

Appendix F: Test Data for E-UTRA Band 5

Product Name: Smart Phone

Trade Mark: XTRATECH

Test Model: Brio X31

Environmental Conditions

Temperature:	23.4 ° C
Relative Humidity:	52.5%
ATM Pressure:	100.0 kPa
Test Engineer:	Diamond.Lu
Supervised by:	Tom.Liu

F.1 Conducted Output Power

Conducted Output Power Test Result (Channel Bandwidth: 1.4 MHz)						
Modulation	Channel	RB Configuration		Average Power [dBm]		Verdict
		Size	Offset	QPSK	16QAM	
QPSK / 16QAM	LCH	1	0	23.14	22.29	PASS
		1	3	23.21	22.41	PASS
		1	5	23.04	22.18	PASS
		3	0	23.12	22.22	PASS
		3	2	23.18	22.18	PASS
		3	3	23.08	22.14	PASS
		6	0	22.17	21.13	PASS
	MCH	1	0	21.65	20.95	PASS
		1	3	21.72	21.06	PASS
		1	5	21.56	20.89	PASS
		3	0	21.69	20.61	PASS
		3	2	21.64	20.65	PASS
		3	3	21.64	20.59	PASS
		6	0	20.65	19.61	PASS
	HCH	1	0	22.33	21.54	PASS
		1	3	22.55	21.82	PASS
		1	5	22.45	21.67	PASS
		3	0	22.43	21.40	PASS
		3	2	22.51	21.46	PASS
		3	3	22.48	21.48	PASS
		6	0	21.49	20.55	PASS

Conducted Output Power Test Result (Channel Bandwidth: 3 MHz)

Modulation	Channel	RB Configuration		Average Power [dBm]	Average Power [dBm]	Verdict
		Size	Offset	QPSK	16QAM	
QPSK / 16QAM	LCH	1	0	23.17	22.41	PASS
		1	7	23.25	22.52	PASS
		1	14	22.87	22.09	PASS
		8	0	22.12	21.17	PASS
		8	4	22.09	21.16	PASS
		8	7	21.97	21.04	PASS
		15	0	22.01	20.97	PASS
	MCH	1	0	21.66	21.00	PASS
		1	7	21.77	21.13	PASS
		1	14	21.54	20.78	PASS
		8	0	20.66	19.71	PASS
		8	4	20.68	19.75	PASS
		8	7	20.59	19.64	PASS
		15	0	20.63	19.56	PASS
	HCH	1	0	22.15	21.46	PASS
		1	7	22.57	21.85	PASS
		1	14	22.47	21.85	PASS
		8	0	21.26	20.23	PASS
		8	4	21.39	20.36	PASS
		8	7	21.39	20.35	PASS
		15	0	21.29	20.28	PASS

Conducted Output Power Test Result (Channel Bandwidth: 5 MHz)						
Modulation	Channel	RB Configuration		Average Power [dBm]	Average Power [dBm]	Verdict
		Size	Offset	QPSK	16QAM	
QPSK / 16QAM	LCH	1	0	23.07	22.38	PASS
		1	12	23.15	22.39	PASS
		1	24	22.49	21.75	PASS
		12	0	22.02	21.09	PASS
		12	6	21.97	21.07	PASS
		12	13	21.75	20.88	PASS
		25	0	21.86	20.89	PASS
	MCH	1	0	21.73	21.05	PASS
		1	12	21.89	21.18	PASS
		1	24	21.45	20.76	PASS
		12	0	20.71	19.81	PASS
		12	6	20.70	19.78	PASS
		12	13	20.62	19.73	PASS
		25	0	20.68	19.80	PASS
	HCH	1	0	21.97	21.62	PASS
		1	12	22.66	22.19	PASS
		1	24	22.40	22.20	PASS
		12	0	21.56	20.63	PASS
		12	6	21.77	20.82	PASS
		12	13	21.80	20.86	PASS
		25	0	21.69	20.69	PASS

Conducted Output Power Test Result (Channel Bandwidth: 10 MHz)

Modulation	Channel	RB Configuration		Average Power [dBm]	Average Power [dBm]	Verdict
		Size	Offset	QPSK	16QAM	
QPSK / 16QAM	LCH	1	0	23.63	22.47	PASS
		1	24	23.14	22.21	PASS
		1	49	22.24	21.55	PASS
		25	0	22.31	21.26	PASS
		25	12	21.96	21.06	PASS
		25	25	21.60	20.69	PASS
		50	0	21.98	20.98	PASS
	MCH	1	0	22.51	21.66	PASS
		1	24	22.29	21.54	PASS
		1	49	22.02	21.23	PASS
		25	0	21.36	20.38	PASS
		25	12	21.19	20.16	PASS
		25	25	21.15	20.23	PASS
		50	0	21.26	20.25	PASS
	HCH	1	0	22.20	21.43	PASS
		1	24	22.56	21.78	PASS
		1	49	22.93	22.30	PASS
		25	0	21.32	20.32	PASS
		25	12	21.50	20.47	PASS
		25	25	21.61	20.59	PASS
		50	0	21.42	20.46	PASS

F.2 Peak-to-Average Ratio

Peak-to Average Ratio Test Result (Channel Bandwidth: 1.4 MHz)

Modulation	Channel	Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
QPSK	LCH	4.92	<13	PASS
	MCH	5.15	<13	PASS
	HCH	5.07	<13	PASS
16QAM	LCH	5.75	<13	PASS
	MCH	6.03	<13	PASS
	HCH	5.92	<13	PASS

Peak-to Average Ratio Test Result (Channel Bandwidth: 3 MHz)

Modulation	Channel	Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
QPSK	LCH	5	<13	PASS
	MCH	5.32	<13	PASS
	HCH	5.24	<13	PASS
16QAM	LCH	5.91	<13	PASS
	MCH	6.19	<13	PASS
	HCH	5.9	<13	PASS

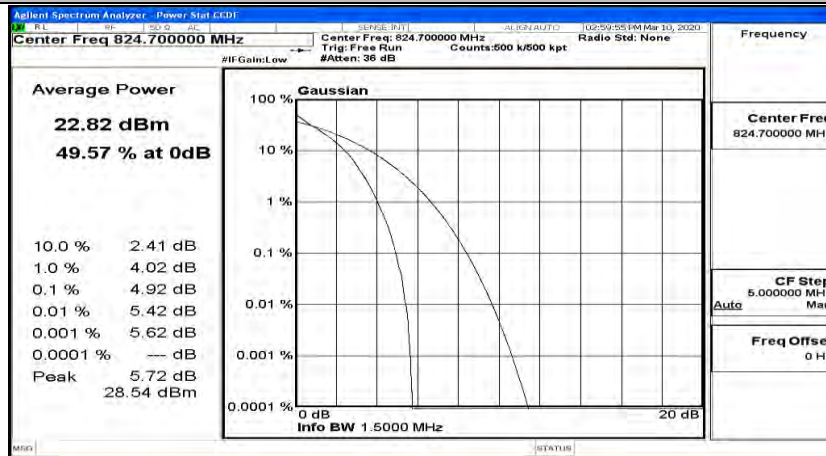
Peak-to Average Ratio Test Result (Channel Bandwidth: 5 MHz)

Modulation	Channel	Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
QPSK	LCH	4.93	<13	PASS
	MCH	5.29	<13	PASS
	HCH	5.08	<13	PASS
16QAM	LCH	5.66	<13	PASS
	MCH	6.08	<13	PASS
	HCH	5.84	<13	PASS

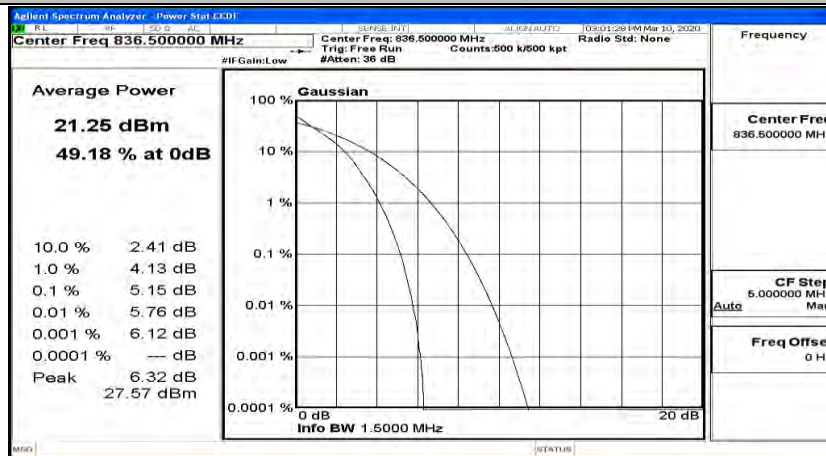
Peak-to Average Ratio Test Result (Channel Bandwidth: 10 MHz)

Modulation	Channel	Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
QPSK	LCH	5.06	<13	PASS
	MCH	5.31	<13	PASS
	HCH	5.19	<13	PASS
16QAM	LCH	5.76	<13	PASS
	MCH	6	<13	PASS
	HCH	5.88	<13	PASS

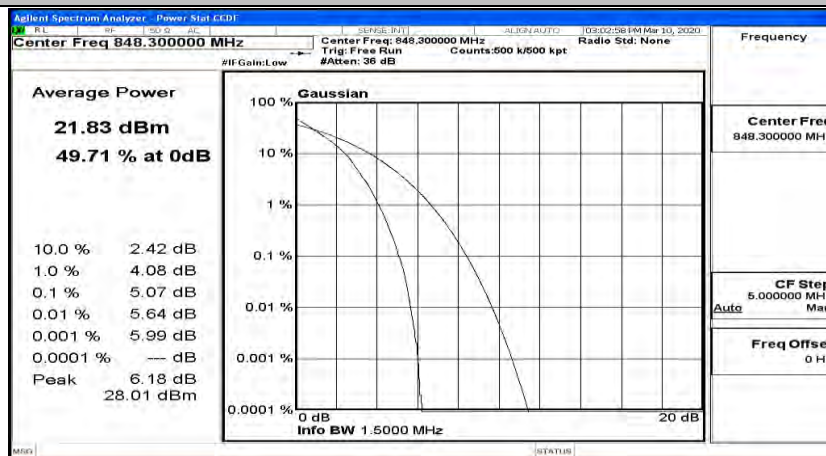
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 1.4 MHz)_LCH_QPSK



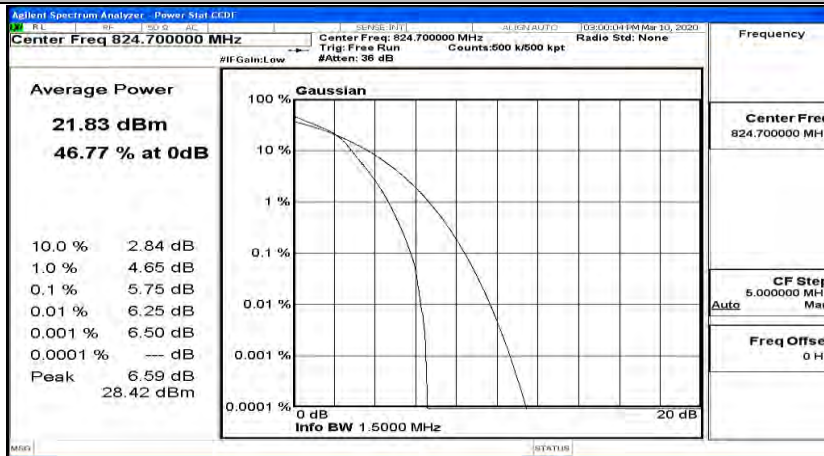
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 1.4 MHz)_MCH_QPSK



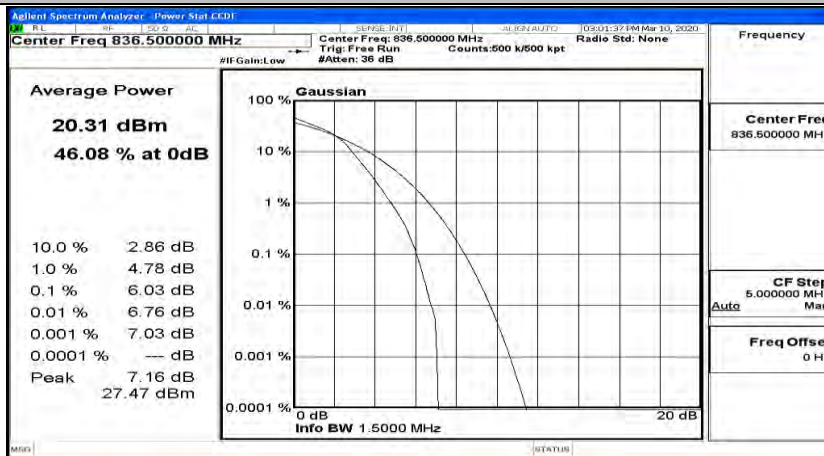
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 1.4 MHz)_HCH_QPSK



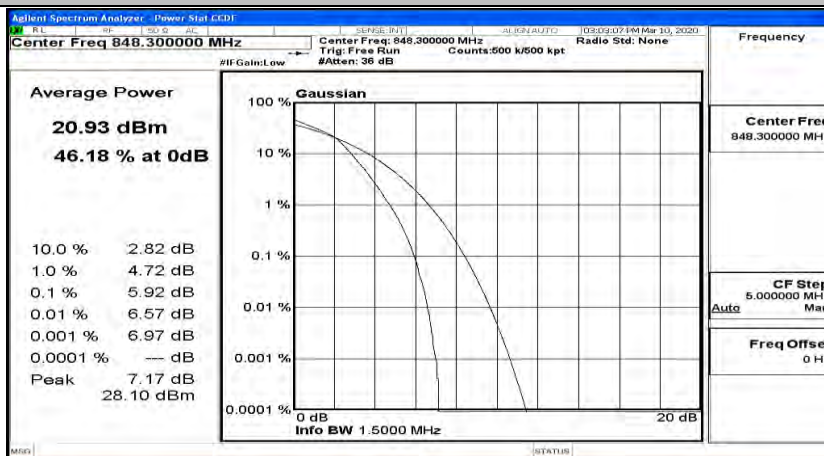
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 1.4 MHz)_LCH_16QAM



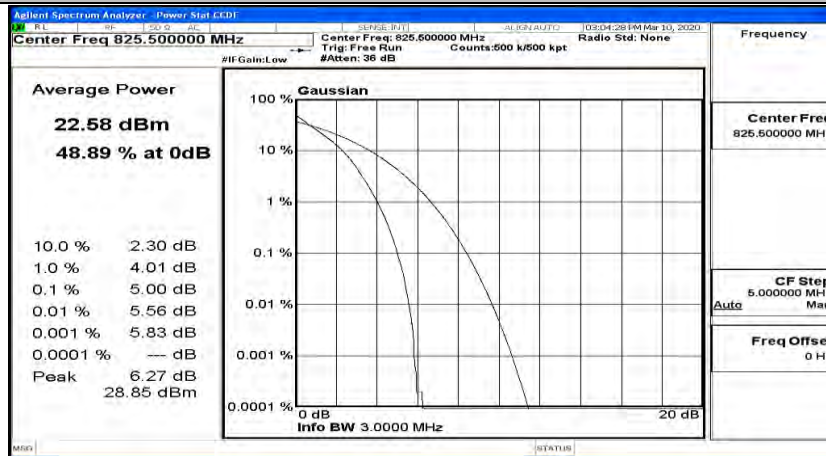
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 1.4 MHz)_MCH_16QAM



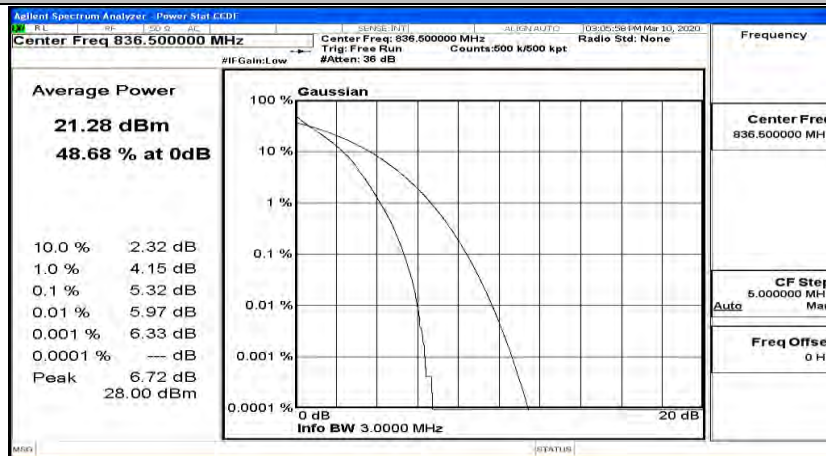
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 1.4 MHz)_HCH_16QAM



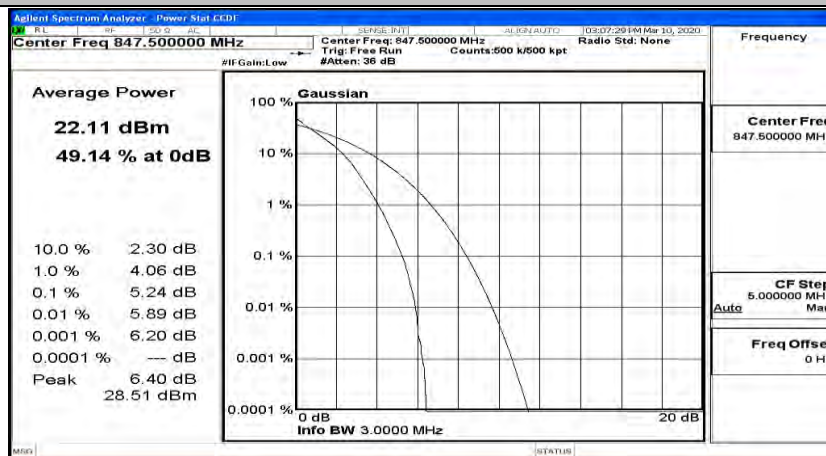
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 3 MHz)_LCH_QPSK



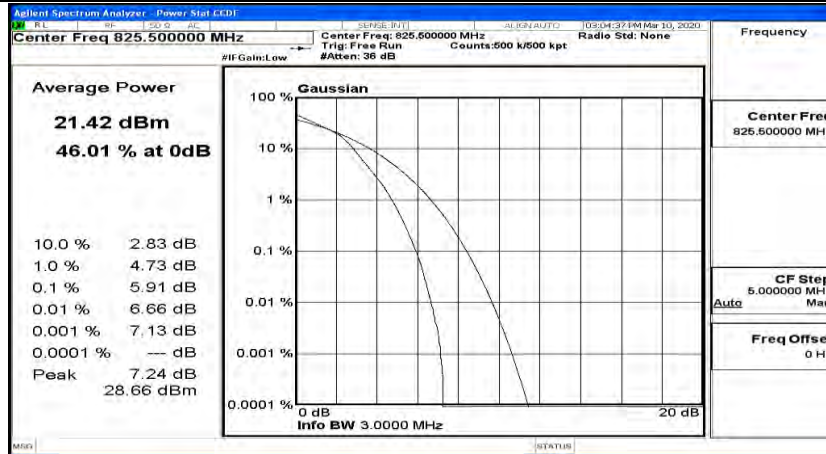
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 3 MHz)_MCH_QPSK



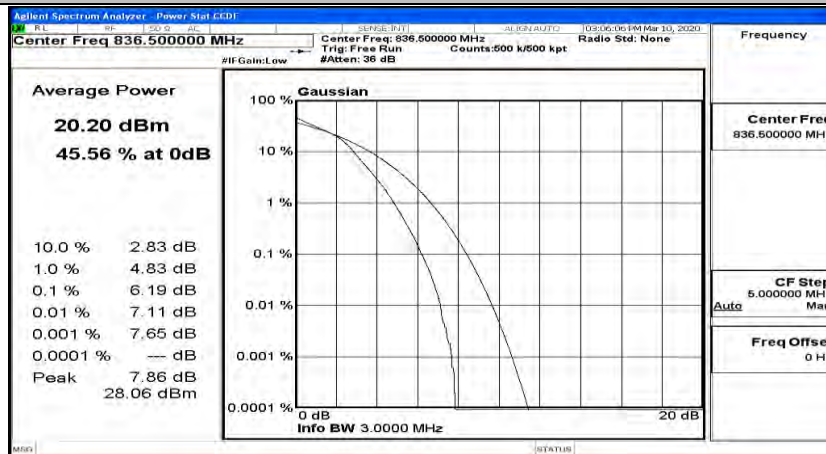
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 3 MHz)_HCH_QPSK



