FCC 47 CFR PART 22 SUBPART H AND PART 24 SUBPART E
+
INDUSTRY CANADA RSS-132 & RSS-133

TEST REPORT

For

Tablet PC

Model No.:
FCC: AIM-75S-6; AIM-75H-6; AIM-75S-6XXXXXXXXXXXXXXXX; AIM-75H-6XXXXXXXXXXXXXXXX; AIM75S-6XXXXXXXXXXXXXXXX; AIM75H-6XXXXXXXXXXXXXXXX (where "X" may be any alphanumeric character, "-" or blank)

IC: AIM-75S-6; AIM-75H-6

Trade Name: ADVANTECH

Issued to

Advantech Co., Ltd.
No. 1, Alley 20, Lane 26, Rueiguang Road, Neihu District, Taipei 114, Taiwan, R.O.C.

Issued by

Compliance Certification Services Inc.
Wugu Laboratory
No.11, Wugong 6th Rd., Wugu Dist.,
New Taipei City 24891, Taiwan. (R.O.C.)
Issued Date: September 7, 2021

Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
00	September 7, 2021	Initial Issue	ALL	Doris Chu

TABLE OF CONTENTS

1. TEST RESULT CERTIFICATION 4

2. EUT DESCRIPTION 6

3. TEST METHODOLOGY 9

3.1 EUT CONFIGURATION 9
3.2 DESCRIPTION OF TEST MODES 9

4. TEST SUMMERY 11

5. INSTRUMENT CALIBRATION 12

5.1 MEASURING INSTRUMENT CALIBRATION 12
5.2 MEASUREMENT EQUIPMENT USED 12
5.3 MEASUREMENT UNCERTAINTY 14

6. FACILITIES AND ACCREDITATIONS 15

6.1 FACILITIES 15
6.2 EQUIPMENT 15
6.3 LABORATORY ACCREDITATIONS AND LISTING 15

7. SETUP OF EQUIPMENT UNDER TEST 16

7.1 SETUP CONFIGURATION OF EUT 16
7.2 SUPPORT EQUIPMENT 16

8. FCC PART 22 & 24 REQUIREMENTS & INDUSTRY CANADA RSS-132 & RSS-133. 17

8.1 ERP & EIRP MEASUREMENT 17
8.2 FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT 28
8.3 OCCUPIED BANDWIDTH MEASUREMENT 31
8.4 PEAK TO AVERAGE POWER RATIO 95
8.5 OUT OF BAND EMISSION AT ANTENNA TERMINALS 118
8.6 SPURIOUS RADIATION MEASUREMENT 159

9. APPENDIX A PHOTOGRAPHS OF TEST SETUP A-1

APPENDIX 1 - PHOTOGRAPHS OF EUT

1. TEST RESULT CERTIFICATION

Applicant:	Advantech Co., Ltd. No. 1, Alley 20, Lane 26, Rueiguang Road, Neihu District, Taipei 114, Taiwan, R.O.C.
Manufacturer:	Advantech Co., Ltd. No. 1, Alley 20, Lane 26, Rueiguang Road, Neihu District, Taipei 114, Taiwan, R.O.C.
Equipment Under Test:	Tablet PC
Trade Name:	ADVANTECH
Model No.:	FCC: AIM-75S-6; AIM-75H-6; AIM-75S-6XXXXXXXXXXXXXXX; AIM-75H-6XXXXXXXXXXXXXXX; AIM75S-6XXXXXXXXXXXXXXX; AIM75H-6XXXXXXXXXXXXXXX (where “X” may be any alphanumeric character, “-” or blank) IC: AIM-75S-6; AIM-75H-6
Date of Test:	December 14, 2020 ~ August 20, 2021

APPLICABLE STANDARDS	
STANDARD	**TEST RESULT**
FCC 47 CFR PART 22 SUBPART H AND PART 24 SUBPART E + RSS-132 Issue 3 and RSS-133 Issue 6	No non-compliance noted
Statements of Conformity	
Determination of compliance is based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.	

We hereby certify that:

The above equipment was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in TIA -603-E and the energy emitted by the sample EUT tested as described in this report is in compliance with radiated emission limits of FCC Rule FCC PART 22 Subpart H, PART 24 Subpart E and IC RSS-132 Issue 3 and IC RSS-133 Issue 6.

Approved by:

Kevin Tsai
Deputy Manager
Compliance Certification Services Inc.

2. EUT DESCRIPTION

Product	Tablet PC	
Model No.	FCC: AIM-75S-6; AIM-75H-6; AIM-75S-6XXXXXXXXXXXXXXX; AIM-75H-6XXXXXXXXXXXXXXX; AIM75S-6XXXXXXXXXXXXXXX; AIM75H-6XXXXXXXXXXXXXXX (where "X" may be any alphanumeric character, "-" or blank) IC: AIM-75S-6; AIM-75H-6	
Model Discrepancy	Please see remark as below.	
Trade	ADVANTECH	
Received Date	November 2, 2020	
Power Supply	1. EUT Power by Adapter. (1) FSP / FSP045-A1BR I/P: 100-240Vac, 50-60Hz, 1.2A O/P: 5Vdc, 3.0A, 15.0W; 9.0Vdc, 3.0A, 27.0W; 12.0Vdc, 3.0A, 36.0W; 15.0Vdc, 3.0A, 45.0W; 20.0Vdc, 2.25A, 45.0W (2) GlobTek, Inc / GTM96605-GEN2-A1-T2 I/P: 100-240Vac, 50-60Hz, 1.5A O/P: 5Vdc, 4.6A; 5.8Vdc, 4.6A; 9Vdc, 4.4A; 12Vdc, 4A; 15Vdc, 3.6A; 20Vdc, 3A (3) DELTA / MEA-045AA2C I/P: 100-240V~1.0A Max. 50-60Hz O/P: 5VDC, 3A; 9VDC, 3A; 10VDC, 3A; 12VDC, 3A; 15VDC, 3A; 20VDC, 2.25A 2. EUT Power by Rechargeable Li-ion Battery. ADVANTECH / AIM-BAT-8 Rating: 3.8Vdc, 4900mAh, 18.62Wh	
Frequency Range	LTE Band 2 Channel Bandwidth: 1.4MHz	1850.7MHz ~ 1909.3 MHz
	LTE Band 2 Channel Bandwidth: 3MHz	1851.5 MHz ~ 1908.5 MHz
	LTE Band 2 Channel Bandwidth: 5MHz	1852.5MHz ~1907.5MHz
	LTE Band 2 Channel Bandwidth: 10MHz	1855MHz ~1905MHz
	LTE Band 2 Channel Bandwidth: 15MHz	1857.5 MHz ~ 1902.5 MHz
	LTE Band 2 Channel Bandwidth: 20MHz	1860MHz ~1900MHz
	LTE Band 5 Channel Bandwidth: 1.4MHz	824.7MHz ~848.3MHz
	LTE Band 5 Channel Bandwidth: 3MHz	825.5 MHz ~ 847.5 MHz
	LTE Band 5 Channel Bandwidth: 5MHz	826.5MHz ~846.5MHz
	LTE Band 5 Channel Bandwidth: 10MHz	829MHz ~844MHz

Modulation Technique	LTE Band 2	QPSK, 16QAM, 64QAM			
	LTE Band 5	QPSK, 16QAM, 64QAM			
Antenna Specification	Antenna type: PIFA 1. YAGEO / 6036B0281601 / Main (TX) Band 2: 2.14 dBi Band 5: -0.97 dBi 2. YAGEO / 6036B0281701 / Aux Band 2: 0.76 dBi Band 5: 0.38 dBi				
Transmit Power (EIRP Power)	LTE Band 2 Channel Bandwidth: 1.4MHz	QPSK:	25.90	dBm	
		16QAM:	25.11	dBm	
		64QAM:	23.99	dBm	
	LTE Band 2 Channel Bandwidth: 3MHz	QPSK:	25.91	dBm	
		16QAM:	25.12	dBm	
		64QAM:	24.02	dBm	
	LTE Band 2 Channel Bandwidth: 5MHz	QPSK:	25.96	dBm	
		16QAM:	25.09	dBm	
		64QAM:	24.01	dBm	
	LTE Band 2 Channel Bandwidth: 10MHz	QPSK:	25.98	dBm	
		16QAM:	25.12	dBm	
		64QAM:	24.10	dBm	
	LTE Band 2 Channel Bandwidth: 15MHz	QPSK:	25.99	dBm	
		16QAM:	25.00	dBm	
		64QAM:	24.05	dBm	
	LTE Band 2 Channel Bandwidth: 20MHz	QPSK:	26.02	dBm	
		16QAM:	25.04	dBm	
		64QAM:	24.03	dBm	
	LTE Band 5 Channel Bandwidth: 1.4MHz	QPSK:	21.76	dBm	
		16QAM:	21.01	dBm	
		64QAM:	20.92	dBm	
	LTE Band 5 Channel Bandwidth: 3MHz	QPSK:	21.84	dBm	
		16QAM:	21.11	dBm	
		64QAM:	21.02	dBm	
	LTE Band 5 Channel Bandwidth: 5MHz	QPSK:	21.91	dBm	
		16QAM:	21.21	dBm	
		64QAM:	20.98	dBm	
	LTE Band 5 Channel Bandwidth: 10MHz	QPSK:	21.99	dBm	
		16QAM:	21.44	dBm	
		64QAM:	20.91	dBm	

Transmit Power (ERP Power)	LTE Band 5 Channel Bandwidth: 1.4MHz	QPSK: 16QAM: 64QAM:	19.61 18.86 18.77	dBm dBm dBm
	LTE Band 5 Channel Bandwidth: 3MHz	QPSK: 16QAM: 64QAM:	19.69 18.96 18.87	dBm dBm dBm
	LTE Band 5 Channel Bandwidth: 5MHz	QPSK: 16QAM: 64QAM:	19.76 19.06 18.83	dBm dBm dBm
	LTE Band 5 Channel Bandwidth: 10MHz	QPSK: 16QAM: 64QAM:	19.84 19.29 18.76	dBm dBm dBm
HW Version	AX2			
SW Version	0.3.6.9_20201021.021551			
EUT Serial #	200CT32E00162			
Module	Quectel / EM06-A			

Remark:
1. For more details, refer to the User's manual of the EUT.
2. Disclaimer: Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.
3. Disclaimer: Variant information between/among model numbers / trademarks are provided by the applicant, test results of this report are applicable to the sample EUT received of main test model name.
4. Model Discrepancy:

Model	Adapter	Tablet color
AIM-75H-6	1. GlobTek, Inc / GTM96605-GEN2-A1-T2 I/P: 100-240VAC, 50-60Hz, 1.5A O/P: 5VDC, 4.6A; 5.8VDC, 4.6A; 9VDC, 4.4A; 12VDC, 4A; 15VDC, 3.6A; 20VDC, 3A 2. DELTA / MEA-045AA2C IP: 100-240V~1.0A Max. 50-60Hz O/P: 5VDC, 3A; 9VDC, 3A; 10VDC, 3A; 12VDC, 3A; 15VDC, 3A; 20VDC, 2.25A	White
AIM-75S-6	1. FSP / FSP045-A1BR I/P: 100-240VAC, 50-60Hz, 1.2A O/P: 5.0VDC, 3.0A 15.0W; 9.0VDC, 3.0A 27.0W; 12.0VDC, 3.0A 36.0W; 15.0VDC, 3.0A 45.0W; 20.0VDC, 2.25A 45.0W	Black
AIM-75S-6XXXXXXXXXXXXXXXX; AIM-75H-6XXXXXXXXXXXXXXXX; AIM75S-6XXXXXXXXXXXXXXXX; AIM75H-6XXXXXXXXXXXXXXXX (where "X" may be any alphanumeric character, "-" or blank)	All the above models are identical except for the designation of model numbers. The suffix of (where "X" may be any alphanumeric character , "-" or blank) on model number is just for marketing purpose only.	

3. TEST METHODOLOGY

Both conducted and radiated testing were performed according to ANSI C63.26, FCC CFR 47, Part 2 and Part 22 Subpart H & Part 24 Subpart E.

The tests documented in this report were performed in accordance with IC RSS-132, RSS-133 and ANSI C63.26: 2015.

3.1 EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

3.2 DESCRIPTION OF TEST MODES

The EUT (Model: AIM-75S-6) had been tested under operating condition.
The EUT be set in maximum power transmission via call box during testing.

LTE Band 2: 1850MHz ~ 1910MHz
Three channels had been tested for each channel bandwidth.

Channel	1.4MHz		3MHz		5MHz	
	Channel	Frequency(MHz)	Channel	Frequency(MHz)	Channel	Frequency(MHz)
Lowest	18607	1850.7	18615	1851.5	18625	1852.5
Middle	18900	1880.0	18900	1880.0	18900	1880.0
Highest	19193	1909.3	19185	1908.5	19175	1907.5
Channel	**10MHz**		**15MHz**		**20MHz**	
	Channel	**Frequency(MHz)**	**Channel**	**Frequency(MHz)**	**Channel**	**Frequency(MHz)**
Lowest	18650	1855.0	18675	1857.5	18700	1860.0
Middle	18900	1880.0	18900	1880.0	18900	1880.0
Highest	19150	1905.0	19125	1902.5	19100	1900.0

LTE Band 5: 824MHz ~ 849MHz
Three channels had been tested for each channel bandwidth.

Channel	1.4MHz		3MHz	
	Channel	Frequency(MHz)	Channel	Frequency(MHz)
Lowest	20407	824.7	20415	825.5
Middle	20525	836.5	20525	836.5
Highest	20634	848.3	20635	847.5
Channel	**5MHz**		**10MHz**	
	Channel	**Frequency(MHz)**	**Channel**	**Frequency(MHz)**
Lowest	20425	826.5	20450	829.0
Middle	20525	836.5	20525	836.5
Highest	20625	846.5	20600	844.0

3.2.1 The worst mode of measurement

Radiated Emission Measurement Above 1G	
Test Condition	**Radiated Emission Above 1G**
Power supply Mode	**Mode 1: EUT power by Adapter. (GlobTek)** **Mode 2: EUT power by Adapter. (FSP)** **Mode 3: EUT power by Adapter. (DELTA)** **Mode 4: EUT power by Battery**
Worst Mode	☐ **Mode 1** ☒ **Mode 2** ☐ **Mode 3** ☐ **Mode 4**
Worst Position	☐ **Placed in fixed position.** ☒ **Placed in fixed position at X-Plane (E2-Plane)** ☐ **Placed in fixed position at Y-Plane (E1-Plane)** ☐ **Placed in fixed position at Z-Plane (H-Plane)**

Radiated Emission Measurement Below 1G	
Test Condition	**Radiated Emission Below 1G**
Power supply Mode	**Mode 1: EUT power by Adapter. (GlobTek)** **Mode 2: EUT power by Adapter. (FSP)** **Mode 3: EUT power by Adapter. (DELTA)** **Mode 4: EUT power by Battery**
Worst Mode	☐ **Mode 1** ☒ **Mode 2** ☐ **Mode 3** ☐ **Mode 4**

Remark:
1. The worst mode was record in this test report.
2. EUT pre-scanned in three axis ,X,Y, Z and two polarity, for radiated measurement. The worst case(X-Plane) were recorded in this report

4. TEST SUMMERY

FCC Standard Sec.	IC Standard Sec.	Report Section	Test Item	Result
-	-	2	Antenna Requirement	Pass
22.913(a), 24.232(c)	RSS-132, section 5.4 RSS-133, section 6.4	8.1	ERP and EIRP Measurement	Pass
2.1055, 22.355, 24.235	RSS-132 section 5.3 RSS-133 section 6.3	8.2	Frequency Stability v.s. temperature measurement	Pass
2.1049	RSS-GEN 6.7	8.3	Occupied Bandwidth Measurement	Pass
22.913(d), 24.232(d)	RSS-132, section 5.4 RSS-133, section 6.4	8.4	Peak to Average Ratio	Pass
22.917(a), 24.238(a)	RSS-132 section 5.5 RSS-133 section 6.5	8.5	Out of Band Emission at Antenna Terminals	Pass
22.917(a), 24.238(a)	RSS-132 section 5.5 RSS-133 section 6.5	8.6	Spurious Radiation Measurement	Pass

5. INSTRUMENT CALIBRATION

5.1 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.

5.2 MEASUREMENT EQUIPMENT USED

Equipment Used for Emissions Measurement

Remark: *Each piece of equipment is scheduled for calibration once a year.*

RF Conducted Test Site					
Equipment	**Manufacturer**	**Model**	**S/N**	**Cal Date**	**Cal Due**
Coaxial Cable	Woken	WC12	CC003	06/29/2020	06/28/2021
Power Divider	Solvang Technology	STI08-0015	008	08/05/2020	08/04/2021
Radio Communication Analyzer	Anritsu	MT-8820C	6201240043	07/17/2020	07/16/2021
Thermostatic/Humidity Chamber	TAICHY	MHG-150LF	930619	09/24/2020	09/23/2021
EXA Signal Analyzer	KEYSIGHT	N9010B	MY55460167	09/07/2020	09/06/2021
Software	N/A				

Test date for August 20, 2021

RF Conducted Test Site					
Equipment	**Manufacturer**	**Model**	**S/N**	**Cal Date**	**Cal Due**
Coaxial Cable	Woken	WC12	CC003	06/28/2021	06/27/2022
Coaxial Cable	Woken	WC12	CC001	06/28/2021	06/27/2022
Power Divider	Solvang Technology	STI08-0015	008	07/26/2021	07/25/2022
Thermostatic/Humidity Chamber	TAICHY	MHG-150LF	930619	09/24/2020	09/23/2021
EXA Signal Analyzer	KEYSIGHT	N9010B	MY55460167	09/07/2020	09/06/2021
Wideband Radio Communication Tester	R&S	CMW 500	116875	07/06/2021	07/05/2022
Software	E3 6.11-20180413 & Radio Test Software Ver.21 & LTE Measurement_Power-Ver. 21				

3M 966 Chamber Test Site					
Equipment	**Manufacturer**	**Model**	**S/N**	**Cal Date**	**Cal Due**
Band Reject Filters	MICRO TRONICS	BRM 50702	120	02/25/2020	02/24/2021
Bilog Antenna	Sunol Sciences	JB3	A030105	07/24/2020	07/23/2021
Coaxial Cable	HUBER SUHNER	SUCOFLEX 104PEA	20995	02/25/2020	02/24/2021
Coaxial Cable	EMCI	EMC105	190914+327109/4	09/19/2020	09/18/2021
Digital Thermo-Hygro Meter	WISEWIND	1206	D07	01/15/2020	01/14/2021
double Ridged Guide Horn Antenna	ETC	MCTD 1209	DRH13M02003	09/30/2020	09/29/2021
Loop Ant	COM-POWER	AL-130	121051	03/27/2020	03/26/2021
Pre-Amplifier	EMEC	EM330	060609	02/25/2020	02/24/2021
Pre-Amplifier	EMEC	EM01G26G	060570	06/29/2020	06/28/2021
PSA Series Spectrum Analyzer	Agilent	E4446A	MY46180323	07/24/2020	07/23/2021
S.G.	Agilent	E8257C	US42340383	07/21/2020	07/20/2021
Bilog Antenna	Sunol Sciences	JB1	A052609	07/24/2020	07/23/2021
Horn Antenna	ETS LINDGREN	3117	00055165	07/22/2020	07/21/2021
Horn Antenna	EMCO	3116	2487	05/11/2020	05/10/2021
Horn Antenna	ETS LINDGREN	3116	00026370	12/11/2020	12/10/2021
K Type Cable	Huber+Suhner	SUCOFLEX 102	29406/2	12/09/2020	12/08/2021
K Type Cable	Huber+Suhner	SUCOFLEX 102	22470/2	12/09/2020	12/08/2021
Antenna Tower	CCS	CC-A-1F	N/A	N.C.R	N.C.R
Controller	CCS	CC-C-1F	N/A	N.C.R	N.C.R
Turn Table	CCS	CC-T-1F	N/A	N.C.R	N.C.R
Software	e3 6.11-20180413				

5.3 MEASUREMENT UNCERTAINTY

PARAMETER	UNCERTAINTY
AC Powerline Conducted Emission	+/- 1.2575
Emission bandwidth, 20dB bandwidth	+/- 0.0014
RF output power, conducted	+/- 1.14
Power density, conducted	+/- 1.40
3M Semi Anechoic Chamber / 30M~200M	+/- 4.12
3M Semi Anechoic Chamber / 200M~1000M	+/- 4.68
3M Semi Anechoic Chamber / 1G~8G	+/- 5.18
3M Semi Anechoic Chamber / 8G~18G	+/- 5.47
3M Semi Anechoic Chamber / 18G~26G	+/- 3.81
3M Semi Anechoic Chamber / 26G~40G	+/- 3.87

***Remark**: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.*

6. FACILITIES AND ACCREDITATIONS

6.1 FACILITIES

All measurement facilities used to collect the measurement data are located at

☐ No.199, Chunghsen Road, Hsintien City, Taipei Hsien, Taiwan, R.O.C.
Tel: 886-2-2217-0894 / Fax: 886-2-2217-1029

☒ No.11, Wugong 6th Rd., Wugu Dist., New Taipei City 24891, Taiwan. (R.O.C.)
Tel: 886-2-2299-9720 / Fax: 886-2-2298-4045

Canada Regisreation number: 2324G

The lab has been recognized as the FCC accredited lad under the KDB 974614 D01 and is listed in the FCC pubic Access Link (PAL) database, FCC Registration No. :444940, the FCC Designation No.:TW1309

The sites are constructed in conformance with the requirements of ANSI C63.7, ANSI C63.10: 2013 and CISPR Publication 22.

6.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of linearly polarized antennas: tuned dipole, biconical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers.

Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, “Radio Interference Measuring Apparatus and Measurement Methods.”

6.3 LABORATORY ACCREDITATIONS AND LISTING

The test facilities used to perform radiated and conducted emissions tests are accredited by American Association for Laboratory Accreditation Program for the specific scope accreditation under Lab Code: 0824-01 to perform Electromagnetic Interference tests according to FCC Part 15 and CISPR 22 requirements. In addition, the test facilities are listed with Industry Canada, Certification and Engineering Bureau, IC 2324G-1 for 3M Semi Anechoic Chamber A, 2324G-2 for 3M Semi Anechoic Chamber B.

7. SETUP OF EQUIPMENT UNDER TEST

7.1 SETUP CONFIGURATION OF EUT

See test photographs attached in Appendix II for the actual connections between EUT and support equipment.

7.2 SUPPORT EQUIPMENT

No	Equipment	Brand	Model	Series No.	FCC ID	IC
1	NB(J)	TOSHIBA	PT345T-00L002	N/A	PD97260H	1000M-7260H

Remark:

1. *All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.*
2. *Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.*

8. FCC PART 22 & 24 REQUIREMENTS & INDUSTRY CANADA RSS-132 & RSS-133

8.1 ERP & EIRP MEASUREMENT

LIMIT

According to FCC §2.1046

FCC 22.913(b):

The Effective Radiated Power (ERP) of mobile transmitters must not exceed 7 Watts.

FCC 24.232(b):

The equivalent Isotropic Radiated Power (EIRP) must not exceed 2 Watts.

RSS-132 § 5.4

The transmitter output power shall be measured in terms of average power. The equivalent isotropically radiated power (e.i.r.p.) for mobile equipment shall not exceed 11.5 watts.

RSS133 § 6.4:

Mobile stations and hand-held portables are limited to 2 watts maximum (EIRP).

TEST PROCEDURES

CONDUCTED POWER MEASUREMENT:

1. The transmitter output power was connected to the call box.
2. Set EUT at maximum output power via call box.
3. Set Call box at lowest, middle and highest channels for each band and modulation.

TEST RESULTS

No non-compliance noted.

