

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	8.96	0.004766	Within authorized band for Band 2	Pass
	3.85	22.24	0.011830		
	4.40	-47.82	-0.025436		
16QAM					
25	3.45	-35.76	-0.019021	Within authorized band for Band 2	Pass
	3.85	-34.07	-0.018122		
	4.40	-9.38	-0.004989		
64QAM					
25	3.45	48.88	0.026000	Within authorized band for Band 2	Pass
	3.85	13.29	0.007069		
	4.40	57.52	0.030596		
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	-40.15	-0.047998	±2.5	Pass
	-20	-7.74	-0.009253		
	-10	-18.22	-0.021781		
	0	-31.00	-0.037059		
	10	-40.03	-0.047854		
	20	-6.74	-0.008057		
	30	-14.83	-0.017729		
	40	-21.27	-0.025427		
	50	-18.42	-0.022020		
16QAM					
3.85	-30	26.29	0.031429	±2.5	Pass
	-20	36.55	0.043694		
	-10	45.56	0.054465		
	0	47.64	0.056952		
	10	46.68	0.055804		
	20	-10.76	-0.012863		
	30	-7.70	-0.009205		
	40	-7.02	-0.008392		
	50	-7.45	-0.008906		
64QAM					
3.85	-30	25.02	0.029910	±2.5	Pass
	-20	28.48	0.034047		
	-10	31.19	0.037286		
	0	36.84	0.044041		
	10	42.57	0.050891		
	20	47.55	0.056844		
	30	50.97	0.060932		
	40	16.22	0.019390		
	50	23.12	0.027639		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	51.33	0.061363	±2.5	Pass
	3.85	31.57	0.037741		
	4.40	-31.07	-0.037143		
16QAM					
25	3.45	-19.24	-0.023001	±2.5	Pass
	3.85	-26.35	-0.031500		
	4.40	-15.15	-0.018111		
64QAM					
25	3.45	11.42	0.013652	±2.5	Pass
	3.85	4.49	0.005368		
	4.40	20.63	0.024662		
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	32.47	0.012809	Within authorized band for Band 7	Pass
	-20	-36.03	-0.014213		
	-10	-68.79	-0.027136		
	0	-40.50	-0.015976		
	10	-53.14	-0.020963		
	20	-27.49	-0.010844		
	30	-46.62	-0.018391		
	40	-26.24	-0.010351		
	50	-42.26	-0.016671		
16QAM					
3.85	-30	52.94	0.020884	Within authorized band for Band 7	Pass
	-20	40.30	0.015897		
	-10	54.20	0.021381		
	0	25.91	0.010221		
	10	39.68	0.015653		
	20	40.96	0.016158		
	30	31.64	0.012481		
	40	23.30	0.009191		
	50	35.65	0.014063		
64QAM					
3.85	-30	49.27	0.019436	Within authorized band for Band 7	Pass
	-20	59.08	0.023306		
	-10	31.71	0.012509		
	0	38.78	0.015298		
	10	12.40	0.004892		
	20	23.13	0.009124		
	30	53.01	0.020911		
	40	25.12	0.009909		
	50	-7.11	-0.002805		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	40.05	0.015799	Within authorized band for Band 7	Pass
	3.85	23.83	0.009400		
	4.40	-13.90	-0.005483		
16QAM					
25	3.45	19.23	0.007586	Within authorized band for Band 7	Pass
	3.85	-34.26	-0.013515		
	4.40	56.93	0.022458		
64QAM					
25	3.45	63.86	0.025191	Within authorized band for Band 7	Pass
	3.85	47.98	0.018927		
	4.40	54.14	0.021357		
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.					

