

## Appendix A: Test Data for E-UTRA Band 2

**Product Name: Battery Operated LTE Cellular GPS Tracker**  
**Test Model: CUT-4LH**

### Environmental Conditions

Temperature:	23.8 °C
Relative Humidity:	52.7%
ATM Pressure:	100.0 kPa
Test Engineer:	Diamond Lu
Supervised by:	Wang Chuang

### A.1 Conducted Output Power

Conducted Output Power Test Result (Channel Bandwidth: 1.4 MHz)						
Modulation	Channel	RB Configuration		Average Power [dBm]		Verdict
		Size	Offset	QPSK	16QAM	
QPSK / 16QAM	LCH	1	0	22.90	22.49	PASS
		1	3	22.78	22.14	PASS
		1	5	22.68	21.97	PASS
		3	0	22.79	22.00	PASS
		3	2	22.74	21.90	PASS
		3	3	22.70	21.87	PASS
		6	0	22.18	21.27	PASS
	MCH	1	0	23.02	22.45	PASS
		1	3	22.99	22.56	PASS
		1	5	22.93	22.40	PASS
		3	0	22.94	21.92	PASS
		3	2	22.91	22.05	PASS
		3	3	22.93	21.95	PASS
		6	0	22.19	21.17	PASS
	HCH	1	0	22.60	22.22	PASS
		1	3	22.83	21.74	PASS
		1	5	22.73	22.66	PASS
		3	0	22.91	21.84	PASS
		3	2	22.77	22.02	PASS
		3	3	22.73	22.08	PASS
		6	0	22.81	22.02	PASS

Conducted Output Power Test Result (Channel Bandwidth: 3 MHz)						
Modulation	Channel	RB Configuration		Average Power [dBm]	Average Power [dBm]	Verdict
		Size	Offset	QPSK	16QAM	
QPSK / 16QAM	LCH	1	0	22.82	22.39	PASS
		1	7	22.77	22.39	PASS
		1	14	22.48	21.93	PASS
		8	0	22.84	21.95	PASS
		8	4	22.79	21.88	PASS
		8	7	22.66	21.82	PASS
		15	0	22.81	21.75	PASS
	MCH	1	0	22.98	22.57	PASS
		1	7	23.02	22.16	PASS
		1	14	22.89	22.22	PASS
		8	0	22.04	21.15	PASS
		8	4	22.01	21.10	PASS
		8	7	22.02	21.11	PASS
		15	0	22.15	21.09	PASS
	HCH	1	0	22.94	22.35	PASS
		1	7	22.72	21.92	PASS
		1	14	22.61	22.19	PASS
		8	0	22.81	21.87	PASS
		8	4	22.83	21.89	PASS
		8	7	22.80	21.84	PASS
		15	0	22.78	21.87	PASS

Conducted Output Power Test Result (Channel Bandwidth: 5 MHz)						
Modulation	Channel	RB Configuration		Average Power [dBm]	Average Power [dBm]	Verdict
		Size	Offset	QPSK	16QAM	
QPSK / 16QAM	LCH	1	0	22.88	22.19	PASS
		1	12	22.82	22.50	PASS
		1	24	22.41	21.76	PASS
		12	0	22.88	22.03	PASS
		12	6	22.74	21.95	PASS
		12	13	22.63	21.84	PASS
		25	0	22.74	21.79	PASS
	MCH	1	0	23.16	22.67	PASS
		1	12	22.81	22.04	PASS
		1	24	22.80	22.22	PASS
		12	0	22.14	21.26	PASS
		12	6	22.09	21.19	PASS
		12	13	22.08	21.22	PASS
		25	0	22.09	21.13	PASS
	HCH	1	0	22.76	21.84	PASS
		1	12	22.73	21.94	PASS
		1	24	22.44	21.69	PASS
		12	0	22.85	21.83	PASS
		12	6	22.89	21.90	PASS
		12	13	22.87	21.92	PASS
		25	0	22.83	21.90	PASS

Conducted Output Power Test Result (Channel Bandwidth: 10 MHz)						
Modulation	Channel	RB Configuration		Average Power [dBm]	Average Power [dBm]	Verdict
		Size	Offset	QPSK	16QAM	
QPSK / 16QAM	LCH	1	0	22.96	22.36	PASS
		1	24	23.15	22.53	PASS
		1	49	22.02	21.54	PASS
		25	0	22.78	21.69	PASS
		25	12	22.56	21.68	PASS
		25	25	22.48	21.55	PASS
		50	0	22.57	21.60	PASS
	MCH	1	0	23.27	22.65	PASS
		1	24	23.02	22.18	PASS
		1	49	22.66	21.95	PASS
		25	0	22.09	21.12	PASS
		25	12	22.07	21.06	PASS
		25	25	22.11	21.18	PASS
		50	0	22.03	21.07	PASS
	HCH	1	0	22.43	21.98	PASS
		1	24	22.86	22.35	PASS
		1	49	22.32	21.76	PASS
		25	0	22.46	21.57	PASS
		25	12	22.74	21.79	PASS
		25	25	22.81	21.93	PASS
		50	0	22.70	21.78	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	22.86	22.18	PASS
		1	37	23.17	21.93	PASS
		1	74	22.12	21.45	PASS
		37	0	22.68	21.66	PASS
		37	18	22.43	21.47	PASS
		37	38	22.36	21.36	PASS
		75	0	22.44	21.52	PASS
	MCH	1	0	23.09	22.31	PASS
		1	37	22.29	21.53	PASS
		1	74	22.46	21.89	PASS
		37	0	22.11	21.14	PASS
		37	18	22.94	21.96	PASS
		37	38	22.73	21.71	PASS
		75	0	22.82	21.88	PASS
	HCH	1	0	22.26	21.62	PASS
		1	37	22.18	21.72	PASS
		1	74	22.87	22.20	PASS
		37	0	22.24	21.30	PASS
		37	18	22.42	21.44	PASS
		37	38	22.64	21.81	PASS
		75	0	22.43	21.47	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	22.75	21.86	PASS
		1	49	22.43	21.70	PASS
		1	99	22.90	22.03	PASS
		50	0	22.40	21.41	PASS
		50	25	22.36	21.34	PASS
		50	50	22.43	21.48	PASS
		100	0	22.47	21.58	PASS
	MCH	1	0	22.93	22.13	PASS
		1	49	22.73	21.99	PASS
		1	99	22.33	21.44	PASS
		50	0	22.98	21.97	PASS
		50	25	22.85	21.94	PASS
		50	50	22.58	21.61	PASS
		100	0	22.77	21.81	PASS
	HCH	1	0	22.26	21.69	PASS
		1	49	22.85	22.17	PASS
		1	99	22.84	22.06	PASS
		50	0	22.26	21.31	PASS
		50	25	22.28	21.34	PASS
		50	50	22.68	21.74	PASS
		100	0	22.45	21.48	PASS

**A.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	5.13	<13	PASS
	MCH	5.26	<13	PASS
	HCH	4.21	<13	PASS
16QAM	LCH	6	<13	PASS
	MCH	6.21	<13	PASS
	HCH	5.03	<13	PASS

Peak-to Average Ratio Test Result (Channel Bandwidth: 3 MHz)				
Modulation	Channel	Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
QPSK	LCH	5.12	<13	PASS
	MCH	5.29	<13	PASS
	HCH	4.49	<13	PASS
16QAM	LCH	6.04	<13	PASS
	MCH	6.25	<13	PASS
	HCH	5.3	<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	5.26	<13	PASS
	HCH	4.45	<13	PASS
16QAM	LCH	5.88	<13	PASS
	MCH	6.17	<13	PASS
	HCH	5.38	<13	PASS

Peak-to Average Ratio Test Result (Channel Bandwidth: 10 MHz)				
Modulation	Channel	Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
QPSK	LCH	4.96	<13	PASS
	MCH	5.21	<13	PASS
	HCH	4.95	<13	PASS
16QAM	LCH	5.85	<13	PASS
	MCH	6.05	<13	PASS
	HCH	5.76	<13	PASS

**Peak-to Average Ratio Test Result (Channel Bandwidth: 15 MHz)**

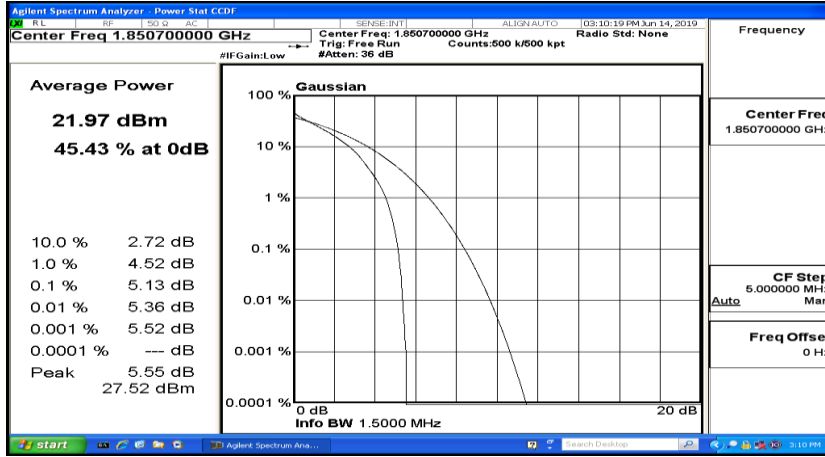
Modulation	Channel	Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
QPSK	LCH	4.86	<13	PASS
	MCH	5.02	<13	PASS
	HCH	5.1	<13	PASS
16QAM	LCH	6.14	<13	PASS
	MCH	6.36	<13	PASS
	HCH	6.37	<13	PASS

**Peak-to Average Ratio Test Result (Channel Bandwidth: 20 MHz)**

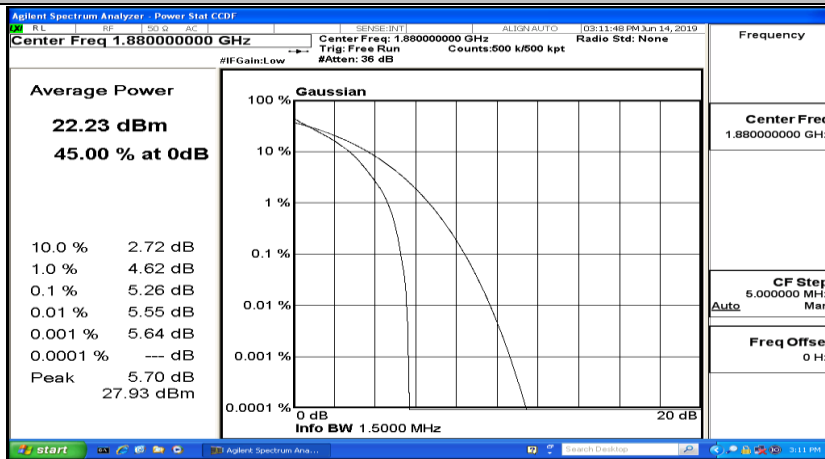
Modulation	Channel	Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
QPSK	LCH	5.74	<13	PASS
	MCH	5.73	<13	PASS
	HCH	5.87	<13	PASS
16QAM	LCH	6.76	<13	PASS
	MCH	6.9	<13	PASS
	HCH	6.88	<13	PASS



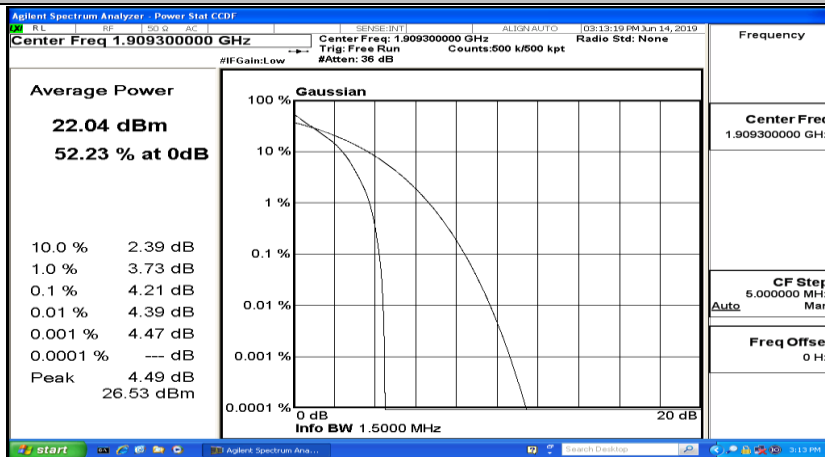
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 1.4 MHz)\_LCH\_QPSK



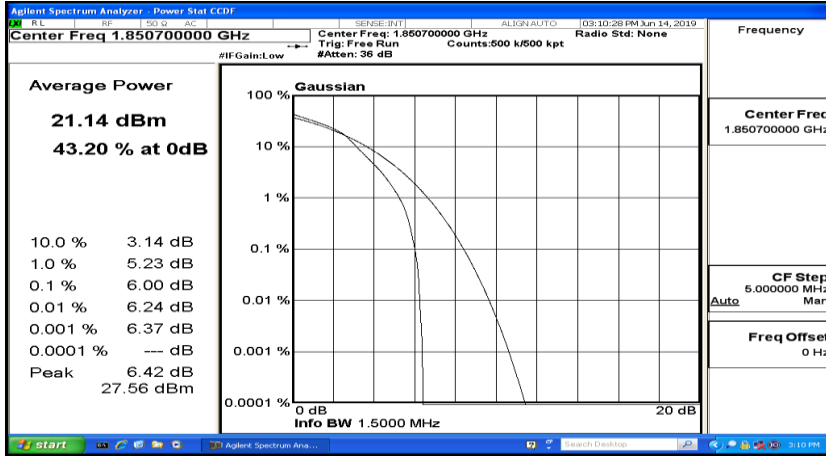
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 1.4 MHz)\_MCH\_QPSK



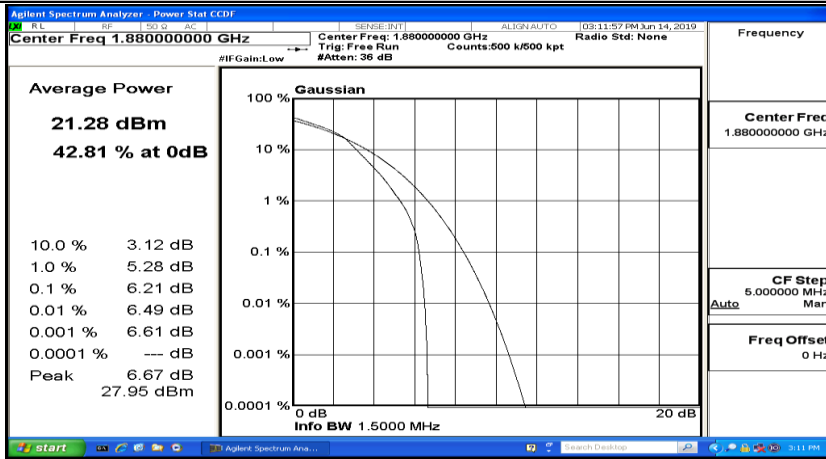
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 1.4 MHz)\_HCH\_QPSK



