

APPENDIX A – TEST DATA OF CONDUCTED EMISSION

LTE Band 12

1 RF Power Output

Main Antenna Gain= -2.4dBi

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	699.7	23017	1.4	1	0	22.41
				1	5	22.41
				3	2	22.26
				6	0	22.04
	707.5	23095		1	0	22.33
				1	5	22.33
				3	2	22.13
				6	0	21.98
	715.3	23173		1	0	22.42
				1	5	22.42
				3	2	22.18
				6	0	22.03
Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
16QAM	699.7	23017	1.4	1	0	22.35
				1	5	22.35
				3	2	21.26
				6	0	21.21
	707.5	23095		1	0	22.26
				1	5	22.26
				3	2	21.16
				6	0	21.01
	715.3	23173		1	0	22.38
				1	5	22.38
				3	2	21.27
				6	0	21.21
Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
64QAM	699.7	23017	1.4	1	0	22.24
				1	5	22.24
				3	2	21.23
				6	0	21.16
	707.5	23095		1	0	22.25
				1	5	22.25
				3	2	21.10
				6	0	21.06
	715.3	23173		1	0	22.34
				1	5	22.34
				3	2	21.21
				6	0	21.14

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	700.5	23025	3	1	0	22.47
				1	14	22.47
				8	4	22.32
				15	0	22.10
	707.5	23095		1	0	22.39
				1	14	22.39
				8	4	22.19
				15	0	22.04
	714.5	23165		1	0	22.46
				1	14	22.46
				8	4	22.22
				15	0	22.07
Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
16QAM	700.5	23025	3	1	0	22.41
				1	14	22.41
				8	4	21.32
				15	0	21.27
	707.5	23095		1	0	22.32
				1	14	22.32
				8	4	21.22
				15	0	21.07
	714.5	23165		1	0	22.42
				1	14	22.42
				8	4	21.31
				15	0	21.25
Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
64QAM	700.5	23025	3	1	0	22.30
				1	14	22.30
				8	4	21.29
				15	0	21.22
	707.5	23095		1	0	22.31
				1	14	22.31
				8	4	21.16
				15	0	21.12
	714.5	23165		1	0	22.38
				1	14	22.38
				8	4	21.25
				15	0	21.18

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	701.5	23035	5	1	0	22.50
				1	24	22.50
				12	6	22.35
				25	0	22.13
	707.5	23095		1	0	22.42
				1	24	22.42
				12	6	22.22
				25	0	22.07
	713.5	23155		1	0	22.48
				1	24	22.48
				12	6	22.24
				25	0	22.09
Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
16QAM	701.5	23035	5	1	0	22.44
				1	24	22.44
				12	6	21.35
				25	0	21.30
	707.5	23095		1	0	22.35
				1	24	22.35
				12	6	21.25
				25	0	21.10
	713.5	23155		1	0	22.44
				1	24	22.44
				12	6	21.33
				25	0	21.27
Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
64QAM	701.5	23035	5	1	0	22.33
				1	24	22.33
				12	6	21.32
				25	0	21.25
	707.5	23095		1	0	22.34
				1	24	22.34
				12	6	21.19
				25	0	21.15
	713.5	23155		1	0	22.40
				1	24	22.40
				12	6	21.27
				25	0	21.20

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
QPSK	704	23060	10	1	0	22.62
				1	49	22.62
				24	12	22.47
				50	0	22.25
	707.5	23095		1	0	22.56
				1	49	22.56
				24	12	22.36
				50	0	22.21
	711	23130		1	0	22.59
				1	49	22.59
				24	12	22.35
				50	0	22.20
Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
16QAM	704	23060	10	1	0	22.56
				1	49	22.56
				24	12	21.47
				50	0	21.42
	707.5	23095		1	0	22.49
				1	49	22.49
				24	12	21.39
				50	0	21.24
	711	23130		1	0	22.55
				1	49	22.55
				24	12	21.44
				50	0	21.38
Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted power (dBm)
64QAM	704	23060	10	1	0	22.45
				1	49	22.45
				24	12	21.44
				50	0	21.37
	707.5	23095		1	0	22.48
				1	49	22.48
				24	12	21.33
				50	0	21.29
	711	23130		1	0	22.51
				1	49	22.51
				24	12	21.38
				50	0	21.31

2 Occupied Bandwidth

Test result

Band	Carrier frequency (MHz)	Channel(Low)	BW	RB Size	RB Offset	Bandwidth of 99% Power (MHz)					
						QPSK		16-QAM		64-QAM	
12	699.7	23017	1.4	6	0	1.1080	Fig.1	1.1062	Fig.2	1.1023	Fig.3
12	707.5	23095	1.4	6	0	1.1060	Fig.4	1.1062	Fig.5	1.0985	Fig.6
12	715.3	23173	1.4	6	0	1.1029	Fig.7	1.1068	Fig.8	1.1057	Fig.9

Band	Carrier frequency (MHz)	Channel(Low)	BW	RB Size	RB Offset	Bandwidth of -26dB transmitter power (MHz)					
						QPSK		16-QAM		64-QAM	
12	699.7	23017	1.4	6	0	1.393	Fig.1	1.393	Fig.2	1.404	Fig.3
12	707.5	23095	1.4	6	0	1.390	Fig.4	1.392	Fig.5	1.364	Fig.6
12	715.3	23173	1.4	6	0	1.382	Fig.7	1.375	Fig.8	1.373	Fig.9

Fig.1

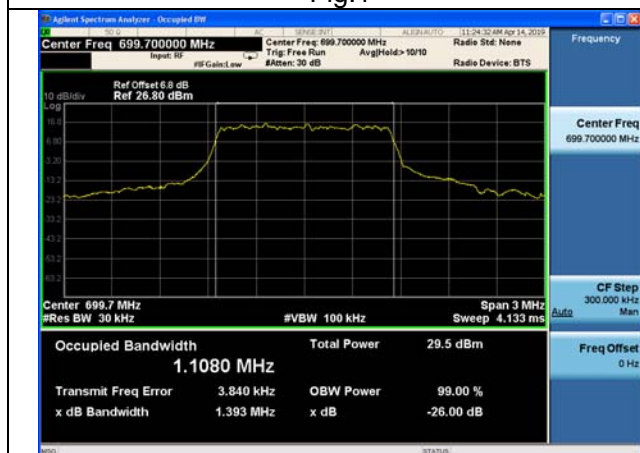


Fig.2

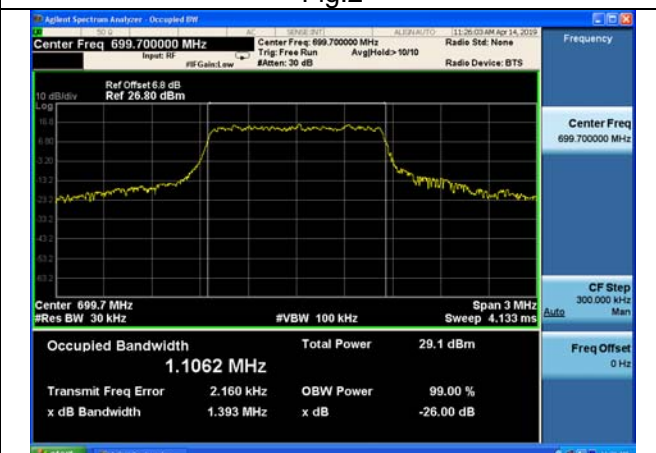


Fig.3

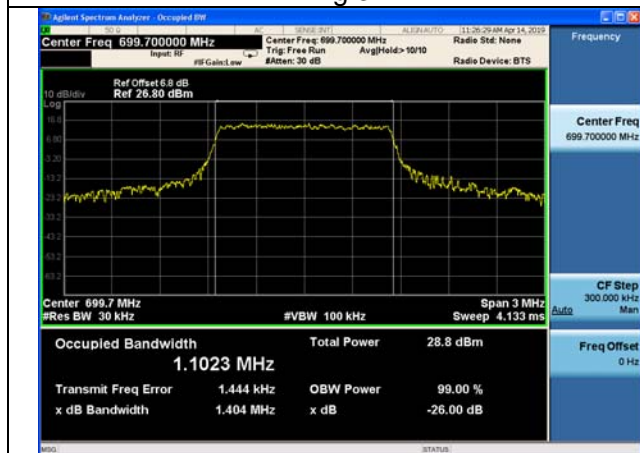


Fig.4

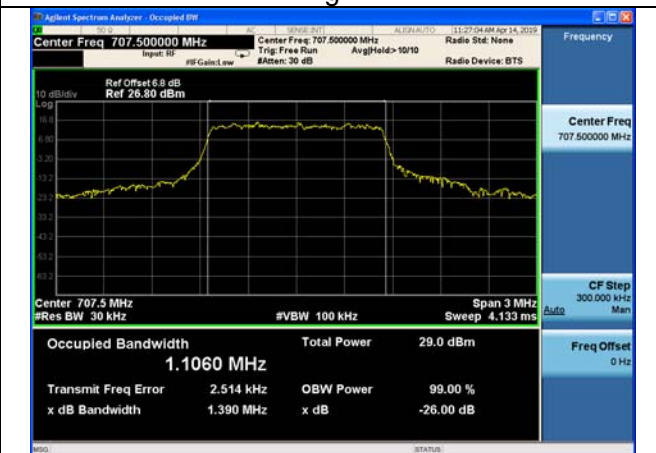


Fig.5

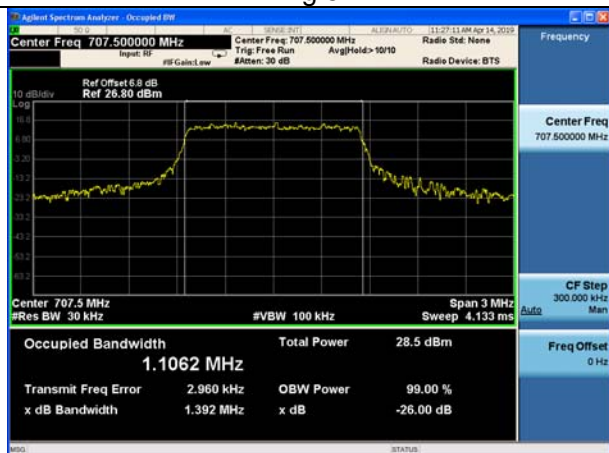


Fig.6

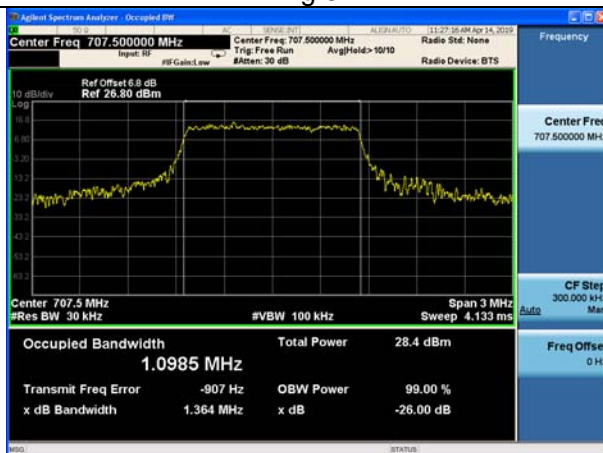


Fig.7

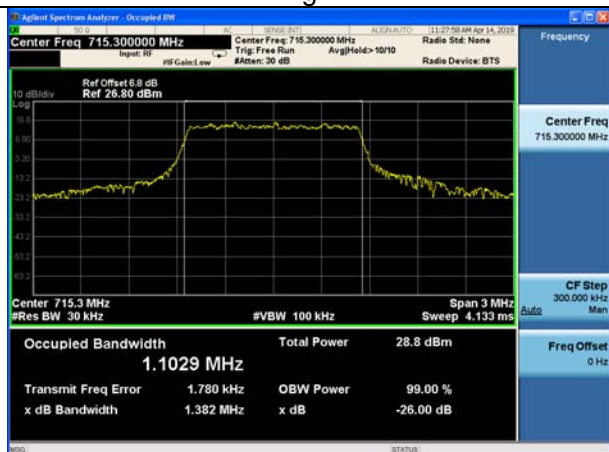


Fig.8

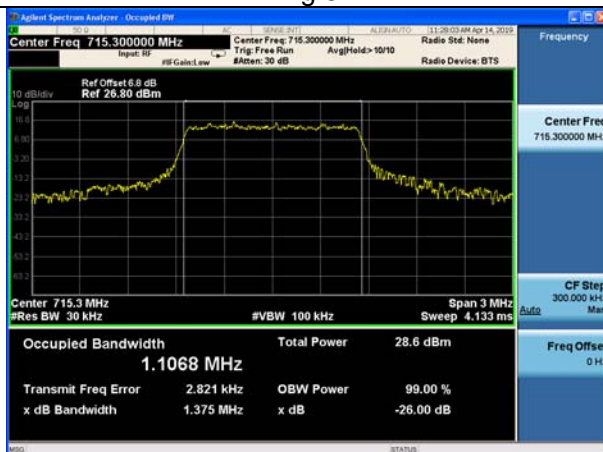
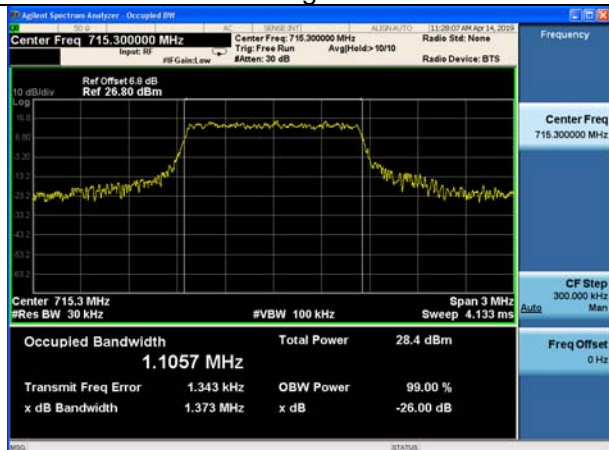


