Appendix D: Test Data for E-UTRA Band 5

Product Name: Smart Phone
Test Model: ELUGA RAY 800

Environmental Conditions

Temperature:	23.6℃
Relative Humidity:	52.7%
ATM Pressure:	100.0 kPa
Test Engineer:	Wang Chuang
Supervised by:	Calvin Weng

D.1 Conducted Output Power

<SIM1>

Conducted Output Power Test Result (Channel Bandwidth: 1.4 MHz)						
Modulation	Channel	RB Configuration		Average Power [dBm]	Average Power [dBm]	Verdict
		Size	Offset	QPSK	16QAM	
QPSK / 16QAM	LCH	1	0	23.80	22.90	PASS
		1	3	23.61	22.95	PASS
		1	5	23.55	22.92	PASS
		3	0	23.67	22.80	PASS
		3	2	23.76	22.86	PASS
		3	3	23.75	22.83	PASS
		6	0	22.73	21.71	PASS
	MCH	1	0	23.12	22.19	PASS
		1	3	22.93	22.42	PASS
		1	5	22.96	22.06	PASS
		3	0	22.97	21.78	PASS
		3	2	23.10	22.02	PASS
		3	3	22.99	22.15	PASS
		6	0	22.36	21.13	PASS
	HCH	1	0	23.26	22.80	PASS
		1	3	23.29	22.41	PASS
		1	5	23.20	22.37	PASS
		3	0	23.26	22.34	PASS
		3	2	23.46	22.38	PASS
		3	3	23.36	22.63	PASS
		6	0	22.52	21.45	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	23.66	22.94	PASS
		1	7	23.54	22.78	PASS
		1	14	23.52	22.77	PASS
		8	0	22.78	21.87	PASS
		8	4	22.68	21.79	PASS
		8	7	22.63	21.72	PASS
		15	0	22.74	21.75	PASS
	MCH	1	0	22.80	21.91	PASS
		1	7	22.76	21.79	PASS
		1	14	22.66	21.96	PASS
		8	0	22.19	21.17	PASS
		8	4	22.15	21.18	PASS
		8	7	22.27	21.05	PASS
		15	0	22.03	21.10	PASS
	HCH	1	0	23.14	22.51	PASS
		1	7	23.11	22.45	PASS
		1	14	23.51	22.32	PASS
		8	0	22.49	21.43	PASS
		8	4	22.50	21.38	PASS
		8	7	22.55	21.60	PASS
		15	0	22.30	21.45	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	23.62	22.91	PASS
		1	12	23.52	22.72	PASS
		1	24	23.50	22.74	PASS
		12	0	22.80	21.92	PASS
		12	6	22.74	21.87	PASS
		12	13	22.62	21.75	PASS
		25	0	22.70	21.73	PASS
	MCH	1	0	22.96	22.46	PASS
		1	12	22.47	21.82	PASS
		1	24	22.17	21.61	PASS
		12	0	22.08	21.26	PASS
		12	6	22.19	21.16	PASS
		12	13	22.07	21.07	PASS
		25	0	22.11	21.06	PASS
	HCH	1	0	23.31	22.17	PASS
		1	12	23.49	22.45	PASS
		1	24	23.20	21.62	PASS
		12	0	22.28	21.30	PASS
		12	6	22.46	21.52	PASS
		12	13	22.50	21.41	PASS
		25	0	22.61	21.48	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	23.76	22.94	PASS
		1	24	23.60	22.75	PASS
		1	49	23.55	22.90	PASS
		25	0	22.87	21.86	PASS
		25	12	22.69	21.50	PASS
		25	25	22.54	21.57	PASS
		50	0	22.71	21.74	PASS
	MCH	1	0	23.38	22.63	PASS
		1	24	22.69	22.35	PASS
		1	49	22.00	21.07	PASS
		25	0	22.08	21.24	PASS
		25	12	22.11	21.08	PASS
		25	25	22.08	21.02	PASS
		50	0	22.39	21.34	PASS
	HCH	1	0	23.22	22.49	PASS
		1	24	23.62	22.86	PASS
		1	49	22.77	22.18	PASS
		25	0	22.17	21.28	PASS
		25	12	22.34	21.38	PASS
		25	25	22.46	21.49	PASS
		50	0	22.40	21.42	PASS

\<SIM2\>

Modulation	Channel	RB Configuration		Average Power [dBm]	Average Power [dBm]	Verdict
		Size	Offset	QPSK	16QAM	
QPSK / 16QAM	LCH	1	0	23.85	22.73	PASS
		1	3	23.64	22.74	PASS
		1	5	23.57	22.69	PASS
		3	0	23.63	22.59	PASS
		3	2	23.73	22.61	PASS
		3	3	23.79	22.59	PASS
		6	0	22.75	21.54	PASS
	MCH	1	0	23.14	22.02	PASS
		1	3	22.95	22.19	PASS
		1	5	22.93	21.81	PASS
		3	0	23.00	21.59	PASS
		3	2	23.15	21.81	PASS
		3	3	23.01	21.97	PASS
		6	0	22.70	21.17	PASS
	HCH	1	0	23.24	22.59	PASS
		1	3	23.31	22.21	PASS
		1	5	23.18	22.15	PASS
		3	0	23.21	22.17	PASS
		3	2	23.42	22.17	PASS
		3	3	23.37	22.45	PASS
		6	0	22.47	21.26	PASS

Conducted Output Power Test Result (Channel Bandwidth: 1.4 MHz)

Conducted Output Power Test Result (Channel Bandwidth: 3 MHz)						
Modulation	Channel	RB Configuration		Average Power [dBm]	Average Power [dBm]	Verdict
		Size	Offset	QPSK	16QAM	
QPSK / 16QAM	LCH	1	0	23.69	22.71	PASS
		1	7	23.53	22.59	PASS
		1	14	23.54	22.61	PASS
		8	0	22.79	21.62	PASS
		8	4	22.64	21.57	PASS
		8	7	22.60	21.51	PASS
		15	0	22.72	21.56	PASS
	MCH	1	0	22.78	21.66	PASS
		1	7	22.75	21.63	PASS
		1	14	22.71	21.71	PASS
		8	0	22.10	21.06	PASS
		8	4	22.06	21.02	PASS
		8	7	22.15	21.09	PASS
		15	0	22.24	21.15	PASS
	HCH	1	0	23.14	22.28	PASS
		1	7	23.15	22.28	PASS
		1	14	23.48	22.09	PASS
		8	0	22.51	21.22	PASS
		8	4	22.49	21.22	PASS
		8	7	22.55	21.43	PASS
		15	0	22.26	21.27	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	23.62	22.67	PASS
		1	12	23.53	22.55	PASS
		1	24	23.47	22.49	PASS
		12	0	22.76	21.72	PASS
		12	6	22.72	21.68	PASS
		12	13	22.58	21.51	PASS
		25	0	22.69	21.51	PASS
	MCH	1	0	22.94	22.28	PASS
		1	12	22.43	21.63	PASS
		1	24	22.21	21.38	PASS
		12	0	22.10	21.02	PASS
		12	6	22.33	21.05	PASS
		12	13	22.34	21.08	PASS
		25	0	22.33	21.02	PASS
	HCH	1	0	23.34	21.95	PASS
		1	12	23.49	22.24	PASS
		1	24	23.17	21.44	PASS
		12	0	22.24	21.05	PASS
		12	6	22.51	21.33	PASS
		12	13	22.48	21.24	PASS
		25	0	22.61	21.24	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	23.77	22.69	PASS
		1	24	23.61	22.54	PASS
		1	49	23.56	22.73	PASS
		25	0	22.85	21.61	PASS
		25	12	22.72	21.31	PASS
		25	25	22.56	21.36	PASS
		50	0	22.74	21.53	PASS
	MCH	1	0	23.43	22.40	PASS
		1	24	22.67	22.11	PASS
		1	49	22.41	21.15	PASS
		25	0	22.12	21.08	PASS
		25	12	22.35	21.04	PASS
		25	25	22.40	21.08	PASS
		50	0	22.36	21.11	PASS
	HCH	1	0	23.22	22.26	PASS
		1	24	23.63	22.61	PASS
		1	49	22.74	21.96	PASS
		25	0	22.19	21.06	PASS
		25	12	22.30	21.20	PASS
		25	25	22.46	21.29	PASS
		50	0	22.43	21.17	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	4.89	<13	PASS
	MCH	4.35	<13	PASS
	HCH	4.29	<13	PASS
16QAM	LCH	5.7	<13	PASS
	MCH	5.19	<13	PASS
	HCH	5.11	<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	4.58	<13	PASS
	HCH	4.56	<13	PASS
16QAM	LCH	5.91	<13	PASS
	MCH	5.34	<13	PASS
	HCH	5.24	<13	PASS

Peak-to Average Ratio Test Result (Channel Bandwidth: 5 MHz)				
Modulation	Channel	Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
QPSK	LCH	5.16	<13	PASS
	MCH	4.53	<13	PASS
	HCH	4.49	<13	PASS
16QAM	LCH	5.9	<13	PASS
	MCH	5.3	<13	PASS
	HCH	5.31	<13	PASS

Peak-to Average Ratio Test Result (Channel Bandwidth: 10 MHz)				
Modulation	Channel	Peak-to-Average Ratio [dB]	Limit [dB]	Verdict
QPSK	LCH	5.2	<13	PASS
	MCH	4.83	<13	PASS
	HCH	4.77	<13	PASS
16QAM	LCH	5.95	<13	PASS
	MCH	5.53	<13	PASS
	HCH	5.56	<13	PASS

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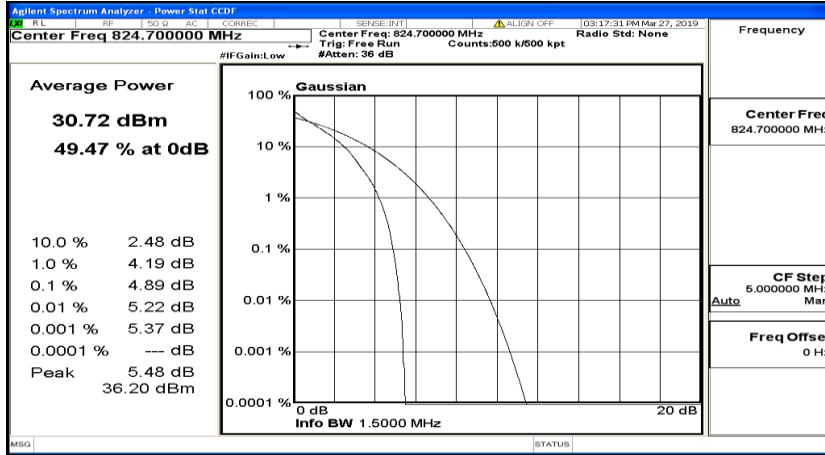
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 1.4 MHz)_MCH_QPSK

