Appendix H: Test Data for E-UTRA Band 12

Product Name: 3G/4G Smart Phone

Trade Mark: DOOGEE

Test Model: N30

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]	Average Power [dBm]	Verdict
		Size	Offset	QPSK	16QAM	
QPSK / 16QAM	LCH	1	0	23.14	22.20	PASS
		1	3	23.24	22.38	PASS
		1	5	23.14	22.21	PASS
		3	0	23.15	22.03	PASS
		3	2	23.16	22.05	PASS
		3	3	23.22	22.04	PASS
		6	0	22.22	21.07	PASS
	MCH	1	0	23.05	21.91	PASS
		1	3	23.10	22.06	PASS
		1	5	23.00	21.88	PASS
		3	0	23.05	21.86	PASS
		3	2	23.06	21.85	PASS
		3	3	23.05	21.81	PASS
		6	0	22.04	21.05	PASS
	HCH	1	0	22.99	22.01	PASS
		1	3	23.14	22.19	PASS
		1	5	23.00	22.04	PASS
		3	0	23.03	21.84	PASS
		3	2	23.03	21.85	PASS
		3	3	23.05	21.87	PASS
		6	0	22.07	21.07	PASS

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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	23.16	22.32	PASS
		1	7	23.15	22.32	PASS
		1	14	23.14	22.27	PASS
		8	0	22.25	21.23	PASS
		8	4	22.22	21.23	PASS
		8	7	22.22	21.20	PASS
		15	0	22.17	21.16	PASS
	MCH	1	0	23.08	22.24	PASS
		1	7	23.11	22.19	PASS
		1	14	22.99	22.15	PASS
		8	0	22.10	21.05	PASS
		8	4	22.08	21.04	PASS
		8	7	22.05	21.05	PASS
		15	0	22.01	20.92	PASS
	HCH	1	0	23.03	21.91	PASS
		1	7	23.03	21.94	PASS
		1	14	23.06	21.99	PASS
		8	0	22.10	21.07	PASS
		8	4	22.10	21.04	PASS
		8	7	22.04	21.00	PASS
		15	0	22.02	20.91	PASS

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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	23.12	22.10	PASS
		1	12	23.25	22.22	PASS
		1	24	23.06	22.06	PASS
		12	0	22.16	21.09	PASS
		12	6	22.14	21.11	PASS
		12	13	22.15	21.06	PASS
		25	0	22.15	21.12	PASS
	MCH	1	0	23.01	22.16	PASS
		1	12	23.17	22.32	PASS
		1	24	23.02	22.16	PASS
		12	0	22.07	21.06	PASS
		12	6	22.06	21.06	PASS
		12	13	22.12	21.09	PASS
		25	0	22.07	21.03	PASS
	HCH	1	0	22.99	21.95	PASS
		1	12	23.15	22.12	PASS
		1	24	23.01	22.00	PASS
		12	0	22.08	21.02	PASS
		12	6	22.10	21.05	PASS
		12	13	21.88	20.83	PASS
		25	0	21.97	20.94	PASS

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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	23.07	22.25	PASS
		1	24	23.20	22.34	PASS
		1	49	23.00	22.15	PASS
		25	0	22.19	21.11	PASS
		25	12	22.19	21.13	PASS
		25	25	22.12	21.08	PASS
		50	0	22.12	21.09	PASS
	MCH	1	0	23.05	22.18	PASS
		1	24	23.17	22.29	PASS
		1	49	23.01	22.11	PASS
		25	0	22.17	21.15	PASS
		25	12	22.18	21.16	PASS
		25	25	22.21	21.13	PASS
		50	0	22.05	21.06	PASS
	HCH	1	0	22.97	21.82	PASS
		1	24	23.08	21.98	PASS
		1	49	22.97	21.88	PASS
		25	0	21.84	20.83	PASS
		25	12	21.84	20.82	PASS
		25	25	21.77	20.78	PASS
		50	0	21.78	20.74	PASS

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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	4.86	<13	PASS
	MCH	5.03	<13	PASS
	HCH	4.58	<13	PASS
16QAM	LCH	5.67	<13	PASS
	MCH	5.88	<13	PASS
	HCH	5.47	<13	PASS

Peak-to Average Ratio Test Result (Channel Bandwidth: 3 MHz)				
Modulation	Channel	Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
QPSK	LCH	4.99	<13	PASS
	MCH	5	<13	PASS
	HCH	4.55	<13	PASS
16QAM	LCH	5.84	<13	PASS
	MCH	5.91	<13	PASS
	HCH	5.47	<13	PASS

Peak-to Average Ratio Test Result (Channel Bandwidth: 5 MHz)				
Modulation	Channel	Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
QPSK	LCH	4.96	<13	PASS
	MCH	5.07	<13	PASS
	HCH	4.75	<13	PASS
16QAM	LCH	5.77	<13	PASS
	MCH	5.83	<13	PASS
	HCH	5.54	<13	PASS

Peak-to Average Ratio Test Result (Channel Bandwidth: 10 MHz)				
Modulation	Channel	Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
QPSK	LCH	5.05	<13	PASS
	MCH	5.05	<13	PASS
	HCH	4.87	<13	PASS
16QAM	LCH	5.85	<13	PASS
	MCH	5.84	<13	PASS
	HCH	5.81	<13	PASS

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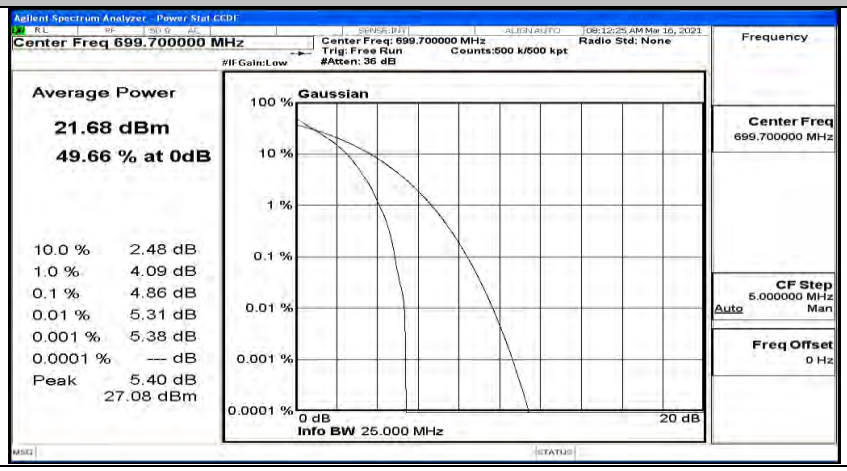
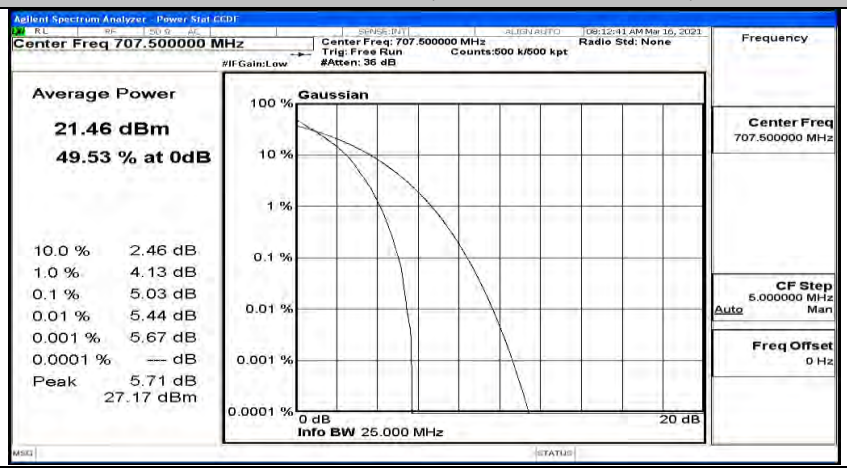
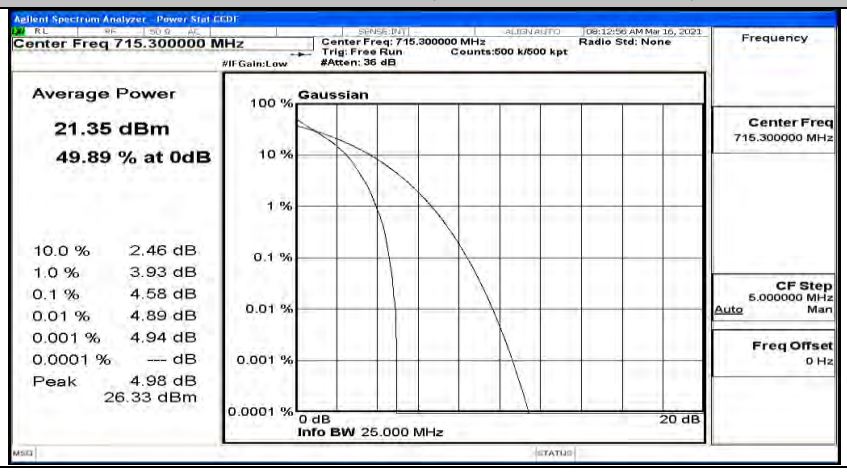
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 1.4 MHz)_LCH_QPSK



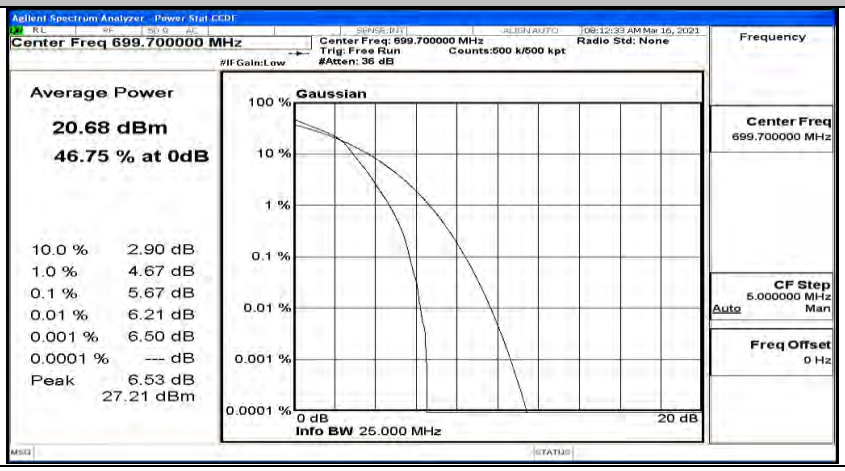
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 1.4 MHz)_MCH_QPSK



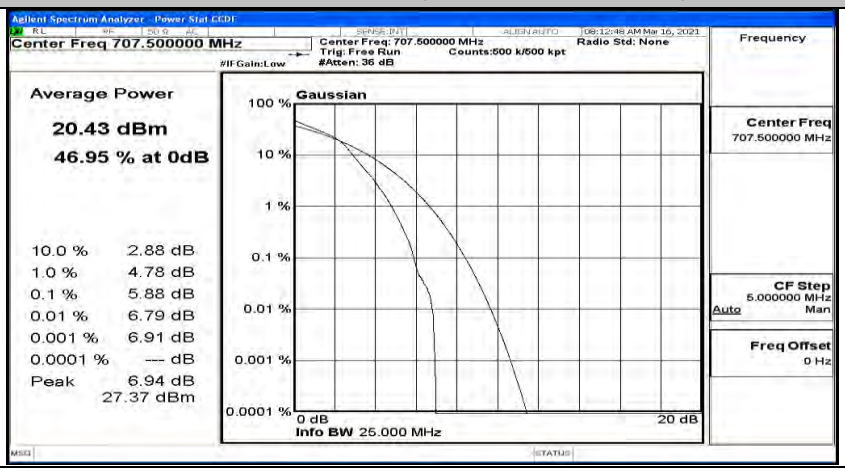
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 1.4 MHz)_HCH_QPSK



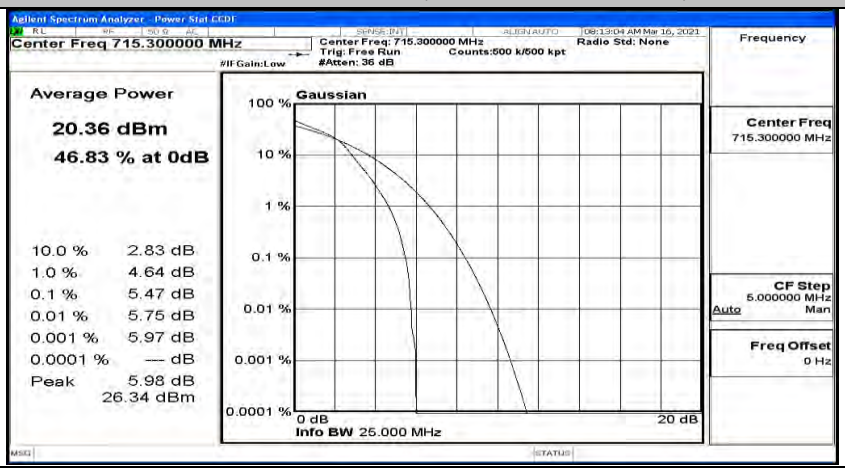
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 1.4 MHz)_LCH_16QAM



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



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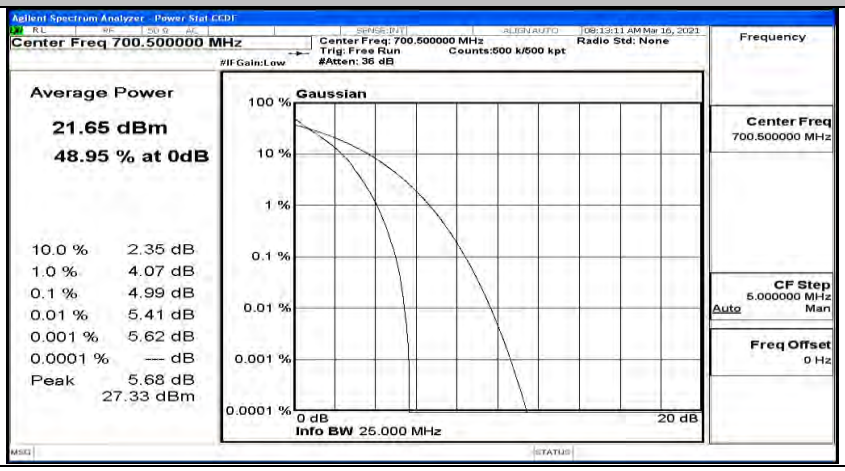
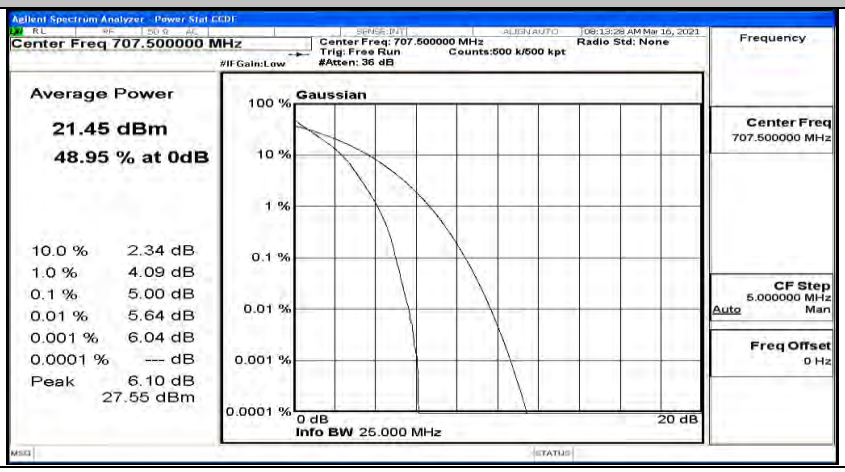
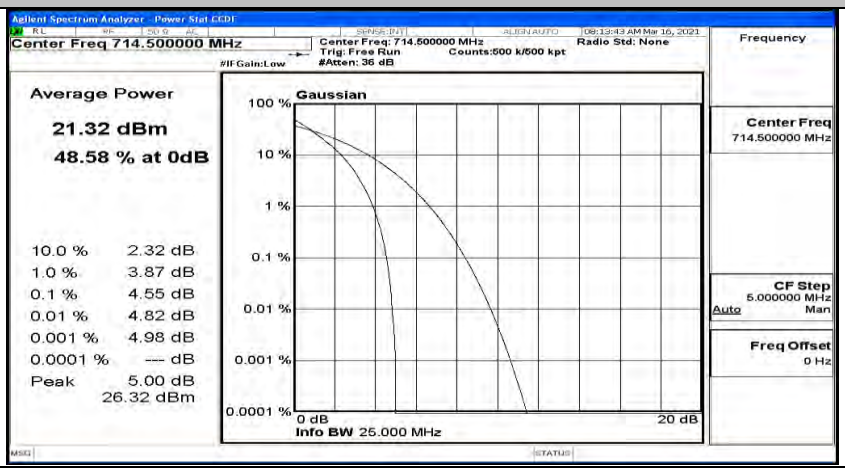
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 3 MHz)_LCH_QPSK



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



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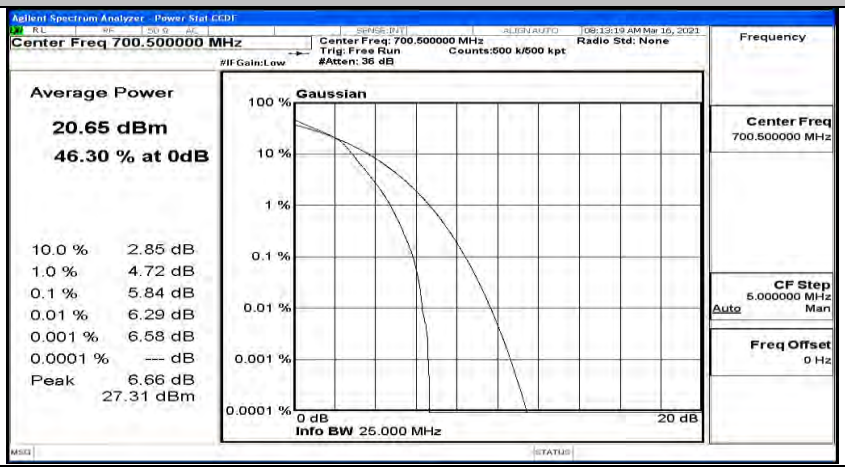
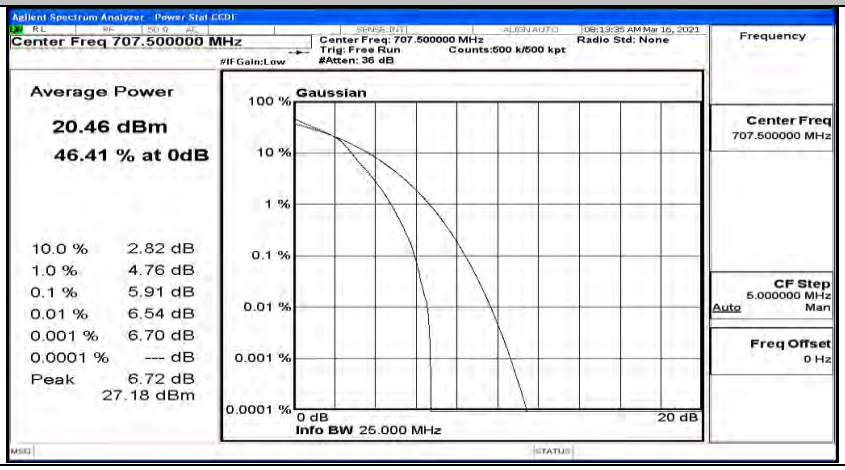
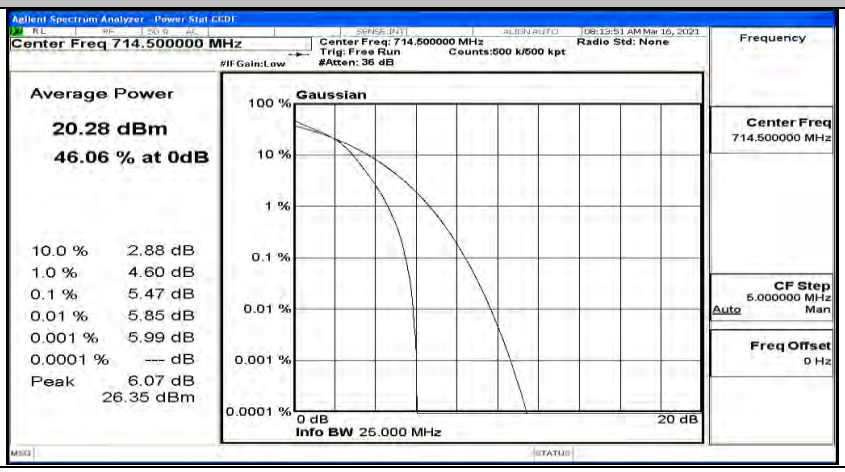
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 3 MHz)_LCH_16QAM



