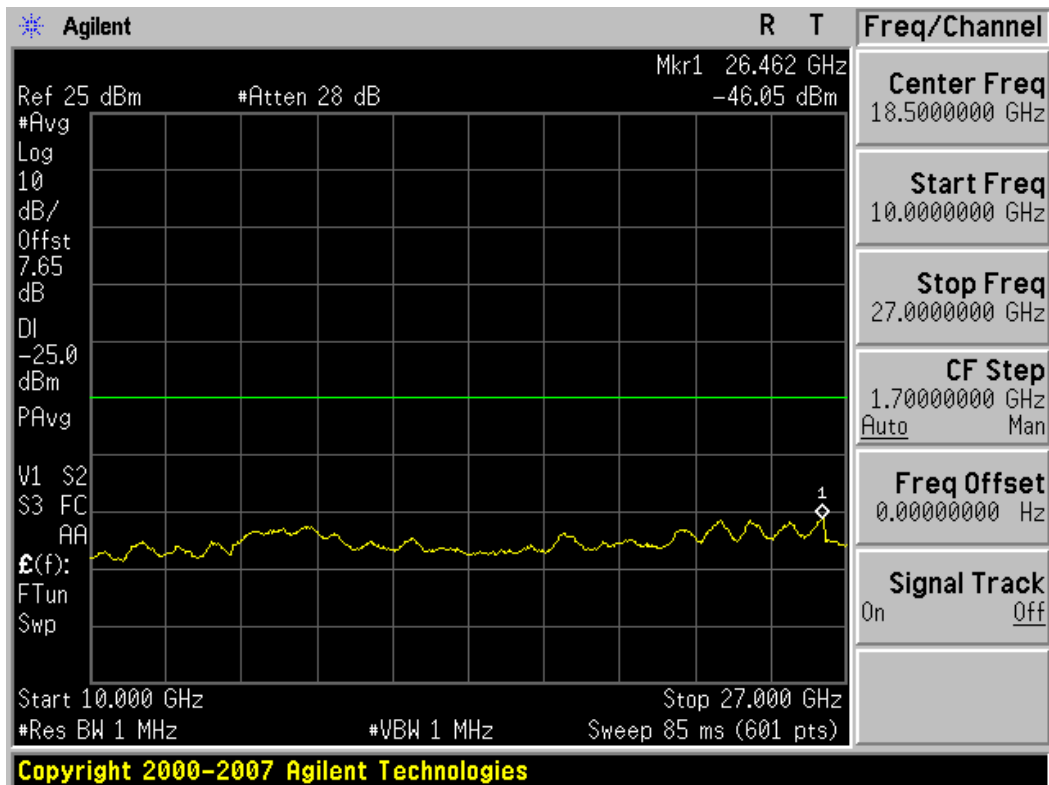


Plot 8-14. Emission Mask Plot (Mid Ch., 10MHz BW, QPSK, Main Antenna)

FCC ID: NBZNRM-CC208		FCC Pt. 27 WiMAX MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1008161369.PKR	Test Dates: August 18 - 26, 2010, June 2011	EUT Type: Cellular/PCS CDMA/EvDO and WiMAX PC Card/Express Card Transceiver		Page 44 of 58

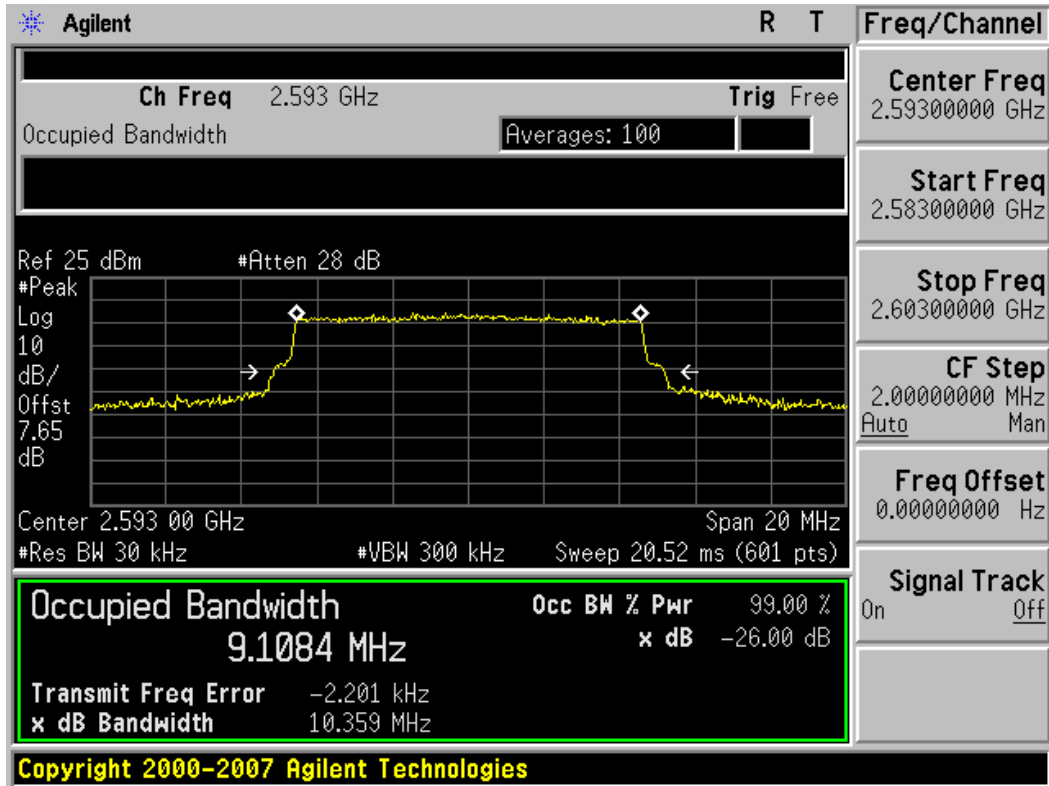


Plot 8-15. Conducted Spurious Plot (Mid Ch., 10MHz BW, QPSK, Main Antenna)

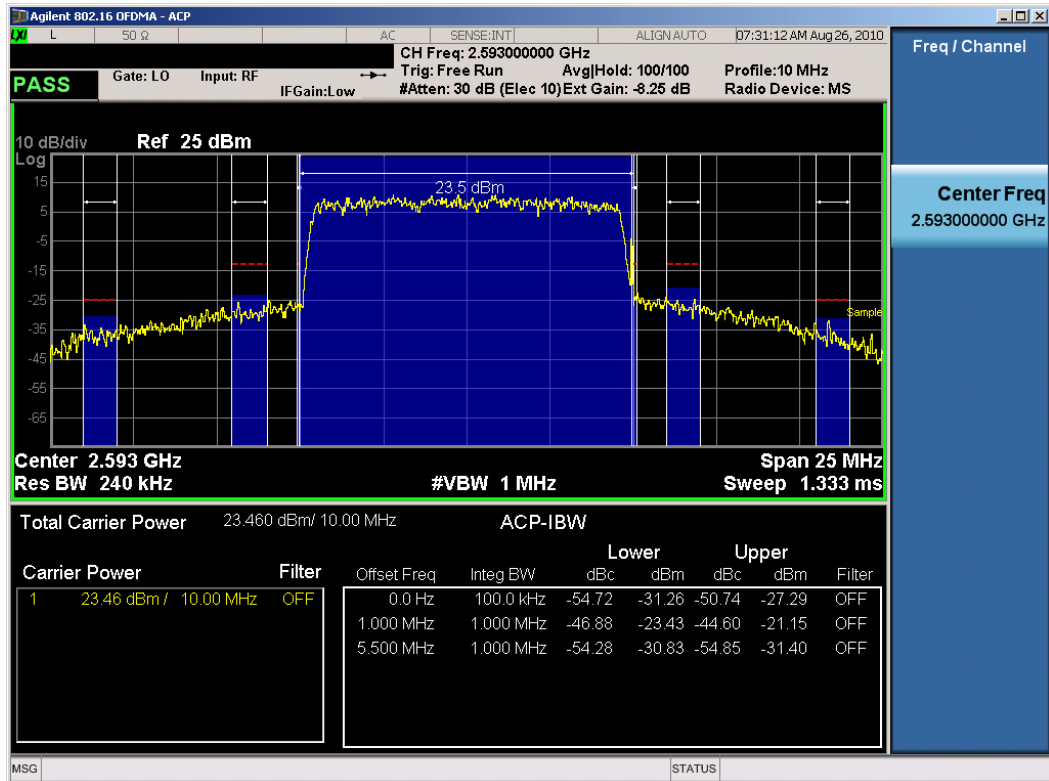


Plot 8-16. Conducted Spurious Plot (Mid Ch., 10MHz BW, QPSK, Main Antenna)

FCC ID: NBZNRM-CC208		FCC Pt. 27 WiMAX MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1008161369.PKR	Test Dates: August 18 - 26, 2010, June 2011	EUT Type: Cellular/PCS CDMA/EvDO and WiMAX PC Card/Express Card Transceiver		Page 45 of 58

