



5.1.4.2.4.2.4 Test RB = RB100#0





6Appendix_F: Spurious Emission at Antenna Terminal

NOTE: For the averaged unwanted emissions measurements, the measurement points in each sweep is greater than twice the Span/RBW in order to ensure bin-to-bin spacing of $< RBW/2$ so that narrowband signals are not lost between frequency bins. As to the present test item, the "Measurement Points = $k * (Span / RBW)$ " with k between 4 and 5, which results in an acceptable level error of less than 0.5 dB.

Part I - Test Plots

6.1 For LTE

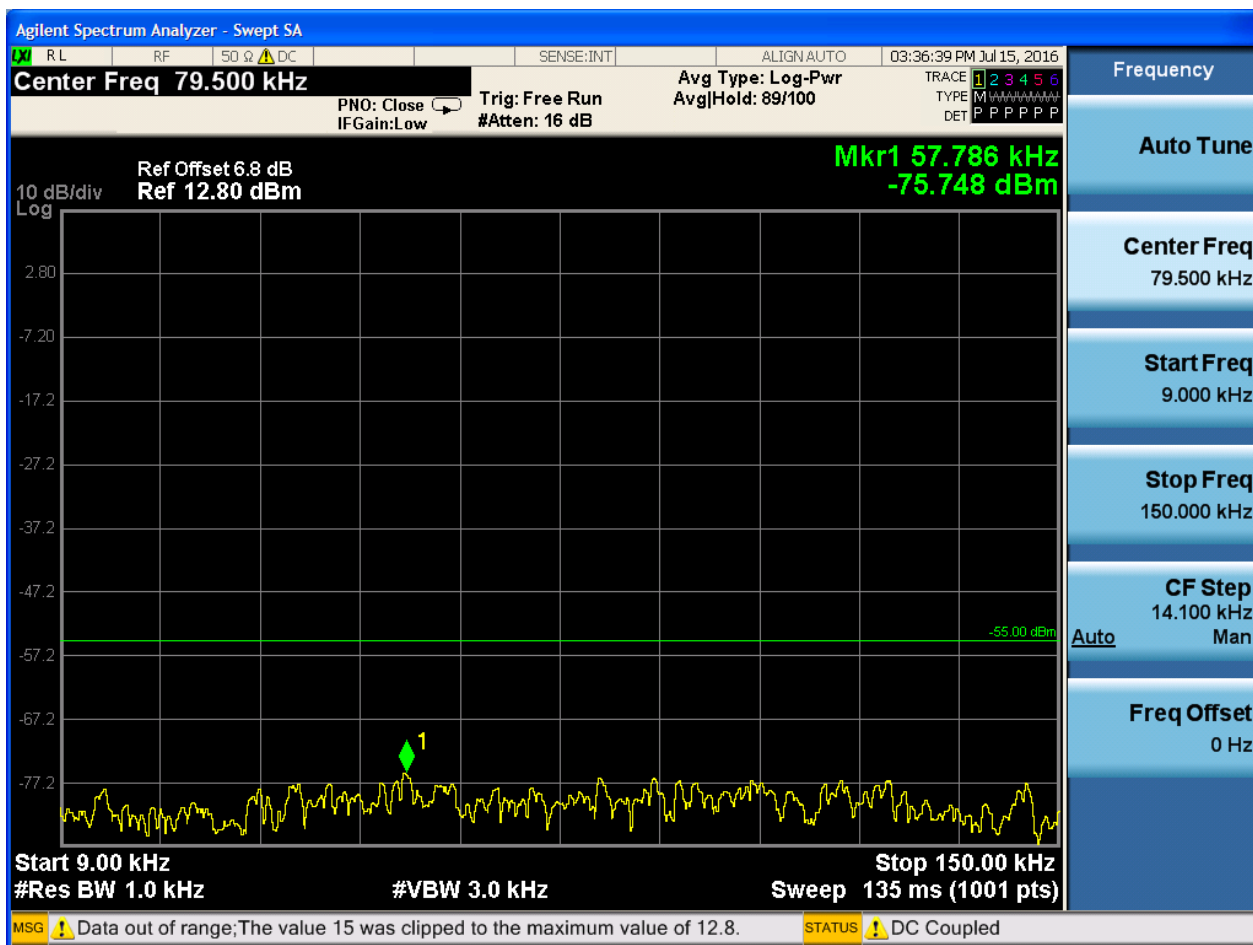
6.1.1 Test Band = BAND38

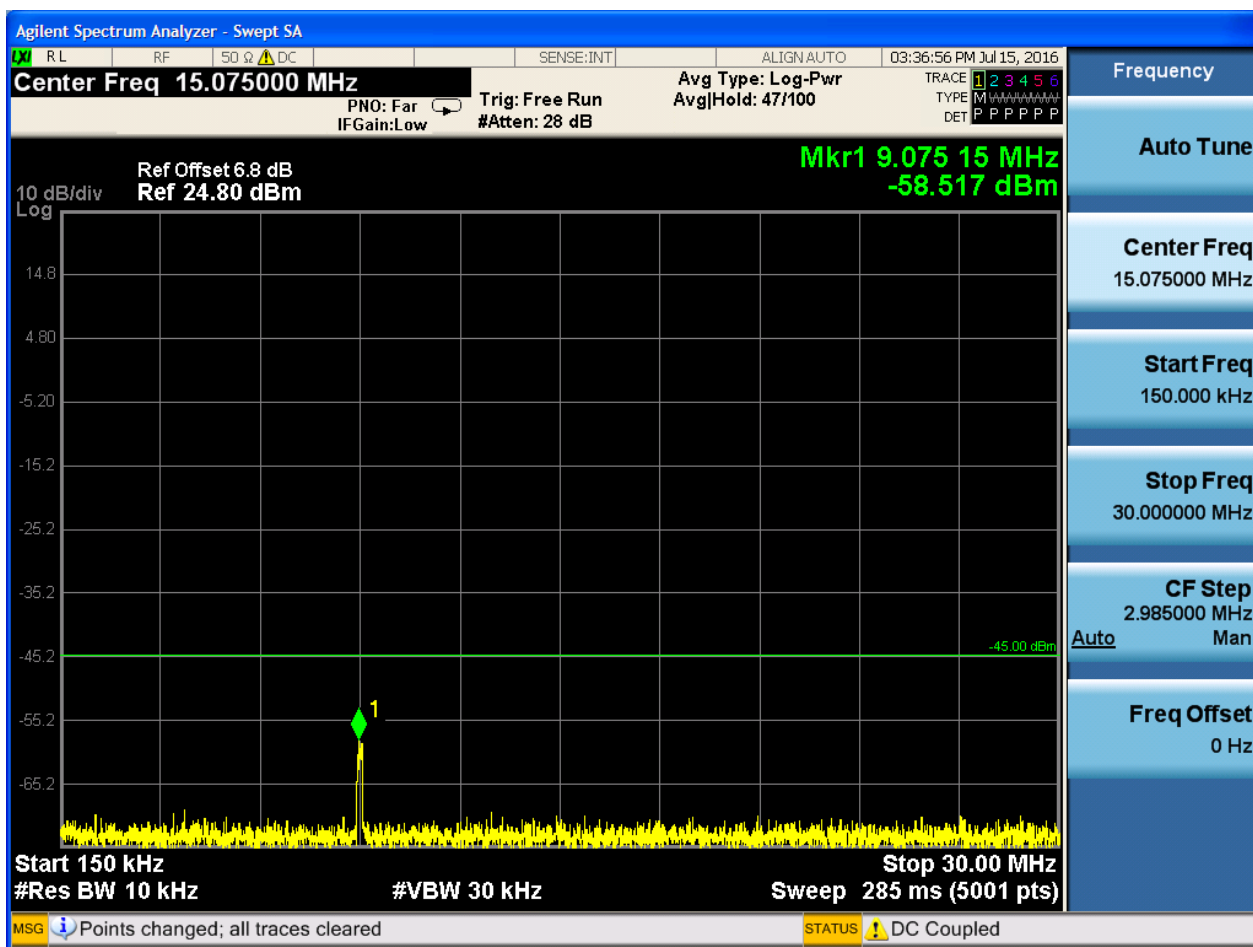
6.1.1.1 Test Mode = LTE/TM1

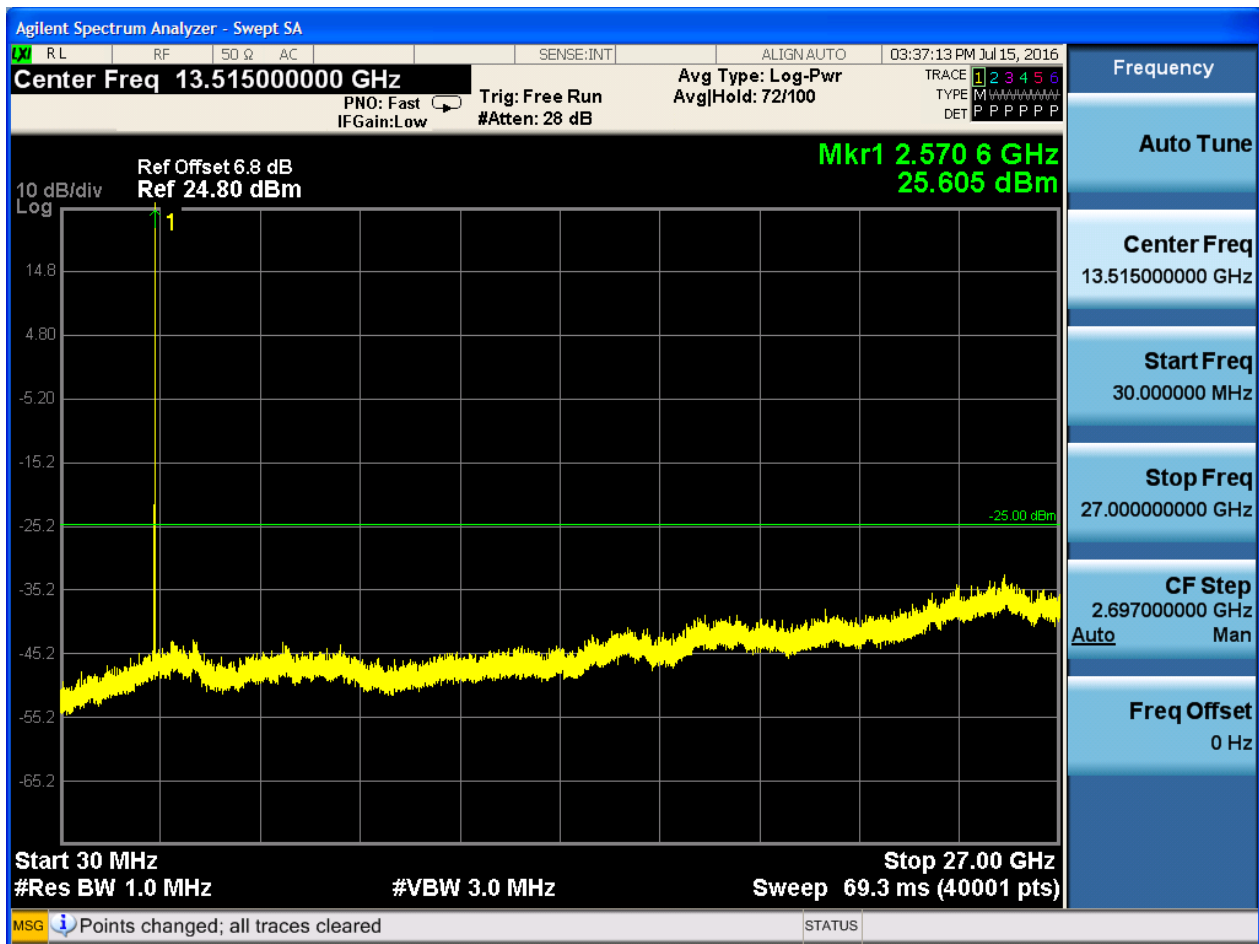
6.1.1.1.1 Test Bandwidth = 5