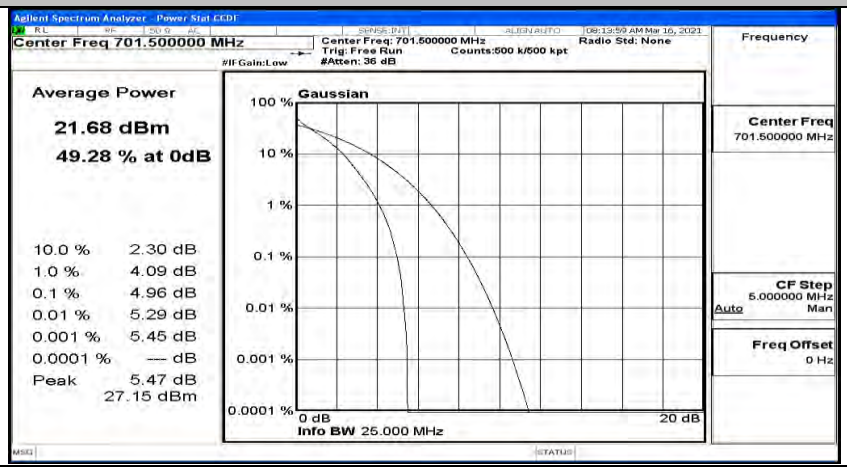
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 3 MHz)_MCH_16QAM



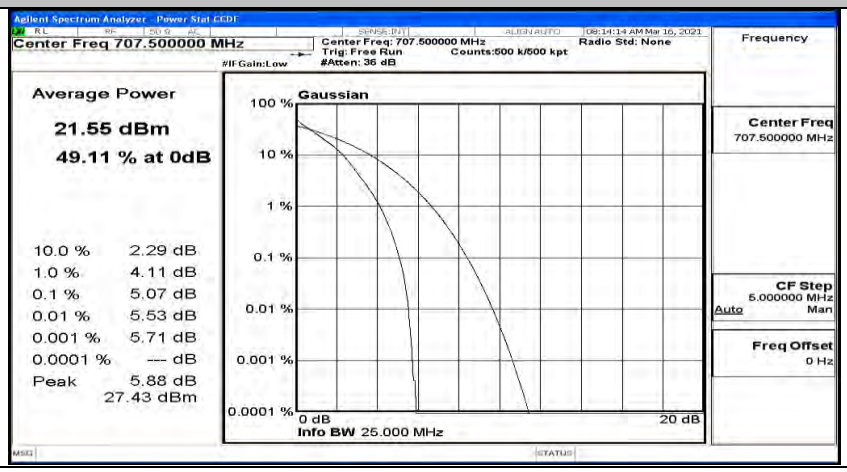
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 3 MHz)_HCH_16QAM



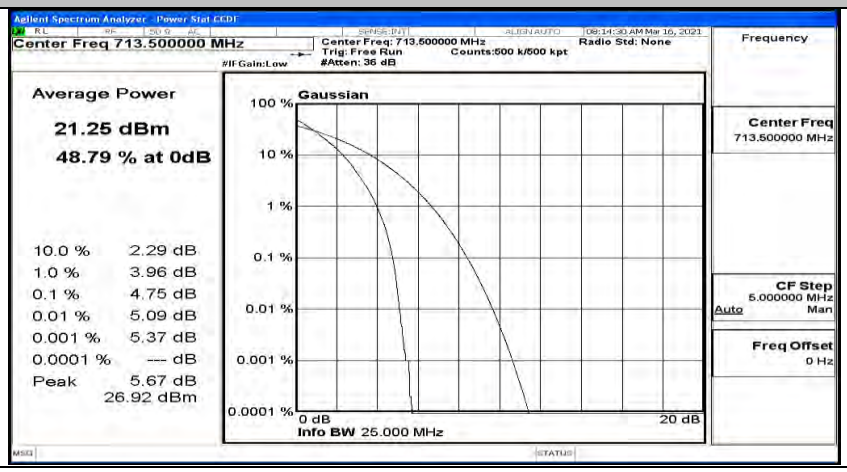
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_QPSK



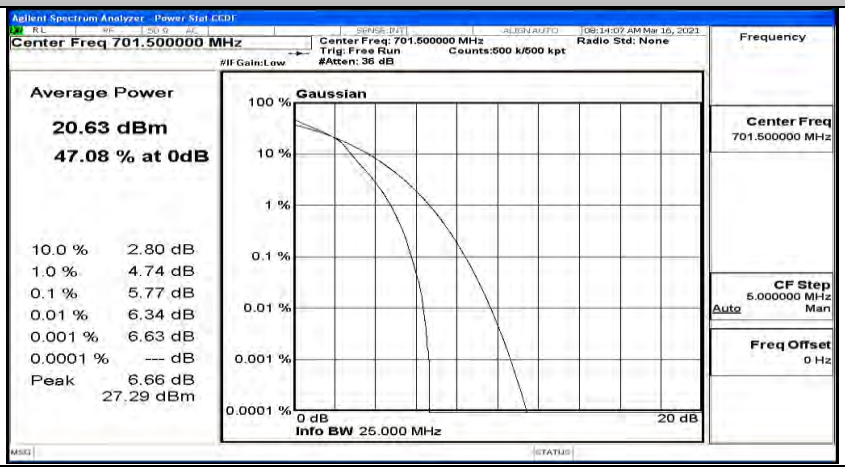
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)_MCH_QPSK



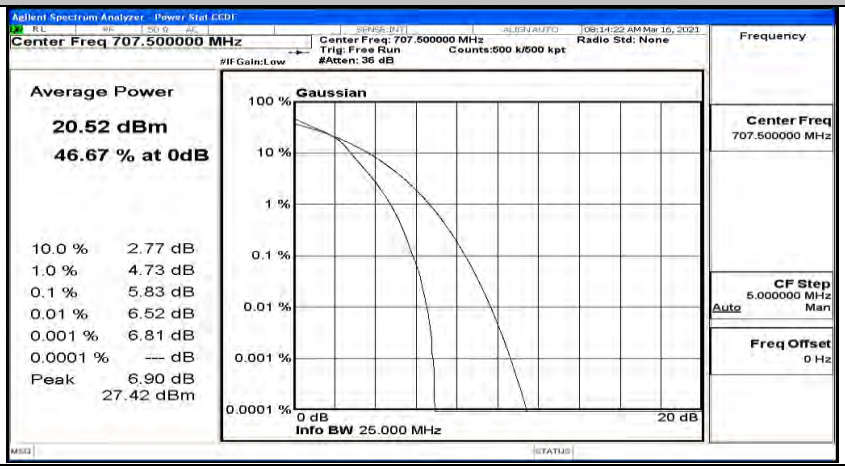
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)_HCH_QPSK



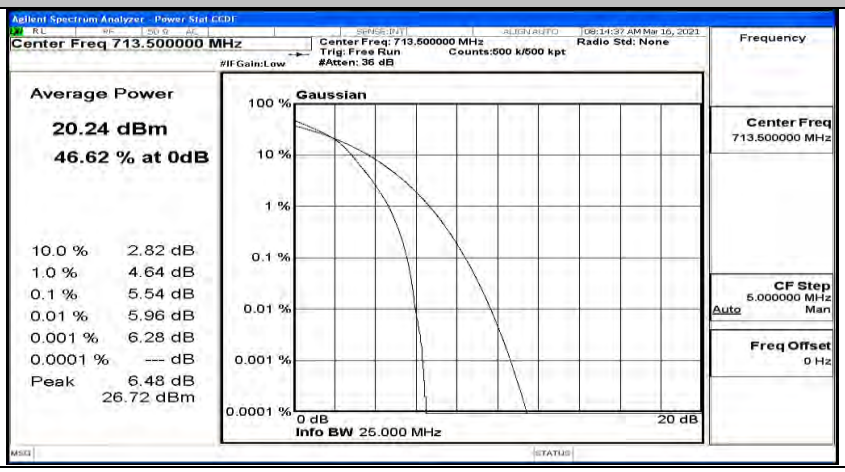
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_16QAM



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



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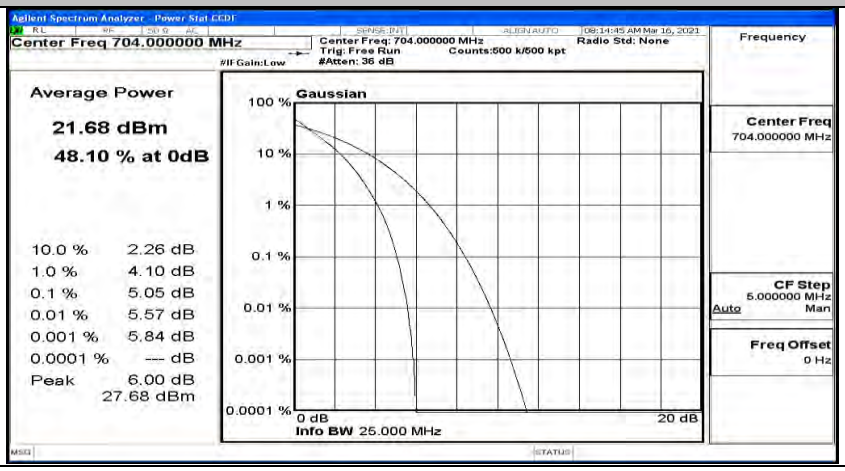
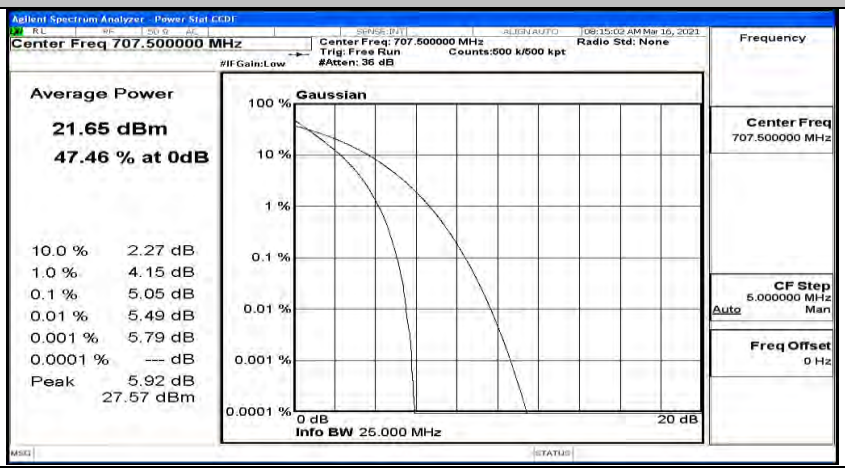
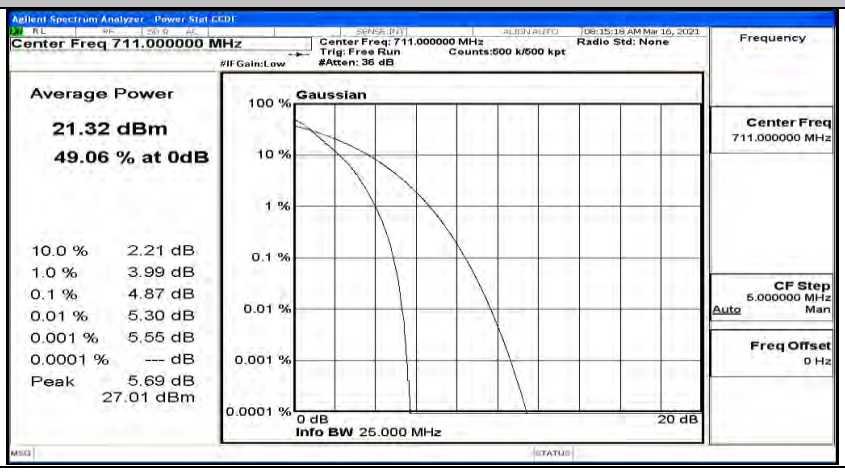
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 10 MHz)_LCH_QPSK



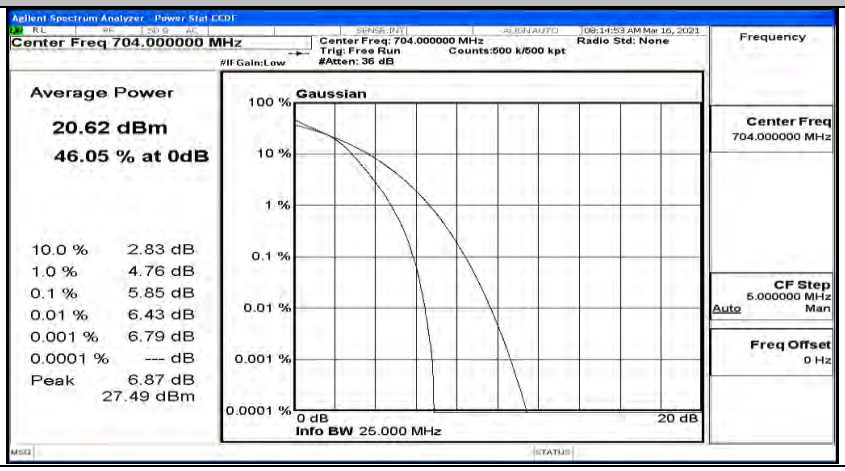
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 10 MHz)_MCH_QPSK



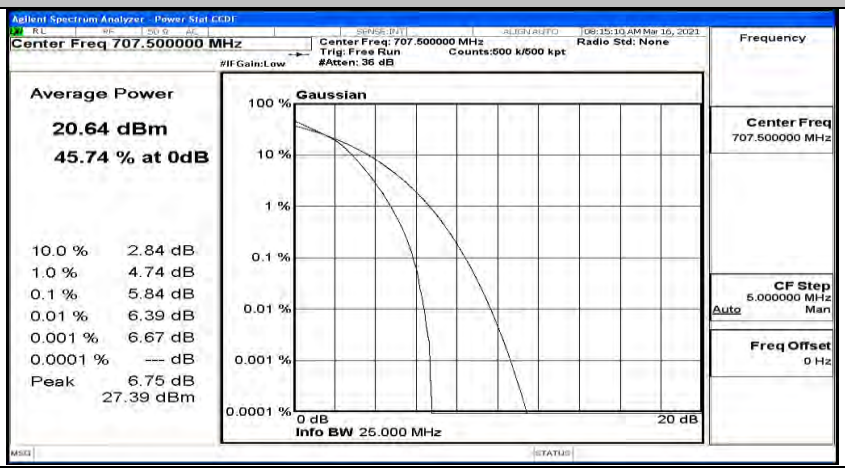
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 10 MHz)_HCH_QPSK



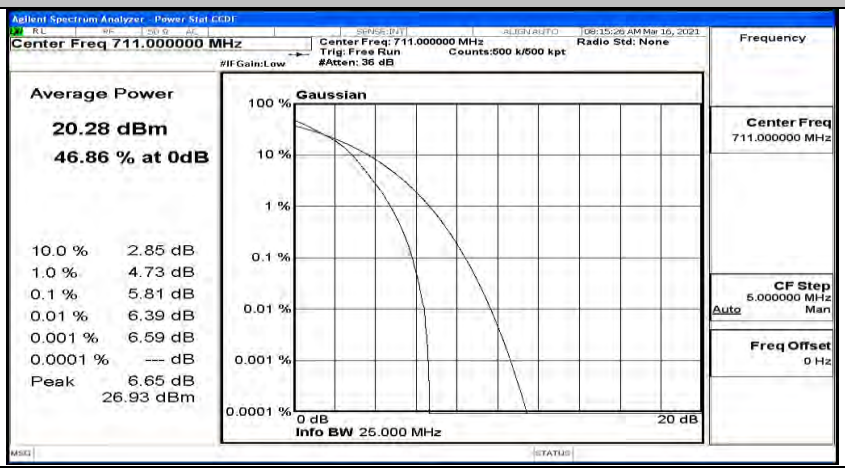
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 10 MHz)_LCH_16QAM



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	1.0758	1.210	PASS
	MCH	1.0826	1.247	PASS
	HCH	1.0778	1.223	PASS
16QAM	LCH	1.0774	1.234	PASS
	MCH	1.0782	1.239	PASS
	HCH	1.0778	1.212	PASS

EBW & OBW Test Result (Channel Bandwidth: 3 MHz)				
Modulation	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
QPSK	LCH	2.6770	2.845	PASS
	MCH	2.6866	2.835	PASS
	HCH	2.6852	2.830	PASS
16QAM	LCH	2.6768	2.800	PASS
	MCH	2.6822	2.829	PASS
	HCH	2.6772	2.833	PASS

EBW & OBW Test Result (Channel Bandwidth: 5 MHz)				
Modulation	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
QPSK	LCH	4.4784	4.861	PASS
	MCH	4.4734	4.883	PASS
	HCH	4.4681	4.788	PASS
16QAM	LCH	4.4784	4.859	PASS
	MCH	4.4779	4.914	PASS
	HCH	4.4694	4.829	PASS

EBW & OBW Test Result (Channel Bandwidth: 10 MHz)				
Modulation	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
QPSK	LCH	8.9531	9.544	PASS
	MCH	8.9570	9.517	PASS
	HCH	8.9152	9.417	PASS
16QAM	LCH	8.9313	9.468	PASS
	MCH	8.9607	9.588	PASS
	HCH	8.9304	9.408	PASS

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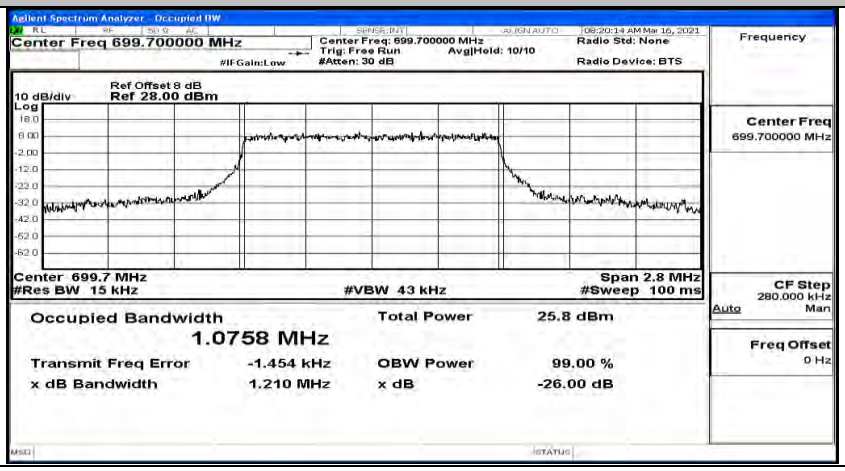
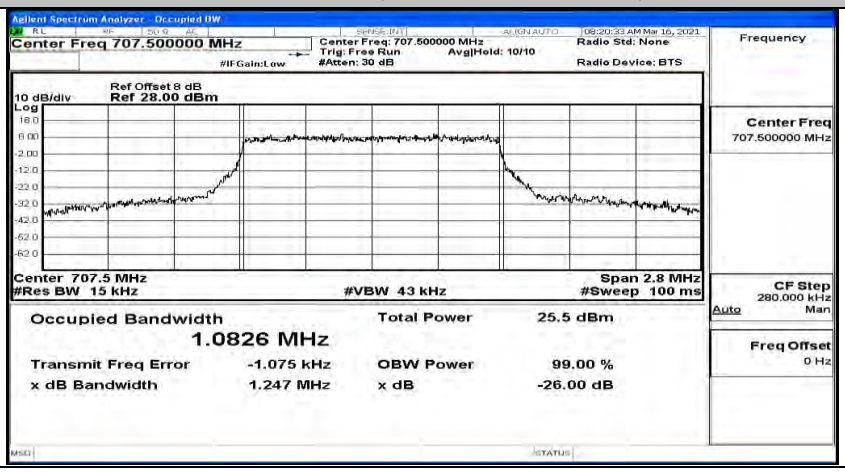
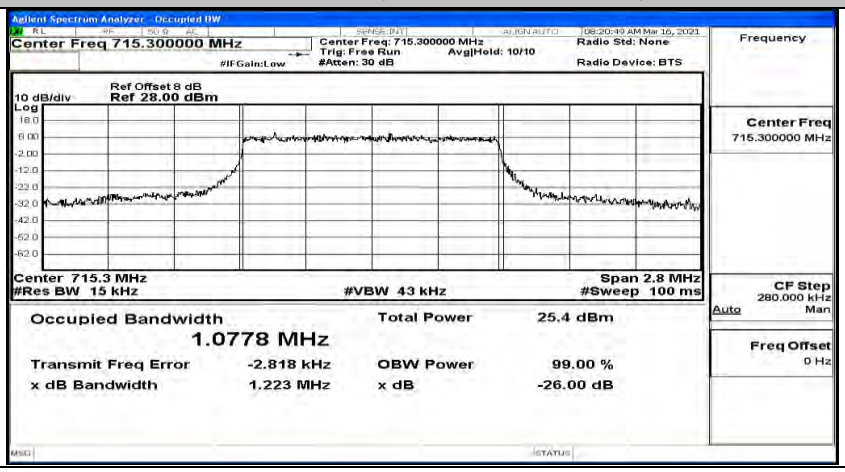
EBW & OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)_LCH_QPSK



