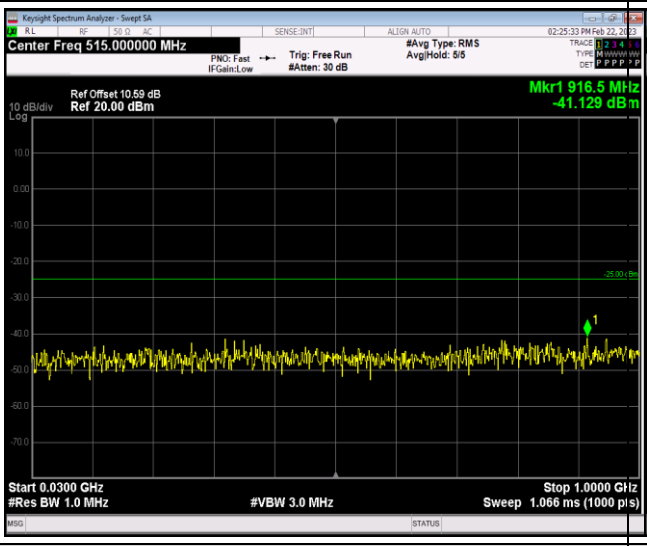
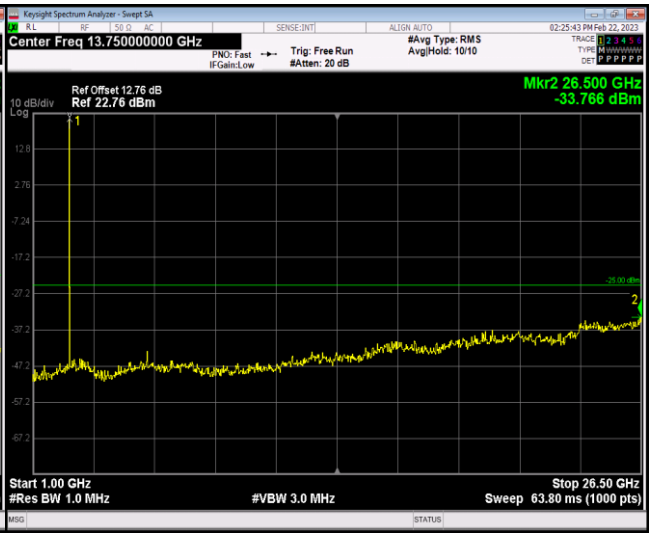
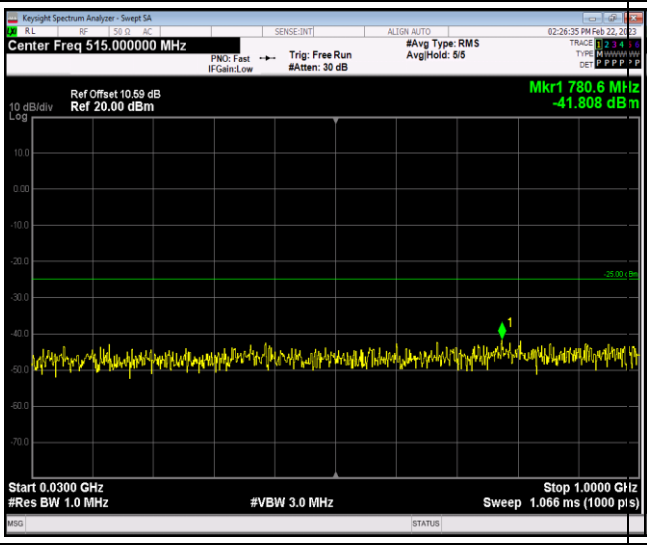
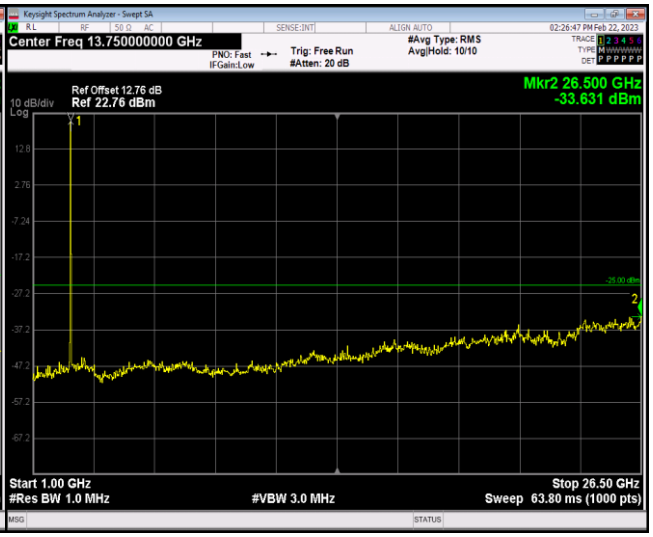
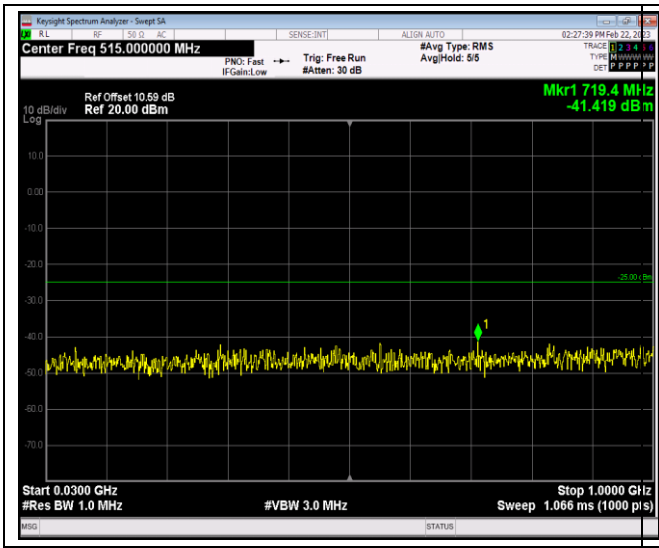
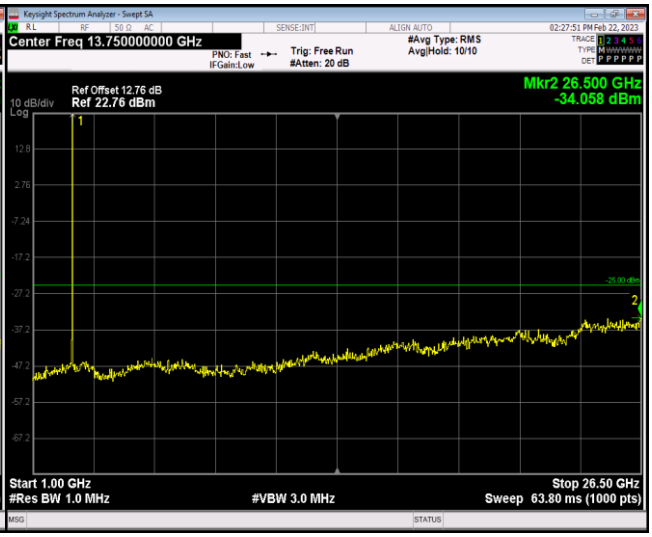
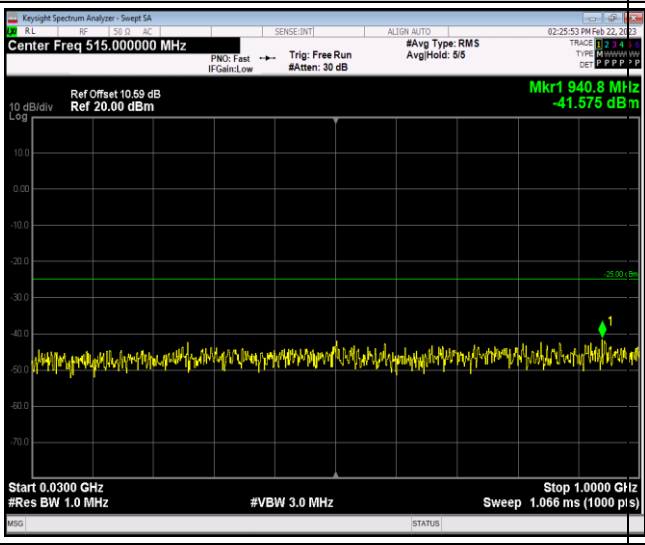
Band41-5MHz-16QAM-40065-1RB#0-Range1:30~1000MHz	Band41-5MHz-16QAM-40065-1RB#0-Range2:1000~26500MHz
	
