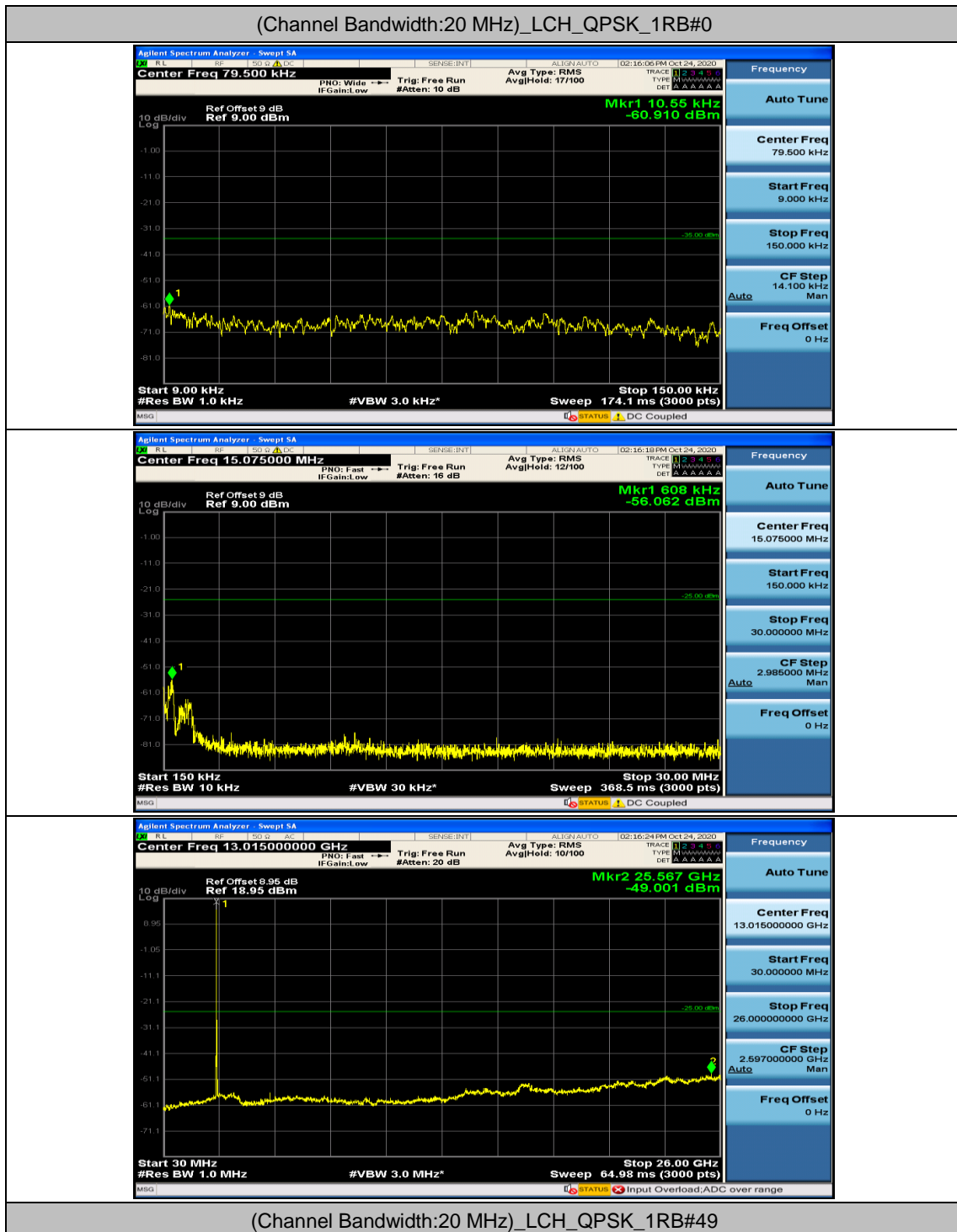
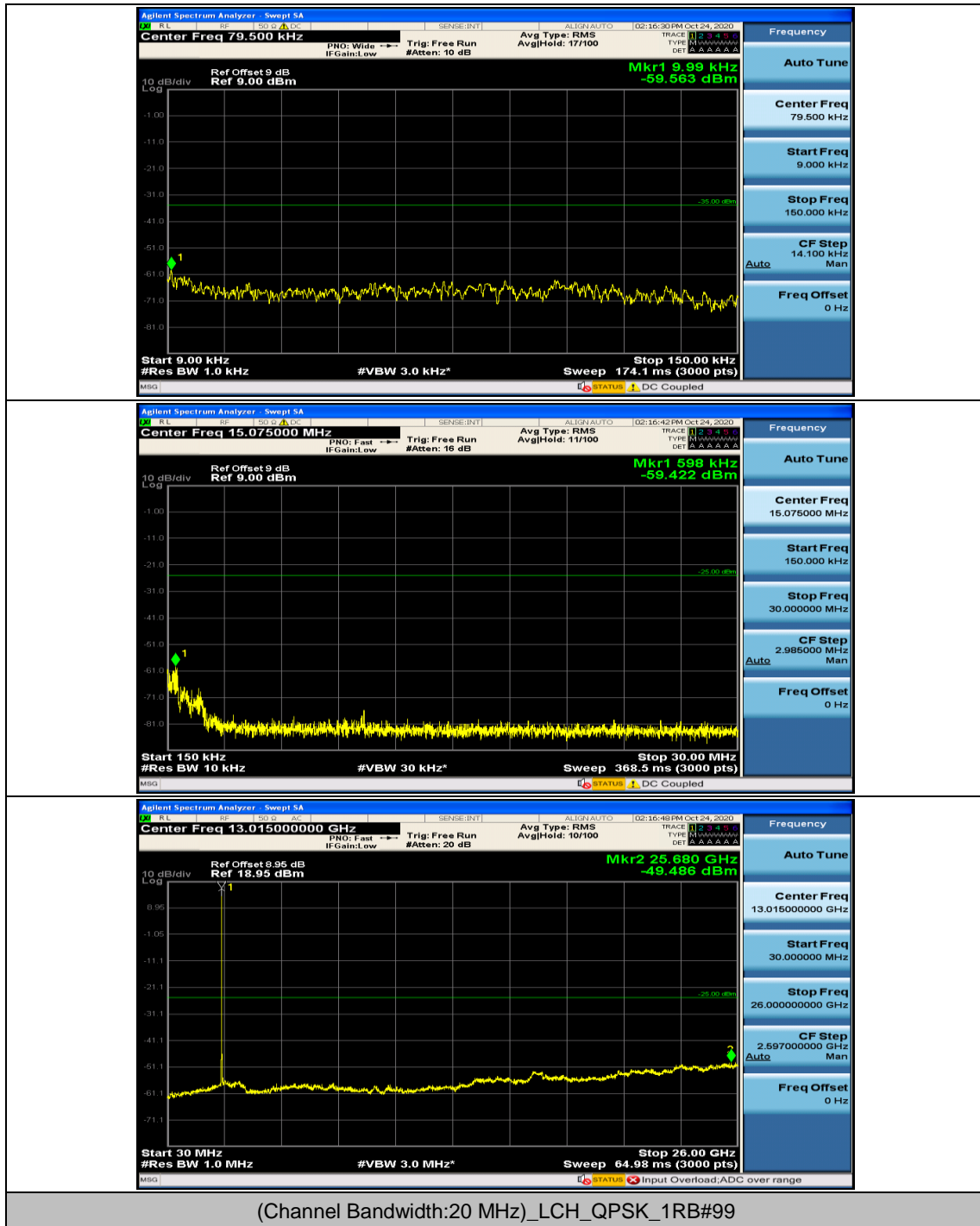
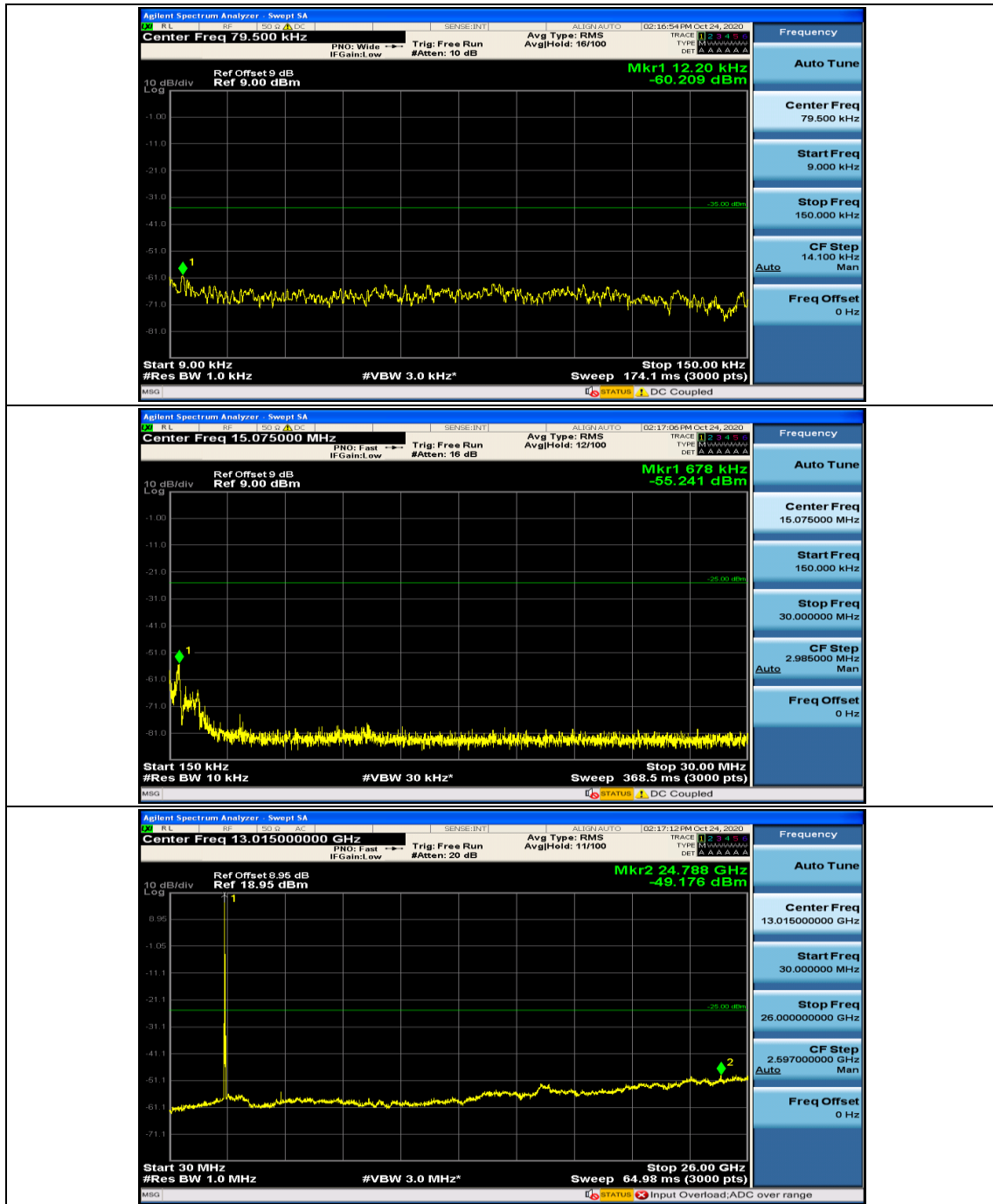
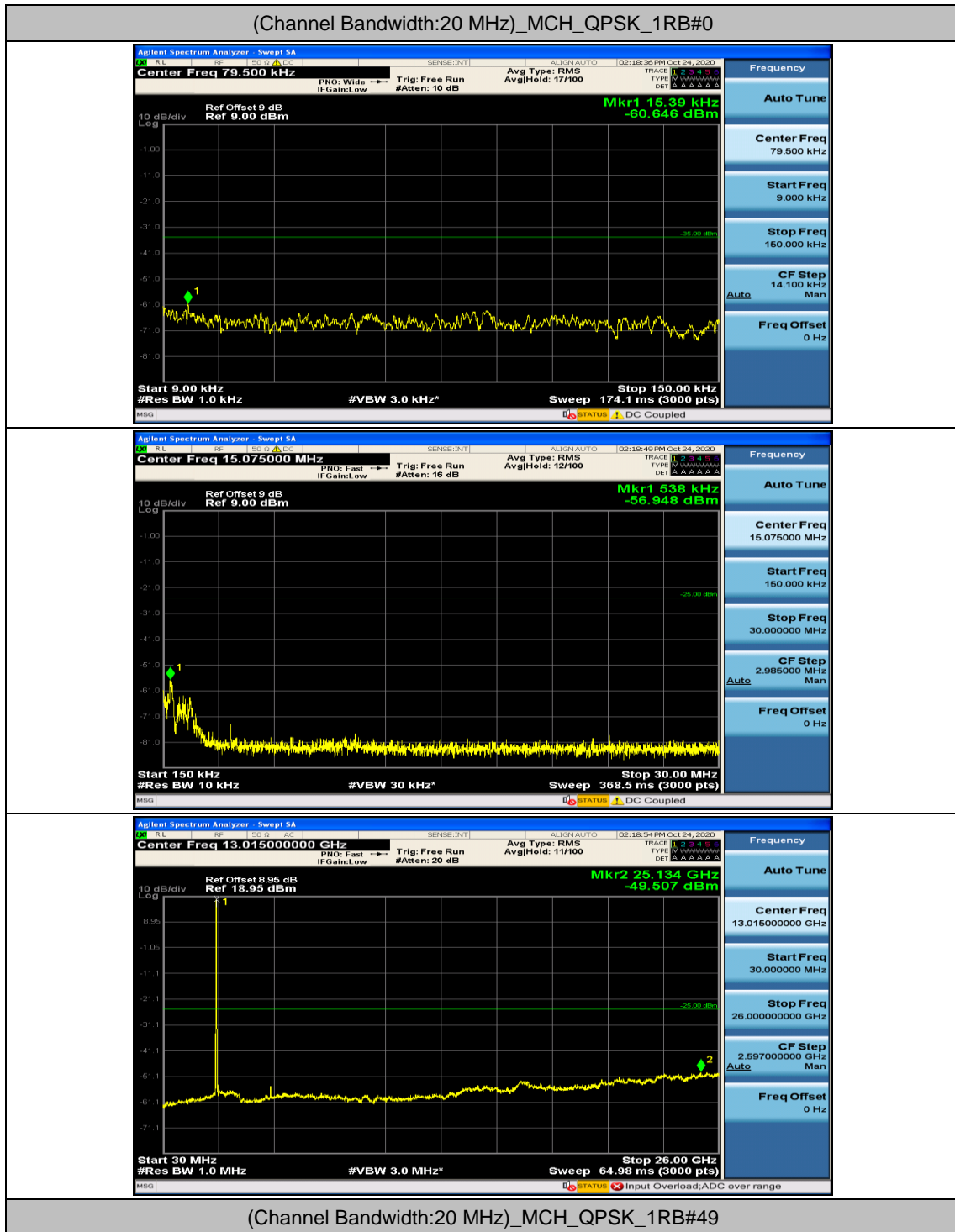


