HCT CO., LTD.
Product Compliance Division
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CERTIFICATE OF COMPLIANCE

FCC Certification

Applicant Name:
Diffon Corporation

Address:
Digital Tower Aston 1505, 505-15 Gasan, Geumcheon, Seoul, Korea

Date of Issue:
April 05, 2010

Location:
HCT.CO., LTD., San 136-1 Ami-ri, Bubal-eup, Icheon-si, Kyoungki-do, Korea

Test Report No.: HCTR0912FR02-2

HCT FRN: 0005866421

IC Recognition No.: IC 5944A-1

FCC ID:	**XHG-U600**
APPLICANT:	**Diffon Corporation**

Model(s):	U600
EUT Type:	USB Modem
Tx Frequency:	2 498.5 MHz ~ 2 687.5 MHz (5 MHz Bandwidth) 2 501.0 MHz ~ 2 685.0 MHz (10 MHz Bandwidth)
Rx Frequency:	2 498.5 MHz ~ 2 687.5 MHz (5 MHz Bandwidth) 2 501.0 MHz ~ 2 685.0 MHz (10 MHz Bandwidth)
Max. RF Output Power:	0.224W EIRP 5 MHz QPSK(23.51 dBm)/ 0.333W EIRP 5 MHz 16QAM (25.23 dBm) 0.224 W EIRP 10 MHz QPSK(23.51 dBm) 0.343 W EIRP 10 MHz 16QAM (25.35 dBm)
Emission Designator(s):	5 MHz BW : 4M47G7D(QPSK) / 4M44W7D(16QAM) 10 MHz BW : 9M12G7D(QPSK) / 9M05W7D(16QAM)
FCC Classification:	Licensed Non-Broadcast Transmitter (TNB)
FCC Rule Part(s):	§27, §2

The measurements shown in this report were made in accordance with the procedures specified in §2.947. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them.

HCT.CO., LTD. Certifies that no party to this application has been denied FCC benefits pursuant to section 5301 of the Anti-Drug Abuse Act of 1998,21 U.S. C.853(a)

Jong Seok Lee

Report prepared by
: Jong Seok Lee
Test engineer of RF Team

Sang Jun Lee

Approved by
: Sang Jun Lee
Manager of RF Team

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MEASUREMENT REPORT

1. GENERAL INFORMATION

Applicant Name:	Diffon Corporation
Address:	Digital Tower Aston 1505, 505-15 Gasan, Geumcheon, Seoul, Korea
FCC ID:	XHG-U600
Application Type:	Certification
FCC Classification:	Licensed Non-Broadcast Transmitter (TNB)
FCC Rule Part(s):	§27, §2
EUT Type:	USB Modem
Model(s):	U600
Tx Frequency:	2 498.5 MHz ~ 2 687.5 MHz (5 MHz Bandwidth) 2 501.0 MHz ~ 2 685.0 MHz (10 MHz Bandwidth)
Rx Frequency:	2 498.5 MHz ~ 2 687.5 MHz (5 MHz Bandwidth) 2 501.0 MHz ~ 2 685.0 MHz (10 MHz Bandwidth)
Max. RF Output Power:	0.224W EIRP 5 MHz QPSK(23.51 dBm)/ 0.333W EIRP 5 MHz 16QAM (25.23 dBm) 0.224 W EIRP 10 MHz QPSK(23.51 dBm) 0.343 W EIRP 10 MHz 16QAM (25.35 dBm)
Emission Designator(s):	5 MHz BW : 4M47G7D(QPSK) / 4M44W7D(16QAM) 10 MHz BW : 9M12G7D(QPSK) / 9M05W7D(16QAM)
Antenna Specification	Manufacturer: ARRO Co., Ltd. Antenna type: Chip Antenna Peak Gain: 2.8 dBi
Date(s) of Tests:	March 22, 2010 ~ March 31, 2010

2. INTRODUCTION

2.1. EUT DESCRIPTION

The Diffon Corporation U600 USB Modem consists of Cellular CDMA, PCS CDMA, EVDO Rev.A and **wimax**.

2.2. MEASURING INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment, which is traceable to recognized national standards.

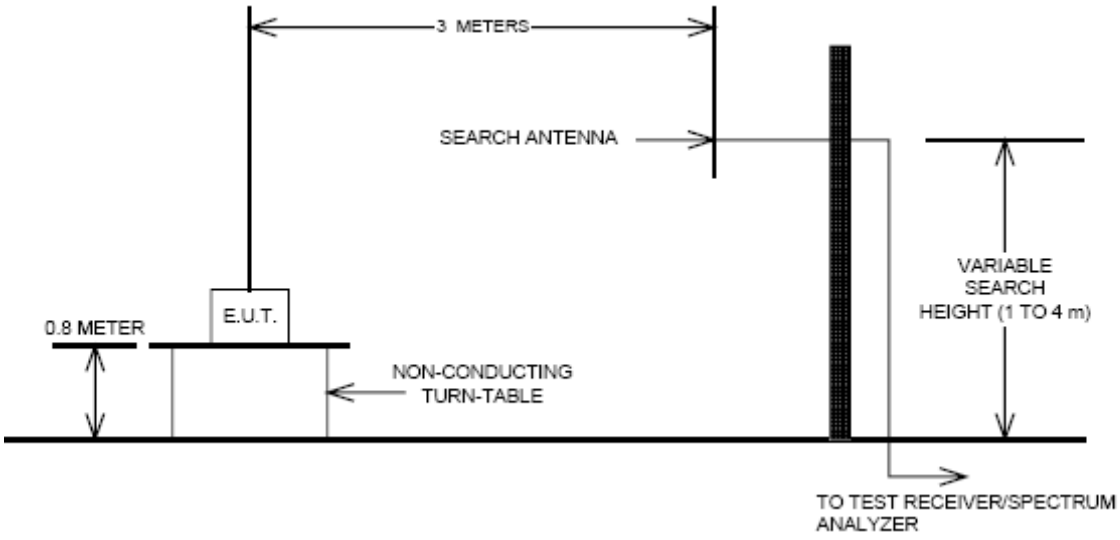
2.3. TEST FACILITY

The open area test site and conducted measurement facility used to collect the radiated data are located at the 254-1, Maekok-Ri, Hobup-Myun, Ichon-Si, Kyoungki-Do, 467-701, KOREA. The site is constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 22. Detailed description of test facility was submitted to the Commission and accepted dated June 10, 2009(Registration Number: 90661)

3. DESCRIPTION OF TESTS

3.1 Equivalent Isotropic Radiated Power

Test Set-up



Test Procedure

Radiated emission measurements were performed at an open Site.

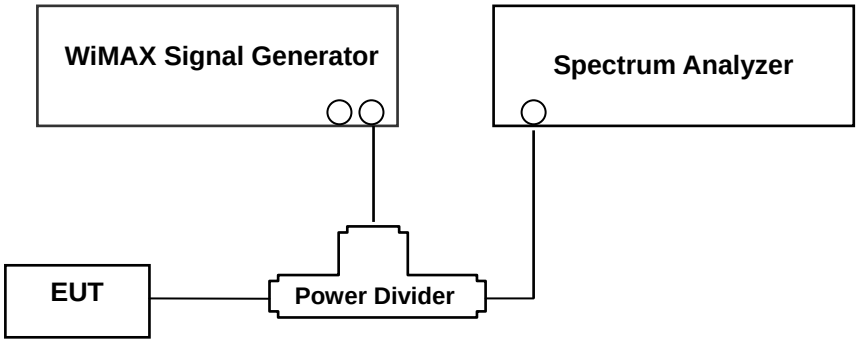
The equipment under test is placed on a wooden turntable 3-meters from the receive antenna.

A wooden turntable was rotated 360° and the receiving antenna scanned from 1-4m in order to capture the maximum emission. A half wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the previously recorded signal was duplicated.

The maximum EIRP was calculated by adding the forward power to the calibrated source plus its appropriate gain value. These steps were carried out with the receiving antenna in both vertical and horizontal polarization. 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.

3.2 Occupied Bandwidth.

Test set-up



(Configuration of conducted Emission measurement)
Test Procedure

The EUT was setup to maximum output power at its lowest channel. The occupied bandwidth was measured using a spectrum analyzer. The measurements are repeated for the highest and a middle channel. The EUT's occupied bandwidth is measured as the width of the signal between two points, one below the carrier center frequency and one above the carrier frequency, outside of which all emissions are attenuated at least 26 dB below the transmitter power. Plots of the EUT's occupied bandwidth are shown herein.

3.3 Spurious and Harmonic Emissions at Antenna Terminal.

Test Procedure

The level of the carrier and the various conducted spurious and harmonic frequencies is measured by means of a calibrated spectrum analyzer.

The EUT was setup to maximum output power at its lowest channel. The Resolution BW of the analyzer is set to 1 % of the emission bandwidth to show compliance with the -13 dBm limit, in the 1 MHz bands immediately outside and adjacent to the edge of the frequency block. The 1 MHz RBW was used to scan from 30 MHz to 26.5 GHz.. A display line was placed at -25 dBm to show compliance. The high, lowest and a middle channel were tested for out of band measurements.

- Band Edge Requirement : When measuring conducted band edge, the ACP feature of the signal analyzer was used. For each segment of the band edge, the allowed integration bandwidth was configured to calculate the channel power that is highest within that band edge segemnt.

- Occupied Bandwidth Emission Limits

· On any frequency outside but within 5.5 MHz from the band edge of a licensee's frequency block, the power of any emission shall be attenuated below the transmitter power (P) by at least 43 + 10long(P) dB. At frequencies greater than 5.5 MHz from any in-band channel edge, the transmitter power (P) shall be attenuated by at least 55 + 10log(P) dB.

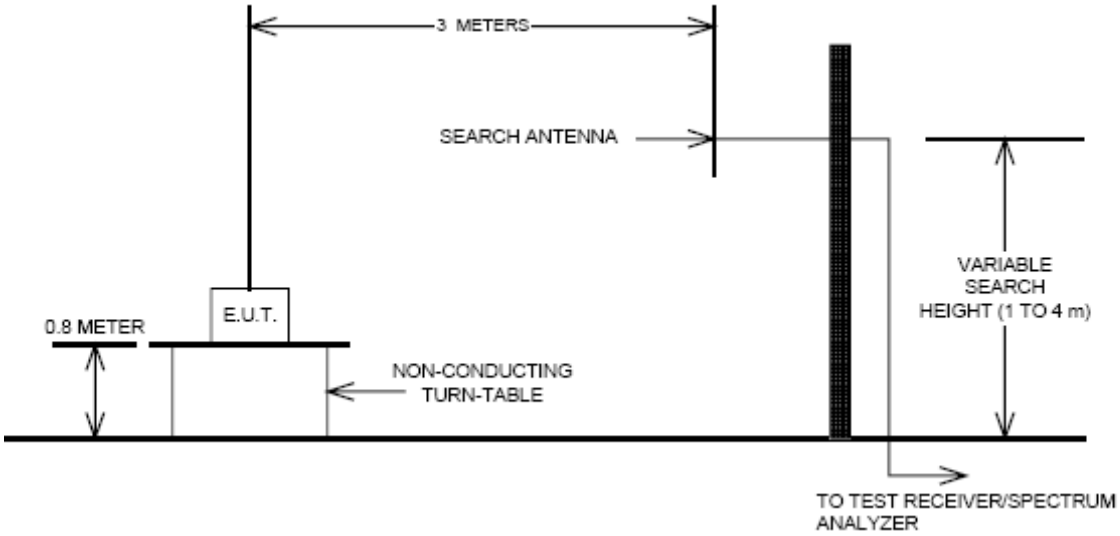
· Compliance with these provisions is based on the use of measurement instrumentation employing a resolution bandwidth of 1 MHz or greater. However, in the 1 MHz bands immediately outside and adjacent to the frequency block a resolution bandwidth of at least one percent of the emission bandwidth of the 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 ecnter frequency and one above the carrier center frequency, outside of which all emission are attenuated at least 26 dB below the transmitter power.

· When measuring the emission limits, the nominal carrier frequency shall be adjusted as close to the licensee's frequency block edges, both upper and lower, as the design permits.

· The measurement of emission power con be expressed in peak or average values, provided they are expressed in the same parameters as the transmitter power.

3.5 Radiated Spurious and Harmonic Emissions

Test Set-up



The measurement facilities used for this test have been documented in previous filings with the commission pursuant to section § 2.948. The open field test site is situated in open field with ground screen whose site attenuation characteristics meet ANSI C63.4 –2003. A mast capable of lifting the receiving antenna from a height of one to four meters is used together with a rotatable wooden platform mounted at three from the antenna mast.

1) The unit mounted on a wooden table 1.5 m × 1.0 m × 0.80 m is 0.8 meter above test site ground level.
2) During the emission test, the turntable is rotated and the EUT is manipulated to find the configuration resulting in maximum emission under normal condition of installation and operation.
3) The antenna height and polarization are also varied from 1 to 4 meters until the maximum signal is found.
4) The spectrum shall be scanned up to the 10th harmonic of the fundamental frequency.

Test Procedure

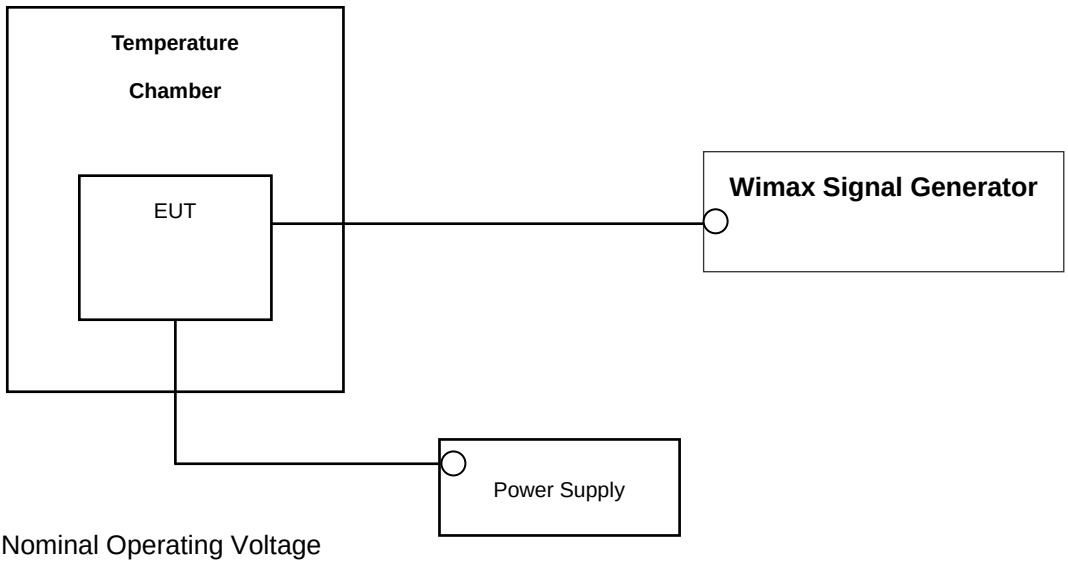
The equipment under test is placed on a wooden turntable 3-meters from the receive antenna.

A wooden turntable was rotated 360° and the receiving antenna scanned from 1-4m in order to capture the maximum emission. A half wave dipole was substituted in place of the EUT. This dipole antenna was driven by a signal generator and the previously recorded signal was duplicated.

The maximum EIRP was calculated by adding the forward power to the calibrated source plus its appropriate gain value. These steps were carried out with the receiving antenna in both vertical and horizontal polarization. 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.

3.6 Frequency stability / variation of ambient temperature

Test Set-up



* Nominal Operating Voltage

Test Procedure

The frequency stability of the transmitter is measured by:
a.) **Temperature:** The temperature is varied from - 30 °C to + 50 °C using an environmental chamber.

b.) **Primary Supply Voltage:** The primary supply voltage is varied from battery end point to 115 % of the voltage normally at the input to the device or at the power supply terminals if cables are not normally supplied.

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 ± 0.000 25 %(± 2.5 ppm) of the center frequency.

Time Period and Procedure:

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

2. 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.
NOTE: The EUT is tested down to the battery endpoint.

4. LIST OF TEST EQUIPMENT

Manufacture	Model/ Equipment	Serial Number	Calibration Interval	Calibration Due
R&S	ESI40/ Spectrum Analyzer	831564/003	Annual	10/30/2010
Agilent	E4416A/ Power Meter	GB41291412	Annual	01/14/2011
Agilent	E9327A/ Power Sensor	MY4442009	Annual	07/28/2010
Agilent	8960 (E5515C)/ Base Station	GB44400269	Annual	02/10/2011
MITEQ	AMF-60-0010 1800-35-20P / AMP	1200937	Annual	05/20/2010
Wainwright	WHK1.2/15G-10EF/H.P.F	2	Annual	06/29/2010
Wainwright	WHK3.3/18G-10EF/H.P.F	1	Annual	06/29/2010
Agilent	775D/ Dual Directional Coupler	12922	Annual	12/24/2010
Agilent	11636B/ Power Divider	11377	Annual	12/24/2010
Digital	EP-3010/ Power Supply	3110117	Annual	01/08/2011
Schwarzbeck	UHAP/ Dipole Antenna	585	Biennial	02/13/2011
Schwarzbeck	UHAP/ Dipole Antenna	558	Biennial	02/13/2011
Korea Engineering	KR-1005L / Chamber	KRAB07063-2CH	Annual	12/28/2010
Schwarzbeck	BBHA 9120D/ Horn Antenna	296	Biennial	09/23/2011
Agilent	E4440A/Spectrum Analyzer	US45303008	Annual	12/23/2010

5. SUMMARY OF TEST RESULTS

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result
2.1049, 22.917(a), 24.238(a)	Occupied Bandwidth	N/A	CONDUCTED	PASS
2.1051, 22.917(a), 24.238(a)	Band Edge / Spurious and Harmonic Emissions at Antenna Terminal.	< 43 + 10log10 (P[Watts]) at Band Edge and for all out-of-band emissions		PASS
2.1046	Conducted Output Power	N/A		PASS
24.232(d)	Peak- to- Average Ratio	< 13 dB		
2.1055, 22.355, 24.235	Frequency stability / variation of ambient temperature	< 2.5 ppm		PASS
22.913(a)(2) 24.232(c)	Effective Radiated Power	< 7 Watts max. ERP	RADIATED	PASS
	Equivalent Isotropic Radiated Power	< 2 Watts max. EIRP		PASS
2.1053, 22.917(a), 24.238(a)	Radiated Spurious and Harmonic Emissions	< 43 + 10log10 (P[Watts]) for all out-of band emissions		PASS

6. SAMPLE CALCULATION

A. ERP Sample Calculation

Mode	Ch./ Freq.		Measured Level(dBm)	Substitude LEVEL(dBm)	Ant. Gain	C.L	Pol.	ERP	
	channel	Freq.(MHz)						W	dBm
CDMA	384	836.52	-10.96	24.81	2.50	1.19	H	0.41	26.12

ERP = SubstitudeLEVEL(dBm) + Ant. Gain – CL(Cable Loss)

1) The EUT mounted on a wooden tripod is 0.8 meter above test site ground level.
2) During the test , the turn table is rotated and the antenna height is also varied from 1 to 4 meters until the maximum signal is found.
3) Record the field strength meter's level.
4) Replace the EUT with dipole/Horn antenna that is connected to a calibrated signal generator.
5) Increase the signal generator output till the field strength meter's level is equal to the item (3).
6) The signal generator output level with Ant. Gain and cable loss are the rating of effective radiated power (**ERP**).

B. Emission Designator

CDMA Emission Designator

Emission Designator = 1M27F9W

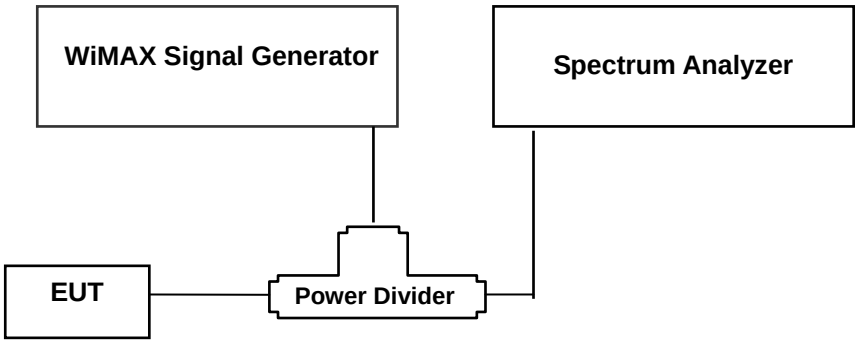
CDMA BW = 1.27 MHz (Measured at the 99% power bandwidth)
F = Frequency Modulation
9 = Composite Digital Info
W = Combination (Audio/Data)

7. TEST DATA

This EUT is not supported a USB cable.

7.1 Conducted Output Power

A base station simulator was used to establish communication with the EUT. The base station simulator parameters were set to produce the maximum power from the EUT. This device was tested under all configurations and the highest power is reported. Conducted Output Powers of EUT are reported below.



Test Result

5 MHz channel BW		
Frequency(MHz)	**Modulation**	**Average Power (dBm)**
2498.5	QPSK 1/2	23.44
	QPSK 3/4	23.45
	16QAM 1/2	23.49
	16QAM 3/4	23.36
2593.0	QPSK 1/2	23.11
	QPSK 3/4	23.15
	16QAM 1/2	23.09
	16QAM 3/4	22.97
2687.5	QPSK 1/2	23.07
	QPSK 3/4	23.04
	16QAM 1/2	23.11
	16QAM 3/4	22.99

(WiMAX Conducted Average Output Powers)

10 MHz channel BW		
Frequency(MHz)	**Modulation**	**Average Power (dBm)**
2501.0	QPSK 1/2	22.98
	QPSK 3/4	23.04
	16QAM 1/2	23.12
	16QAM 3/4	22.96
2593.0	QPSK 1/2	22.87
	QPSK 3/4	22.63
	16QAM 1/2	22.75
	16QAM 3/4	22.70
2685.0	QPSK 1/2	22.75
	QPSK 3/4	22.79
	16QAM 1/2	22.77
	16QAM 3/4	22.74

(WiMAX Conducted Average Output Powers)

Note : Detecting mode is average.

- 5 MHz: Plots of the EUT's Conducted Output Power are shown Page 26 ~ 31.

- 10 MHz: Plots of the EUT's Conducted Output Power are shown Page 32 ~ 37.

7.2 Occupied Bandwidth

5 MHz

Frequency [MHz]	Modulation	Occupied Bandwidth [MHz]
2498.5	QPSK 1/2	4.4658
	QPSK 3/4	4.4174
	16QAM 1/2	4.4219
	16QAM 3/4	4.4375
2593.0	QPSK 1/2	4.4672
	QPSK 3/4	4.4186
	16QAM 1/2	4.4238
	16QAM 3/4	4.4381
2687.5	QPSK 1/2	4.4667
	QPSK 3/4	4.4182
	16QAM 1/2	4.4241
	16QAM 3/4	4.4388

10 MHz

Frequency [MHz]	Modulation	Occupied Bandwidth [MHz]
2501.0	QPSK 1/2	9.1130
	QPSK 3/4	8.9993
	16QAM 1/2	9.0371
	16QAM 3/4	9.0394
2593.0	QPSK 1/2	9.1132
	QPSK 3/4	9.0048
	16QAM 1/2	9.0400
	16QAM 3/4	9.0422
2685.0	QPSK 1/2	9.1153
	QPSK 3/4	8.9920
	16QAM 1/2	9.0421
	16QAM 3/4	9.0454

- 5 MHz: Plots of the EUT's Occupied Bandwidth are shown Page 38 ~ 43.

- 10 MHz: Plots of the EUT's Occupied Bandwidth are shown Page 44 ~ 49.

7.3 Conducted Spurious Emissions

5 MHz

Frequency(MHz)	Modulation	Frequency of Maximum Harmonic (GHz)	Maximum Data (dBm)
2498.5	QPSK 1/2	26.1470	-32.818
	QPSK 3/4	25.6920	-33.172
	16QAM 1/2	24.4300	-32.613
	16QAM 3/4	24.5430	-33.561
2593.0	QPSK 1/2	25.7350	-33.182
	QPSK 3/4	24.9190	-32.804
	16QAM 1/2	25.9900	-32.786
	16QAM 3/4	25.6840	-32.596
2687.5	QPSK 1/2	25.2000	-32.958
	QPSK 3/4	25.7100	-32.424
	16QAM 1/2	25.302	-33.206
	16QAM 3/4	25.710	-32.216

10 MHz

Frequency(MHz)	Modulation	Frequency of Maximum Harmonic (GHz)	Maximum Data (dBm)
2501.0	QPSK 1/2	25.2510	-32.602
	QPSK 3/4	25.2760	-32.761
	16QAM 1/2	26.0920	-33.156
	16QAM 3/4	24.4090	-32.611
2593.0	QPSK 1/2	24.5110	-32.796
	QPSK 3/4	25.6590	-32.557
	16QAM 1/2	25.5310	-32.565
	16QAM 3/4	25.0210	-32.885
2685.0	QPSK 1/2	25.6330	-32.548
	QPSK 3/4	24.4600	-33.042
	16QAM 1/2	25.0980	-32.950
	16QAM 3/4	25.0470	-31.709

- 5 MHz: Plots of the EUT's Conducted Spurious Emissions are shown Page 58 ~ 69.

- 10 MHz: Plots of the EUT's Conducted Spurious Emissions are shown Page 70 ~ 81.

7.3.1 Band Edge

- 5 MHz: Plots of the EUT's Band Edge are shown Page 50 ~ 53.

- 10 MHz: Plots of the EUT's Band Edge are shown Page 54 ~ 57.

7.4 Equivalent Isotropic Radiated Power (WiMAX)

(5 MHz)

Ch./ Freq.		Measured	Substitude	Ant. Gain	C.L	Pol.	EIRP	
Modulation	Freq.(MHz)	Level(dBm)	LEVEL (dBm)	(dBi)			**W**	**dBm**
QPSK	2498.50	-17.79	14.69	11.15	2.33	V	0.22	23.51
	2593.00	-18.66	13.86	11.20	2.34	V	0.19	22.72
	2687.50	-19.73	12.90	11.25	2.52	V	0.15	21.63
16QAM	2498.50	-17.79	14.69	11.15	2.33	V	0.22	23.51
	2593.00	-19.28	13.24	11.20	2.34	V	0.16	22.10
	2687.50	-19.85	12.78	11.25	2.52	V	0.14	21.51

Note: Worst case are QPSK 3/4 (2687.5 MHz = 1/2) and 16QAM 1/2. This unit was tested with a notebook computer.