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

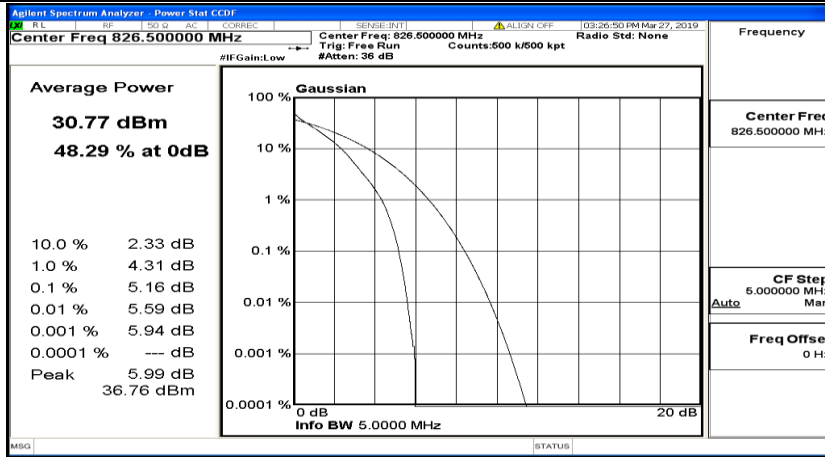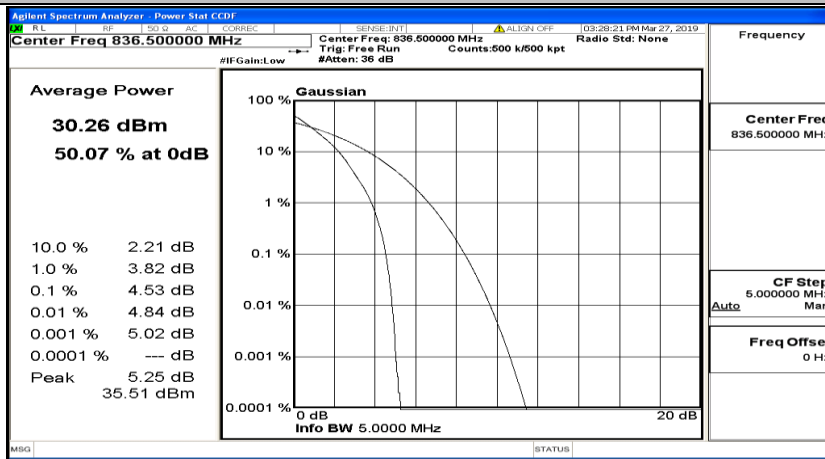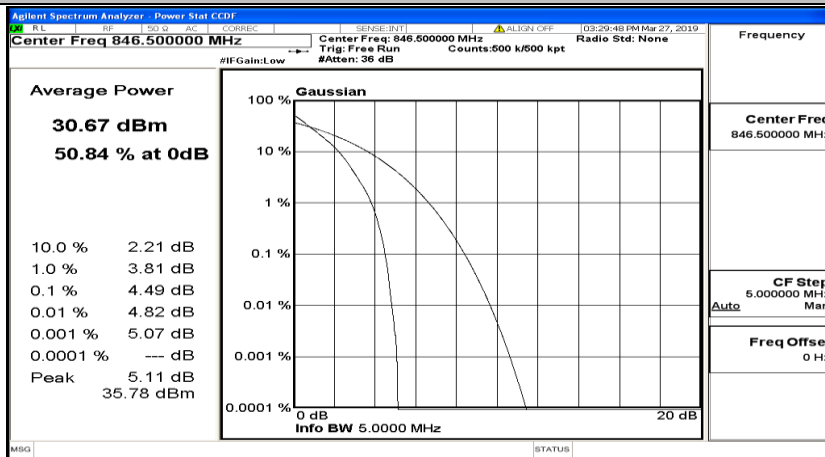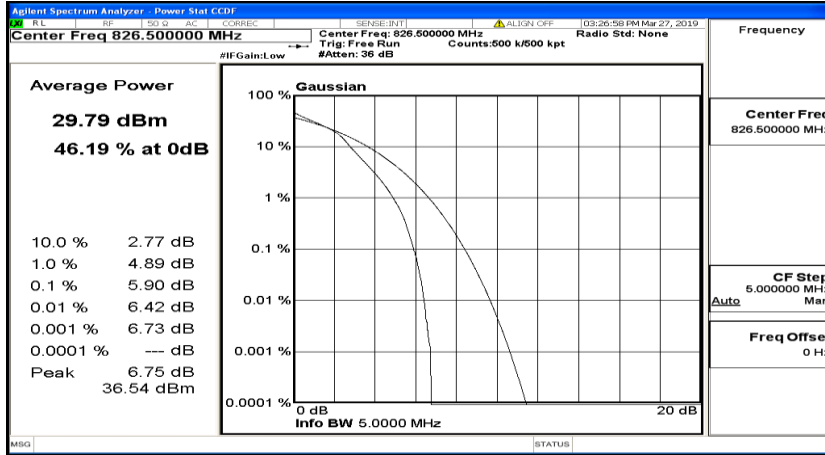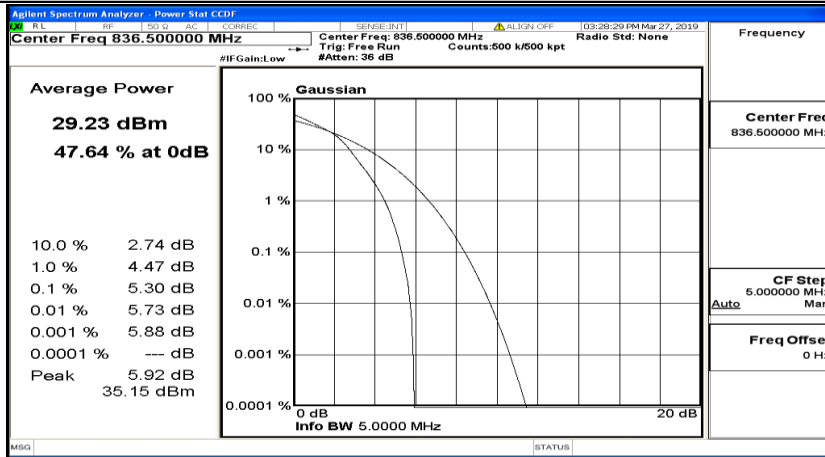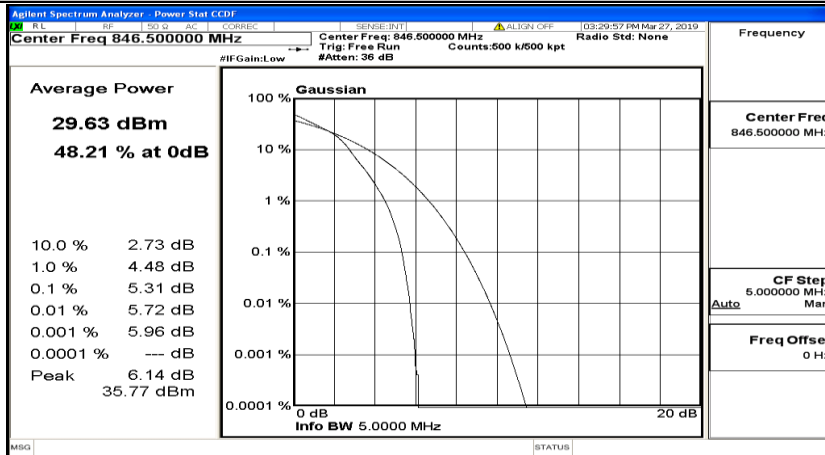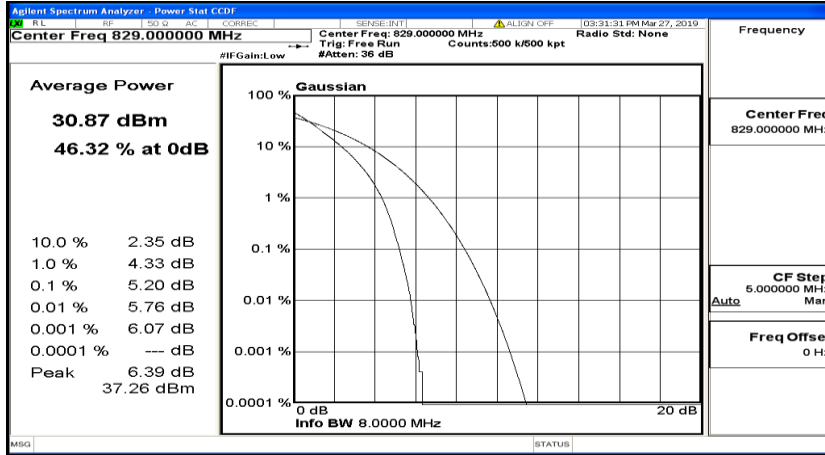| Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 1.4 MHz)_LCH_16QAM |
|---|

Agilent Spectrum Analyzer - Power Stat CCDF
R L   RF   50 Ω   AC   CORREC   SENSE:INT   ⚠ ALIGN OFF   03:17:40 PM Mar 27, 2019
Center Freq 824.700000 MHz   Center Freq: 824.700000 MHz   Radio Std: None   Frequency
                                    Trig: Free Run   Counts:500 k/500 kpt
                        #IFGain:Low #Atten: 36 dB

Average Power   Center Freq
                                     100 % Gaussian   824.700000 MHz
29.77 dBm
46.74 % at 0dB   10 %

                                       1 %

10.0 %   2.86 dB   0.1 %
1.0 %   4.84 dB
0.1 %   5.70 dB   CF Step
0.01 %   6.03 dB   0.01 %   5.000000 MHz
0.001 %   6.15 dB   Auto   Man
0.0001 %   --- dB   0.001 %   Freq Offset
Peak   6.21 dB   0 Hz
            35.98 dBm
                                   0.0001 % 0 dB   20 dB
                                            Info BW 1.5000 MHz
MSG   STATUS

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

Agilent Spectrum Analyzer - Power Stat CCDF
R L   RF   50 Ω   AC   CORREC   SENSE:INT   ⚠ ALIGN OFF   03:19:10 PM Mar 27, 2019
Center Freq 836.500000 MHz   Center Freq: 836.500000 MHz   Radio Std: None   Frequency
                                    Trig: Free Run   Counts:500 k/500 kpt
                        #IFGain:Low #Atten: 36 dB

Average Power   Center Freq
                                     100 % Gaussian   836.500000 MHz
29.02 dBm
48.29 % at 0dB   10 %

                                       1 %

10.0 %   2.81 dB   0.1 %
1.0 %   4.44 dB
0.1 %   5.19 dB   CF Step
0.01 %   5.46 dB   0.01 %   5.000000 MHz
0.001 %   5.64 dB   Auto   Man
0.0001 %   --- dB   0.001 %   Freq Offset
Peak   5.68 dB   0 Hz
            34.70 dBm
                                   0.0001 % 0 dB   20 dB
                                            Info BW 1.5000 MHz
MSG   STATUS

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

Agilent Spectrum Analyzer - Power Stat CCDF
R L   RF   50 Ω   AC   CORREC   SENSE:INT   ⚠ ALIGN OFF   03:20:38 PM Mar 27, 2019
Center Freq 848.300000 MHz   Center Freq: 848.300000 MHz   Radio Std: None   Frequency
                                    Trig: Free Run   Counts:500 k/500 kpt
                        #IFGain:Low #Atten: 36 dB