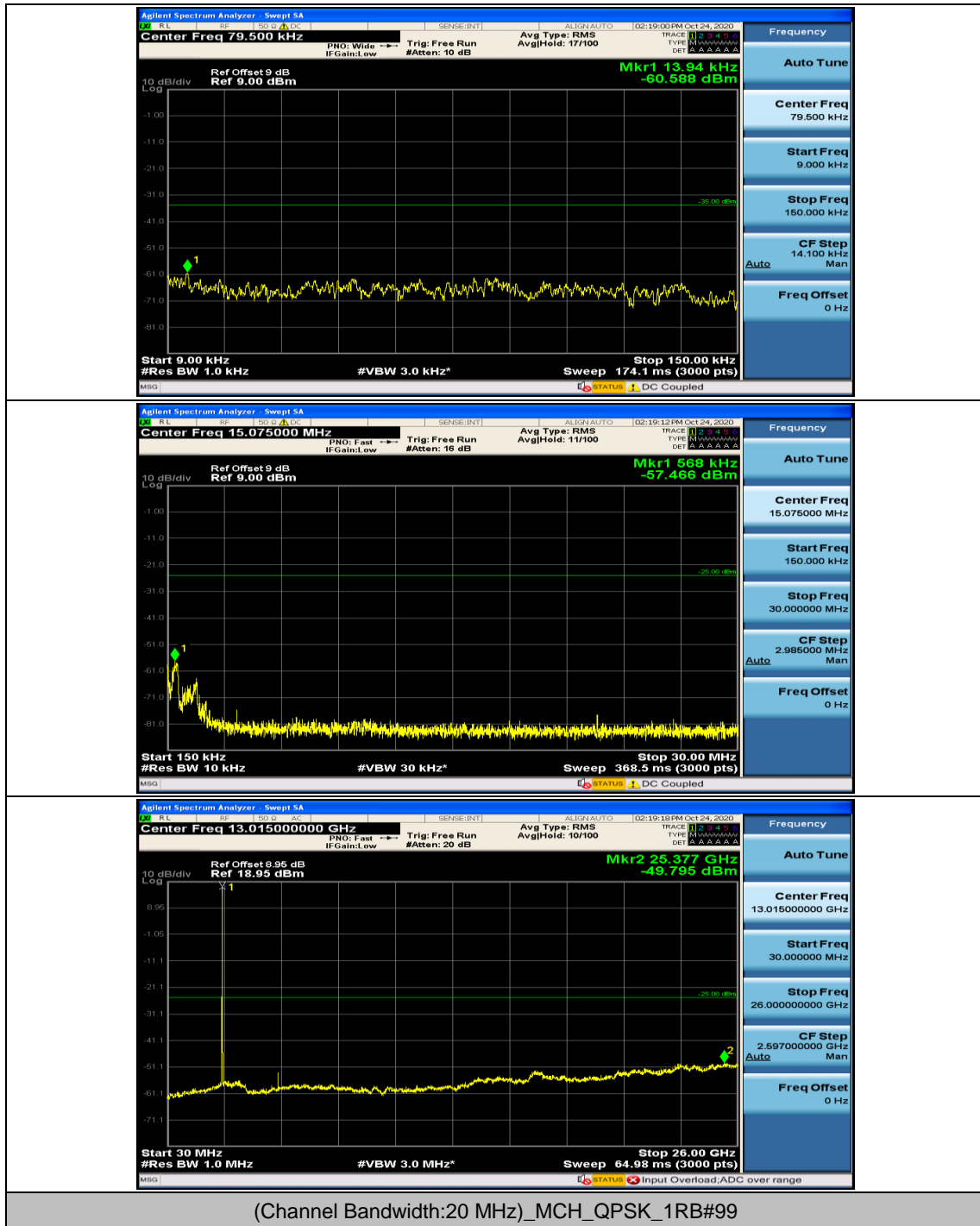
Channel Bandwidth: 20 MHz

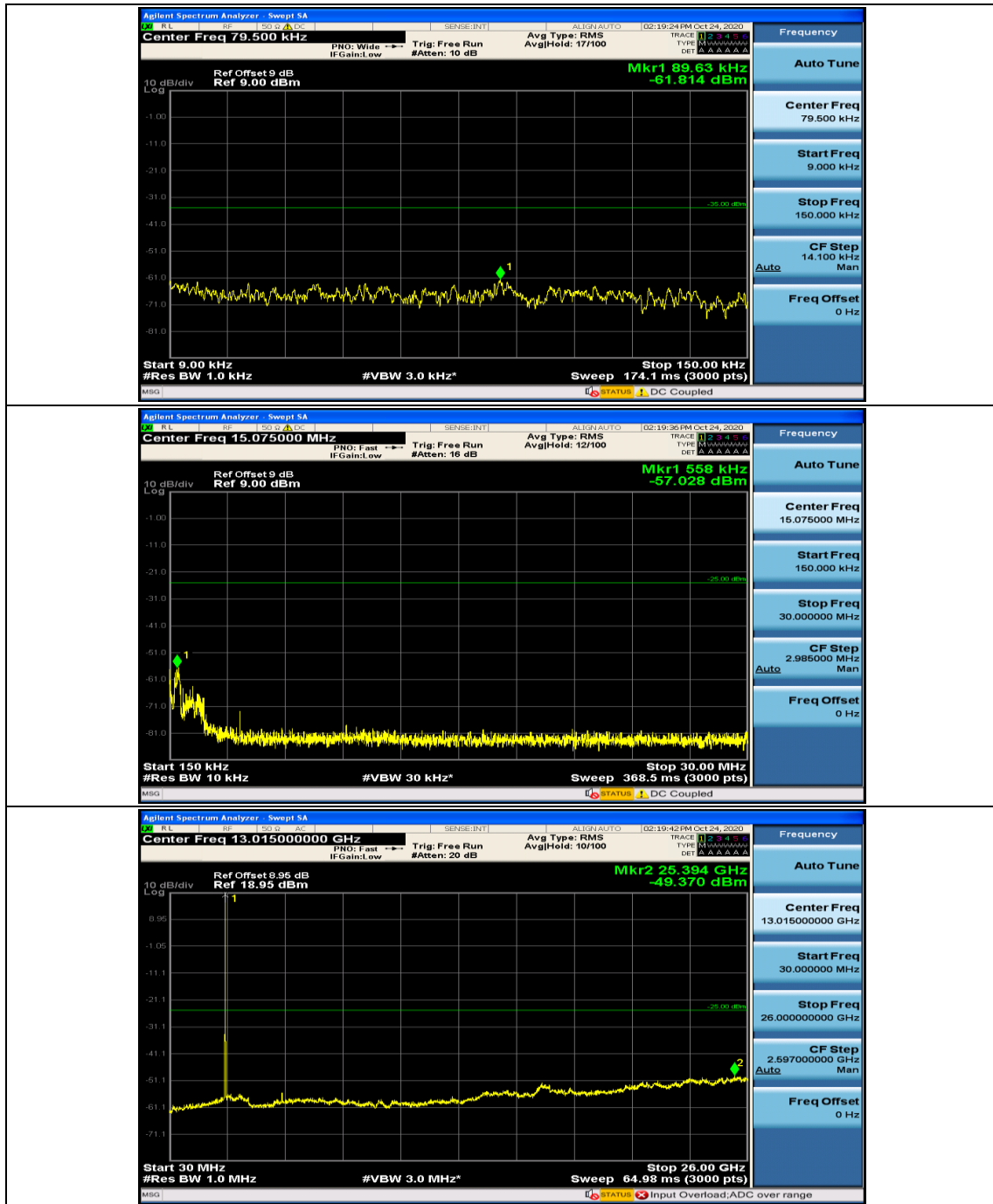


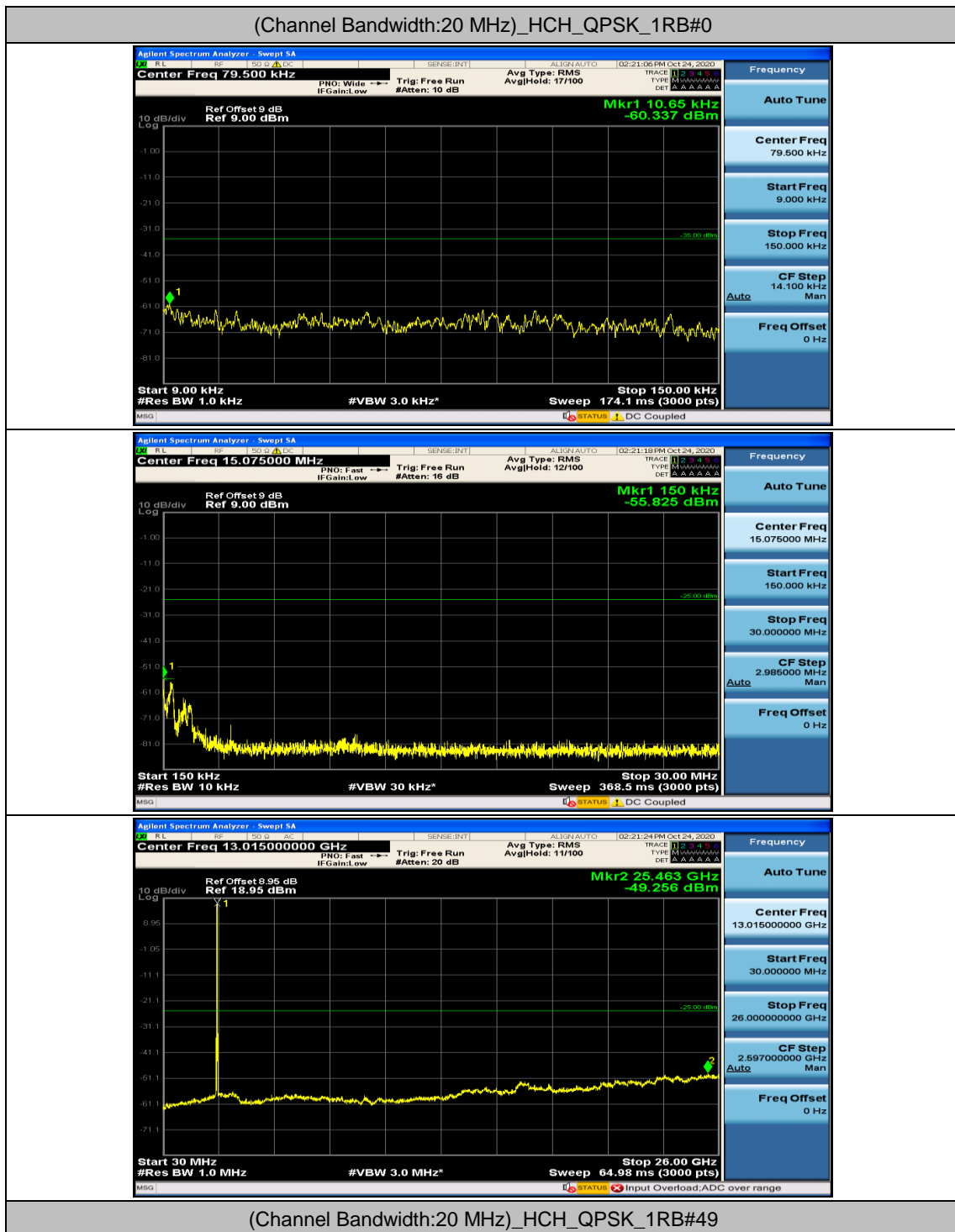


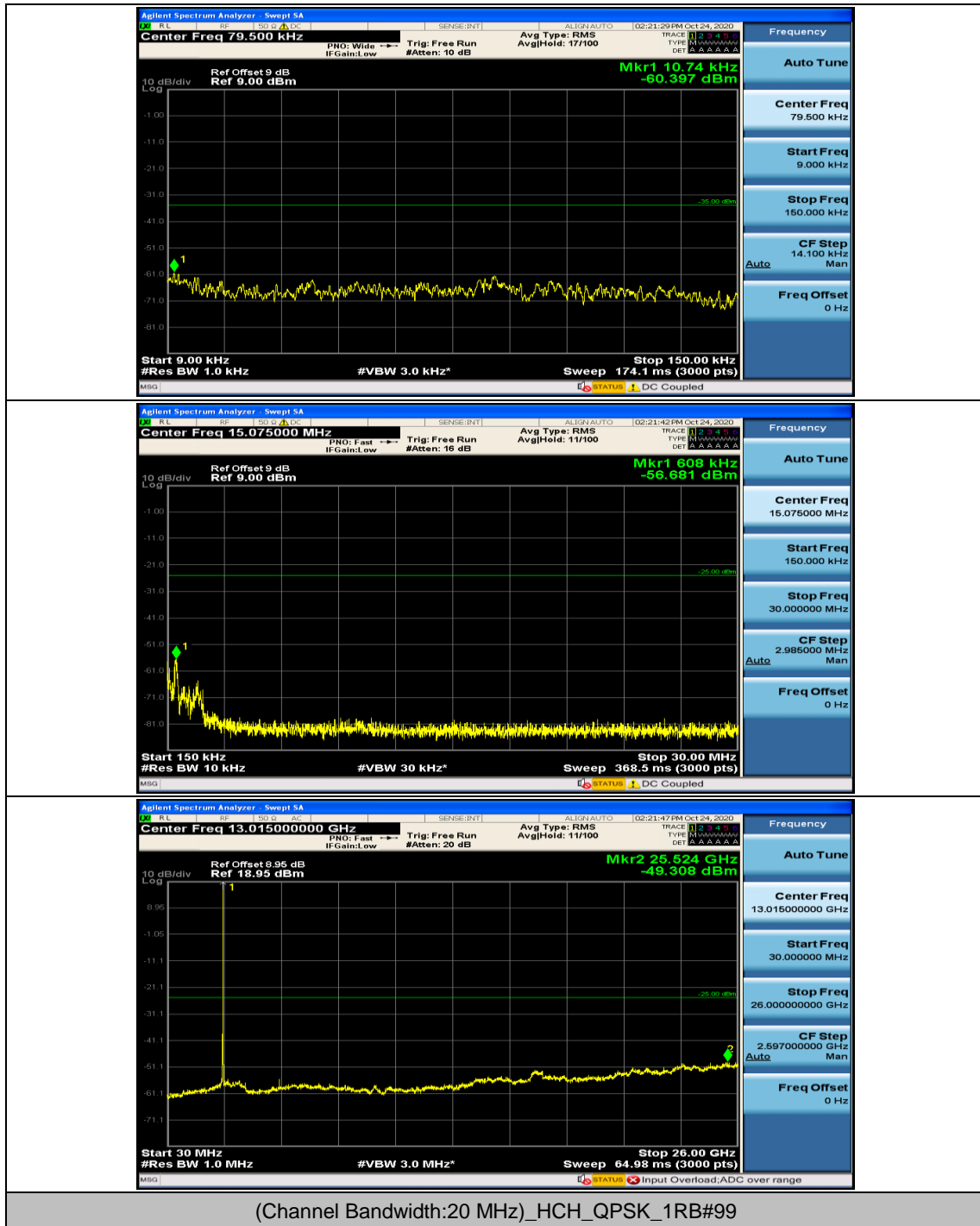


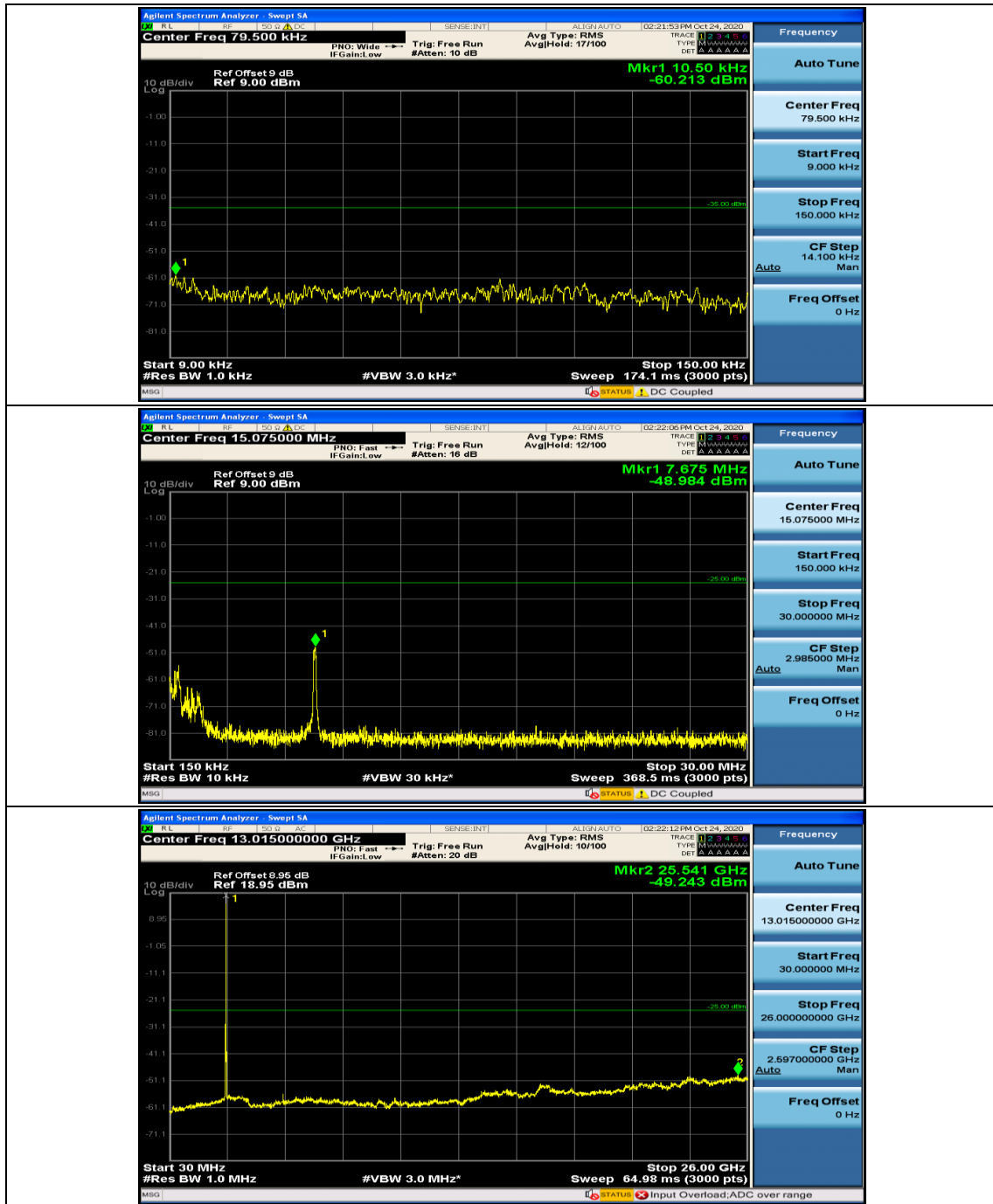


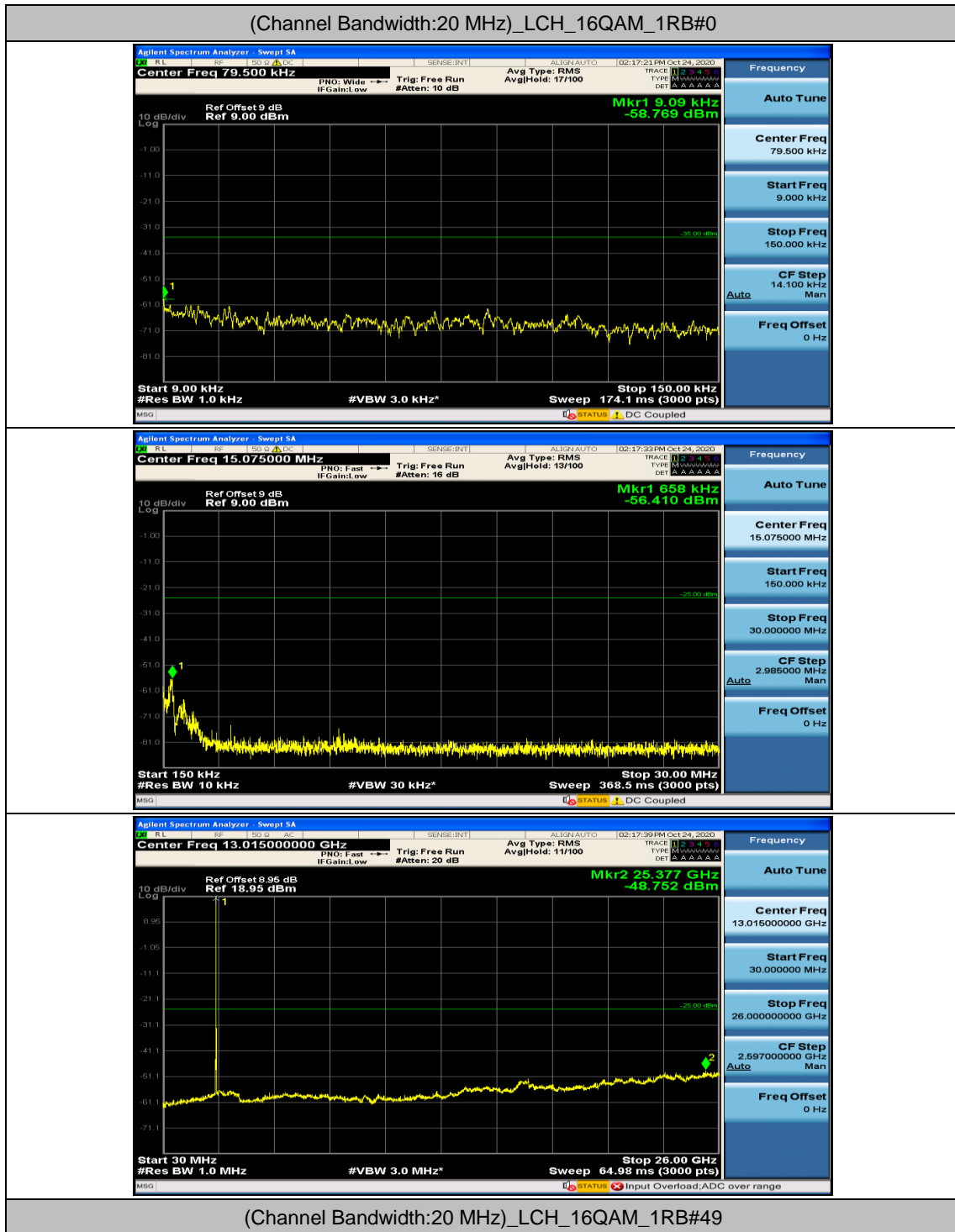


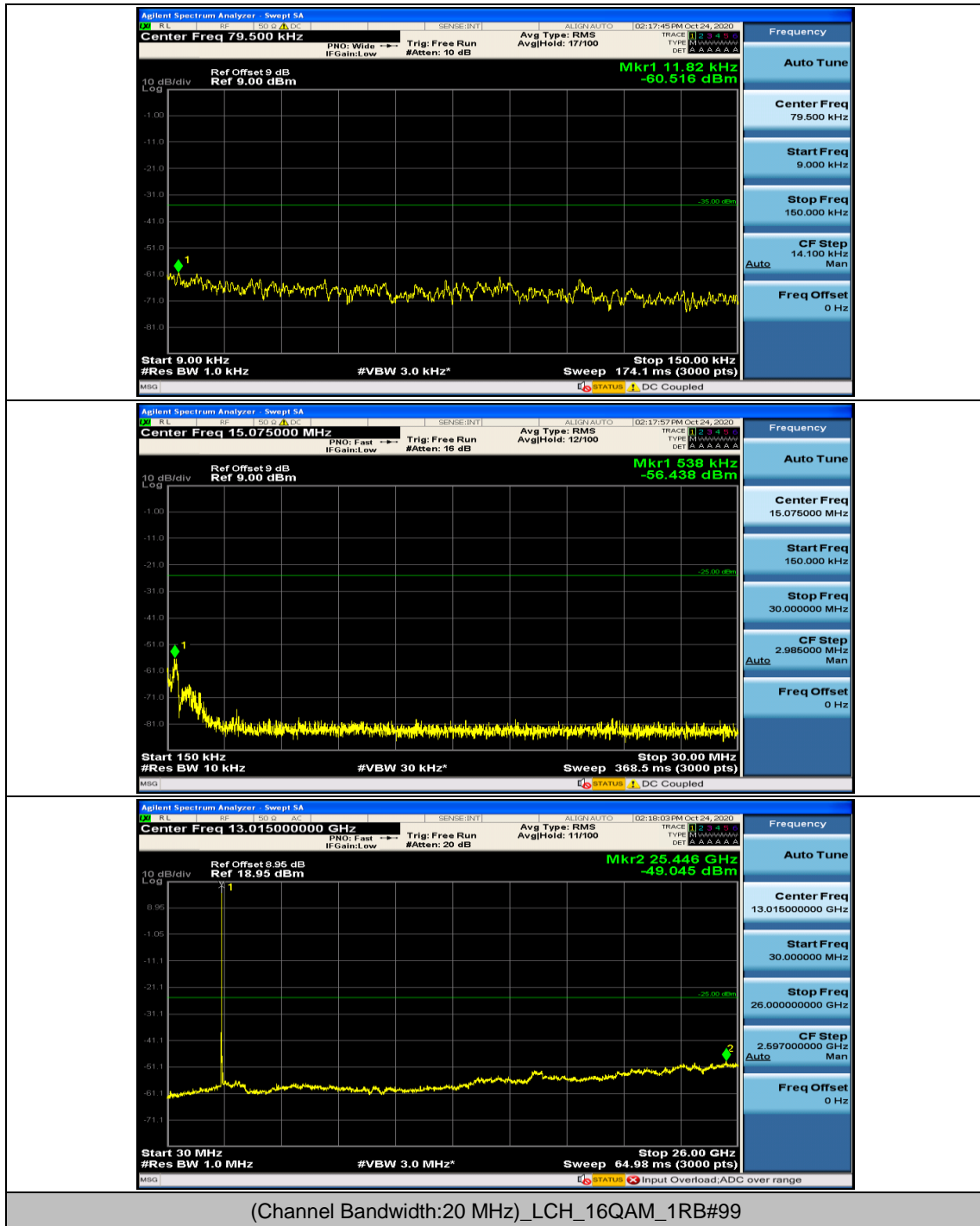


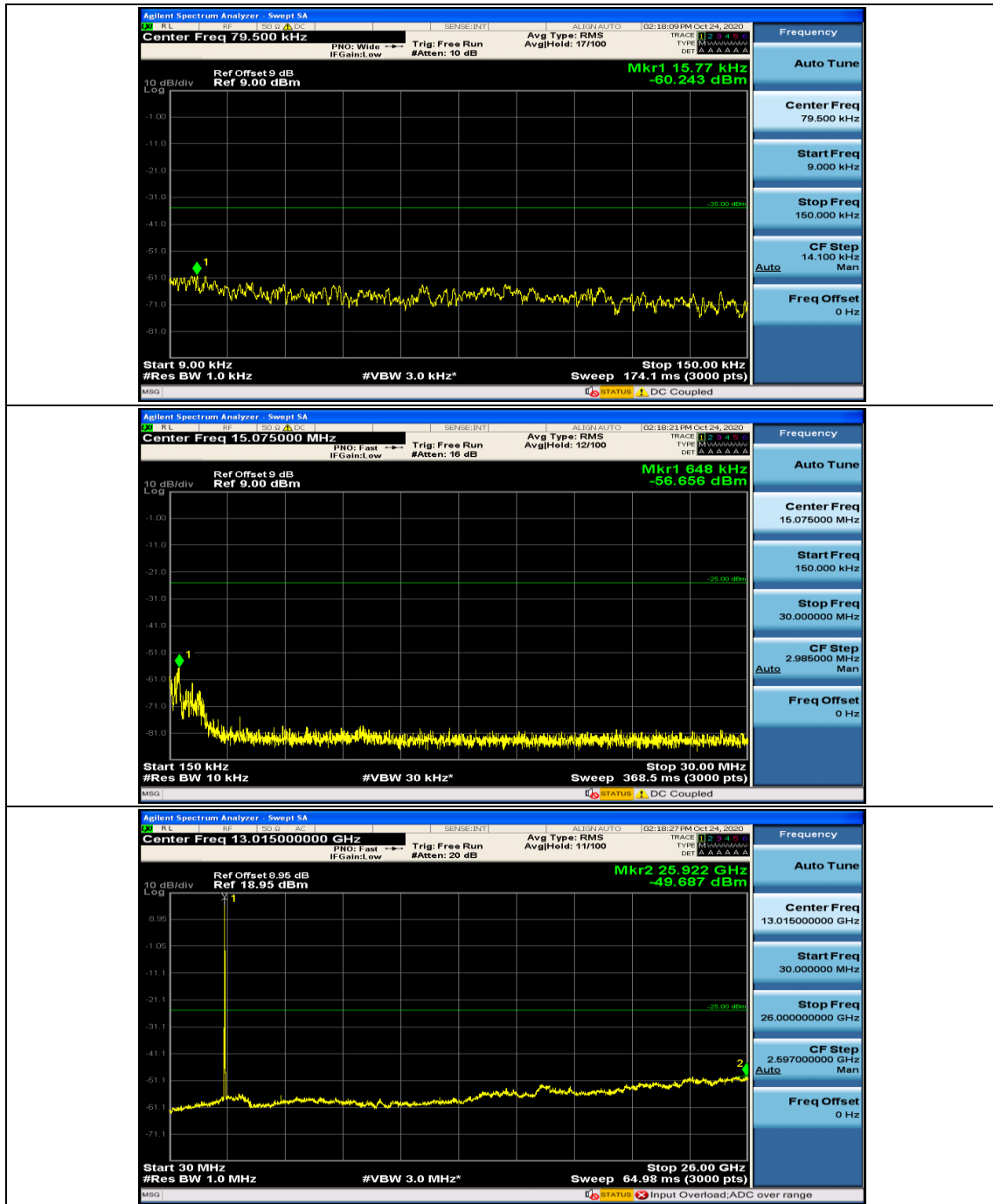


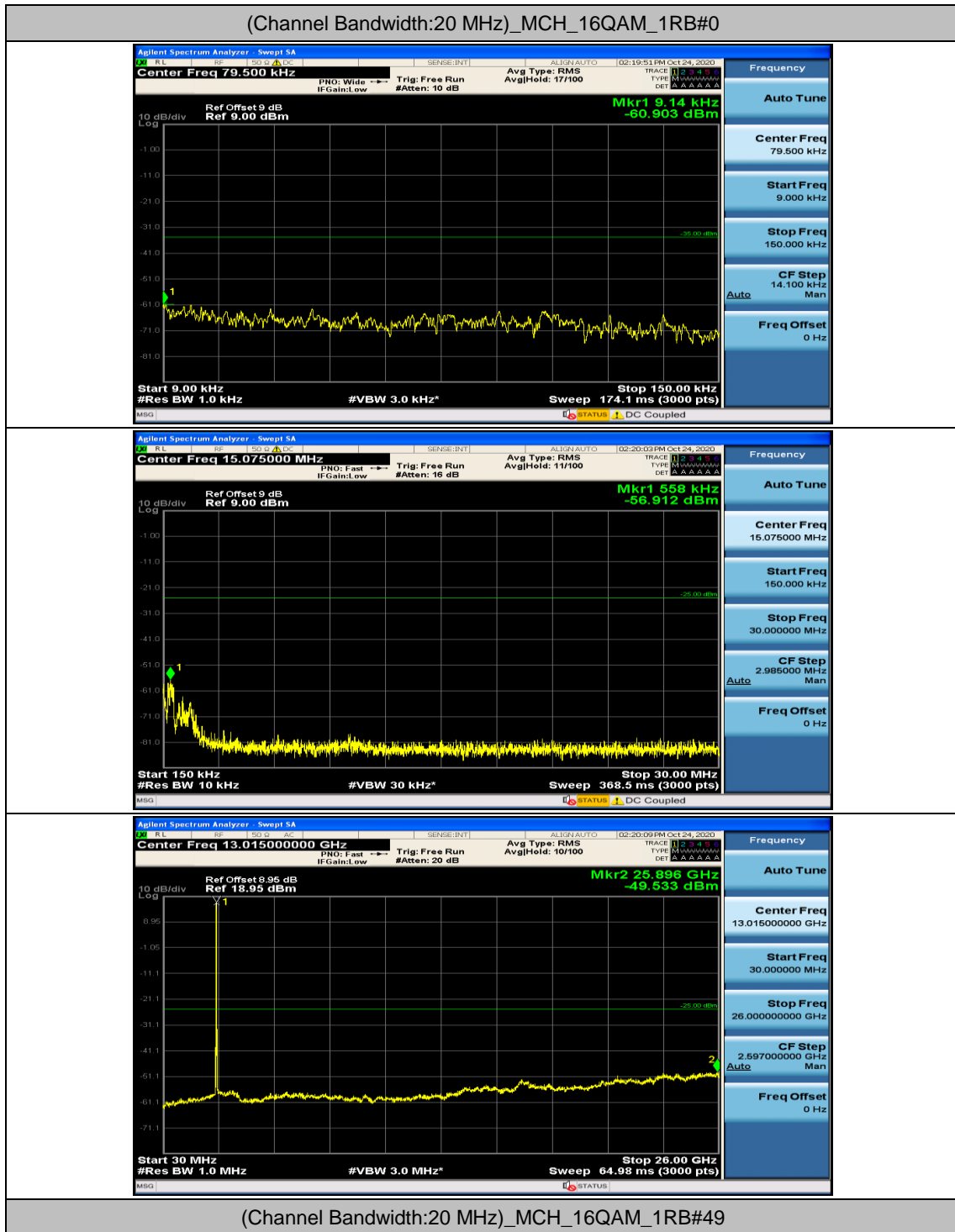


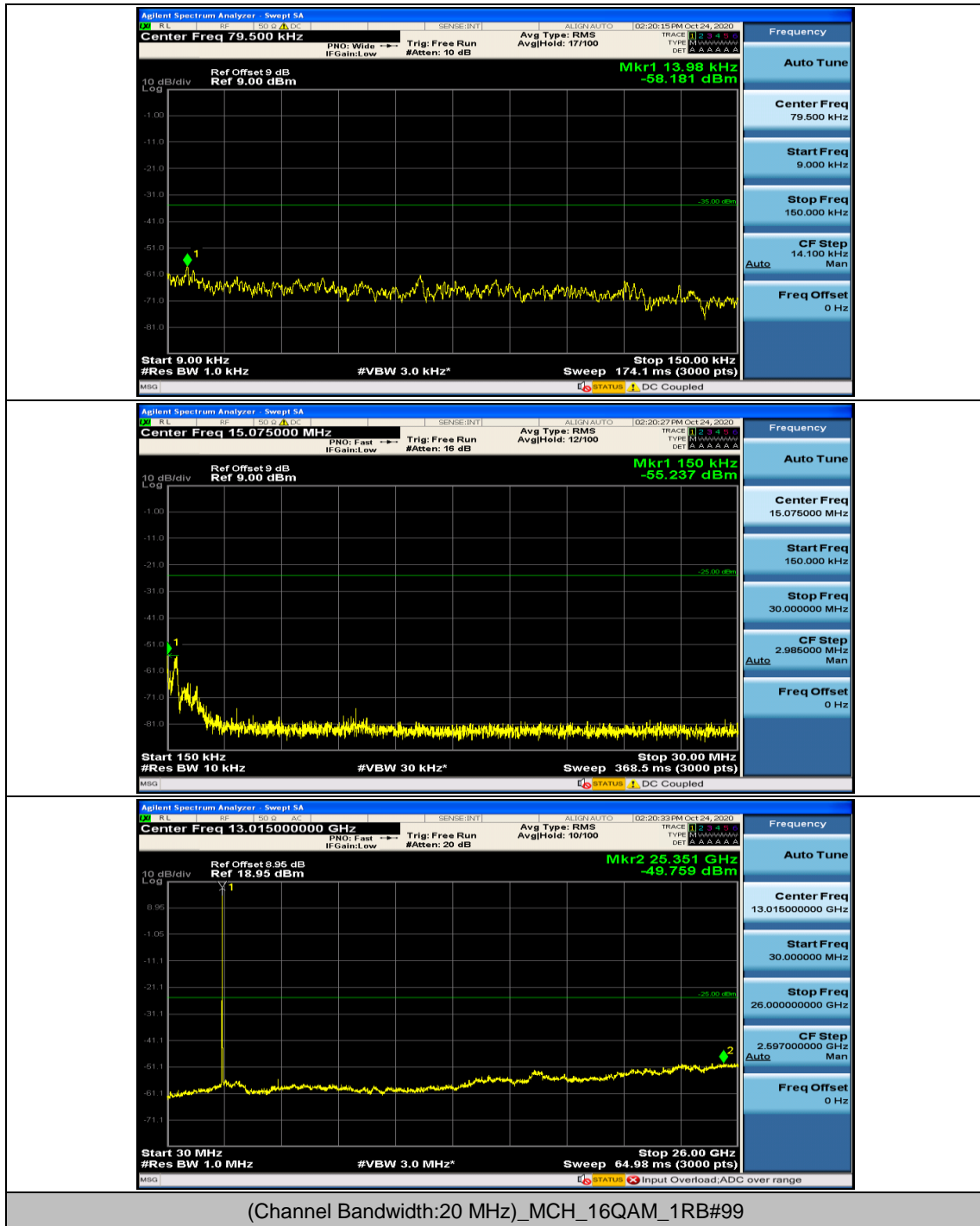


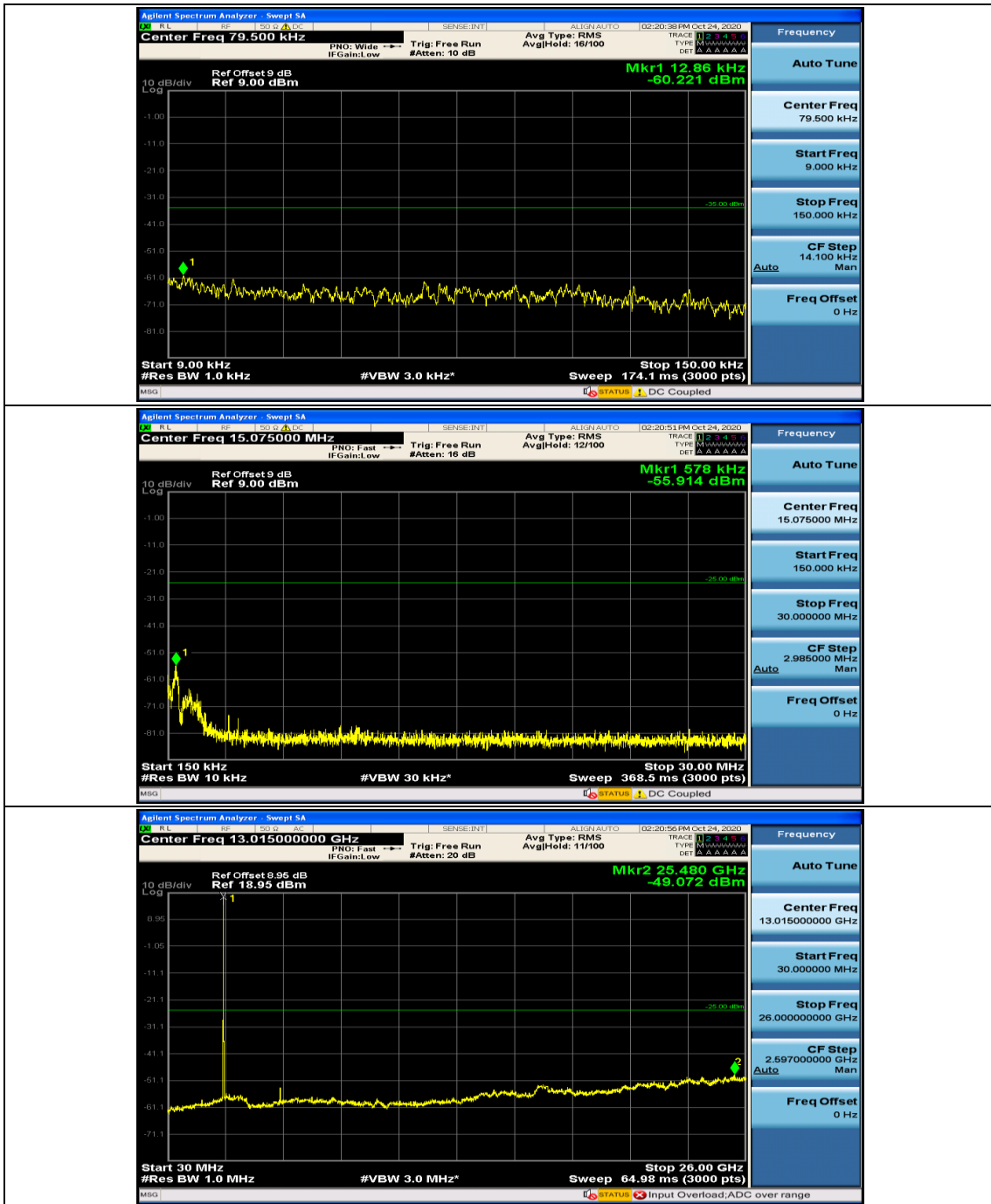


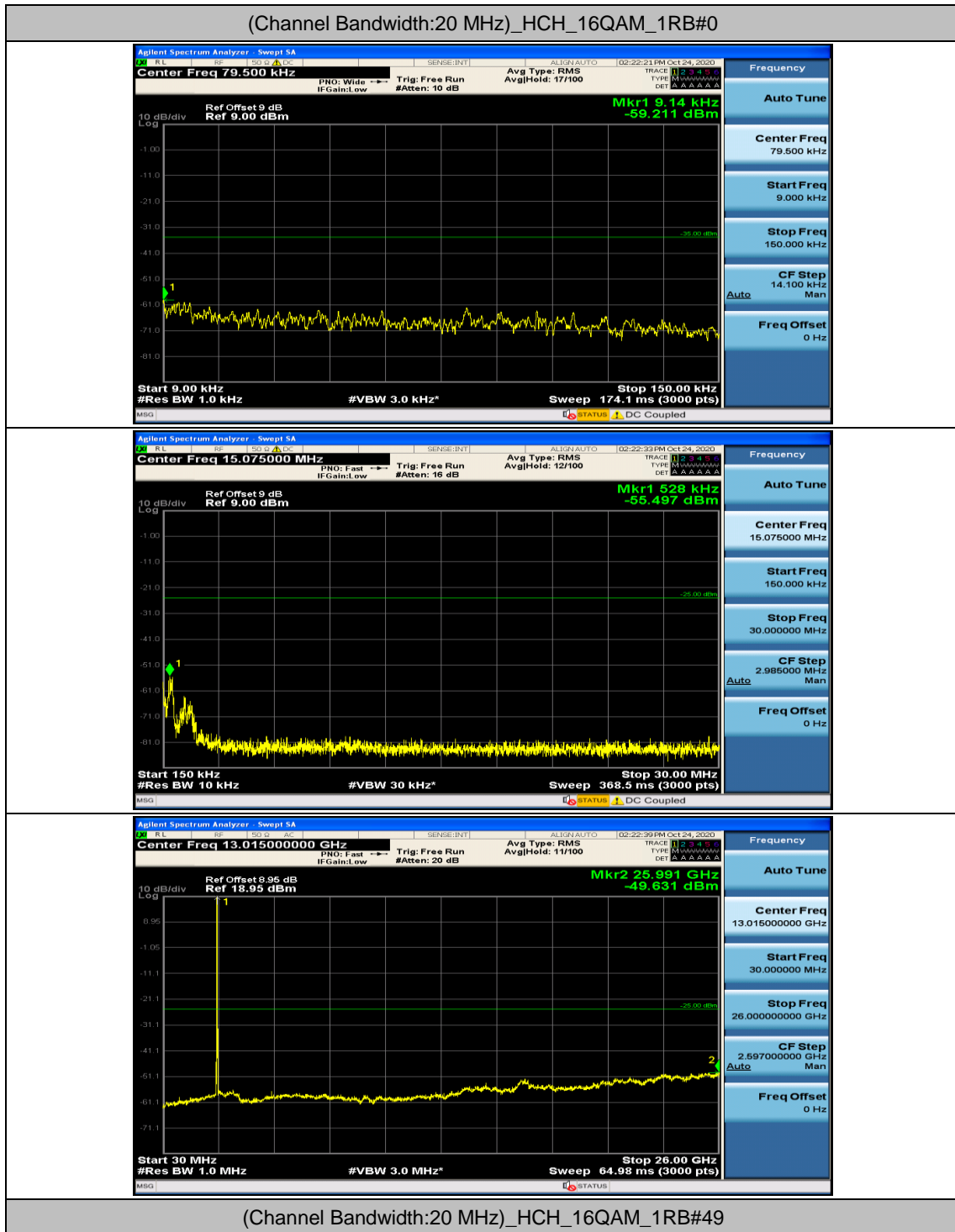


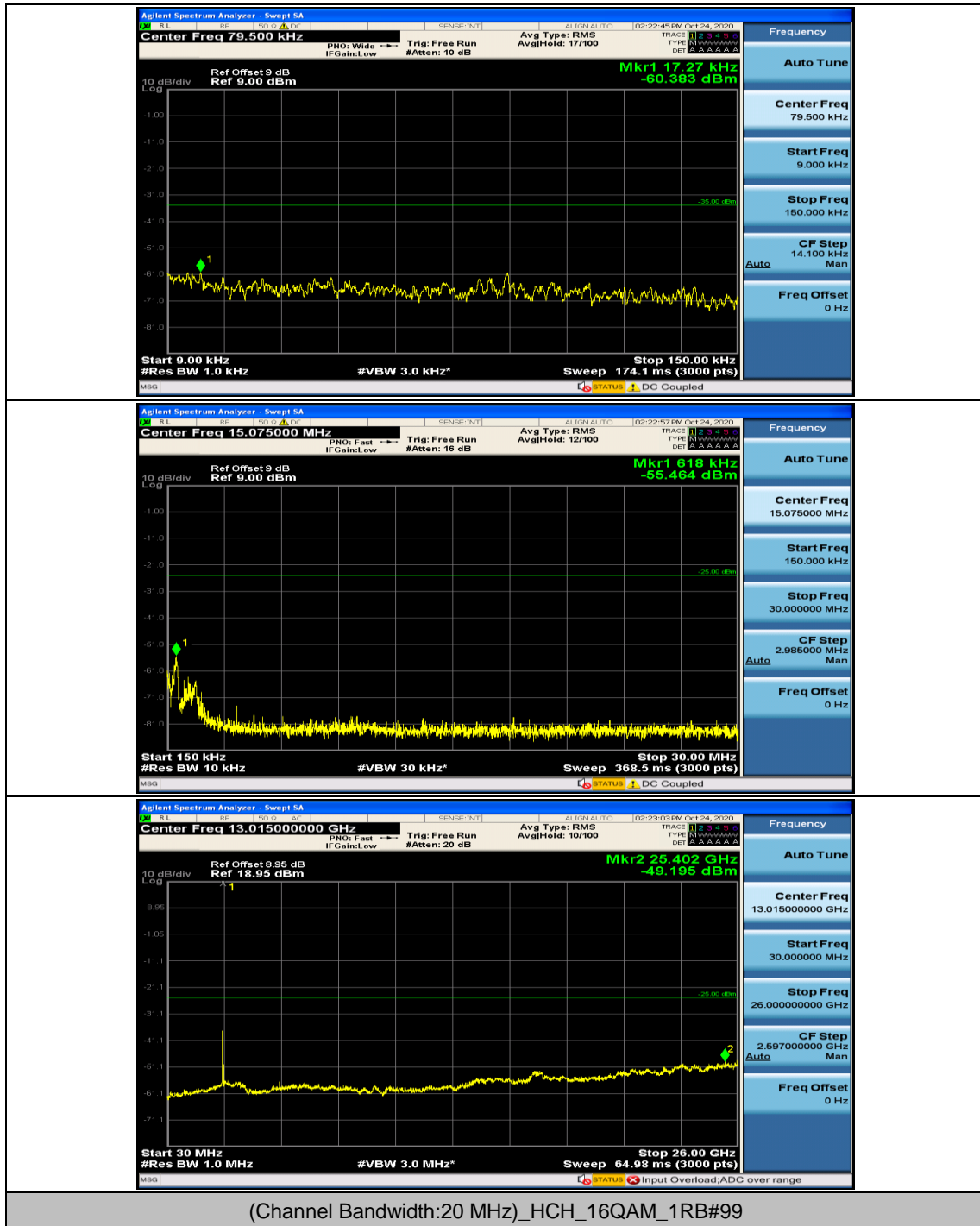


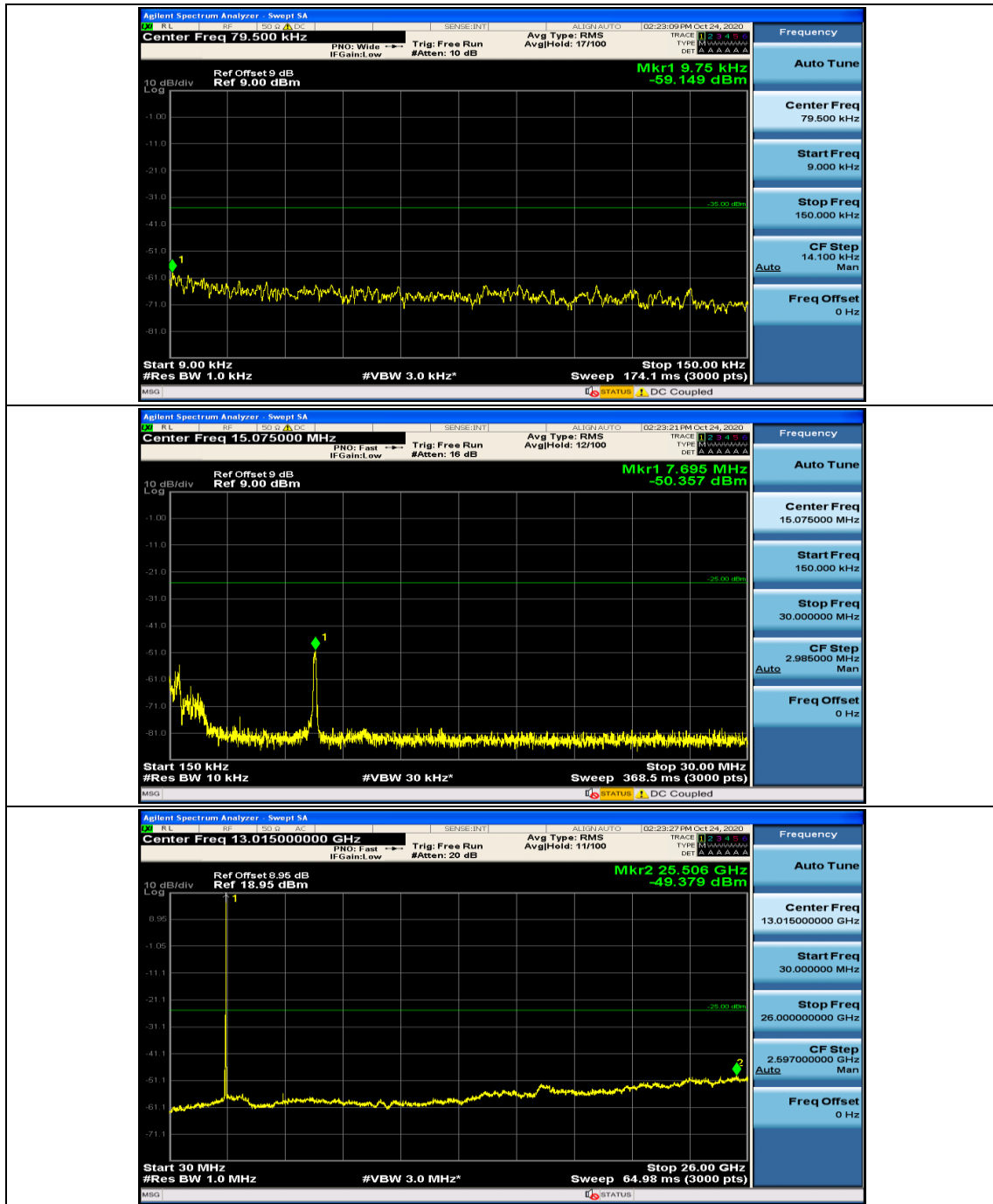












Appendix F: Frequency Stability

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	1.72	0.000687	± 2.5	PASS
		VN	TN	-1.27	-0.000507	± 2.5	PASS
		VH	TN	0.71	0.000284	± 2.5	PASS
	MCH	VL	TN	2.64	0.001041	± 2.5	PASS
		VN	TN	1.95	0.000769	± 2.5	PASS
		VH	TN	-1.52	-0.000600	± 2.5	PASS
	HCH	VL	TN	2.35	0.000915	± 2.5	PASS