Band41-5MHz-16QAM-40640-1RB#0-Range1:30~1000MHz	Band41-5MHz-16QAM-40640-1RB#0-Range2:1000~26500MHz
	
Band41-5MHz-16QAM-41215-1RB#0-Range1:30~1000MHz	Band41-5MHz-16QAM-41215-1RB#0-Range2:1000~26500MHz



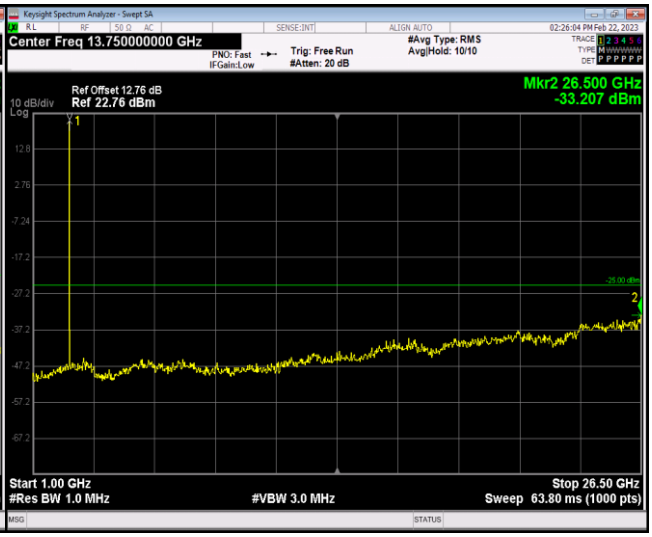
Band41-5MHz-64QAM-40065-1RB#0-Range1:30~1000MHz



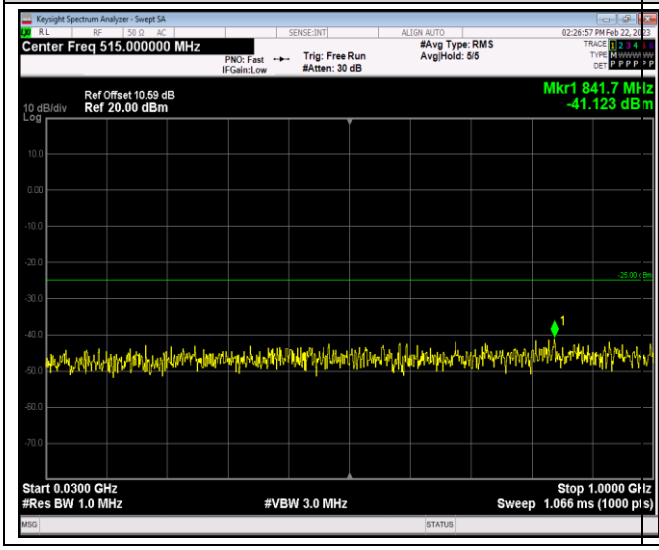
Band41-5MHz-64QAM-40065-1RB#0-Range2:1000~26500MHz

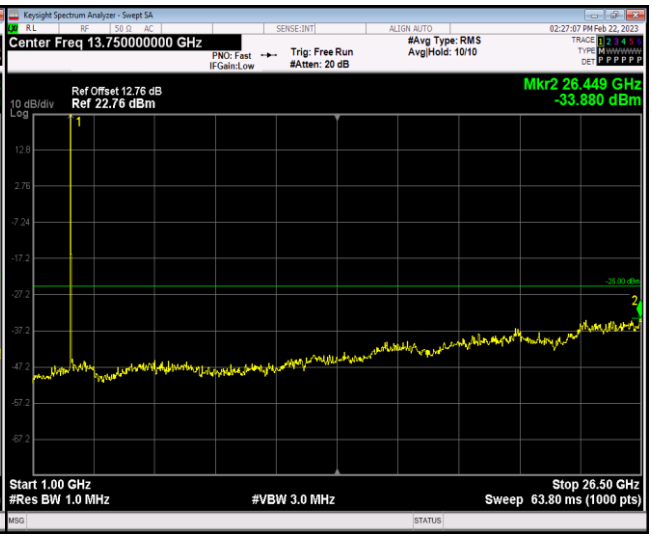


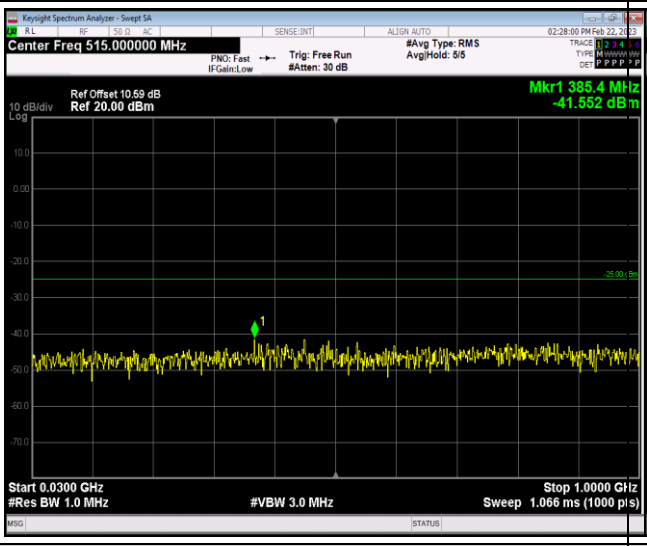
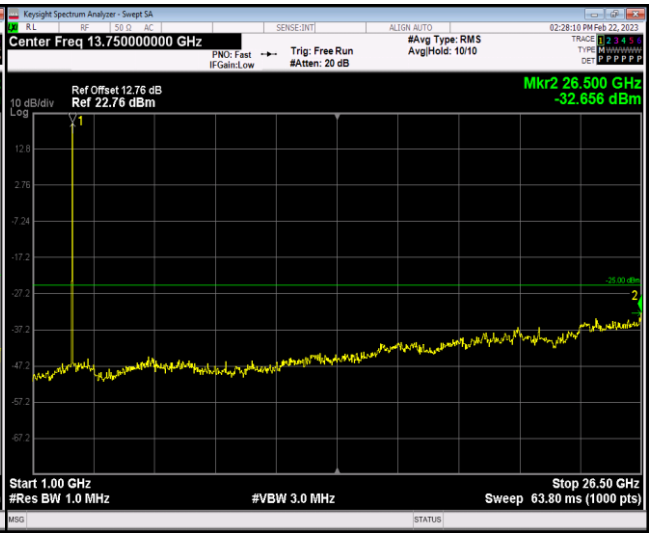
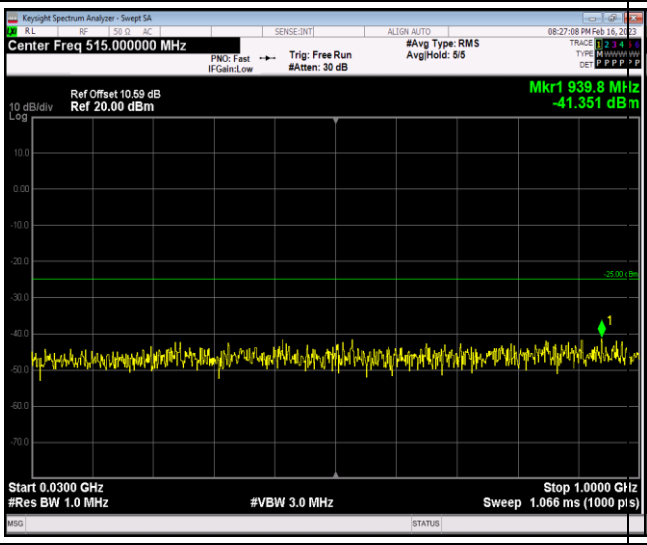
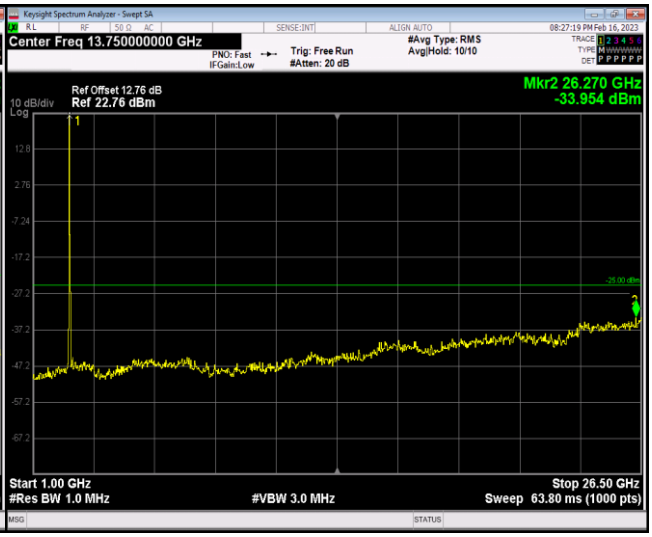
Band41-5MHz-64QAM-40640-1RB#0-Range1:30~1000MHz

