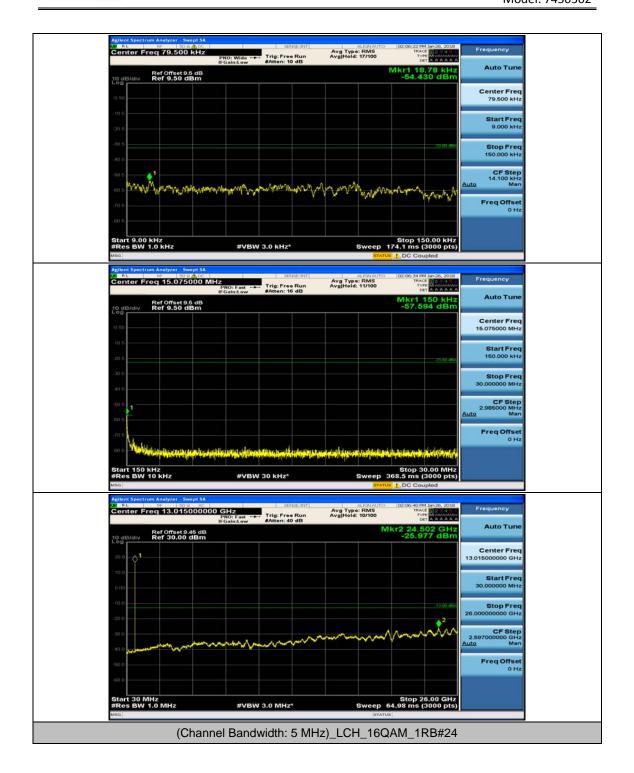
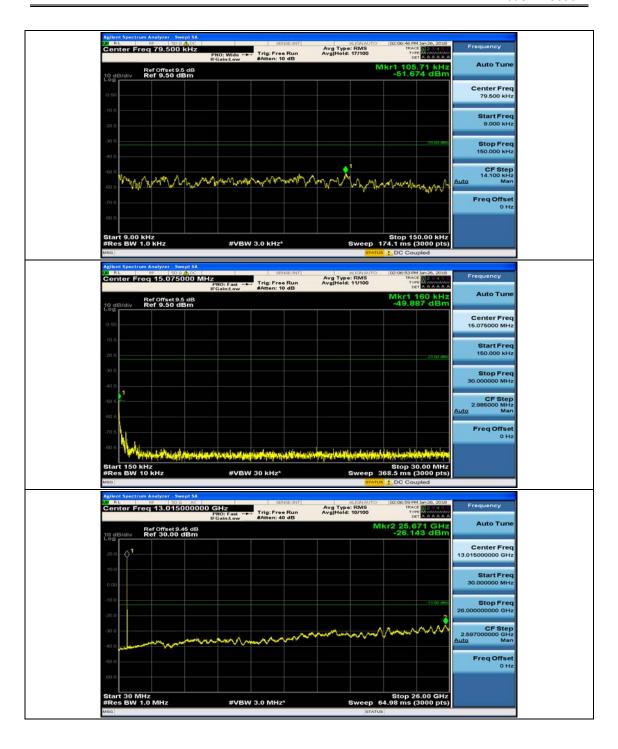




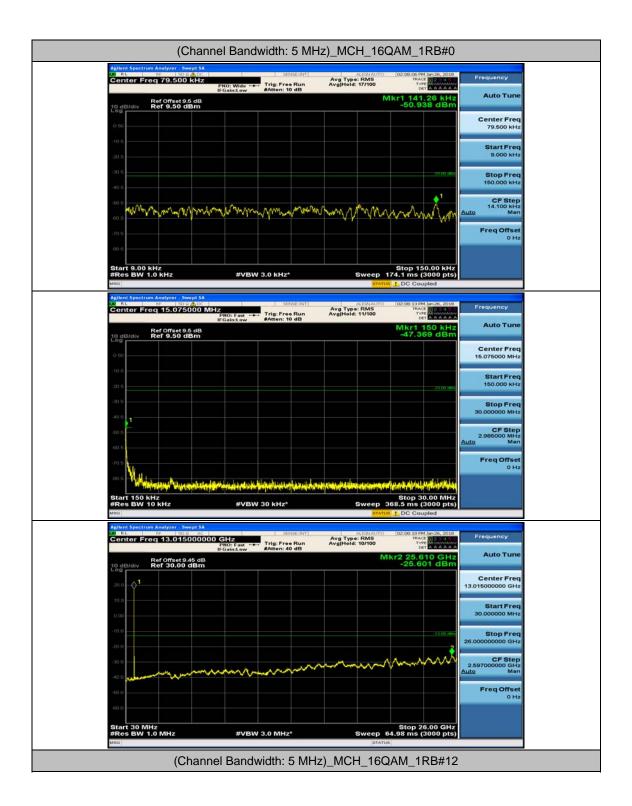
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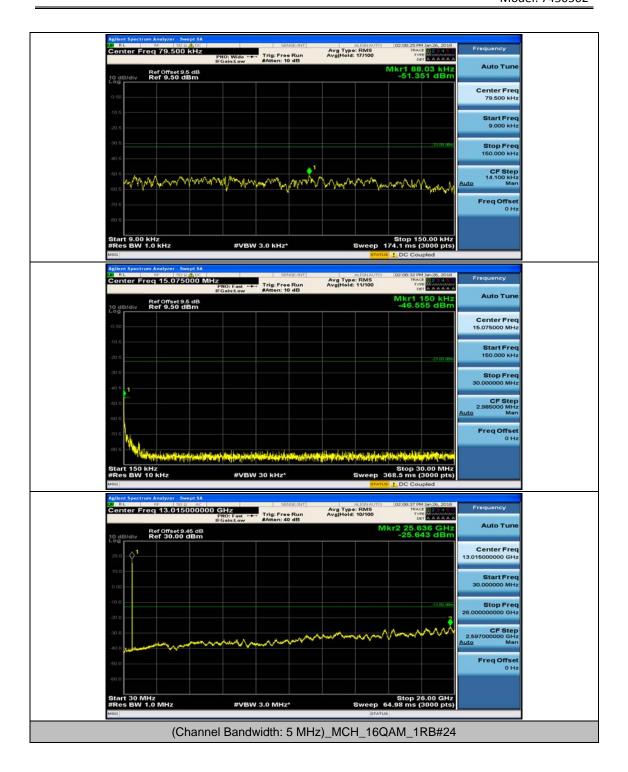




