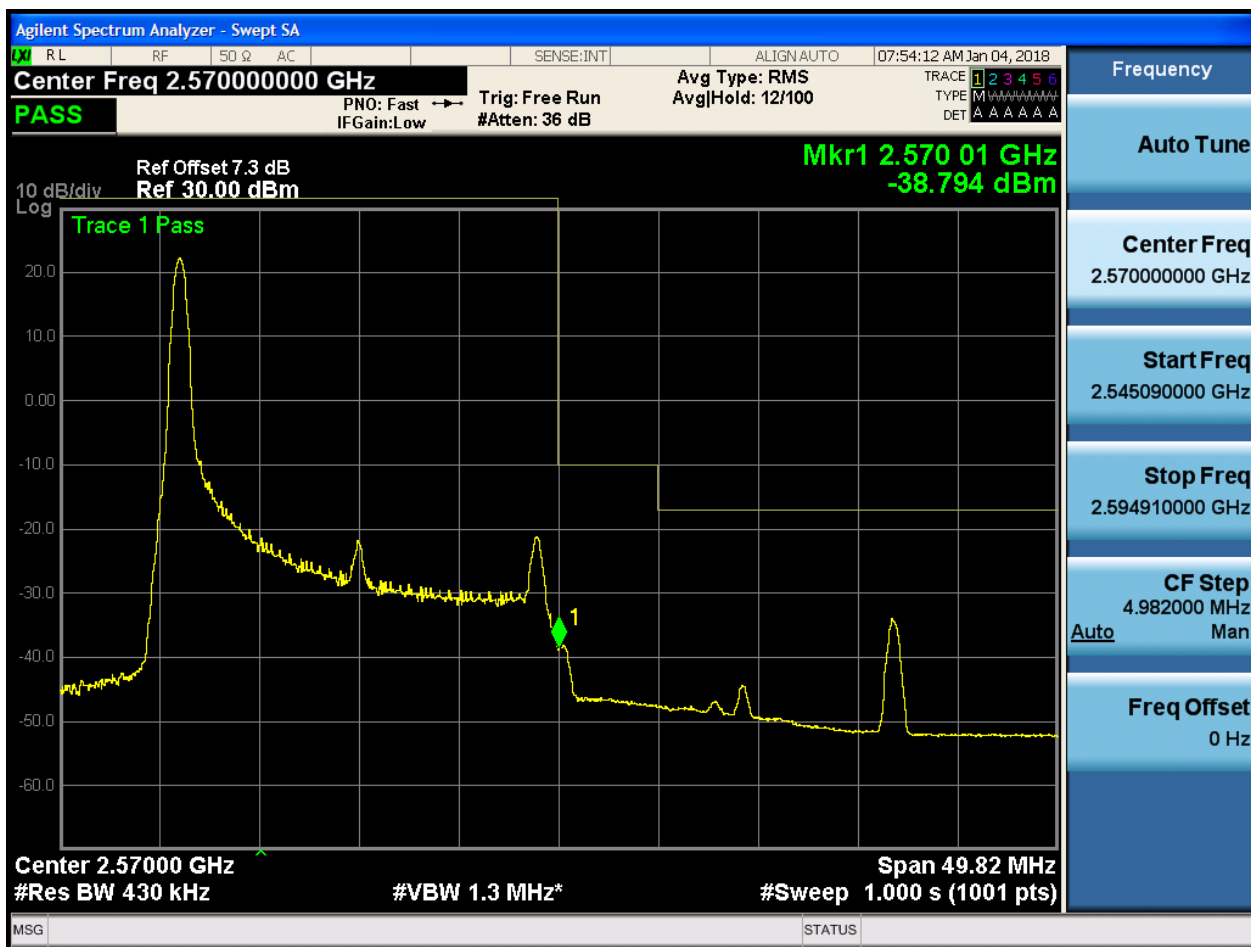




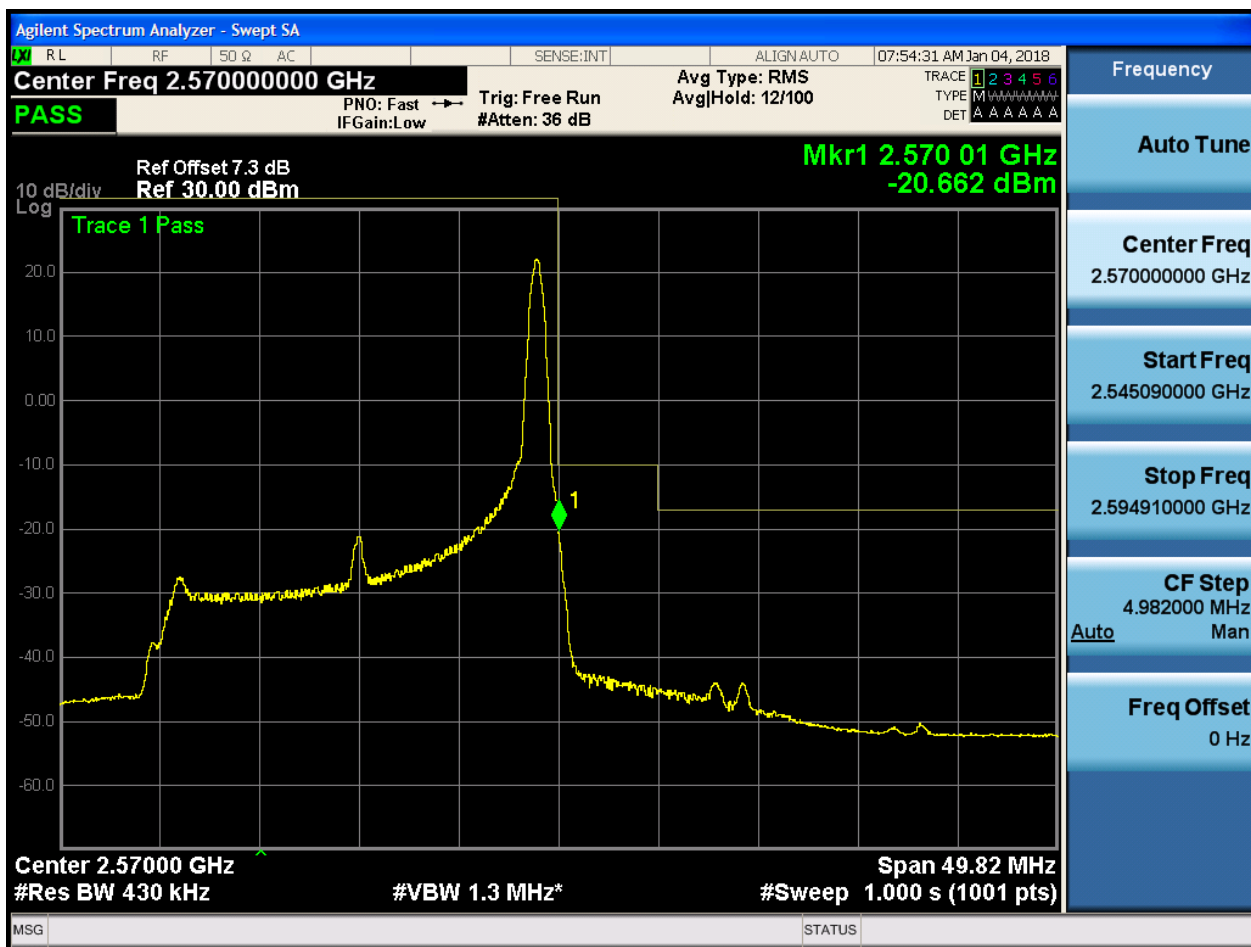
5.1.1.2.4.2 Test Channel = HCH

5.1.1.2.4.2.1 Test RB = RB1#0





5.1.1.2.4.2.2 Test RB = RB1#99





Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω AC SENSE:INT ALIGN: AUTO 07:54:51 AM Jan 04, 2018

Center Freq 2.570000000 GHz Avg Type: RMS
PNO: Fast Trig: Free Run AvgHold: 10/100
IFGain: Low #Atten: 36 dB

PASS

Ref Offset 7.3 dB
Ref 30.00 dBm

Mkr1 2.570 01 GHz
-29.157 dBm

10 dB/div
Log

Trace 1 Pass

Center 2.57000 GHz
#Res BW 430 kHz
#VBW 1.3 MHz*
Span 49.82 MHz
#Sweep 1.000 s (1001 pts)

