

MEASUREMENT REPORT

FCC PART 25 Satellite

FCC ID: 2AUBBFL60P-E

APPLICANT: China Starwin Science & Technology Co., Ltd

Application Type: Certification

Product: Flat Panel Integrated Satellite Communication Terminal

Model No.: FL60P-E

Serial Model No.: FL60P-M, FL60F-M

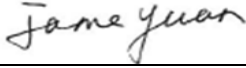
Brand Name: 

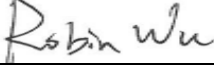
FCC Classification: Licensed Non-Broadcast Station Transmitter (TNB)

FCC Rule Part(s): FCC CFR 47 Part 2, FCC CFR 47 Part 25

Test Procedure(s): ANSI C63.4-2014, ANSI C63.26-2015,
KDB 971168 D01v03r01

Test Date: August 01 ~ 15, 2019

Reviewed By: 
(Jame Yuan)

Approved By: 
(Robin Wu)



The test results relate only to the samples tested.

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 ANSI C63.26-2015. Test results reported herein relate only to the item(s) tested.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

Revision History

Report No.	Version	Description	Issue Date	Note
1907RSU030-U3	Rev. 01	Initial Report	09-10-2019	Valid

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§2.1033 General Information

Applicant:	China Starwin Science & Technology Co.,Ltd
Applicant Address:	Floor 3th, Building B, No. 2 Keyuannan 2nd Road, High-tech Zone, Chengdu, China
Manufacturer:	China Starwin Science & Technology Co.,Ltd
Manufacturer Address:	Floor 3th, Building B, No. 2 Keyuannan 2nd Road, High-tech Zone, Chengdu, China
Test Site:	MRT Technology (Suzhou) Co., Ltd
Test Site Address:	D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China
Test Device Serial No.:	N/A ☐ Production ☒ Pre-Production ☐ Engineering

Test Facility / Accreditations

Measurements were performed at MRT Laboratory located in Tian'edang Rd., Suzhou, China.

- MRT facility is a FCC registered (MRT Reg. No. 893164) test facility with the site description report on file and has met all the requirements specified in ANSI C63.4-2014.
- MRT facility is an IC registered (MRT Reg. No. 11384A-1) test laboratory with the site description on file at Industry Canada.
- MRT facility is a VCCI registered (R-20025, G-20034, C-20020, T-20020) test laboratory with the site description on file at VCCI Council.
- MRT Lab is accredited to ISO 17025 by the American Association for Laboratory Accreditation (A2LA) under the American Association for Laboratory Accreditation Program (A2LA Cert. No. 3628.01) in EMC, Telecommunications, Radio and SAR testing.



1. INTRODUCTION

1.1. Scope

Measurement and determination of electromagnetic emissions (EMC) 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 Innovation, Science and Economic Development Canada and Certification and Engineering Bureau.

1.2. MRT Test Location

The map below shows the location of the MRT LABORATORY, its proximity to the Taihu Lake. These measurement tests were conducted at the MRT Technology (Suzhou) Co., Ltd. Facility located at D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China. The measurement facility compliant with the test site requirements specified in ANSI C63.4-2014.

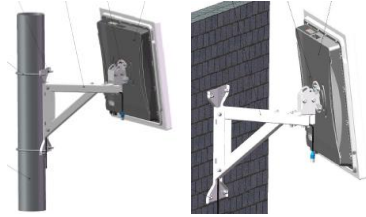


2. PRODUCT INFORMATION

2.1. Feature of Equipment under Test

Product Name	Flat Panel Integrated Satellite Communication Terminal
Model No.	FL60P-E
Serial Model No.	FL60P-M, FL60F-M
Brand Name	
Wi-Fi Specification	802.11b/g/n
Bluetooth Version	V5.0 (single mode, BLE only)
Satellite Specification	Transmit: 13.75~14.50GHz Receive: 10.95~12.75GHz
GNSS Specification	GPS, GLONASS, BDS
Accessories	
Adapter	Model No.: GST160A24 Input Power: 100 - 240V ~ 50/60Hz, Max. 2.0A Output Power: 24VDC 6.67A, 160W MAX

2.2. Difference of models

Model	Align Satellite Method	Installation	Mobility	Appearance
FL60P-E	FL60P-E applies a self-aligning satellite mechanism. The main controller controls the antenna to align the target satellite.	Base support	Yes	
FL60P-M	FL60P-M applies a manually aligned satellite mechanism. The users manually adjust the antenna to align the target satellite.	Base support	Yes	
FL60F-M	FL60P-M applies a manually aligned satellite mechanism. The users manually adjust the antenna to align the target satellite.	Wall or Pole	No	

2.3. Product Specification Subjective to this Report

Frequency Range	Transmit: 13.75~14.50GHz Receive: 10.95~12.75GHz
Test Frequency	Low channel: 13.75GHz Mid channel: 14.25GHz High channel: 14.50GHz
Data Rate	256kbps ~ 5Mbps
Type of Modulation	BPSK, 1/2 BPSK, 5/16 BPSK, 21/44 BPSK, QPSK, 1/2 QPSK, 3/4 QPSK, 7/8 QPSK, 21/44 QPSK, OQPSK, 1/2 OQPSK, 3/4 OQPSK, 7/8 OQPSK, 21/44 OQPSK
Antenna Type	Slotted Waveguide Array Antenna
Antenna Gain	36.22dBi

Note: For other features of this EUT, test report will be issued separately.

2.4. Test Mode

Test Mode	Mode 1: Transmit at channel 13.75GHz Mode 2: Transmit at channel 14.25GHz Mode 3: Transmit at channel 14.50GHz
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2.5. Device Capabilities

This device contains the following capabilities:

2.4GHz Wi-Fi, Ku-Band Satellite, Bluetooth v5.0 (single mode, BLE only), GPS, BDS, GLONSS.

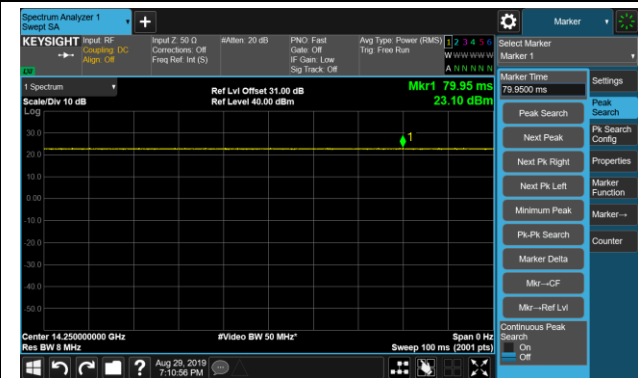
Note: The maximum achievable duty cycles was determined based on measurements performed on a spectrum analyzer in zero-span mode with the appropriate RBW and VBW.

The duty cycles are as follows:

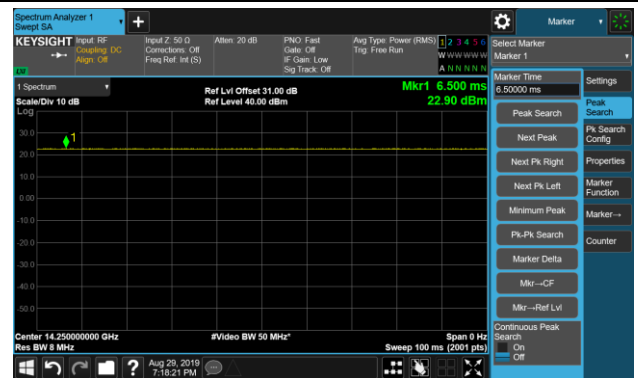
Test Mode	Channel	Test Frequency (MHz)	Duty Cycle
BPSK	Mid	14250	100%
1/2 BPSK	Mid	14250	100%
5/16 BPSK	Mid	14250	100%
21/44 BPSK	Mid	14250	100%
QPSK	Mid	14250	100%
1/2 QPSK	Mid	14250	100%
3/4 QPSK	Mid	14250	100%
7/8 QPSK	Mid	14250	100%
21/44 QPSK	Mid	14250	100%
OQPSK	Mid	14250	100%
1/2 OQPSK	Mid	14250	100%
3/4 OQPSK	Mid	14250	100%
7/8 OQPSK	Mid	14250	100%
21/44 OQPSK	Mid	14250	100%