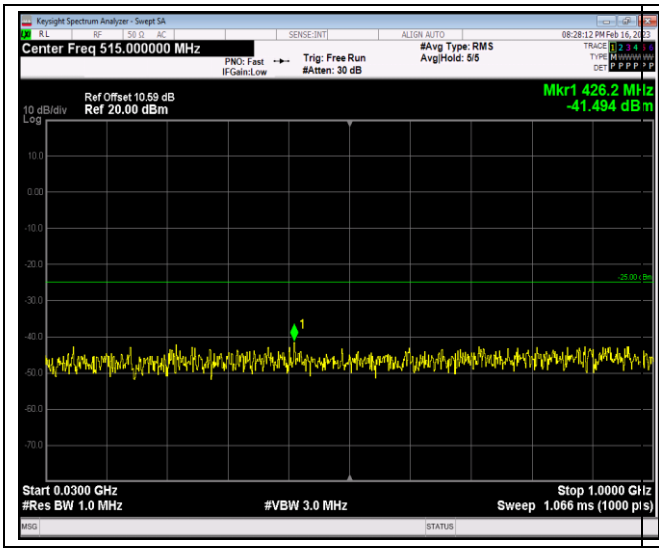


Band41-5MHz-64QAM-40640-1RB#0-Range2:1000~26500MHz

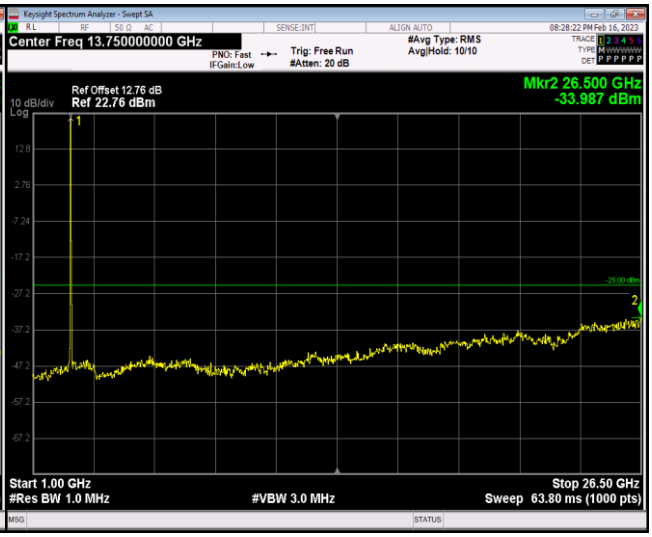




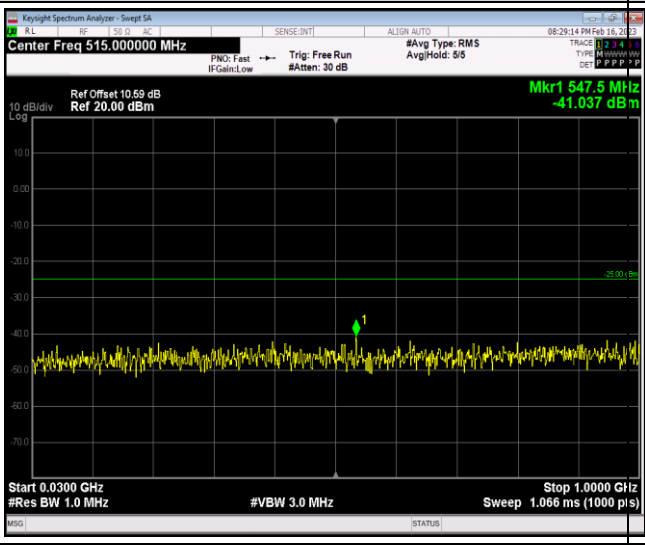
Band41-5MHz-64QAM-41215-1RB#0-Range1:30~1000MHz	Band41-5MHz-64QAM-41215-1RB#0-Range2:1000~26500MHz
	
Band41-20MHz-QPSK-40140-1RB#0-Range1:30~1000MHz	Band41-20MHz-QPSK-40140-1RB#0-Range2:1000~26500MHz
	
Band41-20MHz-QPSK-40640-1RB#0-Range1:30~1000MHz	Band41-20MHz-QPSK-40640-1RB#0-Range2:1000~26500MHz



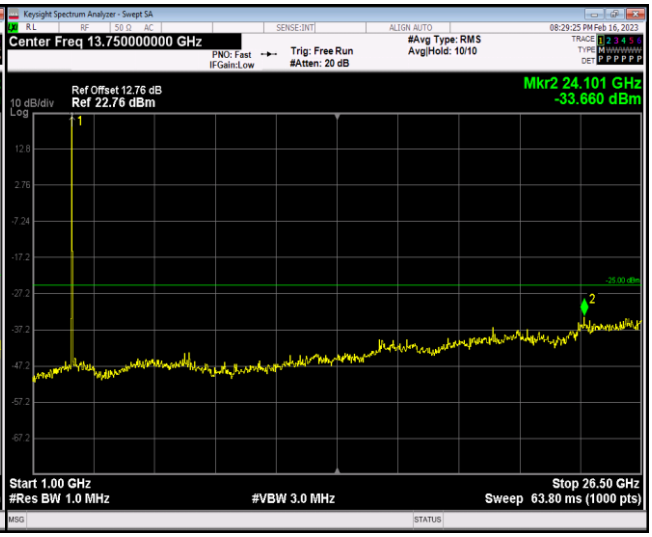
Band41-20MHz-QPSK-41140-1RB#0-Range1:30~1000MHz



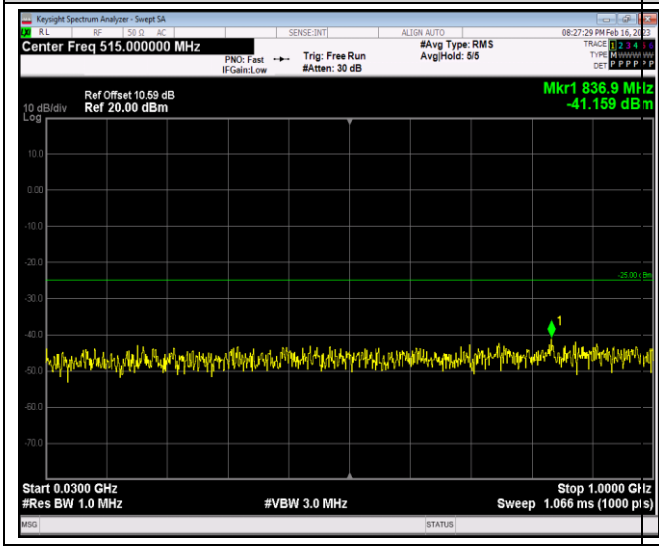
Band41-20MHz-QPSK-41140-1RB#0-Range2:1000~26500MHz

