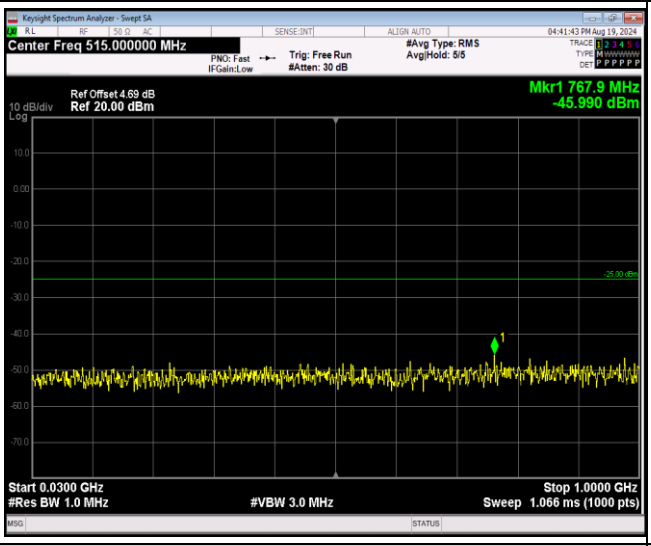
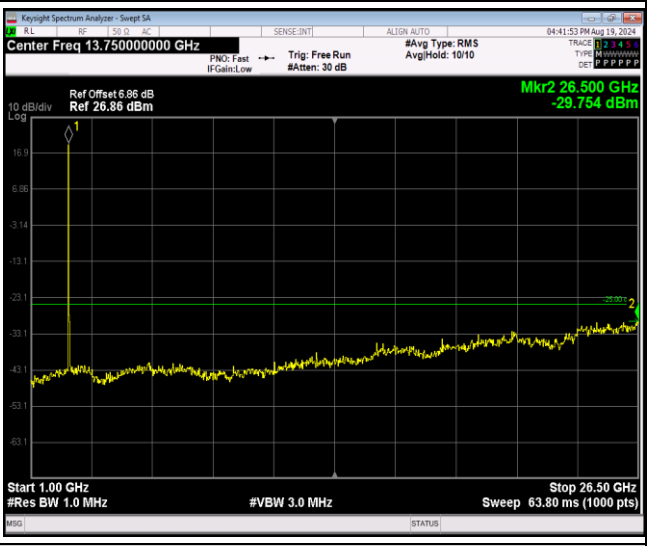
Band41-20MHz-16QAM-40640-1RB#0-Range1:30~1000MHz	Band41-20MHz-16QAM-40640-1RB#0-Range2:1000~26500MHz
	