		VN	TN	0.85	0.000331	± 2.5	PASS
		VH	TN	0.28	0.000109	± 2.5	PASS
16QAM	LCH	VL	TN	0.65	0.000260	± 2.5	PASS
		VN	TN	1.65	0.000659	± 2.5	PASS
		VH	TN	1.17	0.000468	± 2.5	PASS
	MCH	VL	TN	2.73	0.001077	± 2.5	PASS
		VN	TN	0.65	0.000256	± 2.5	PASS
		VH	TN	-0.47	-0.000185	± 2.5	PASS
	HCH	VL	TN	0.13	0.000051	± 2.5	PASS
		VN	TN	0	0.000000	± 2.5	PASS
		VH	TN	0.93	0.000362	± 2.5	PASS
Temperature							
Modulation	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	LCH	VN	-30	3.49	0.001395	± 2.5	PASS
		VN	-20	-0.54	-0.000216	± 2.5	PASS
		VN	-10	2.32	0.000927	± 2.5	PASS
		VN	0	2.48	0.000991	± 2.5	PASS
		VN	10	0.86	0.000344	± 2.5	PASS
		VN	20	-1.84	-0.000735	± 2.5	PASS
		VN	30	2	0.000799	± 2.5	PASS
		VN	40	-1.55	-0.000619	± 2.5	PASS
		VN	50	-0.55	-0.000220	± 2.5	PASS

	MCH	VN	-30	0.3	0.000118	± 2.5	PASS
		VN	-20	1.64	0.000647	± 2.5	PASS
		VN	-10	2.99	0.001179	± 2.5	PASS
		VN	0	4.41	0.001740	± 2.5	PASS
		VN	10	3.16	0.001247	± 2.5	PASS
		VN	20	2.85	0.001124	± 2.5	PASS