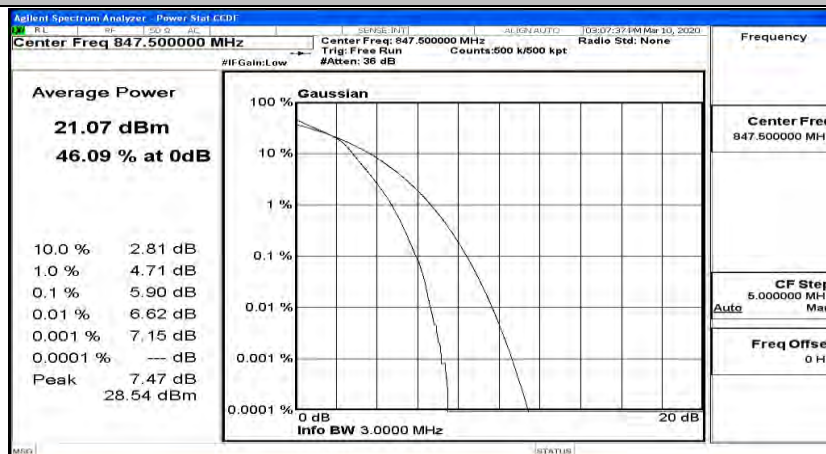
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 3 MHz)_LCH_16QAM



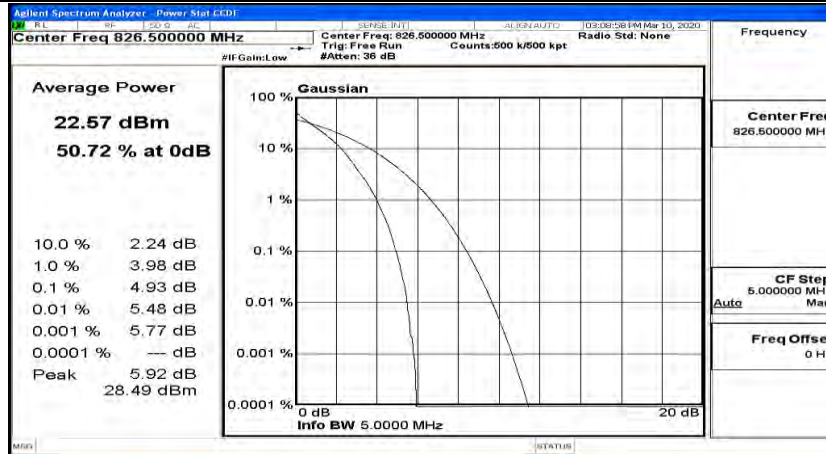
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 3 MHz)_MCH_16QAM



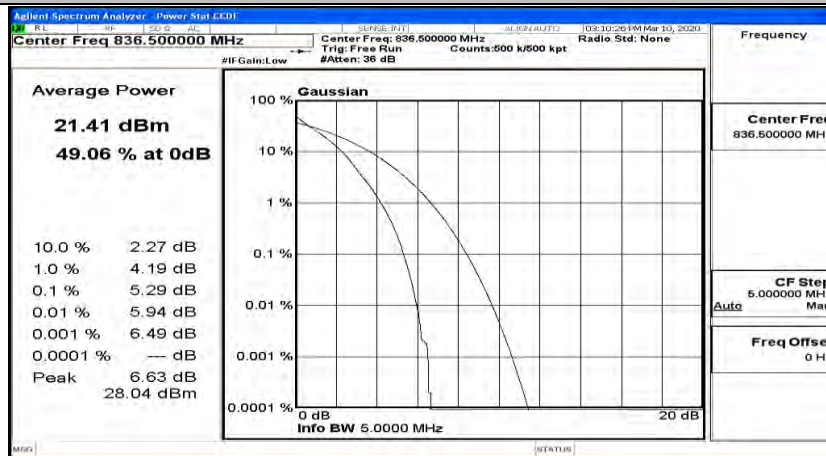
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 3 MHz)_HCH_16QAM



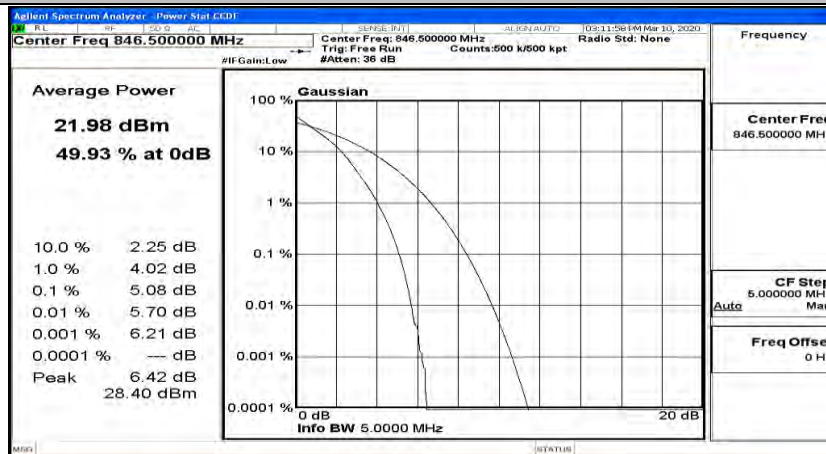
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_QPSK



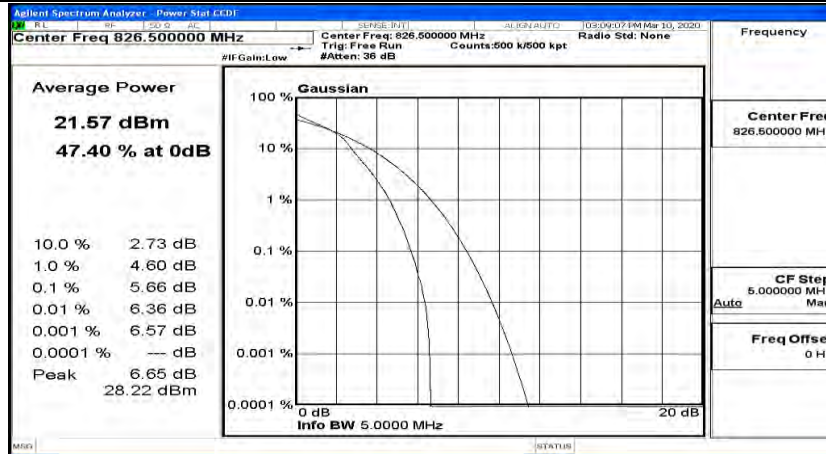
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)_MCH_QPSK



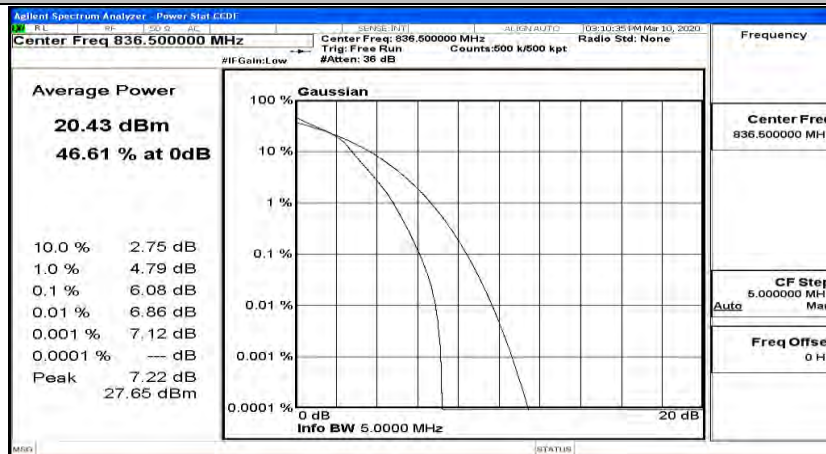
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)_HCH_QPSK



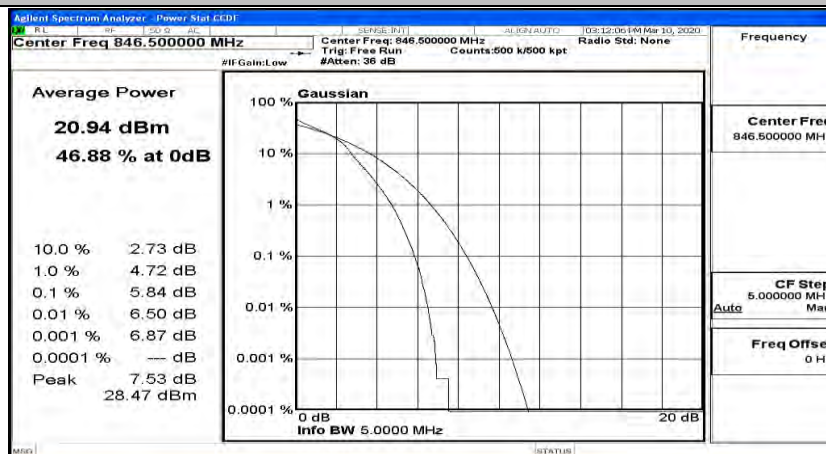
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_16QAM



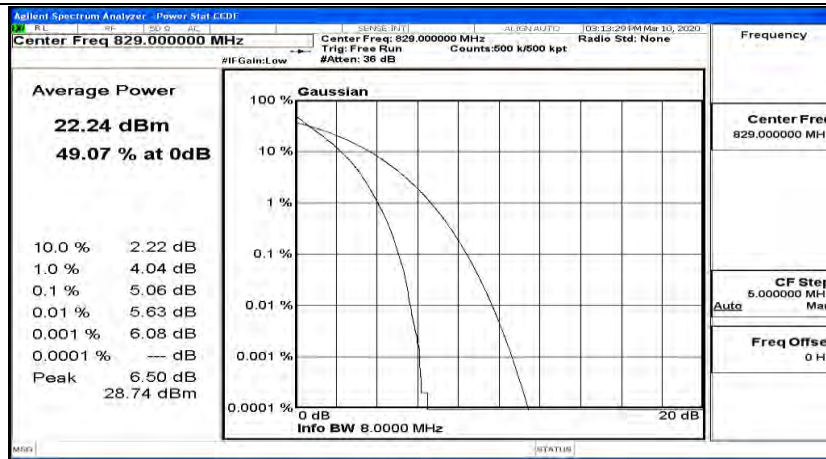
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)_MCH_16QAM



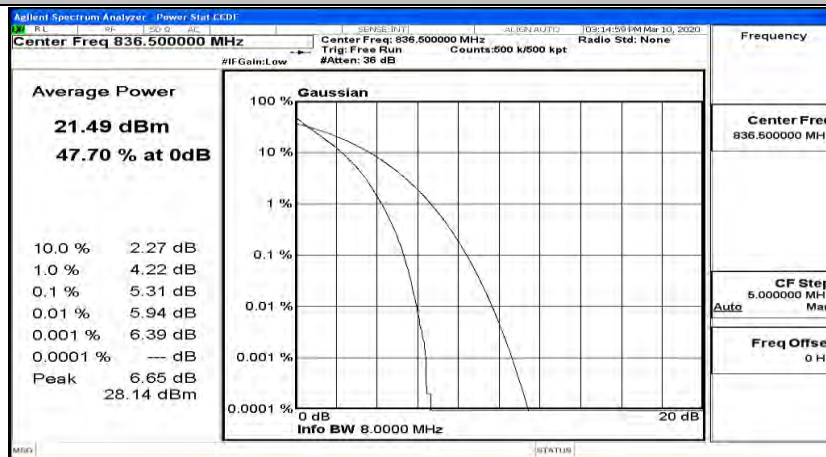
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)_HCH_16QAM



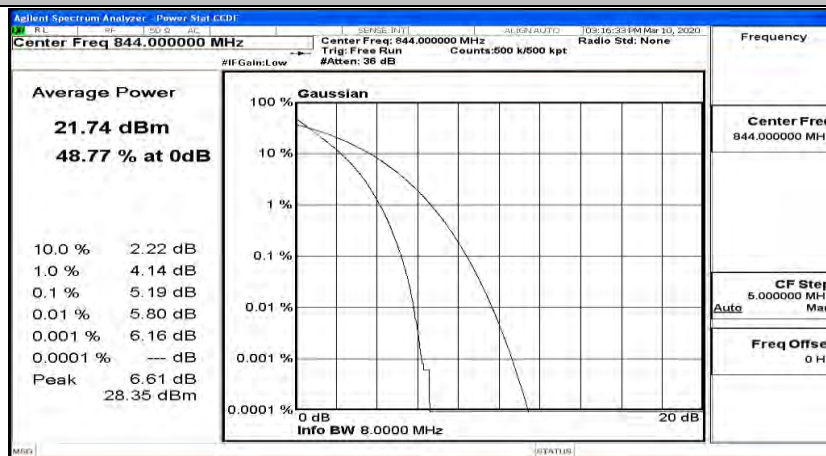
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 10 MHz)_LCH_QPSK



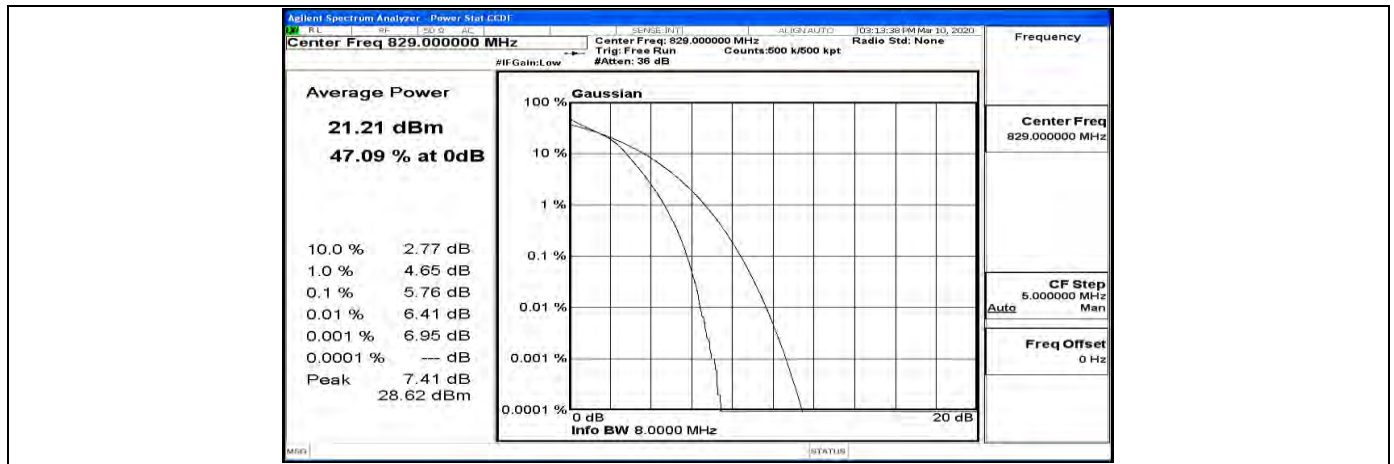
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 10 MHz)_MCH_QPSK



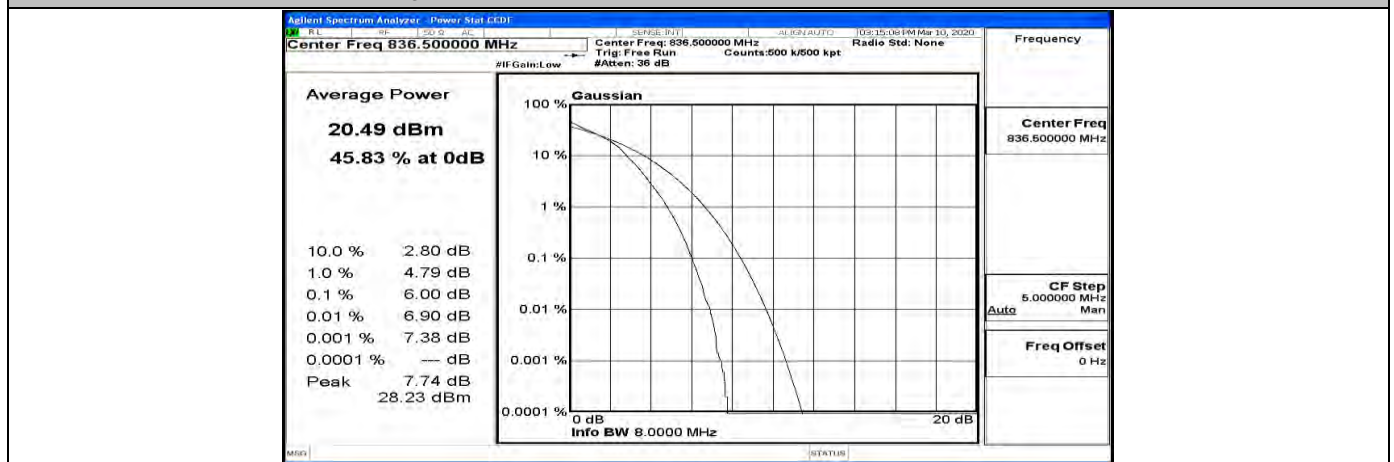
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 10 MHz)_HCH_QPSK



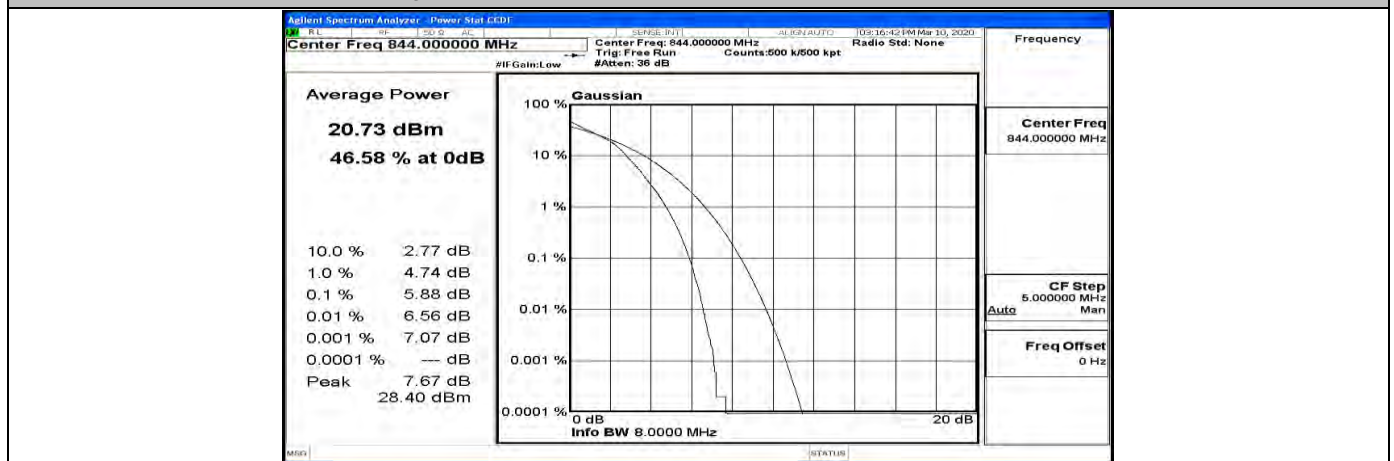
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 10 MHz)_LCH_16QAM



Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 10 MHz)_MCH_16QAM



Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 10 MHz)_HCH_16QAM



F.3 26dB Bandwidth and Occupied Bandwidth

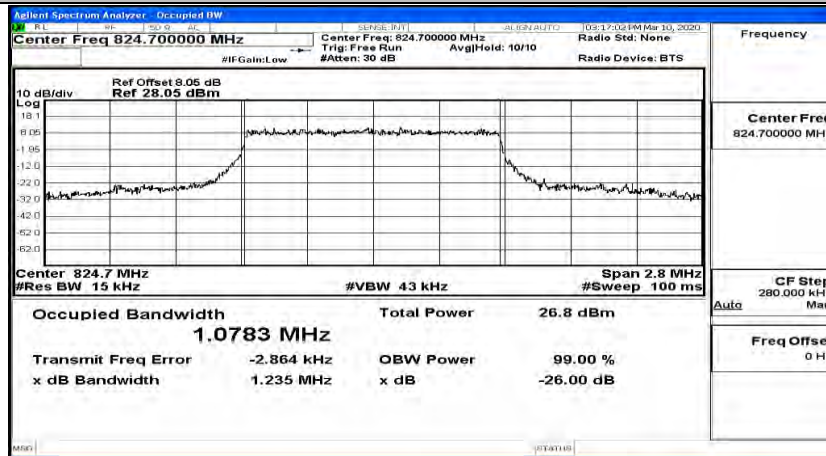
EBW & OBW Test Result (Channel Bandwidth: 1.4 MHz)				
Modulation	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
QPSK	LCH	1.0783	1.235	PASS
	MCH	1.0723	1.235	PASS
	HCH	1.0773	1.222	PASS
16QAM	LCH	1.0792	1.238	PASS
	MCH	1.0799	1.217	PASS
	HCH	1.0766	1.224	PASS

EBW & OBW Test Result (Channel Bandwidth: 3 MHz)				
Modulation	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
QPSK	LCH	2.6797	2.819	PASS
	MCH	2.6799	2.831	PASS
	HCH	2.6814	2.837	PASS
16QAM	LCH	2.6832	2.827	PASS
	MCH	2.6803	2.833	PASS
	HCH	2.6850	2.836	PASS

