

Band	Carrier frequency (MHz)	Channel (High)	BW	RB Size	RB Offset	Band EdgesPlot
						QPSK
4	1747.5	20325	15	1	0	Fig.1
				6	0	Fig.4

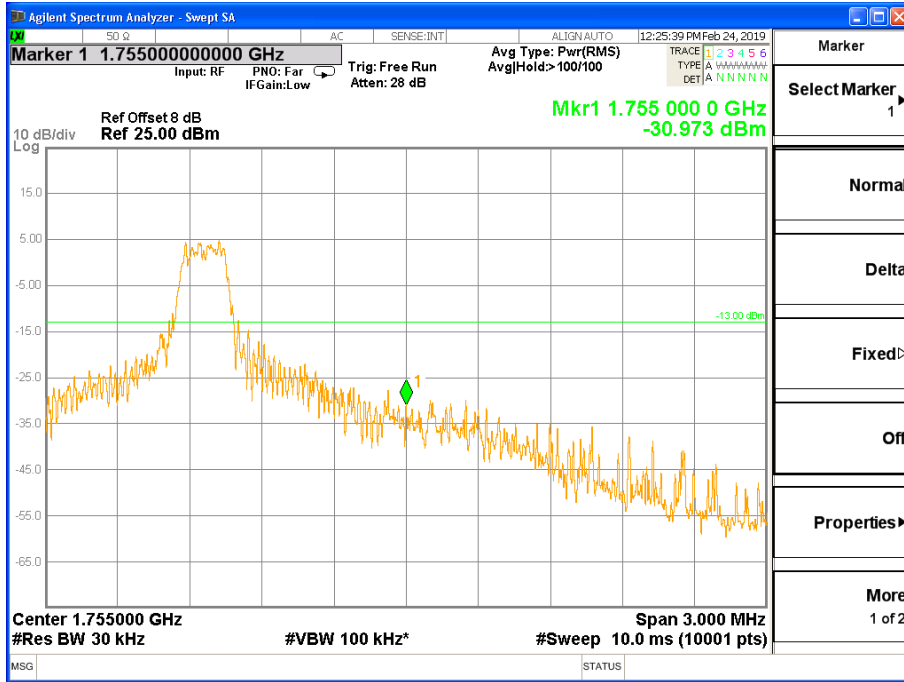


Fig.1

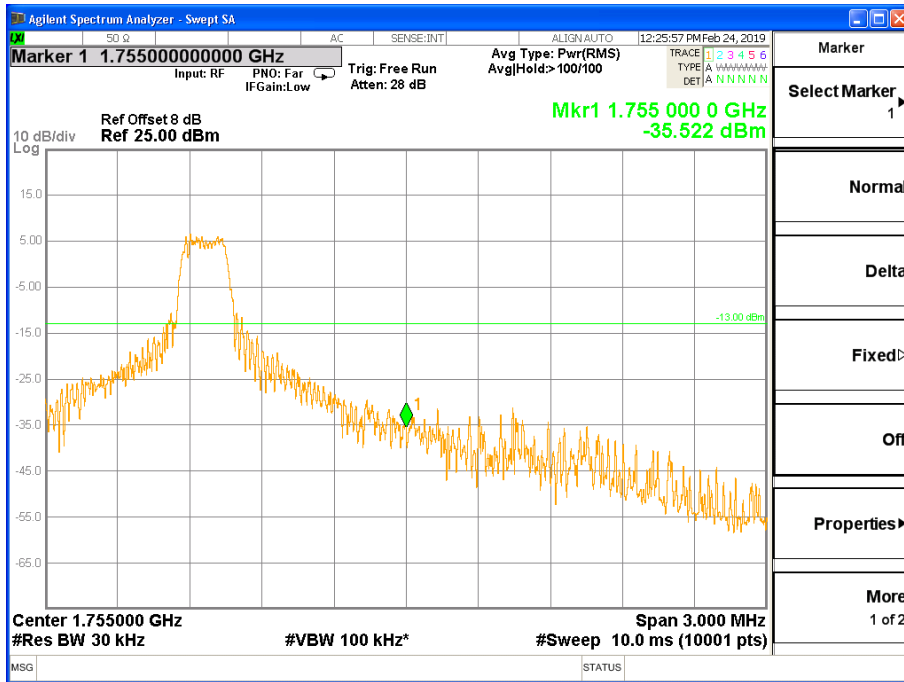


Fig.4

Band	Carrier frequency (MHz)	Channel (Low)	BW	RB Size	RB Offset	Band EdgesPlot
						QPSK
4	1720	20050	20	1	0	Fig.1
				6	0	Fig.4

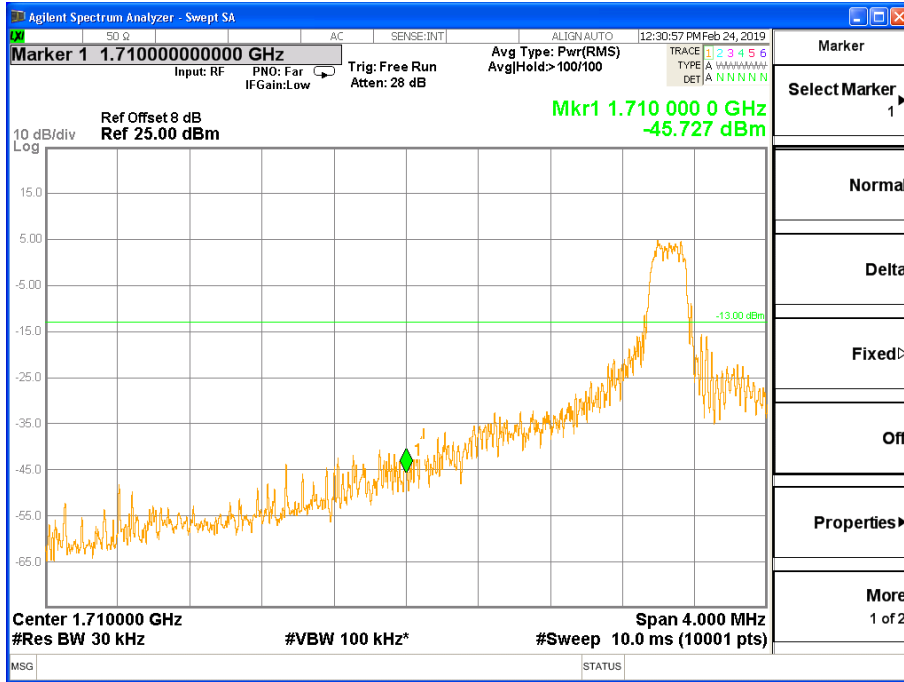


Fig.1

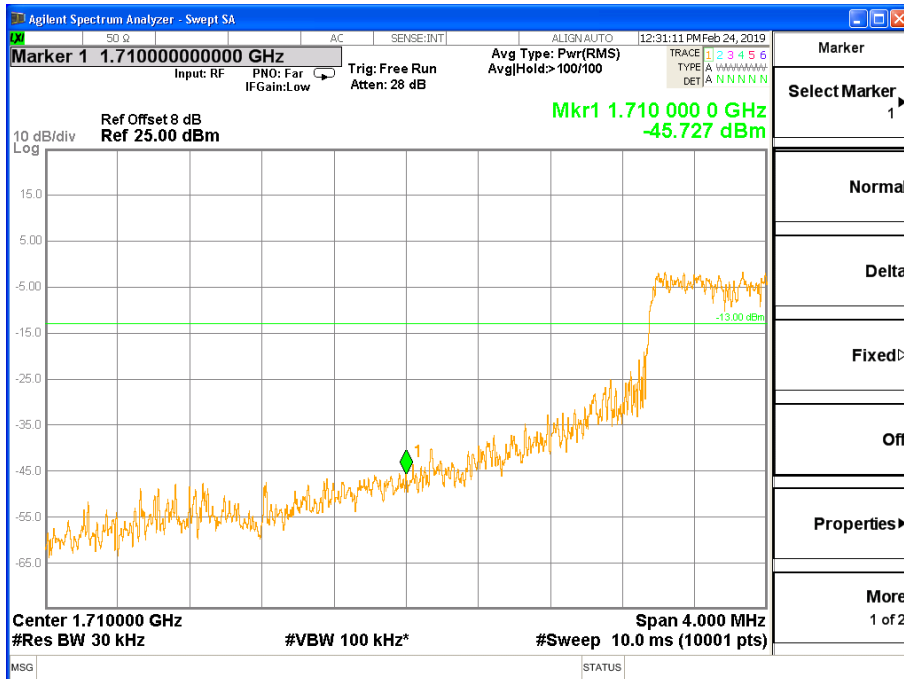


Fig.4

Band	Carrier frequency (MHz)	Channel (High)	BW	RB Size	RB Offset	Band EdgesPlot
						QPSK
4	1745	20300	20	1	0	Fig.1
				6	0	Fig.4