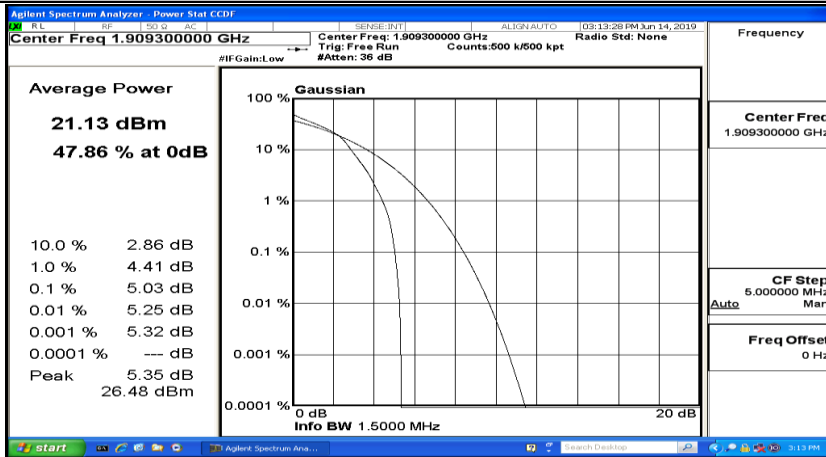
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 1.4 MHz)\_LCH\_16QAM



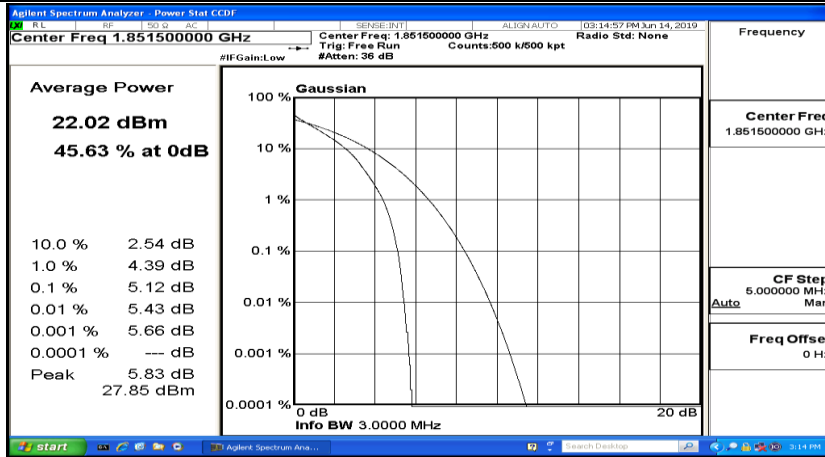
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 1.4 MHz)\_MCH\_16QAM



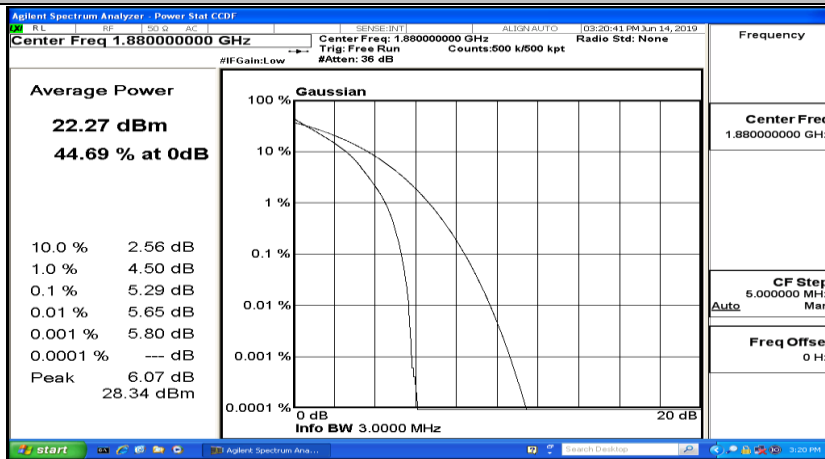
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 1.4 MHz)\_HCH\_16QAM



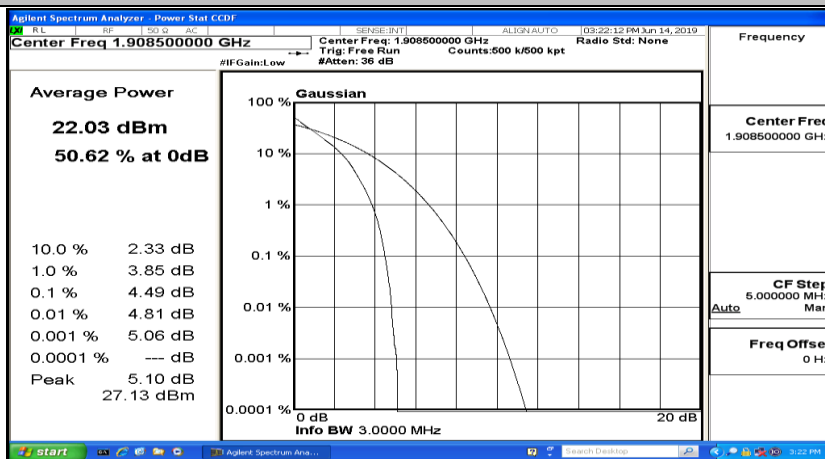
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 3 MHz)\_LCH\_QPSK



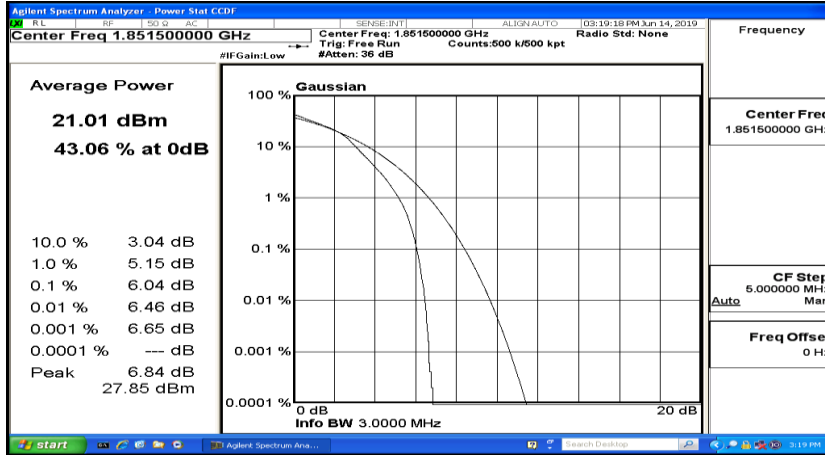
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 3 MHz)\_MCH\_QPSK



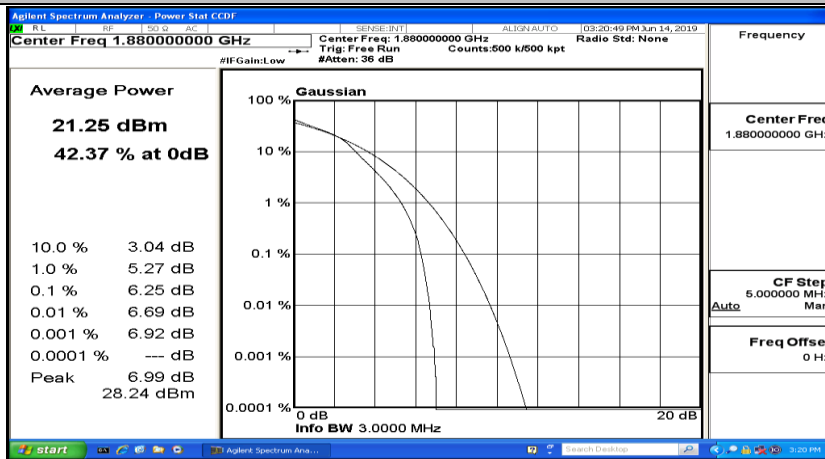
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 3 MHz)\_HCH\_QPSK



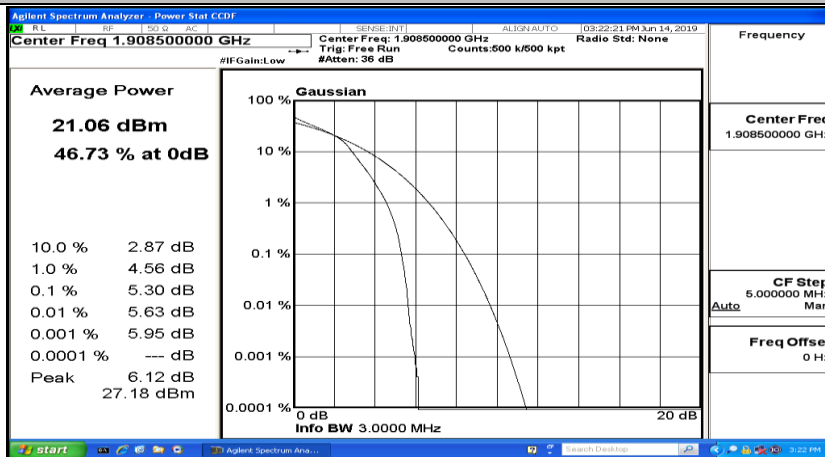
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 3 MHz)\_LCH\_16QAM



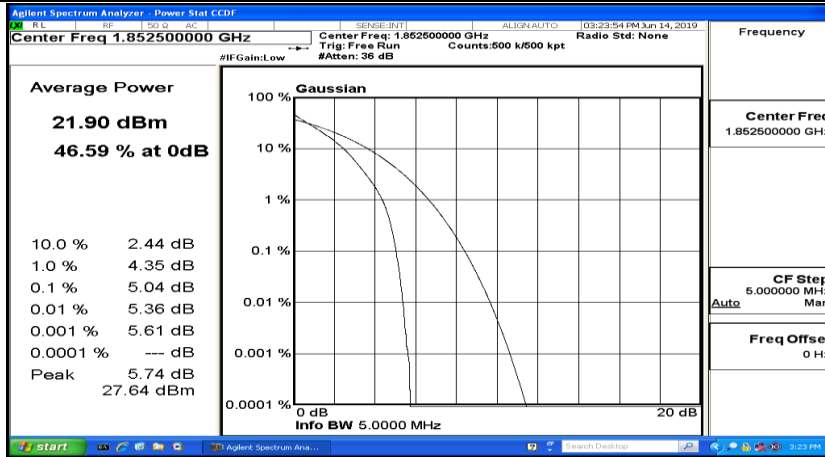
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 3 MHz)\_MCH\_16QAM



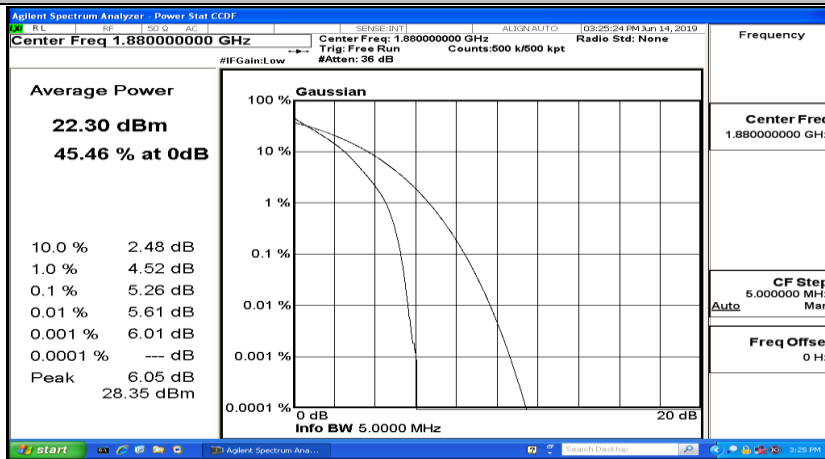
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 3 MHz)\_HCH\_16QAM



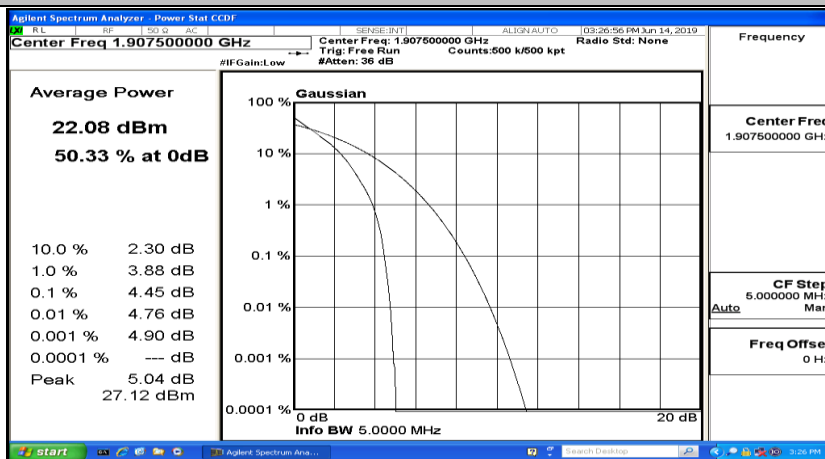
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)\_LCH\_QPSK



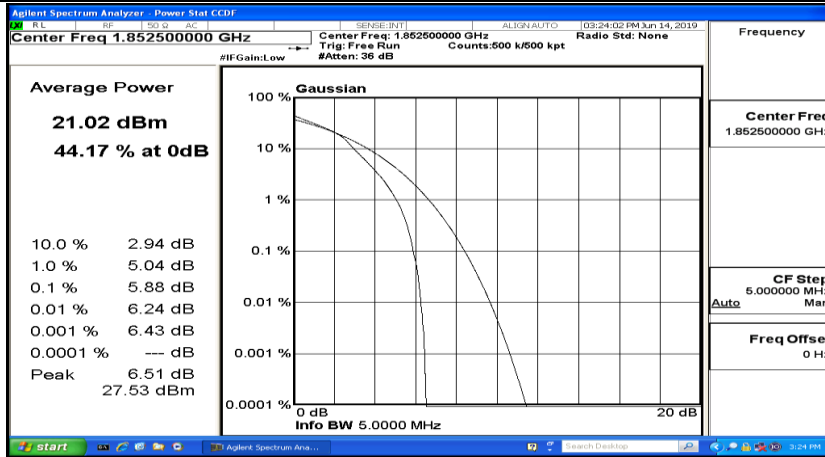
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)\_MCH\_QPSK



