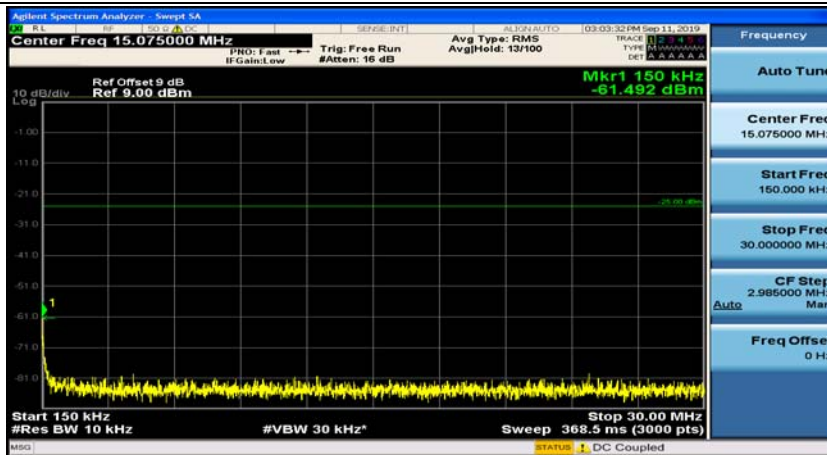
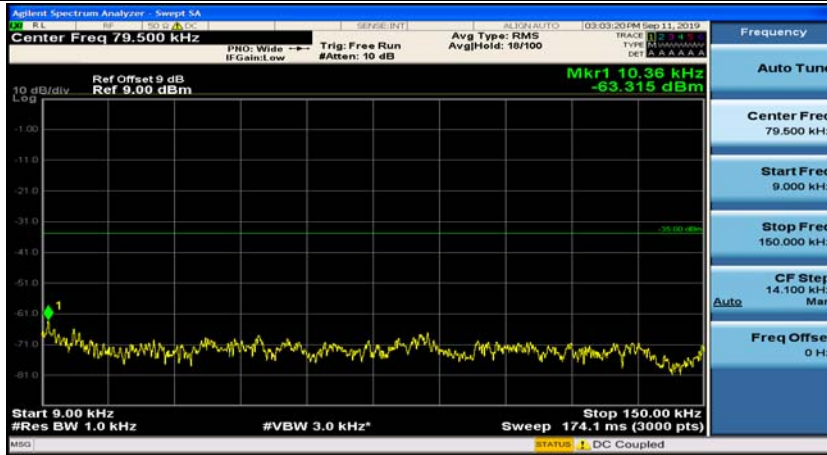
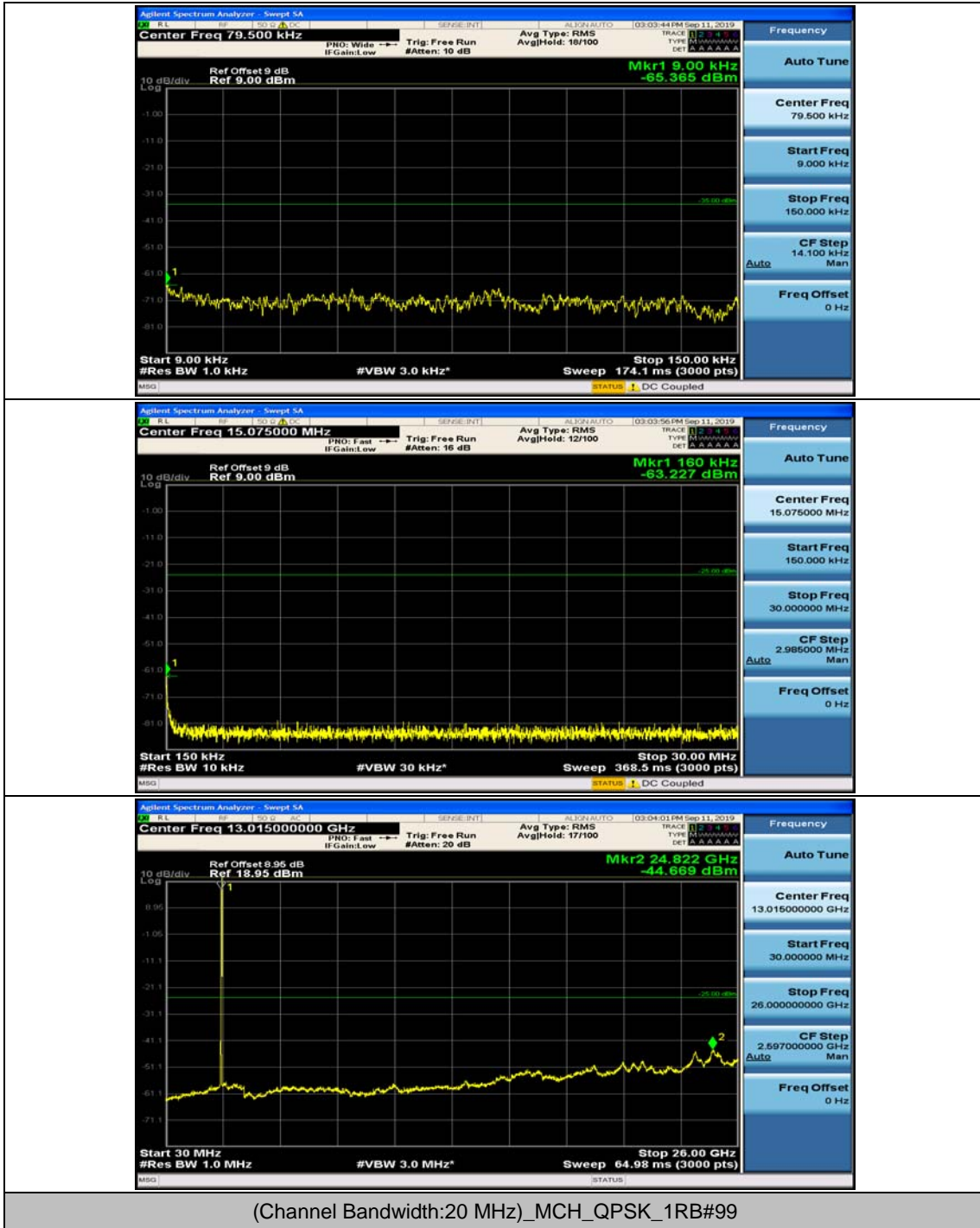
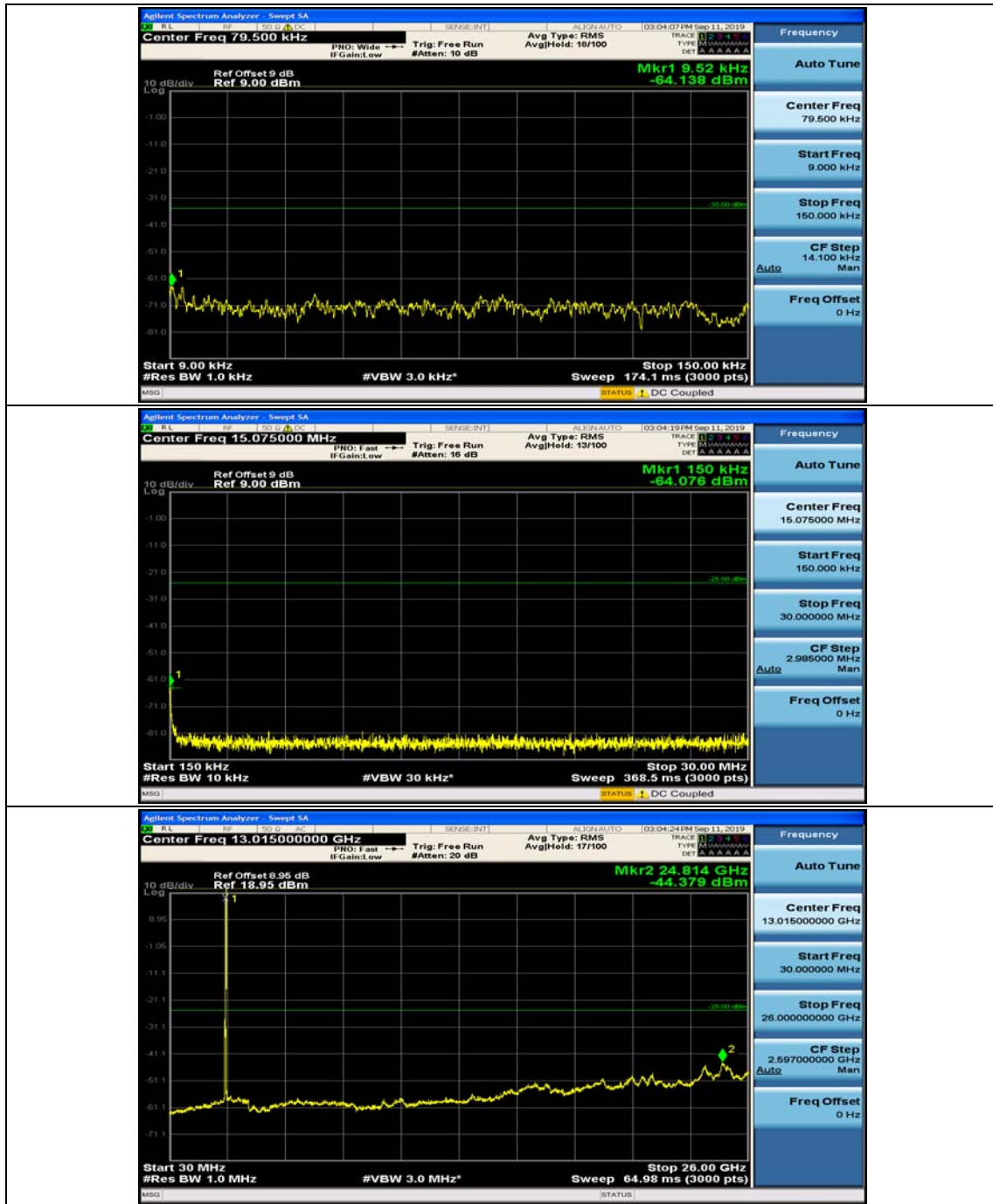


