Appendix H: Test Data for E-UTRA Band 12

Product Name: 3G/4G Smart Phone

Trade Mark: DOOGEE

Test Model: S88Plus

Environmental Conditions

Temperature:	22.9° C
Relative Humidity:	53.3%
ATM Pressure:	100.0 kPa
Test Engineer:	Diamond Lu
Supervised by:	Li Huan

H.1 Conducted Output Power

Conducted Output Power Test Result (Channel Bandwidth: 1.4 MHz)						
Modulation	Channel	RB Configuration		Average Power [dBm] QPSK	Average Power [dBm] 16QAM	Verdict
		Size	Offset			
QPSK / 16QAM	LCH	1	0	22.72	21.61	PASS
		1	3	22.82	21.74	PASS
		1	5	22.71	21.62	PASS
		3	0	22.75	21.57	PASS
		3	2	22.76	21.57	PASS
		3	3	22.81	21.56	PASS
		6	0	21.81	20.77	PASS
	MCH	1	0	22.52	21.59	PASS
		1	3	22.55	21.70	PASS
		1	5	22.45	21.55	PASS
		3	0	22.56	21.43	PASS
		3	2	22.57	21.42	PASS
		3	3	22.53	21.36	PASS
		6	0	21.55	20.59	PASS
	HCH	1	0	22.23	21.31	PASS
		1	3	22.37	21.48	PASS
		1	5	22.27	21.33	PASS
		3	0	22.29	21.14	PASS
		3	2	22.29	21.15	PASS
		3	3	22.34	21.16	PASS
		6	0	21.34	20.19	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	22.74	21.94	PASS
		1	7	22.76	21.89	PASS
		1	14	22.73	21.85	PASS
		8	0	21.80	20.83	PASS
		8	4	21.80	20.82	PASS
		8	7	21.81	20.80	PASS
		15	0	21.75	20.73	PASS
	MCH	1	0	22.59	21.73	PASS
		1	7	22.57	21.67	PASS
		1	14	22.46	21.56	PASS
		8	0	21.60	20.56	PASS
		8	4	21.59	20.51	PASS
		8	7	21.50	20.50	PASS
		15	0	21.51	20.38	PASS
	HCH	1	0	22.32	21.21	PASS
		1	7	22.28	21.21	PASS
		1	14	22.32	21.20	PASS
		8	0	21.36	20.35	PASS
		8	4	21.39	20.34	PASS
		8	7	21.31	20.26	PASS
		15	0	21.28	20.17	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	22.71	21.68	PASS
		1	12	22.83	21.77	PASS
		1	24	22.60	21.61	PASS
		12	0	21.73	20.66	PASS
		12	6	21.75	20.69	PASS
		12	13	21.69	20.61	PASS
		25	0	21.72	20.67	PASS
	MCH	1	0	22.54	21.72	PASS
		1	12	22.61	21.77	PASS
		1	24	22.40	21.57	PASS
		12	0	21.61	20.57	PASS
		12	6	21.60	20.57	PASS
		12	13	21.55	20.45	PASS
		25	0	21.55	20.48	PASS
	HCH	1	0	22.30	21.30	PASS
		1	12	22.40	21.37	PASS
		1	24	22.26	21.22	PASS
		12	0	21.38	20.32	PASS
		12	6	21.37	20.33	PASS
		12	13	21.10	20.05	PASS
		25	0	21.23	20.21	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	22.66	21.83	PASS
		1	24	22.73	21.83	PASS
		1	49	22.44	21.60	PASS
		25	0	21.75	20.72	PASS
		25	12	21.76	20.75	PASS
		25	25	21.61	20.58	PASS
		50	0	21.70	20.62	PASS
	MCH	1	0	22.65	21.75	PASS
		1	24	22.65	21.75	PASS
		1	49	22.33	21.44	PASS
		25	0	21.71	20.72	PASS
		25	12	21.74	20.70	PASS
		25	25	21.64	20.62	PASS
		50	0	21.60	20.63	PASS
	HCH	1	0	22.56	21.42	PASS
		1	24	22.50	21.38	PASS
		1	49	22.26	21.16	PASS
		25	0	21.35	20.35	PASS
		25	12	21.32	20.36	PASS
		25	25	21.17	20.13	PASS
		50	0	21.24	20.18	PASS

H.2 Peak-to-Average Ratio

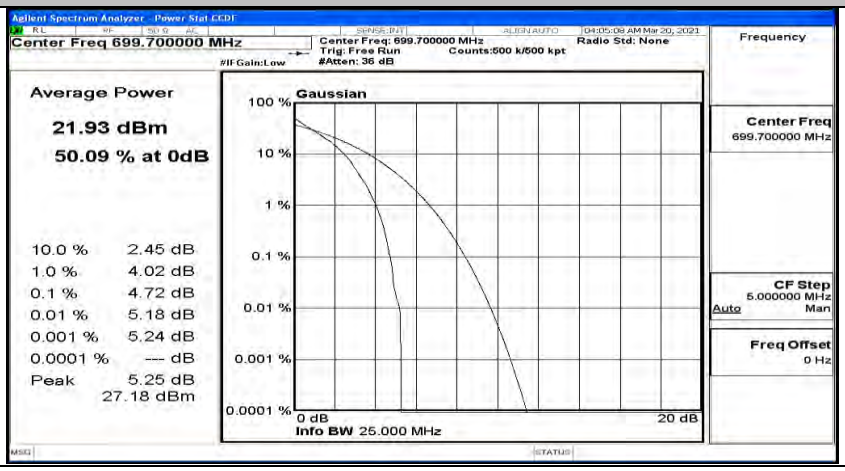
Peak-to Average Ratio Test Result (Channel Bandwidth: 1.4 MHz)				
Modulation	Channel	Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
QPSK	LCH	4.72	<13	PASS
	MCH	4.96	<13	PASS
	HCH	4.41	<13	PASS
16QAM	LCH	5.53	<13	PASS
	MCH	5.81	<13	PASS
	HCH	5.36	<13	PASS

Peak-to Average Ratio Test Result (Channel Bandwidth: 3 MHz)				
Modulation	Channel	Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
QPSK	LCH	4.8	<13	PASS
	MCH	4.97	<13	PASS
	HCH	4.45	<13	PASS
16QAM	LCH	5.73	<13	PASS
	MCH	5.76	<13	PASS
	HCH	5.34	<13	PASS

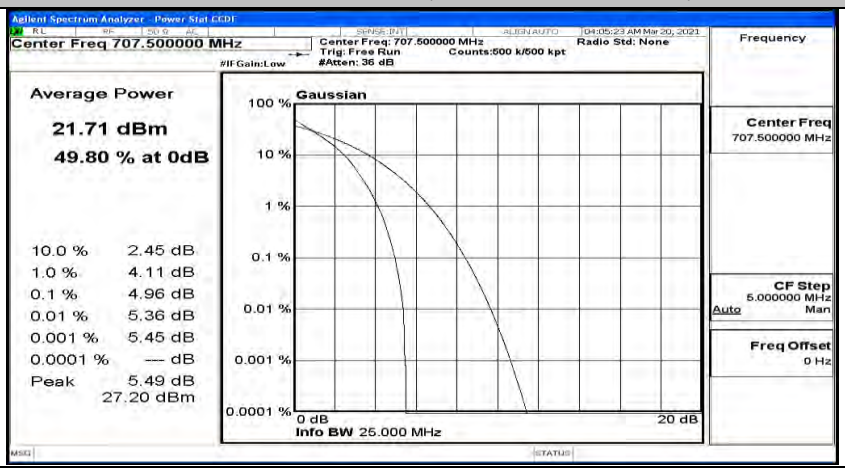
Peak-to Average Ratio Test Result (Channel Bandwidth: 5 MHz)				
Modulation	Channel	Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
QPSK	LCH	4.89	<13	PASS
	MCH	5.01	<13	PASS
	HCH	4.66	<13	PASS
16QAM	LCH	5.64	<13	PASS
	MCH	5.8	<13	PASS
	HCH	5.52	<13	PASS

Peak-to Average Ratio Test Result (Channel Bandwidth: 10 MHz)				
Modulation	Channel	Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
QPSK	LCH	4.95	<13	PASS
	MCH	4.97	<13	PASS
	HCH	4.8	<13	PASS
16QAM	LCH	5.77	<13	PASS
	MCH	5.77	<13	PASS
	HCH	5.63	<13	PASS

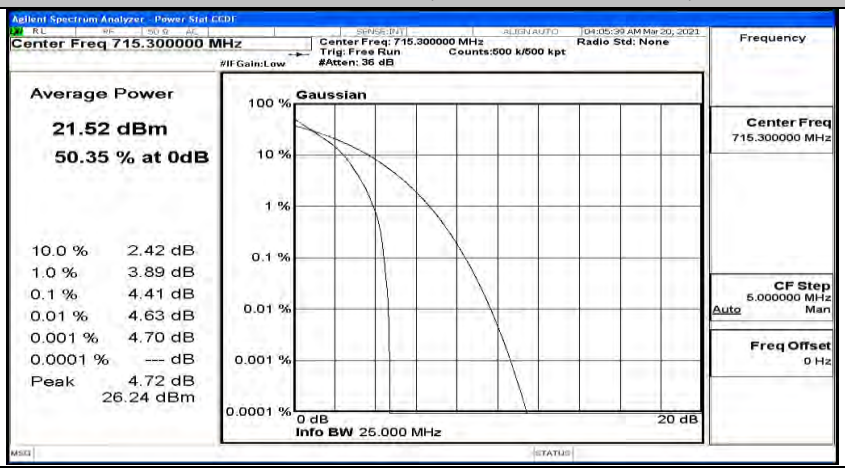
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 1.4 MHz)_LCH_QPSK



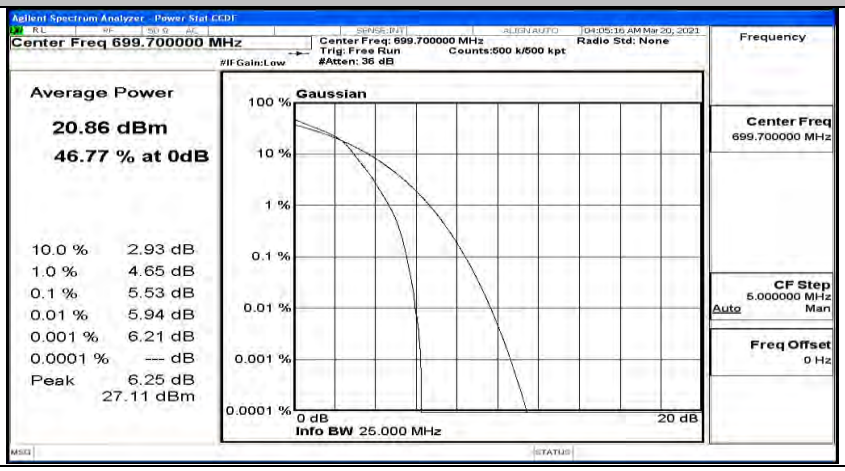
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 1.4 MHz)_MCH_QPSK



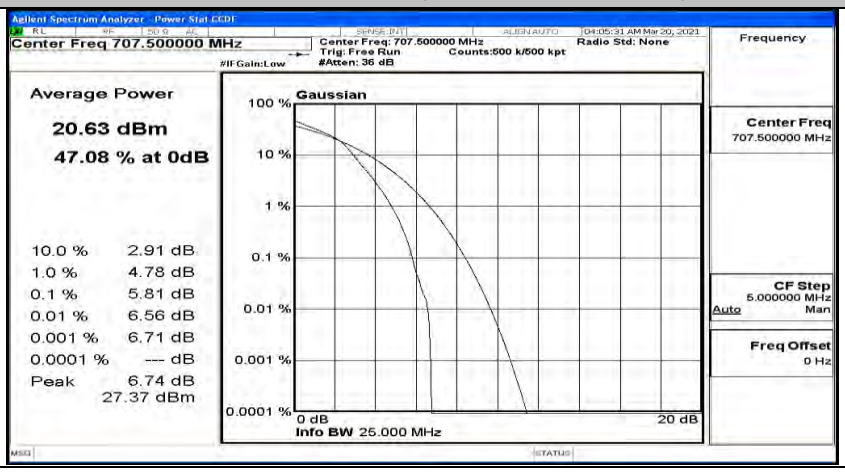
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 1.4 MHz)_HCH_QPSK



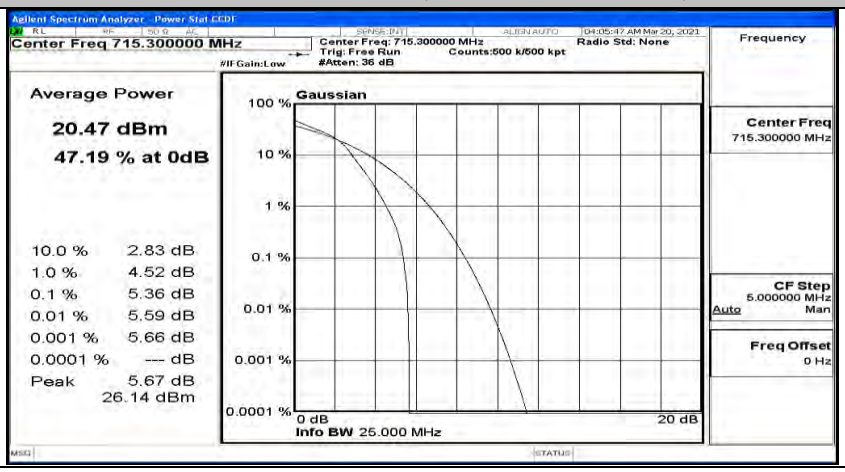
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 1.4 MHz)_LCH_16QAM



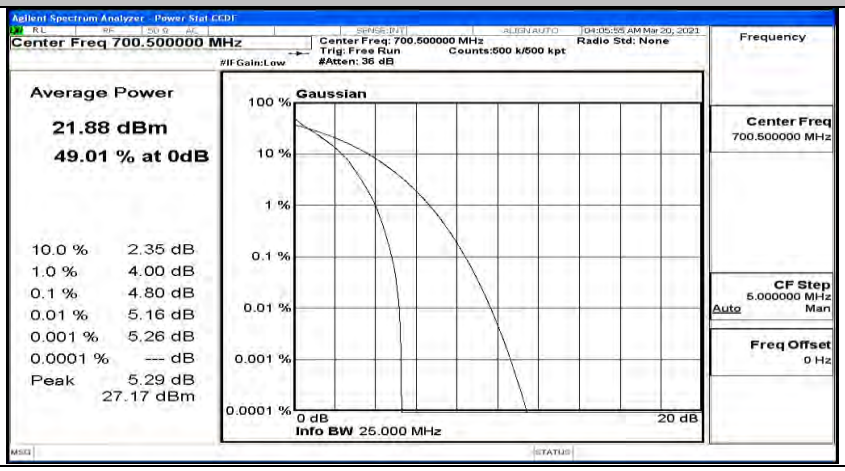
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 1.4 MHz)_MCH_16QAM



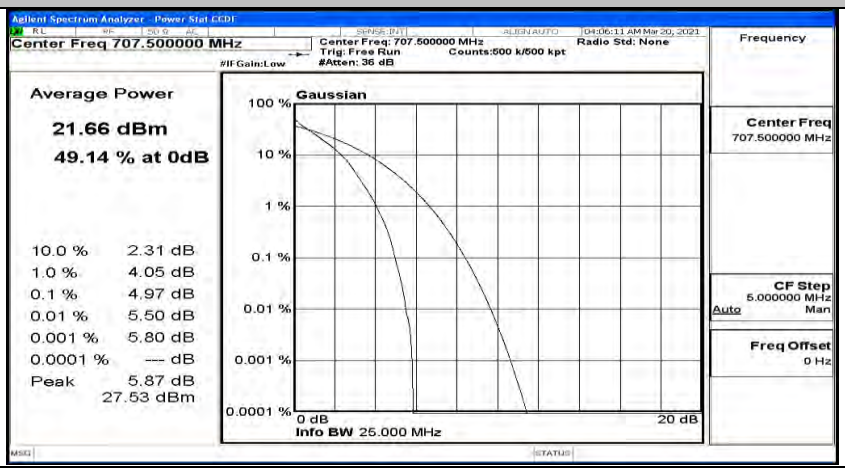
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 1.4 MHz)_HCH_16QAM



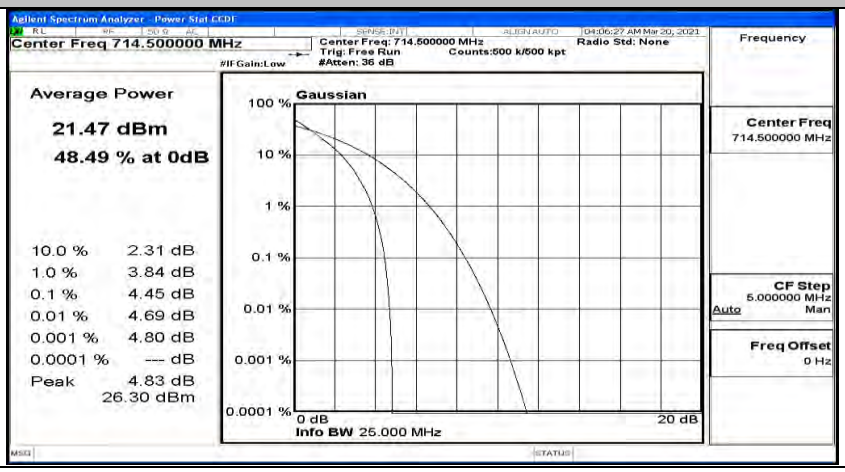
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 3 MHz)_LCH_QPSK



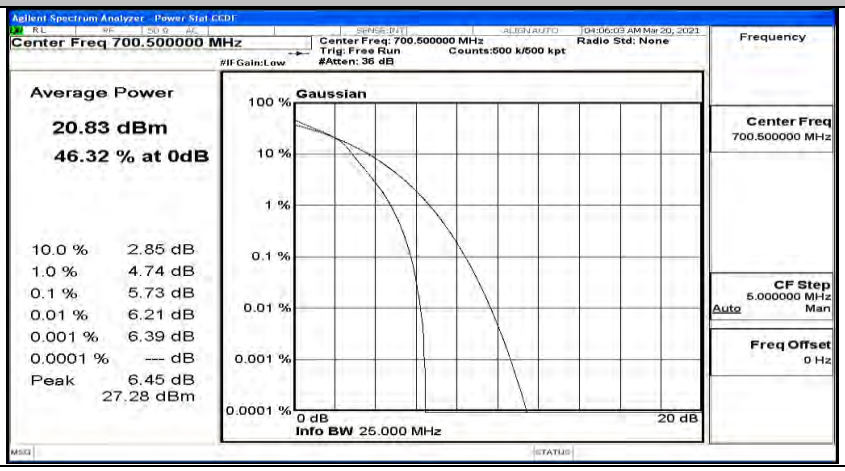
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 3 MHz)_MCH_QPSK



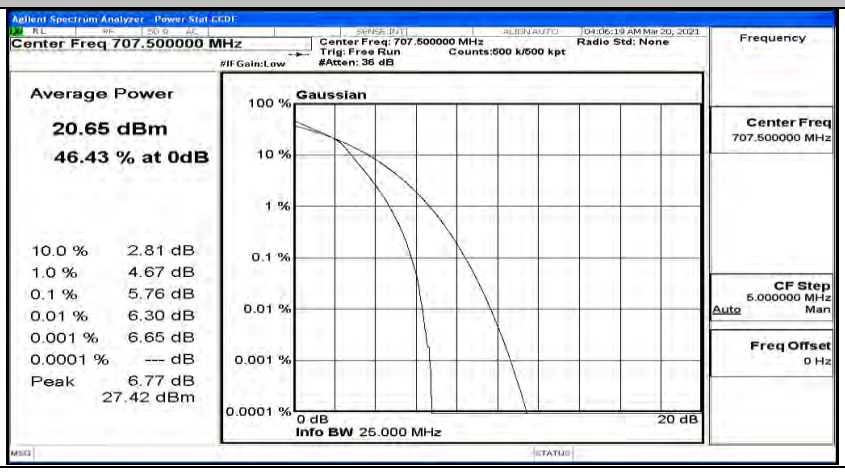
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 3 MHz)_HCH_QPSK



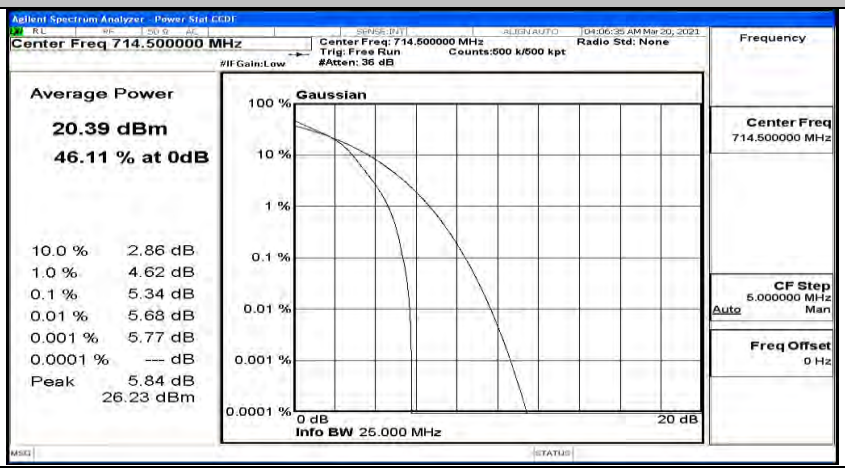
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 3 MHz)_LCH_16QAM



