Appendix D: Test Data for E-UTRA Band 4

Product Name: Rugged Phone
Trade Mark: SNOPOW
Test Model: M10

Environmental Conditions

Temperature:	22.3 ° C
Relative Humidity:	52.8%
ATM Pressure:	100.0 kPa
Test Engineer:	Jayden Zhuo
Supervised by:	Dick Su

D.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	22.29	21.61	PASS
		1	3	22.35	21.73	PASS
		1	5	22.10	21.52	PASS
		3	0	21.75	21.25	PASS
		3	2	21.85	21.24	PASS
		3	3	22.01	21.65	PASS
		6	0	22.18	21.93	PASS
	MCH	1	0	22.26	21.34	PASS
		1	3	22.10	21.34	PASS
		1	5	22.22	21.57	PASS
		3	0	21.92	21.91	PASS
		3	2	21.67	21.40	PASS
		3	3	21.72	21.27	PASS
		6	0	21.74	21.48	PASS
	HCH	1	0	22.03	21.45	PASS
		1	3	22.28	21.95	PASS
		1	5	22.31	21.59	PASS
		3	0	22.35	21.52	PASS
		3	2	21.96	21.80	PASS
		3	3	22.05	21.70	PASS
		6	0	21.80	21.49	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	21.65	21.79	PASS
		1	7	22.27	21.77	PASS
		1	14	22.14	21.39	PASS
		8	0	21.63	21.59	PASS
		8	4	21.90	21.40	PASS
		8	7	22.04	21.67	PASS
		15	0	22.08	21.24	PASS
	MCH	1	0	21.83	21.81	PASS
		1	7	21.82	21.77	PASS
		1	14	22.08	21.99	PASS
		8	0	22.10	21.63	PASS
		8	4	22.32	21.65	PASS
		8	7	21.79	21.76	PASS
		15	0	21.60	21.42	PASS
	HCH	1	0	21.93	21.34	PASS
		1	7	22.16	21.28	PASS
		1	14	22.18	21.27	PASS
		8	0	21.84	21.47	PASS
		8	4	22.31	21.50	PASS
		8	7	22.19	21.20	PASS
		15	0	22.05	21.41	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	21.87	21.42	PASS
		1	12	21.84	21.64	PASS
		1	24	22.32	22.00	PASS
		12	0	21.66	21.26	PASS
		12	6	22.29	21.44	PASS
		12	13	22.27	21.46	PASS
		25	0	21.85	21.94	PASS
	MCH	1	0	21.97	21.24	PASS
		1	12	21.76	21.21	PASS
		1	24	21.67	21.57	PASS
		12	0	22.03	21.65	PASS
		12	6	22.34	21.80	PASS
		12	13	21.79	21.33	PASS
		25	0	22.19	21.39	PASS
	HCH	1	0	22.29	21.53	PASS
		1	12	22.12	21.86	PASS
		1	24	22.33	21.88	PASS
		12	0	22.07	21.69	PASS
		12	6	22.34	21.21	PASS
		12	13	21.88	21.53	PASS
		25	0	21.72	21.73	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	21.75	21.86	PASS
		1	24	22.06	21.51	PASS
		1	49	22.18	21.97	PASS
		25	0	22.40	21.58	PASS
		25	12	21.92	21.58	PASS
		25	25	21.63	22.00	PASS
		50	0	21.96	21.70	PASS
	MCH	1	0	22.12	21.29	PASS
		1	24	21.70	21.74	PASS
		1	49	22.26	21.98	PASS
		25	0	22.16	21.23	PASS
		25	12	21.81	21.46	PASS
		25	25	22.02	21.30	PASS
		50	0	21.98	21.35	PASS
	HCH	1	0	21.81	21.84	PASS
		1	24	21.74	21.67	PASS
		1	49	21.66	21.42	PASS
		25	0	21.74	21.44	PASS
		25	12	21.85	21.66	PASS
		25	25	22.03	21.86	PASS
		50	0	22.35	21.73	PASS

Conducted Output Power Test Result (Channel Bandwidth: 15 MHz)						
Modulation	Channel	RB Configuration		Average Power [dBm]	Average Power [dBm]	Verdict
		Size	Offset	QPSK	16QAM	
QPSK / 16QAM	LCH	1	0	22.11	21.63	PASS
		1	37	22.32	21.45	PASS
		1	74	22.55	21.84	PASS
		37	0	22.36	21.98	PASS
		37	18	22.30	22.01	PASS
		37	38	22.06	21.90	PASS
		75	0	21.80	21.87	PASS
	MCH	1	0	22.20	21.68	PASS
		1	37	22.52	21.41	PASS
		1	74	21.83	21.82	PASS
		37	0	22.10	22.10	PASS
		37	18	22.12	21.45	PASS
		37	38	22.22	21.79	PASS
		75	0	21.90	21.51	PASS
	HCH	1	0	22.36	22.18	PASS
		1	37	22.08	22.03	PASS
		1	74	22.11	21.42	PASS
		37	0	22.20	21.80	PASS
		37	18	22.50	21.70	PASS
		37	38	22.37	22.17	PASS
		75	0	21.88	21.55	PASS

Conducted Output Power Test Result (Channel Bandwidth: 20 MHz)						
Modulation	Channel	RB Configuration		Average Power [dBm]	Average Power [dBm]	Verdict
		Size	Offset	QPSK	16QAM	
QPSK / 16QAM	LCH	1	0	22.41	21.62	PASS
		1	49	22.61	21.73	PASS
		1	99	22.36	21.69	PASS
		50	0	22.57	22.03	PASS
		50	25	22.49	22.10	PASS
		50	50	22.34	22.19	PASS
		100	0	22.50	22.35	PASS
	MCH	1	0	22.72	21.88	PASS
		1	49	22.11	22.00	PASS
		1	99	22.88	22.15	PASS
		50	0	22.70	21.88	PASS
		50	25	22.73	21.80	PASS
		50	50	22.60	22.12	PASS
		100	0	22.32	21.61	PASS
	HCH	1	0	22.78	22.21	PASS
		1	49	22.48	22.33	PASS
		1	99	22.33	22.09	PASS
		50	0	22.89	21.67	PASS
		50	25	22.75	22.21	PASS
		50	50	22.71	21.80	PASS
		100	0	22.52	22.28	PASS

D.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	6.47	<13	PASS
	MCH	5.87	<13	PASS
	HCH	5.89	<13	PASS
16QAM	LCH	7.43	<13	PASS
	MCH	6.86	<13	PASS
	HCH	6.78	<13	PASS

Peak-to Average Ratio Test Result (Channel Bandwidth: 3 MHz)				
Modulation	Channel	Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
QPSK	LCH	6.51	<13	PASS
	MCH	5.89	<13	PASS
	HCH	5.78	<13	PASS
16QAM	LCH	7.42	<13	PASS
	MCH	6.91	<13	PASS
	HCH	6.62	<13	PASS

Peak-to Average Ratio Test Result (Channel Bandwidth: 5 MHz)				
Modulation	Channel	Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
QPSK	LCH	6.58	<13	PASS
	MCH	5.93	<13	PASS
	HCH	5.85	<13	PASS
16QAM	LCH	7.35	<13	PASS
	MCH	6.76	<13	PASS
	HCH	6.72	<13	PASS

Peak-to Average Ratio Test Result (Channel Bandwidth: 10 MHz)				
Modulation	Channel	Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
QPSK	LCH	6.15	<13	PASS
	MCH	5.93	<13	PASS
	HCH	5.80	<13	PASS
16QAM	LCH	7.00	<13	PASS
	MCH	6.72	<13	PASS
	HCH	6.58	<13	PASS

Peak-to Average Ratio Test Result (Channel Bandwidth: 15 MHz)				
Modulation	Channel	Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
QPSK	LCH	5.01	<13	PASS
	MCH	5.06	<13	PASS
	HCH	4.94	<13	PASS
16QAM	LCH	6.45	<13	PASS
	MCH	6.42	<13	PASS
	HCH	6.43	<13	PASS

Peak-to Average Ratio Test Result (Channel Bandwidth: 20 MHz)				
Modulation	Channel	Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
QPSK	LCH	5.65	<13	PASS
	MCH	5.68	<13	PASS
	HCH	5.66	<13	PASS
16QAM	LCH	6.83	<13	PASS
	MCH	6.84	<13	PASS
	HCH	6.77	<13	PASS

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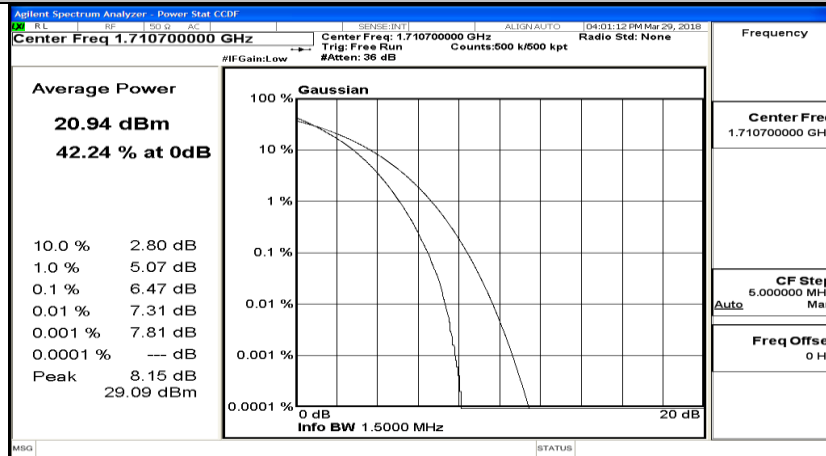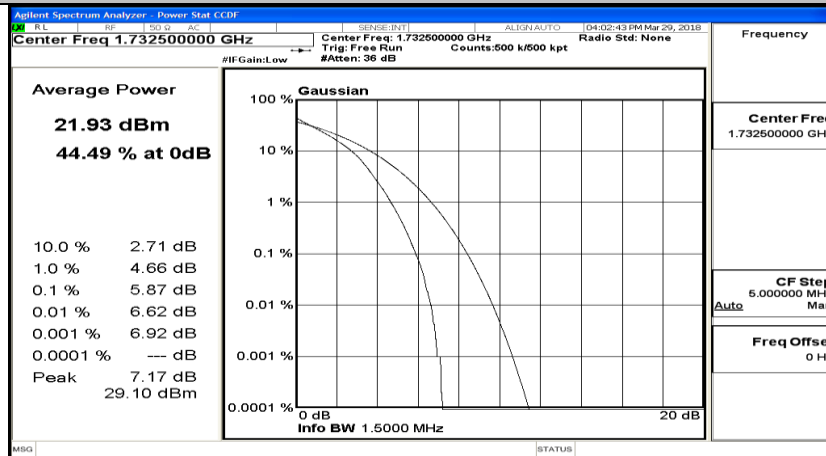
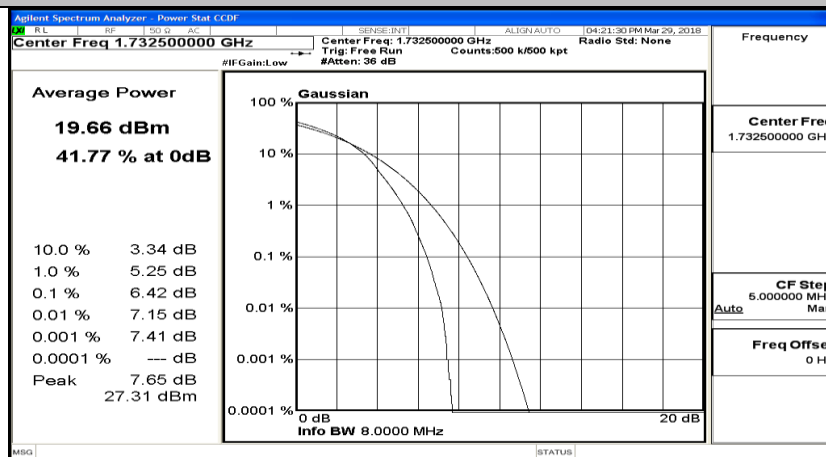| Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 1.4 MHz)_MCH_QPSK |
|---|

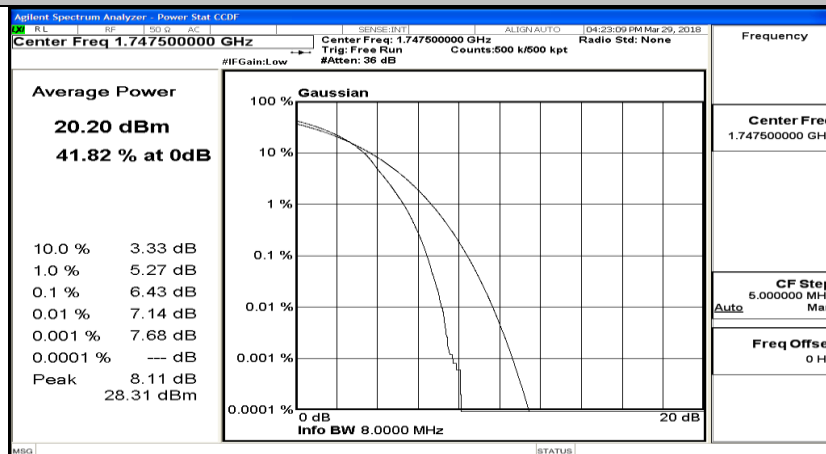| Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 1.4 MHz)_HCH_QPSK |
|---|

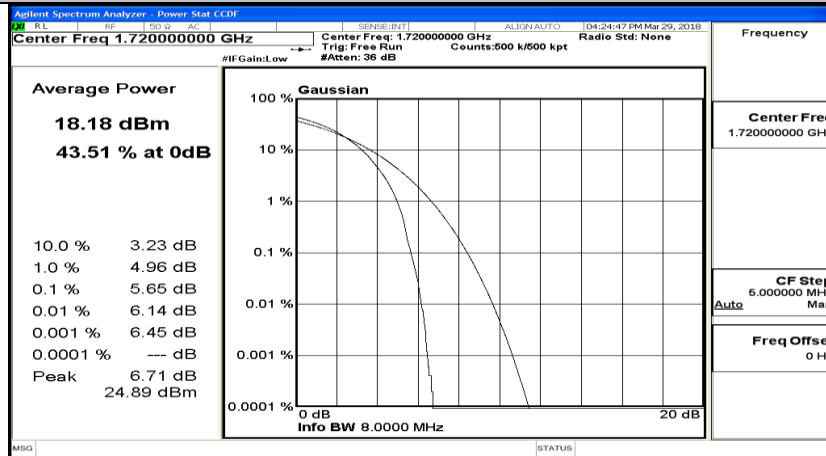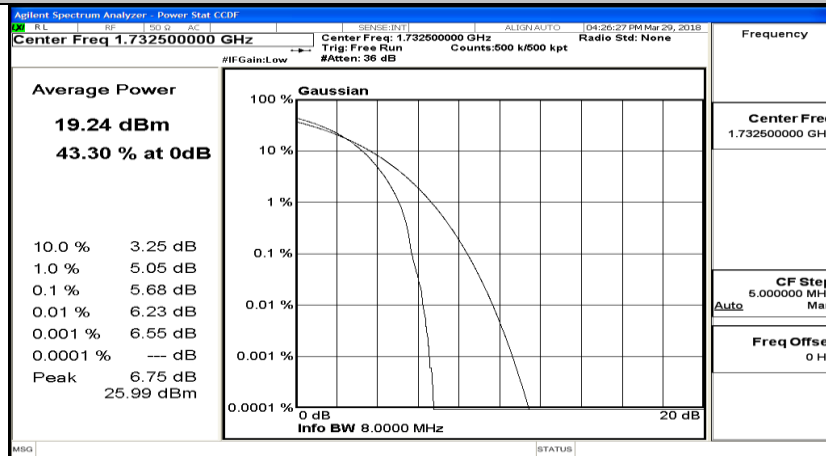| Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 1.4 MHz)_LCH_16QAM |
|---|

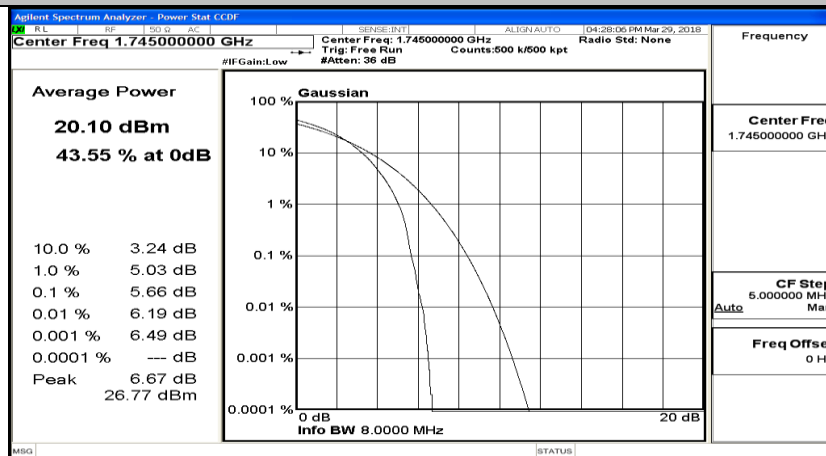| Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 1.4 MHz)_MCH_16QAM |
|---|

