Appendix D: Test Data for E-UTRA Band 2

Product Name: Ruggedized In-vehicle Tablet
Test Model: APOLLO 10L

Environmental Conditions

Temperature:	23.9 ° C
Relative Humidity:	54.1%
ATM Pressure:	100.0 kPa
Test Engineer:	Tom Liu
Supervised by:	Aking Jin

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	22.89	22.14	PASS
		1	3	22.90	22.17	PASS
		1	5	22.76	22.07	PASS
		3	0	22.76	21.96	PASS
		3	2	22.83	21.99	PASS
		3	3	22.73	21.81	PASS
		6	0	22.03	21.12	PASS
	MCH	1	0	23.08	22.42	PASS
		1	3	23.03	22.46	PASS
		1	5	22.99	22.50	PASS
		3	0	22.99	22.08	PASS
		3	2	22.99	22.19	PASS
		3	3	22.93	22.09	PASS
		6	0	22.15	21.13	PASS
	HCH	1	0	22.65	22.20	PASS
		1	3	22.79	22.09	PASS
		1	5	22.67	21.73	PASS
		3	0	22.91	21.99	PASS
		3	2	22.81	21.78	PASS
		3	3	22.91	21.96	PASS
		6	0	22.10	21.32	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	22.87	22.24	PASS
		1	7	22.90	22.18	PASS
		1	14	22.67	21.86	PASS
		8	0	22.91	21.91	PASS
		8	4	22.83	21.92	PASS
		8	7	22.76	21.82	PASS
		15	0	22.78	21.79	PASS
	MCH	1	0	23.13	22.51	PASS
		1	7	22.84	22.80	PASS
		1	14	22.79	22.05	PASS
		8	0	22.10	21.11	PASS
		8	4	22.03	21.24	PASS
		8	7	21.95	21.10	PASS
		15	0	22.03	21.05	PASS
	HCH	1	0	22.61	22.01	PASS
		1	7	22.64	22.06	PASS
		1	14	22.61	21.79	PASS
		8	0	22.85	21.81	PASS
		8	4	22.87	21.91	PASS
		8	7	22.92	21.83	PASS
		15	0	22.75	21.80	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	22.95	22.44	PASS
		1	12	22.80	22.23	PASS
		1	24	22.46	21.88	PASS
		12	0	22.91	22.01	PASS
		12	6	22.82	22.02	PASS
		12	13	22.71	21.83	PASS
		25	0	22.70	21.84	PASS
	MCH	1	0	23.15	22.74	PASS
		1	12	23.02	22.44	PASS
		1	24	22.49	22.25	PASS
		12	0	22.12	21.30	PASS
		12	6	22.14	21.24	PASS
		12	13	22.16	21.33	PASS
		25	0	22.08	21.10	PASS
	HCH	1	0	22.80	21.75	PASS
		1	12	22.94	21.81	PASS
		1	24	22.39	21.70	PASS
		12	0	22.77	21.76	PASS
		12	6	22.77	21.77	PASS
		12	13	22.76	21.96	PASS
		25	0	22.84	21.84	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	22.38	PASS
		1	24	23.31	22.74	PASS
		1	49	22.23	21.43	PASS
		25	0	22.77	21.74	PASS
		25	12	22.62	21.60	PASS
		25	25	22.56	21.60	PASS
		50	0	22.56	21.71	PASS
	MCH	1	0	23.28	22.73	PASS
		1	24	22.95	22.44	PASS
		1	49	22.57	21.93	PASS
		25	0	22.12	21.16	PASS
		25	12	22.09	21.13	PASS
		25	25	22.16	21.19	PASS
		50	0	22.05	21.04	PASS
	HCH	1	0	22.43	21.83	PASS
		1	24	22.98	22.26	PASS
		1	49	22.45	21.94	PASS
		25	0	22.41	21.45	PASS
		25	12	22.69	21.76	PASS
		25	25	22.80	21.83	PASS
		50	0	22.68	21.70	PASS

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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	22.87	22.47	PASS
		1	37	22.75	21.88	PASS
		1	74	22.99	22.39	PASS
		37	0	22.63	21.74	PASS
		37	18	22.45	21.48	PASS
		37	38	22.34	21.37	PASS
		75	0	22.49	21.56	PASS
	MCH	1	0	23.16	22.48	PASS
		1	37	22.91	22.52	PASS
		1	74	22.98	21.99	PASS
		37	0	22.11	21.13	PASS
		37	18	23.01	21.99	PASS
		37	38	22.75	21.77	PASS
		75	0	22.91	21.94	PASS
	HCH	1	0	22.30	21.62	PASS
		1	37	22.20	21.52	PASS
		1	74	22.66	22.06	PASS
		37	0	22.26	21.33	PASS
		37	18	22.39	21.45	PASS
		37	38	22.71	21.77	PASS
		75	0	22.46	21.51	PASS

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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	22.87	22.29	PASS
		1	49	22.40	21.66	PASS
		1	99	22.37	21.35	PASS
		50	0	22.51	21.43	PASS
		50	25	22.33	21.40	PASS
		50	50	22.50	21.59	PASS
		100	0	22.52	21.61	PASS
	MCH	1	0	23.04	22.21	PASS
		1	49	22.99	22.22	PASS
		1	99	22.19	21.61	PASS
		50	0	22.11	21.14	PASS
		50	25	22.96	21.98	PASS
		50	50	22.67	21.65	PASS
		100	0	22.84	21.87	PASS
	HCH	1	0	22.19	21.71	PASS
		1	49	22.05	21.29	PASS
		1	99	22.69	22.07	PASS
		50	0	22.26	21.33	PASS
		50	25	22.29	21.41	PASS
		50	50	22.64	21.71	PASS
		100	0	22.46	21.42	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	5.15	<13	PASS
	MCH	5.33	<13	PASS
	HCH	4.15	<13	PASS
16QAM	LCH	6.02	<13	PASS
	MCH	6.19	<13	PASS
	HCH	5.02	<13	PASS

Peak-to Average Ratio Test Result (Channel Bandwidth: 3 MHz)				
Modulation	Channel	Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
QPSK	LCH	5.11	<13	PASS
	MCH	5.33	<13	PASS
	HCH	4.44	<13	PASS
16QAM	LCH	6.06	<13	PASS
	MCH	6.27	<13	PASS
	HCH	5.23	<13	PASS

Peak-to Average Ratio Test Result (Channel Bandwidth: 5 MHz)				
Modulation	Channel	Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
QPSK	LCH	5.04	<13	PASS
	MCH	5.27	<13	PASS
	HCH	4.47	<13	PASS
16QAM	LCH	5.85	<13	PASS
	MCH	6.16	<13	PASS
	HCH	5.34	<13	PASS

Peak-to Average Ratio Test Result (Channel Bandwidth: 10 MHz)				
Modulation	Channel	Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
QPSK	LCH	4.97	<13	PASS
	MCH	5.21	<13	PASS
	HCH	4.94	<13	PASS
16QAM	LCH	5.83	<13	PASS
	MCH	6.06	<13	PASS
	HCH	5.79	<13	PASS

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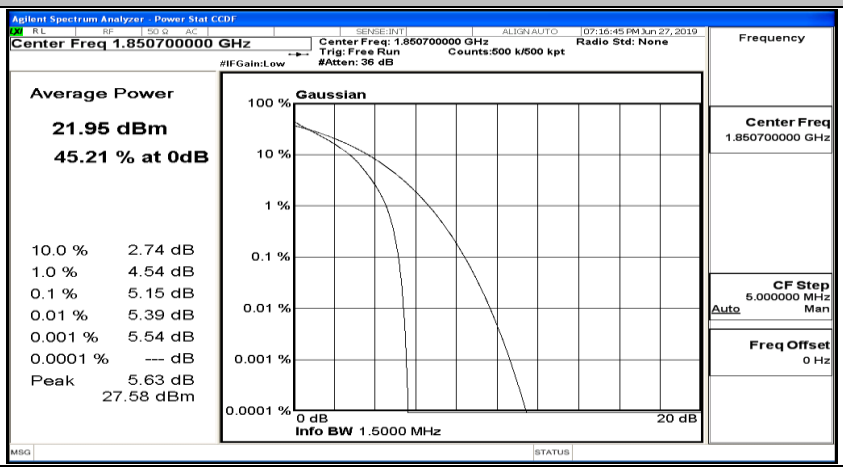
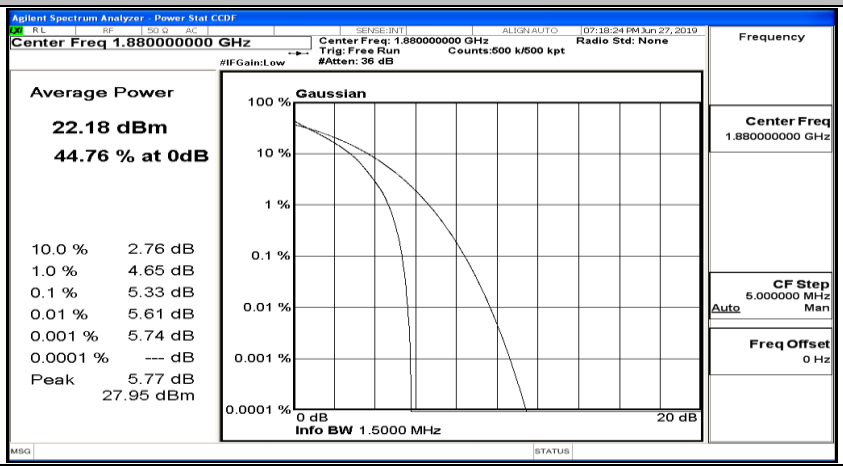
Peak-to Average Ratio Test Result (Channel Bandwidth: 15 MHz)				
Modulation	Channel	Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
QPSK	LCH	4.86	<13	PASS
	MCH	5.01	<13	PASS
	HCH	5.12	<13	PASS
16QAM	LCH	6.17	<13	PASS
	MCH	6.34	<13	PASS
	HCH	6.4	<13	PASS

Peak-to Average Ratio Test Result (Channel Bandwidth: 20 MHz)				
Modulation	Channel	Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
QPSK	LCH	5.72	<13	PASS
	MCH	5.75	<13	PASS
	HCH	5.86	<13	PASS
16QAM	LCH	6.71	<13	PASS
	MCH	6.91	<13	PASS
	HCH	6.89	<13	PASS

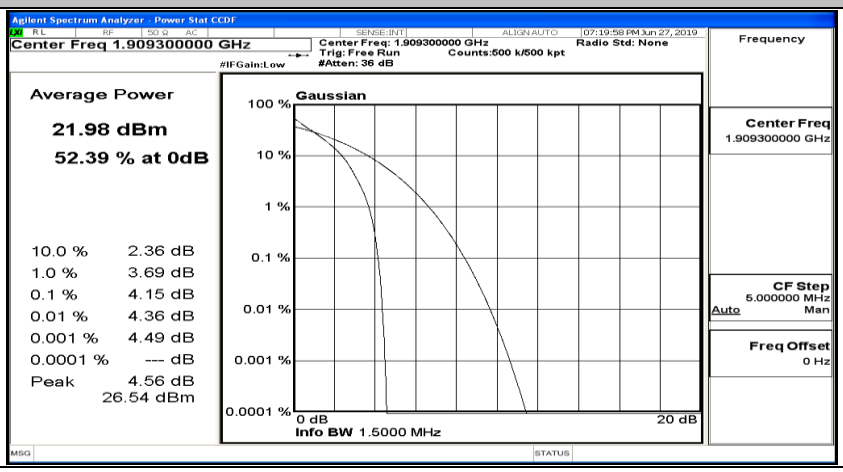
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 1.4 MHz)_LCH_QPSK



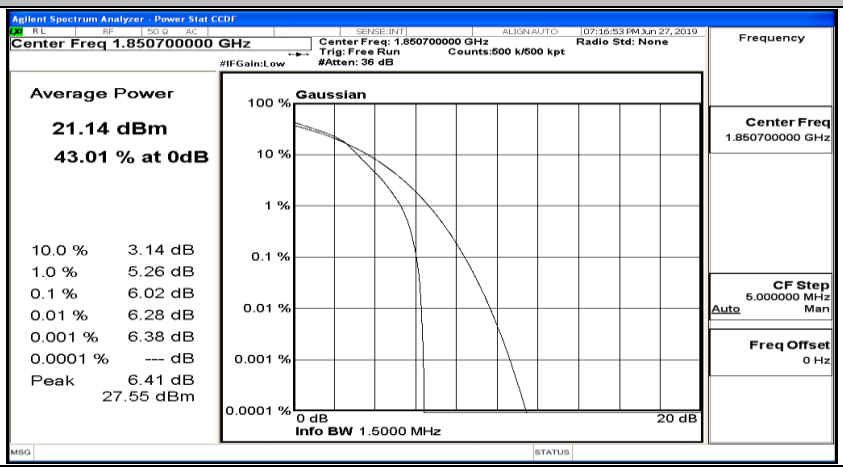
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 1.4 MHz)_MCH_QPSK



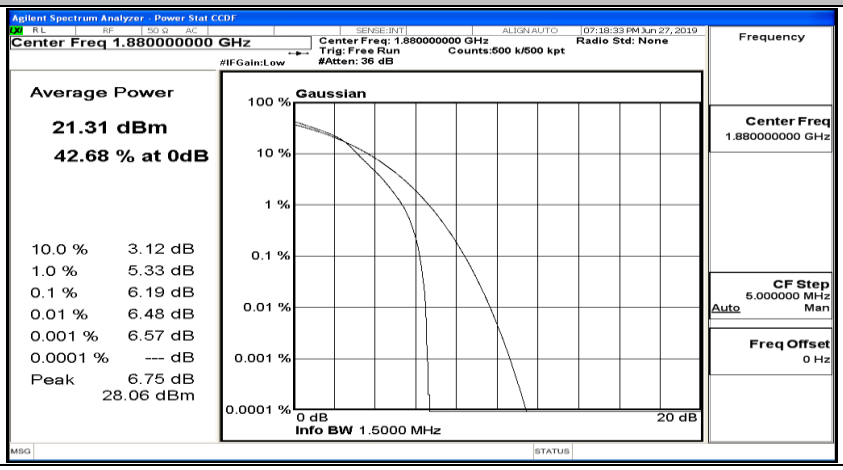
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 1.4 MHz)_HCH_QPSK



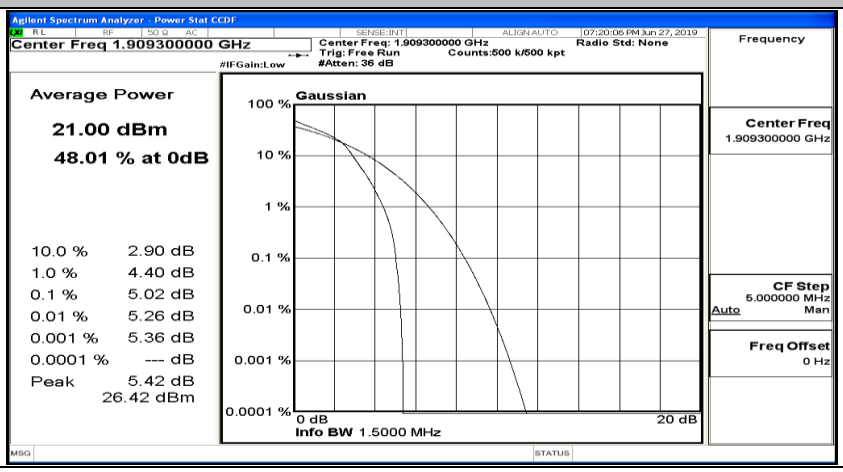
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 1.4 MHz)_LCH_16QAM



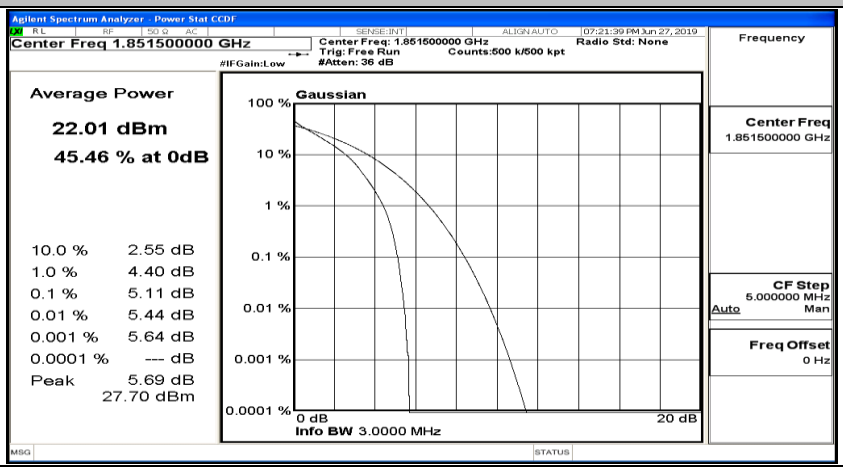
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 1.4 MHz)_MCH_16QAM



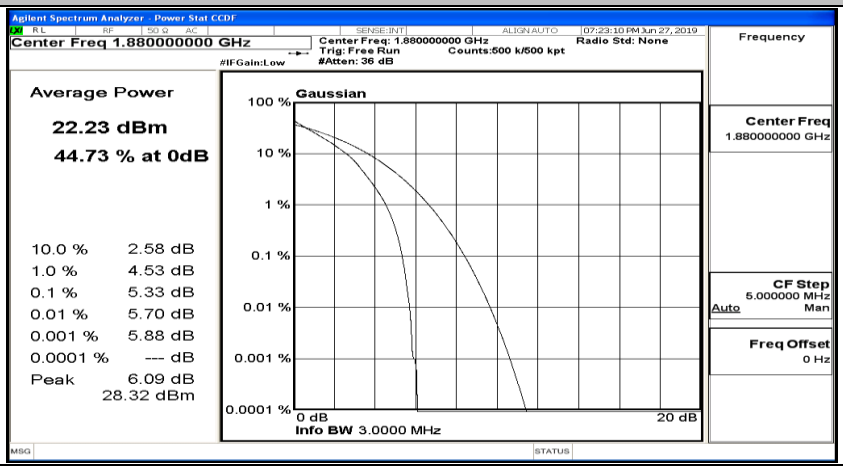
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 1.4 MHz)_HCH_16QAM



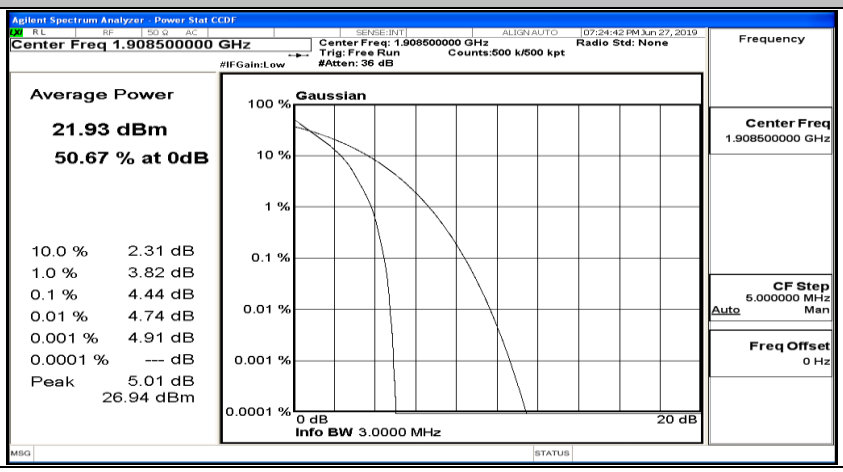
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 3 MHz)_LCH_QPSK