MSG Alignment Completed STATUS

Frequency

Auto Tune

Center Freq
2.570000000 GHz

Start Freq
2.545090000 GHz

Stop Freq
2.594910000 GHz

CF Step
4.982000 MHz
Auto Man

Freq Offset
0 Hz



5.1.1.2.4.2.4 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

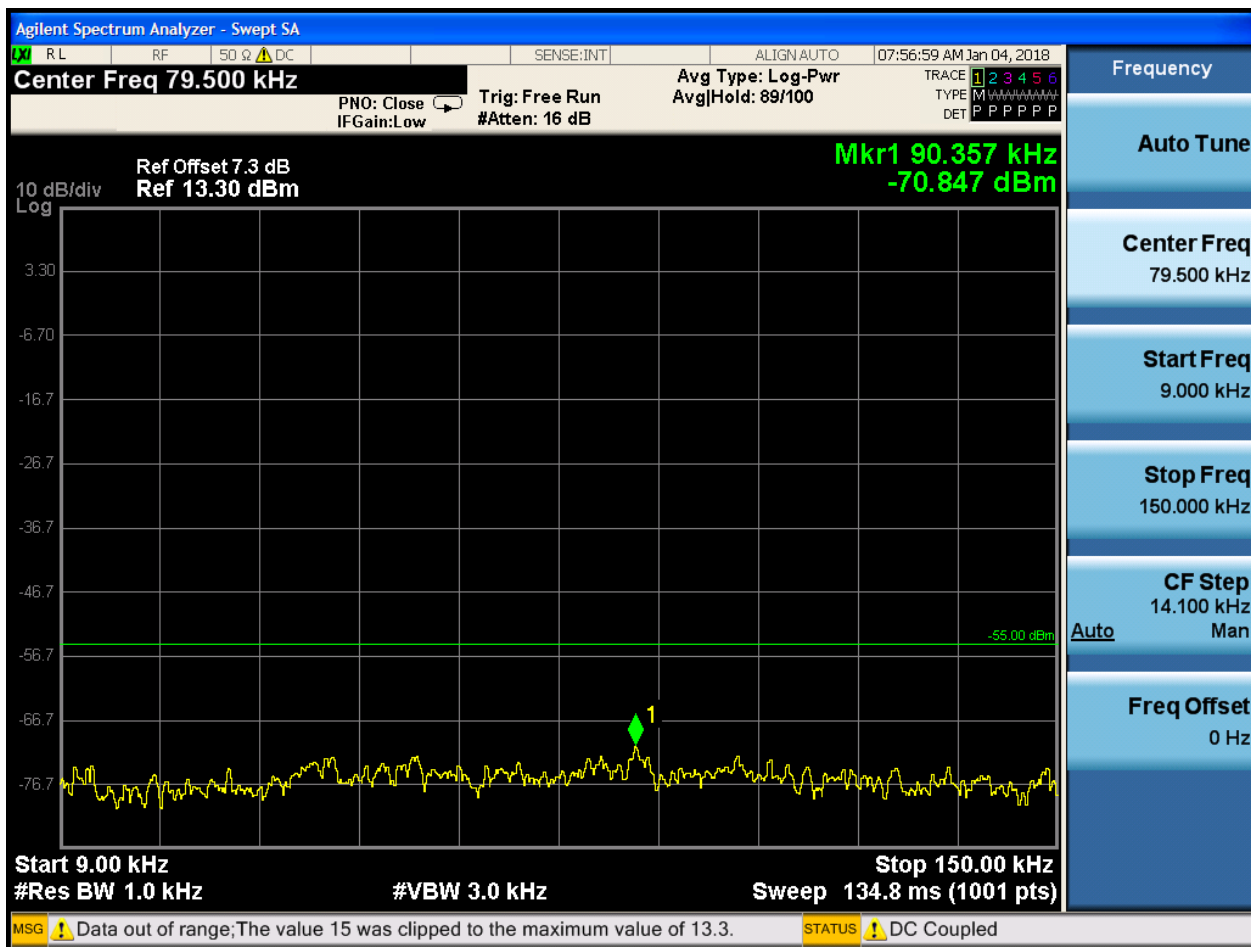
6.1.1 Test Band = BAND7

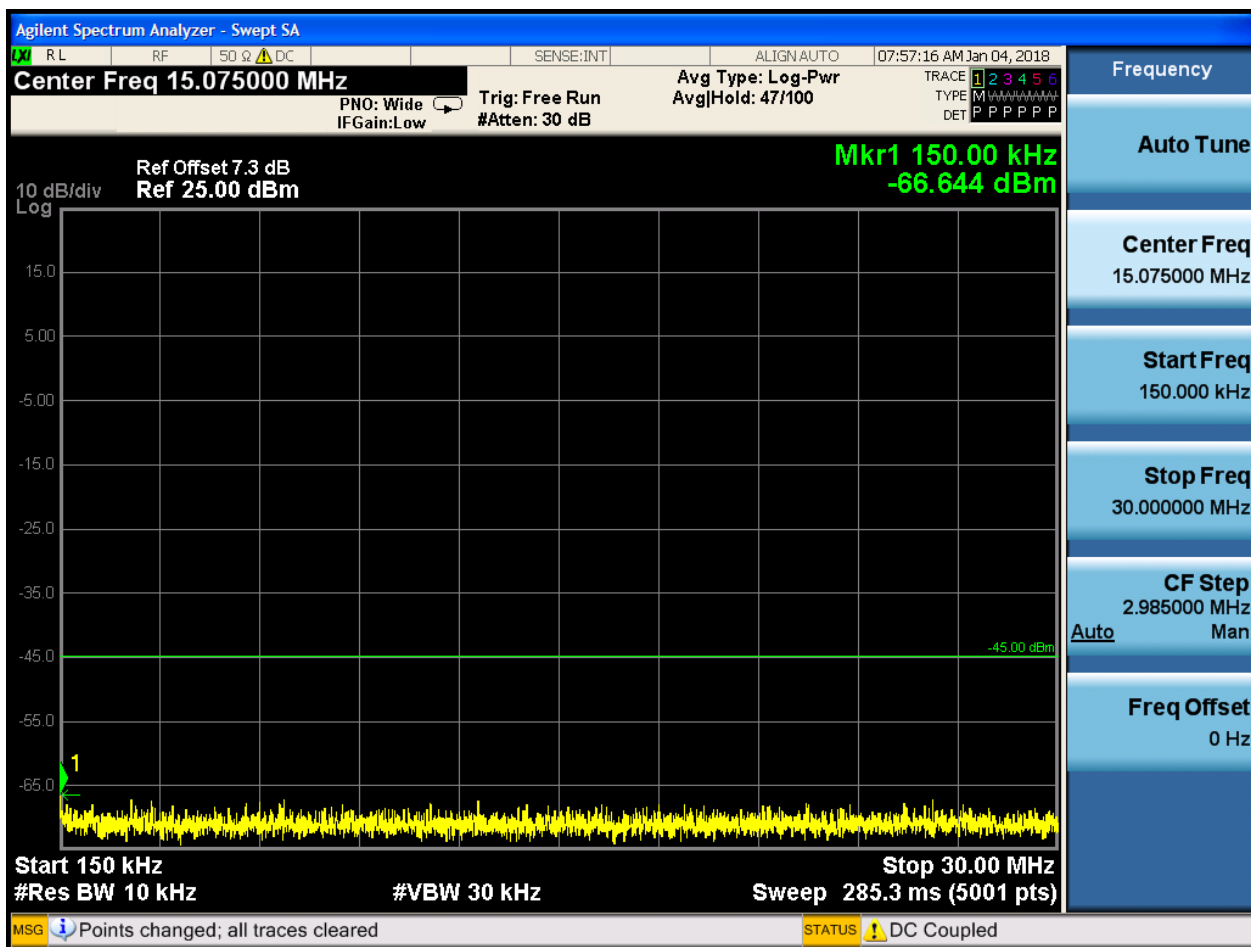
6.1.1.1 Test Mode = LTE/TM1

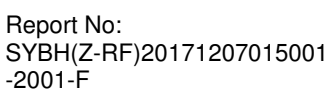
6.1.1.1.1 Test Bandwidth = 5

6.1.1.1.1.1 Test Channel = LCH

6.1.1.1.1.1.1 Test RB = RB1#0