LTE Band 12 part:

Reference Frequency: LTE Band 12(10MHz) Middle channel=23095 Frequency=707.5MHz					
Temperature					
Power supplied (Vdc)	Temperature (℃)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.85	-30	-23.43	-0.033117	Within authorized band for Band 12	Pass
	-20	-31.29	-0.044226		
	-10	-38.54	-0.054473		
	0	-49.45	-0.069894		
	10	-56.00	-0.079152		
	20	-8.21	-0.011604		
	30	-10.93	-0.015449		
	40	-19.20	-0.027138		
	50	-19.48	-0.027534		
16QAM					
3.85	-30	21.49	0.030375	Within authorized band for Band 12	Pass
	-20	32.43	0.045837		
	-10	37.99	0.053696		
	0	44.86	0.063406		
	10	53.70	0.075901		
	20	8.44	0.011929		
	30	13.83	0.019548		
	40	12.73	0.017993		
	50	19.45	0.027491		
64QAM					
3.85	-30	34.40	0.048622	Within authorized band for Band 12	Pass
	-20	34.29	0.048466		
	-10	34.78	0.049159		
	0	47.28	0.066827		
	10	46.82	0.066177		
	20	47.08	0.066544		
	30	43.16	0.061004		
	40	12.80	0.018092		
	50	14.56	0.020580		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	18.44	0.026064	Within authorized band for Band 12	Pass
	3.85	9.16	0.012947		
	4.40	5.72	0.008085		
16QAM					
25	3.45	-10.06	-0.014219	Within authorized band for Band 12	Pass
	3.85	-23.80	-0.033640		
	4.40	8.24	0.011647		
64QAM					
25	3.45	27.02	0.038191	Within authorized band for Band 12	Pass
	3.85	24.50	0.034629		
	4.40	31.09	0.043943		
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 (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.85	-30	-127.94	-0.049303	Within authorized band for Band 41	Pass
	-20	-41.38	-0.015946		
	-10	-14.48	-0.005580		
	0	-56.42	-0.021742		
	10	-60.34	-0.023252		
	20	-35.88	-0.013827		
	30	-46.79	-0.018031		
	40	-10.41	-0.004012		
	50	-56.09	-0.021615		
16QAM					
3.85	-30	31.76	0.012239	Within authorized band for Band 41	Pass
	-20	57.41	0.022123		
	-10	85.00	0.032755		
	0	11.00	0.004239		
	10	-12.32	-0.004748		
	20	-16.09	-0.006200		
	30	18.05	0.006956		
	40	29.14	0.011229		
	50	12.25	0.004721		
64QAM					
3.85	-30	49.51	0.019079	Within authorized band for Band 41	Pass
	-20	63.20	0.024355		
	-10	40.71	0.015688		
	0	13.46	0.005187		
	10	30.96	0.011931		
	20	35.29	0.013599		
	30	36.94	0.014235		
	40	-11.47	-0.004420		
	50	36.16	0.013934		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	36.46	0.014050	Within authorized band for Band 41	Pass
	3.85	80.58	0.031052		
	4.40	-142.58	-0.054944		
16QAM					
25	3.45	-28.77	-0.011087	Within authorized band for Band41	Pass
	3.85	-49.57	-0.019102		
	4.40	12.13	0.004674		
64QAM					
25	3.45	51.83	0.019973	Within authorized band for Band41	Pass
	3.85	19.31	0.007441		
	4.40	-11.16	-0.004301		
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.					

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					
3.85	-30	-35.33	-0.020246	Within authorized band for Band 66	Pass
	-20	-19.86	-0.011381		
	-10	-52.31	-0.029977		
	0	-36.36	-0.020837		
	10	-32.19	-0.018447		
	20	-15.01	-0.008602		
	30	-21.23	-0.012166		
	40	-25.28	-0.014487		
	50	-42.57	-0.024395		
16QAM					
3.85	-30	7.47	0.004281	Within authorized band for Band 66	Pass
	-20	23.20	0.013295		
	-10	22.19	0.012716		
	0	30.63	0.017553		
	10	37.45	0.021461		
	20	22.20	0.012722		
	30	21.63	0.012395		
	40	35.62	0.020413		
	50	62.07	0.035570		
64QAM					
3.85	-30	19.43	0.011135	Within authorized band for Band 66	Pass
	-20	-20.63	-0.011822		
	-10	27.98	0.016034		
	0	32.14	0.018418		
	10	14.58	0.008355		
	20	40.48	0.023198		
	30	23.73	0.013599		
	40	25.91	0.014848		
	50	57.05	0.032693		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-22.12	-0.012676	Within authorized band for Band 66	Pass
	3.85	36.81	0.021095		
	4.40	-54.92	-0.031473		
16QAM					
25	3.45	-20.14	-0.011542	Within authorized band for Band 66	Pass
	3.85	-19.45	-0.011146		
	4.40	26.46	0.015163		
64QAM					
25	3.45	28.41	0.016281	Within authorized band for Band 66	Pass
	3.85	56.58	0.032424		
	4.40	21.73	0.012453		
Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.					