Fig.9



Band	Carrier frequency (MHz)	Channel(Low)	BW	RB Size	RB Offset	Bandwidth of 99% Power (MHz)					
						QPSK		16-QAM		64-QAM	
12	700.5	23025	3	15	0	2.7773	Fig.1	2.7654	Fig.2	2.7651	Fig.3
12	707.5	23095	3	15	0	2.7661	Fig.4	2.7689	Fig.5	2.7704	Fig.6
12	714.5	23165	3	15	0	2.7838	Fig.7	2.7790	Fig.8	2.7750	Fig.9

Band	Carrier frequency (MHz)	Channel(Low)	BW	RB Size	RB Offset	Bandwidth of -26dB transmitter power (MHz)					
						QPSK		16-QAM		64-QAM	
12	700.5	23025	3	15	0	3.598	Fig.1	3.472	Fig.2	3.281	Fig.3
12	707.5	23095	3	15	0	3.522	Fig.4	3.543	Fig.5	3.467	Fig.6
12	714.5	23165	3	15	0	3.673	Fig.7	3.590	Fig.8	3.469	Fig.9

Fig.1



Fig.2

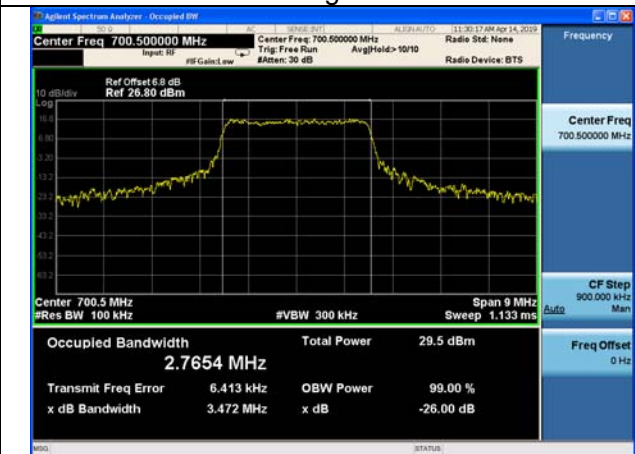


Fig.3

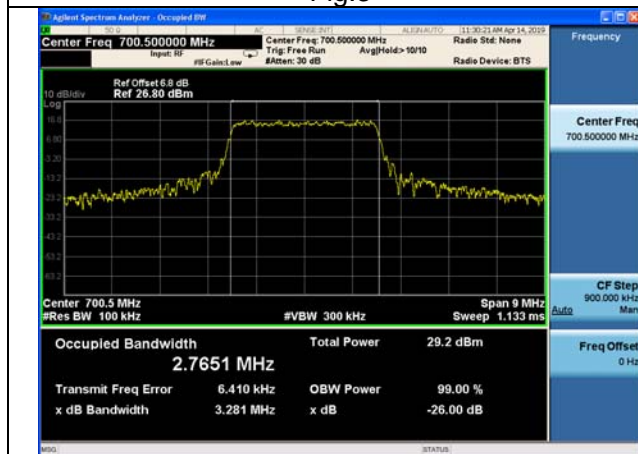


Fig.4

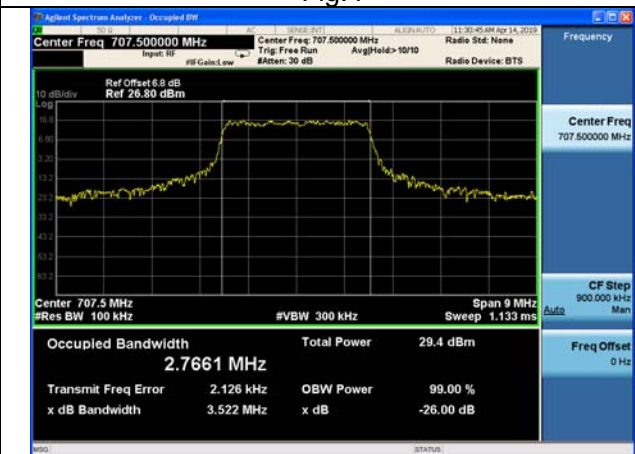


Fig.5

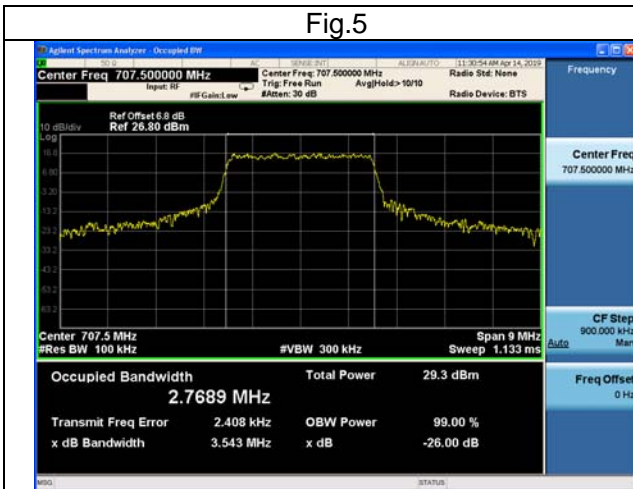


Fig.6

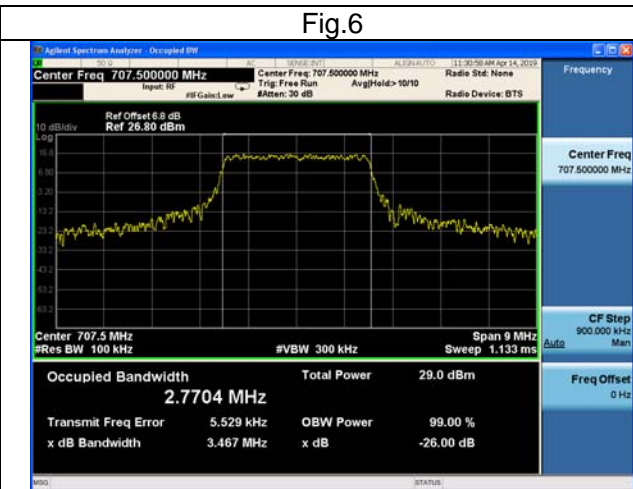


Fig.7

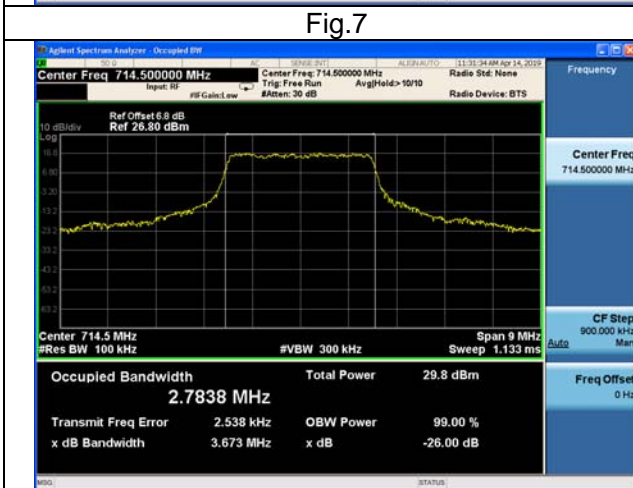


Fig.8

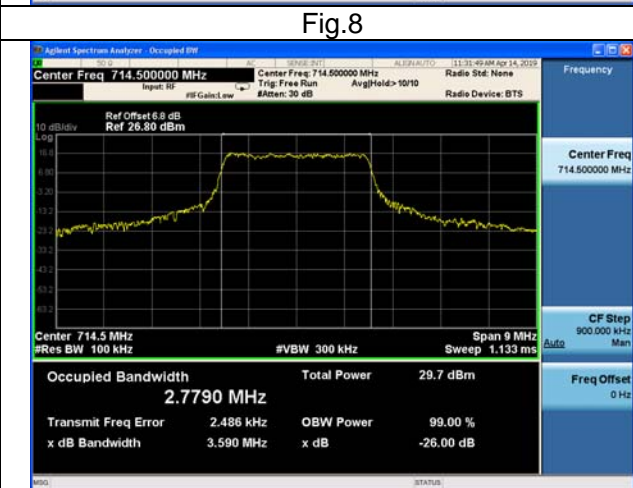
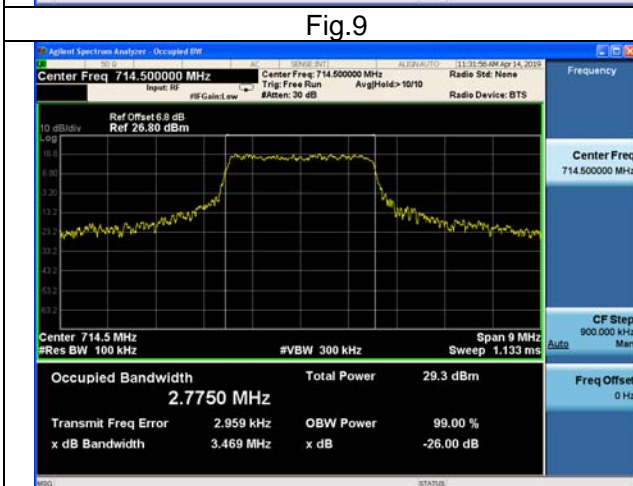


Fig.9



Band	Carrier frequency (MHz)	Channel(Low)	BW	RB Size	RB Offset	Bandwidth of 99% Power (MHz)					
						QPSK		16-QAM		64-QAM	
12	701.5	23035	5	25	0	4.4984	Fig.1	4.4992	Fig.2	4.5066	Fig.3
12	707.5	23095	5	25	0	4.5075	Fig.4	4.5022	Fig.5	4.4992	Fig.6
12	713.5	23155	5	25	0	4.4998	Fig.7	4.5085	Fig.8	4.4913	Fig.9

Band	Carrier frequency (MHz)	Channel(Low)	BW	RB Size	RB Offset	Bandwidth of -26dB transmitter power (MHz)					
						QPSK		16-QAM		64-QAM	
12	701.5	23035	5	25	0	5.367	Fig.1	5.253	Fig.2	5.228	Fig.3
12	707.5	23095	5	25	0	5.241	Fig.4	5.329	Fig.5	5.304	Fig.6
12	713.5	23155	5	25	0	5.366	Fig.7	5.172	Fig.8	5.423	Fig.9

