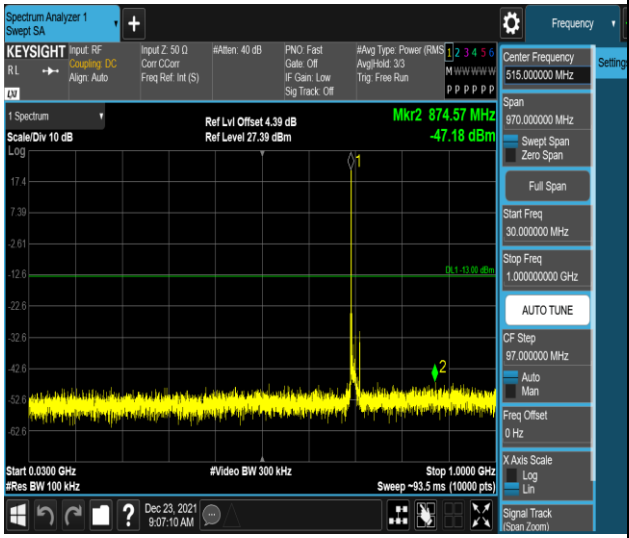
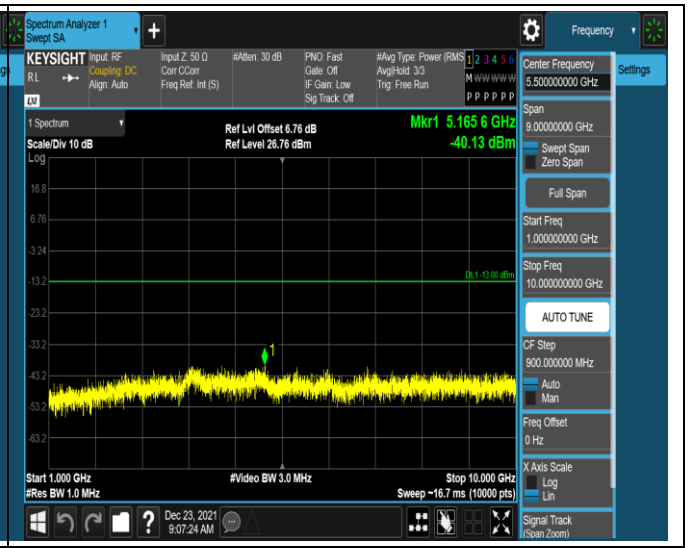
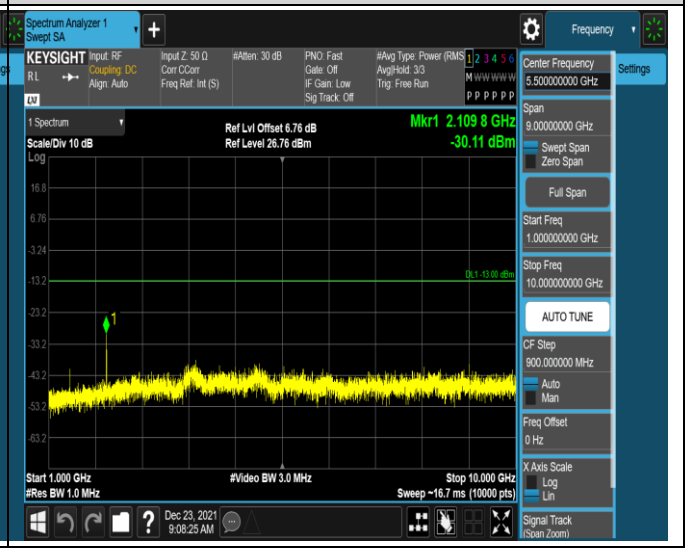


Band12-10MHz-16QAM-23095-1RB#0-Range1:30 ~1000MHz

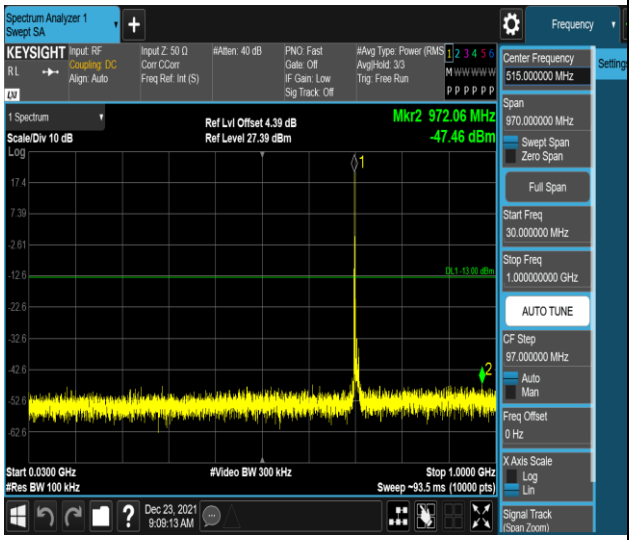


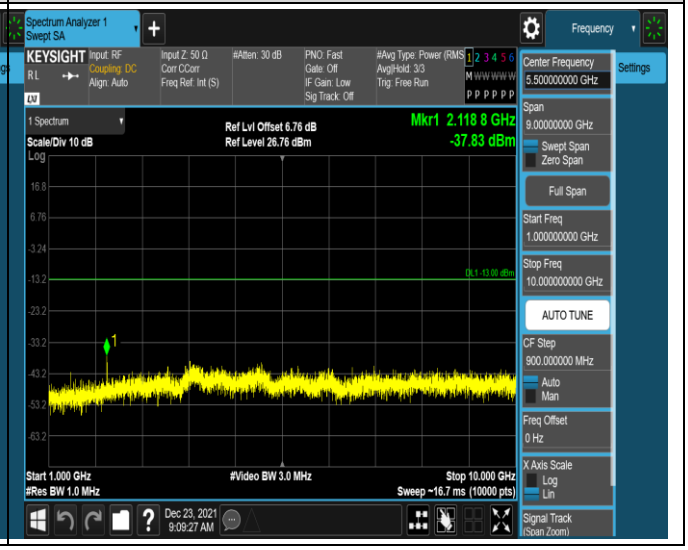
Band12-10MHz-16QAM-23095-1RB#0-Range2:1000~10000MHz

