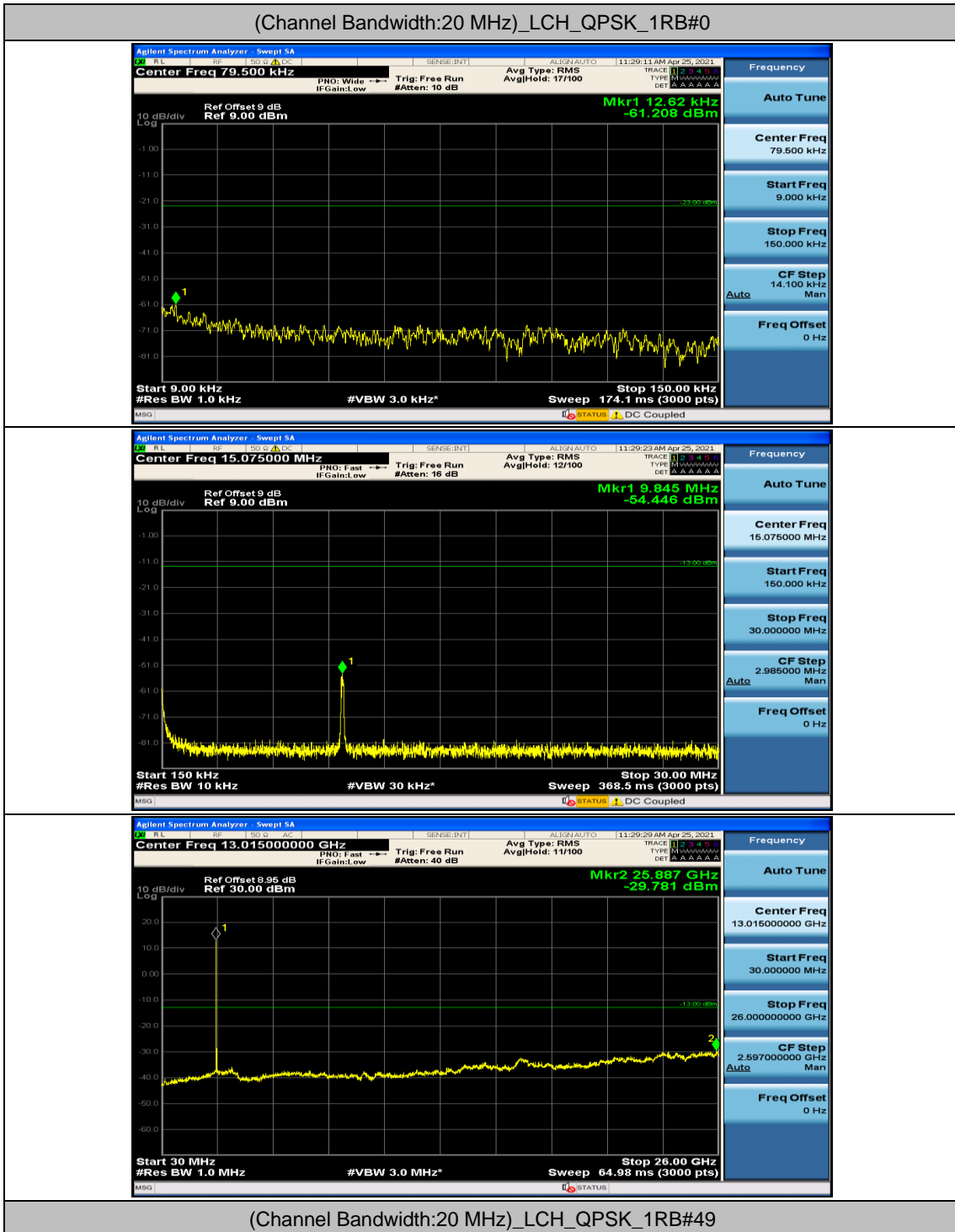
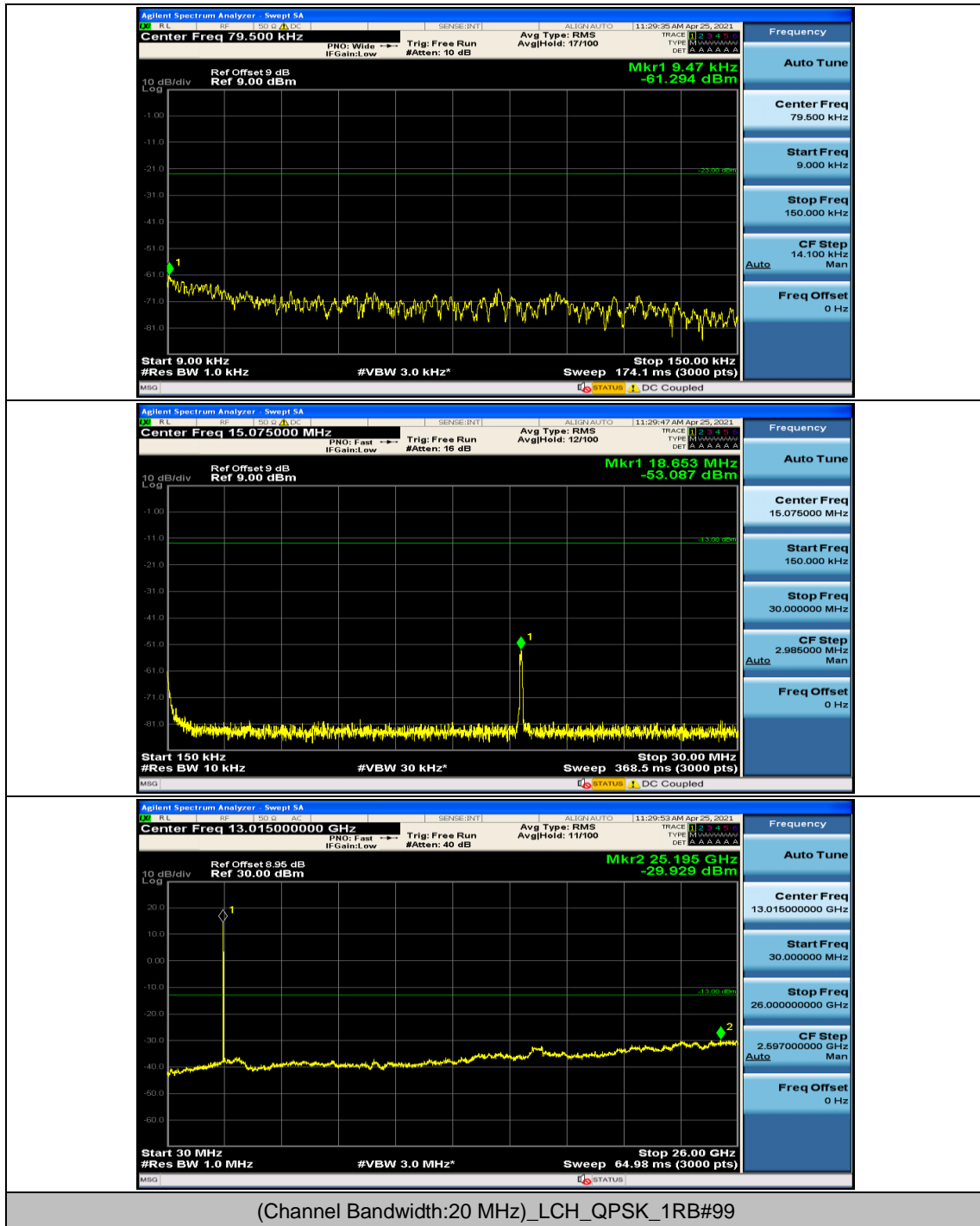
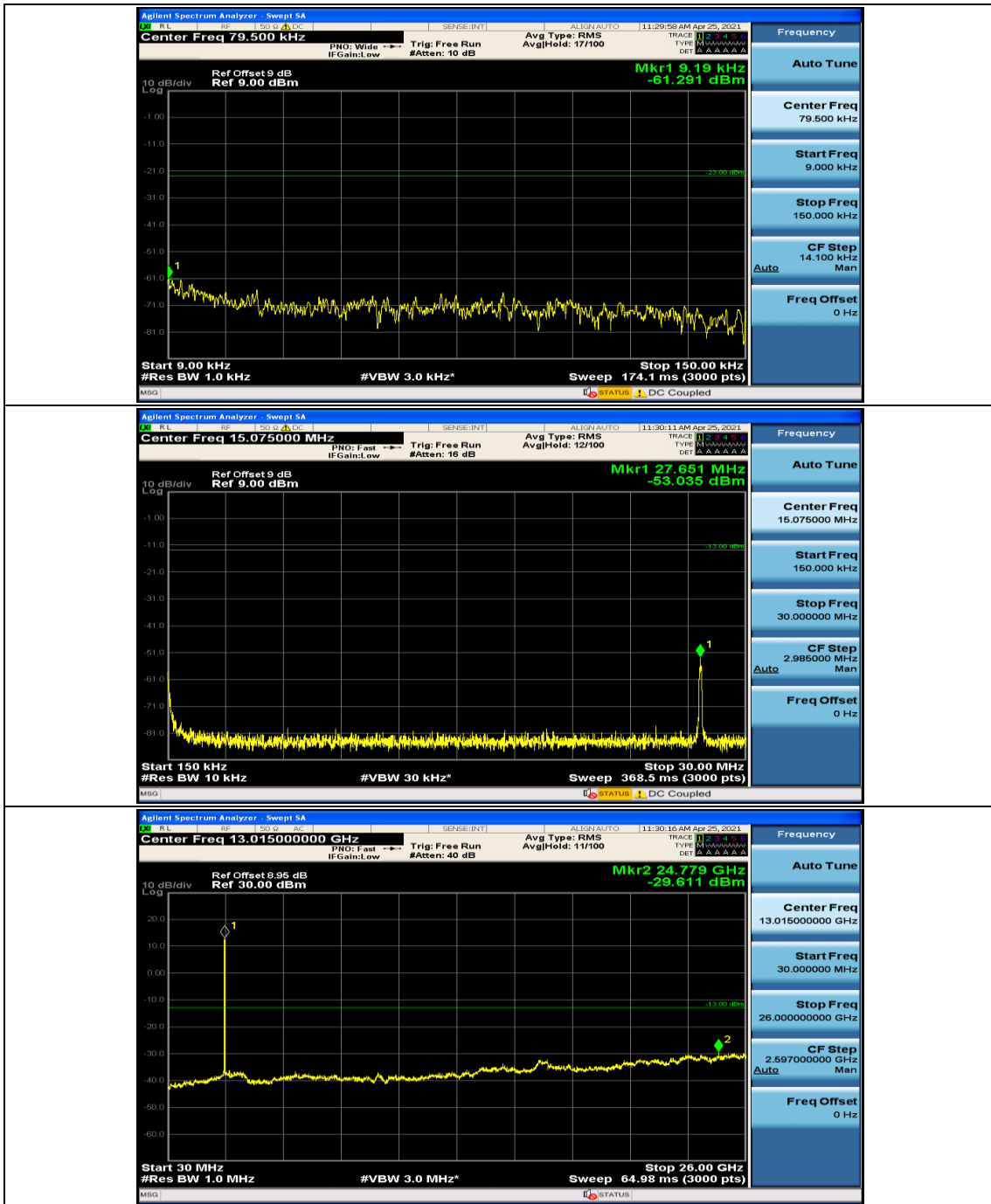
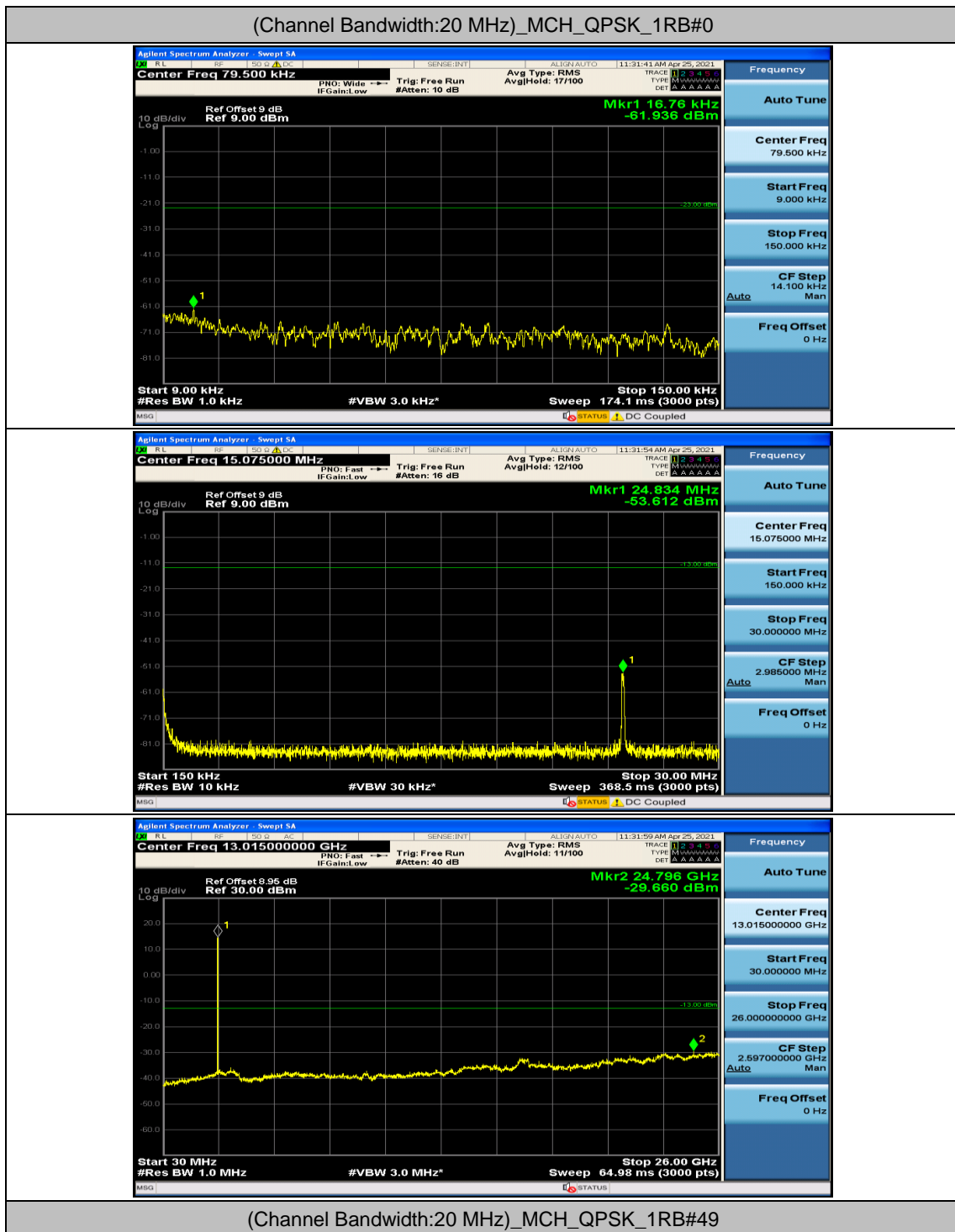


