

## Appendix G: Test Data for E-UTRA Band 12

**Product Name: 4G dash Camera**

**Trade Mark: N/A**

**Test Model: ES-D4**

### Environmental Conditions

Temperature:	23.5
Relative Humidity:	53.1
ATM Pressure:	100.0 kPa
Test Engineer:	Mina.Xu
Supervised by:	Jayden Zhuo

### G.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	25.76	25.85	PASS
		1	3	25.72	25.88	PASS
		1	5	25.71	25.90	PASS
		3	0	25.66	24.84	PASS
		3	2	25.59	24.93	PASS
		3	3	25.60	24.95	PASS
		6	0	24.55	23.63	PASS
	MCH	1	0	25.53	24.97	PASS
		1	3	25.57	25.06	PASS
		1	5	25.63	24.98	PASS
		3	0	25.60	24.66	PASS
		3	2	25.56	24.60	PASS
		3	3	25.56	24.67	PASS
		6	0	24.44	23.47	PASS
	HCH	1	0	25.38	25.09	PASS
		1	3	25.44	25.15	PASS
		1	5	25.31	25.02	PASS
		3	0	25.49	24.55	PASS
		3	2	25.52	24.54	PASS
		3	3	25.46	24.49	PASS
		6	0	24.58	23.70	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	25.56	25.41	PASS
		1	7	25.59	25.47	PASS
		1	14	25.51	25.27	PASS
		8	0	24.58	23.53	PASS
		8	4	24.51	23.47	PASS
		8	7	24.57	23.46	PASS
		15	0	24.65	23.58	PASS
	MCH	1	0	25.36	25.29	PASS
		1	7	25.44	25.33	PASS
		1	14	25.41	25.26	PASS
		8	0	24.41	23.30	PASS
		8	4	24.42	23.31	PASS
		8	7	24.39	23.33	PASS
		15	0	24.47	23.49	PASS
	HCH	1	0	25.66	25.78	PASS
		1	7	25.63	25.48	PASS
		1	14	25.22	25.25	PASS
		8	0	24.56	23.64	PASS
		8	4	24.57	23.54	PASS
		8	7	24.28	23.37	PASS
		15	0	24.59	23.59	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	25.60	25.03	PASS
		1	12	25.50	24.96	PASS
		1	24	25.53	24.91	PASS
		12	0	24.73	23.61	PASS
		12	6	24.56	23.64	PASS
		12	13	24.59	23.61	PASS
		25	0	24.54	23.61	PASS
	MCH	1	0	25.58	25.46	PASS
		1	12	25.59	25.53	PASS
		1	24	25.68	25.73	PASS
		12	0	24.58	23.61	PASS
		12	6	24.52	23.63	PASS
		12	13	24.51	23.68	PASS
		25	0	24.57	23.56	PASS
	HCH	1	0	25.61	23.99	PASS
		1	12	25.57	24.04	PASS
		1	24	24.05	22.46	PASS
		12	0	24.67	23.72	PASS
		12	6	24.57	23.76	PASS
		12	13	24.55	23.71	PASS
		25	0	24.72	23.78	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	25.47	25.43	PASS
		1	24	25.36	25.35	PASS
		1	49	25.34	25.32	PASS
		25	0	24.58	23.40	PASS
		25	12	24.60	23.40	PASS
		25	25	24.57	23.42	PASS
		50	0	24.61	23.48	PASS
	MCH	1	0	25.31	25.17	PASS
		1	24	25.33	25.24	PASS
		1	49	25.48	25.40	PASS
		25	0	24.59	23.47	PASS
		25	12	24.52	23.42	PASS
		25	25	24.72	23.55	PASS
		50	0	24.61	23.40	PASS
	HCH	1	0	25.54	24.91	PASS
		1	24	25.66	24.95	PASS
		1	49	25.23	24.60	PASS
		25	0	24.48	23.53	PASS
		25	12	24.62	23.56	PASS
		25	25	24.76	23.73	PASS
		50	0	24.67	23.57	PASS

**G.2 Peak-to-Average Ratio**

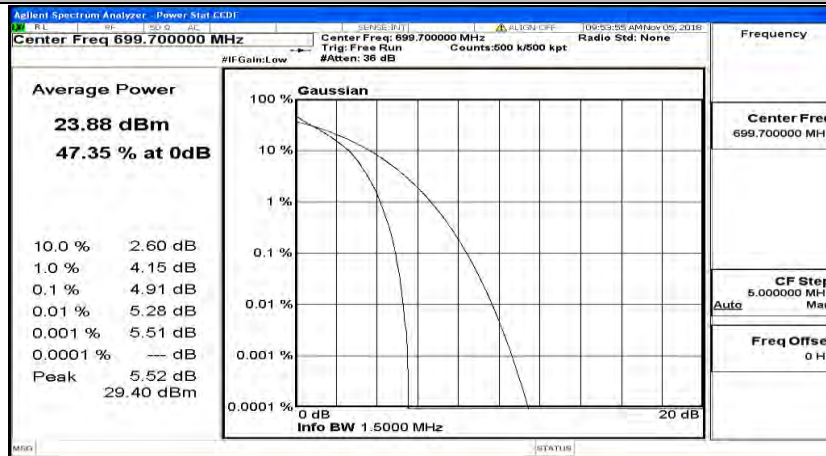
Peak-to Average Ratio Test Result (Channel Bandwidth: 1.4 MHz)				
Modulation	Channel	Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
QPSK	LCH	4.91	<13	PASS
	MCH	4.29	<13	PASS
	HCH	4.17	<13	PASS
16QAM	LCH	5.75	<13	PASS
	MCH	5.18	<13	PASS
	HCH	5.00	<13	PASS

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	4.46	<13	PASS
	HCH	4.61	<13	PASS
16QAM	LCH	5.78	<13	PASS
	MCH	5.45	<13	PASS
	HCH	5.45	<13	PASS

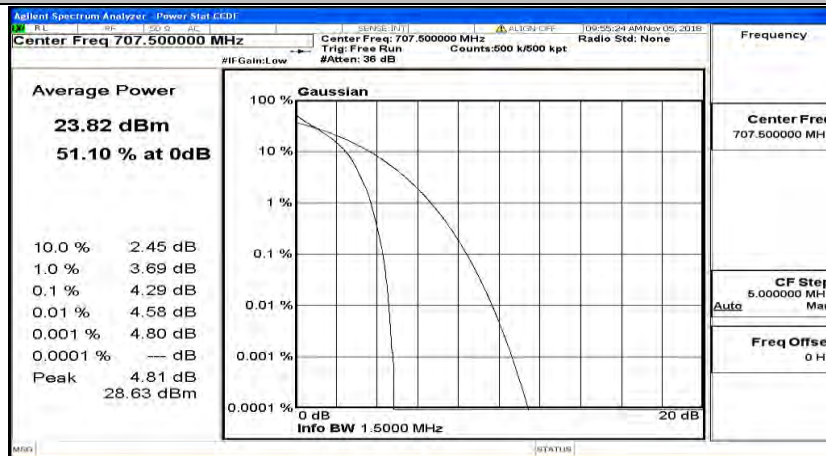
Peak-to Average Ratio Test Result (Channel Bandwidth: 5 MHz)				
Modulation	Channel	Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
QPSK	LCH	4.69	<13	PASS
	MCH	4.51	<13	PASS
	HCH	4.65	<13	PASS
16QAM	LCH	5.54	<13	PASS
	MCH	5.36	<13	PASS
	HCH	5.5	<13	PASS

Peak-to Average Ratio Test Result (Channel Bandwidth: 10 MHz)				
Modulation	Channel	Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
QPSK	LCH	4.88	<13	PASS
	MCH	4.98	<13	PASS
	HCH	4.9	<13	PASS
16QAM	LCH	5.61	<13	PASS
	MCH	5.76	<13	PASS
	HCH	5.73	<13	PASS

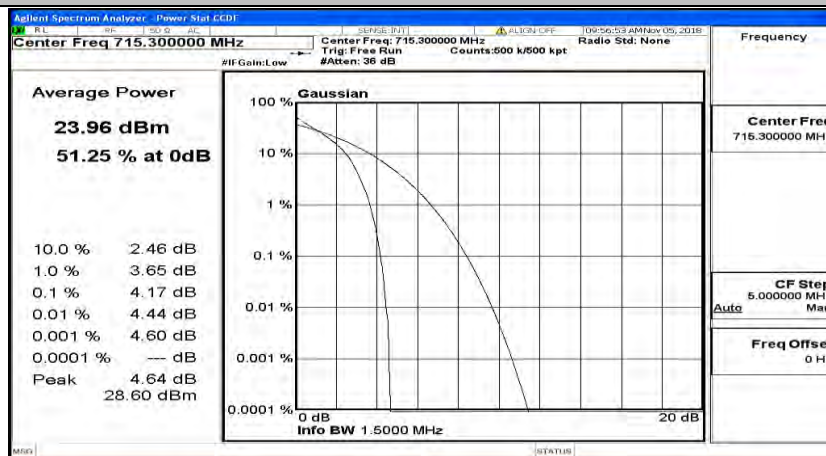
## Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 1.4 MHz)\_LCH\_QPSK



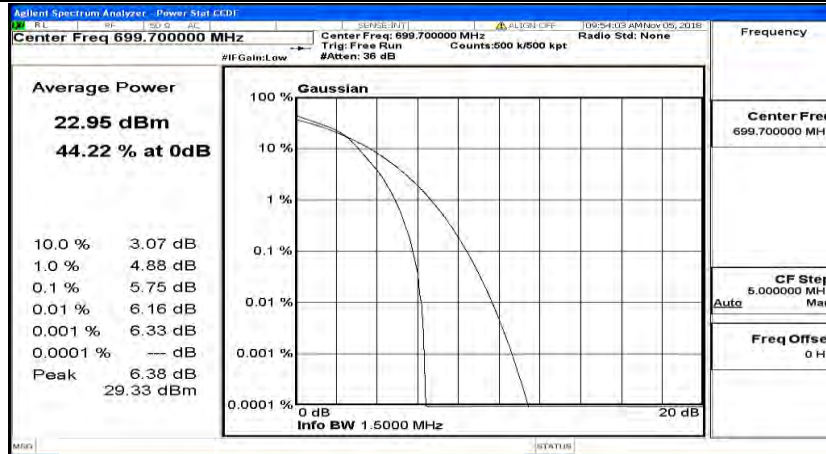
## Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 1.4 MHz)\_MCH\_QPSK



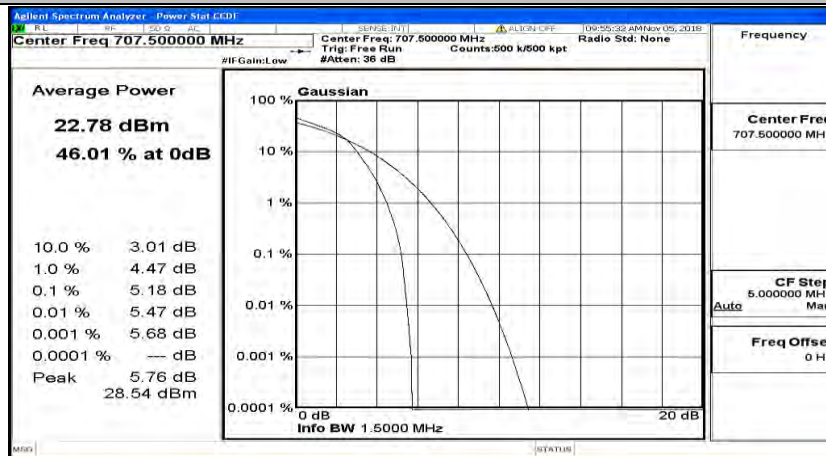
## Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 1.4 MHz)\_HCH\_QPSK



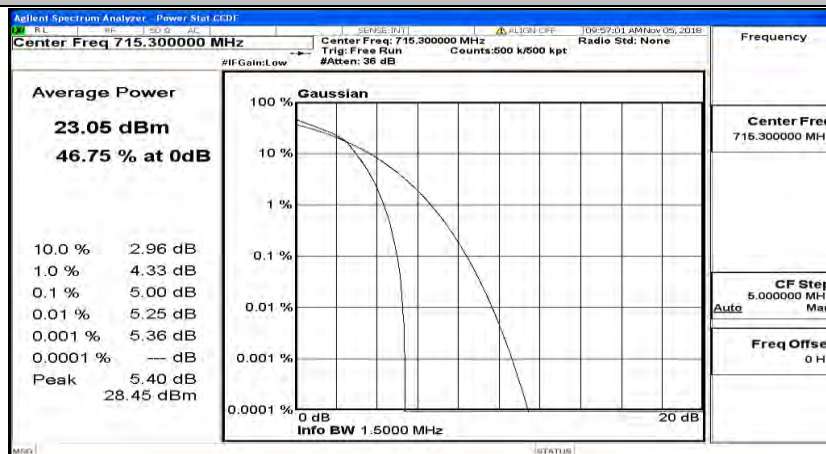
## Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 1.4 MHz)\_LCH\_16QAM



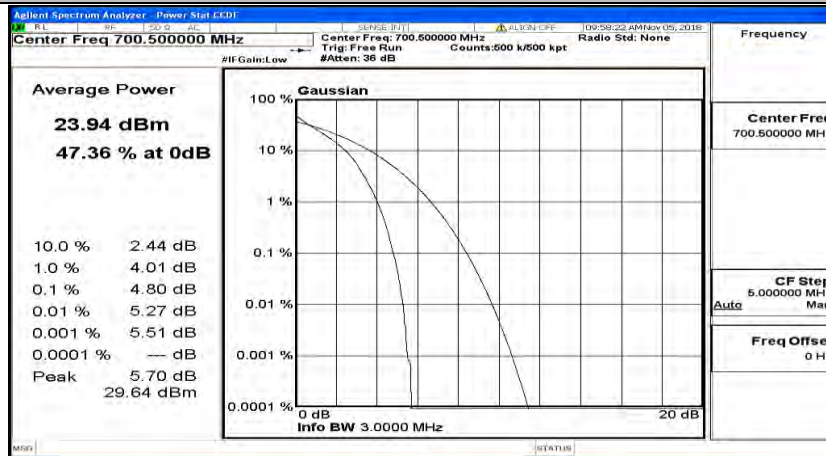
## Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 1.4 MHz)\_MCH\_16QAM



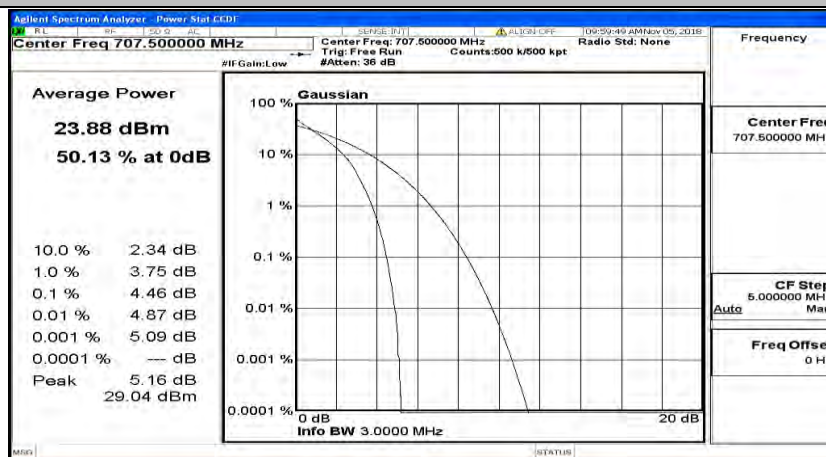
## Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 1.4 MHz)\_HCH\_16QAM



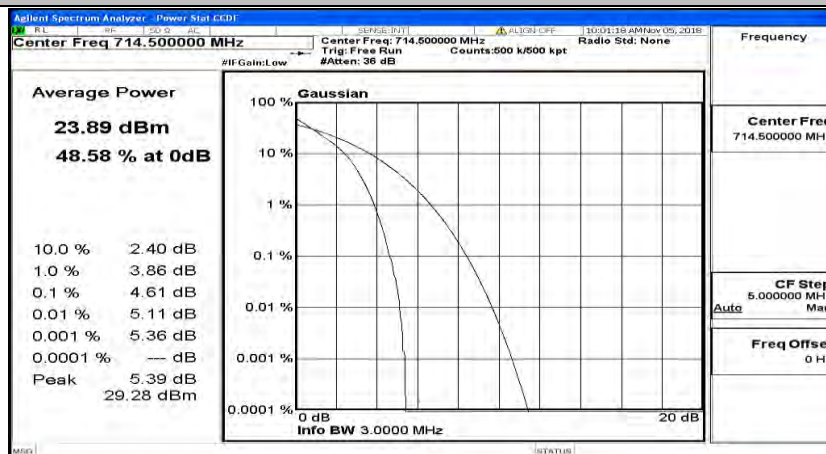
## Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 3 MHz)\_LCH\_QPSK



## Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 3 MHz)\_MCH\_QPSK

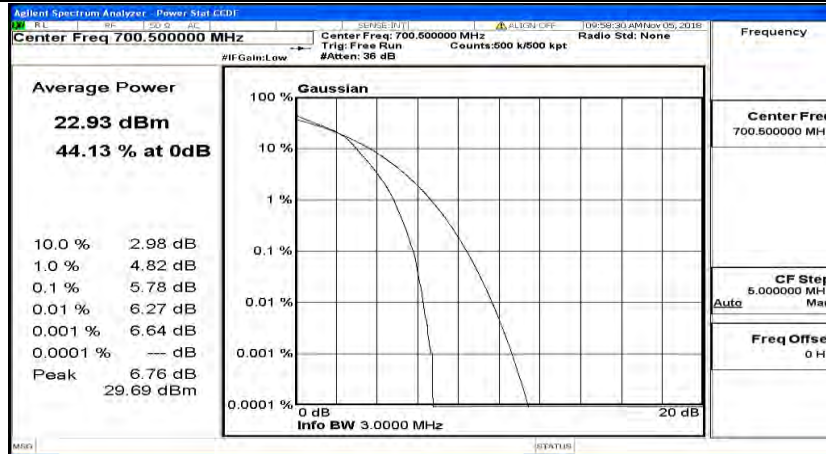


## Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 3 MHz)\_HCH\_QPSK

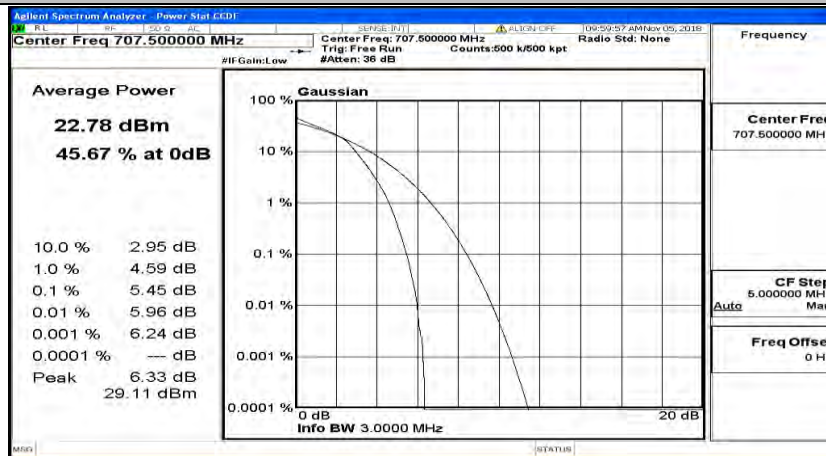




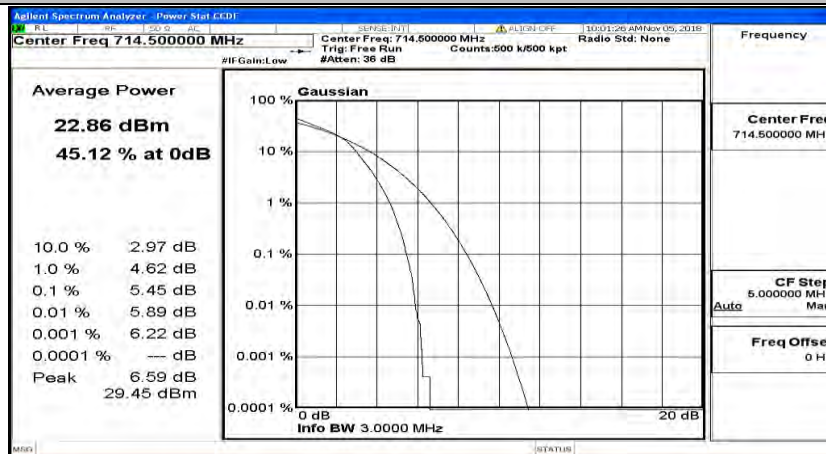
## Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 3 MHz)\_LCH\_16QAM



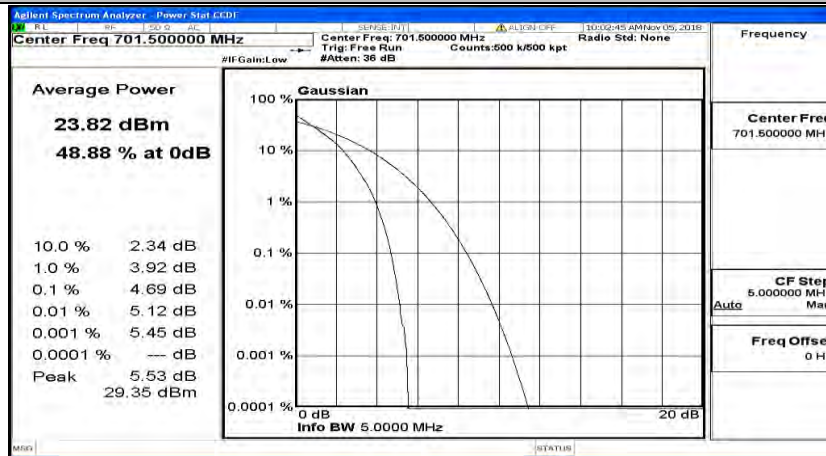
## Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 3 MHz)\_MCH\_16QAM