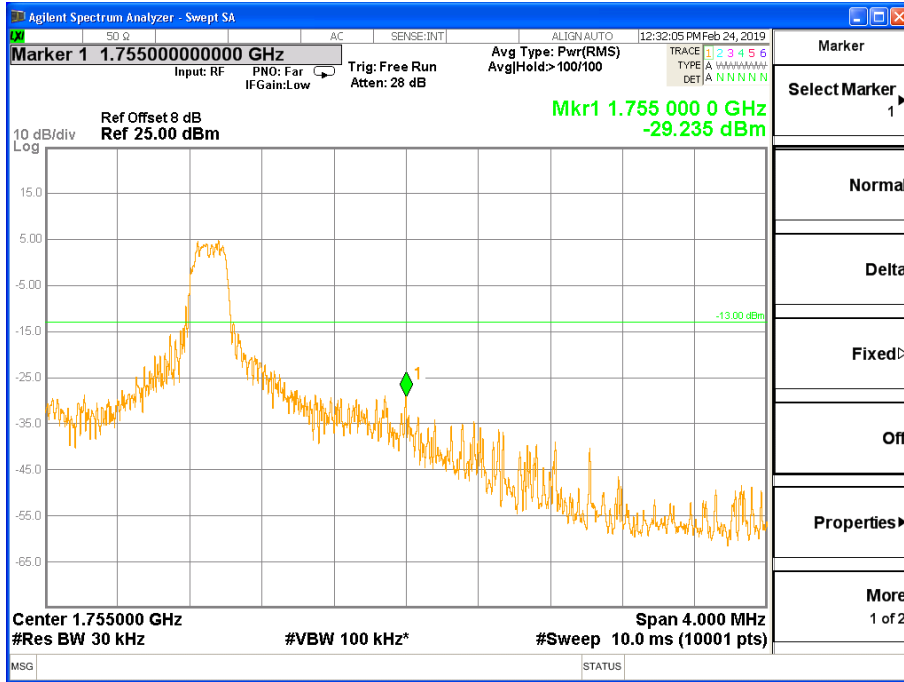


Fig.1

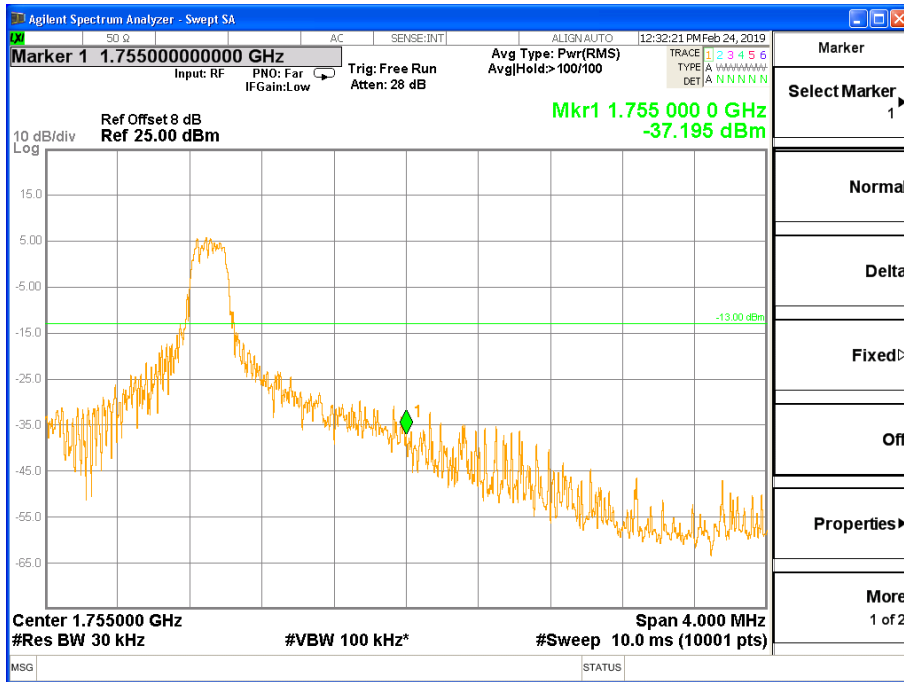


Fig.4

7 Frequency Stability

Test result:

Temperature(°C)	Voltage	Test Result (ppm) Band4 Low Channel					
		1.4M	3M	5M	10M	15M	20M
-20	NV	-0.001	0.006	-0.008	0.015	0.002	0.020
-10	NV	0.017	0.004	0.011	0.020	-0.016	0.018
0	NV	0.009	-0.010	0.011	0.012	0.015	-0.019
+10	NV	0.003	0.007	0.012	0.015	-0.014	0.017
+20	NV	0.005	0.004	-0.005	0.007	0.013	0.006
+30	NV	0.014	0.004	0.012	-0.006	0.013	0.016
+40	NV	0.015	0.013	0.014	0.016	0.018	0.017
+50	NV	0.012	0.001	0.009	0.017	-0.018	-0.019
+60	NV	0.003	0.016	0.013	0.010	0.019	0.020
+20	LV	0.008	0.016	-0.016	0.004	0.019	-0.012
+20	HV	0.007	0.006	0.011	0.012	0.010	0.017

Temperature(°C)	Voltage	Test Result (ppm) Band4 High Channel					
		1.4M	3M	5M	10M	15M	20M
-20	NV	0.012	-0.006	0.017	-0.006	0.004	0.002
-10	NV	-0.005	0.017	0.014	0.016	0.010	0.010
0	NV	0.020	0.011	0.004	0.012	-0.009	0.001
+10	NV	0.008	-0.016	0.014	0.008	0.019	0.007
+20	NV	0.016	0.007	0.018	0.010	0.006	0.020
+30	NV	0.010	0.011	0.014	0.015	0.005	-0.001
+40	NV	0.005	0.007	0.006	0.020	-0.005	0.006
+50	NV	0.005	0.017	0.014	-0.012	0.010	0.008
+60	NV	0.015	0.010	0.007	0.012	0.019	0.019
+20	LV	0.004	0.003	0.017	0.002	0.007	-0.011
+20	HV	0.007	0.015	0.003	0.020	0.004	0.005

LTE_CAT.M1_Band 12

1 RF Power Output

Test result:

Antenna Gain: -2.07dBi

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted Power (dBm)	ERP (W)
QPSK	699.7	23017	1.4	1	0	23.49	0.085
				6	0	21.65	0.055
	707.5	23095		1	0	23.63	0.087
				6	0	21.65	0.055
	715.3	23173		1	0	23.74	0.090
				6	0	21.78	0.057
16QAM	699.7	23017	1.4	1	0	22.38	0.065
				1	5	22.34	0.065
				5	0	21.58	0.054
				5	1	21.59	0.055
	707.5	23095		1	0	22.51	0.067
				1	5	22.48	0.067
				5	0	21.67	0.056
				5	1	21.68	0.056
	715.3	23173		1	0	22.57	0.068
				1	5	22.54	0.068
				5	0	21.70	0.056
				5	1	21.72	0.056
QPSK	700.5	23025	3	1	0	23.50	0.085
				6	0	21.66	0.055
	707.5	23095		1	0	23.64	0.087
				6	0	21.66	0.055
	714.5	23165		1	0	23.75	0.090
				6	0	21.79	0.057
16QAM	700.5	23025	3	1	0	22.39	0.066
				1	5	22.35	0.065
				5	0	21.59	0.055
				5	1	21.60	0.055
	707.5	23095		1	0	22.52	0.068
				1	5	22.49	0.067
				5	0	21.68	0.056
				5	1	21.69	0.056
	714.5	23165		1	0	22.58	0.069
				1	5	22.55	0.068
				5	0	21.71	0.056
				5	1	21.73	0.056

Modulation	Carrier frequency (MHz)	UL Channel	BW	RB Size	RB Offset	Conducted Power (dBm)	ERP (W)
QPSK	701.5	23035	5	1	0	23.51	0.085
				6	0	21.67	0.056
	707.5	23095		1	0	23.65	0.088
				6	0	21.67	0.056
	713.5	23155		1	0	23.76	0.090
				6	0	21.80	0.057
16QAM	701.5	23035	5	1	0	22.40	0.066
				1	5	22.36	0.065
				5	0	21.60	0.055
				5	1	21.61	0.055
	707.5	23095		1	0	22.53	0.068
				1	5	22.50	0.067
				5	0	21.69	0.056
				5	1	21.70	0.056
	713.5	23155		1	0	22.59	0.069
				1	5	22.56	0.068
				5	0	21.72	0.056
				5	1	21.74	0.056
QPSK	704	23060	10	1	0	23.57	0.086
				6	0	21.73	0.056
	707.5	23095		1	0	23.71	0.089
				6	0	21.73	0.056
	711	23130		1	0	23.82	0.091
				6	0	21.86	0.058
16QAM	704	23060	10	1	0	22.46	0.067
				1	5	22.42	0.066
				5	0	21.66	0.055
				5	1	21.67	0.056
	707.5	23095		1	0	22.59	0.069
				1	5	22.56	0.068
				5	0	21.75	0.057
				5	1	21.76	0.057
	711	23130		1	0	22.65	0.070
				1	5	22.62	0.069
				5	0	21.78	0.057
				5	1	21.80	0.057

2 Occupied Bandwidth

Band	Carrier frequency (MHz)	Channel	BW (MHz)	Modulation	RB Size	RB Offset	Bandwidth of 99% Power (MHz)	Bandwidth of -26dB transmitter power (MHz)	Plot
12	707.5	23095	1.4	QPSK	6	0	1.109	1.261	Fig.1
				16QAM	5	1	1.117	1.229	Fig.2
			3	QPSK	6	0	1.283	1.447	Fig.3
				16QAM	5	1	1.284	1.420	Fig.4
			5	QPSK	6	0	1.104	1.370	Fig.5
				16QAM	5	1	0.937	1.488	Fig.6
			10	QPSK	6	0	1.123	1.611	Fig.7
				16QAM	5	1	0.954	1.649	Fig.8

