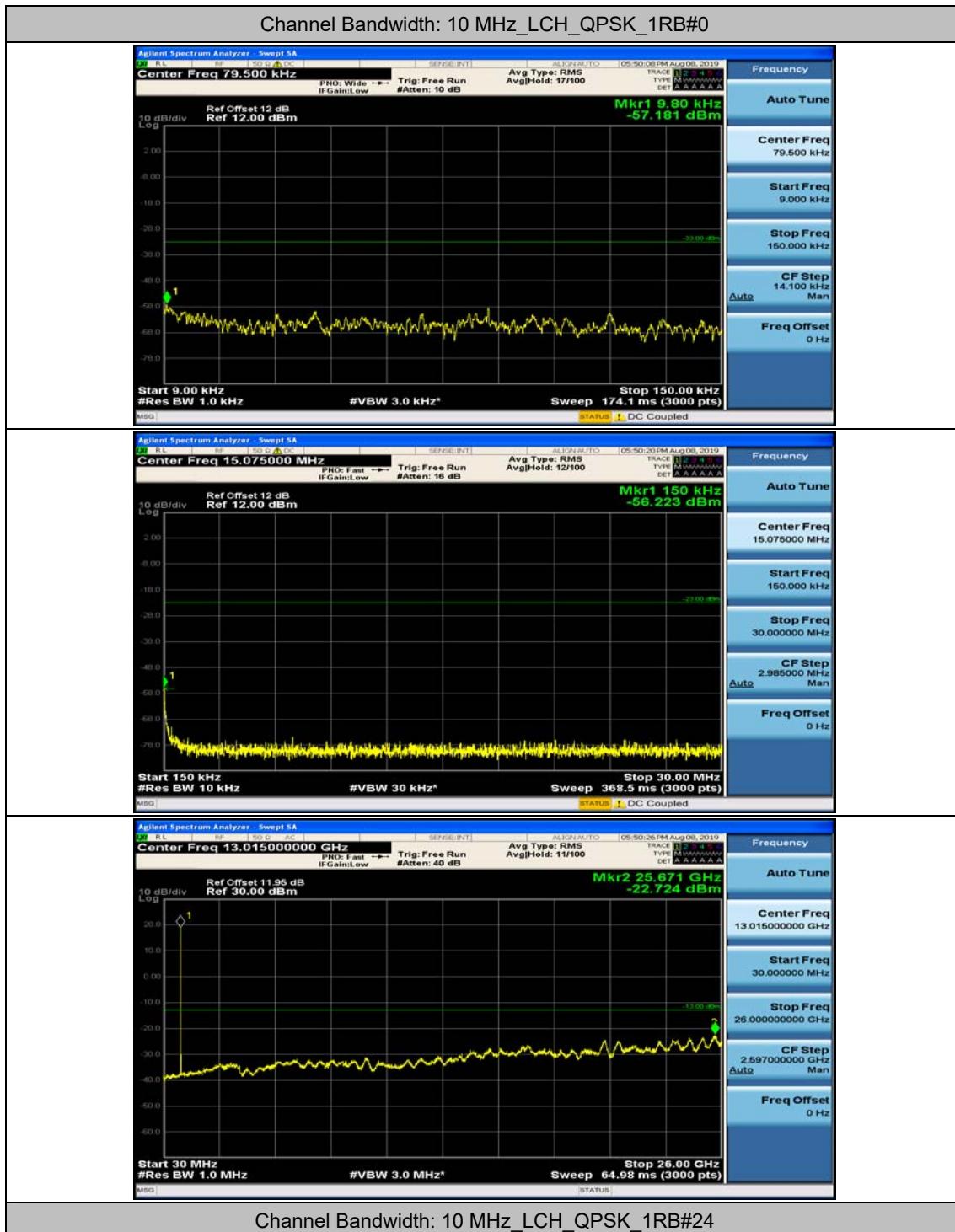
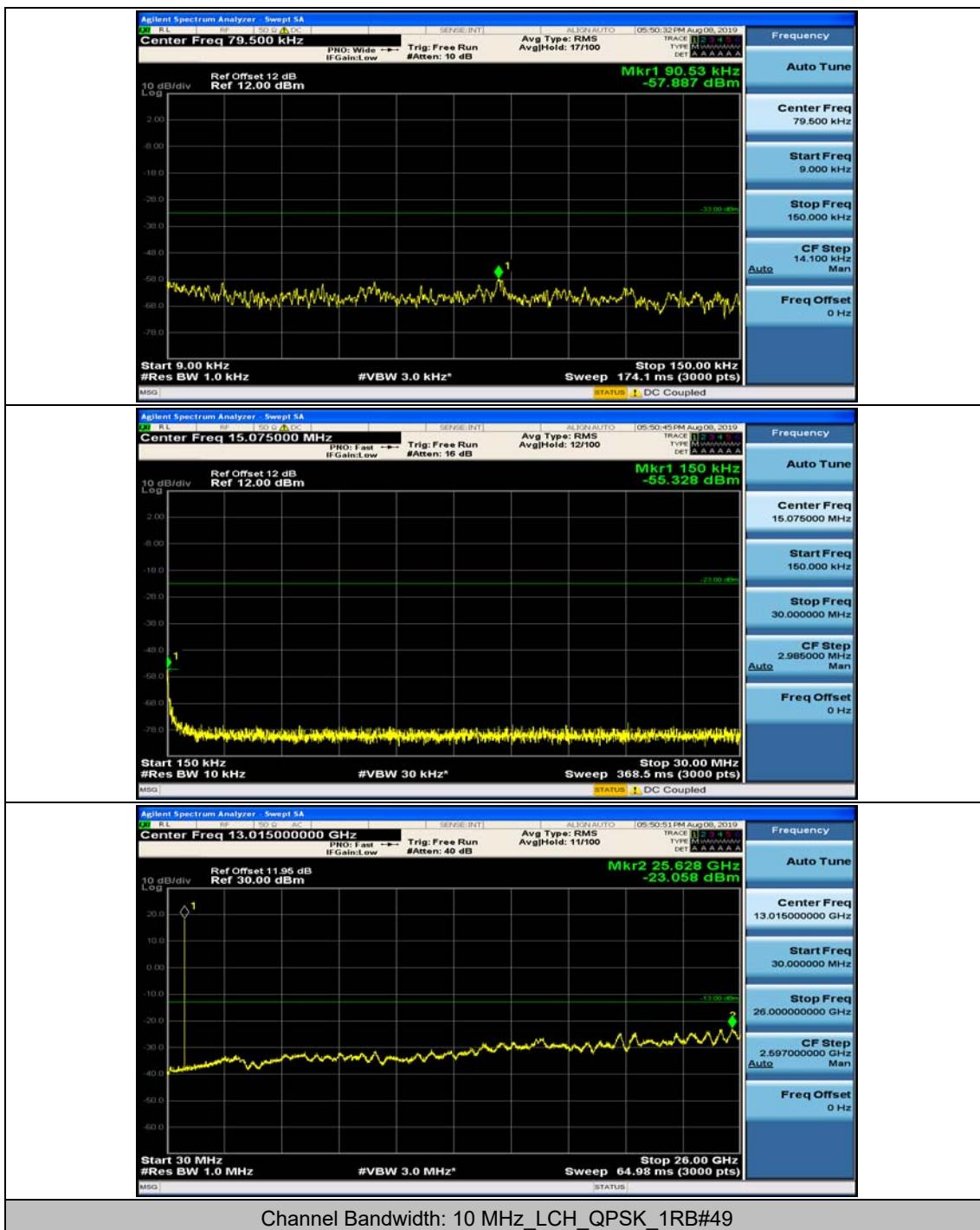
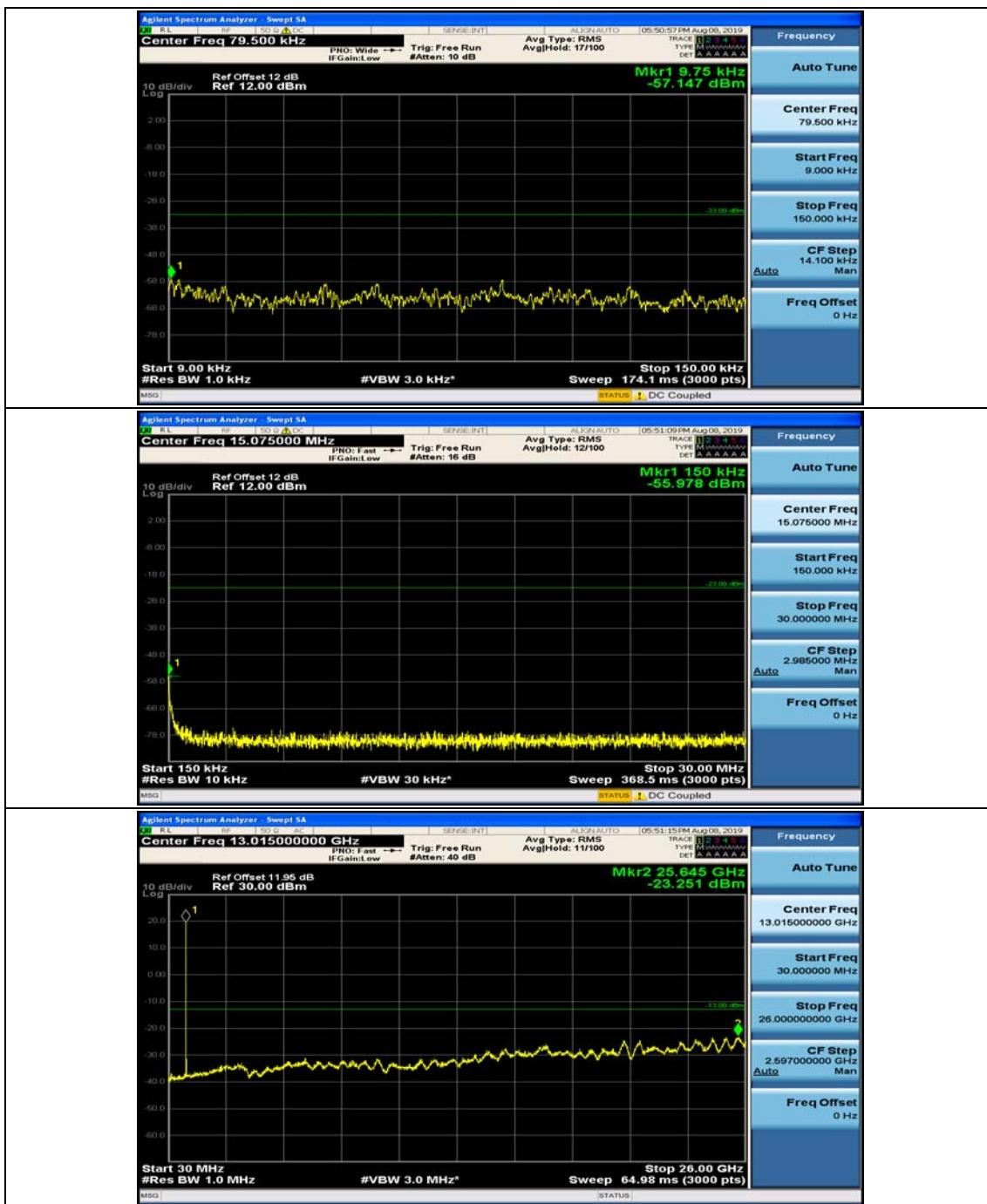
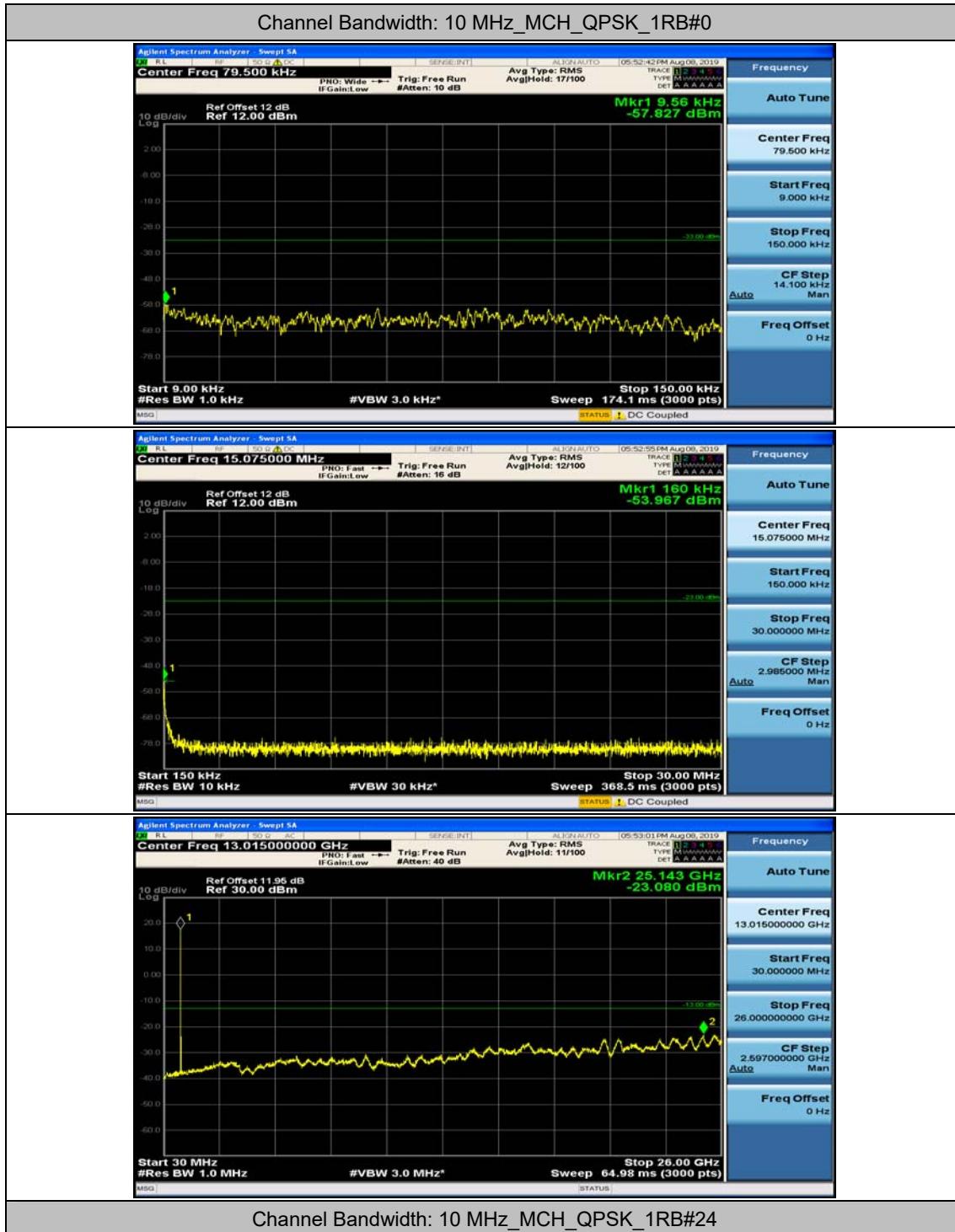