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



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



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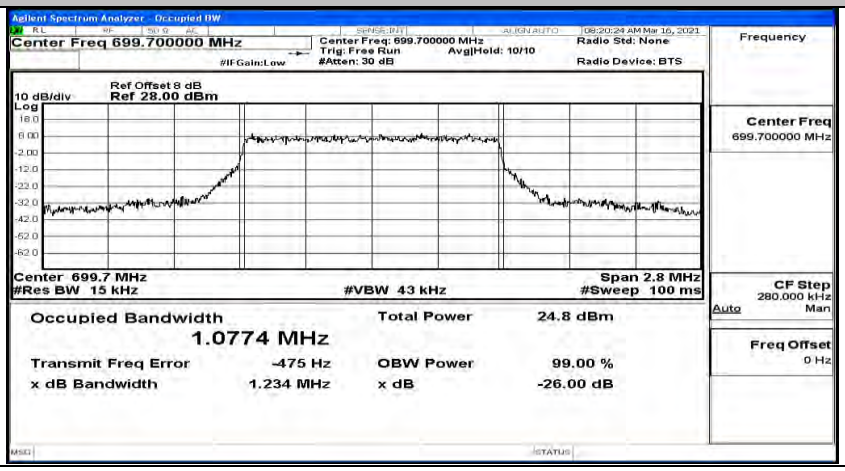
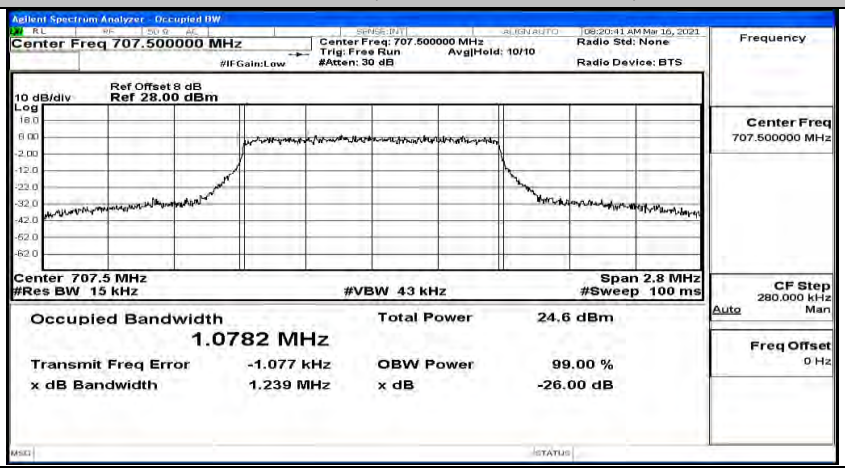
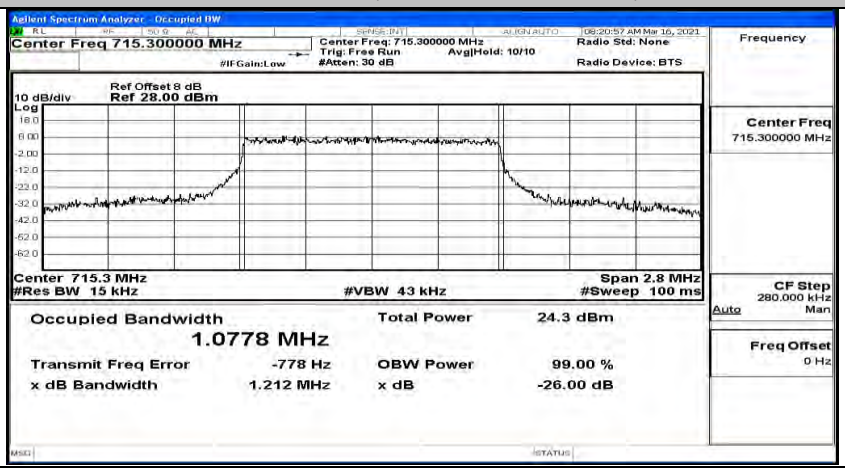
EBW & OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)_LCH_16QAM



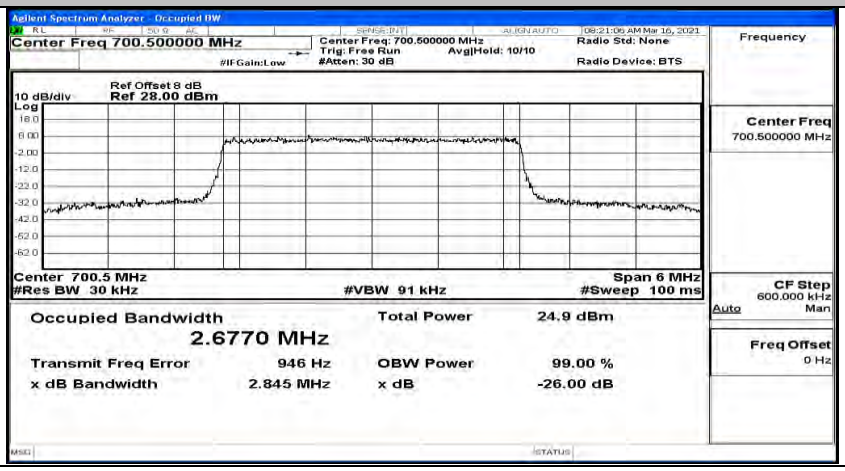
EBW & OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)_MCH_16QAM



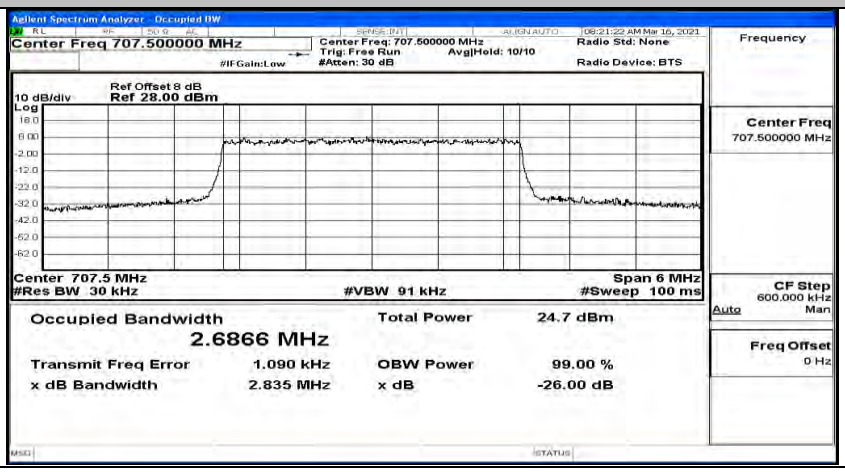
EBW & OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)_HCH_16QAM



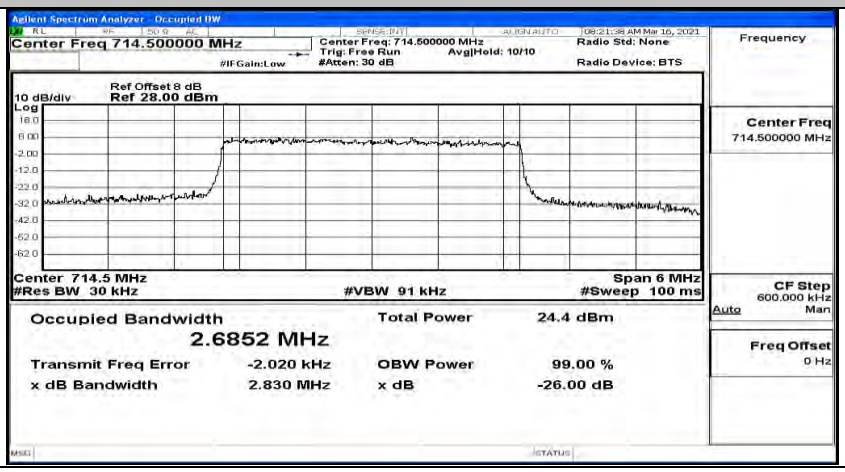
EBW & OBW Test Graph(s) (Channel Bandwidth: 3 MHz)_LCH_QPSK



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



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



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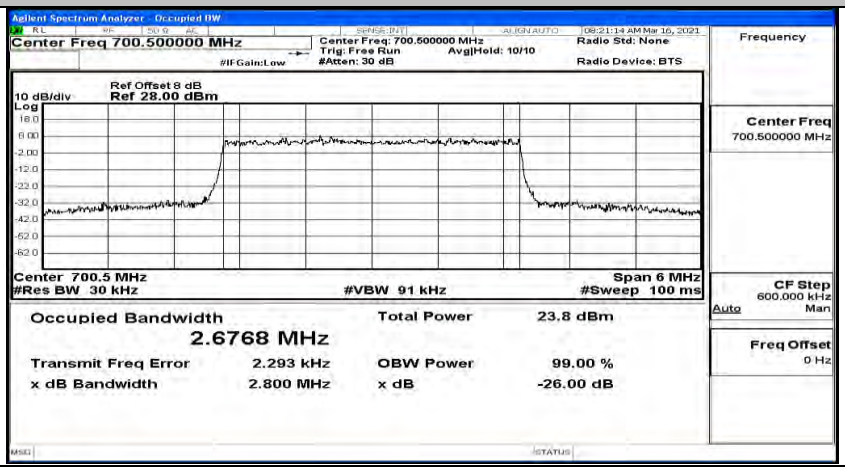
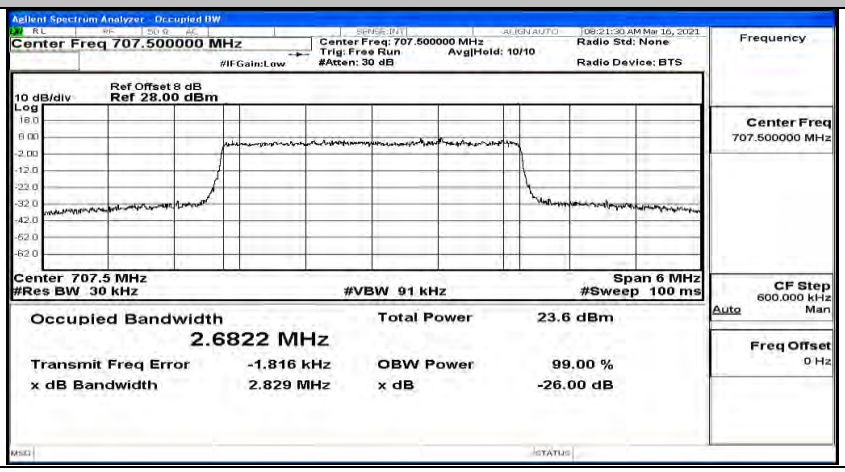
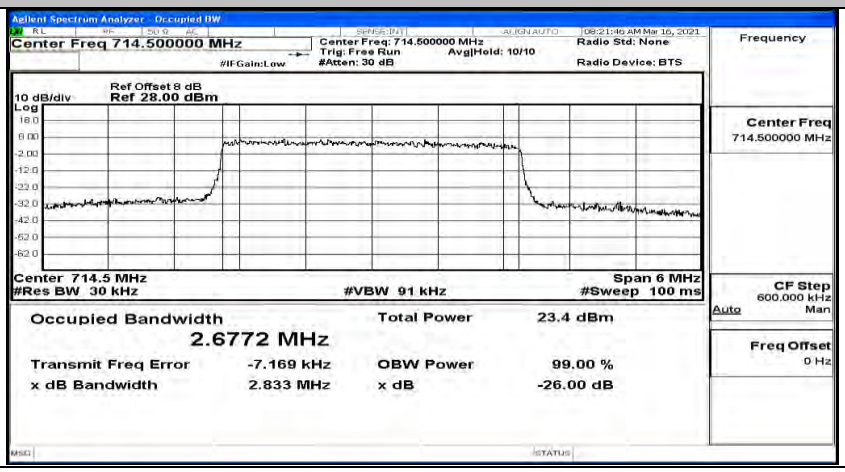
EBW & OBW Test Graph(s) (Channel Bandwidth: 3 MHz)_LCH_16QAM



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



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



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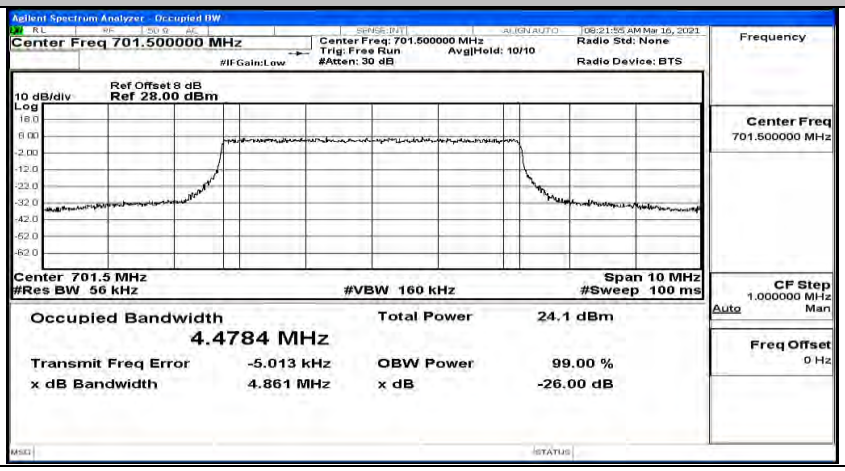
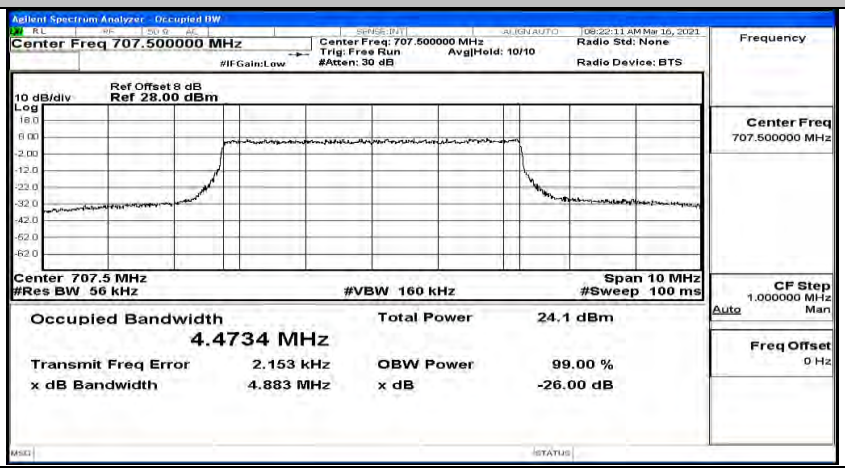
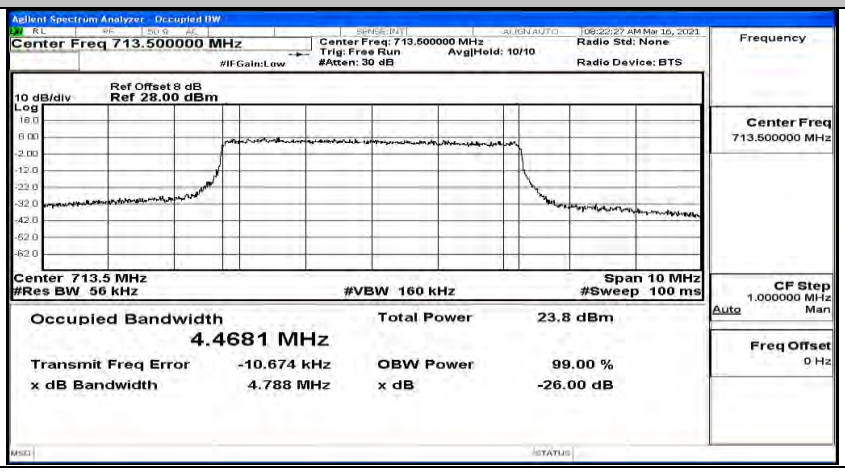
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_QPSK



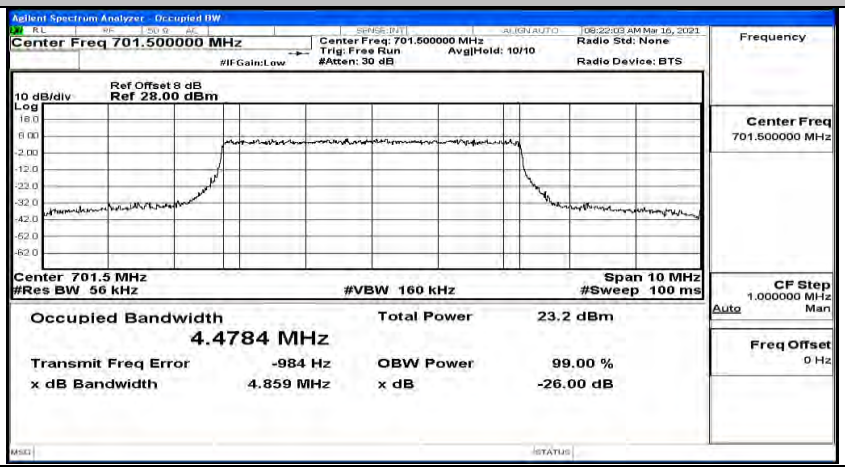
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)_MCH_QPSK



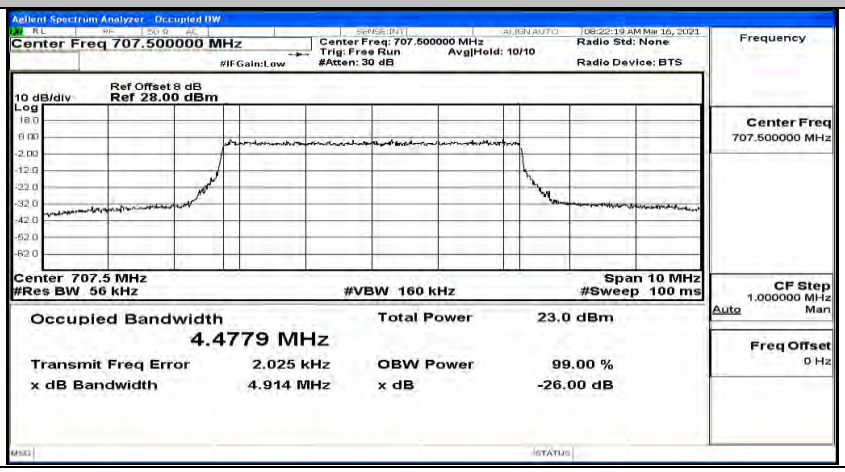
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)_HCH_QPSK



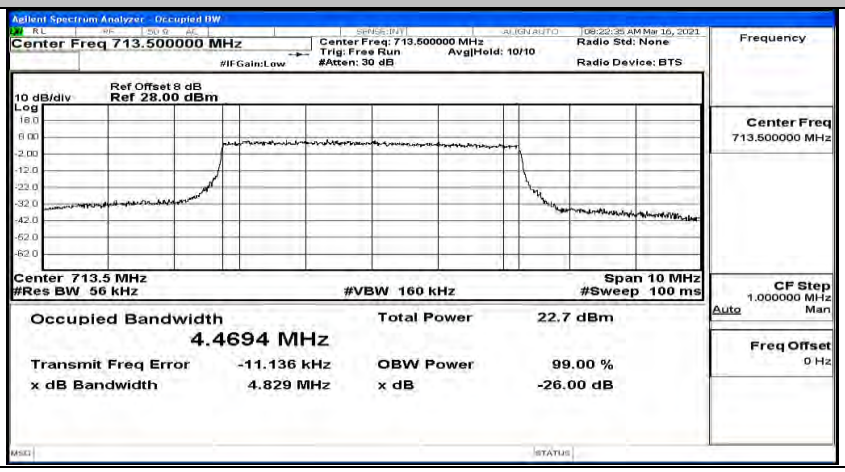
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_16QAM



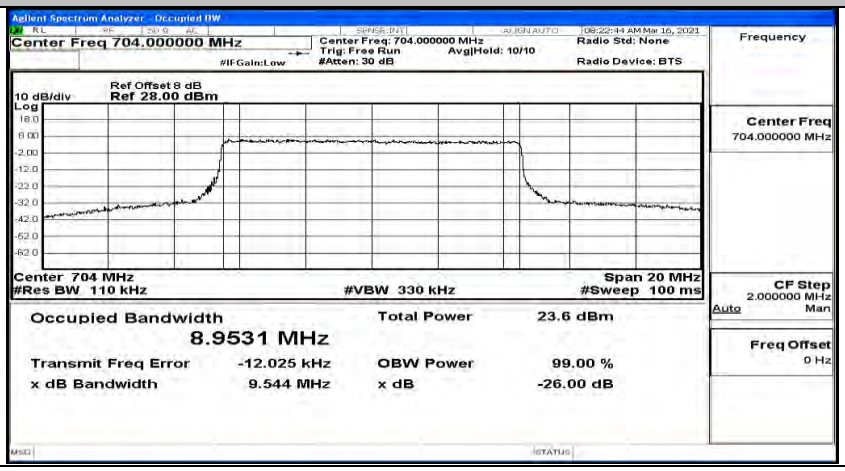
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)_MCH_16QAM