(10 MHz)

Ch./ Freq.		Measured	Substitude	Ant. Gain	C.L	Pol.	EIRP	
Modulation	Freq.(MHz)	Level(dBm)	LEVEL (dBm)	(dBi)			**W**	**dBm**
QPSK	2501.00	-15.76	16.41	11.15	2.33	V	0.33	25.23
	2593.00	-17.16	15.36	11.20	2.34	V	0.26	24.22
	2685.00	-18.01	15.13	11.25	2.52	V	0.24	23.86
16QAM	2501.00	-15.64	16.53	11.15	2.33	V	0.34	25.35
	2593.00	-17.52	15.00	11.20	2.34	V	0.24	23.86
	2685.00	-17.89	15.25	11.25	2.52	V	0.25	23.98

Note: Worst case are QPSK 3/4 (2593.0 MHz = 1/2) and 16QAM 1/2. This unit was tested with a notebook computer.

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 3-meters from the receive antenna. The receive antenna height and turntable rotation was adjusted for the highest reading on the receive spectrum analyzer. For 5 MHz BW signals, a peak detector is used, with RBW = VBW = 5 MHz. For 10 MHz BW signals, a peak detector is used, with RBW = VBW = 10MHz. 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 receive spectrum analyzer reading.

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.

Also, we have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna. The worst case of the EUT is in y plane in 5 MHz BW and 10 MHz BW mode. Also worst case of detecting Antenna is in vertical polarization in 5 MHz BW and 10 MHz BW mode.

7.5 Radiated Spurious Emissions

7.5.1 Radiated Spurious Emissions (WiMAX 5 MHz-QPSK)

▣ MEASURED OUTPUT POWER: 23.51 dBm = 0.224 W

▣ MODULATION SIGNAL: WiMAX 5 MHz

▣ DISTANCE: 3 meters

▣ LIMIT: - (43 + 10 $\log_{10}$ (W)) = - 48.51 dBc

Operating Freq. (MHz)	Freq.(MHz)	Measured Level [dBm]	Ant. Gain (dBd)	Substitute Level [dBm]	C.L	Pol.	ERP (dBm)	dBc
2498.50	4,997.00	-50.87	12.99	-52.71	3.60	V	-43.32	-66.83
	7,495.50	-46.03	11.36	-38.46	3.88	V	-30.98	-54.49
	9,994.00	-	-	-	-	-	-	-
2593.00	5,186.00	-50.42	12.83	-52.11	3.39	V	-42.67	-66.18
	7,779.00	-50.69	11.24	-43.56	3.72	V	-36.04	-59.55
	10,372.00	-	-	-	-	-	-	-
2687.50	5,375.00	-45.81	12.67	-48.42	3.41	V	-39.16	-62.67
	8,062.50	-51.89	11.17	-42.44	4.07	V	-35.34	-58.85
	10,750.00	-54.11	11.04	-41.01	4.80	V	-34.76	-58.27

NOTES: 1. Radiated Spurious Emission Measurements at 3 meters by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

2. The magnitude of spurious emissions attenuated more than 20dB below the limit above 5th Harmonic for all channel.

3. we have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

4. Worst case is QPSK 3/4.

7.5.2 Radiated Spurious Emissions (WiMAX 10 MHz-16QAM)

▣ MEASURED OUTPUT POWER: 25.23 dBm = 0.333 W

▣ MODULATION SIGNAL: WiMAX 10 MHz

▣ DISTANCE: 3 meters

▣ LIMIT: - (43 + 10 lo_{g10} (W)) = - 50.23 dBc

Operating Freq. (MHz)	Freq.(MHz)	Measured Level [dBm]	Ant. Gain (dBd)	Substitute Level [dBm]	C.L	Pol.	ERP (dBm)	dBc
2501.00	5,002.00	-52.22	12.99	-54.46	3.60	V	-45.07	-70.30
	7,503.00	-49.48	11.36	-42.01	3.88	V	-34.53	-59.76
	10,004.00	-	-	-	-	-	-	-
2593.00	5,186.00	-51.78	12.83	-53.47	3.39	V	-44.03	-69.26
	7,779.00	-54.74	11.24	-47.61	3.72	V	-40.09	-65.32
	10,372.00	-	-	-	-	-	-	-
2685.00	5,370.00	-47.41	12.67	-50.12	3.41	V	-40.86	-66.09
	8,055.00	-	-	-	-	-	-	-
	10,740.00	-	-	-	-	-	-	-

NOTES: 1. Radiated Spurious Emission Measurements at 3 meters by Substitution Method according to ANSI/TIA/EIA-603-C-2004, Aug. 17, 2004:

2. The magnitude of spurious emissions attenuated more than 20dB below the limit above 5th Harmonic for all channel.

3. we have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.

4. Worst case is 16QAM 1/2.

7.6 Frequency stability / variation of ambient temperature

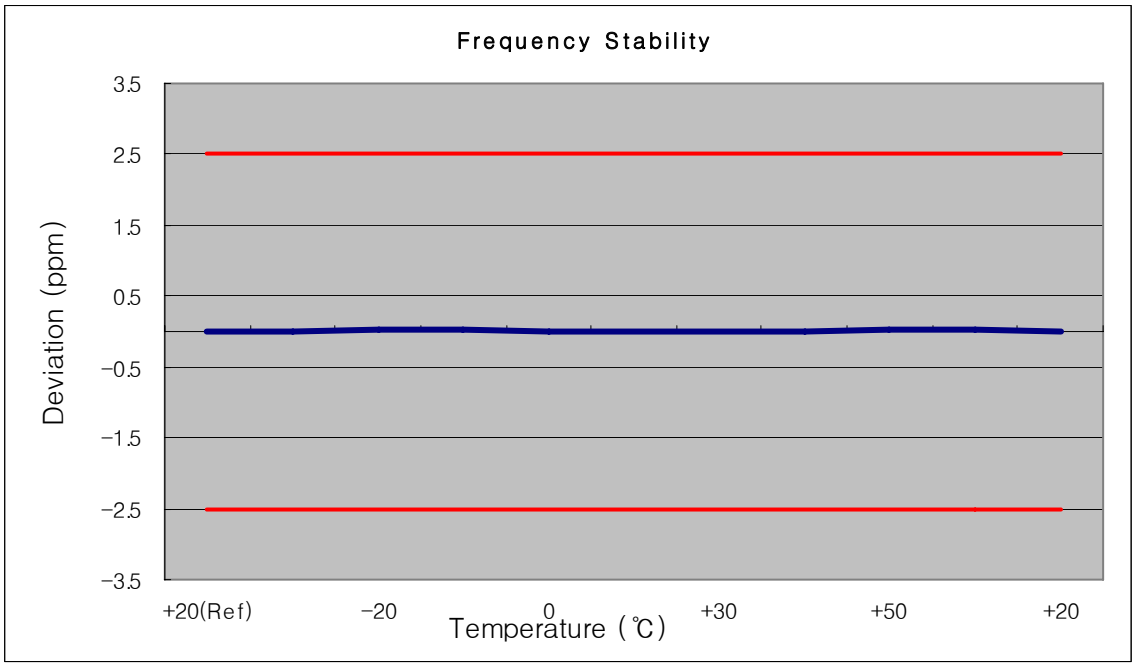
7.6.1 FREQUENCY STABILITY (WiMAX-5 MHz)

OPERATING FREQUENCY: 2593,000,000 Hz

REFERENCE VOLTAGE: 3.7 VDC

DEVIATION LIM IT: ± 0.000 25 % or 2.5 ppm

Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	3.700	+20(Ref)	2593 000 037	0	0.000 000	0.000
100%		−30	2593 000 034	34	0.000 001	0.013
100%		−20	2593 000 039	39	0.000 002	0.015
100%		−10	2593 000 045	45	0.000 002	0.017
100%		0	2593 000 036	36	0.000 001	0.014
100%		+10	2593 000 029	29	0.000 001	0.011
100%		+30	2593 000 033	33	0.000 001	0.013
100%		+40	2593 000 035	35	0.000 001	0.013
100%		+50	2593 000 040	40	0.000 002	0.015
115%	4.255	+20	2593 000 039	39	0.000 002	0.015
Batt. Endpoint	3.400	+20	2593 000 031	31	0.000 001	0.012



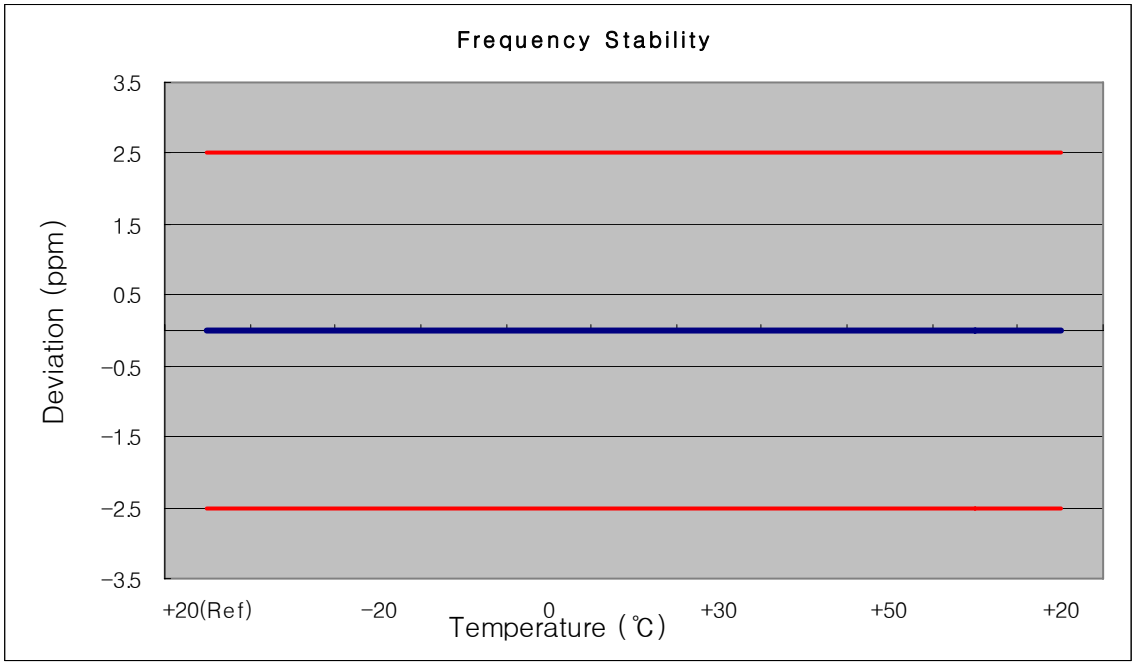
7.6.2 FREQUENCY STABILITY (WiMAX-10 MHz)

OPERATING FREQUENCY: 2593,000,000 Hz

REFERENCE VOLTAGE: 3.7 VDC

DEVIATION LIM IT: ± 0.000 25 % or 2.5 ppm

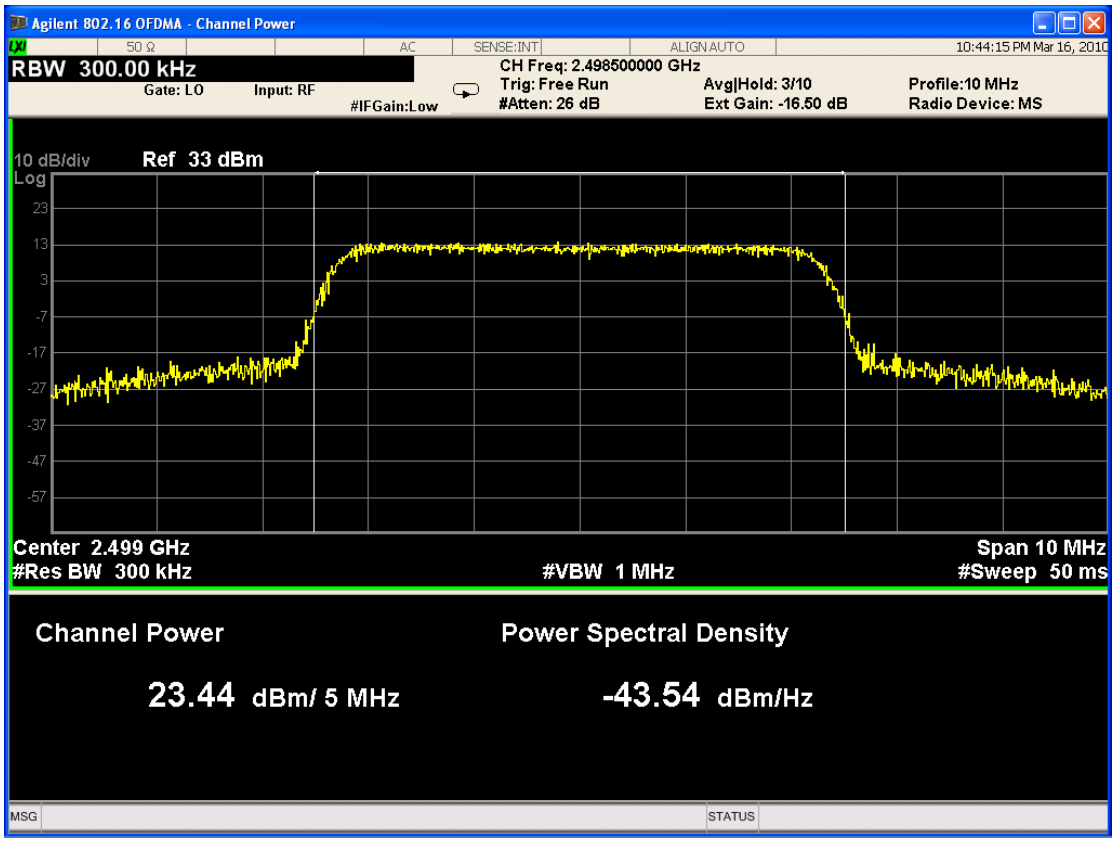
Voltage (%)	Power (VDC)	Temp. (℃)	Frequency (Hz)	Frequency Error (Hz)	Deviation (%)	ppm
100%	3.700	+20(Ref)	2593 000 019	0	0.000 000	0.000
100%		−30	2593 000 026	26	0.000 001	0.010
100%		−20	2593 000 025	25	0.000 001	0.010
100%		−10	2592 999 993	−7	0.000 000	−0.003
100%		0	2593 000 034	34	0.000 001	0.013
100%		+10	2593 000 020	20	0.000 001	0.008
100%		+30	2593 000 031	31	0.000 001	0.012
100%		+40	2593 000 025	25	0.000 001	0.010
100%		+50	2593 000 029	29	0.000 001	0.011
115%	4.255	+20	2593 000 017	17	0.000 001	0.007
Batt. Endpoint	3.400	+20	2593 000 020	20	0.000 001	0.008



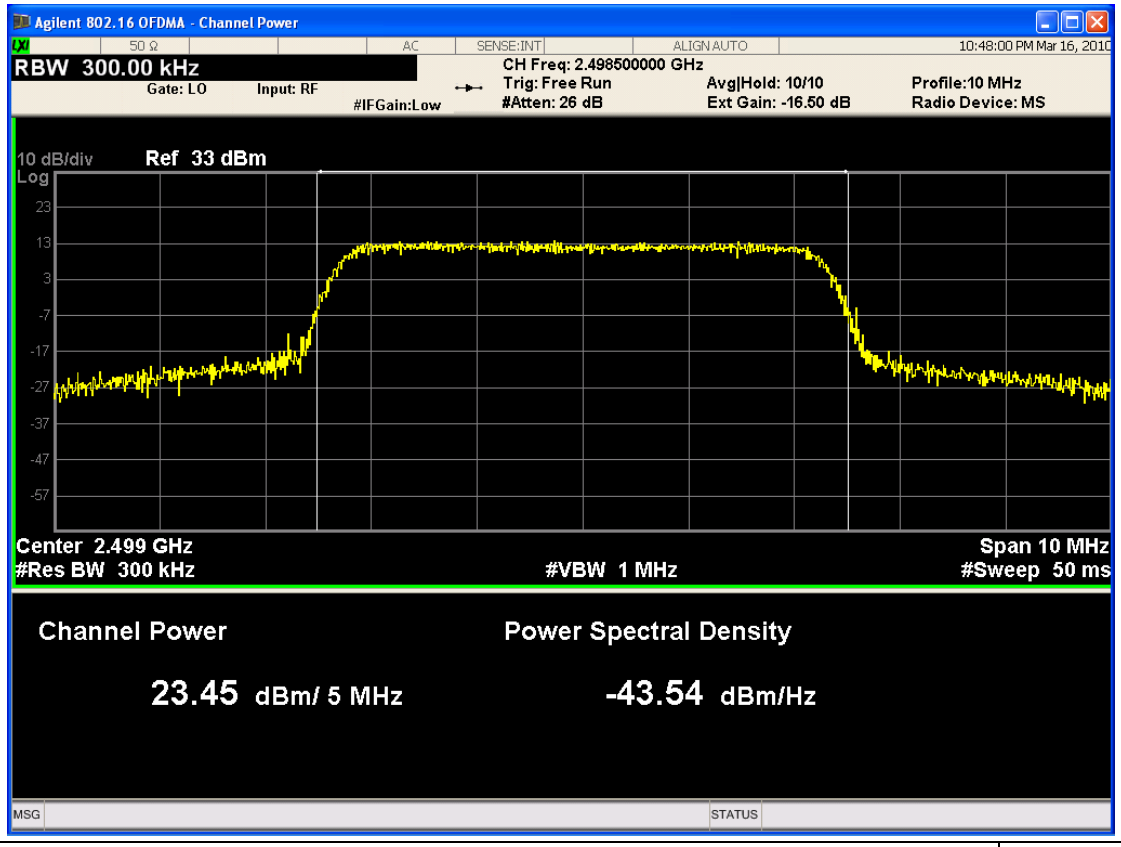
8. TEST PLOTS

5 MHz

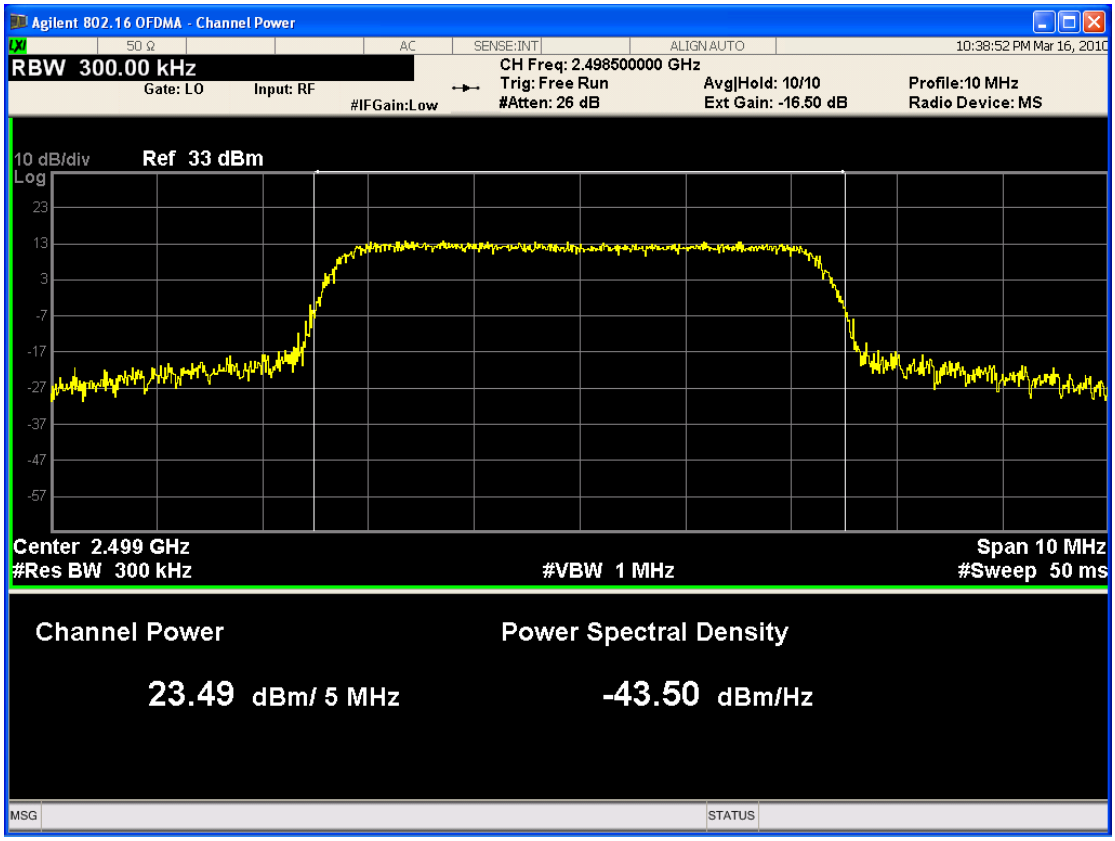
■ QPSK MODE 1/2 (2498.5 MHz) Conducted Output Power



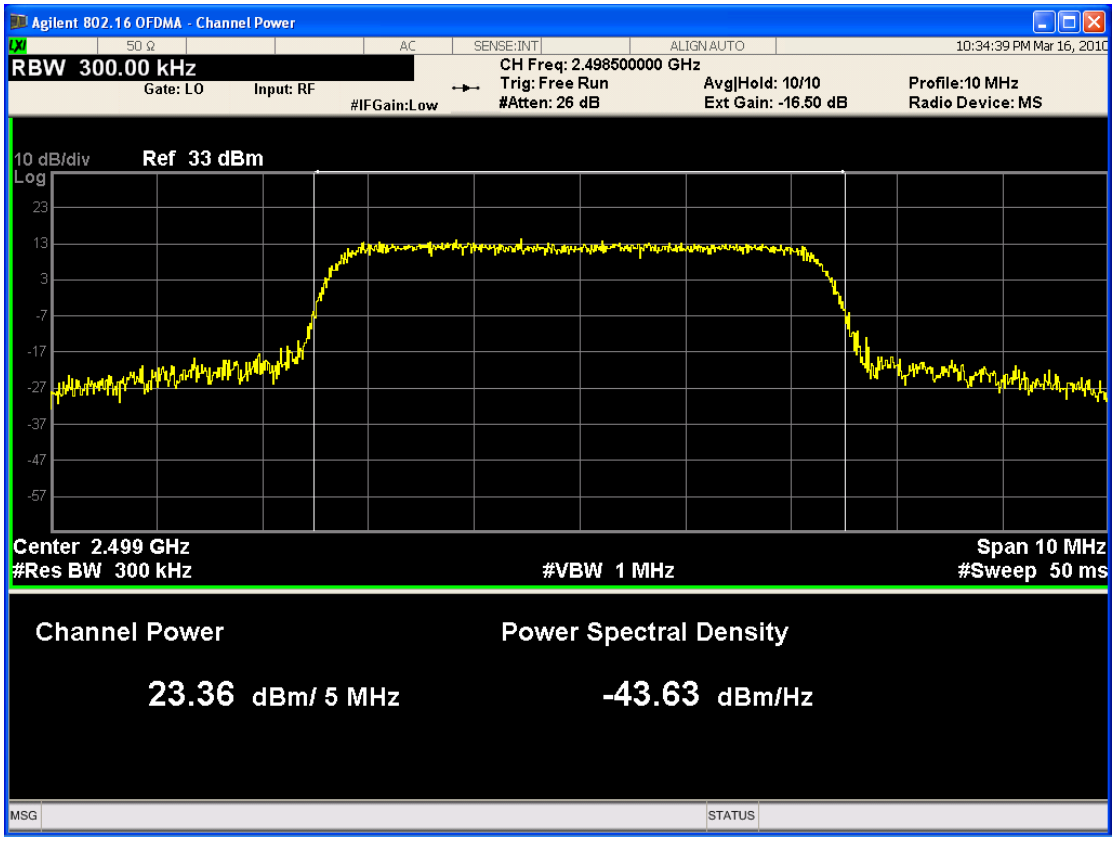
■ QPSK MODE 3/4 (2498.5 MHz) Conducted Output Power



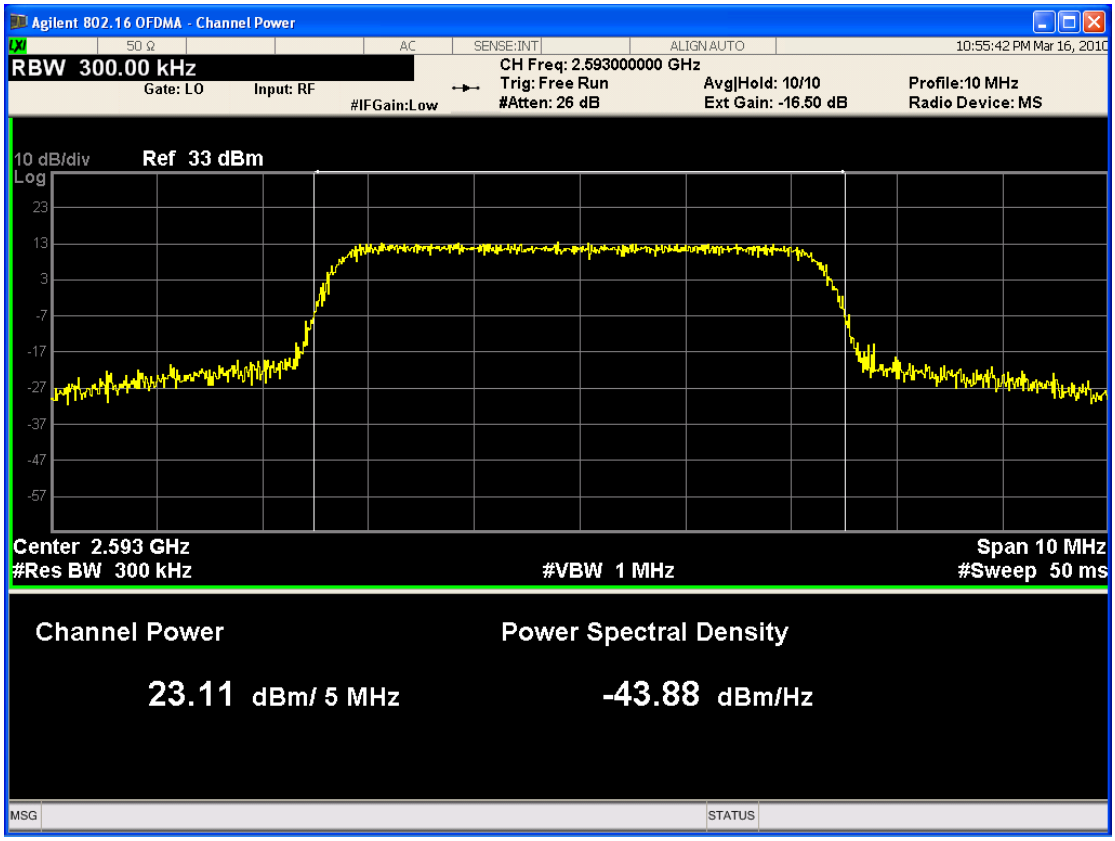
■ 16QAM MODE 1/2 (2498.5 MHz) Conducted Output Power