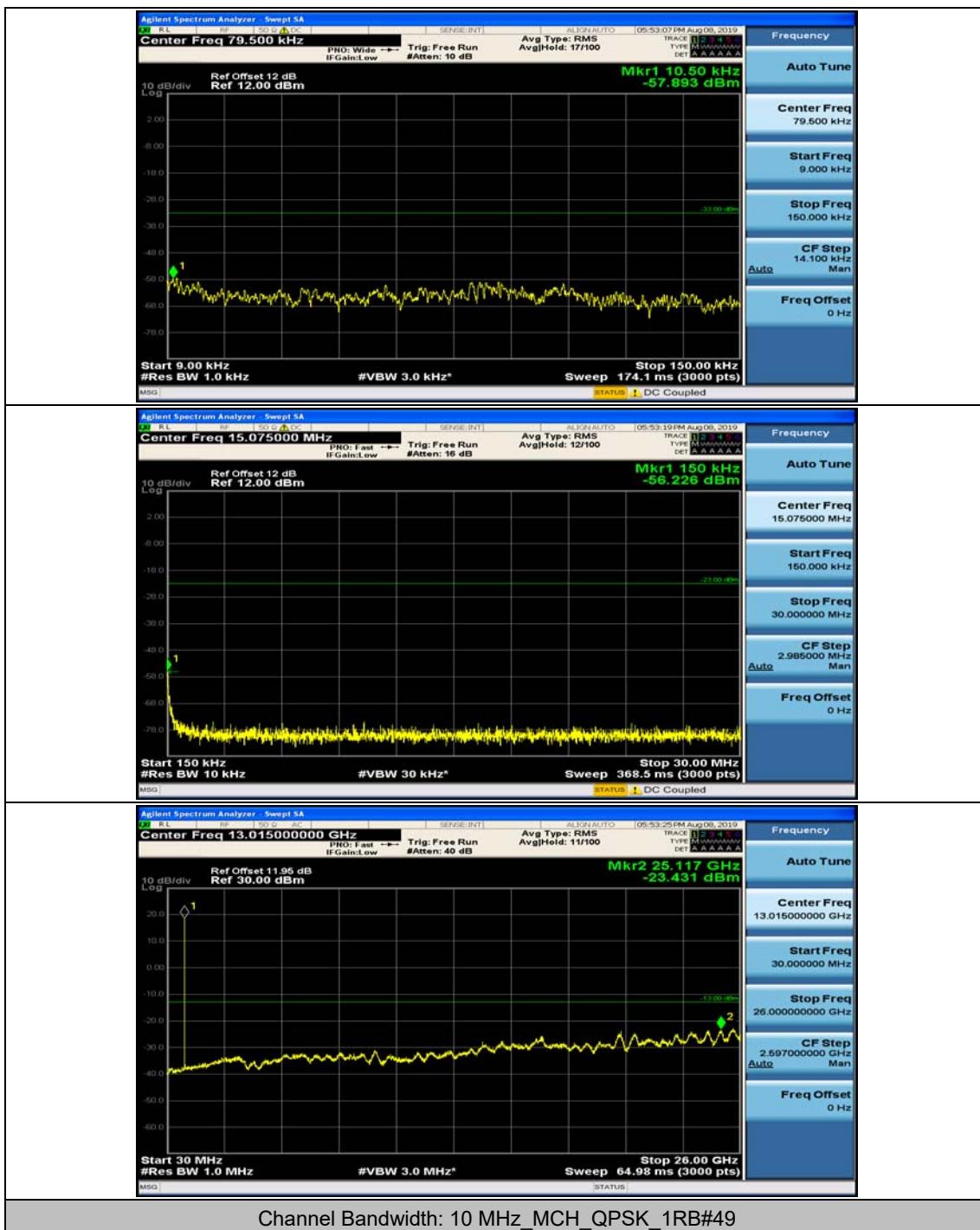
## Channel Bandwidth: 10 MHz

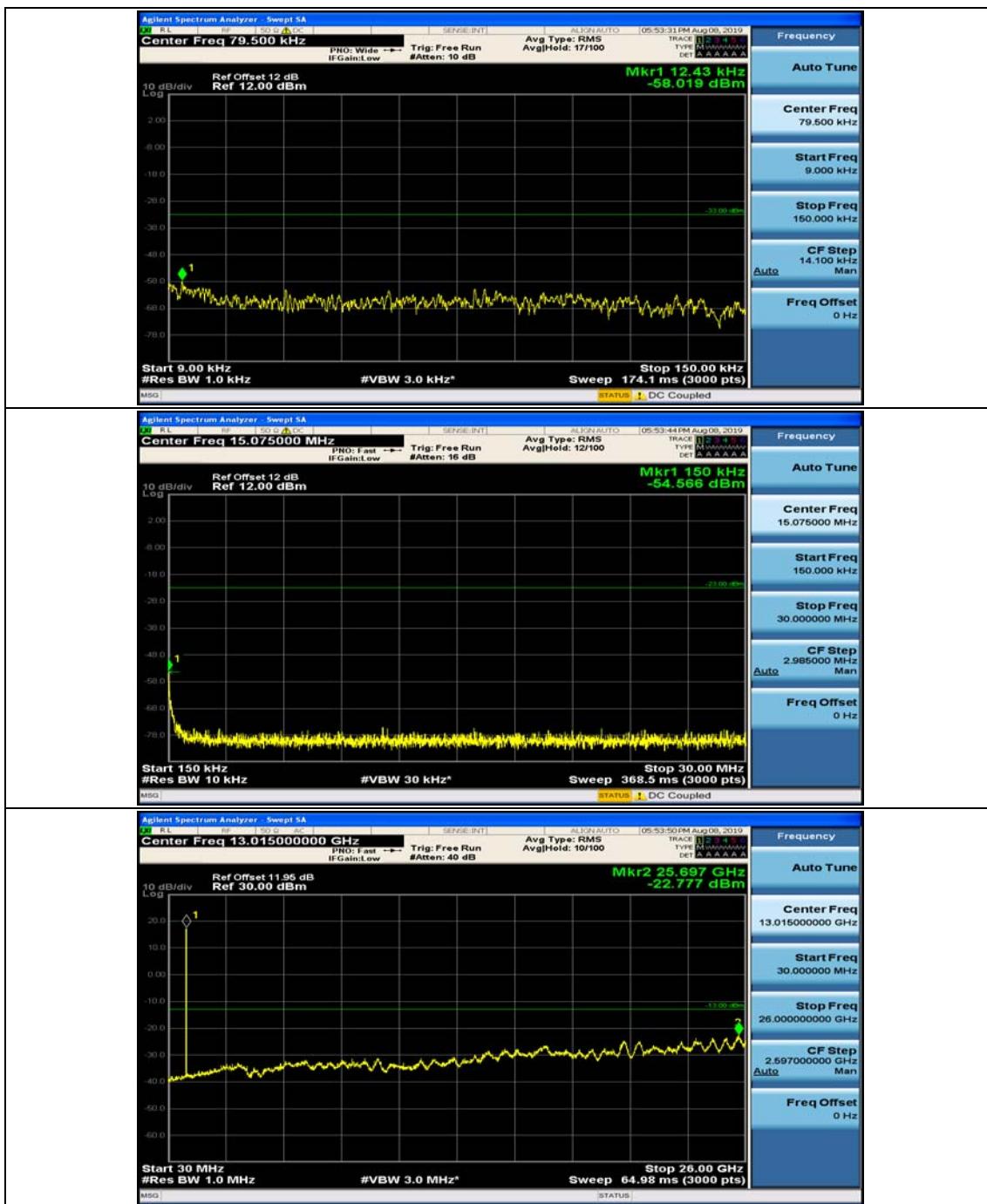


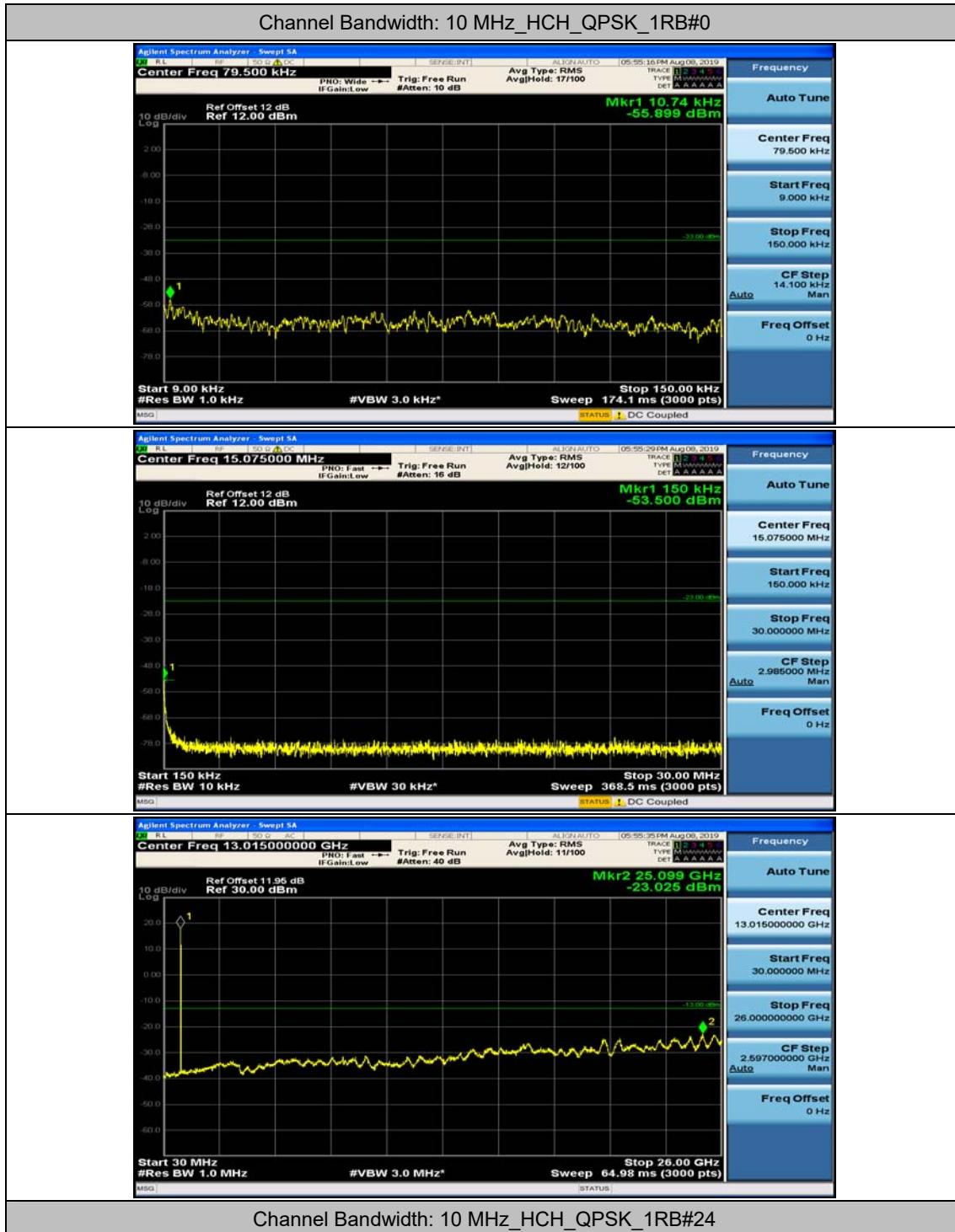


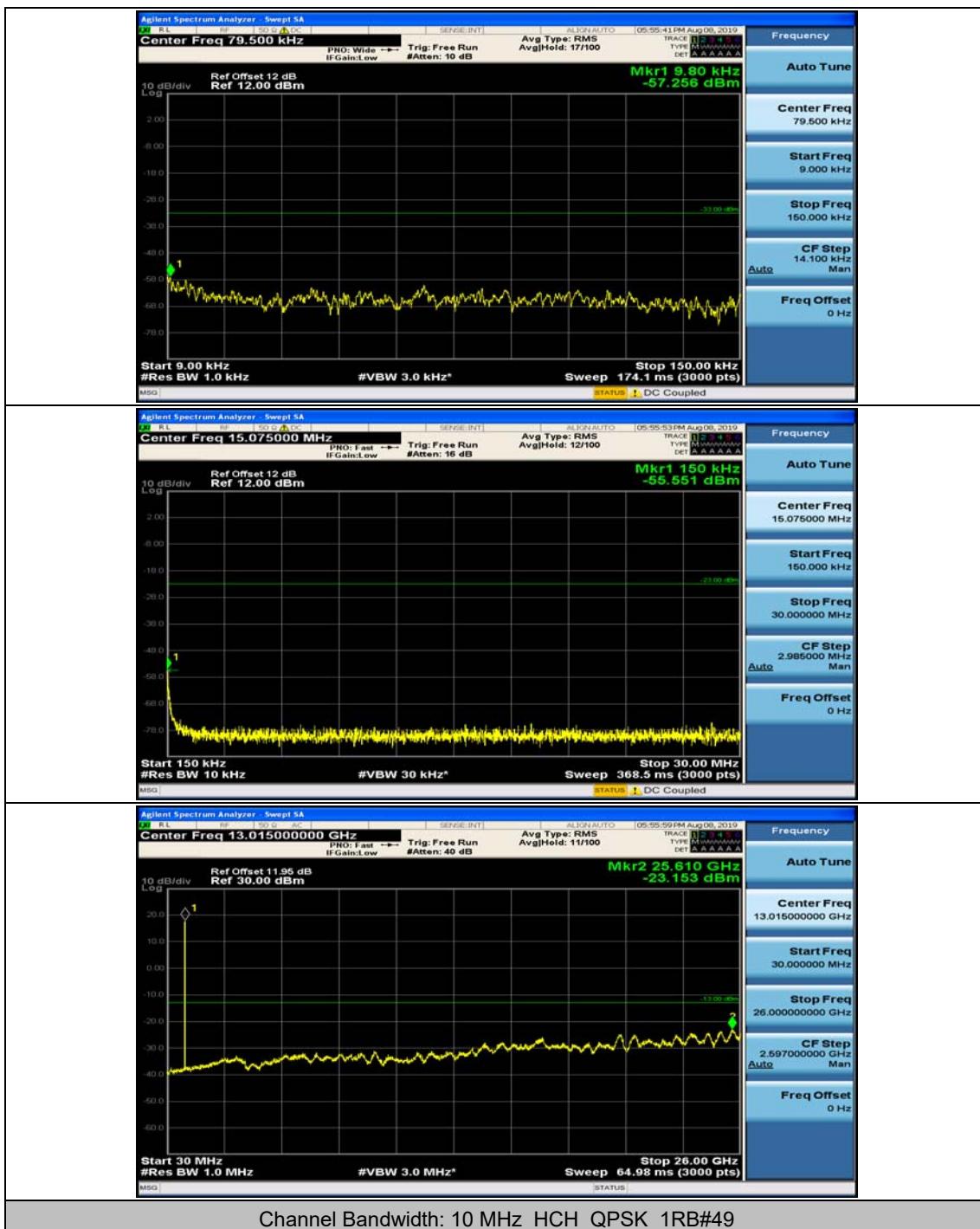


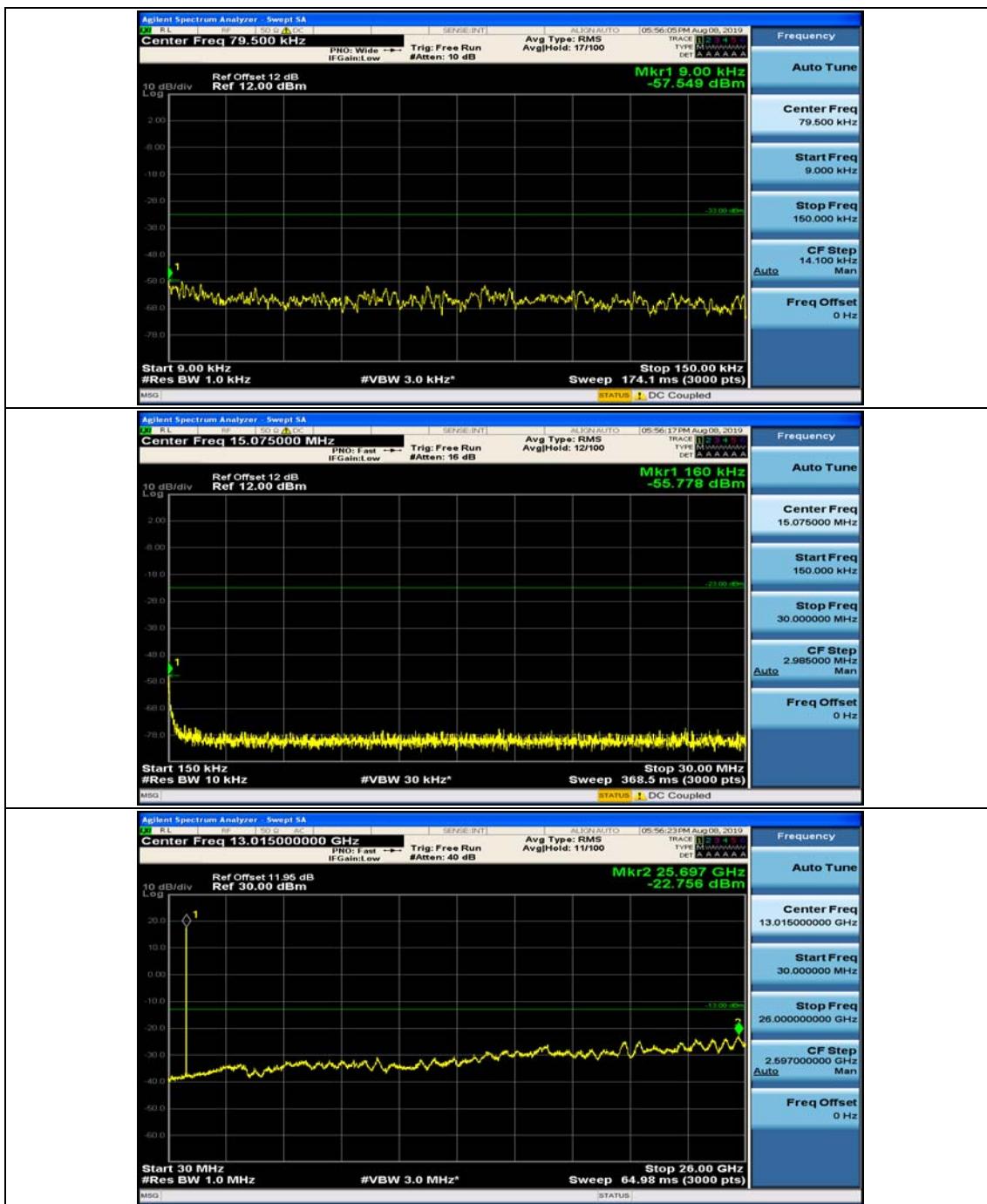


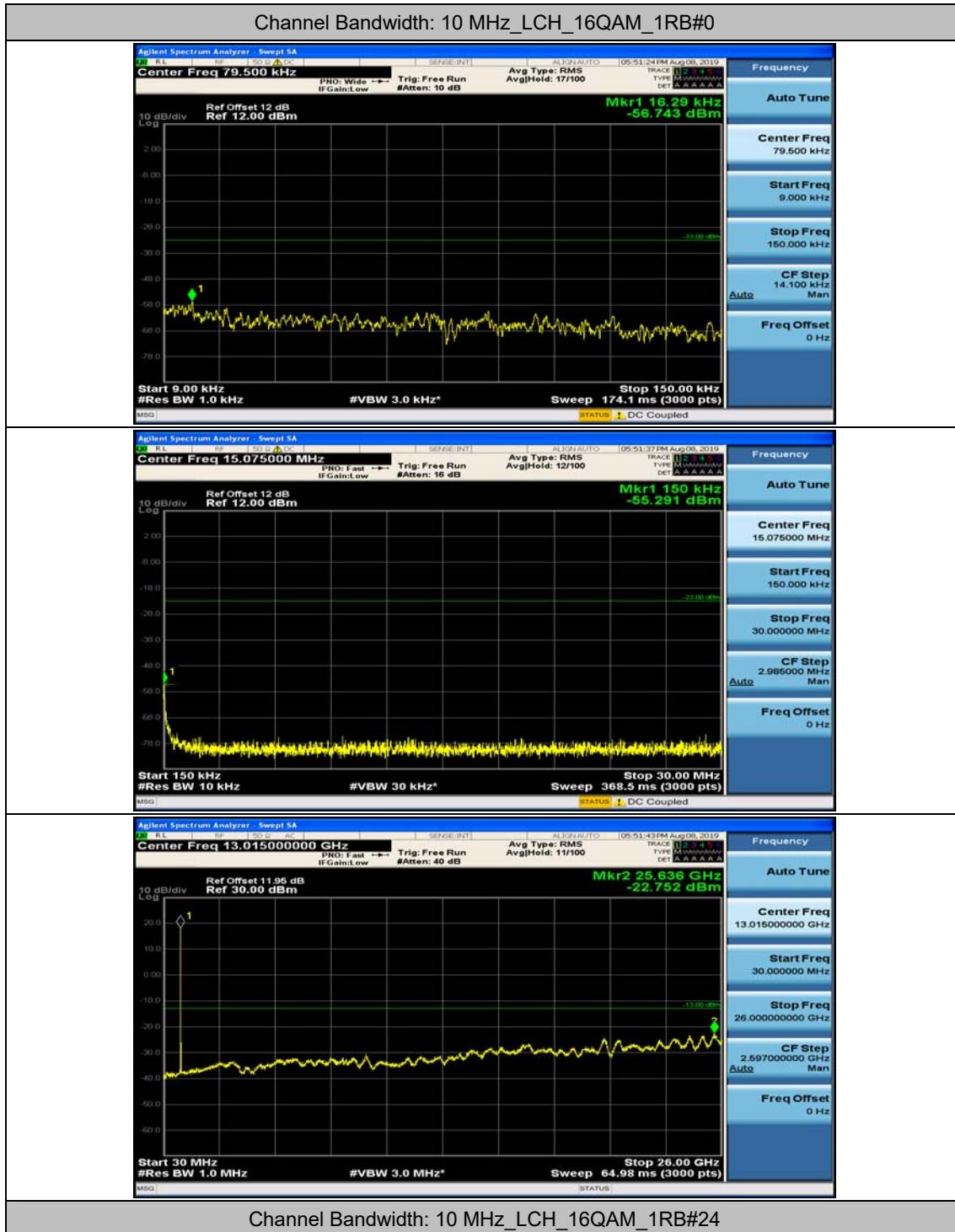


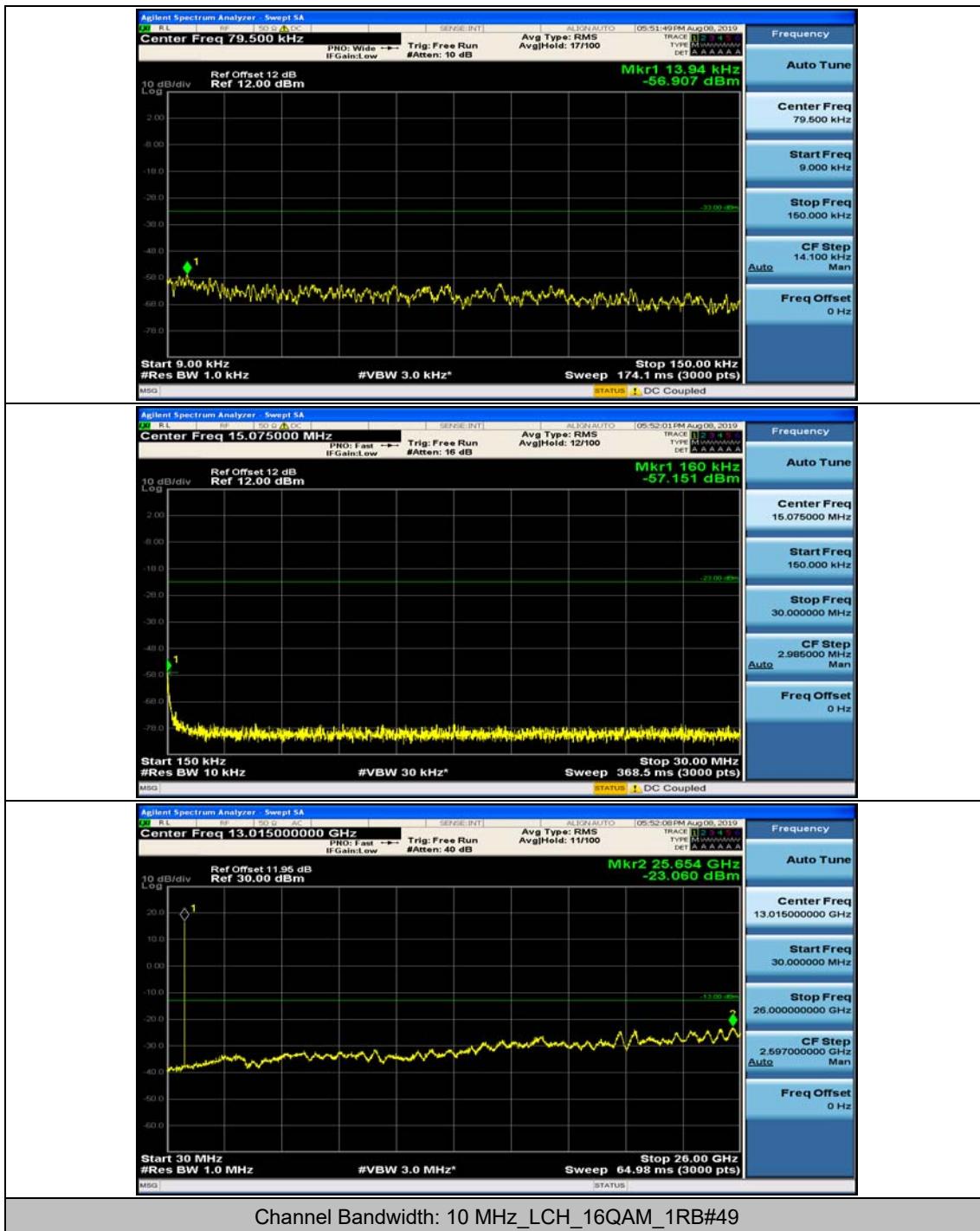


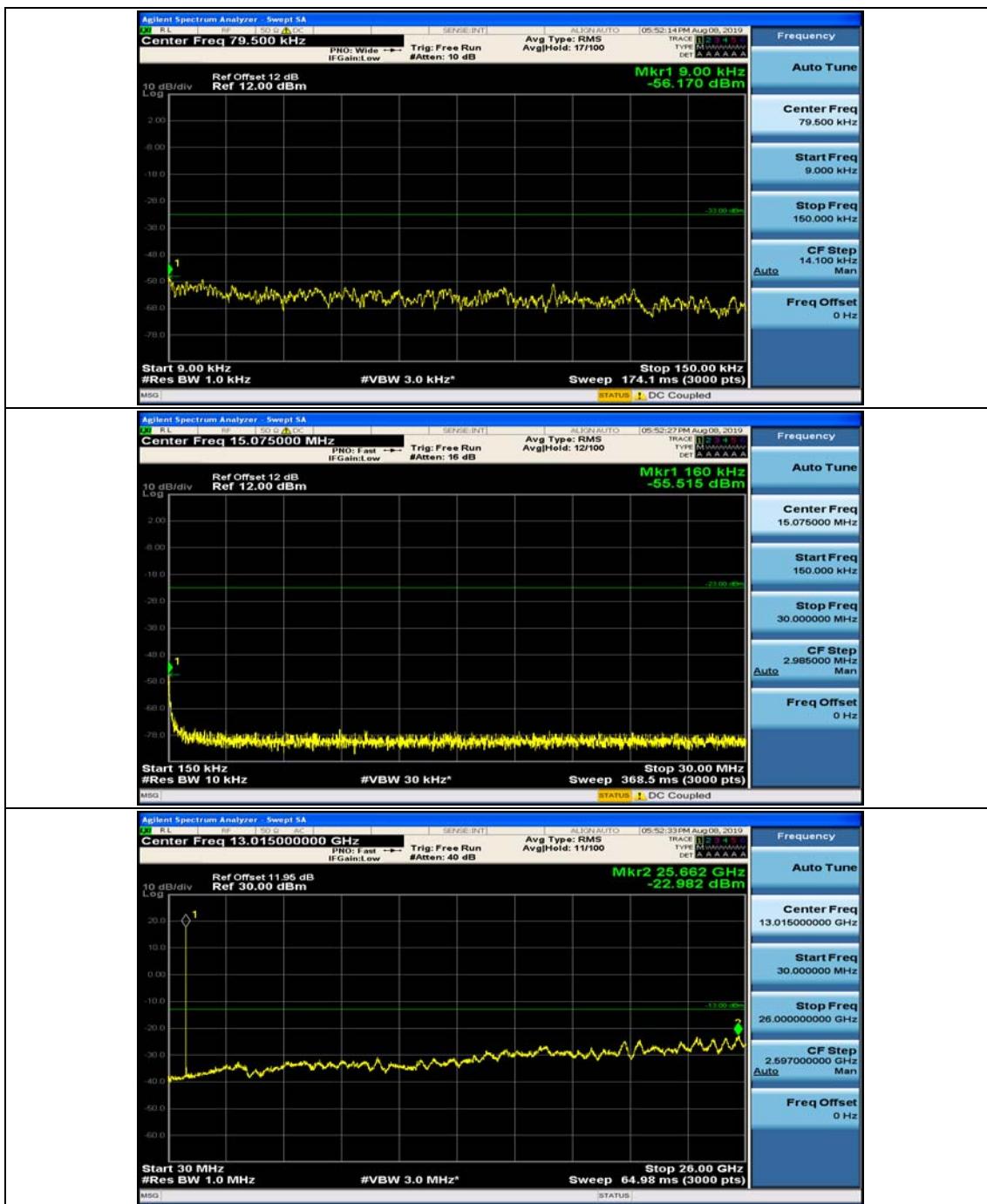


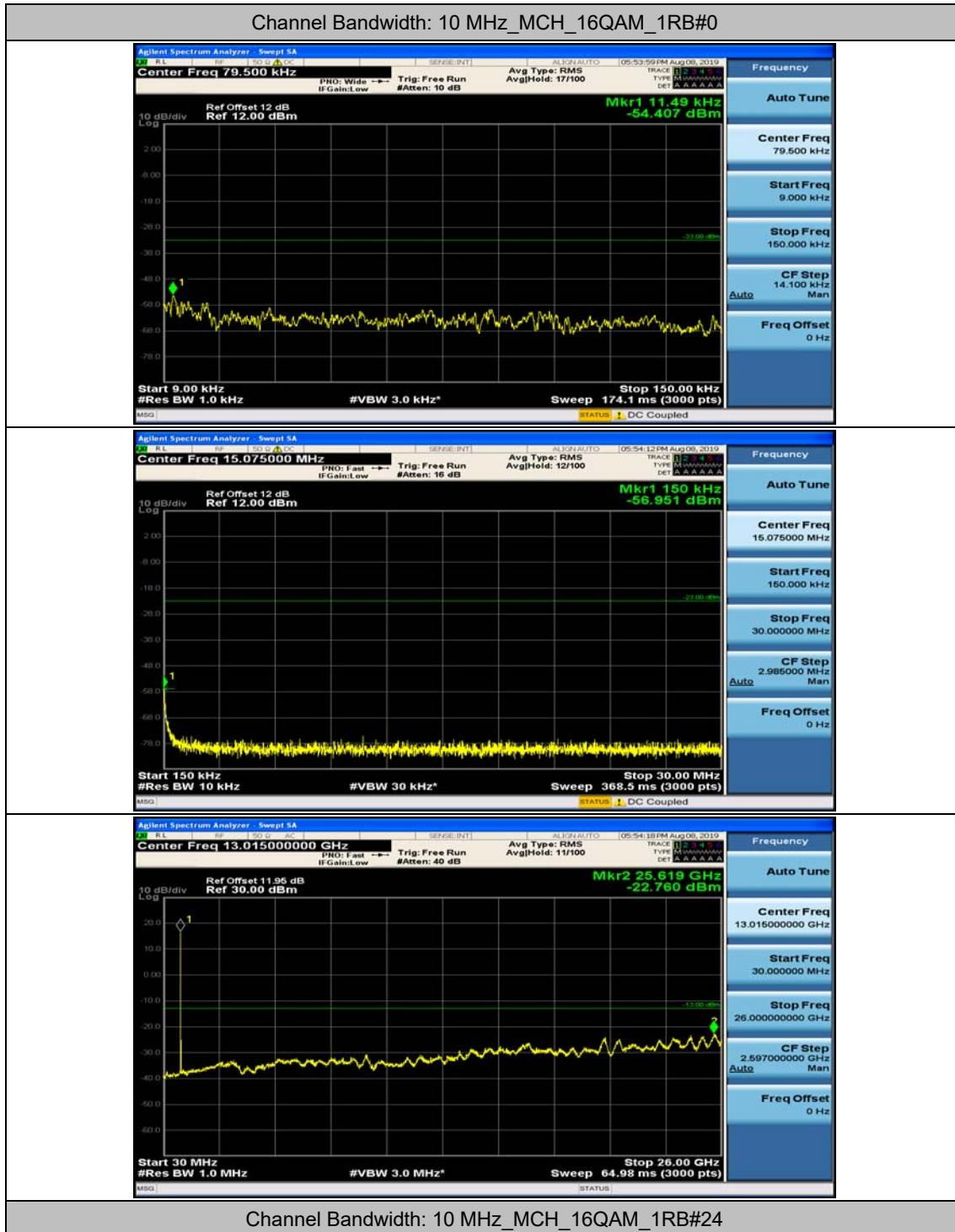


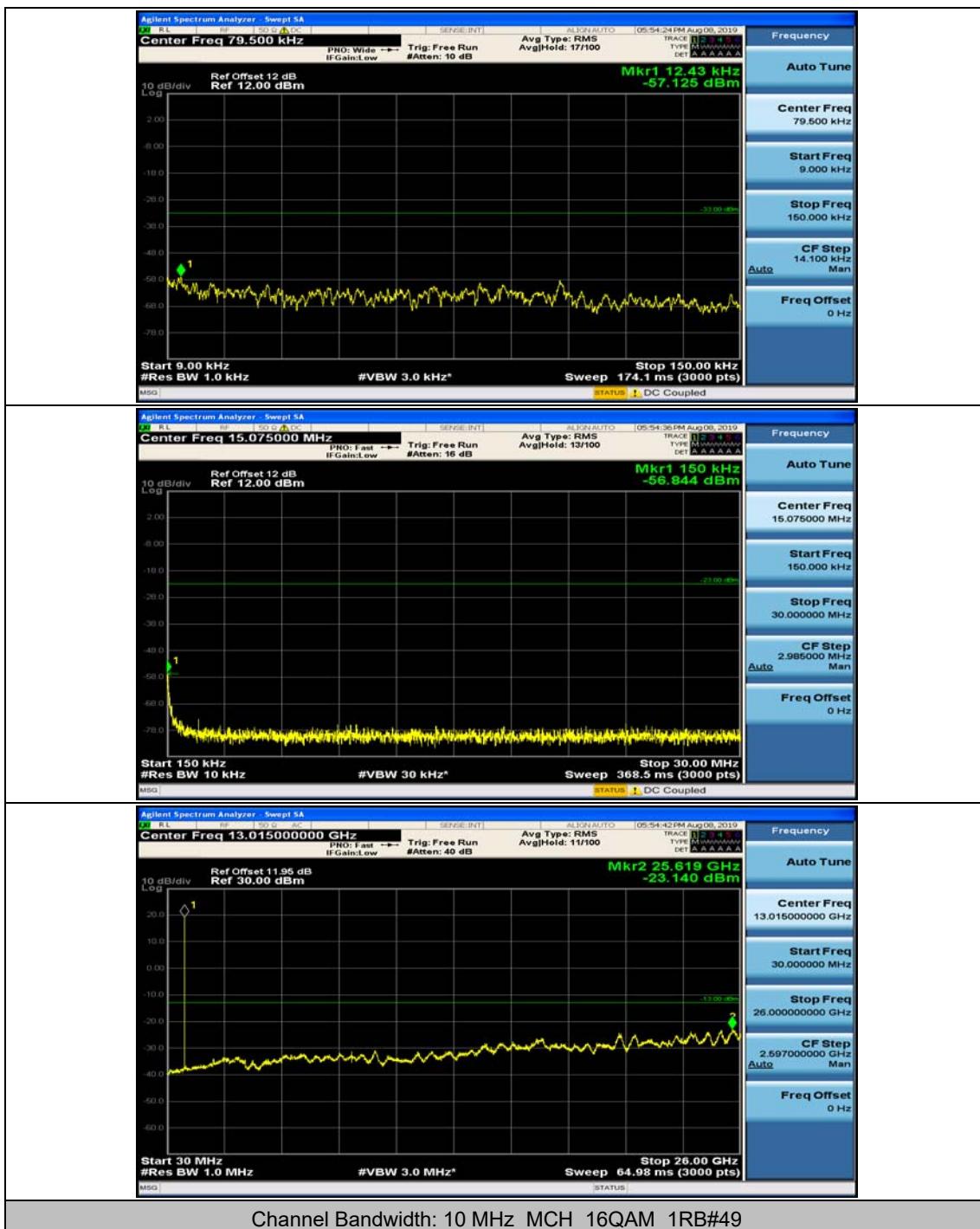


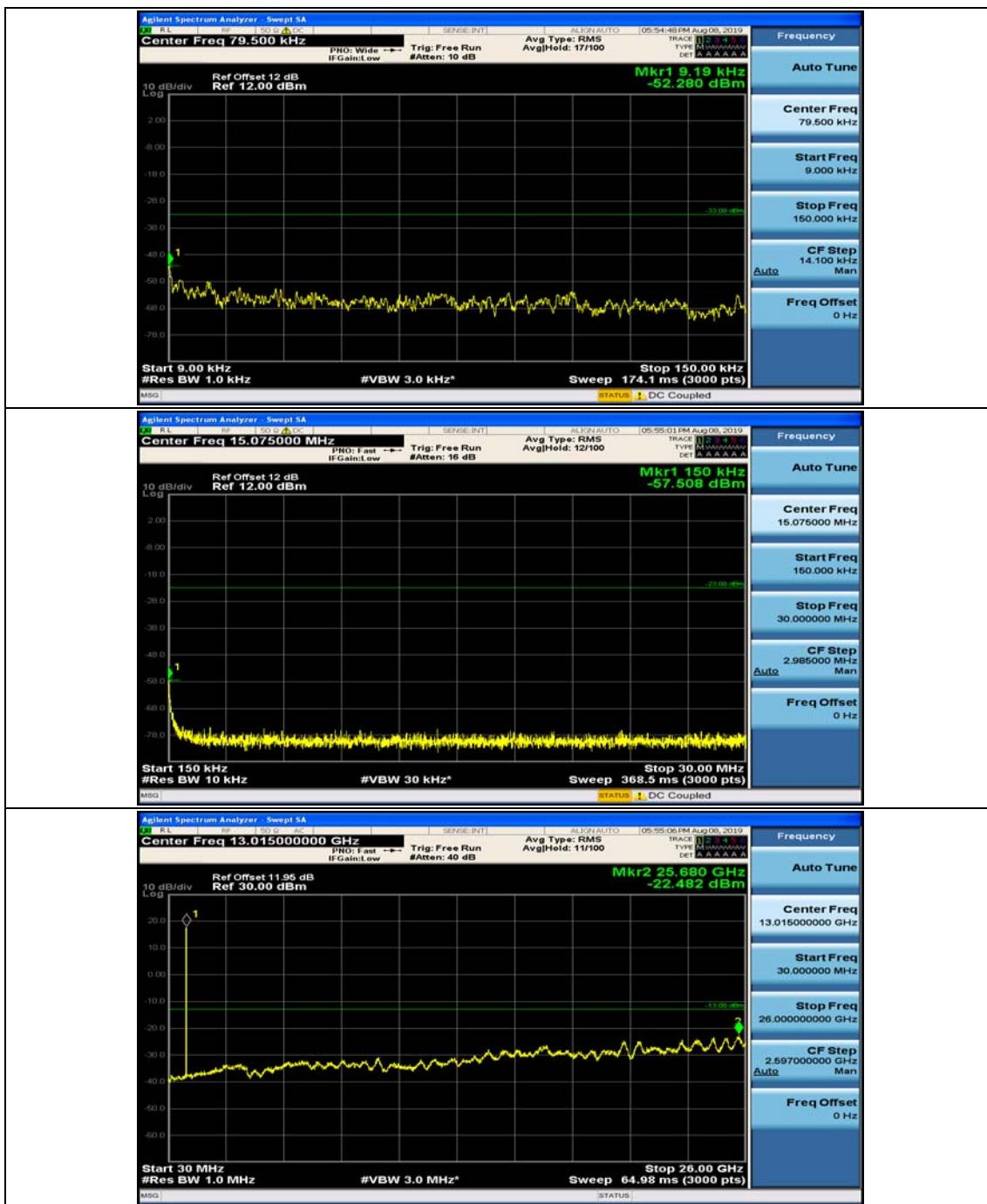


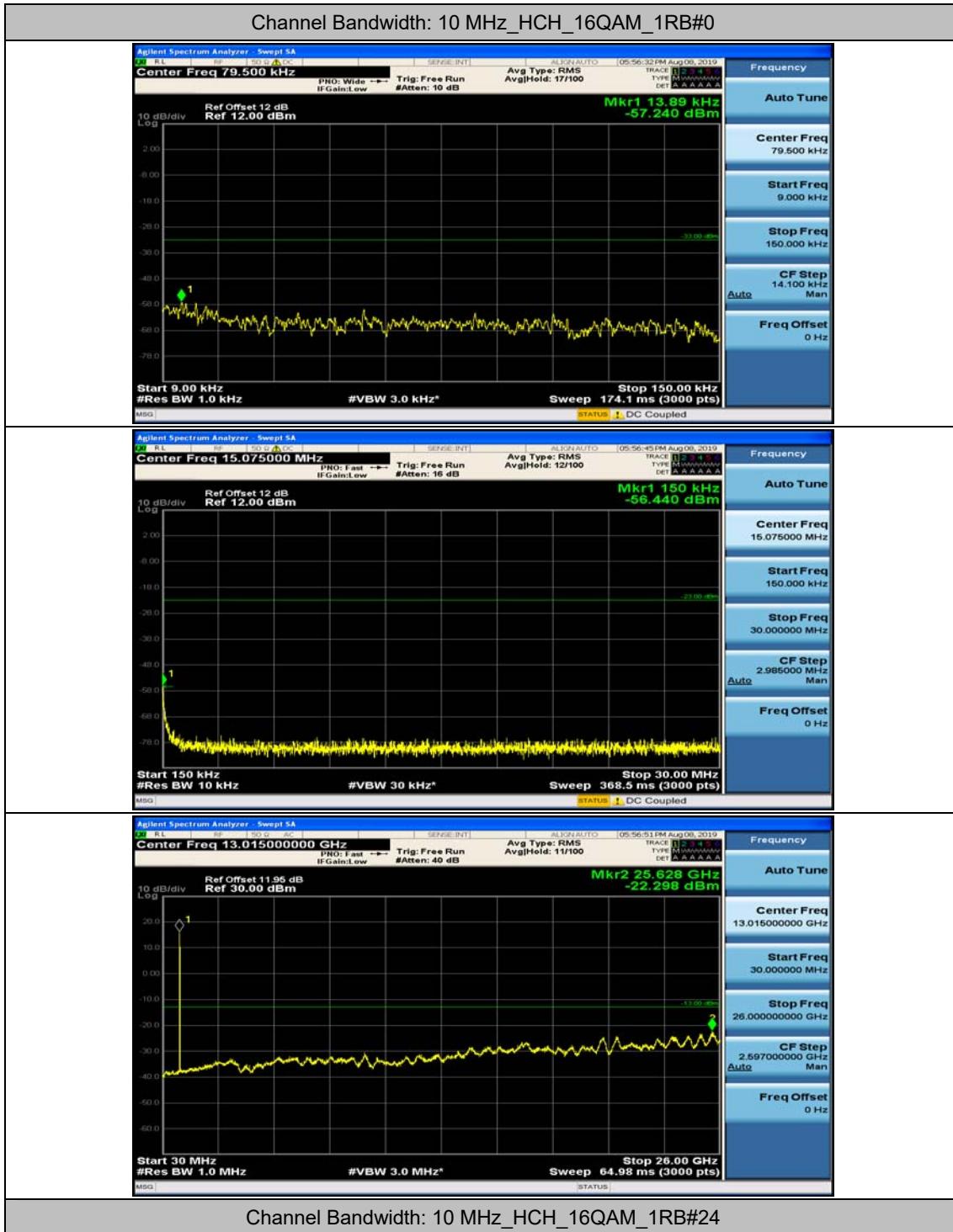


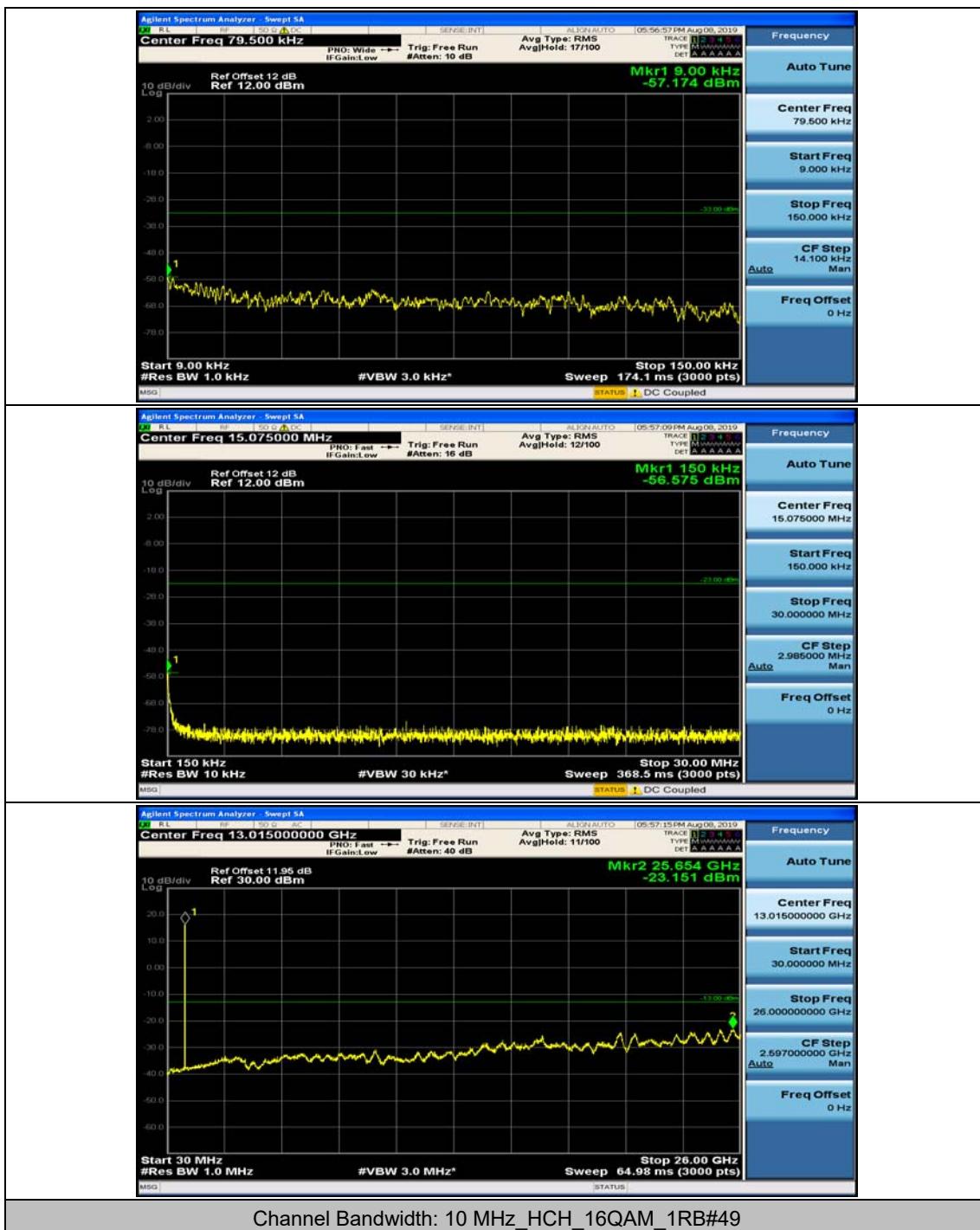


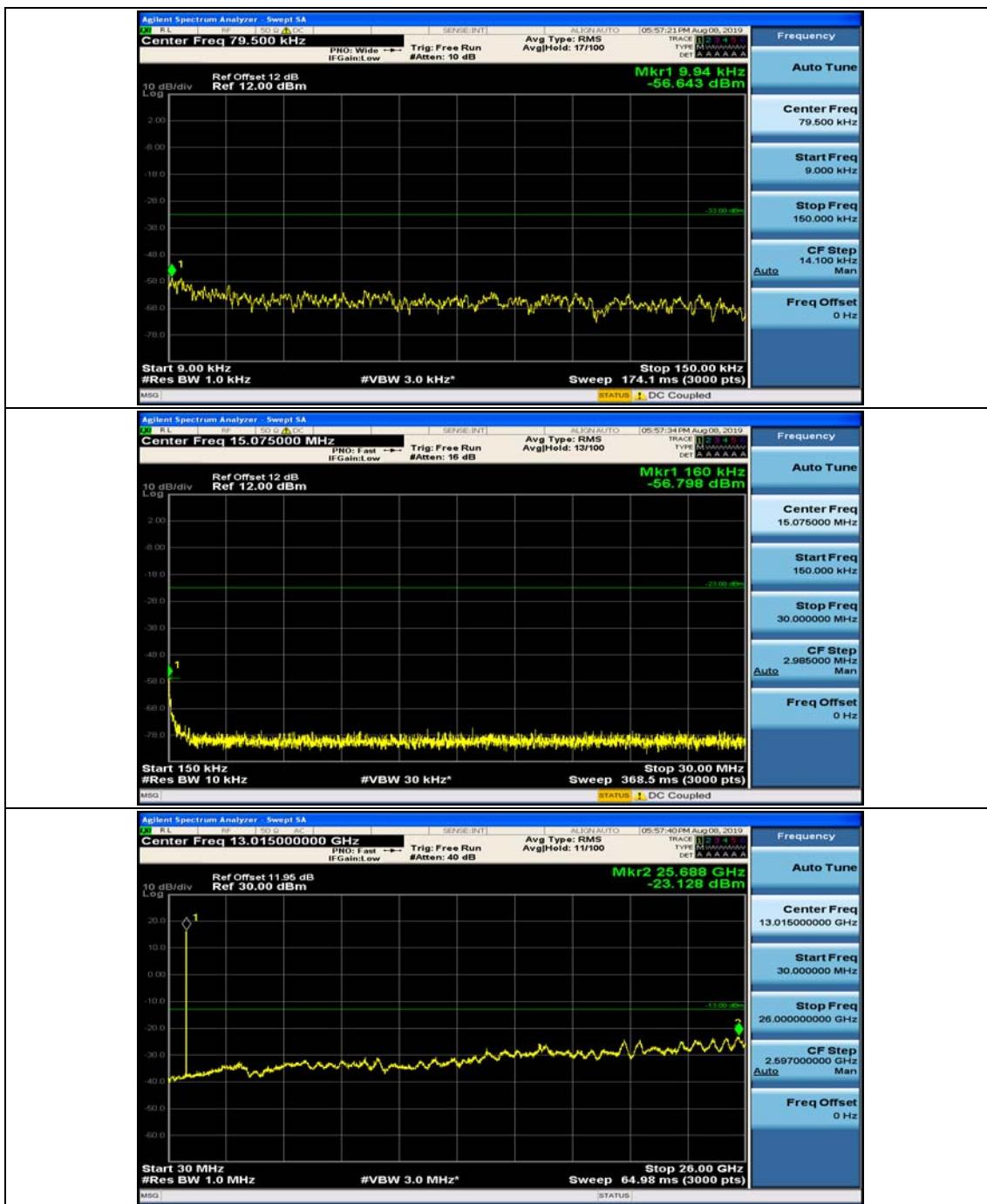












## Appendix F: Frequency Stability

### 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	VL	TN	-0.55	-0.000667	± 2.5	PASS
		VN	TN	0.93	0.001128	± 2.5	PASS
		VH	TN	0.5	0.000606	± 2.5	PASS
	MCH	VL	TN	4.31	0.005152	± 2.5	PASS
		VN	TN	0.64	0.000765	± 2.5	PASS
		VH	TN	1.45	0.001733	± 2.5	PASS
	HCH	VL	TN	1.39	0.001639	± 2.5	PASS
		VN	TN	0.63	0.000743	± 2.5	PASS