(Channel Bandwidth:20 MHz)\_MCH\_QPSK\_1RB#0

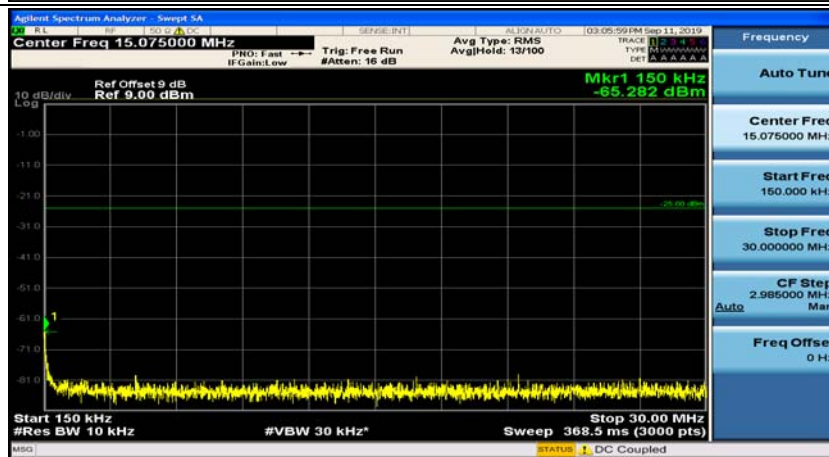
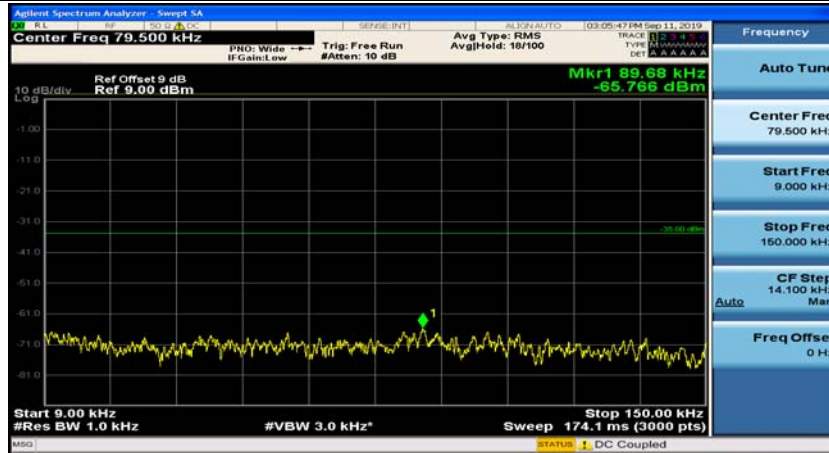