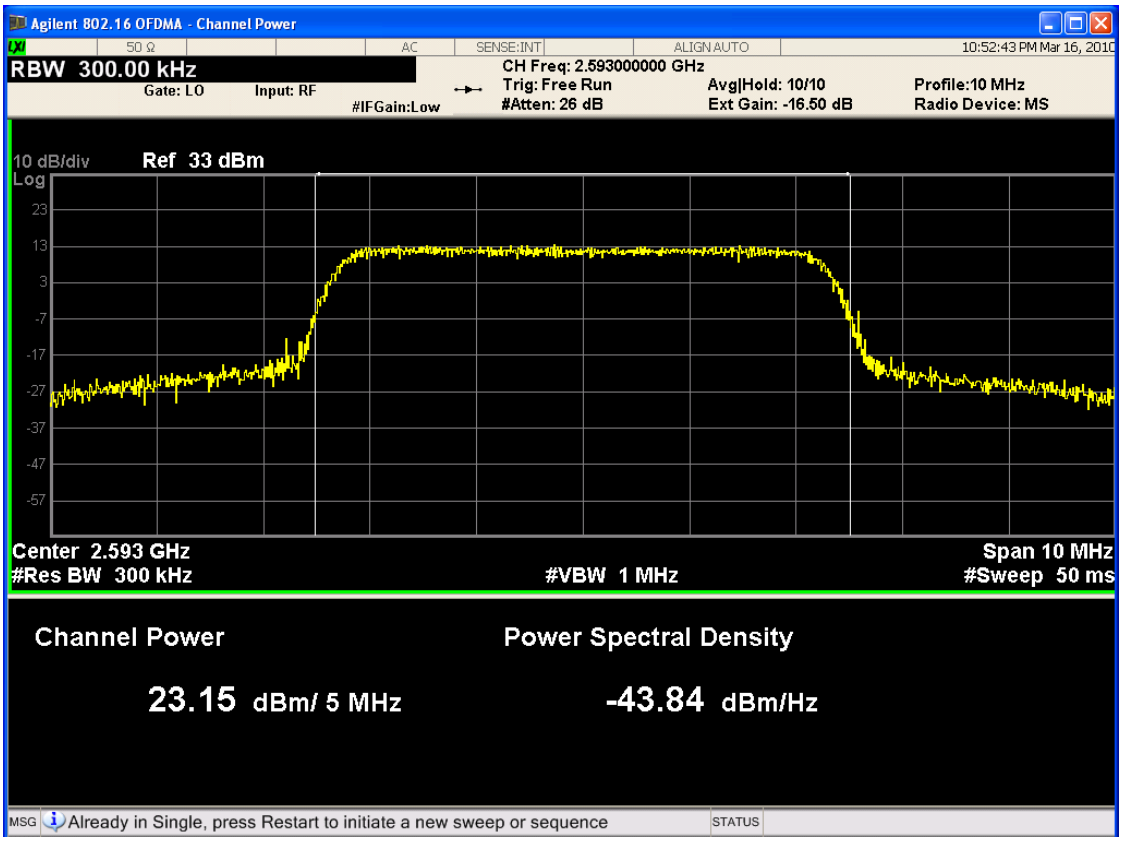
■ 16QAM MODE 3/4 (2498.5 MHz) Conducted Output Power



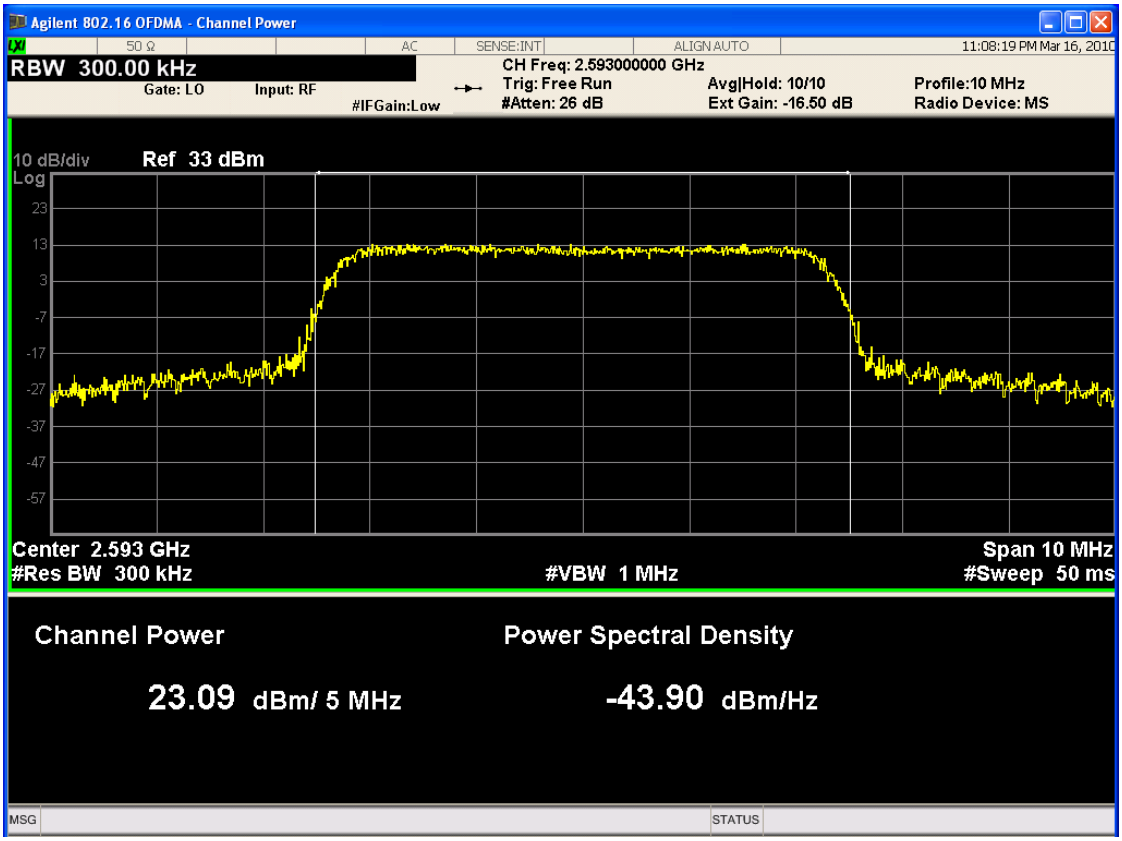
■ QPSK MODE 1/2 (2593.0 MHz) Conducted Output Power



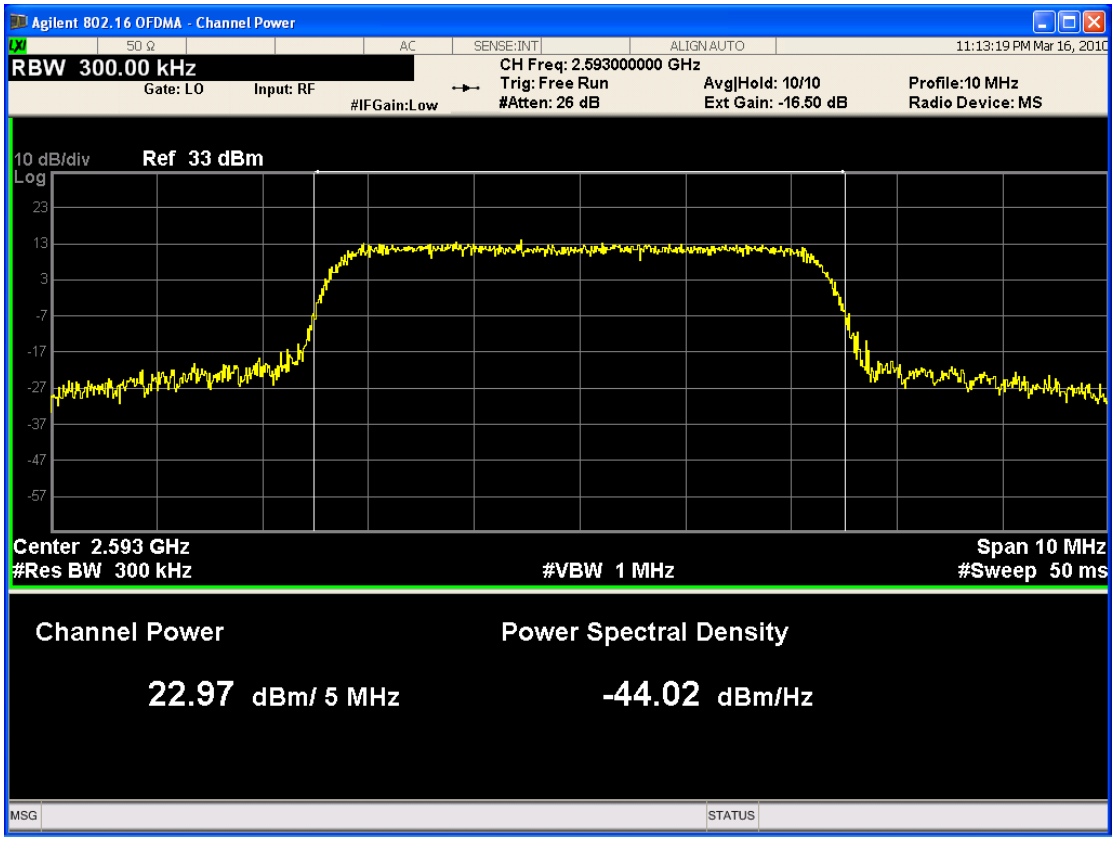
■ QPSK MODE 3/4 (2593.0 MHz) Conducted Output Power



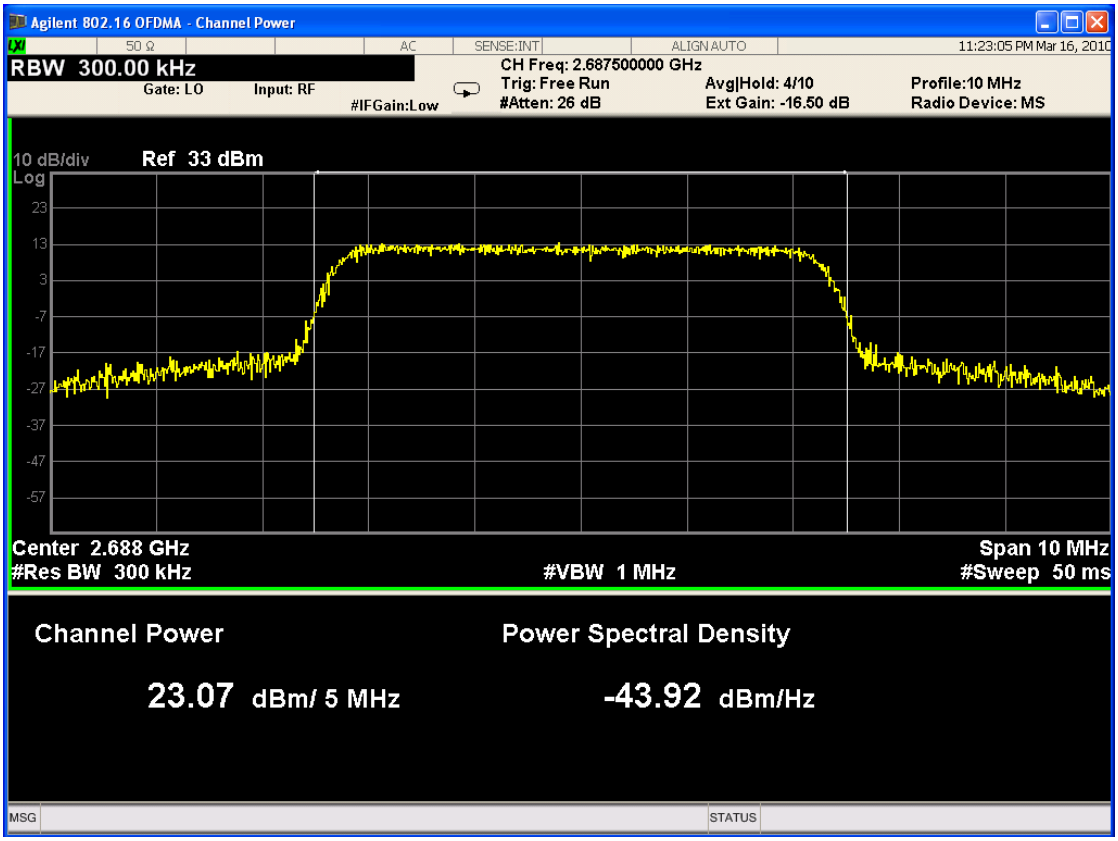
■ 16QAM MODE 1/2 (2593.0 MHz) Conducted Output Power



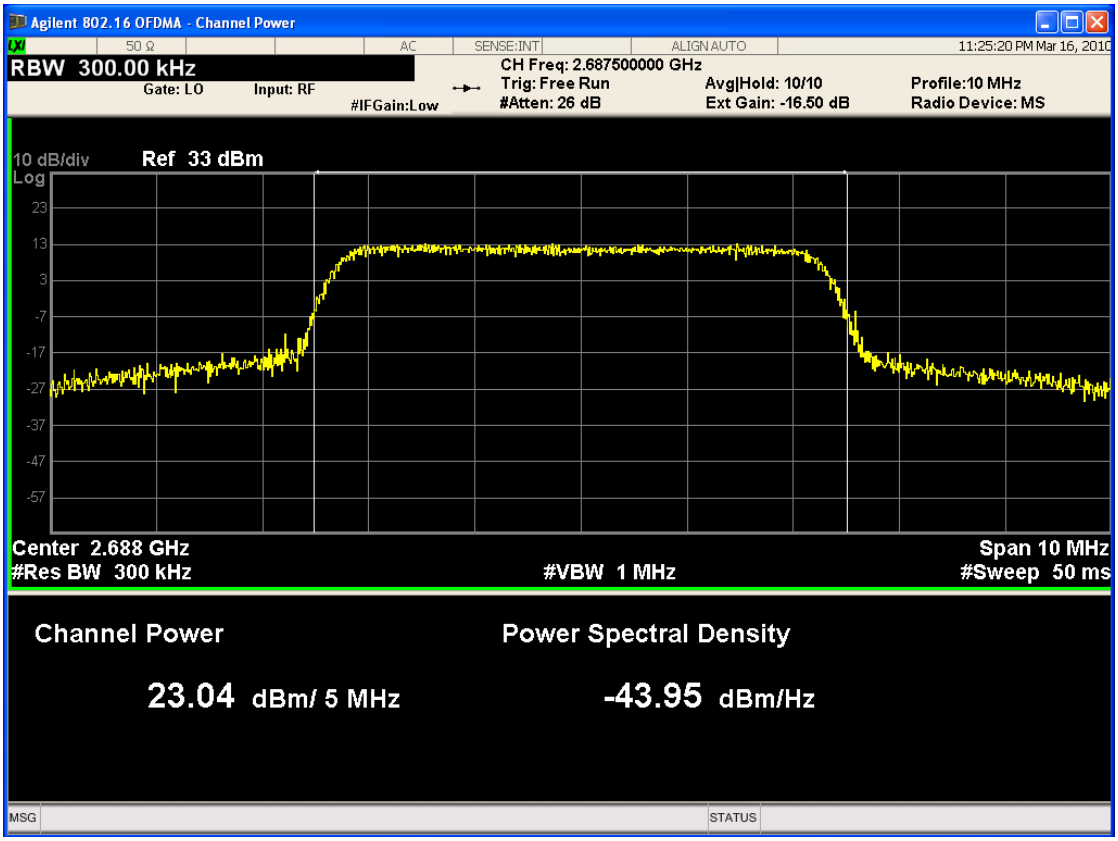
■ 16QAM MODE 3/4 (2593.0 MHz) Conducted Output Power



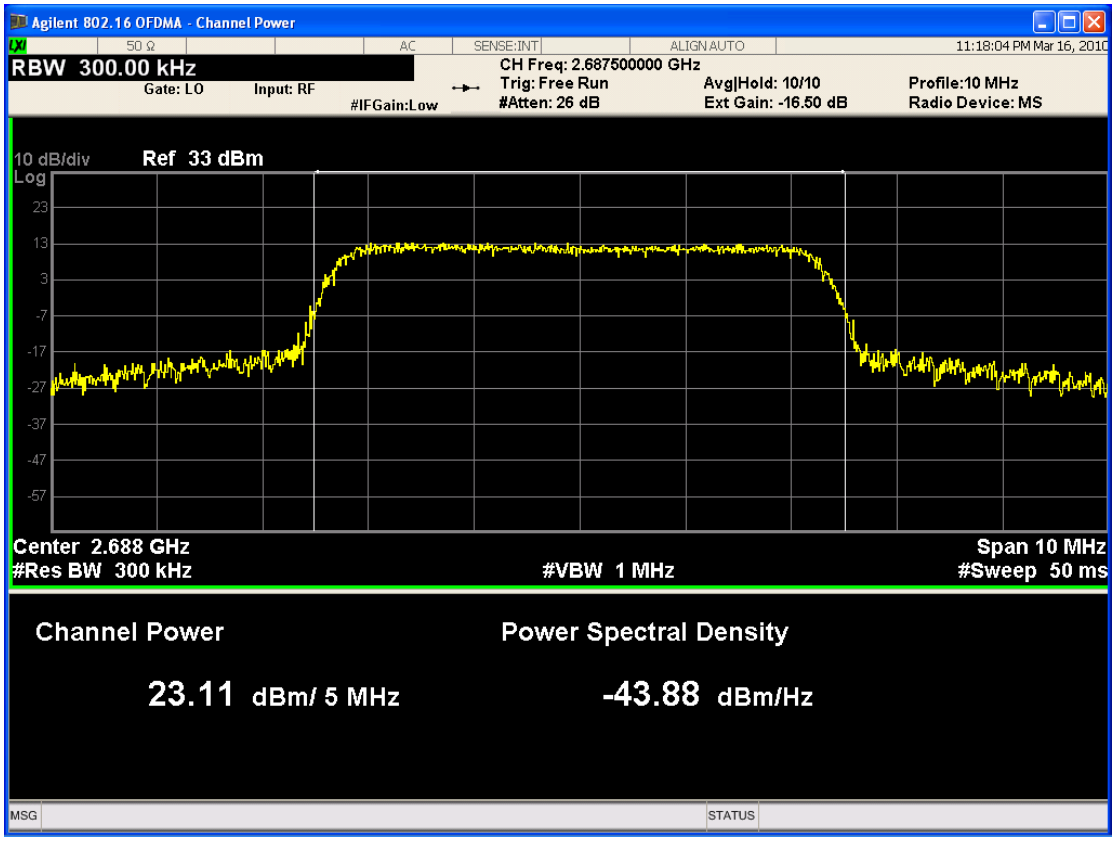
■ QPSK MODE 1/2 (2687.5 MHz) Conducted Output Power



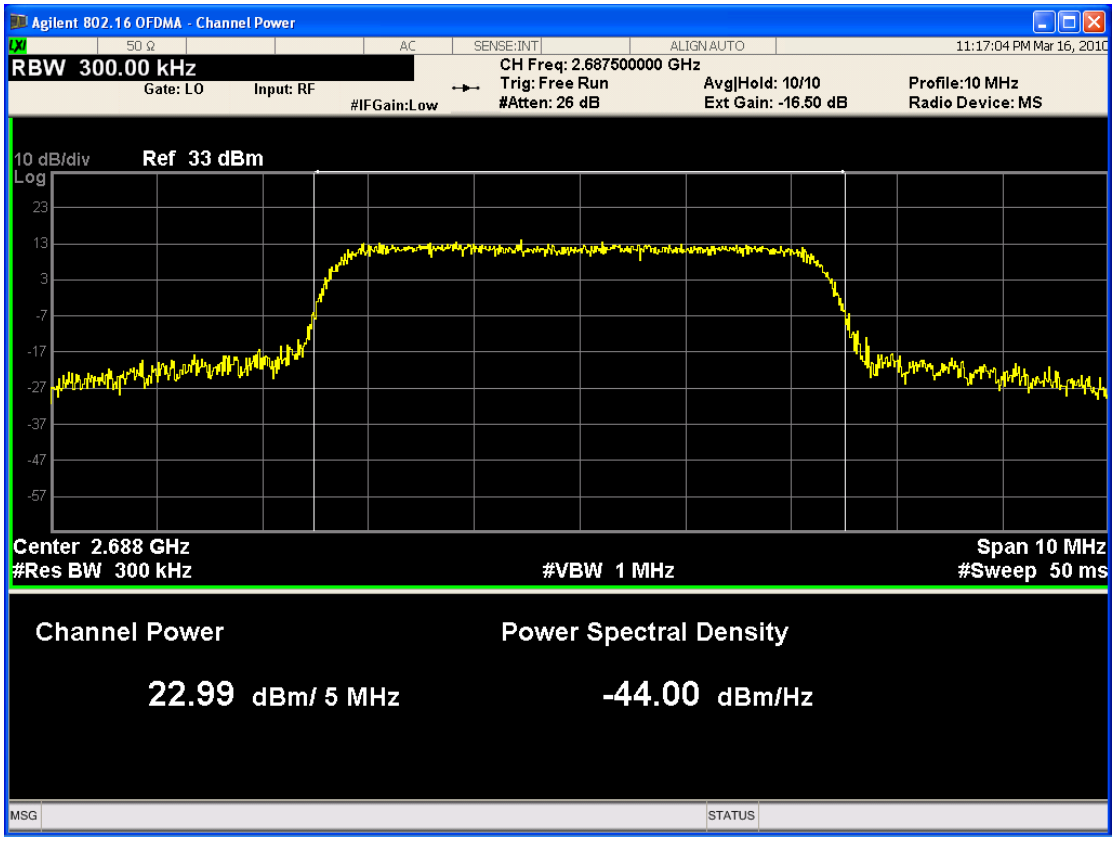
■ QPSK MODE 3/4 (2687.5 MHz) Conducted Output Power