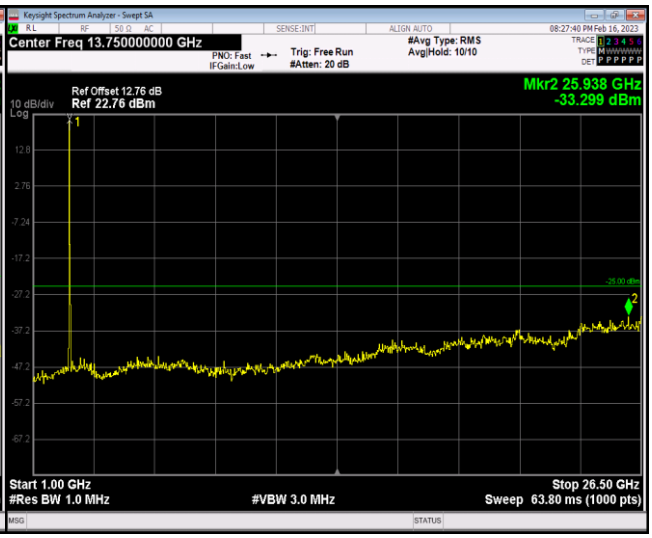


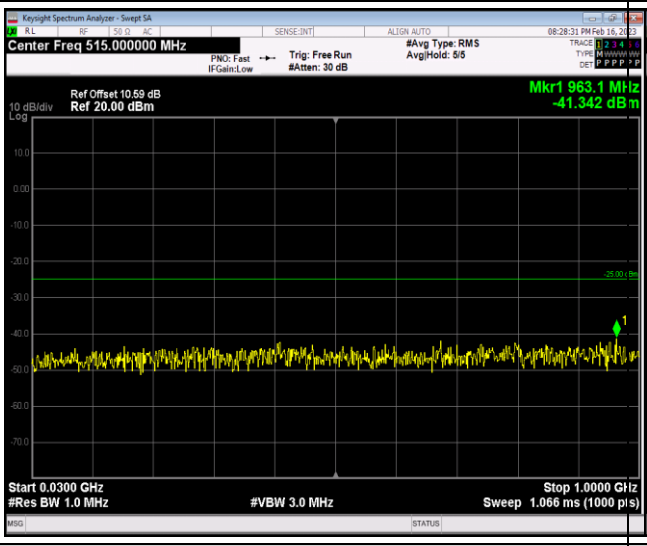
Band41-20MHz-16QAM-40140-1RB#0-Range1:30~1000MHz



Band41-20MHz-16QAM-40140-1RB#0-Range2:1000~26500MHz





Band41-20MHz-16QAM-40640-1RB#0-Range1:30~1000MHz	Band41-20MHz-16QAM-40640-1RB#0-Range2:1000~26500MHz
	
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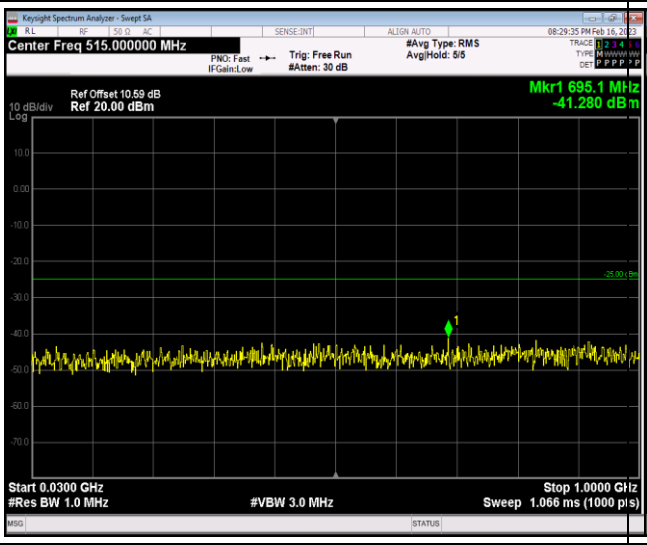
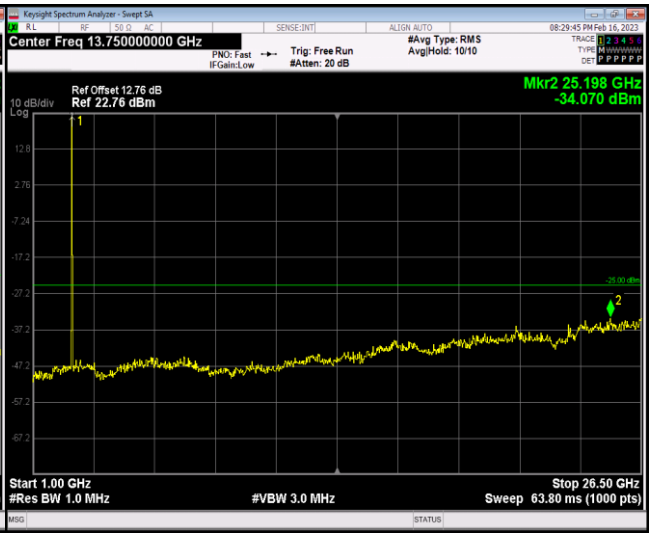
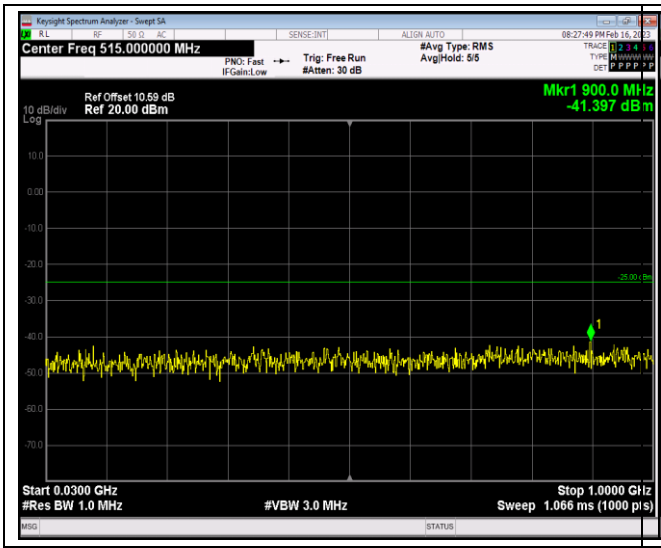
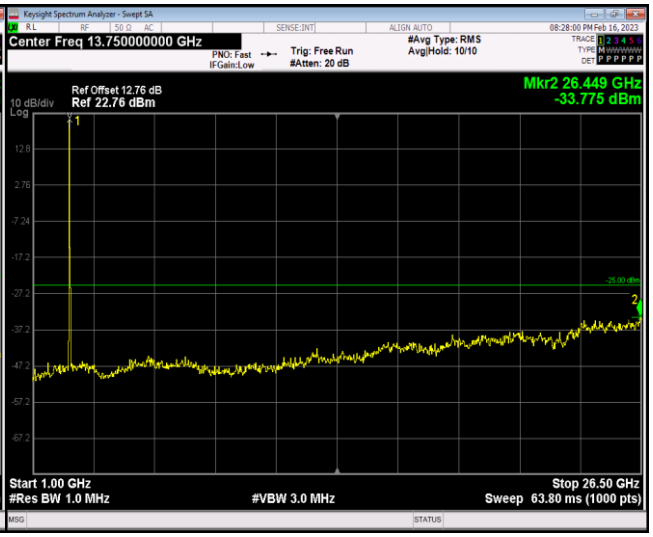
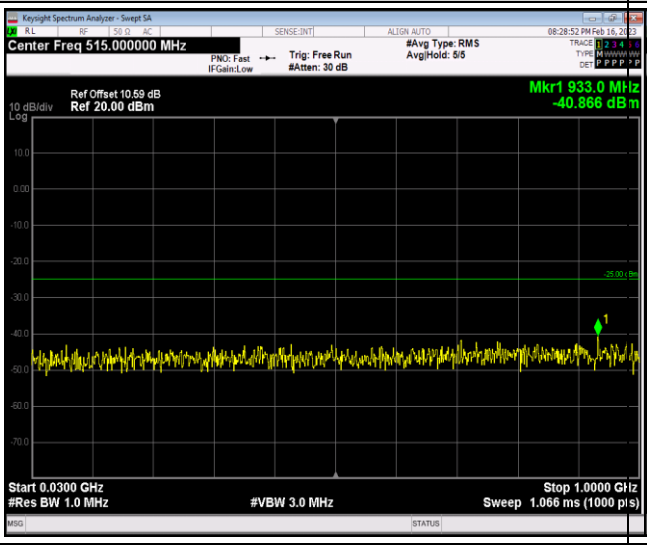
	