(Channel Bandwidth:20 MHz)\_MCH\_QPSK\_1RB#49

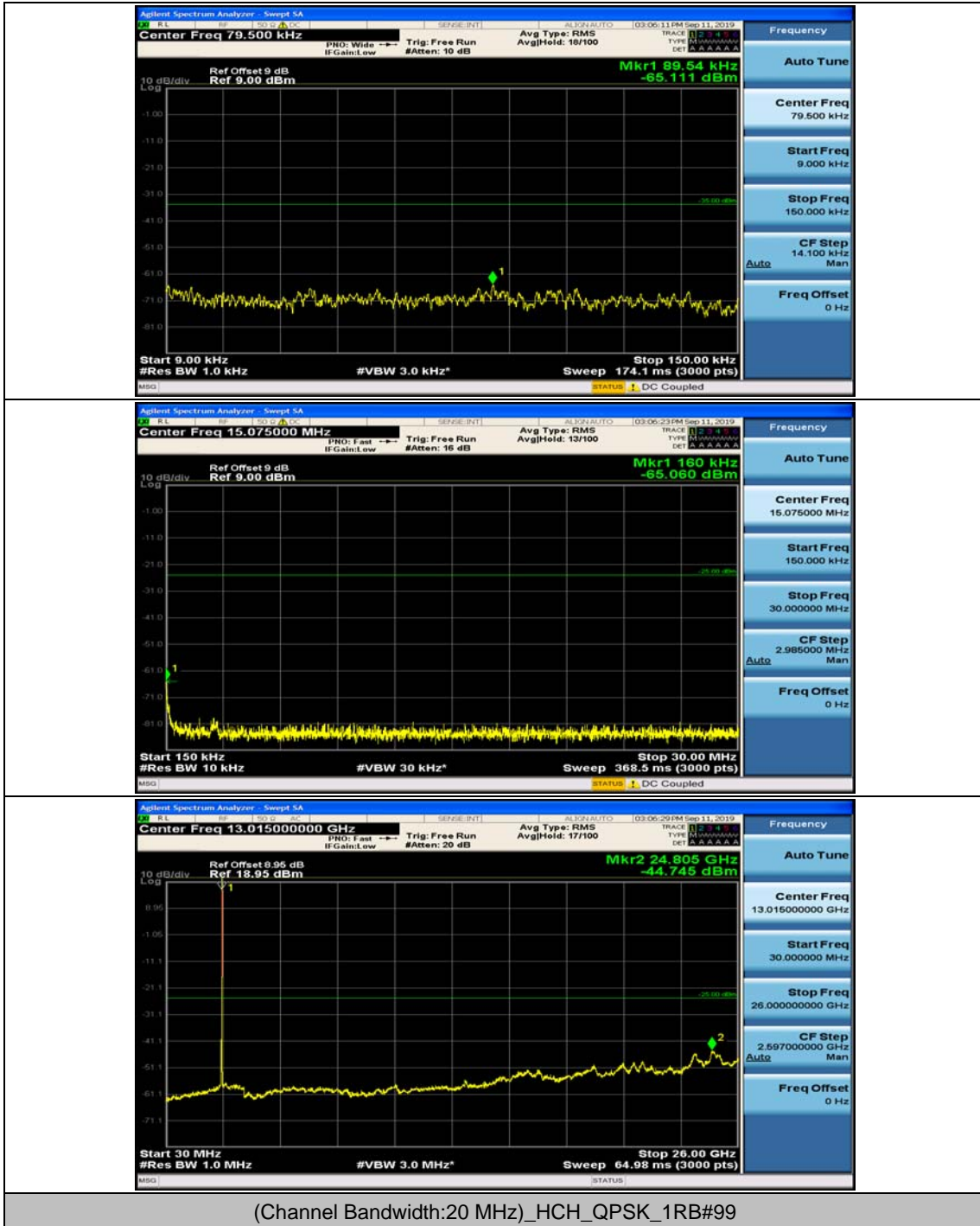


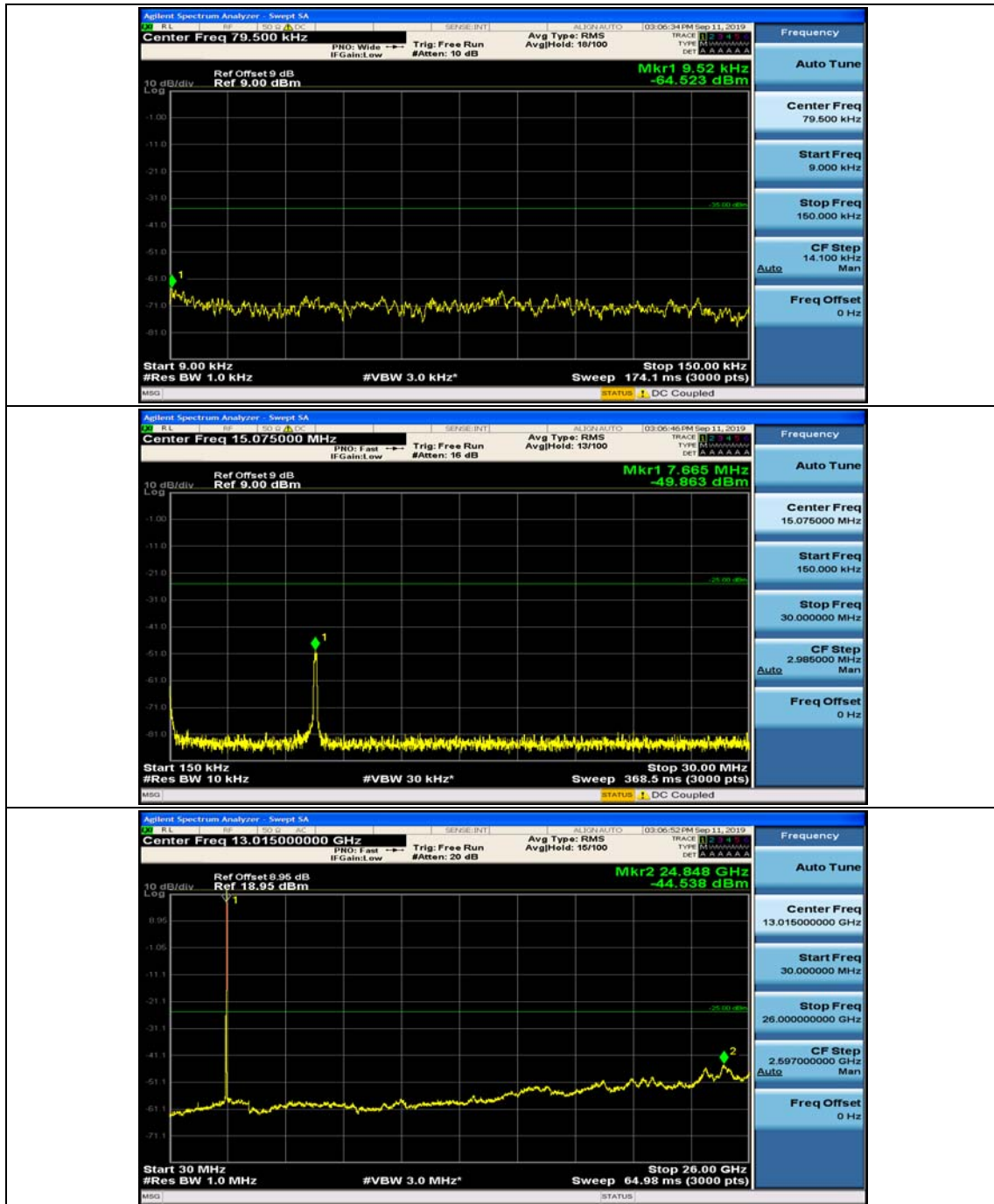


(Channel Bandwidth:20 MHz)\_HCH\_QPSK\_1RB#0

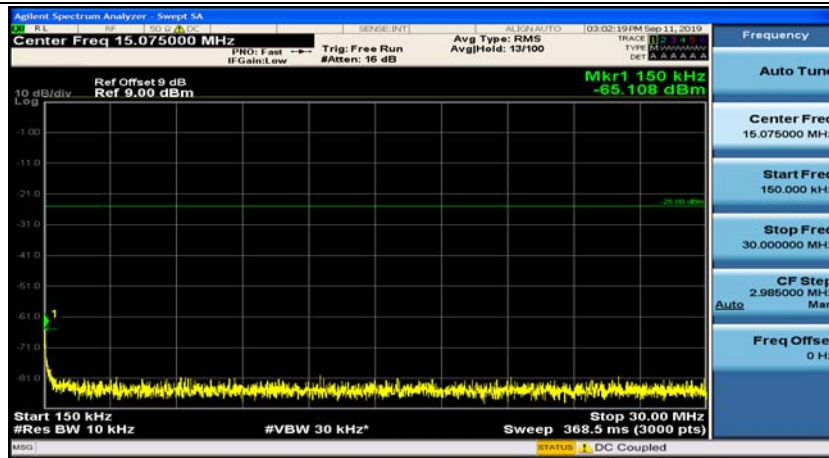
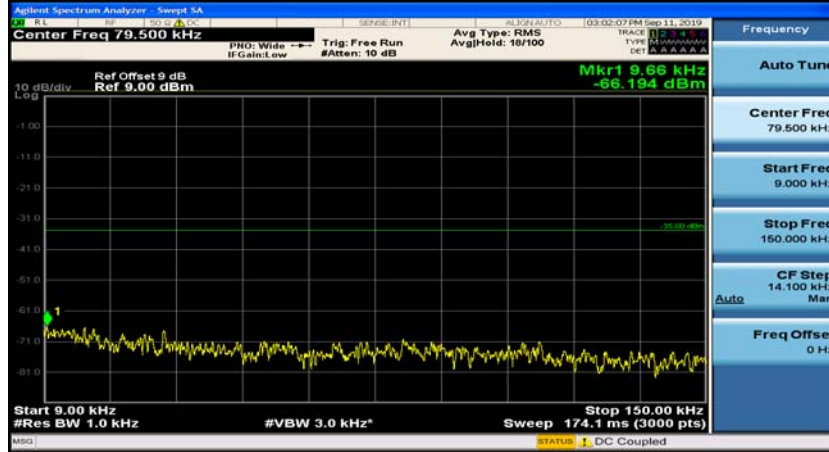