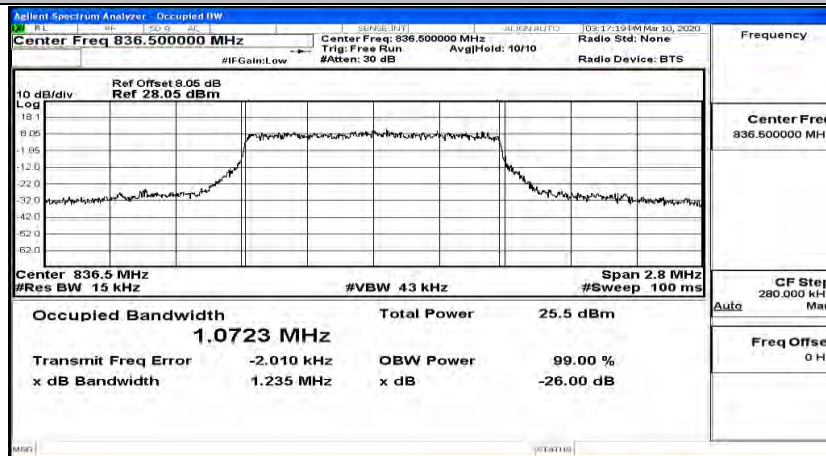
EBW & OBW Test Result (Channel Bandwidth: 5 MHz)				
Modulation	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
QPSK	LCH	4.4786	4.751	PASS
	MCH	4.4806	4.735	PASS
	HCH	4.4748	4.723	PASS
16QAM	LCH	4.4759	4.743	PASS
	MCH	4.4649	4.780	PASS
	HCH	4.4715	4.732	PASS

EBW & OBW Test Result (Channel Bandwidth: 10 MHz)				
Modulation	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
QPSK	LCH	8.9525	9.363	PASS
	MCH	8.9492	9.465	PASS
	HCH	8.9284	9.383	PASS
16QAM	LCH	8.9381	9.364	PASS
	MCH	8.9436	9.374	PASS
	HCH	8.9347	9.340	PASS

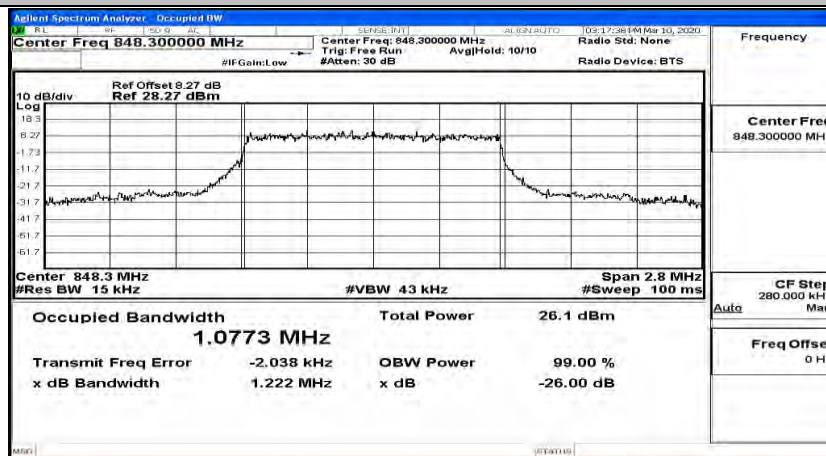
EBW & OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)_LCH_QPSK



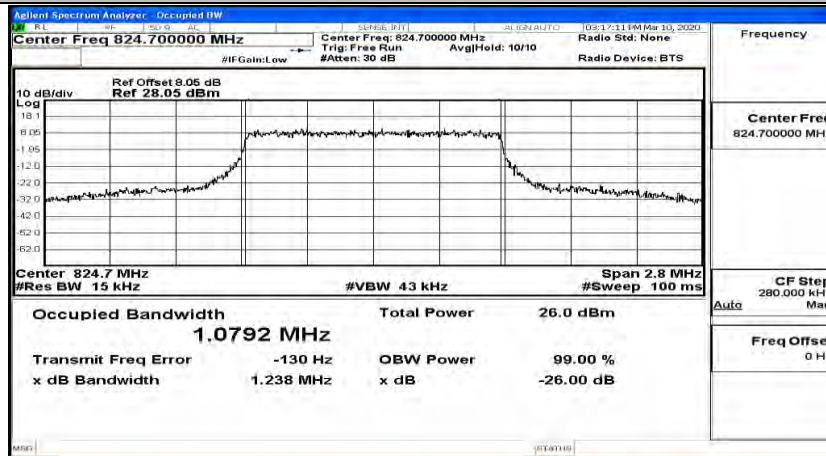
EBW & OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)_MCH_QPSK



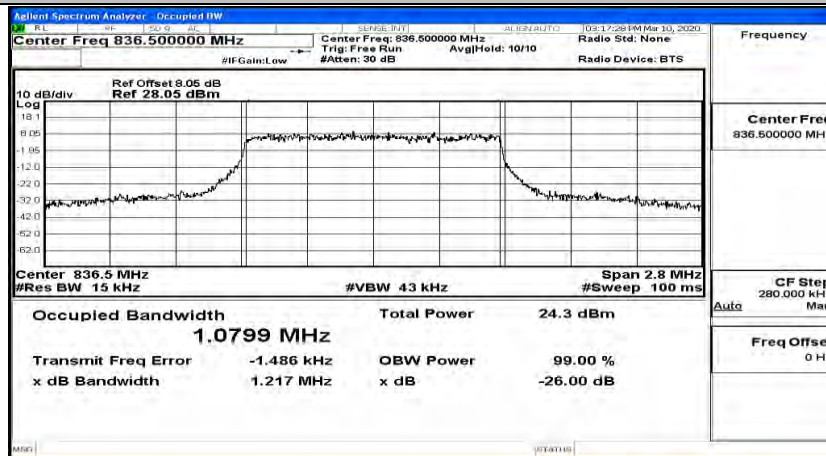
EBW & OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)_HCH_QPSK



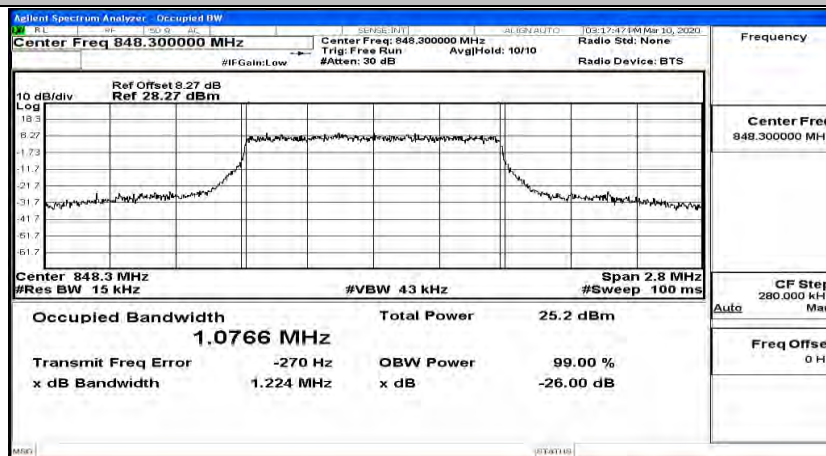
EBW & OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)_LCH_16QAM



EBW & OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)_MCH_16QAM



EBW & OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)_HCH_16QAM



Refined Spectrum Analyzer - Occupied BW

FREQ	Hz	dBm	dBFS	SF Freq: 825.5 MHz	Trig: Free Run	Avg/Hold: 10/10	Radio Std: None	Frequency
				#IF Gain: Low	#Atten: 30 dB		Radio Device: BTS	

Center Freq 825.500000 MHz
 Ref Offset 8.05 dB
 Ref 28.05 dBm
 10 dB/div
 Log
 Center 825.5 MHz
 #Res BW 30 kHz
 #VBW 91 kHz
 Span 6 MHz
 #Sweep 100 ms

Occupied Bandwidth	Total Power	26.0 dBm
2.6797 MHz		
Transmit Freq Error	-370 Hz	OBW Power
x dB Bandwidth	2.819 MHz	x dB
		-26.00 dB

Agilent Spectrum Analyzer - Occupied BW

Center Freq 836.500000 MHz

Ref Offset 8.05 dB

Ref 28.05 dBm

10 dB/div

Log

18.1

6.05

1.05

12.0

22.0

32.0

42.0

52.0

62.0

Center 836.5 MHz

#Res BW 30 kHz

#VBW 91 kHz

Span 6 MHz

#Sweep 100 ms

Occupied Bandwidth

2.6799 MHz

Total Power

24.6 dBm

Transmit Freq Error

-56 Hz

OBW Power

99.00 %

x dB Bandwidth

2.831 MHz

x dB

-26.00 dB

Frequency

Center Freq 836.500000 MHz

CF Step 500.000 kHz

Auto

Freq Offset 0 Hz

Helix Spectrum Analyzer - Occupied BW

Center Freq 847.500000 MHz

Ref Offset 8.27 dB
Ref 28.27 dBm

Trig: Free Run
SATTen: 30 dB

Radio Std: None
Radio Device: BTS

Frequency

Center Freq 847.500000 MHz

CF Step 500.000 kHz
Max

Occupied Bandwidth

2.6814 MHz

Total Power

25.4 dBm

Transmit Freq Error

-1.203 KHz

OBW Power

99.00 %

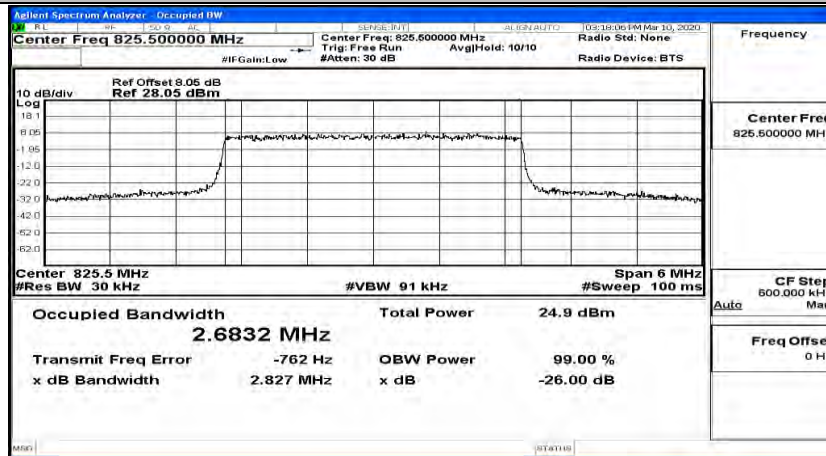
x dB Bandwidth

2.837 MHz

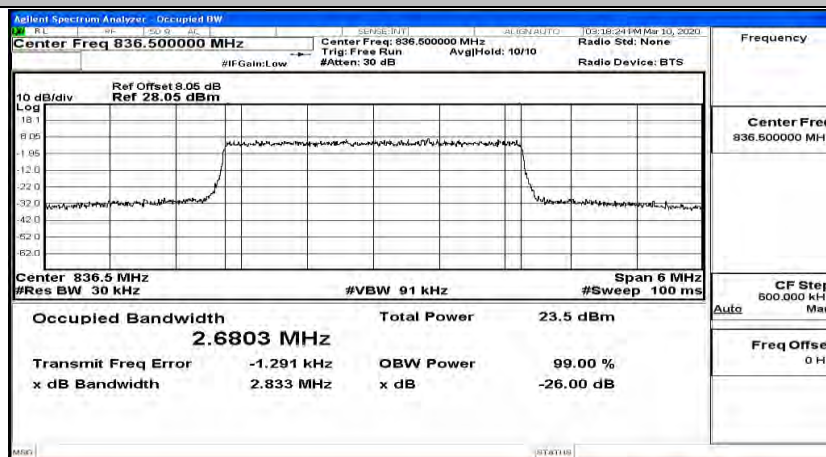
x dB

-26.00 dB

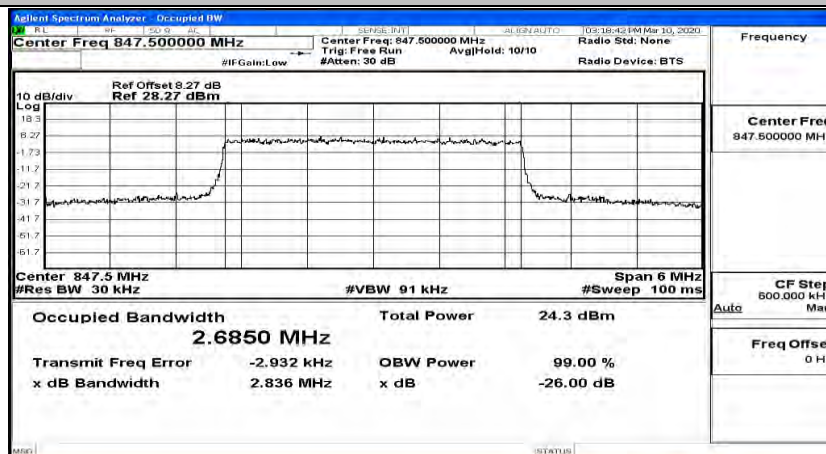
EBW & OBW Test Graph(s) (Channel Bandwidth: 3 MHz)_LCH_16QAM



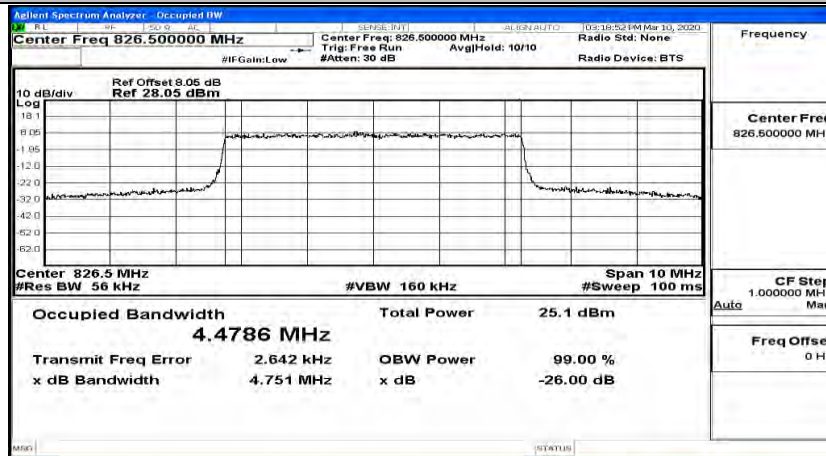
EBW & OBW Test Graph(s) (Channel Bandwidth: 3 MHz)_MCH_16QAM



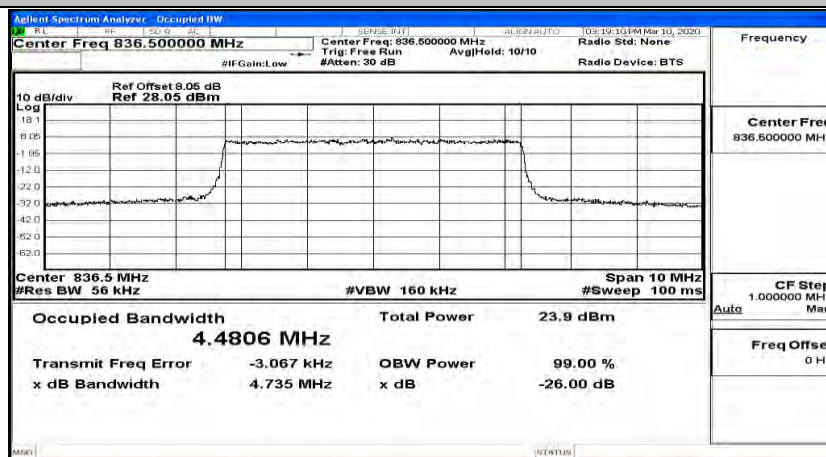
EBW & OBW Test Graph(s) (Channel Bandwidth: 3 MHz)_HCH_16QAM



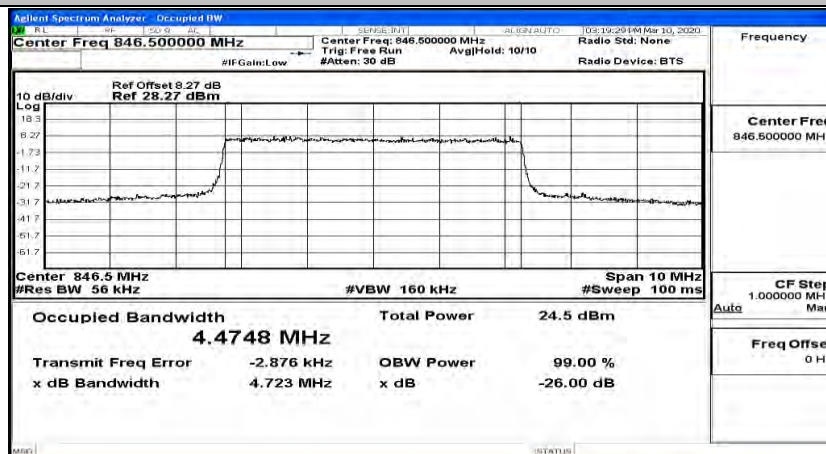
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_QPSK



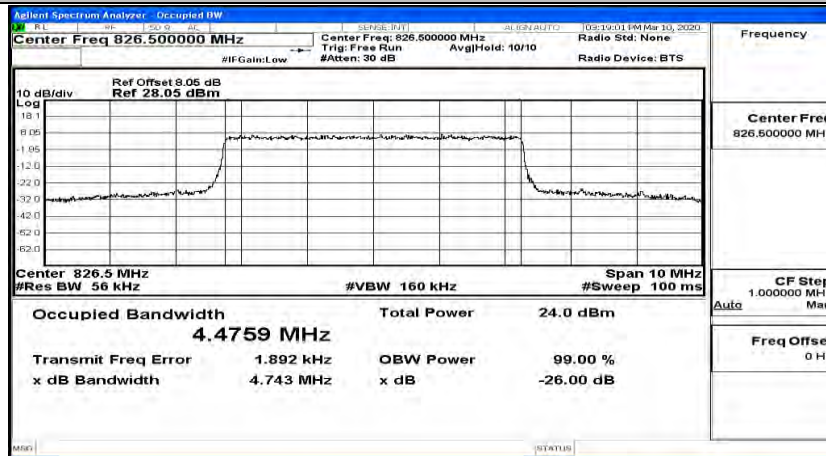
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)_MCH_QPSK



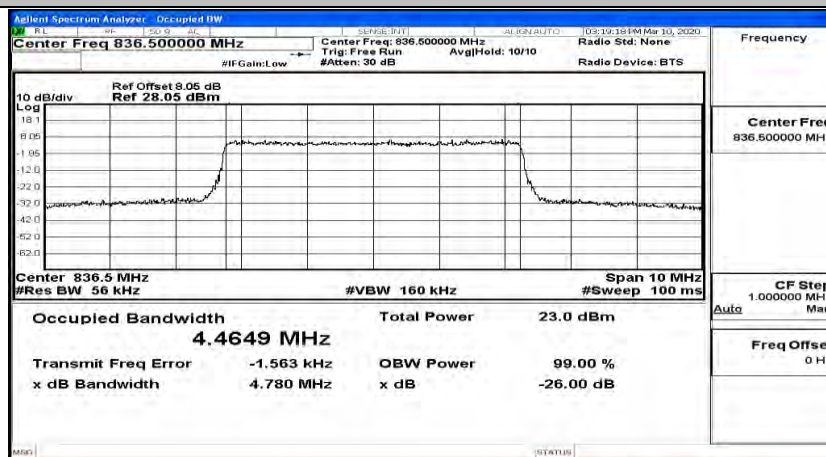
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)_HCH_QPSK



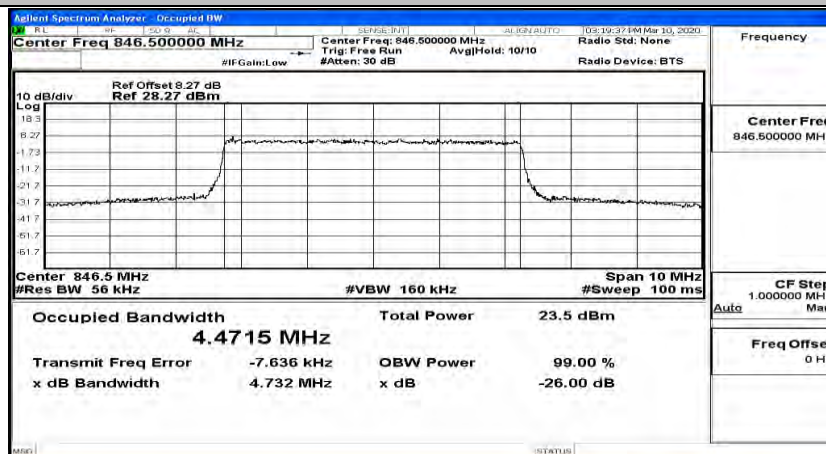
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_16QAM



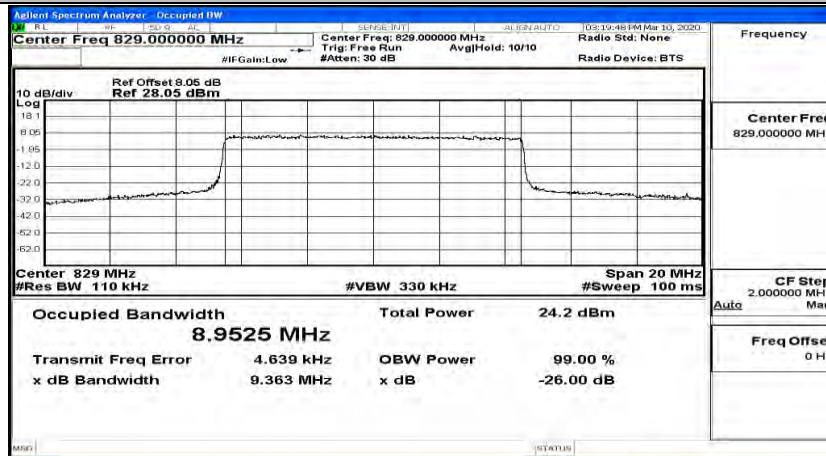
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)_MCH_16QAM