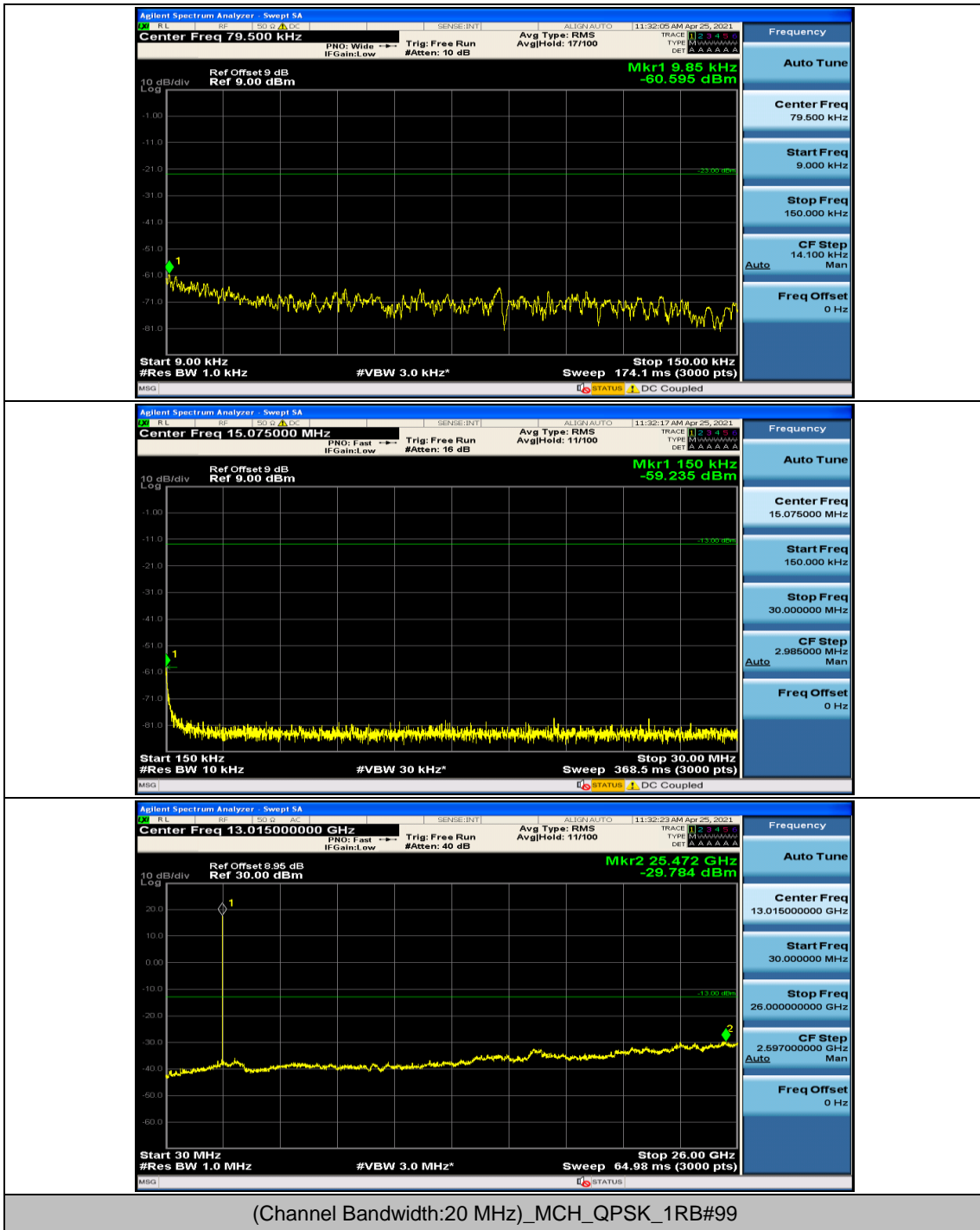
Channel Bandwidth: 20 MHz

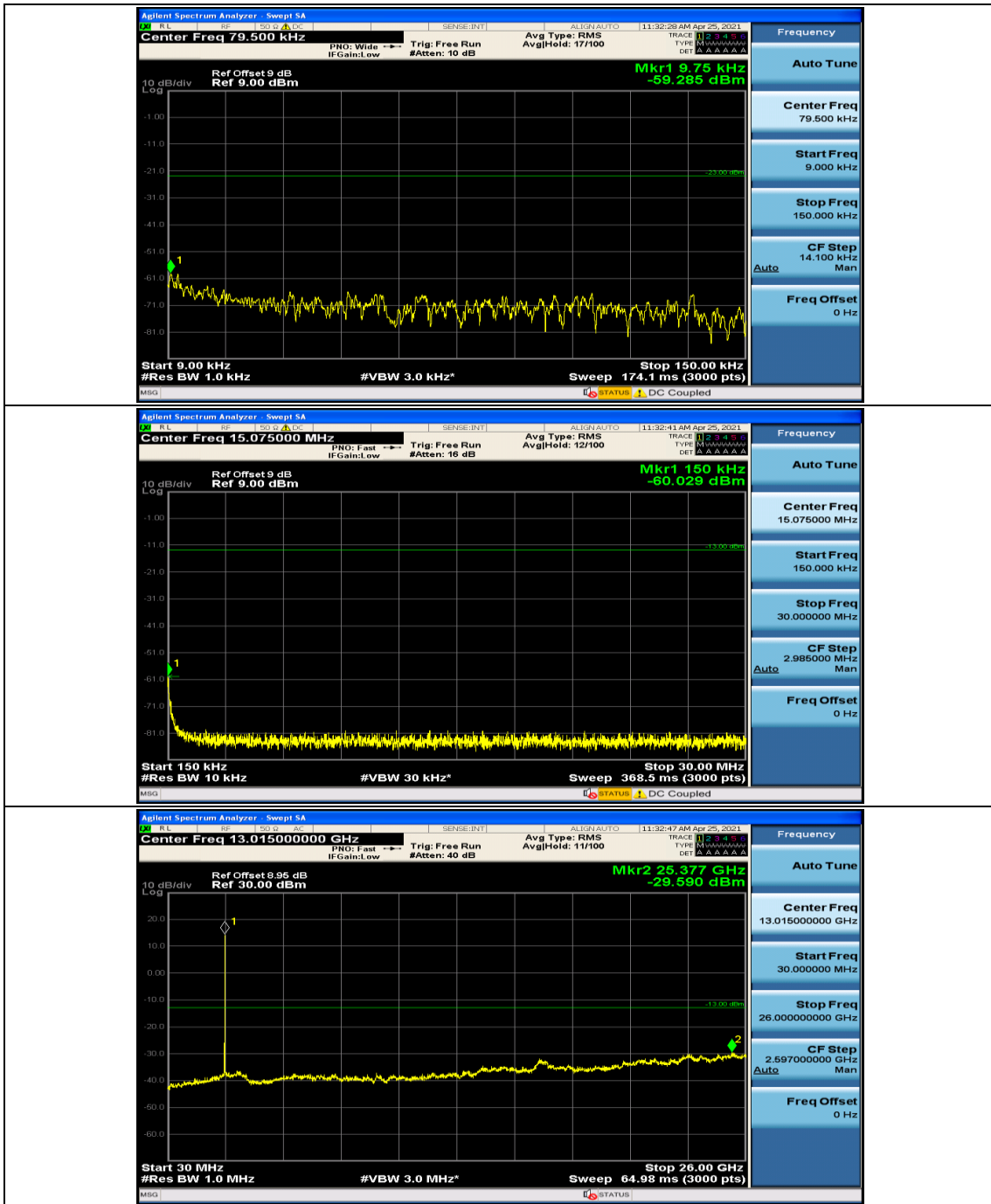


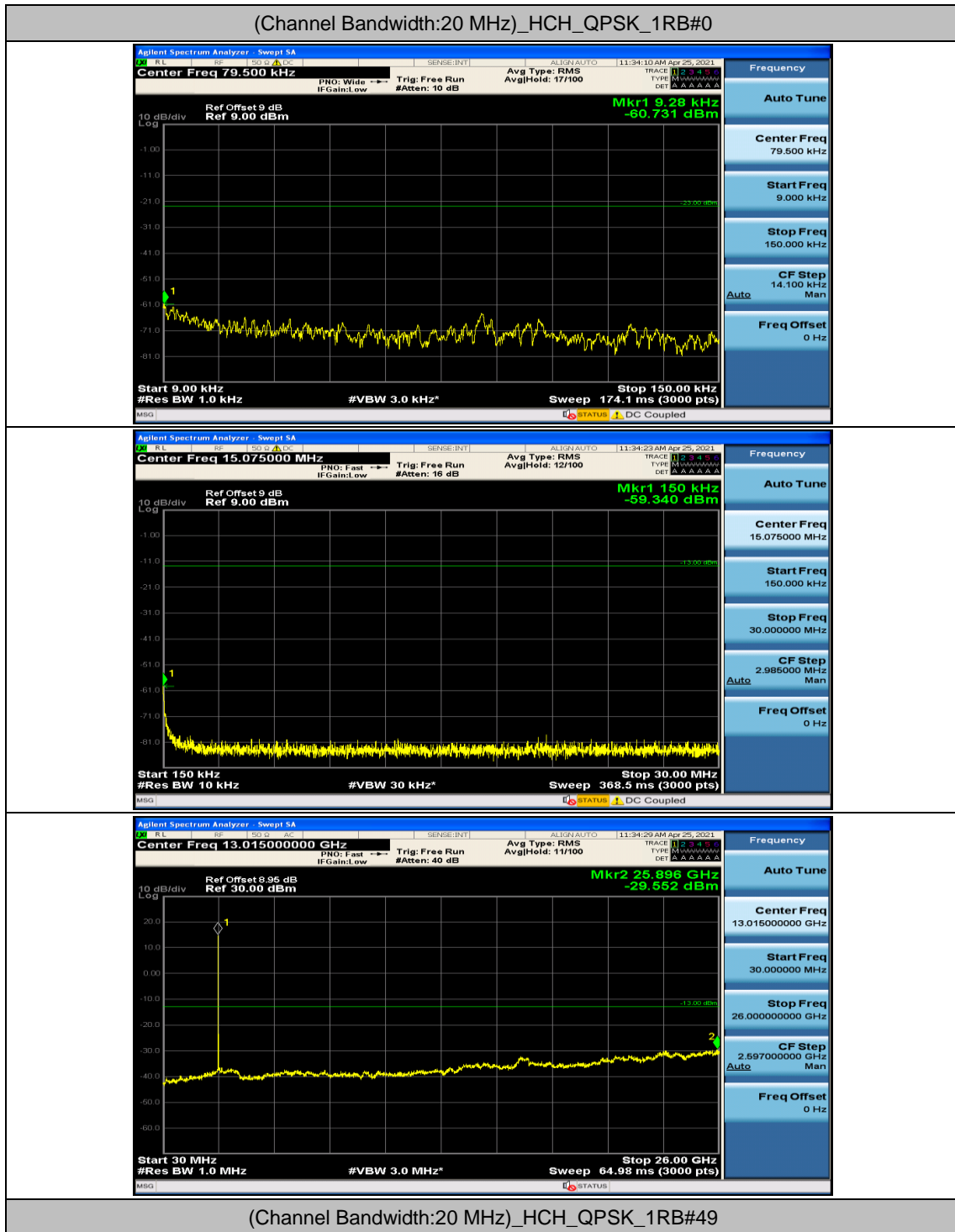


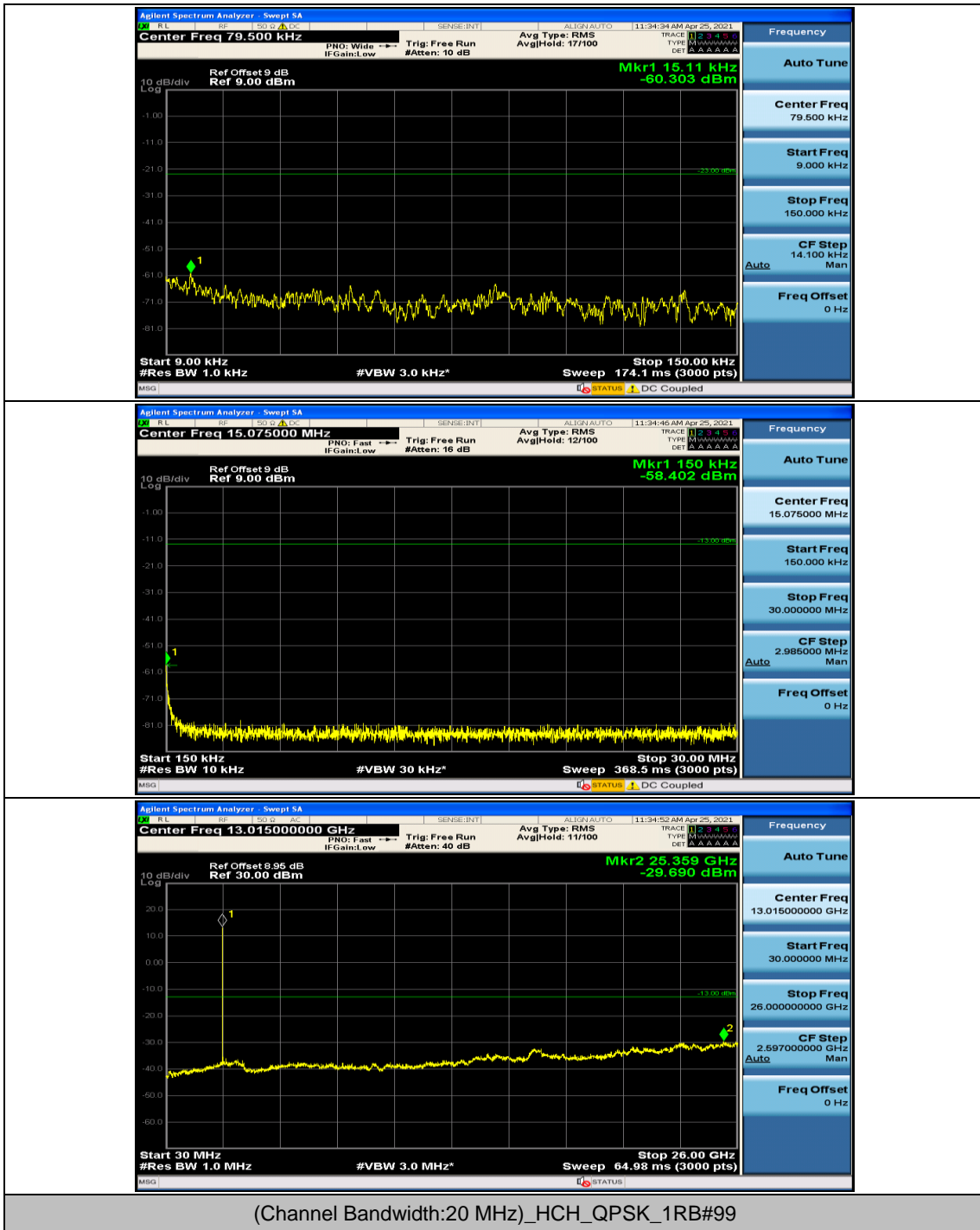


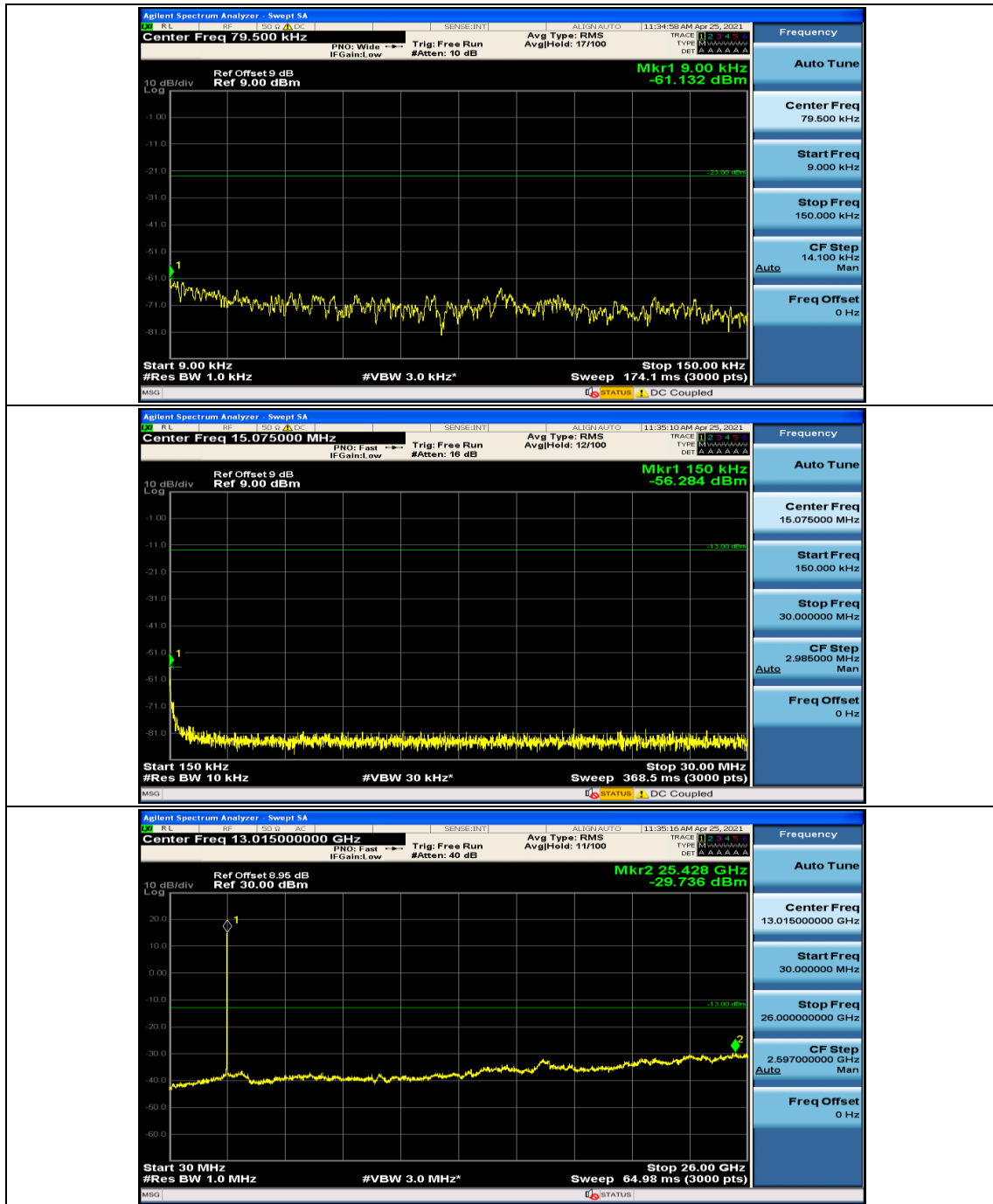


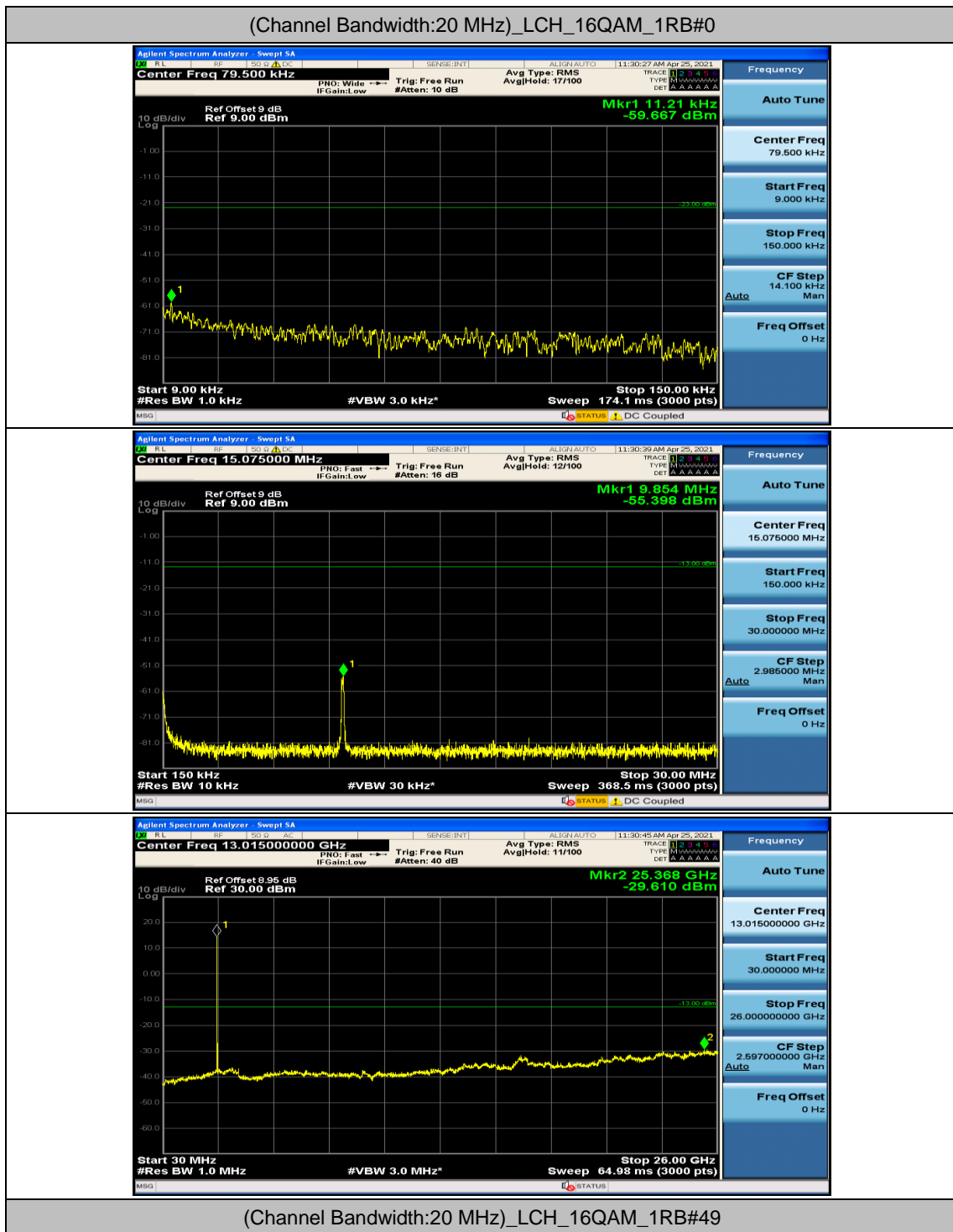


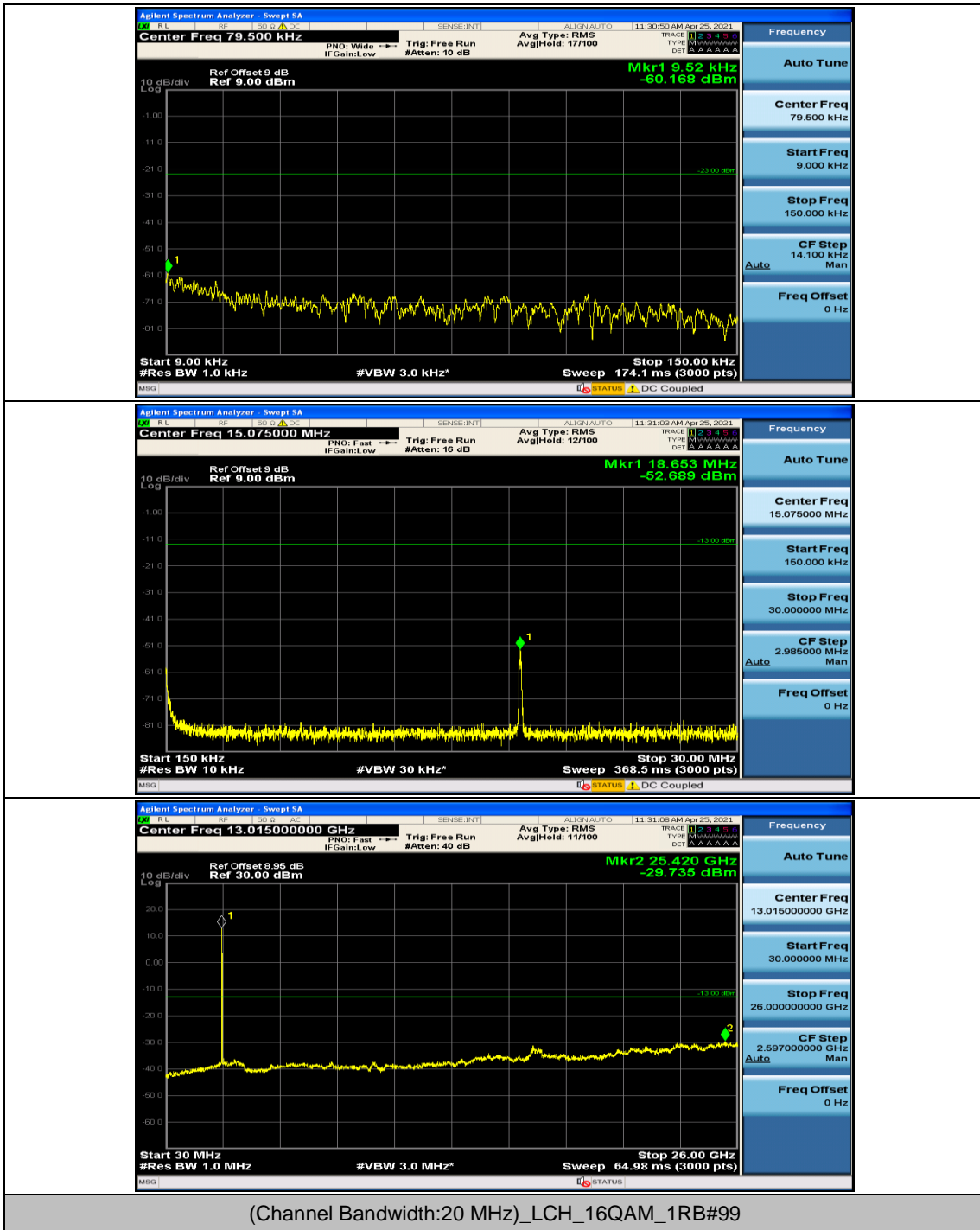


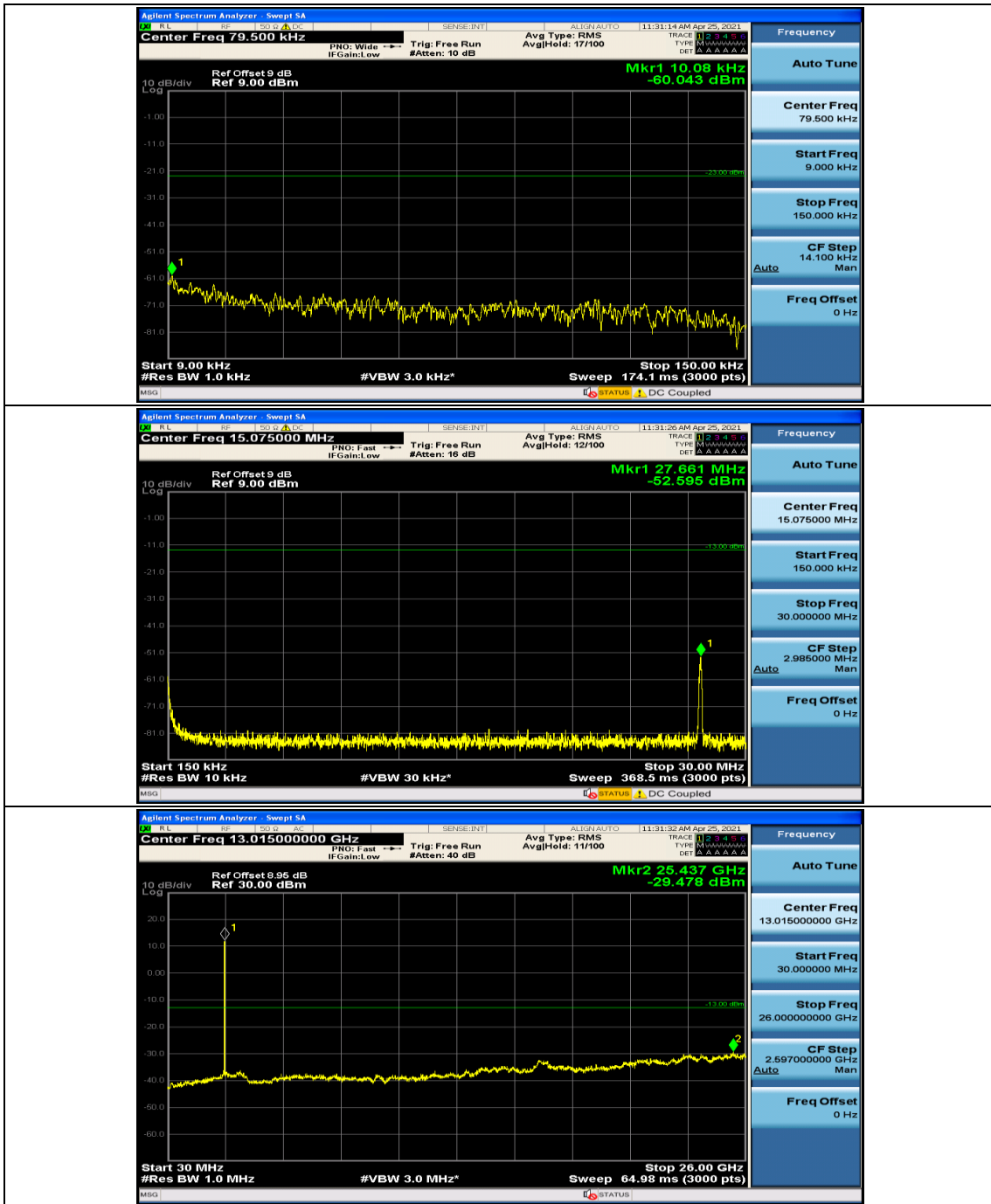


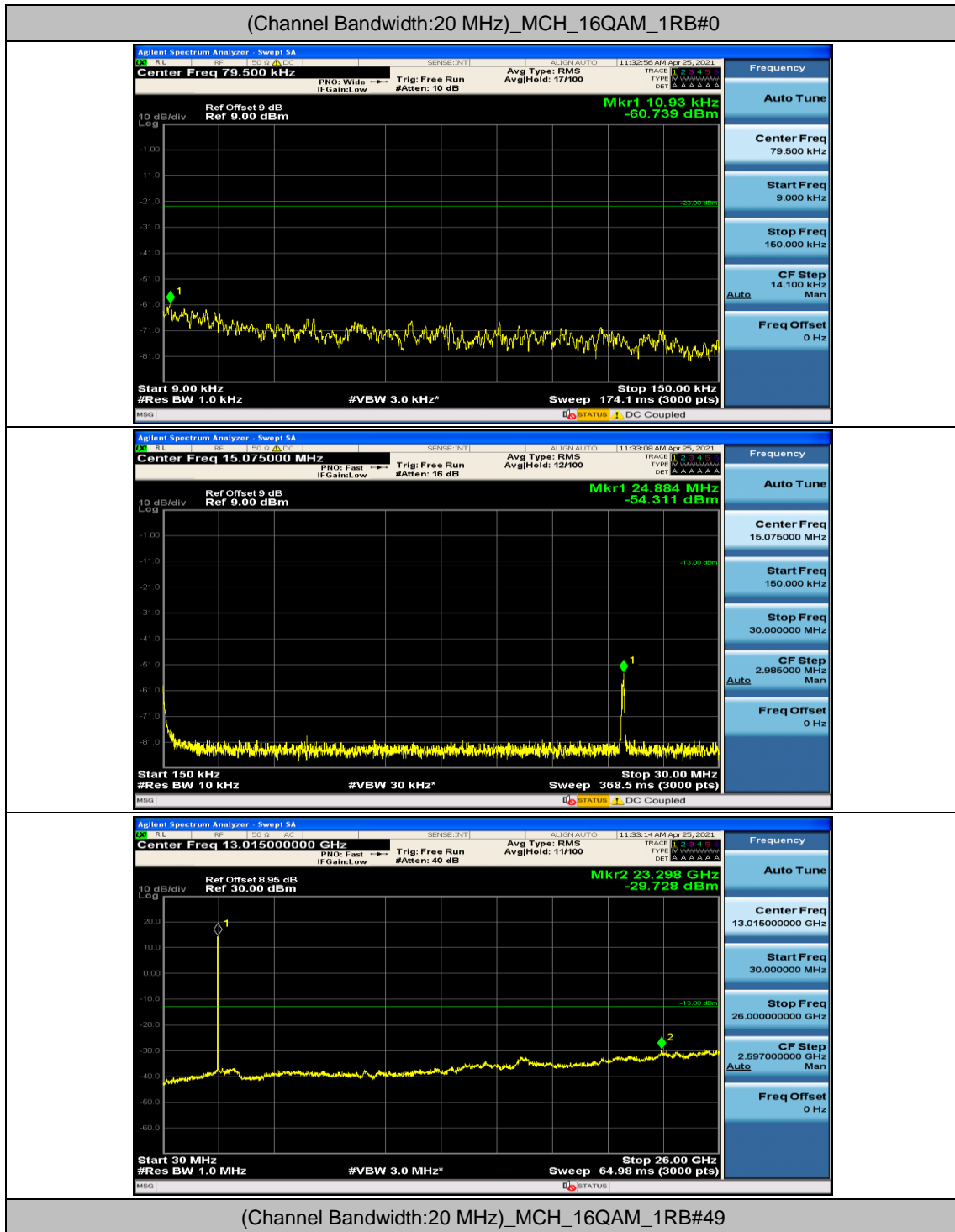


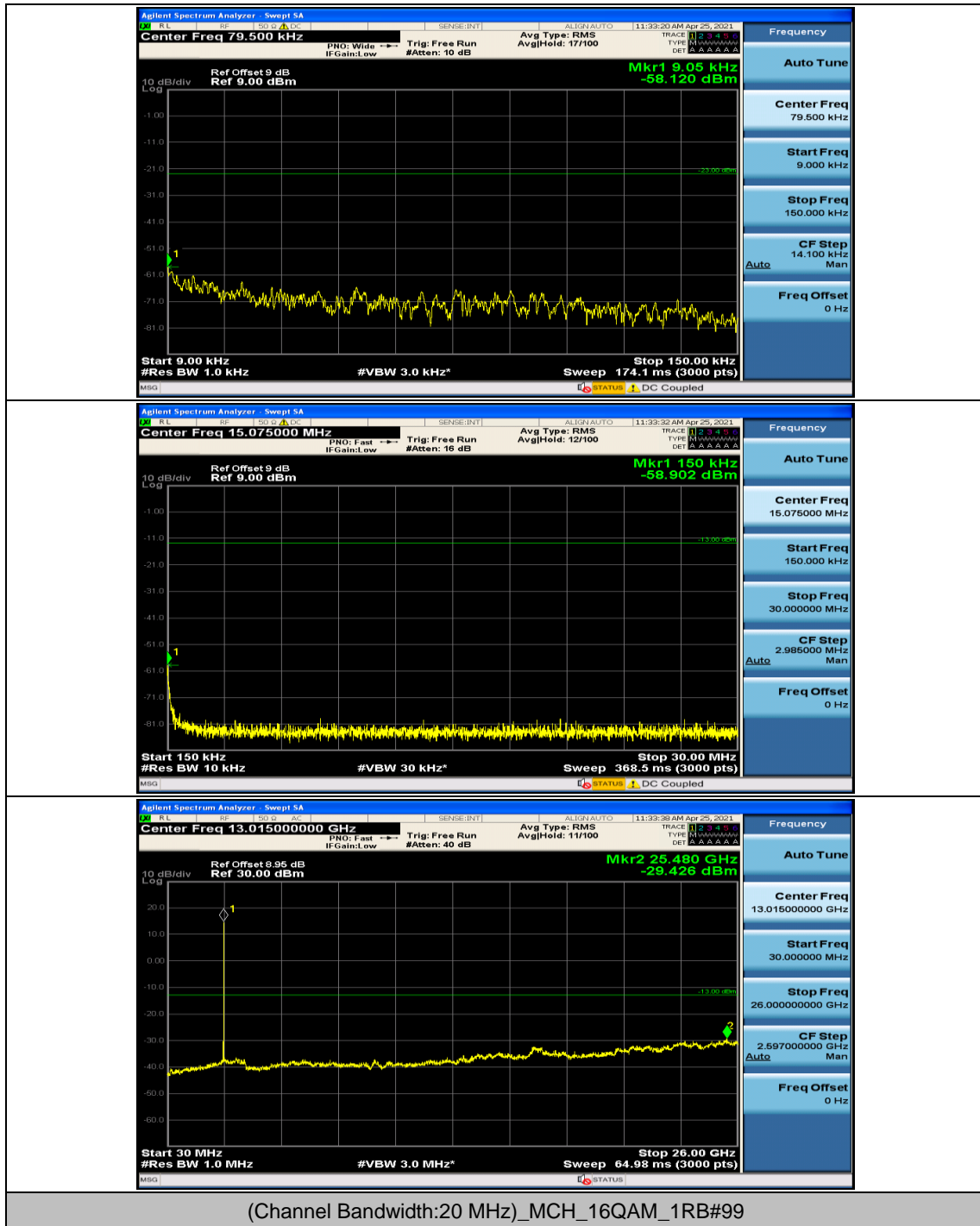


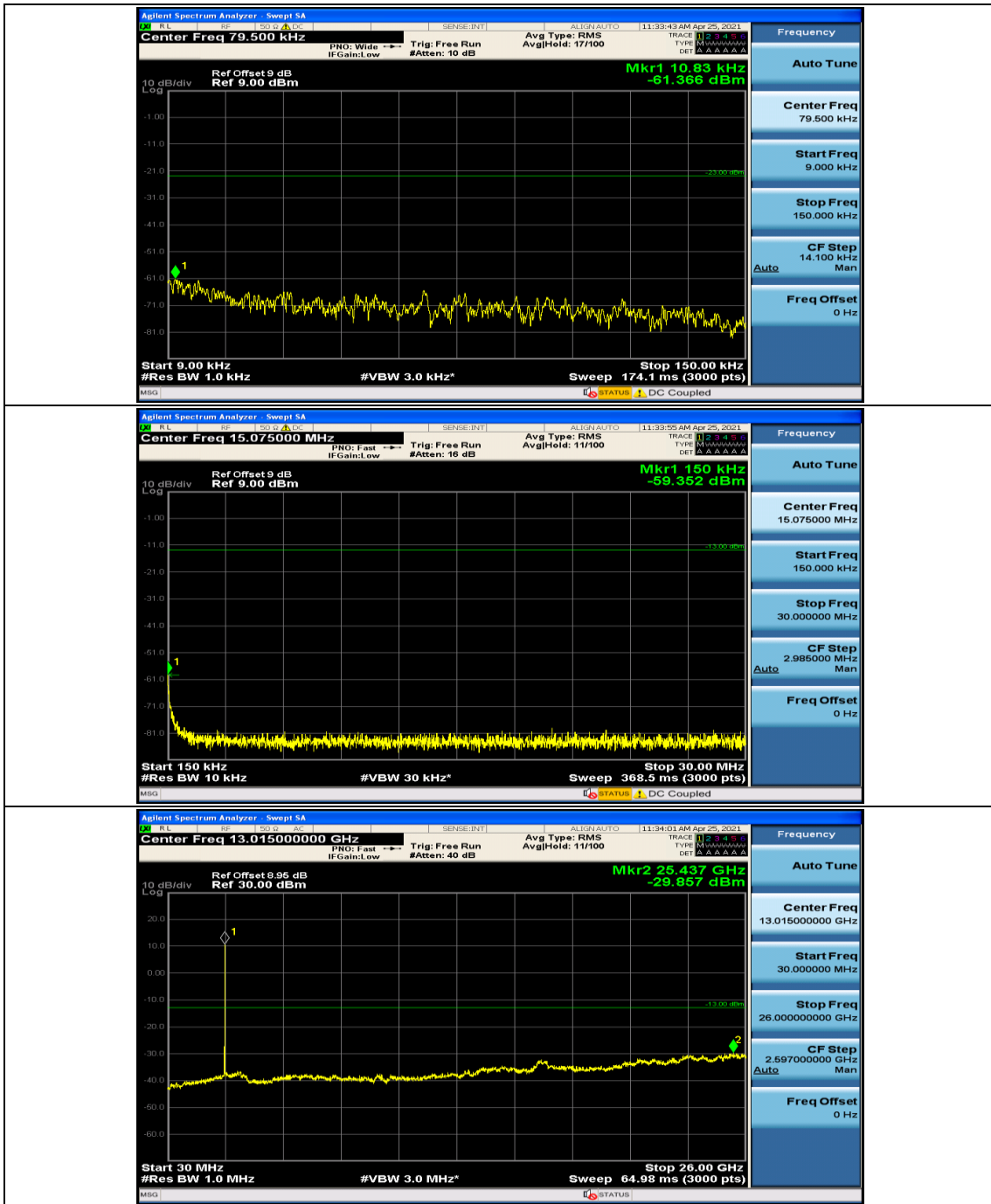


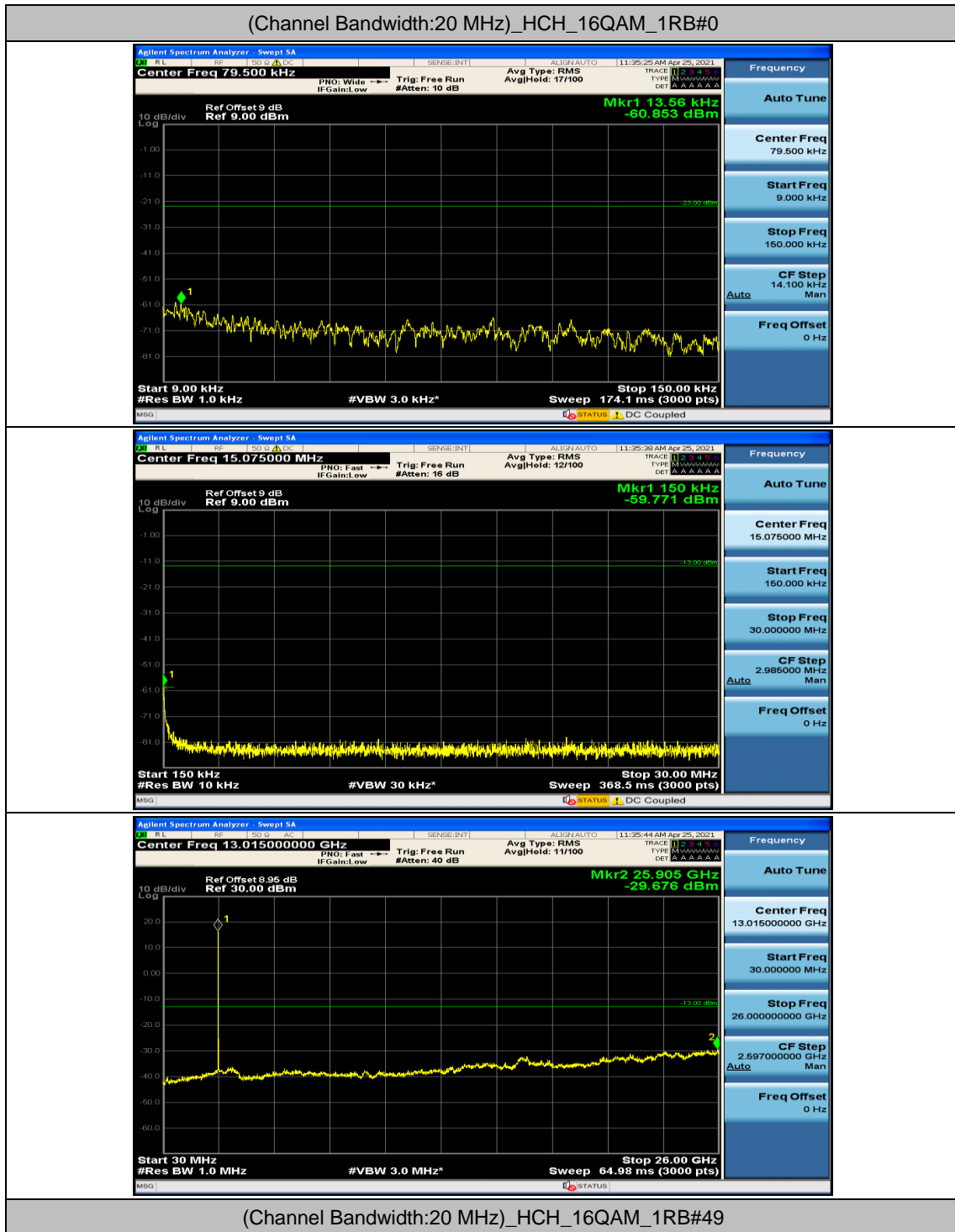


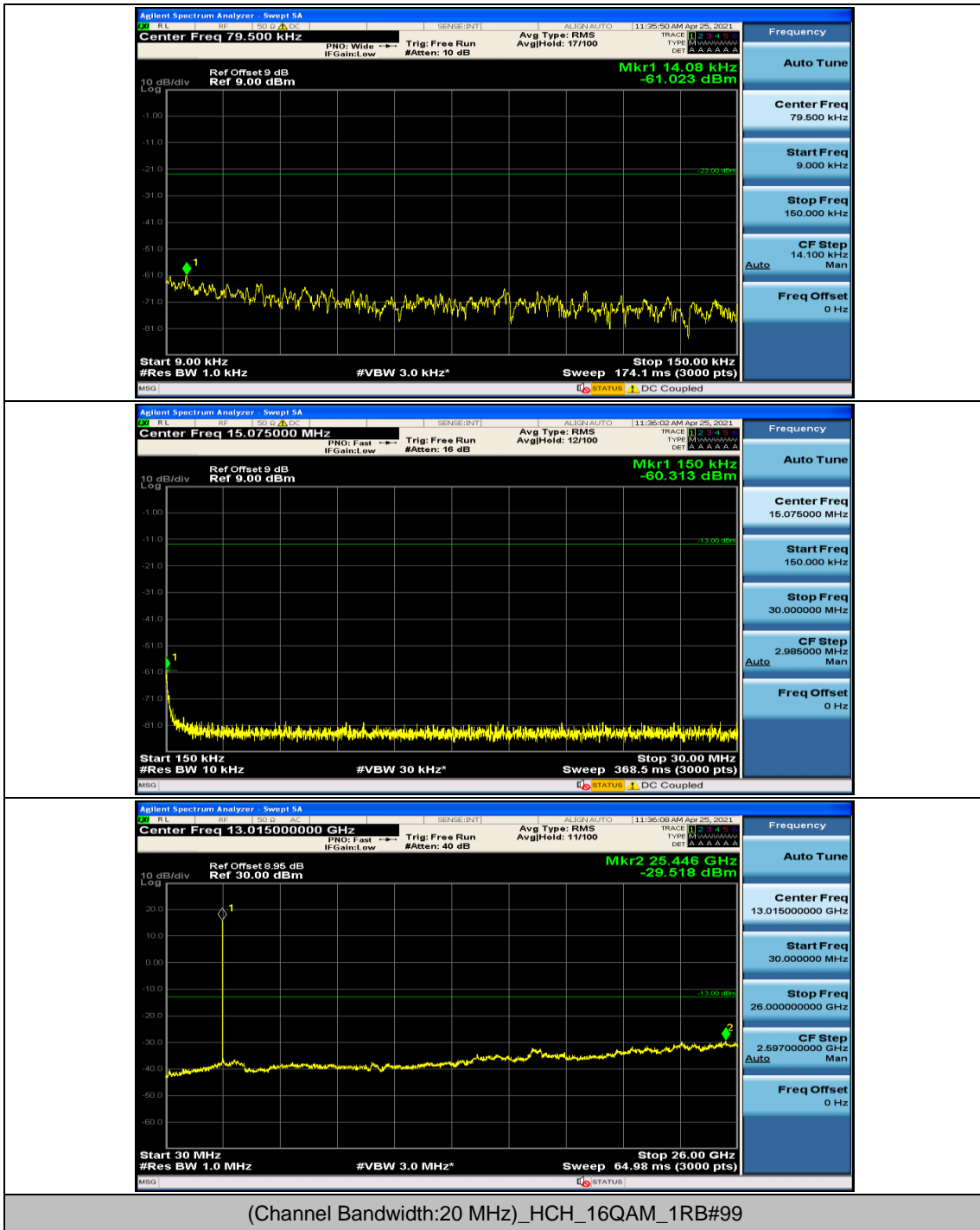


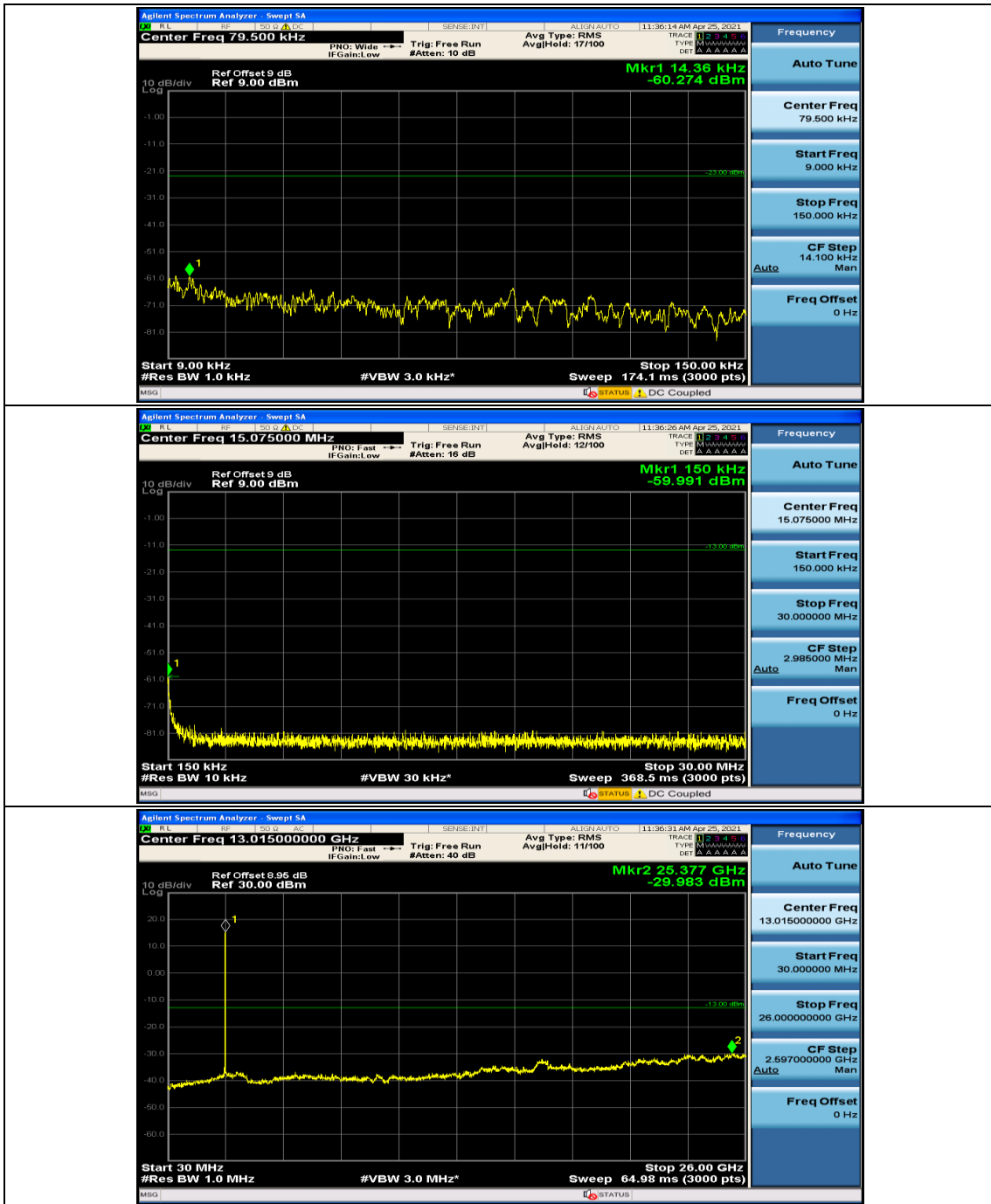












Appendix F: Frequency Stability

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	-1.55	-0.000603	± 2.5	PASS
		VN	TN	3.98	0.001547	± 2.5	PASS
		VH	TN	4.96	0.001928	± 2.5	PASS
	MCH	VL	TN	2.9	0.001118	± 2.5	PASS
		VN	TN	3.77	0.001453	± 2.5	PASS
		VH	TN	1.7	0.000655	± 2.5	PASS
	HCH	VL	TN	-1.09	-0.000416	± 2.5	PASS