■ 16QAM MODE 1/2 (2687.5 MHz) Conducted Output Power

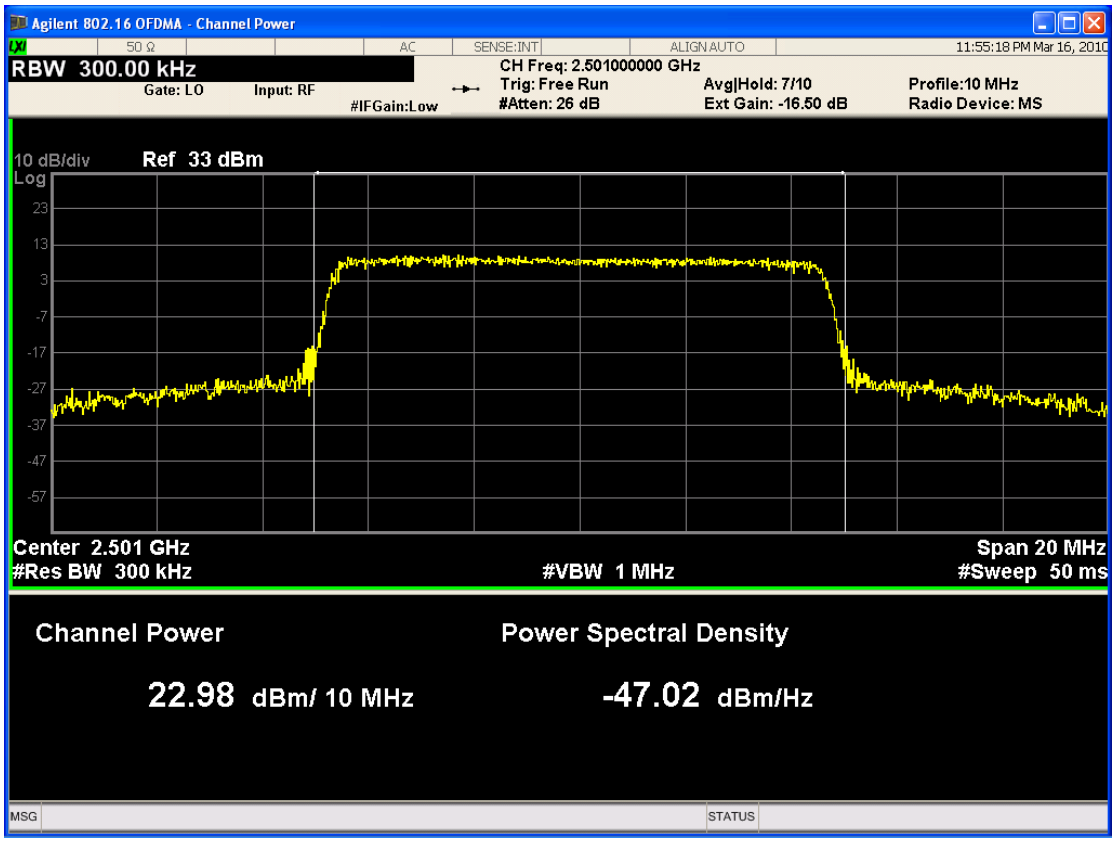


■ 16QAM MODE 3/4 (2687.5 MHz) Conducted Output Power

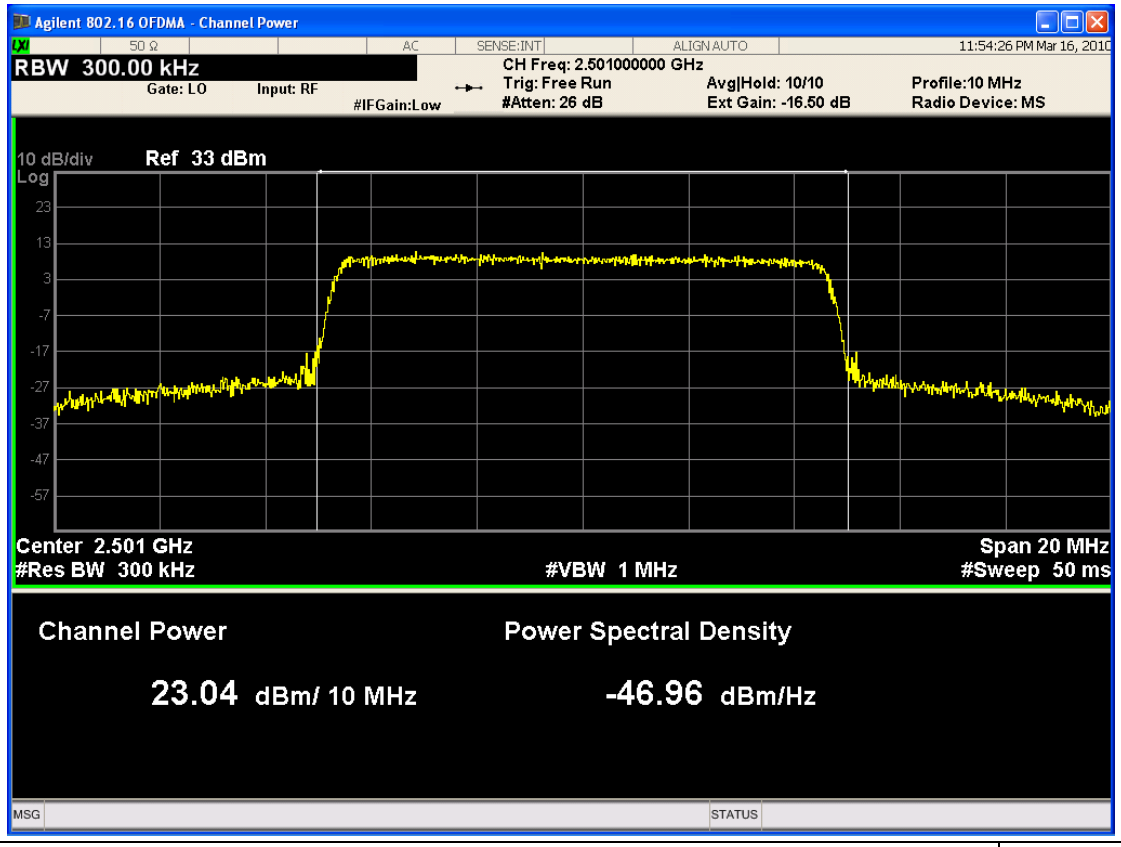


10 MHz

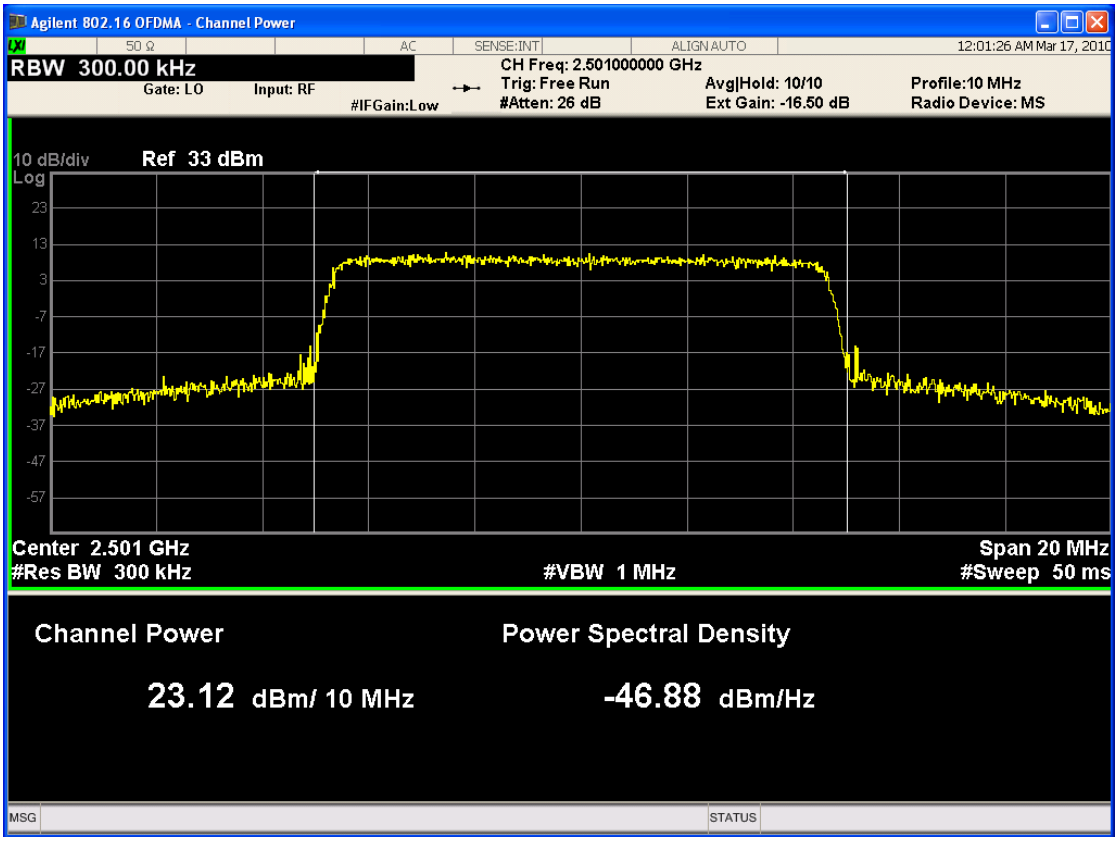
■ QPSK MODE 1/2 (2501.0 MHz) Conducted Output Power



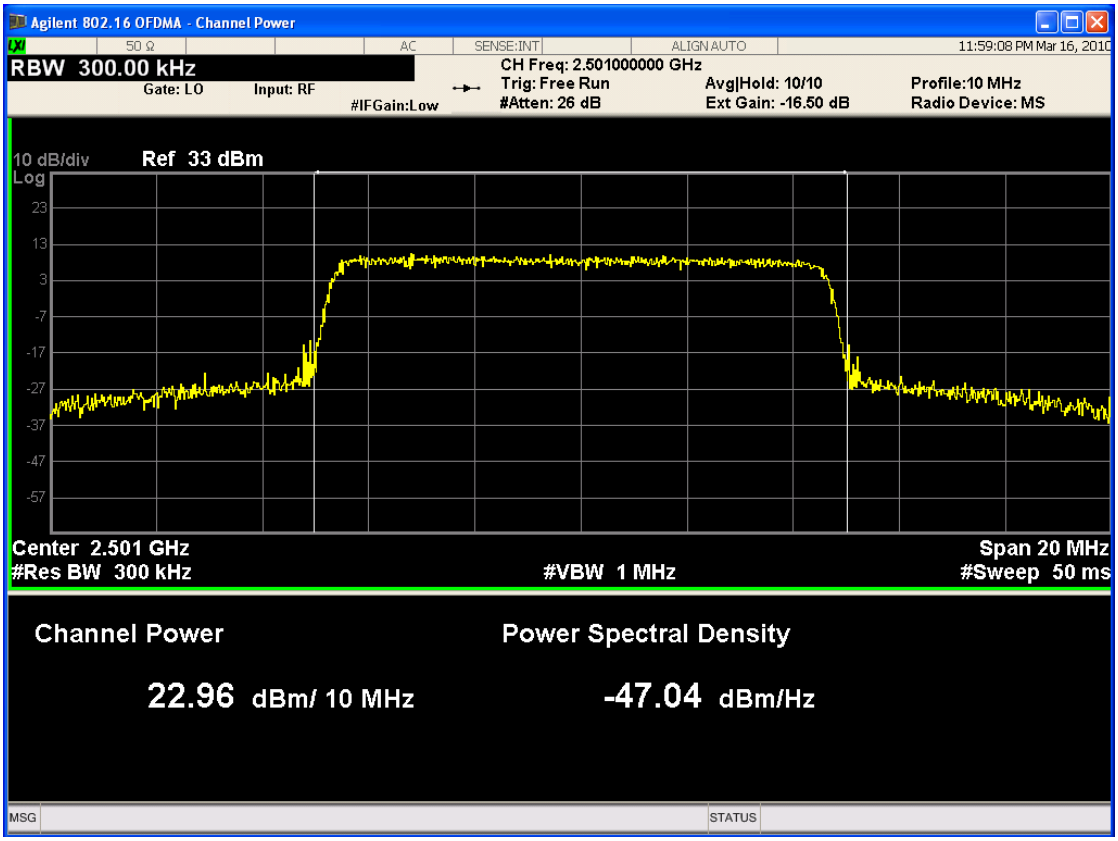
■ QPSK MODE 3/4 (2501.0 MHz) Conducted Output Power



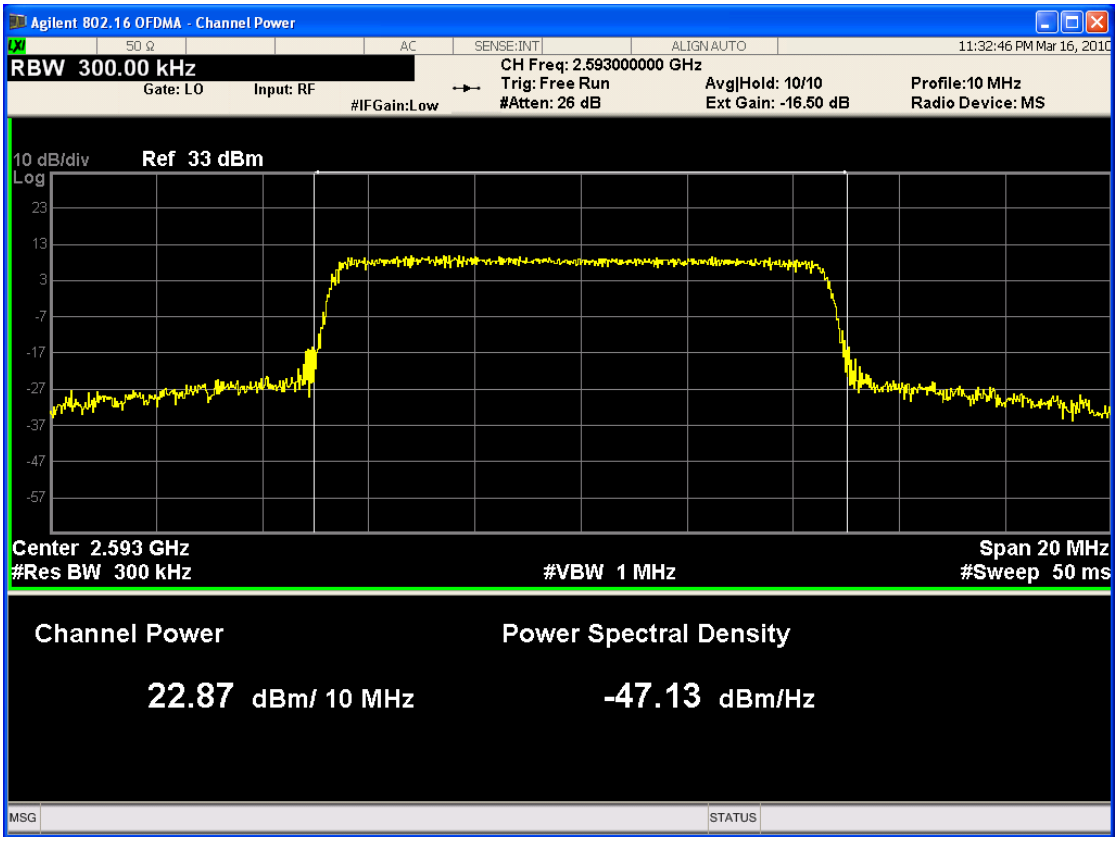
■ 16QAM MODE 1/2 (2501.0 MHz) Conducted Output Power



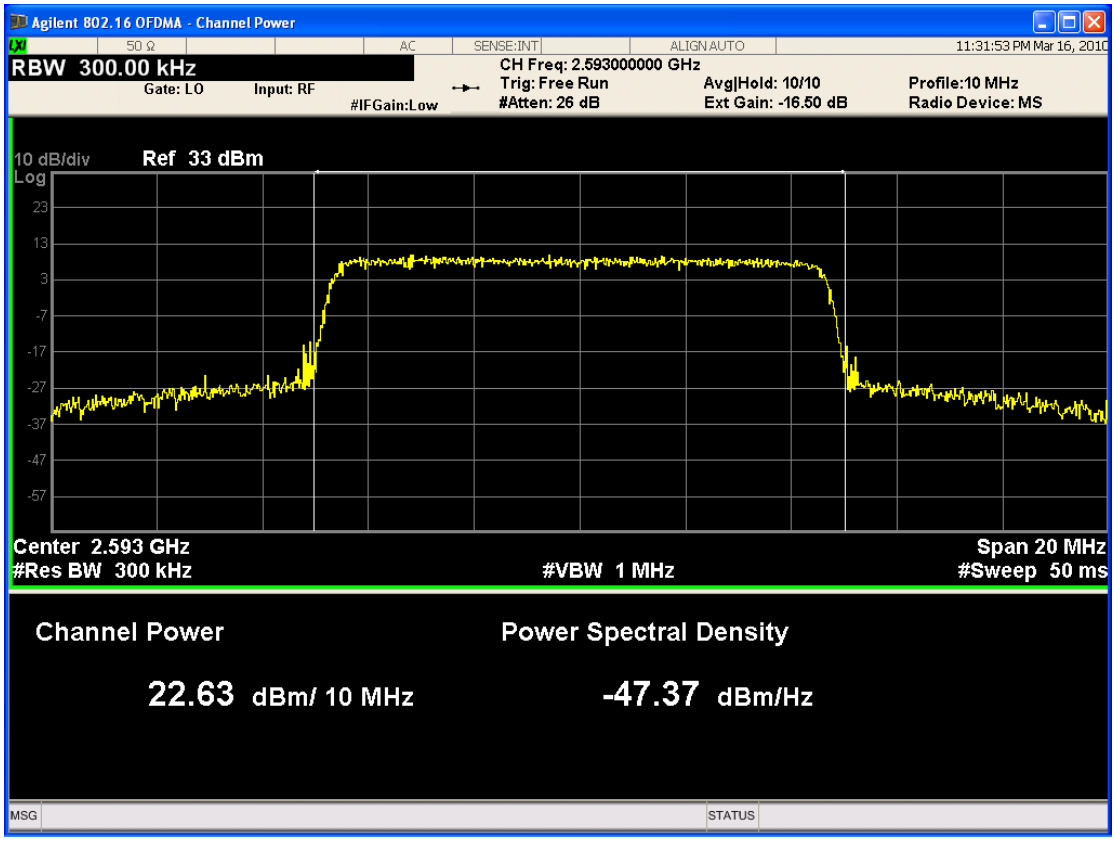
■ 16QAM MODE 3/4 (2501.0 MHz) Conducted Output Power



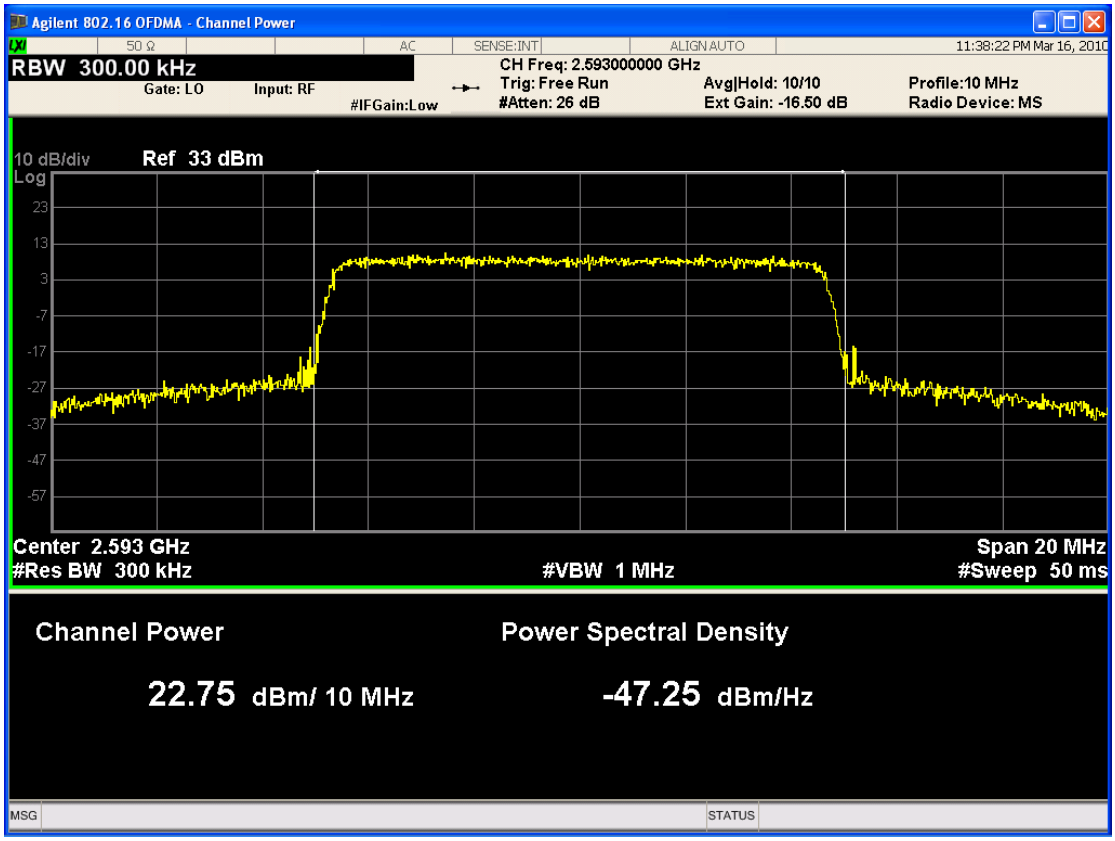
■ QPSK MODE 1/2 (2593.0 MHz) Conducted Output Power



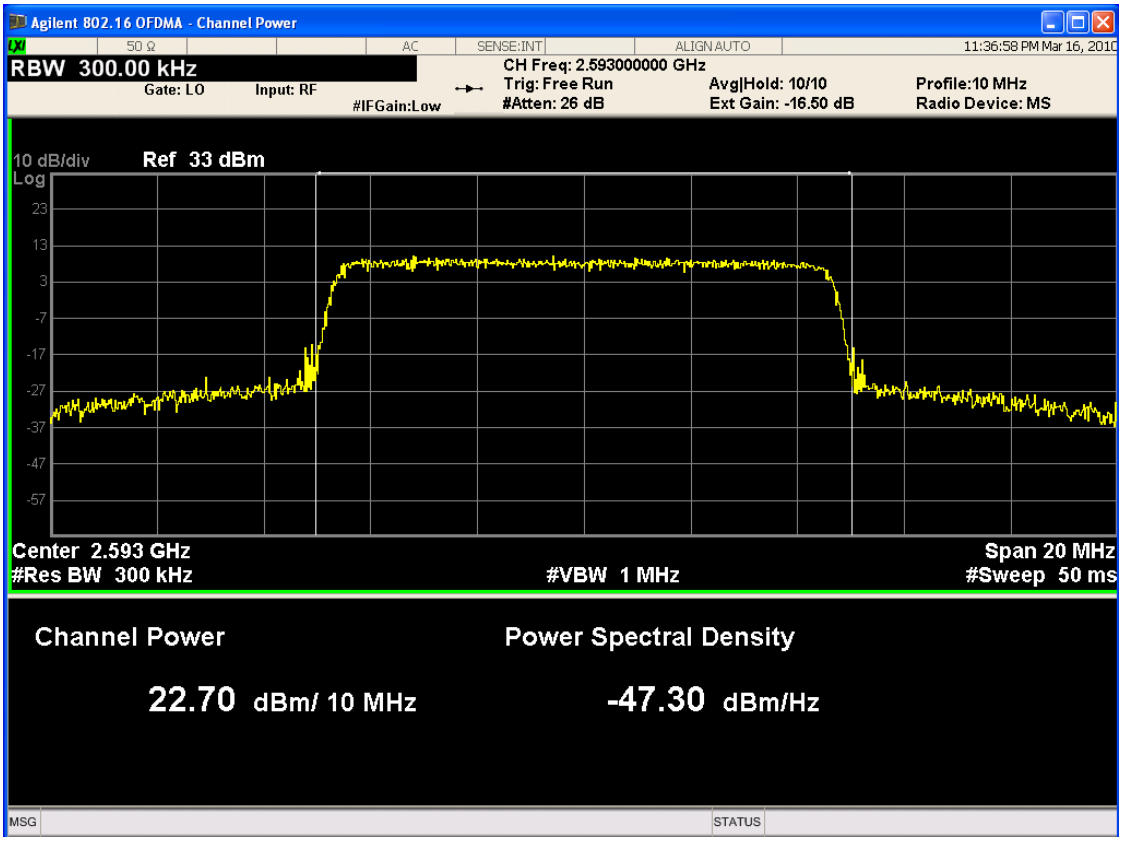
■ QPSK MODE 3/4 (2593.0 MHz) Conducted Output Power



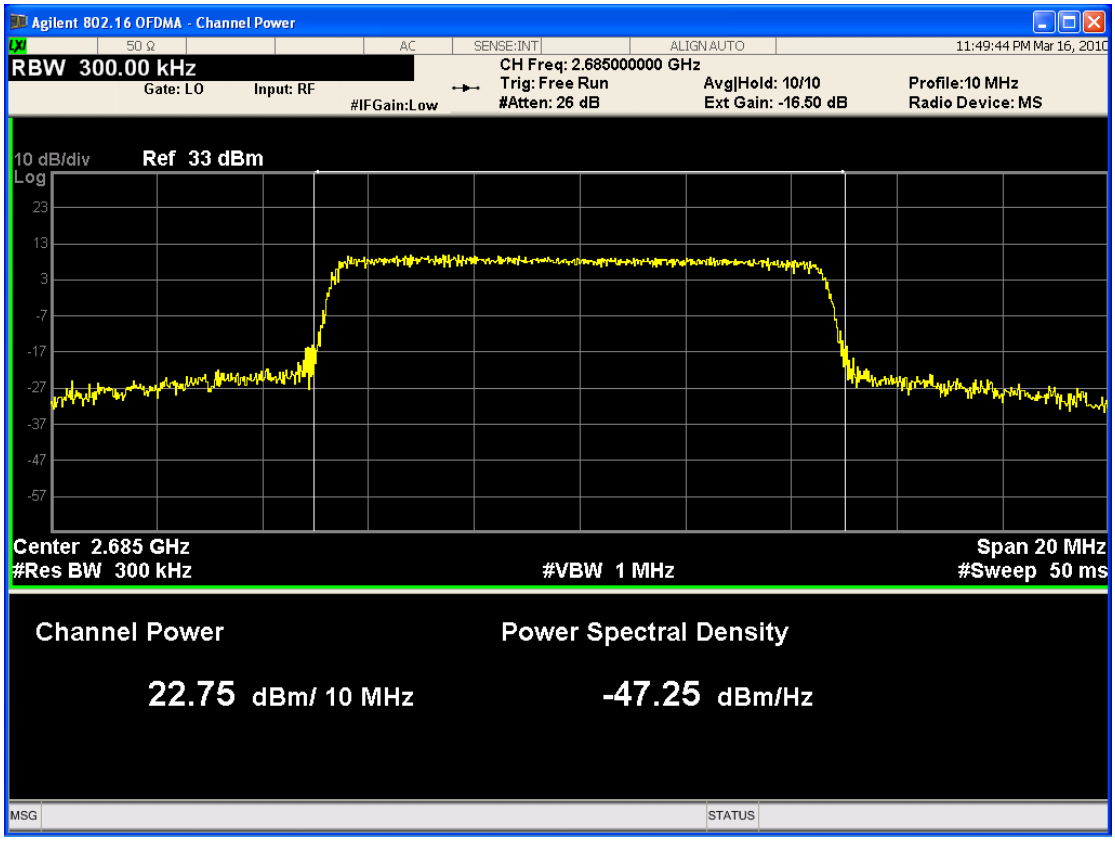
■ 16QAM MODE 1/2 (2593.0 MHz) Conducted Output Power