(Channel Bandwidth:20 MHz)\_HCH\_QPSK\_1RB#49



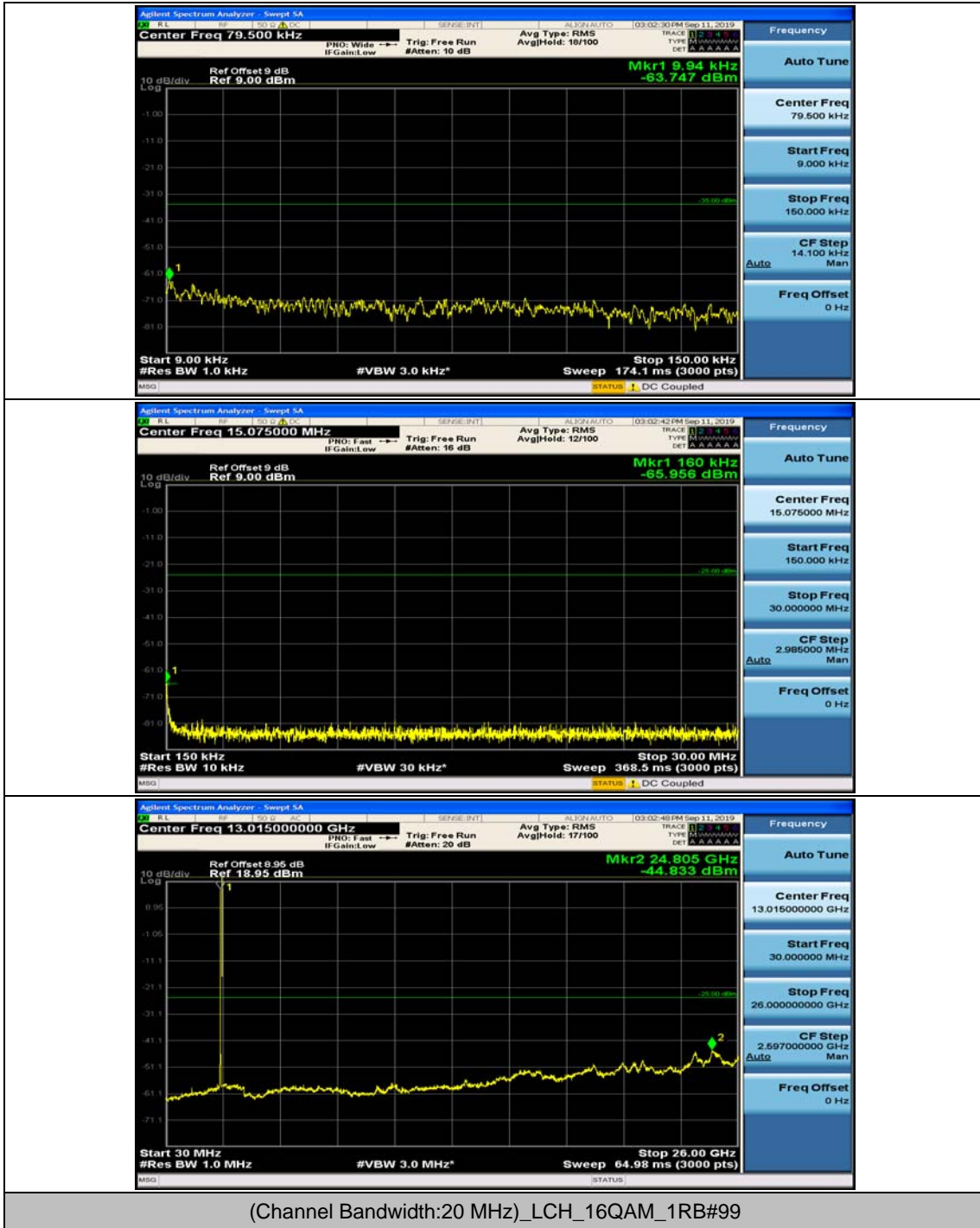


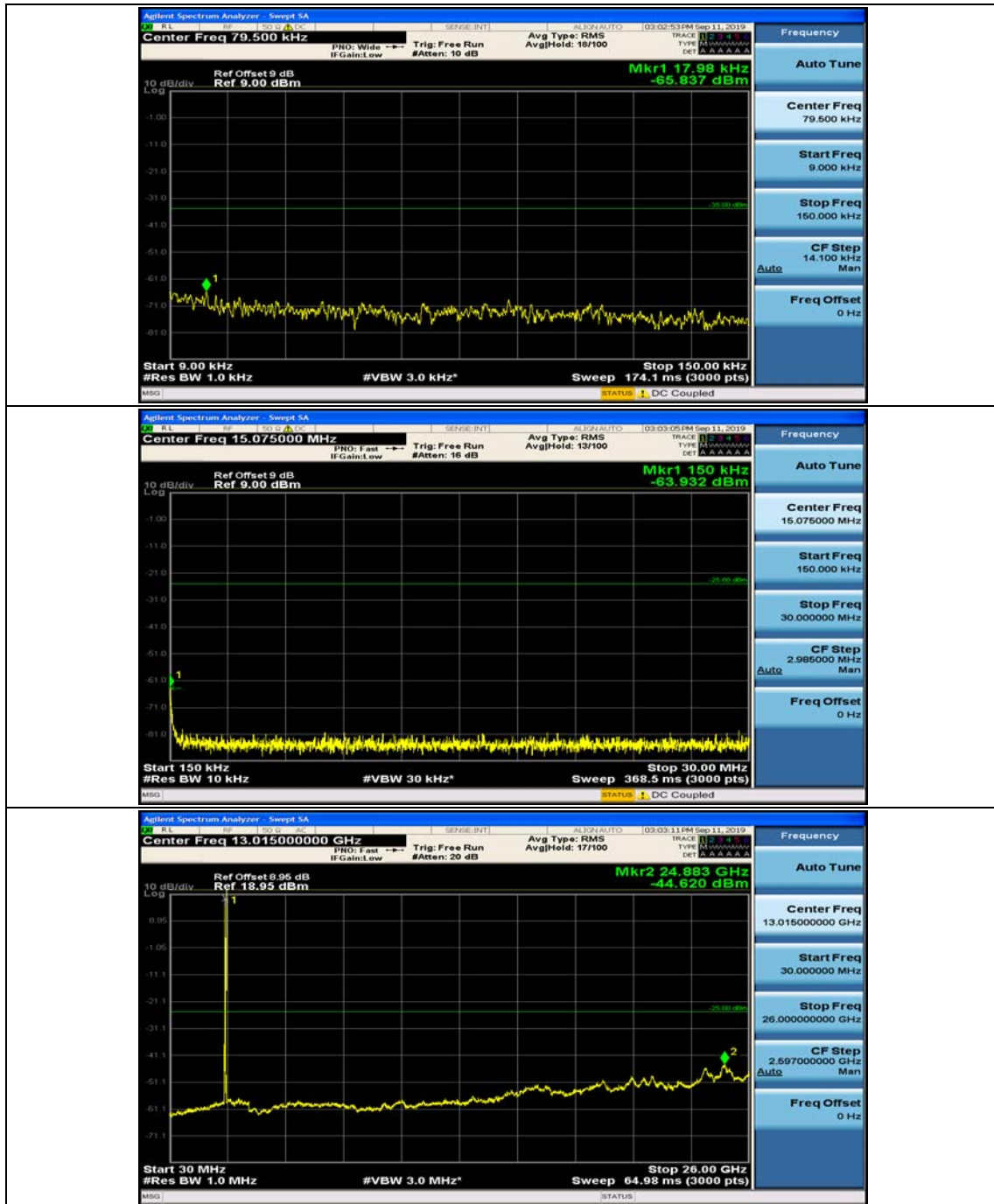
(Channel Bandwidth:20 MHz)\_LCH\_16QAM\_1RB#0



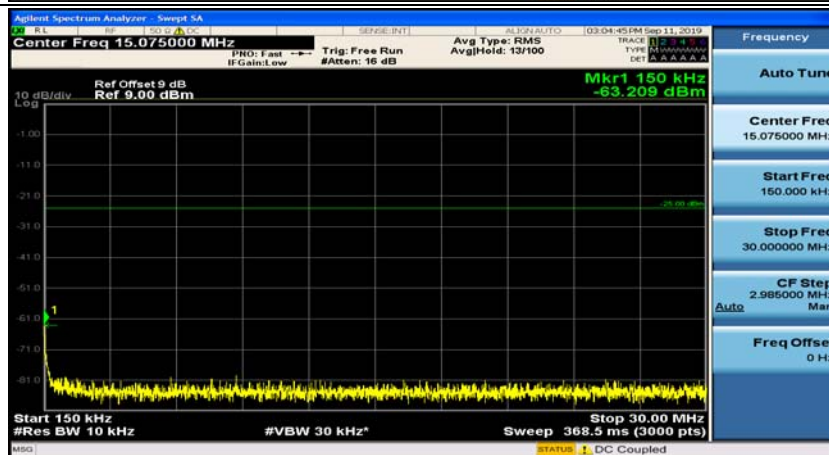
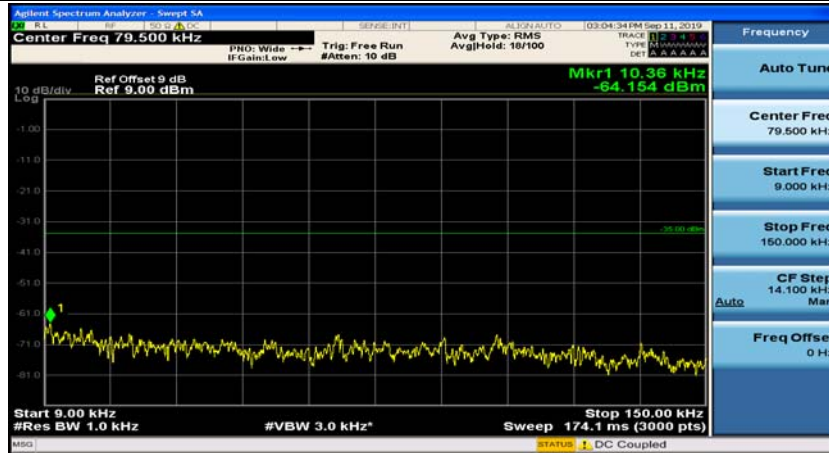
(Channel Bandwidth:20 MHz)\_LCH\_16QAM\_1RB#49



