

Band66-20MHz-64QAM-132572-1RB#0-Range1:30
~1000MHz

Band66-20MHz-64QAM-132572-1RB#0-Range2:100
0~20000MHz



Appendix F: Frequency Stability

Test Result

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	-12.92	-0.005097	Within authorized band for Band 7	Pass
	-20	13.28	0.005239		
	-10	12.86	0.005073		
	0	-16.68	-0.006580		
	10	-17.31	-0.006828		
	20	-10.40	-0.004103		
	30	-13.88	-0.005475		
	40	-9.34	-0.003684		
	50	-21.66	-0.008544		
16QAM					
3.87	-30	9.43	0.003720	Within authorized band for Band 7	Pass
	-20	-12.00	-0.004734		
	-10	-13.75	-0.005424		
	0	-7.94	-0.003132		
	10	9.53	0.003759		
	20	-15.39	-0.006071		
	30	9.86	0.003890		
	40	7.48	0.002951		
	50	15.95	0.006292		
64QAM					
3.87	-30	-15.15	-0.005976	Within authorized band for Band 7	Pass
	-20	-17.97	-0.007089		
	-10	-14.71	-0.005803		
	0	-14.05	-0.005542		
	10	14.39	0.005677		
	20	-17.78	-0.007014		
	30	8.45	0.003333		
	40	-4.16	-0.001641		
	50	-19.31	-0.007617		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	5.75	0.002268	Within authorized band for Band 7	Pass
	3.87	-16.87	-0.006655		
	4.45	-16.81	-0.006631		
16QAM					
25	3.45	10.86	0.004284	Within authorized band for Band 7	Pass
	3.87	-11.44	-0.004513		
	4.45	-17.05	-0.006726		
64QAM					
25	3.45	-18.84	-0.007432	Within authorized band for Band 7	Pass
	3.87	13.72	0.005412		
	4.45	-25.46	-0.010043		
<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	-3.53	-0.004989	Within authorized band for Band 12	Pass
	-20	-4.81	-0.006799		
	-10	-4.59	-0.006488		
	0	-5.79	-0.008184		
	10	-8.27	-0.011689		
	20	-3.55	-0.005018		
	30	-7.67	-0.010841		
	40	-4.82	-0.006813		
	50	-3.16	-0.004466		
16QAM					
3.87	-30	-7.22	-0.010205	Within authorized band for Band 12	Pass
	-20	-4.35	-0.006148		
	-10	-6.92	-0.009781		
	0	-3.92	-0.005541		
	10	-6.48	-0.009159		
	20	-5.19	-0.007336		
	30	-6.52	-0.009216		
	40	-3.25	-0.004594		
	50	1.59	0.002247		
64QAM					
3.87	-30	-3.42	-0.004834	Within authorized band for Band 12	Pass
	-20	-4.23	-0.005979		
	-10	-8.60	-0.012155		
	0	-4.25	-0.006007		
	10	-4.12	-0.005823		
	20	-8.20	-0.011590		
	30	-5.76	-0.008141		
	40	-5.19	-0.007336		
	50	-5.32	-0.007519		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-4.31	-0.006092	Within authorized band for Band 12	Pass
	3.87	-4.38	-0.006191		
	4.45	-5.08	-0.007180		
16QAM					
25	3.45	-8.44	-0.011929	Within authorized band for Band 12	Pass
	3.87	-4.18	-0.005908		
	4.45	-3.33	-0.004707		
64QAM					
25	3.45	-3.62	-0.005117	Within authorized band for Band 12	Pass
	3.87	-7.78	-0.010996		
	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 13 part:

Reference Frequency: LTE Band 13(10MHz) Middle channel=23230 Frequency=782.0MHz					
Temperature					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.87	-30	-2.85	-0.003645	Within authorized band for Band 17	Pass
	-20	-3.99	-0.005102		
	-10	-4.84	-0.006189		
	0	3.15	0.004028		
	10	-5.56	-0.007110		
	20	3.02	0.003862		
	30	-3.23	-0.004130		
	40	-8.83	-0.011292		
	50	-1.27	-0.001624		
16QAM					
3.87	-30	-3.23	-0.004130	Within authorized band for Band 17	Pass
	-20	-5.78	-0.007391		
	-10	-7.72	-0.009872		
	0	-9.04	-0.011560		
	10	-7.81	-0.009987		
	20	-6.01	-0.007685		
	30	-6.19	-0.007916		
	40	-2.03	-0.002596		
	50	-4.32	-0.005524		
64QAM					
3.87	-30	4.26	0.005448	Within authorized band for Band 17	Pass
	-20	-5.91	-0.007558		
	-10	-6.05	-0.007737		
	0	-5.56	-0.007110		
	10	-7.94	-0.010153		
	20	-5.54	-0.007084		
	30	-4.98	-0.006368		
	40	-6.14	-0.007852		
	50	-2.33	-0.002980		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-2.03	-0.002596	Within authorized band for Band 17	Pass
	3.87	-4.16	-0.005320		
	4.45	-4.73	-0.006049		
16QAM					
25	3.45	3.38	0.004322	Within authorized band for Band 17	Pass
	3.87	-3.99	-0.005102		
	4.45	3.91	0.005000		
64QAM					
25	3.45	-4.16	-0.005320	Within authorized band for Band 17	Pass
	3.87	-6.74	-0.008619		
	4.45	-8.74	-0.011176		
<i>Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.</i>					

LTE Band 25 part:

Reference Frequency: LTE Band 25(10MHz) Middle channel=26365 Frequency=1882.5MHz					
Temperature					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.87	-30	5.06	0.002688	Within authorized band for Band 17	Pass
	-20	-8.34	-0.004430		
	-10	3.91	0.002077		
	0	-6.08	-0.003230		
	10	-11.87	-0.006305		
	20	7.62	0.004048		
	30	-9.50	-0.005046		
	40	-10.31	-0.005477		
	50	-11.06	-0.005875		
16QAM					
3.87	-30	8.45	0.004489	Within authorized band for Band 17	Pass
	-20	-10.51	-0.005583		
	-10	-7.37	-0.003915		
	0	-9.18	-0.004876		
	10	-3.73	-0.001981		
	20	-6.62	-0.003517		
	30	2.98	0.001583		
	40	-9.03	-0.004797		
	50	3.75	0.001992		
64QAM					
3.87	-30	6.94	0.003687	Within authorized band for Band 17	Pass
	-20	-7.12	-0.003782		
	-10	-11.13	-0.005912		
	0	-3.16	-0.001679		
	10	-8.47	-0.004499		
	20	-8.64	-0.004590		
	30	-10.23	-0.005434		
	40	-5.87	-0.003118		
	50	-4.91	-0.002608		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-4.42	-0.002348	Within authorized band for Band 17	Pass
	3.87	-9.31	-0.004946		
	4.45	10.47	0.005562		
16QAM					
25	3.45	-4.63	-0.002459	Within authorized band for Band 17	Pass
	3.87	-3.40	-0.001806		
	4.45	-9.38	-0.004983		
64QAM					
25	3.45	-8.91	-0.004733	Within authorized band for Band 17	Pass
	3.87	12.43	0.006603		
	4.45	-5.28	-0.002805		
<i>Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.</i>					

LTE Band 26 part:

Reference Frequency: LTE Band 26(10MHz) Middle channel=26740 Frequency=819.0MHz					
Temperature					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.87	-30	-4.12	-0.005031	Within authorized band for Band 38	Pass
	-20	-4.91	-0.005995		
	-10	-6.84	-0.008352		
	0	-5.04	-0.006154		
	10	-1.82	-0.002222		
	20	-4.61	-0.005629		
	30	-3.91	-0.004774		
	40	-6.04	-0.007375		
	50	-4.31	-0.005263		
16QAM					
3.87	-30	-7.71	-0.009414	Within authorized band for Band 38	Pass
	-20	-2.46	-0.003004		
	-10	-5.78	-0.007057		
	0	-3.71	-0.004530		
	10	-2.37	-0.002894		
	20	-3.53	-0.004310		
	30	2.12	0.002589		
	40	-6.49	-0.007924		
	50	-4.12	-0.005031		
64QAM					
3.87	-30	-5.97	-0.007289	Within authorized band for Band 38	Pass
	-20	-6.42	-0.007839		
	-10	-5.76	-0.007033		
	0	-5.98	-0.007302		
	10	-5.59	-0.006825		
	20	-5.41	-0.006606		
	30	-3.35	-0.004090		
	40	-2.96	-0.003614		
	50	-4.26	-0.005201		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-4.76	-0.005812	Within authorized band for Band 38	Pass
	3.87	-6.91	-0.008437		
	4.45	3.25	0.003968		
16QAM					
25	3.45	-6.32	-0.007717	Within authorized band for Band 38	Pass
	3.87	-5.64	-0.006886		
	4.45	-6.61	-0.008071		
64QAM					
25	3.45	-5.99	-0.007314	Within authorized band for Band 38	Pass
	3.87	-7.98	-0.009744		
	4.45	-4.68	-0.005714		
<i>Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.</i>					

LTE Band 26 part:

Reference Frequency: LTE Band 26(10MHz) Middle channel=26915 Frequency=836.5MHz					
Temperature					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.87	-30	-9.90	-0.011835	Within authorized band for Band 17	Pass
	-20	-6.18	-0.007388		
	-10	-6.67	-0.007974		
	0	-5.65	-0.006754		
	10	-6.49	-0.007759		
	20	-5.45	-0.006515		
	30	4.25	0.005081		
	40	-4.61	-0.005511		
	50	-7.21	-0.008619		
16QAM					
3.87	-30	-7.10	-0.008488	Within authorized band for Band 17	Pass
	-20	-8.65	-0.010341		
	-10	-6.49	-0.007759		
	0	-2.59	-0.003096		
	10	-4.96	-0.005929		
	20	-3.83	-0.004579		
	30	-5.14	-0.006145		
	40	-5.79	-0.006922		
	50	-8.08	-0.009659		
64QAM					
3.87	-30	-6.57	-0.007854	Within authorized band for Band 17	Pass
	-20	-2.80	-0.003347		
	-10	-7.07	-0.008452		
	0	-4.62	-0.005523		
	10	-5.64	-0.006742		
	20	-6.81	-0.008141		
	30	-5.52	-0.006599		
	40	-3.60	-0.004304		
	50	-5.49	-0.006563		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-7.10	-0.008488	Within authorized band for Band 17	Pass