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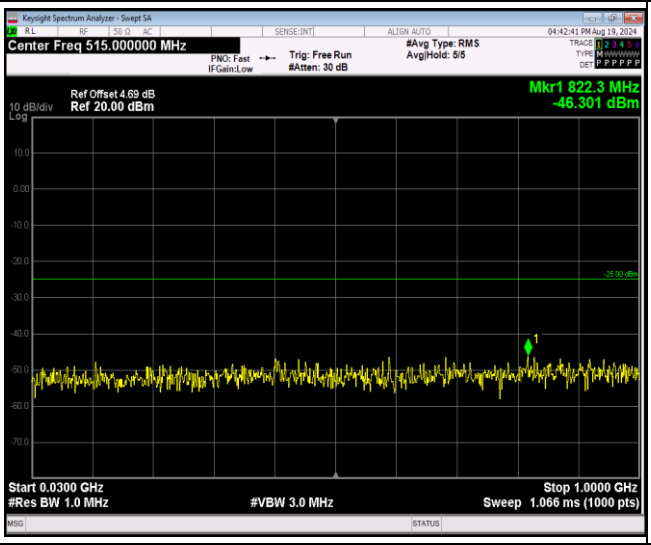	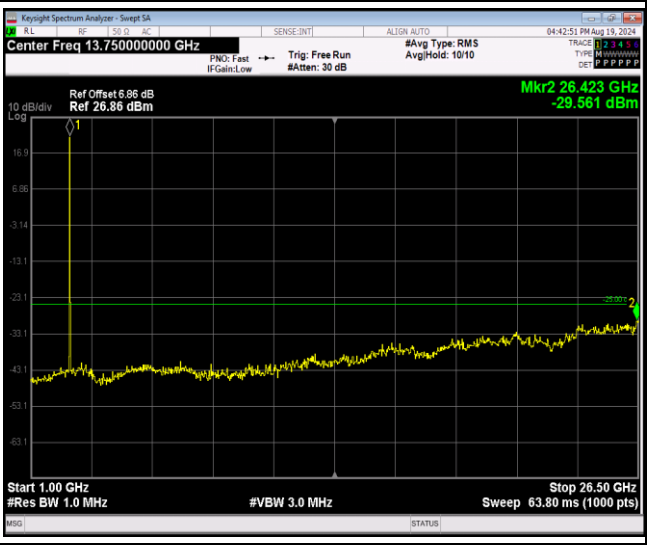
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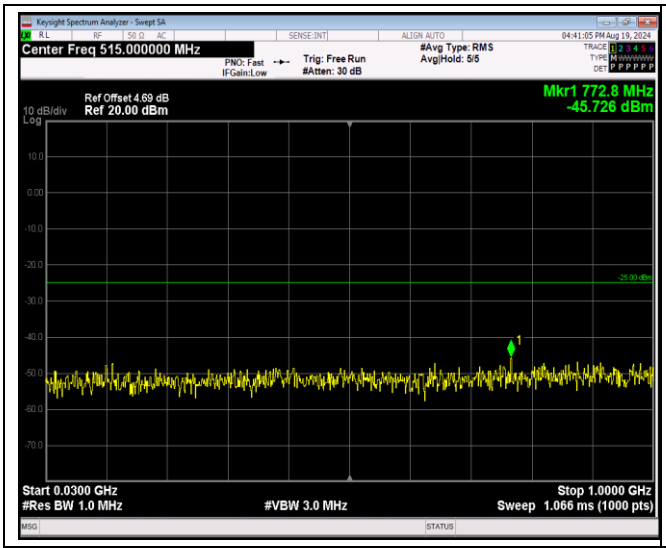
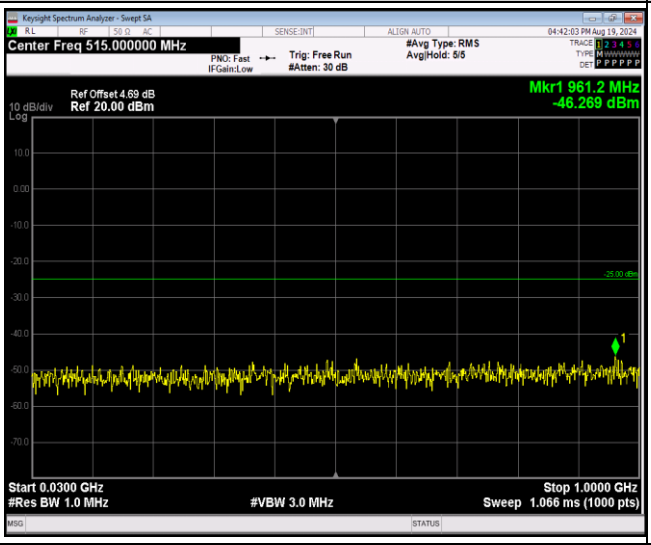
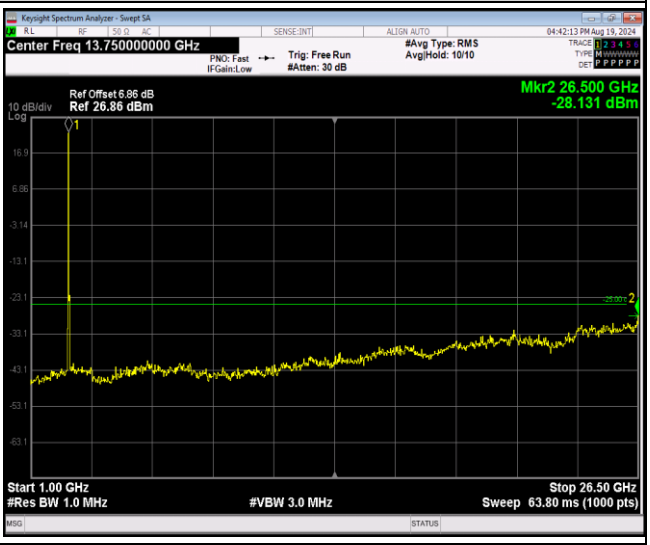


Band41-20MHz-64QAM-40640-1RB#0-Range1:30~1000MHz

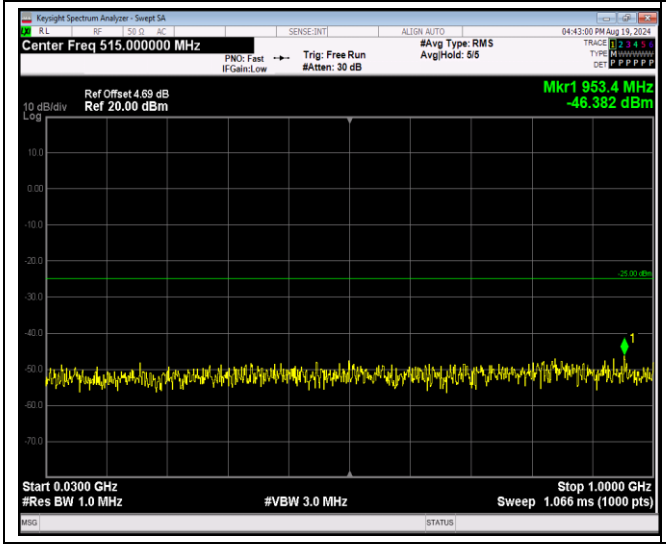
Band41-20MHz-64QAM-40640-1RB#0-Range2:1000~26500MHz