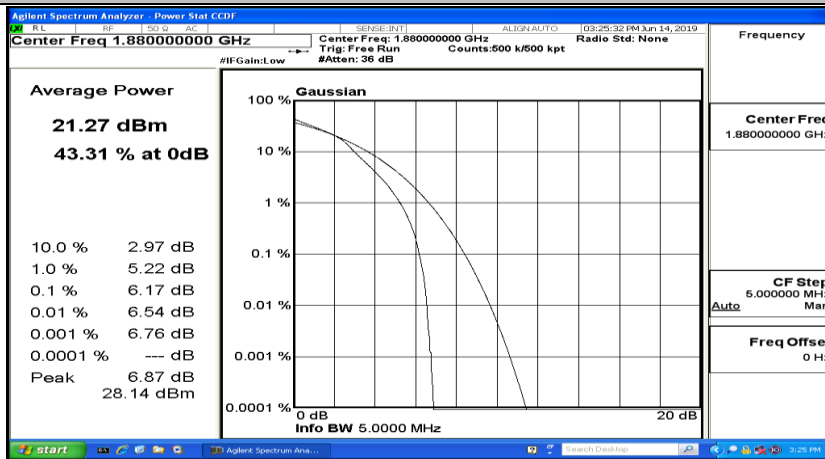
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)\_HCH\_QPSK



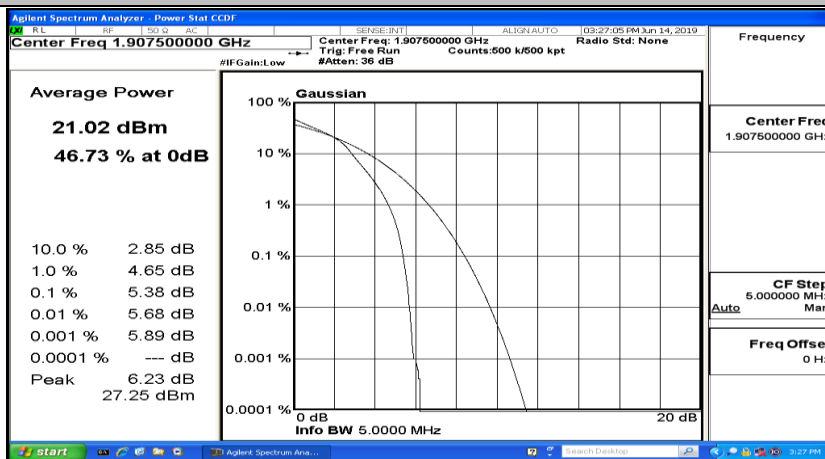
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)\_LCH\_16QAM



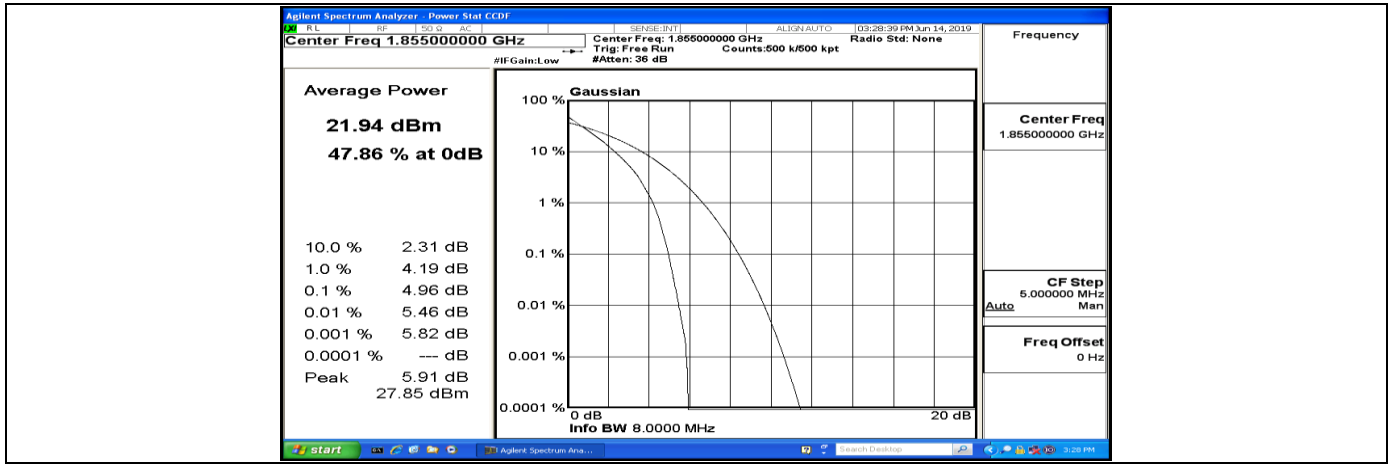
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)\_MCH\_16QAM



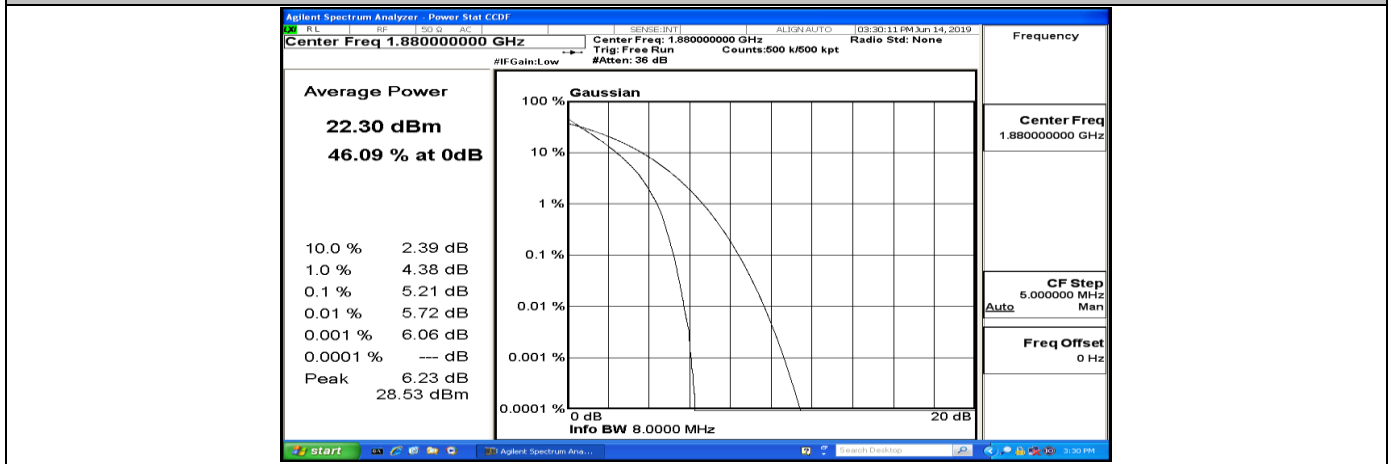
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)\_HCH\_16QAM



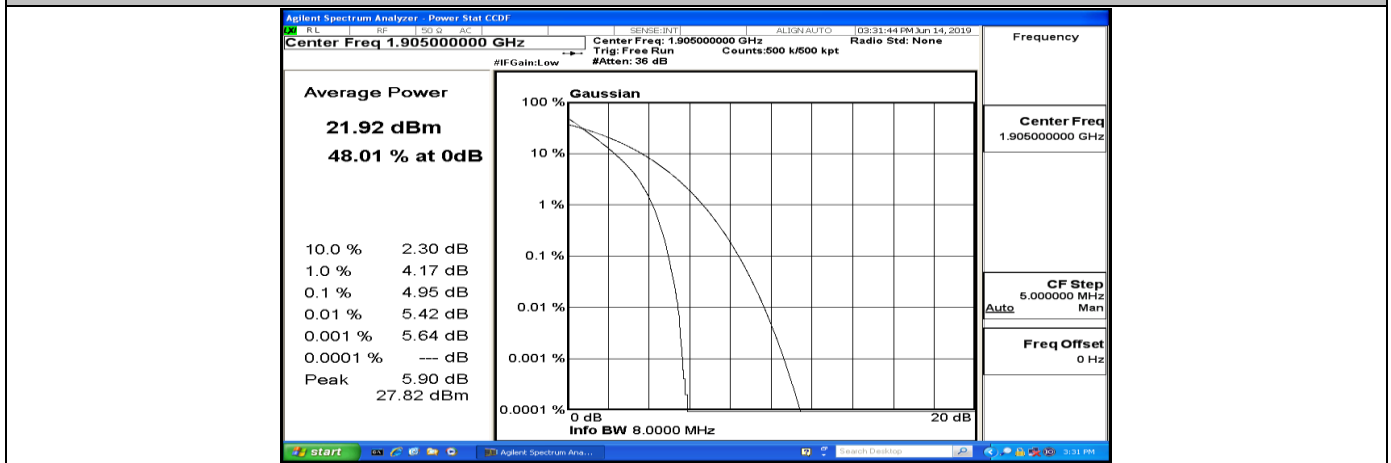
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 10 MHz)\_LCH\_QPSK



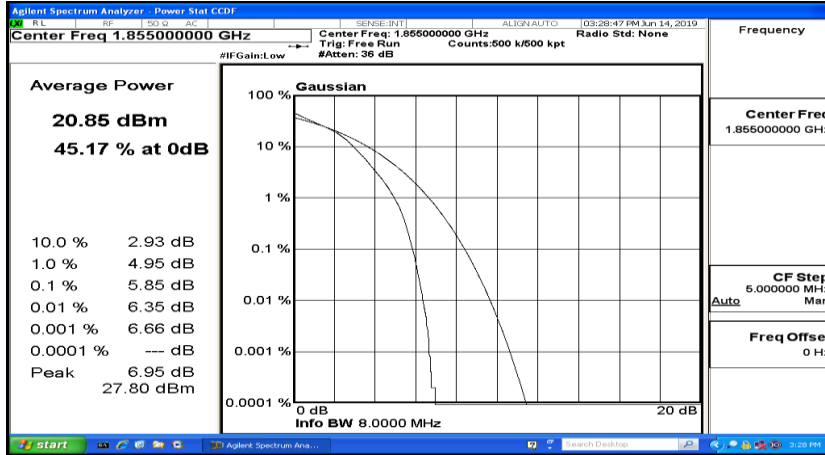
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 10 MHz) \_MCH\_QPSK



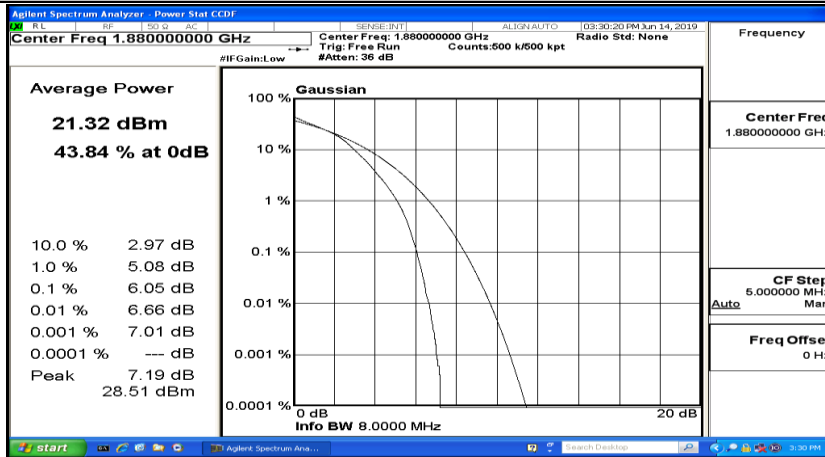
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 10 MHz) \_HCH\_QPSK



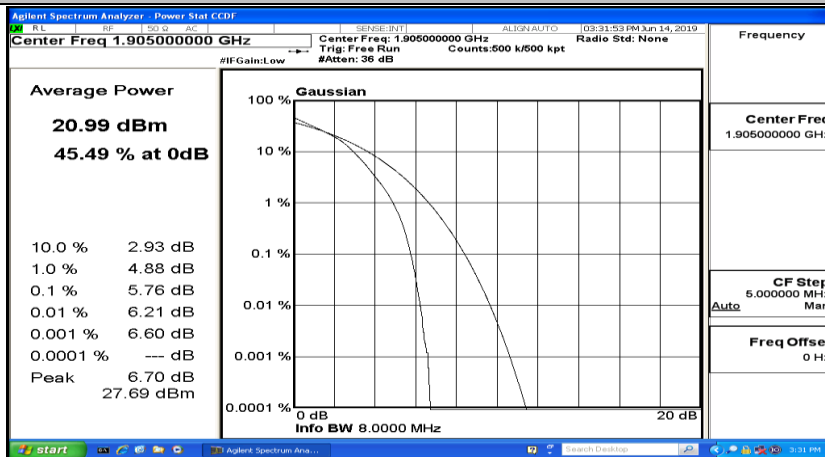
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 10 MHz)\_LCH\_16QAM



