

TEST REPORT

Reference No...... : WTD21D10107796W001
FCC ID : 2AG32EG8015GM11HP
Applicant..... : Baicells Technologies Co., Ltd.
Address..... : 9-10F, 1st Bldg., No.81 Beiqing Road, Haidian District, Beijing, China
Manufacturer : Baicells Technologies Co., Ltd.
Address..... : 9-10F, 1st Bldg., No.81 Beiqing Road, Haidian District, Beijing, China
Product..... : LTE Outdoor CPE
Model(s) : EG8015G-M11-HP
Brand Name : **Baicells**
Standards..... : FCC CFR Title 47 Part 2
FCC CFR Title 47 Part 96
Date of Receipt sample : 2022-02-28
Date of Test : 2022-02-28 to 2022-03-21
Date of Issue..... : 2022-03-24
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:

Waltek Testing Group Co., Ltd.

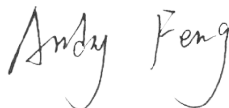
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Daniel Liu / Designated Reviewer

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3 Revision History

Test report No.	Date of Receipt sample	Date of Test	Date of Issue	Purpose	Comment	Approved
WTD21D10107 796W001	2022-02-28	2022-02-28 to 2022-03-21	2022-03-24	original	-	Valid

4 General Information

4.1 General Description of E.U.T.

Product:	LTE Outdoor CPE
Model(s):	EG8015G-M11-HP
Model Description:	AtomOD15G Outdoor High-Power and High-Gain CPE
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, 64QAM;Downlink: QPSK, 16QAM, 64QAM
Antenna installation:	LTE: Internal antenna
Antenna Gain:	17dBi
Ratings:	DC 24V 0.5A

4.3 Channel List

Normal

10MHz		15MHz	
Channel	Channel	Channel	Frequency (MHz)
Low	3555	Low	3557.5
Middle	3625	Middle	3625
High	3695	High	3692.5
20MHz			
Channel	Channel		
Low	3560		
Middle	3625		
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). (10MHz, 15MHz, 20MHz)
Data Mode (64QAM)	Keep the EUT in data communicating mode (64QAM). (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 Eqpt v03
 ANSI/TIA/EIA-603-E 2016
 ANSI C63.26-2015

4.6 Test Facility

Waltek Testing Group Co., Ltd.
<http://www.waltek.com.cn>

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

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

Waltek Testing Group 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 Testing Group 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	3555 to 3695	3555,3625, 3695	10MHz	QPSK, 64QAM
	3557.5 to 3692.5	3557.5, 3625, 3692.5	15MHz	QPSK, 64QAM
	3560 to 3690	3560,3625, 3690	20MHz	QPSK, 64QAM
PSD	3555 to 3695	3555,3625, 3695	10MHz	QPSK, 64QAM
	3557.5 to 3692.5	3557.5, 3625, 3692.5	15MHz	QPSK, 64QAM
	3560 to 3690	3560,3625, 3690	20MHz	QPSK, 64QAM
Frequency stability	3555 to 3695	3625	10MHz	QPSK, 64QAM
	3557.5 to 3692.5	3625	15MHz	QPSK, 64QAM
	3560 to 3690	3625	20MHz	QPSK, 64QAM
Occupied Bandwidth	3555 to 3695	3555,3625, 3695	10MHz	QPSK, 64QAM
	3557.5 to 3692.5	3557.5, 3625, 3692.5	15MHz	QPSK, 64QAM
	3560 to 3690	3560,3625, 3690	20MHz	QPSK, 64QAM
Peak to Average Ratio	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
Emission outside the fundamental	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
Out of band emission at antenna terminals	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
Field Strength of Spurious Radiation	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 Peak to Average Ratio, Emission outside the fundamental, Out of band emission at antenna terminals and Field Strength of Spurious Radiation were presented under QPSK mode only.

NOTE 2: The duty cycle correction= $10 \log(1/\text{duty cycle})=10 \log(1/(1.999/5.0))=4(\text{dB})$

Offset factory=ATT loss+Cable loss+Duty cycle correction, Chain 0: $7+1+4=12\text{dB}$;
Chain 1: $2.5+0.5+4=7\text{dB}$

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	Spectrum Analyzer	R&S	FSP30	100091	2021-04-20	2022-04-19
2	Amplifier	Agilent	8447D	2944A10178	2021-04-20	2022-04-19
3	Trilog Broadband Antenna	SCHWARZBECK	VULB9163	336	2021-08-22	2022-08-21
4	Coaxial Cable (below 1GHz)	Top	TYPE16(13M)	-	2021-04-20	2022-04-19
5	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9120 D	667	2021-04-25	2022-04-24
6	Broad-band Horn Antenna	SCHWARZBECK	BBHA 9170	335	2021-04-20	2022-04-19
7	Broadband Preamplifier	COMPLIANCE DIRECTION	PAP-1G18	2004	2021-04-20	2022-04-19
8	Coaxial Cable (above 1GHz)	ZT26-NJ-NJ-8M/FA	1GHz-18GHz	NA	2021-04-20	2022-04-19
3m Semi-anechoic Chamber for Radiation Emissions Test site 2#						
Item	Equipment	Manufacturer	Model No.	Serial No	Last Calibration Date	Calibration Due Date
1	Test Receiver	R&S	ESCI	101296	2021-04-20	2022-04-19
2	Trilog Broadband Antenna	SCHWARZBECK	VULB9160	9160-3325	2021-04-25	2022-04-24
3	Active Loop Antenna	Com-Power Corp.	AL-130R	10160007	2021-05-06	2022-05-05
4	Amplifier	ANRITSU	MH648A	M43381	2021-04-20	2022-04-19
5	Cable	HUBER+SUHNER	CBL2	525178	2021-04-20	2022-04-19
RF Conducted Testing						
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Calibration Date	Calibration Due Date
1.	EMC Analyzer (9k~26.5GHz)	Agilent	E7405A	MY45114943	2021-04-20	2022-04-19
2.	Spectrum Analyzer	R&S	FSP30	100091	2021-04-20	2022-04-19
3.	EXA Signal Analyzer	Malaysia Keysight	N9010A	MY50520207	2021-04-20	2022-04-19
4	Universal Radio Communication Tester	R&S	CMW500	127818	2021-04-26	2022-04-25

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 part 96.41(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

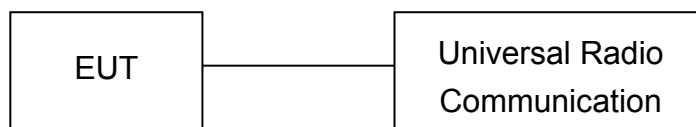
Operating Environment :

Temperature: 22.4 °C
 Humidity: 52.2 % RH
 Atmospheric Pressure: 101.3kPa

7.2 Test Procedure

Conducted method for 10M&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} + GT.

P_{Meas} measured transmitter output power or PSD.

GT 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 Test Result

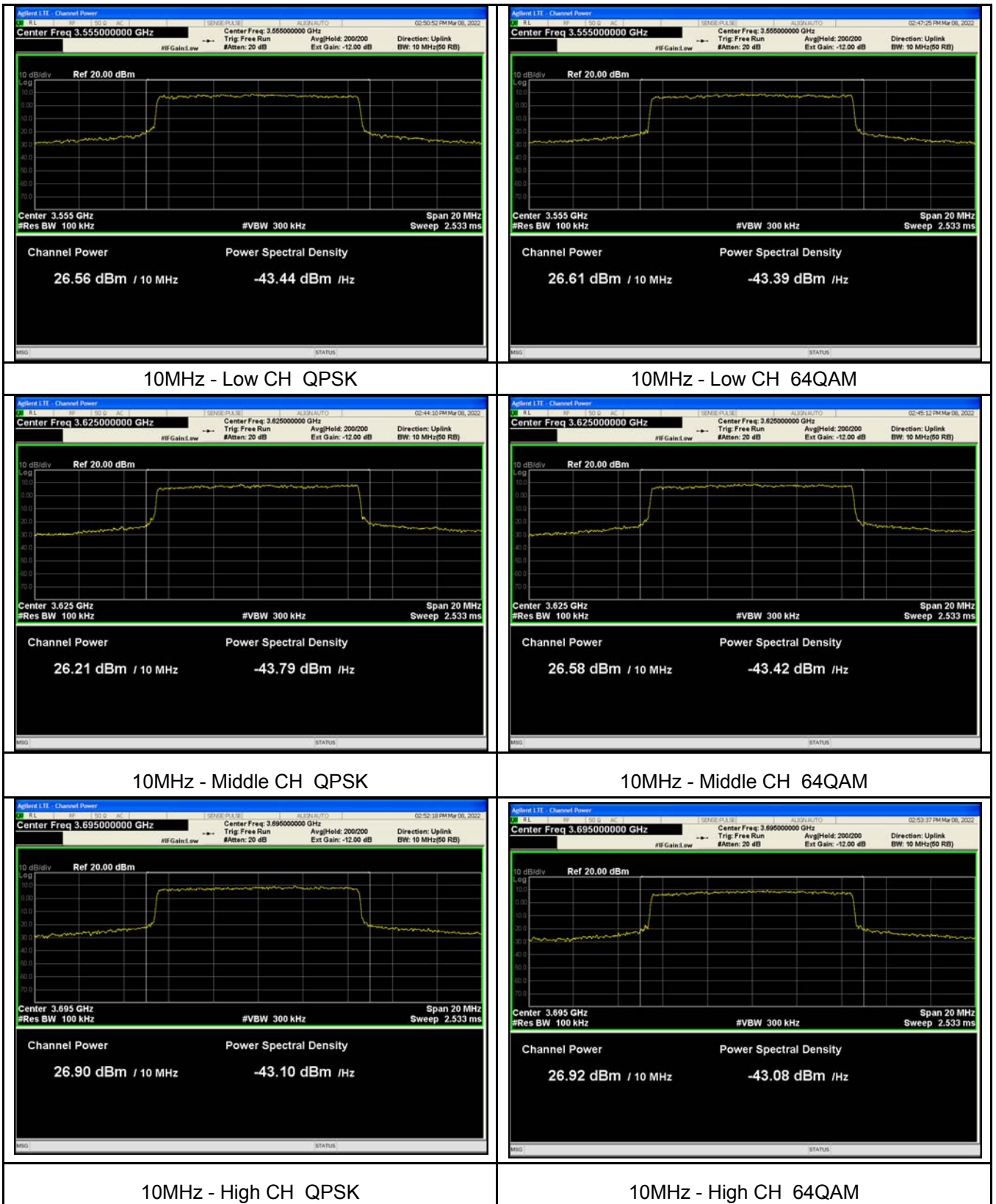
Transmit Output Power								
Bandwidth (MHz)	Modulation	Test Channel	Chain 0 Output Power (dBm/10MHz)	Chain 1 Output Power (dBm/10MHz)	Total Power (dBm/10MHz)	Antenna Gain (dBi)	EIRP (dBm/10MHz)	EIRP Limit (dBm/10MHz)
10	QPSK	Low	26.56	26.52	29.55	17	46.55	47
		Middle	26.21	26.74	29.49	17	46.49	
		High	26.90	26.88	29.90	17	46.90	
	64QAM	Low	26.61	26.73	29.68	17	46.68	
		Middle	26.58	26.86	29.73	17	46.73	
		High	26.92	26.75	29.85	17	46.85	
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	15.799	15.478	18.65	17	35.65	37
		Middle	16.748	15.740	19.28	17	36.28	
		High	16.694	15.880	19.32	17	36.32	
	64QAM	Low	15.674	15.835	18.77	17	35.77	
		Middle	16.858	15.227	19.13	17	36.13	
		High	16.574	15.808	19.22	17	36.22	