		VH	TN	1.74	0.002051	± 2.5	PASS
16QAM	LCH	VL	TN	2.17	0.002631	± 2.5	PASS
		VN	TN	2.05	0.002486	± 2.5	PASS
		VH	TN	-0.1	-0.000121	± 2.5	PASS
	MCH	VL	TN	3.06	0.003658	± 2.5	PASS
		VN	TN	3.87	0.004626	± 2.5	PASS
		VH	TN	3.84	0.004591	± 2.5	PASS
	HCH	VL	TN	0.55	0.000648	± 2.5	PASS
		VN	TN	-0.41	-0.000483	± 2.5	PASS
		VH	TN	3.01	0.003548	± 2.5	PASS
Temperature							
Modulation	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	LCH	VN	-30	4.48	0.005432	± 2.5	PASS
		VN	-20	4.71	0.005711	± 2.5	PASS
		VN	-10	0.63	0.000764	± 2.5	PASS
		VN	0	1.99	0.002413	± 2.5	PASS
		VN	10	2.46	0.002983	± 2.5	PASS
		VN	20	2.08	0.002522	± 2.5	PASS
		VN	30	1.6	0.001940	± 2.5	PASS
		VN	40	2.84	0.003444	± 2.5	PASS
		VN	50	-1.74	-0.002110	± 2.5	PASS
	MCH	VN	-30	0.16	0.000191	± 2.5	PASS
		VN	-20	4.83	0.005774	± 2.5	PASS

		VN	-10	-1.33	-0.001590	$\pm 2.5$	PASS
		VN	0	1.91	0.002283	$\pm 2.5$	PASS
		VN	10	3.38	0.004041	$\pm 2.5$	PASS
		VN	20	0.4	0.000478	$\pm 2.5$	PASS
		VN	30	-0.34	-0.000406	$\pm 2.5$	PASS
		VN	40	2.6	0.003108	$\pm 2.5$	PASS