Average Power   Center Freq
                                     100 % Gaussian   848.300000 MHz
29.58 dBm
48.08 % at 0dB   10 %

                                       1 %

10.0 %   2.78 dB   0.1 %
1.0 %   4.40 dB
0.1 %   5.11 dB   CF Step
0.01 %   5.39 dB   0.01 %   5.000000 MHz
0.001 %   5.49 dB   Auto   Man
0.0001 %   --- dB   0.001 %   Freq Offset
Peak   5.52 dB   0 Hz
            35.10 dBm
                                   0.0001 % 0 dB   20 dB
                                            Info BW 1.5000 MHz
MSG   STATUS

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
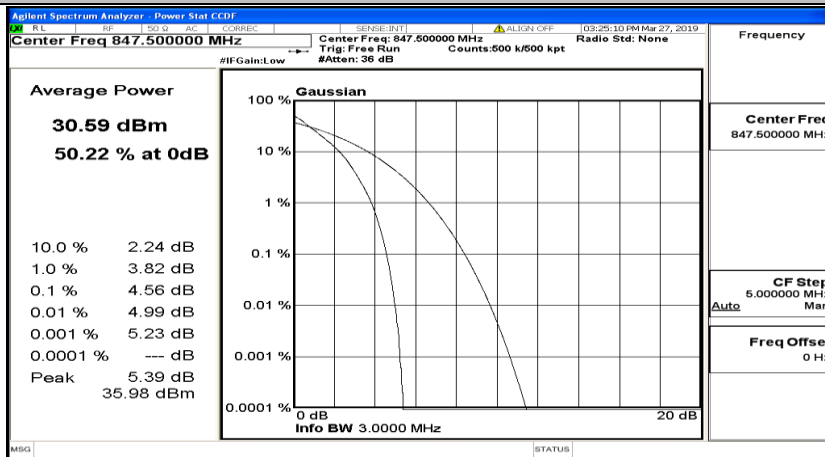
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 3 MHz)_LCH_16QAM
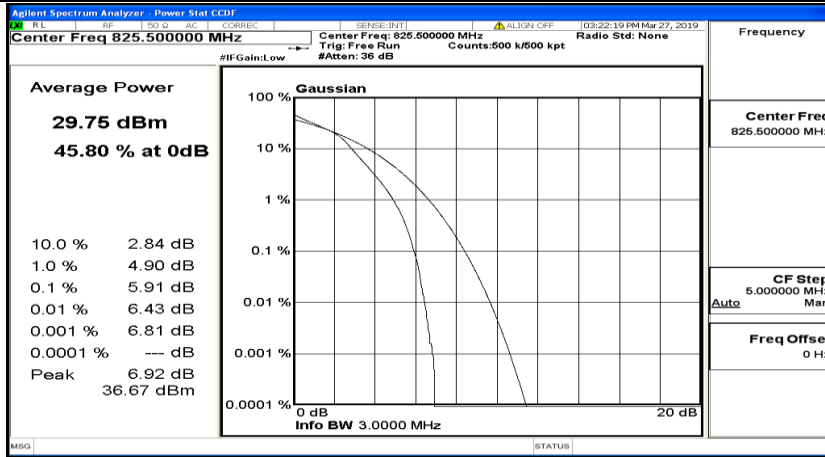
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 3 MHz)_MCH_16QAM
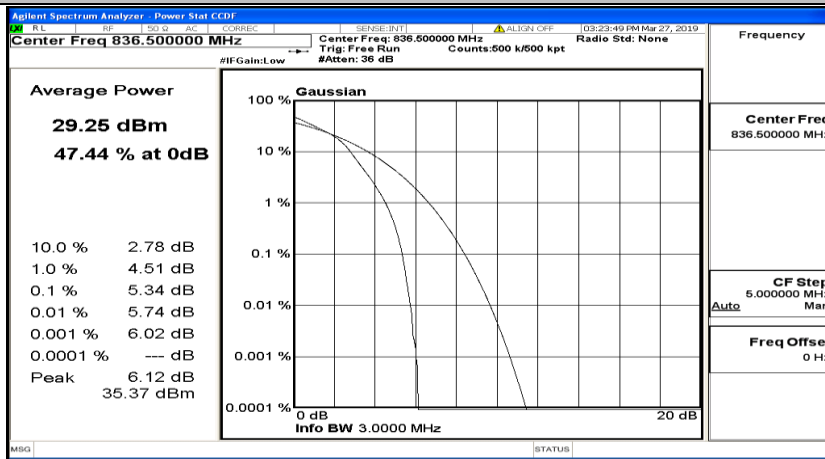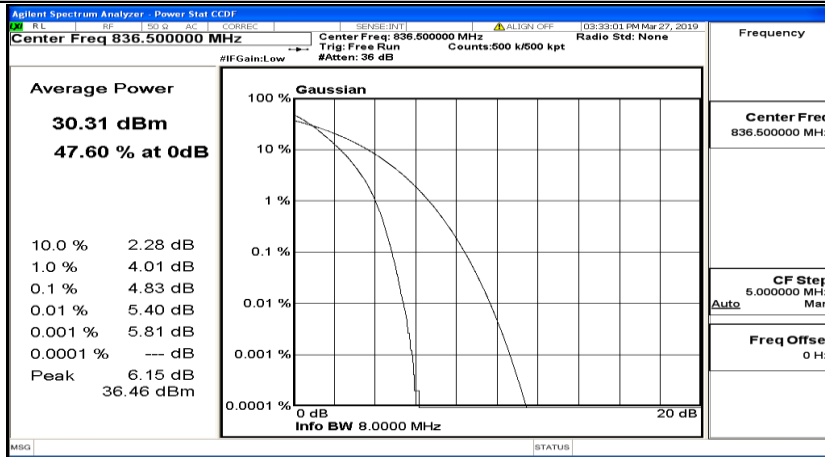

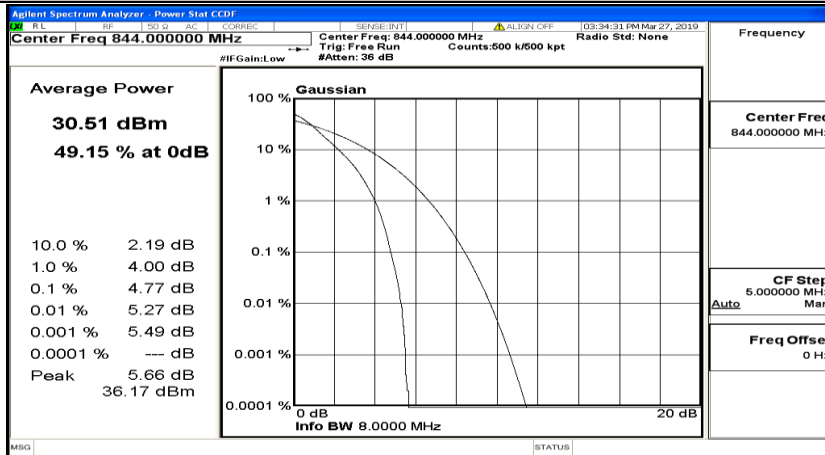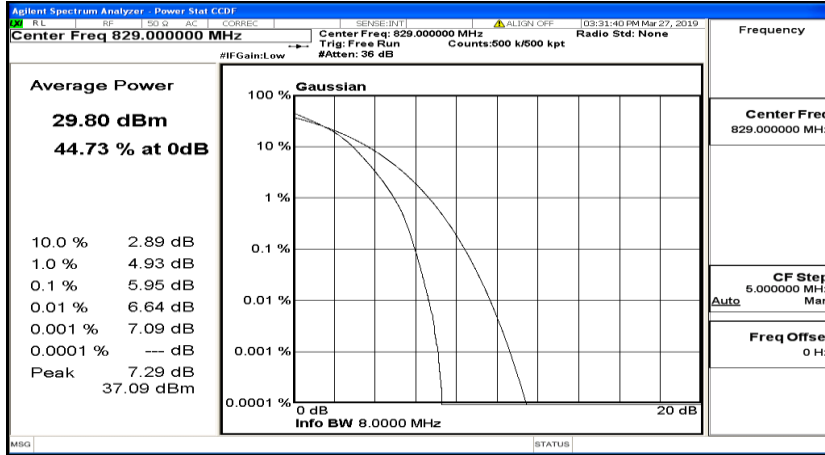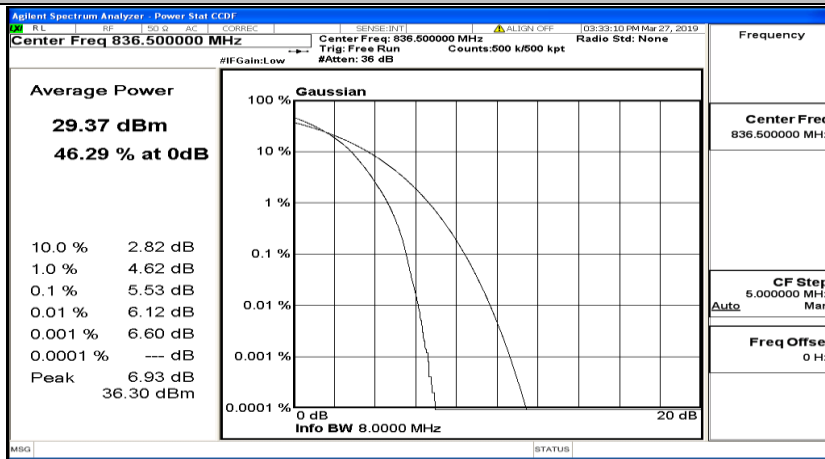Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 3 MHz)_HCH_16QAM
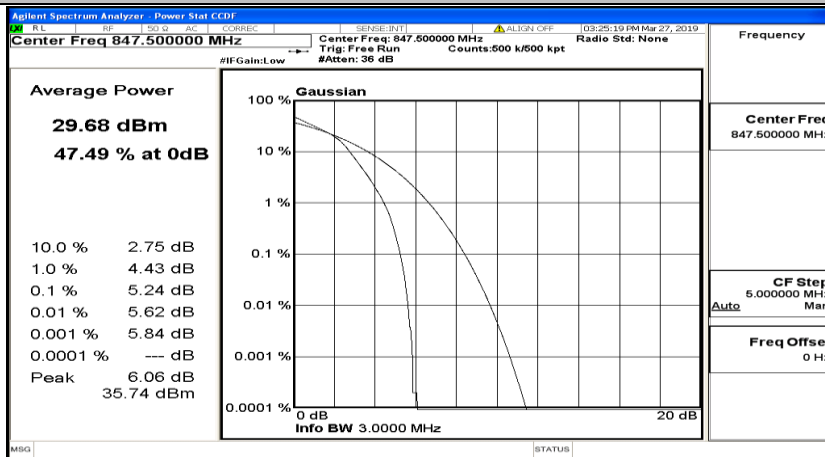
Peak-to Average Ratio Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_QPSK