Temperature: 25℃ **Humidity:** 57% RH

Tested by: Jerry Chang **Test Date:** May 25, 2021

LTE Band 2

LTE Band 2_Uplink frequency band : 1850 to 1910 MHz											
BW (MHz)	RB Size	RB Offset	Conducted power(dBm)								
			QPSK			16QAM			64QAM		
			CH-Low 18607	CH-Mid 18900	CH-High 19193	CH-Low 18607	CH-Mid 18900	CH-High 19193	CH-Low 18607	CH-Mid 18900	CH-High 19193
			1850.7 MHz	1880 MHz	1909.3 MHz	1850.7 MHz	1880 MHz	1909.3 MHz	1850.7 MHz	1880 MHz	1909.3 MHz
1.4	1	0	**23.76**	23.67	23.68	22.96	**22.97**	22.88	21.67	21.69	**21.85**
	1	5	23.3	23.14	22.95	22.69	22.44	22.08	21.64	21.64	21.52
	3	2	22.33	22.23	22.33	22.41	22.2	22.01	21.7	21.82	21.48
	6	0	22.79	22.69	22.81	21.35	21.15	20.97	20.6	20.78	20.53

LTE Band 2_Uplink frequency band : 1850 to 1910 MHz											
BW (MHz)	RB Size	RB Offset	EIRP (dBm)								
			QPSK			16QAM			64QAM		
			CH-Low 18607	CH-Mid 18900	CH-High 19193	CH-Low 18607	CH-Mid 18900	CH-High 19193	CH-Low 18607	CH-Mid 18900	CH-High 19193
			1850.7 MHz	1880 MHz	1909.3 MHz	1850.7 MHz	1880 MHz	1909.3 MHz	1850.7 MHz	1880 MHz	1909.3 MHz
1.4	1	0	**25.9**	25.81	25.82	25.1	**25.11**	25.02	23.81	23.83	**23.99**
	1	5	25.44	25.28	25.09	24.83	24.58	24.22	23.78	23.78	23.66
	3	2	24.47	24.37	24.47	24.55	24.34	24.15	23.84	23.96	23.62
	6	0	24.93	24.83	24.95	23.49	23.29	23.11	22.74	22.92	22.67

LTE Band 2_Uplink frequency band : 1850 to 1910 MHz											
BW (MHz)	RB Size	RB Offset	Conducted power(dBm)								
			QPSK			16QAM			64QAM		
			CH-Low 18615 1851.5 MHz	CH-Mid 18900 1880 MHz	CH-High 19185 1908.5 MHz	CH-Low 18615 1851.5 MHz	CH-Mid 18900 1880 MHz	CH-High 19185 1908.5 MHz	CH-Low 18615 1851.5 MHz	CH-Mid 18900 1880 MHz	CH-High 19185 1908.5 MHz
3	1	0	**23.77**	23.68	23.7	22.91	**22.98**	22.9	21.54	21.85	21.78
	1	14	23.31	23.15	22.97	22.7	22.45	22.1	21.62	**21.88**	21.6
	8	4	21.99	21.99	21.83	21.02	20.99	20.81	20.67	20.92	20.75
	15	0	22.8	22.7	22.83	21.36	21.16	20.99	20.6	20.82	20.72

LTE Band 2_Uplink frequency band : 1850 to 1910 MHz											
BW (MHz)	RB Size	RB Offset	EIRP (dBm)								
			QPSK			16QAM			64QAM		
			CH-Low 18615 1851.5 MHz	CH-Mid 18900 1880 MHz	CH-High 19185 1908.5 MHz	CH-Low 18615 1851.5 MHz	CH-Mid 18900 1880 MHz	CH-High 19185 1908.5 MHz	CH-Low 18615 1851.5 MHz	CH-Mid 18900 1880 MHz	CH-High 19185 1908.5 MHz
3	1	0	**25.91**	25.82	25.84	25.05	**25.12**	25.04	23.68	23.99	23.92
	1	14	25.45	25.29	25.11	24.84	24.59	24.24	23.76	**24.02**	23.74
	8	4	24.13	24.13	23.97	23.16	23.13	22.95	22.81	23.06	22.89
	15	0	24.94	24.84	24.97	23.5	23.3	23.13	22.74	22.96	22.86

LTE Band 2_Uplink frequency band : 1850 to 1910 MHz											
BW (MHz)	RB Size	RB Offset	Conducted power(dBm)								
			QPSK			16QAM			64QAM		
			CH-Low 18625	CH-Mid 18900	CH-High 19175	CH-Low 18625	CH-Mid 18900	CH-High 19175	CH-Low 18625	CH-Mid 18900	CH-High 19175
			1852.5 MHz	1880 MHz	1907.5 MHz	1852.5 MHz	1880 MHz	1907.5 MHz	1852.5 MHz	1880 MHz	1907.5 MHz
5	1	0	**23.82**	23.72	23.75	22.89	22.8	**22.95**	21.73	21.79	**21.87**
	1	24	23.36	23.19	23.02	22.75	22.49	22.15	21.57	21.83	21.64
	12	6	22.04	22.03	21.88	21.07	21.03	20.86	20.6	20.87	20.6
	25	0	22.85	22.74	22.88	21.41	21.2	21.04	20.58	20.85	20.73

LTE Band 2_Uplink frequency band : 1850 to 1910 MHz											
BW (MHz)	RB Size	RB Offset	EIRP (dBm)								
			QPSK			16QAM			64QAM		
			CH-Low 18625	CH-Mid 18900	CH-High 19175	CH-Low 18625	CH-Mid 18900	CH-High 19175	CH-Low 18625	CH-Mid 18900	CH-High 19175
			1852.5 MHz	1880 MHz	1907.5 MHz	1852.5 MHz	1880 MHz	1907.5 MHz	1852.5 MHz	1880 MHz	1907.5 MHz
5	1	0	**25.96**	25.86	25.89	25.03	24.94	**25.09**	23.87	23.93	**24.01**
	1	24	25.5	25.33	25.16	24.89	24.63	24.29	23.71	23.97	23.78
	12	6	24.18	24.17	24.02	23.21	23.17	23	22.74	23.01	22.74
	25	0	24.99	24.88	25.02	23.55	23.34	23.18	22.72	22.99	22.87

LTE Band 2_Uplink frequency band : 1850 to 1910 MHz											
BW (MHz)	RB Size	RB Offset	Conducted power(dBm)								
			QPSK			16QAM			64QAM		
			CH-Low 18650 1855 MHz	CH-Mid 18900 1880 MHz	CH-High 19150 1905 MHz	CH-Low 18650 1855 MHz	CH-Mid 18900 1880 MHz	CH-High 19150 1905 MHz	CH-Low 18650 1855 MHz	CH-Mid 18900 1880 MHz	CH-High 19150 1905 MHz
10	1	0	**23.84**	23.74	23.78	**22.98**	22.84	22.93	21.76	21.9	21.89
	1	49	23.38	23.21	23.05	22.77	22.51	22.18	21.8	**21.96**	21.35
	25	12	22.06	22.05	21.91	21.09	21.05	20.89	20.68	20.93	20.78
	50	0	22.87	22.76	22.91	21.43	21.22	21.07	20.7	20.89	20.8

LTE Band 2_Uplink frequency band : 1850 to 1910 MHz											
BW (MHz)	RB Size	RB Offset	EIRP (dBm)								
			QPSK			16QAM			64QAM		
			CH-Low 18650 1855 MHz	CH-Mid 18900 1880 MHz	CH-High 19150 1905 MHz	CH-Low 18650 1855 MHz	CH-Mid 18900 1880 MHz	CH-High 19150 1905 MHz	CH-Low 18650 1855 MHz	CH-Mid 18900 1880 MHz	CH-High 19150 1905 MHz
10	1	0	**25.98**	25.88	25.92	**25.12**	24.98	25.07	23.9	24.04	24.03
	1	49	25.52	25.35	25.19	24.91	24.65	24.32	23.94	**24.1**	23.49
	25	12	24.2	24.19	24.05	23.23	23.19	23.03	22.82	23.07	22.92
	50	0	25.01	24.9	25.05	23.57	23.36	23.21	22.84	23.03	22.94

LTE Band 2_Uplink frequency band : 1850 to 1910 MHz											
BW (MHz)	RB Size	RB Offset	Conducted power(dBm)								
			QPSK			16QAM			64QAM		
			CH-Low 18675	CH-Mid 18900	CH-High 19125	CH-Low 18675	CH-Mid 18900	CH-High 19125	CH-Low 18675	CH-Mid 18900	CH-High 19125
			1857.5 MHz	1880 MHz	1902.5 MHz	1857.5 MHz	1880 MHz	1902.5 MHz	1857.5 MHz	1880 MHz	1902.5 MHz
15	1	0	**23.85**	23.75	23.79	**22.86**	22.81	22.77	**21.91**	21.27	21.89
	1	74	23.39	23.22	23.06	22.78	22.52	22.19	21.69	21.77	21.36
	36	18	22.07	22.06	21.92	21.1	21.06	20.9	20.35	20.52	20.46
	75	0	22.88	22.77	22.92	21.44	21.23	21.08	20.51	20.7	20.5

LTE Band 2_Uplink frequency band : 1850 to 1910 MHz											
BW (MHz)	RB Size	RB Offset	EIRP (dBm)								
			QPSK			16QAM			64QAM		
			CH-Low 18675	CH-Mid 18900	CH-High 19125	CH-Low 18675	CH-Mid 18900	CH-High 19125	CH-Low 18675	CH-Mid 18900	CH-High 19125
			1857.5 MHz	1880 MHz	1902.5 MHz	1857.5 MHz	1880 MHz	1902.5 MHz	1857.5 MHz	1880 MHz	1902.5 MHz
15	1	0	**25.99**	25.89	25.93	**25**	24.95	24.91	**24.05**	23.41	24.03
	1	74	25.53	25.36	25.2	24.92	24.66	24.33	23.83	23.91	23.5
	36	18	24.21	24.2	24.06	23.24	23.2	23.04	22.49	22.66	22.6
	75	0	25.02	24.91	25.06	23.58	23.37	23.22	22.65	22.84	22.64

LTE Band 2_Uplink frequency band : 1850 to 1910 MHz											
BW (MHz)	RB Size	RB Offset	Conducted power(dBm)								
			QPSK			16QAM			64QAM		
			CH-Low 18700 1860 MHz	CH-Mid 18900 1880 MHz	CH-High 19100 1900 MHz	CH-Low 18700 1860 MHz	CH-Mid 18900 1880 MHz	CH-High 19100 1900 MHz	CH-Low 18700 1860 MHz	CH-Mid 18900 1880 MHz	CH-High 19100 1900 MHz
20	1	0	**23.88**	23.81	**23.86**	**22.9**	22.87	22.8	**21.89**	21.87	21.69
	1	99	23.42	23.28	23.13	22.81	22.58	22.26	20.72	21.85	20.61
	50	24	22.1	22.12	21.99	21.13	21.12	20.97	20.41	20.58	20.5
	100	0	22.91	22.83	22.99	21.47	21.29	21.15	20.68	20.82	20.63

LTE Band 2_Uplink frequency band : 1850 to 1910 MHz											
BW (MHz)	RB Size	RB Offset	EIRP (dBm)								
			QPSK			16QAM			64QAM		
			CH-Low 18700 1860 MHz	CH-Mid 18900 1880 MHz	CH-High 19100 1900 MHz	CH-Low 18700 1860 MHz	CH-Mid 18900 1880 MHz	CH-High 19100 1900 MHz	CH-Low 18700 1860 MHz	CH-Mid 18900 1880 MHz	CH-High 19100 1900 MHz
20	1	0	**26.02**	25.95	26	**25.04**	25.01	24.94	**24.03**	24.01	23.83
	1	99	25.56	25.42	25.27	24.95	24.72	24.4	22.86	23.99	22.75
	50	24	24.24	24.26	24.13	23.27	23.26	23.11	22.55	22.72	22.64
	100	0	25.05	24.97	25.13	23.61	23.43	23.29	22.82	22.96	22.77

LTE Band 5

LTE Band 5_Uplink frequency band : 824 to 849 MHz											
BW (MHz)	RB Size	RB Offset	Conducted power(dBm)								
			QPSK			16QAM			64QAM		
			CH-Low 20407	CH-Mid 20525	CH-High 20635	CH-Low 20407	CH-Mid 20525	CH-High 20635	CH-Low 20407	CH-Mid 20525	CH-High 20635
			824.7 MHz	836.5 MHz	848.3 MHz	824.7 MHz	836.5 MHz	848.3 MHz	824.7 MHz	836.5 MHz	848.3 MHz
1.4	1	0	22.62	**22.73**	22.49	21.84	21.89	**21.98**	21.52	21.74	21.68
	1	5	22.57	22.52	22.39	21.78	21.89	21.85	21.6	**21.89**	21.58
	3	2	22.65	22.66	22.54	21.75	21.72	21.53	21.71	21.88	21.56
	6	0	21.68	21.66	21.6	20.73	20.88	20.58	20.65	20.79	20.56

LTE Band 5_Uplink frequency band : 824 to 849 MHz											
BW (MHz)	RB Size	RB Offset	ERP (dBm)								
			QPSK			16QAM			64QAM		
			CH-Low 20407	CH-Mid 20525	CH-High 20635	CH-Low 20407	CH-Mid 20525	CH-High 20635	CH-Low 20407	CH-Mid 20525	CH-High 20635
			824.7 MHz	836.5 MHz	848.3 MHz	824.7 MHz	836.5 MHz	848.3 MHz	824.7 MHz	836.5 MHz	848.3 MHz
1.4	1	0	19.5	**19.61**	19.37	18.72	18.77	**18.86**	18.4	18.62	18.56
	1	5	19.45	19.4	19.27	18.66	18.77	18.73	18.48	**18.77**	18.46
	3	2	19.53	19.54	19.42	18.63	18.6	18.41	18.59	18.76	18.44
	6	0	18.56	18.54	18.48	17.61	17.76	17.46	17.53	17.67	17.44

LTE Band 5_Uplink frequency band : 824 to 849 MHz											
BW (MHz)	RB Size	RB Offset	EIRP (dBm)								
			QPSK			16QAM			64QAM		
			CH-Low 20407	CH-Mid 20525	CH-High 20635	CH-Low 20407	CH-Mid 20525	CH-High 20635	CH-Low 20407	CH-Mid 20525	CH-High 20635
			824.7 MHz	836.5 MHz	848.3 MHz	824.7 MHz	836.5 MHz	848.3 MHz	824.7 MHz	836.5 MHz	848.3 MHz
1.4	1	0	21.65	**21.76**	21.52	20.87	20.92	**21.01**	20.55	20.77	20.71
	1	5	21.6	21.55	21.42	20.81	20.92	20.88	20.63	**20.92**	20.61
	3	2	21.68	21.69	21.57	20.78	20.75	20.56	20.74	20.91	20.59
	6	0	20.71	20.69	20.63	19.76	19.91	19.61	19.68	19.82	19.59

LTE Band 5_Uplink frequency band : 824 to 849 MHz											
BW (MHz)	RB Size	RB Offset	Conducted power(dBm)								
			QPSK			16QAM			64QAM		
			CH-Low 20415 825.5 MHz	CH-Mid 20525 836.5 MHz	CH-High 20635 847.5 MHz	CH-Low 20415 825.5 MHz	CH-Mid 20525 836.5 MHz	CH-High 20635 847.5 MHz	CH-Low 20415 825.5 MHz	CH-Mid 20525 836.5 MHz	CH-High 20635 847.5 MHz
3	1	0	22.75	22.79	22.63	21.9	22.02	22.06	21.86	21.83	21.84
	1	14	**22.81**	22.79	22.63	21.86	**22.08**	21.95	21.89	**21.99**	21.79
	8	4	21.74	21.91	21.69	20.82	20.89	20.75	20.81	20.83	20.78
	15	0	21.71	21.8	21.59	20.81	20.8	20.72	20.77	20.72	20.65

LTE Band 5_Uplink frequency band : 824 to 849 MHz											
BW (MHz)	RB Size	RB Offset	ERP (dBm)								
			QPSK			16QAM			64QAM		
			CH-Low 20415 825.5 MHz	CH-Mid 20525 836.5 MHz	CH-High 20635 847.5 MHz	CH-Low 20415 825.5 MHz	CH-Mid 20525 836.5 MHz	CH-High 20635 847.5 MHz	CH-Low 20415 825.5 MHz	CH-Mid 20525 836.5 MHz	CH-High 20635 847.5 MHz
3	1	0	19.63	19.67	19.51	18.78	18.9	18.94	18.74	18.71	18.72
	1	14	**19.69**	19.67	19.51	18.74	**18.96**	18.83	18.77	**18.87**	18.67
	8	4	18.62	18.79	18.57	17.7	17.77	17.63	17.69	17.71	17.66
	15	0	18.59	18.68	18.47	17.69	17.68	17.6	17.65	17.6	17.53

LTE Band 5_Uplink frequency band : 824 to 849 MHz											
BW (MHz)	RB Size	RB Offset	EIRP (dBm)								
			QPSK			16QAM			64QAM		
			CH-Low 20415 825.5 MHz	CH-Mid 20525 836.5 MHz	CH-High 20635 847.5 MHz	CH-Low 20415 825.5 MHz	CH-Mid 20525 836.5 MHz	CH-High 20635 847.5 MHz	CH-Low 20415 825.5 MHz	CH-Mid 20525 836.5 MHz	CH-High 20635 847.5 MHz
3	1	0	21.78	21.82	21.66	20.93	21.05	21.09	20.89	20.86	20.87
	1	14	**21.84**	21.82	21.66	20.89	**21.11**	20.98	20.92	**21.02**	20.82
	8	4	20.77	20.94	20.72	19.85	19.92	19.78	19.84	19.86	19.81
	15	0	20.74	20.83	20.62	19.84	19.83	19.75	19.8	19.75	19.68

LTE Band 5_Uplink frequency band : 824 to 849 MHz											
BW (MHz)	RB Size	RB Offset	Conducted power(dBm)								
			QPSK			16QAM			64QAM		
			CH-Low 20425	CH-Mid 20525	CH-High 20625	CH-Low 20425	CH-Mid 20525	CH-High 20625	CH-Low 20425	CH-Mid 20525	CH-High 20625
			826.5 MHz	836.5 MHz	846.5 MHz	826.5 MHz	836.5 MHz	846.5 MHz	826.5 MHz	836.5 MHz	846.5 MHz
5	1	0	22.67	**22.88**	22.69	**22.18**	21.96	21.54	21.91	**21.95**	21.65
	1	24	22.62	22.86	22.55	21.93	22.01	21.37	21.84	21.67	21.71
	12	6	21.79	21.99	21.8	20.91	21.01	20.79	20.89	20.94	20.74
	25	0	21.82	21.85	21.7	20.83	20.93	20.78	20.84	20.85	20.77

LTE Band 5_Uplink frequency band : 824 to 849 MHz											
BW (MHz)	RB Size	RB Offset	ERP (dBm)								
			QPSK			16QAM			64QAM		
			CH-Low 20425	CH-Mid 20525	CH-High 20625	CH-Low 20425	CH-Mid 20525	CH-High 20625	CH-Low 20425	CH-Mid 20525	CH-High 20625
			826.5 MHz	836.5 MHz	846.5 MHz	826.5 MHz	836.5 MHz	846.5 MHz	826.5 MHz	836.5 MHz	846.5 MHz
5	1	0	19.55	**19.76**	19.57	**19.06**	18.84	18.42	18.79	**18.83**	18.53
	1	24	19.5	19.74	19.43	18.81	18.89	18.25	18.72	18.55	18.59
	12	6	18.67	18.87	18.68	17.79	17.89	17.67	17.77	17.82	17.62
	25	0	18.7	18.73	18.58	17.71	17.81	17.66	17.72	17.73	17.65

LTE Band 5_Uplink frequency band : 824 to 849 MHz											
BW (MHz)	RB Size	RB Offset	EIRP (dBm)								
			QPSK			16QAM			64QAM		
			CH-Low 20425	CH-Mid 20525	CH-High 20625	CH-Low 20425	CH-Mid 20525	CH-High 20625	CH-Low 20425	CH-Mid 20525	CH-High 20625
			826.5 MHz	836.5 MHz	846.5 MHz	826.5 MHz	836.5 MHz	846.5 MHz	826.5 MHz	836.5 MHz	846.5 MHz
5	1	0	21.7	**21.91**	21.72	**21.21**	20.99	20.57	20.94	**20.98**	20.68
	1	24	21.65	21.89	21.58	20.96	21.04	20.4	20.87	20.7	20.74
	12	6	20.82	21.02	20.83	19.94	20.04	19.82	19.92	19.97	19.77
	25	0	20.85	20.88	20.73	19.86	19.96	19.81	19.87	19.88	19.8

LTE Band 5_Uplink frequency band : 824 to 849 MHz											
BW (MHz)	RB Size	RB Offset	Conducted power(dBm)								
			QPSK			16QAM			64QAM		
			CH-Low 20450	CH-Mid 20525	CH-High 20600	CH-Low 20450	CH-Mid 20525	CH-High 20600	CH-Low 20450	CH-Mid 20525	CH-High 20600
			829 MHz	836.5 MHz	844 MHz	829 MHz	836.5 MHz	844 MHz	829 MHz	836.5 MHz	844 MHz
10	1	0	22.92	22.84	**22.96**	**22.41**	21.96	22.06	21.21	**21.88**	21.03
	1	49	22.86	22.78	22.81	22.19	21.94	21.8	21.19	21.77	20.75
	25	12	21.04	21.96	21.89	20.98	20.14	20.81	20.98	20.93	20.81
	50	0	21.18	21.97	21.82	20.41	21.21	20.66	19.87	20.91	19.79

LTE Band 5_Uplink frequency band : 824 to 849 MHz											
BW (MHz)	RB Size	RB Offset	ERP (dBm)								
			QPSK			16QAM			64QAM		
			CH-Low 20450	CH-Mid 20525	CH-High 20600	CH-Low 20450	CH-Mid 20525	CH-High 20600	CH-Low 20450	CH-Mid 20525	CH-High 20600
			829 MHz	836.5 MHz	844 MHz	829 MHz	836.5 MHz	844 MHz	829 MHz	836.5 MHz	844 MHz
10	1	0	19.8	19.72	**19.84**	**19.29**	18.84	18.94	18.09	**18.76**	17.91
	1	49	19.74	19.66	19.69	19.07	18.82	18.68	18.07	18.65	17.63
	25	12	17.92	18.84	18.77	17.86	17.02	17.69	17.86	17.81	17.69
	50	0	18.06	18.85	18.7	17.29	18.09	17.54	16.75	17.79	16.67

LTE Band 5_Uplink frequency band : 824 to 849 MHz											
BW (MHz)	RB Size	RB Offset	EIRP (dBm)								
			QPSK			16QAM			64QAM		
			CH-Low 20450	CH-Mid 20525	CH-High 20600	CH-Low 20450	CH-Mid 20525	CH-High 20600	CH-Low 20450	CH-Mid 20525	CH-High 20600
			829 MHz	836.5 MHz	844 MHz	829 MHz	836.5 MHz	844 MHz	829 MHz	836.5 MHz	844 MHz
10	1	0	21.95	21.87	**21.99**	**21.44**	20.99	21.09	20.24	**20.91**	20.06
	1	49	21.89	21.81	21.84	21.22	20.97	20.83	20.22	20.8	19.78
	25	12	20.07	20.99	20.92	20.01	19.17	19.84	20.01	19.96	19.84
	50	0	20.21	21	20.85	19.44	20.24	19.69	18.9	19.94	18.82

8.2 FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT

LIMIT

According to FCC §2.1055, FCC §22.355, FCC §24.235.

The frequency stability shall be sufficient to ensure that the fundamental emission stays within the authorized frequency block.

According to RSS-132 section 5.3,

The carrier frequency shall not depart from the reference frequency, in excess of ±2.5 ppm for mobile stations and ±1.5 ppm for base stations.
In lieu of meeting the above stability values, the test report may show that the frequency stability is sufficient to ensure that the emission bandwidth stays within the operating frequency block when tested to the temperature and supply voltage variations specified in RSS-Gen.

According to RSS -133 section 6.3,

The carrier frequency shall not depart from the reference frequency in excess of ±2.5 ppm for mobile stations and ±1.0 ppm for base stations.
In lieu of meeting the above stability values, the test report may show that the frequency stability is sufficient to ensure that the occupied bandwidth stays within each of the sub-bands (see Section 5.1) when tested to the temperature and supply voltage variations specified in RSS-Gen.

Test Procedure

Use Anritsu 8820 with frequency Error measurement capability.

Temp = -30℃ to +50℃

Voltage= 85% to 115% of the nominal value for AC powered equipment.

NOTE: *The frequency error was recorded frequency error from the communication simulator.*

TEST RESULTS

No non-compliance noted.

Test Results

FREQUENCY STABILITY V.S. TEMPERATURE MEASUREMENT:

Temperature: 25℃ **Humidity:** 57% RH

Tested by: Jerry Chang **Test Date:** May 25, 2021

LTE Band 2

Reference Freq.:	LTE B2 Mid Channel	1880	MHz	10M QPSK CH 18900
Power Supply Vdc	Temp. (℃)	Freq. (MHz)	Delta (Hz)	Limit = +/- 2.5 ppm (Hz)
Freq. ERROR vs. VOLTAGE				
5.5	25	1880.000031	31	4700
5	25	1880.000024	24	4700
4.75	25	1879.999955	-45	4700
3.7 (End Point)	25	1880.000029	29	4700
Freq. ERROR vs. Temp.				
5	-30	1879.999958	-42	4700
5	-20	1880.000068	68	4700
5	-10	1880.000075	75	4700
5	0	1880.000012	12	4700
5	10	1879.999964	-36	4700
5	20	1880.000028	28	4700
5	30	1879.999971	-29	4700
5	40	1880.000065	65	4700
5	50	1880.000049	49	4700

LTE Band 5

Reference Freq.:	LTE B5 Mid Channel		836.5 MHz	10M QPSK CH 20525
Power Supply Vdc	Temp. (℃)	Freq. (MHz)	Delta (Hz)	Limit = +/- 2.5 ppm (Hz)
Freq. ERROR vs. VOLTAGE				
5.5	25	836.499988	-12	2091
5	25	836.500017	17	2091
4.75	25	836.500050	50	2091
3.7 (End Point)	25	836.500046	46	2091
Freq. ERROR vs. Temp.				
5	-30	836.499983	-17	2091
5	-20	836.500003	3	2091
5	-10	836.499987	-13	2091
5	0	836.499937	-63	2091
5	10	836.500042	42	2091
5	20	836.499969	-31	2091
5	30	836.499941	-59	2091
5	40	836.500026	26	2091
5	50	836.499985	-15	2091

8.3 OCCUPIED BANDWIDTH MEASUREMENT

Limits

For Reporting purposes only.