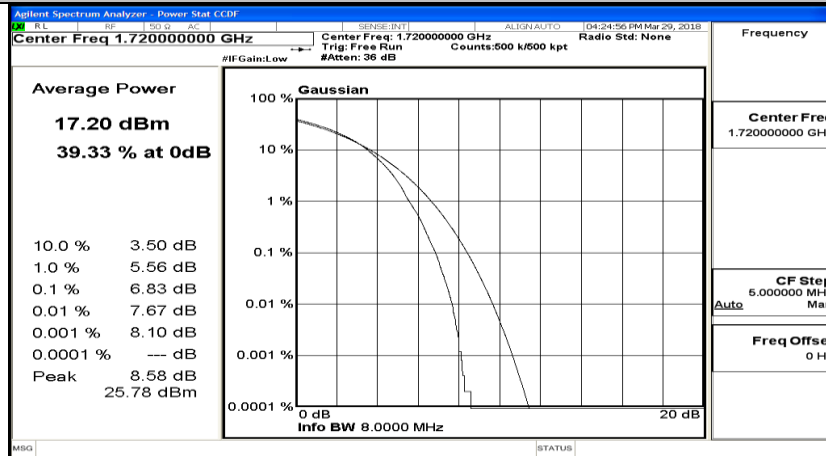| Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 1.4 MHz)_HCH_16QAM |
|---|
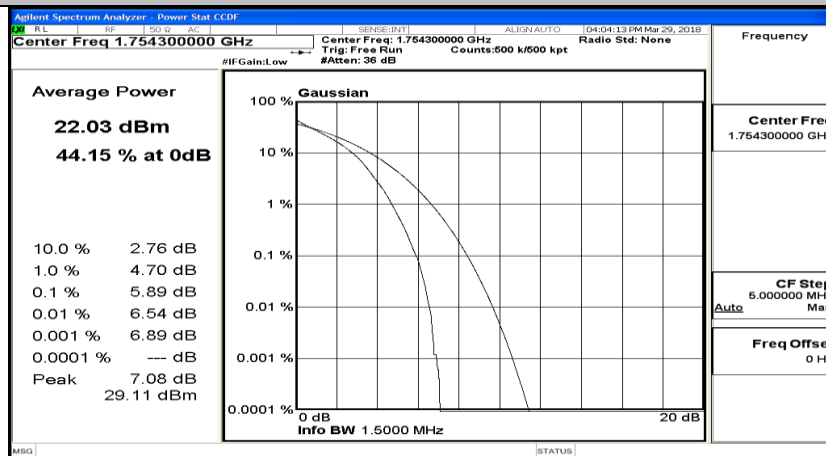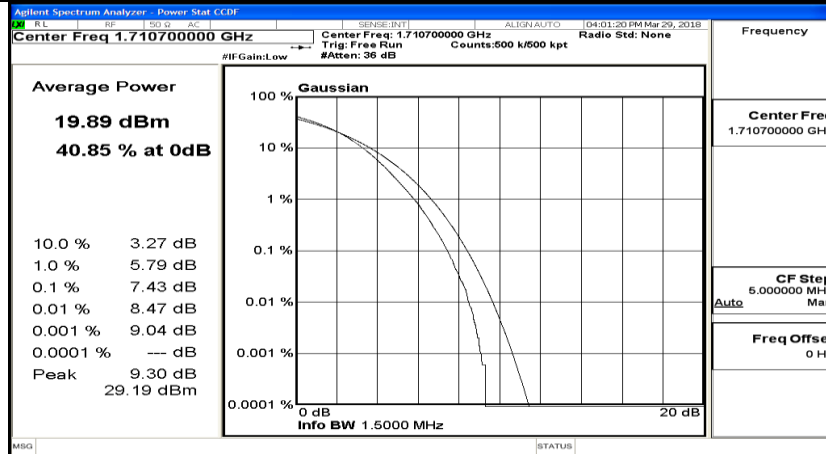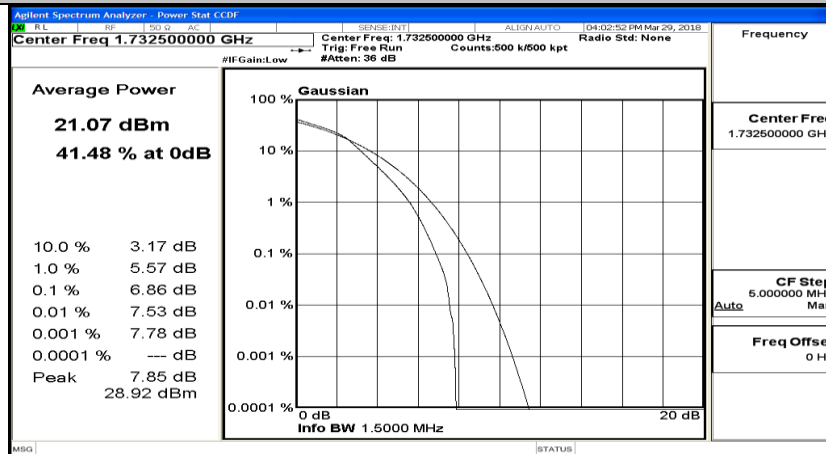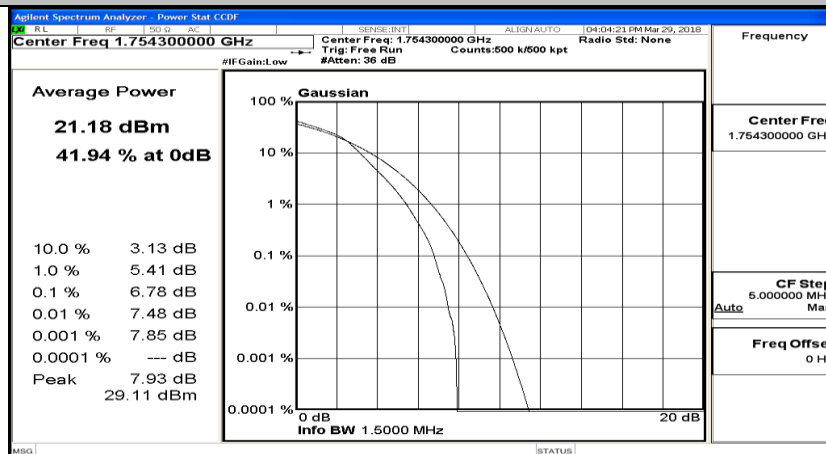
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 3 MHz)_LCH_QPSK
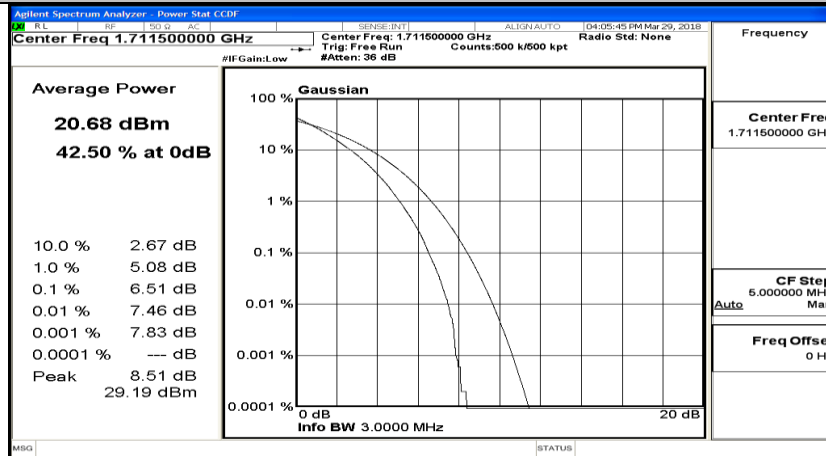
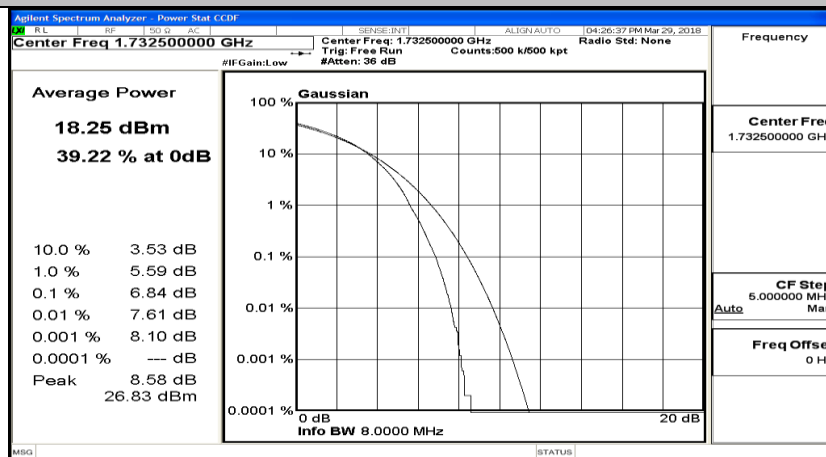## Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 3 MHz)_MCH_QPSK
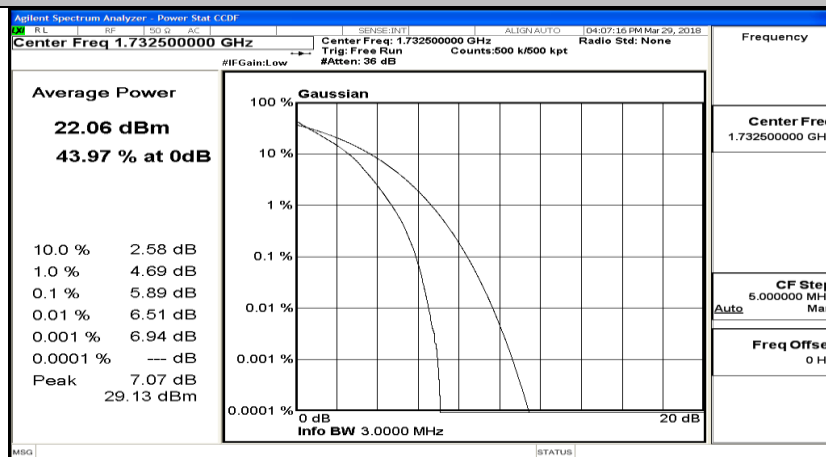
## Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 3 MHz)_HCH_QPSK
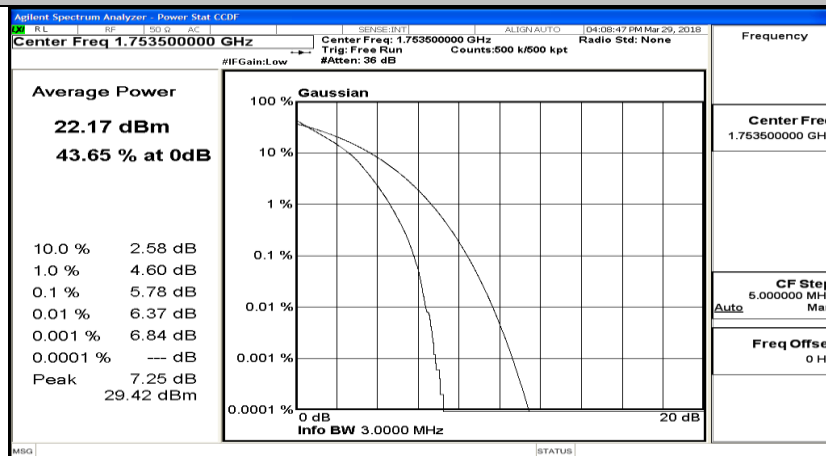
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 3 MHz)_LCH_16QAM
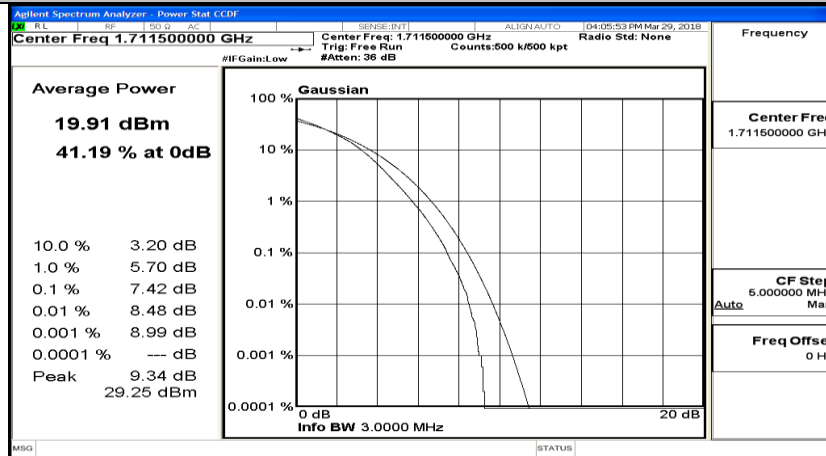
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 3 MHz)_MCH_16QAM
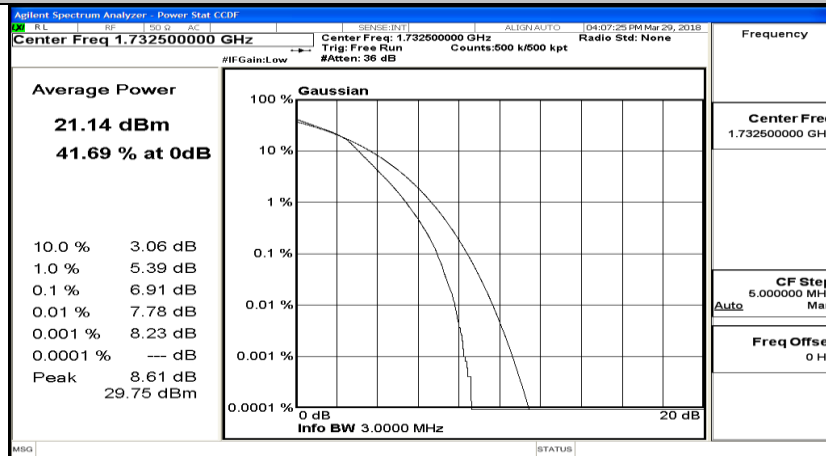
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 3 MHz)_HCH_16QAM
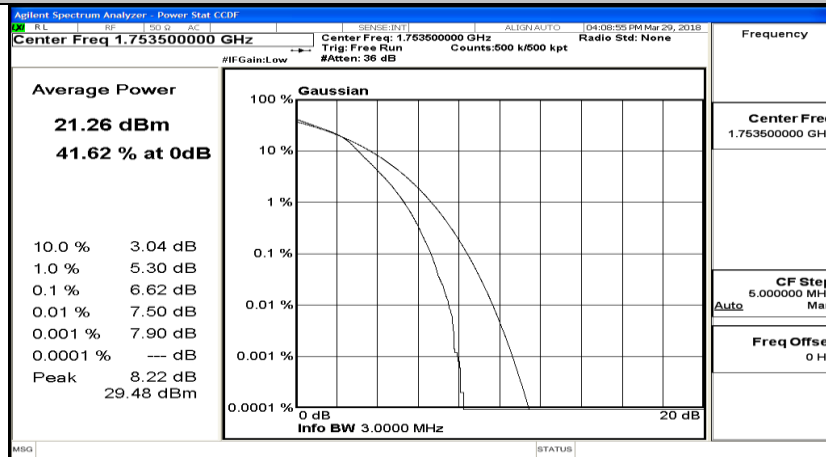
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_QPSK
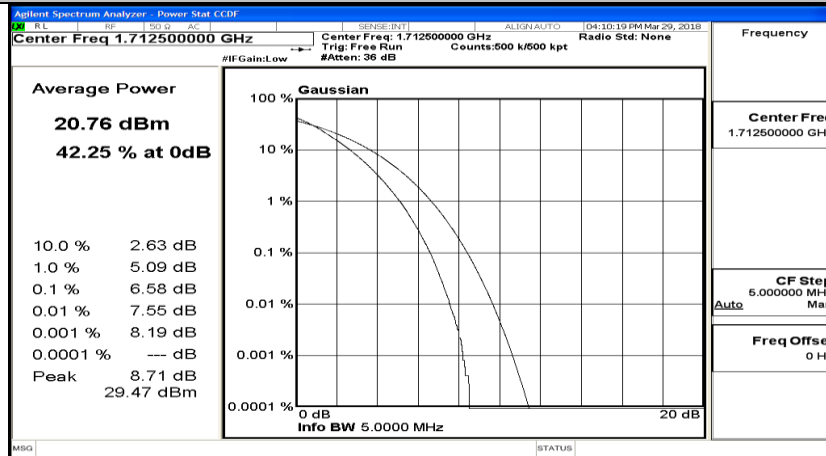
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)_MCH_QPSK
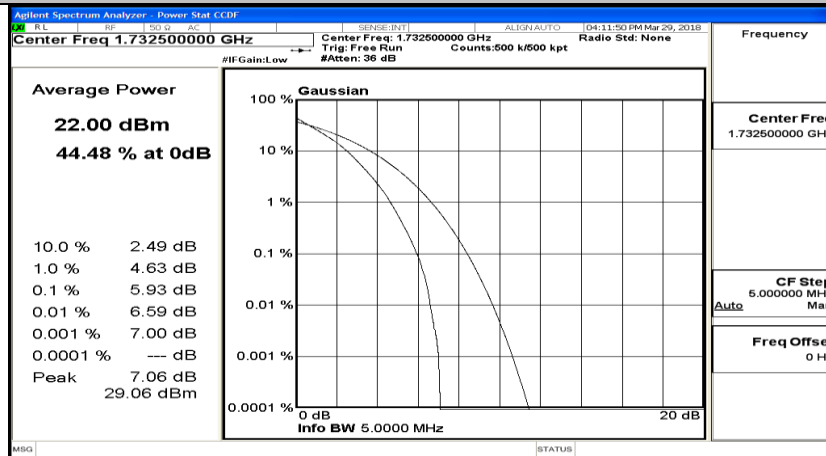
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)_HCH_QPSK
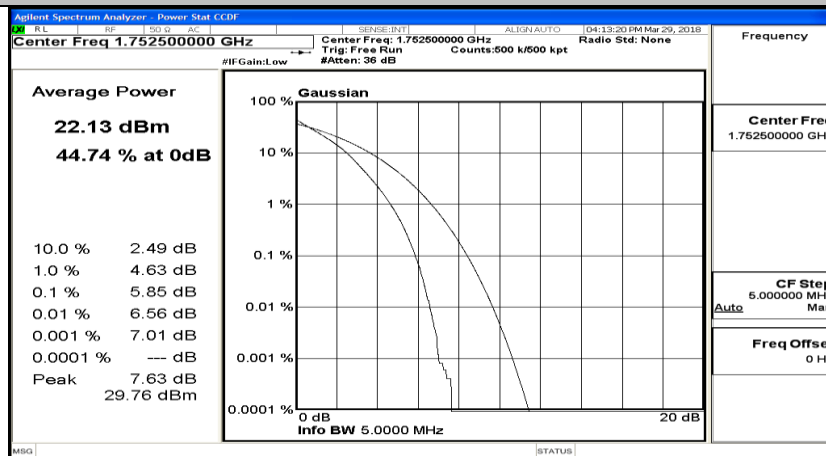
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_16QAM
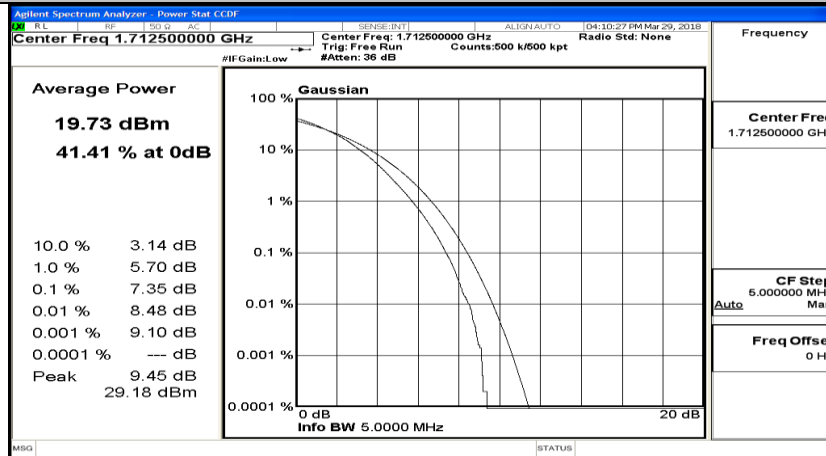