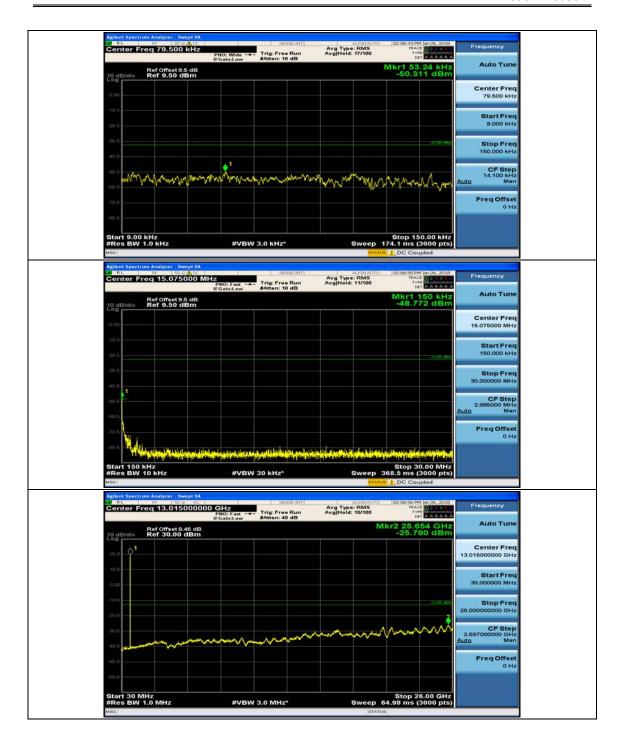




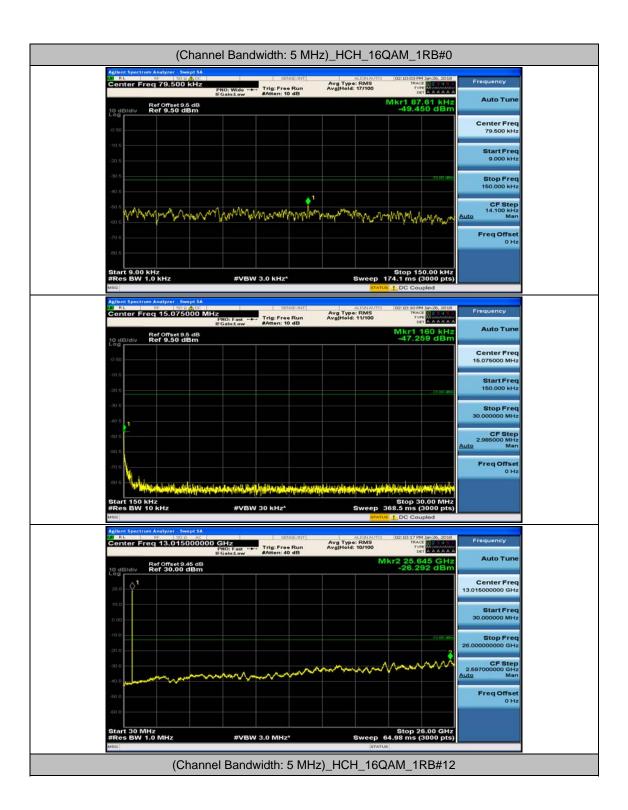




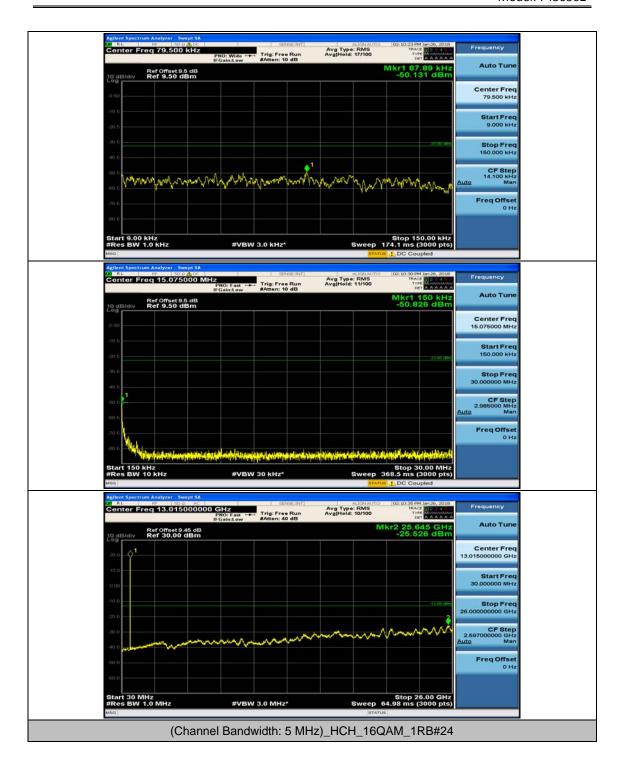




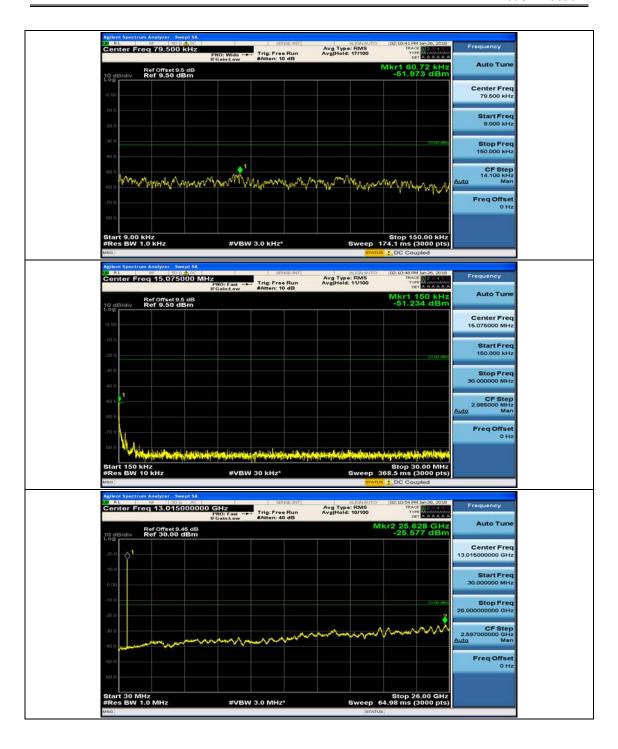






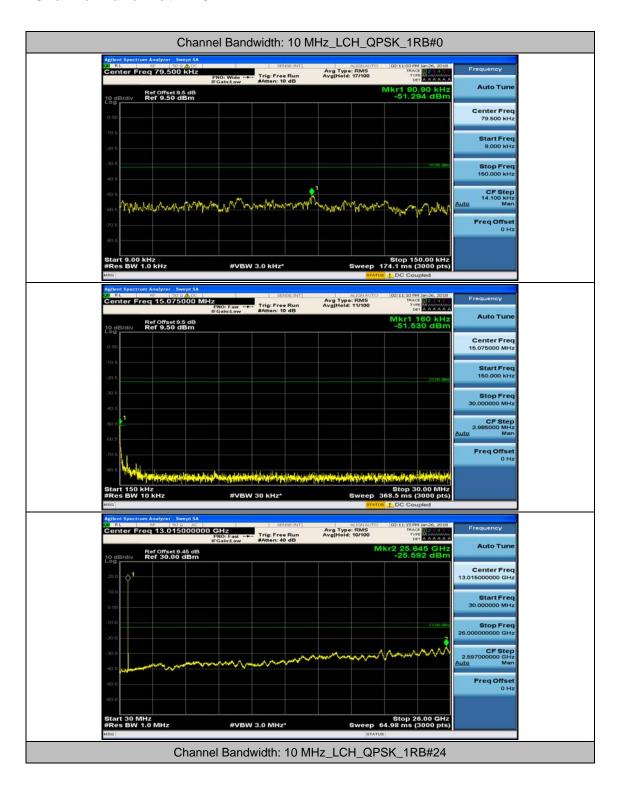