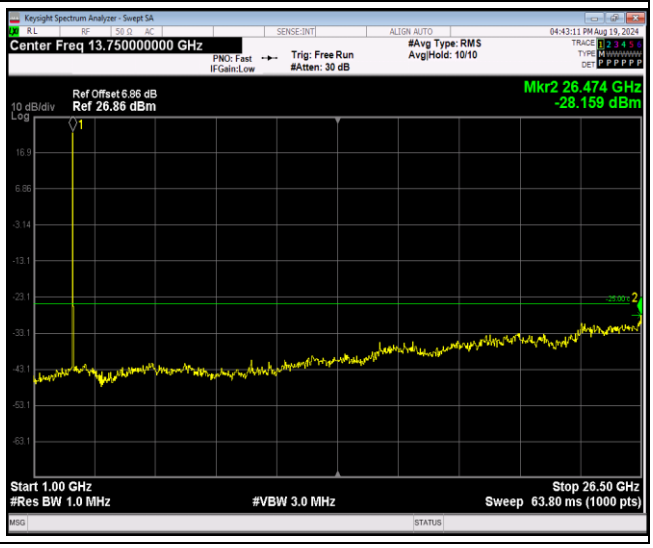


Band41-20MHz-64QAM-41140-1RB#0-Range1:30~1000MHz



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					
3.87	-30	-7.95	-0.004229	Within authorized band for Band 2	Pass
	-20	-13.93	-0.007410		
	-10	-11.60	-0.006170		
	0	-11.06	-0.005883		
	10	-16.88	-0.008979		
	20	-17.88	-0.009511		
	30	-17.70	-0.009415		
	40	-10.71	-0.005697		
	50	-13.23	-0.007037		
16QAM					
3.87	-30	-11.74	-0.006245	Within authorized band for Band 2	Pass
	-20	-14.05	-0.007473		
	-10	-13.12	-0.006979		
	0	-7.22	-0.003840		
	10	-11.43	-0.006080		
	20	-17.51	-0.009314		
	30	-14.65	-0.007793		
	40	-7.91	-0.004207		
	50	-15.68	-0.008340		
64QAM					
3.87	-30	-7.38	-0.003926	Within authorized band for Band 2	Pass
	-20	-13.13	-0.006984		
	-10	-12.29	-0.006537		
	0	-10.53	-0.005601		
	10	-13.39	-0.007122		
	20	-15.68	-0.008340		
	30	4.72	0.002511		
	40	-11.52	-0.006128		
	50	-12.56	-0.006681		

Voltage					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-9.68	-0.005149	Within authorized band for Band 2	Pass
	3.87	-26.15	-0.013910		
	4.45	-13.83	-0.007356		
16QAM					
25	3.45	-15.69	-0.008346	Within authorized band for Band 2	Pass
	3.87	-11.36	-0.006043		
	4.45	-11.47	-0.006101		
64QAM					
25	3.45	11.72	0.006234	Within authorized band for Band 2	Pass
	3.87	-10.61	-0.005644		
	4.45	-15.29	-0.008133		
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	-9.17	-0.005293	Within authorized band for Band 4	Pass
	-20	-12.56	-0.007250		
	-10	-9.07	-0.005235		
	0	-12.75	-0.007359		
	10	5.32	0.003071		
	20	-10.83	-0.006251		
	30	6.37	0.003677		
	40	-12.17	-0.007025		
	50	1.95	0.001126		
16QAM					
3.87	-30	-13.79	-0.007960	Within authorized band for Band 4	Pass
	-20	-9.73	-0.005616		
	-10	-12.16	-0.007019		
	0	-13.58	-0.007838		
	10	-13.33	-0.007694		
	20	-2.36	-0.001362		
	30	-9.11	-0.005258		
	40	-10.81	-0.006240		
	50	-8.17	-0.004716		
64QAM					
3.87	-30	10.04	0.005795	Within authorized band for Band 4	Pass
	-20	-12.30	-0.007100		
	-10	-11.46	-0.006615		
	0	-13.89	-0.008017		
	10	-13.23	-0.007636		
	20	-11.06	-0.006384		
	30	4.88	0.002817		
	40	3.52	0.002032		
	50	-13.45	-0.007763		