		VN	50	-1.53	-0.001829	$\pm 2.5$	PASS
		VN	-30	1.1	0.001297	$\pm 2.5$	PASS
		VN	-20	3.62	0.004267	$\pm 2.5$	PASS
		VN	-10	0.02	0.000024	$\pm 2.5$	PASS
		VN	0	4.89	0.005764	$\pm 2.5$	PASS
		VN	10	2.06	0.002428	$\pm 2.5$	PASS
		VN	20	2.06	0.002428	$\pm 2.5$	PASS
		VN	30	2.5	0.002947	$\pm 2.5$	PASS
		VN	40	-0.05	-0.000059	$\pm 2.5$	PASS
		VN	50	1.8	0.002122	$\pm 2.5$	PASS
	LCH	VN	-30	-1.77	-0.002146	$\pm 2.5$	PASS
		VN	-20	1.58	0.001916	$\pm 2.5$	PASS
		VN	-10	-0.43	-0.000521	$\pm 2.5$	PASS
		VN	0	4.69	0.005687	$\pm 2.5$	PASS
		VN	10	4.34	0.005263	$\pm 2.5$	PASS
		VN	20	-0.2	-0.000243	$\pm 2.5$	PASS
		VN	30	0.17	0.000206	$\pm 2.5$	PASS
		VN	40	0.38	0.000461	$\pm 2.5$	PASS
		VN	50	4.96	0.006014	$\pm 2.5$	PASS
	MCH	VN	-30	2.41	0.002841	$\pm 2.5$	PASS
		VN	-20	3.19	0.003760	$\pm 2.5$	PASS
		VN	-10	-1.87	-0.002204	$\pm 2.5$	PASS
		VN	0	0.27	0.000318	$\pm 2.5$	PASS
		VN	10	-0.22	-0.000259	$\pm 2.5$	PASS
		VN	20	3.94	0.004645	$\pm 2.5$	PASS
		VN	30	4.65	0.005482	$\pm 2.5$	PASS
		VN	40	4.07	0.004798	$\pm 2.5$	PASS
