TEST REPORT

Reference No.	:	WTS19S10068893W001 V1
FCC ID	:	2AG32EG7010CM11
Applicant	:	Baicells Technologies Co., Ltd.
Address	:	3F, Hui Yuan Development Building, No.1 Shangdi Information Industry Base, Haidian Dist., Beijing, China
Manufacturer	:	Baicells Technologies Co., Ltd.
Address	:	3F, Hui Yuan Development Building, No.1 Shangdi Information Industry Base, Haidian Dist., Beijing, China
Product	:	LTE Outdoor CPE
Model(s)	:	EG7010C-M11
Brand Name	:	BaiCells
Standards	:	FCC CFR Title 47 Part 2 FCC CFR Title 47 Part 96
Date of Receipt sample	:	2019-10-08
Date of Test	:	2019-10-09 to 2019-10-21
Date of Issue	:	2020-01-06
Test Result	:	**Pass**

Remarks:
The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full, without prior written permission of the company. The report would be invalid without specific stamp of test institute and the signatures of compiler and approver.

Prepared By:
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Compiled by:

Ford Wang / Project Engineer

Approved by:

Philo Zhong / Manager

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3 Revision History

Test report No.	Date of Receipt sample	Date of Test	Date of Issue	Purpose	Comment	Approved
WTS19S10068893W001	2019-10-08	2019-10-09 to 2019-10-21	2020-01-06	original	-	Valid

4 General Information

4.1 General Description of E.U.T.

Product:	LTE Outdoor CPE
Model(s):	EG7010C-M11
Model Description:	NA
Storage Location:	Internal Storage
Category of CBSD:	Category B

4.2 Details of E.U.T.

Operation Frequency:	LTE Band 48:3550MHz-3700MHz
Type of Modulation:	LTE: Uplink:QPSK, 16QAM;Downlink: QPSK，16QAM，64QAM
Antenna installation:	LTE: Internal antenna
Antenna Gain:	11dBi
Ratings:	DC 24V 0.5A

4.3 Channel List

Normal

5MHz		10MHz	
Channel	**Frequency (MHz)**	**Channel**	**Frequency (MHz)**
Low	3552.5	Low	3555
Middle	3625	Middle	3625
High	3697.5	High	3695
15MHz		**20MHz**	
Channel	**Frequency (MHz)**	**Channel**	**Frequency (MHz)**
Low	3557.5	Low	3560
Middle	3625	Middle	3625
High	3692.5	High	3690

4.4 Test Mode

All test mode(s) and condition(s) mentioned were considered and evaluated respectively by performing full tests, the worst data were recorded and reported.

Test Mode	Description
Data Mode (QPSK)	Keep the EUT in data communicating mode (QPSK). (5MHz ,10MHz, 15MHz, 20MHz)
Data Mode (16QAM)	Keep the EUT in data communicating mode (16QAM). (5MHz ,10MHz, 15MHz, 20MHz)

4.5 General Description of Applied Standards

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

47 CFR FCC Part 96
KDB 971168 D01 Power Meas License Digital Systems v03r01
KDB 662911 D01 Multiple Transmitter Output v02r01
KDB 940660 D01 Part 96 CBRS Equipment v01
ANSI/TIA/EIA-603-E 2016
ANSI C63.26-2015

4.6 Test Facility

The test facility has a test site registered with the following organizations:

ISED CAB identifier: CN0013. Test Firm Registration No.: 7760A.

Waltek Services(Shenzhen) Co., Ltd. Has been registered and fully described in a report filed with the Industry Canada. The acceptance letter from the Industry Canada is maintained in our files. Registration number 7760A, October 15, 2016.

FCC Designation No.: CN1201. Test Firm Registration No.: 523476.

Waltek Services(Shenzhen) Co., Ltd. EMC Laboratory `has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration number 523476, September 10, 2019.

5 Test Summary

Test Items	Available Channel (MHz)	Tested Channel (MHz)	Channel Bandwidth	Modulation
EIRP	3552.5 to 3697.5	3552.5 to 3697.5	5MHz	QPSK, 16QAM
	3555 to 3695	3555 to 3695	10MHz	QPSK, 16QAM
	3557.5 to 3692.5	3557.5 to 3692.5	15MHz	QPSK, 16QAM
	3560 to 3690	3560 to 3690	20MHz	QPSK, 16QAM
Frequency stability	3552.5 to 3697.5	3625	5MHz	QPSK
	3555 to 3695	3625	10MHz	QPSK
	3557.5 to 3692.5	3625	15MHz	QPSK
	3560 to 3690	3625	20MHz	QPSK
Occupied Bandwidth	3552.5 to 3697.5	3552.5, 3625, 3697.5	5MHz	QPSK, 16QAM
	3555 to 3695	3555, 3625, 3695	10MHz	QPSK, 16QAM
	3557.5 to 3692.5	3557.5, 3625, 3692.5	15MHz	QPSK, 16QAM
	3560 to 3690	3560, 3625, 3690	20MHz	QPSK, 16QAM
Peak to Average Radio	3552.5 to 3697.5	3552.5, 3625, 3697.5	5MHz	QPSK
	3555 to 3695	3555, 3625, 3695	10MHz	QPSK
	3557.5 to 3692.5	3557.5, 3625, 3692.5	15MHz	QPSK
	3560 to 3690	3560, 3625, 3690	20MHz	QPSK
Radiated Emission	3552.5 to 3697.5	3552.5, 3625, 3697.5	5MHz	QPSK
	3555 to 3695	3555, 3625, 3695	10MHz	QPSK
	3557.5 to 3692.5	3557.5, 3625, 3692.5	15MHz	QPSK
	3560 to 3690	3560, 3625, 3690	20MHz	QPSK
Conducted Emission	3552.5 to 3697.5	3552.5, 3625, 3697.5	5MHz	QPSK
	3555 to 3695	3555, 3625, 3695	10MHz	QPSK
	3557.5 to 3692.5	3557.5, 3625, 3692.5	15MHz	QPSK
	3560 to 3690	3560, 3625, 3690	20MHz	QPSK

NOTE 1: All supported modulation types were evaluated. The Worst case of QPSK was selected. Therefore, the Frequency Stability, Peak to Average Ration, Conducted Emission and Radiated Emission were presented under QPSK mode only.

NOTE 2: The duty cycle correction=10 log(1/duty cycle)=10 log(1/(1.98/4.98)) =4(dB)

Offset factory=ATT loss+Cable loss+Duty cycle correction=3.5+1+4=8.5(dB)

6 Equipment Used during Test

6.1 Equipments List

3m Semi-anechoic Chamber for Radiation Emissions Test site 1#						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1	Test Receiver	R&S	ESCI	101296	2019-04-20	2020-04-19
2	Trilog Broadband Antenna	SCHWARZBECK	VULB9160	9160-3325	2019-05-24	2020-05-24
3	Cable	HUBER+SUHNER	CBL2	525178	2019-04-20	2020-04-19
4	Amplifier	ANRITSU	MH648A	M43381	2019-04-19	2020-04-18
5	Universal Radio Communication Tester	R&S	CMW500	116543	2019-09-17	2020-09-16
3m Semi-anechoic Chamber for Radiation Emissions Test site 2#						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No**	**Last Calibration Date**	**Calibration Due Date**
1	Spectrum Analyzer	R&S	FSP40	100501	2019-11-13	2020-11-12
2	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	667	2019-04-19	2020-04-18
3	Broadband Preamplifier	COMPLIANCE DIRECTION	PAP-1G18	2004	2019-04-19	2020-04-18
4	Coaxial Cable	ZT26-NJ-NJ-8M/FA	1GHz-18GHz	NA	2019-04-19	2020-04-18
5	Broad-band Horn Antenna	SCHWARZBECK	BBV 9721	100472	2019-10-25	2020-10-24
6	Coaxial Cable	ZT40-2.92J-2.92J-2.0M	10MHz-40GHz	17100919	2019-10-15	2020-10-14
5	Universal Radio Communication Tester	R&S	CMW500	116543	2019-09-17	2020-09-16
RF Conducted Testing						
Item	**Equipment**	**Manufacturer**	**Model No.**	**Serial No.**	**Last Calibration Date**	**Calibration Due Date**
1.	EXA Signal Analyzer	Malaysia Keysight	N9010A	MY50520207	2019-04-19	2020-04-19
2.	Spectrum Analyzer	R&S	FSP40	100501	2018-11-13	2019-11-12
5	Universal Radio Communication Tester	R&S	CMW500	116543	2019-09-17	2020-09-16

6.2 Measurement Uncertainty

Parameter	Uncertainty
Conducted Emission	± 3.64 dB(AC mains 150KHz~30MHz)
Radiated Spurious Emissions	± 5.08 dB (Bilog antenna 30M~1000MHz)
	± 5.47 dB (Horn antenna 1000M~25000MHz)
Radio Frequency	± 1 x 10^{-7}Hz
RF Power	± 0.42 dB
RF Power Density	± 0.7dB
Conducted Spurious Emissions	± 2.76 dB (9kHz~26500MHz)
Confidence interval：95%. Confidence factor:k=2	

6.3 Test Equipment Calibration

All the test equipments used are valid and calibrated by CEPREI Certification Body that address is No.110 Dongguan Zhuang RD. Guangzhou, P.R.China.

7 Max EIRP and maximum spectral density

Test Requirement: FCC part96.41(b)

Test Method: ANSI/TIA-603-E:2016, ANSI C63.26:2015

Test Mode: Data communicating mode

Limit:

Device	Maximum EIRP(dBm/10MHz)	Maximum PSD(dBm/MHz)
End User Device	23	n/a
Category A CBSD	30	20
Category B CBSD	47	37

7.1 EUT Operation

Operating Environment :

Temperature: 22.4 °C

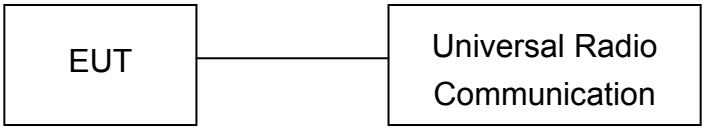
Humidity: 52.2 % RH

Atmospheric Pressure: 101.3kPa

7.2 Test Procedure

Conducted method for 15M&20M bandwidth:

The RF output of the transmitter was connected to the wireless test set and the spectrum analyzer through sufficient attenuation.



For Maximum EIRP

1. Connect the transmitter to the spectrum analyzer via coaxial cable while ensuring proper impedance matching.
2. Set span to 2 × to 3 × the OBW.
3. Set RBW = 1% to 5% of the OBW.
4. Set VBW ≥ 3 × RBW.
5. Set number of measurement points in sweep ≥ 2 × span / RBW.
6. Sweep time:
   1) Set = auto-couple, or
   2) Set ≥ [10 × (number of points in sweep) × (transmission symbol period)] for single sweep (automation-compatible) measurement.
7. Detector = power averaging (rms).
8. Set sweep trigger to “free run.”
9. Trace average at least 100 traces in power averaging (rms) mode if sweep is set to auto-couple. To accurately determine the average power over the on and off time of the transmitter, it can be necessary to increase the number of traces to be averaged above 100, or if using a manually configured sweep time, increase the sweep time.
10. Compute power by integrating the spectrum across the OBW(10MHz) of the signal using the instrument’s band or channel power measurement function with band/channel limits set equal to the OBW(10MHz) band edges.
11. Add 10 log (1/duty cycle) to the measured power level to compute the average power during continuous transmission.
12. EIRP = P_{Meas} + G_T.

P_{Meas} measured transmitter output power or PSD.
G_T gain of the transmitting antenna.

For Maximum PSD
The PSD is measured following the same procedures described for measuring the maximum EIRP but with the RBW set to the reference bandwidth specified(eg.1MHz) by the applicable regulatory requirement, and by using the marker function to identify the maximum PSD instead of summing the power across the OBW.

7.3

Transmit Output Power								
Bandwidth (MHz)	**Modulation**	**Test Channel**	**Chain 0 Output Power (dBm/10MHz)**	**Chain 1 Output Power (dBm/10MHz)**	**Total Power (dBm/10MHz)**	**Antenna Gain (dBi)**	**EIRP (dBm/10MHz)**	**EIRP Limit (dBm/10MHz)**
5	QPSK	Low	17.73	17.60	20.68	11	31.68	47
		Middle	20.29	19.30	22.83	11	33.83	
		High	20.17	20.12	**23.16**	11	34.16	
	16QAM	Low	17.55	17.54	20.56	11	31.56	
		Middle	19.59	19.04	22.33	11	33.33	
		High	20.03	19.68	**22.87**	11	33.87	

PSD								
Bandwidth (MHz)	**Modulation**	**Test Channel**	**Chain 0 PSD (dBm/MHz)**	**Chain 1 PSD (dBm/MHz)**	**Total PSD (dBm/MHz)**	**Antenna Gain (dBi)**	**EIRP density (dBm/MHz)**	**EIRP density Limit (dBm/MHz)**
5	QPSK	Low	12.86	12.78	15.83	11	26.83	37
		Middle	13.79	13.81	16.81	11	27.81	
		High	15.21	15.18	18.21	11	29.21	
	16QAM	Low	12.53	12.75	15.65	11	26.65	
		Middle	13.79	13.53	16.67	11	27.67	
		High	14.79	14.24	17.53	11	28.53	

Transmit Output Power								
Bandwidth (MHz)	**Modulation**	**Test Channel**	**Chain 0 Output Power (dBm/10MHz)**	**Chain 1 Output Power (dBm/10MHz)**	**Total Power (dBm/10MHz)**	**Antenna Gain (dBi)**	**EIRP (dBm/10MHz)**	**EIRP Limit (dBm/10MHz)**
10	QPSK	Low	17.98	17.67	20.84	11	31.84	47
		Middle	19.68	19.92	22.81	11	33.81	
		High	20.68	20.08	**23.40**	11	34.40	
	16QAM	Low	17.34	17.38	20.37	11	31.37	
		Middle	19.29	19.31	22.31	11	33.31	
		High	19.62	19.71	**22.68**	11	33.68	

PSD								
Bandwidth (MHz)	Modulation	Test Channel	Chain 0 PSD (dBm/MHz)	Chain 1 PSD (dBm/MHz)	Total PSD (dBm/MHz)	Antenna Gain (dBi)	EIRP density (dBm/MHz)	EIRP density Limit (dBm/MHz)
10	QPSK	Low	10.91	10.90	13.92	11	24.92	37
		Middle	11.00	11.41	14.22	11	25.22	
		High	12.22	12.36	15.30	11	26.30	
	16QAM	Low	10.34	9.91	13.14	11	24.14	
		Middle	11.45	11.55	14.51	11	25.51	
		High	11.71	11.66	14.70	11	25.70	

Transmit Output Power								
Bandwidth (MHz)	Modulation	Test Channel	Chain 0 Output Power (dBm/10MHz)	Chain 1 Output Power (dBm/10MHz)	Total Power (dBm/10MHz)	Antenna Gain (dBi)	EIRP (dBm/10MHz)	EIRP Limit (dBm/10MHz)
15	QPSK	Low	17.63	17.08	20.37	11	31.37	47
		Middle	19.23	19.86	22.57	11	33.57	
		High	20.04	20.09	23.08	11	34.08	
	16QAM	Low	17.17	17.39	20.29	11	31.29	
		Middle	19.61	19.53	22.58	11	33.58	
		High	19.99	20.02	23.02	11	34.02	
Full Transmit Output Power								
Bandwidth (MHz)	Modulation	Test Channel	Chain 0 Output Power (dBm/15MHz)	Chain 1 Output Power (dBm/15MHz)	Total Power (dBm/15MHz)	Antenna Gain (dBi)	EIRP (dBm/15MHz)	EIRP Limit (dBm/15MHz)
15	QPSK	Low	18.51	18.28	21.41	11	32.41	-
		Middle	20.14	20.83	23.51	11	34.51	
		High	20.98	21.05	**24.03**	11	35.03	
	16QAM	Low	18.31	18.44	21.39	11	32.39	
		Middle	20.75	20.73	23.75	11	34.75	
		High	21.13	21.25	**24.20**	11	35.20	

PSD								
Bandwidth (MHz)	Modulation	Test Channel	Chain 0 PSD (dBm/MHz)	Chain 1 PSD (dBm/MHz)	Total PSD (dBm/MHz)	Antenna Gain (dBi)	EIRP density (dBm/MHz)	EIRP density Limit (dBm/MHz)
15	QPSK	Low	8.96	9.23	12.11	11	23.11	37
		Middle	10.43	10.62	13.54	11	24.54	
		High	11.21	11.79	14.52	11	25.52	
	16QAM	Low	8.73	8.67	11.71	11	22.71	
		Middle	10.43	10.23	13.34	11	24.34	
		High	10.64	11.23	13.96	11	24.96	

Transmit Output Power								
Bandwidth (MHz)	**Modulation**	**Test Channel**	**Chain 0 Output Power (dBm/10MHz)**	**Chain 1 Output Power (dBm/10MHz)**	**Total Power (dBm/10MHz)**	**Antenna Gain (dBi)**	**EIRP (dBm/10MHz)**	**EIRP Limit (dBm/10MHz)**
20	QPSK	Low	17.75	17.54	20.66	11	31.66	47
		Middle	19.48	19.34	22.42	11	33.42	
		High	20.08	19.65	22.88	11	33.88	
	16QAM	Low	17.16	17.05	20.12	11	31.12	
		Middle	19.14	19.08	22.12	11	33.12	
		High	19.74	19.56	22.66	11	33.66	
Full Transmit Output Power								
Bandwidth (MHz)	**Modulation**	**Test Channel**	**Chain 0 Output Power (dBm/20MHz)**	**Chain 1 Output Power (dBm/20MHz)**	**Total Power (dBm/20MHz)**	**Antenna Gain (dBi)**	**EIRP (dBm/20MHz)**	**EIRP Limit (dBm/20MHz)**
20	QPSK	Low	19.81	19.52	22.68	11	33.68	-
		Middle	21.45	21.27	24.37	11	35.37	
		High	22.12	21.95	**25.05**	11	36.05	
	16QAM	Low	19.28	19.18	22.24	11	33.24	
		Middle	21.06	21.13	24.11	11	35.11	
		High	21.58	21.52	**24.56**	11	35.56	

PSD								
Bandwidth (MHz)	**Modulation**	**Test Channel**	**Chain 0 PSD (dBm/MHz)**	**Chain 1 PSD (dBm/MHz)**	**Total PSD (dBm/MHz)**	**Antenna Gain (dBi)**	**EIRP density (dBm/MHz)**	**EIRP density Limit (dBm/MHz)**
20	QPSK	Low	7.89	7.72	10.82	11	21.82	37
		Middle	9.64	9.34	12.50	11	23.50	
		High	10.10	10.26	13.19	11	24.19	
	16QAM	Low	7.52	7.37	10.46	11	21.46	
		Middle	9.37	8.85	12.13	11	23.13	
		High	9.64	10.18	12.93	11	23.93	

Transmit Output Power Test Plots
Chain 0

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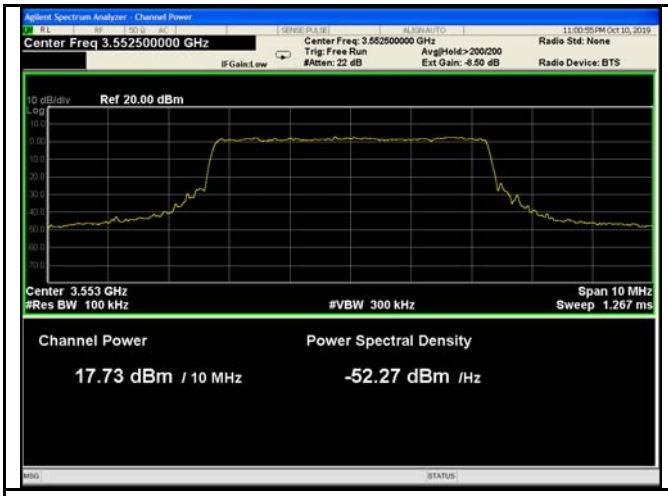
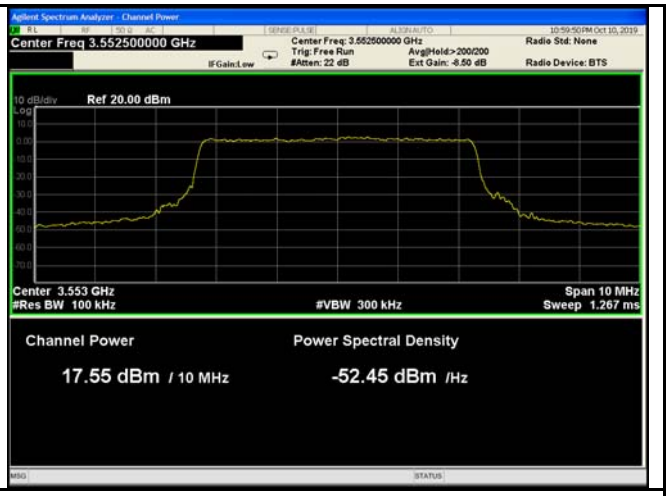
<tr><td> 
</td><td> 
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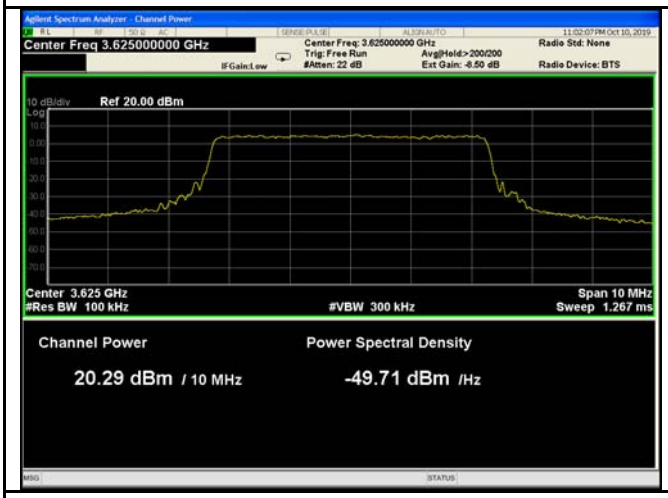
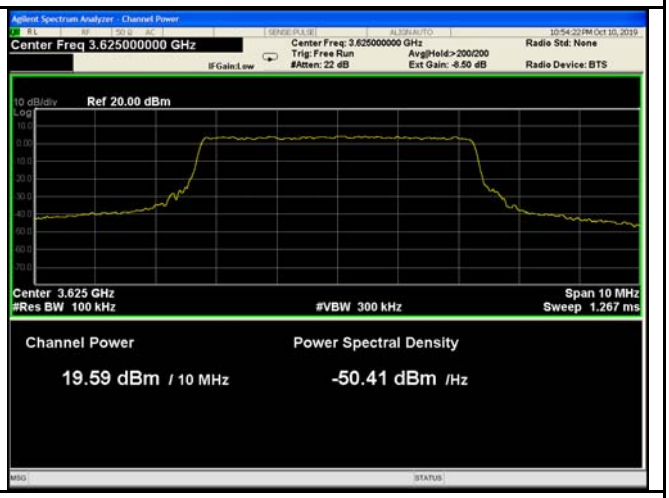
<tr><td> 
</td><td> 
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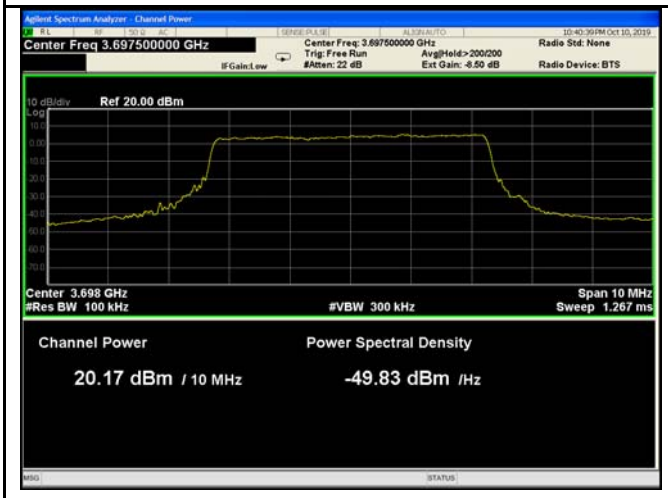
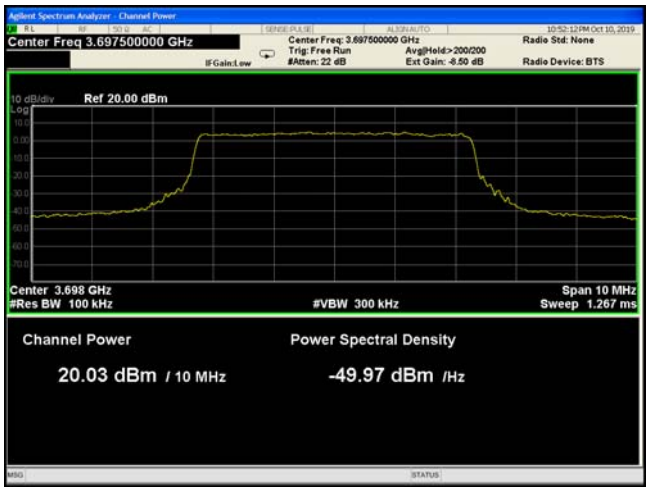
<tr><td> 
</td><td> 
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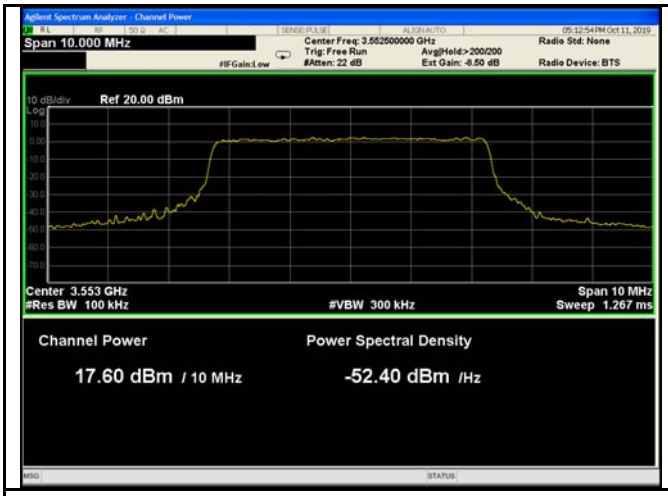
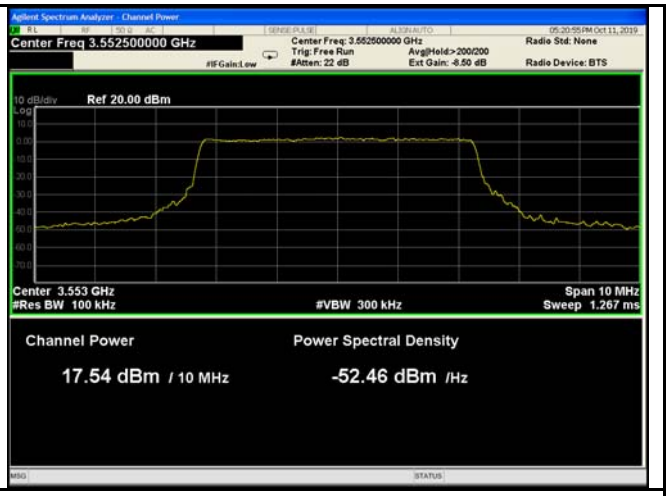
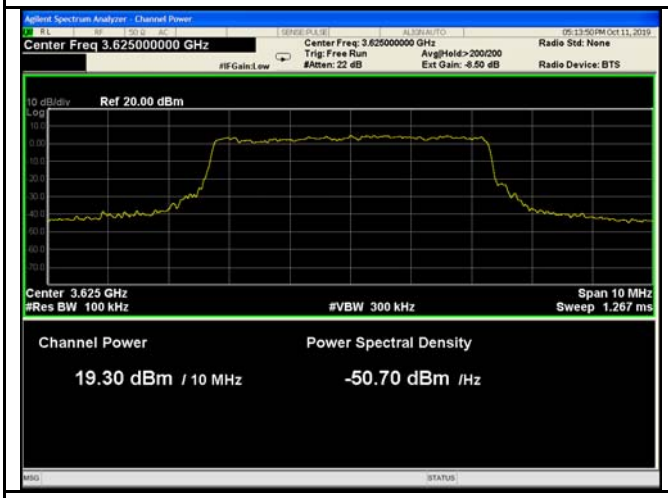
Chain 1