Voltage					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-12.97	-0.007486	Within authorized band for Band 4	Pass
	3.87	-19.58	-0.011302		
	4.45	3.28	0.001893		
16QAM					
25	3.45	-9.63	-0.005558	Within authorized band for Band 4	Pass
	3.87	-13.07	-0.007544		
	4.45	-12.53	-0.007232		
64QAM					
25	3.45	-8.47	-0.004889	Within authorized band for Band 4	Pass
	3.87	-11.00	-0.006349		
	4.45	-9.31	-0.005374		
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	-6.81	-0.008141	±2.5	Pass
	-20	-6.27	-0.007496		
	-10	-10.27	-0.012277		
	0	-9.10	-0.010879		
	10	-5.61	-0.006707		
	20	-2.26	-0.002702		
	30	-10.53	-0.012588		
	40	-16.54	-0.019773		
	50	-11.33	-0.013545		
16QAM					
3.87	-30	-11.39	-0.013616	±2.5	Pass
	-20	-8.45	-0.010102		
	-10	-7.90	-0.009444		
	0	-3.96	-0.004734		
	10	-8.41	-0.010054		
	20	-9.88	-0.011811		
	30	-1.79	-0.002140		
	40	-2.92	-0.003491		
	50	-12.66	-0.015134		
64QAM					
3.87	-30	-7.77	-0.009289	±2.5	Pass
	-20	-13.29	-0.015888		
	-10	-11.01	-0.013162		
	0	-8.21	-0.009815		
	10	-8.58	-0.010257		
	20	-10.27	-0.012277		
	30	-9.43	-0.011273		
	40	-11.04	-0.013198		
	50	-5.14	-0.006145		

Voltage					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-11.10	-0.013270	±2.5	Pass
	3.87	-7.88	-0.009420		
	4.45	-5.45	-0.006515		
16QAM					
25	3.45	-11.94	-0.014274	±2.5	Pass
	3.87	-10.49	-0.012540		
	4.45	-11.76	-0.014059		
64QAM					
25	3.45	-10.13	-0.012110	±2.5	Pass
	3.87	-8.61	-0.010293		
	4.45	-5.88	-0.007029		
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	-16.52	-0.006517	Within authorized band for Band 7	Pass
	-20	-16.06	-0.006335		
	-10	-20.14	-0.007945		
	0	-19.68	-0.007763		
	10	16.06	0.006335		
	20	12.75	0.005030		
	30	9.68	0.003819		
	40	-15.61	-0.006158		
	50	-17.41	-0.006868		
16QAM					
3.87	-30	14.49	0.005716	Within authorized band for Band 7	Pass
	-20	-18.91	-0.007460		
	-10	-20.44	-0.008063		
	0	17.70	0.006982		
	10	-14.03	-0.005535		
	20	-22.13	-0.008730		
	30	-19.56	-0.007716		
	40	-7.28	-0.002872		
	50	-25.01	-0.009866		
64QAM					
3.87	-30	-14.15	-0.005582	Within authorized band for Band 7	Pass
	-20	-15.52	-0.006122		
	-10	-17.18	-0.006777		
	0	-12.77	-0.005037		
	10	13.28	0.005239		
	20	-15.08	-0.005949		
	30	-15.08	-0.005949		
	40	-19.57	-0.007720		
	50	-10.39	-0.004099		

Voltage					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-16.58	-0.006540	Within authorized band for Band 7	Pass
	3.87	-22.80	-0.008994		
	4.45	-14.99	-0.005913		
16QAM					
25	3.45	-18.42	-0.007266	Within authorized band for Band 7	Pass
	3.87	-17.38	-0.006856		
	4.45	13.89	0.005479		
64QAM					
25	3.45	13.19	0.005203	Within authorized band for Band 7	Pass
	3.87	-22.56	-0.008899		
	4.45	-17.57	-0.006931		
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	-9.16	-0.003530	Within authorized band for Band 41	Pass
	-20	-10.71	-0.004127		
	-10	-18.44	-0.007106		
	0	-11.96	-0.004609		
	10	-11.92	-0.004593		
	20	-15.59	-0.006008		
	30	-8.25	-0.003179		
	40	-11.26	-0.004339		
	50	-13.78	-0.005310		
16QAM					
3.87	-30	-12.32	-0.004748	Within authorized band for Band 41	Pass
	-20	-18.71	-0.007210		
	-10	-2.69	-0.001037		
	0	-19.00	-0.007322		
	10	-12.83	-0.004944		
	20	-18.12	-0.006983		
	30	-14.25	-0.005491		
	40	-2.85	-0.001098		
	50	-11.73	-0.004520		
64QAM					
3.87	-30	-21.69	-0.008358	Within authorized band for Band 41	Pass
	-20	-13.42	-0.005171		
	-10	-10.34	-0.003985		
	0	-17.74	-0.006836		
	10	11.36	0.004378		
	20	6.85	0.002640		
	30	-13.66	-0.005264		
	40	-15.22	-0.005865		
	50	-14.20	-0.005472		

Voltage					
Temperature (℃)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-18.81	-0.007249	Within authorized band for Band 41	Pass
	3.87	-23.00	-0.008863		
	4.45	-15.05	-0.005800		
16QAM					
25	3.45	-10.84	-0.004177	Within authorized band for Band41	Pass
	3.87	-14.48	-0.005580		
	4.45	-15.64	-0.006027		
64QAM					
25	3.45	-18.01	-0.006940	Within authorized band for Band41	Pass
	3.87	-4.98	-0.001919		
	4.45	-12.76	-0.004917		
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.					