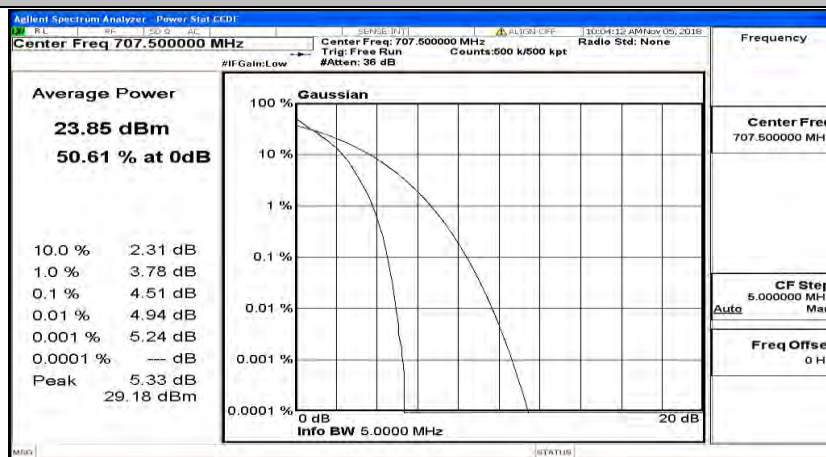
## Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 3 MHz)\_HCH\_16QAM



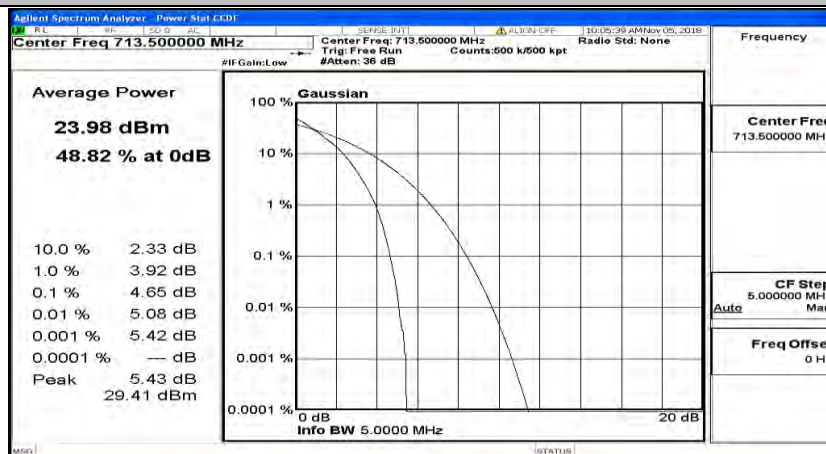
## Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)\_LCH\_QPSK



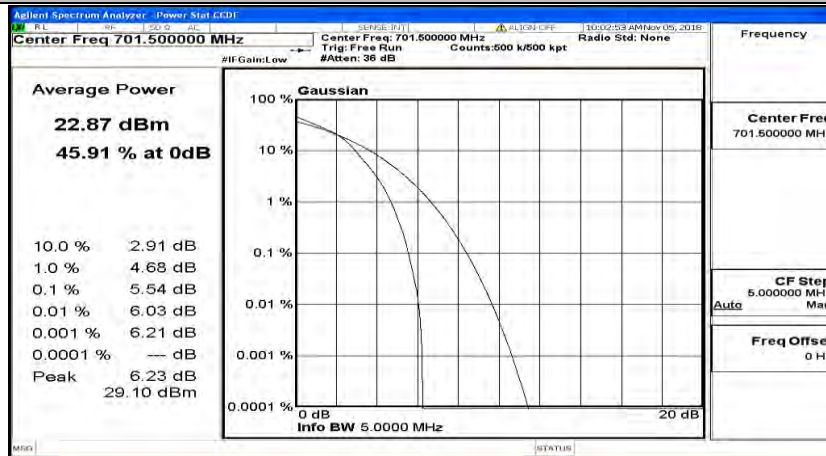
## Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)\_MCH\_QPSK



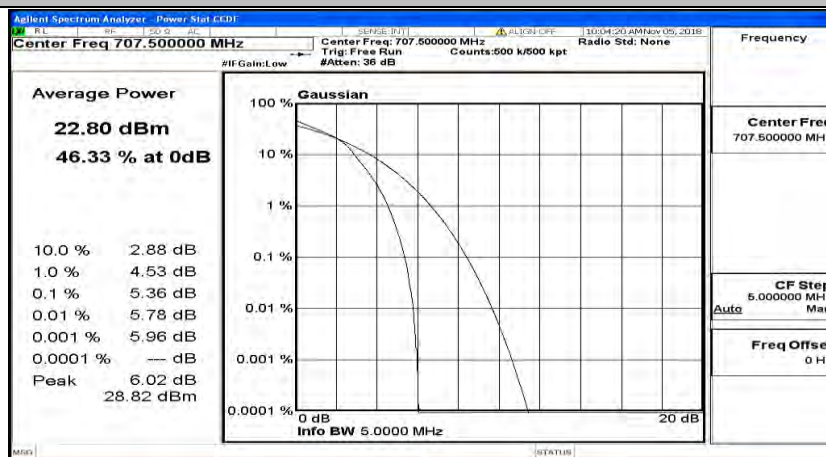
## Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)\_HCH\_QPSK



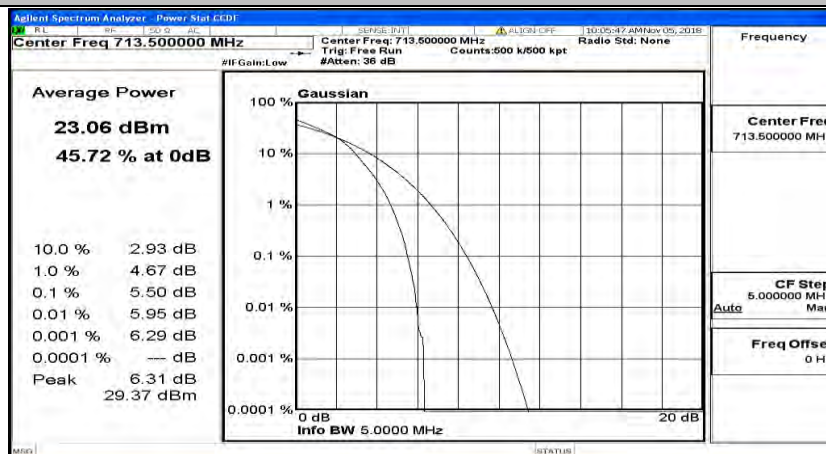
## Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)\_LCH\_16QAM



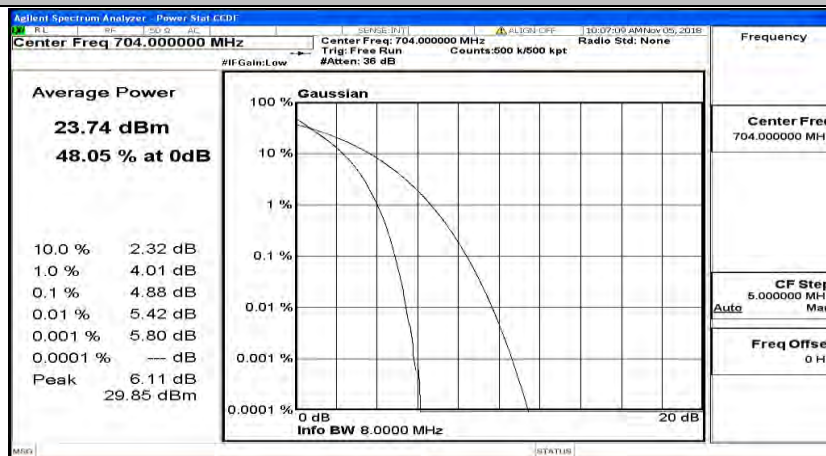
## Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)\_MCH\_16QAM



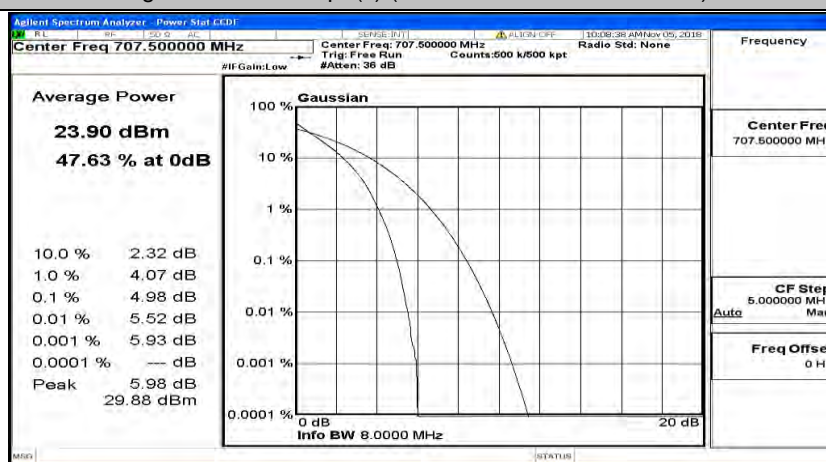
## Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)\_HCH\_16QAM



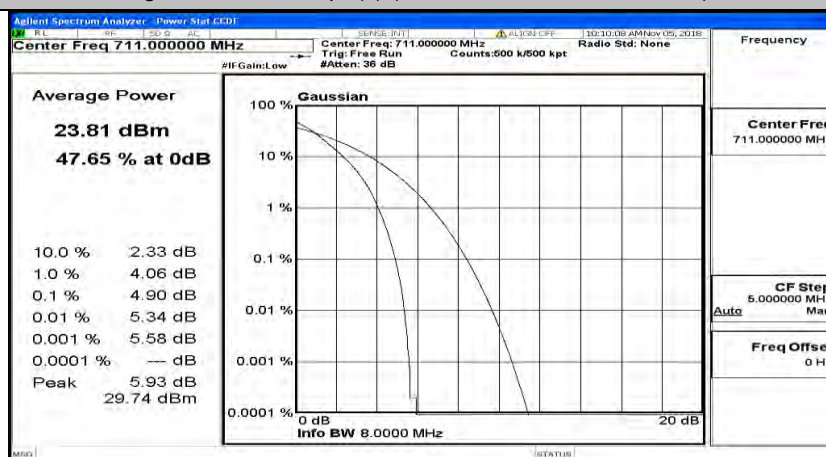
## Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 10 MHz)\_LCH\_QPSK



## Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 10 MHz)\_MCH\_QPSK

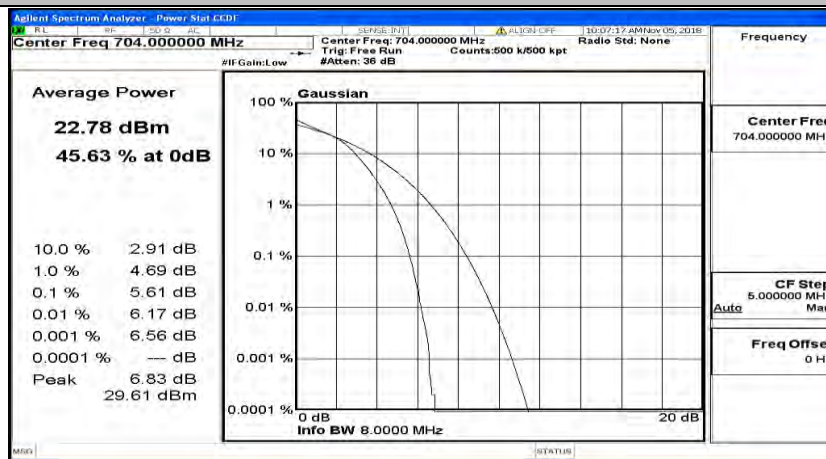


## Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 10 MHz)\_HCH\_QPSK

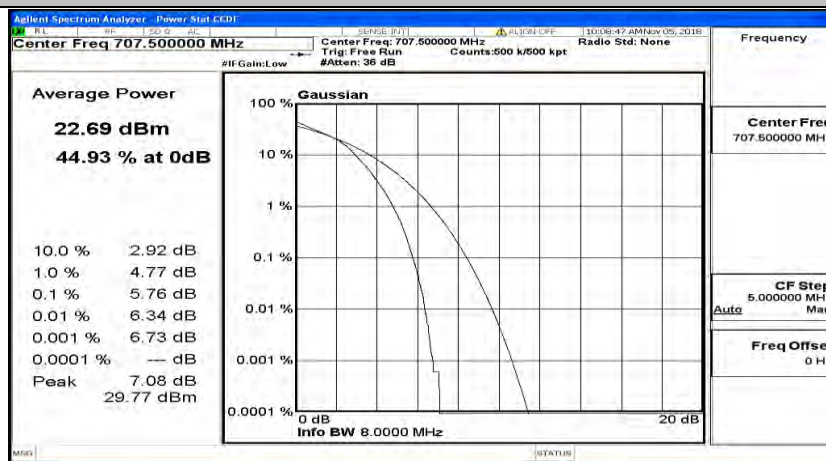




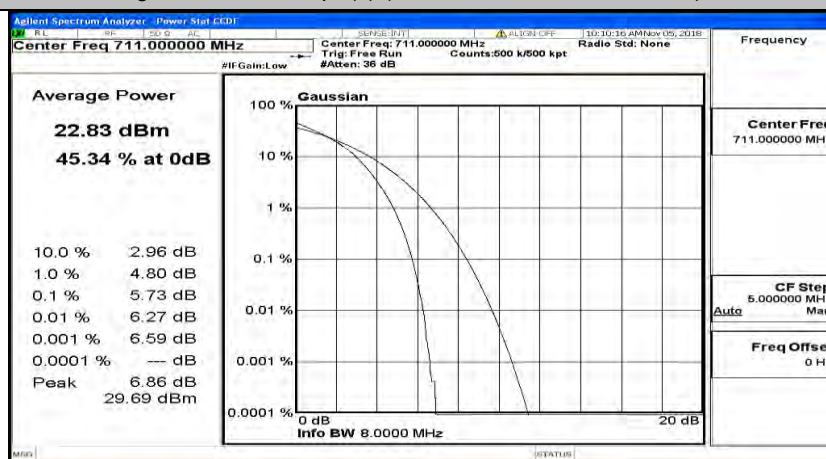
## Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 10 MHz)\_LCH\_16QAM



## 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



**G.3 26dB Bandwidth and Occupied Bandwidth**

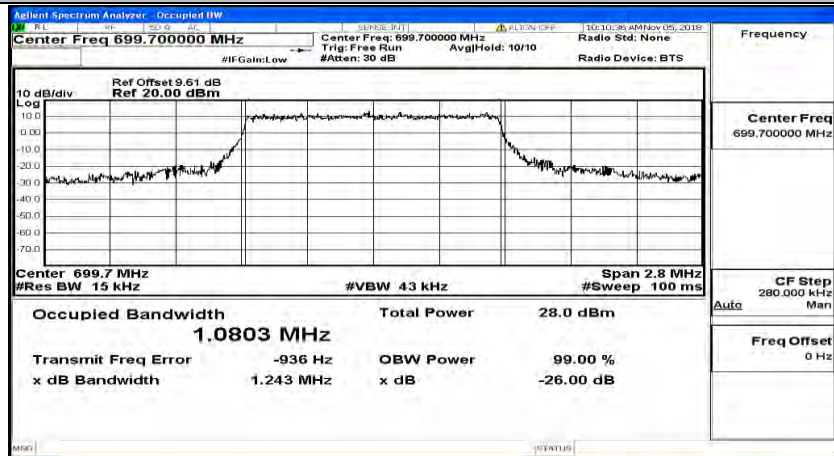
EBW & OBW Test Result (Channel Bandwidth: 1.4 MHz)				
Modulation	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
QPSK	LCH	1.0803	1.243	PASS
	MCH	1.0759	1.285	PASS
	HCH	1.0871	1.696	PASS
16QAM	LCH	1.0794	1.242	PASS
	MCH	1.0818	1.237	PASS
	HCH	1.0853	1.333	PASS

EBW & OBW Test Result (Channel Bandwidth: 3 MHz)				
Modulation	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
QPSK	LCH	2.6842	2.949	PASS
	MCH	2.6912	2.998	PASS
	HCH	2.6868	2.953	PASS
16QAM	LCH	2.6853	2.976	PASS
	MCH	2.6893	2.978	PASS
	HCH	2.6898	3.038	PASS

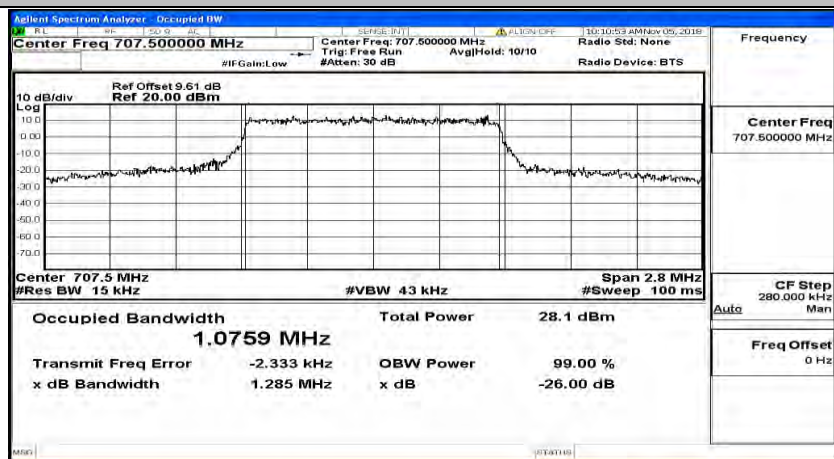
EBW & OBW Test Result (Channel Bandwidth: 5 MHz)				
Modulation	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
QPSK	LCH	4.4620	4.799	PASS
	MCH	4.4771	4.824	PASS
	HCH	4.4692	4.807	PASS
16QAM	LCH	4.4623	4.825	PASS
	MCH	4.4714	4.866	PASS
	HCH	4.4634	4.843	PASS

EBW & OBW Test Result (Channel Bandwidth: 10 MHz)				
Modulation	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
QPSK	LCH	8.9411	9.544	PASS
	MCH	8.9599	9.542	PASS
	HCH	8.9196	9.504	PASS
16QAM	LCH	8.9279	9.483	PASS
	MCH	8.9560	9.596	PASS
	HCH	8.9329	9.481	PASS

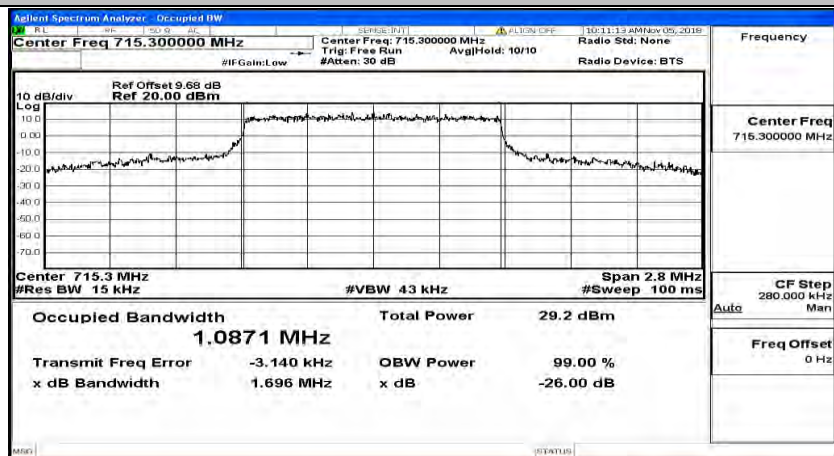
## EBW &amp; OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)\_LCH\_QPSK



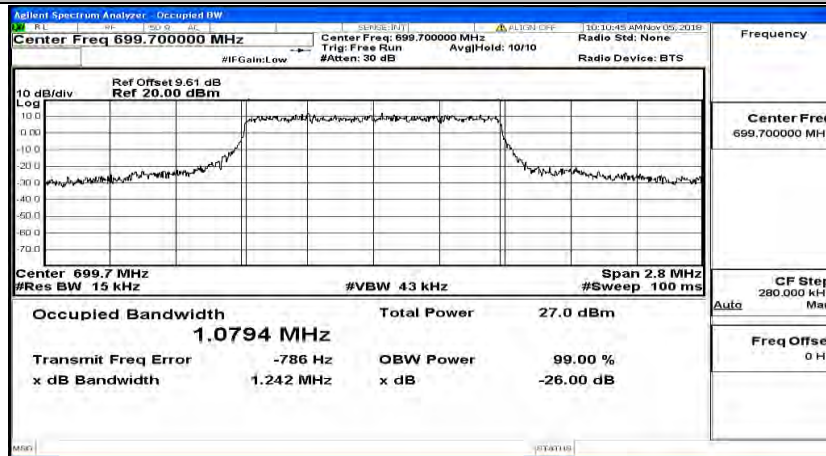
## EBW &amp; OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)\_MCH\_QPSK



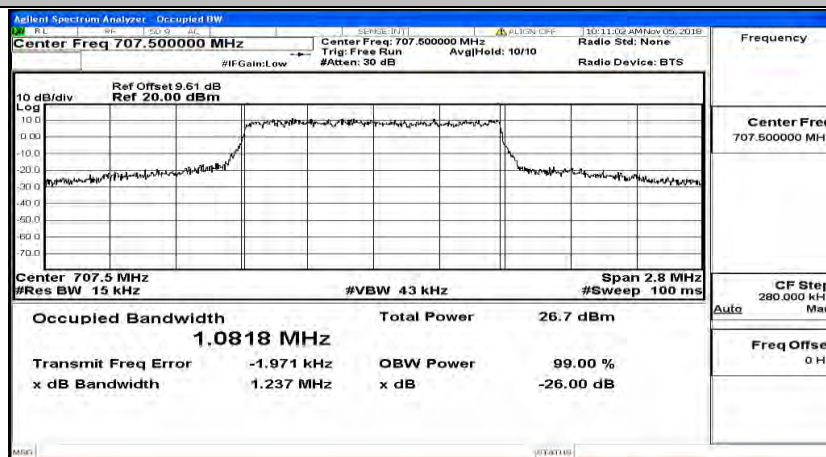
## EBW &amp; OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)\_HCH\_QPSK