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)_MCH_16QAM
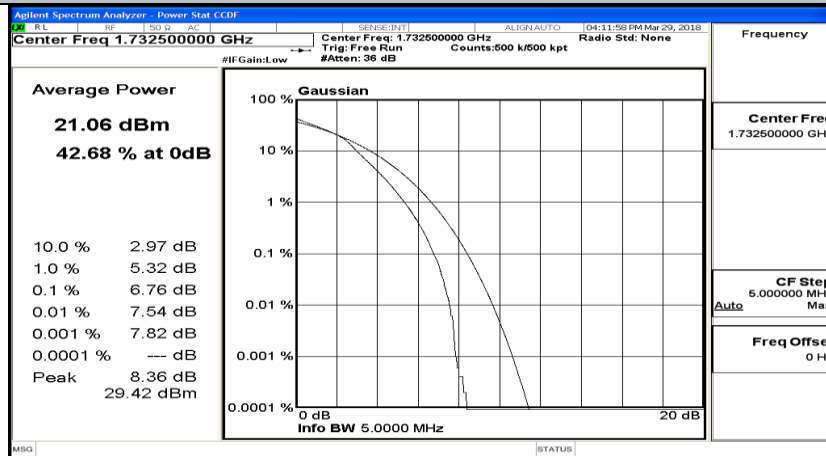
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)_HCH_16QAM
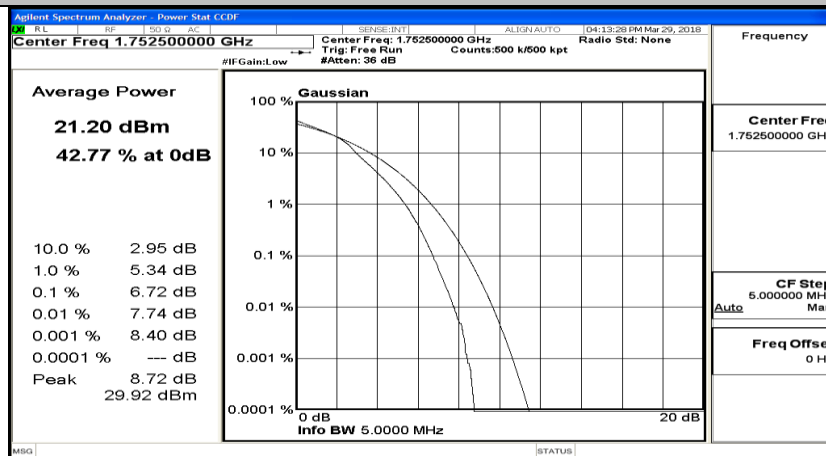
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 10 MHz)_LCH_QPSK
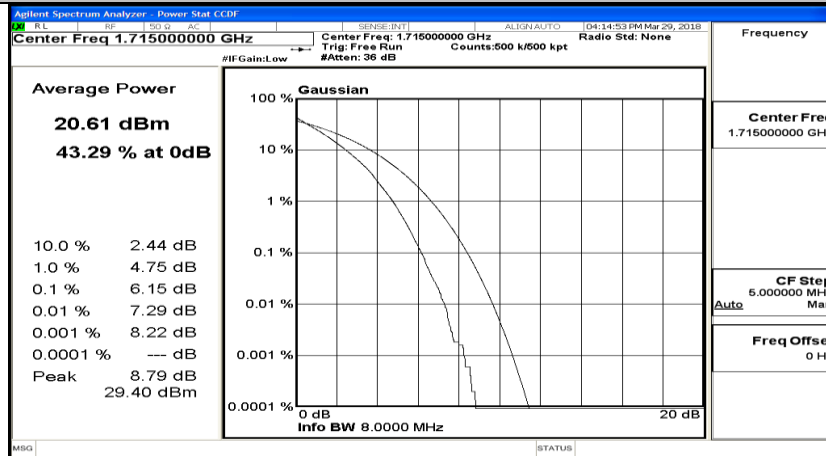
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 10 MHz)_MCH_QPSK
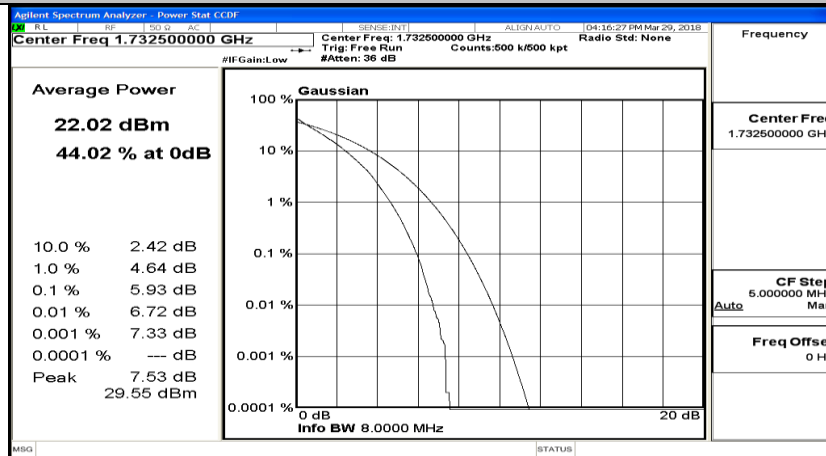
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 10 MHz)_HCH_QPSK
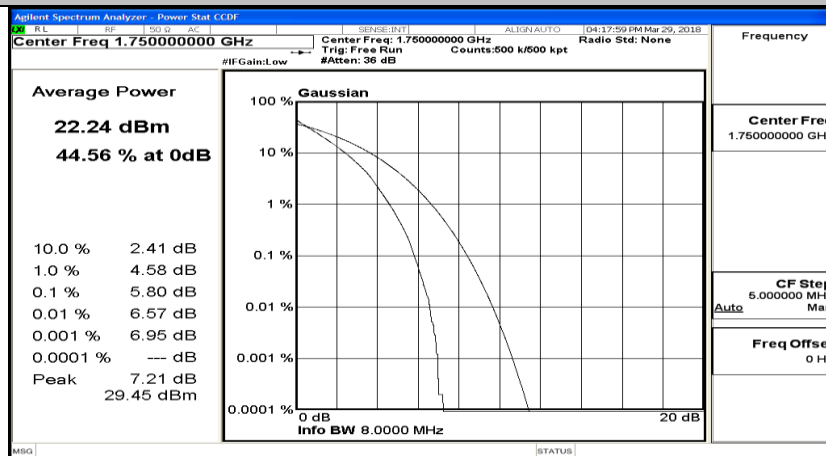
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 10 MHz)_LCH_16QAM
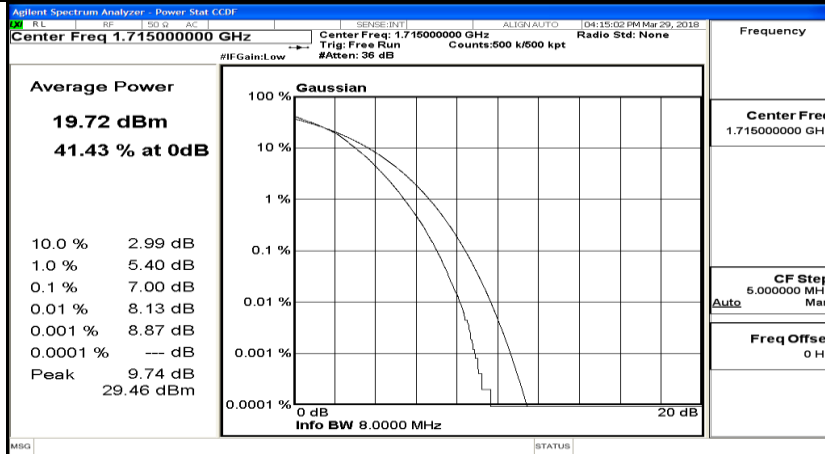
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 10 MHz)_MCH_16QAM
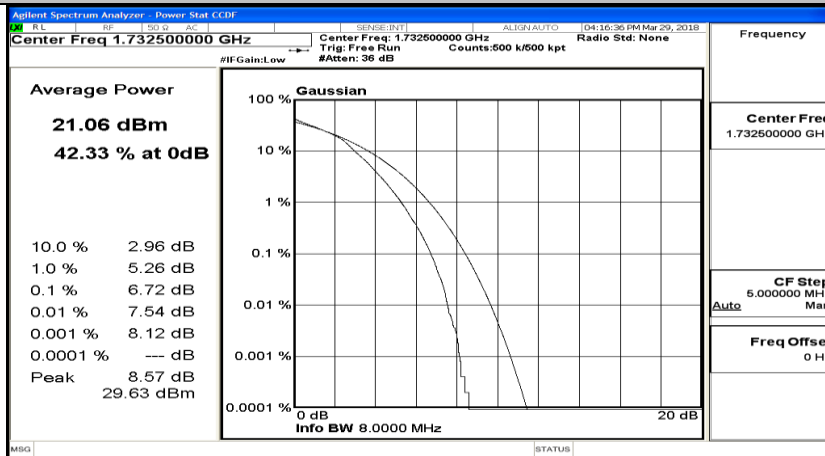
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 10 MHz)_HCH_16QAM
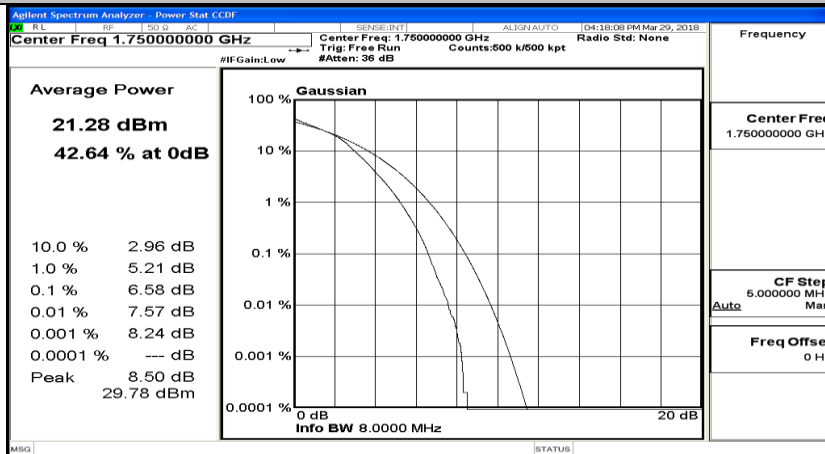
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:15 MHz)_LCH_QPSK
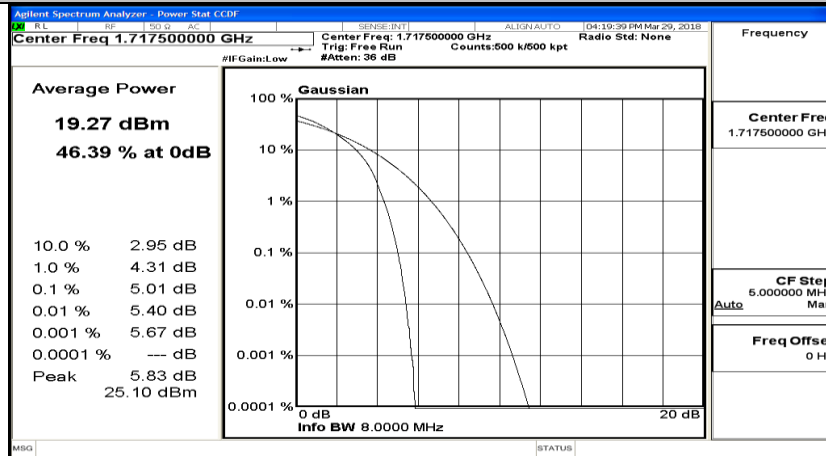
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:15 MHz)_MCH_QPSK
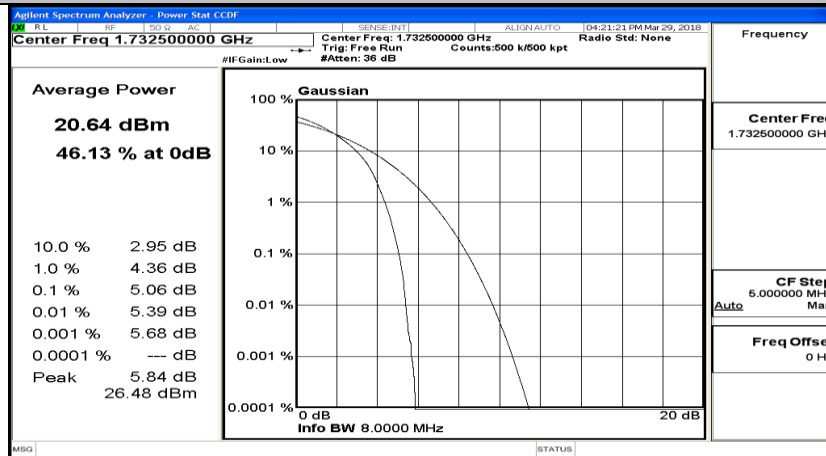
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:15 MHz)_HCH_QPSK
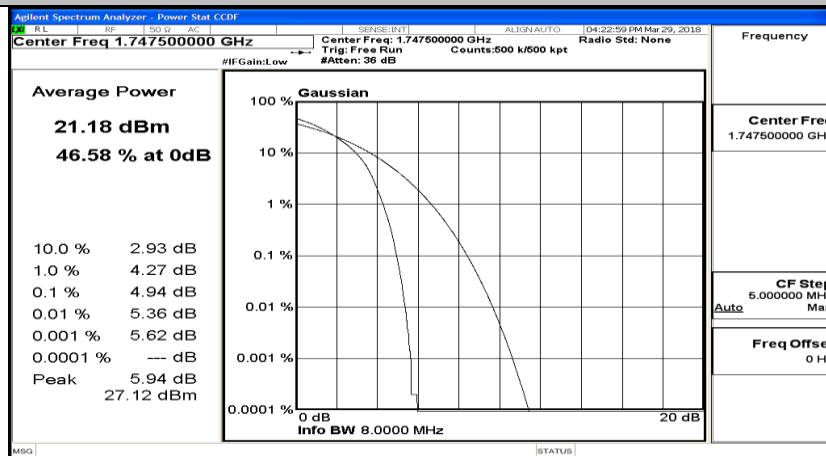
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:15 MHz)_LCH_16QAM
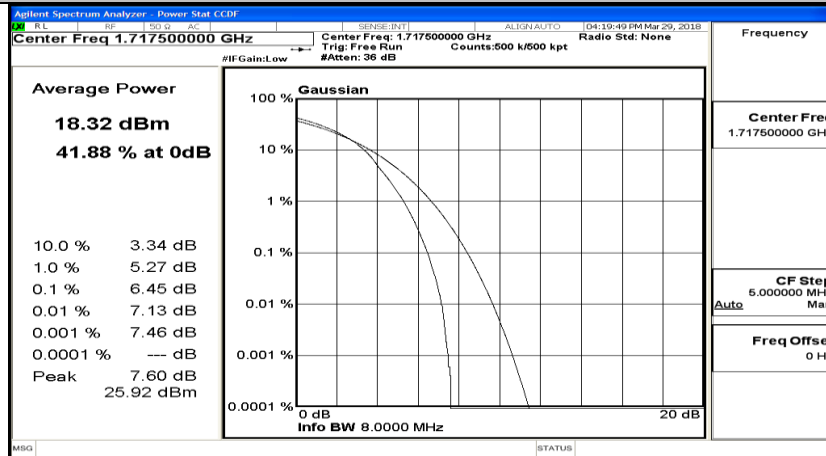
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:15 MHz)_MCH_16QAM

Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:15 MHz)_HCH_16QAM

Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:20 MHz)_LCH_QPSK

Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:20 MHz)_MCH_QPSK

Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:20 MHz)_HCH_QPSK

Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:20 MHz)_LCH_16QAM

Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:20 MHz)_MCH_16QAM

Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:20 MHz)_HCH_16QAM
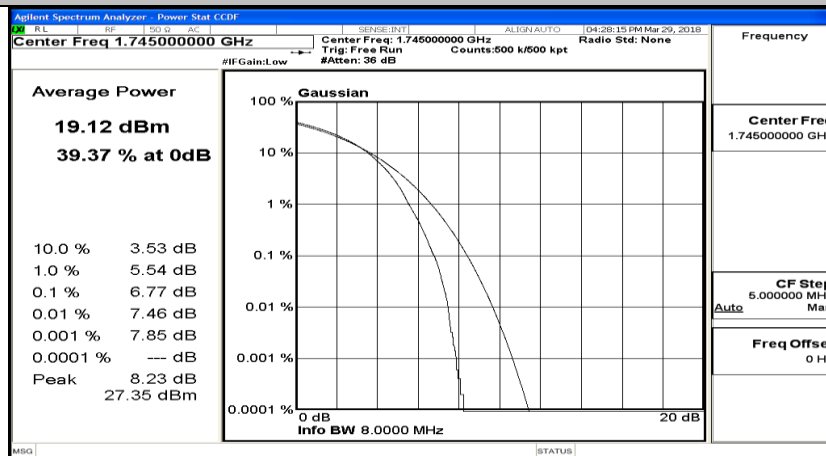
D.3 26dB Bandwidth and Occupied Bandwidth

EBW & OBW Test Result (Channel Bandwidth: 1.4 MHz)				
Modulation	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
QPSK	LCH	1.0795	1.232	PASS
	MCH	1.0773	1.206	PASS
	HCH	1.0799	1.221	PASS
16QAM	LCH	1.0758	1.227	PASS
	MCH	1.0802	1.210	PASS
	HCH	1.0789	1.227	PASS

EBW & OBW Test Result (Channel Bandwidth: 3 MHz)				
Modulation	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
QPSK	LCH	2.6801	2.877	PASS
	MCH	2.6819	2.878	PASS
	HCH	2.6879	2.870	PASS
16QAM	LCH	2.6836	2.877	PASS
	MCH	2.6878	2.862	PASS
	HCH	2.6847	2.876	PASS

EBW & OBW Test Result (Channel Bandwidth: 5 MHz)				
Modulation	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
QPSK	LCH	4.4779	4.872	PASS
	MCH	4.4783	4.882	PASS
	HCH	4.4759	4.820	PASS
16QAM	LCH	4.4742	4.866	PASS
	MCH	4.4776	4.836	PASS
	HCH	4.4814	4.829	PASS

EBW & OBW Test Result (Channel Bandwidth: 10 MHz)				
Modulation	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
QPSK	LCH	8.9560	9.471	PASS
	MCH	8.9514	9.527	PASS
	HCH	8.9420	9.485	PASS
16QAM	LCH	8.9511	9.463	PASS
	MCH	8.9520	9.564	PASS
	HCH	8.9351	9.540	PASS

EBW & OBW Test Result (Channel Bandwidth: 15 MHz)				
Modulation	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
QPSK	LCH	13.421	14.05	PASS
	MCH	13.435	14.08	PASS
	HCH	13.412	14.07	PASS
16QAM	LCH	13.408	14.12	PASS
	MCH	13.417	14.19	PASS
	HCH	13.395	14.02	PASS

EBW & OBW Test Result (Channel Bandwidth: 20 MHz)				
Modulation	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
QPSK	LCH	17.864	18.60	PASS
	MCH	17.906	18.57	PASS
	HCH	17.833	18.57	PASS
16QAM	LCH	17.844	18.74	PASS
	MCH	17.906	18.71	PASS
	HCH	17.846	18.64	PASS

EBW & OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)_LCH_QPSK
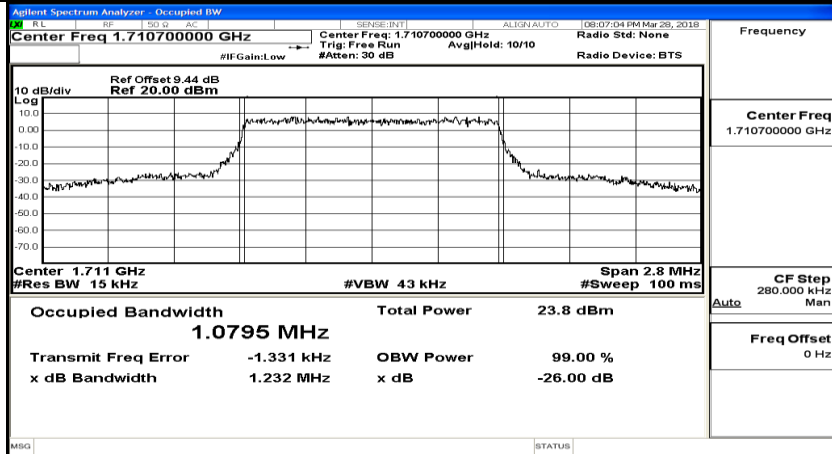
EBW & OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)_MCH_QPSK
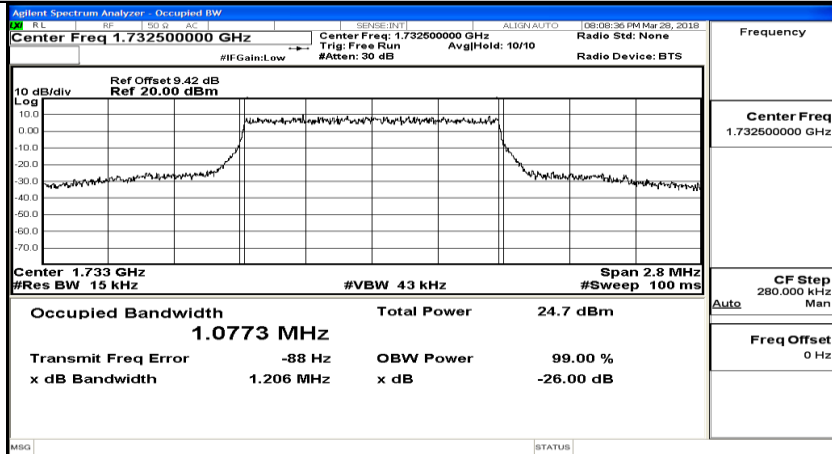
EBW & OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)_HCH_QPSK
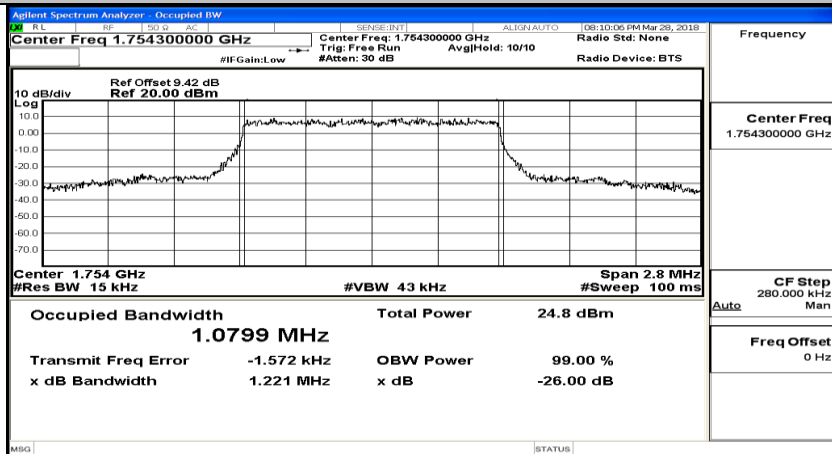
EBW & OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)_LCH_16QAM
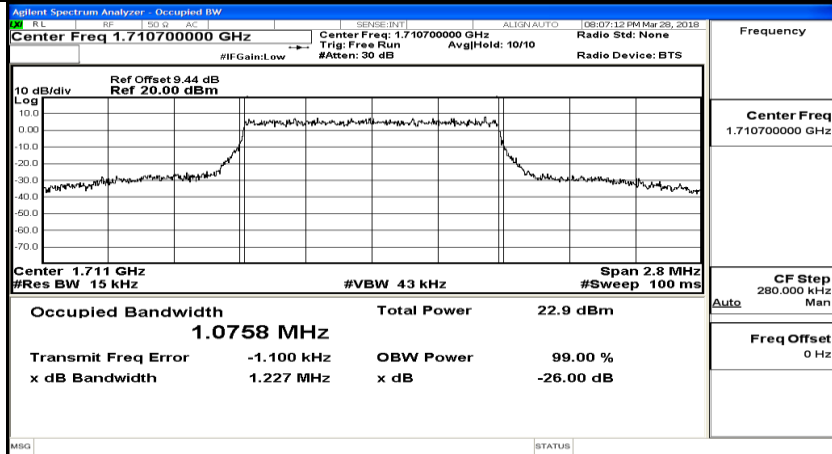
EBW & OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)_MCH_16QAM
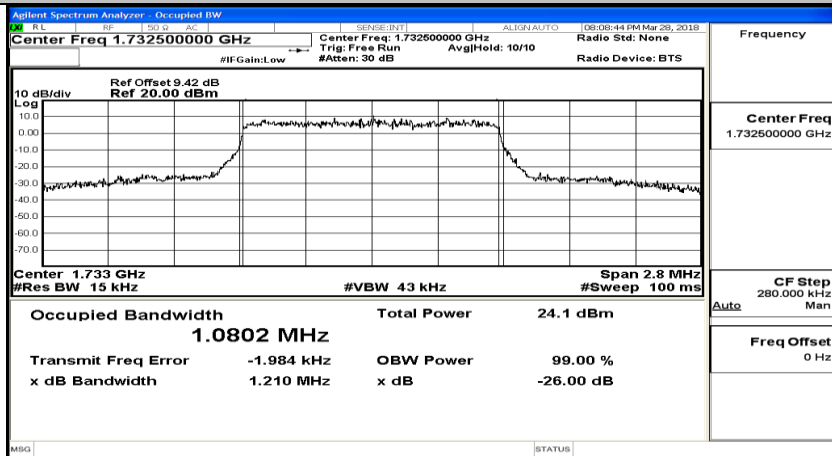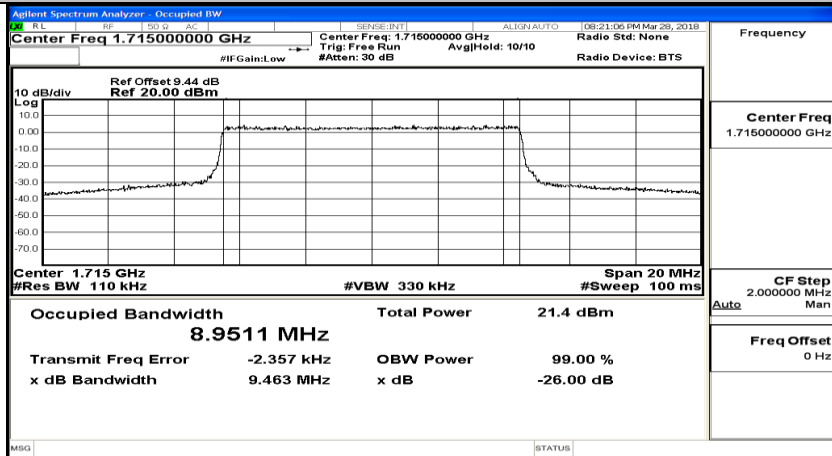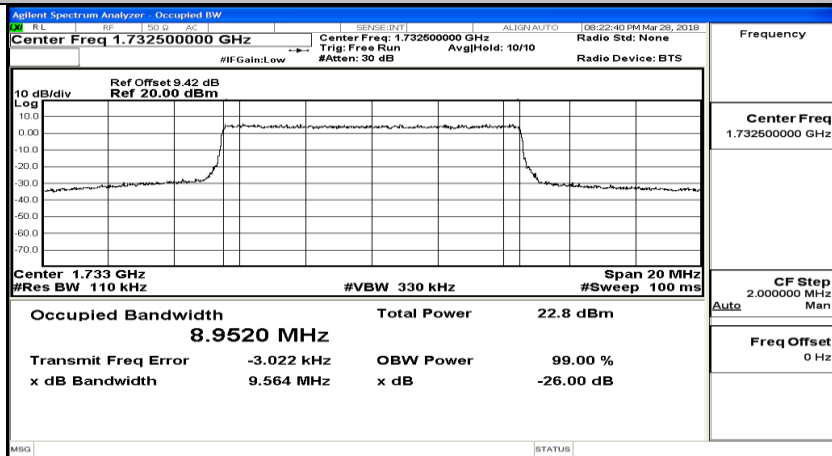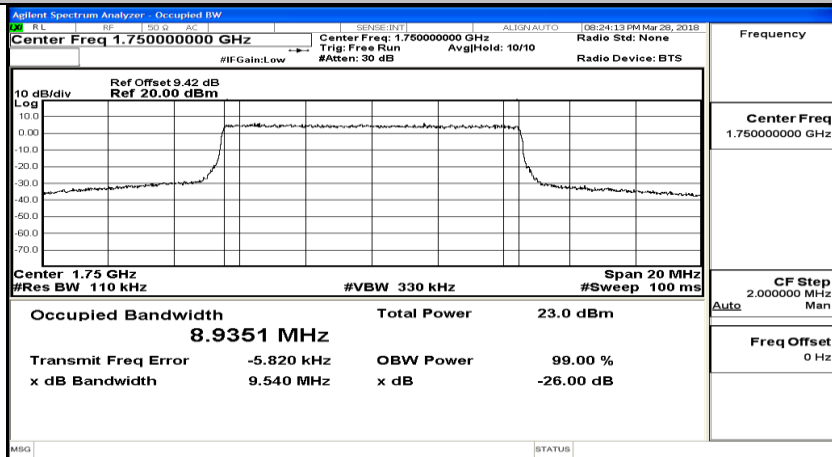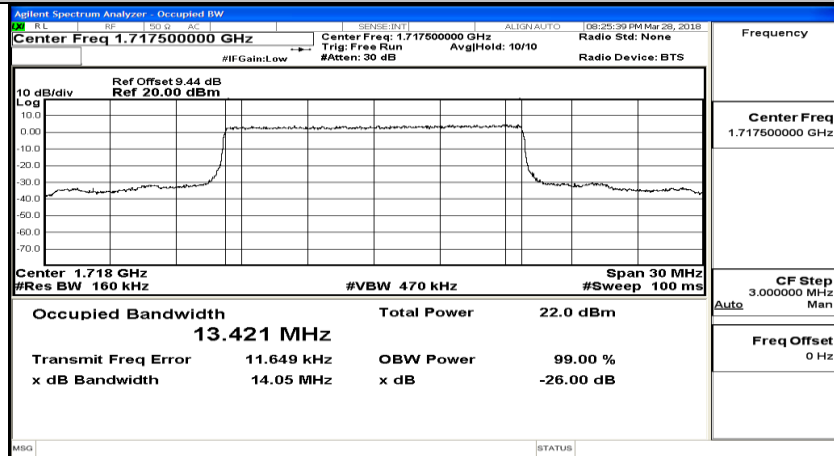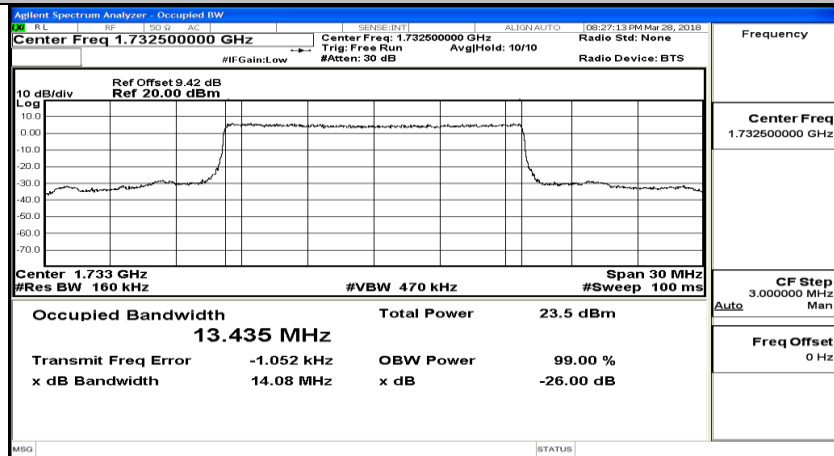