Appendix G: Modulation Characteristics

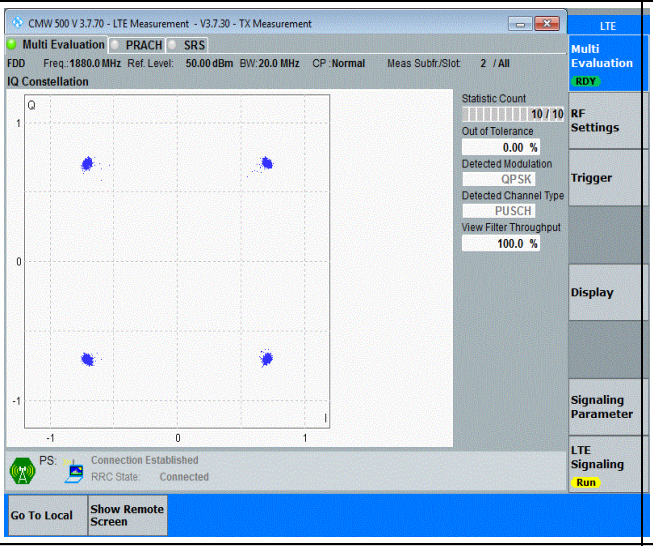
Test Result

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

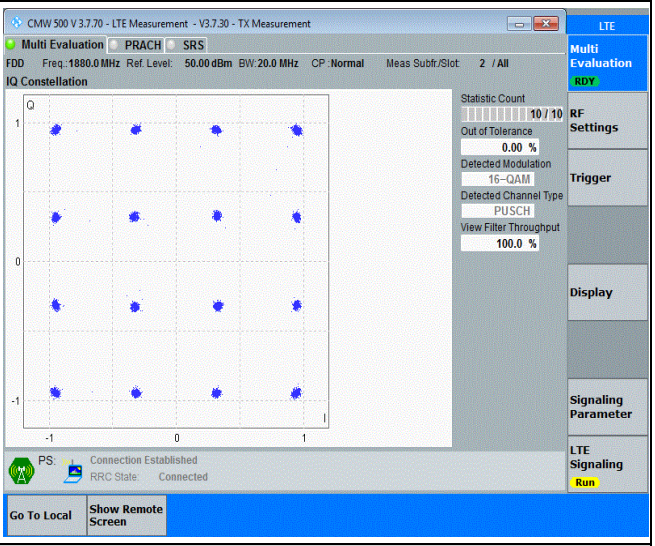
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.