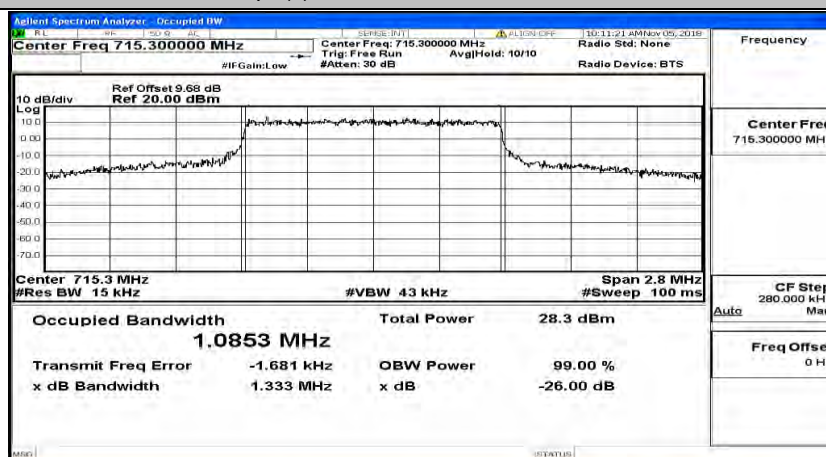
## EBW &amp; OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)\_LCH\_16QAM



## EBW &amp; OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)\_MCH\_16QAM

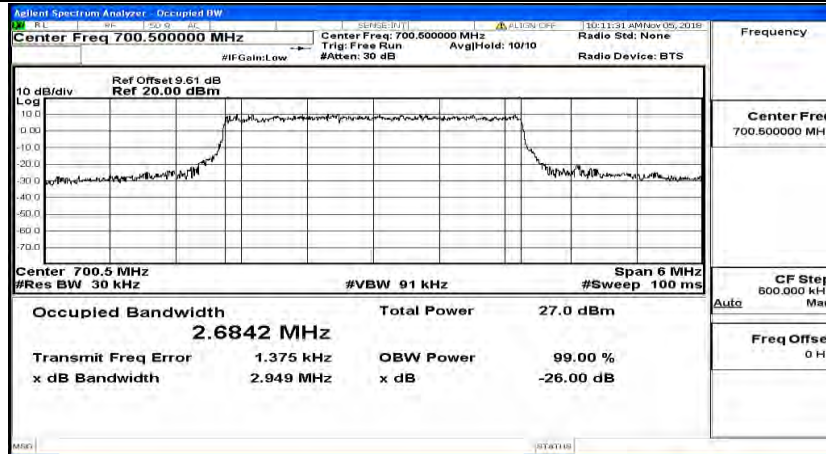


## EBW &amp; OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)\_HCH\_16QAM

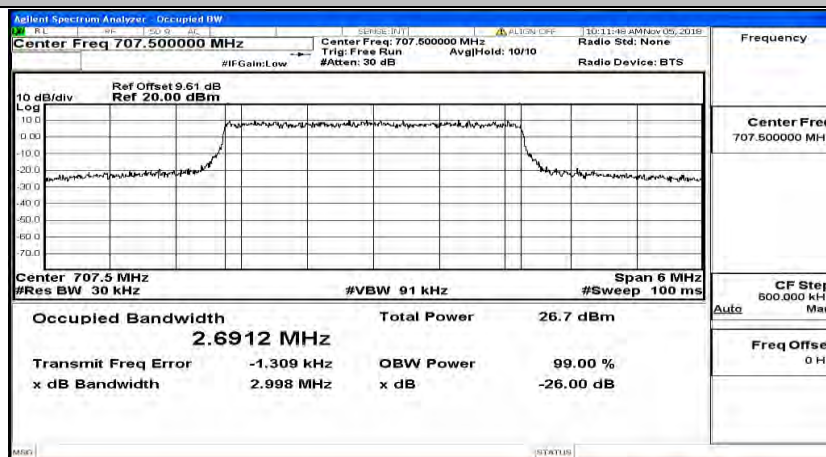




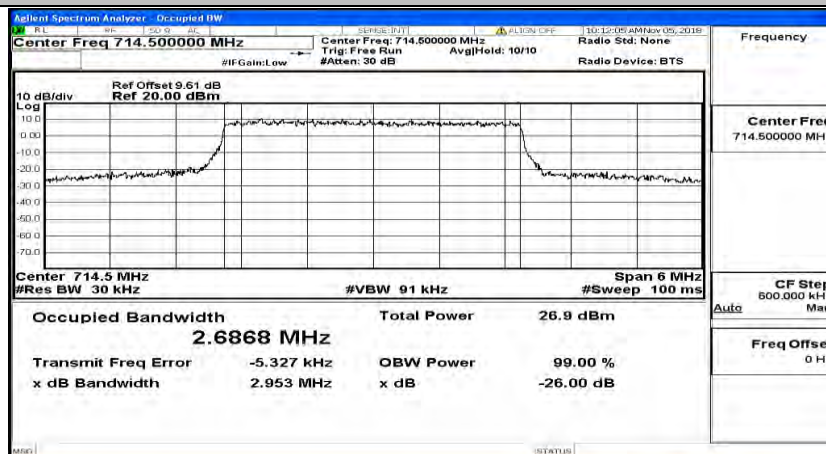
## EBW &amp; OBW Test Graph(s) (Channel Bandwidth: 3 MHz)\_LCH\_QPSK



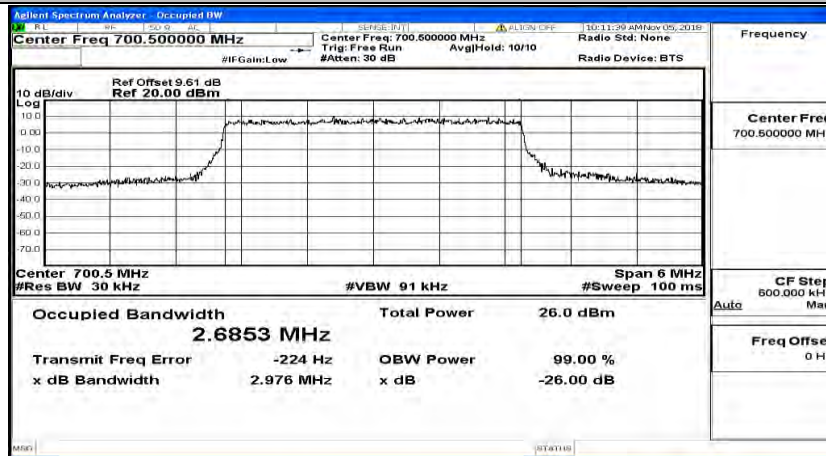
## EBW &amp; OBW Test Graph(s) (Channel Bandwidth: 3 MHz)\_MCH\_QPSK



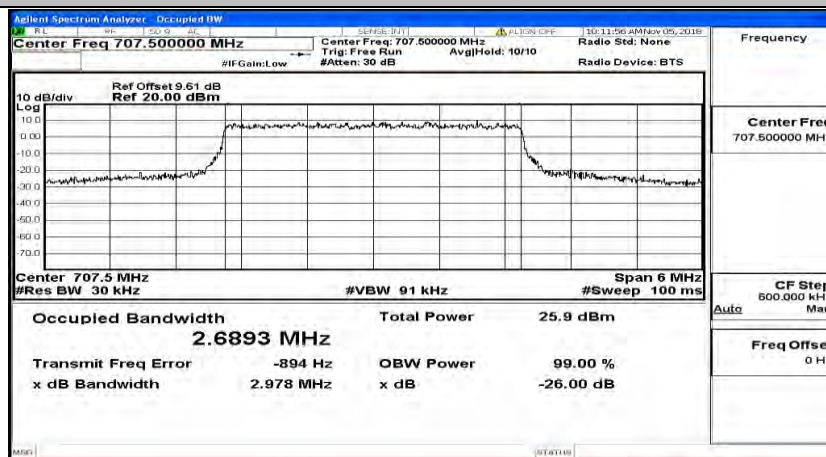
## EBW &amp; OBW Test Graph(s) (Channel Bandwidth: 3 MHz)\_HCH\_QPSK



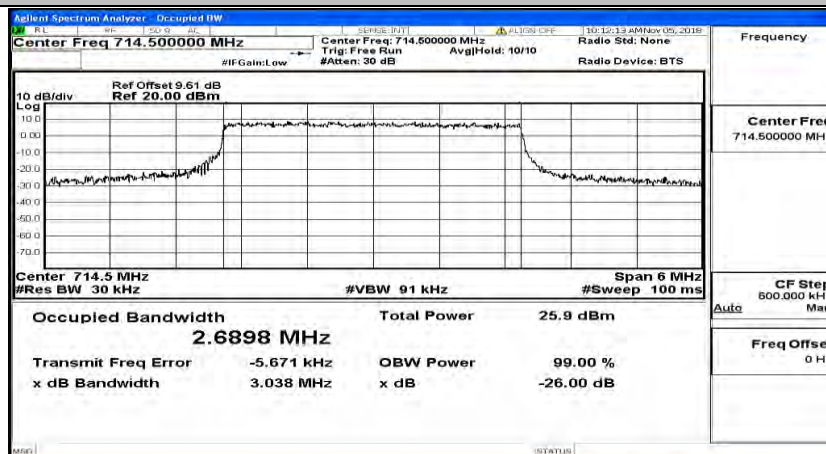
## EBW &amp; OBW Test Graph(s) (Channel Bandwidth: 3 MHz)\_LCH\_16QAM



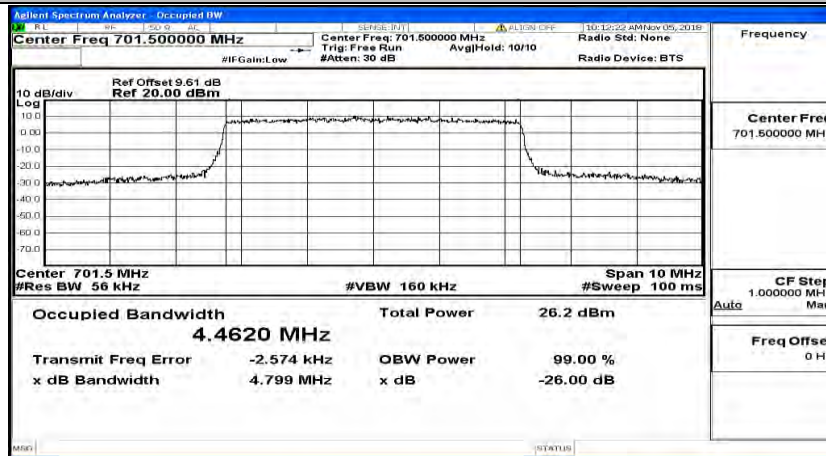
## EBW &amp; OBW Test Graph(s) (Channel Bandwidth: 3 MHz)\_MCH\_16QAM



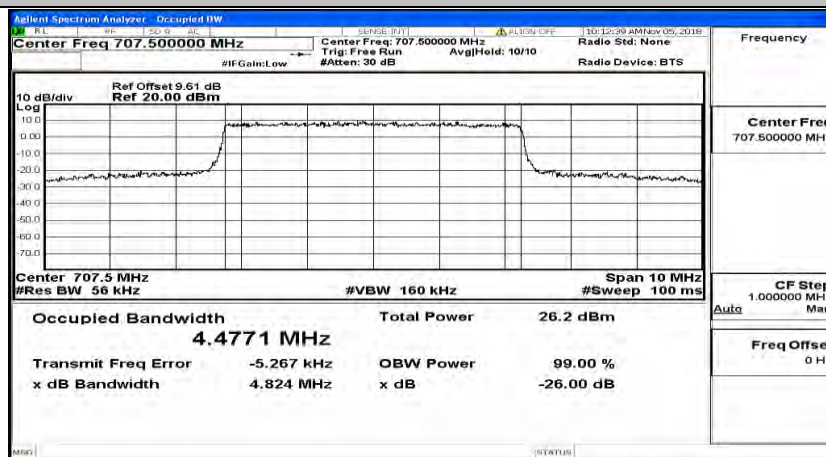
## EBW &amp; OBW Test Graph(s) (Channel Bandwidth: 3 MHz)\_HCH\_16QAM



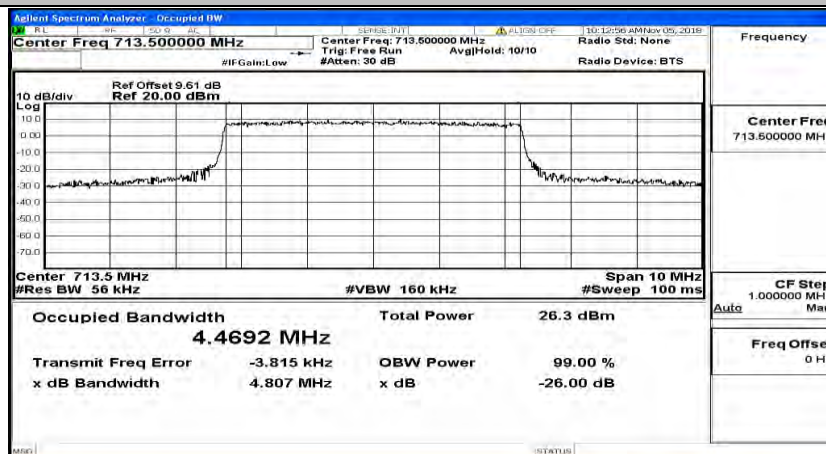
## EBW &amp; OBW Test Graph(s) (Channel Bandwidth: 5 MHz)\_LCH\_QPSK



## EBW &amp; OBW Test Graph(s) (Channel Bandwidth: 5 MHz)\_MCH\_QPSK

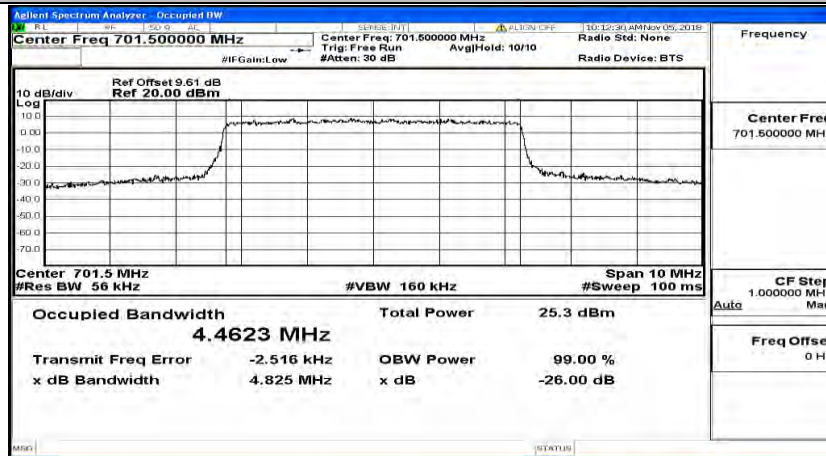


## EBW &amp; OBW Test Graph(s) (Channel Bandwidth: 5 MHz)\_HCH\_QPSK

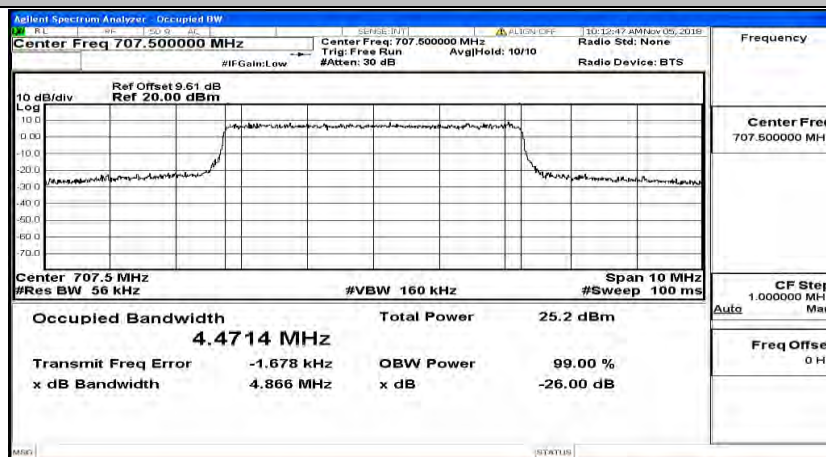




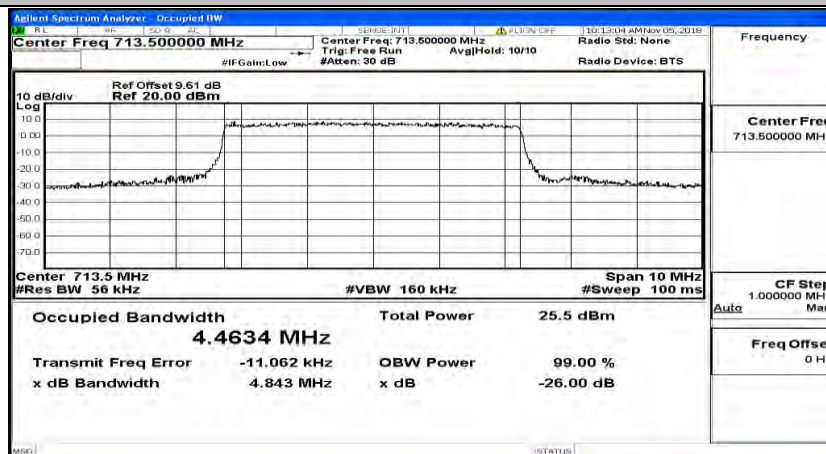
## EBW &amp; OBW Test Graph(s) (Channel Bandwidth: 5 MHz)\_LCH\_16QAM



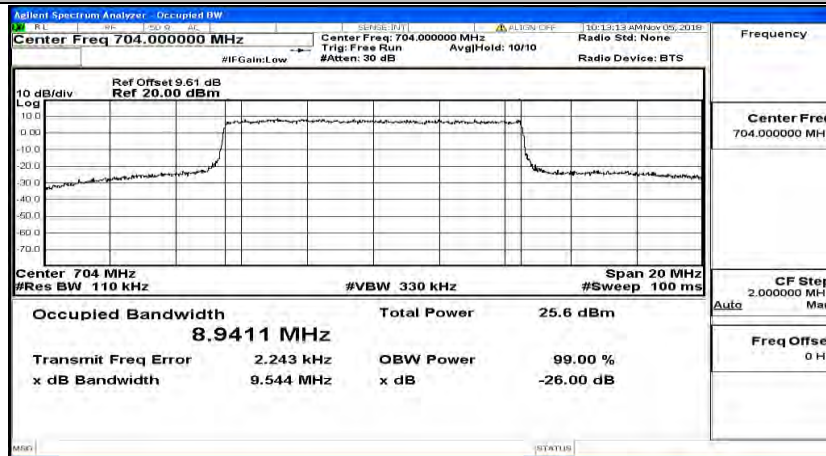
## EBW &amp; OBW Test Graph(s) (Channel Bandwidth: 5 MHz)\_MCH\_16QAM



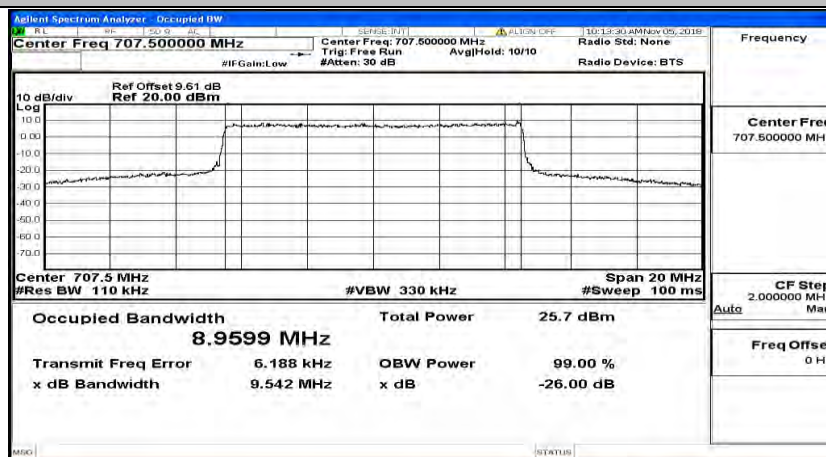
## EBW &amp; OBW Test Graph(s) (Channel Bandwidth: 5 MHz)\_HCH\_16QAM



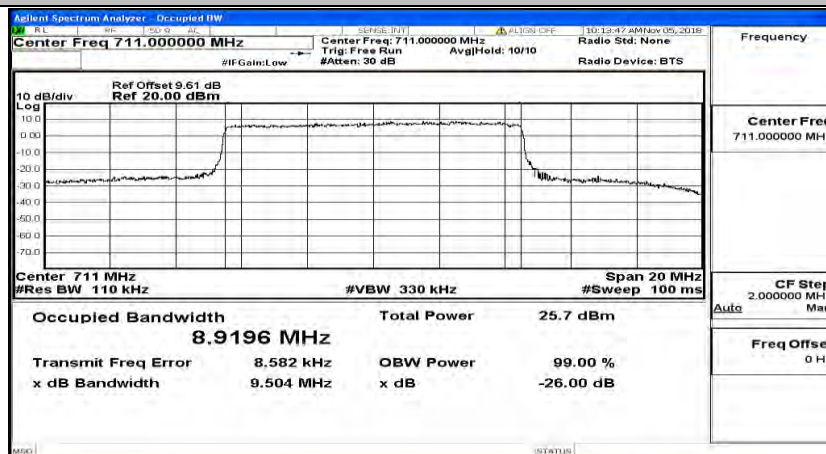
## EBW &amp; OBW Test Graph(s) (Channel Bandwidth: 10 MHz)\_LCH\_QPSK