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	25.15	25.36	28.27	17	45.27	47
		Middle	25.20	24.81	28.02	17	45.02	
		High	25.58	25.32	28.46	17	45.46	
	64QAM	Low	25.16	25.04	28.11	17	45.11	
		Middle	25.51	24.54	28.06	17	45.06	
		High	25.34	25.61	28.49	17	45.49	
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	26.70	26.27	29.50	17	46.50	-
		Middle	26.75	26.78	29.78	17	46.78	
		High	26.51	26.12	29.33	17	46.33	
	64QAM	Low	26.38	26.83	29.62	17	46.62	
		Middle	26.33	26.58	29.47	17	46.47	
		High	26.89	26.70	29.81	17	46.81	
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	14.750	14.588	17.68	17	34.68	37
		Middle	14.882	14.635	17.77	17	34.77	
		High	14.812	14.756	17.79	17	34.79	
	64QAM	Low	14.803	14.483	17.66	17	34.66	
		Middle	14.825	14.463	17.66	17	34.66	
		High	14.876	14.193	17.56	17	34.56	

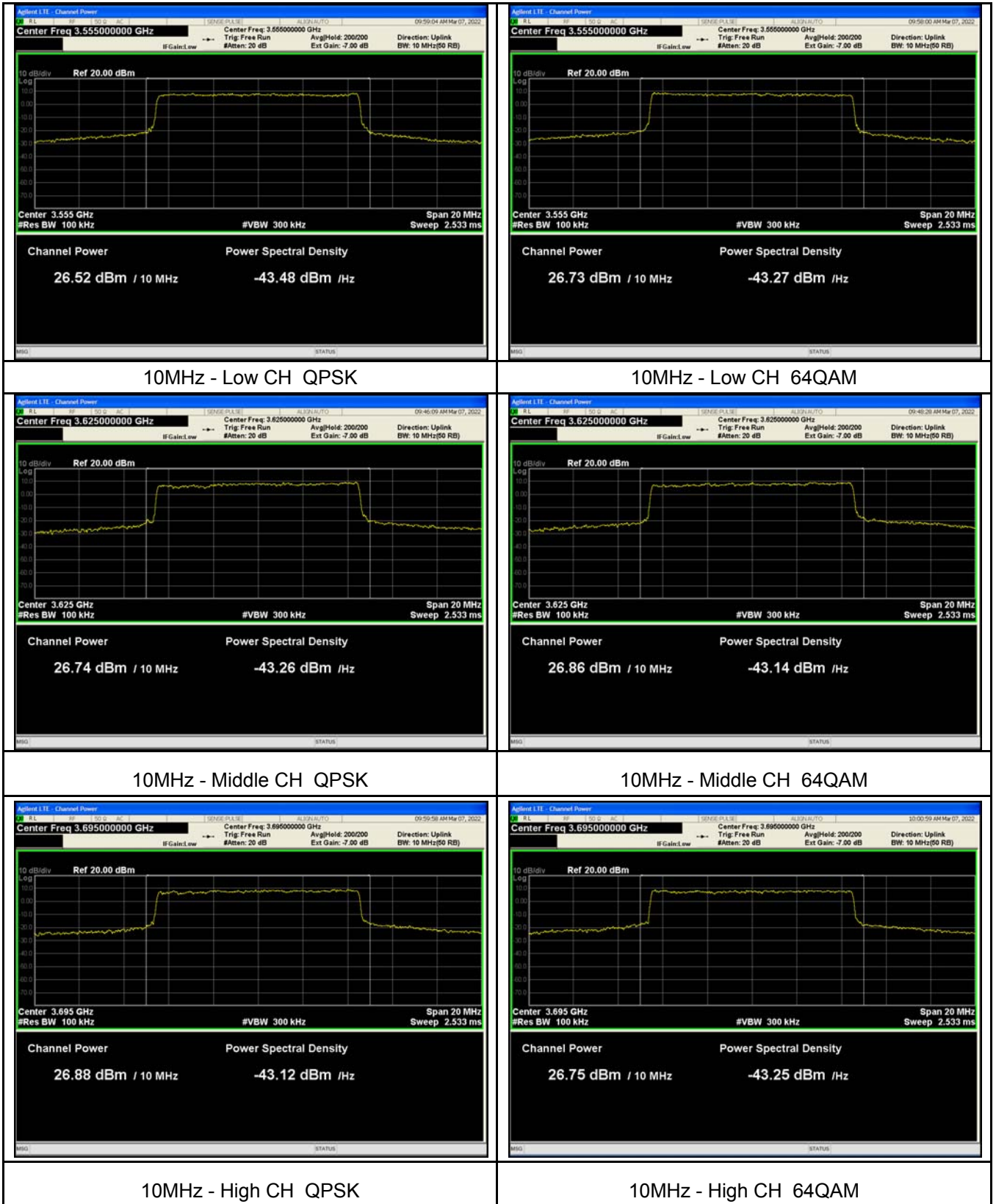
Transmit Output Power								
Bandwidth (MHz)	Modulation	Test Channel	Chain 0 Output Power (dBm/10MHz)	Chain 1 Output Power (dBm/10MHz)	Total Power (dBm/10MHz)	Antenna Gain (dBi)	EIRP (dBm/10MHz)	EIRP Limit (dBm/10MHz)
20	QPSK	Low	24.63	24.40	27.53	17	44.53	47
		Middle	23.22	24.47	26.90	17	43.90	
		High	24.29	24.83	27.58	17	44.58	
	64QAM	Low	25.12	24.31	27.74	17	44.74	
		Middle	23.30	25.26	27.40	17	44.40	
		High	25.11	25.06	28.10	17	45.10	
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	26.53	26.78	29.67	17	46.67	-
		Middle	26.79	26.52	29.67	17	46.67	
		High	26.42	26.49	29.47	17	46.47	
	64QAM	Low	26.57	26.63	29.61	17	46.61	
		Middle	26.40	26.57	29.50	17	46.50	
		High	26.32	26.67	29.51	17	46.51	
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	13.050	12.819	15.95	17	32.95	37
		Middle	12.820	12.944	15.89	17	32.89	
		High	13.021	13.443	16.25	17	33.25	
	64QAM	Low	12.915	13.316	16.13	17	33.13	
		Middle	13.145	13.005	16.09	17	33.09	
		High	13.561	13.210	16.40	17	33.40	