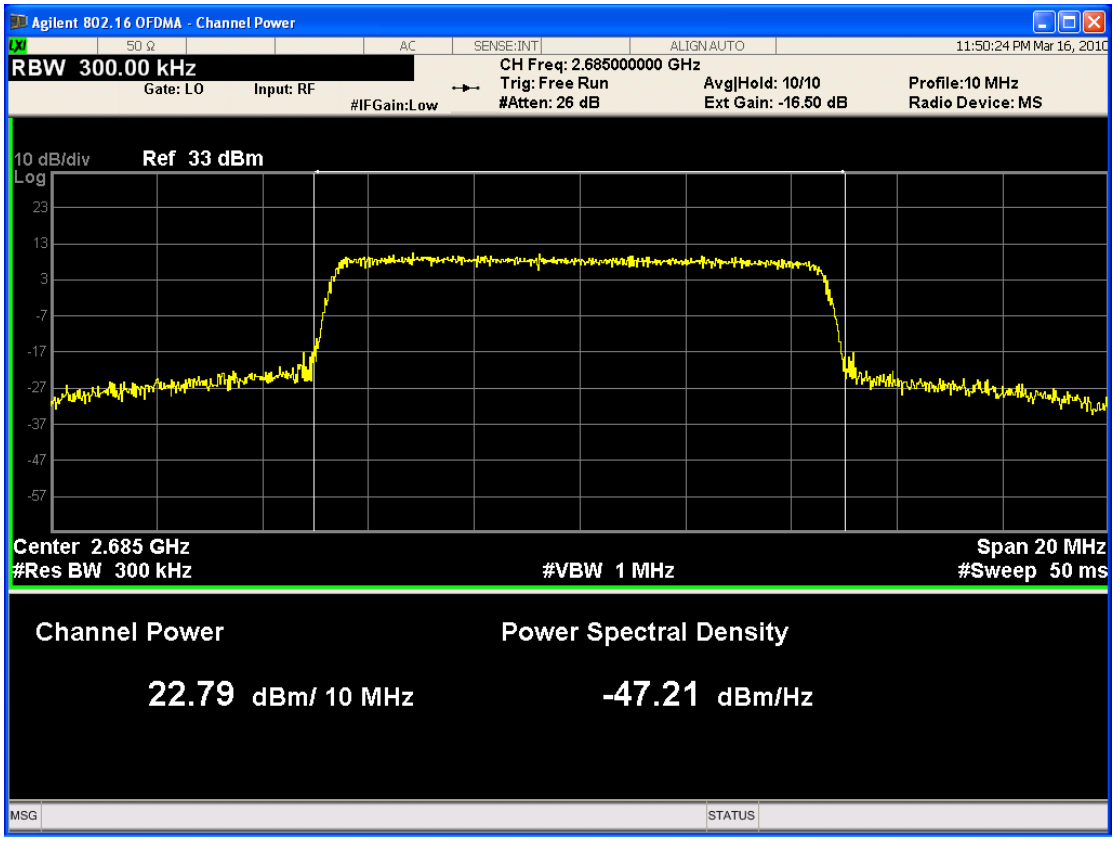
■ 16QAM MODE 3/4 (2593.0 MHz) Conducted Output Power



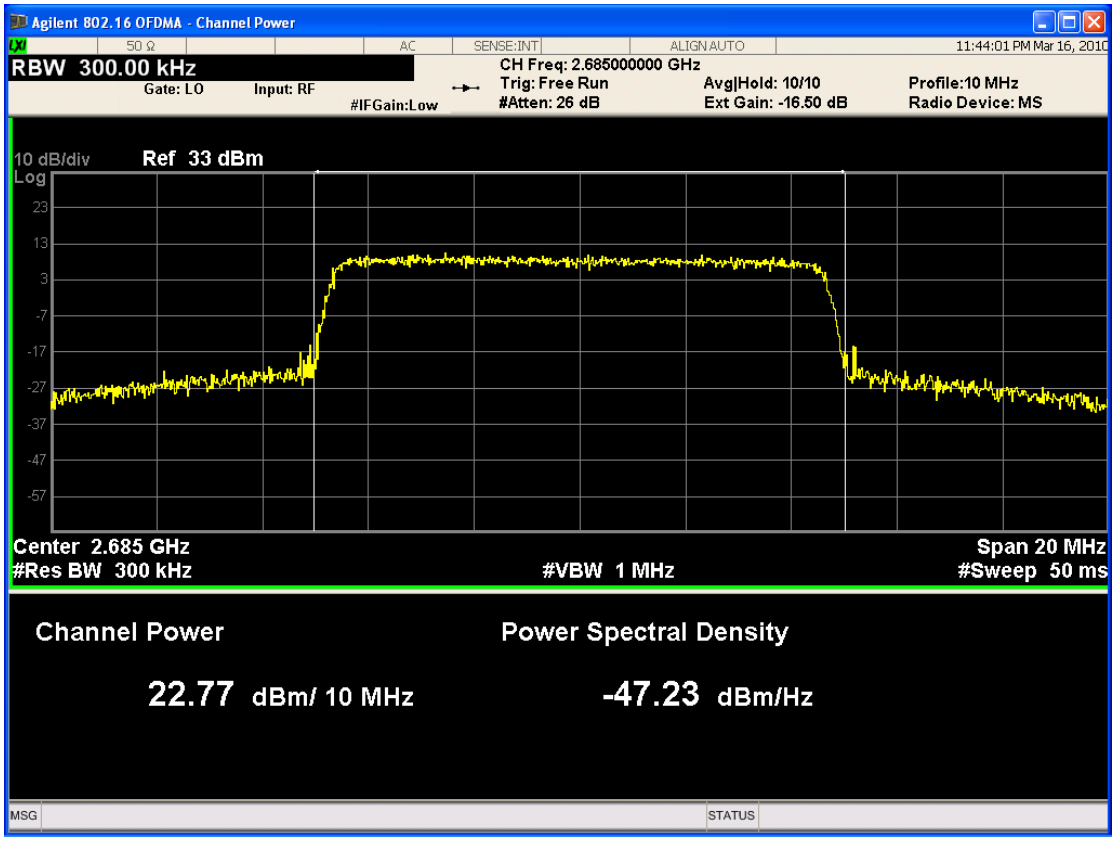
■ QPSK MODE 1/2 (2685.0 MHz) Conducted Output Power



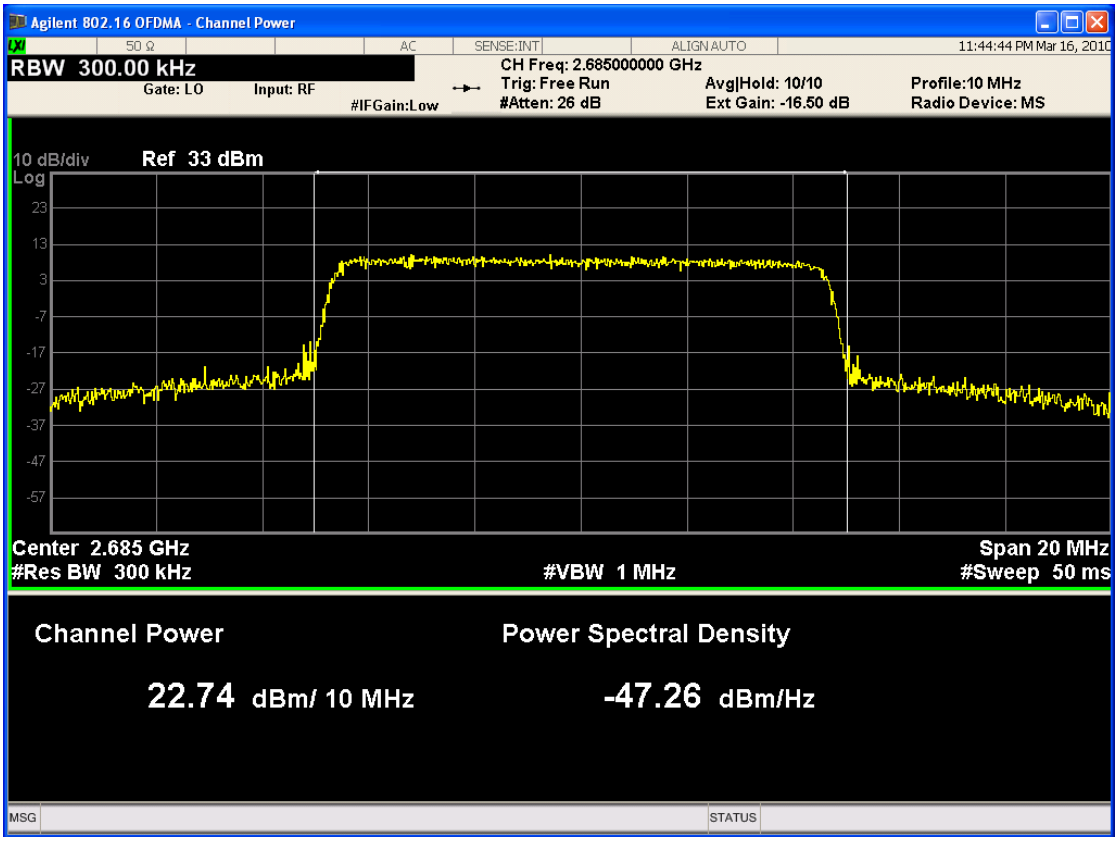
■ QPSK MODE 3/4 (2685.0 MHz) Conducted Output Power



■ 16QAM MODE 1/2 (2685.0 MHz) Conducted Output Power

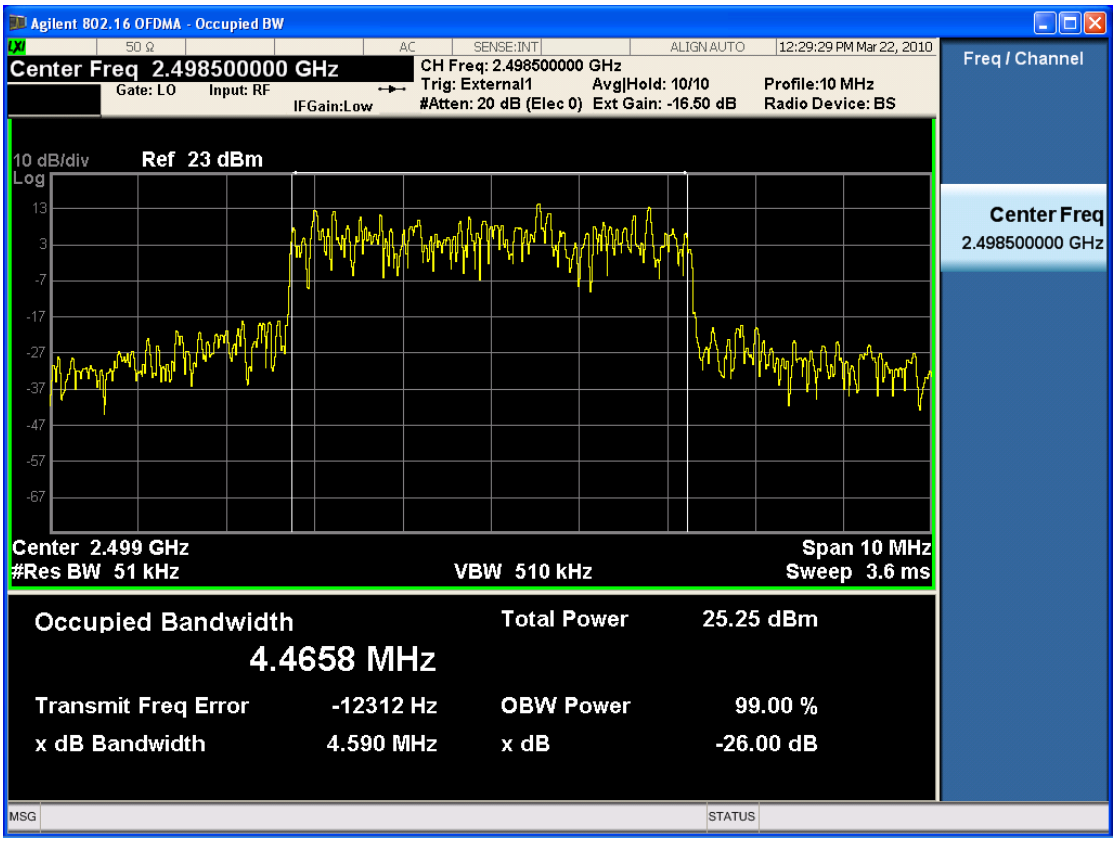


■ 16QAM MODE 3/4 (2685.0 MHz) Conducted Output Power

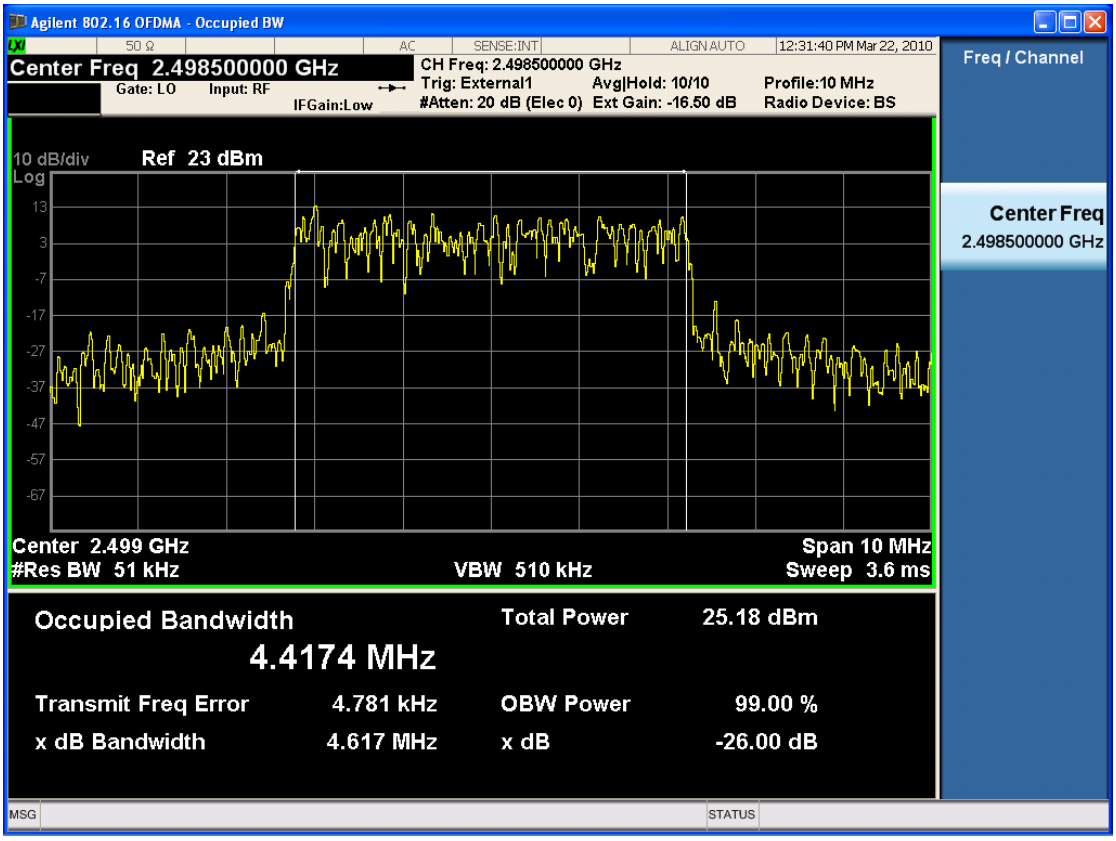


5 MHz

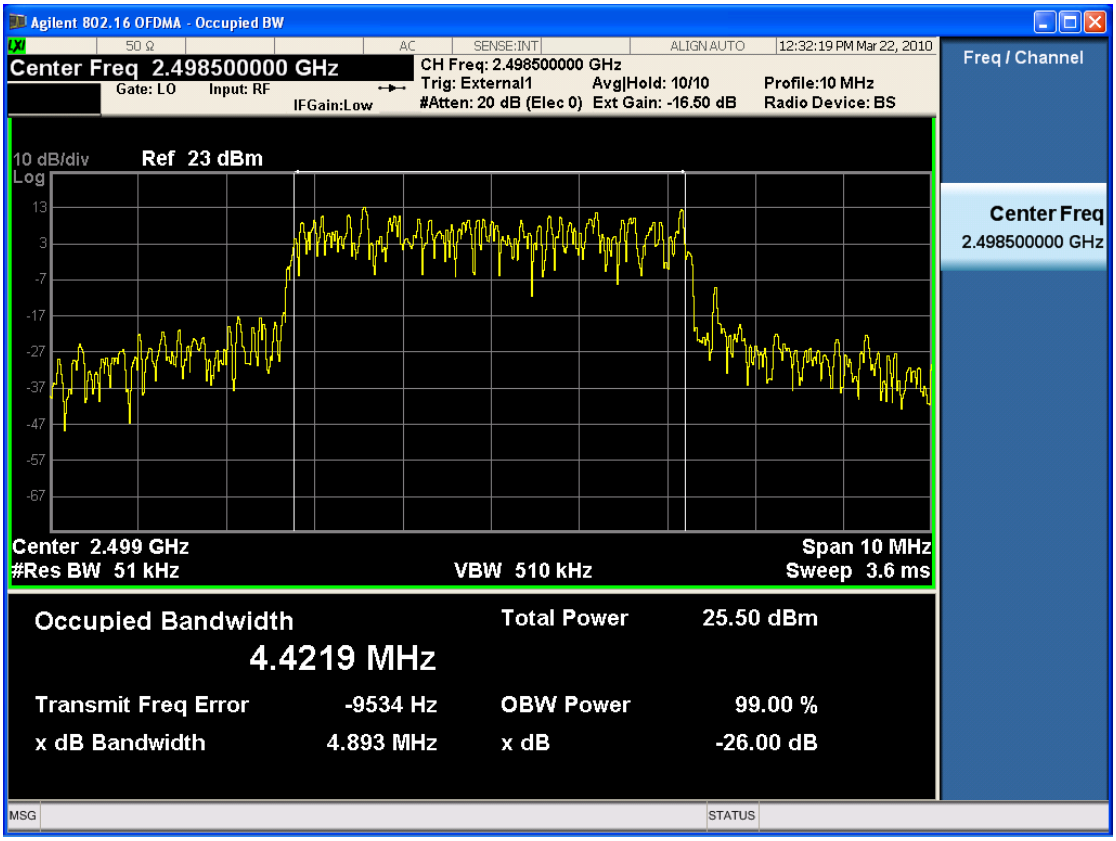
■ QPSK MODE 1/2 (2498.5 MHz) Occupied Bandwidth



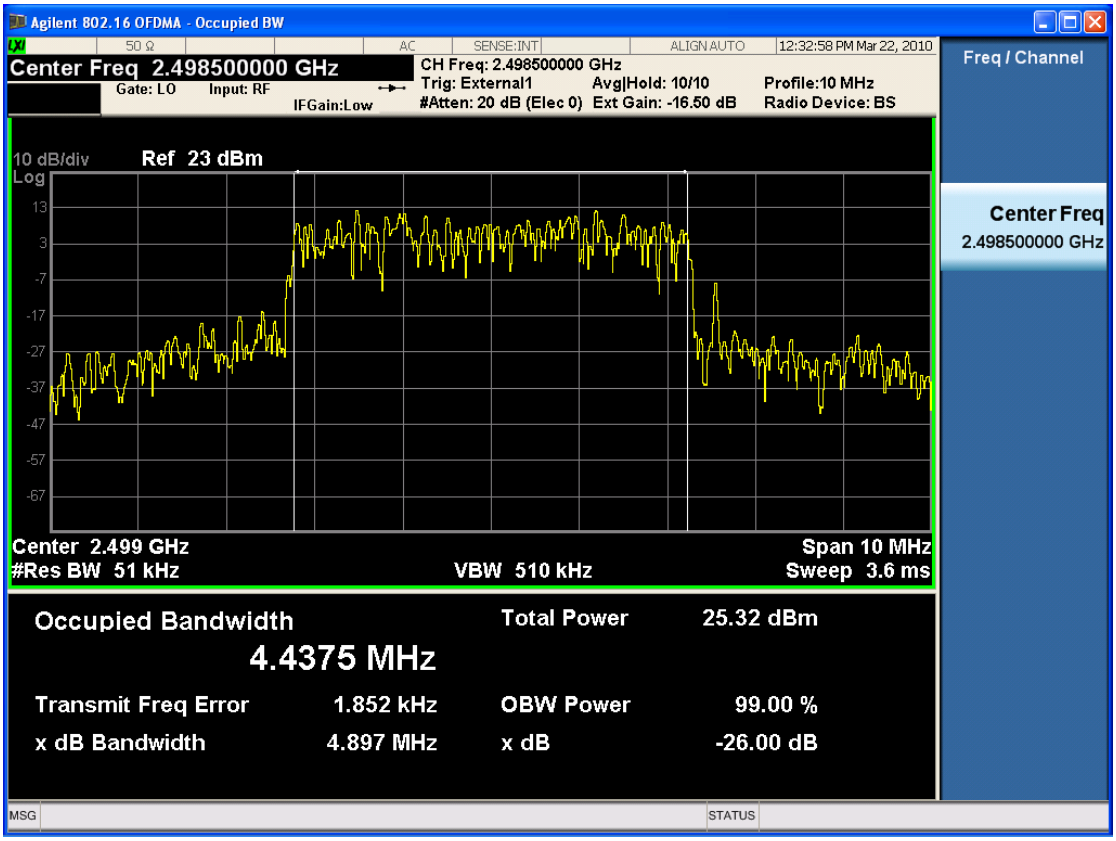
■ QPSK MODE 3/4 (2498.5 MHz) Occupied Bandwidth



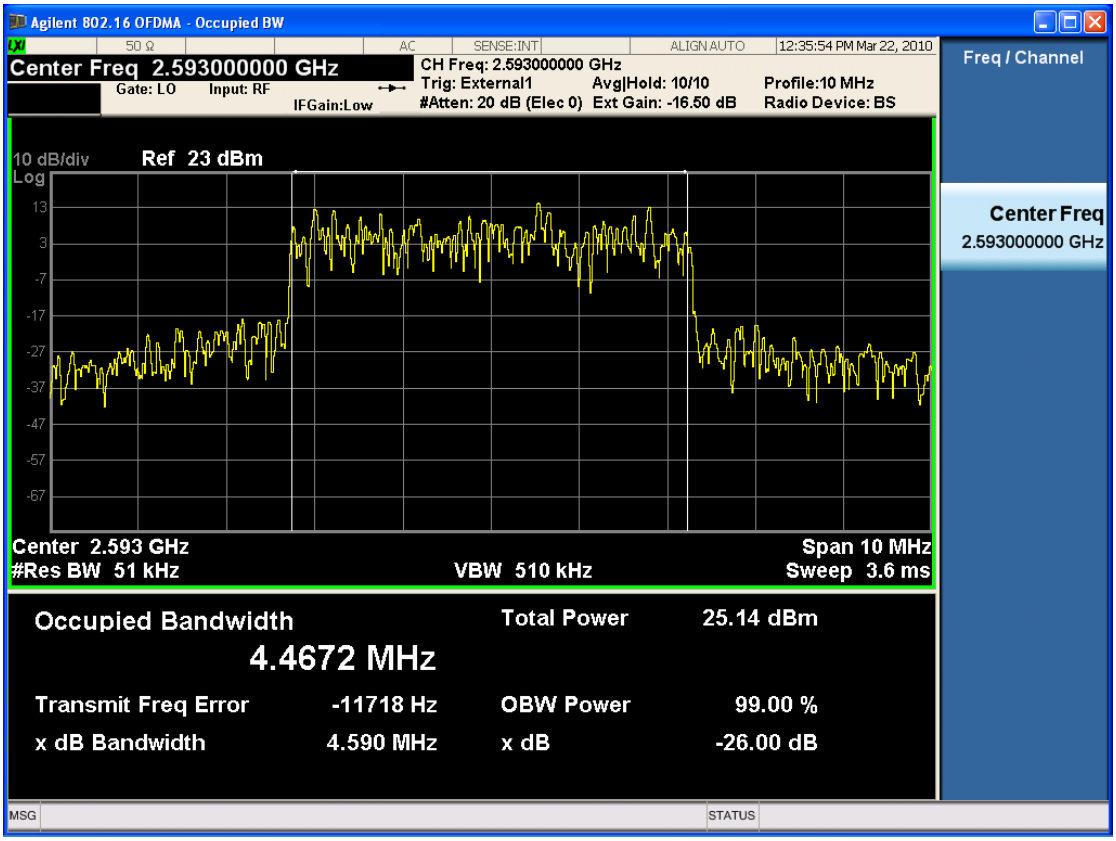
■ 16QAM MODE 1/2 (2498.5 MHz) Occupied Bandwidth



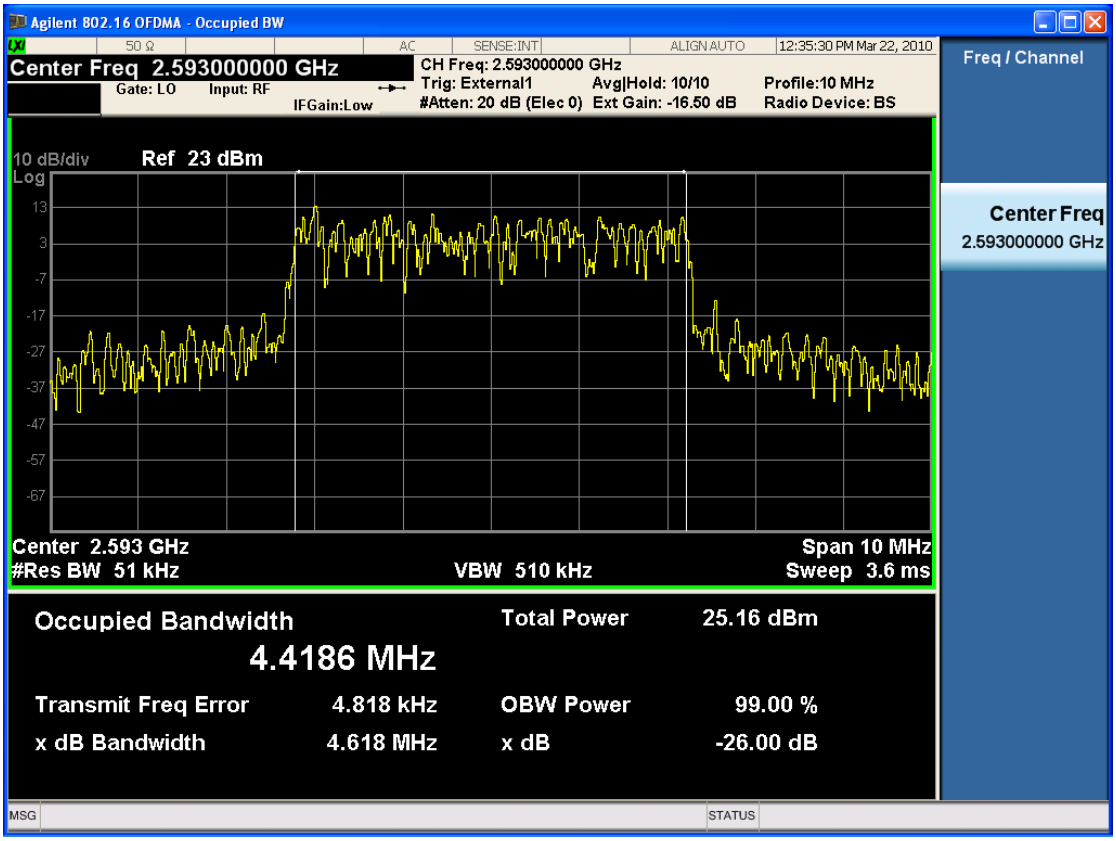
■ 16QAM MODE 3/4 (2498.5 MHz) Occupied Bandwidth