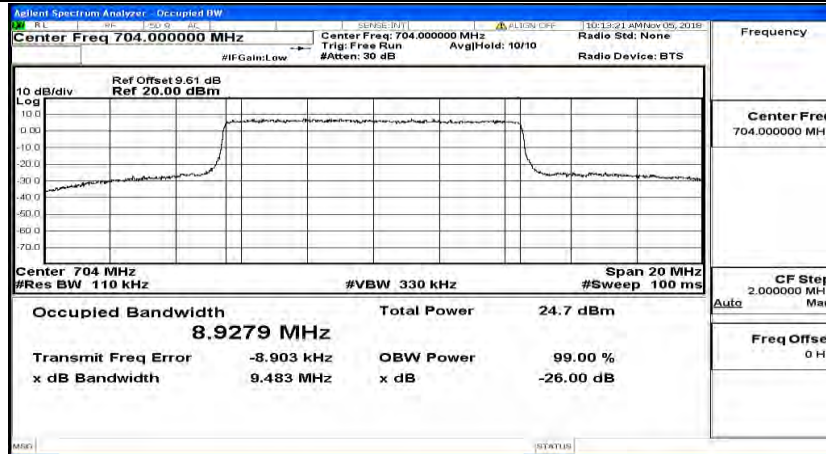
## EBW &amp; OBW Test Graph(s) (Channel Bandwidth: 10 MHz)\_MCH\_QPSK



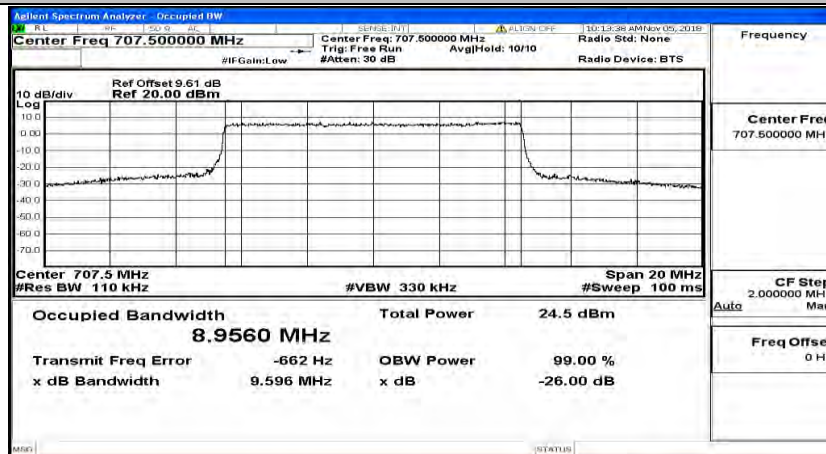
## EBW &amp; OBW Test Graph(s) (Channel Bandwidth: 10 MHz)\_HCH\_QPSK



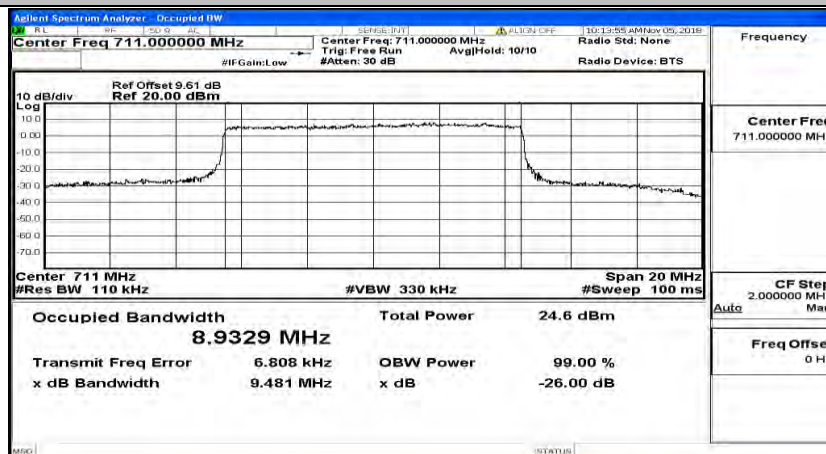
## EBW &amp; OBW Test Graph(s) (Channel Bandwidth: 10 MHz)\_LCH\_16QAM



## EBW &amp; OBW Test Graph(s) (Channel Bandwidth: 10 MHz)\_MCH\_16QAM



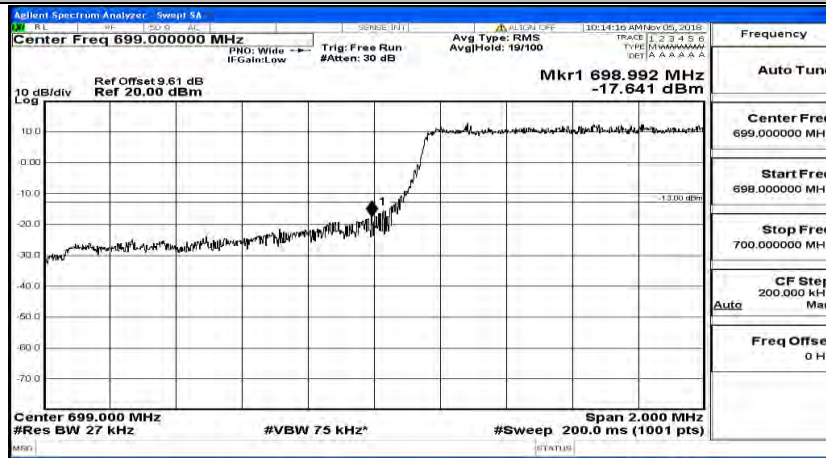
## EBW &amp; OBW Test Graph(s) (Channel Bandwidth: 10 MHz)\_HCH\_16QAM



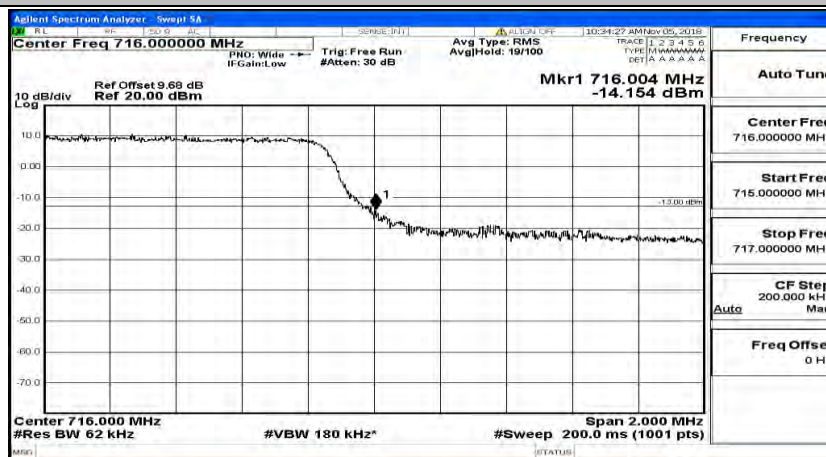


## G.4 Band Edge

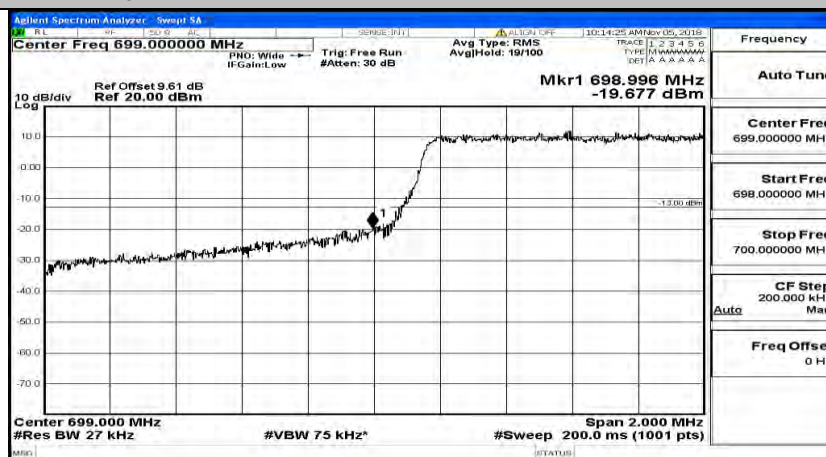
Band Edge Test Graph(s) (Channel Bandwidth: 1.4 MHz)\_LCH\_QPSK



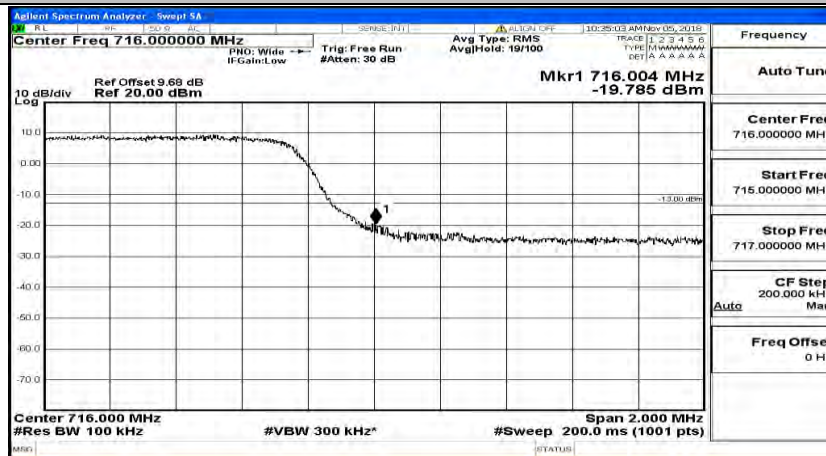
Band Edge Test Graph(s) (Channel Bandwidth: 1.4 MHz)\_HCH\_QPSK



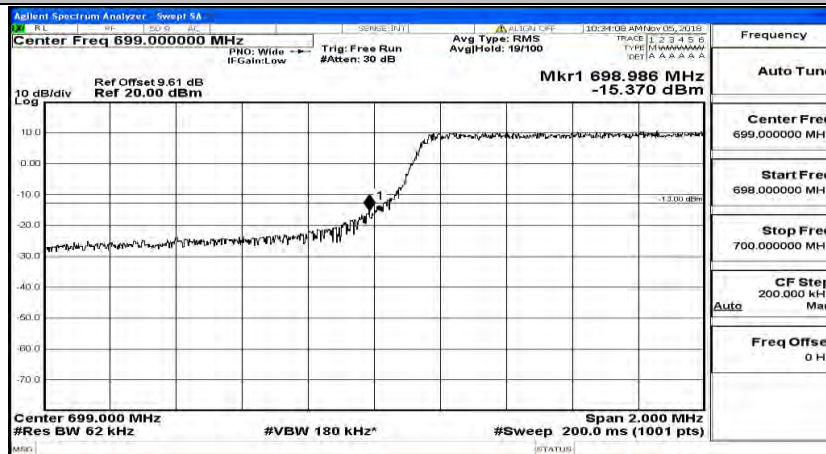
Band Edge Test Graph(s) (Channel Bandwidth: 1.4 MHz)\_LCH\_16QAM



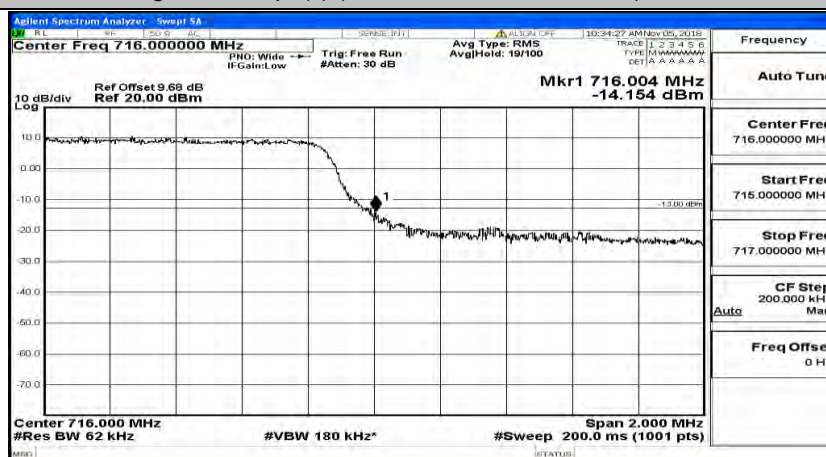
## Band Edge Test Graph(s) (Channel Bandwidth: 1.4 MHz)\_HCH\_16QAM



## Band Edge Test Graph(s) (Channel Bandwidth: 3 MHz)\_LCH\_QPSK

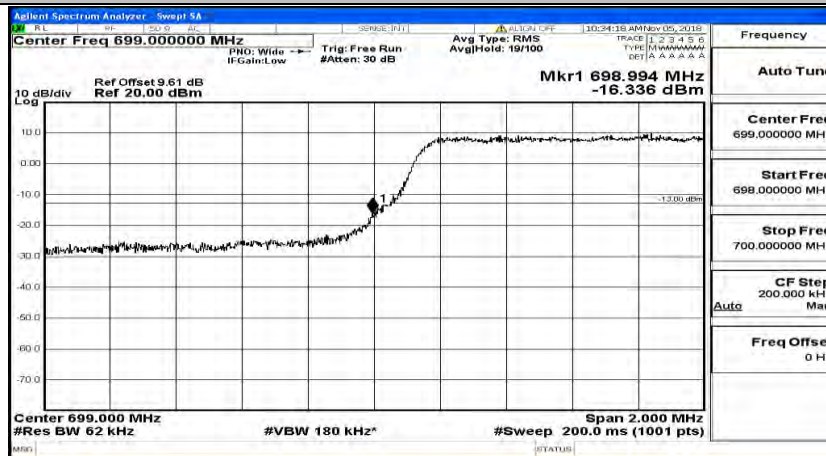


## Band Edge Test Graph(s) (Channel Bandwidth: 3 MHz)\_HCH\_QPSK

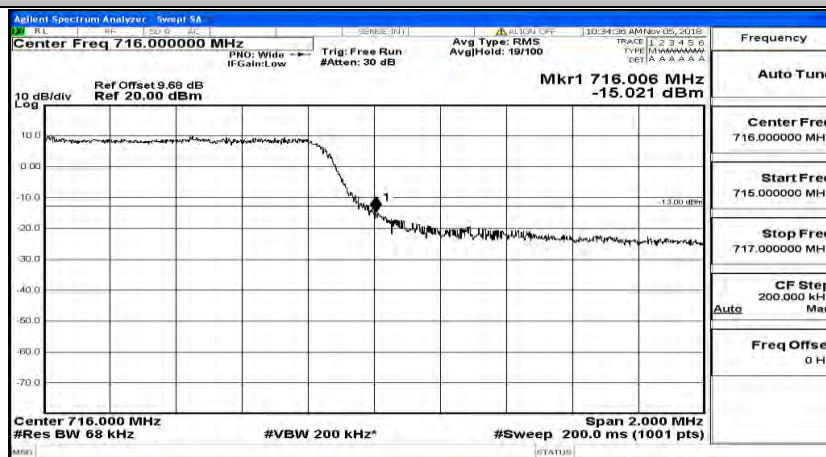




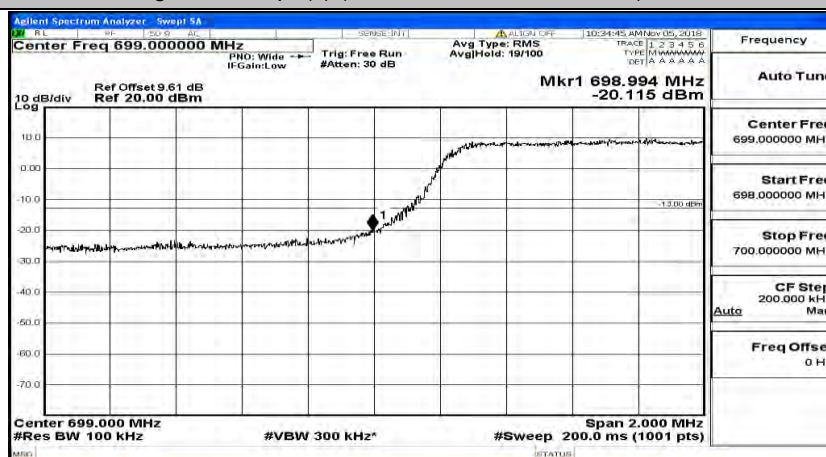
Band Edge Test Graph(s) (Channel Bandwidth: 3 MHz)\_LCH\_16QAM



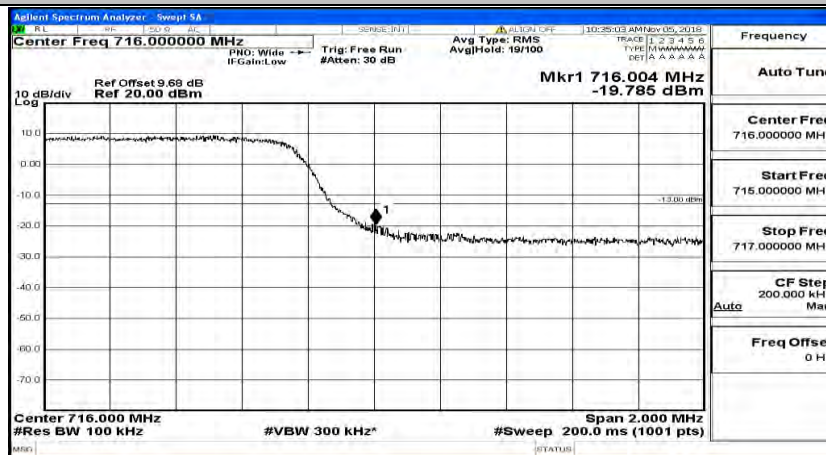
Band Edge Test Graph(s) (Channel Bandwidth: 3 MHz)\_HCH\_16QAM



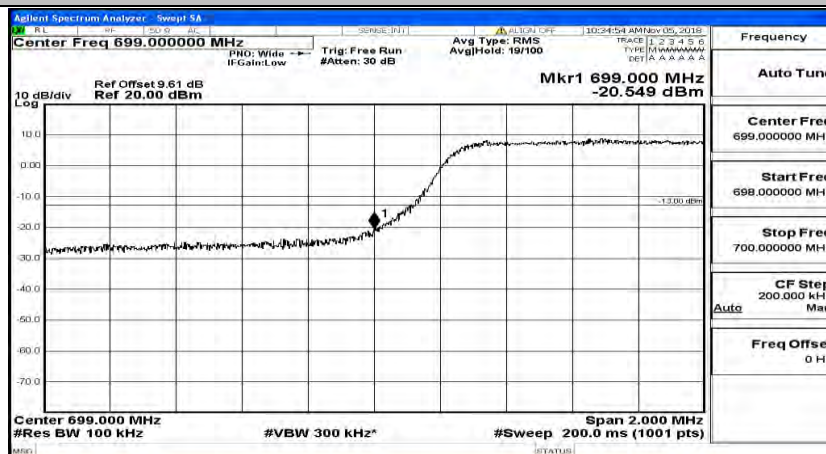
Band Edge Test Graph(s) (Channel Bandwidth: 5 MHz)\_LCH\_QPSK



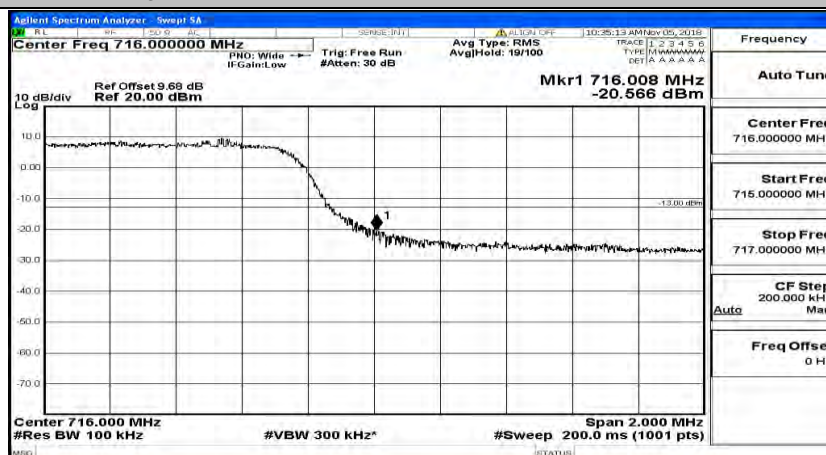
## Band Edge Test Graph(s) (Channel Bandwidth: 5 MHz)\_HCH\_QPSK



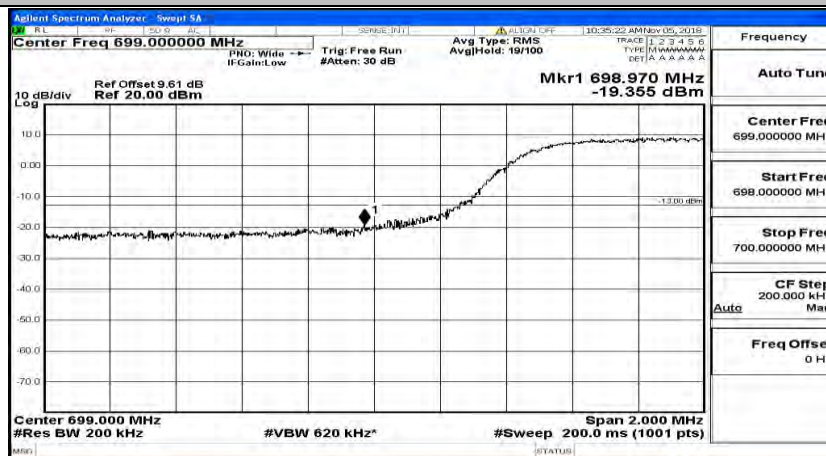
## Band Edge Test Graph(s) (Channel Bandwidth: 5 MHz)\_LCH\_16QAM