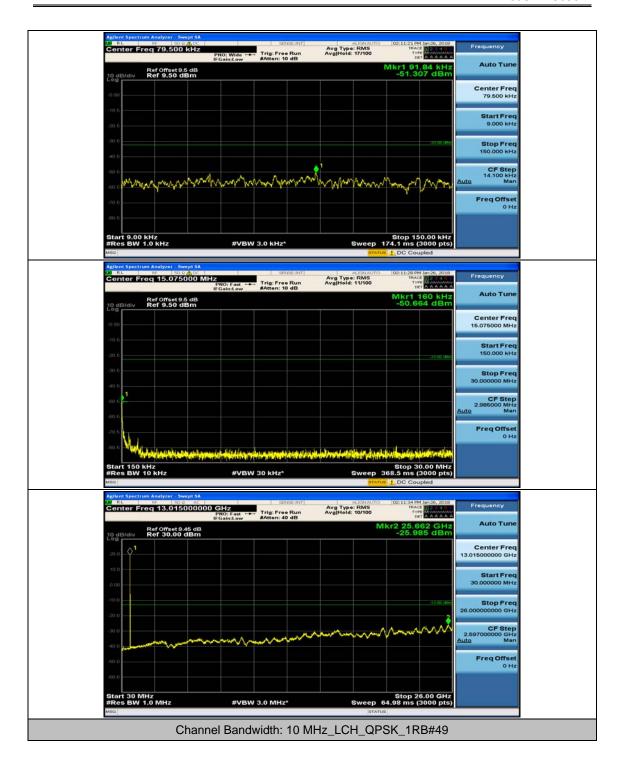




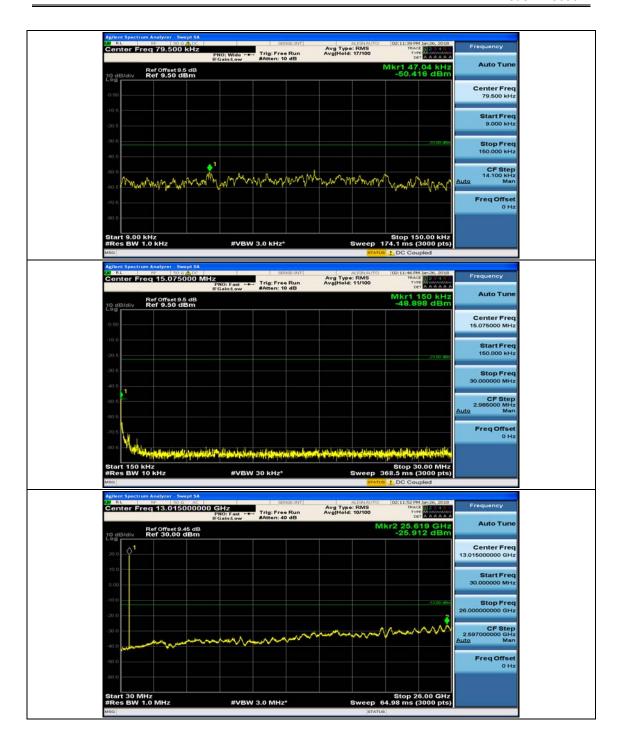
## **Channel Bandwidth: 10 MHz**



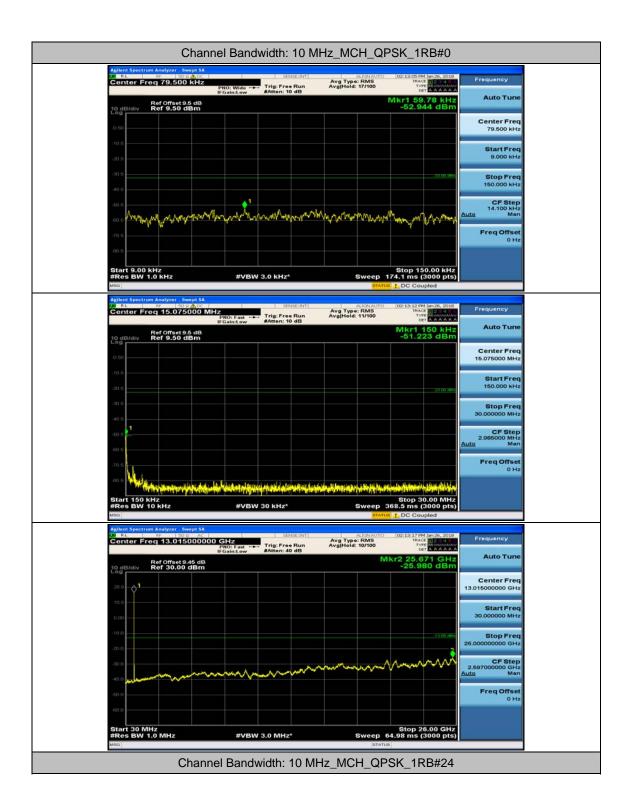




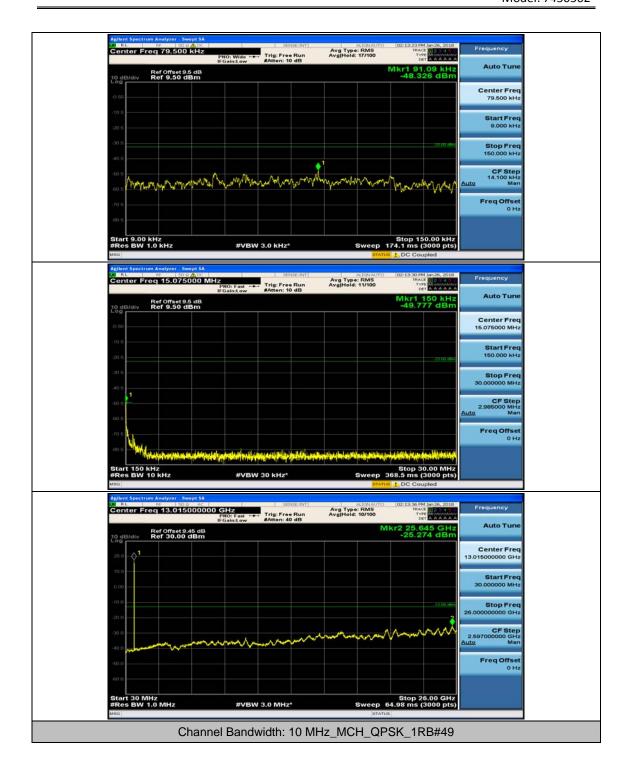