TEST PROCEDURES

KDB 971168 D01

1. The occupied bandwidth was measured with the spectrum analyzer at the lowest, middle and highest channels in each band and different modulation. The 99% and -26dB bandwidth was measured and recorded.
2. RBW = 1-5% of the expected OBW
3. VBW ≥ 3 x RBW
4. Detector = Peak
5. Trace mode = max. hold

Temperature: 23.2℃ **Humidity:** 56.9% RH

Tested by: Jerry Chang **Test Date:** March 3, 2021

LTE Band 2

LTE BAND 2 Channel bandwidth: 1.4MHz							
Freq. (MHz)	CH	99% BW (MHz)			26 dB BW (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
1850.7	18607	**1.0862**	1.0867	1.0855	1.232	**1.237**	1.228
1880.0	18900	1.0857	1.0867	**1.0860**	**1.237**	1.237	1.226
1909.3	19193	1.0861	**1.0868**	1.0847	1.225	1.235	**1.230**

LTE BAND 2 Channel bandwidth: 3MHz							
Freq. (MHz)	CH	99% BW (MHz)			26 dB BW (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
1851.5	18615	2.6853	2.6907	2.6963	2.990	**2.985**	3.004
1880.0	18900	**2.6883**	2.6882	**2.6977**	**2.995**	2.982	2.992
1908.5	19185	2.6879	**2.6928**	2.6958	2.971	2.974	**3.011**

LTE BAND 2 Channel bandwidth: 5MHz							
Freq. (MHz)	CH	99% BW (MHz)			26 dB BW (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
1852.5	18625	4.4854	**4.4899**	4.4861	4.963	4.942	4.928
1880.0	18900	**4.4869**	4.4864	4.4874	4.955	4.952	**4.944**
1907.5	19175	4.4860	4.4860	**4.4875**	**4.969**	**4.978**	4.937

LTE BAND 2 Channel bandwidth: 10MHz							
Freq. (MHz)	CH	99% BW (MHz)			26 dB BW (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
1855.0	18650	**8.9776**	**8.9372**	**8.9689**	**9.730**	9.760	**9.763**
1880.0	18900	8.9736	8.9254	8.9524	9.724	**9.792**	9.745
1905.0	19150	8.9510	8.9178	8.9275	9.711	9.756	9.750

LTE BAND 2 Channel bandwidth: 15MHz							
Freq. (MHz)	CH	99% BW (MHz)			26 dB BW (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
1857.5	18675	**13.469**	**13.444**	**13.471**	14.63	**14.68**	**14.64**
1880.0	18900	13.444	13.418	13.403	**14.65**	14.64	14.47
1902.5	19125	13.394	13.383	13.392	14.55	14.51	14.43

LTE BAND 2 Channel bandwidth: 20MHz							
Freq. (MHz)	CH	99% BW (MHz)			26 dB BW (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
1860.0	18700	**17.937**	**17.957**	**17.926**	**19.50**	**19.45**	**19.47**
1880.0	18900	17.855	17.887	17.880	19.41	19.35	19.43
1900.0	19100	17.842	17.887	17.862	19.26	19.32	19.32

LTE Band 5

LTE BAND 5 Channel bandwidth: 1.4MHz							
Freq. (MHz)	CH	99% BW (MHz)			26 dB BW (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
824.7	20407	1.0848	1.0850	**1.0846**	1.217	1.218	1.222
836.5	20525	1.0846	1.0847	**1.0846**	1.217	1.225	1.222
848.3	20643	**1.0855**	**1.0856**	1.0843	**1.225**	**1.226**	**1.225**

LTE BAND 5 Channel bandwidth: 3MHz							
Freq. (MHz)	CH	99% BW (MHz)			26 dB BW (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
825.5	20415	2.6852	2.6895	2.6948	**2.960**	**2.973**	**2.988**
836.5	20525	2.6877	2.6912	2.6956	2.941	2.971	**2.988**
847.5	20635	**2.6892**	**2.6924**	**2.6979**	2.955	2.966	2.980

LTE BAND 5 Channel bandwidth: 5MHz							
Freq. (MHz)	CH	99% BW (MHz)			26 dB BW (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
826.5	20425	4.4804	4.4847	4.4810	4.935	4.934	**4.929**
836.5	20525	4.4855	**4.4906**	4.4903	**4.962**	**4.957**	4.923
846.5	20625	**4.4887**	4.4899	**4.4929**	4.942	4.940	**4.929**

LTE BAND 5 Channel bandwidth: 10MHz							
Freq. (MHz)	CH	99% BW (MHz)			26 dB BW (MHz)		
		QPSK	16QAM	64QAM	QPSK	16QAM	64QAM
829.0	20450	8.9565	8.9187	8.9437	9.711	9.689	9.754
836.5	20525	**8.9933**	**8.9553**	**8.9714**	**9.780**	9.714	**9.784**
844.0	20600	8.9554	8.9122	8.9323	9.682	**9.728**	9.696

