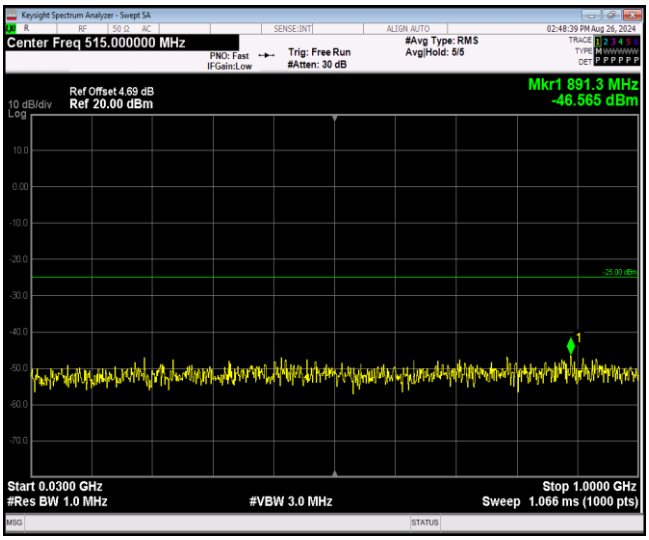
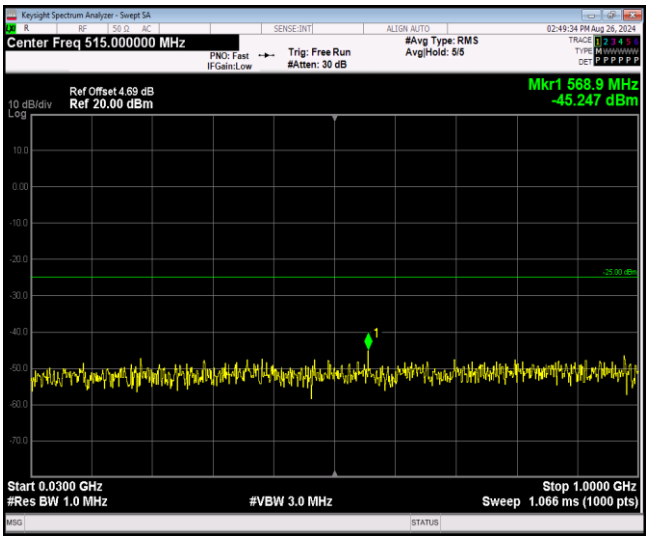
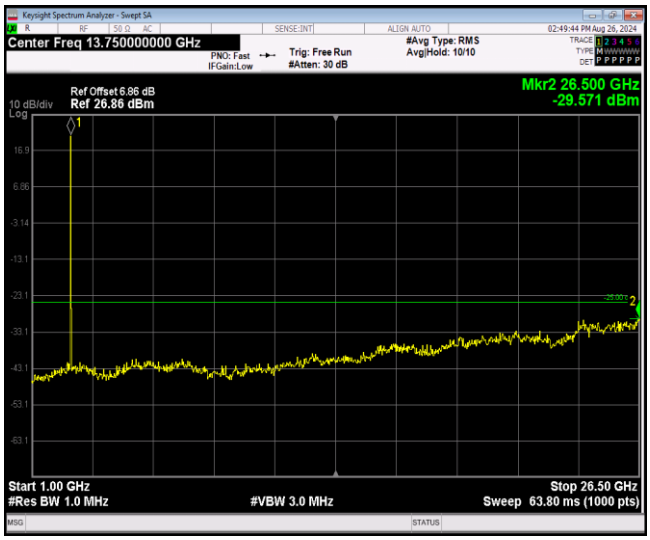
Band41-20MHz-16QAM-40640-1RB#0-Range1:30~1000MHz	Band41-20MHz-16QAM-40640-1RB#0-Range2:1000~26500MHz
	
Band41-20MHz-16QAM-41140-1RB#0-Range1:30~1000MHz	Band41-20MHz-16QAM-41140-1RB#0-Range2:1000~26500MHz
	