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
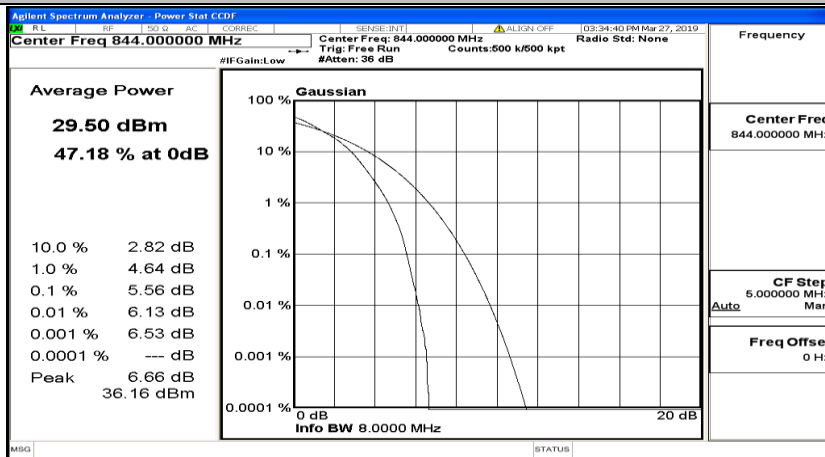
D.3 26dB Bandwidth and Occupied Bandwidth

EBW & OBW Test Result (Channel Bandwidth: 1.4 MHz)				
Modulation	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
QPSK	LCH	1.0781	1.237	PASS
	MCH	1.0758	1.259	PASS
	HCH	1.0801	1.259	PASS
16QAM	LCH	1.0806	1.254	PASS
	MCH	1.0795	1.229	PASS
	HCH	1.0764	1.251	PASS

EBW & OBW Test Result (Channel Bandwidth: 3 MHz)				
Modulation	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
QPSK	LCH	2.6820	2.893	PASS
	MCH	2.6839	2.915	PASS
	HCH	2.6843	2.904	PASS
16QAM	LCH	2.6819	2.891	PASS
	MCH	2.6834	2.909	PASS
	HCH	2.6897	2.937	PASS

EBW & OBW Test Result (Channel Bandwidth: 5 MHz)				
Modulation	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
QPSK	LCH	4.4765	4.799	PASS
	MCH	4.4680	4.797	PASS
	HCH	4.4710	4.819	PASS
16QAM	LCH	4.4737	4.830	PASS
	MCH	4.4657	4.835	PASS
	HCH	4.4743	4.790	PASS

EBW & OBW Test Result (Channel Bandwidth: 10 MHz)				
Modulation	Channel	Occupied Bandwidth (MHz)	26dB Bandwidth (MHz)	Verdict
QPSK	LCH	8.9491	9.518	PASS
	MCH	8.9233	9.522	PASS
	HCH	8.9290	9.504	PASS
16QAM	LCH	8.9549	9.436	PASS
	MCH	8.9203	9.452	PASS
	HCH	8.9296	9.392	PASS

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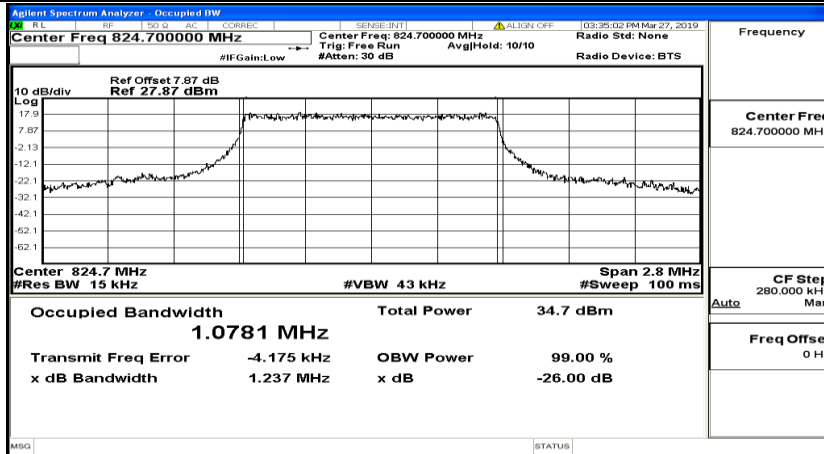
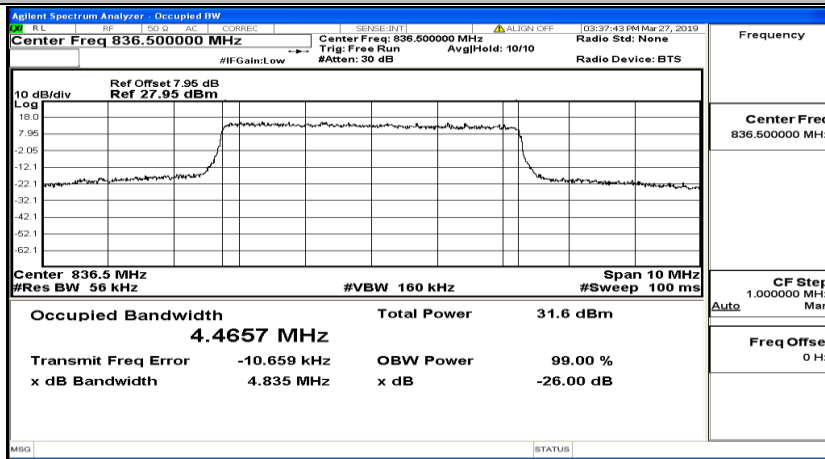## EBW & OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)_MCH_QPSK
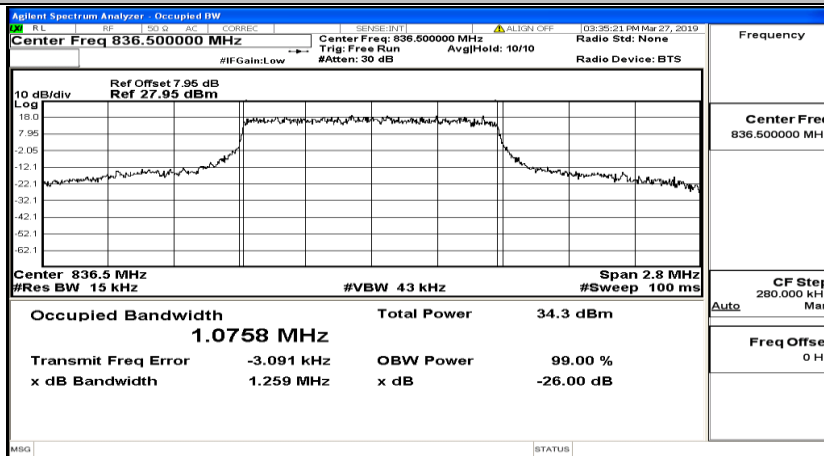
EBW & OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)_HCH_QPSK
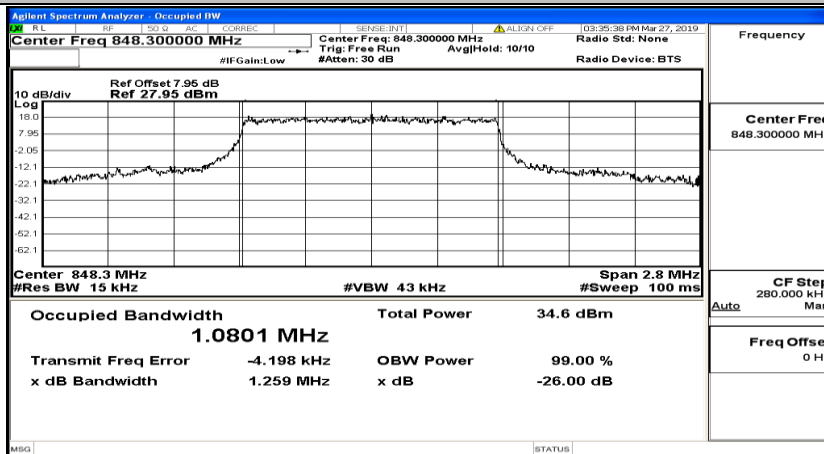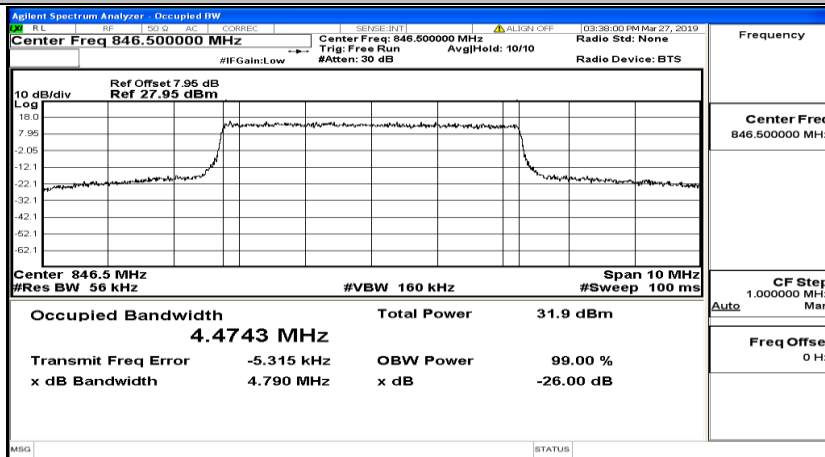
EBW & OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)_LCH_16QAM
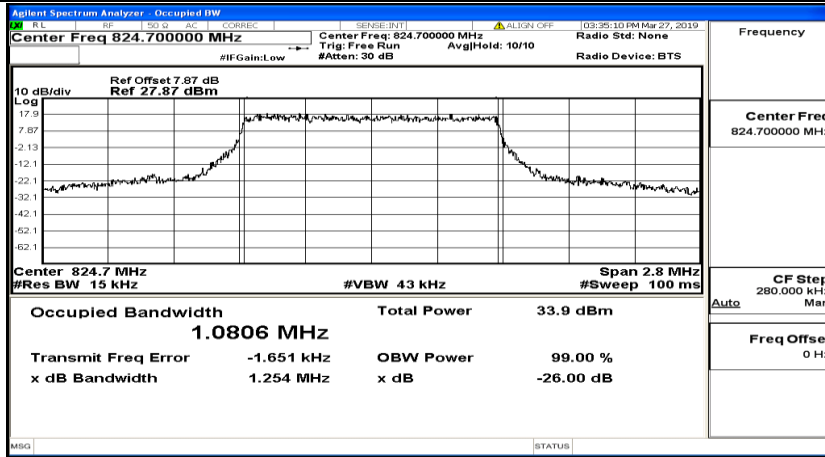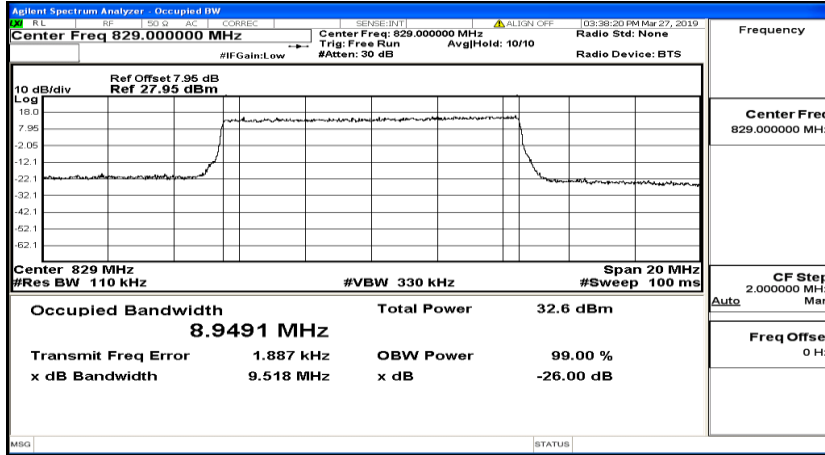