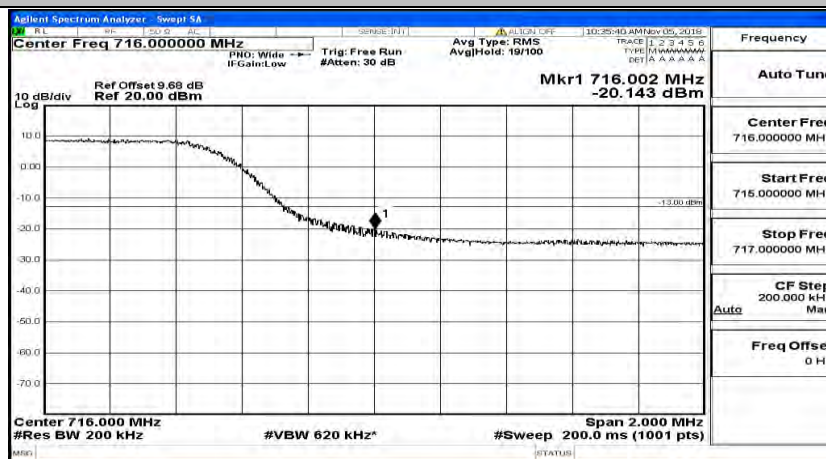
## Band Edge Test Graph(s) (Channel Bandwidth: 5 MHz)\_HCH\_16QAM



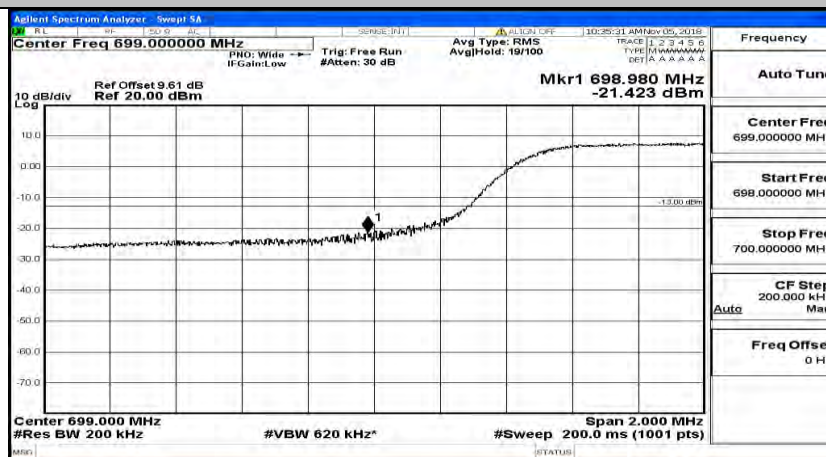
## Band Edge Test Graph(s) (Channel Bandwidth: 10 MHz)\_LCH\_QPSK



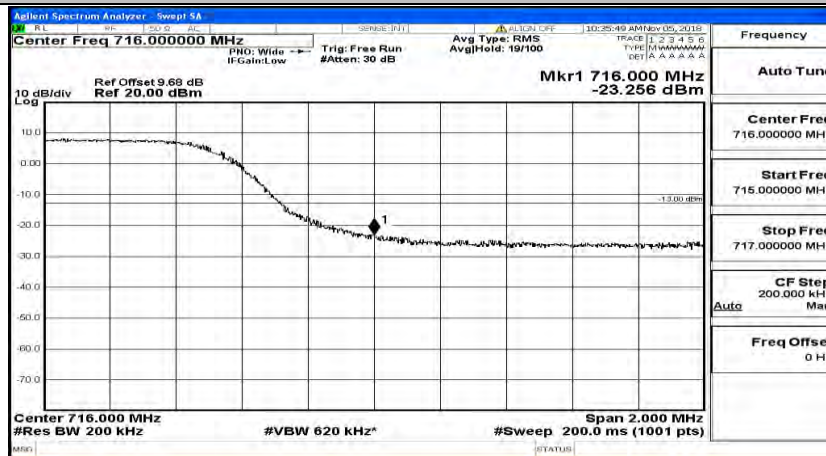
## Band Edge Test Graph(s) (Channel Bandwidth: 10 MHz)\_HCH\_QPSK



## Band Edge Test Graph(s) (Channel Bandwidth: 10 MHz)\_LCH\_16QAM



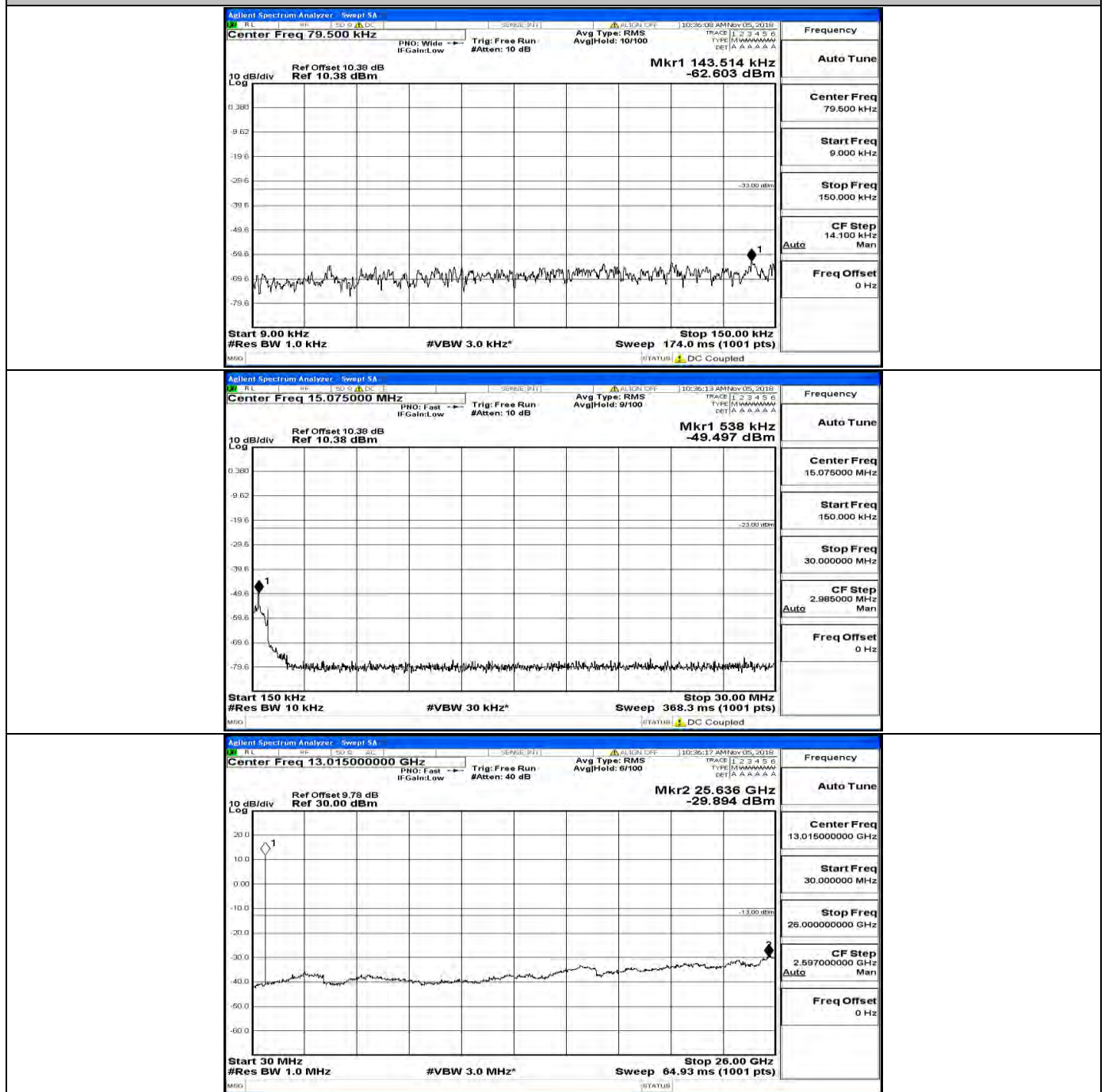
## Band Edge Test Graph(s) (Channel Bandwidth: 10 MHz)\_HCH\_16QAM



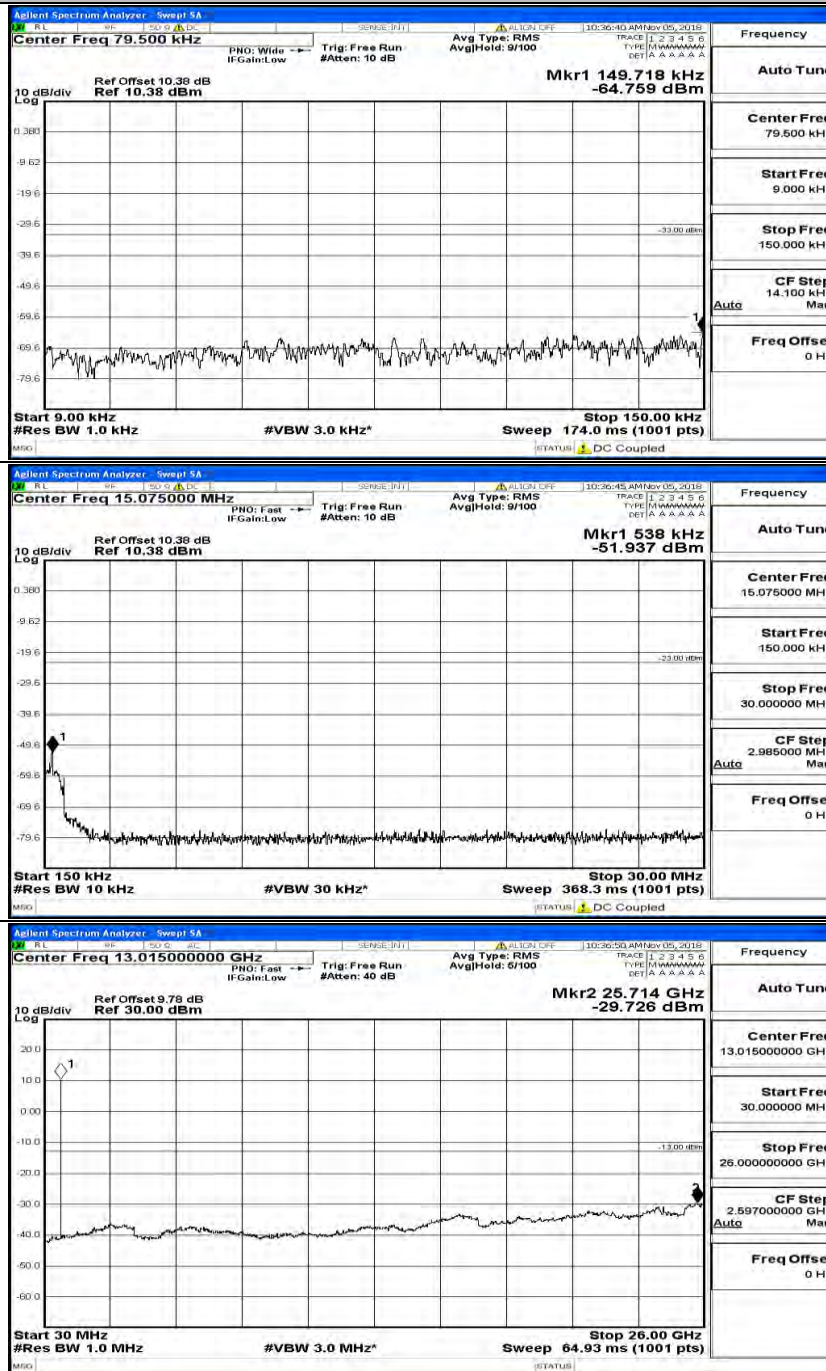


## G.5 Conducted Spurious Emission

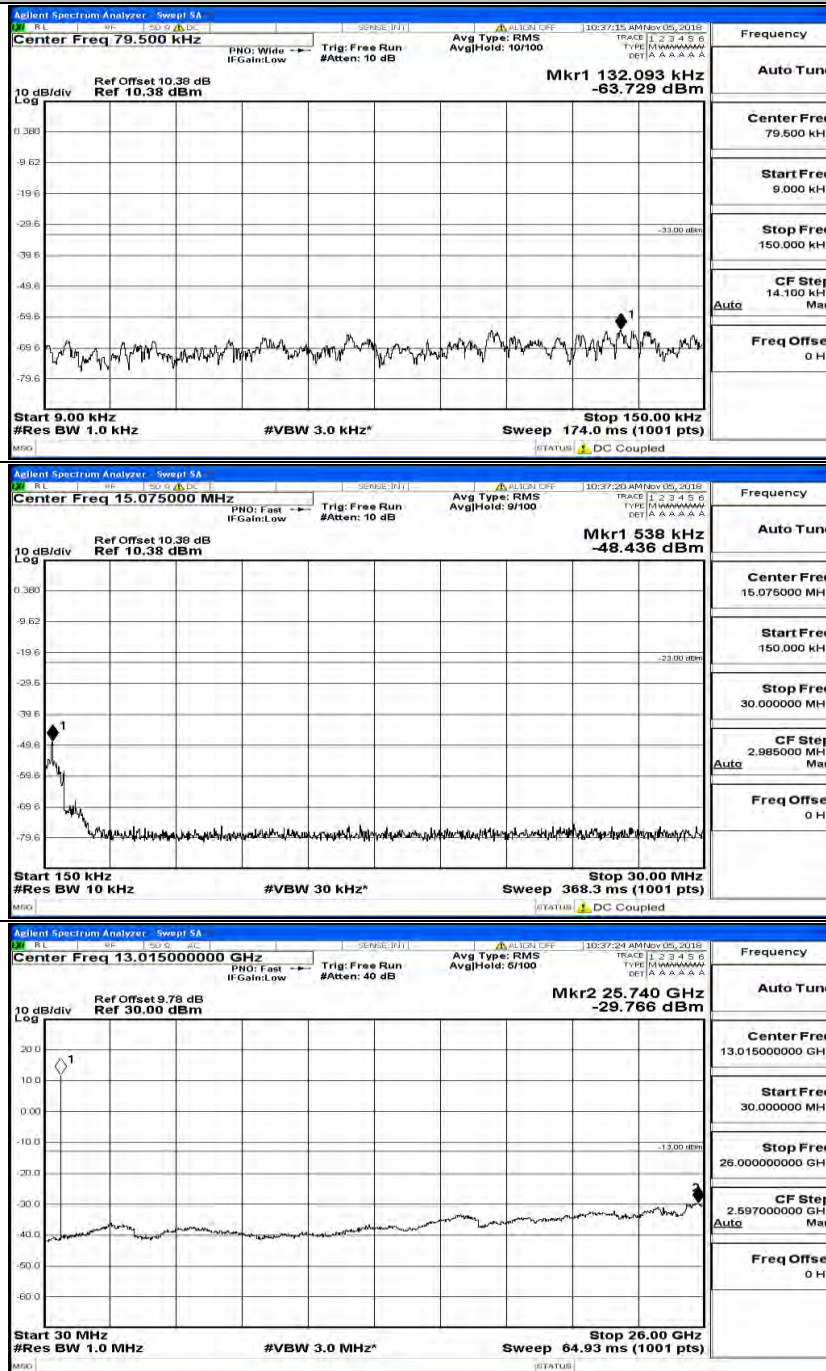
CSE Test Graph(s) (Channel Bandwidth: 1.4 MHz)\_LCH\_QPSK



## CSE Test Graph(s) (Channel Bandwidth: 1.4 MHz)\_MCH\_QPSK

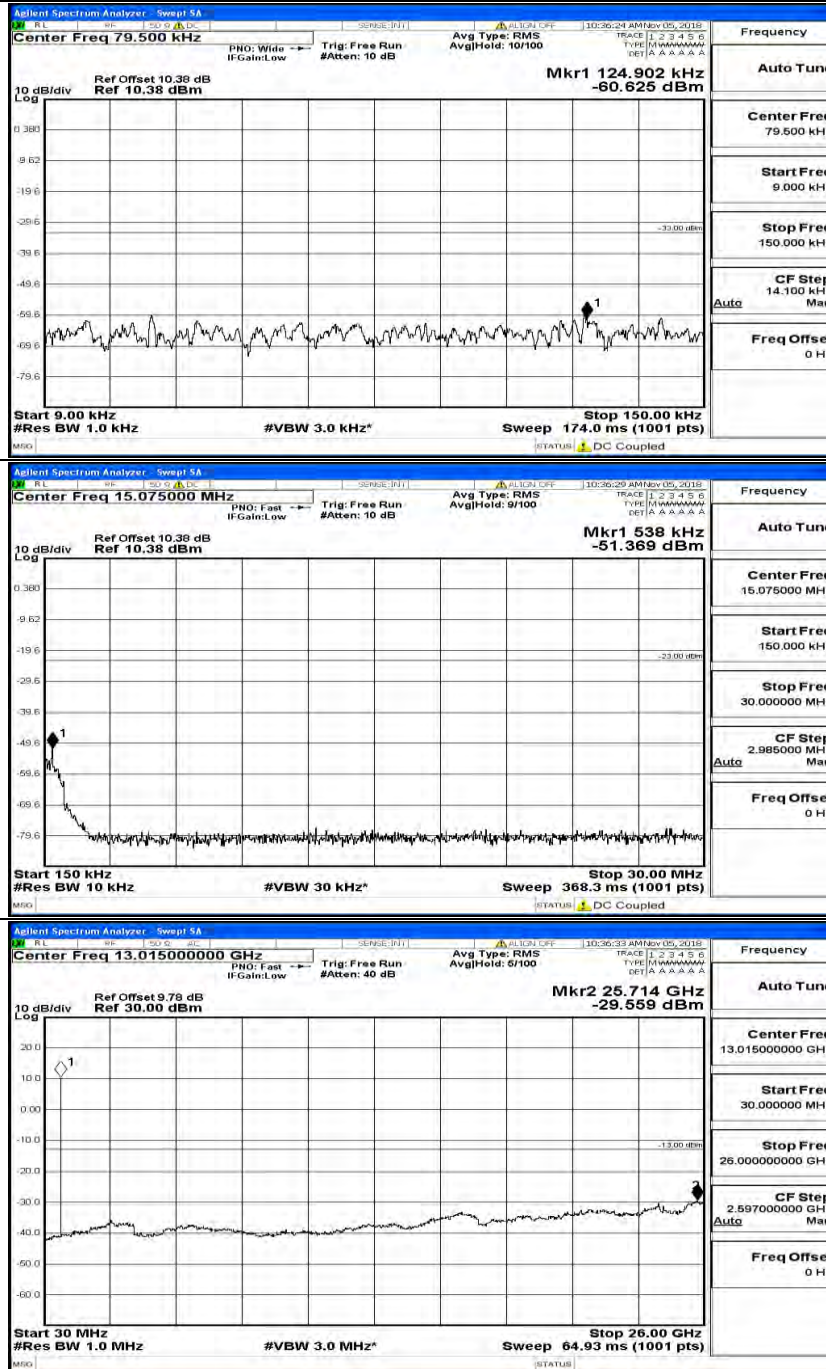


## CSE Test Graph(s) (Channel Bandwidth: 1.4 MHz)\_HCH\_QPSK



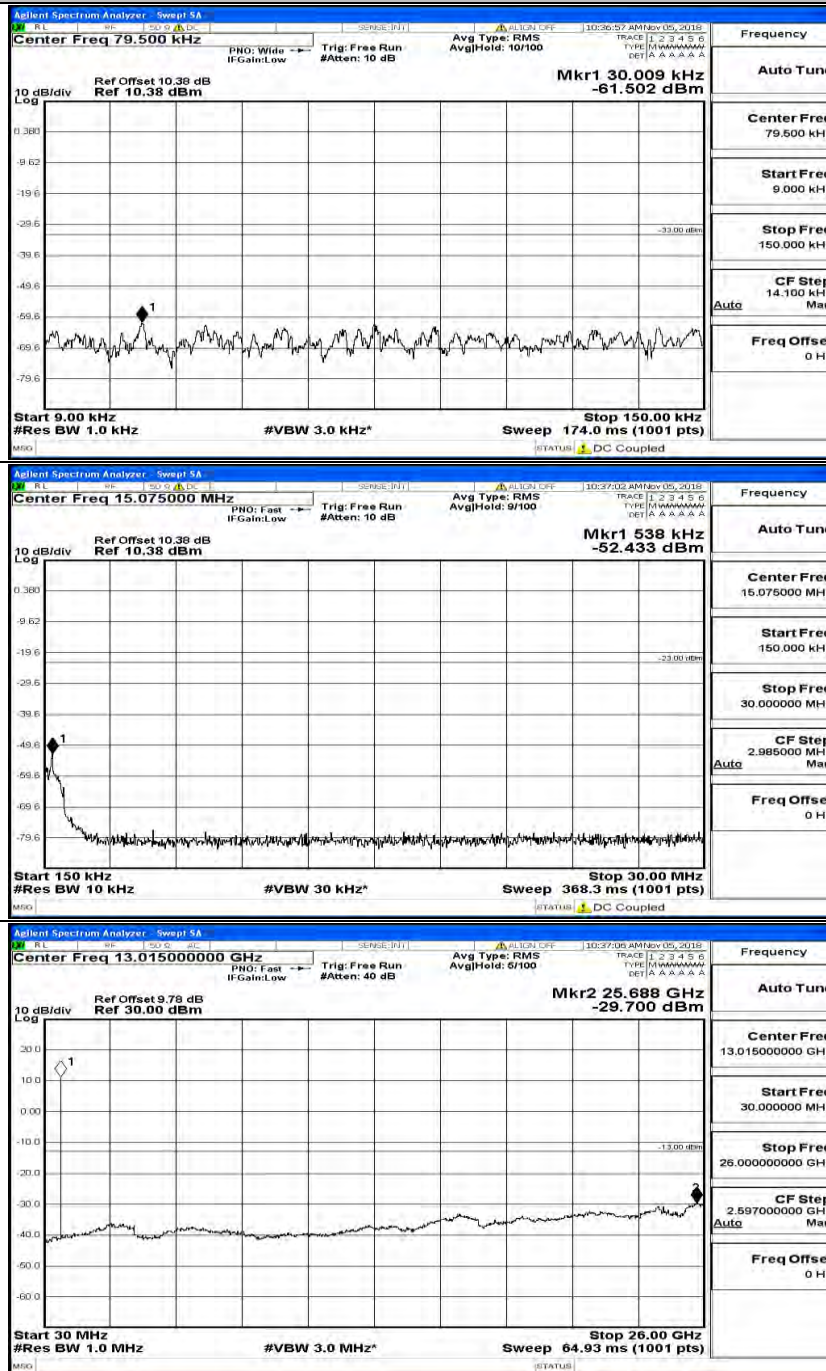


## CSE Test Graph(s) (Channel Bandwidth: 1.4 MHz)\_LCH\_16QAM





## CSE Test Graph(s) (Channel Bandwidth: 1.4 MHz)\_MCH\_16QAM



**Agilent Spectrum Analyzer - Sweep SA**

FIL 000000.Dos SDR63-Pl1 AL 1.24 C/F 10:27:32 AM Nov 05, 2015

**Center Freq 79,500 kHz** PNO: Wide → Trg: Free Run Avg Type: RMS  
IF Gain: Low #Atten: 10 dB AvgHold: 10/100

TRACE [ 2 3 4 5 6 ]  
TYPE [ NORMAL ]  
DET [ AAAAAA ]

