

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					
3.80	-30	-9.54	-0.011405	±2.5	Pass
	-20	-6.45	-0.007711		
	-10	-9.90	-0.011835		
	0	-7.35	-0.008787		
	10	-13.56	-0.016210		
	20	-11.76	-0.014059		
	30	-14.26	-0.017047		
	40	-11.13	-0.013305		
	50	-13.19	-0.015768		
16QAM					
3.80	-30	-9.80	-0.011715	±2.5	Pass
	-20	-1.76	-0.002104		
	-10	-12.85	-0.015362		
	0	-8.20	-0.009803		
	10	-10.41	-0.012445		
	20	-6.35	-0.007591		
	30	-11.49	-0.013736		
	40	-8.65	-0.010341		
	50	-3.42	-0.004088		
64QAM					
3.80	-30	-12.35	-0.014764	±2.5	Pass
	-20	-2.19	-0.002618		
	-10	-10.97	-0.013114		
	0	-13.85	-0.016557		
	10	-7.65	-0.009145		
	20	-8.96	-0.010711		
	30	-10.57	-0.012636		
	40	-5.41	-0.006467		
	50	-7.82	-0.009348		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-11.40	-0.013628	±2.5	Pass
	3.80	-11.26	-0.013461		
	4.35	-7.28	-0.008703		
16QAM					
25	3.50	-3.28	-0.003921	±2.5	Pass
	3.80	-23.52	-0.028117		
	4.35	-11.06	-0.013222		
64QAM					
25	3.50	-5.78	-0.006910	±2.5	Pass
	3.80	-7.47	-0.008930		
	4.35	-5.62	-0.006718		
<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					
3.80	-30	-4.39	-0.006205	Within authorized band for Band 12	Pass
	-20	-7.68	-0.010855		
	-10	-6.41	-0.009060		
	0	-16.78	-0.023717		
	10	-14.59	-0.020622		
	20	-6.27	-0.008862		
	30	-11.17	-0.015788		
	40	-11.66	-0.016481		
	50	-5.66	-0.008000		
16QAM					
3.80	-30	-7.25	-0.010247	Within authorized band for Band 12	Pass
	-20	-7.77	-0.010982		
	-10	-10.04	-0.014191		
	0	-7.77	-0.010982		
	10	-7.25	-0.010247		
	20	-8.04	-0.011364		
	30	1.34	0.001894		
	40	-14.38	-0.020325		
	50	-8.64	-0.012212		
64QAM					
3.80	-30	-10.09	-0.014261	Within authorized band for Band 12	Pass
	-20	-8.20	-0.011590		
	-10	-6.04	-0.008537		
	0	-4.49	-0.006346		
	10	-9.44	-0.013343		
	20	-7.60	-0.010742		
	30	-3.43	-0.004848		
	40	-5.31	-0.007505		
	50	-8.43	-0.011915		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-14.41	-0.020367	Within authorized band for Band 12	Pass
	3.80	-6.95	-0.009823		
	4.35	-10.37	-0.014657		
16QAM					
25	3.50	-11.53	-0.016297	Within authorized band for Band 12	Pass
	3.80	-10.97	-0.015505		
	4.35	-8.20	-0.011590		
64QAM					
25	3.50	-12.47	-0.017625	Within authorized band for Band 12	Pass
	3.80	-10.80	-0.015265		
	4.35	-15.75	-0.022261		
<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					
3.80	-30	-7.08	-0.009972	Within authorized band for Band 17	Pass
	-20	-5.75	-0.008099		
	-10	-10.74	-0.015127		
	0	-4.68	-0.006592		
	10	-7.71	-0.010859		
	20	-6.24	-0.008789		
	30	-4.22	-0.005944		
	40	-5.54	-0.007803		
	50	-8.48	-0.011944		
16QAM					
3.80	-30	-8.64	-0.012169	Within authorized band for Band 17	Pass
	-20	-8.67	-0.012211		
	-10	-2.10	-0.002958		
	0	-3.96	-0.005577		
	10	-6.19	-0.008718		
	20	-9.06	-0.012761		
	30	-8.38	-0.011803		
	40	-9.44	-0.013296		
	50	-3.13	-0.004408		
64QAM					
3.80	-30	-5.82	-0.008197	Within authorized band for Band 17	Pass
	-20	-8.51	-0.011986		
	-10	-8.25	-0.011620		
	0	-12.19	-0.017169		
	10	-5.72	-0.008056		