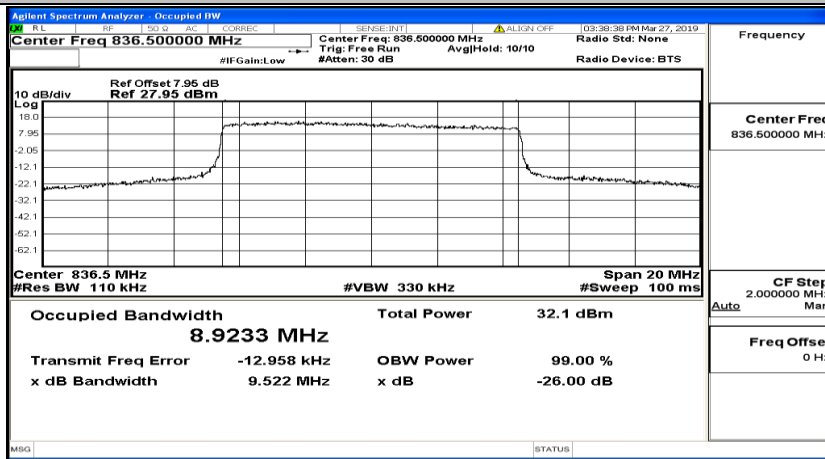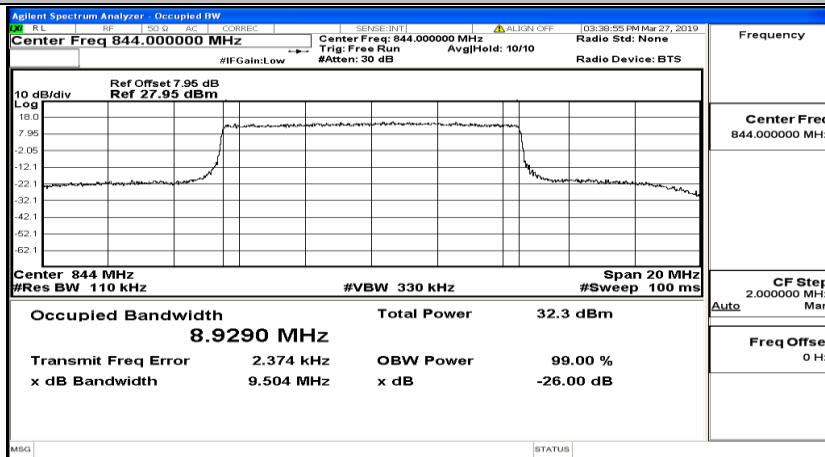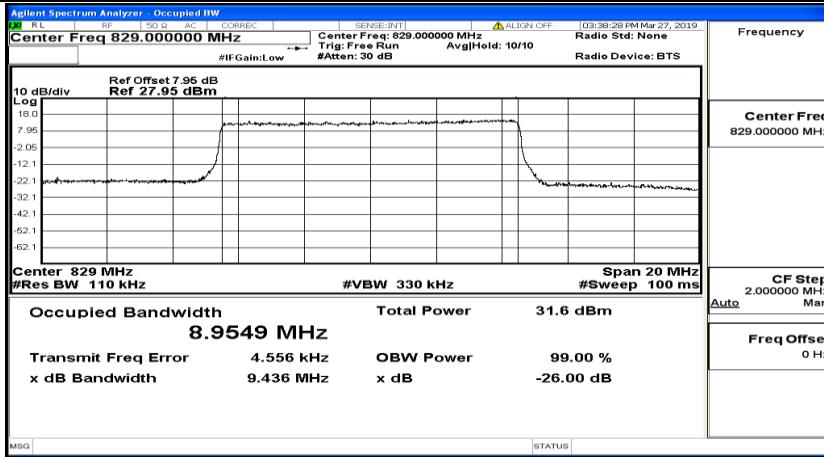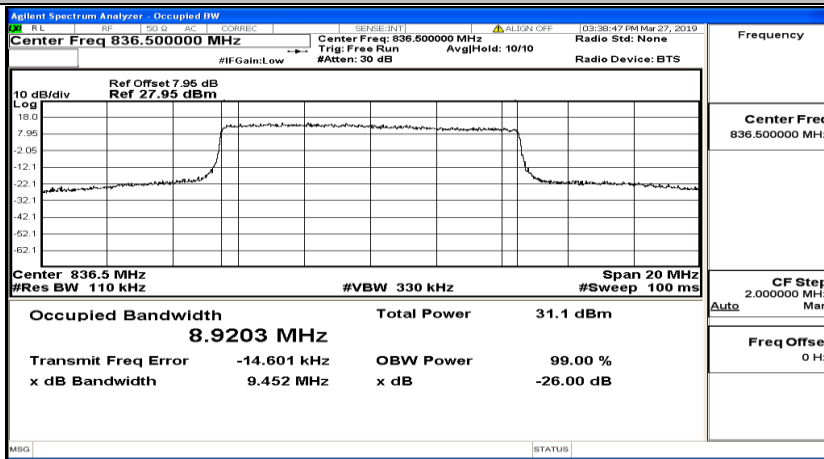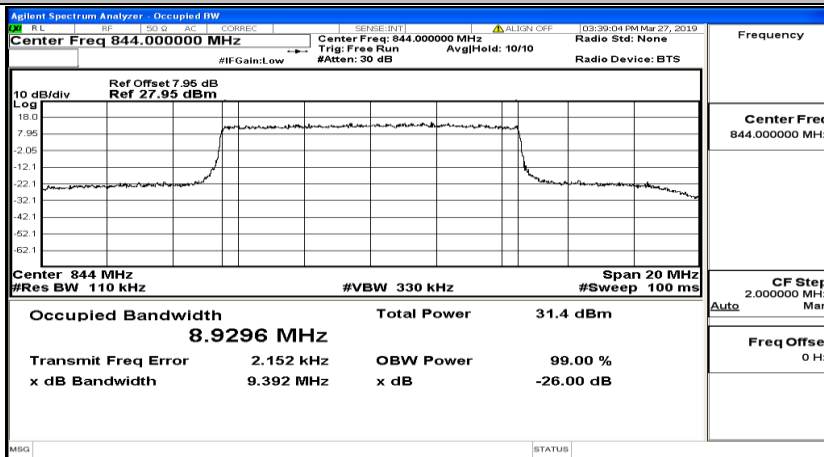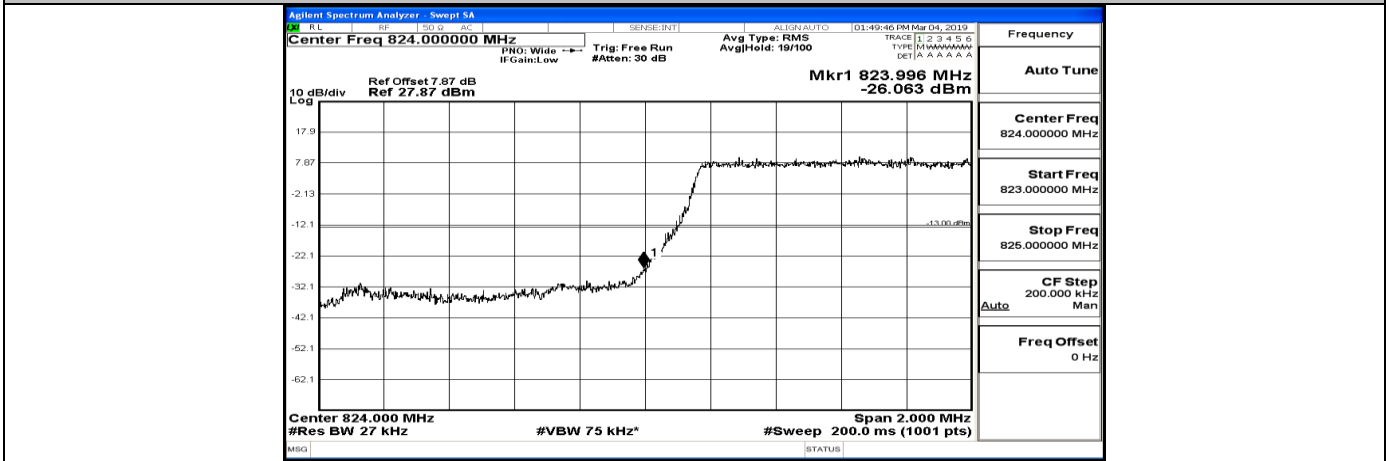## EBW & OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)_MCH_16QAM
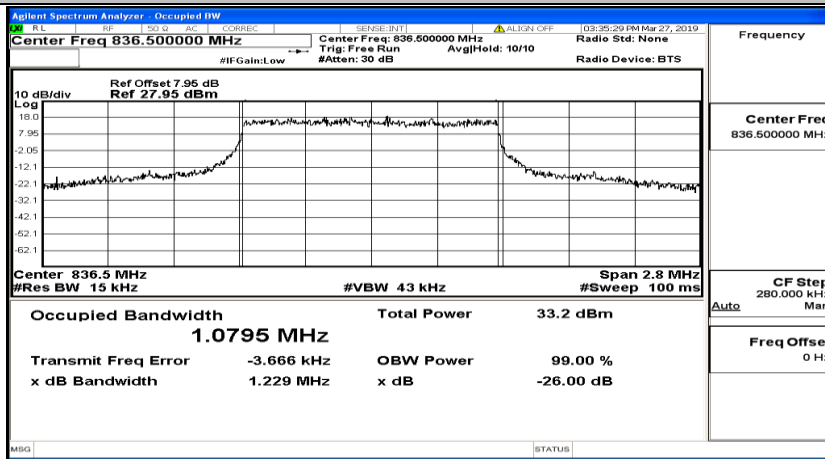
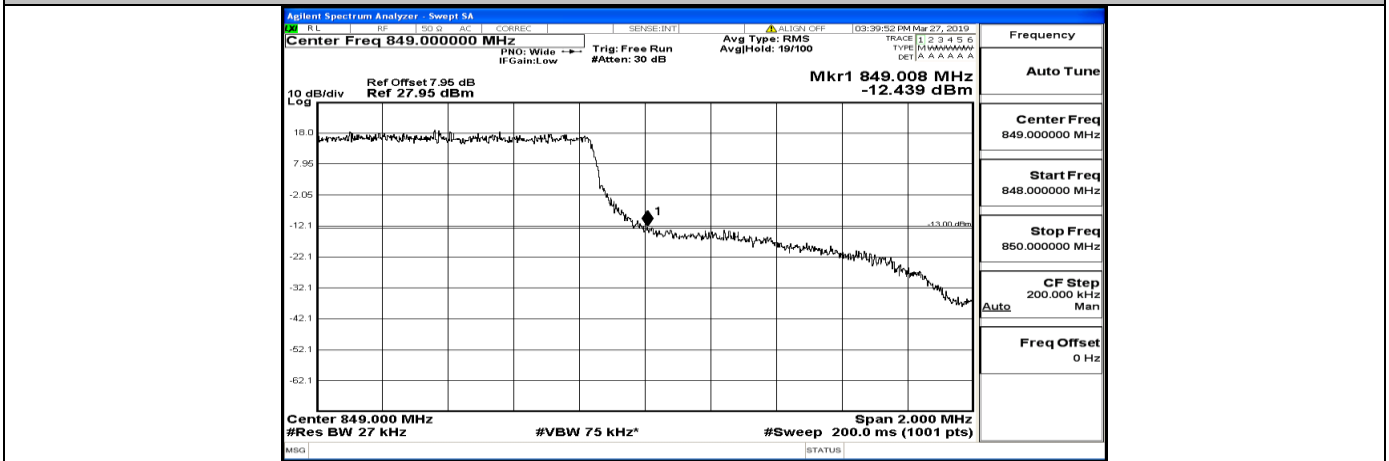## EBW & OBW Test Graph(s) (Channel Bandwidth: 1.4 MHz)_HCH_16QAM
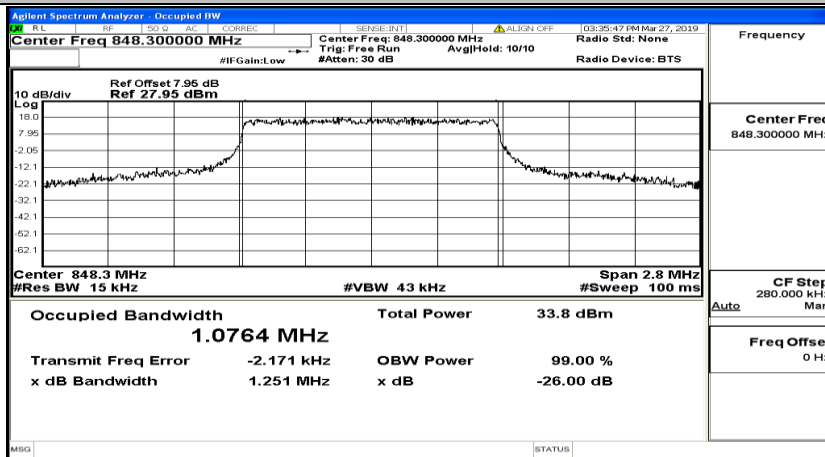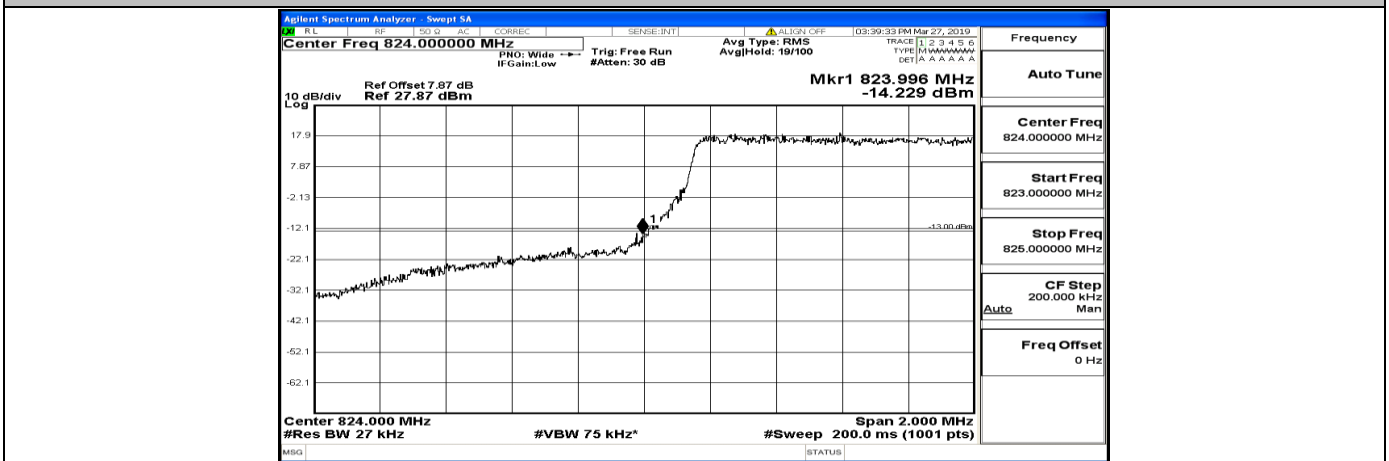
EBW & OBW Test Graph(s) (Channel Bandwidth: 3 MHz)_LCH_QPSK
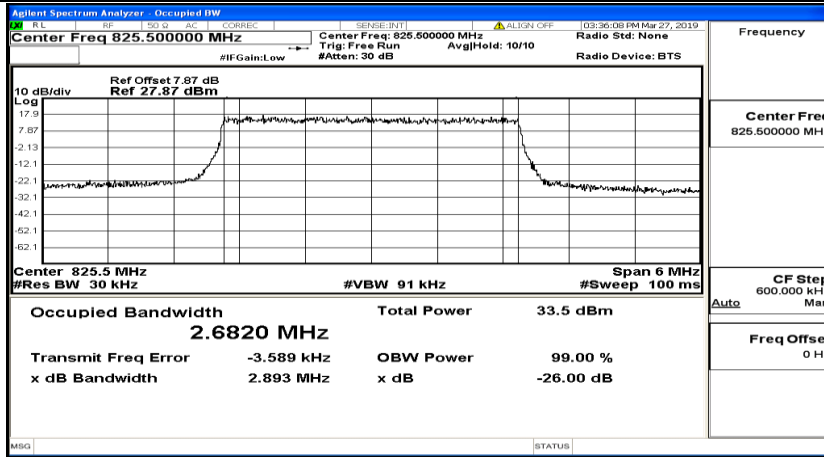
EBW & OBW Test Graph(s) (Channel Bandwidth: 3 MHz)_MCH_QPSK
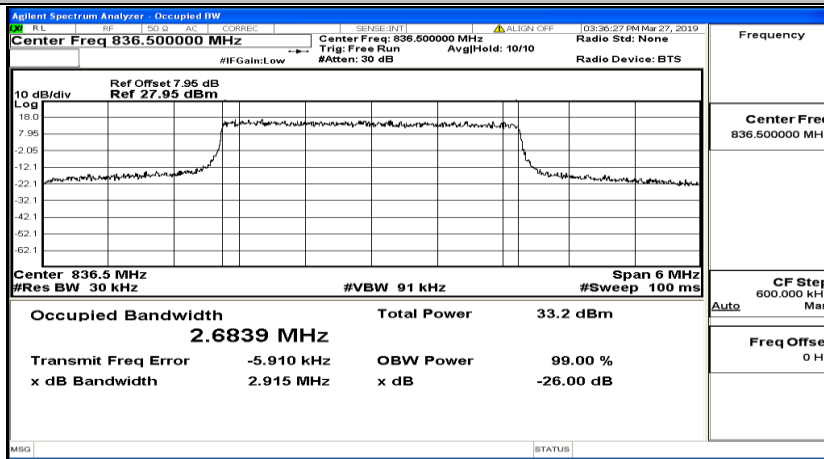
EBW & OBW Test Graph(s) (Channel Bandwidth: 3 MHz)_HCH_QPSK