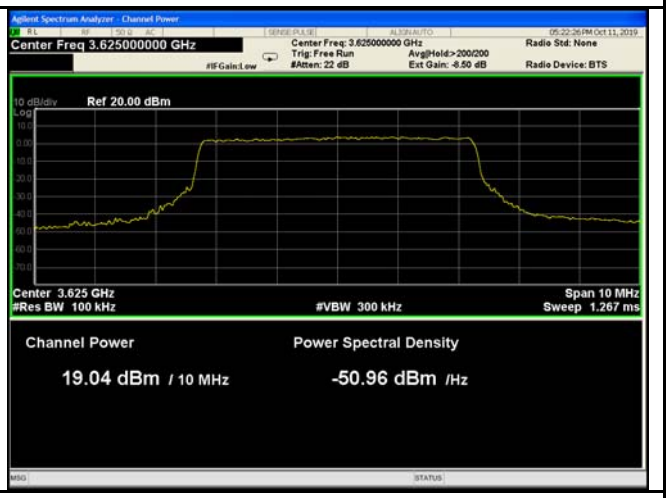
5MHz - Low CH QPSK



5MHz - Low CH 16QAM



5MHz - Middle CH QPSK



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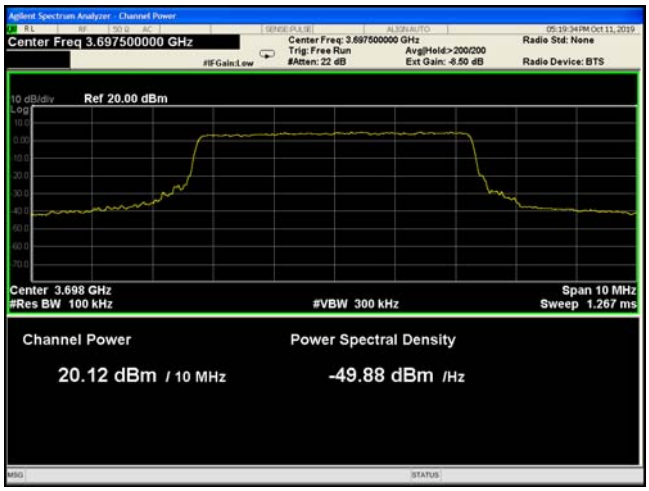
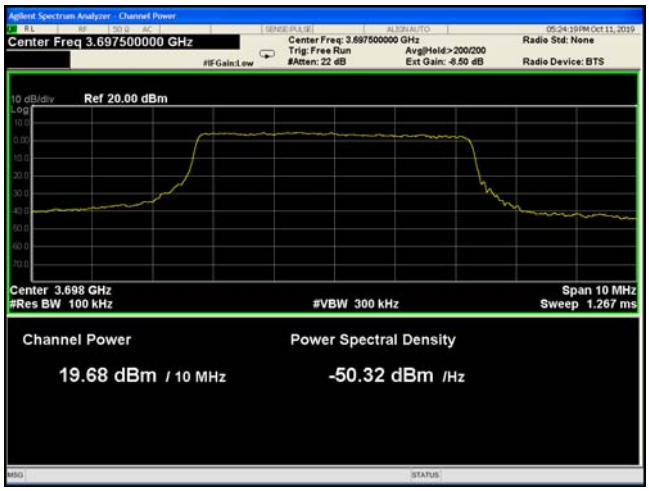
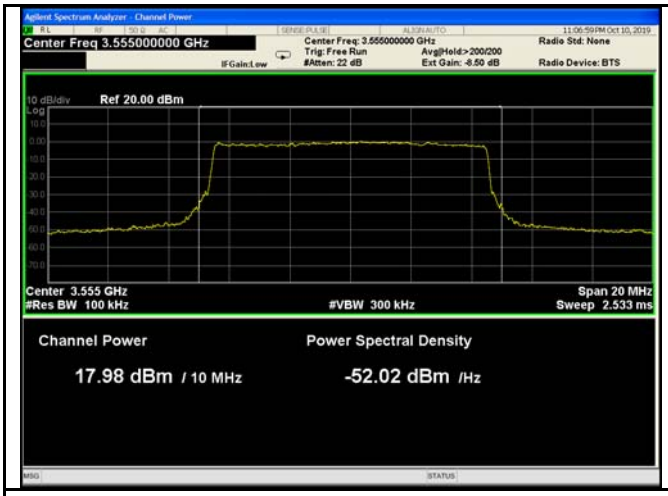


5MHz - High CH QPSK

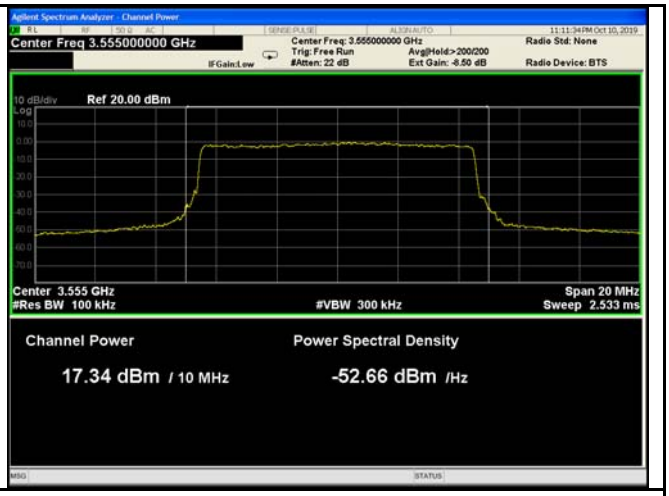


5MHz - High CH 16QAM

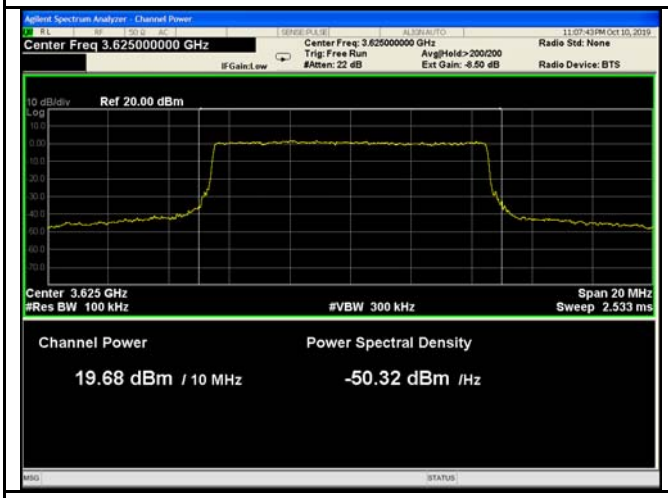
Chain 0



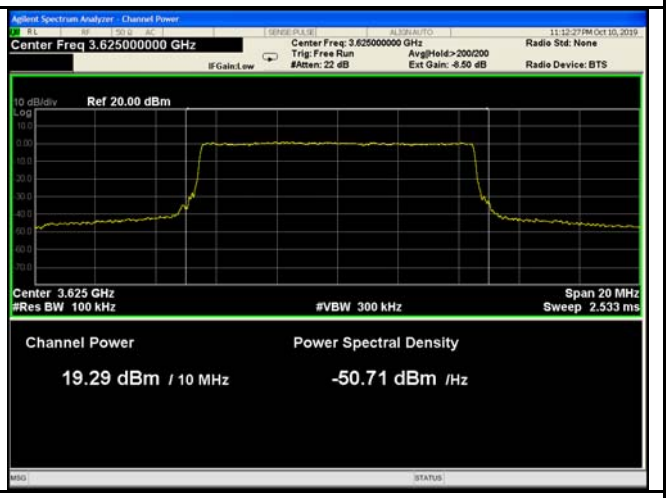
10MHz - Low CH QPSK



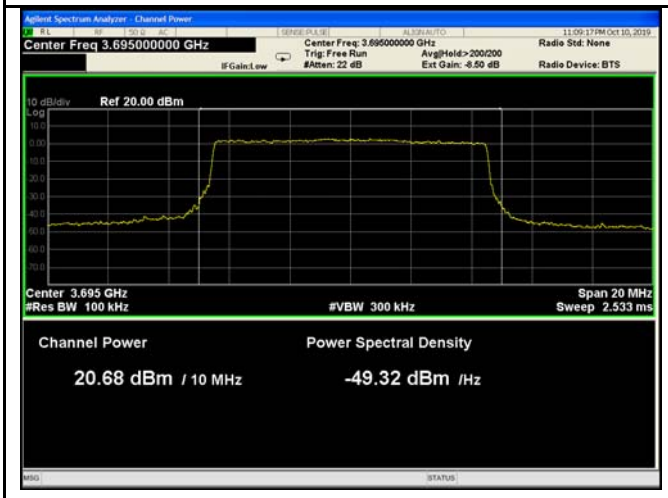
10MHz - Low CH 16QAM



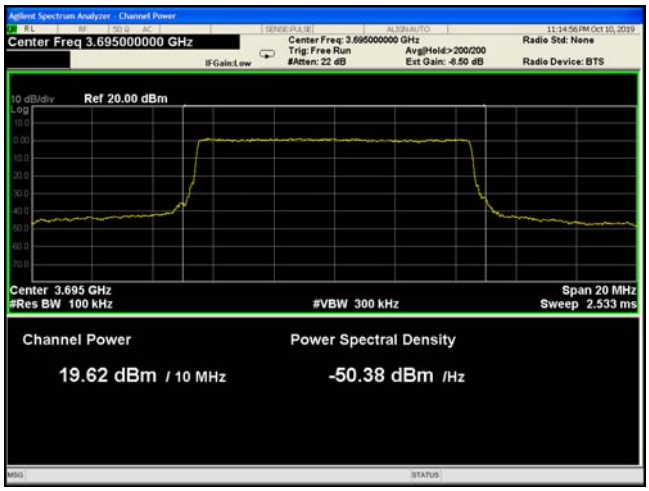
10MHz - Middle CH QPSK



10MHz - Middle CH 16QAM

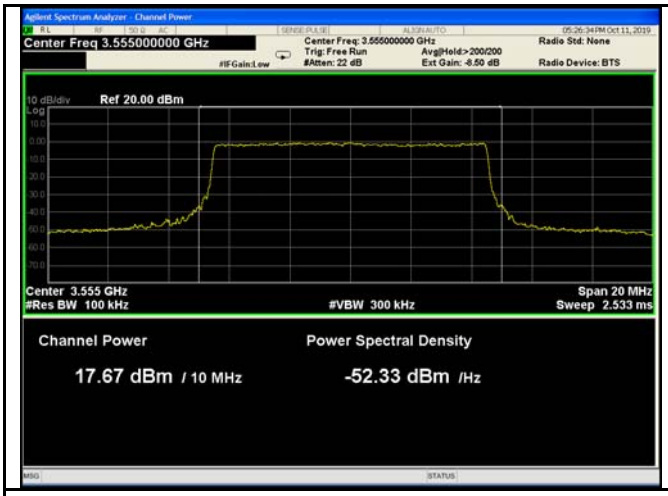


10MHz - High CH QPSK



10MHz - High CH 16QAM

Chain 1



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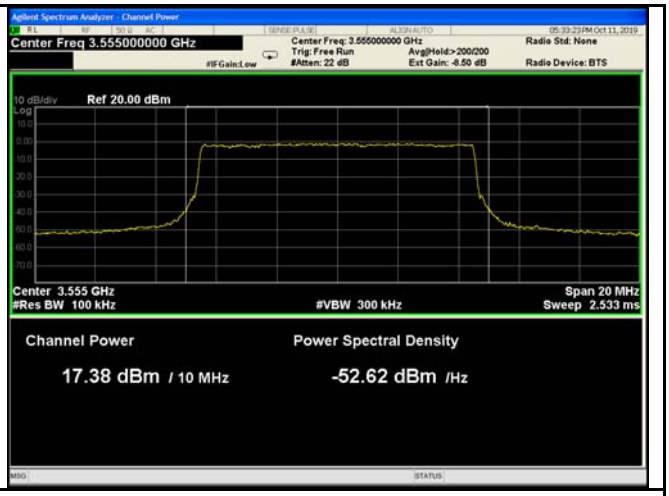

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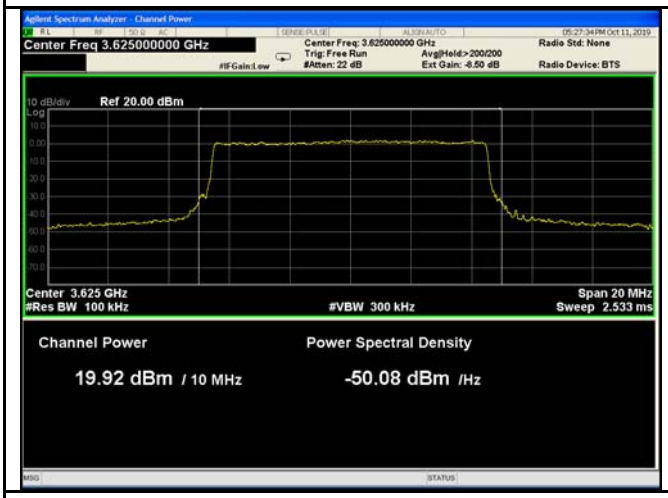

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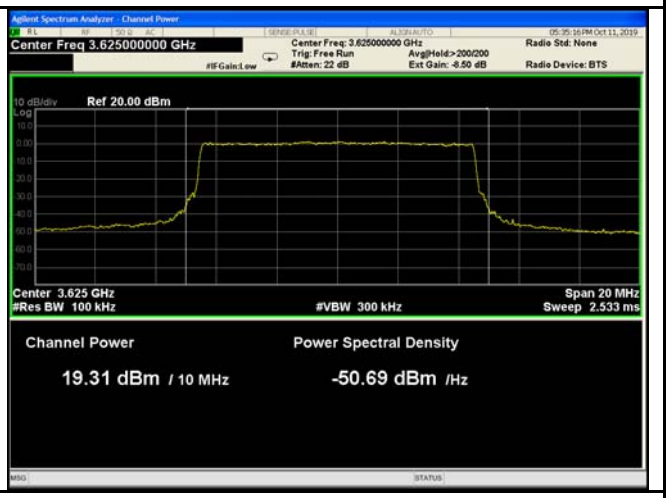

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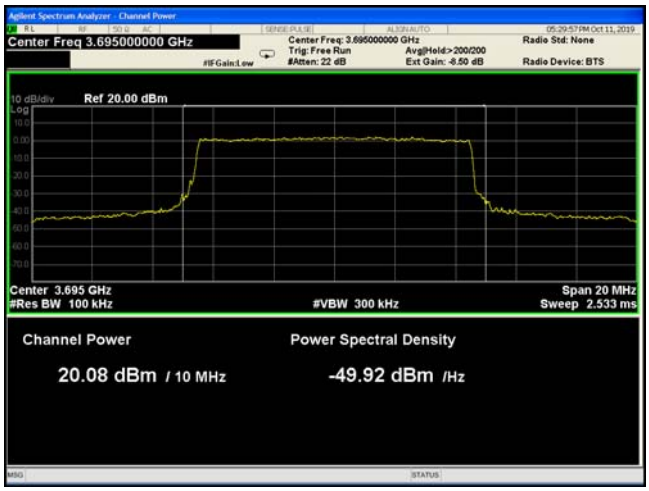

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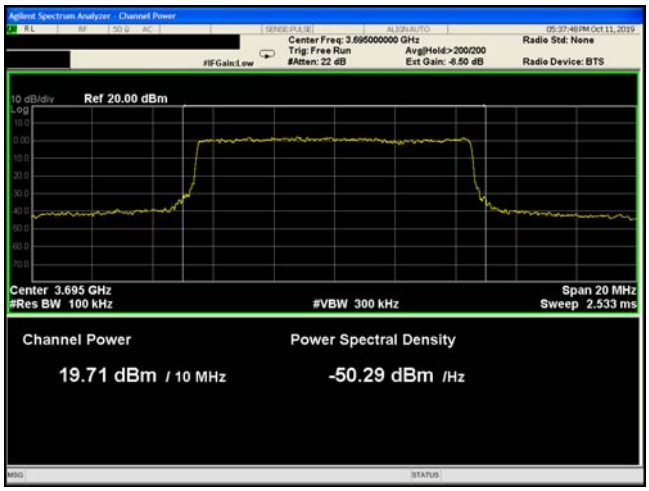
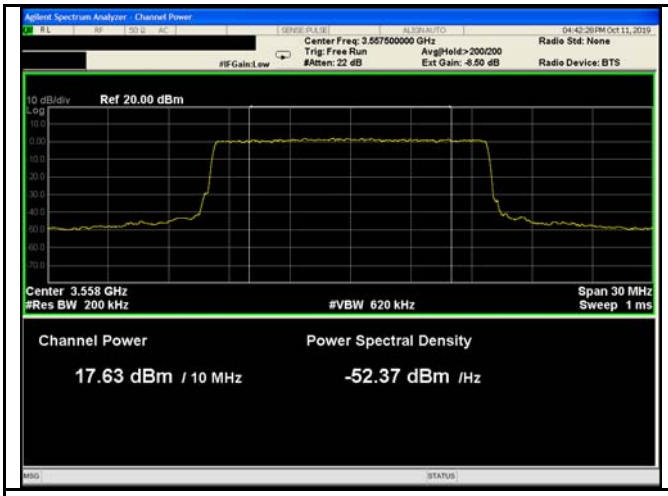
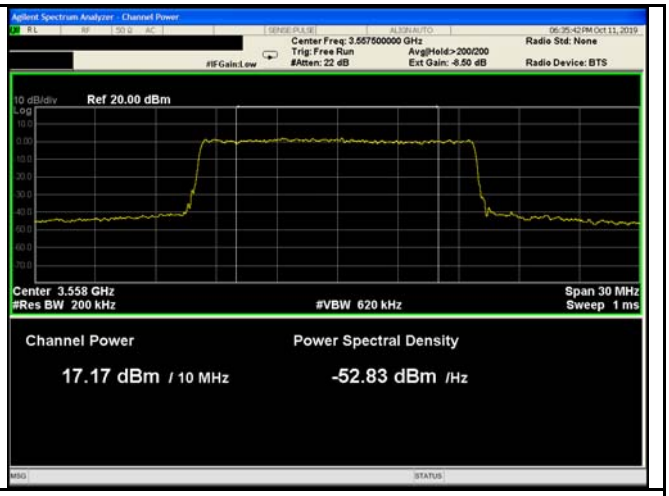