Transmit Output Power Test Plots

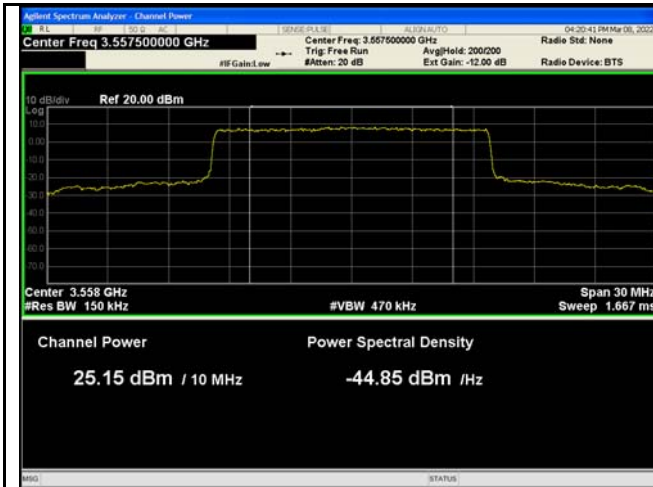
Chain 0



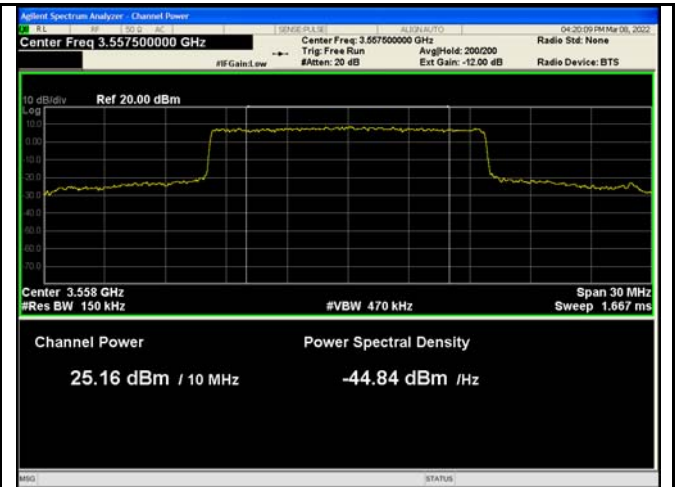
Chain 1



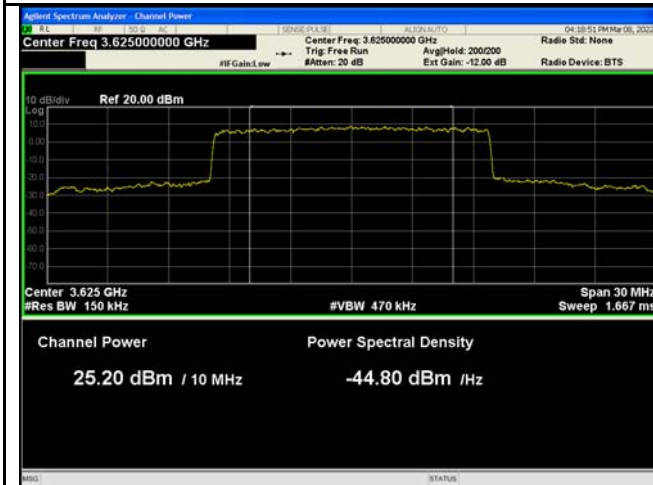
Chain 0



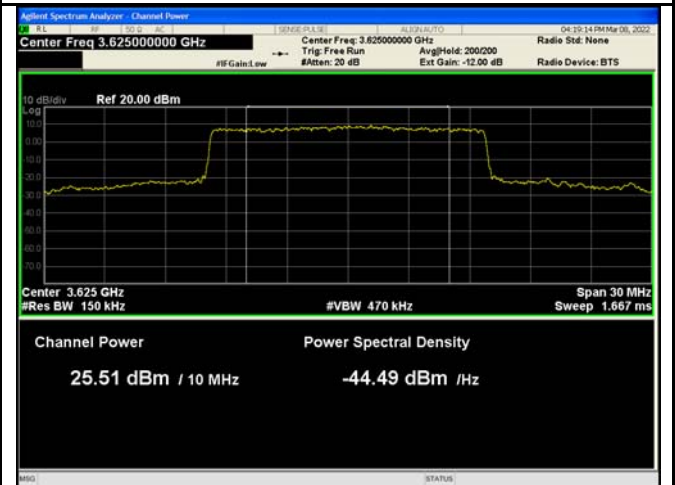
15MHz - Low CH QPSK



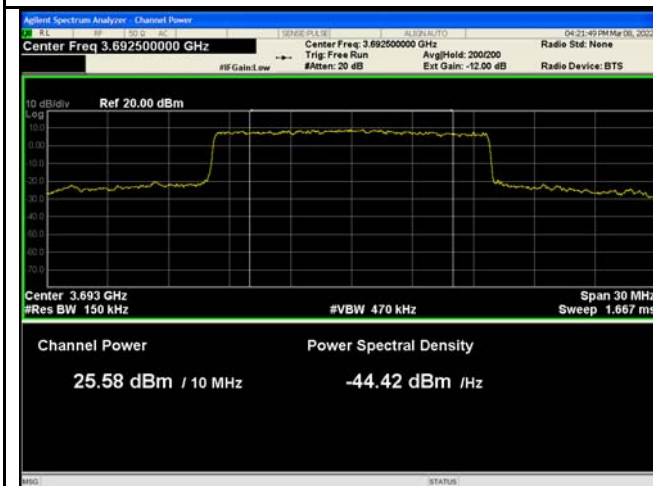
15MHz - Low CH 64QAM



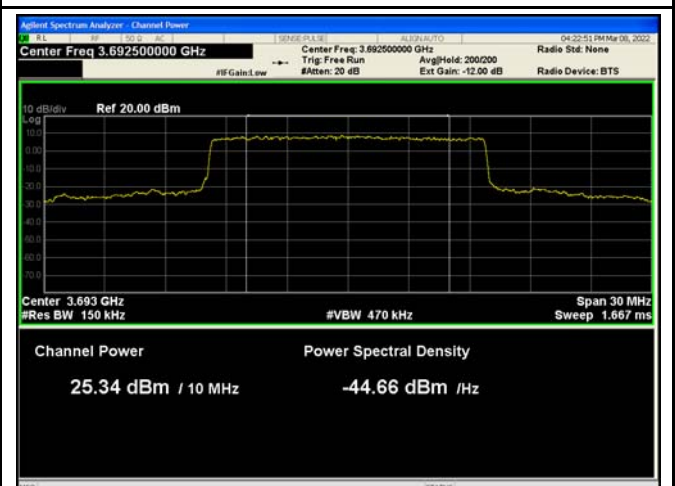
15MHz - Middle CH QPSK