Band41-20MHz-64QAM-40140-1RB#0-Range1:30~1000MHz	Band41-20MHz-64QAM-40140-1RB#0-Range2:1000~26500MHz



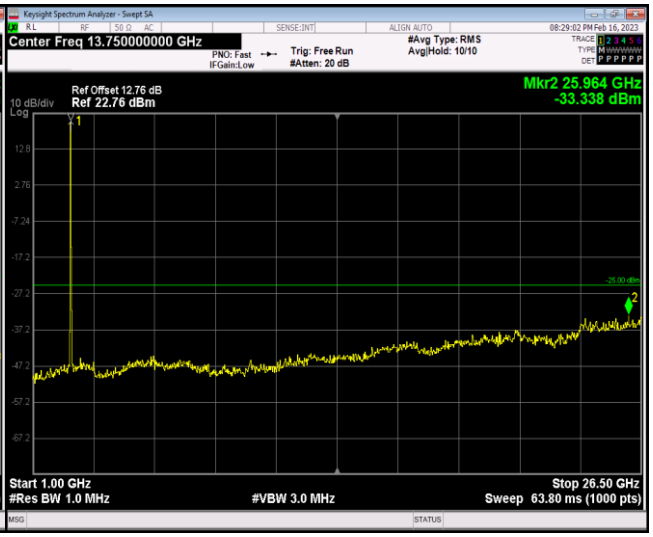
Band41-20MHz-64QAM-40640-1RB#0-Range1:30 ~1000MHz



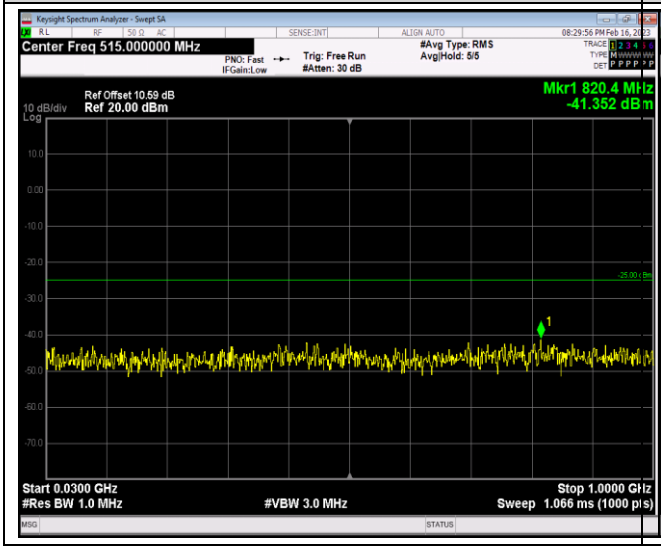
Band41-20MHz-64QAM-40640-1RB#0-Range2:1000~26500MHz

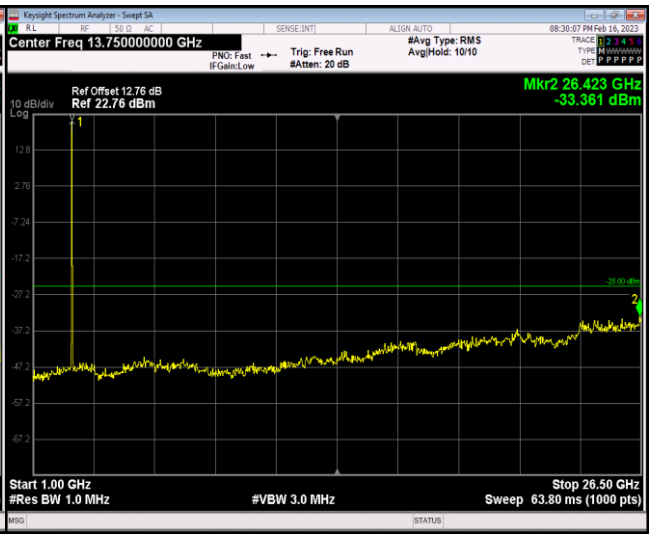


Band41-20MHz-64QAM-41140-1RB#0-Range1:30 ~1000MHz



Band41-20MHz-64QAM-41140-1RB#0-Range2:1000~26500MHz





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	-9.06	-0.004819	Within authorized band for Band 2	Pass
	-20	8.05	0.004282		
	-10	-1.95	-0.001037		
	0	-11.10	-0.005904		
	10	3.89	0.002069		
	20	-10.46	-0.005564		
	30	9.36	0.004979		
	40	-8.40	-0.004468		
	50	-8.81	-0.004686		
16QAM					
3.87	-30	8.47	0.004505	Within authorized band for Band 2	Pass
	-20	5.87	0.003122		
	-10	5.24	0.002787		
	0	-11.17	-0.005941		
	10	7.58	0.004032		
	20	10.47	0.005569		
	30	7.97	0.004239		
	40	-3.73	-0.001984		
	50	8.77	0.004665		
64QAM					
3.87	-30	8.51	0.004527	Within authorized band for Band 2	Pass
	-20	9.78	0.005202		
	-10	-11.86	-0.006309		
	0	-7.55	-0.004016		
	10	-6.08	-0.003234		
	20	2.56	0.001362		
	30	6.78	0.003606		
	40	-6.08	-0.003234		
	50	-7.81	-0.004154		

Voltage					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	8.54	0.004543	Within authorized band for Band 2	Pass
	3.87	17.29	0.009197		
	4.45	8.00	0.004255		
16QAM					
25	3.45	9.88	0.005255	Within authorized band for Band 2	Pass
	3.87	-4.91	-0.002612		
	4.45	-7.94	-0.004223		
64QAM					
25	3.45	6.02	0.003202	Within authorized band for Band 2	Pass
	3.87	-11.79	-0.006271		
	4.45	-8.70	-0.004628		
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	-8.03	-0.004635	Within authorized band for Band 4	Pass
	-20	-8.98	-0.005183		
	-10	-7.08	-0.004087		
	0	-6.61	-0.003815		
	10	-5.22	-0.003013		
	20	-7.30	-0.004214		
	30	-3.38	-0.001951		
	40	-2.49	-0.001437		
	50	-9.17	-0.005293		
16QAM					
3.87	-30	-6.52	-0.003763	Within authorized band for Band 4	Pass
	-20	-5.38	-0.003105		
	-10	-2.13	-0.001229		
	0	-3.96	-0.002286		
	10	-2.05	-0.001183		
	20	-5.45	-0.003146		
	30	-7.45	-0.004300		
	40	-8.45	-0.004877		
	50	-5.04	-0.002909		
64QAM					
3.87	-30	-3.68	-0.002124	Within authorized band for Band 2	Pass
	-20	-4.75	-0.002742		
	-10	4.75	0.002742		
	0	-2.78	-0.001605		
	10	-3.48	-0.002009		
	20	-3.93	-0.002268		
	30	-6.37	-0.003677		
	40	-3.16	-0.001824		
	50	5.92	0.003417		

Voltage					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-8.80	-0.005079	Within authorized band for Band 4	Pass
	3.87	4.48	0.002586		
	4.45	-8.27	-0.004773		
16QAM					
25	3.45	-8.37	-0.004831	Within authorized band for Band 4	Pass
	3.87	-6.44	-0.003717		
	4.45	-5.87	-0.003388		
64QAM					
25	3.45	2.60	0.001501	Within authorized band for Band 2	Pass
	3.87	-8.98	-0.005183		
	4.45	-3.10	-0.001789		
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	-4.53	-0.005415	±2.5	Pass
	-20	-8.27	-0.009886		
	-10	-6.08	-0.007268		
	0	-7.22	-0.008631		
	10	-8.07	-0.009647		
	20	-4.76	-0.005690		
	30	-5.99	-0.007161		
	40	-6.88	-0.008225		
	50	-4.89	-0.005846		
16QAM					
3.87	-30	-6.51	-0.007782	±2.5	Pass
	-20	-6.85	-0.008189		
	-10	-4.72	-0.005643		
	0	-4.99	-0.005965		
	10	-7.05	-0.008428		
	20	-5.06	-0.006049		
	30	-5.26	-0.006288		
	40	-4.45	-0.005320		
	50	-3.32	-0.003969		
64QAM					
3.87	-30	-5.97	-0.007137	Within authorized band for Band 2	Pass
	-20	-4.81	-0.005750		
	-10	-4.76	-0.005690		
	0	1.89	0.002259		
	10	-5.34	-0.006384		
	20	-5.85	-0.006993		
	30	-4.25	-0.005081		
	40	-3.40	-0.004065		
	50	-4.79	-0.005726		