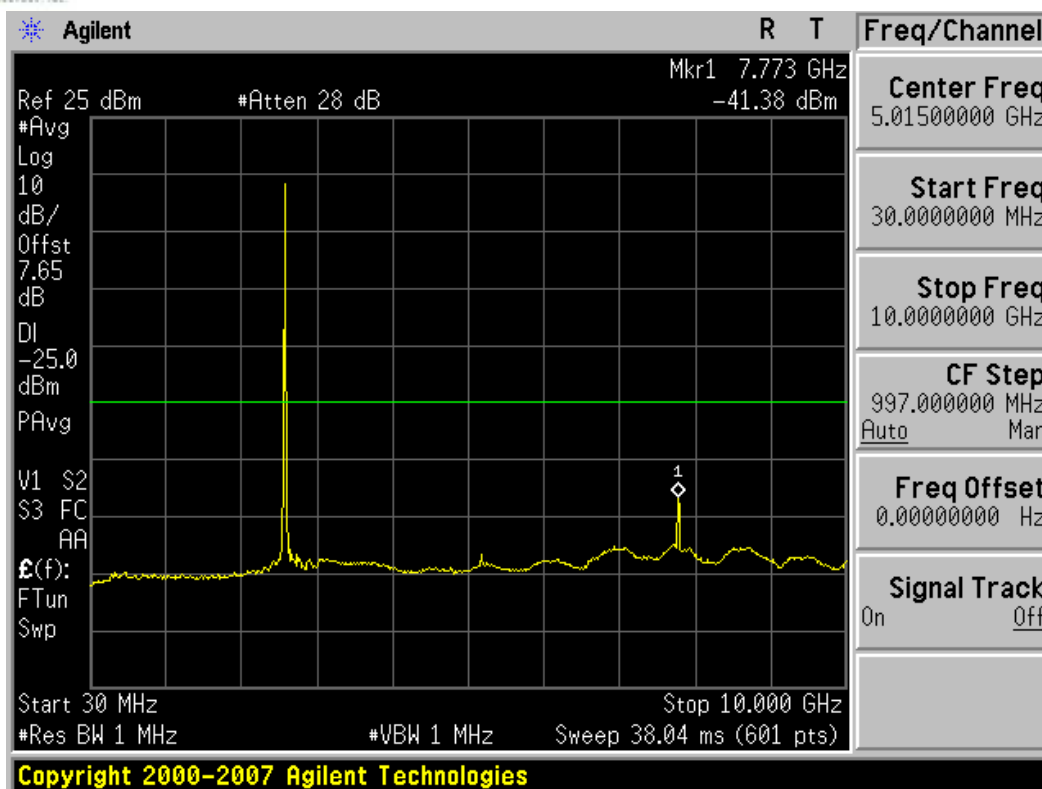


Plot 8-17. Occupied Bandwidth Plot (Mid Ch., 10MHz BW, 16-QAM, Main Antenna)

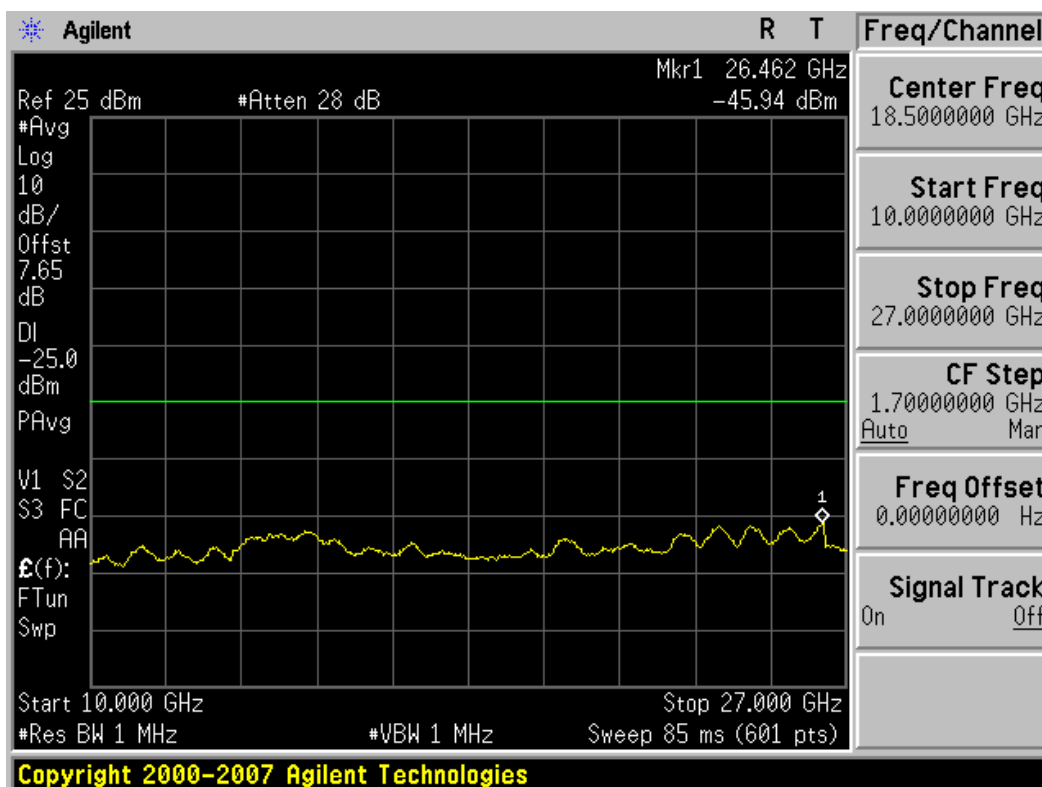


Plot 8-18. Emission Mask Plot (Mid Ch., 10MHz BW, 16-QAM, Main Antenna)

FCC ID: NBZNRM-CC208		FCC Pt. 27 WiMAX MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1008161369.PKR	Test Dates: August 18 - 26, 2010, June 2011	EUT Type: Cellular/PCS CDMA/EvDO and WiMAX PC Card/Express Card Transceiver		Page 46 of 58

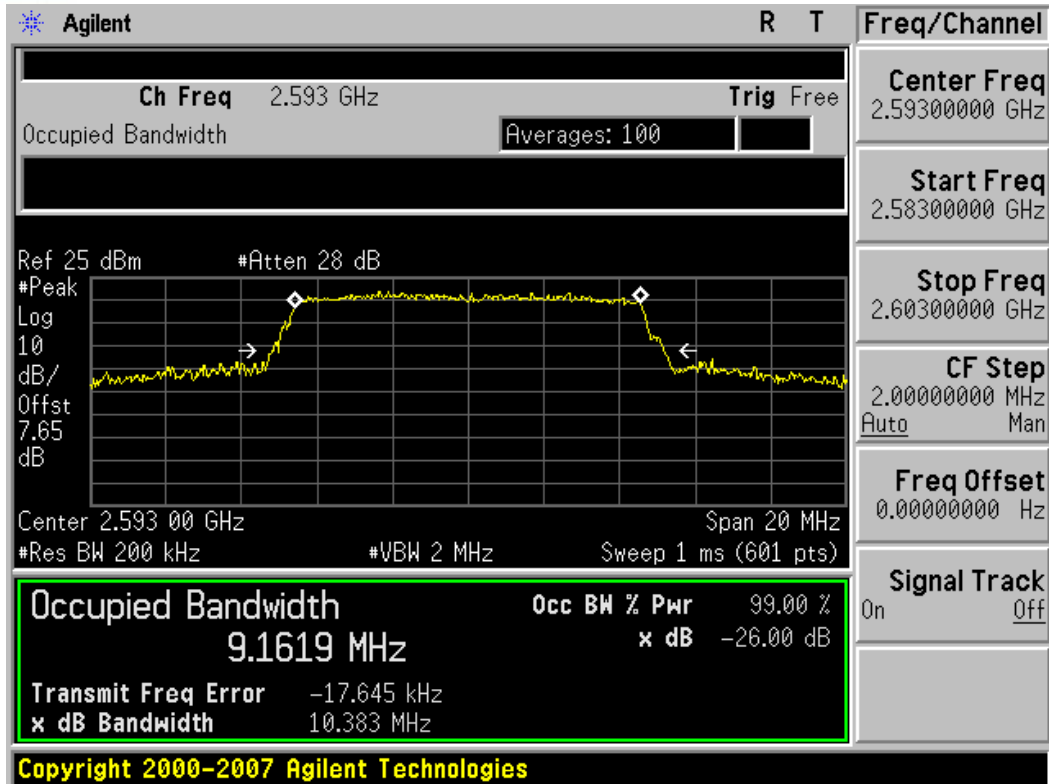


Plot 8-19. Conducted Spurious Plot (Mid Ch., 10MHz BW, 16-QAM, Main Antenna)

