







































## 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	4.35	25	-13.76	-0.007553	± 2.5	PASS
		4	25	-13.18	-0.007119	± 2.5	PASS
		3.7	25	-13.02	-0.007014	± 2.5	PASS
	MCH	4.35	25	-12.86	-0.006879	± 2.5	PASS
		4	25	-5.24	-0.002785	± 2.5	PASS
		3.7	25	-5.10	-0.002631	± 2.5	PASS
	HCH	4.35	25	-4.84	-0.002453	± 2.5	PASS
		4	25	-10.97	-0.005747	± 2.5	PASS
		3.7	25	-10.63	-0.005453	± 2.5	PASS
16QAM	LCH	4.35	25	-10.24	-0.005291	± 2.5	PASS
		4	25	-2.16	-0.001167	± 2.5	PASS
		3.7	25	-2.09	-0.001120	± 2.5	PASS
	MCH	4.35	25	-1.87	-0.000986	± 2.5	PASS
		4	25	-5.84	-0.003105	± 2.5	PASS
		3.7	25	-5.61	-0.002912	± 2.5	PASS
	HCH	4.35	25	5.29	-0.002549	± 2.5	PASS
		4	25	-6.07	-0.003177	± 2.5	PASS
		3.7	25	-5.74	-0.002822	± 2.5	PASS
Temperature							
Modulation	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	LCH	4	-30	-10.60	-0.005417	± 2.5	PASS
		4	-20	-10.43	-0.005282	± 2.5	PASS
		4	-10	-10.15	-0.004991	± 2.5	PASS
		4	0	-9.81	-0.004625	± 2.5	PASS
		4	10	-9.62	-0.004480	± 2.5	PASS
		4	20	-8.65	-0.004076	± 2.5	PASS
		4	30	-3.92	-0.002118	± 2.5	PASS
		4	40	-4.48	-0.002419	± 2.5	PASS
	MCH	4	50	-5.61	-0.003030	± 2.5	PASS
		4	-30	-5.45	-0.002879	± 2.5	PASS
		4	-20	-5.23	-0.002702	± 2.5	PASS
		4	-10	-5.10	-0.002637	± 2.5	PASS
		4	0	-4.83	-0.002503	± 2.5	PASS
		4	10	-4.65	-0.002417	± 2.5	PASS
		4	20	-1.52	-0.000807	± 2.5	PASS
		4	30	-4.23	-0.002252	± 2.5	PASS
4	40	-2.55	-0.001354	± 2.5	PASS		

	HCH	4	50	-5.94	-0.003158	± 2.5	PASS
		4	-30	-5.86	-0.003091	± 2.5	PASS
		4	-20	-5.72	-0.002922	± 2.5	PASS
		4	-10	-5.51	-0.002809	± 2.5	PASS
		4	0	-5.32	-0.002712	± 2.5	PASS
		4	10	-6.54	-0.003518	± 2.5	PASS
		4	20	-6.38	-0.003342	± 2.5	PASS
		4	30	-5.94	-0.003109	± 2.5	PASS
		4	40	-3.91	-0.002045	± 2.5	PASS
		4	50	-5.72	-0.002997	± 2.5	PASS
16QAM	LCH	4	-30	-5.56	-0.002823	± 2.5	PASS
		4	-20	-5.44	-0.002719	± 2.5	PASS
		4	-10	-5.28	-0.002607	± 2.5	PASS
		4	0	-5.05	-0.002483	± 2.5	PASS
		4	10	-4.80	-0.002311	± 2.5	PASS
		4	20	-1.70	-0.000920	± 2.5	PASS
		4	30	-7.77	-0.004197	± 2.5	PASS
		4	40	-4.03	-0.002180	± 2.5	PASS
		4	50	-7.47	-0.004035	± 2.5	PASS
	MCH	4	-30	-7.31	-0.003920	± 2.5	PASS
		4	-20	-7.15	-0.003814	± 2.5	PASS
		4	-10	-7.03	-0.003765	± 2.5	PASS
		4	0	-6.87	-0.003638	± 2.5	PASS
		4	10	-6.61	-0.003523	± 2.5	PASS
		4	20	-10.19	-0.005418	± 2.5	PASS
		4	30	-9.86	-0.005243	± 2.5	PASS
		4	40	-8.75	-0.004657	± 2.5	PASS
		4	50	-4.31	-0.002290	± 2.5	PASS
	HCH	4	-30	-4.16	-0.002167	± 2.5	PASS
		4	-20	-4.04	-0.002058	± 2.5	PASS
		4	-10	-3.89	-0.001924	± 2.5	PASS
		4	0	-3.73	-0.001807	± 2.5	PASS
		4	10	-12.63	-0.006613	± 2.5	PASS
		4	20	-12.56	-0.006578	± 2.5	PASS
		4	30	-9.31	-0.004878	± 2.5	PASS
		4	40	-3.59	-0.001881	± 2.5	PASS
		4	50	-7.57	-0.003963	± 2.5	PASS