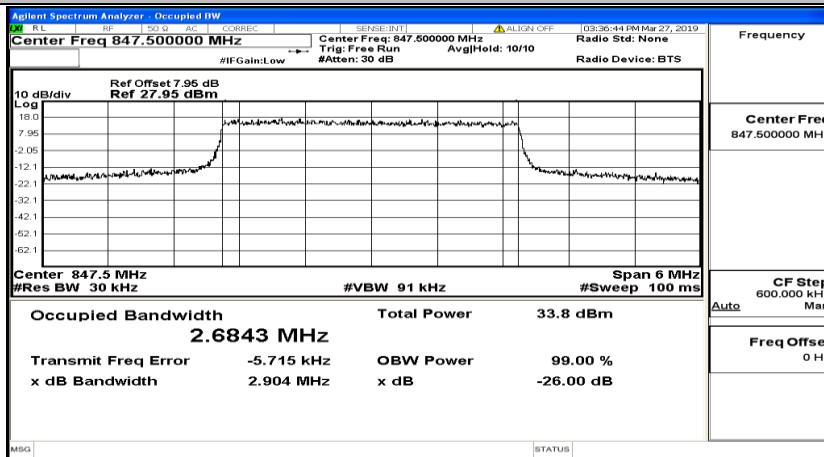
EBW & OBW Test Graph(s) (Channel Bandwidth: 3 MHz)_LCH_16QAM
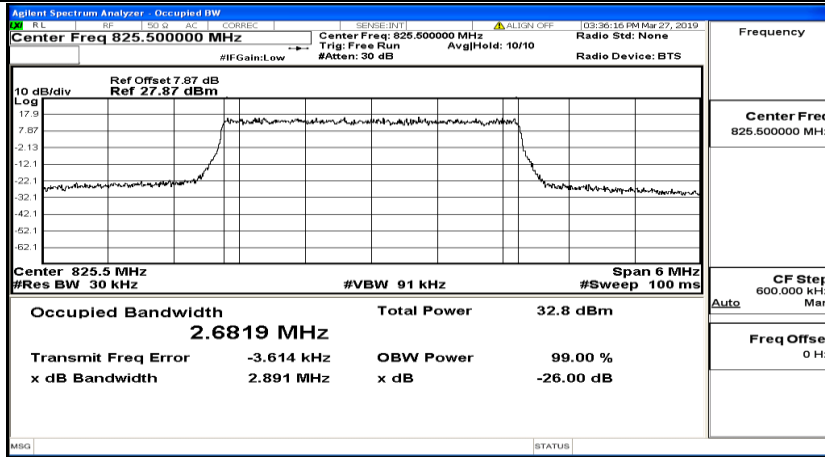
EBW & OBW Test Graph(s) (Channel Bandwidth: 3 MHz)_MCH_16QAM
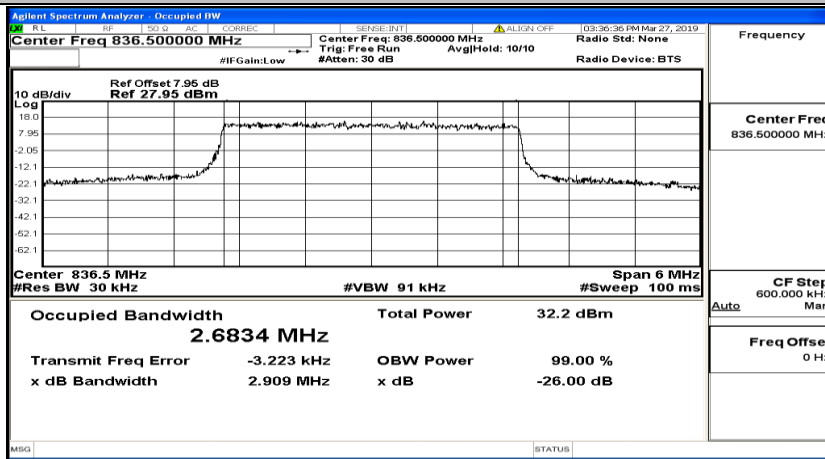
EBW & OBW Test Graph(s) (Channel Bandwidth: 3 MHz)_HCH_16QAM
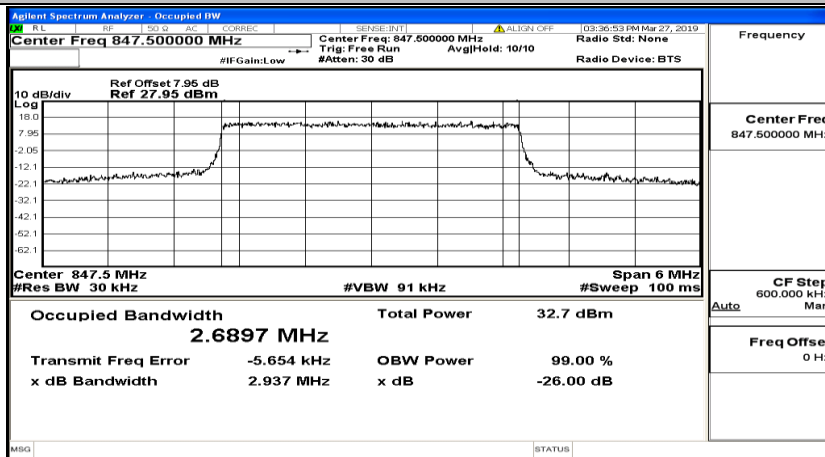
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_QPSK
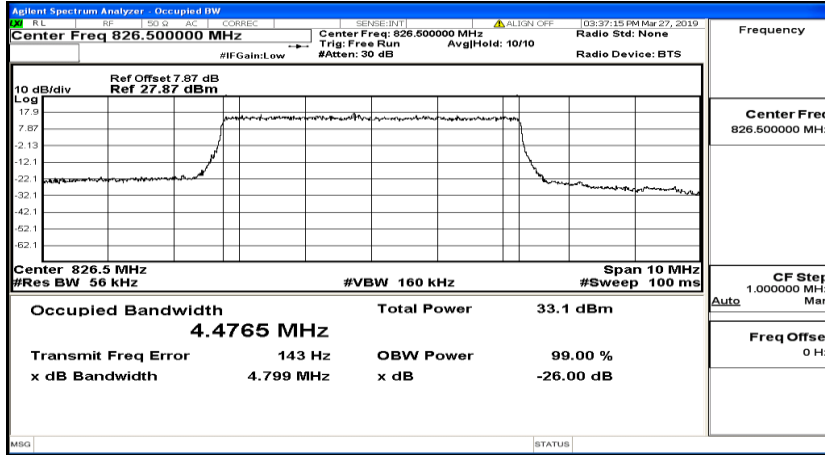
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)_MCH_QPSK
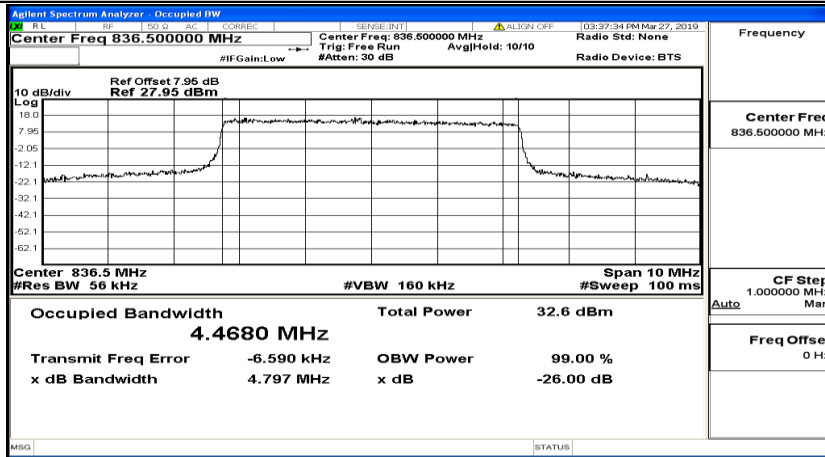
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)_HCH_QPSK
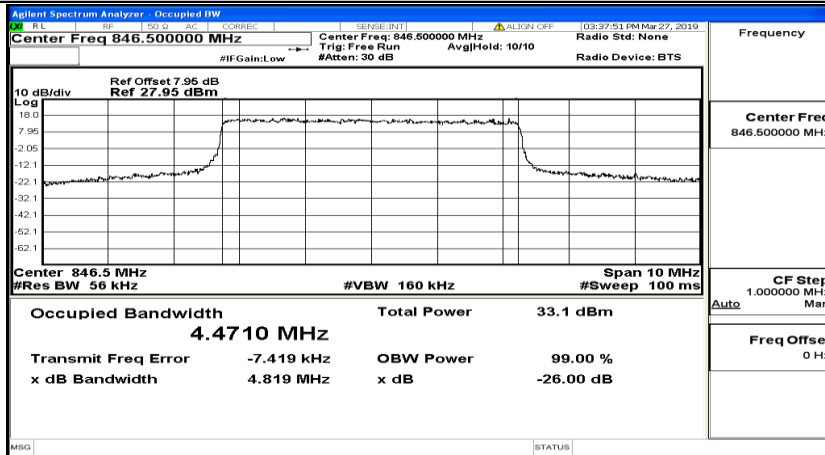
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_16QAM
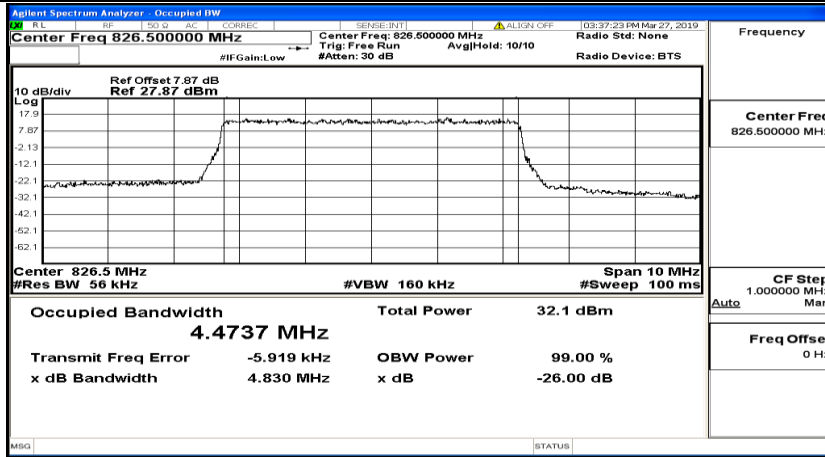
EBW & OBW Test Graph(s) (Channel Bandwidth: 5 MHz)_MCH_16QAM