LTE Band 2

BW: 1.4MHz / QPSK / RB =6, RB Offset = 0

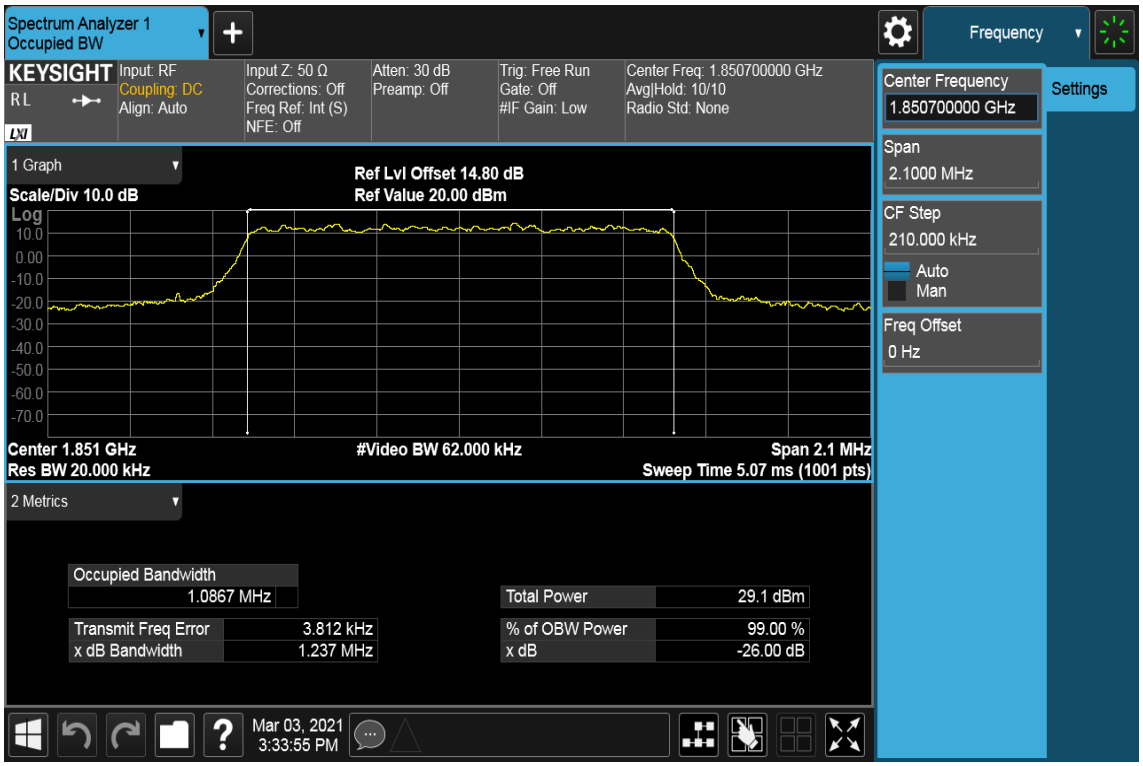
CH Low

CH Mid

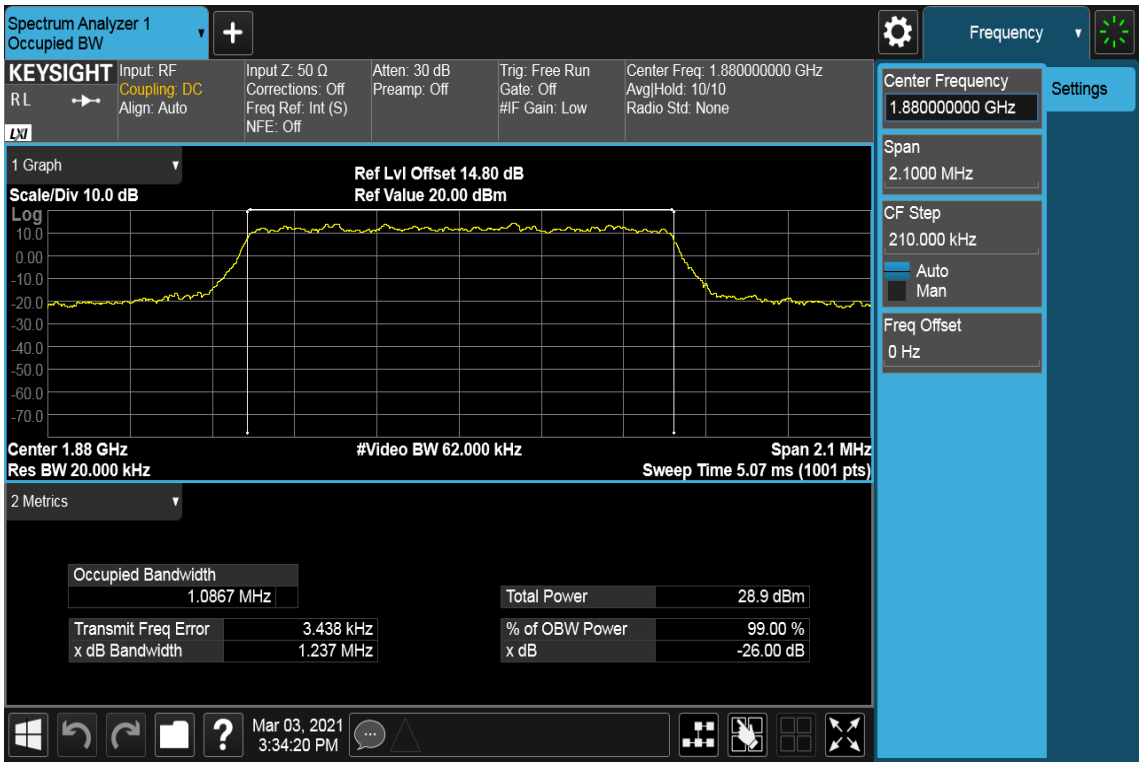
CH High

BW: 1.4MHz / 16QAM / RB =6, RB Offset = 0

CH Low



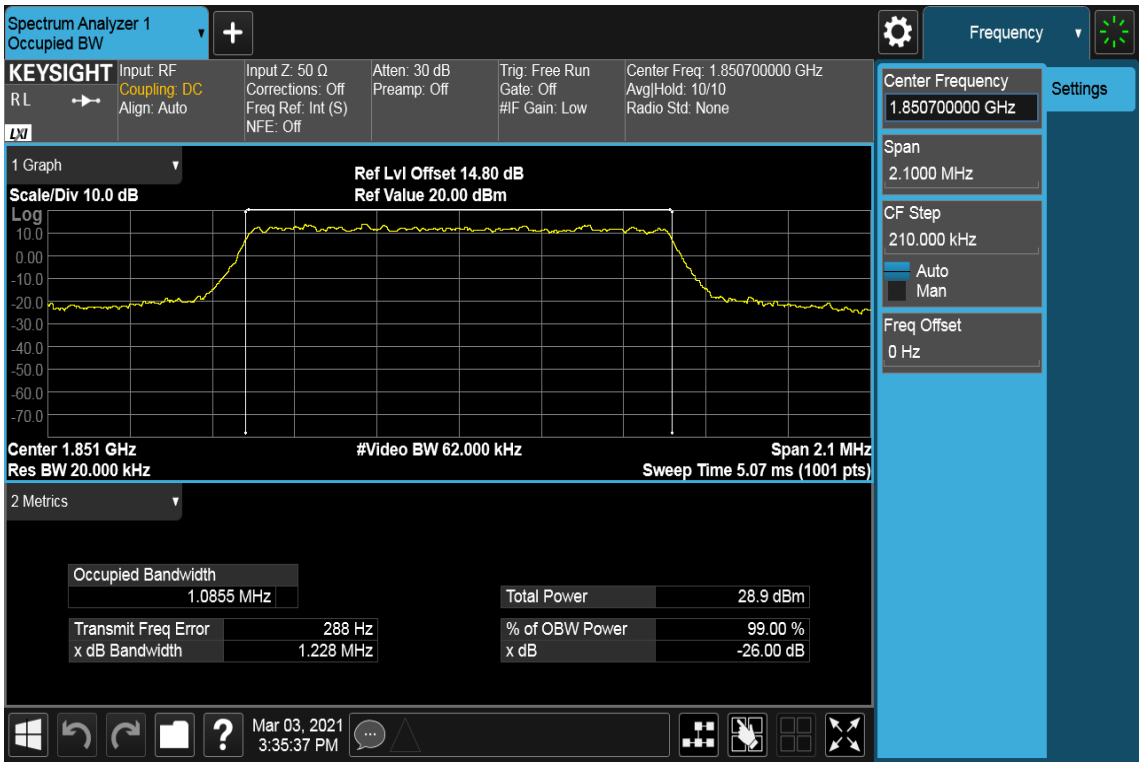
CH Mid



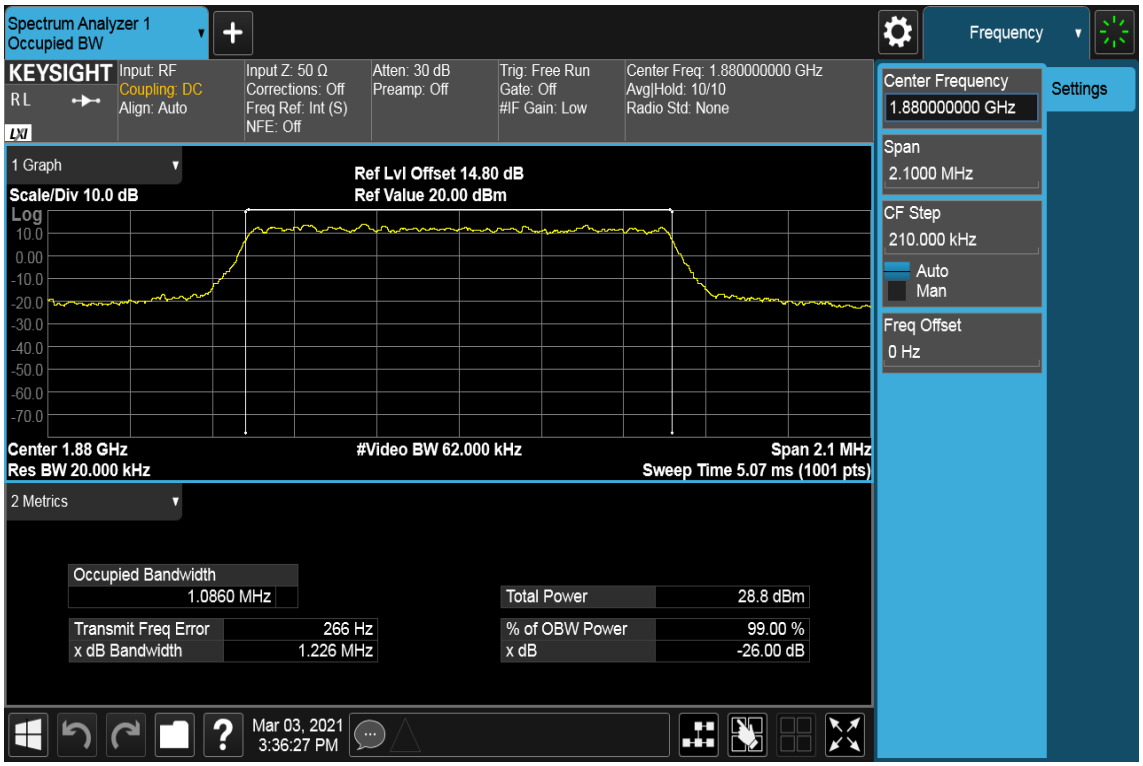
CH High

BW: 1.4MHz / 64QAM / RB =6, RB Offset = 0

CH Low



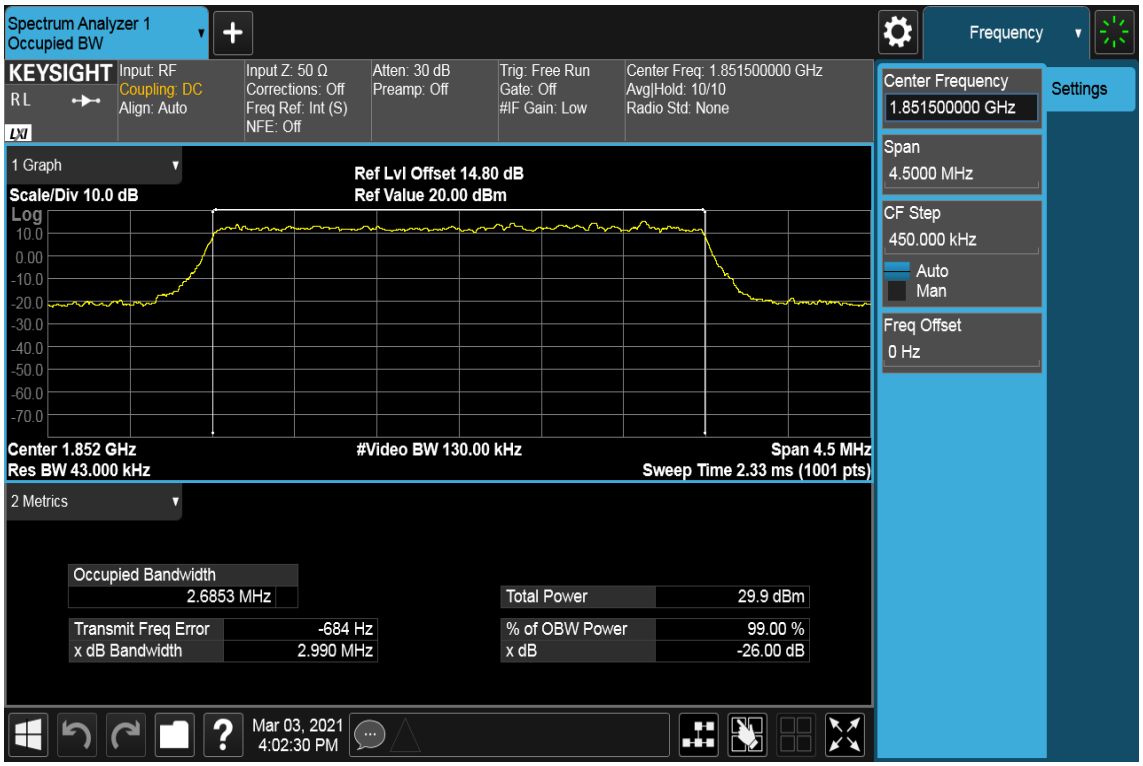
CH Mid



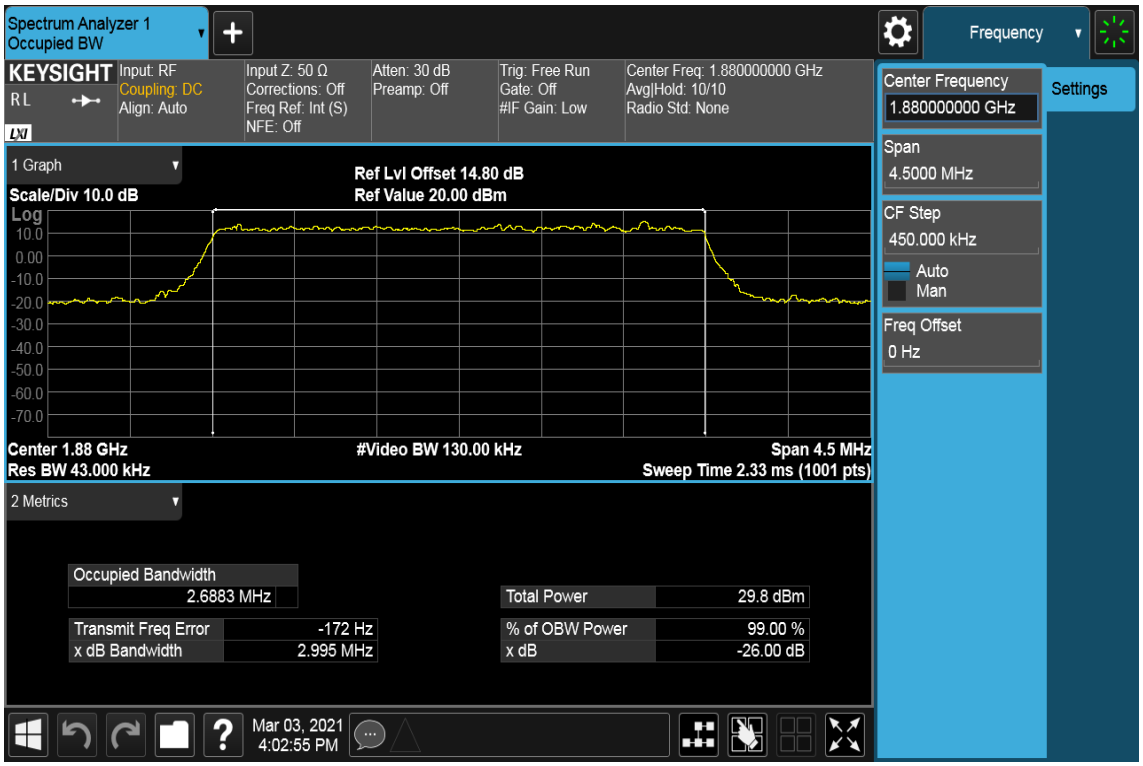
CH High

BW: 3MHz / QPSK / RB =15, RB Offset = 0

CH Low



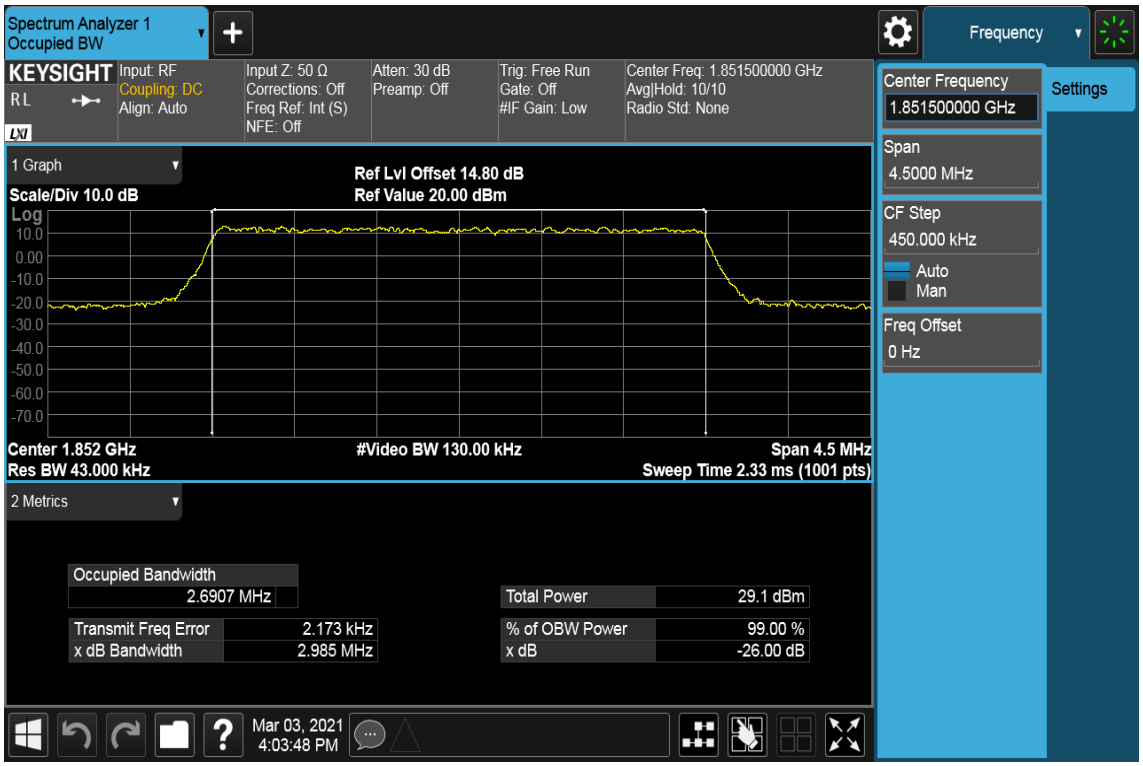
CH Mid



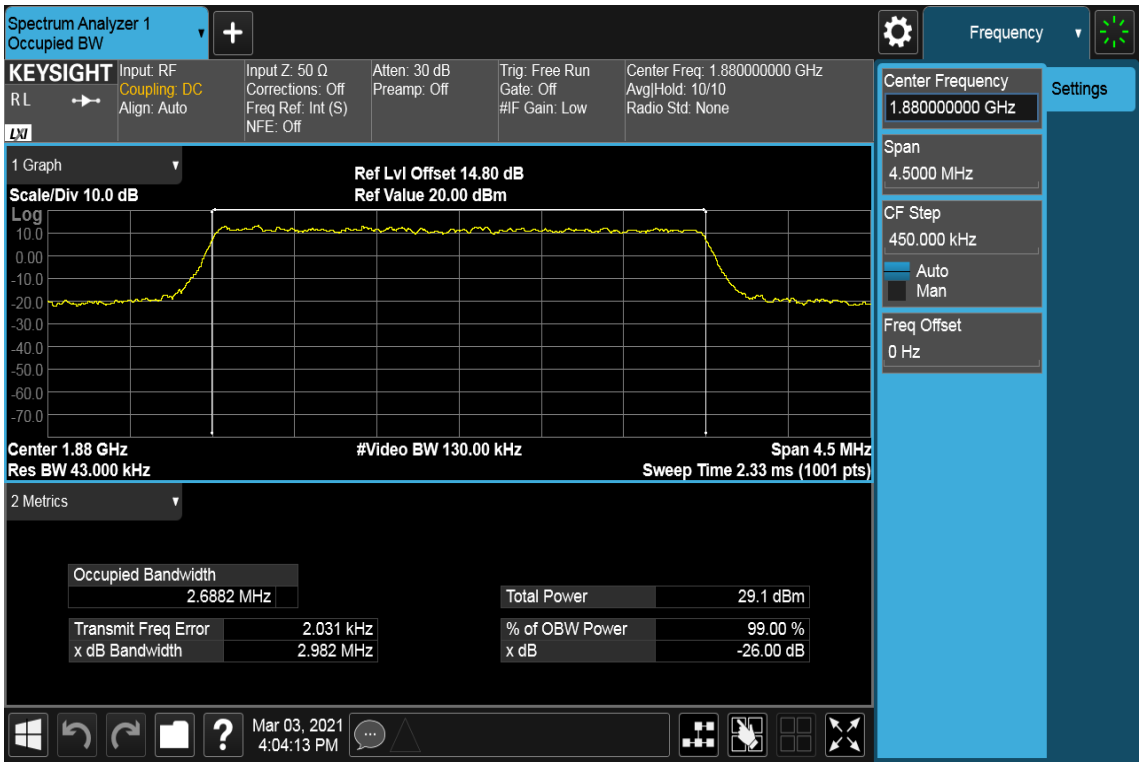
CH High

BW: 3MHz / 16QAM / RB =15, RB Offset = 0

CH Low



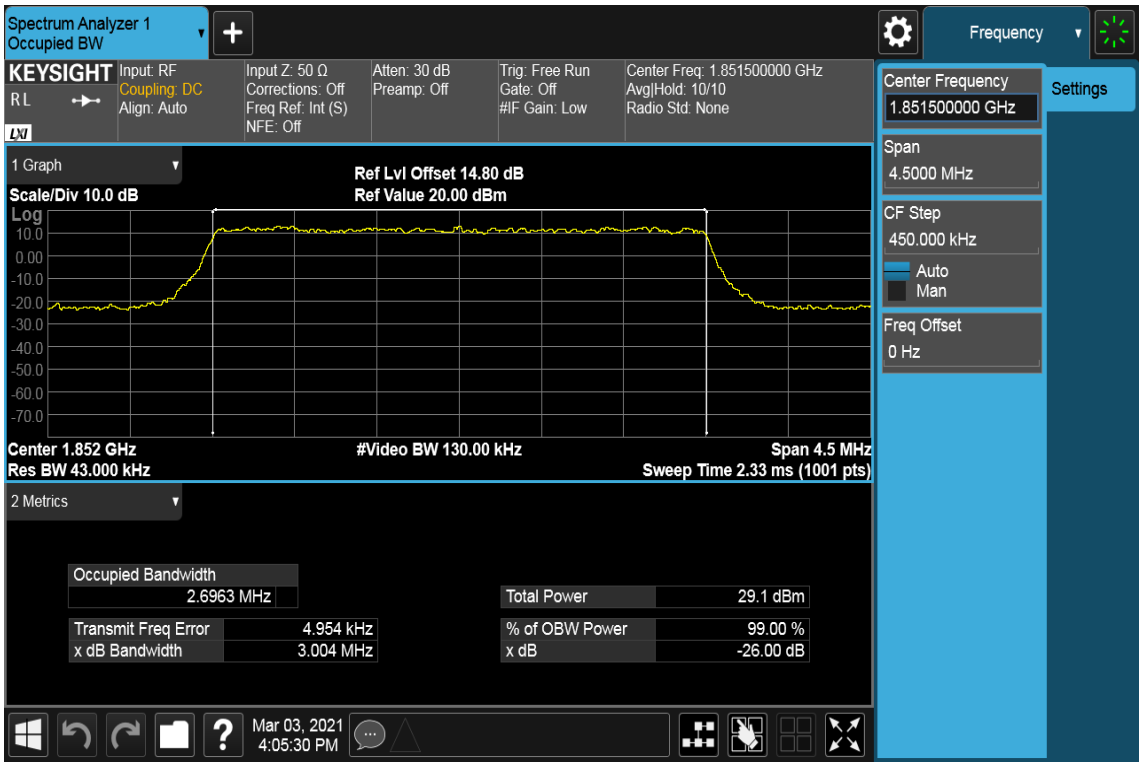
CH Mid



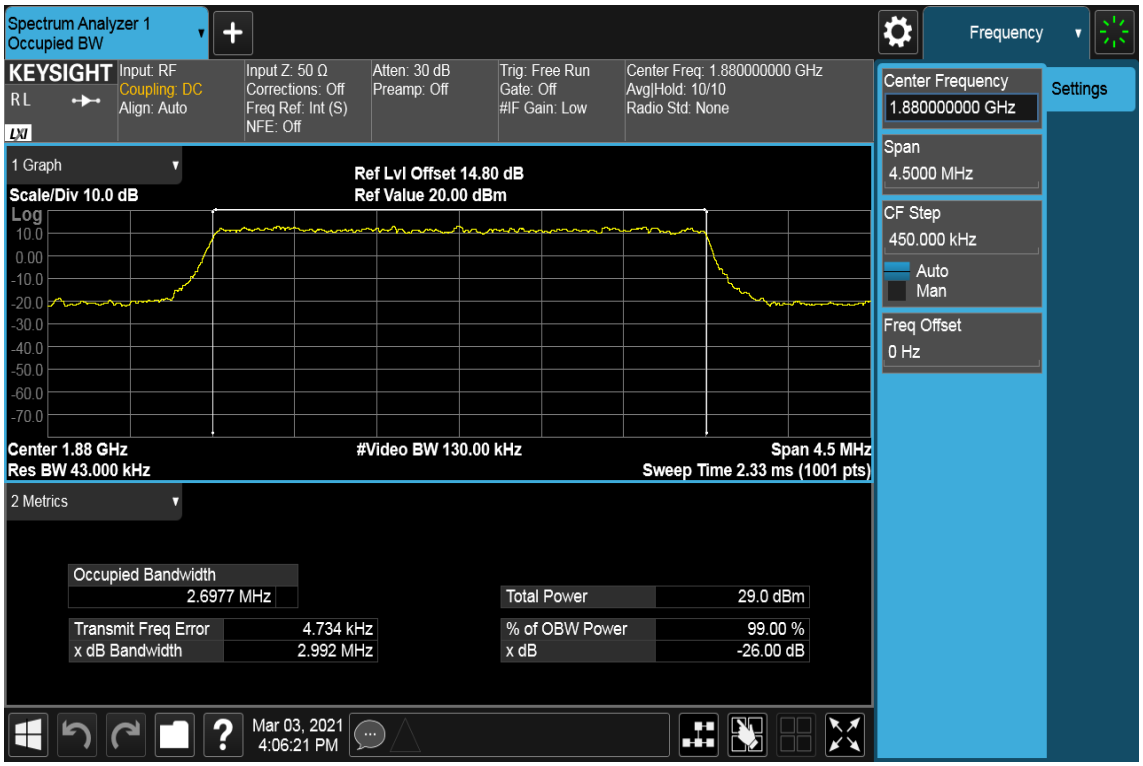
CH High

BW: 3MHz / 64QAM / RB =15, RB Offset = 0