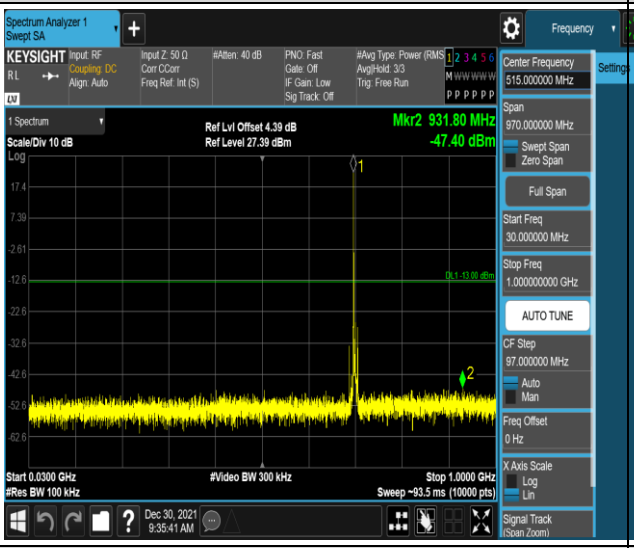
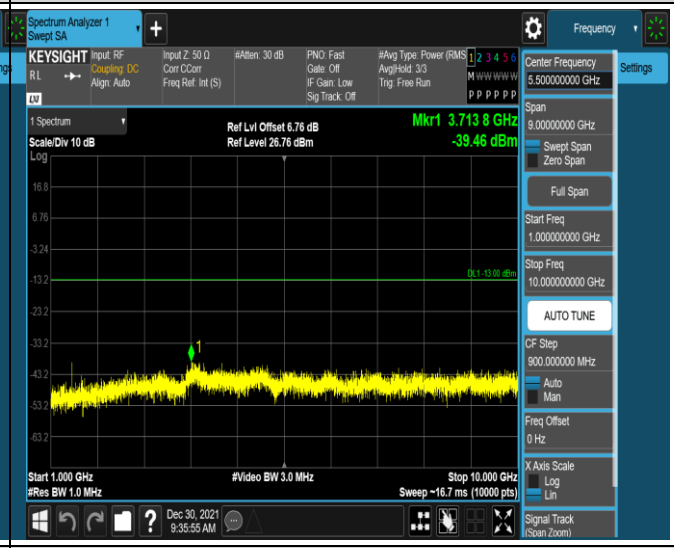
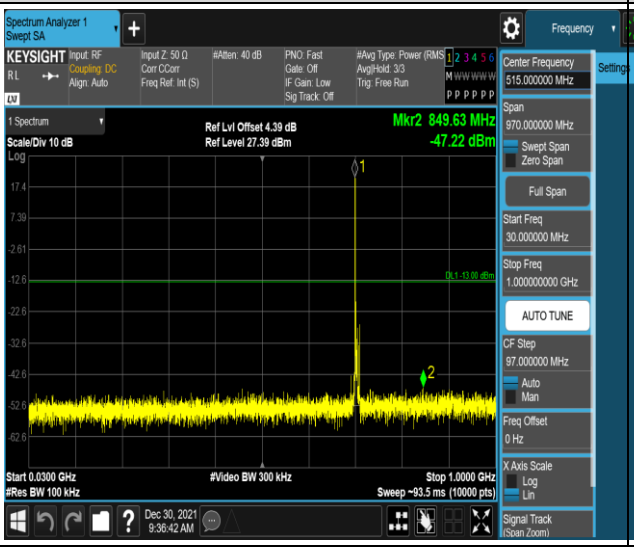
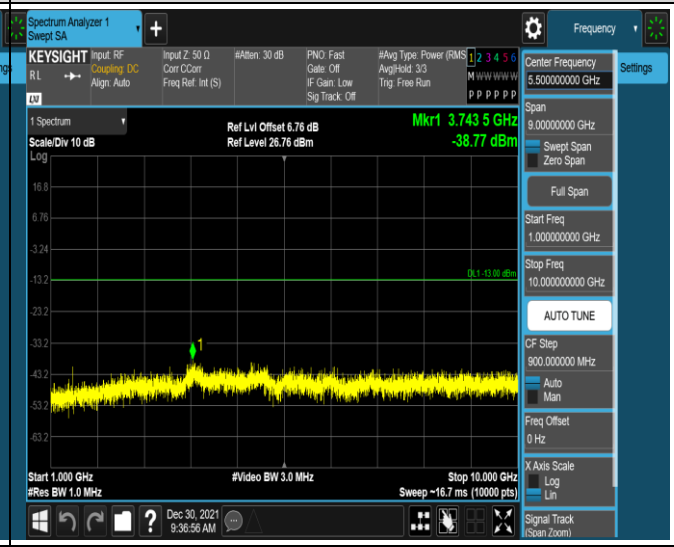
Band12-10MHz-16QAM-23130-1RB#0-Range1:30 ~1000MHz

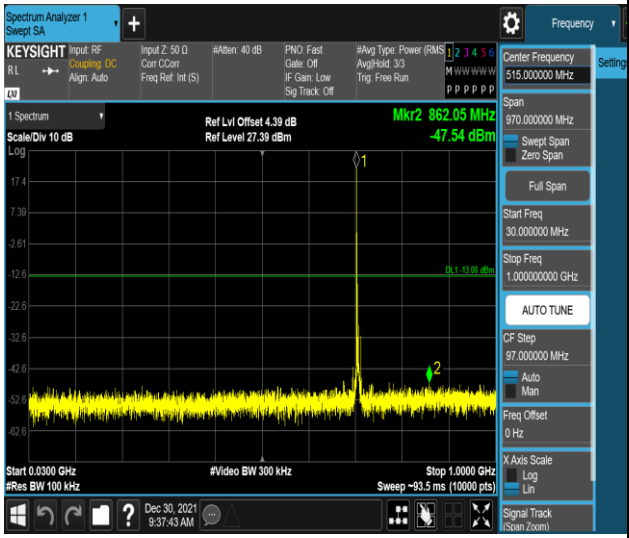


Band12-10MHz-16QAM-23130-1RB#0-Range2:1000~10000MHz

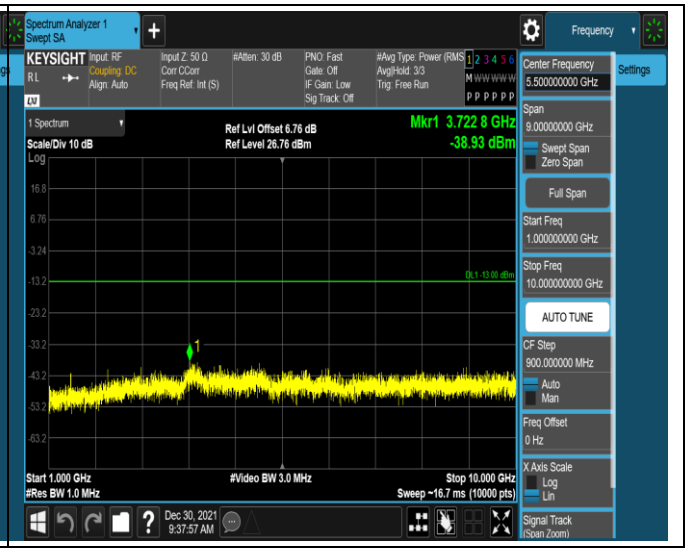




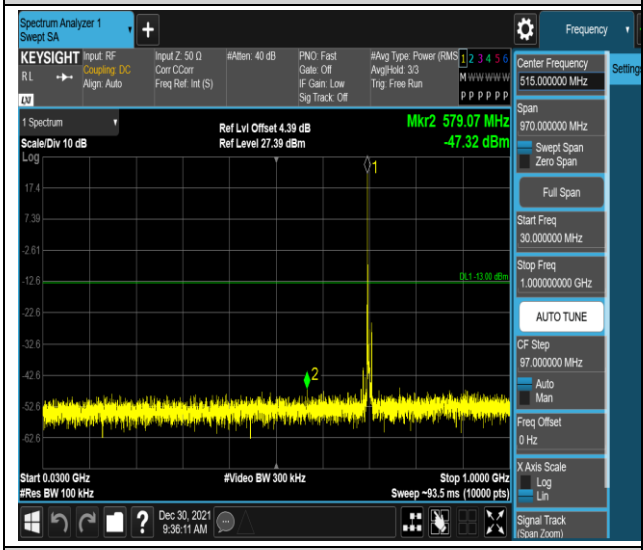
Band17-5MHz-QPSK-23755-1RB#0-Range1:30~1000MHz	Band17-5MHz-QPSK-23755-1RB#0-Range2:1000~10000MHz
	
Band17-5MHz-QPSK-23790-1RB#0-Range1:30~1000MHz	Band17-5MHz-QPSK-23790-1RB#0-Range2:1000~10000MHz
	
Band17-5MHz-QPSK-23825-1RB#0-Range1:30~1000MHz	Band17-5MHz-QPSK-23825-1RB#0-Range2:1000~10000MHz