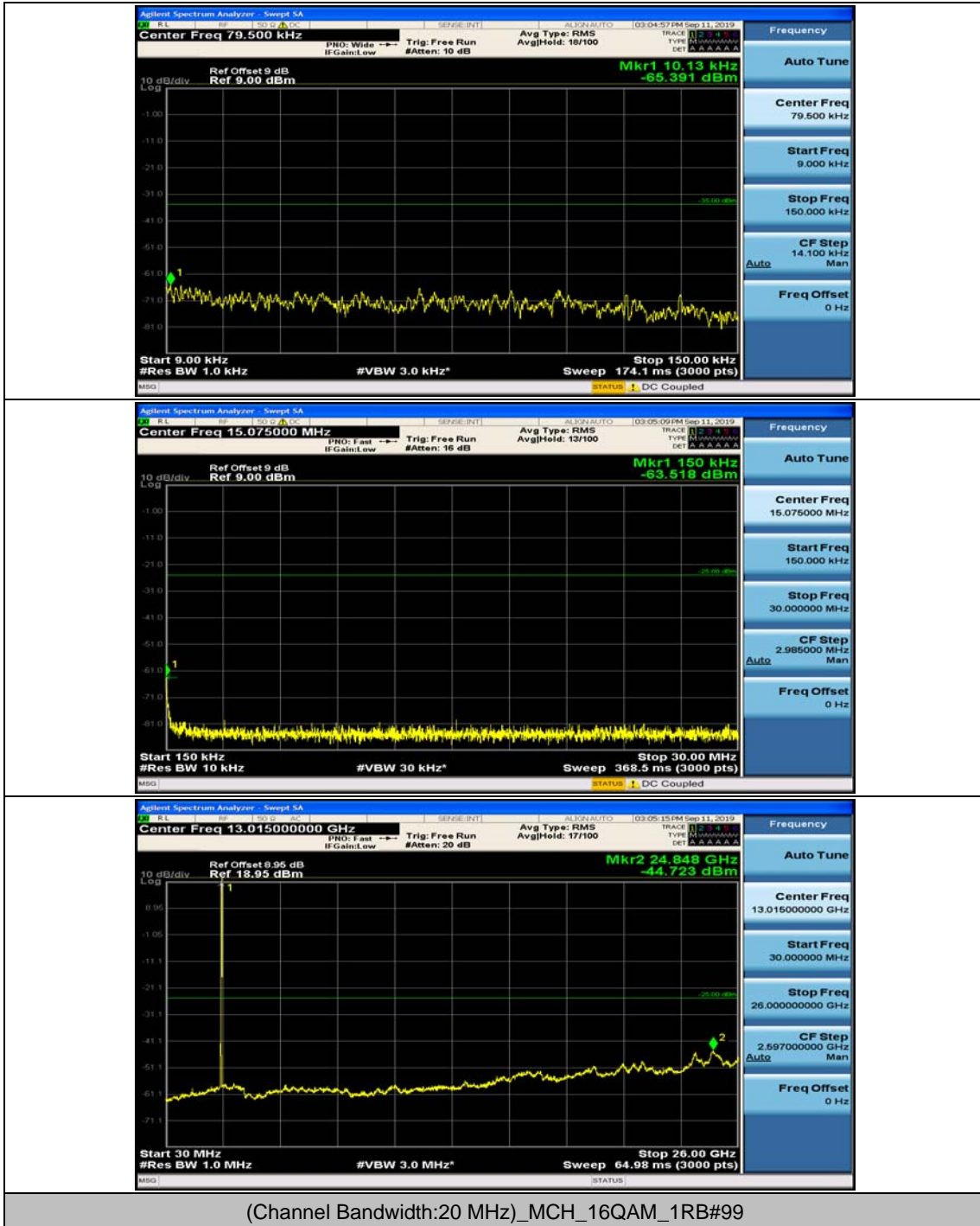


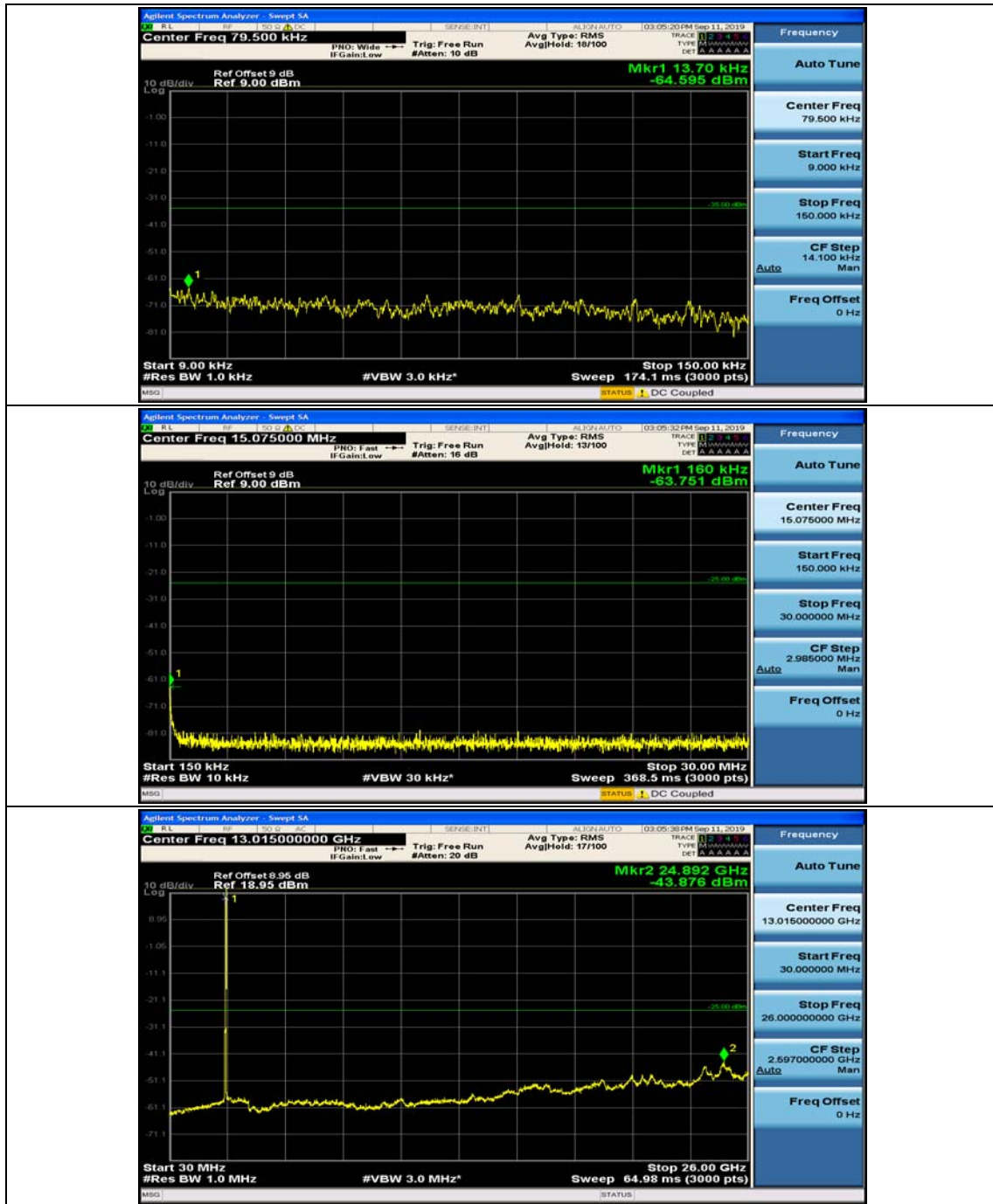


(Channel Bandwidth:20 MHz)\_MCH\_16QAM\_1RB#0

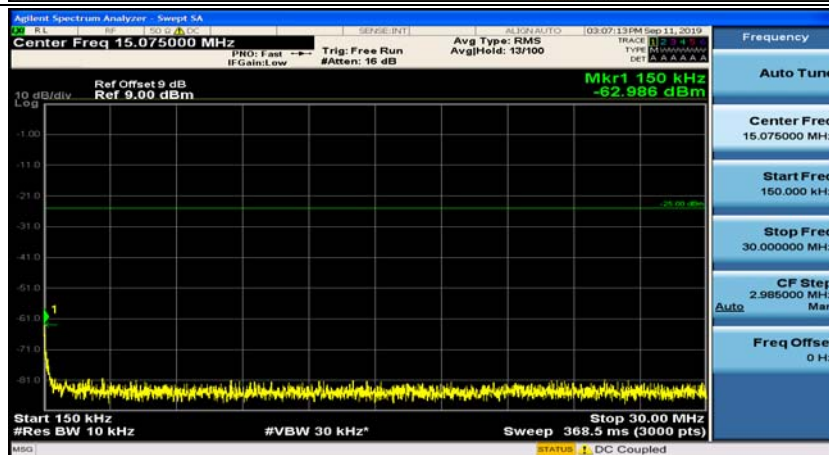
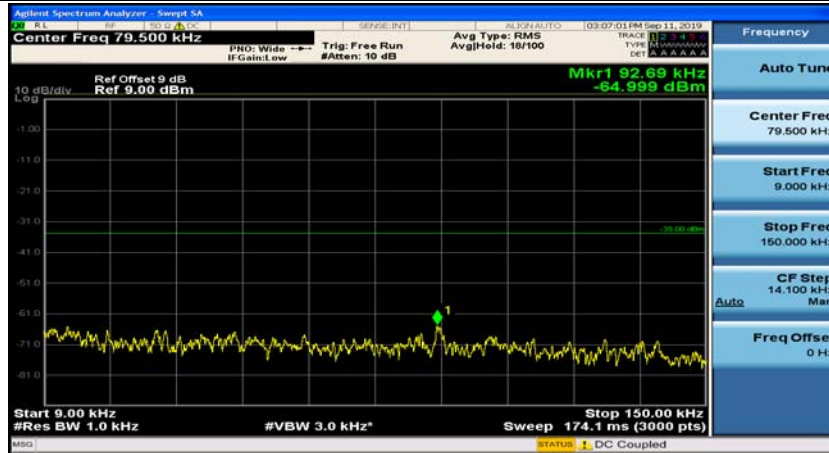