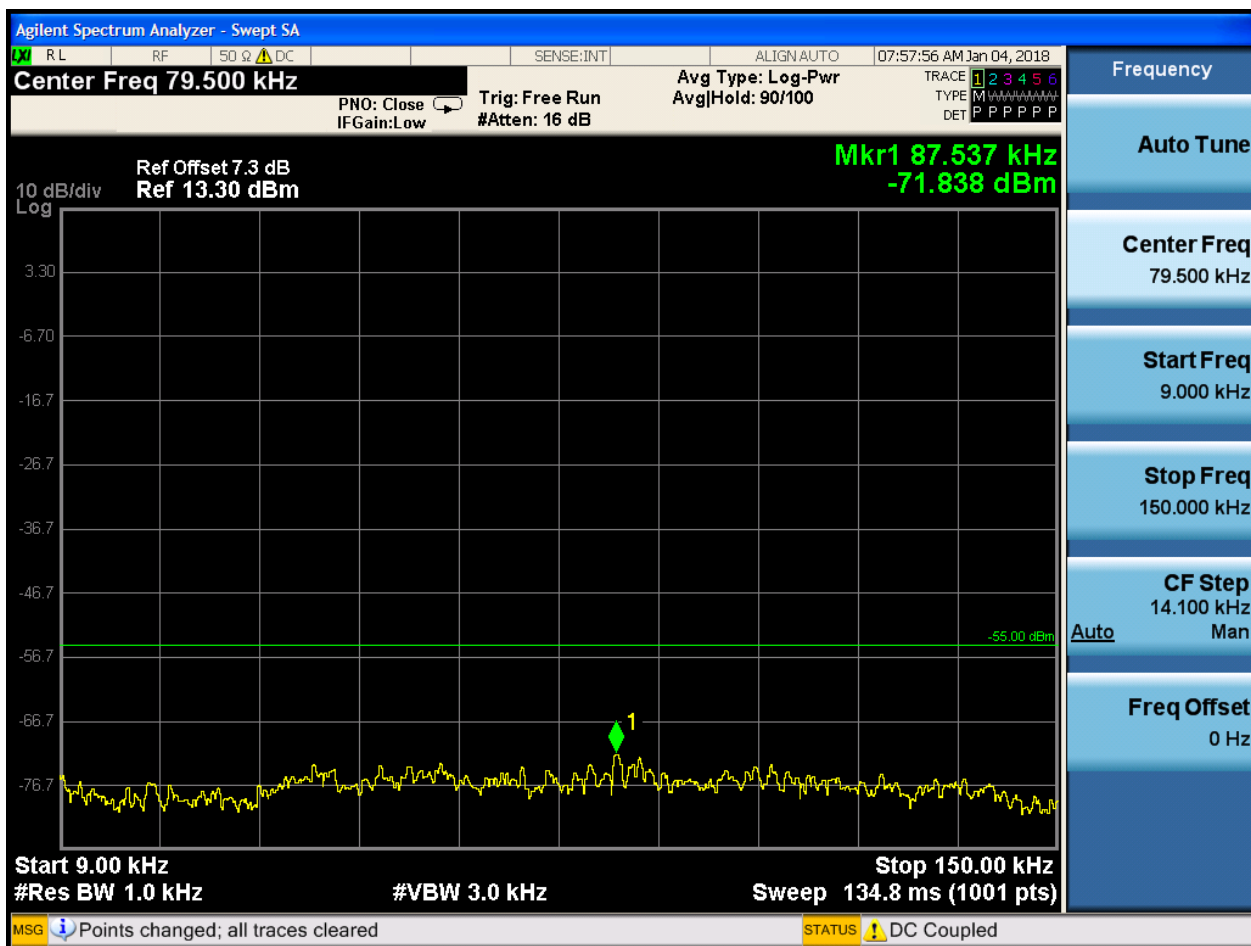


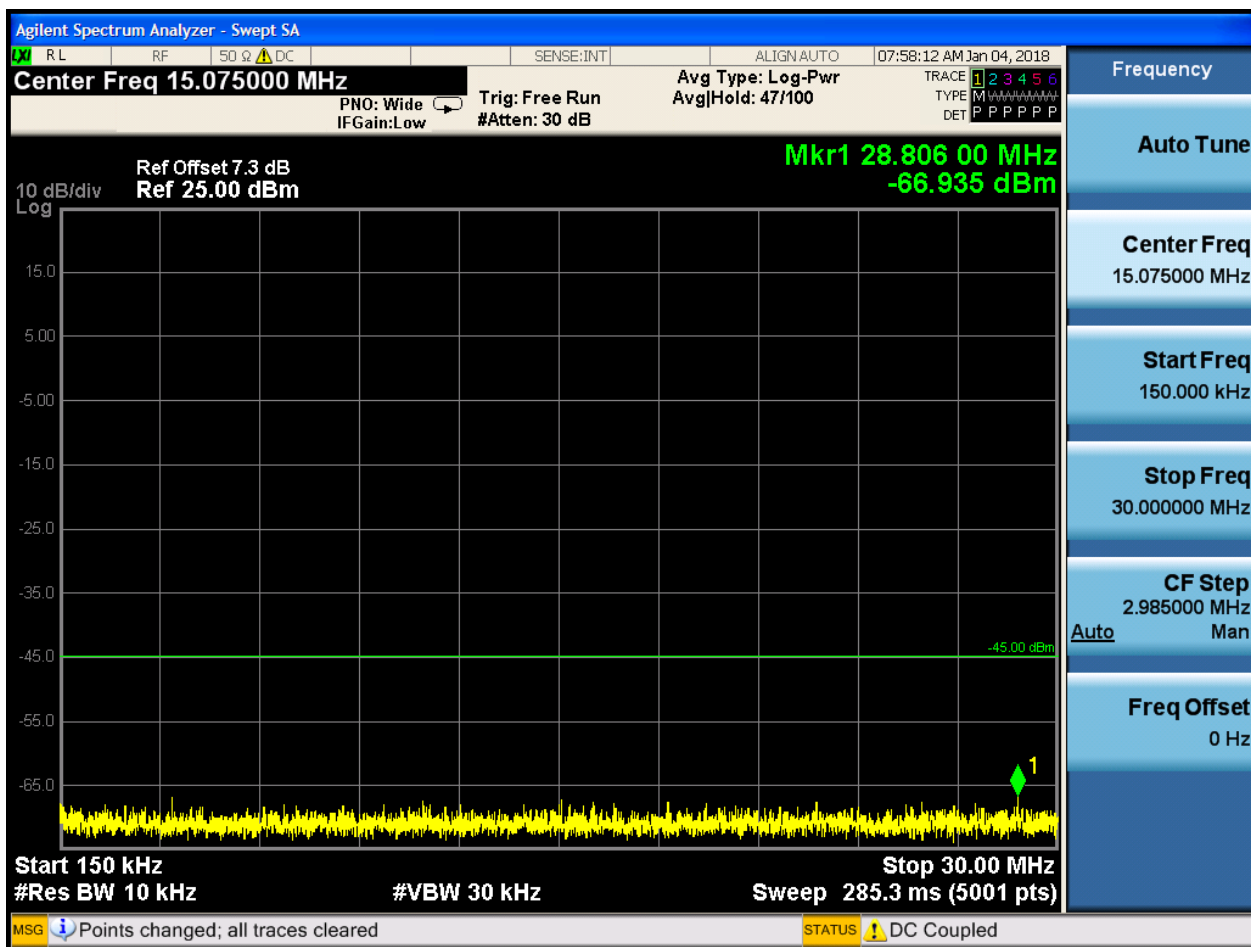


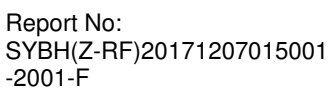


6.1.1.1.1.2 Test Channel = MCH

6.1.1.1.1.2.1 Test RB = RB1#0



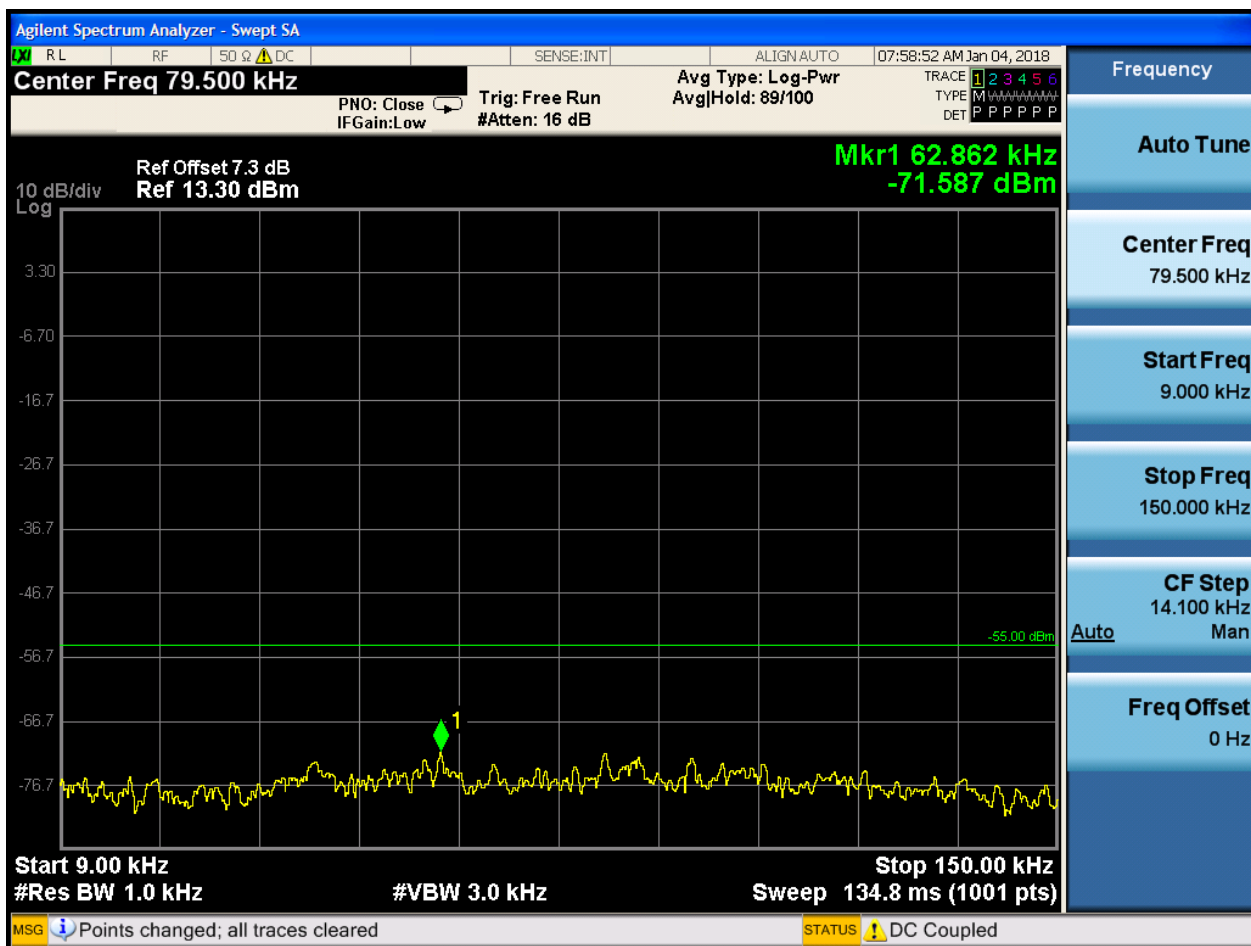


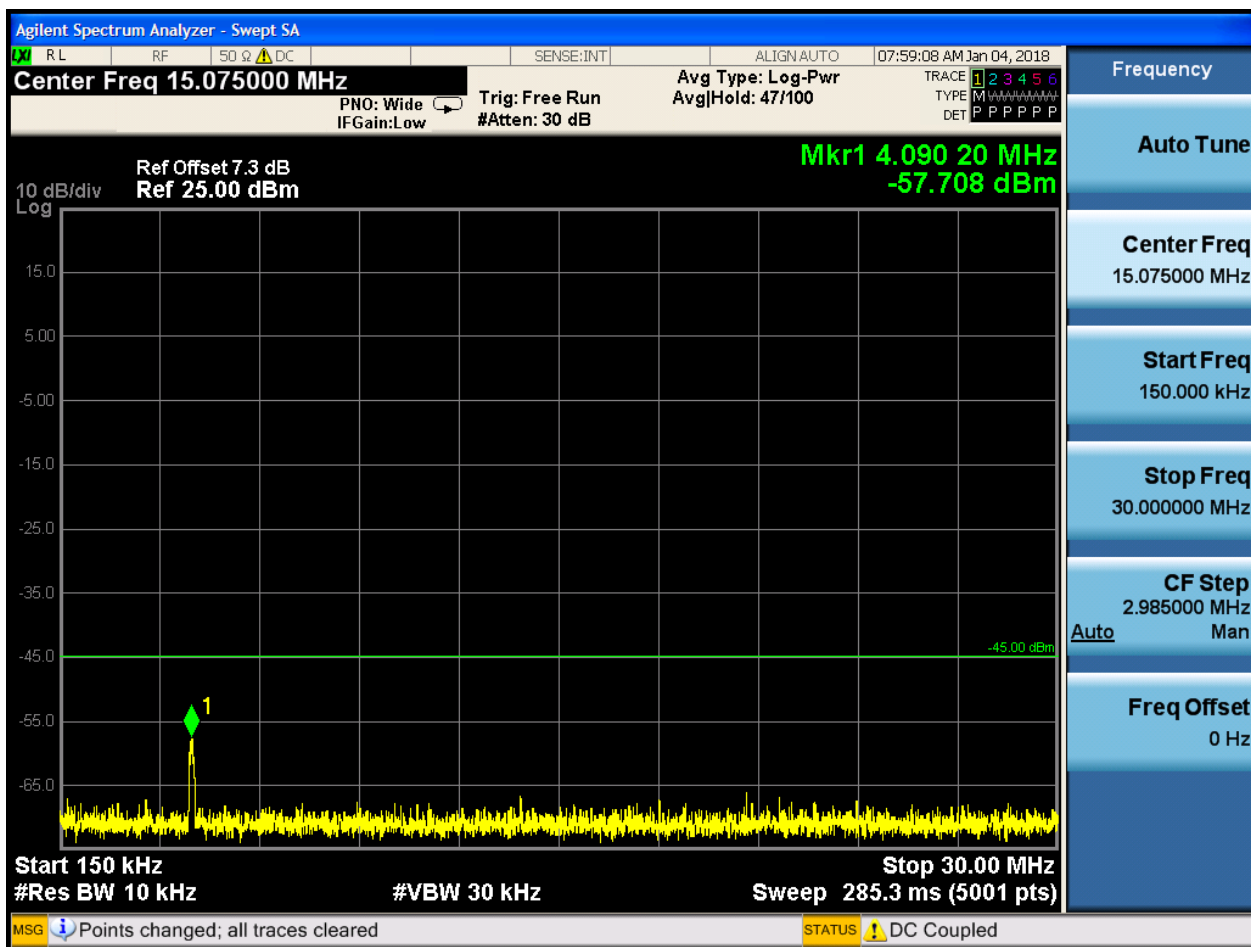