15MHz - Middle CH 64QAM

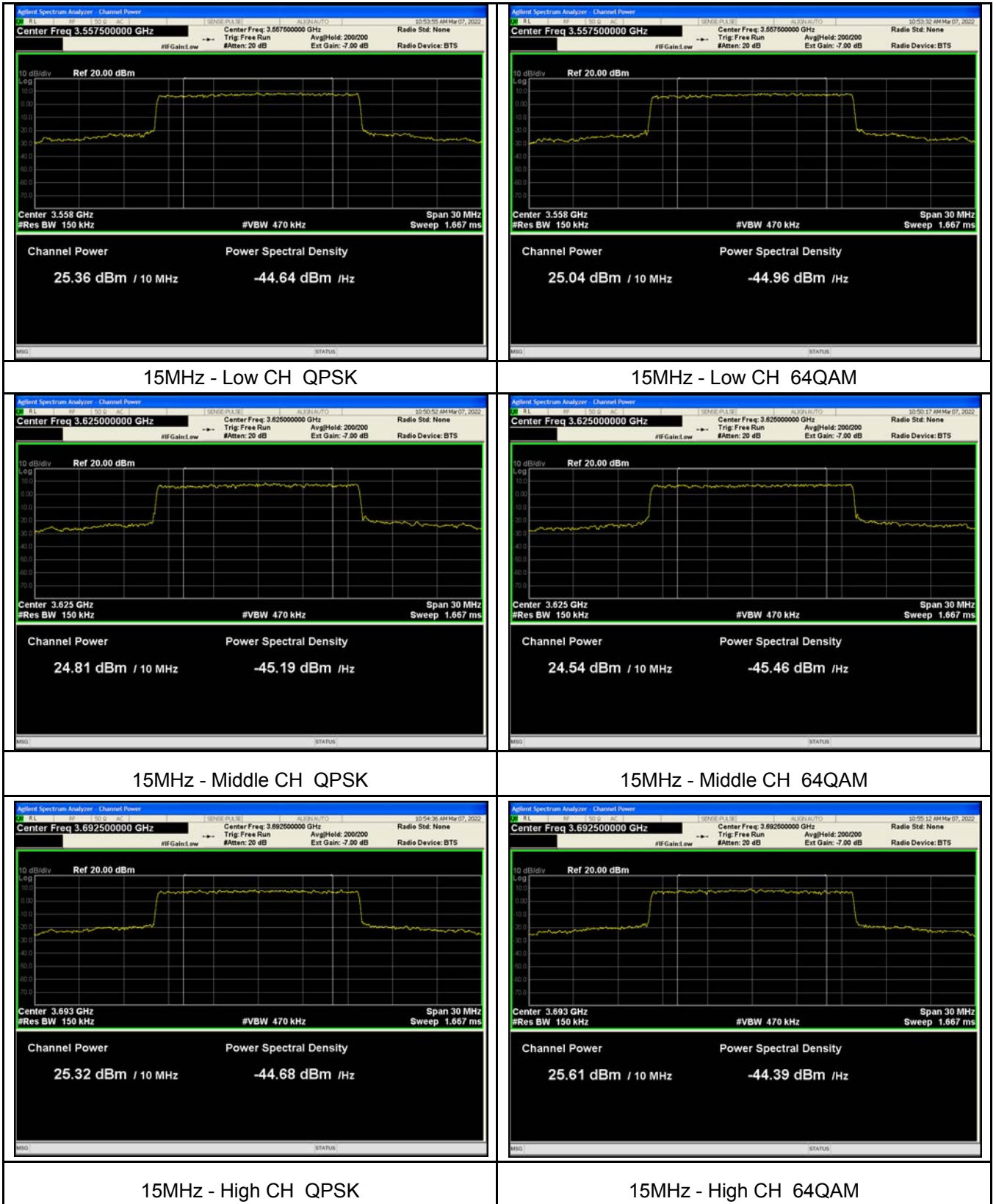


15MHz - High CH QPSK

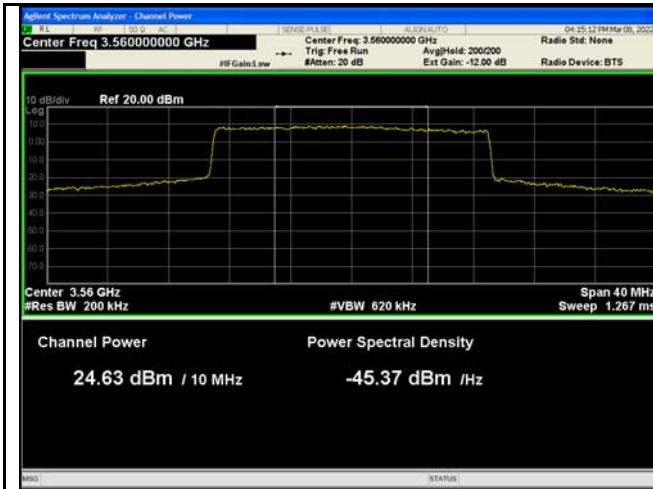


15MHz - High CH 64QAM

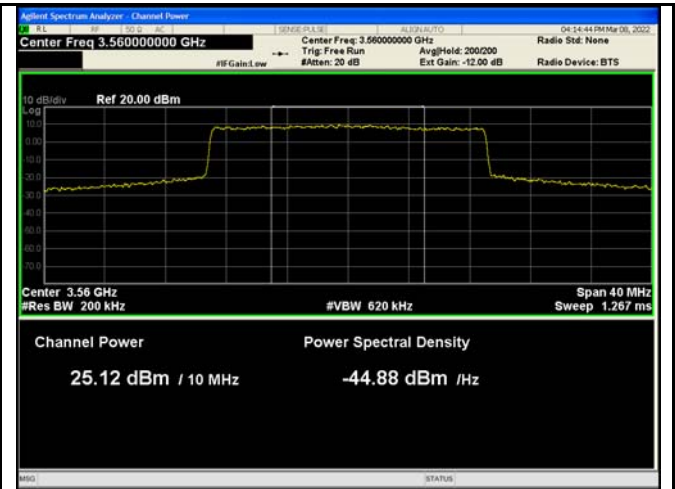
Chain 1



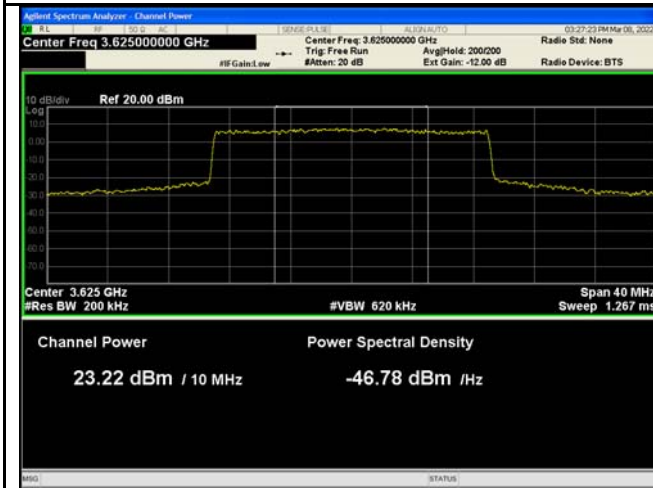
Chain 0



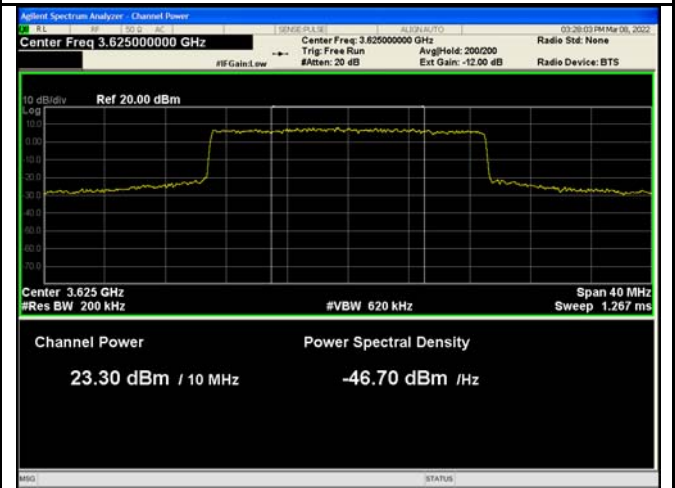
20MHz - Low CH QPSK



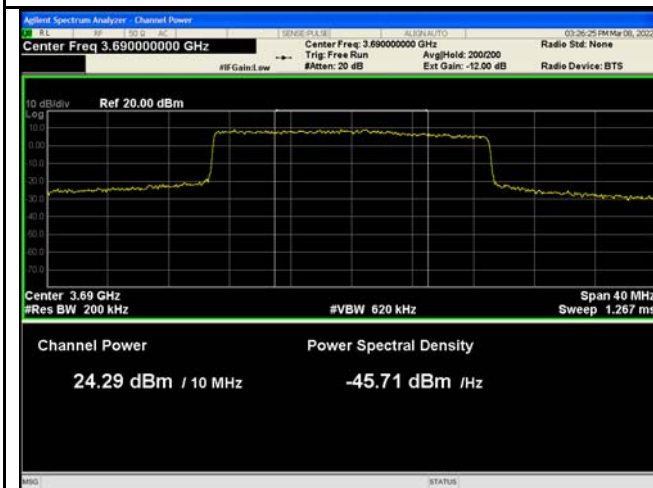