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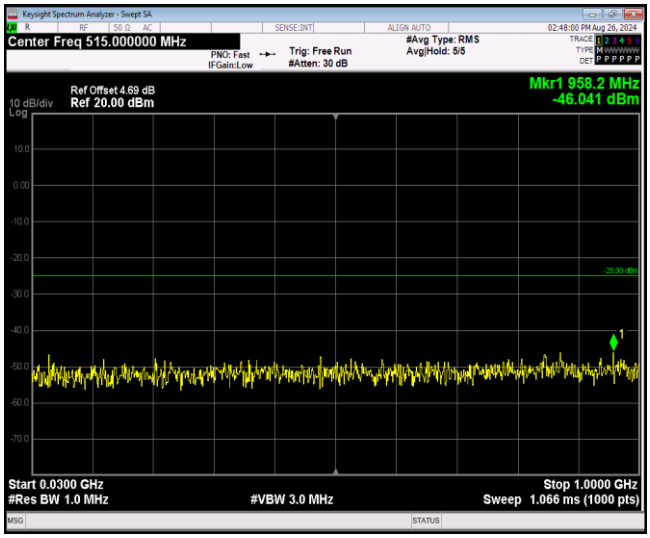
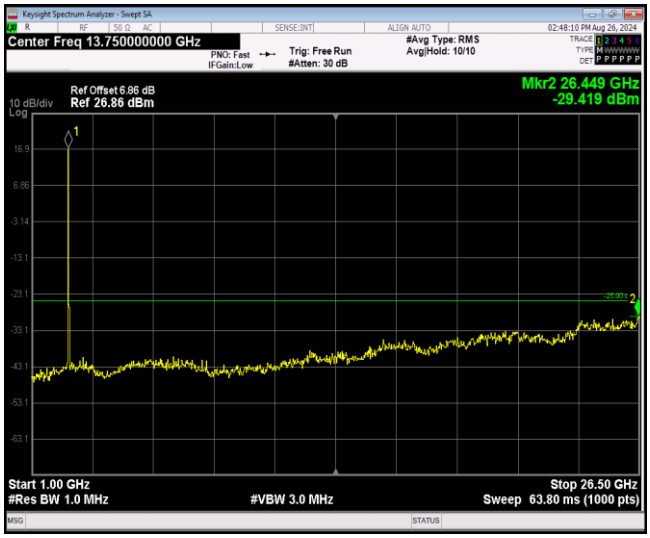
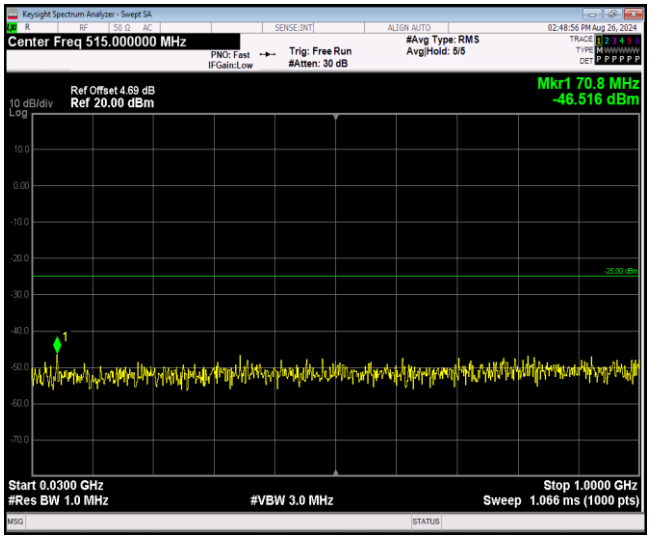