		VN	TN	1.31	0.000500	± 2.5	PASS
		VH	TN	2.02	0.000772	± 2.5	PASS
16QAM	LCH	VL	TN	4.19	0.001629	± 2.5	PASS
		VN	TN	2.33	0.000906	± 2.5	PASS
		VH	TN	3.2	0.001244	± 2.5	PASS
	MCH	VL	TN	-1.15	-0.000443	± 2.5	PASS
		VN	TN	4.81	0.001854	± 2.5	PASS
		VH	TN	2.62	0.001010	± 2.5	PASS
	HCH	VL	TN	3.4	0.001299	± 2.5	PASS
		VN	TN	4.6	0.001757	± 2.5	PASS
		VH	TN	4.98	0.001903	± 2.5	PASS
Temperature							
Modulation	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	LCH	VN	-30	-1.99	-0.000774	± 2.5	PASS
		VN	-20	-1.64	-0.000638	± 2.5	PASS
		VN	-10	4.32	0.001679	± 2.5	PASS
		VN	0	1.01	0.000393	± 2.5	PASS
		VN	10	-1.74	-0.000676	± 2.5	PASS
		VN	20	3.07	0.001193	± 2.5	PASS
		VN	30	2.57	0.000999	± 2.5	PASS
		VN	40	4.89	0.001901	± 2.5	PASS
		VN	50	0.18	0.000070	± 2.5	PASS

	MCH	VN	-30	4.65	0.001792	± 2.5	PASS
		VN	-20	1.43	0.000551	± 2.5	PASS
		VN	-10	2	0.000771	± 2.5	PASS
		VN	0	4.58	0.001765	± 2.5	PASS
		VN	10	-0.24	-0.000092	± 2.5	PASS
		VN	20	4.13	0.001592	± 2.5	PASS