	HCH	VN	50	0.75	0.000884	$\pm 2.5$	PASS

		VN	40	0.11	0.000130	$\pm 2.5$	PASS
		VN	50	1.14	0.001344	$\pm 2.5$	PASS

### Channel Bandwidth: 3 MHz

Channel Bandwidth: 3 MHz+							
Voltage							
Modulation	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	LCH	VL	TN	3.05	0.003695	$\pm 2.5$	PASS
		VN	TN	3.04	0.003683	$\pm 2.5$	PASS
		VH	TN	-1.26	-0.001526	$\pm 2.5$	PASS
	MCH	VL	TN	-0.08	-0.000096	$\pm 2.5$	PASS
		VN	TN	-0.35	-0.000418	$\pm 2.5$	PASS
		VH	TN	1.16	0.001387	$\pm 2.5$	PASS
	HCH	VL	TN	3.32	0.003917	$\pm 2.5$	PASS
		VN	TN	-1.5	-0.001770	$\pm 2.5$	PASS
		VH	TN	4.85	0.005723	$\pm 2.5$	PASS
16QAM	LCH	VL	TN	3.98	0.004821	$\pm 2.5$	PASS
		VN	TN	3.25	0.003937	$\pm 2.5$	PASS
		VH	TN	-0.52	-0.000630	$\pm 2.5$	PASS
	MCH	VL	TN	-1.93	-0.002307	$\pm 2.5$	PASS
		VN	TN	4.53	0.005415	$\pm 2.5$	PASS
		VH	TN	4.04	0.004830	$\pm 2.5$	PASS
	HCH	VL	TN	4.26	0.005027	$\pm 2.5$	PASS
		VN	TN	1.73	0.002041	$\pm 2.5$	PASS
		VH	TN	3.32	0.003917	$\pm 2.5$	PASS
Temperature							