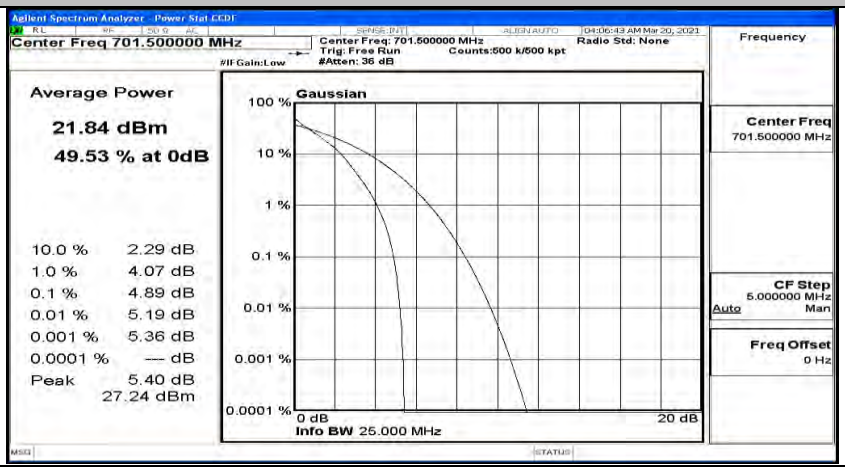
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 3 MHz)_MCH_16QAM



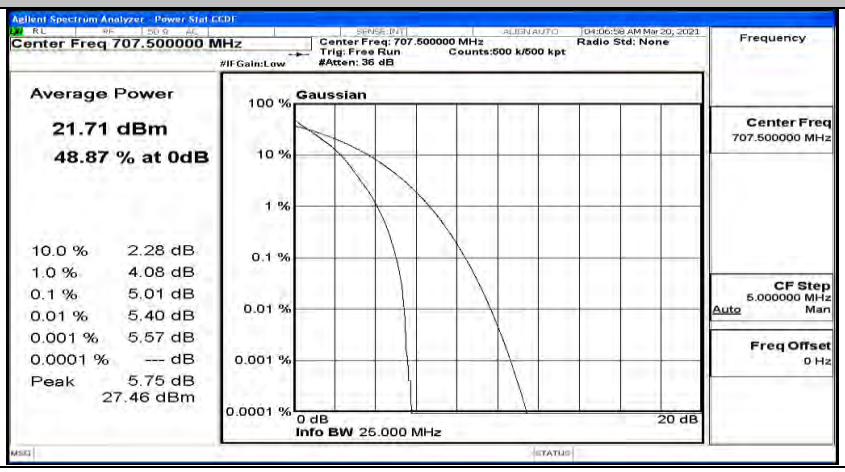
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 3 MHz)_HCH_16QAM



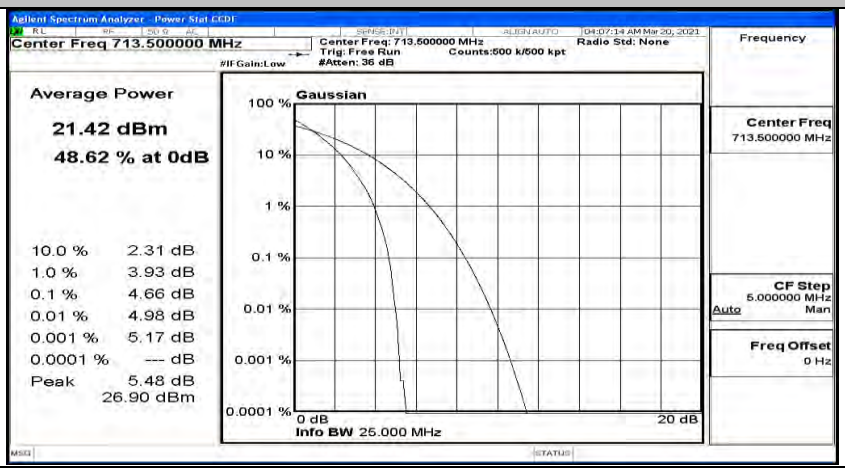
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_QPSK



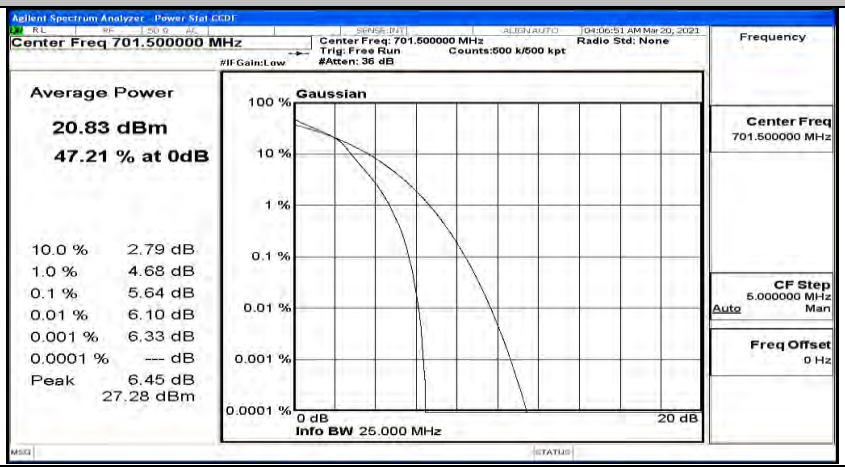
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)_MCH_QPSK



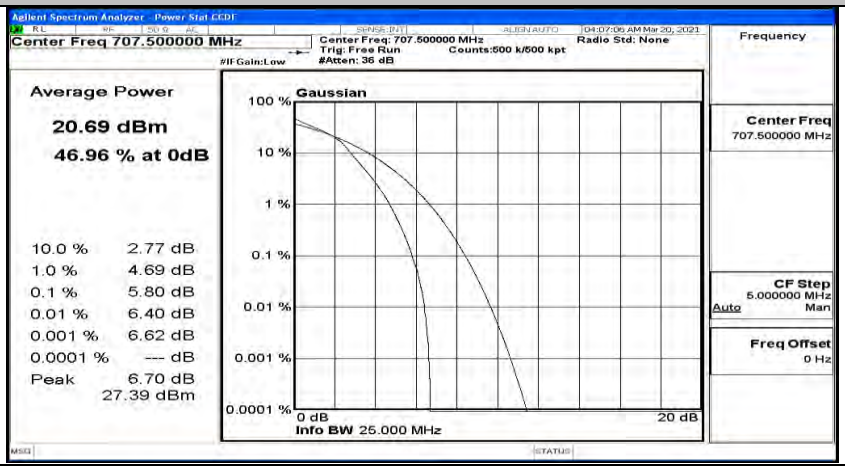
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)_HCH_QPSK



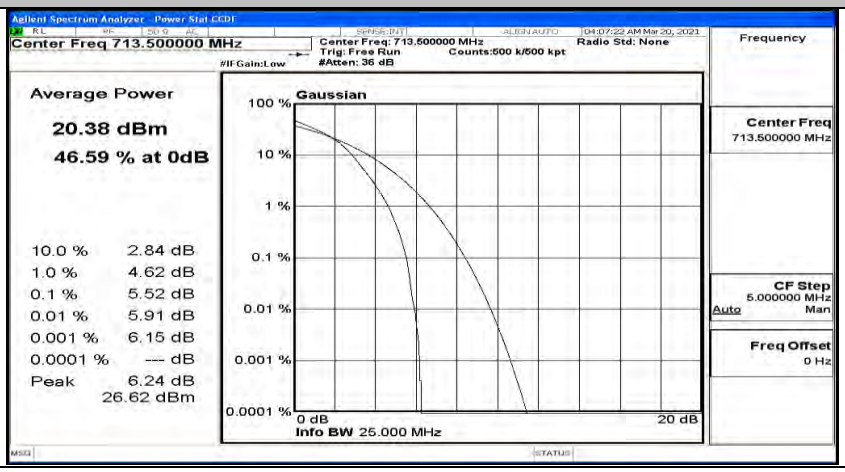
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_16QAM



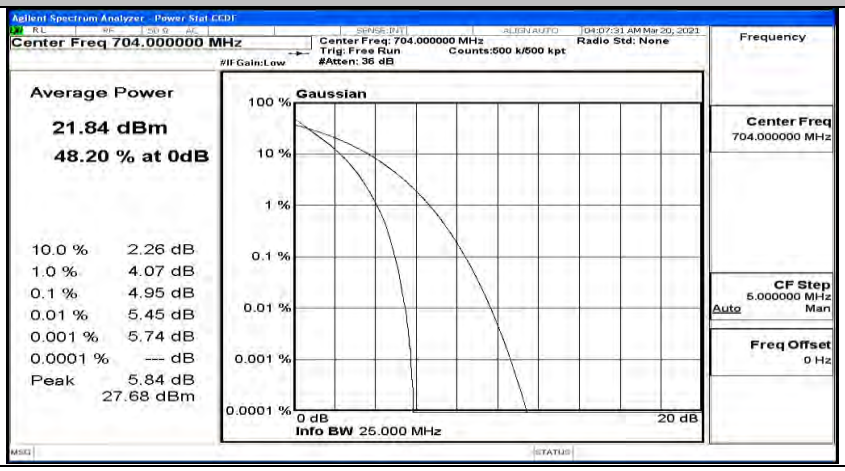
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)_MCH_16QAM



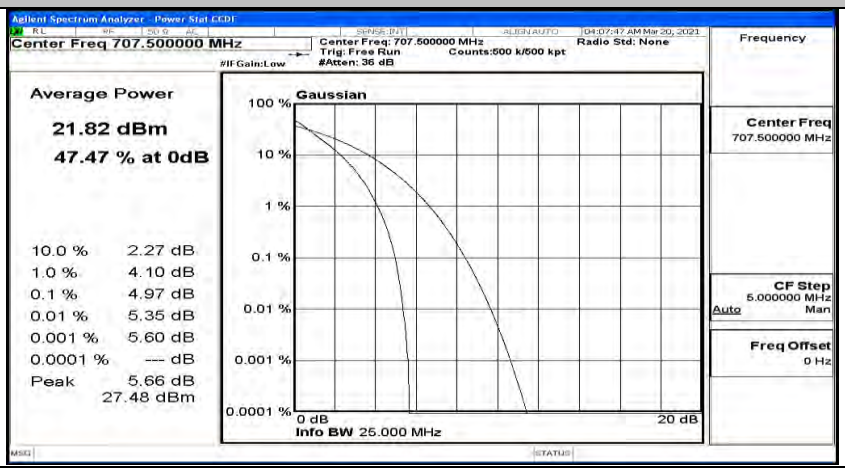
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)_HCH_16QAM



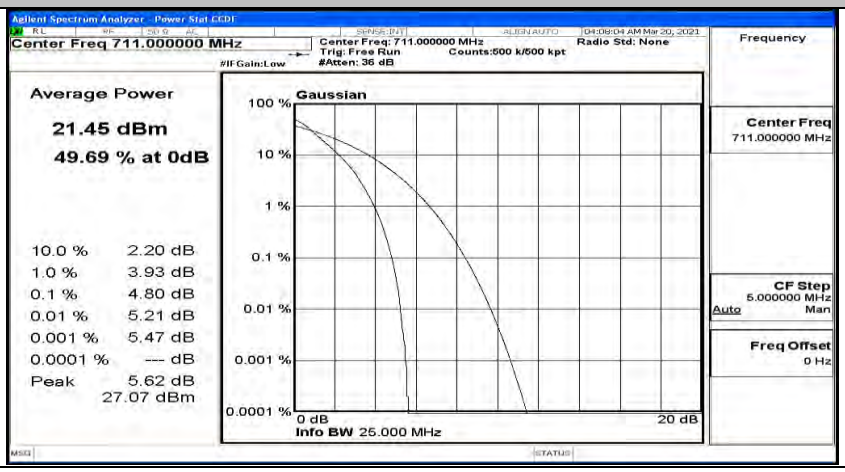
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 10 MHz)_LCH_QPSK



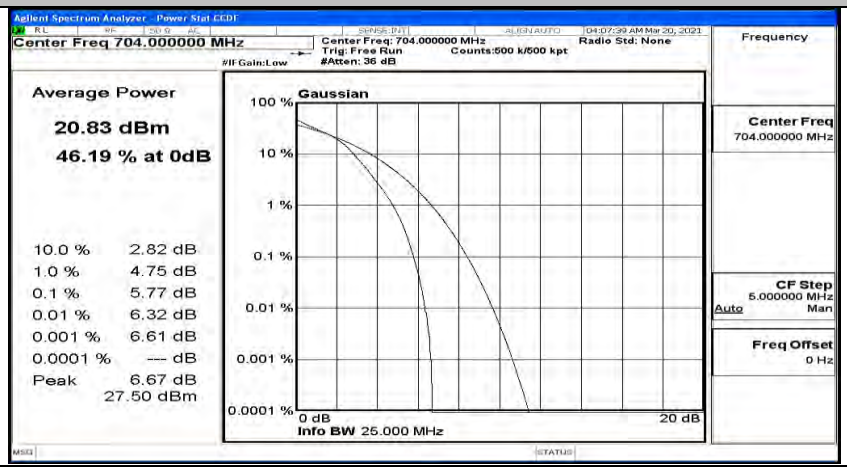
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 10 MHz)_MCH_QPSK



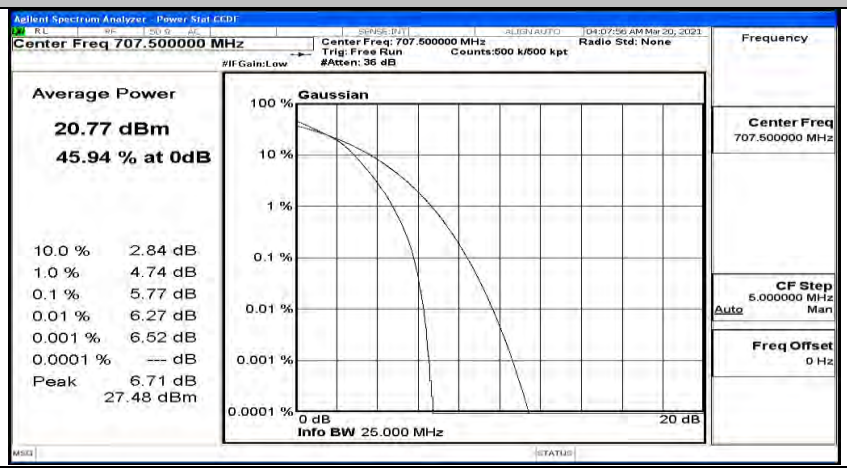
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 10 MHz)_HCH_QPSK



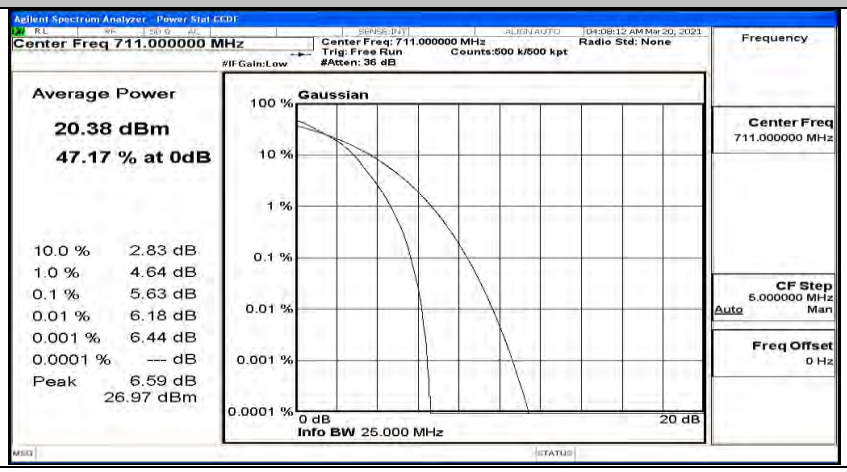
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 10 MHz)_LCH_16QAM



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



H.3 26dB Bandwidth and Occupied Bandwidth

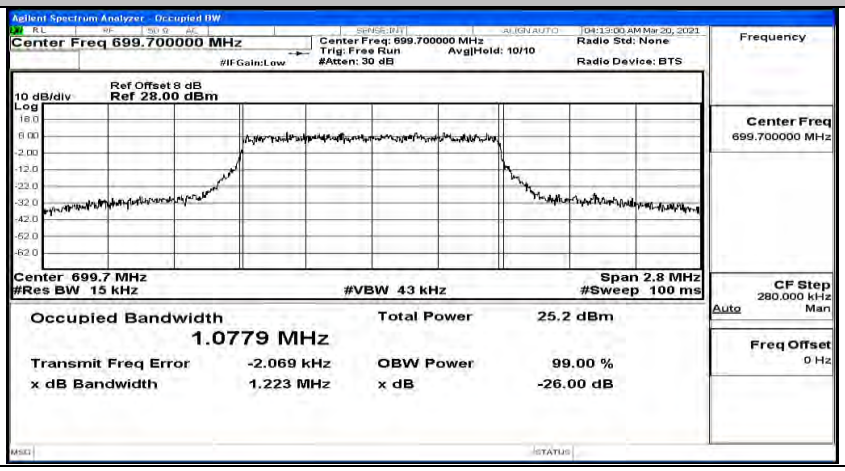
EBW & OBW Test Result (Channel Bandwidth: 1.4 MHz)				
Modulation	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
QPSK	LCH	1.0779	1.223	PASS
	MCH	1.0761	1.243	PASS
	HCH	1.0754	1.215	PASS
16QAM	LCH	1.0787	1.231	PASS
	MCH	1.0771	1.208	PASS
	HCH	1.0780	1.233	PASS

EBW & OBW Test Result (Channel Bandwidth: 3 MHz)				
Modulation	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
QPSK	LCH	2.6717	2.816	PASS
	MCH	2.6840	2.820	PASS
	HCH	2.6803	2.836	PASS
16QAM	LCH	2.6743	2.857	PASS
	MCH	2.6788	2.840	PASS
	HCH	2.6830	2.814	PASS

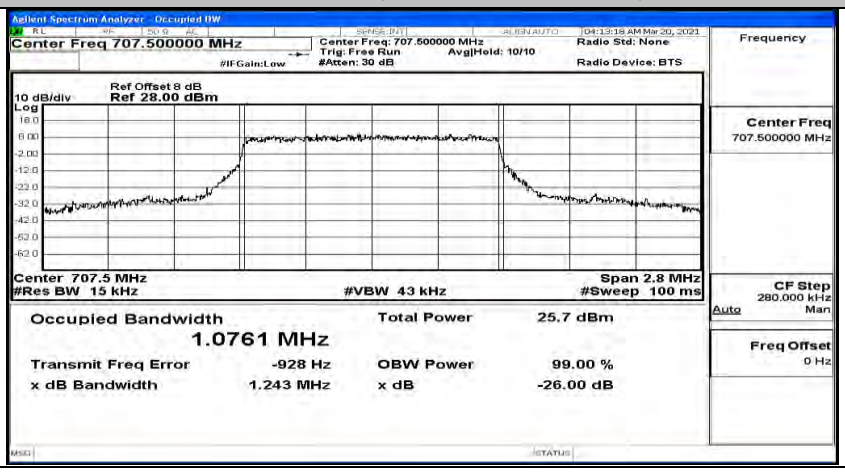
EBW & OBW Test Result (Channel Bandwidth: 5 MHz)				
Modulation	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
QPSK	LCH	4.4798	4.852	PASS
	MCH	4.4841	4.859	PASS
	HCH	4.4712	4.854	PASS
16QAM	LCH	4.4745	4.844	PASS
	MCH	4.4839	4.948	PASS
	HCH	4.4768	4.801	PASS

EBW & OBW Test Result (Channel Bandwidth: 10 MHz)				
Modulation	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
QPSK	LCH	8.9595	9.574	PASS
	MCH	8.9604	9.479	PASS
	HCH	8.9227	9.381	PASS
16QAM	LCH	8.9387	9.518	PASS
	MCH	8.9535	9.598	PASS
	HCH	8.9138	9.374	PASS

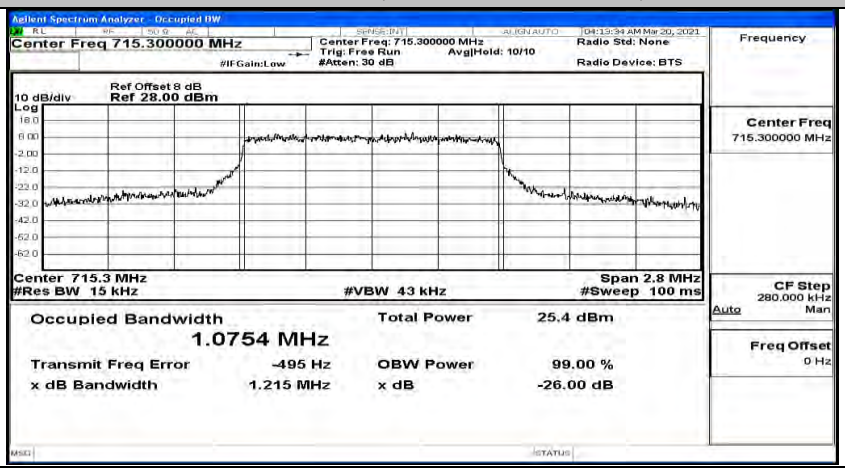
EBW & OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)_LCH_QPSK