Fig.1

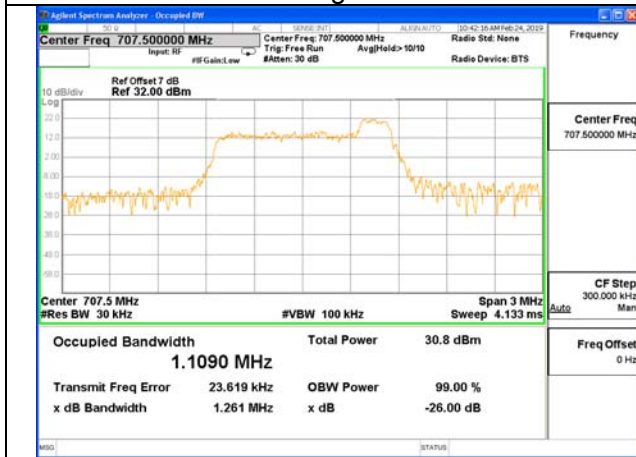


Fig.2

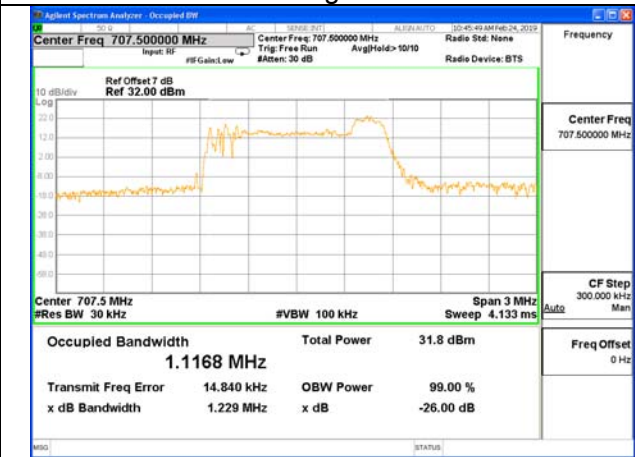


Fig.3

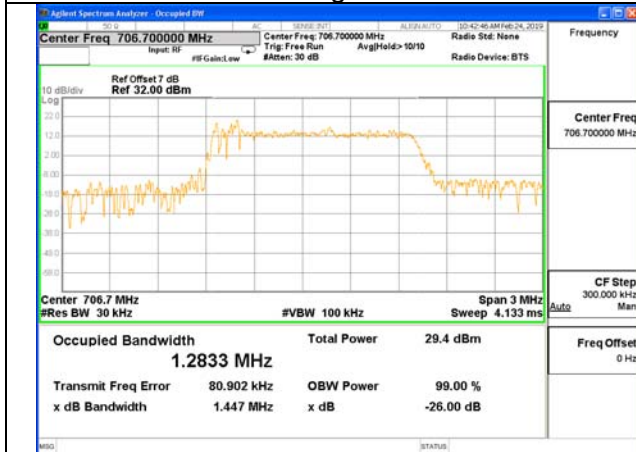


Fig.4

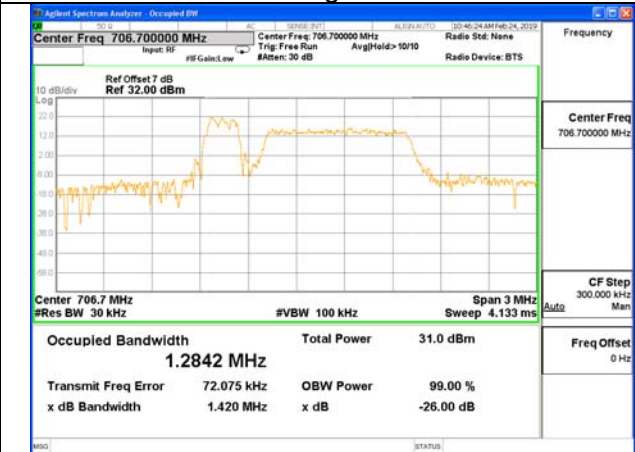


Fig.5

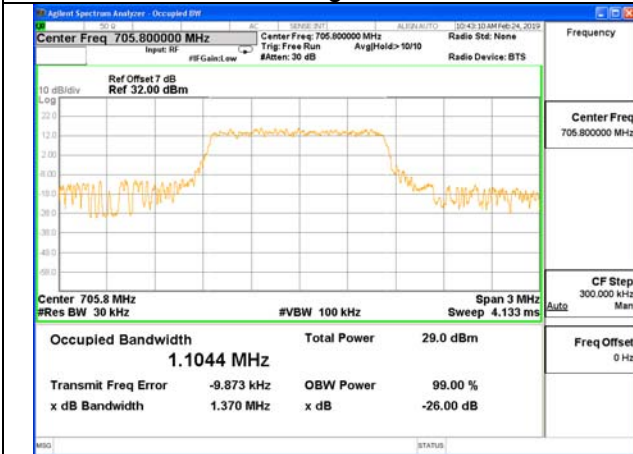


Fig.6

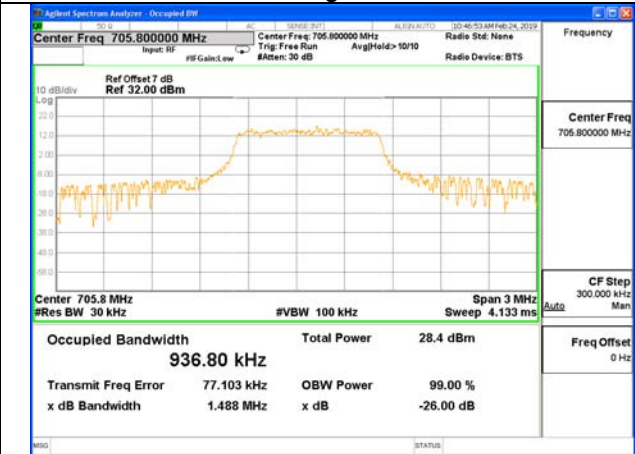


Fig.7

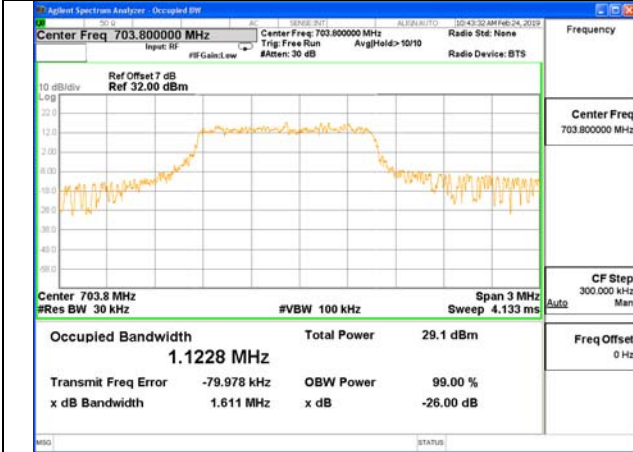
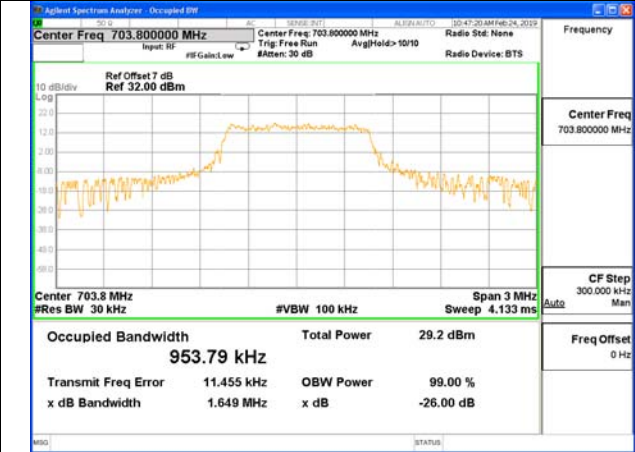
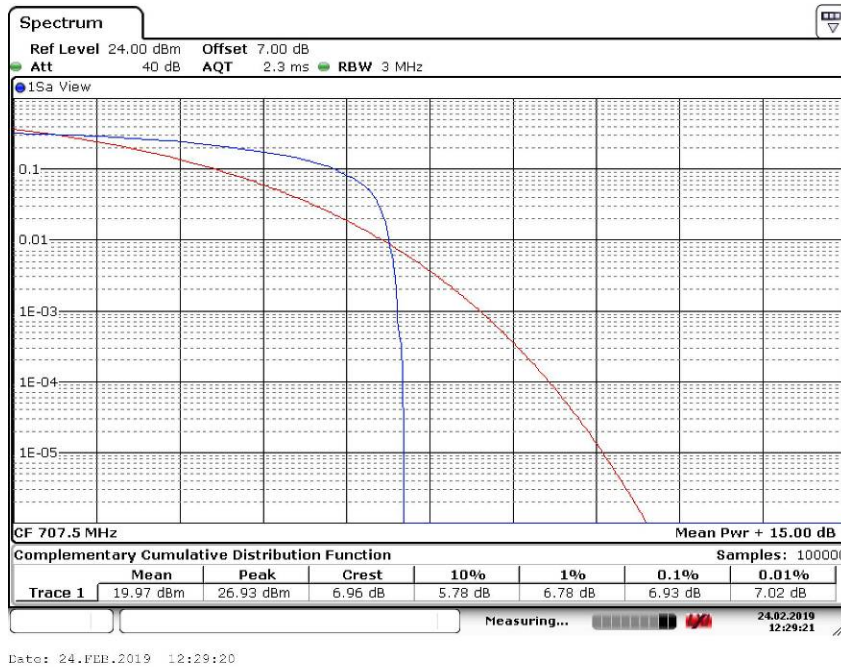