Modulation	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	LCH	VN	-30	4.39	0.005318	$\pm 2.5$	PASS
		VN	-20	-0.37	-0.000448	$\pm 2.5$	PASS
		VN	-10	-1.54	-0.001866	$\pm 2.5$	PASS
		VN	0	4.04	0.004894	$\pm 2.5$	PASS
		VN	10	4.35	0.005270	$\pm 2.5$	PASS
		VN	20	1.83	0.002217	$\pm 2.5$	PASS
		VN	30	1.27	0.001538	$\pm 2.5$	PASS
		VN	40	3.32	0.004022	$\pm 2.5$	PASS
		VN	50	-1.33	-0.001611	$\pm 2.5$	PASS
	MCH	VN	-30	4.4	0.005260	$\pm 2.5$	PASS
		VN	-20	4.21	0.005033	$\pm 2.5$	PASS
		VN	-10	-1.39	-0.001662	$\pm 2.5$	PASS

		VN	0	3.24	0.003873	$\pm 2.5$	PASS
		VN	10	2.08	0.002487	$\pm 2.5$	PASS
		VN	20	-0.91	-0.001088	$\pm 2.5$	PASS
		VN	30	2.49	0.002977	$\pm 2.5$	PASS
		VN	40	-0.49	-0.000586	$\pm 2.5$	PASS
		VN	50	4.06	0.004854	$\pm 2.5$	PASS
		VN	-30	2.47	0.002914	$\pm 2.5$	PASS
		VN	-20	-0.51	-0.000602	$\pm 2.5$	PASS
		VN	-10	2.6	0.003068	$\pm 2.5$	PASS
		VN	0	0.97	0.001145	$\pm 2.5$	PASS
	HCH	VN	10	0.35	0.000413	$\pm 2.5$	PASS
		VN	20	-1.96	-0.002313	$\pm 2.5$	PASS
		VN	30	0.99	0.001168	$\pm 2.5$	PASS
		VN	40	4.49	0.005298	$\pm 2.5$	PASS
