RF TEST REPORT

SIEMIC
A Bureau Veritas Group Company

Report No.: FCC_RF_SL19022801-SPC-002 Rev 4.0
Supersede Report No.: FCC_RF_SL19022801-SPC-002 Rev 3.0

Applicant	SpiderCloud Wireless, Inc.
Product Name	SpiderCloud Radio Node
Model No.	SCRN-340-13142566 & SCRN-340-13142566-EQ
Test Standard	47CFR Part24 47CFR Part27 47CFR Part90
Test Method	TIA-603-E: 2016
FCC ID	Y47RN340
Date of test	04/01/2019 – 04/16/2019
Issue Date	05/16/2019
Test Result	Pass Fail
Equipment complied with the specification	[x]
Equipment did not comply with the specification	[ ]

Gary Chou	Chen Ge
Test Engineer	Engineering Reviewer

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Test result presented in this test report is applicable to the tested sample only

Issued By:
SIEMIC Laboratories
775 Montague Expressway, Milpitas, 95035 CA

ACCREDITED
TESTING CERT # 2742-01

Laboratory Introduction

SIEMIC, headquartered in the heart of Silicon Valley, with superior facilities in US and Asia, is one of the leading independent testing and certification facilities providing customers with one-stop shop services for Compliance Testing and Global Certifications.

In addition to testing and certification, SIEMIC provides initial design reviews and compliance management throughout a project. Our extensive experience with China, Asia Pacific, North America, European, and International compliance requirements, assures the fastest, most cost effective way to attain regulatory compliance for the global markets.

Accreditations for Conformity Assessment

Country/Region	Accreditation Body	Scope
USA	FCC, A2LA	EMC, RF/Wireless, Telecom
Canada	IC, A2LA, NIST	EMC, RF/Wireless, Telecom
Taiwan	BSMI, NCC , NIST	EMC, RF, Telecom, Safety
Hong Kong	OFTA, NIST	RF/Wireless, Telecom
Australia	NATA, NIST	EMC, RF, Telecom, Safety
Korea	KCC/RRA, NIST	EMI, EMS, RF, Telecom, Safety
Japan	VCCI, JATE, TELEC, RFT	EMI, RF/Wireless, Telecom
Mexico	NOM, COFETEL, Caniety	Safety, EMC, RF/Wireless, Telecom
Europe	A2LA, NIST	EMC, RF, Telecom, Safety
Israel	MOC, NIST	EMC, RF, Telecom, Safety

Accreditations for Product Certifications

Country	Accreditation Body	Scope
USA	FCC TCB, NIST	EMC, RF, Telecom
Canada	IC FCB, NIST	EMC, RF, Telecom
Singapore	iDA, NIST	EMC, RF, Telecom
EU	NB	EMC & Radio Equipment Directive (RED)
Japan	MIC (RCB 208)	RF, Telecom
HongKong	OFTA (US002)	RF, Telecom

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1 Report Revision History

Report No.	Report Version	Description	Issue Date
FCC_RF_SL19022801-SPC-002	None	Original	04/16/2019
FCC_RF_SL19022801-SPC-002 Rev 1.0	Rev 1.0	Updated per reviewer	04/22/2019
FCC_RF_SL19022801-SPC-002 Rev 2.0	Rev 2.0	Updated per reviewer	05/03/2019
FCC_RF_SL19022801-SPC-002 Rev 3.0	Rev 3.0	Updated per reviewer	05/08/2019
FCC_RF_SL19022801-SPC-002 Rev 4.0	Rev 4.0	Updated per reviewer	05/16/2019

2 Executive Summary

The purpose of this test program was to demonstrate compliance of following product

Company: SpiderCloud Wireless, Inc.
Product: SpiderCloud Radio Node
Model: SCRN-340-13142566 & SCRN-340-13142566-EQ

against the current Stipulated Standards. The specified model product stated above has demonstrated compliance with the Stipulated Standard listed on 1st page.

3 Customer information

Applicant Name	SpiderCloud Wireless
Applicant Address	475 Sycamore Dr, Milpitas, CA, 95035, USA
Manufacturer Name	Sanmina-SCI Systems de Mexico SA de CV
Manufacturer Address	Carretera Chapala-Guadalajara 45640 Tlajomulco de Zuniga, Jalisco, Mexico

4 Test site information

Lab performing tests	SIEMIC Laboratories
Lab Address	775 Montague Expressway, Milpitas, CA 95035
FCC Test Site No.	540340
IC Test Site No.	4842D-2
VCCI Test Site No.	A0133

5 Modification

Index	Item	Description	Note
-	-	-	-

6 EUT Information

6.1 EUT Description

Product Name	SpiderCloud RadioNode
Model No.	SCRN-340-13142566 & SCRN-340-13142566-EQ
Trade Name	SpiderCloud
Serial No.	P/N: 03453-01-001 S/N: 19045E00003
Input Power	56VDC (PoE)
Hardware version	02858-01
Software version	6.1.1
Date of EUT received	04/01/2019
Equipment Class/ Category	PCB
Operating Frequencies	LTE: TX (746 MHz to 756 MHz), RX (777 MHz to 787 MHz) TX (758 MHz to 768 MHz), RX (788 MHz to 798 MHz) TX (1930 MHz to 1995 MHz), RX (1850 MHz to 1915 MHz) TX (2110 MHz to 2180 MHz), RX (1710 MHz to 1780 MHz)
Port/Connectors	PoE, Ethernet
Remark	NONE

6.2 Radio Description

Item	LTE	LTE
Operating Band /Radio Type	LTE Band 25	LTE Band 66
Bandwidth	5MHz, 10MHz, 15MHz, 20MHz	5MHz, 10MHz, 15MHz, 20MHz
Modulation	QPSK/16QAM/64QAM	QPSK/16QAM/64QAM
Antenna Type	Internal Omni-directional antenna External Omni-directional antenna	Internal Omni-directional antenna External Omni-directional antenna
Antenna Gain	3 dBi / 3dBi	3 dBi / 3dBi
Frequency TX(MHz)	TX: 1930 MHz to 1995 MHz RX: 1850 MHz to 1915 MHz	TX: 2110 MHz to 2180 MHz RX: 1710 MHz to 1780 MHz

Item	LTE	LTE
Operating Band /Radio Type	LTE Band 13	LTE Band 14
Bandwidth	5MHz, 10MHz	5MHz, 10MHz
Modulation	QPSK/16QAM/64QAM	QPSK/16QAM/64QAM
Antenna Type	Internal Omni-directional antenna External Omni-directional antenna	Internal Omni-directional antenna External Omni-directional antenna
Antenna Gain	2 dBi / 2dBi	2 dBi / 2dBi
Frequency TX(MHz)	TX: 746 MHz to 756 MHz RX: 777 MHz to 787 MHz	TX: 758 MHz to 768 MHz RX: 788 MHz to 798 MHz

7 Supporting Equipment/Software and cabling Description

7.1 Supporting Equipment

Item	Supporting Equipment Description	Model	Serial Number	Manufacturer	Note
1	10MHz Clock	OX200-SC	140851586710	Metric Test	-
2	POE	POE36U-1AT-R	N/A	PHIHONG	-

7.2 Cabling Description

Name	Connection Start		Connection Stop		Length / shielding Info		Note
	From	I/O Port	To	I/O Port	Length (m)	Shielding	
RJ45	EUT	RJ45	POE	RJ45	2	Unshielded	-
RJ45	POE	RJ45	Laptop	RJ45	3	Unshielded	-

7.3 Test Software Description

Test Item	Software	Description
RF testing	TMciDvtClient	Enable EUT continuous TX mode and change to different channel

8 Test Summary

Test Item	Test standard		Test Method/Procedure		Pass / Fail
E.R.P/ E.I.R.P	FCC	47CFR24.232, 27.50, 90.542	FCC	TIA-603-E: 2016	☒ Pass ☐ N/A
Occupied Bandwidth	FCC	47CFR24.238, 27.53	FCC	TIA-603-E: 2016	☒ Pass ☐ N/A
Peak-Average Ratio	FCC	47CFR24.232, 27.50	FCC	TIA-603-E: 2016	☒ Pass ☐ N/A
Spurious and harmonic Emission at antenna port	FCC	47CFR2.1051, 47CFR24.238, 27.53	FCC	TIA-603-E: 2016	☒ Pass ☐ N/A
Band Edge	FCC	47CFR2.1053, 47CFR24.238, 27.53, 90.543	FCC	TIA-603-E: 2016	☒ Pass ☐ N/A
Radiated spurious and harmonic emission	FCC	47CFR2.1053, 47CFR24.238, 27.53, 90.543	FCC	TIA-603-E: 2016	☒ Pass ☐ N/A
Frequency stability	FCC	47CFR2.1053, 47CFR24.135, 27.53, 47 CFR 90.539	FCC	TIA-603-E: 2016	☒ Pass ☐ N/A
Remark	1. All measurement uncertainties do not take into consideration for all presented test results. 2. The applicant shall ensure frequency stability by showing that an emission is maintained within the band of operation under all normal operating conditions as specified in the user's manual.				

9 Measurement Uncertainty

9.1 Conducted Emissions

The test is to measure the conducted emissions to the mains port of the EUT.

Some error sources that can contribute to the total uncertainty:

- Uncertainty of the receiver
- Uncertainty of the LISN
- Uncertainty of cables
- Uncertainty due to the mismatches
- Etc, see the below table for details

Source of Uncertainty	Value (dB)	Probability Distribution	Division	Sensitivity Coefficient	Expanded Uncertainty
Receiver Reading	0.12	Rectangular	1.732	1	0.069284
Cable Insertion Loss	0.21	Normal	2	1	0.105
Filter Insertion Loss	0.25	Normal	2	1	0.125
LISN Insertion Loss	0.40	Normal	2	1	0.20
Receiver CW accuracy	0.5	Rectangular	1.732	1	0.2886836
Pulse Amplitude Response	1.5	Rectangular	1.732	1	0.86605081
PRF Response	1.5	Rectangular	1.732	1	0.86605081
Mismatch LISN - Receiver	0.25	U-Shape	1.414	1	0.1768033
LISN Impedance	2.5	Triangular	2.449	1	1.0208248
Combined Standard Uncertainty					1.928133
Expanded Uncertainty (K=2)					3.856266

The total derived measurement uncertainty is +/- 3.86 dB.

9.2 Radiated Emissions (30MHz to 1GHz)

The test is to measure the radiated emissions of the EUT.

Some error sources that can contribute to the total uncertainty:

- Uncertainty of the receiver
- Uncertainty of the antenna
- Uncertainty of cables
- Uncertainty due to the mismatches
- NSA Calibration
- Etc., details see the below table

Source of Uncertainty	Value (dB)	Probability Distribution	Division	Sensitivity Coefficient	Expanded Uncertainty
Receiver Reading	0.12	Rectangular	1.732	1	0.069284
Cable Insertion Loss	0.21	Normal	2	1	0.105
Filter Insertion Loss	0.25	Normal	2	1	0.125
Antenna Factor	0.65	Normal	2	1	0.325
Receiver CW accuracy	0.5	Rectangular	1.732	1	0.2886836
Pulse Amplitude Response	1.5	Rectangular	1.732	1	0.86605081
PRF Response	1.5	Rectangular	1.732	1	0.86605081
Mismatch Filter - Receiver	0.25	U-Shape	1.414	1	0.1768033
NSA Calibration	4.0	U-Shape	1.414	1	2.8288543
Combined Standard Uncertainty					3.0059131
Expanded Uncertainty (K=2)					6.0118262

The total derived measurement uncertainty is +/- 6.00 dB.

9.3 Radiated Emissions (1GHz to 40GHz)

The test is to measure the radiated emissions of the EUT.

Some error sources that can contribute to the total uncertainty:
- Uncertainty of the receiver
- Uncertainty of the antenna
- Uncertainty of cables
- Uncertainty due to the mismatches
- VSWR Calibration
- Etc., details see the below table

Source of Uncertainty	Value (dB)	Probability Distribution	Division	Sensitivity Coefficient	Expanded Uncertainty
Receiver Reading	0.12	Rectangular	1.732	1	0.0692840
Cable Insertion Loss	0.21	Normal	2	1	0.1050000
Filter Insertion Loss	0.25	Normal	2	1	0.1250000
Antenna Factor	0.65	Normal	2	1	0.3250000
Receiver CW accuracy	0.5	Rectangular	1.732	1	0.2886836
Pulse Amplitude Response	1.5	Rectangular	1.732	1	0.8660508
PRF Response	1.5	Rectangular	1.732	1	0.8660508
Mismatch Filter - Receiver	0.25	U-Shape	1.414	1	0.1768033
VSWR Calibration	2.0	U-Shape	1.414	1	1.4144272
Combined Standard Uncertainty					4.2363
Expanded Uncertainty (K=2)					8.4726

The total derived measurement uncertainty is +/- 8.47 dB.

9.4 RF conducted measurement

The test is to measure the RF output power from the EUT.

Some error sources that can contribute to the total uncertainty:

- Uncertainty of the Reference Level Uncertainty
- Uncertainty of variable attenuators
- Uncertainty of cables
- Uncertainty due to the mismatches

Source of Uncertainty	Value (dB)	Probability Distribution	Division	Sensitivity Coefficient	Expanded Uncertainty
Reference Level	0.12	Rectangular	1.732	1	0.069284
Cable Insertion Loss	0.21	Normal	2	1	0.105
Attenuator	0.25	Normal	2	1	0.125
Mismatch	0.25	U-Shape	1.414	1	0.1768033
Combined Standard Uncertainty					0.476087
Expanded Uncertainty (K=2)					0.952174

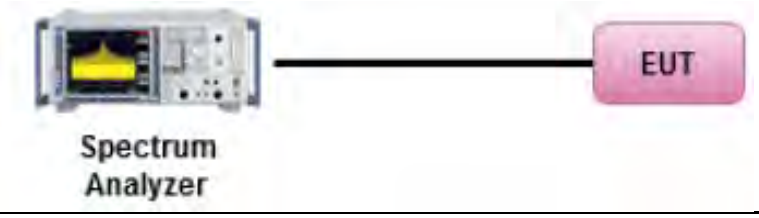
The total derived measurement uncertainty is +/- 0.95 dB.

10 Measurements, Examination and Derived Results

10.1 RF Output Power

Requirement(s):

Spec	Item	Requirement	Applicable
47CFR24.232	-	Base stations with an emission bandwidth greater than 1 MHz are limited to 1640 watts/MHz equivalent isotropically radiated power (EIRP) with an antenna height up to 300 meters HAAT	☒
47CFR27.50	-	The maximum effective radiated power (ERP) of fixed and base station must not exceed 1000 Watts.	☒
47CFR90.542	-	Fixed and base stations transmitting a signal in the 758-768 MHz band with an emission bandwidth of 1 MHz or less must not exceed an ERP of 1000 watts and an antenna height of 305 m HAAT, except that antenna heights greater than 305 m HAAT are permitted if power levels are reduced below 1000 watts ERP in accordance with Table 1 of this section.	☒

Test Setup				
Test Procedure	- EUT was set for low, mid, high channel with modulated mode and highest RF output power. - The spectrum analyzer was connected to the antenna terminal.			
Test Date	04/01/2019 – 04/16/2019	Environmental condition	Temperature Relative Humidity Atmospheric Pressure	22°C 48% 1008mbar
Remark	For LTE mode, EUT is using 2x2 MIMO, which has 2 transmit antennas. They are correlated to each other. The directional gain is calculated per the formula at below, Directional gain dBi = Gmax + 10 Log10 N Band 13/14: The max gain of single internal antenna is 2 dBi. So the directional gain = 5 dBi Band 25/66: The max gain of single external antenna is 3 dBi. So the directional gain = 6 dBi			
Result	☒ Pass ☐ Fail			

Test Data ☒ Yes ☐ N/A

Test Plot ☒ Yes (See below) ☐ N/A

Test was done by Gary Chou at RF Test Site.

Test Data for LTE band 25:

Type	Channel	Frequency (MHz)	Measured PW –Port 1(dBm)	Measured PW –Port 2(dBm)	Combined Power (dBm)	Directional Gain (dBi)	E.I.R.P (dBm)	E.R.P (dBm)
5MHz BW, QPSK	Low	1932.5	23.51	23.44	26.49	6	32.49	30.34
	Mid	1962.5	22.76	22.75	25.77	6	31.77	29.62
	High	1992.5	23.47	23.51	26.50	6	32.50	30.35
5MHz BW, 64QAM	Low	1932.5	23.19	23.23	26.22	6	32.22	30.07
	Mid	1962.5	23.06	23.10	26.09	6	32.09	29.94
	High	1992.5	23.68	23.66	26.68	6	32.68	30.53
10MHz BW, QPSK	Low	1935	23.03	23.05	26.05	6	32.05	29.90
	Mid	1962.5	22.94	23.08	26.02	6	32.02	29.87
	High	1990	23.22	23.06	26.15	6	32.15	30.00
10MHz BW, 64QAM	Low	1935	23.18	23.18	26.19	6	32.19	30.04
	Mid	1962.5	23.34	23.40	26.38	6	32.38	30.23
	High	1990	23.79	23.67	26.74	6	32.74	30.59
15MHz BW, QPSK	Low	1937.5	22.91	23.09	26.01	6	32.01	29.86
	Mid	1962.5	23.11	23.49	26.31	6	32.31	30.16
	High	1987.5	23.07	22.92	26.01	6	32.01	29.86
15MHz BW, 64QAM	Low	1937.5	22.96	22.86	25.92	6	31.92	29.77
	Mid	1962.5	22.95	22.99	25.98	6	31.98	29.83
	High	1987.5	23.11	23.22	26.18	6	32.18	30.03
20MHz BW, QPSK	Low	1940	23.06	23.15	26.12	6	32.12	29.97
	Mid	1962.5	23.25	23.15	26.21	6	32.21	30.06
	High	1985	23.35	23.10	26.24	6	32.24	30.09
20MHz BW, 64QAM	Low	1940	23.08	23.16	26.13	6	32.13	29.98
	Mid	1962.5	22.80	23.10	25.96	6	31.96	29.81
	High	1985	23.19	22.65	25.94	6	31.94	29.79

Test Data for LTE band 66:

Type	Channel	Frequency (MHz)	Measured PW –Port 1(dBm)	Measured PW –Port 2(dBm)	Combined Power (dBm)	Directional Gain (dBi)	E.I.R.P (dBm)	E.R.P (dBm)
5MHz BW, QPSK	Low	2112.5	24.08	23.72	26.91	6	32.91	30.76
	Mid	2145	23.79	23.79	26.80	6	32.80	30.65
	High	2177.5	23.65	23.55	26.61	6	32.61	30.46
5MHz BW, 64QAM	Low	2112.5	23.36	23.34	26.36	6	32.36	30.21
	Mid	2145	23.04	23.06	26.06	6	32.06	29.91
	High	2177.5	23.70	23.69	26.71	6	32.71	30.56
10MHz BW, QPSK	Low	2115	23.95	24.10	27.04	6	33.04	30.89
	Mid	2145	24.12	24.02	27.08	6	33.08	30.93
	High	2175	24.09	24.06	27.09	6	33.09	30.94
10MHz BW, 64QAM	Low	2115	23.96	23.82	26.90	6	32.90	30.75
	Mid	2145	23.99	23.95	26.98	6	32.98	30.83
	High	2175	24.13	24.14	27.15	6	33.15	31.00
15MHz BW, QPSK	Low	2117.5	24.29	24.30	27.31	6	33.31	31.16
	Mid	2145	23.96	23.90	26.94	6	32.94	30.79
	High	2172.5	23.90	23.84	26.88	6	32.88	30.73
15MHz BW, 64QAM	Low	2117.5	24.29	24.22	27.27	6	33.27	31.12
	Mid	2145	23.81	23.86	26.85	6	32.85	30.70
	High	2172.5	23.61	24.04	26.84	6	32.84	30.69
20MHz BW, QPSK	Low	2120	24.55	24.48	27.53	6	33.53	31.38
	Mid	2145	24.02	24.16	27.10	6	33.10	30.95
	High	2170	23.88	24.01	26.96	6	32.96	30.81
20MHz BW, 64QAM	Low	2120	24.45	24.55	27.51	6	33.51	31.36
	Mid	2145	24.15	24.10	27.14	6	33.14	30.99
	High	2170	23.94	23.87	26.92	6	32.92	30.77

Test Data for LTE band 13:

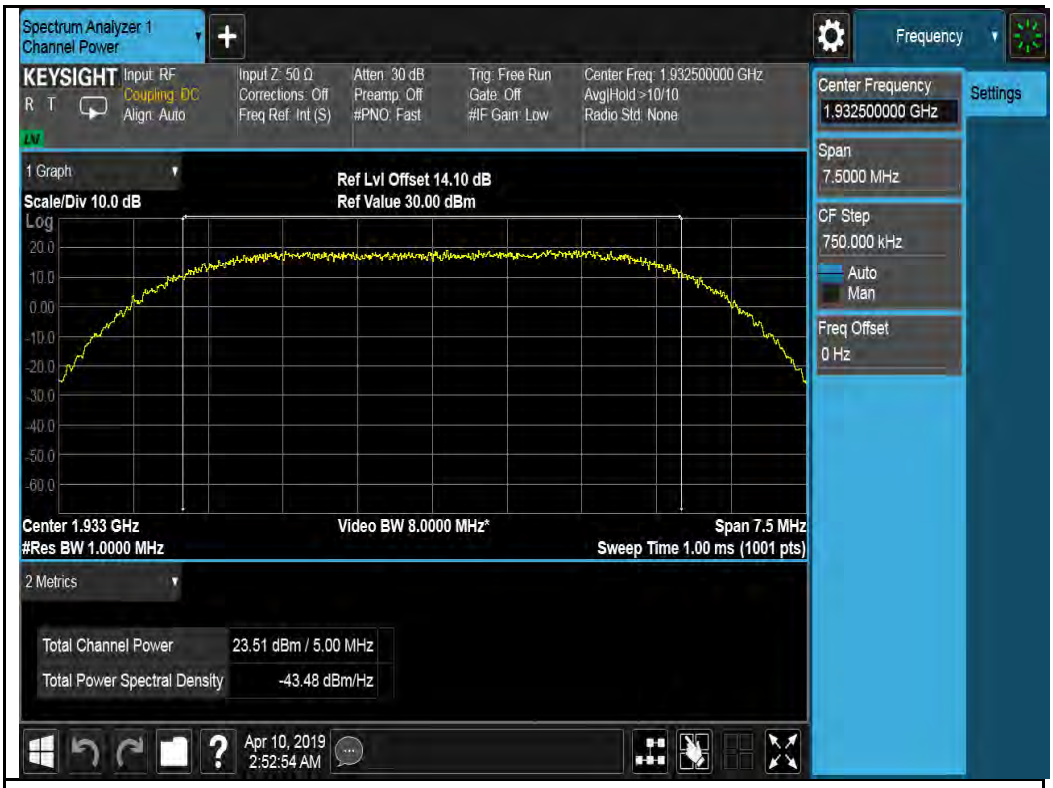
Type	Channel	Frequency (MHz)	Measured PW –Port 1(dBm)	Measured PW –Port 2(dBm)	Combined Power (dBm)	Directional Gain (dBi)	E.I.R.P (dBm)	E.R.P (dBm)
5MHz BW, QPSK	Low	748.2	23.76	23.82	26.80	5	31.80	29.65
	High	753.5	23.93	23.95	26.95	5	31.95	29.80
5MHz BW, 64QAM	Low	748.2	23.94	23.80	26.88	5	31.88	29.73
	High	753.5	23.84	23.88	26.87	5	31.87	29.72
10MHz BW, QPSK	Mid	751	23.90	23.82	26.87	5	31.87	29.72
10MHz BW, 64QAM	Mid	751	23.76	23.78	26.78	5	31.78	29.63

Test Data for LTE band 14:

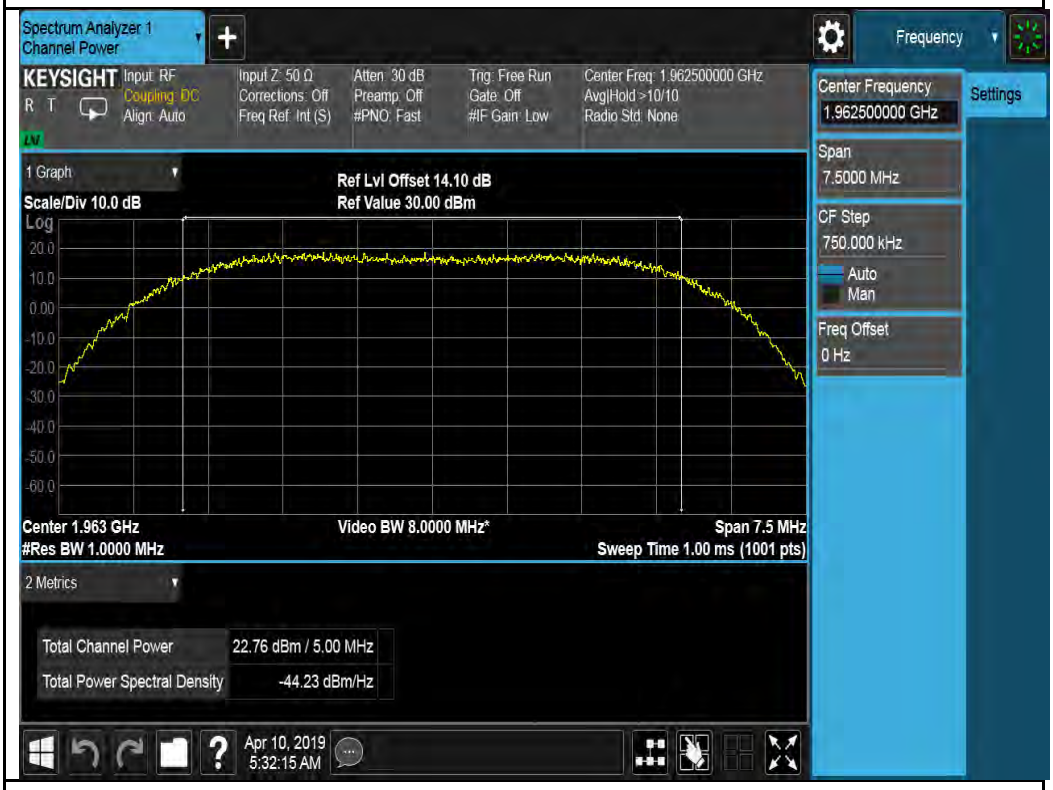
Type	Channel	Frequency (MHz)	Measured PW –Port 1(dBm)	Measured PW –Port 2(dBm)	Combined Power (dBm)	Directional Gain (dBi)	E.I.R.P (dBm)	E.R.P (dBm)
5MHz BW, QPSK	Low	760.5	23.65	23.60	26.64	5	31.64	29.49
	High	765.5	23.67	23.44	26.57	5	31.57	29.42
5MHz BW, 64QAM	Low	760.5	22.72	22.79	25.77	5	30.77	28.62
	High	765.5	23.34	23.26	26.31	5	31.31	29.16
10MHz BW, QPSK	Mid	763	23.00	23.00	26.01	5	31.01	28.86
10MHz BW, 64QAM	Mid	763	23.03	23.08	26.07	5	31.07	28.92

Test Plots for Band 25:

Chain 0:

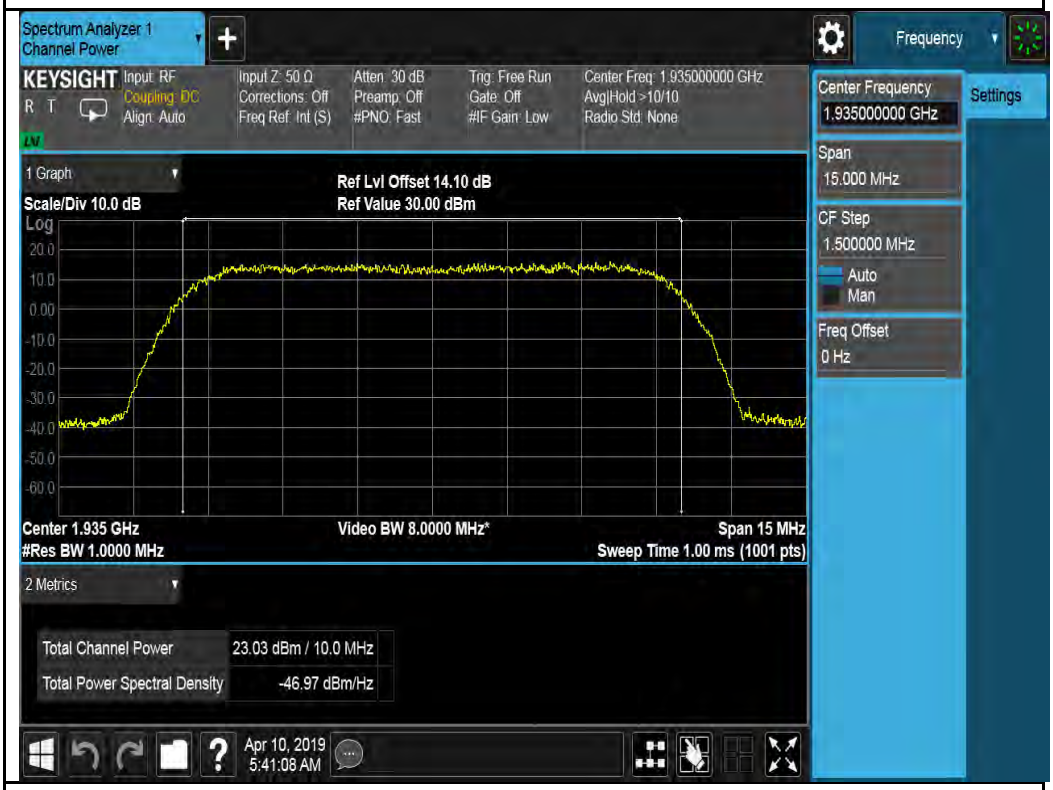


5M QPSK Low

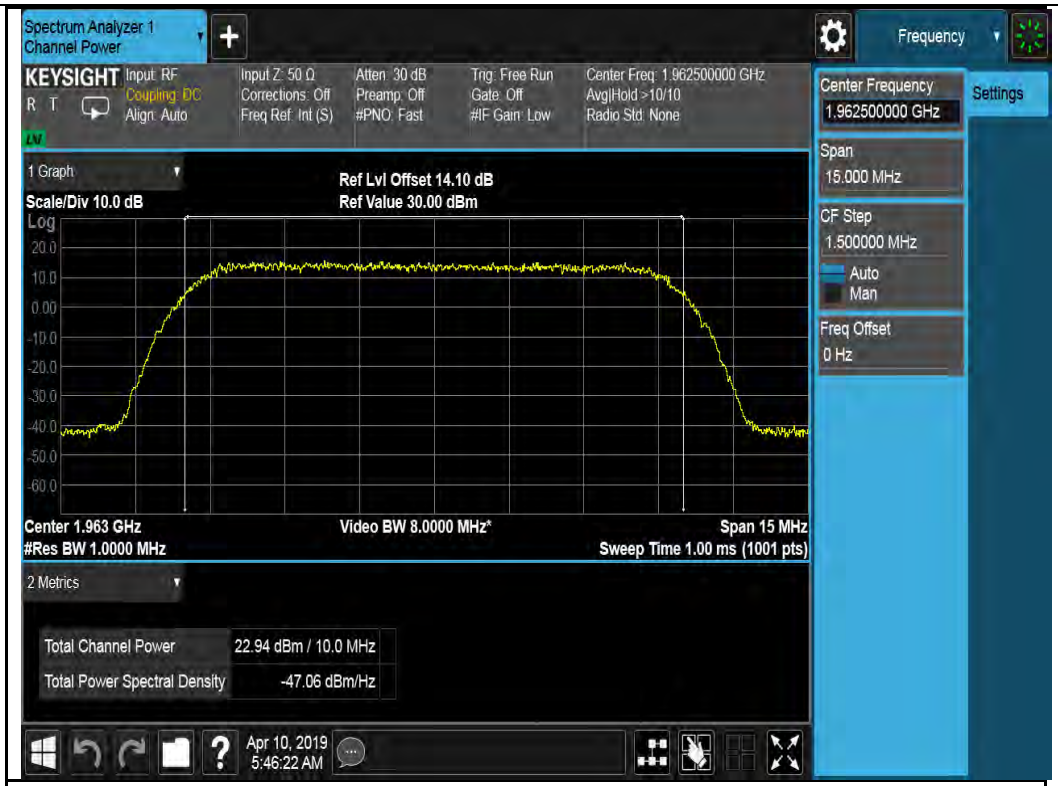


5M QPSK Mid

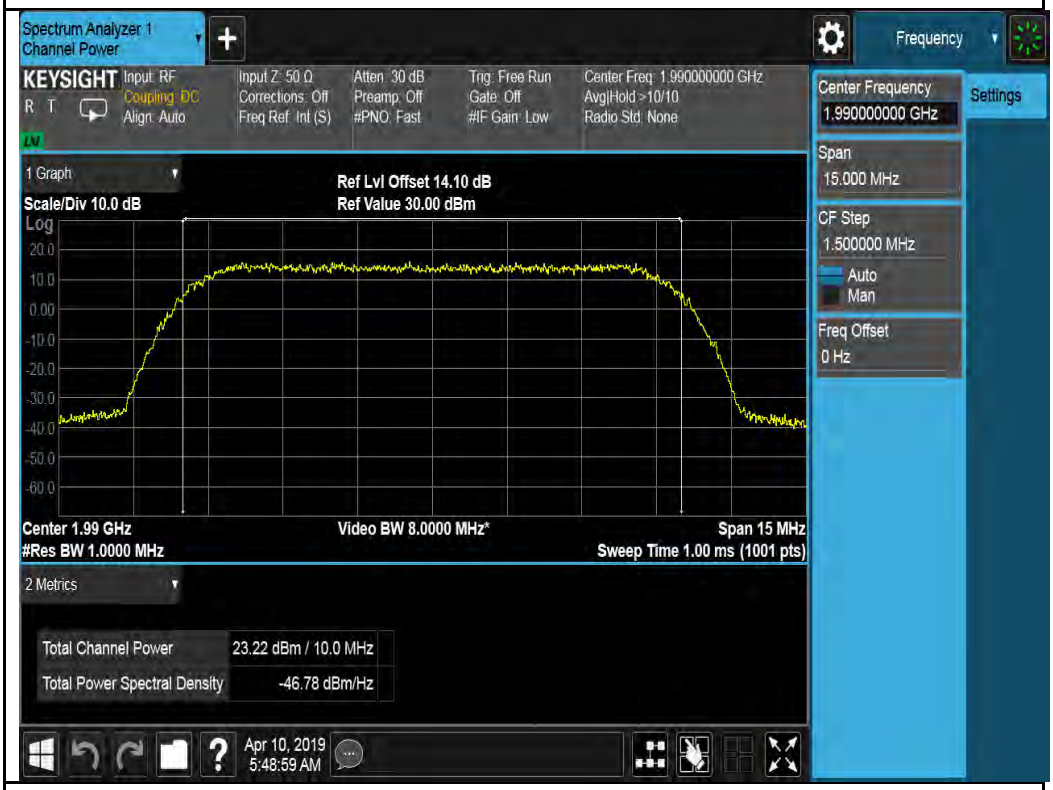
5M QPSK High



10M QPSK Low

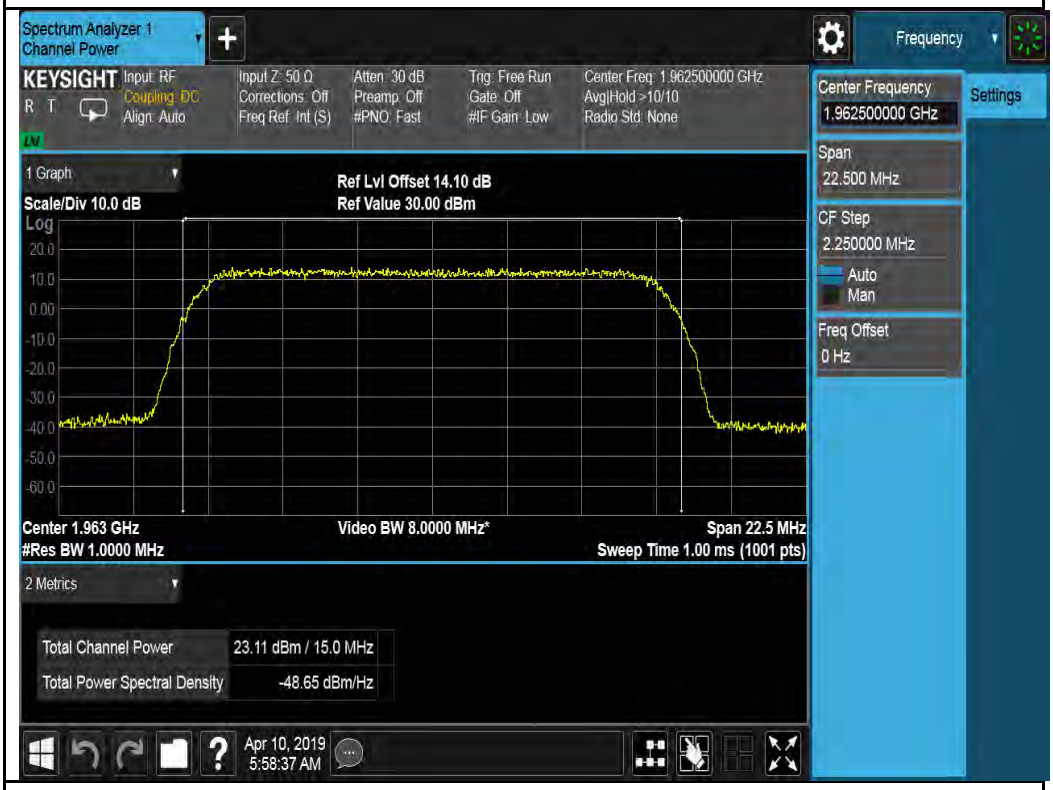


10M QPSK Mid

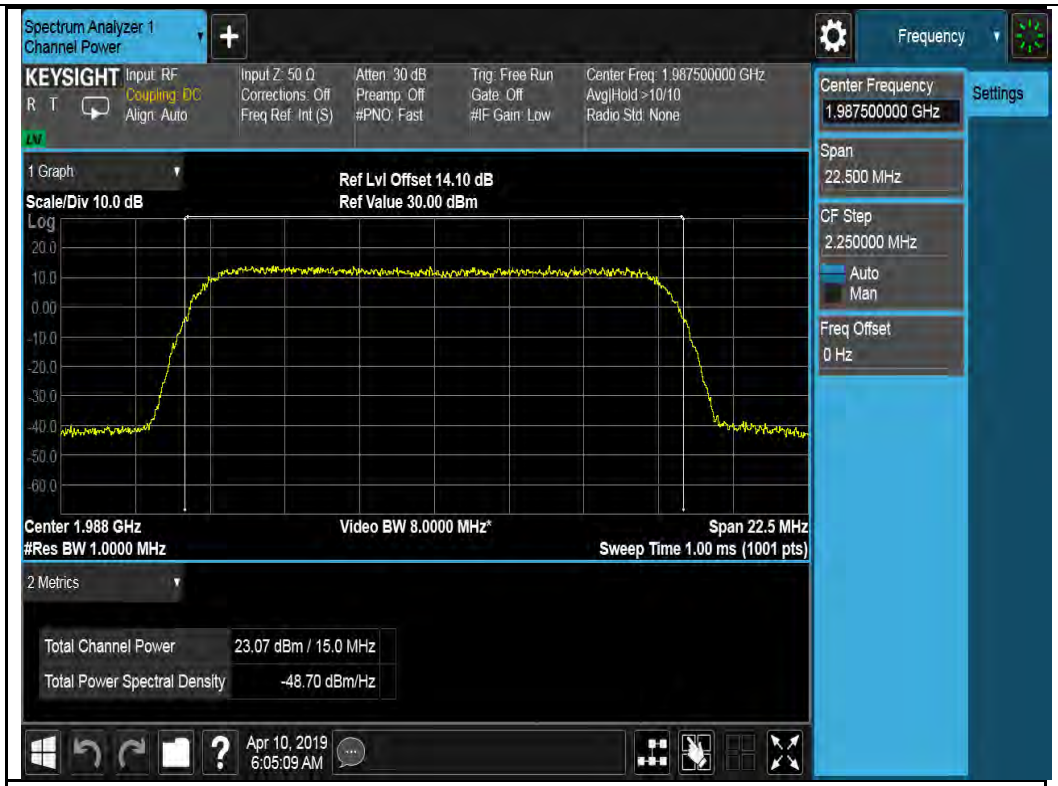


10M QPSK High

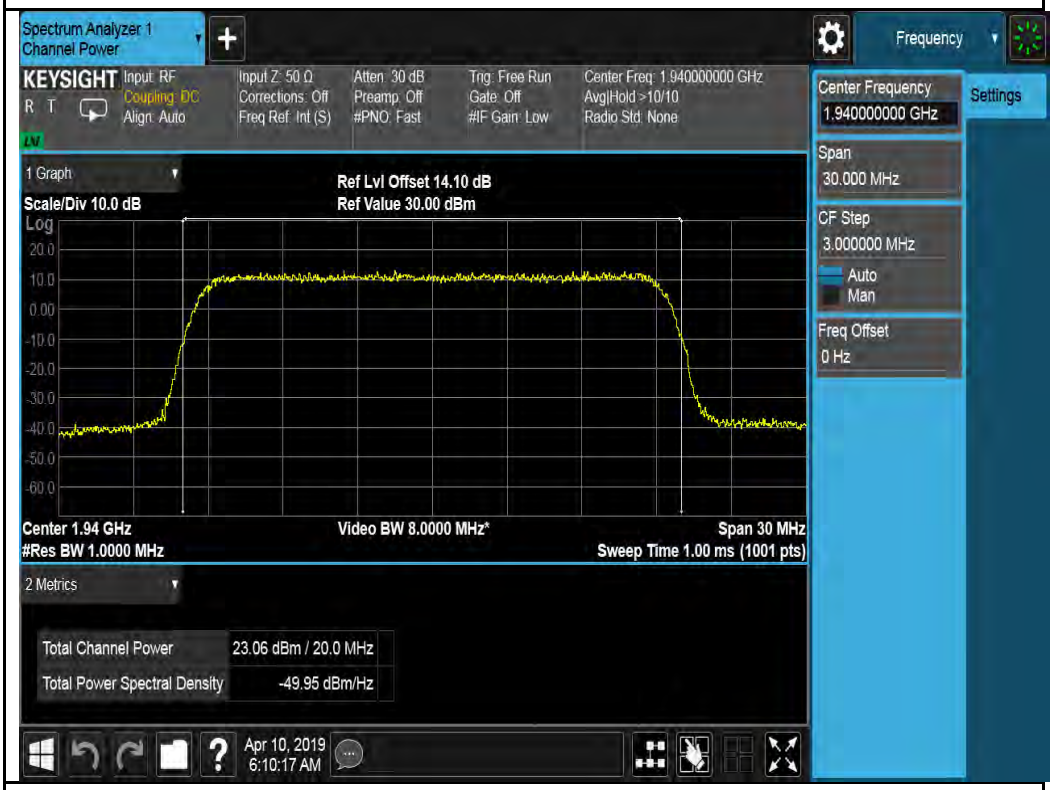
15M QPSK Low



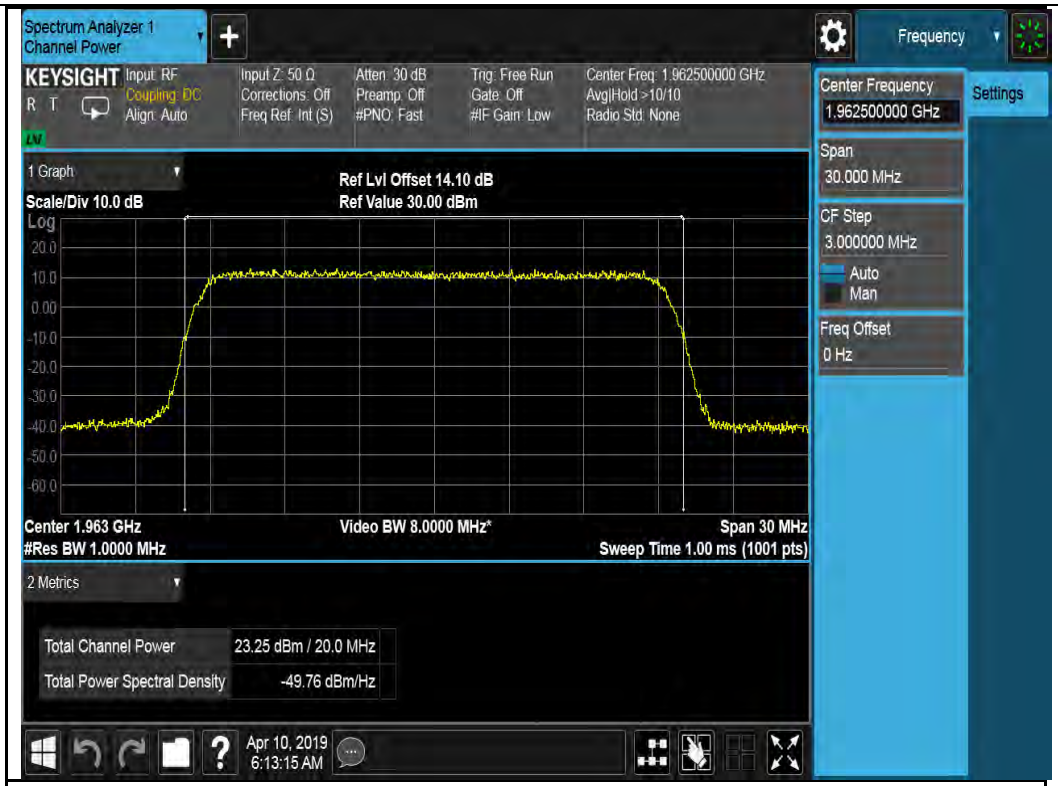
15M QPSK Mid



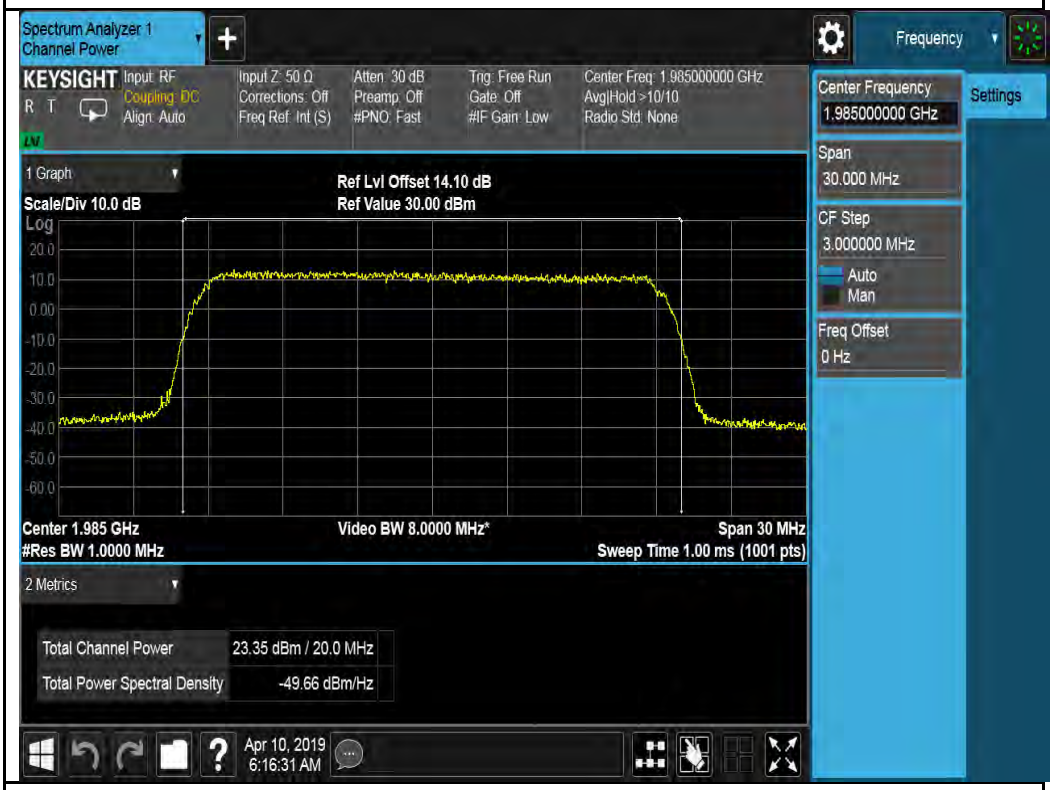
15M QPSK High



20M QPSK Low



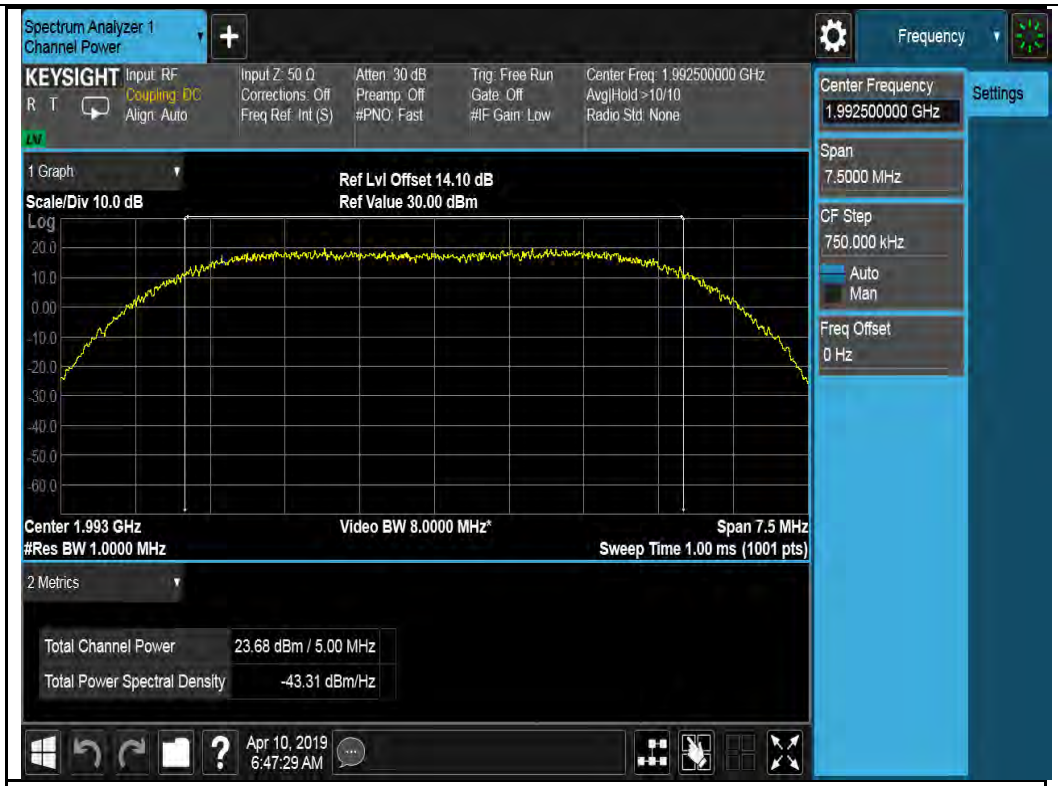
20M QPSK Mid



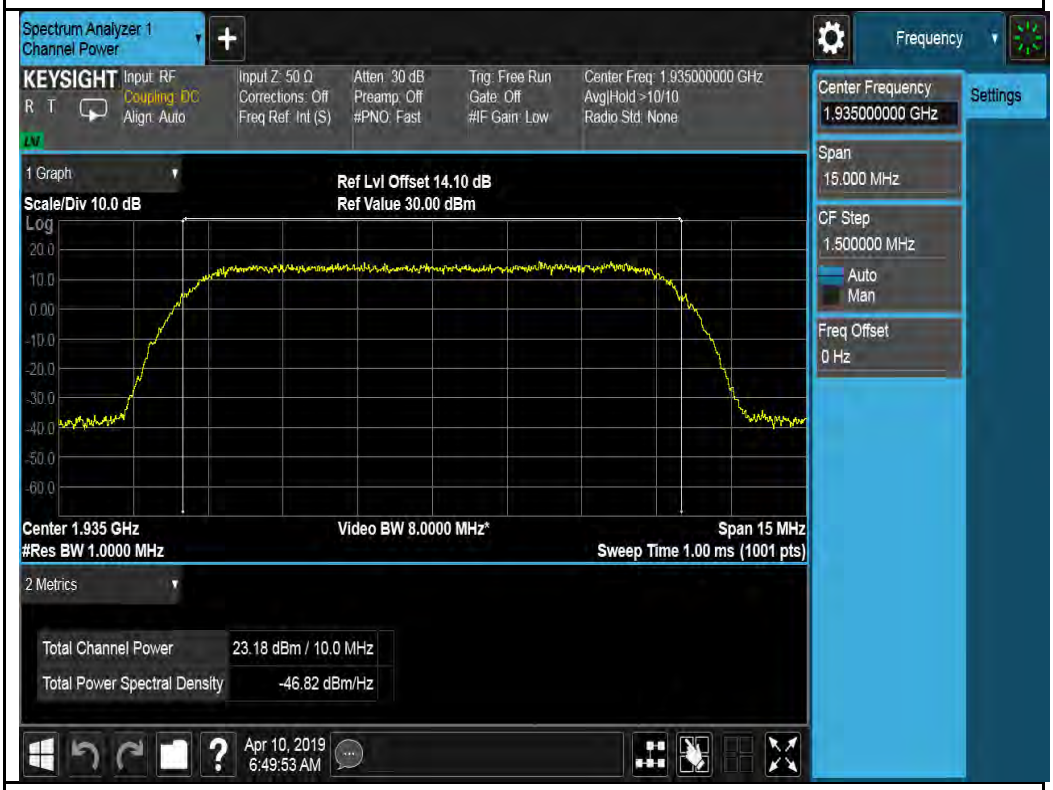
20M QPSK High

5M 64QAM Low

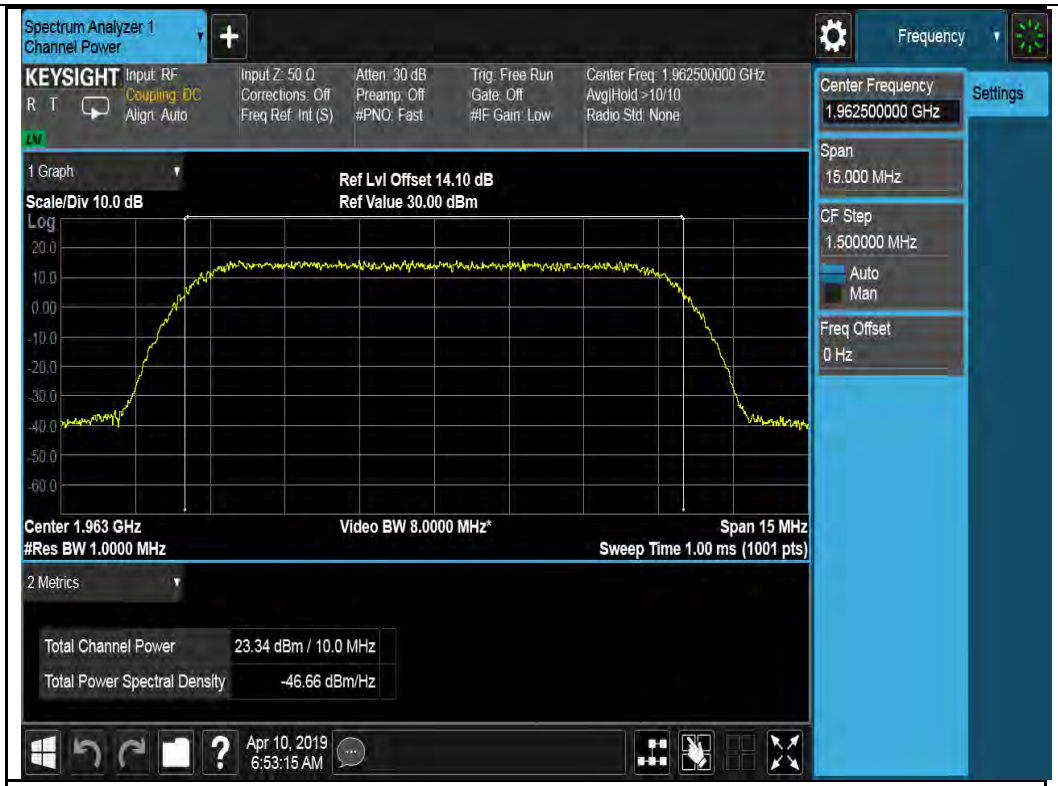
5M 64QAM Mid