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

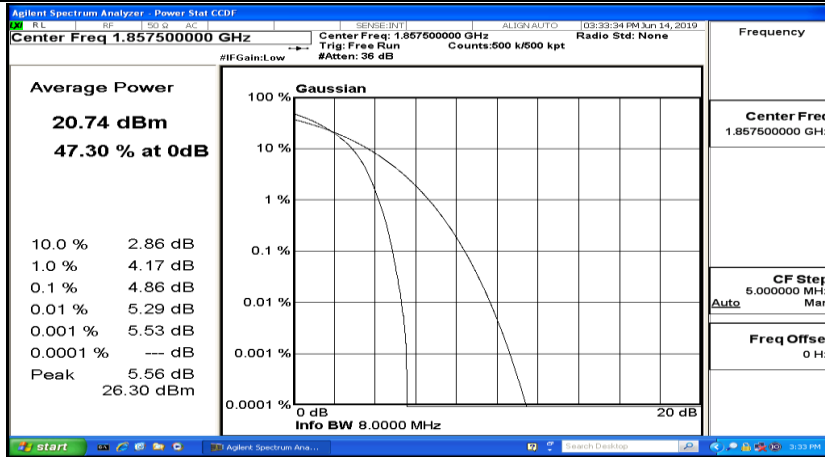


Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 10 MHz)\_HCH\_16QAM

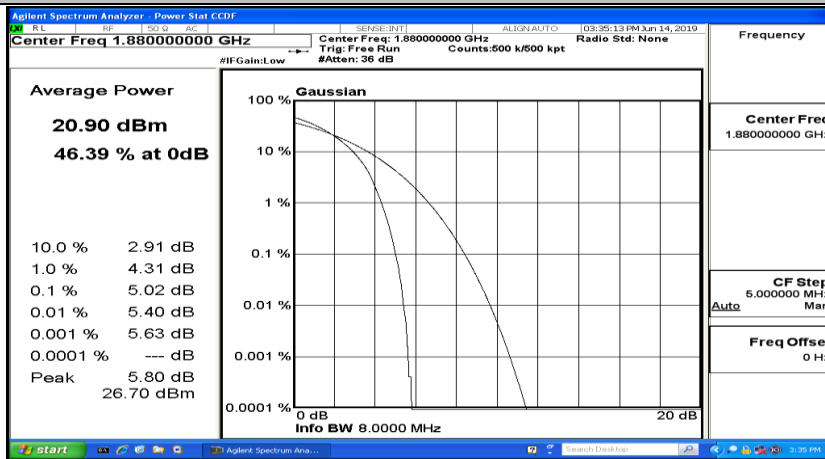




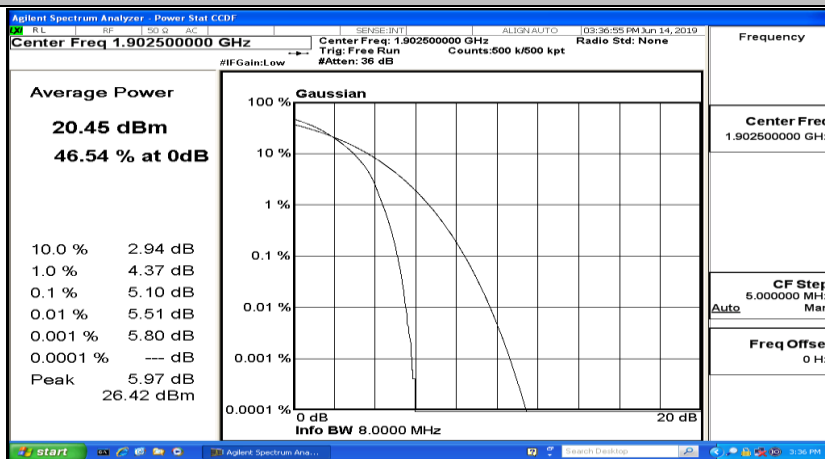
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:15 MHz)\_LCH\_QPSK



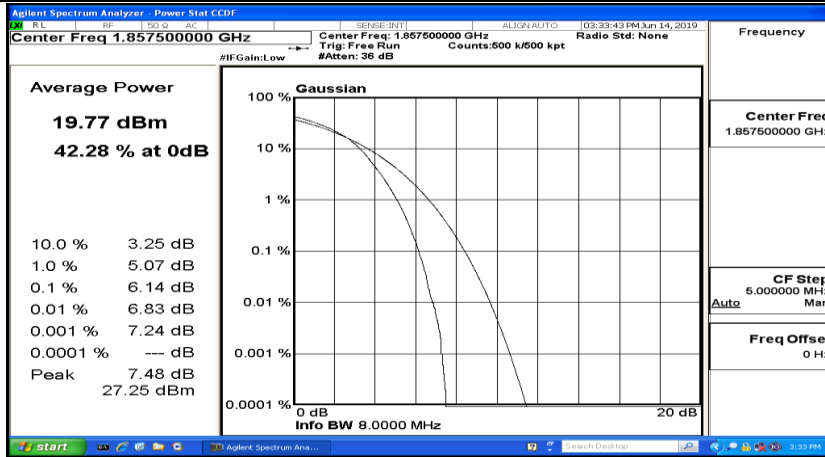
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:15 MHz)\_MCH\_QPSK



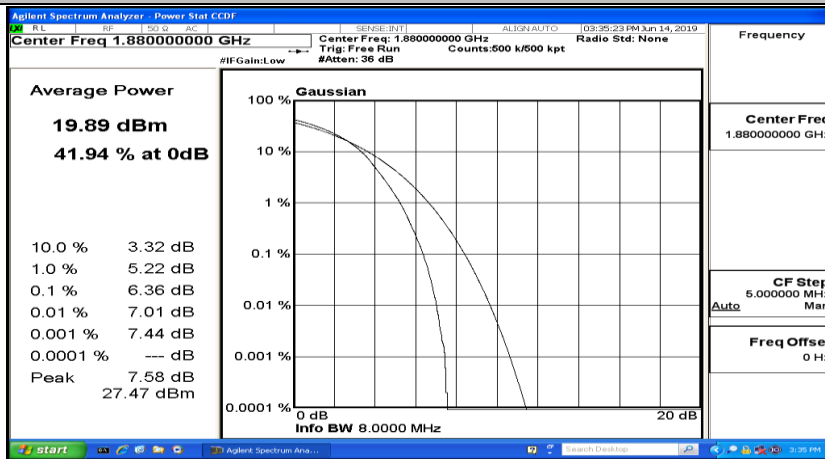
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:15 MHz)\_HCH\_QPSK



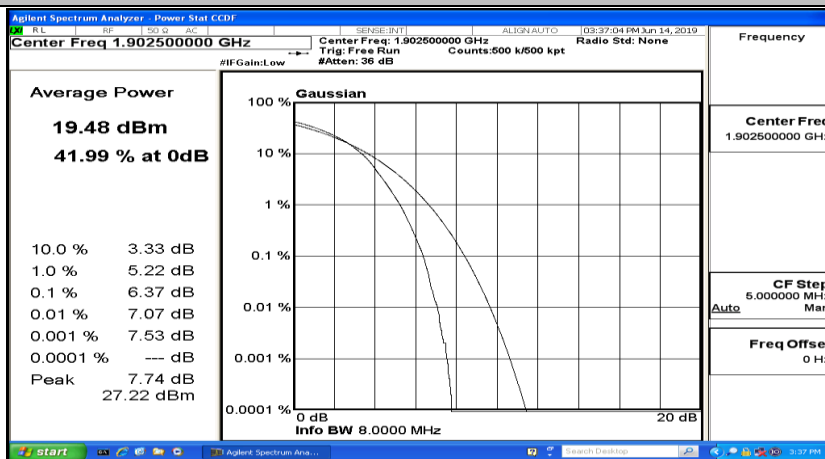
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:15 MHz)\_LCH\_16QAM



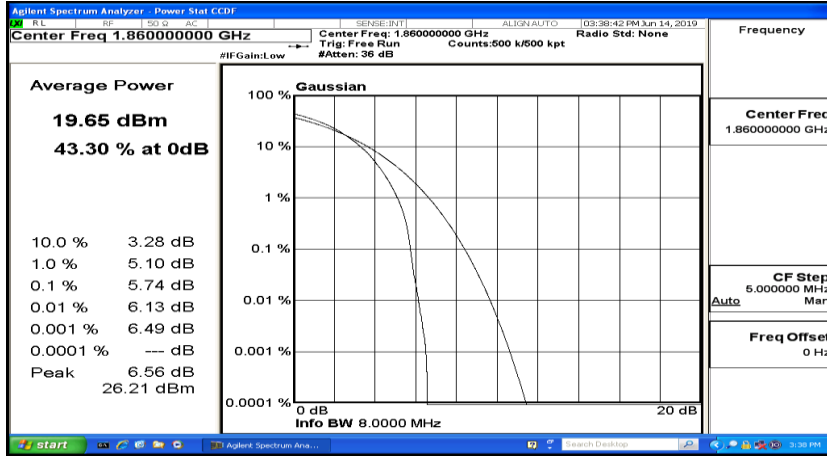
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:15 MHz)\_MCH\_16QAM



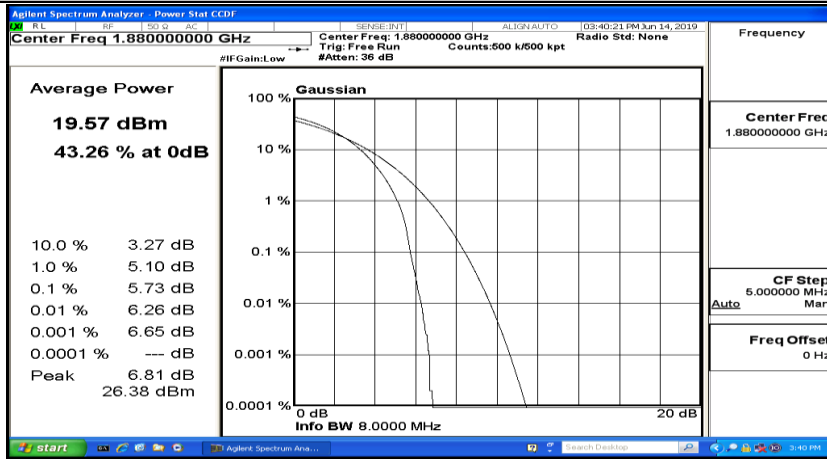
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:15 MHz)\_HCH\_16QAM



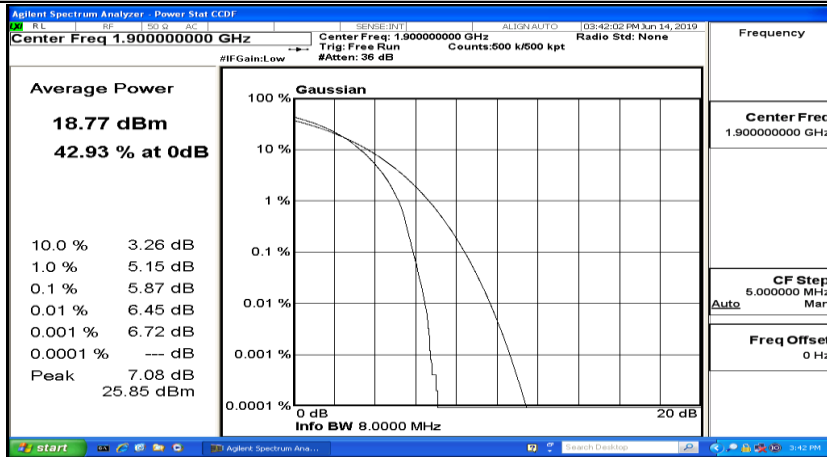
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:20 MHz) LCH\_QPSK



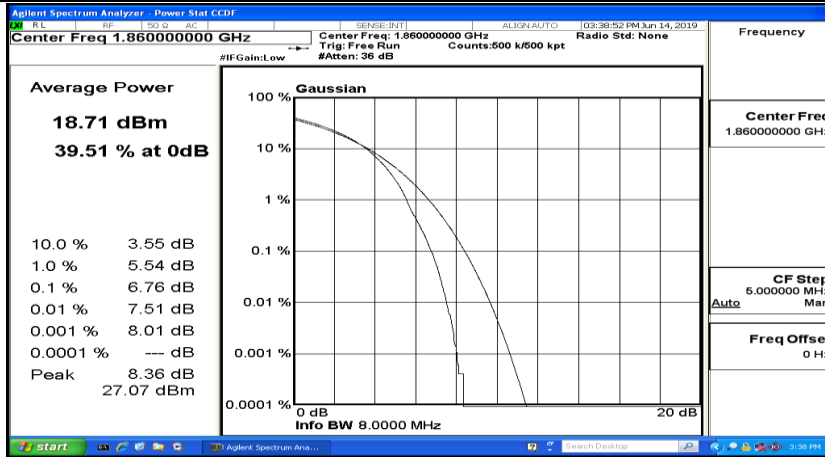
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:20 MHz) MCH\_QPSK



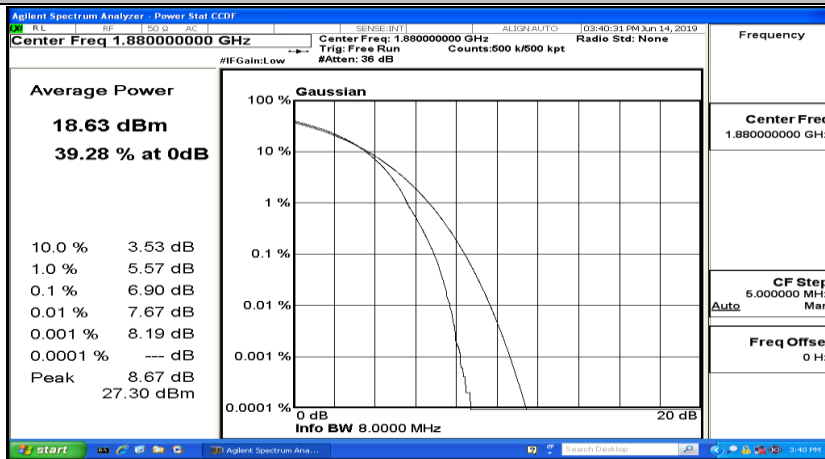
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:20 MHz) HCH\_QPSK



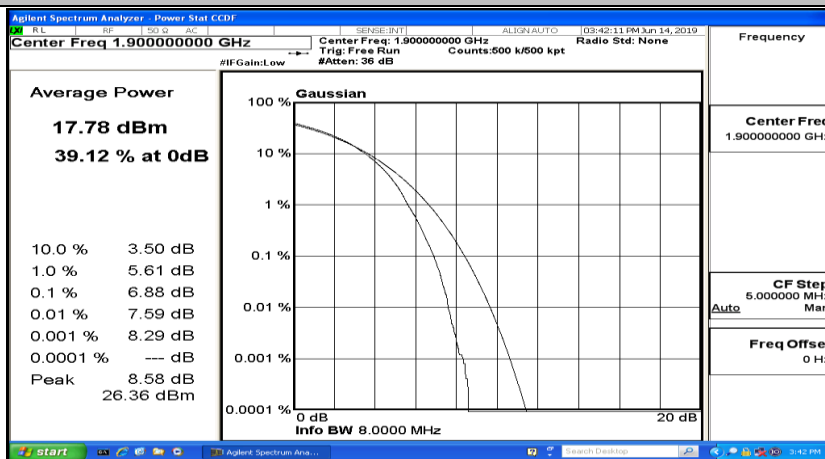
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth:20 MHz)\_LCH\_16QAM



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



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

<b>EBW &amp; OBW Test Result (Channel Bandwidth: 1.4 MHz)</b>				
Modulation	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
QPSK	LCH	1.0800	1.286	PASS
	MCH	1.0758	1.228	PASS
	HCH	1.0816	1.343	PASS
16QAM	LCH	1.0817	1.264	PASS
	MCH	1.0815	1.256	PASS
	HCH	1.0775	1.321	PASS

<b>EBW &amp; OBW Test Result (Channel Bandwidth: 3 MHz)</b>				
Modulation	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
QPSK	LCH	2.6889	2.902	PASS
	MCH	2.6825	2.897	PASS
	HCH	2.6860	2.977	PASS
16QAM	LCH	2.6847	2.899	PASS
	MCH	2.6909	2.935	PASS
	HCH	2.6898	2.938	PASS