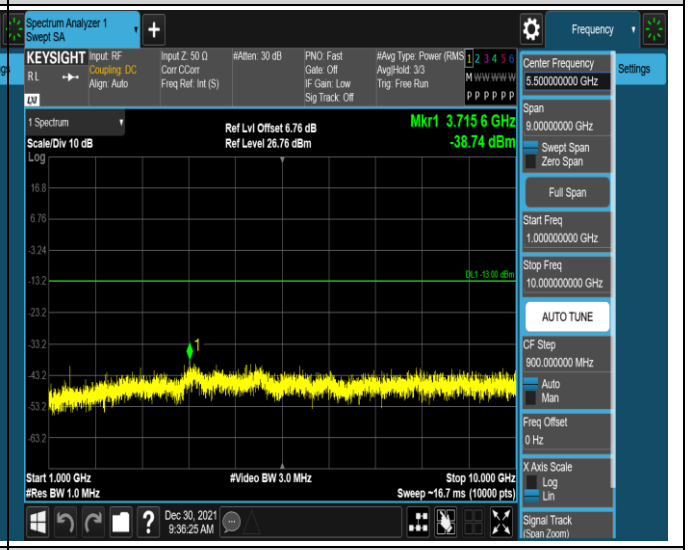
Band17-5MHz-16QAM-23755-1RB#0-Range1:30~1000MHz



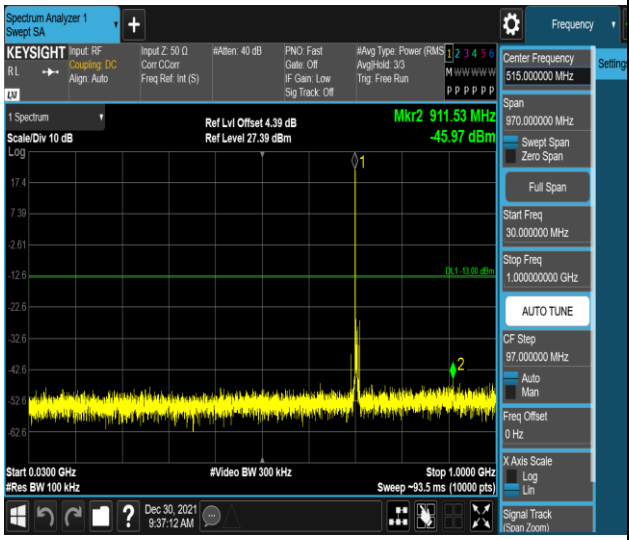
Band17-5MHz-16QAM-23755-1RB#0-Range2:1000~10000MHz

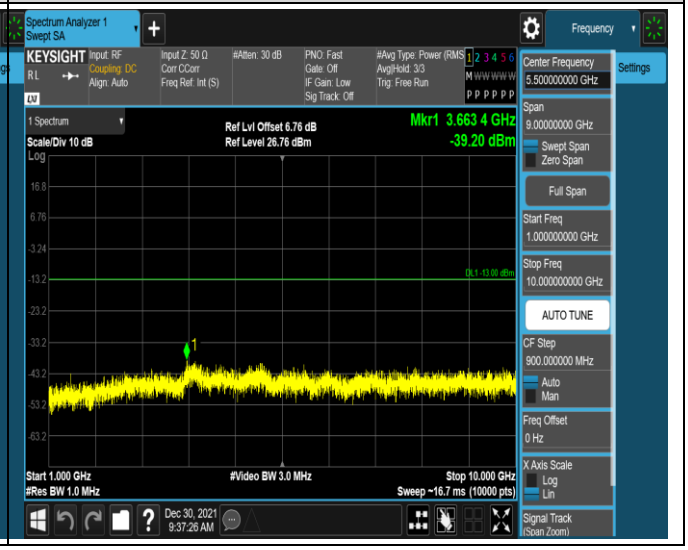


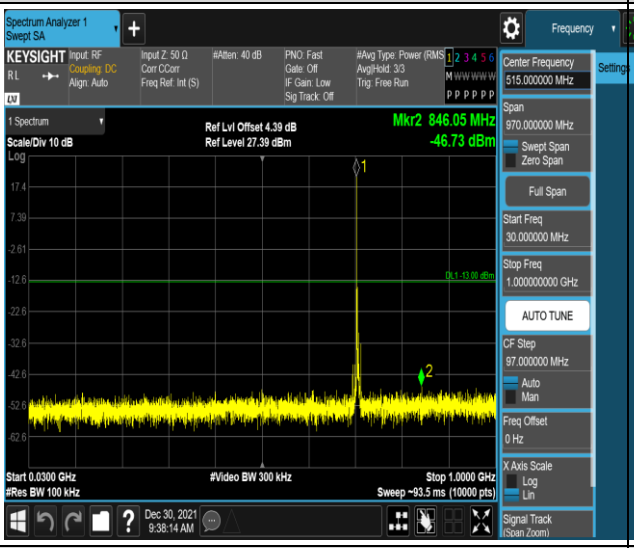
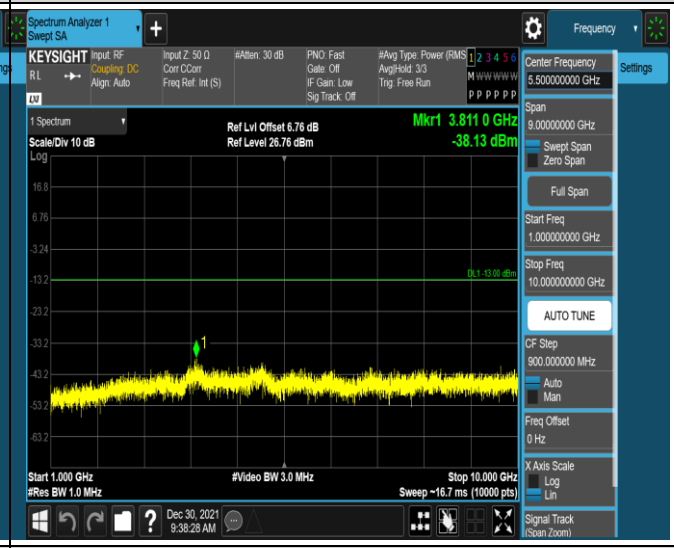
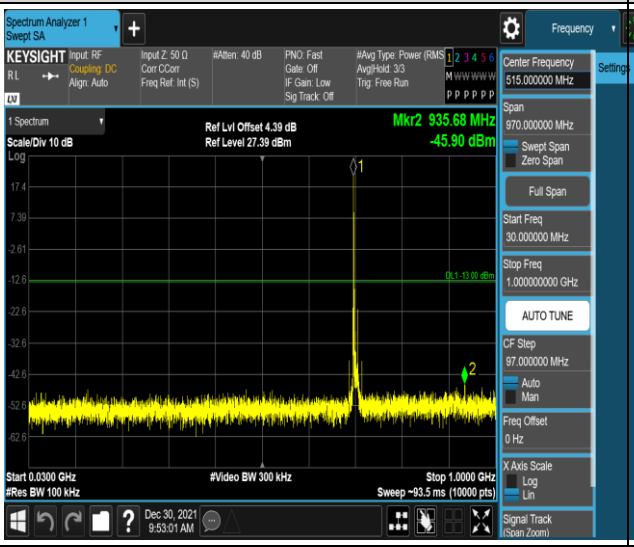
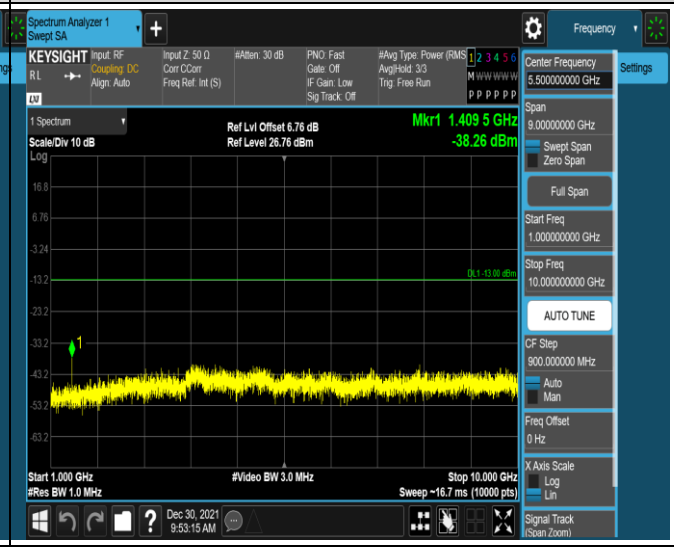
Band17-5MHz-16QAM-23790-1RB#0-Range1:30~1000MHz