6.1.1.1.1.1 Test Channel = LCH

6.1.1.1.1.1.1 Test RB = RB1#0



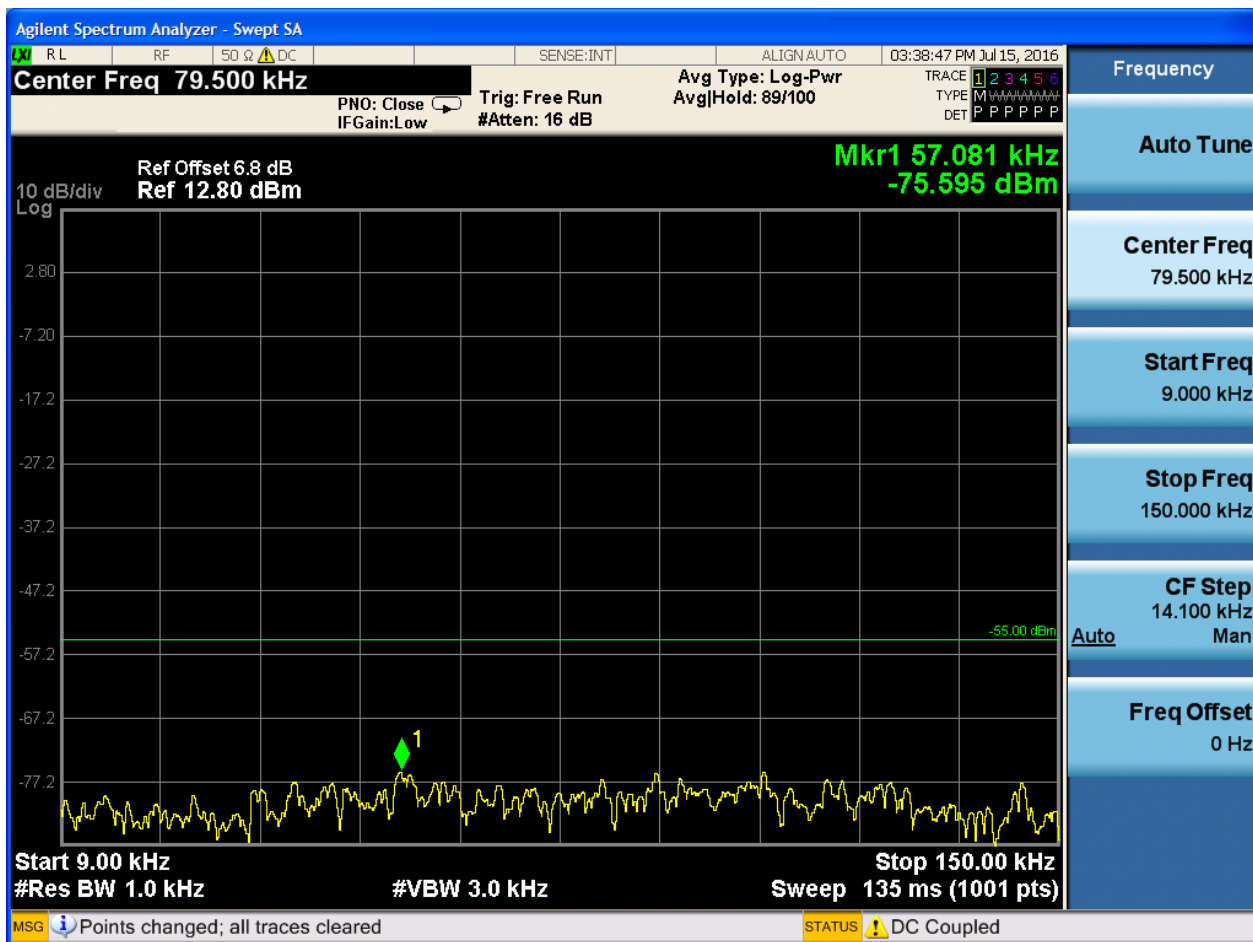


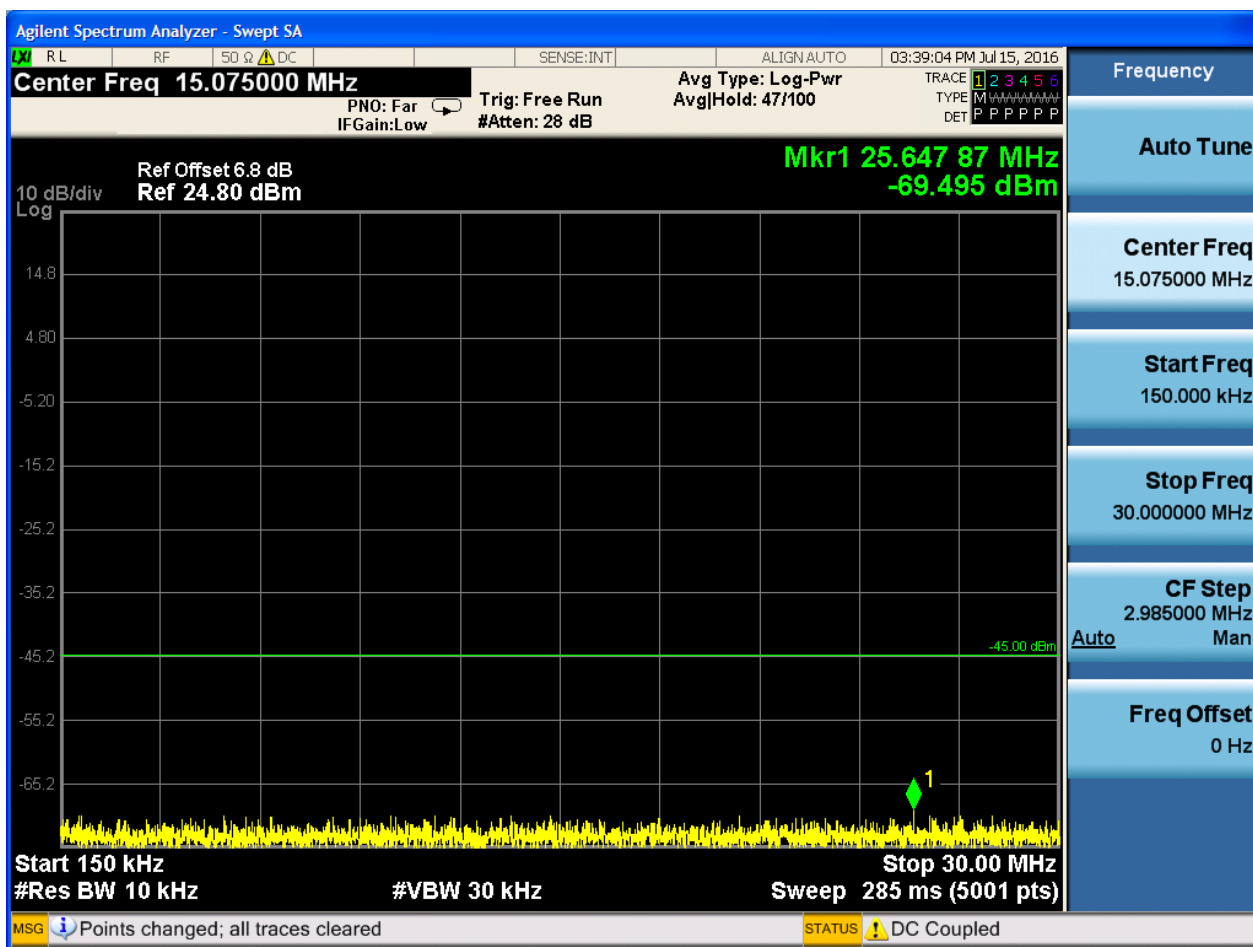




6.1.1.1.1.2 Test Channel = MCH

6.1.1.1.1.2.1 Test RB = RB1#0



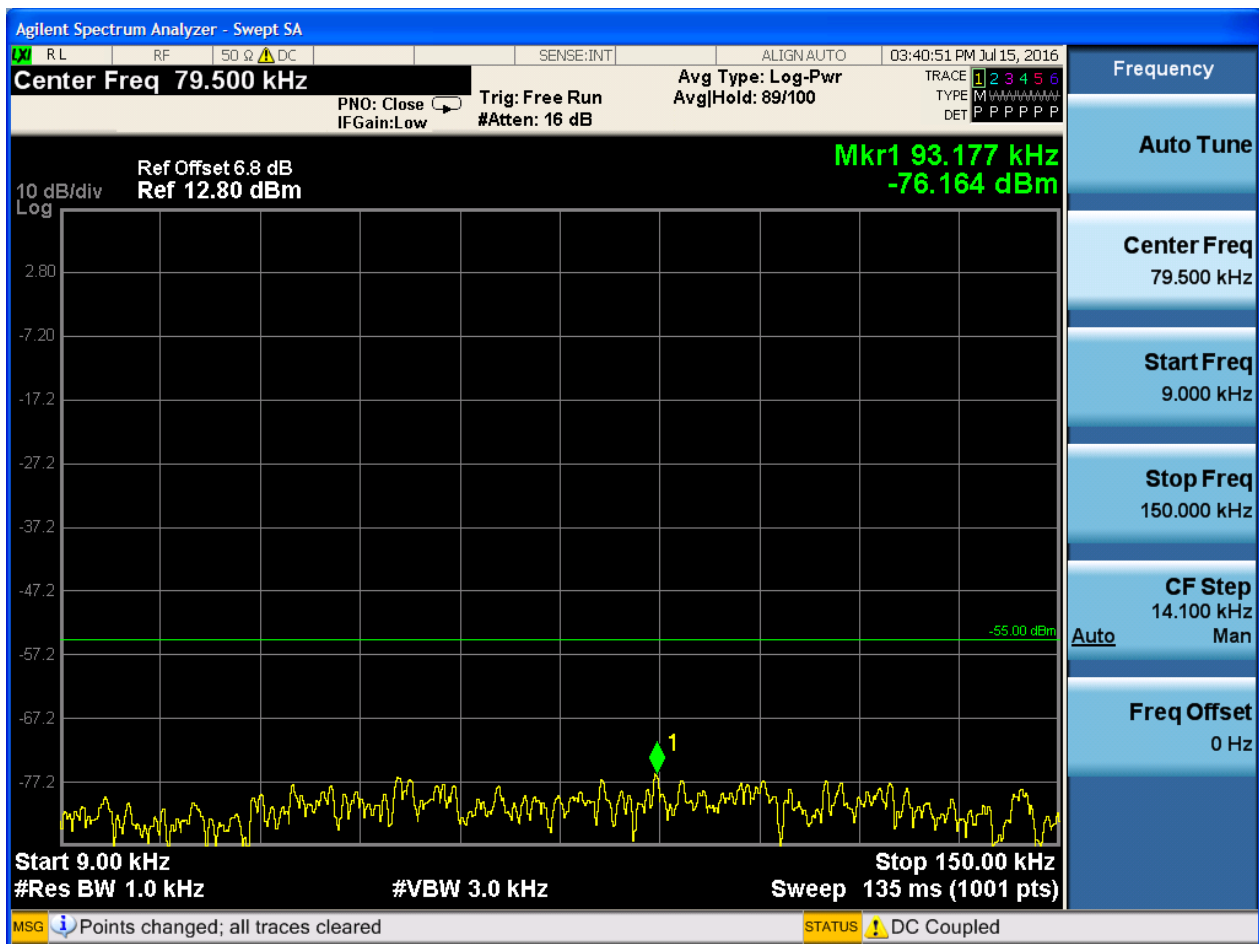


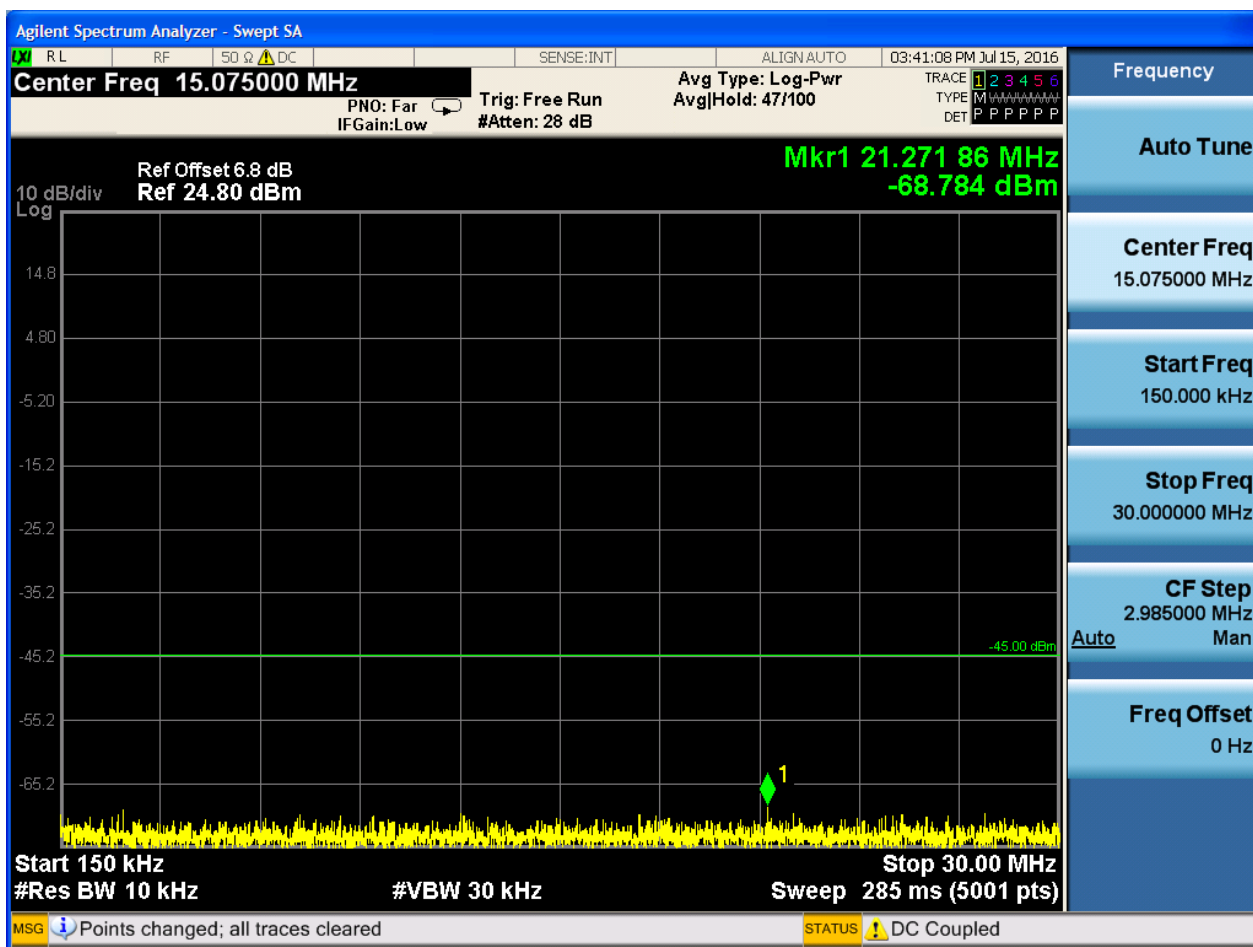




6.1.1.1.1.3 Test Channel = HCH

6.1.1.1.1.3.1 Test RB = RB1#0





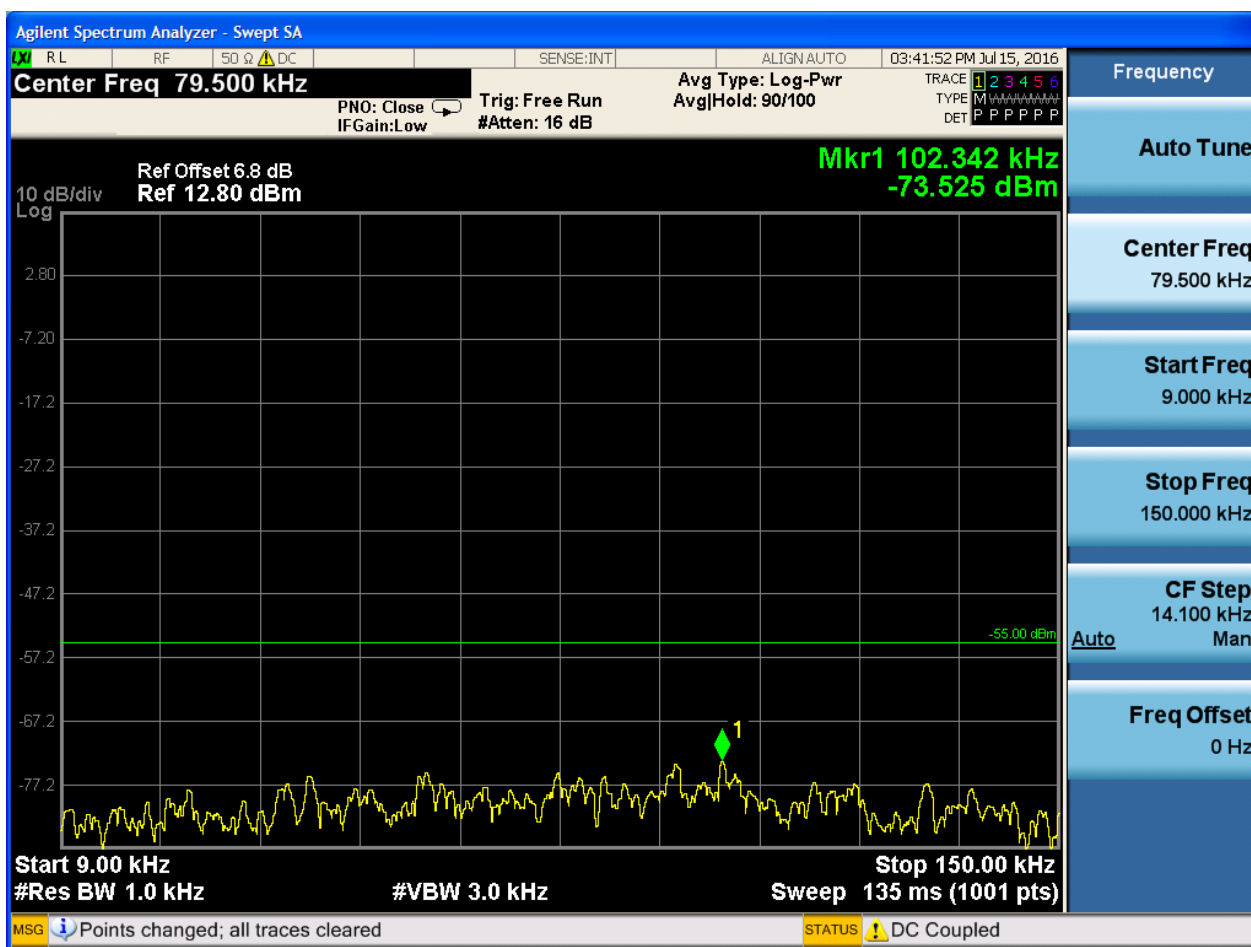




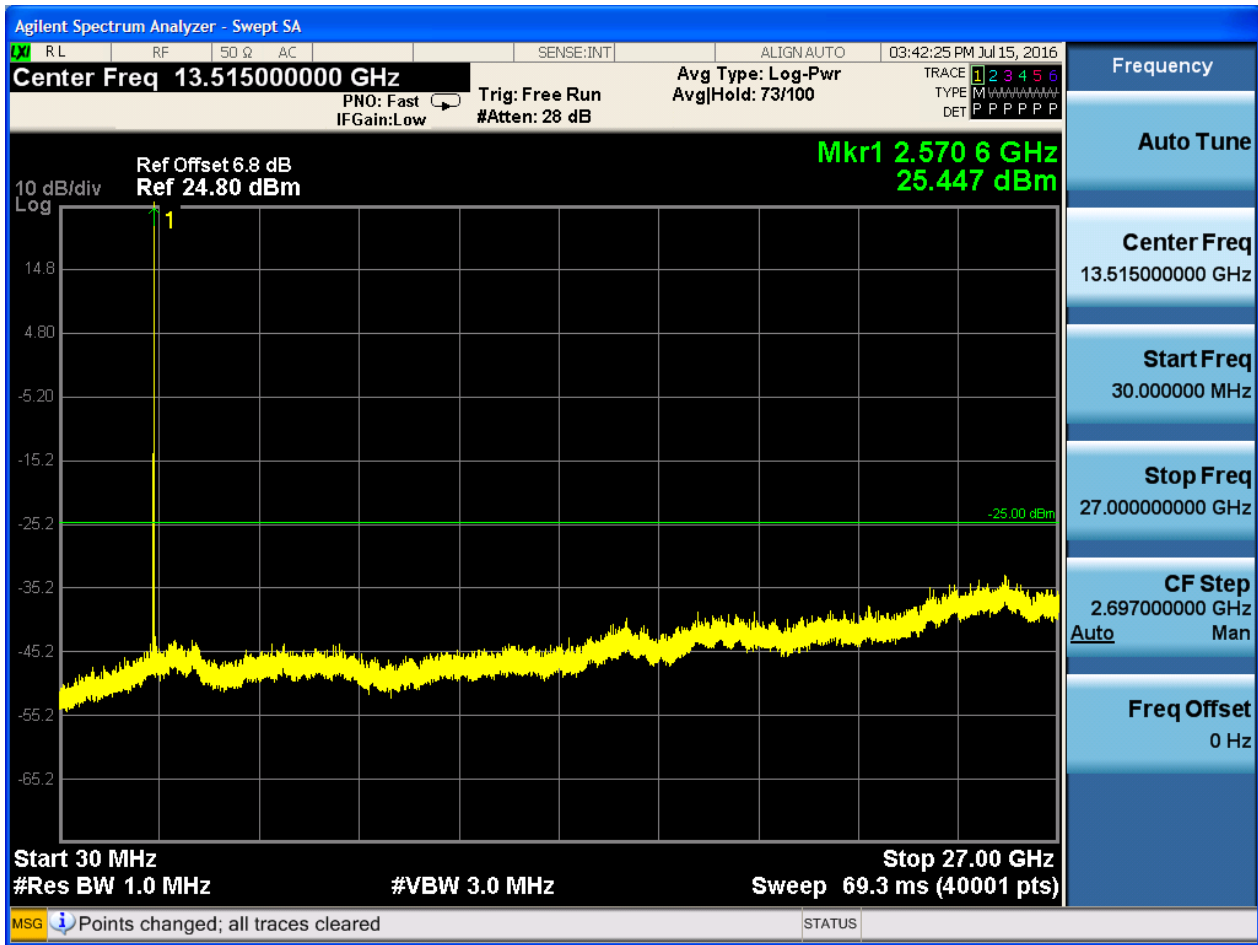
6.1.1.1.2 Test Bandwidth = 10

6.1.1.1.2.1 Test Channel = LCH

6.1.1.1.2.1.1 Test RB = RB1#0



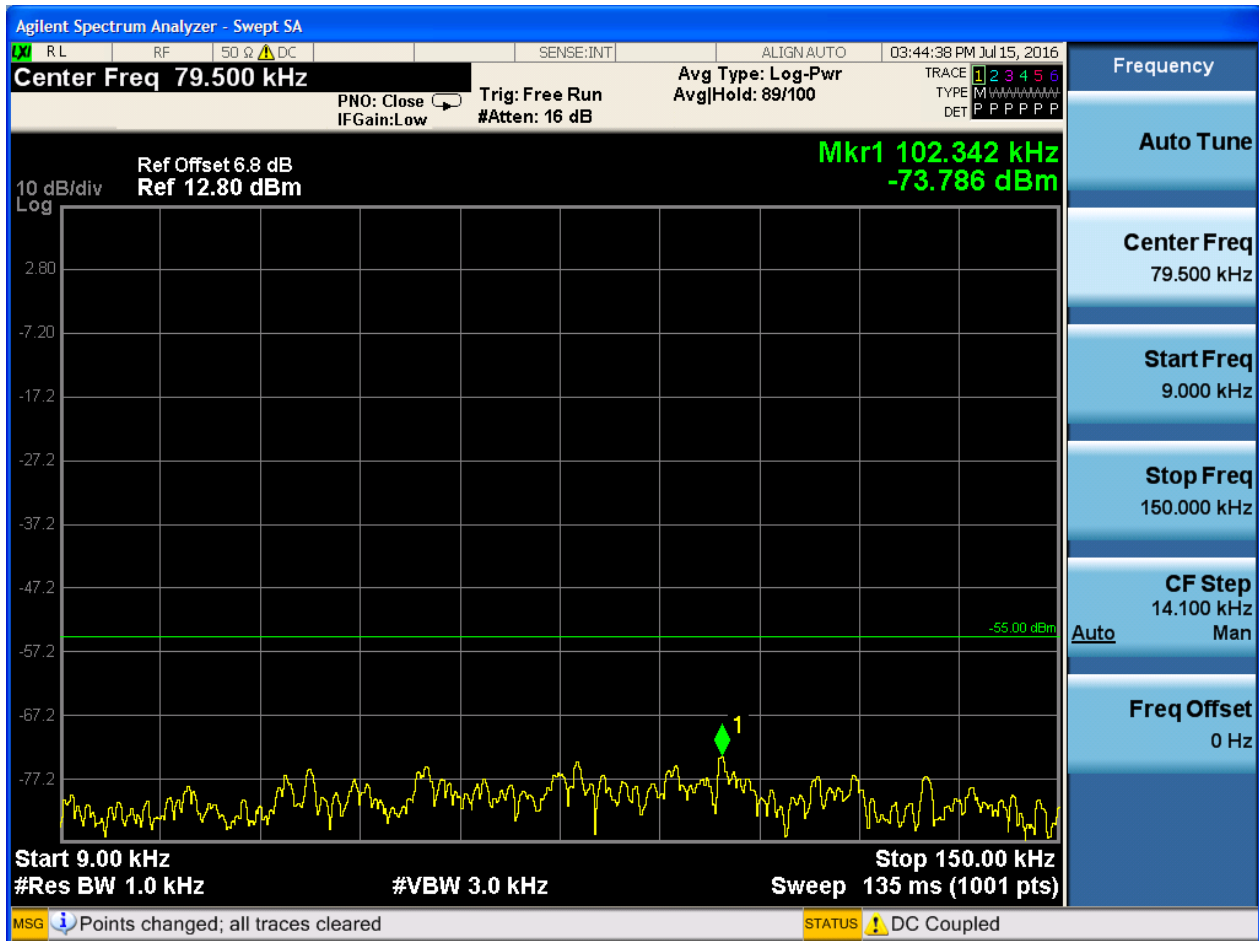


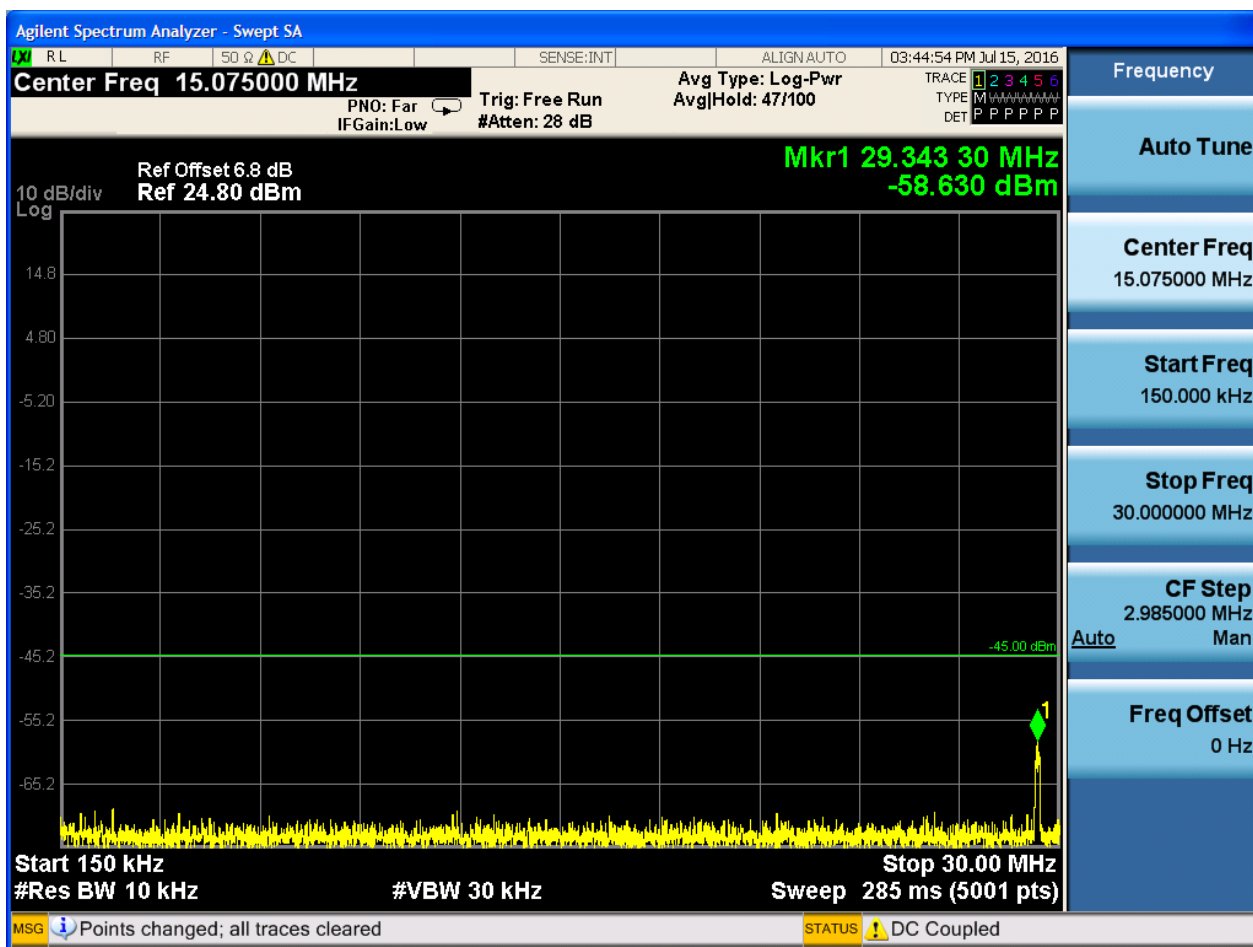




6.1.1.1.2.2 Test Channel = MCH

6.1.1.1.2.2.1 Test RB = RB1#0