Voltage					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-5.52	-0.006599	±2.5	Pass
	3.87	-6.67	-0.007974		
	4.45	-4.28	-0.005117		
16QAM					
25	3.45	-3.93	-0.004698	±2.5	Pass
	3.87	-6.62	-0.007914		
	4.45	-5.52	-0.006599		
64QAM					
25	3.45	1.99	0.002379	Within authorized band for Band 2	Pass
	3.87	-3.93	-0.004698		
	4.45	-5.72	-0.006838		
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	-10.10	-0.003984	Within authorized band for Band 7	Pass
	-20	-11.56	-0.004560		
	-10	-11.84	-0.004671		
	0	-13.92	-0.005491		
	10	-8.68	-0.003424		
	20	-7.68	-0.003030		
	30	9.01	0.003554		
	40	-10.57	-0.004170		
	50	-14.16	-0.005586		
16QAM					
3.87	-30	-8.84	-0.003487	Within authorized band for Band 7	Pass
	-20	-13.62	-0.005373		
	-10	-4.58	-0.001807		
	0	9.90	0.003905		
	10	-16.72	-0.006596		
	20	6.85	0.002702		
	30	4.18	0.001649		
	40	-15.89	-0.006268		
	50	-4.42	-0.001744		
64QAM					
3.87	-30	-16.24	-0.006406	Within authorized band for Band 2	Pass
	-20	-11.77	-0.004643		
	-10	-12.33	-0.004864		
	0	-9.51	-0.003751		
	10	-9.67	-0.003815		
	20	-11.14	-0.004394		
	30	-8.73	-0.003444		
	40	8.43	0.003325		
	50	12.46	0.004915		

Voltage					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-14.12	-0.005570	Within authorized band for Band 7	Pass
	3.87	-9.36	-0.003692		
	4.45	-9.77	-0.003854		
16QAM					
25	3.45	10.03	0.003957	Within authorized band for Band 7	Pass
	3.87	-15.95	-0.006292		
	4.45	-8.85	-0.003491		
64QAM					
25	3.45	-8.00	-0.003156	Within authorized band for Band 2	Pass
	3.87	-16.26	-0.006414		
	4.45	-9.24	-0.003645		
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.					

LTE Band 41 part:

Reference Frequency: LTE Band 41 (10MHz) Middle channel=40640 Frequency=2595.0MHz					
Temperature					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.87	-30	-7.94	-0.003060	Within authorized band for Band 41	Pass
	-20	-7.00	-0.002697		
	-10	8.98	0.003461		
	0	-5.04	-0.001942		
	10	-9.48	-0.003653		
	20	-7.00	-0.002697		
	30	-21.51	-0.008289		
	40	6.07	0.002339		
	50	-8.23	-0.003171		
16QAM					
3.87	-30	-11.37	-0.004382	Within authorized band for Band 41	Pass
	-20	-3.60	-0.001387		
	-10	-8.94	-0.003445		
	0	11.01	0.004243		
	10	6.87	0.002647		
	20	-4.99	-0.001923		
	30	-6.39	-0.002462		
	40	-6.92	-0.002667		
	50	7.94	0.003060		
64QAM					
3.87	-30	10.01	0.003857	Within authorized band for Band 2	Pass
	-20	5.66	0.002181		
	-10	-8.57	-0.003303		
	0	8.67	0.003341		
	10	-3.22	-0.001241		
	20	-7.45	-0.002871		
	30	-9.06	-0.003491		
	40	-5.05	-0.001946		
	50	-4.61	-0.001776		

Voltage					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	11.70	0.004509	Within authorized band for Band 41	Pass
	3.87	13.02	0.005017		
	4.45	4.26	0.001642		
16QAM					
25	3.45	-6.05	-0.002331	Within authorized band for Band41	Pass
	3.87	-9.60	-0.003699		
	4.45	8.25	0.003179		
64QAM					
25	3.45	-8.38	-0.003229	Within authorized band for Band 2	Pass
	3.87	-14.35	-0.005530		
	4.45	-11.42	-0.004401		
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.					

Appendix G: Modulation Characteristics

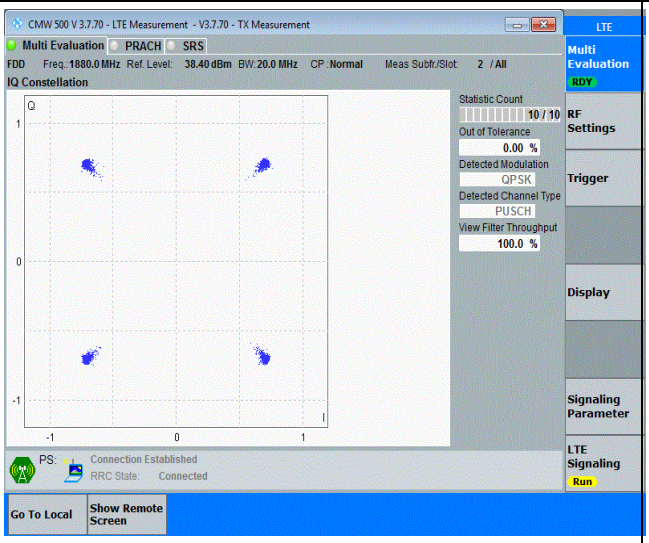
Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result	Verdict
Band2	20MHz	QPSK	18900	100RB#0	PASS	PASS
Band2	20MHz	16QAM	18900	100RB#0	PASS	PASS
Band2	20MHz	64QAM	18900	100RB#0	PASS	PASS
Band4	20MHz	QPSK	20175	100RB#0	PASS	PASS
Band4	20MHz	16QAM	20175	100RB#0	PASS	PASS
Band4	20MHz	64QAM	20175	100RB#0	PASS	PASS
Band5	10MHz	QPSK	20525	50RB#0	PASS	PASS
Band5	10MHz	16QAM	20525	50RB#0	PASS	PASS
Band5	10MHz	64QAM	20525	50RB#0	PASS	PASS
Band7	20MHz	QPSK	21100	100RB#0	PASS	PASS
Band7	20MHz	16QAM	21100	100RB#0	PASS	PASS
Band7	20MHz	64QAM	21100	100RB#0	PASS	PASS
Band41	20MHz	QPSK	40640	100RB#0	PASS	PASS
Band41	20MHz	16QAM	40640	100RB#0	PASS	PASS
Band41	20MHz	64QAM	40640	100RB#0	PASS	PASS

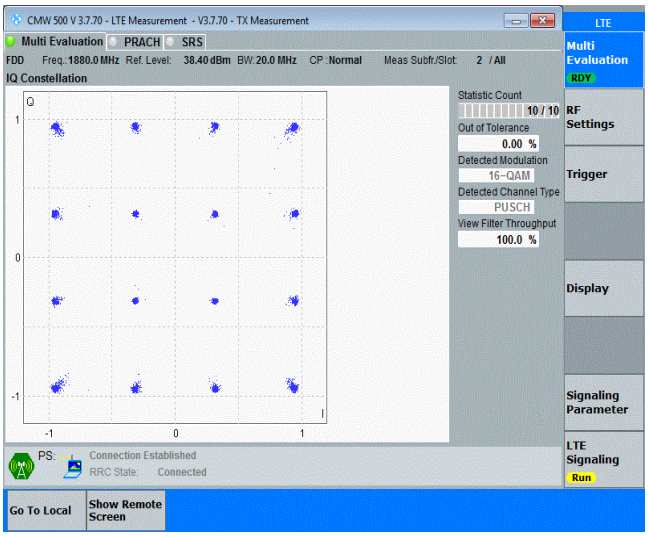
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.