20MHz - Low CH 64QAM



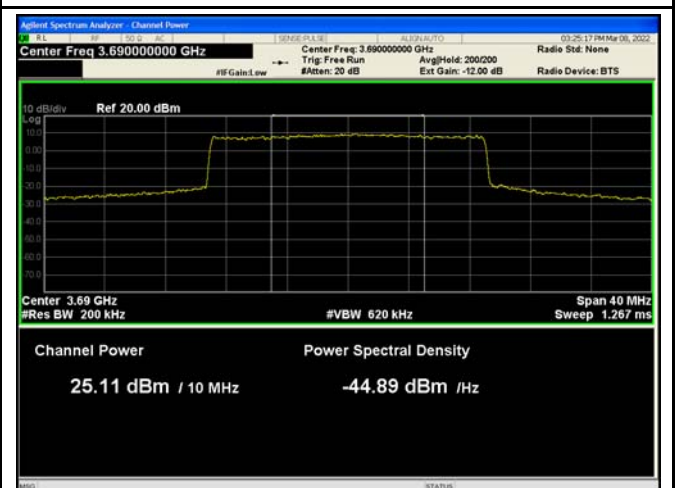
20MHz - Middle CH QPSK



20MHz - Middle CH 64QAM

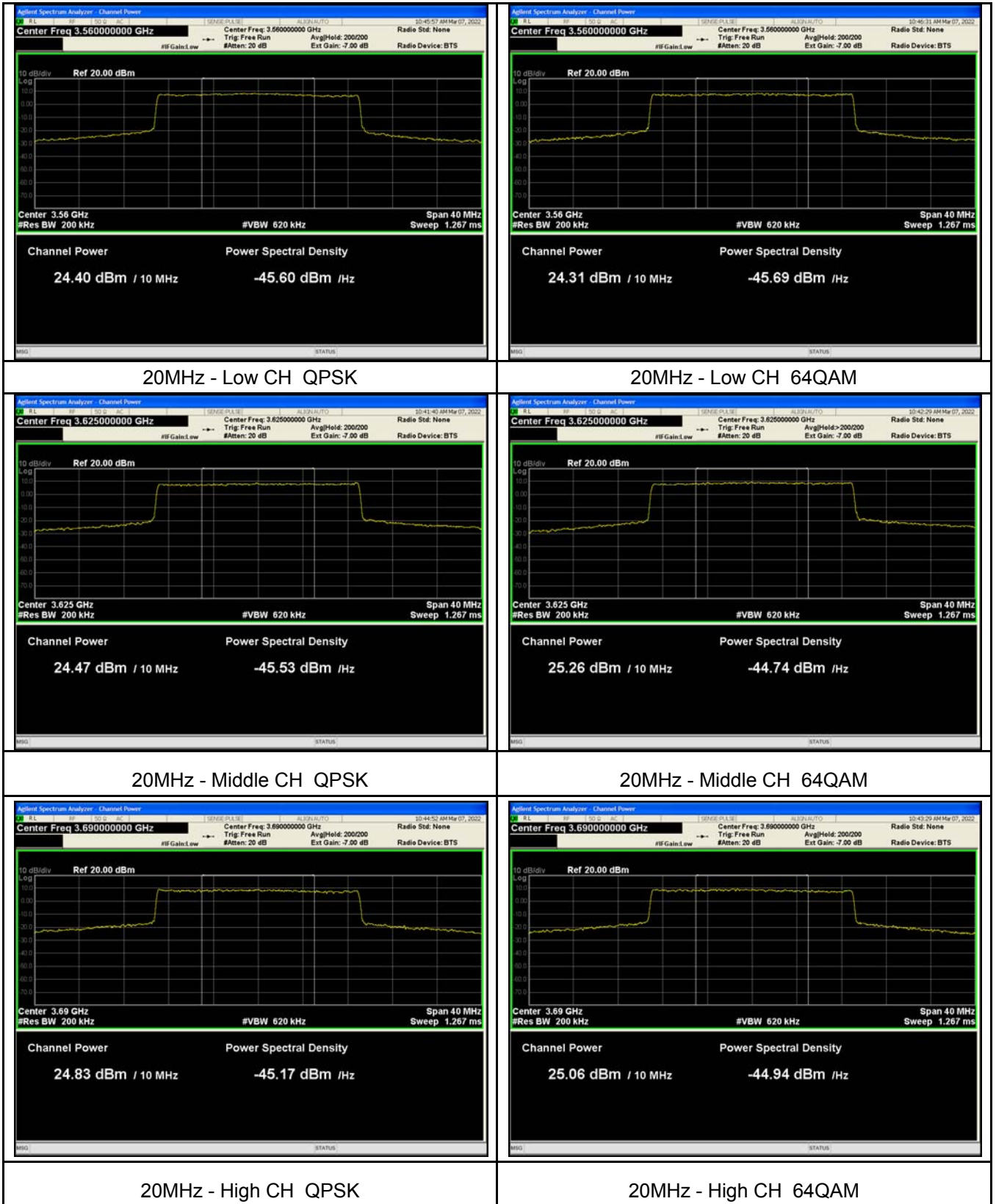


20MHz - High CH QPSK

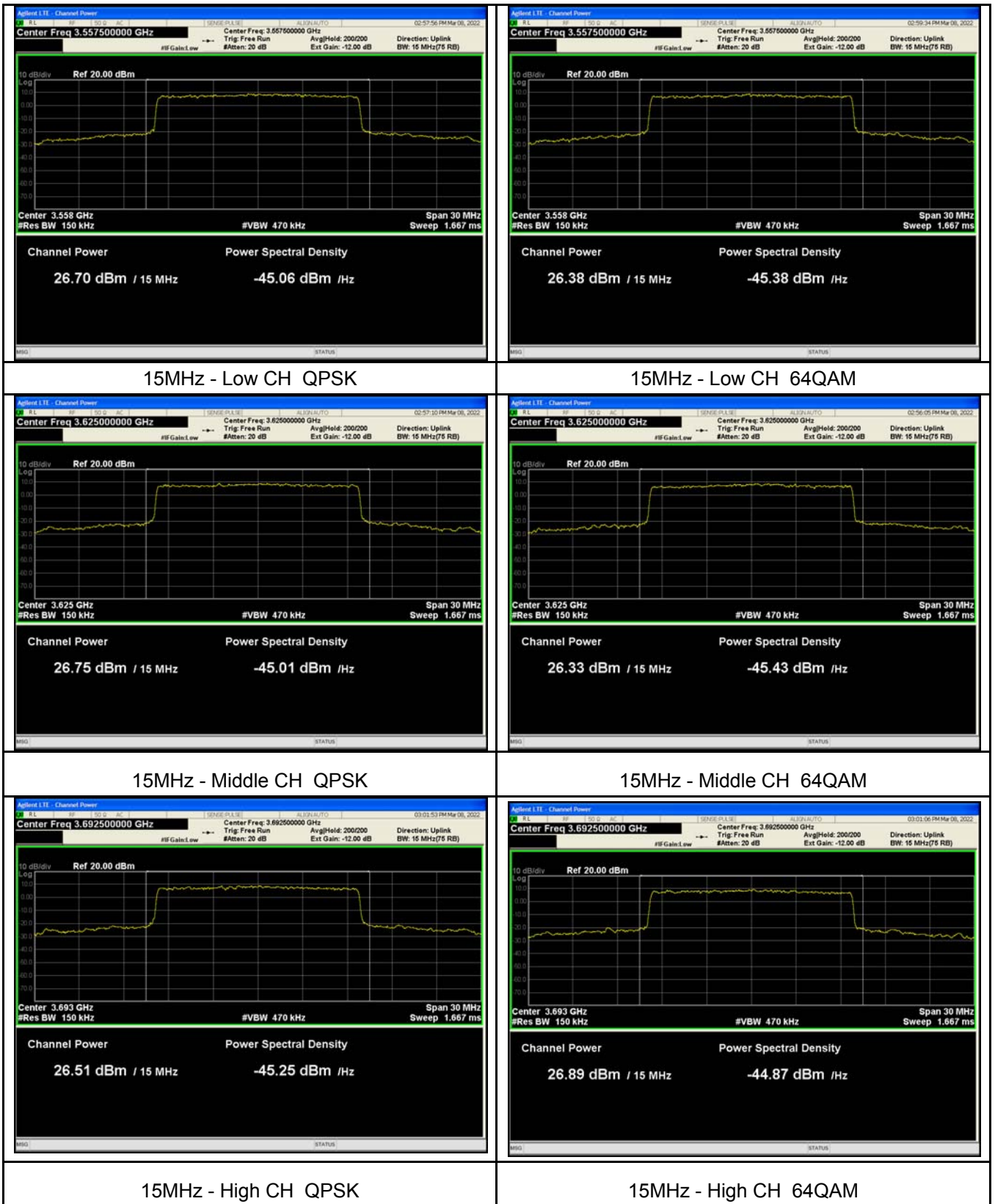


20MHz - High CH 64QAM

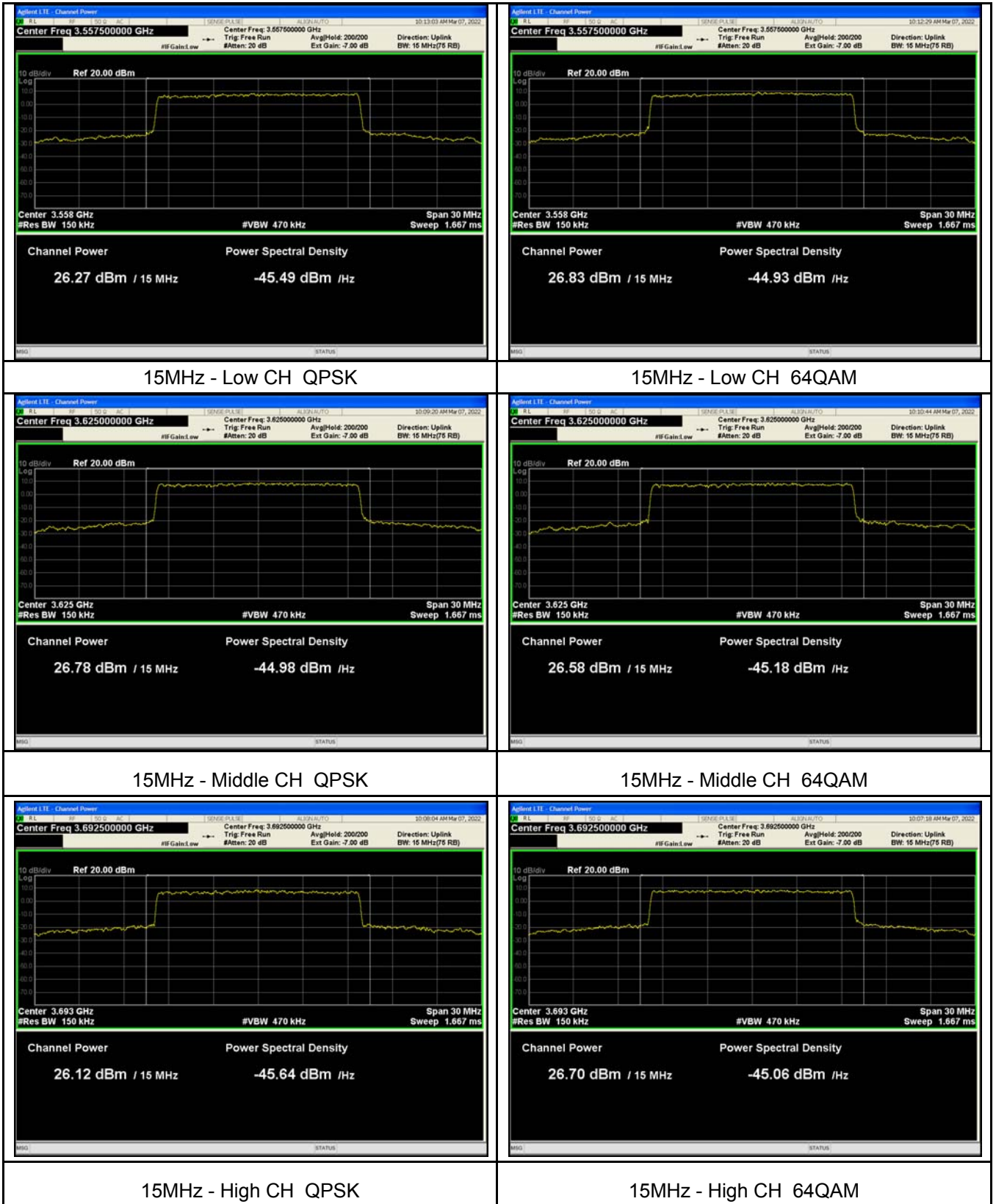
Chain 1



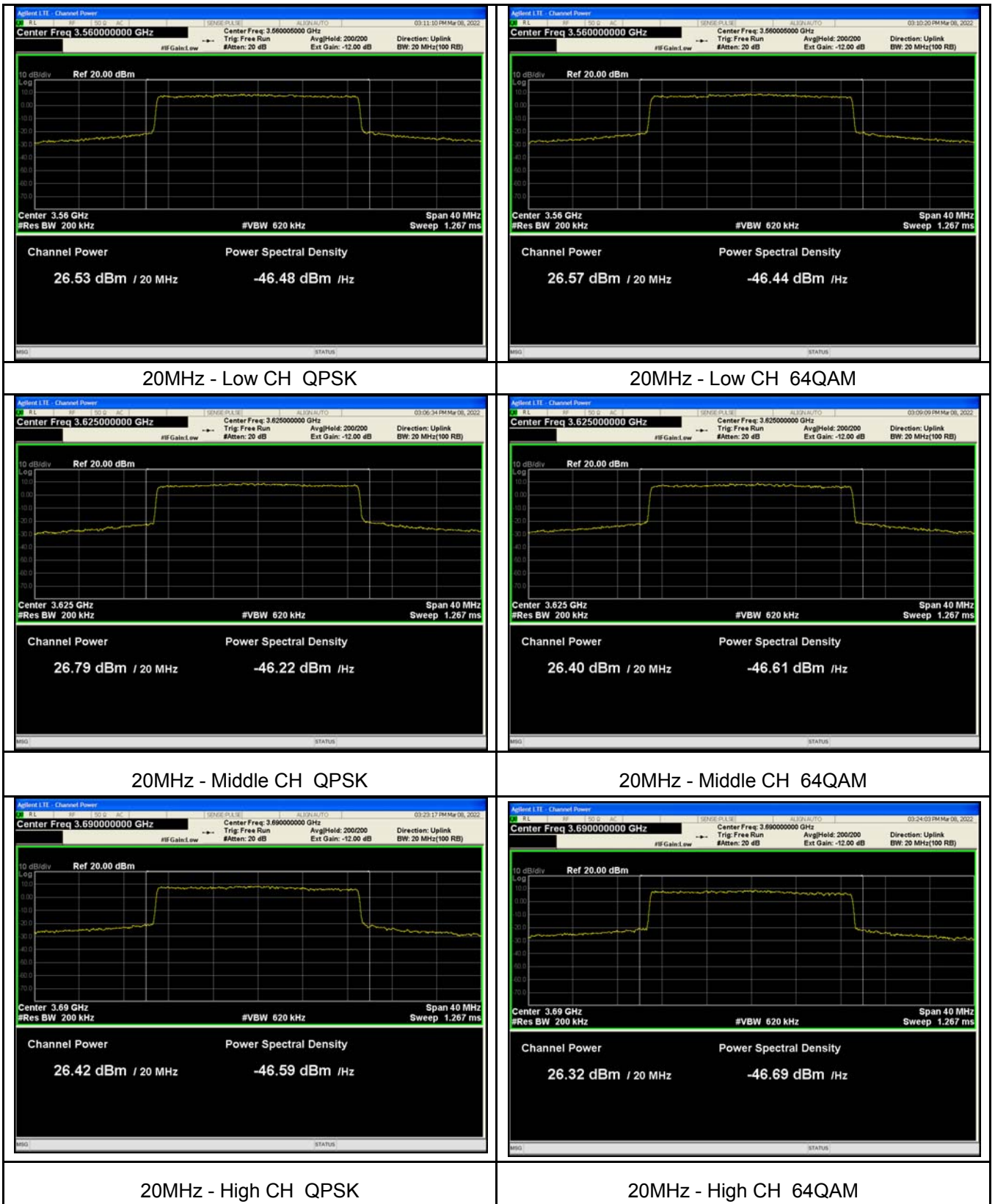
**Full Transmit Output Power Test Plots
Chain 0**