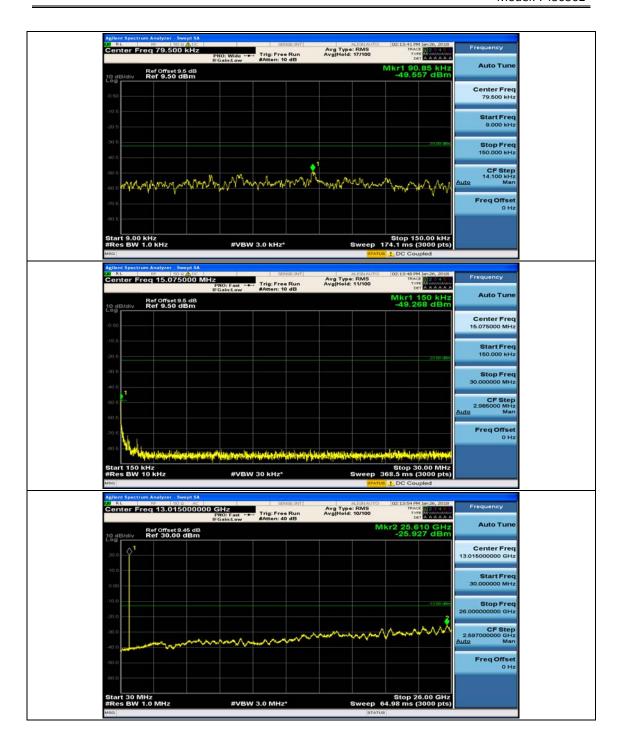




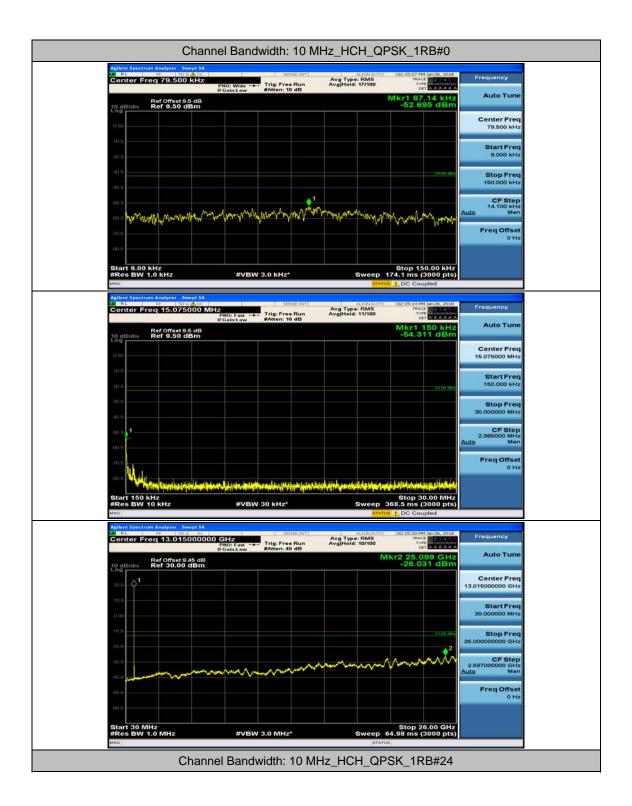




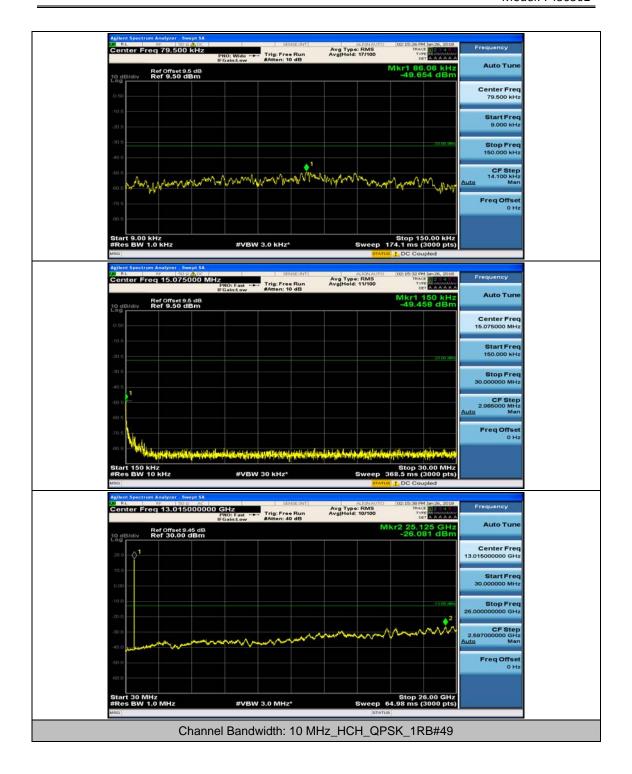
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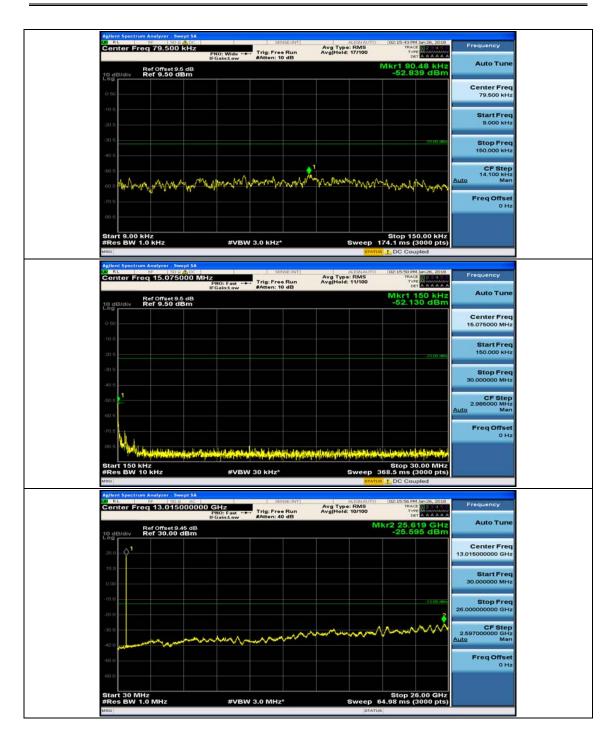