10MHz - High CH 16QAM

Chain 0



15MHz - Low CH QPSK



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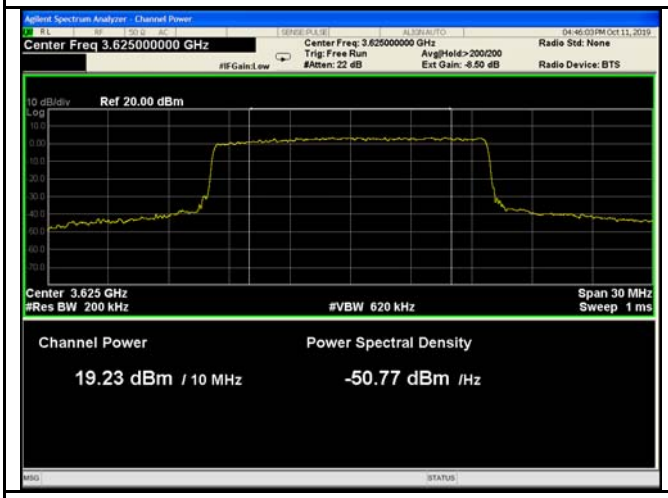
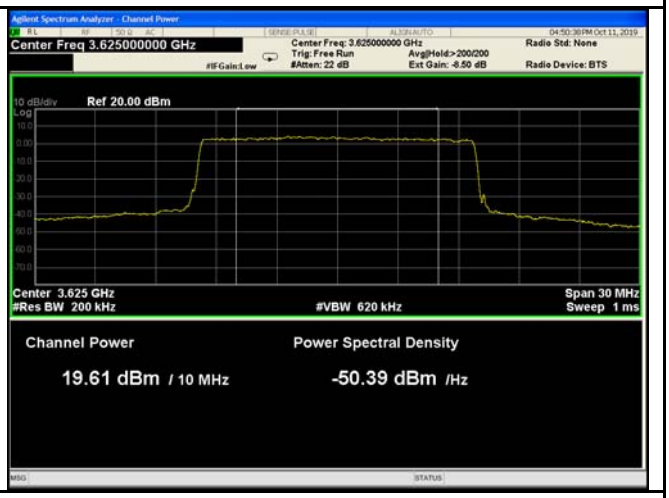


15MHz - Middle CH QPSK



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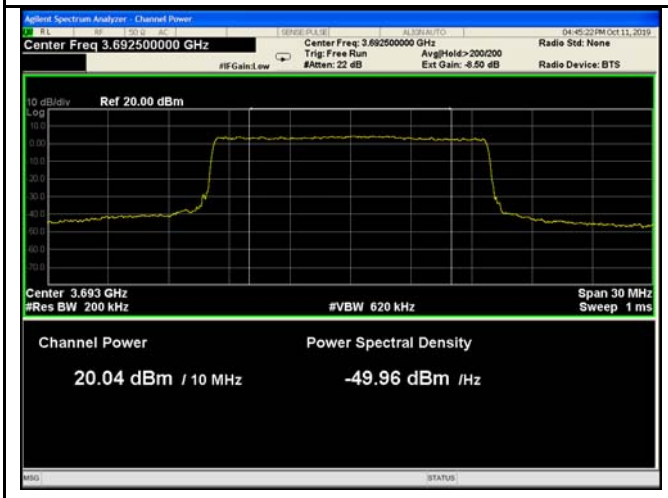

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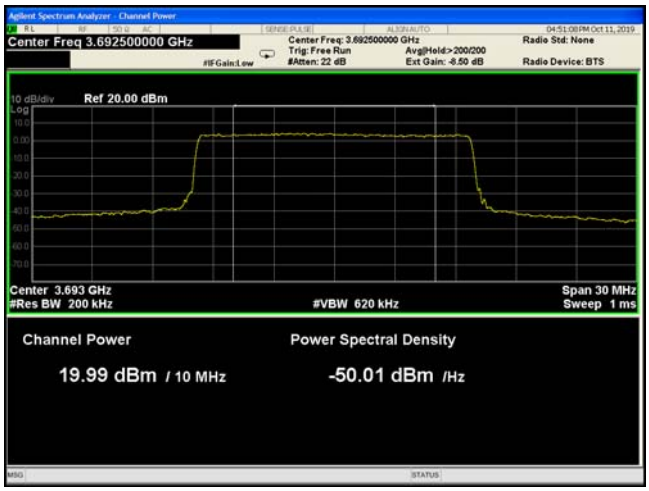

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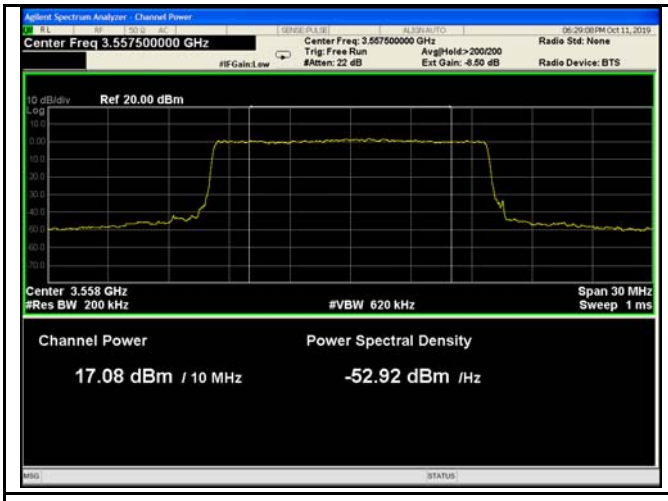
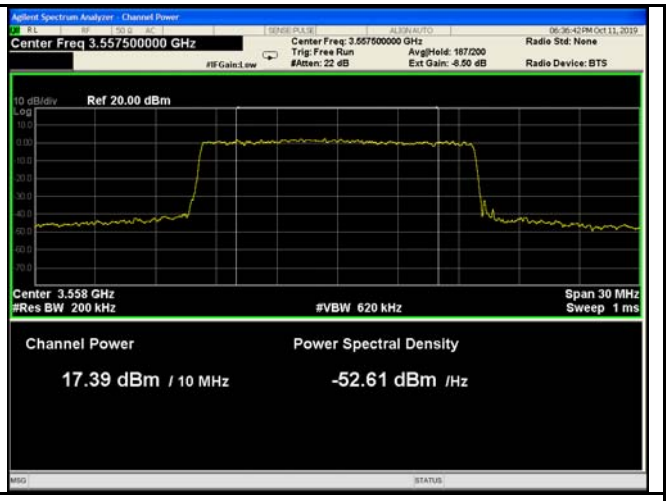
Chain 1



15MHz - Low CH QPSK



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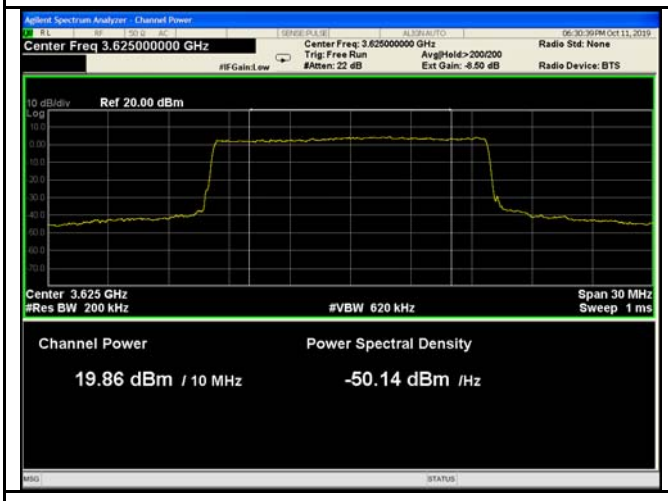

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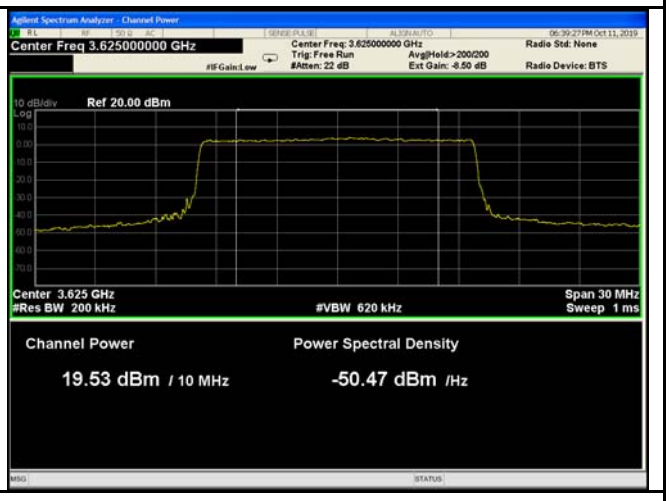
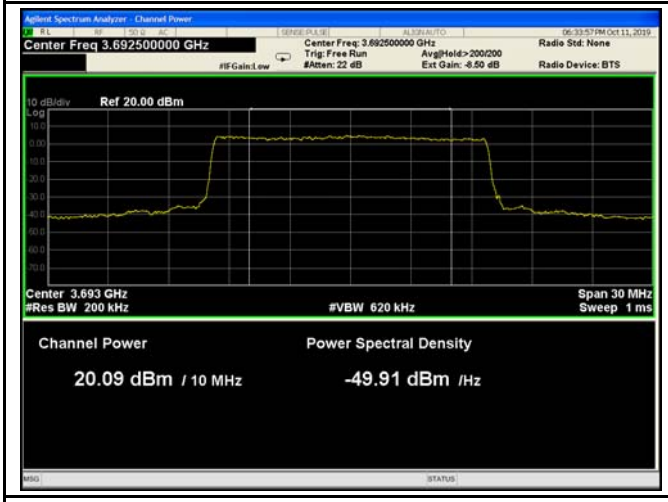
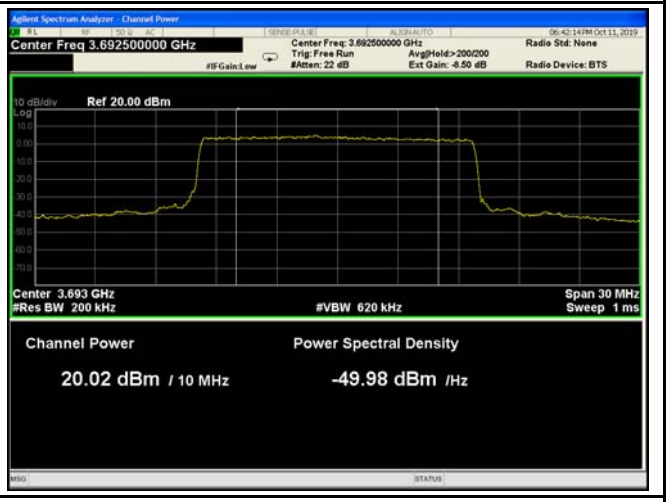


15MHz - Middle CH 16QAM



15MHz - High CH QPSK



15MHz - High CH 16QAM

Chain 0

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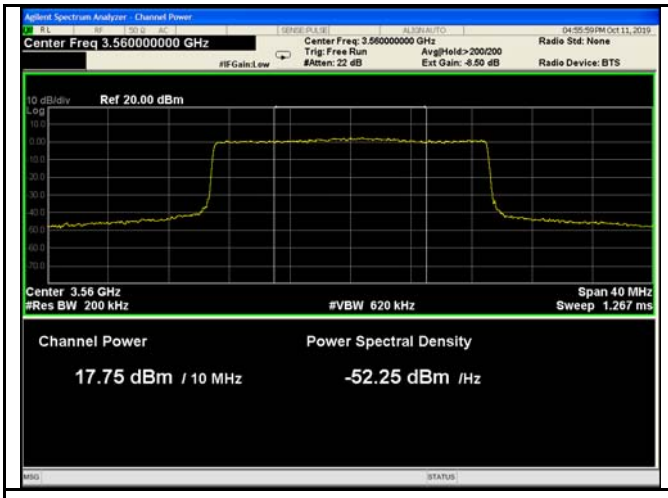
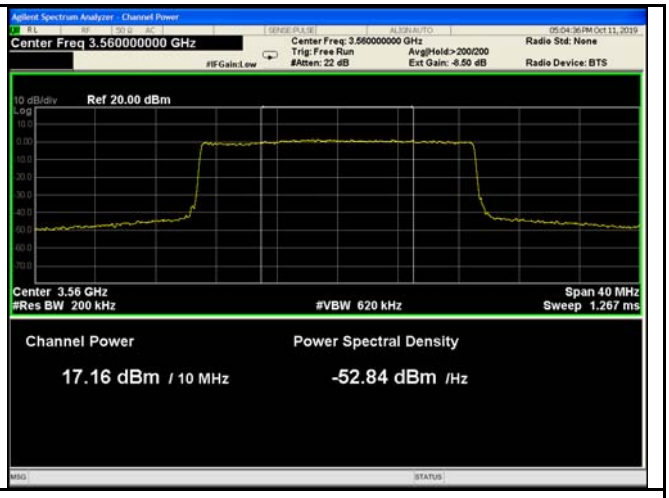
<tr><td> 
</td><td> 
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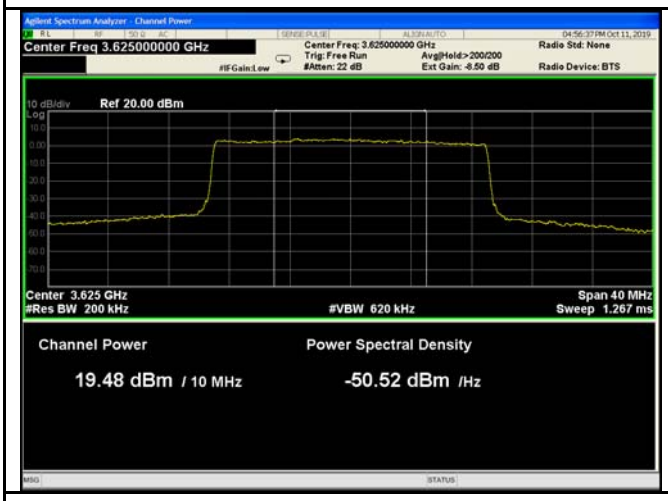
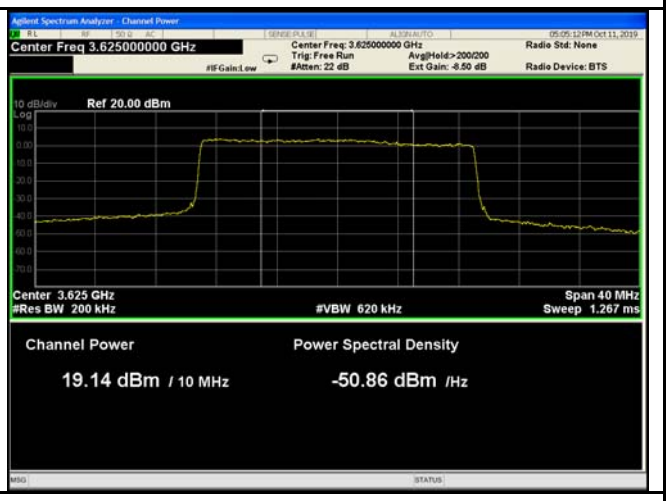
<tr><td>20MHz - Low CH QPSK</td><td>20MHz - Low CH 16QAM</td></tr>
<tr><td> 
</td><td> 
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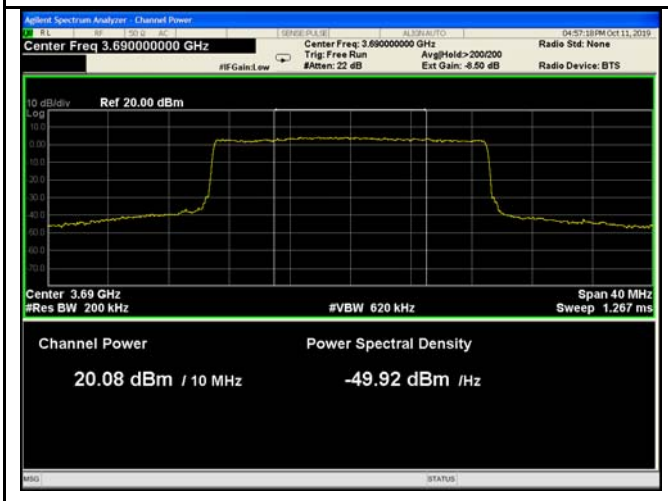
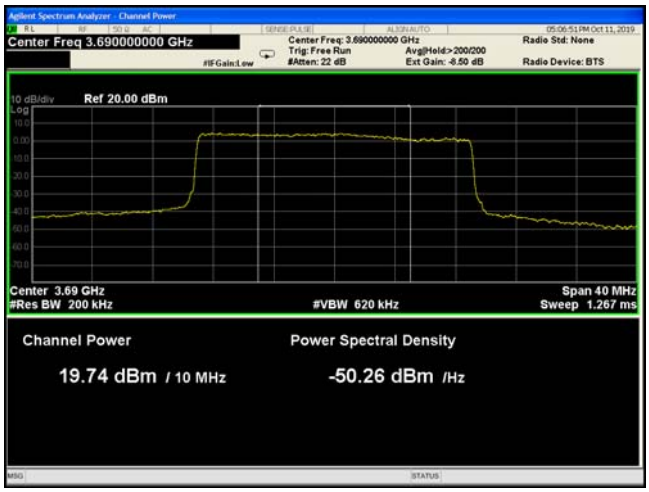
<tr><td> 
</td><td> 
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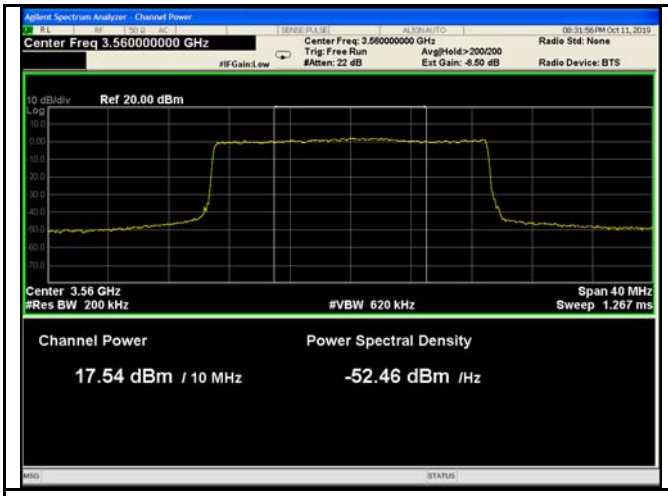
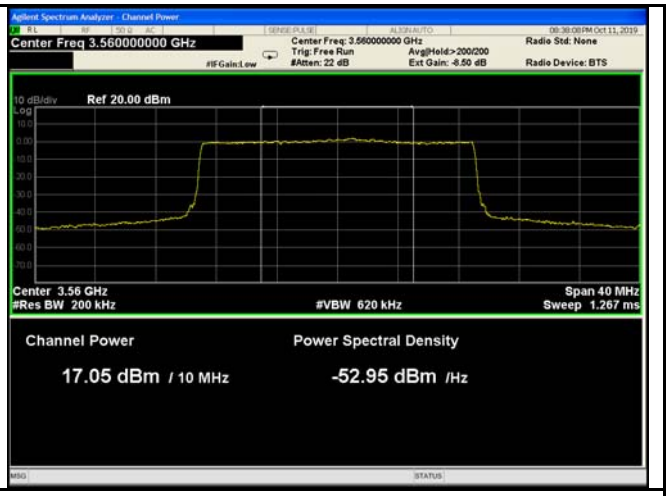
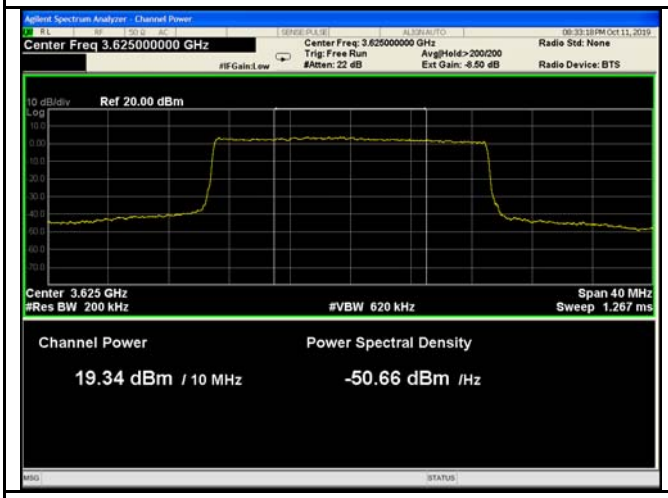
Chain 1