Test Graphs

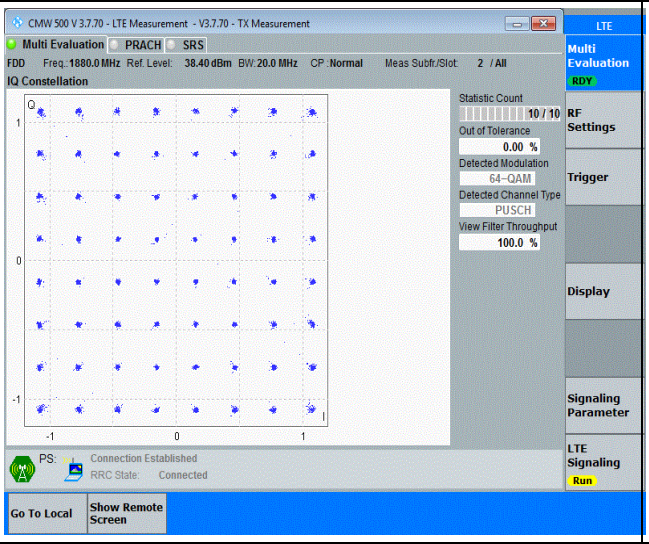
Band2-20MHz-QPSK-18900-100RB#0



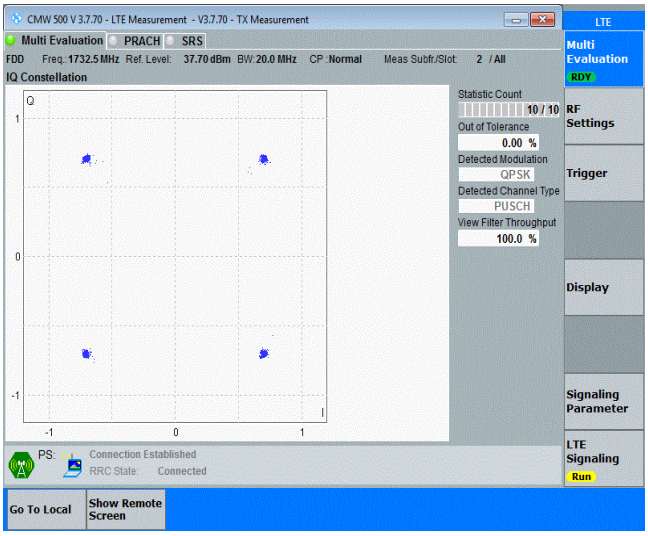
Band2-20MHz-16QAM-18900-100RB#0



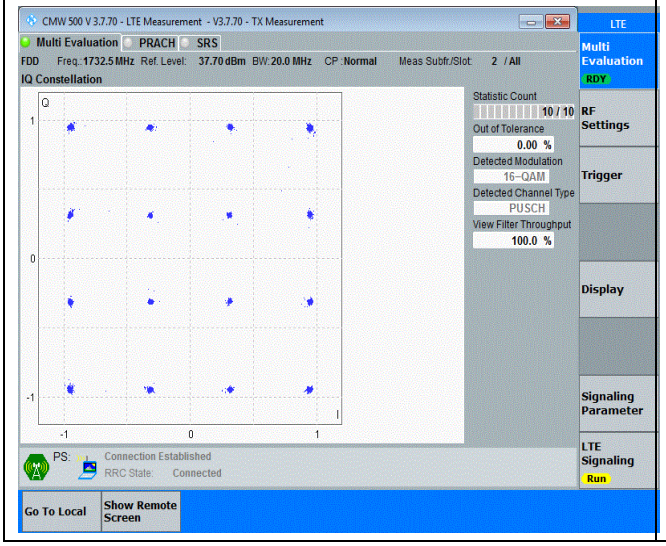
Band2-20MHz-64QAM-18900-100RB#0



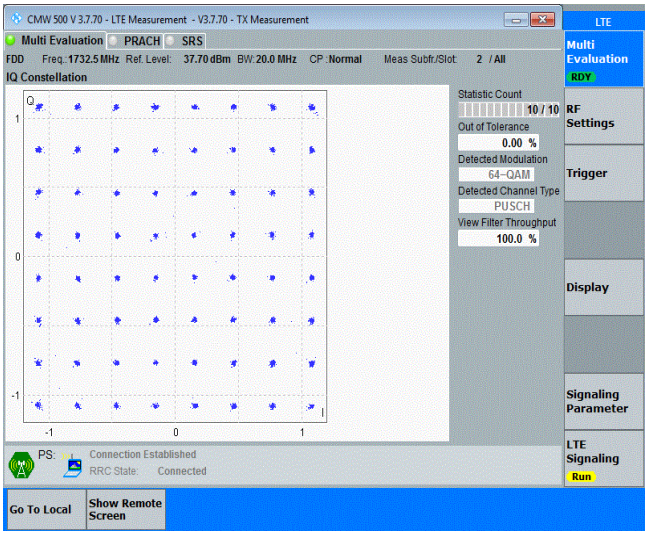
Band4-20MHz-QPSK-20175-100RB#0



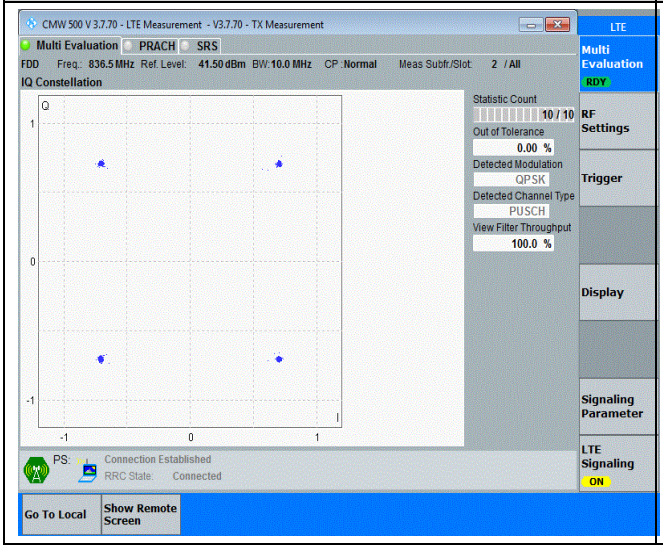
Band4-20MHz-16QAM-20175-100RB#0



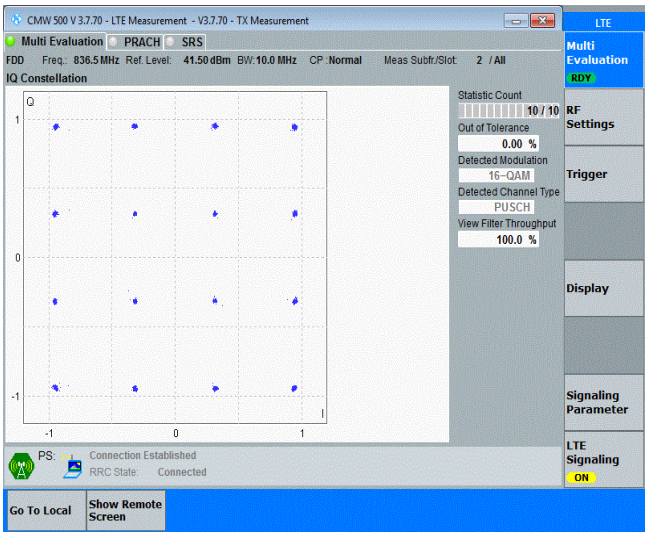
Band4-20MHz-64QAM-20175-100RB#0



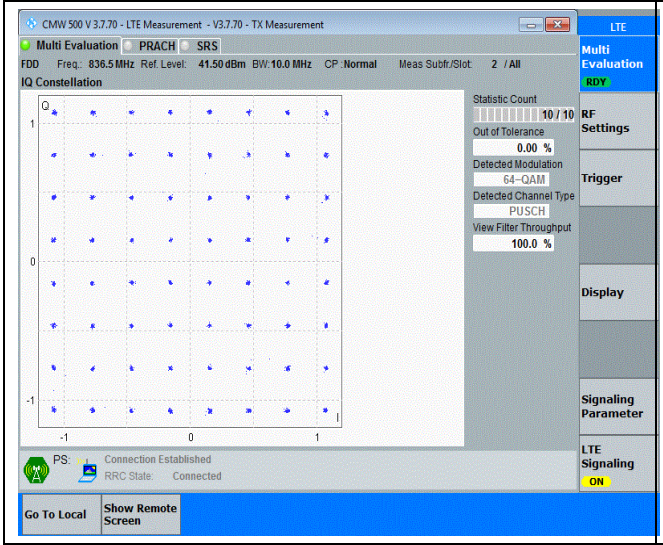
Band5-10MHz-QPSK-20525-50RB#0