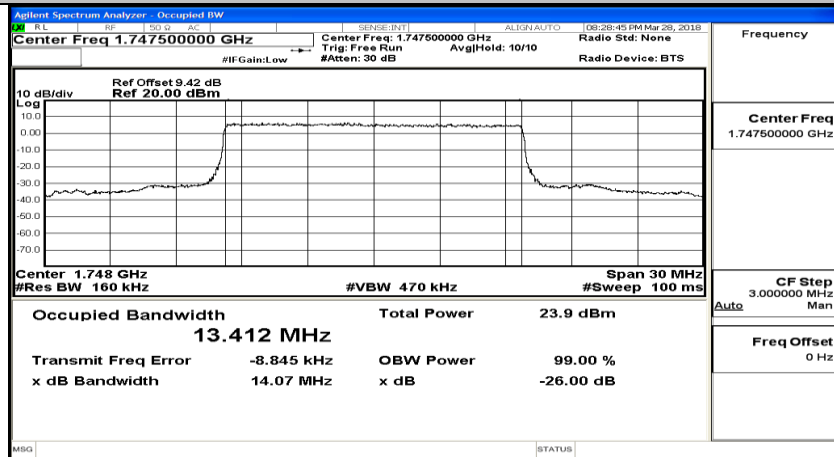**EBW & OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)_HCH_16QAM**
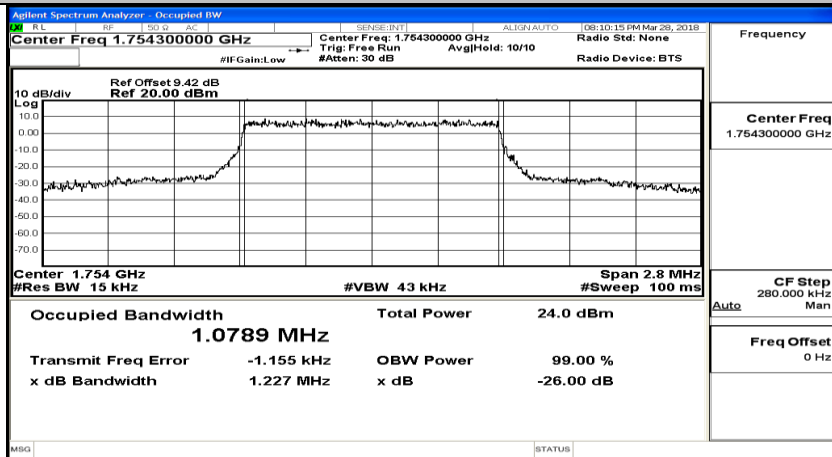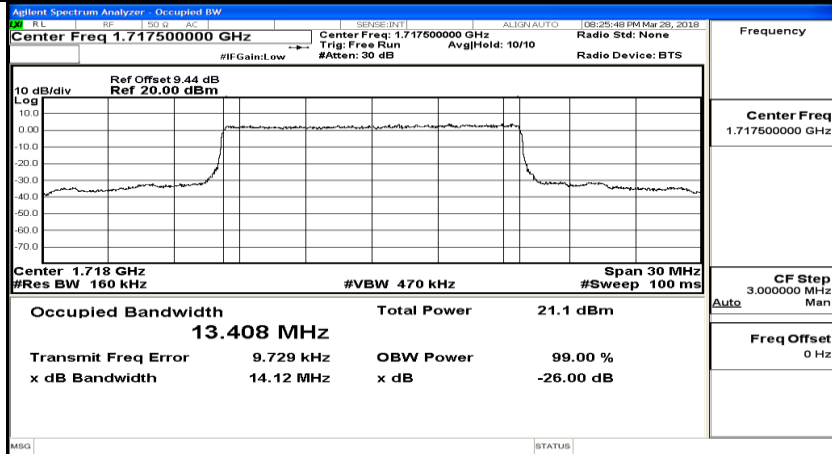
EBW & OBW Test Graph(s) (Channel Bandwidth: 3 MHz)_LCH_QPSK
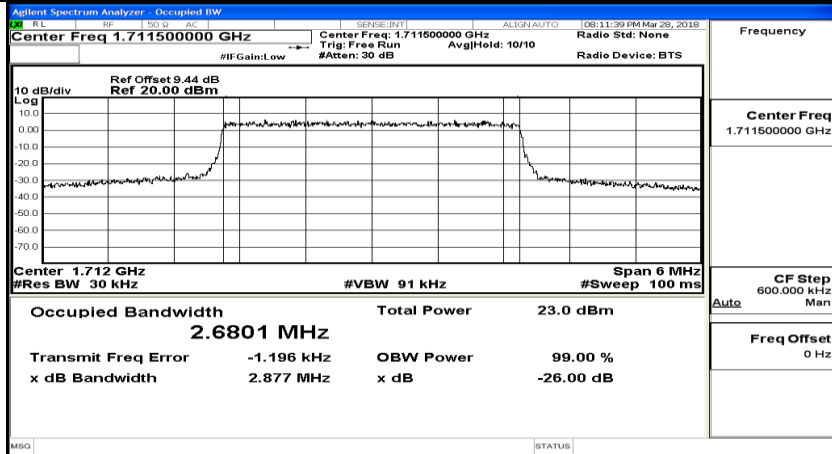
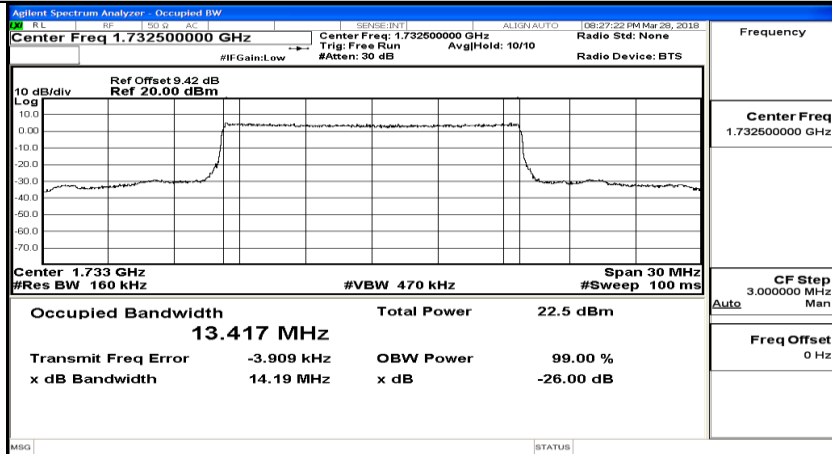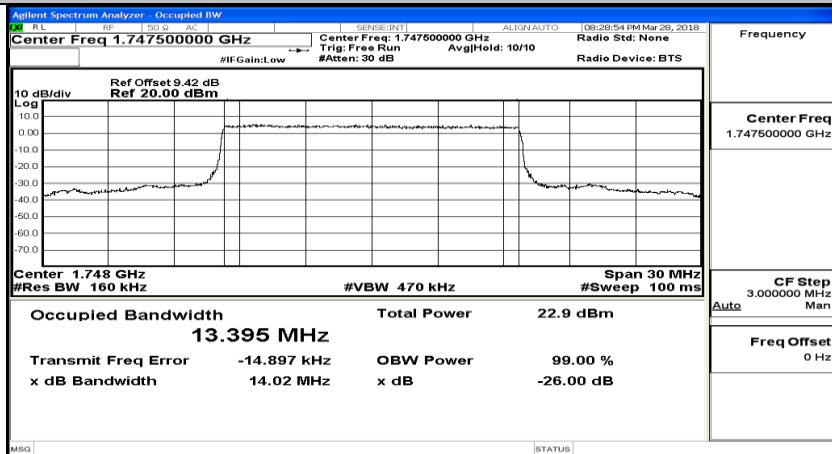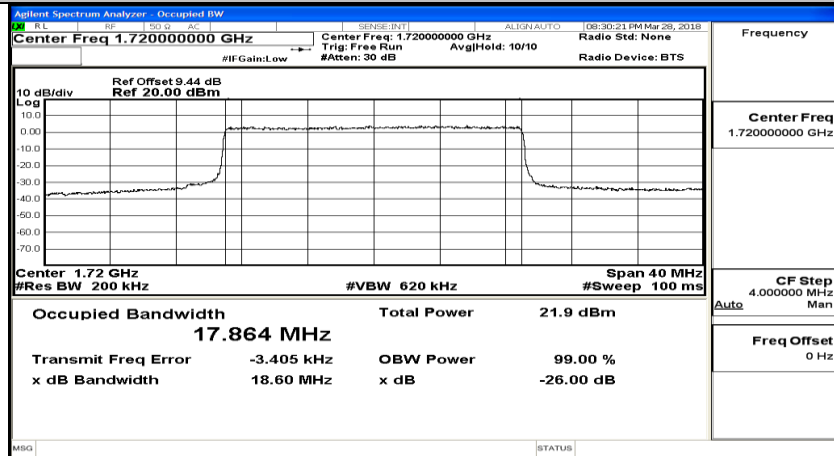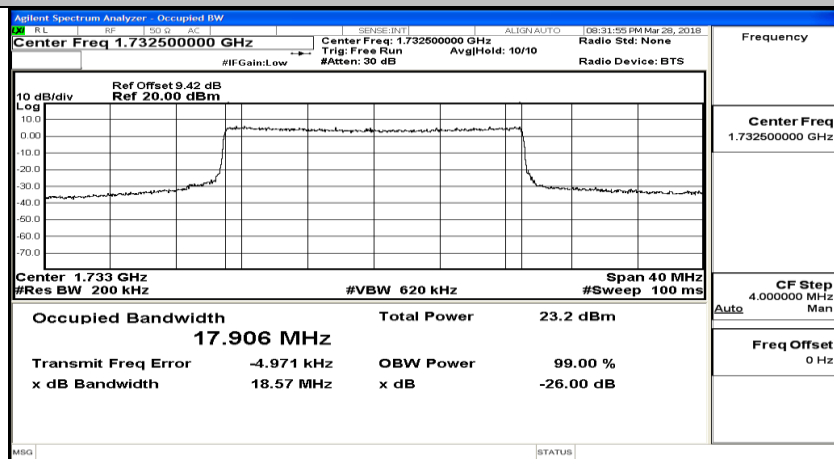| EBW & OBW Test Graph(s) (Channel Bandwidth: 3 MHz)_MCH_QPSK |
|---|
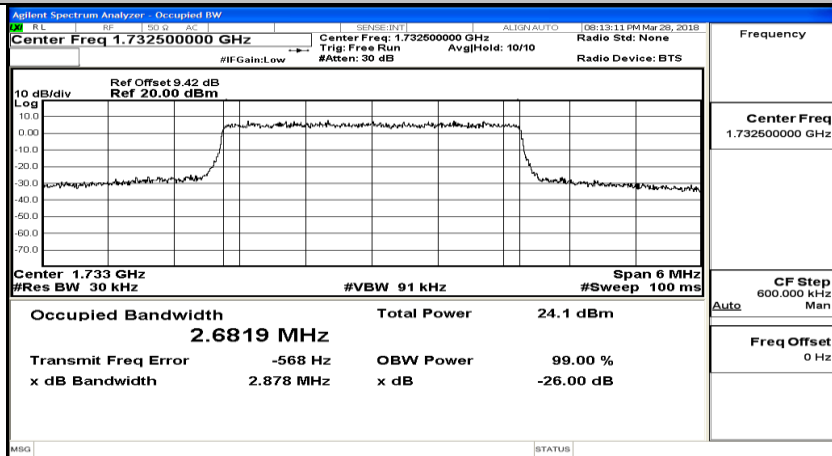
EBW & OBW Test Graph(s) (Channel Bandwidth: 3 MHz)_HCH_QPSK
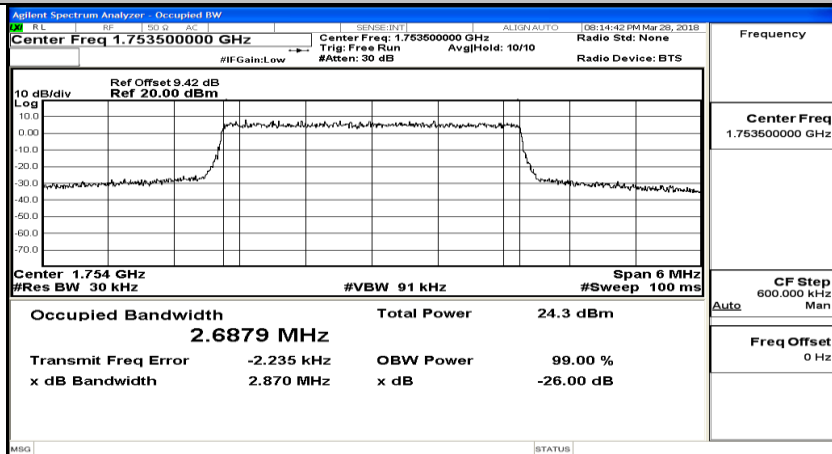
EBW & OBW Test Graph(s) (Channel Bandwidth: 3 MHz)_LCH_16QAM
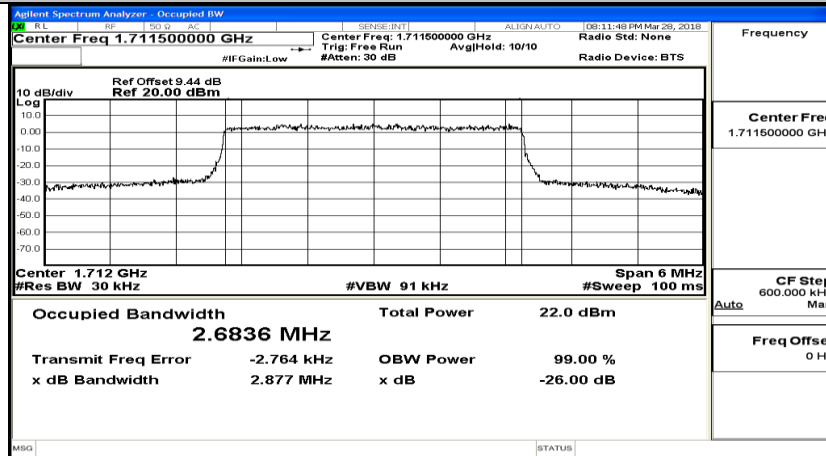
EBW & OBW Test Graph(s) (Channel Bandwidth: 3 MHz)_MCH_16QAM
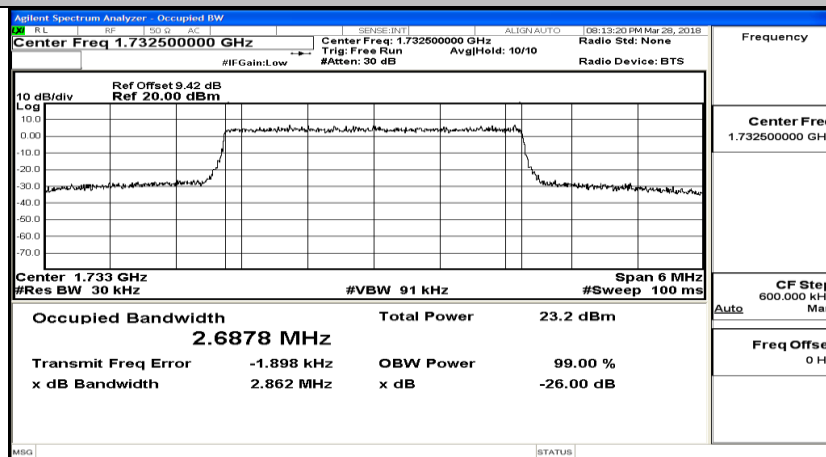
EBW & OBW Test Graph(s) (Channel Bandwidth: 3 MHz)_HCH_16QAM
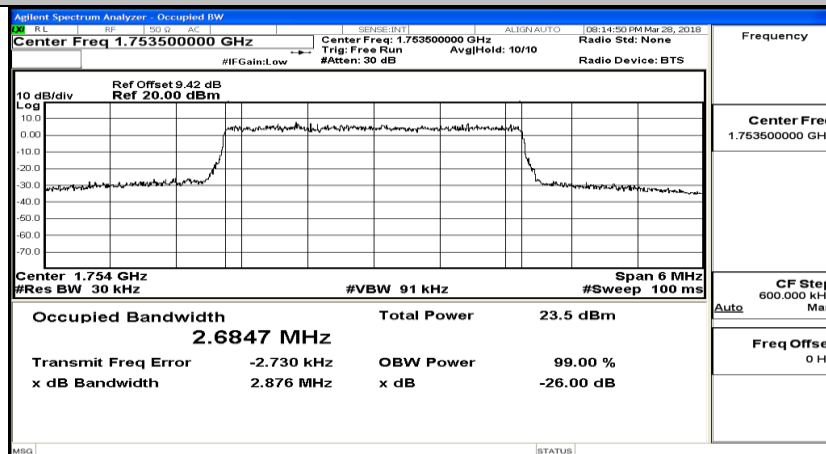
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_QPSK
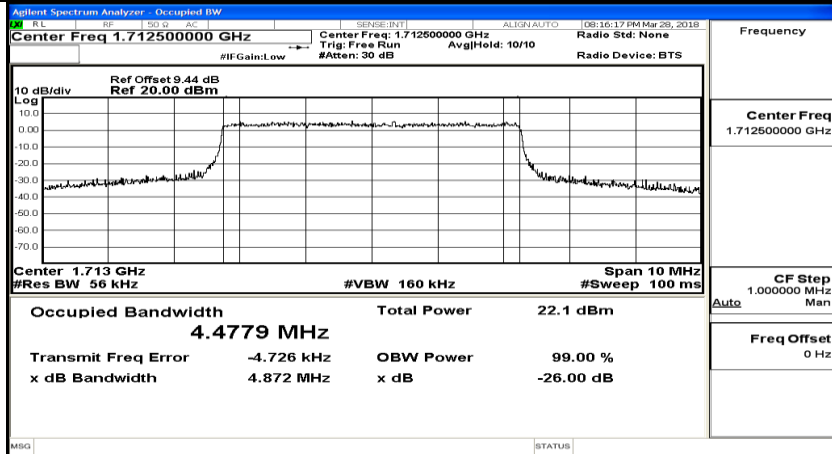
Occupied Bandwidth		Total Power	22.1 dBm
	4.4779 MHz		
Transmit Freq Error	-4.726 kHz	OBW Power	99.00 %
x dB Bandwidth	4.872 MHz	x dB	-26.00 dB