Fig.1



Fig.2

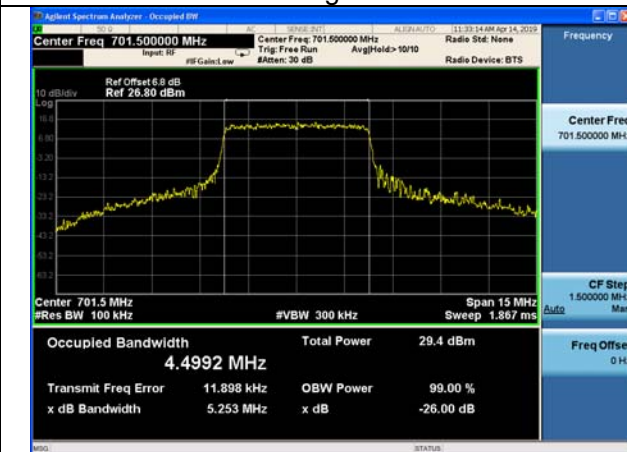


Fig.3

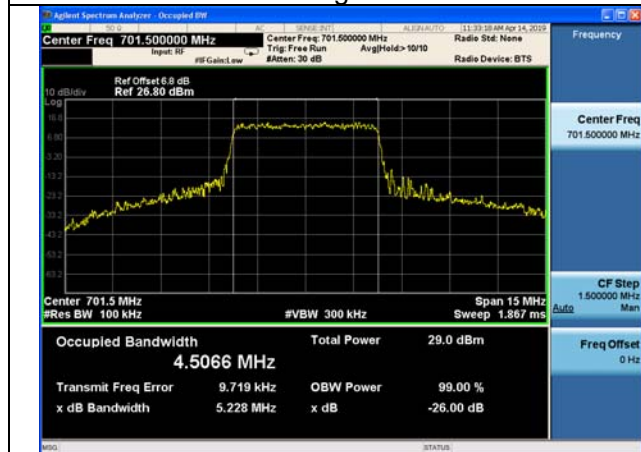


Fig.4

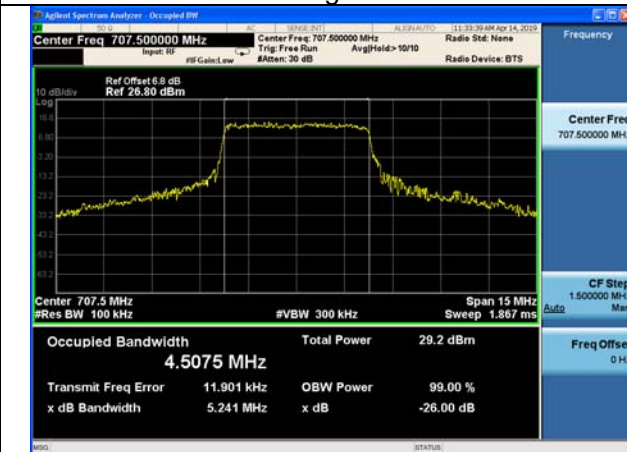


Fig.5

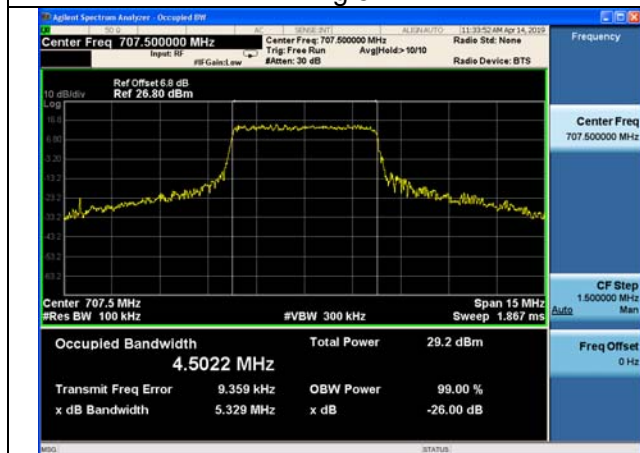


Fig.6

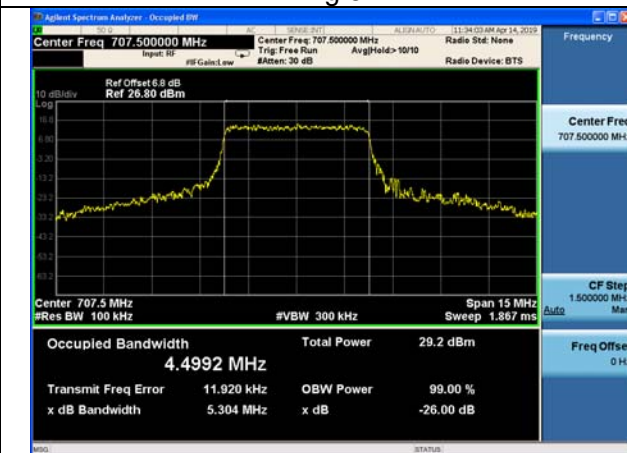


Fig.7

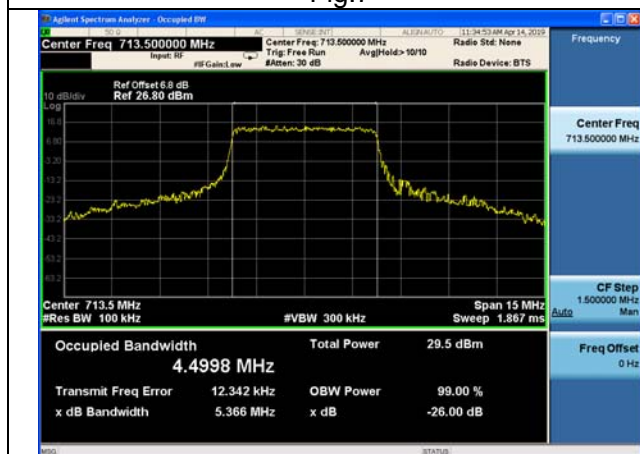


Fig.8

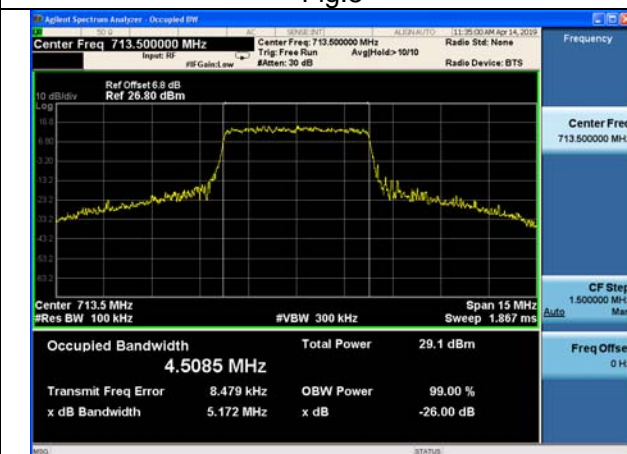
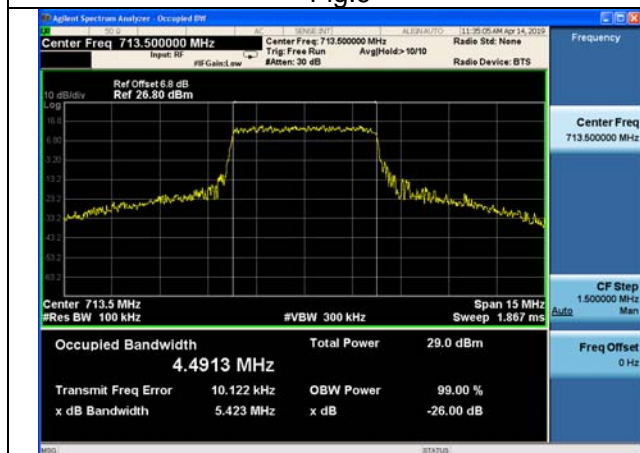


Fig.9



Band	Carrier frequency (MHz)	Channel(Low)	BW	RB Size	RB Offset	Bandwidth of 99% Power (MHz)					
						QPSK		16-QAM		64-QAM	
12	704	23060	10	50	0	9.0550	Fig.1	9.0523	Fig.2	9.0485	Fig.3
12	707.5	23095	10	50	0	9.0695	Fig.4	9.0565	Fig.5	9.0742	Fig.6
12	711	23130	10	50	0	9.0631	Fig.7	9.0532	Fig.8	9.0605	Fig.9

Band	Carrier frequency (MHz)	Channel(Low)	BW	RB Size	RB Offset	Bandwidth of -26dB transmitter power (MHz)					
						QPSK		16-QAM		64-QAM	
12	704	23060	10	50	0	10.190	Fig.1	10.240	Fig.2	10.100	Fig.3
12	707.5	23095	10	50	0	10.150	Fig.4	10.270	Fig.5	9.978	Fig.6
12	711	23130	10	50	0	10.180	Fig.7	10.170	Fig.8	10.070	Fig.9

Fig.1



Fig.2



Fig.3



Fig.4



Fig.5

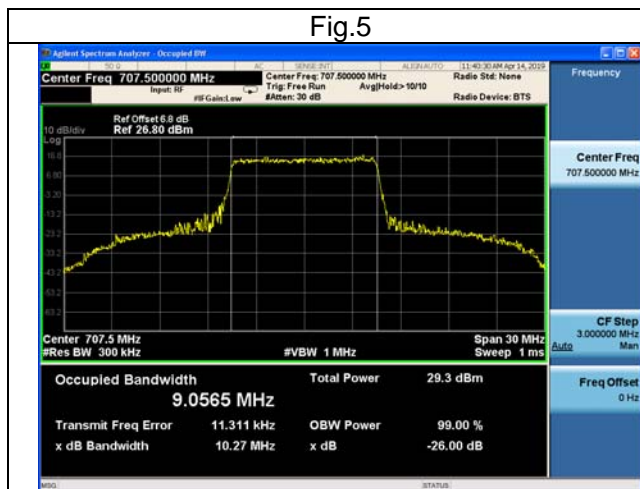


Fig.6

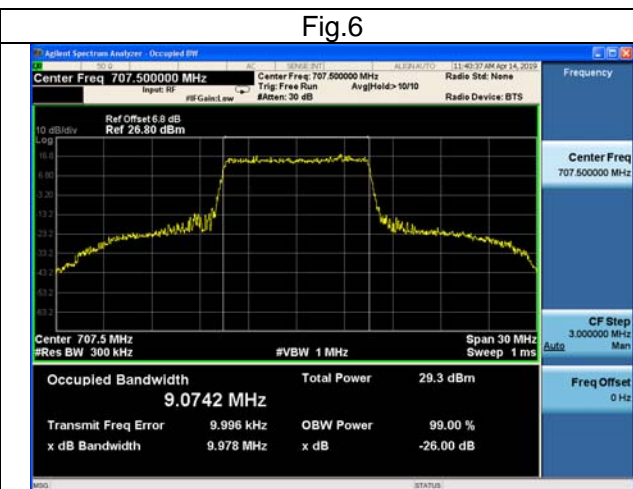


Fig.7

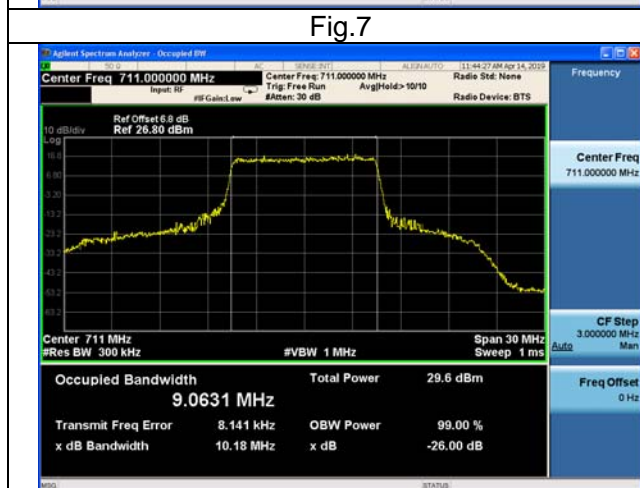
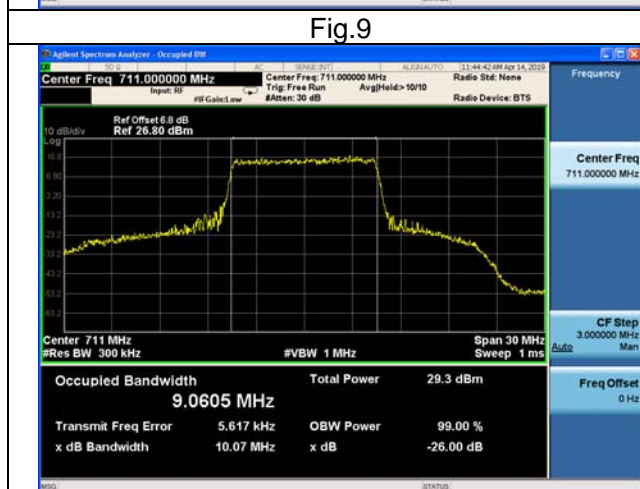