Duty Cycle

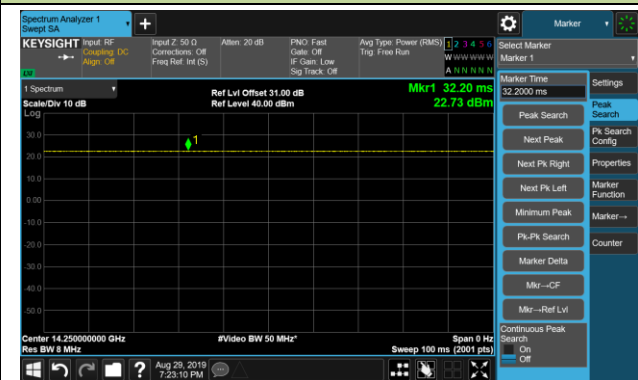
BPSK - 14250MHz



1/2 BPSK - 14250MHz



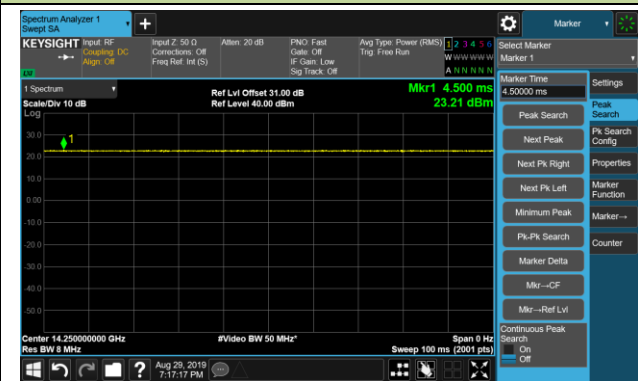
5/16 BPSK - 14250MHz



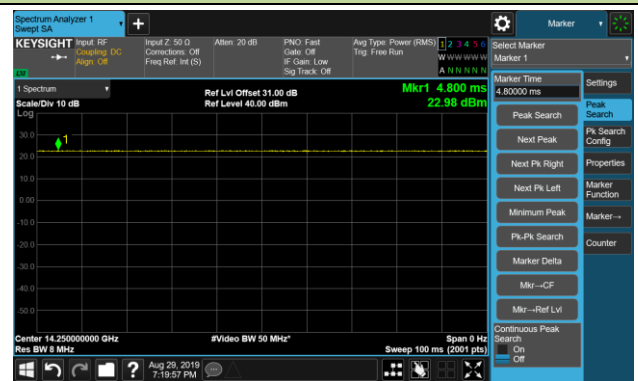
21/44 BPSK - 14250MHz



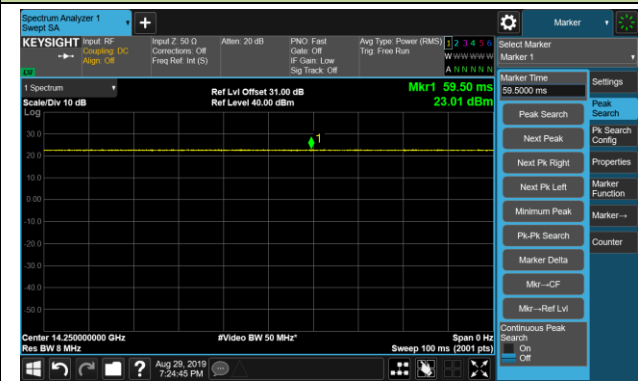
QPSK - 14250MHz



1/2 QPSK - 14250MHz



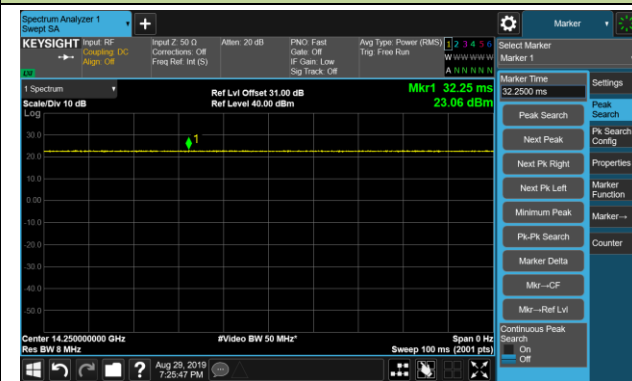
3/4 QPSK - 14250MHz



7/8 QPSK - 14250MHz



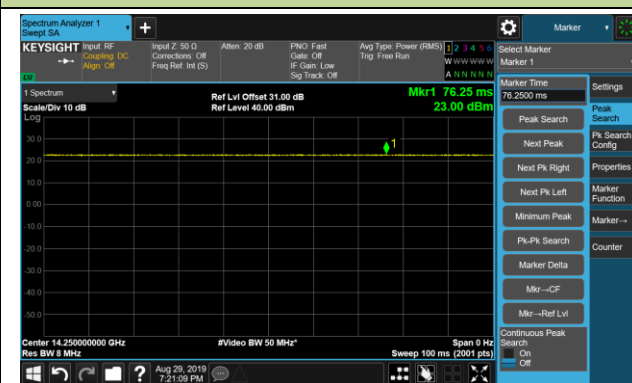
21/44 QPSK - 14250MHz



OQPSK - 14250MHz



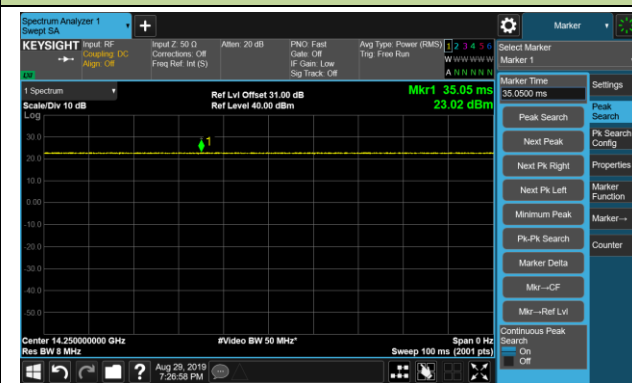
1/2 OQPSK - 14250MHz



3/4 OQPSK - 14250MHz



7/8 OQPSK - 14250MHz



21/44 OQPSK - 14250MHz



2.6. Test Configuration

The device was tested per the guidance of ANSI C63.26-2015. ANSI C63.4-2014 was used to reference the appropriate EUT setup for radiated emissions testing.

2.7. Description of Test Software

There is not test utility software used during testing, and the fundamental frequency was mixed by the intermediate frequency and the signal emitted by modem.

2.8. EMI Suppression Device(s)/Modifications

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

3. ANTENNA REQUIREMENTS

Excerpt from §25.209 of the FCC Rules/Regulations:

Except as provided in paragraph (f) of the §25.209, the co-polarization gain of any earth station antenna operating in the FSS and transmitting to a GSO satellite, including earth stations providing feeder links for satellite services other than FSS, may not exceed the specified limits.

Conclusion:

The unit complies with the requirement of §25.209, and the details refer to the “Antenna Specification” file.

4. TEST EQUIPMENT CALIBRATION DATE

Radiated Emissions - AC1

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EMI Test Receiver	R&S	ESR7	MRTSUE06001	1 year	2020/08/01
PXA Signal Analyzer	Keysight	9030B	MRTSUE06395	1 year	2019/09/25
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2019/11/09
Bilog Period Antenna	Schwarzbeck	VULB 9168	MRTSUE06172	1 year	2020/03/31
Broad Band Horn Antenna	Schwarzbeck	BBHA 9120D	MRTSUE06023	1 year	2019/10/19
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06024	1 year	2019/12/17
Microwave System Amplifier	Agilent	83017A	MRTSUE06076	1 year	2019/11/16
Preamplifier	Schwarzbeck	BBV 9721	MRTSUE06121	1 year	2020/06/11
Thermohygrometer	Testo	608-H1	MRTSUE06403	1 year	2020/08/08
Anechoic Chamber	TDK	Chamber-AC1	MRTSUE06212	1 year	2020/04/30

Radiated Emission - AC2

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
Spectrum Analyzer	Keysight	N9038A	MRTSUE06125	1 year	2020/08/01
Loop Antenna	Schwarzbeck	FMZB 1519	MRTSUE06025	1 year	2019/11/09
Bilog Period Antenna	Schwarzbeck	VULB 9162	MRTSUE06022	1 year	2019/10/19
Horn Antenna	Schwarzbeck	BBHA9120D	MRTSUE06171	1 year	2019/11/09
Broad Band Horn Antenna	Schwarzbeck	BBHA 9170	MRTSUE06024	1 year	2019/12/17
Broadband Coaxial Preamplifier	Schwarzbeck	BBV 9718	MRTSUE06176	1 year	2019/11/16
Preamplifier	Schwarzbeck	BBV 9721	MRTSUE06121	1 year	2020/06/11
Temperature/Humidity Meter	Minggao	ETH529	MRTSUE06170	1 year	2019/12/13
Anechoic Chamber	RIKEN	Chamber-AC2	MRTSUE06213	1 year	2020/04/30

Conducted Test Equipment - TR3

Instrument	Manufacturer	Type No.	Asset No.	Cali. Interval	Cali. Due Date
EXA Signal Analyzer	Agilent	N9020A	MRTSUE06106	1 year	2020/04/15
EXA Signal Analyzer	Keysight	N9010B	MRTSUE06452	1 year	2020/07/11
Signal Analyzer	R&S	FSV40	MRTSUE06218	1 year	2020/04/15
Power Meter	Agilent	U2021XA	MRTSUE06030	1 year	2019/11/16
USB wideband power sensor	Keysight	U2021XA	MRTSUE06446	1 year	2020/06/30
USB wideband power sensor	Keysight	U2021XA	MRTSUE06447	1 year	2020/06/30
Bluetooth Test Set	Anritsu	MT8852B-042	MRTSUE06389	1 year	2020/06/13
Audio Analyzer	Agilent	U8903B	MRTSUE06143	1 year	2020/06/13
Modulation Analyzer	HP	8901A	MRTSUE06098	1 year	2019/10/18
Wideband Radio Communication Tester	R&S	CMW 500	MRTSUE06243	1 year	2019/11/16
DC Power Supply	GWINSTEK	DPS-3303C	MRTSUE06064	N/A	N/A
Temperature & Humidity Chamber	BAOYT	BYH-150CL	MRTSUE06051	1 year	2019/11/16
Thermohygrometer	testo	608-H1	MRTSUE06401	1 year	2020/08/08

Software	Version	Function
EMI Software	V3	EMI Test Software

5. MEASUREMENT UNCERTAINTY

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.

Radiated Emission Measurement - AC1

Measurement Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$):

Horizontal: 30MHz~300MHz: 4.07dB

300MHz~1GHz: 3.63dB

1GHz~75GHz: 4.16dB

Vertical: 30MHz~300MHz: 4.18dB

300MHz~1GHz: 3.60dB

1GHz~75GHz: 4.76dB

Radiated Emission Measurement - AC2

Measurement Uncertainty for a Level of Confidence of 95% ($U=2Uc(y)$):

Horizontal: 30MHz~300MHz: 3.75dB

300MHz~1GHz: 3.53dB

1GHz~75GHz: 4.28dB

Vertical: 30MHz~300MHz: 3.86dB

300MHz~1GHz: 3.53dB

1GHz~75GHz: 4.33dB

6. TEST RESULT

6.1. Summary

FCC Part Section(s)	Test Description	Test Limit	Test Condition	Test Result	Reference
2.1049	Occupied Bandwidth	N/A	Conducted	Pass	Section 6.2
2.1046(a), 25.204	Power Spectral Density & Output Power	Refer to section 6.3		Pass	Section 6.3
2.1051, 25.202(f)	Unwanted Emission at Antenna Terminal.	Refer to section 6.4		Pass	Section 6.4
2.1055, 25.202(d)	Frequency Stability	± 10 ppm		Pass	Section 6.5
2.1053, 25.202(f)	Radiated Spurious Emission	Refer to section 6.6	Radiated	Pass	Section 6.6

Notes:

- 1) The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.
- 2) All modes of operation and data rates were investigated. For radiated emission test, every axis (X, Y, Z) was also verified. The test results shown in the following sections represent the worst case emissions.