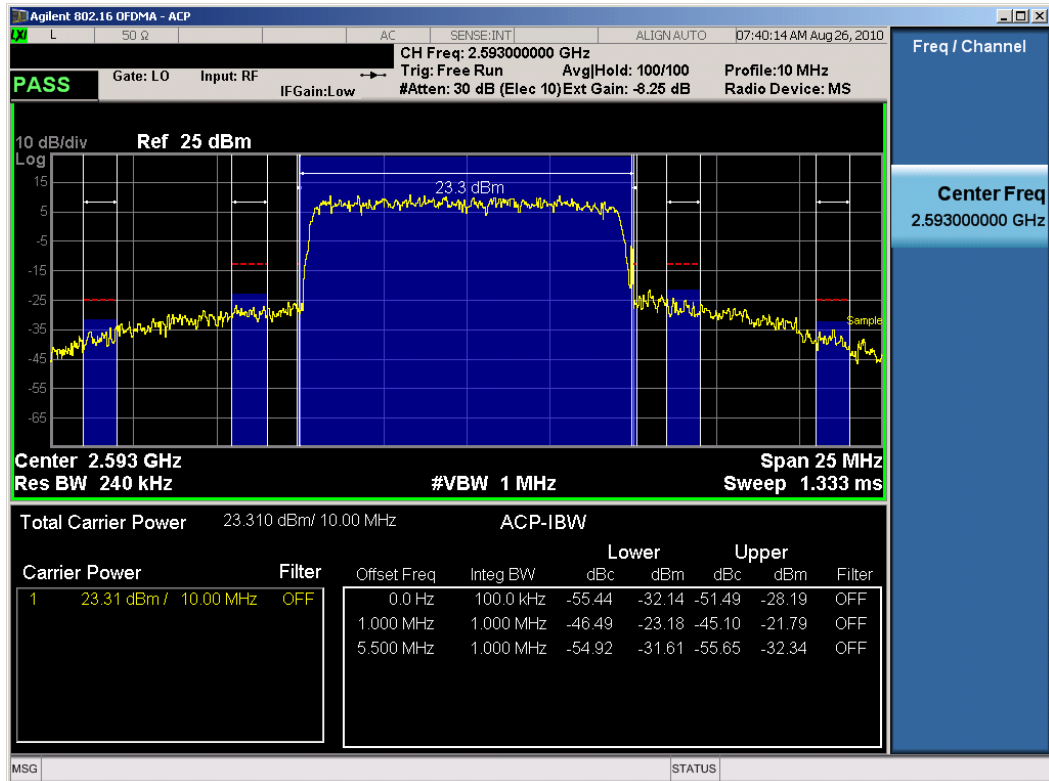


Plot 8-20. Conducted Spurious Plot (Mid Ch., 10MHz BW, 16-QAM, Main Antenna)

FCC ID: NBZNRM-CC208		FCC Pt. 27 WiMAX MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1008161369.PKR	Test Dates: August 18 - 26, 2010, June 2011	EUT Type: Cellular/PCS CDMA/EvDO and WiMAX PC Card/Express Card Transceiver		Page 47 of 58

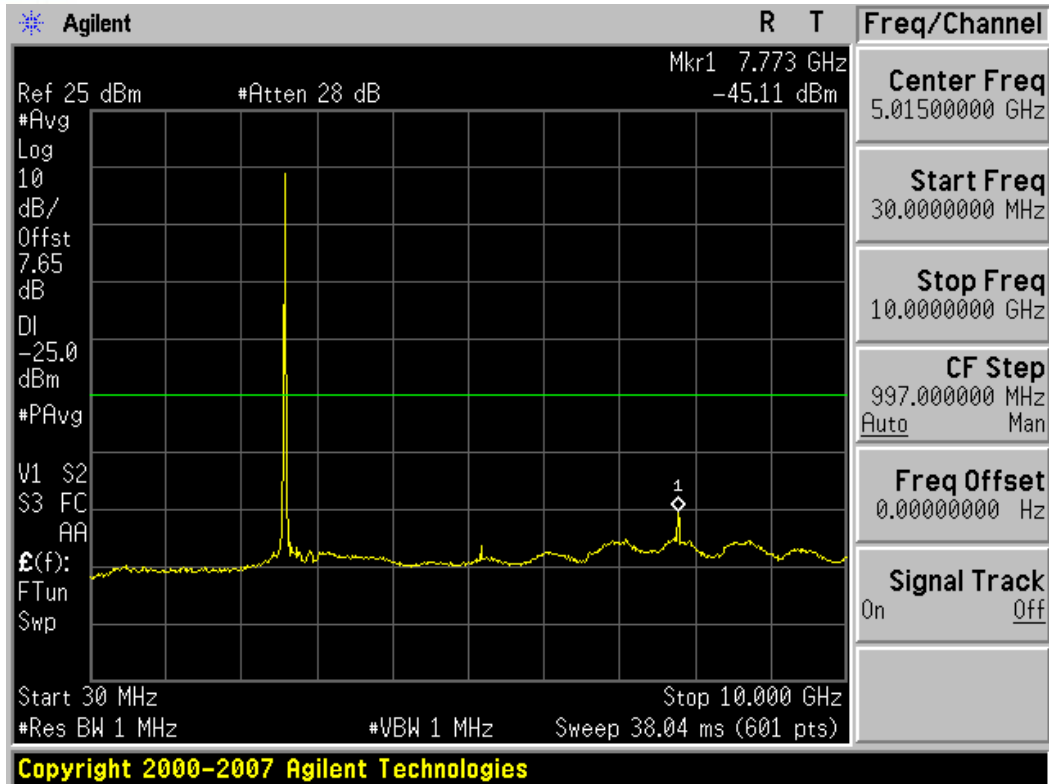


Plot 8-21. Occupied Bandwidth Plot (Mid Ch., 10MHz BW, QPSK, Diversity Antenna)

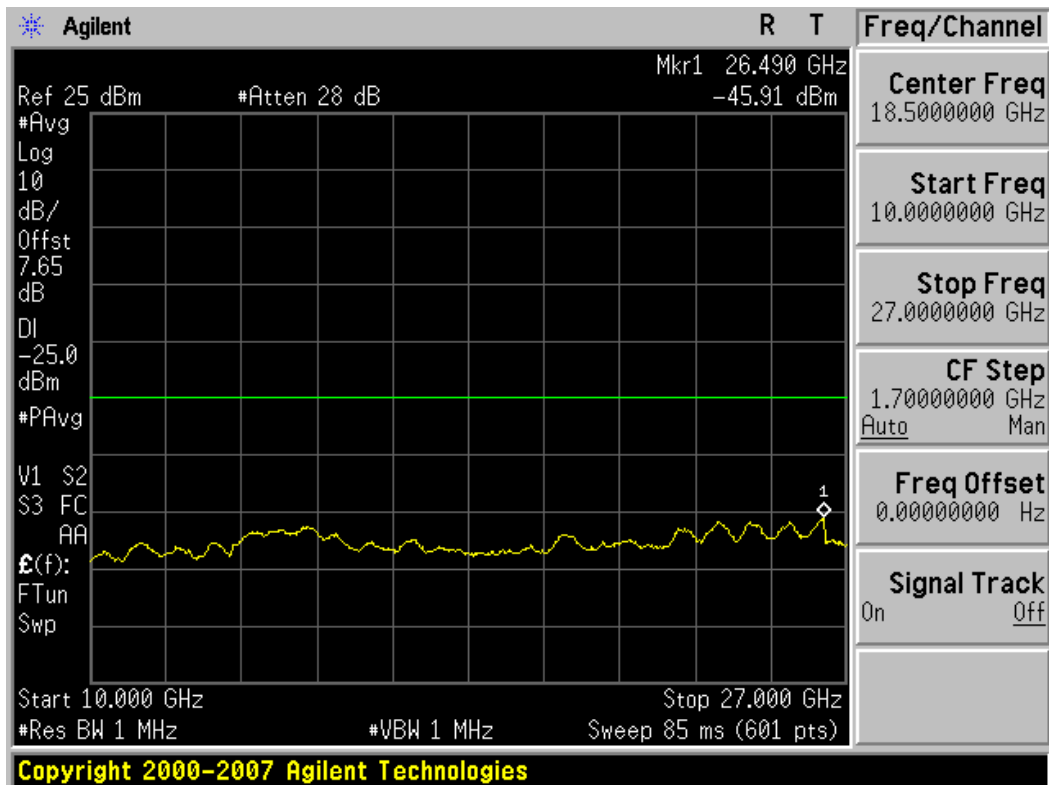


Plot 8-22. Emission Mask Plot (Mid Ch., 10MHz BW, QPSK, Diversity Antenna)

FCC ID: NBZNRM-CC208		FCC Pt. 27 WiMAX MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1008161369.PKR	Test Dates: August 18 - 26, 2010, June 2011	EUT Type: Cellular/PCS CDMA/EvDO and WiMAX PC Card/Express Card Transceiver		Page 48 of 58