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

Occupied Bandwidth		Total Power	23.3 dBm
	4.4783 MHz		
Transmit Freq Error	-5.518 kHz	OBW Power	99.00 %
x dB Bandwidth	4.882 MHz	x dB	-26.00 dB

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

Occupied Bandwidth		Total Power	24.5 dBm
	4.4759 MHz		
Transmit Freq Error	1.541 kHz	OBW Power	99.00 %
x dB Bandwidth	4.820 MHz	x dB	-26.00 dB
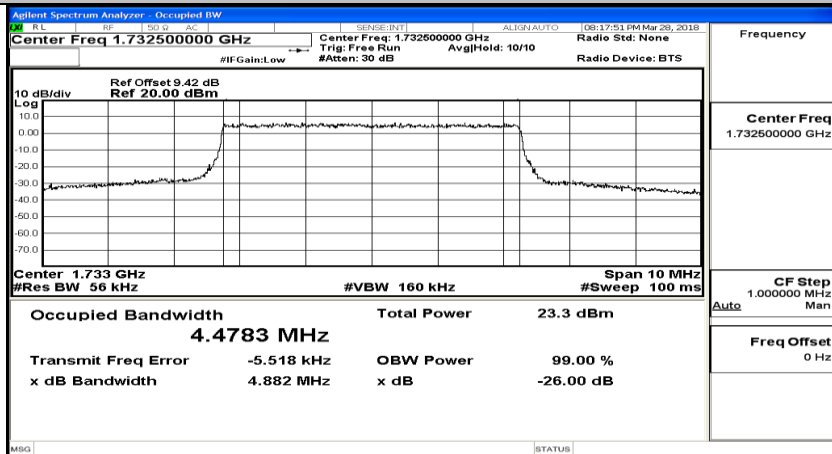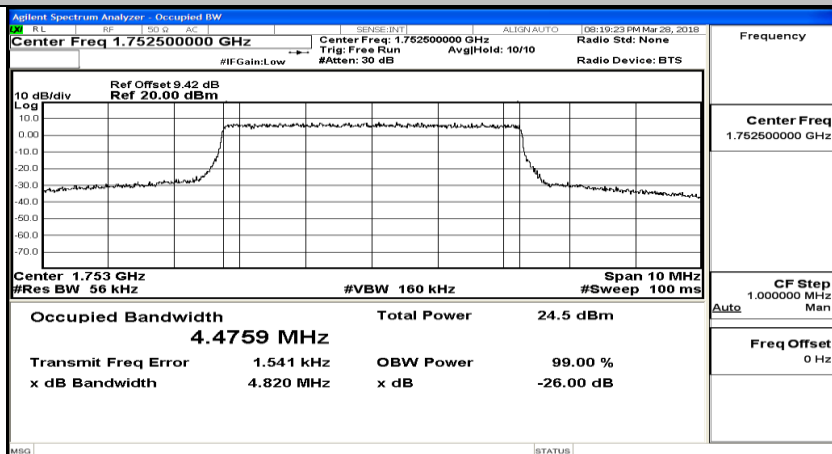
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_16QAM
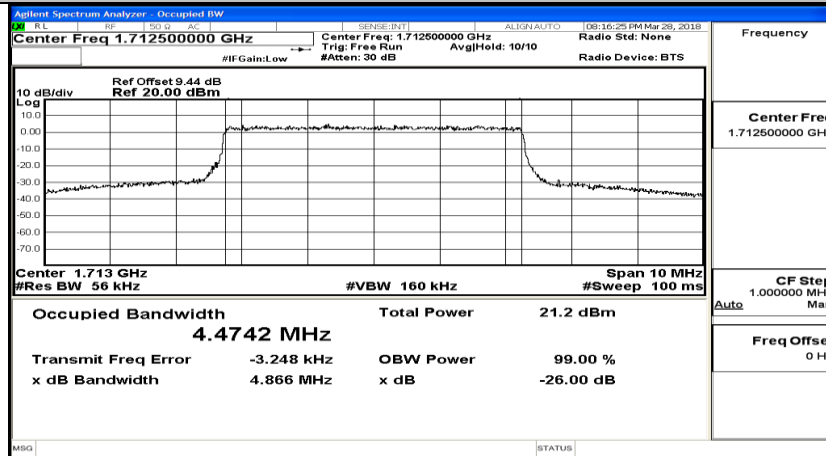
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)_MCH_16QAM
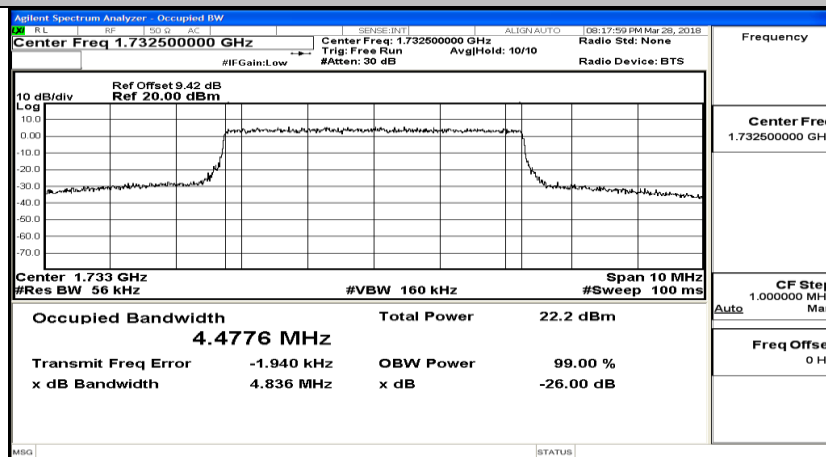
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)_HCH_16QAM
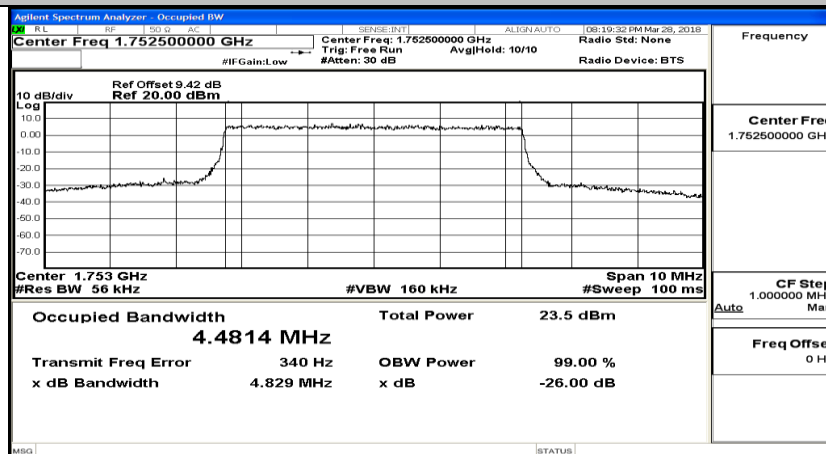
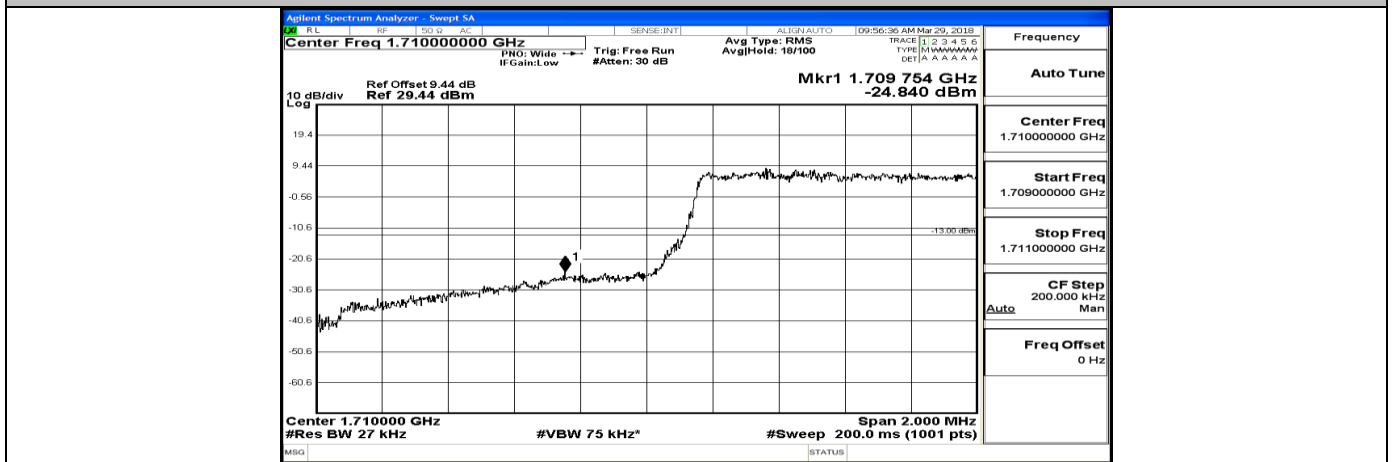| EBW & OBW Test Graph(s) (Channel Bandwidth: 10 MHz)_LCH_QPSK |
|---|
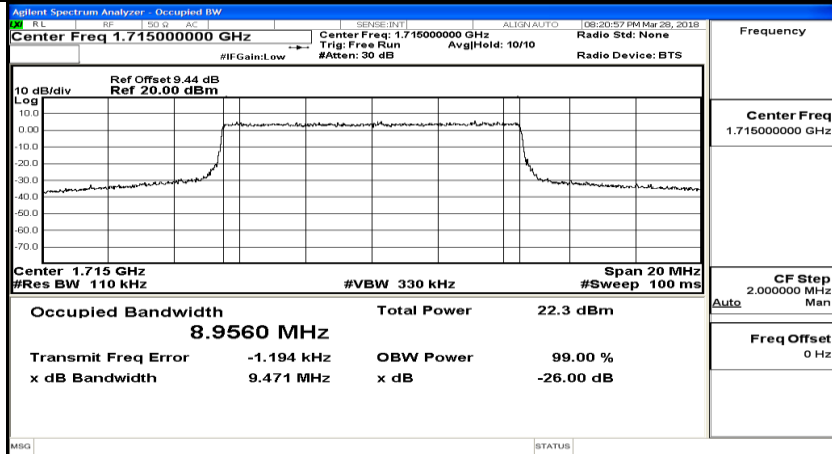
EBW & OBW Test Graph(s) (Channel Bandwidth: 10 MHz)_MCH_QPSK
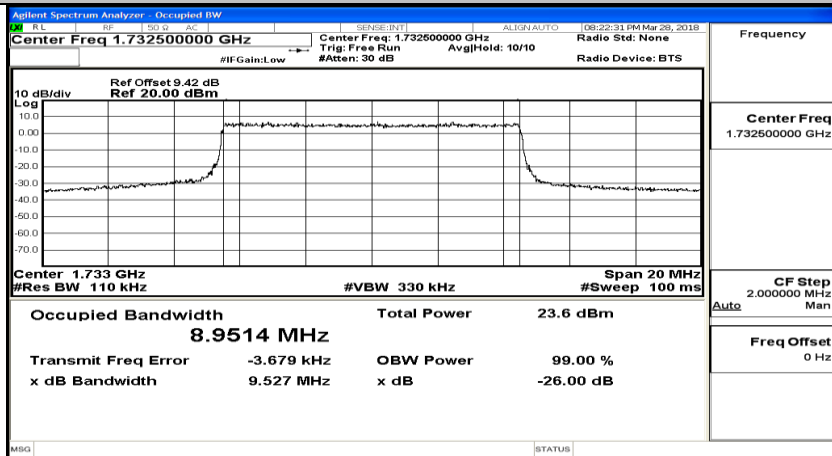
EBW & OBW Test Graph(s) (Channel Bandwidth: 10 MHz)_HCH_QPSK
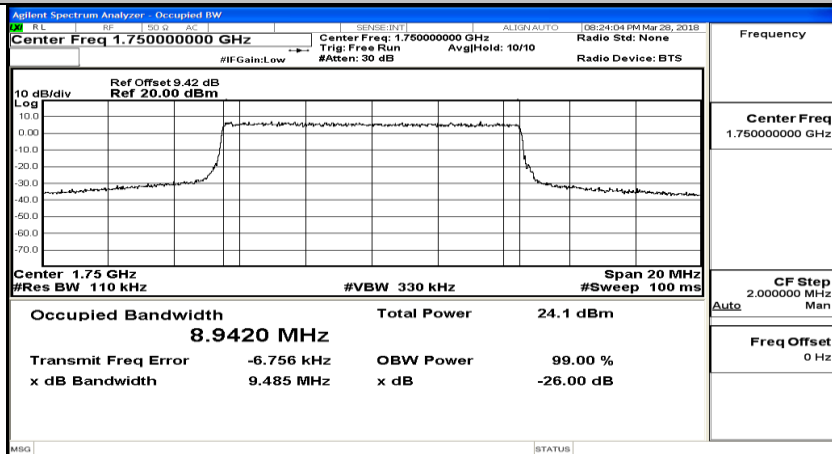
EBW & OBW Test Graph(s) (Channel Bandwidth: 10 MHz)_LCH_16QAM