	3.87	-5.32	-0.006360		
	4.45	-4.76	-0.005690		
16QAM					
25	3.45	-7.71	-0.009217	Within authorized band for Band 17	Pass
	3.87	-3.46	-0.004136		
	4.45	-6.44	-0.007699		
64QAM					
25	3.45	1.63	0.001949	Within authorized band for Band 17	Pass
	3.87	2.75	0.003288		
	4.45	-5.18	-0.006192		
<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=40620 Frequency=2593.0MHz					
Temperature					
Power supplied (Vdc)	Temperature (°C)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
3.87	-30	5.01	0.001932	Within authorized band for Band 41	Pass
	-20	-5.09	-0.001963		
	-10	-4.43	-0.001708		
	0	-11.13	-0.004292		
	10	-16.11	-0.006213		
	20	7.97	0.003074		
	30	-17.81	-0.006868		
	40	-4.96	-0.001913		
	50	-3.29	-0.001269		
16QAM					
3.87	-30	-10.91	-0.004207	Within authorized band for Band 41	Pass
	-20	-12.75	-0.004917		
	-10	-15.23	-0.005874		
	0	-10.03	-0.003868		
	10	-4.48	-0.001728		
	20	5.04	0.001944		
	30	-8.53	-0.003290		
	40	2.62	0.001010		
	50	-8.81	-0.003398		
64QAM					
3.87	-30	-13.90	-0.005361	Within authorized band for Band 41	Pass
	-20	-8.04	-0.003101		
	-10	-12.52	-0.004828		
	0	-8.87	-0.003421		
	10	-11.12	-0.004288		
	20	-16.71	-0.006444		
	30	-11.54	-0.004450		
	40	10.91	0.004207		
	50	6.02	0.002322		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	-12.56	-0.004844	Within authorized band for Band 41	Pass
	3.87	-12.45	-0.004801		
	4.45	2.88	0.001111		
16QAM					
25	3.45	9.47	0.003652	Within authorized band for Band41	Pass
	3.87	7.72	0.002977		
	4.45	11.83	0.004562		
64QAM					
25	3.45	-11.97	-0.004616	Within authorized band for Band41	Pass
	3.87	-10.00	-0.003857		
	4.45	10.87	0.004192		
<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	8.67	0.004968	Within authorized band for Band 66	Pass
	-20	8.37	0.004797		
	-10	5.59	0.003203		
	0	-7.45	-0.004269		
	10	-7.12	-0.004080		
	20	-11.37	-0.006516		
	30	-8.40	-0.004814		
	40	5.85	0.003352		
	50	-6.09	-0.003490		
16QAM					
3.87	-30	-6.18	-0.003542	Within authorized band for Band 66	Pass
	-20	-10.01	-0.005736		
	-10	2.86	0.001639		
	0	-2.52	-0.001444		
	10	2.47	0.001415		
	20	-6.94	-0.003977		
	30	7.27	0.004166		
	40	-3.06	-0.001754		
	50	5.56	0.003186		
64QAM					
3.87	-30	-6.31	-0.003616	Within authorized band for Band 66	Pass
	-20	-5.09	-0.002917		
	-10	6.32	0.003622		
	0	6.19	0.003547		
	10	-3.53	-0.002023		
	20	-3.20	-0.001834		
	30	6.57	0.003765		
	40	-9.83	-0.005633		
	50	-5.42	-0.003106		