**Mkr1 30.150 kHz -58.267 dBm**

Frequency Auto Tune

Center Freq 79,500 kHz

Start Freq 9,000 kHz

Stop Freq 150,000 kHz

CF Step 14,100 kHz Mar

[Auto](#)

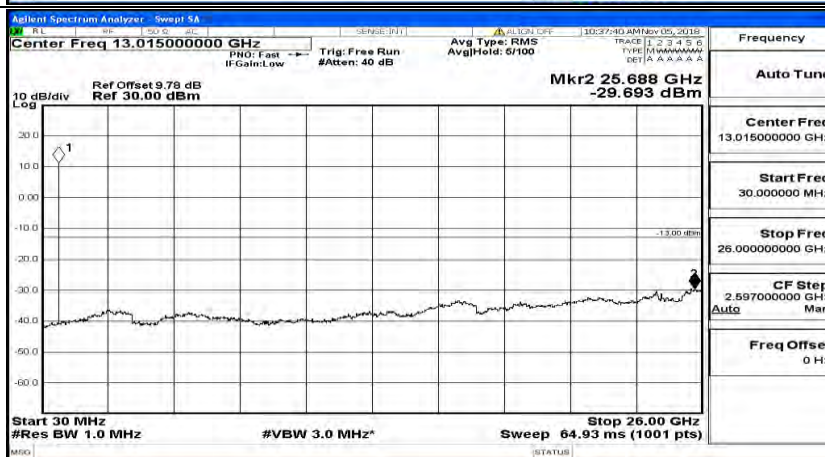
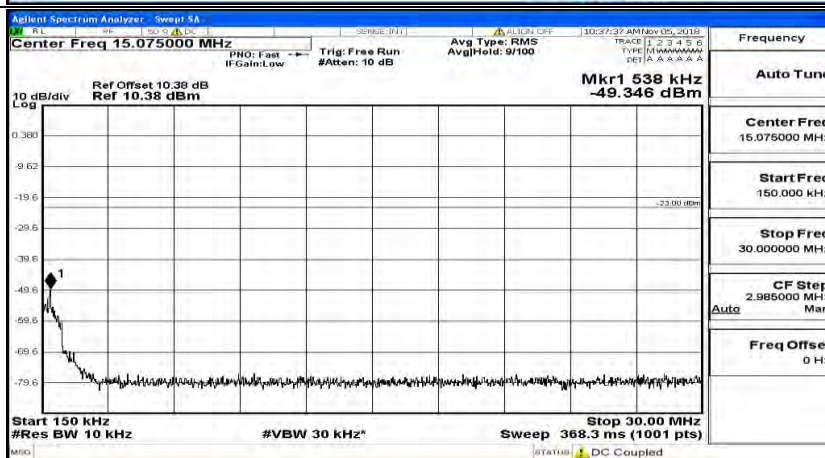
Freq Offset 0 Hz

10 dB Div Log Ref Offset 10.36 dB Ref 10.38 dBm

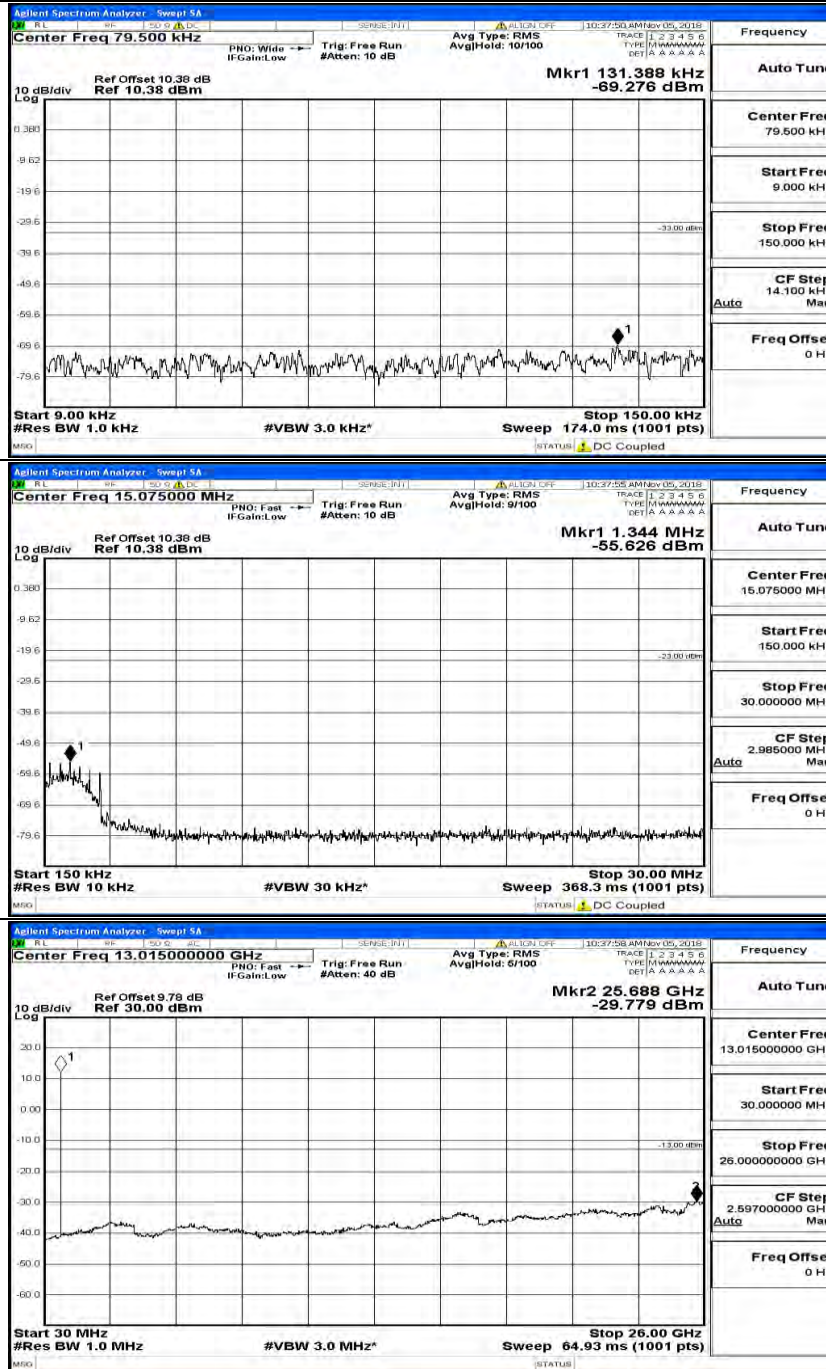
-30.00 dBm

Start 9.00 kHz #Res BW 1.0 kHz #VBW 3.0 kHz\* Stop 150.00 kHz Sweep 174.0 ms (1001 pts)

MISC STATUS DC Coupled

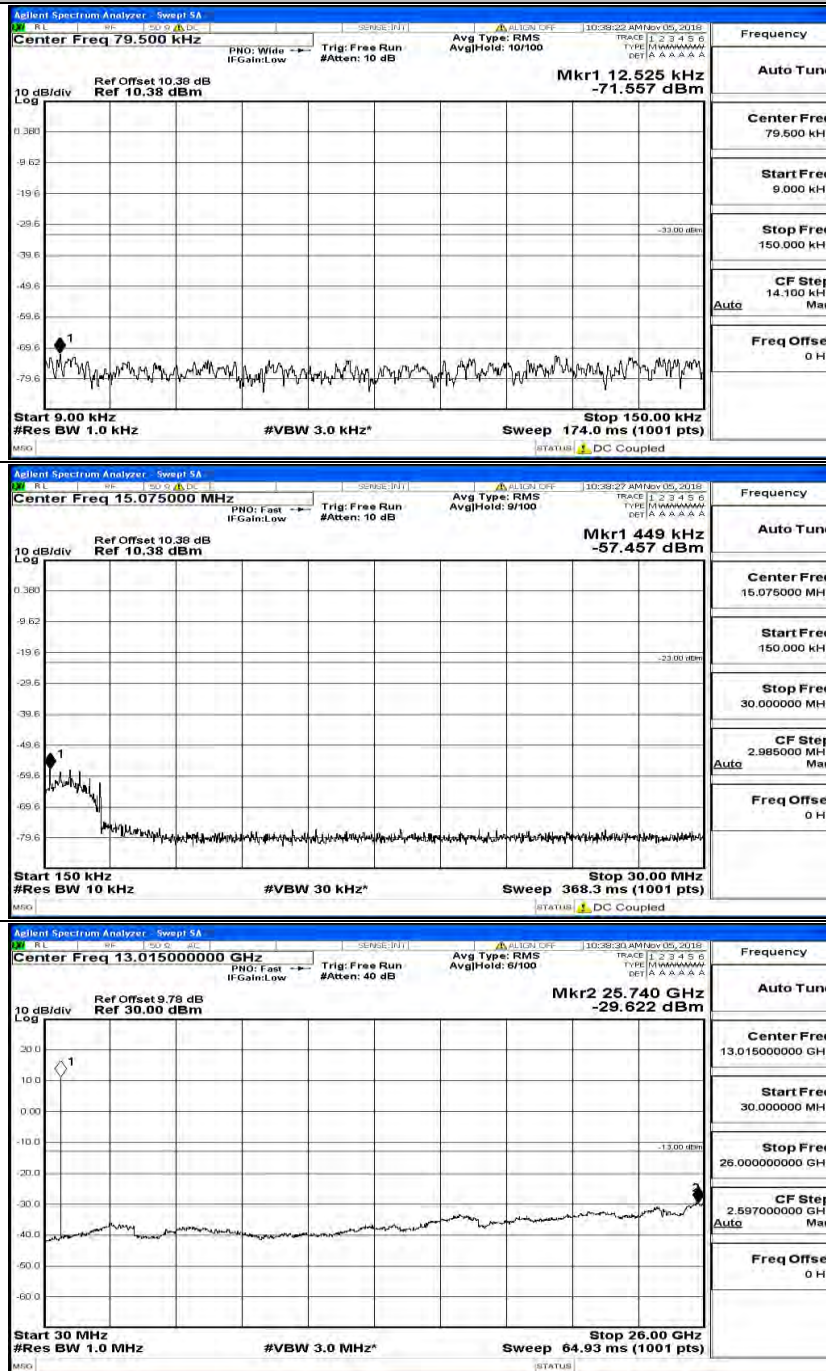


## CSE Test Graph(s) (Channel Bandwidth: 3 MHz)\_LCH\_QPSK

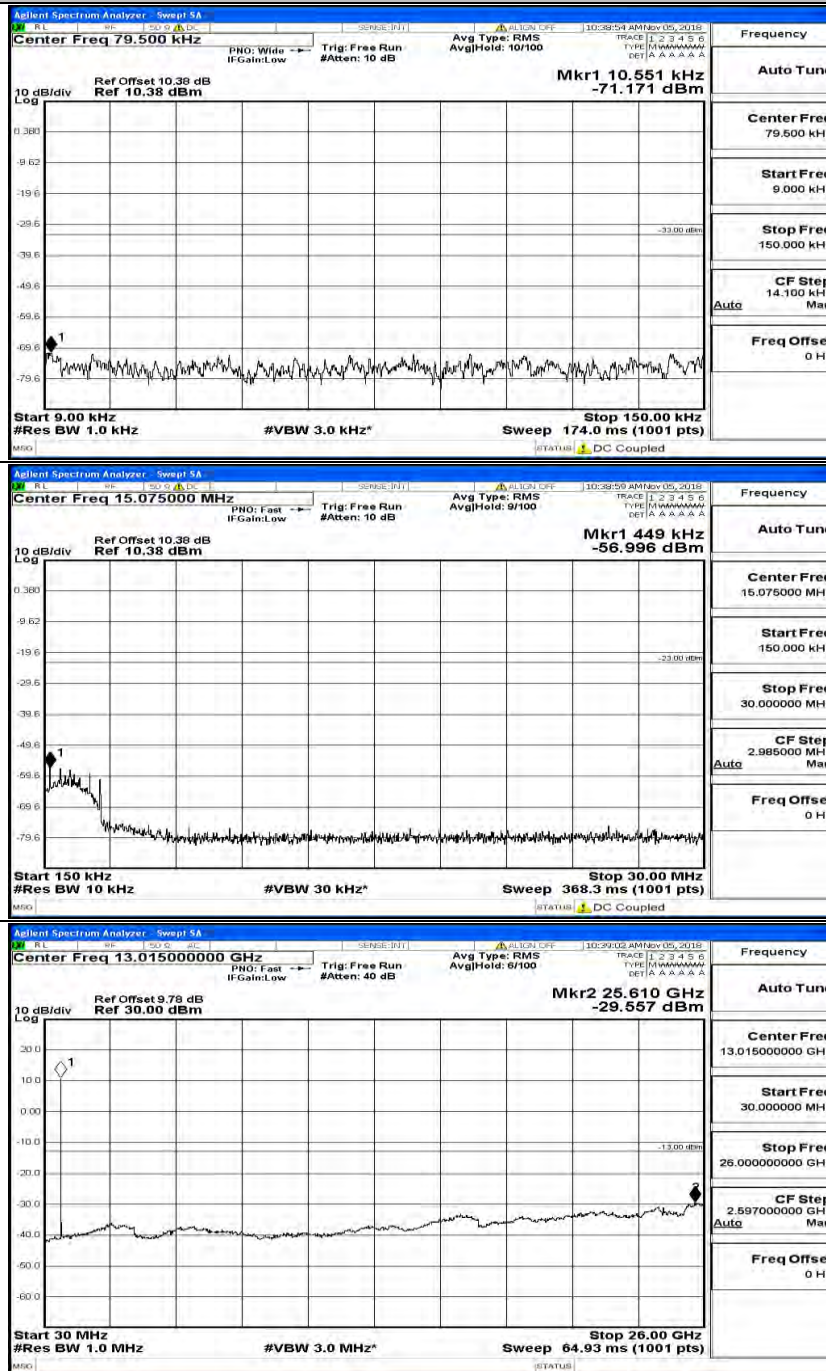




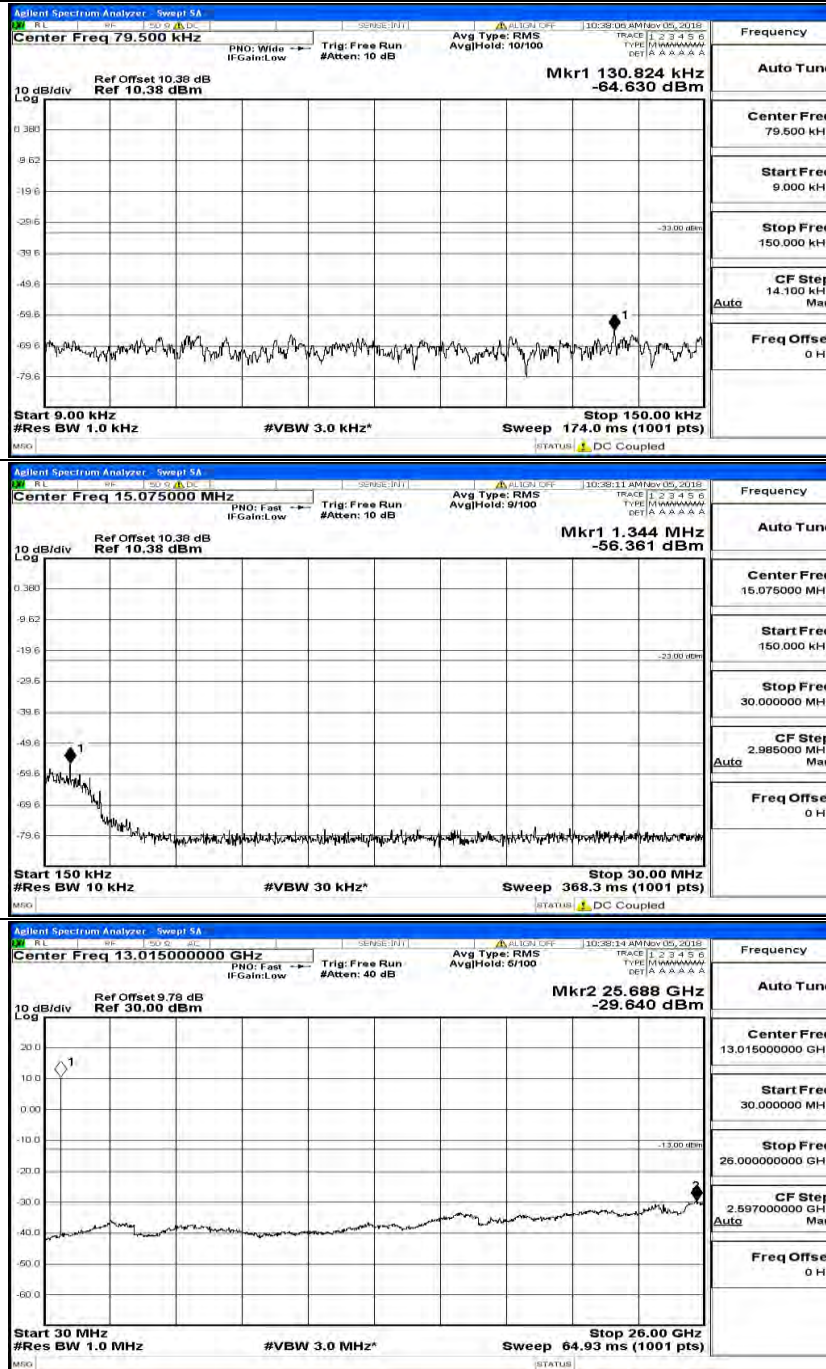
## CSE Test Graph(s) (Channel Bandwidth: 3 MHz)\_MCH\_QPSK