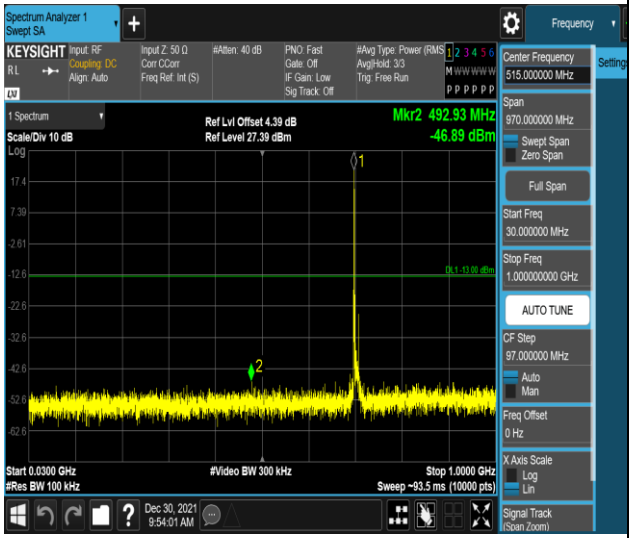


Band17-5MHz-16QAM-23790-1RB#0-Range2:1000~10000MHz

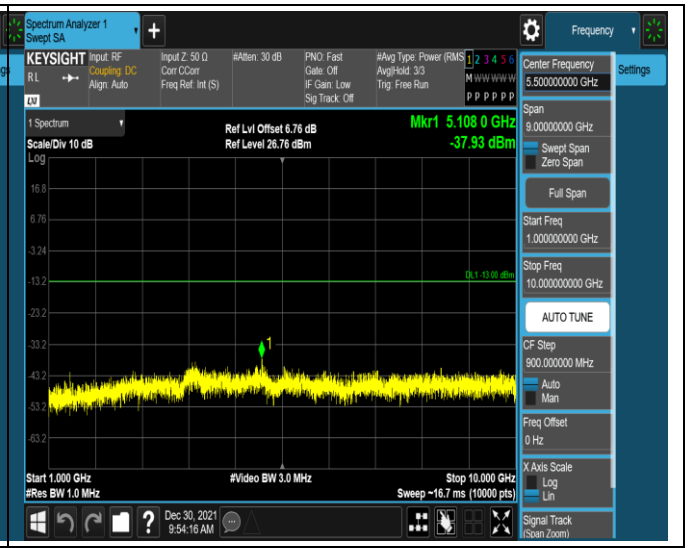




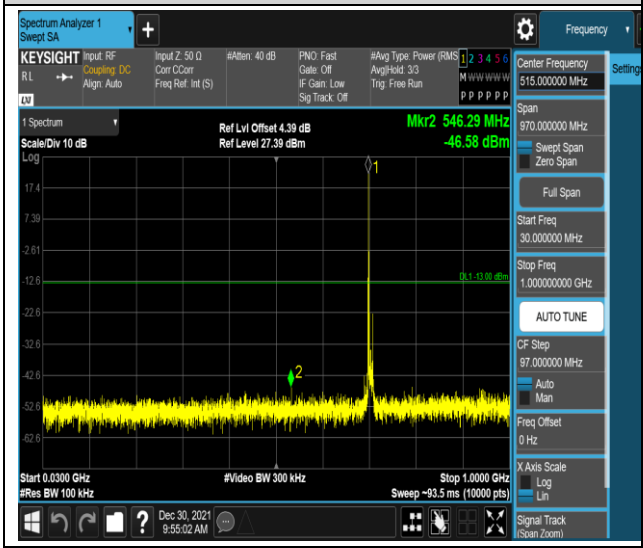
Band17-5MHz-16QAM-23825-1RB#0-Range1:30~1000MHz	Band17-5MHz-16QAM-23825-1RB#0-Range2:1000~10000MHz
	
Band17-10MHz-QPSK-23780-1RB#0-Range1:30~1000MHz	Band17-10MHz-QPSK-23780-1RB#0-Range2:1000~10000MHz
	
Band17-10MHz-QPSK-23790-1RB#0-Range1:30~1000MHz	Band17-10MHz-QPSK-23790-1RB#0-Range2:1000~10000MHz



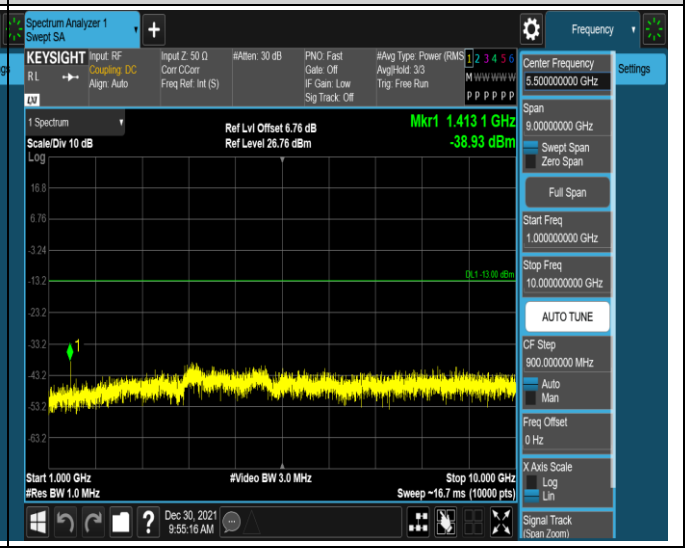
Band17-10MHz-QPSK-23800-1RB#0-Range1:30~1000MHz



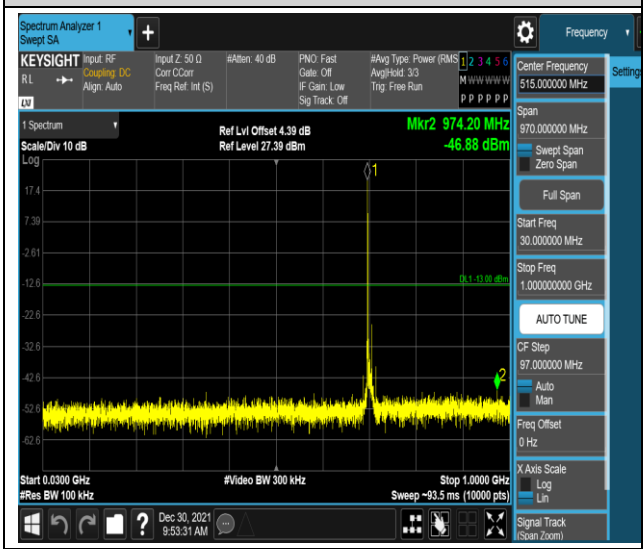
Band17-10MHz-QPSK-23800-1RB#0-Range2:1000~10000MHz