		VN	50	1.26	0.001487	$\pm 2.5$	PASS
		VN	-30	-0.69	-0.000825	$\pm 2.5$	PASS
		VN	-20	1.91	0.002283	$\pm 2.5$	PASS
		VN	-10	4.54	0.005427	$\pm 2.5$	PASS
		VN	0	-1.81	-0.002164	$\pm 2.5$	PASS
		VN	10	3.74	0.004471	$\pm 2.5$	PASS
	LCH	VN	20	4.85	0.005798	$\pm 2.5$	PASS
		VN	30	1.49	0.001781	$\pm 2.5$	PASS
		VN	40	1.34	0.001602	$\pm 2.5$	PASS
		VN	50	1.3	0.001554	$\pm 2.5$	PASS
		VN	-30	4.23	0.004991	$\pm 2.5$	PASS
		VN	-20	-1.1	-0.001298	$\pm 2.5$	PASS
		VN	-10	-1.1	-0.001298	$\pm 2.5$	PASS
		VN	0	1.52	0.001794	$\pm 2.5$	PASS
		VN	10	4.67	0.005510	$\pm 2.5$	PASS
		VN	20	3.38	0.003988	$\pm 2.5$	PASS
	MCH	VN	30	-0.81	-0.000956	$\pm 2.5$	PASS
		VN	40	4	0.004720	$\pm 2.5$	PASS
		VN	50	1.21	0.001428	$\pm 2.5$	PASS
		VN	-30	3.63	0.004283	$\pm 2.5$	PASS
		VN	-20	-0.95	-0.001121	$\pm 2.5$	PASS
		VN	-10	4.86	0.005735	$\pm 2.5$	PASS
		VN	0	0.49	0.000578	$\pm 2.5$	PASS
		VN	10	3.41	0.004024	$\pm 2.5$	PASS
		VN	20	-1.92	-0.002265	$\pm 2.5$	PASS
		VN	30	1.36	0.001605	$\pm 2.5$	PASS
	HCH	VN	40	0.02	0.000024	$\pm 2.5$	PASS