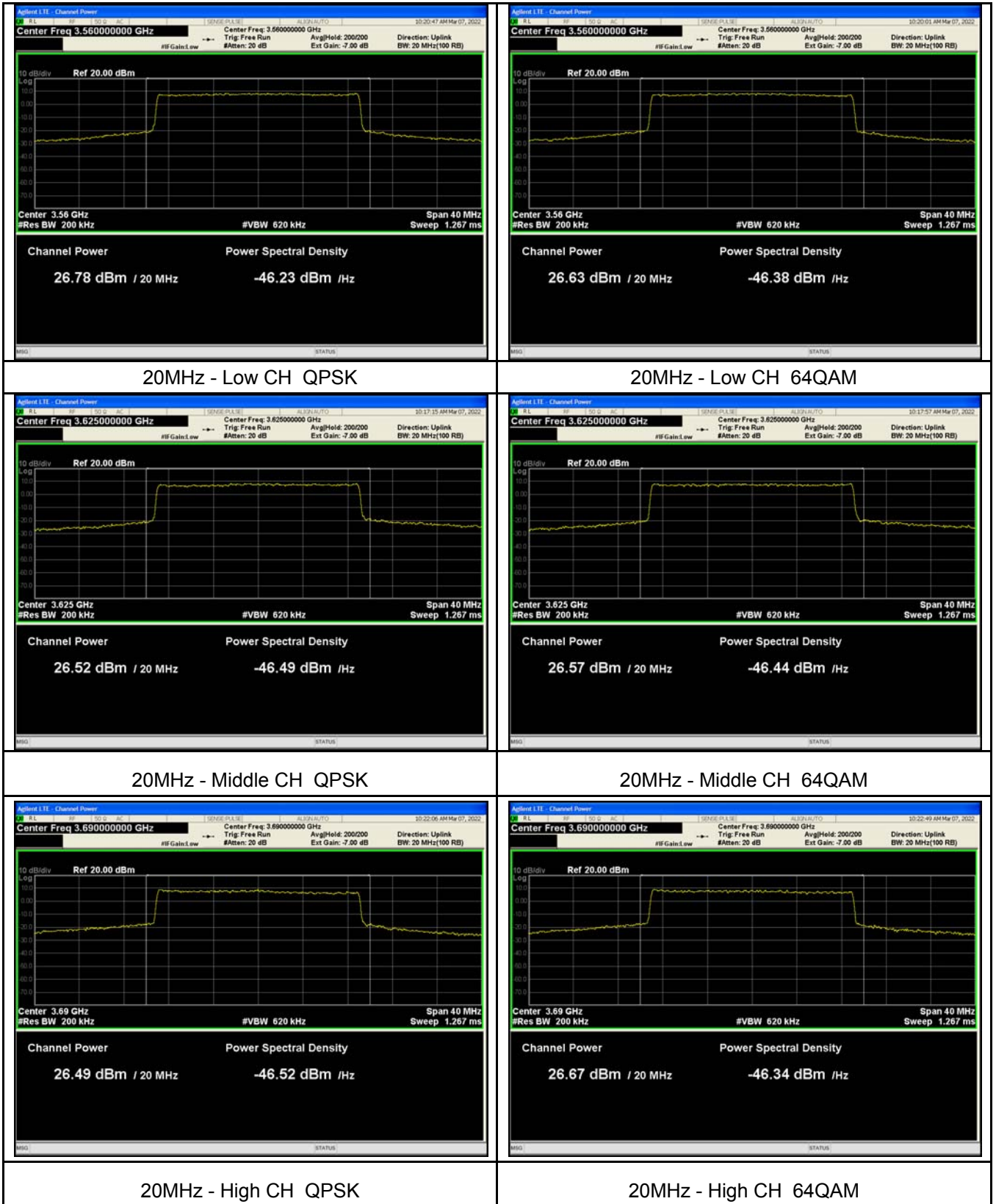
Chain 1



Chain 0



Chain 1



**PSD Test Plots
Chain 0**



10MHz - Low CH QPSK



10MHz - Low CH 64QAM



10MHz - Middle CH QPSK



10MHz - Middle CH 64QAM



10MHz - High CH QPSK

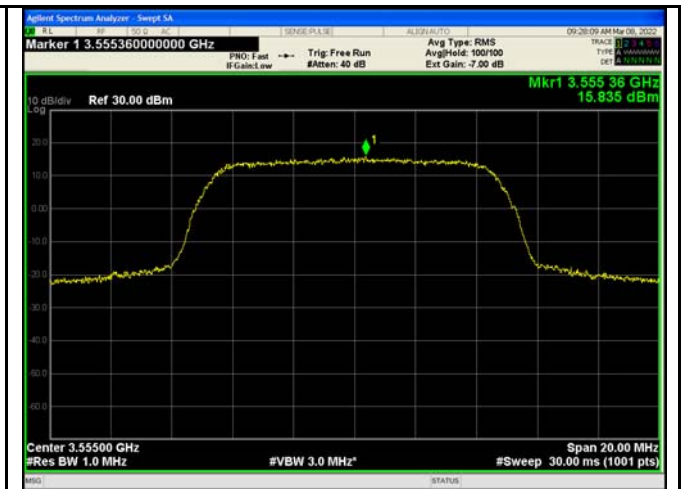


10MHz - High CH 64QAM

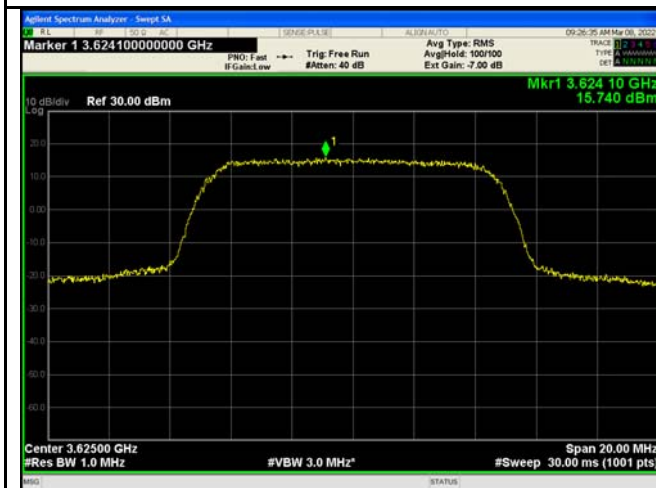
Chain 1



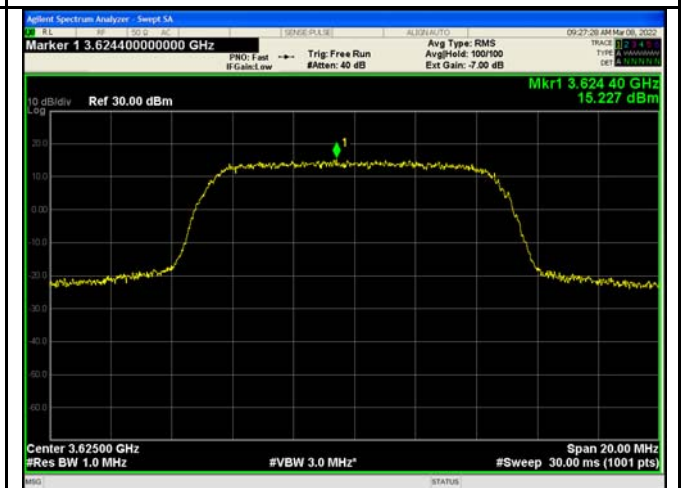
10MHz - Low CH QPSK



10MHz - Low CH 64QAM



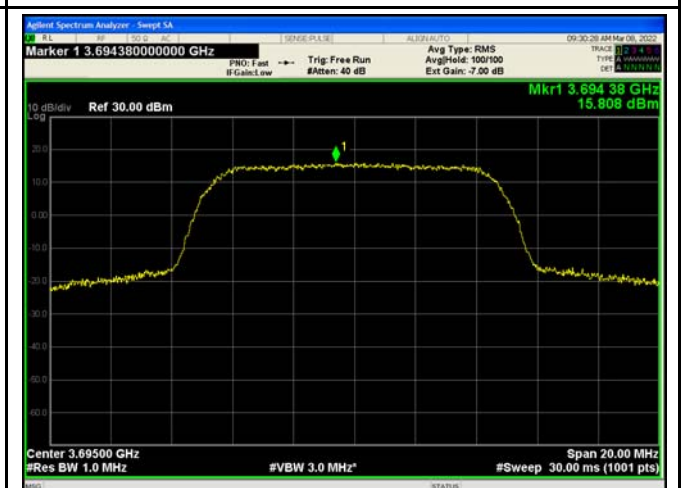
10MHz - Middle CH QPSK



10MHz - Middle CH 64QAM



10MHz - High CH QPSK

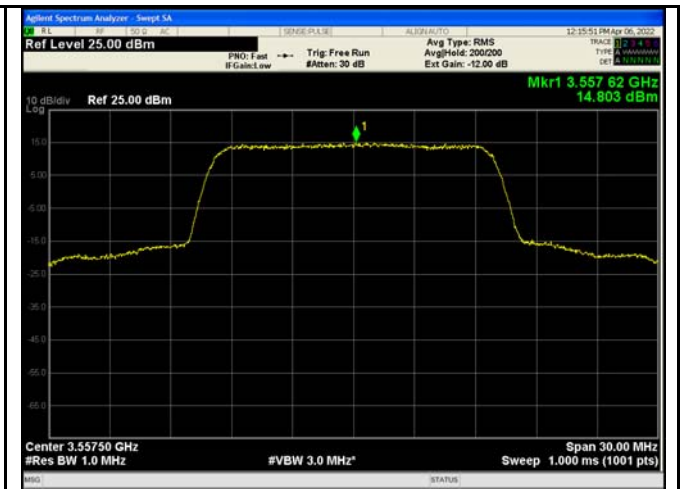


10MHz - High CH 64QAM

Chain 0



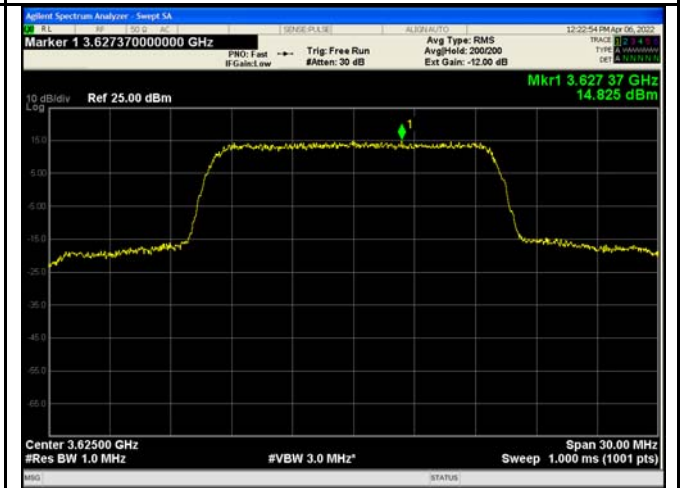
15MHz - Low CH QPSK



15MHz - Low CH 64QAM



15MHz - Middle CH QPSK



15MHz - Middle CH 64QAM

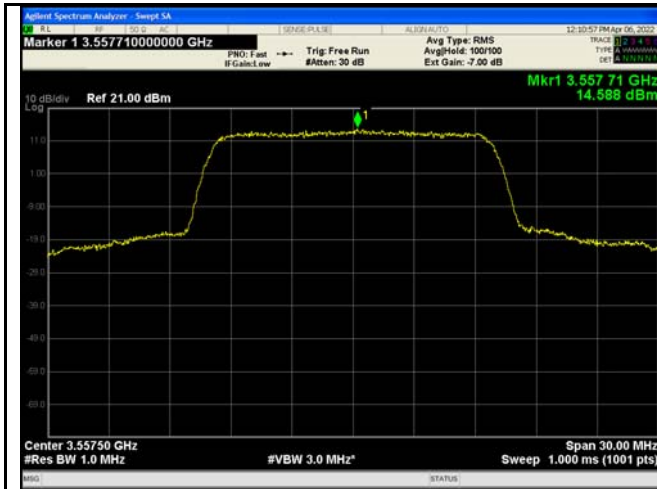


15MHz - High CH QPSK

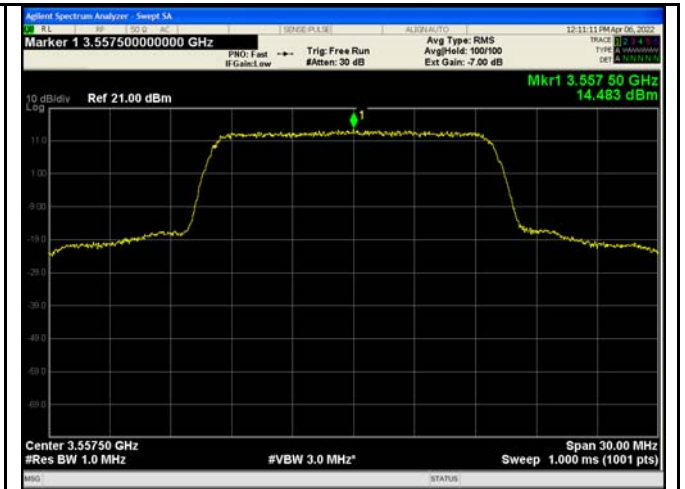


15MHz - High CH 64QAM

Chain 1



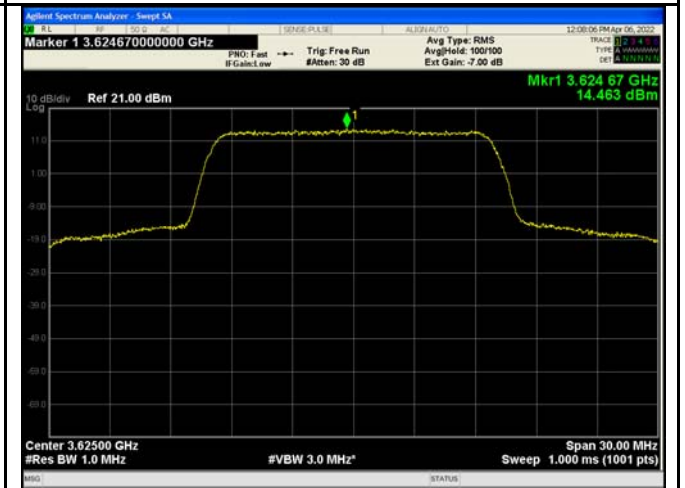
15MHz - Low CH QPSK



15MHz - Low CH 64QAM



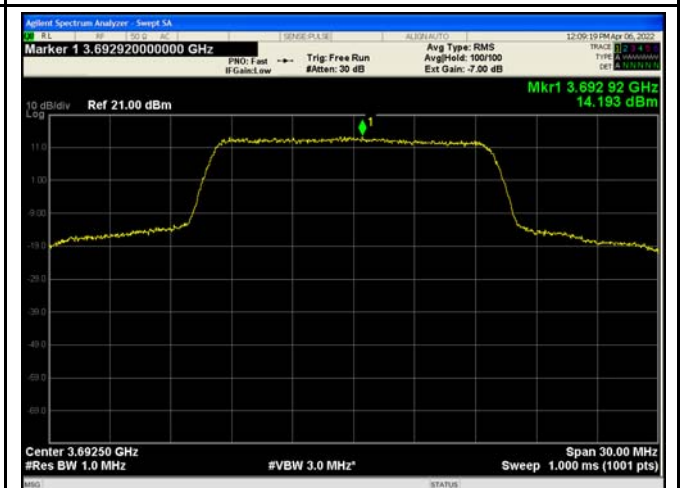