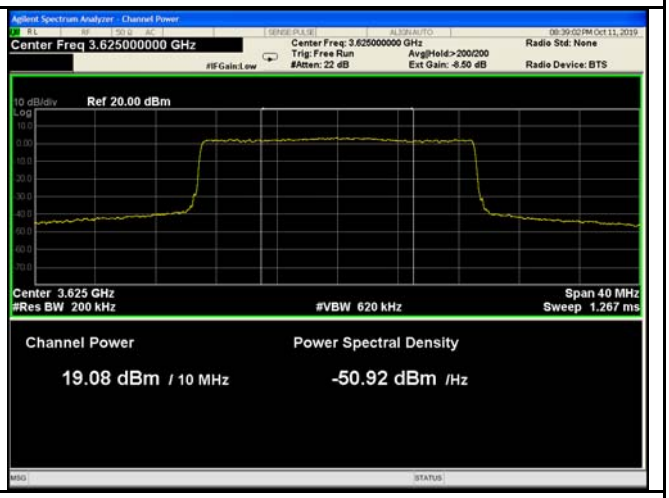
20MHz - Low CH QPSK



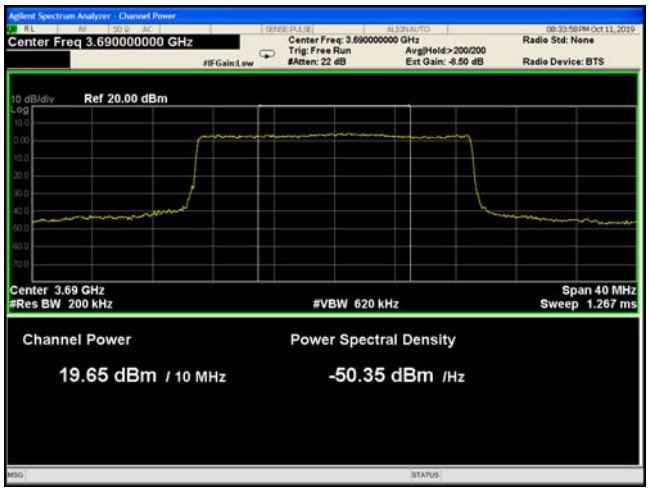
20MHz - Low CH 16QAM



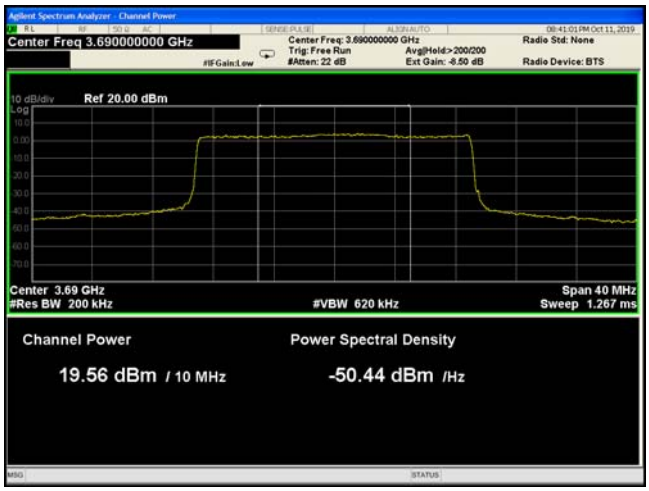
20MHz - Middle CH QPSK



20MHz - Middle CH 16QAM

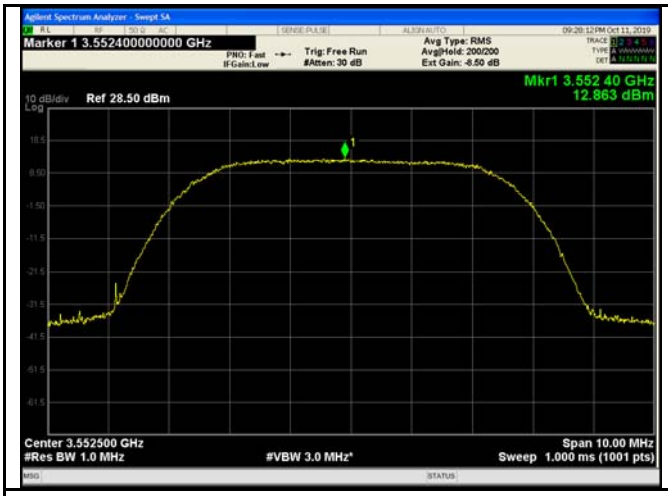


20MHz - High CH QPSK



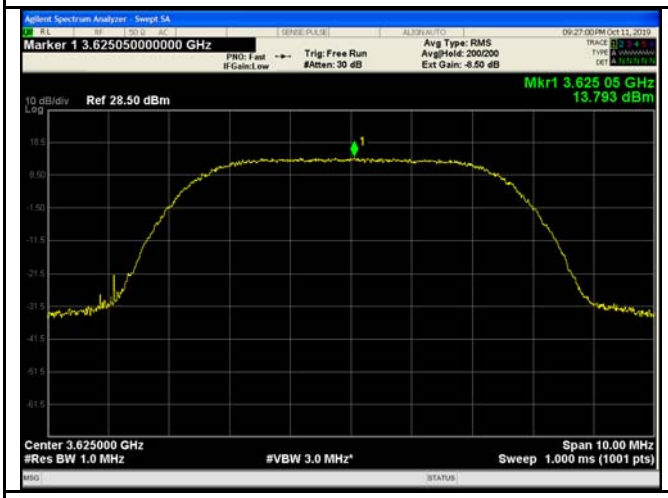
20MHz - High CH 16QAM

PSD Test Plots
Chain 0



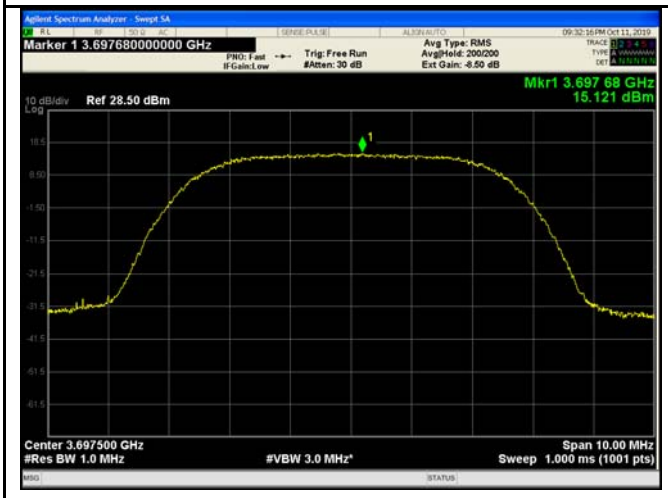
5MHz - Low CH QPSK

5MHz - Low CH 16QAM

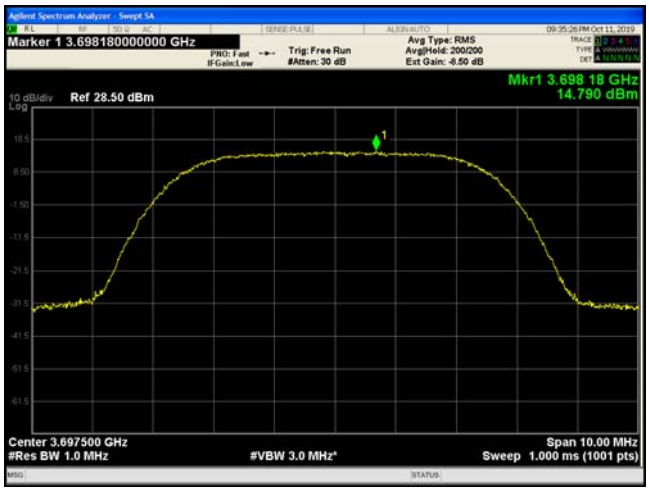


5MHz - Middle CH QPSK

5MHz - Middle CH 16QAM

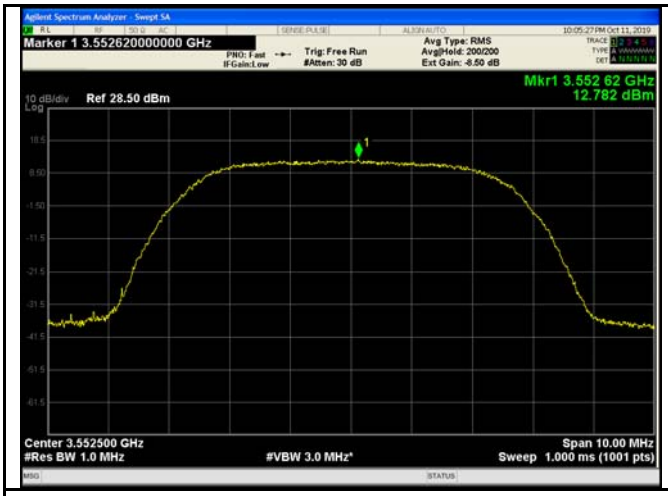


5MHz - High CH QPSK



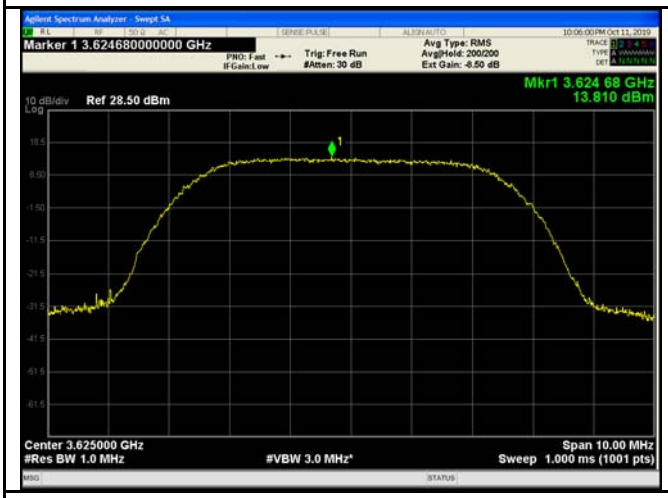
5MHz - High CH 16QAM

Chain 1

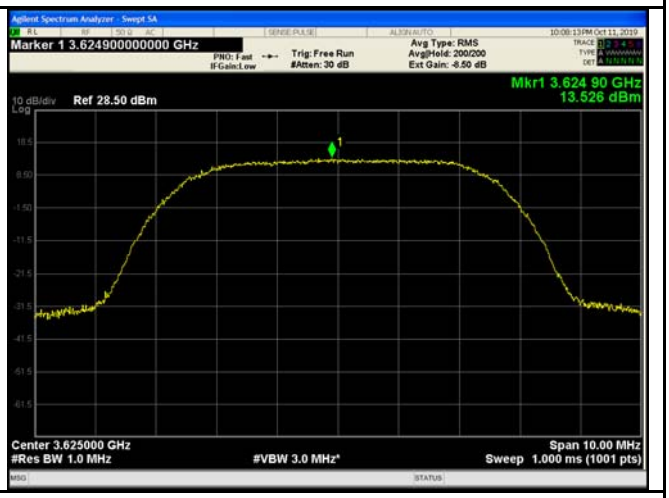


5MHz - Low CH QPSK

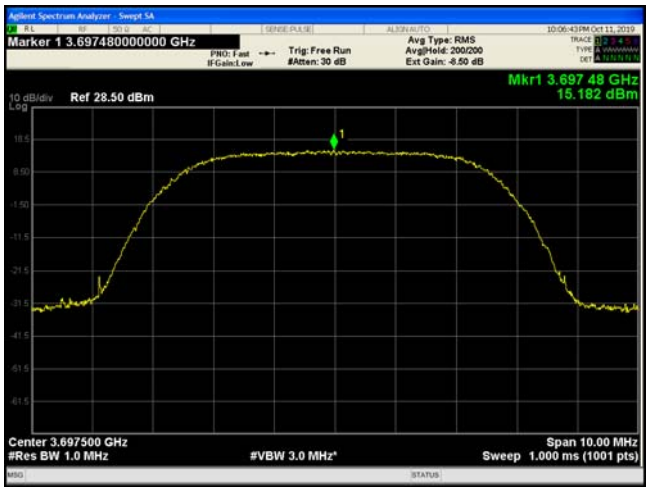
5MHz - Low CH 16QAM



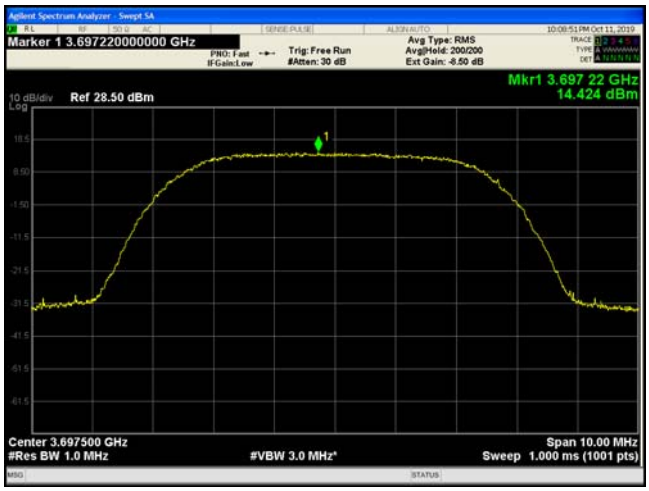
5MHz - Middle CH QPSK



5MHz - Middle CH 16QAM

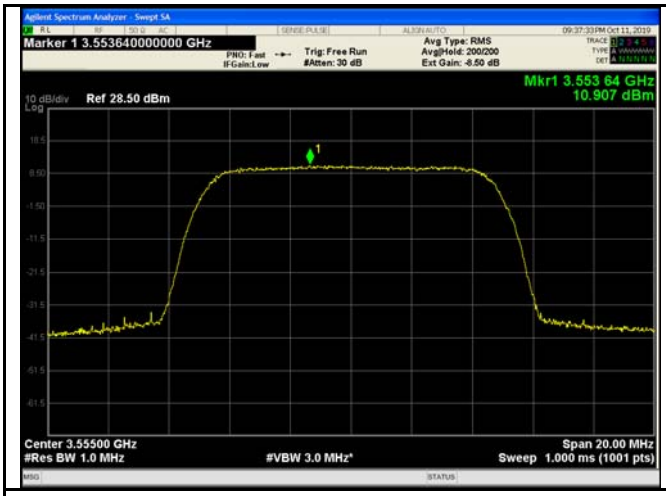


5MHz - High CH QPSK

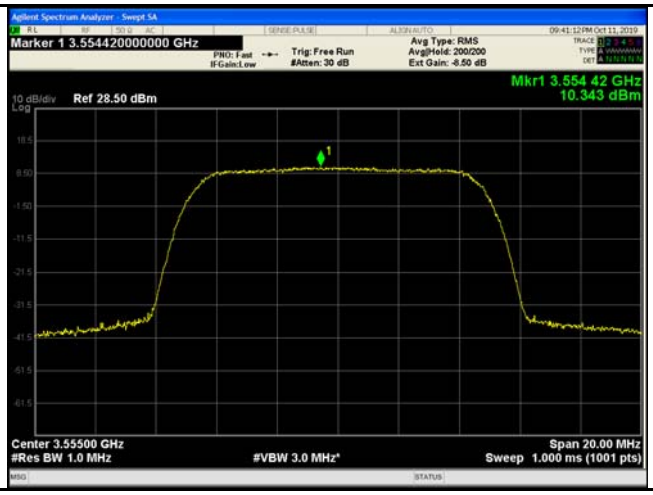


5MHz - High CH 16QAM

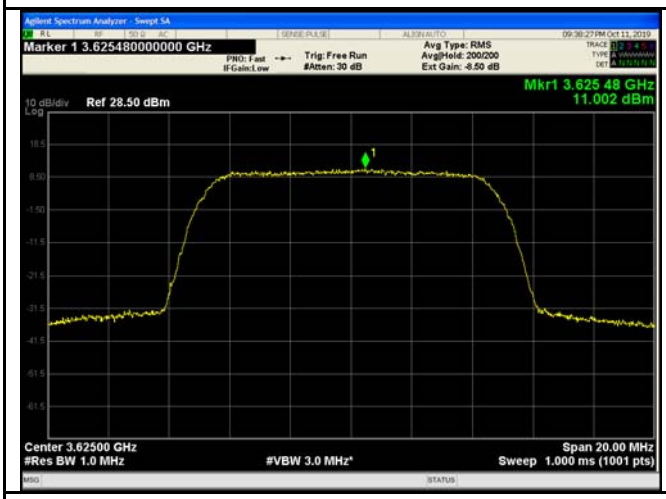
Chain 0



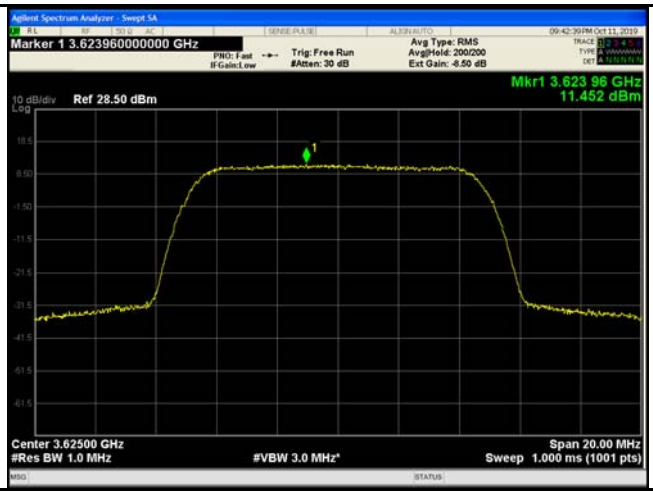
10MHz - Low CH QPSK



10MHz - Low CH 16QAM



10MHz - Middle CH QPSK



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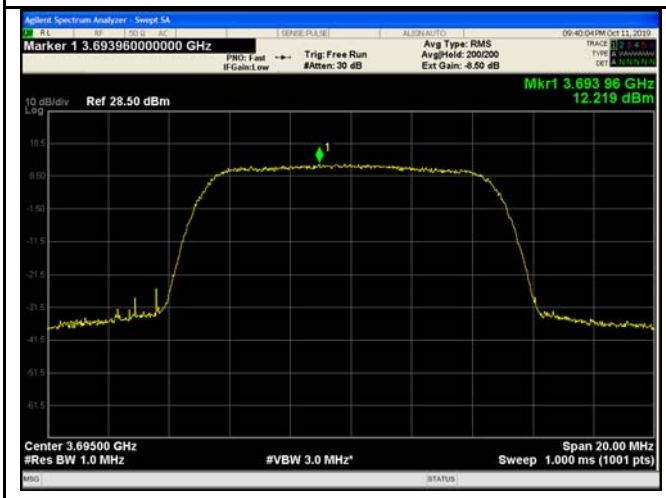

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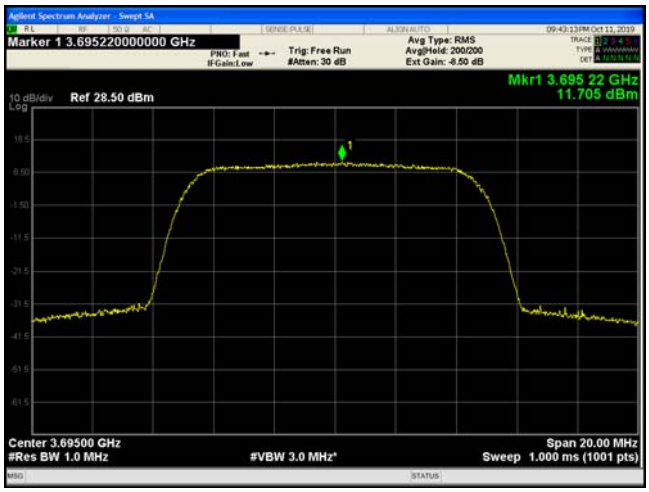
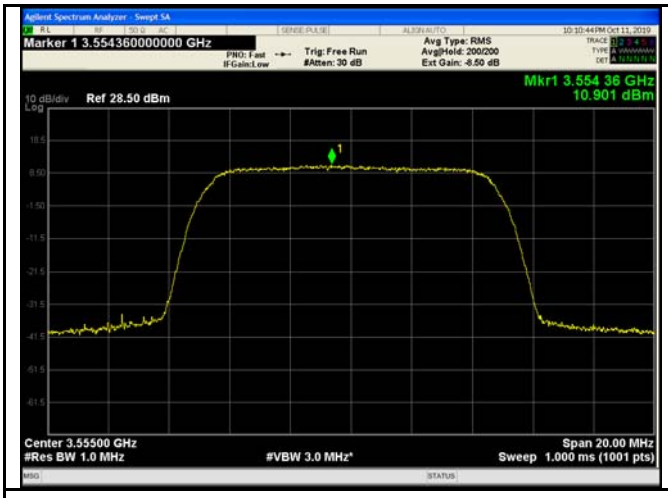
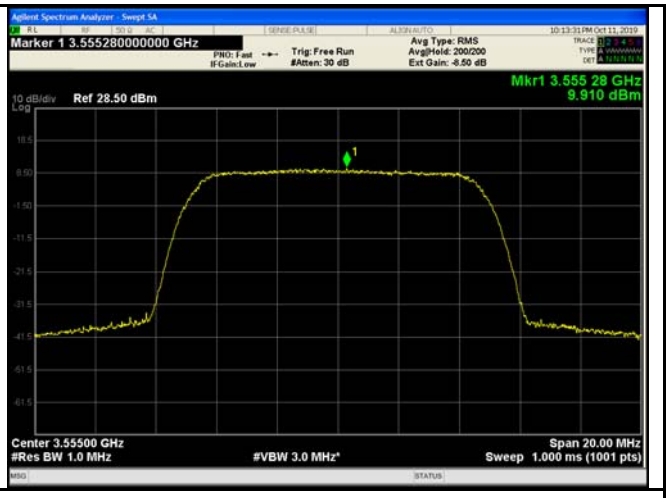


10MHz - High CH 16QAM

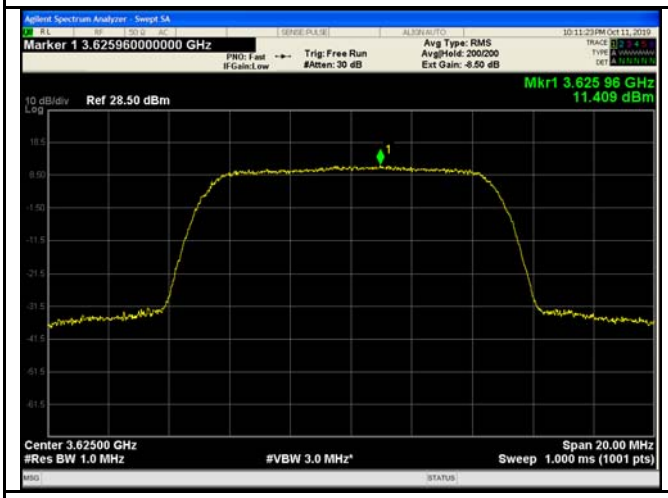
Chain 1



10MHz - Low CH QPSK



10MHz - Low CH 16QAM



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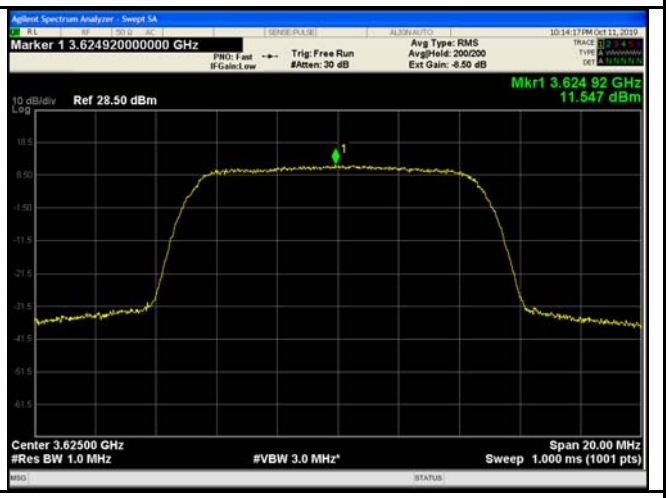
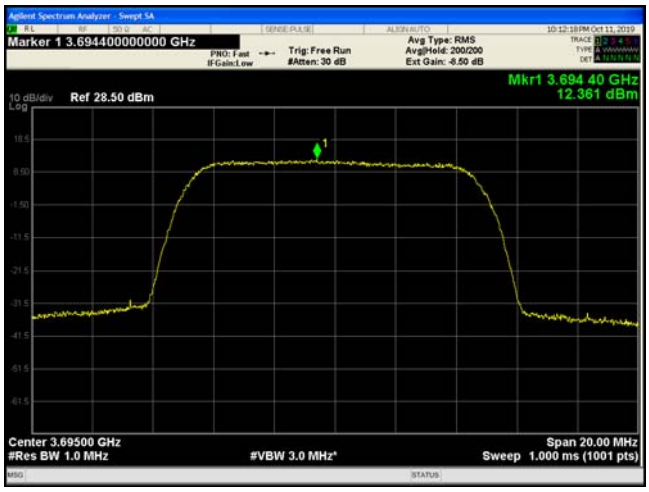
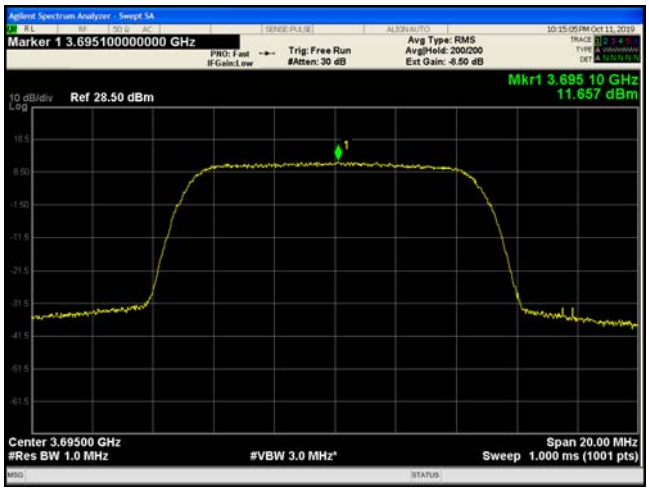