Test Graphs

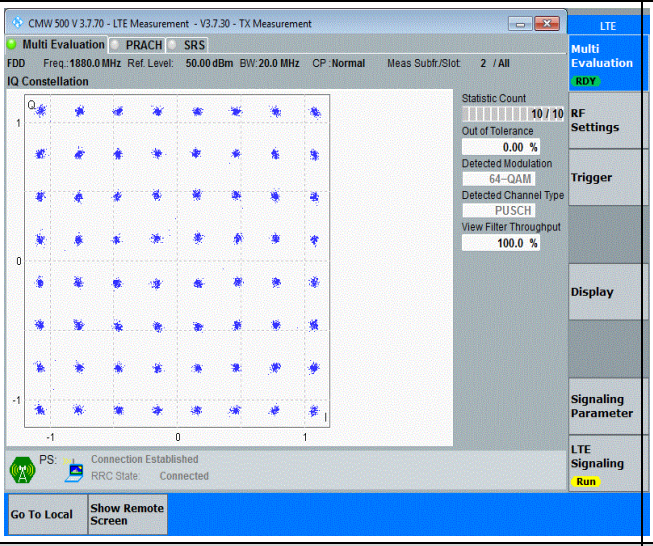
Band2-20MHz-QPSK-18900-100RB#0



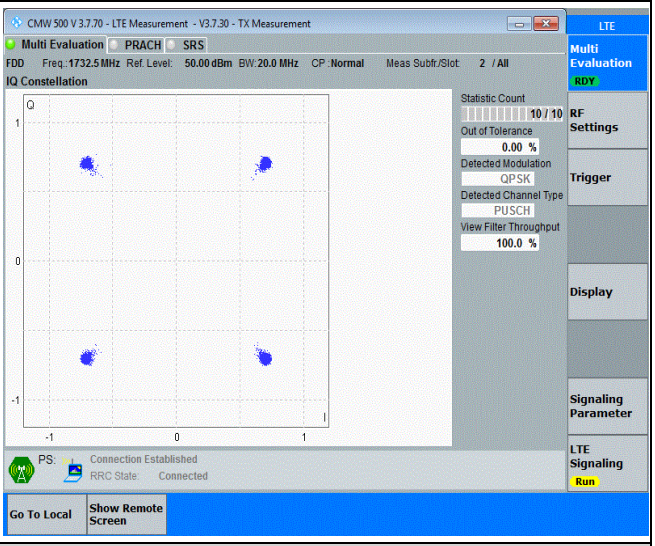
Band2-20MHz-16QAM-18900-100RB#0



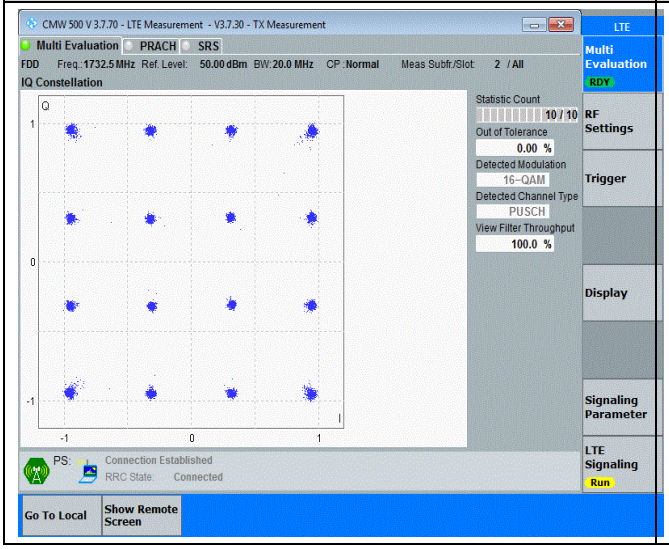
Band2-20MHz-64QAM-18900-100RB#0



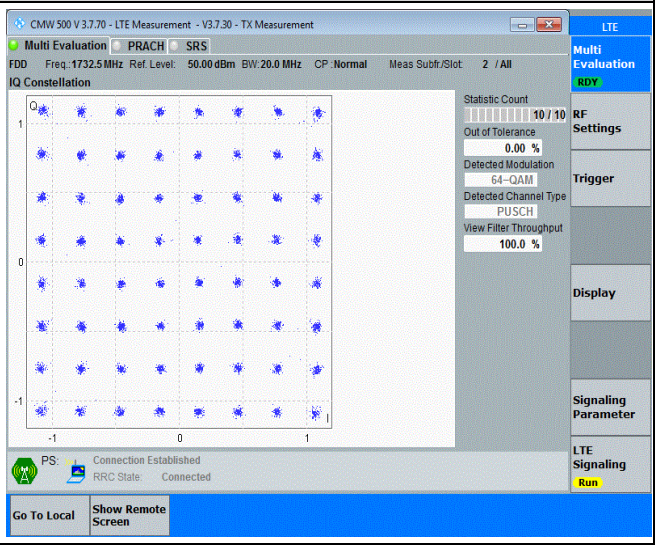
Band4-20MHz-QPSK-20175-100RB#0



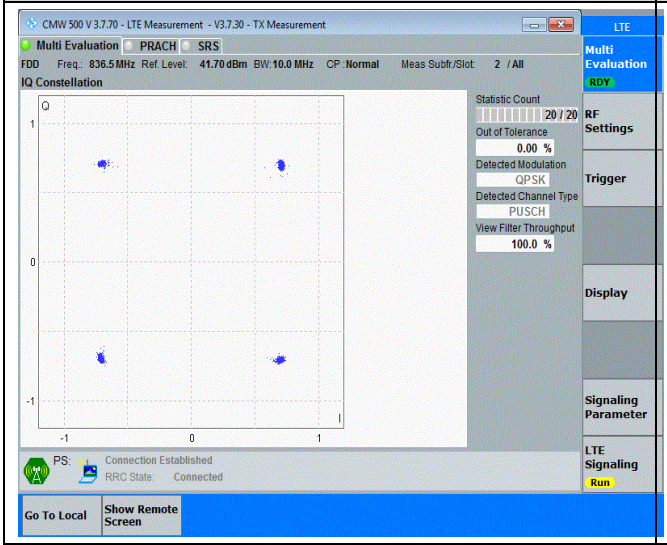
Band4-20MHz-16QAM-20175-100RB#0