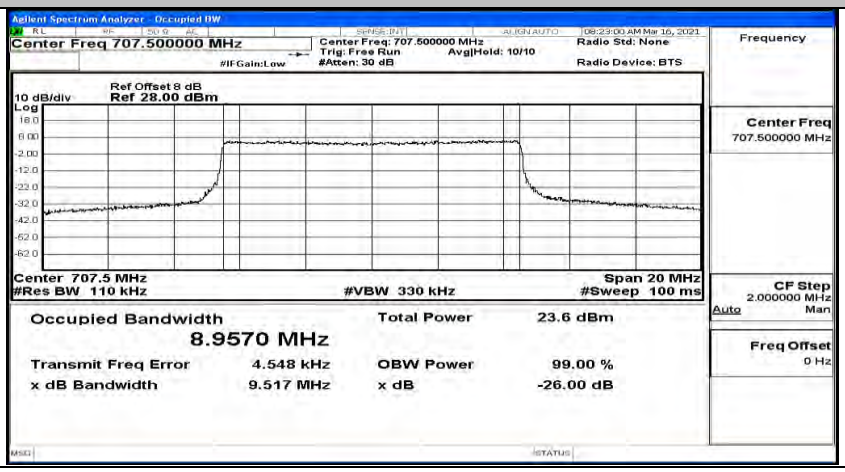
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)_HCH_16QAM



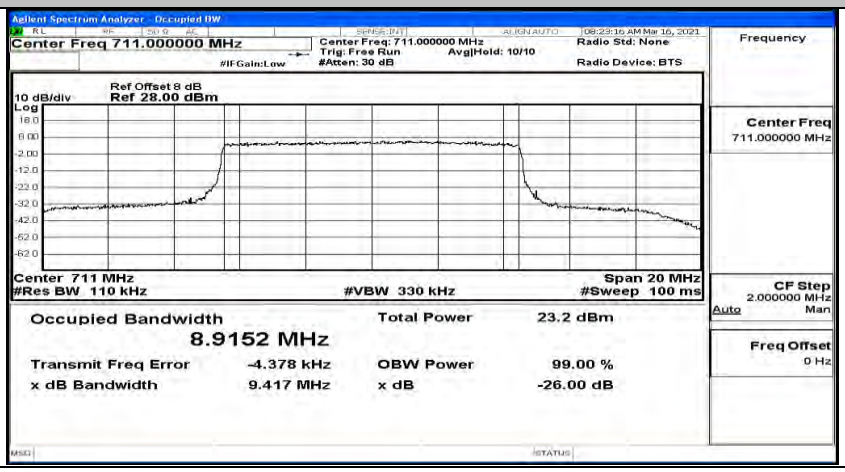
EBW & OBW Test Graph(s) (Channel Bandwidth: 10 MHz)_LCH_QPSK



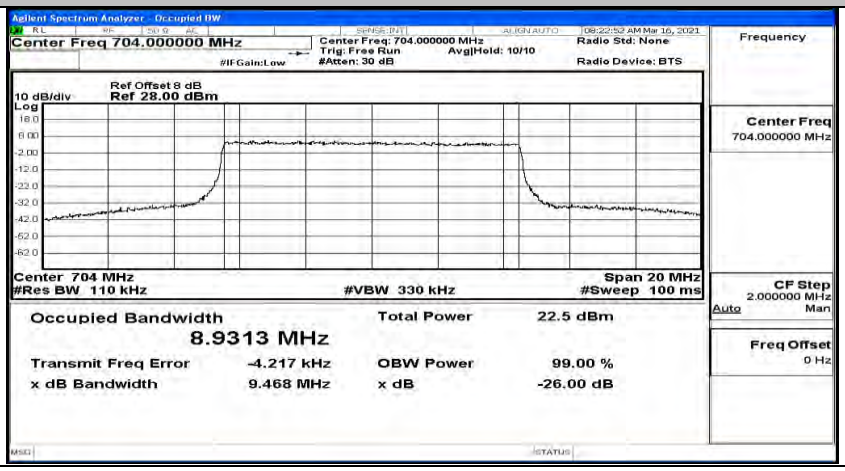
EBW & OBW Test Graph(s) (Channel Bandwidth: 10 MHz)_MCH_QPSK



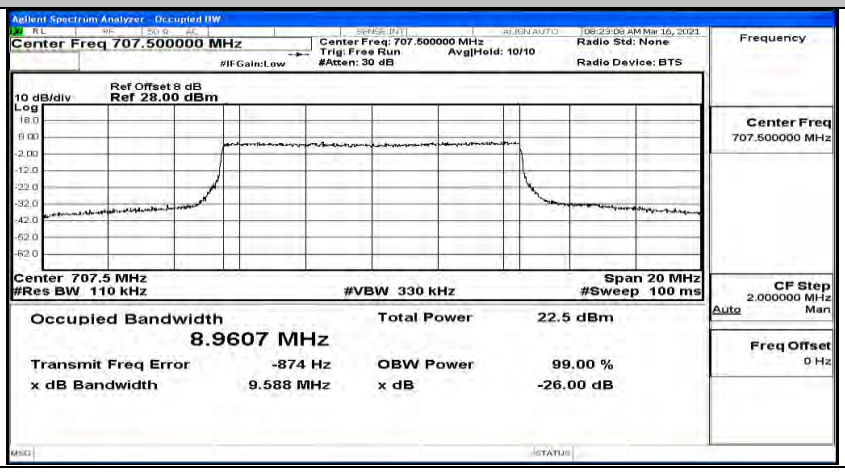
EBW & OBW Test Graph(s) (Channel Bandwidth: 10 MHz)_HCH_QPSK



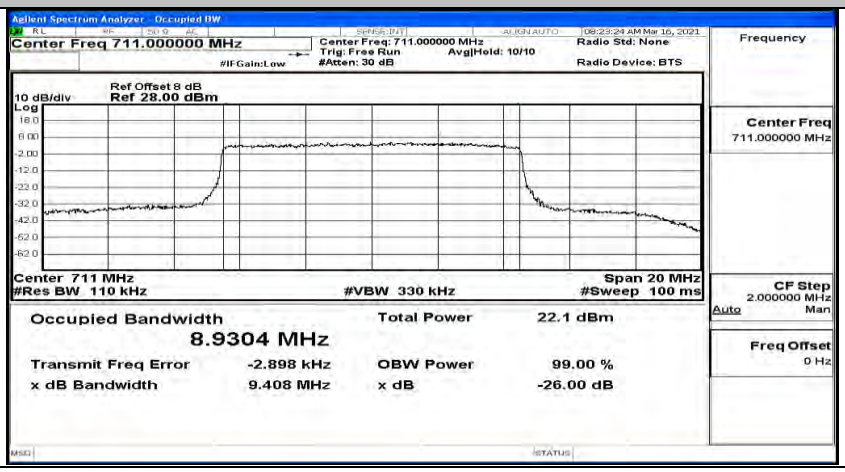
EBW & OBW Test Graph(s) (Channel Bandwidth: 10 MHz)_LCH_16QAM



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



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



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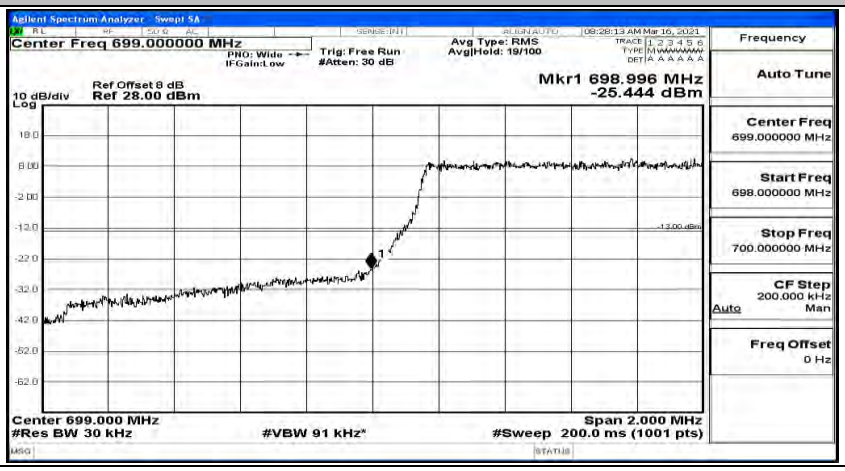
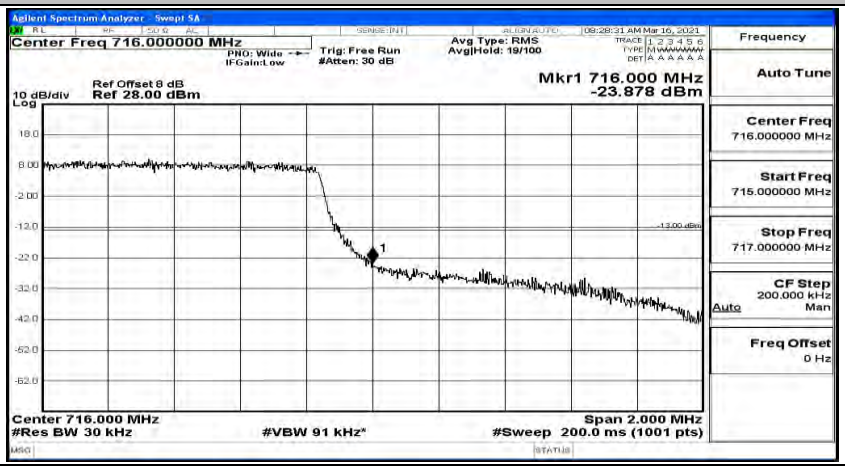
H.4 Band Edge

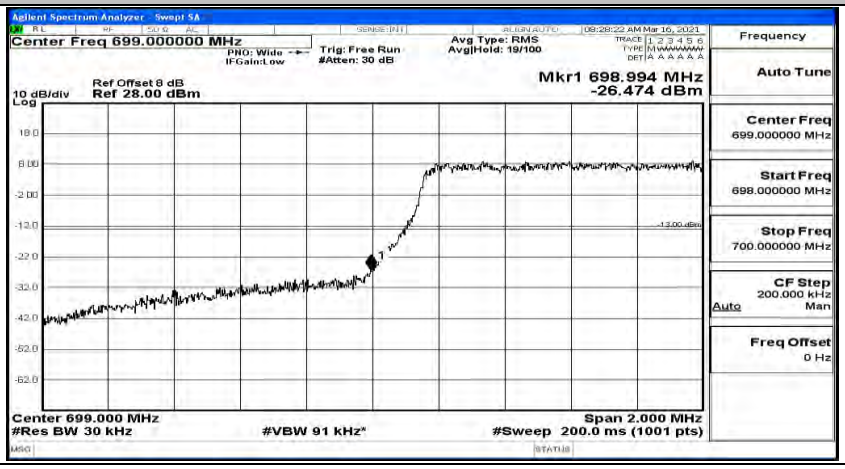
Band Edge Test Graph(s) (Channel Bandwidth: 1.4 MHz)_LCH_QPSK



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



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



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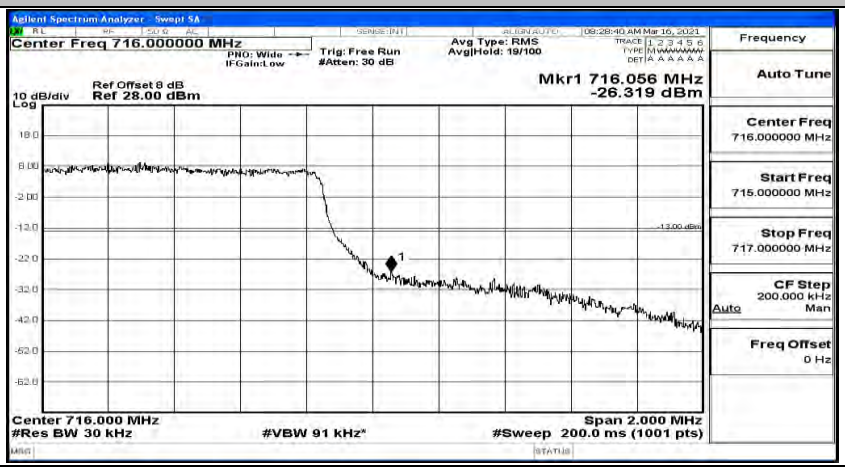
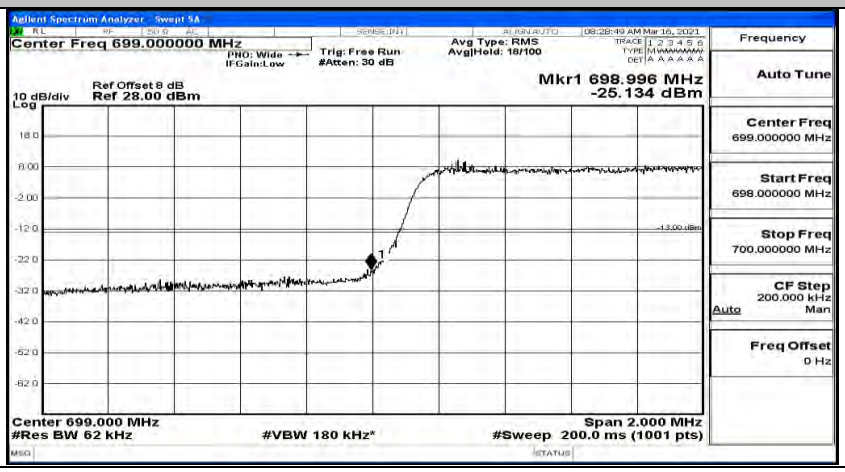
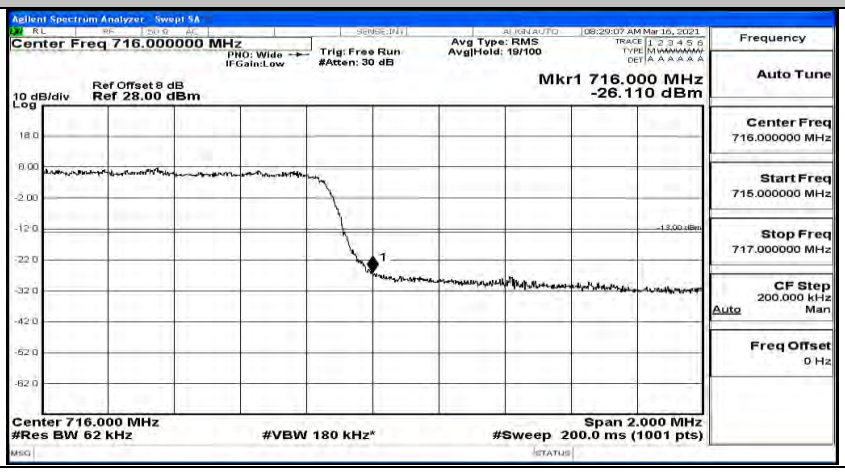
Band Edge Test Graph(s) (Channel Bandwidth: 1.4 MHz)_HCH_16QAM



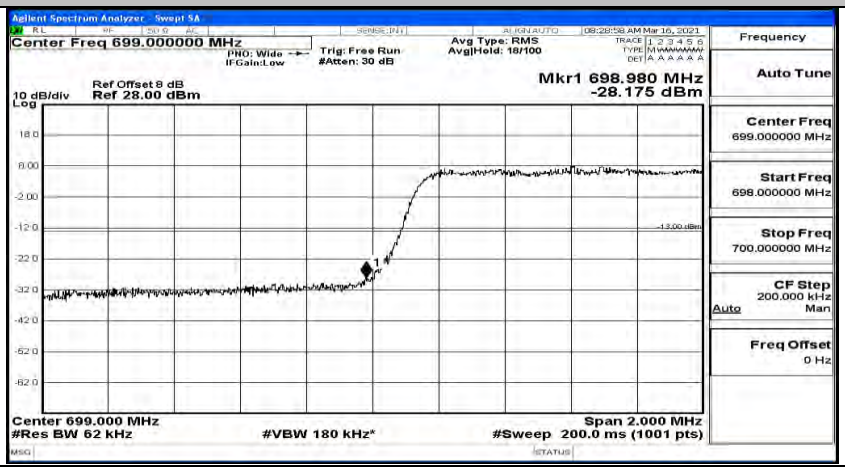
Band Edge Test Graph(s) (Channel Bandwidth: 3 MHz)_LCH_QPSK



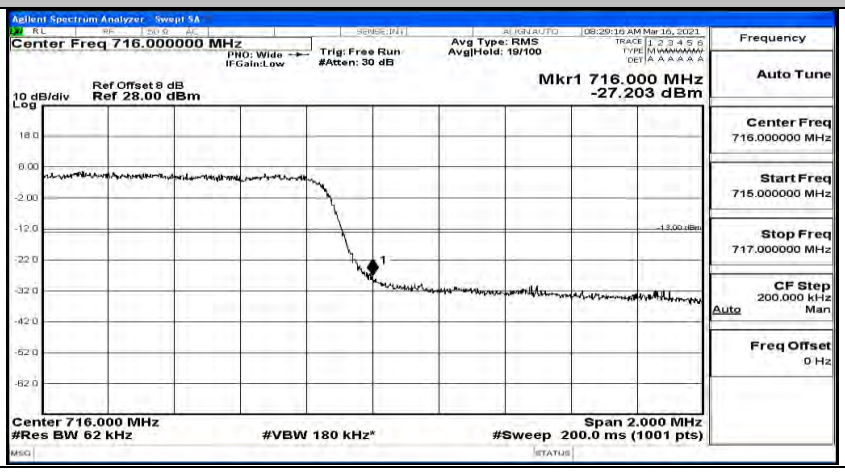
Band Edge Test Graph(s) (Channel Bandwidth: 3 MHz)_HCH_QPSK



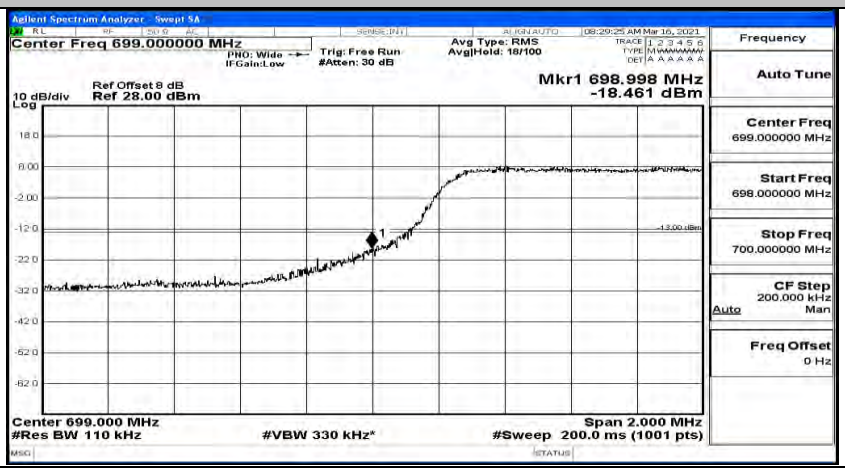
Band Edge Test Graph(s) (Channel Bandwidth: 3 MHz)_LCH_16QAM



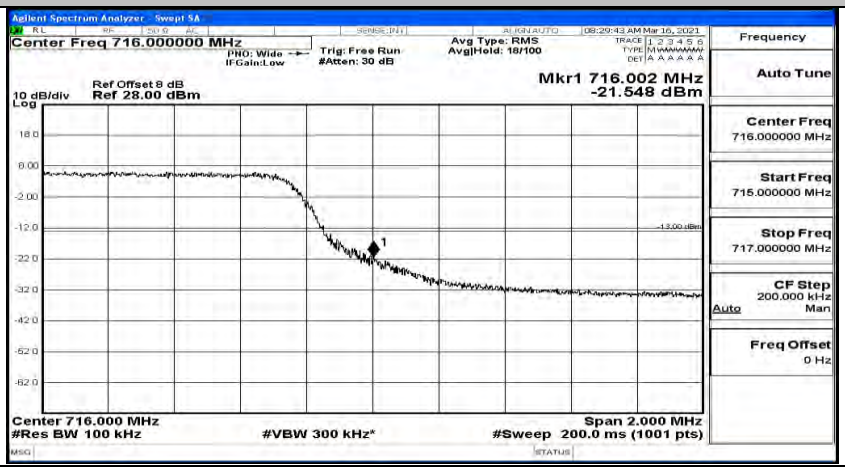
Band Edge Test Graph(s) (Channel Bandwidth: 3 MHz)_HCH_16QAM



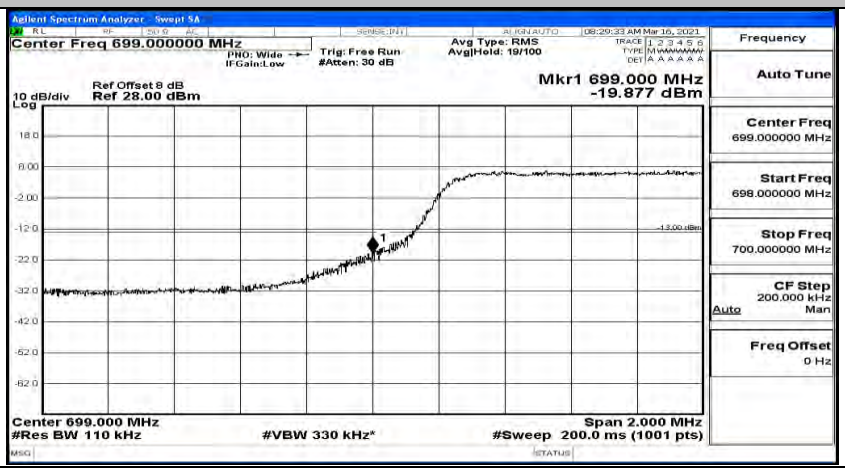
Band Edge Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_QPSK