10MHz - Middle CH 16QAM

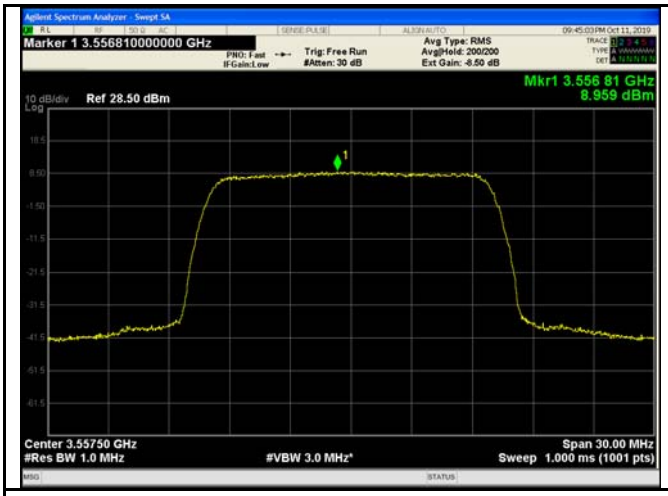


10MHz - High CH QPSK

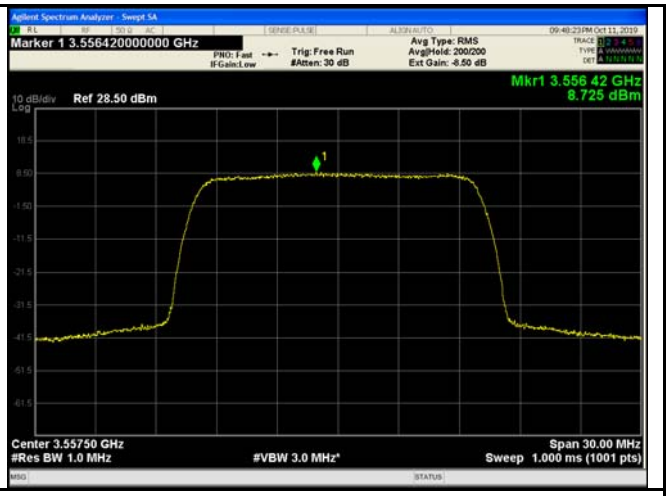


10MHz - High CH 16QAM

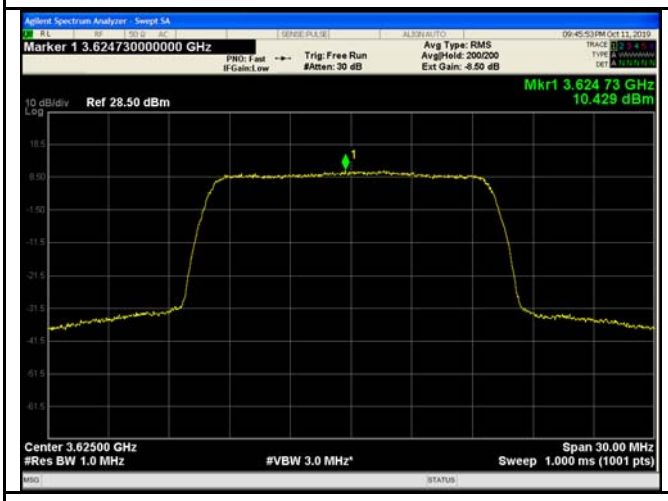
Chain 0



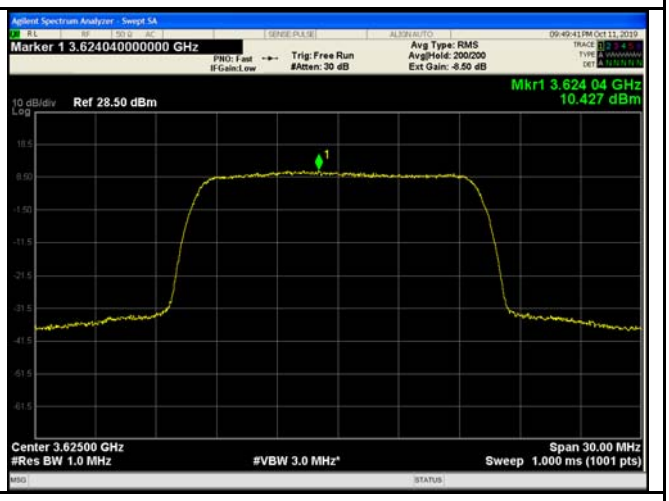
15MHz - Low CH QPSK



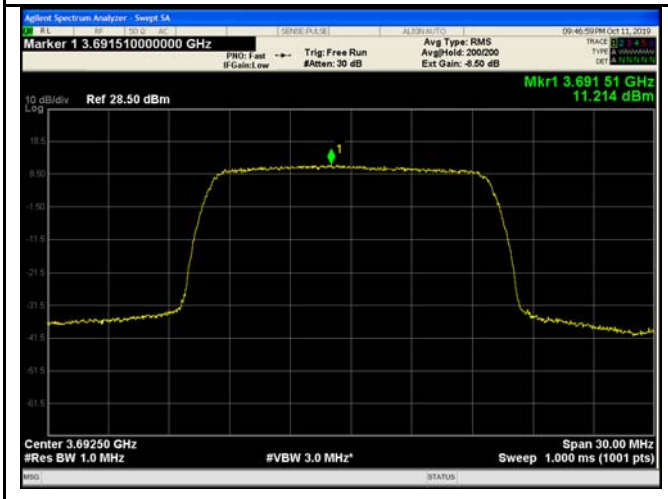
15MHz - Low CH 16QAM



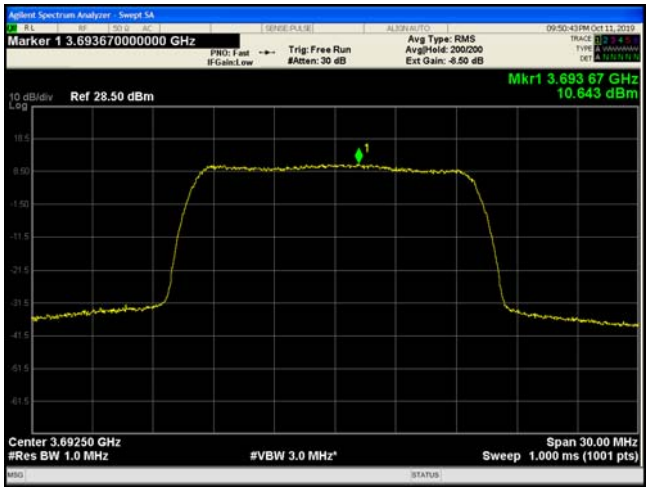
15MHz - Middle CH QPSK



15MHz - Middle CH 16QAM

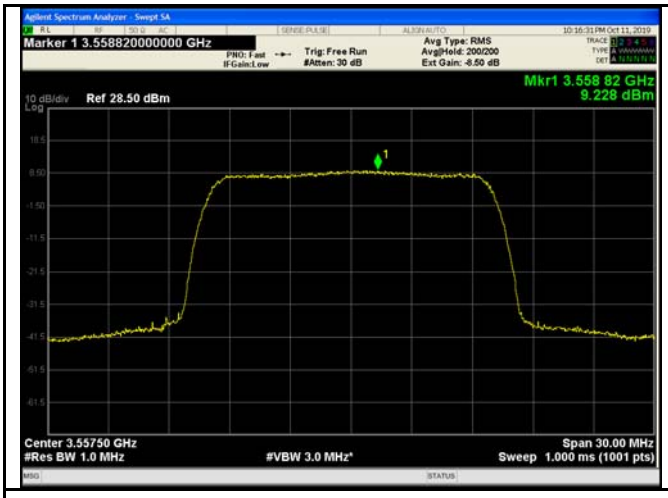


15MHz - High CH QPSK

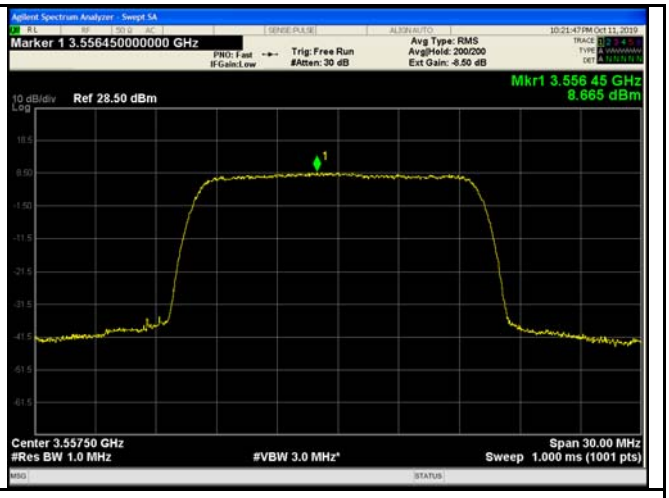


15MHz - High CH 16QAM

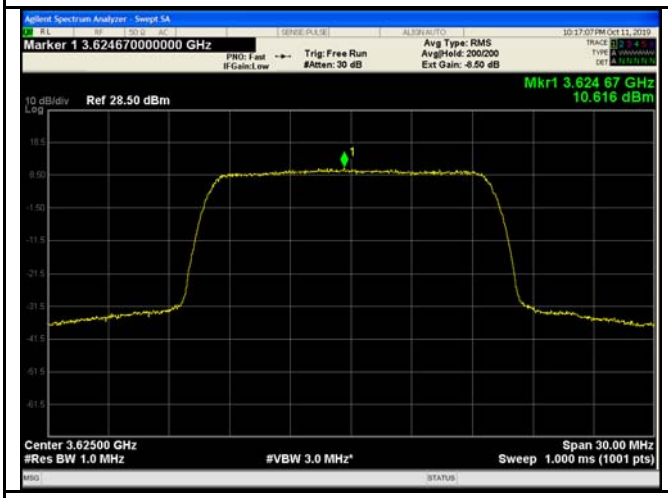
Chain 1



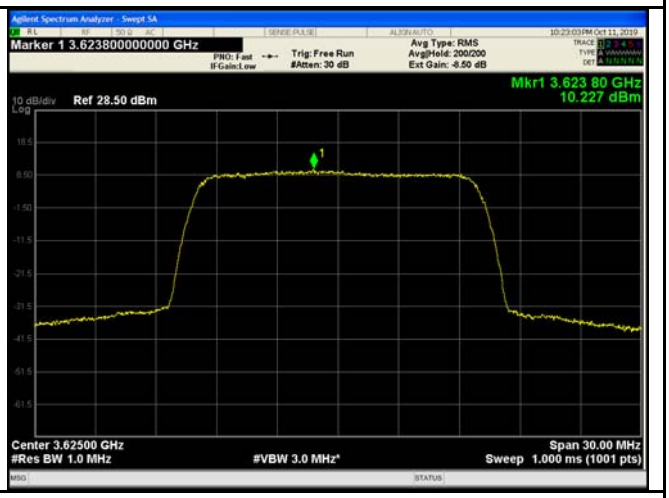
15MHz - Low CH QPSK



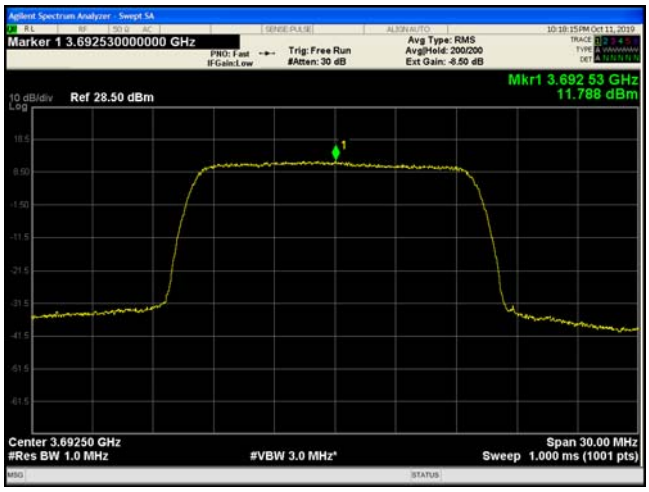
15MHz - Low CH 16QAM



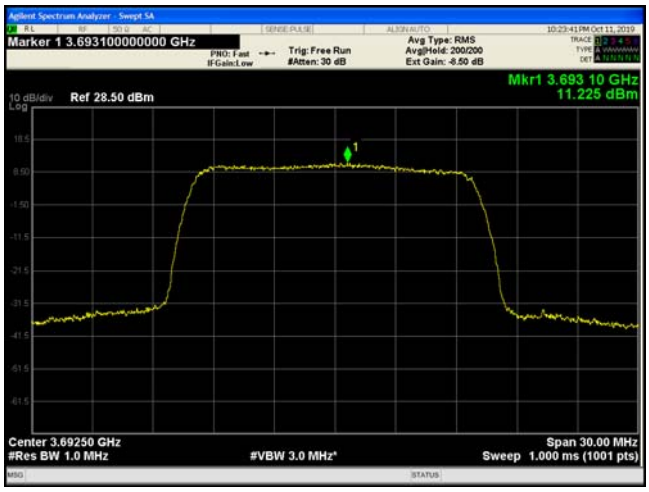
15MHz - Middle CH QPSK



15MHz - Middle CH 16QAM

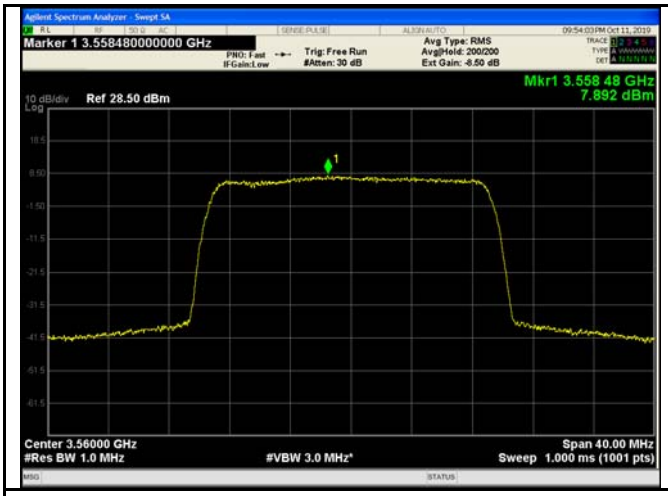


15MHz - High CH QPSK

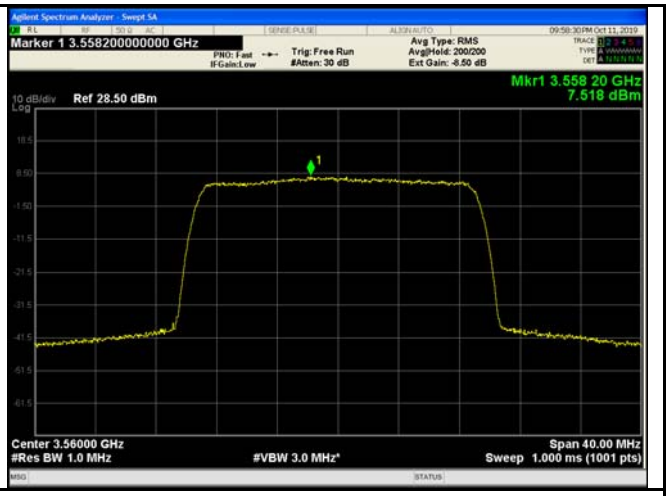


15MHz - High CH 16QAM

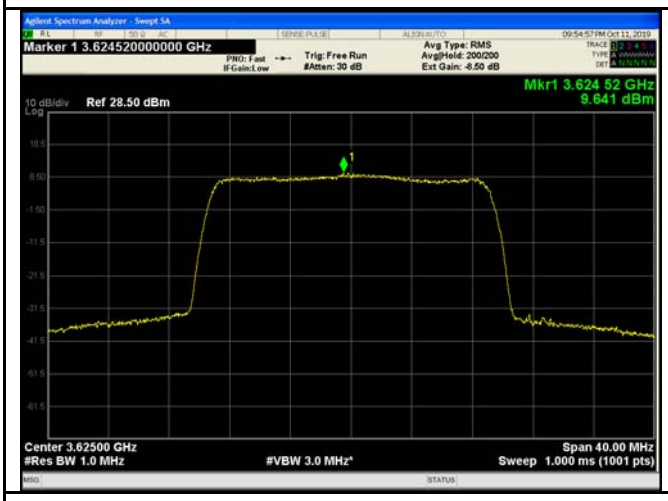
Chain 0



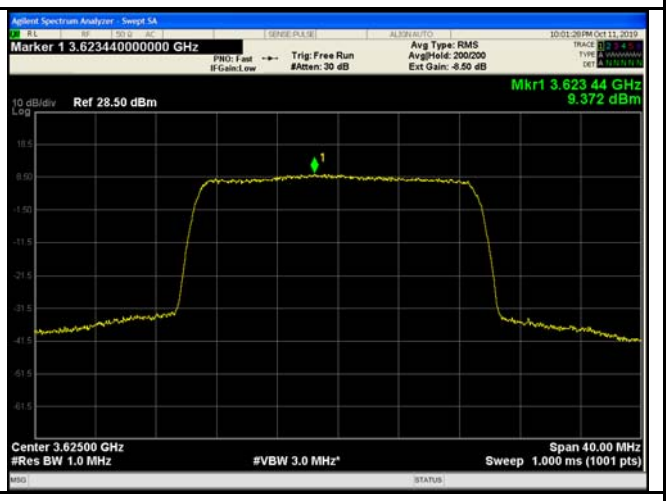
20MHz - Low CH QPSK



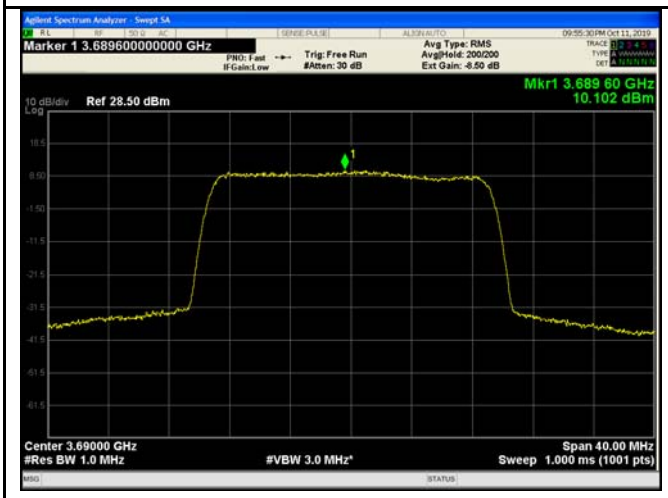
20MHz - Low CH 16QAM



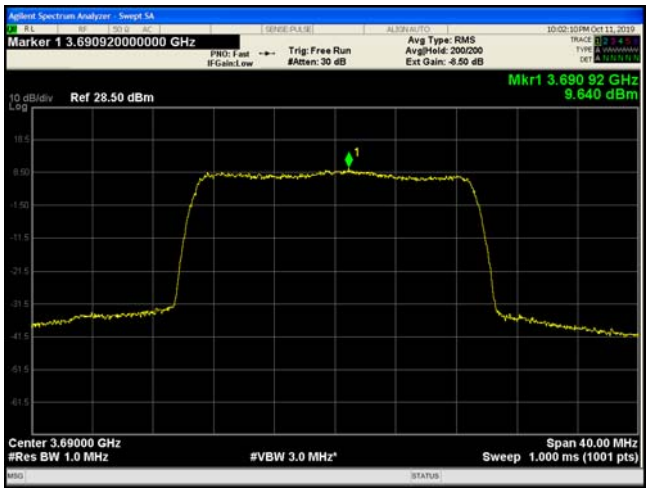
20MHz - Middle CH QPSK



20MHz - Middle CH 16QAM

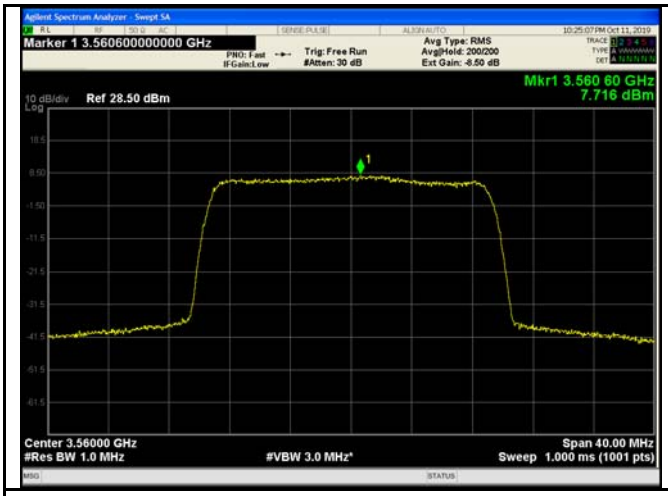


20MHz - High CH QPSK

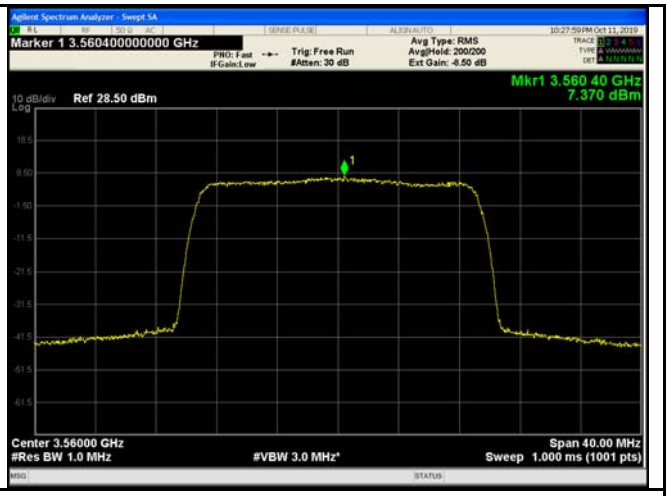


20MHz - High CH 16QAM

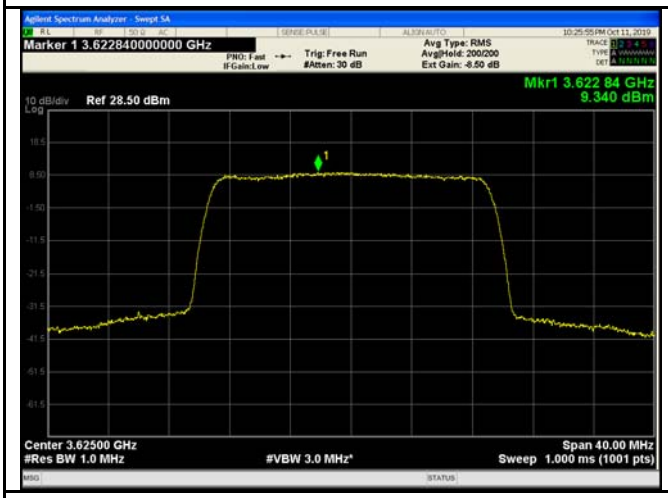
Chain 1



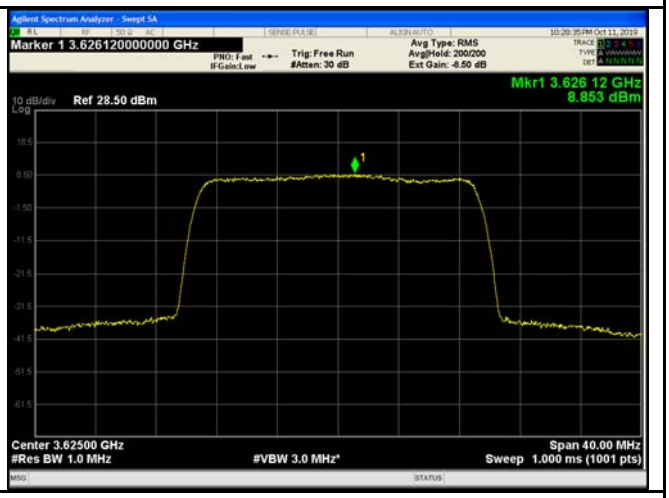
20MHz - Low CH QPSK



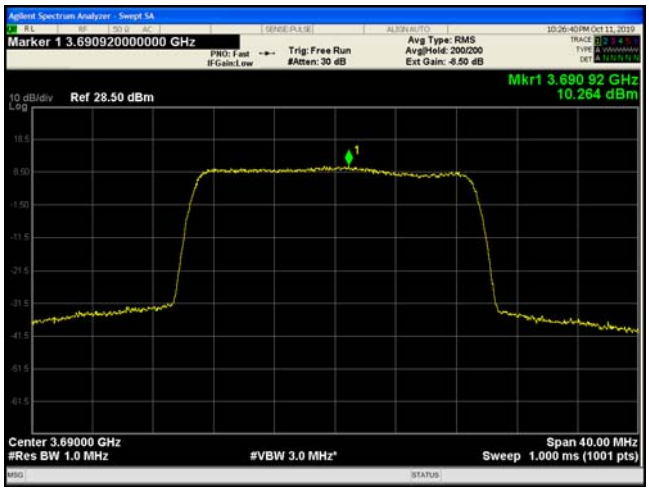
20MHz - Low CH 16QAM



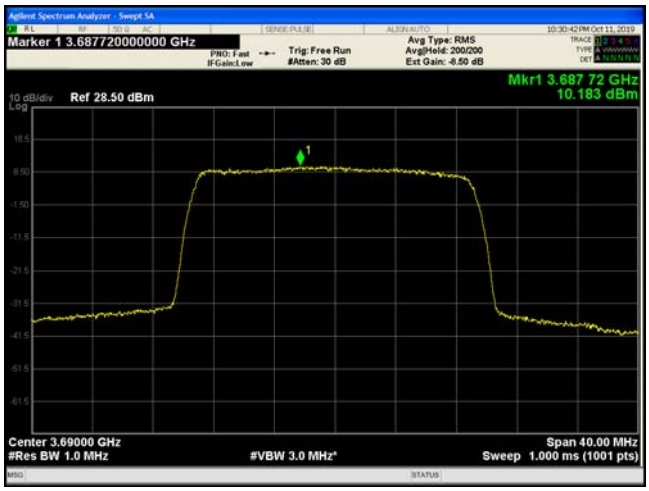
20MHz - Middle CH QPSK



20MHz - Middle CH 16QAM



20MHz - High CH QPSK



20MHz - High CH 16QAM

8 Peak-to-average power radio

Test Requirement: FCC part96.41(g)

Test Method: ANSI/TIA-603-E:2016, ANSI C63.26:2015

Test Mode: Data communicating mode

Limit:

Probability,%	dB
0.1	13

8.1 EUT Operation

Operating Environment :

Temperature: 22.5 °C

Humidity: 52.1 % RH

Atmospheric Pressure: 102.3kPa

Note: Data that only reflects the worst mode is reported

8.2 Test Procedure

1. The EUT was connected to spectrum analyzer and system simulator via a power divider.
2. Set EUT to transmit at maximum output power.
3. When the duty cycle is less than 98%, then signal gating will be implemented on the spectrum analyzer by triggering from the system simulator.
4. Set the CCDF (Complementary Cumulative Distribution Function) option of the spectrum analyzer. Record the maximum PAPR level associated with a probability of 0.1%.