Band41-20MHz-64QAM-40640-1RB#0-Range1:30~1000MHz

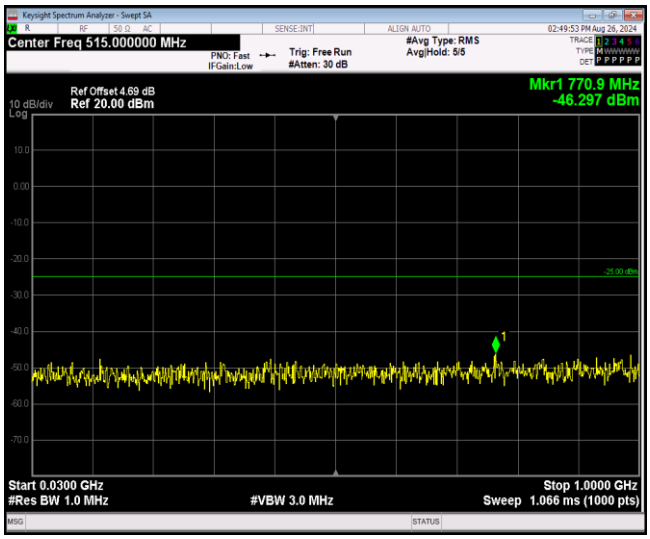


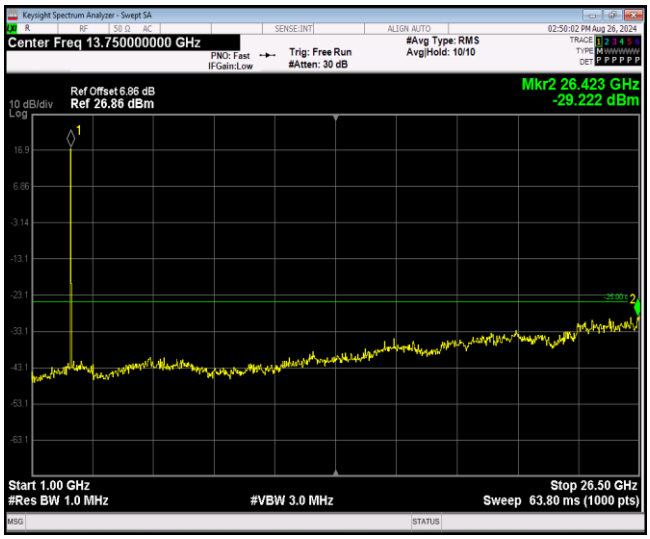
Band41-20MHz-64QAM-40640-1RB#0-Range2:1000~26500MHz



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					
3.85	-30	-14.12	-0.007511	Within authorized band for Band 2	Pass
	-20	-13.79	-0.007335		
	-10	-11.76	-0.006255		
	0	-13.40	-0.007128		
	10	-10.56	-0.005617		
	20	-13.28	-0.007064		
	30	-17.28	-0.009191		
	40	-11.64	-0.006191		
	50	-18.20	-0.009681		
16QAM					
3.85	-30	-18.81	-0.010005	Within authorized band for Band 2	Pass
	-20	-15.75	-0.008378		
	-10	-15.54	-0.008266		
	0	-20.23	-0.010761		
	10	-21.82	-0.011606		
	20	-14.22	-0.007564		
	30	-17.90	-0.009521		
	40	-16.34	-0.008691		
	50	-10.64	-0.005660		
64QAM					
3.85	-30	-15.16	-0.008064	Within authorized band for Band 2	Pass
	-20	-14.88	-0.007915		
	-10	-13.56	-0.007213		
	0	-3.68	-0.001957		
	10	-18.94	-0.010074		
	20	-3.85	-0.002048		
	30	-16.41	-0.008729		
	40	-15.25	-0.008112		
	50	-21.03	-0.011186		

Voltage					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.00	-13.13	-0.006984	Within authorized band for Band 2	Pass
	3.85	-20.47	-0.010888		
	4.40	-9.27	-0.004931		
16QAM					
25	3.00	-13.59	-0.007229	Within authorized band for Band 2	Pass
	3.85	6.32	0.003362		
	4.40	-19.33	-0.010282		
64QAM					
25	3.00	-14.66	-0.007798	Within authorized band for Band 2	Pass
	3.85	-15.71	-0.008356		
	4.40	-3.83	-0.002037		
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					
3.85	-30	-12.50	-0.007215	Within authorized band for Band 4	Pass
	-20	-9.98	-0.005760		
	-10	-11.16	-0.006442		
	0	-11.74	-0.006776		
	10	-14.66	-0.008462		
	20	-9.24	-0.005333		
	30	-6.37	-0.003677		
	40	-7.34	-0.004237		
	50	-11.16	-0.006442		
16QAM					
3.85	-30	-8.83	-0.005097	Within authorized band for Band 4	Pass
	-20	-6.74	-0.003890		
	-10	-7.87	-0.004543		
	0	-12.46	-0.007192		
	10	-5.29	-0.003053		
	20	8.90	0.005137		
	30	-10.24	-0.005911		
	40	-5.79	-0.003342		
	50	-8.90	-0.005137		
64QAM					
3.85	-30	-11.66	-0.006730	Within authorized band for Band 4	Pass
	-20	8.08	0.004664		
	-10	-9.70	-0.005599		
	0	-9.36	-0.005403		
	10	-8.43	-0.004866		
	20	-7.71	-0.004450		
	30	-9.48	-0.005472		
	40	-13.73	-0.007925		
	50	-8.53	-0.004924		

Voltage					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.00	-12.36	-0.007134	Within authorized band for Band 4	Pass
	3.85	-13.88	-0.008012		
	4.40	5.32	0.003071		
16QAM					
25	3.00	-15.99	-0.009229	Within authorized band for Band 4	Pass
	3.85	11.97	0.006909		
	4.40	-15.59	-0.008999		
64QAM					
25	3.00	-6.39	-0.003688	Within authorized band for Band 4	Pass
	3.85	-4.01	-0.002315		
	4.40	-9.47	-0.005466		
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					
3.85	-30	-8.65	-0.010341	±2.5	Pass
	-20	-2.73	-0.003264		
	-10	-11.14	-0.013317		
	0	-5.65	-0.006754		
	10	-10.04	-0.012002		
	20	-11.47	-0.013712		
	30	-10.51	-0.012564		
	40	-6.65	-0.007950		
	50	-9.53	-0.011393		
16QAM					
3.85	-30	-9.30	-0.011118	±2.5	Pass
	-20	-11.99	-0.014334		
	-10	-9.30	-0.011118		
	0	-8.01	-0.009576		
	10	-11.03	-0.013186		
	20	-11.34	-0.013556		
	30	-9.30	-0.011118		
	40	-4.63	-0.005535		
	50	-10.54	-0.012600		
64QAM					
3.85	-30	-10.91	-0.013042	±2.5	Pass
	-20	-11.46	-0.013700		
	-10	-10.09	-0.012062		
	0	-12.57	-0.015027		
	10	-9.13	-0.010915		
	20	-9.63	-0.011512		
	30	-9.38	-0.011213		
	40	-14.76	-0.017645		
	50	-11.32	-0.013533		