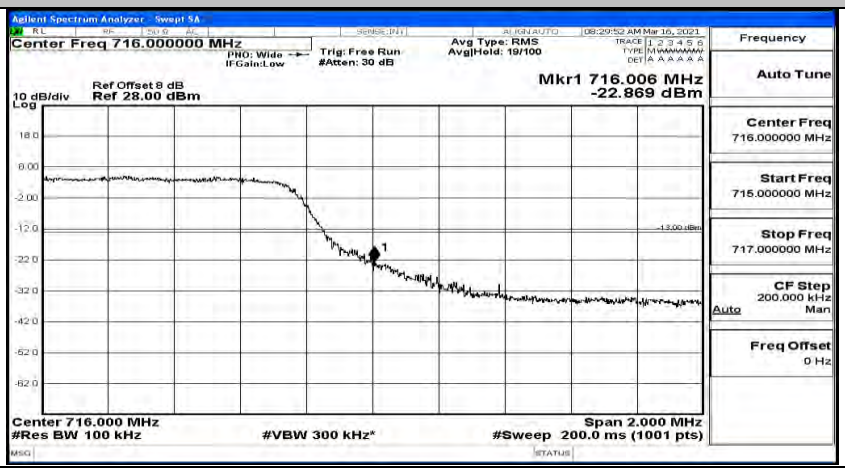
Band Edge Test Graph(s) (Channel Bandwidth: 5 MHz)_HCH_QPSK



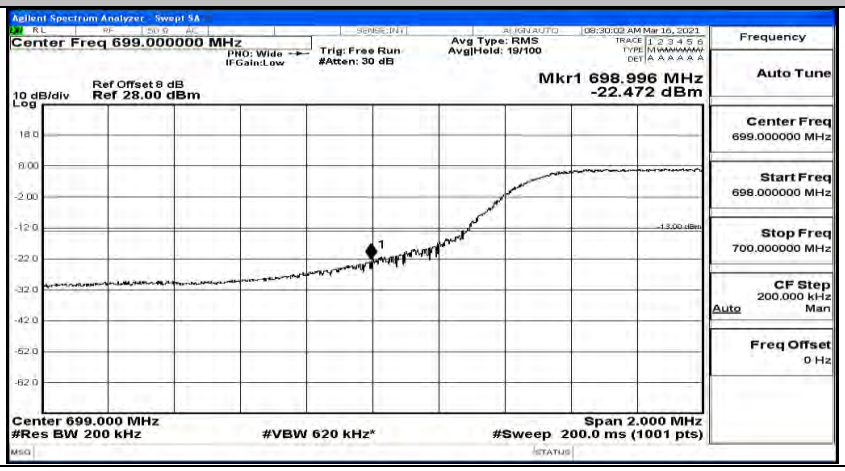
Band Edge Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_16QAM



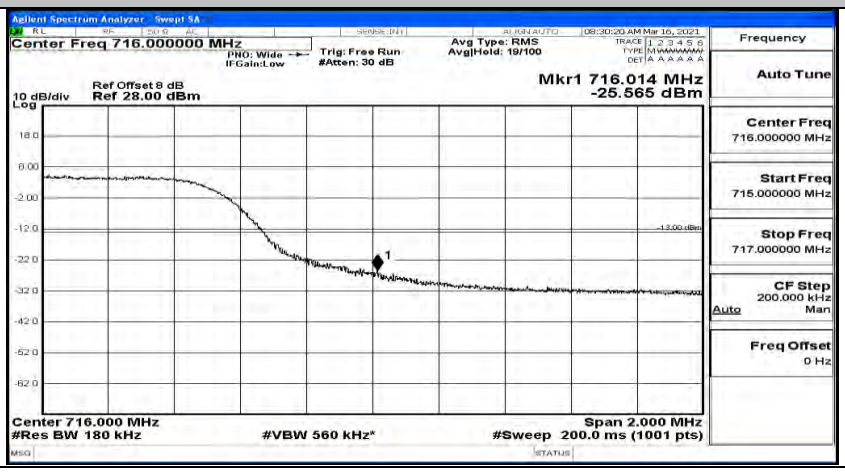
Band Edge Test Graph(s) (Channel Bandwidth: 5 MHz)_HCH_16QAM



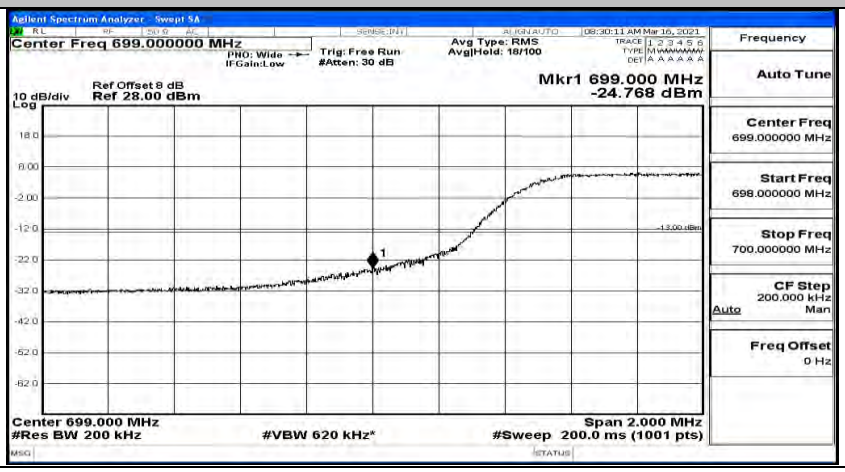
Band Edge Test Graph(s) (Channel Bandwidth: 10 MHz)_LCH_QPSK



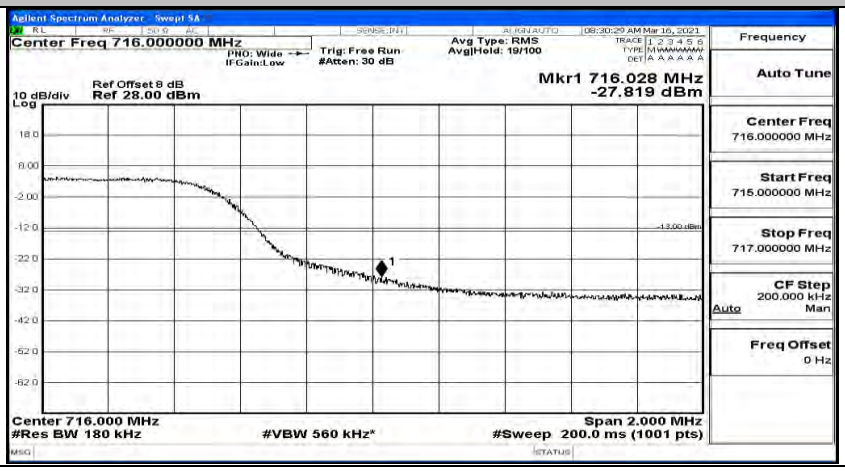
Band Edge Test Graph(s) (Channel Bandwidth: 10 MHz)_HCH_QPSK



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



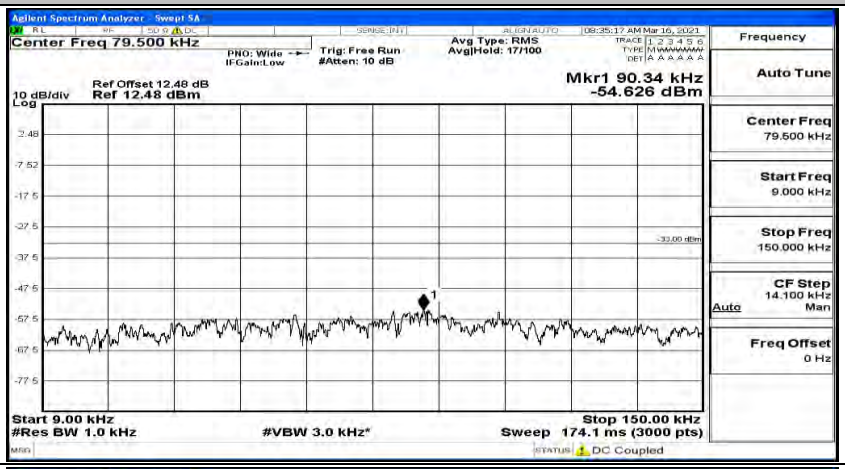
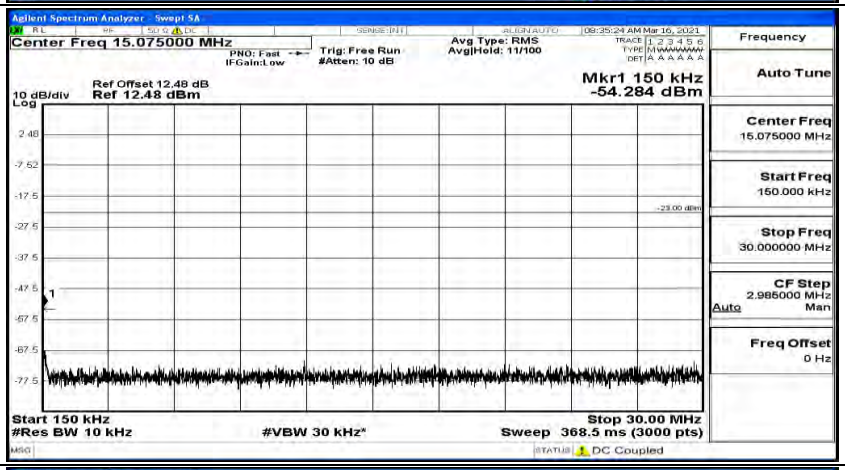
Band Edge Test Graph(s) (Channel Bandwidth: 10 MHz)_HCH_16QAM

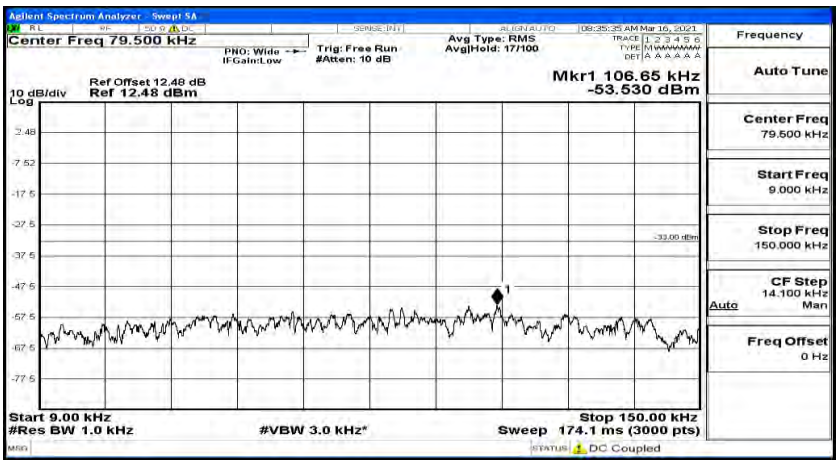


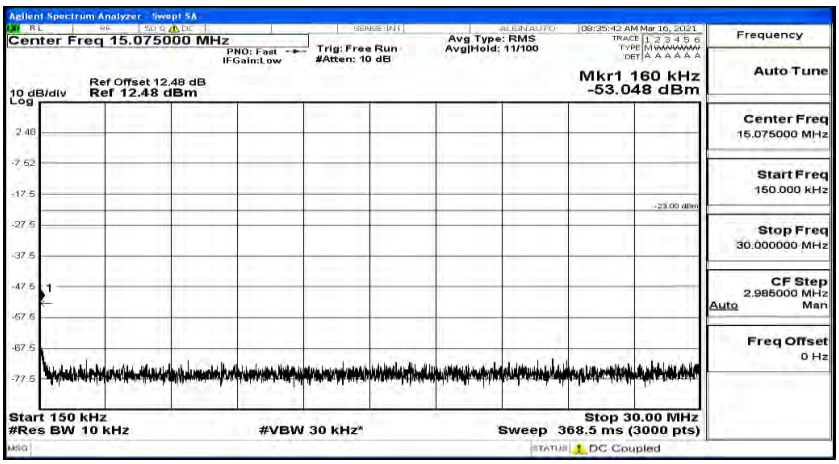
H.5 Conducted Spurious Emission

Test Graphs

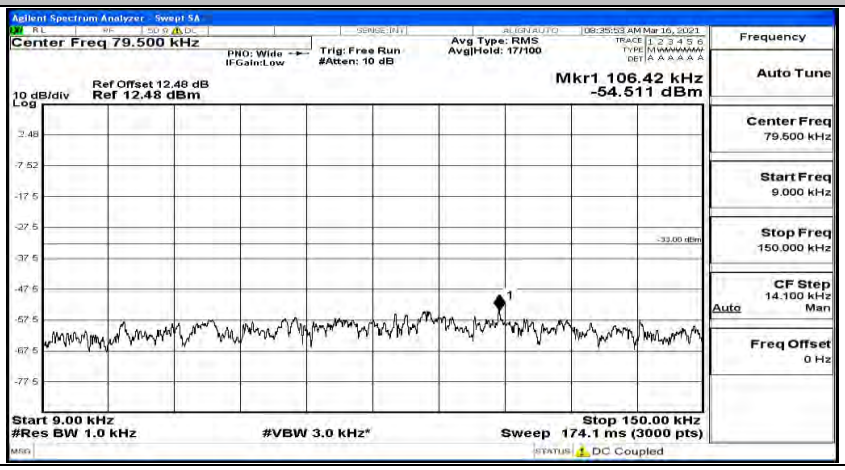
Channel Bandwidth: 1.4 MHz

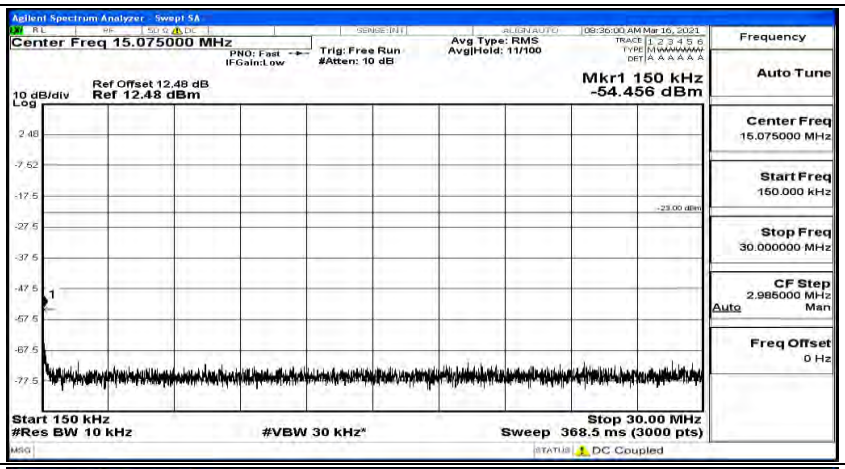
(Channel Bandwidth: 1.4 MHz)_LCH_QPSK_1RB#0


(Channel Bandwidth: 1.4 MHz)_LCH_QPSK_1RB#3



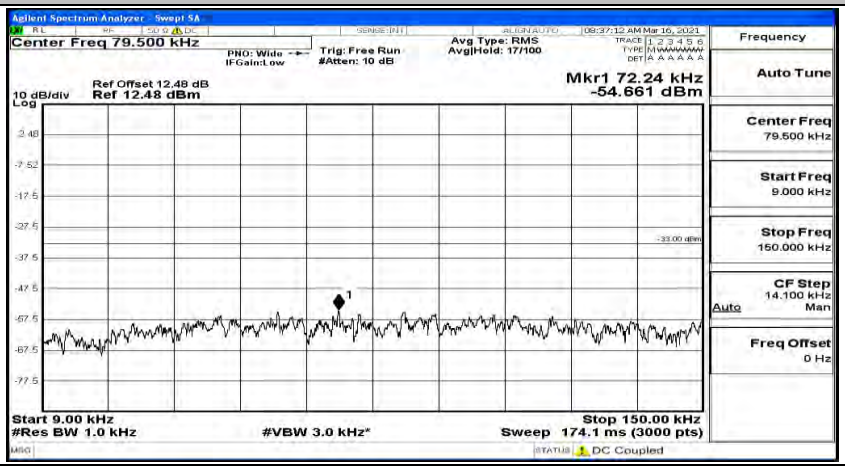


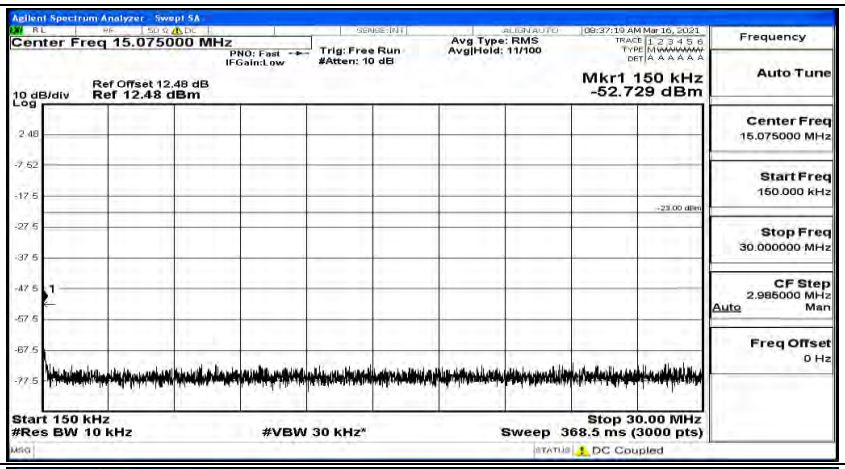
(Channel Bandwidth: 1.4 MHz)_LCH_QPSK_1RB#5



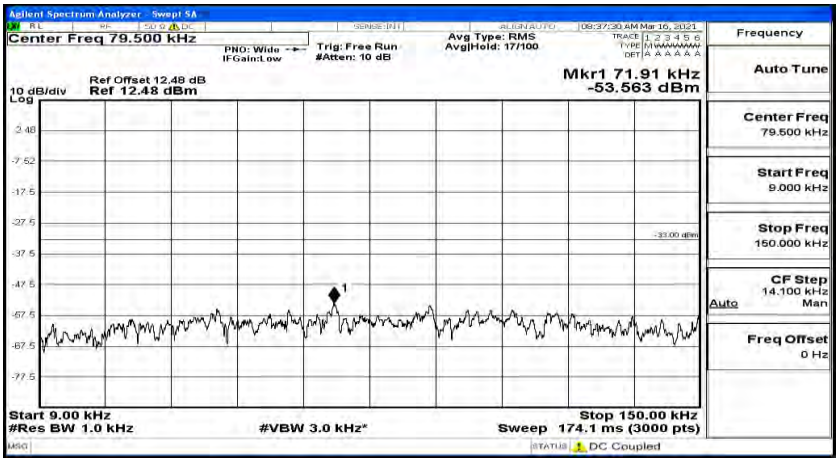


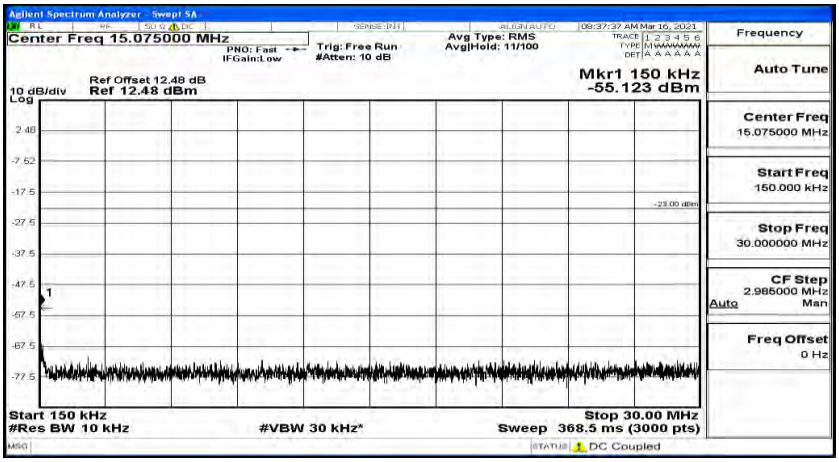
(Channel Bandwidth: 1.4 MHz)_MCH_QPSK_1RB#0