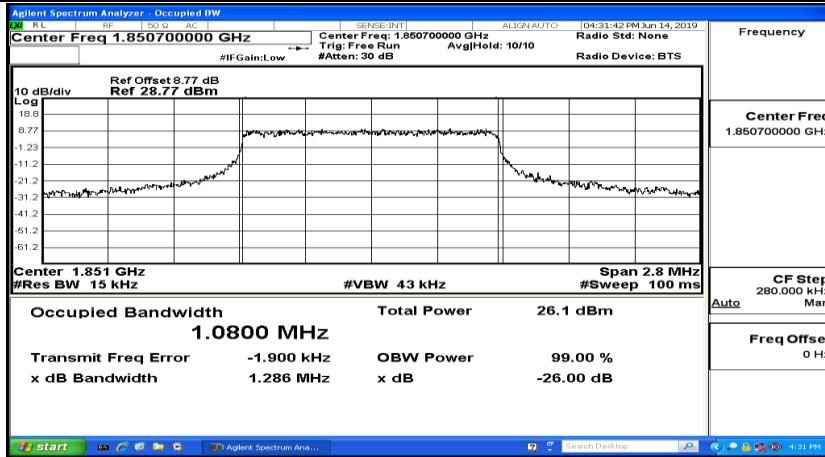
<b>EBW &amp; OBW Test Result (Channel Bandwidth: 5 MHz)</b>				
Modulation	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
QPSK	LCH	4.4792	4.837	PASS
	MCH	4.4773	4.874	PASS
	HCH	4.4718	4.811	PASS
16QAM	LCH	4.4800	4.828	PASS
	MCH	4.4660	4.829	PASS
	HCH	4.4758	4.891	PASS

<b>EBW &amp; OBW Test Result (Channel Bandwidth: 10 MHz)</b>				
Modulation	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
QPSK	LCH	8.9199	9.476	PASS
	MCH	8.9512	9.467	PASS
	HCH	8.9350	9.422	PASS
16QAM	LCH	8.9111	9.415	PASS
	MCH	8.9329	9.499	PASS
	HCH	8.9367	9.534	PASS

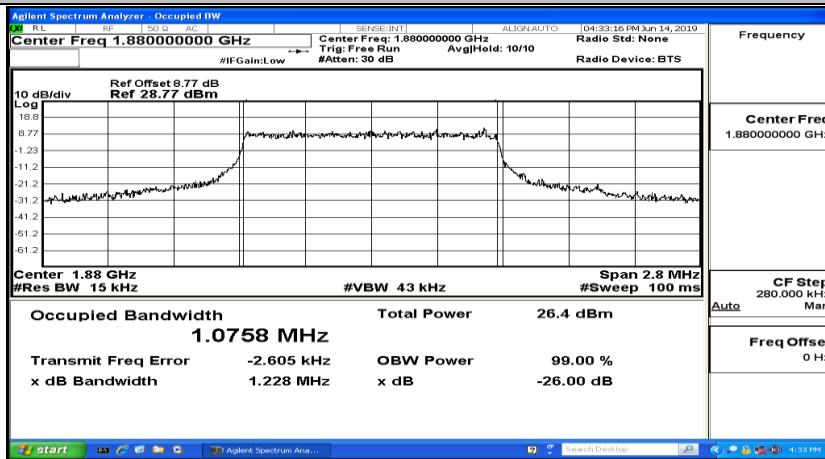
<b>EBW &amp; OBW Test Result (Channel Bandwidth: 15 MHz)</b>				
Modulation	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
QPSK	LCH	13.377	14.01	PASS
	MCH	13.401	14.18	PASS
	HCH	13.405	14.10	PASS
16QAM	LCH	13.367	14.02	PASS
	MCH	13.409	14.01	PASS
	HCH	13.403	14.05	PASS

<b>EBW &amp; OBW Test Result (Channel Bandwidth: 20 MHz)</b>				
Modulation	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
QPSK	LCH	17.815	18.59	PASS
	MCH	17.870	18.69	PASS
	HCH	17.904	18.73	PASS
16QAM	LCH	17.824	18.56	PASS
	MCH	17.876	18.63	PASS
	HCH	17.895	18.75	PASS

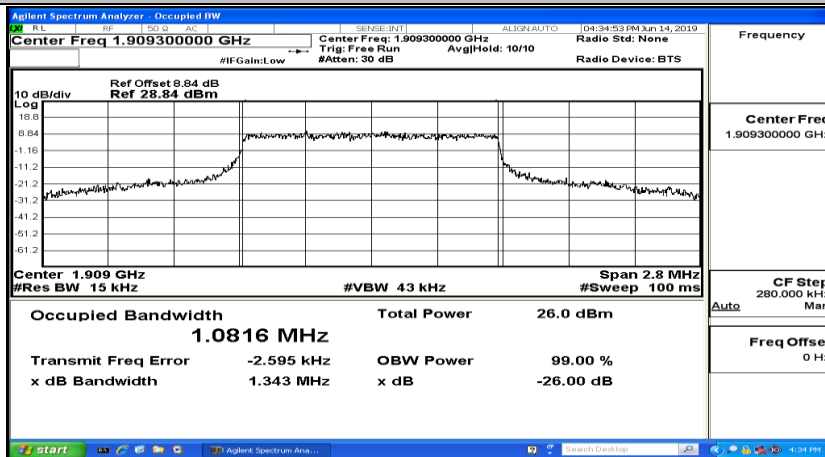
EBW & OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)\_LCH\_QPSK



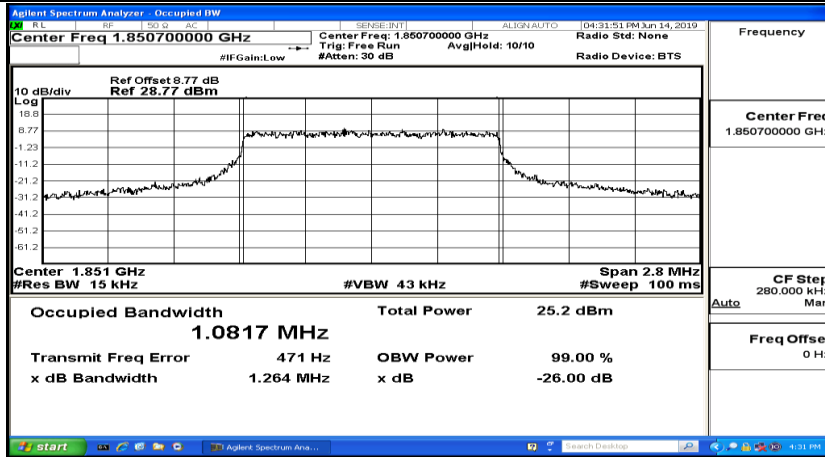
EBW & OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)\_MCH\_QPSK



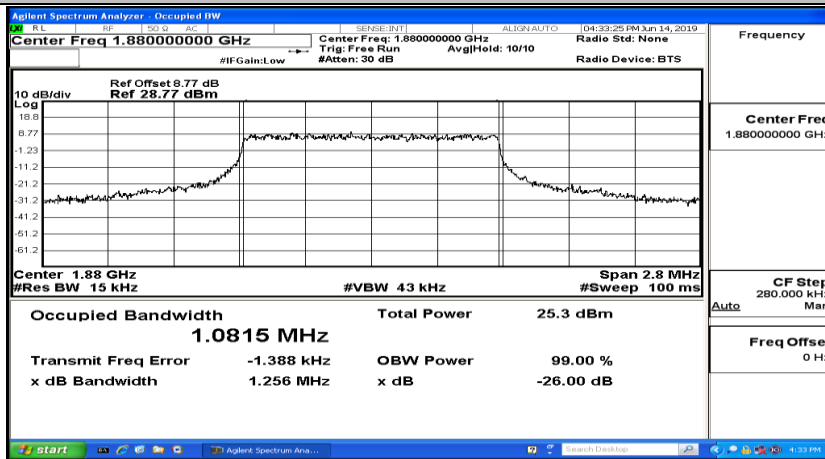
EBW & OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)\_HCH\_QPSK



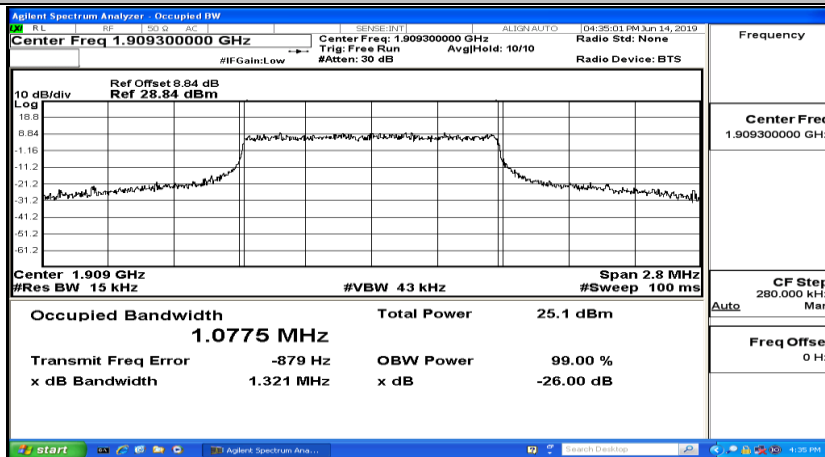
EBW & OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)\_LCH\_16QAM



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

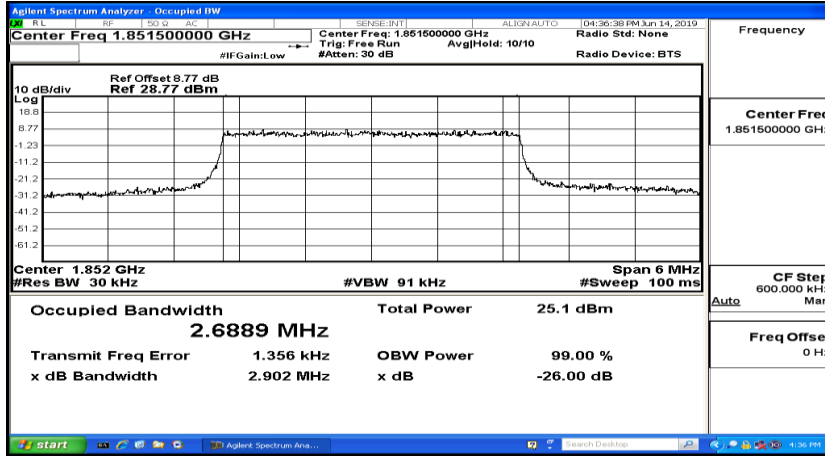


EBW & OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)\_HCH\_16QAM

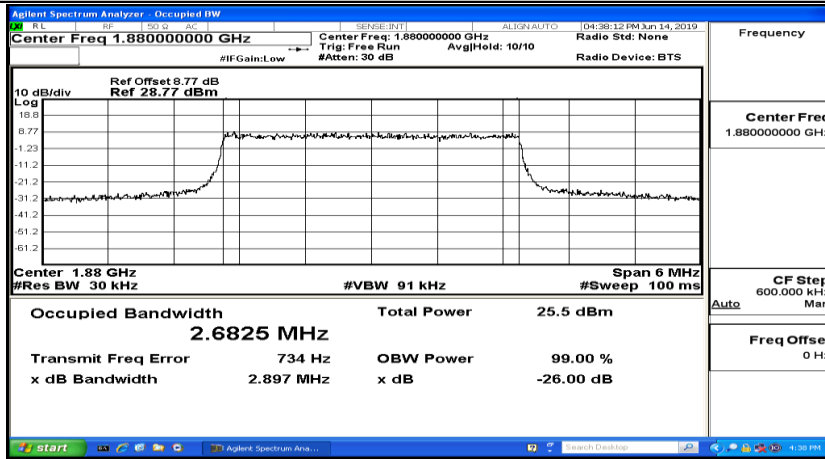




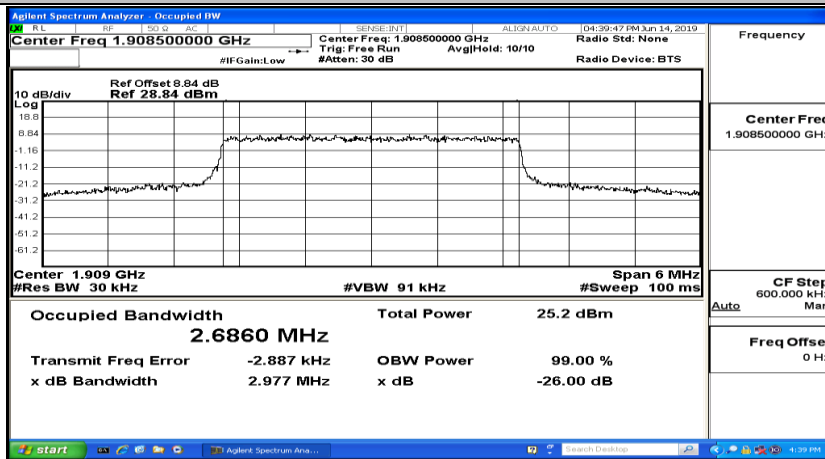
EBW & OBW Test Graph(s) (Channel Bandwidth: 3 MHz)\_LCH\_QPSK



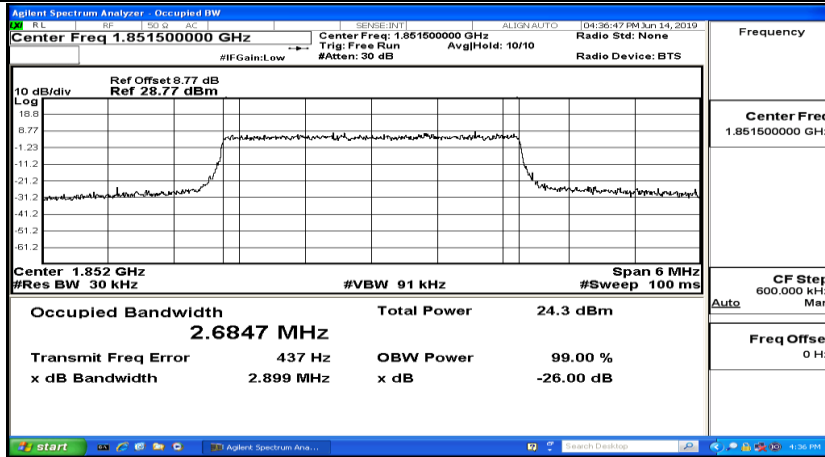
EBW & OBW Test Graph(s) (Channel Bandwidth: 3 MHz)\_MCH\_QPSK