Fig.8

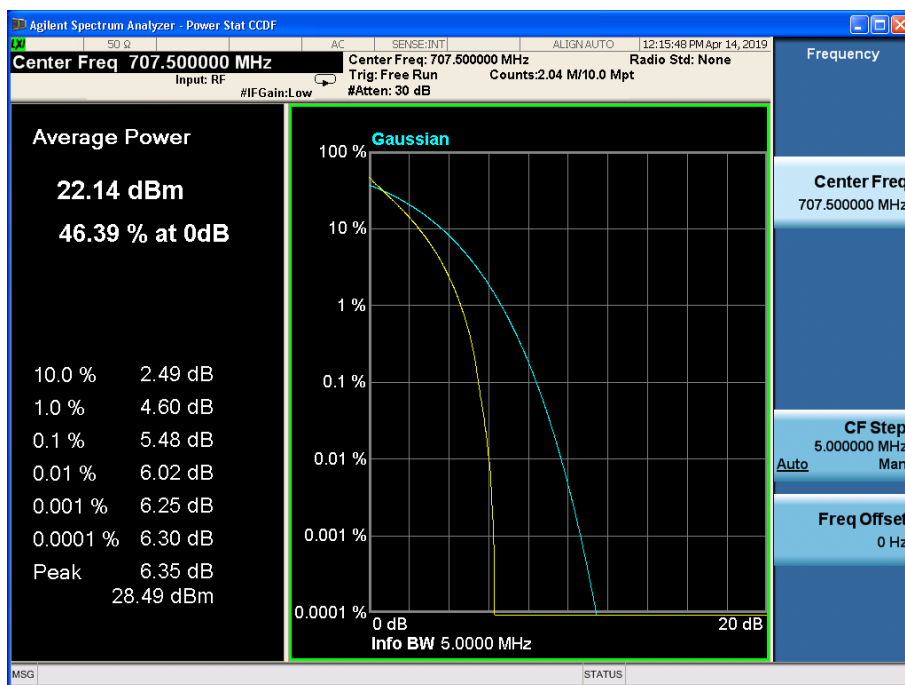


Fig.9



3 Peak-Average Ratio

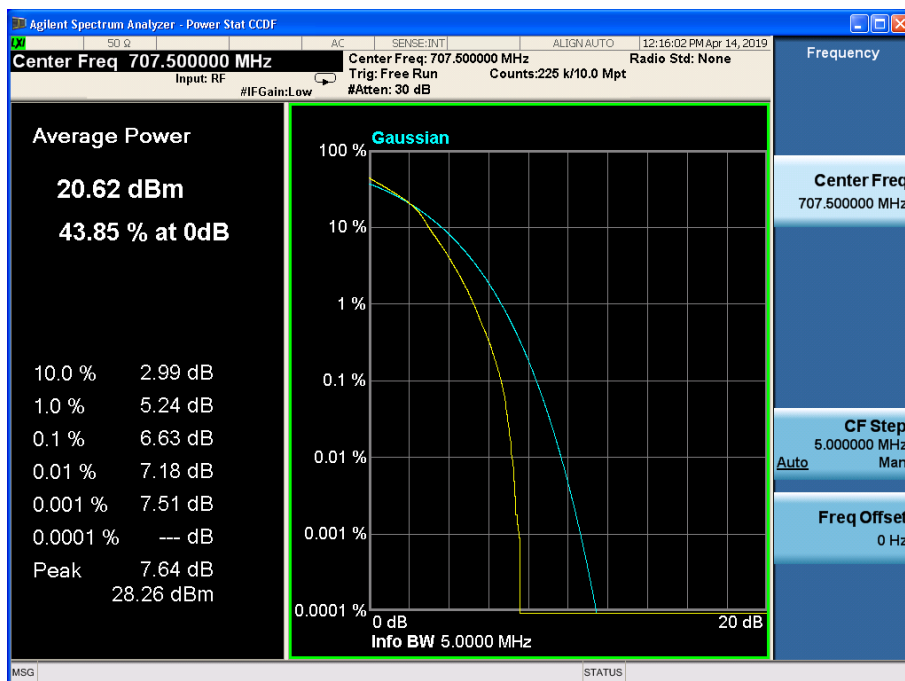
Test result:



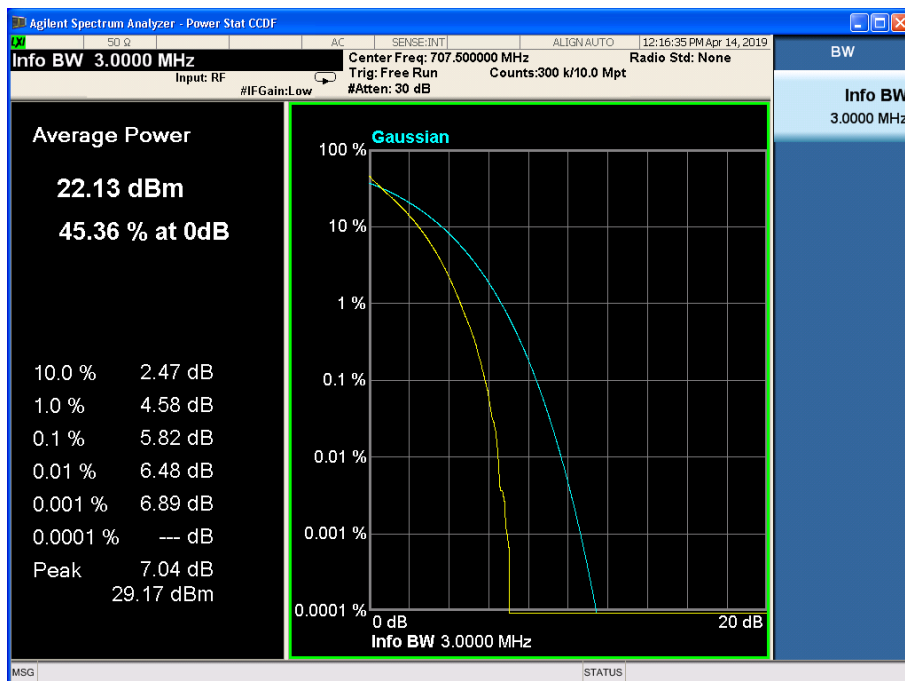
Peak-Average Ratio Plot(1.4MHz BW,QPSK,Band 12-mid Channel)



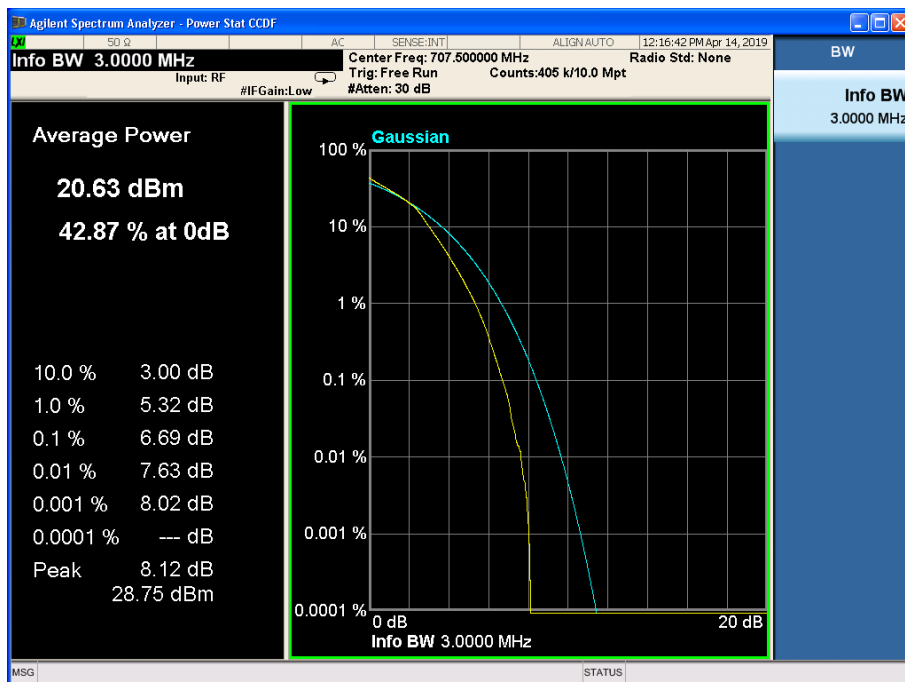
Peak-Average Ratio Plot(1.4MHz BW,16QAM,Band 12-mid Channel)



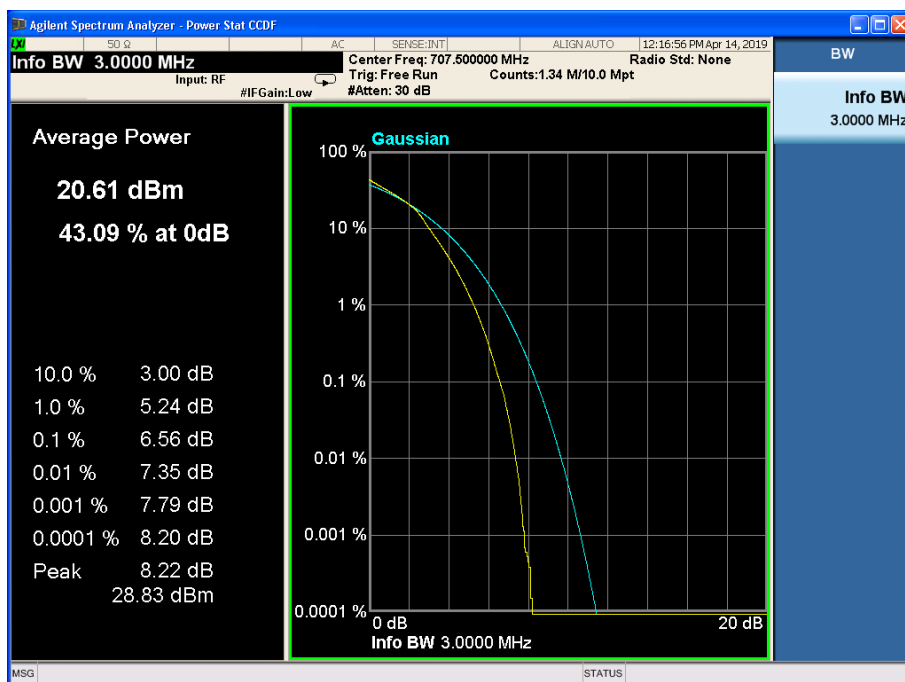
Peak-Average Ratio Plot(1.4MHz BW,64QAM,Band 12-mid Channel)



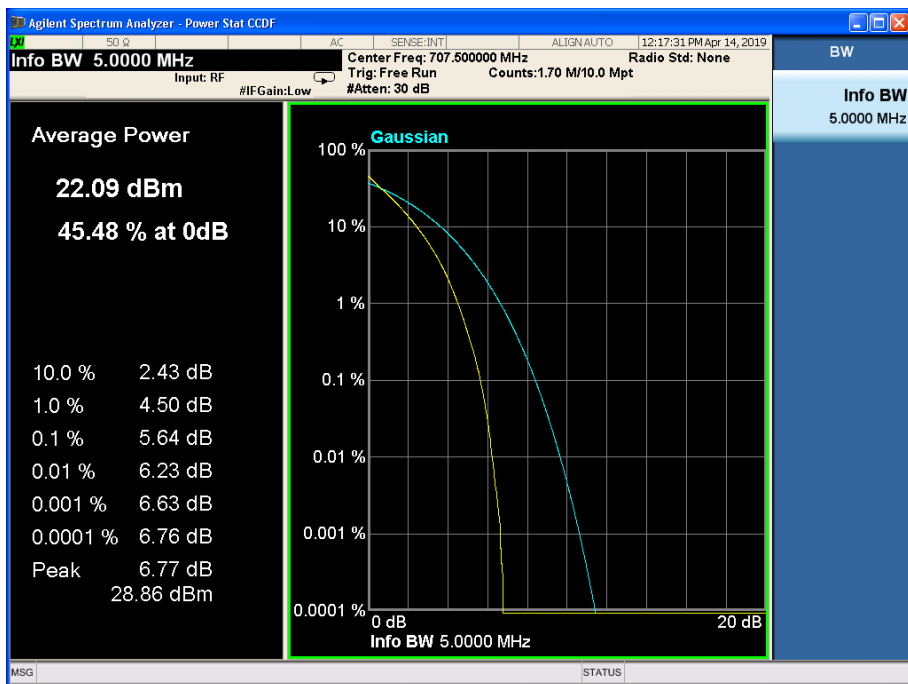
Peak-Average Ratio Plot(3MHz BW,QPSK,Band 12-mid Channel)



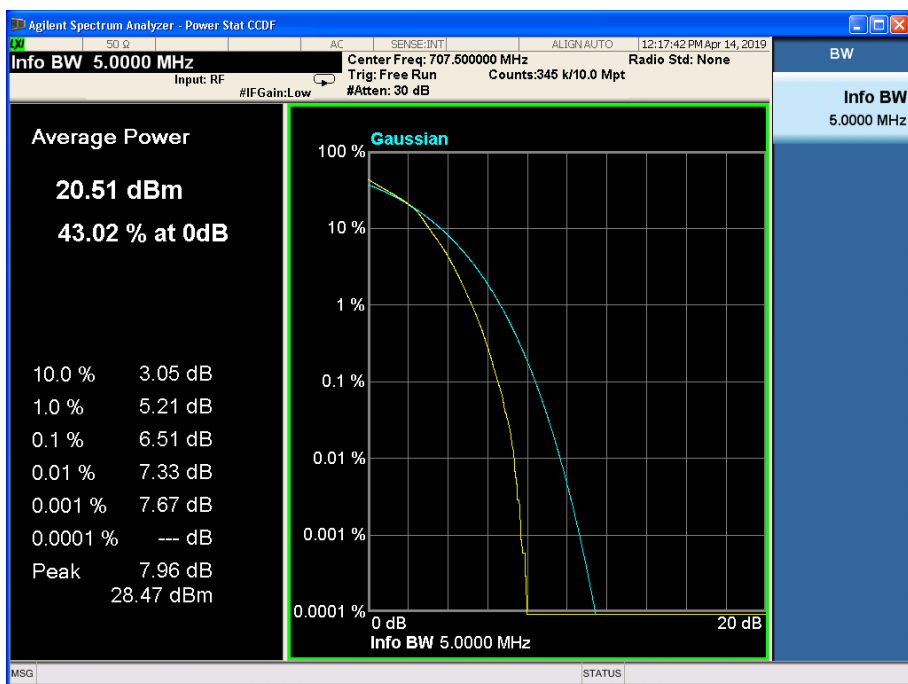
Peak-Average Ratio Plot(3MHz BW,16QAM,Band 12-mid Channel)