(Channel Bandwidth:20 MHz)\_MCH\_16QAM\_1RB#49

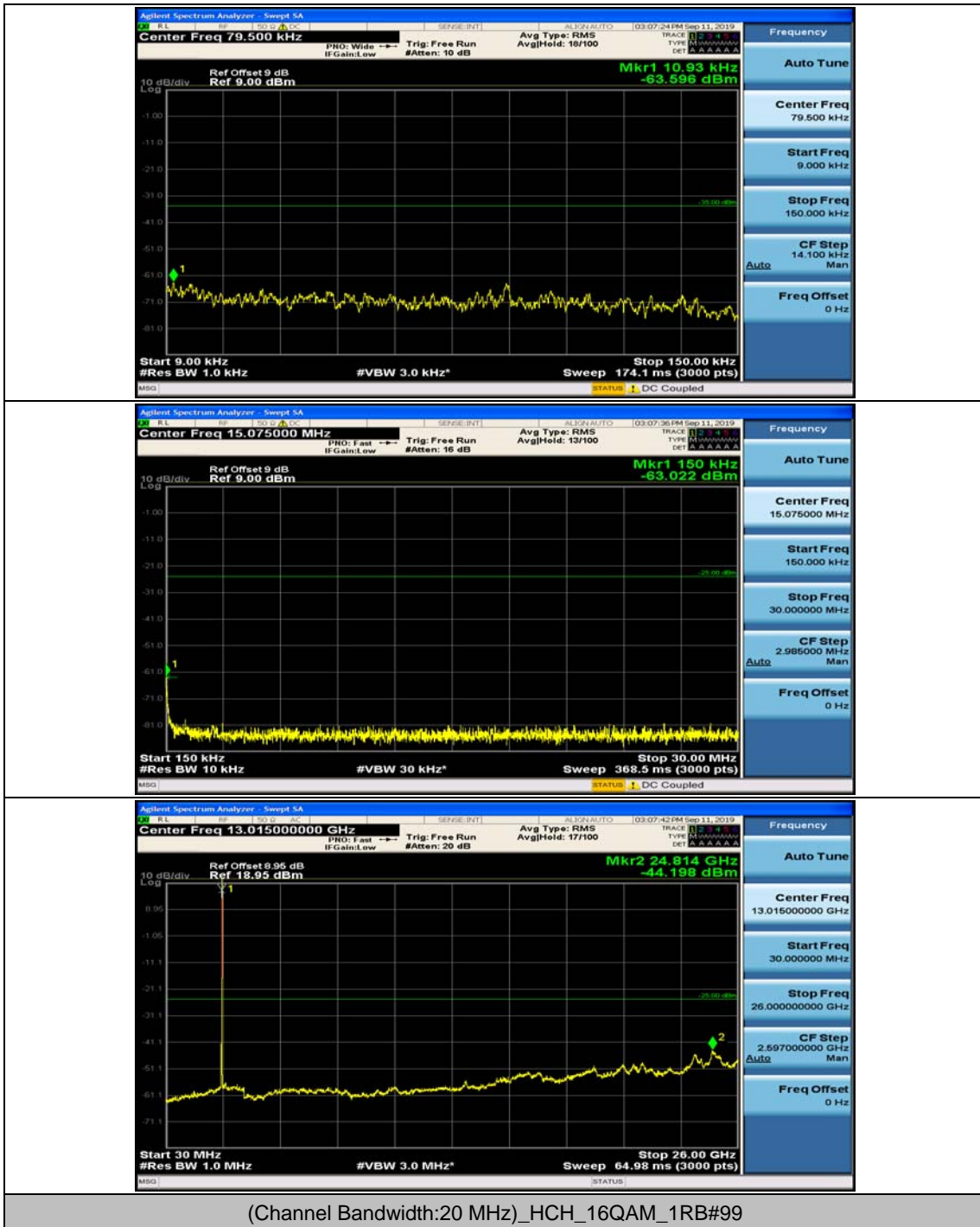


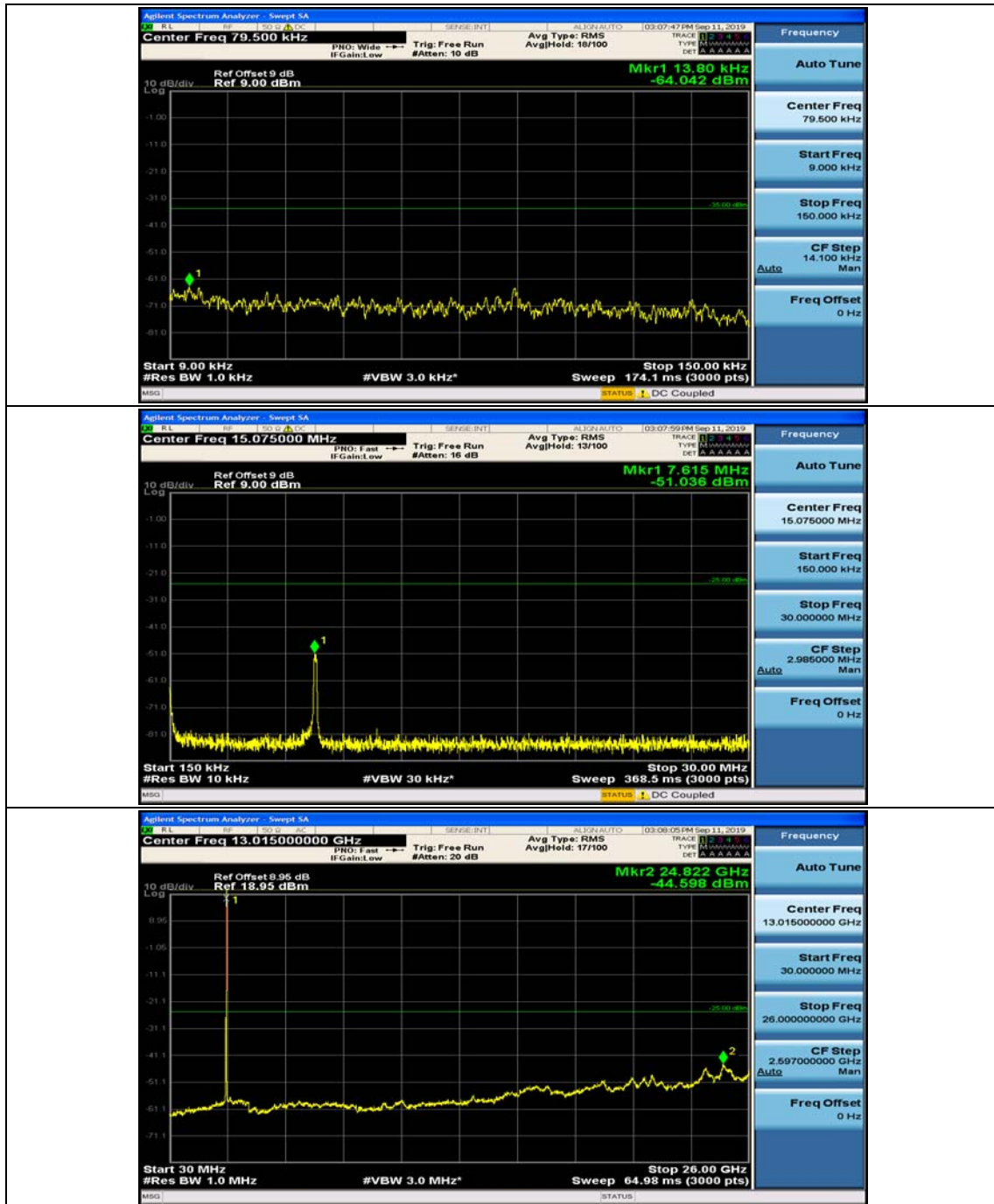


(Channel Bandwidth:20 MHz)\_HCH\_16QAM\_1RB#0



(Channel Bandwidth:20 MHz)\_HCH\_16QAM\_1RB#49







## 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	4.01	0.001602	± 2.5	PASS
		VN	TN	0.34	0.000136	± 2.5	PASS
		VH	TN	-1.38	-0.000551	± 2.5	PASS
	MCH	VL	TN	-0.28	-0.000110	± 2.5	PASS
		VN	TN	-0.38	-0.000150	± 2.5	PASS
		VH	TN	3.41	0.001345	± 2.5	PASS
	HCH	VL	TN	-0.53	-0.000206	± 2.5	PASS
		VN	TN	0.8	0.000312	± 2.5	PASS
		VH	TN	2.89	0.001126	± 2.5	PASS
16QAM	LCH	VL	TN	4.03	0.001610	± 2.5	PASS
		VN	TN	3.77	0.001506	± 2.5	PASS
		VH	TN	3.65	0.001459	± 2.5	PASS
	MCH	VL	TN	1.41	0.000556	± 2.5	PASS
		VN	TN	3.9	0.001538	± 2.5	PASS
		VH	TN	4.54	0.001791	± 2.5	PASS
	HCH	VL	TN	0.77	0.000300	± 2.5	PASS
		VN	TN	-0.25	-0.000097	± 2.5	PASS
		VH	TN	-1.26	-0.000491	± 2.5	PASS
Temperature							
Modulation	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	LCH	VN	-30	2.83	0.001131	± 2.5	PASS
		VN	-20	1.08	0.000432	± 2.5	PASS
		VN	-10	-1.24	-0.000496	± 2.5	PASS
		VN	0	1.98	0.000791	± 2.5	PASS
		VN	10	1.67	0.000667	± 2.5	PASS
		VN	20	4.4	0.001758	± 2.5	PASS
		VN	30	1.64	0.000655	± 2.5	PASS
		VN	40	2.19	0.000875	± 2.5	PASS
		VN	50	-1.55	-0.000619	± 2.5	PASS
	MCH	VN	-30	0.39	0.000154	± 2.5	PASS
		VN	-20	4.7	0.001854	± 2.5	PASS