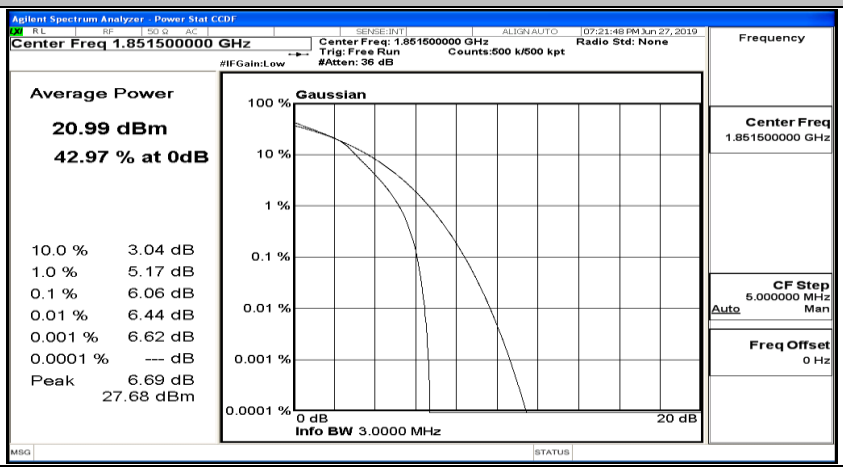
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 3 MHz)_MCH_QPSK



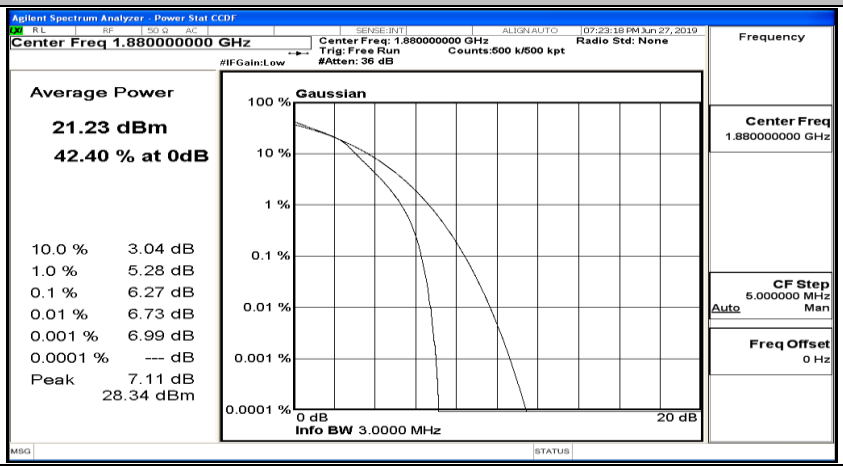
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 3 MHz)_HCH_QPSK



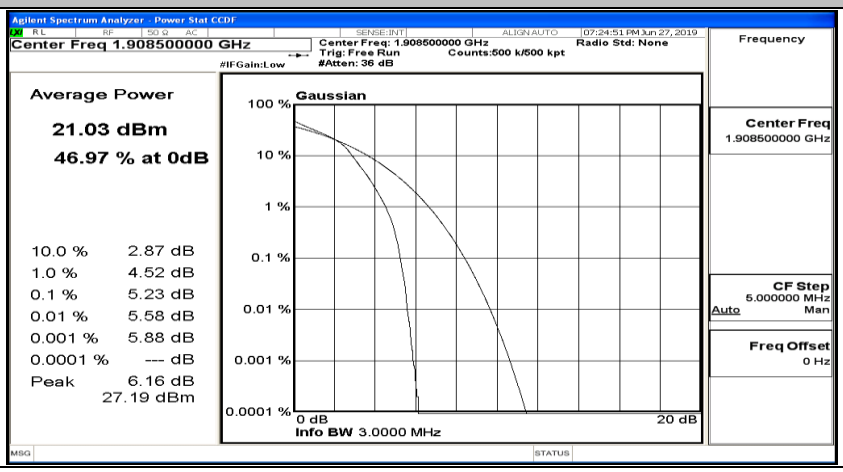
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 3 MHz)_LCH_16QAM



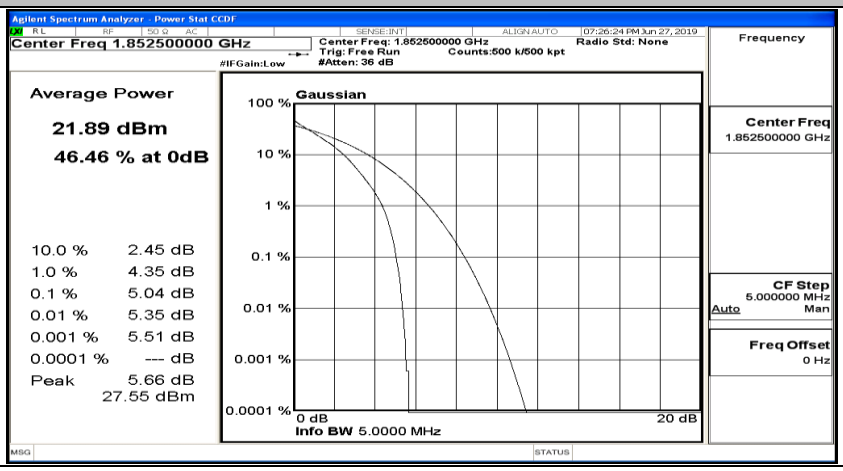
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 3 MHz)_MCH_16QAM



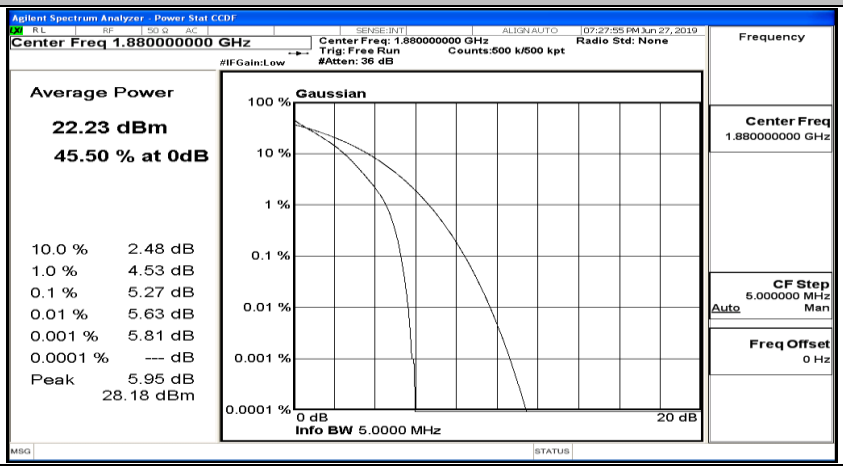
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 3 MHz)_HCH_16QAM



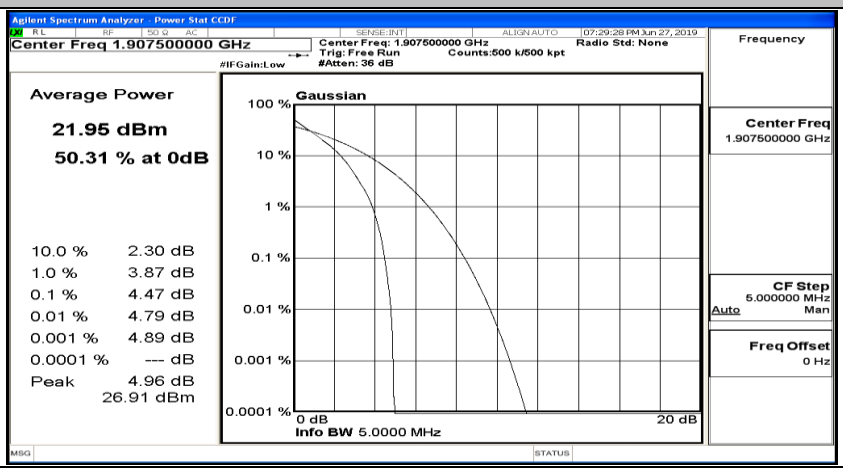
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_QPSK



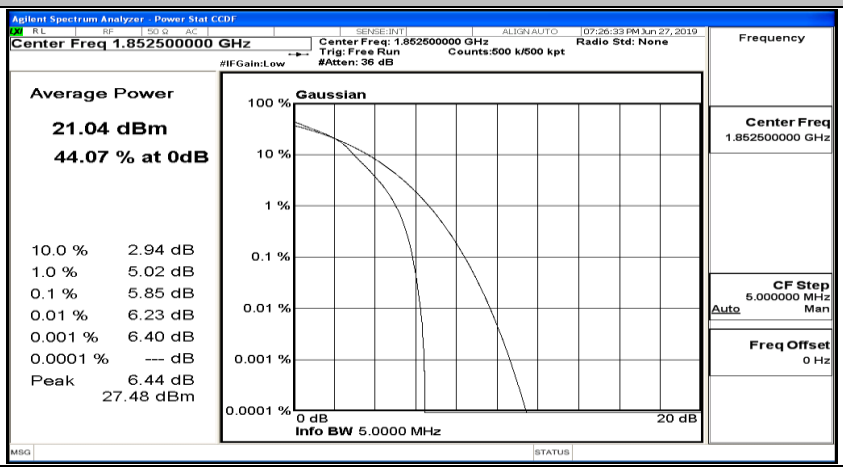
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)_MCH_QPSK



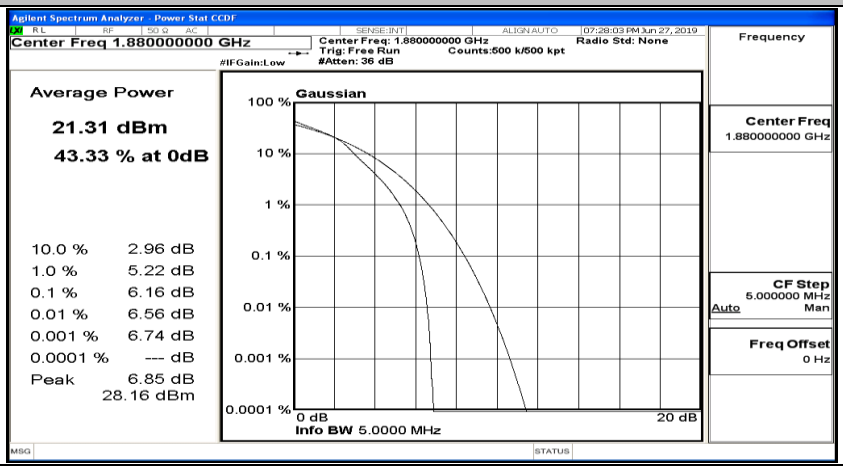
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)_HCH_QPSK



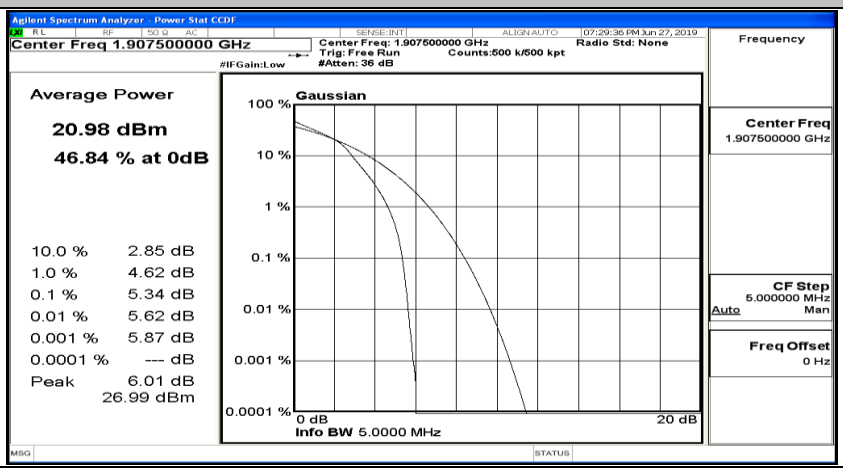
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_16QAM



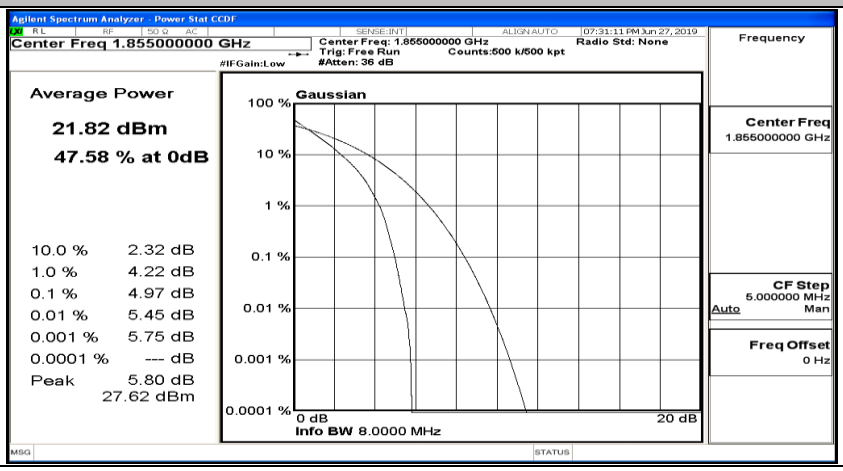
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)_MCH_16QAM



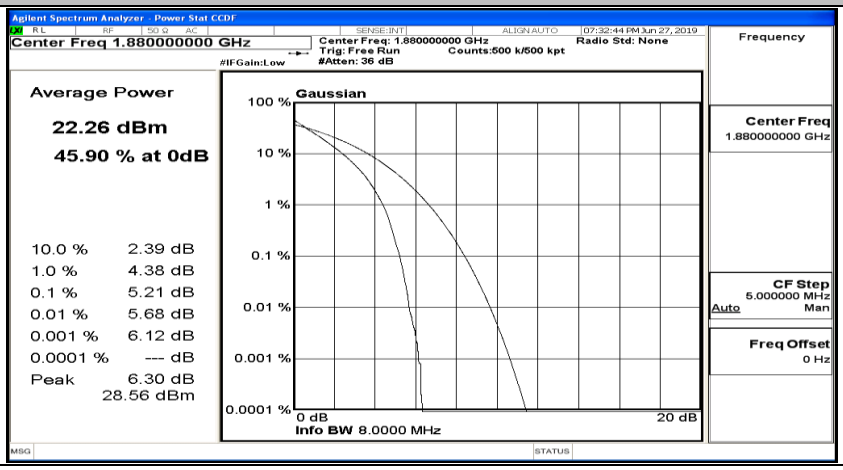
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)_HCH_16QAM



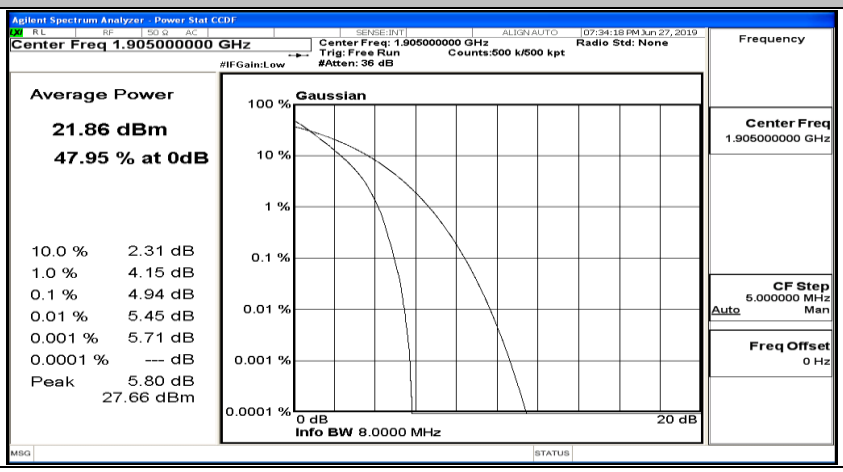
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 10 MHz)_LCH_QPSK



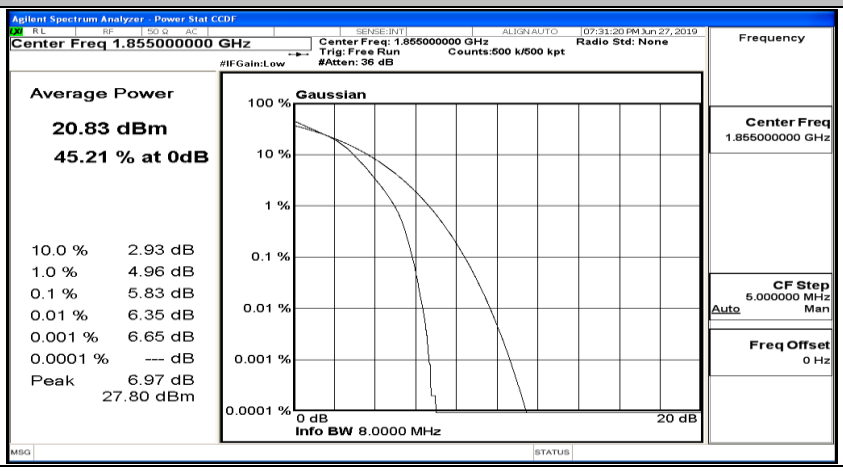
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 10 MHz)_MCH_QPSK



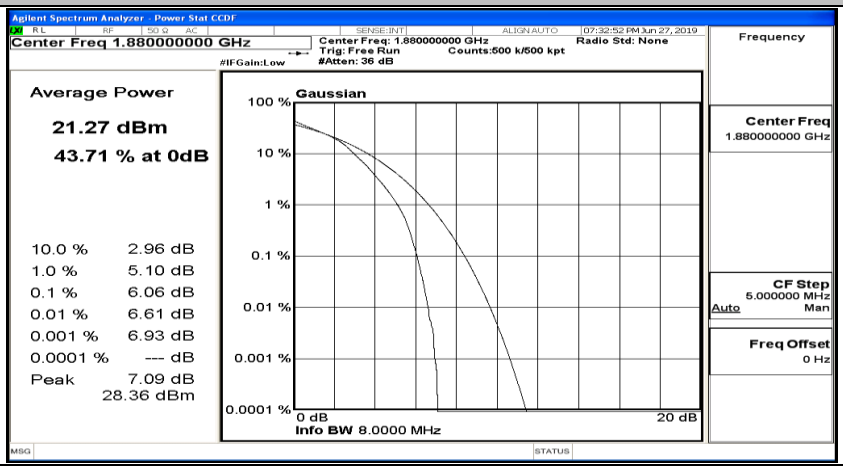
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 10 MHz)_HCH_QPSK



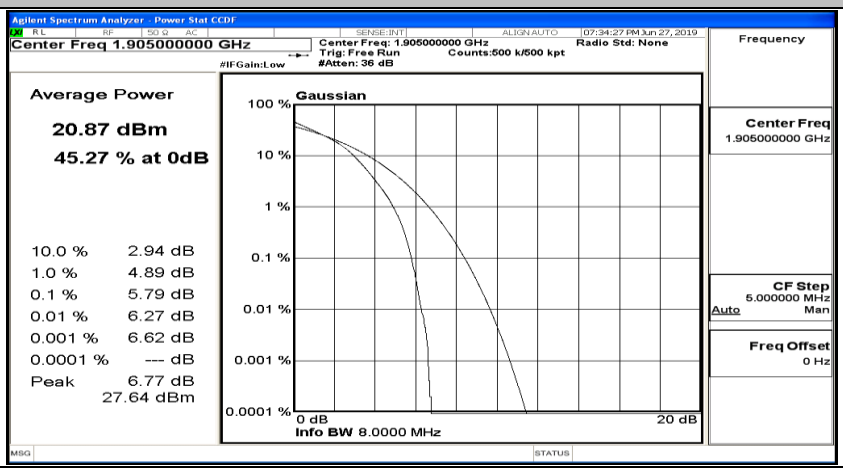
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 10 MHz)_LCH_16QAM



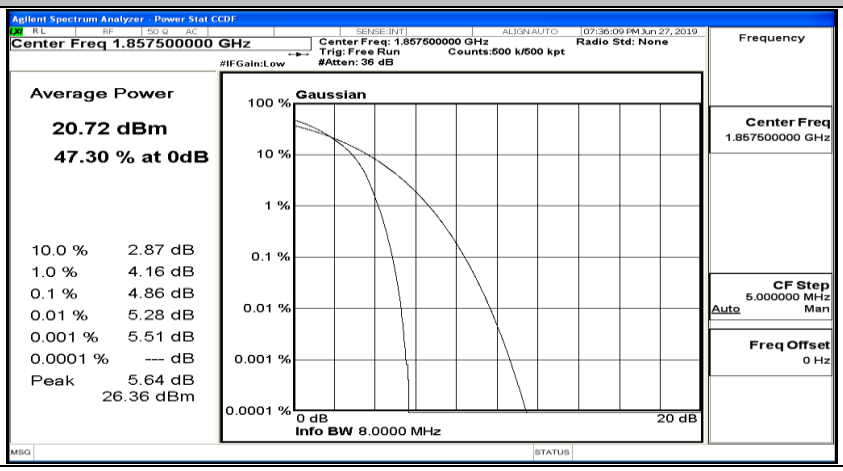
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 10 MHz)_MCH_16QAM