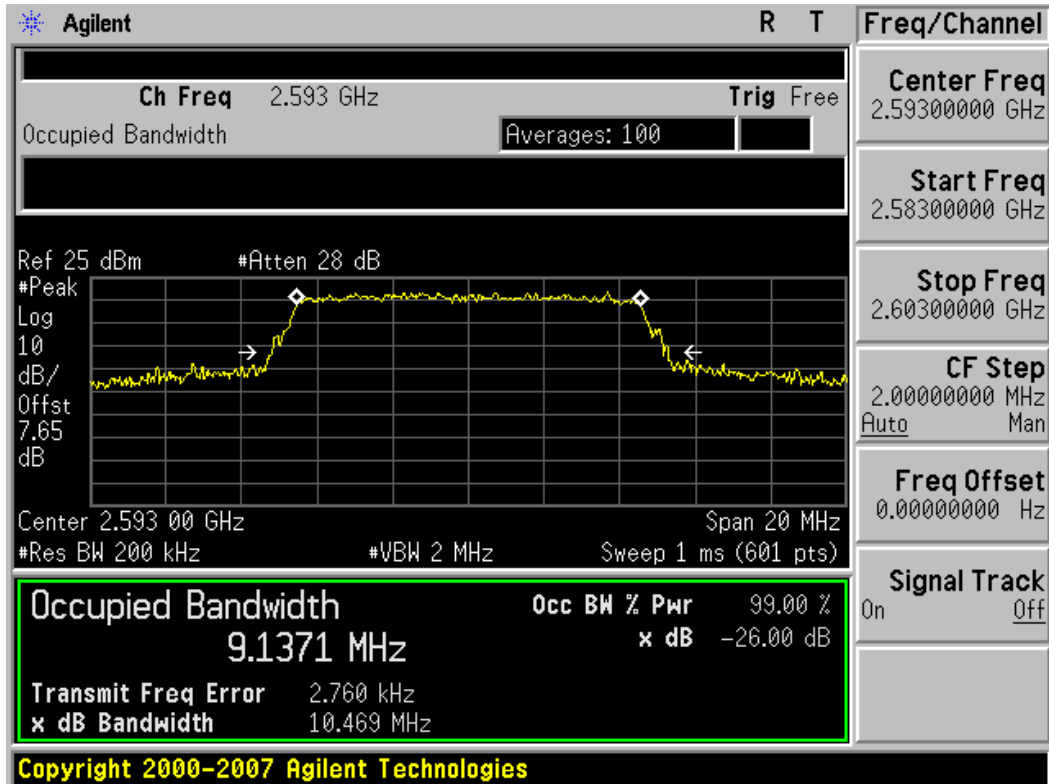


Plot 8-23. Conducted Spurious Plot (Mid Ch., 10MHz BW, QPSK, Diversity Antenna)

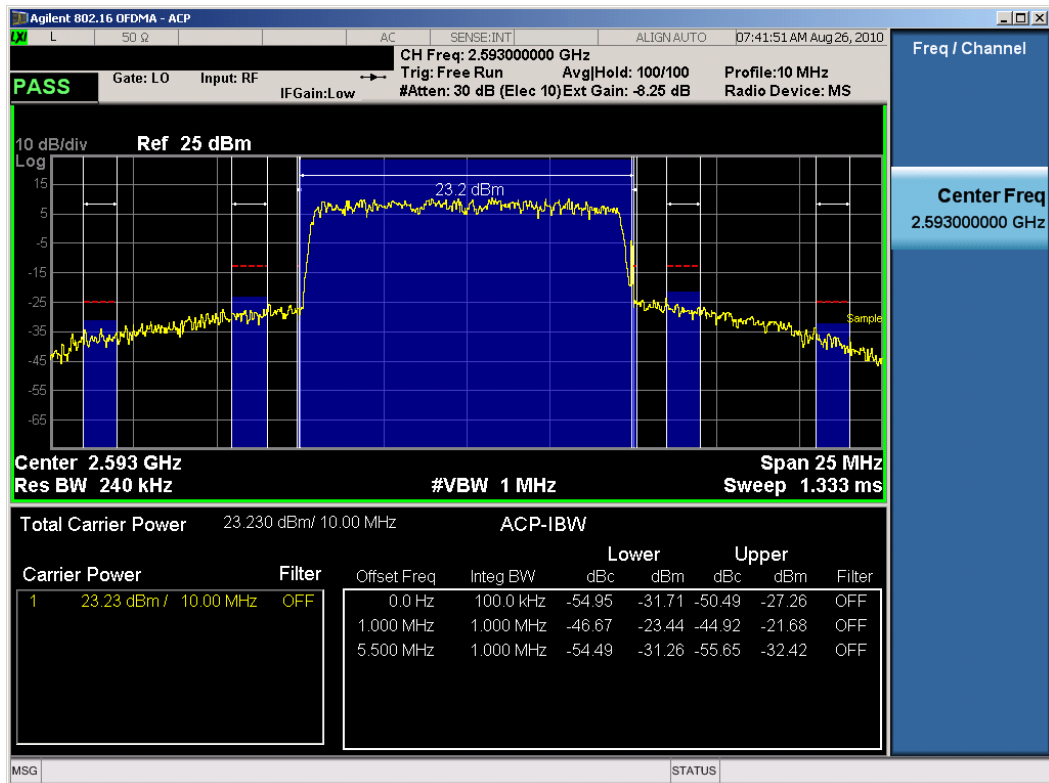


Plot 8-24. Conducted Spurious Plot (Mid Ch., 10MHz BW, QPSK, Diversity Antenna)

FCC ID: NBZNRM-CC208		FCC Pt. 27 WiMAX MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1008161369.PKR	Test Dates: August 18 - 26, 2010, June 2011	EUT Type: Cellular/PCS CDMA/EvDO and WiMAX PC Card/Express Card Transceiver		Page 49 of 58

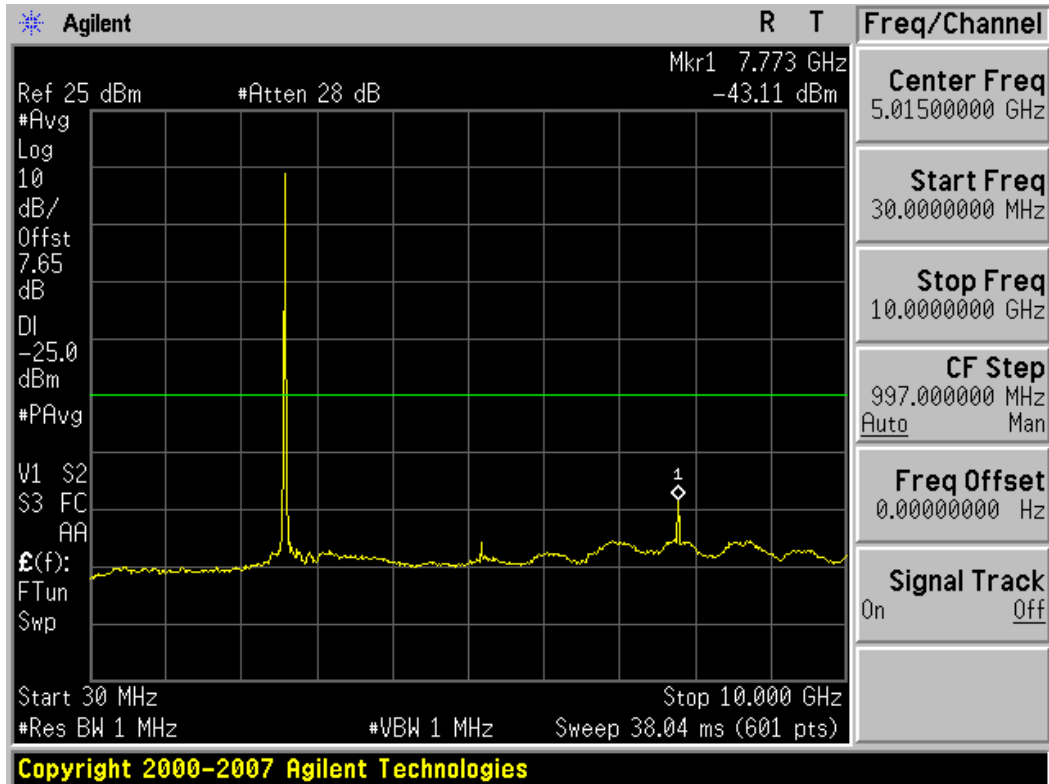


Plot 8-25. Occupied Bandwidth Plot (Mid Ch., 10MHz BW, 16-QAM, Diversity Antenna)

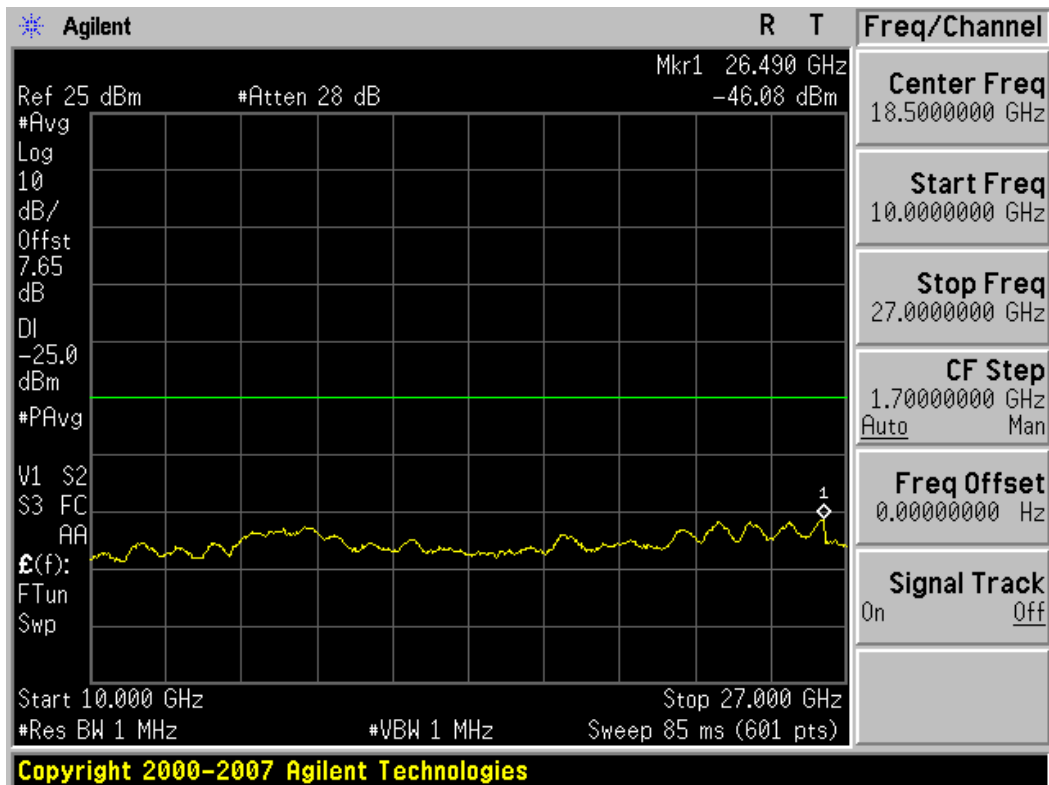


Plot 8-26. Emission Mask Plot (Mid Ch., 10MHz BW, 16-QAM, Diversity Antenna)