		VN	-10	-1.7	-0.000671	± 2.5	PASS		
		VN	0	4.53	0.001787	± 2.5	PASS		
		VN	10	-1.49	-0.000588	± 2.5	PASS		
		VN	20	4.98	0.001964	± 2.5	PASS		
		VN	30	2.43	0.000959	± 2.5	PASS		
		VN	40	0.69	0.000272	± 2.5	PASS		
		VN	50	-0.15	-0.000059	± 2.5	PASS		
	HCH	VN	-30	0.45	0.000175	± 2.5	PASS		
		VN	-20	-1.23	-0.000479	± 2.5	PASS		
		VN	-10	-1.77	-0.000689	± 2.5	PASS		
		VN	0	4.45	0.001733	± 2.5	PASS		
		VN	10	1.88	0.000732	± 2.5	PASS		
		VN	20	2.63	0.001024	± 2.5	PASS		
		VN	30	2.51	0.000978	± 2.5	PASS		
		VN	40	0.21	0.000082	± 2.5	PASS		
		VN	50	3.76	0.001464	± 2.5	PASS		
		16QAM	LCH	VN	-30	-0.62	-0.000248	± 2.5	PASS
				VN	-20	4.45	0.001778	± 2.5	PASS
VN	-10			0.38	0.000152	± 2.5	PASS		
VN	0			0.1	0.000040	± 2.5	PASS		
VN	10			1.31	0.000523	± 2.5	PASS		
VN	20			-0.04	-0.000016	± 2.5	PASS		
VN	30			-0.99	-0.000396	± 2.5	PASS		
VN	40			0.08	0.000032	± 2.5	PASS		
VN	50			0.56	0.000224	± 2.5	PASS		
MCH	VN		-30	-0.58	-0.000229	± 2.5	PASS		
	VN		-20	-0.69	-0.000272	± 2.5	PASS		
	VN		-10	1.2	0.000473	± 2.5	PASS		
	VN		0	-1.31	-0.000517	± 2.5	PASS		
	VN		10	-0.18	-0.000071	± 2.5	PASS		
	VN		20	1.58	0.000623	± 2.5	PASS		
	VN		30	-0.08	-0.000032	± 2.5	PASS		
	VN		40	4.59	0.001811	± 2.5	PASS		
	VN		50	-1.57	-0.000619	± 2.5	PASS		
HCH	VN	-30	-0.95	-0.000370	± 2.5	PASS			
	VN	-20	3.77	0.001468	± 2.5	PASS			
	VN	-10	-1.48	-0.000576	± 2.5	PASS			
	VN	0	4.42	0.001722	± 2.5	PASS			
	VN	10	-1.18	-0.000460	± 2.5	PASS			
	VN	20	3.59	0.001398	± 2.5	PASS			
	VN	30	-1.28	-0.000499	± 2.5	PASS			

		VN	40	1.18	0.000460	± 2.5	PASS
		VN	50	4.77	0.001858	± 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	-2	-0.000798	± 2.5	PASS
		VN	TN	0.81	0.000323	± 2.5	PASS
		VH	TN	3.74	0.001493	± 2.5	PASS
	MCH	VL	TN	3.45	0.001361	± 2.5	PASS
		VN	TN	-1.61	-0.000635	± 2.5	PASS
		VH	TN	-0.38	-0.000150	± 2.5	PASS
	HCH	VL	TN	-0.93	-0.000363	± 2.5	PASS
		VN	TN	0.33	0.000129	± 2.5	PASS
		VH	TN	4.1	0.001598	± 2.5	PASS
16QAM	LCH	VL	TN	-1.05	-0.000419	± 2.5	PASS
		VN	TN	3.24	0.001293	± 2.5	PASS
		VH	TN	0.73	0.000291	± 2.5	PASS
	MCH	VL	TN	3.19	0.001258	± 2.5	PASS
		VN	TN	3.3	0.001302	± 2.5	PASS
		VH	TN	-0.79	-0.000312	± 2.5	PASS
	HCH	VL	TN	-1.9	-0.000741	± 2.5	PASS
		VN	TN	-0.43	-0.000168	± 2.5	PASS
		VH	TN	1.47	0.000573	± 2.5	PASS
Temperature							
Modulation	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
16QAM	LCH	VN	-30	2.66	0.001062	± 2.5	PASS
		VN	-20	-0.43	-0.000172	± 2.5	PASS
		VN	-10	-0.25	-0.000100	± 2.5	PASS
		VN	0	1.64	0.000655	± 2.5	PASS
		VN	10	1.82	0.000727	± 2.5	PASS
		VN	20	1.27	0.000507	± 2.5	PASS
		VN	30	4.03	0.001609	± 2.5	PASS
		VN	40	1.61	0.000643	± 2.5	PASS
		VN	50	0.2	0.000080	± 2.5	PASS
	MCH	VN	-30	4.07	0.001606	± 2.5	PASS
		VN	-20	0.48	0.000189	± 2.5	PASS
		VN	-10	1.51	0.000596	± 2.5	PASS

		VN	0	3.05	0.001203	± 2.5	PASS		
		VN	10	2.07	0.000817	± 2.5	PASS		
		VN	20	-0.09	-0.000036	± 2.5	PASS		
		VN	30	-1.15	-0.000454	± 2.5	PASS		
		VN	40	0.88	0.000347	± 2.5	PASS		
		VN	50	4.52	0.001783	± 2.5	PASS		
	HCH	VN	-30	-1.07	-0.000417	± 2.5	PASS		
		VN	-20	1.09	0.000425	± 2.5	PASS		
		VN	-10	1.44	0.000561	± 2.5	PASS		
		VN	0	3.46	0.001349	± 2.5	PASS		
		VN	10	3.66	0.001427	± 2.5	PASS		
		VN	20	-0.52	-0.000203	± 2.5	PASS		
		VN	30	0.22	0.000086	± 2.5	PASS		
		VN	40	4.1	0.001598	± 2.5	PASS		
		VN	50	4.11	0.001602	± 2.5	PASS		
		QPSK	LCH	VN	-30	-1.3	-0.000519	± 2.5	PASS
				VN	-20	4.59	0.001832	± 2.5	PASS
				VN	-10	-1.29	-0.000515	± 2.5	PASS
VN	0			1.38	0.000551	± 2.5	PASS		
VN	10			3.96	0.001581	± 2.5	PASS		
VN	20			-0.08	-0.000032	± 2.5	PASS		
VN	30			1.33	0.000531	± 2.5	PASS		
VN	40			-1.05	-0.000419	± 2.5	PASS		
VN	50			-1.93	-0.000770	± 2.5	PASS		
MCH	VN		-30	-1.74	-0.000686	± 2.5	PASS		
	VN		-20	3.2	0.001262	± 2.5	PASS		
	VN		-10	-0.48	-0.000189	± 2.5	PASS		
	VN		0	2.86	0.001128	± 2.5	PASS		
	VN		10	1.33	0.000525	± 2.5	PASS		
	VN		20	-0.45	-0.000178	± 2.5	PASS		
	VN		30	3.76	0.001483	± 2.5	PASS		
	VN		40	4.39	0.001732	± 2.5	PASS		
	VN		50	0.9	0.000355	± 2.5	PASS		
HCH	VN		-30	0.96	0.000374	± 2.5	PASS		
	VN		-20	0.74	0.000288	± 2.5	PASS		
	VN		-10	2.88	0.001123	± 2.5	PASS		
	VN		0	0.18	0.000070	± 2.5	PASS		
	VN		10	-1.52	-0.000593	± 2.5	PASS		
	VN		20	-1.77	-0.000690	± 2.5	PASS		
	VN		30	-1.12	-0.000437	± 2.5	PASS		
	VN		40	3.82	0.001489	± 2.5	PASS		