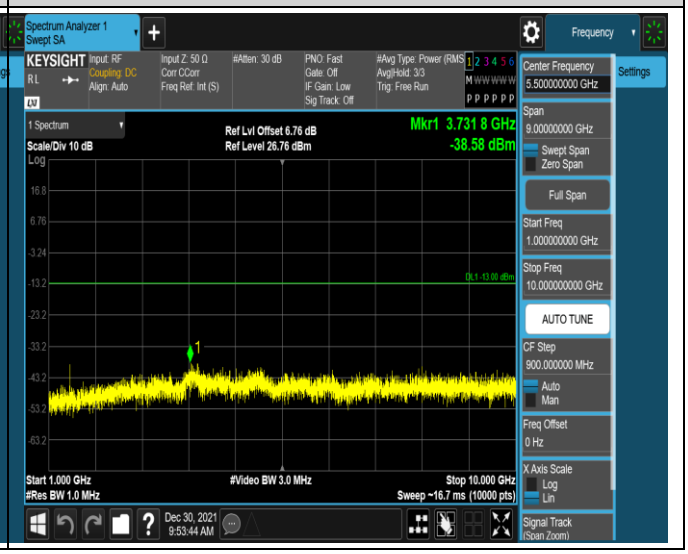


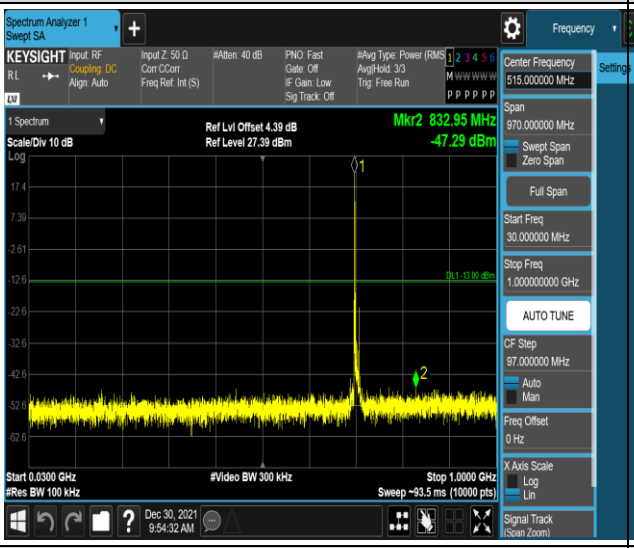
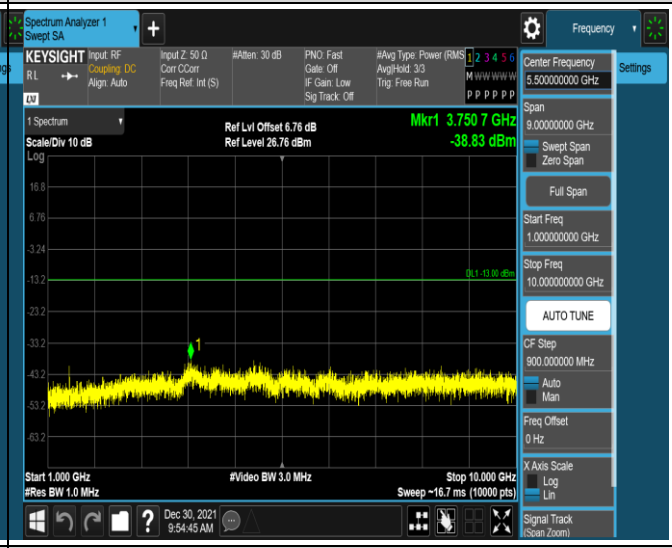
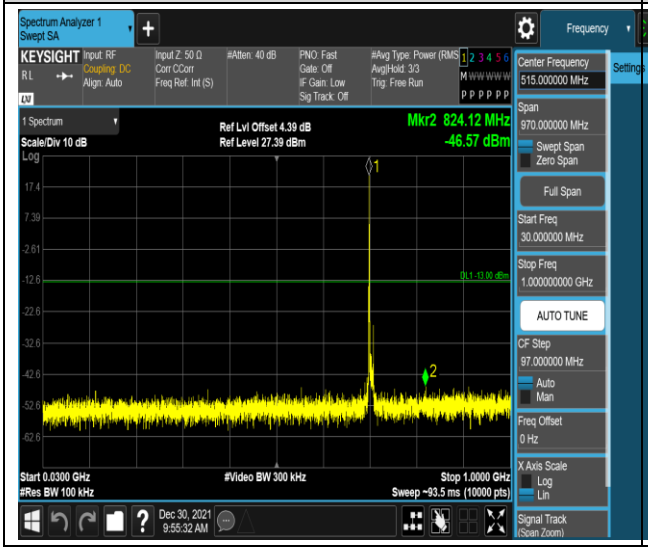
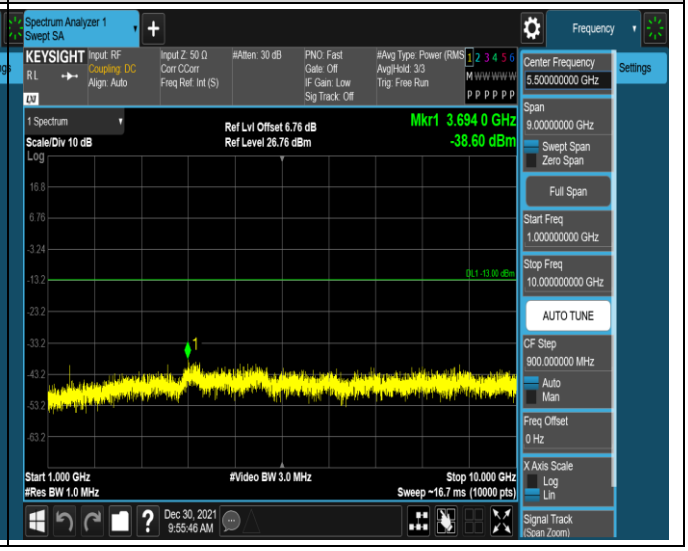
Band17-10MHz-16QAM-23780-1RB#0-Range1:30~1000MHz



Band17-10MHz-16QAM-23780-1RB#0-Range2:1000~10000MHz





Band17-10MHz-16QAM-23790-1RB#0-Range1:30~1000MHz	Band17-10MHz-16QAM-23790-1RB#0-Range2:1000~10000MHz
	
Band17-10MHz-16QAM-23800-1RB#0-Range1:30~1000MHz	Band17-10MHz-16QAM-23800-1RB#0-Range2:1000~10000MHz
	

Appendix F: Frequency Stability

Test Result

LTE Band 2 part:

Reference Frequency: LTE Band 2 (10MHz) Middle channel=18900 Frequency=1880.0MHz					
Temperature					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.87	-30	-22.37	-0.011899	Within authorized band for Band 2	Pass
	-20	-17.07	-0.009080		
	-10	-17.01	-0.009048		
	0	11.66	0.006202		
	10	-16.79	-0.008931		
	20	-5.62	-0.002989		
	30	-19.44	-0.010340		
	40	-11.27	-0.005995		
	50	-6.45	-0.003431		
16QAM					
3.87	-30	-16.37	-0.008707	Within authorized band for Band 2	Pass
	-20	11.06	0.005883		
	-10	-26.22	-0.013947		
	0	12.66	0.006734		
	10	-17.40	-0.009255		
	20	-18.97	-0.010090		
	30	7.91	0.004207		
	40	-10.31	-0.005484		
	50	-20.01	-0.010644		
Voltage					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-7.85	-0.004176	Within authorized band for Band 2	Pass
	3.87	-25.42	-0.013521		
	4.45	-15.36	-0.008170		
16QAM					
25	3.50	-13.98	-0.007436	Within authorized band for Band 2	Pass
	3.87	-13.18	-0.007011		
	4.45	-11.14	-0.005926		
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.					