## CSE Test Graph(s) (Channel Bandwidth: 3 MHz)\_HCH\_QPSK

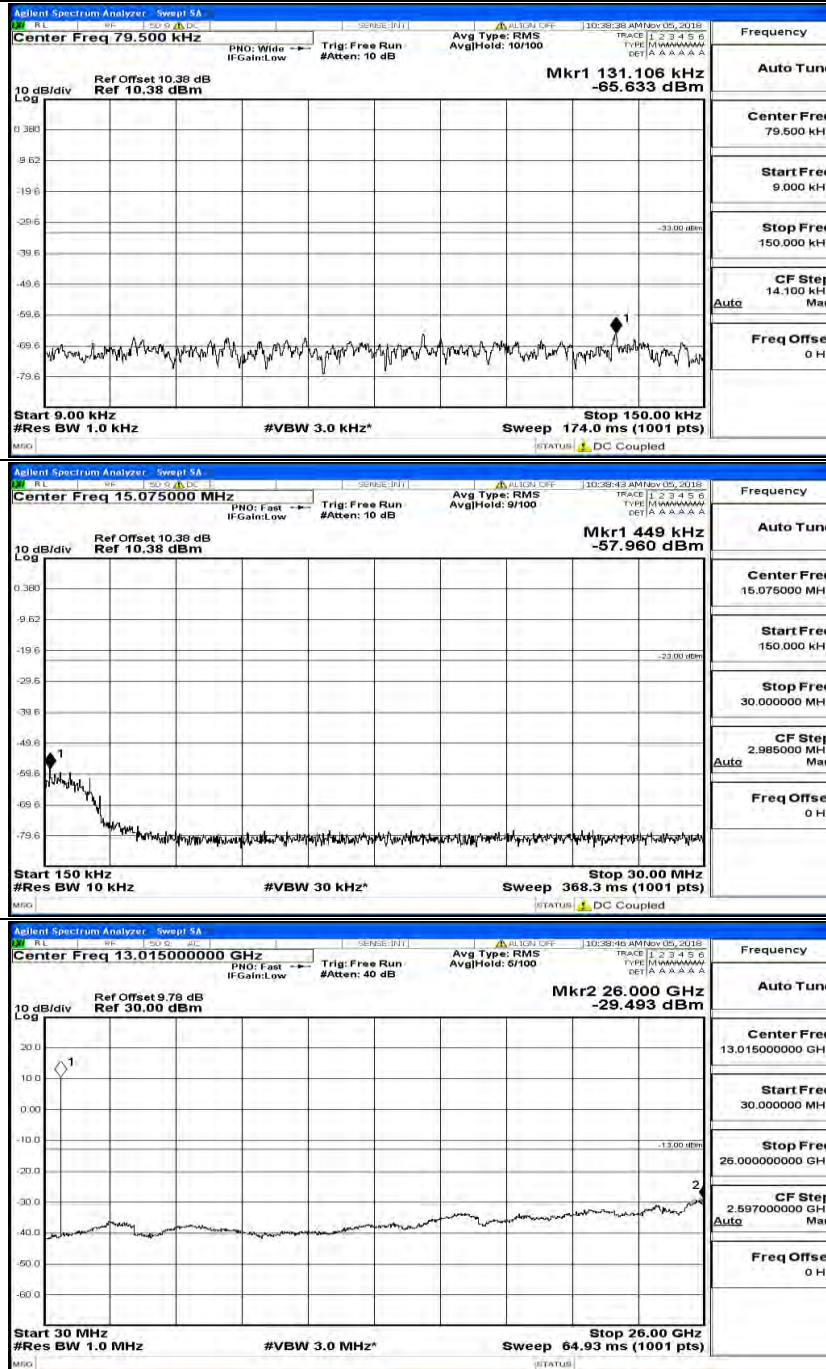


## CSE Test Graph(s) (Channel Bandwidth: 3 MHz)\_LCH\_16QAM

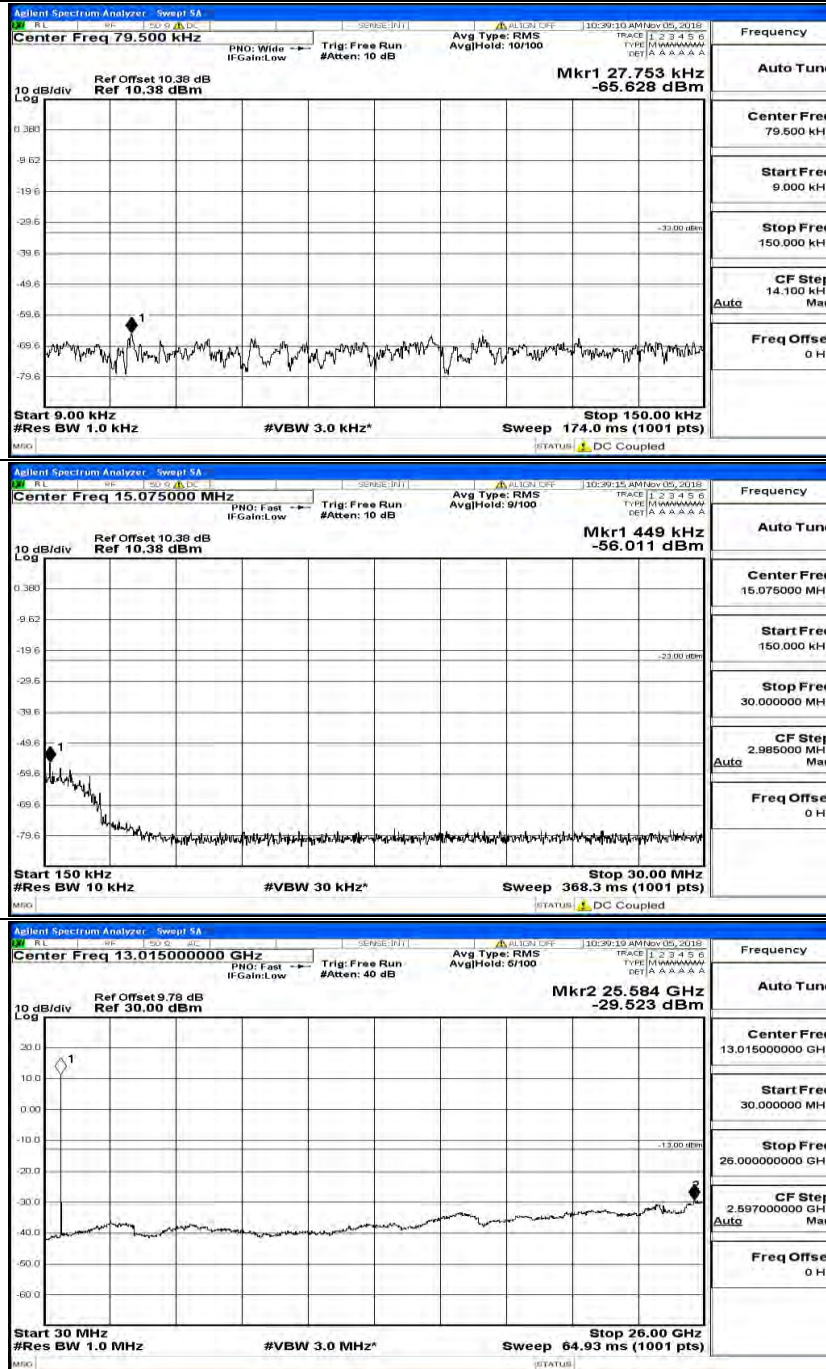




## CSE Test Graph(s) (Channel Bandwidth: 3 MHz)\_MCH\_16QAM

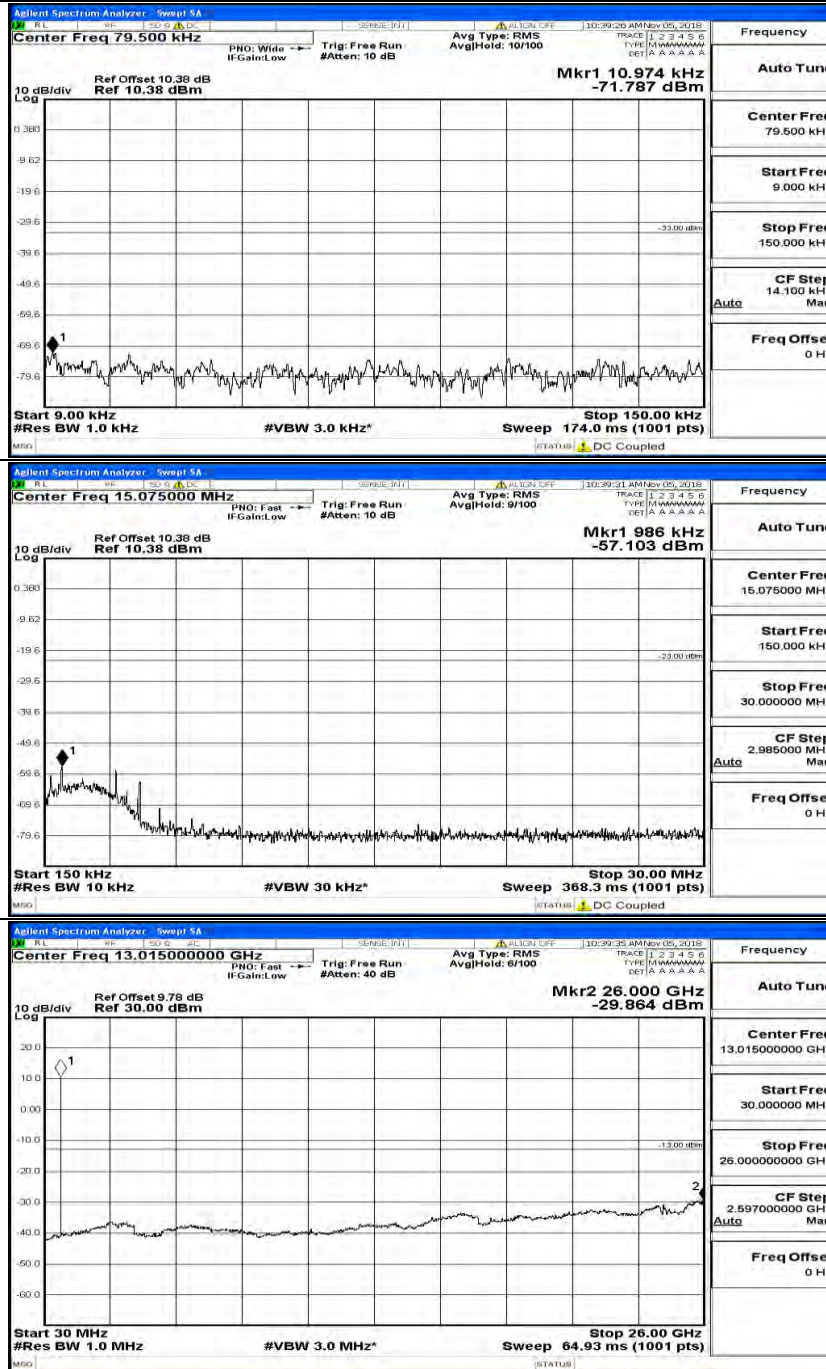


## CSE Test Graph(s) (Channel Bandwidth: 3 MHz)\_HCH\_16QAM

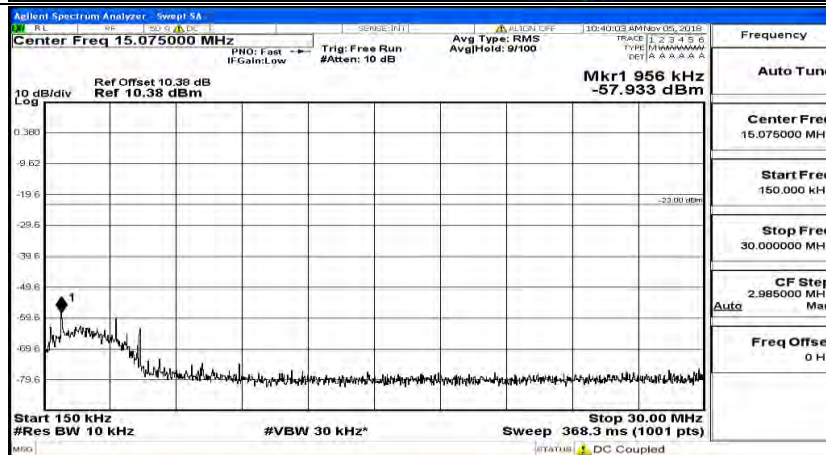
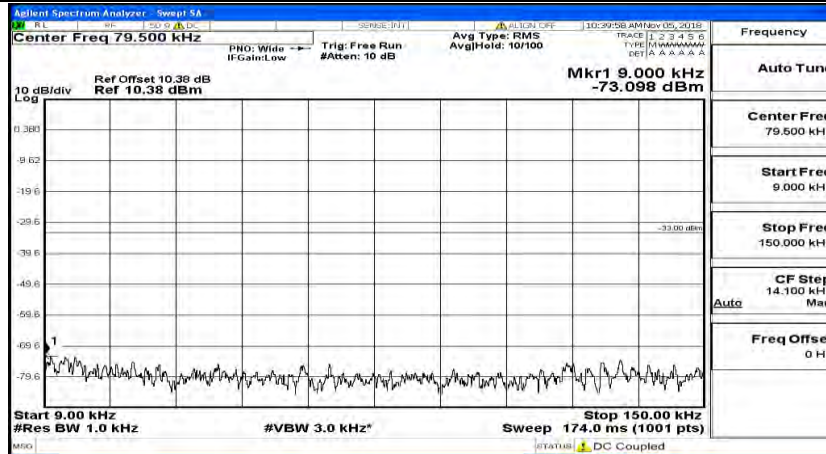




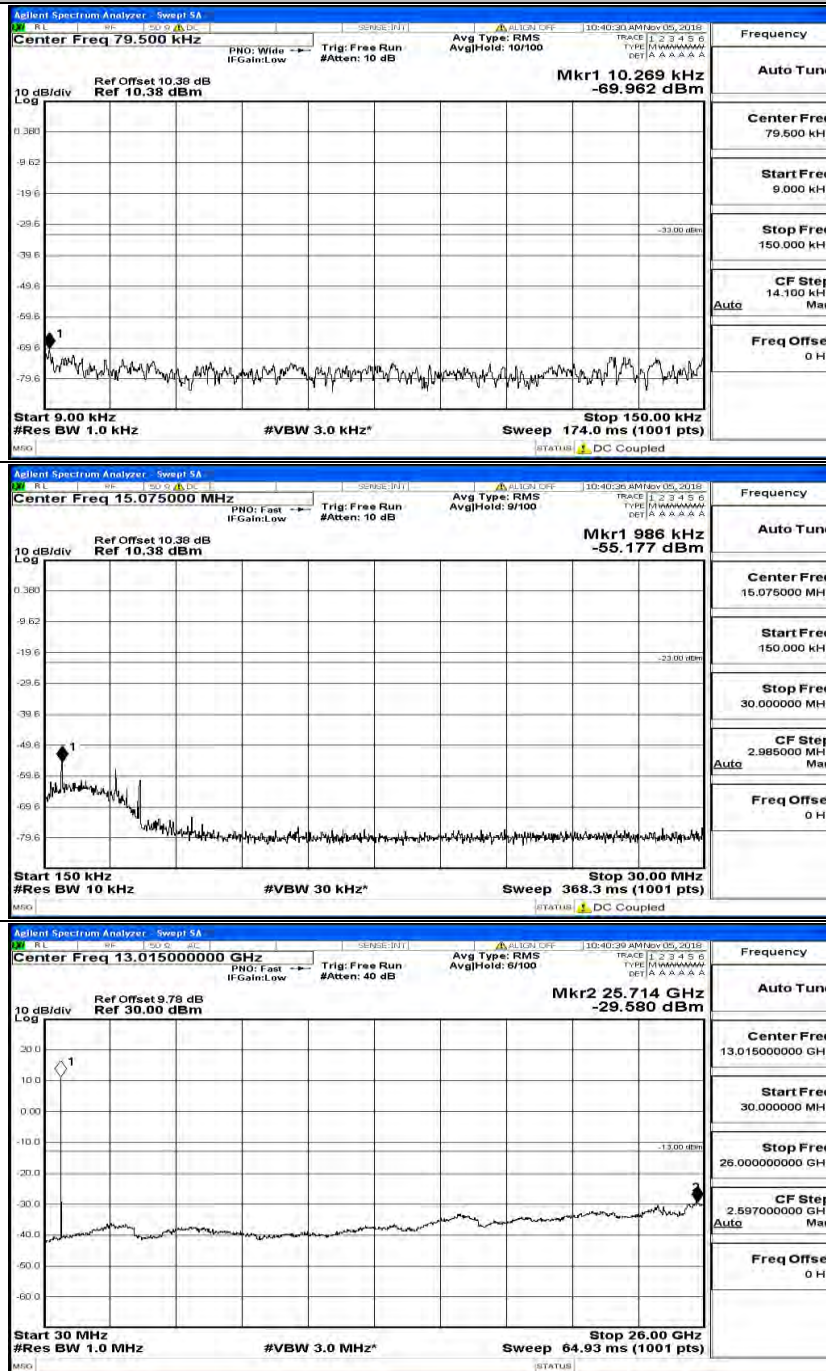
## CSE Test Graph(s) (Channel Bandwidth: 5 MHz)\_LCH\_QPSK