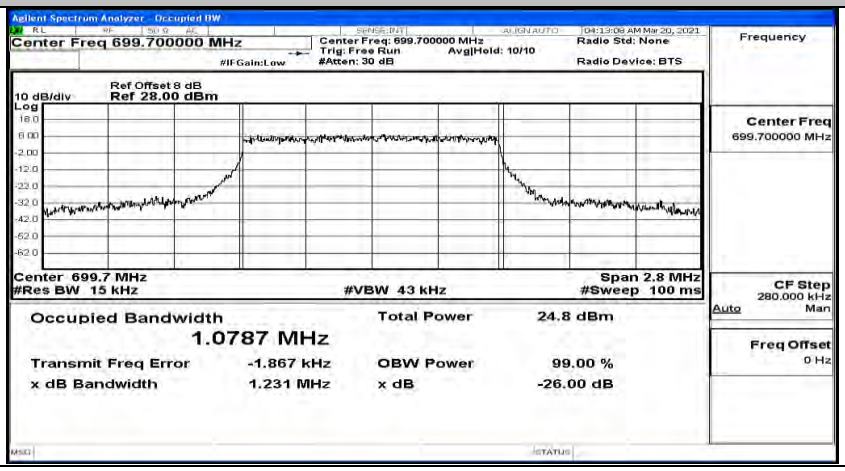
EBW & OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)_MCH_QPSK



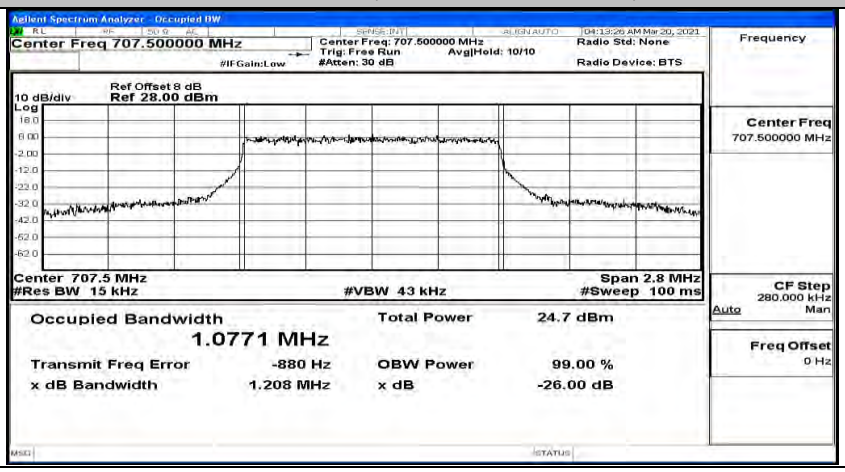
EBW & OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)_HCH_QPSK



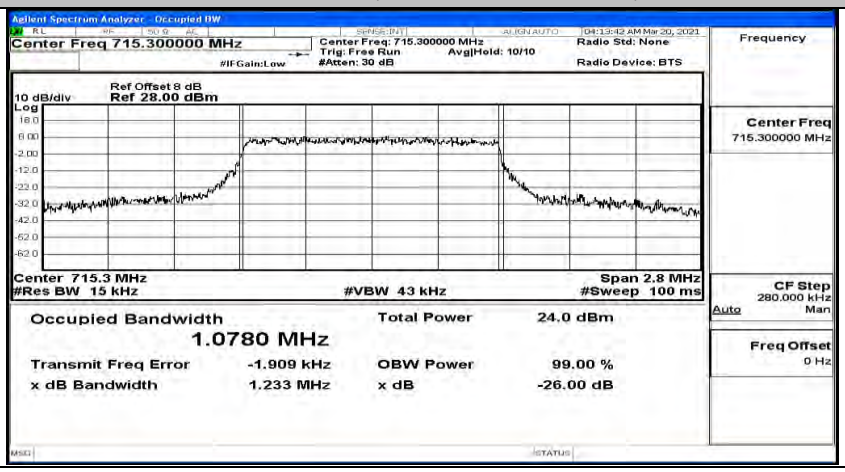
EBW & OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)_LCH_16QAM



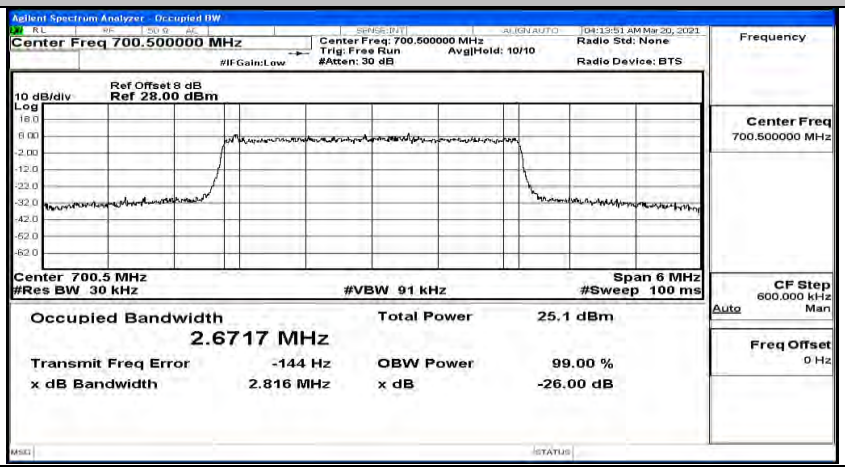
EBW & OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)_MCH_16QAM



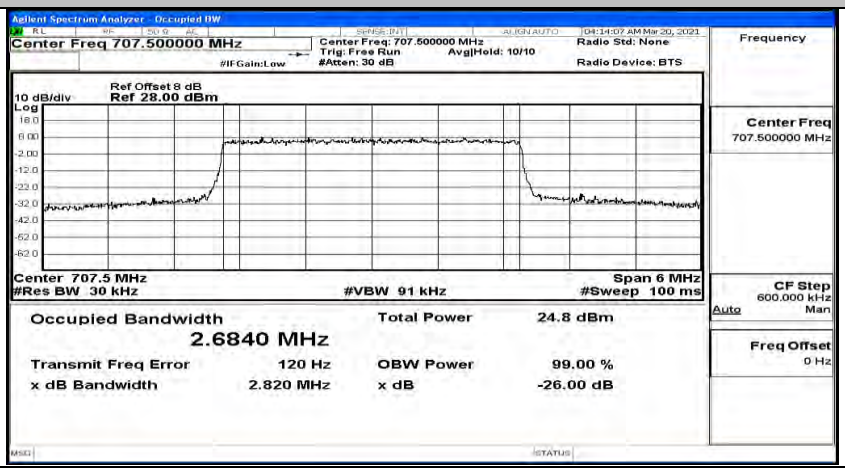
EBW & OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)_HCH_16QAM



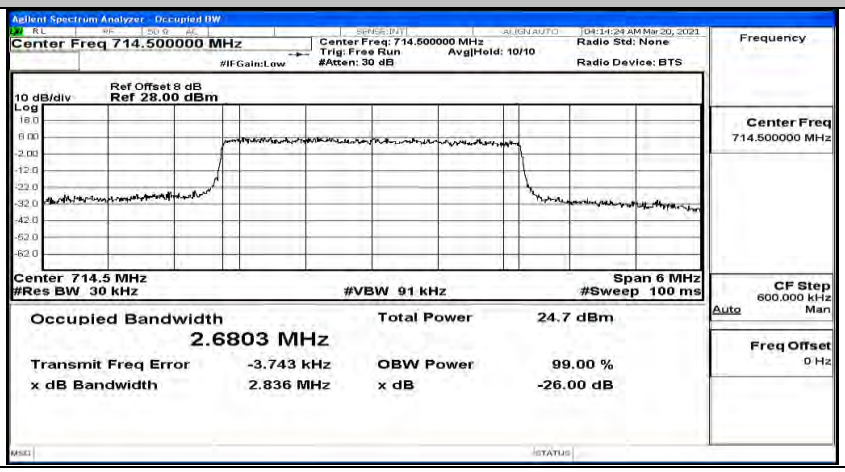
EBW & OBW Test Graph(s) (Channel Bandwidth: 3 MHz)_LCH_QPSK



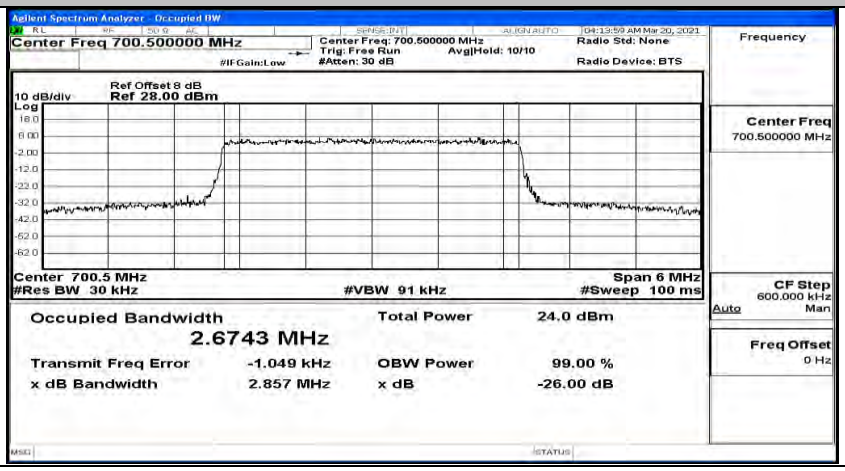
EBW & OBW Test Graph(s) (Channel Bandwidth: 3 MHz)_MCH_QPSK



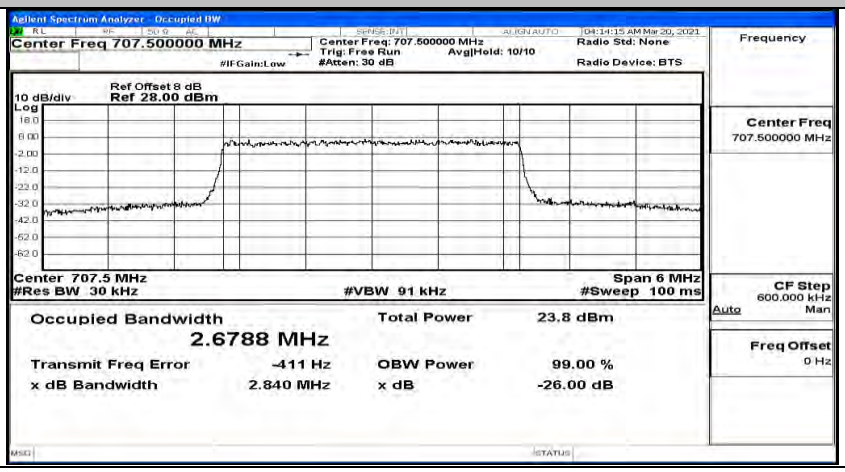
EBW & OBW Test Graph(s) (Channel Bandwidth: 3 MHz)_HCH_QPSK



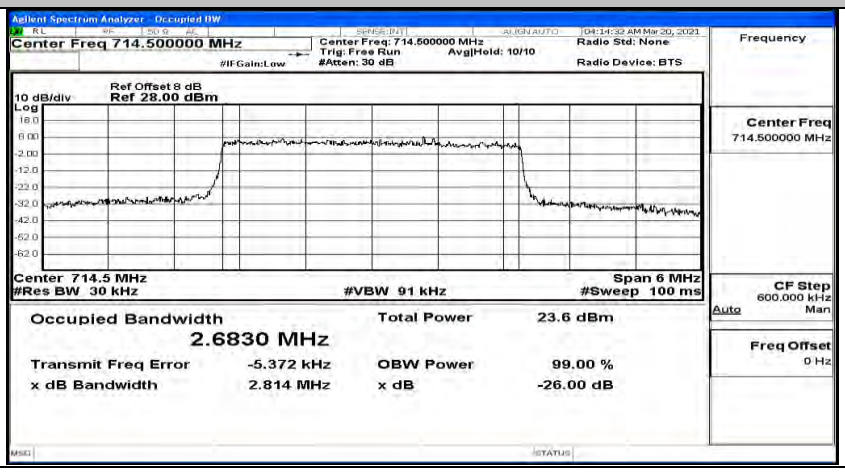
EBW & OBW Test Graph(s) (Channel Bandwidth: 3 MHz)_LCH_16QAM



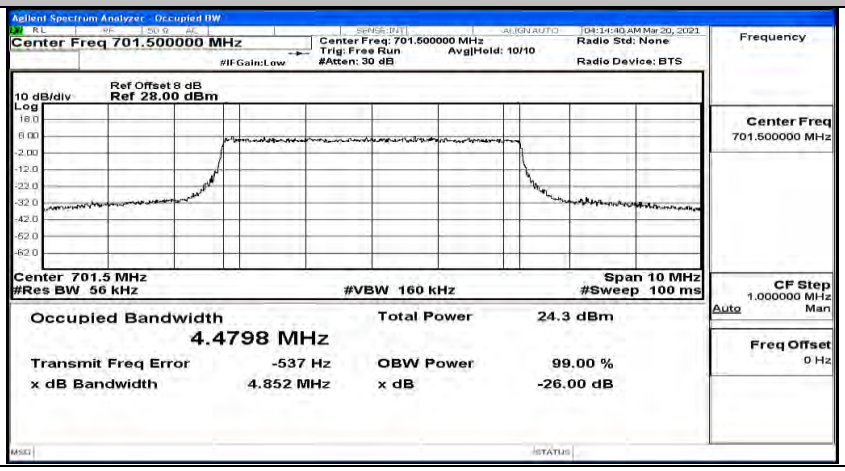
EBW & OBW Test Graph(s) (Channel Bandwidth: 3 MHz)_MCH_16QAM



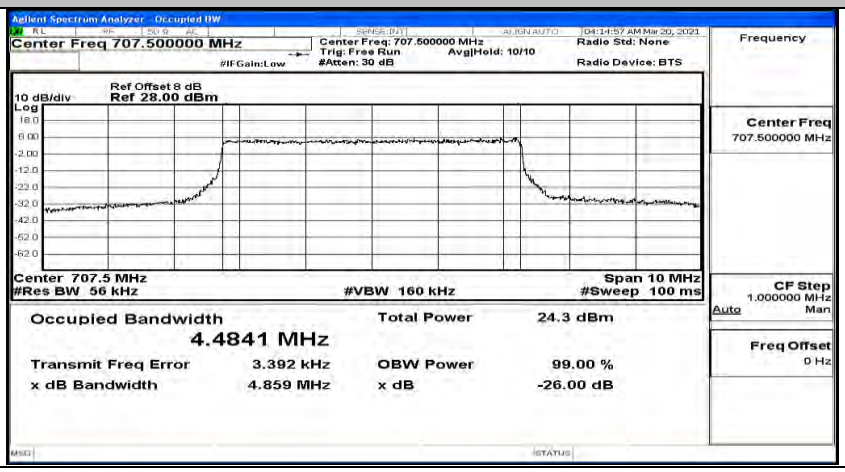
EBW & OBW Test Graph(s) (Channel Bandwidth: 3 MHz)_HCH_16QAM



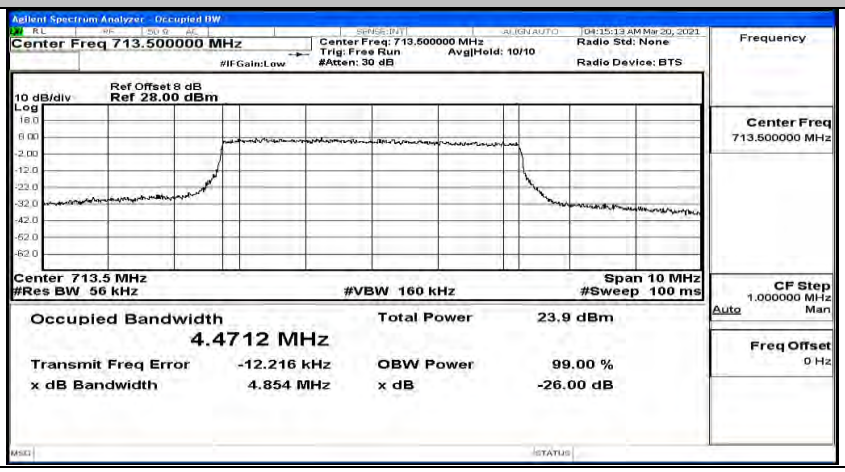
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_QPSK



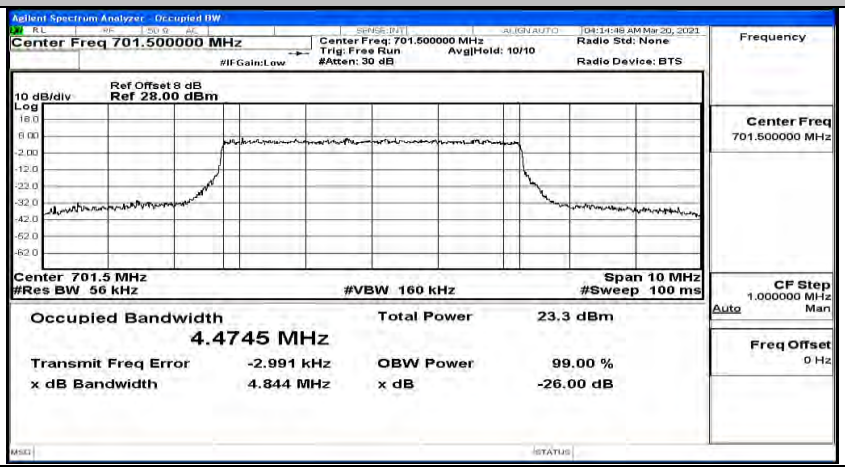
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)_MCH_QPSK



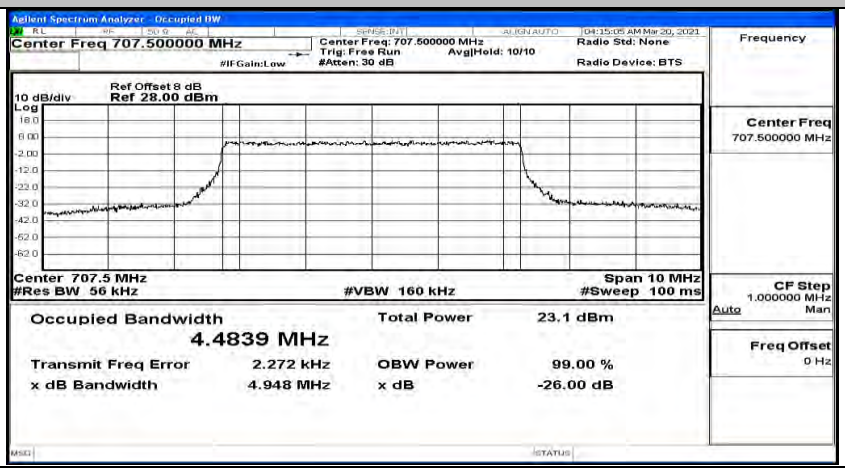
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)_HCH_QPSK



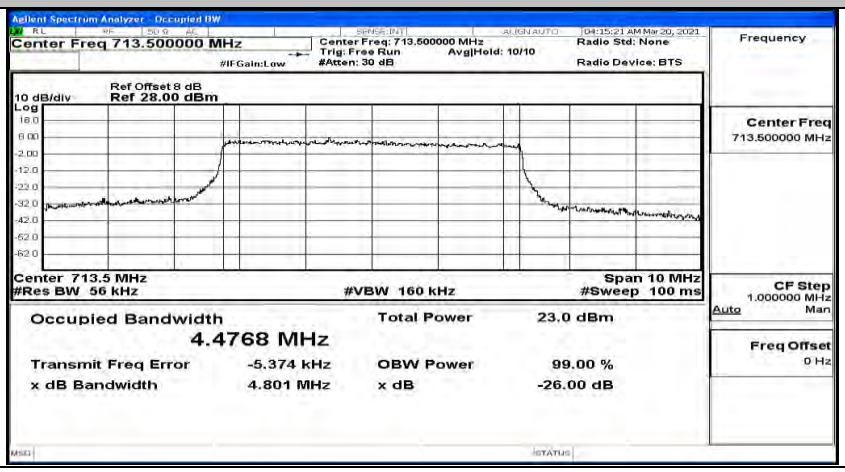
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_16QAM