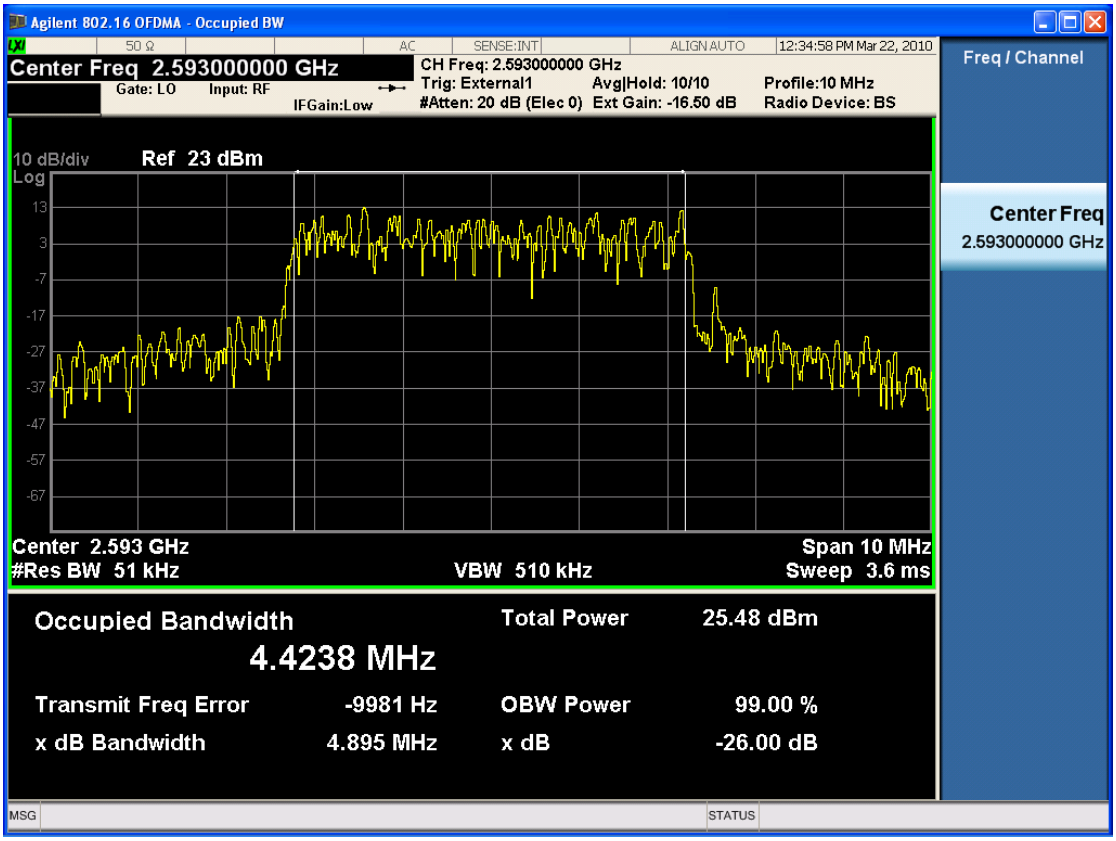
■ QPSK MODE 1/2 (2593.0 MHz) Occupied Bandwidth



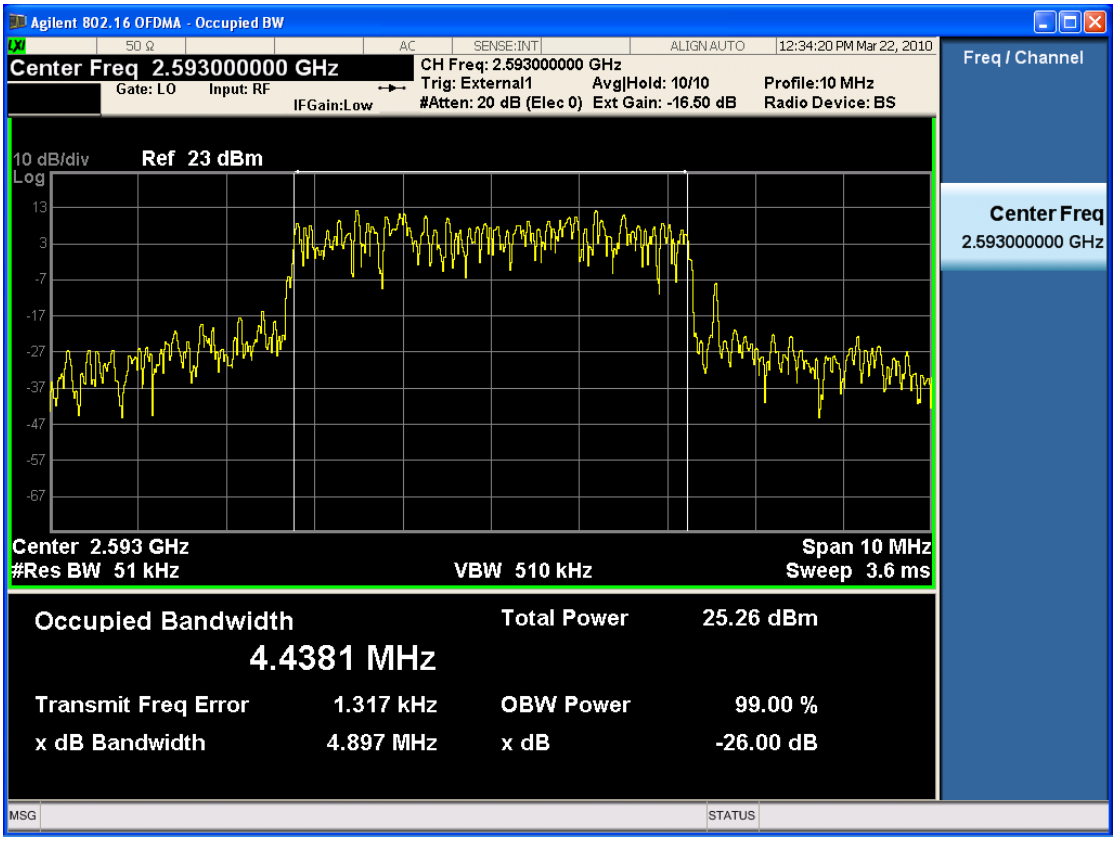
■ QPSK MODE 3/4 (2593.0 MHz) Occupied Bandwidth



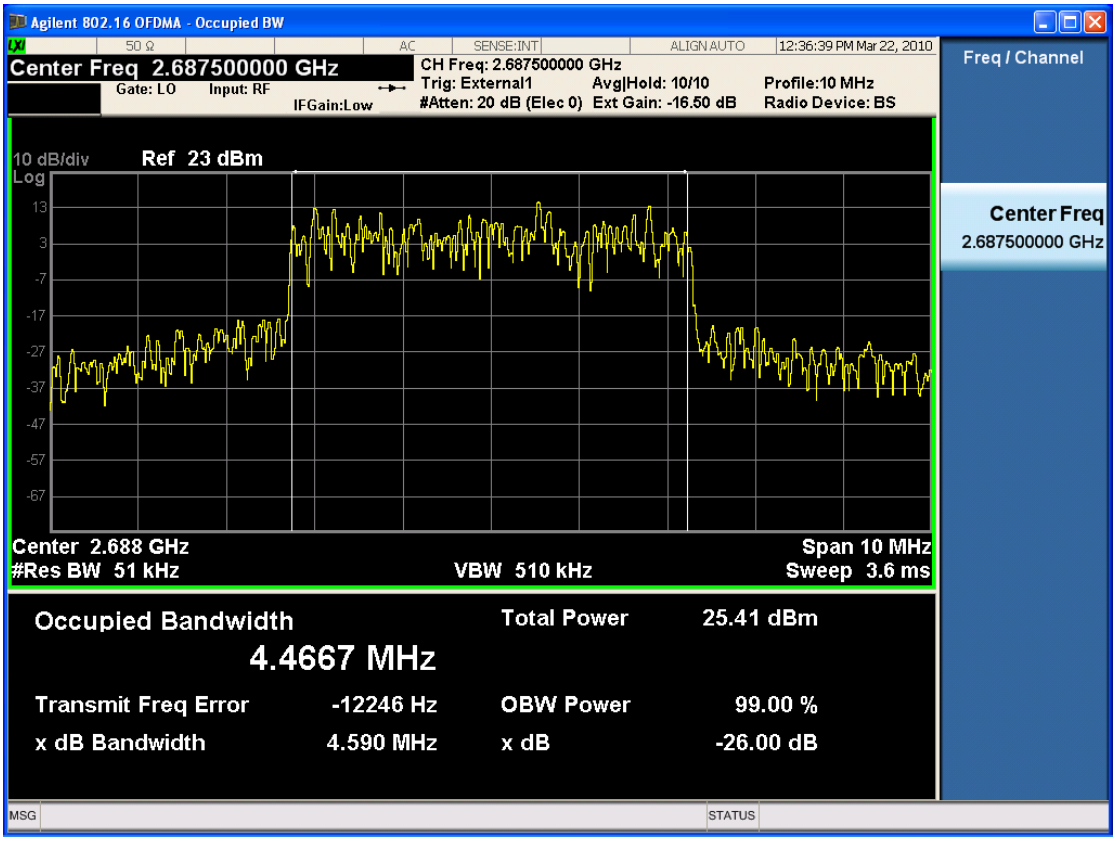
■ 16QAM MODE 1/2 (2593.0 MHz) Occupied Bandwidth



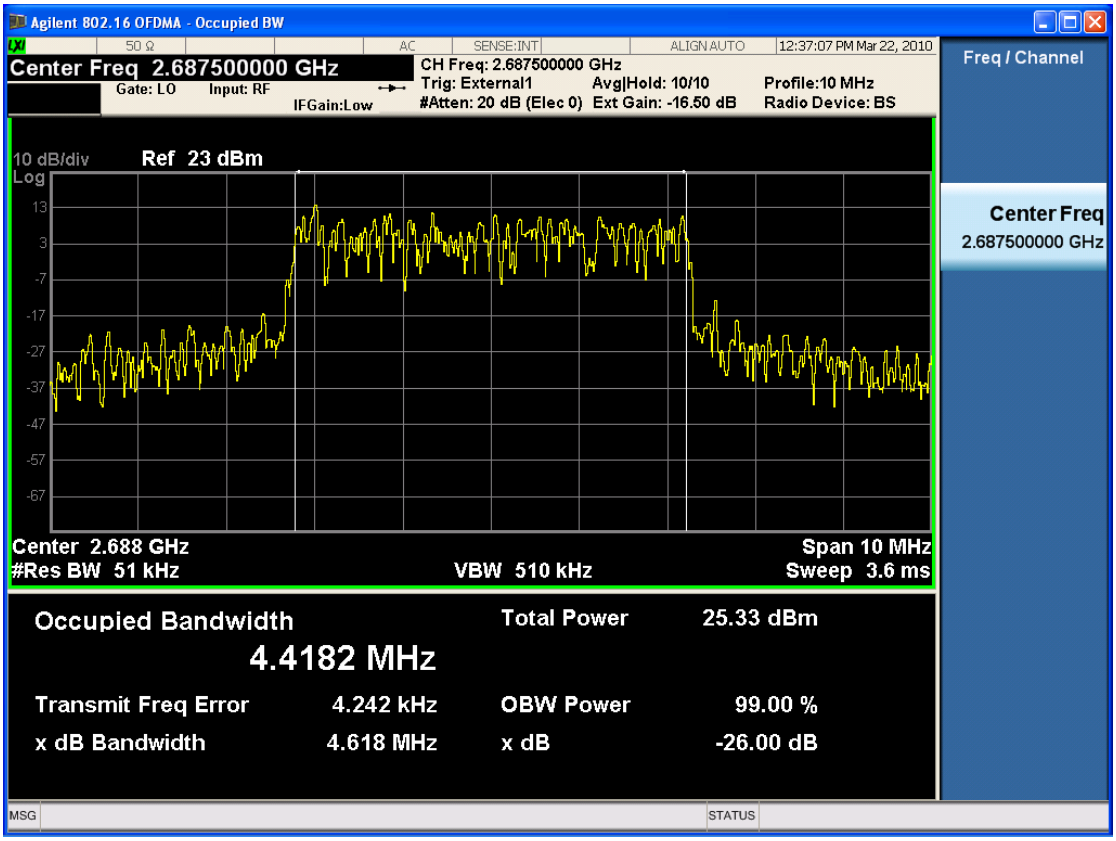
■ 16QAM MODE 3/4 (2593.0 MHz) Occupied Bandwidth



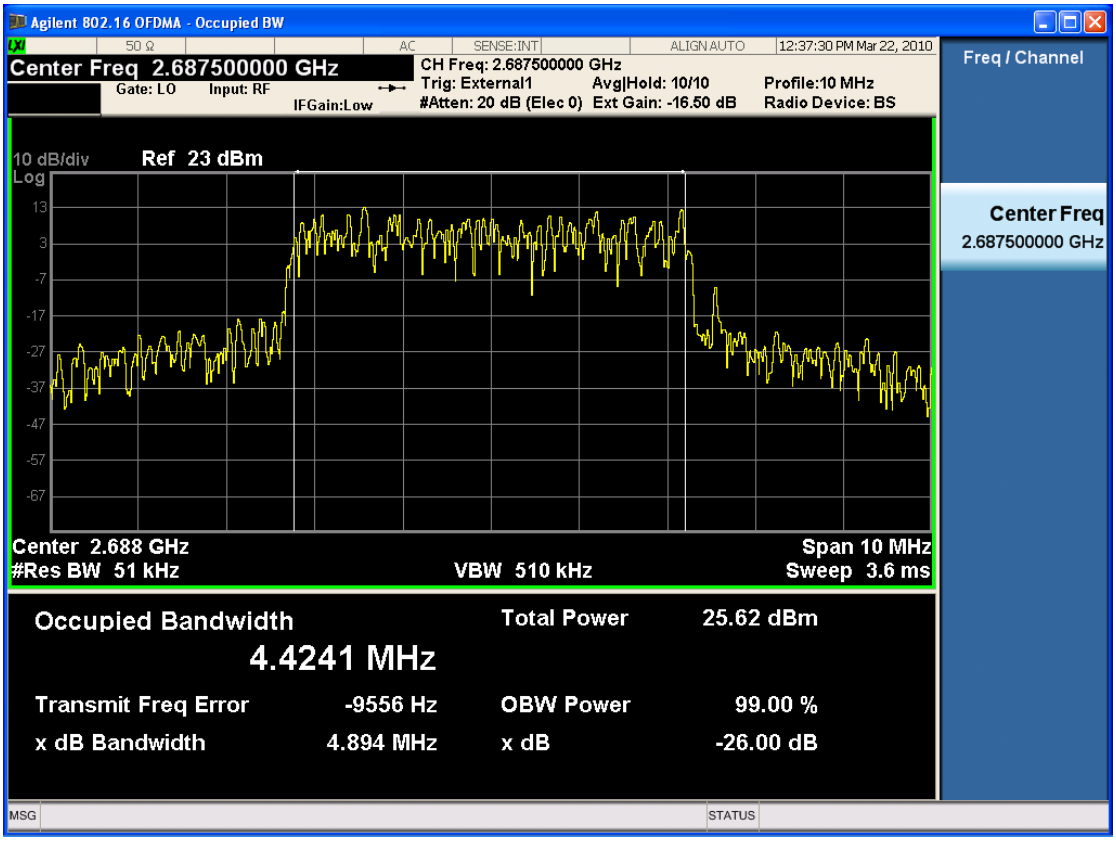
■ QPSK MODE 1/2 (2687.5 MHz) Occupied Bandwidth



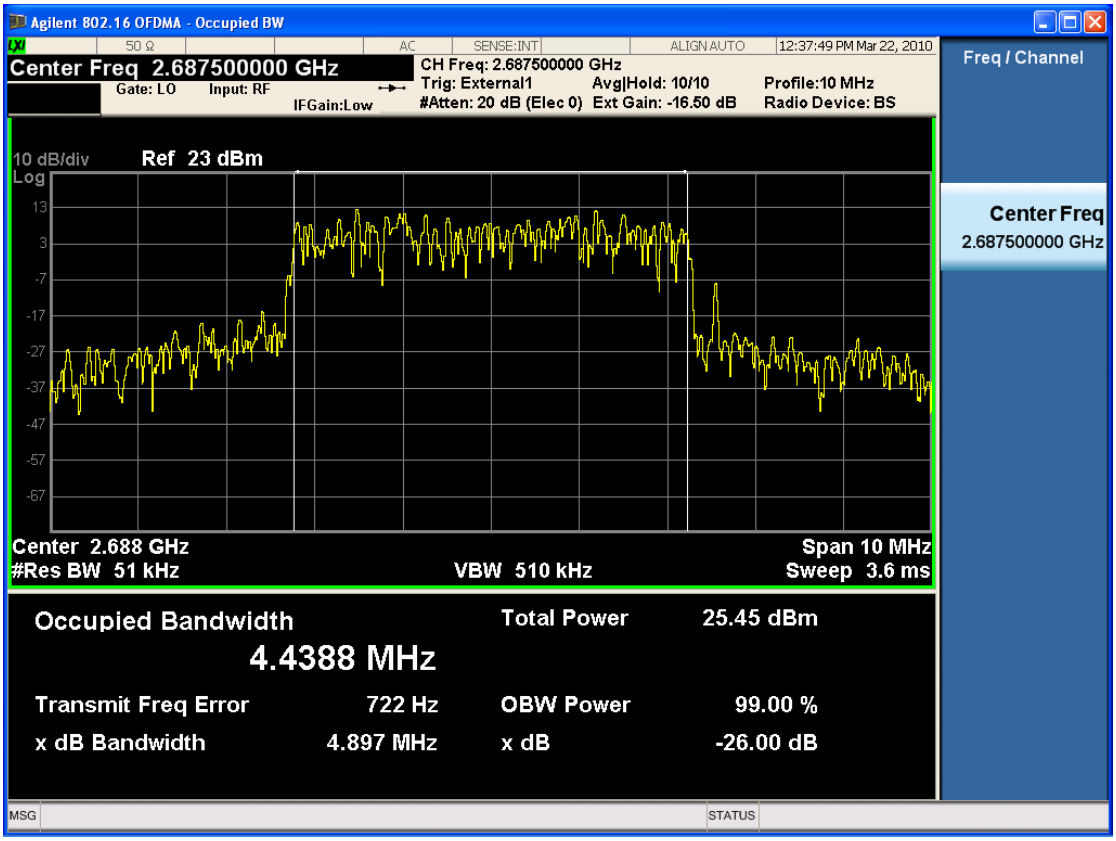
■ QPSK MODE 3/4 (2687.5 MHz) Occupied Bandwidth



■ 16QAM MODE 1/2 (2687.5 MHz) Occupied Bandwidth

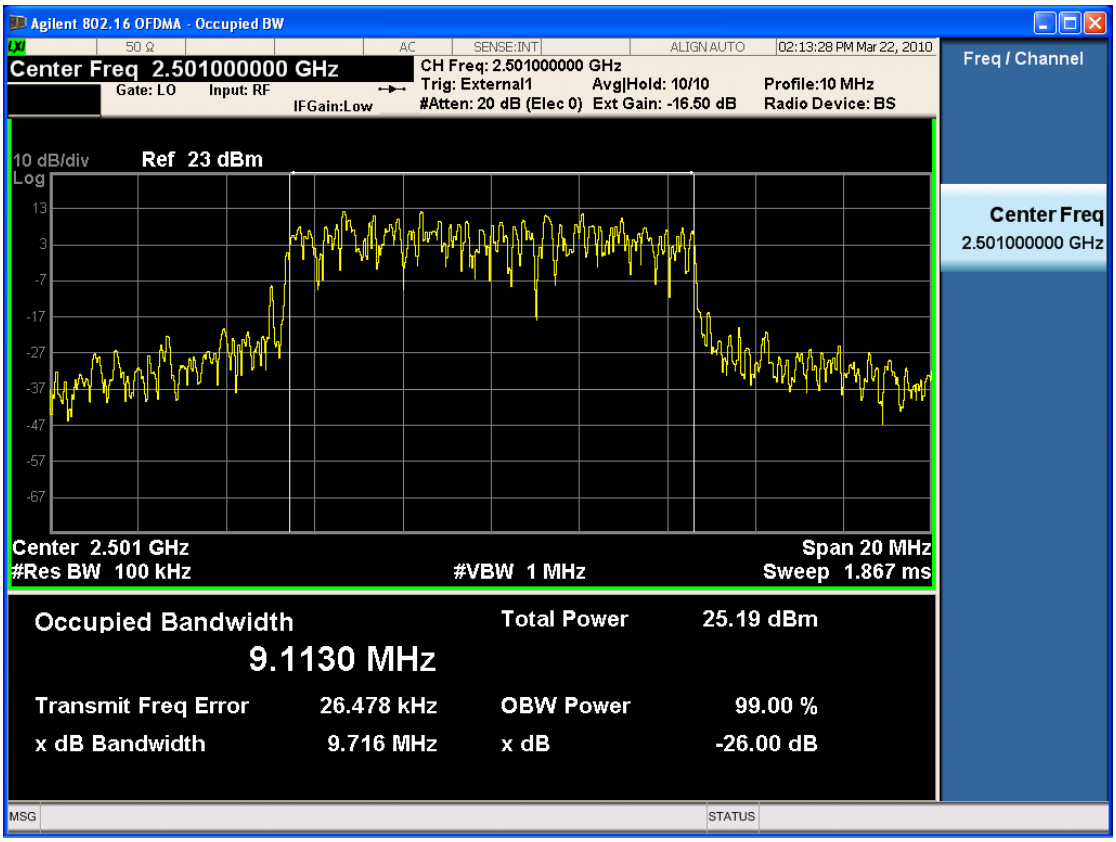


■ 16QAM MODE 3/4 (2687.5 MHz) Occupied Bandwidth

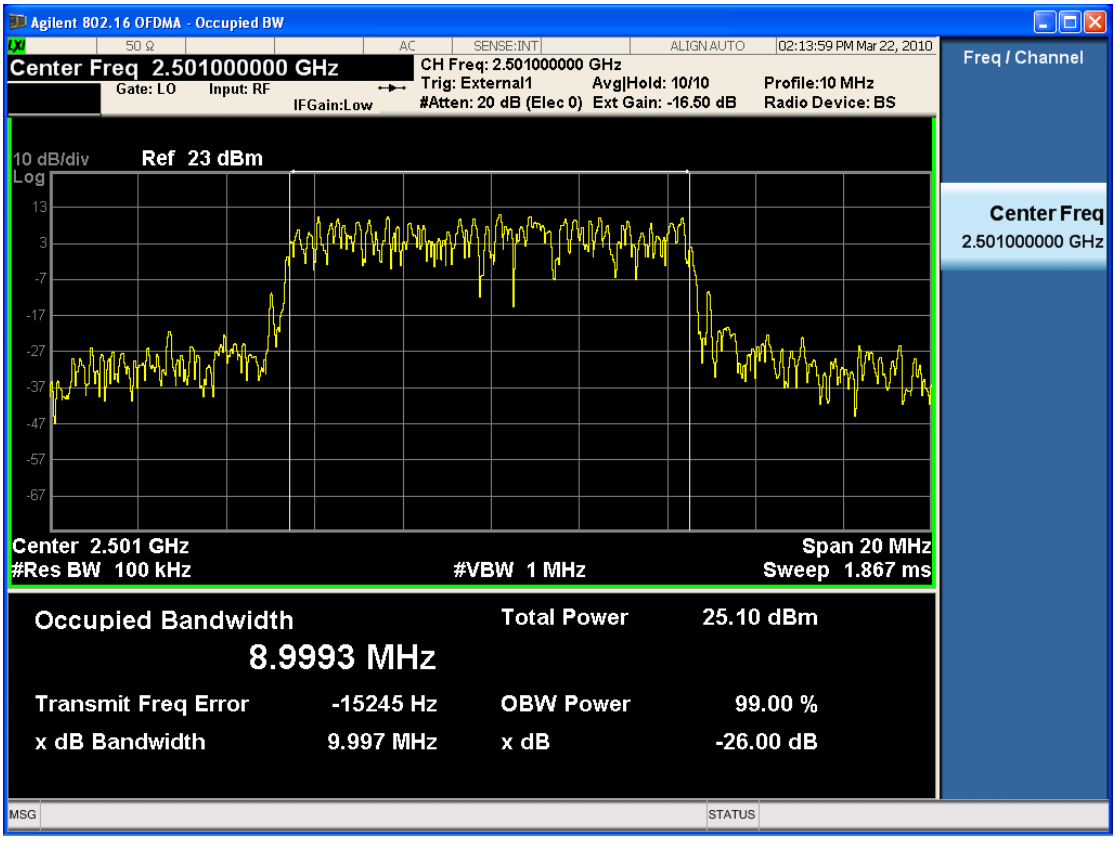


10 MHz

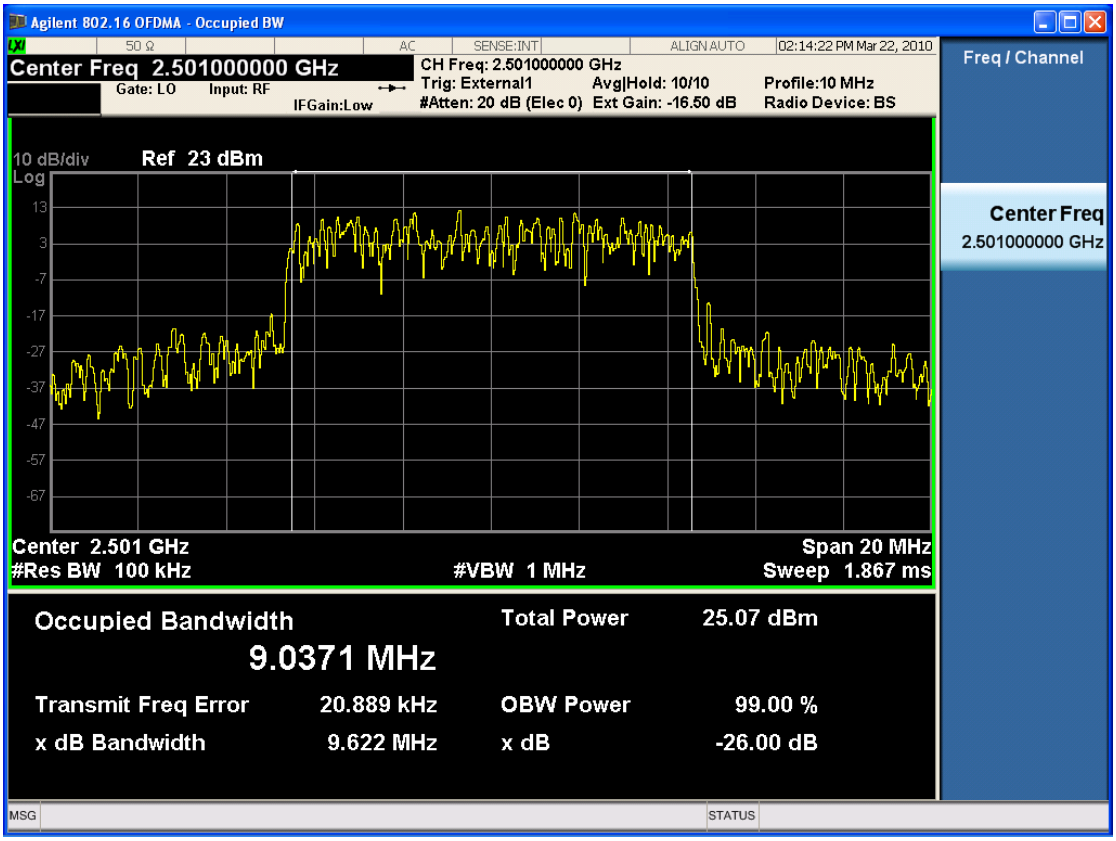
■ QPSK MODE 1/2 (2501.0 MHz) Occupied Bandwidth