	20	-7.62	-0.010732		
	30	-9.57	-0.013479		
	40	-8.61	-0.012127		
	50	-4.28	-0.006028		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-13.20	-0.018592	Within authorized band for Band 17	Pass
	3.80	-9.21	-0.012972		
	4.35	-10.34	-0.014563		
16QAM					
25	3.50	-9.60	-0.013521	Within authorized band for Band 17	Pass
	3.80	-8.67	-0.012211		
	4.35	-5.11	-0.007197		
64QAM					
25	3.50	-7.18	-0.010113	Within authorized band for Band 17	Pass
	3.80	-6.58	-0.009268		
	4.35	-8.71	-0.012268		
<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					
3.80	-30	-12.80	-0.004936	Within authorized band for Band 41	Pass
	-20	-7.52	-0.002900		
	-10	21.34	0.008230		
	0	-18.65	-0.007192		
	10	-14.98	-0.005777		
	20	17.54	0.006764		
	30	-14.22	-0.005484		
	40	-13.29	-0.005125		
	50	-17.37	-0.006699		
16QAM					
3.80	-30	12.89	0.004971	Within authorized band for Band 41	Pass
	-20	-12.10	-0.004666		
	-10	-17.84	-0.006880		
	0	-24.92	-0.009610		
	10	14.36	0.005538		
	20	-15.88	-0.006124		
	30	-17.08	-0.006587		
	40	13.53	0.005218		
	50	13.02	0.005021		
64QAM					
3.80	-30	-6.01	-0.002318	Within authorized band for Band 41	Pass
	-20	-23.10	-0.008909		
	-10	10.17	0.003922		
	0	11.73	0.004524		
	10	-13.50	-0.005206		
	20	15.88	0.006124		
	30	14.81	0.005712		
	40	-21.50	-0.008292		
	50	-19.34	-0.007459		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-17.02	-0.006564	Within authorized band for Band 41	Pass
	3.80	-12.65	-0.004879		
	4.35	7.75	0.002989		
16QAM					
25	3.50	11.09	0.004277	Within authorized band for Band41	Pass
	3.80	-20.16	-0.007775		
	4.35	6.87	0.002649		
64QAM					
25	3.50	2.10	0.000810	Within authorized band for Band41	Pass
	3.80	-7.97	-0.003074		
	4.35	-15.58	-0.006008		
<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					
3.80	-30	-13.58	-0.007782	Within authorized band for Band 66	Pass
	-20	-15.62	-0.008951		
	-10	-16.26	-0.009318		
	0	-7.01	-0.004017		
	10	-13.82	-0.007920		
	20	-12.85	-0.007364		
	30	-7.84	-0.004493		
	40	-16.44	-0.009421		
	50	-15.52	-0.008894		
16QAM					
3.80	-30	-12.72	-0.007289	Within authorized band for Band 66	Pass
	-20	-16.57	-0.009496		
	-10	-14.92	-0.008550		
	0	-7.41	-0.004246		
	10	3.18	0.001822		
	20	-13.88	-0.007954		
	30	-13.09	-0.007501		
	40	5.18	0.002968		
	50	-10.43	-0.005977		
64QAM					
3.80	-30	-12.79	-0.007330	Within authorized band for Band 66	Pass
	-20	-14.32	-0.008206		
	-10	-11.32	-0.006487		
	0	8.17	0.004682		
	10	7.68	0.004401		
	20	-14.75	-0.008453		
	30	-13.85	-0.007937		
	40	-13.78	-0.007897		
	50	-2.88	-0.001650		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-18.42	-0.010556	Within authorized band for Band 66	Pass
	3.80	14.46	0.008287		
	4.35	-11.24	-0.006441		
16QAM					
25	3.50	3.38	0.001937	Within authorized band for Band 66	Pass
	3.80	-15.88	-0.009100		
	4.35	5.34	0.003060		
64QAM					
25	3.50	-3.26	-0.001868	Within authorized band for Band 66	Pass
	3.80	-11.99	-0.006871		
	4.35	-12.15	-0.006963		
<i>Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.</i>					