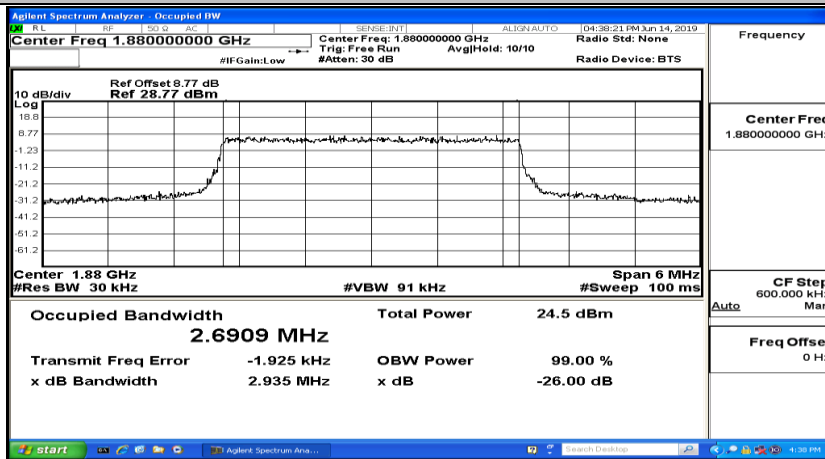
EBW & OBW Test Graph(s) (Channel Bandwidth: 3 MHz)\_HCH\_QPSK



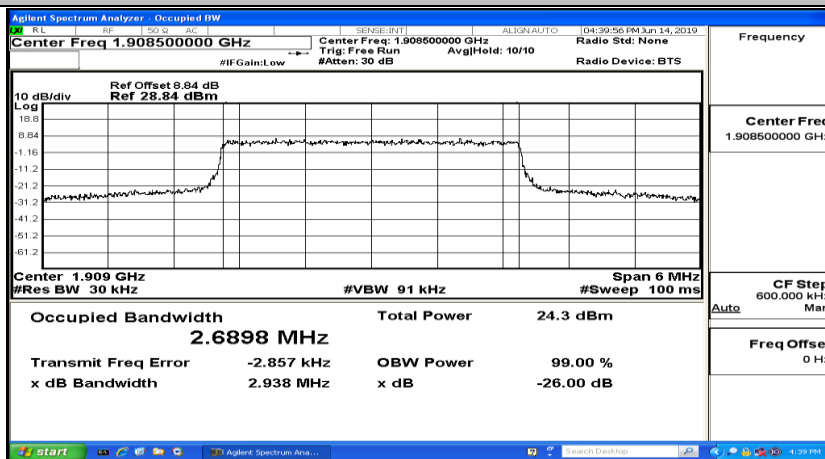
EBW & OBW Test Graph(s) (Channel Bandwidth: 3 MHz)\_LCH\_16QAM



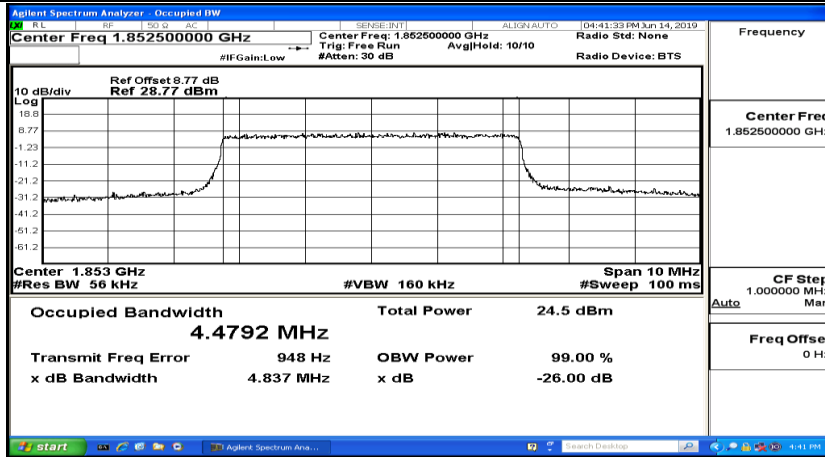
EBW & OBW Test Graph(s) (Channel Bandwidth: 3 MHz)\_MCH\_16QAM



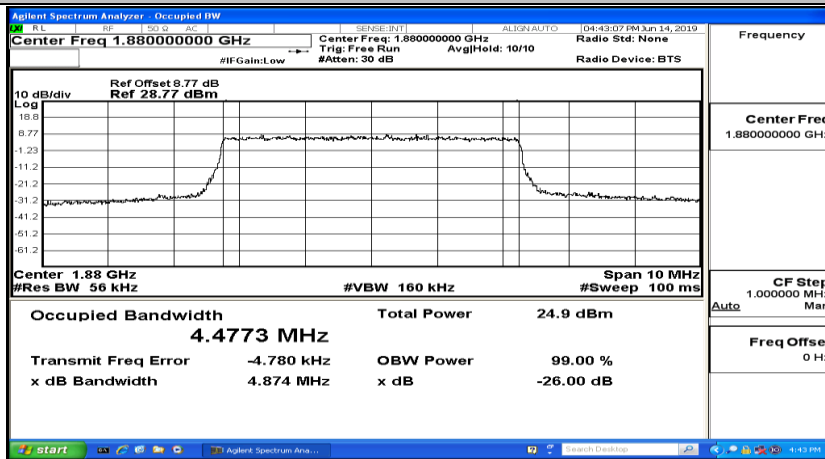
EBW & OBW Test Graph(s) (Channel Bandwidth: 3 MHz)\_HCH\_16QAM



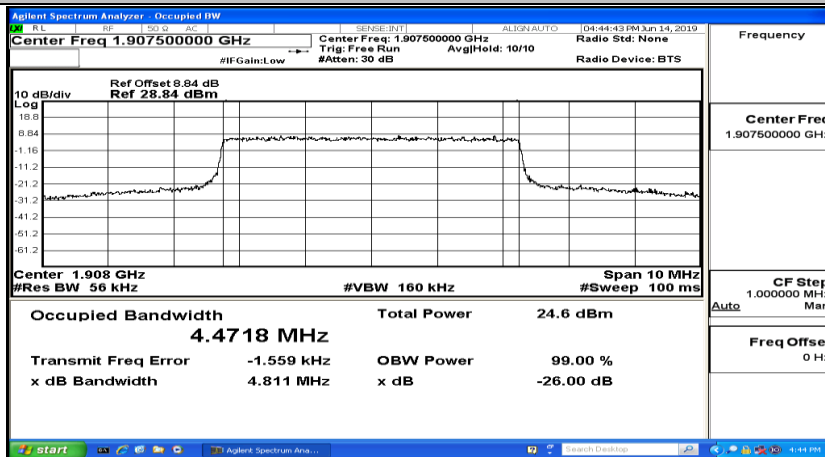
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)\_LCH\_QPSK



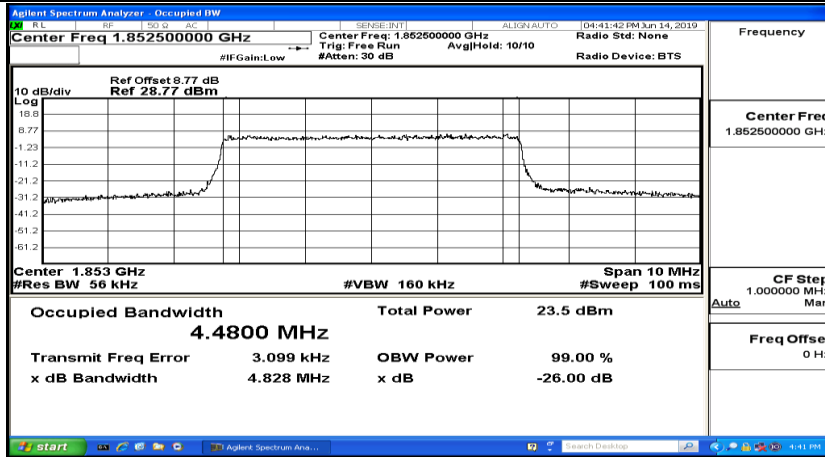
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)\_MCH\_QPSK



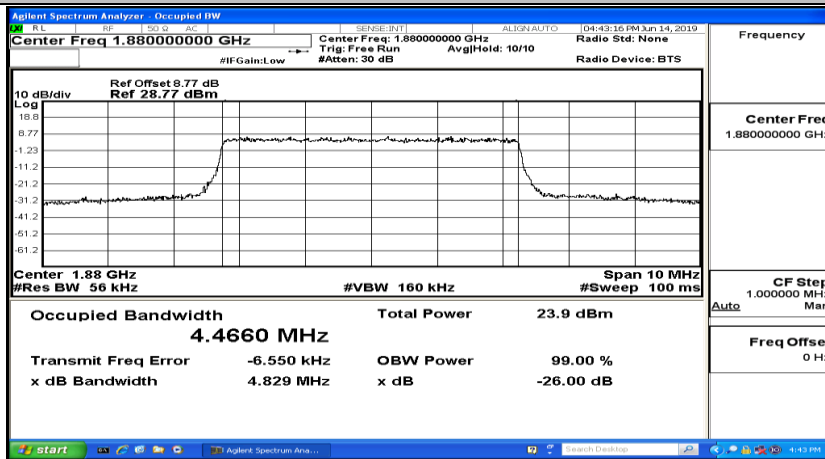
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)\_HCH\_QPSK



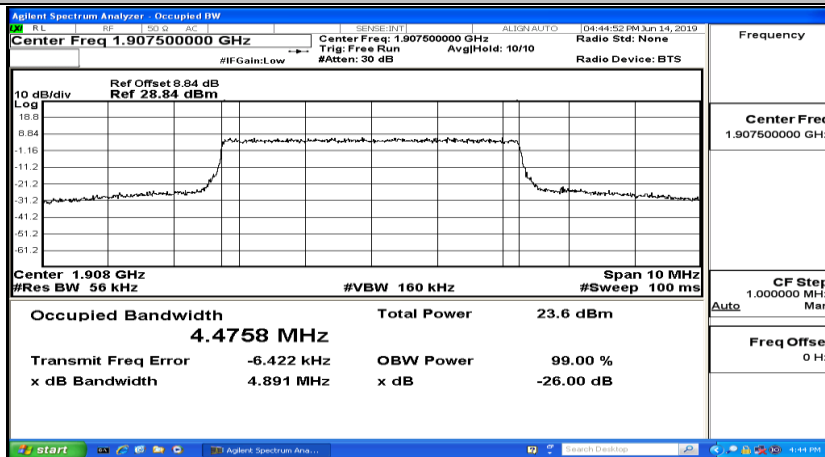
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)\_LCH\_16QAM



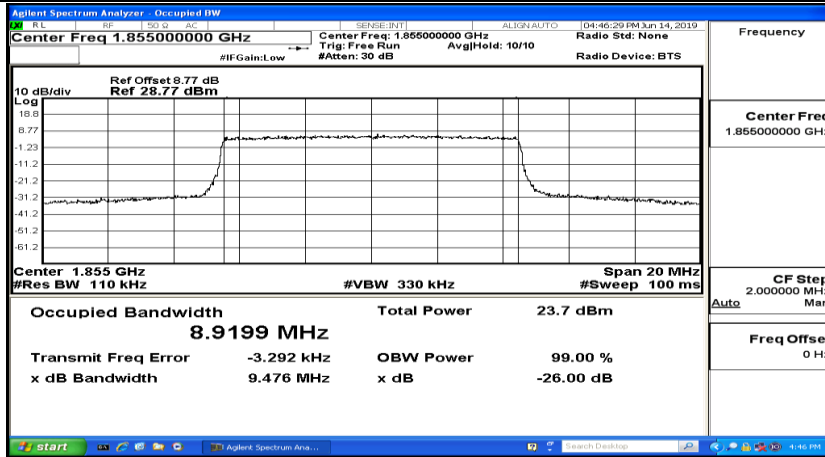
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)\_MCH\_16QAM



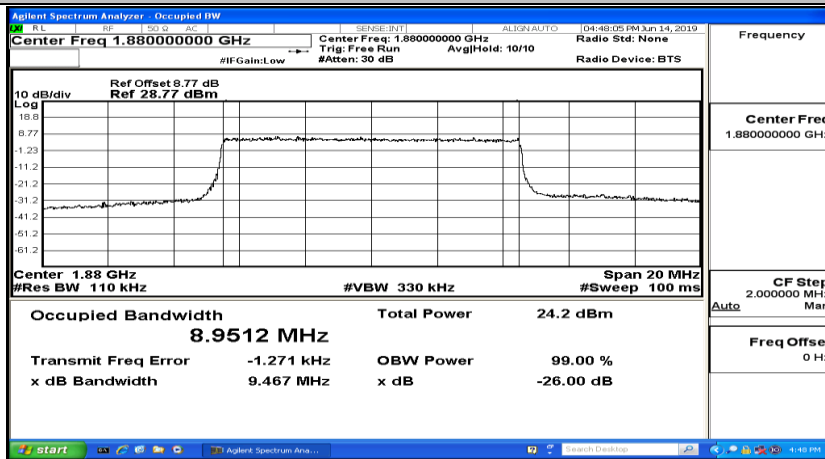
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)\_HCH\_16QAM



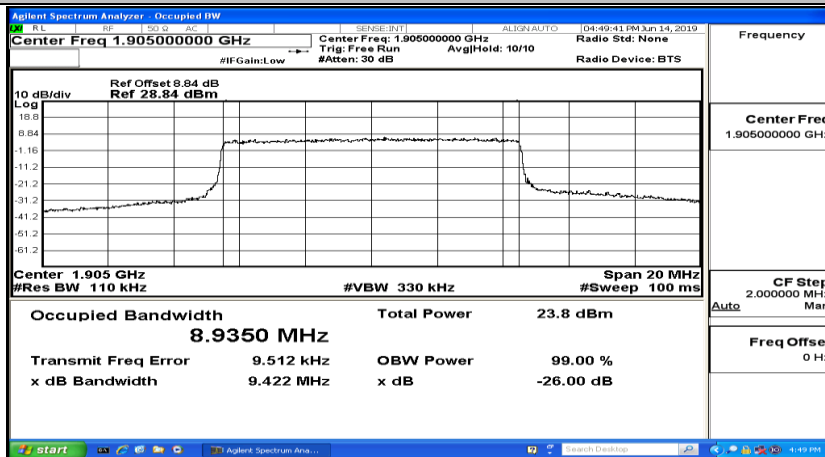
EBW & OBW Test Graph(s) (Channel Bandwidth: 10 MHz)\_LCH\_QPSK