		VN	30	0.28	0.000108	± 2.5	PASS
		VN	40	-0.6	-0.000231	± 2.5	PASS
		VN	50	4.6	0.001773	± 2.5	PASS
	HCH	VN	-30	2.81	0.001074	± 2.5	PASS
		VN	-20	0.27	0.000103	± 2.5	PASS
		VN	-10	1.45	0.000554	± 2.5	PASS
		VN	0	-1.85	-0.000707	± 2.5	PASS
		VN	10	1.16	0.000443	± 2.5	PASS
		VN	20	-0.02	-0.000008	± 2.5	PASS
		VN	30	4.38	0.001673	± 2.5	PASS
		VN	40	3.23	0.001234	± 2.5	PASS
		VN	50	1.15	0.000439	± 2.5	PASS
16QAM	LCH	VN	-30	1.89	0.000735	± 2.5	PASS
		VN	-20	2.13	0.000828	± 2.5	PASS
		VN	-10	0.74	0.000288	± 2.5	PASS
		VN	0	4.77	0.001854	± 2.5	PASS
		VN	10	2.81	0.001092	± 2.5	PASS
		VN	20	1.33	0.000517	± 2.5	PASS
		VN	30	3.36	0.001306	± 2.5	PASS
		VN	40	0.59	0.000229	± 2.5	PASS
		VN	50	-1.7	-0.000661	± 2.5	PASS
	MCH	VN	-30	-0.21	-0.000081	± 2.5	PASS
		VN	-20	-1.23	-0.000474	± 2.5	PASS
		VN	-10	4.71	0.001815	± 2.5	PASS
		VN	0	2.35	0.000906	± 2.5	PASS
		VN	10	-0.22	-0.000085	± 2.5	PASS
		VN	20	0.23	0.000089	± 2.5	PASS
		VN	30	3.7	0.001426	± 2.5	PASS