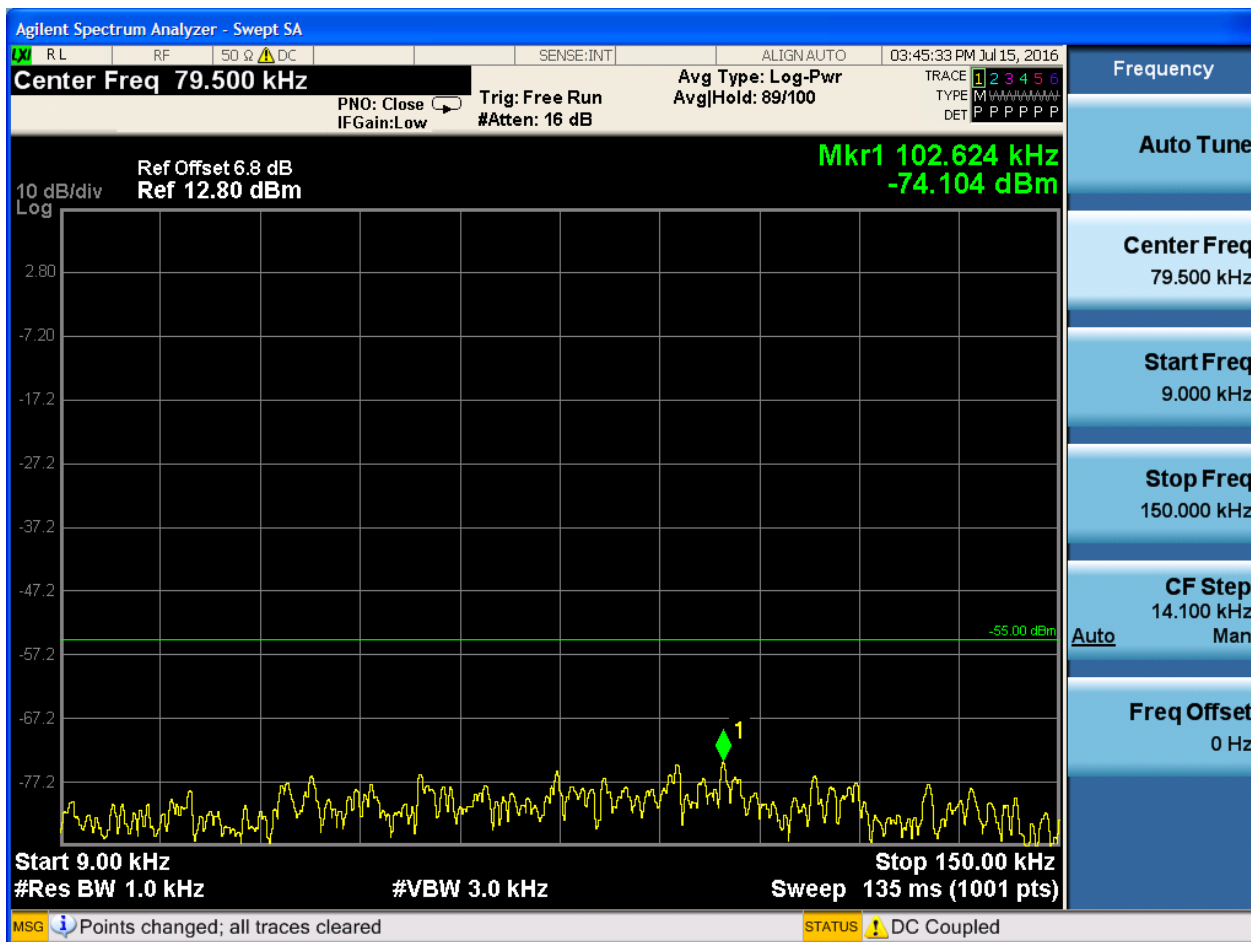






6.1.1.1.2.3 Test Channel = HCH

6.1.1.1.2.3.1 Test RB = RB1#0





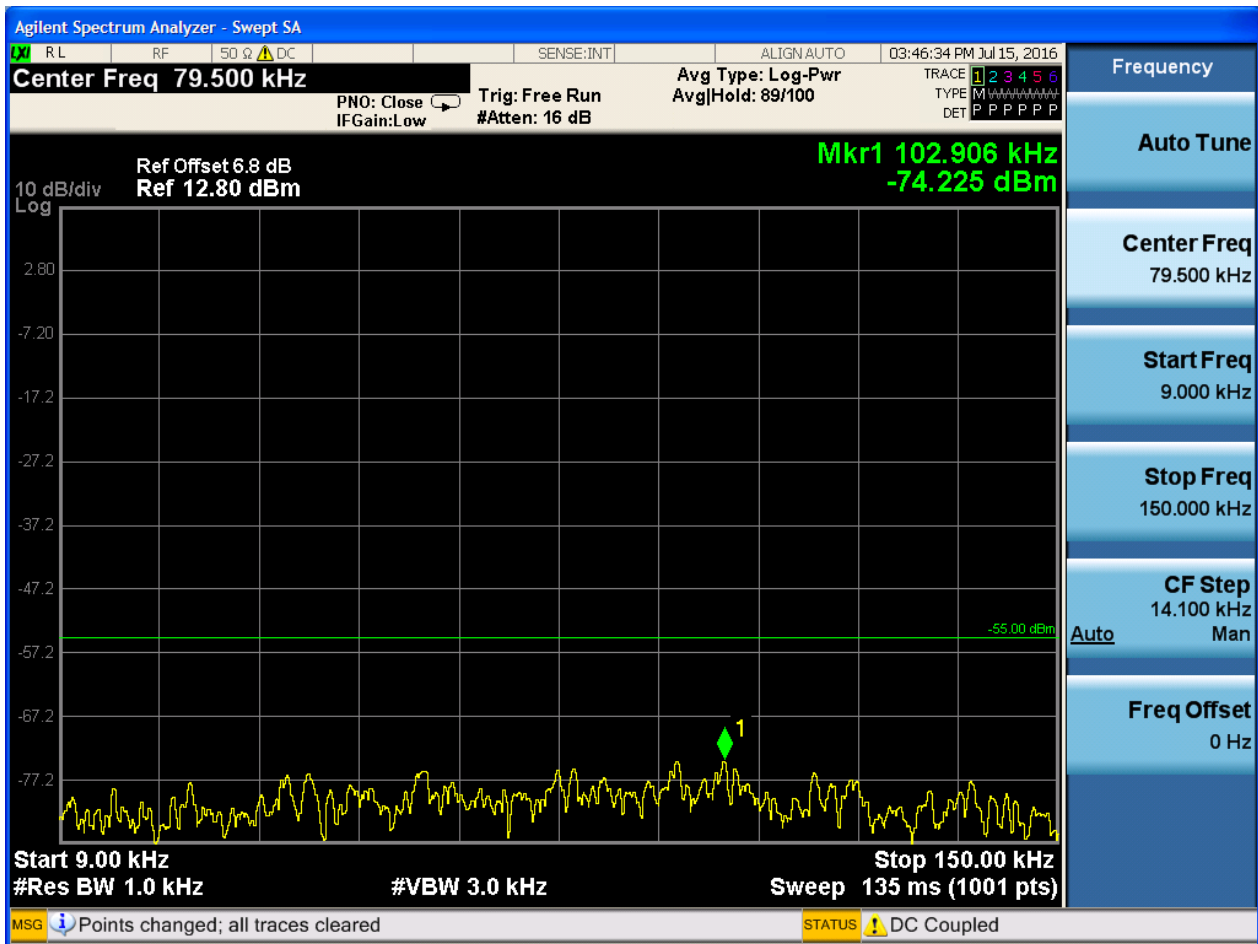


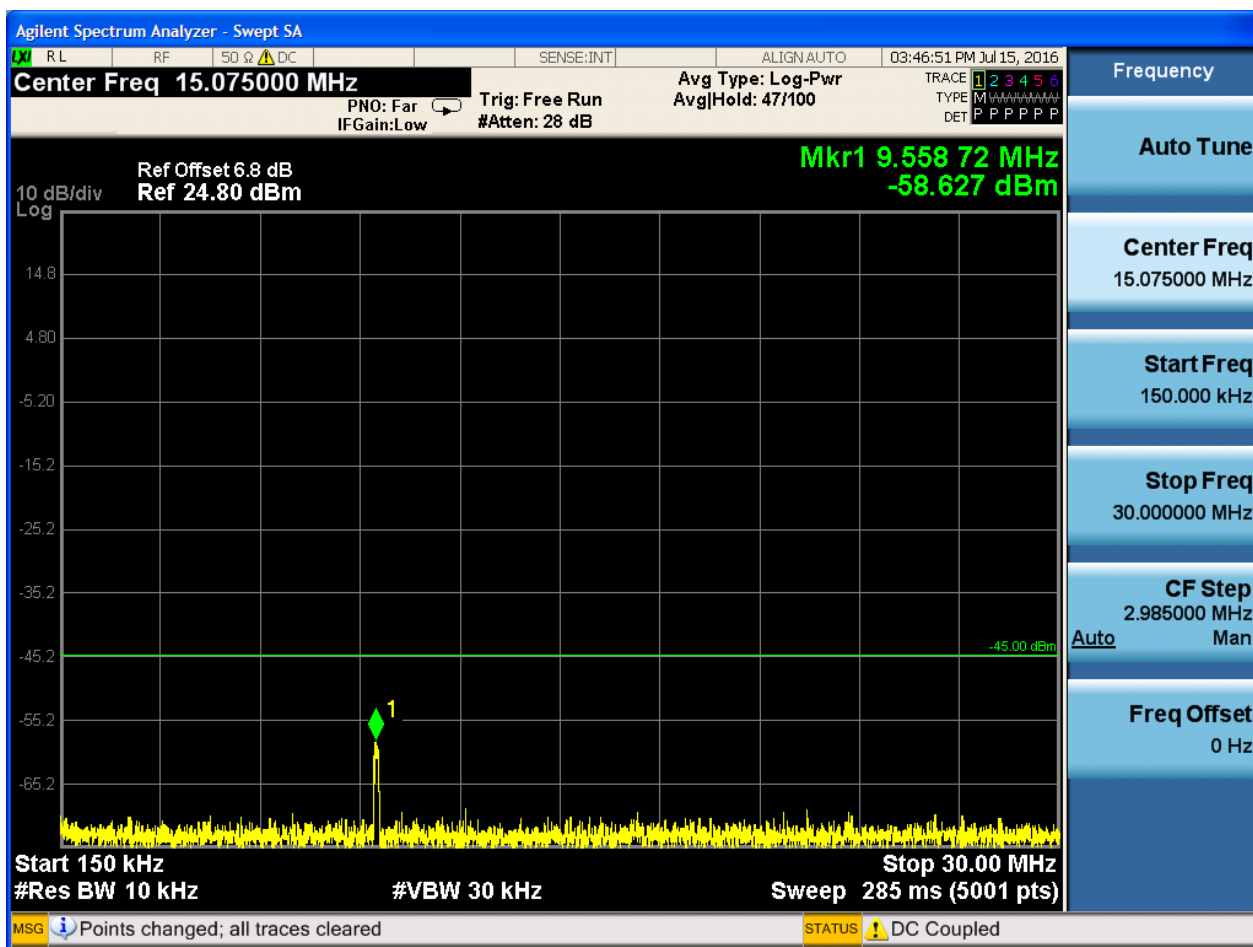


6.1.1.1.3 Test Bandwidth = 15

6.1.1.1.3.1 Test Channel = LCH

6.1.1.1.3.1.1 Test RB = RB1#0



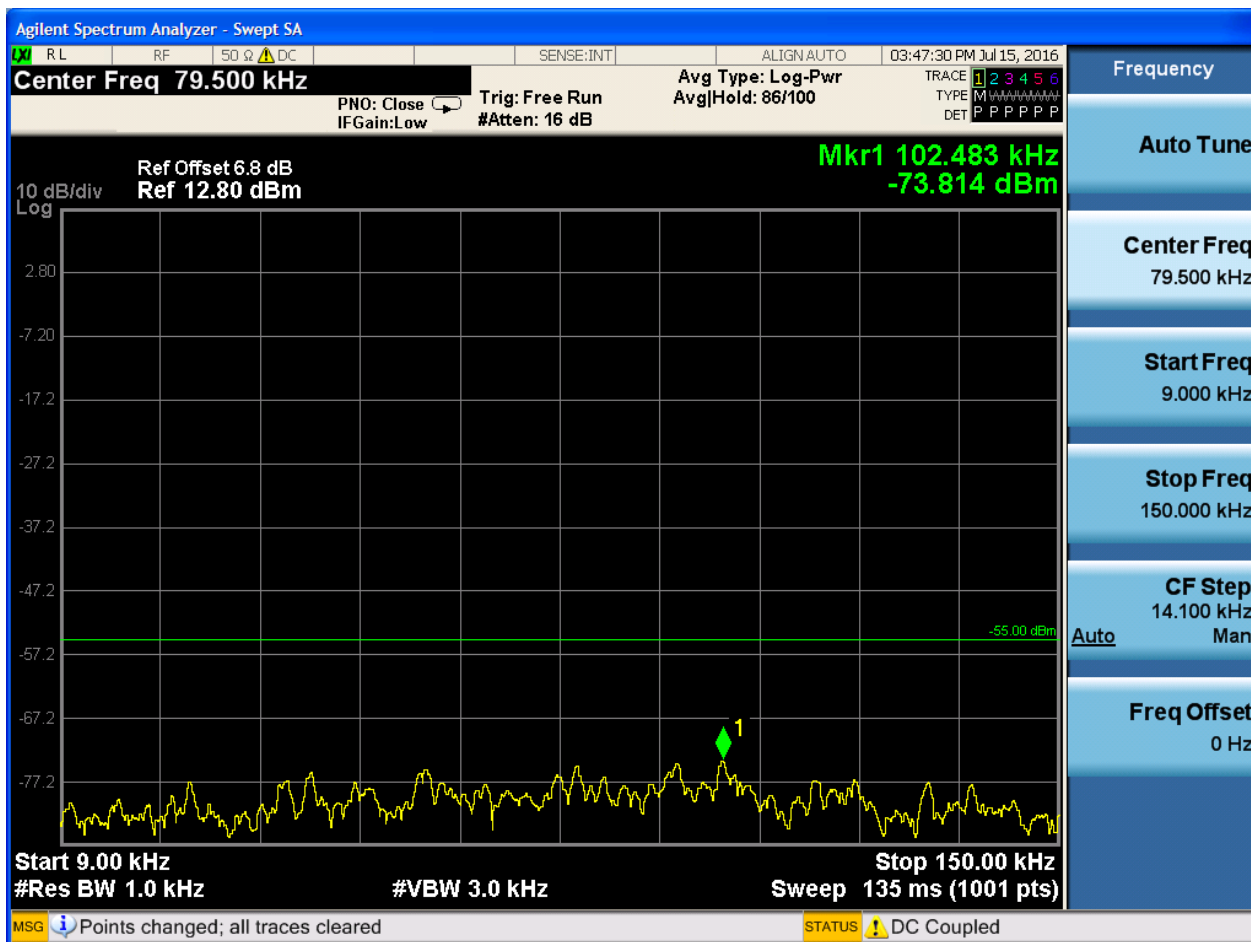


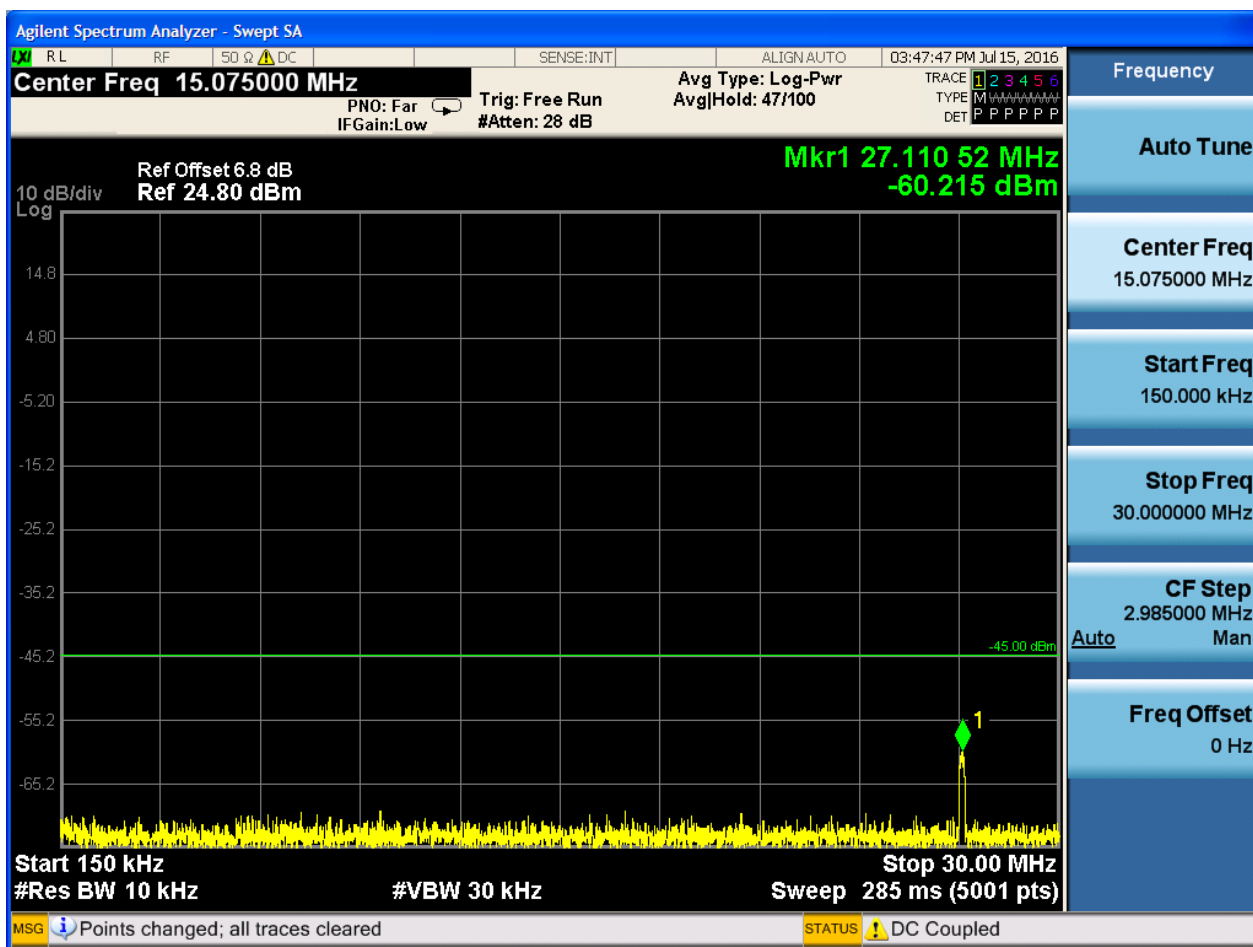




6.1.1.1.3.2 Test Channel = MCH

6.1.1.1.3.2.1 Test RB = RB1#0



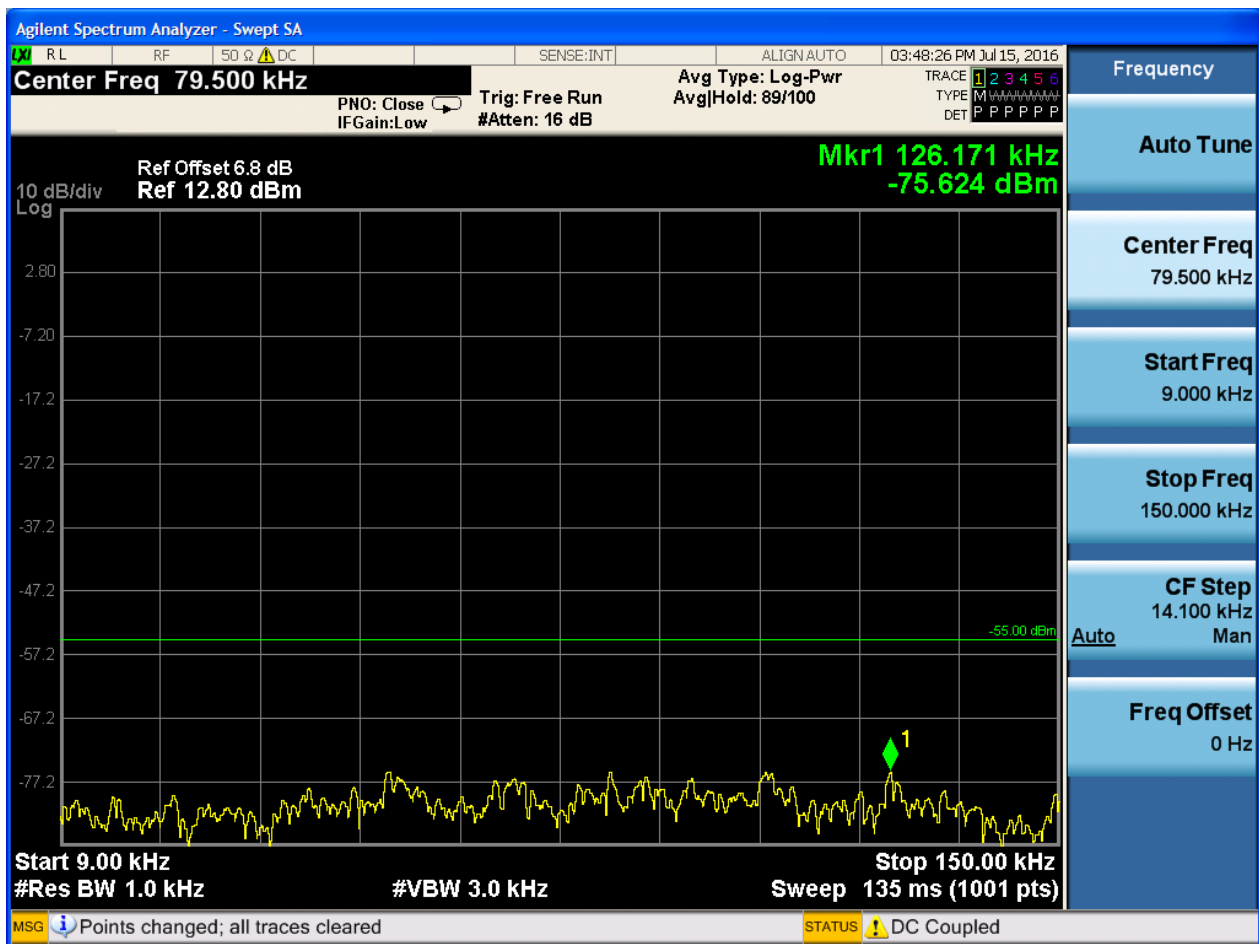






6.1.1.1.3.3 Test Channel = HCH

6.1.1.1.3.3.1 Test RB = RB1#0





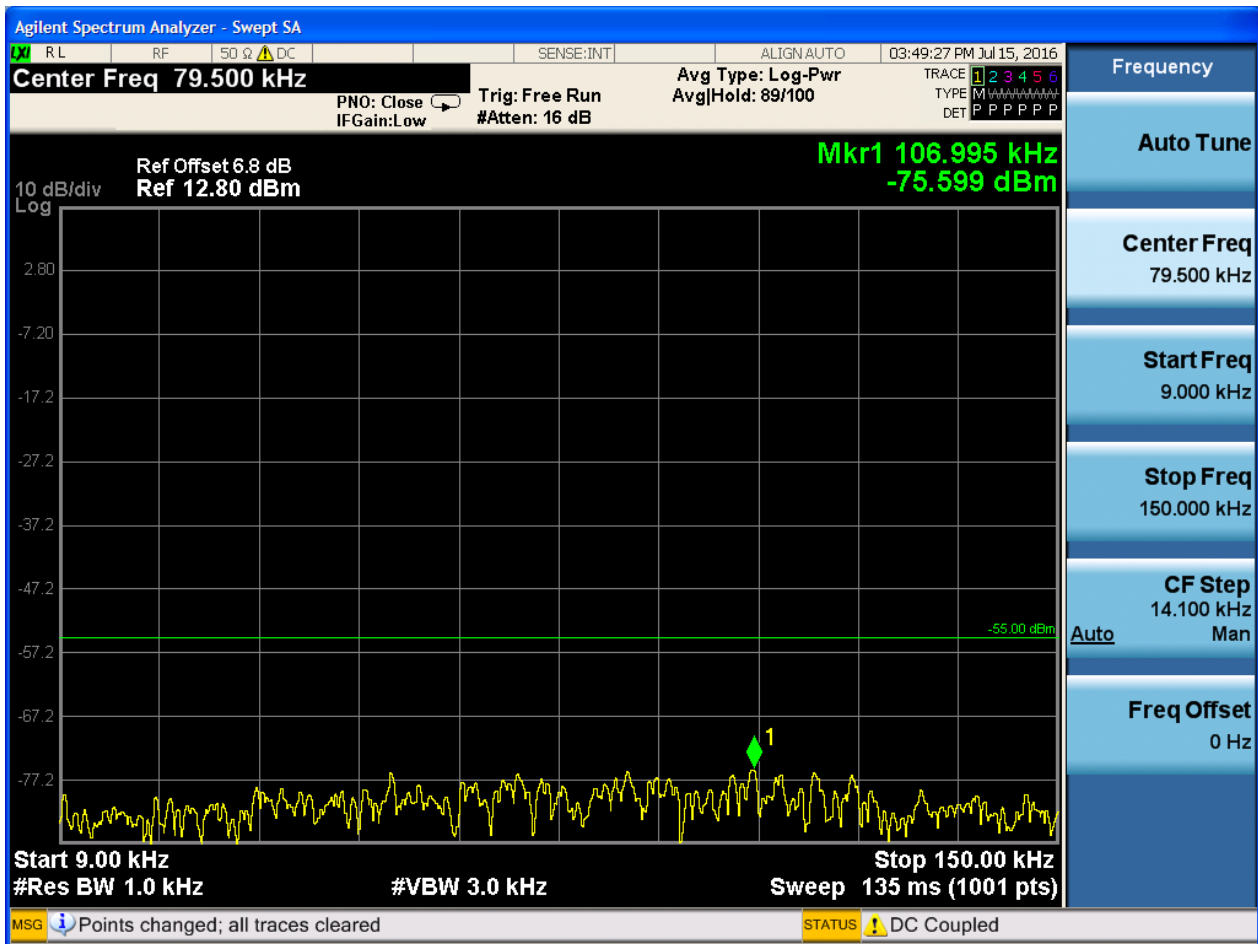




6.1.1.1.4 Test Bandwidth = 20

6.1.1.1.4.1 Test Channel = LCH

6.1.1.1.4.1.1 Test RB = RB1#0



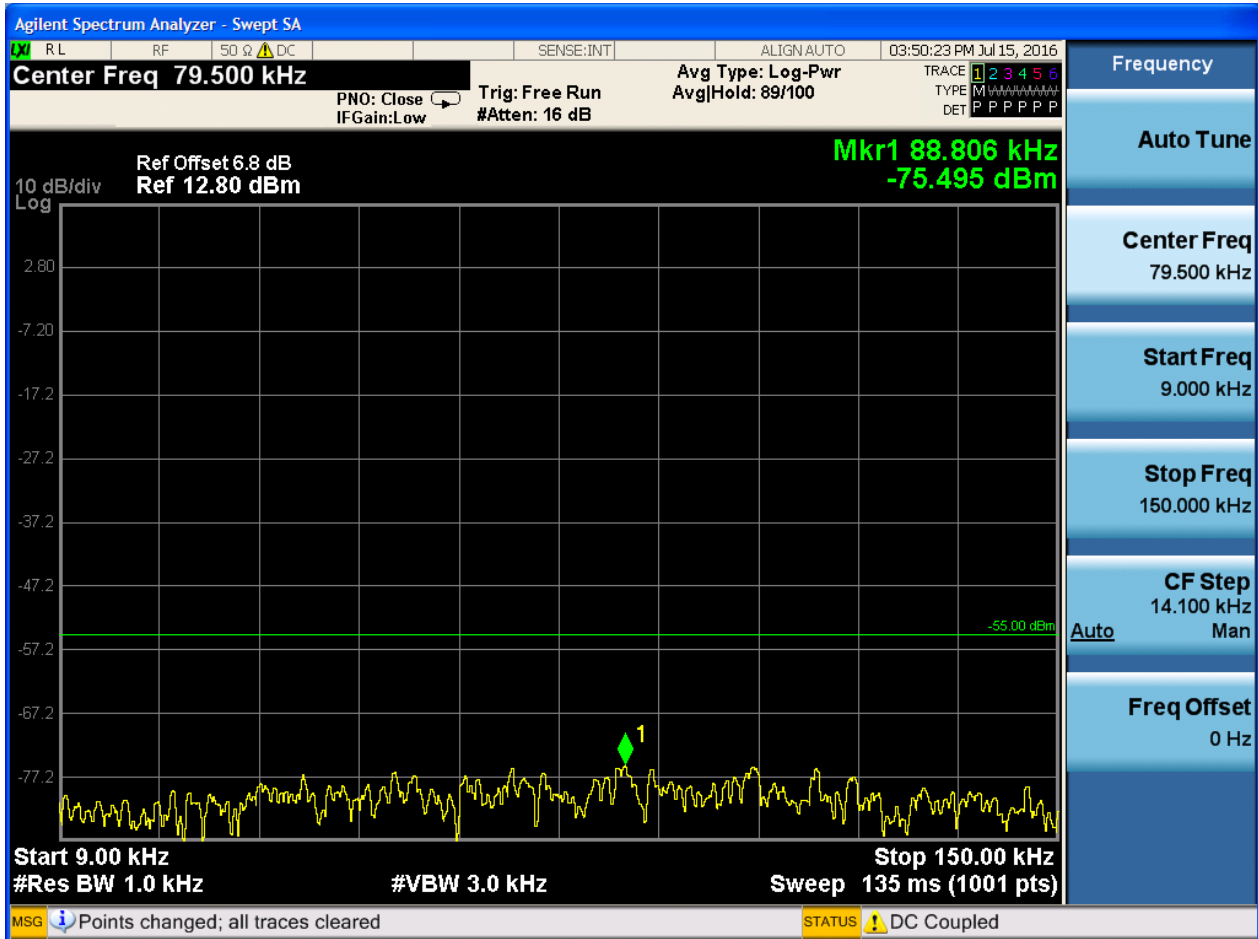