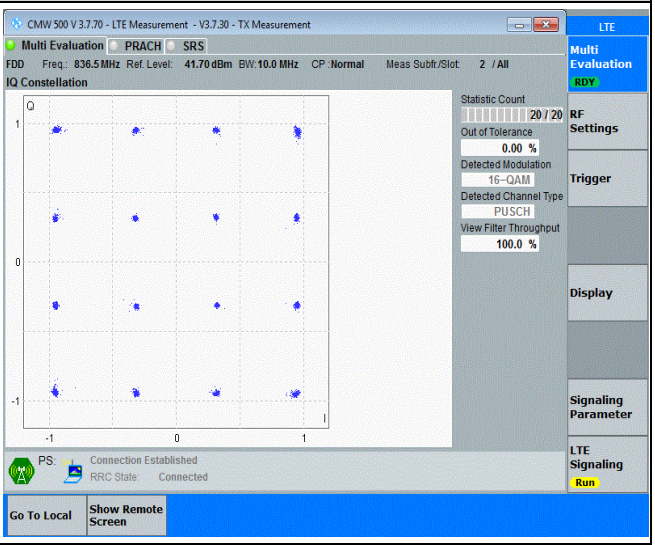
Band4-20MHz-64QAM-20175-100RB#0



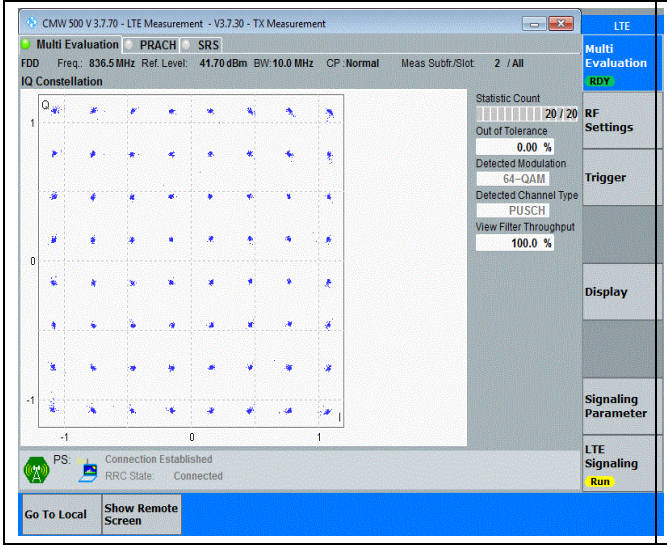
Band5-10MHz-QPSK-20525-50RB#0



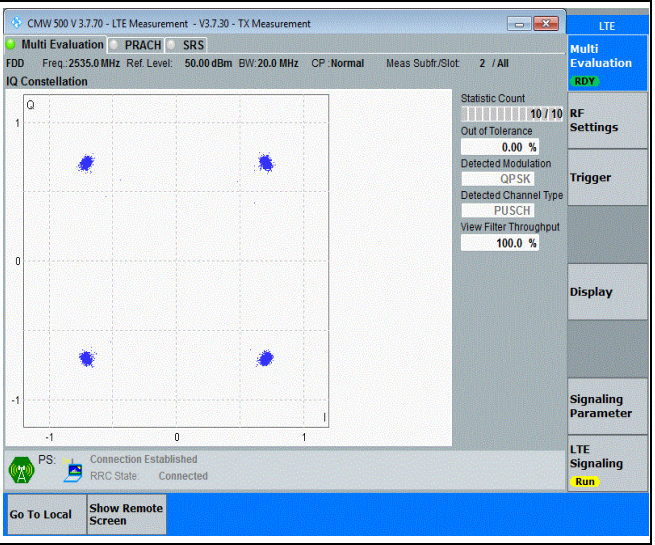
Band5-10MHz-16QAM-20525-50RB#0



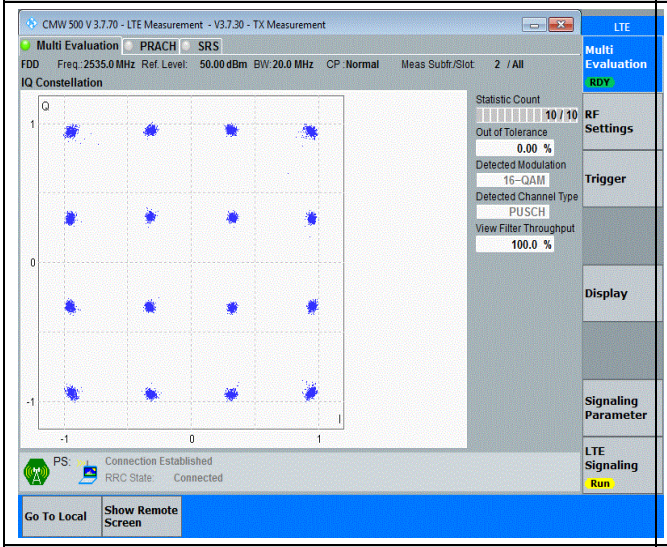
Band5-10MHz-64QAM-20525-50RB#0



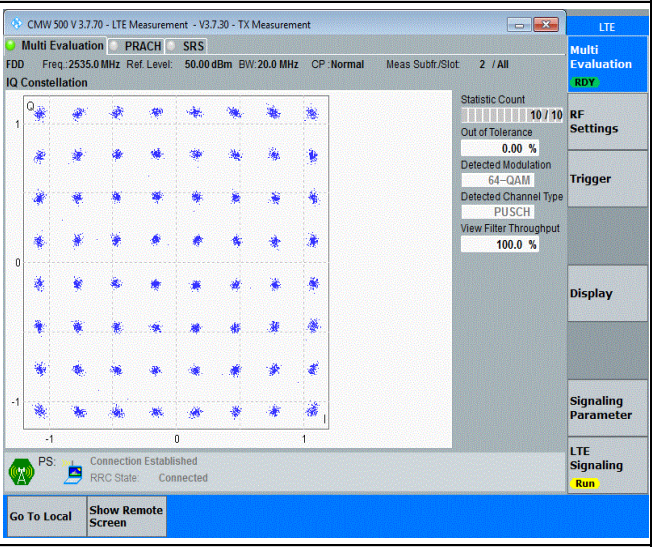
Band7-20MHz-QPSK-21100-100RB#0