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

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

Occupied Bandwidth	Total Power	32.6 dBm
8.9491 MHz		
Transmit Freq Error 1.887 kHz	OBW Power	99.00 %
x dB Bandwidth 9.518 MHz	x dB	-26.00 dB

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

Occupied Bandwidth	Total Power	32.1 dBm
8.9233 MHz		
Transmit Freq Error -12.958 kHz	OBW Power	99.00 %
x dB Bandwidth 9.522 MHz	x dB	-26.00 dB

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

Occupied Bandwidth	Total Power	32.3 dBm
8.9290 MHz		
Transmit Freq Error 2.374 kHz	OBW Power	99.00 %
x dB Bandwidth 9.504 MHz	x dB	-26.00 dB

This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd.

Page 25 of 56

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

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

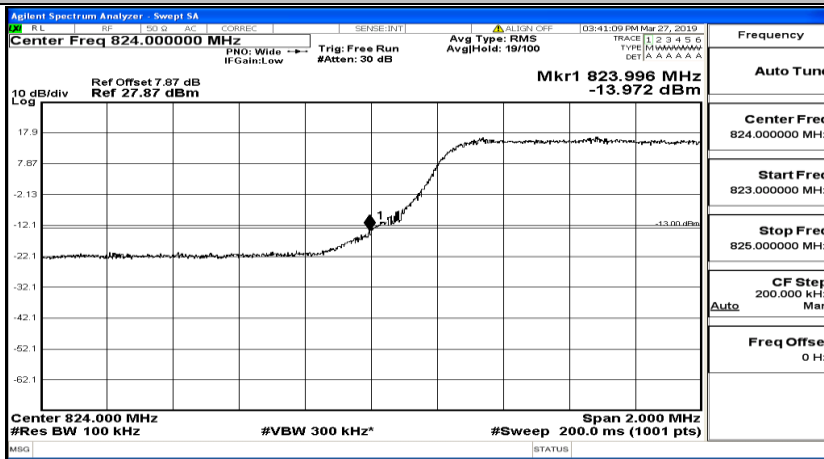| Band Edge Test Graph(s) (Channel Bandwidth: 1.4 MHz)_LCH_16QAM |
|---|
| |

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

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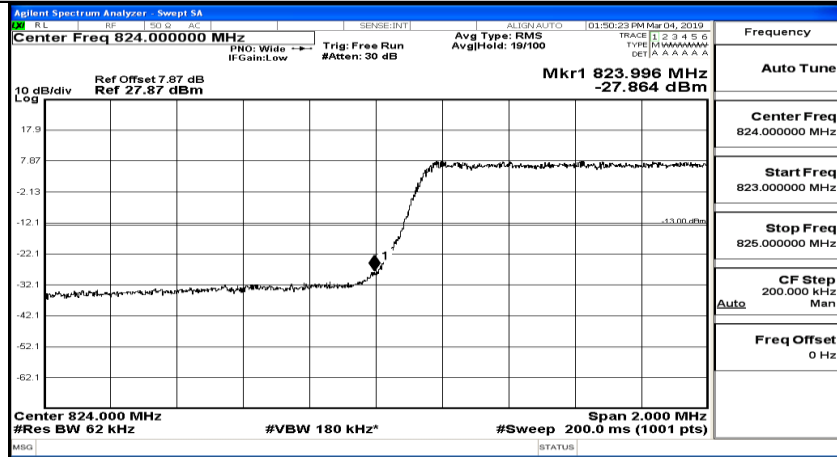
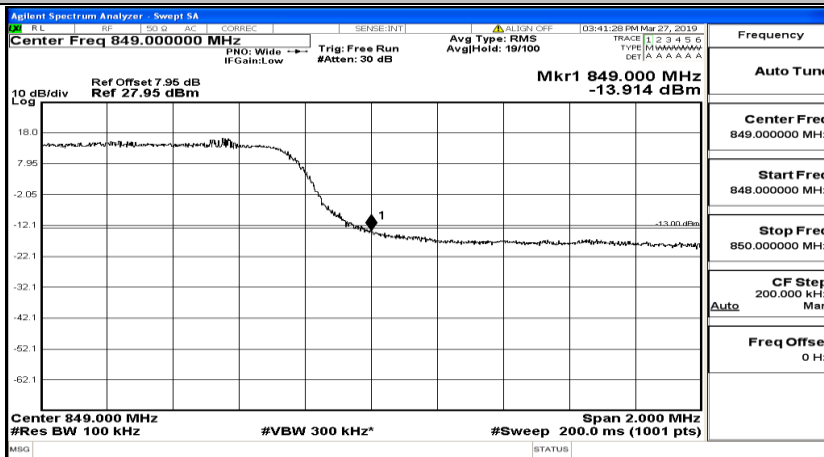## Band Edge Test Graph(s) (Channel Bandwidth: 3 MHz)_HCH_QPSK