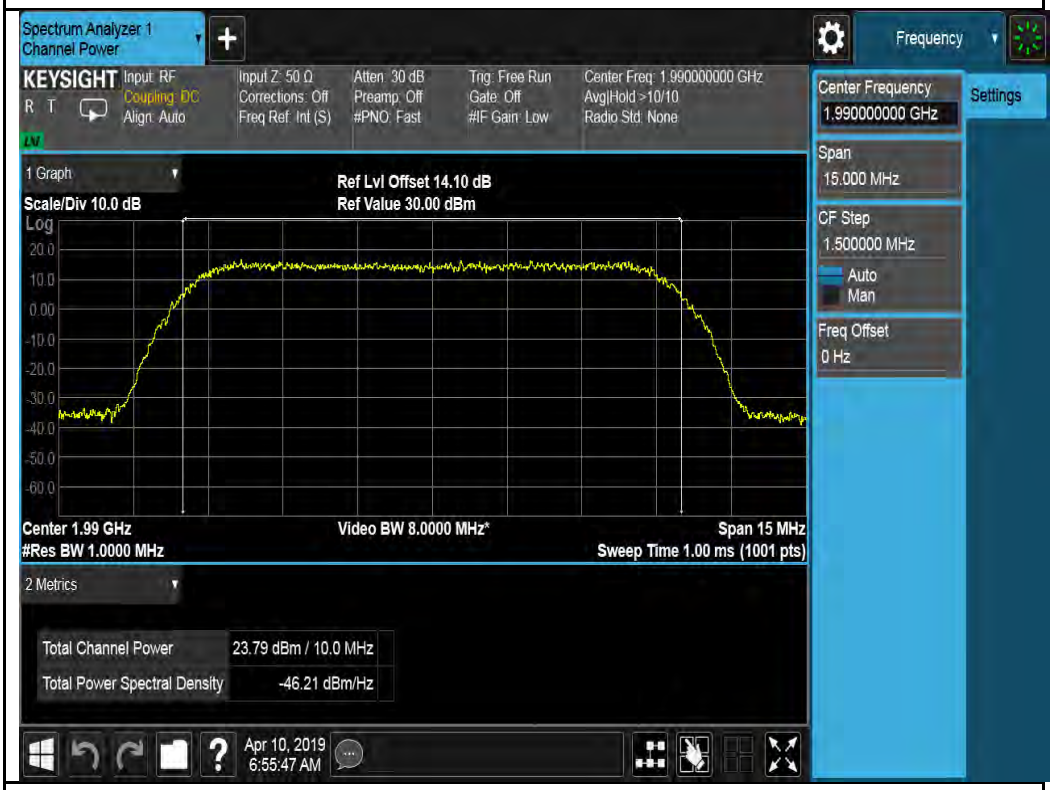
5M 64QAM High



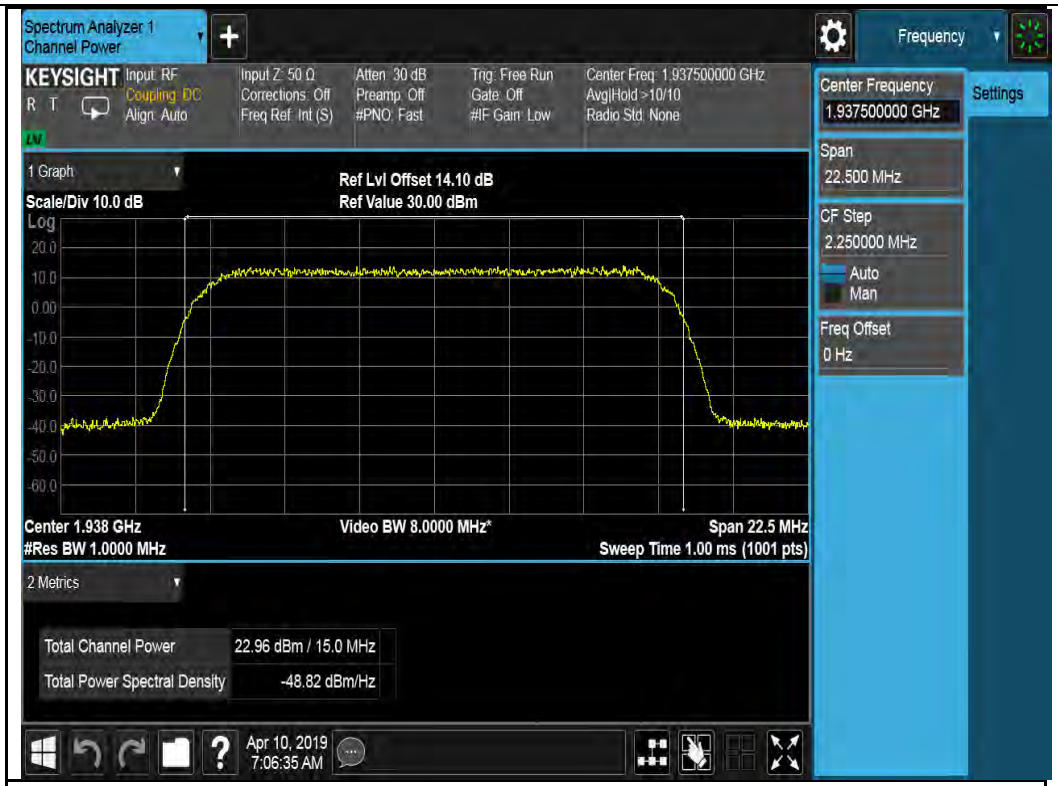
10M 64QAM Low



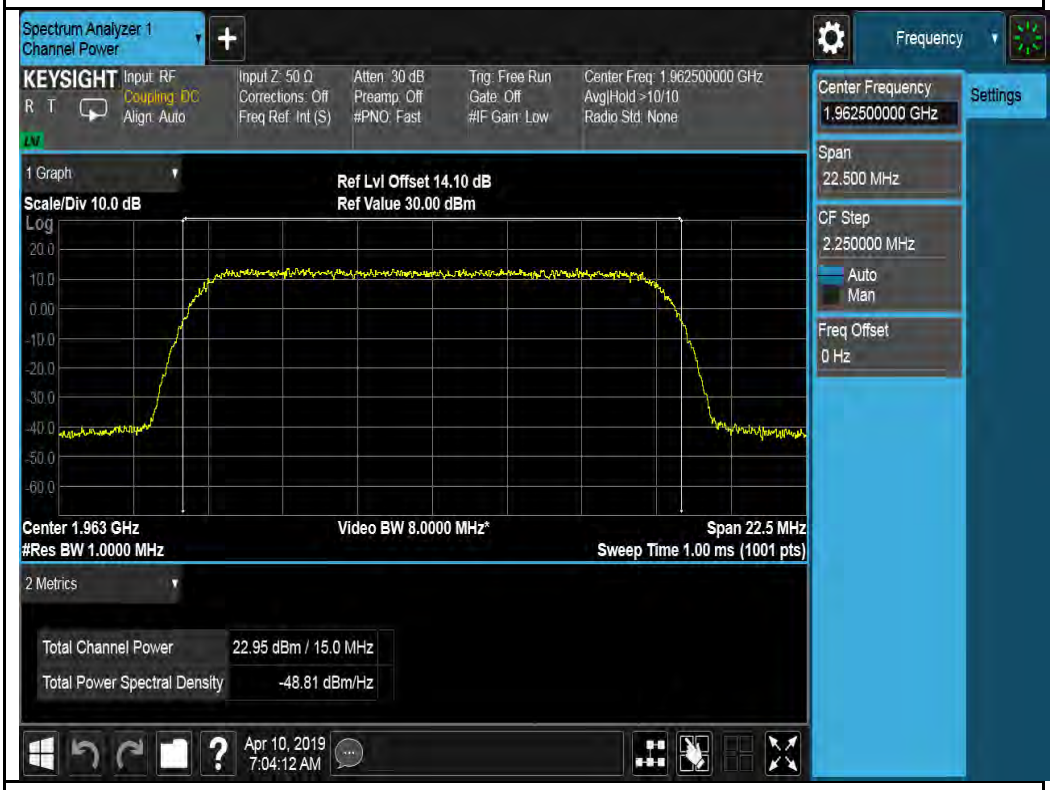
10M 64QAM Mid



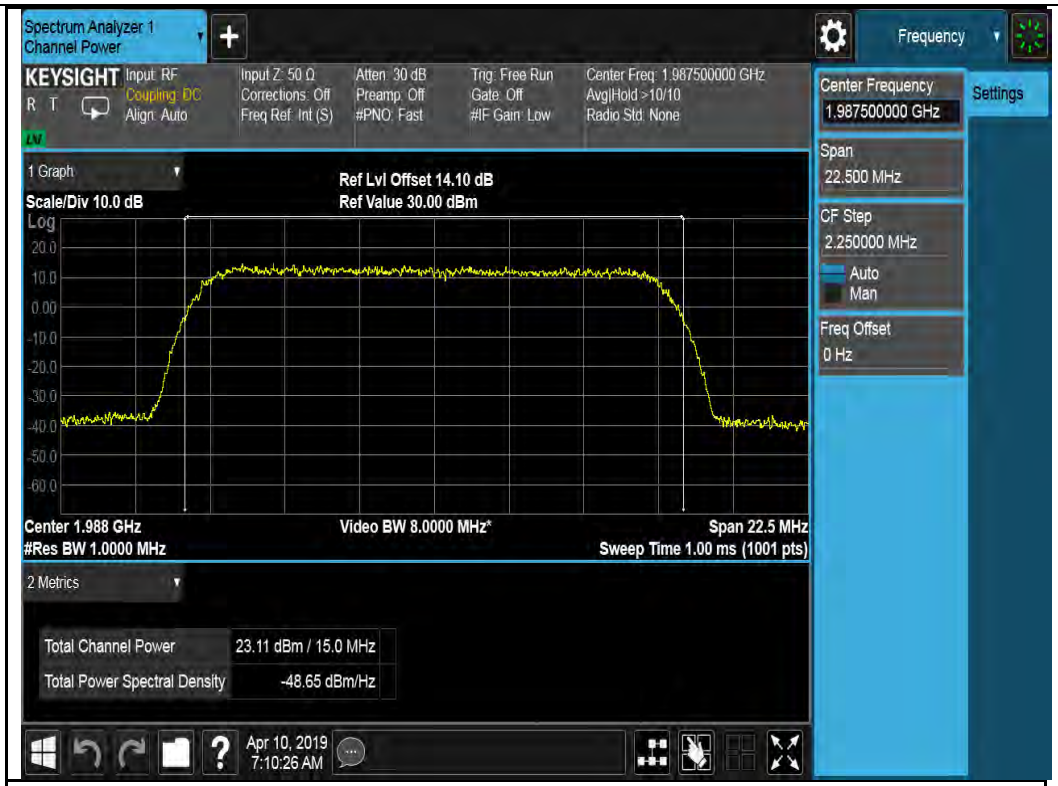
10M 64QAM High



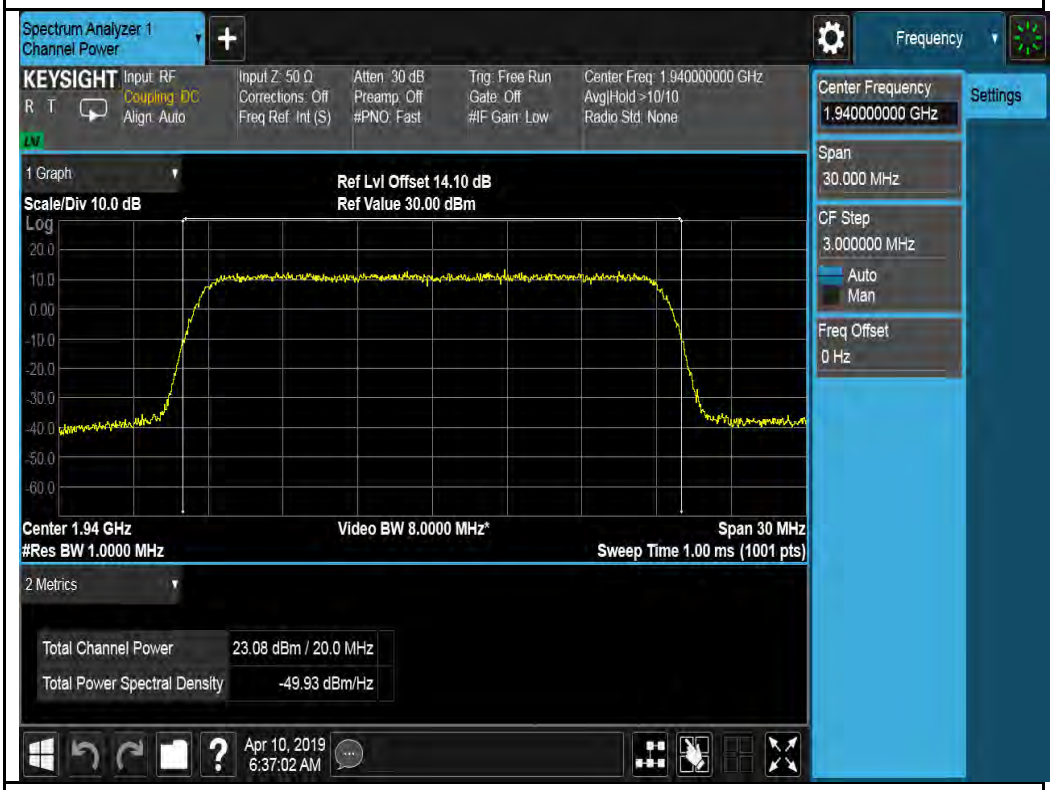
15M 64QAM Low



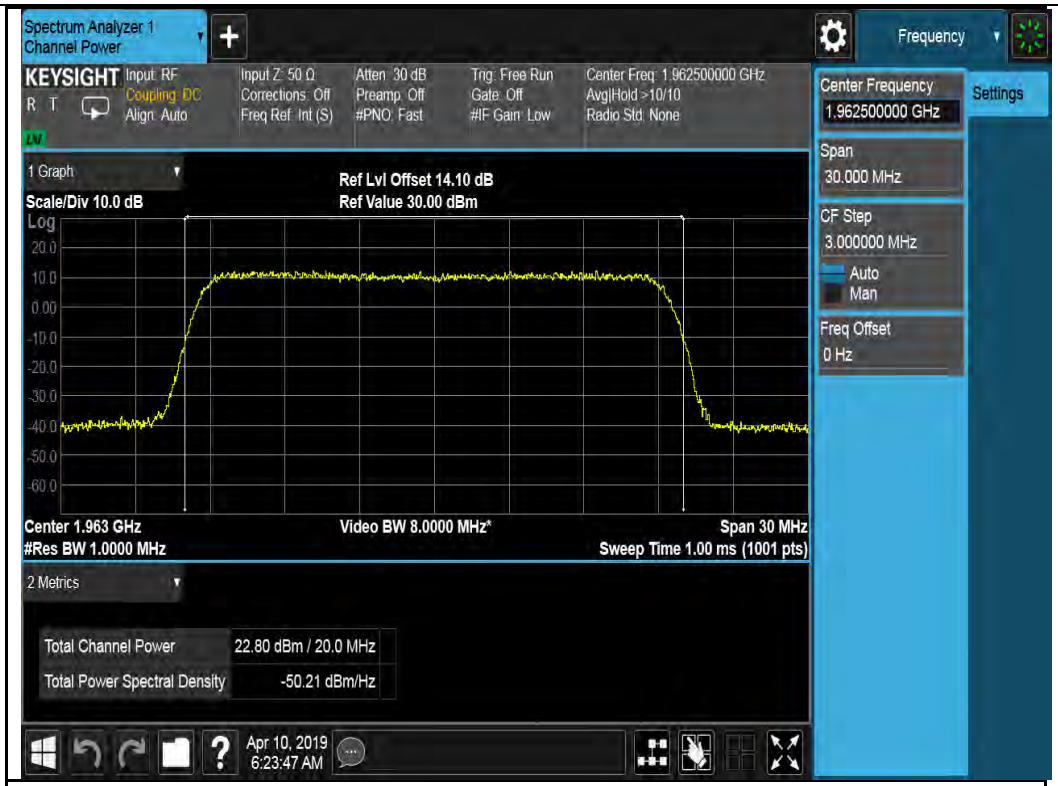
15M 64QAM Mid



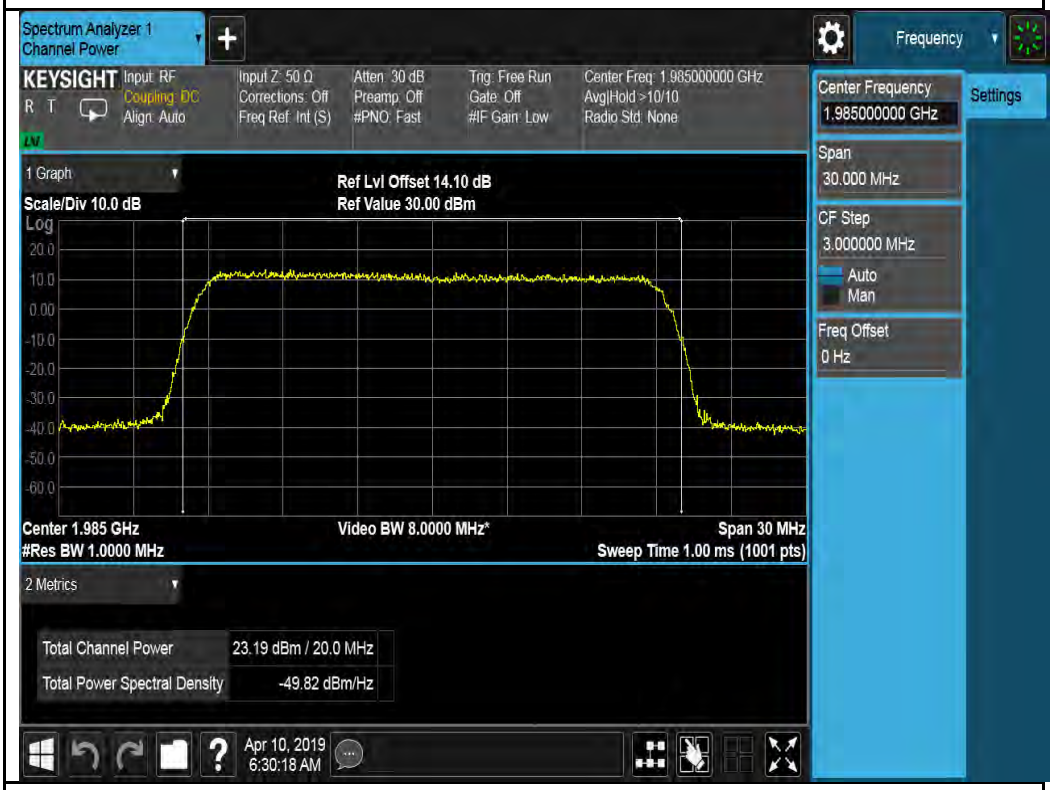
15M 64QAM High



20M 64QAM Low



20M 64QAM Mid

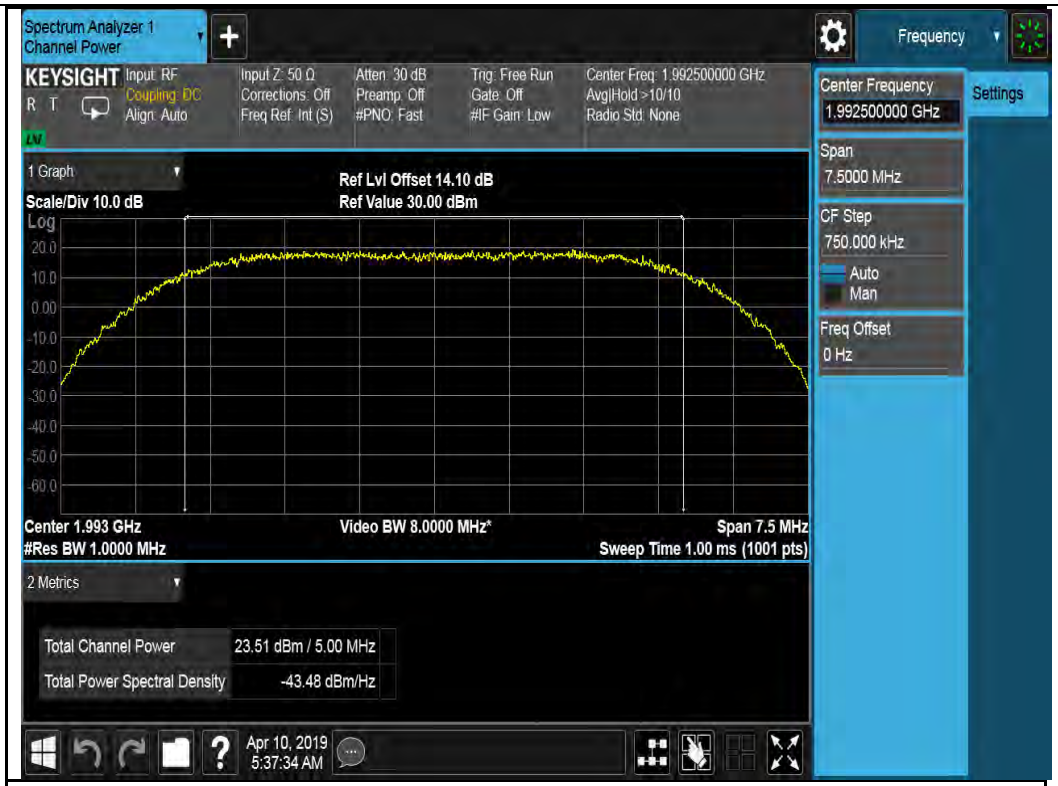


20M 64QAM High

Chain 1:

5M QPSK Low

5M QPSK Mid



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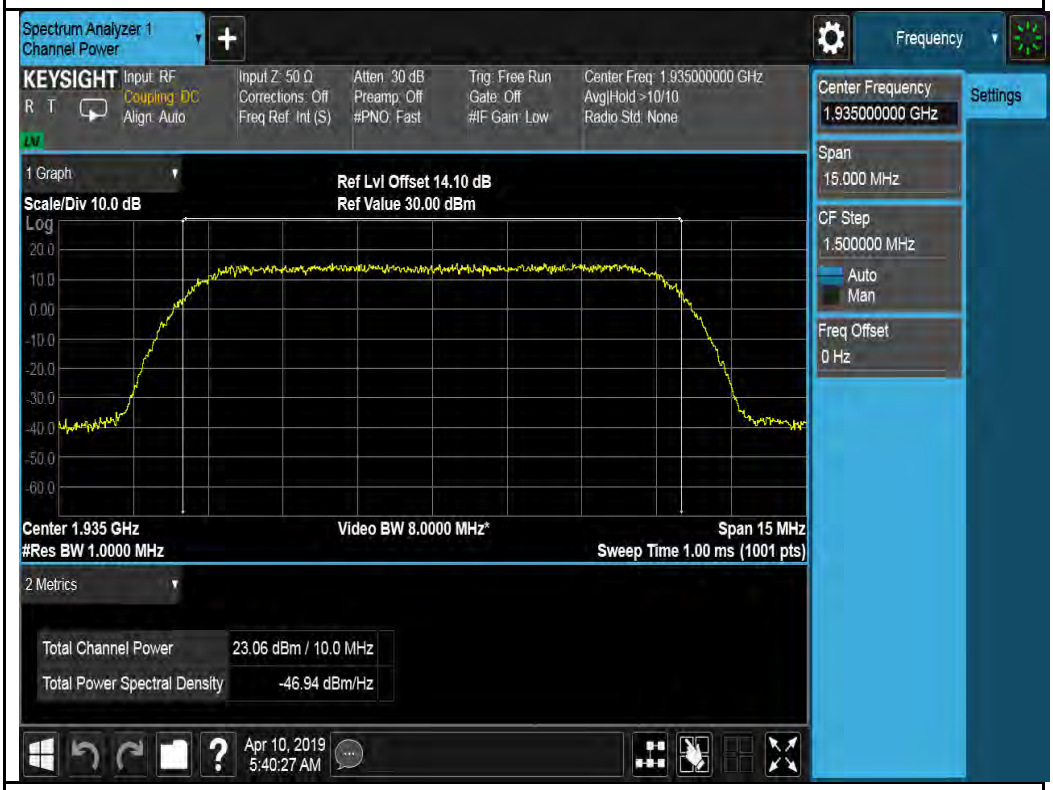
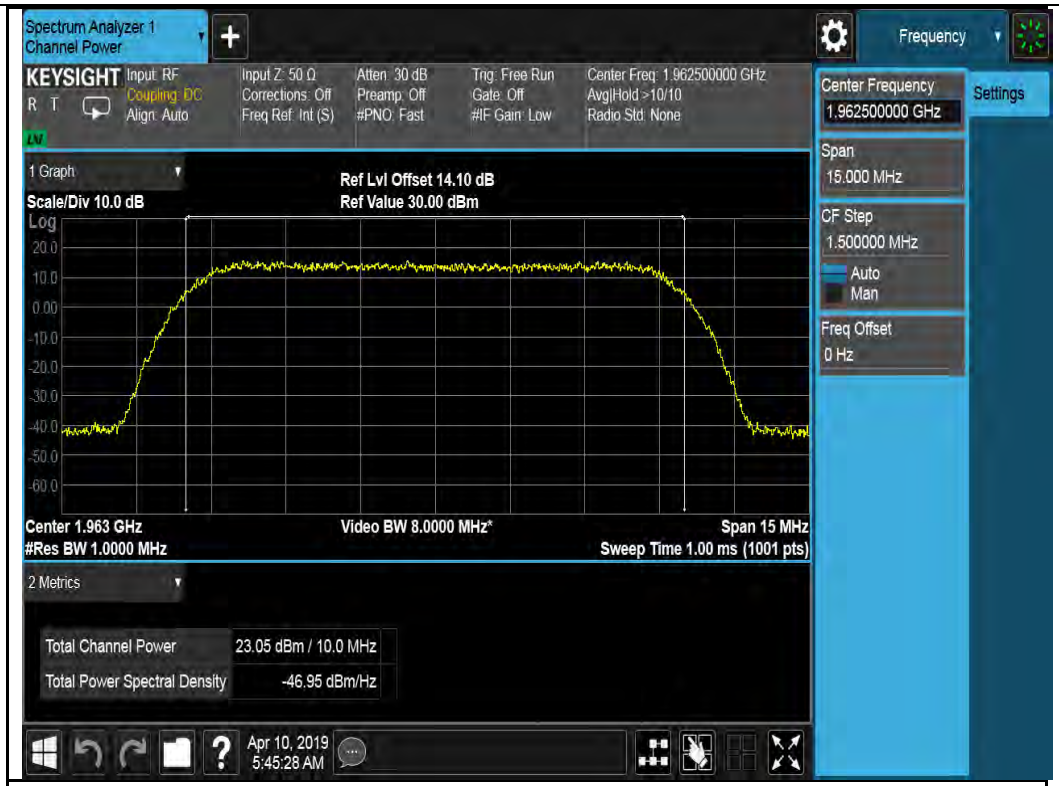