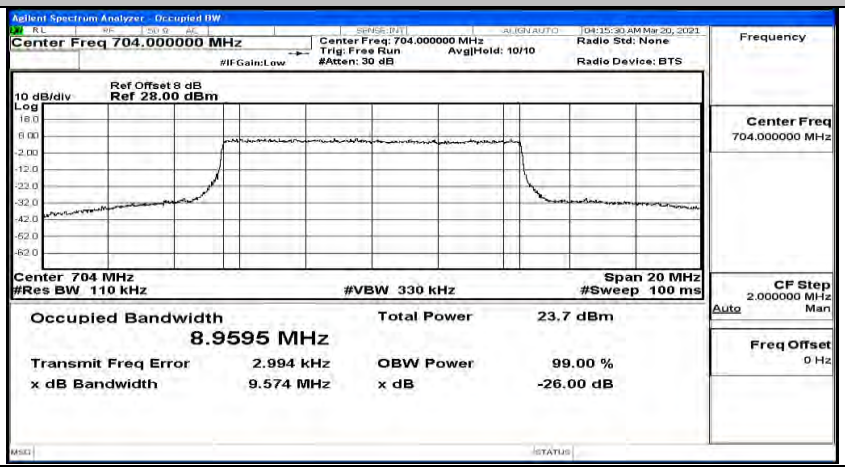
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)_MCH_16QAM



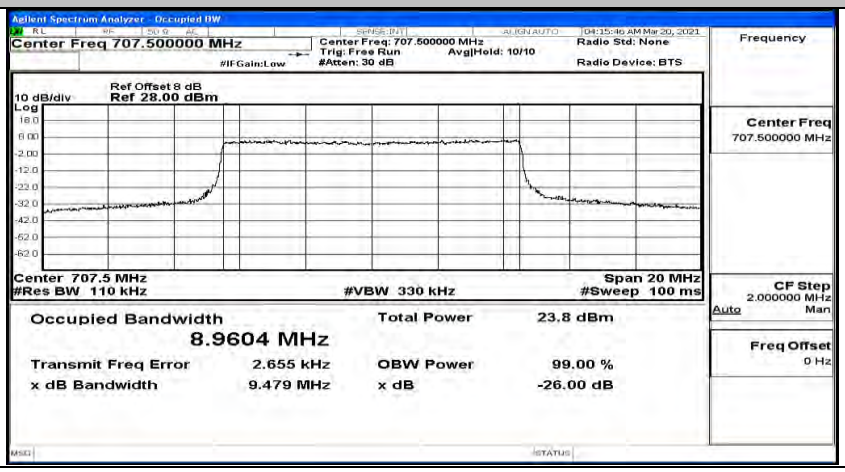
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)_HCH_16QAM



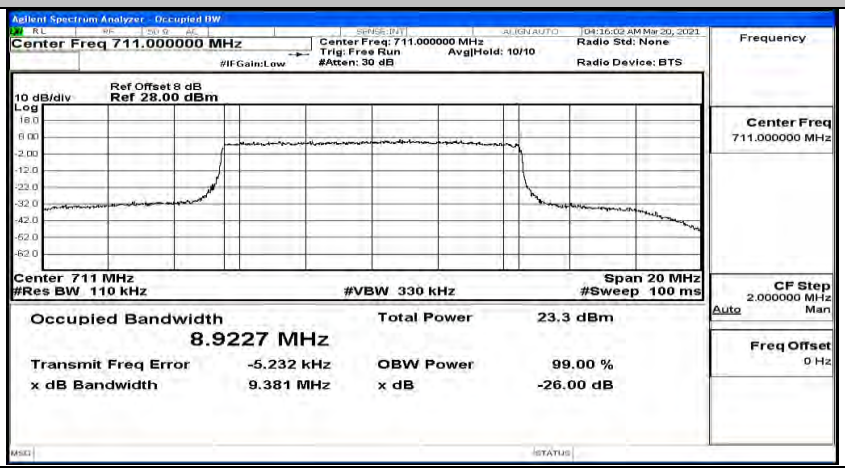
EBW & OBW Test Graph(s) (Channel Bandwidth: 10 MHz)_LCH_QPSK



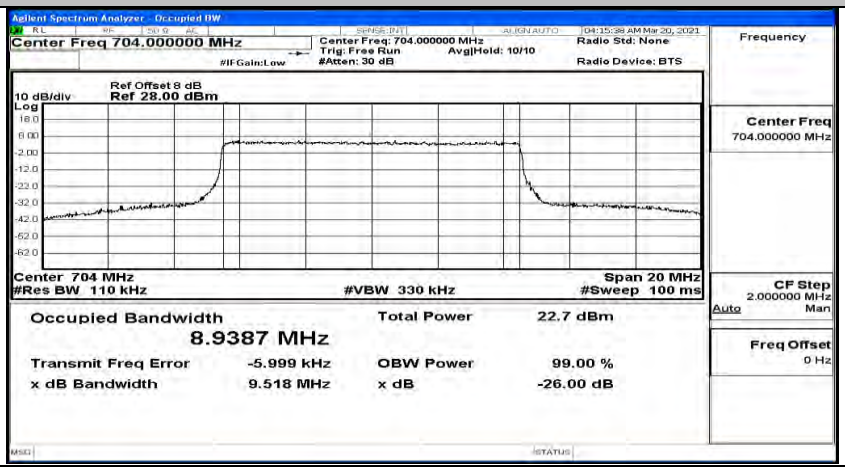
EBW & OBW Test Graph(s) (Channel Bandwidth: 10 MHz)_MCH_QPSK



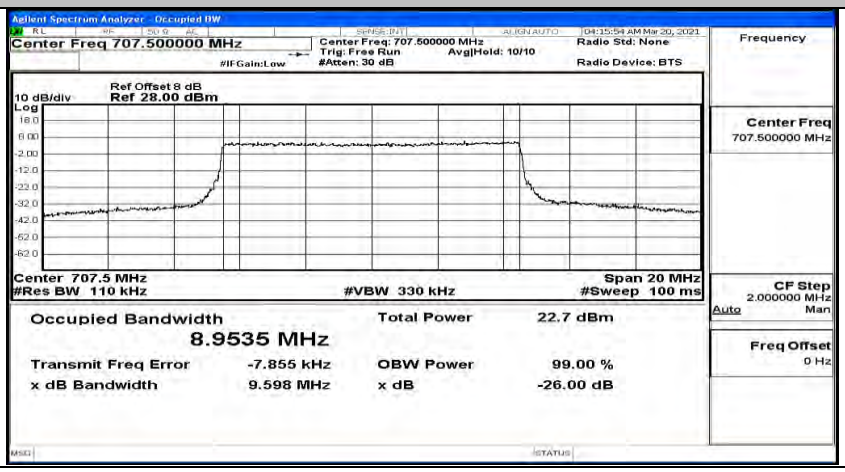
EBW & OBW Test Graph(s) (Channel Bandwidth: 10 MHz)_HCH_QPSK



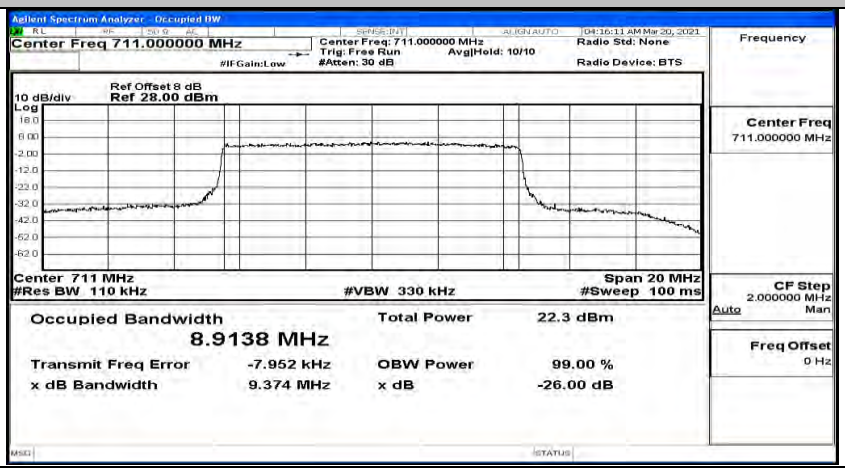
EBW & OBW Test Graph(s) (Channel Bandwidth: 10 MHz)_LCH_16QAM



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

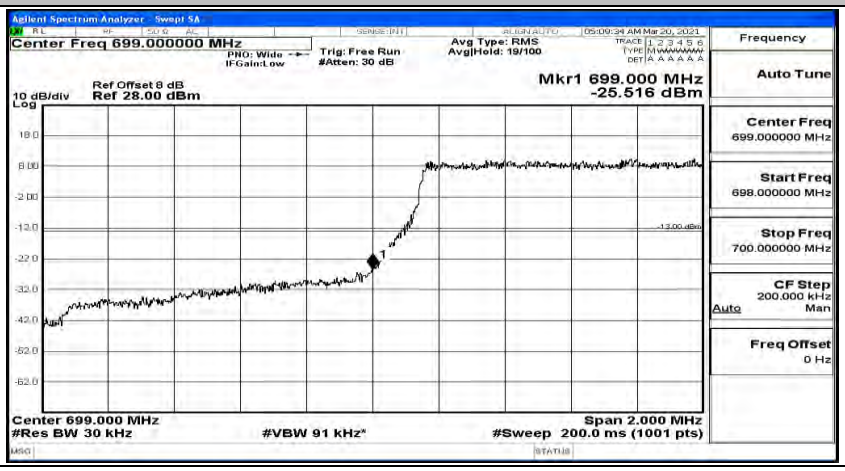


EBW & OBW Test Graph(s) (Channel Bandwidth: 10 MHz)_HCH_16QAM

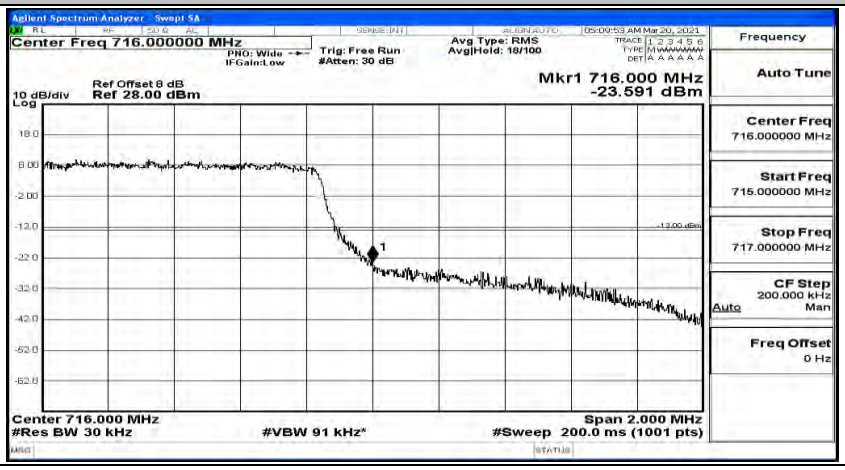


H.4 Band Edge

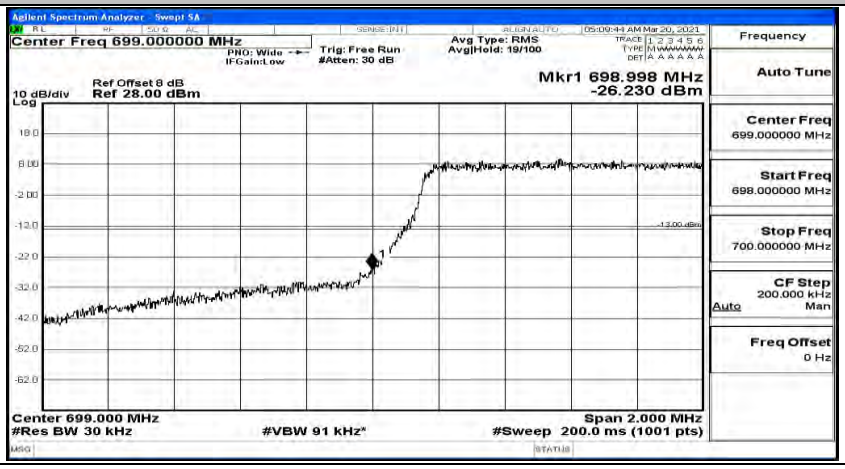
Band Edge Test Graph(s) (Channel Bandwidth: 1.4 MHz)_LCH_QPSK



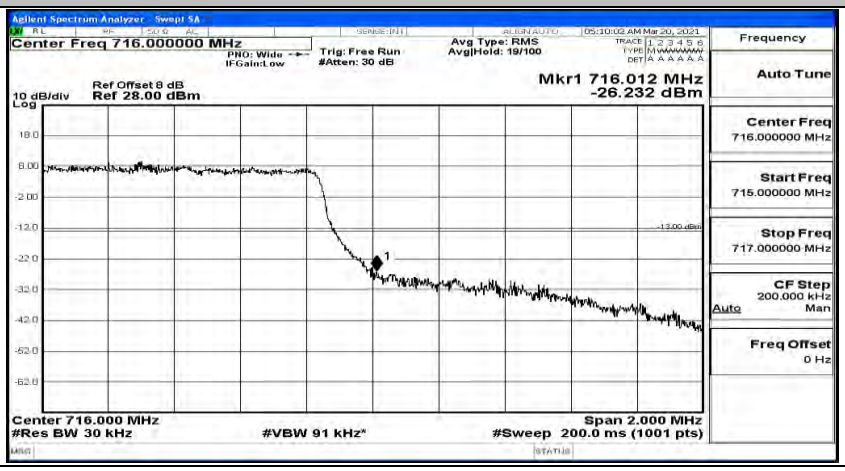
Band Edge Test Graph(s) (Channel Bandwidth: 1.4 MHz)_HCH_QPSK



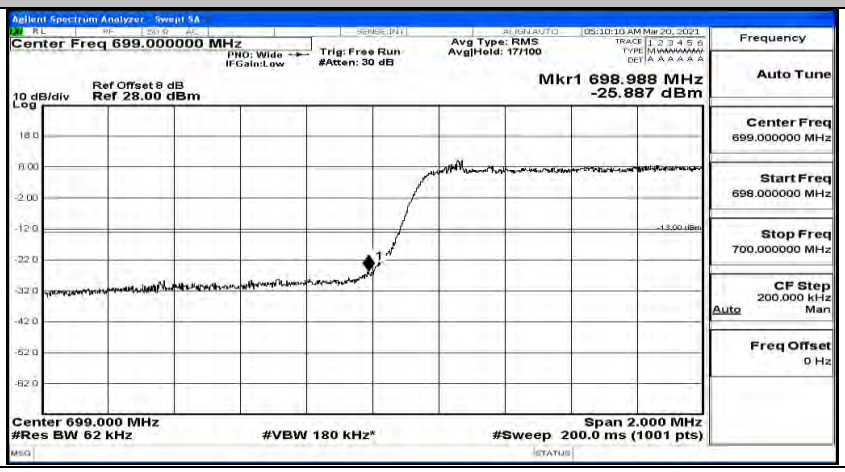
Band Edge Test Graph(s) (Channel Bandwidth: 1.4 MHz)_LCH_16QAM



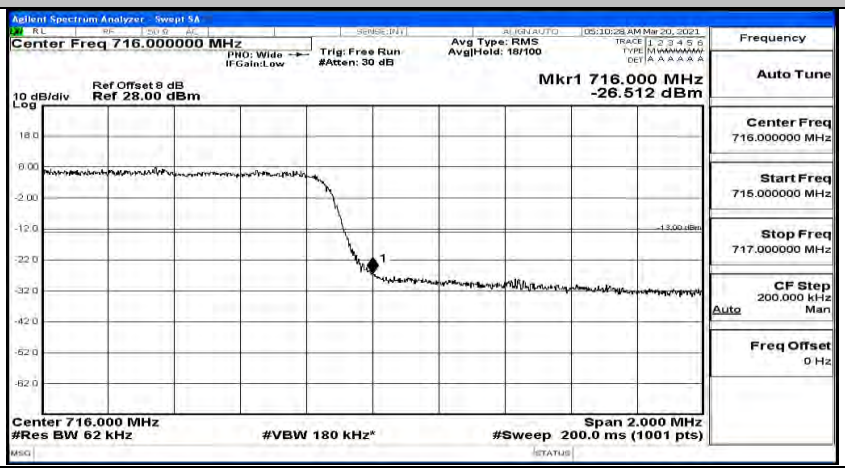
Band Edge Test Graph(s) (Channel Bandwidth: 1.4 MHz)_HCH_16QAM



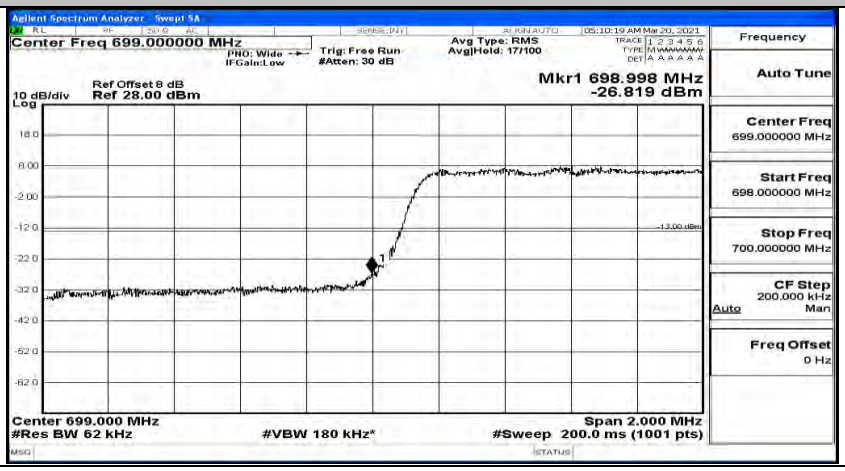
Band Edge Test Graph(s) (Channel Bandwidth: 3 MHz)_LCH_QPSK



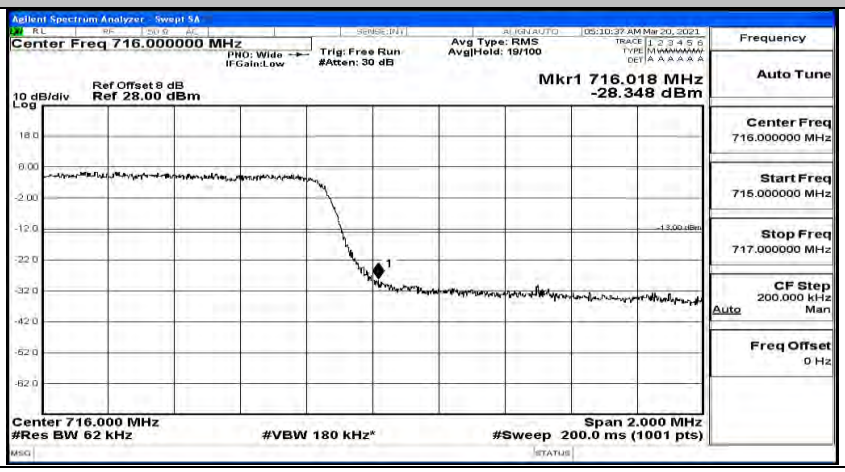
Band Edge Test Graph(s) (Channel Bandwidth: 3 MHz)_HCH_QPSK



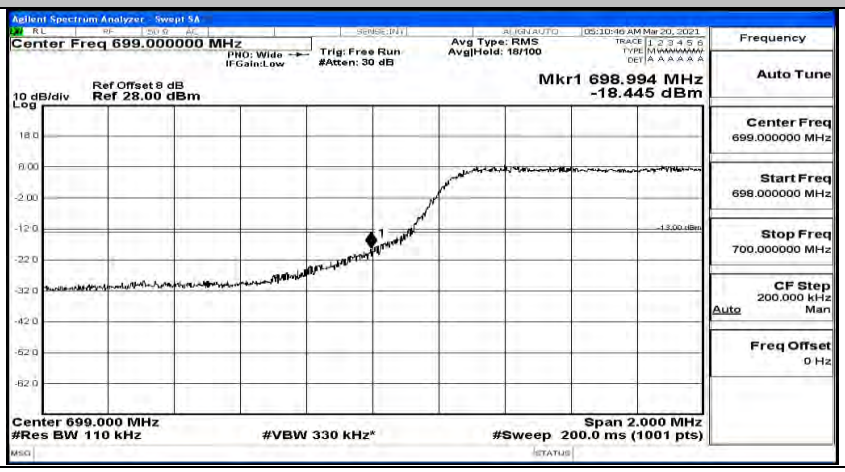
Band Edge Test Graph(s) (Channel Bandwidth: 3 MHz)_LCH_16QAM



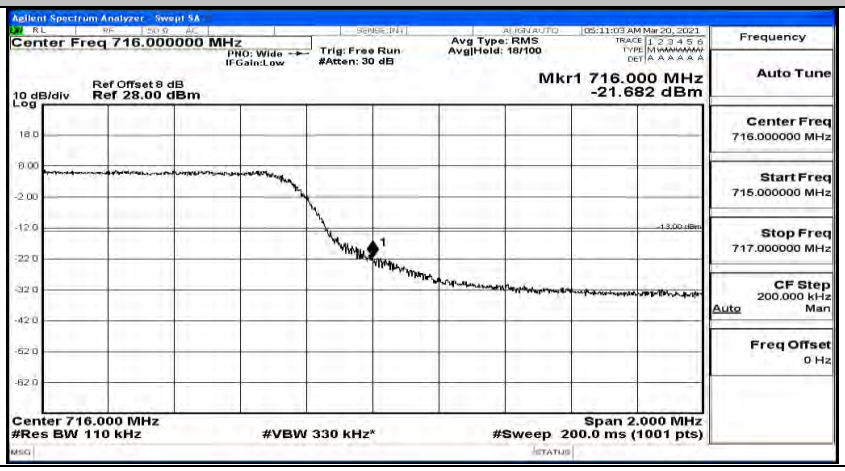
Band Edge Test Graph(s) (Channel Bandwidth: 3 MHz)_HCH_16QAM