		VN	50	-0.61	-0.000238	± 2.5	PASS
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**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	4.82	0.001922	± 2.5	PASS
		VN	TN	2.43	0.000969	± 2.5	PASS
		VH	TN	3.4	0.001356	± 2.5	PASS
	MCH	VL	TN	4.05	0.001598	± 2.5	PASS
		VN	TN	3.69	0.001456	± 2.5	PASS
		VH	TN	0.09	0.000036	± 2.5	PASS
	HCH	VL	TN	-0.79	-0.000308	± 2.5	PASS
		VN	TN	3.73	0.001456	± 2.5	PASS
		VH	TN	-1.51	-0.000589	± 2.5	PASS
16QAM	LCH	VL	TN	1.21	0.000483	± 2.5	PASS
		VN	TN	-0.22	-0.000088	± 2.5	PASS
		VH	TN	1.27	0.000506	± 2.5	PASS
	MCH	VL	TN	1.28	0.000505	± 2.5	PASS
		VN	TN	3.24	0.001278	± 2.5	PASS
		VH	TN	-0.7	-0.000276	± 2.5	PASS
	HCH	VL	TN	1.42	0.000554	± 2.5	PASS
		VN	TN	2.47	0.000964	± 2.5	PASS
		VH	TN	-0.71	-0.000277	± 2.5	PASS
Temperature							
Modulation	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	LCH	VN	-30	4.46	0.001779	± 2.5	PASS
		VN	-20	3.23	0.001288	± 2.5	PASS
		VN	-10	3.89	0.001551	± 2.5	PASS
		VN	0	2.43	0.000969	± 2.5	PASS
		VN	10	2.44	0.000973	± 2.5	PASS
		VN	20	1.67	0.000666	± 2.5	PASS
		VN	30	-1.3	-0.000518	± 2.5	PASS
		VN	40	3.22	0.001284	± 2.5	PASS
		VN	50	-0.29	-0.000116	± 2.5	PASS
	MCH	VN	-30	-1.82	-0.000718	± 2.5	PASS
		VN	-20	0.14	0.000055	± 2.5	PASS
		VN	-10	2.41	0.000951	± 2.5	PASS
		VN	0	0.24	0.000095	± 2.5	PASS

		VN	10	3.42	0.001349	± 2.5	PASS
		VN	20	2.87	0.001132	± 2.5	PASS
		VN	30	4.97	0.001961	± 2.5	PASS
		VN	40	2.16	0.000852	± 2.5	PASS
		VN	50	-0.63	-0.000249	± 2.5	PASS
	HCH	VN	-30	-1.79	-0.000699	± 2.5	PASS
		VN	-20	4.76	0.001858	± 2.5	PASS
		VN	-10	1.68	0.000656	± 2.5	PASS
		VN	0	2.65	0.001034	± 2.5	PASS
		VN	10	0.89	0.000347	± 2.5	PASS
		VN	20	-0.78	-0.000304	± 2.5	PASS
		VN	30	0.23	0.000090	± 2.5	PASS
		VN	40	0.02	0.000008	± 2.5	PASS
		VN	50	-0.8	-0.000312	± 2.5	PASS
		QPSK	LCH	VN	-30	1.59	0.000634
VN	-20			-1.43	-0.000570	± 2.5	PASS
VN	-10			4.71	0.001878	± 2.5	PASS
VN	0			3.76	0.001500	± 2.5	PASS
VN	10			0.58	0.000231	± 2.5	PASS
VN	20			-0.21	-0.000084	± 2.5	PASS
VN	30			-0.51	-0.000203	± 2.5	PASS
VN	40			2.26	0.000901	± 2.5	PASS
VN	50			3.37	0.001344	± 2.5	PASS
MCH	VN		-30	-1.81	-0.000714	± 2.5	PASS
	VN		-20	3.35	0.001321	± 2.5	PASS
	VN		-10	4.21	0.001661	± 2.5	PASS
	VN		0	0.04	0.000016	± 2.5	PASS
	VN		10	2.49	0.000982	± 2.5	PASS
	VN		20	-1.54	-0.000607	± 2.5	PASS
	VN		30	-0.01	-0.000004	± 2.5	PASS
	VN		40	0.77	0.000304	± 2.5	PASS
	VN		50	4	0.001578	± 2.5	PASS
HCH	VN		-30	0.25	0.000098	± 2.5	PASS
	VN		-20	1.91	0.000745	± 2.5	PASS
	VN		-10	1.42	0.000554	± 2.5	PASS
	VN		0	0.09	0.000035	± 2.5	PASS
	VN		10	3.8	0.001483	± 2.5	PASS
	VN		20	0.07	0.000027	± 2.5	PASS
	VN		30	3.27	0.001276	± 2.5	PASS
	VN		40	1.36	0.000531	± 2.5	PASS
	VN		50	0.33	0.000129	± 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	0.03	0.000012	± 2.5	PASS
		VN	TN	1.8	0.000717	± 2.5	PASS
		VH	TN	1.94	0.000773	± 2.5	PASS
	MCH	VL	TN	2.31	0.000911	± 2.5	PASS
		VN	TN	-1.37	-0.000540	± 2.5	PASS
		VH	TN	-0.85	-0.000335	± 2.5	PASS
	HCH	VL	TN	-0.13	-0.000051	± 2.5	PASS
		VN	TN	3.81	0.001488	± 2.5	PASS
		VH	TN	1.5	0.000586	± 2.5	PASS
16QAM	LCH	VL	TN	1.96	0.000781	± 2.5	PASS
		VN	TN	-0.38	-0.000151	± 2.5	PASS
		VH	TN	-0.11	-0.000044	± 2.5	PASS
	MCH	VL	TN	-0.2	-0.000079	± 2.5	PASS
		VN	TN	2.55	0.001006	± 2.5	PASS
		VH	TN	1.92	0.000757	± 2.5	PASS
	HCH	VL	TN	4	0.001563	± 2.5	PASS
		VN	TN	2.78	0.001086	± 2.5	PASS
		VH	TN	4.6	0.001797	± 2.5	PASS
Temperature							
Modulation	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	LCH	VN	-30	0.1	0.000040	± 2.5	PASS
		VN	-20	2.91	0.001159	± 2.5	PASS
		VN	-10	4.81	0.001916	± 2.5	PASS
		VN	0	3.74	0.001490	± 2.5	PASS
		VN	10	-0.02	-0.000008	± 2.5	PASS
		VN	20	4.43	0.001765	± 2.5	PASS
		VN	30	0.95	0.000378	± 2.5	PASS
		VN	40	-0.12	-0.000048	± 2.5	PASS
		VN	50	1.74	0.000693	± 2.5	PASS
	MCH	VN	-30	3.75	0.001479	± 2.5	PASS
		VN	-20	2.81	0.001108	± 2.5	PASS
		VN	-10	0.05	0.000020	± 2.5	PASS
		VN	0	2.32	0.000915	± 2.5	PASS
		VN	10	4.38	0.001728	± 2.5	PASS
		VN	20	0.36	0.000142	± 2.5	PASS

		VN	30	4.6	0.001815	± 2.5	PASS
		VN	40	4.24	0.001673	± 2.5	PASS
		VN	50	0.99	0.000391	± 2.5	PASS
	HCH	VN	-30	2.05	0.000801	± 2.5	PASS
		VN	-20	0.66	0.000258	± 2.5	PASS
		VN	-10	2.82	0.001102	± 2.5	PASS
		VN	0	-1.21	-0.000473	± 2.5	PASS
		VN	10	4.32	0.001688	± 2.5	PASS
		VN	20	1.71	0.000668	± 2.5	PASS
		VN	30	2.74	0.001070	± 2.5	PASS
		VN	40	0.37	0.000145	± 2.5	PASS
		VN	50	-0.89	-0.000348	± 2.5	PASS
QPSK	LCH	VN	-30	3.12	0.001243	± 2.5	PASS
		VN	-20	2.9	0.001155	± 2.5	PASS
		VN	-10	-1.28	-0.000510	± 2.5	PASS
		VN	0	0.13	0.000052	± 2.5	PASS
		VN	10	4.13	0.001645	± 2.5	PASS
		VN	20	2.94	0.001171	± 2.5	PASS
		VN	30	3.23	0.001287	± 2.5	PASS
		VN	40	2.87	0.001143	± 2.5	PASS
		VN	50	0.72	0.000287	± 2.5	PASS
	MCH	VN	-30	-1.58	-0.000623	± 2.5	PASS
		VN	-20	2.77	0.001093	± 2.5	PASS
		VN	-10	1.18	0.000465	± 2.5	PASS
		VN	0	1.71	0.000675	± 2.5	PASS
		VN	10	-0.73	-0.000288	± 2.5	PASS
		VN	20	-1.02	-0.000402	± 2.5	PASS
		VN	30	-0.67	-0.000264	± 2.5	PASS
		VN	40	4.11	0.001621	± 2.5	PASS
		VN	50	0.45	0.000178	± 2.5	PASS
	HCH	VN	-30	-0.66	-0.000258	± 2.5	PASS
		VN	-20	2.77	0.001082	± 2.5	PASS
		VN	-10	1.64	0.000641	± 2.5	PASS
		VN	0	1.95	0.000762	± 2.5	PASS
		VN	10	2.4	0.000938	± 2.5	PASS
		VN	20	-0.81	-0.000316	± 2.5	PASS
		VN	30	0.35	0.000137	± 2.5	PASS
		VN	40	1.13	0.000441	± 2.5	PASS
		VN	50	0.01	0.000004	± 2.5	PASS