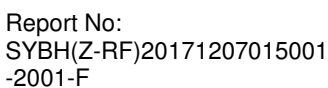


6.1.1.1.1.3 Test Channel = HCH

6.1.1.1.1.3.1 Test RB = RB1#0

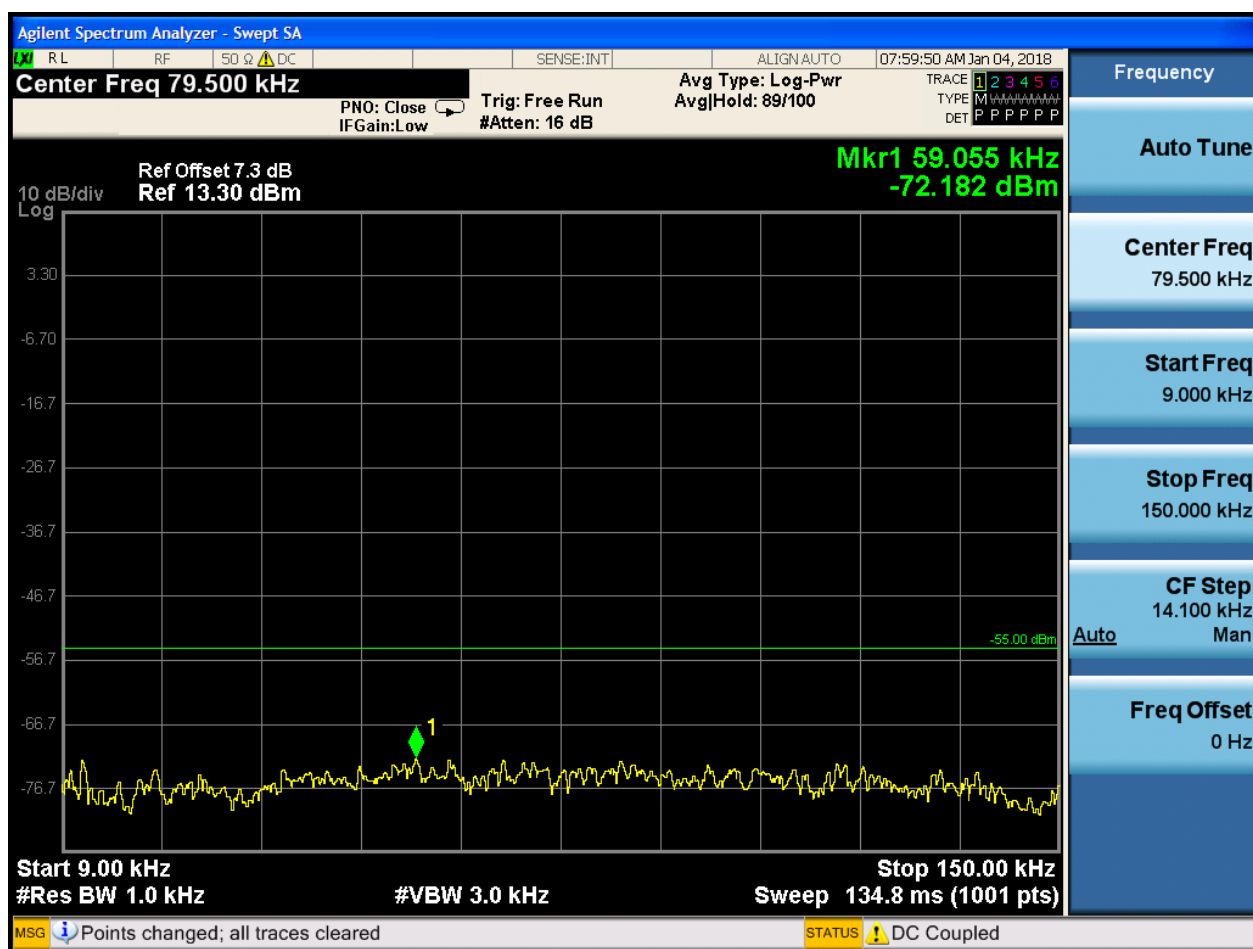


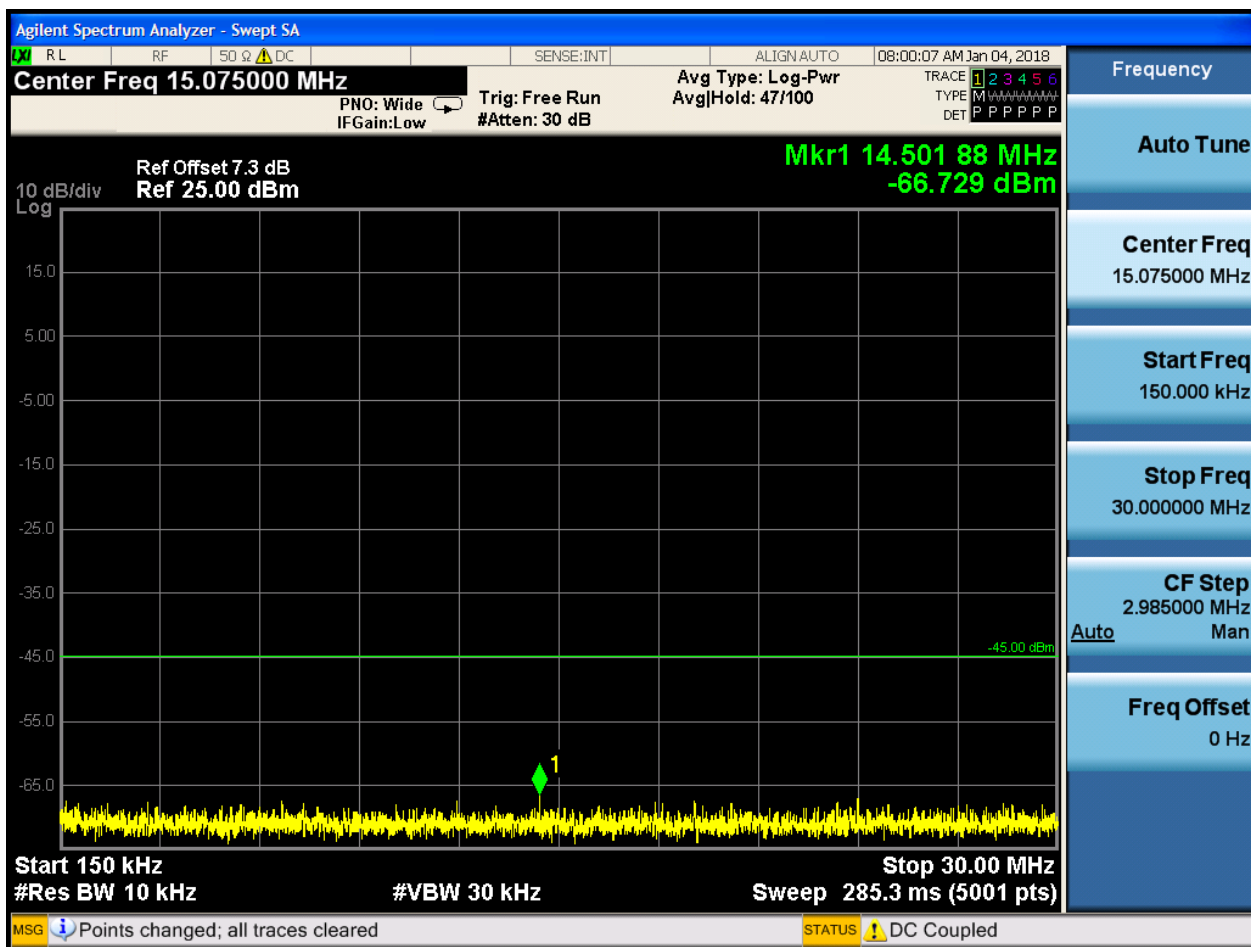


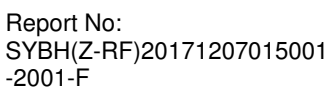




6.1.1.1.2.1.1 Test RB = RB1#0

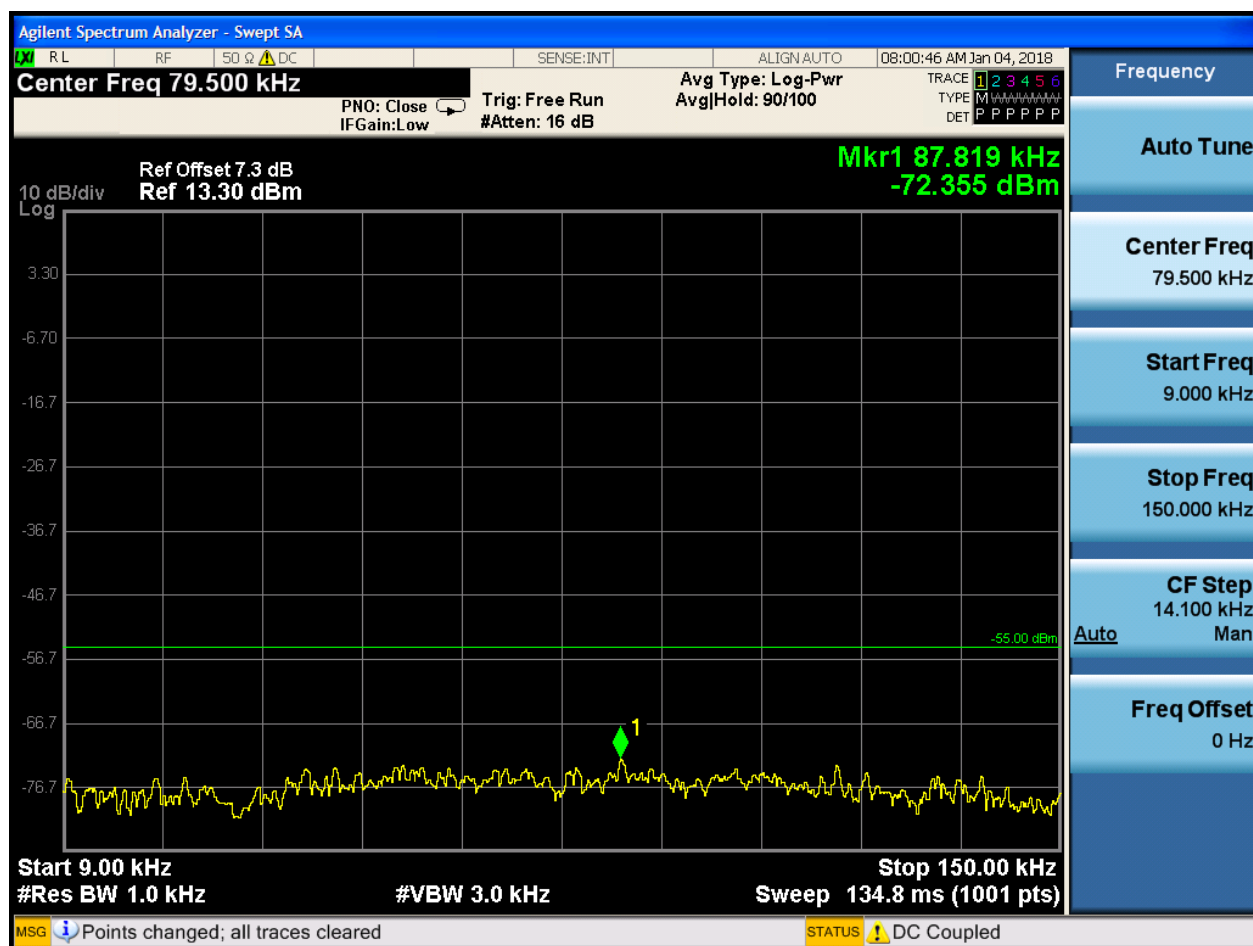