LTE Band 71 part:

Reference Frequency: LTE Band 71 (10MHz) Middle channel=133297 Frequency=680.5MHz					
Temperature					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.80	-30	-9.44	-0.013872	Within authorized band for Band 71	Pass
	-20	-6.47	-0.009508		
	-10	-7.32	-0.010757		
	0	-4.62	-0.006789		
	10	-7.85	-0.011536		
	20	-12.04	-0.017693		
	30	-11.62	-0.017076		
	40	-7.37	-0.010830		
	50	-9.10	-0.013373		
16QAM					
3.80	-30	4.22	0.006201	Within authorized band for Band 71	Pass
	-20	-11.56	-0.016988		
	-10	-13.09	-0.019236		
	0	-10.06	-0.014783		
	10	-15.38	-0.022601		
	20	-10.29	-0.015121		
	30	-8.48	-0.012461		
	40	-6.78	-0.009963		
	50	-11.84	-0.017399		
64QAM					
3.80	-30	-13.12	-0.019280	Within authorized band for Band 71	Pass
	-20	-6.38	-0.009375		
	-10	-3.15	-0.004629		
	0	-9.80	-0.014401		
	10	-5.32	-0.007818		
	20	-13.58	-0.019956		
	30	-9.41	-0.013828		
	40	-10.79	-0.015856		
	50	-11.87	-0.017443		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.50	-5.66	-0.008317	Within authorized band for Band 71	Pass
	3.80	-3.36	-0.004938		
	4.35	-10.36	-0.015224		
16QAM					
25	3.50	-10.81	-0.015885	Within authorized band for Band 71	Pass
	3.80	-11.32	-0.016635		
	4.35	-12.67	-0.018619		
64QAM					
25	3.50	-9.20	-0.013519	Within authorized band for Band 71	Pass
	3.80	-12.32	-0.018104		
	4.35	-13.19	-0.019383		
<i>Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.</i>					