FCC ID: NBZNRM-CC208		FCC Pt. 27 WiMAX MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1008161369.PKR	Test Dates: August 18 - 26, 2010, June 2011	EUT Type: Cellular/PCS CDMA/EvDO and WiMAX PC Card/Express Card Transceiver		Page 50 of 58

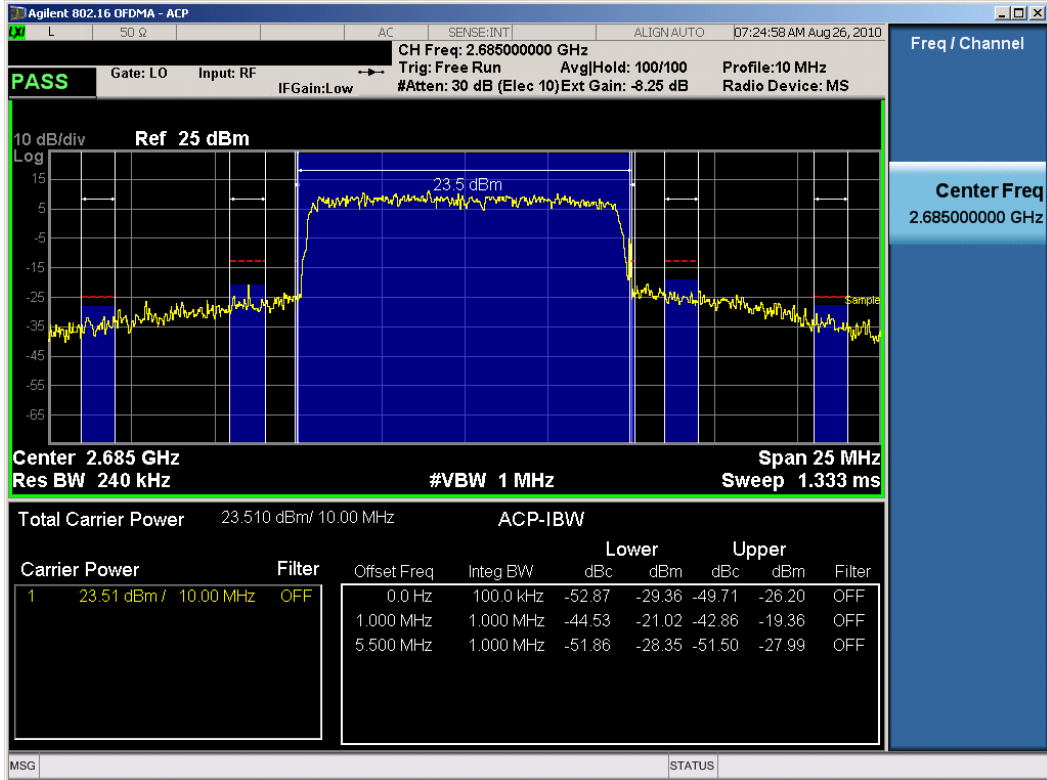


Plot 8-27. Conducted Spurious Plot (Mid Ch., 10MHz BW, 16-QAM, Diversity Antenna)

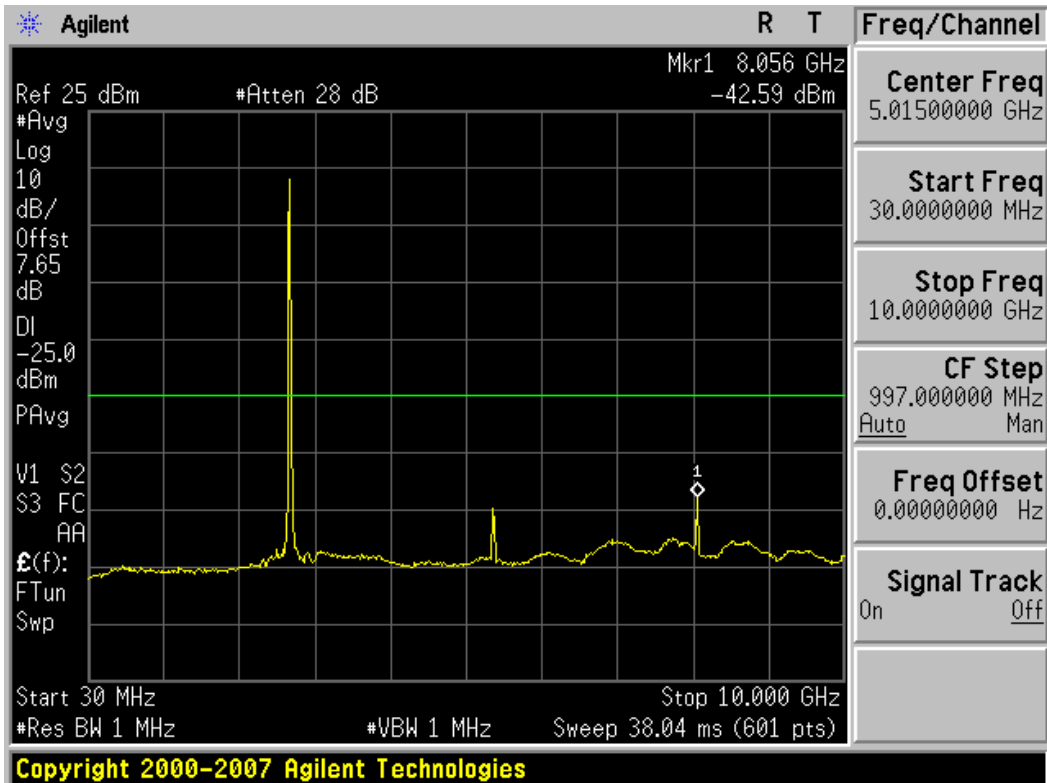


Plot 8-28. Conducted Spurious Plot (Mid Ch., 10MHz BW, 16-QAM, Diversity Antenna)

FCC ID: NBZNRM-CC208		FCC Pt. 27 WiMAX MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1008161369.PKR	Test Dates: August 18 - 26, 2010, June 2011	EUT Type: Cellular/PCS CDMA/EvDO and WiMAX PC Card/Express Card Transceiver		Page 51 of 58

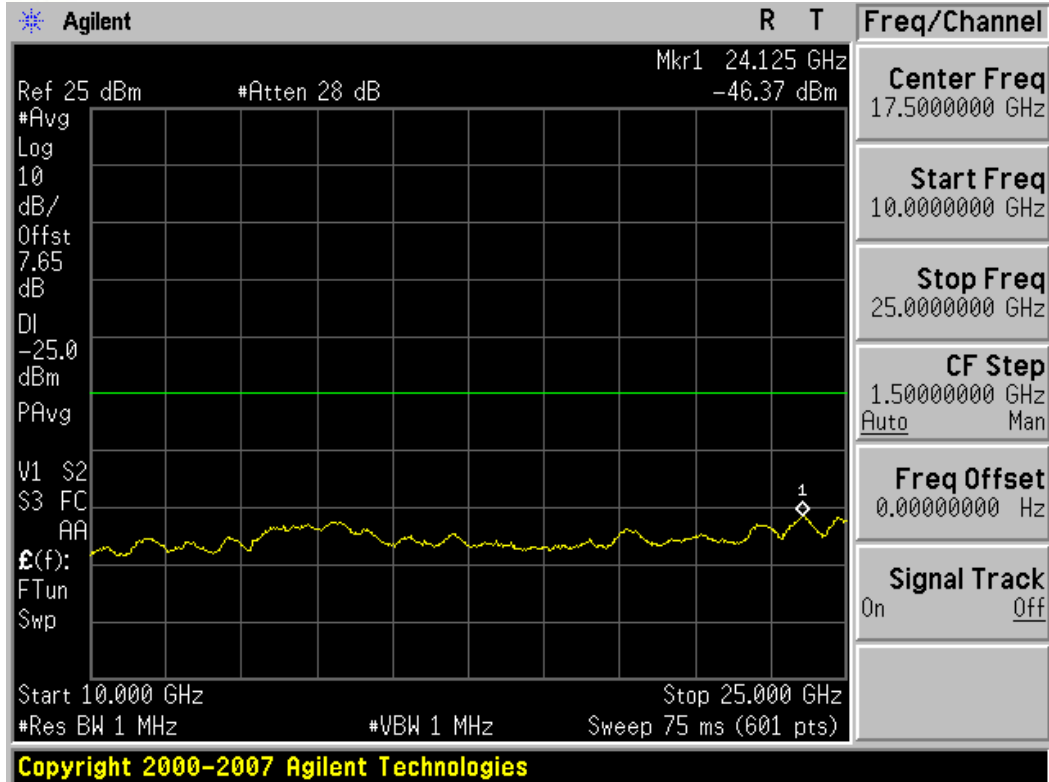


Plot 8-29. Emission Mask Plot (High Ch., 10MHz BW, QPSK, Main Antenna)