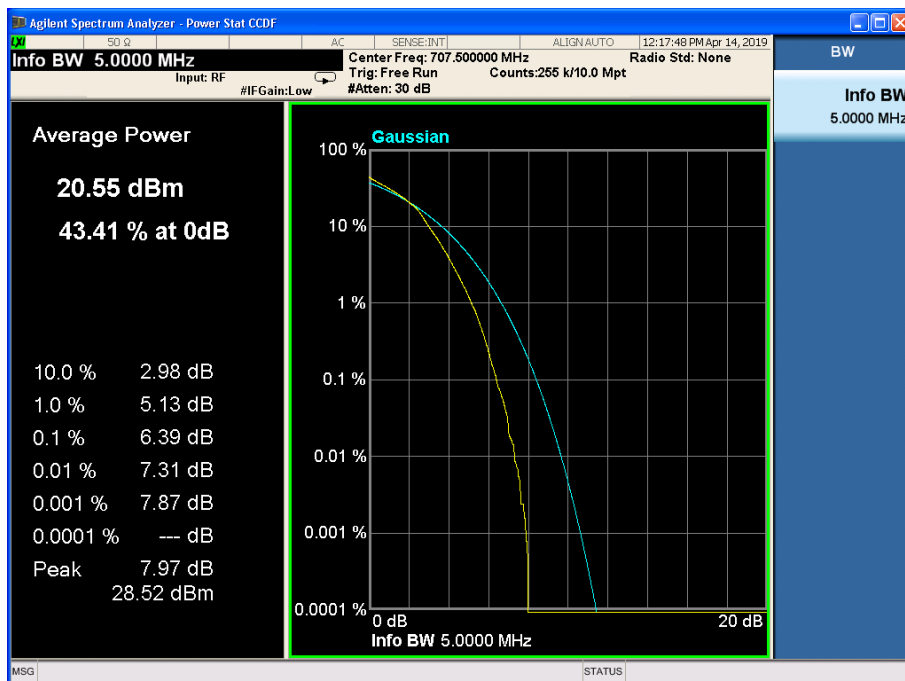
Peak-Average Ratio Plot(3MHz BW,64QAM,Band 12-mid Channel)



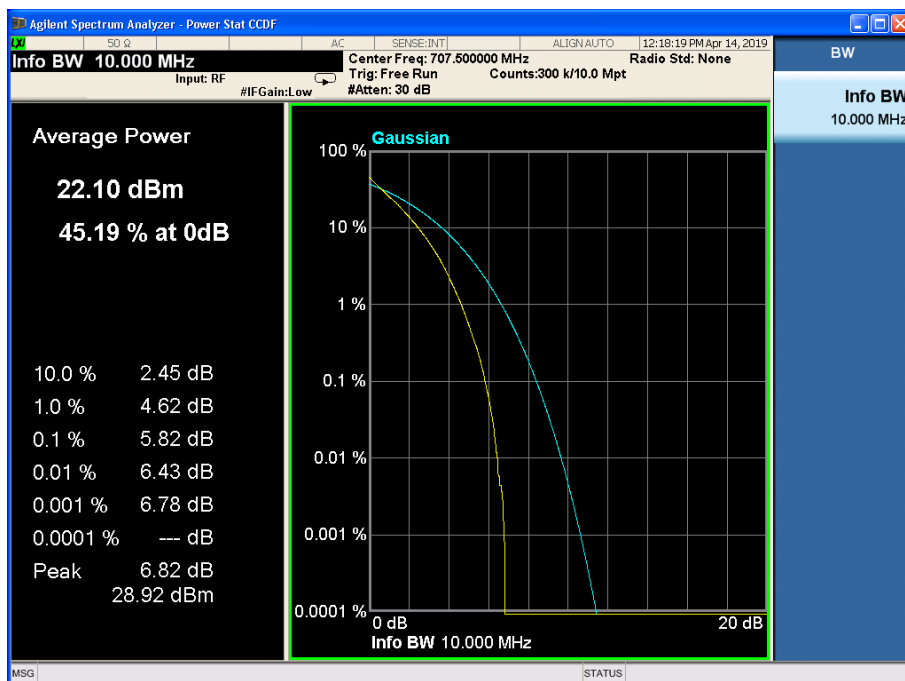
Peak-Average Ratio Plot(5MHz BW,QPSK,Band 12-mid Channel)



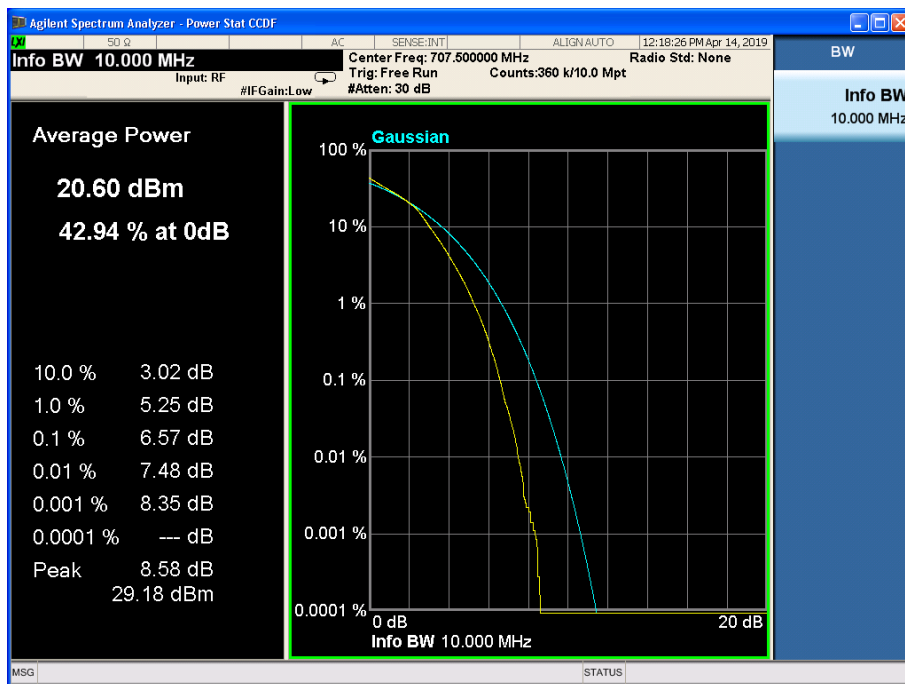
Peak-Average Ratio Plot(5MHz BW,16QAM,Band 12-mid Channel)



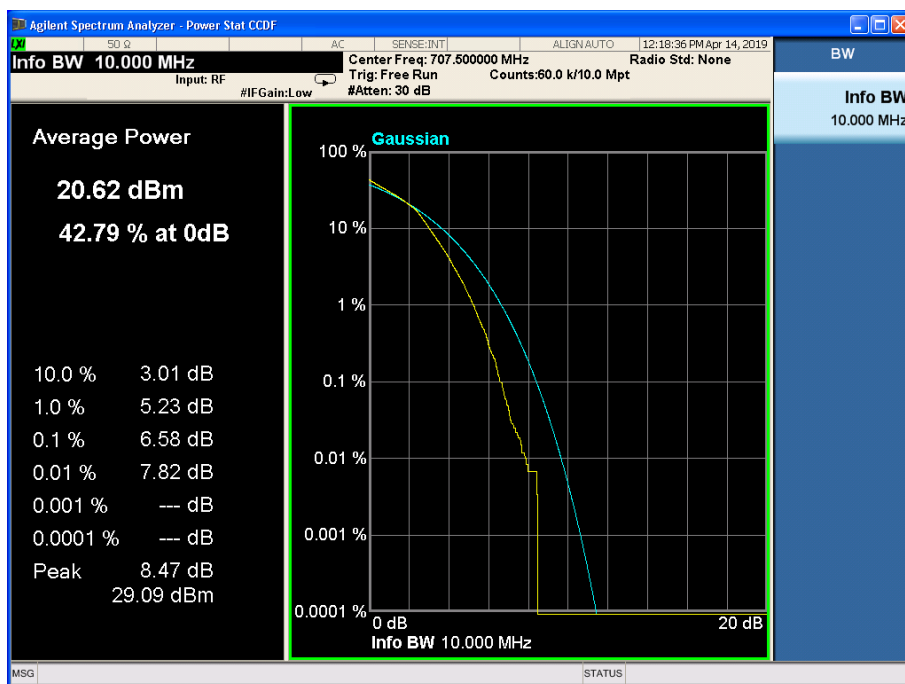
Peak-Average Ratio Plot(5MHz BW,64QAM,Band 12-mid Channel)



Peak-Average Ratio Plot(10MHz BW,QPSK,Band 12-mid Channel)



Peak-Average Ratio Plot(10MHz BW,16QAM,Band 12-mid Channel)



Peak-Average Ratio Plot(10MHz BW,64QAM,Band 12-mid Channel)

4 Spurious Emissions at antenna terminal

Test result

Band	Carrier frequency (MHz)	Channel(Low)	BW	RB Size	RB Offset	Conducted Spurious Plot
						QPSK
12	704	23060	10	1	0	Fig.1

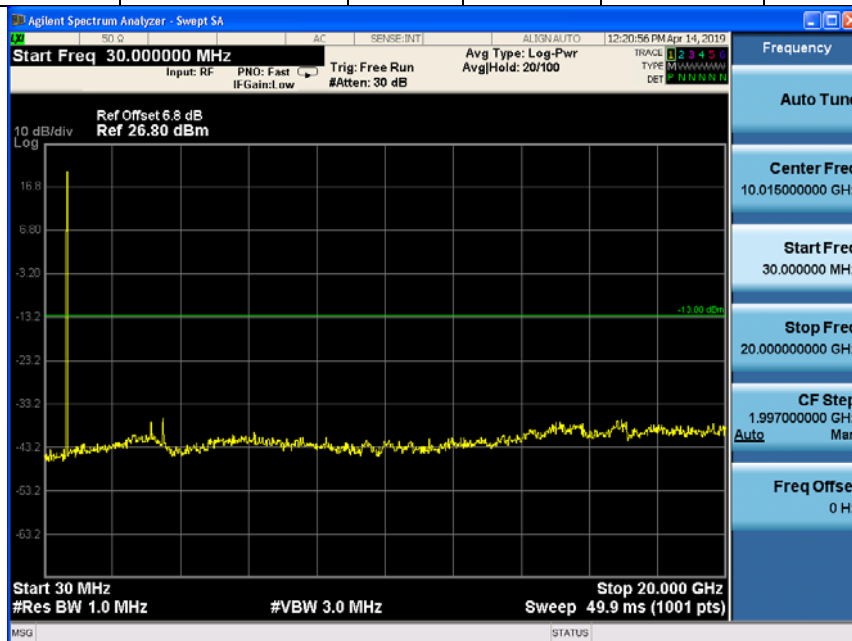


Fig.1

Band	Carrier frequency (MHz)	Channel(Mid)	BW	RB Size	RB Offset	Conducted Spurious Plot
						QPSK
12	707.5	23095	10	1	0	Fig.1

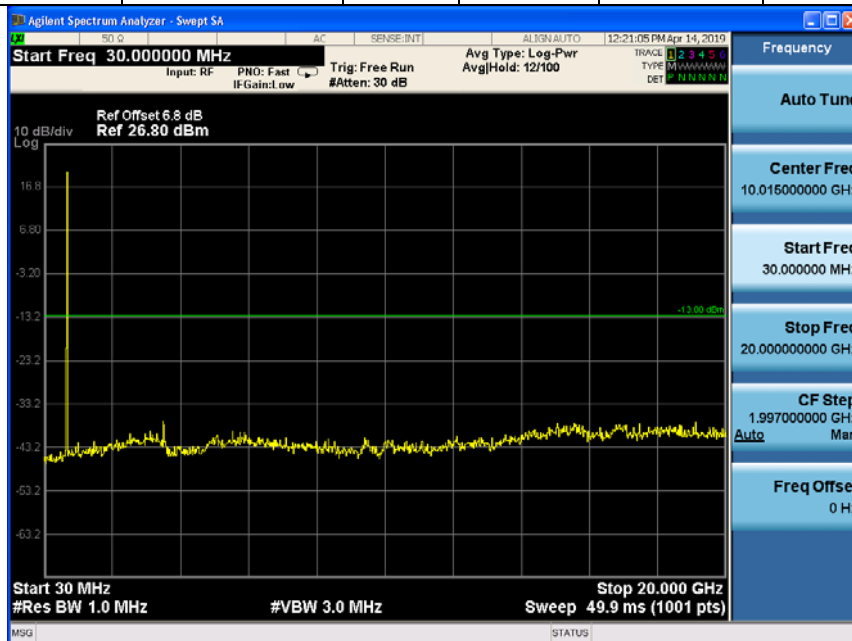


Fig.1

Band	Carrier frequency (MHz)	Channel (High)	BW	RB Size	RB Offset	Conducted Spurious Plot	
						QPSK	16-QAM
12	711	23130	10	1	0	Fig.1	Fig.8