Fig.8

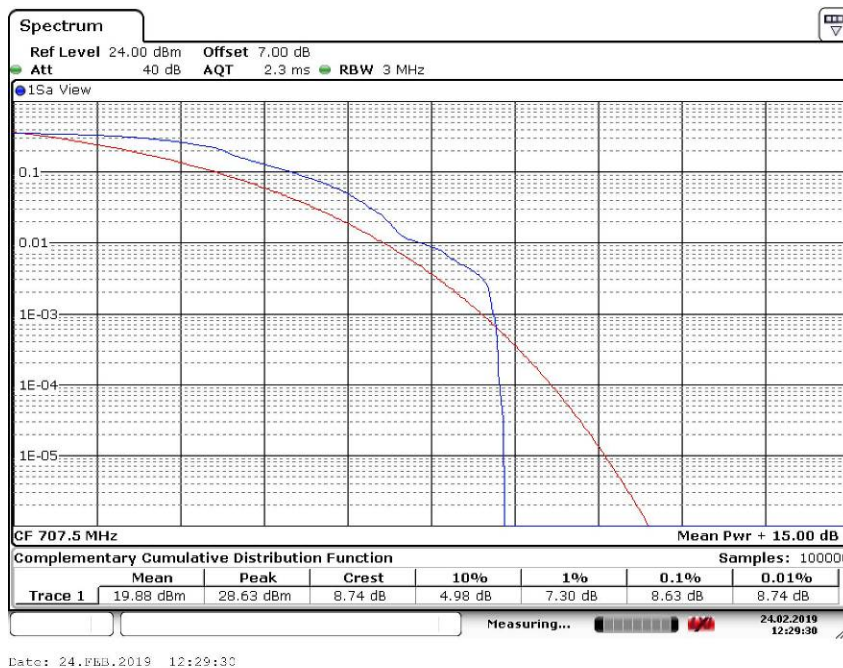


4 Peak-Average Ratio

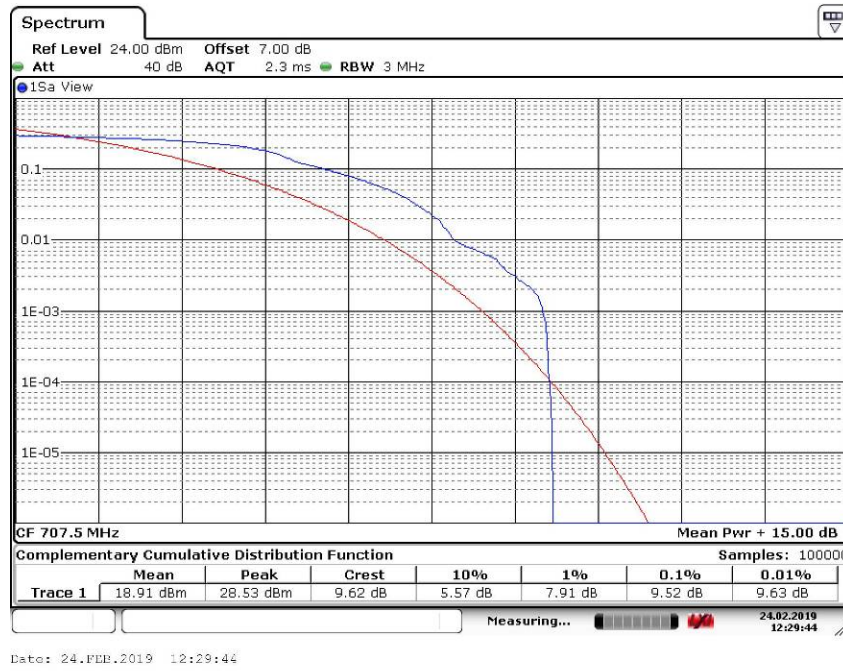
Test result:



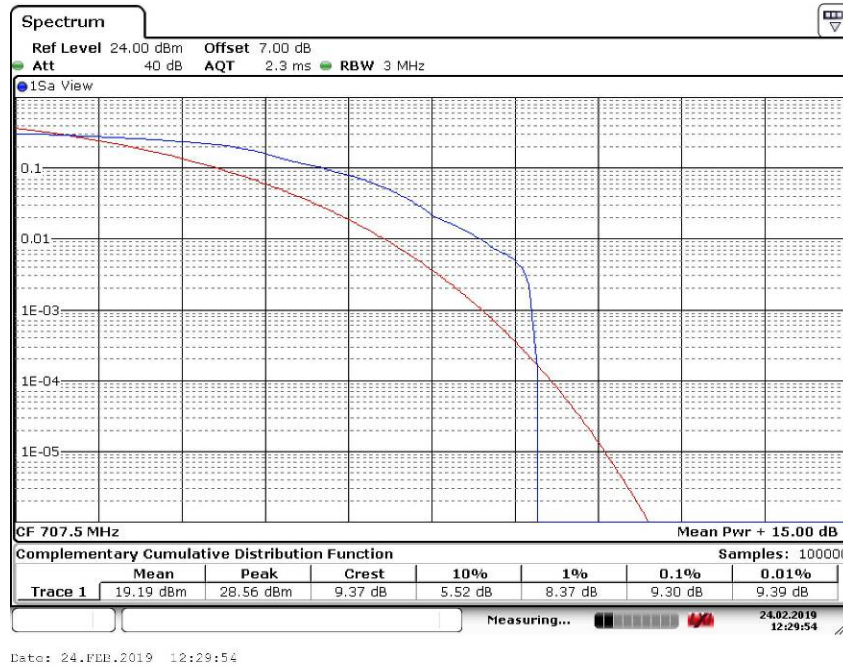
Peak-Average Ratio Plot(1.4MHz BW,QPSK,Band 12-mid Channel)



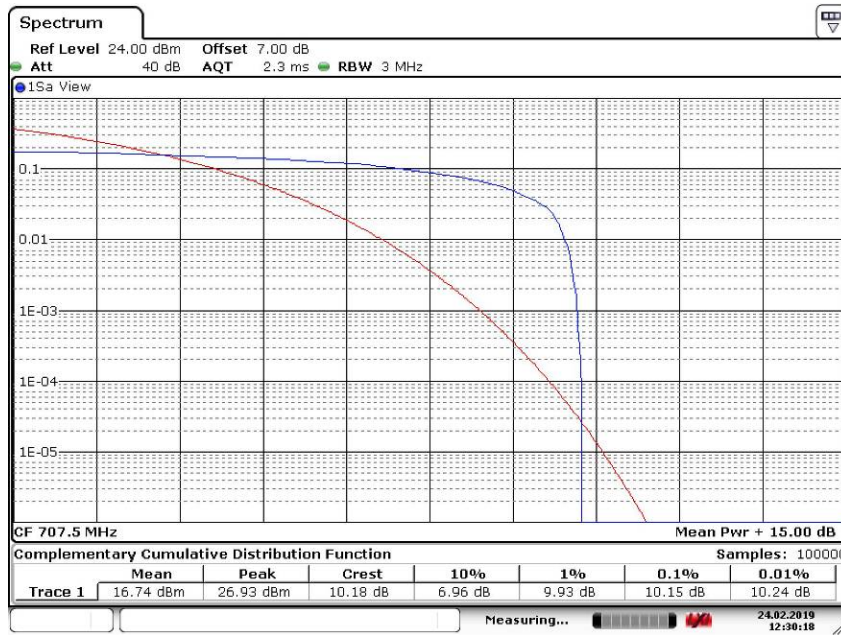
Peak-Average Ratio Plot(1.4MHz BW,16QAM,Band 12-mid Channel)



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



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



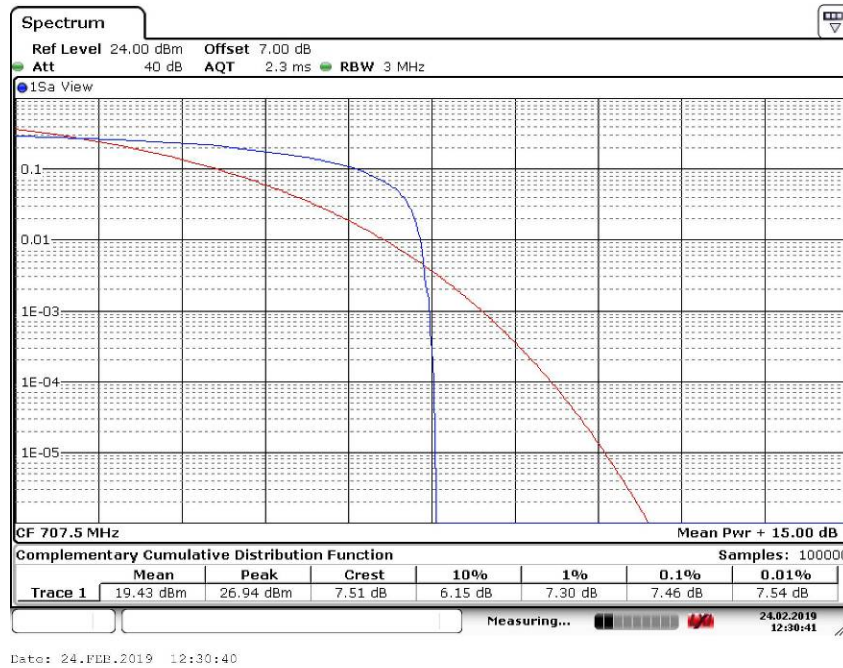
Date: 24.FEB.2019 12:30:18

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



Date: 24.FEB.2019 12:30:29

Peak-Average Ratio Plot(5MHz BW,16QAM,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)