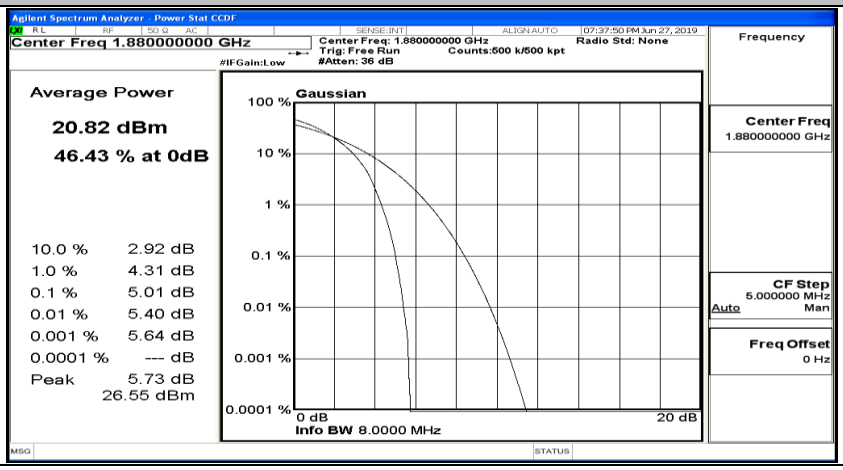
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 10 MHz)_HCH_16QAM



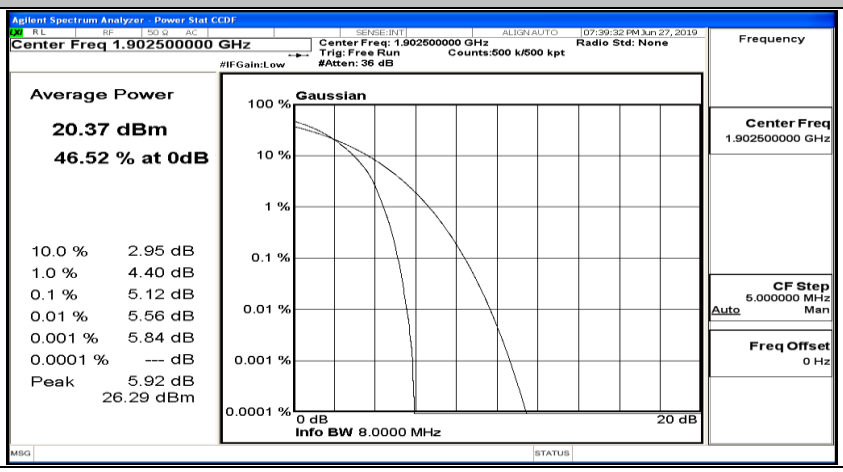
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:15 MHz)_LCH_QPSK



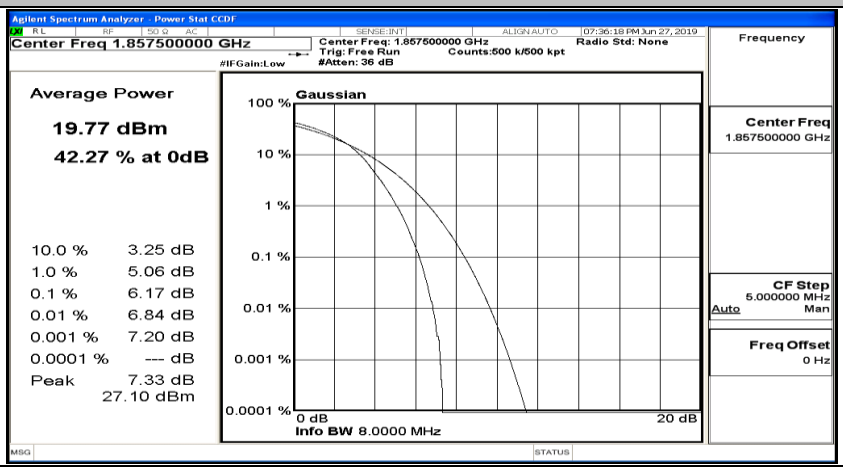
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:15 MHz)_MCH_QPSK



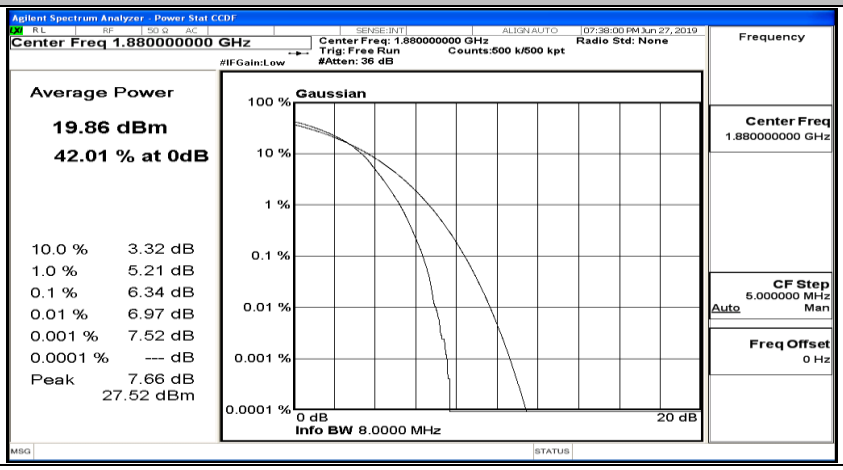
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:15 MHz)_HCH_QPSK



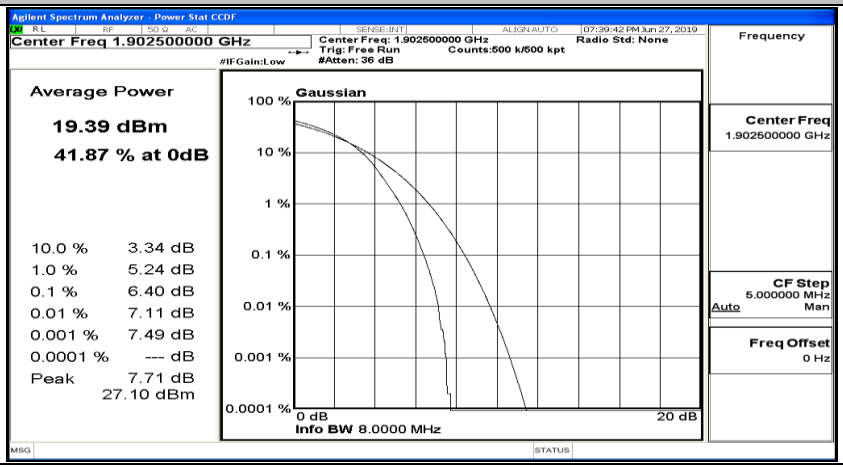
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:15 MHz)_LCH_16QAM



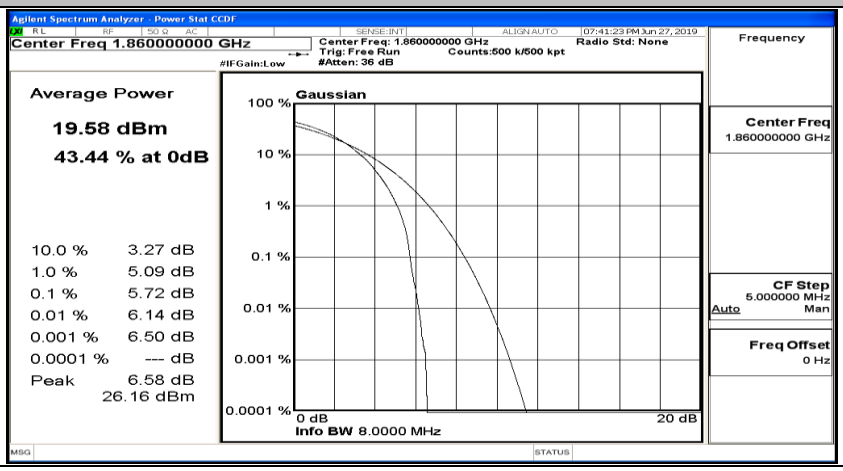
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:15 MHz)_MCH_16QAM



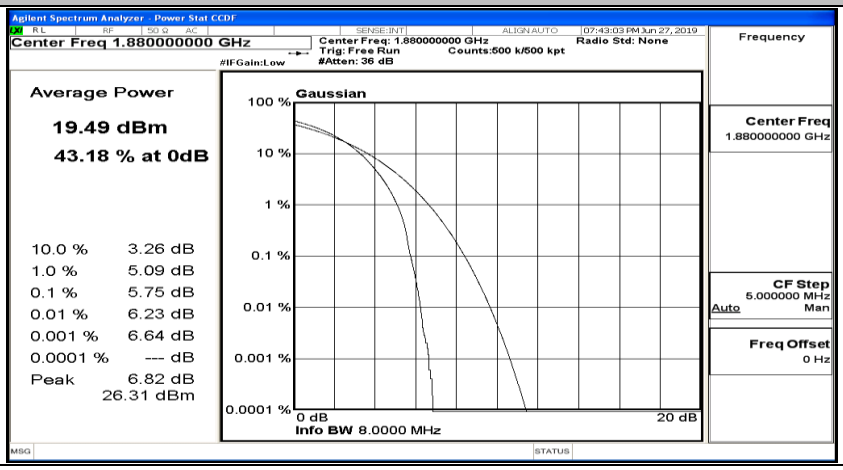
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:15 MHz)_HCH_16QAM



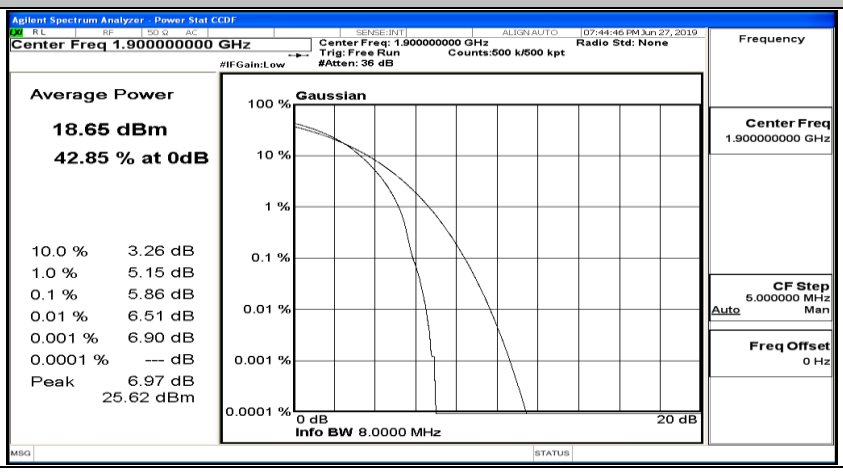
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:20 MHz)_LCH_QPSK



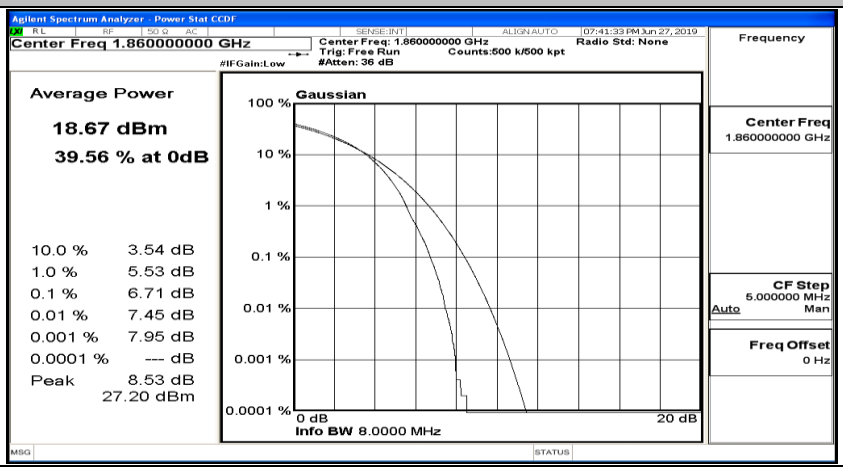
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:20 MHz)_MCH_QPSK



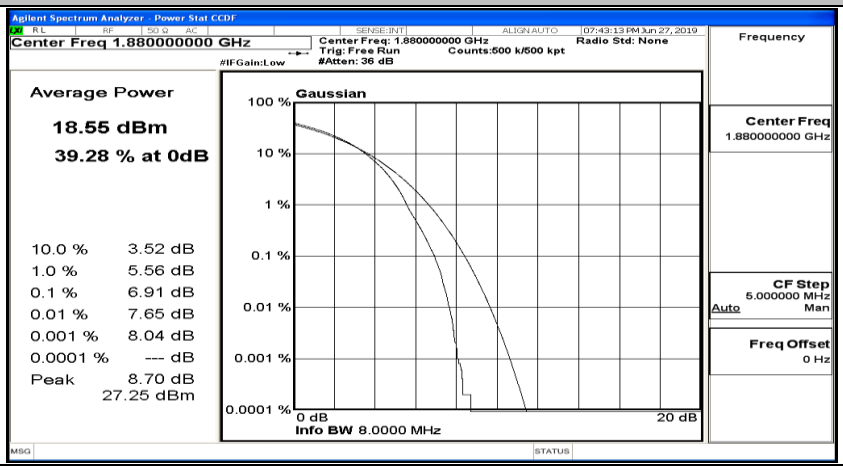
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:20 MHz)_HCH_QPSK



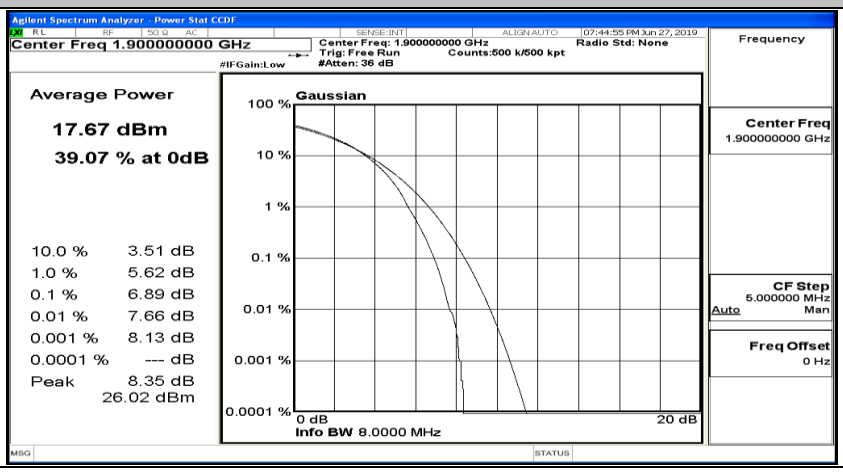
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:20 MHz)_LCH_16QAM



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	1.0789	1.271	PASS
	MCH	1.0778	1.236	PASS
	HCH	1.0822	1.311	PASS
16QAM	LCH	1.0827	1.278	PASS
	MCH	1.0790	1.279	PASS
	HCH	1.0796	1.285	PASS

EBW & OBW Test Result (Channel Bandwidth: 3 MHz)				
Modulation	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
QPSK	LCH	2.6849	2.891	PASS
	MCH	2.6867	2.881	PASS
	HCH	2.6896	2.944	PASS
16QAM	LCH	2.6909	2.958	PASS
	MCH	2.6842	2.878	PASS
	HCH	2.6828	2.954	PASS

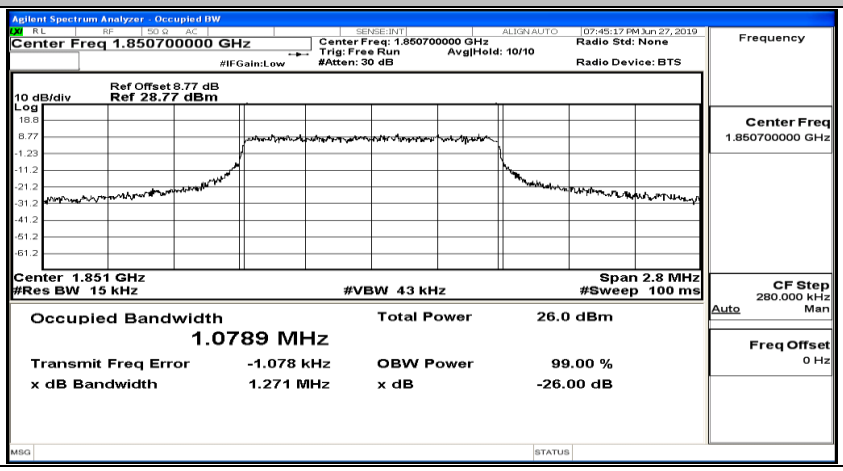
EBW & OBW Test Result (Channel Bandwidth: 5 MHz)				
Modulation	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
QPSK	LCH	4.4812	4.891	PASS
	MCH	4.4689	4.833	PASS
	HCH	4.4710	4.831	PASS
16QAM	LCH	4.4788	4.814	PASS
	MCH	4.4725	4.834	PASS
	HCH	4.4795	4.869	PASS

EBW & OBW Test Result (Channel Bandwidth: 10 MHz)				
Modulation	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
QPSK	LCH	8.9248	9.487	PASS
	MCH	8.9365	9.453	PASS
	HCH	8.9218	9.490	PASS
16QAM	LCH	8.9214	9.432	PASS
	MCH	8.9390	9.487	PASS
	HCH	8.9390	9.415	PASS

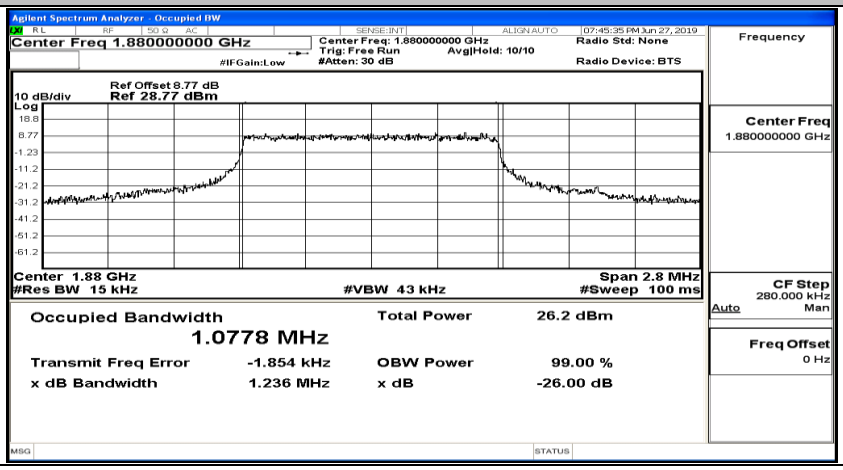
EBW & OBW Test Result (Channel Bandwidth: 15 MHz)				
Modulation	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
QPSK	LCH	13.360	14.00	PASS
	MCH	13.402	14.10	PASS
	HCH	13.409	14.05	PASS
16QAM	LCH	13.376	14.00	PASS
	MCH	13.413	14.05	PASS
	HCH	13.419	14.06	PASS

EBW & OBW Test Result (Channel Bandwidth: 20 MHz)				
Modulation	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
QPSK	LCH	17.824	18.60	PASS
	MCH	17.866	18.61	PASS
	HCH	17.912	18.75	PASS
16QAM	LCH	17.814	18.57	PASS
	MCH	17.880	18.63	PASS
	HCH	17.894	18.65	PASS