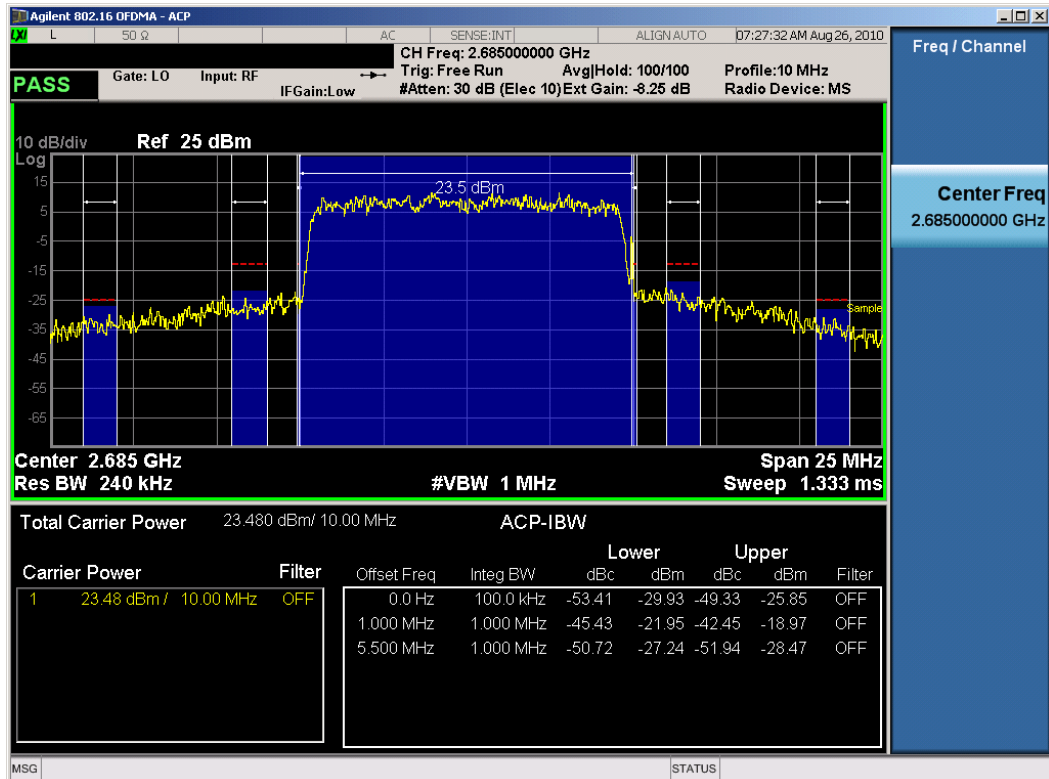


Plot 8-30. Conducted Spurious Plot (High Ch., 10MHz BW, QPSK, Main Antenna)

FCC ID: NBZNRM-CC208		FCC Pt. 27 WiMAX MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1008161369.PKR	Test Dates: August 18 - 26, 2010, June 2011	EUT Type: Cellular/PCS CDMA/EvDO and WiMAX PC Card/Express Card Transceiver		Page 52 of 58

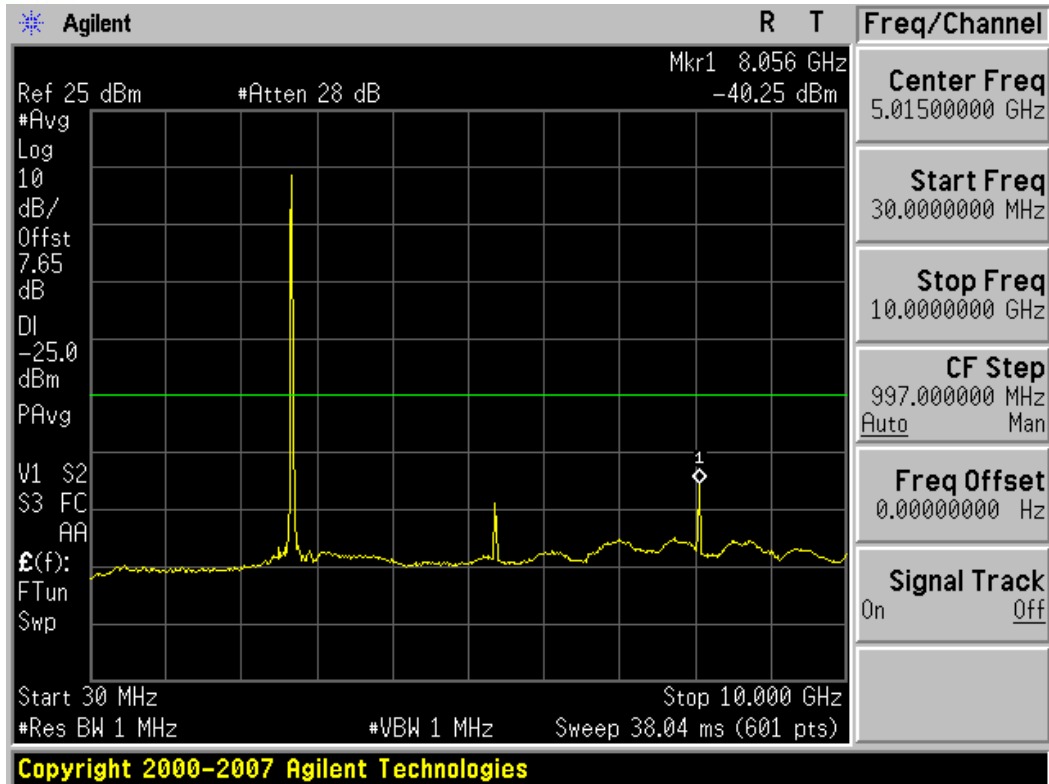


Plot 8-31. Conducted Spurious Plot (High Ch., 10MHz BW, QPSK, Main Antenna)

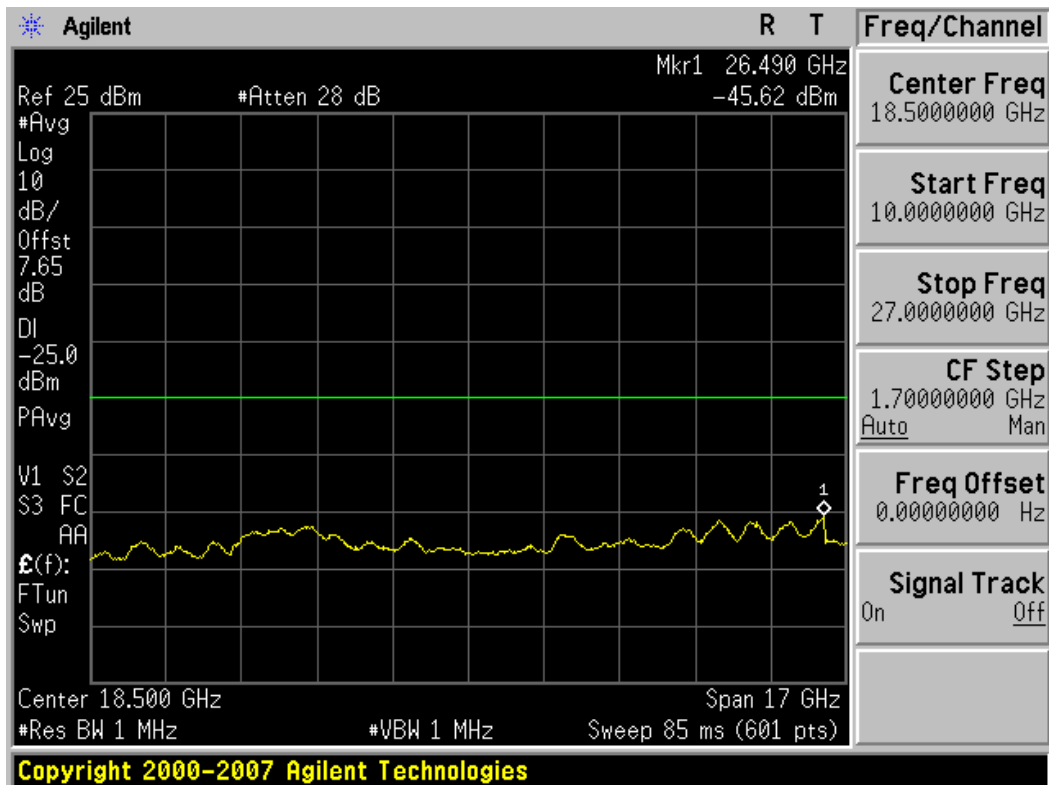


Plot 8-32. Emission Mask Plot (High Ch., 10MHz BW, 16-QAM, Main Antenna)