5 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

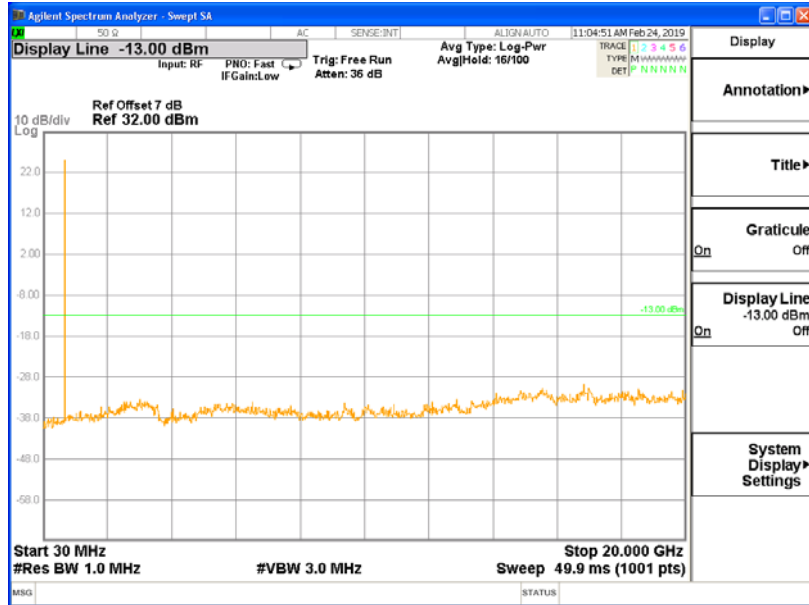


Fig.1

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

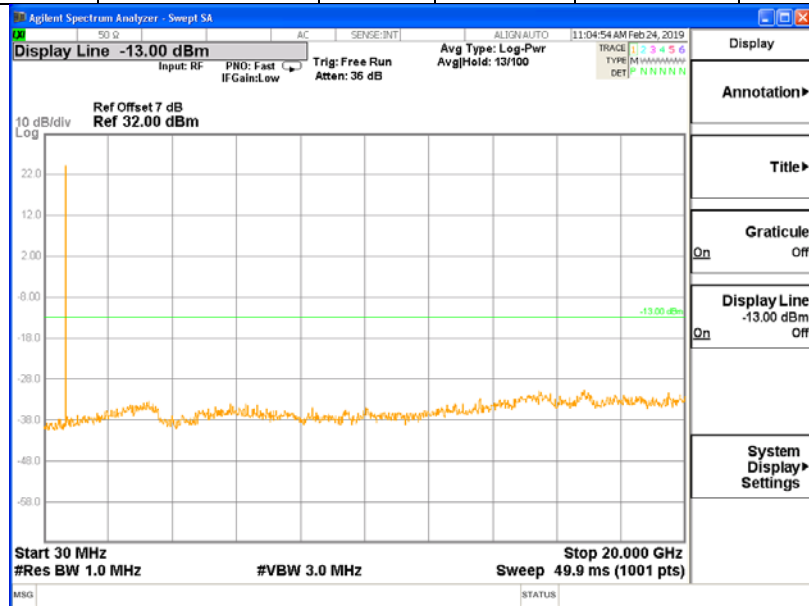


Fig.1

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

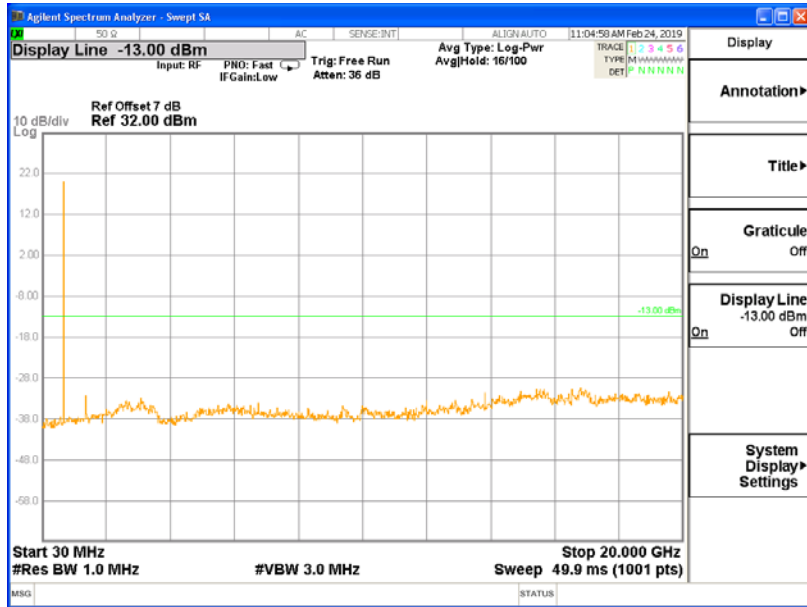


Fig.1

6 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

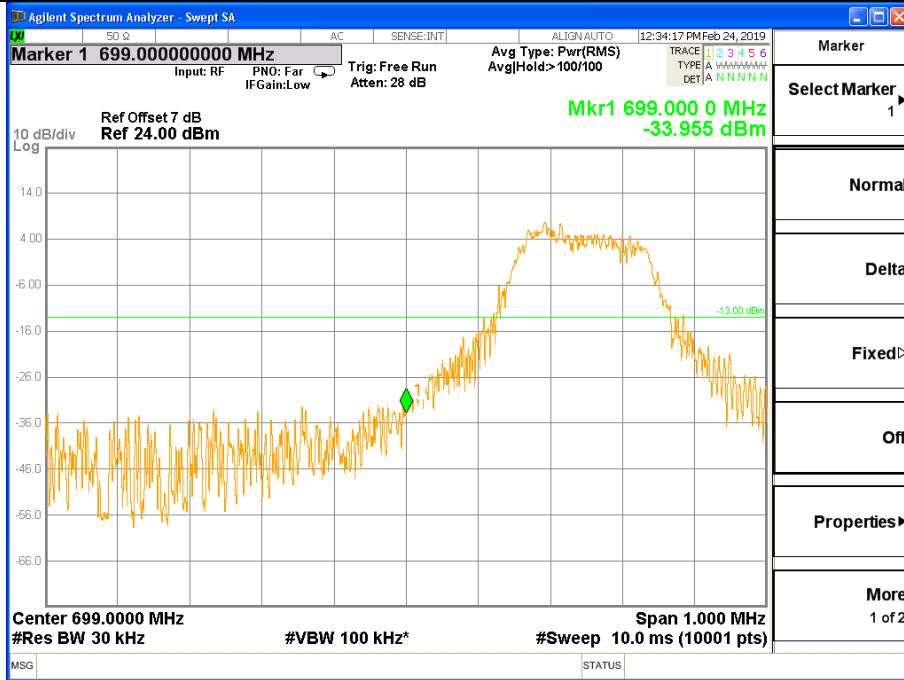


Fig.1

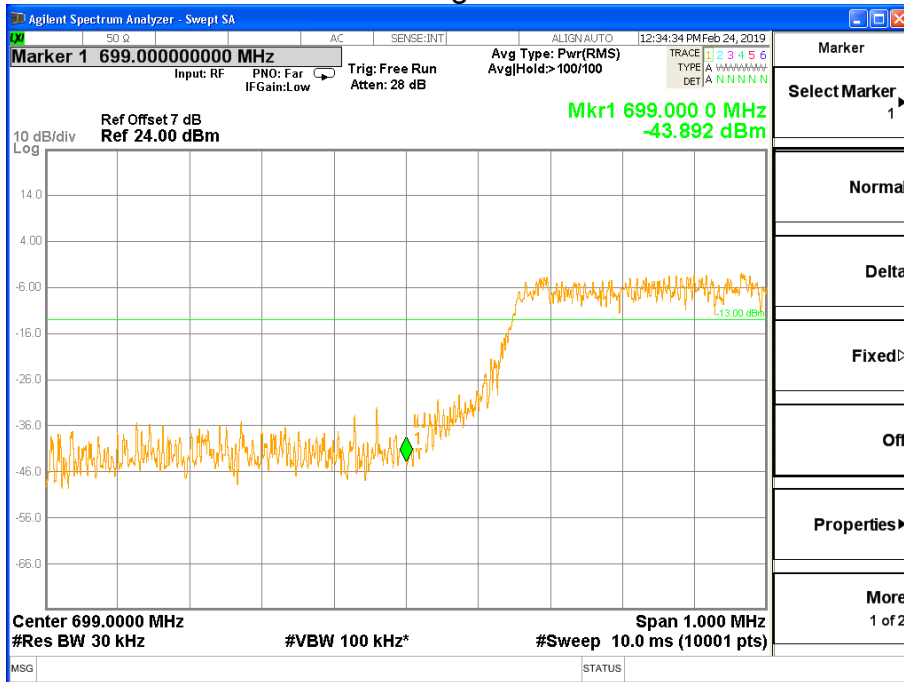


Fig.4

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

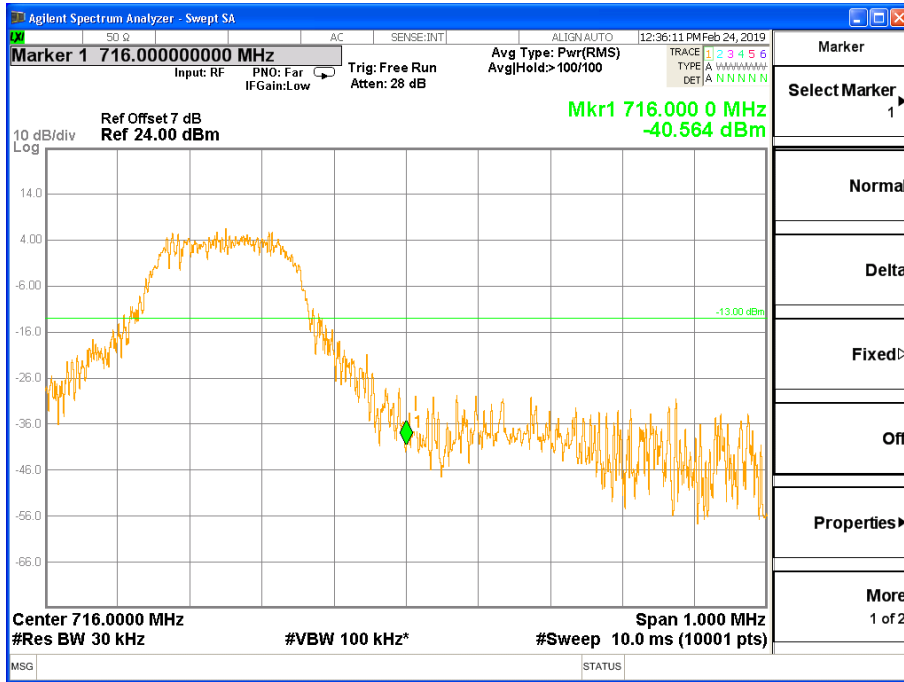


Fig.1

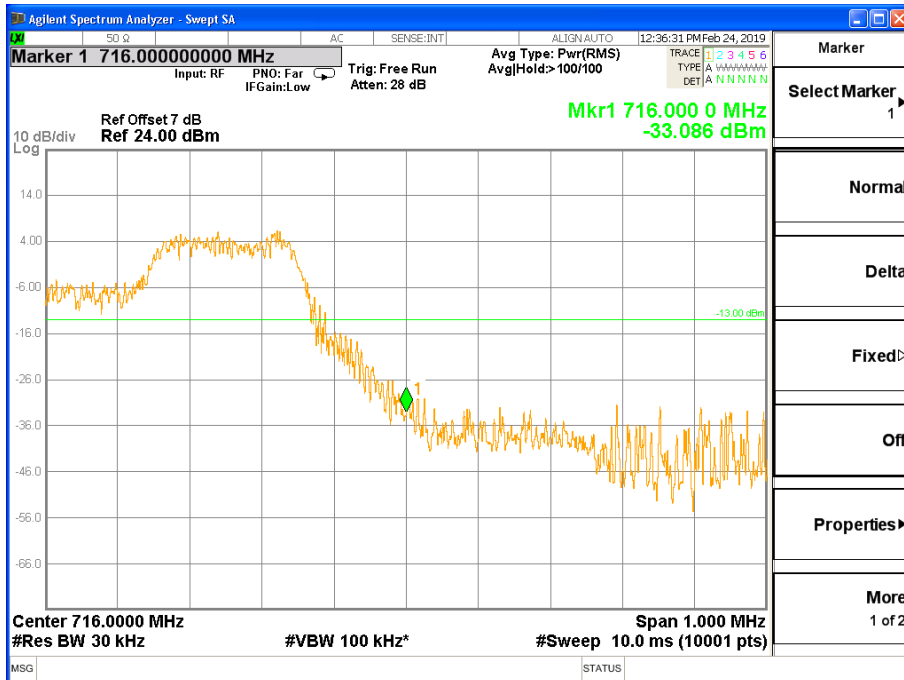


Fig.4

Band	Carrier frequency (MHz)	Channel (Low)	BW	RB Size	RB Offset	Band EdgesPlot
						QPSK
12	700.5	23025	3	1	0	Fig.1
				6	0	Fig.4