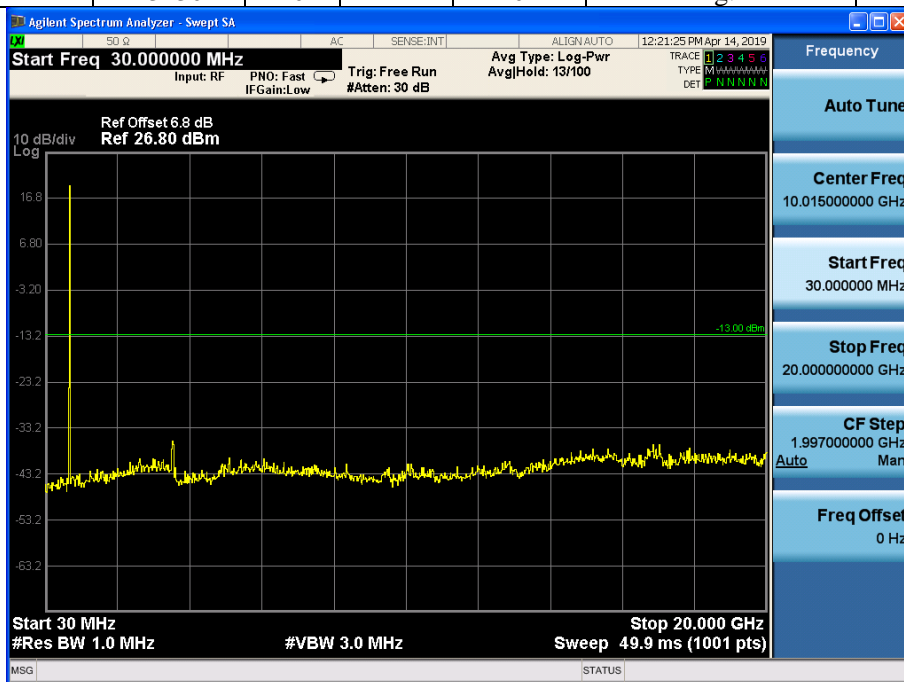


Fig.1

5 Band Edges Compliance

Test result

Band	Carrier frequency (MHz)	Channel (Low)	BW	RB Size	RB Offset	Band EdgesPlot
						QPSK
12	699.7	23017	1.4	1	0	Fig.1
				6	0	Fig.4

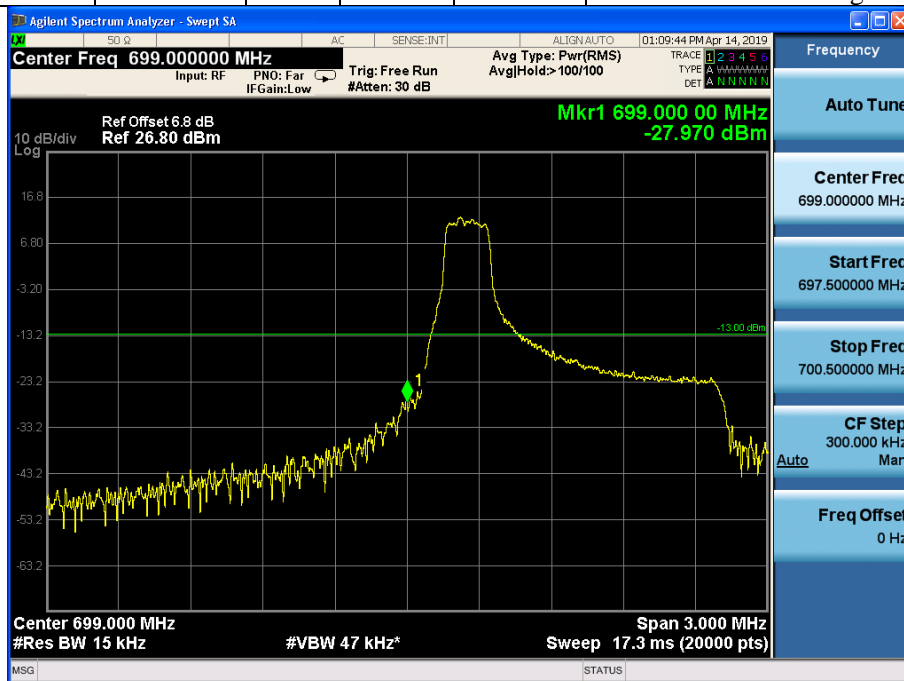


Fig.1

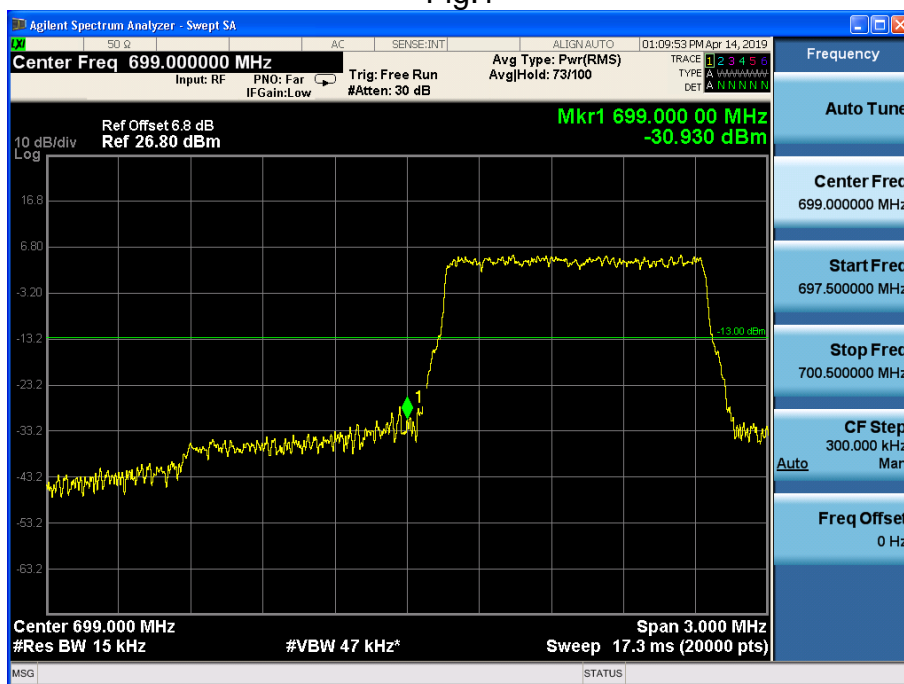


Fig.4

Band	Carrier frequency (MHz)	Channel (High)	BW	RB Size	RB Offset	Band EdgesPlot
						QPSK
12	715.3	23173	1.4	1	5	Fig.1
				6	0	Fig.4

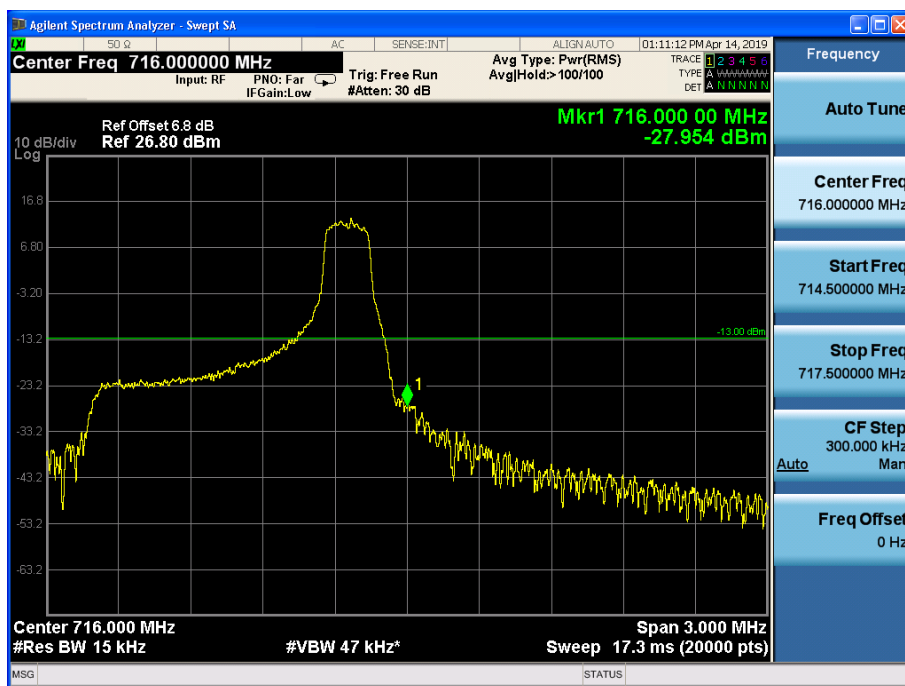


Fig.1

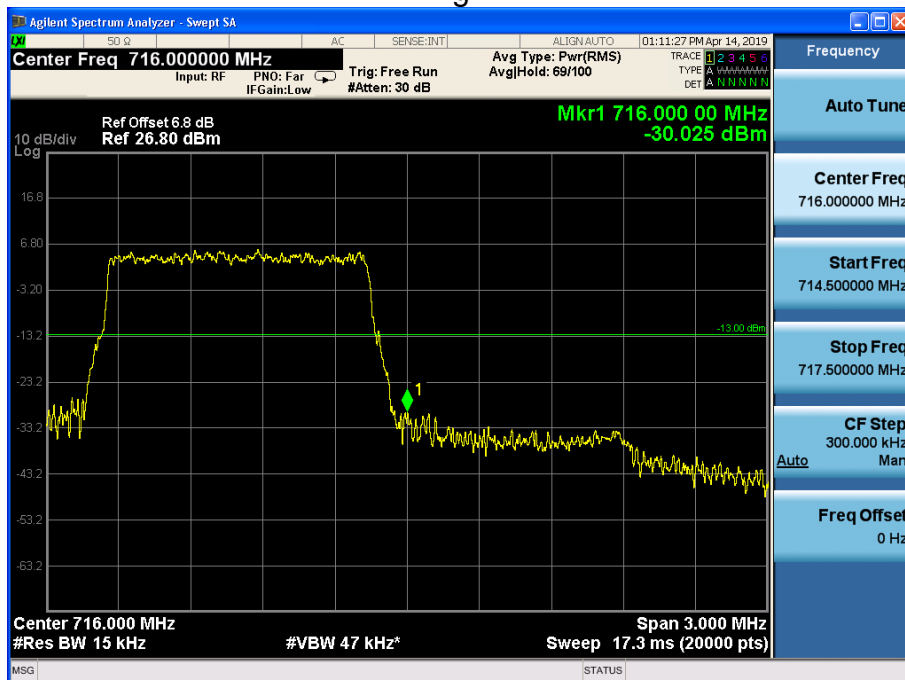


Fig.4

Band	Carrier frequency (MHz)	Channel (Low)	BW	RB Size	RB Offset	Band EdgesPlot
						QPSK
12	700.5	23025	3	1	0	Fig.1
				15	0	Fig.4