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

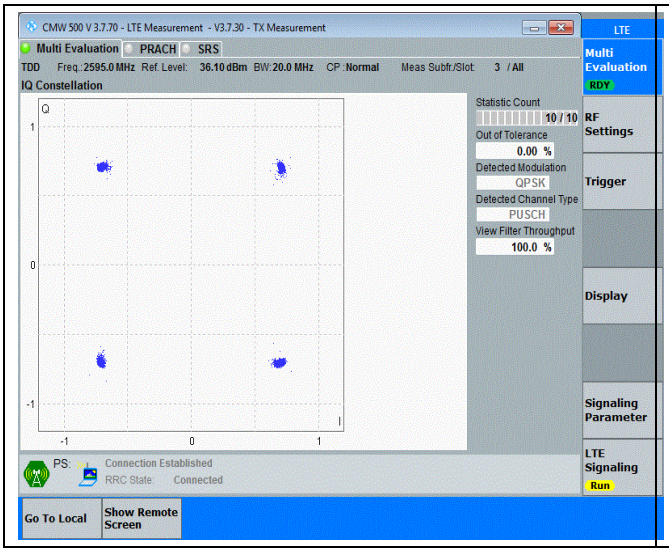


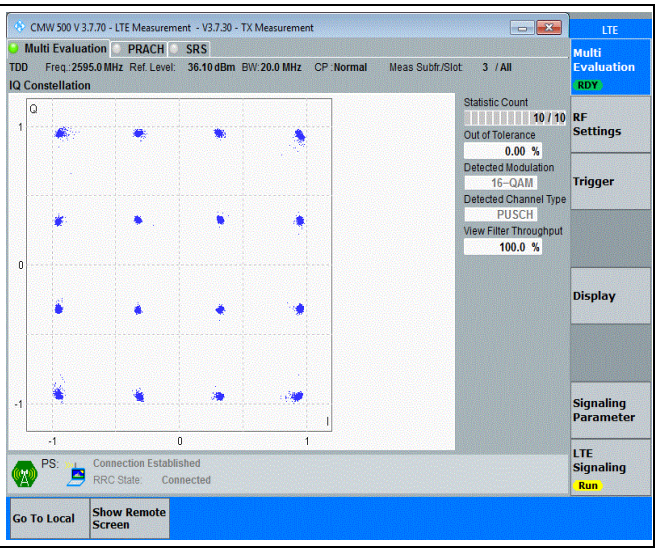
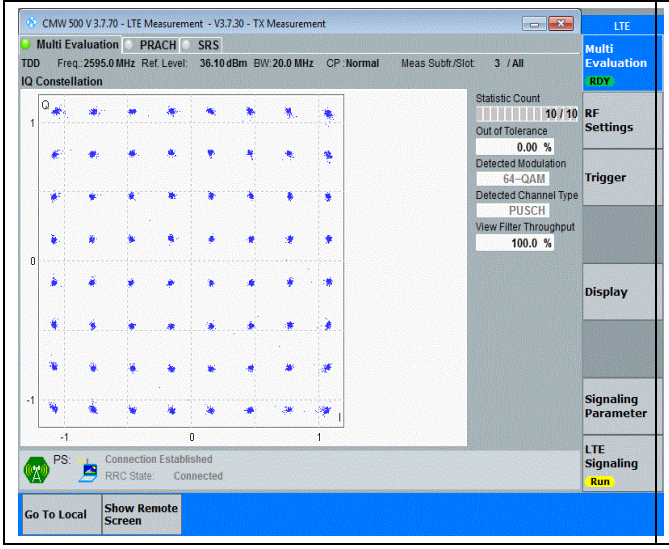
Band7-20MHz-64QAM-21100-100RB#0



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

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

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