Voltage					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.00	-11.90	-0.014226	±2.5	Pass
	3.85	-16.25	-0.019426		
	4.40	-10.79	-0.012899		
16QAM					
25	3.00	-8.41	-0.010054	±2.5	Pass
	3.85	-2.45	-0.002929		
	4.40	-9.23	-0.011034		
64QAM					
25	3.00	-11.56	-0.013819	±2.5	Pass
	3.85	-6.25	-0.007472		
	4.40	-8.34	-0.009970		
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					
3.85	-30	13.25	0.005227	Within authorized band for Band 7	Pass
	-20	-9.71	-0.003830		
	-10	10.66	0.004205		
	0	10.40	0.004103		
	10	-14.69	-0.005795		
	20	-9.21	-0.003633		
	30	10.56	0.004166		
	40	-14.42	-0.005688		
	50	-13.80	-0.005444		
16QAM					
3.85	-30	-20.40	-0.008047	Within authorized band for Band 7	Pass
	-20	-13.79	-0.005440		
	-10	-16.34	-0.006446		
	0	-20.40	-0.008047		
	10	-12.49	-0.004927		
	20	-4.26	-0.001680		
	30	-17.17	-0.006773		
	40	-18.02	-0.007108		
	50	-16.48	-0.006501		
64QAM					
3.85	-30	-14.43	-0.005692	Within authorized band for Band 7	Pass
	-20	-11.29	-0.004454		
	-10	-11.83	-0.004667		
	0	11.84	0.004671		
	10	13.30	0.005247		
	20	16.38	0.006462		
	30	14.79	0.005834		
	40	-11.97	-0.004722		
	50	-12.56	-0.004955		

Voltage					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.00	-15.55	-0.006134	Within authorized band for Band 7	Pass
	3.85	-21.59	-0.008517		
	4.40	10.41	0.004107		
16QAM					
25	3.00	-14.36	-0.005665	Within authorized band for Band 7	Pass
	3.85	-12.39	-0.004888		
	4.40	-15.75	-0.006213		
64QAM					
25	3.00	-13.23	-0.005219	Within authorized band for Band 7	Pass
	3.85	-4.91	-0.001937		
	4.40	13.07	0.005156		
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					
3.85	-30	-11.90	-0.004586	Within authorized band for Band 41	Pass
	-20	-13.60	-0.005241		
	-10	-14.03	-0.005407		
	0	-14.62	-0.005634		
	10	-12.99	-0.005006		
	20	-16.87	-0.006501		
	30	-9.93	-0.003827		
	40	-14.69	-0.005661		
	50	-14.10	-0.005434		
16QAM					
3.85	-30	-15.22	-0.005865	Within authorized band for Band 41	Pass
	-20	-12.43	-0.004790		
	-10	-12.80	-0.004933		
	0	-12.99	-0.005006		
	10	-15.78	-0.006081		
	20	-6.78	-0.002613		
	30	-16.58	-0.006389		
	40	-13.45	-0.005183		
	50	-12.57	-0.004844		
64QAM					
3.85	-30	-20.34	-0.007838	Within authorized band for Band 41	Pass
	-20	-13.98	-0.005387		
	-10	-20.70	-0.007977		
	0	3.69	0.001422		
	10	-12.15	-0.004682		
	20	-15.99	-0.006162		
	30	-9.48	-0.003653		
	40	-12.52	-0.004825		
	50	-14.69	-0.005661		

Voltage					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.00	-13.70	-0.005279	Within authorized band for Band 41	Pass
	3.85	-12.99	-0.005006		
	4.40	-6.32	-0.002435		
16QAM					
25	3.00	-10.14	-0.003908	Within authorized band for Band41	Pass
	3.85	-16.74	-0.006451		
	4.40	-16.14	-0.006220		
64QAM					
25	3.00	-16.61	-0.006401	Within authorized band for Band41	Pass
	3.85	-18.02	-0.006944		
	4.40	-11.27	-0.004343		
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.					