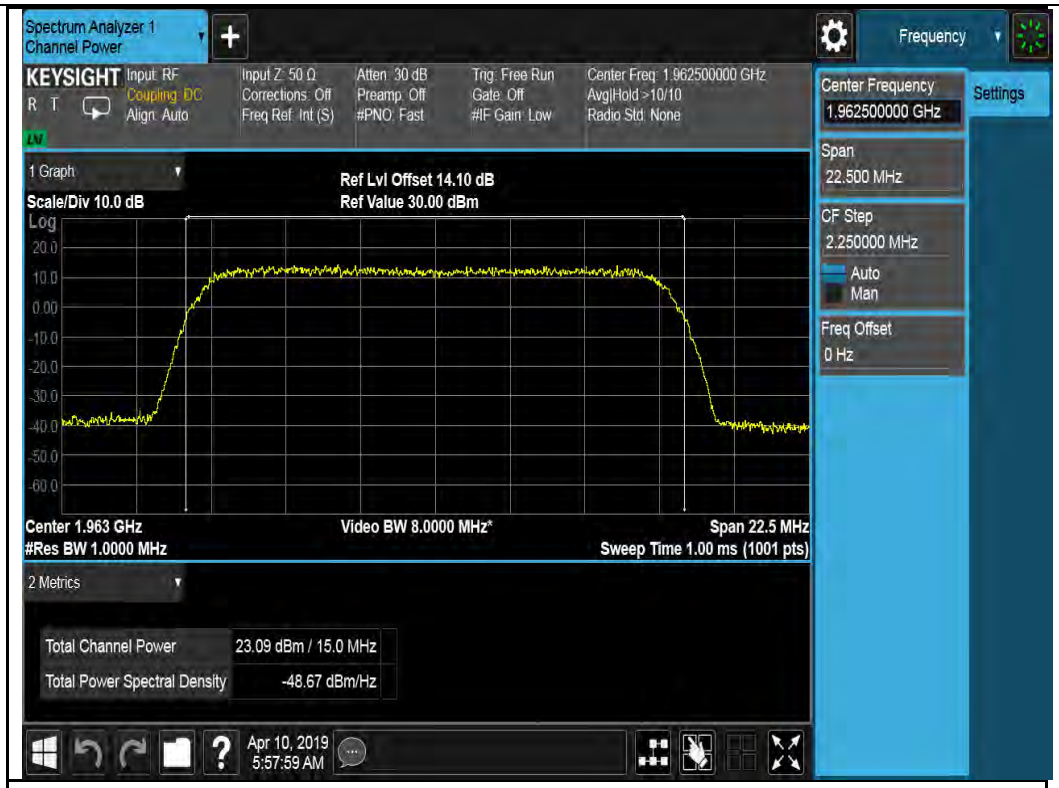
10M QPSK Low



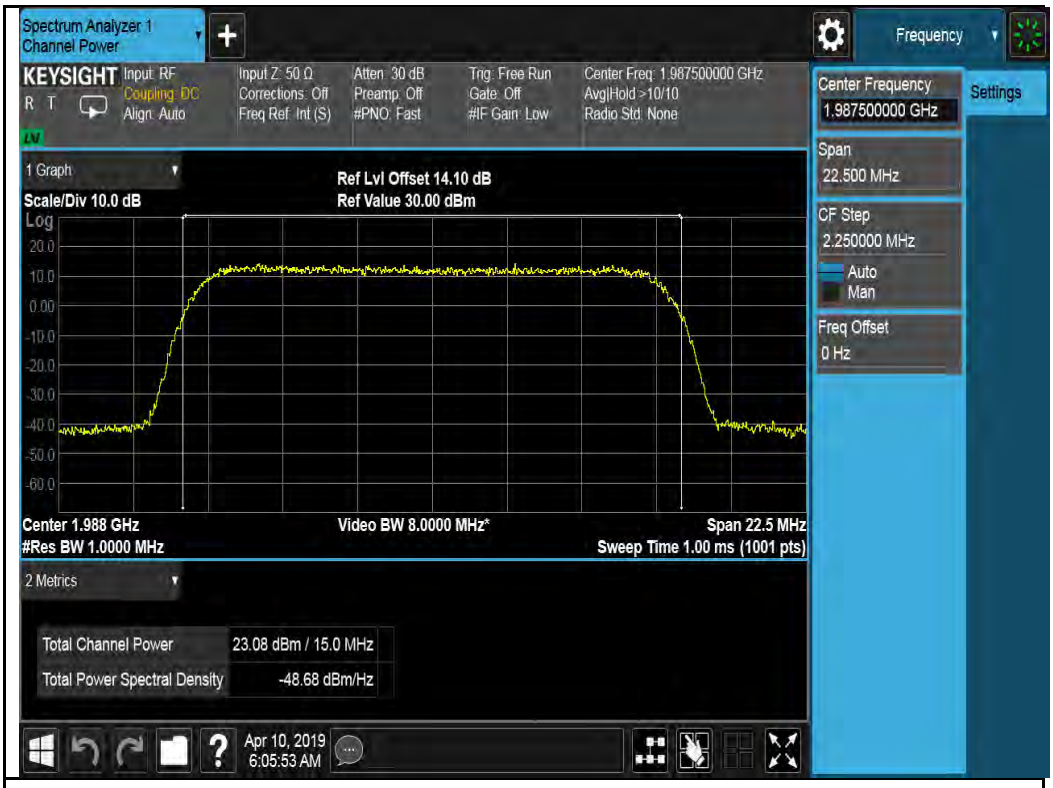
10M QPSK Mid

10M QPSK High

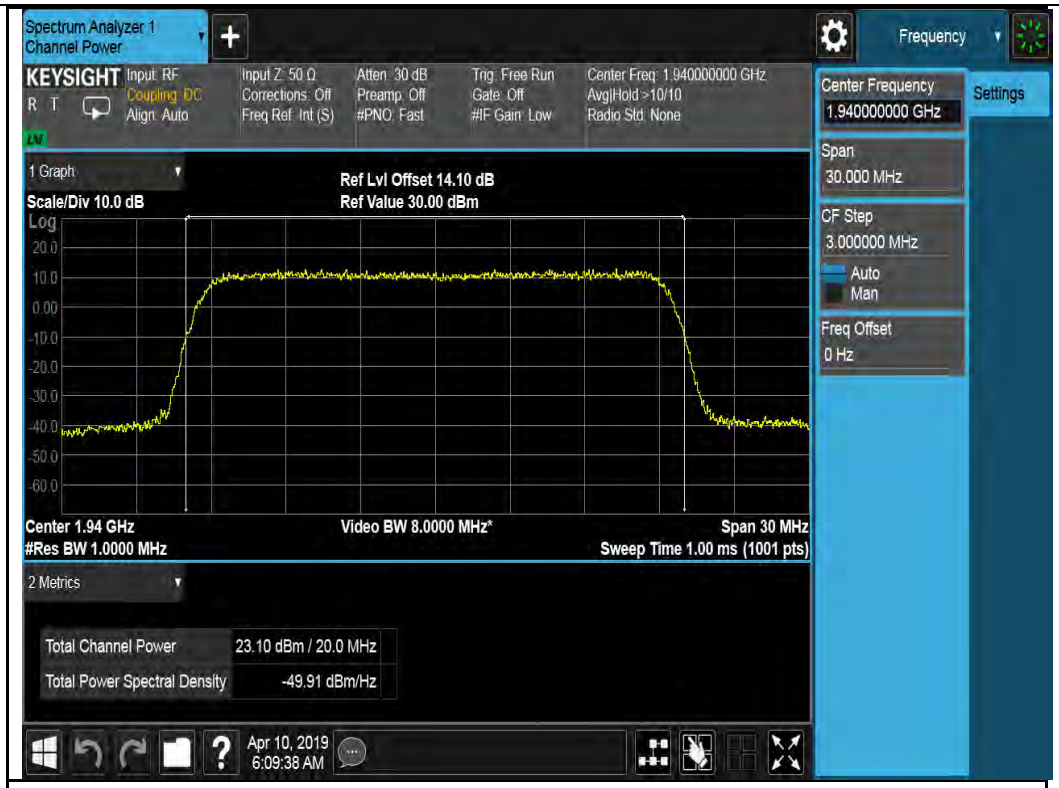
15M QPSK Low



15M QPSK Mid

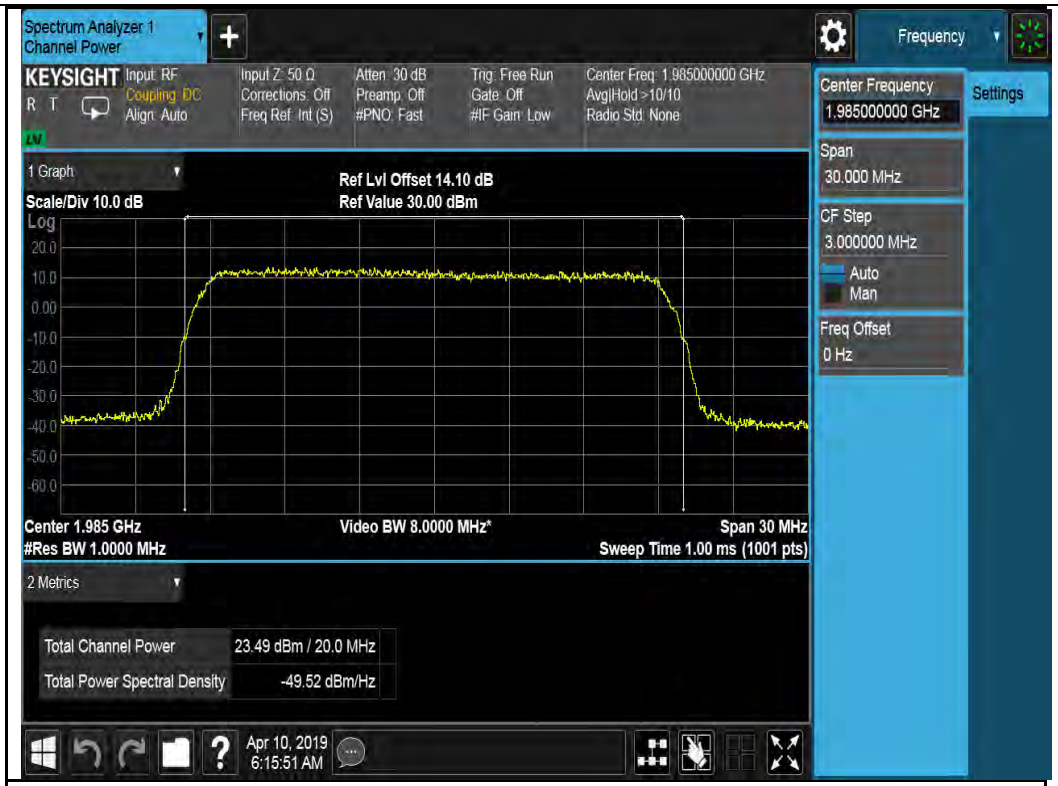


15M QPSK High

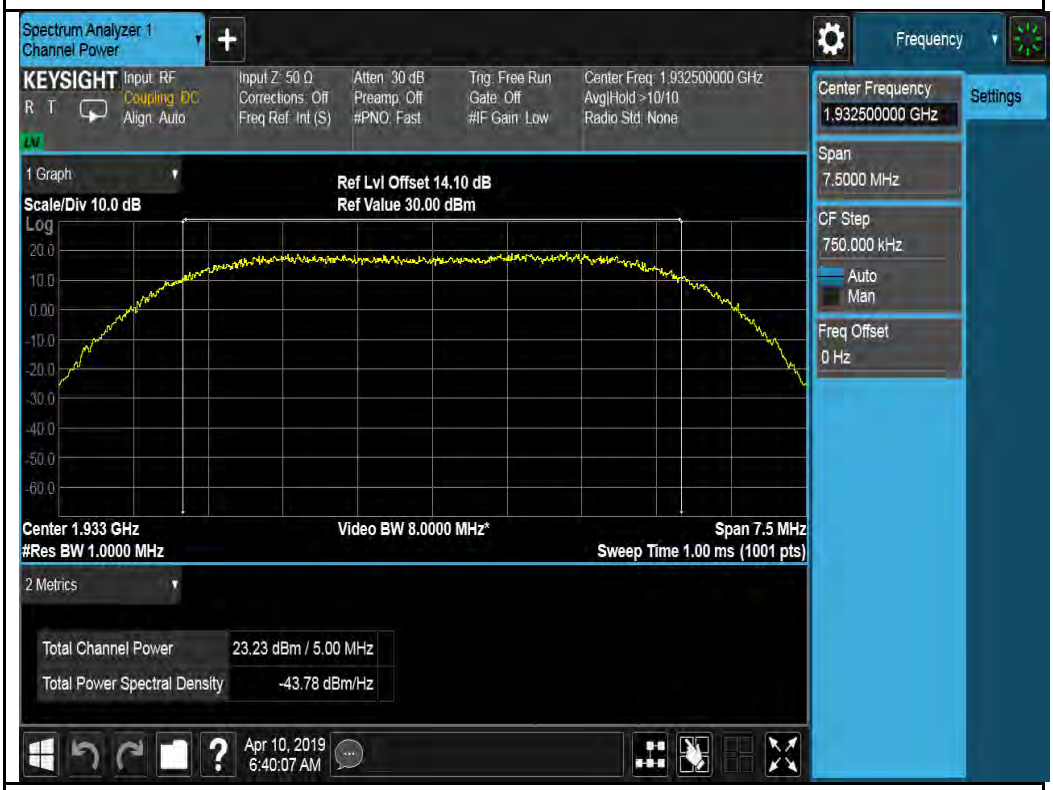


20M QPSK Low

20M QPSK Mid



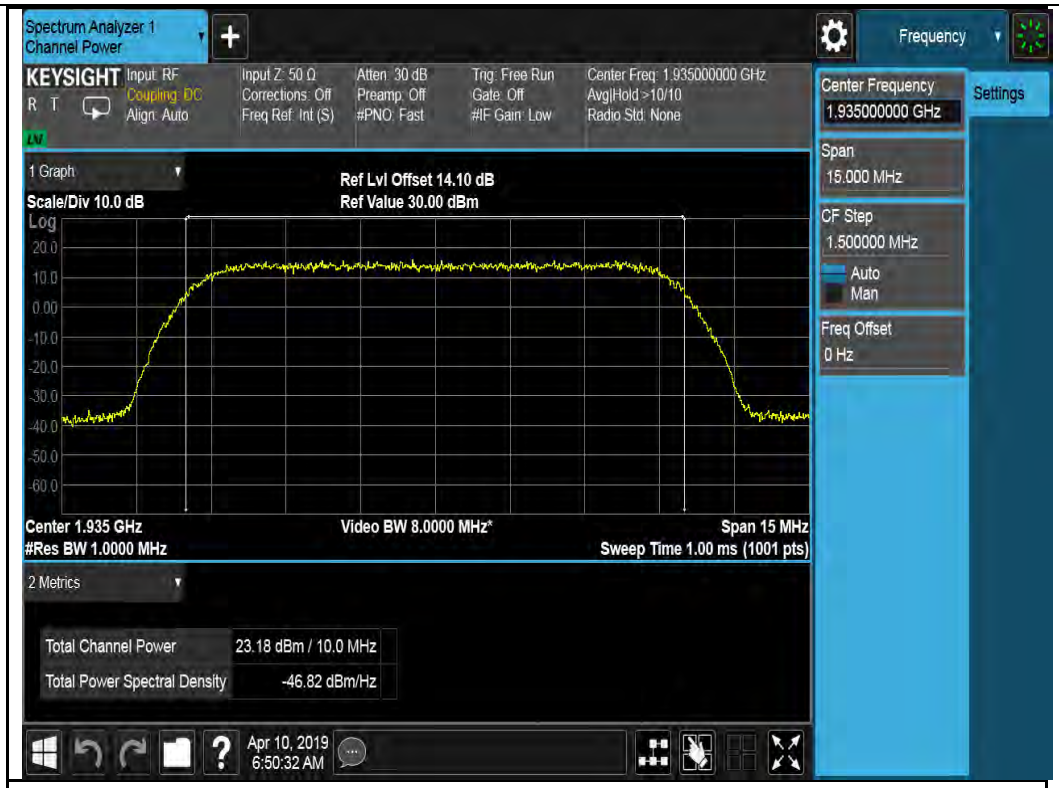
20M QPSK High



5M 64QAM Low

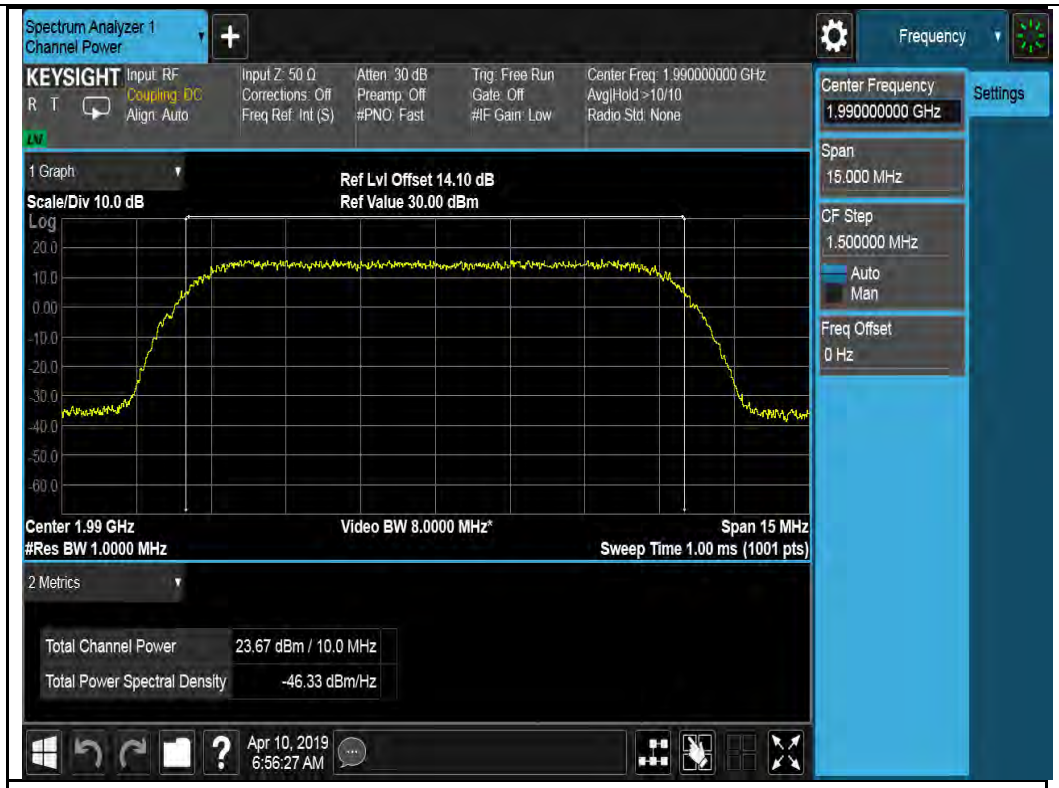
5M 64QAM Mid

5M 64QAM High



10M 64QAM Low

10M 64QAM Mid



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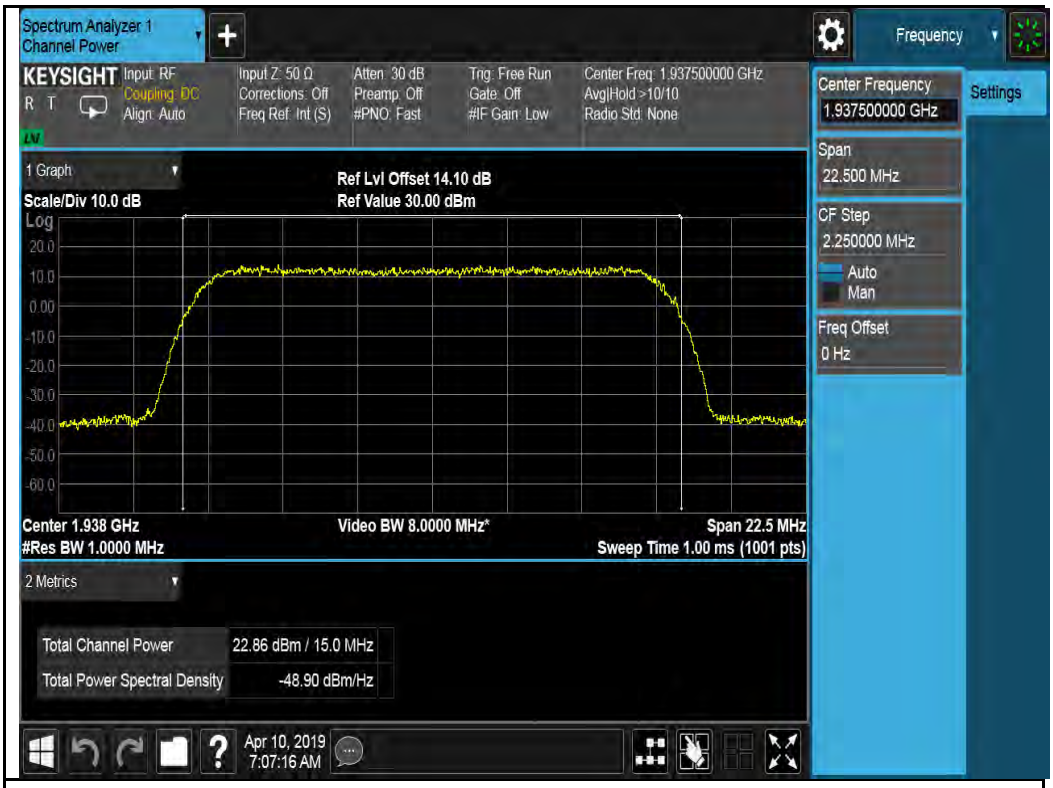
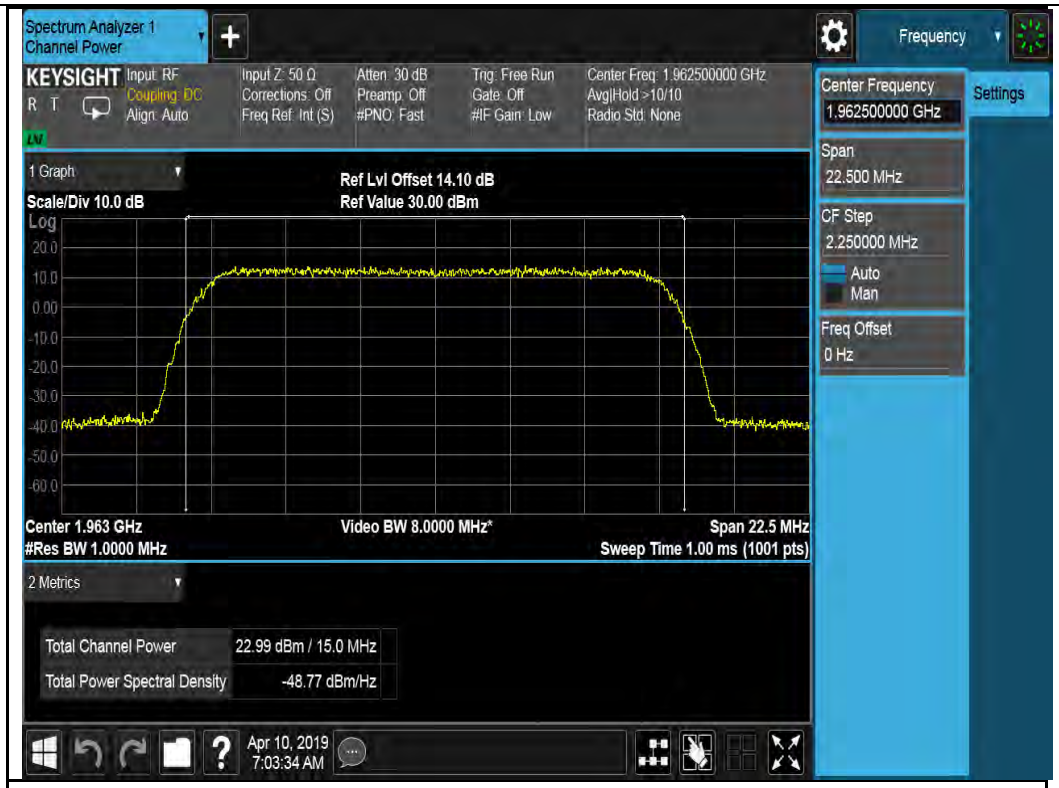


15M 64QAM Low



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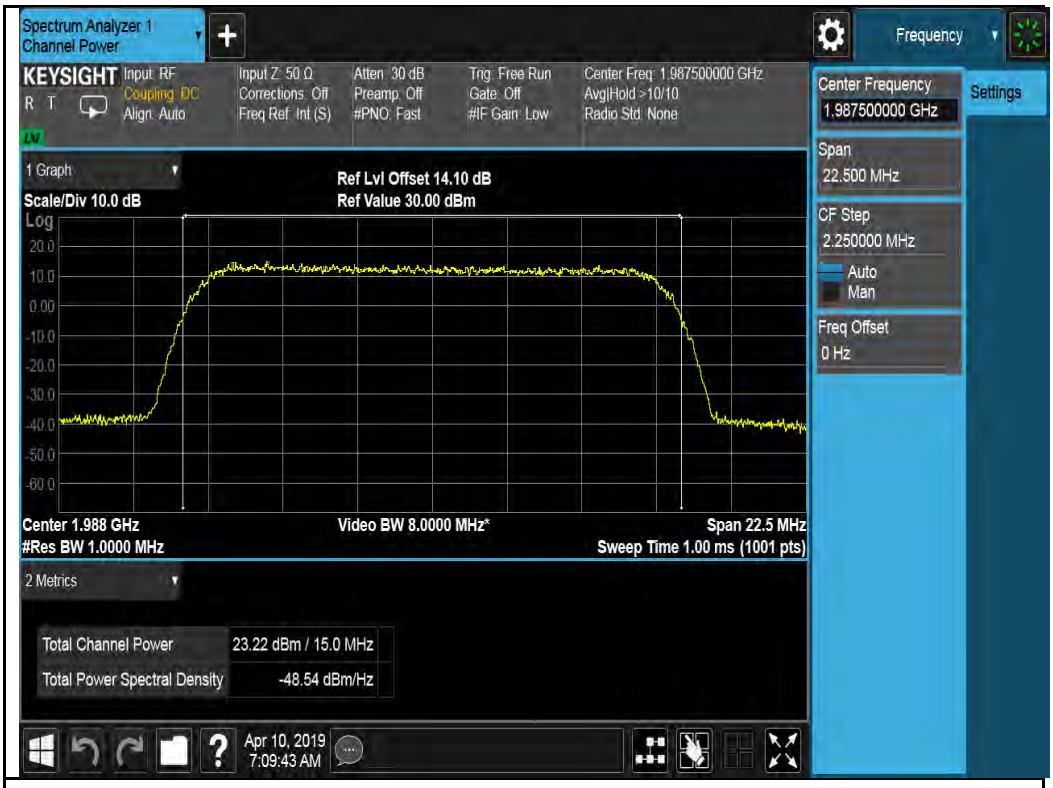

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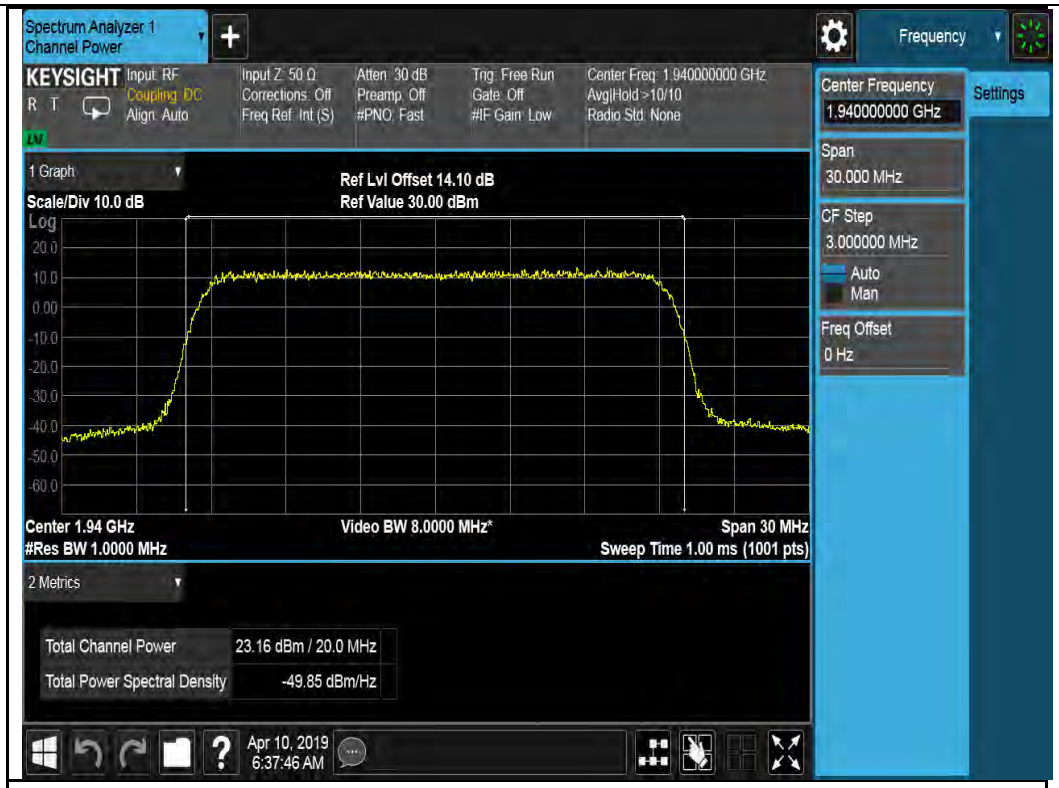

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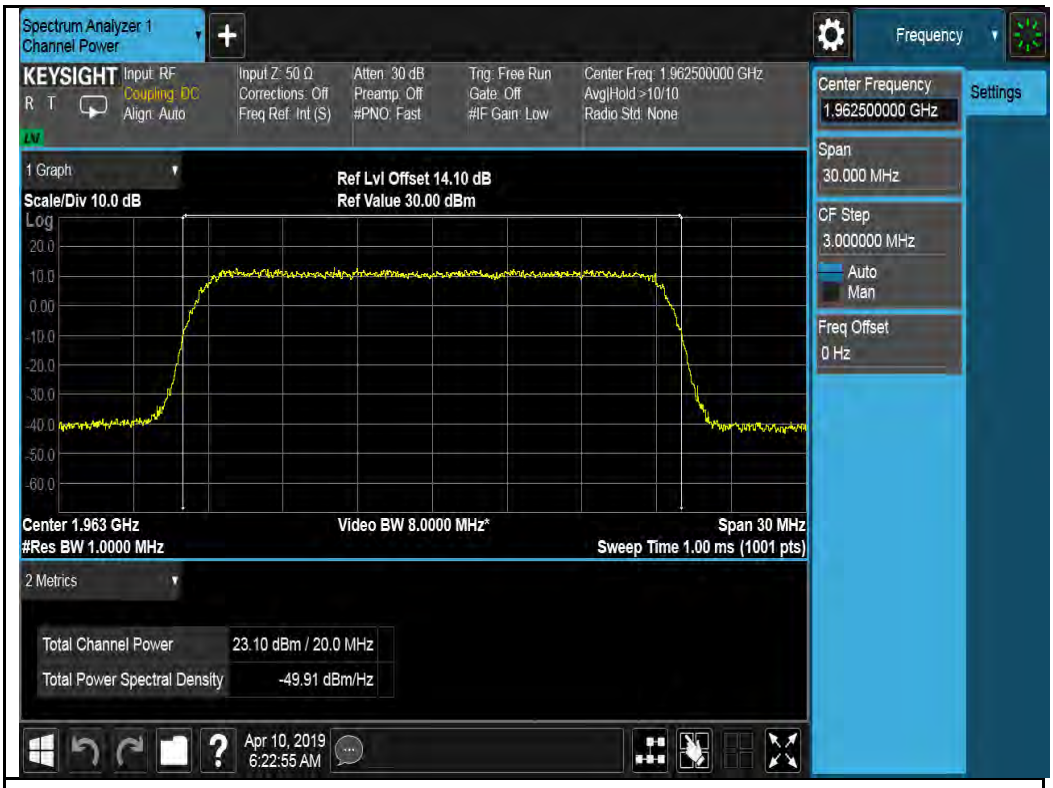

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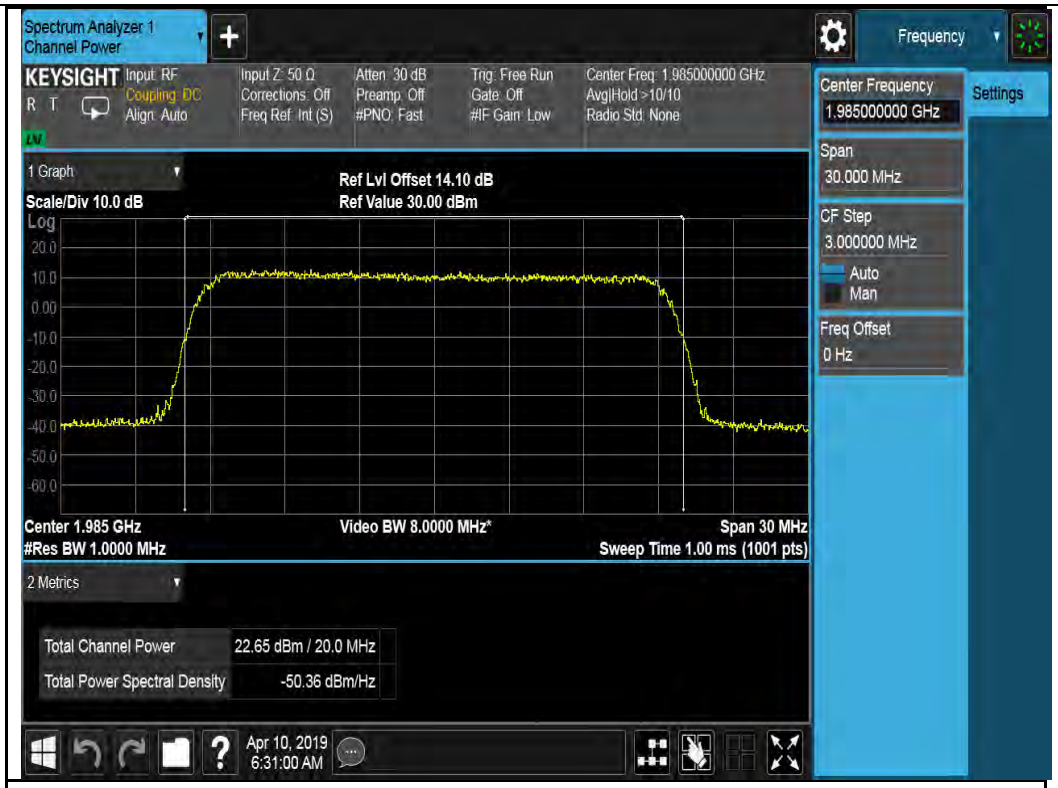
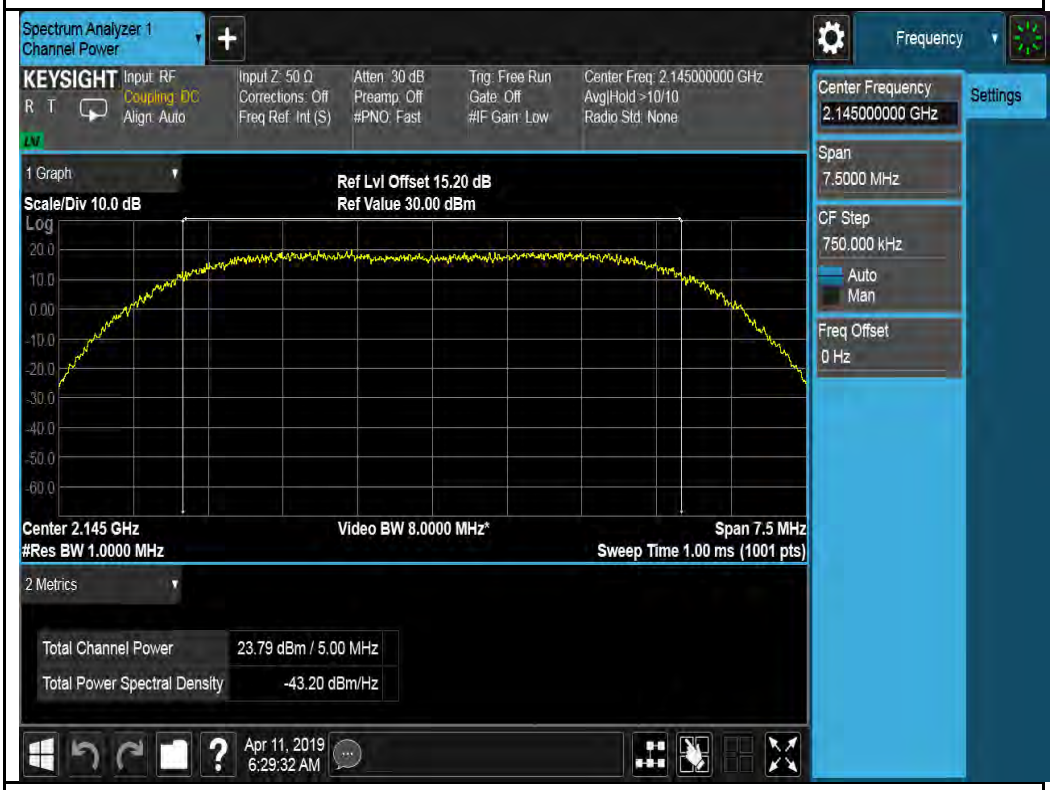


20M 64QAM High

Test Plots for Band 66:

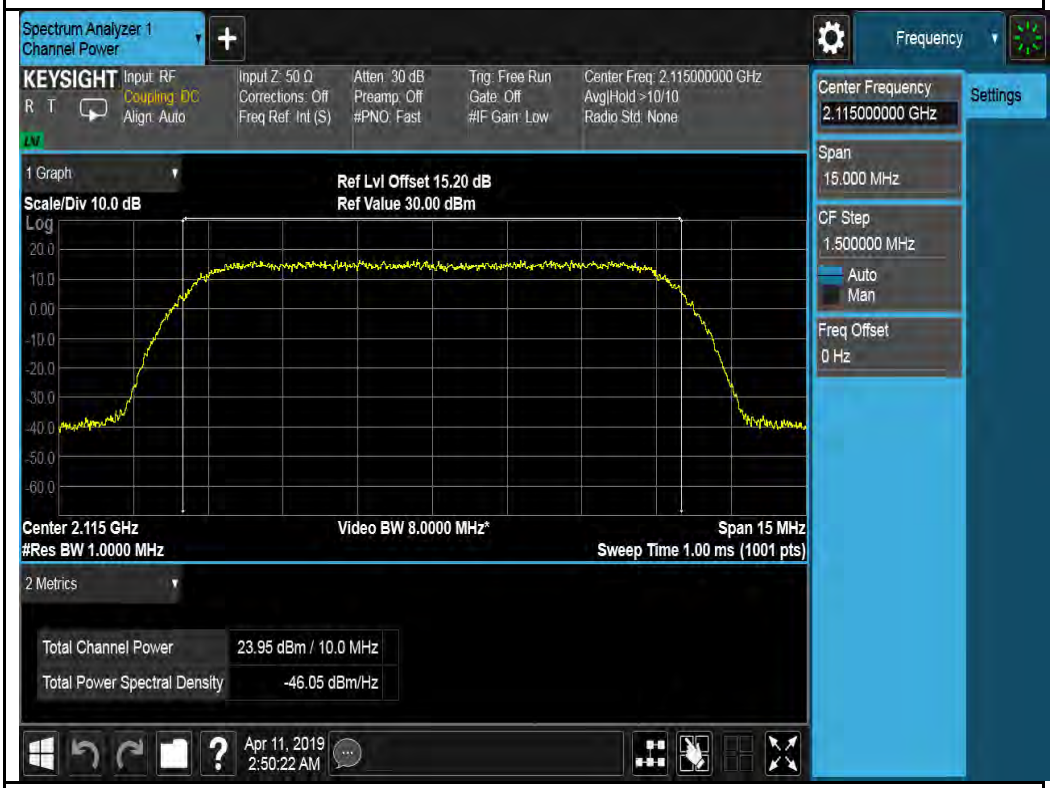
Chain 0:

5M QPSK Low

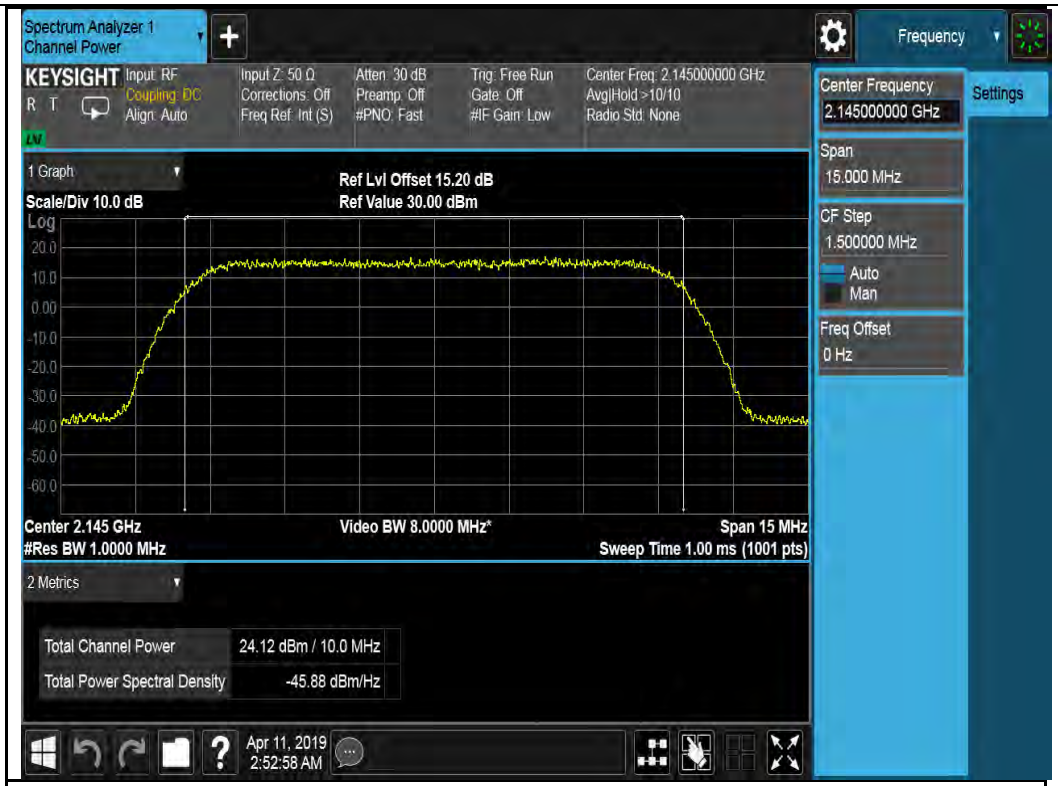


5M QPSK Mid

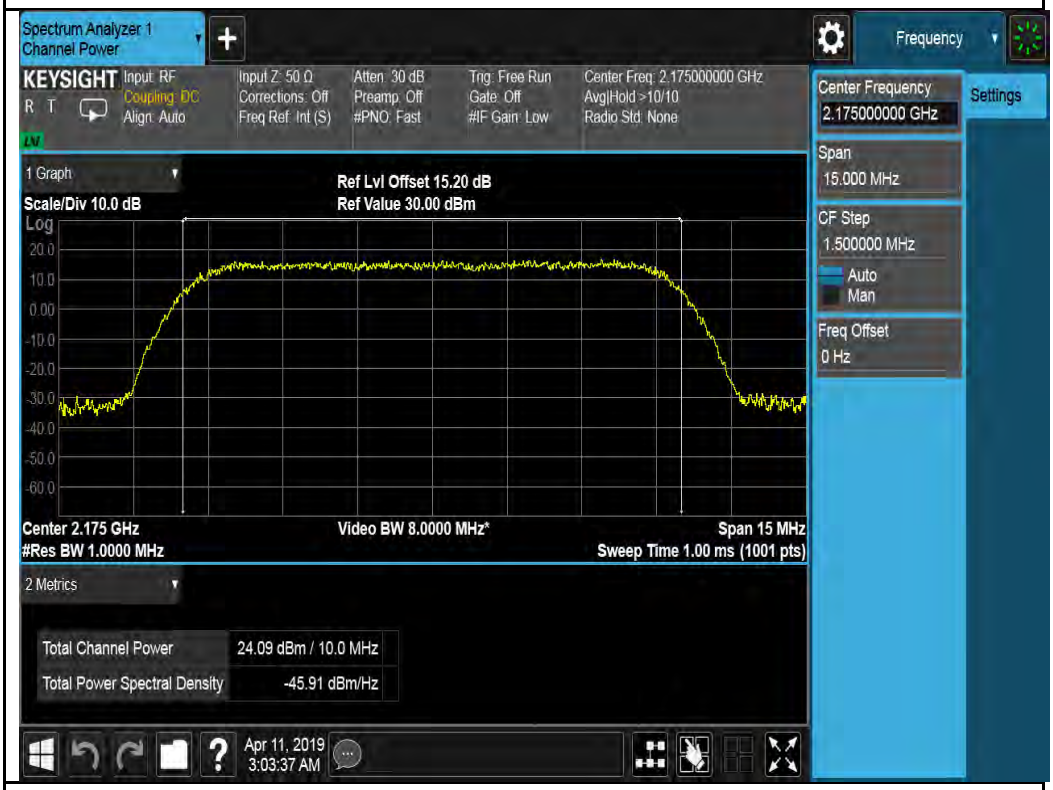
5M QPSK High



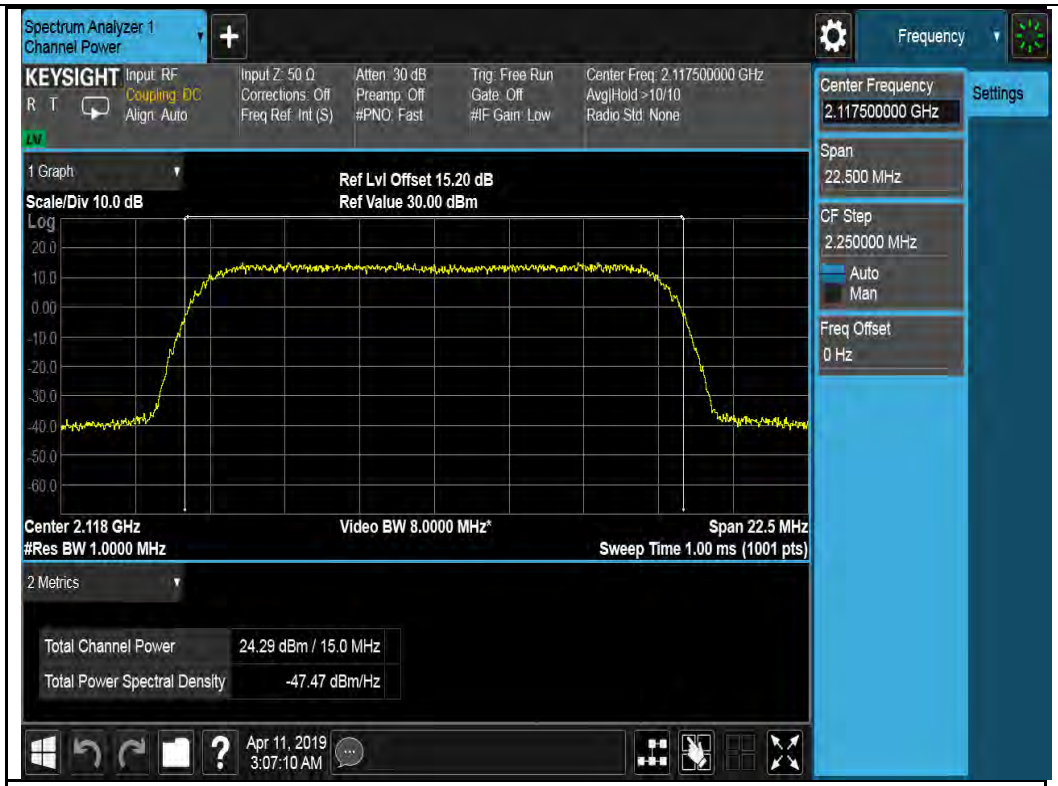
10M QPSK Low



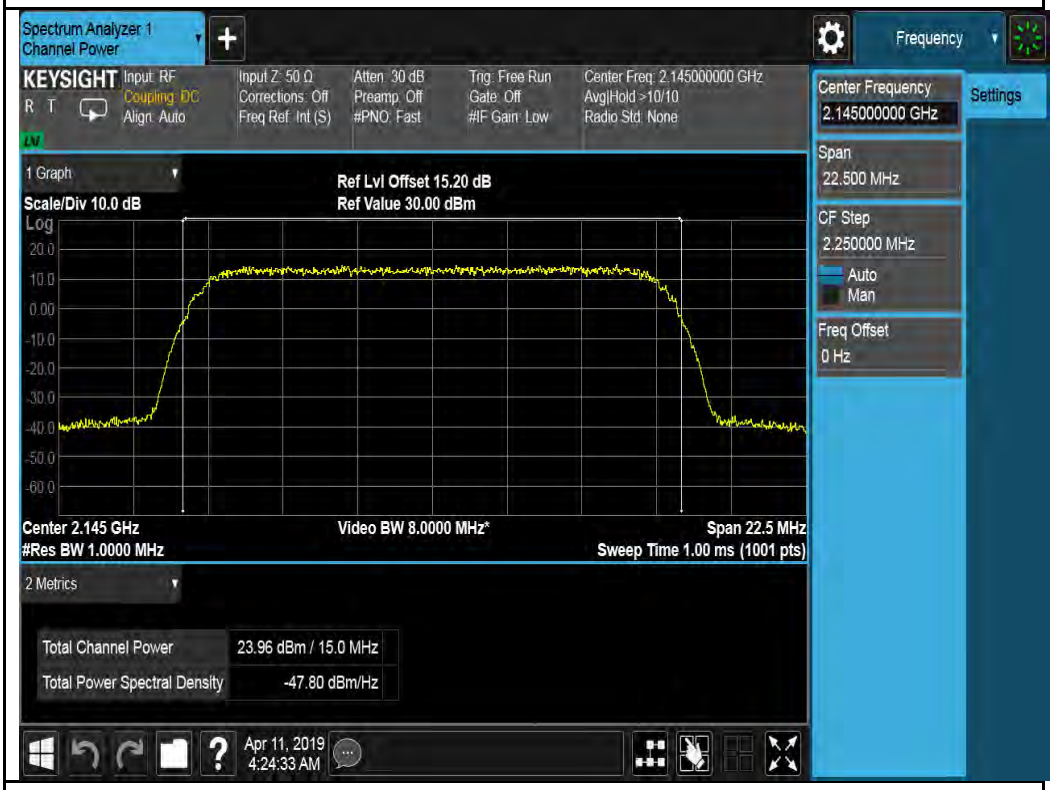
10M QPSK Mid



10M QPSK High

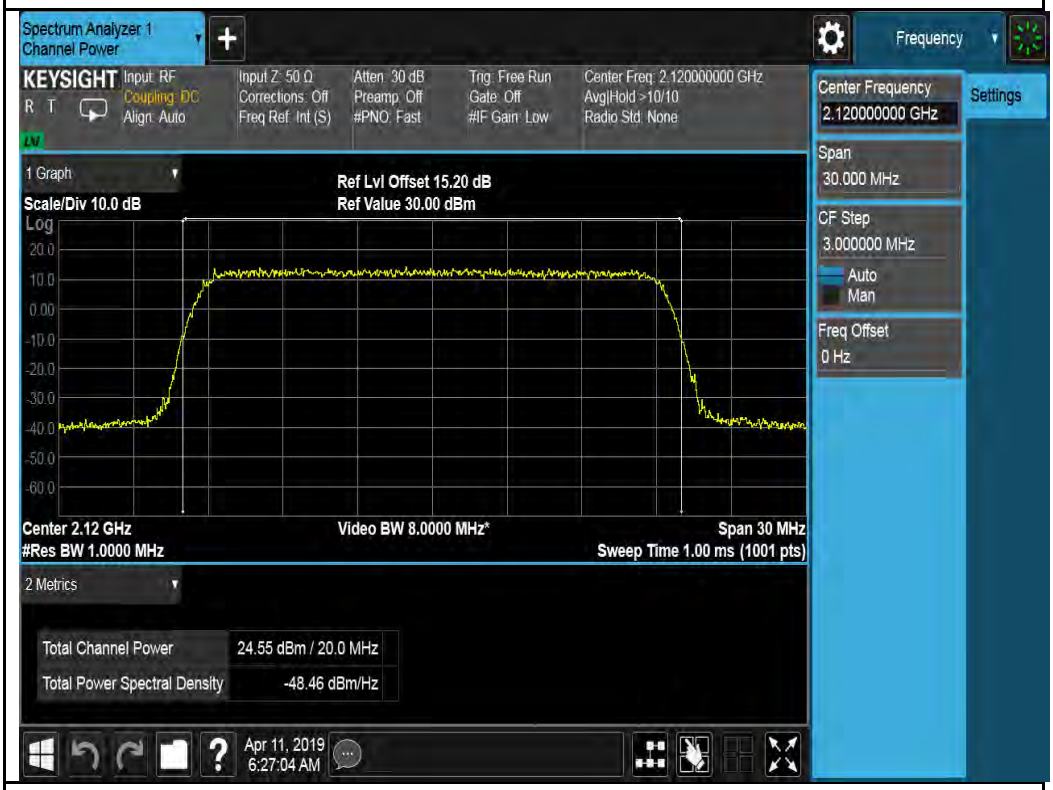


15M QPSK Low

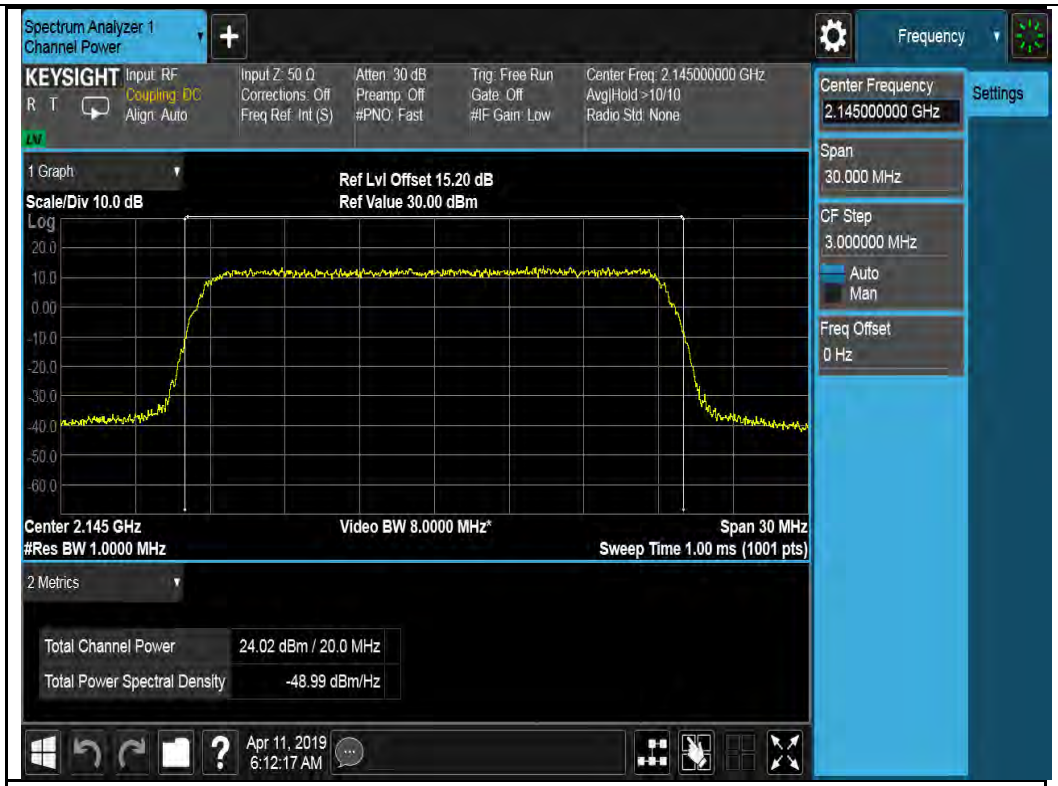


15M QPSK Mid

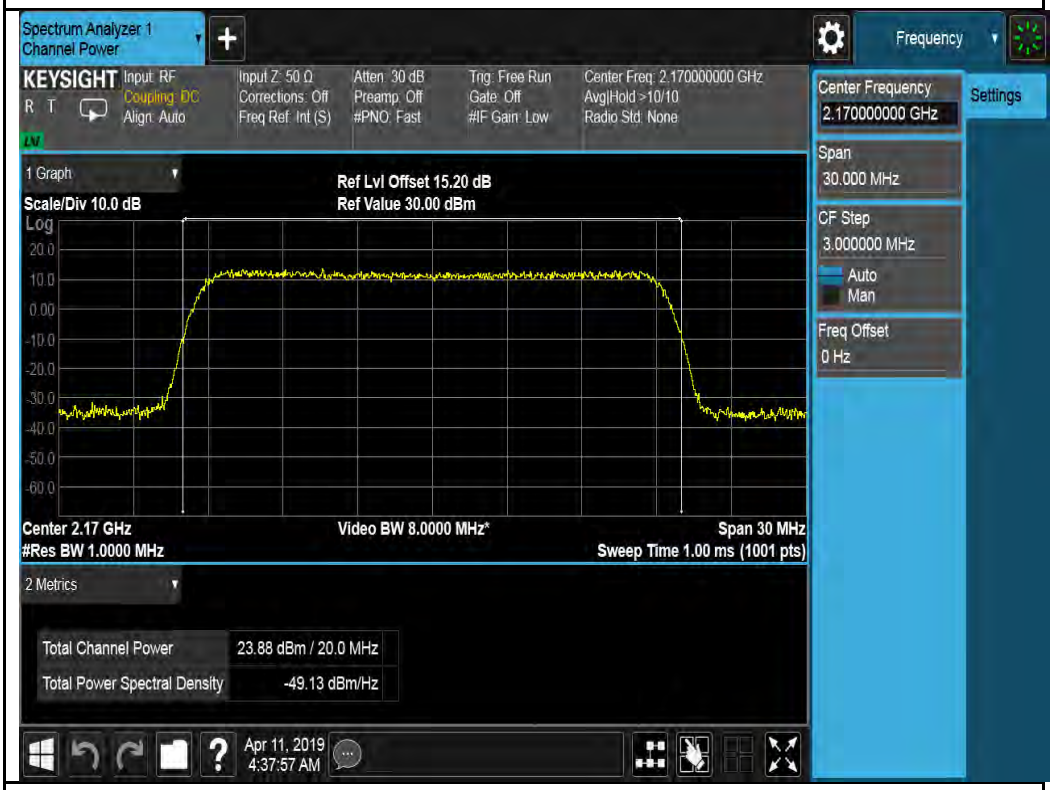
15M QPSK High



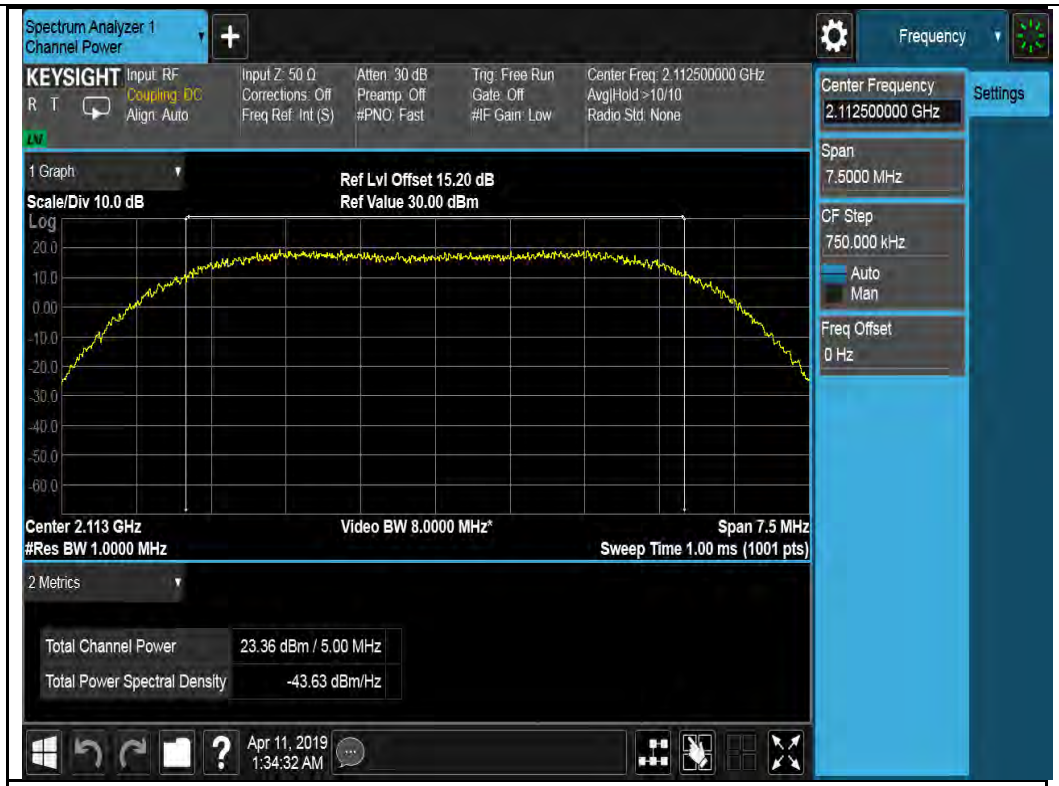
20M QPSK Low



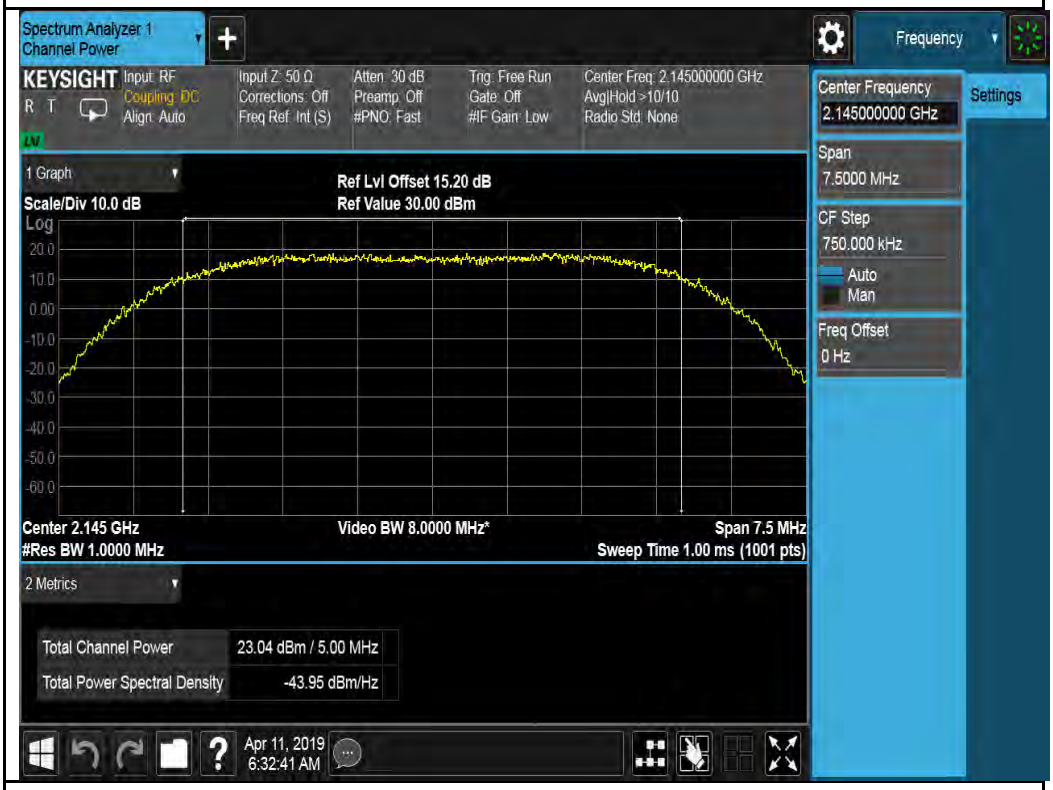
20M QPSK Mid



20M QPSK High

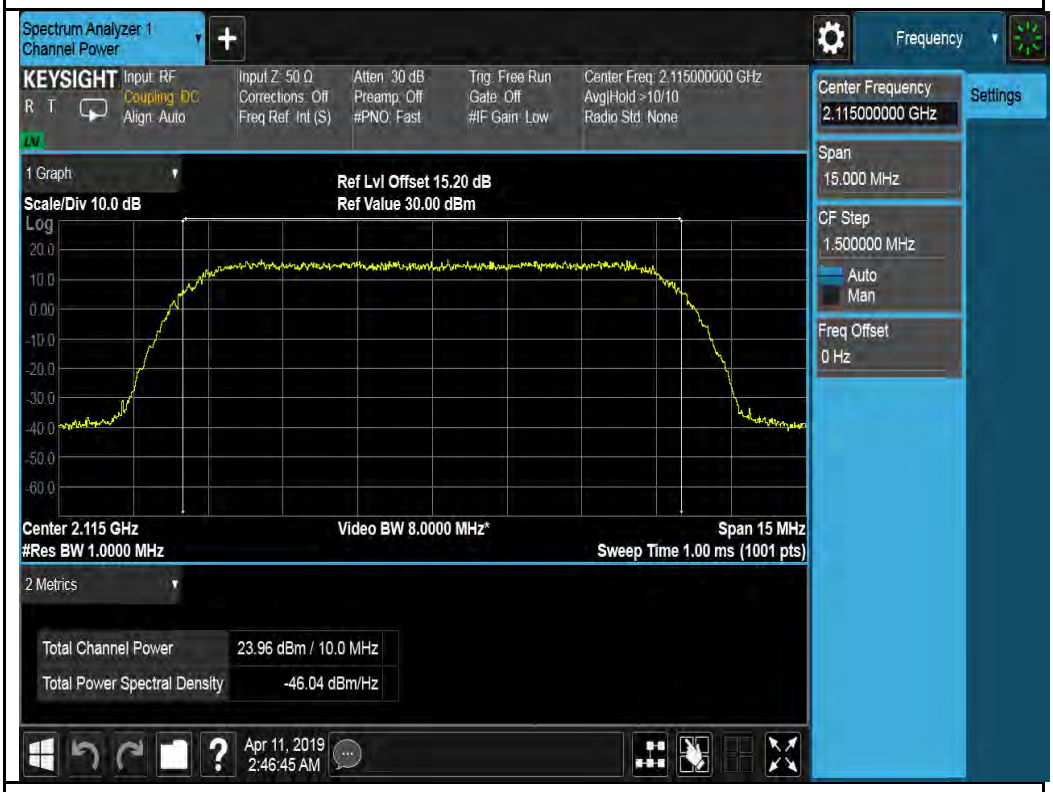


5M 64QAM Low

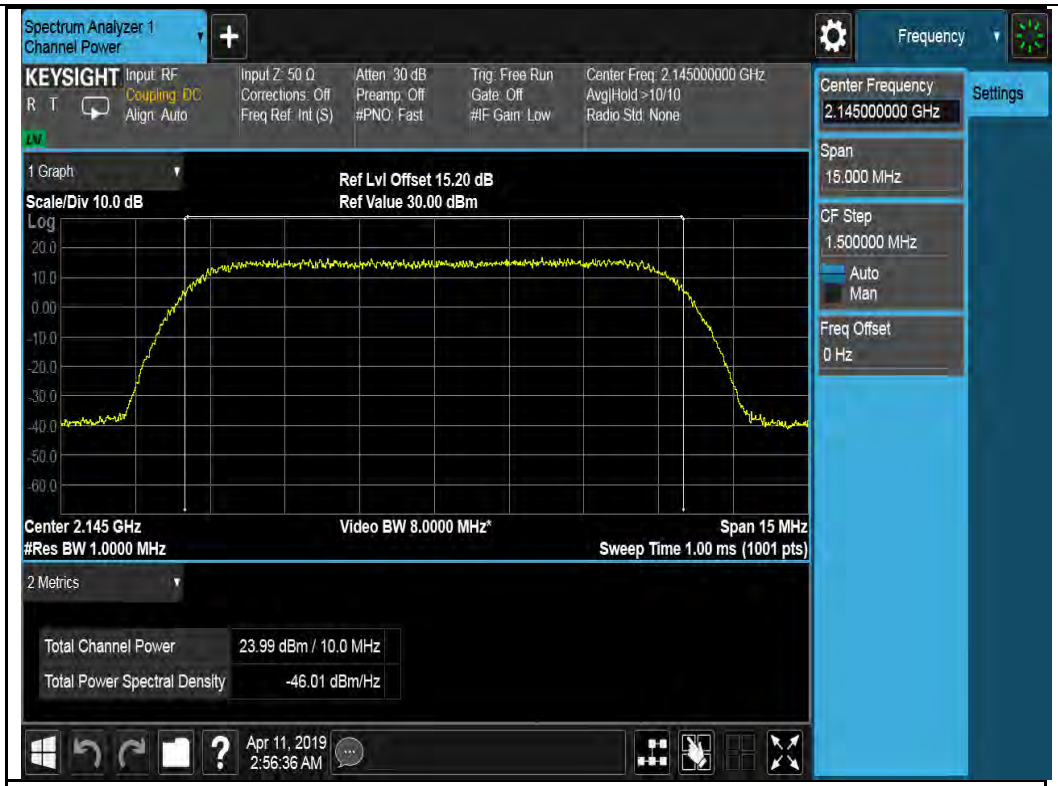


5M 64QAM Mid

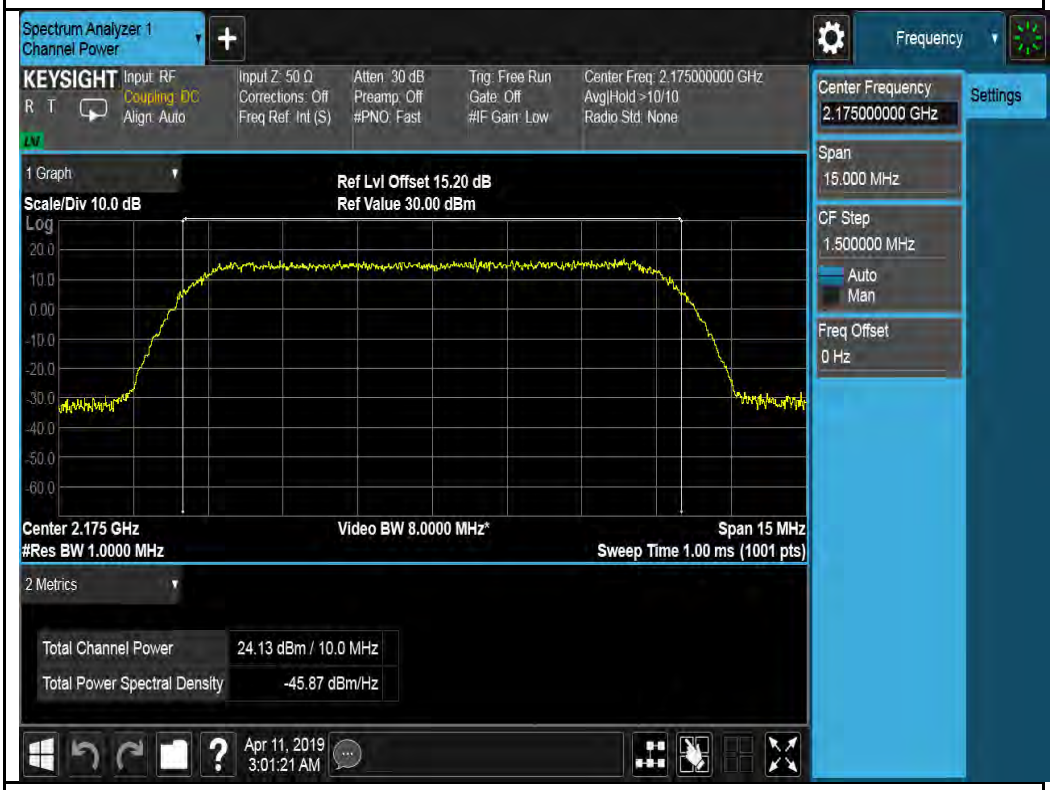
5M 64QAM High



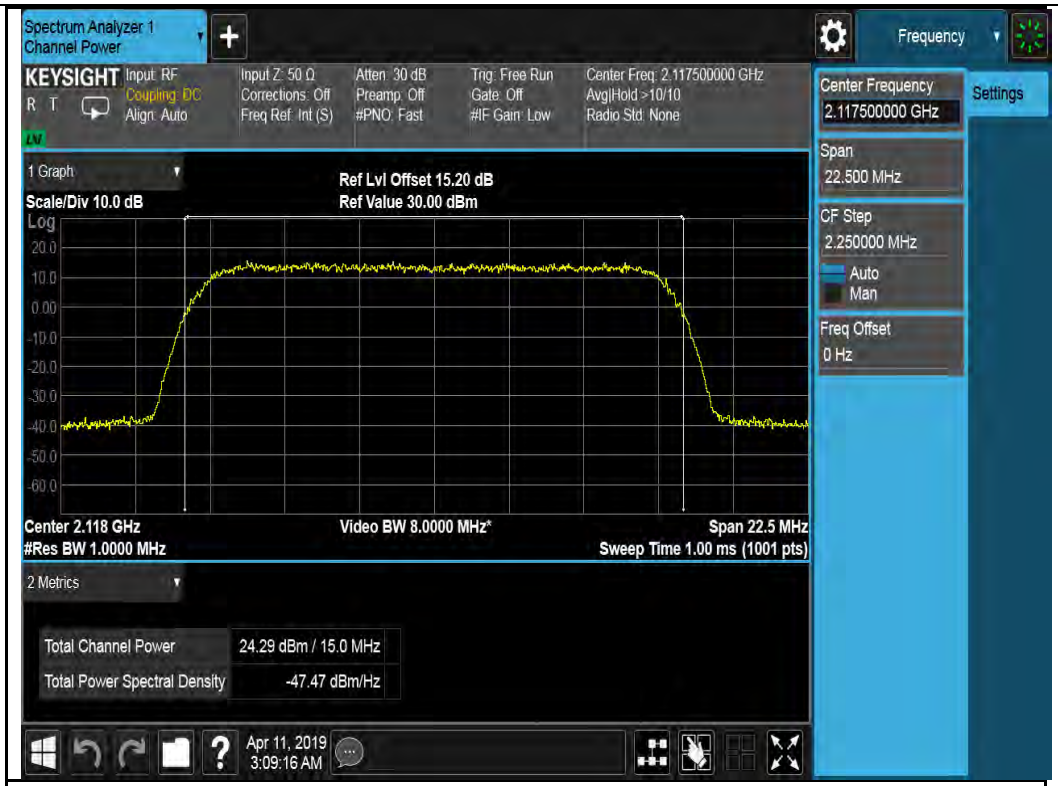
10M 64QAM Low



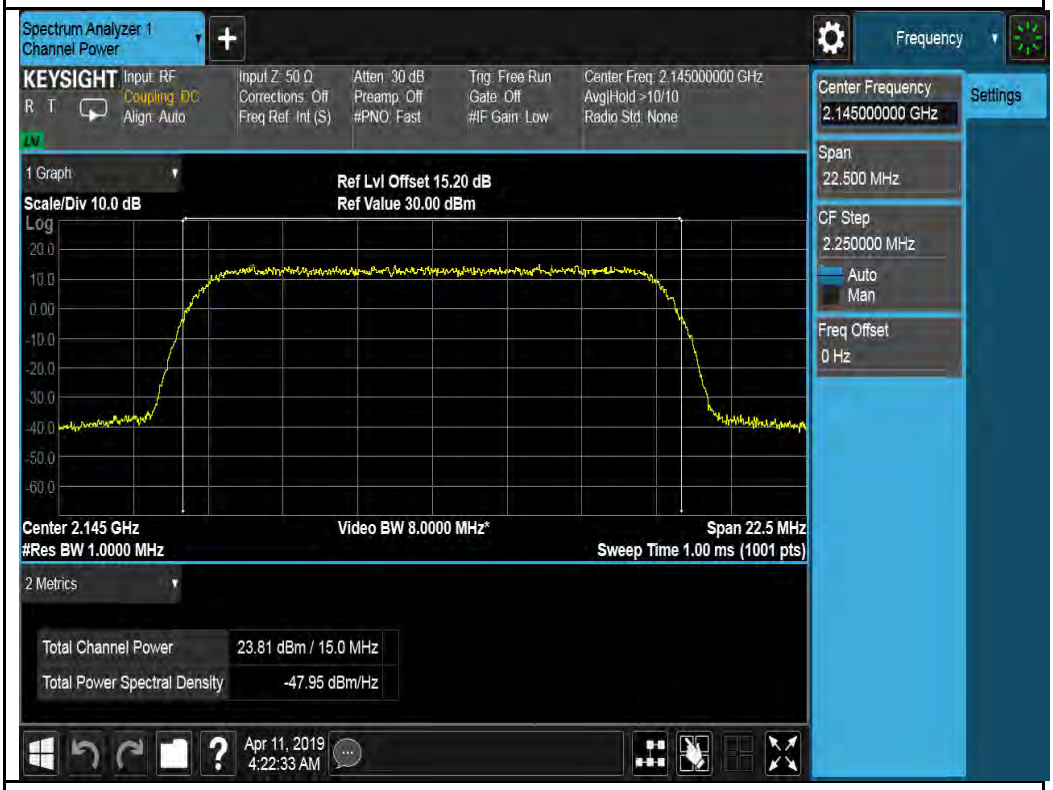
10M 64QAM Mid



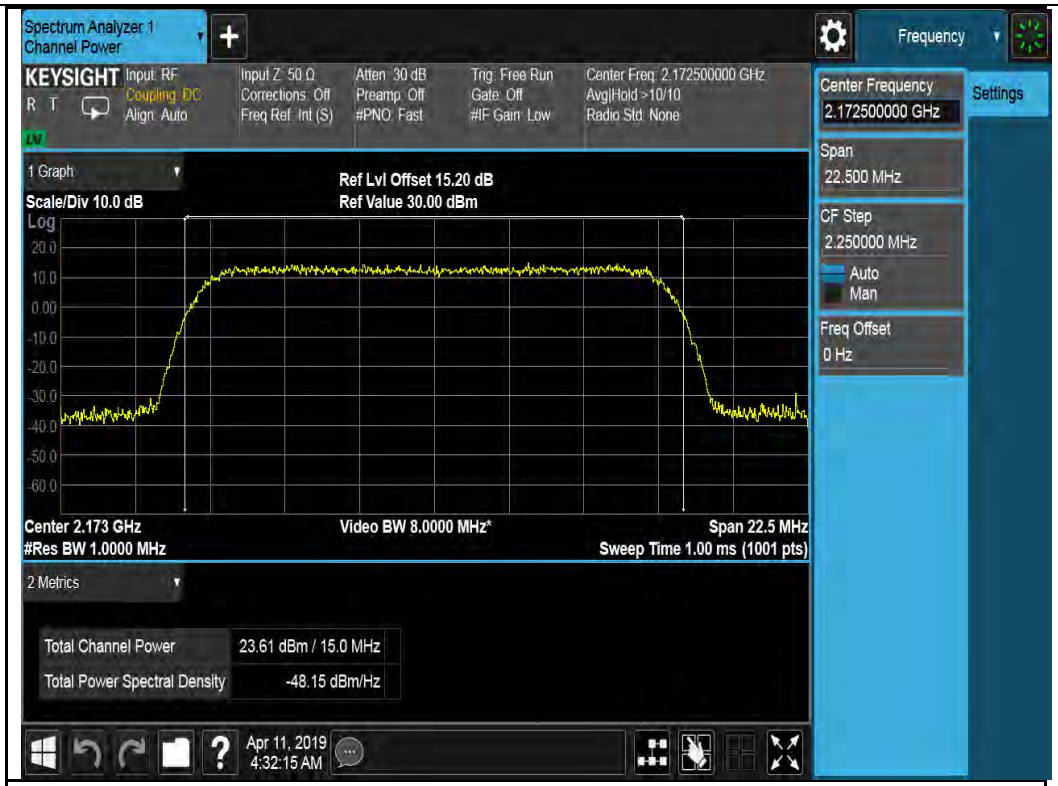
10M 64QAM High



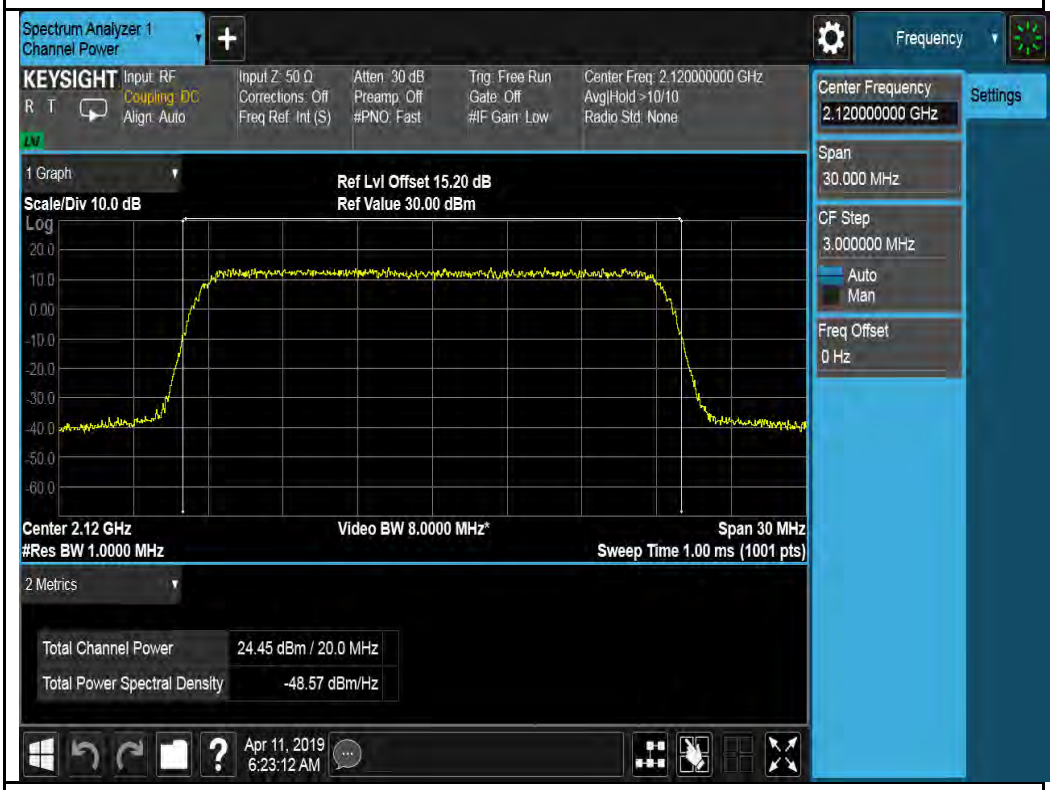
15M 64QAM Low



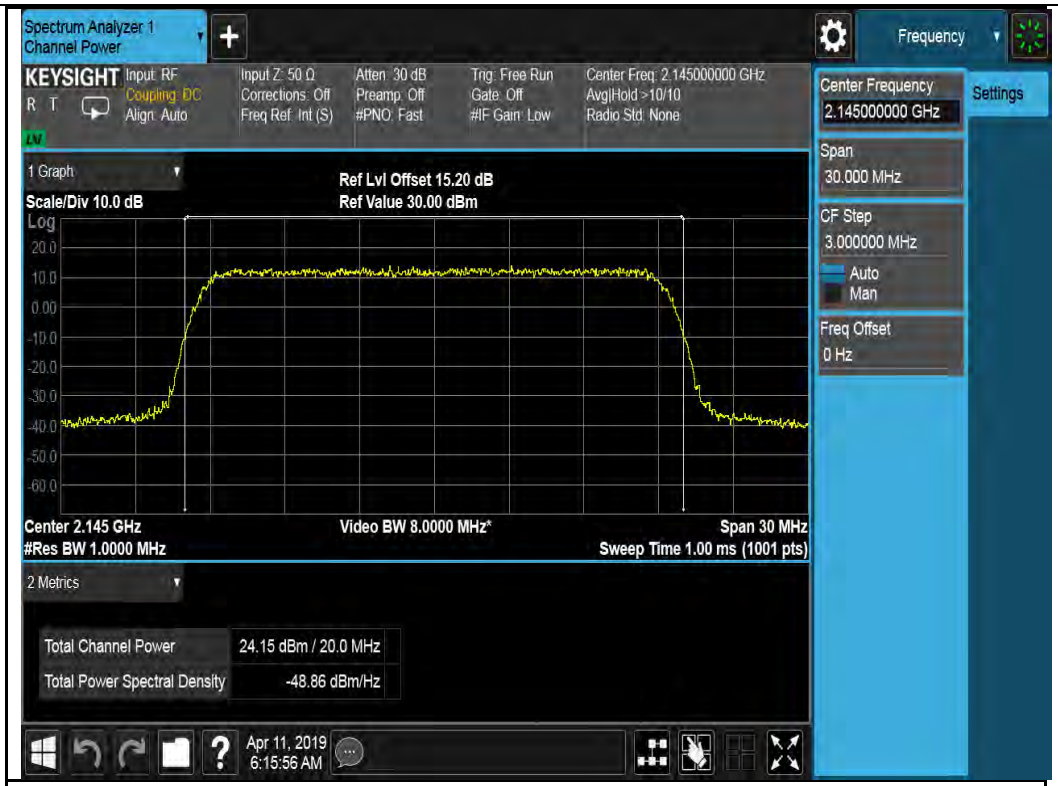
15M 64QAM Mid



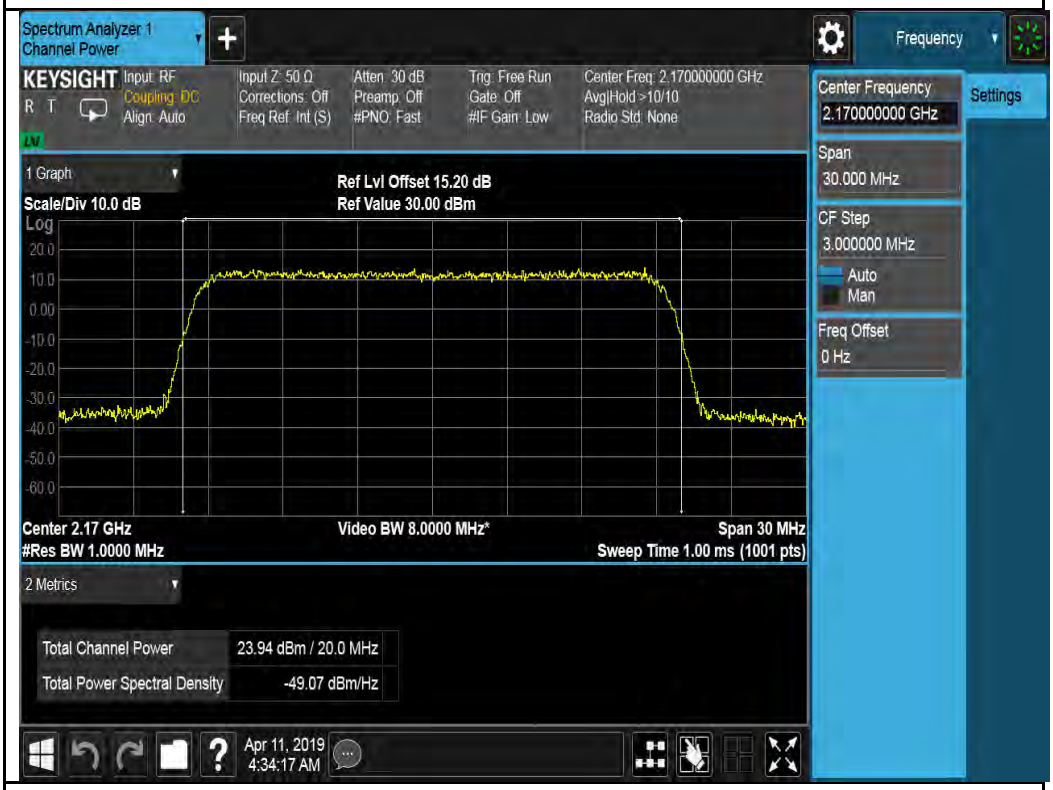
15M 64QAM High



20M 64QAM Low



20M 64QAM Mid

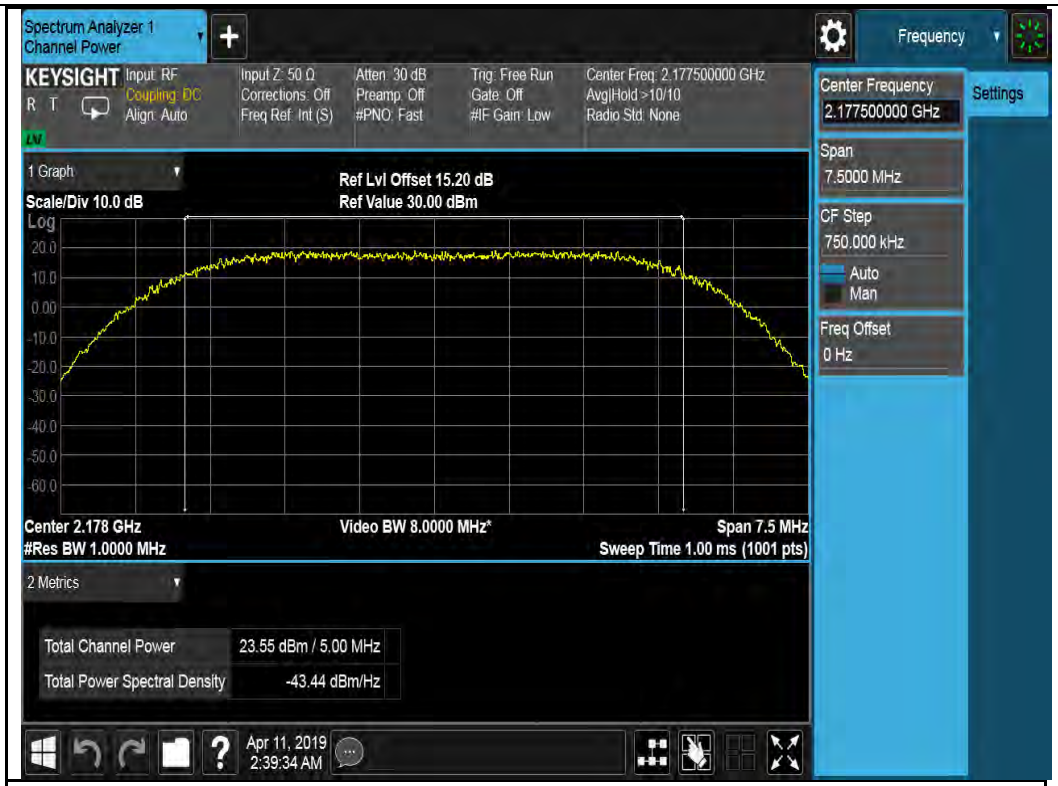


20M 64QAM High

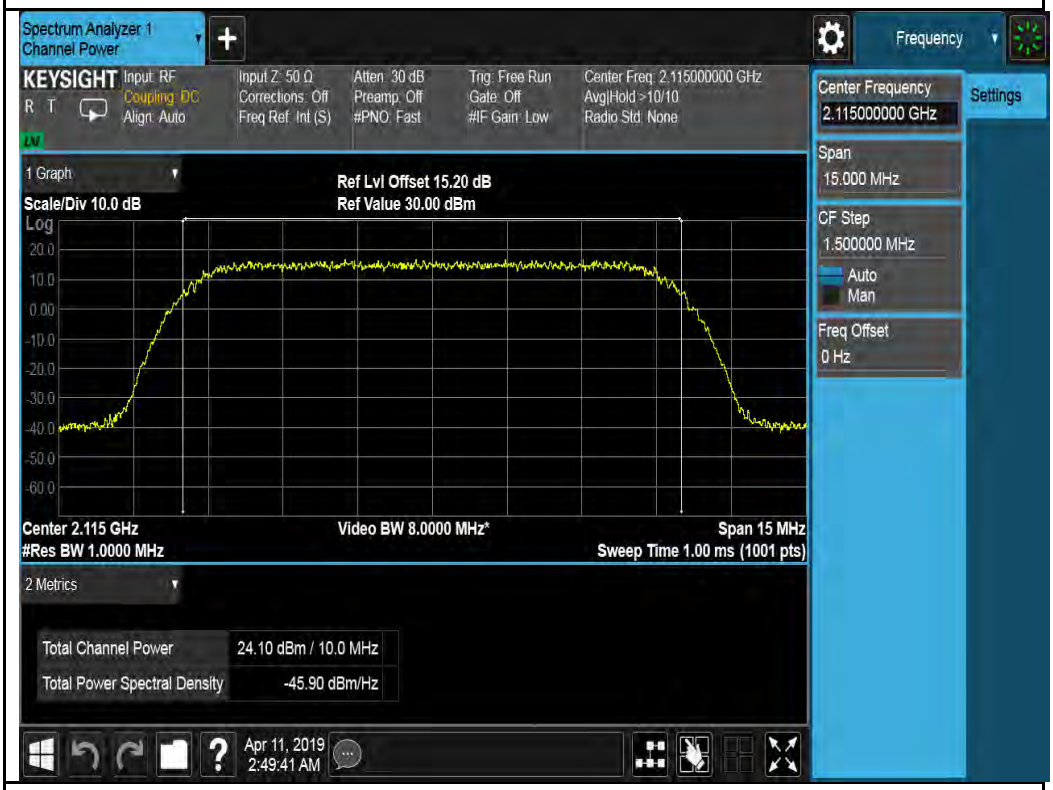
Chain 1:

5M QPSK Low

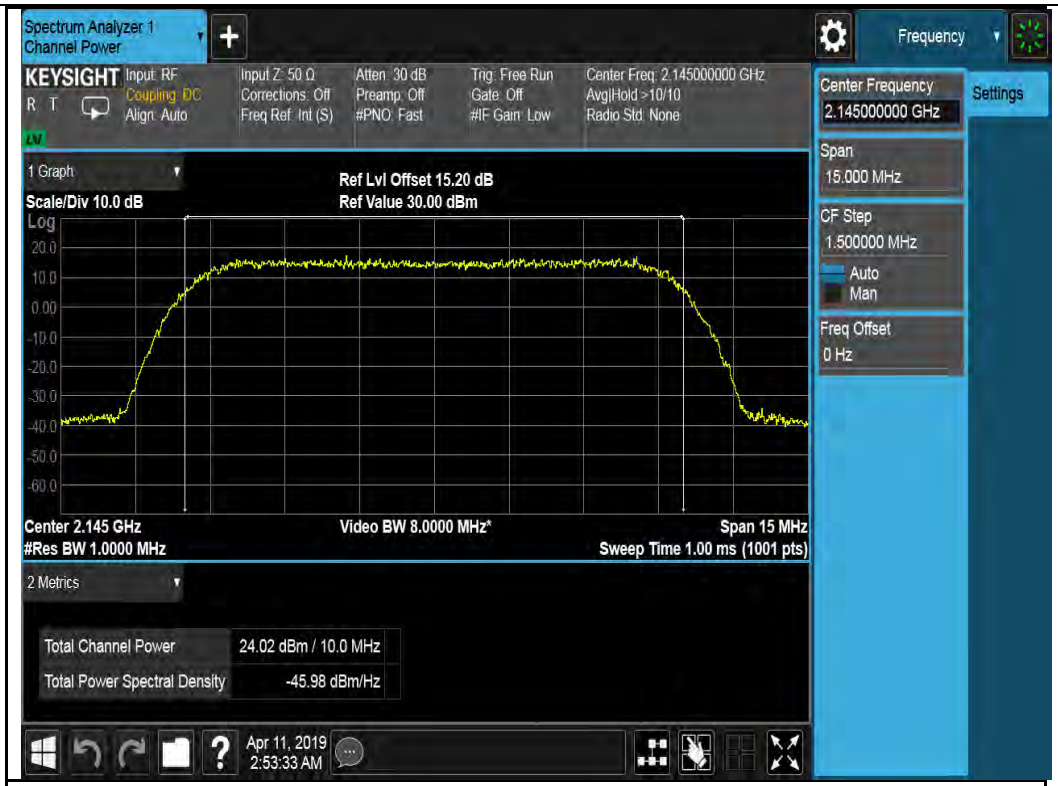
5M QPSK Mid



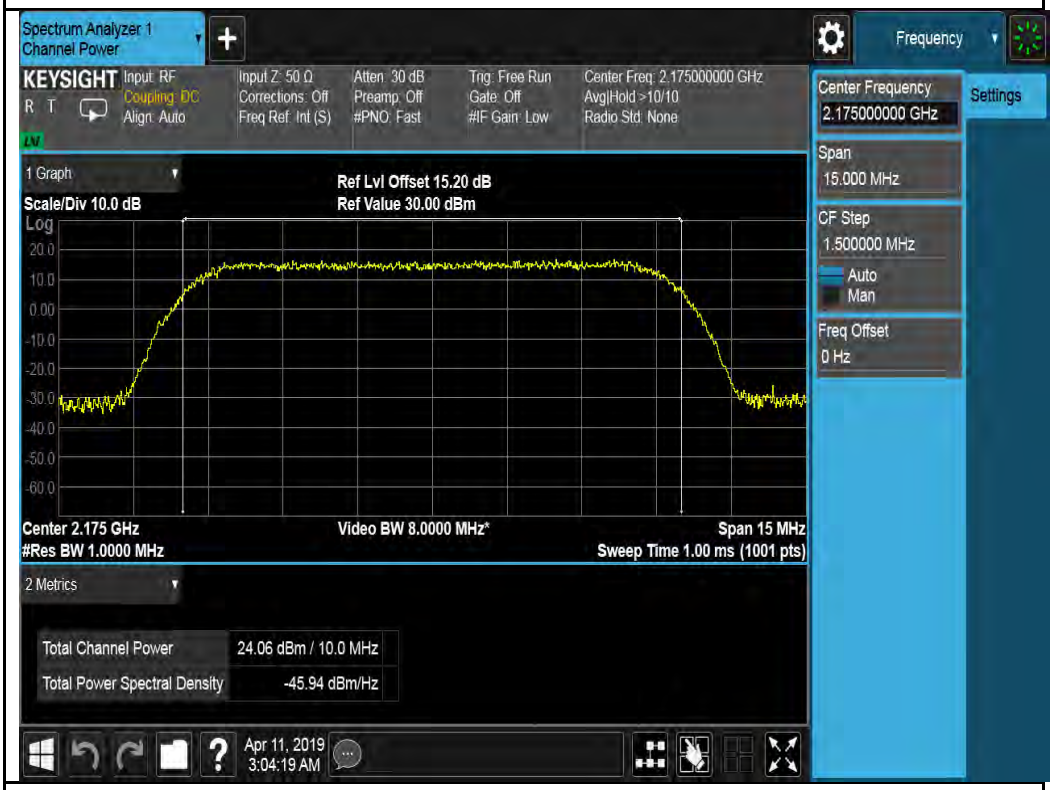
5M QPSK High



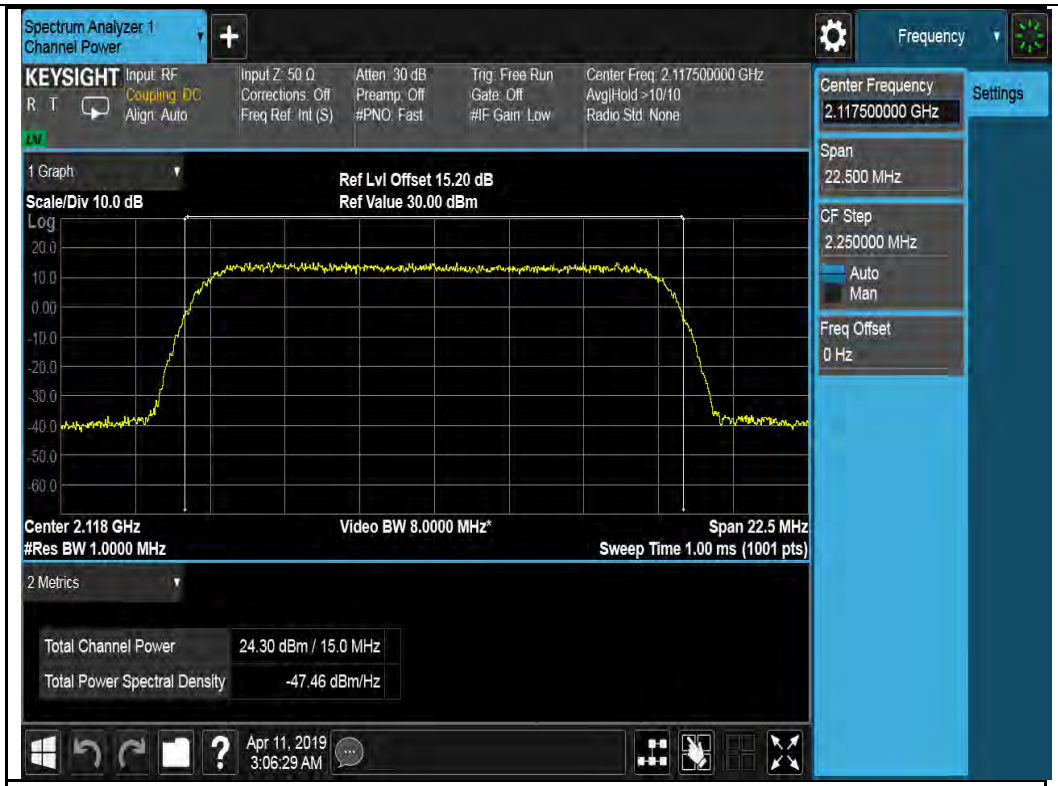
10M QPSK Low



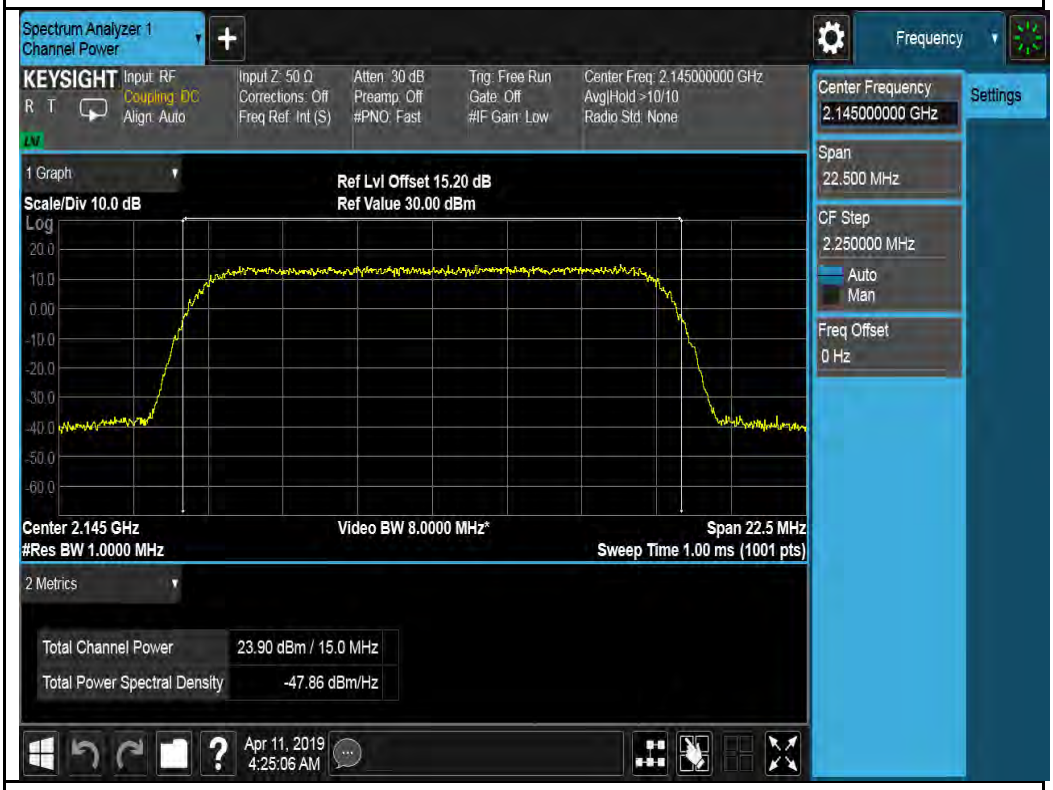
10M QPSK Mid



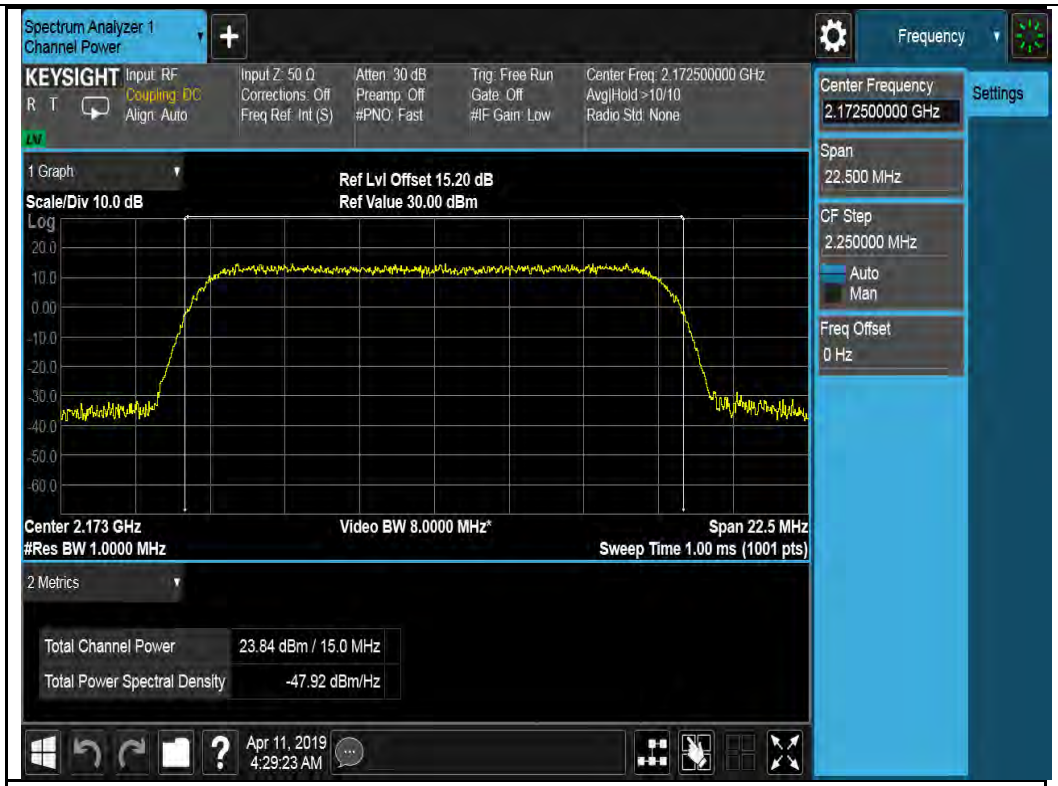
10M QPSK High



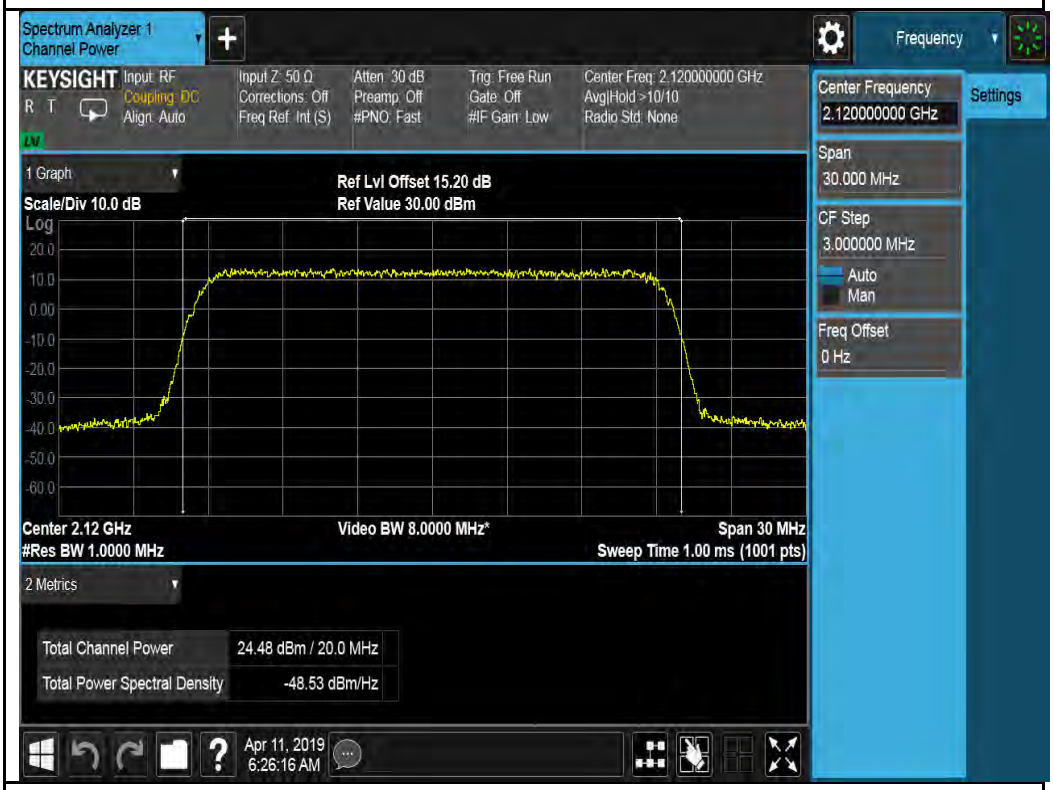
15M QPSK Low



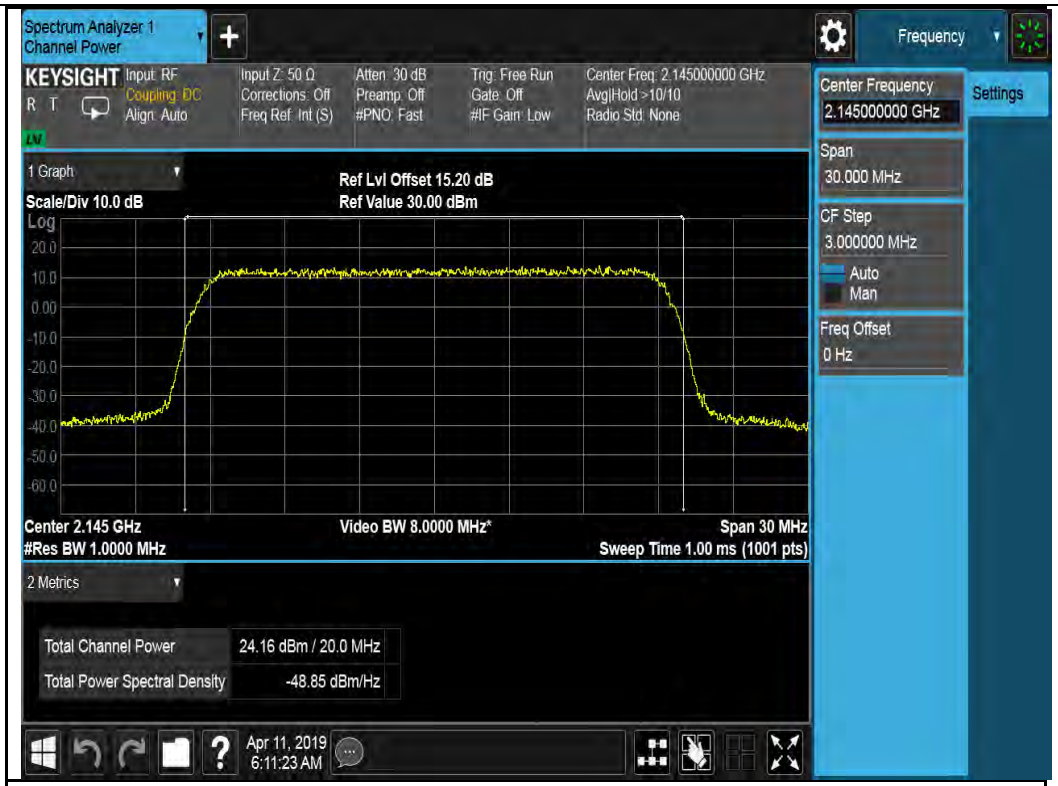
15M QPSK Mid



15M QPSK High



20M QPSK Low



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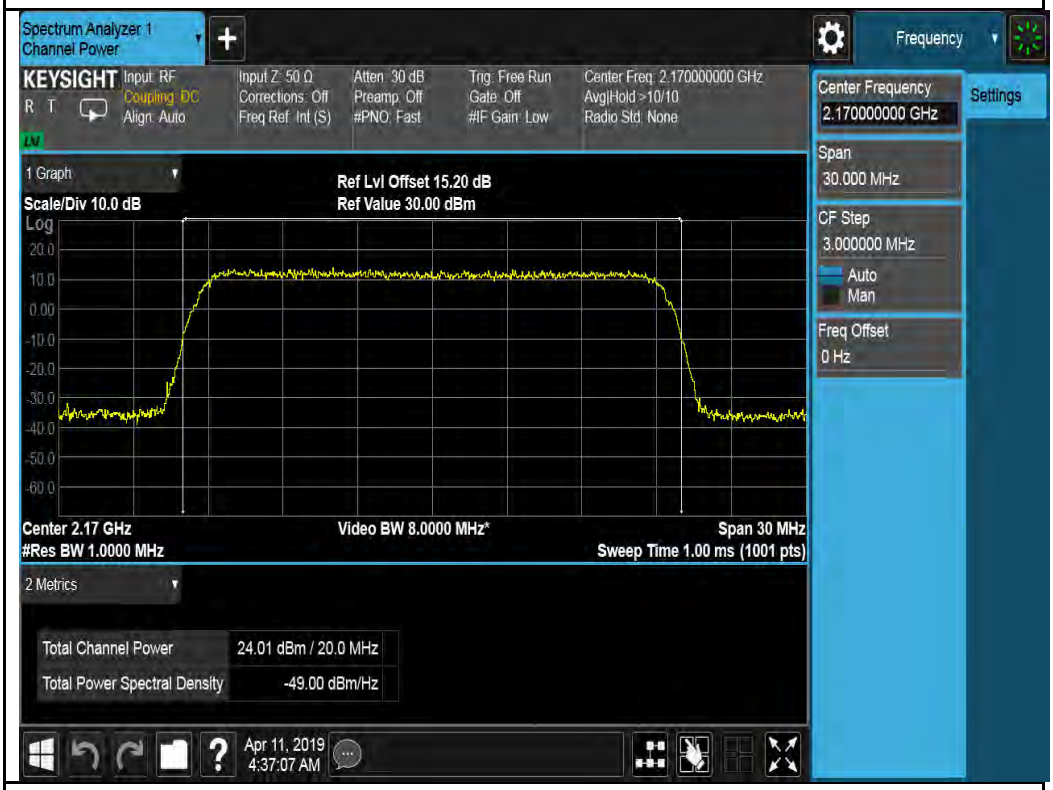
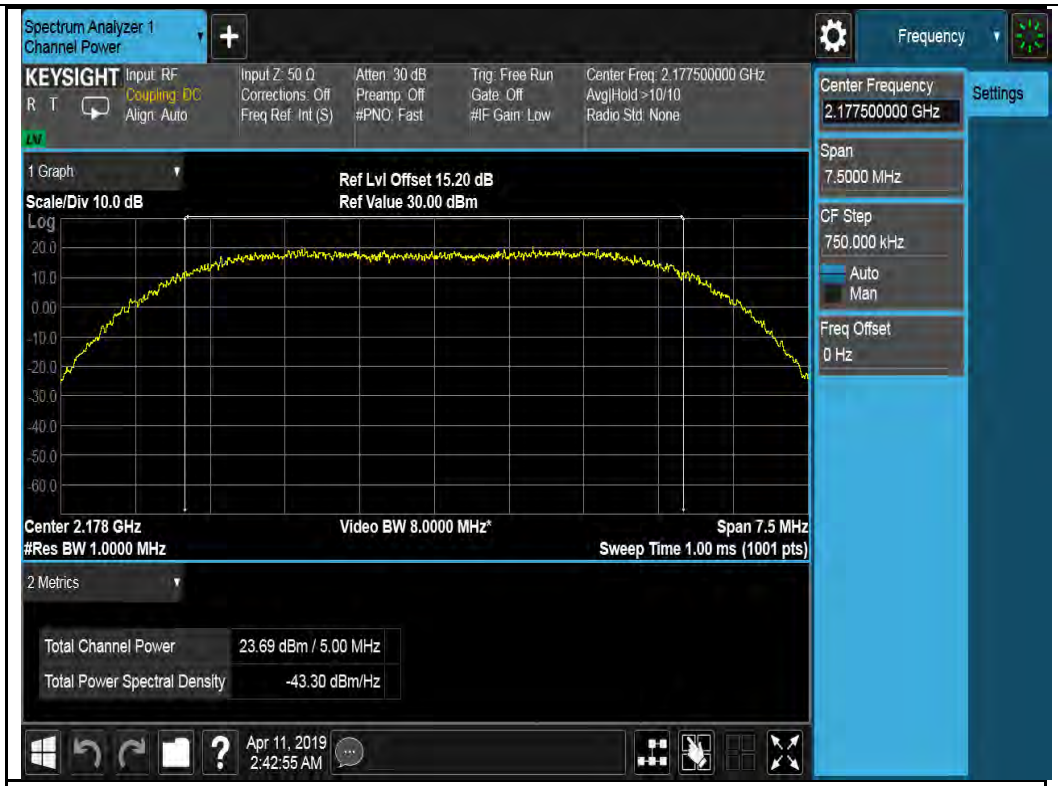


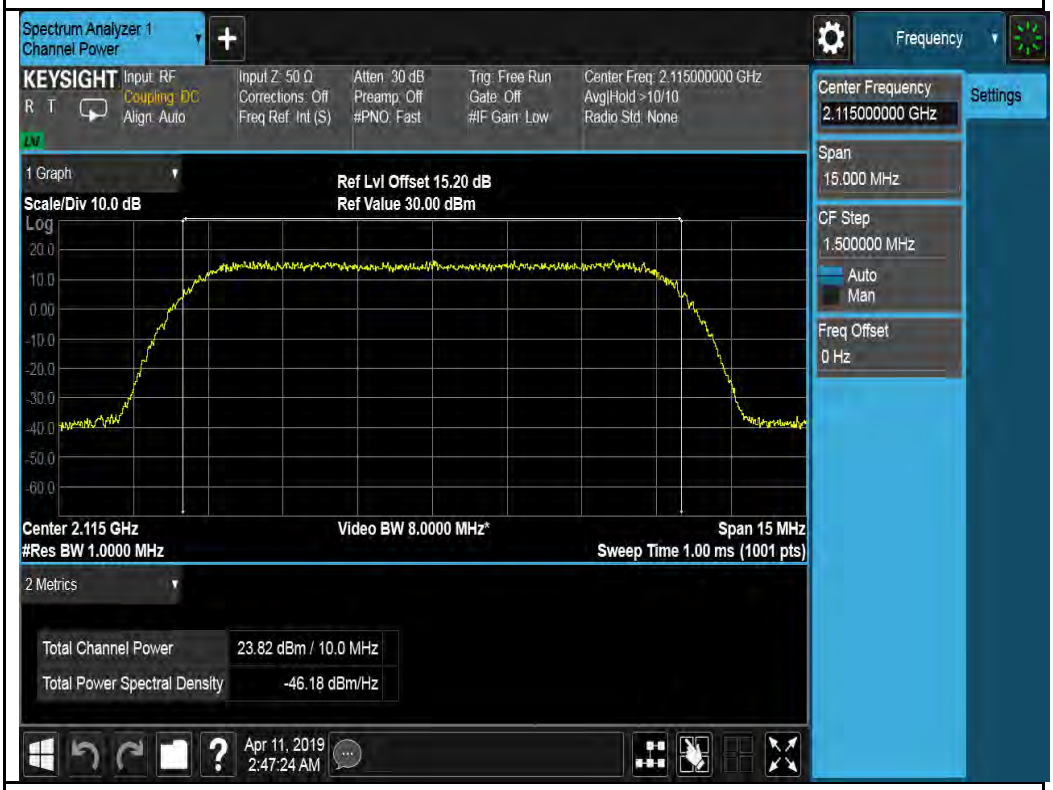
20M QPSK High

5M 64QAM Low

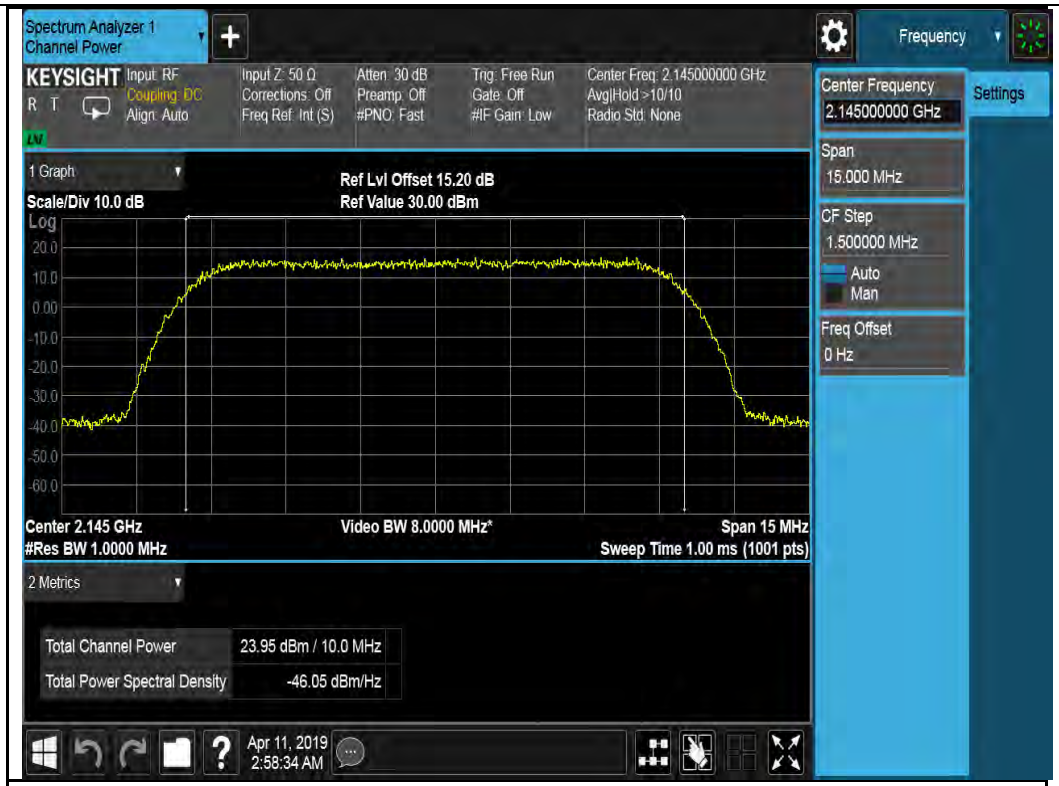
5M 64QAM Mid



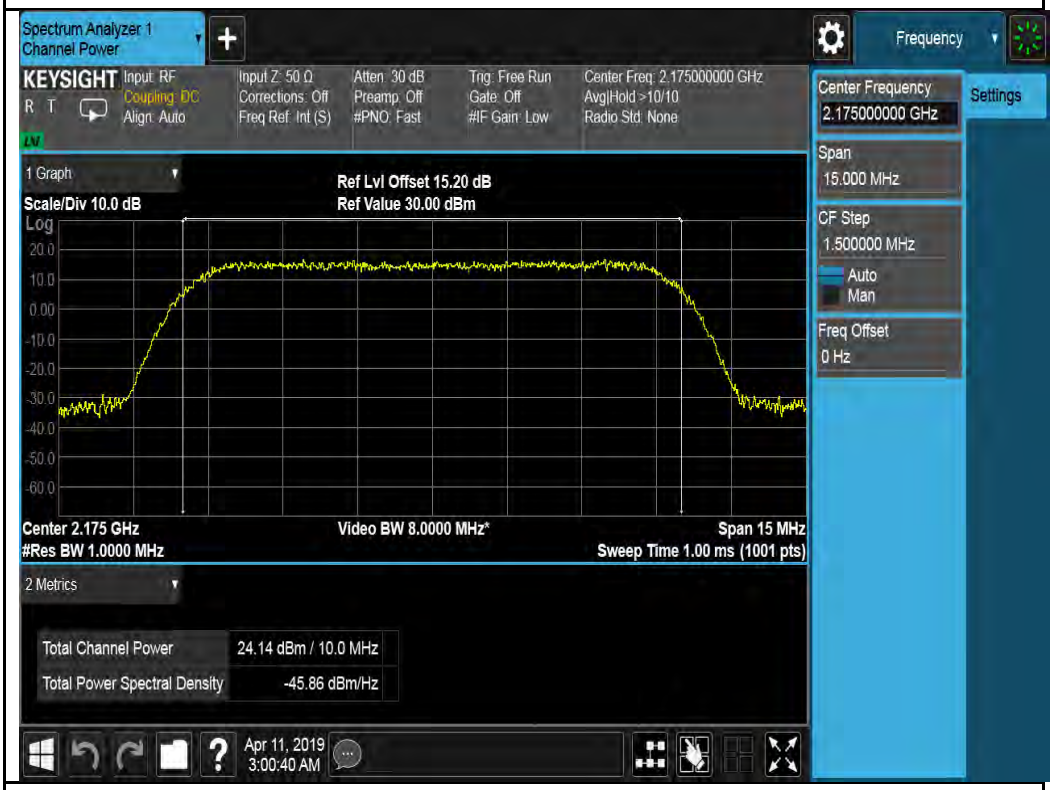
5M 64QAM High



10M 64QAM Low



10M 64QAM Mid



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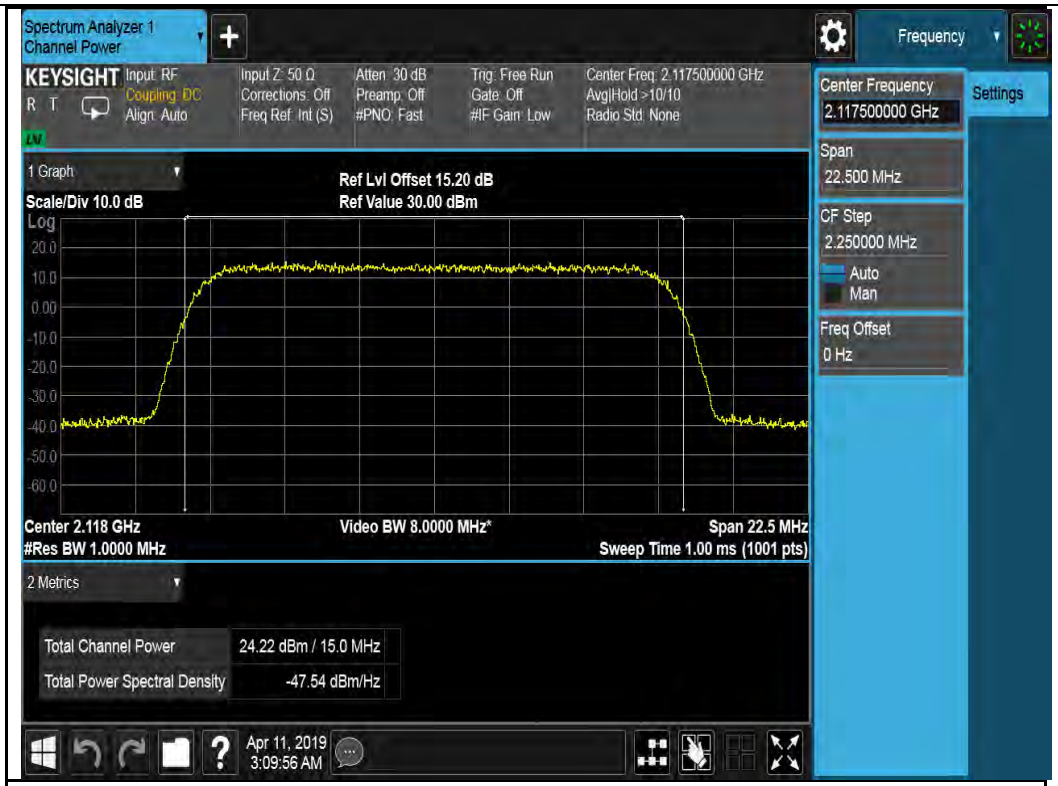
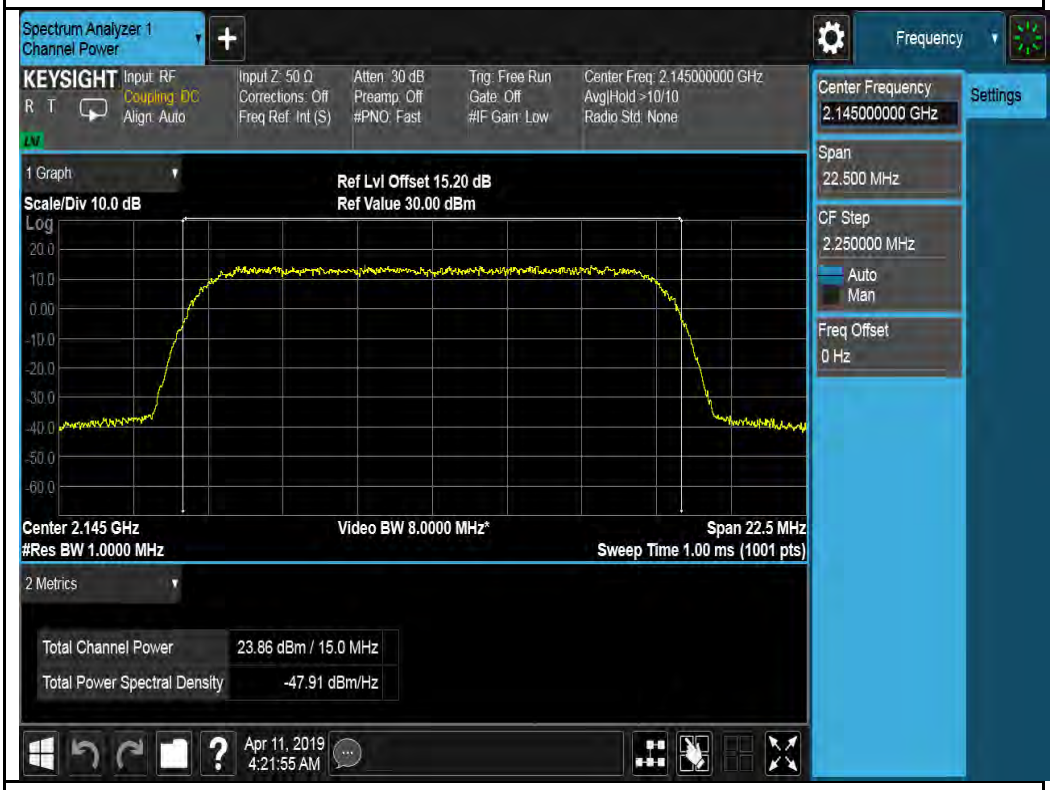