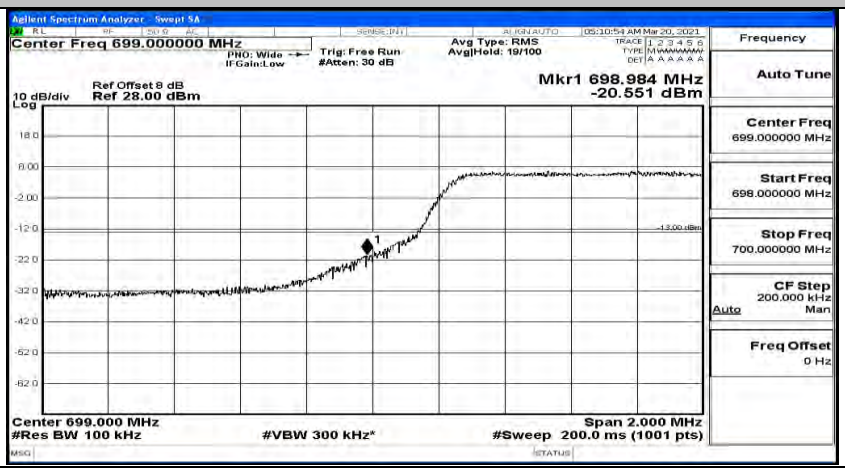
Band Edge Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_QPSK



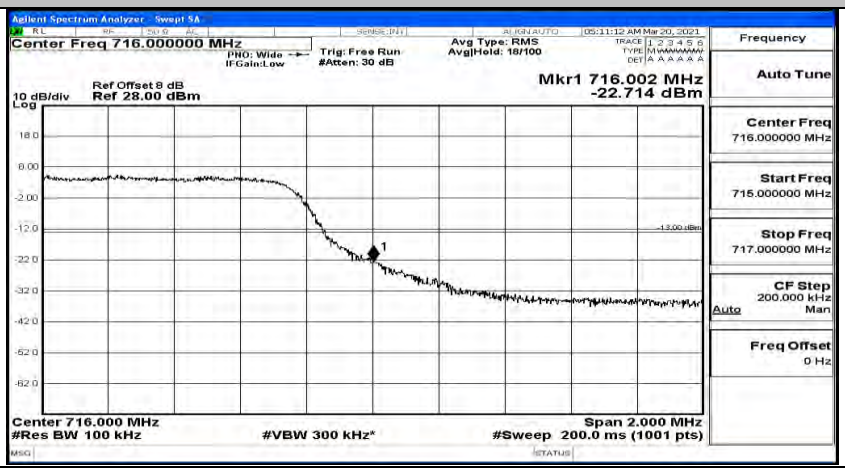
Band Edge Test Graph(s) (Channel Bandwidth: 5 MHz)_HCH_QPSK



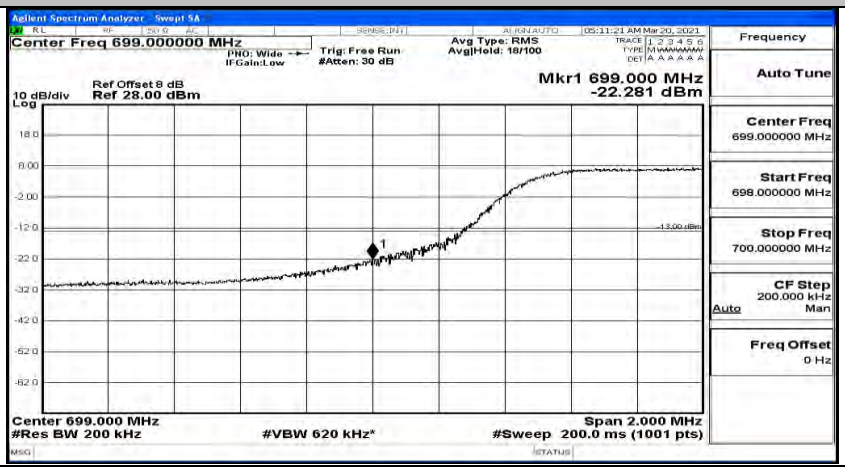
Band Edge Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_16QAM



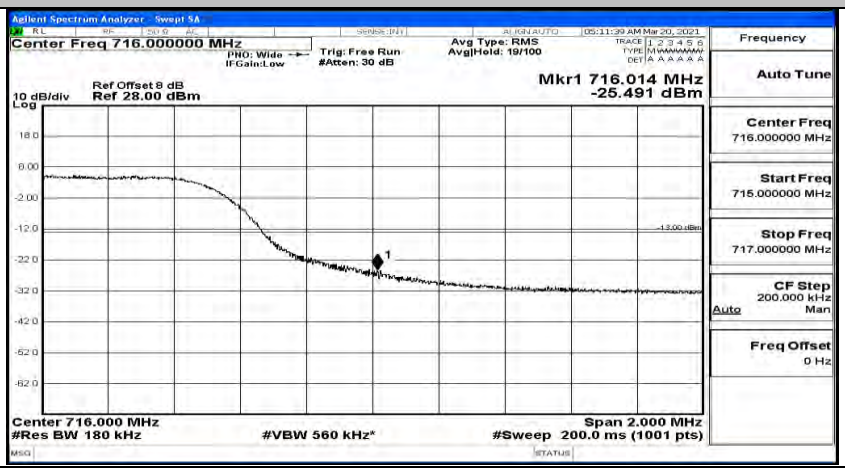
Band Edge Test Graph(s) (Channel Bandwidth: 5 MHz)_HCH_16QAM



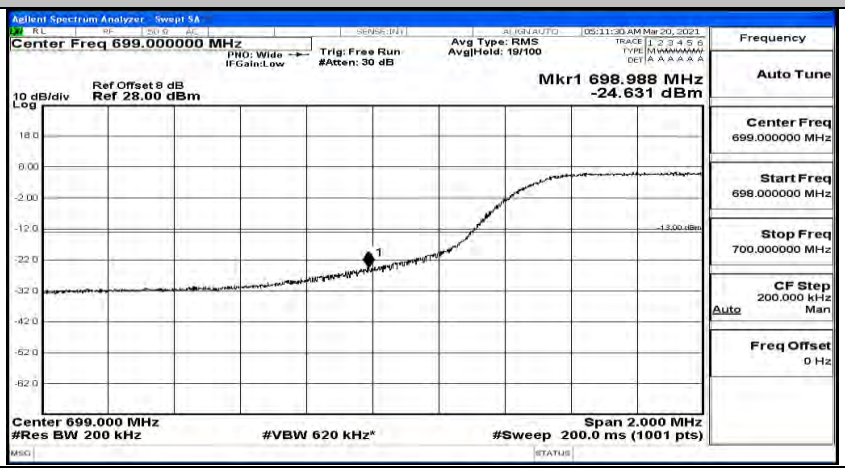
Band Edge Test Graph(s) (Channel Bandwidth: 10 MHz)_LCH_QPSK



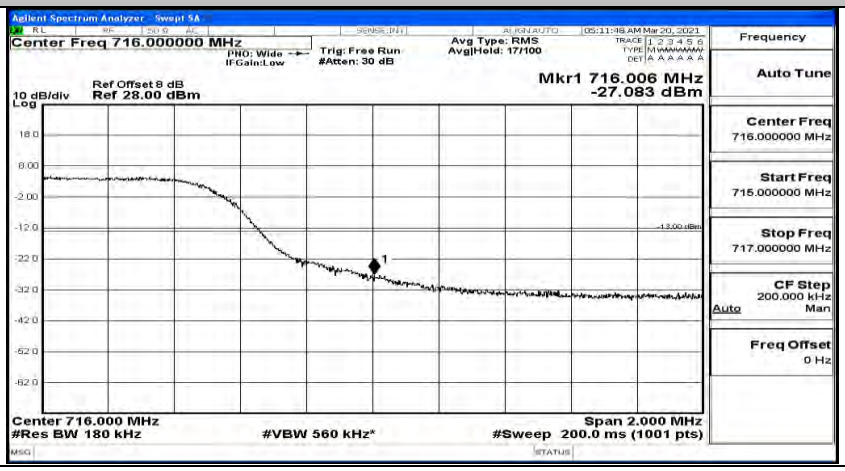
Band Edge Test Graph(s) (Channel Bandwidth: 10 MHz)_HCH_QPSK



Band Edge Test Graph(s) (Channel Bandwidth: 10 MHz)_LCH_16QAM



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

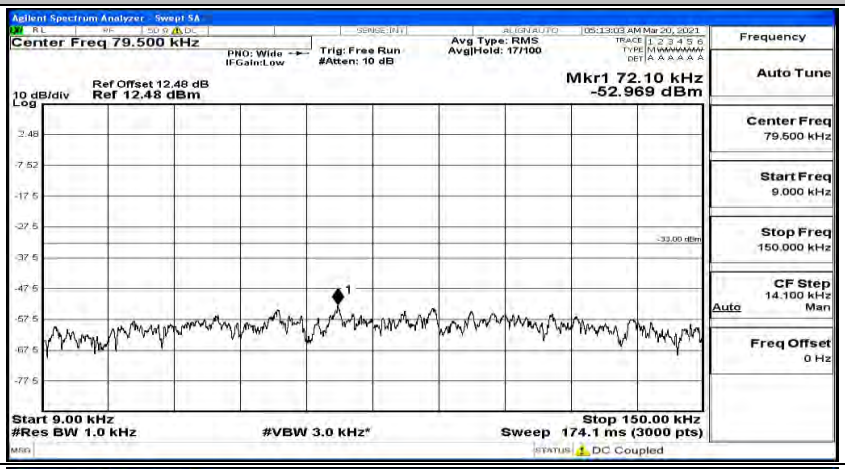


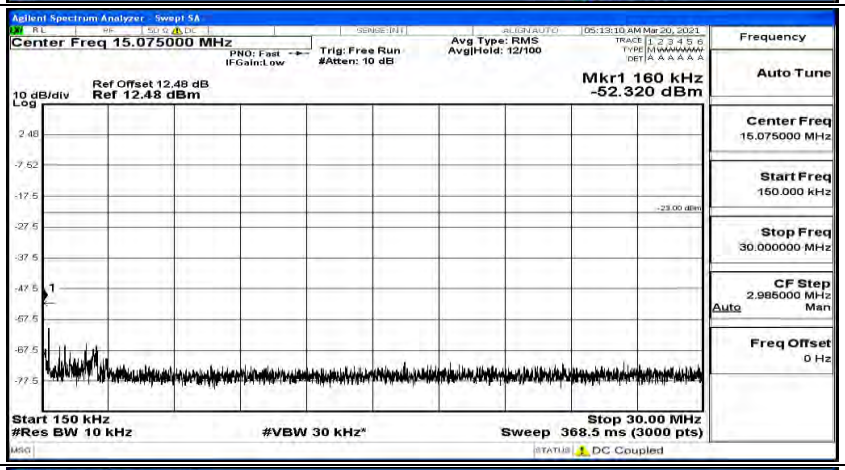
H.5 Conducted Spurious Emission

Test Graphs

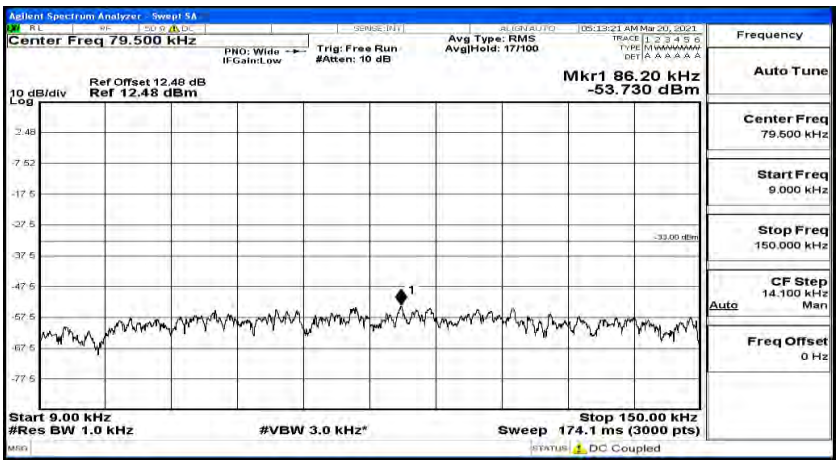
Channel Bandwidth: 1.4 MHz

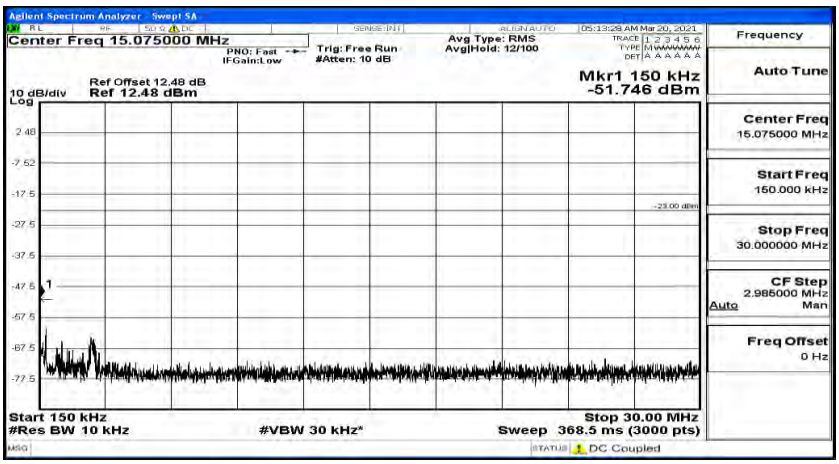
(Channel Bandwidth: 1.4 MHz)_LCH_QPSK_1RB#0



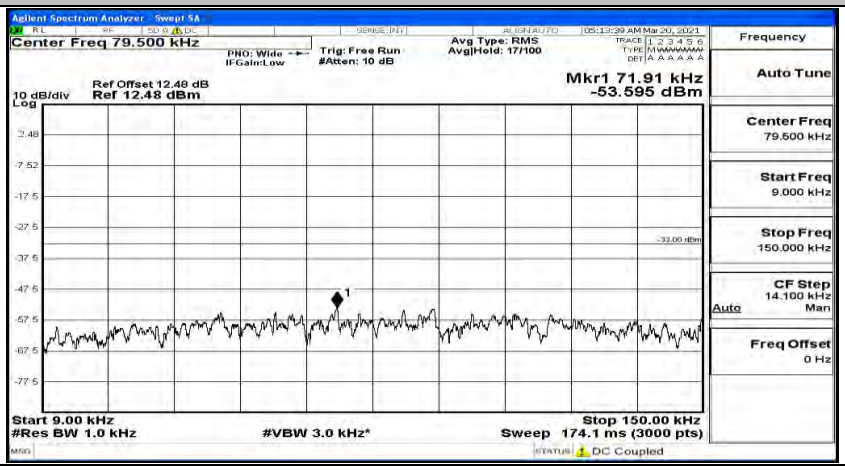


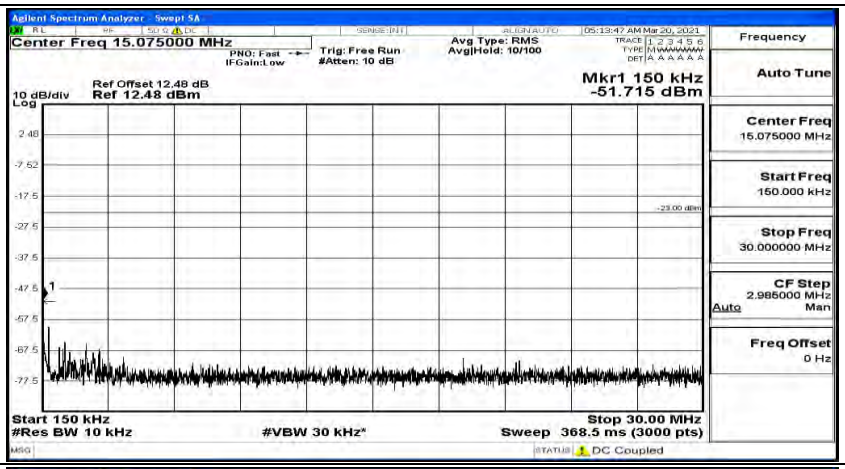
(Channel Bandwidth: 1.4 MHz)_LCH_QPSK_1RB#3



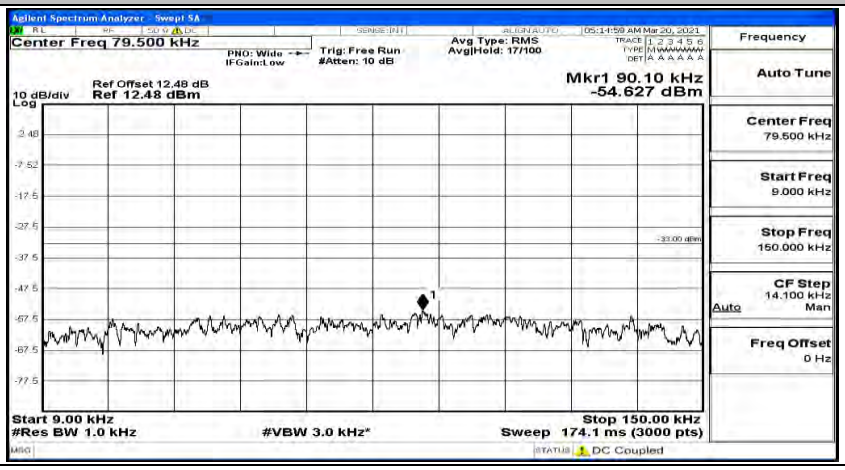


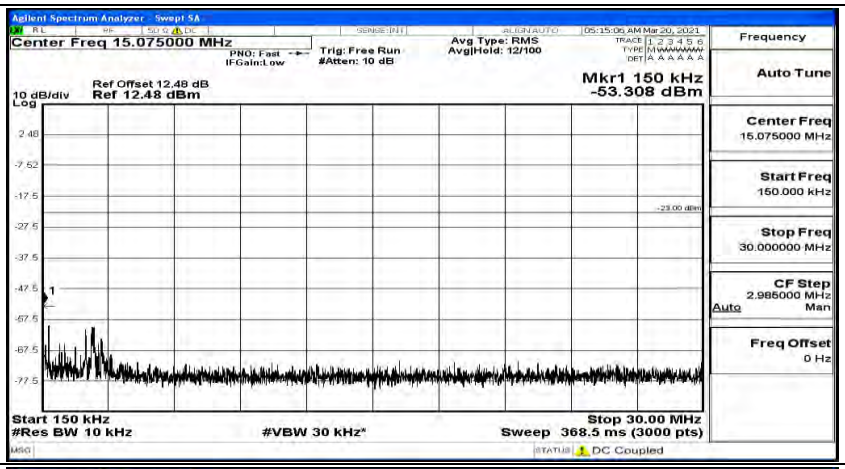
(Channel Bandwidth: 1.4 MHz)_LCH_QPSK_1RB#5



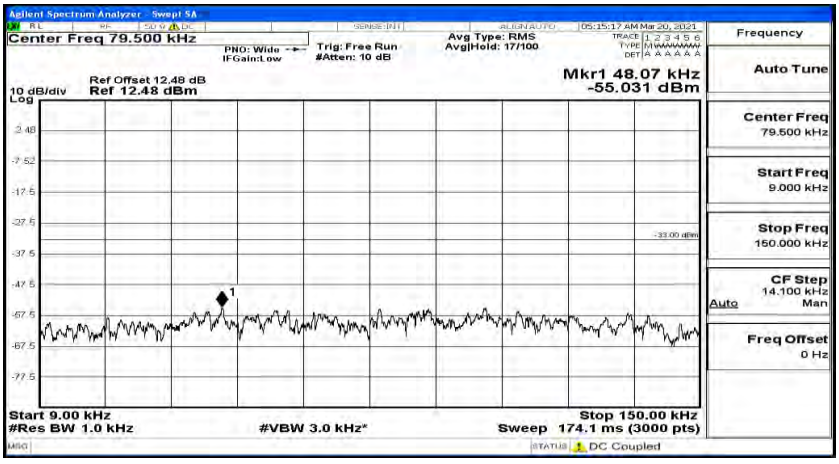


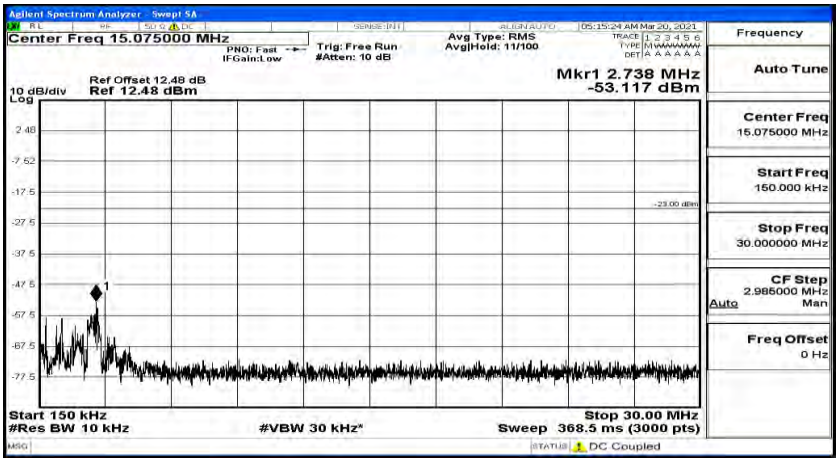
(Channel Bandwidth: 1.4 MHz)_MCH_QPSK_1RB#0