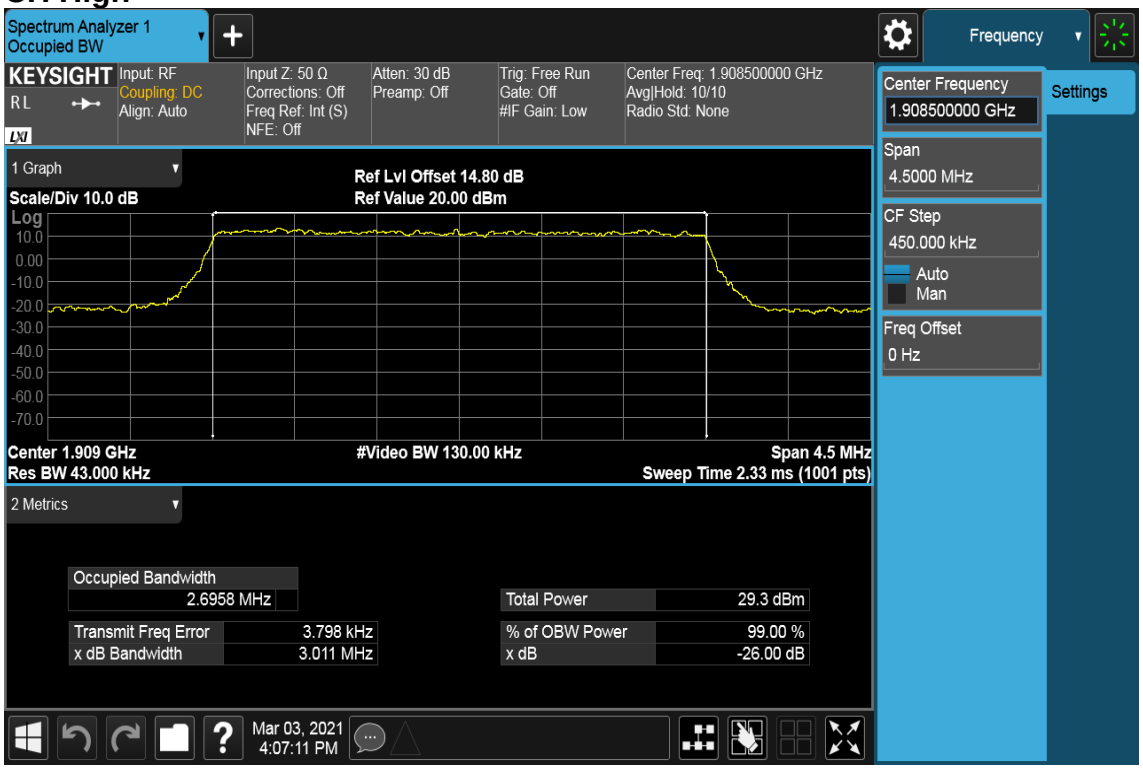
CH Low



CH Mid

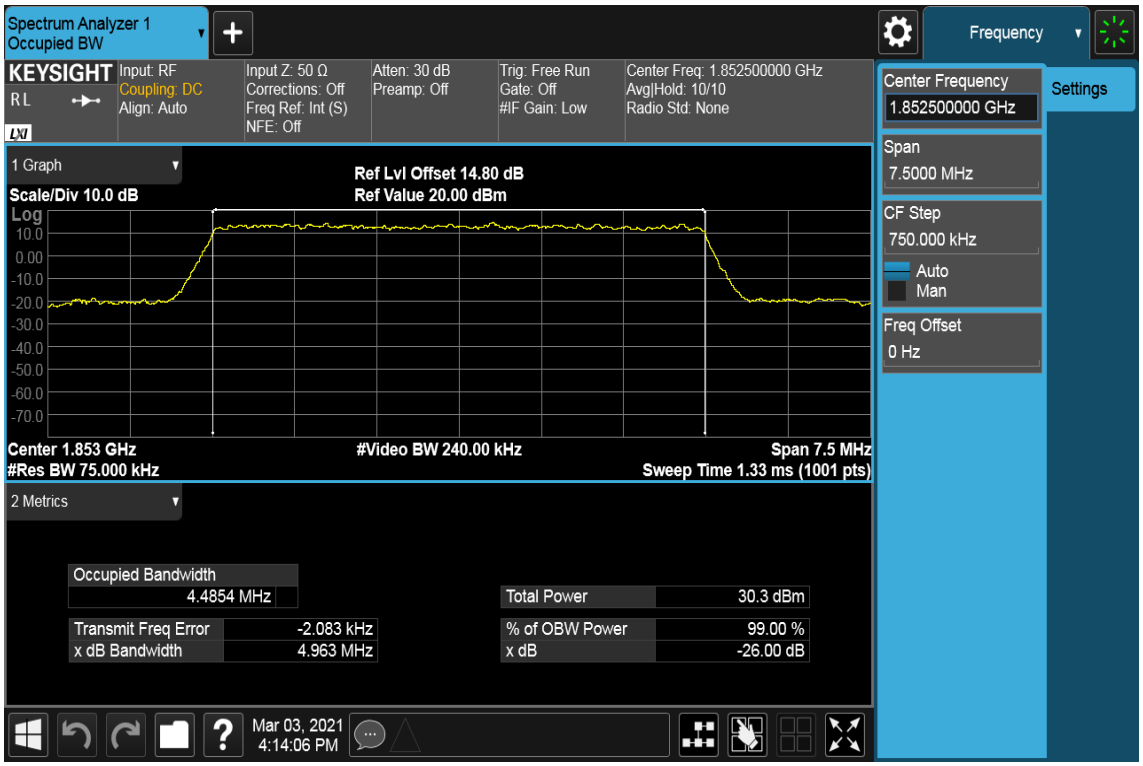


CH High

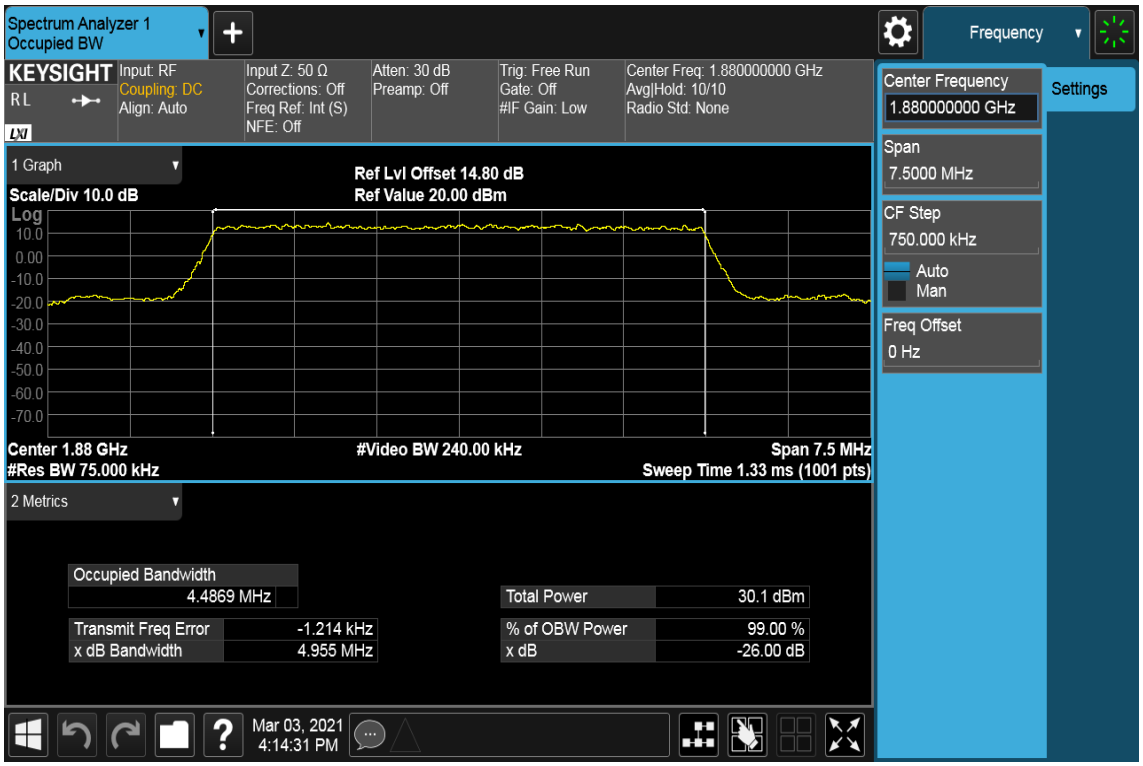


BW: 5MHz / QPSK / RB =25, RB Offset = 0

CH Low



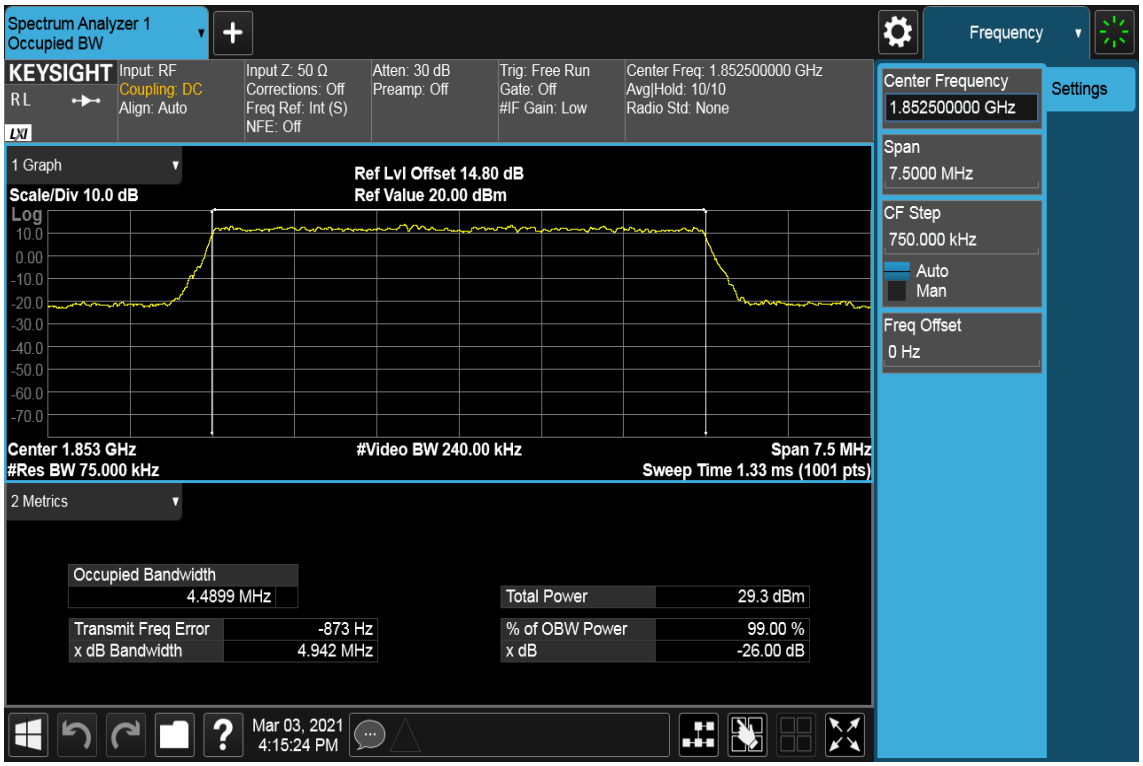
CH Mid



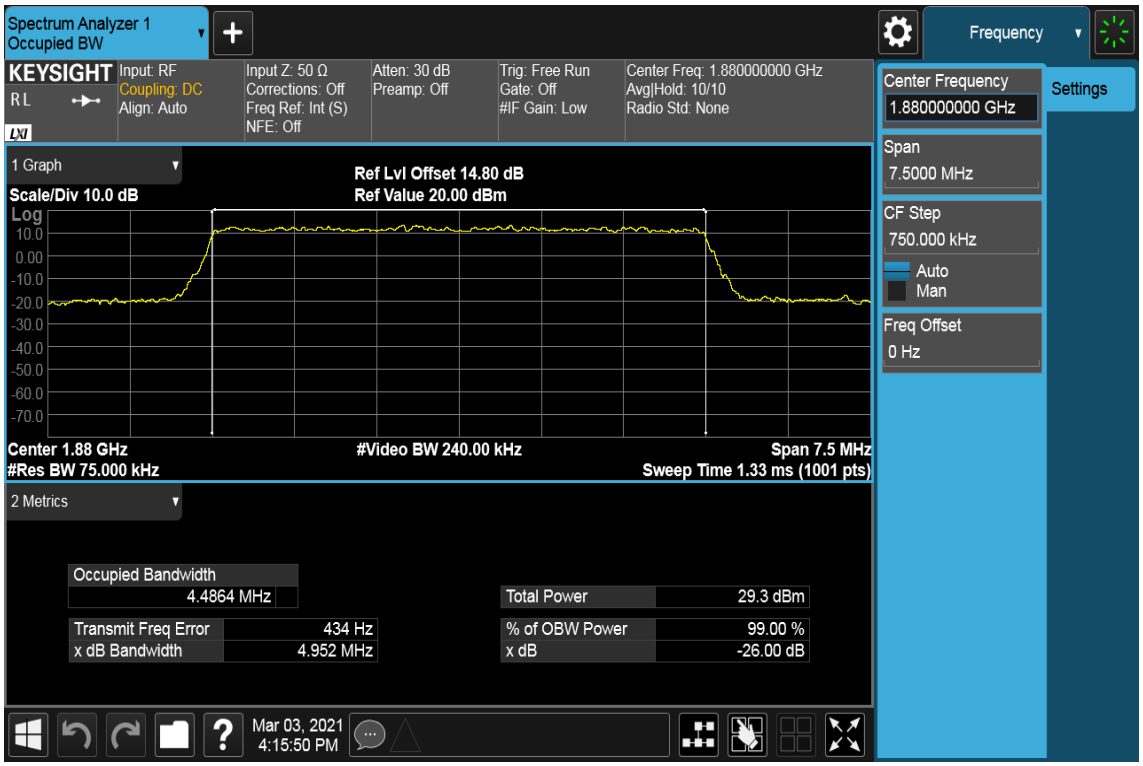
CH High

BW: 5MHz / 16QAM / RB =25, RB Offset = 0

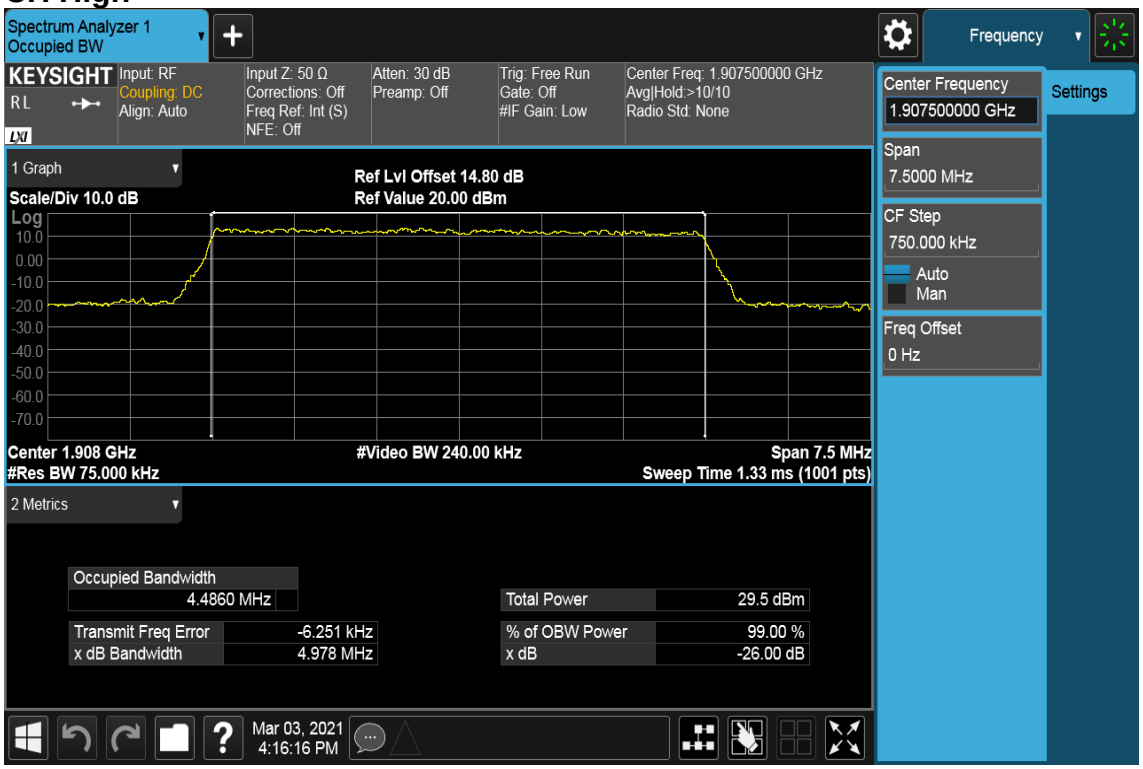
CH Low



CH Mid

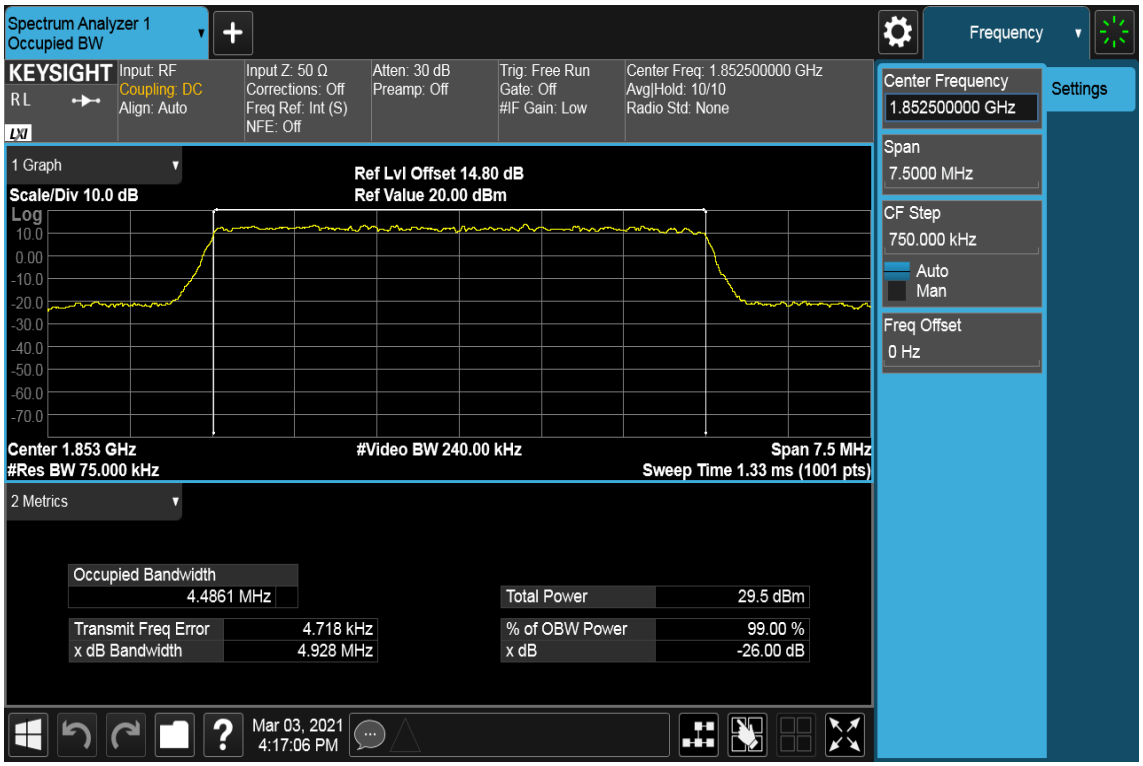


CH High

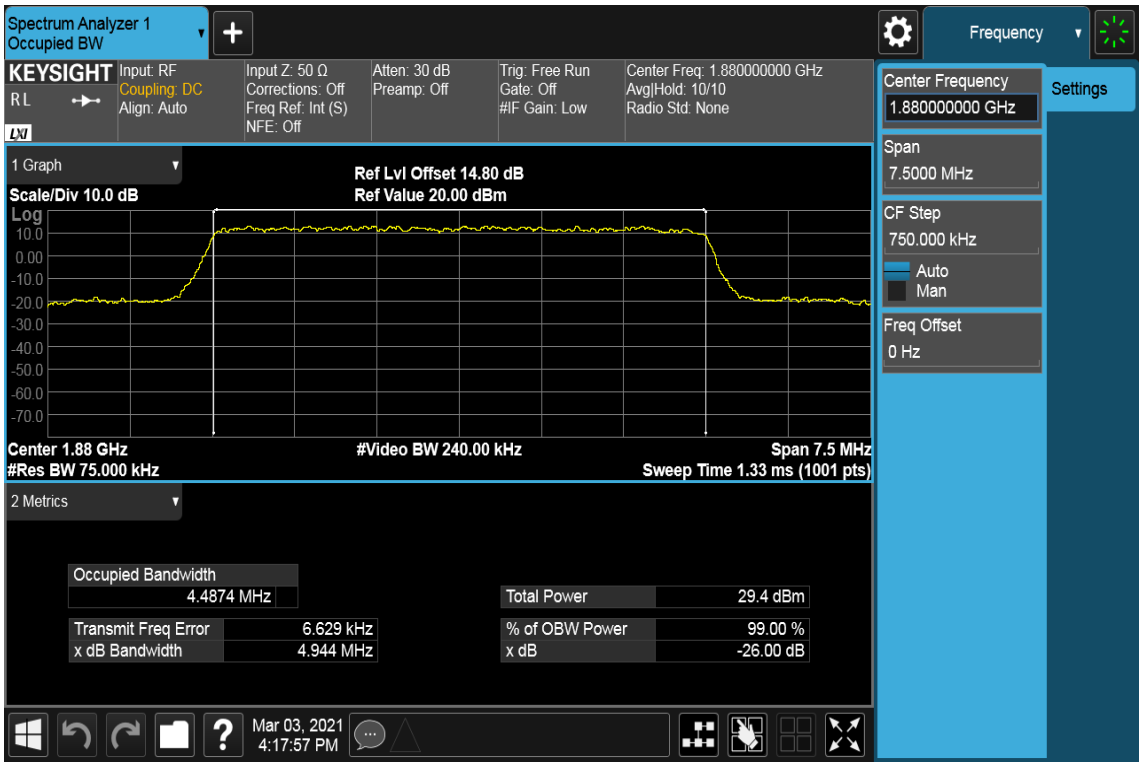


BW: 5MHz / 64QAM / RB =25, RB Offset = 0

CH Low



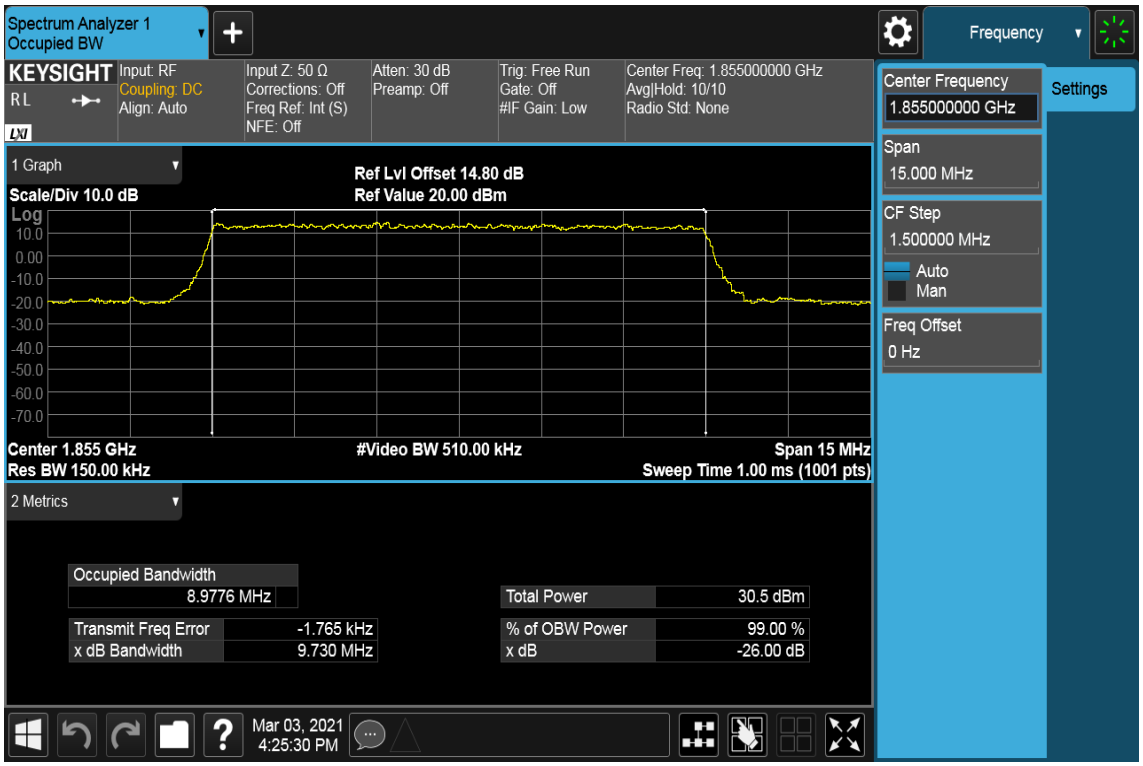
CH Mid



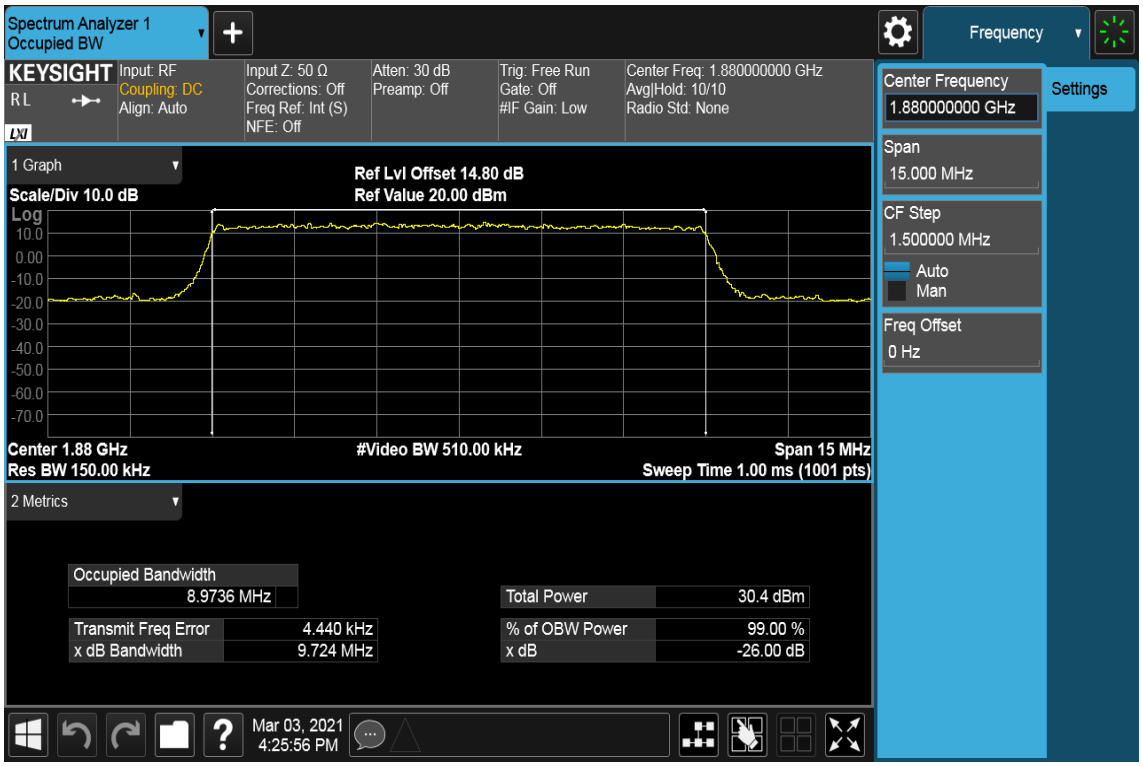
CH High

BW: 10MHz / QPSK / RB =50, RB Offset = 0

CH Low



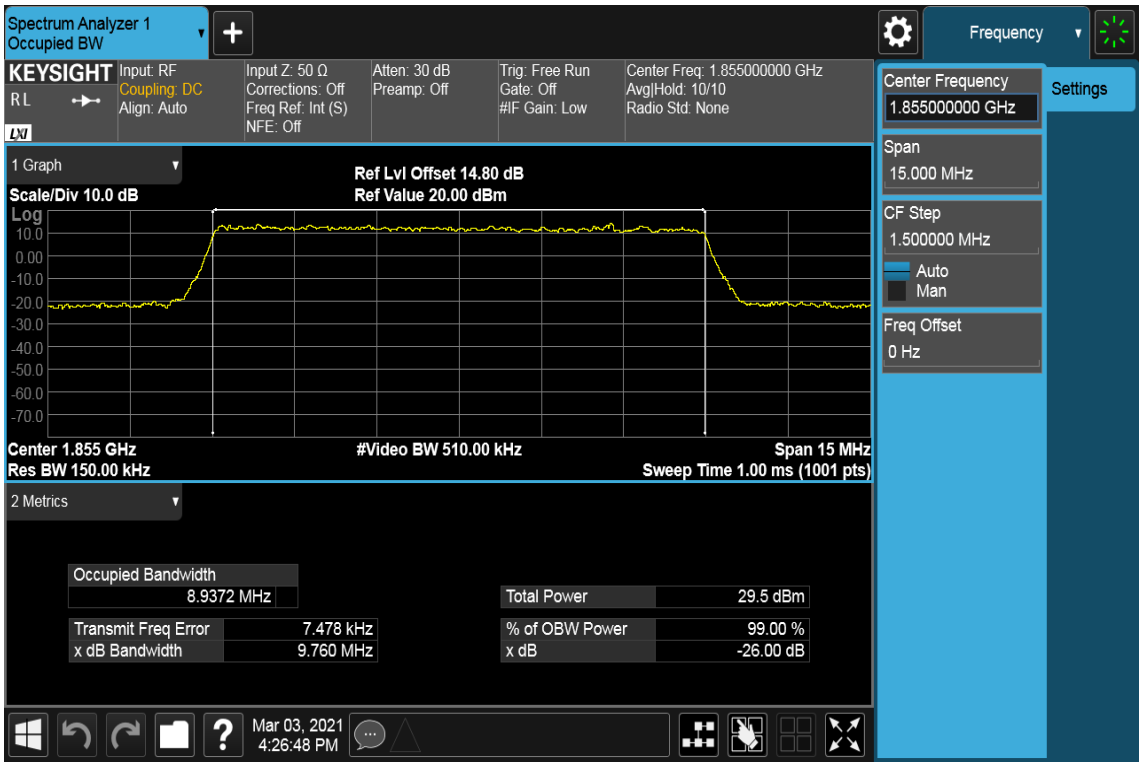
CH Mid



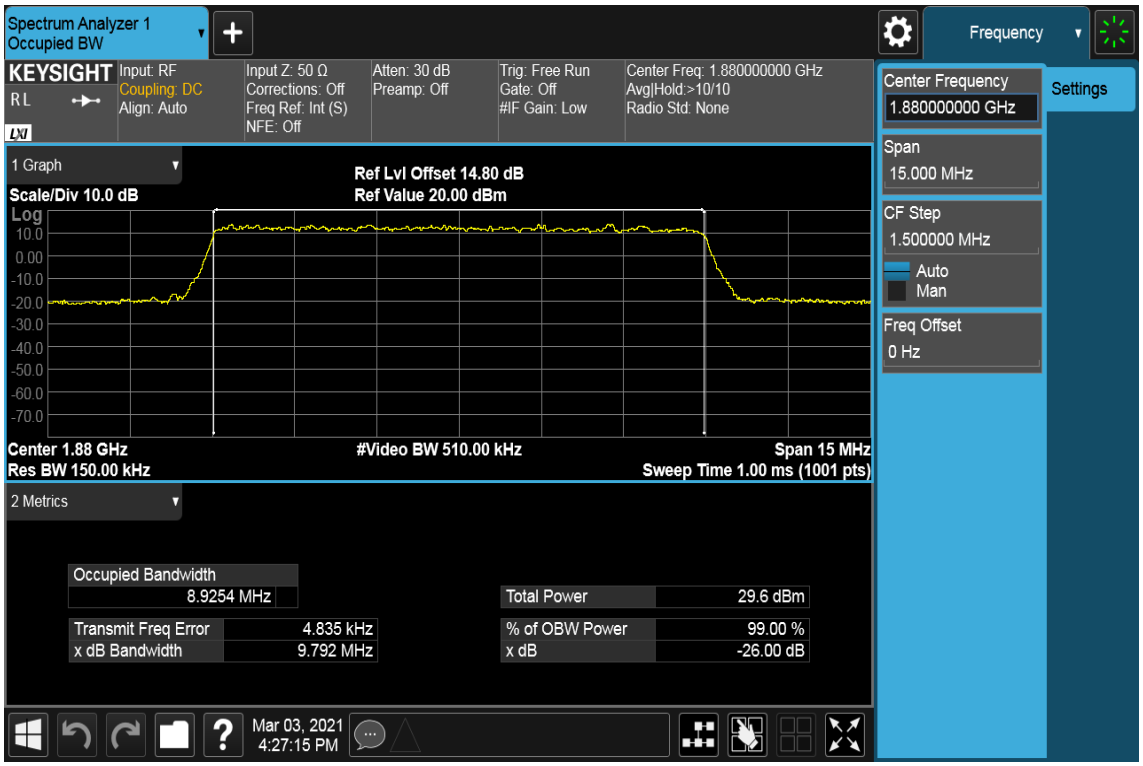
CH High