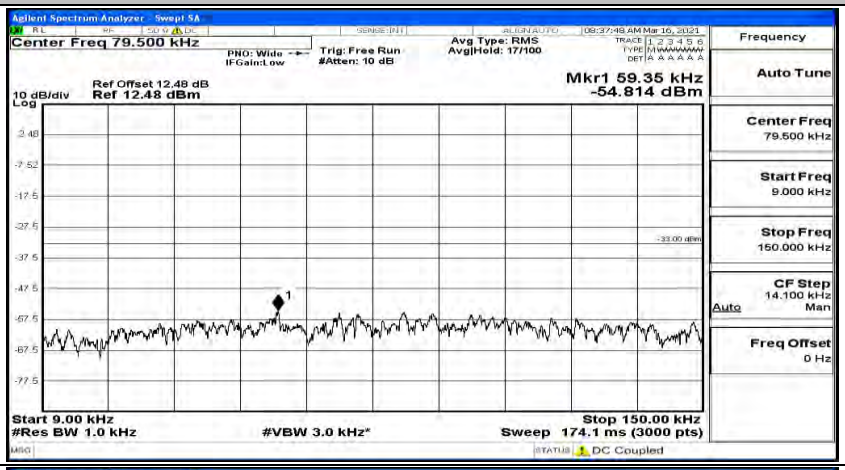


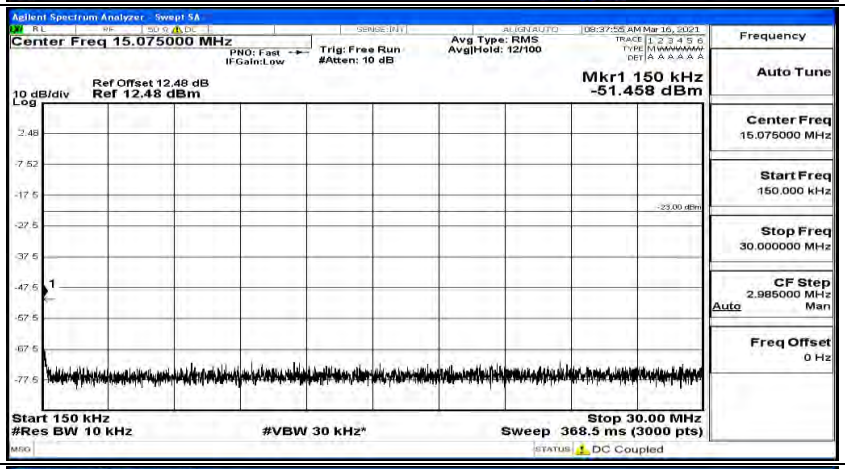
(Channel Bandwidth: 1.4 MHz)_MCH_QPSK_1RB#3



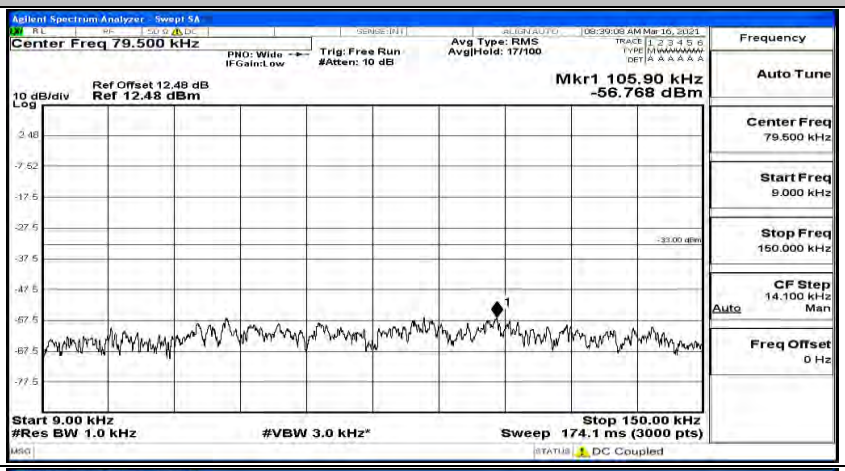


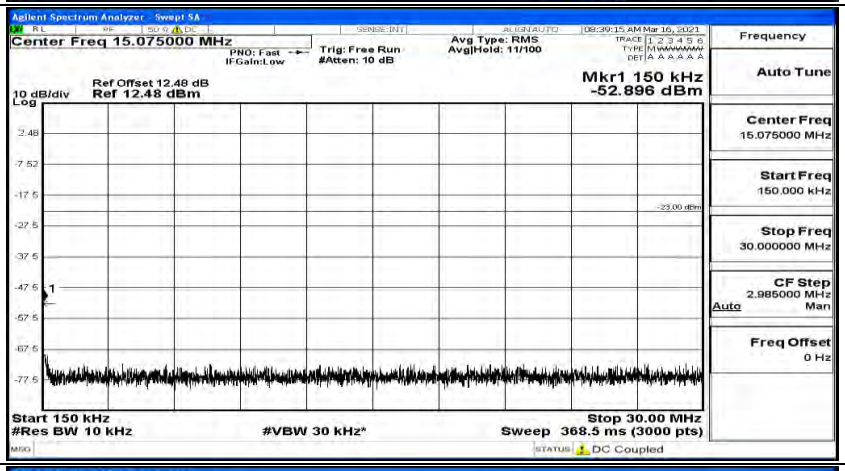
(Channel Bandwidth: 1.4 MHz)_MCH_QPSK_1RB#5



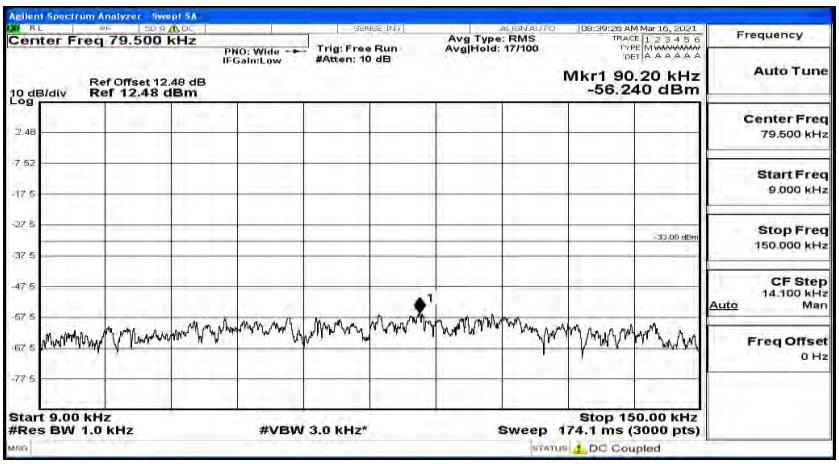


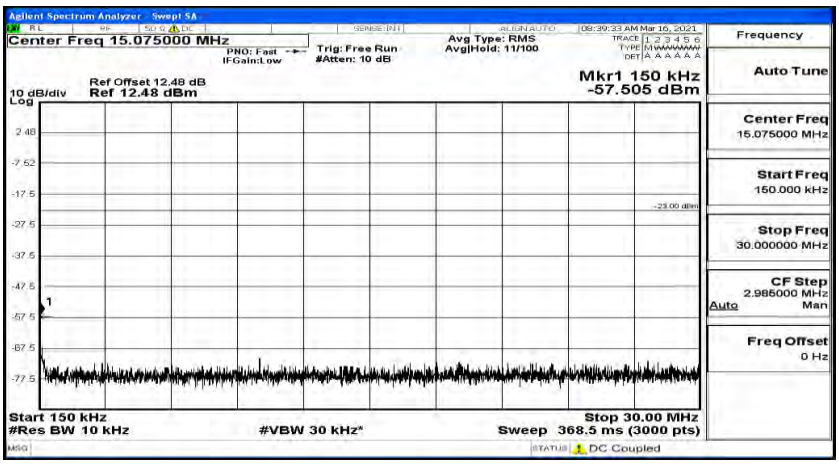
(Channel Bandwidth: 1.4 MHz)_HCH_QPSK_1RB#0



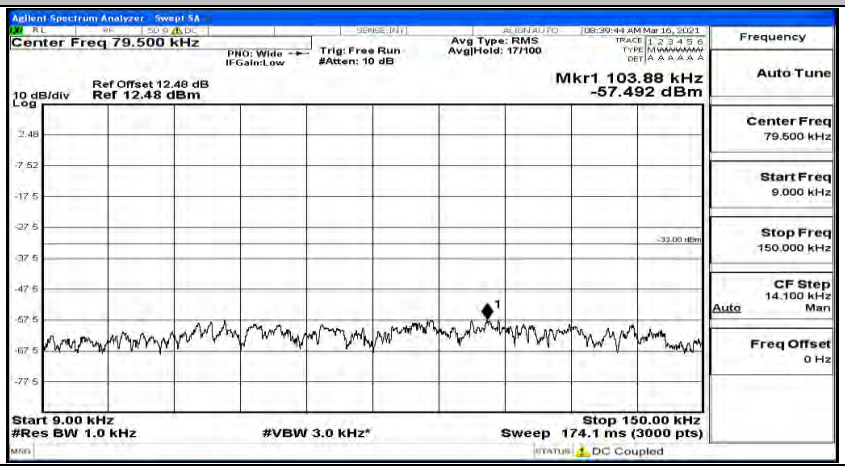


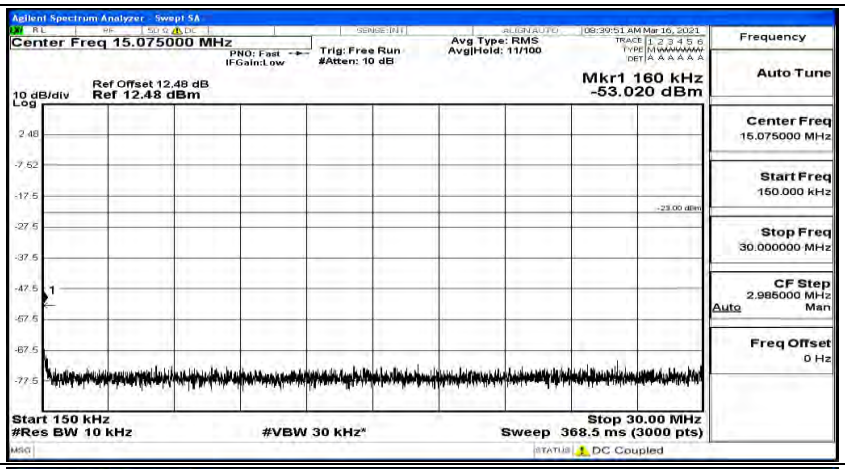
(Channel Bandwidth: 1.4 MHz)_HCH_QPSK_1RB#3



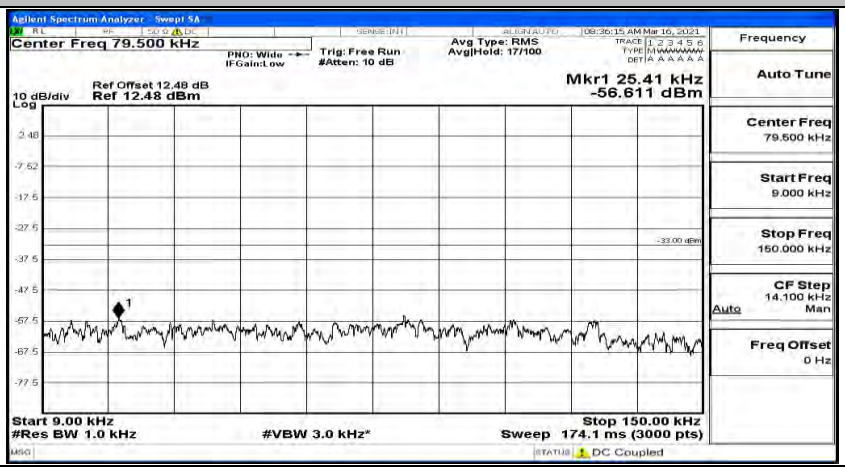


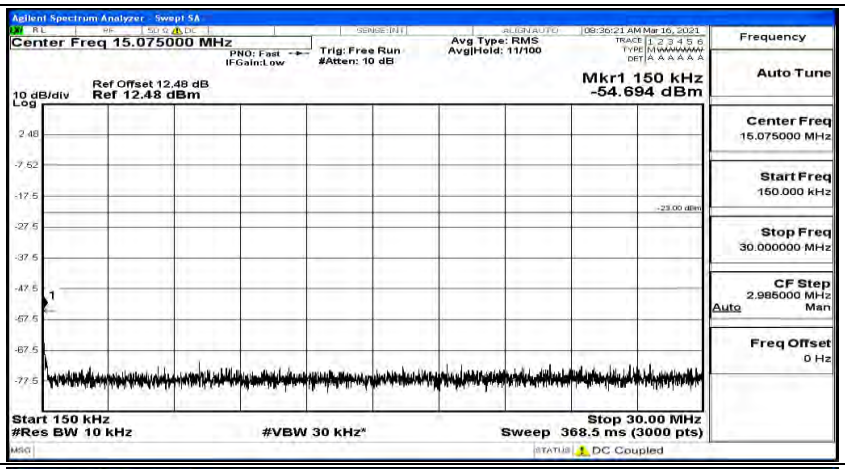
(Channel Bandwidth: 1.4 MHz)_HCH_QPSK_1RB#5



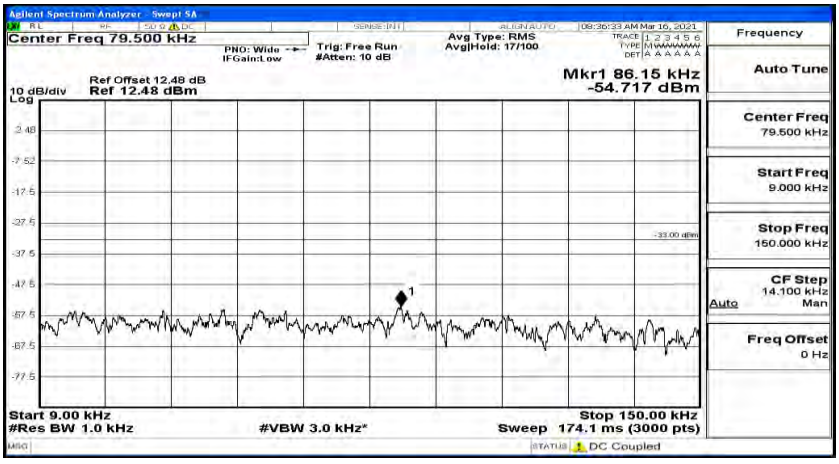


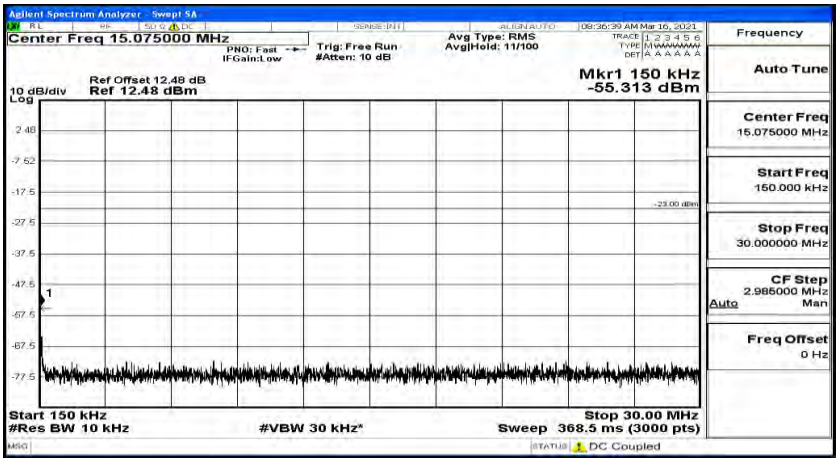
(Channel Bandwidth: 1.4 MHz)_LCH_16QAM_1RB#0



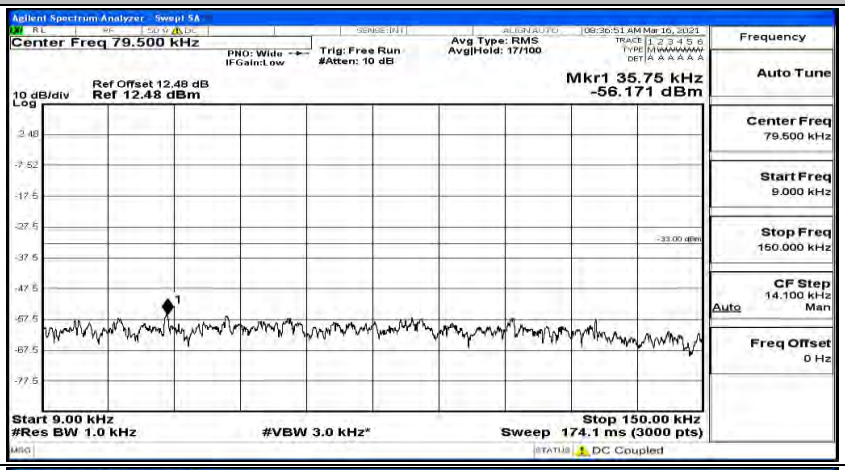


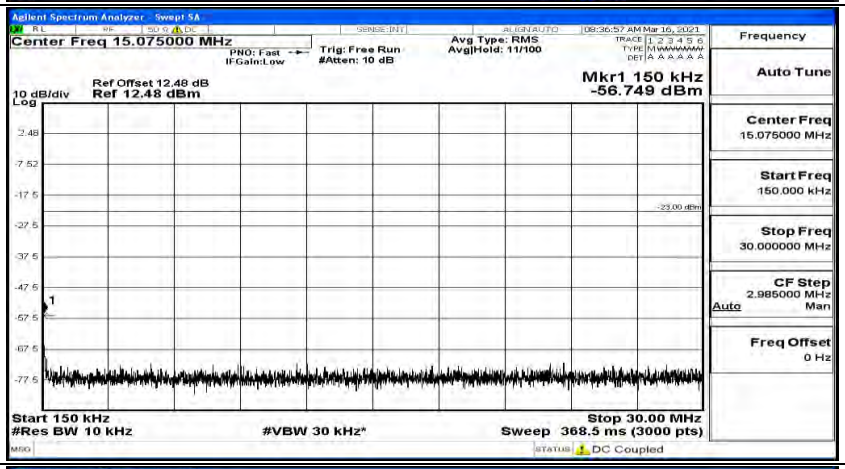
(Channel Bandwidth: 1.4 MHz)_LCH_16QAM_1RB#3



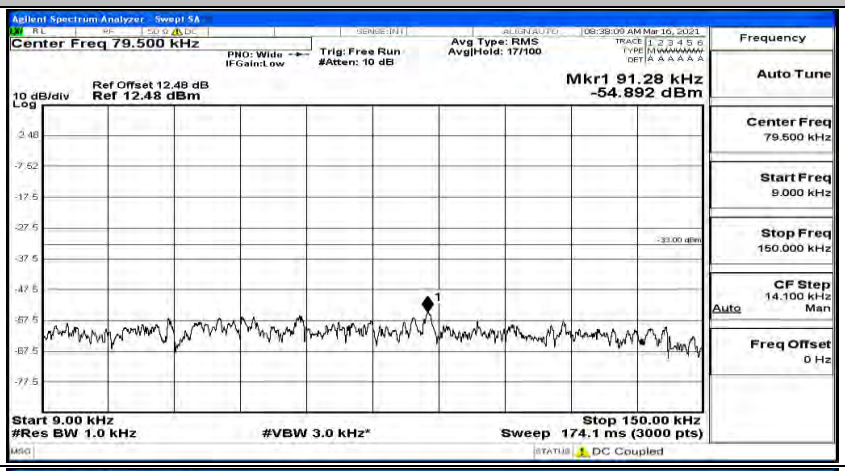


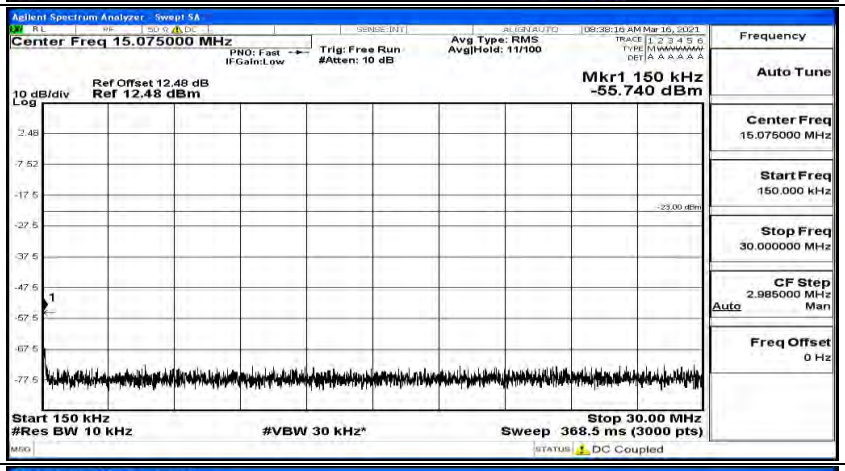
(Channel Bandwidth: 1.4 MHz)_LCH_16QAM_1RB#5