		VN	30	-0.3	-0.000118	± 2.5	PASS
		VN	40	-0.09	-0.000036	± 2.5	PASS
		VN	50	2.49	0.000982	± 2.5	PASS
	HCH	VN	-30	1.29	0.000502	± 2.5	PASS
		VN	-20	2.2	0.000857	± 2.5	PASS
		VN	-10	4.34	0.001690	± 2.5	PASS
		VN	0	4.64	0.001807	± 2.5	PASS
		VN	10	1.06	0.000413	± 2.5	PASS
		VN	20	1.74	0.000678	± 2.5	PASS
		VN	30	-1.93	-0.000752	± 2.5	PASS
		VN	40	0.04	0.000016	± 2.5	PASS
		VN	50	1.45	0.000565	± 2.5	PASS
16QAM	LCH	VN	-30	-0.66	-0.000264	± 2.5	PASS
		VN	-20	-1.56	-0.000623	± 2.5	PASS
		VN	-10	0.09	0.000036	± 2.5	PASS
		VN	0	-1.15	-0.000460	± 2.5	PASS
		VN	10	2.44	0.000975	± 2.5	PASS
		VN	20	-1.78	-0.000711	± 2.5	PASS
		VN	30	4.45	0.001778	± 2.5	PASS
		VN	40	3.99	0.001594	± 2.5	PASS
		VN	50	4.64	0.001854	± 2.5	PASS
	MCH	VN	-30	0.66	0.000260	± 2.5	PASS
		VN	-20	-1.33	-0.000525	± 2.5	PASS
		VN	-10	2.28	0.000899	± 2.5	PASS
		VN	0	-1.9	-0.000750	± 2.5	PASS
		VN	10	0.97	0.000383	± 2.5	PASS
		VN	20	-1.58	-0.000623	± 2.5	PASS
		VN	30	2.1	0.000828	± 2.5	PASS
