

LTE Band 5 part:

Reference Frequency: LTE Band 5(10MHz) Middle channel=20525 Frequency=836.5MHz					
Temperature					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.87	-30	-6.12	-0.007316	±2.5	Pass
	-20	-5.08	-0.006073		
	-10	-7.04	-0.008416		
	0	-8.21	-0.009815		
	10	-8.64	-0.010329		
	20	-4.49	-0.005368		
	30	5.78	0.006910		
	40	-12.22	-0.014608		
	50	-4.38	-0.005236		
16QAM					
3.87	-30	-4.81	-0.005750	±2.5	Pass
	-20	-9.53	-0.011393		
	-10	1.83	0.002188		
	0	-6.97	-0.008332		
	10	-7.57	-0.009050		
	20	-7.88	-0.009420		
	30	-6.01	-0.007185		
	40	-5.61	-0.006707		
	50	-4.18	-0.004997		
64QAM					
3.87	-30	-6.68	-0.007986	±2.5	Pass
	-20	-2.70	-0.003228		
	-10	-9.06	-0.010831		
	0	-7.44	-0.008894		
	10	-7.20	-0.008607		
	20	-6.69	-0.007998		
	30	-9.10	-0.010879		
	40	-6.09	-0.007280		
	50	-5.74	-0.006862		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	4.06	0.004854	±2.5	Pass
	3.87	-5.56	-0.006647		
	4.45	-8.50	-0.010161		
16QAM					
25	3.45	3.28	0.003921	±2.5	Pass
	3.87	-4.59	-0.005487		
	4.45	-5.95	-0.007113		
64QAM					
25	3.45	-7.68	-0.009181	±2.5	Pass
	3.87	-6.19	-0.007400		
	4.45	-5.98	-0.007149		
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 (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.87	-30	-19.17	-0.007562	Within authorized band for Band 7	Pass
	-20	-18.40	-0.007258		
	-10	-12.40	-0.004892		
	0	-10.83	-0.004272		
	10	-16.52	-0.006517		
	20	15.09	0.005953		
	30	-15.92	-0.006280		
	40	-24.10	-0.009507		
	50	-7.27	-0.002868		
16QAM					
3.87	-30	-21.80	-0.008600	Within authorized band for Band 7	Pass
	-20	11.20	0.004418		
	-10	-23.72	-0.009357		
	0	10.47	0.004130		
	10	-24.59	-0.009700		
	20	-11.46	-0.004521		
	30	16.99	0.006702		
	40	-10.37	-0.004091		
	50	-23.07	-0.009101		
64QAM					
3.87	-30	13.83	0.005456	Within authorized band for Band 7	Pass
	-20	17.12	0.006753		
	-10	9.97	0.003933		
	0	-14.76	-0.005822		
	10	16.81	0.006631		
	20	16.59	0.006544		
	30	-2.20	-0.000868		
	40	-17.12	-0.006753		
	50	-13.50	-0.005325		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-15.99	-0.006308	Within authorized band for Band 7	Pass
	3.87	-8.68	-0.003424		
	4.45	-20.41	-0.008051		
16QAM					
25	3.45	-17.94	-0.007077	Within authorized band for Band 7	Pass
	3.87	-5.15	-0.002032		
	4.45	-16.06	-0.006335		
64QAM					
25	3.45	15.29	0.006032	Within authorized band for Band 7	Pass
	3.87	5.66	0.002233		
	4.45	17.21	0.006789		
<i>Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.</i>					

LTE Band 12 part:

Reference Frequency: LTE Band 12(10MHz) Middle channel=23095 Frequency=707.5MHz					
Temperature					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.87	-30	-1.12	-0.001583	Within authorized band for Band 12	Pass
	-20	-6.41	-0.009060		
	-10	-8.68	-0.012269		
	0	-6.54	-0.009244		
	10	-9.23	-0.013046		
	20	-1.90	-0.002686		
	30	-8.51	-0.012028		
	40	-5.09	-0.007194		
	50	-7.78	-0.010996		
16QAM					
3.87	-30	-7.88	-0.011138	Within authorized band for Band 12	Pass
	-20	-5.38	-0.007604		
	-10	-1.97	-0.002784		
	0	-6.11	-0.008636		
	10	-5.87	-0.008297		
	20	-6.78	-0.009583		
	30	-3.82	-0.005399		
	40	-3.40	-0.004806		
	50	-4.66	-0.006587		
64QAM					
3.87	-30	-1.62	-0.002290	Within authorized band for Band 12	Pass
	-20	-5.75	-0.008127		
	-10	-5.78	-0.008170		
	0	6.38	0.009018		
	10	-7.58	-0.010714		
	20	-7.94	-0.011223		
	30	-4.29	-0.006064		
	40	-7.64	-0.010799		
	50	-5.74	-0.008113		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-4.69	-0.006629	Within authorized band for Band 12	Pass
	3.87	-7.61	-0.010756		
	4.45	-4.71	-0.006657		
16QAM					
25	3.45	-5.16	-0.007293	Within authorized band for Band 12	Pass
	3.87	-6.69	-0.009456		
	4.45	-5.72	-0.008085		
64QAM					
25	3.45	-6.45	-0.009117	Within authorized band for Band 12	Pass
	3.87	-5.38	-0.007604		
	4.45	-6.05	-0.008551		
<i>Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.</i>					

LTE Band 17 part:

Reference Frequency: LTE Band 17(10MHz) Middle channel=23790 Frequency=710.0MHz					
Temperature					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.87	-30	-2.95	-0.004155	Within authorized band for Band 17	Pass
	-20	-6.77	-0.009535		
	-10	-6.27	-0.008831		
	0	-6.45	-0.009085		
	10	-6.67	-0.009394		
	20	0.92	0.001296		
	30	-4.84	-0.006817		
	40	-4.39	-0.006183		
	50	-4.56	-0.006423		
16QAM					
3.87	-30	-4.16	-0.005859	Within authorized band for Band 17	Pass
	-20	2.78	0.003915		
	-10	-4.99	-0.007028		
	0	3.78	0.005324		
	10	-4.02	-0.005662		
	20	-3.26	-0.004592		
	30	-2.60	-0.003662		
	40	-5.81	-0.008183		
	50	-4.89	-0.006887		
64QAM					
3.87	-30	-4.23	-0.005958	Within authorized band for Band 17	Pass
	-20	-6.22	-0.008761		
	-10	-5.98	-0.008423		
	0	-7.58	-0.010676		
	10	-5.34	-0.007521		
	20	-1.09	-0.001535		
	30	-4.79	-0.006746		
	40	-5.95	-0.008380		
	50	-7.88	-0.011099		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-4.61	-0.006493	Within authorized band for Band 17	Pass
	3.87	-3.16	-0.004451		
	4.45	-8.53	-0.012014		
16QAM					
25	3.45	-2.98	-0.004197	Within authorized band for Band 17	Pass
	3.87	-5.36	-0.007549		
	4.45	-8.94	-0.012592		
64QAM					
25	3.45	-3.83	-0.005394	Within authorized band for Band 17	Pass
	3.87	-4.96	-0.006986		
	4.45	-4.75	-0.006690		
<i>Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.</i>					

LTE Band 41 part:

Reference Frequency: LTE Band 41 (10MHz) Middle channel=40640 Frequency=2595.0MHz					
Temperature					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.87	-30	7.77	0.002994	Within authorized band for Band 41	Pass
	-20	-14.39	-0.005545		
	-10	-3.35	-0.001291		
	0	9.20	0.003545		
	10	-14.31	-0.005514		
	20	-15.54	-0.005988		
	30	-13.38	-0.005156		
	40	-6.54	-0.002520		
	50	-7.85	-0.003025		
16QAM					
3.87	-30	-10.41	-0.004012	Within authorized band for Band 41	Pass
	-20	-13.68	-0.005272		
	-10	-10.27	-0.003958		
	0	10.57	0.004073		
	10	11.12	0.004285		
	20	-6.59	-0.002539		
	30	-9.46	-0.003645		
	40	-1.95	-0.000751		
	50	-7.82	-0.003013		
64QAM					
3.87	-30	-12.90	-0.004971	Within authorized band for Band 41	Pass
	-20	-12.43	-0.004790		
	-10	-10.59	-0.004081		
	0	-9.73	-0.003750		
	10	9.93	0.003827		
	20	-12.36	-0.004763		
	30	-13.48	-0.005195		
	40	-8.96	-0.003453		
	50	-5.68	-0.002189		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-4.53	-0.001746	Within authorized band for Band 41	Pass
	3.87	-3.33	-0.001283		
	4.45	-9.94	-0.003830		
16QAM					
25	3.45	-7.94	-0.003060	Within authorized band for Band41	Pass
	3.87	-11.39	-0.004389		
	4.45	-8.24	-0.003175		
64QAM					
25	3.45	-9.08	-0.003499	Within authorized band for Band41	Pass
	3.87	-13.15	-0.005067		
	4.45	12.04	0.004640		
<i>Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.</i>					

LTE Band 66 part:

Reference Frequency: LTE Band 66 (10MHz) Middle channel=132322 Frequency=1745.0MHz					
Temperature					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.87	-30	-9.01	-0.005163	Within authorized band for Band 66	Pass
	-20	-2.90	-0.001662		
	-10	4.62	0.002648		
	0	6.19	0.003547		
	10	10.84	0.006212		
	20	12.83	0.007352		
	30	-8.58	-0.004917		
	40	-5.51	-0.003158		
	50	-7.12	-0.004080		
16QAM					
3.87	-30	6.74	0.003862	Within authorized band for Band 66	Pass
	-20	-9.83	-0.005633		
	-10	8.96	0.005135		
	0	-7.41	-0.004246		
	10	6.32	0.003622		
	20	-9.54	-0.005467		
	30	-9.81	-0.005622		
	40	-12.80	-0.007335		
	50	9.40	0.005387		
64QAM					
3.87	-30	-10.34	-0.005926	Within authorized band for Band 66	Pass
	-20	-11.27	-0.006458		
	-10	5.06	0.002900		
	0	6.92	0.003966		
	10	9.70	0.005559		
	20	6.08	0.003484		
	30	12.35	0.007077		
	40	-3.32	-0.001903		
	50	-5.94	-0.003404		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	8.03	0.004602	Within authorized band for Band 66	Pass
	3.87	13.50	0.007736		
	4.45	5.91	0.003387		
16QAM					
25	3.45	9.94	0.005696	Within authorized band for Band 66	Pass
	3.87	-7.37	-0.004223		
	4.45	8.33	0.004774		
64QAM					
25	3.45	3.55	0.002034	Within authorized band for Band 66	Pass
	3.87	3.16	0.001811		
	4.45	-7.08	-0.004057		
<i>Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.</i>					