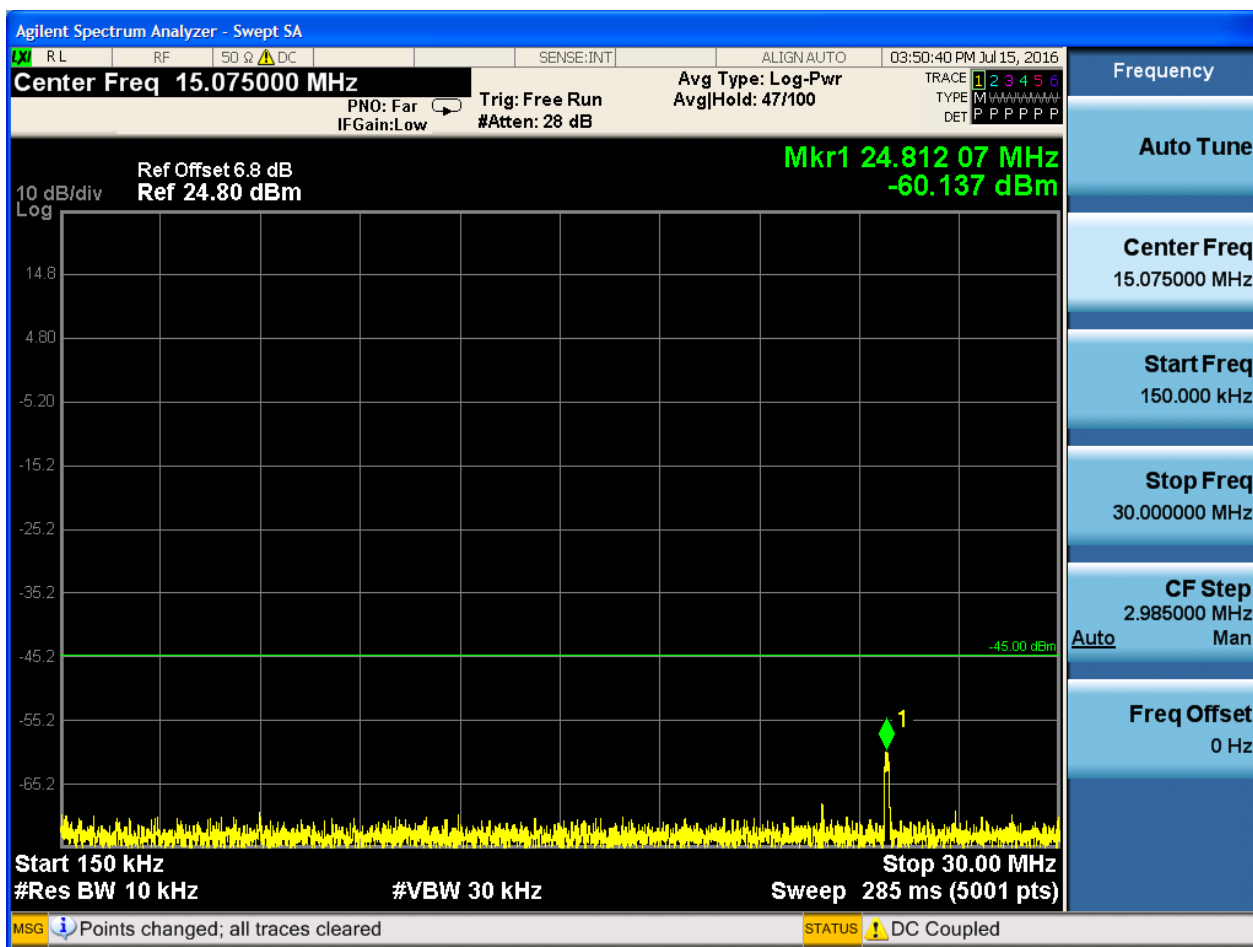




6.1.1.1.4.2 Test Channel = MCH

6.1.1.1.4.2.1 Test RB = RB1#0

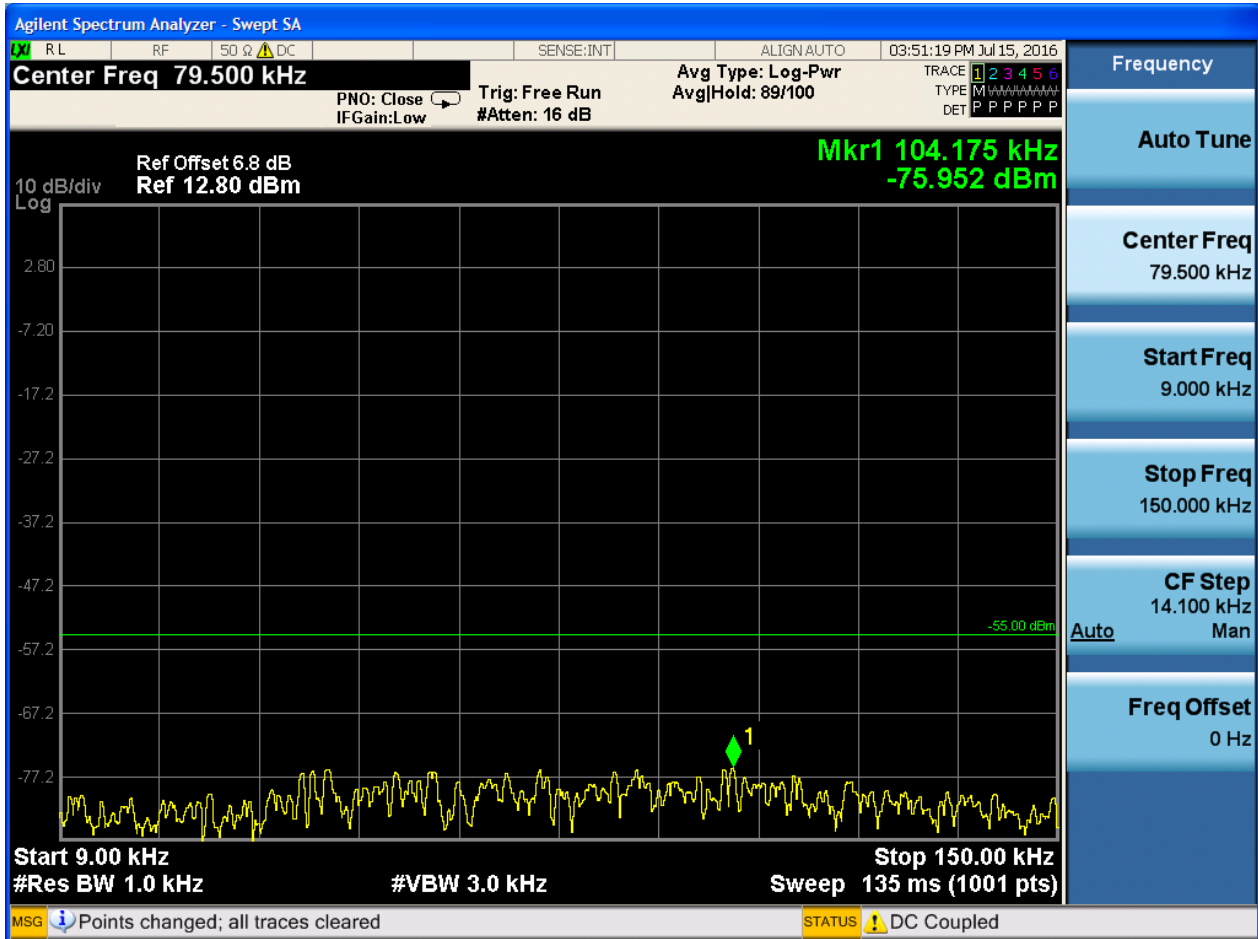


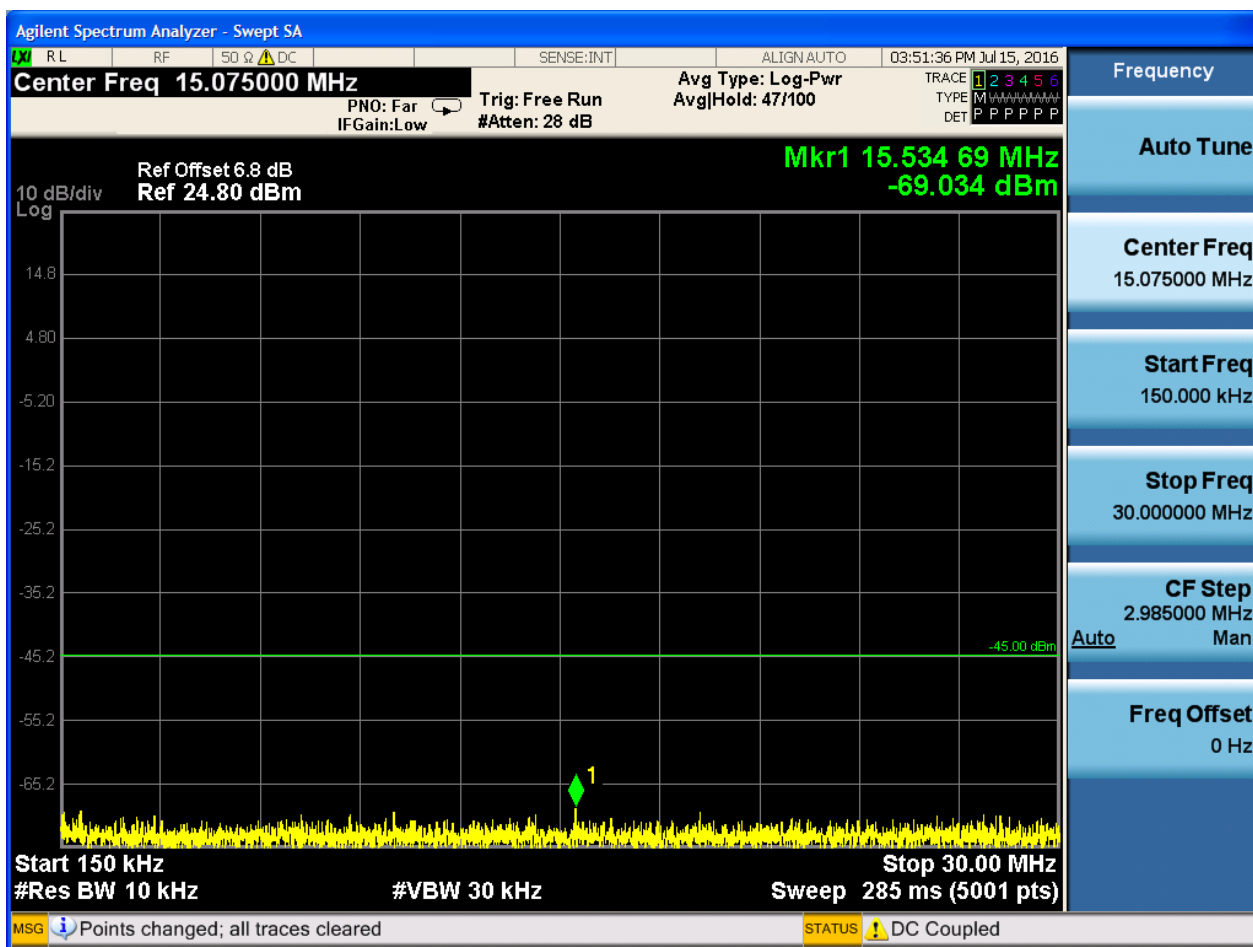


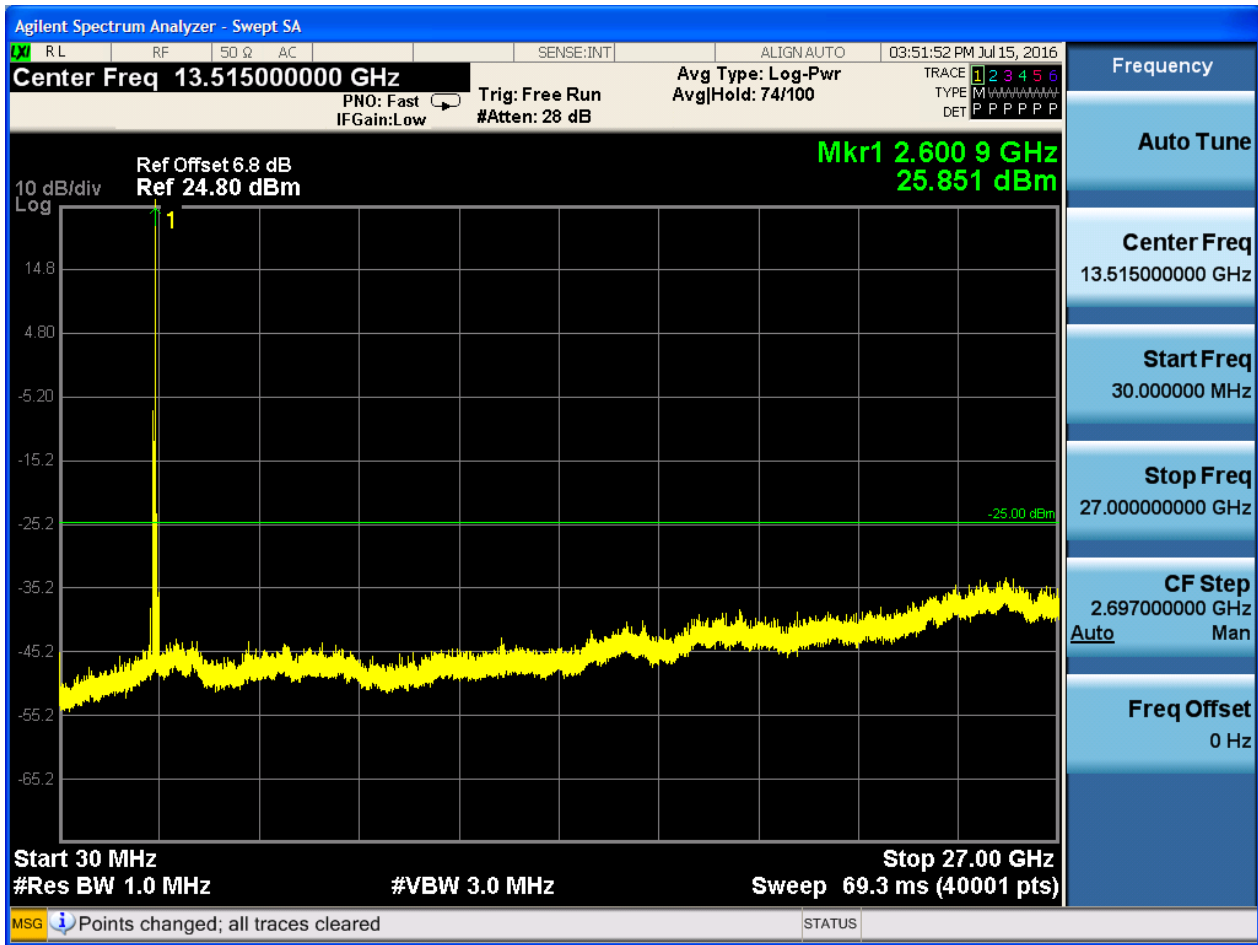


6.1.1.1.4.3 Test Channel = HCH

6.1.1.1.4.3.1 Test RB = RB1#0







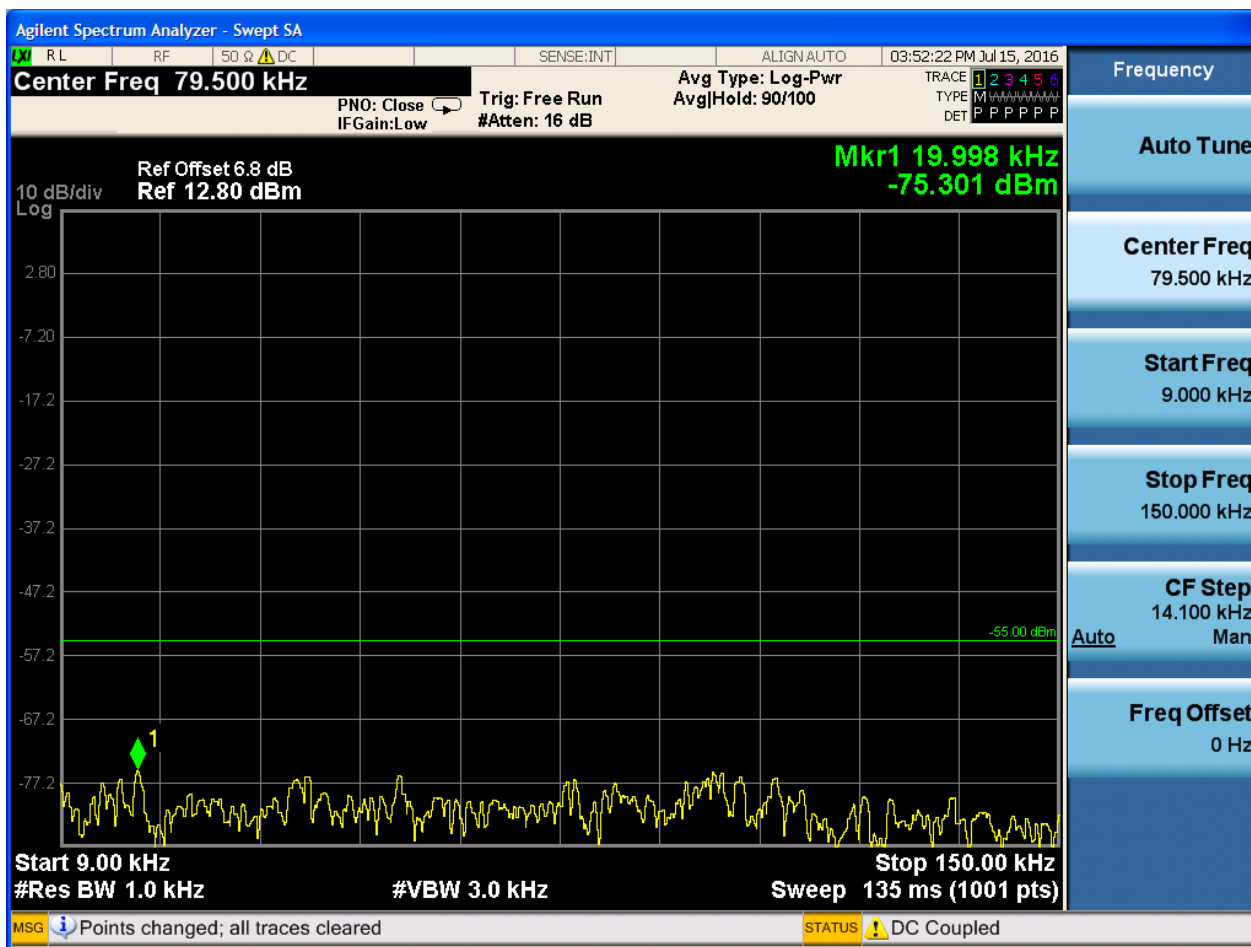


6.1.1.2 Test Mode = LTE/TM2

6.1.1.2.1 Test Bandwidth = 5

6.1.1.2.1.1 Test Channel = LCH

6.1.1.2.1.1.1 Test RB = RB1#0



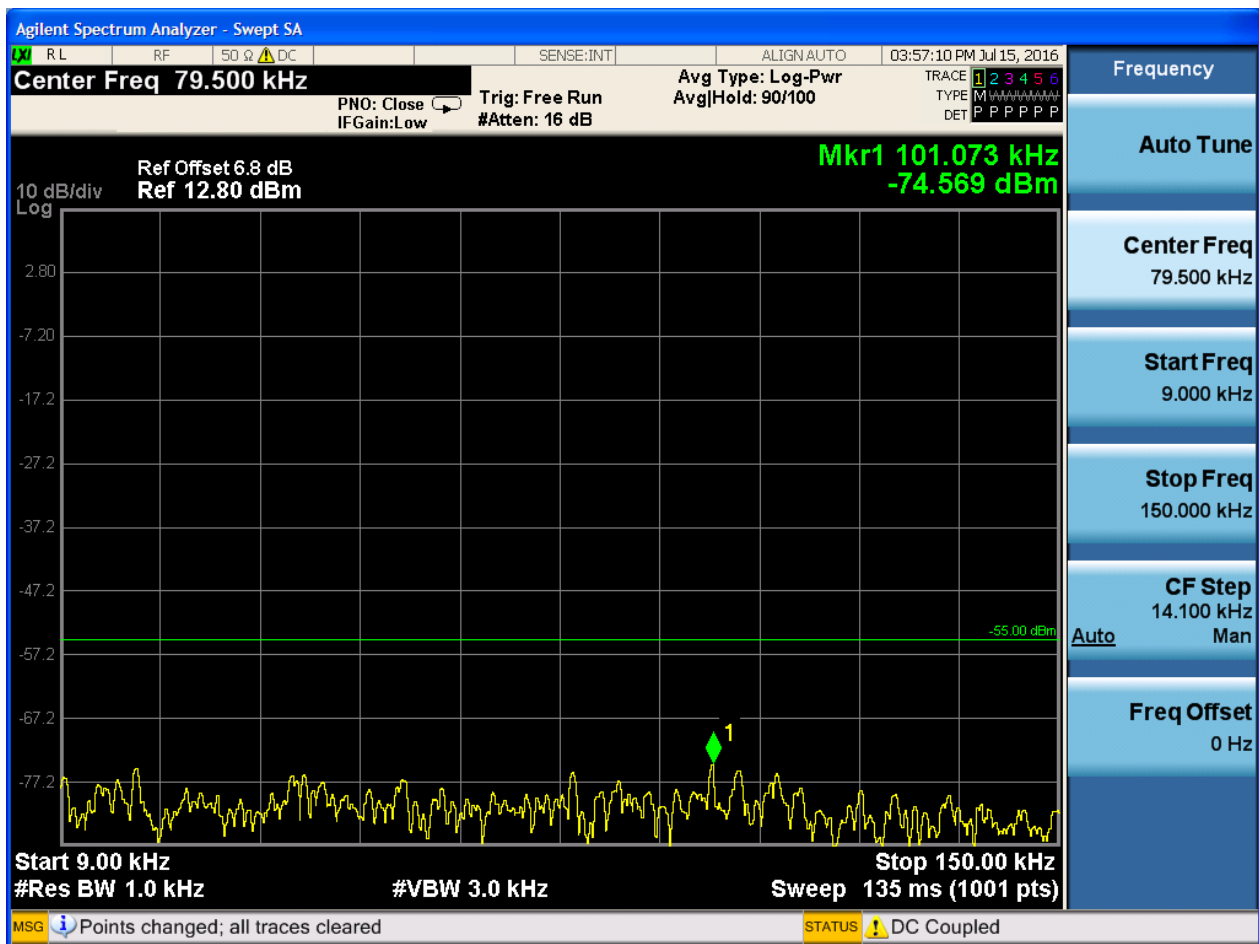


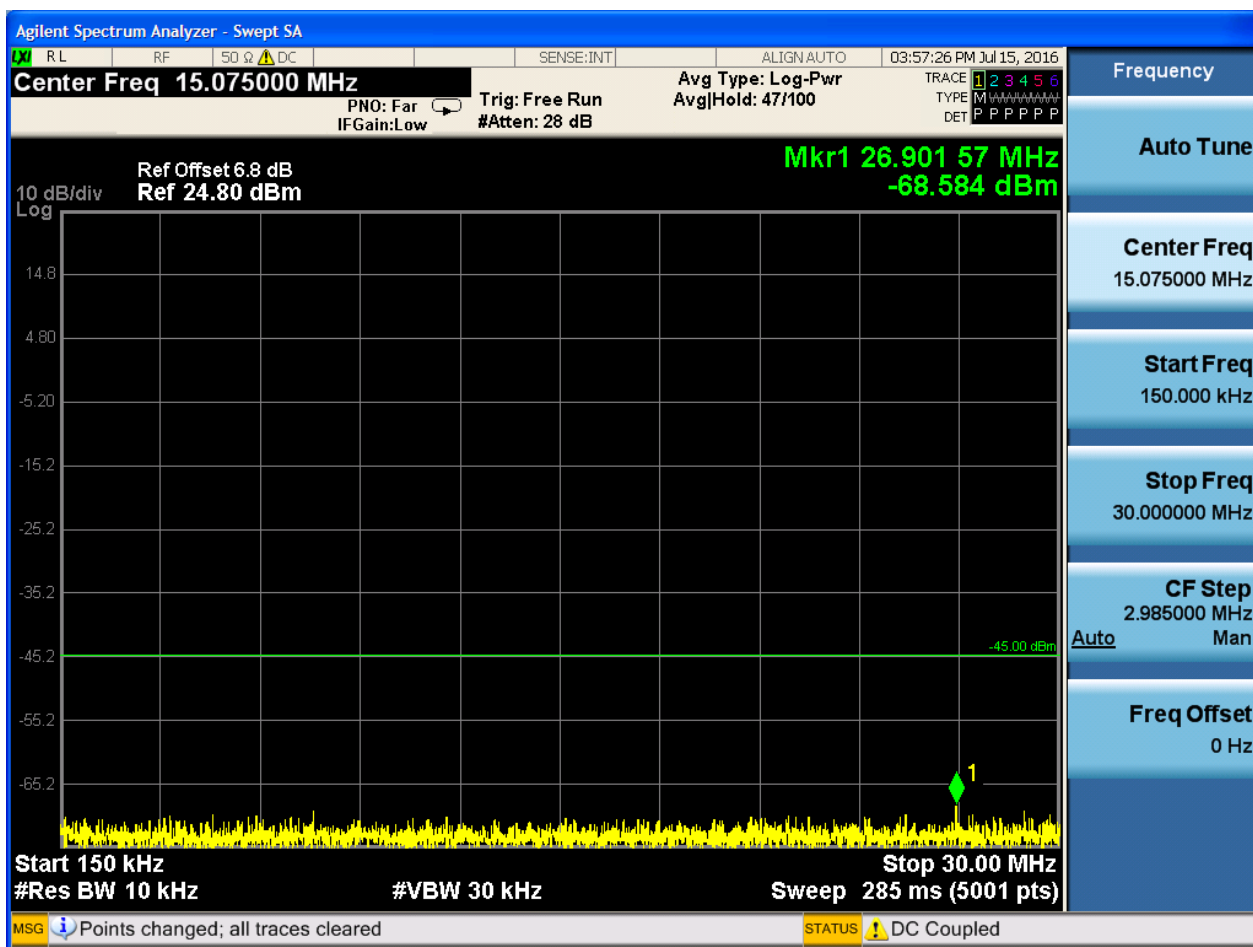




6.1.1.2.1.2 Test Channel = MCH

6.1.1.2.1.2.1 Test RB = RB1#0





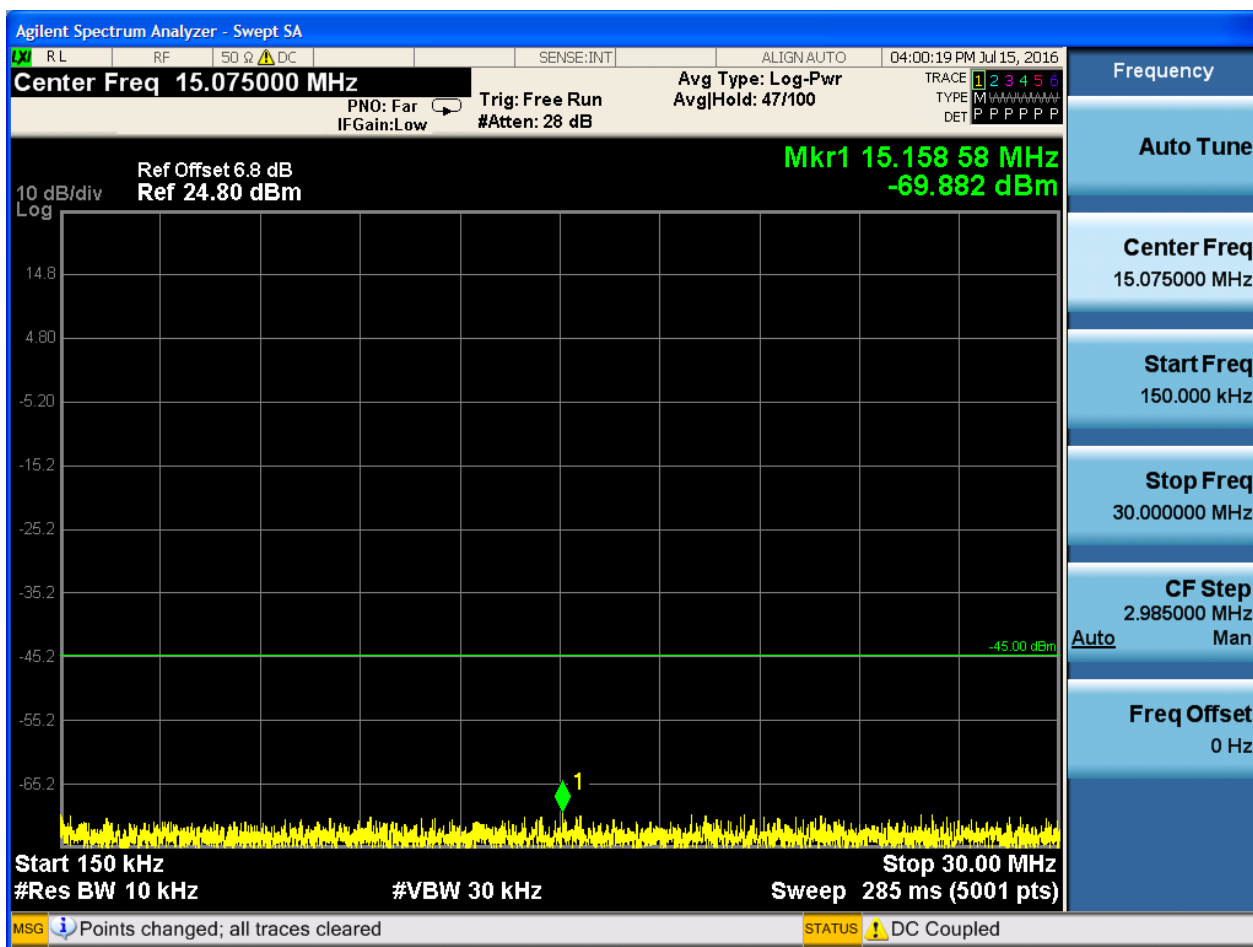


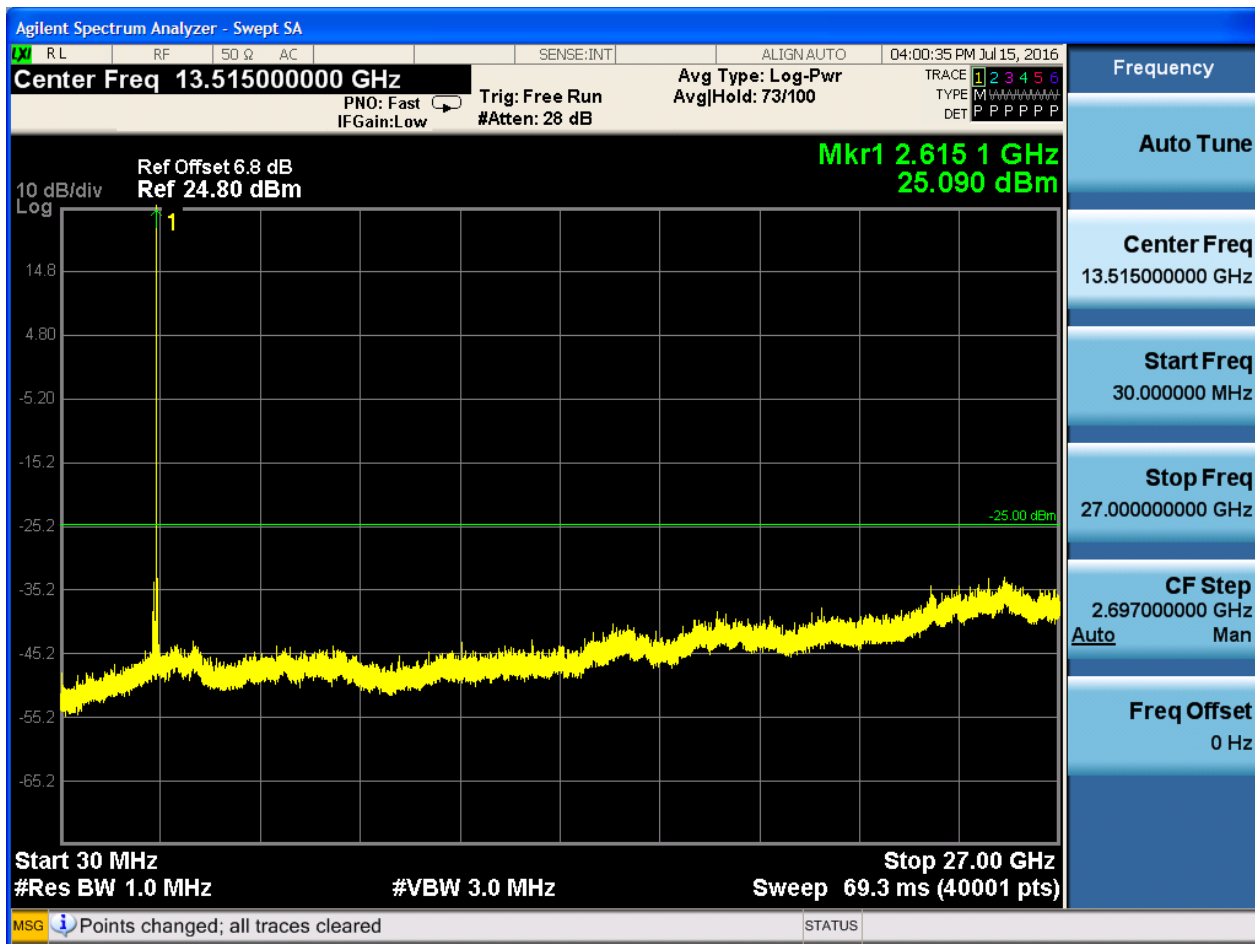


6.1.1.2.1.3 Test Channel = HCH