6.2. Occupied Bandwidth Measurement

6.2.1. Test Limit

N/A

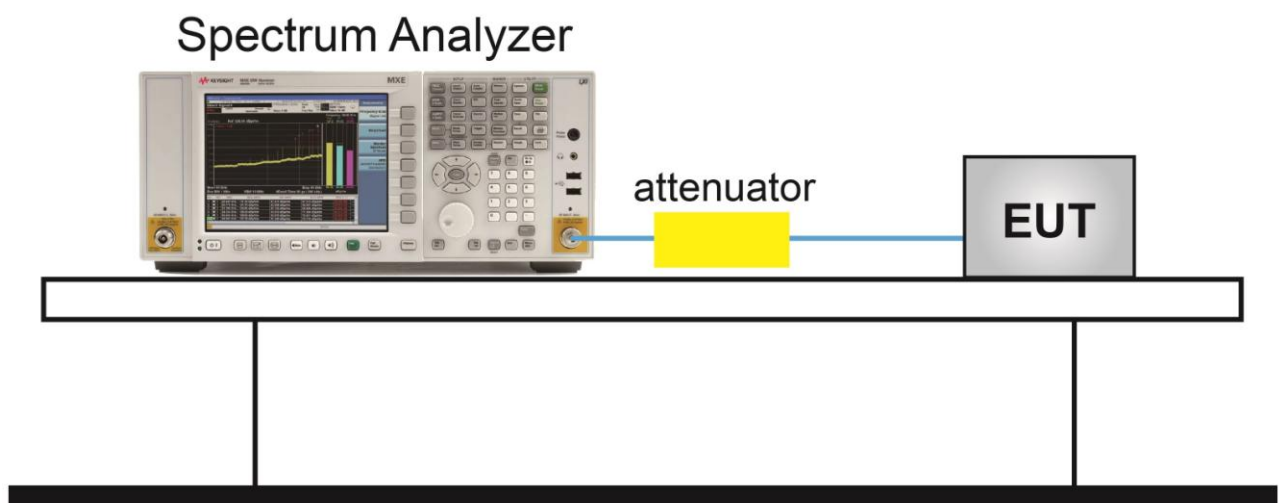
6.2.2. Test Procedure used

ANSI C63.26-2015 - Section 5.4.4

6.2.3. Test Setting

1. The spectrum analyzer center frequency is set to the nominal EUT channel center frequency.
The frequency span for the spectrum analyzer shall be set wide enough to capture all modulation products including the emission skirts (typically a span of $1.5 \times \text{OBW}$ is sufficient)
2. Set RBW = 1% to 5% of the OBW
3. VBW $\geq 3 \times \text{RBW}$
4. Detector = Peak
5. Trace mode = Max hold
6. Sweep = Auto couple
7. Allow the trace was allowed to stabilize

6.2.4. Test Setup



6.2.5. Test Result

Product	Flat Panel Integrated Satellite Communication Terminal	Temperature	25°C
Test Engineer	Bruce Wang	Relative Humidity	52%
Test Site	TR3	Test Date	2019/08/03 ~ 2019/08/05

For Low Data Rate:

Test Mode	Date Rate (kbps)	Channel	Test Frequency (MHz)	99% Bandwidth (MHz)
BPSK	256	Low	13750	0.7350
	256	Mid	14250	0.7456
	256	High	14500	0.6449
1/2 BPSK	256	Low	13750	1.5062
	256	Mid	14250	1.5175
	256	High	14500	1.3817
5/16 BPSK	256	Low	13750	2.4040
	256	Mid	14250	2.4237
	256	High	14500	2.1693
21/44 BPSK	256	Low	13750	1.5527
	256	Mid	14250	1.5708
	256	High	14500	1.3801
QPSK	256	Low	13750	0.3268
	256	Mid	14250	0.3293
	256	High	14500	0.2561
1/2 QPSK	256	Low	13750	0.5946
	256	Mid	14250	0.6445
	256	High	14500	0.4474
3/4 QPSK	256	Low	13750	0.4232
	256	Mid	14250	0.4288
	256	High	14500	0.3409
7/8 QPSK	256	Low	13750	0.3655
	256	Mid	14250	0.3767
	256	High	14500	0.2872
21/44 QPSK	256	Low	13750	0.6374
	256	Mid	14250	0.6602
	256	High	14500	0.4812

Test Mode	Date Rate (kbps)	Channel	Test Frequency (MHz)	99% Bandwidth (MHz)
OQPSK	256	Low	13750	0.2537
	256	Mid	14250	0.2584
	256	High	14500	0.2212
1/2 OQPSK	256	Low	13750	0.4824
	256	Mid	14250	0.4984
	256	High	14500	0.4249
3/4 OQPSK	256	Low	13750	0.3423
	256	Mid	14250	0.3435
	256	High	14500	0.3011
7/8 OQPSK	256	Low	13750	0.2904
	256	Mid	14250	0.3025
	256	High	14500	0.2644
21/44 OQPSK	256	Low	13750	0.5117
	256	Mid	14250	0.5164
	256	High	14500	0.4529

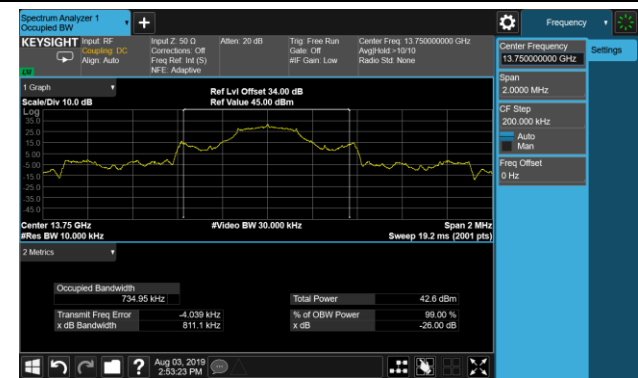
For High Data Rate:

Test Mode	Date Rate (kbps)	Channel	Test Frequency (MHz)	99% Bandwidth (MHz)
BPSK	3000	Low	13750	8.2248
	3000	Mid	14250	8.4459
	3000	High	14500	7.0144
1/2 BPSK	1500	Low	13750	8.4119
	1500	Mid	14250	8.3290
	1500	High	14500	6.1539
5/16 BPSK	937.5	Low	13750	8.1879
	937.5	Mid	14250	8.4664
	937.5	High	14500	7.3414
21/44 BPSK	1431.818	Low	13750	8.2129
	1431.818	Mid	14250	8.5373
	1431.818	High	14500	7.1018
QPSK	5000	Low	13750	5.9344
	5000	Mid	14250	6.2628
	5000	High	14500	4.5060
1/2 QPSK	3000	Low	13750	6.9289
	3000	Mid	14250	7.5014
	3000	High	14500	5.7795
3/4 QPSK	4500	Low	13750	6.8862
	4500	Mid	14250	7.3042
	4500	High	14500	5.2955
7/8 QPSK	5000	Low	13750	6.4426
	5000	Mid	14250	6.7356
	5000	High	14500	5.0406
21/44 QPSK	2863.636	Low	13750	6.5693
	2863.636	Mid	14250	7.3288
	2863.636	High	14500	5.6342

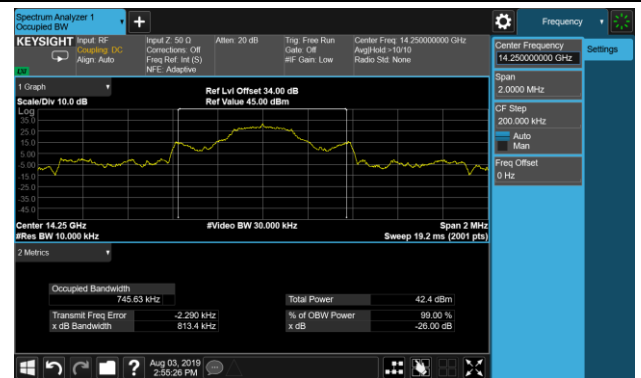
Test Mode	Date Rate (kbps)	Channel	Test Frequency (MHz)	99% Bandwidth (MHz)
OQPSK	5000	Low	13750	4.7644
	5000	Mid	14250	4.8476
	5000	High	14500	4.2425
1/2 OQPSK	3000	Low	13750	5.6511
	3000	Mid	14250	5.8136
	3000	High	14500	5.1734
3/4 OQPSK	4500	Low	13750	5.7705
	4500	Mid	14250	5.9470
	4500	High	14500	5.1878
7/8 OQPSK	5000	Low	13750	5.5459
	5000	Mid	14250	5.6181
	5000	High	14500	4.8538
21/44 OQPSK	2863.636	Low	13750	5.4872
	2863.636	Mid	14250	5.8319
	2863.636	High	14500	5.1515

BPSK (256kbps) - 99% Bandwidth

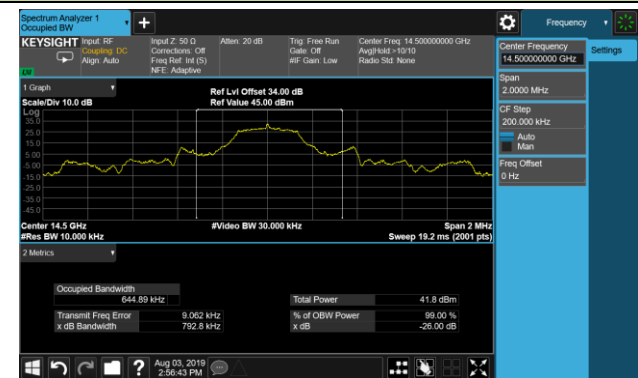
Low Channel (13750MHz)



Mid Channel (14250MHz)

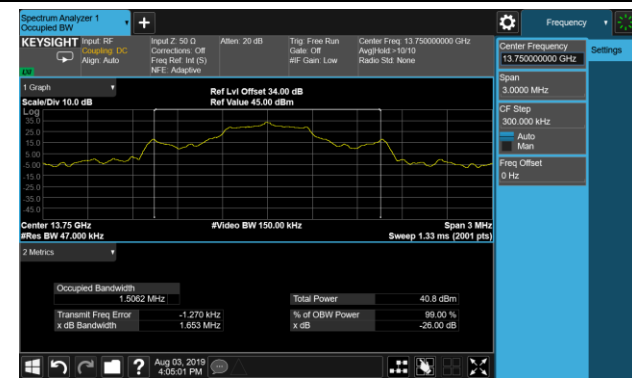


High Channel (14500MHz)