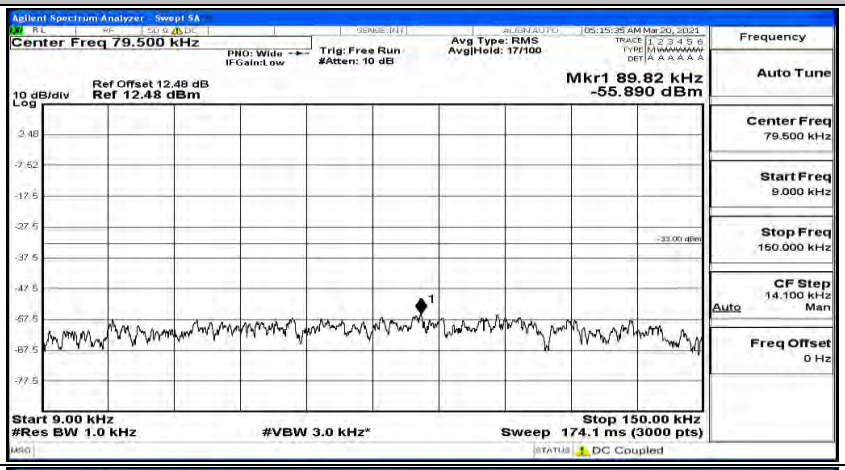


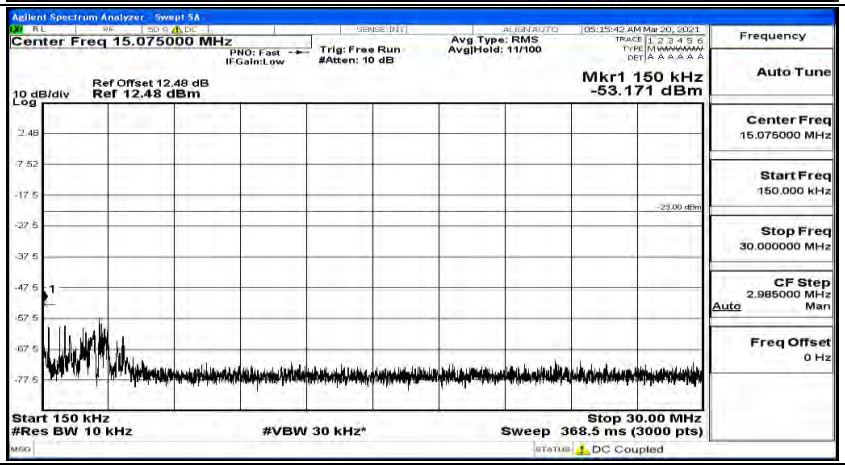
(Channel Bandwidth: 1.4 MHz)_MCH_QPSK_1RB#3



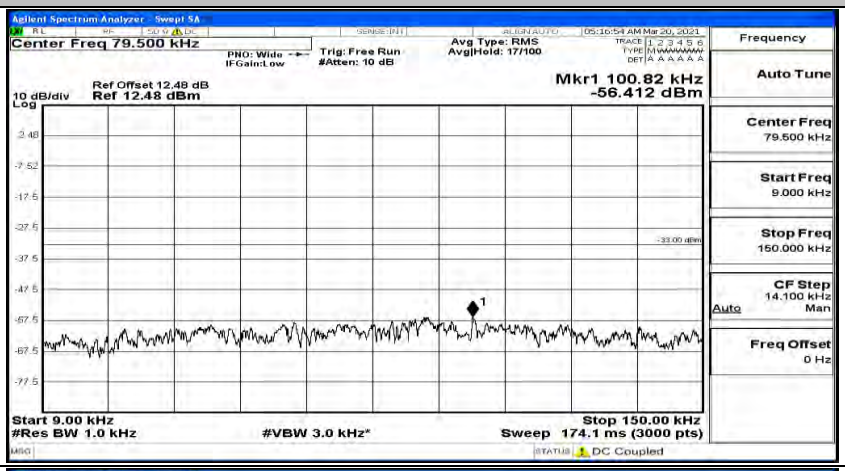


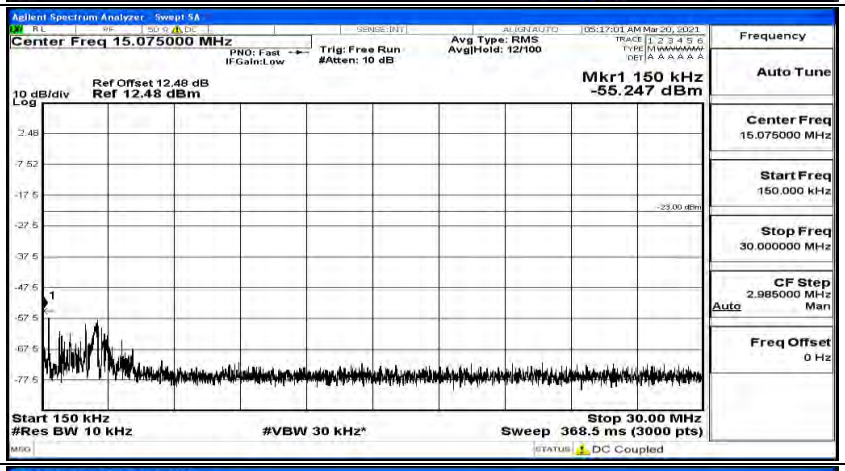
(Channel Bandwidth: 1.4 MHz)_MCH_QPSK_1RB#5



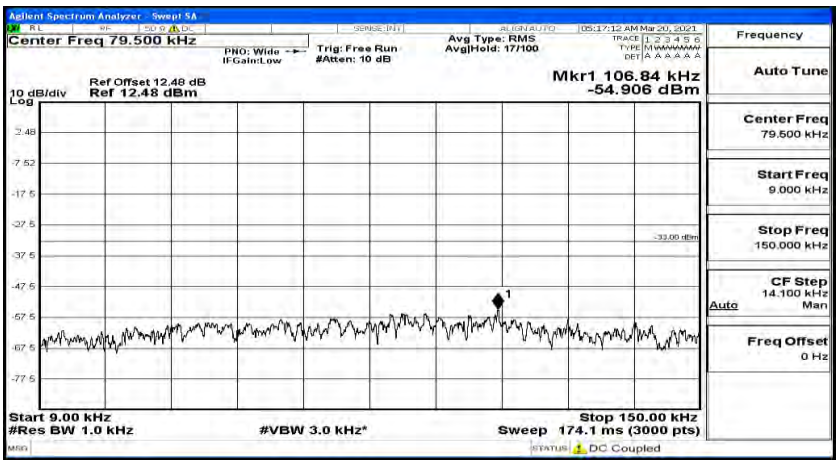


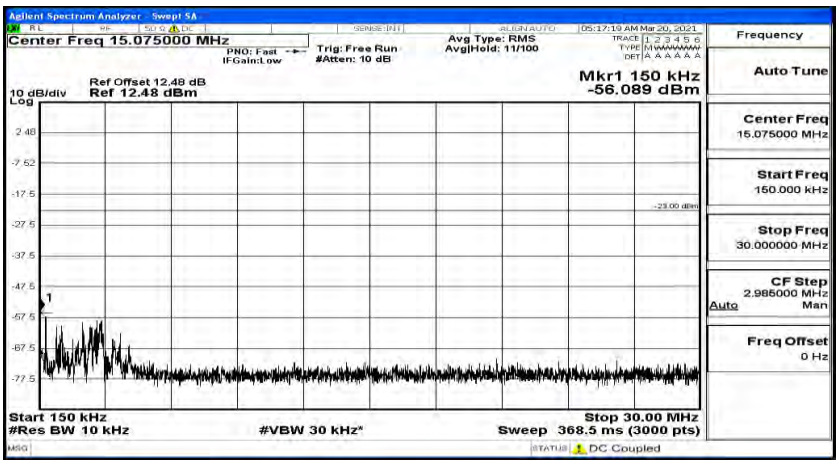
(Channel Bandwidth: 1.4 MHz)_HCH_QPSK_1RB#0



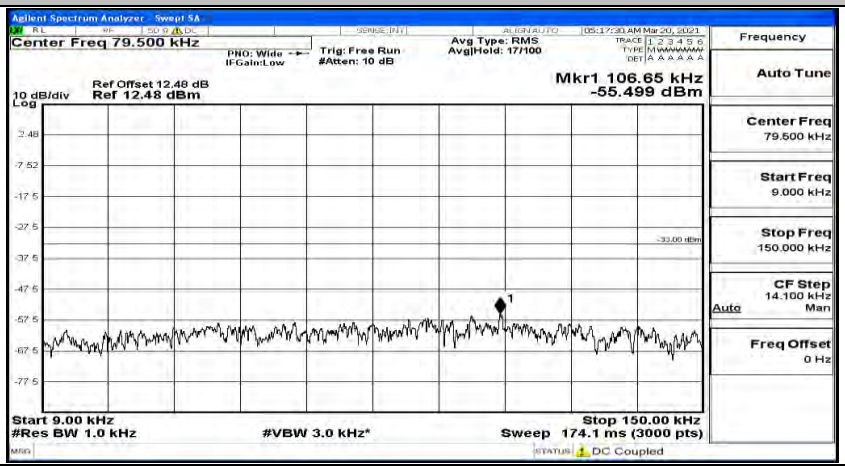


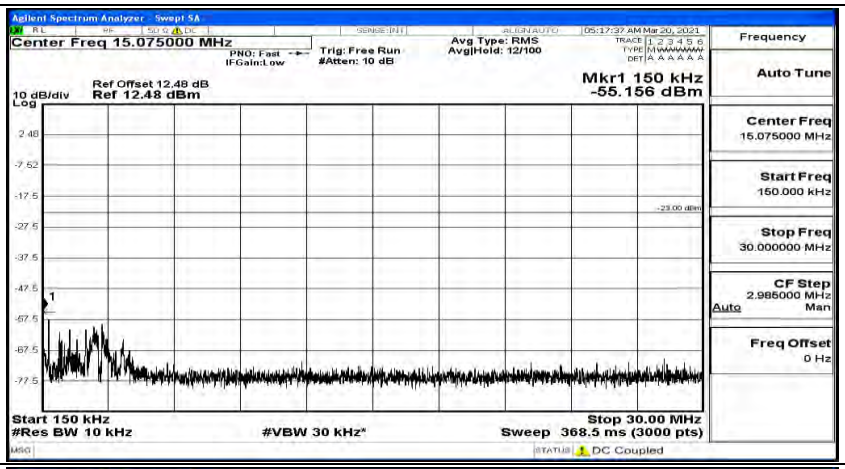
(Channel Bandwidth: 1.4 MHz)_HCH_QPSK_1RB#3

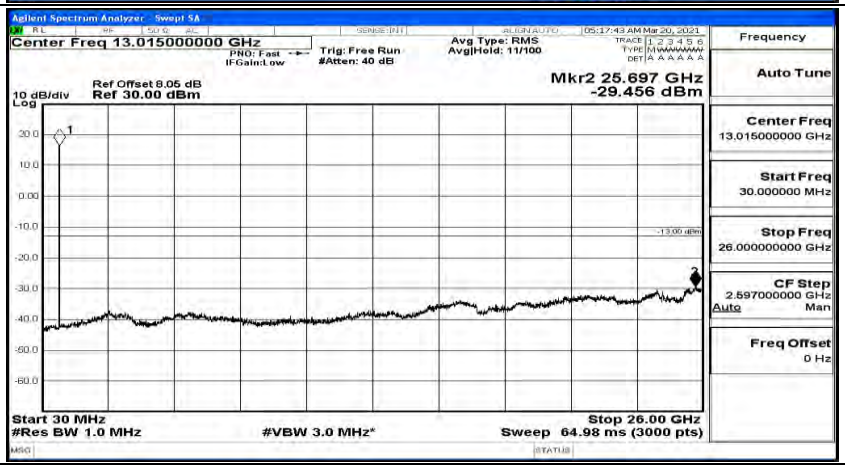




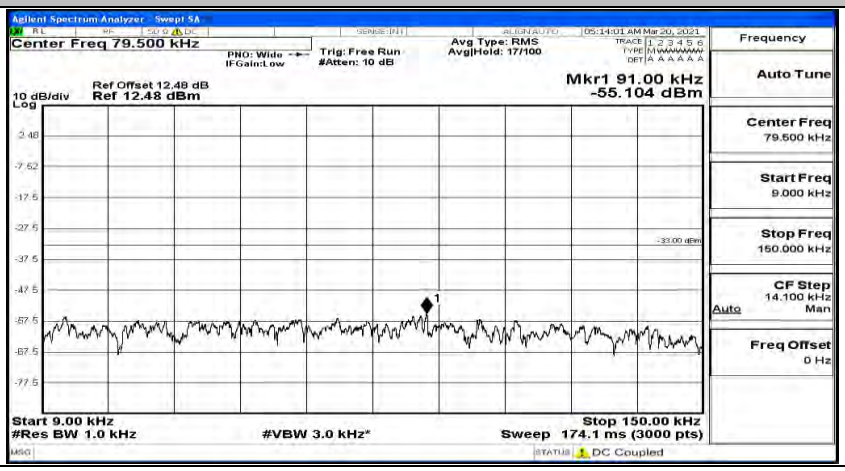
(Channel Bandwidth: 1.4 MHz)_HCH_QPSK_1RB#5

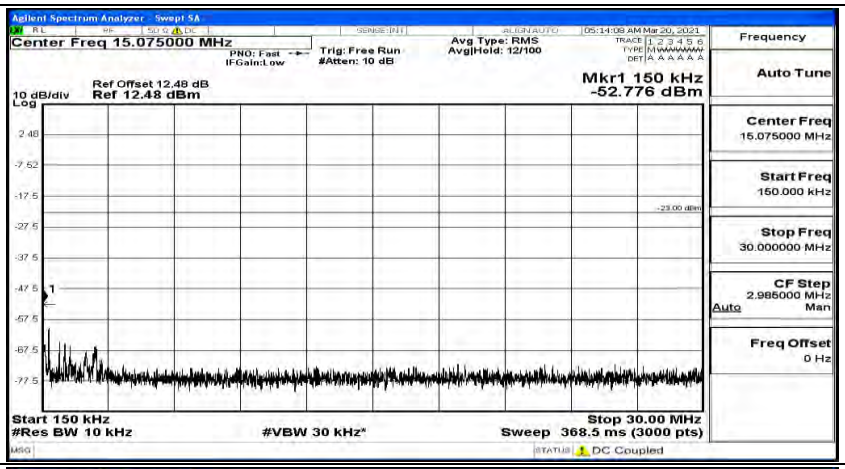




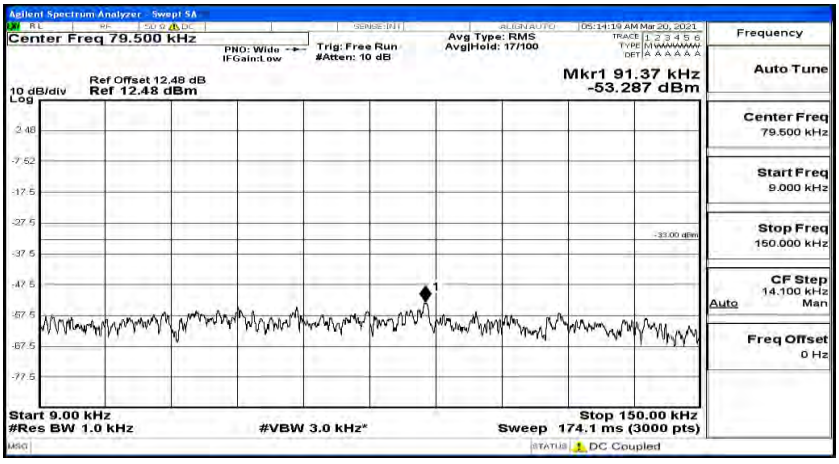


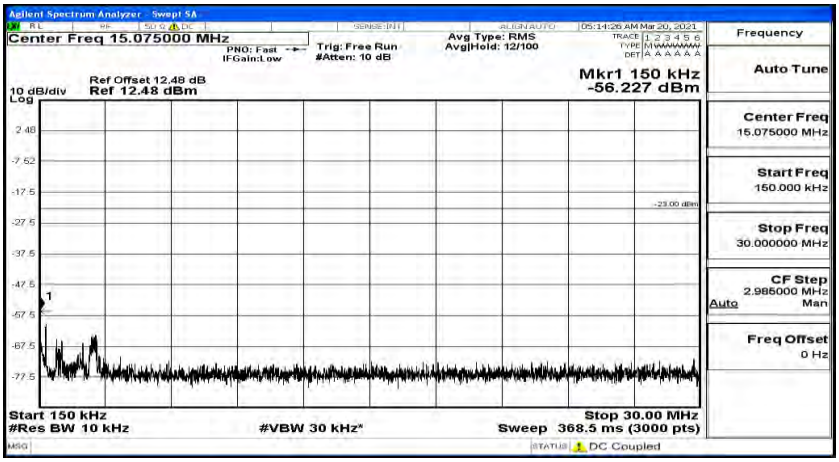
(Channel Bandwidth: 1.4 MHz)_LCH_16QAM_1RB#0



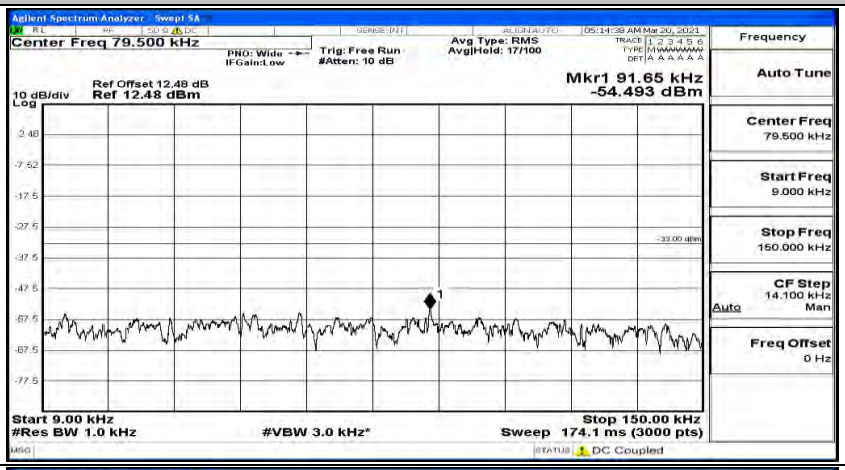


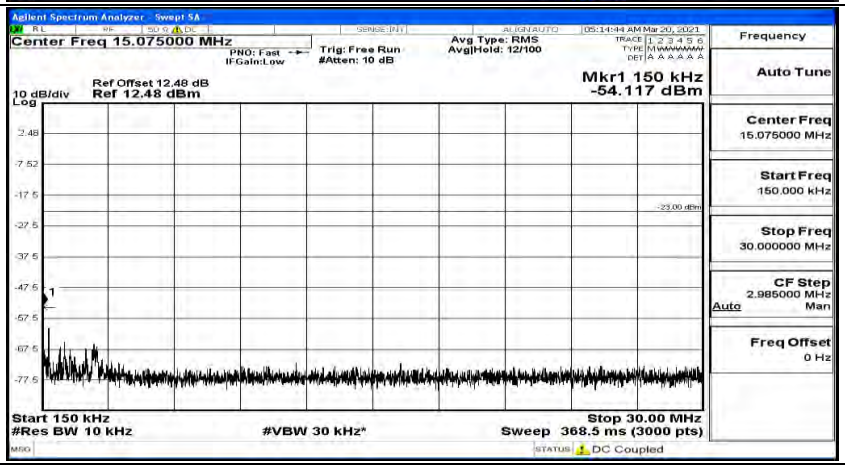
(Channel Bandwidth: 1.4 MHz)_LCH_16QAM_1RB#3