FCC ID: NBZNRM-CC208		FCC Pt. 27 WiMAX MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1008161369.PKR	Test Dates: August 18 - 26, 2010, June 2011	EUT Type: Cellular/PCS CDMA/EvDO and WiMAX PC Card/Express Card Transceiver		Page 53 of 58

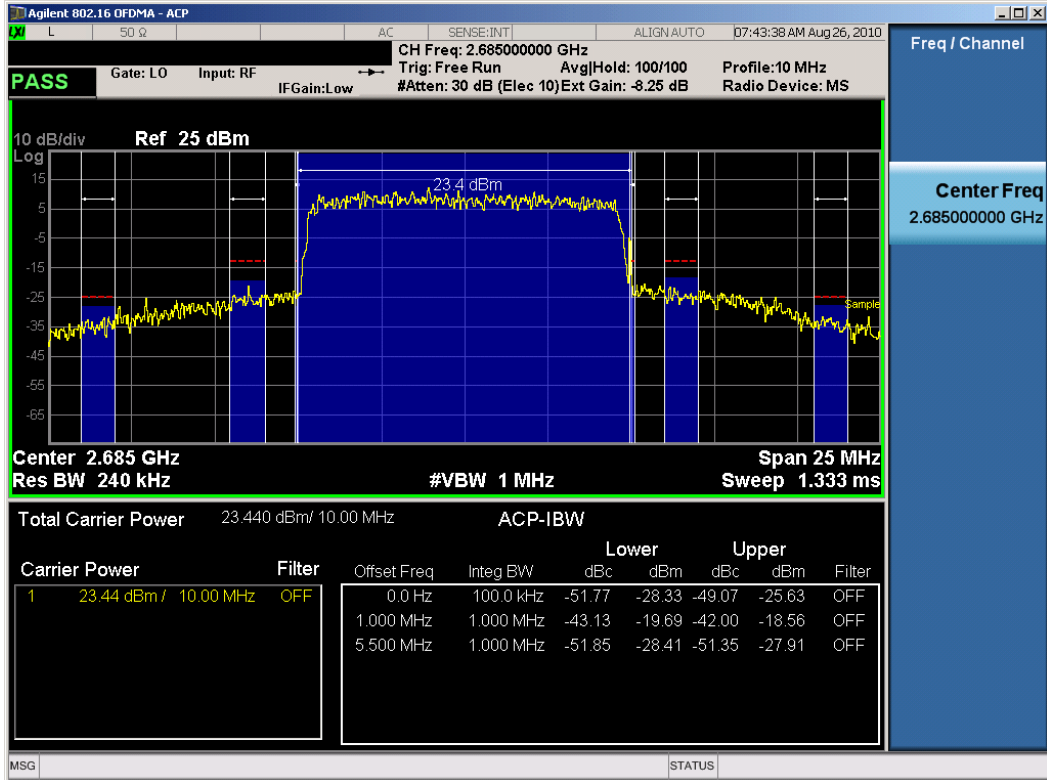


Plot 8-33. Conducted Spurious Plot (High Ch., 10MHz BW, 16-QAM, Main Antenna)

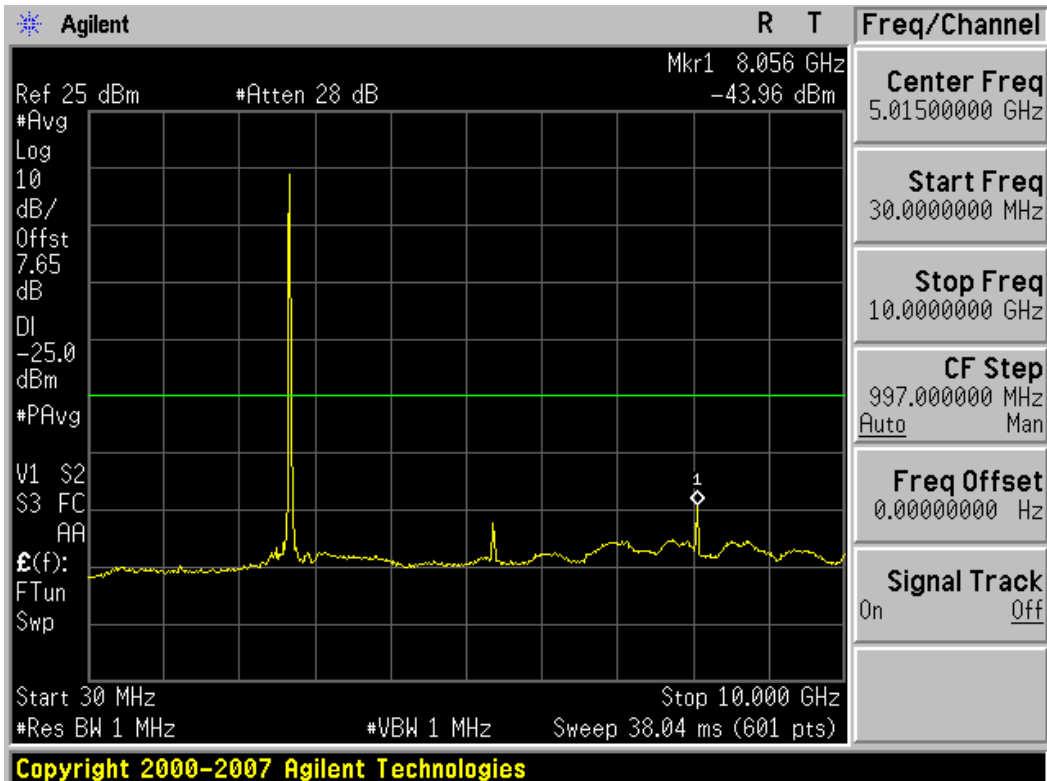


Plot 8-34. Conducted Spurious Plot (High Ch., 10MHz BW, 16-QAM, Main Antenna)

FCC ID: NBZNRM-CC208		FCC Pt. 27 WiMAX MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1008161369.PKR	Test Dates: August 18 - 26, 2010, June 2011	EUT Type: Cellular/PCS CDMA/EvDO and WiMAX PC Card/Express Card Transceiver		Page 54 of 58

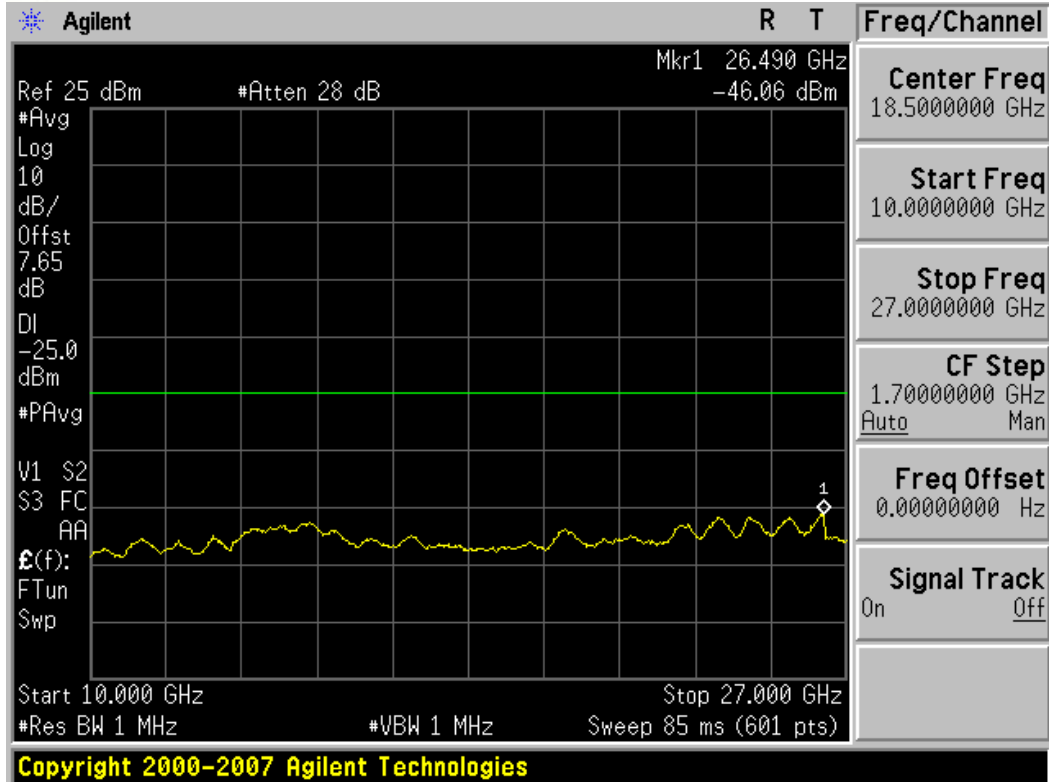


Plot 8-35. Emission Mask Plot (High Ch., 10MHz BW, QPSK, Diversity Antenna)