6.1.1.2.1.3.1 Test RB = RB1#0





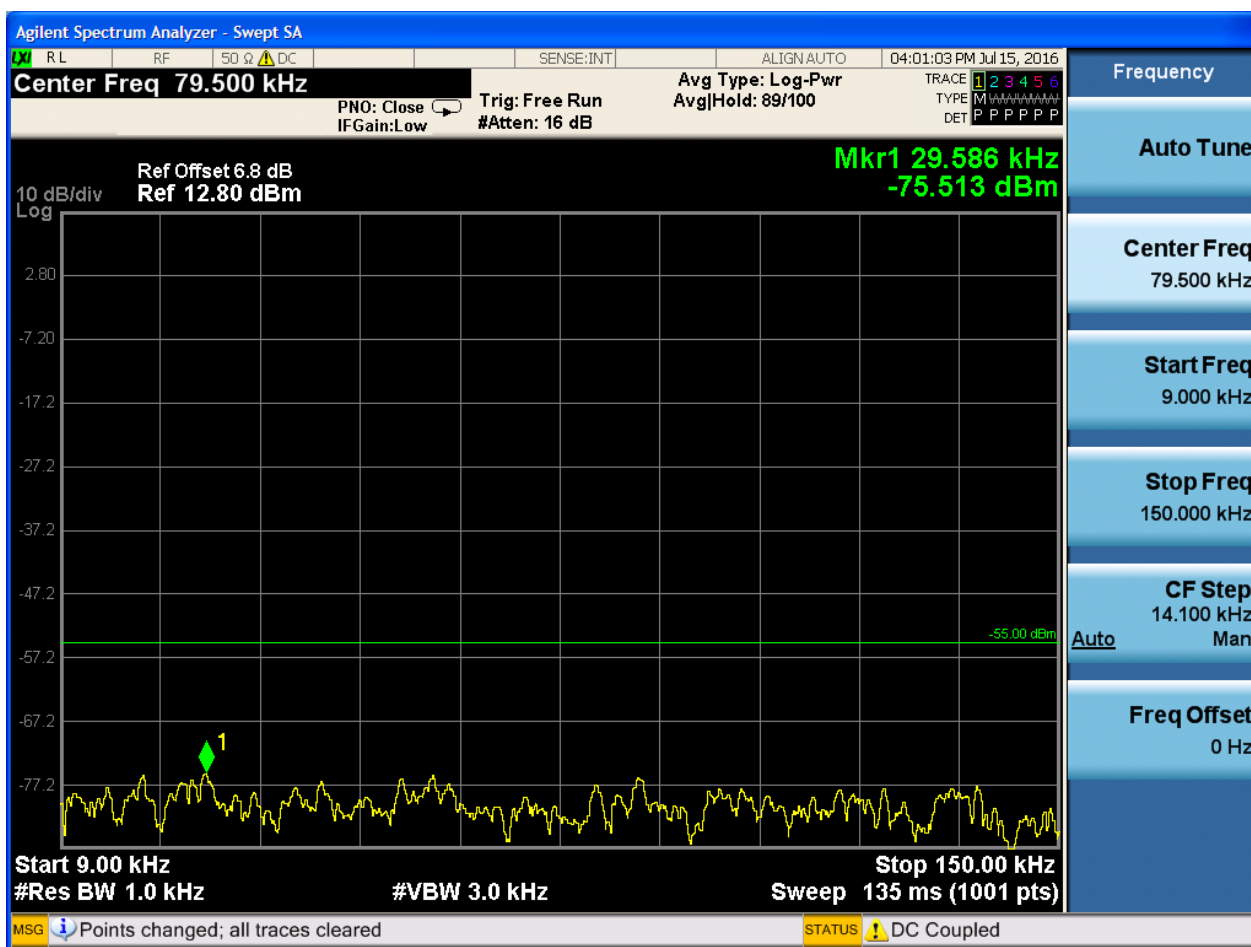




6.1.1.2.2 Test Bandwidth = 10

6.1.1.2.2.1 Test Channel = LCH

6.1.1.2.2.1.1 Test RB = RB1#0





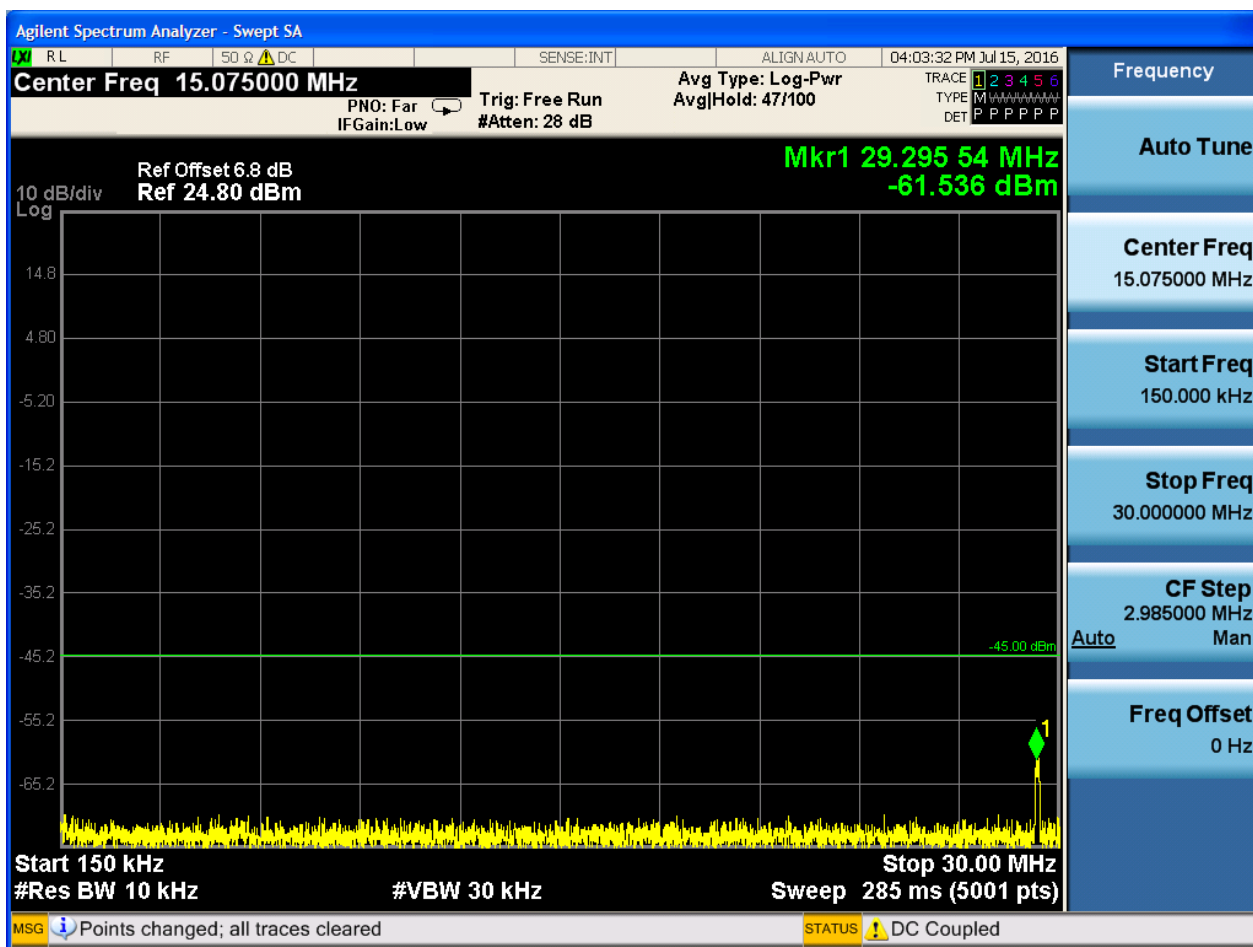




6.1.1.2.2.2 Test Channel = MCH

6.1.1.2.2.2.1 Test RB = RB1#0

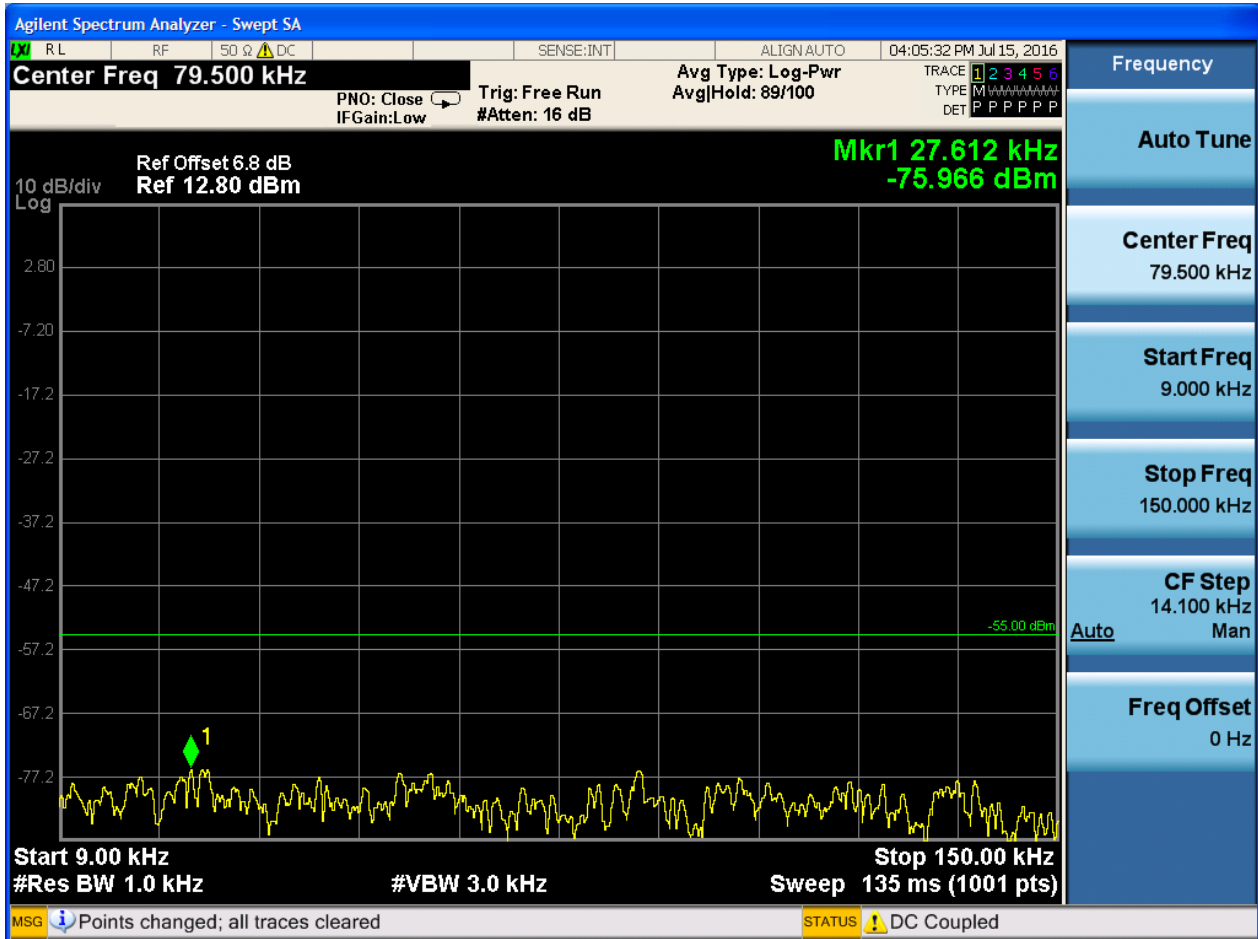


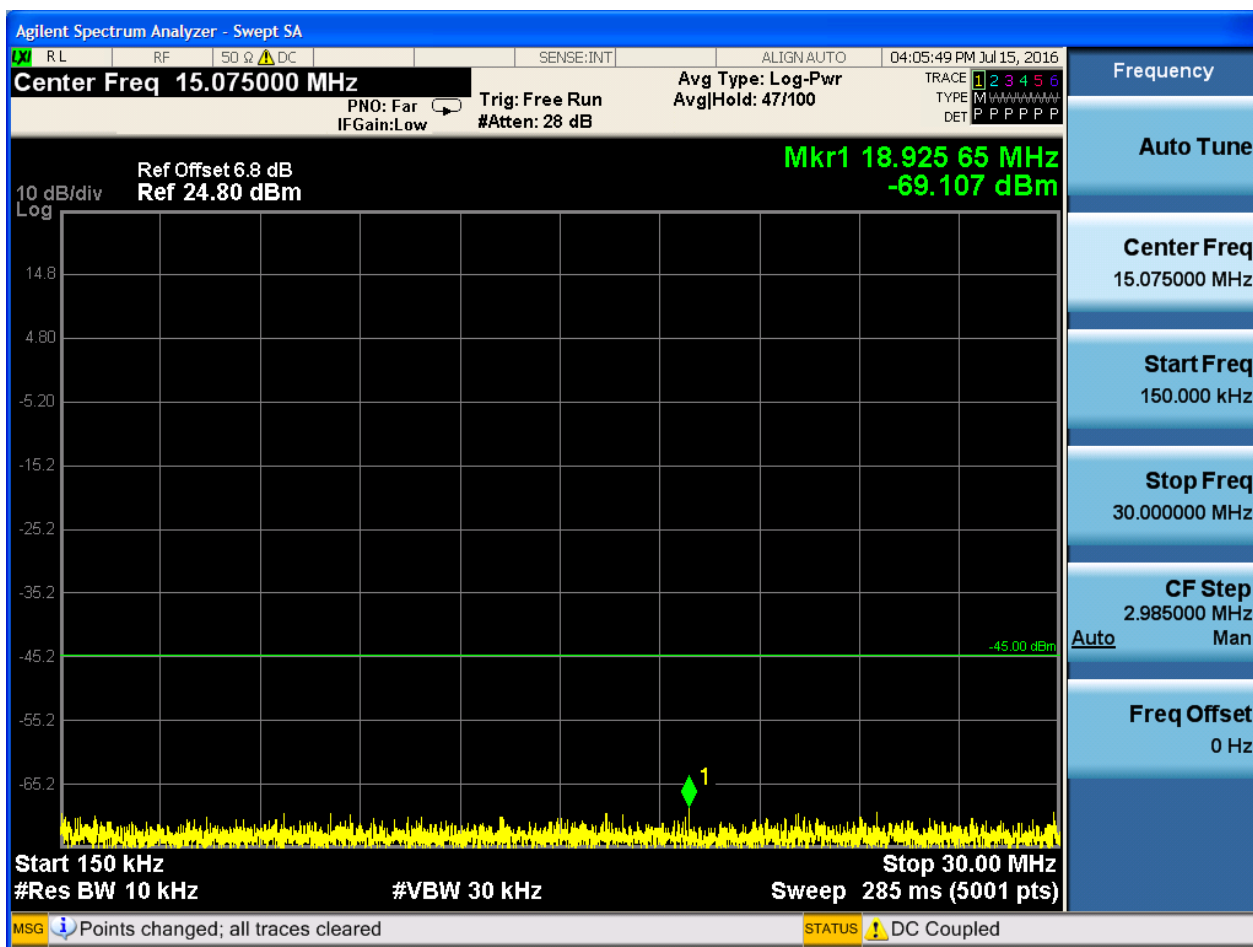


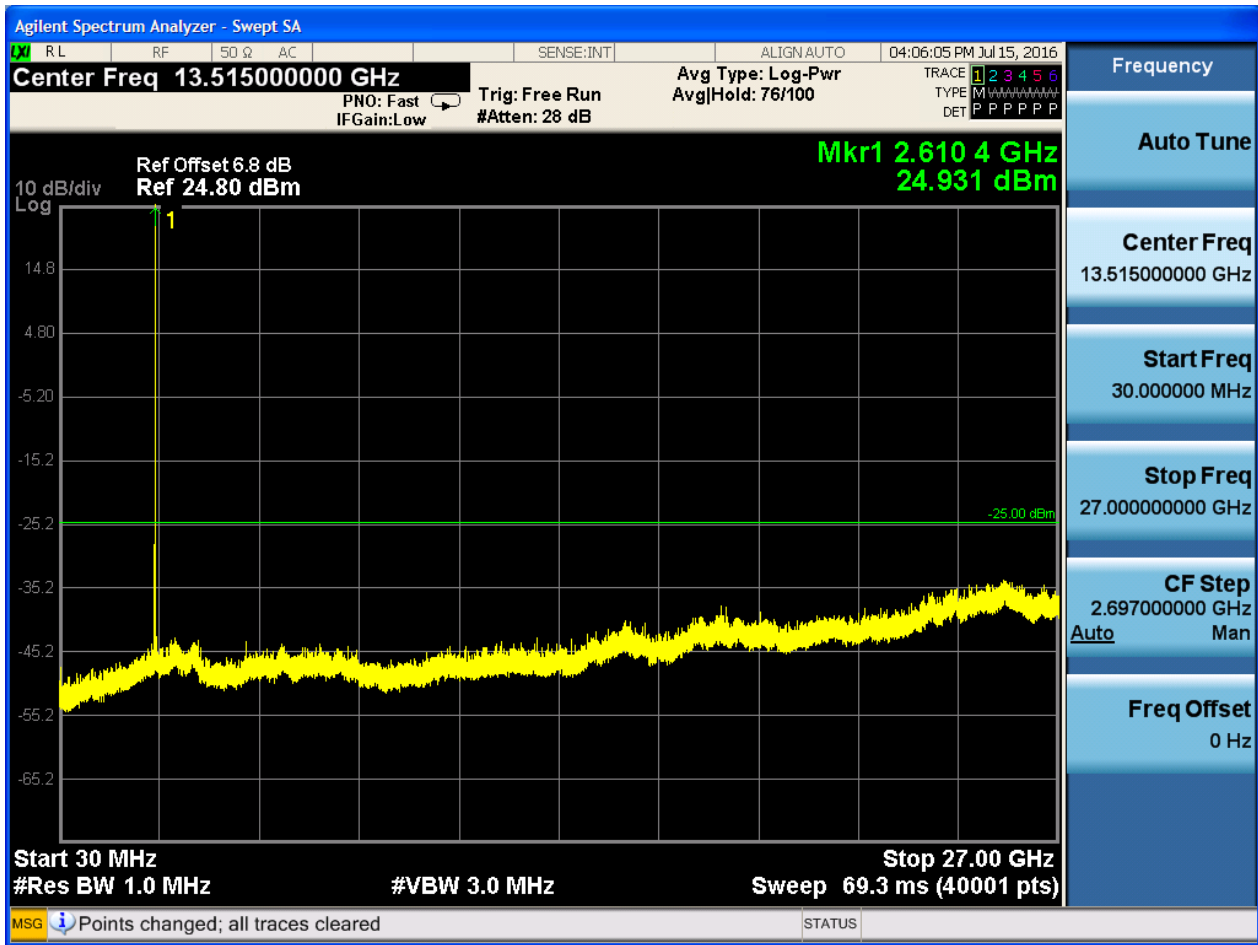


6.1.1.2.2.3 Test Channel = HCH

6.1.1.2.2.3.1 Test RB = RB1#0







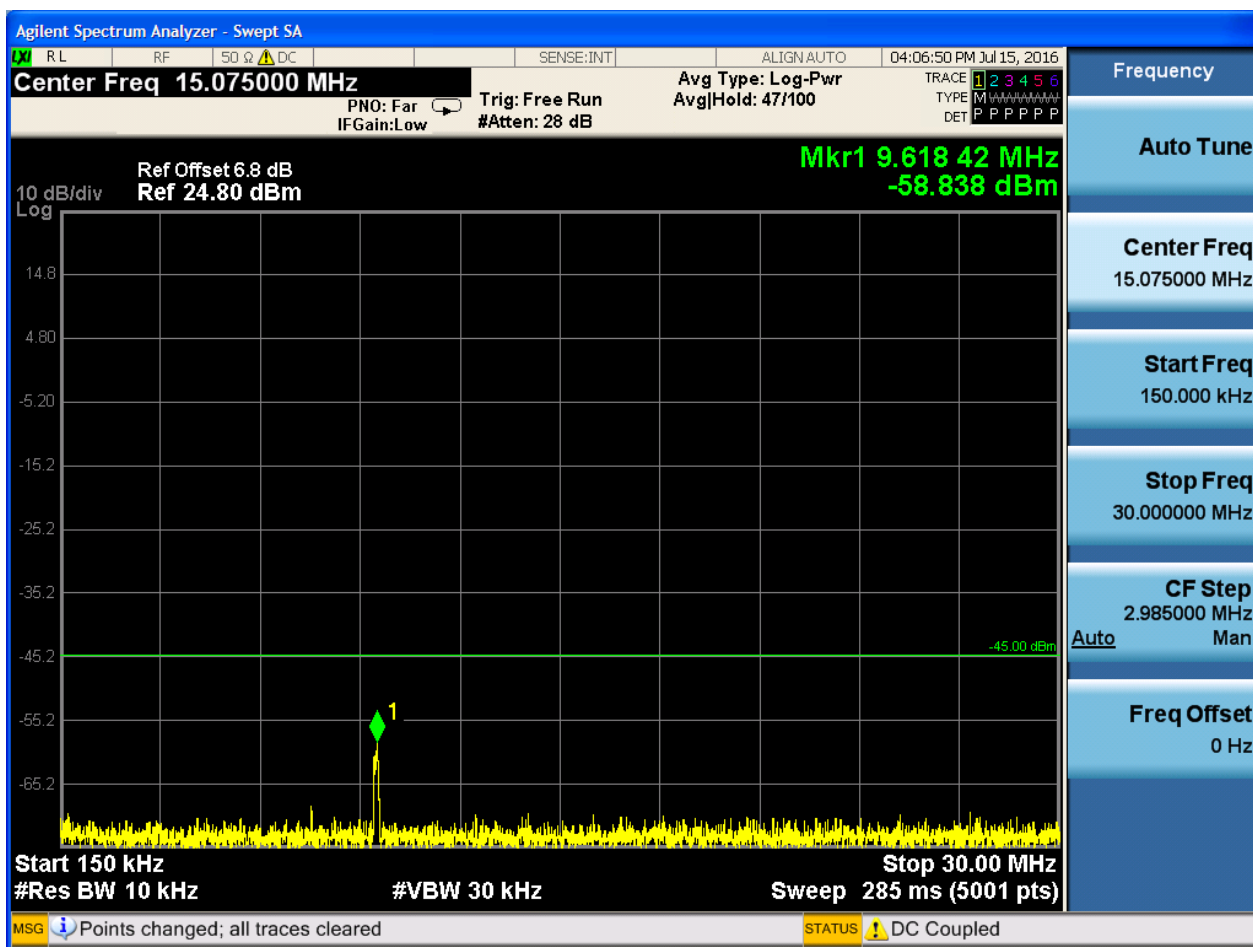


6.1.1.2.3 Test Bandwidth = 15

6.1.1.2.3.1 Test Channel = LCH

6.1.1.2.3.1.1 Test RB = RB1#0





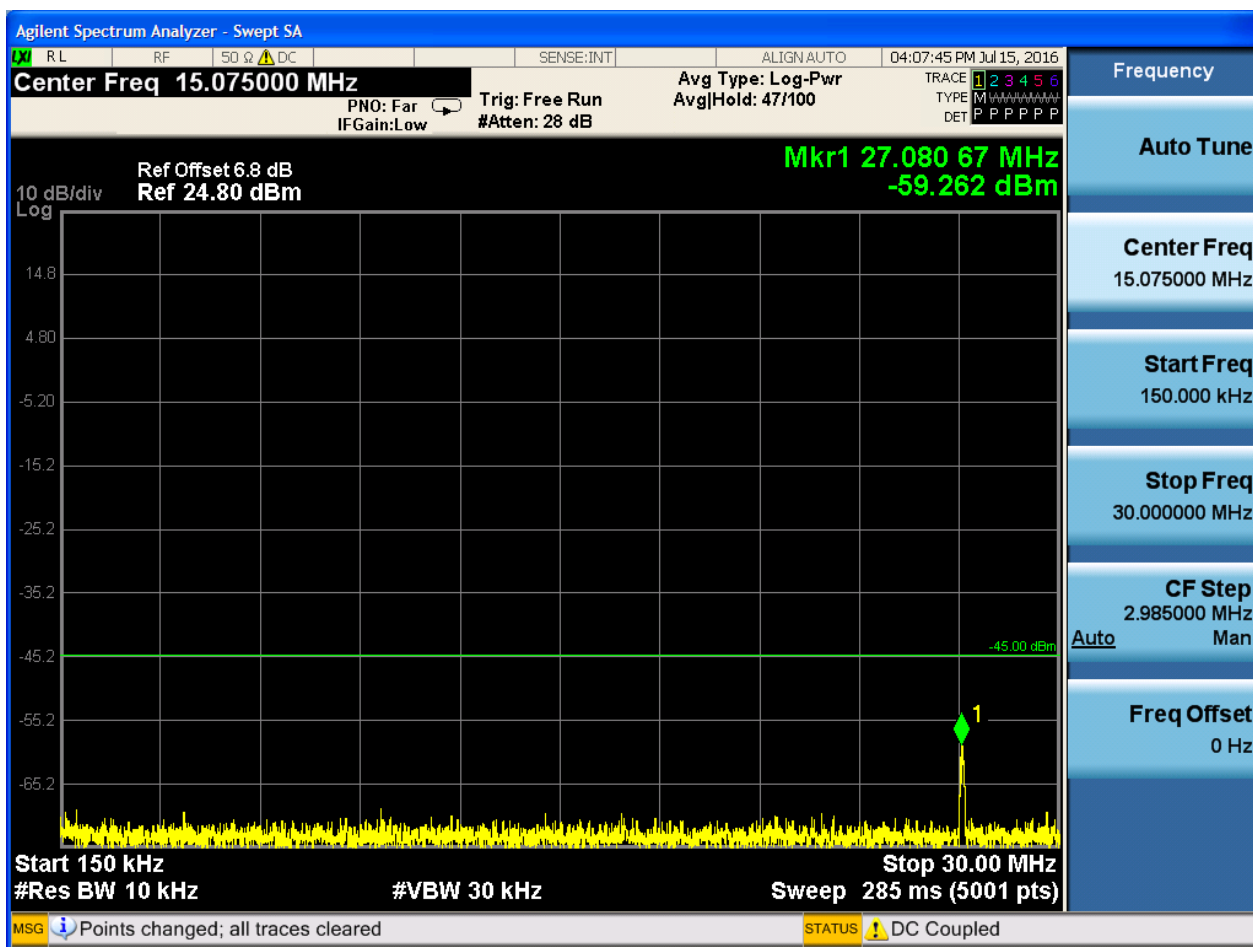




6.1.1.2.3.2 Test Channel = MCH

6.1.1.2.3.2.1 Test RB = RB1#0