Voltage					
Temperature (°C)	Power supplied (Vdc)	Frequency error		Limit (ppm)	Result
		Hz	ppm		
QPSK					
25	3.45	8.07	0.004625	Within authorized band for Band 66	Pass
	3.87	-7.72	-0.004424		
	4.45	4.72	0.002705		
16QAM					
25	3.45	-9.80	-0.005616	Within authorized band for Band 66	Pass
	3.87	4.22	0.002418		
	4.45	-6.07	-0.003479		
64QAM					
25	3.45	-6.31	-0.003616	Within authorized band for Band 66	Pass
	3.87	6.65	0.003811		
	4.45	-4.46	-0.002556		
<i>Remark: All bandwidth and all modulation had been tested, but only the worst case data displayed in this report.</i>					

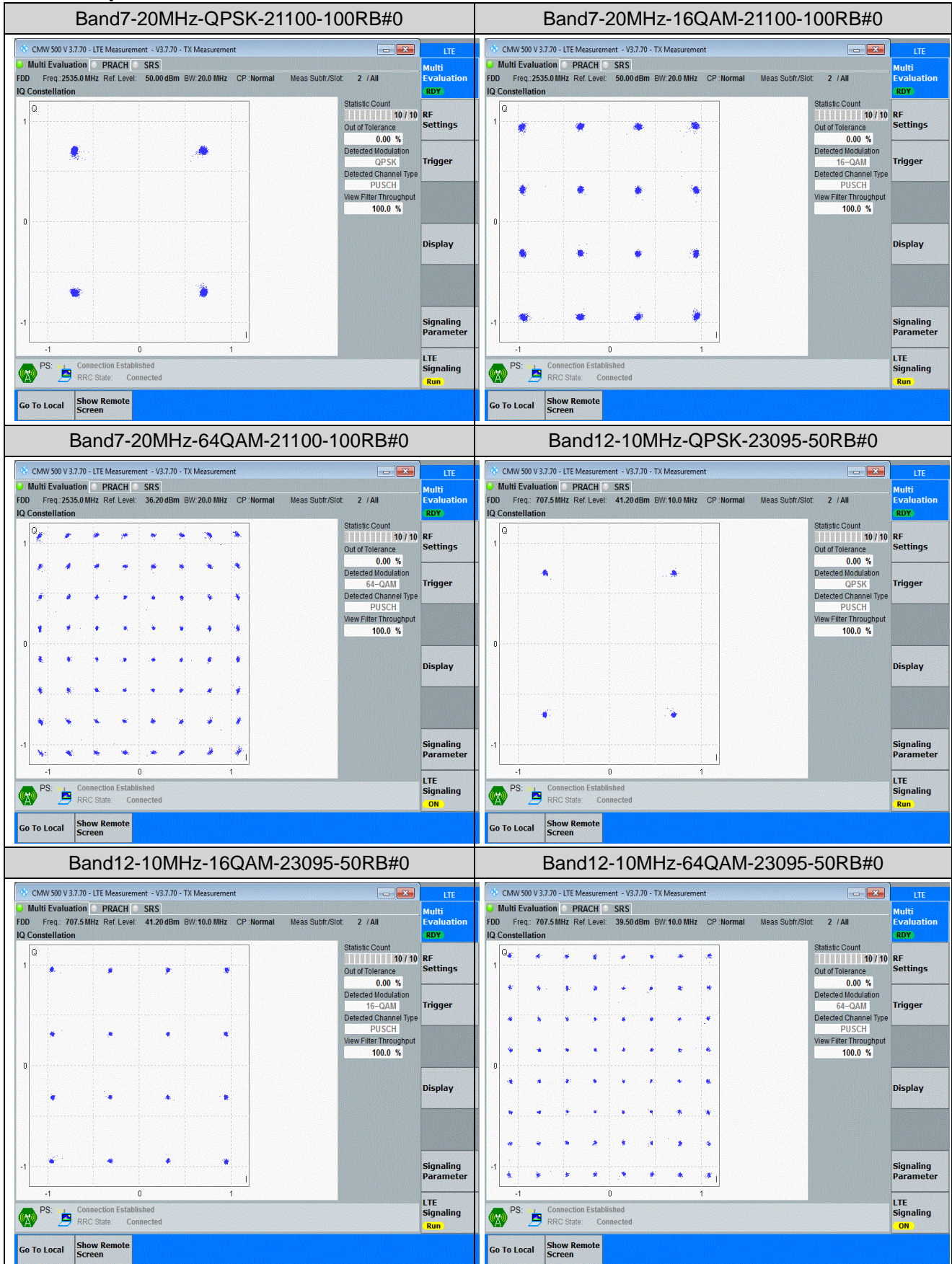
Appendix G: Modulation Characteristics

Test Result

Band	Bandwidth	Modulation	Channel	RB Configuration	Result	Verdict
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
Band13	10MHz	QPSK	23230	50RB#0	PASS	PASS
Band13	10MHz	16QAM	23230	50RB#0	PASS	PASS
Band13	10MHz	64QAM	23230	50RB#0	PASS	PASS
Band25	20MHz	QPSK	26365	100RB#0	PASS	PASS
Band25	20MHz	16QAM	26365	100RB#0	PASS	PASS
Band25	20MHz	64QAM	26365	100RB#0	PASS	PASS
Band26	10MHz	QPSK	26740	50RB#0	PASS	PASS
Band26	10MHz	16QAM	26740	50RB#0	PASS	PASS
Band26	10MHz	64QAM	26740	50RB#0	PASS	PASS
Band26	15MHz	QPSK	26915	75RB#0	PASS	PASS
Band26	15MHz	16QAM	26915	75RB#0	PASS	PASS
Band26	15MHz	64QAM	26915	75RB#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

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

Test Graphs



<p align="center">Band13-10MHz-QPSK-23230-50RB#0</p>	<p align="center">Band13-10MHz-16QAM-23230-50RB#0</p>
<p align="center">Band13-10MHz-64QAM-23230-50RB#0</p>	<p align="center">Band25-20MHz-QPSK-26365-100RB#0</p>
<p align="center">Band25-20MHz-16QAM-26365-100RB#0</p>	<p align="center">Band25-20MHz-64QAM-26365-100RB#0</p>
<p align="center">Band26-10MHz-QPSK-26740-50RB#0</p>	<p align="center">Band26-10MHz-16QAM-26740-50RB#0</p>