15MHz - Middle CH QPSK



15MHz - Middle CH 64QAM

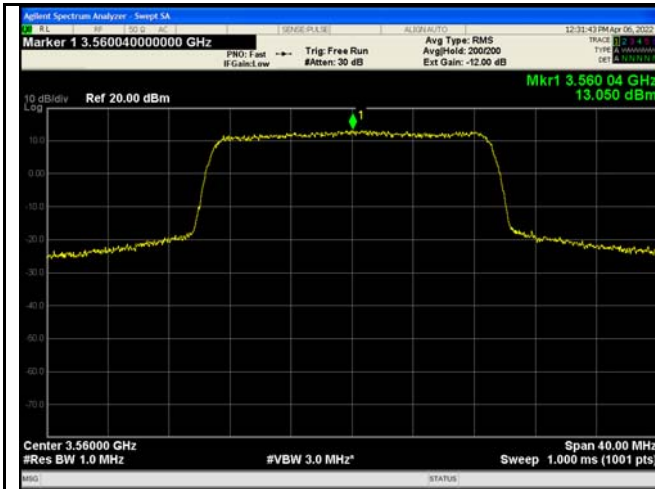


15MHz - High CH QPSK

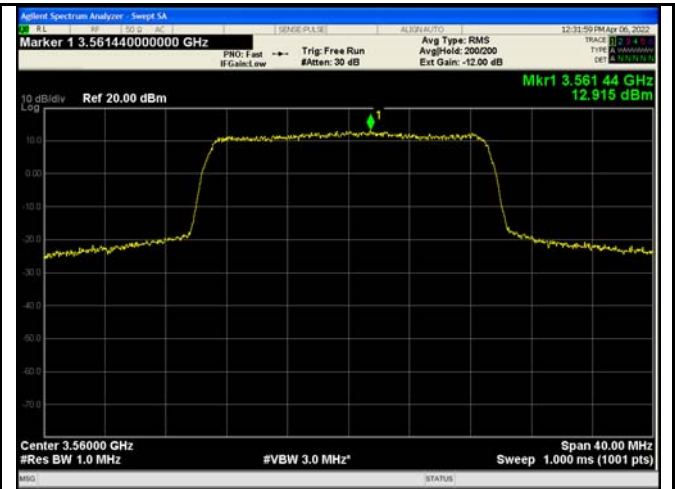


15MHz - High CH 64QAM

Chain 0



20MHz - Low CH QPSK



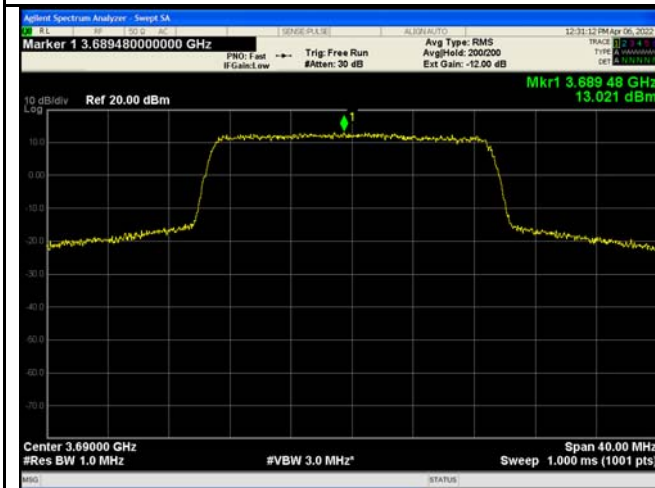
20MHz - Low CH 64QAM



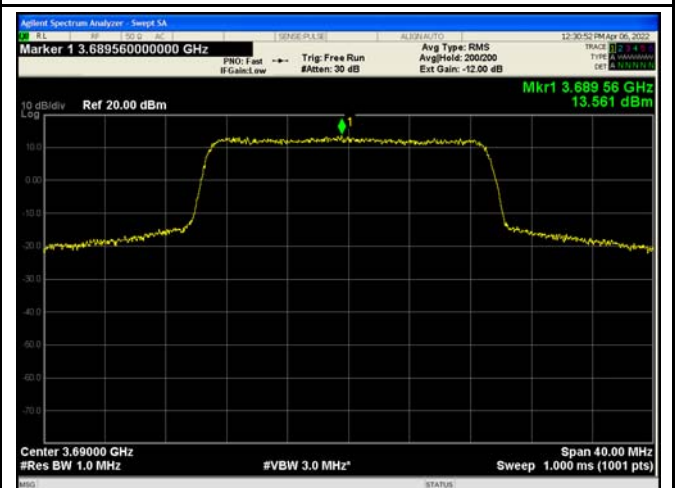
20MHz - Middle CH QPSK



20MHz - Middle CH 64QAM

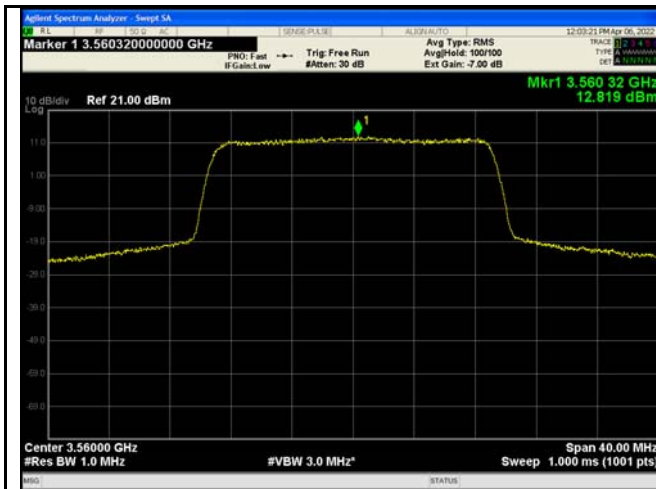


20MHz - High CH QPSK

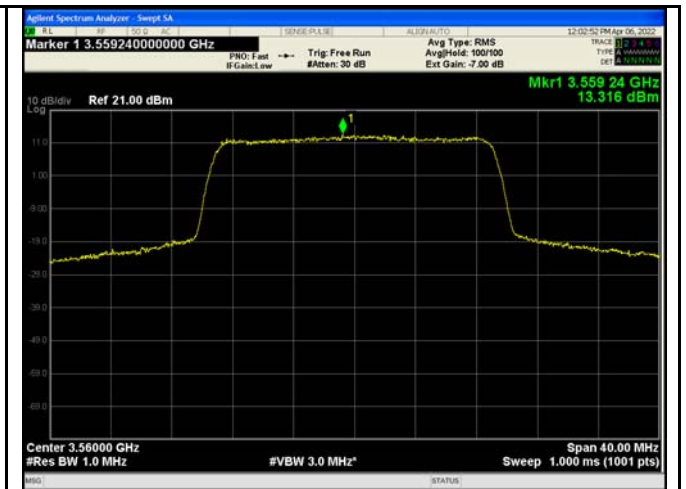


20MHz - High CH 64QAM

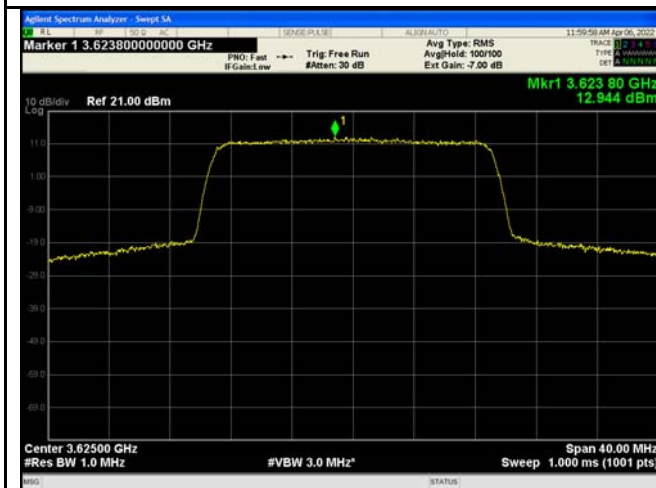
Chain 1



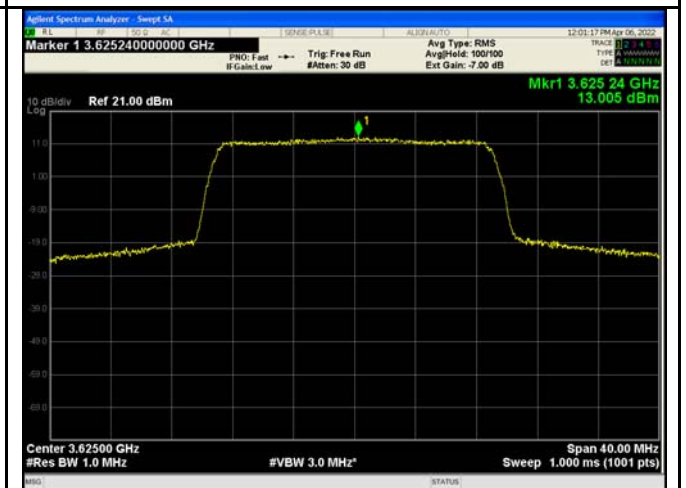
20MHz - Low CH QPSK



20MHz - Low CH 64QAM



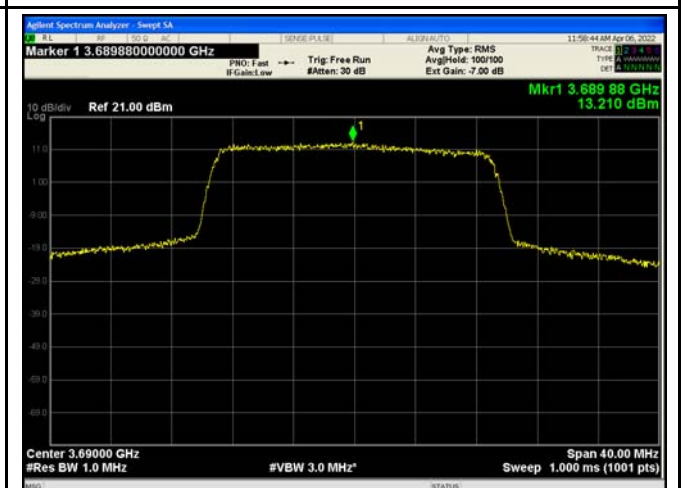
20MHz - Middle CH QPSK



20MHz - Middle CH 64QAM



20MHz - High CH QPSK



20MHz - High CH 64QAM

8 Peak-to-average power ratio

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

10MHz bandwidth

Mode	Chain 0			Chain 1			Limit (dB)
	Low	Middle	High	Low	Middle	High	
Peak-to-Average Ratio (dB)	7.89	8.28	7.75	6.81	7.33	6.73	13