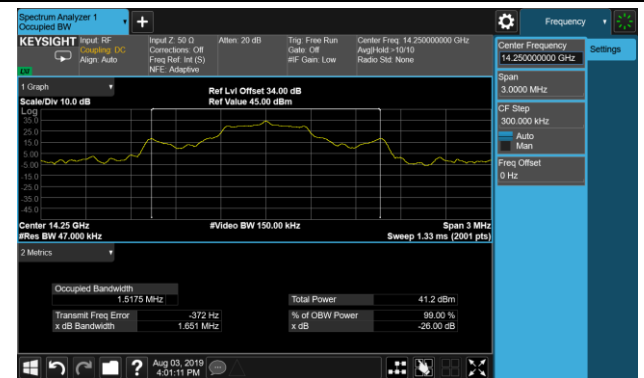


1/2 BPSK (256kbps) - 99% Bandwidth

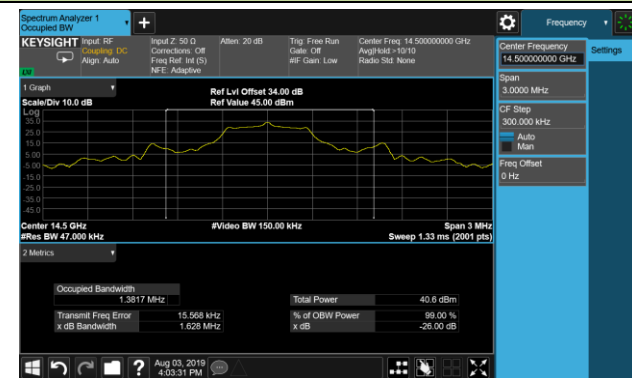
Low Channel (13750MHz)



Mid Channel (14250MHz)

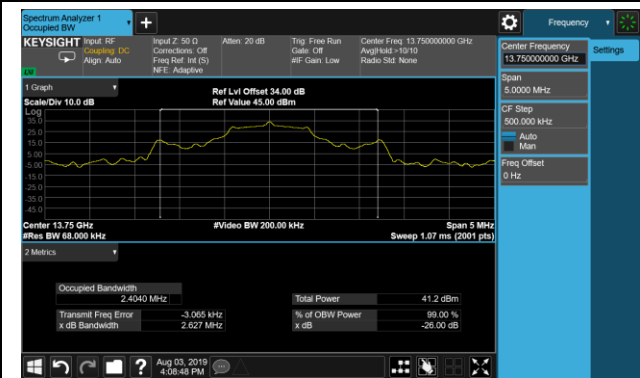


High Channel (14500MHz)

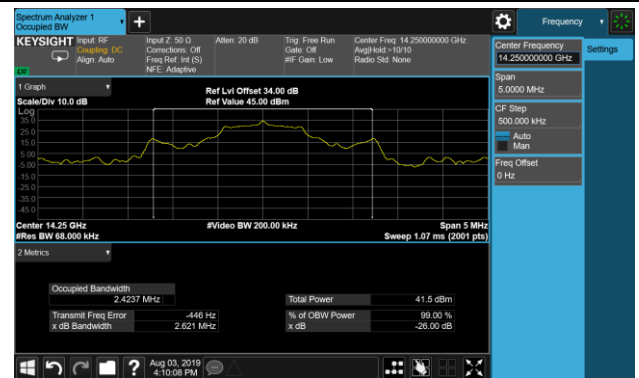


5/16 BPSK (256kbps) - 99% Bandwidth

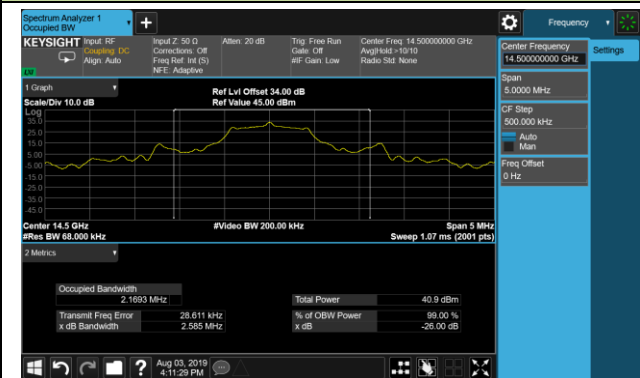
Low Channel (13750MHz)



Mid Channel (14250MHz)

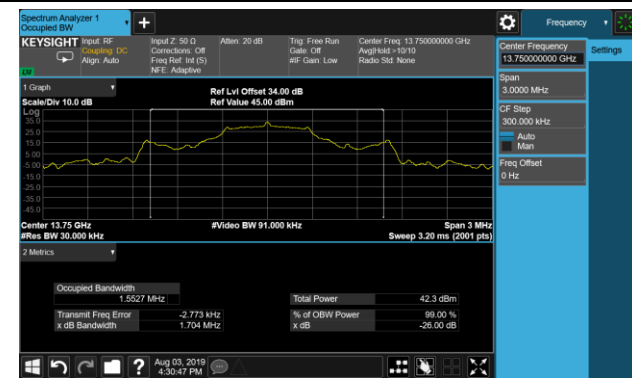


High Channel (14500MHz)

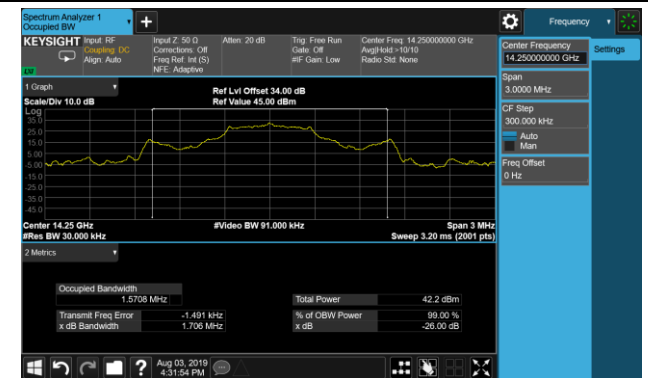


21/44 BPSK (256kbps) - 99% Bandwidth

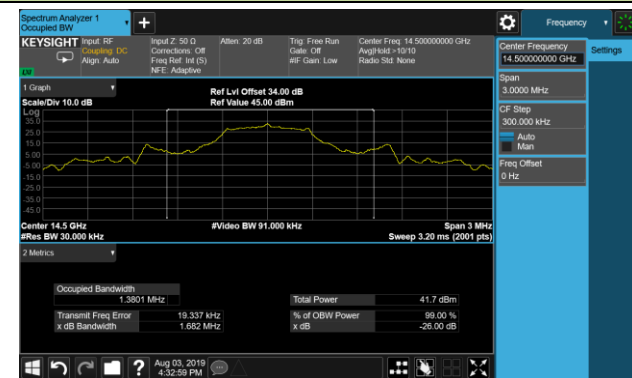
Low Channel (13750MHz)



Mid Channel (14250MHz)

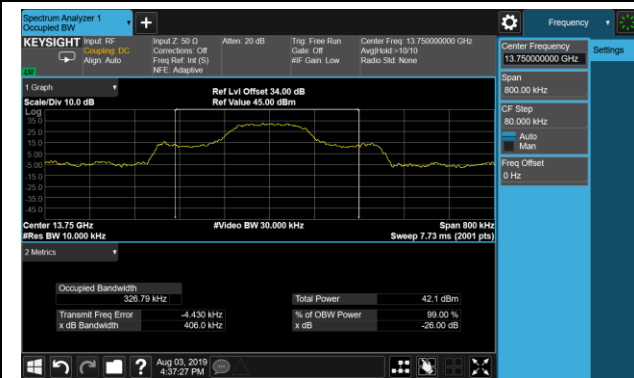


High Channel (14500MHz)

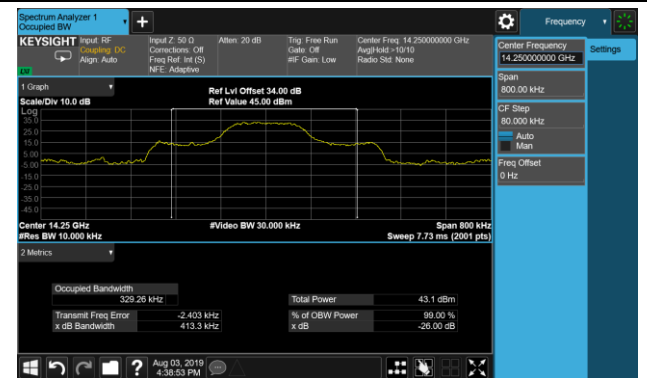


QPSK (256kbps) - 99% Bandwidth

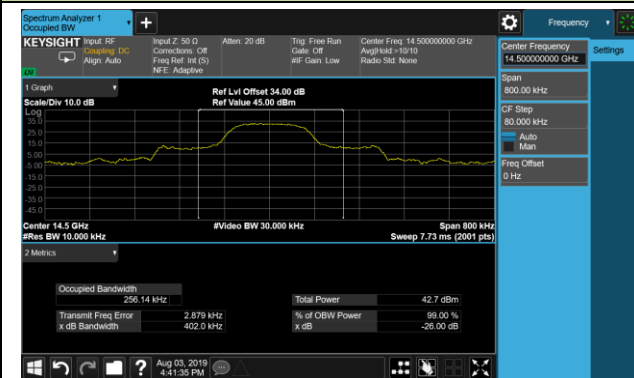
Low Channel (13750MHz)



Mid Channel (14250MHz)

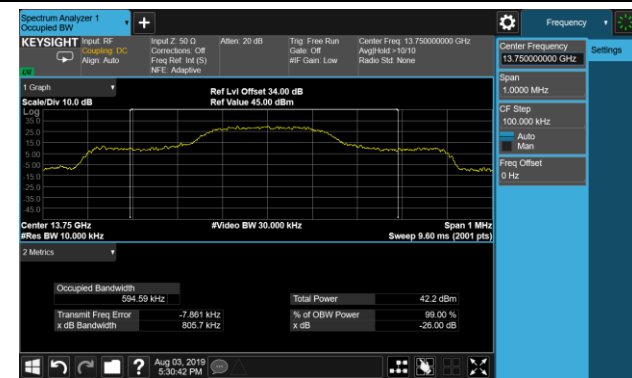


High Channel (14500MHz)



1/2 QPSK (256kbps) - 99% Bandwidth

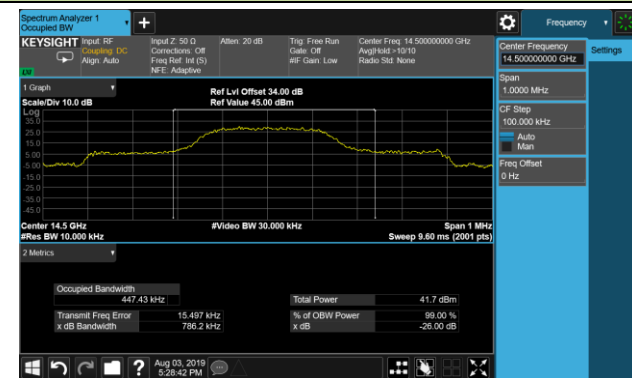
Low Channel (13750MHz)