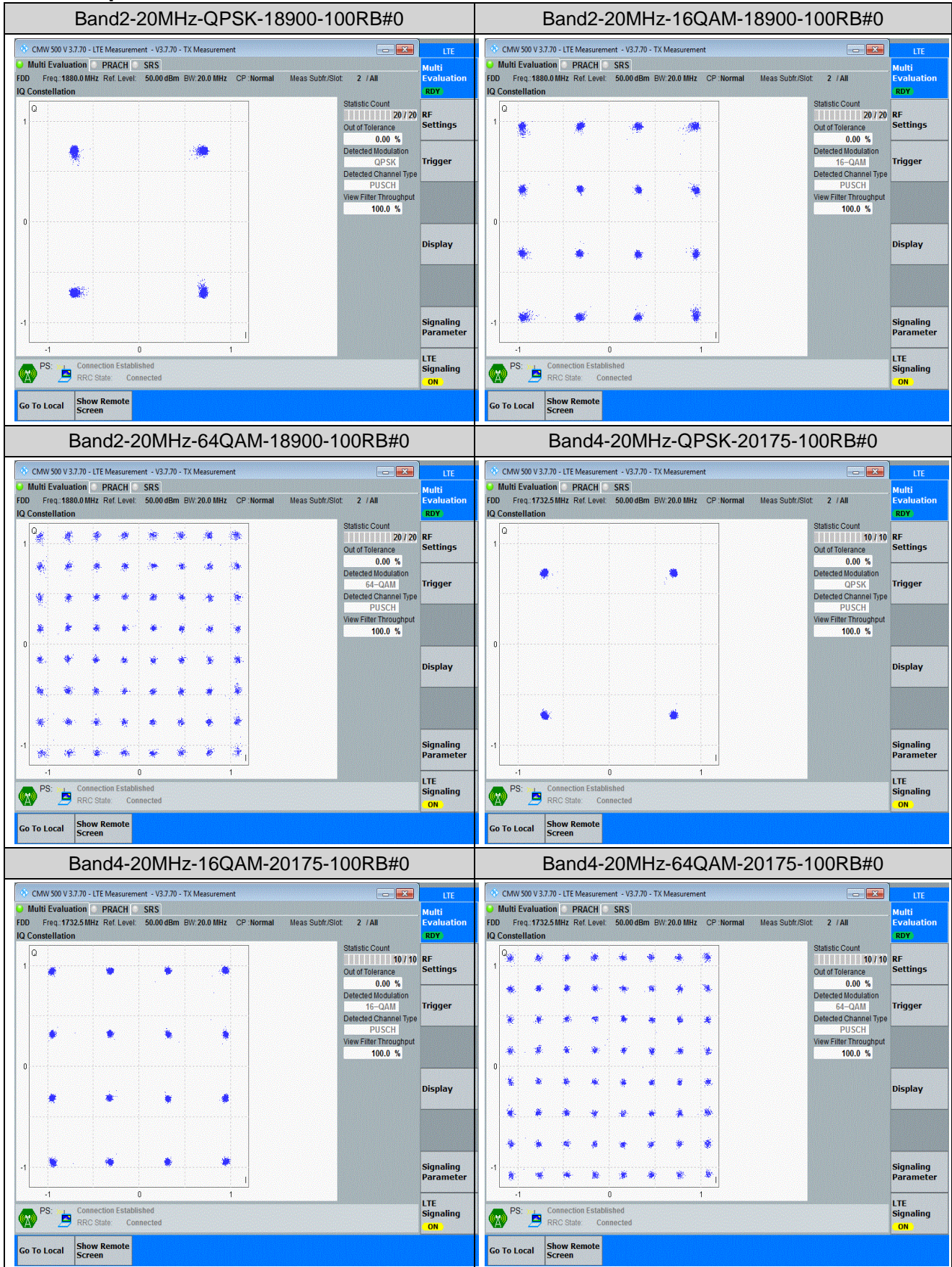
Appendix G: Modulation Characteristics

Test Result

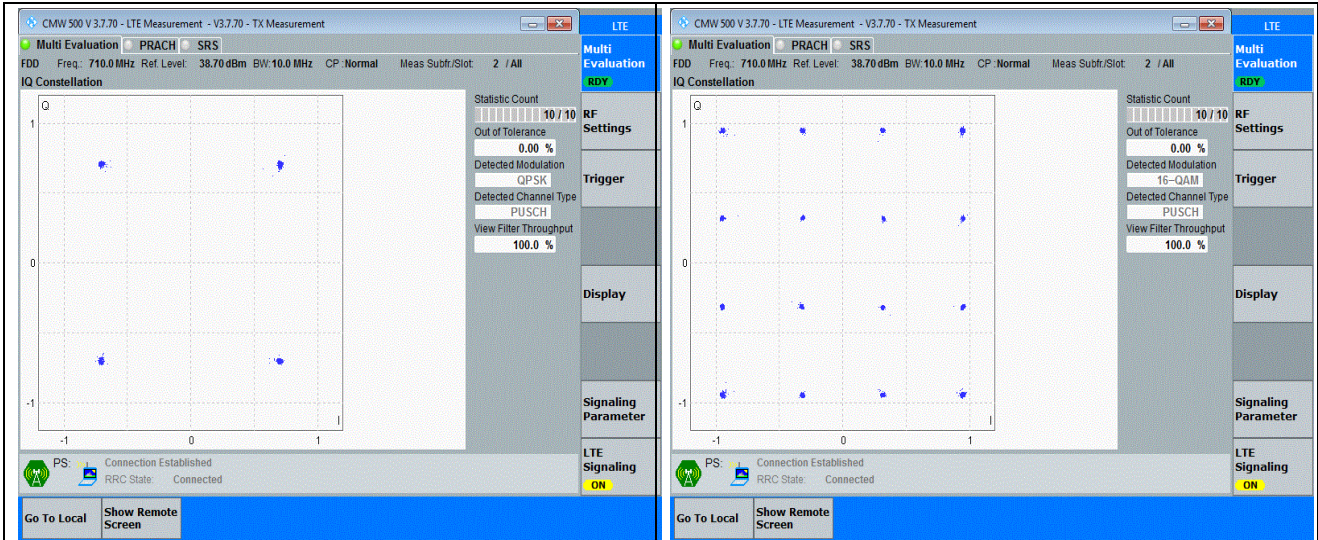
Band	Bandwidth	Modulation	Channel	RB Configuration	Result	Verdict
Band2	20MHz	QPSK	18900	100RB#0	PASS	PASS
Band2	20MHz	16QAM	18900	100RB#0	PASS	PASS
Band2	20MHz	64QAM	18900	100RB#0	PASS	PASS
Band4	20MHz	QPSK	20175	100RB#0	PASS	PASS
Band4	20MHz	16QAM	20175	100RB#0	PASS	PASS
Band4	20MHz	64QAM	20175	100RB#0	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
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	40620	100RB#0	PASS	PASS
Band41	20MHz	16QAM	40620	100RB#0	PASS	PASS
Band41	20MHz	64QAM	40620	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
Band71	20MHz	QPSK	133322	100RB#0	PASS	PASS
Band71	20MHz	16QAM	133322	100RB#0	PASS	PASS
Band71	20MHz	64QAM	133322	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