Appendix G: Modulation Characteristics

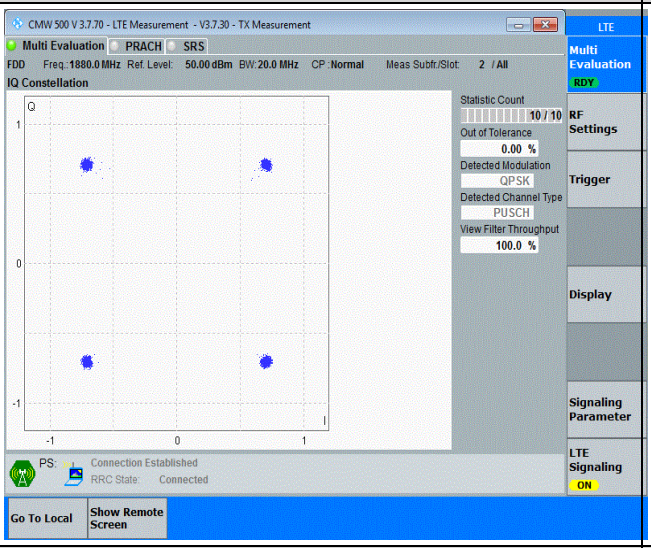
Test Result

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

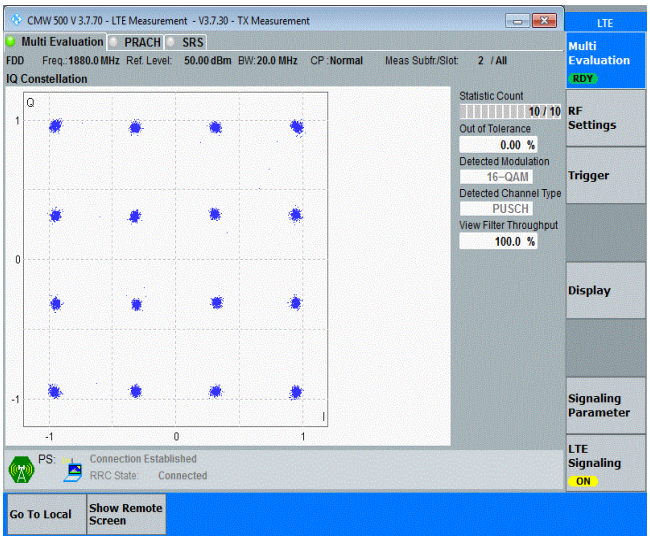
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.