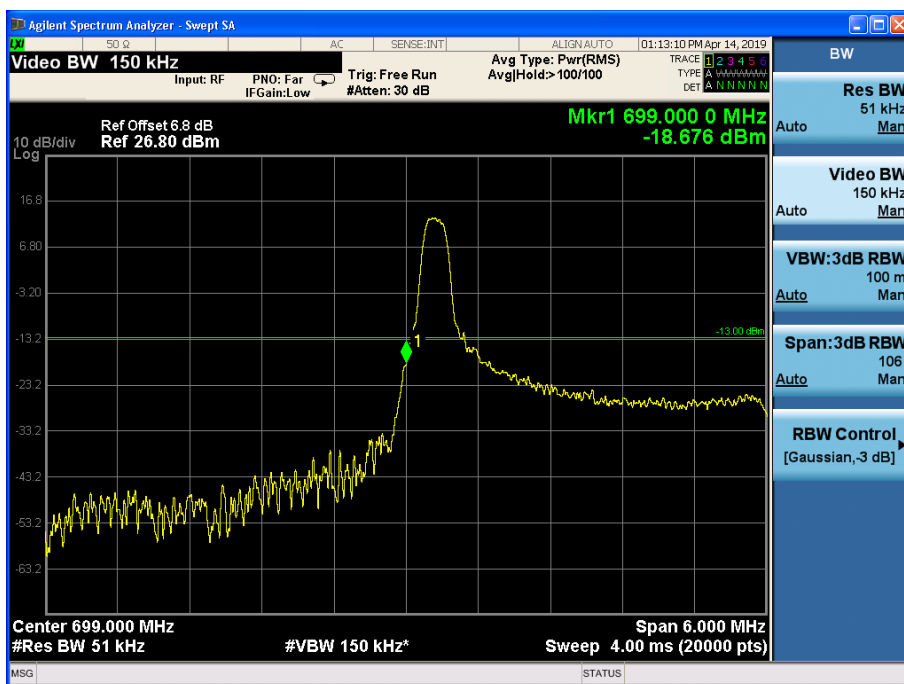


Fig.1

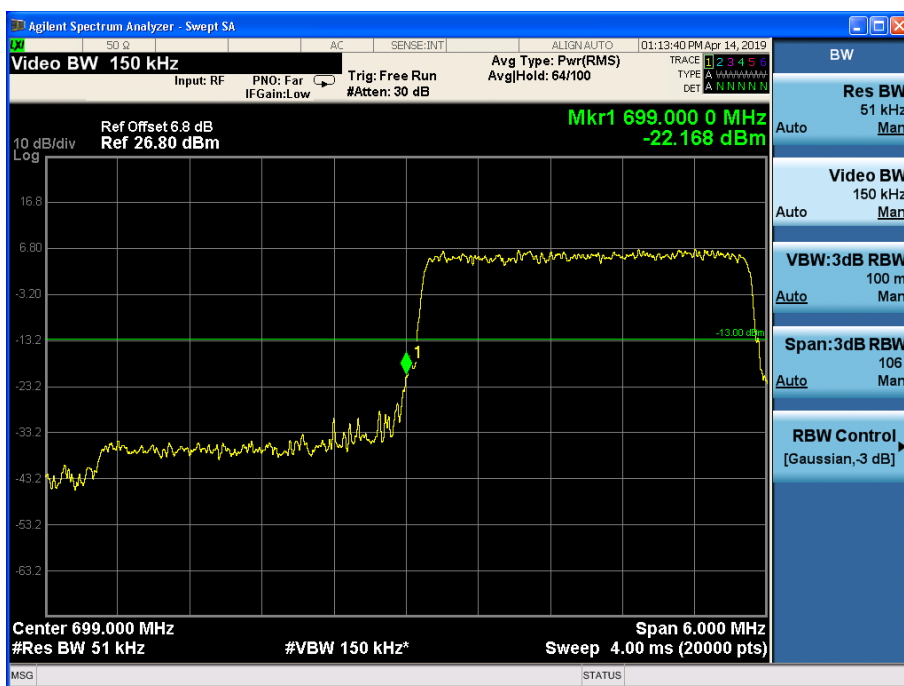


Fig.4

Band	Carrier frequency (MHz)	Channel (High)	BW	RB Size	RB Offset	Band EdgesPlot
						QPSK
12	714.5	23165	3	1	14	Fig.1
				15	0	Fig.4

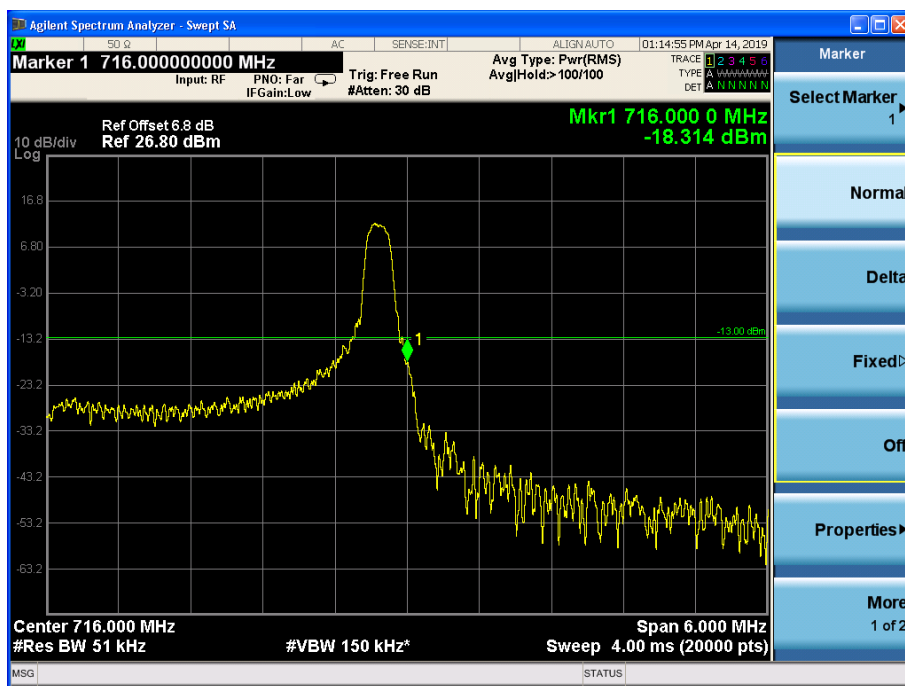


Fig.1

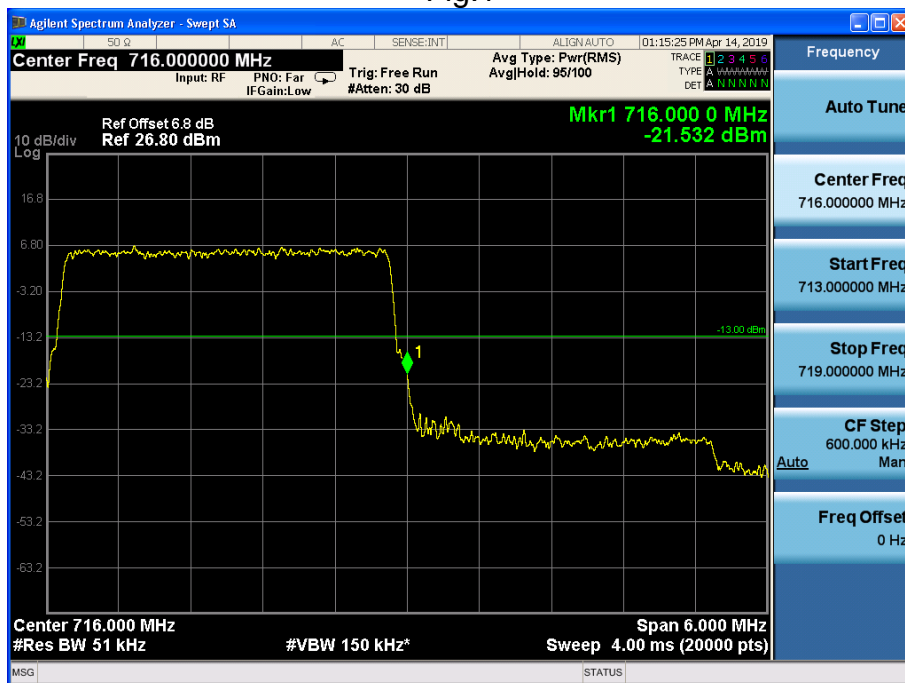


Fig.4

Band	Carrier frequency (MHz)	Channel (Low)	BW	RB Size	RB Offset	Band EdgesPlot
						QPSK
12	701.5	23035	5	1	0	Fig.1
				25	0	Fig.4

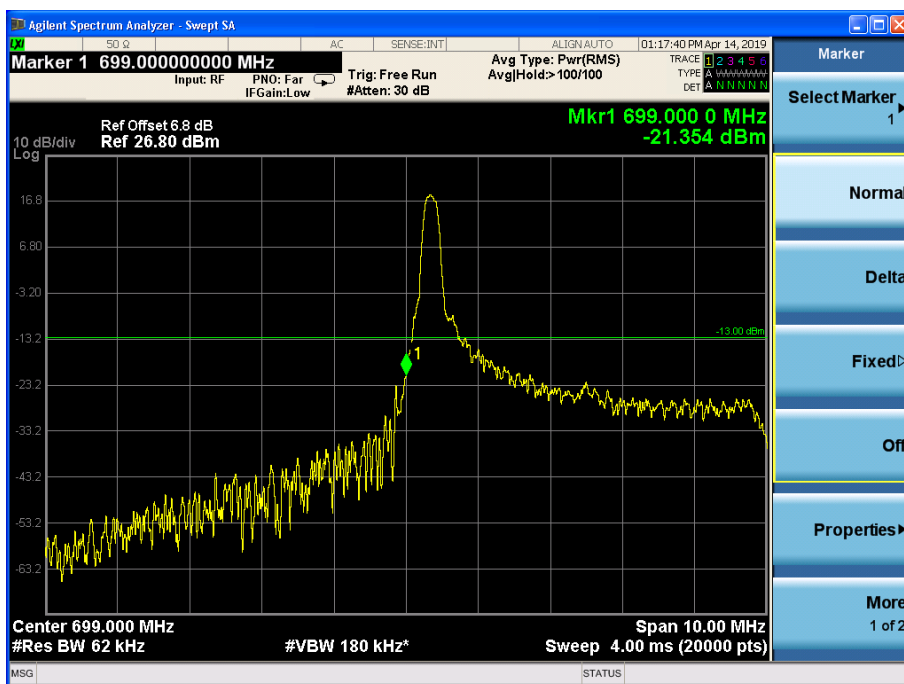


Fig.1

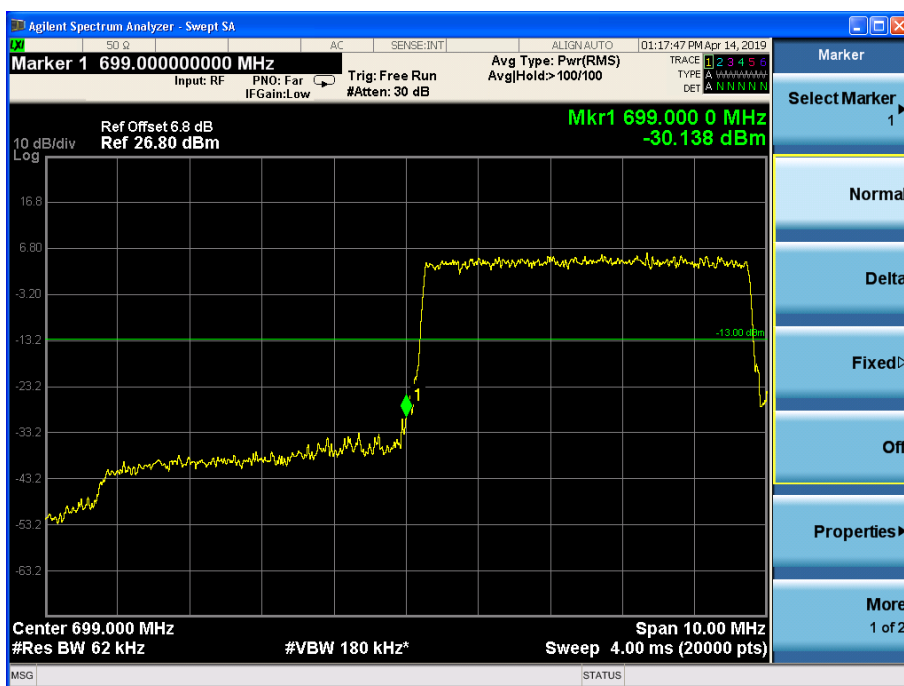


Fig.4

Band	Carrier frequency (MHz)	Channel (High)	BW	RB Size	RB Offset	Band EdgesPlot
						QPSK
12	713.5	23155	5	1	24	Fig.1
				25	0	Fig.4