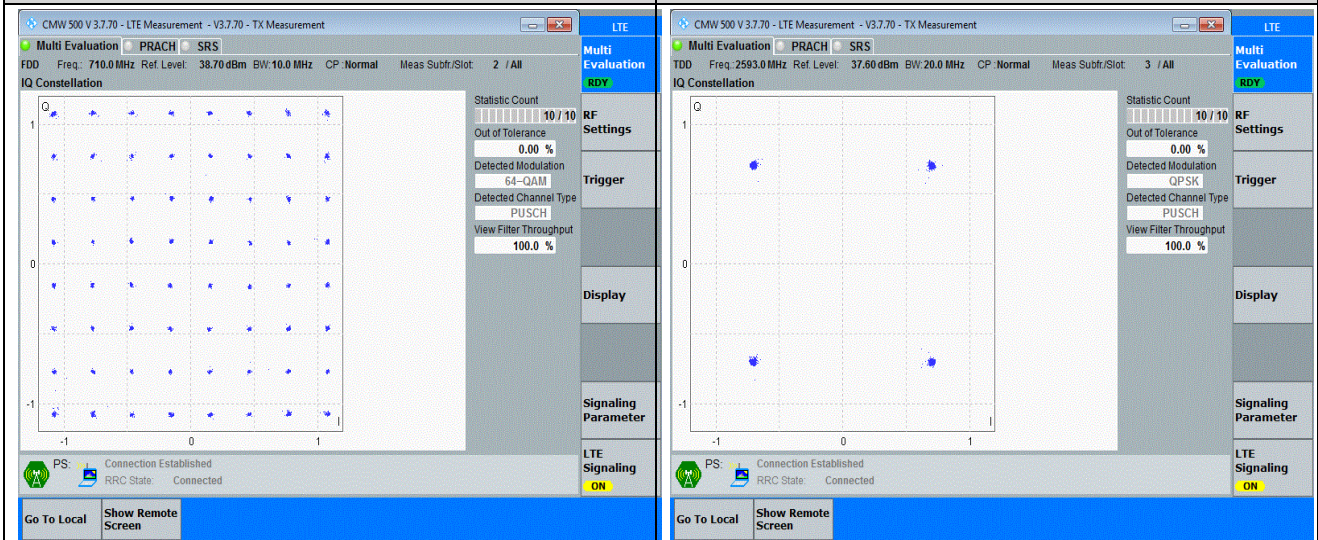


<p align="center">Band5-10MHz-QPSK-20525-50RB#0</p>	<p align="center">Band5-10MHz-16QAM-20525-50RB#0</p>
<p align="center">Band5-10MHz-64QAM-20525-50RB#0</p>	<p align="center">Band12-10MHz-QPSK-23095-50RB#0</p>
<p align="center">Band12-10MHz-16QAM-23095-50RB#0</p>	<p align="center">Band12-10MHz-64QAM-23095-50RB#0</p>
<p align="center">Band17-10MHz-QPSK-23790-50RB#0</p>	<p align="center">Band17-10MHz-16QAM-23790-50RB#0</p>