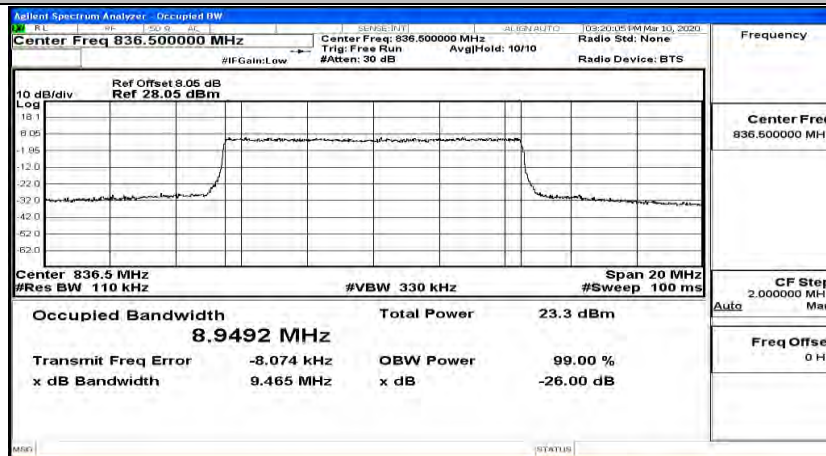
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)_HCH_16QAM



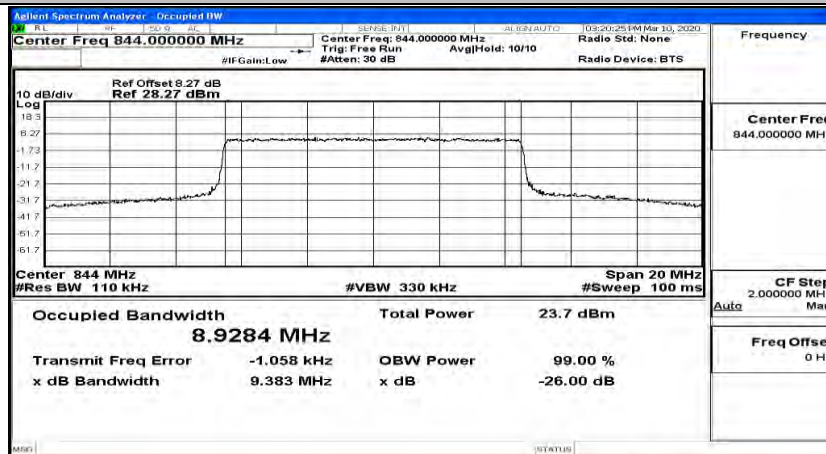
EBW & OBW Test Graph(s) (Channel Bandwidth: 10 MHz)_LCH_QPSK



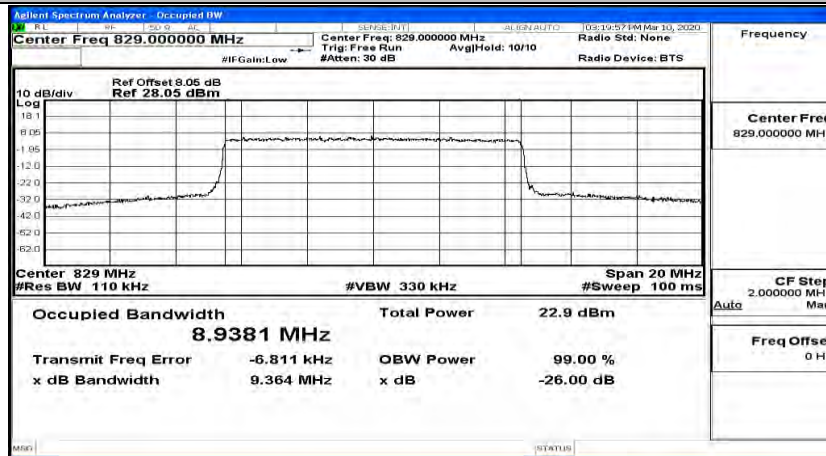
EBW & OBW Test Graph(s) (Channel Bandwidth: 10 MHz)_MCH_QPSK



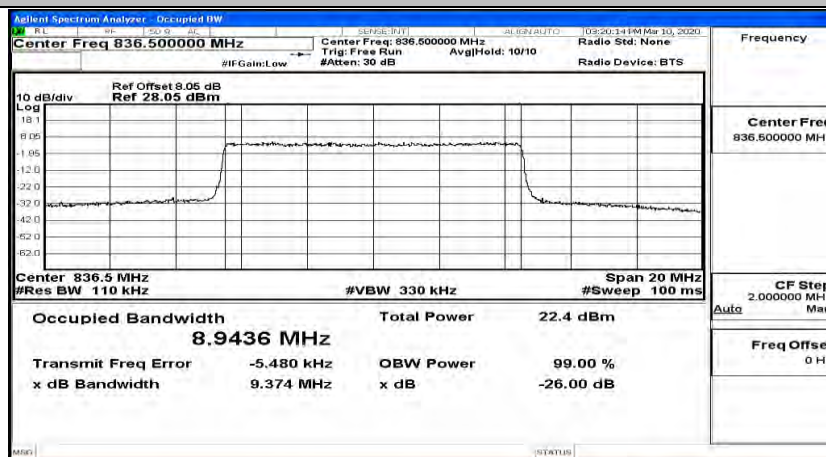
EBW & OBW Test Graph(s) (Channel Bandwidth: 10 MHz)_HCH_QPSK



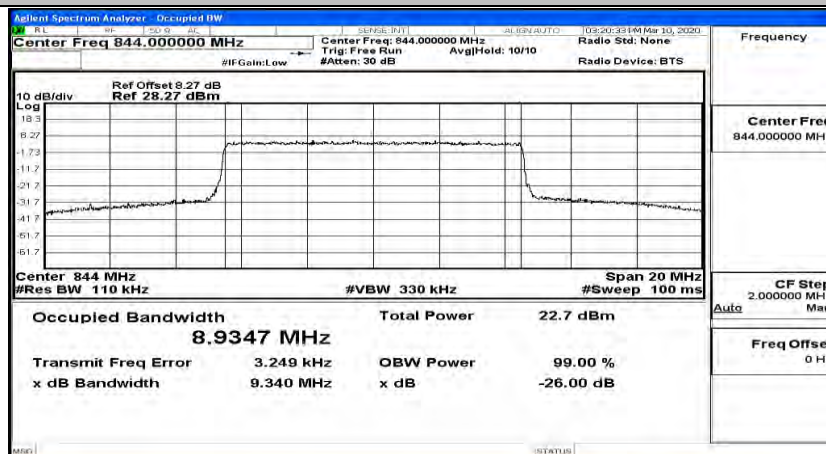
EBW & OBW Test Graph(s) (Channel Bandwidth: 10 MHz)_LCH_16QAM



EBW & OBW Test Graph(s) (Channel Bandwidth: 10 MHz)_MCH_16QAM

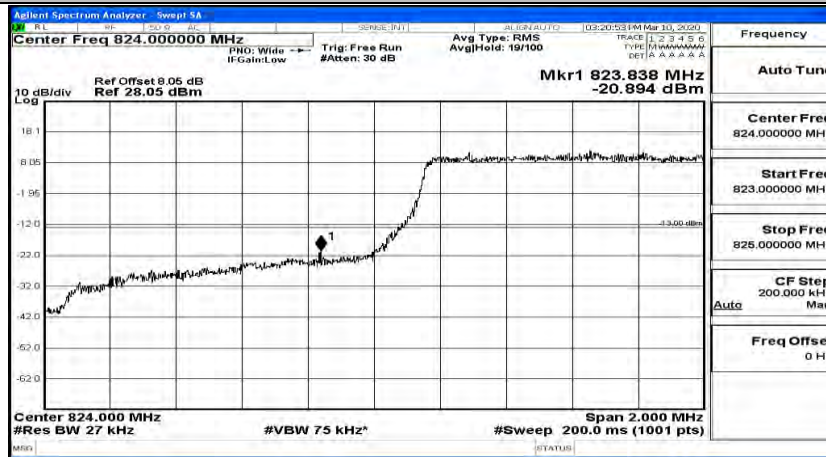


EBW & OBW Test Graph(s) (Channel Bandwidth: 10 MHz)_HCH_16QAM

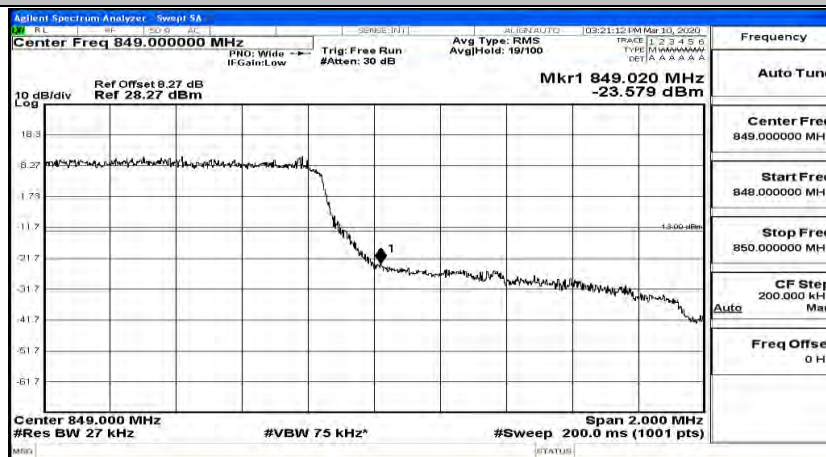


F.4 Band Edge

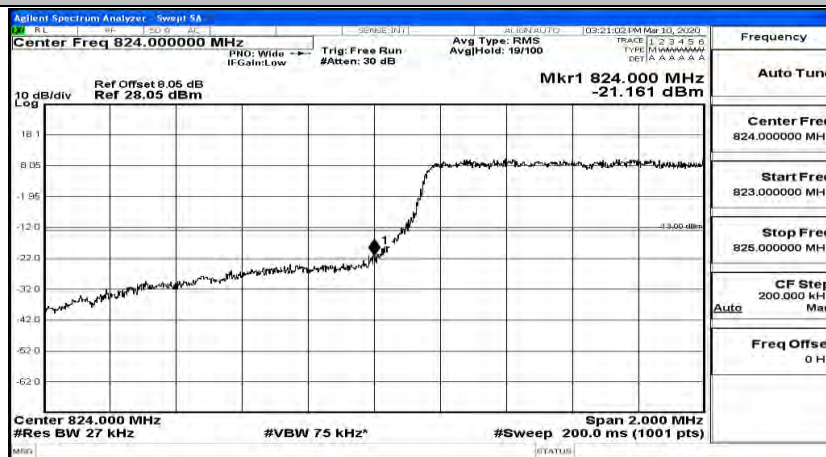
Band Edge Test Graph(s) (Channel Bandwidth: 1.4 MHz)_LCH_QPSK



Band Edge Test Graph(s) (Channel Bandwidth: 1.4 MHz)_HCH_QPSK



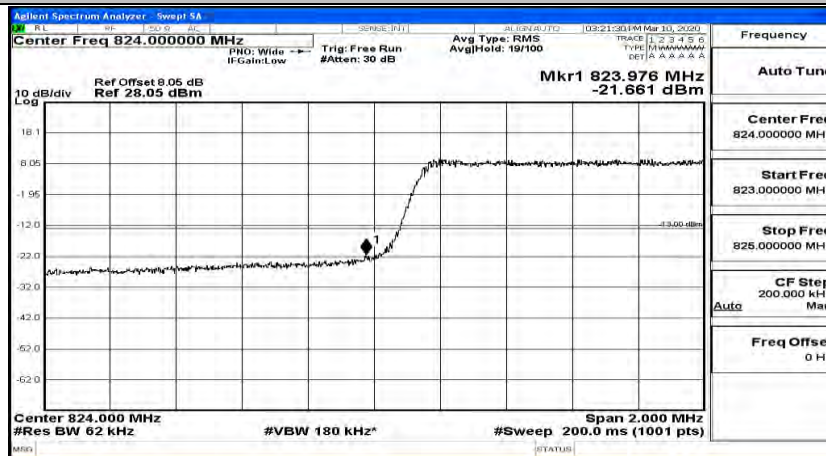
Band Edge Test Graph(s) (Channel Bandwidth: 1.4 MHz)_LCH_16QAM



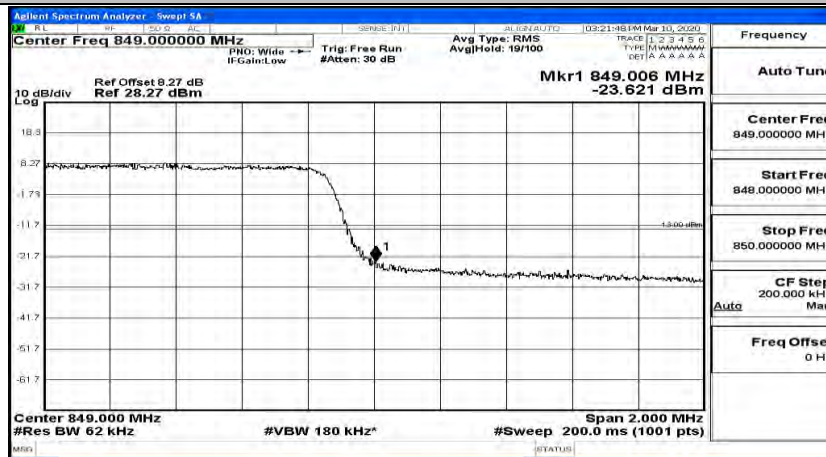
Band Edge Test Graph(s) (Channel Bandwidth: 1.4 MHz)_HCH_16QAM



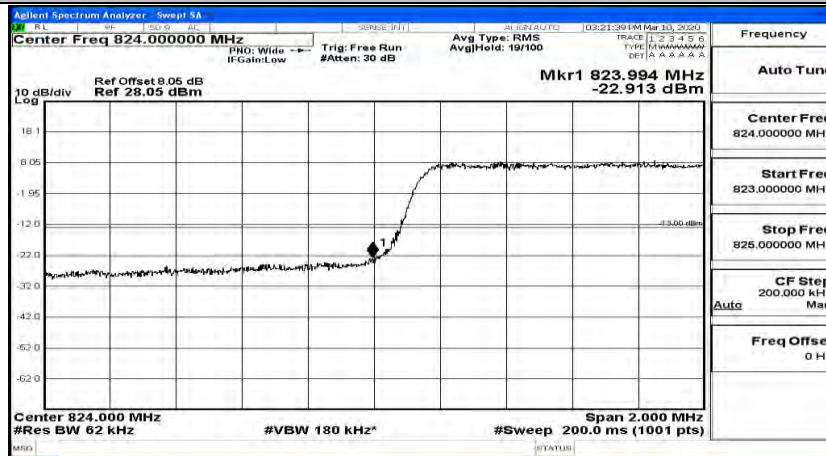
Band Edge Test Graph(s) (Channel Bandwidth: 3 MHz)_LCH_QPSK



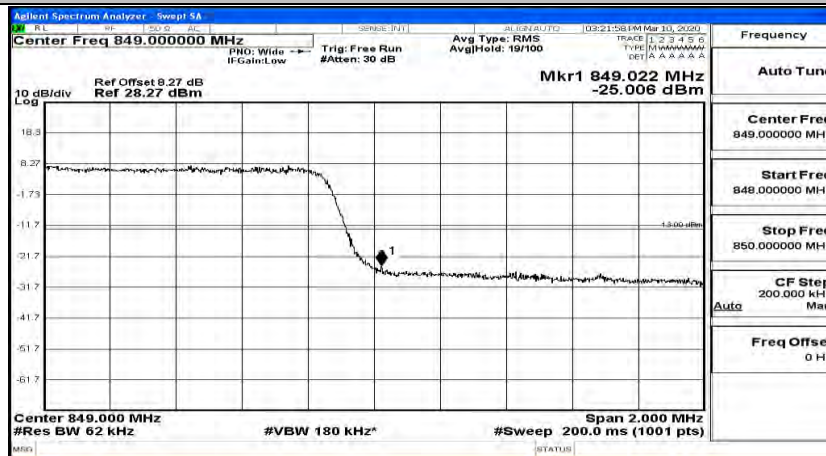
Band Edge Test Graph(s) (Channel Bandwidth: 3 MHz)_HCH_QPSK



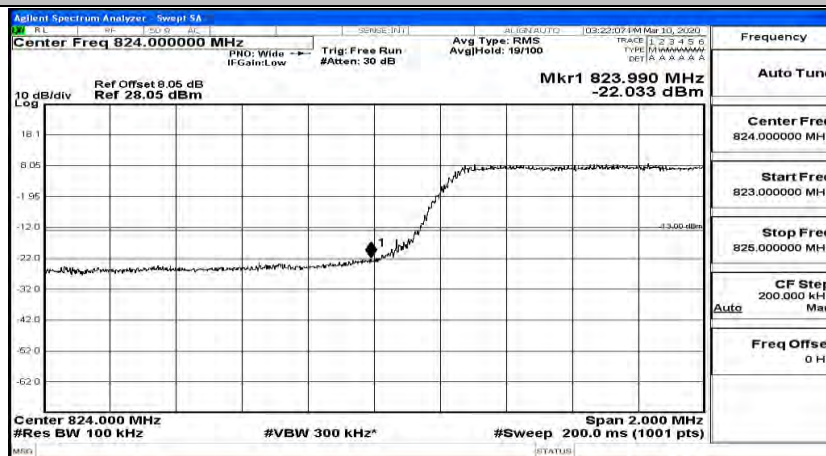
Band Edge Test Graph(s) (Channel Bandwidth: 3 MHz)_LCH_16QAM



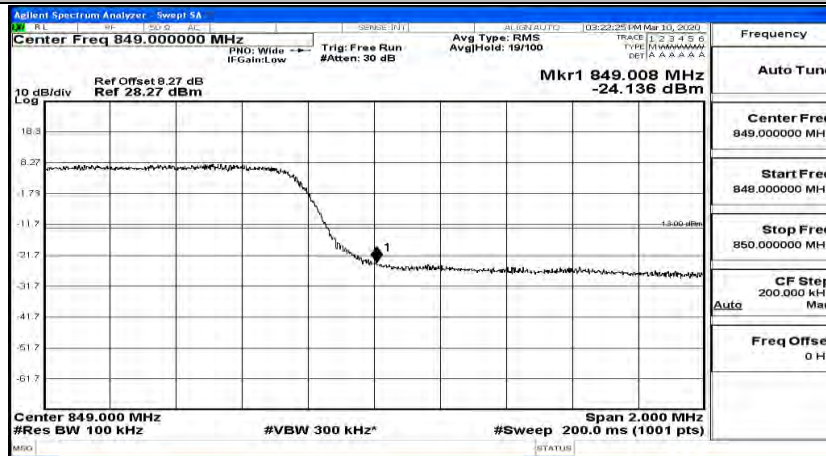
Band Edge Test Graph(s) (Channel Bandwidth: 3 MHz)_HCH_16QAM



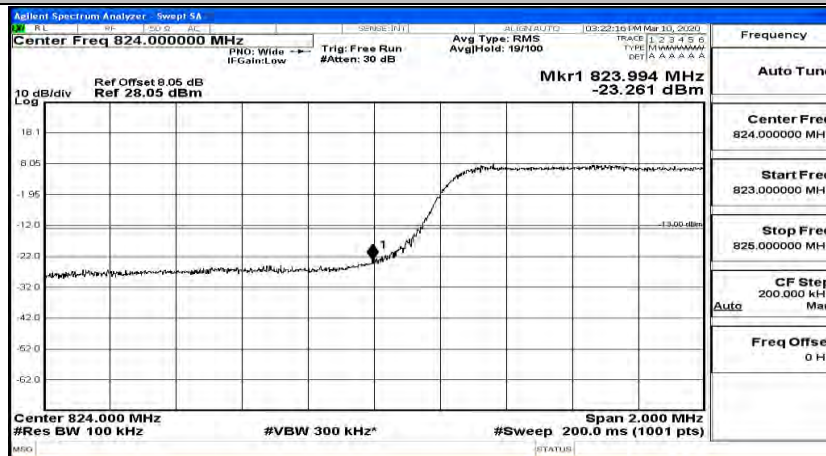
Band Edge Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_QPSK