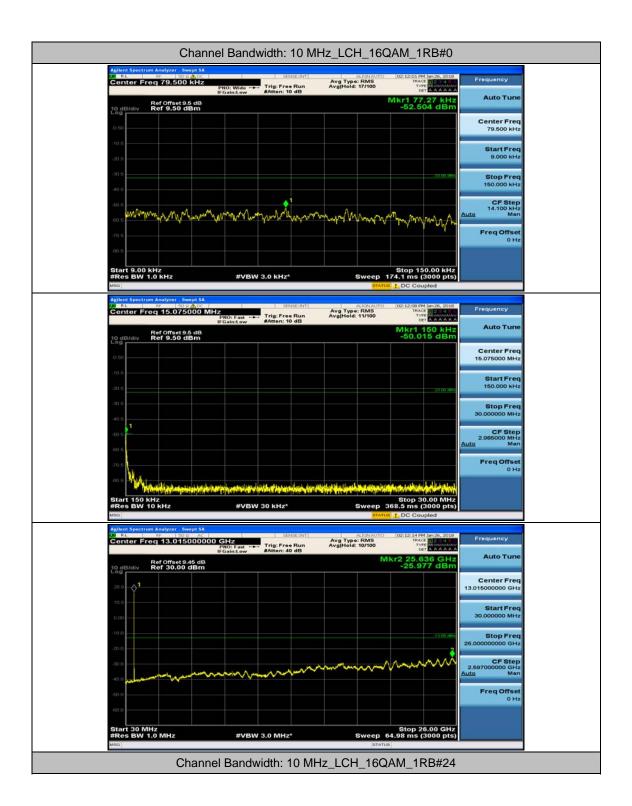




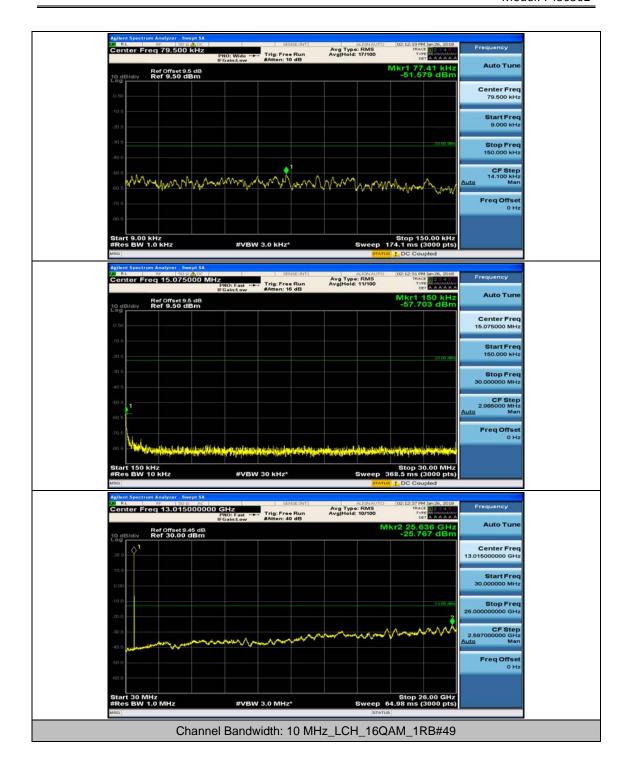




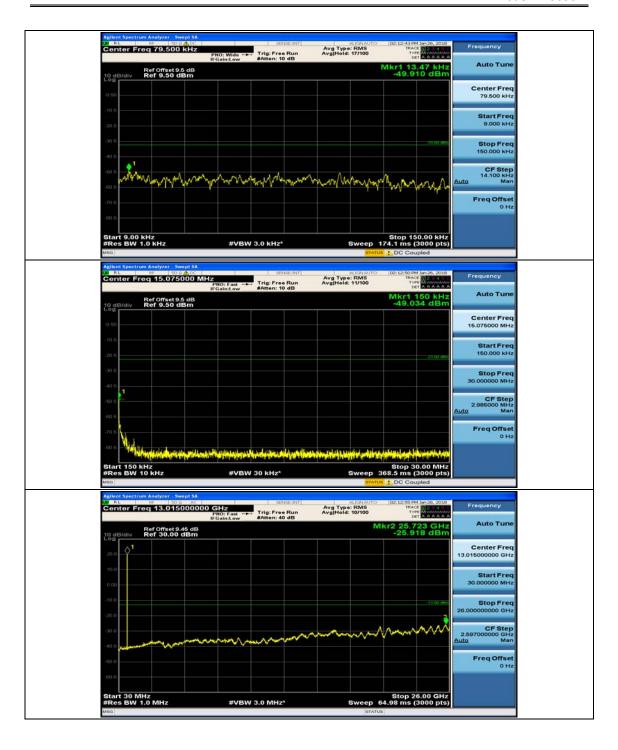




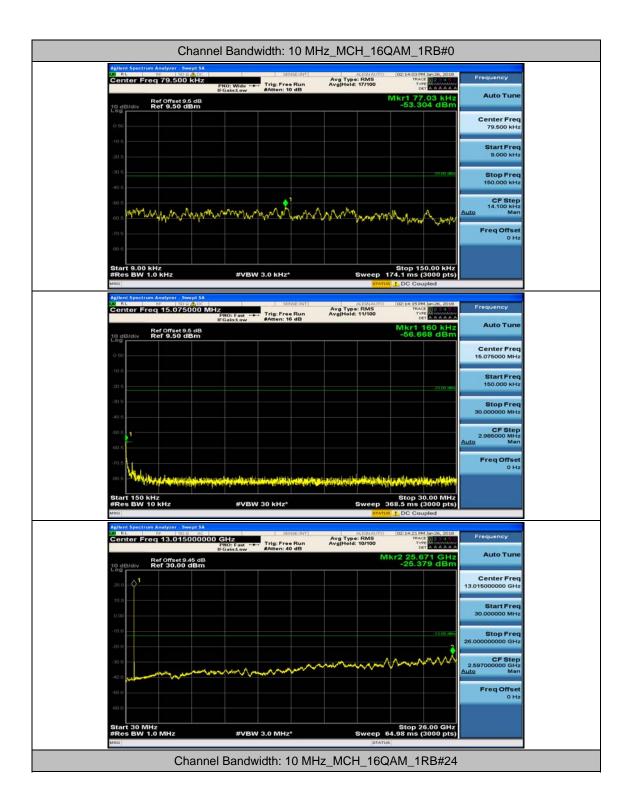






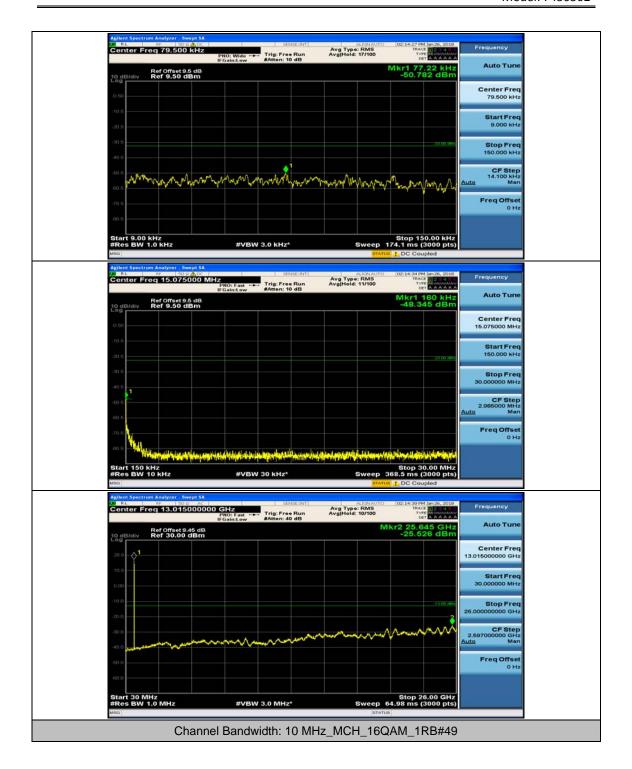




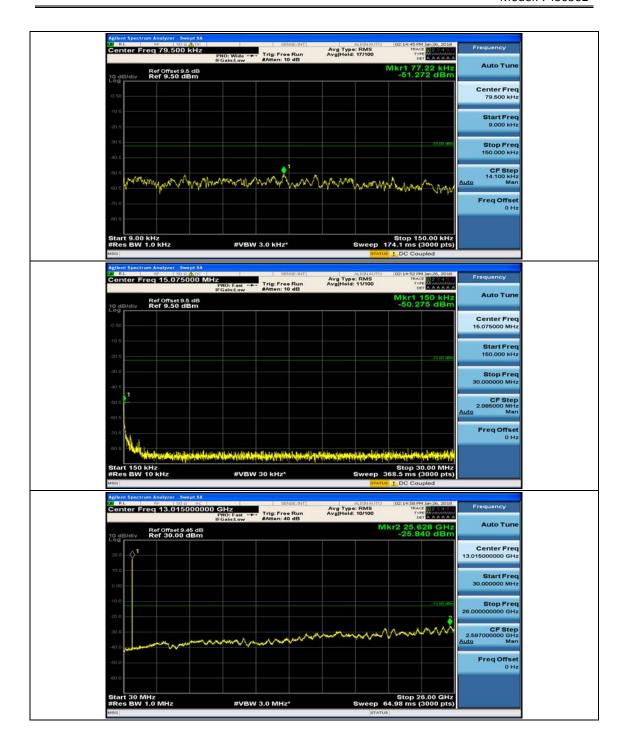




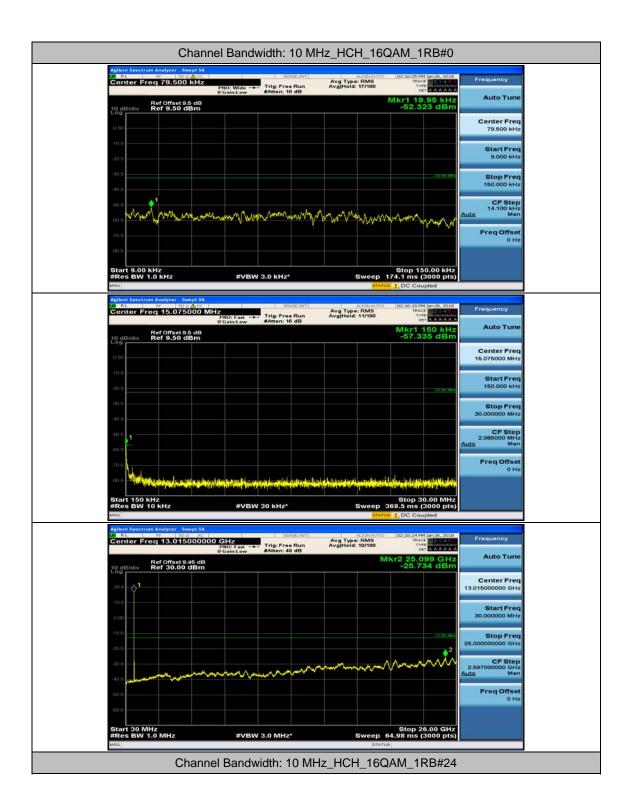
Model: 7450502



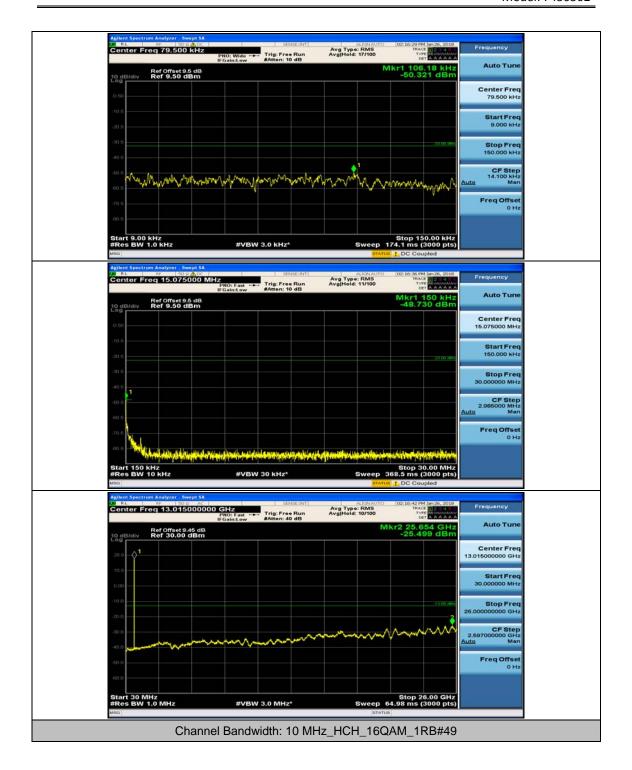




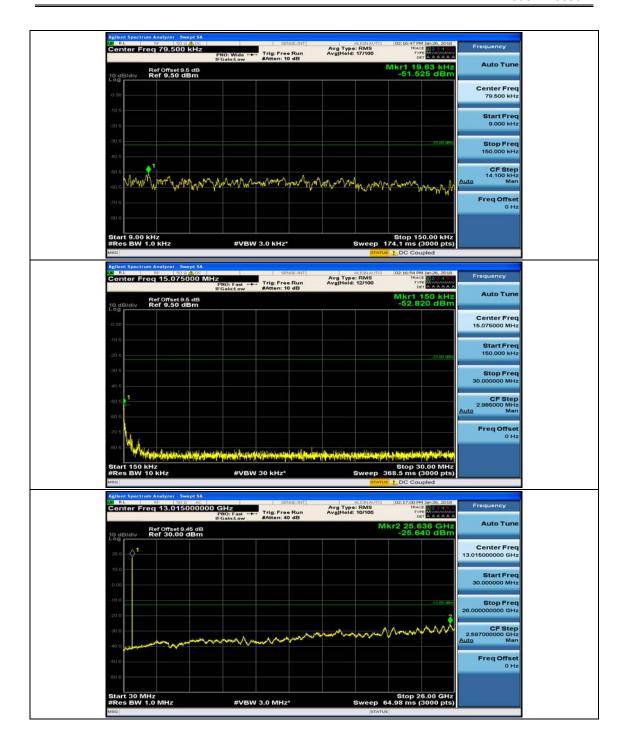














## **Appendix E: Frequency Stability**

## **Test Result**

**Channel Bandwidth: 5 MHz** 

			Channel Ban	dwidth: 5 MHz						
Voltage										
Modulation	Channel	Voltage [Vdc]	Temperature (°C)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict			
		VL	TN	0.42	0.000594	± 2.5	PASS			
	LCH	VN	TN	-0.04	-0.000057	± 2.5	PASS			
		VH	TN	3.72	0.005265	(ppm)  ± 2.5	PASS			
		VL	TN	-0.32	-0.000451	± 2.5	PASS			
QPSK	MCH	VN	TN	3.86	0.005437	± 2.5	PASS			
		VH	TN	1.43	0.002014	± 2.5	PASS			
		VL	TN	3.5	0.002014       ± 2.5         0.004905       ± 2.5         0.002901       ± 2.5         0.005900       ± 2.5         0.007063       ± 2.5         0.004770       ± 2.5         -0.001868       ± 2.5         0.005451       ± 2.5         0.005394       ± 2.5         0.002607       ± 2.5         0.003742       ± 2.5         Deviation (ppm)       Limit (ppm)         0.006285       ± 2.5	PASS				