		VN	40	-1.51	-0.000582	± 2.5	PASS
		VN	50	3.07	0.001183	± 2.5	PASS
	HCH	VN	-30	0.66	0.000252	± 2.5	PASS
		VN	-20	-1.69	-0.000646	± 2.5	PASS
		VN	-10	-0.6	-0.000229	± 2.5	PASS
		VN	0	3.91	0.001494	± 2.5	PASS
		VN	10	-1.38	-0.000527	± 2.5	PASS

		VN	20	2.96	0.001131	± 2.5	PASS
		VN	30	2.66	0.001016	± 2.5	PASS
		VN	40	3.35	0.001280	± 2.5	PASS
		VN	50	4.04	0.001543	± 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	-0.81	-0.000315	± 2.5	PASS
		VN	TN	1.58	0.000614	± 2.5	PASS
		VH	TN	2.72	0.001056	± 2.5	PASS
	MCH	VL	TN	-1.94	-0.000748	± 2.5	PASS
		VN	TN	-1.3	-0.000501	± 2.5	PASS
		VH	TN	2.88	0.001110	± 2.5	PASS
	HCH	VL	TN	-0.24	-0.000092	± 2.5	PASS
		VN	TN	-0.63	-0.000241	± 2.5	PASS
		VH	TN	-1.07	-0.000409	± 2.5	PASS
16QAM	LCH	VL	TN	2.35	0.000913	± 2.5	PASS
		VN	TN	4.71	0.001829	± 2.5	PASS
		VH	TN	-1.61	-0.000625	± 2.5	PASS
	MCH	VL	TN	-1.02	-0.000393	± 2.5	PASS
		VN	TN	4.88	0.001881	± 2.5	PASS
		VH	TN	2.97	0.001145	± 2.5	PASS