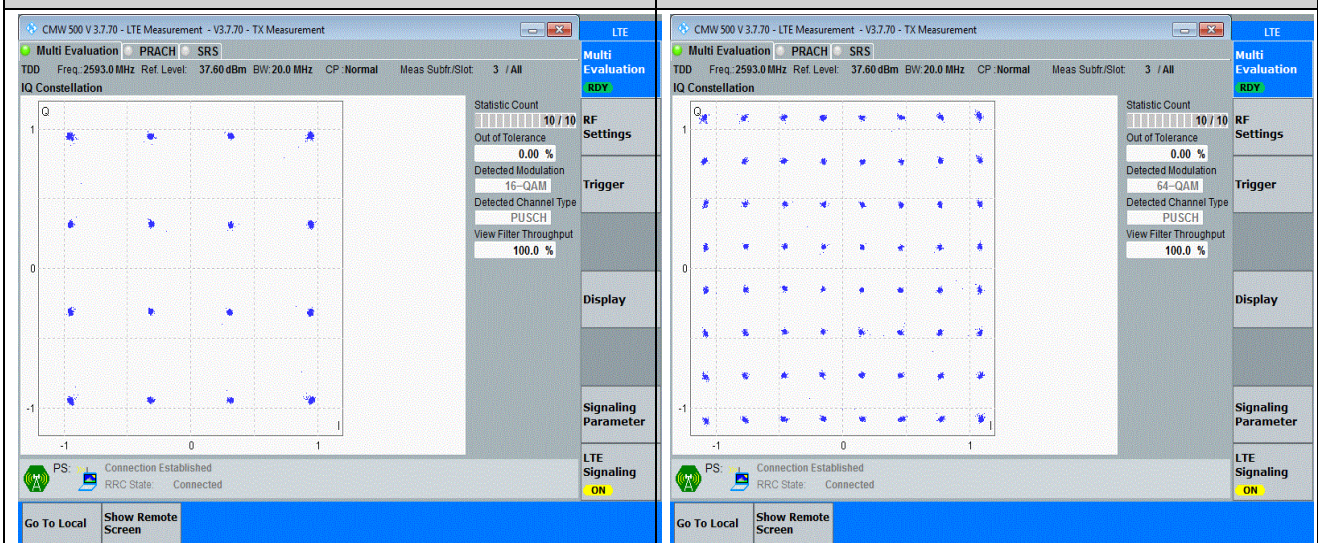
Band17-10MHz-64QAM-23790-50RB#0

Band41-20MHz-QPSK-40620-100RB#0



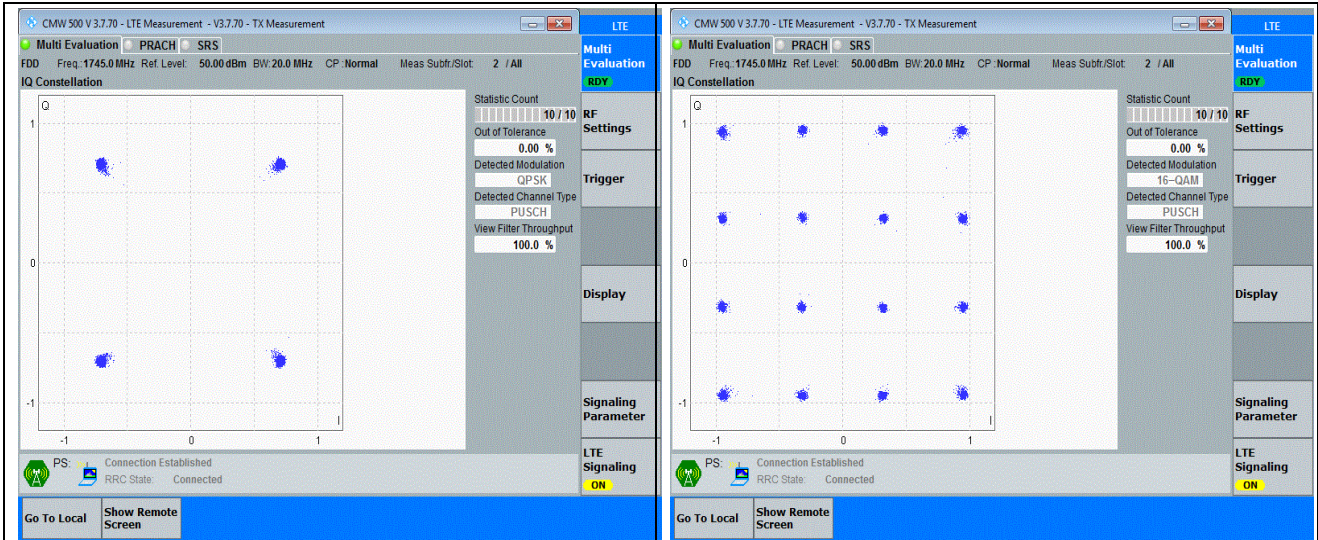
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Band41-20MHz-64QAM-40620-100RB#0



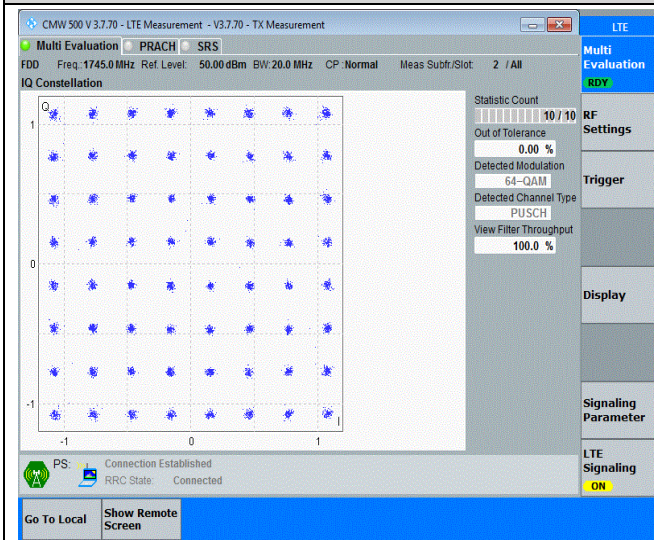