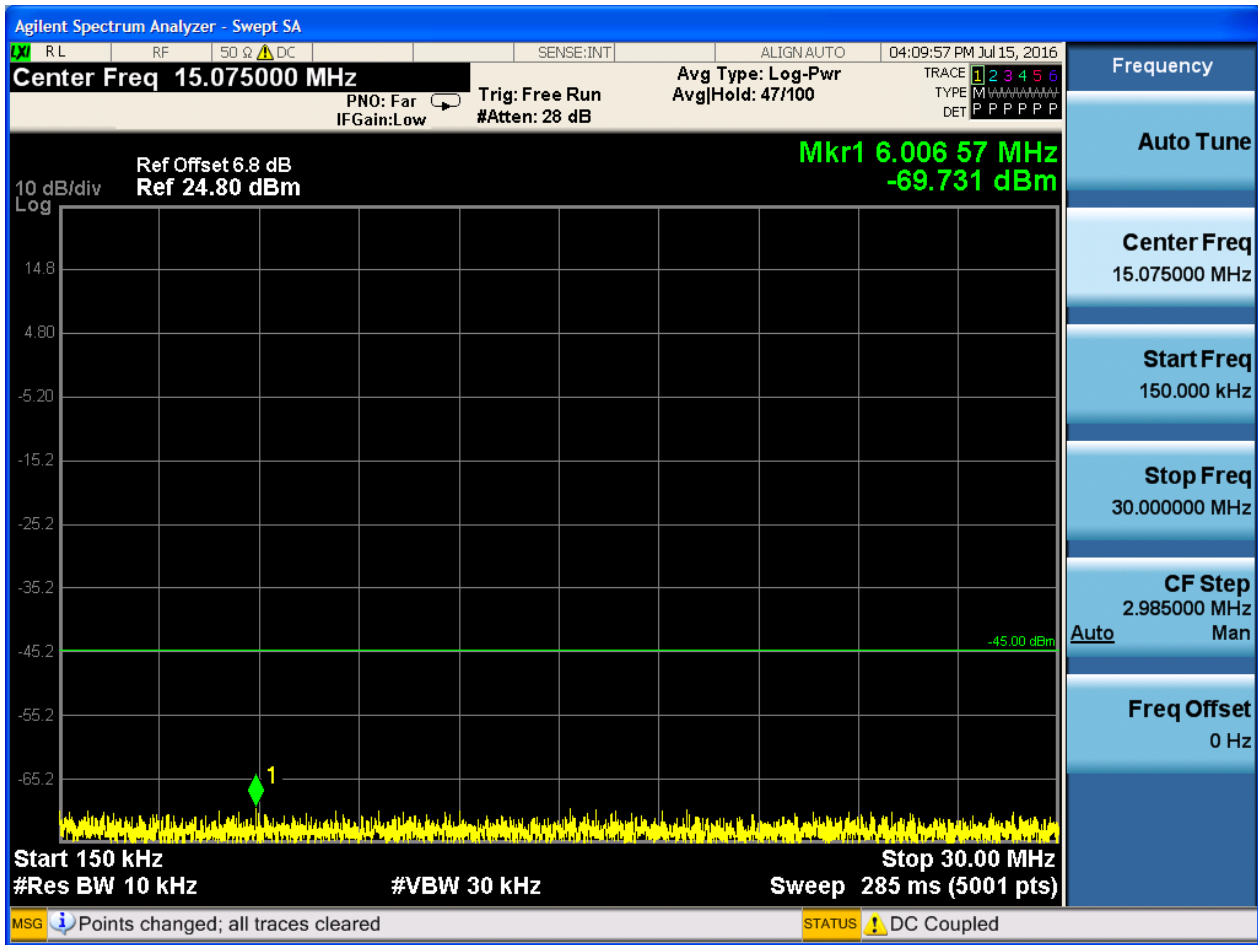


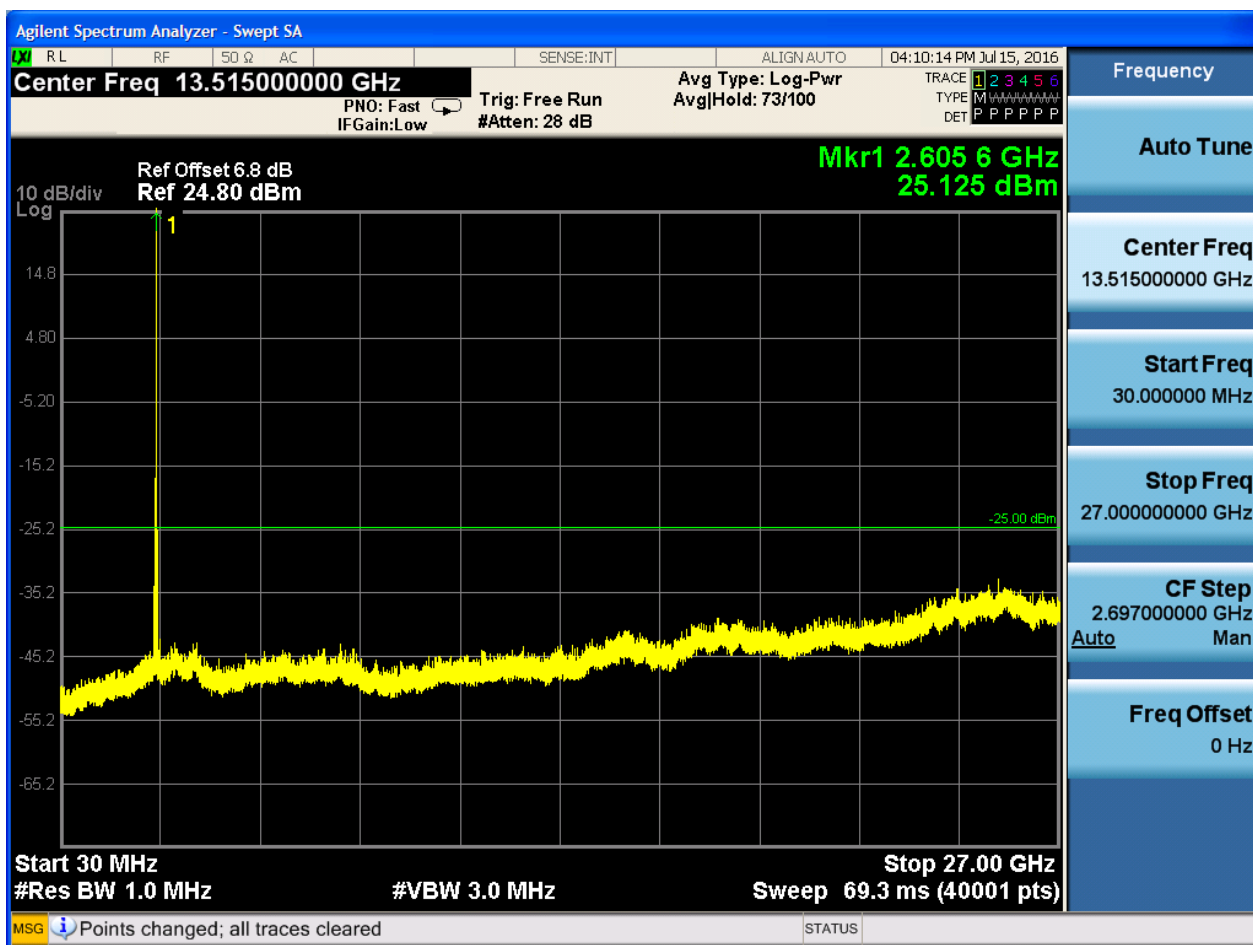


6.1.1.2.3.3 Test Channel = HCH

6.1.1.2.3.3.1 Test RB = RB1#0





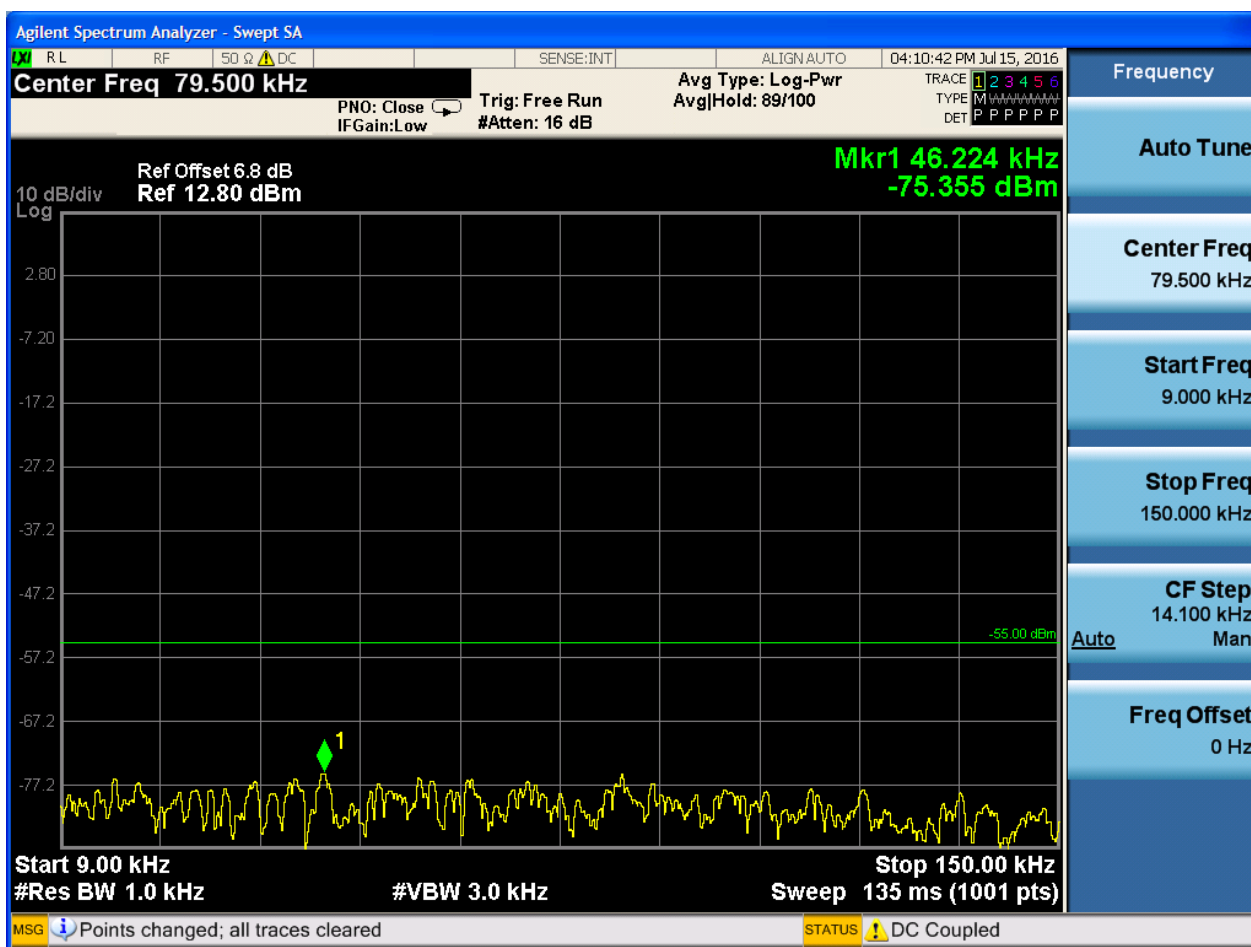




6.1.1.2.4 Test Bandwidth = 20

6.1.1.2.4.1 Test Channel = LCH

6.1.1.2.4.1.1 Test RB = RB1#0



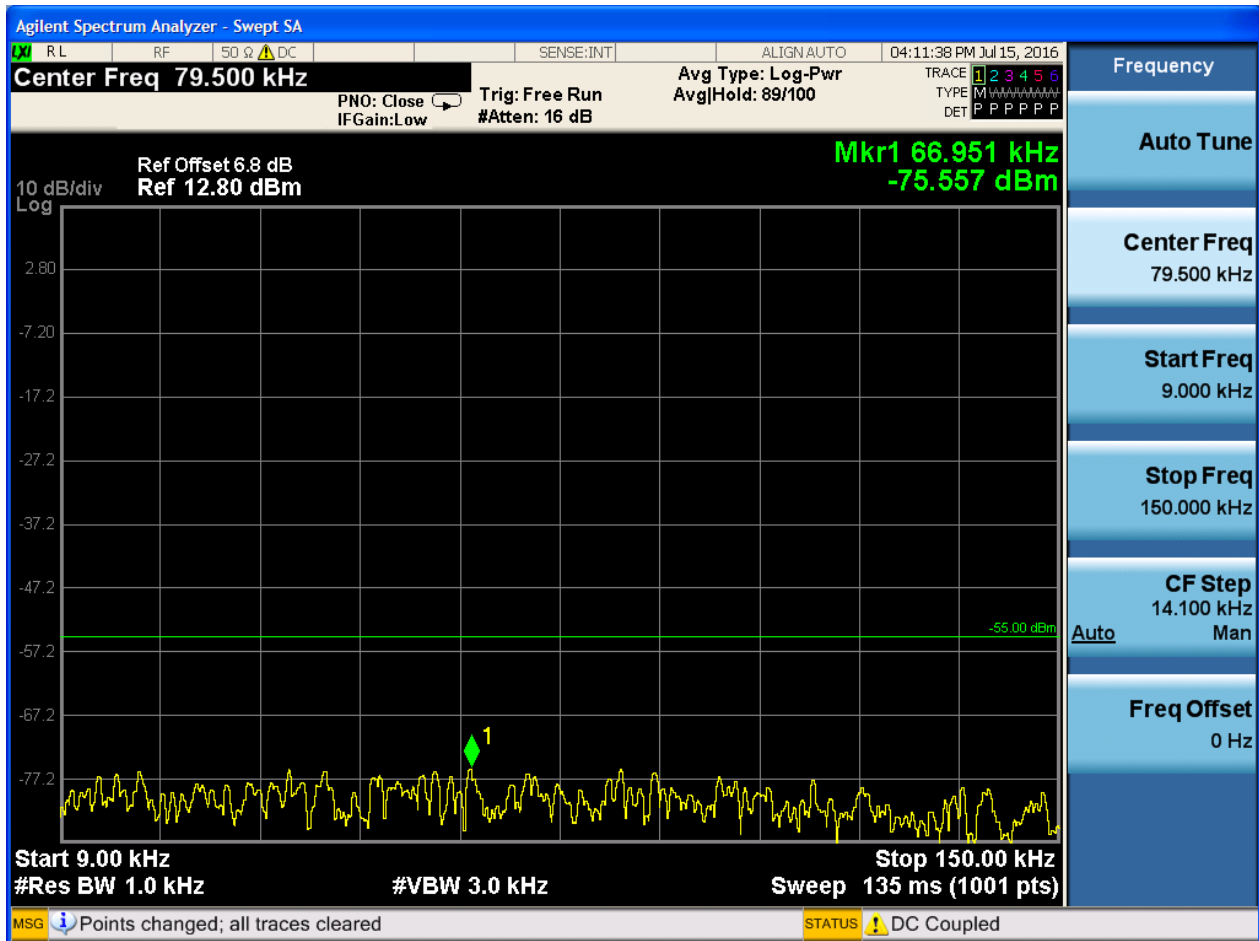


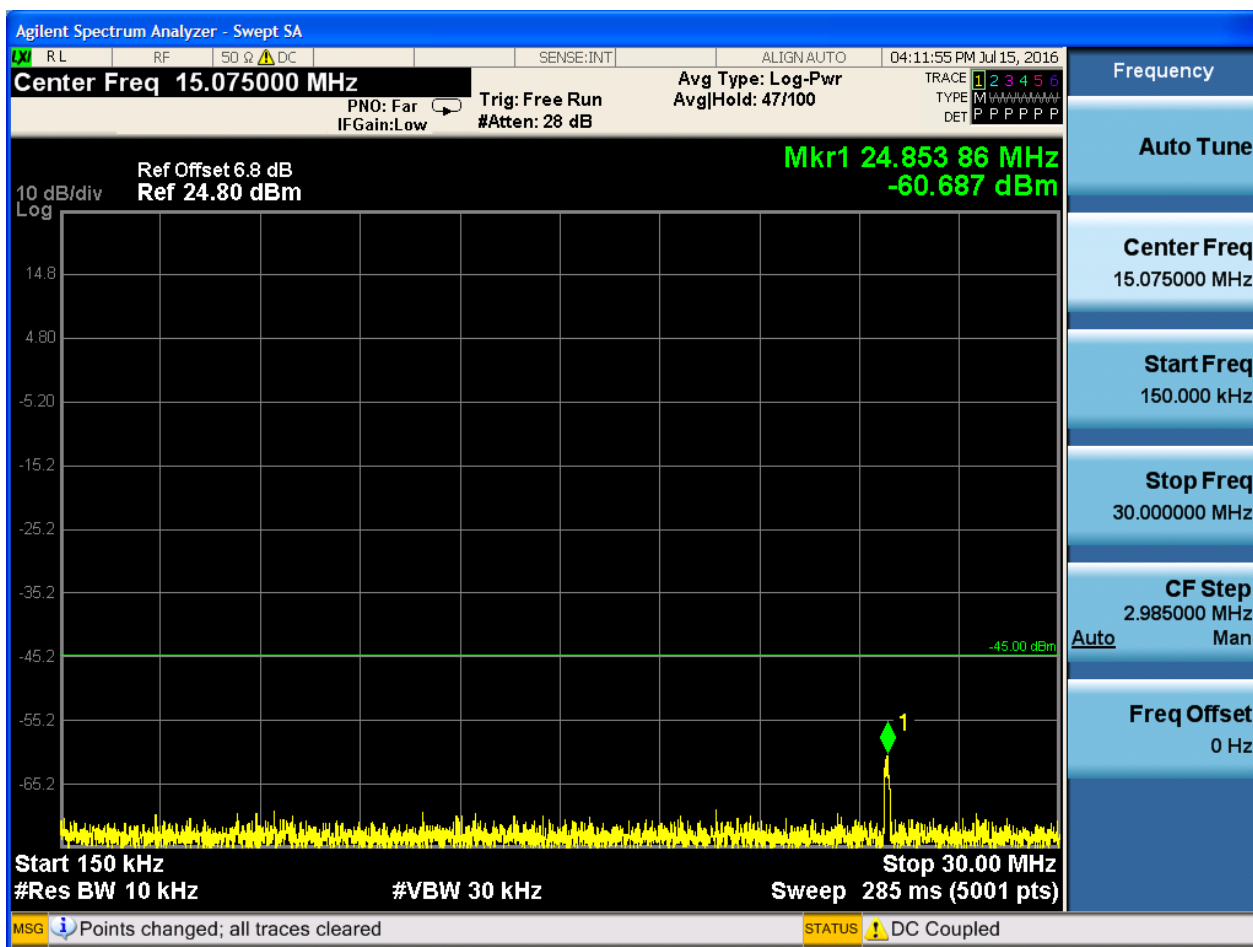




6.1.1.2.4.2 Test Channel = MCH

6.1.1.2.4.2.1 Test RB = RB1#0



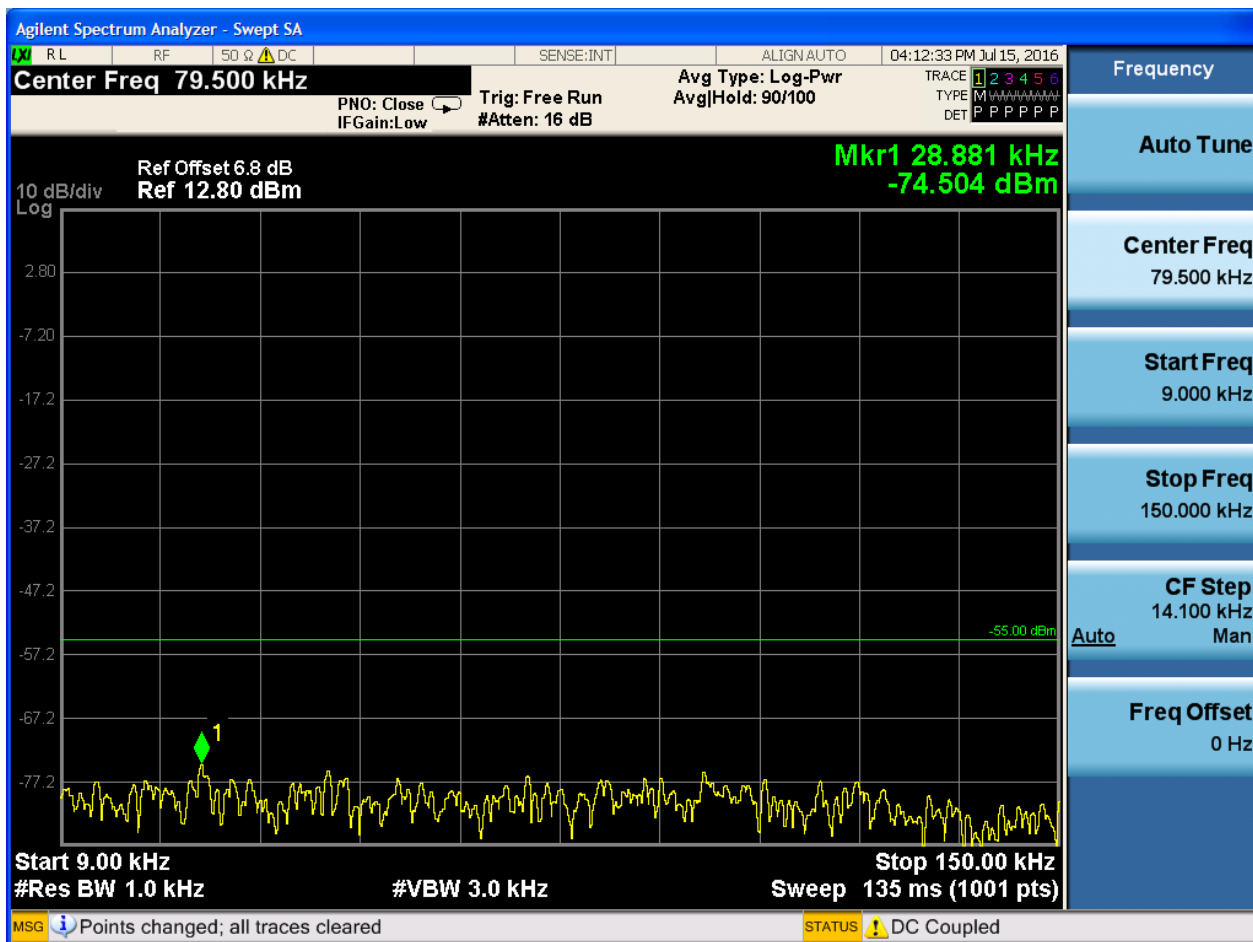




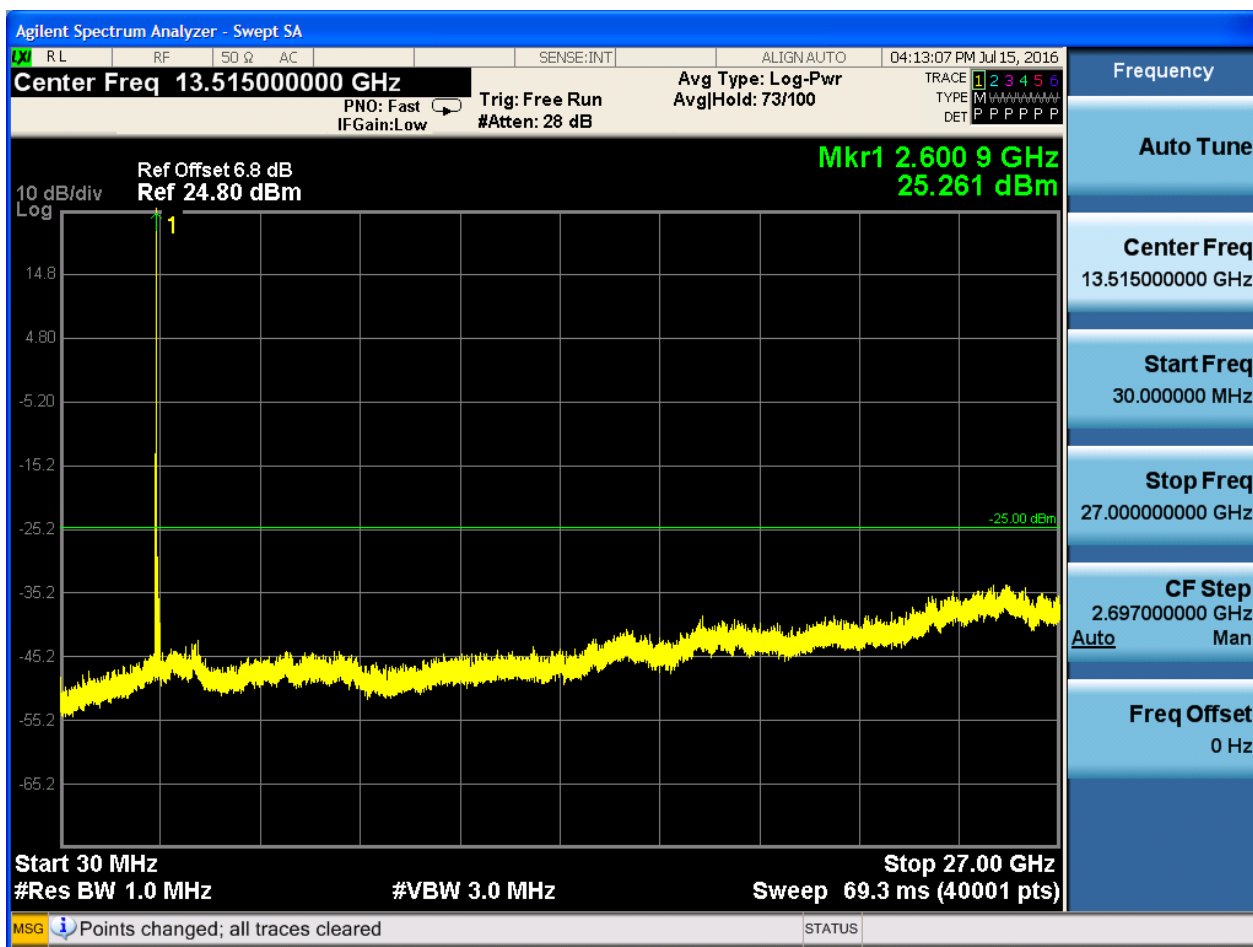


6.1.1.2.4.3 Test Channel = HCH

6.1.1.2.4.3.1 Test RB = RB1#0







7Appendix_G: Field Strength of Spurious Radiation

Note: We tested all modes, but the data presented below is the worst case.