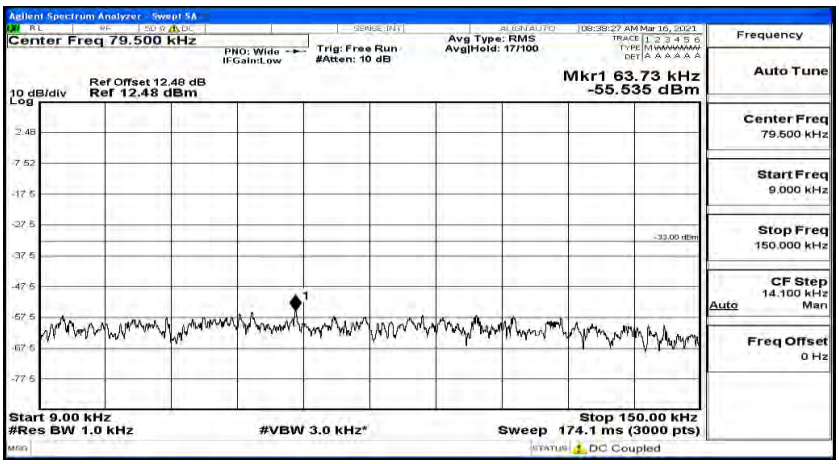


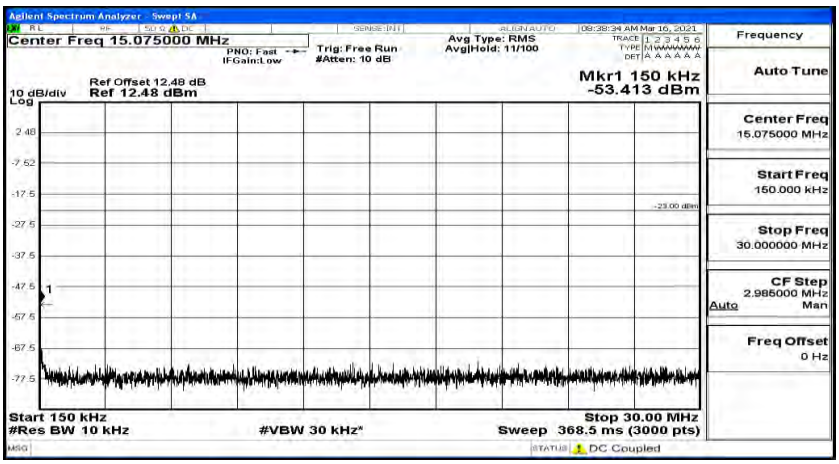
(Channel Bandwidth: 1.4 MHz)_MCH_16QAM_1RB#0



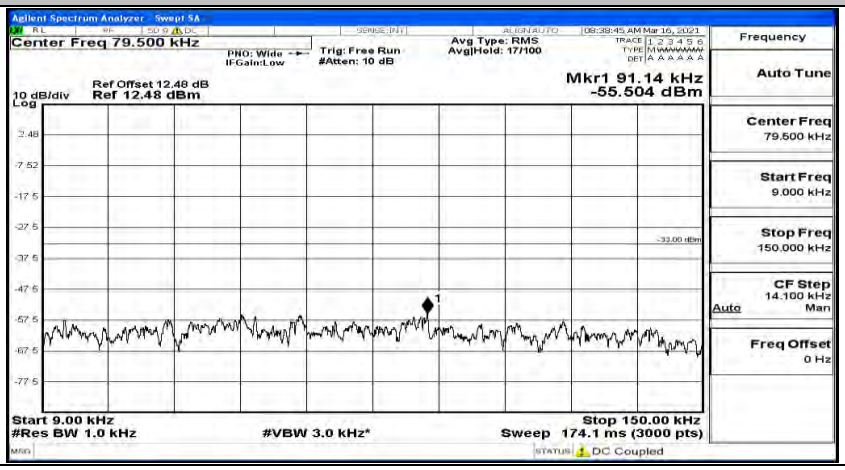


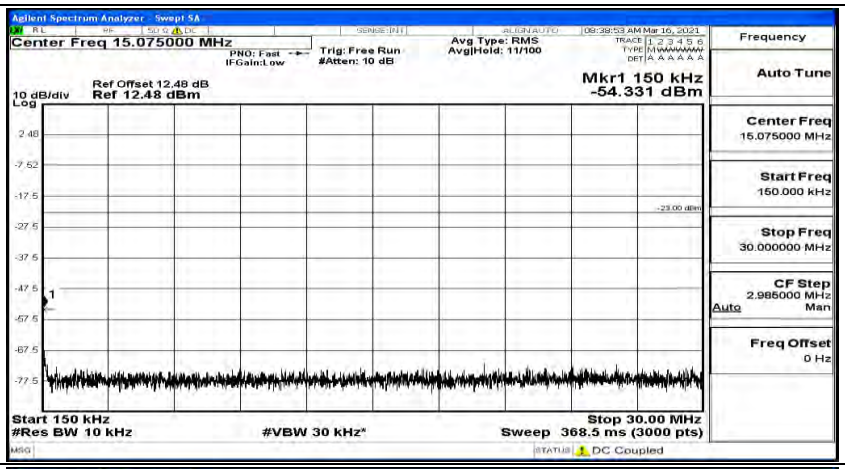
(Channel Bandwidth: 1.4 MHz)_MCH_16QAM_1RB#3

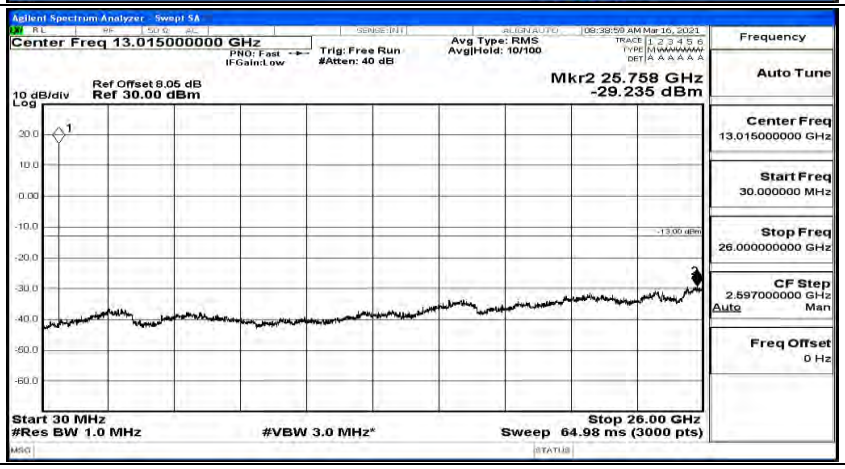




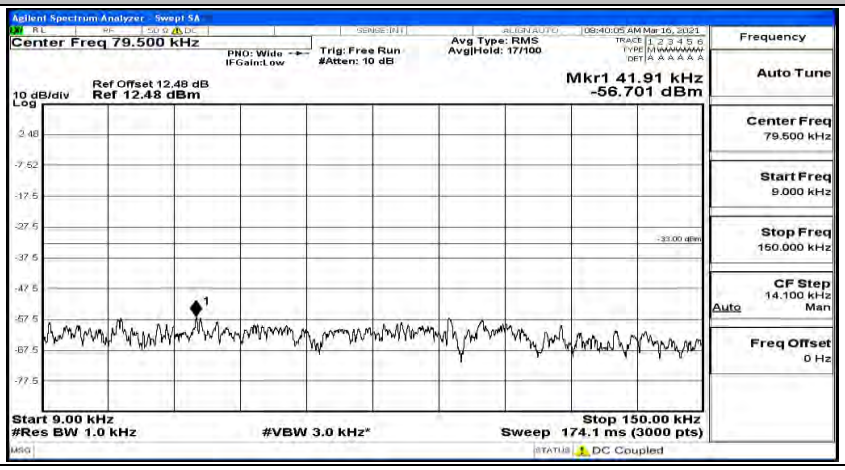
(Channel Bandwidth: 1.4 MHz)_MCH_16QAM_1RB#5

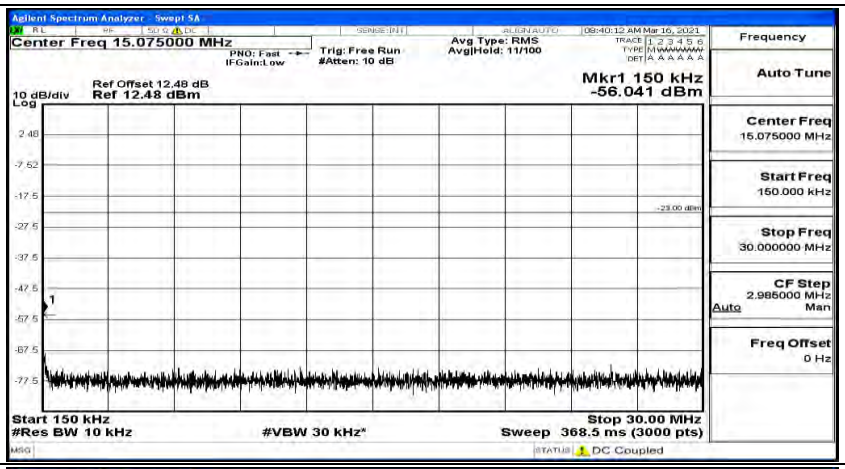




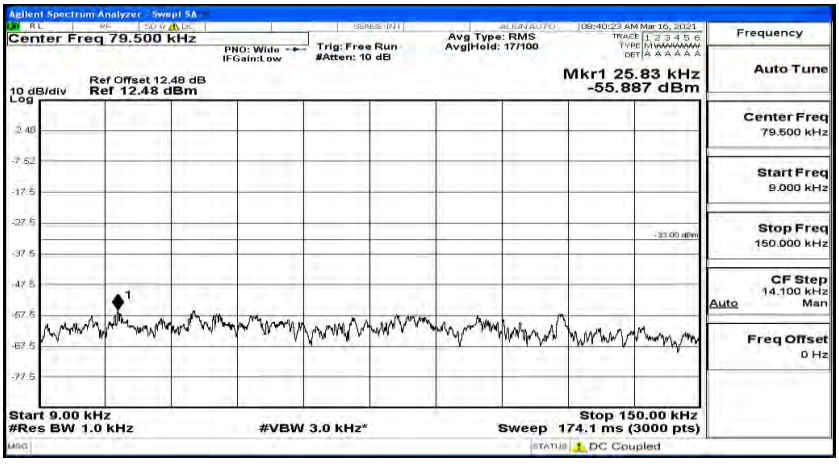


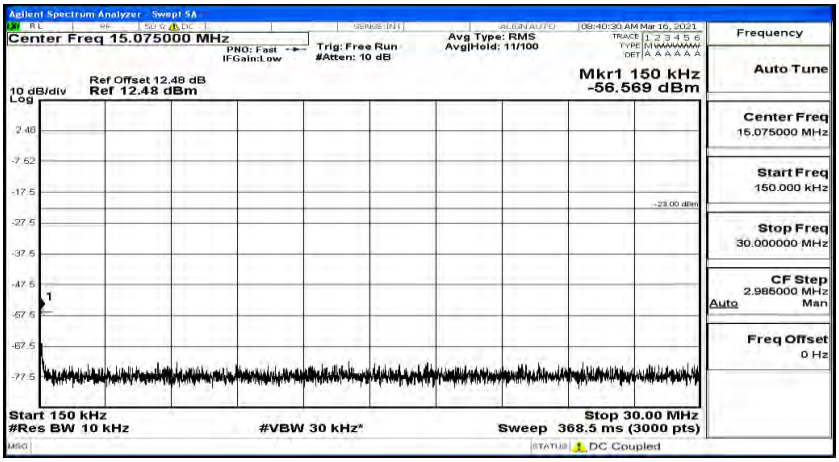
(Channel Bandwidth: 1.4 MHz)_HCH_16QAM_1RB#0



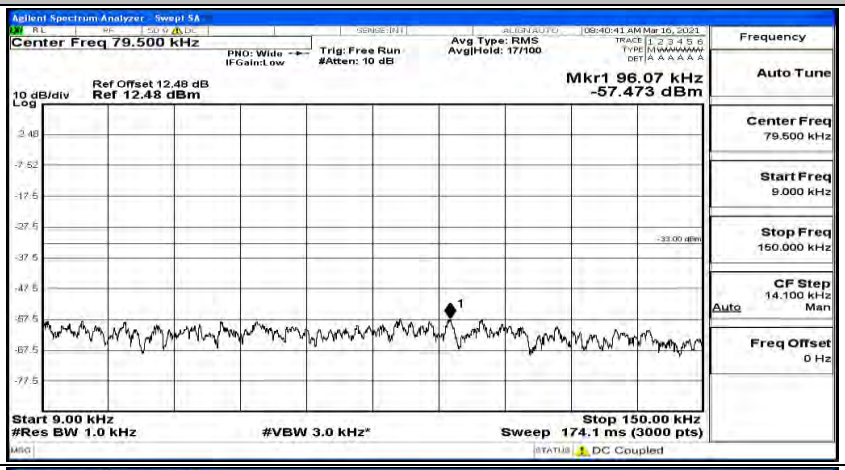


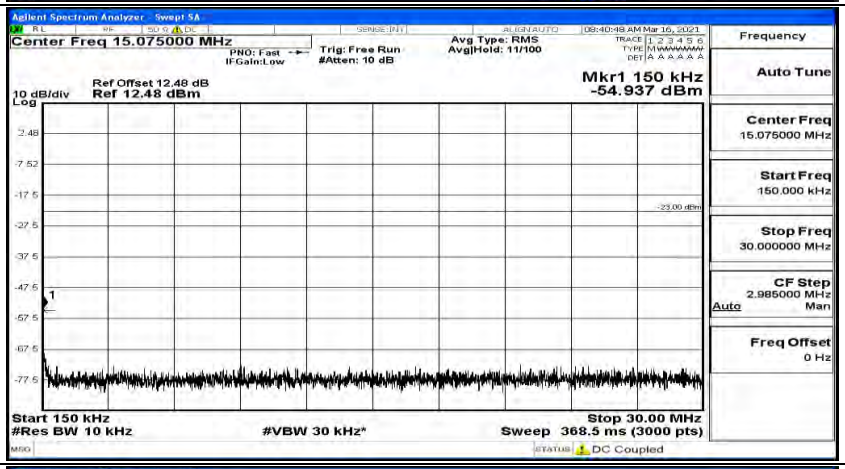
(Channel Bandwidth: 1.4 MHz)_HCH_16QAM_1RB#3





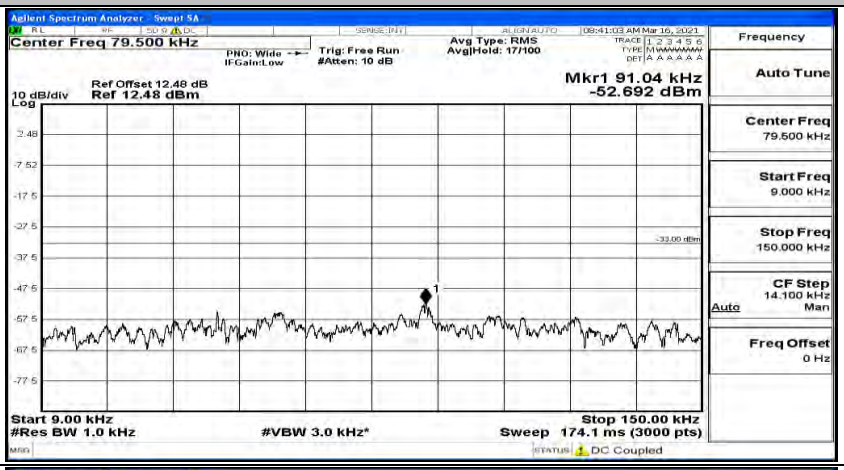
(Channel Bandwidth: 1.4 MHz)_HCH_16QAM_1RB#5

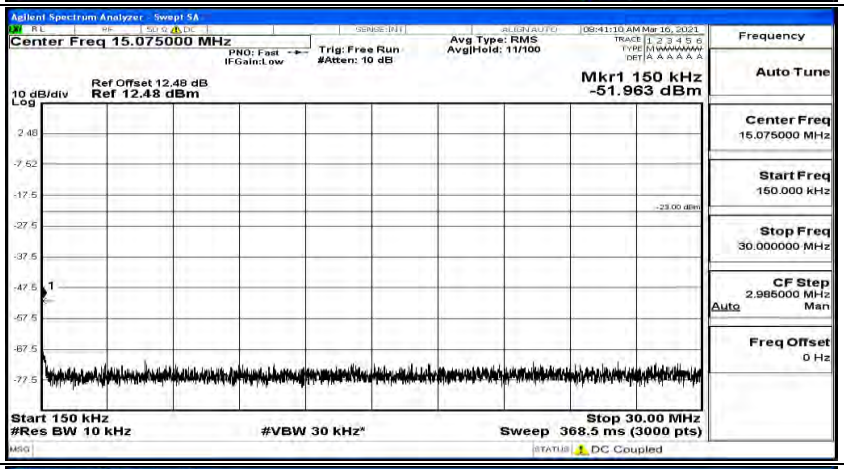




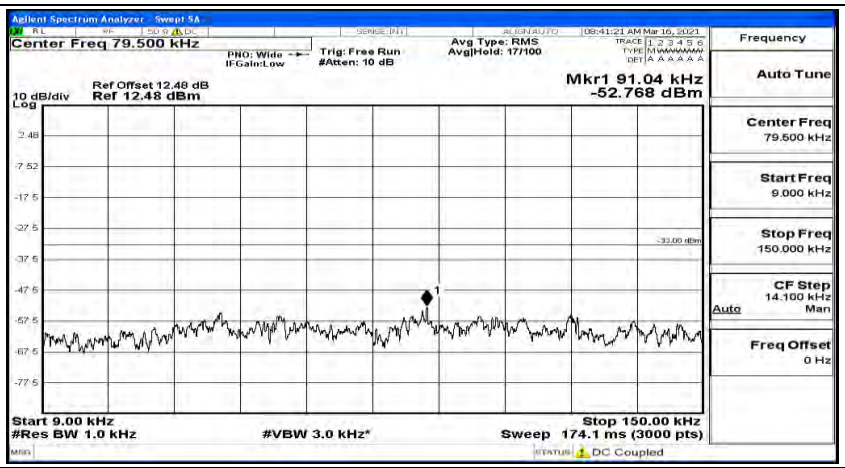
Channel Bandwidth: 3 MHz

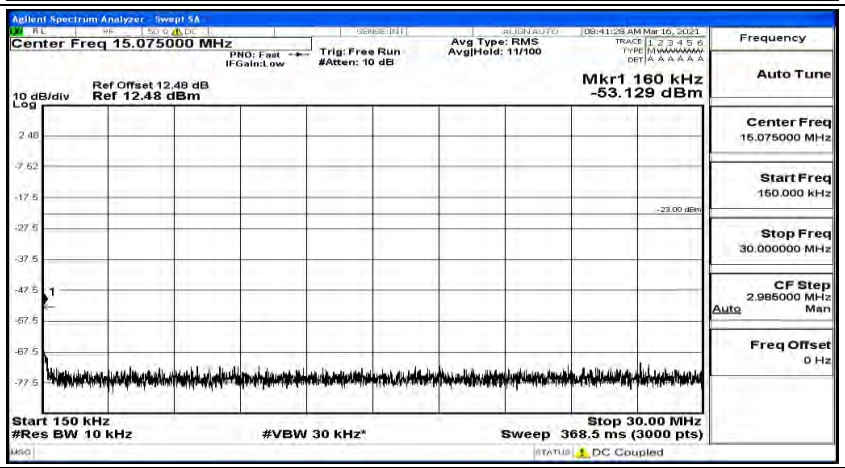
(Channel Bandwidth: 3 MHz)_LCH_QPSK_1RB#0



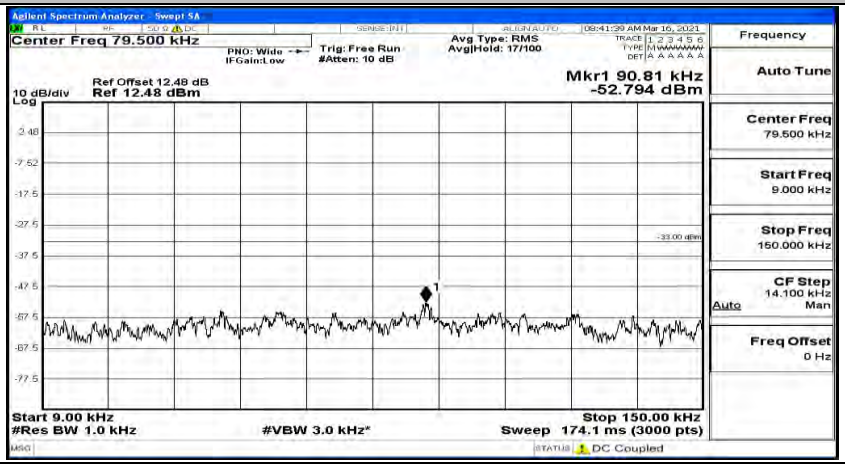


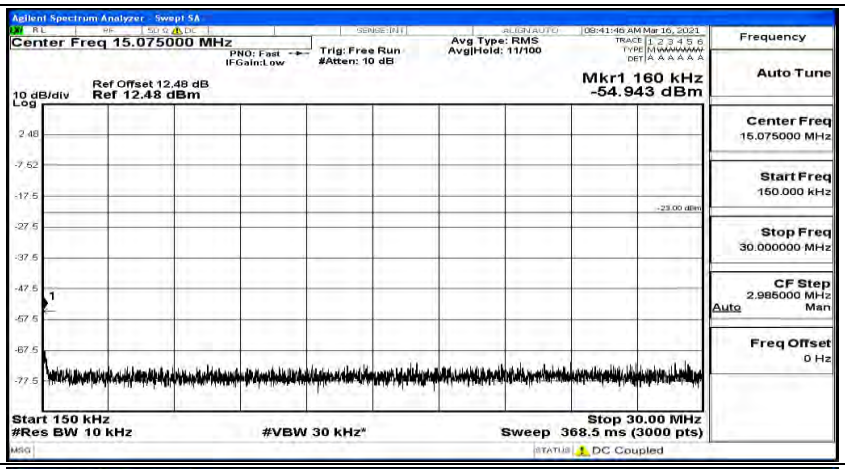
(Channel Bandwidth: 3 MHz)_LCH_QPSK_1RB#7