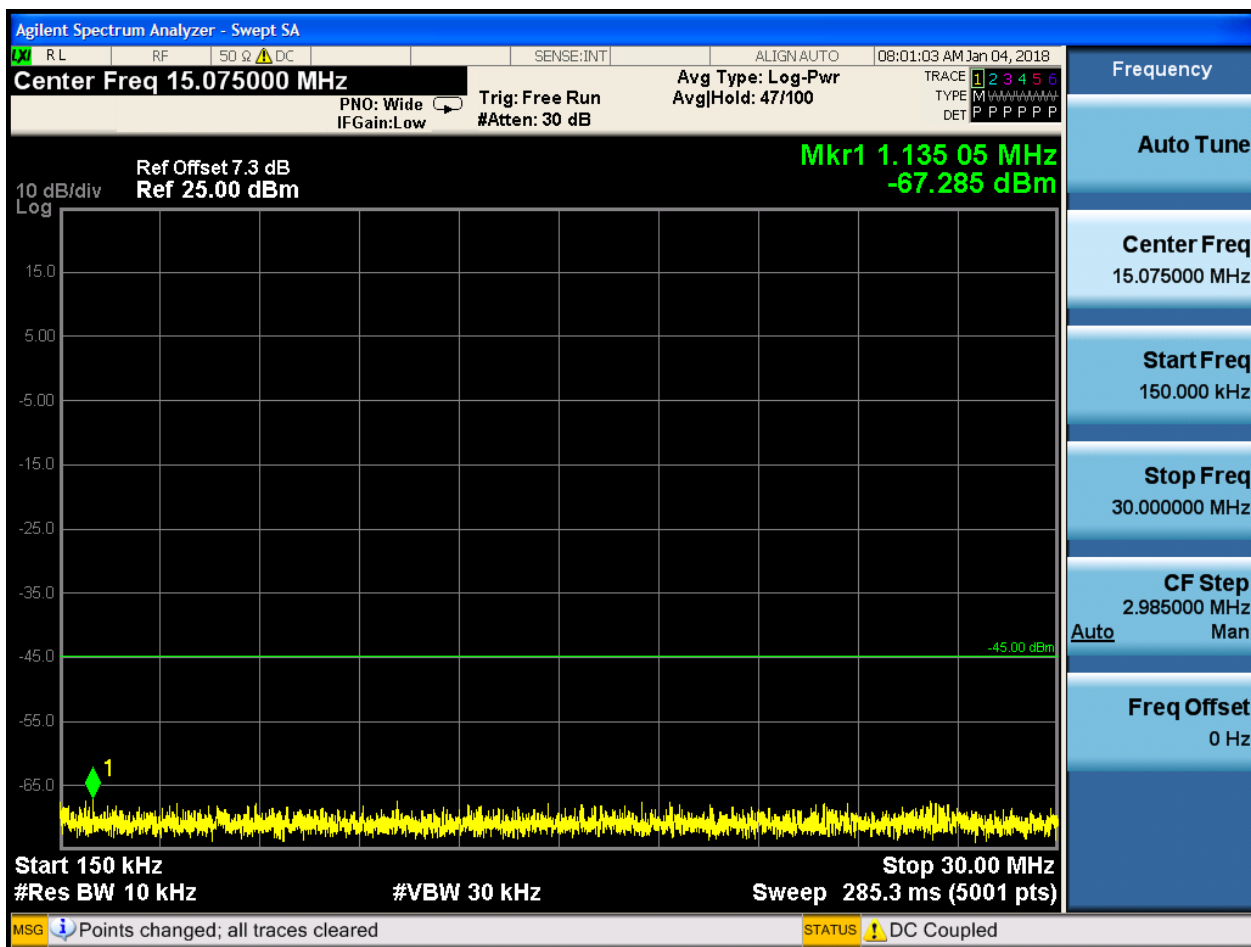


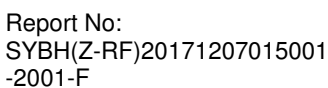


6.1.1.1.2.2 Test Channel = MCH

6.1.1.1.2.2.1 Test RB = RB1#0



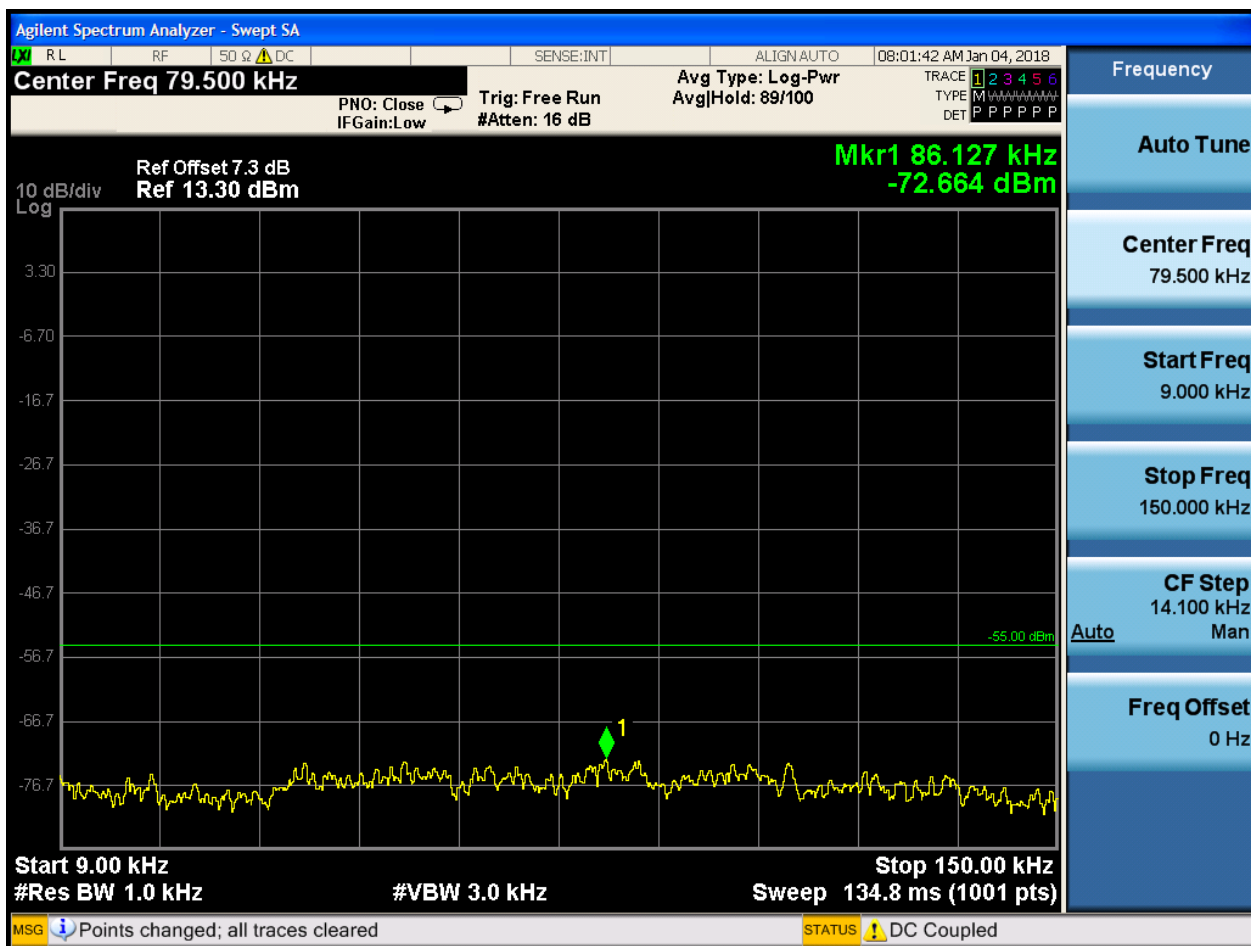


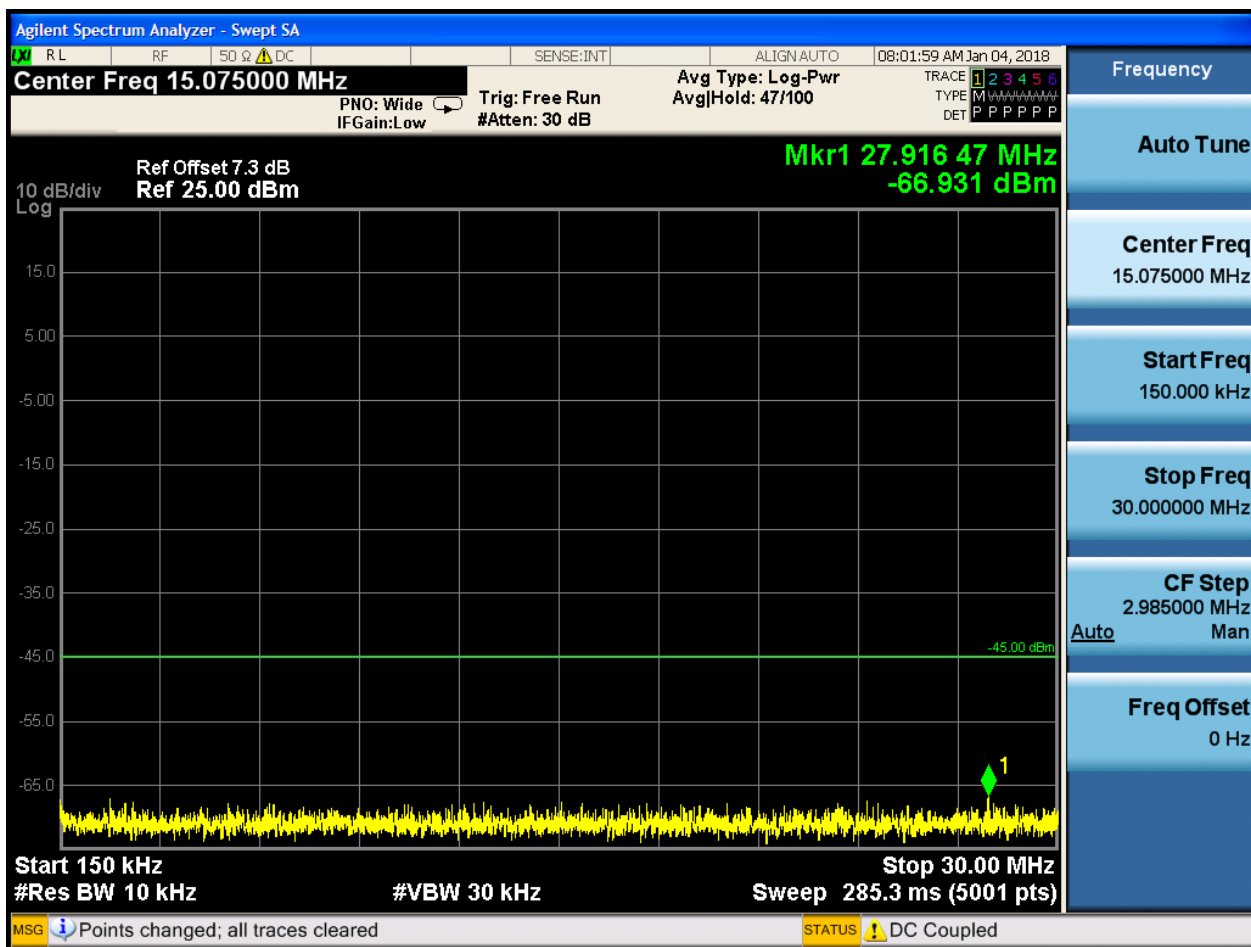