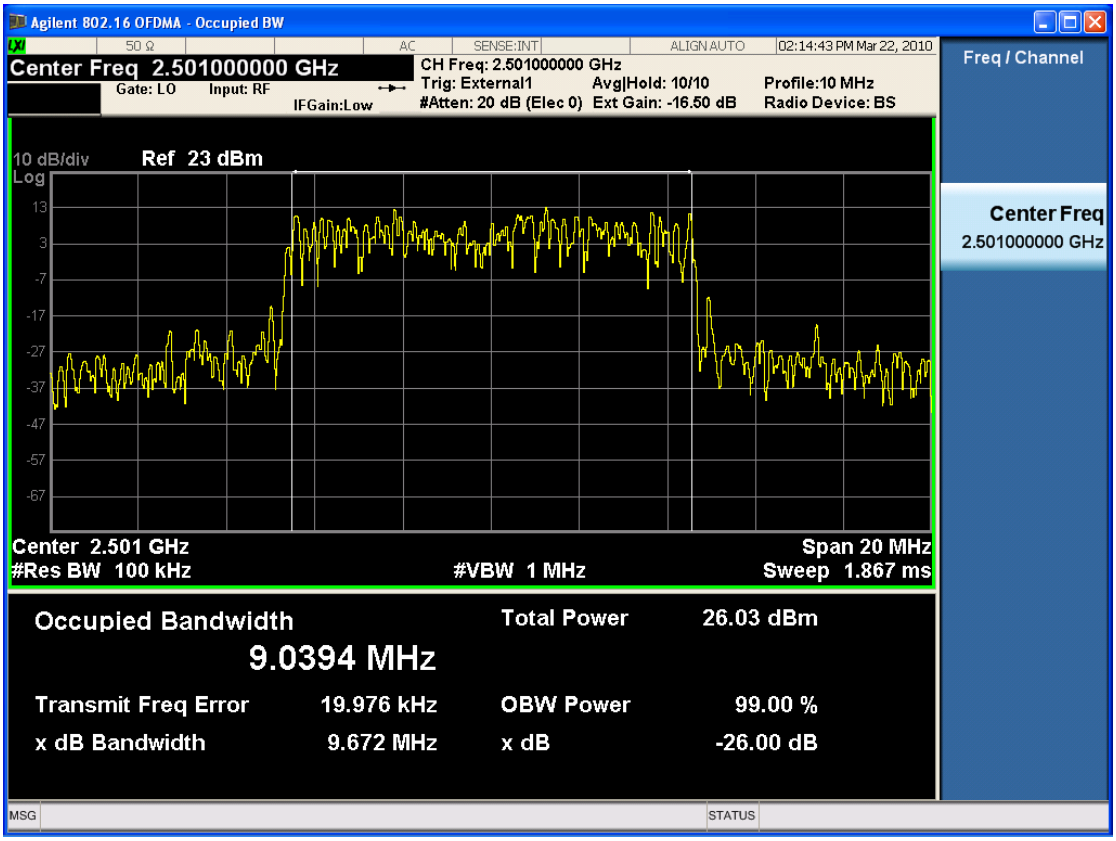
■ QPSK MODE 3/4 (2501.0 MHz) Occupied Bandwidth



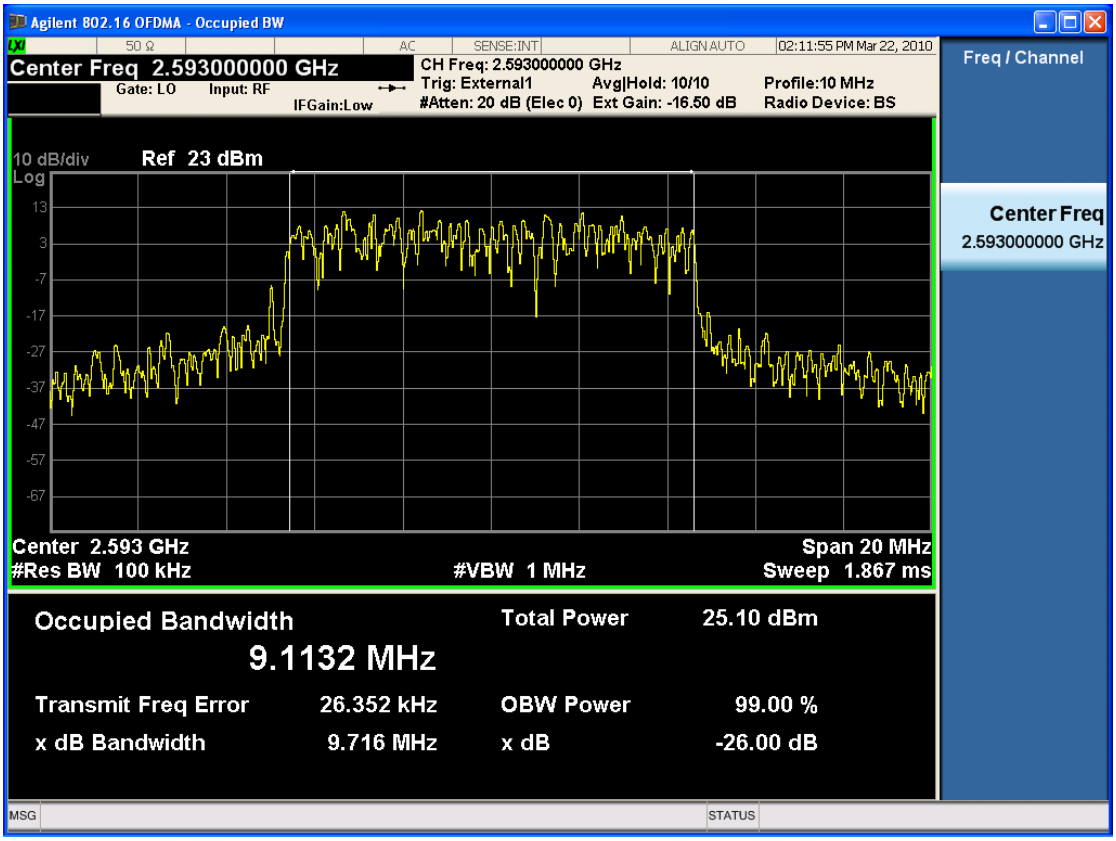
■ 16QAM MODE 1/2 (2501.0 MHz) Occupied Bandwidth



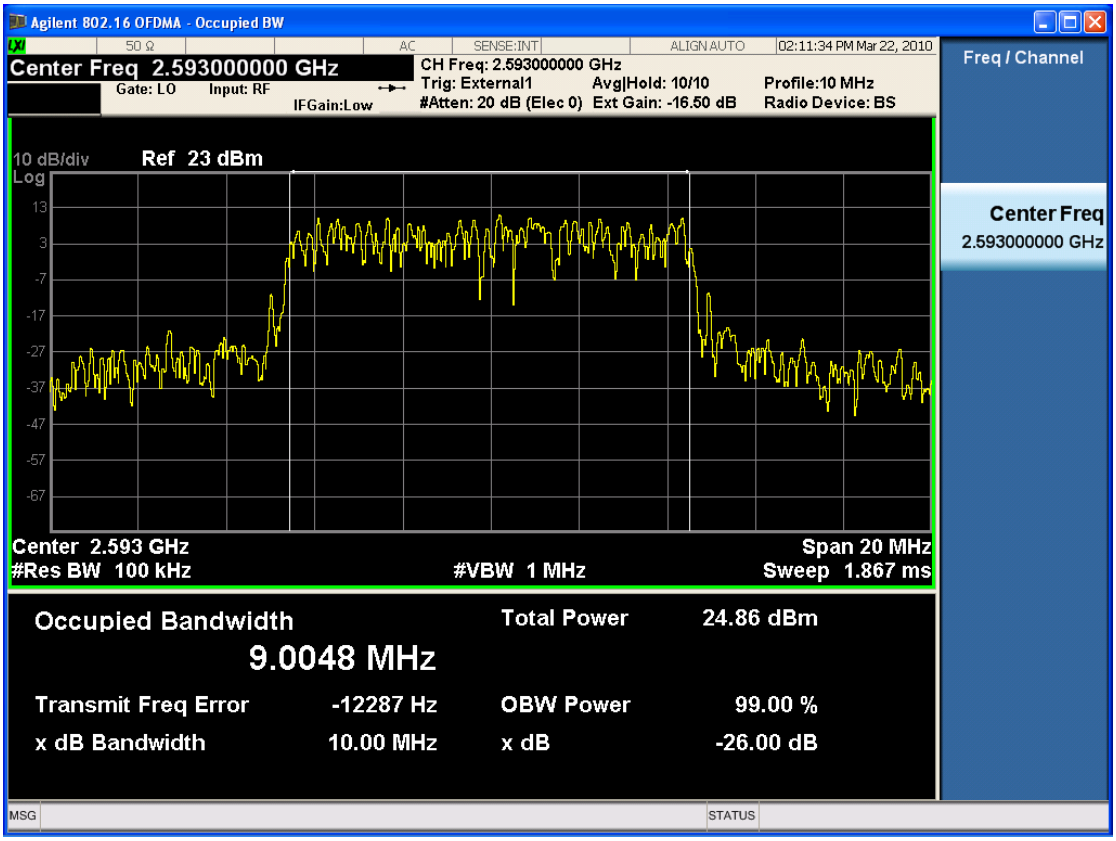
■ 16QAM MODE 3/4 (2501.0 MHz) Occupied Bandwidth



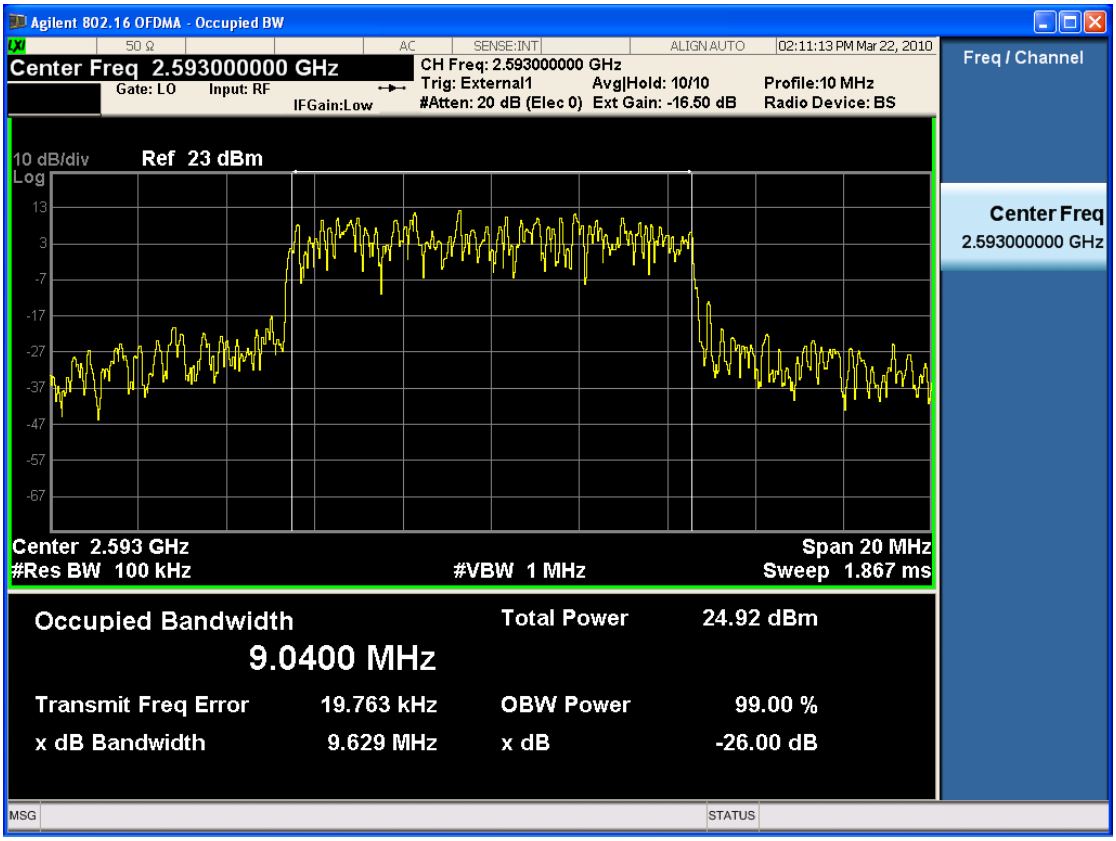
■ QPSK MODE 1/2 (2593.0 MHz) Occupied Bandwidth



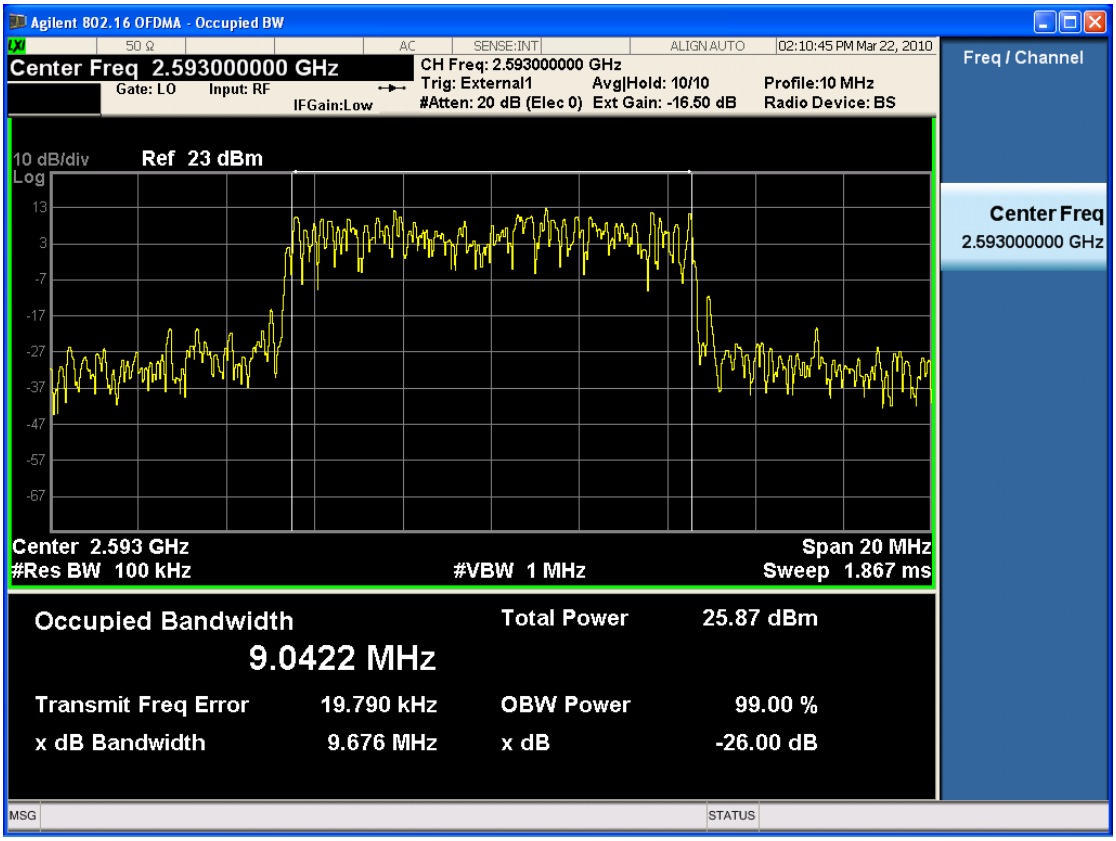
■ QPSK MODE 3/4 (2593.0 MHz) Occupied Bandwidth



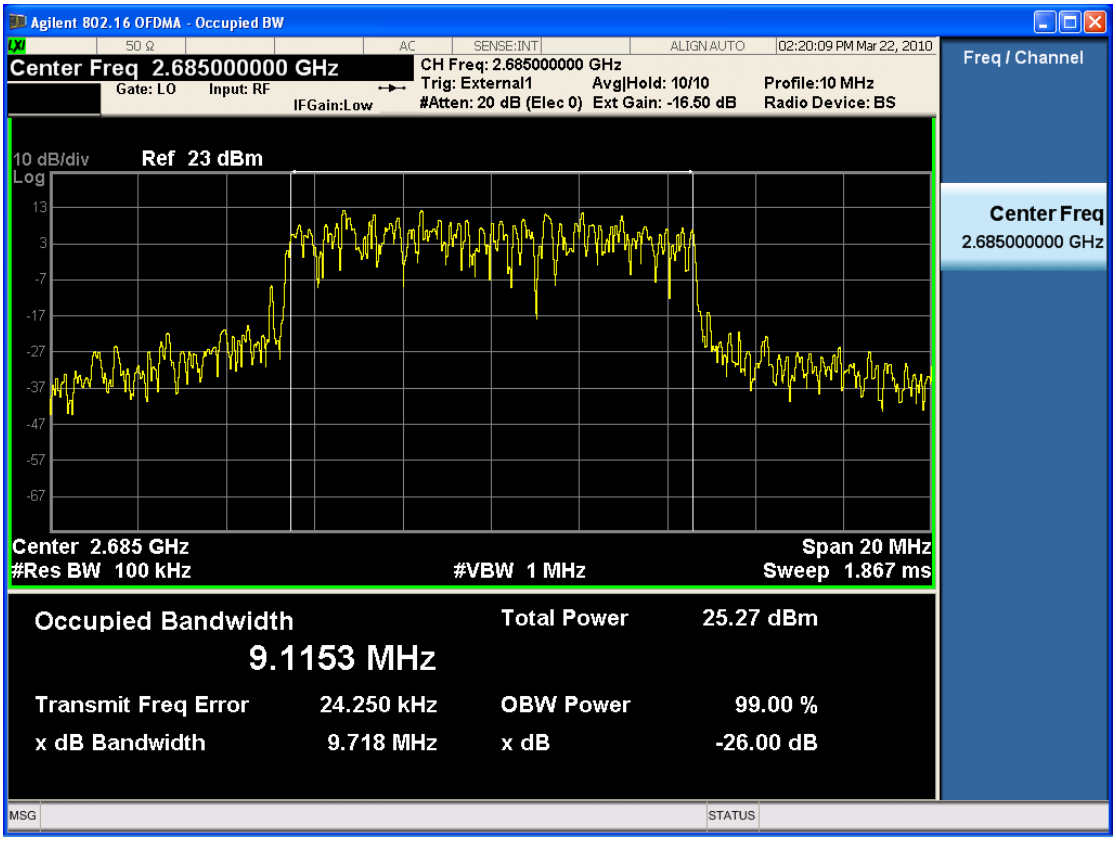
■ 16QAM MODE 1/2 (2593.0 MHz) Occupied Bandwidth



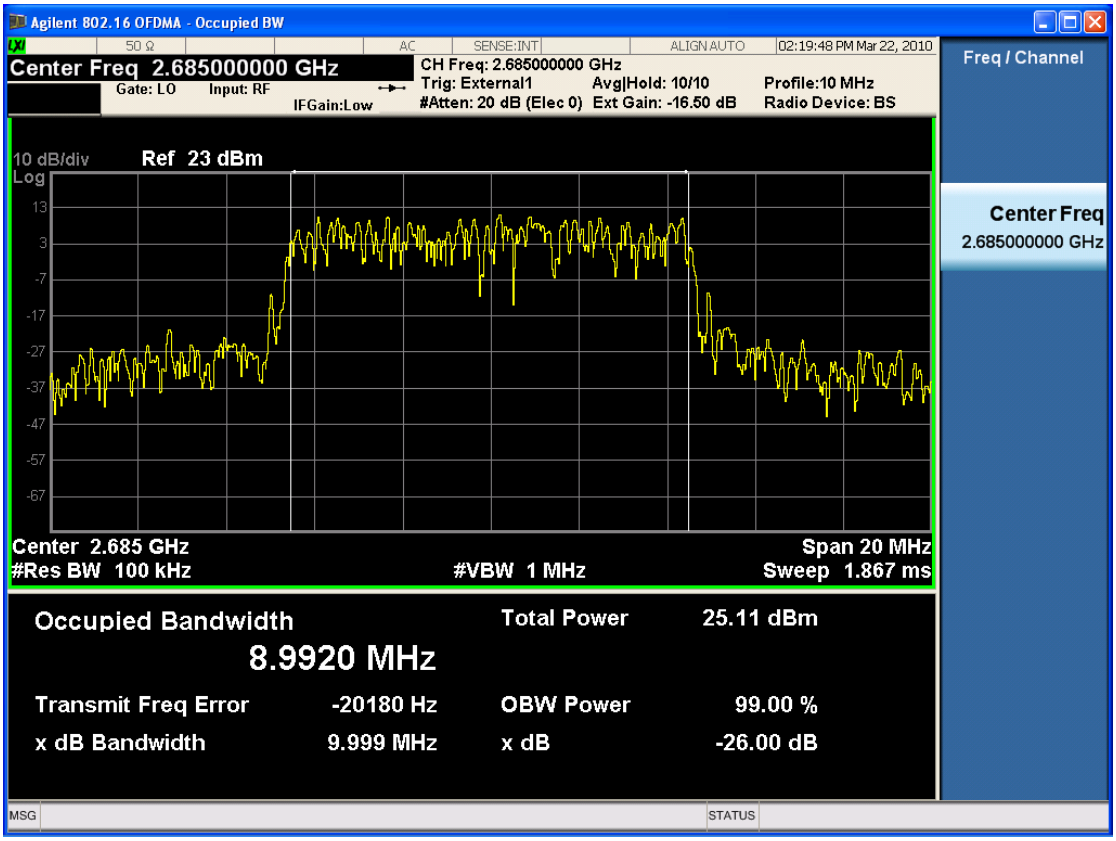
■ 16QAM MODE 3/4 (2593.0 MHz) Occupied Bandwidth



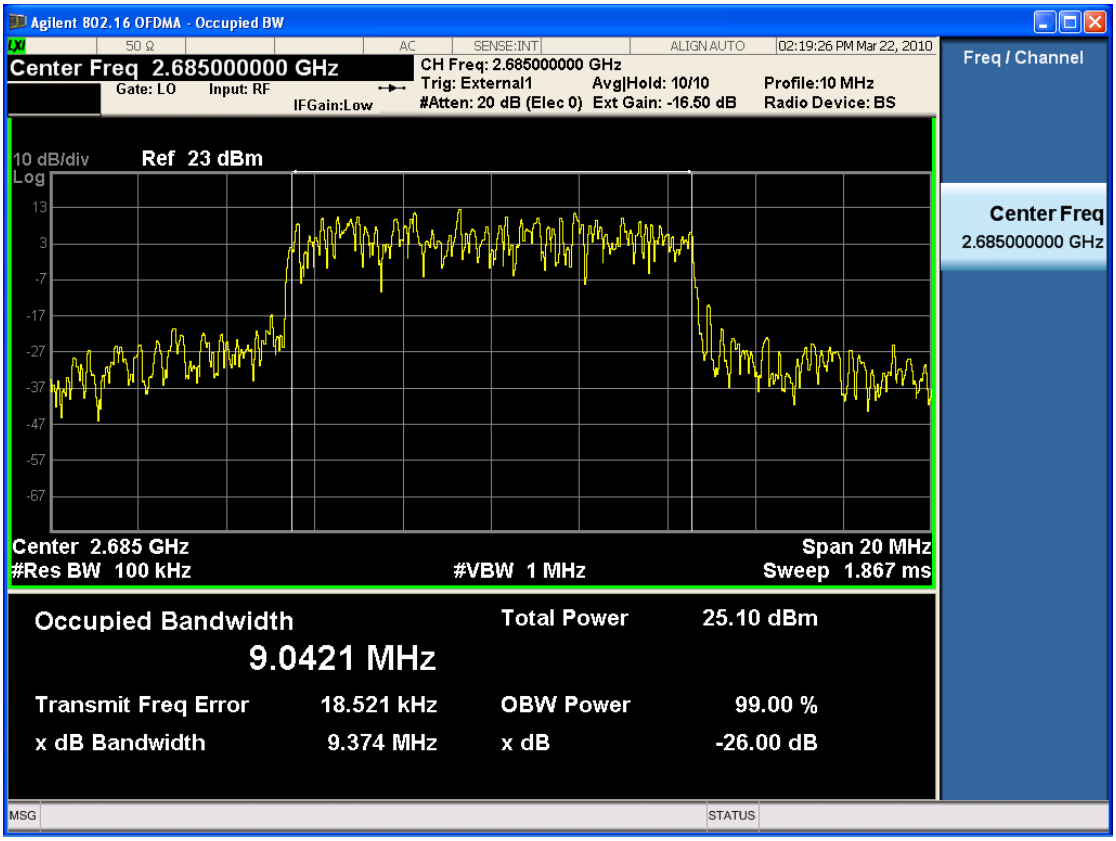
■ QPSK MODE 1/2 (2685.0 MHz) Occupied Bandwidth