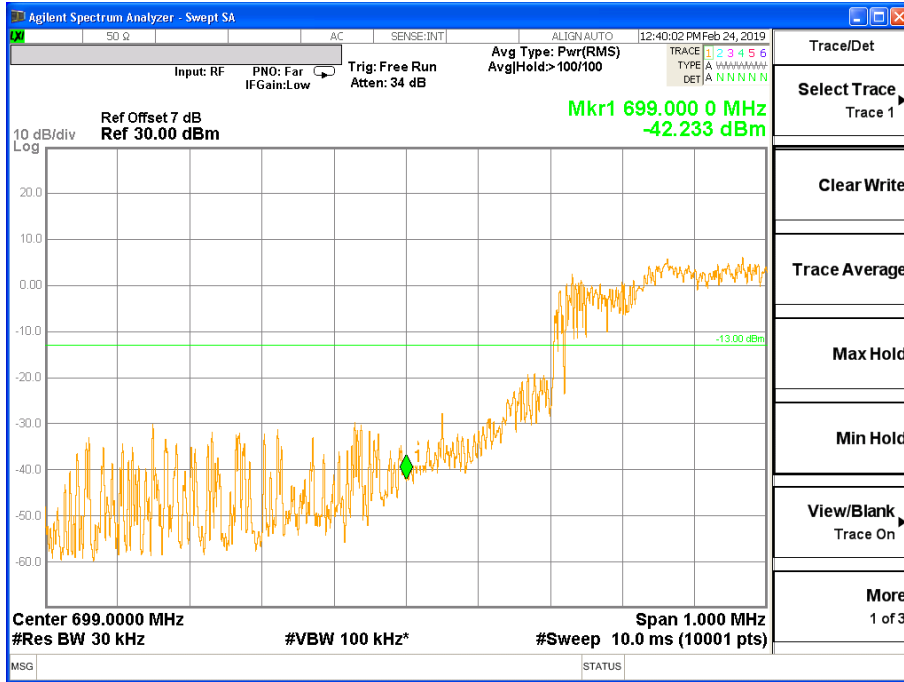


Fig.1

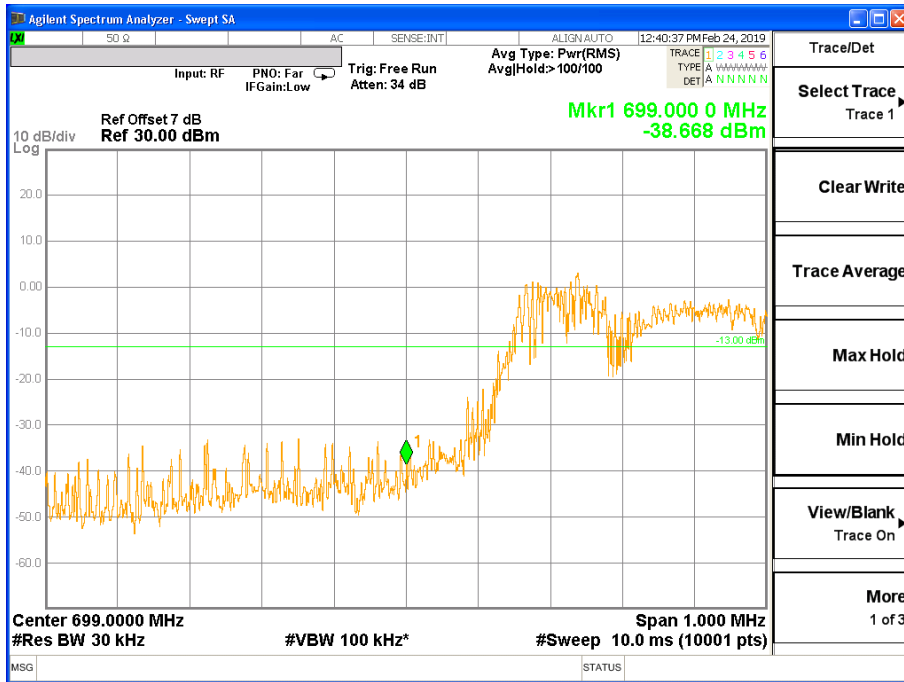


Fig.4

Band	Carrier frequency (MHz)	Channel (High)	BW	RB Size	RB Offset	Band EdgesPlot
						QPSK
12	714.5	23165	3	1	0	Fig.1
				6	0	Fig.4

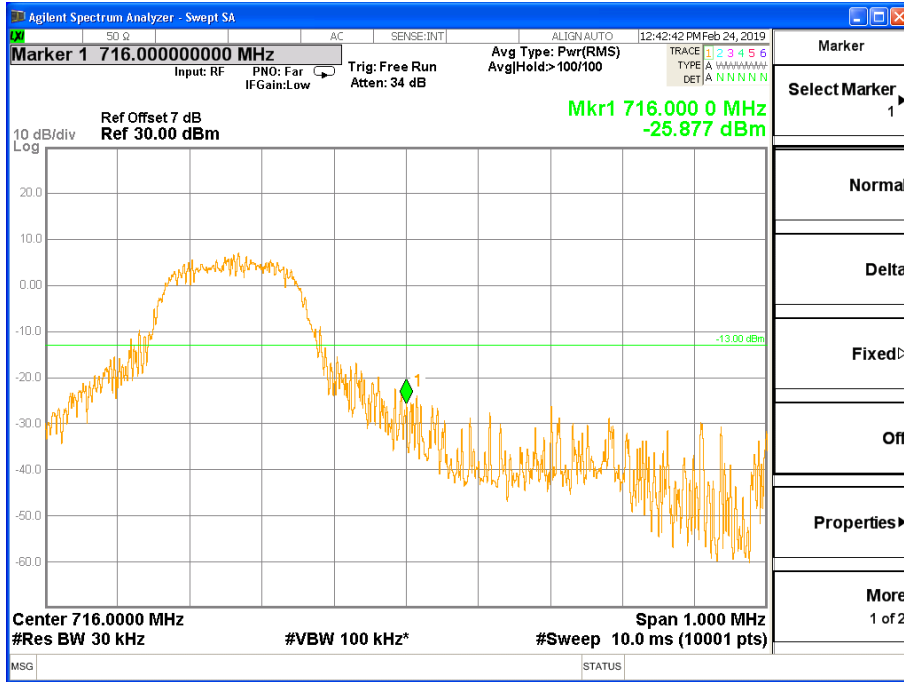


Fig.1

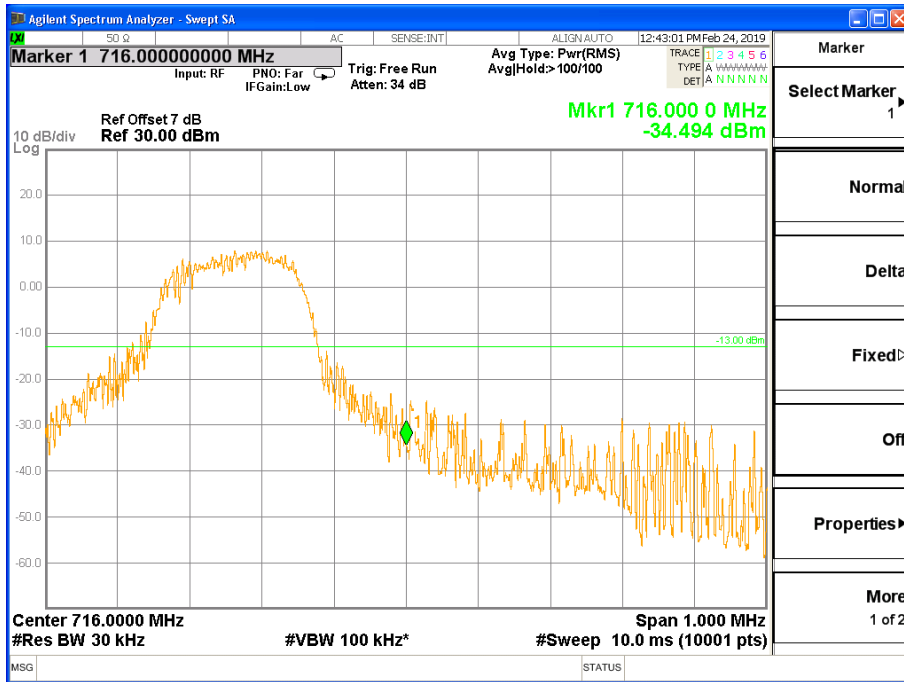


Fig.4

Band	Carrier frequency (MHz)	Channel (Low)	BW	RB Size	RB Offset	Band EdgesPlot
						QPSK
12	701.5	23035	5	1	0	Fig.1
				6	0	Fig.4