15MHz bandwidth

Mode	Chain 0			Chain 1			Limit (dB)
	Low	Middle	High	Low	Middle	High	
Peak-to-Average Ratio (dB)	8.69	8.72	8.29	7.45	7.50	7.88	13

20MHz bandwidth

Mode	Chain 0			Chain 1			Limit
Channel	Low	Middle	High	Low	Middle	High	(dB)
Peak-to-Average Ratio (dB)	7.94	8.55	7.93	7.86	8.20	7.46	13

**Test Plots
10M Chain 0**



10MHz - Low CH QPSK

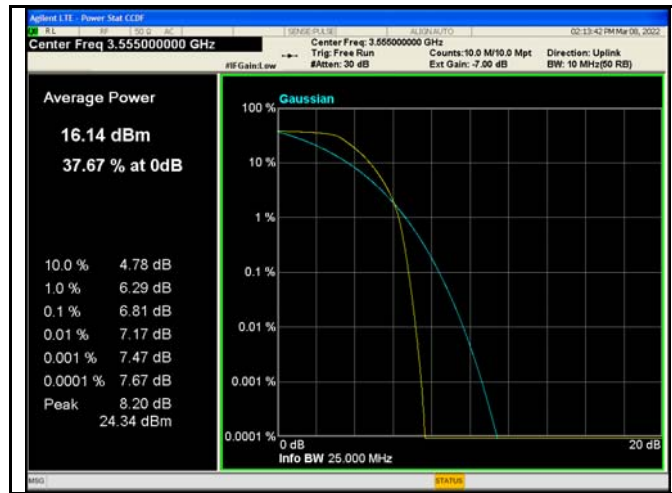


10MHz - Middle CH QPSK

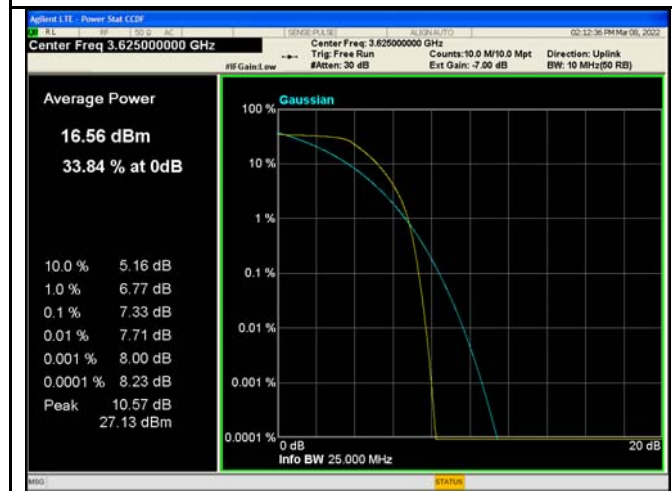


10MHz - High CH QPSK

10M Chain 1



10MHz - Low CH QPSK

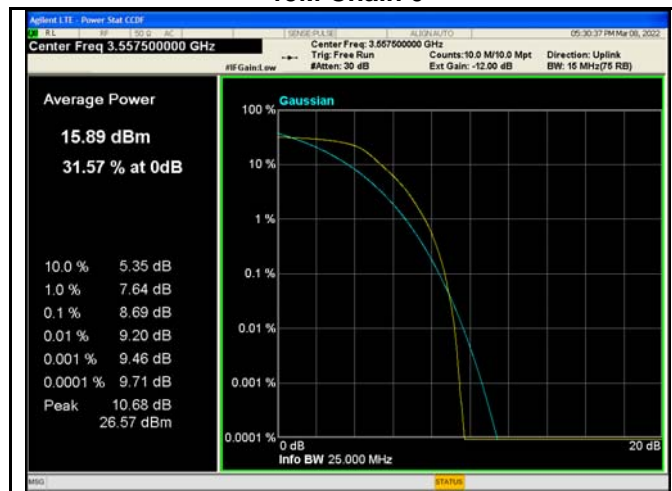


10MHz - Middle CH QPSK

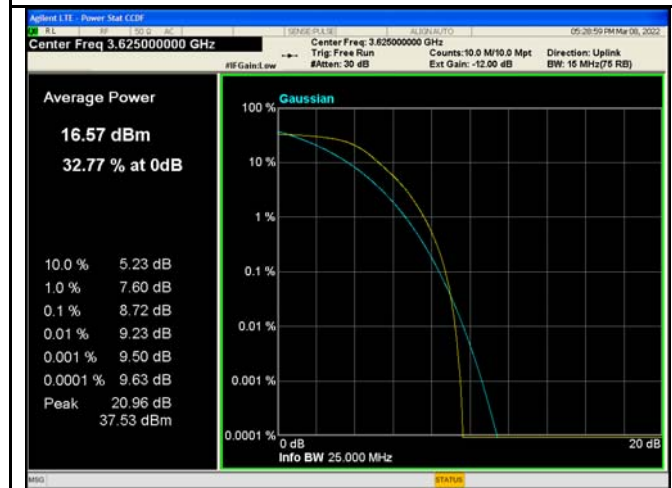


10MHz - High CH QPSK

15M Chain 0



15MHz - Low CH QPSK



15MHz - Middle CH QPSK

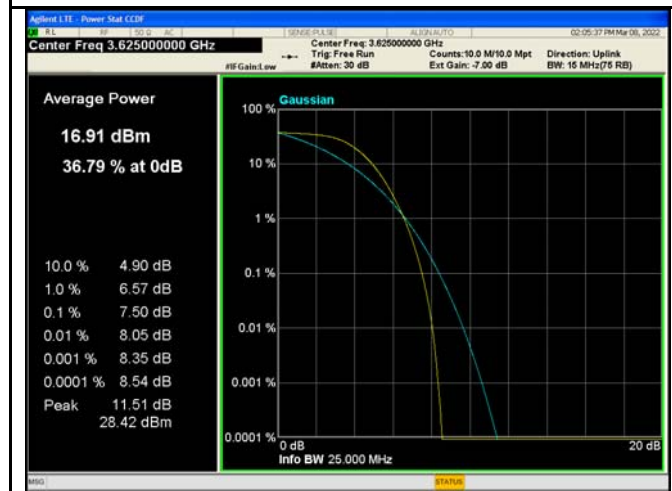


15MHz - High CH QPSK

15M Chain 1



15MHz - Low CH QPSK

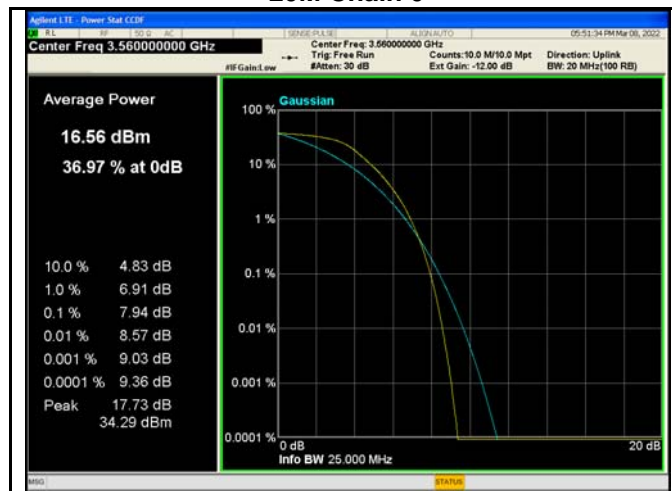


15MHz - Middle CH QPSK



15MHz - High CH QPSK

20M Chain 0



20MHz - Low CH QPSK



20MHz - Middle CH QPSK

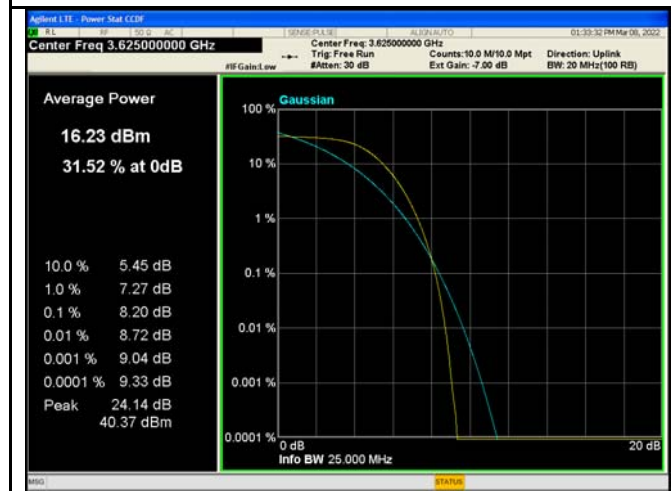


20MHz - High CH QPSK

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 power measured under normal test conditions.
3. The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts.
4. The resolution bandwidth (RBW) shall be in the range of 1% to 5% of the occupied bandwidth (OBW) and video bandwidth (VBW) shall be approximately 3x RBW.

9.3 Test Result

Chain 0

Bandwidth (MHz)	Modulation	Test Channel	26dB Down Bandwidth	99% Occupy bandwidth (MHz)
10	QPSK	Low	9.312	8.9134
		Middle	9.522	8.9555
		High	9.333	8.9175
	64QAM	Low	9.385	8.9159
		Middle	9.418	8.9099
		High	9.386	8.9334
15	QPSK	Low	14.05	13.387
		Middle	13.97	13.367
		High	13.88	13.363
	64QAM	Low	14.02	13.387
		Middle	13.90	13.367
		High	13.95	13.361
20	QPSK	Low	18.52	17.820
		Middle	18.49	17.801
		High	18.62	17.858
	64QAM	Low	18.53	17.821
		Middle	18.60	17.829
		High	18.55	17.852

Chain 1

Bandwidth (MHz)	Modulation	Test Channel	26dB Down Bandwidth	99% Occupy bandwidth (MHz)
10	QPSK	Low	9.386	8.9099
		Middle	9.296	8.9036
		High	9.352	8.9457
	64QAM	Low	9.370	8.9253
		Middle	9.347	8.9193
		High	9.304	8.8977
15	QPSK	Low	13.95	13.394
		Middle	13.95	13.391
		High	13.95	13.383
	64QAM	Low	13.90	13.369
		Middle	13.93	13.370
		High	13.96	13.386
20	QPSK	Low	18.52	17.826
		Middle	18.51	17.849
		High	18.49	17.824
	64QAM	Low	18.51	17.824
		Middle	18.50	17.812
		High	18.53	17.841