Test Graphs

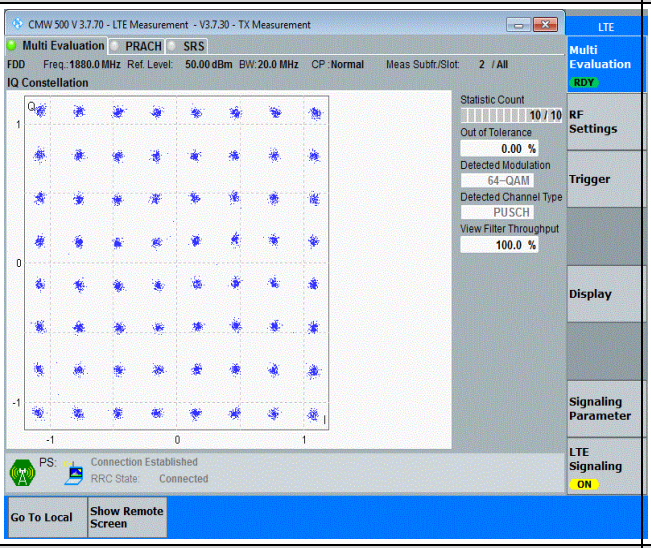
Band2-20MHz-QPSK-18900-100RB#0



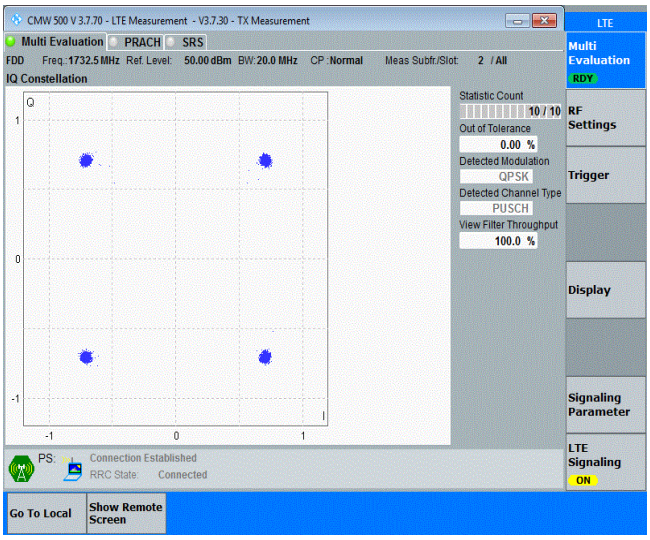
Band2-20MHz-16QAM-18900-100RB#0



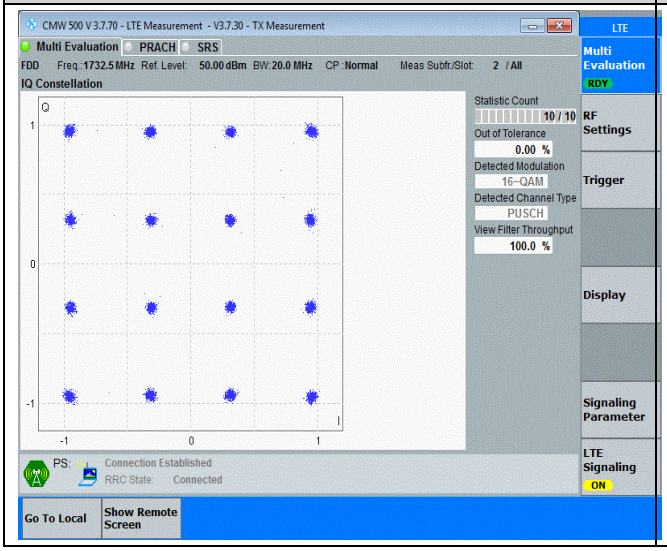
Band2-20MHz-64QAM-18900-100RB#0



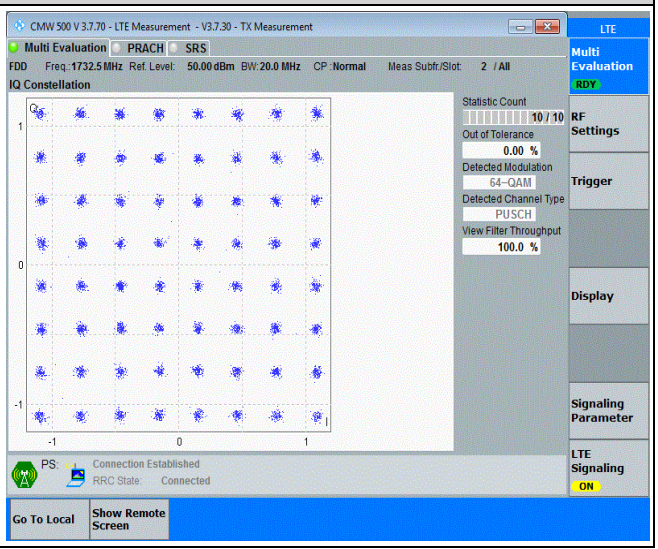
Band4-20MHz-QPSK-20175-100RB#0



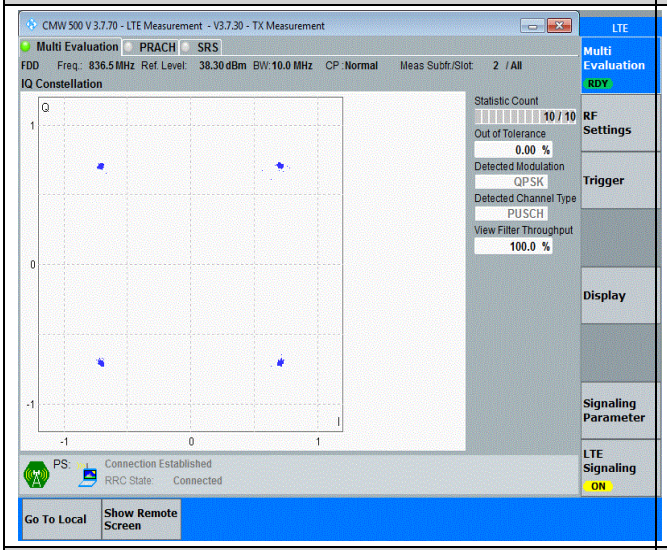
Band4-20MHz-16QAM-20175-100RB#0