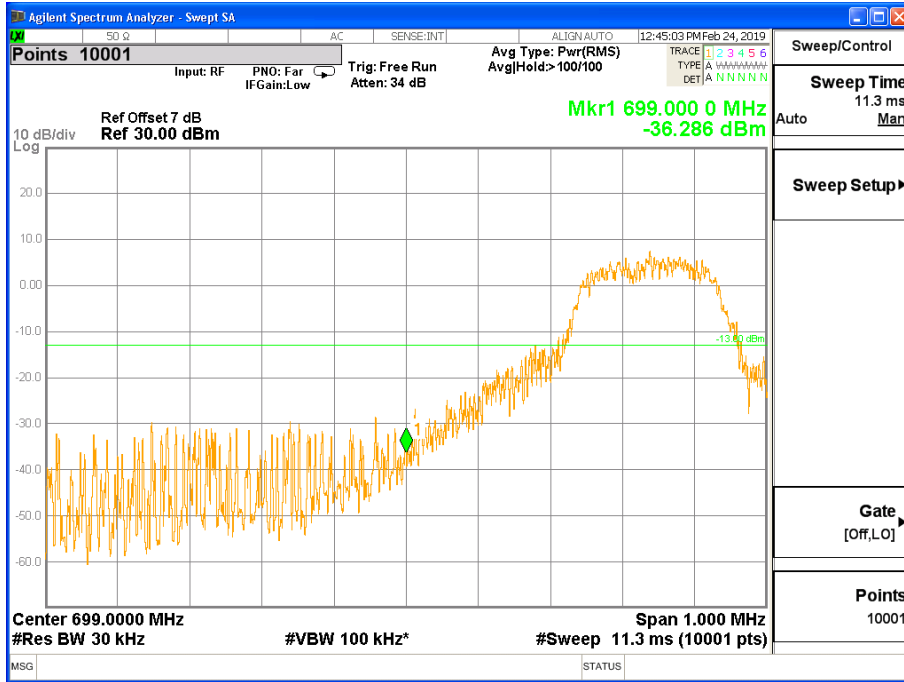


Fig.1

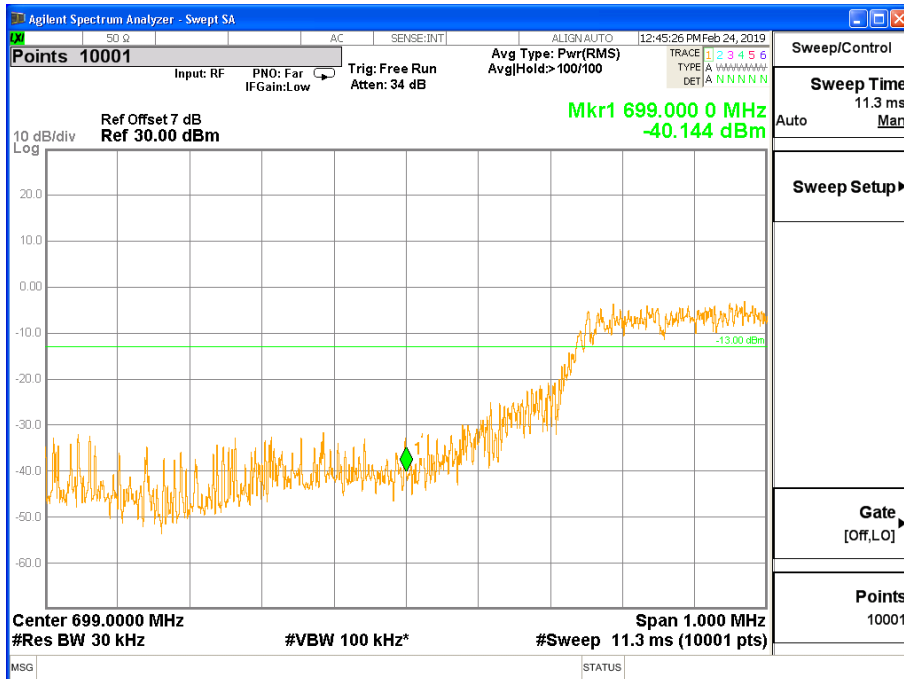


Fig.4

Band	Carrier frequency (MHz)	Channel (High)	BW	RB Size	RB Offset	Band EdgesPlot
						QPSK
12	713.5	23155	5	1	0	Fig.1
				6	0	Fig.4

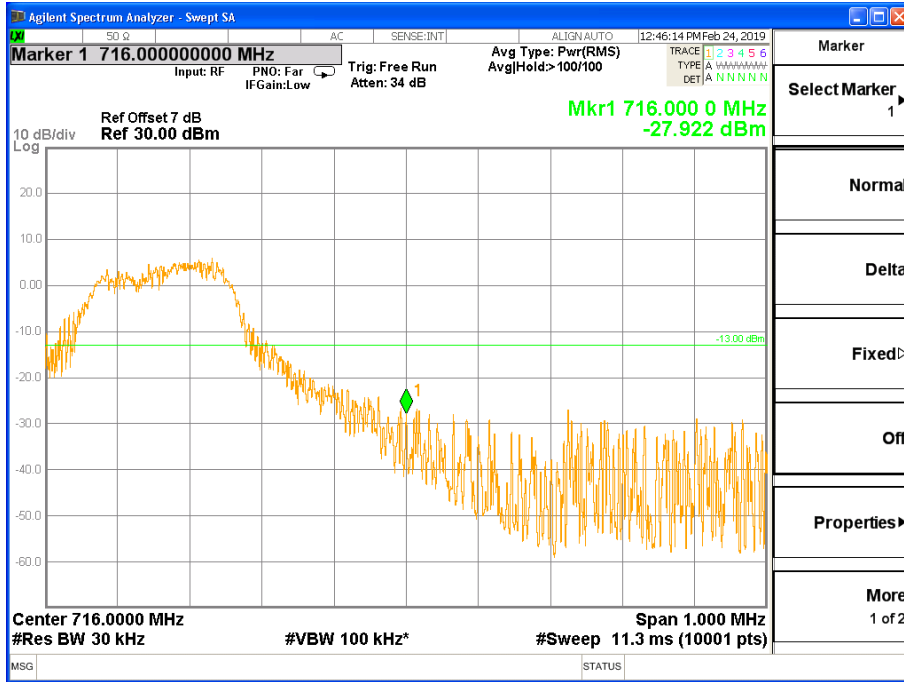


Fig.1

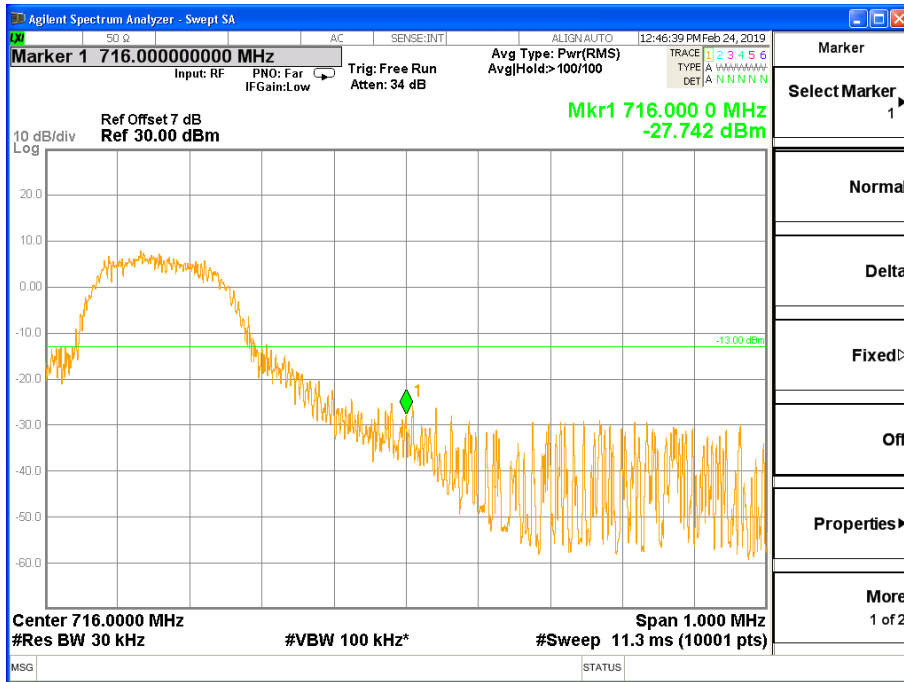


Fig.4

Band	Carrier frequency (MHz)	Channel (Low)	BW	RB Size	RB Offset	Band EdgesPlot
						QPSK
12	704	23060	10	1	0	Fig.1
				6	0	Fig.4

