







## Appendix F: Frequency Stability

### Test Result

#### Channel Bandwidth: 5 MHz

Channel Bandwidth: 5 MHz							
Voltage							
Modulation	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	LCH	VL	TN	2.54	0.001101	± 2.5	PASS
		VN	TN	3.77	0.001634	± 2.5	PASS
		VH	TN	-1.08	-0.000468	± 2.5	PASS
	MCH	VL	TN	-1.04	-0.000450	± 2.5	PASS
		VN	TN	3.69	0.001597	± 2.5	PASS
		VH	TN	2.69	0.001165	± 2.5	PASS
	HCH	VL	TN	3.01	0.001302	± 2.5	PASS
		VN	TN	3.25	0.001405	± 2.5	PASS
		VH	TN	-1.9	-0.000822	± 2.5	PASS
16QAM	LCH	VL	TN	1.69	0.000732	± 2.5	PASS
		VN	TN	2.92	0.001265	± 2.5	PASS
		VH	TN	1.49	0.000646	± 2.5	PASS
	MCH	VL	TN	3.68	0.001593	± 2.5	PASS
		VN	TN	-1.05	-0.000455	± 2.5	PASS
		VH	TN	2.39	0.001035	± 2.5	PASS
	HCH	VL	TN	-1.76	-0.000761	± 2.5	PASS
		VN	TN	4.23	0.001829	± 2.5	PASS
		VH	TN	2.29	0.000990	± 2.5	PASS
Temperature							
Modulation	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	LCH	VN	-30	1.01	0.000438	± 2.5	PASS
		VN	-20	1.73	0.000750	± 2.5	PASS
		VN	-10	3.4	0.001473	± 2.5	PASS
		VN	0	-1.01	-0.000438	± 2.5	PASS
		VN	10	0.2	0.000087	± 2.5	PASS
		VN	20	-1.02	-0.000442	± 2.5	PASS
		VN	30	-1.95	-0.000845	± 2.5	PASS
		VN	40	4.75	0.002059	± 2.5	PASS
		VN	50	2.98	0.001291	± 2.5	PASS

	MCH	VN	-30	-0.2	-0.000087	± 2.5	PASS
		VN	-20	3.16	0.001368	± 2.5	PASS
		VN	-10	-0.44	-0.000190	± 2.5	PASS
		VN	0	3.03	0.001312	± 2.5	PASS
		VN	10	-0.2	-0.000087	± 2.5	PASS
		VN	20	1.74	0.000753	± 2.5	PASS
		VN	30	0.08	0.000035	± 2.5	PASS
		VN	40	-0.05	-0.000022	± 2.5	PASS
		VN	50	2.52	0.001091	± 2.5	PASS
	HCH	VN	-30	3.61	0.001561	± 2.5	PASS
		VN	-20	1.79	0.000774	± 2.5	PASS
		VN	-10	0.45	0.000195	± 2.5	PASS
		VN	0	0.13	0.000056	± 2.5	PASS
		VN	10	4.98	0.002154	± 2.5	PASS
		VN	20	2.58	0.001116	± 2.5	PASS
		VN	30	1.81	0.000783	± 2.5	PASS
		VN	40	4.02	0.001738	± 2.5	PASS
		VN	50	-1.51	-0.000653	± 2.5	PASS
16QAM	LCH	VN	-30	0.52	0.000225	± 2.5	PASS
		VN	-20	1.74	0.000754	± 2.5	PASS
		VN	-10	0.86	0.000373	± 2.5	PASS
		VN	0	1.88	0.000815	± 2.5	PASS
		VN	10	-0.47	-0.000204	± 2.5	PASS
		VN	20	4.81	0.002085	± 2.5	PASS
		VN	30	3.56	0.001543	± 2.5	PASS
		VN	40	4.04	0.001751	± 2.5	PASS
		VN	50	-1.38	-0.000598	± 2.5	PASS
	MCH	VN	-30	2.53	0.001095	± 2.5	PASS
		VN	-20	0.21	0.000091	± 2.5	PASS
		VN	-10	4.38	0.001896	± 2.5	PASS
		VN	0	-1.36	-0.000589	± 2.5	PASS
		VN	10	3.65	0.001580	± 2.5	PASS
		VN	20	0.53	0.000229	± 2.5	PASS
		VN	30	-0.99	-0.000429	± 2.5	PASS
		VN	40	-0.6	-0.000260	± 2.5	PASS
		VN	50	4.52	0.001957	± 2.5	PASS
	HCH	VN	-30	0.92	0.000398	± 2.5	PASS
		VN	-20	0.71	0.000307	± 2.5	PASS
		VN	-10	4.7	0.002032	± 2.5	PASS
		VN	0	-0.28	-0.000121	± 2.5	PASS
		VN	10	2.33	0.001008	± 2.5	PASS

		VN	20	-1.39	-0.000601	± 2.5	PASS
		VN	30	1.35	0.000584	± 2.5	PASS
		VN	40	3.65	0.001578	± 2.5	PASS
		VN	50	4.06	0.001756	± 2.5	PASS

**Channel Bandwidth: 10 MHz**

Channel Bandwidth: 10 MHz							
Voltage							
Modulation	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	MCH	VL	TN	4	0.001732	± 2.5	PASS
		VN	TN	5	0.002165	± 2.5	PASS
		VH	TN	-1.69	-0.000732	± 2.5	PASS
16QAM	MCH	VL	TN	2.24	0.000970	± 2.5	PASS
		VN	TN	1.26	0.000545	± 2.5	PASS
		VH	TN	0.68	0.000294	± 2.5	PASS
Temperature							
Modulation	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	MCH	VN	-30	2.37	0.001026	± 2.5	PASS
		VN	-20	3.43	0.001485	± 2.5	PASS
		VN	-10	1.94	0.000840	± 2.5	PASS
		VN	0	0.76	0.000329	± 2.5	PASS
		VN	10	-0.98	-0.000424	± 2.5	PASS
		VN	20	4.4	0.001905	± 2.5	PASS
		VN	30	1.77	0.000766	± 2.5	PASS
		VN	40	2.8	0.001212	± 2.5	PASS
		VN	50	3.6	0.001558	± 2.5	PASS
16QAM	MCH	VN	-30	4.55	0.001970	± 2.5	PASS
		VN	-20	0.71	0.000307	± 2.5	PASS
		VN	-10	-0.99	-0.000429	± 2.5	PASS
		VN	0	4.36	0.001887	± 2.5	PASS
		VN	10	-1.19	-0.000515	± 2.5	PASS
		VN	20	2.1	0.000909	± 2.5	PASS
		VN	30	1.7	0.000736	± 2.5	PASS
		VN	40	1.52	0.000658	± 2.5	PASS
		VN	50	2.71	0.001173	± 2.5	PASS