LTE Band 4 part:

Reference Frequency: LTE Band 4(10MHz) Middle channel=20175 Frequency=1732.5MHz					
Temperature					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.87	-30	-11.63	-0.006713	Within authorized band for Band 4	Pass
	-20	-7.40	-0.004271		
	-10	-18.30	-0.010563		
	0	-22.16	-0.012791		
	10	-18.83	-0.010869		
	20	14.92	0.008612		
	30	-6.65	-0.003838		
	40	-16.37	-0.009449		
	50	-17.57	-0.010141		
16QAM					
3.87	-30	-1.96	-0.001131	Within authorized band for Band 4	Pass
	-20	-11.62	-0.006707		
	-10	-7.62	-0.004398		
	0	2.62	0.001512		
	10	-14.33	-0.008271		
	20	16.04	0.009258		
	30	-13.40	-0.007734		
	40	-3.08	-0.001778		
	50	10.04	0.005795		
Voltage					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	13.13	0.007579	Within authorized band for Band 4	Pass
	3.87	-18.08	-0.010436		
	4.45	-10.13	-0.005847		
16QAM					
25	3.50	18.55	0.010707	Within authorized band for Band 4	Pass
	3.87	-3.05	-0.001760		
	4.45	13.15	0.007590		
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.					

LTE Band 5 part:

Reference Frequency: LTE Band 5(10MHz) Middle channel=20525 Frequency=836.5MHz					
Temperature					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.87	-30	3.93	0.004698	±2.5	Pass
	-20	-8.14	-0.009731		
	-10	-14.56	-0.017406		
	0	-16.58	-0.019821		
	10	-12.70	-0.015182		
	20	-2.59	-0.003096		
	30	-13.80	-0.016497		
	40	-17.15	-0.020502		
	50	-12.25	-0.014644		
16QAM					
3.87	-30	-5.56	-0.006647	±2.5	Pass
	-20	-11.47	-0.013712		
	-10	-11.87	-0.014190		
	0	-10.73	-0.012827		
	10	-11.92	-0.014250		
	20	-6.79	-0.008117		
	30	-8.65	-0.010341		
	40	-13.12	-0.015684		
	50	-7.94	-0.009492		
Voltage					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-11.87	-0.014190	±2.5	Pass
	3.87	-13.06	-0.015613		
	4.45	-10.50	-0.012552		
16QAM					
25	3.50	-7.62	-0.009109	±2.5	Pass
	3.87	2.53	0.003025		
	4.45	-9.10	-0.010879		
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.					

LTE Band 7 part:

Reference Frequency: LTE Band 7(10MHz) Middle channel=21100 Frequency=2535.0MHz					
Temperature					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.87	-30	-26.38	-0.010406	Within authorized band for Band 7	Pass
	-20	-16.64	-0.006564		
	-10	-23.12	-0.009120		
	0	-19.15	-0.007554		
	10	19.33	0.007625		
	20	-18.25	-0.007199		
	30	-27.15	-0.010710		
	40	-11.39	-0.004493		
	50	-6.08	-0.002398		
16QAM					
3.87	-30	-31.83	-0.012556	Within authorized band for Band 7	Pass
	-20	23.76	0.009373		
	-10	24.73	0.009755		
	0	-12.26	-0.004836		
	10	15.32	0.006043		
	20	11.74	0.004631		
	30	-15.84	-0.006249		
	40	-27.04	-0.010667		
	50	13.72	0.005412		
Voltage					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-21.54	-0.008497	Within authorized band for Band 7	Pass
	3.87	10.29	0.004059		
	4.45	-21.63	-0.008533		
16QAM					
25	3.50	-22.27	-0.008785	Within authorized band for Band 7	Pass
	3.87	-14.31	-0.005645		
	4.45	-3.26	-0.001286		
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.					

LTE Band 12 part:

Reference Frequency: LTE Band 12(10MHz) Middle channel=23095 Frequency=707.5MHz					
Temperature					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.87	-30	-15.98	-0.022587	Within authorized band for Band 12	Pass
	-20	-6.14	-0.008678		
	-10	-9.16	-0.012947		
	0	-11.33	-0.016014		
	10	-10.93	-0.015449		
	20	-12.37	-0.017484		
	30	-9.66	-0.013654		
	40	-8.37	-0.011830		
	50	-6.24	-0.008820		
16QAM					
3.87	-30	-7.70	-0.010883	Within authorized band for Band 12	Pass
	-20	-5.12	-0.007237		
	-10	-13.96	-0.019731		
	0	-8.54	-0.012071		
	10	-9.27	-0.013102		
	20	-13.06	-0.018459		
	30	-8.70	-0.012297		
	40	-6.52	-0.009216		
	50	-13.85	-0.019576		
Voltage					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-11.94	-0.016876	Within authorized band for Band 12	Pass
	3.87	-13.72	-0.019392		
	4.45	-4.41	-0.006233		
16QAM					
25	3.50	-14.20	-0.020071	Within authorized band for Band 12	Pass
	3.87	-12.43	-0.017569		
	4.45	-10.51	-0.014855		
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.					

LTE Band 17 part:

Reference Frequency: LTE Band 17(10MHz) Middle channel=23790 Frequency=710.0MHz					
Temperature					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.87	-30	-11.22	-0.015803	Within authorized band for Band 17	Pass
	-20	-7.11	-0.010014		
	-10	-11.37	-0.016014		
	0	-6.90	-0.009718		
	10	-8.40	-0.011831		
	20	-12.20	-0.017183		
	30	-8.85	-0.012465		
	40	-8.84	-0.012451		
	50	-10.39	-0.014634		
16QAM					
3.87	-30	-13.23	-0.018634	Within authorized band for Band 17	Pass
	-20	-12.07	-0.017000		
	-10	-7.85	-0.011056		
	0	-9.87	-0.013901		
	10	-10.83	-0.015254		
	20	-1.40	-0.001972		
	30	-11.79	-0.016606		
	40	-13.46	-0.018958		
	50	3.13	0.004408		
Voltage					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-9.84	-0.013859	Within authorized band for Band 17	Pass
	3.87	-7.35	-0.010352		
	4.45	2.73	0.003845		
16QAM					
25	3.50	-9.77	-0.013761	Within authorized band for Band 17	Pass
	3.87	-9.91	-0.013958		
	4.45	-6.31	-0.008887		
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.					