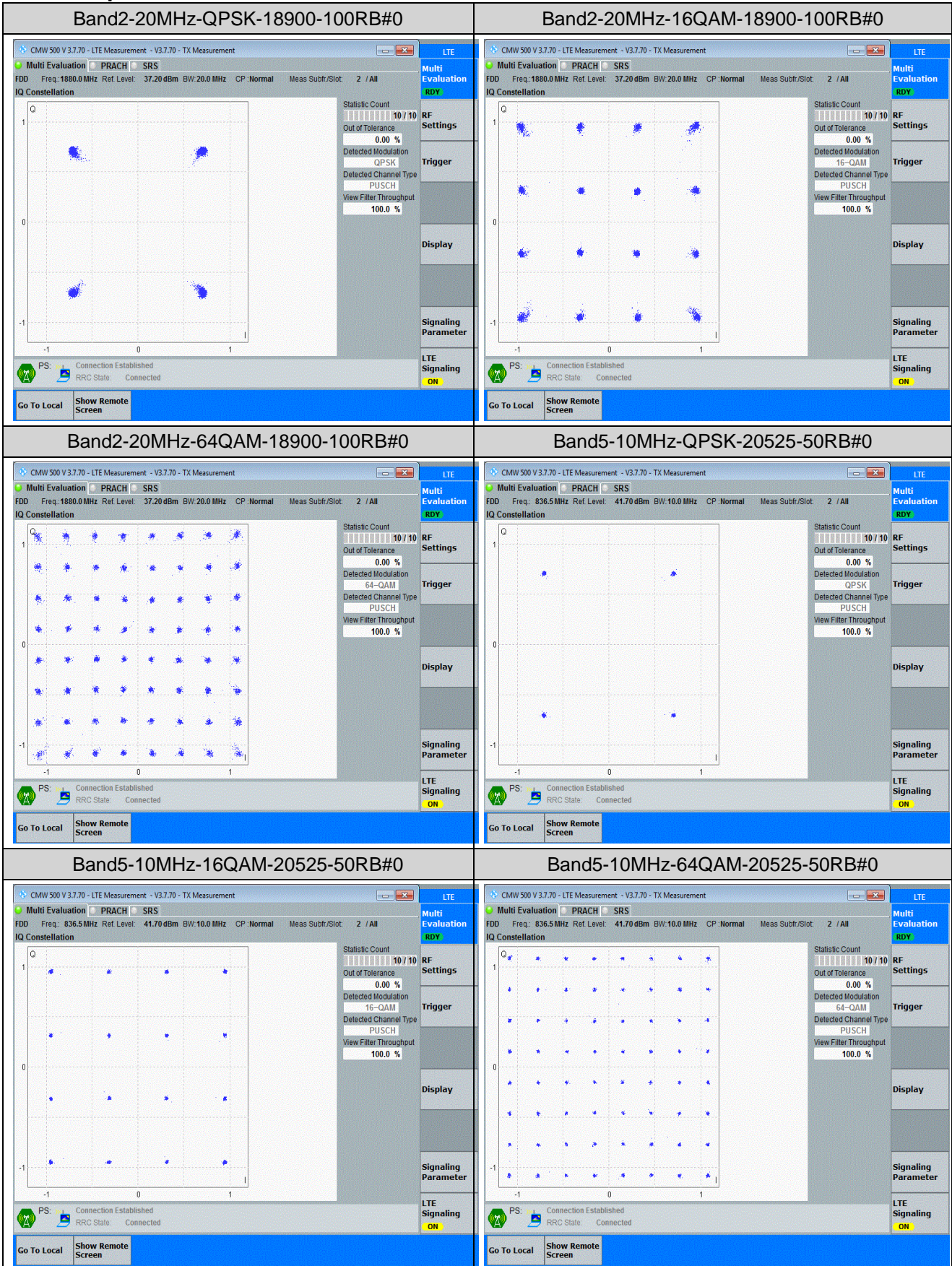
Appendix G: Modulation Characteristics

Test Result

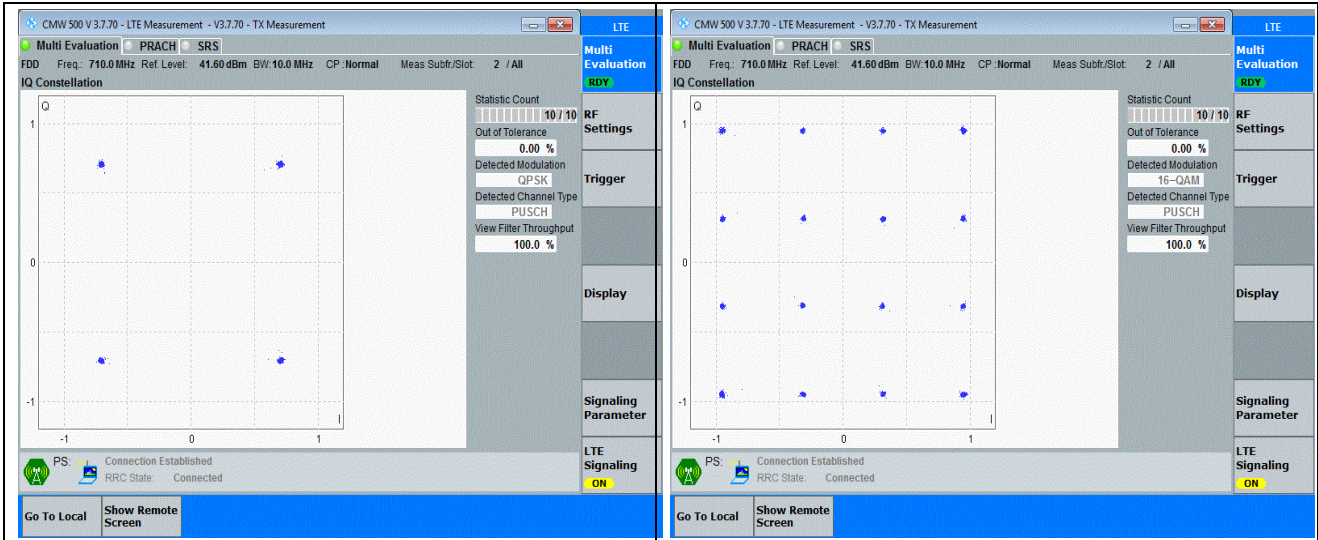
Band	Bandwidth	Modulation	Channel	RB Configuration	Result	Verdict
Band2	20MHz	QPSK	18900	100RB#0	PASS	PASS
Band2	20MHz	16QAM	18900	100RB#0	PASS	PASS
Band2	20MHz	64QAM	18900	100RB#0	PASS	PASS
Band5	10MHz	QPSK	20525	50RB#0	PASS	PASS
Band5	10MHz	16QAM	20525	50RB#0	PASS	PASS
Band5	10MHz	64QAM	20525	50RB#0	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
Band12	10MHz	QPSK	23095	50RB#0	PASS	PASS
Band12	10MHz	16QAM	23095	50RB#0	PASS	PASS
Band12	10MHz	64QAM	23095	50RB#0	PASS	PASS
Band17	10MHz	QPSK	23790	50RB#0	PASS	PASS
Band17	10MHz	16QAM	23790	50RB#0	PASS	PASS
Band17	10MHz	64QAM	23790	50RB#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
Band66	20MHz	QPSK	132322	100RB#0	PASS	PASS
Band66	20MHz	16QAM	132322	100RB#0	PASS	PASS
Band66	20MHz	64QAM	132322	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