	HCH	VN	TN	2.07	0.002901	± 2.5	PASS			
		VH	TN	4.21	0.005900	(ppm) ± 2.5	PASS			
		VL	TN	4.99	0.007063	± 2.5	PASS			
	LCH	VN	TN	3.37	0.004770	± 2.5	PASS			
		VH	TN	-1.32	-0.001868	± 2.5	PASS			
	MCH	VL	TN	0.7	0.000986	± 2.5	PASS			
16QAM		VN	TN	3.87	0.005451	± 2.5	PASS			
		VH	TN	3.83	0.005394	± 2.5	PASS			
	НСН	VL	TN	-1.82	-0.002551	± 2.5	PASS			
		VN	TN	1.86	0.002607	± 2.5	PASS			
		VH	TN	2.67	0.003742	± 2.5	PASS			
			Tempe	erature						
Modulation	Channel	Voltage [Vdc]	Temperature (℃)	Deviation (Hz)			Verdict			
		VN	-30	4.44	0.006285	± 2.5	PASS			
		VN	-20	2.79	0.003949	± 2.5	PASS			
		VN	-10	1.98	0.002803	± 2.5	PASS			
		VN	0	1.05	0.001486	± 2.5	PASS			
	LCH	VN	10	1.46	0.002067	± 2.5	PASS			
QPSK		VN	20	3.68	0.005209	± 2.5	PASS			
		VN	30	0.97	0.001373	± 2.5	PASS			
		VN	40	-1.6	-0.002265	± 2.5	PASS			
		VN	50	0.99	0.001401	± 2.5	PASS			
	MCII	VN	-30	-0.85	-0.001197	± 2.5	PASS			
	MCH	VN	-20	0.17	0.000239	± 2.5	PASS			

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		VN	-10	3.2	0.004507	± 2.5	PASS
		VN	0	-1.12	-0.001577	± 2.5	PASS
		VN	10	0.27	0.000380	± 2.5	PASS
		VN	20	0.77	0.001085	± 2.5	PASS
		VN	30	-1.84	-0.002592	± 2.5	PASS