Mid Channel (14250MHz)

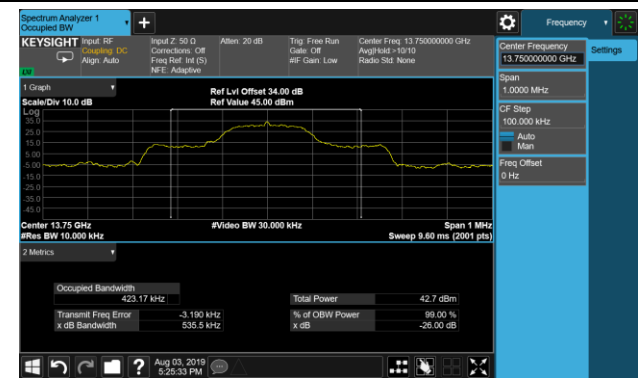


High Channel (14500MHz)

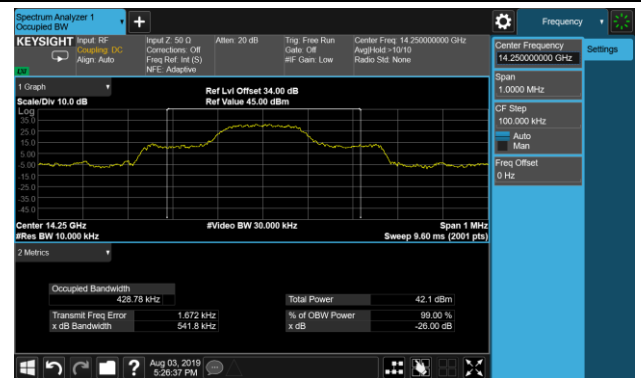


3/4 QPSK (256kbps) - 99% Bandwidth

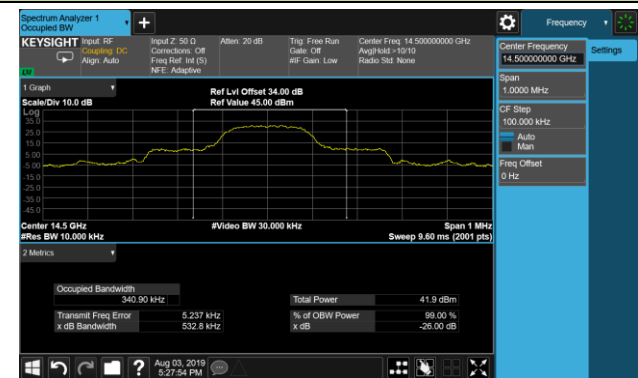
Low Channel (13750MHz)



Mid Channel (14250MHz)

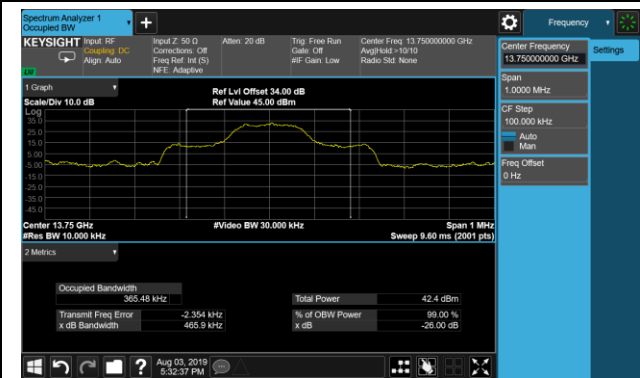


High Channel (14500MHz)

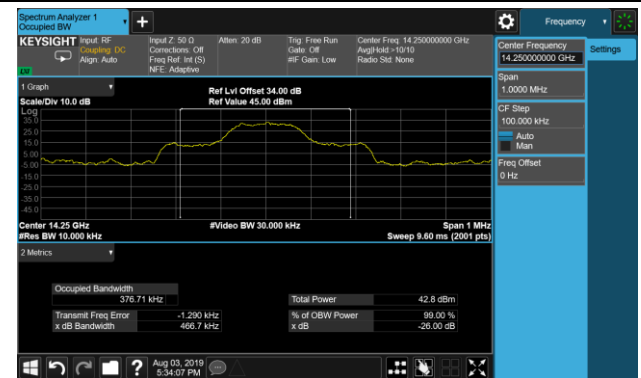


7/8 QPSK (256kbps) - 99% Bandwidth

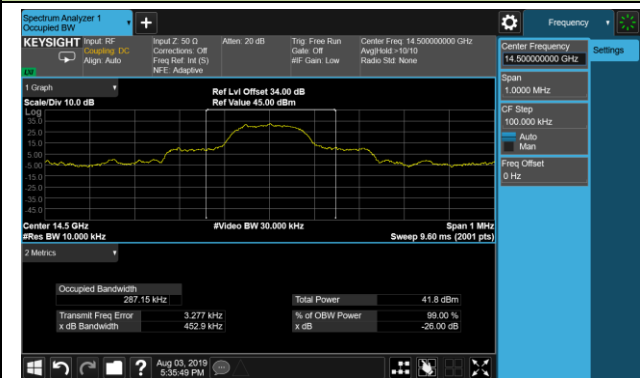
Low Channel (13750MHz)



Mid Channel (14250MHz)



High Channel (14500MHz)



21/44 QPSK (256kbps) - 99% Bandwidth

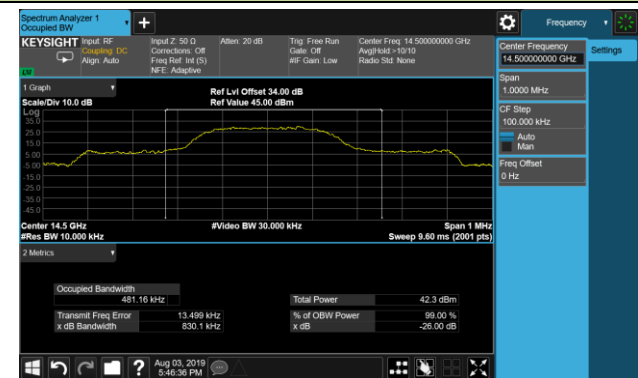
Low Channel (13750MHz)



Mid Channel (14250MHz)

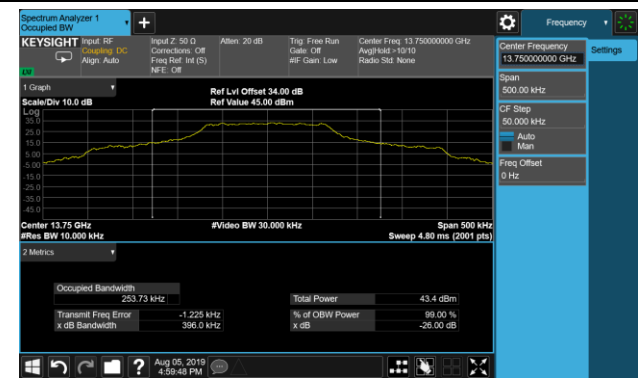


High Channel (14500MHz)

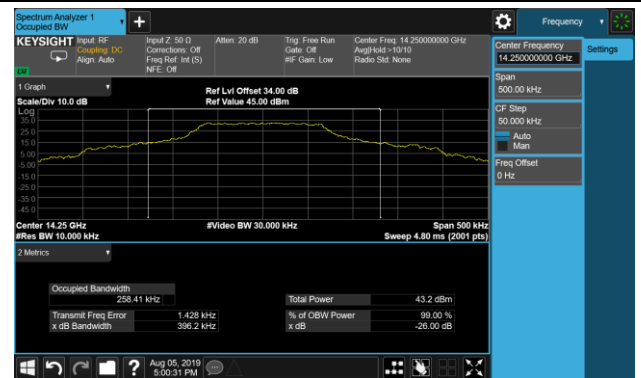


OQPSK (256kbps) - 99% Bandwidth

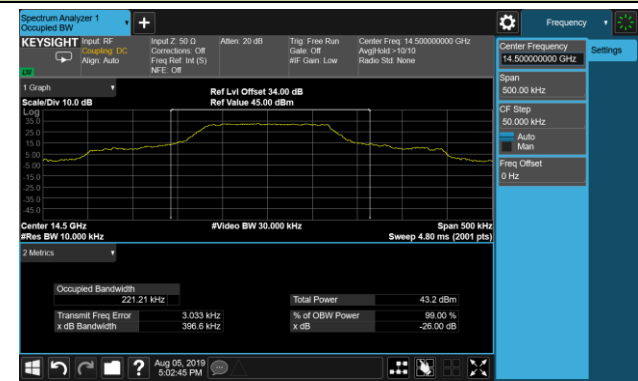
Low Channel (13750MHz)



Mid Channel (14250MHz)

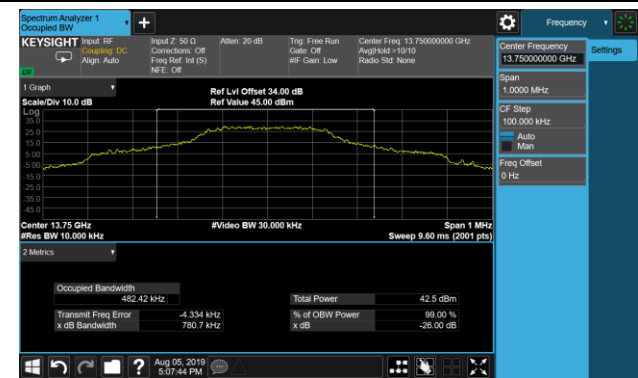


High Channel (14500MHz)