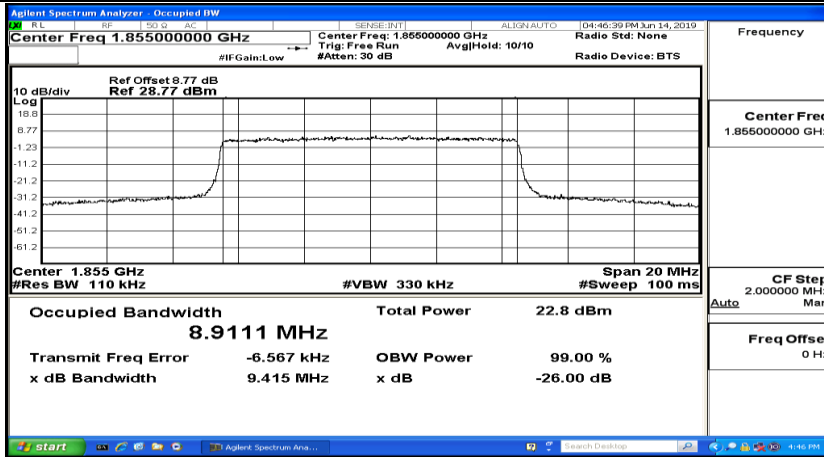
EBW & OBW Test Graph(s) (Channel Bandwidth: 10 MHz)\_MCH\_QPSK



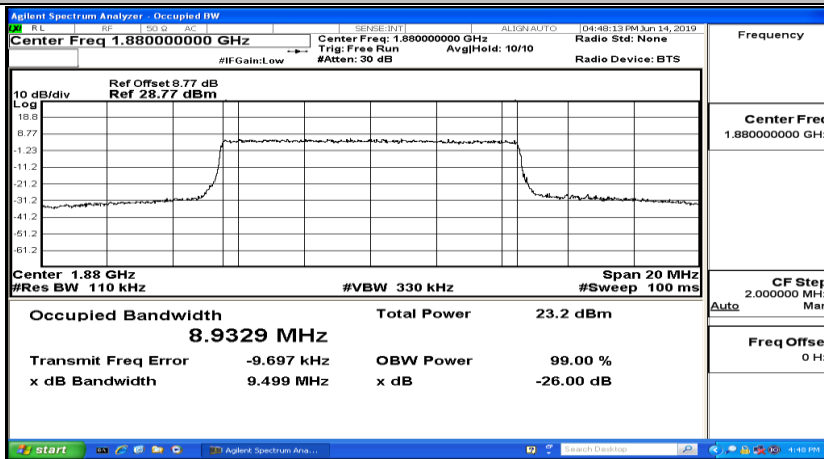
EBW & OBW Test Graph(s) (Channel Bandwidth: 10 MHz)\_HCH\_QPSK



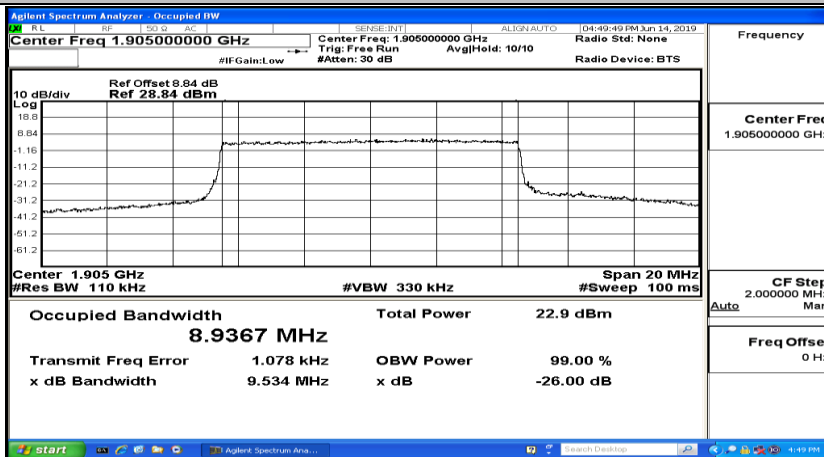
EBW & OBW Test Graph(s) (Channel Bandwidth: 10 MHz)\_LCH\_16QAM



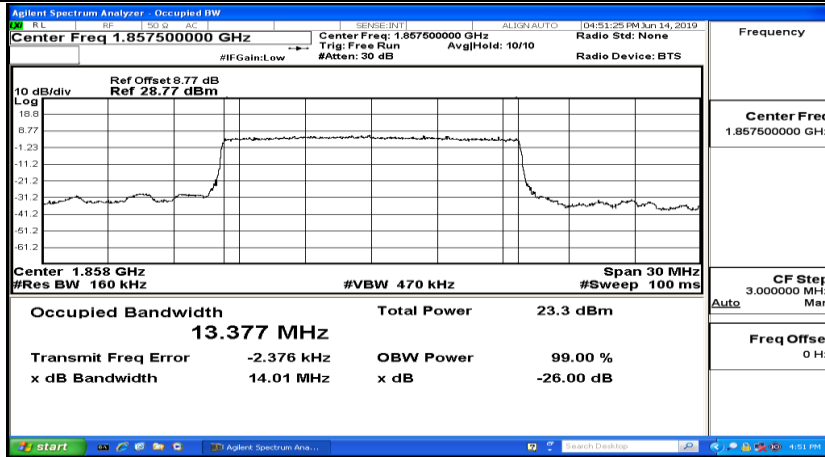
EBW & OBW Test Graph(s) (Channel Bandwidth: 10 MHz)\_MCH\_16QAM



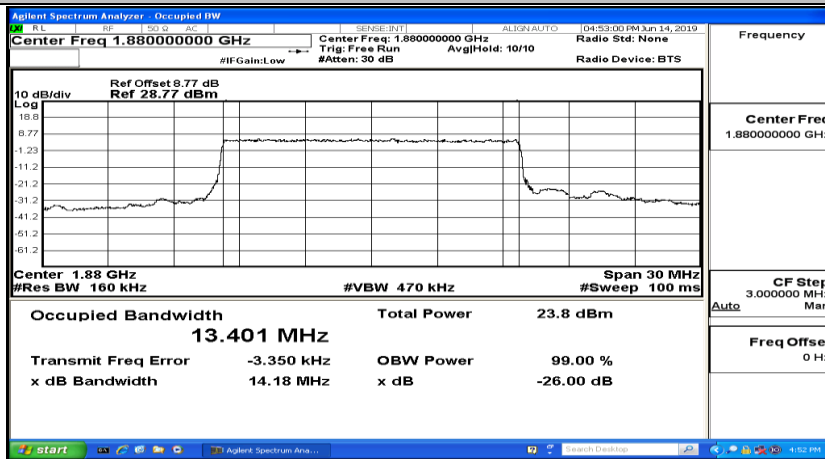
EBW & OBW Test Graph(s) (Channel Bandwidth: 10 MHz)\_HCH\_16QAM



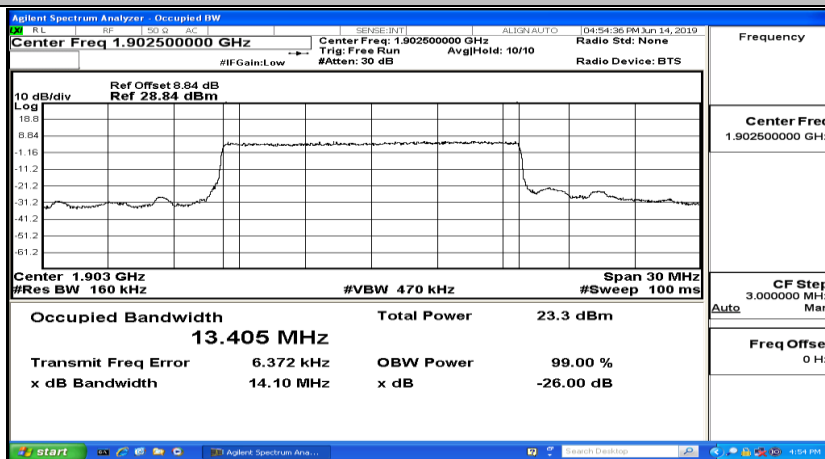
EBW & OBW Test Graph(s) (Channel Bandwidth:15 MHz)\_LCH\_QPSK



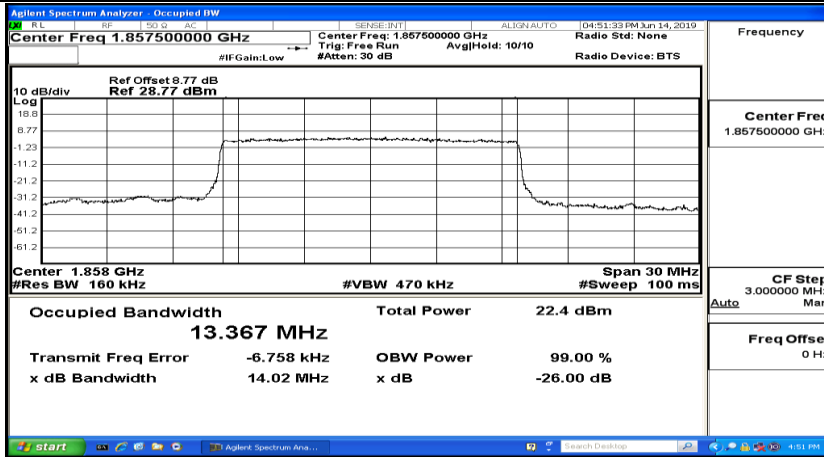
EBW & OBW Test Graph(s) (Channel Bandwidth:15 MHz)\_MCH\_QPSK



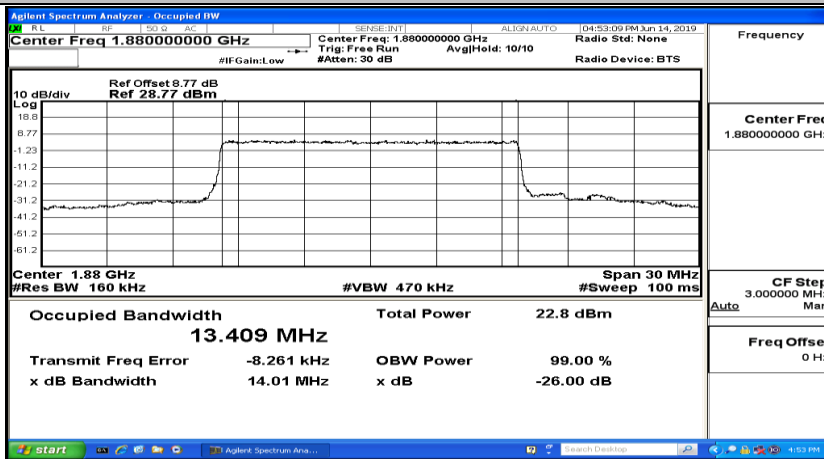
EBW & OBW Test Graph(s) (Channel Bandwidth:15 MHz)\_HCH\_QPSK



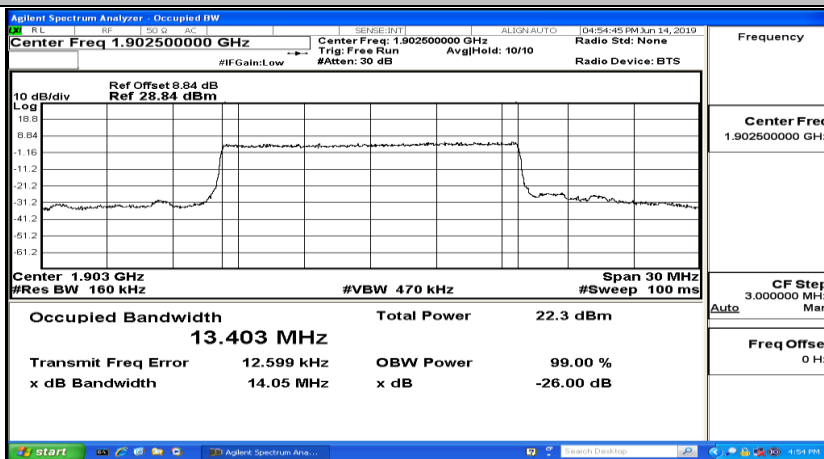
EBW & OBW Test Graph(s) (Channel Bandwidth:15 MHz)\_LCH\_16QAM



EBW & OBW Test Graph(s) (Channel Bandwidth:15 MHz)\_MCH\_16QAM

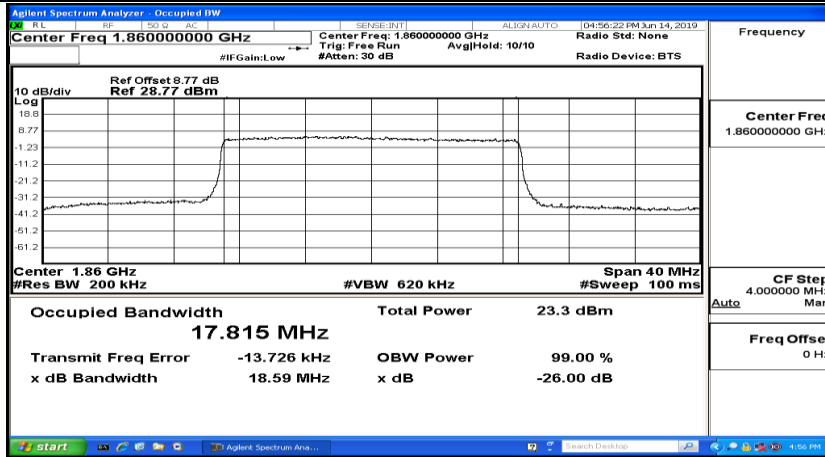


EBW & OBW Test Graph(s) (Channel Bandwidth:15 MHz)\_HCH\_16QAM

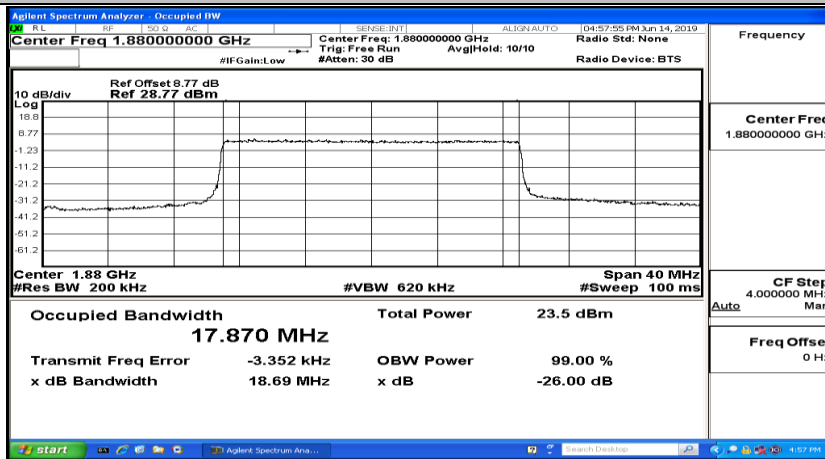




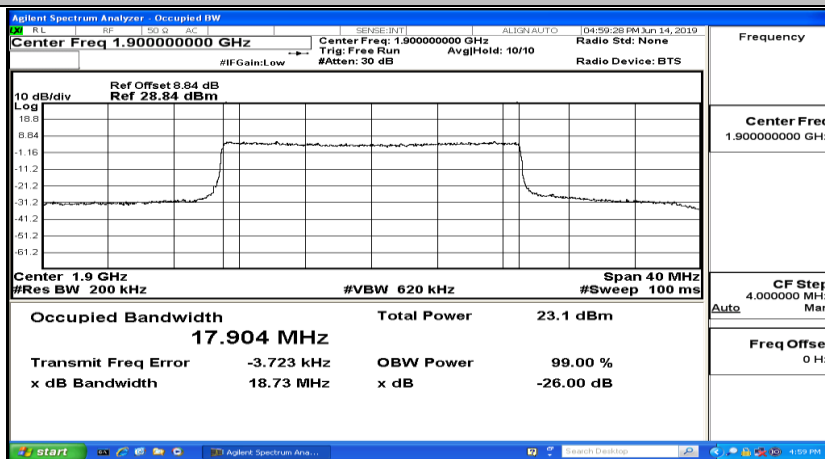
EBW & OBW Test Graph(s) (Channel Bandwidth:20 MHz)\_LCH\_QPSK