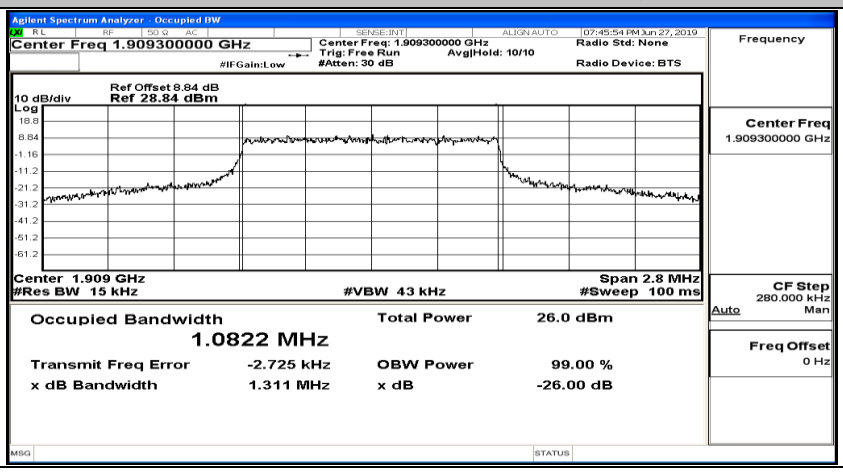
EBW & OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)_LCH_QPSK



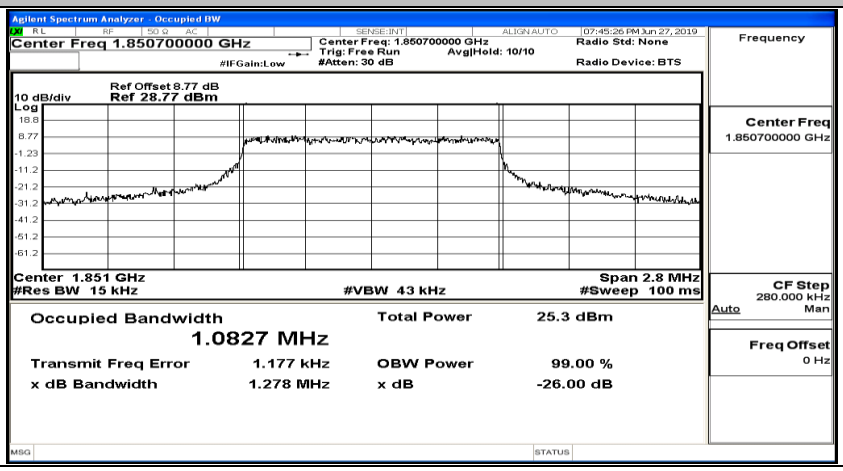
EBW & OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)_MCH_QPSK



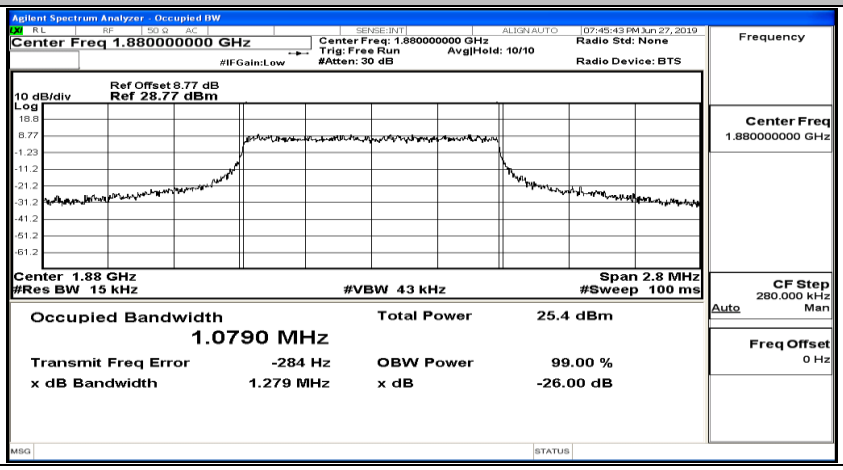
EBW & OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)_HCH_QPSK



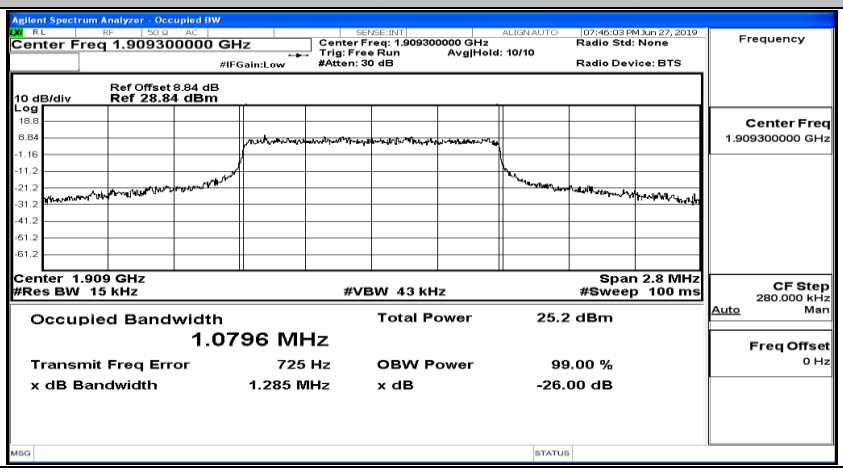
EBW & OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)_LCH_16QAM



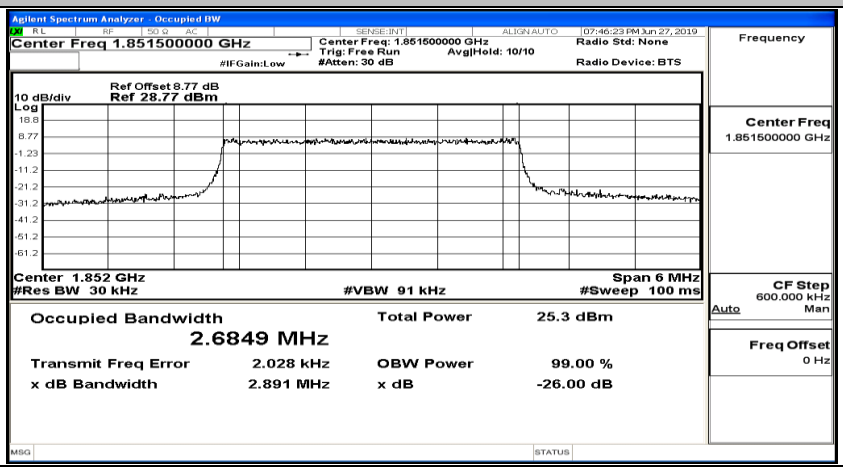
EBW & OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)_MCH_16QAM



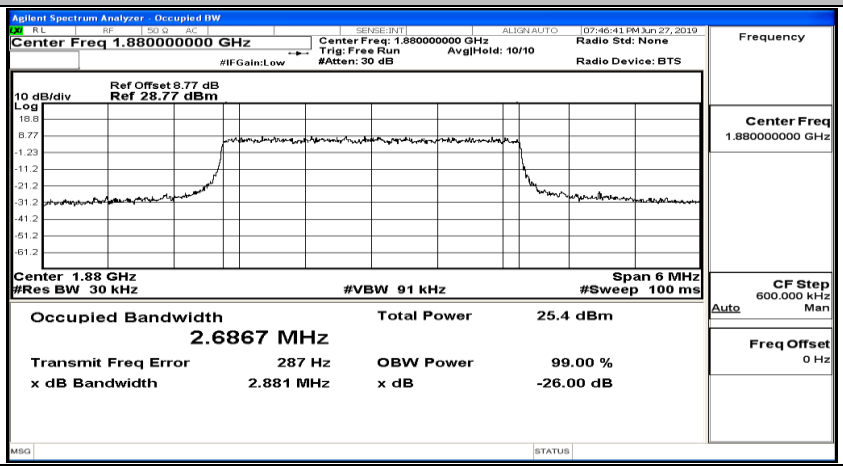
EBW & OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)_HCH_16QAM



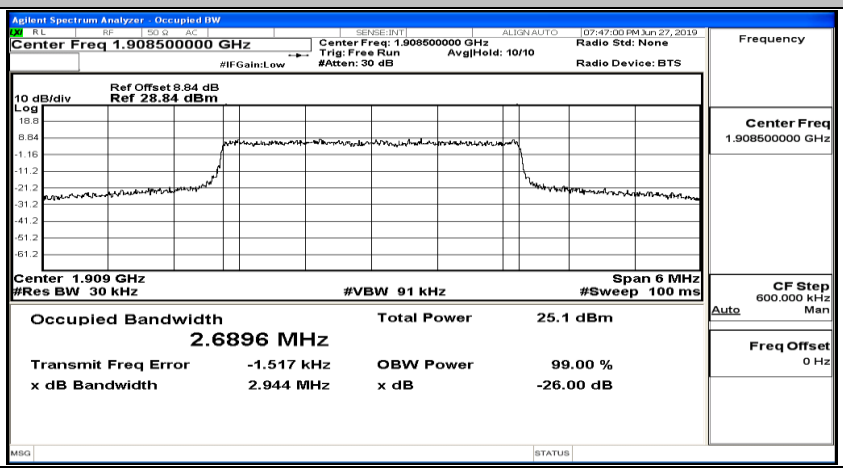
EBW & OBW Test Graph(s) (Channel Bandwidth: 3 MHz)_LCH_QPSK



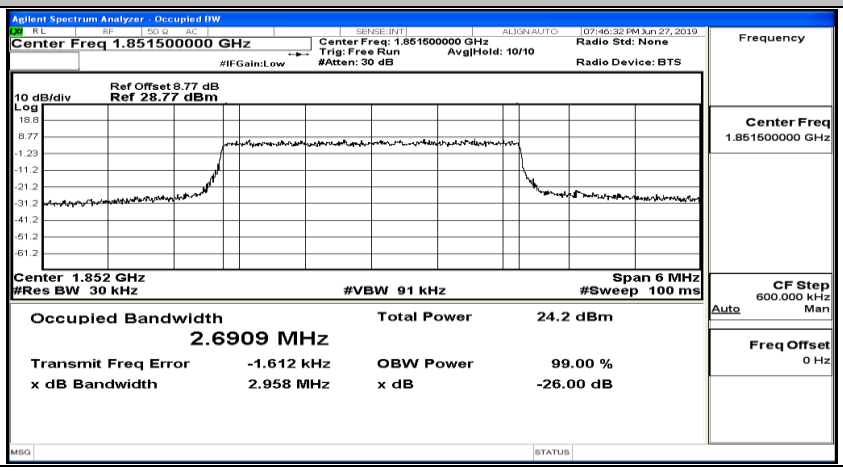
EBW & OBW Test Graph(s) (Channel Bandwidth: 3 MHz)_MCH_QPSK



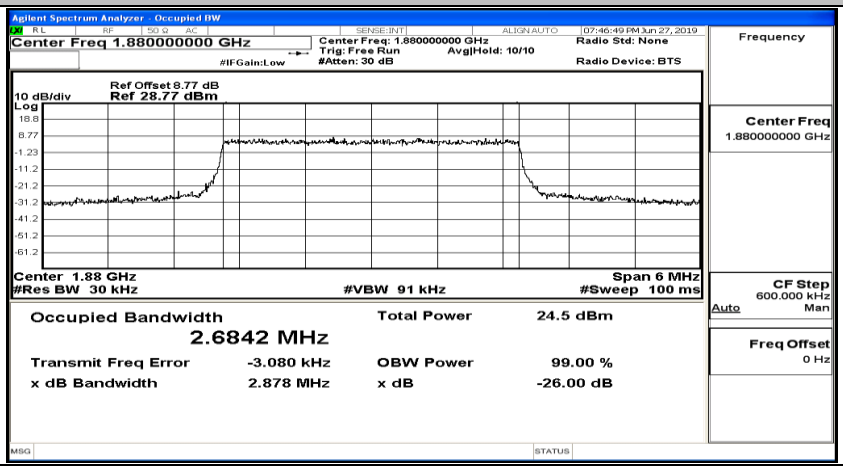
EBW & OBW Test Graph(s) (Channel Bandwidth: 3 MHz)_HCH_QPSK



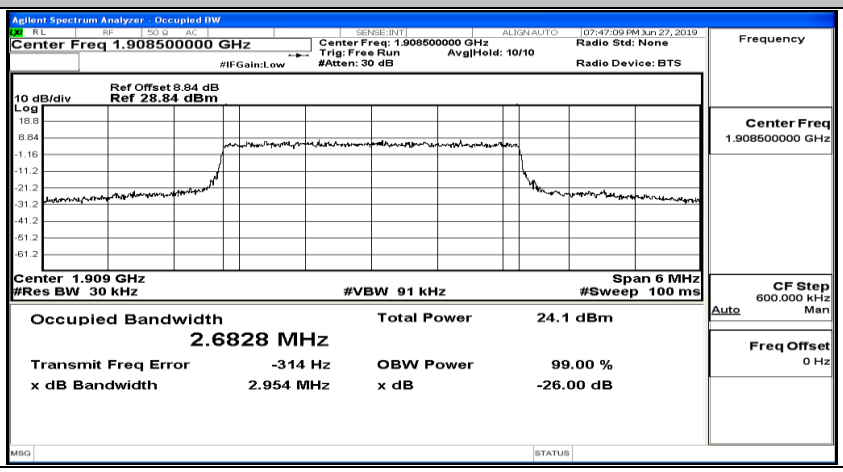
EBW & OBW Test Graph(s) (Channel Bandwidth: 3 MHz)_LCH_16QAM



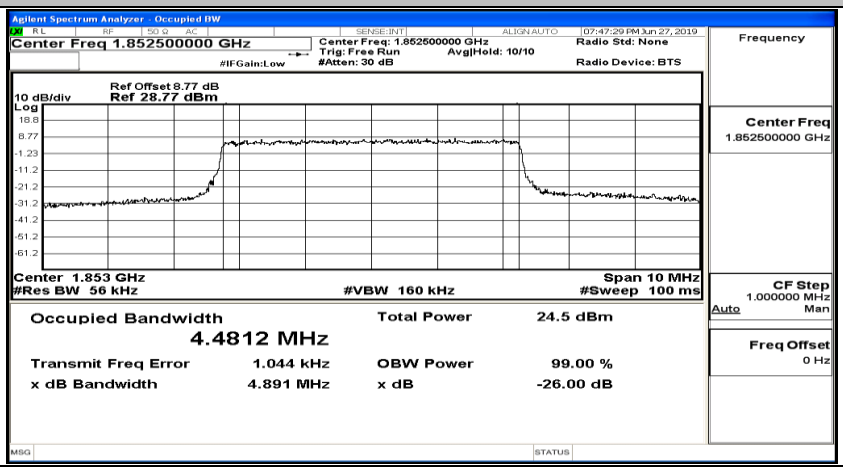
EBW & OBW Test Graph(s) (Channel Bandwidth: 3 MHz)_MCH_16QAM



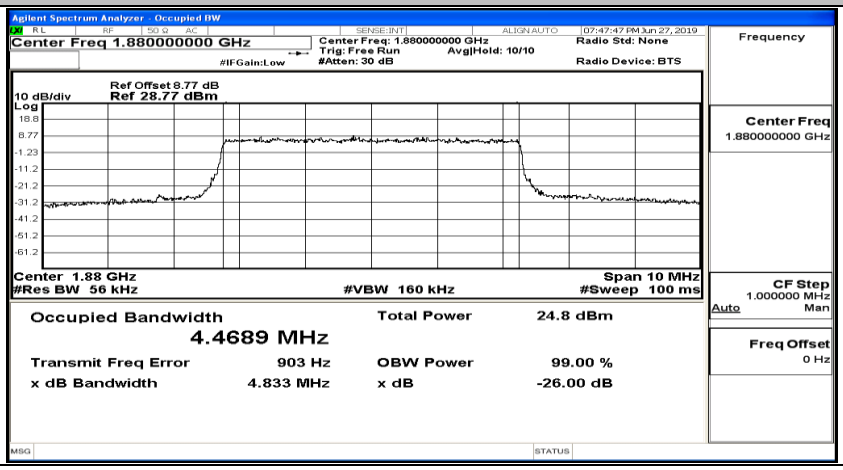
EBW & OBW Test Graph(s) (Channel Bandwidth: 3 MHz)_HCH_16QAM



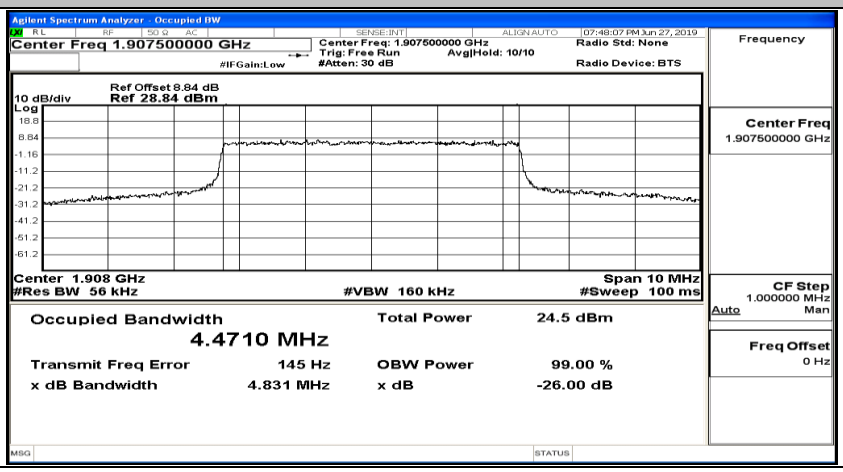
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_QPSK



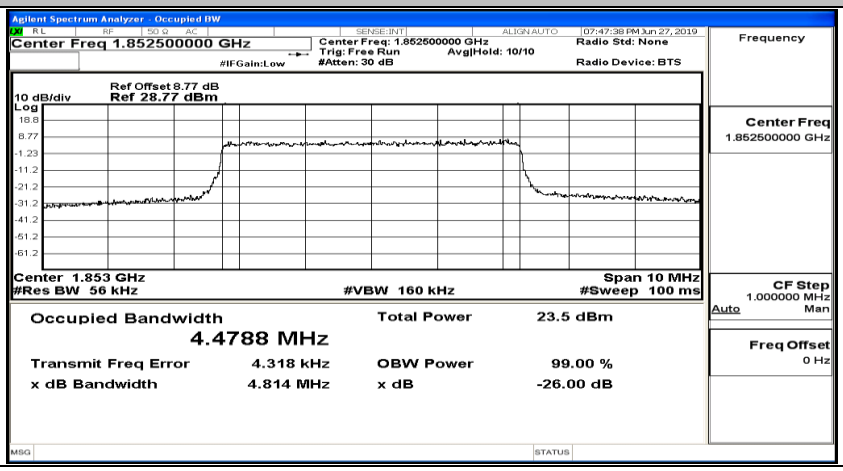
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)_MCH_QPSK



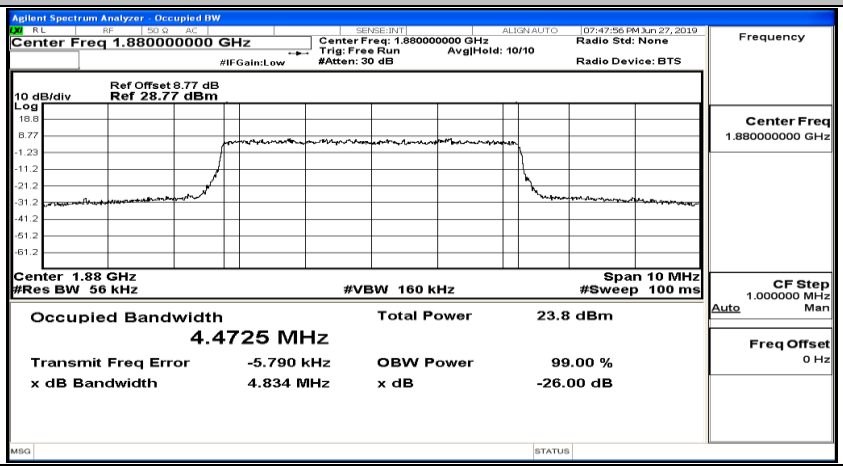
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)_HCH_QPSK