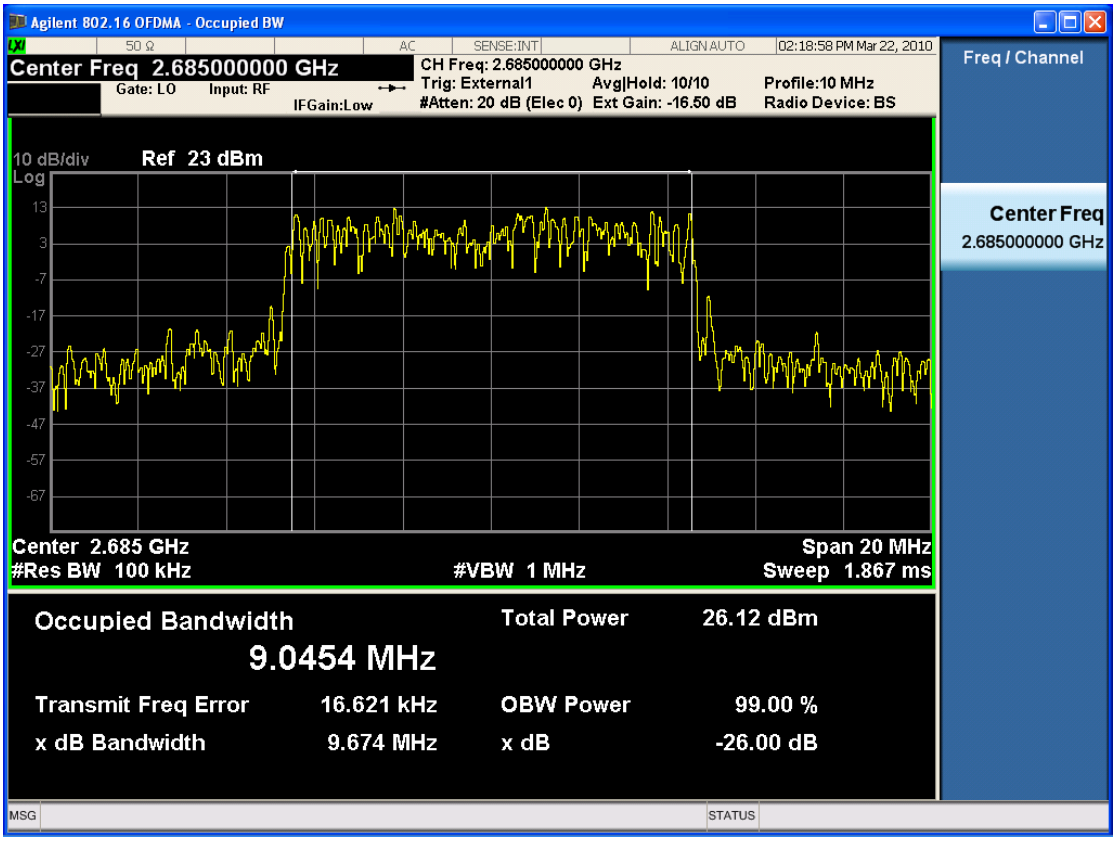
■ QPSK MODE 3/4 (2685.0 MHz) Occupied Bandwidth



■ 16QAM MODE 1/2 (2685.0 MHz) Occupied Bandwidth

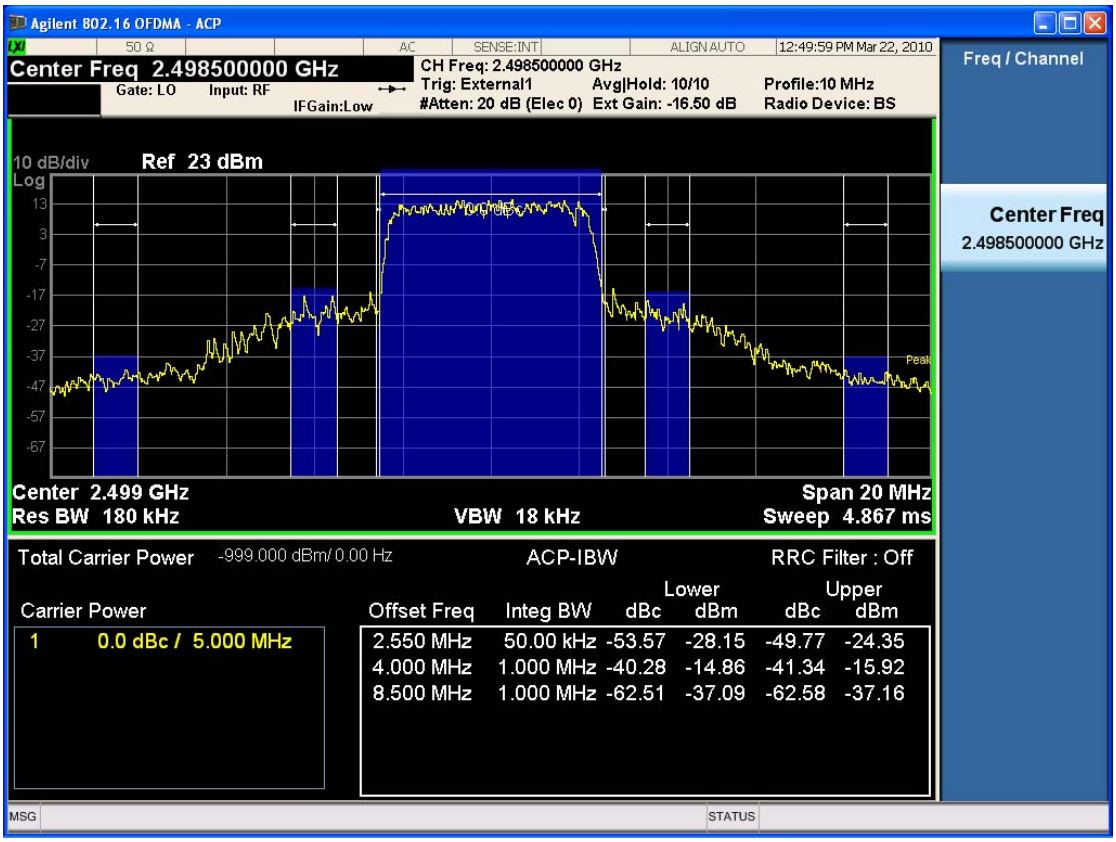


■ 16QAM MODE 3/4 (2685.0 MHz) Occupied Bandwidth

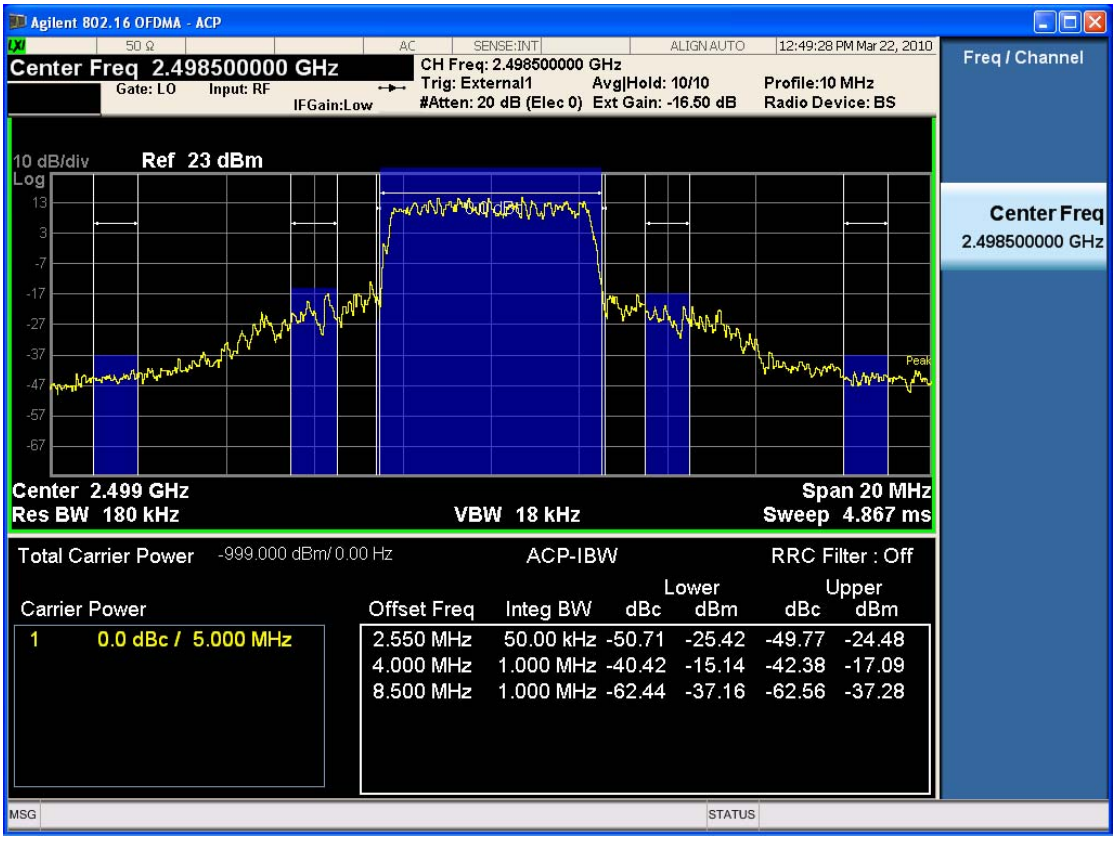


5 MHz

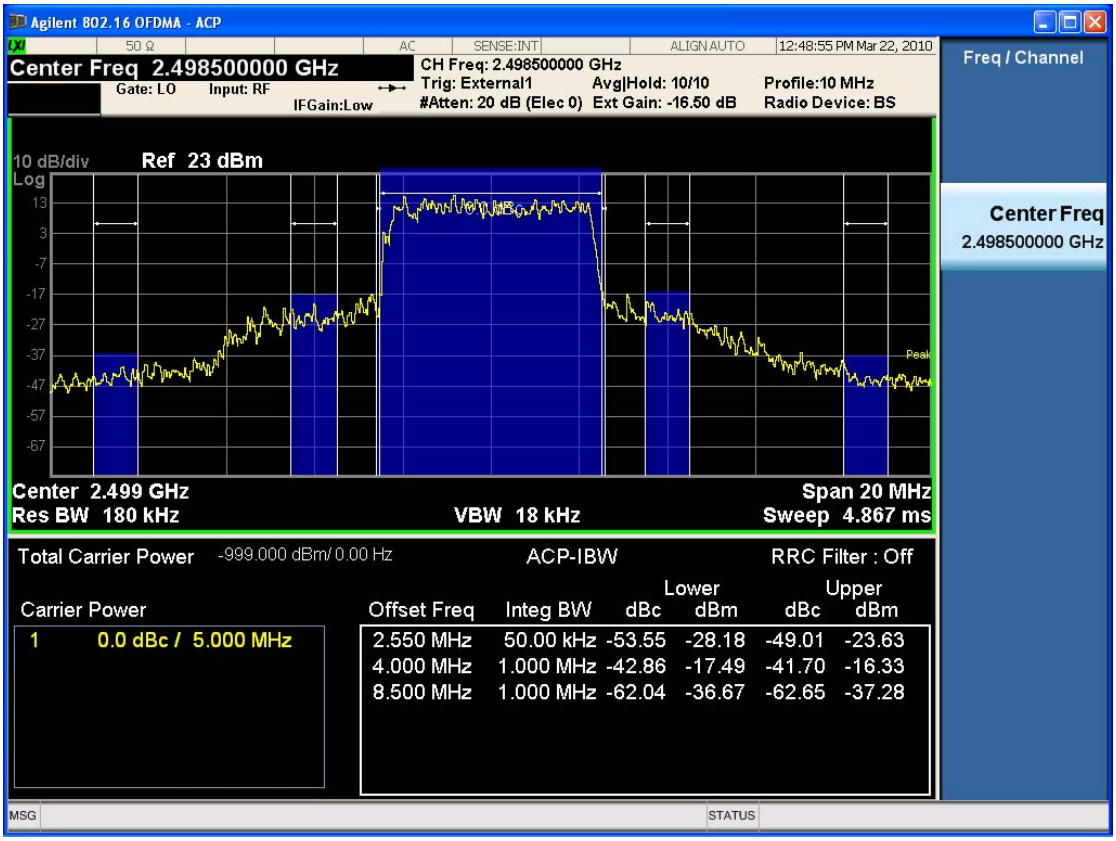
■ QPSK MODE 1/2 (2498.5 MHz) Channel Edge



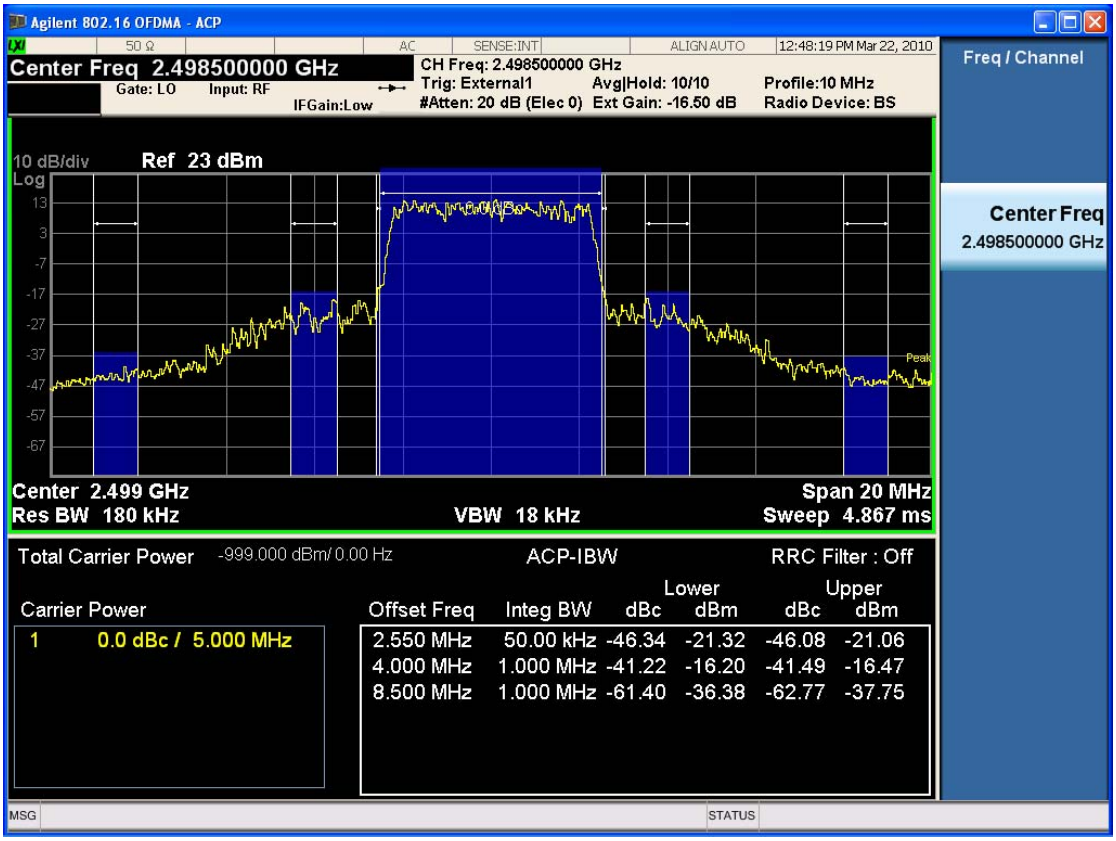
■ QPSK MODE 3/4 (2498.5 MHz) Channel Edge



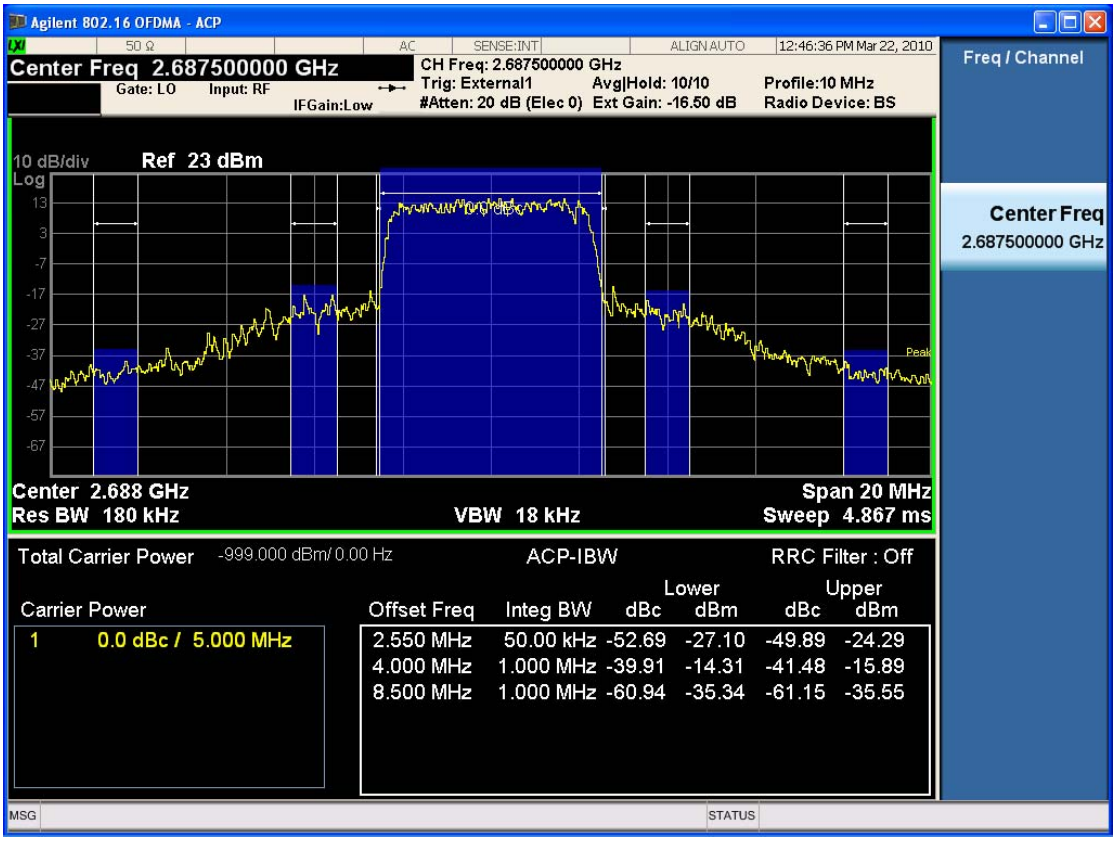
■ 16QAM MODE 1/2 (2498.5 MHz) Channel Edge



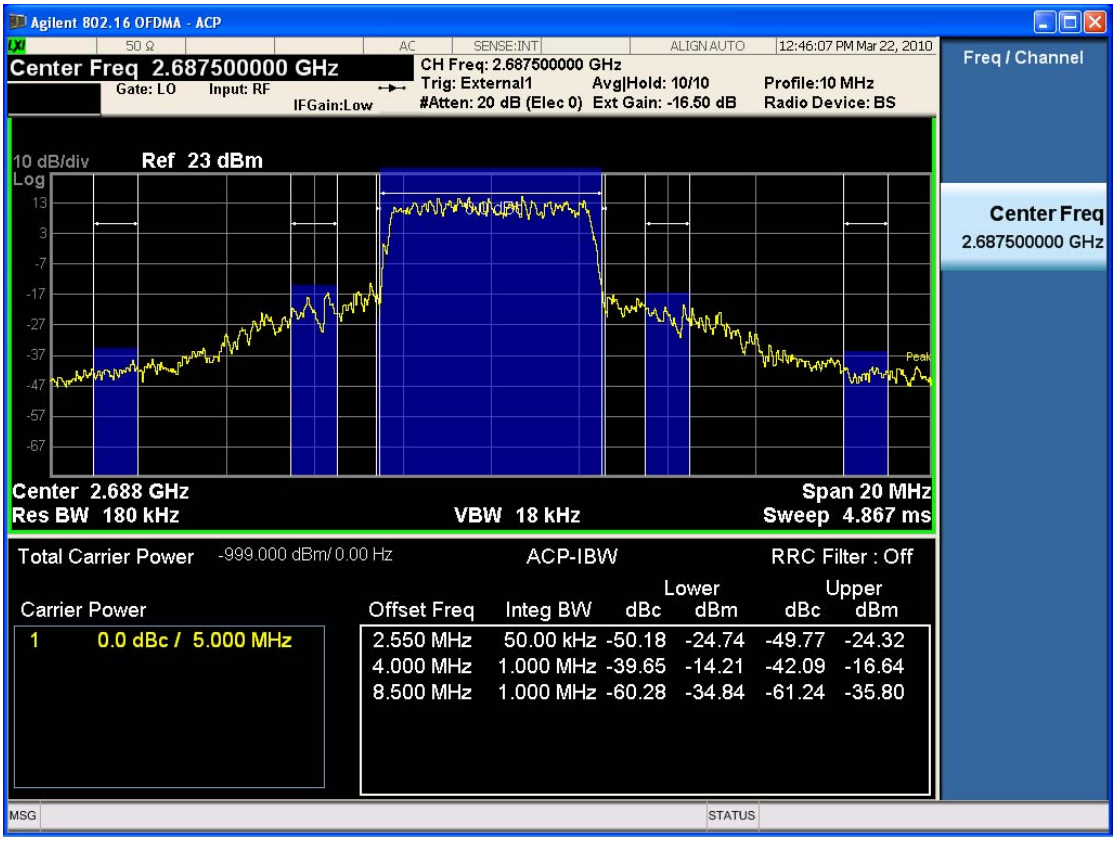
■ 16QAM MODE 3/4 (2498.5 MHz) Channel Edge



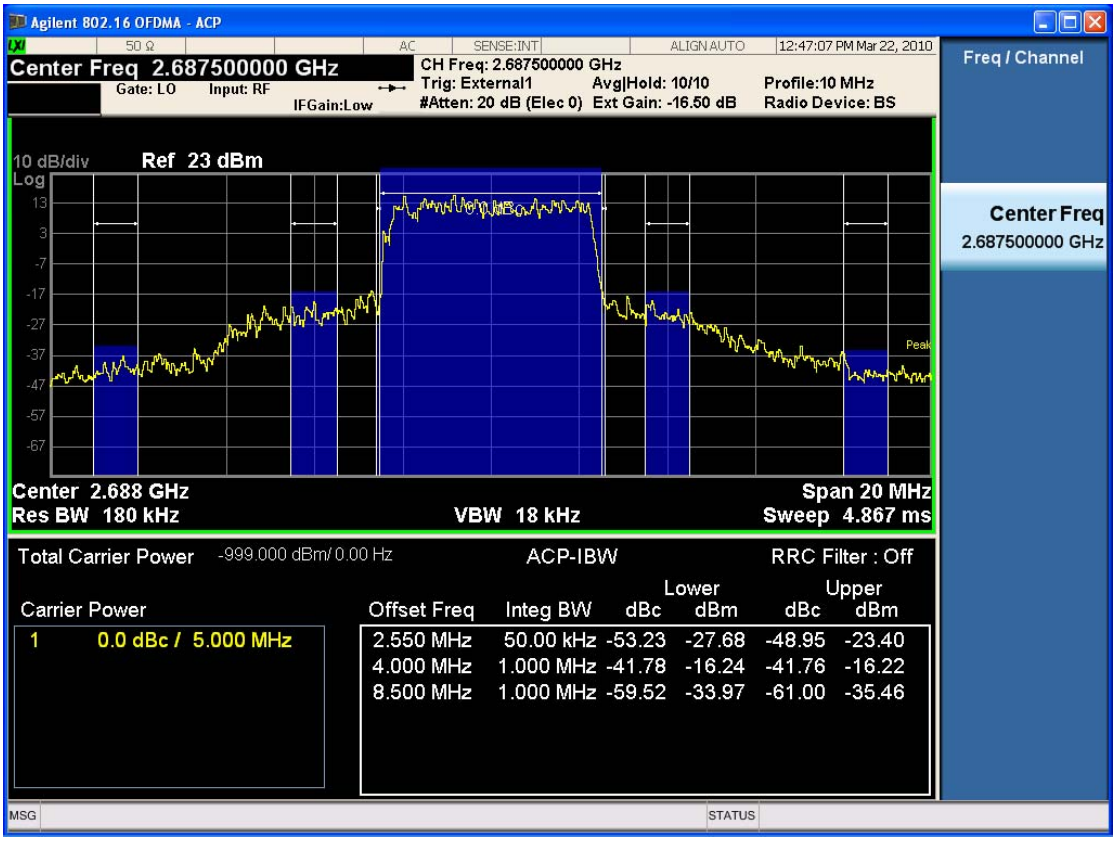
■ QPSK MODE 1/2 (2687.5 MHz) Channel Edge



■ QPSK MODE 3/4 (2687.5 MHz) Channel Edge



■ 16QAM MODE 1/2 (2687.5 MHz) Channel Edge



■ 16QAM MODE 3/4 (2687.5 MHz) Channel Edge