	HCH	VL	TN	1.33	0.000509	± 2.5	PASS
		VN	TN	0.75	0.000287	± 2.5	PASS
		VH	TN	0.63	0.000241	± 2.5	PASS
Temperature							
Modulation	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	LCH	VN	-30	0.4	0.000155	± 2.5	PASS
		VN	-20	4.4	0.001709	± 2.5	PASS
		VN	-10	4.67	0.001814	± 2.5	PASS
		VN	0	0.77	0.000299	± 2.5	PASS
		VN	10	1.07	0.000416	± 2.5	PASS
		VN	20	2.14	0.000831	± 2.5	PASS
		VN	30	-1.86	-0.000722	± 2.5	PASS
		VN	40	1.26	0.000489	± 2.5	PASS
		VN	50	2.92	0.001134	± 2.5	PASS
	MCH	VN	-30	3.99	0.001538	± 2.5	PASS

		VN	-20	2.72	0.001048	± 2.5	PASS
		VN	-10	3.33	0.001283	± 2.5	PASS
		VN	0	0.5	0.000193	± 2.5	PASS
		VN	10	2.72	0.001048	± 2.5	PASS
		VN	20	0.7	0.000270	± 2.5	PASS
		VN	30	-1.08	-0.000416	± 2.5	PASS
		VN	40	3.57	0.001376	± 2.5	PASS
		VN	50	-0.15	-0.000058	± 2.5	PASS
	HCH	VN	-30	0.68	0.000260	± 2.5	PASS
		VN	-20	0.35	0.000134	± 2.5	PASS
		VN	-10	-1.25	-0.000478	± 2.5	PASS
		VN	0	2.33	0.000891	± 2.5	PASS
		VN	10	2.94	0.001124	± 2.5	PASS