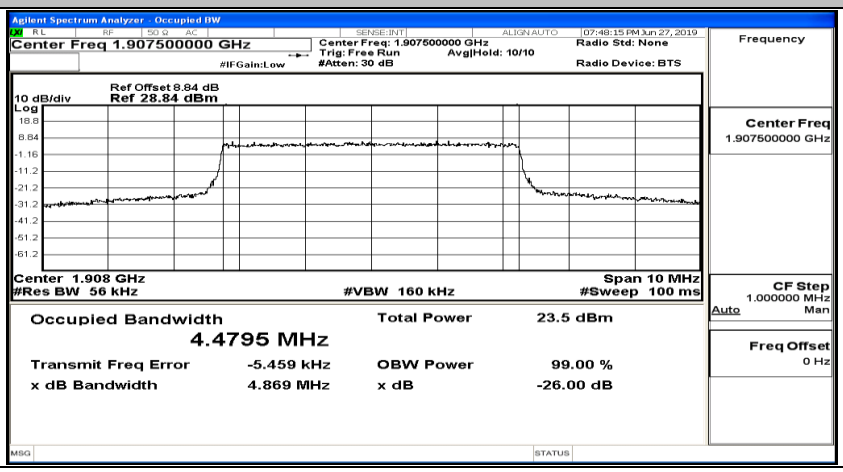
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_16QAM



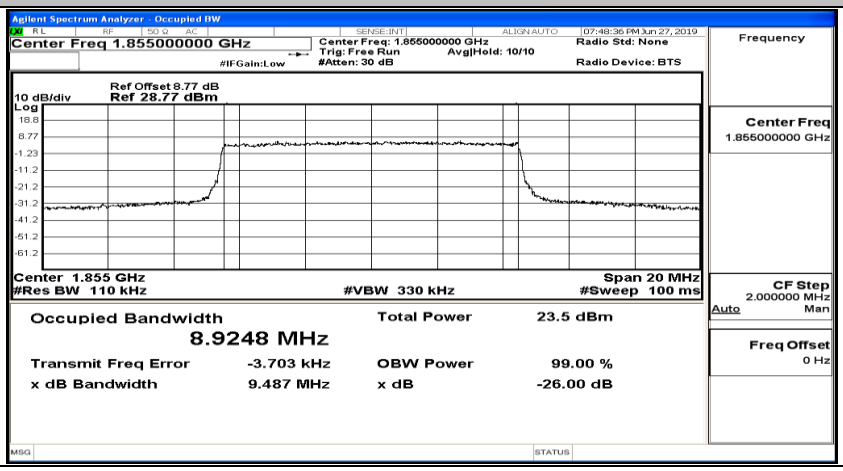
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)_MCH_16QAM



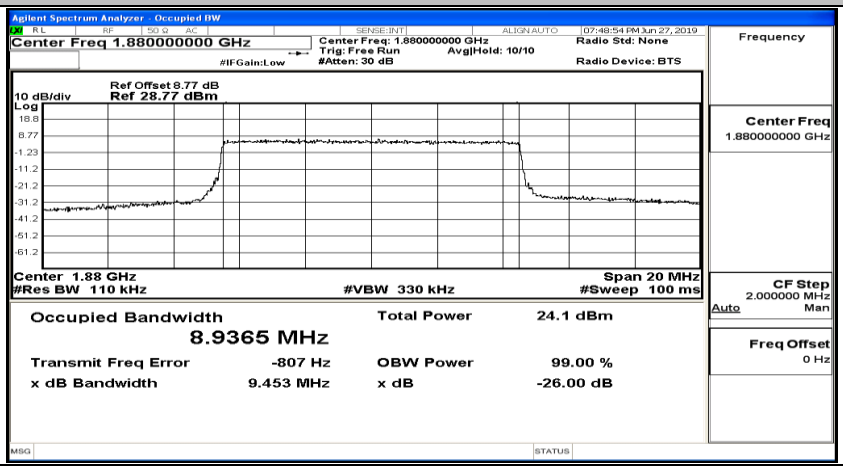
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)_HCH_16QAM



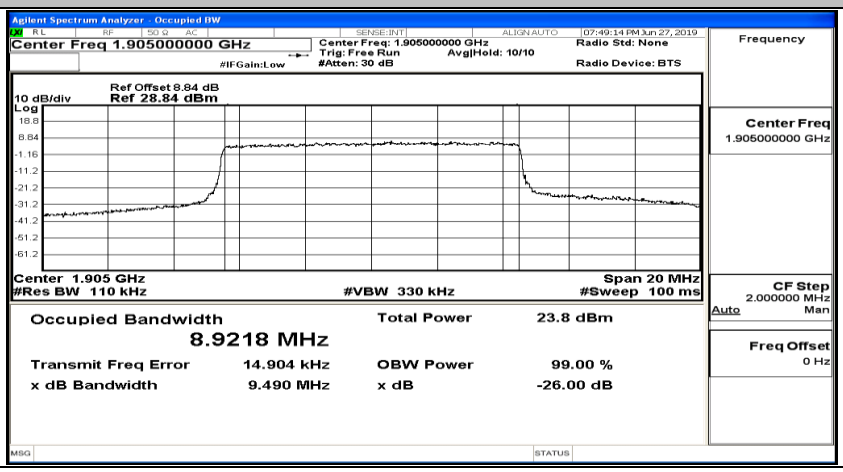
EBW & OBW Test Graph(s) (Channel Bandwidth: 10 MHz)_LCH_QPSK



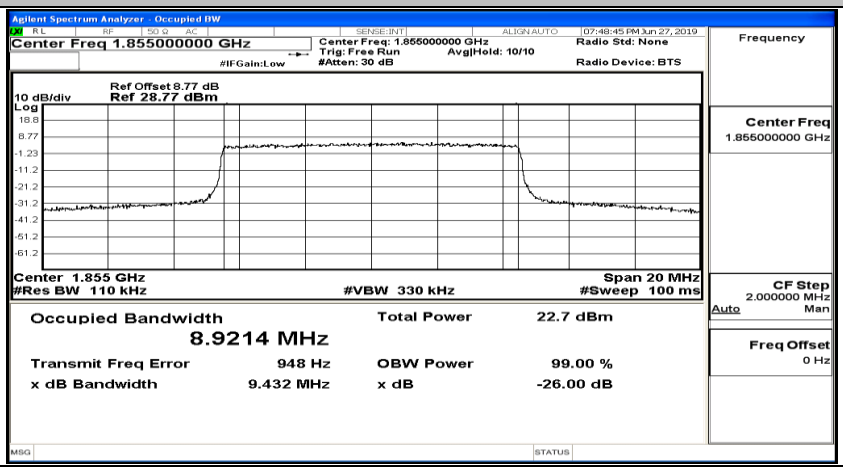
EBW & OBW Test Graph(s) (Channel Bandwidth: 10 MHz)_MCH_QPSK



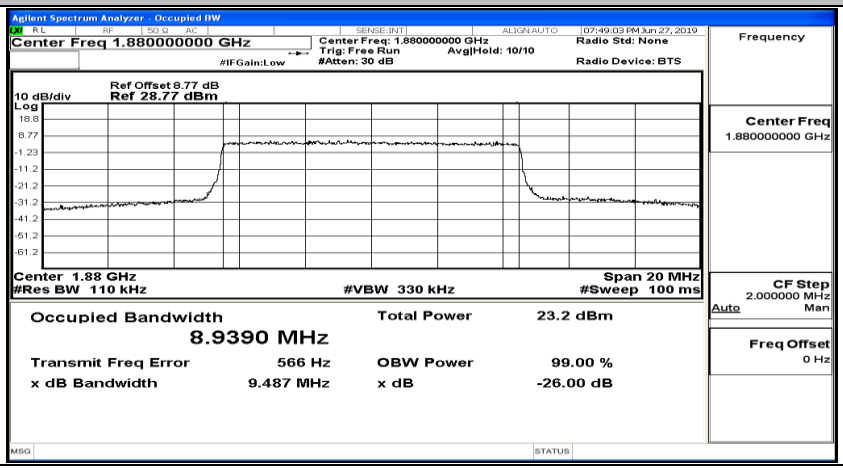
EBW & OBW Test Graph(s) (Channel Bandwidth: 10 MHz)_HCH_QPSK



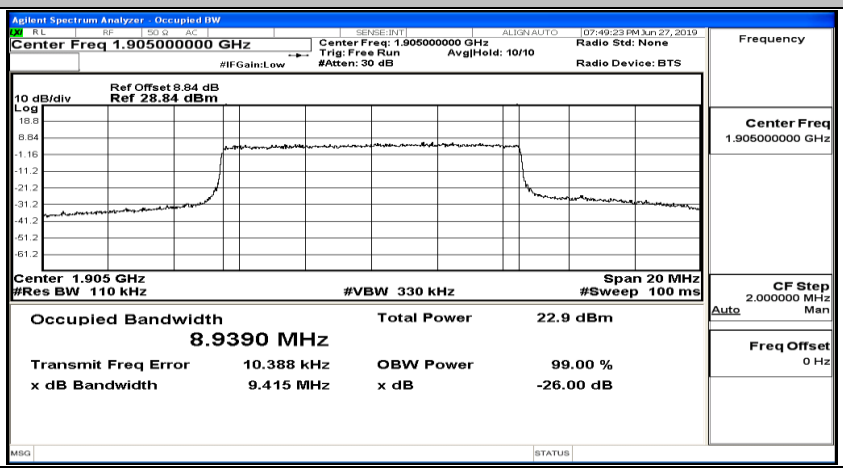
EBW & OBW Test Graph(s) (Channel Bandwidth: 10 MHz)_LCH_16QAM



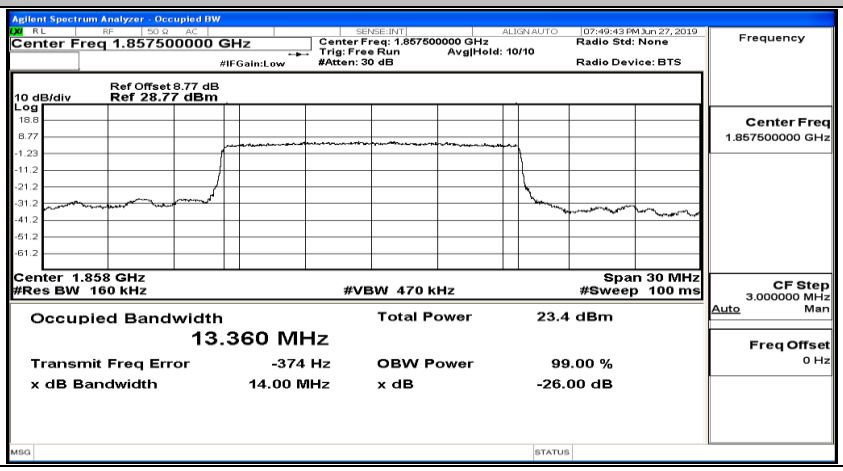
EBW & OBW Test Graph(s) (Channel Bandwidth: 10 MHz)_MCH_16QAM



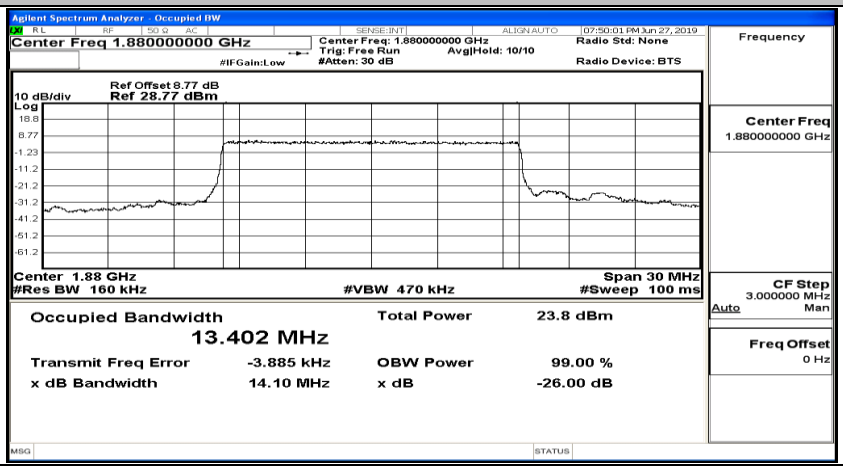
EBW & OBW Test Graph(s) (Channel Bandwidth: 10 MHz)_HCH_16QAM



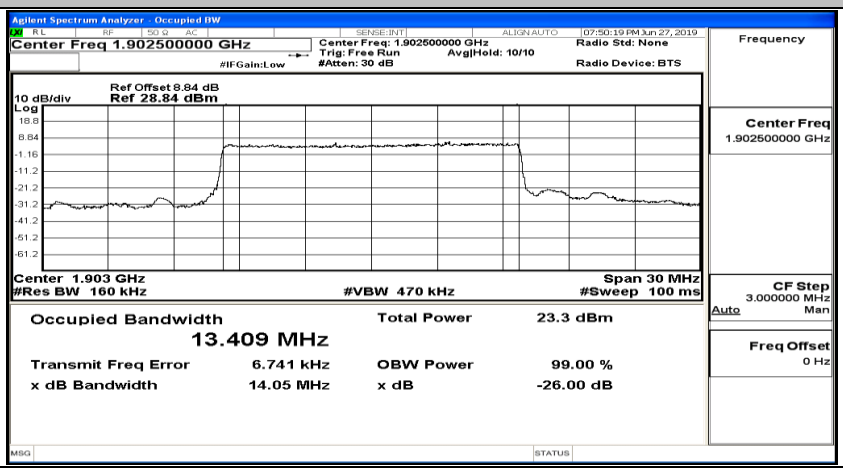
EBW & OBW Test Graph(s) (Channel Bandwidth:15 MHz)_LCH_QPSK



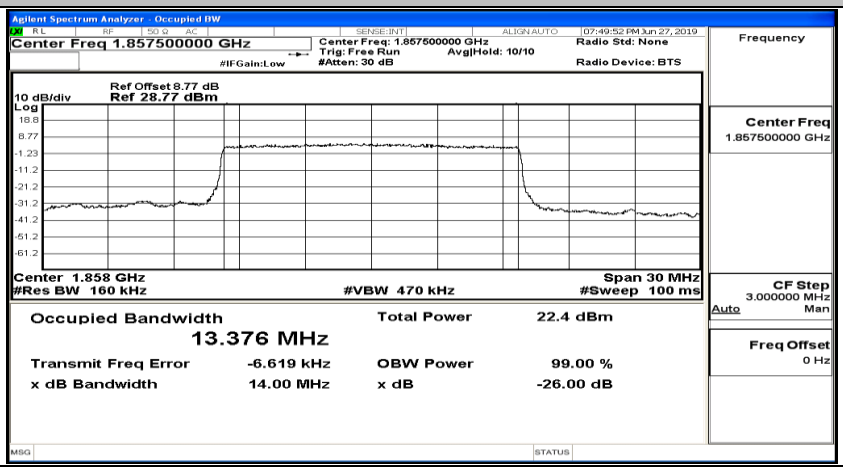
EBW & OBW Test Graph(s) (Channel Bandwidth:15 MHz)_MCH_QPSK



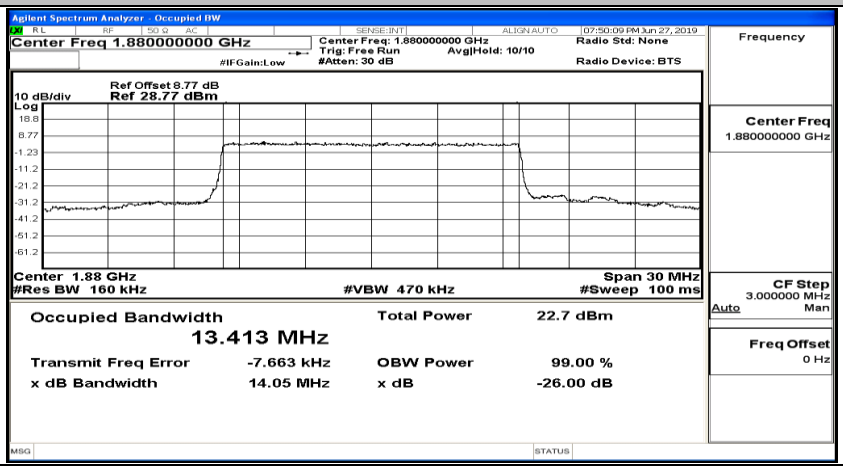
EBW & OBW Test Graph(s) (Channel Bandwidth:15 MHz)_HCH_QPSK



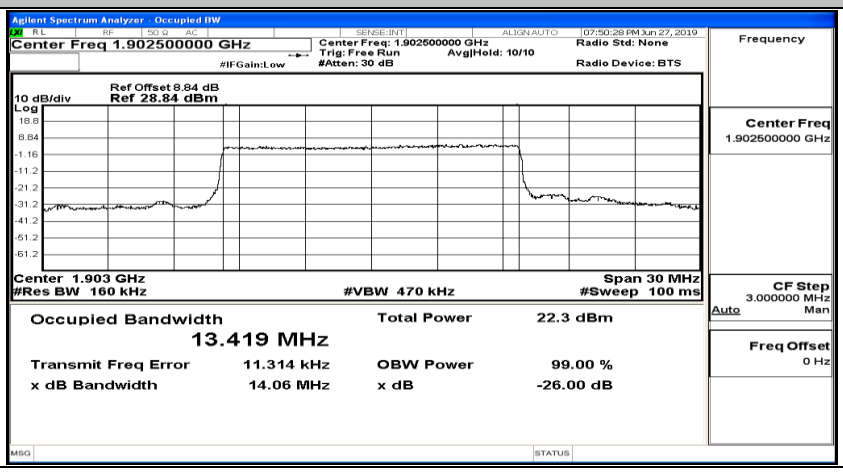
EBW & OBW Test Graph(s) (Channel Bandwidth:15 MHz)_LCH_16QAM



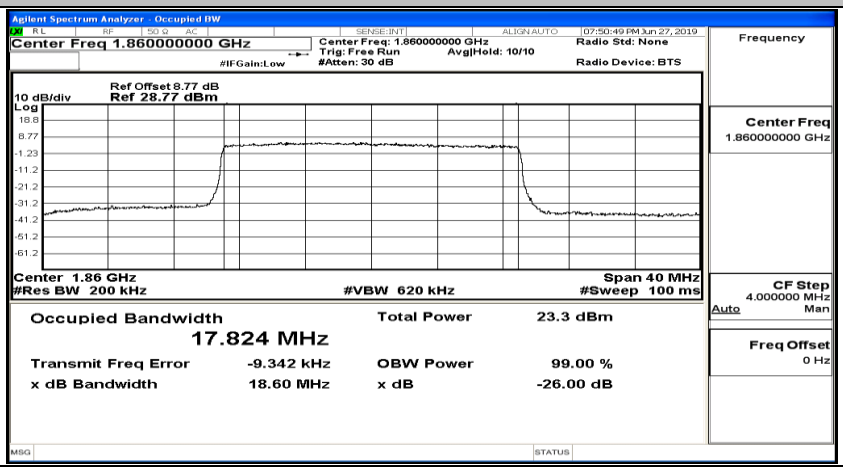
EBW & OBW Test Graph(s) (Channel Bandwidth:15 MHz)_MCH_16QAM



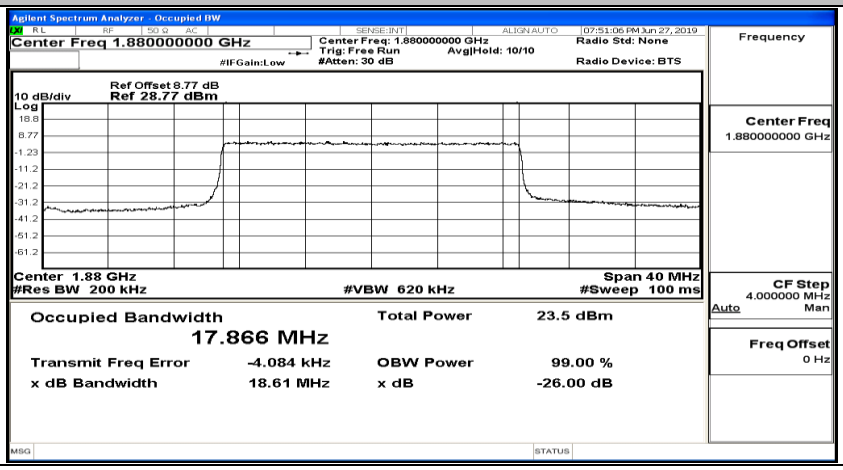
EBW & OBW Test Graph(s) (Channel Bandwidth:15 MHz)_HCH_16QAM



