











































## Appendix F: Frequency Stability

### Test Result

Channel Bandwidth: 1.4 MHz

Channel Bandwidth: 1.4 MHz							
Voltage							
Modulation	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	LCH	3.35	25	-3.89	-0.005500	± 2.5	PASS
		3.85	25	-1.62	-0.002310	± 2.5	PASS
		4.45	25	4.91	0.006995	± 2.5	PASS
	MCH	3.35	25	14.91	0.021249	± 2.5	PASS
		3.85	25	23.63	0.033688	± 2.5	PASS
		4.45	25	29.87	0.042579	± 2.5	PASS
	HCH	3.35	25	-17.85	-0.025449	± 2.5	PASS
		3.85	25	-33.63	-0.047942	± 2.5	PASS
		4.45	25	-17.02	-0.024267	± 2.5	PASS
16QAM	LCH	3.35	25	0.34	0.000481	± 2.5	PASS
		3.85	25	-8.88	-0.012451	± 2.5	PASS
		4.45	25	-13.35	-0.018706	± 2.5	PASS
	MCH	3.35	25	-18.10	-0.025362	± 2.5	PASS
		3.85	25	-12.99	-0.018359	± 2.5	PASS
		4.45	25	8.87	0.012431	± 2.5	PASS
	HCH	3.35	25	12.13	0.016978	± 2.5	PASS
		3.85	25	24.12	0.033756	± 2.5	PASS
		4.45	25	32.84	0.045969	± 2.5	PASS
Temperature							
Modulation	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	LCH	3.85	-30	-5.39	-0.007623	± 2.5	PASS
		3.85	-20	20.34	0.029039	± 2.5	PASS
		3.85	-10	33.14	0.047316	± 2.5	PASS
		3.85	0	46.31	0.066104	± 2.5	PASS
		3.85	10	3.92	0.005595	± 2.5	PASS
		3.85	20	-9.77	-0.013964	± 2.5	PASS
		3.85	30	-17.68	-0.025270	± 2.5	PASS
		3.85	40	-22.16	-0.031669	± 2.5	PASS
		3.85	50	-27.81	-0.039744	± 2.5	PASS
	MCH	3.85	-30	-17.07	-0.024122	± 2.5	PASS

		3.85	-20	-29.80	-0.042117	± 2.5	PASS	
		3.85	-10	-39.94	-0.056452	± 2.5	PASS	
		3.85	0	0.33	0.000465	± 2.5	PASS	
		3.85	10	-1.89	-0.002643	± 2.5	PASS	
		3.85	20	-22.39	-0.031643	± 2.5	PASS	
		3.85	30	-36.78	-0.051984	± 2.5	PASS	
		3.85	40	-0.10	-0.000142	± 2.5	PASS	
		3.85	50	-9.78	-0.013830	± 2.5	PASS	
	HCH	3.85	-30	1.99	0.002810	± 2.5	PASS	
		3.85	-20	15.95	0.022544	± 2.5	PASS	
		3.85	-10	27.14	0.038356	± 2.5	PASS	
		3.85	0	36.76	0.051963	± 2.5	PASS	
		3.85	10	-18.42	-0.025787	± 2.5	PASS	
		3.85	20	-8.77	-0.012259	± 2.5	PASS	
		3.85	30	-18.83	-0.026318	± 2.5	PASS	
		3.85	40	-22.73	-0.031778	± 2.5	PASS	
	16QAM	LCH	3.85	50	-25.95	-0.036278	± 2.5	PASS
			3.85	-30	-10.80	-0.015266	± 2.5	PASS
3.85			-20	-9.66	-0.013514	± 2.5	PASS	
3.85			-10	-17.34	-0.024266	± 2.5	PASS	
3.85			0	-23.19	-0.032454	± 2.5	PASS	
3.85			10	-26.55	-0.037159	± 2.5	PASS	
3.85			20	-5.98	-0.008546	± 2.5	PASS	
3.85			30	4.95	0.007074	± 2.5	PASS	
MCH		3.85	40	15.86	0.022673	± 2.5	PASS	
		3.85	50	26.75	0.038231	± 2.5	PASS	
		3.85	-30	6.64	0.009475	± 2.5	PASS	
		3.85	-20	-21.79	-0.030794	± 2.5	PASS	
		3.85	-10	-33.76	-0.047717	± 2.5	PASS	
		3.85	0	-45.38	-0.064135	± 2.5	PASS	
		3.85	10	-11.37	-0.016074	± 2.5	PASS	
		3.85	20	-2.62	-0.003700	± 2.5	PASS	
HCH		3.85	30	8.96	0.012657	± 2.5	PASS	
		3.85	40	17.78	0.025133	± 2.5	PASS	
	3.85	50	24.86	0.035141	± 2.5	PASS		
	3.85	-30	11.97	0.017093	± 2.5	PASS		
	3.85	-20	-4.15	-0.005922	± 2.5	PASS		
	3.85	-10	-19.80	-0.028263	± 2.5	PASS		
		3.85	0	-33.04	-0.047173	± 2.5	PASS	
		3.85	10	-43.62	-0.062265	± 2.5	PASS	
		3.85	20	9.37	0.013099	± 2.5	PASS	

		3.85	30	28.74	0.040178	± 2.5	PASS
		3.85	40	41.77	0.058396	± 2.5	PASS
		3.85	50	-0.04	-0.000060	± 2.5	PASS