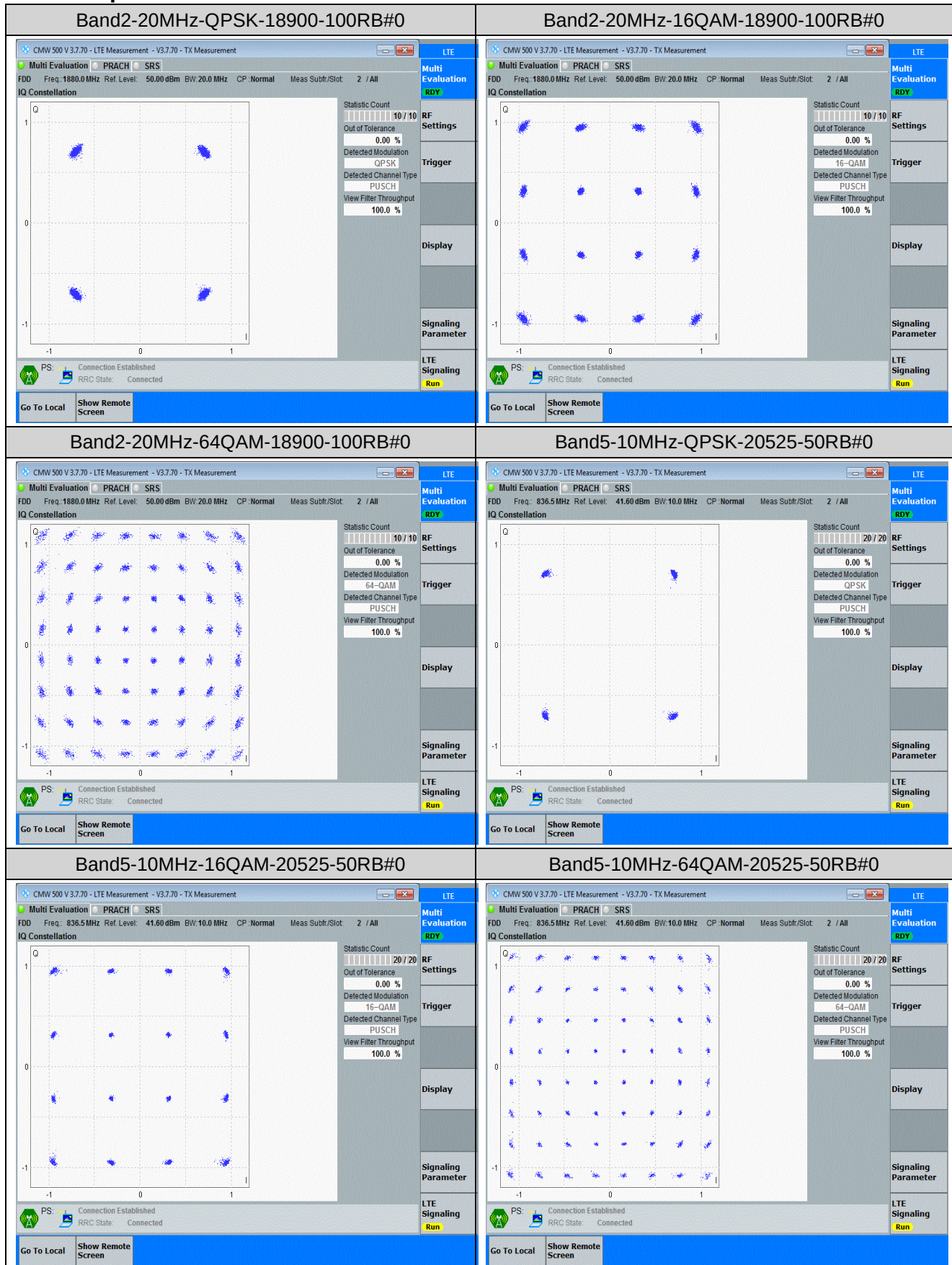
Appendix G: Modulation Characteristics

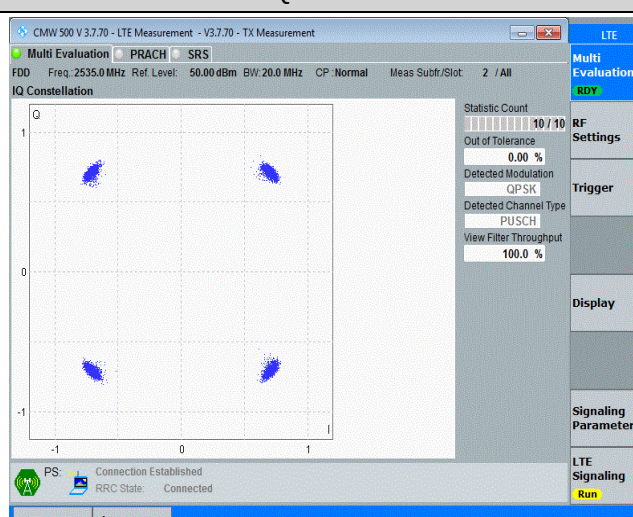
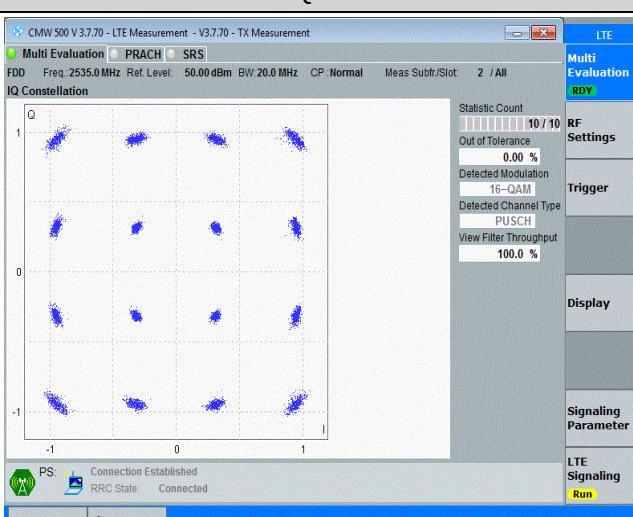
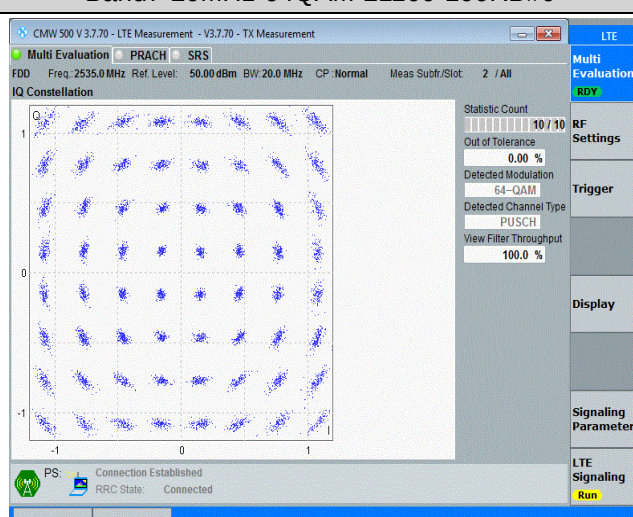
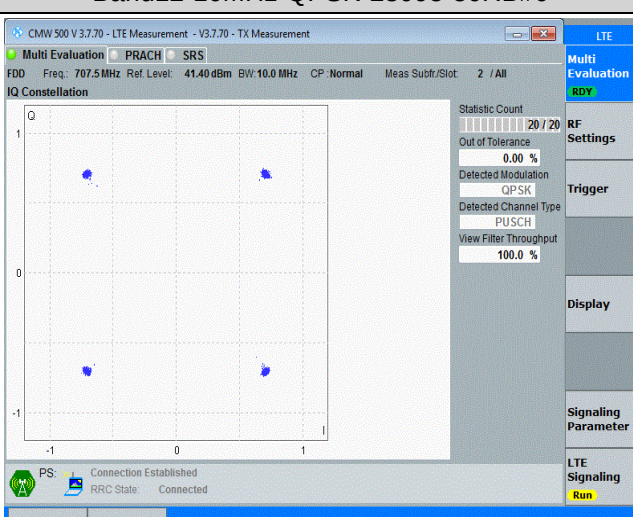