		VN	20	-1.17	-0.000447	± 2.5	PASS
		VN	30	-0.39	-0.000149	± 2.5	PASS
		VN	40	3.66	0.001400	± 2.5	PASS
		VN	50	3.83	0.001465	± 2.5	PASS
		16QAM	LCH	VN	-30	1.23	0.000478
VN	-20			4.69	0.001821	± 2.5	PASS
VN	-10			3.61	0.001402	± 2.5	PASS
VN	0			3.68	0.001429	± 2.5	PASS
VN	10			2.03	0.000788	± 2.5	PASS
VN	20			-0.48	-0.000186	± 2.5	PASS
VN	30			0.85	0.000330	± 2.5	PASS
VN	40			3.05	0.001184	± 2.5	PASS
VN	50			-1.14	-0.000443	± 2.5	PASS
MCH	VN		-30	3.99	0.001538	± 2.5	PASS
	VN		-20	-0.41	-0.000158	± 2.5	PASS
	VN		-10	4.33	0.001669	± 2.5	PASS
	VN		0	4.45	0.001715	± 2.5	PASS
	VN		10	-0.58	-0.000224	± 2.5	PASS
	VN		20	0.59	0.000227	± 2.5	PASS
	VN		30	0.54	0.000208	± 2.5	PASS
	VN		40	-0.52	-0.000200	± 2.5	PASS
	VN		50	0.12	0.000046	± 2.5	PASS
HCH	VN		-30	2.3	0.000880	± 2.5	PASS
	VN		-20	4.26	0.001629	± 2.5	PASS
	VN		-10	3.14	0.001201	± 2.5	PASS
	VN		0	3.05	0.001166	± 2.5	PASS
	VN		10	3.23	0.001235	± 2.5	PASS
	VN		20	1.93	0.000738	± 2.5	PASS