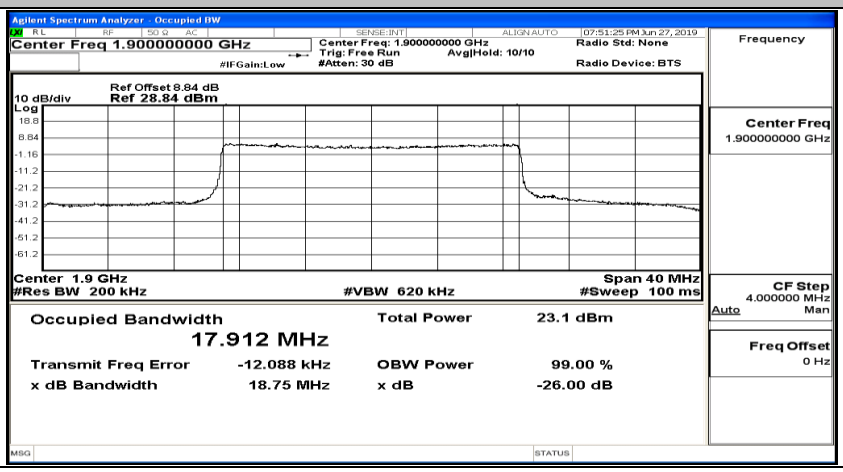
EBW & OBW Test Graph(s) (Channel Bandwidth:20 MHz)_LCH_QPSK



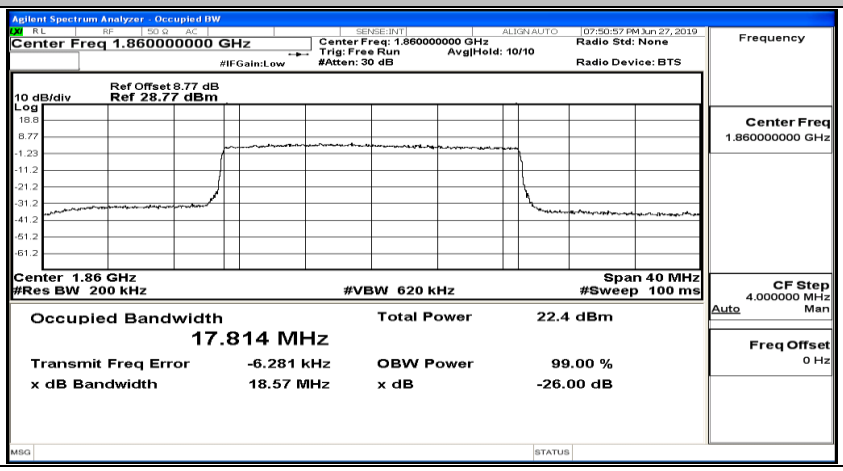
EBW & OBW Test Graph(s) (Channel Bandwidth:20 MHz)_MCH_QPSK



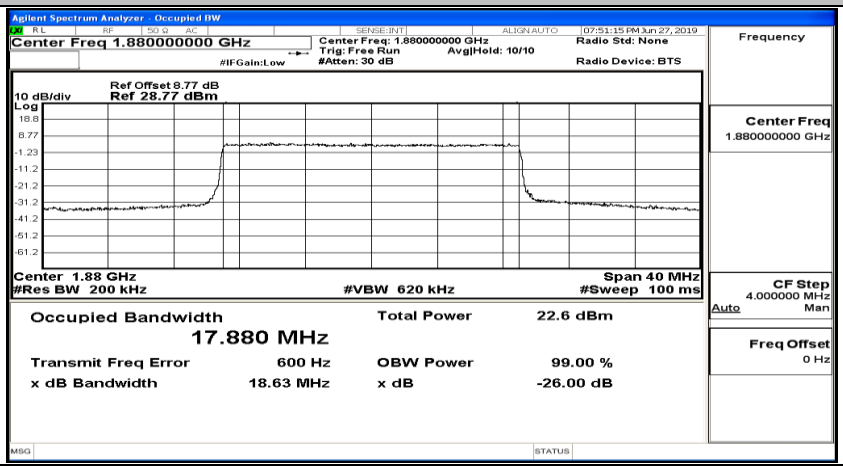
EBW & OBW Test Graph(s) (Channel Bandwidth:20 MHz)_HCH_QPSK



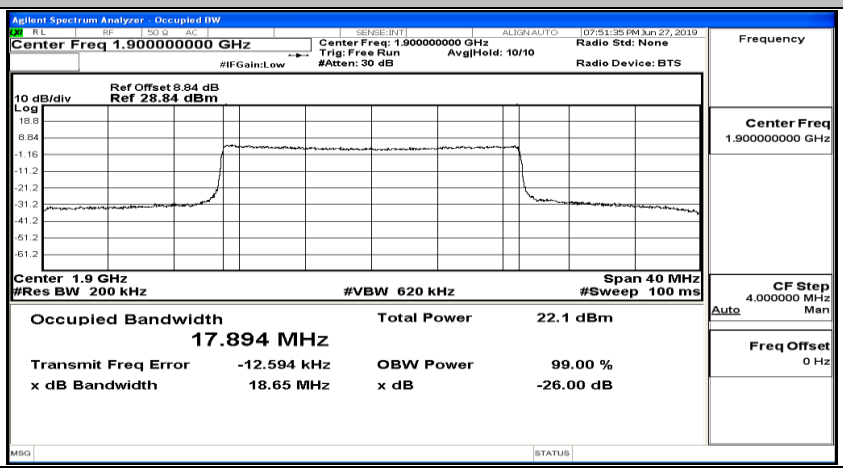
EBW & OBW Test Graph(s) (Channel Bandwidth:20 MHz)_LCH_16QAM



EBW & OBW Test Graph(s) (Channel Bandwidth:20 MHz)_MCH_16QAM

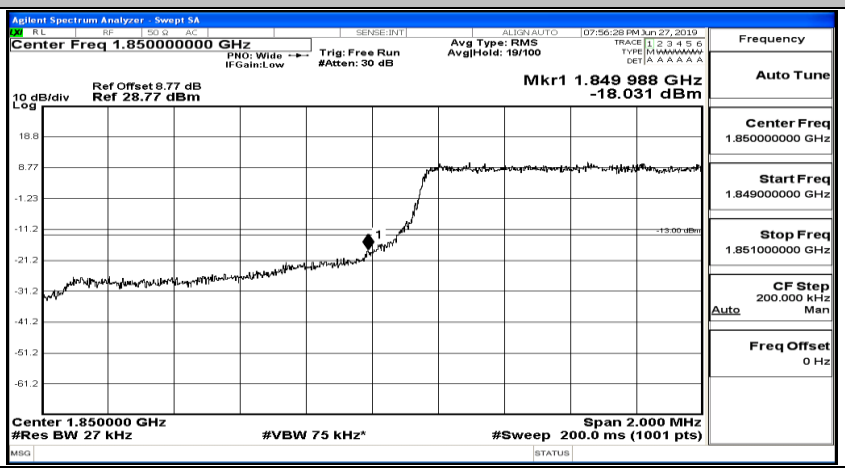


EBW & OBW Test Graph(s) (Channel Bandwidth:20 MHz)_HCH_16QAM

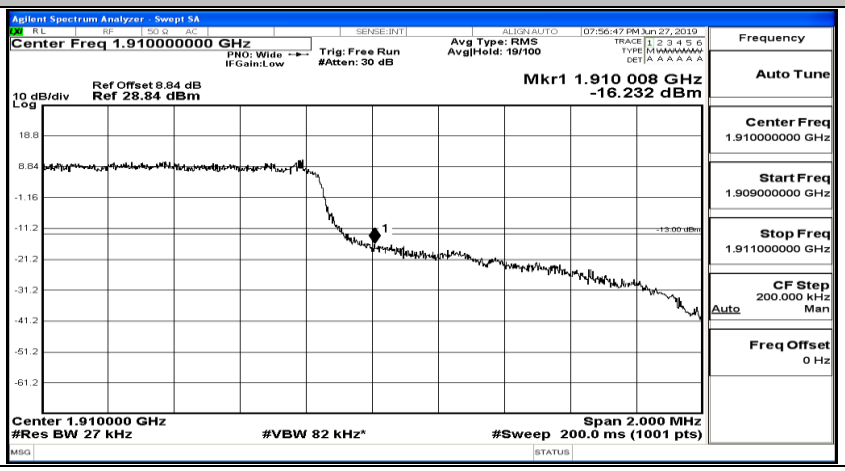


D.4 Band Edge

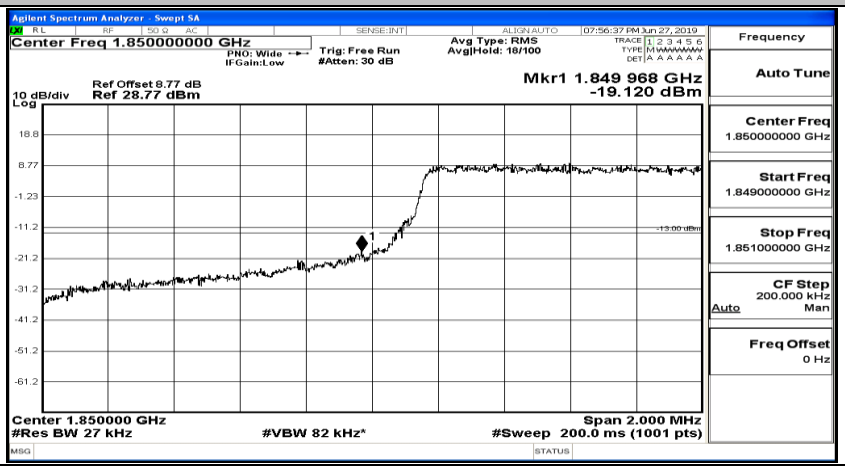
Band Edge Test Graph(s) (Channel Bandwidth: 1.4 MHz)_LCH_QPSK



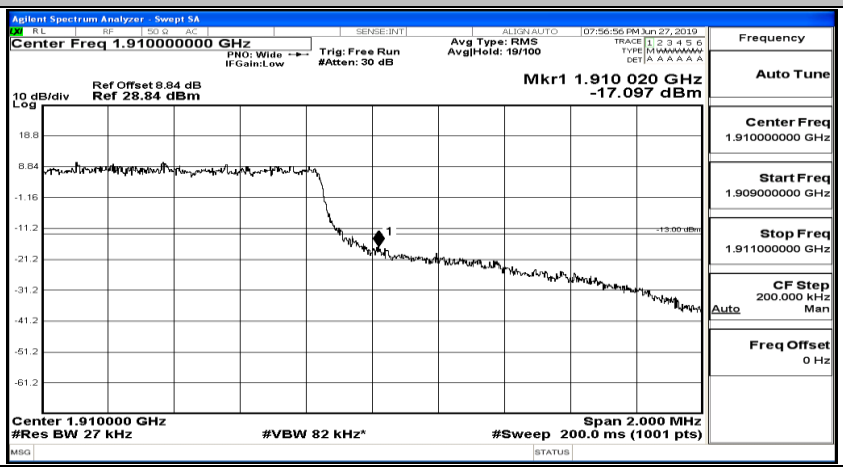
Band Edge Test Graph(s) (Channel Bandwidth: 1.4 MHz)_HCH_QPSK



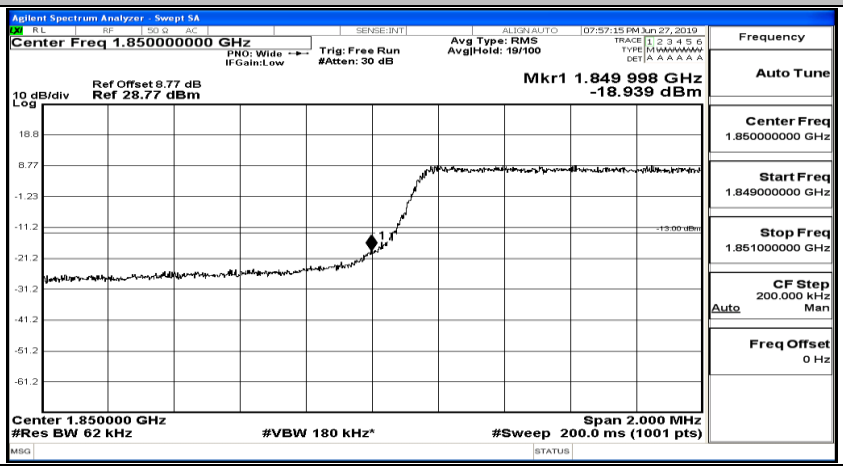
Band Edge Test Graph(s) (Channel Bandwidth: 1.4 MHz)_LCH_16QAM



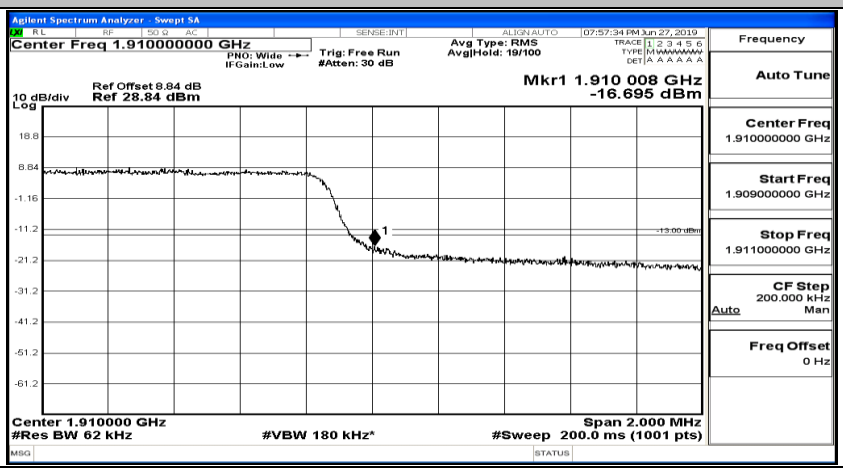
Band Edge Test Graph(s) (Channel Bandwidth: 1.4 MHz)_HCH_16QAM



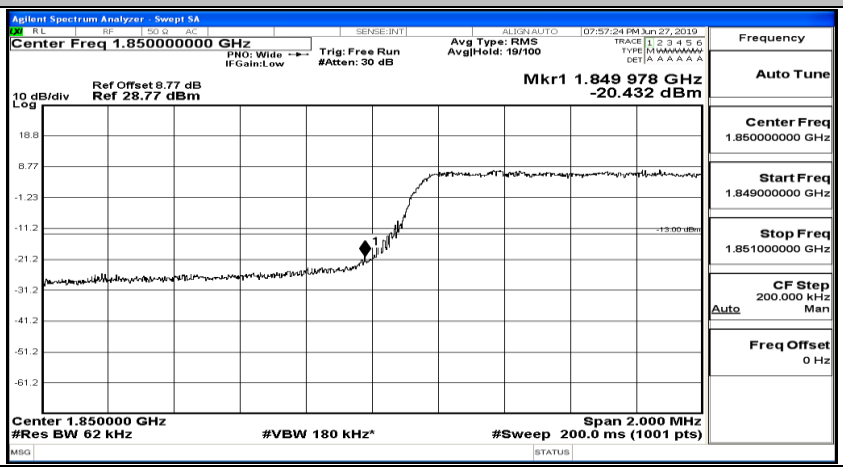
Band Edge Test Graph(s) (Channel Bandwidth: 3 MHz)_LCH_QPSK



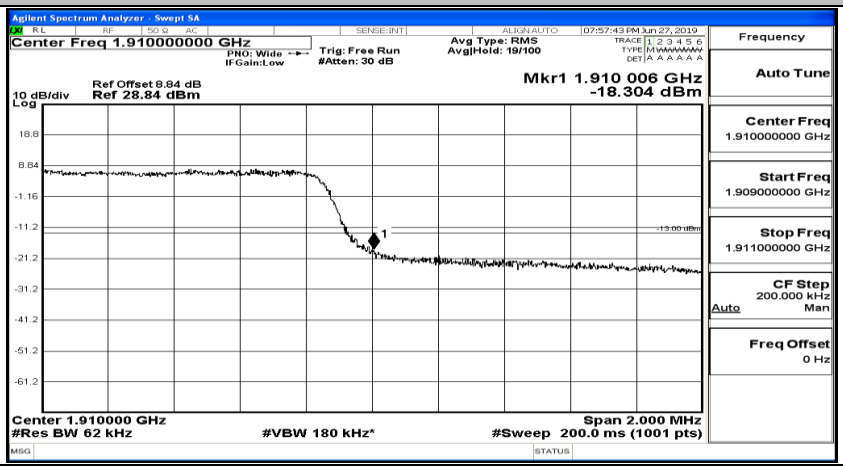
Band Edge Test Graph(s) (Channel Bandwidth: 3 MHz)_HCH_QPSK



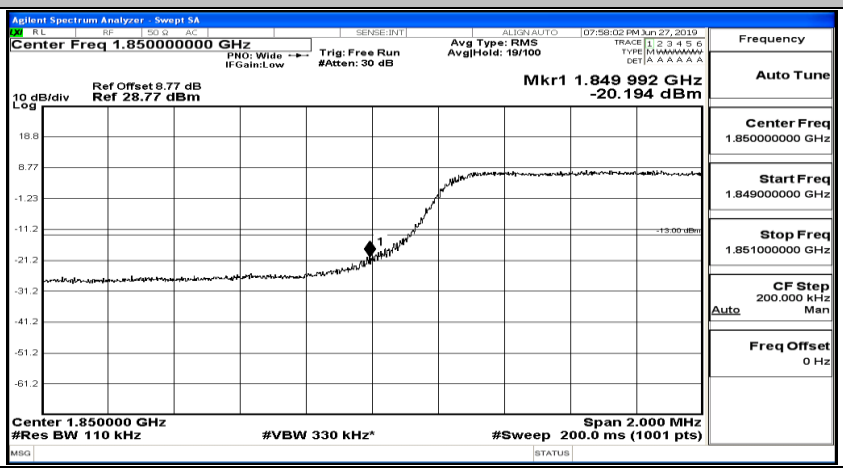
Band Edge Test Graph(s) (Channel Bandwidth: 3 MHz)_LCH_16QAM



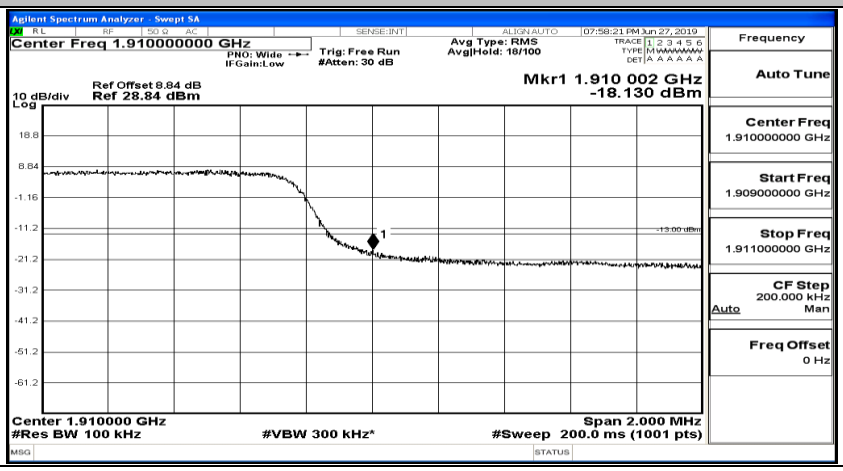
Band Edge Test Graph(s) (Channel Bandwidth: 3 MHz)_HCH_16QAM