15M 64QAM Low



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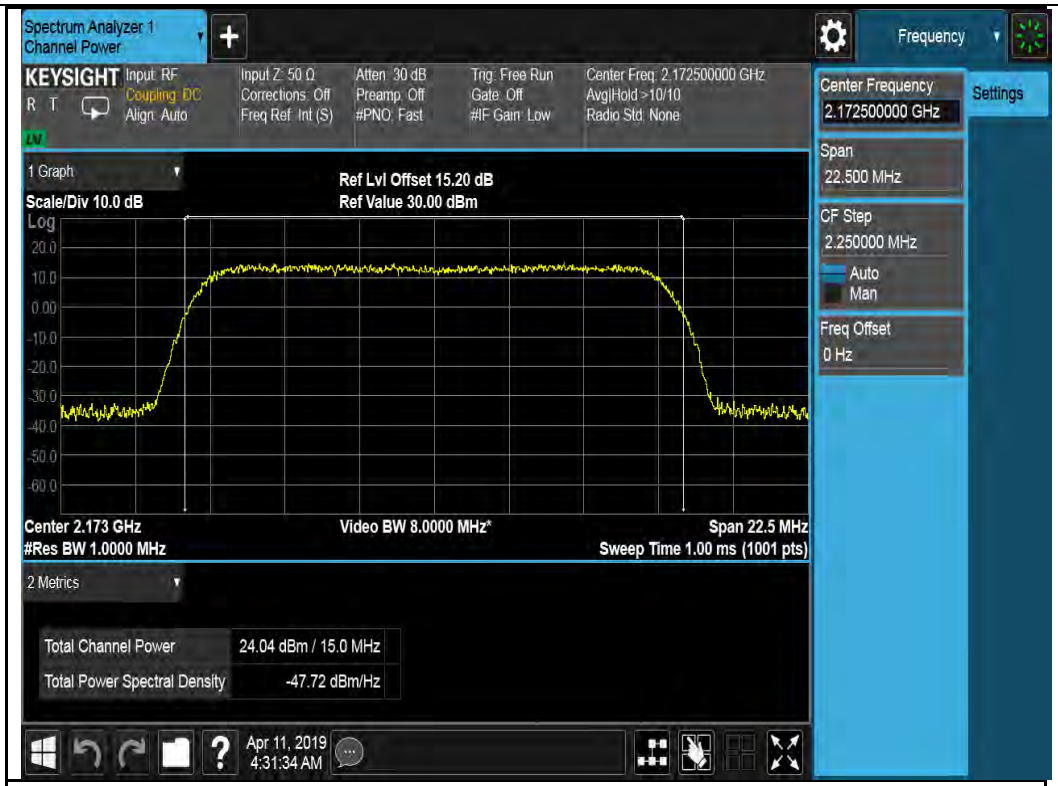

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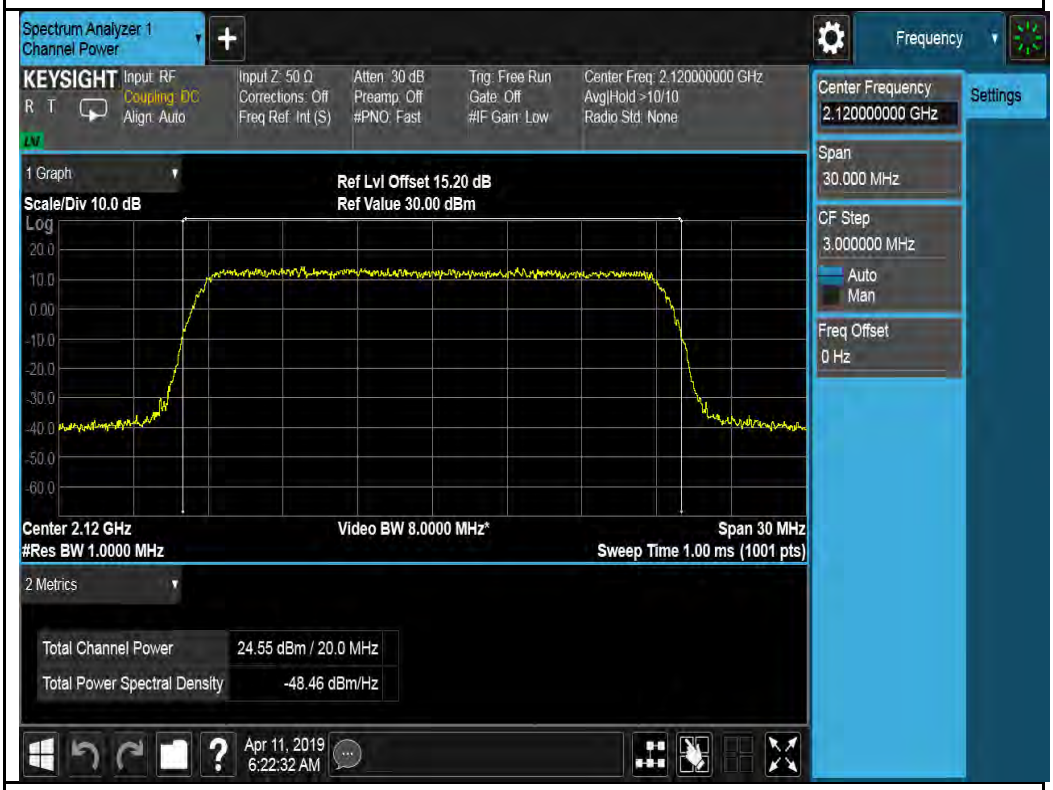

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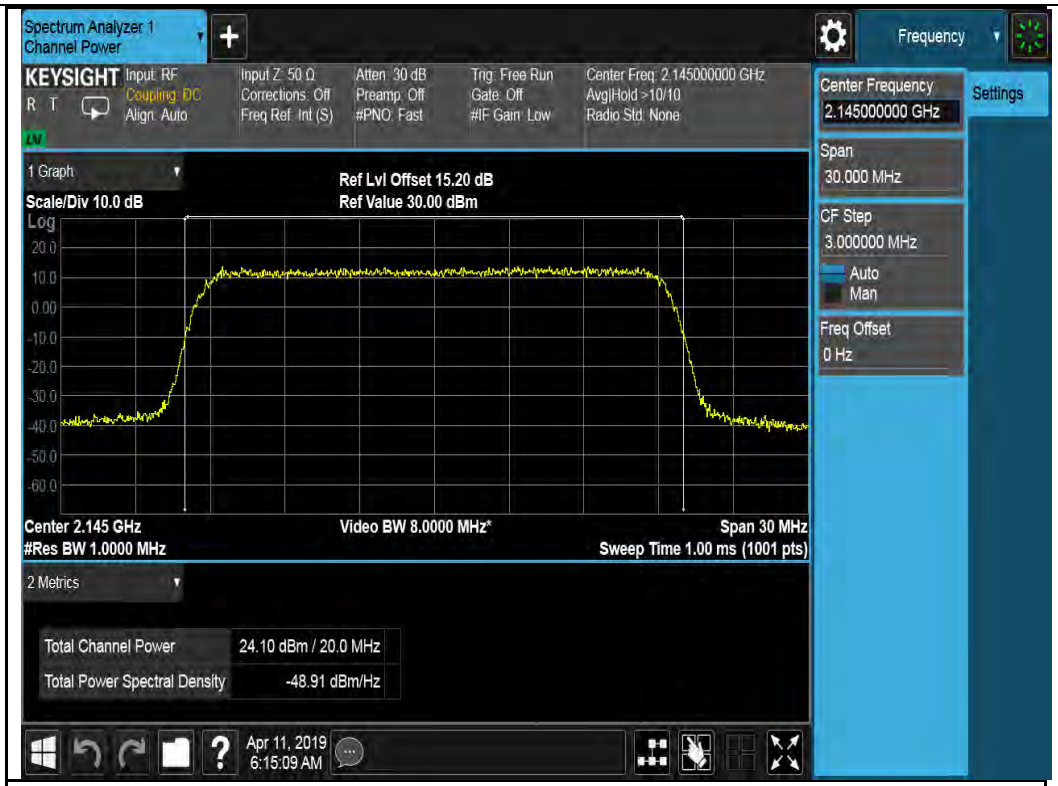

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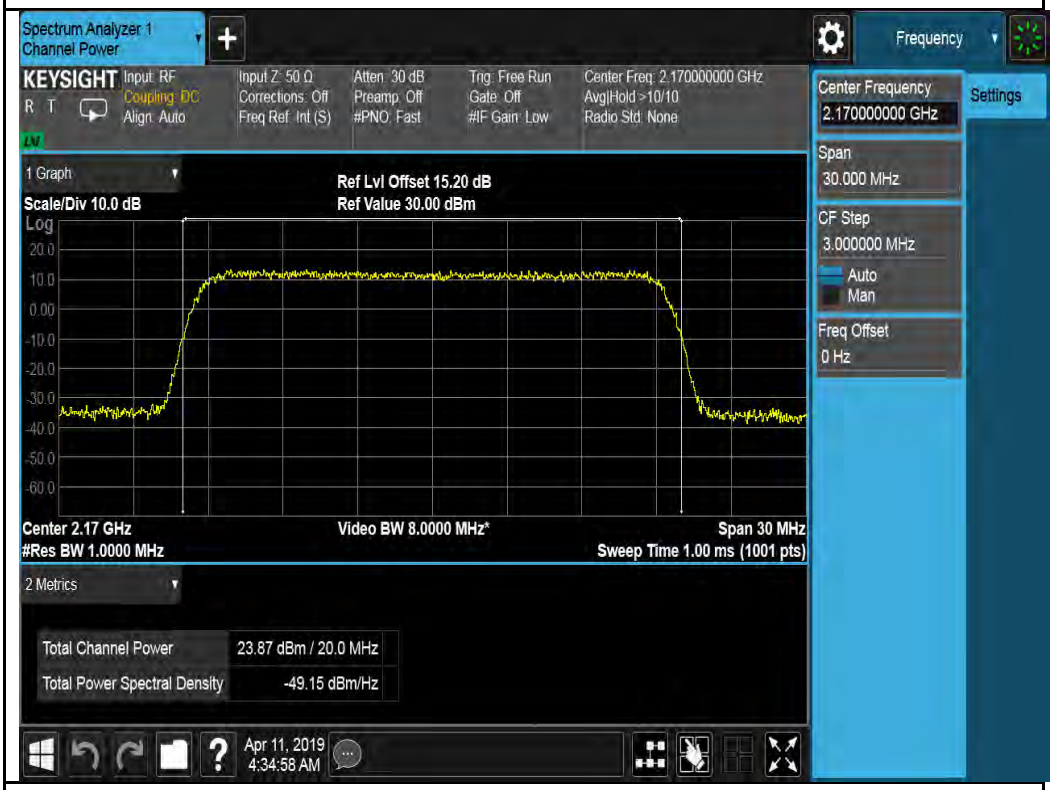
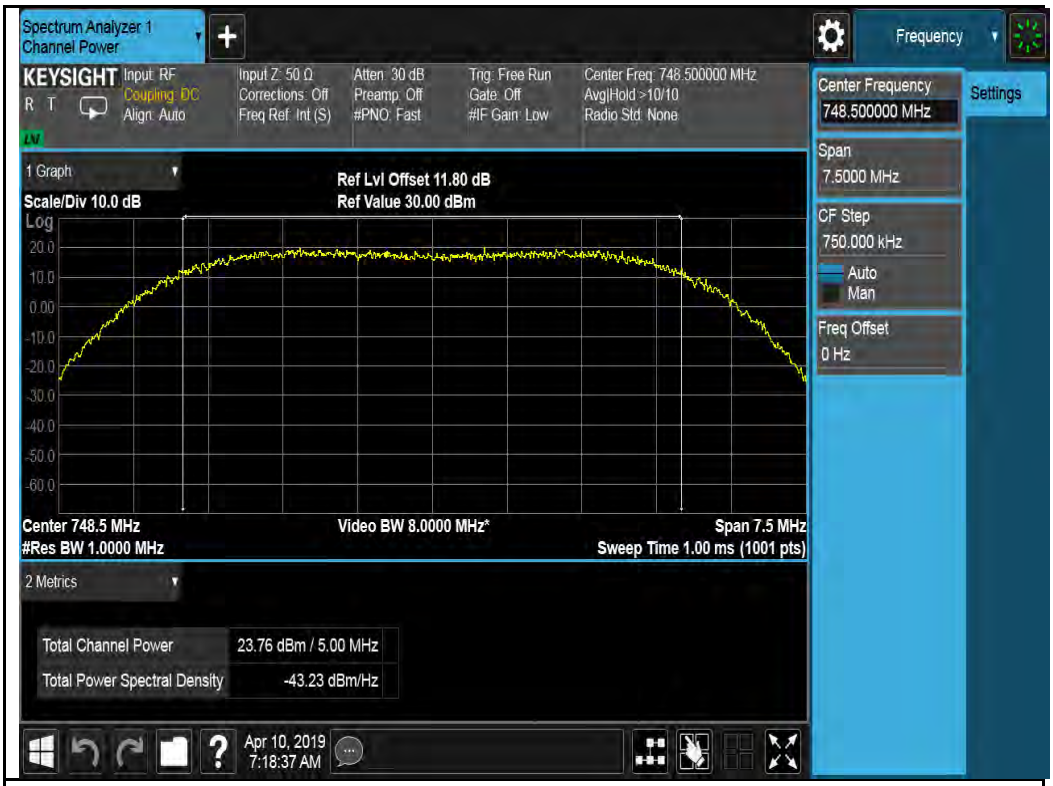


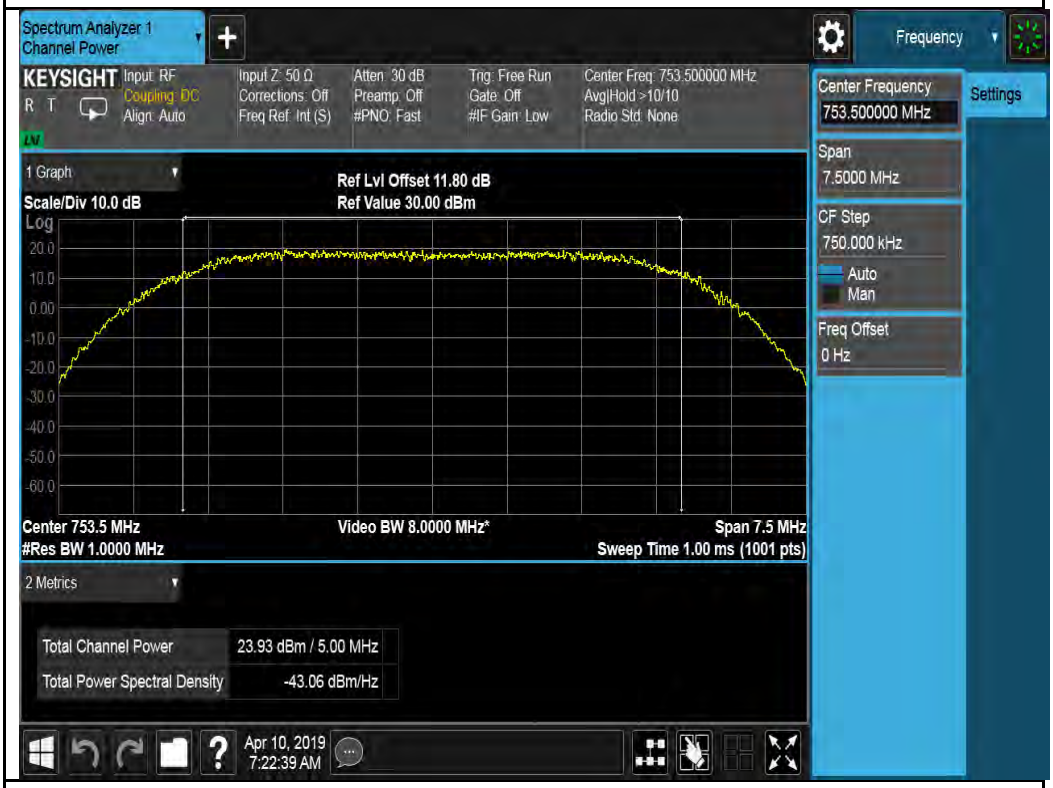
20M 64QAM High

Test Plots for Band 13:

Chain 0:



5M QPSK Low



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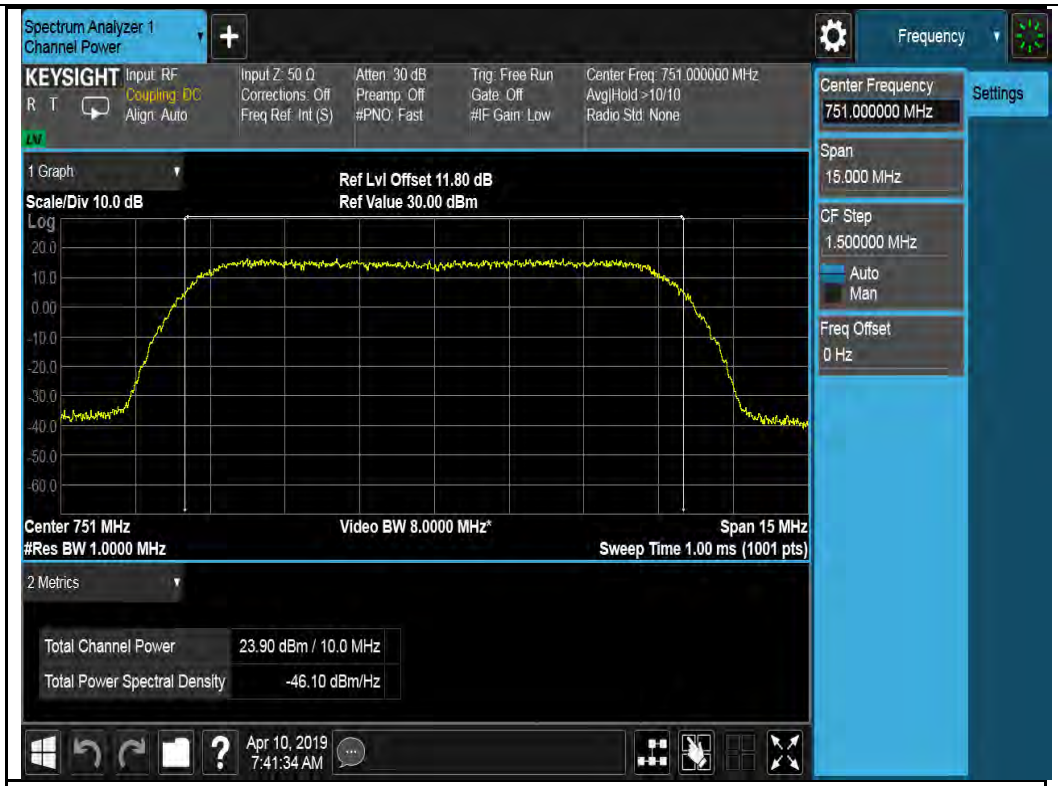

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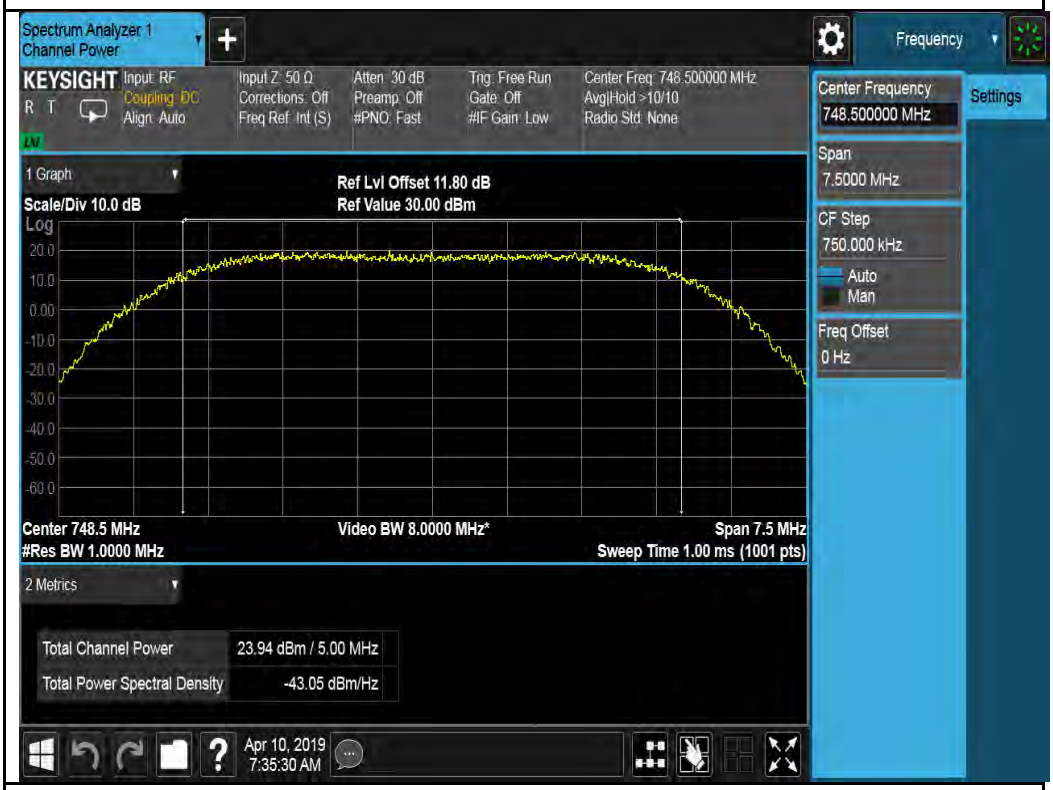
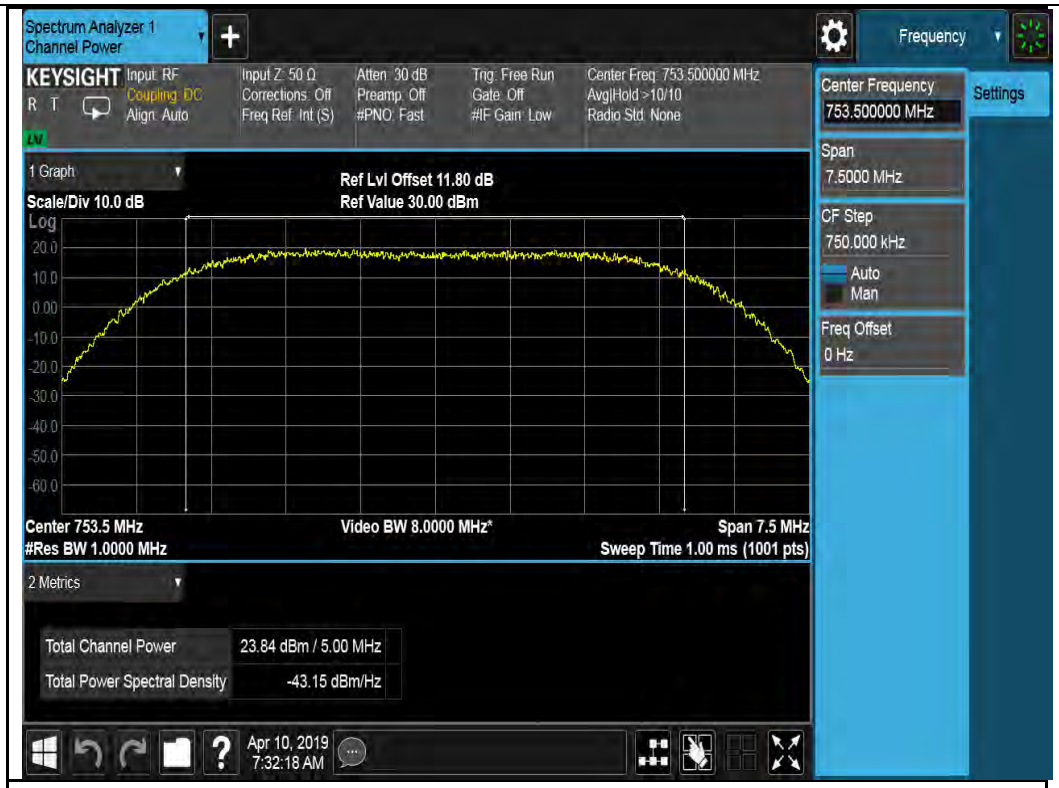
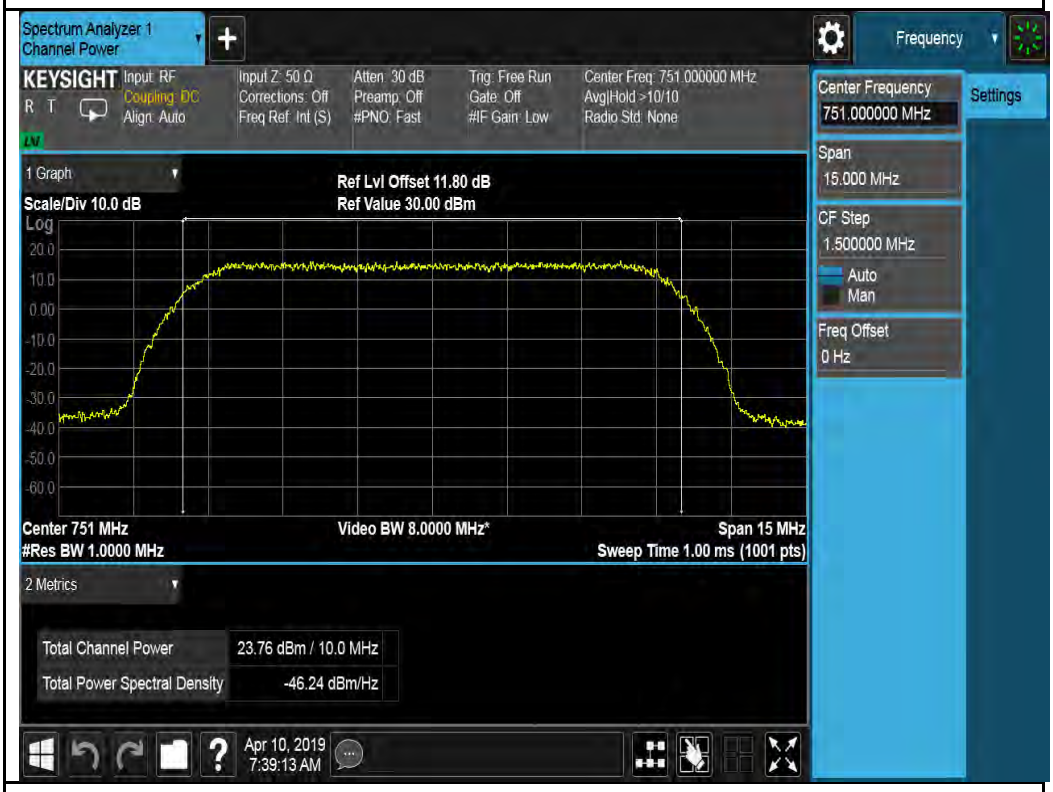


5M 64QAM Low



5M 64QAM High

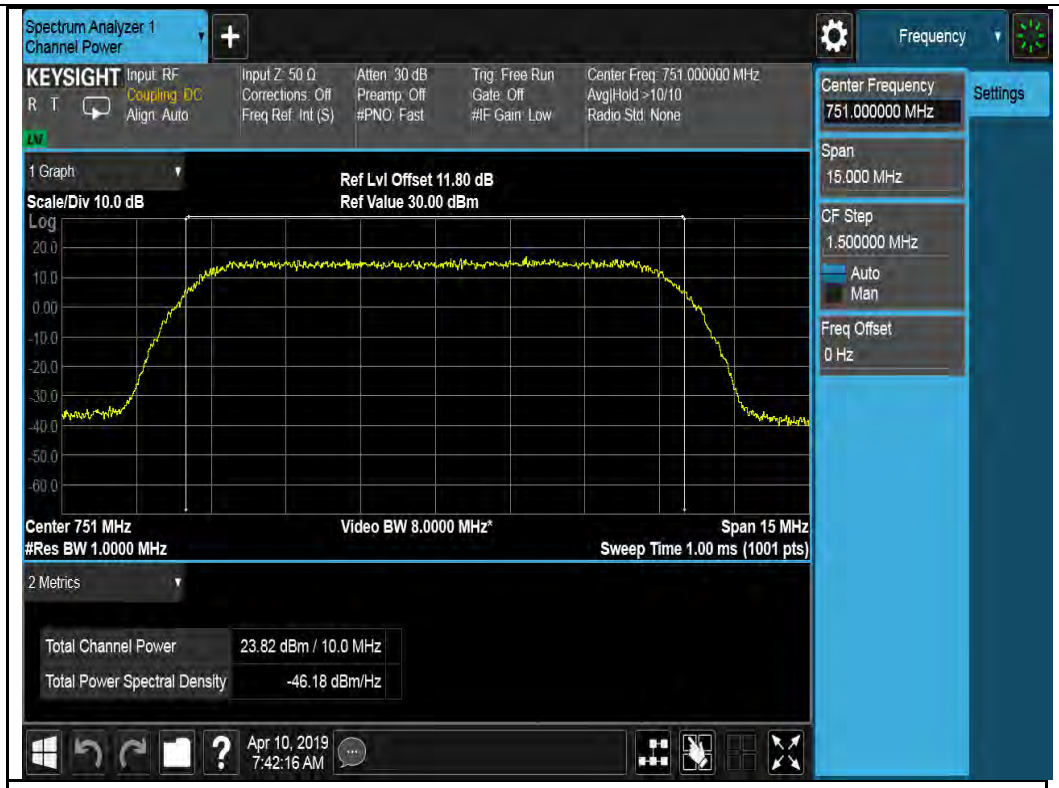


10M 64QAM Mid

Chain 1:

5M QPSK Low

5M QPSK High



10M QPSK Mid

5M 64QAM Low