		VN	30	1.98	0.000757	± 2.5	PASS
		VN	40	-0.18	-0.000069	± 2.5	PASS
		VN	50	4.82	0.001843	± 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	2.2	0.000854	± 2.5	PASS
		VN	TN	-1.14	-0.000442	± 2.5	PASS
		VH	TN	-0.03	-0.000012	± 2.5	PASS
	MCH	VL	TN	0.54	0.000208	± 2.5	PASS
		VN	TN	-0.46	-0.000177	± 2.5	PASS
		VH	TN	3.81	0.001468	± 2.5	PASS
	HCH	VL	TN	2.56	0.000980	± 2.5	PASS
		VN	TN	0.31	0.000119	± 2.5	PASS
		VH	TN	-1.39	-0.000532	± 2.5	PASS
16QAM	LCH	VL	TN	-0.57	-0.000221	± 2.5	PASS
		VN	TN	3.77	0.001463	± 2.5	PASS
		VH	TN	-1.13	-0.000438	± 2.5	PASS
	MCH	VL	TN	-0.62	-0.000239	± 2.5	PASS
		VN	TN	0.58	0.000224	± 2.5	PASS
		VH	TN	3.67	0.001414	± 2.5	PASS
	HCH	VL	TN	0.93	0.000356	± 2.5	PASS
		VN	TN	2.93	0.001122	± 2.5	PASS
		VH	TN	-0.5	-0.000191	± 2.5	PASS
Temperature							
Modulation	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	LCH	VN	-30	-1.28	-0.000497	± 2.5	PASS
		VN	-20	0.82	0.000318	± 2.5	PASS
		VN	-10	0.46	0.000178	± 2.5	PASS
		VN	0	-0.3	-0.000116	± 2.5	PASS
		VN	10	-1.93	-0.000749	± 2.5	PASS
		VN	20	4.48	0.001738	± 2.5	PASS
		VN	30	2.83	0.001098	± 2.5	PASS
		VN	40	0.65	0.000252	± 2.5	PASS
		VN	50	2.51	0.000974	± 2.5	PASS
	MCH	VN	-30	1.28	0.000493	± 2.5	PASS
		VN	-20	2.75	0.001060	± 2.5	PASS

		VN	-10	2.05	0.000790	± 2.5	PASS		
		VN	0	2.74	0.001056	± 2.5	PASS		
		VN	10	-0.52	-0.000200	± 2.5	PASS		
		VN	20	0.39	0.000150	± 2.5	PASS		
		VN	30	3.45	0.001329	± 2.5	PASS		
		VN	40	3.58	0.001380	± 2.5	PASS		
		VN	50	3.4	0.001310	± 2.5	PASS		
	HCH	VN	-30	-1.4	-0.000536	± 2.5	PASS		
		VN	-20	-0.57	-0.000218	± 2.5	PASS		
		VN	-10	-1.6	-0.000612	± 2.5	PASS		
		VN	0	4.8	0.001837	± 2.5	PASS		
		VN	10	1.89	0.000723	± 2.5	PASS		
		VN	20	4.35	0.001665	± 2.5	PASS		
		VN	30	0.78	0.000299	± 2.5	PASS		
		VN	40	1.81	0.000693	± 2.5	PASS		
		VN	50	0.01	0.000004	± 2.5	PASS		
		16QAM	LCH	VN	-30	2.31	0.000896	± 2.5	PASS
				VN	-20	2.28	0.000885	± 2.5	PASS
VN	-10			4.82	0.001870	± 2.5	PASS		
VN	0			4.67	0.001812	± 2.5	PASS		
VN	10			-1.2	-0.000466	± 2.5	PASS		
VN	20			0.61	0.000237	± 2.5	PASS		
VN	30			0.11	0.000043	± 2.5	PASS		
VN	40			2.34	0.000908	± 2.5	PASS		
VN	50			-0.24	-0.000093	± 2.5	PASS		
MCH	VN		-30	4.28	0.001649	± 2.5	PASS		
	VN		-20	4.08	0.001572	± 2.5	PASS		
	VN		-10	-0.17	-0.000066	± 2.5	PASS		
	VN		0	0.4	0.000154	± 2.5	PASS		
	VN		10	-1.02	-0.000393	± 2.5	PASS		
	VN		20	1.61	0.000620	± 2.5	PASS		
	VN		30	-1.96	-0.000755	± 2.5	PASS		
	VN		40	0.99	0.000382	± 2.5	PASS		
	VN		50	3.7	0.001426	± 2.5	PASS		
HCH	VN	-30	3.36	0.001286	± 2.5	PASS			
	VN	-20	3.83	0.001466	± 2.5	PASS			
	VN	-10	1.84	0.000704	± 2.5	PASS			
	VN	0	1.54	0.000589	± 2.5	PASS			
	VN	10	2.22	0.000850	± 2.5	PASS			
	VN	20	-0.95	-0.000364	± 2.5	PASS			
	VN	30	0.65	0.000249	± 2.5	PASS			

		VN	40	0.4	0.000153	± 2.5	PASS
		VN	50	-1.71	-0.000655	± 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	-0.91	-0.000353	± 2.5	PASS
		VN	TN	2.35	0.000911	± 2.5	PASS
		VH	TN	-1.93	-0.000748	± 2.5	PASS
	MCH	VL	TN	4.91	0.001892	± 2.5	PASS
		VN	TN	0.68	0.000262	± 2.5	PASS
		VH	TN	0.76	0.000293	± 2.5	PASS
	HCH	VL	TN	0.18	0.000069	± 2.5	PASS
		VN	TN	2.88	0.001103	± 2.5	PASS
		VH	TN	4.79	0.001835	± 2.5	PASS
16QAM	LCH	VL	TN	3.17	0.001229	± 2.5	PASS
		VN	TN	2.47	0.000957	± 2.5	PASS
		VH	TN	4.28	0.001659	± 2.5	PASS
	MCH	VL	TN	0.06	0.000023	± 2.5	PASS
		VN	TN	1.81	0.000697	± 2.5	PASS
		VH	TN	-0.53	-0.000204	± 2.5	PASS
	HCH	VL	TN	0.37	0.000142	± 2.5	PASS
		VN	TN	2.26	0.000866	± 2.5	PASS
		VH	TN	-1.74	-0.000667	± 2.5	PASS
Temperature							
Modulation	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	LCH	VN	-30	1.12	0.000434	± 2.5	PASS
		VN	-20	1.42	0.000550	± 2.5	PASS
		VN	-10	-1.94	-0.000752	± 2.5	PASS
		VN	0	2.72	0.001054	± 2.5	PASS
		VN	10	3.26	0.001264	± 2.5	PASS
		VN	20	-1.22	-0.000473	± 2.5	PASS
		VN	30	2.65	0.001027	± 2.5	PASS
		VN	40	4.43	0.001717	± 2.5	PASS
		VN	50	4.14	0.001605	± 2.5	PASS
	MCH	VN	-30	2.49	0.000960	± 2.5	PASS
		VN	-20	-0.32	-0.000123	± 2.5	PASS
		VN	-10	1.22	0.000470	± 2.5	PASS

		VN	0	0.47	0.000181	± 2.5	PASS		
		VN	10	3.97	0.001530	± 2.5	PASS		
		VN	20	0.9	0.000347	± 2.5	PASS		
		VN	30	2.01	0.000775	± 2.5	PASS		
		VN	40	1.87	0.000721	± 2.5	PASS		
		VN	50	4.32	0.001665	± 2.5	PASS		
	HCH	VN	-30	2.2	0.000843	± 2.5	PASS		
		VN	-20	0.16	0.000061	± 2.5	PASS		
		VN	-10	2.12	0.000812	± 2.5	PASS		
		VN	0	1.15	0.000441	± 2.5	PASS		
		VN	10	3.26	0.001249	± 2.5	PASS		
		VN	20	3.28	0.001257	± 2.5	PASS		
		VN	30	2.41	0.000923	± 2.5	PASS		
		VN	40	2.97	0.001138	± 2.5	PASS		
		VN	50	0.71	0.000272	± 2.5	PASS		
		16QAM	LCH	VN	-30	-0.05	-0.000019	± 2.5	PASS
				VN	-20	3.61	0.001399	± 2.5	PASS
				VN	-10	3.15	0.001221	± 2.5	PASS
VN	0			0.86	0.000333	± 2.5	PASS		
VN	10			0.45	0.000174	± 2.5	PASS		
VN	20			0.84	0.000326	± 2.5	PASS		
VN	30			1.84	0.000713	± 2.5	PASS		
VN	40			4.7	0.001822	± 2.5	PASS		
VN	50			0.05	0.000019	± 2.5	PASS		
MCH	VN		-30	4.14	0.001595	± 2.5	PASS		
	VN		-20	1.51	0.000582	± 2.5	PASS		
	VN		-10	-0.42	-0.000162	± 2.5	PASS		
	VN		0	-0.24	-0.000092	± 2.5	PASS		
	VN		10	0.53	0.000204	± 2.5	PASS		
	VN		20	-0.56	-0.000216	± 2.5	PASS		
	VN		30	-1.05	-0.000405	± 2.5	PASS		
	VN		40	4.3	0.001657	± 2.5	PASS		
	VN		50	-0.99	-0.000382	± 2.5	PASS		
HCH	VN		-30	2.22	0.000851	± 2.5	PASS		
	VN		-20	0.86	0.000330	± 2.5	PASS		
	VN		-10	-0.76	-0.000291	± 2.5	PASS		
	VN		0	1.69	0.000648	± 2.5	PASS		
	VN		10	0.21	0.000080	± 2.5	PASS		
	VN		20	3.43	0.001314	± 2.5	PASS		
	VN		30	0.33	0.000126	± 2.5	PASS		
	VN		40	3.45	0.001322	± 2.5	PASS		

		VN	50	1.92	0.000736	± 2.5	PASS
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