		VN	40	2.83	0.001116	± 2.5	PASS
		VN	50	2.93	0.001156	± 2.5	PASS
	HCH	VN	-30	2.82	0.001098	± 2.5	PASS
		VN	-20	1.43	0.000557	± 2.5	PASS
		VN	-10	4.73	0.001842	± 2.5	PASS
		VN	0	3.87	0.001507	± 2.5	PASS
		VN	10	4.67	0.001819	± 2.5	PASS

		VN	20	0.94	0.000366	± 2.5	PASS
		VN	30	-0.91	-0.000354	± 2.5	PASS
		VN	40	3.12	0.001215	± 2.5	PASS
		VN	50	-0.4	-0.000156	± 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	0.19	0.000076	± 2.5	PASS
		VN	TN	-0.39	-0.000156	± 2.5	PASS
		VH	TN	1.23	0.000491	± 2.5	PASS
	MCH	VL	TN	-1.18	-0.000465	± 2.5	PASS
		VN	TN	4.31	0.001700	± 2.5	PASS
		VH	TN	-1.05	-0.000414	± 2.5	PASS
	HCH	VL	TN	0.6	0.000234	± 2.5	PASS
		VN	TN	-0.79	-0.000308	± 2.5	PASS
		VH	TN	-1.53	-0.000596	± 2.5	PASS
16QAM	LCH	VL	TN	-0.78	-0.000311	± 2.5	PASS
		VN	TN	-1.55	-0.000619	± 2.5	PASS
		VH	TN	2.69	0.001074	± 2.5	PASS
	MCH	VL	TN	1.03	0.000406	± 2.5	PASS
		VN	TN	2.57	0.001014	± 2.5	PASS
		VH	TN	2.79	0.001101	± 2.5	PASS