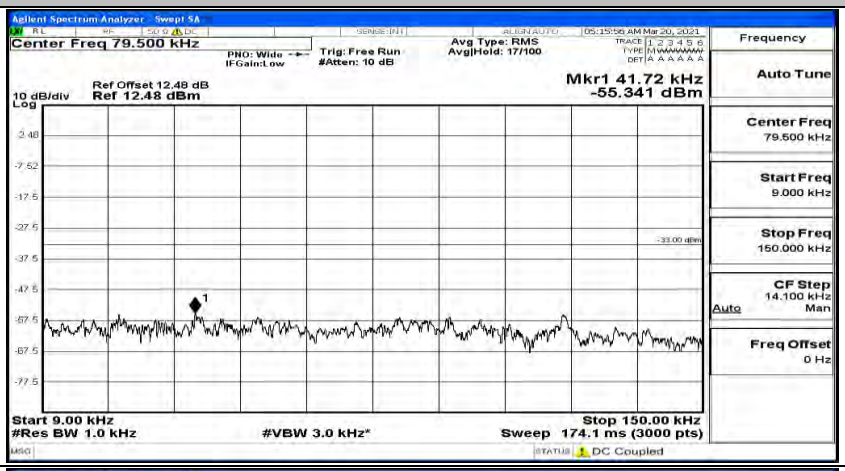


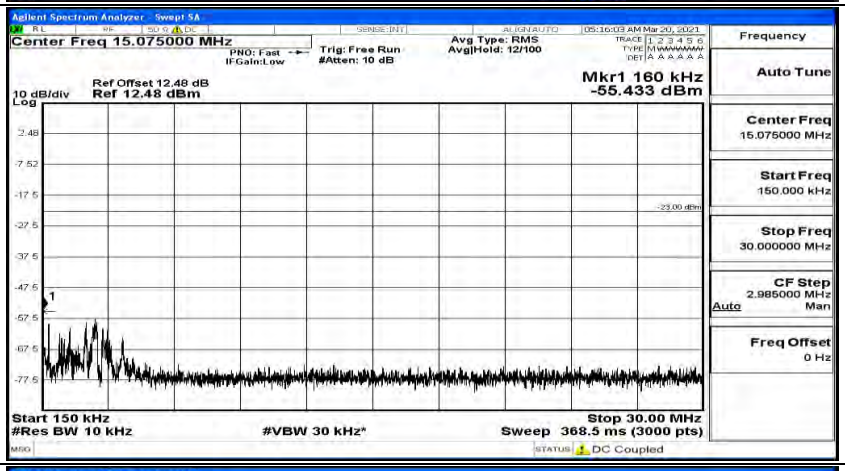
(Channel Bandwidth: 1.4 MHz)_LCH_16QAM_1RB#5



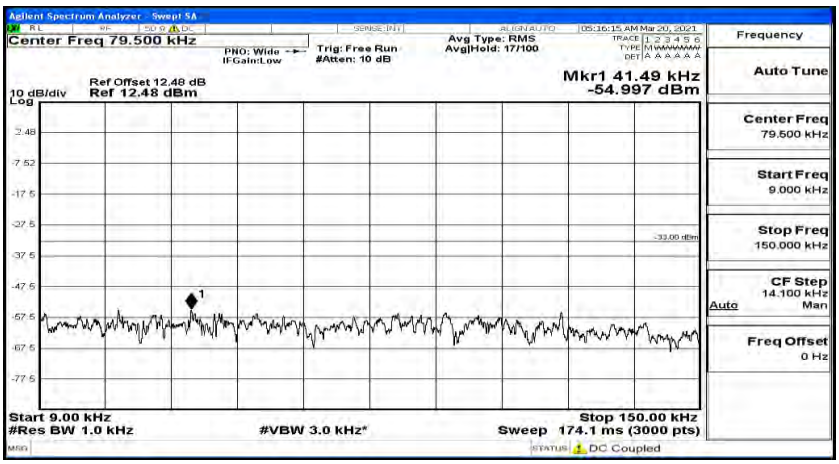


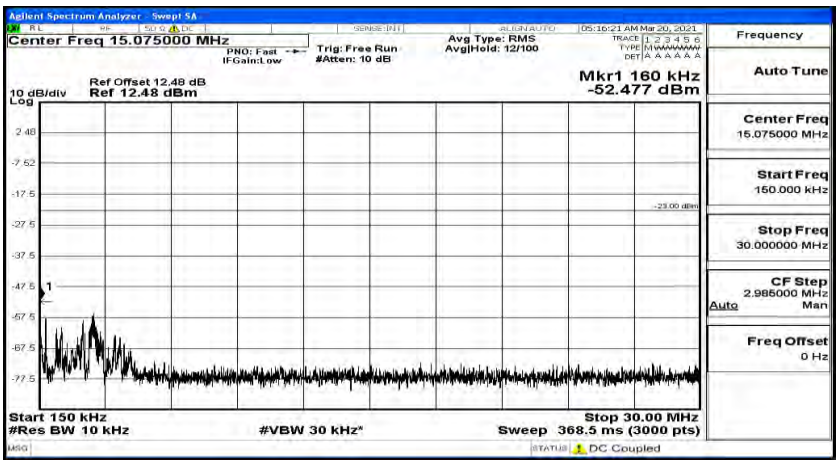
(Channel Bandwidth: 1.4 MHz)_MCH_16QAM_1RB#0



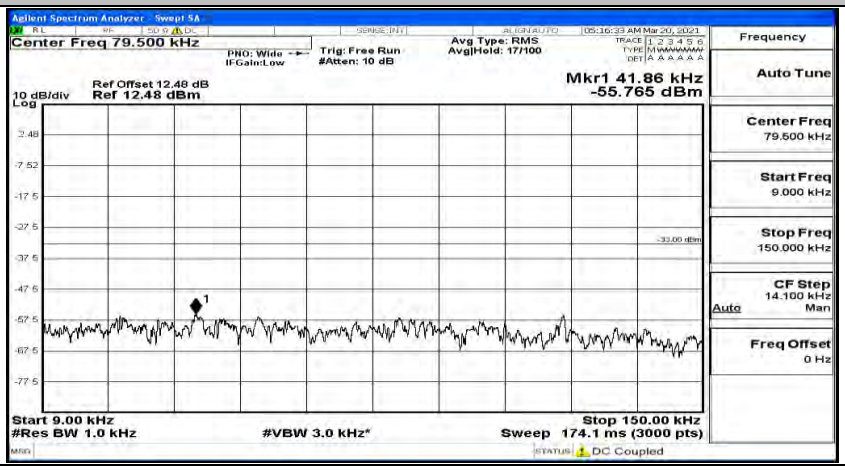


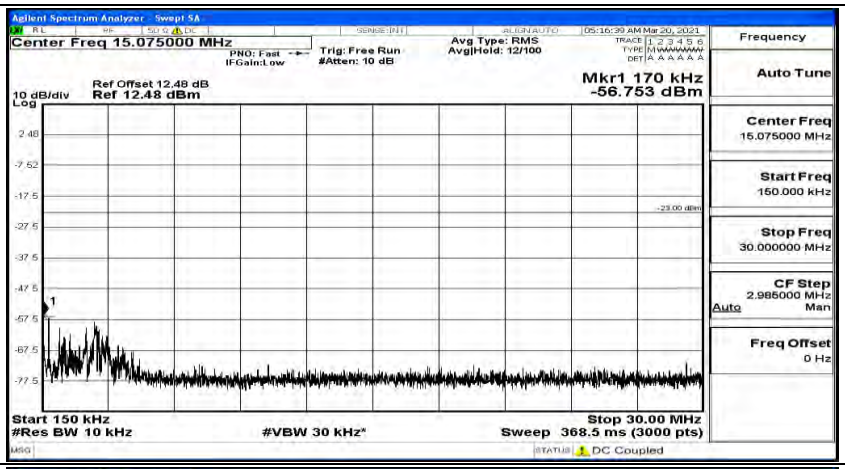
(Channel Bandwidth: 1.4 MHz)_MCH_16QAM_1RB#3



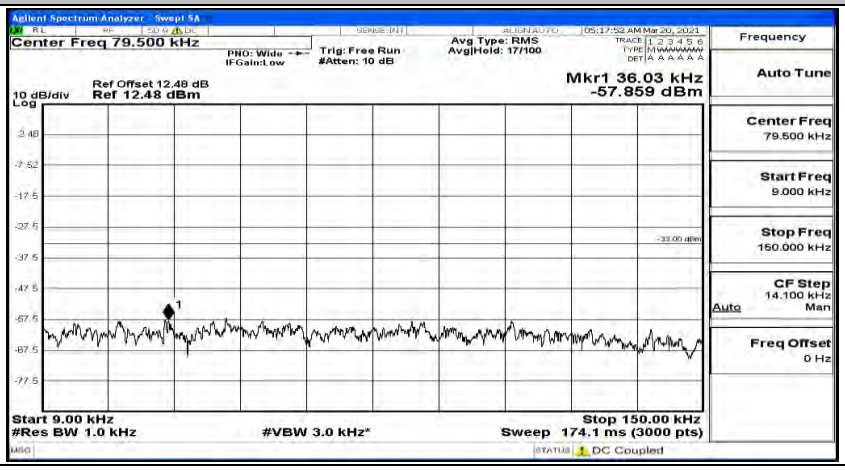


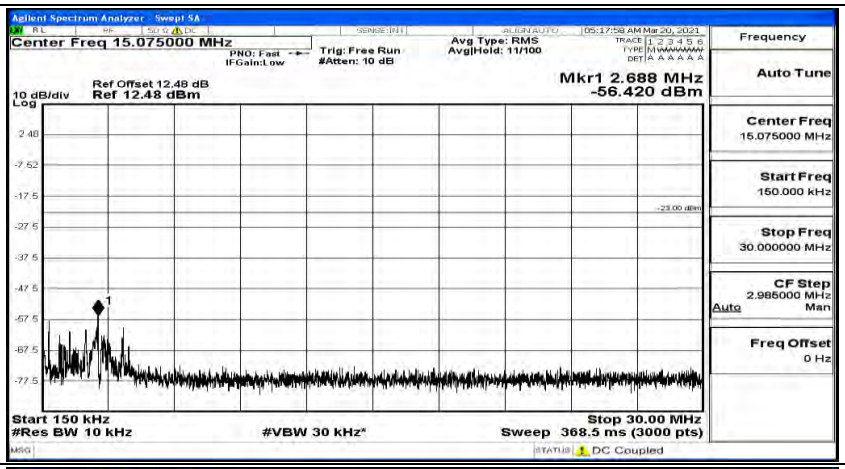
(Channel Bandwidth: 1.4 MHz)_MCH_16QAM_1RB#5



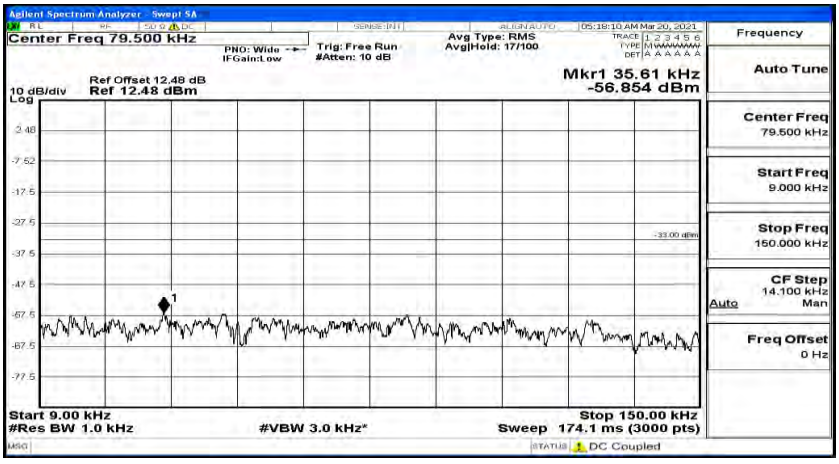


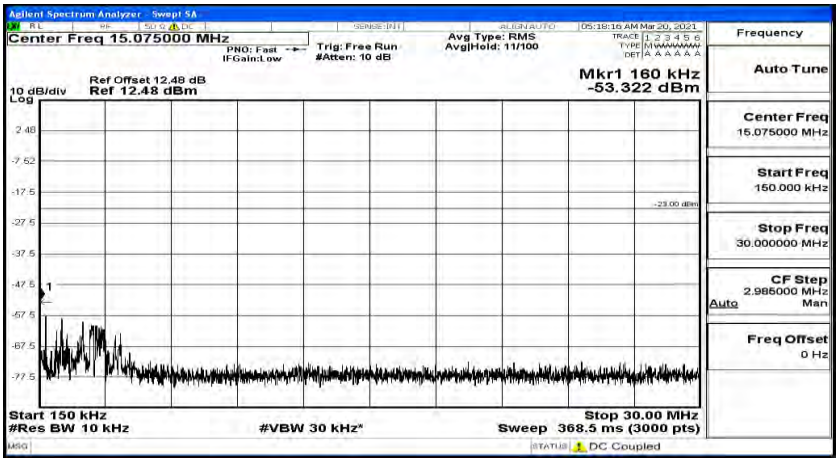
(Channel Bandwidth: 1.4 MHz)_HCH_16QAM_1RB#0



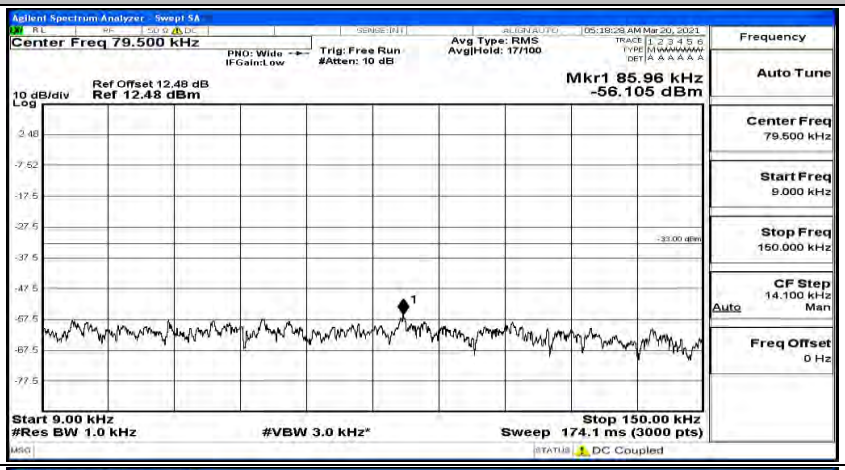


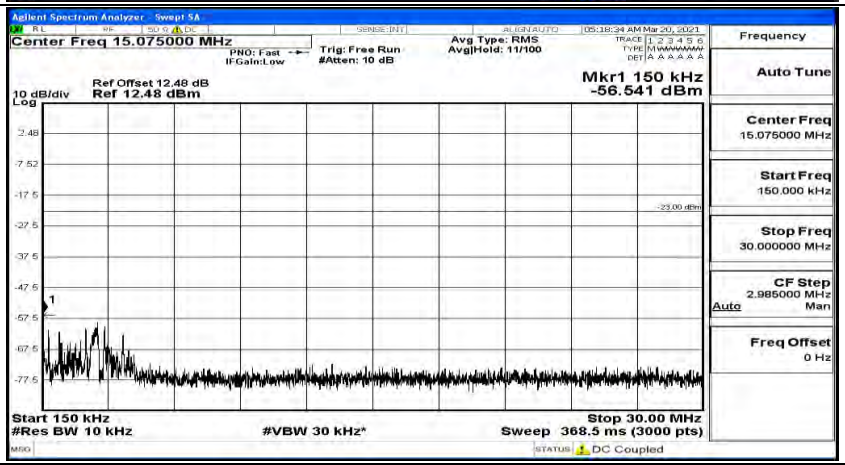
(Channel Bandwidth: 1.4 MHz)_HCH_16QAM_1RB#3





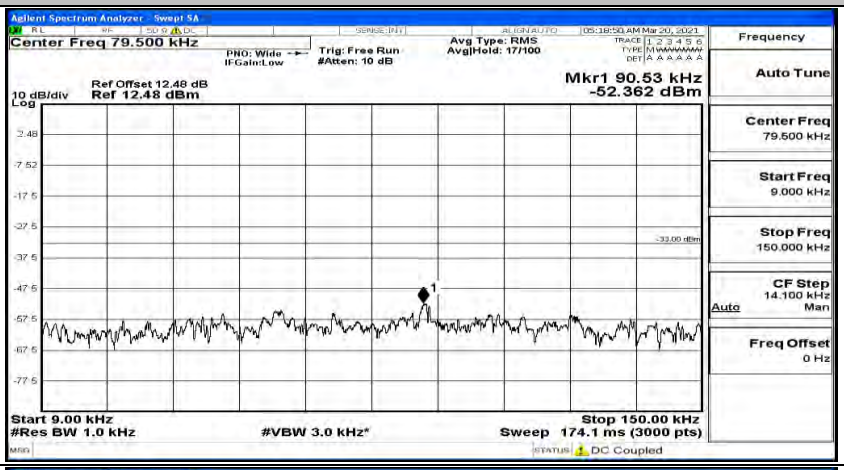
(Channel Bandwidth: 1.4 MHz)_HCH_16QAM_1RB#5

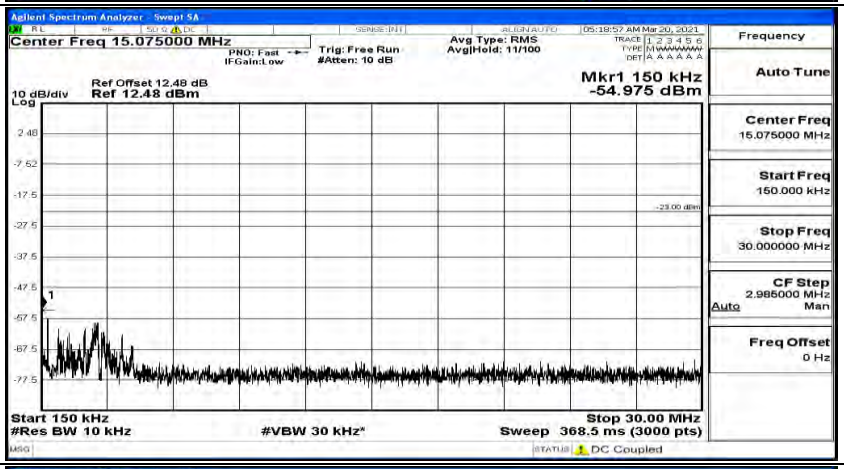




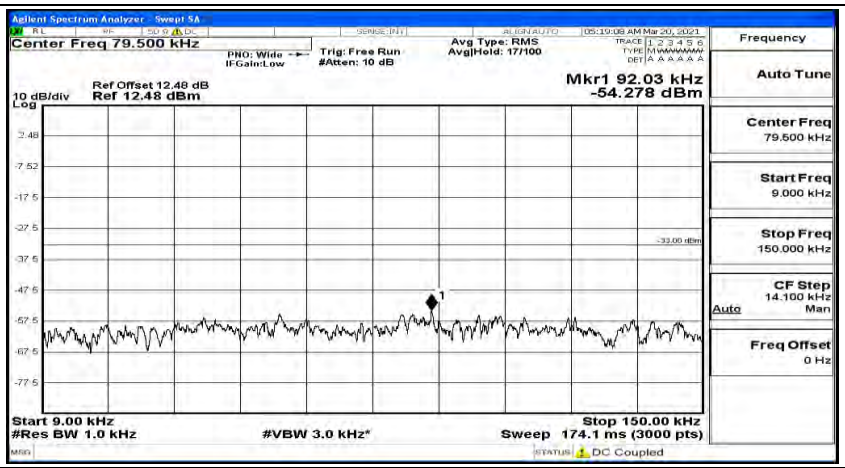
Channel Bandwidth: 3 MHz

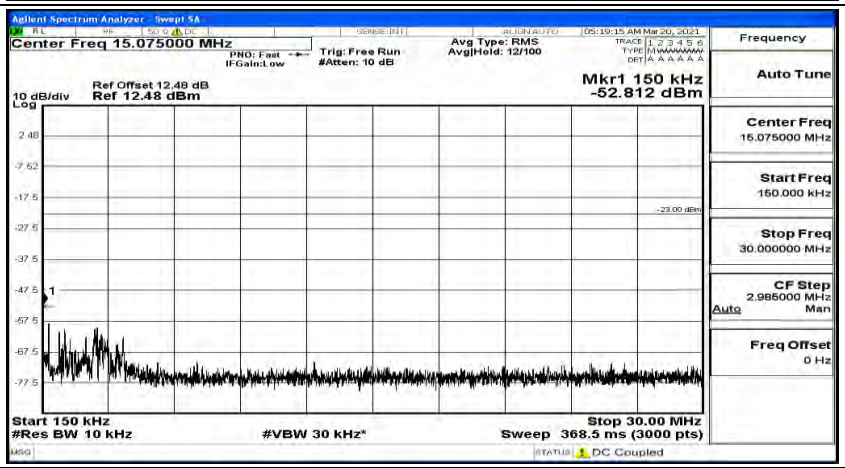
(Channel Bandwidth: 3 MHz)_LCH_QPSK_1RB#0