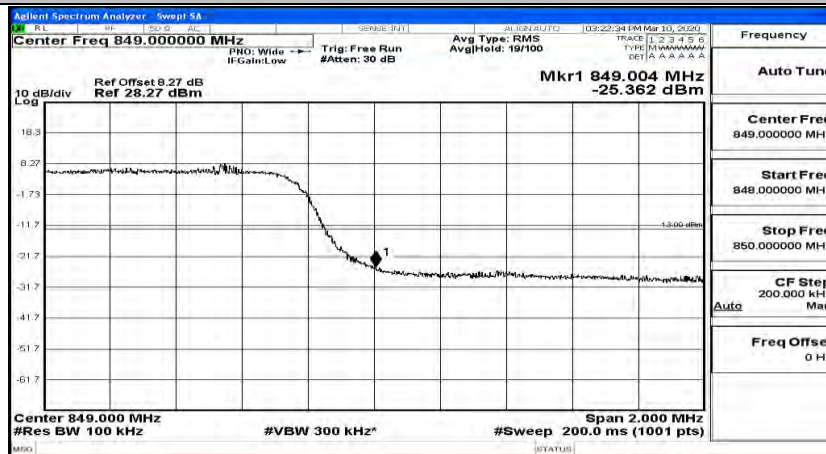
Band Edge Test Graph(s) (Channel Bandwidth: 5 MHz)_HCH_QPSK



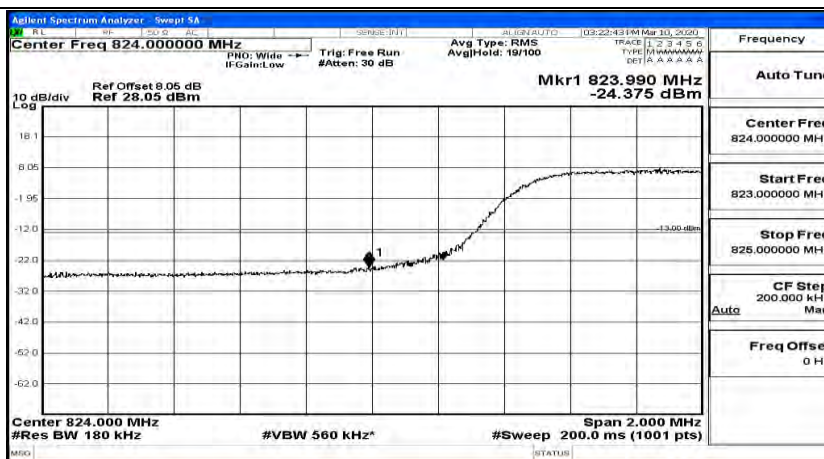
Band Edge Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_16QAM



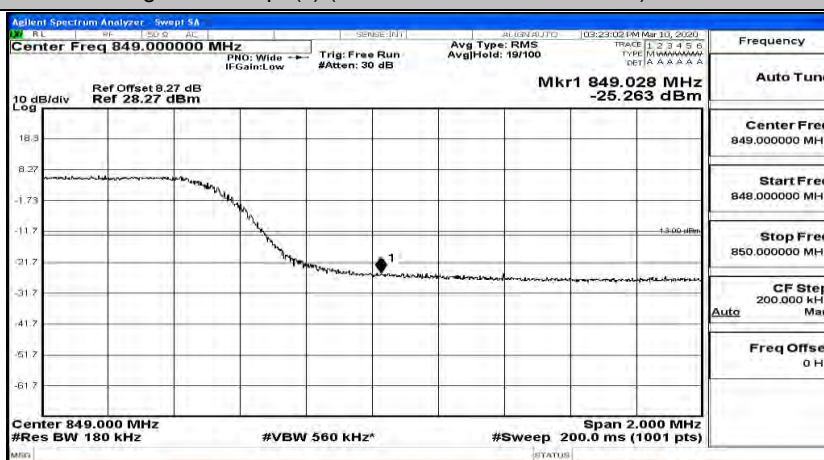
Band Edge Test Graph(s) (Channel Bandwidth: 5 MHz)_HCH_16QAM



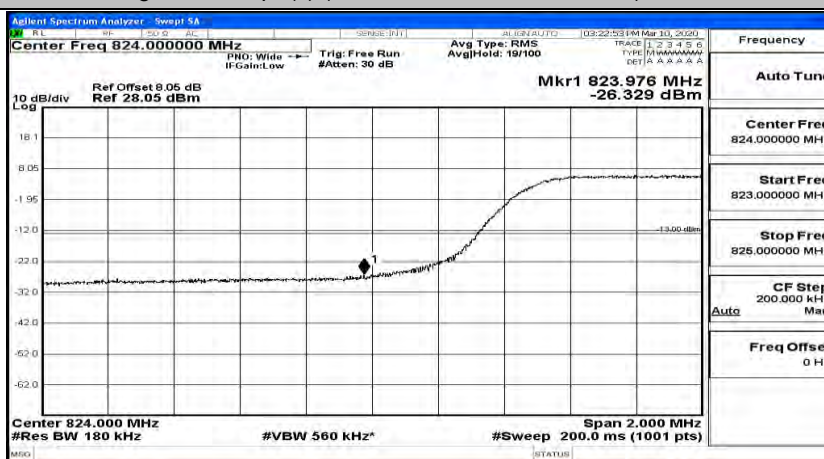
Band Edge Test Graph(s) (Channel Bandwidth: 10 MHz)_LCH_QPSK



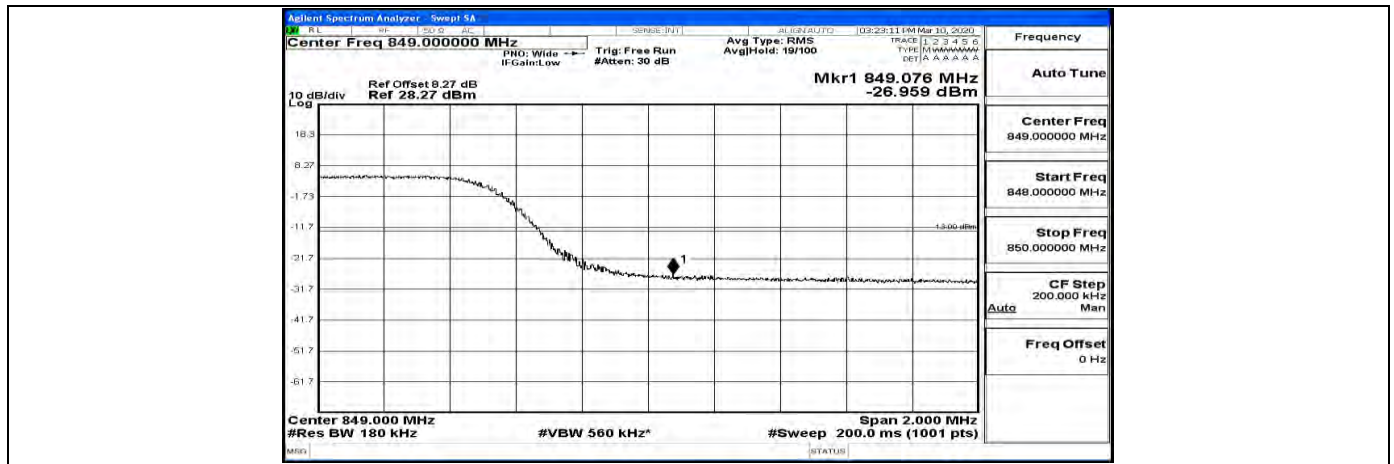
Band Edge Test Graph(s) (Channel Bandwidth: 10 MHz) HCH QPSK



Band Edge Test Graph(s) (Channel Bandwidth: 10 MHz) LCH_16QAM

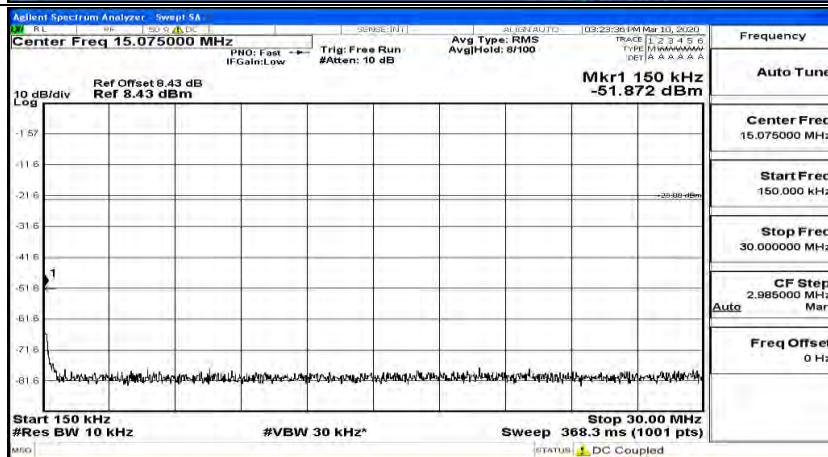
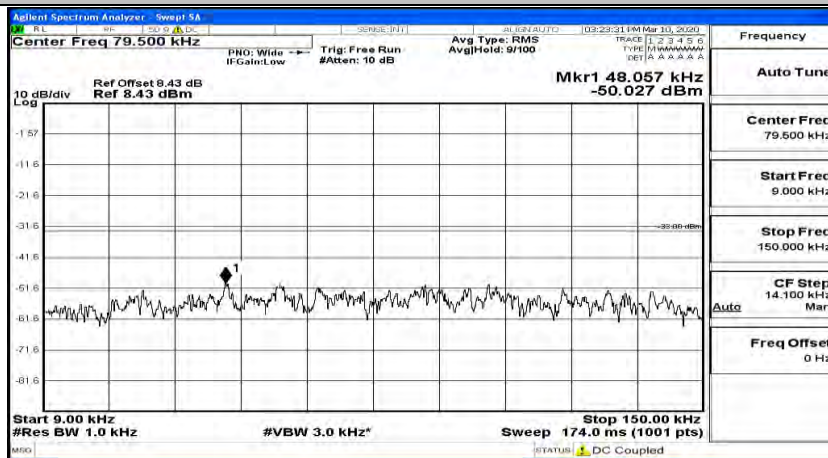


Band Edge Test Graph(s) (Channel Bandwidth: 10 MHz)_HCH_16QAM

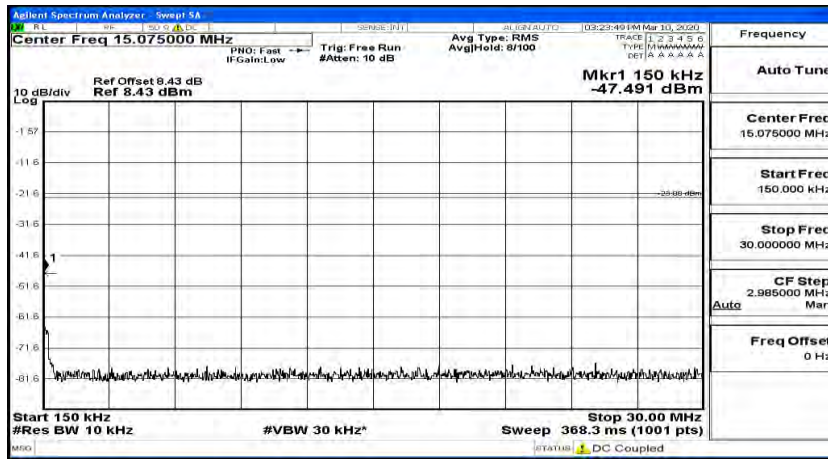
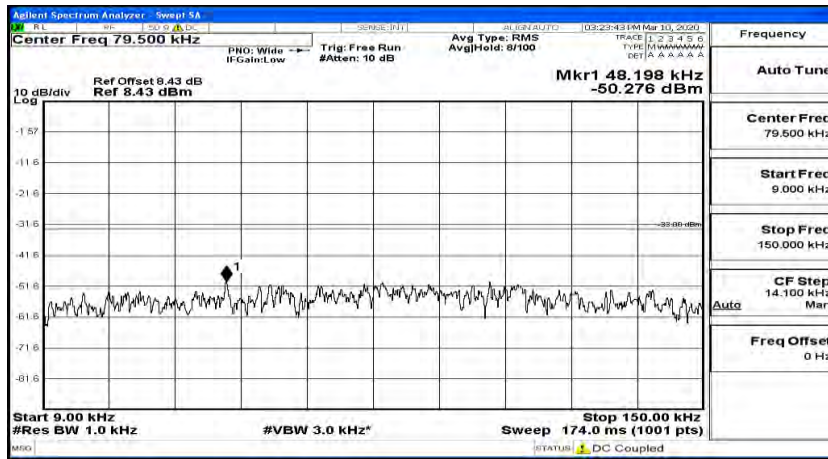


F.5 Conducted Spurious Emission Channel Bandwidth: 1.4 MHz

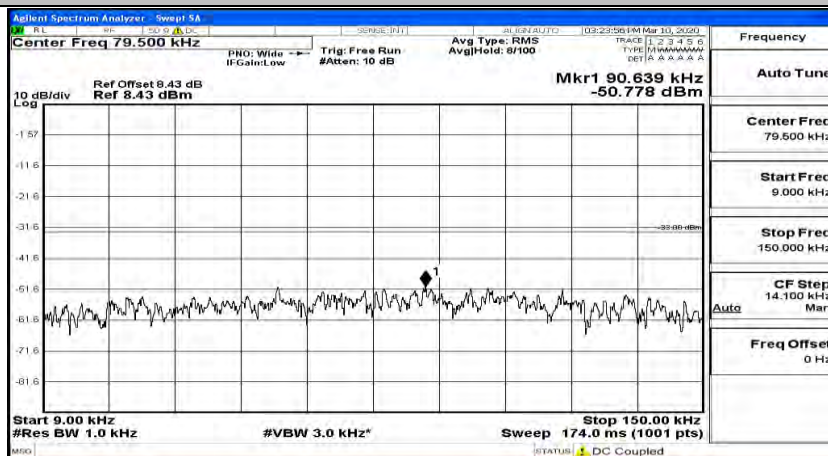
(Channel Bandwidth: 1.4 MHz)_LCH_QPSK_1RB#0

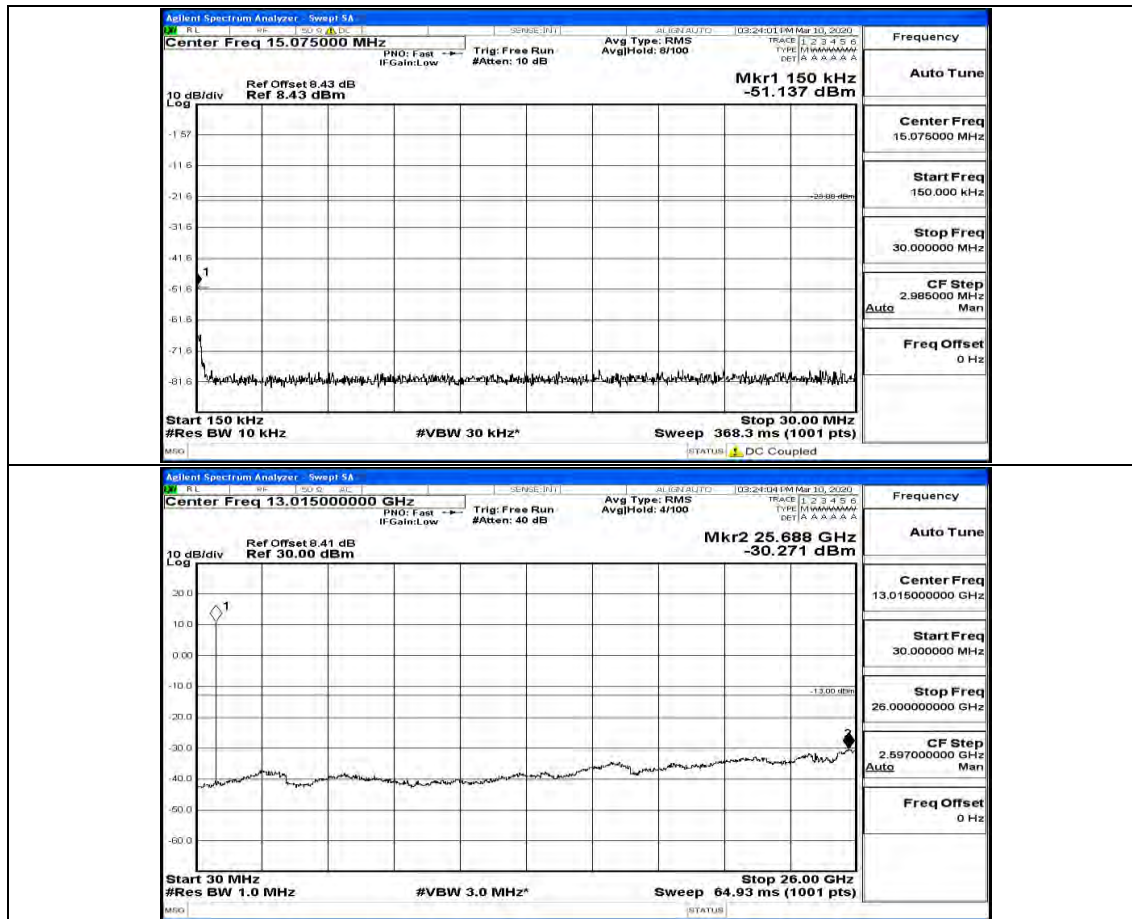


(Channel Bandwidth: 1.4 MHz)_LCH_QPSK_1RB#3

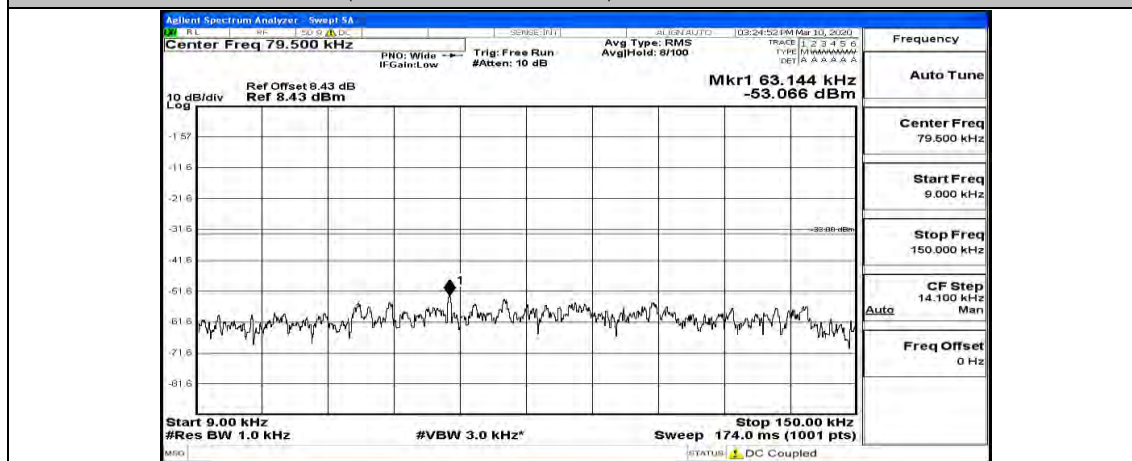


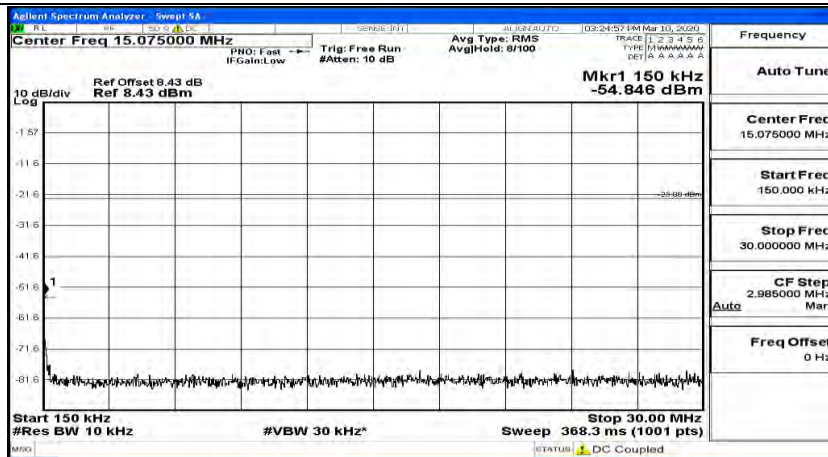
(Channel Bandwidth: 1.4 MHz)_LCH_QPSK_1RB#5