BW: 10MHz / 16QAM / RB =50, RB Offset = 0

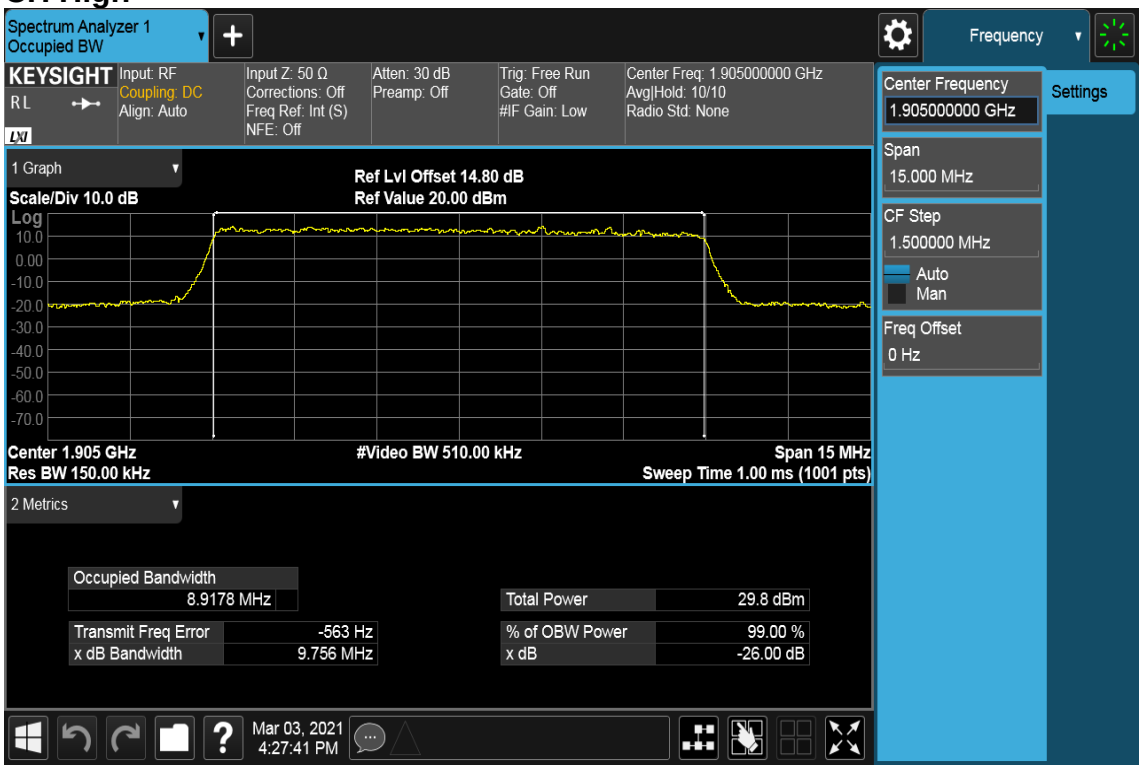
CH Low



CH Mid

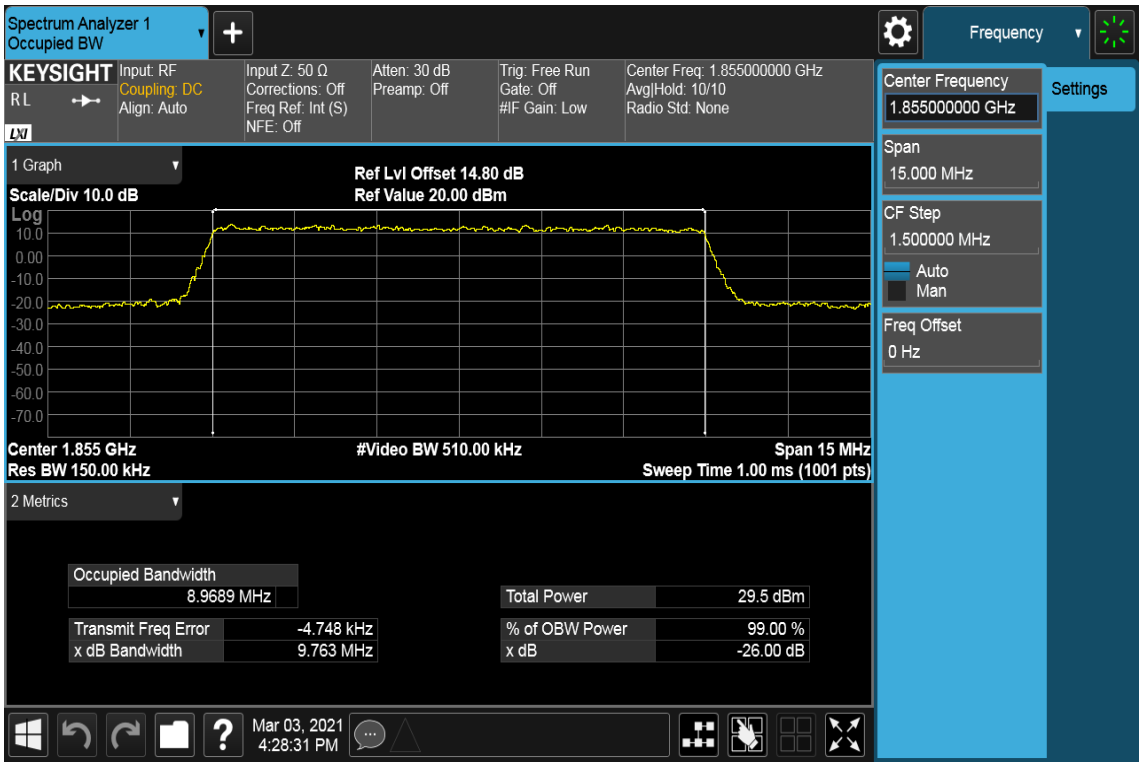


CH High

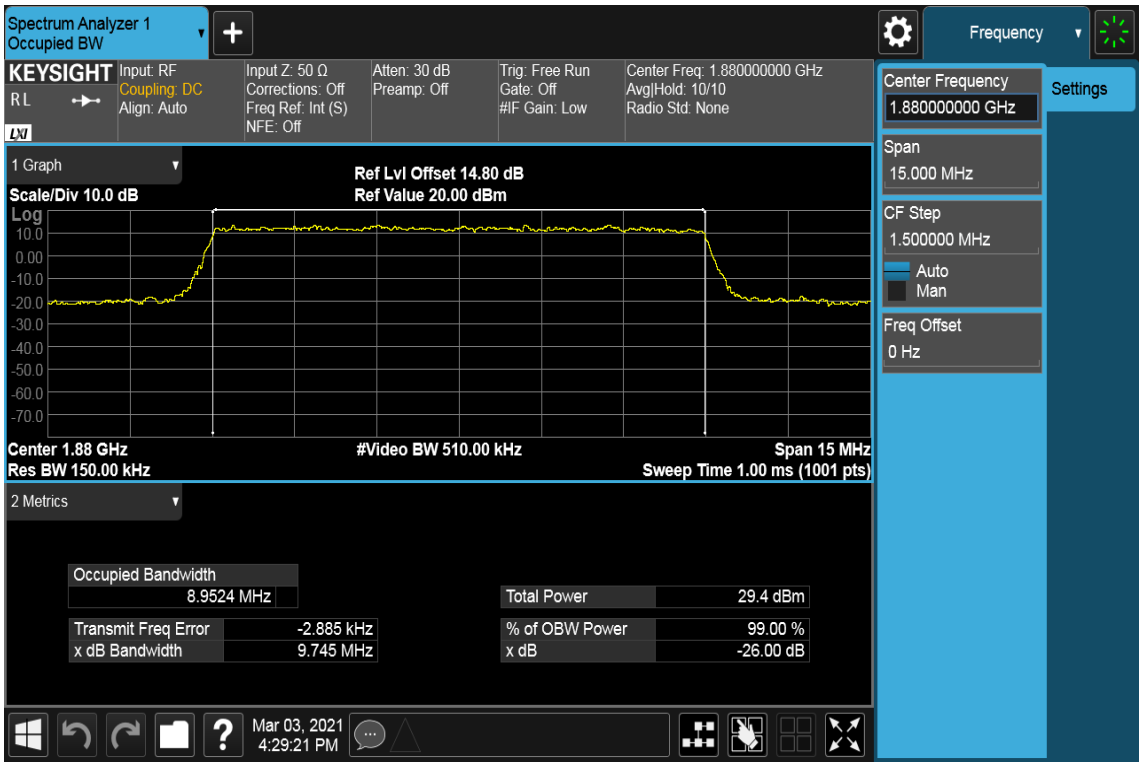


BW: 10MHz / 64QAM / RB =50, RB Offset = 0

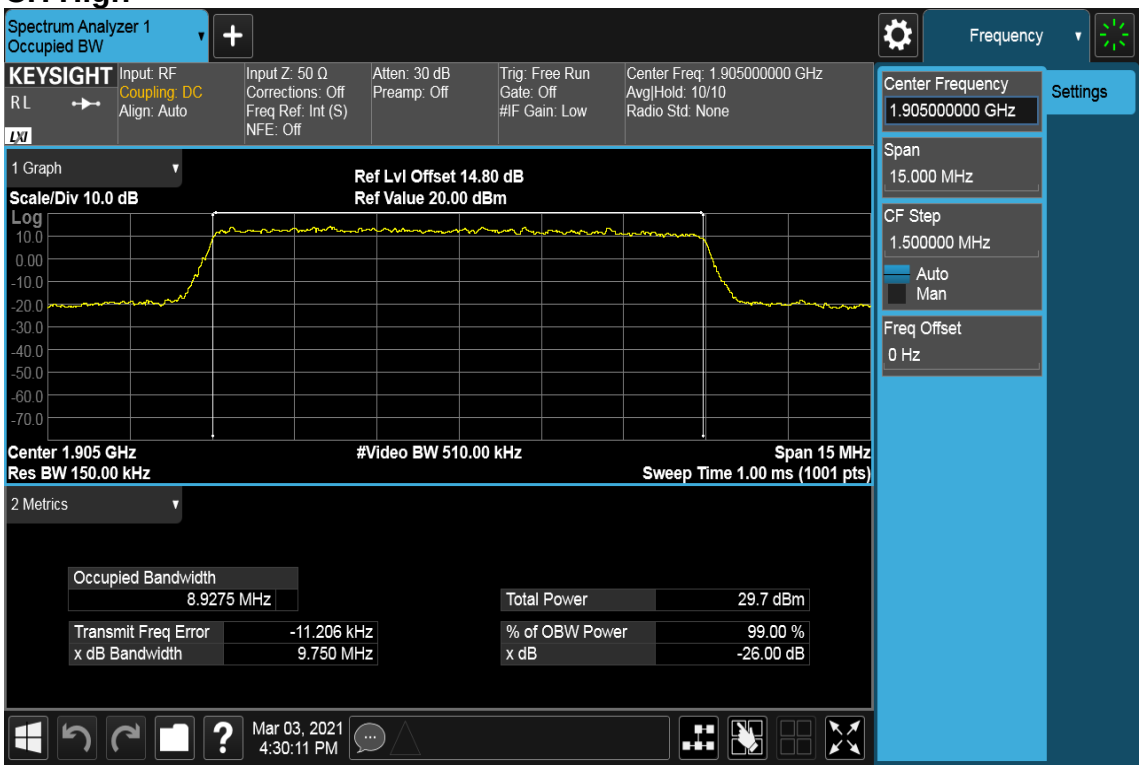
CH Low



CH Mid

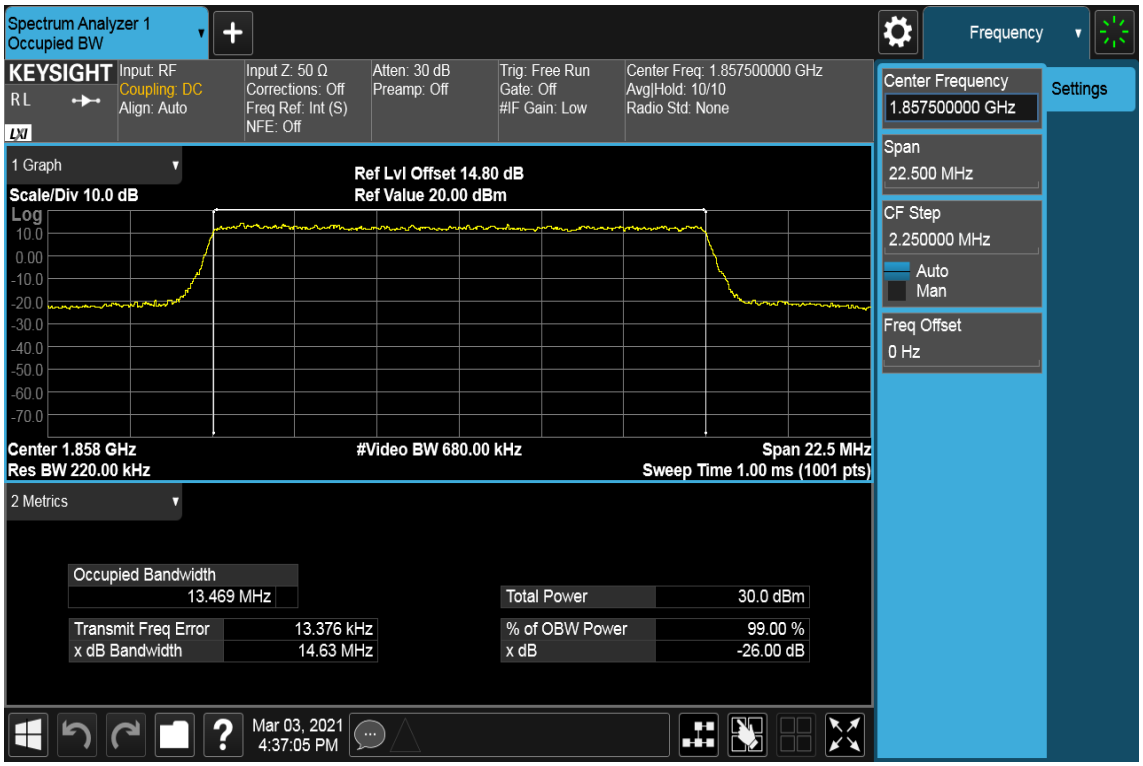


CH High

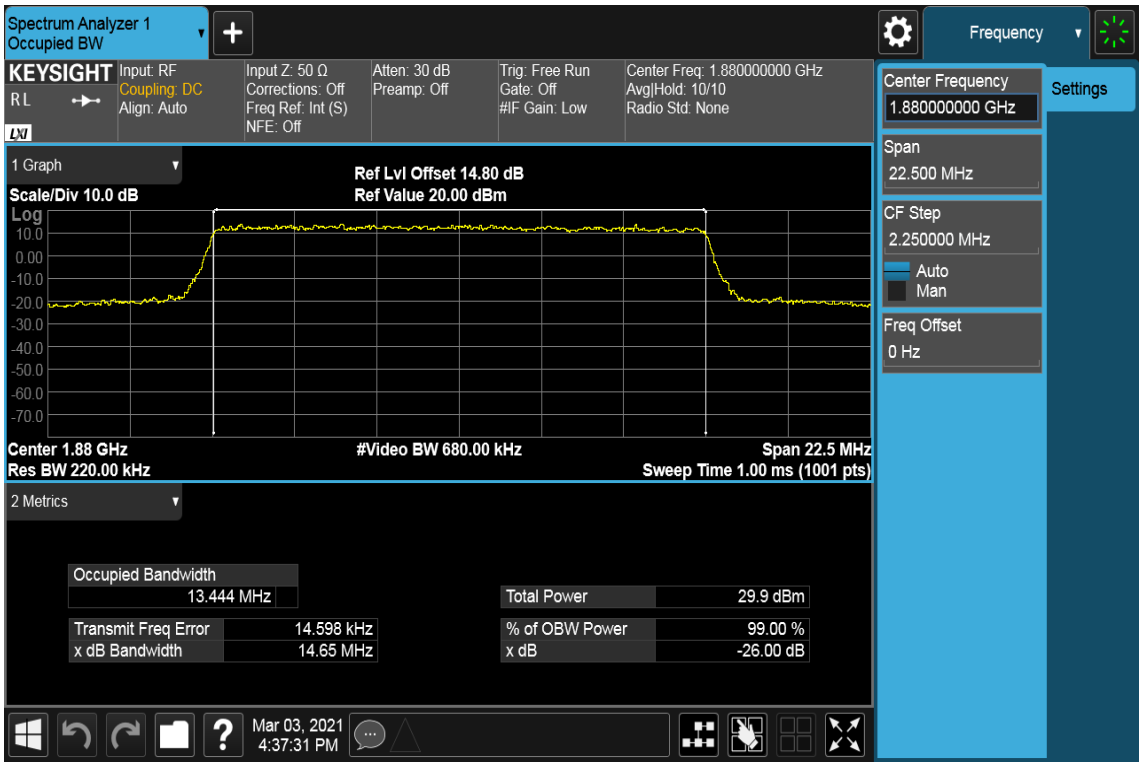


BW: 15MHz / QPSK / RB =75, RB Offset = 0

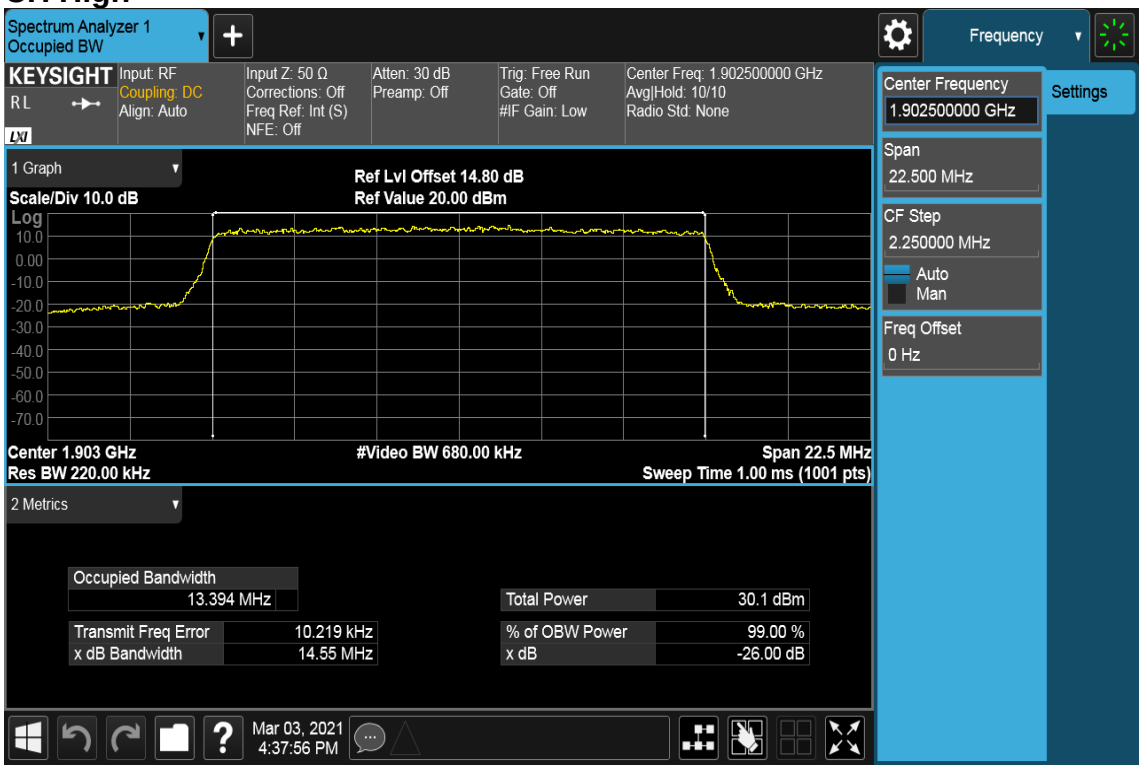
CH Low



CH Mid

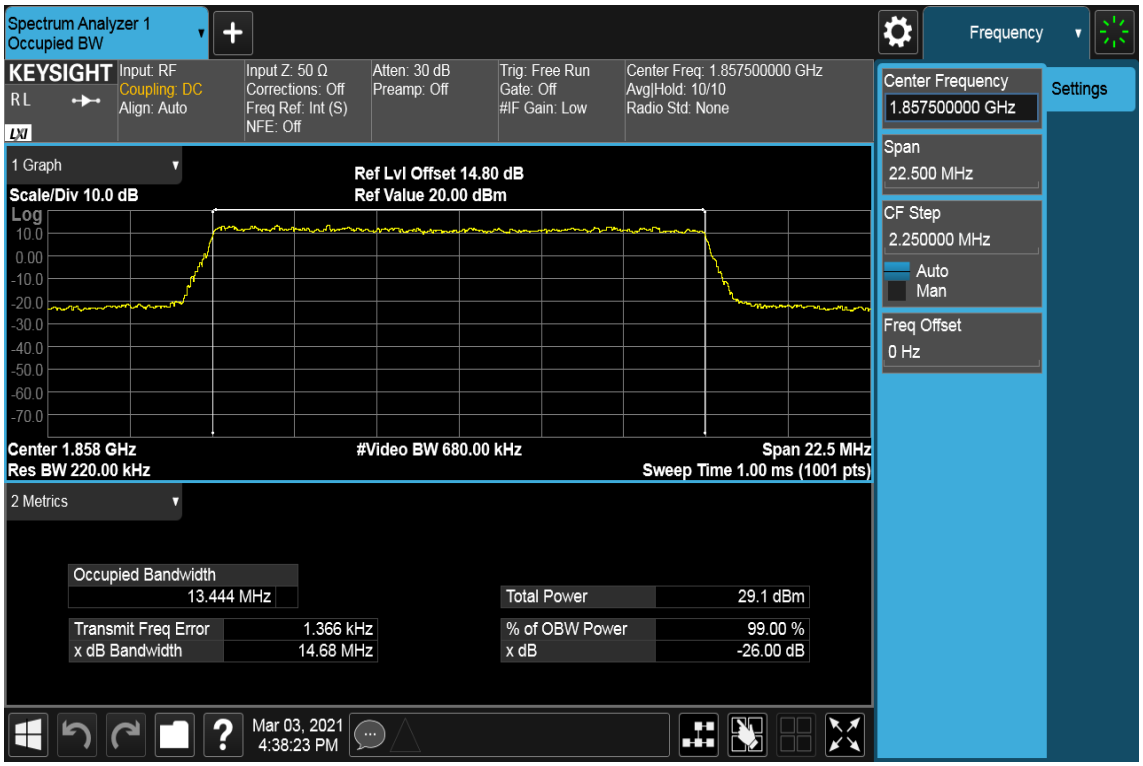


CH High

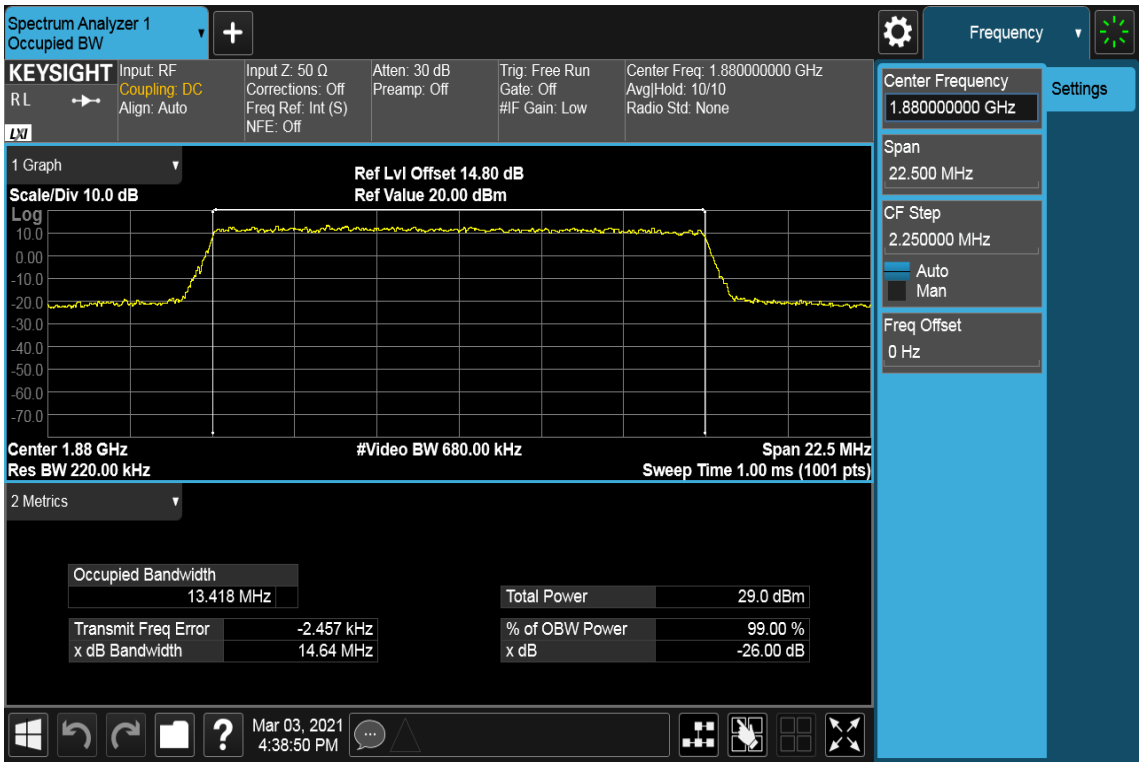


BW: 15MHz / 16QAM / RB =75, RB Offset = 0

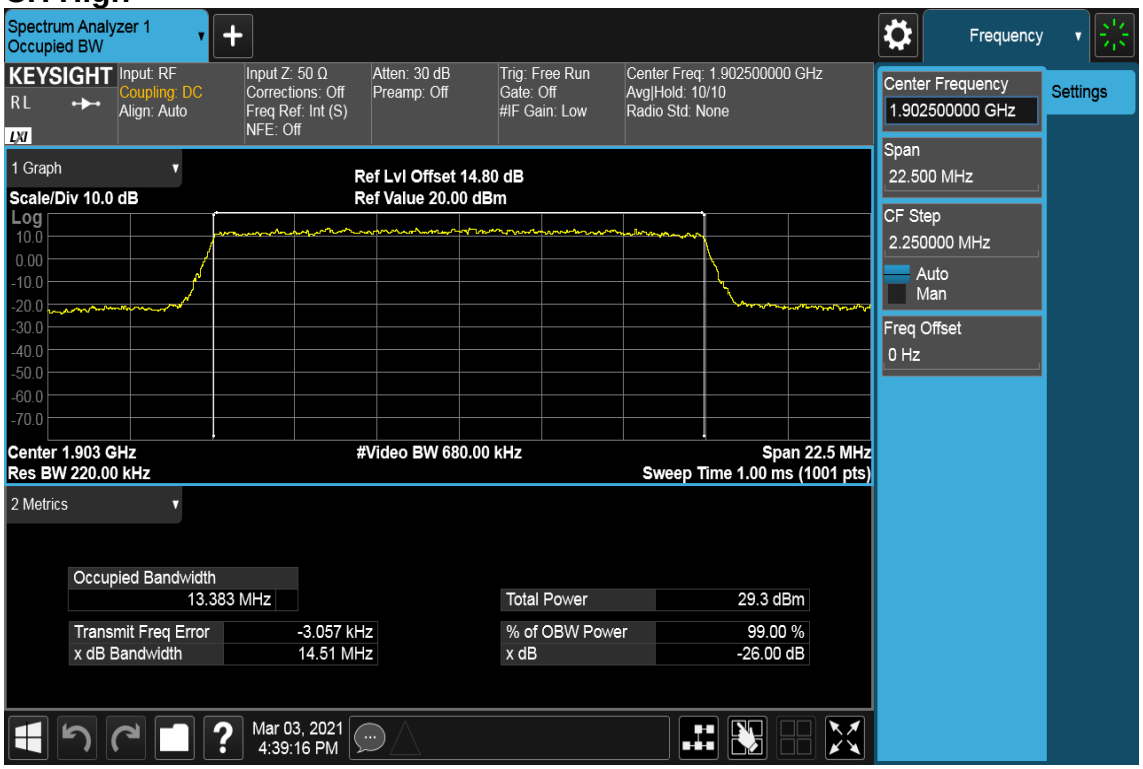
CH Low



CH Mid

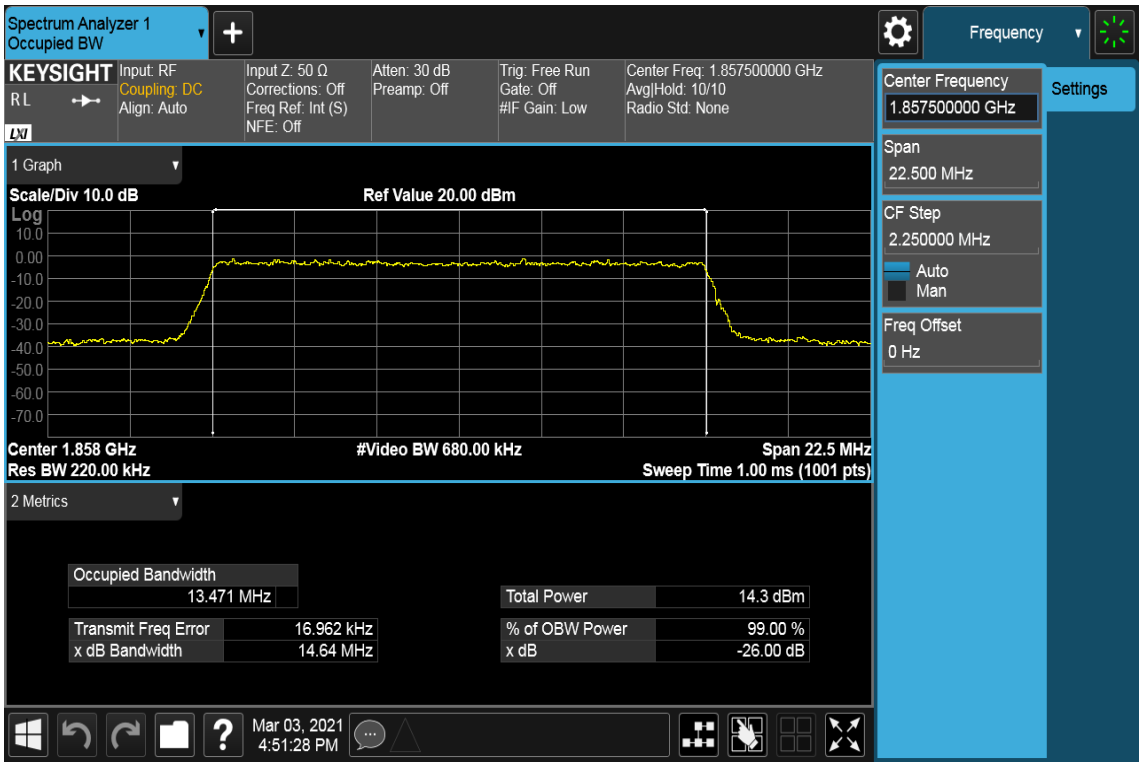


CH High

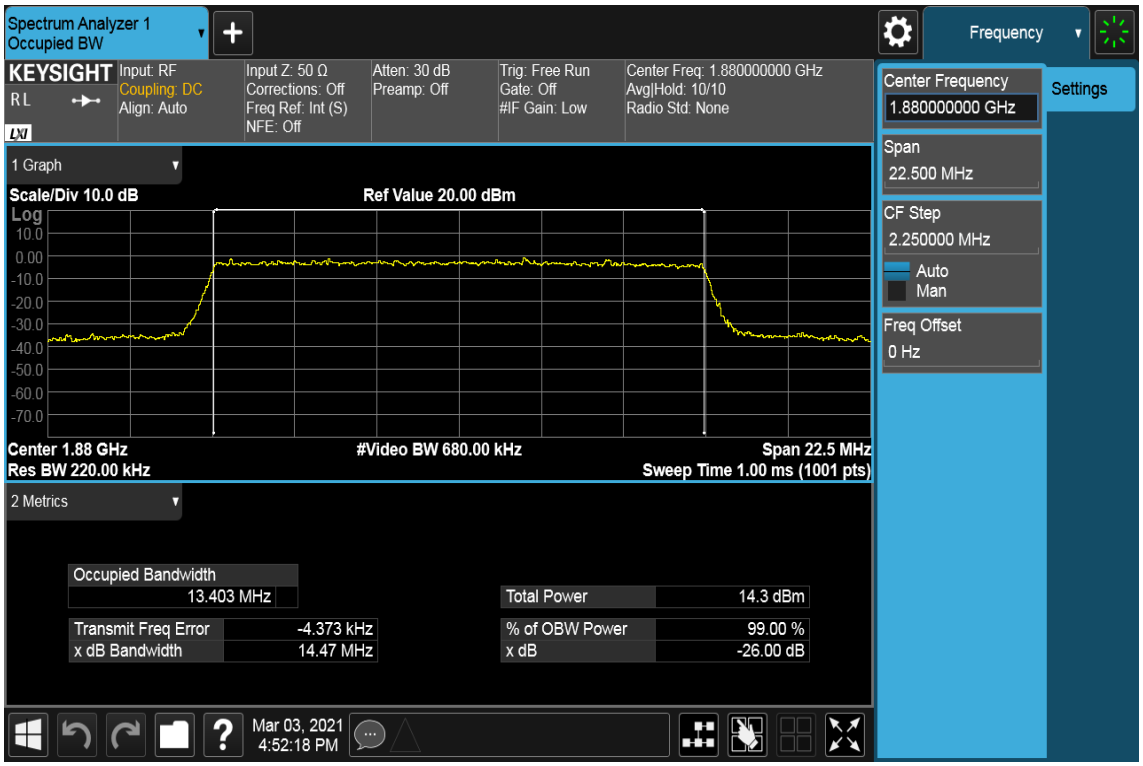


BW: 15MHz / 64QAM / RB =75, RB Offset = 0