9kHz~150kHz, VBW = 200Hz, VBW = 600 Hz, Detector: PK

150kHz~30MHz, VBW = 9kHz, VBW = 30k Hz, Detector: PK

30MHz~1GHz, RBW = 100 kHz, VBW = 300 kHz. Detector: PK

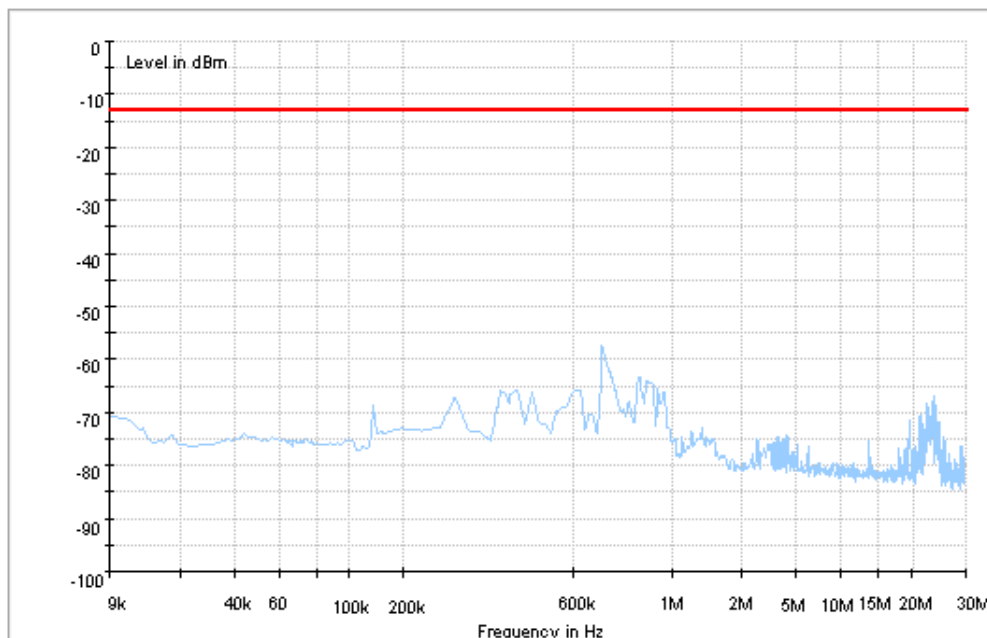
Above 1GHz, RBW = 1 MHz, VBW = 3 MHz. Detector: PK

Part I - Test Plots

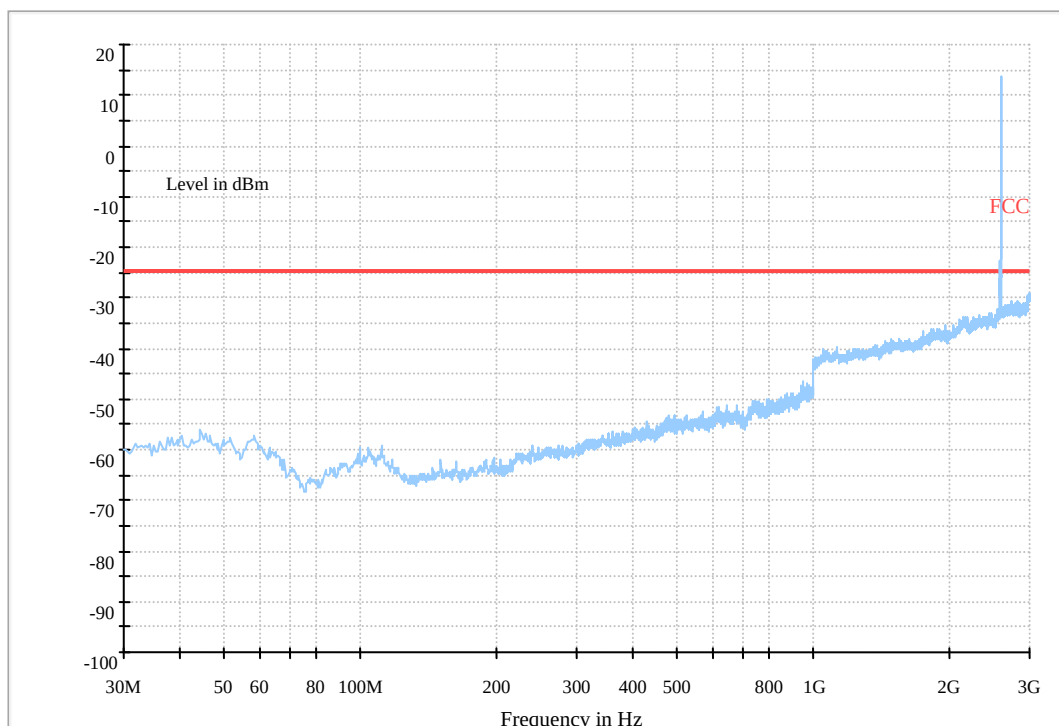
7.1 For LTE

7.1.1 Test Band = BAND38_Ant1

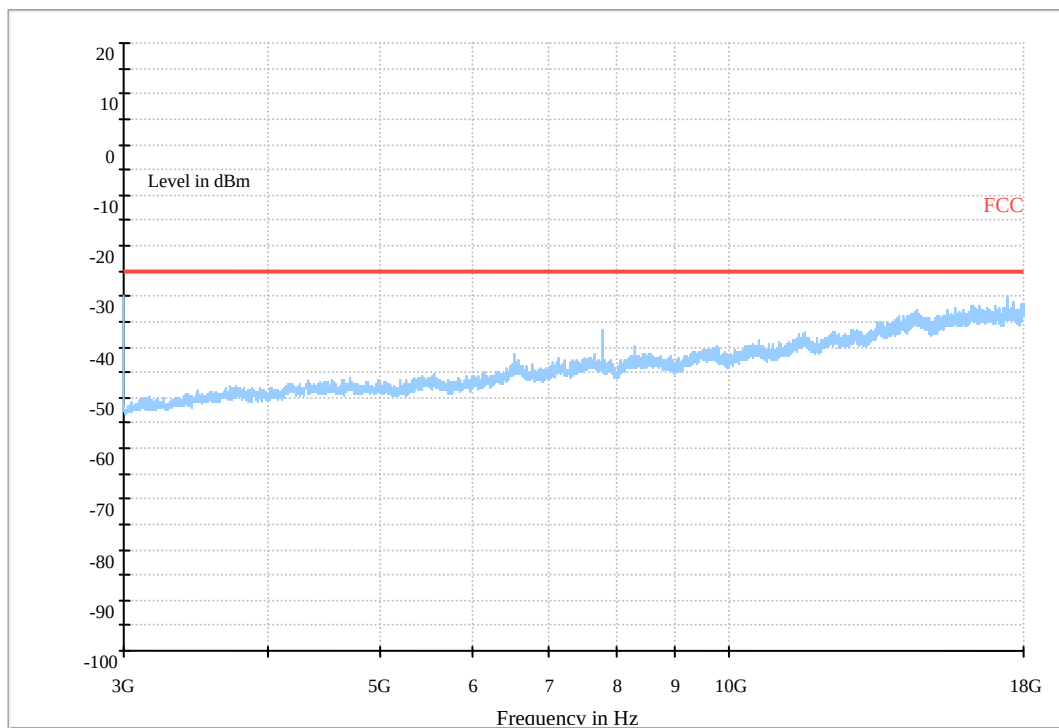
7.1.1.1 Test Bandwidth = 5

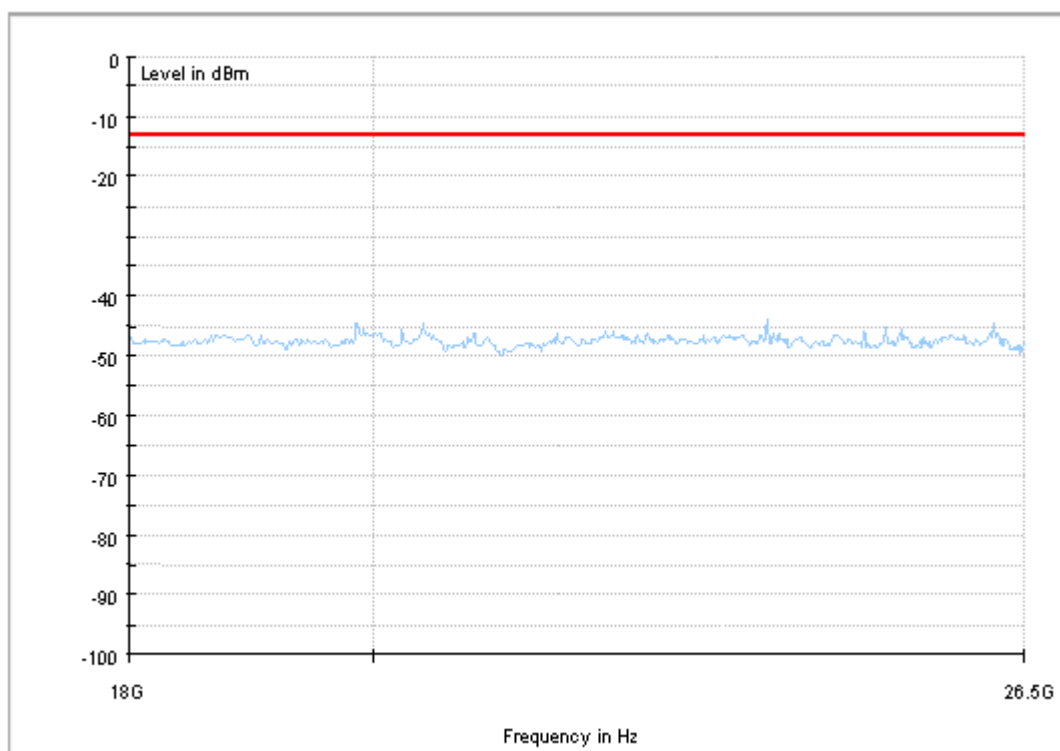


Copy of RSE-TX-DIRECTOR ABOVE 1.5G_L

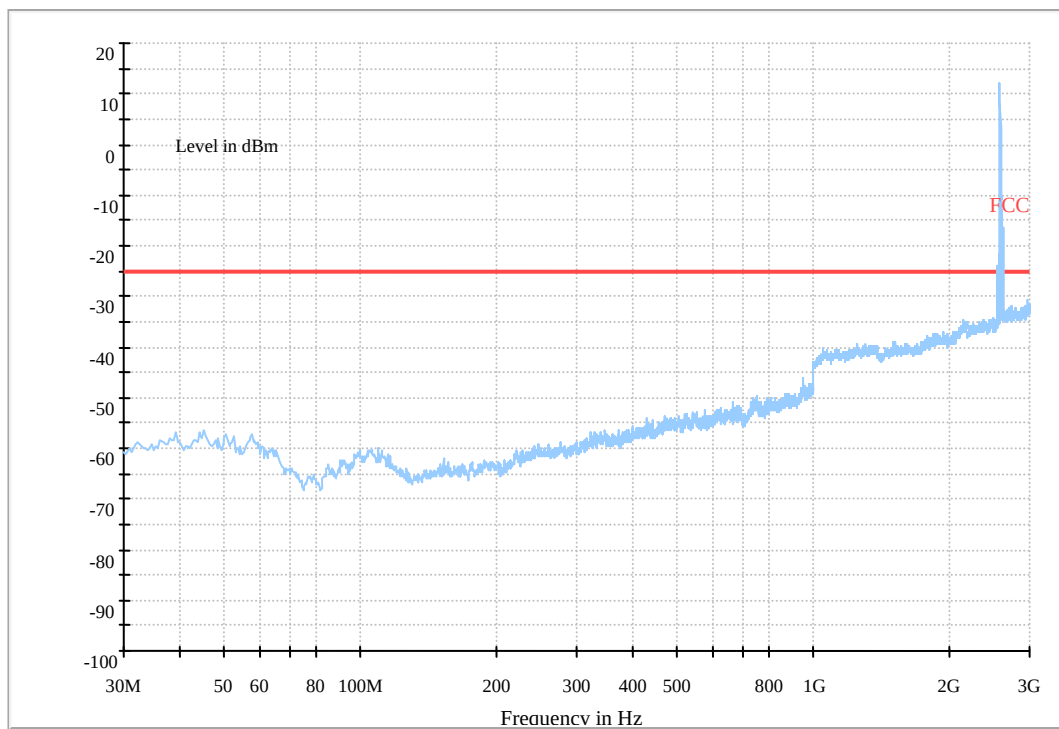
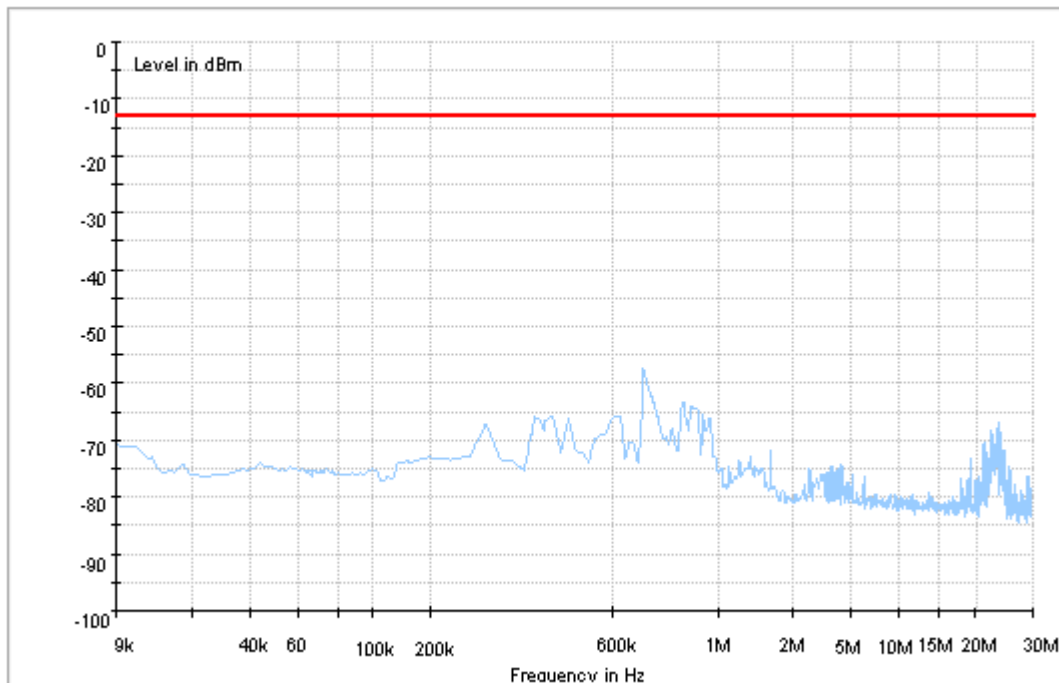


Copy of RSE-TX-DIRECTOR ABOVE 1.5G_H

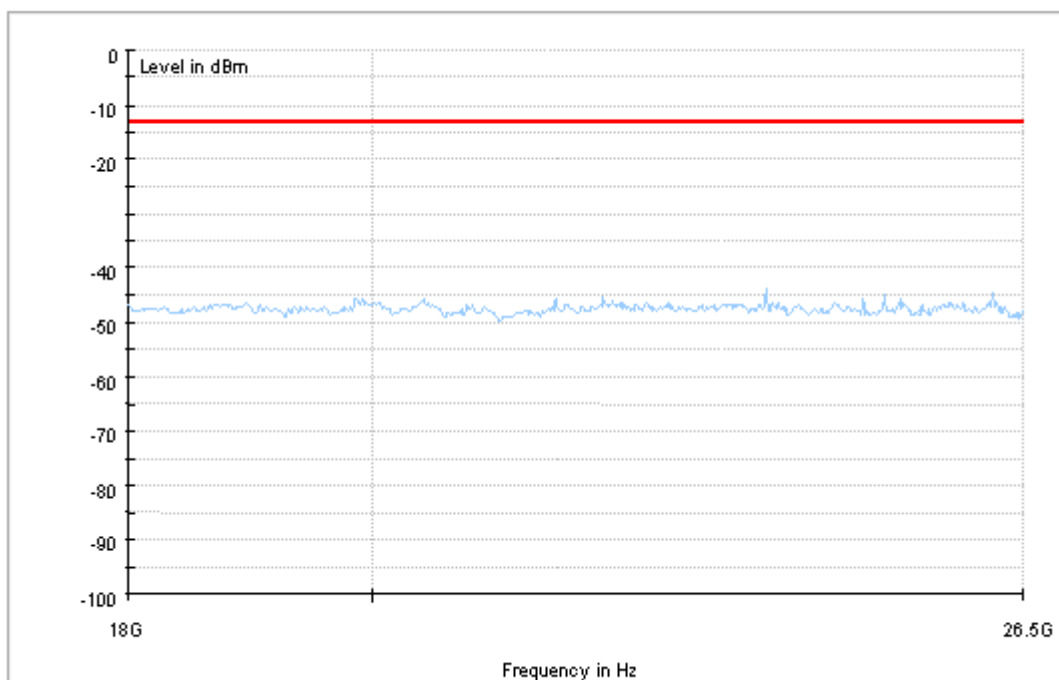
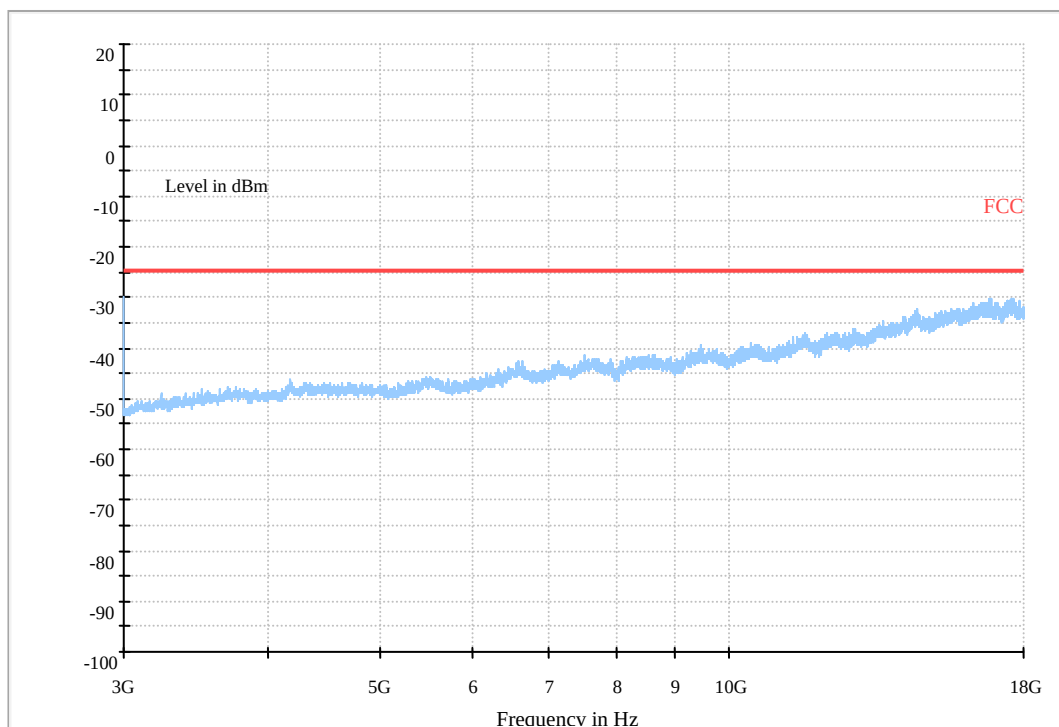