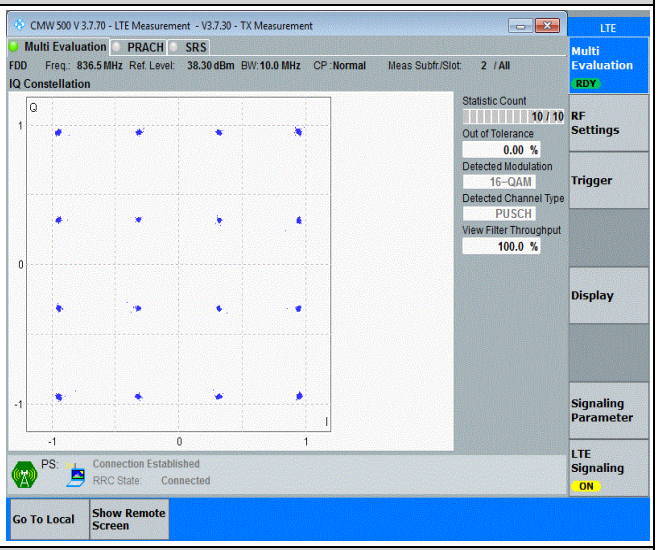
Band4-20MHz-64QAM-20175-100RB#0



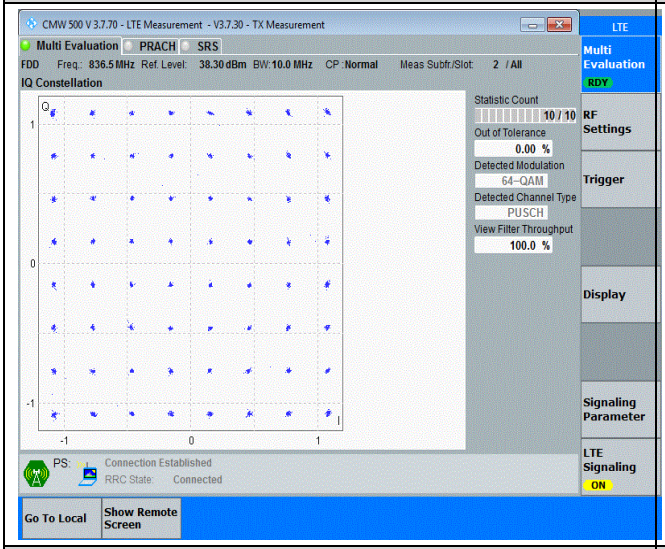
Band5-10MHz-QPSK-20525-50RB#0



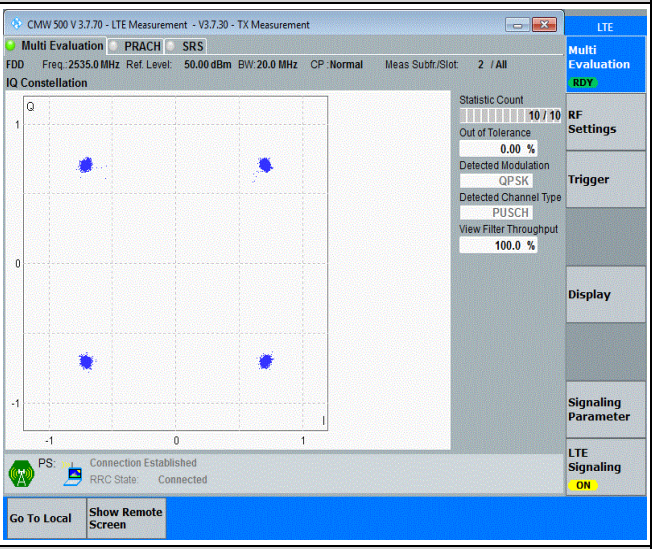
Band5-10MHz-16QAM-20525-50RB#0



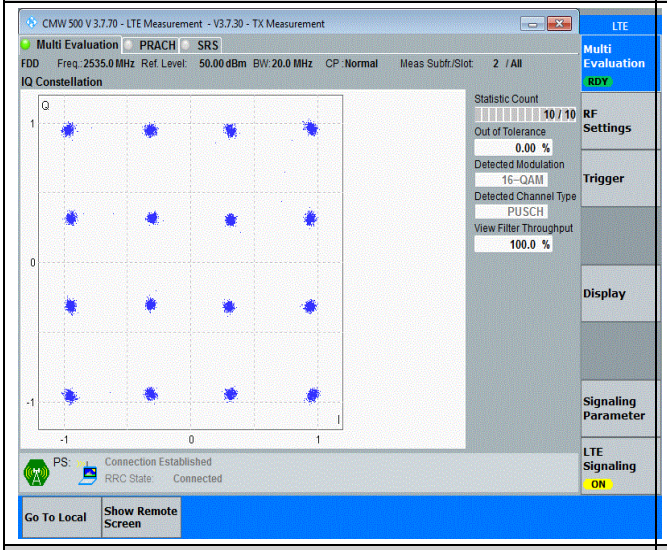
Band5-10MHz-64QAM-20525-50RB#0



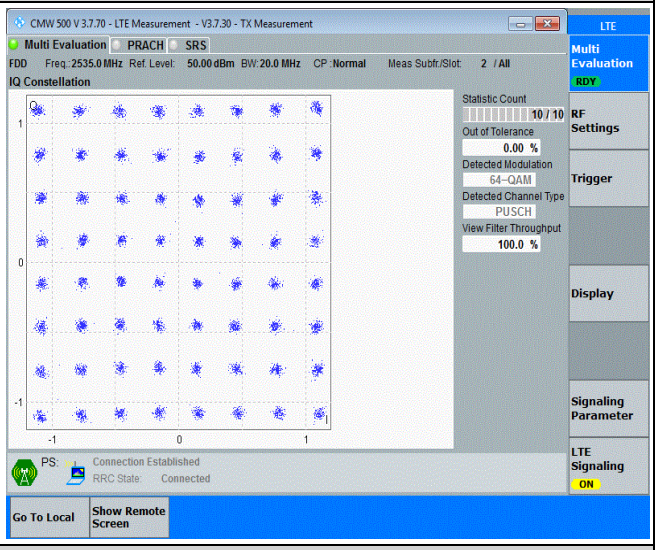
Band7-20MHz-QPSK-21100-100RB#0