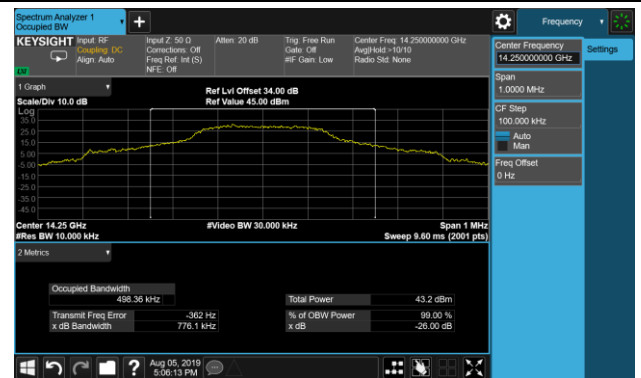


1/2 OQPSK (256kbps) - 99% Bandwidth

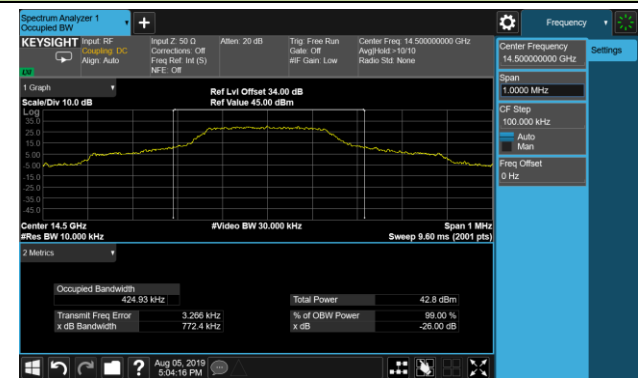
Low Channel (13750MHz)



Mid Channel (14250MHz)

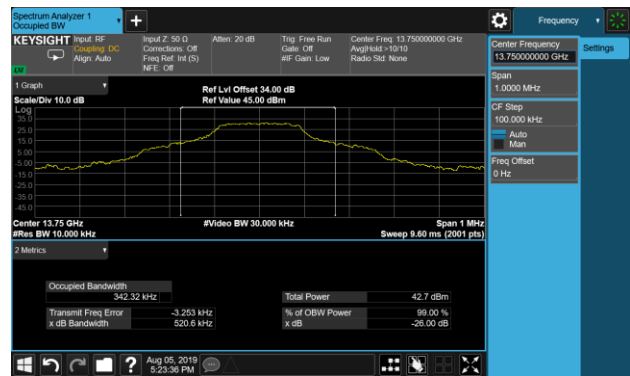


High Channel (14500MHz)

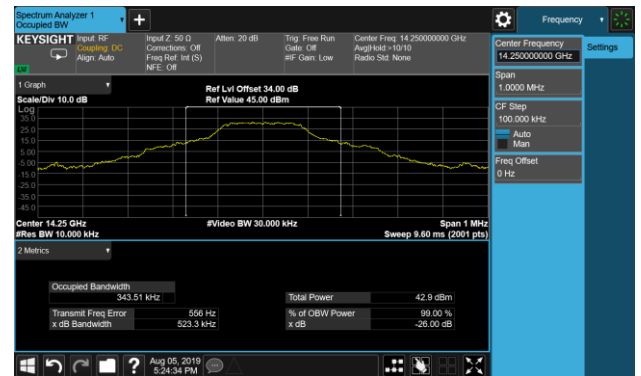


3/4 OQPSK (256kbps) - 99% Bandwidth

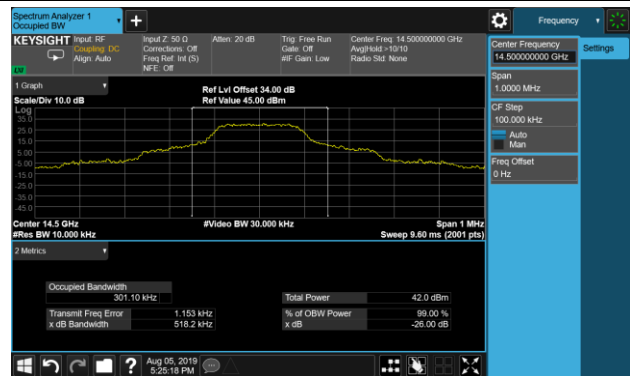
Low Channel (13750MHz)



Mid Channel (14250MHz)

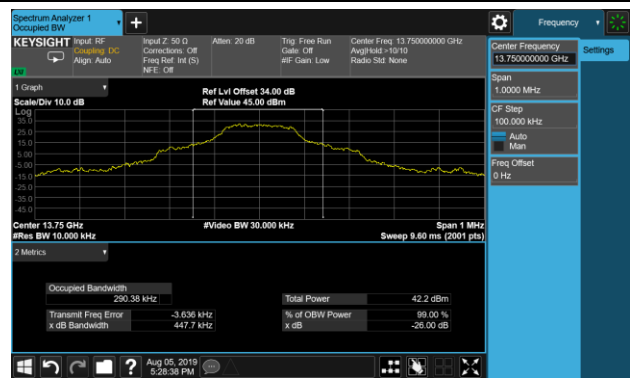


High Channel (14500MHz)

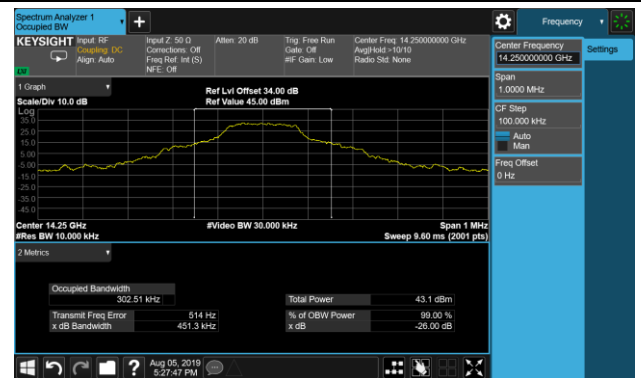


7/8 OQPSK (256kbps) - 99% Bandwidth

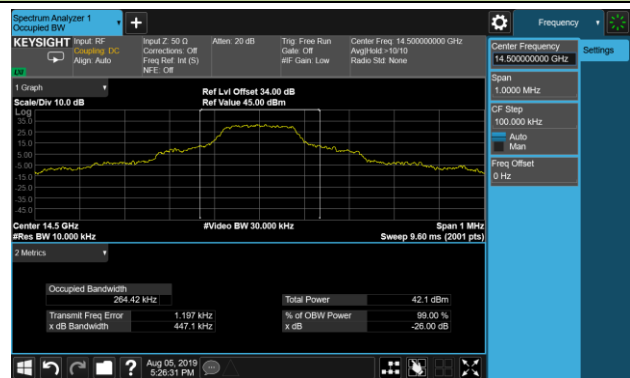
Low Channel (13750MHz)



Mid Channel (14250MHz)

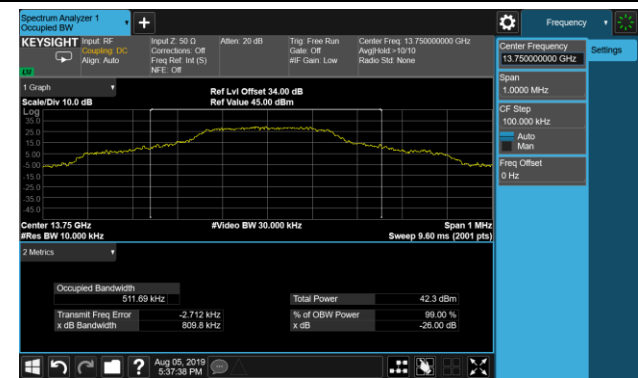


High Channel (14500MHz)

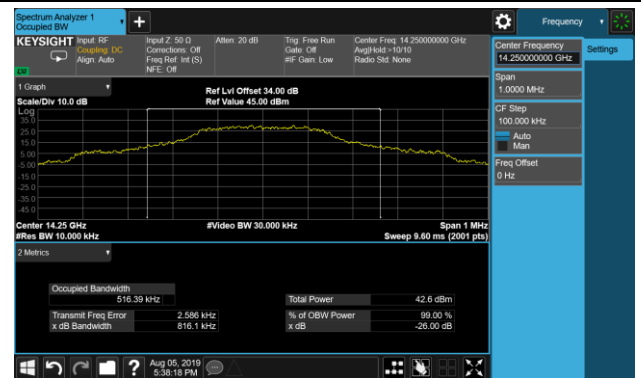


21/44 OQPSK (256kbps) - 99% Bandwidth

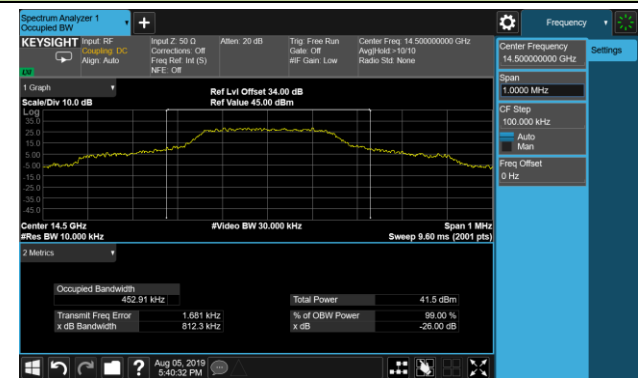
Low Channel (13750MHz)



Mid Channel (14250MHz)

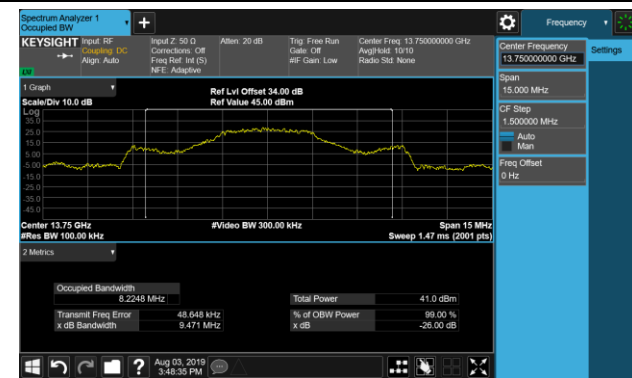


High Channel (14500MHz)