	HCH	VL	TN	-0.52	-0.000203	± 2.5	PASS
		VN	TN	2.96	0.001154	± 2.5	PASS
		VH	TN	-1.5	-0.000585	± 2.5	PASS
Temperature							
Modulation	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	LCH	VN	-30	3.31	0.001321	± 2.5	PASS
		VN	-20	1.62	0.000647	± 2.5	PASS
		VN	-10	1.74	0.000695	± 2.5	PASS
		VN	0	3.46	0.001381	± 2.5	PASS
		VN	10	-1.57	-0.000627	± 2.5	PASS
		VN	20	4.36	0.001741	± 2.5	PASS
		VN	30	4.64	0.001852	± 2.5	PASS
		VN	40	1.22	0.000487	± 2.5	PASS
	VN	50	-0.75	-0.000299	± 2.5	PASS	
	MCH	VN	-30	4.1	0.001617	± 2.5	PASS

	VN	VN	-20	3.53	0.001393	± 2.5	PASS
		VN	-10	0.31	0.000122	± 2.5	PASS
		VN	0	2.59	0.001022	± 2.5	PASS
		VN	10	-0.91	-0.000359	± 2.5	PASS
		VN	20	4.37	0.001724	± 2.5	PASS
		VN	30	0.23	0.000091	± 2.5	PASS
		VN	40	0.83	0.000327	± 2.5	PASS
		VN	50	2.4	0.000947	± 2.5	PASS
	HCH	VN	-30	3.06	0.001193	± 2.5	PASS
		VN	-20	3.06	0.001193	± 2.5	PASS
		VN	-10	-0.25	-0.000097	± 2.5	PASS
		VN	0	2.69	0.001049	± 2.5	PASS
		VN	10	4.39	0.001712	± 2.5	PASS