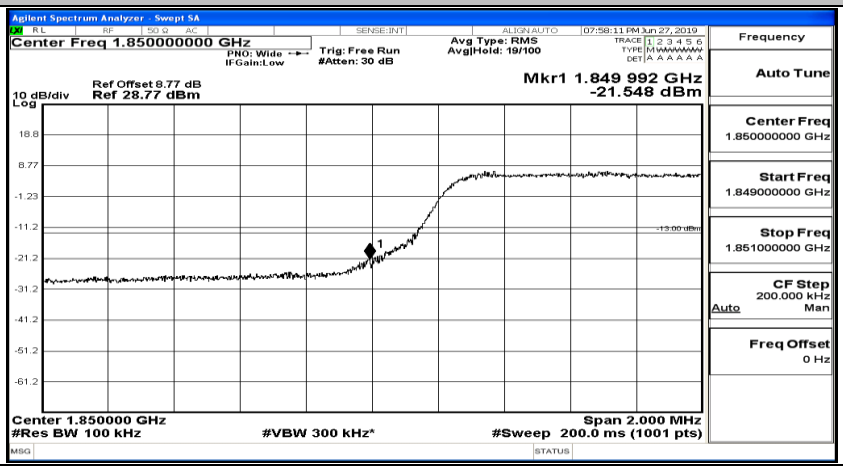
Band Edge Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_QPSK



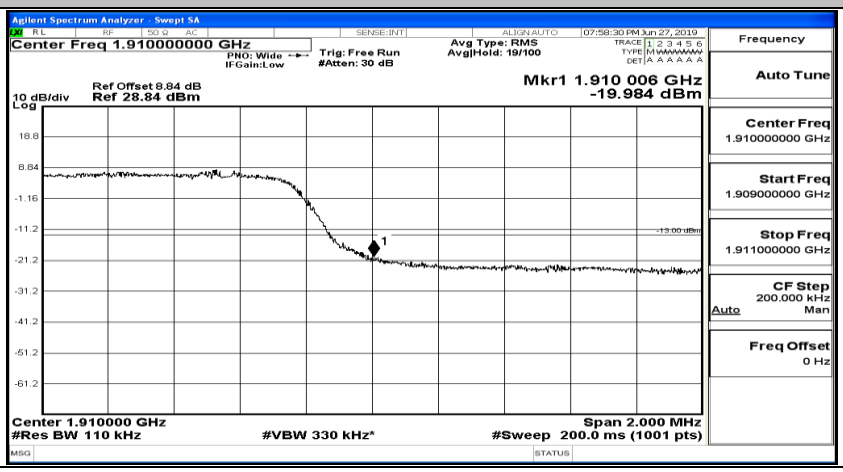
Band Edge Test Graph(s) (Channel Bandwidth: 5 MHz)_HCH_QPSK



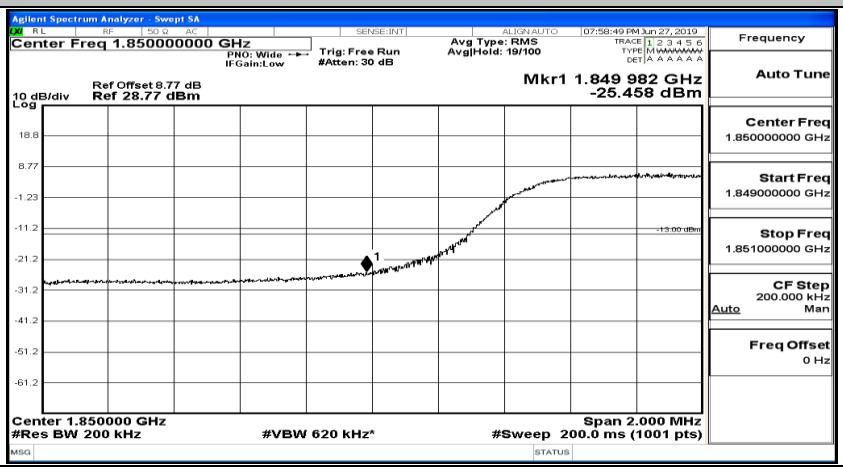
Band Edge Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_16QAM



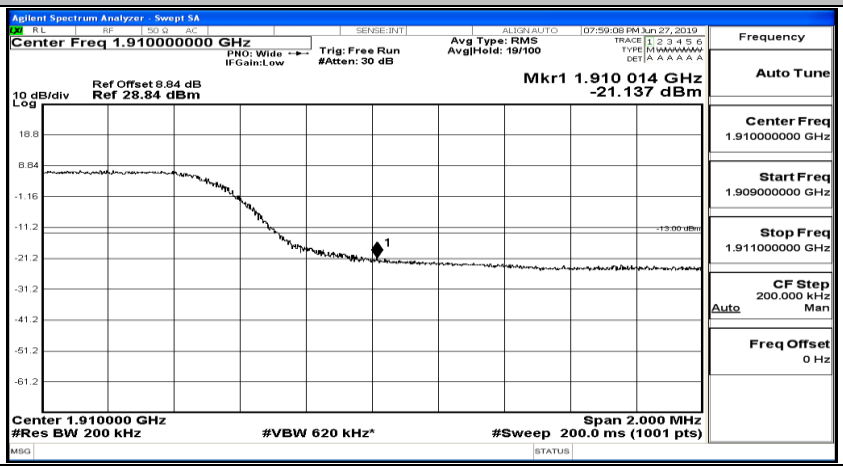
Band Edge Test Graph(s) (Channel Bandwidth: 5 MHz)_HCH_16QAM



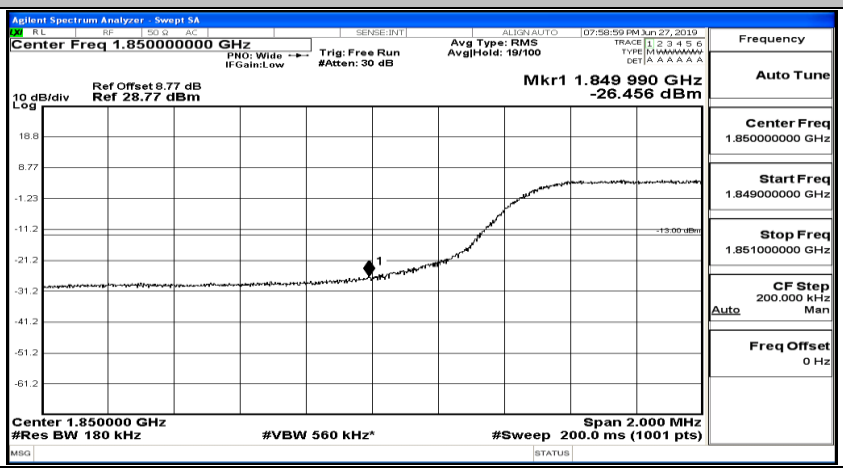
Band Edge Test Graph(s) (Channel Bandwidth: 10 MHz)_LCH_QPSK



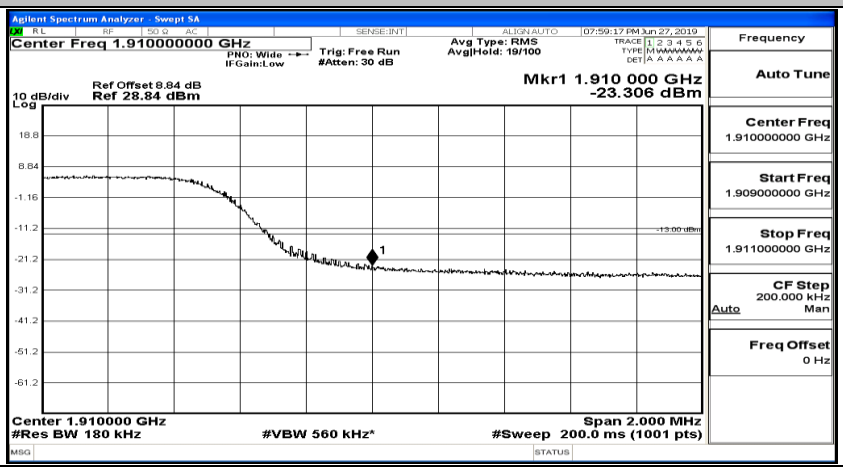
Band Edge Test Graph(s) (Channel Bandwidth: 10 MHz)_HCH_QPSK



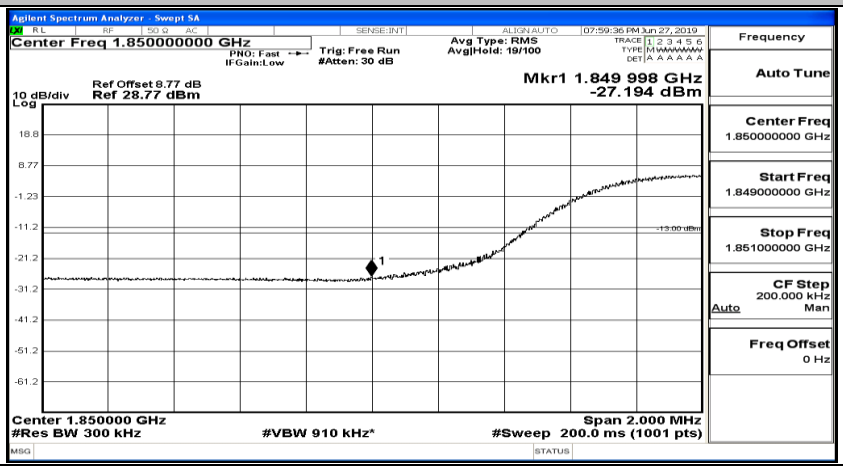
Band Edge Test Graph(s) (Channel Bandwidth: 10 MHz)_LCH_16QAM



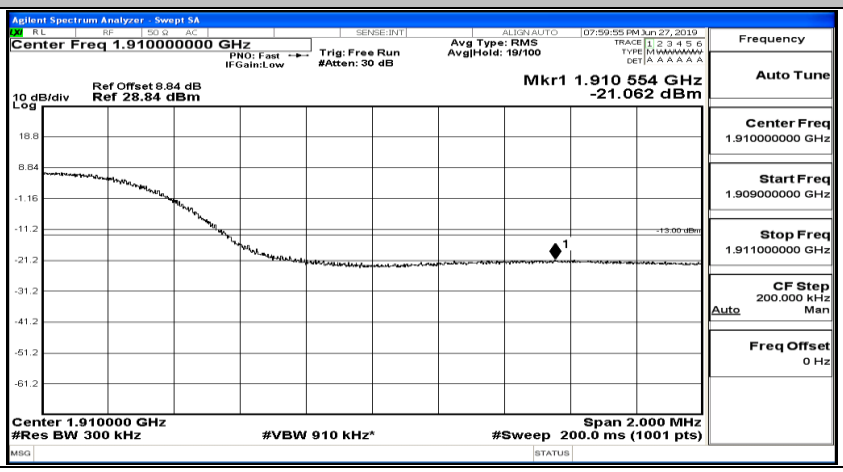
Band Edge Test Graph(s) (Channel Bandwidth: 10 MHz)_HCH_16QAM



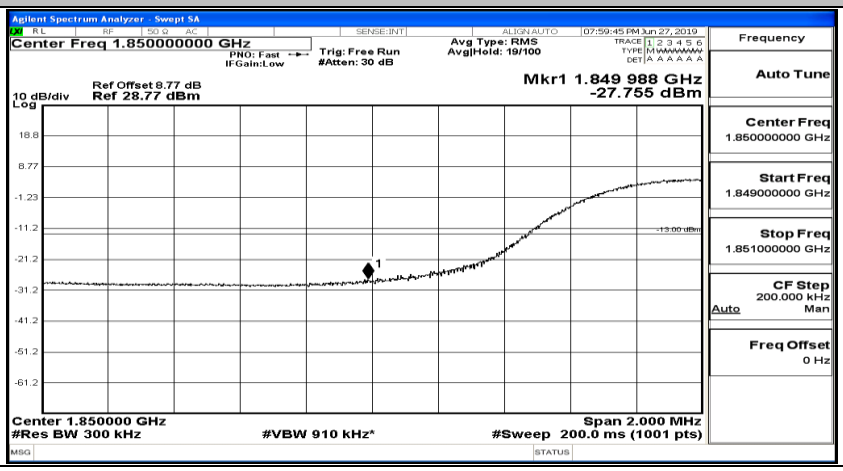
Band Edge Test Graph(s) (Channel Bandwidth:15 MHz)_LCH_QPSK



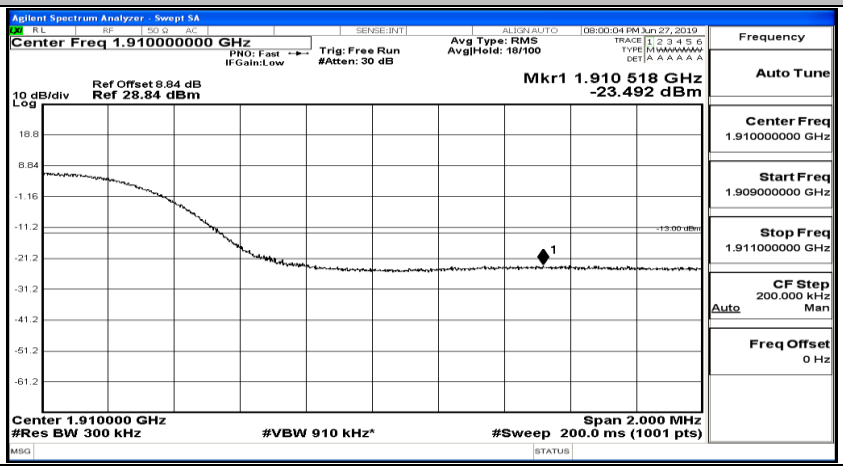
Band Edge Test Graph(s) (Channel Bandwidth:15 MHz)_HCH_QPSK



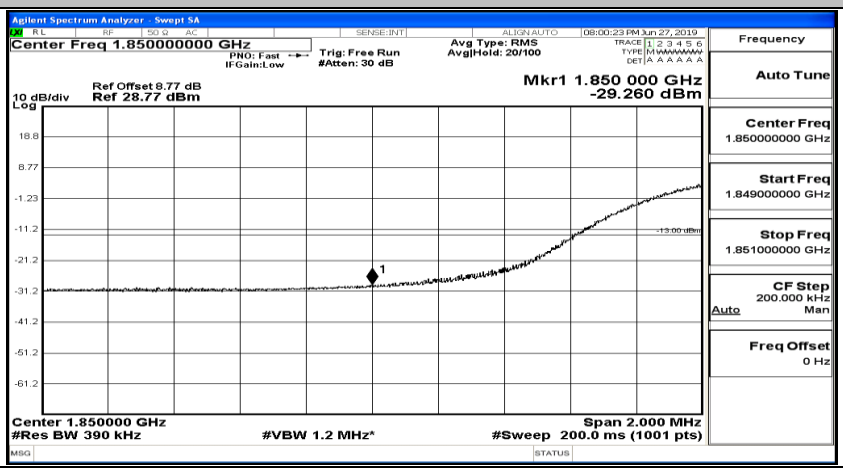
Band Edge Test Graph(s) (Channel Bandwidth:15 MHz)_LCH_16QAM



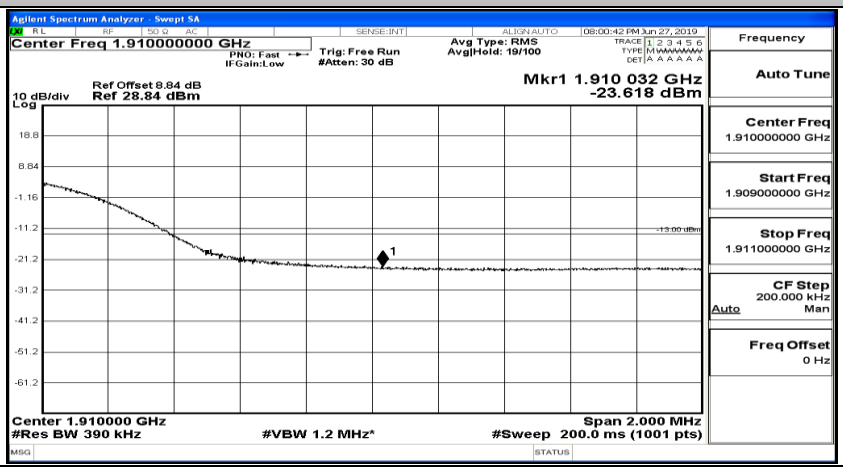
Band Edge Test Graph(s) (Channel Bandwidth:15 MHz)_HCH_16QAM



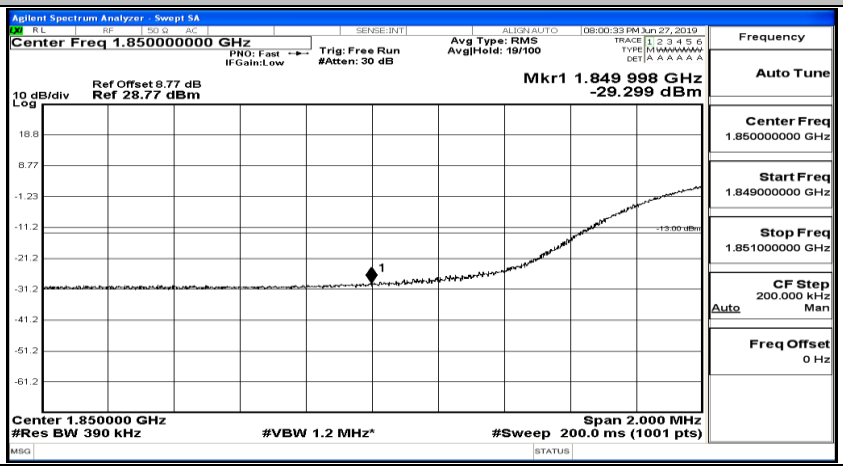
Band Edge Test Graph(s) (Channel Bandwidth:20 MHz)_LCH_QPSK



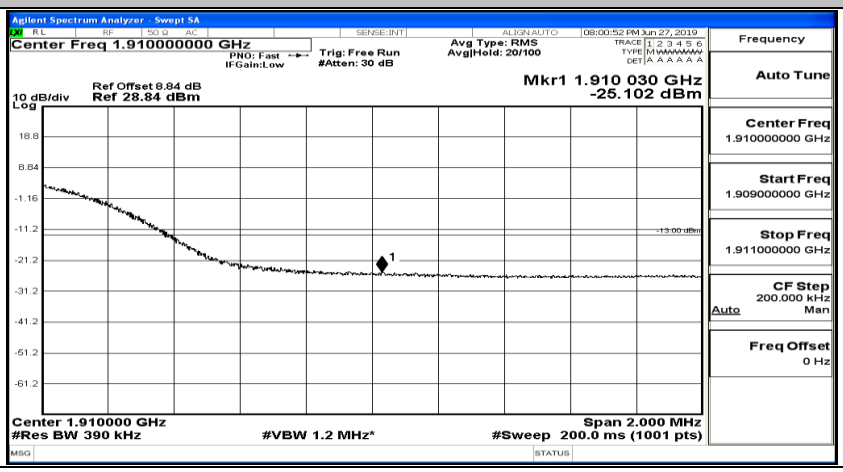
Band Edge Test Graph(s) (Channel Bandwidth:20 MHz)_HCH_QPSK