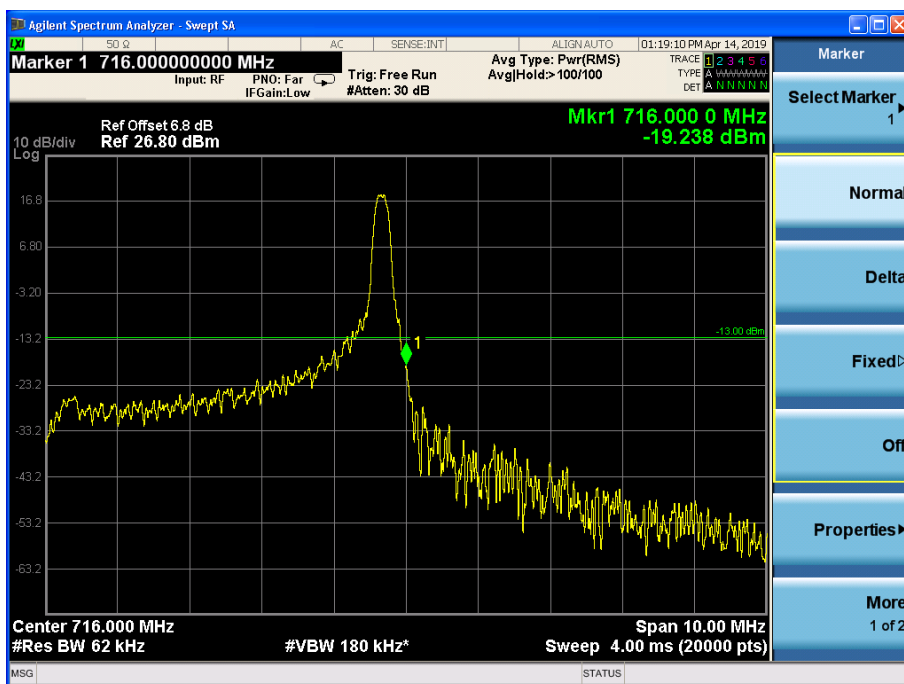


Fig.1

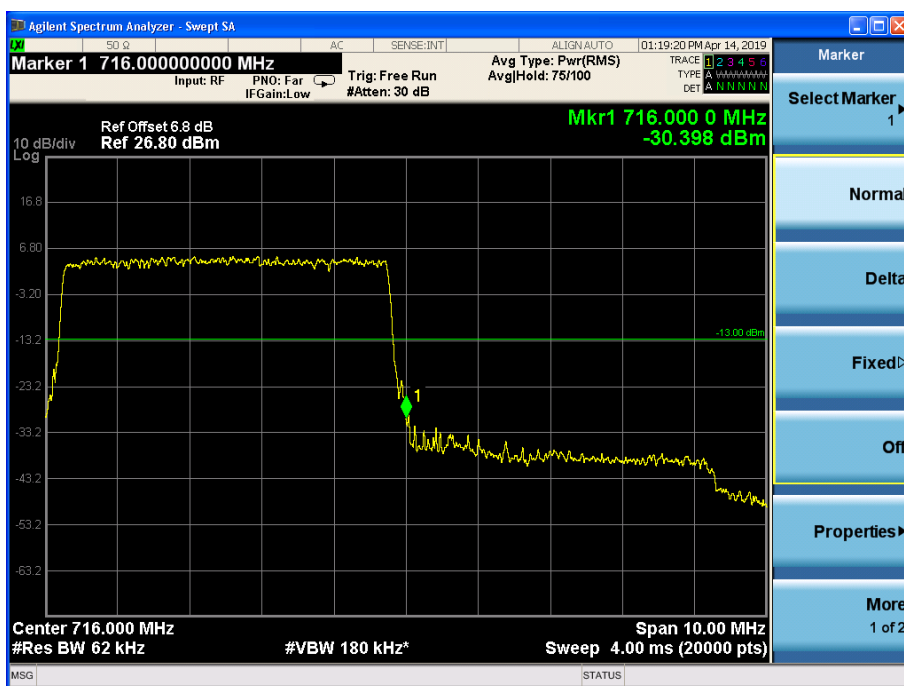


Fig.4

Band	Carrier frequency (MHz)	Channel (Low)	BW	RB Size	RB Offset	Band EdgesPlot
						QPSK
12	704	23060	10	1	0	Fig.1
				50	0	Fig.4

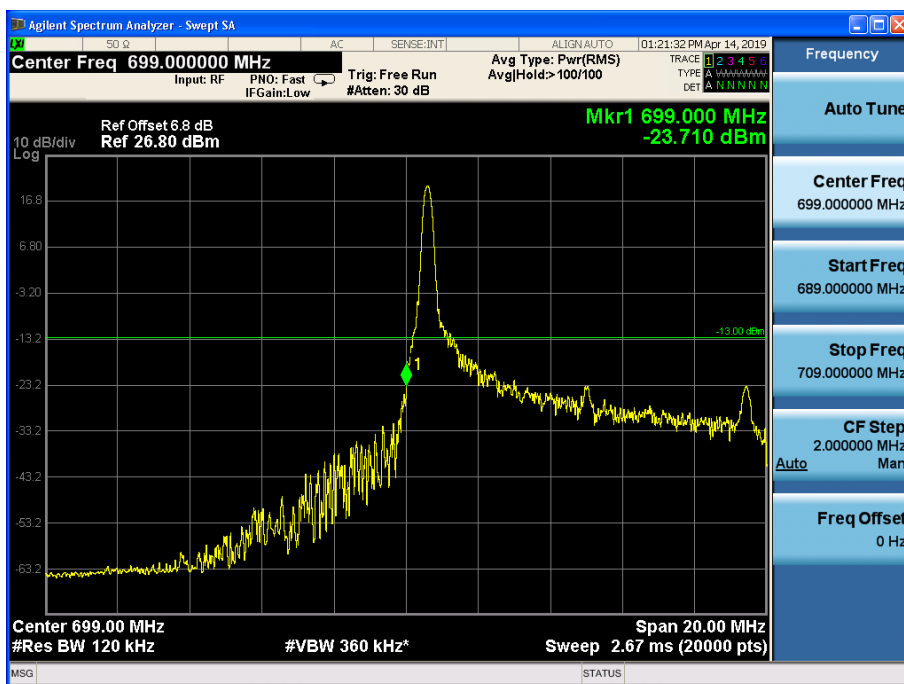


Fig.1

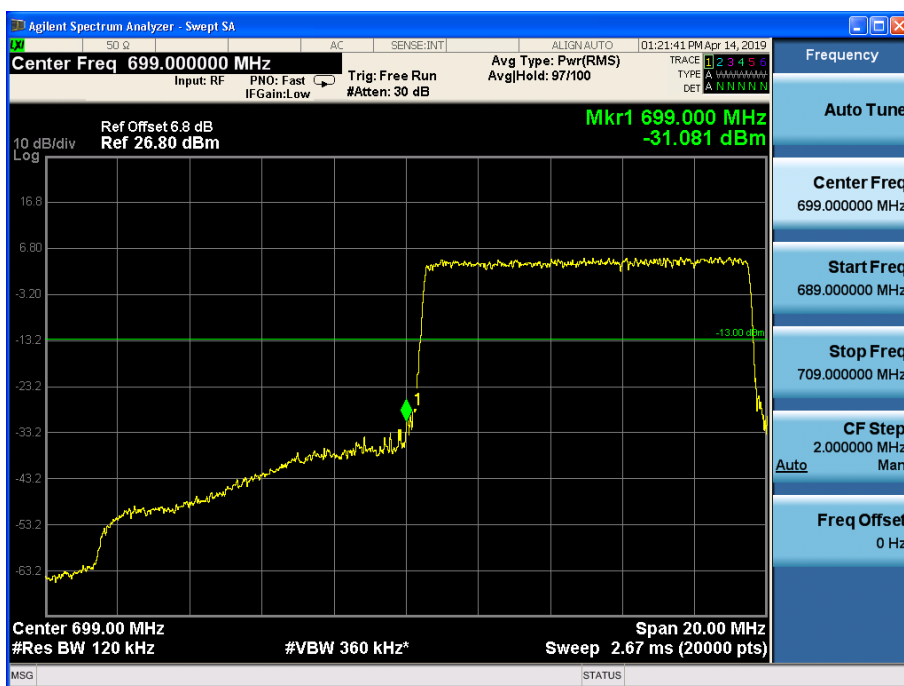


Fig.4

Band	Carrier frequency (MHz)	Channel (High)	BW	RB Size	RB Offset	Band EdgesPlot
						QPSK
12	711	23130	10	1	49	Fig.1
				50	0	Fig.4

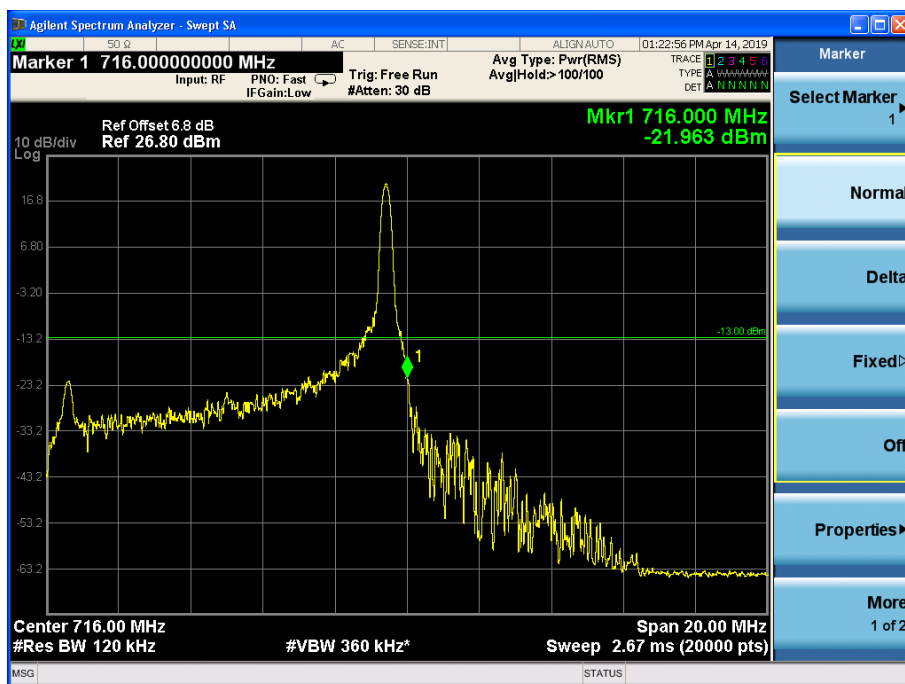


Fig.1

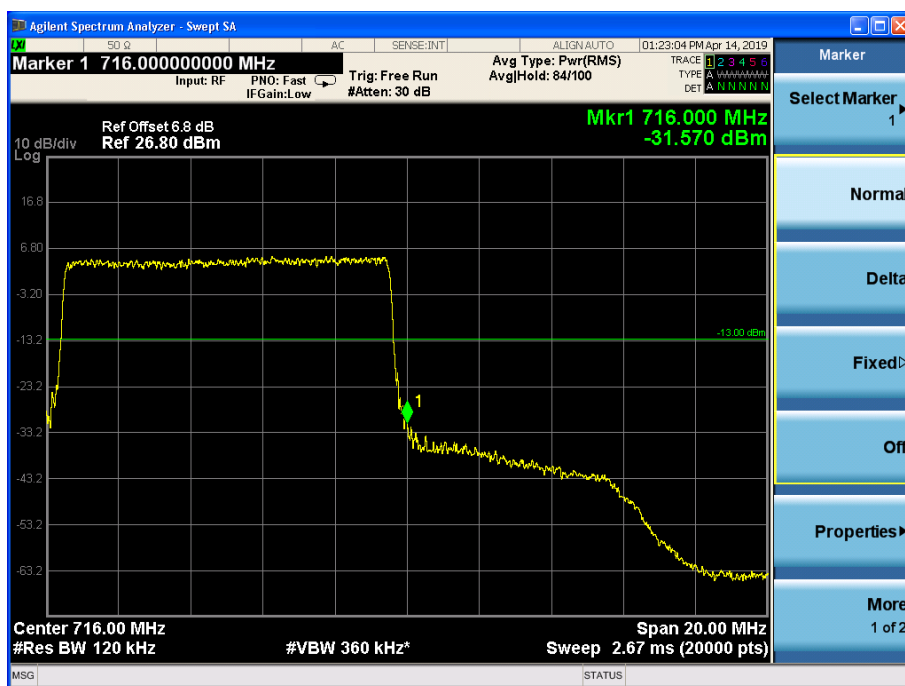


Fig.4

6 Frequency Stability

Test result:

Temperature(°C)	Voltage	Test Result (ppm) Band12 Low Channel			
		1.4M	3M	5M	10M
0	NV	-0.008	-0.025	-0.011	-0.019
+10	NV	0.018	0.013	0.011	0.006
+20	NV	0.010	-0.011	0.007	0.008
+30	NV	-0.022	-0.001	-0.014	0.004
+40	NV	0.003	0.012	-0.013	-0.007
+50	NV	-0.024	-0.006	-0.010	-0.004
+55	NV	0.000	0.012	-0.014	-0.010
+20	LV	-0.017	-0.007	-0.010	-0.012
+20	HV	-0.011	0.001	0.010	0.004

Temperature(°C)	Voltage	Test Result (ppm) Band12 High Channel			
		1.4M	3M	5M	10M
0	NV	-0.011	0.012	0.005	0.014
+10	NV	0.005	0.003	0.009	0.003
+20	NV	0.012	0.006	0.013	-0.004
+30	NV	-0.010	-0.005	0.013	-0.007
+40	NV	0.011	-0.014	0.007	0.010
+50	NV	0.003	-0.003	-0.010	0.000
+55	NV	-0.018	-0.007	-0.005	0.000
+20	LV	-0.012	-0.005	-0.006	-0.006
+20	HV	-0.014	-0.002	-0.009	-0.001