Appendix G: Modulation Characteristics

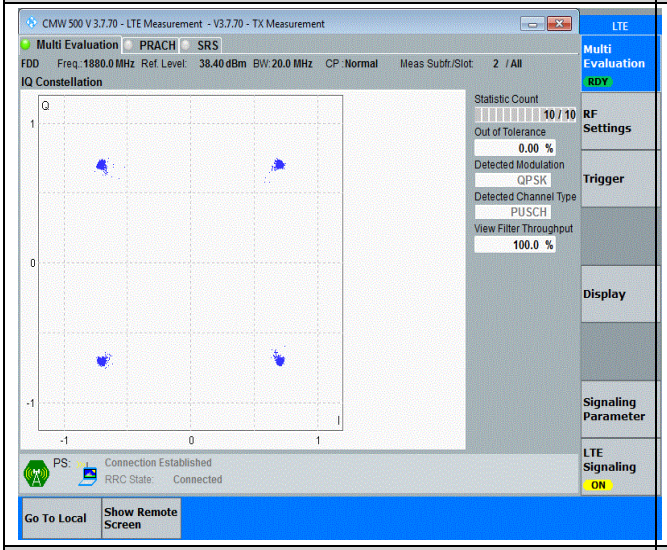
Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result	Verdict
Band2	20MHz	QPSK	18900	100RB#0	PASS	PASS
Band2	20MHz	16QAM	18900	100RB#0	PASS	PASS
Band4	20MHz	QPSK	20175	100RB#0	PASS	PASS
Band4	20MHz	16QAM	20175	100RB#0	PASS	PASS
Band5	10MHz	QPSK	20525	50RB#0	PASS	PASS
Band5	10MHz	16QAM	20525	50RB#0	PASS	PASS
Band7	20MHz	QPSK	21100	100RB#0	PASS	PASS
Band7	20MHz	16QAM	21100	100RB#0	PASS	PASS
Band12	10MHz	QPSK	23095	50RB#0	PASS	PASS
Band12	10MHz	16QAM	23095	50RB#0	PASS	PASS
Band17	10MHz	QPSK	23790	50RB#0	PASS	PASS
Band17	10MHz	16QAM	23790	50RB#0	PASS	PASS

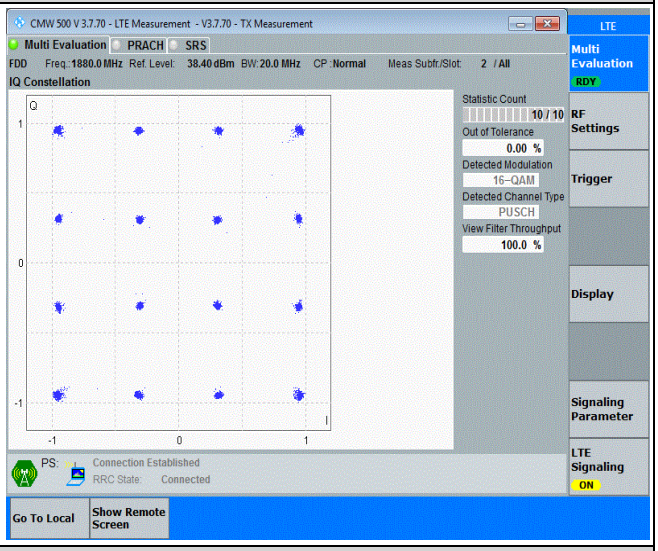
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.