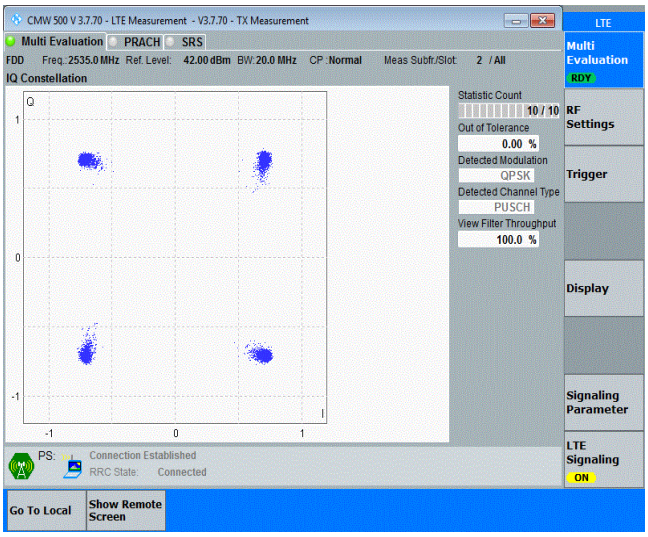
Band5-10MHz-16QAM-20525-50RB#0



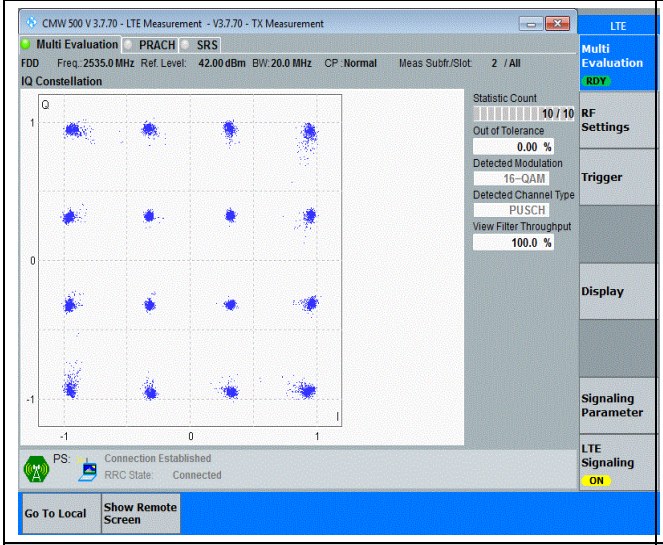
Band5-10MHz-64QAM-20525-50RB#0



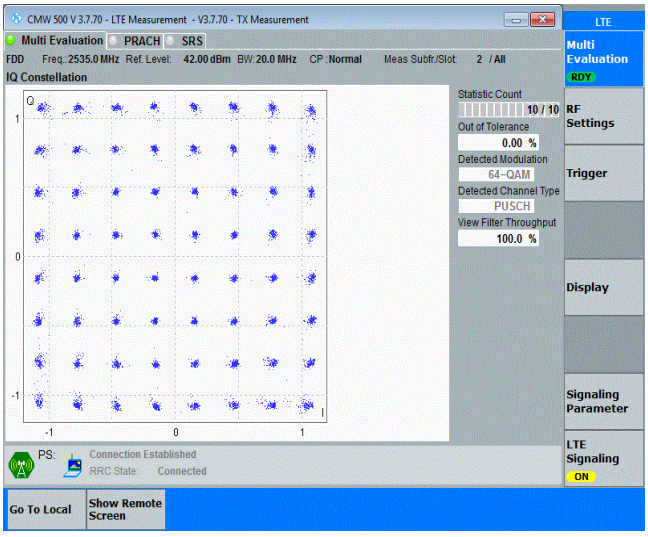
Band7-20MHz-QPSK-21100-100RB#0



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

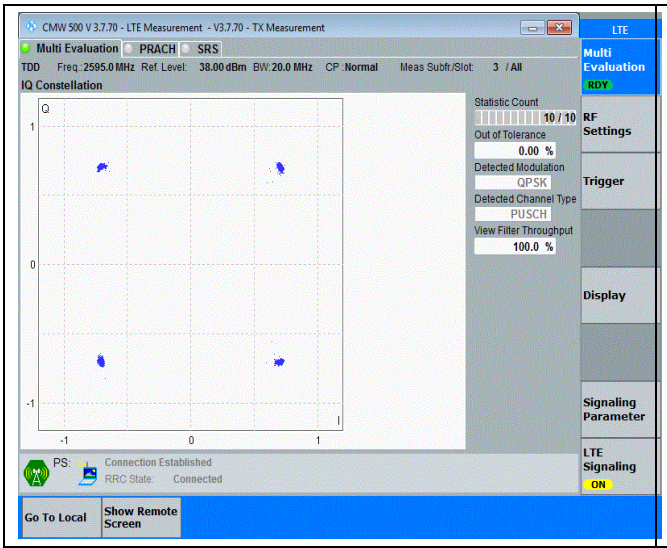


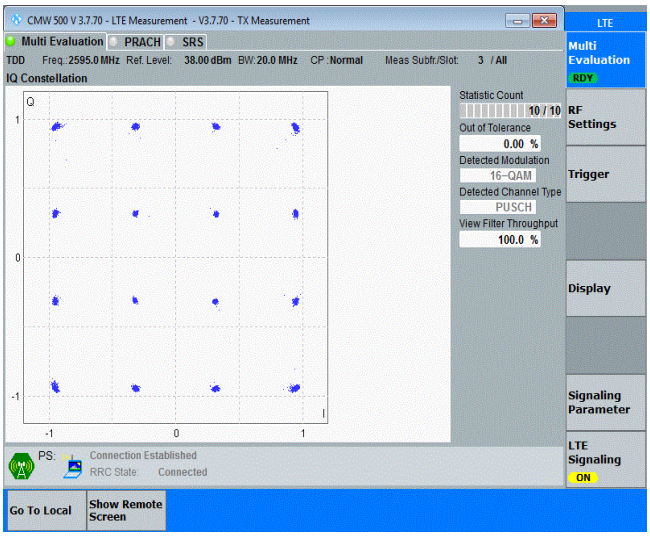
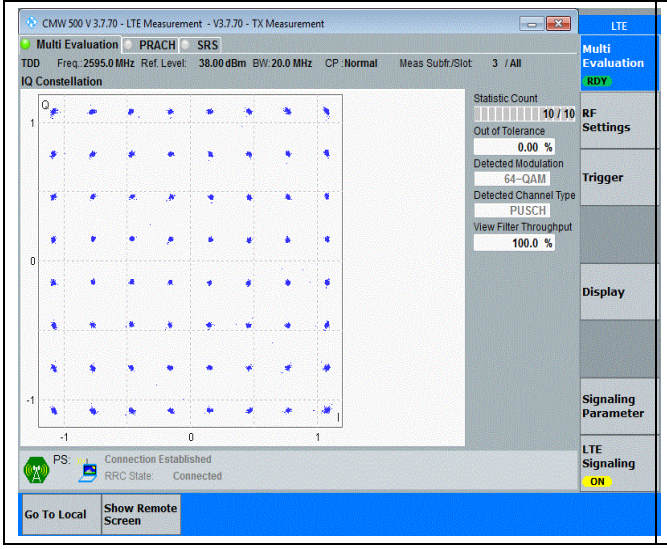
Band7-20MHz-64QAM-21100-100RB#0



Band41-20MHz-QPSK-40640-100RB#0

Band41-20MHz-16QAM-40640-100RB#0





Band41-20MHz-64QAM-40640-100RB#0