		VN	20	1.81	0.000706	± 2.5	PASS
		VN	30	4.92	0.001918	± 2.5	PASS
		VN	40	0.93	0.000363	± 2.5	PASS
		VN	50	4.38	0.001708	± 2.5	PASS
		16QAM	LCH	VN	-30	1.34	0.000535
VN	-20			3.89	0.001553	± 2.5	PASS
VN	-10			-0.61	-0.000244	± 2.5	PASS
VN	0			3.37	0.001345	± 2.5	PASS
VN	10			-1.34	-0.000535	± 2.5	PASS
VN	20			3.07	0.001226	± 2.5	PASS
VN	30			-0.42	-0.000168	± 2.5	PASS
VN	40			0.01	0.000004	± 2.5	PASS
VN	50			-0.8	-0.000319	± 2.5	PASS
MCH	VN		-30	-0.27	-0.000107	± 2.5	PASS
	VN		-20	-0.31	-0.000122	± 2.5	PASS
	VN		-10	-0.18	-0.000071	± 2.5	PASS
	VN		0	4.14	0.001633	± 2.5	PASS
	VN		10	0.15	0.000059	± 2.5	PASS
	VN		20	-1.29	-0.000509	± 2.5	PASS
	VN		30	3.66	0.001444	± 2.5	PASS
	VN		40	-0.13	-0.000051	± 2.5	PASS
	VN		50	-0.3	-0.000118	± 2.5	PASS
HCH	VN		-30	1.13	0.000441	± 2.5	PASS
	VN		-20	2.72	0.001060	± 2.5	PASS
	VN		-10	-1.44	-0.000561	± 2.5	PASS
	VN		0	4.3	0.001676	± 2.5	PASS
	VN		10	2.68	0.001045	± 2.5	PASS
	VN		20	1.54	0.000600	± 2.5	PASS