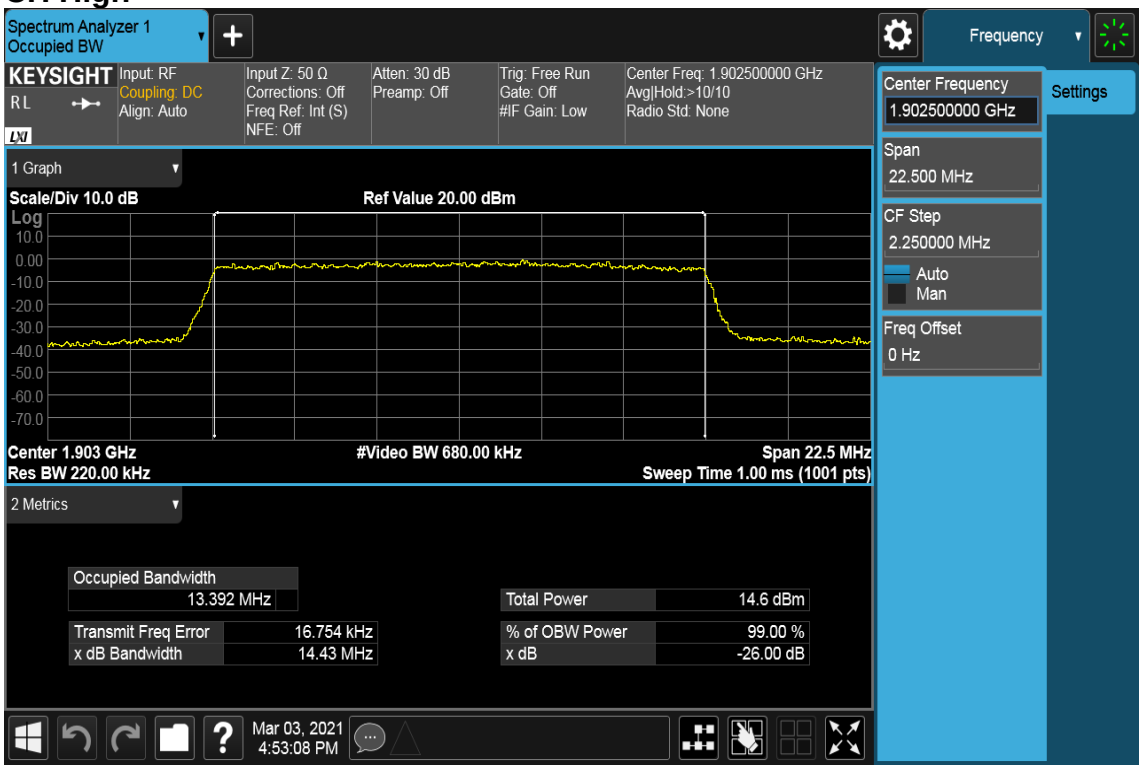
CH Low



CH Mid

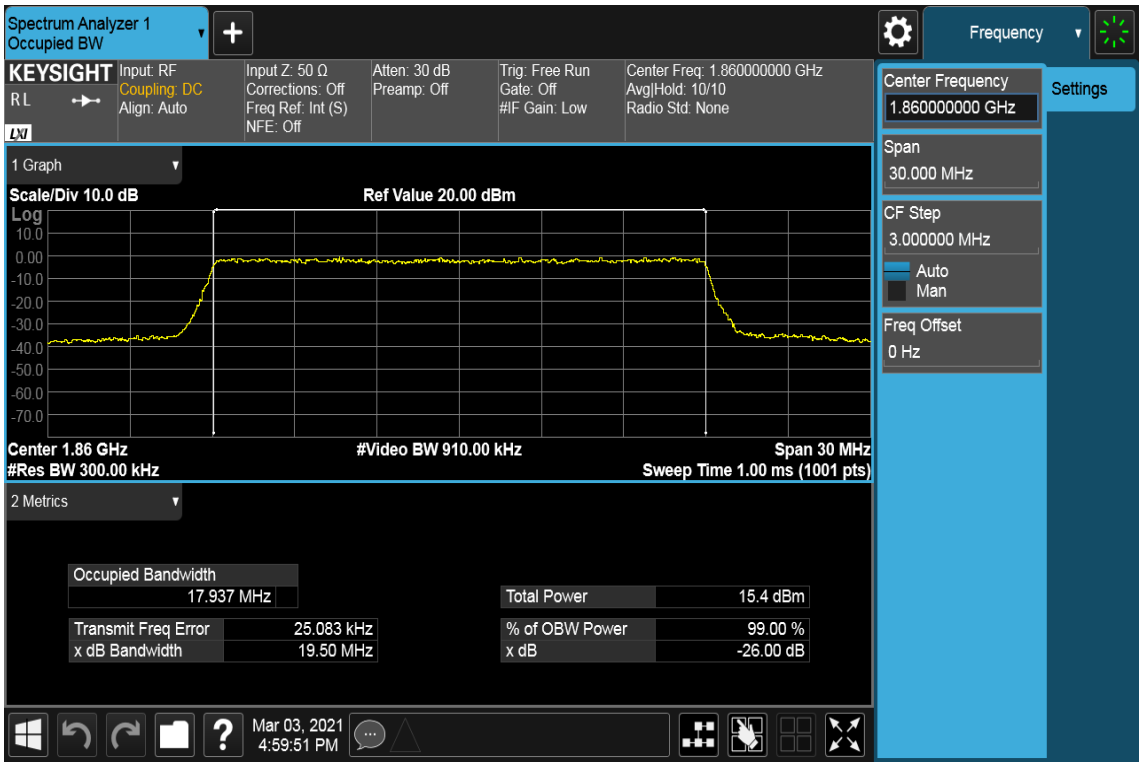


CH High

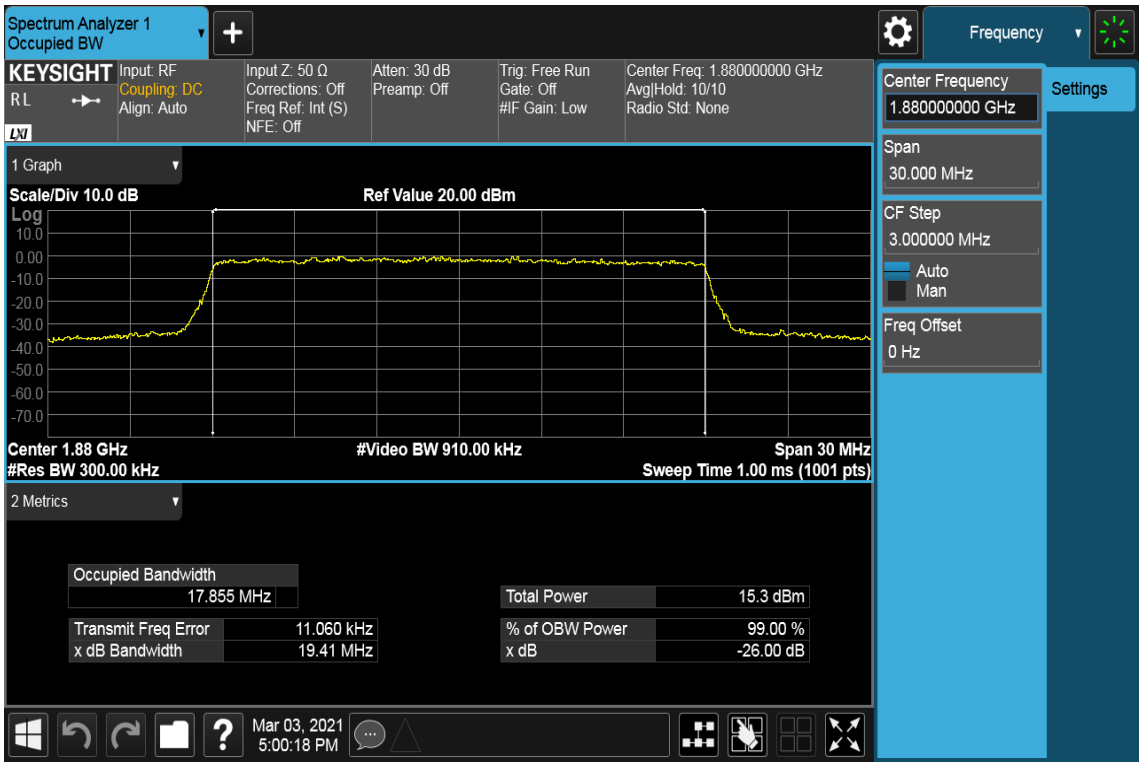


BW: 20MHz / QPSK / RB =100, RB Offset = 0

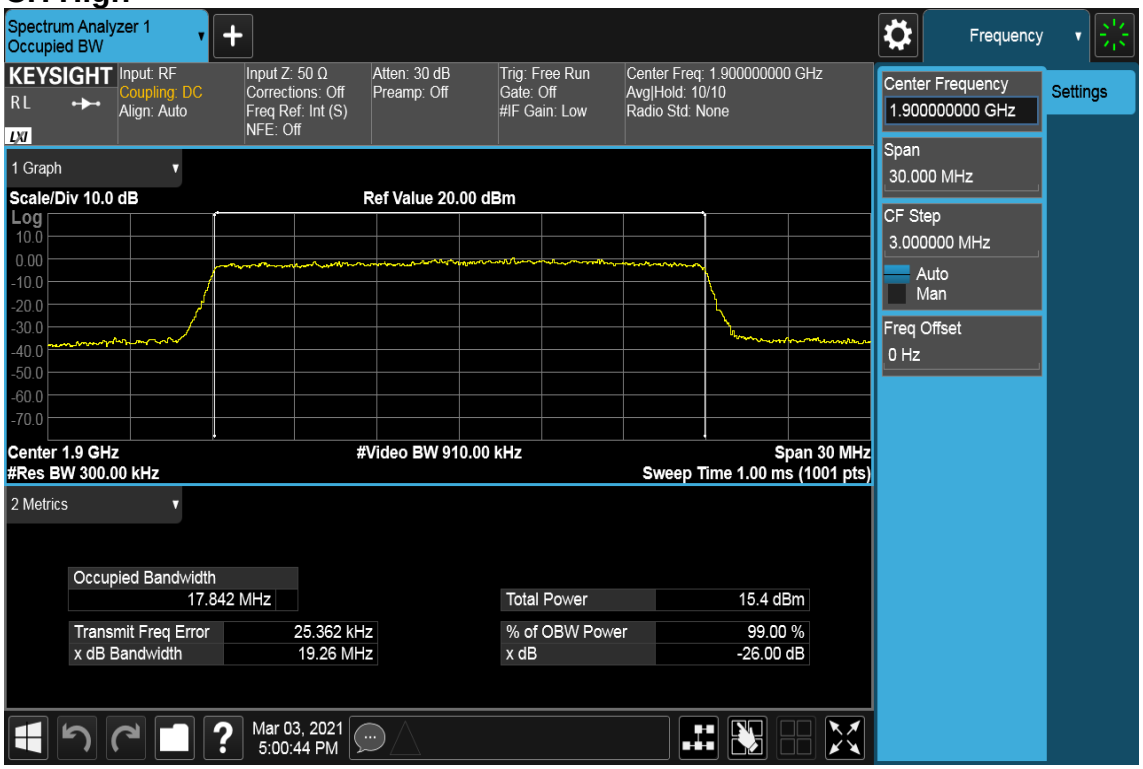
CH Low



CH Mid

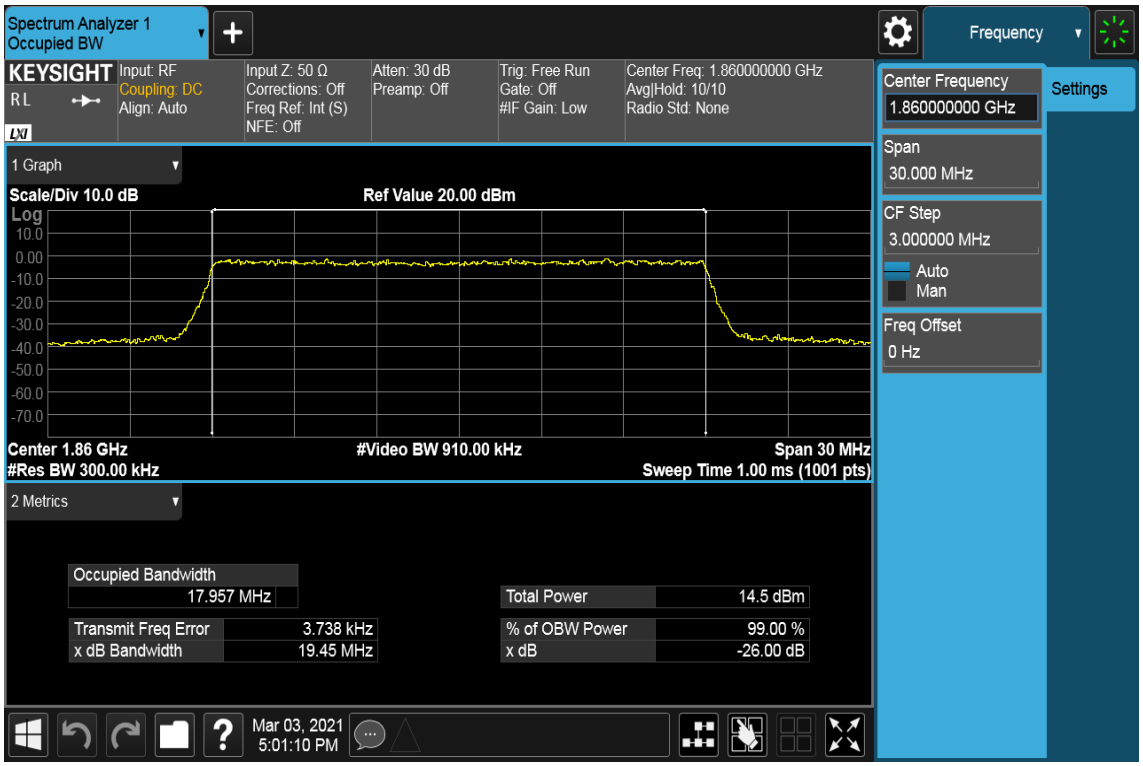


CH High

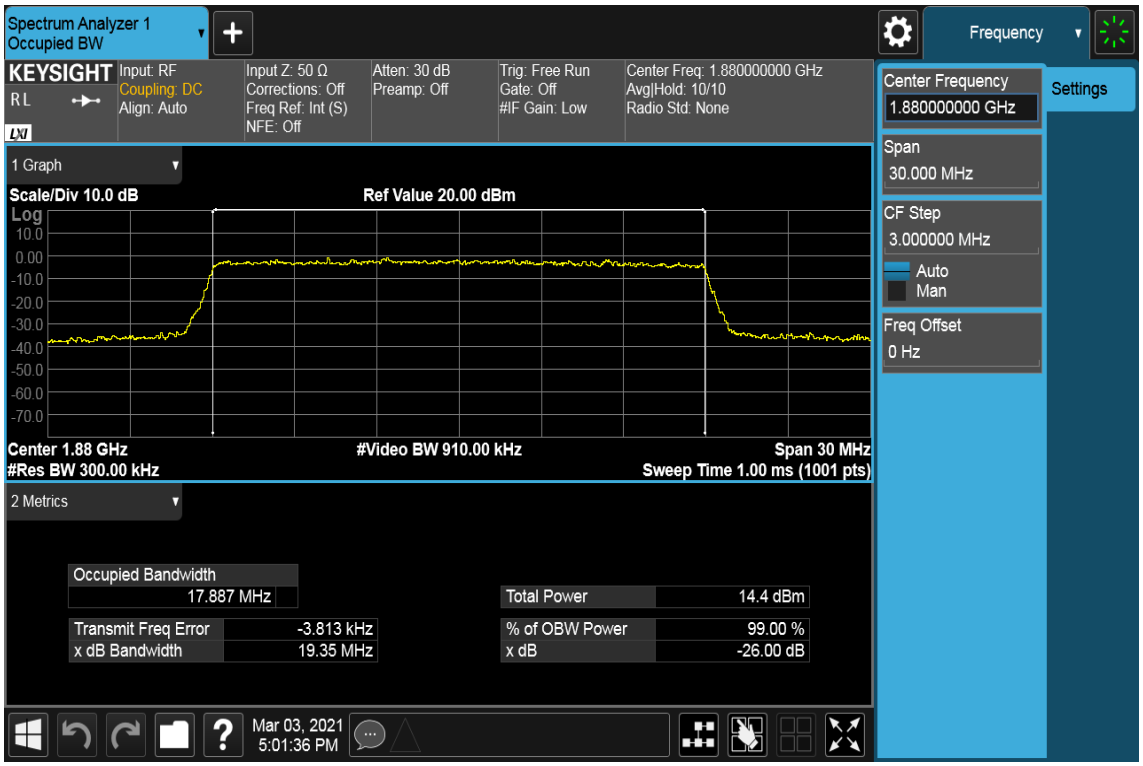


BW: 20MHz / 16QAM / RB =100, RB Offset = 0

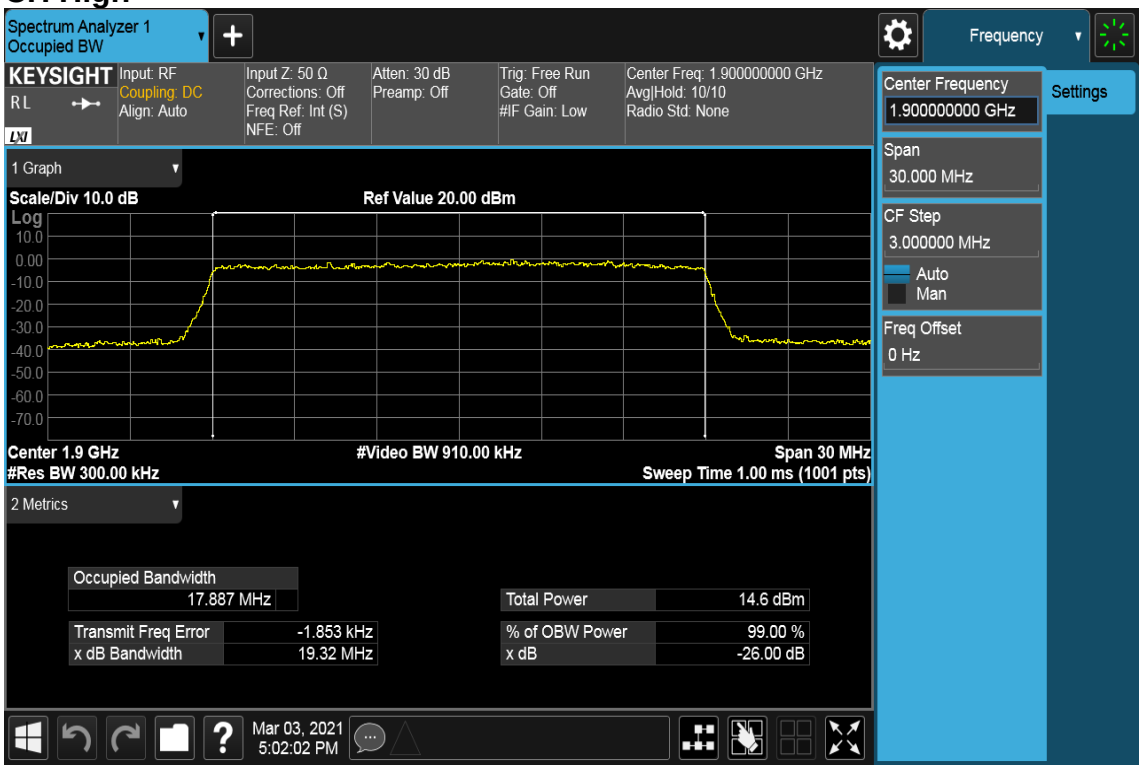
CH Low



CH Mid

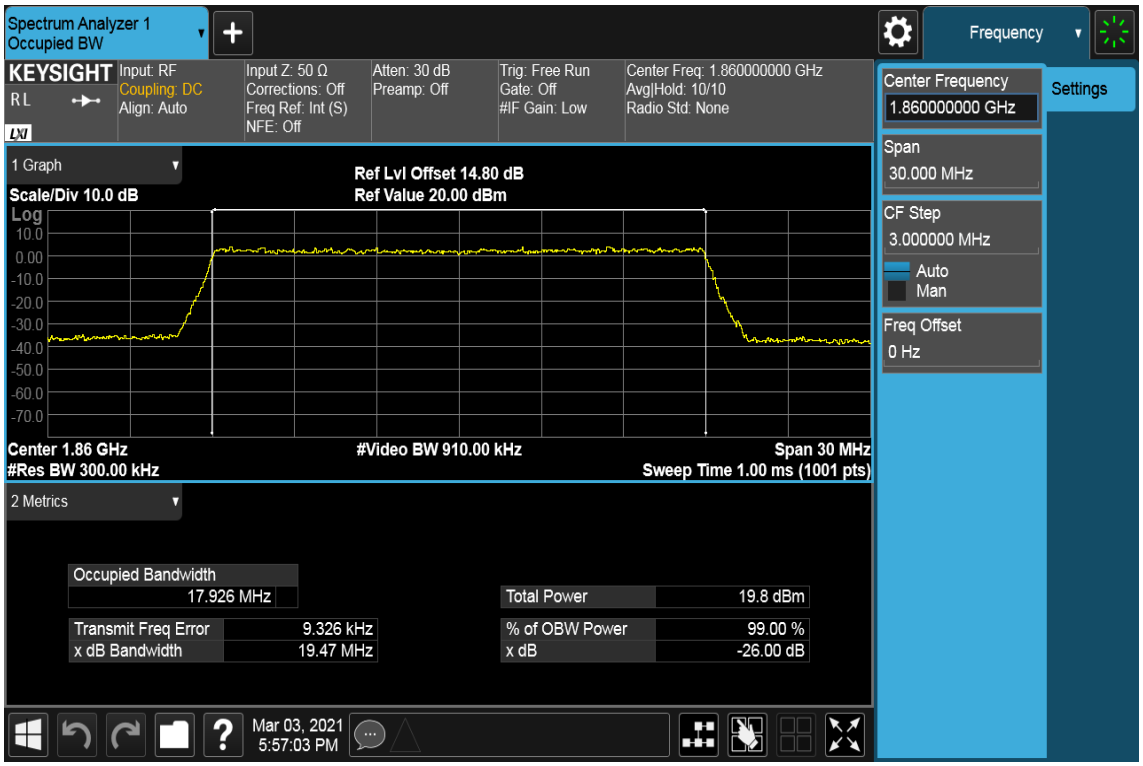


CH High

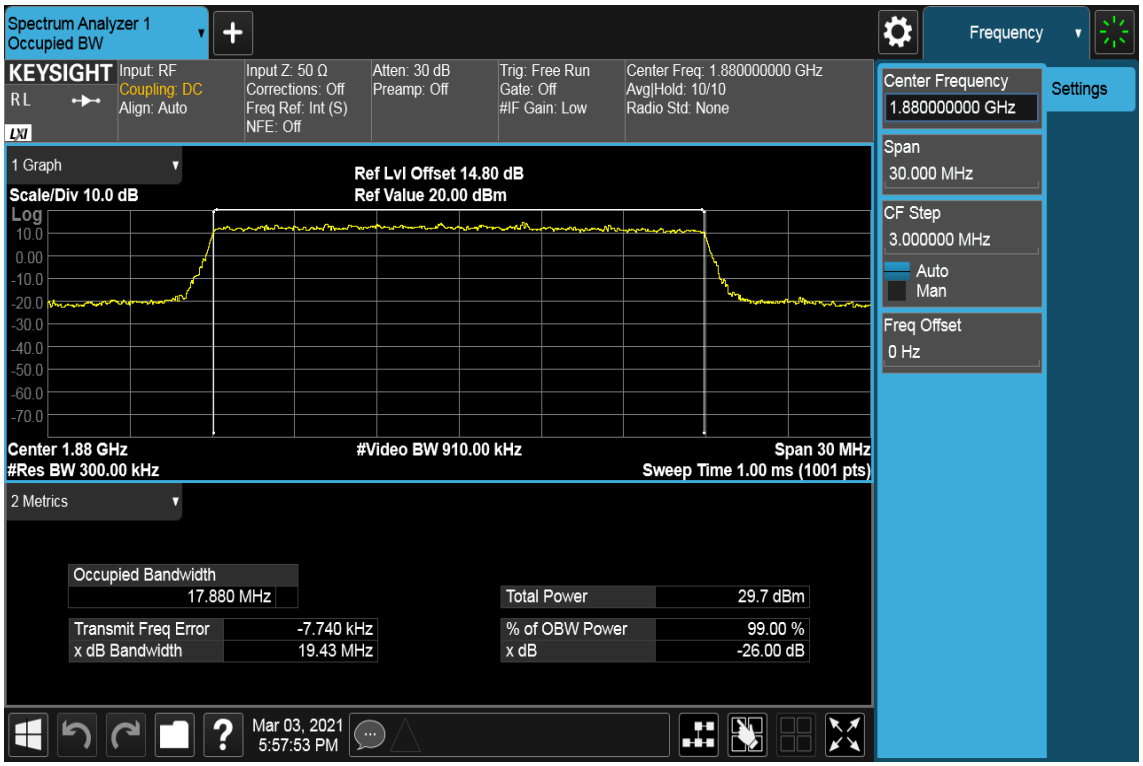


BW: 20MHz / 64QAM / RB =100, RB Offset = 0

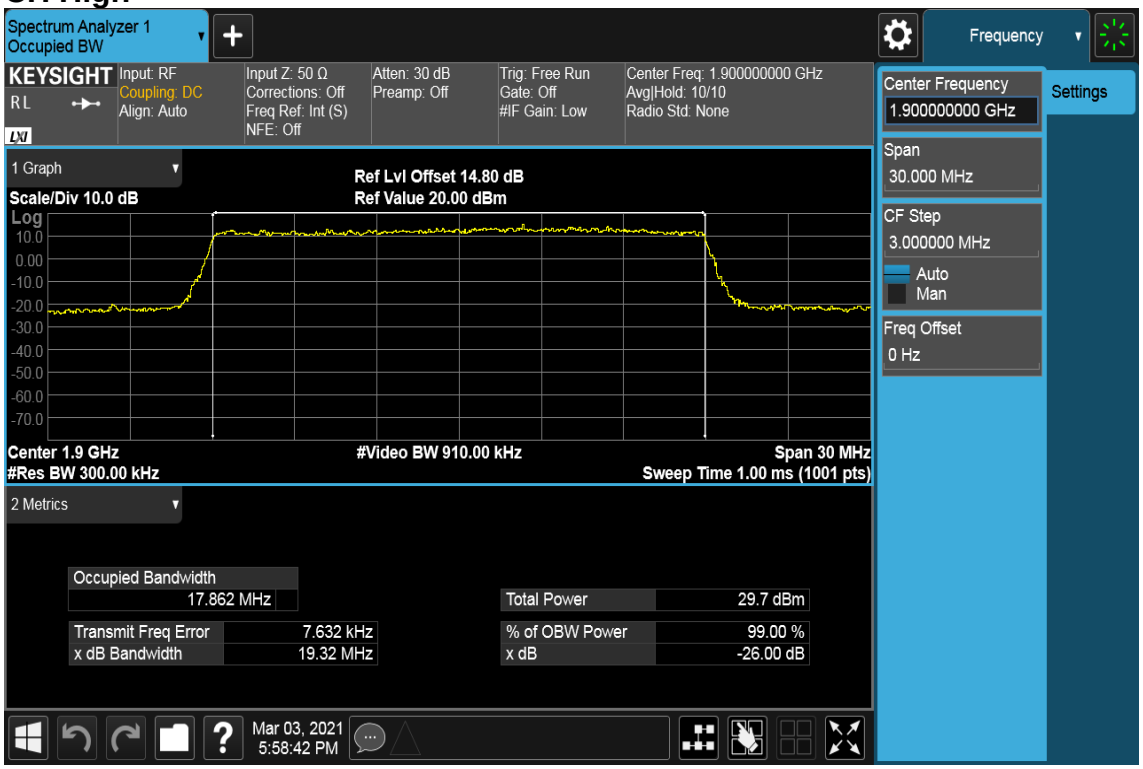
CH Low



CH Mid



CH High



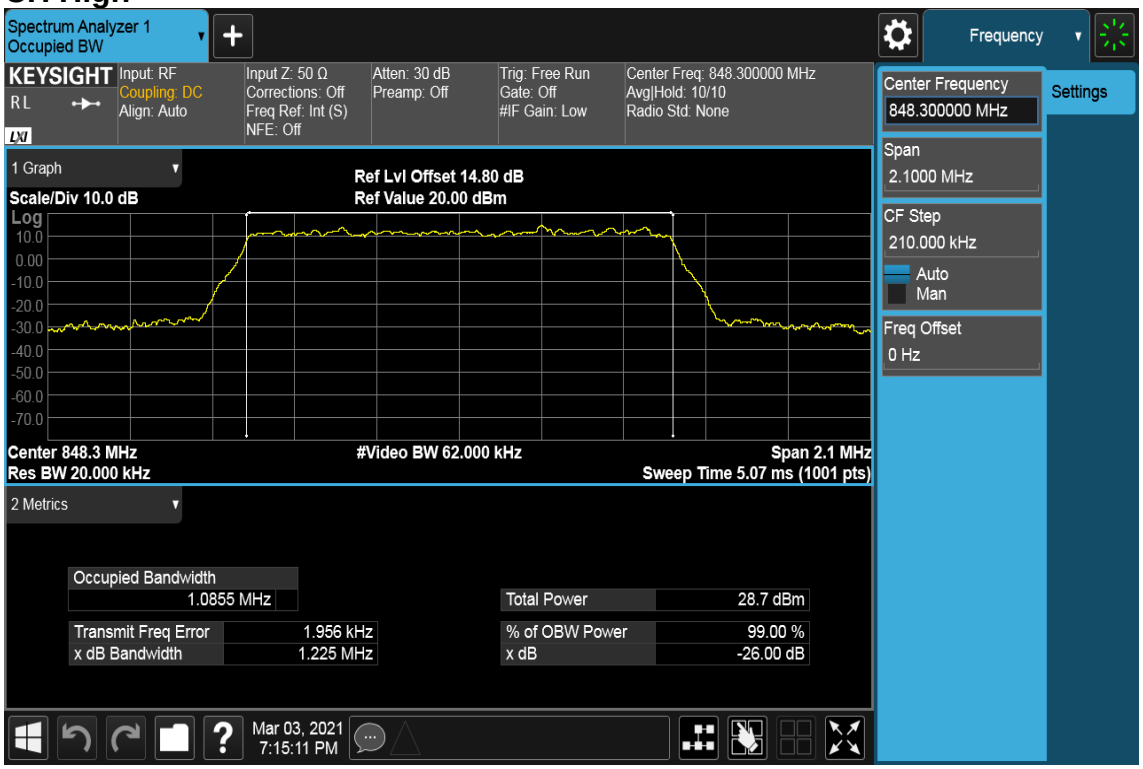
LTE Band 5

BW: 1.4MHz / QPSK / RB =6, RB Offset = 0

CH Low

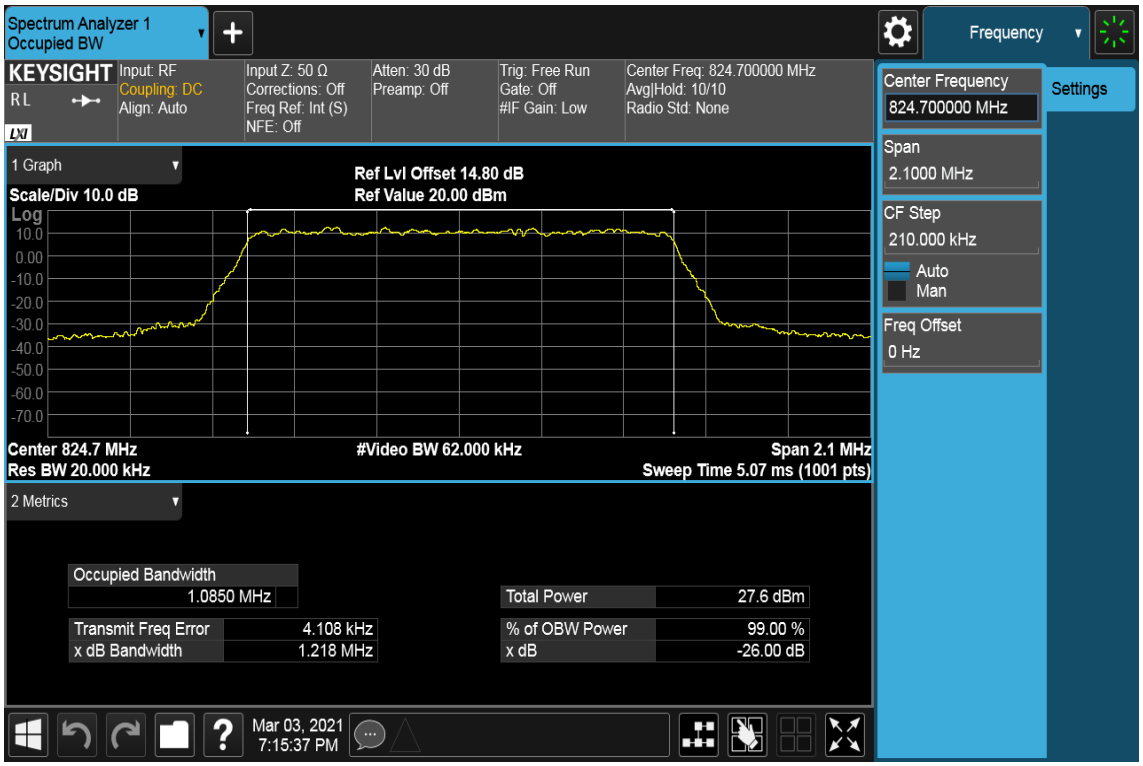