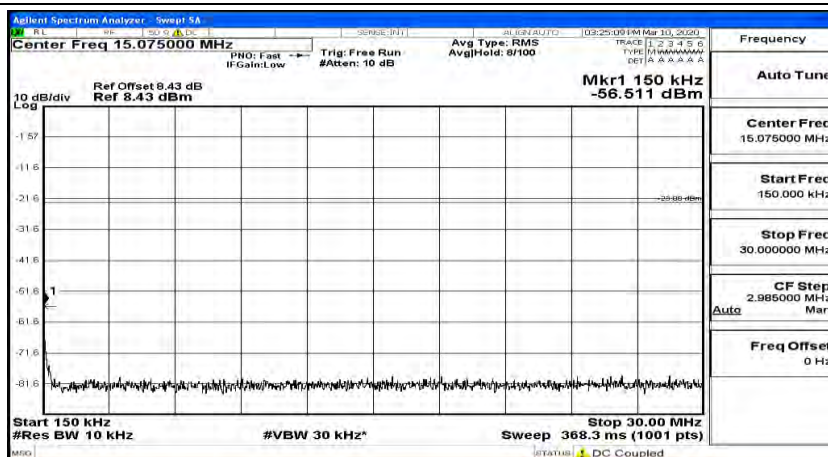
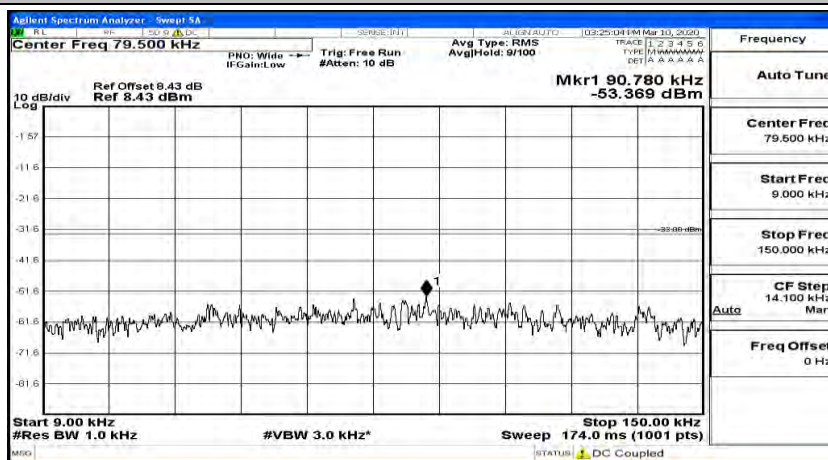


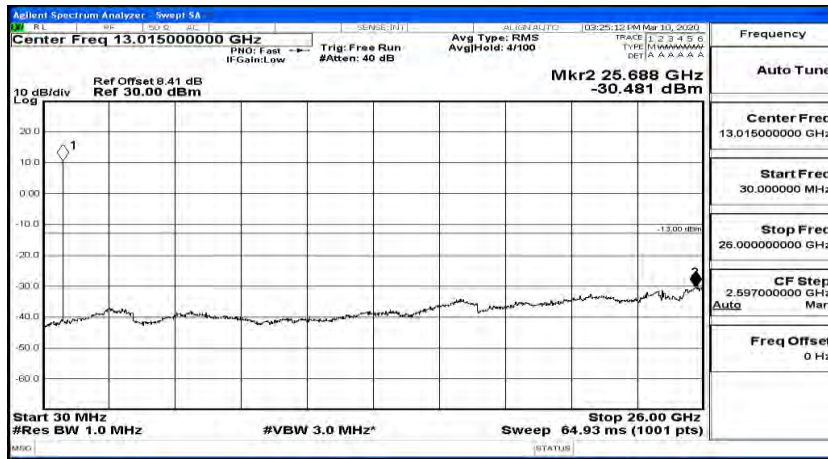
(Channel Bandwidth: 1.4 MHz)_MCH_QPSK_1RB#0



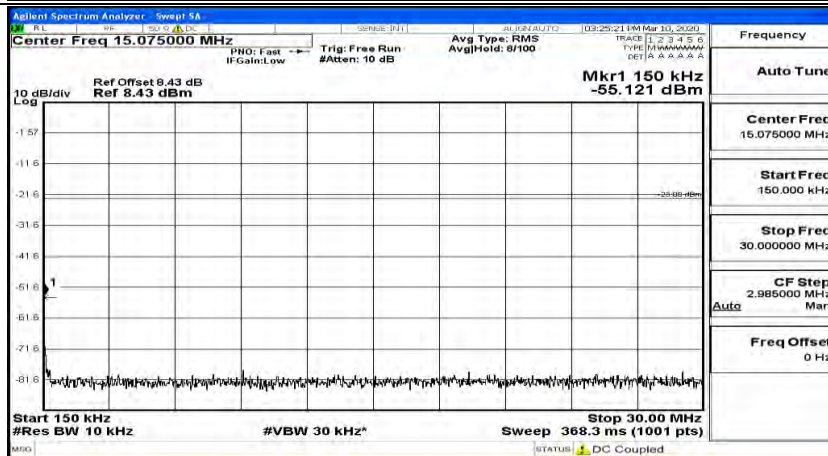
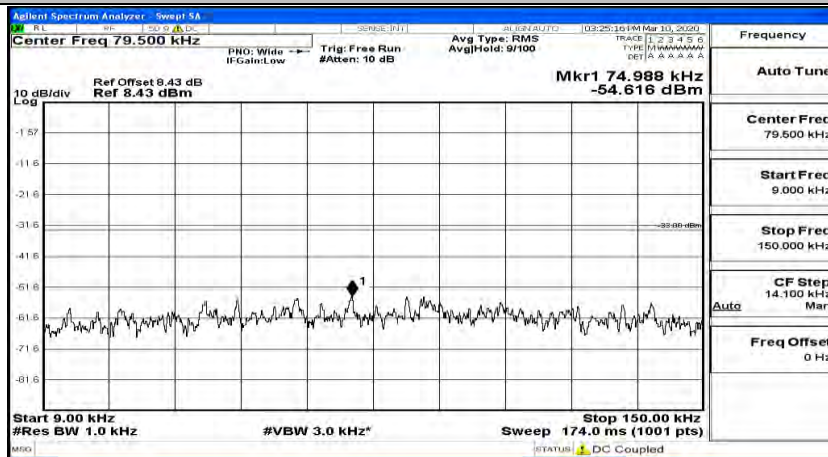


(Channel Bandwidth: 1.4 MHz)_MCH_QPSK_1RB#3

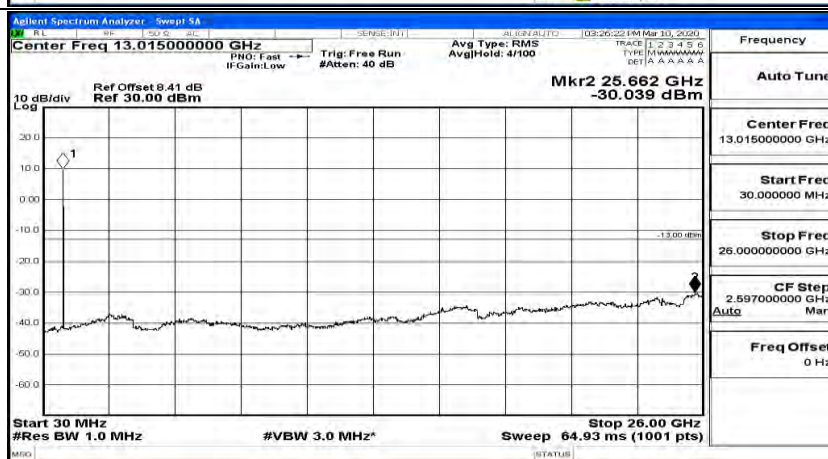
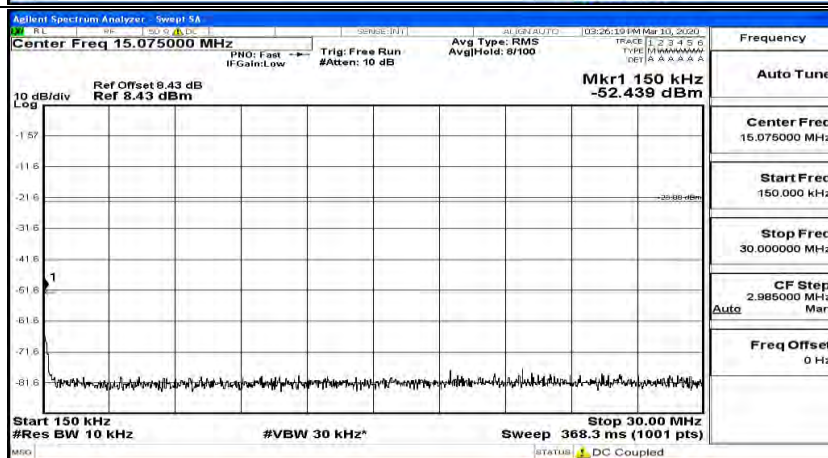
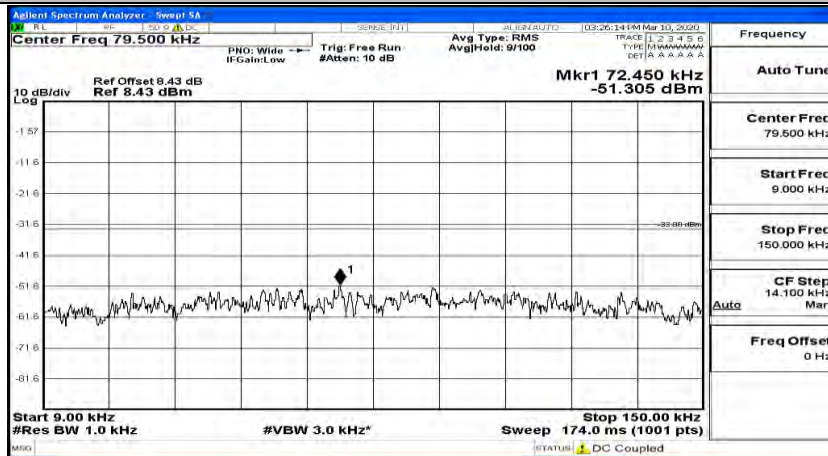




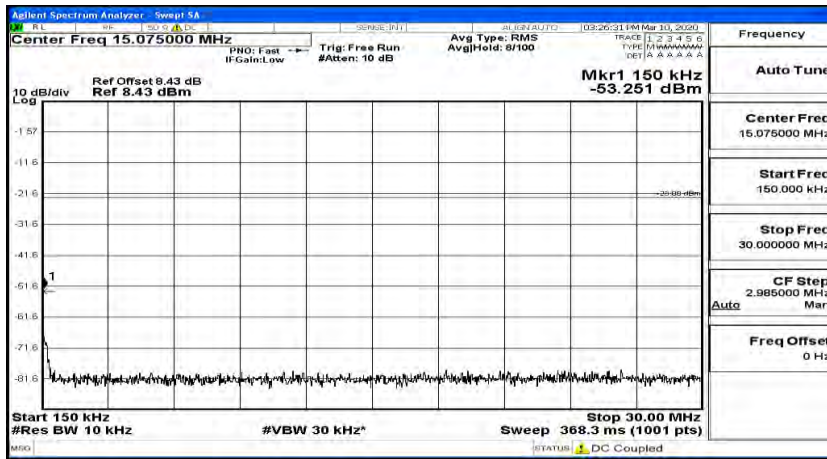
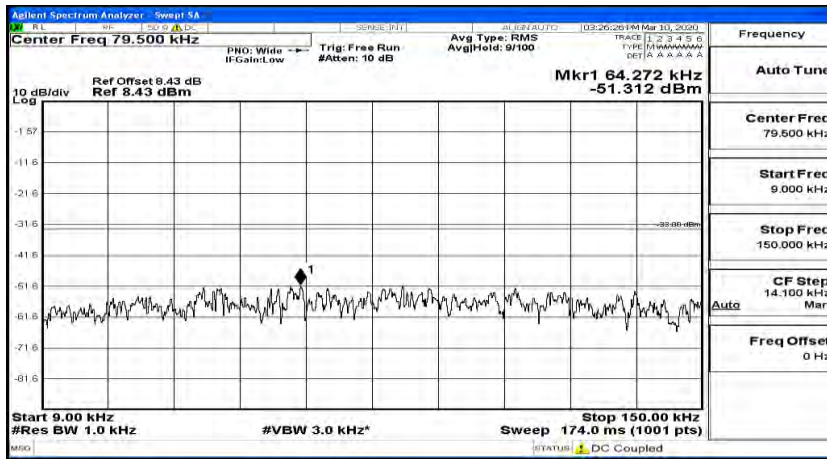
(Channel Bandwidth: 1.4 MHz)_MCH_QPSK_1RB#5



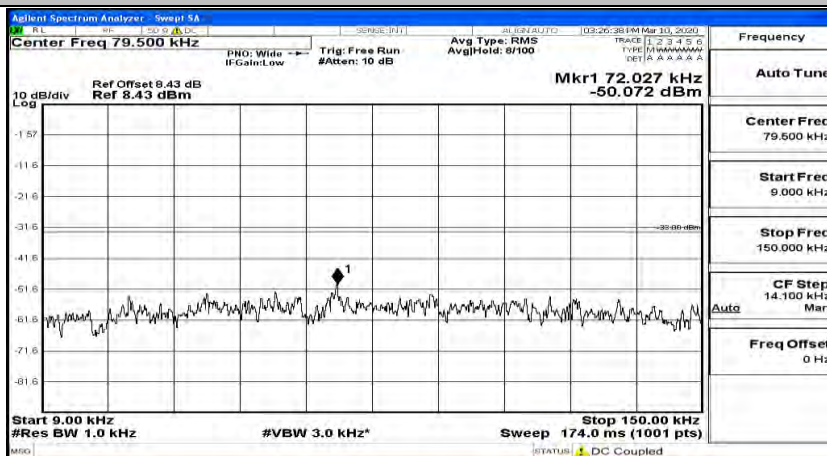
(Channel Bandwidth: 1.4 MHz)_HCH_QPSK_1RB#0

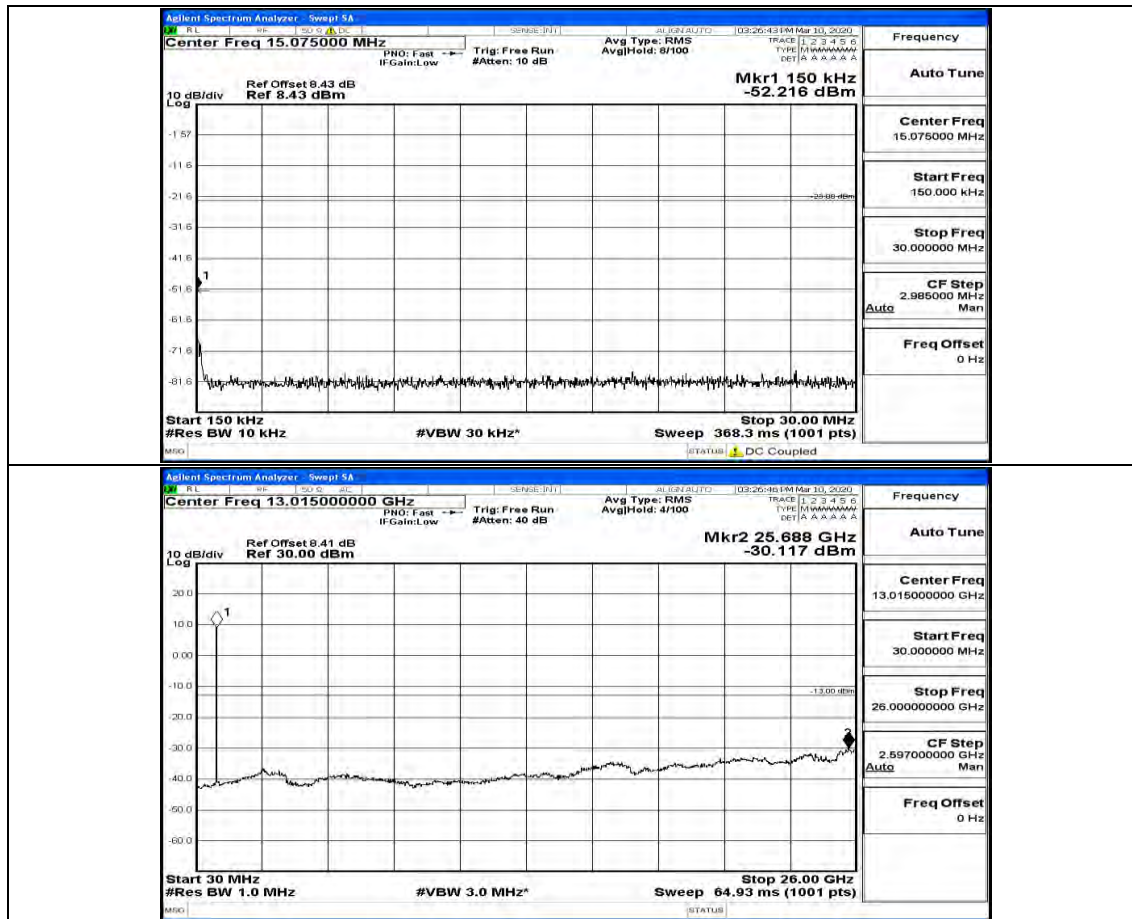


(Channel Bandwidth: 1.4 MHz)_HCH_QPSK_1RB#3

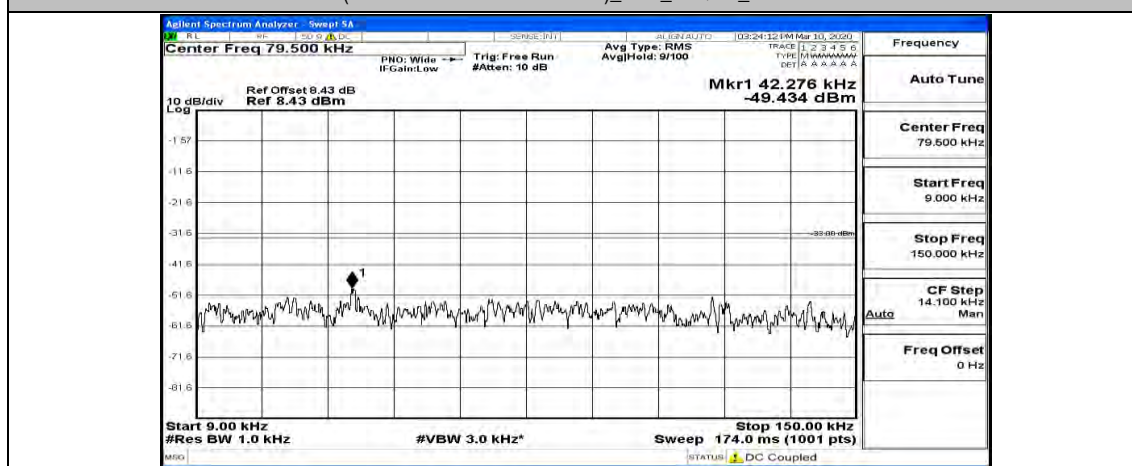


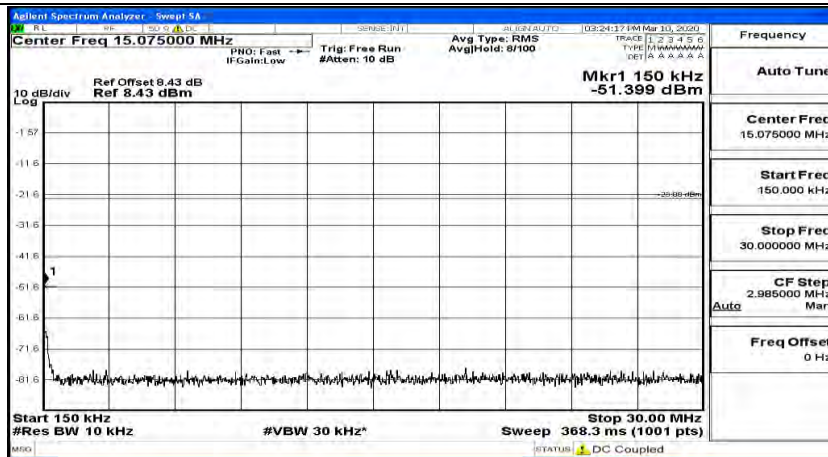
(Channel Bandwidth: 1.4 MHz)_HCH_QPSK_1RB#5



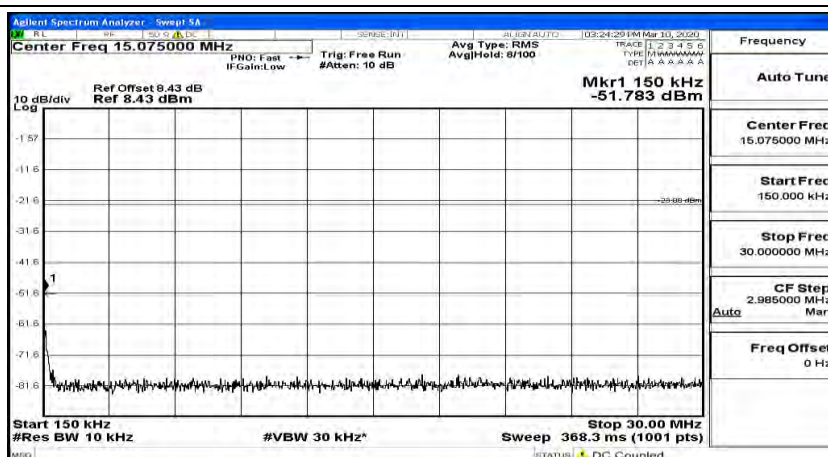
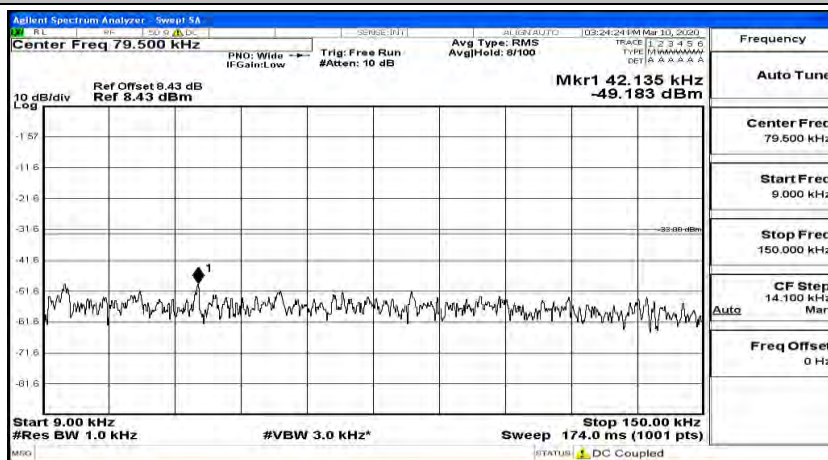