		VN	40	-1.94	-0.002732	± 2.5	PASS
		VN	50	-1.46	-0.002056	± 2.5	PASS
		VN	-30	3.8	0.005326	± 2.5	PASS
		VN	-20	4.61	0.006461	± 2.5	PASS
		VN	-10	-0.45	-0.000631	± 2.5	PASS
		VN	0	4.92	0.006896	± 2.5	PASS
	нсн	VN	10	-1.41	-0.001976	± 2.5	PASS
		VN	20	2.41	0.003378	± 2.5	PASS
		VN	30	4.38	0.006139	± 2.5	PASS
		VN	40	4.58	0.006419	± 2.5	PASS
		VN	50	4.73	0.006629	± 2.5	PASS
		VN	-30	1.5	0.002123	± 2.5	PASS
		VN	-20	-0.36	-0.000510	± 2.5	PASS
		VN	-10	0.06	0.000085	± 2.5	PASS
		VN	0	1.07	0.001515	± 2.5	PASS
	LCH	VN	10	2.95	0.004176	± 2.5	PASS
		VN	20	-0.54	-0.000764	± 2.5	PASS
		VN	30	4.54	0.006426	± 2.5	PASS
		VN	40	2.64	0.003737	± 2.5	PASS
		VN	50	3.7	0.005237	± 2.5	PASS
		VN	-30	0.79	0.001107	± 2.5	PASS
		VN	-20	-0.9	-0.001261	± 2.5	PASS
		VN	-10	0.97	0.001359	± 2.5	PASS
16QAM		VN	0	-0.47	-0.000659	± 2.5	PASS
	MCH	VN	10	-1.89	-0.002649	± 2.5	PASS
		VN	20	4.65	0.006517	± 2.5	PASS
		VN	30	2.82	0.003952	± 2.5	PASS
		VN	40	4.37	0.006125	± 2.5	PASS
		VN	50	4.9	0.006868	± 2.5	PASS
		VN	-30	2.87	0.004022	± 2.5	PASS
	нсн	VN	-20	1.25	0.001752	± 2.5	PASS
		VN	-10	0.04	0.000056	± 2.5	PASS
		VN	0	4.77	0.006685	± 2.5	PASS
		VN	10	4.19	0.005872	± 2.5	PASS
		VN	20	2.26	0.003167	± 2.5	PASS
		VN	30	2.25	0.003153	± 2.5	PASS