CH Mid

CH High

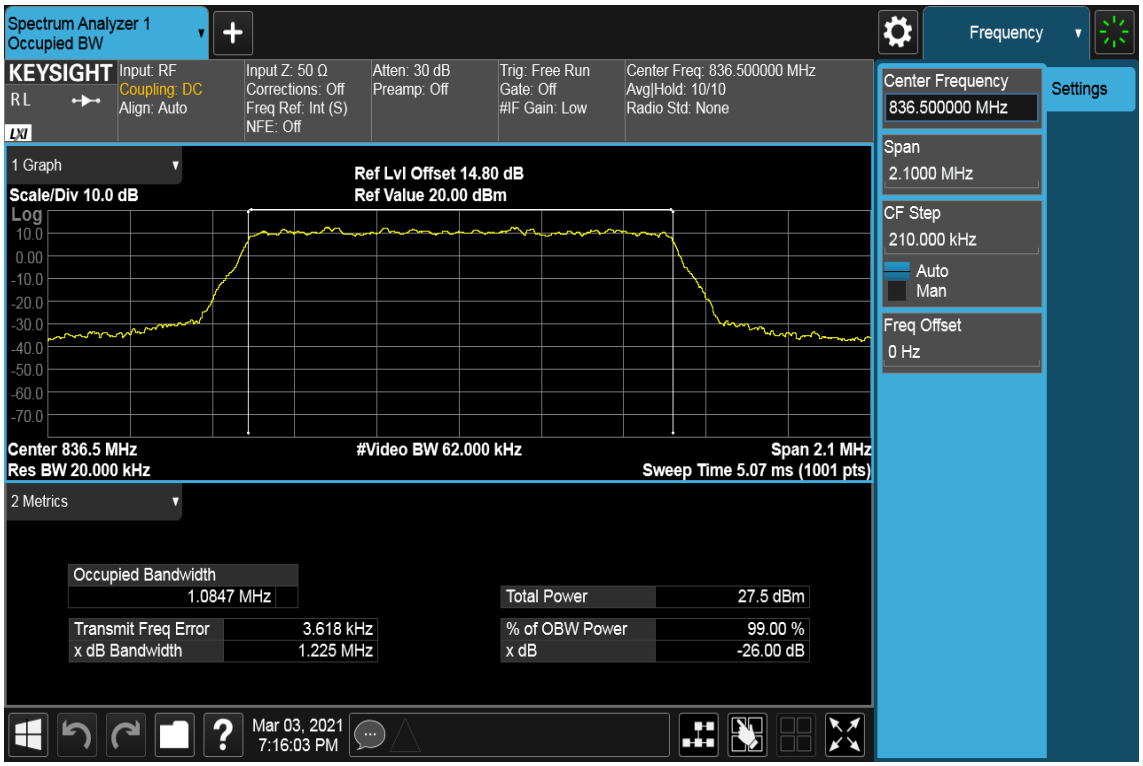


BW: 1.4MHz / 16QAM / RB =6, RB Offset = 0

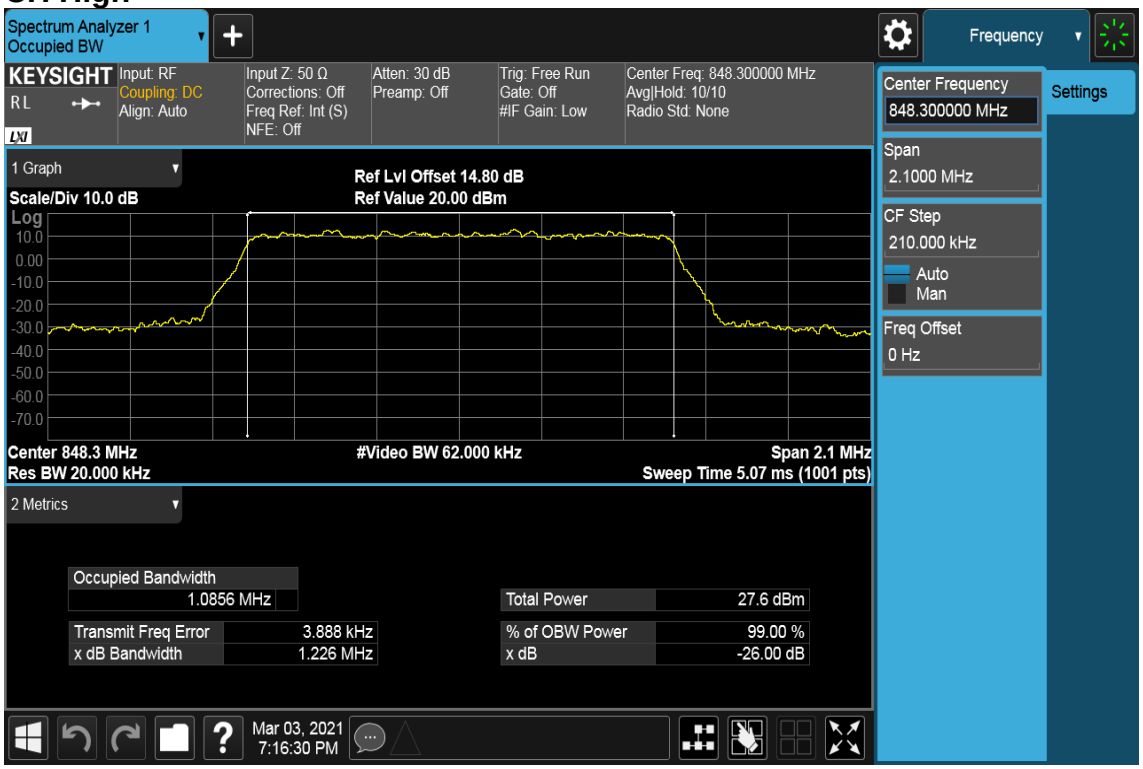
CH Low



CH Mid

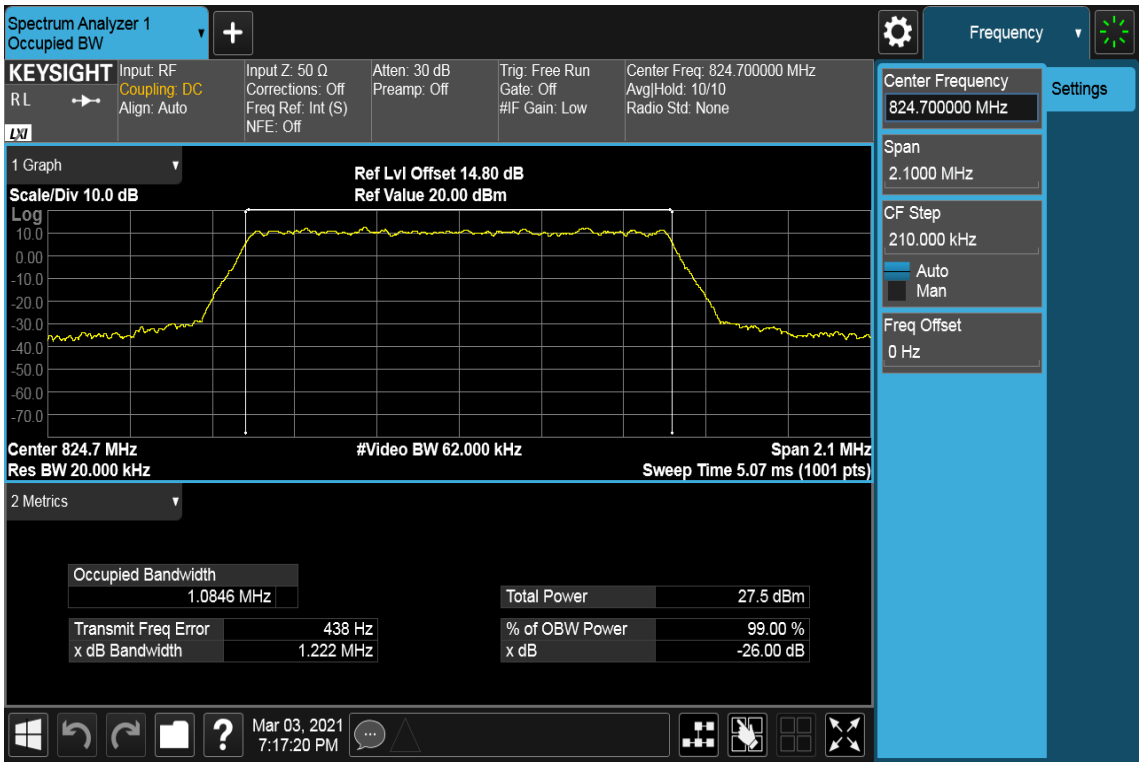


CH High

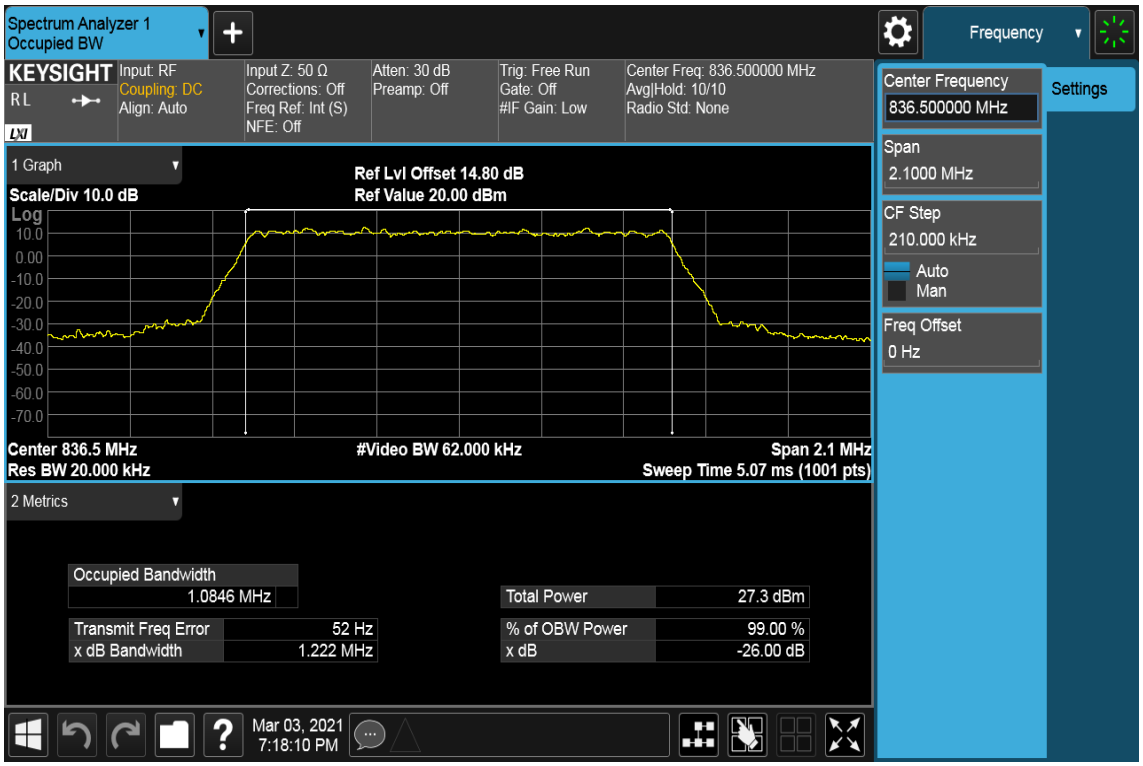


BW: 1.4MHz / 64QAM / RB =6, RB Offset = 0

CH Low



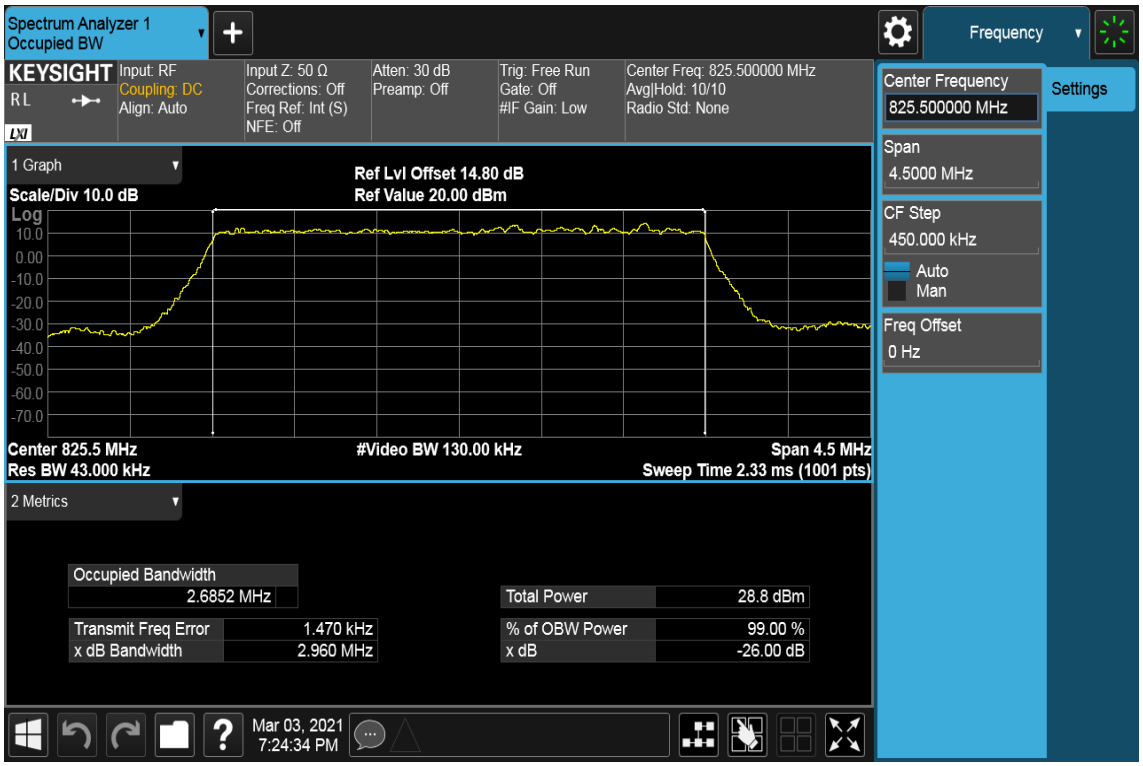
CH Mid



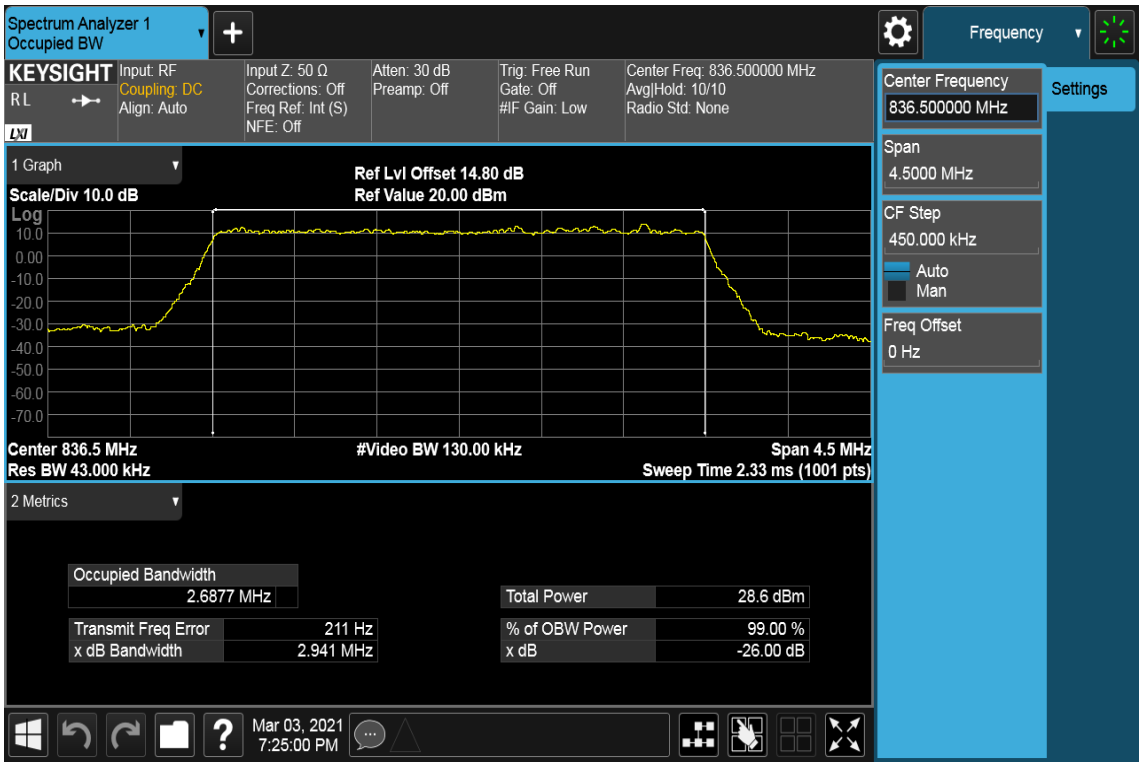
CH High

BW: 3MHz / QPSK / RB =15, RB Offset = 0

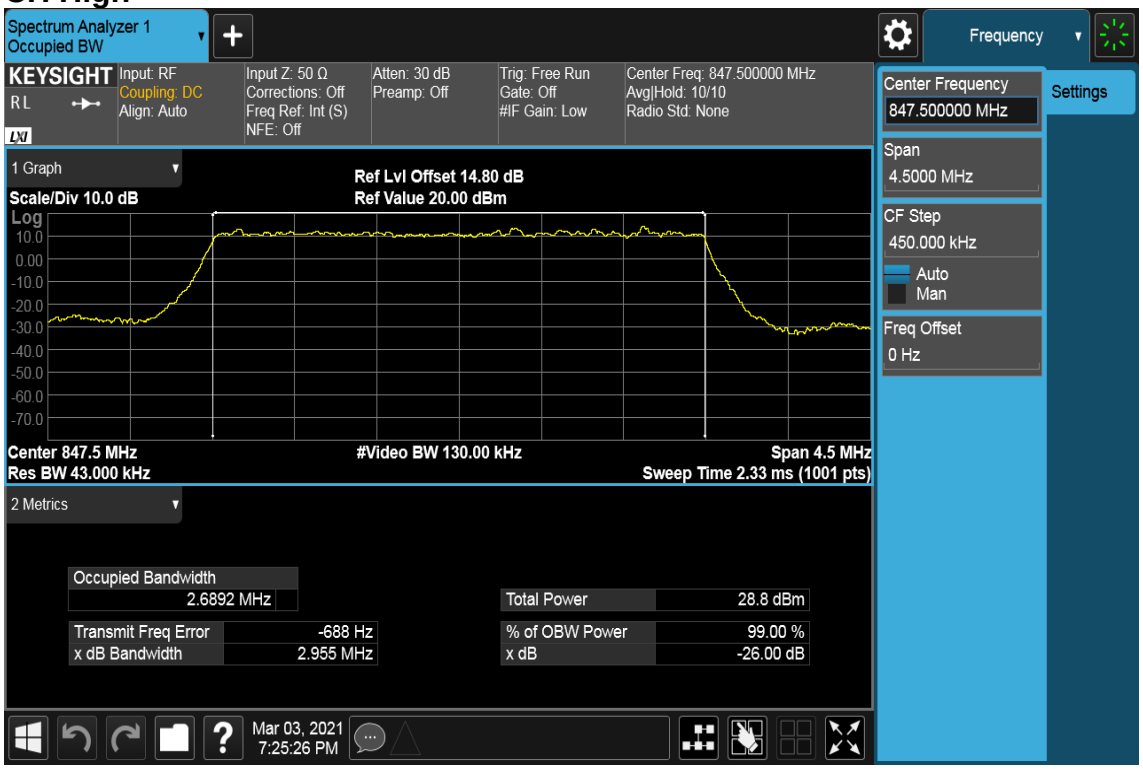
CH Low



CH Mid

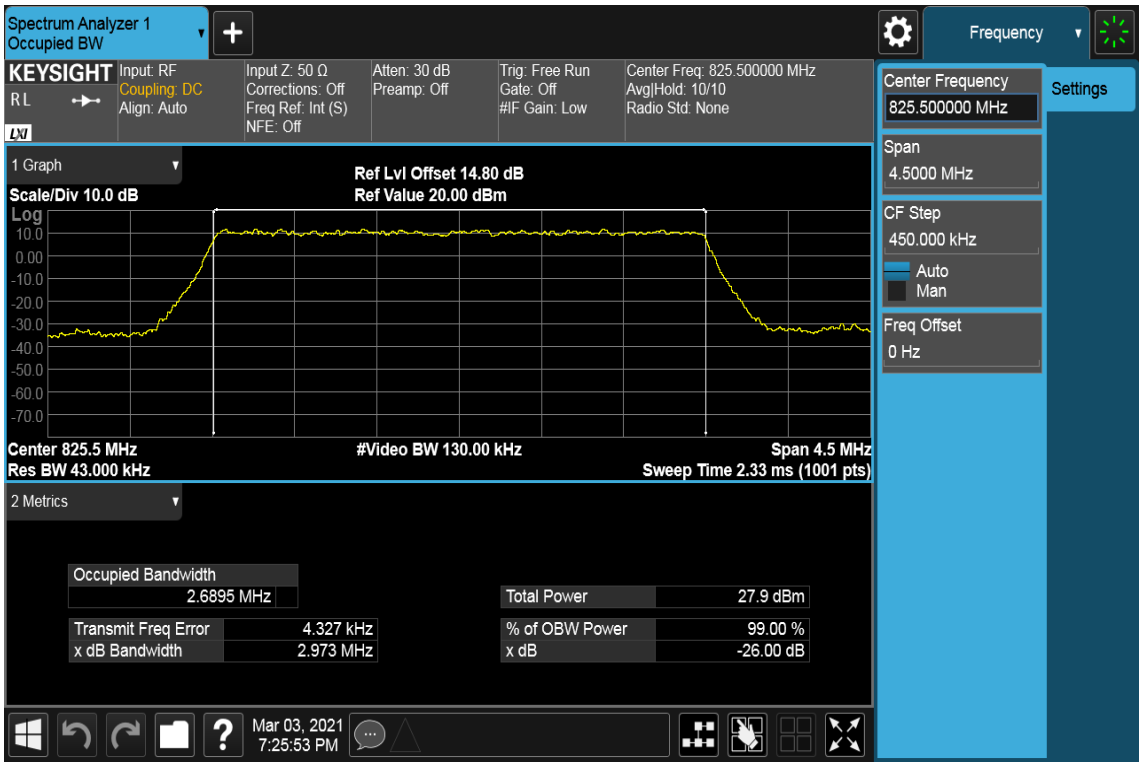


CH High

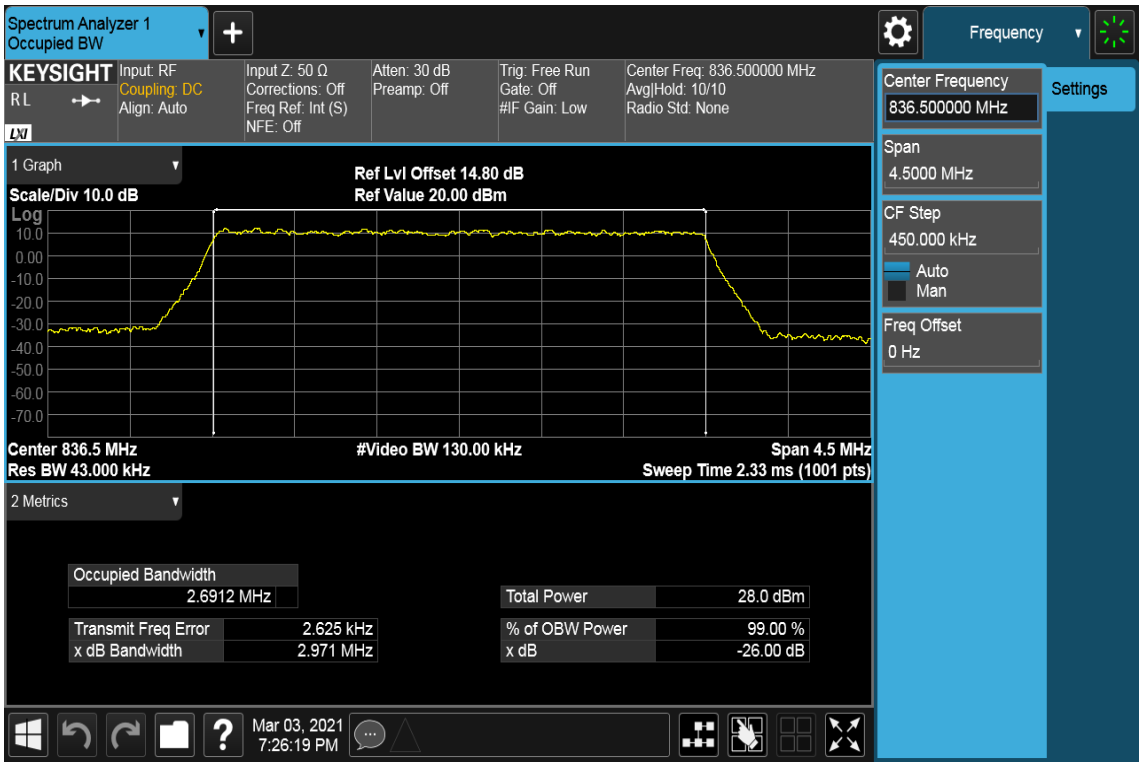


BW: 3MHz / 16QAM / RB =15, RB Offset = 0

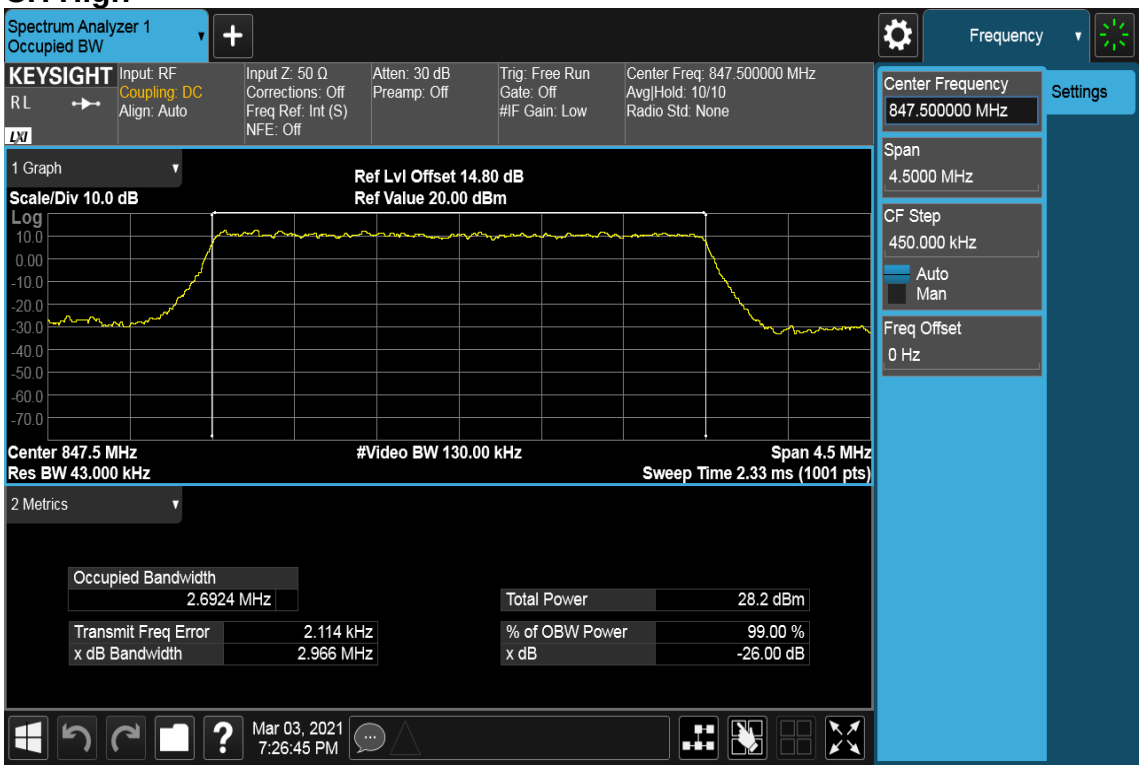
CH Low



CH Mid

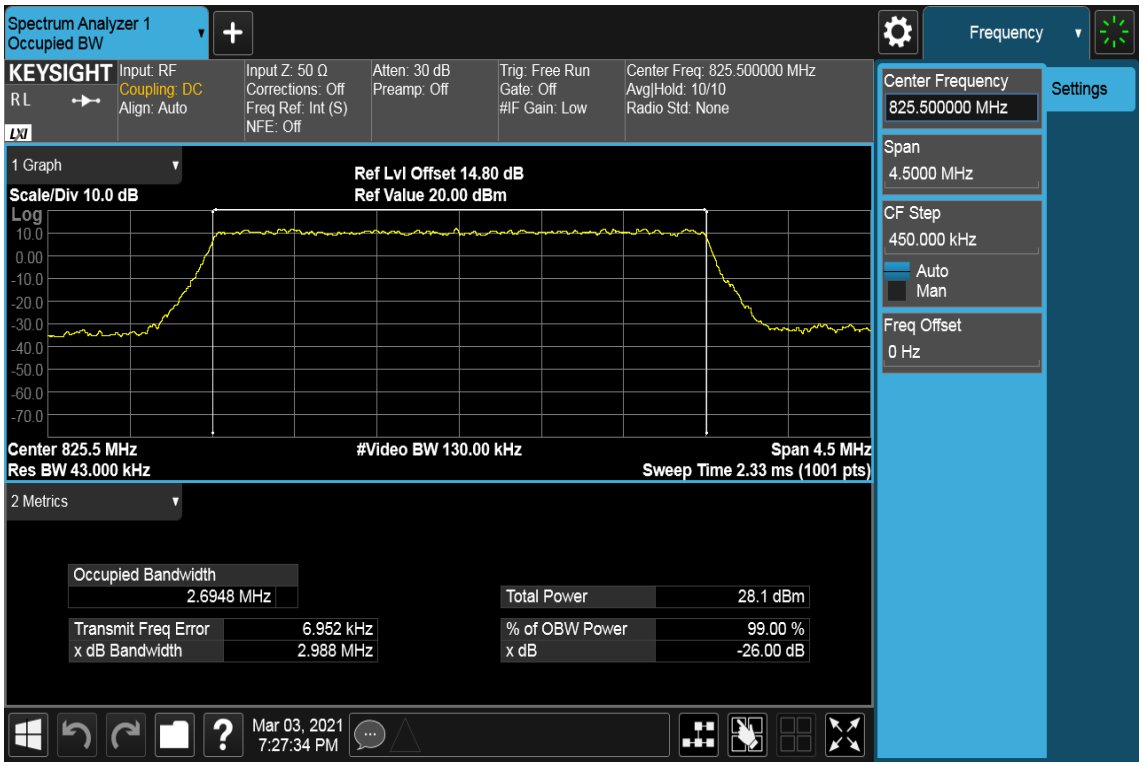


CH High



BW: 3MHz / 64QAM / RB =15, RB Offset = 0

CH Low



CH Mid