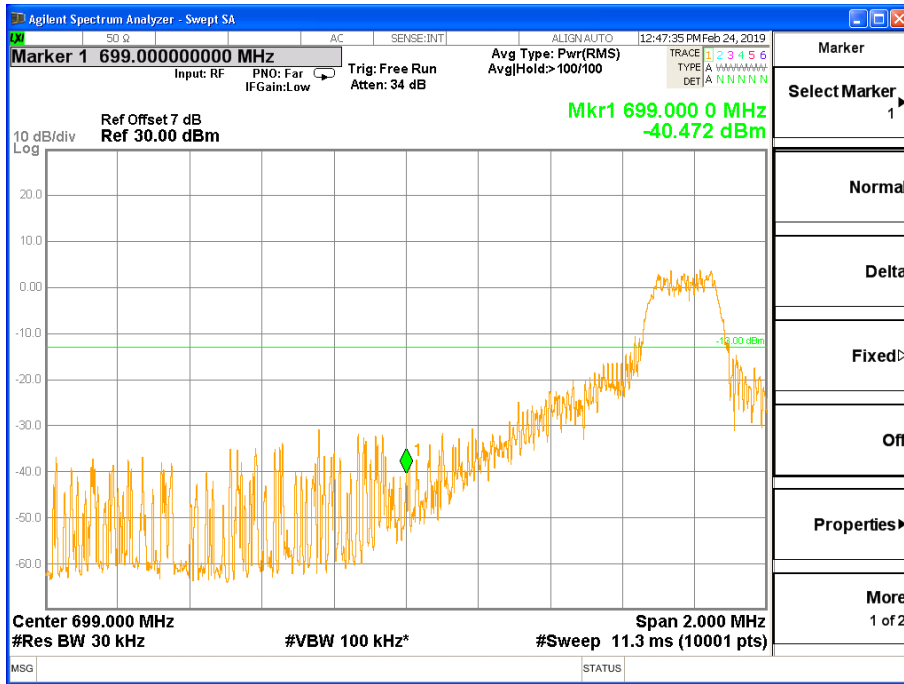


Fig.1

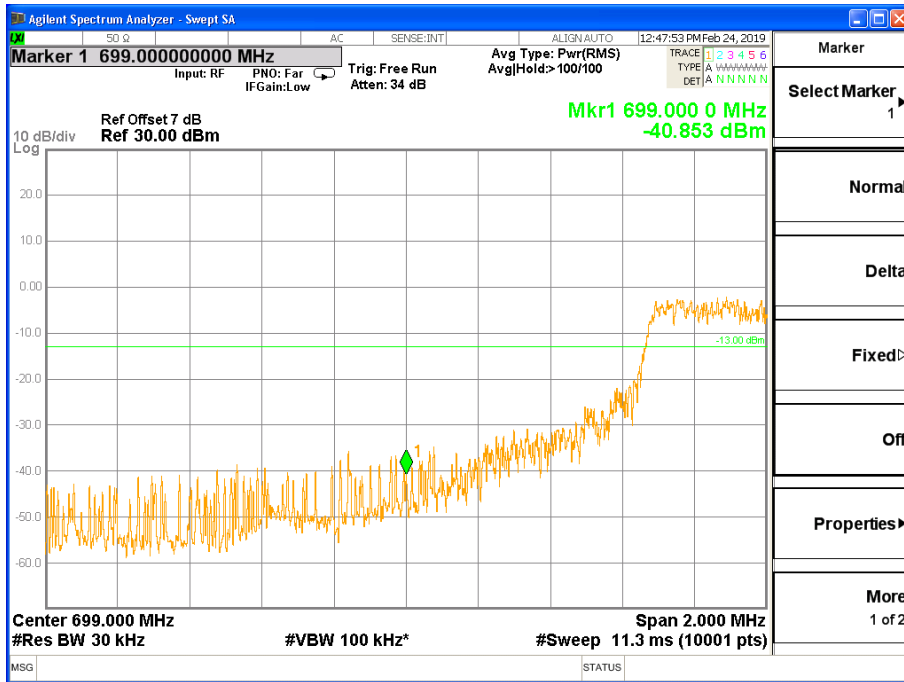


Fig.4

Band	Carrier frequency (MHz)	Channel (High)	BW	RB Size	RB Offset	Band EdgesPlot
						QPSK
12	711	23130	10	1	0	Fig.1
				6	0	Fig.4

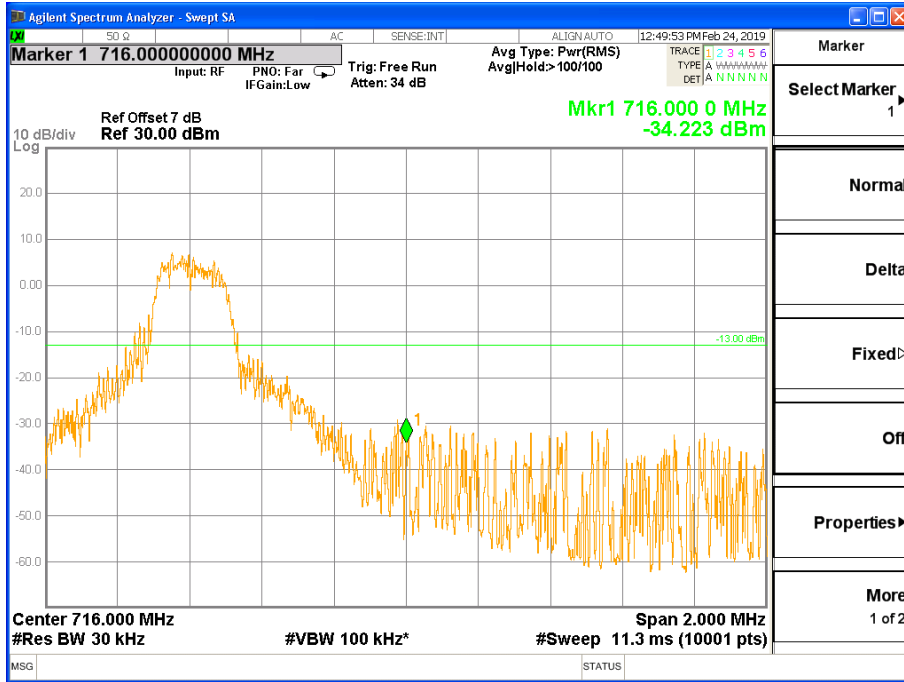


Fig.1

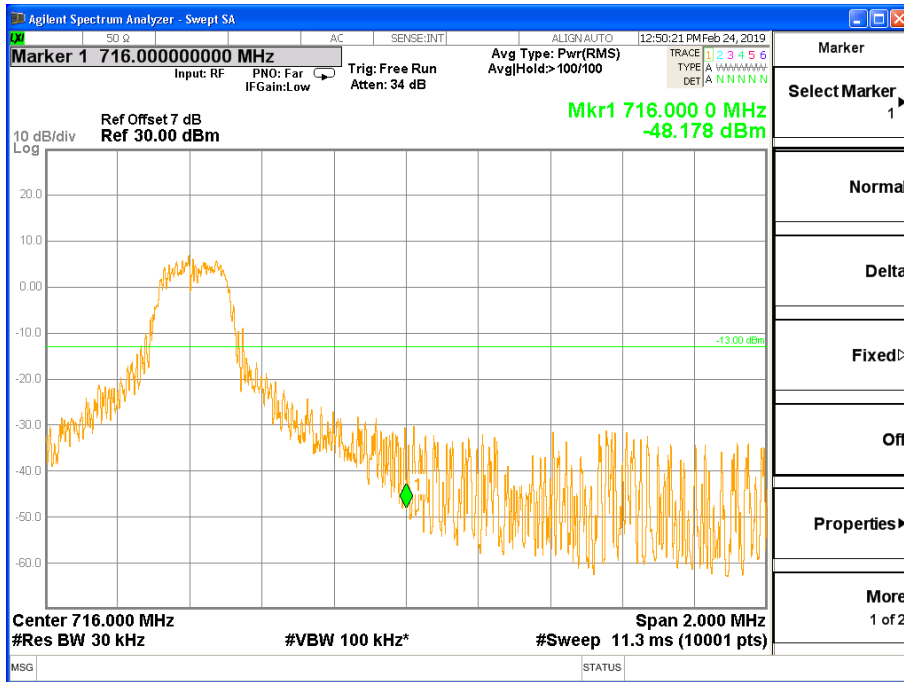


Fig.4

7 Frequency Stability

Test result:

Temperature(°C)	Voltage	Test Result (ppm) Band12 Low Channel			
		1.4M	3M	5M	10M
-20	NV	-0.005	0.012	-0.016	0.019
-10	NV	0.003	0.014	0.010	0.003
0	NV	0.013	-0.007	0.006	0.012
+10	NV	0.016	0.016	0.006	-0.015
+20	NV	0.016	0.005	0.008	0.015
+30	NV	0.005	0.003	0.011	0.005
+40	NV	0.014	0.001	0.009	0.005
+50	NV	0.015	-0.006	-0.009	0.018
+60	NV	0.006	0.016	0.011	0.001
+20	LV	0.016	-0.002	0.007	0.013
+20	HV	0.003	0.017	0.016	0.009
+20	HV	0.005	0.012	0.016	0.018

Temperature(°C)	Voltage	Test Result (ppm) Band12 High Channel			
		1.4M	3M	5M	10M
-20	NV	0.009	0.013	0.018	0.002
-10	NV	0.009	0.002	0.006	-0.014
0	NV	0.014	0.015	0.011	0.012
+10	NV	-0.018	0.007	-0.003	0.005
+20	NV	0.008	-0.002	0.009	0.014
+30	NV	0.009	0.009	0.001	0.009
+40	NV	-0.016	-0.003	0.006	0.017
+50	NV	0.014	0.015	-0.016	0.015
+60	NV	0.003	0.006	0.013	-0.006
+20	LV	0.009	0.002	0.016	-0.009
+20	HV	0.013	0.008	0.010	0.007
+20	HV	0.009	0.013	0.018	-0.002

APPENDIX B – TEST DATA OF RADIATED EMISSION

LTE band 2(20MHz)

Test result:

Channel 18700

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
2457.37	-45.11	-13	Vertical
2775.27	-43.45	-13	Vertical
3725.71	-37.87	-13	Vertical
6673.67	-36.93	-13	Vertical
9960.12	-35.76	-13	Horizontal
17822.09	-32.14	-13	Vertical

Channel 18900

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
2455.58	-46.06	-13	Vertical
2780.57	-44.26	-13	Vertical
3728.67	-36.77	-13	Vertical
6679.92	-37.24	-13	Vertical
9964.63	-35.76	-13	Vertical
17824.90	-32.49	-13	Vertical

Channel 19100

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
2455.29	-46.25	-13	Vertical
2779.00	-45.04	-13	Vertical
3727.67	-37.16	-13	Vertical
6676.32	-36.76	-13	Vertical
9963.50	-34.76	-13	Horizontal
17818.61	-32.65	-13	Vertical

LTE band 4(20MHz)

Test result:

Channel 20050

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
2458.87	-44.80	-13	Vertical
2777.72	-45.01	-13	Vertical
3730.35	-37.30	-13	Horizontal
6680.02	-37.28	-13	Vertical
9961.22	-35.85	-13	Vertical
17824.69	-33.53	-13	Vertical

Channel 20175

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
2457.42	-45.28	-13	Vertical
2777.68	-43.86	-13	Vertical
3727.13	-37.75	-13	Vertical
6676.35	-37.49	-13	Vertical
9963.95	-36.08	-13	Vertical
17822.34	-32.17	-13	Vertical

Channel 20300

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
2458.34	-45.86	-13	Vertical
2775.59	-44.03	-13	Vertical
3728.44	-37.88	-13	Vertical
6677.87	-37.35	-13	Vertical
9964.48	-35.54	-13	Vertical
17824.01	-32.80	-13	Vertical

LTE band 12(10MHz)

Test result:

Channel 23060

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
1645.16	-53.21	-13	Vertical
1667.59	-50.74	-13	Vertical
2535.80	-43.77	-13	Vertical
2576.88	-43.65	-13	Vertical
8961.77	-40.31	-13	Vertical
9972.57	-36.10	-13	Vertical

Channel 23095

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
1644.88	-52.62	-13	Vertical
1668.11	-50.54	-13	Vertical
2536.86	-43.73	-13	Vertical
2577.33	-43.20	-13	Vertical
8963.28	-39.45	-13	Vertical
9971.39	-36.14	-13	Vertical

Channel 23130

Frequency (MHz)	Power (dBm)	Limited (dBm)	Polarization
1650.85	-53.03	-13	Vertical
1666.94	-51.22	-13	Vertical
2537.01	-43.20	-13	Vertical
2575.78	-44.16	-13	Vertical
8965.01	-40.07	-13	Vertical
9967.87	-36.20	-13	Vertical

---End of Test Report---