8.3 Test Result

5MHz bandwidth

Mode	Chain 0			Chain 1			Limit
Channel	Low	Middle	High	Low	Middle	High	(dB)
Peak-to-Average Ratio (dB)	9.45	9.60	9.52	9.17	10.24	9.38	13

10MHz bandwidth

Mode	Chain 0			Chain 1			Limit
Channel	Low	Middle	High	Low	Middle	High	(dB)
Peak-to-Average Ratio (dB)	9.51	9.75	10.40	9.27	9.91	9.71	13

15MHz bandwidth

Mode	Chain 0			Chain 1			Limit
Channel	Low	Middle	High	Low	Middle	High	(dB)
Peak-to-Average Ratio (dB)	9.24	9.76	10.10	9.46	10.01	10.08	13

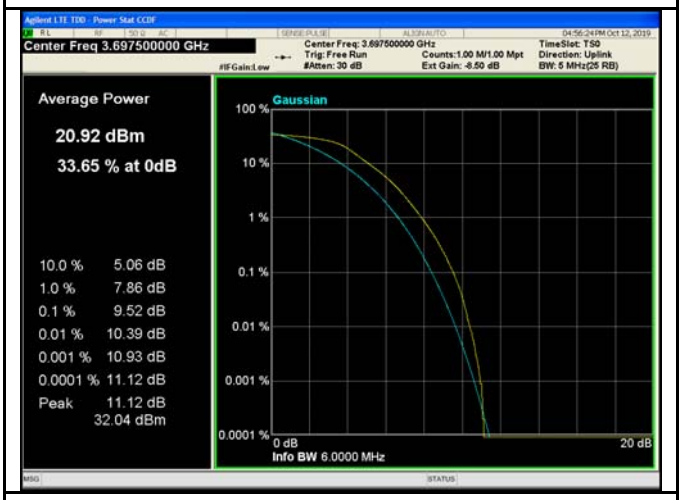
20MHz bandwidth

Mode	Chain 0			Chain 1			Limit
Channel	Low	Middle	High	Low	Middle	High	(dB)
Peak-to-Average Ratio (dB)	9.66	9.74	9.75	9.33	10.07	9.65	13

Test Plots
5M Chain 0

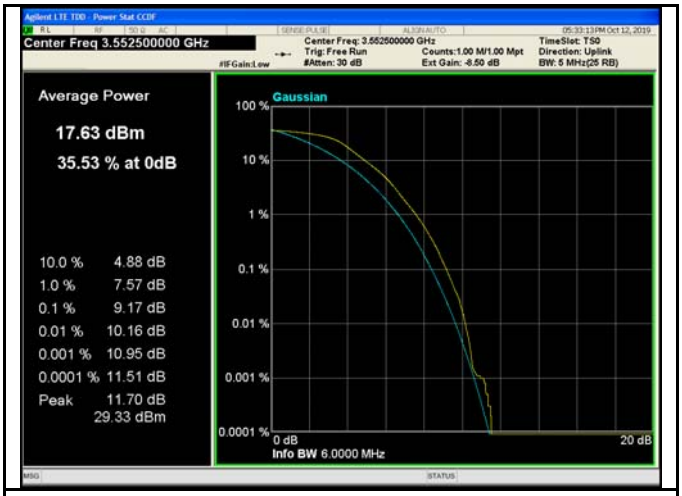
5MHz - Low CH QPSK

5MHz - Middle CH QPSK

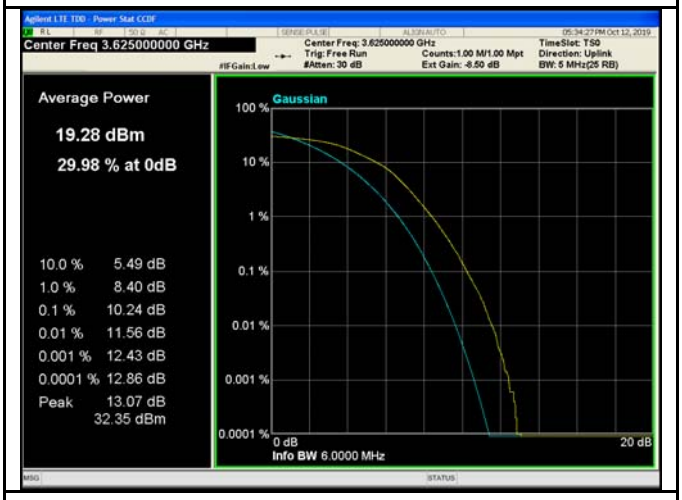


5MHz - High CH QPSK

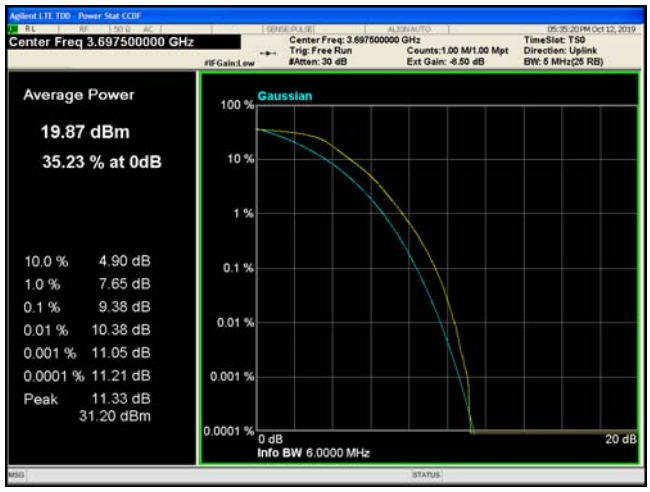
5M Chain 1



5MHz - Low CH QPSK

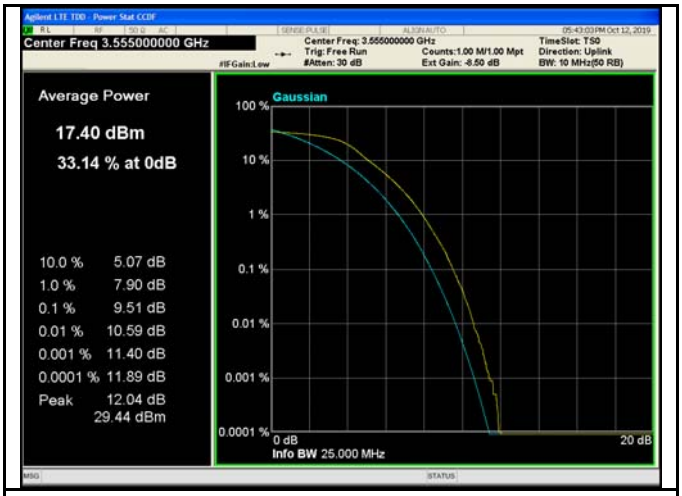


5MHz - Middle CH QPSK

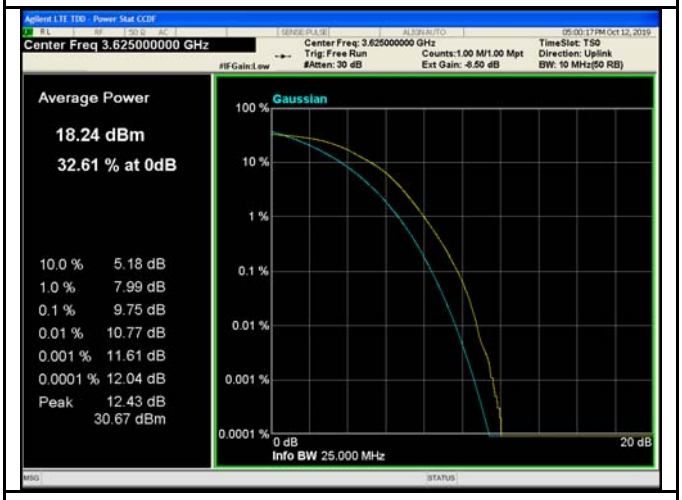


5MHz - High CH QPSK

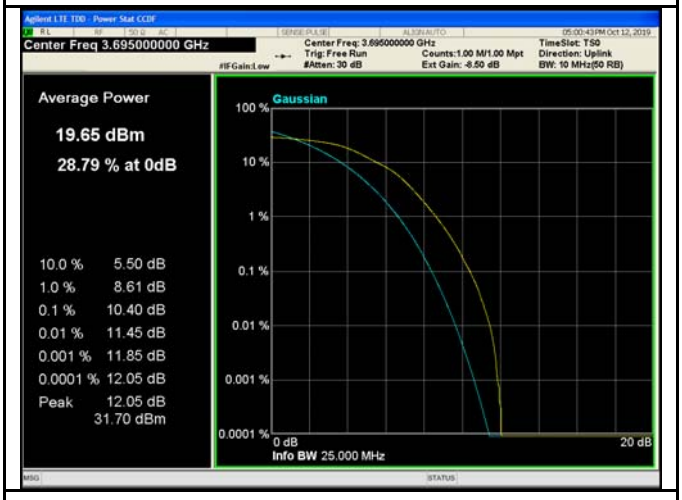
10M Chain 0



10MHz - Low CH QPSK

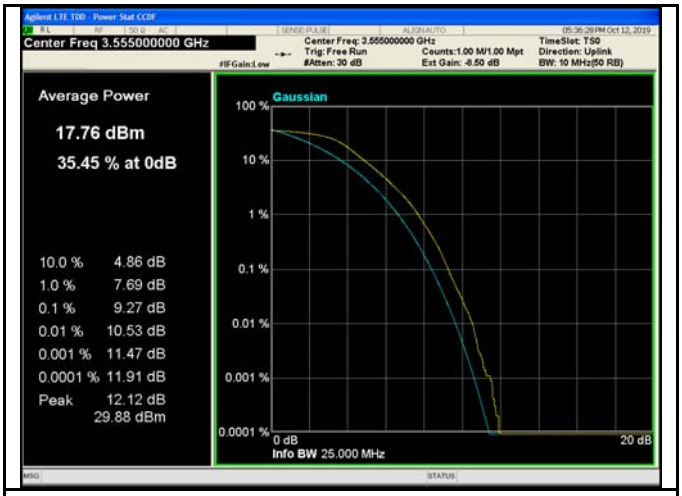


10MHz - Middle CH QPSK

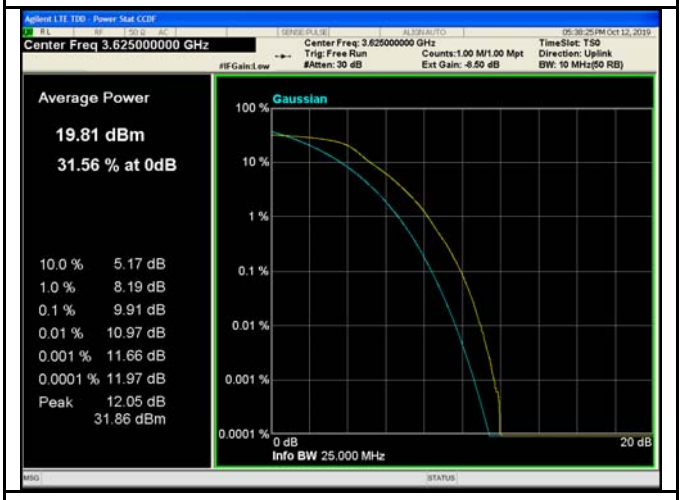


10MHz - High CH QPSK

10M Chain 1



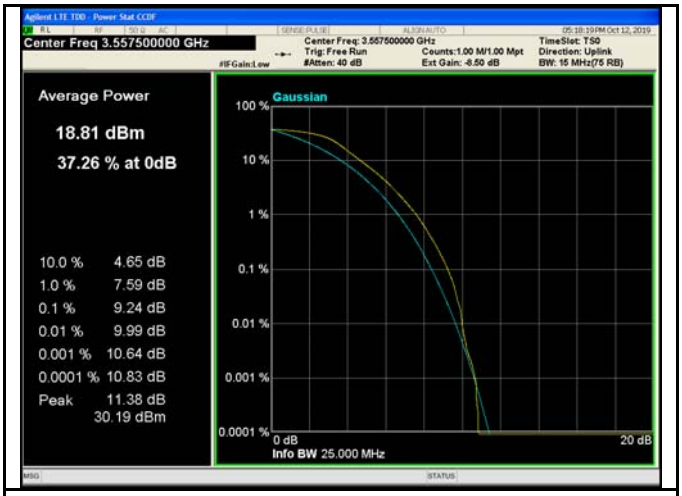
10MHz - Low CH QPSK



10MHz - Middle CH QPSK

10MHz - High CH QPSK

15M Chain 0

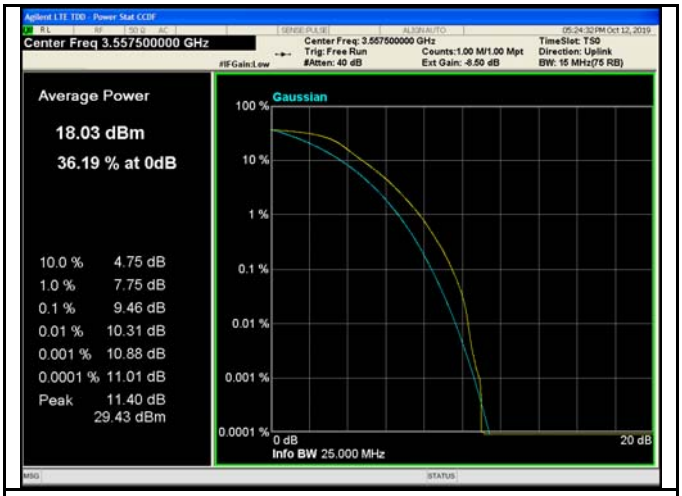


15MHz - Low CH QPSK

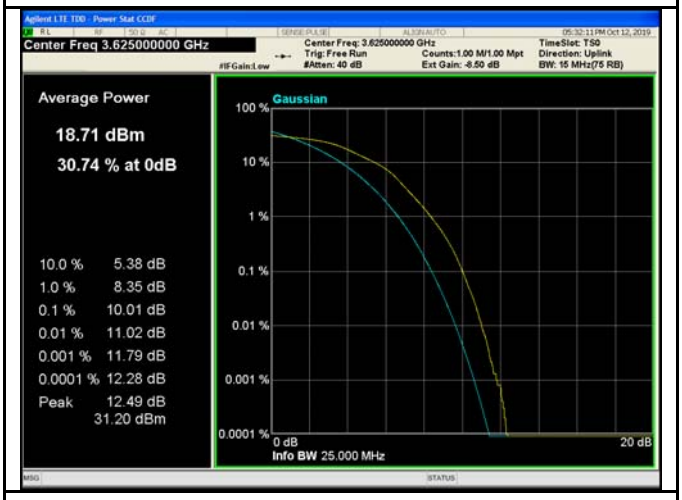
15MHz - Middle CH QPSK

15MHz - High CH QPSK

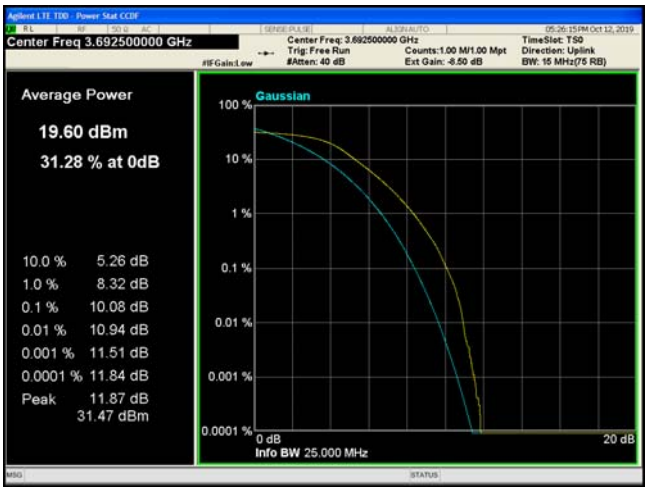
15M Chain 1



15MHz - Low CH QPSK



15MHz - Middle CH QPSK



15MHz - High CH QPSK

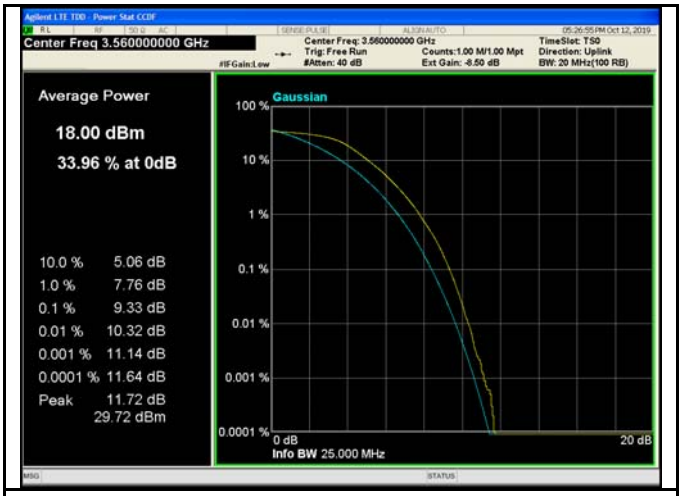
20M Chain 0

20MHz - Low CH QPSK

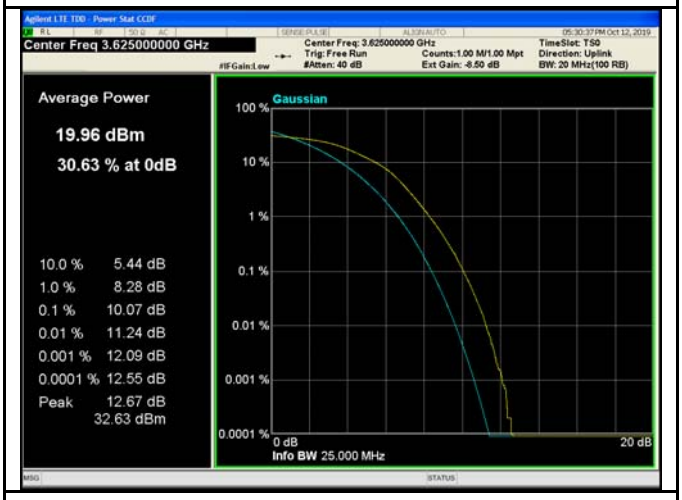
20MHz - Middle CH QPSK

20MHz - High CH QPSK

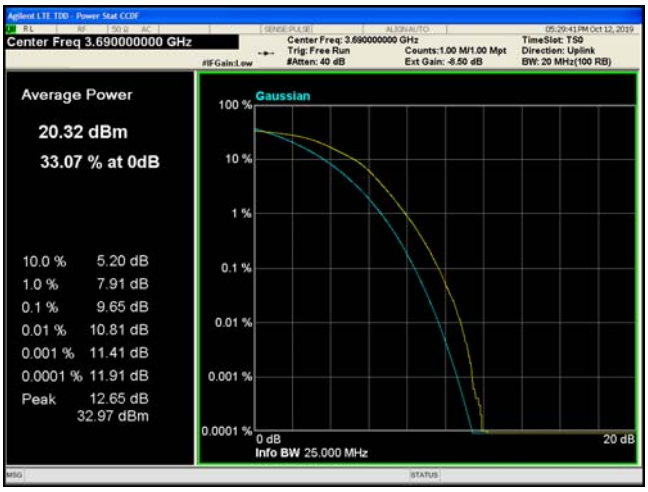
20M Chain 1



20MHz - Low CH QPSK



20MHz - Middle CH QPSK



20MHz - High CH QPSK

9 Occupy Bandwidth

Test Requirement:	FCC part 2.1049
Test Method:	ANSI/TIA-603-E:2016, ANSI C63.26:2015
Test Mode:	Data communicating mode

9.1 EUT Operation

Operating Environment :

Temperature:	22.6 °C
Humidity:	52.4 % RH
Atmospheric Pressure:	103.3kPa

9.2 Test Procedure

1. The EUT's output RF connector was connected with a short cable to the spectrum analyzer.

2. The transmitter shall be operated at its maximum carrier powermeasured under normal test conditions.

3. The span of the analyzer shall be set to capture all products of themodulation process, including the emission skirts.

4. The resolution bandwidth (RBW) shall be in the range of 1% to 5% ofthe occupied bandwidth (OBW) and video bandwidth (VBW) shall beapproximately 3x RBW.