Band66-20MHz-QPSK-132322-100RB#0

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

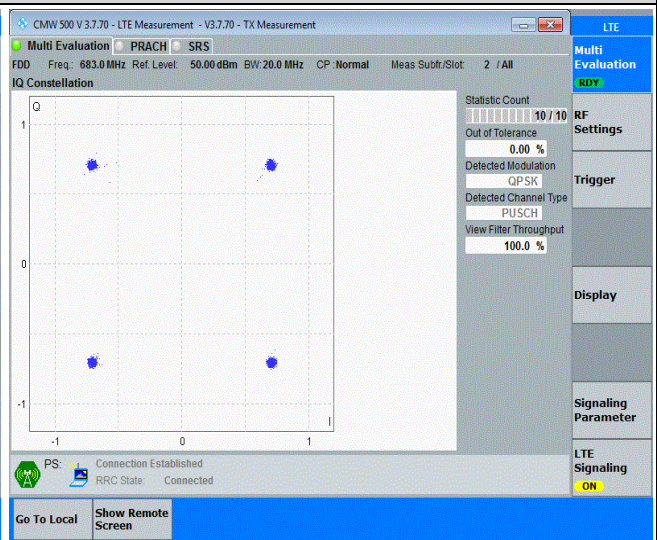


Band66-20MHz-64QAM-132322-100RB#0

Band71-20MHz-QPSK-133322-100RB#0



Band71-20MHz-16QAM-133322-100RB#0



Band71-20MHz-64QAM-133322-100RB#0