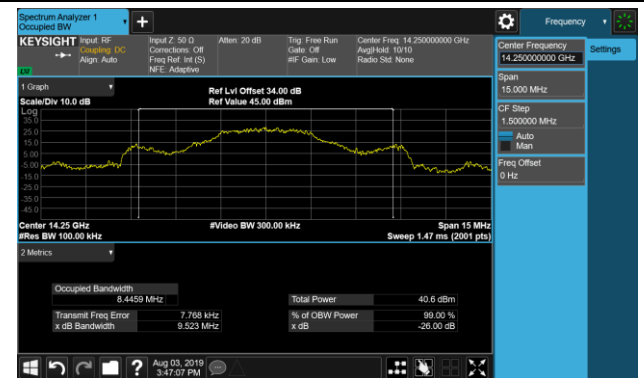


BPSK (3000kbps) - 99% Bandwidth

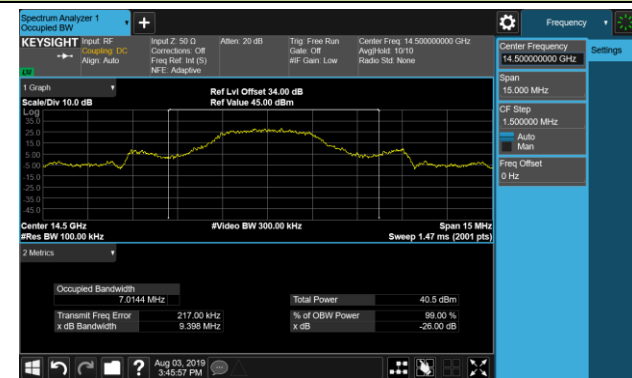
Low Channel (13750MHz)



Mid Channel (14250MHz)

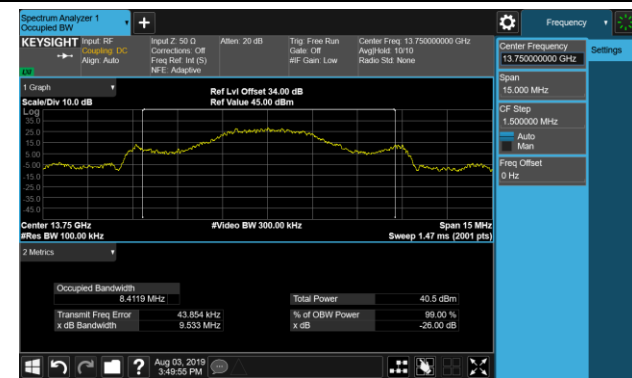


High Channel (14500MHz)

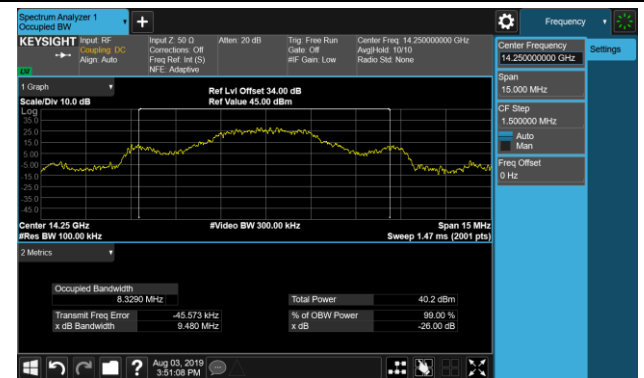


1/2 BPSK (1500kbps) - 99% Bandwidth

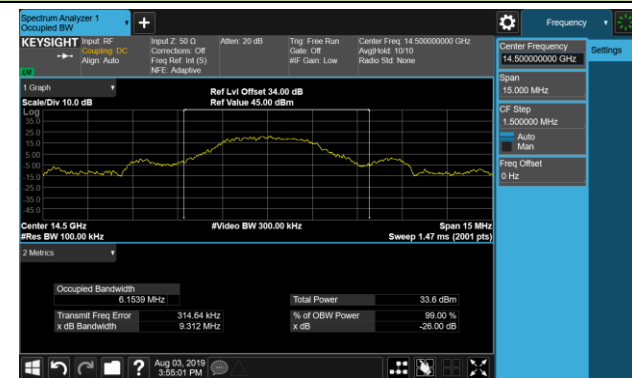
Low Channel (13750MHz)



Mid Channel (14250MHz)

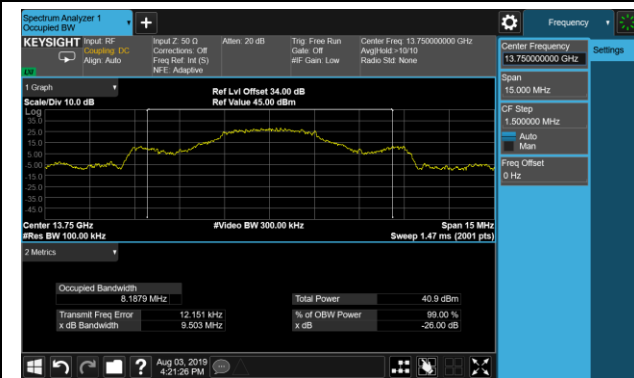


High Channel (14500MHz)

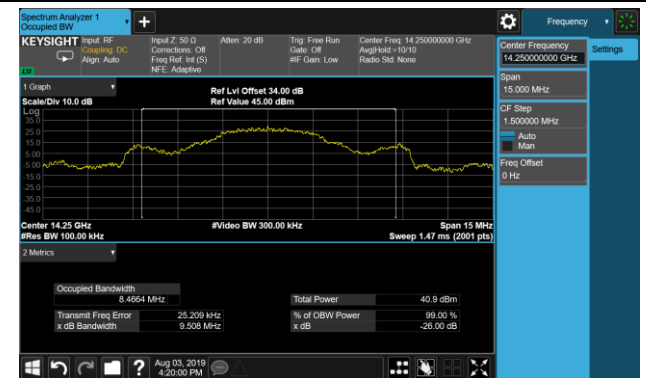


5/16 BPSK (937.5kbps) - 99% Bandwidth

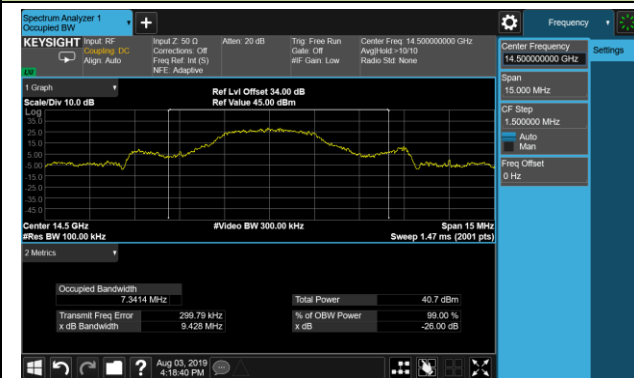
Low Channel (13750MHz)



Mid Channel (14250MHz)

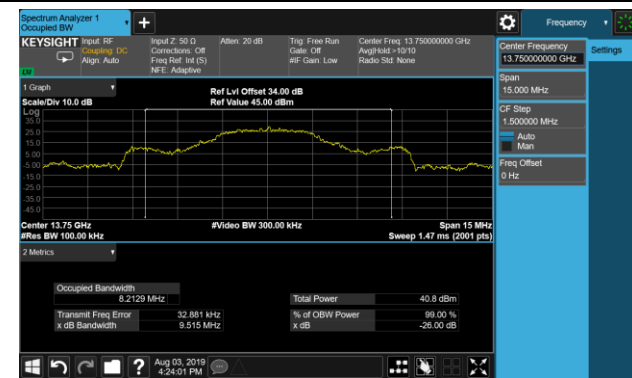


High Channel (14500MHz)

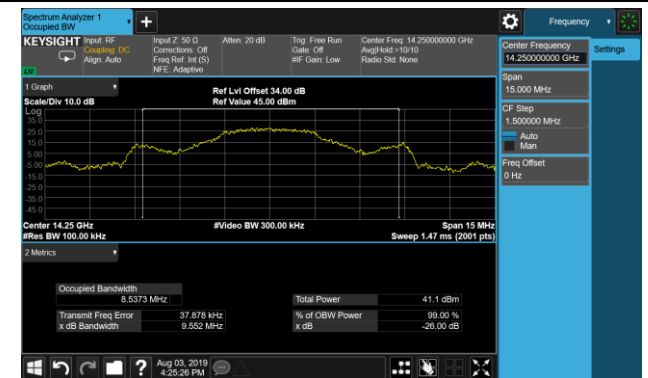


21/44 BPSK (1431.818kbps) - 99% Bandwidth

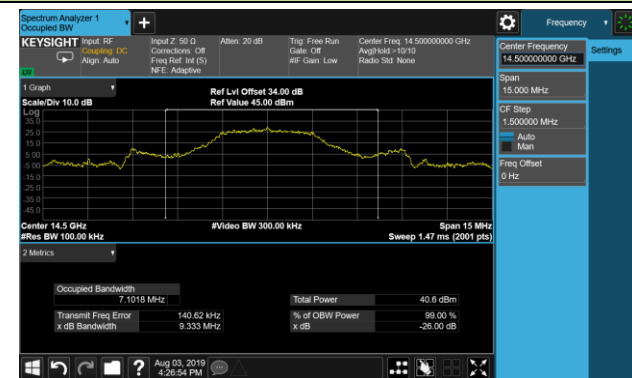
Low Channel (13750MHz)



Mid Channel (14250MHz)

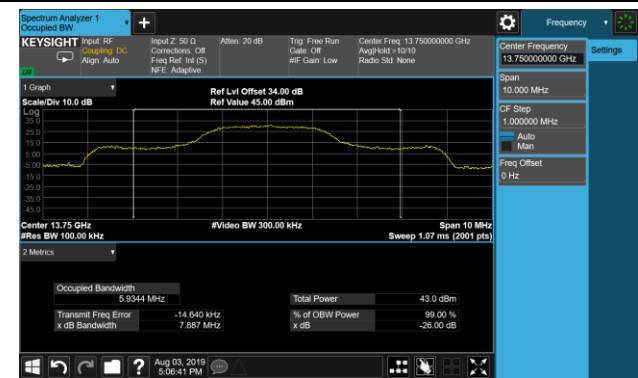


High Channel (14500MHz)

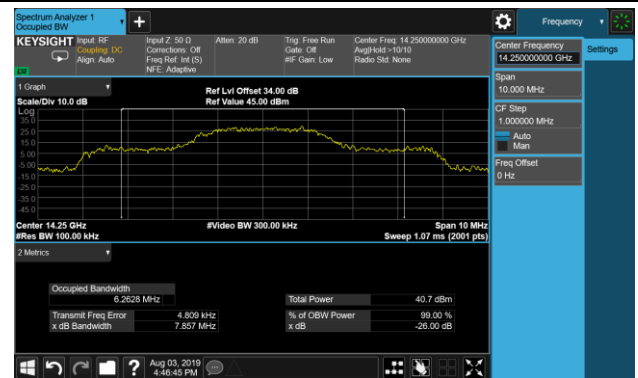


QPSK (5000kbps) - 99% Bandwidth

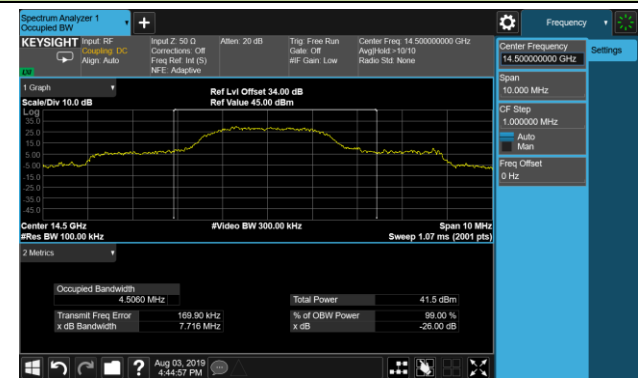
Low Channel (13750MHz)