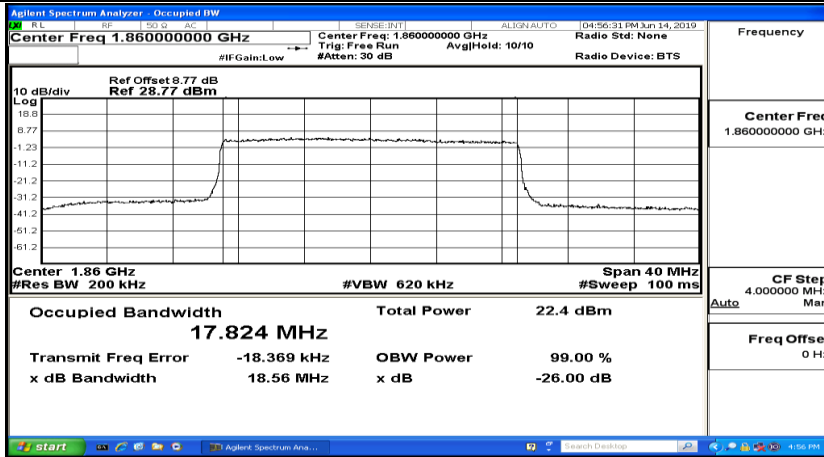
EBW & OBW Test Graph(s) (Channel Bandwidth:20 MHz)\_MCH\_QPSK



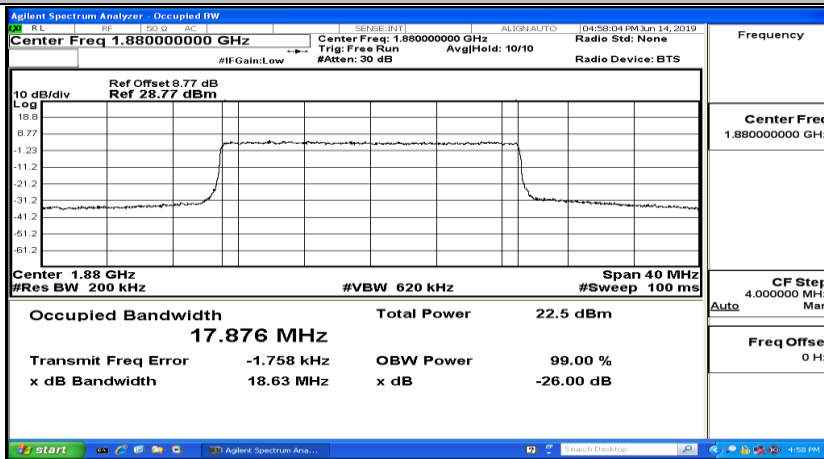
EBW & OBW Test Graph(s) (Channel Bandwidth:20 MHz)\_HCH\_QPSK



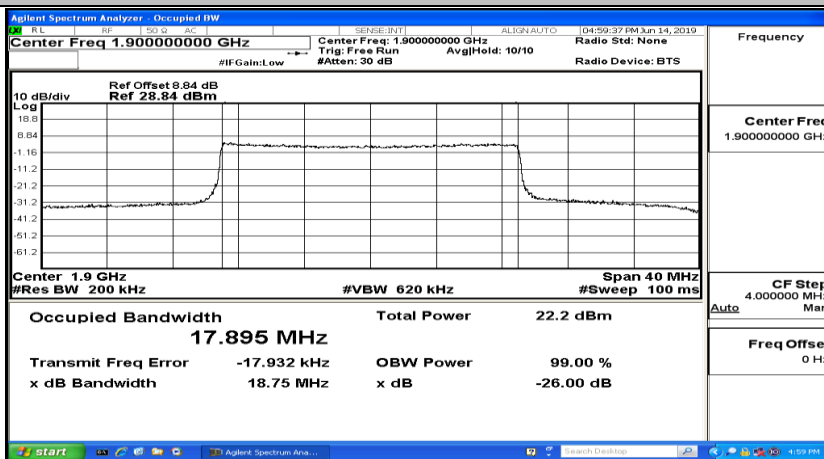
EBW & OBW Test Graph(s) (Channel Bandwidth:20 MHz)\_LCH\_16QAM



EBW & OBW Test Graph(s) (Channel Bandwidth:20 MHz)\_MCH\_16QAM

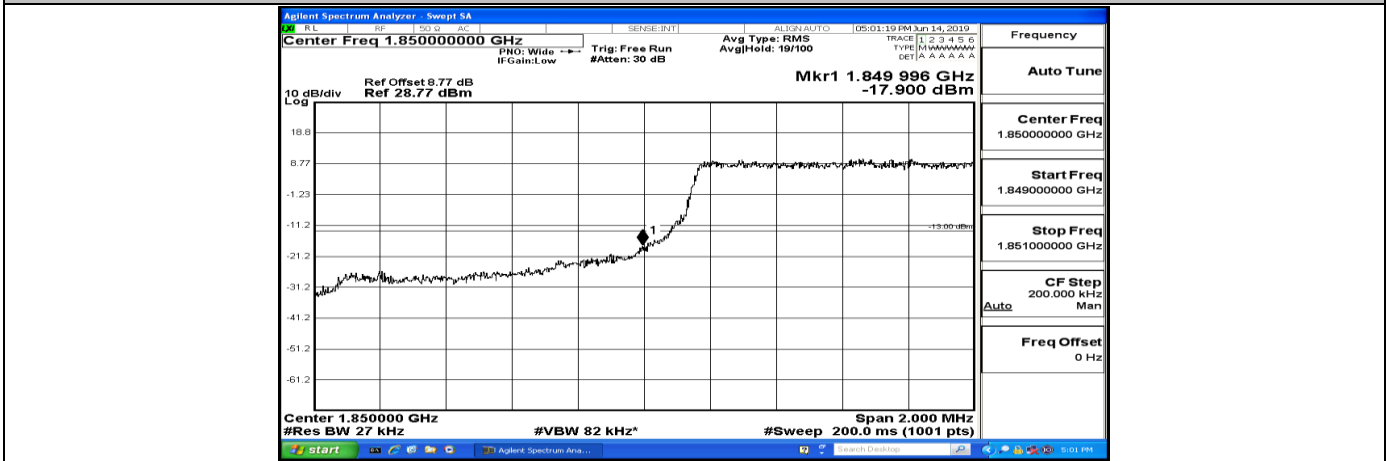


EBW & OBW Test Graph(s) (Channel Bandwidth:20 MHz)\_HCH\_16QAM

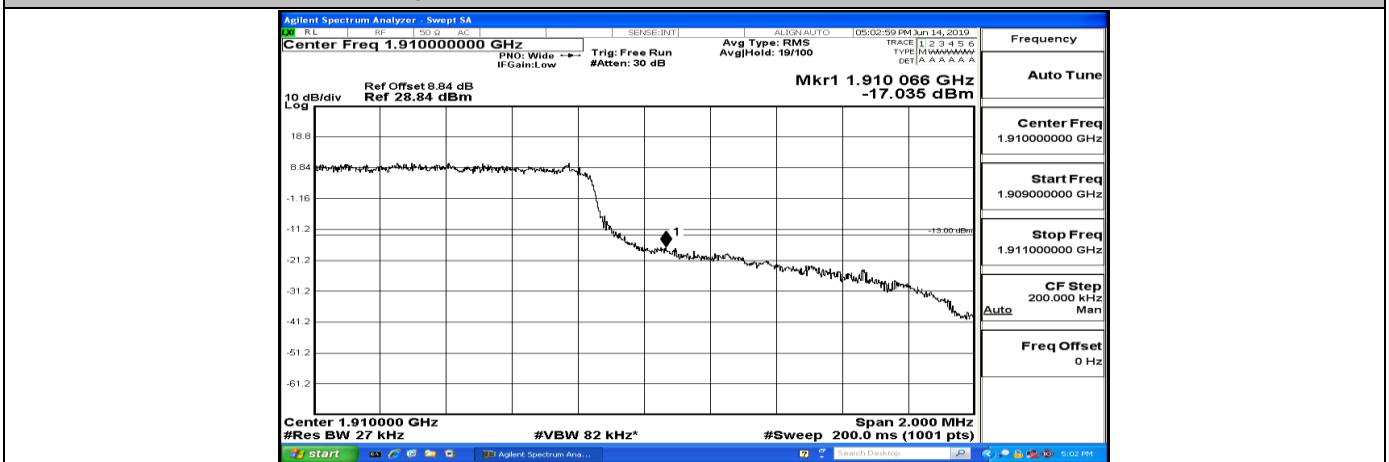


### A.4 Band Edge

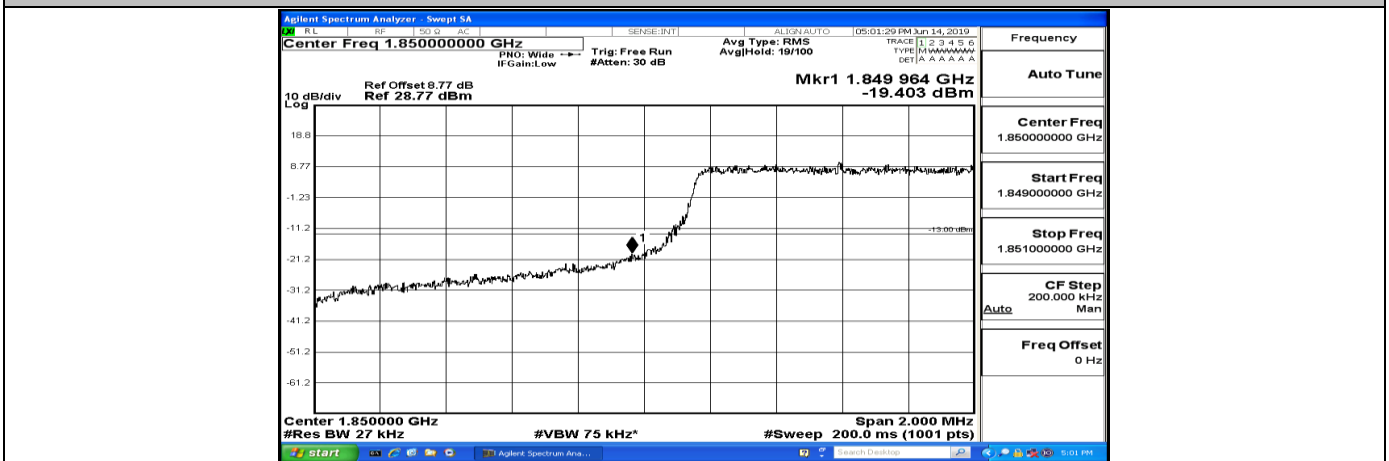
Band Edge Test Graph(s) (Channel Bandwidth: 1.4 MHz)\_LCH\_QPSK



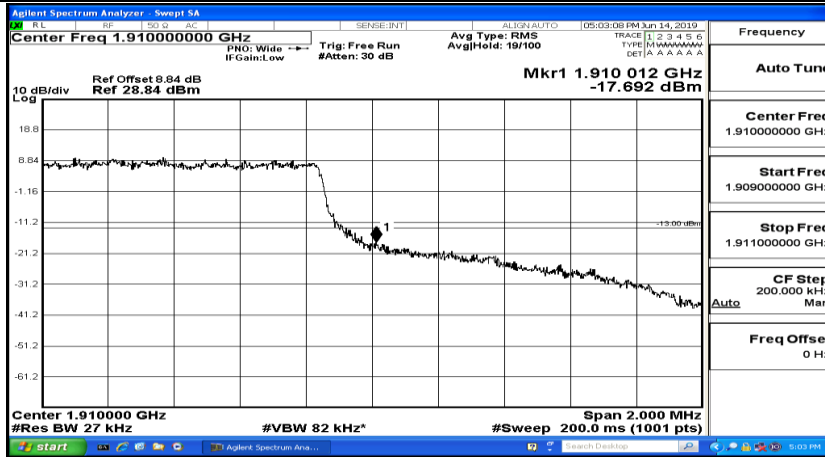
Band Edge Test Graph(s) (Channel Bandwidth: 1.4 MHz)\_HCH\_QPSK



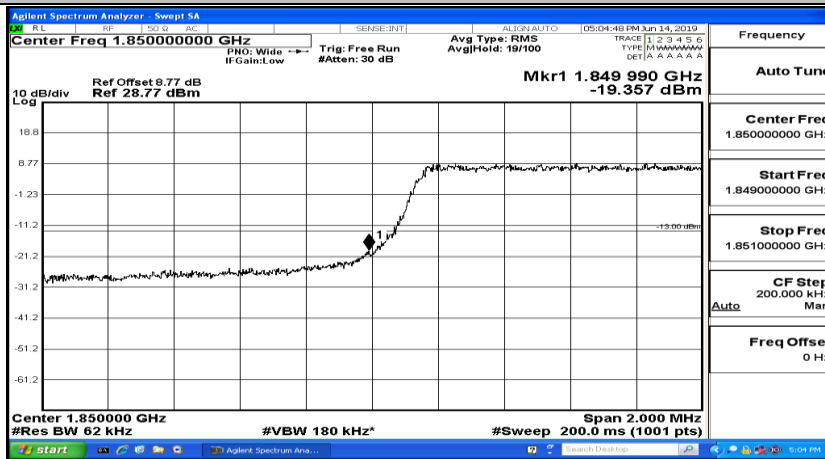
Band Edge Test Graph(s) (Channel Bandwidth: 1.4 MHz)\_LCH\_16QAM



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