		VN	50	0	0.000000	$\pm 2.5$	PASS
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## 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	2.05	0.002480	$\pm 2.5$	PASS
		VN	TN	0.37	0.000448	$\pm 2.5$	PASS
		VH	TN	3.88	0.004694	$\pm 2.5$	PASS
	MCH	VL	TN	0.43	0.000514	$\pm 2.5$	PASS
		VN	TN	-1.94	-0.002319	$\pm 2.5$	PASS
		VH	TN	1.8	0.002152	$\pm 2.5$	PASS
	HCH	VL	TN	2.31	0.002729	$\pm 2.5$	PASS
		VN	TN	-0.79	-0.000933	$\pm 2.5$	PASS
		VH	TN	1.68	0.001985	$\pm 2.5$	PASS
16QAM	LCH	VL	TN	3.07	0.003714	$\pm 2.5$	PASS
		VN	TN	-0.84	-0.001016	$\pm 2.5$	PASS
		VH	TN	4.03	0.004876	$\pm 2.5$	PASS
	MCH	VL	TN	4.17	0.004985	$\pm 2.5$	PASS
		VN	TN	-0.25	-0.000299	$\pm 2.5$	PASS
		VH	TN	-0.5	-0.000598	$\pm 2.5$	PASS
	HCH	VL	TN	-0.61	-0.000721	$\pm 2.5$	PASS
		VN	TN	2.71	0.003201	$\pm 2.5$	PASS
		VH	TN	-0.71	-0.000839	$\pm 2.5$	PASS
Temperature							
Modulation	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	LCH	VN	-30	3.5	0.004235	$\pm 2.5$	PASS
		VN	-20	3.9	0.004719	$\pm 2.5$	PASS
		VN	-10	-1.22	-0.001476	$\pm 2.5$	PASS
		VN	0	1.45	0.001754	$\pm 2.5$	PASS
		VN	10	0.39	0.000472	$\pm 2.5$	PASS
		VN	20	-0.43	-0.000520	$\pm 2.5$	PASS
		VN	30	0.36	0.000436	$\pm 2.5$	PASS
		VN	40	1.14	0.001379	$\pm 2.5$	PASS
		VN	50	-1.46	-0.001766	$\pm 2.5$	PASS
	MCH	VN	-30	0.05	0.000060	$\pm 2.5$	PASS
		VN	-20	2.1	0.002510	$\pm 2.5$	PASS
		VN	-10	2.25	0.002690	$\pm 2.5$	PASS
		VN	0	2.22	0.002654	$\pm 2.5$	PASS

		VN	10	3.23	0.003861	$\pm 2.5$	PASS
		VN	20	-1.84	-0.002200	$\pm 2.5$	PASS
		VN	30	1.92	0.002295	$\pm 2.5$	PASS
		VN	40	0.06	0.000072	$\pm 2.5$	PASS
		VN	50	3.99	0.004770	$\pm 2.5$	PASS
		VN	-30	-0.36	-0.000425	$\pm 2.5$	PASS
		VN	-20	4.63	0.005470	$\pm 2.5$	PASS
		VN	-10	3.05	0.003603	$\pm 2.5$	PASS
		VN	0	-0.87	-0.001028	$\pm 2.5$	PASS
		VN	10	3.13	0.003698	$\pm 2.5$	PASS
	HCH	VN	20	0.4	0.000473	$\pm 2.5$	PASS
		VN	30	-1.76	-0.002079	$\pm 2.5$	PASS
		VN	40	4.1	0.004843	$\pm 2.5$	PASS
		VN	50	4.63	0.005470	$\pm 2.5$	PASS
		VN	-30	0.18	0.000215	$\pm 2.5$	PASS
		VN	-20	3.99	0.004770	$\pm 2.5$	PASS
		VN	-10	0.58	0.000693	$\pm 2.5$	PASS
		VN	0	1.86	0.002224	$\pm 2.5$	PASS
		VN	10	4.55	0.005439	$\pm 2.5$	PASS
		VN	20	-0.68	-0.000813	$\pm 2.5$	PASS
	LCH	VN	30	4.26	0.005093	$\pm 2.5$	PASS
		VN	40	2.99	0.003574	$\pm 2.5$	PASS
		VN	50	0.6	0.000717	$\pm 2.5$	PASS
		VN	-30	0.79	0.000933	$\pm 2.5$	PASS
		VN	-20	2.51	0.002965	$\pm 2.5$	PASS
		VN	-10	0.38	0.000449	$\pm 2.5$	PASS
		VN	0	-0.56	-0.000662	$\pm 2.5$	PASS
		VN	10	-0.66	-0.000780	$\pm 2.5$	PASS
		VN	20	0.53	0.000626	$\pm 2.5$	PASS
		VN	30	4.98	0.005883	$\pm 2.5$	PASS
	MCH	VN	40	2.1	0.002481	$\pm 2.5$	PASS
		VN	50	2.3	0.002717	$\pm 2.5$	PASS
		VN	-30	1.21	0.001429	$\pm 2.5$	PASS
		VN	-20	0.69	0.000815	$\pm 2.5$	PASS
		VN	-10	2.16	0.002552	$\pm 2.5$	PASS
		VN	0	-1.4	-0.001654	$\pm 2.5$	PASS
		VN	10	1.45	0.001713	$\pm 2.5$	PASS
		VN	20	4.64	0.005481	$\pm 2.5$	PASS
		VN	30	0.46	0.000543	$\pm 2.5$	PASS
		VN	40	4.58	0.005411	$\pm 2.5$	PASS
	HCH	VN	50	-0.96	-0.001134	$\pm 2.5$	PASS

## Channel Bandwidth: 10 MHz

Channel Bandwidth: 10 MHz							
Voltage							
Modulation	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	LCH	VL	TN	0.37	0.000446	± 2.5	PASS
		VN	TN	0.7	0.000844	± 2.5	PASS
		VH	TN	3.96	0.004777	± 2.5	PASS
	MCH	VL	TN	1.1	0.001315	± 2.5	PASS
		VN	TN	0.38	0.000454	± 2.5	PASS
		VH	TN	4.61	0.005511	± 2.5	PASS
	HCH	VL	TN	-1.79	-0.002121	± 2.5	PASS
		VN	TN	1.63	0.001931	± 2.5	PASS
		VH	TN	0.16	0.000190	± 2.5	PASS
16QAM	LCH	VL	TN	1.48	0.001785	± 2.5	PASS
		VN	TN	0.48	0.000579	± 2.5	PASS
		VH	TN	0.75	0.000905	± 2.5	PASS
	MCH	VL	TN	-0.2	-0.000239	± 2.5	PASS
		VN	TN	-0.4	-0.000478	± 2.5	PASS
		VH	TN	3.4	0.004065	± 2.5	PASS
	HCH	VL	TN	-0.31	-0.000367	± 2.5	PASS
		VN	TN	4.96	0.005877	± 2.5	PASS
		VH	TN	0.09	0.000107	± 2.5	PASS
Temperature							
Modulation	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
16QAM	LCH	VN	-30	3.45	0.004162	± 2.5	PASS
		VN	-20	-0.39	-0.000470	± 2.5	PASS
		VN	-10	3.05	0.003679	± 2.5	PASS
		VN	0	0.57	0.000688	± 2.5	PASS
		VN	10	3.4	0.004101	± 2.5	PASS
		VN	20	0.99	0.001194	± 2.5	PASS
		VN	30	-0.91	-0.001098	± 2.5	PASS
		VN	40	1.14	0.001375	± 2.5	PASS
		VN	50	3.17	0.003824	± 2.5	PASS
	MCH	VN	-30	3.26	0.003897	± 2.5	PASS
		VN	-20	0.53	0.000634	± 2.5	PASS
		VN	-10	4.9	0.005858	± 2.5	PASS
		VN	0	4.15	0.004961	± 2.5	PASS
		VN	10	2.47	0.002953	± 2.5	PASS
		VN	20	-0.64	-0.000765	± 2.5	PASS

	HCH	VN	30	-0.42	-0.000502	$\pm 2.5$	PASS
		VN	40	2.35	0.002809	$\pm 2.5$	PASS
		VN	50	-0.72	-0.000861	$\pm 2.5$	PASS
		VN	-30	0.43	0.000509	$\pm 2.5$	PASS
		VN	-20	3.51	0.004159	$\pm 2.5$	PASS
		VN	-10	0.94	0.001114	$\pm 2.5$	PASS
		VN	0	0.48	0.000569	$\pm 2.5$	PASS
		VN	10	2.11	0.002500	$\pm 2.5$	PASS
		VN	20	-0.07	-0.000083	$\pm 2.5$	PASS
		VN	30	1.69	0.002002	$\pm 2.5$	PASS
	LCH	VN	40	1.56	0.001848	$\pm 2.5$	PASS
		VN	50	4.93	0.005841	$\pm 2.5$	PASS
		VN	-30	1.43	0.001710	$\pm 2.5$	PASS
		VN	-20	1.08	0.001291	$\pm 2.5$	PASS
		VN	-10	-0.82	-0.000980	$\pm 2.5$	PASS
		VN	0	-0.92	-0.001100	$\pm 2.5$	PASS
		VN	10	2.11	0.002522	$\pm 2.5$	PASS
		VN	20	4.2	0.005021	$\pm 2.5$	PASS
		VN	30	3.09	0.003694	$\pm 2.5$	PASS
		VN	40	2.54	0.003036	$\pm 2.5$	PASS
	MCH	VN	50	2.96	0.003539	$\pm 2.5$	PASS
		VN	-30	2.95	0.003495	$\pm 2.5$	PASS
		VN	-20	4.67	0.005533	$\pm 2.5$	PASS
		VN	-10	4.94	0.005853	$\pm 2.5$	PASS
		VN	0	1.75	0.002073	$\pm 2.5$	PASS
		VN	10	1.91	0.002263	$\pm 2.5$	PASS
		VN	20	1.51	0.001789	$\pm 2.5$	PASS
		VN	30	3.62	0.004289	$\pm 2.5$	PASS
		VN	40	0.48	0.000569	$\pm 2.5$	PASS
		VN	50	2.35	0.002784	$\pm 2.5$	PASS
	HCH	VN	-30	0.2	0.000237	$\pm 2.5$	PASS
		VN	-20	0.37	0.000438	$\pm 2.5$	PASS
		VN	-10	2.37	0.002808	$\pm 2.5$	PASS
		VN	0	4.53	0.005367	$\pm 2.5$	PASS
		VN	10	2.03	0.002405	$\pm 2.5$	PASS
		VN	20	4.87	0.005770	$\pm 2.5$	PASS
		VN	30	3.43	0.004064	$\pm 2.5$	PASS
		VN	40	3.93	0.004656	$\pm 2.5$	PASS
		VN	50	3.61	0.004277	$\pm 2.5$	PASS