Test Graphs

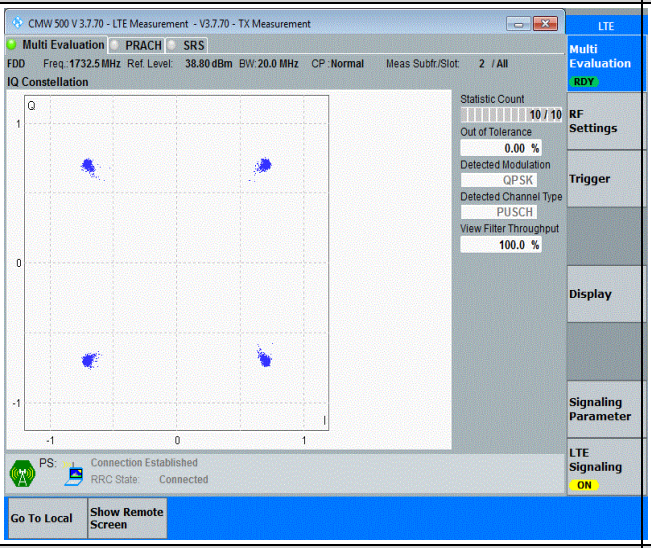
Band2-20MHz-QPSK-18900-100RB#0



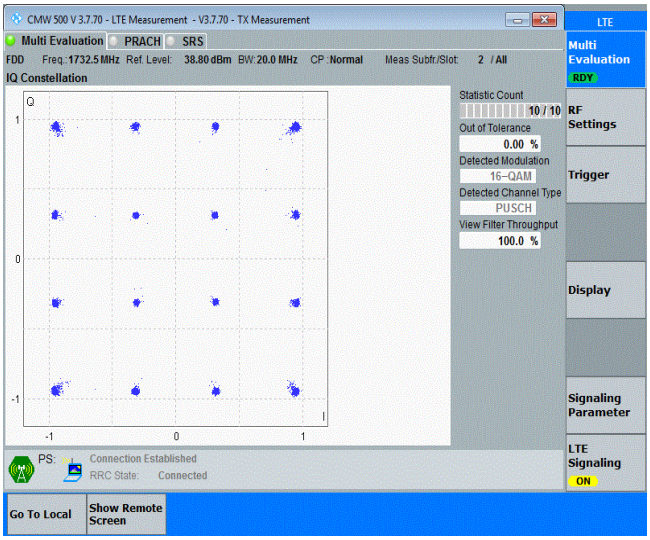
Band2-20MHz-16QAM-18900-100RB#0



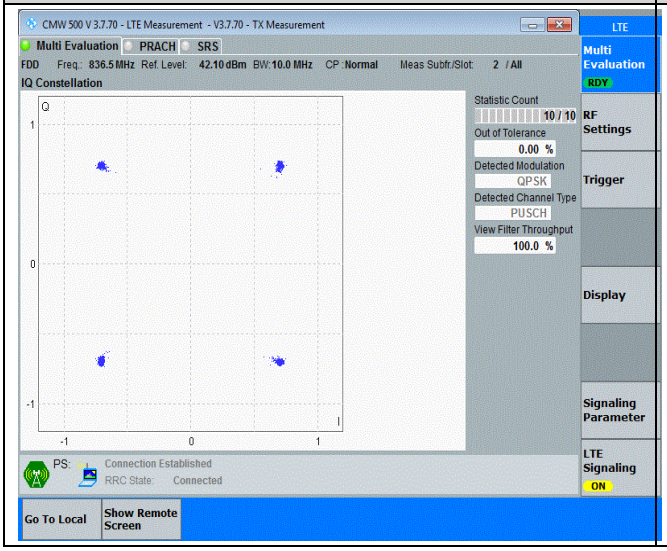
Band4-20MHz-QPSK-20175-100RB#0



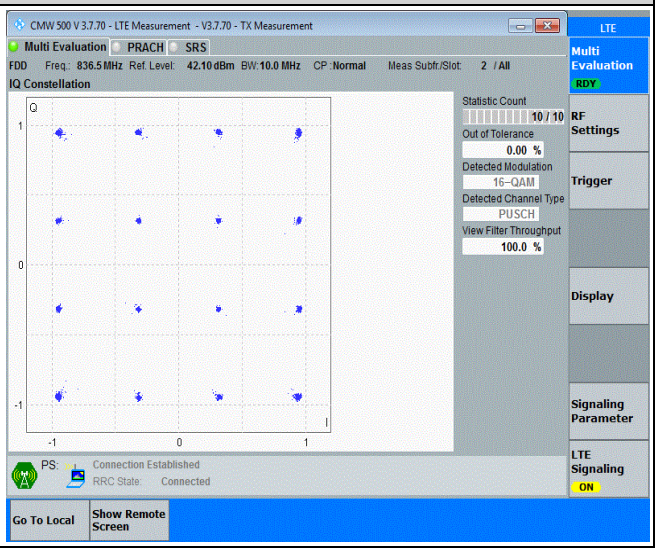
Band4-20MHz-16QAM-20175-100RB#0



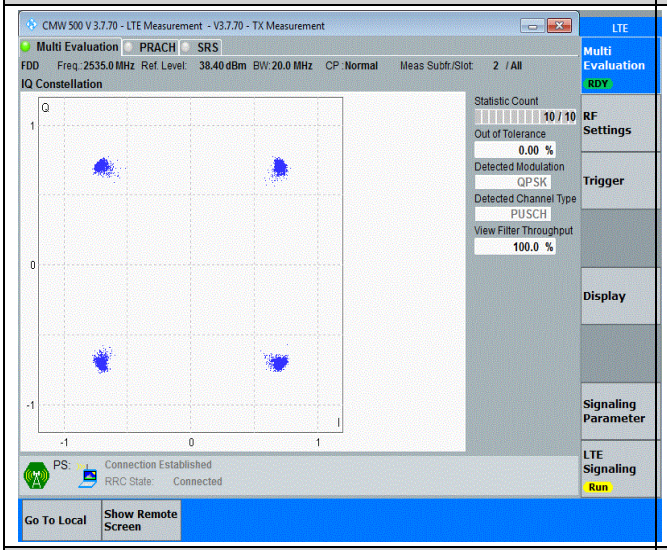
Band5-10MHz-QPSK-20525-50RB#0



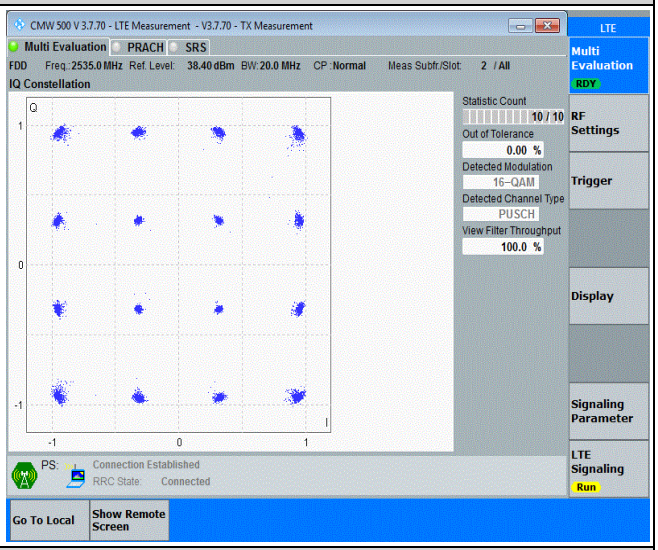
Band5-10MHz-16QAM-20525-50RB#0



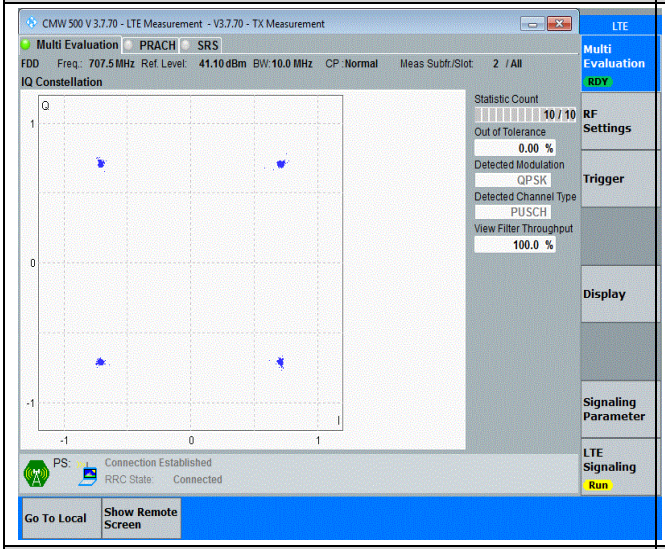
Band7-20MHz-QPSK-21100-100RB#0



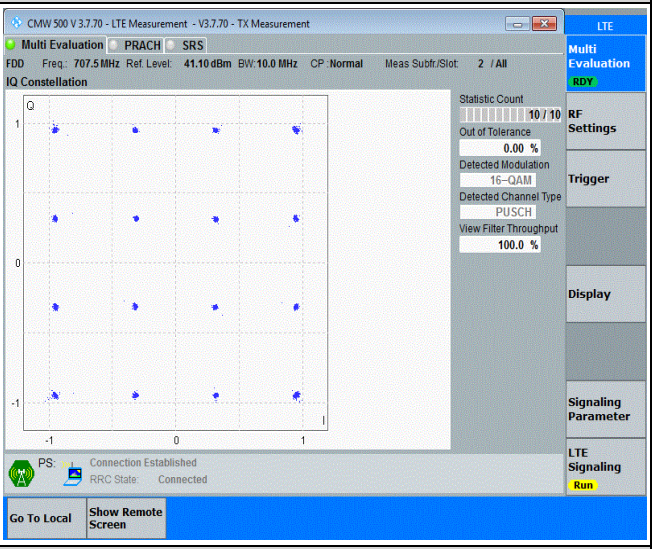
Band7-20MHz-16QAM-21100-100RB#0



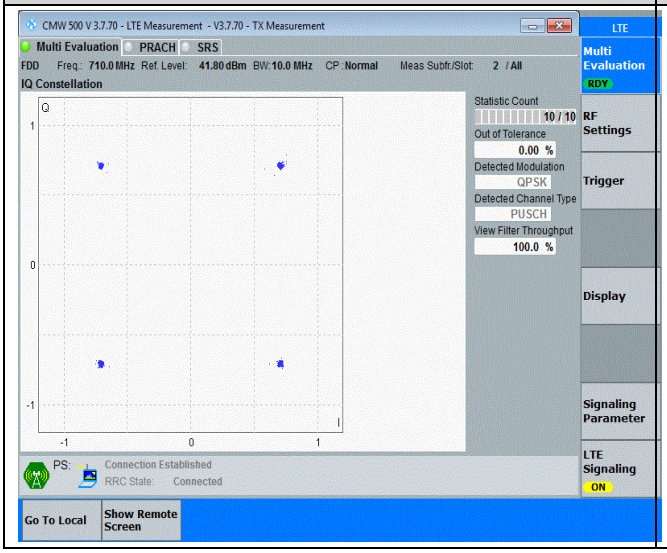
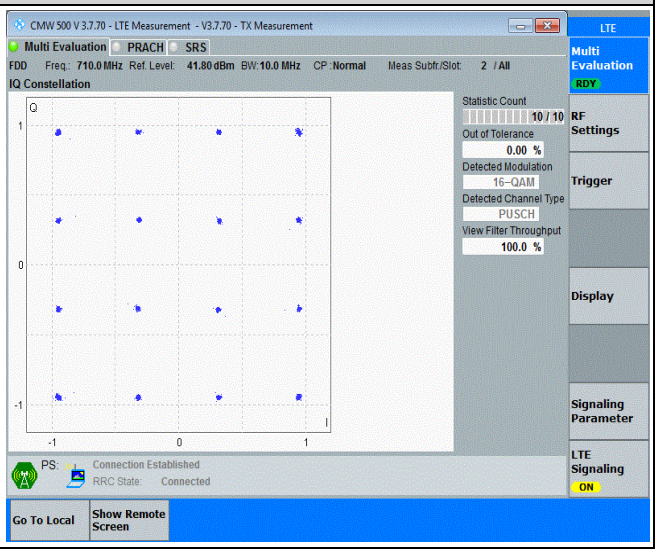
Band12-10MHz-QPSK-23095-50RB#0



Band12-10MHz-16QAM-23095-50RB#0



Band17-10MHz-QPSK-23790-50RB#0



Band17-10MHz-16QAM-23790-50RB#0