7.1.1.2 Test Bandwidth = 20

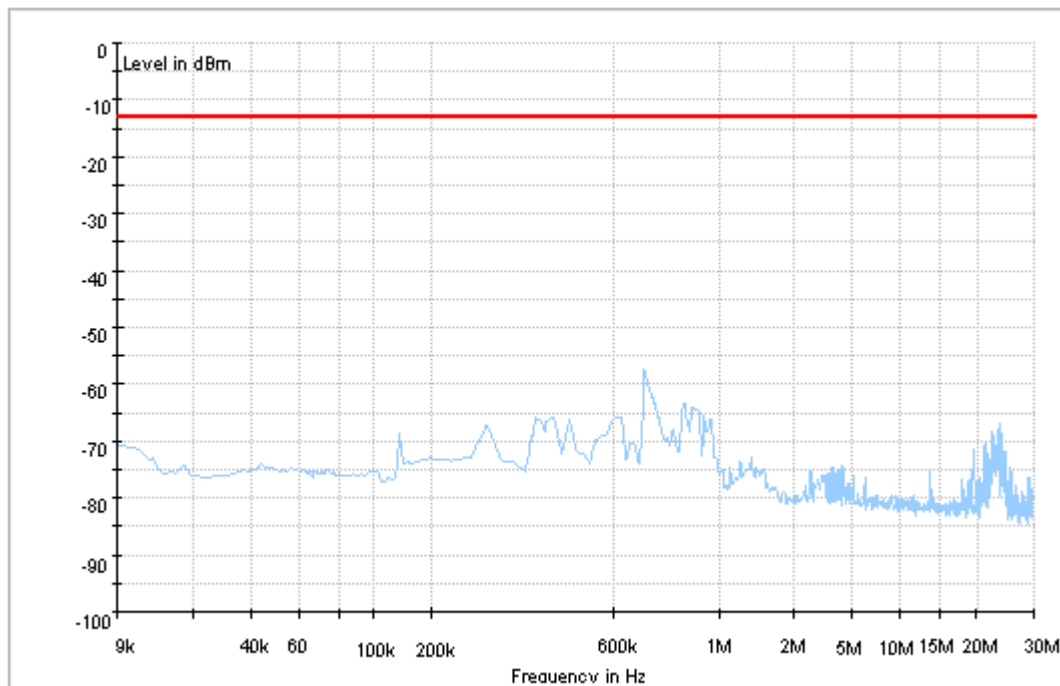


Copy of RSE-TX-DIRECTOR ABOVE 1.5G_H

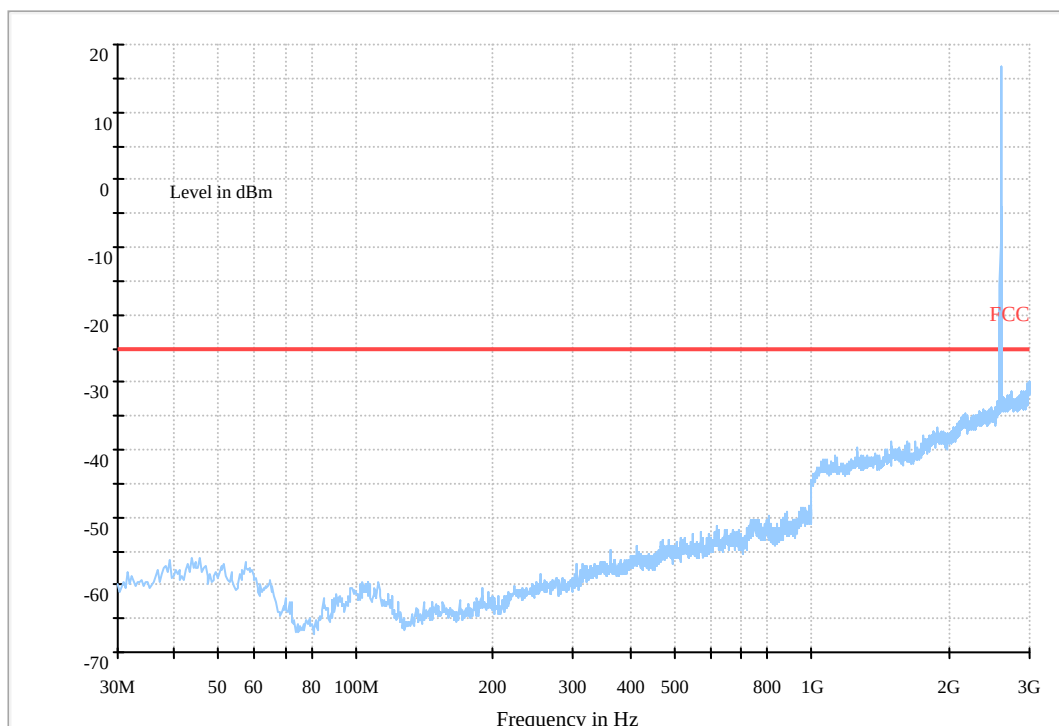


7.1.2 Test Band = BAND38_Ant2

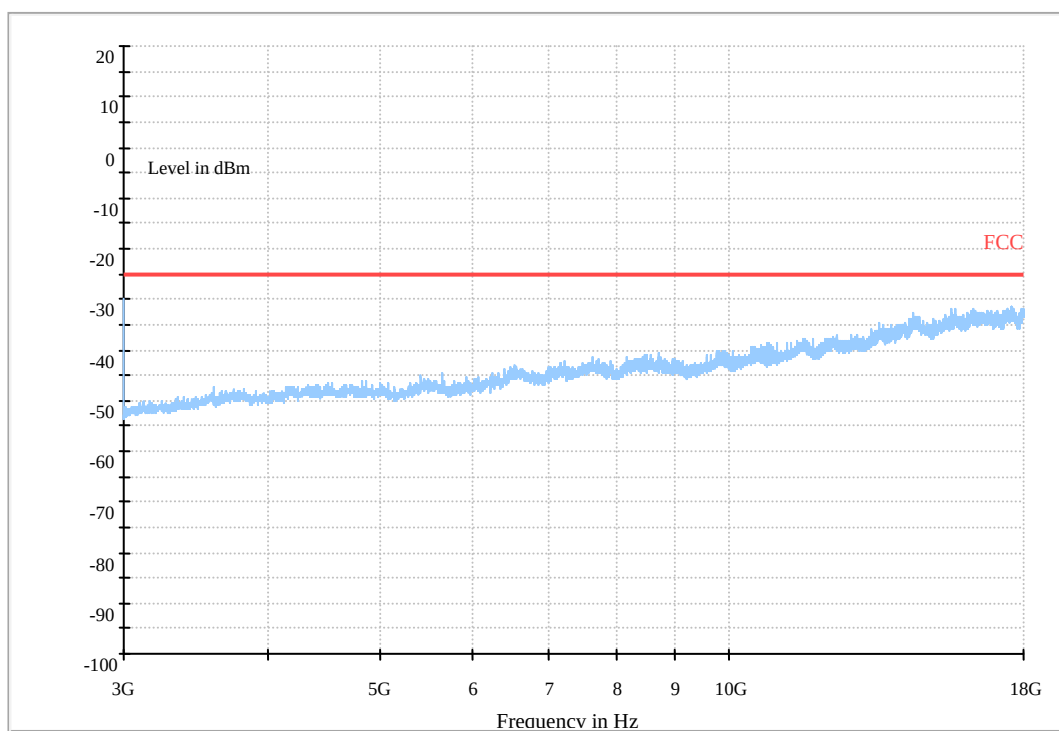
7.1.2.1 Test Bandwidth = 5

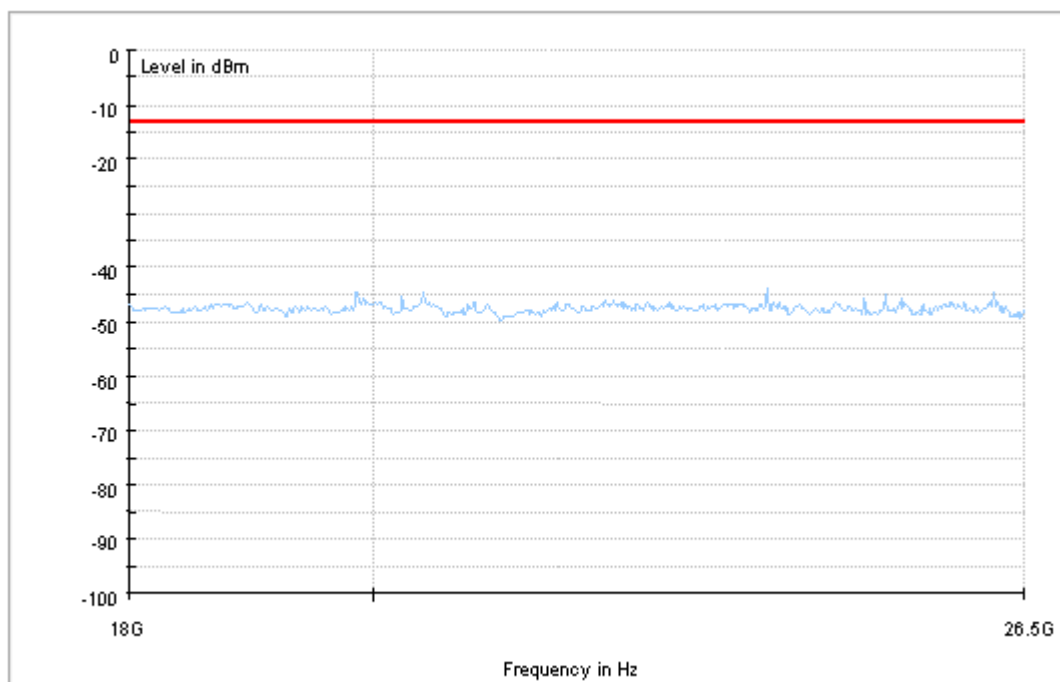


Copy of RSE-TX-DIRECTOR ABOVE 1.5G_L

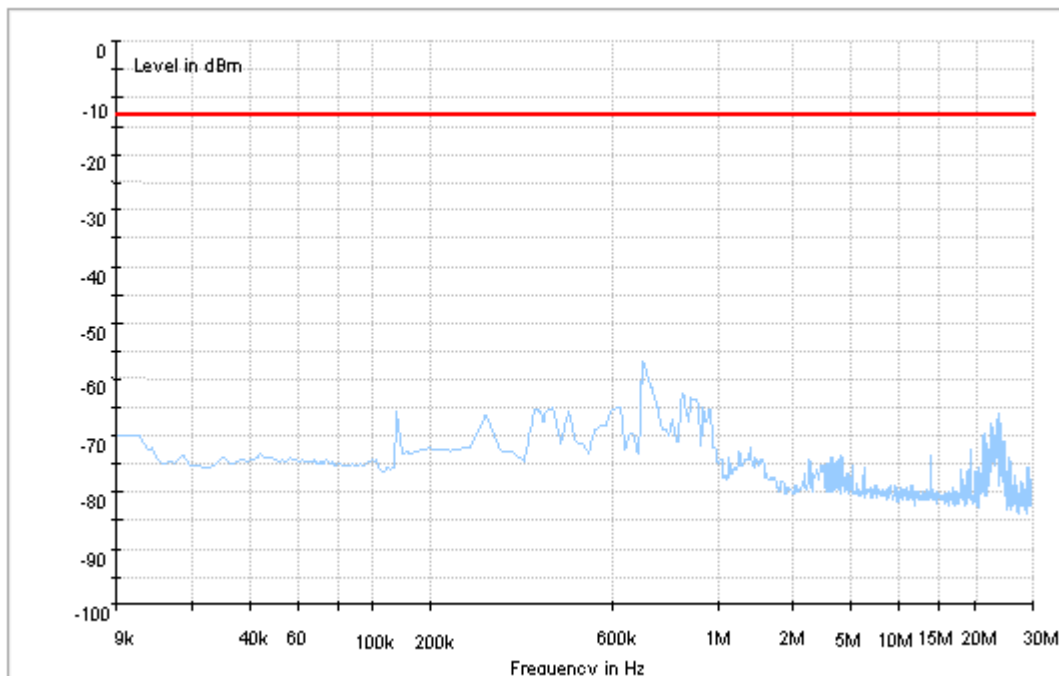


Copy of RSE-TX-DIRECTOR ABOVE 1.5G_H

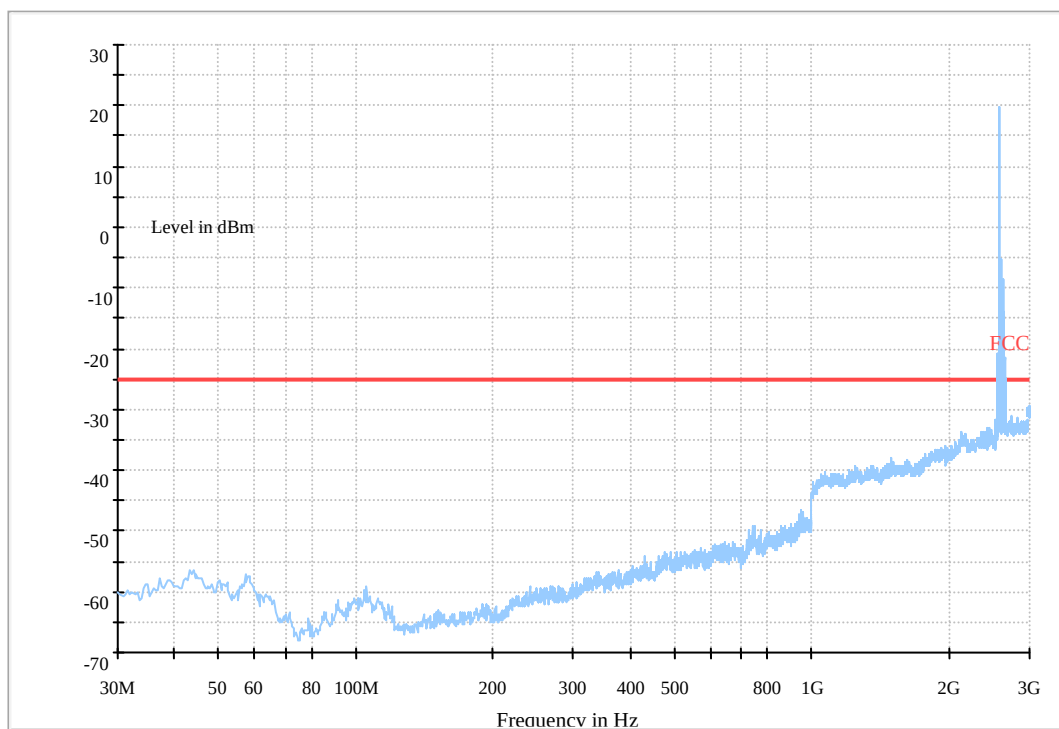




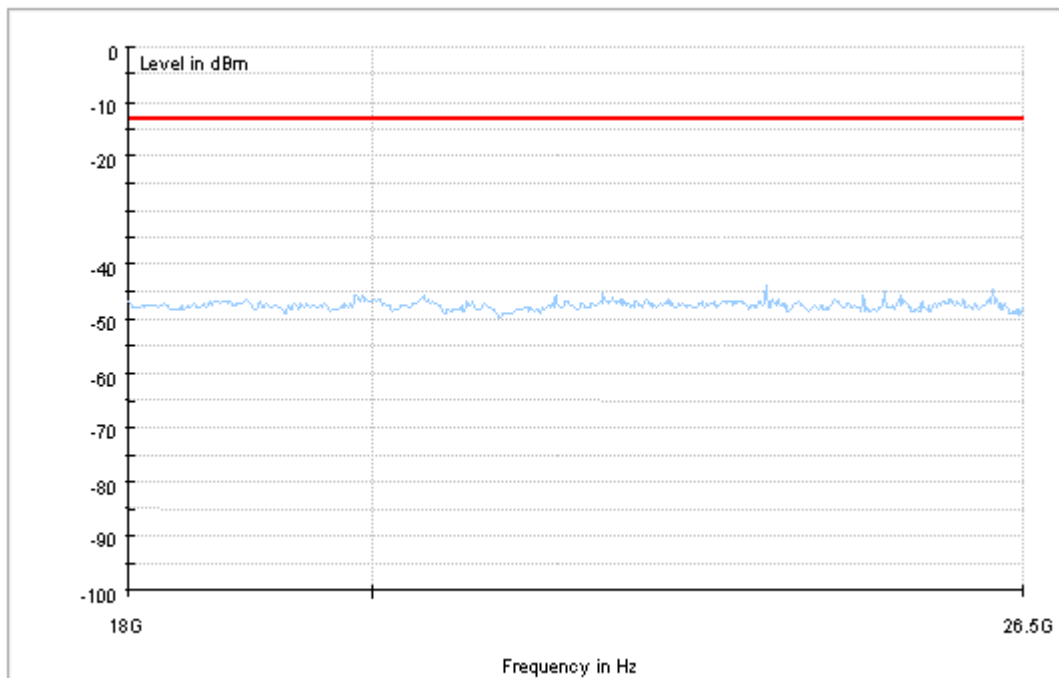
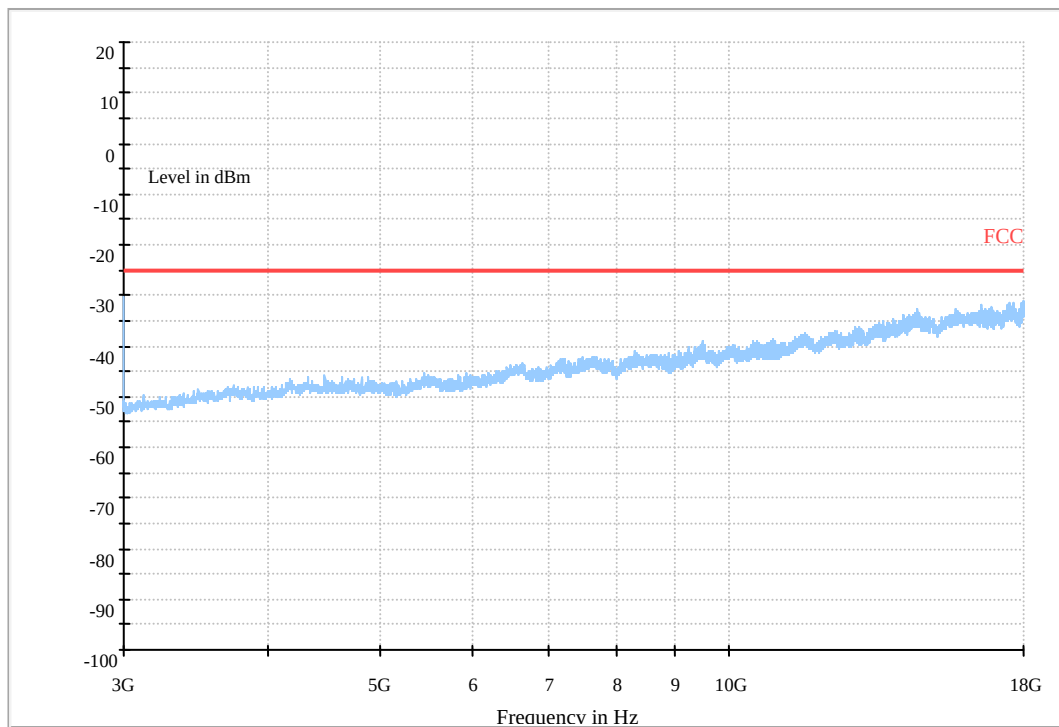
7.1.2.2 Test Bandwidth = 20



Copy of RSE-TX-DIRECTOR ABOVE 1.5G_L



Copy of RSE-TX-DIRECTOR ABOVE 1.5G_H



8Appendix_H: Frequency Stability

8.1 For LTE

8.1.1Frequency Error vs. Voltage:

Test Band	Test Mode	Test Bandwidth (MHz)	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
BAND38	LTE/TM1	5	LCH	TN	VL	0.54	0.00021	PASS
					VN	0.83	0.00032	PASS
					VH	-3.50	-0.00136	PASS
			MCH	TN	VL	4.56	0.00176	PASS
					VN	-2.65	-0.00102	PASS
					VH	-1.97	-0.00076	PASS
			HCH	TN	VL	47.16	0.01802	PASS
					VN	60.14	0.02298	PASS
					VH	45.30	0.01731	PASS
		10	LCH	TN	VL	7.40	0.00287	PASS
					VN	5.88	0.00228	PASS
					VH	3.52	0.00137	PASS
			MCH	TN	VL	1.72	0.00066	PASS
					VN	2.90	0.00112	PASS
					VH	-1.32	-0.00051	PASS
			HCH	TN	VL	16.85	0.00644	PASS
					VN	5.55	0.00212	PASS
					VH	4.81	0.00184	PASS
		15	LCH	TN	VL	8.81	0.00342	PASS
					VN	4.45	0.00173	PASS
					VH	4.92	0.00191	PASS
			MCH	TN	VL	4.46	0.00172	PASS
					VN	4.45	0.00171	PASS
					VH	0.93	0.00036	PASS
			HCH	TN	VL	5.62	0.00215	PASS
					VN	-1.62	-0.00062	PASS
					VH	2.43	0.00093	PASS
		20	LCH	TN	VL	-1.09	-0.00042	PASS
					VN	4.45	0.00172	PASS

Test Band	Test Mode	Test Bandwidth (MHz)	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				TN	VH	-1.87	-0.00072	PASS
					VL	0.90	0.00035	PASS
					VN	4.21	0.00162	PASS
			MCH	TN	VH	2.92	0.00113	PASS
					VL	5.69	0.00218	PASS
					VN	14.41	0.00552	PASS
			HCH	TN	VH	10.71	0.0041	PASS
					VL	5.05	0.00196	PASS
					VN	0.97	0.00038	PASS
			LCH	TN	VH	3.92	0.00152	PASS
					VL	-0.97	-0.00037	PASS
					VN	5.54	0.00213	PASS
	LTE/TM2	5	MCH	TN	VH	6.88	0.00265	PASS
					VL	14.29	0.00546	PASS
					VN	-10.46	-0.004	PASS
			HCH	TN	VH	-10.70	-0.00409	PASS
					VL	-1.53	-0.00059	PASS
					VN	5.16	0.002	PASS
		10	LCH	TN	VH	4.98	0.00193	PASS
					VL	3.40	0.00131	PASS
					VN	2.50	0.00096	PASS
			MCH	TN	VH	4.89	0.00188	PASS
					VL	3.91	0.0015	PASS
					VN	-8.45	-0.00323	PASS
		15	HCH	TN	VH	-3.89	-0.00149	PASS
					VL	8.55	0.00332	PASS
					VN	6.65	0.00258	PASS
			LCH	TN	VH	5.89	0.00229	PASS
					VL	1.82	0.0007	PASS
					VN	2.66	0.00103	PASS
		20	MCH	TN	VH	2.05	0.00079	PASS
					VL	4.71	0.0018	PASS
					VN	11.70	0.00448	PASS
			HCH	TN	VH	3.56	0.00136	PASS
					VL	-1.04	-0.0004	PASS
					VN	1.95	0.00076	PASS
			LCH	TN	VH	3.42	0.00133	PASS
					VL	8.24	0.00318	PASS
			MCH	TN	VN	4.58	0.00176	PASS
					VH			

Test Band	Test Mode	Test Bandwidth (MHz)	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
			HCH	TN	VH	-0.33	-0.00013	PASS
					VL	4.99	0.00191	PASS
					VN	12.26	0.0047	PASS
					VH	6.35	0.00243	PASS

8.1.2Frequency Error vs. Temperature:

Test Band	Test Mode	Test Bandwidth (MHz)	Test Channel	Test Volt.	Test Temp	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
BAND38	LTE/TM1	5	LCH	VN	-30	2.43	0.00094	PASS
					-20	1.27	0.00049	PASS
					-10	-1.67	-0.00065	PASS
					0	0.90	0.00035	PASS
					10	-4.29	-0.00167	PASS
					20	-7.25	-0.00282	PASS
					30	0.26	0.0001	PASS
					40	-3.83	-0.00149	PASS
					50	2.06	0.0008	PASS
			MCH	VN	-30	3.03	0.00117	PASS
					-20	-1.49	-0.00057	PASS
					-10	0.90	0.00035	PASS
					0	1.69	0.00065	PASS
					10	5.34	0.00206	PASS
					20	0.21	0.00008	PASS
					30	3.26	0.00126	PASS
					40	3.35	0.00129	PASS
					50	-8.90	-0.00343	PASS
			HCH	VN	-30	35.71	0.01364	PASS
					-20	-10.31	-0.00394	PASS
					-10	14.41	0.00551	PASS
					0	14.92	0.0057	PASS
					10	7.10	0.00271	PASS
					20	-7.14	-0.00273	PASS
					30	10.87	0.00415	PASS
					40	20.11	0.00768	PASS
					50	14.19	0.00542	PASS
		10	LCH	VN	-30	-2.29	-0.00089	PASS

Test Band	Test Mode	Test Bandwidth (MHz)	Test Channel	Test Volt.	Test Temp	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
					-20	2.39	0.00093	PASS
					-10	6.74	0.00262	PASS
					0	0.74	0.00029	PASS
					10	5.09	0.00198	PASS
					20	3.72	0.00144	PASS
					30	0.47	0.00018	PASS
					40	-0.89	-0.00035	PASS
					50	6.79	0.00264	PASS
			MCH	VN	-30	-0.40	-0.00015	PASS
					-20	-4.61	-0.00178	PASS
					-10	2.12	0.00082	PASS
					0	-1.36	-0.00052	PASS
					10	1.75	0.00067	PASS
					20	2.73	0.00105	PASS
					30	-1.04	-0.0004	PASS
					40	-2.27	-0.00087	PASS
					50	3.08	0.00119	PASS
			HCH	VN	-30	6.84	0.00262	PASS
					-20	6.42	0.00246	PASS
					-10	5.16	0.00197	PASS
					0	0.50	0.00019	PASS
					10	3.65	0.0014	PASS
					20	8.13	0.00311	PASS
					30	0.82	0.00031	PASS
					40	9.24	0.00353	PASS
					50	1.63	0.00062	PASS
		15	LCH	VN	-30	8.25	0.0032	PASS
					-20	7.44	0.00289	PASS
					-10	9.54	0.0037	PASS
					0	7.41	0.00287	PASS
					10	9.07	0.00352	PASS
					20	11.80	0.00458	PASS
					30	8.10	0.00314	PASS
					40	10.67	0.00414	PASS
					50	8.31	0.00322	PASS
			MCH	VN	-30	1.37	0.00053	PASS
					-20	4.61	0.00178	PASS
					-10	0.59	0.00023	PASS
					0	3.26	0.00126	PASS

Test Band	Test Mode	Test Bandwidth (MHz)	Test Channel	Test Volt.	Test Temp	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
					10	2.82	0.00109	PASS
					20	-1.66	-0.00064	PASS
					30	2.68	0.00103	PASS
					40	0.62	0.00024	PASS
					50	2.09	0.00081	PASS
			HCH	VN	-30	7.93	0.00304	PASS
					-20	12.93	0.00495	PASS
					-10	11.99	0.00459	PASS
					0	8.98	0.00344	PASS
					10	10.53	0.00403	PASS
					20	10.90	0.00417	PASS
					30	8.65	0.00331	PASS
					40	18.63	0.00713	PASS
					50	11.29	0.00432	PASS
		20	LCH	VN	-30	0.99	0.00038	PASS
					-20	-2.33	-0.0009	PASS
					-10	4.79	0.00186	PASS
					0	-2.36	-0.00091	PASS
					10	0.10	0.00004	PASS
					20	2.06	0.0008	PASS
					30	0.26	0.0001	PASS
					40	-0.14	-0.00005	PASS
					50	-4.43	-0.00172	PASS
			MCH	VN	-30	6.69	0.00258	PASS
					-20	4.39	0.00169	PASS
					-10	5.15	0.00198	PASS
					0	3.76	0.00145	PASS
					10	4.46	0.00172	PASS
					20	1.23	0.00047	PASS
					30	10.70	0.00416	PASS
					40	7.70	0.00299	PASS
					50	6.21	0.00241	PASS
			HCH	VN	-30	11.34	0.0044	PASS
					-20	11.89	0.00462	PASS
					-10	4.69	0.00182	PASS
					0	4.91	0.00191	PASS
					10	9.91	0.00385	PASS
					20	-0.93	-0.00036	PASS
					30	3.48	0.00134	PASS

Test Band	Test Mode	Test Bandwidth (MHz)	Test Channel	Test Volt.	Test Temp	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
	LTE/TM2	5			40	4.08	0.00157	PASS
					50	1.37	0.00053	PASS
			LCH	VN	-30	2.05	0.00157	PASS
					-20	0.09	0.00003	PASS
					-10	1.44	0.00056	PASS
					0	3.65	0.0022	PASS
					10	-2.06	-0.0008	PASS
					20	-0.26	-0.0001	PASS
					30	0.89	0.00035	PASS
					40	4.09	0.00159	PASS
					50	-1.33	-0.00052	PASS
			MCH	VN	-30	-4.39	-0.00169	PASS
					-20	-9.53	-0.00367	PASS
					-10	-10.1	-0.00389	PASS
					0	-5.28	-0.00203	PASS
					10	0.17	0.00007	PASS
					20	0.31	0.00012	PASS
					30	-3.95	-0.00152	PASS
					40	-6.32	-0.00244	PASS
					50	-4.52	-0.00174	PASS
			HCH	VN	-30	13.06	0.0218	PASS
					-20	12.94	0.02412	PASS
					-10	11.99	0.02012	PASS
					0	8.97	0.02335	PASS
					10	10.53	0.02112	PASS
					20	10.91	0.02324	PASS
					30	8.65	0.02017	PASS
					40	18.63	0.02018	PASS
					50	11.25	0.01977	PASS
		10	LCH	VN	-30	-4.19	-0.00163	PASS
					-20	-1.34	-0.00052	PASS
					-10	-2.57	-0.001	PASS
					0	1.86	0.00072	PASS
					10	1.79	0.0007	PASS
					20	2.62	0.00102	PASS
					30	-2.92	-0.00113	PASS
					40	-7.87	-0.00306	PASS
					50	0.64	0.00025	PASS
			MCH	VN	-30	-7.34	-0.00283	PASS

Test Band	Test Mode	Test Bandwidth (MHz)	Test Channel	Test Volt.	Test Temp	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
					-20	-2.42	-0.00093	PASS
					-10	-6.25	-0.00241	PASS
					0	-3.59	-0.00138	PASS
					10	-1.43	-0.00055	PASS
					20	-4.19	-0.00161	PASS
					30	-1.6	-0.00062	PASS
					40	-1.69	-0.00065	PASS
					50	-4.85	-0.00187	PASS
			HCH	VN	-30	-4.72	-0.0018	PASS
					-20	-0.56	-0.00021	PASS
					-10	-1.46	-0.00056	PASS
					0	-6.48	-0.00248	PASS
					10	-4.23	-0.00162	PASS
					20	-5.29	-0.00202	PASS
					30	-4.69	-0.00179	PASS
					40	-4.99	-0.00191	PASS
					50	-4.13	-0.00158	PASS
		15	LCH	VN	-30	6.84	0.00265	PASS
					-20	4.18	0.00162	PASS
					-10	-0.76	-0.00029	PASS
					0	-1.95	-0.00076	PASS
					10	0.3	0.00012	PASS
					20	0.04	0.00002	PASS
					30	-1.04	-0.0004	PASS
					40	-2.06	-0.0008	PASS
					50	-1.99	-0.00077	PASS
			MCH	VN	-30	-7.98	-0.00308	PASS
					-20	-7.74	-0.00298	PASS
					-10	-3.72	-0.00143	PASS
					0	-3.63	-0.0014	PASS
					10	-6.29	-0.00242	PASS
					20	-6.07	-0.00234	PASS
					30	-4.33	-0.00167	PASS
					40	-2.86	-0.0011	PASS
					50	-0.41	-0.00016	PASS
			HCH	VN	-30	-8.23	-0.00315	PASS
					-20	-5.21	-0.00199	PASS
					-10	-13.46	-0.00515	PASS
					0	-73.63	-0.02818	PASS

Test Band	Test Mode	Test Bandwidth (MHz)	Test Channel	Test Volt.	Test Temp	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
					10	-4.33	-0.00166	PASS
					20	-1.85	-0.00071	PASS
					30	0.46	0.00018	PASS
					40	-4.65	-0.00178	PASS
					50	-5.42	-0.00207	PASS
		20	LCH	VN	-30	0.74	0.00029	PASS
					-20	-0.73	-0.00028	PASS
					-10	-1.92	-0.00074	PASS
					0	-0.47	-0.00018	PASS
					10	-3.86	-0.0015	PASS
					20	-3.33	-0.00129	PASS
					30	-2.92	-0.00113	PASS
					40	-2.45	-0.00095	PASS
					50	-2.92	-0.00113	PASS
			MCH	VN	-30	-3.76	-0.00145	PASS
					-20	-2.07	-0.0008	PASS
					-10	-5.72	-0.0022	PASS
					0	-3.73	-0.00144	PASS
					10	-5.82	-0.00224	PASS
					20	-4.16	-0.0016	PASS
					30	-3.13	-0.00121	PASS
					40	-4.26	-0.00164	PASS
					50	-2.47	-0.00095	PASS
			HCH	VN	-30	-4.01	-0.00154	PASS
					-20	-4.71	-0.0018	PASS
					-10	-2.6	-0.001	PASS
					0	-6.31	-0.00242	PASS
					10	-3.66	-0.0014	PASS
					20	-3.79	-0.00145	PASS
					30	-3.6	-0.00138	PASS
					40	-2.89	-0.00111	PASS
					50	-4.25	-0.00163	PASS

END