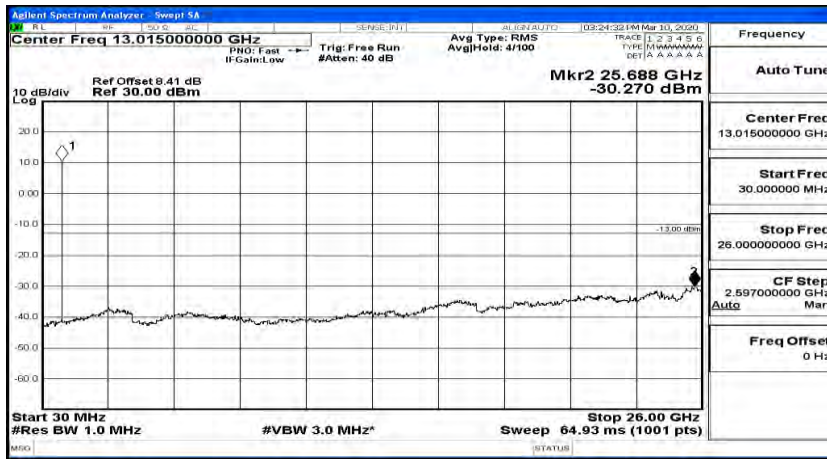
(Channel Bandwidth: 1.4 MHz)_LCH_16QAM_1RB#0



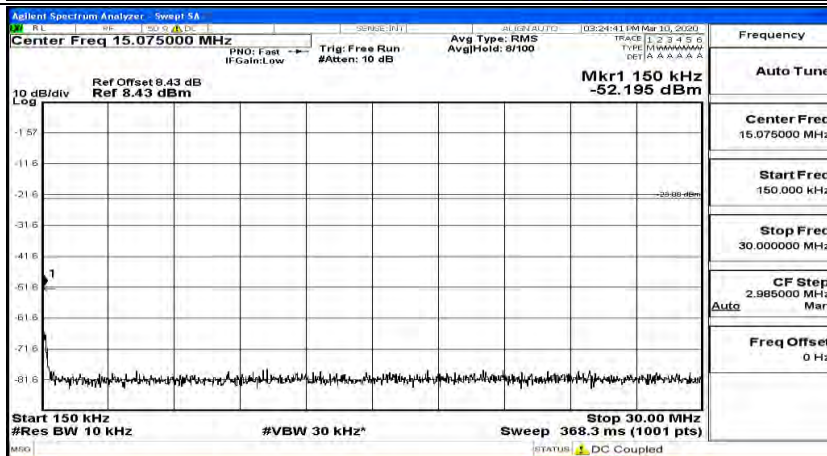
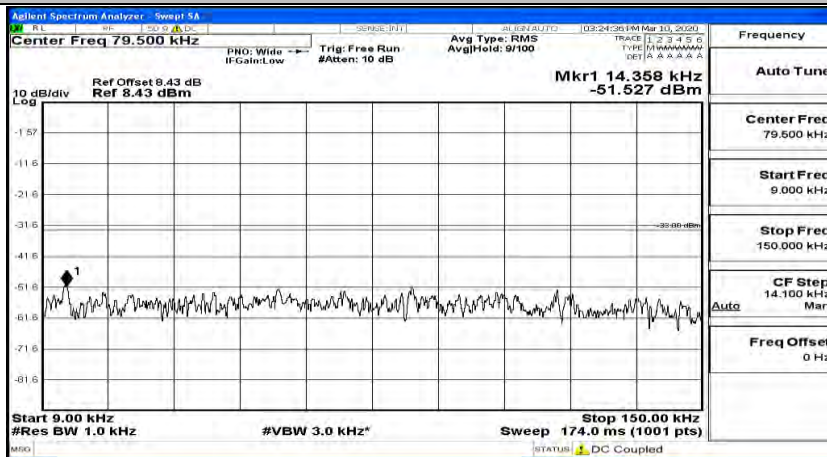


(Channel Bandwidth: 1.4 MHz)_LCH_16QAM_1RB#3

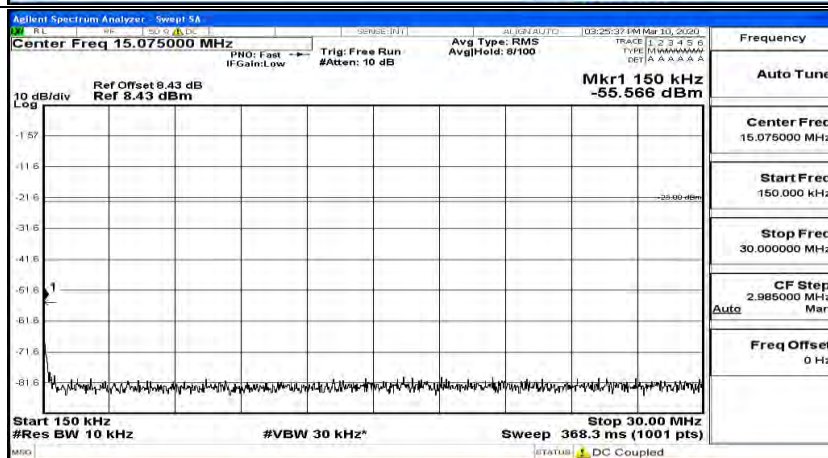
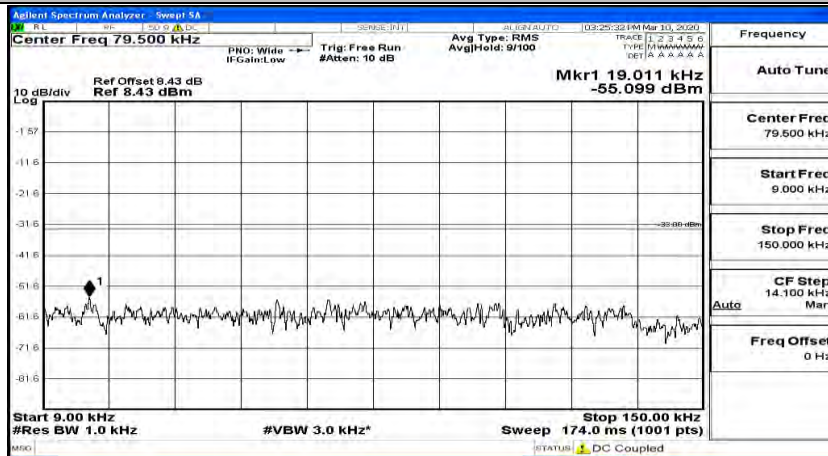




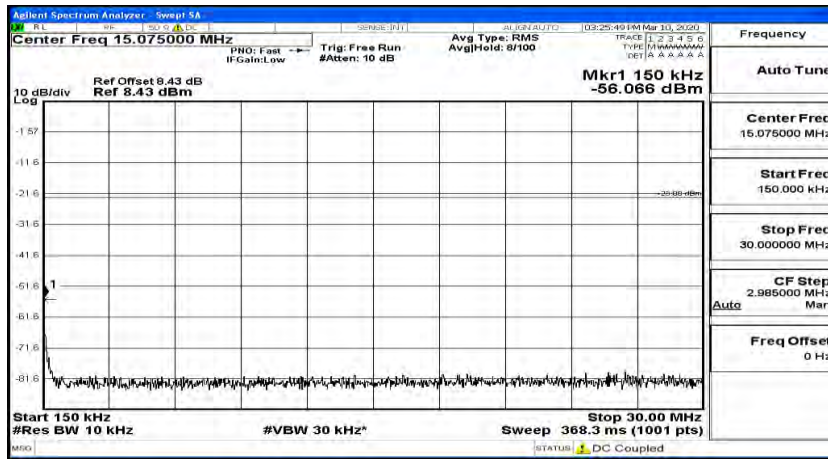
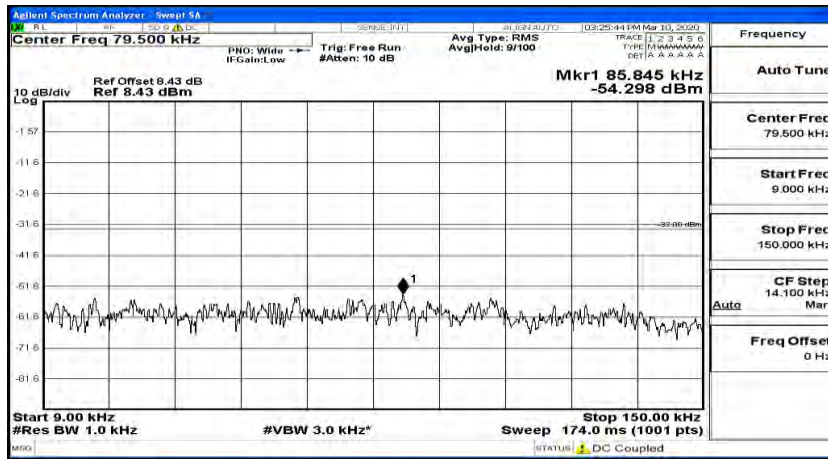
(Channel Bandwidth: 1.4 MHz)_LCH_16QAM_1RB#5



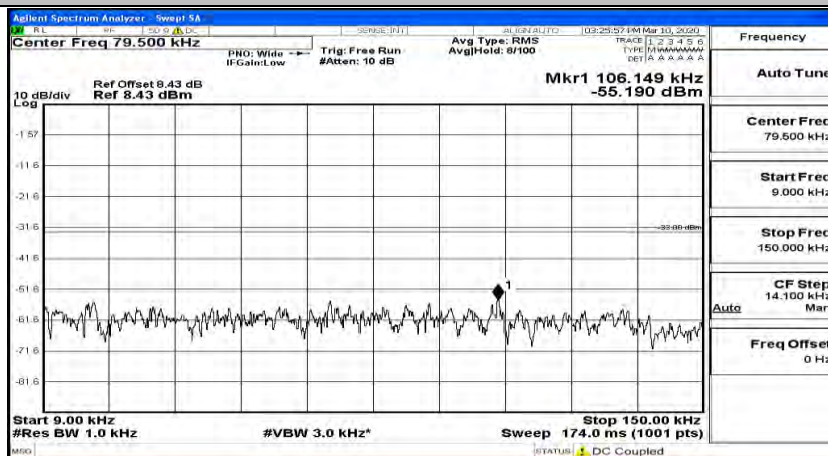
(Channel Bandwidth: 1.4 MHz)_MCH_16QAM_1RB#0



(Channel Bandwidth: 1.4 MHz)_MCH_16QAM_1RB#3

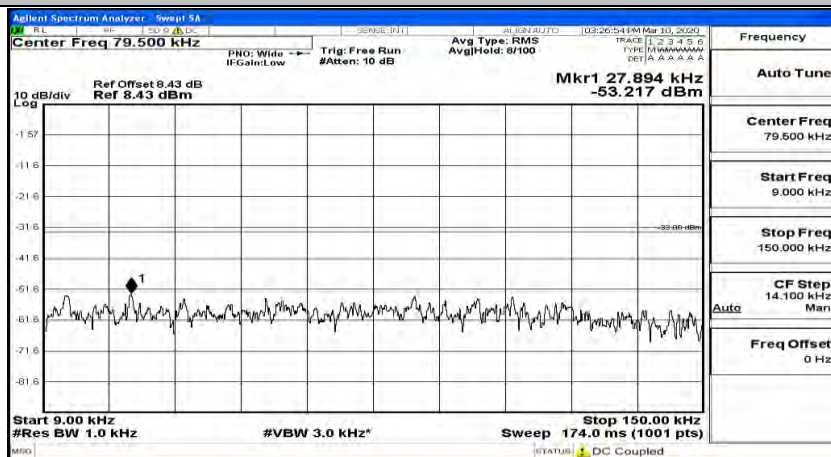


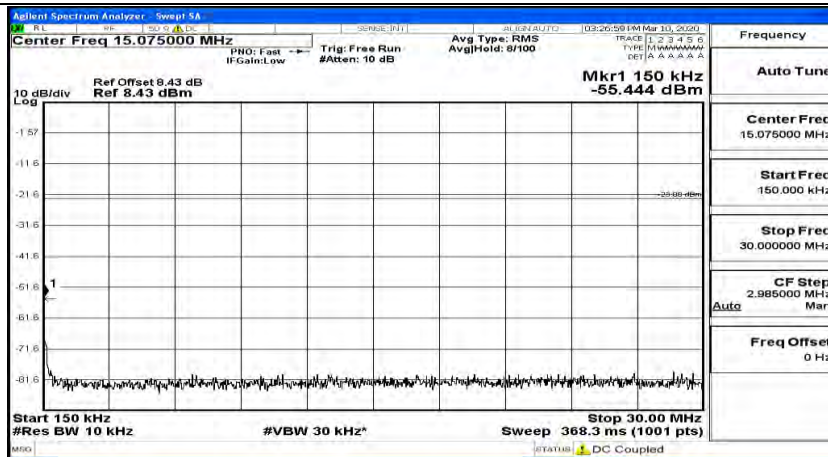
(Channel Bandwidth: 1.4 MHz)_MCH_16QAM_1RB#5



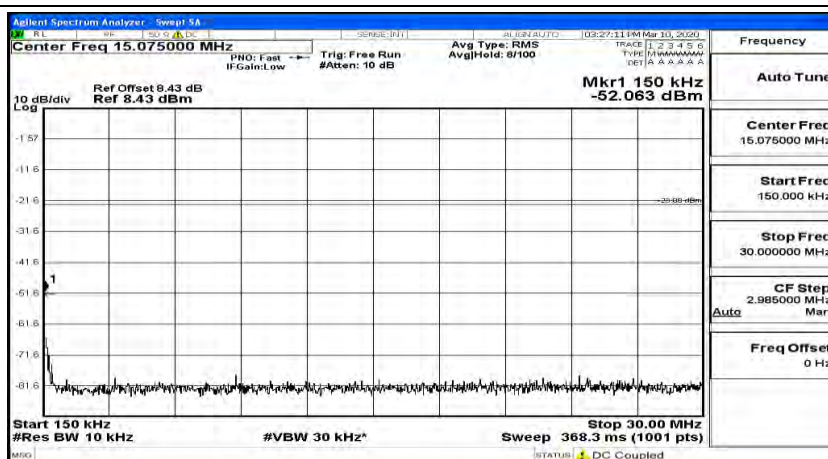
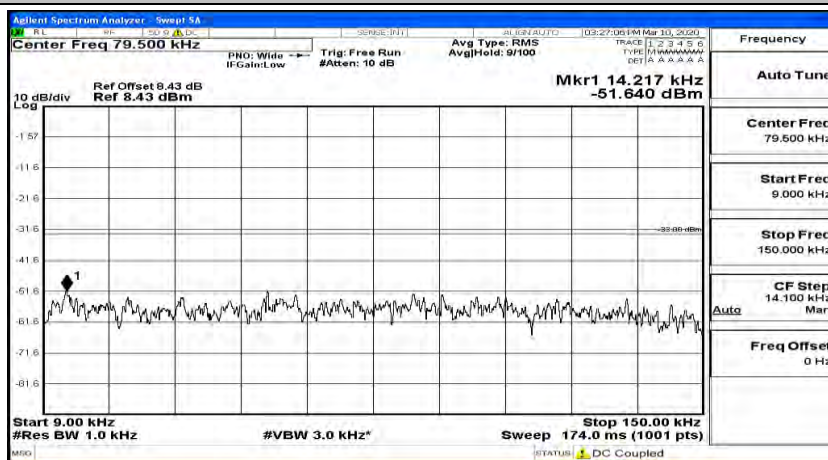


(Channel Bandwidth: 1.4 MHz) HCH 16QAM 1RB#0



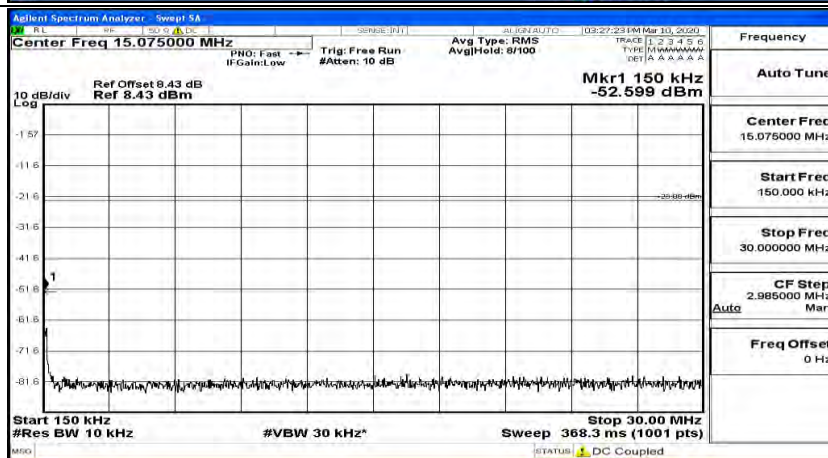
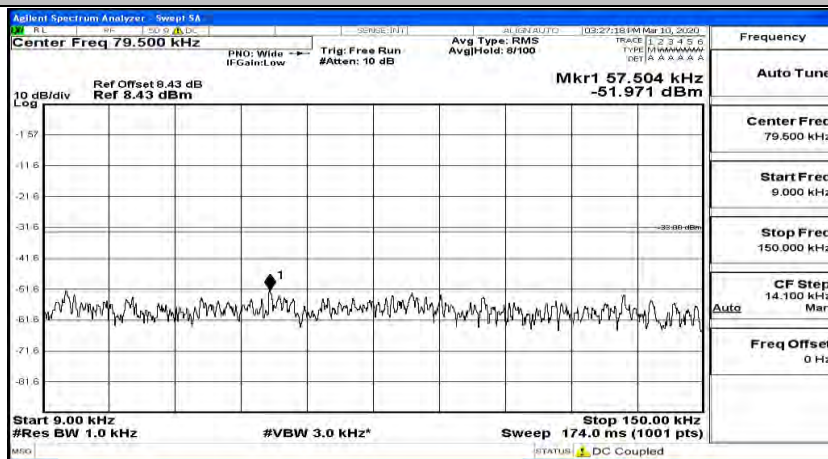


(Channel Bandwidth: 1.4 MHz)_HCH_16QAM_1RB#3



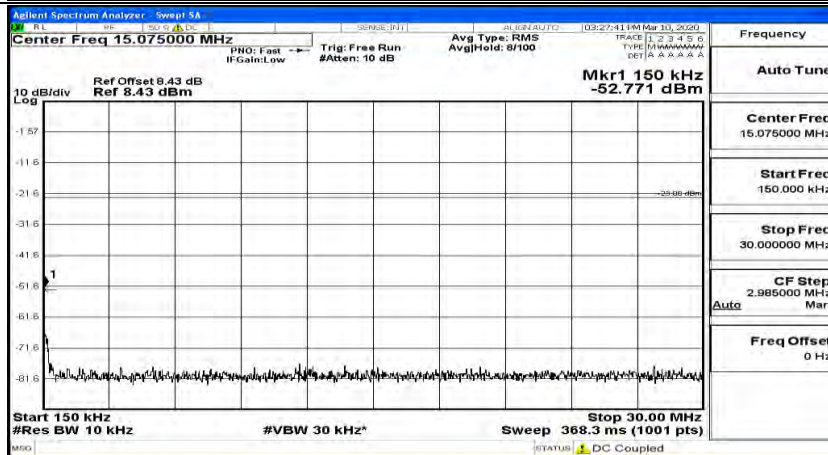
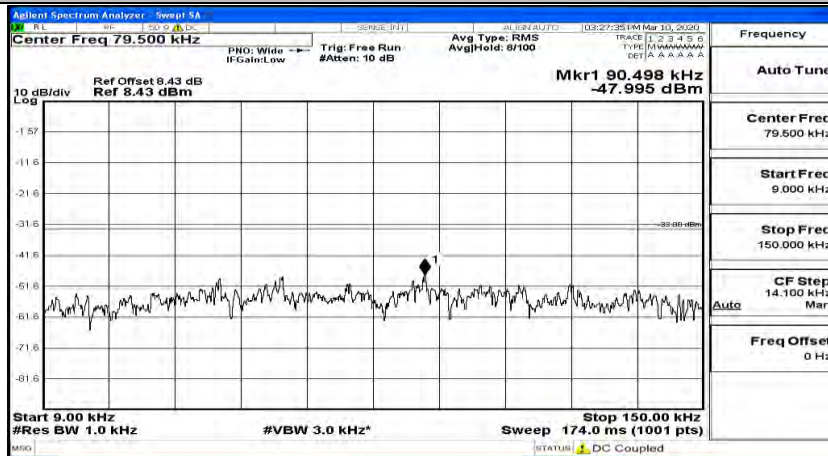