This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd.
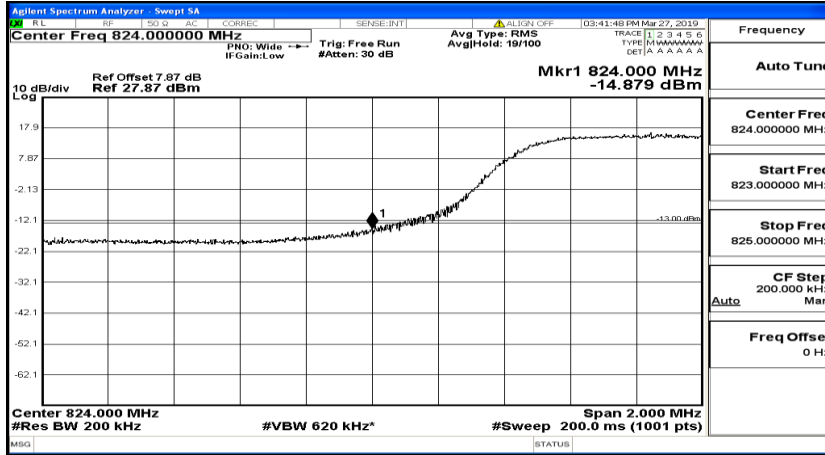
Page 28 of 56
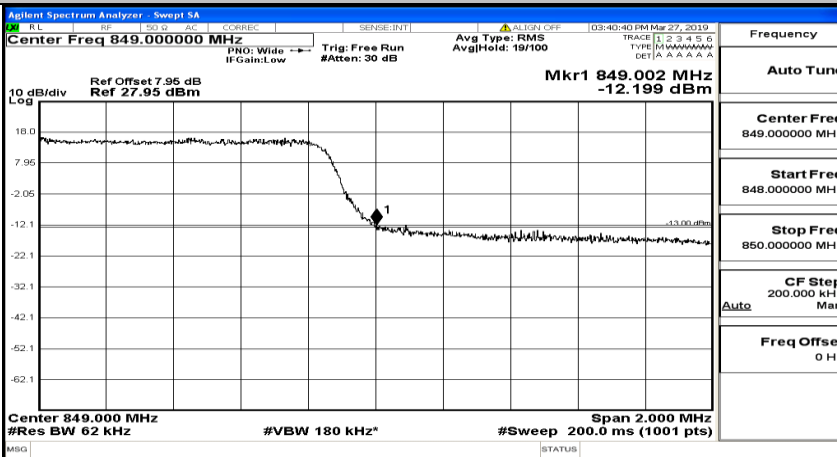
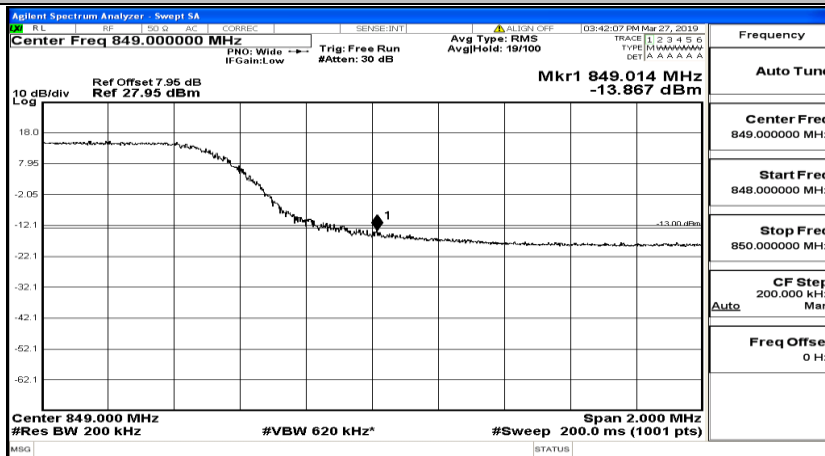Band Edge Test Graph(s) (Channel Bandwidth: 3 MHz)_LCH_16QAM
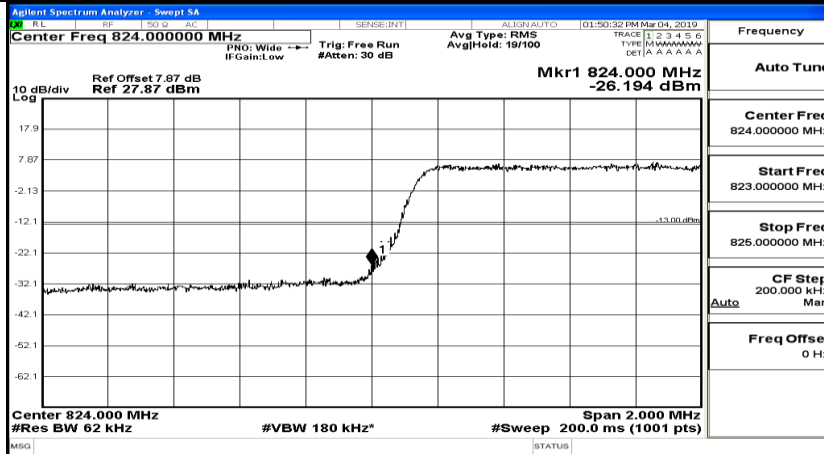
Band Edge Test Graph(s) (Channel Bandwidth: 3 MHz)_HCH_16QAM
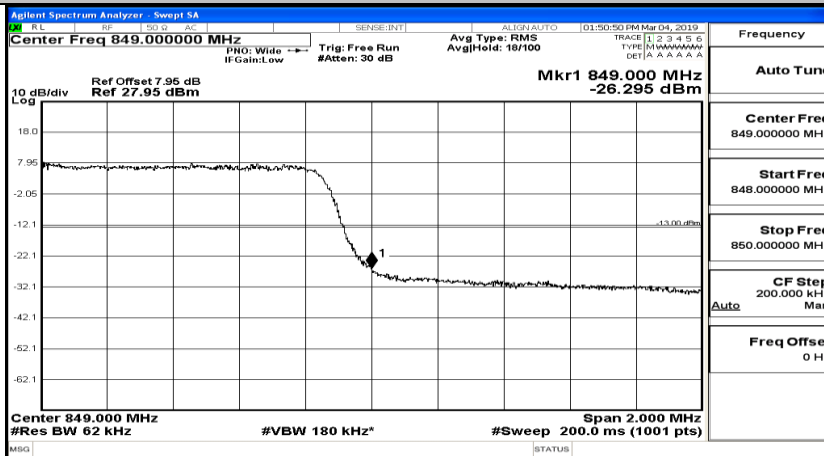
Band Edge Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_QPSK
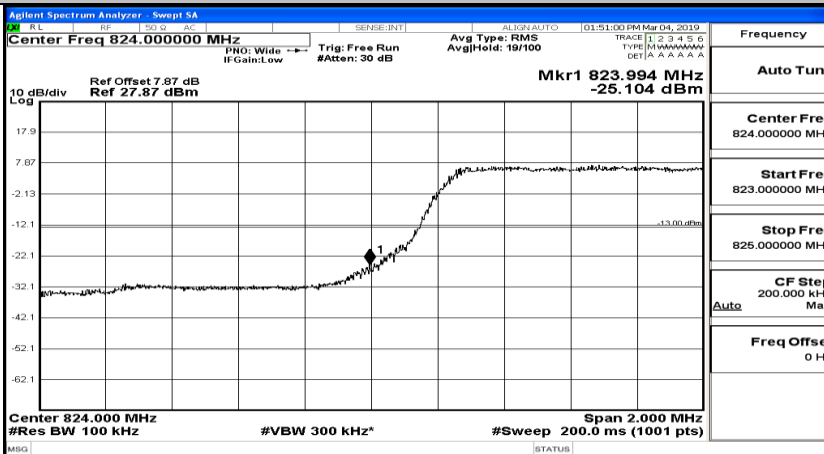
Band Edge Test Graph(s) (Channel Bandwidth: 5 MHz)_HCH_QPSK
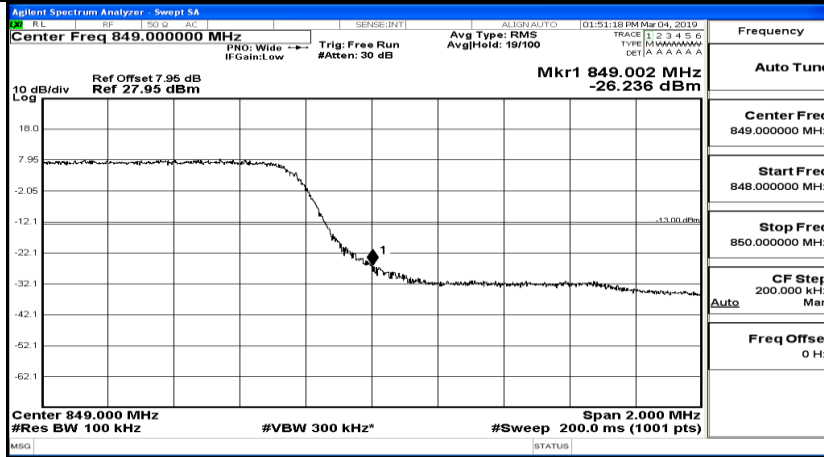
Band Edge Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_16QAM

Band Edge Test Graph(s) (Channel Bandwidth: 5 MHz)_HCH_16QAM
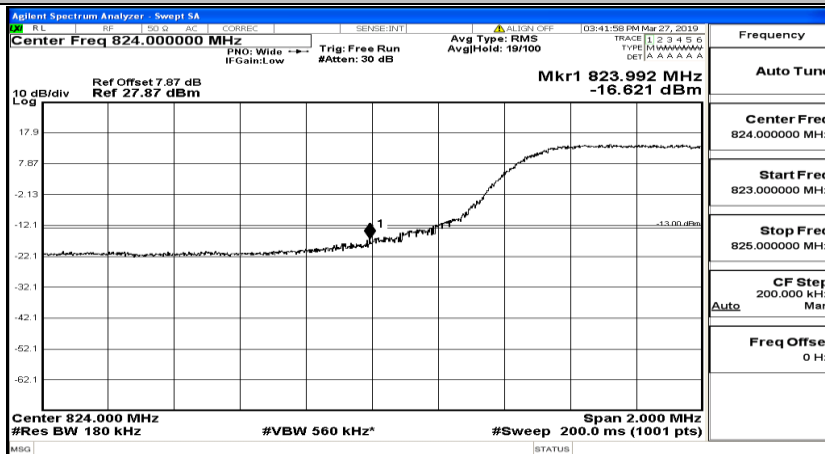
Band Edge Test Graph(s) (Channel Bandwidth: 10 MHz)_LCH_QPSK

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