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

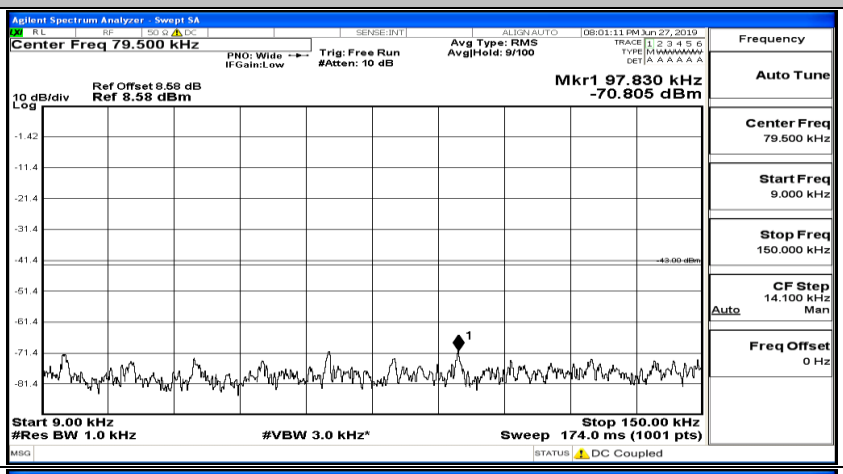


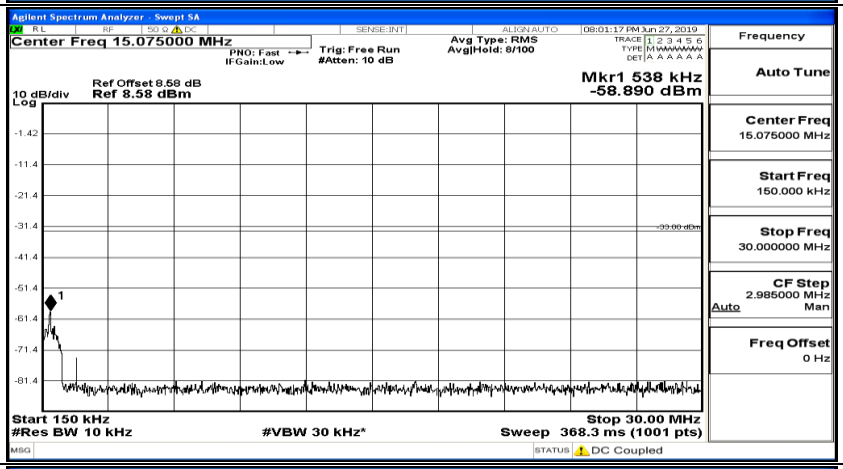
Band Edge Test Graph(s) (Channel Bandwidth:20 MHz)_HCH_16QAM

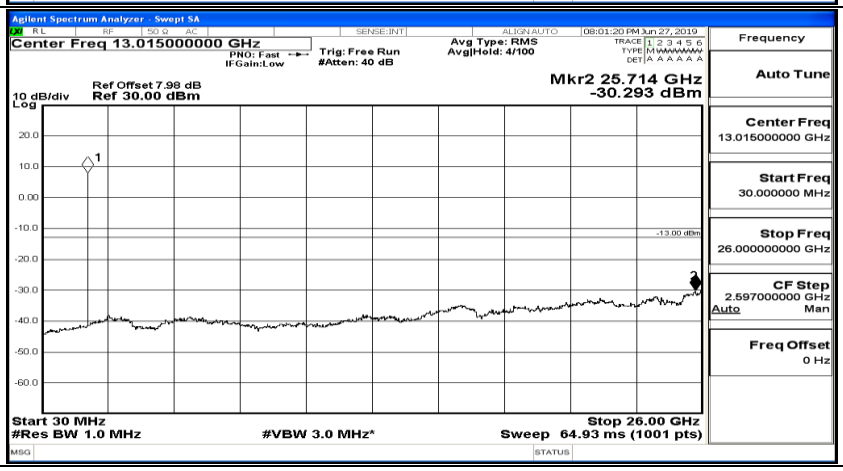


D.5 Conducted Spurious Emission

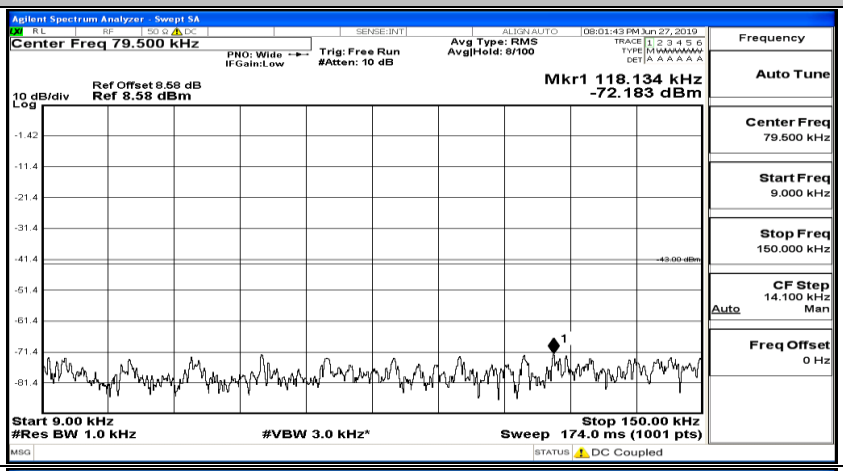
CSE Test Graph(s) (Channel Bandwidth: 1.4 MHz)_LCH_QPSK

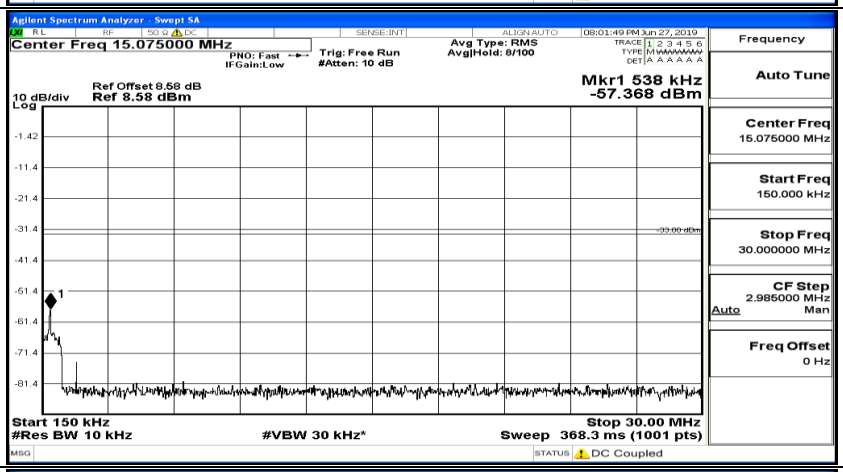




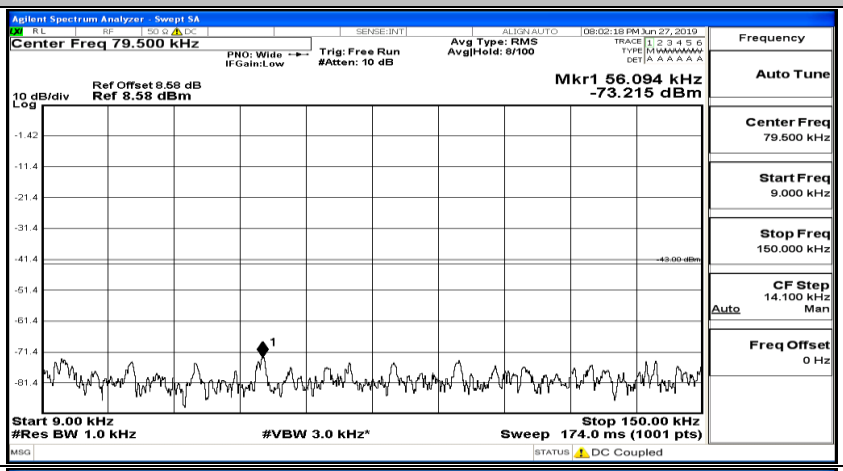


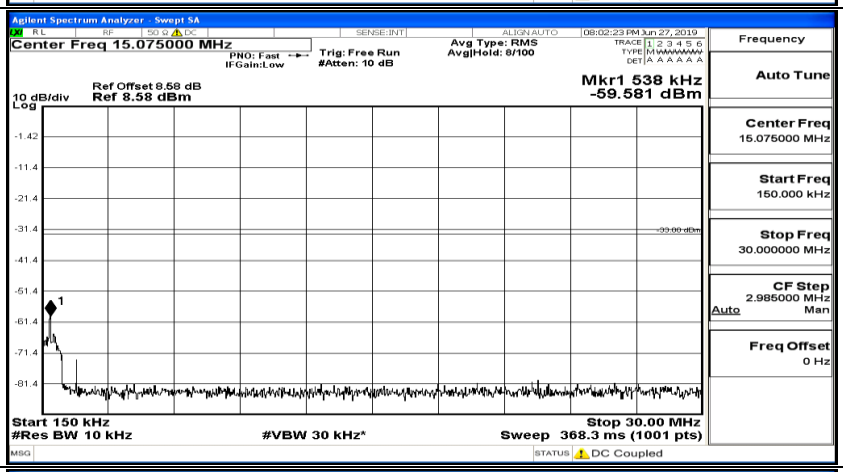
CSE Test Graph(s) (Channel Bandwidth: 1.4 MHz)_MCH_QPSK

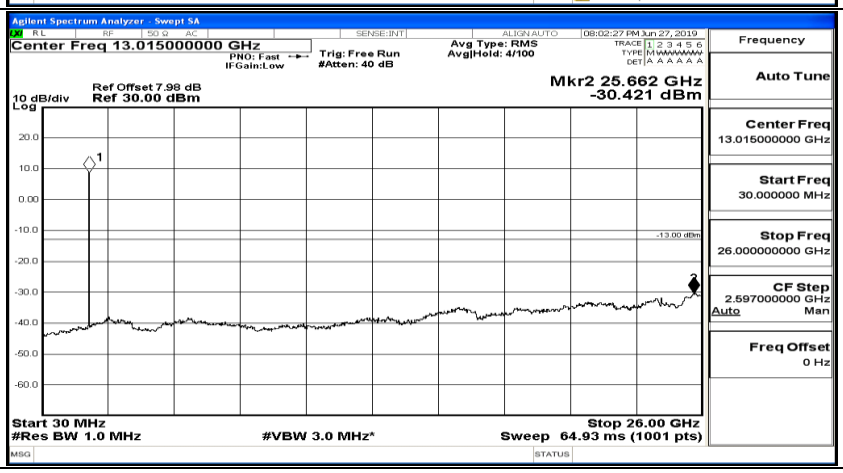




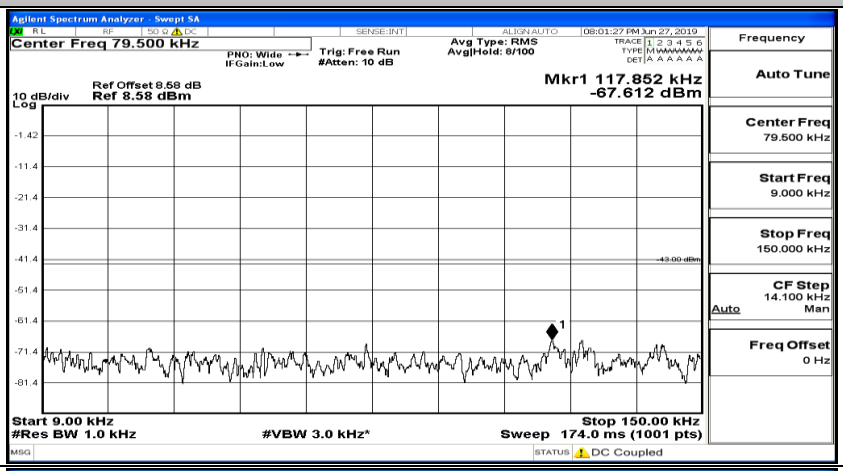
CSE Test Graph(s) (Channel Bandwidth: 1.4 MHz)_HCH_QPSK

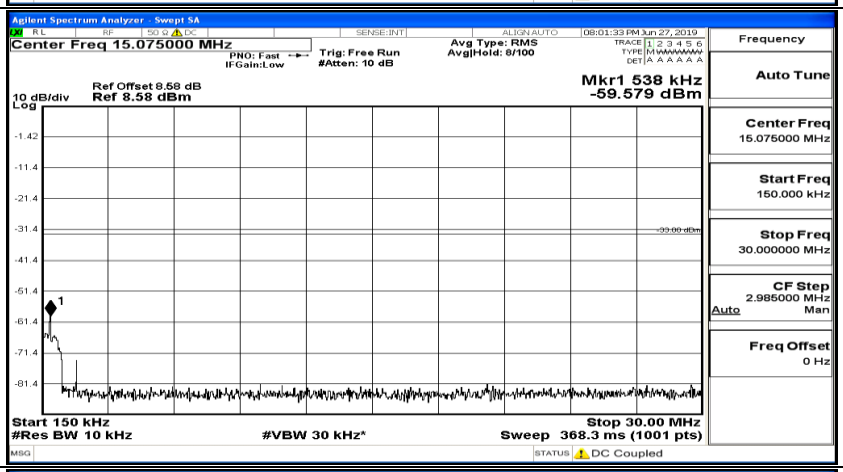


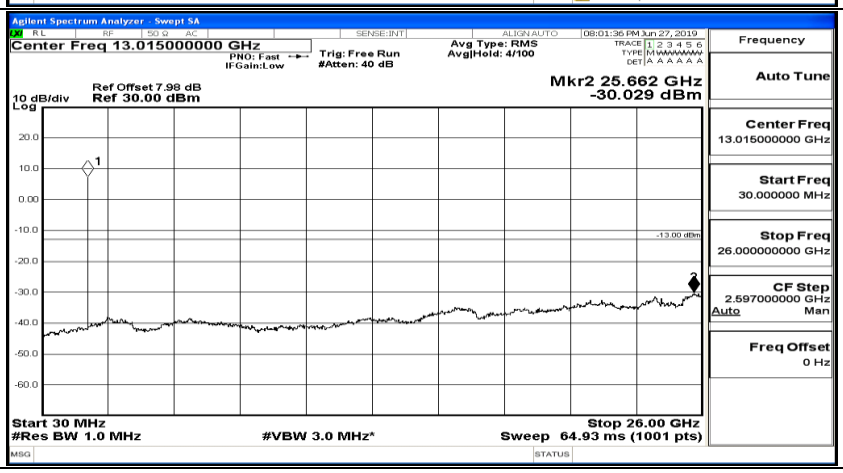




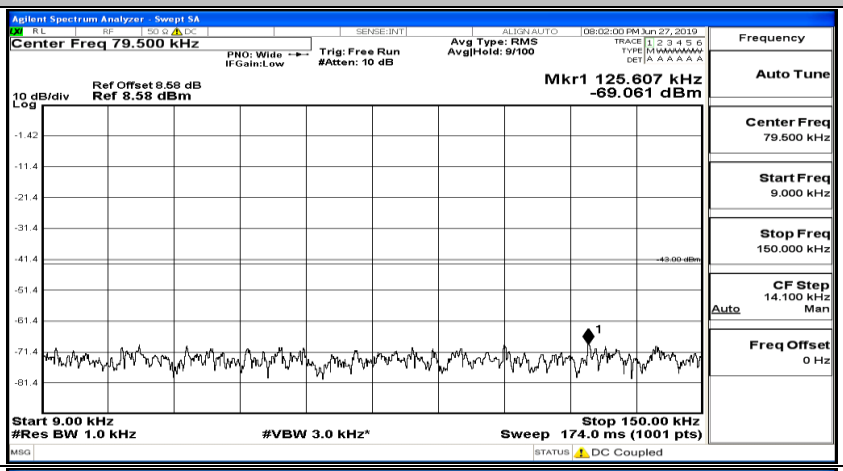
CSE Test Graph(s) (Channel Bandwidth: 1.4 MHz)_LCH_16QAM

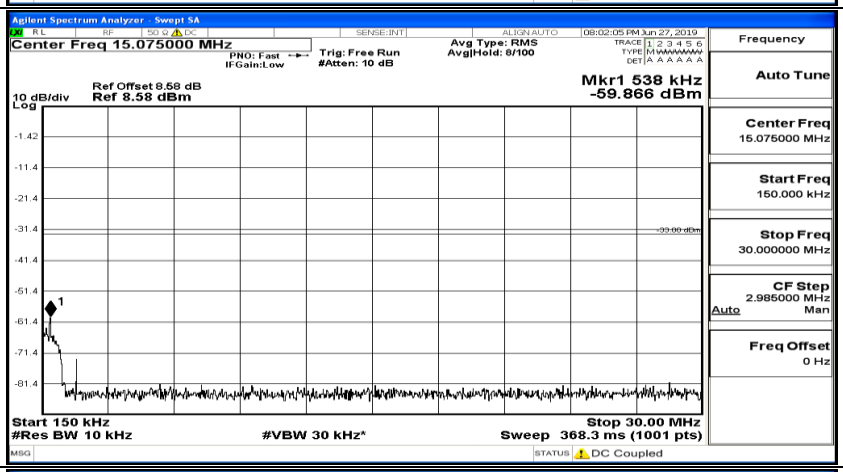
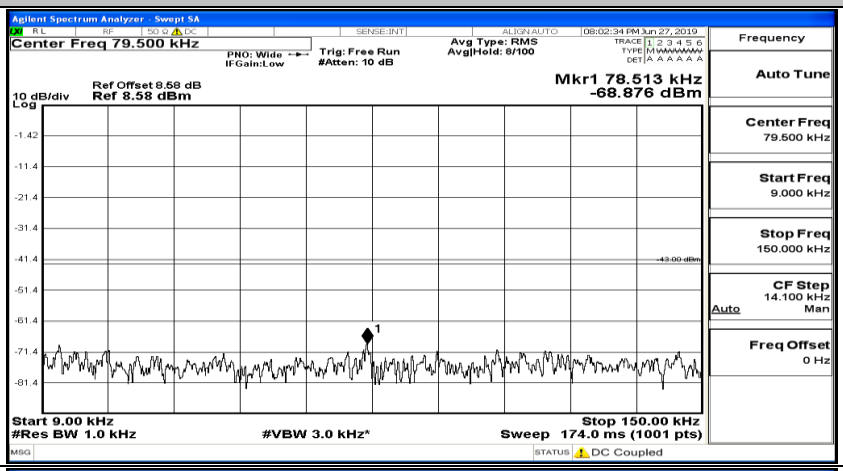
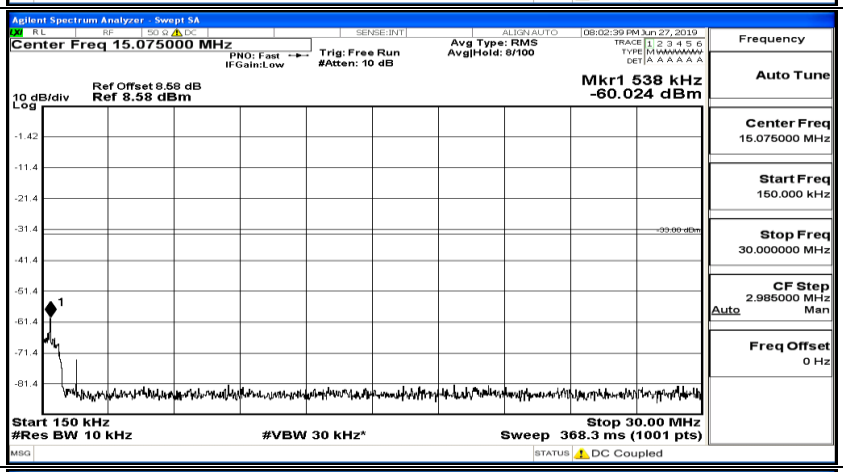
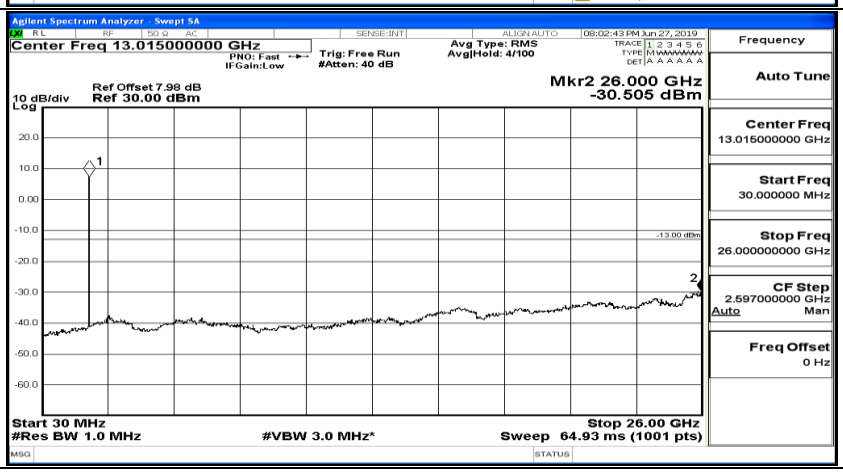






CSE Test Graph(s) (Channel Bandwidth: 1.4 MHz)_MCH_16QAM





CSE Test Graph(s) (Channel Bandwidth: 1.4 MHz)_HCH_16QAM