(Channel Bandwidth: 1.4 MHz)_HCH_16QAM_1RB#5

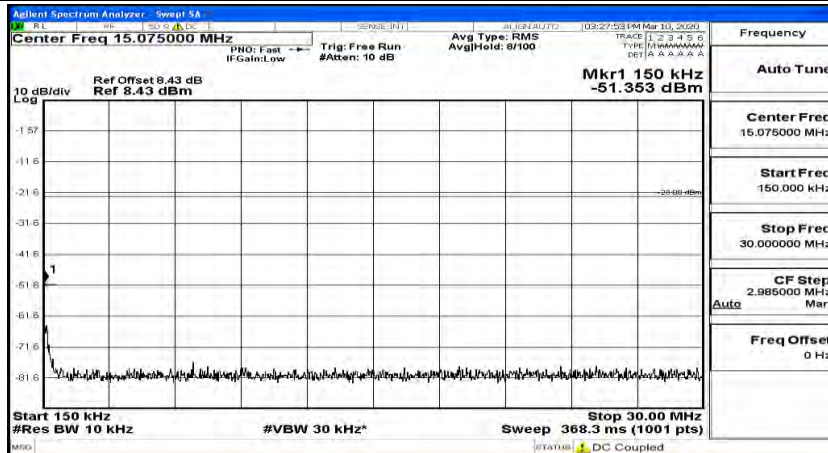
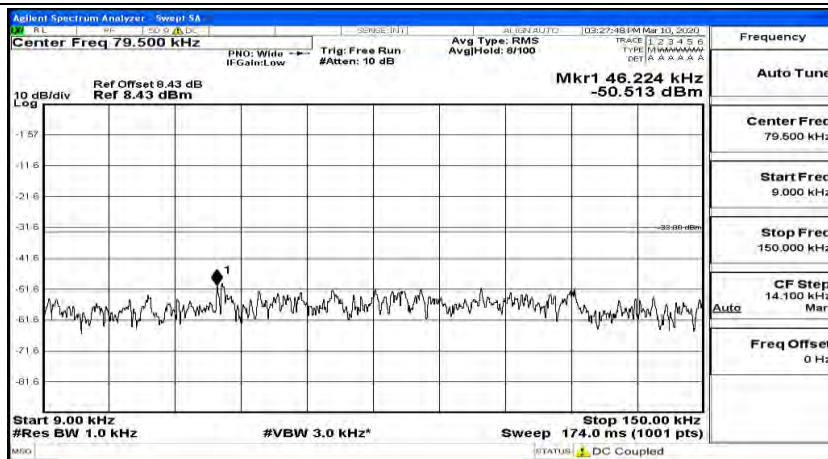


Channel Bandwidth: 3 MHz

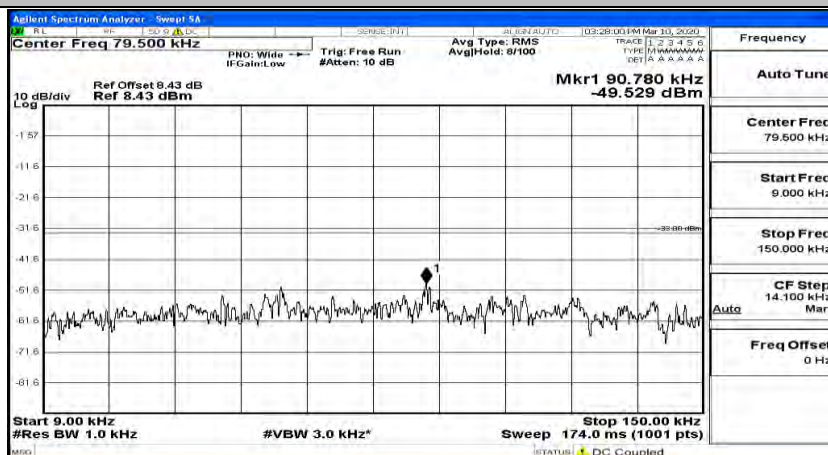
(Channel Bandwidth: 3 MHz)_LCH_QPSK_1RB#0

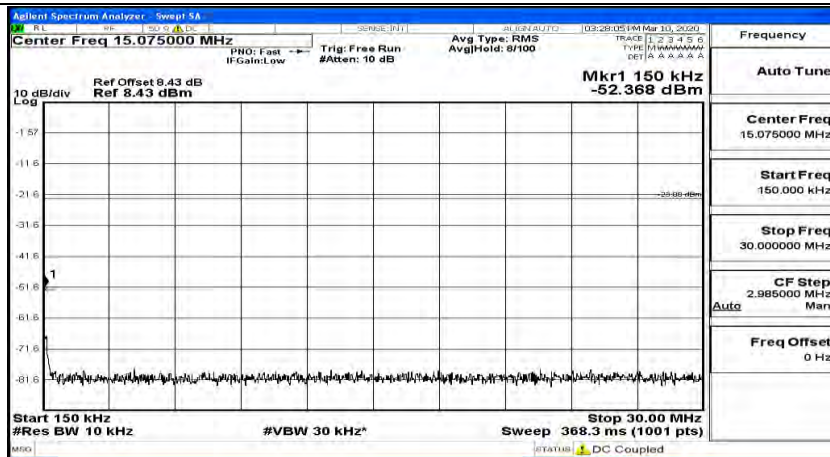


(Channel Bandwidth: 3 MHz)_LCH_QPSK_1RB#7

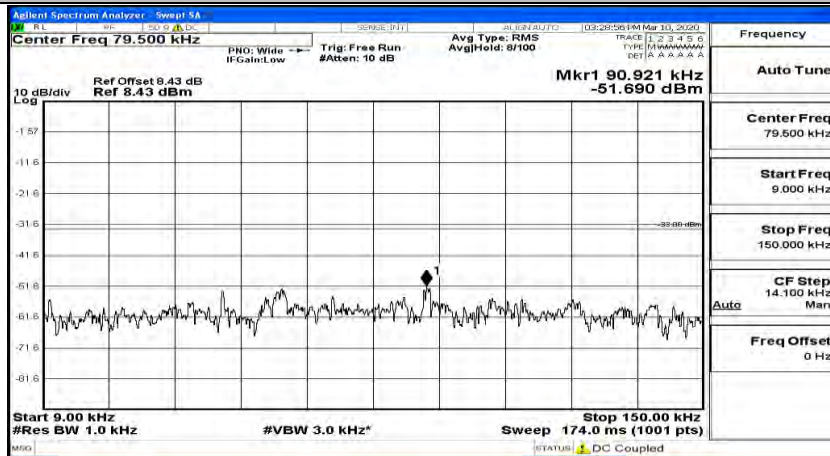


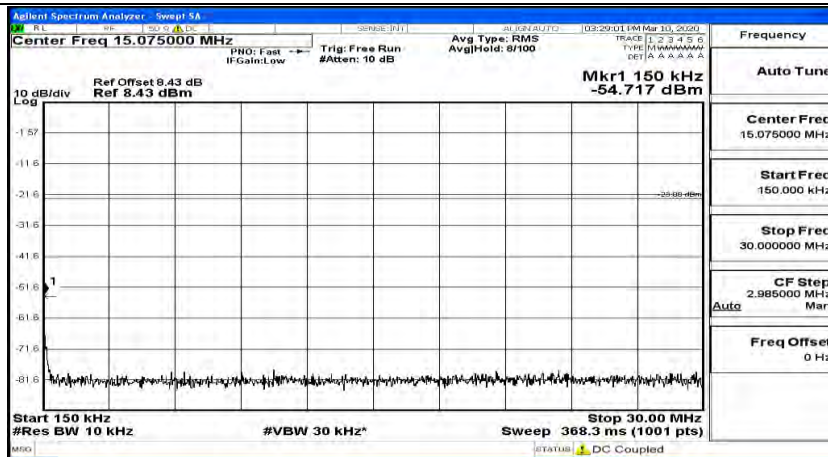
(Channel Bandwidth: 3 MHz)_LCH_QPSK_1RB#14



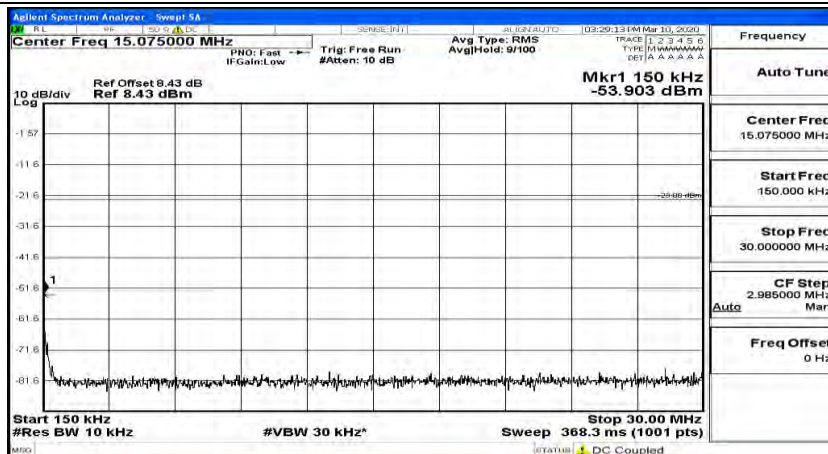
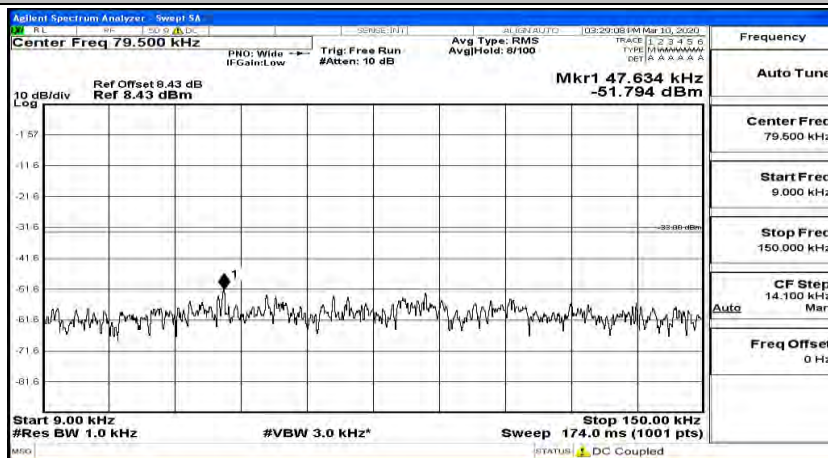


(Channel Bandwidth: 3 MHz)_MCH_QPSK_1RB#0



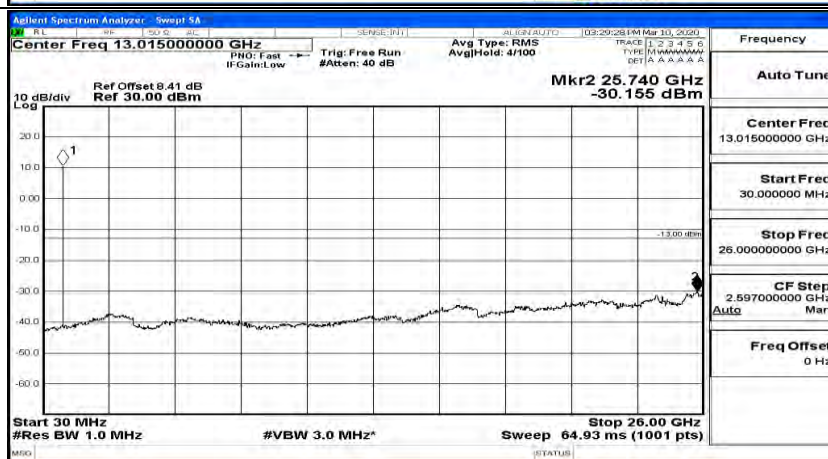
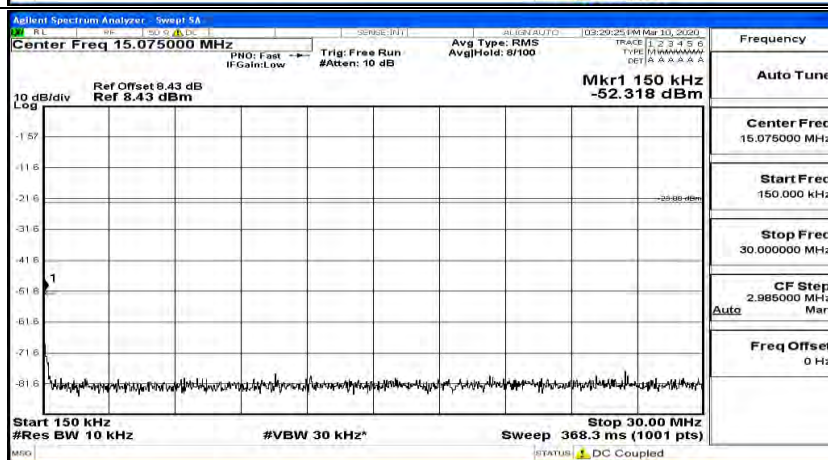
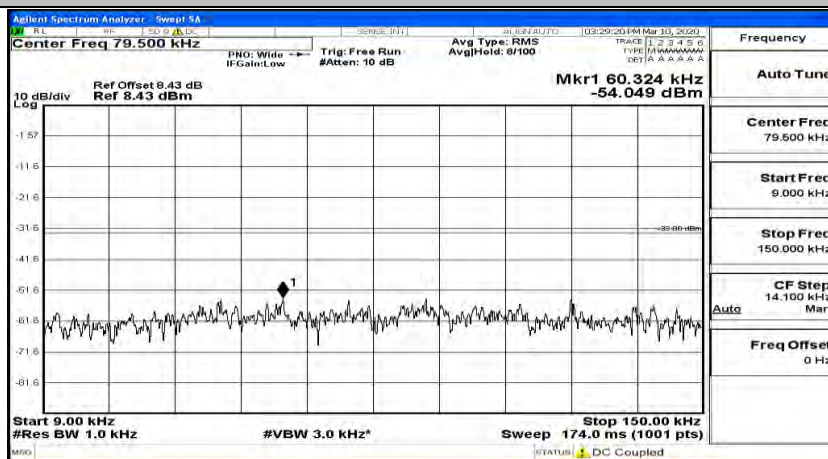


(Channel Bandwidth: 3 MHz)_MCH_QPSK_1RB#7

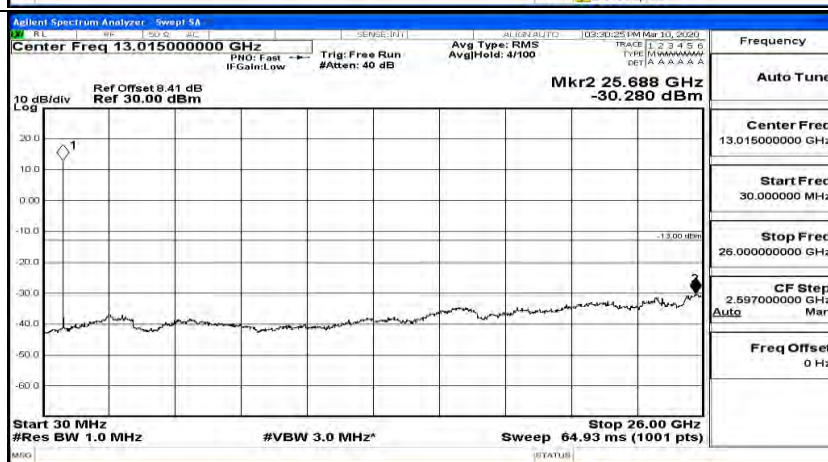
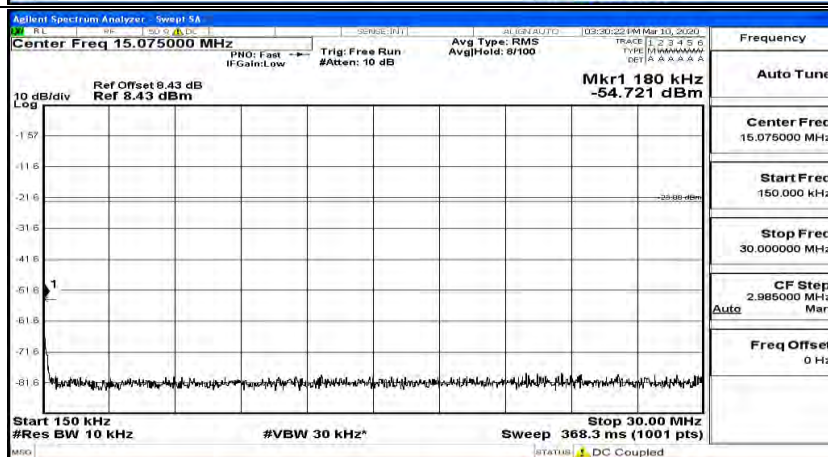
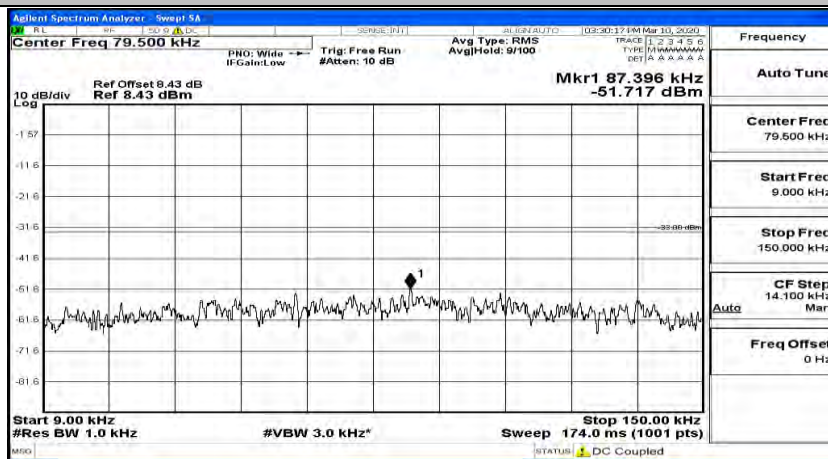




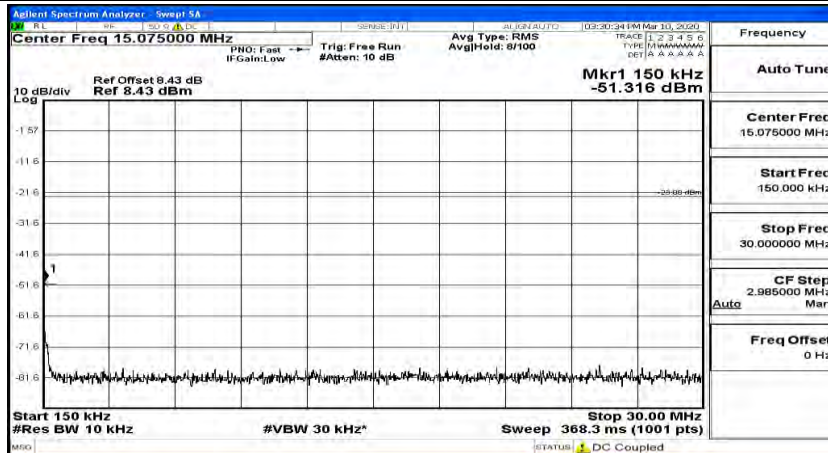
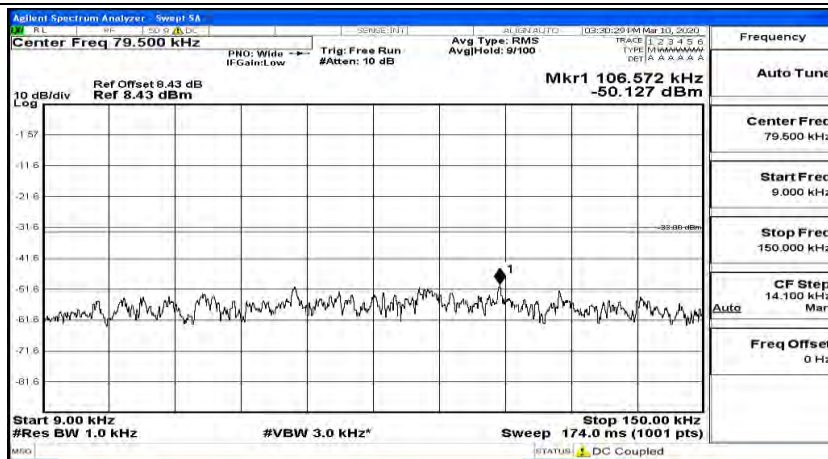
(Channel Bandwidth: 3 MHz)_MCH_QPSK_1RB#14



(Channel Bandwidth: 3 MHz)_HCH_QPSK_1RB#0



(Channel Bandwidth: 3 MHz)_HCH_QPSK_1RB#7



(Channel Bandwidth: 3 MHz)_HCH_QPSK_1RB#14