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

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

EBW & OBW Test Graph(s) (Channel Bandwidth:15 MHz)_LCH_QPSK

EBW & OBW Test Graph(s) (Channel Bandwidth:15 MHz)_MCH_QPSK

EBW & OBW Test Graph(s) (Channel Bandwidth:15 MHz)_HCH_QPSK

EBW & OBW Test Graph(s) (Channel Bandwidth:15 MHz)_LCH_16QAM

EBW & OBW Test Graph(s) (Channel Bandwidth:15 MHz)_MCH_16QAM

EBW & OBW Test Graph(s) (Channel Bandwidth:15 MHz)_HCH_16QAM

EBW & OBW Test Graph(s) (Channel Bandwidth:20 MHz)_LCH_QPSK

EBW & OBW Test Graph(s) (Channel Bandwidth:20 MHz)_MCH_QPSK

EBW & OBW Test Graph(s) (Channel Bandwidth:20 MHz)_HCH_QPSK
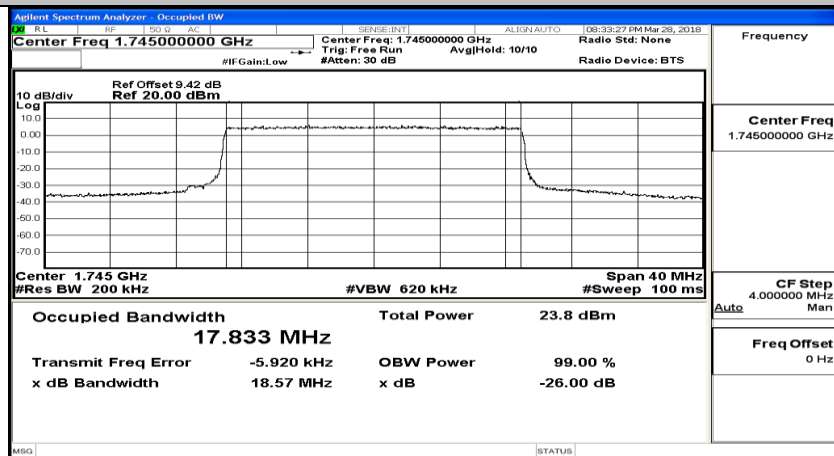
EBW & OBW Test Graph(s) (Channel Bandwidth:20 MHz)_LCH_16QAM
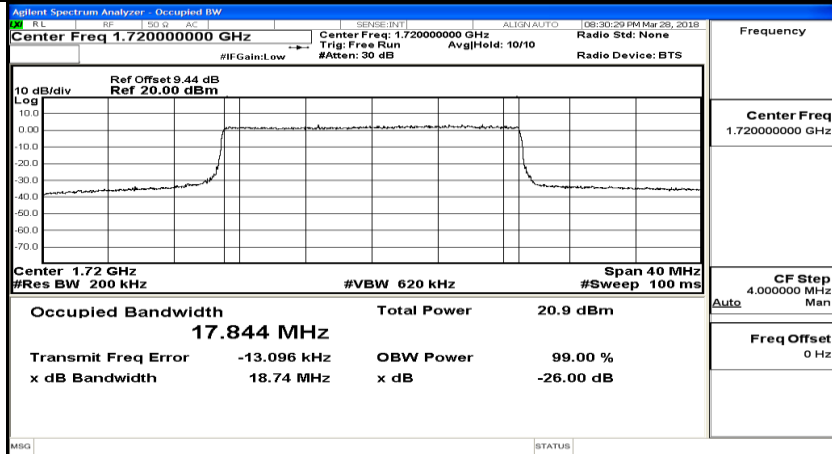
EBW & OBW Test Graph(s) (Channel Bandwidth:20 MHz)_MCH_16QAM
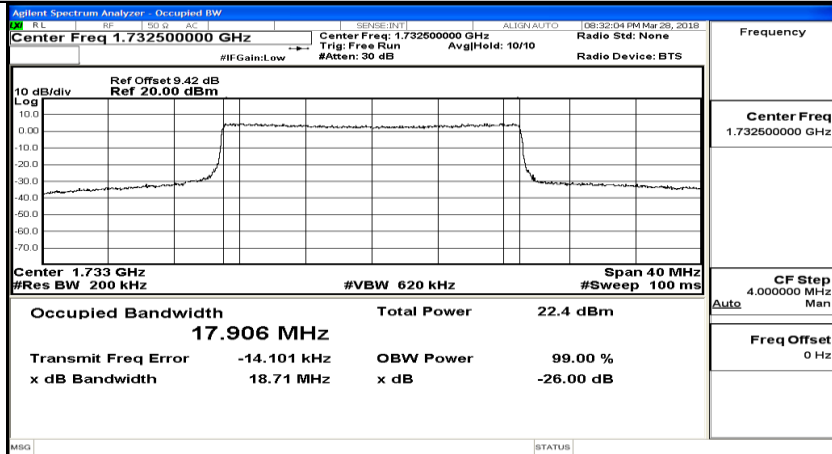
EBW & OBW Test Graph(s) (Channel Bandwidth:20 MHz)_HCH_16QAM
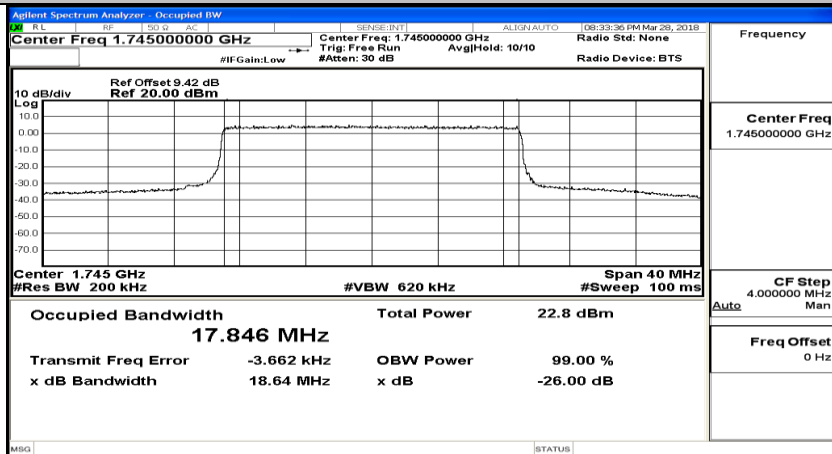
D.4 Band Edge

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

Band Edge Test Graph(s) (Channel Bandwidth: 1.4 MHz)_HCH_QPSK
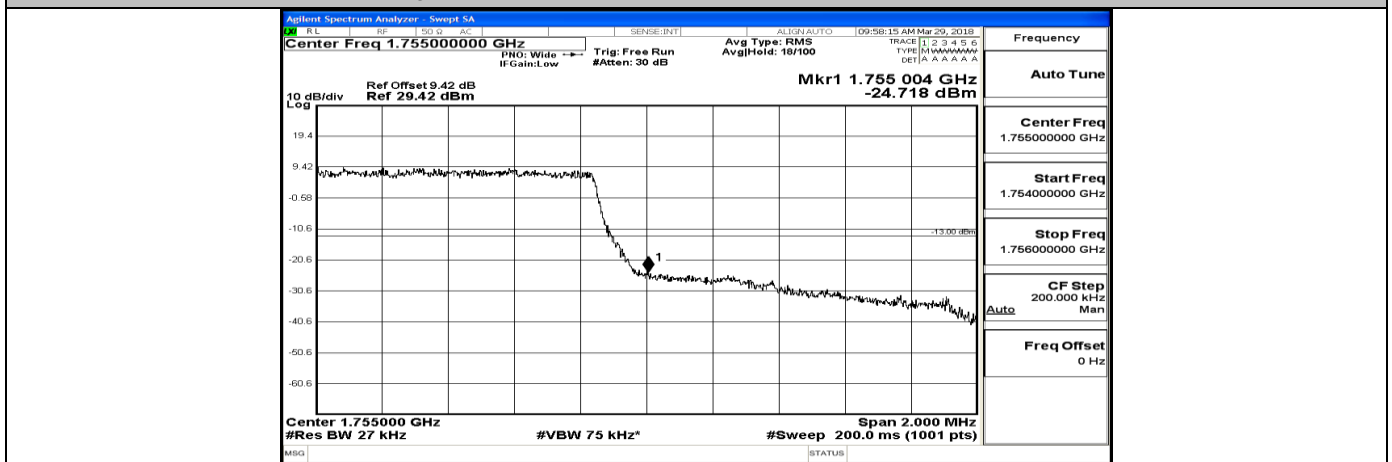
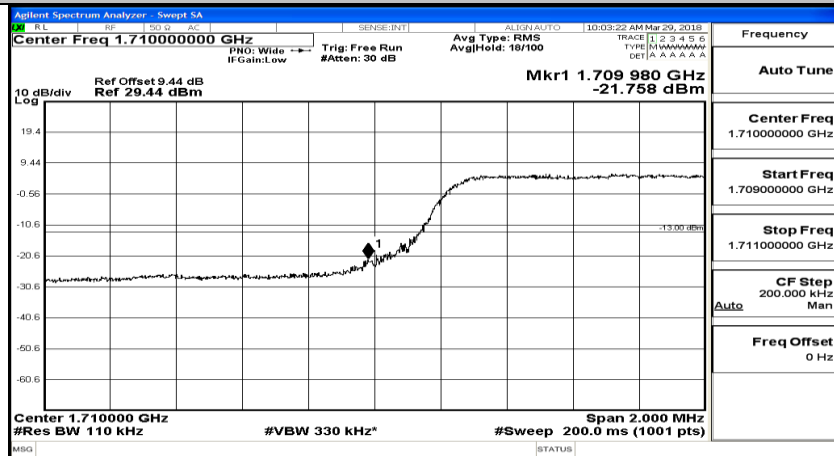| Band Edge Test Graph(s) (Channel Bandwidth: 1.4 MHz)_LCH_16QAM |
|---|
| |
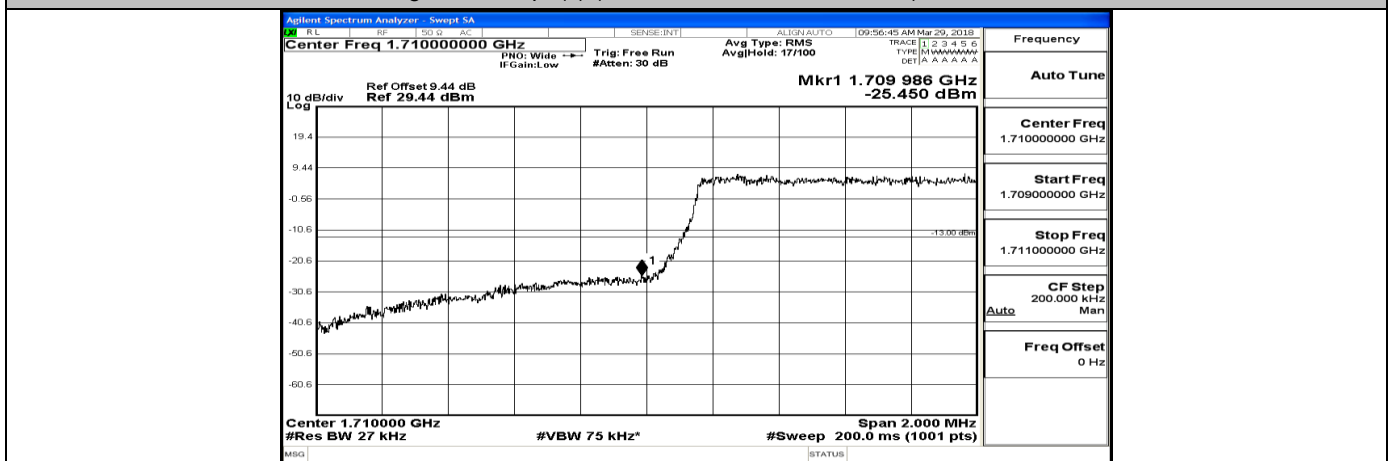
Band Edge Test Graph(s) (Channel Bandwidth: 1.4 MHz)_HCH_16QAM
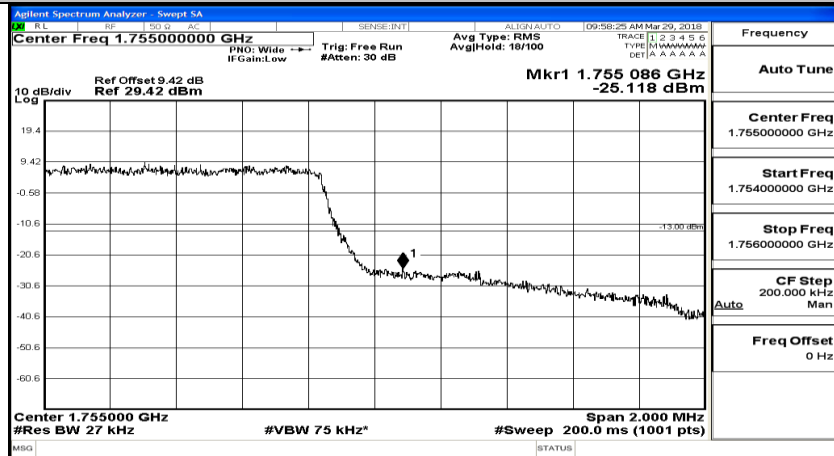
Band Edge Test Graph(s) (Channel Bandwidth: 3 MHz)_LCH_QPSK
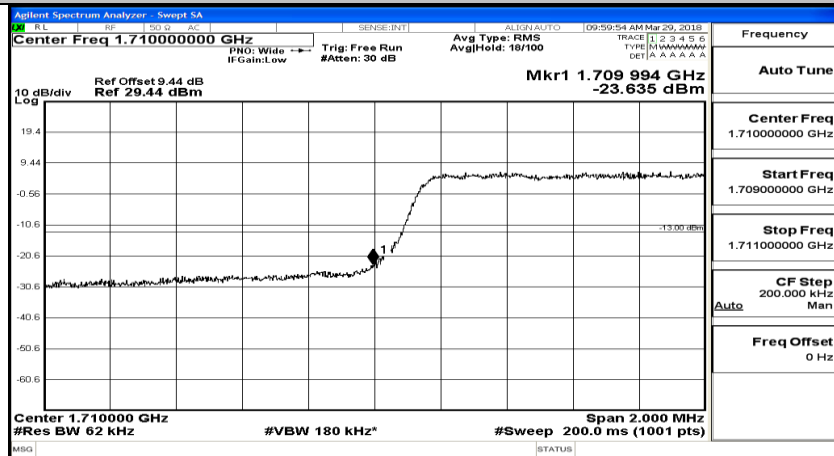
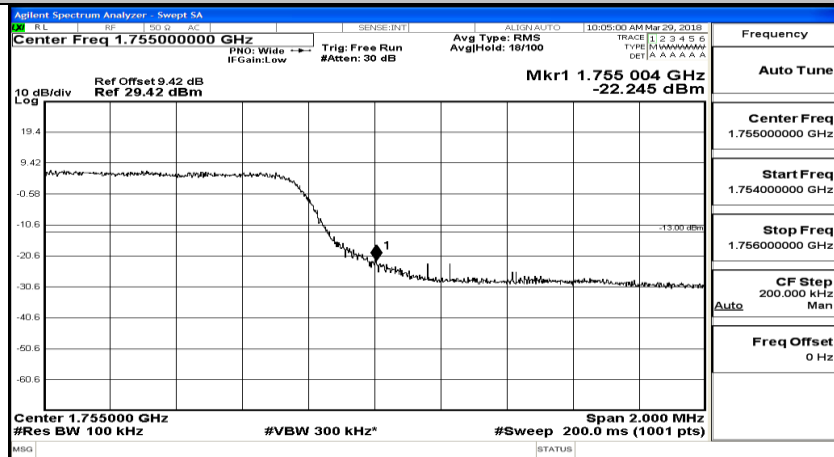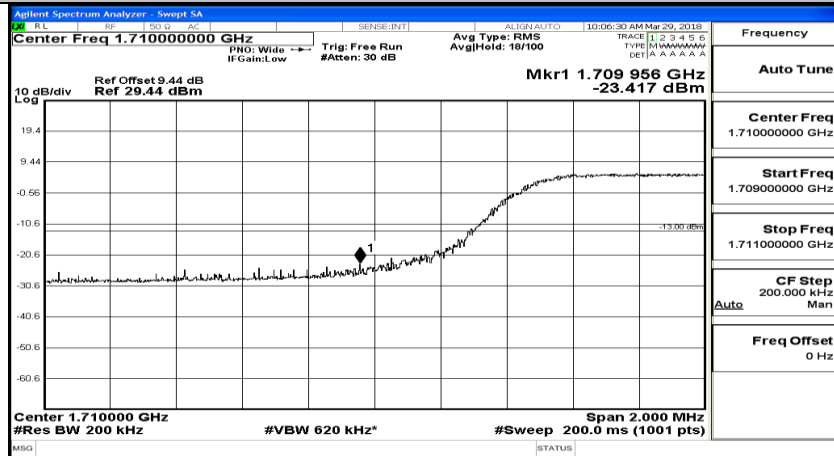## Band Edge Test Graph(s) (Channel Bandwidth: 3 MHz)_HCH_QPSK
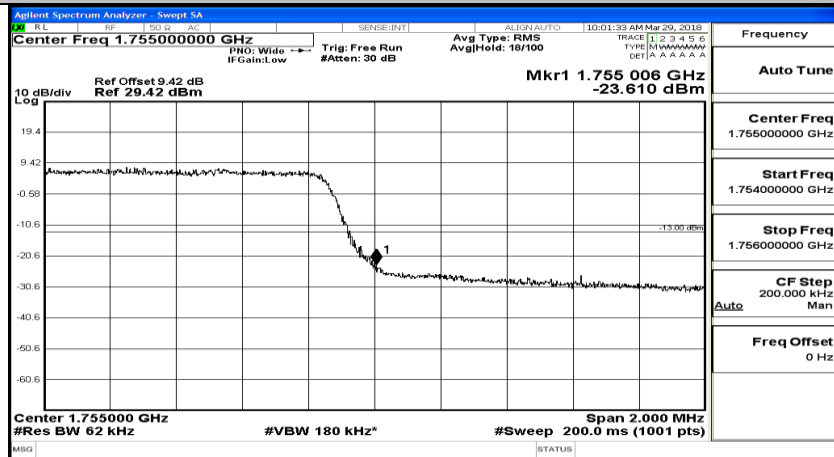
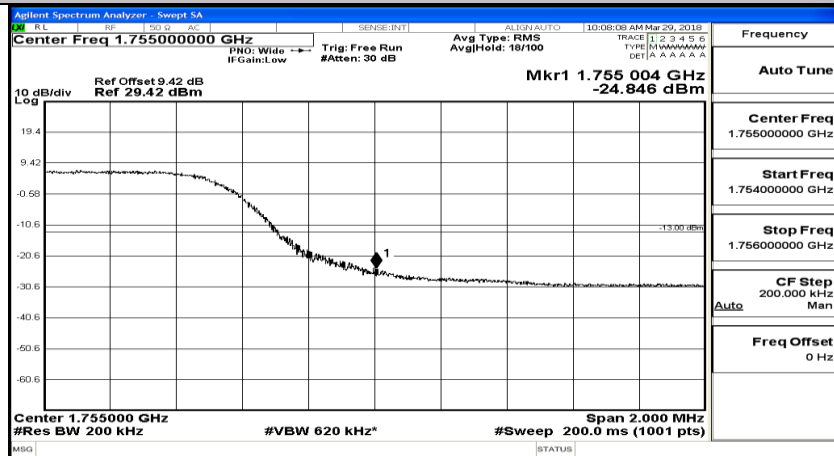| Band Edge Test Graph(s) (Channel Bandwidth: 3 MHz)_LCH_16QAM |
| :---: |
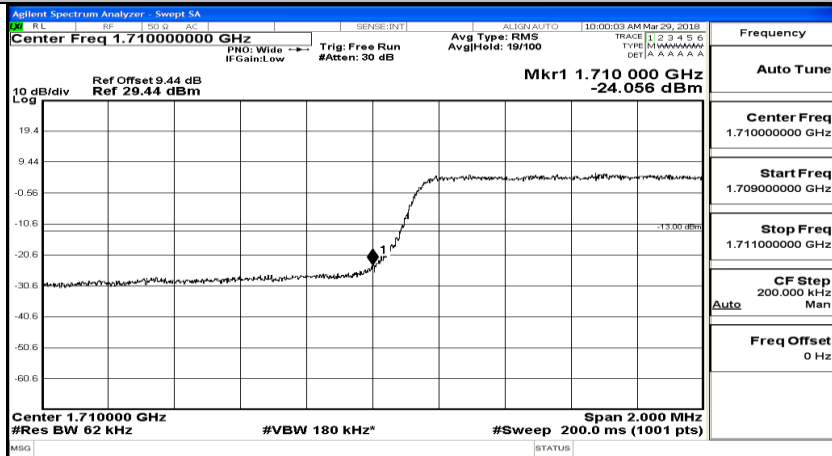
Band Edge Test Graph(s) (Channel Bandwidth: 3 MHz)_HCH_16QAM
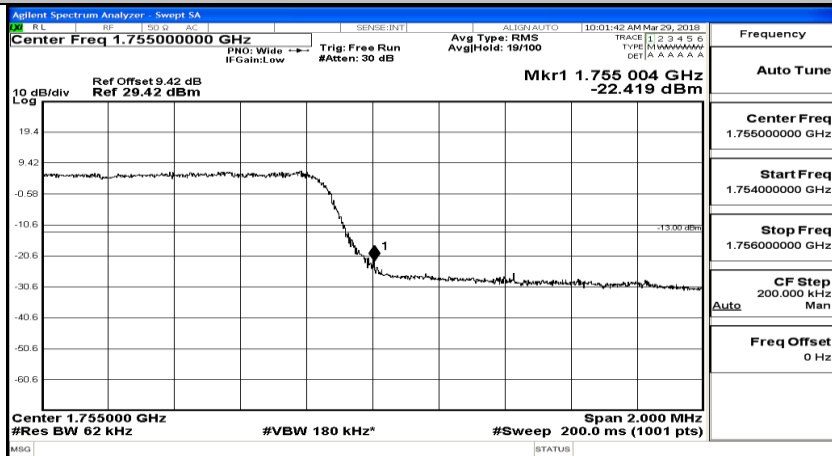
Band Edge Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_QPSK
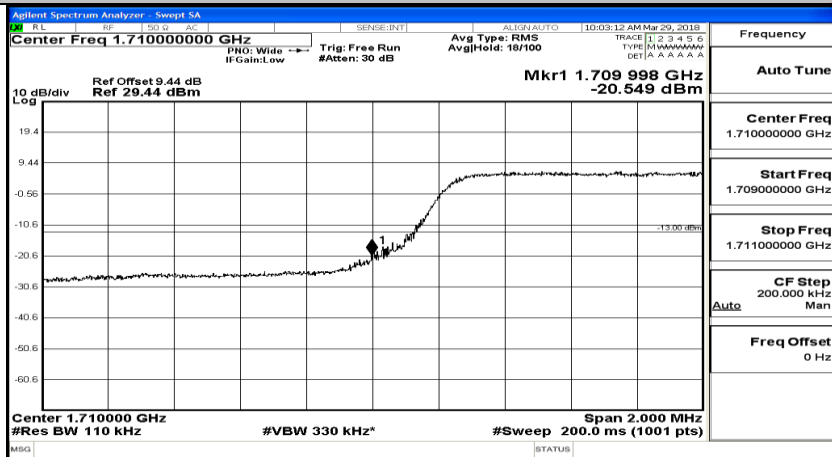
Band Edge Test Graph(s) (Channel Bandwidth: 5 MHz)_HCH_QPSK