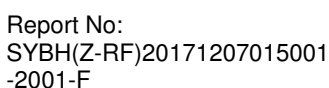


6.1.1.1.2.3 Test Channel = HCH

6.1.1.1.2.3.1 Test RB = RB1#0





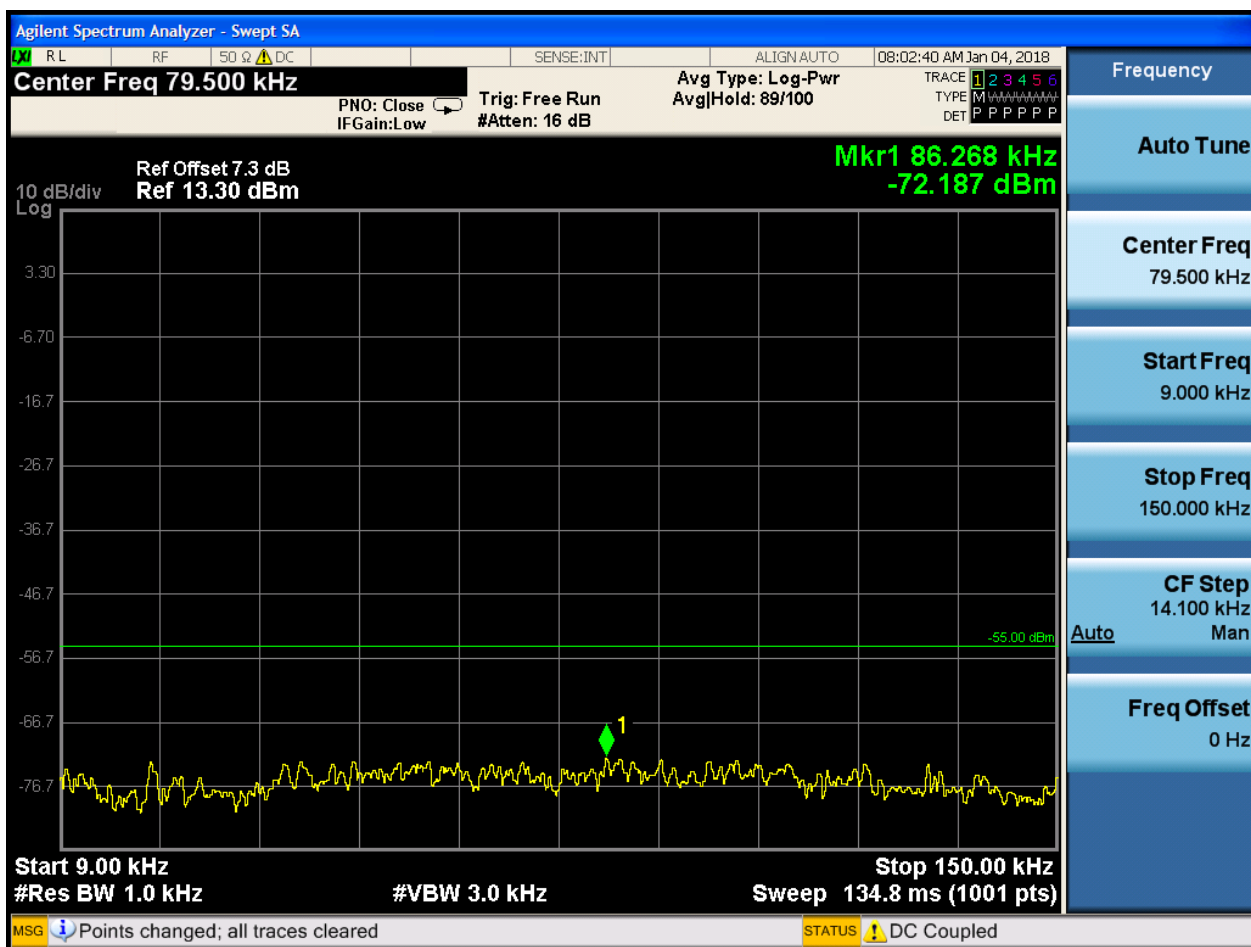


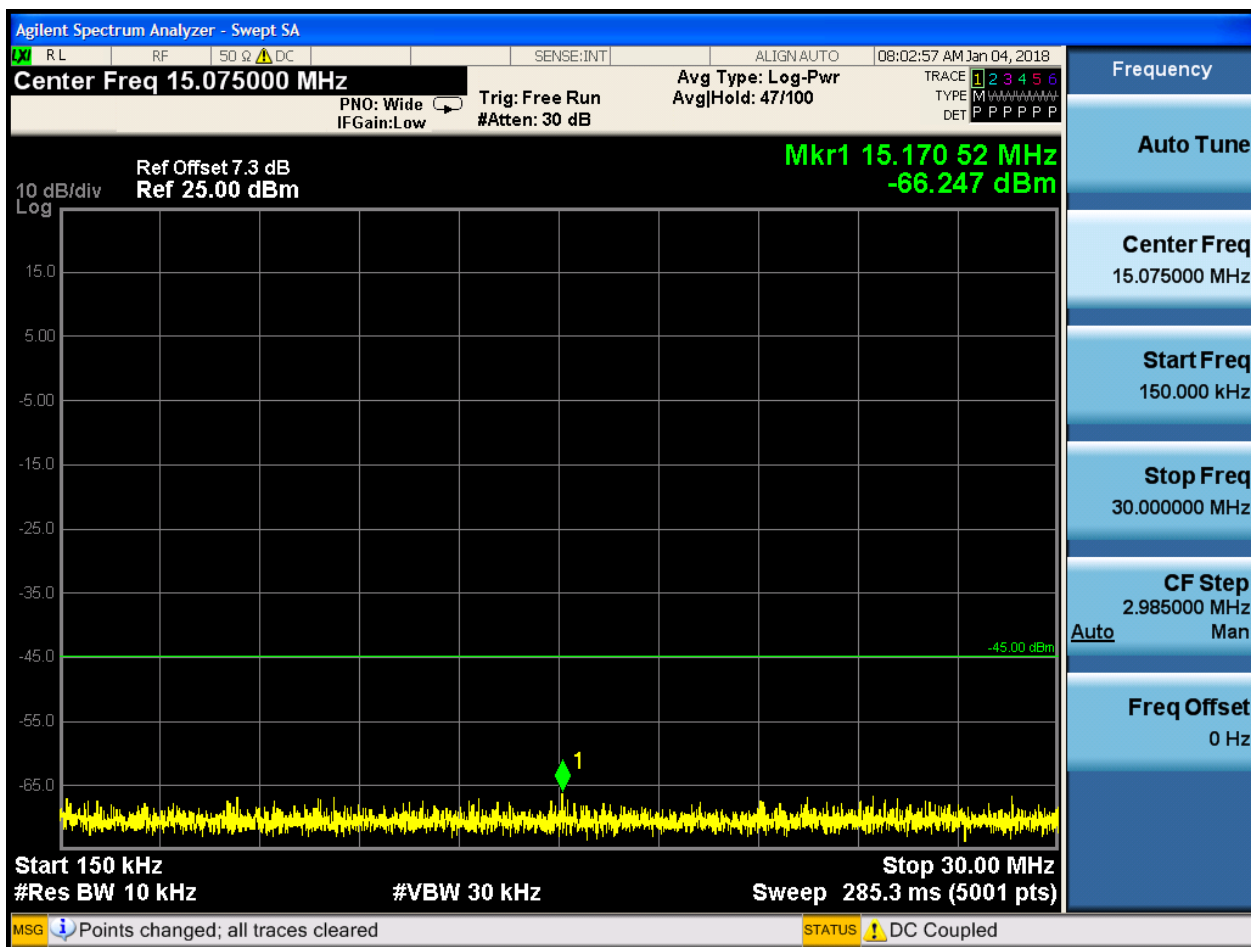


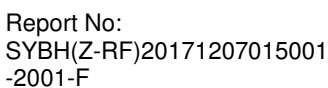
6.1.1.1.3 Test Bandwidth = 15

6.1.1.1.3.1 Test Channel = LCH