Mid Channel (14250MHz)

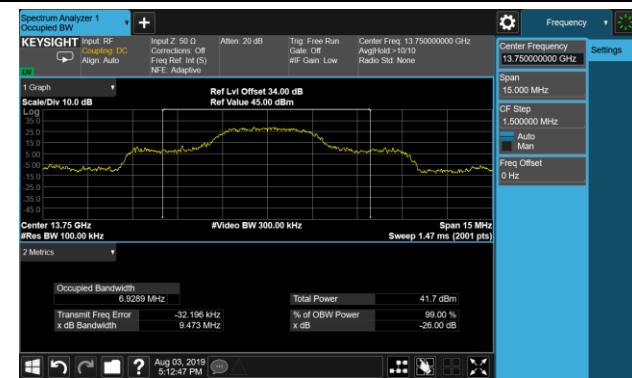


High Channel (14500MHz)

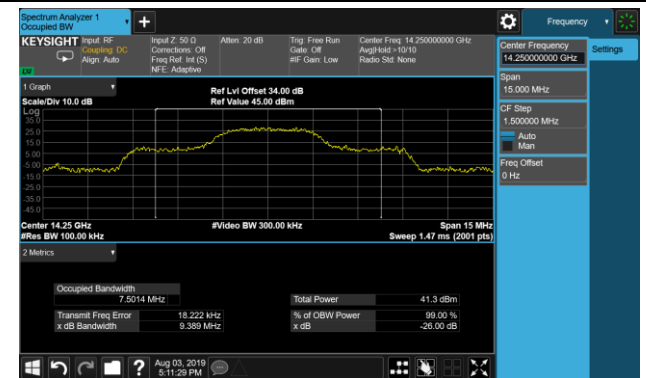


1/2 QPSK (3000kbps) - 99% Bandwidth

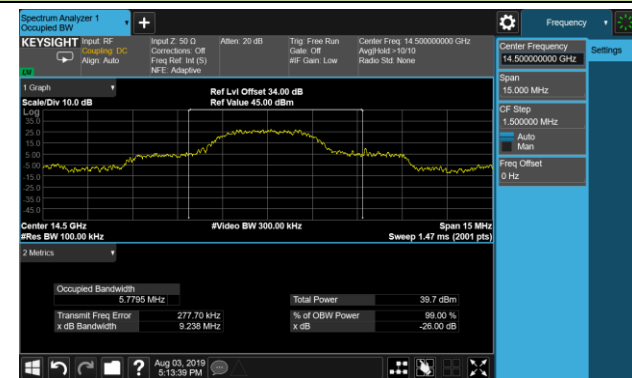
Low Channel (13750MHz)



Mid Channel (14250MHz)

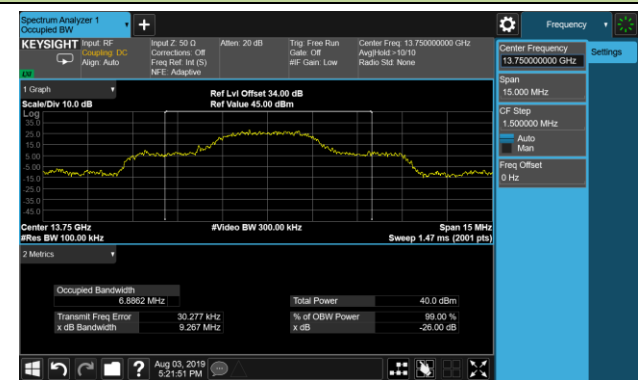


High Channel (14500MHz)

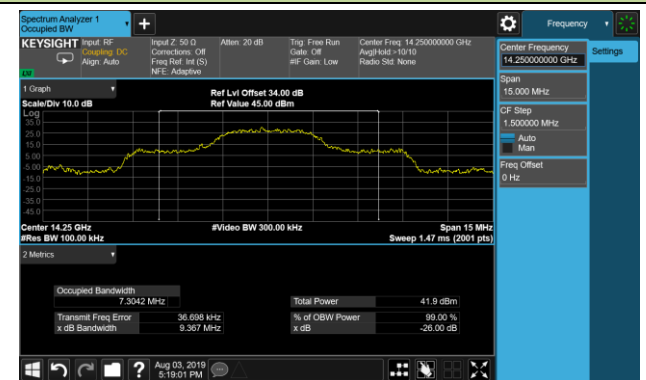


3/4 QPSK (4500kbps) - 99% Bandwidth

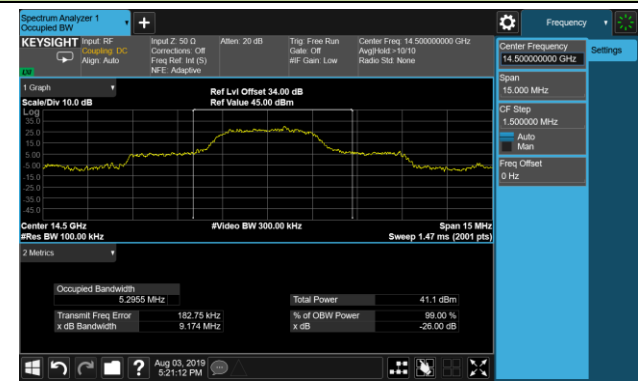
Low Channel (13750MHz)



Mid Channel (14250MHz)

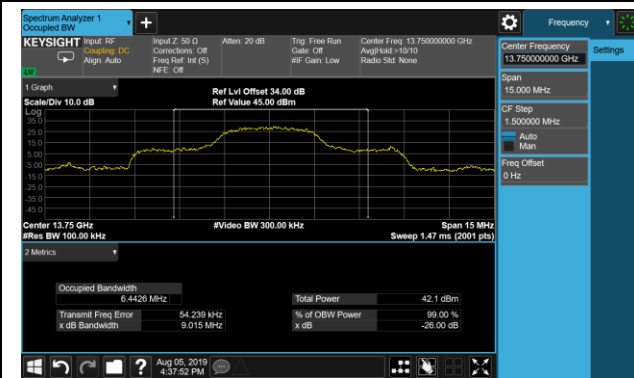


High Channel (14500MHz)

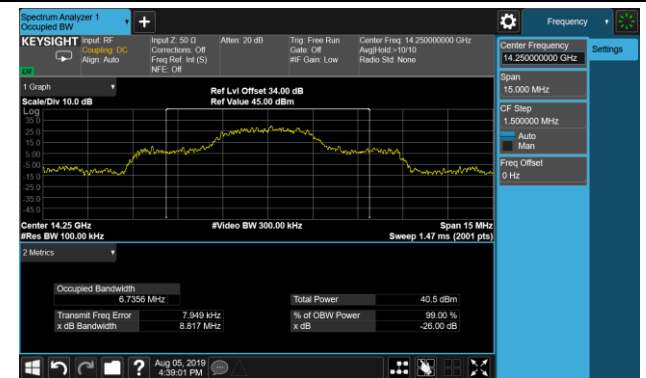


7/8 QPSK (5000kbps) - 99% Bandwidth

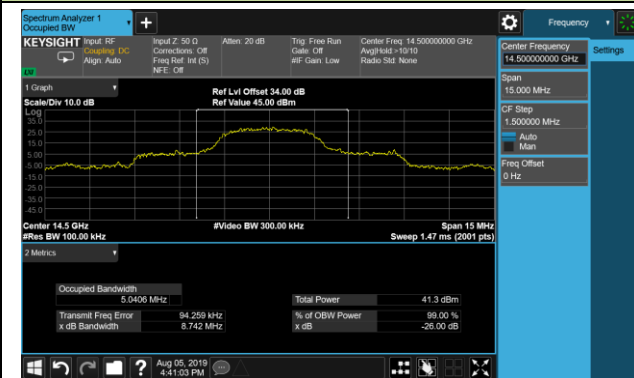
Low Channel (13750MHz)



Mid Channel (14250MHz)

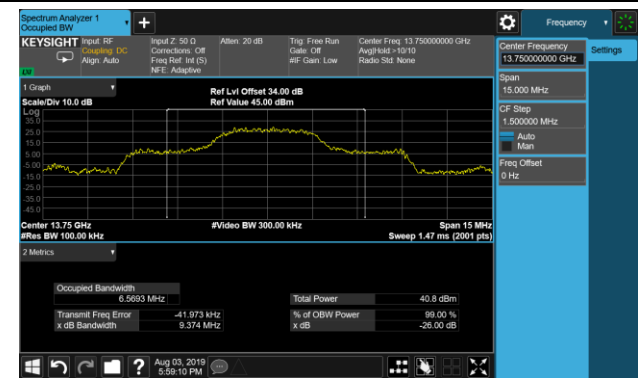


High Channel (14500MHz)

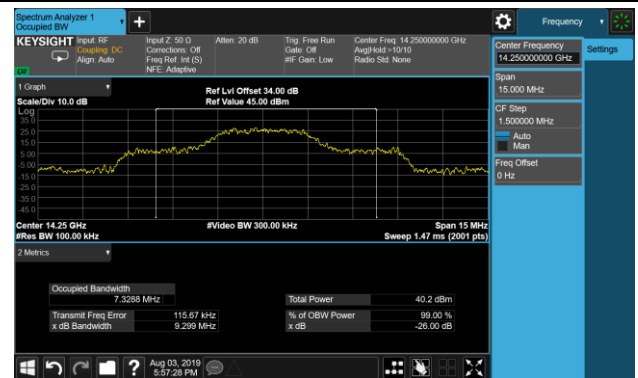


21/44 QPSK (2863.636kbps) - 99% Bandwidth

Low Channel (13750MHz)



Mid Channel (14250MHz)



High Channel (14500MHz)