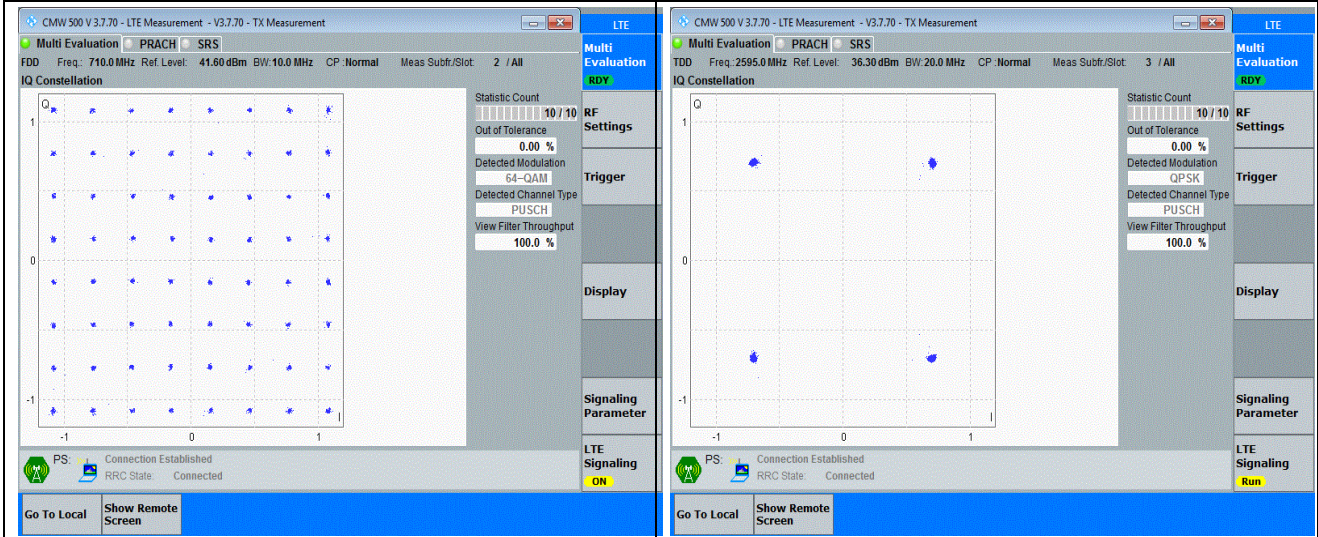


<p align="center">Band7-20MHz-QPSK-21100-100RB#0</p>	<p align="center">Band7-20MHz-16QAM-21100-100RB#0</p>
<p align="center">Band7-20MHz-64QAM-21100-100RB#0</p>	<p align="center">Band12-10MHz-QPSK-23095-50RB#0</p>
<p align="center">Band12-10MHz-16QAM-23095-50RB#0</p>	<p align="center">Band12-10MHz-64QAM-23095-50RB#0</p>
<p align="center">Band17-10MHz-QPSK-23790-50RB#0</p>	<p align="center">Band17-10MHz-16QAM-23790-50RB#0</p>



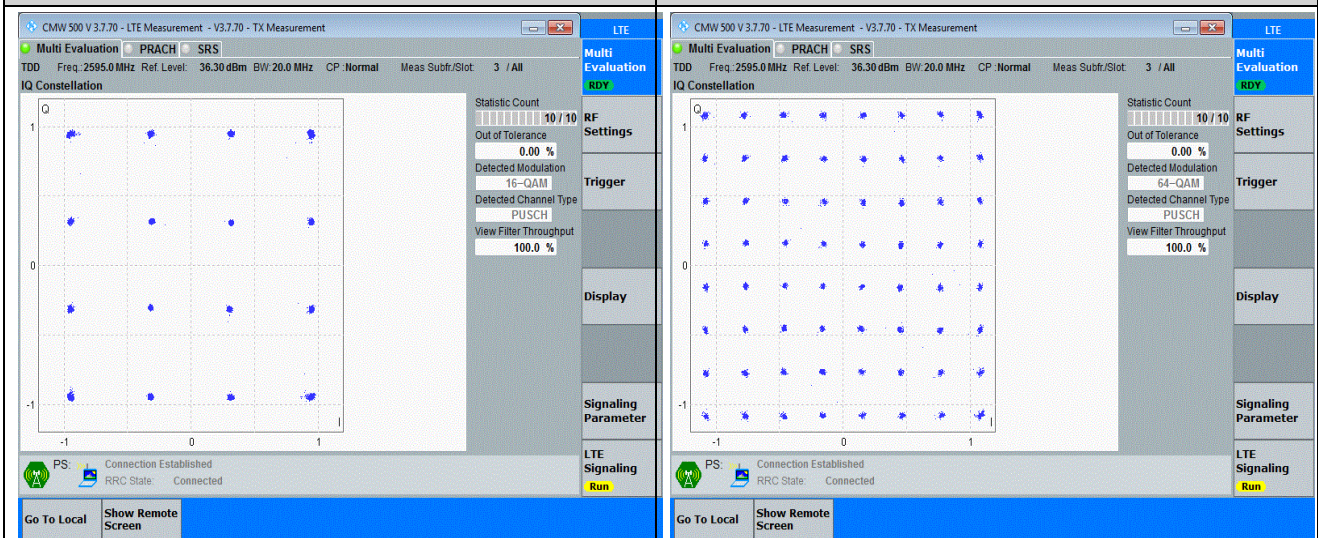
Band17-10MHz-64QAM-23790-50RB#0

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



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

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



Band66-20MHz-QPSK-132322-100RB#0

Band66-20MHz-16QAM-132322-100RB#0