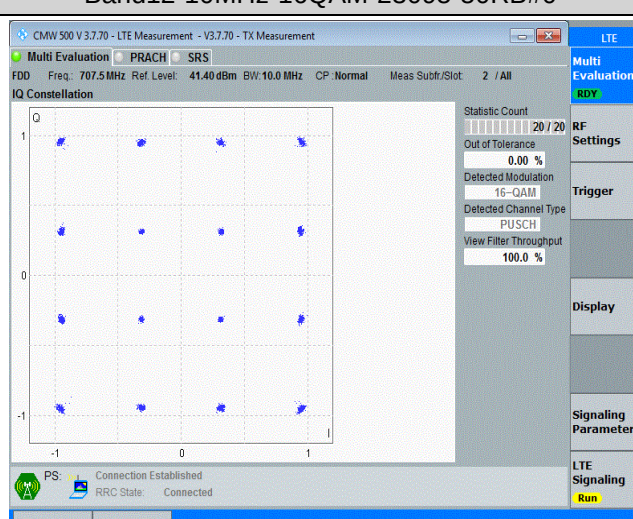
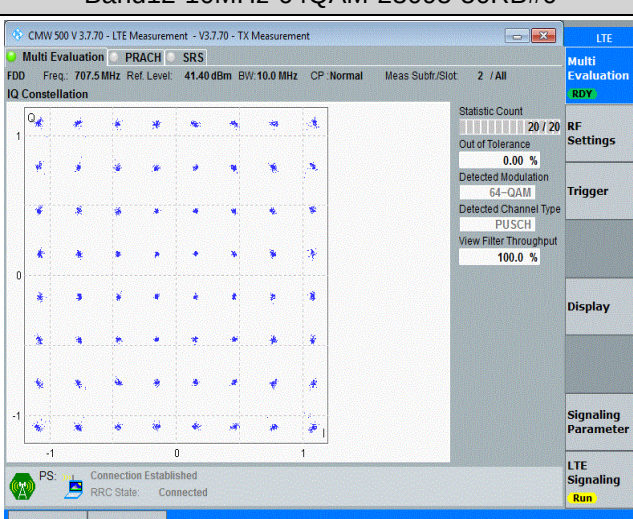
Test Result

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
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
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



Band7-20MHz-QPSK-21100-100RB#0 	Band7-20MHz-16QAM-21100-100RB#0 
Band7-20MHz-64QAM-21100-100RB#0 	Band12-10MHz-QPSK-23095-50RB#0 
Band12-10MHz-16QAM-23095-50RB#0 	Band12-10MHz-64QAM-23095-50RB#0 
Band41-20MHz-QPSK-40640-100RB#0	Band41-20MHz-16QAM-40640-100RB#0