	VN	40	4.35	0.006097	± 2.5	PASS
	VN	50	1.21	0.001696	± 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				
		VL	TN	2.48	0.003498	± 2.5	PASS				
	LCH	VN	TN	0.1	0.000141	± 2.5	PASS				
		VH	TN	3.85	0.005430	± 2.5	PASS				
		VL	TN	4.03	0.005676	± 2.5	PASS				
QPSK	MCH	VN	TN	-1.33	-0.001873	± 2.5	PASS				
		VH	TN	-1.08	-0.001521	± 2.5	PASS				
		VL	TN	-1.73	-0.002433	± 2.5	PASS				
	HCH	VN	TN	-1.73	-0.002433	± 2.5	PASS				
		VH	TN	1.78	0.002504	(ppm) ± 2.5 ± 2.5 ± 2.5 ± 2.5 ± 2.5 ± 2.5 ± 2.5	PASS				
		VL	TN	-0.16	-0.000226	± 2.5	PASS				
	LCH	VN	TN	4.4	0.006206	± 2.5	PASS				
		VH	TN	2.43	0.003427	± 2.5	PASS				
	MCH	VL	TN	-0.89	-0.001254	± 2.5	PASS				
16QAM		VN	TN	3.93	0.005535	± 2.5	PASS				
		VH	TN	2.74	0.003859	± 2.5	PASS				
	НСН	VL	TN	4.38	0.006160	± 2.5	PASS				
		VN	TN	0.41	0.000577	± 2.5	PASS				
		VH	TN	2.79	0.003924	± 2.5	PASS				
Temperature											
Modulation	Channel	Voltage [Vdc]	Temperature $(^{\circ}\!$	Deviation (Hz)	Deviation (ppm)		Verdict				
		VN	-30	0.8	0.001128	± 2.5	PASS				
		VN	-20	0.33	0.000465	± 2.5	PASS				
		VN	-10	3.29	0.004640	± 2.5	PASS				
		VN	0	2.38	0.003357	± 2.5	PASS				
	LCH	VN	10	4.74	0.006685	± 2.5	PASS				
16QAM		VN	20	-0.03	-0.000042	± 2.5	PASS				
		VN	30	-1.04	-0.001467	± 2.5	PASS				
		VN	40	4.8	0.006770	± 2.5	PASS				
		VN	50	0.74	0.001044	± 2.5	PASS				
	МСН	VN	-30	0.56	0.000789	± 2.5	PASS				
	IVICH	VN	-20	1.23	0.001732	± 2.5	PASS				

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			<u> </u>		1		
		VN	-10	-1.53	-0.002155	± 2.5	PASS
		VN	0	4.05	0.005704	± 2.5	PASS
		VN	10	-0.1	-0.000141	± 2.5	PASS
		VN	20	2.3	0.003239	± 2.5	PASS
		VN	30	1.71	0.002408	± 2.5	PASS
		VN	40	1.86	0.002620	± 2.5	PASS
		VN	50	4.89	0.006887	± 2.5	PASS
		VN	-30	0.69	0.000970	± 2.5	PASS
		VN	-20	2.19	0.003080	± 2.5	PASS
		VN	-10	-1.49	-0.002096	± 2.5	PASS
		VN	0	1.6	0.002250	± 2.5	PASS
	HCH	VN	10	2.32	0.003263	± 2.5	PASS
		VN	20	0.63	0.000886	± 2.5	PASS
		VN	30	4.61	0.006484	± 2.5	PASS
		VN	40	-0.02	-0.000028	± 2.5	PASS
		VN	50	2.73	0.003840	± 2.5	PASS
	LCH	VN	-30	1.47	0.002070	± 2.5	PASS
		VN	-20	1.72	0.002423	± 2.5	PASS
		VN	-10	3.36	0.004732	± 2.5	PASS
		VN	0	-1.05	-0.001479	± 2.5	PASS
		VN	10	2.42	0.003408	± 2.5	PASS
		VN	20	2.02	0.002845	± 2.5	PASS
		VN	30	0.11	0.000155	± 2.5	PASS
		VN	40	-0.39	-0.000549	± 2.5	PASS
		VN	50	3.02	0.004254	± 2.5	PASS
		VN	-30	4.83	0.006793	± 2.5	PASS
		VN	-20	3.89	0.005471	± 2.5	PASS
		VN	-10	3.79	0.005331	± 2.5	PASS
QPSK		VN	0	0.22	0.000309	± 2.5	PASS
	мсн	VN	10	3.54	0.004979	± 2.5	PASS
		VN	20	1.71	0.002405	± 2.5	PASS
		VN	30	-1.85	-0.002602	± 2.5	PASS
		VN	40	0.47	0.000661	± 2.5	PASS
		VN	50	-0.16	-0.000225	± 2.5	PASS
		VN	-30	0.6	0.000844	± 2.5	PASS
		VN	-20	3.77	0.005302	± 2.5	PASS
	нсн	VN	-10	1.08	0.001519	± 2.5	PASS
		VN	0	4.55	0.006399	± 2.5	PASS
		VN	10	-0.52	-0.000731	± 2.5	PASS
		VN	20	-1.77	-0.002489	± 2.5	PASS
		VN	30	3.09	0.004346	± 2.5	PASS
	<u> </u>	<u> </u>					



	VN	40	1.01	0.001421	± 2.5	PASS
	VN	50	-0.69	-0.000970	± 2.5	PASS