		VN	30	-0.7	-0.000273	± 2.5	PASS
		VN	40	4.73	0.001844	± 2.5	PASS
		VN	50	-1.28	-0.000499	± 2.5	PASS

Channel Bandwidth: 15 MHz

Channel Bandwidth: 15 MHz							
Voltage							
Modulation	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	LCH	VL	TN	2.18	0.000869	± 2.5	PASS
		VN	TN	2.95	0.001176	± 2.5	PASS
		VH	TN	1.72	0.000686	± 2.5	PASS
	MCH	VL	TN	1.31	0.000517	± 2.5	PASS
		VN	TN	1.01	0.000398	± 2.5	PASS
		VH	TN	0.3	0.000118	± 2.5	PASS
	HCH	VL	TN	1.05	0.000410	± 2.5	PASS
		VN	TN	1.27	0.000496	± 2.5	PASS
		VH	TN	2.43	0.000948	± 2.5	PASS
16QAM	LCH	VL	TN	-1.73	-0.000690	± 2.5	PASS
		VN	TN	4.62	0.001842	± 2.5	PASS
		VH	TN	2.92	0.001165	± 2.5	PASS
	MCH	VL	TN	1.91	0.000753	± 2.5	PASS
		VN	TN	-1.07	-0.000422	± 2.5	PASS
		VH	TN	4.29	0.001692	± 2.5	PASS
	HCH	VL	TN	2.61	0.001019	± 2.5	PASS
		VN	TN	2.2	0.000859	± 2.5	PASS
		VH	TN	-0.05	-0.000020	± 2.5	PASS
Temperature							
Modulation	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	LCH	VN	-30	1.99	0.000794	± 2.5	PASS
		VN	-20	1.95	0.000778	± 2.5	PASS
		VN	-10	1.54	0.000614	± 2.5	PASS
		VN	0	-0.52	-0.000207	± 2.5	PASS
		VN	10	-0.35	-0.000140	± 2.5	PASS
		VN	20	-0.62	-0.000247	± 2.5	PASS
		VN	30	-0.99	-0.000395	± 2.5	PASS
		VN	40	3.57	0.001424	± 2.5	PASS
		VN	50	-1.98	-0.000790	± 2.5	PASS
	MCH	VN	-30	-0.02	-0.000008	± 2.5	PASS
		VN	-20	2.75	0.001085	± 2.5	PASS

		VN	-10	-0.98	-0.000387	± 2.5	PASS		
		VN	0	3.64	0.001436	± 2.5	PASS		
		VN	10	2.69	0.001061	± 2.5	PASS		
		VN	20	4.85	0.001913	± 2.5	PASS		
		VN	30	-1.38	-0.000544	± 2.5	PASS		
		VN	40	-1.51	-0.000596	± 2.5	PASS		
		VN	50	3.76	0.001483	± 2.5	PASS		
	HCH	VN	-30	1.1	0.000429	± 2.5	PASS		
		VN	-20	2.71	0.001058	± 2.5	PASS		
		VN	-10	0.88	0.000343	± 2.5	PASS		
		VN	0	-0.1	-0.000039	± 2.5	PASS		
		VN	10	1.39	0.000542	± 2.5	PASS		
		VN	20	0.82	0.000320	± 2.5	PASS		
		VN	30	4.87	0.001900	± 2.5	PASS		
		VN	40	1.61	0.000628	± 2.5	PASS		
		VN	50	-1.34	-0.000523	± 2.5	PASS		
		16QAM	LCH	VN	-30	2.6	0.001037	± 2.5	PASS
				VN	-20	-0.71	-0.000283	± 2.5	PASS
				VN	-10	4.06	0.001619	± 2.5	PASS
VN	0			0.48	0.000191	± 2.5	PASS		
VN	10			-0.14	-0.000056	± 2.5	PASS		
VN	20			4.47	0.001783	± 2.5	PASS		
VN	30			-1.62	-0.000646	± 2.5	PASS		
VN	40			2.23	0.000889	± 2.5	PASS		
VN	50			1.23	0.000491	± 2.5	PASS		
MCH	VN		-30	1.72	0.000679	± 2.5	PASS		
	VN		-20	-1.4	-0.000552	± 2.5	PASS		
	VN		-10	0.84	0.000331	± 2.5	PASS		
	VN		0	-1.93	-0.000761	± 2.5	PASS		
	VN		10	4.29	0.001692	± 2.5	PASS		
	VN		20	-0.03	-0.000012	± 2.5	PASS		
	VN		30	3.01	0.001187	± 2.5	PASS		
	VN		40	3.33	0.001314	± 2.5	PASS		
	VN		50	-0.99	-0.000391	± 2.5	PASS		
HCH	VN		-30	-0.27	-0.000105	± 2.5	PASS		
	VN		-20	2.48	0.000968	± 2.5	PASS		
	VN		-10	3.28	0.001280	± 2.5	PASS		
	VN		0	1.49	0.000581	± 2.5	PASS		
	VN		10	-1.42	-0.000554	± 2.5	PASS		
	VN		20	2.45	0.000956	± 2.5	PASS		
	VN		30	1.77	0.000691	± 2.5	PASS		

		VN	40	4.67	0.001822	± 2.5	PASS
		VN	50	-1.15	-0.000449	± 2.5	PASS

Channel Bandwidth: 20 MHz

Channel Bandwidth: 20 MHz							
Voltage							
Modulation	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	LCH	VL	TN	1.99	0.000793	± 2.5	PASS
		VN	TN	0.11	0.000044	± 2.5	PASS
		VH	TN	1.77	0.000705	± 2.5	PASS
	MCH	VL	TN	0.63	0.000249	± 2.5	PASS
		VN	TN	-1.09	-0.000430	± 2.5	PASS
		VH	TN	4.73	0.001866	± 2.5	PASS
	HCH	VL	TN	-1.08	-0.000422	± 2.5	PASS
		VN	TN	3.82	0.001492	± 2.5	PASS
		VH	TN	-0.8	-0.000313	± 2.5	PASS
16QAM	LCH	VL	TN	0.6	0.000239	± 2.5	PASS
		VN	TN	-1.23	-0.000490	± 2.5	PASS
		VH	TN	-0.14	-0.000056	± 2.5	PASS
	MCH	VL	TN	0.74	0.000292	± 2.5	PASS
		VN	TN	0.41	0.000162	± 2.5	PASS
		VH	TN	0.66	0.000260	± 2.5	PASS
	HCH	VL	TN	0.13	0.000051	± 2.5	PASS
		VN	TN	-1.7	-0.000664	± 2.5	PASS
		VH	TN	-1.17	-0.000457	± 2.5	PASS
Temperature							
Modulation	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	LCH	VN	-30	1.61	0.000641	± 2.5	PASS
		VN	-20	0.14	0.000056	± 2.5	PASS
		VN	-10	2.69	0.001072	± 2.5	PASS
		VN	0	1.75	0.000697	± 2.5	PASS
		VN	10	4.23	0.001685	± 2.5	PASS
		VN	20	3.24	0.001291	± 2.5	PASS
		VN	30	-0.9	-0.000359	± 2.5	PASS
		VN	40	-0.66	-0.000263	± 2.5	PASS
		VN	50	4.44	0.001769	± 2.5	PASS
	MCH	VN	-30	0.52	0.000205	± 2.5	PASS
		VN	-20	4	0.001578	± 2.5	PASS
		VN	-10	-1.27	-0.000501	± 2.5	PASS

		VN	0	0.67	0.000264	± 2.5	PASS		
		VN	10	0.66	0.000260	± 2.5	PASS		
		VN	20	-0.92	-0.000363	± 2.5	PASS		
		VN	30	4.94	0.001949	± 2.5	PASS		
		VN	40	0.81	0.000320	± 2.5	PASS		
		VN	50	2.26	0.000892	± 2.5	PASS		
	HCH	VN	-30	3.24	0.001266	± 2.5	PASS		
		VN	-20	4.21	0.001645	± 2.5	PASS		
		VN	-10	0.15	0.000059	± 2.5	PASS		
		VN	0	4.91	0.001918	± 2.5	PASS		
		VN	10	0.38	0.000148	± 2.5	PASS		
		VN	20	-0.1	-0.000039	± 2.5	PASS		
		VN	30	-1.83	-0.000715	± 2.5	PASS		
		VN	40	3.48	0.001359	± 2.5	PASS		
		VN	50	-0.77	-0.000301	± 2.5	PASS		
		16QAM	LCH	VN	-30	0.41	0.000163	± 2.5	PASS
				VN	-20	2	0.000797	± 2.5	PASS
				VN	-10	4.88	0.001944	± 2.5	PASS
VN	0			-1.48	-0.000590	± 2.5	PASS		
VN	10			3.7	0.001474	± 2.5	PASS		
VN	20			-0.27	-0.000108	± 2.5	PASS		
VN	30			1.71	0.000681	± 2.5	PASS		
VN	40			4.51	0.001797	± 2.5	PASS		
VN	50			1.34	0.000534	± 2.5	PASS		
MCH	VN		-30	1.14	0.000450	± 2.5	PASS		
	VN		-20	0.81	0.000320	± 2.5	PASS		
	VN		-10	-0.03	-0.000012	± 2.5	PASS		
	VN		0	1.01	0.000398	± 2.5	PASS		
	VN		10	-1.47	-0.000580	± 2.5	PASS		
	VN		20	1.39	0.000548	± 2.5	PASS		
	VN		30	3.9	0.001538	± 2.5	PASS		
	VN		40	-1.77	-0.000698	± 2.5	PASS		
	VN		50	3.62	0.001428	± 2.5	PASS		
HCH	VN	-30	1.91	0.000746	± 2.5	PASS			
	VN	-20	0.7	0.000273	± 2.5	PASS			
	VN	-10	-1.48	-0.000578	± 2.5	PASS			
	VN	0	0.81	0.000316	± 2.5	PASS			
	VN	10	-0.4	-0.000156	± 2.5	PASS			
	VN	20	3.94	0.001539	± 2.5	PASS			
	VN	30	3.94	0.001539	± 2.5	PASS			
	VN	40	3.29	0.001285	± 2.5	PASS			

		VN	50	2.96	0.001156	± 2.5	PASS
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