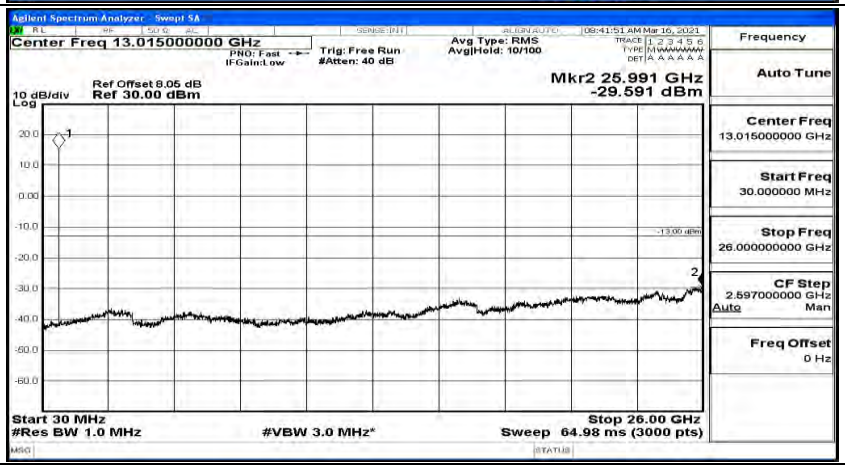




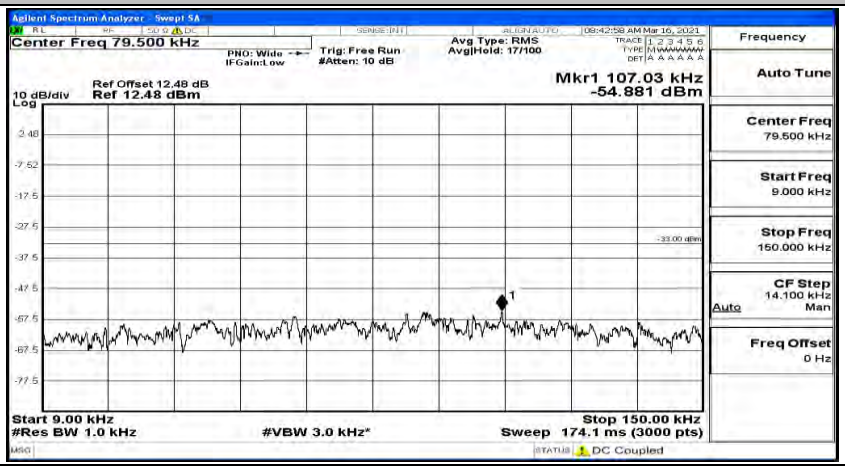
(Channel Bandwidth: 3 MHz)_LCH_QPSK_1RB#14

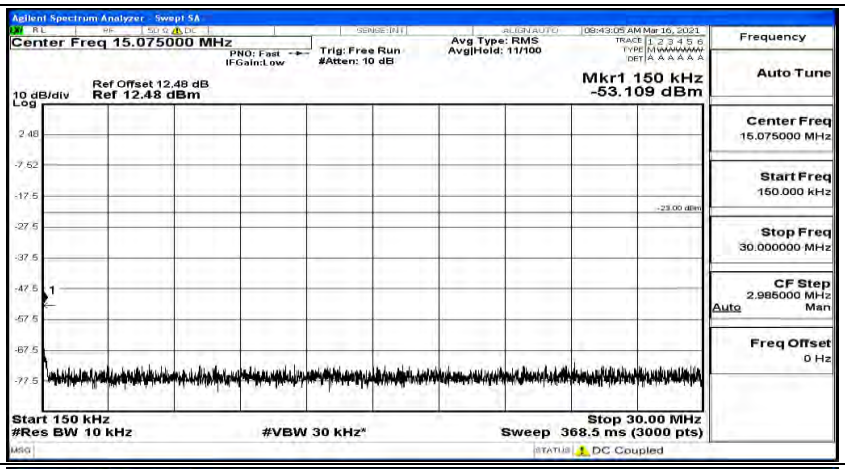




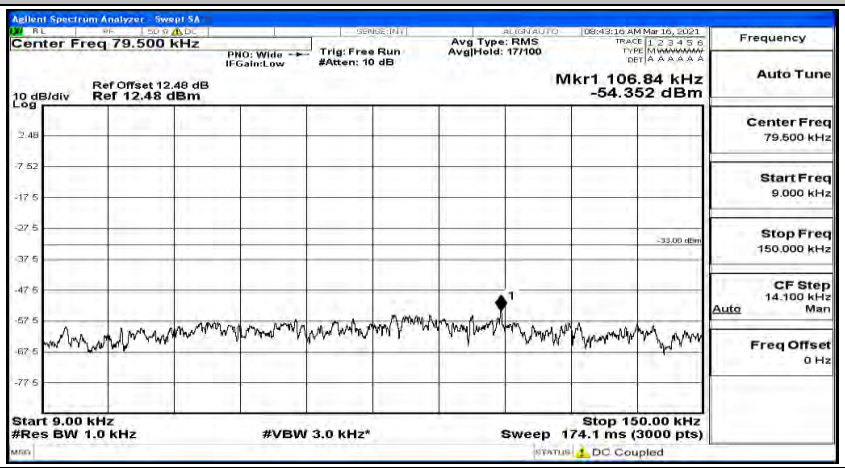


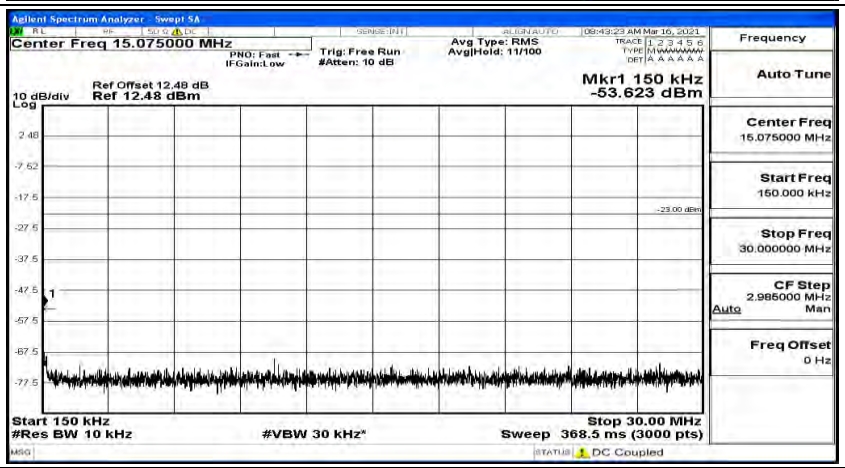
(Channel Bandwidth: 3 MHz)_MCH_QPSK_1RB#0

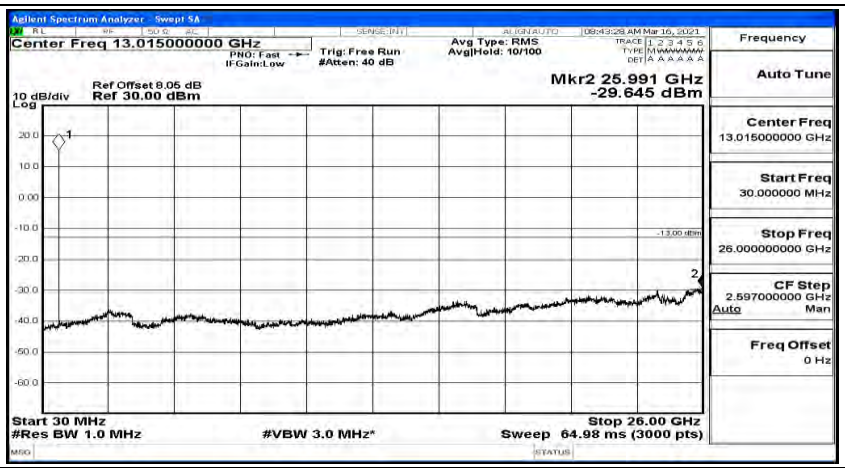




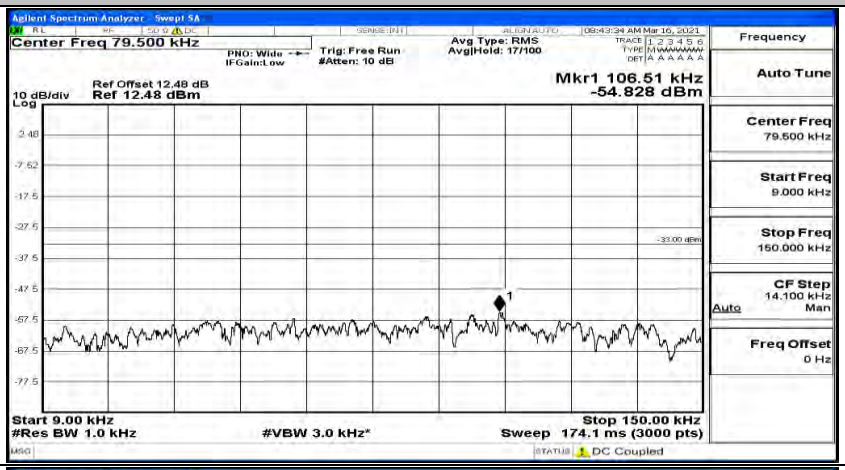
(Channel Bandwidth: 3 MHz)_MCH_QPSK_1RB#7

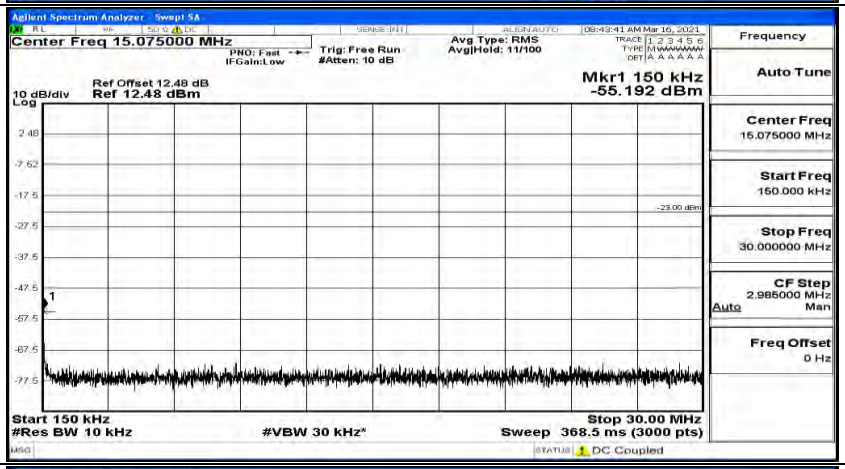




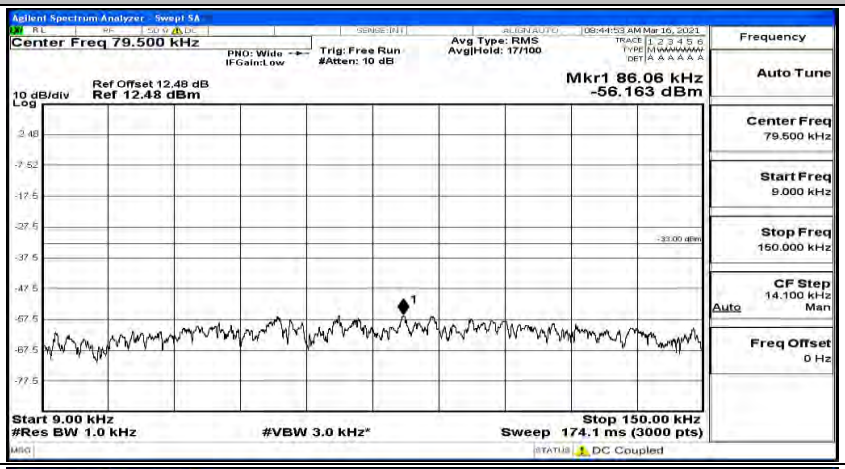


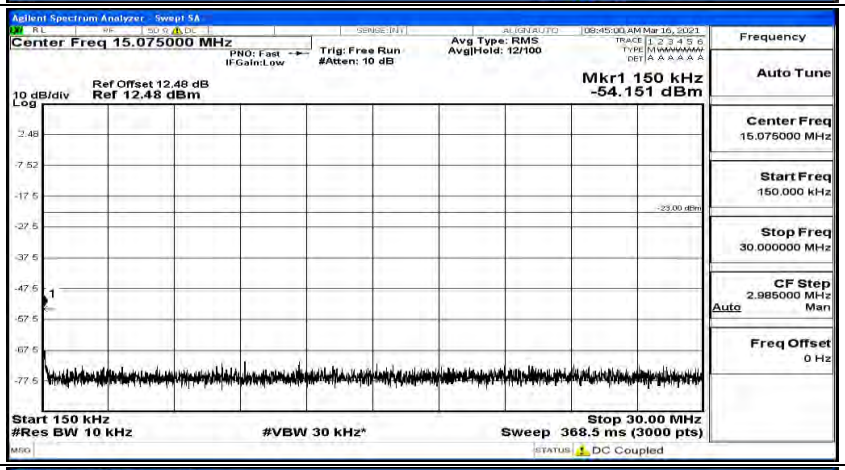
(Channel Bandwidth: 3 MHz)_MCH_QPSK_1RB#14



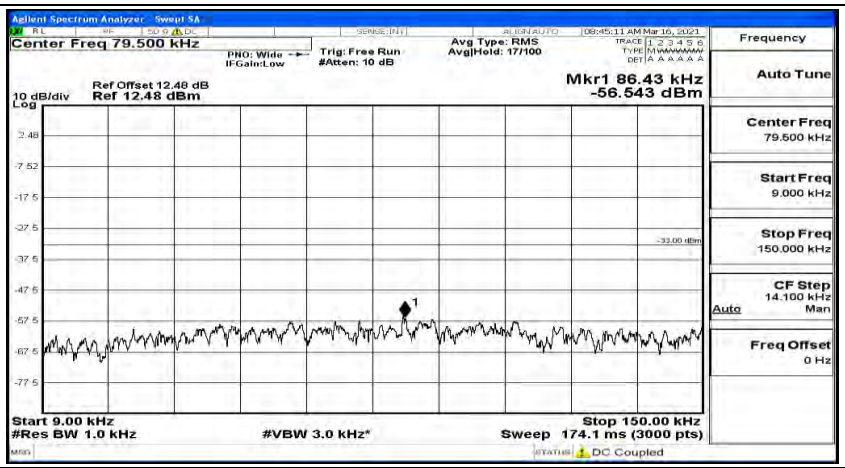


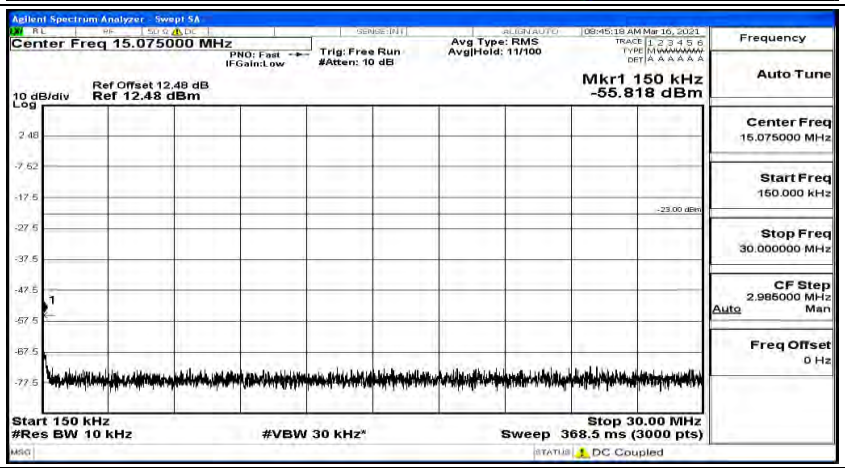
(Channel Bandwidth: 3 MHz)_HCH_QPSK_1RB#0



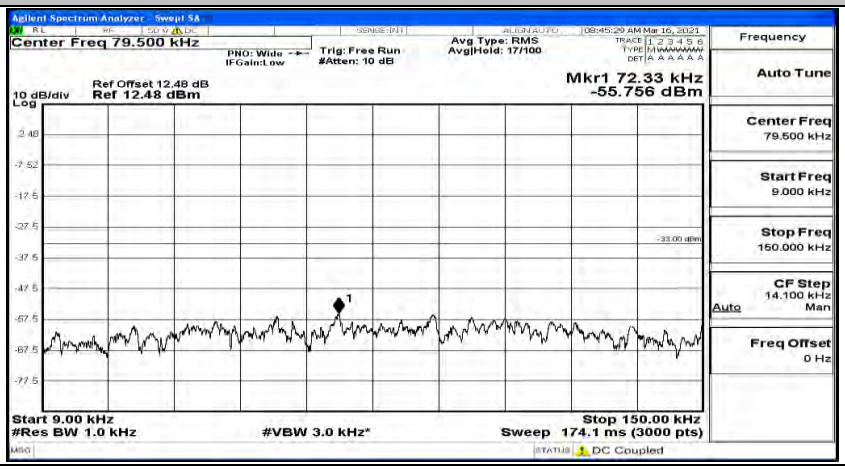


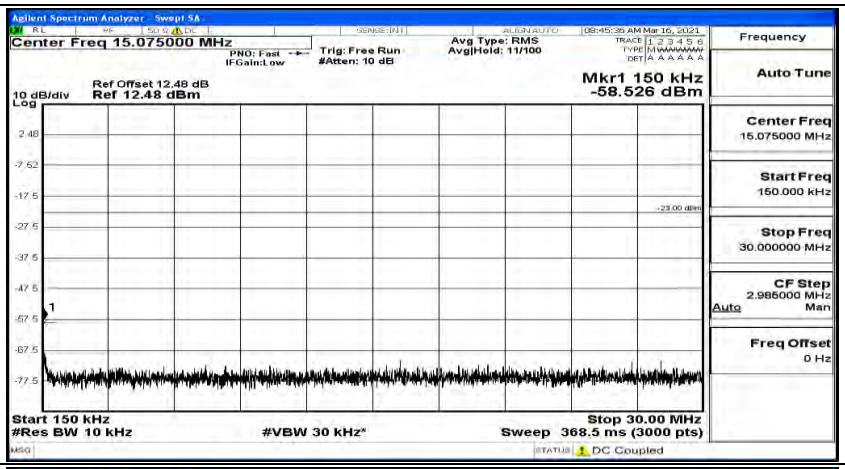
(Channel Bandwidth: 3 MHz)_HCH_QPSK_1RB#7

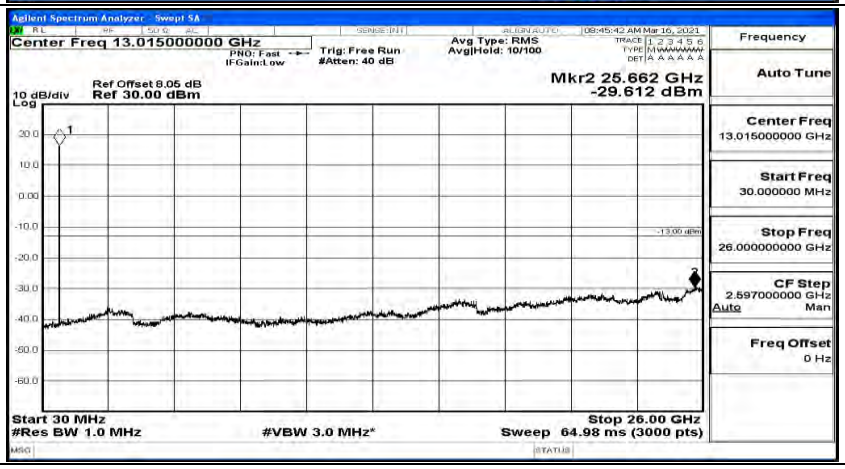




(Channel Bandwidth: 3 MHz)_HCH_QPSK_1RB#14




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
08:45:39 AM Mar 16, 2021
Mkr1 150 kHz
-58.526 dBm
Ref Offset 12.48 dB
10 dB/div
Log
Ref 12.48 dBm
2.48
-7.52
-17.5
-27.5
-37.5
-47.5
-57.5
-67.5
-77.5
-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: 10/100
08:45:42 AM Mar 16, 2021
Mkr2 25.662 GHz
-29.612 dBm
Ref Offset 8.05 dB
10 dB/div
Log
Ref 30.00 dBm
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-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