9.3 Test Result

Chain 0

Bandwidth (MHz)	Modulation	Test Channel	26dB Down Bandwith	99% Occupy bandwidth (MHz)
5	QPSK	Low	4.829	4.498
		Middle	4.881	4.482
		High	4.884	4.487
	16QAM	Low	4.814	4.485
		Middle	4.407	4.486
		High	4.837	4.487
Bandwidth (MHz)	**Modulation**	**Test Channel**		**99% Occupy bandwidth (MHz)**
10	QPSK	Low	9.336	8.919
		Middle	9.375	8.917
		High	9.285	8.913
	16QAM	Low	9.326	8.911
		Middle	9.334	8.907
		High	9.353	8.924
Bandwidth (MHz)	**Modulation**	**Test Channel**		**99% Occupy bandwidth (MHz)**
15	QPSK	Low	14.04	13.379
		Middle	14.02	13.395
		High	14.05	13.383
	16QAM	Low	14.00	13.381
		Middle	14.04	13.398
		High	14.01	13.396
Bandwidth (MHz)	**Modulation**	**Test Channel**		**99% Occupy bandwidth (MHz)**
20	QPSK	Low	18.52	17.841
		Middle	18.57	17.824
		High	18.58	17.863
	16QAM	Low	18.52	17.827
		Middle	18.53	17.873
		High	18.52	17.833

Chain 1

Bandwidth (MHz)	Modulation	Test Channel	26dB Down Bandwith	99% Occupy bandwidth (MHz)
5	QPSK	Low	4.829	4.491
		Middle	4.889	4.486
		High	4.868	4.485
	16QAM	Low	4.842	4.491
		Middle	4.848	4.487
		High	4.844	4.493
Bandwidth (MHz)	**Modulation**	**Test Channel**		**99% Occupy bandwidth (MHz)**
10	QPSK	Low	9.321	8.915
		Middle	9.344	8.924
		High	9.338	8.923
	16QAM	Low	9.382	8.920
		Middle	9.340	8.916
		High	9.328	8.920
Bandwidth (MHz)	**Modulation**	**Test Channel**		**99% Occupy bandwidth (MHz)**
15	QPSK	Low	14.03	13.404
		Middle	14.05	13.401
		High	14.08	13.376
	16QAM	Low	14.03	13.402
		Middle	14.00	13.383
		High	14.01	13.403
Bandwidth (MHz)	**Modulation**	**Test Channel**		**99% Occupy bandwidth (MHz)**
20	QPSK	Low	18.52	17.838
		Middle	18.54	17.805
		High	18.54	17.827
	16QAM	Low	18.52	17.847
		Middle	18.51	17.842
		High	18.55	17.841

Test Plots
Chain 0

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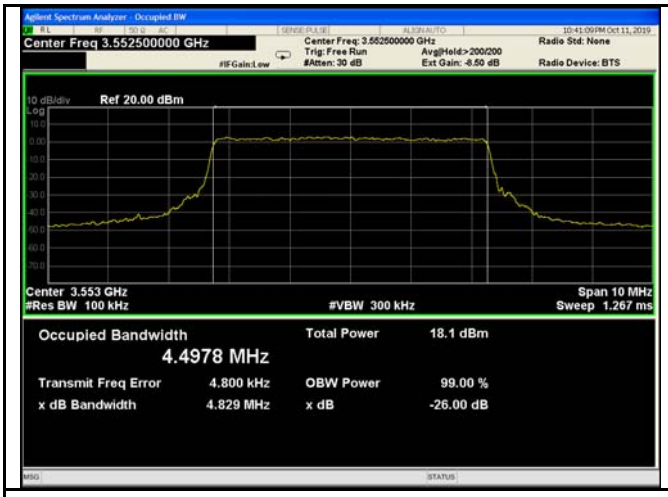
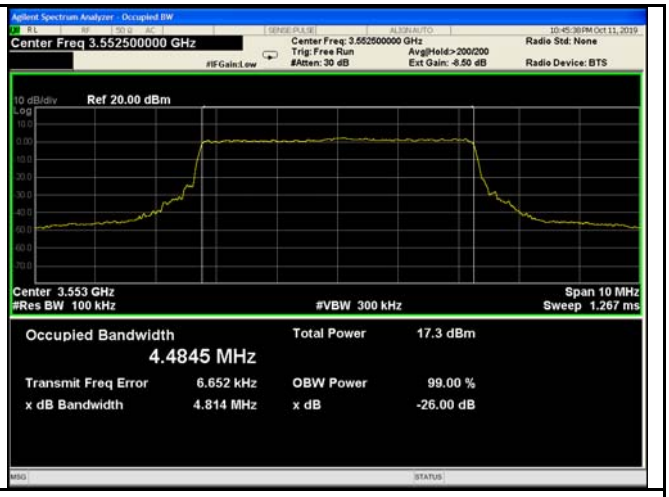
<tr><td> 
</td><td> 
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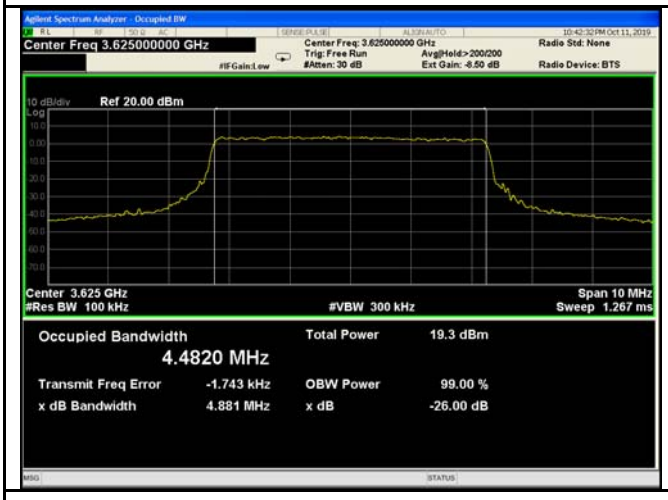
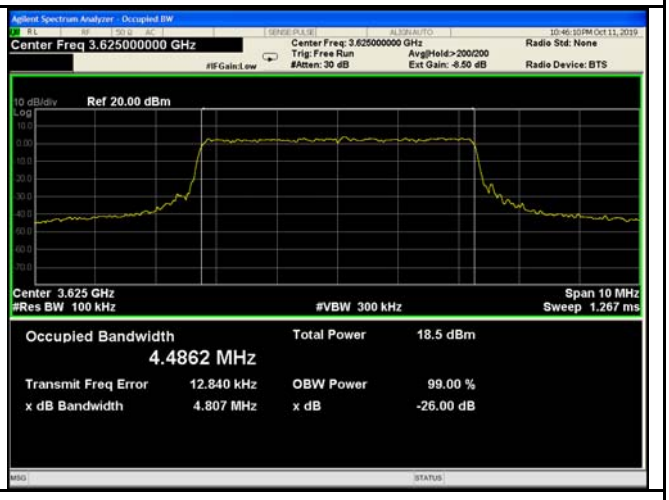
<tr><td>5MHz - Low CH QPSK</td><td>5MHz - Low CH 16QAM</td></tr>
<tr><td> 
</td><td> 
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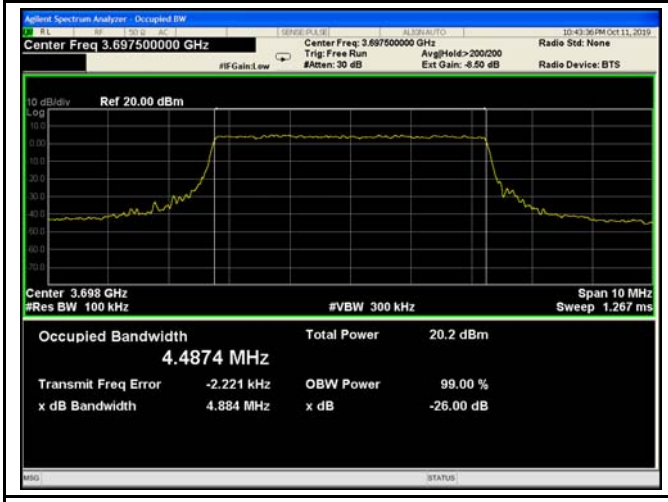
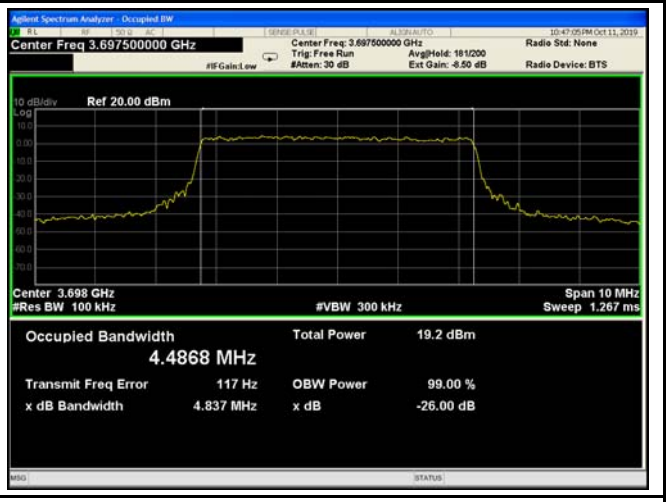
<tr><td> 
</td><td> 
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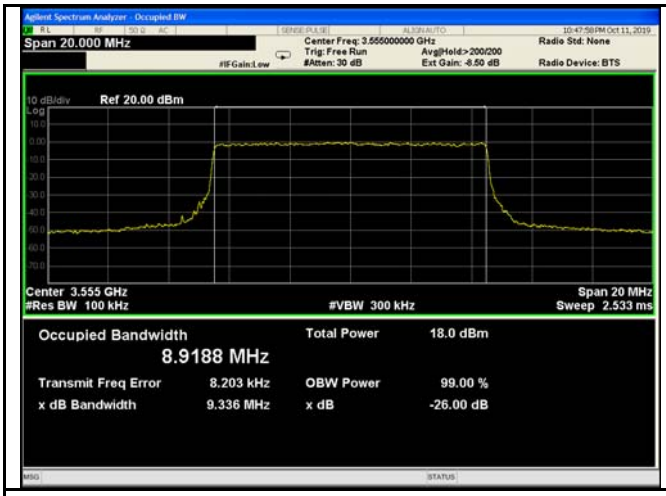
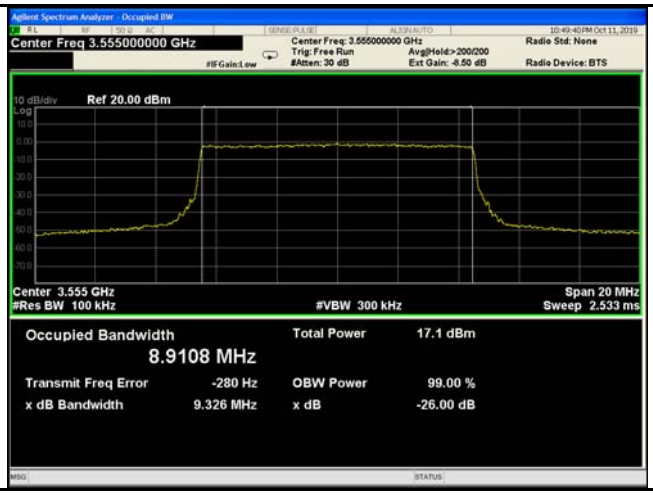


10MHz - Low CH QPSK



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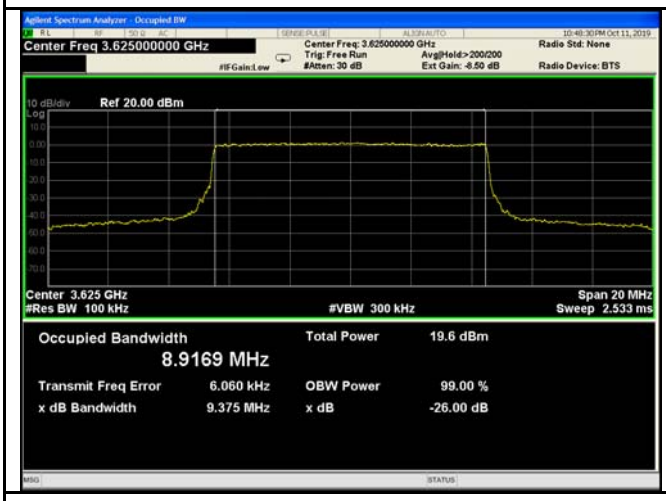
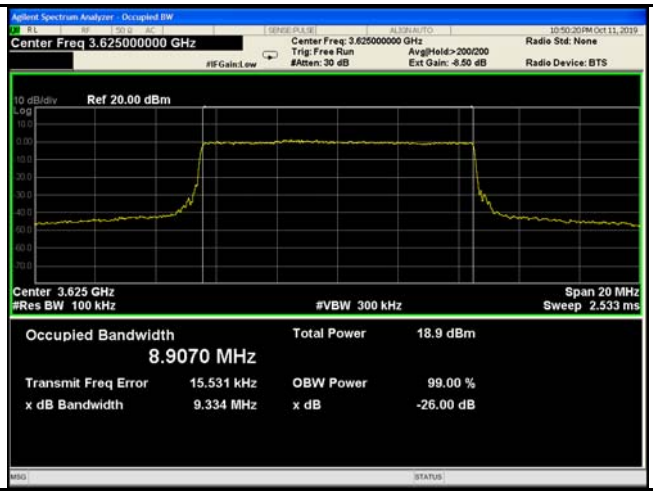


10MHz - Middle CH QPSK



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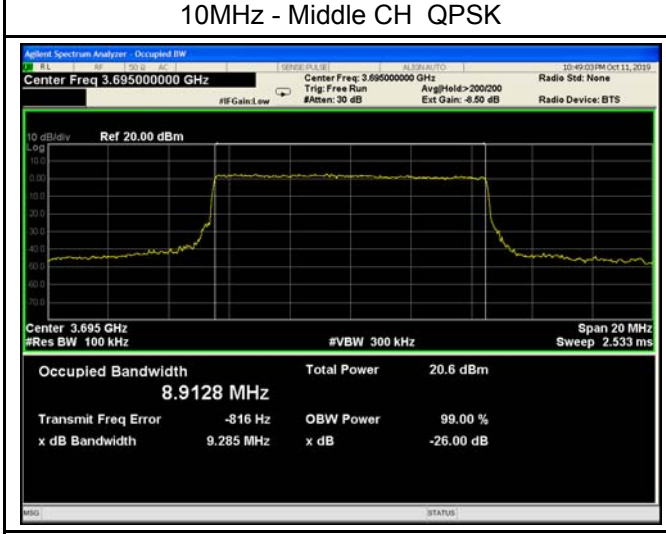

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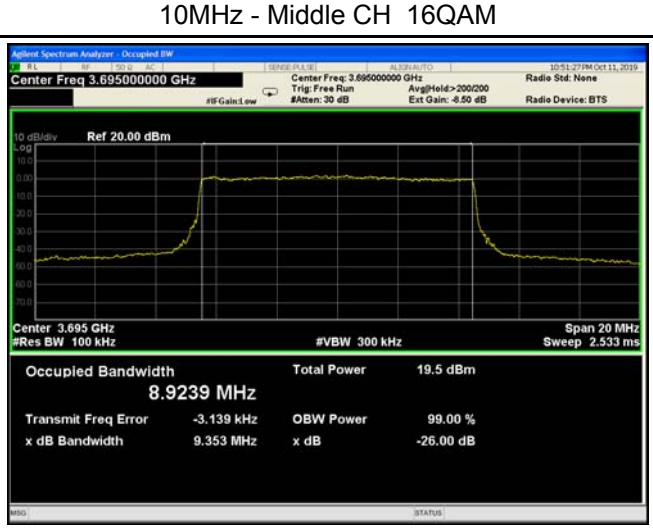

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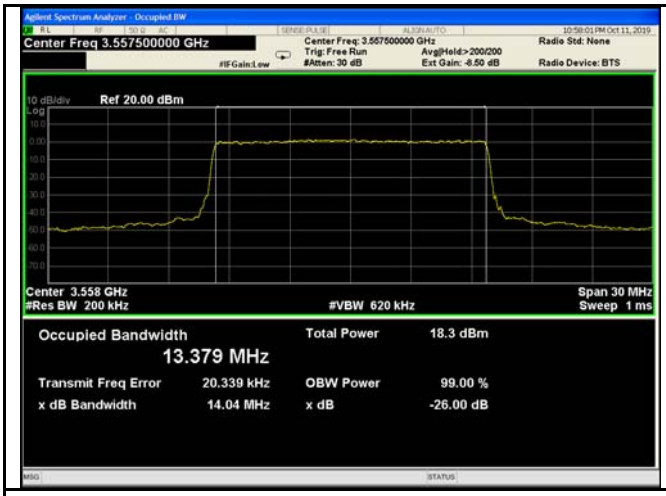
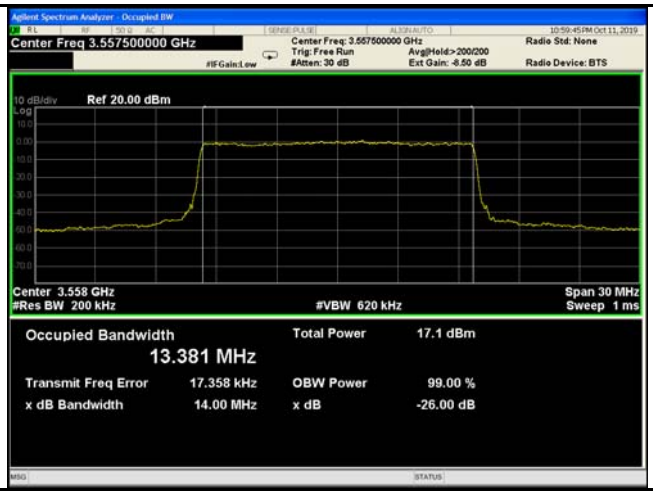
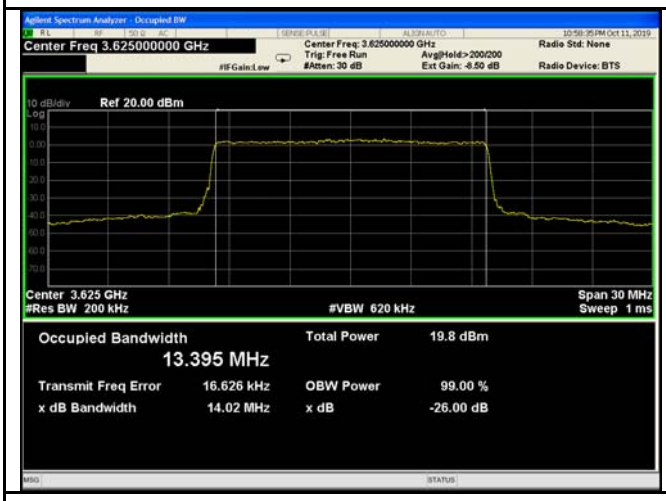


15MHz - Low CH QPSK



15MHz - Low CH 16QAM



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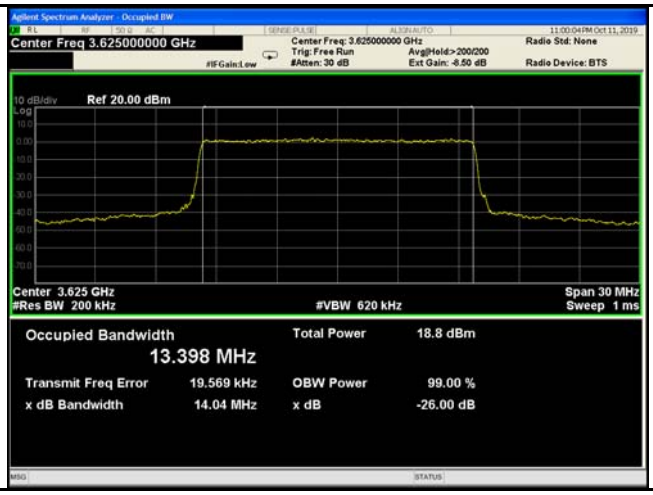

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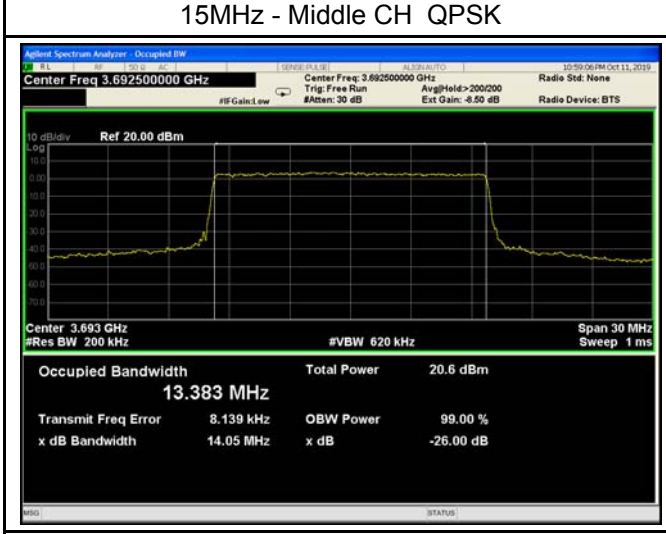

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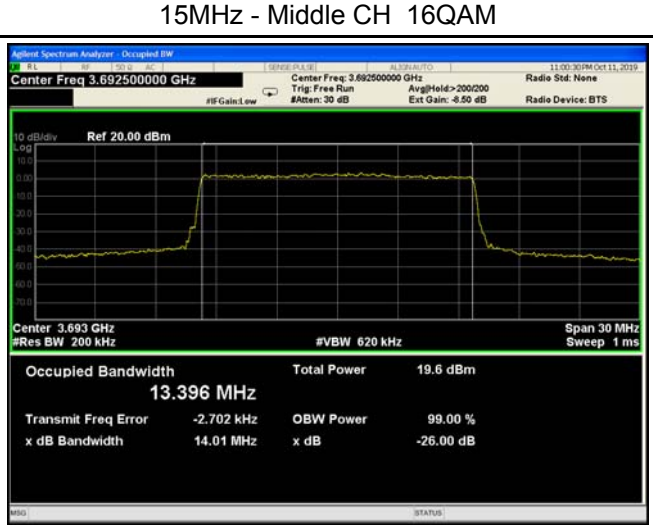
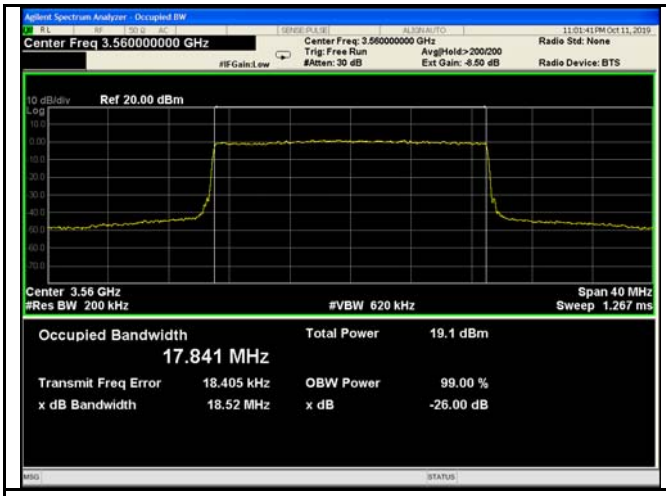
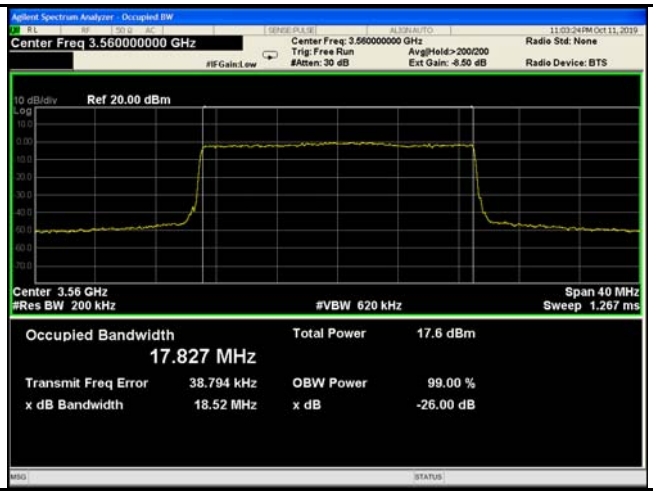