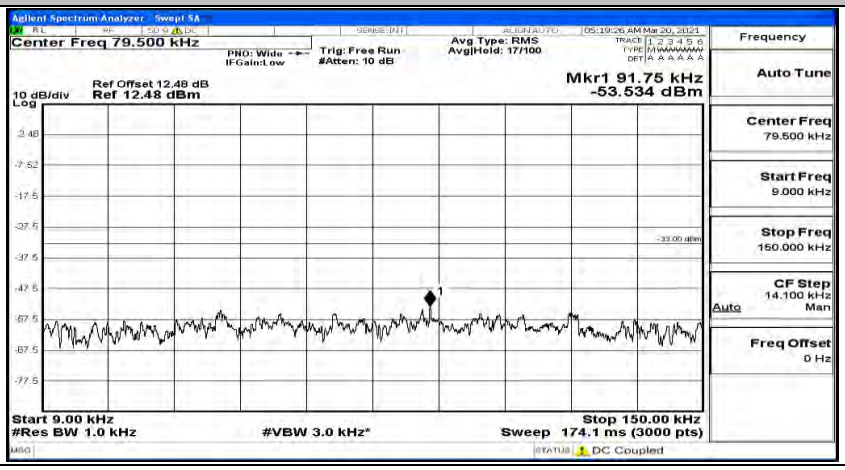


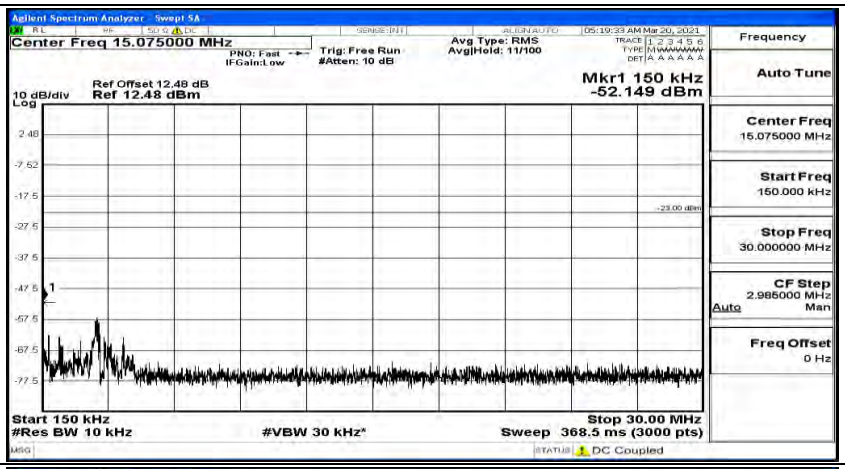
(Channel Bandwidth: 3 MHz)_LCH_QPSK_1RB#7

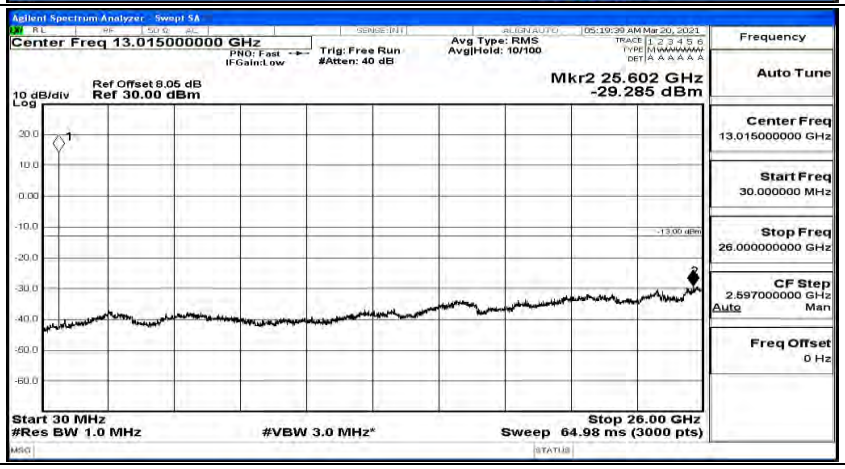




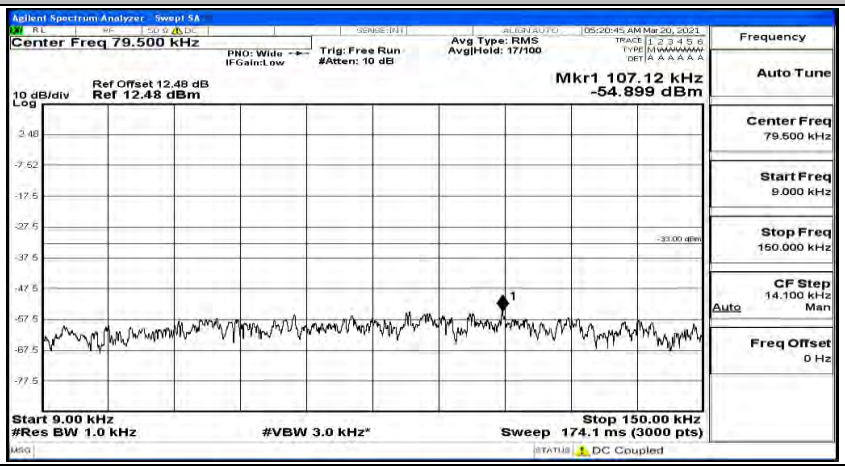
(Channel Bandwidth: 3 MHz)_LCH_QPSK_1RB#14

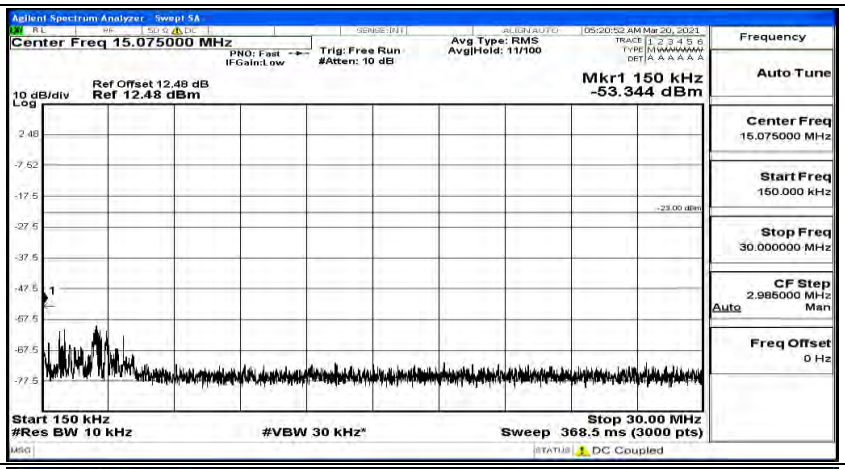


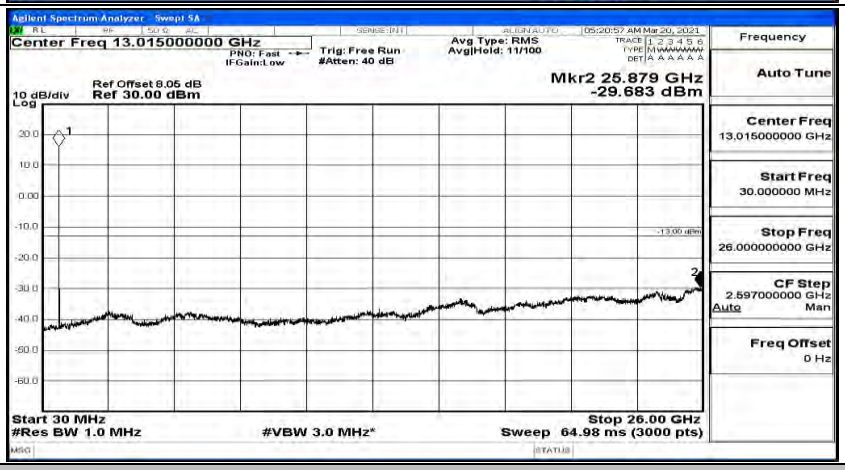




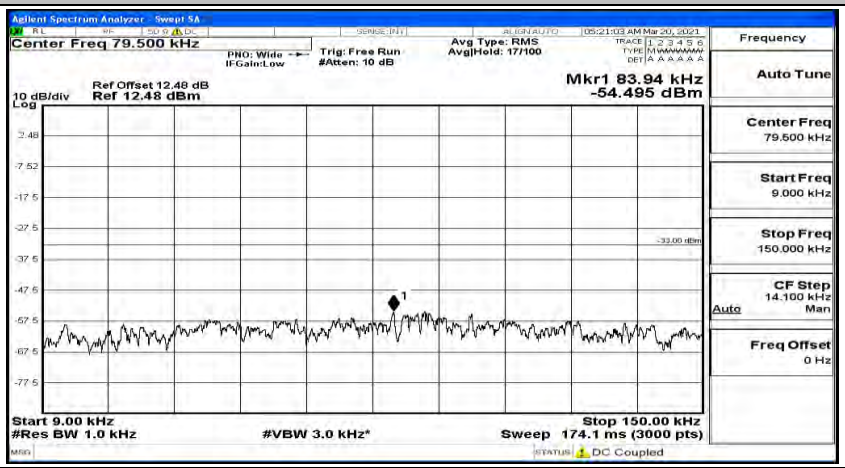
(Channel Bandwidth: 3 MHz)_MCH_QPSK_1RB#0

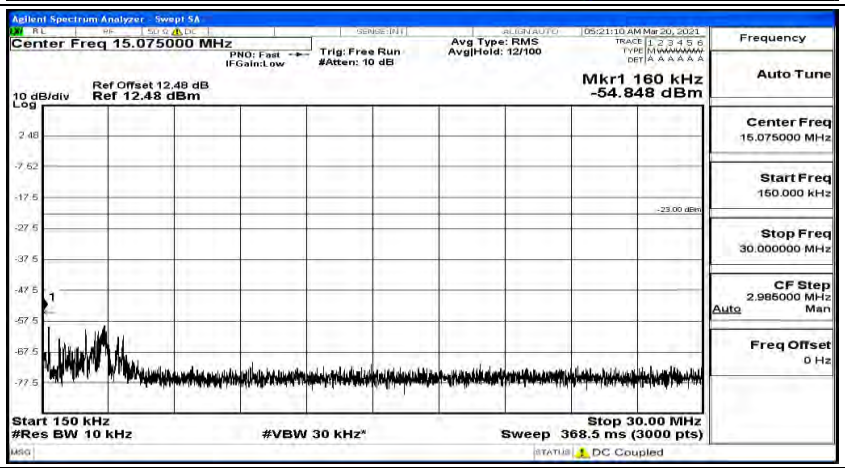




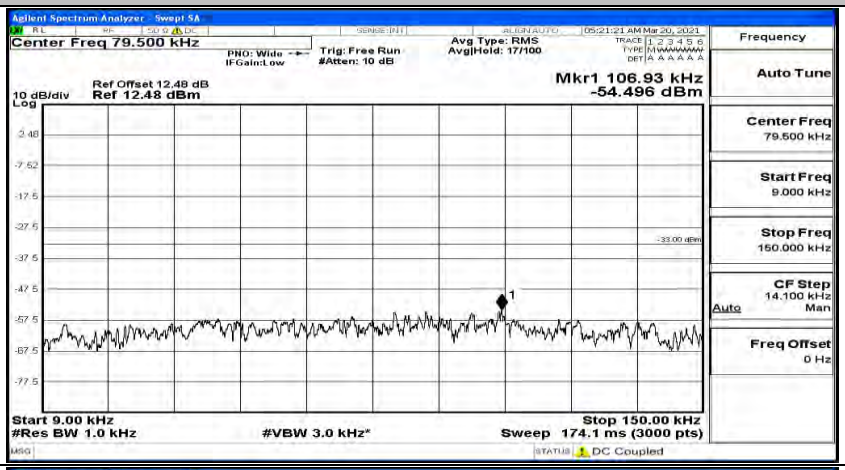


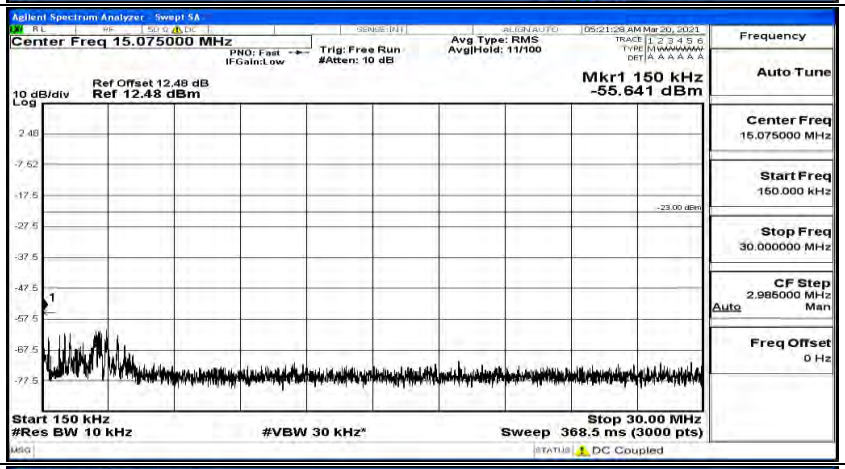
(Channel Bandwidth: 3 MHz)_MCH_QPSK_1RB#7



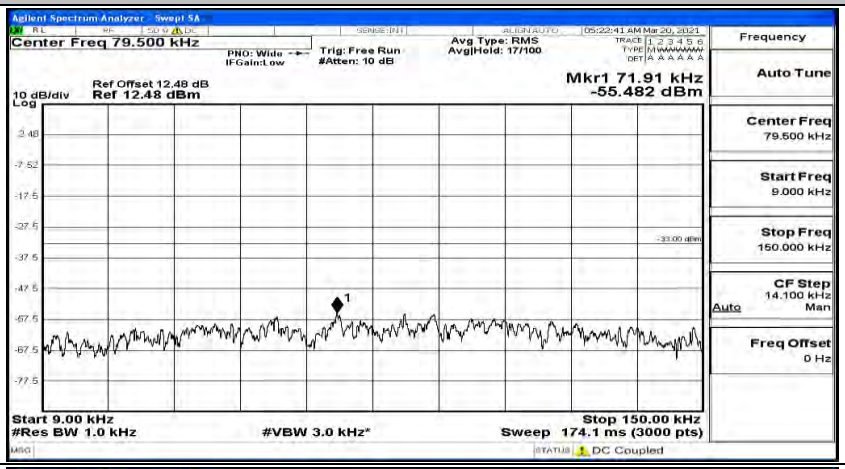


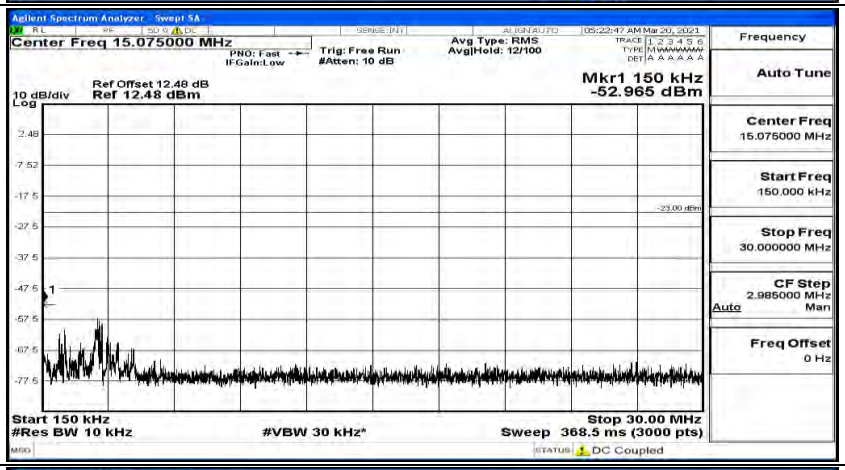
(Channel Bandwidth: 3 MHz)_MCH_QPSK_1RB#14



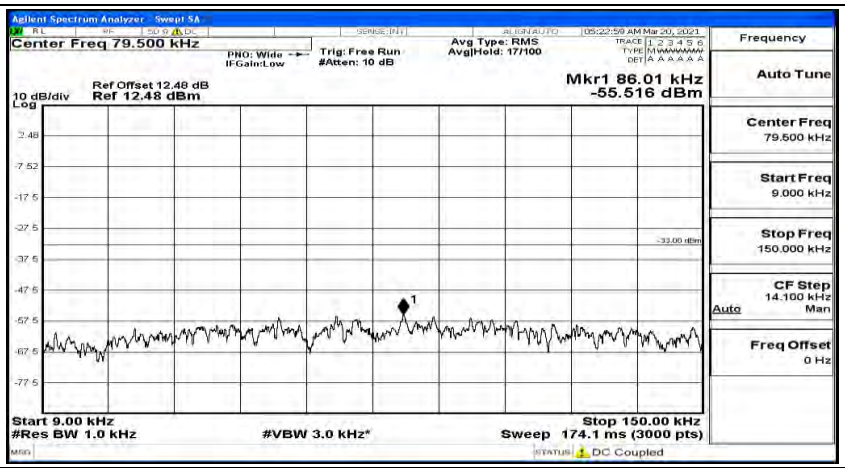


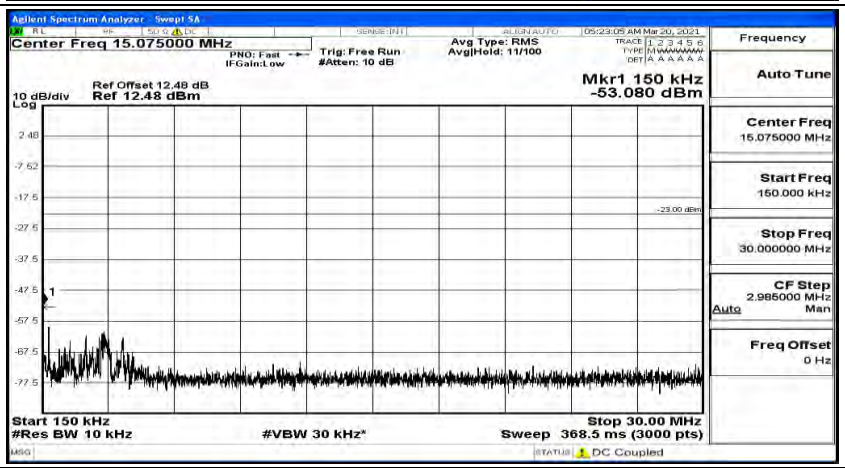
(Channel Bandwidth: 3 MHz)_HCH_QPSK_1RB#0



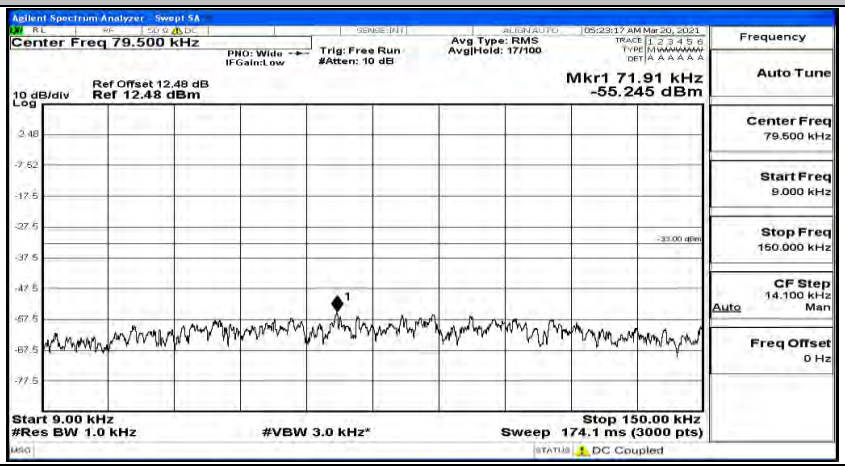


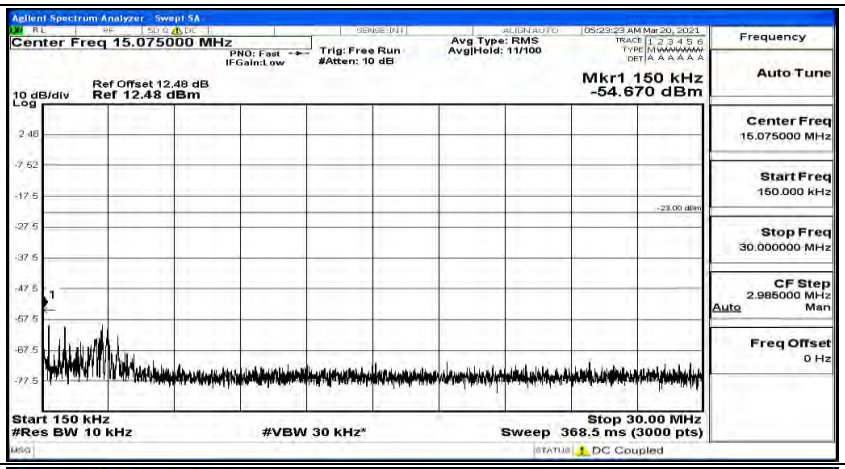
(Channel Bandwidth: 3 MHz)_HCH_QPSK_1RB#7





(Channel Bandwidth: 3 MHz)_HCH_QPSK_1RB#14




Agilent Spectrum Analyzer - Swept SA
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 11/100
05:23:23 AM Mar 20, 2021
Ref Offset 12.48 dB
10 dB/div
Log
Ref 12.48 dBm
Mkr1 150 kHz
-54.670 dBm
-23.00 dBm
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz*
Stop 30.00 MHz
Sweep 368.5 ms (3000 pts)
DC Coupled
Frequency
Auto Tune
Center Freq
15.075000 MHz
Start Freq
150.000 kHz
Stop Freq
30.000000 MHz
CF Step
2.985000 MHz
Auto
Man
Freq Offset
0 Hz


Agilent Spectrum Analyzer - Swept SA
Center Freq 13.015000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: RMS
Avg|Hold: 11/100
05:23:29 AM Mar 20, 2021
Ref Offset 8.05 dB
10 dB/div
Log
Ref 30.00 dBm
Mkr2 25.680 GHz
-29.511 dBm
-13.00 dBm
Start 30 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 26.00 GHz
Sweep 64.98 ms (3000 pts)
Frequency
Auto Tune
Center Freq
13.015000000 GHz
Start Freq
30.000000 MHz
Stop Freq
26.000000000 GHz
CF Step
2.597000000 GHz
Auto
Man
Freq Offset
0 Hz