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

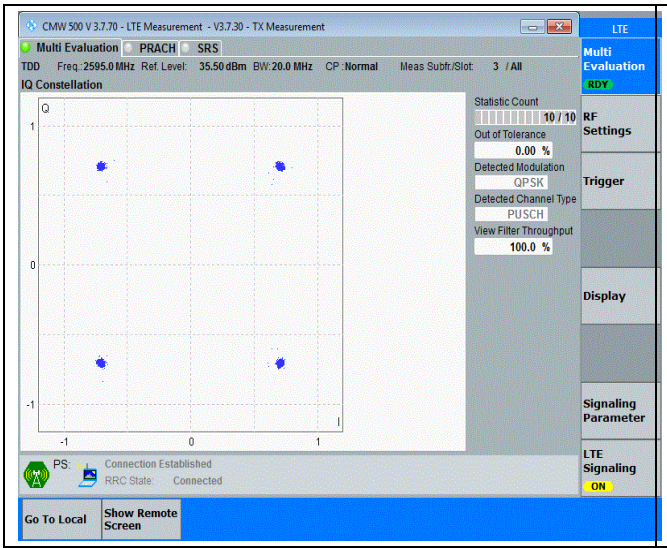


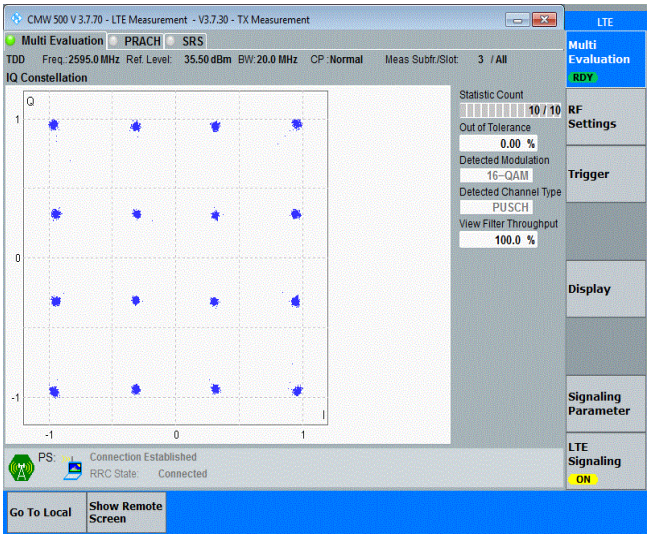
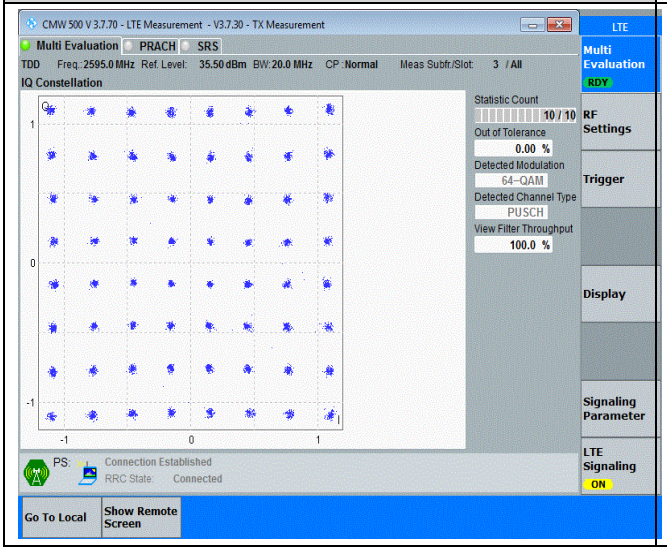
Band7-20MHz-64QAM-21100-100RB#0



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

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





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