## CSE Test Graph(s) (Channel Bandwidth: 5 MHz)\_MCH\_QPSK

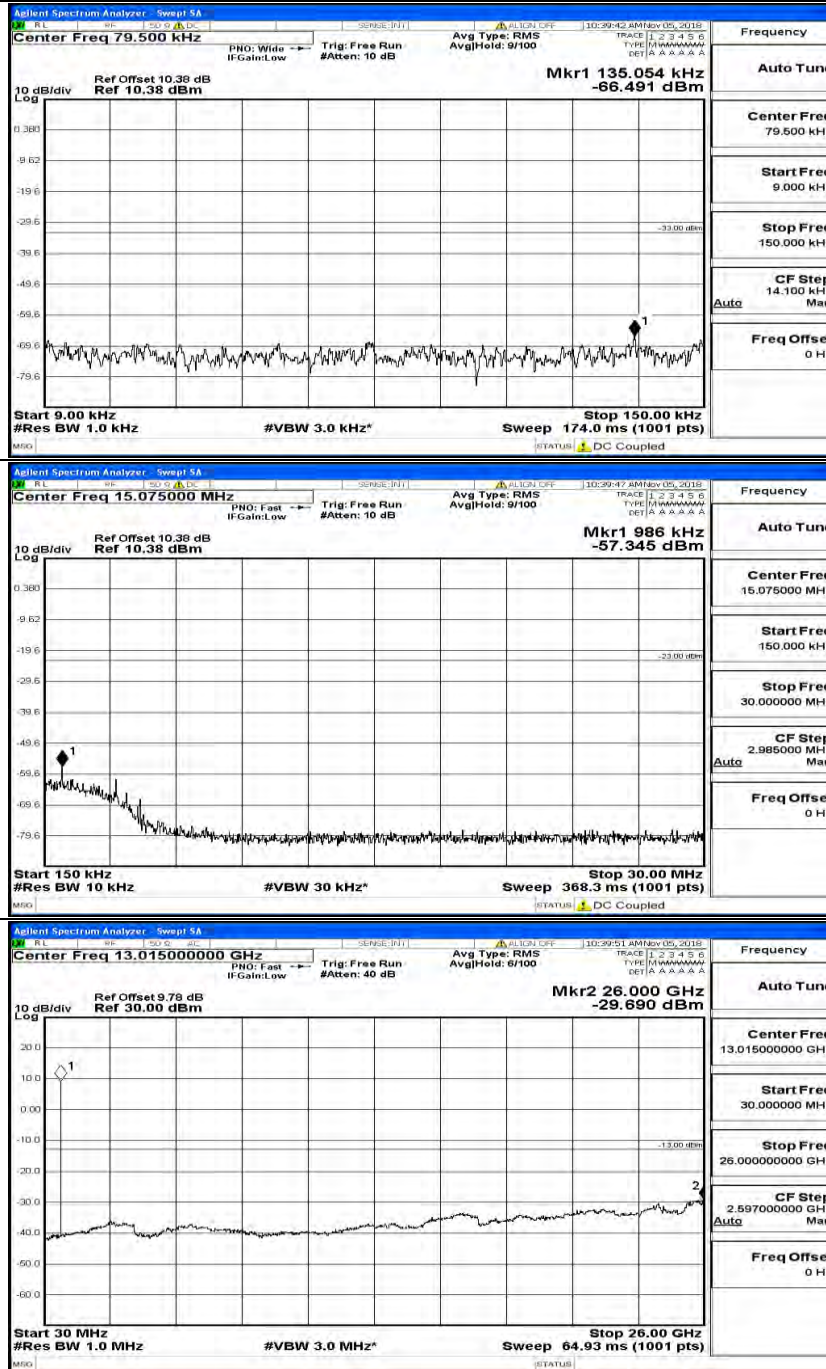


## CSE Test Graph(s) (Channel Bandwidth: 5 MHz)\_HCH\_QPSK



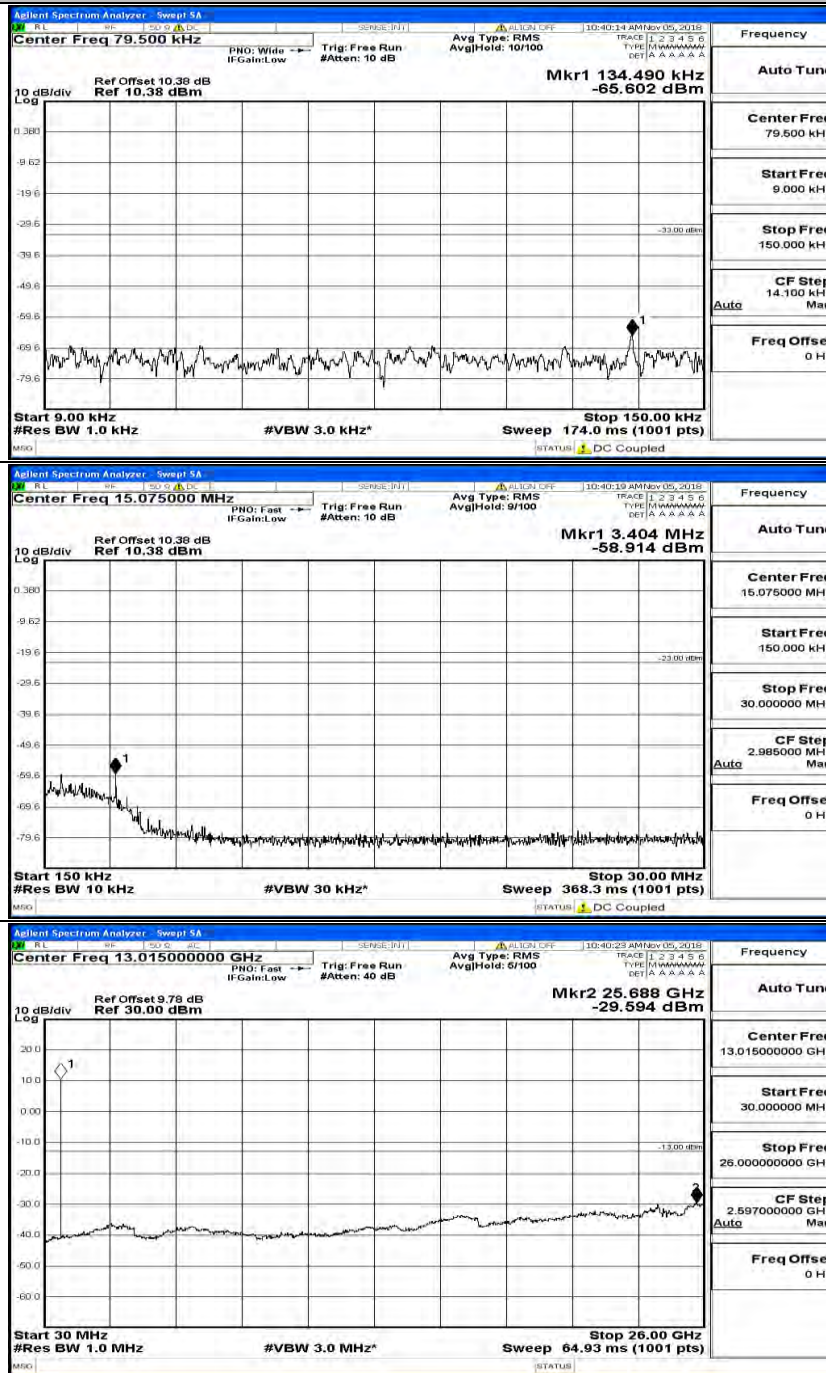


## CSE Test Graph(s) (Channel Bandwidth: 5 MHz)\_LCH\_16QAM

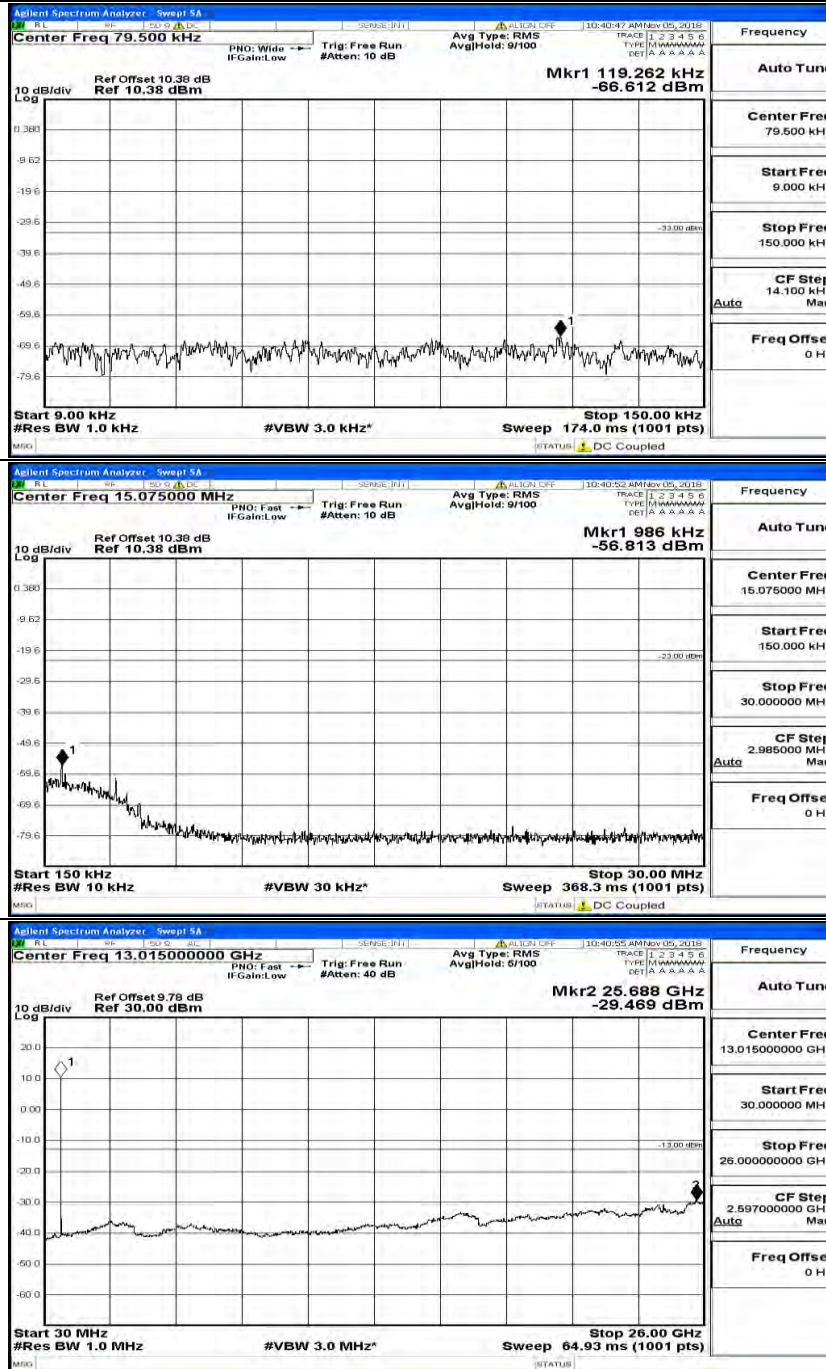




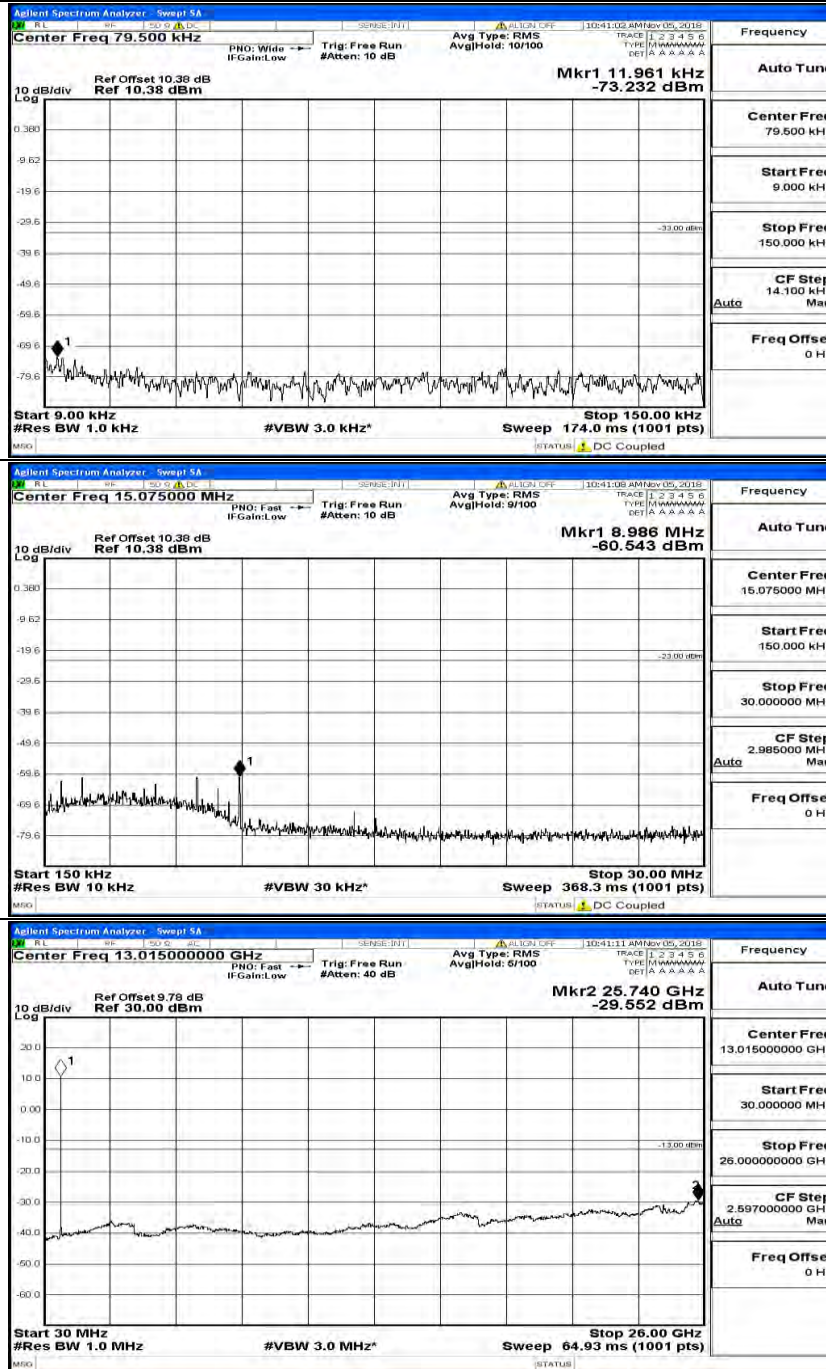
## CSE Test Graph(s) (Channel Bandwidth: 5 MHz)\_MCH\_16QAM



## CSE Test Graph(s) (Channel Bandwidth: 5 MHz)\_HCH\_16QAM

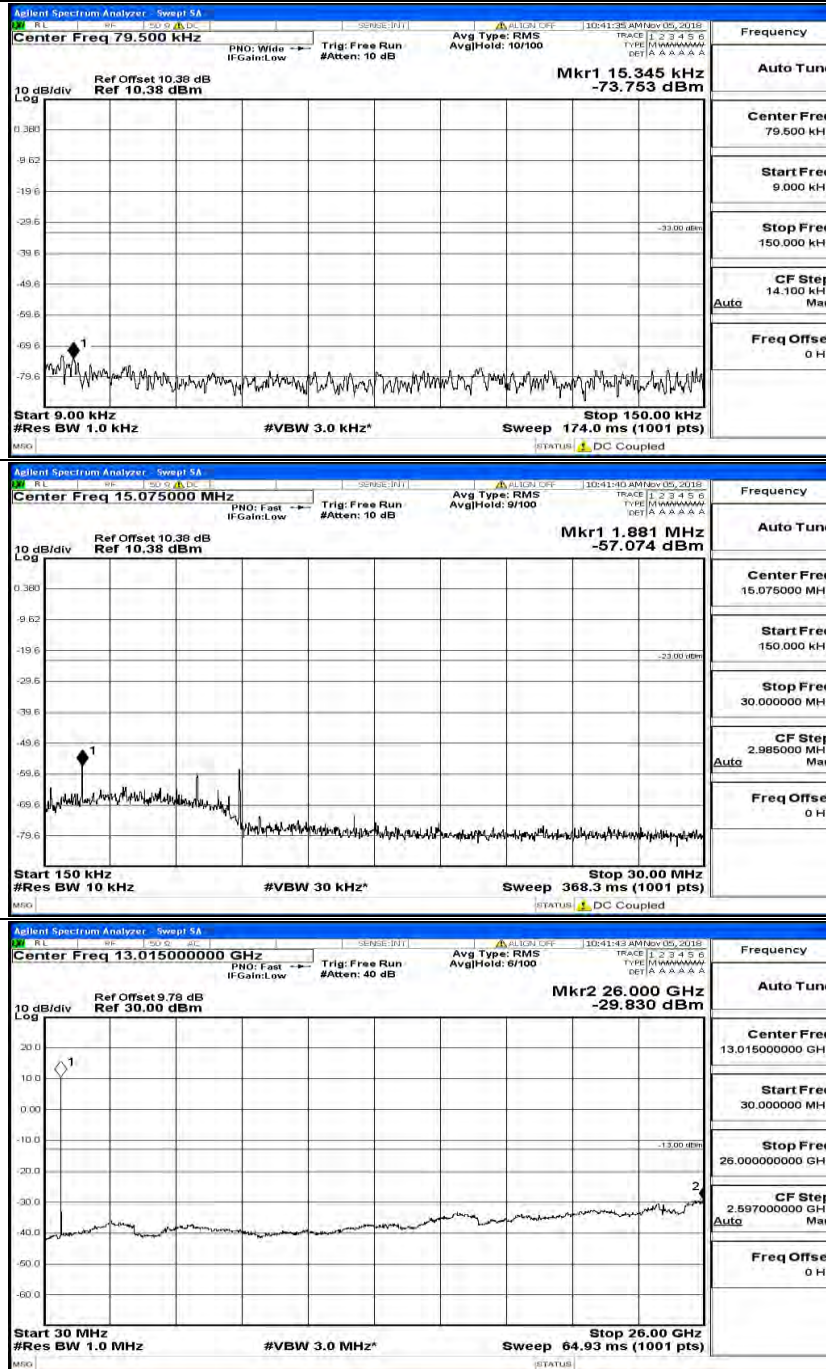


## CSE Test Graph(s) (Channel Bandwidth: 10 MHz) LCH\_QPSK



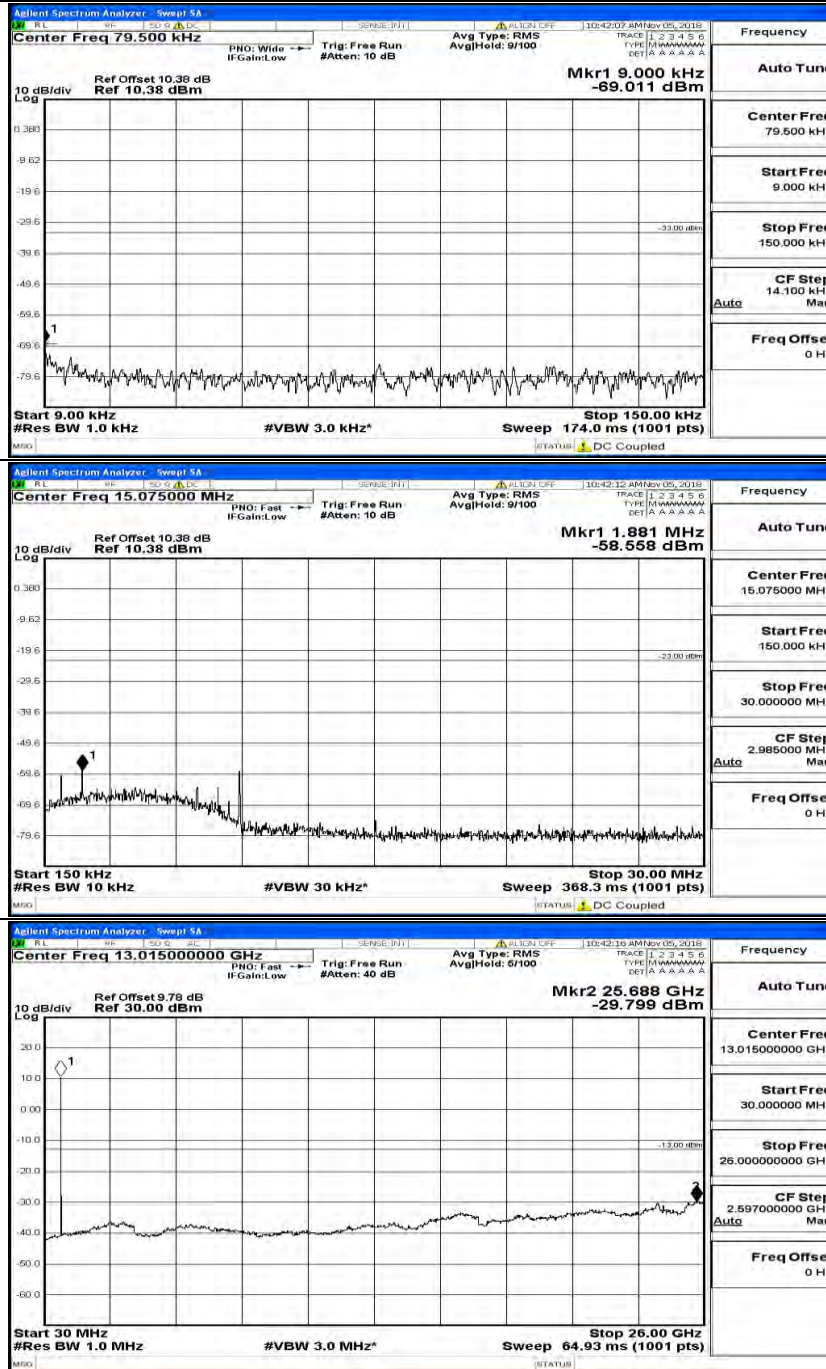


## CSE Test Graph(s) (Channel Bandwidth: 10 MHz)\_MCH\_QPSK

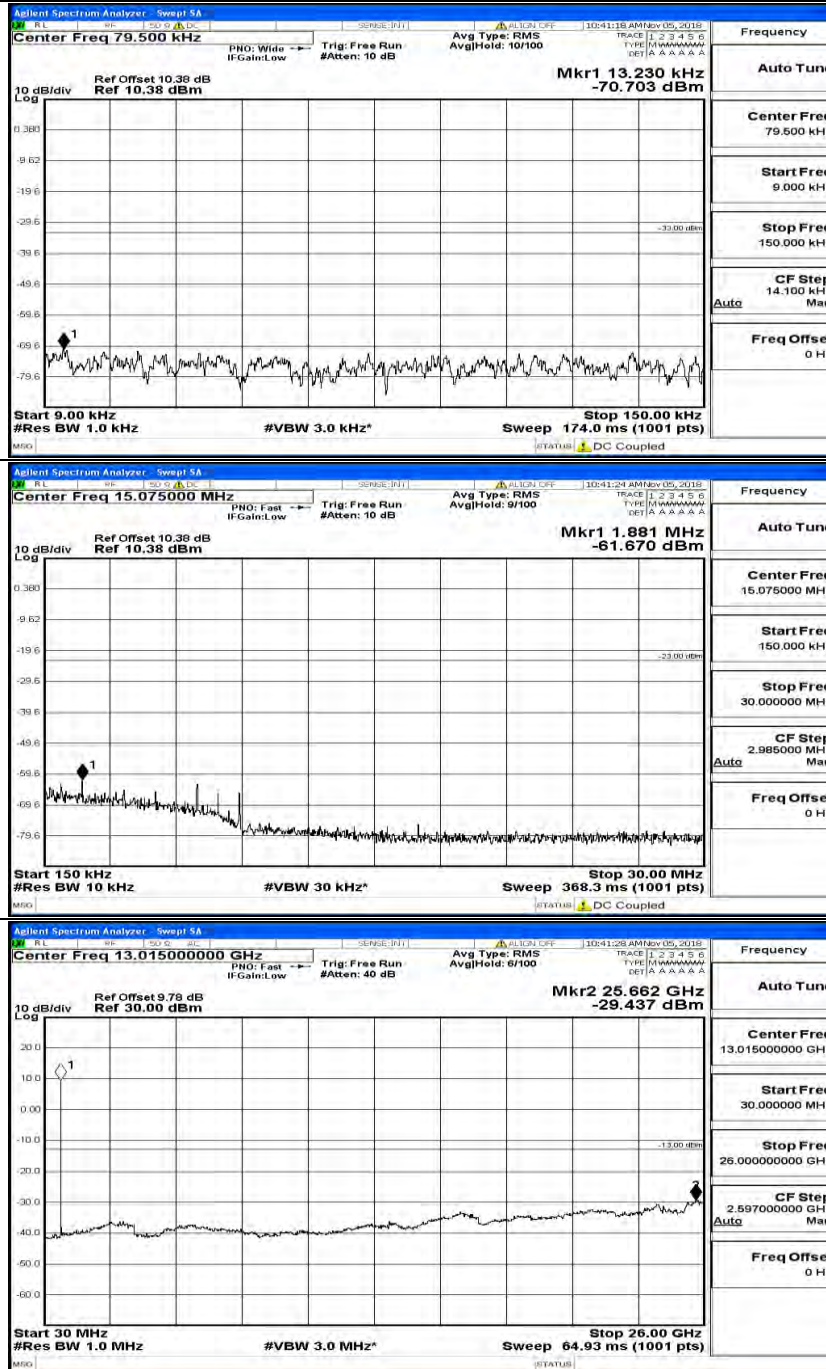




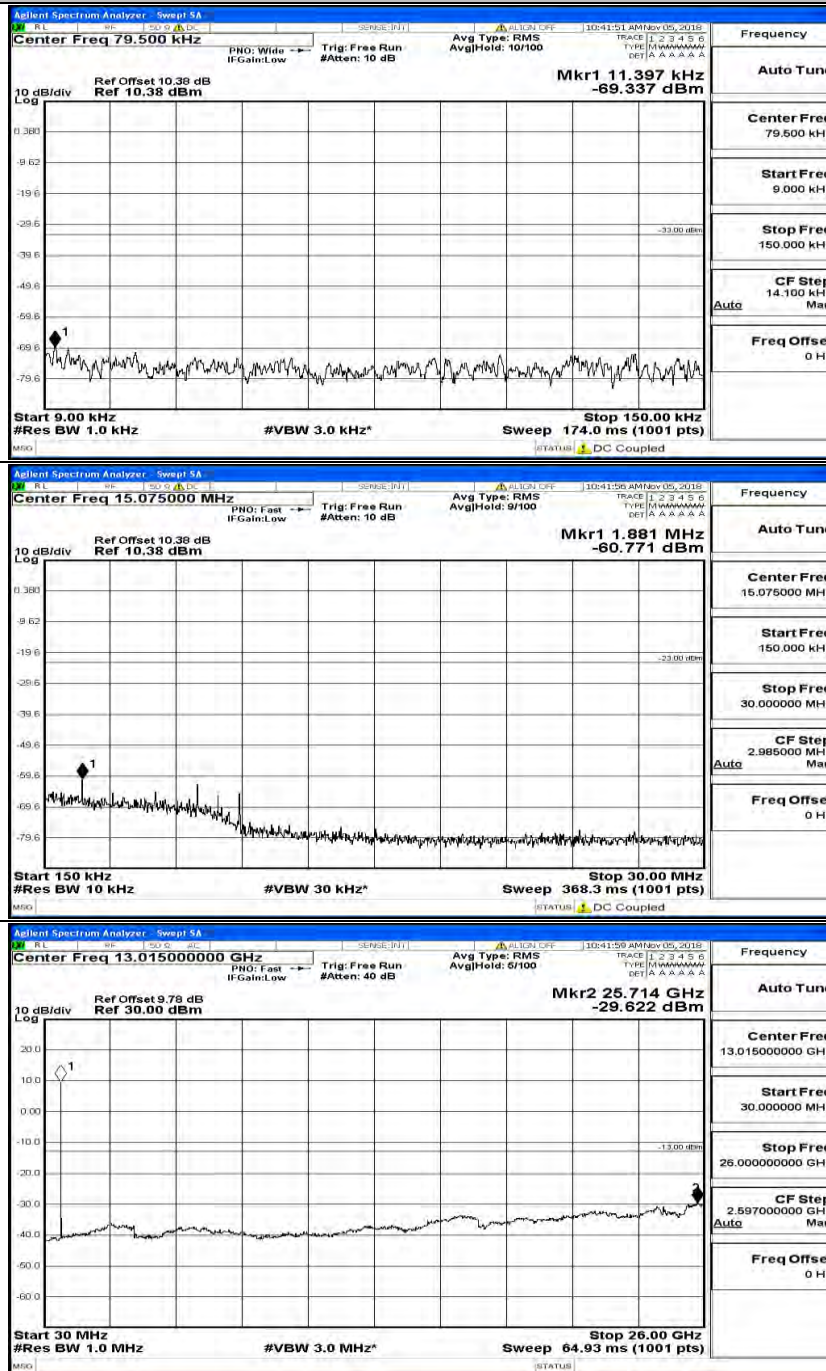
## CSE Test Graph(s) (Channel Bandwidth: 10 MHz)\_HCH\_QPSK



## CSE Test Graph(s) (Channel Bandwidth: 10 MHz)\_LCH\_16QAM



## CSE Test Graph(s) (Channel Bandwidth: 10 MHz)\_MCH\_16QAM





## CSE Test Graph(s) (Channel Bandwidth: 10 MHz)\_HCH\_16QAM