15MHz - High CH 16QAM



20MHz - Low CH QPSK



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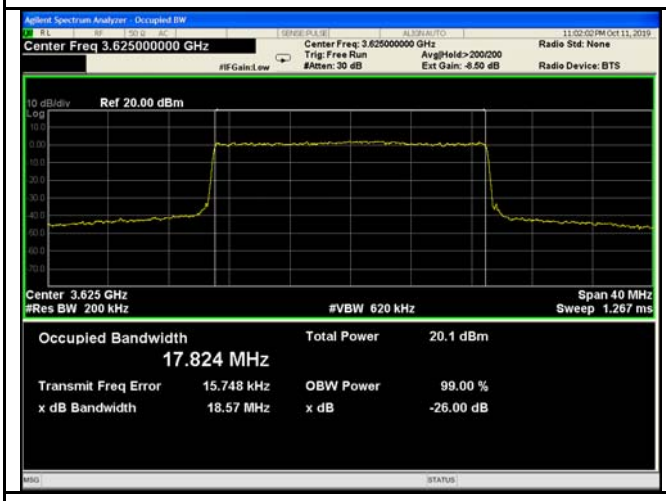

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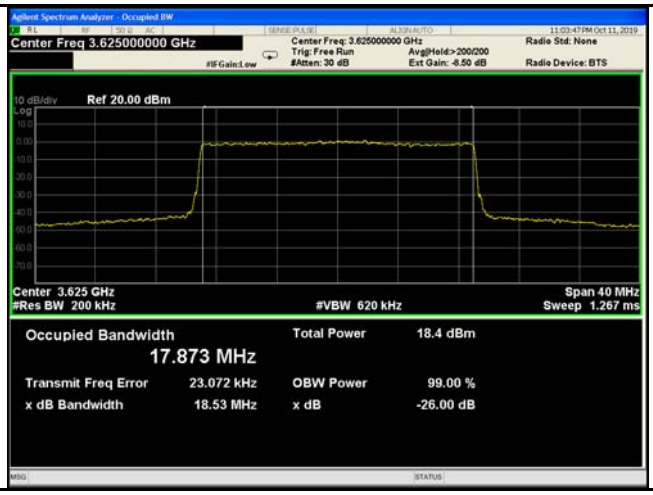

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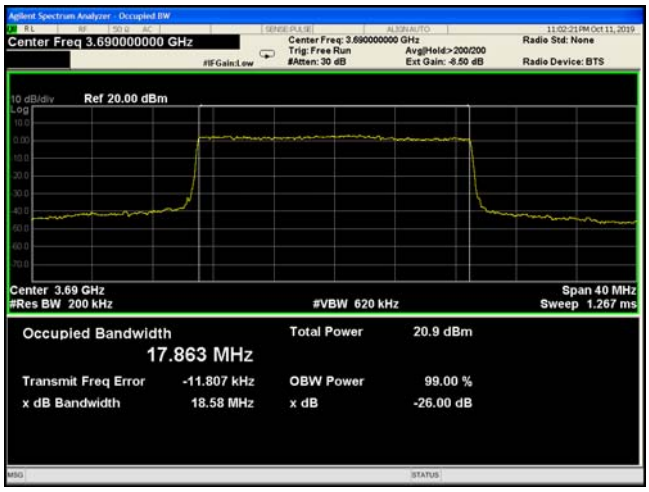

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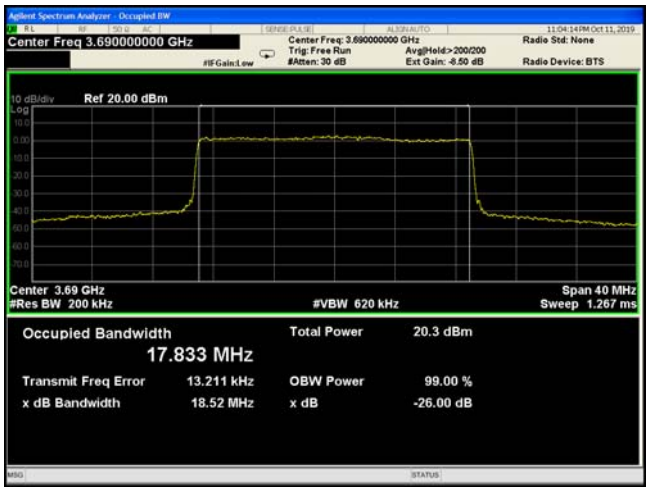

20MHz - High CH 16QAM

Chain 1

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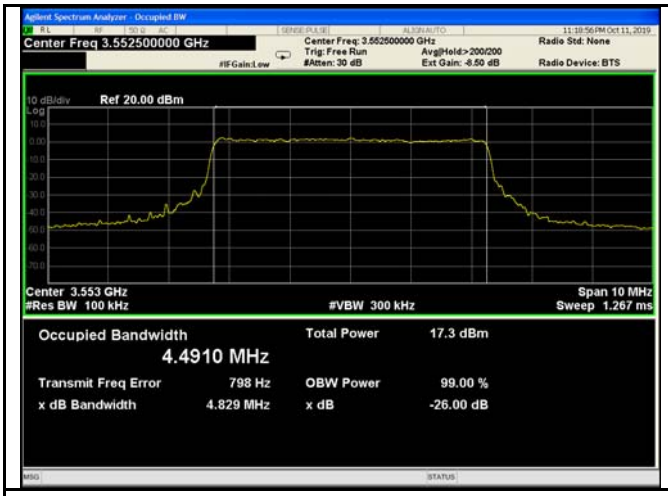
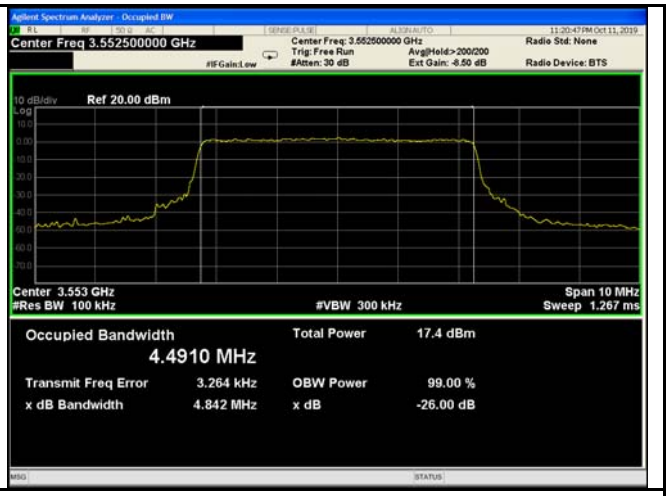
<tr><td> 
</td><td> 
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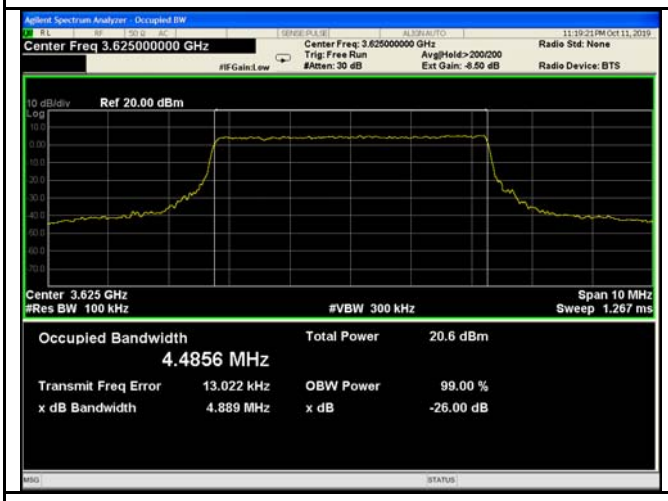
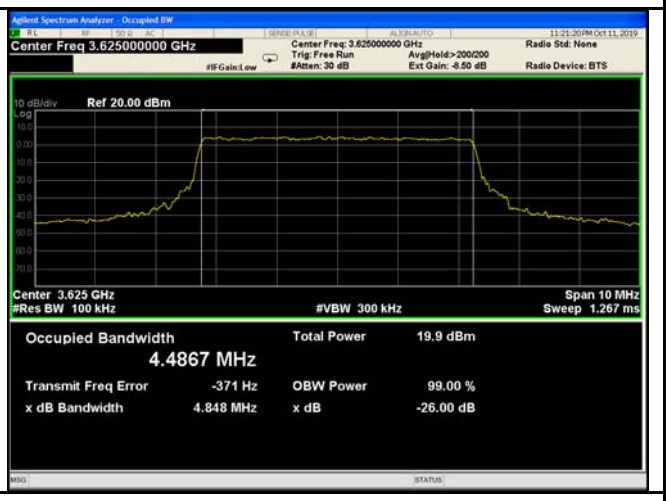
<tr><td> 
</td><td> 
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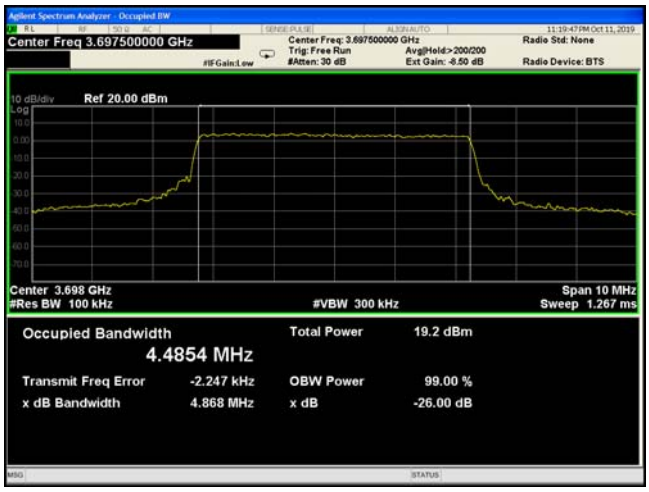
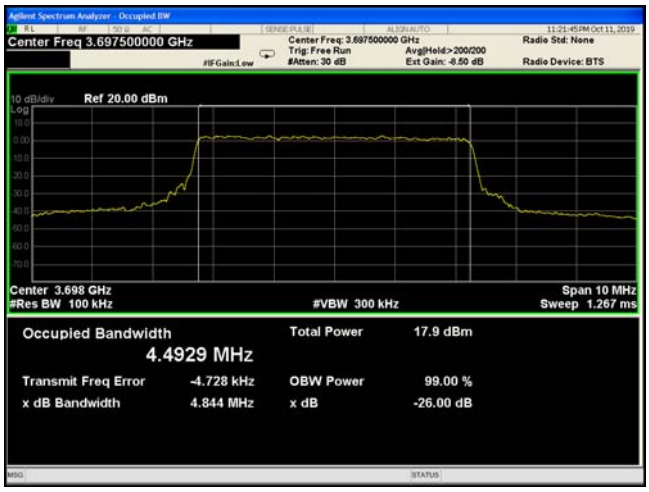
<tr><td> 
</td><td> 
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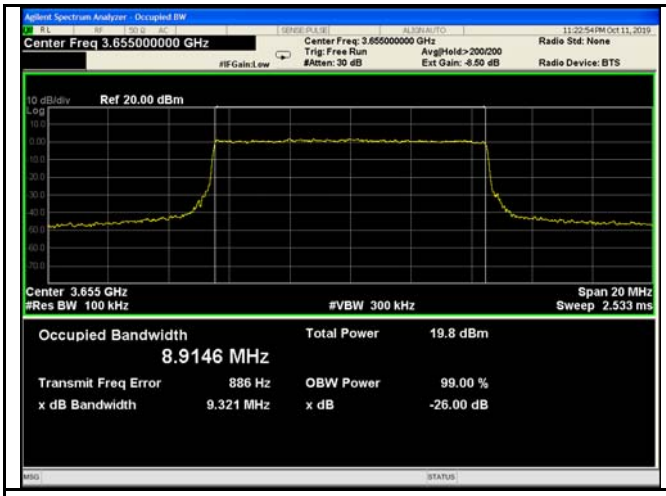
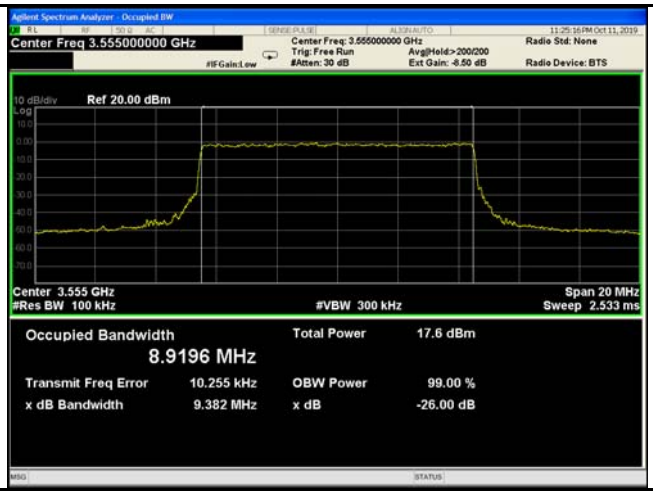
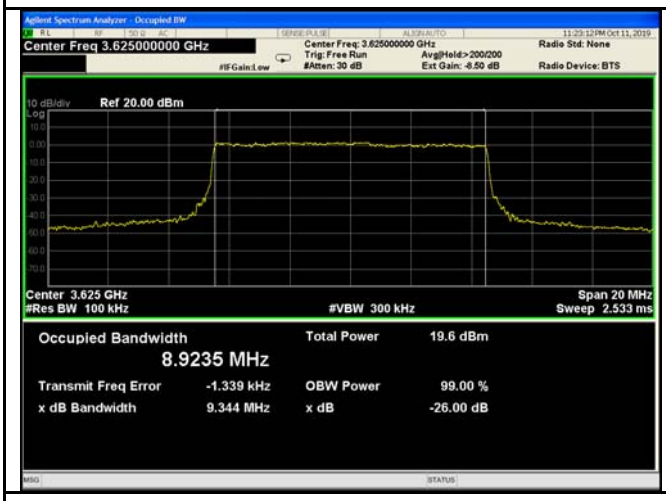


10MHz - Low CH QPSK



10MHz - Low CH 16QAM



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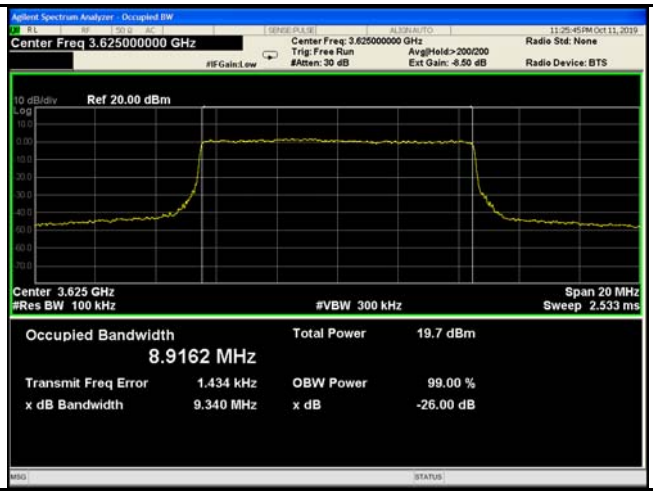

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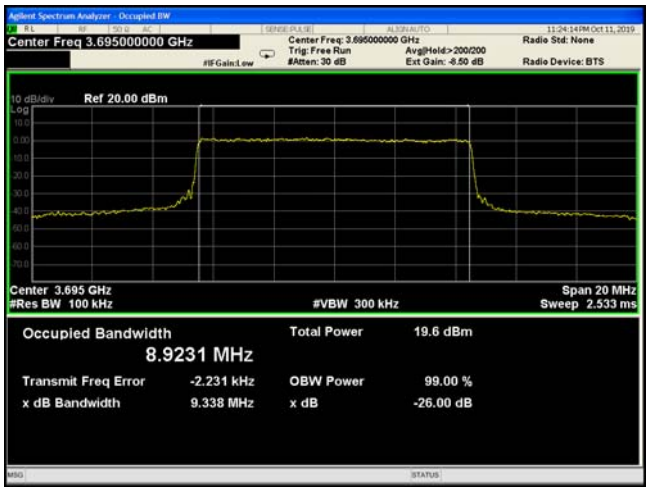
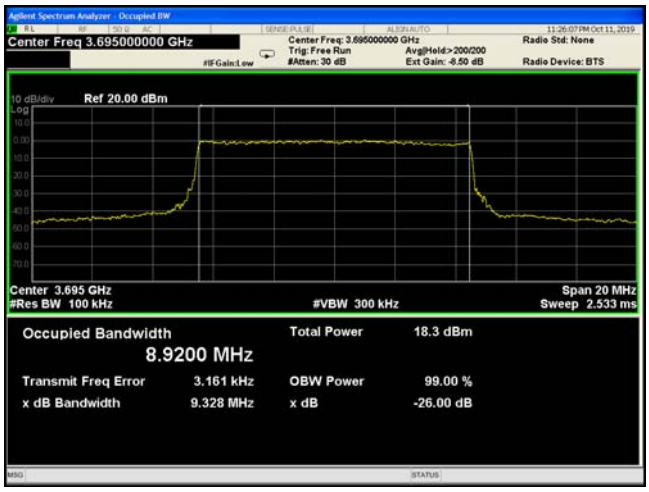


10MHz - High CH QPSK



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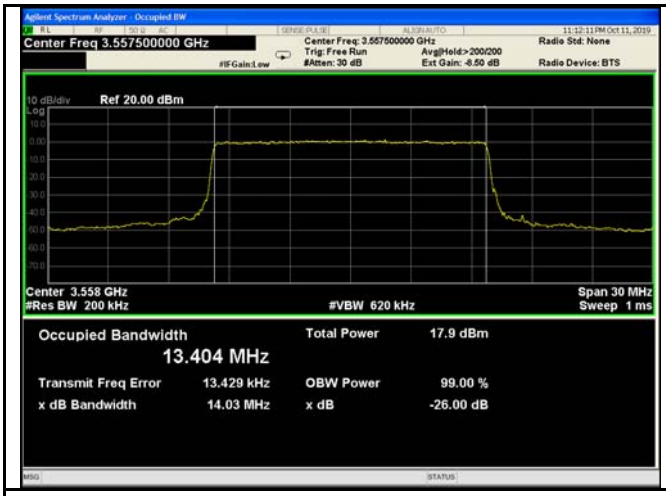
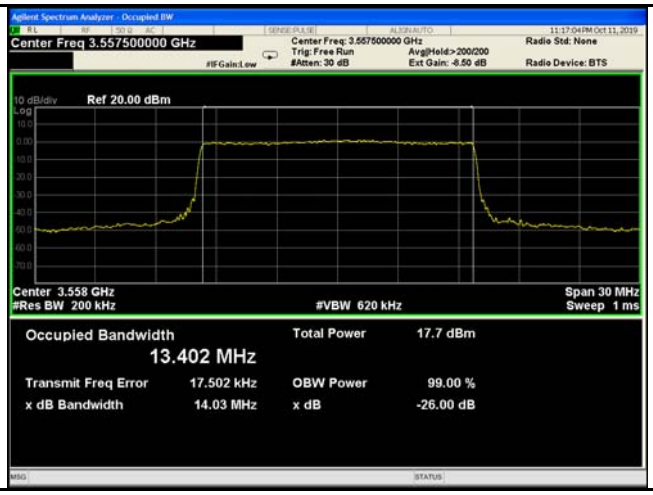
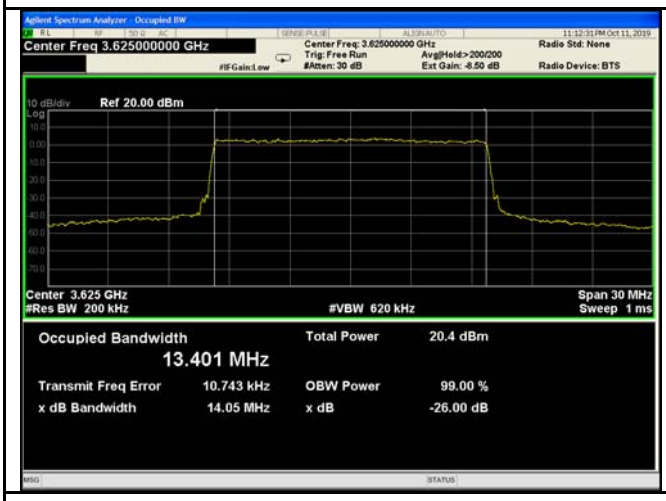


15MHz - Low CH QPSK



15MHz - Low CH 16QAM



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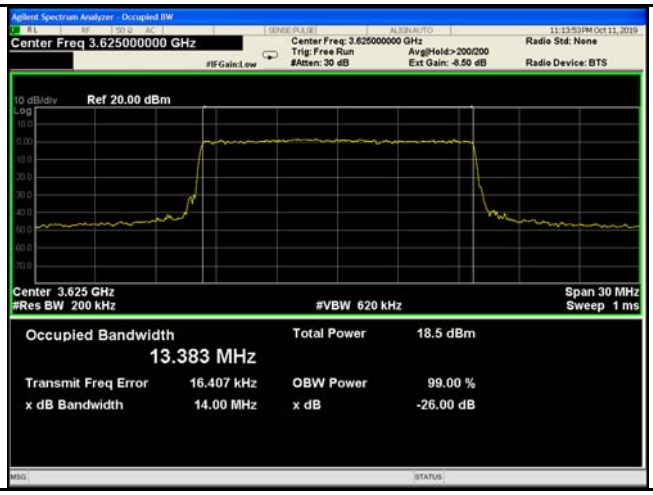

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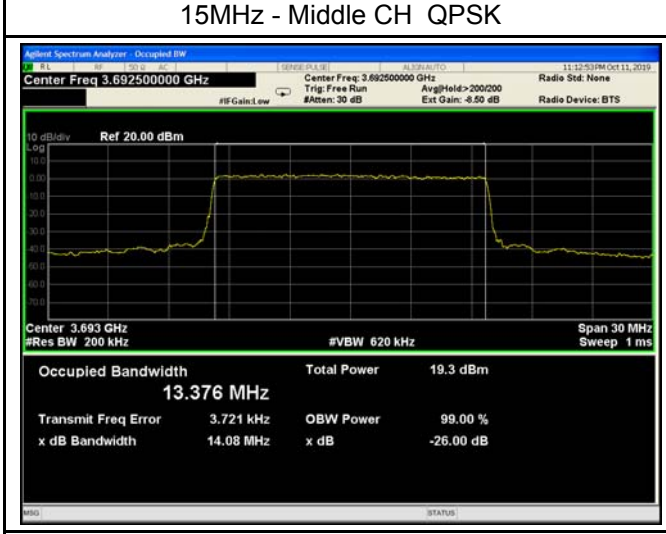
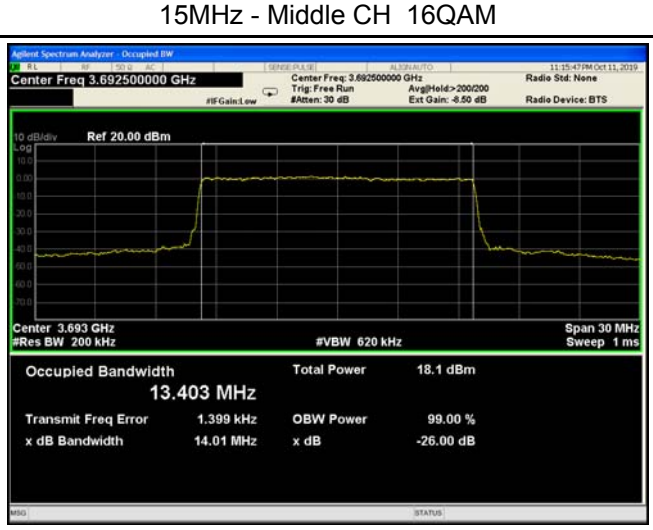


15MHz - High CH QPSK



15MHz - High CH 16QAM