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

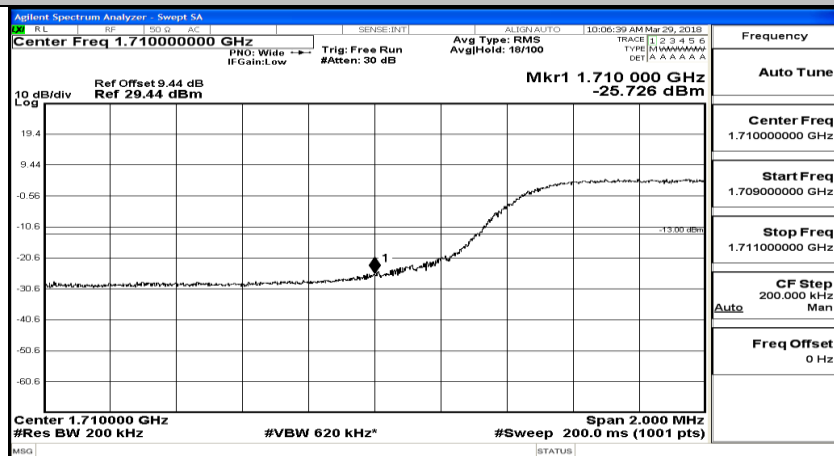

Band Edge Test Graph(s) (Channel Bandwidth: 5 MHz)_HCH_16QAM

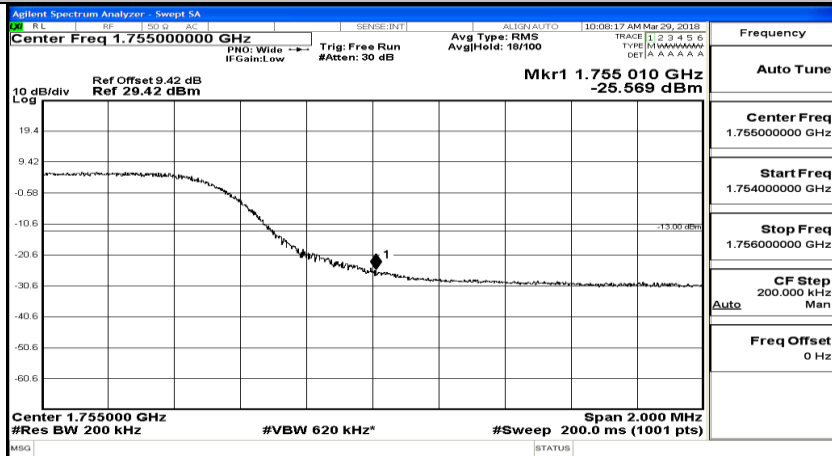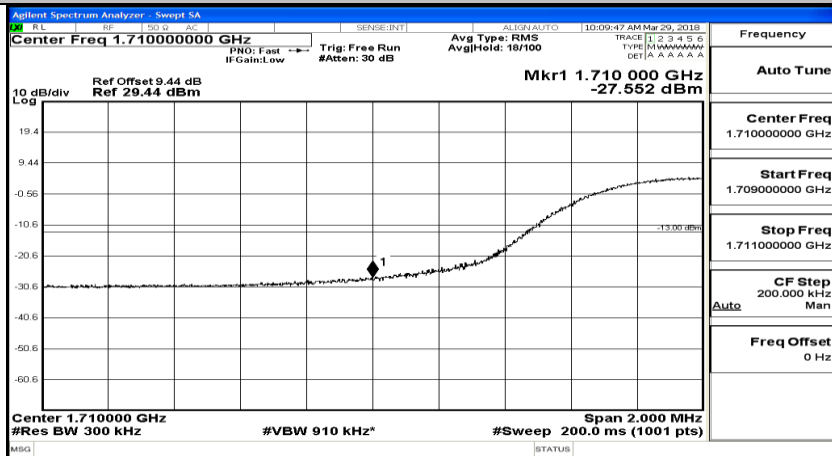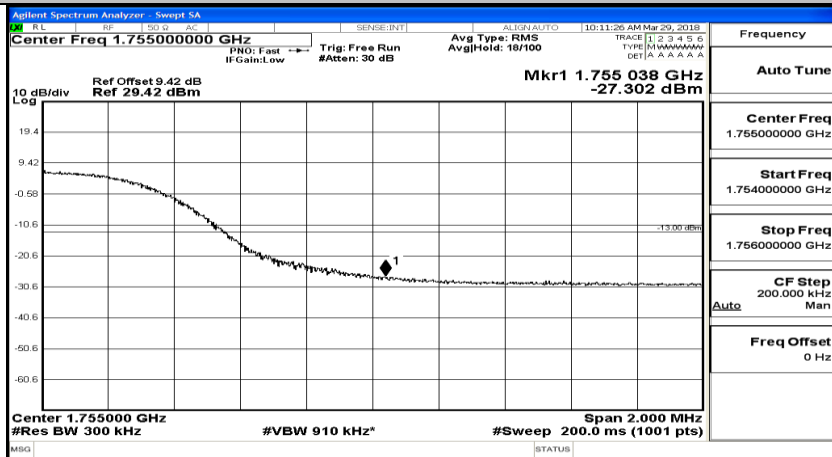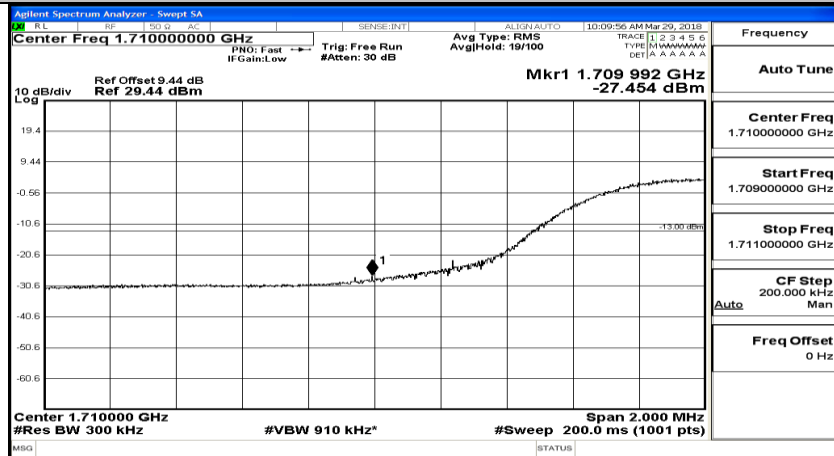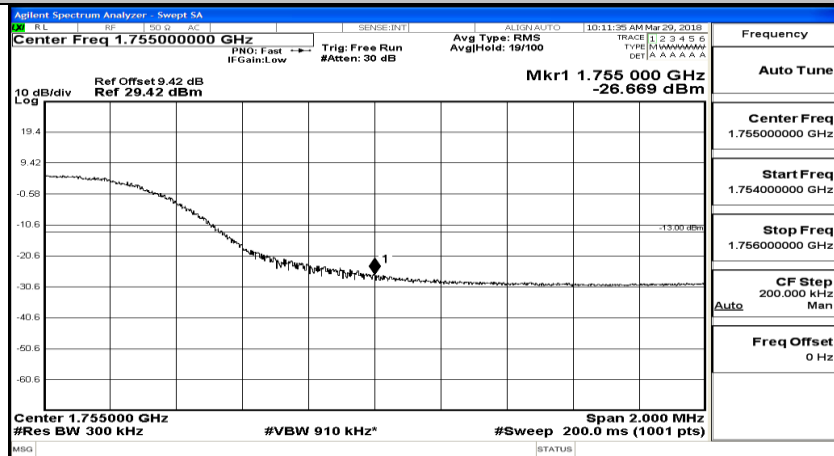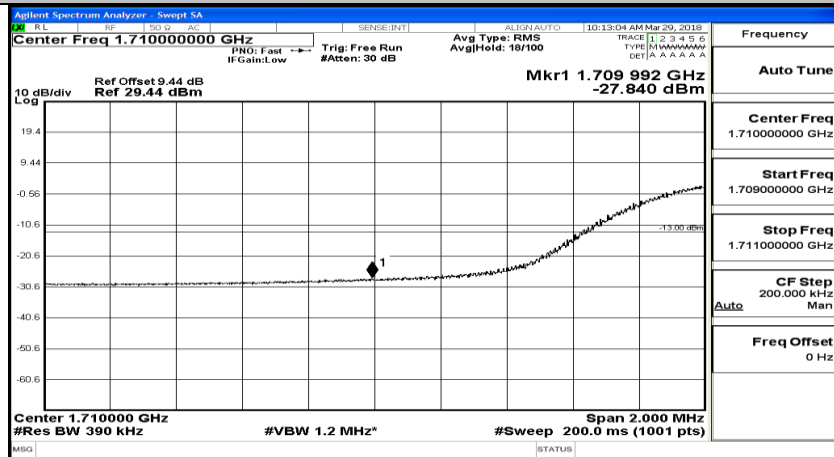| Band Edge Test Graph(s) (Channel Bandwidth: 10 MHz)_LCH_QPSK |
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Band Edge Test Graph(s) (Channel Bandwidth: 10 MHz)_HCH_QPSK

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

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

Band Edge Test Graph(s) (Channel Bandwidth:15 MHz)_LCH_QPSK

Band Edge Test Graph(s) (Channel Bandwidth:15 MHz)_HCH_QPSK

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Band Edge Test Graph(s) (Channel Bandwidth:15 MHz)_LCH_16QAM

Band Edge Test Graph(s) (Channel Bandwidth:15 MHz)_HCH_16QAM

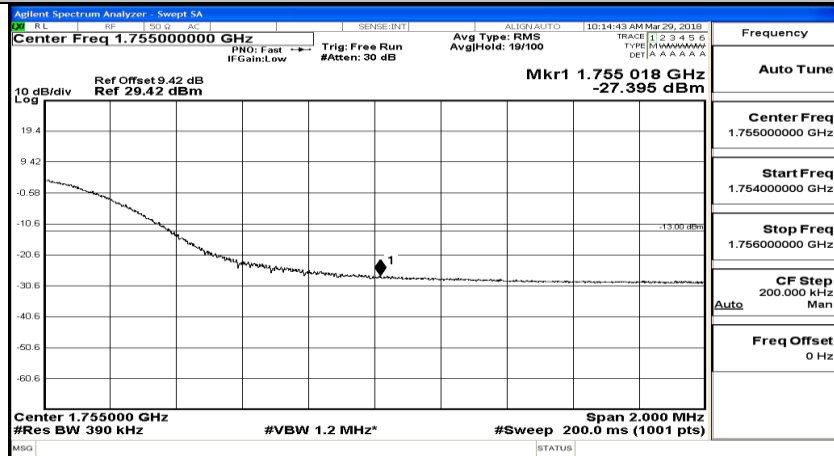| Band Edge Test Graph(s) (Channel Bandwidth:20 MHz)_LCH_QPSK |
|---|

Band Edge Test Graph(s) (Channel Bandwidth:20 MHz)_HCH_QPSK

Band Edge Test Graph(s) (Channel Bandwidth:20 MHz)_LCH_16QAM

Band Edge Test Graph(s) (Channel Bandwidth:20 MHz)_HCH_16QAM