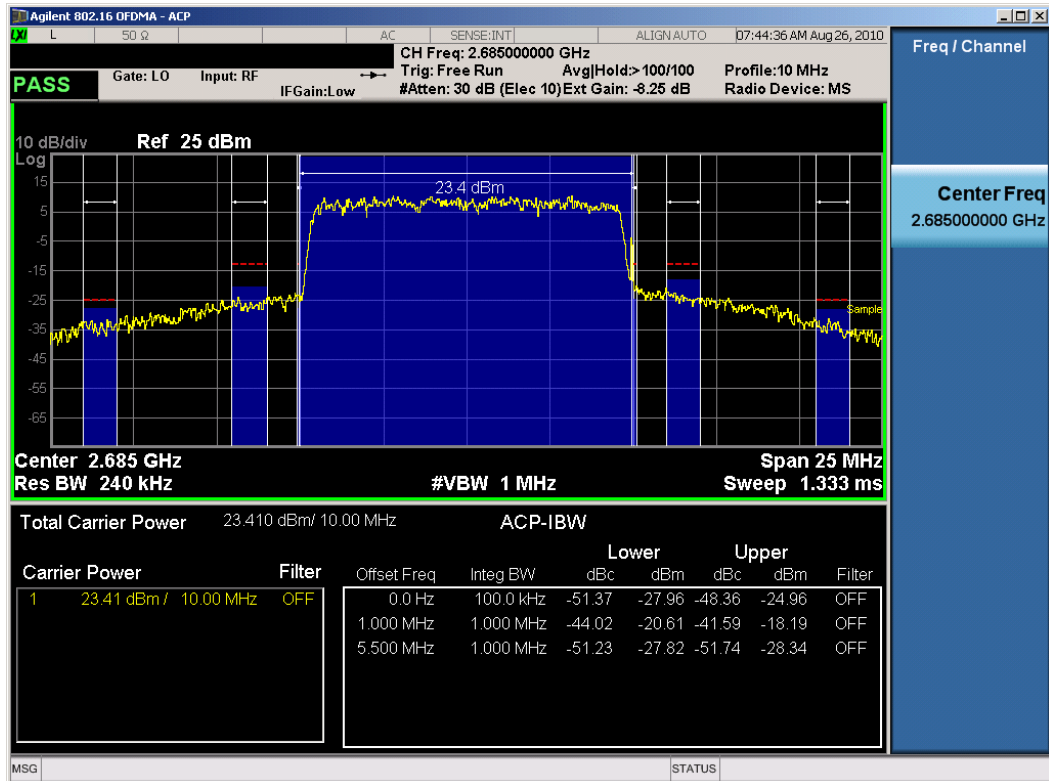


Plot 8-36. Conducted Spurious Plot (High Ch., 10MHz BW, QPSK, Diversity Antenna)

FCC ID: NBZNRM-CC208		FCC Pt. 27 WiMAX MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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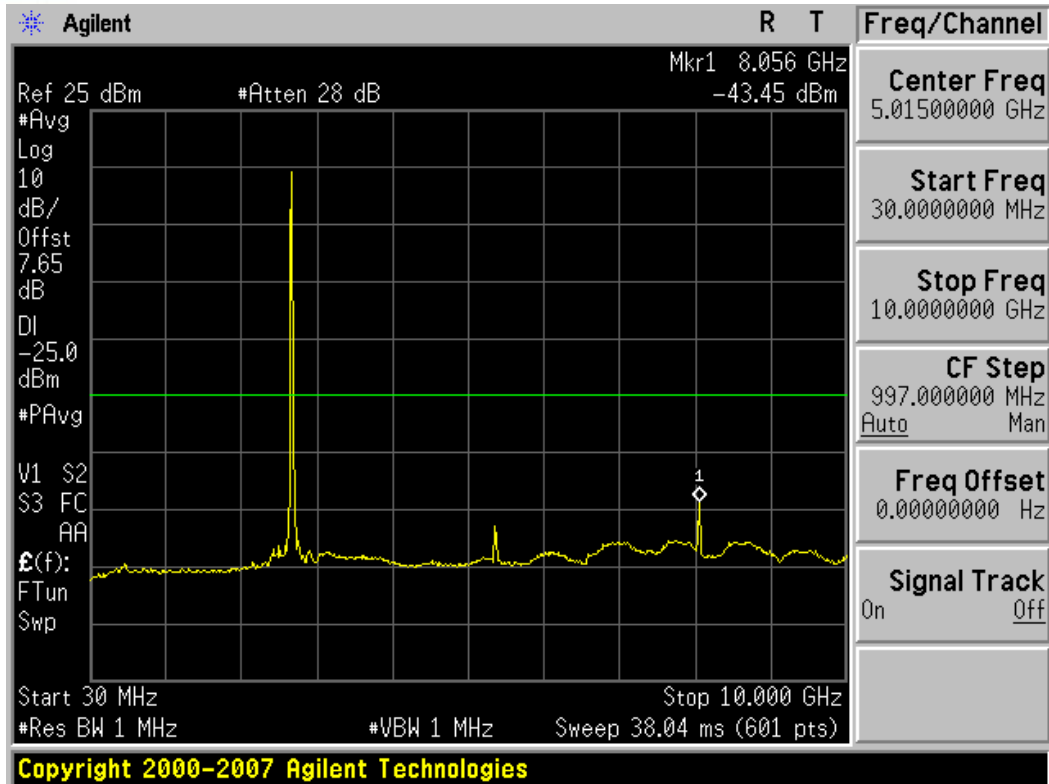


Plot 8-37. Conducted Spurious Plot (High Ch., 10MHz BW, QPSK, Diversity Antenna)

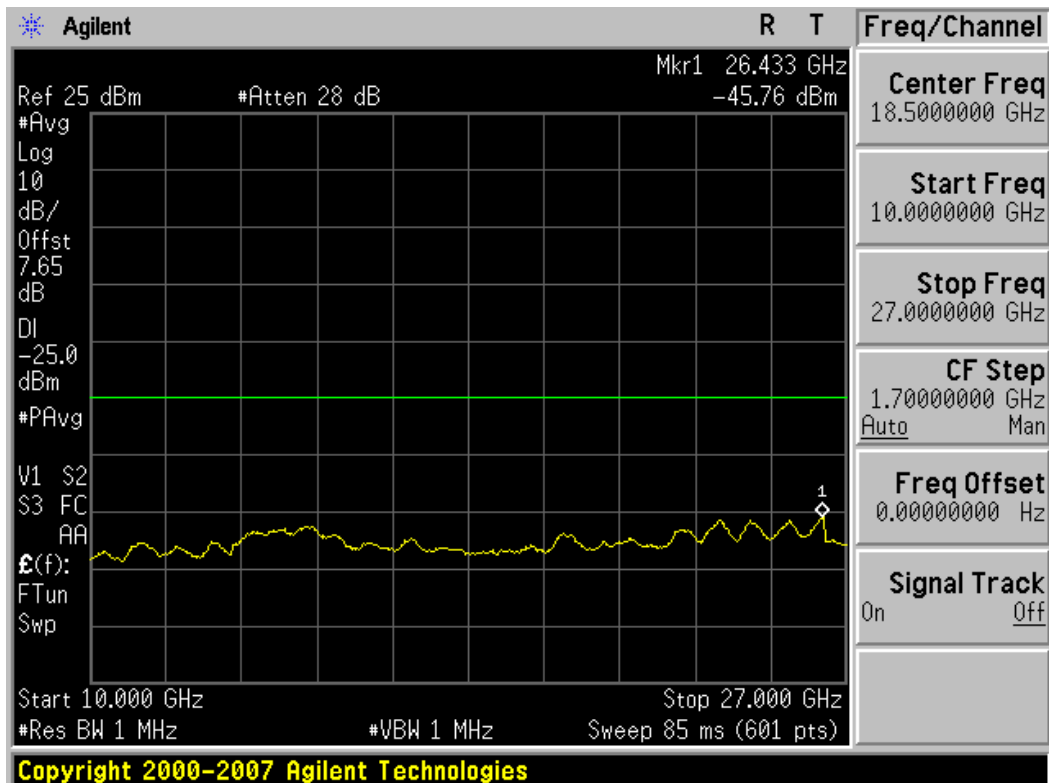


Plot 8-38. Emission Mask Plot (High Ch., 10MHz BW, 16-QAM, Diversity Antenna)

FCC ID: NBZNRM-CC208		FCC Pt. 27 WiMAX MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
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Plot 8-39. Conducted Spurious Plot (High Ch., 10MHz BW, 16-QAM, Diversity Antenna)





Plot 8-40. Conducted Spurious Plot (High Ch., 10MHz BW, 16-QAM, Diversity Antenna)

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9.0 CONCLUSION

The data collected relate only to the item(s) tested and show that the **Novatel Cellular/PCS CDMA/EvDO and WiMAX PC Card/Express Card Transceiver FCC ID: NBZNRM-CC208** complies with all the requirements of Parts 2 and 27 of the FCC rules.

FCC ID: NBZNRM-CC208		FCC Pt. 27 WiMAX MEASUREMENT REPORT (CERTIFICATION)		Reviewed by: Quality Manager
Test Report S/N: 0Y1008161369.PKR	Test Dates: August 18 - 26, 2010, June 2011	EUT Type: Cellular/PCS CDMA/EvDO and WiMAX PC Card/Express Card Transceiver		Page 58 of 58