6.1.1.1.3.1.1 Test RB = RB1#0



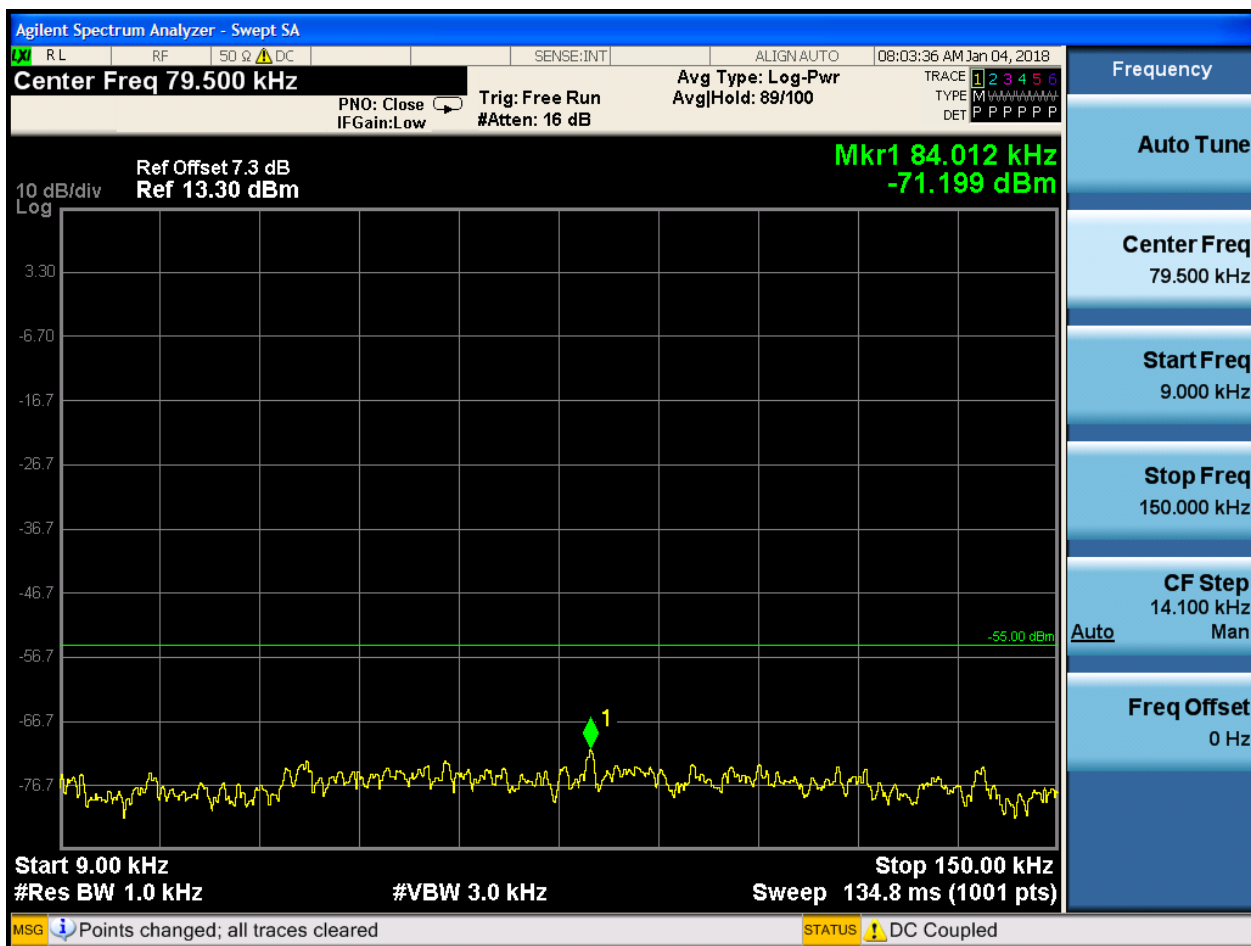


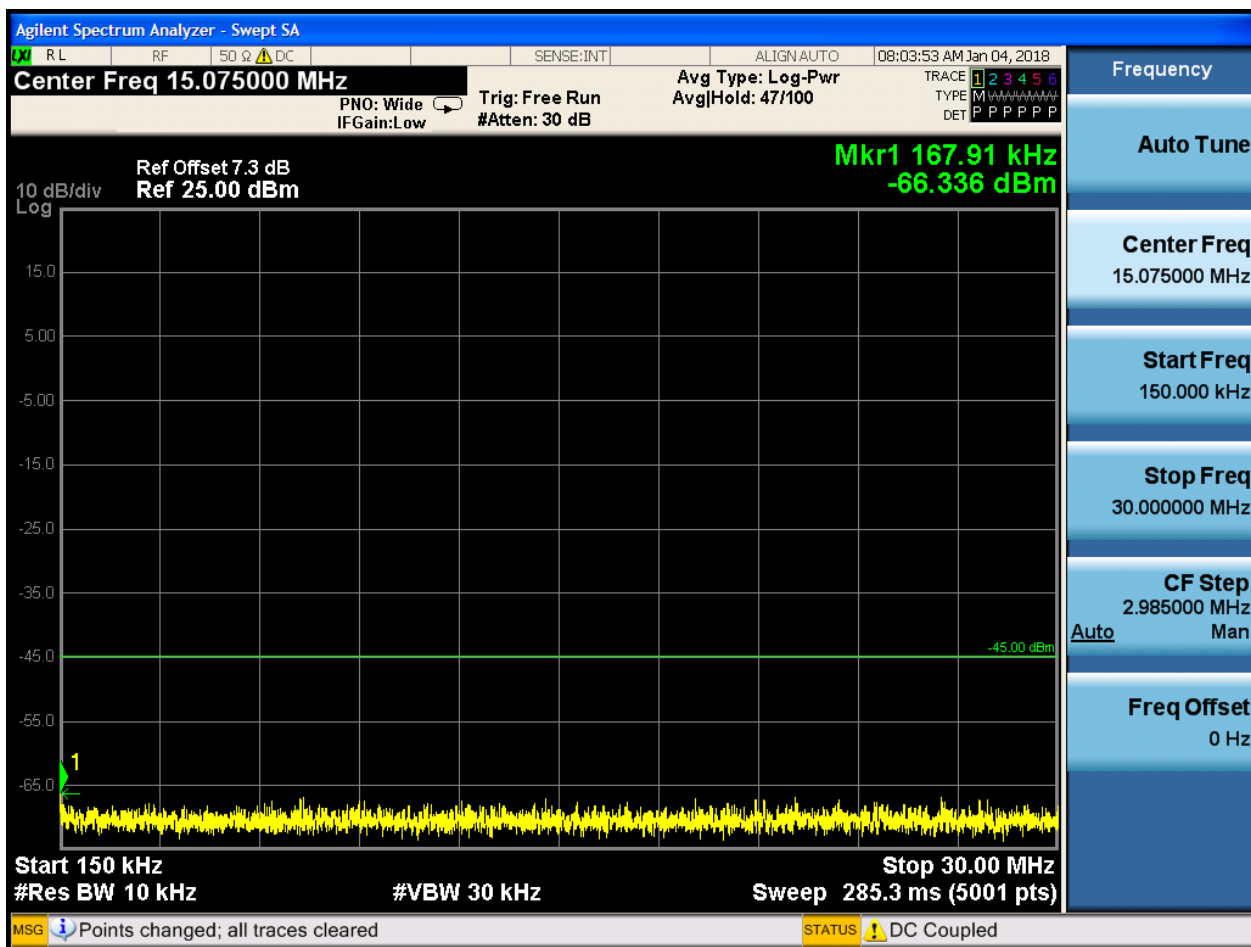


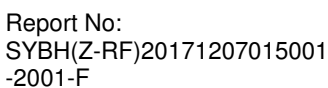


6.1.1.1.3.2 Test Channel = MCH

6.1.1.1.3.2.1 Test RB = RB1#0



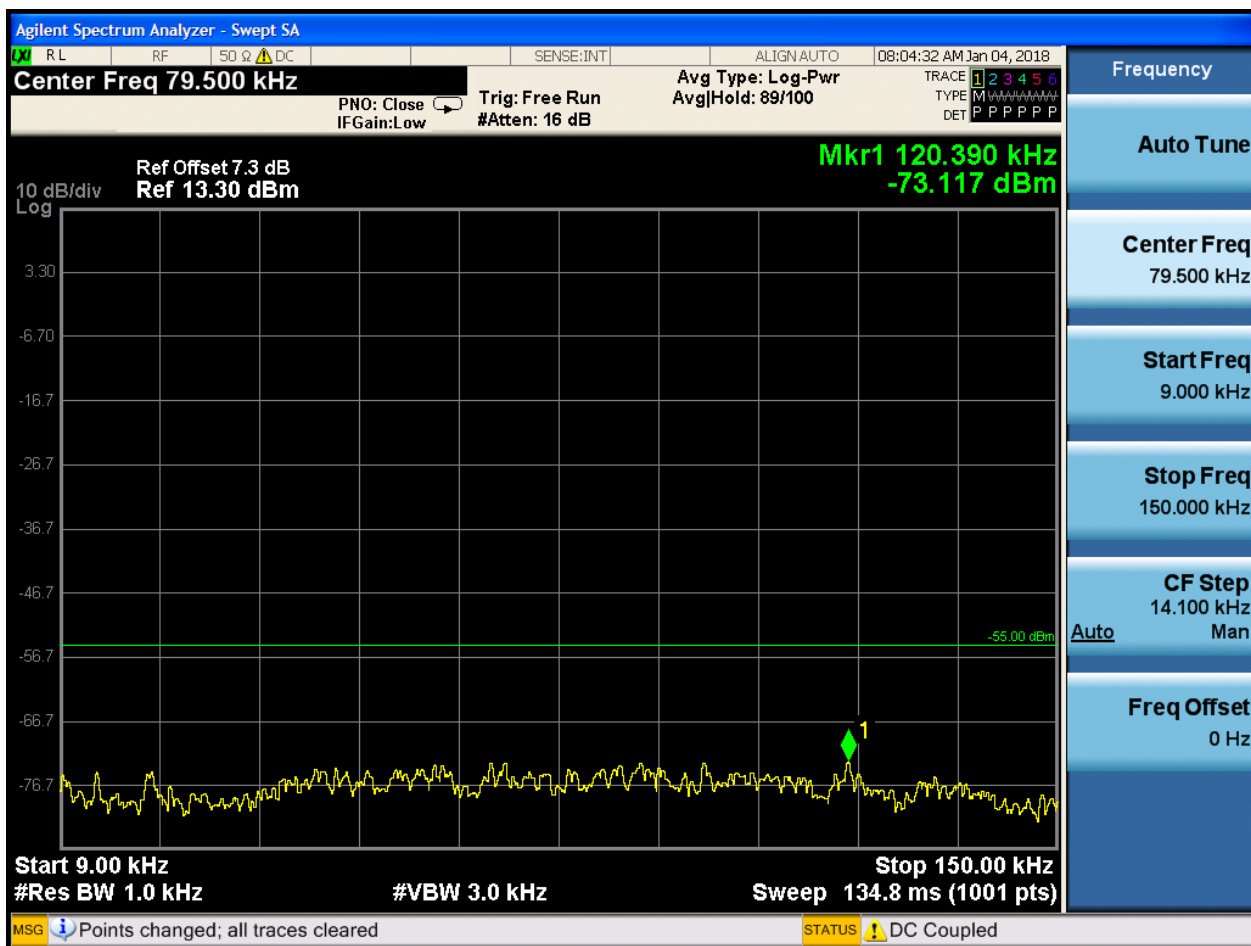


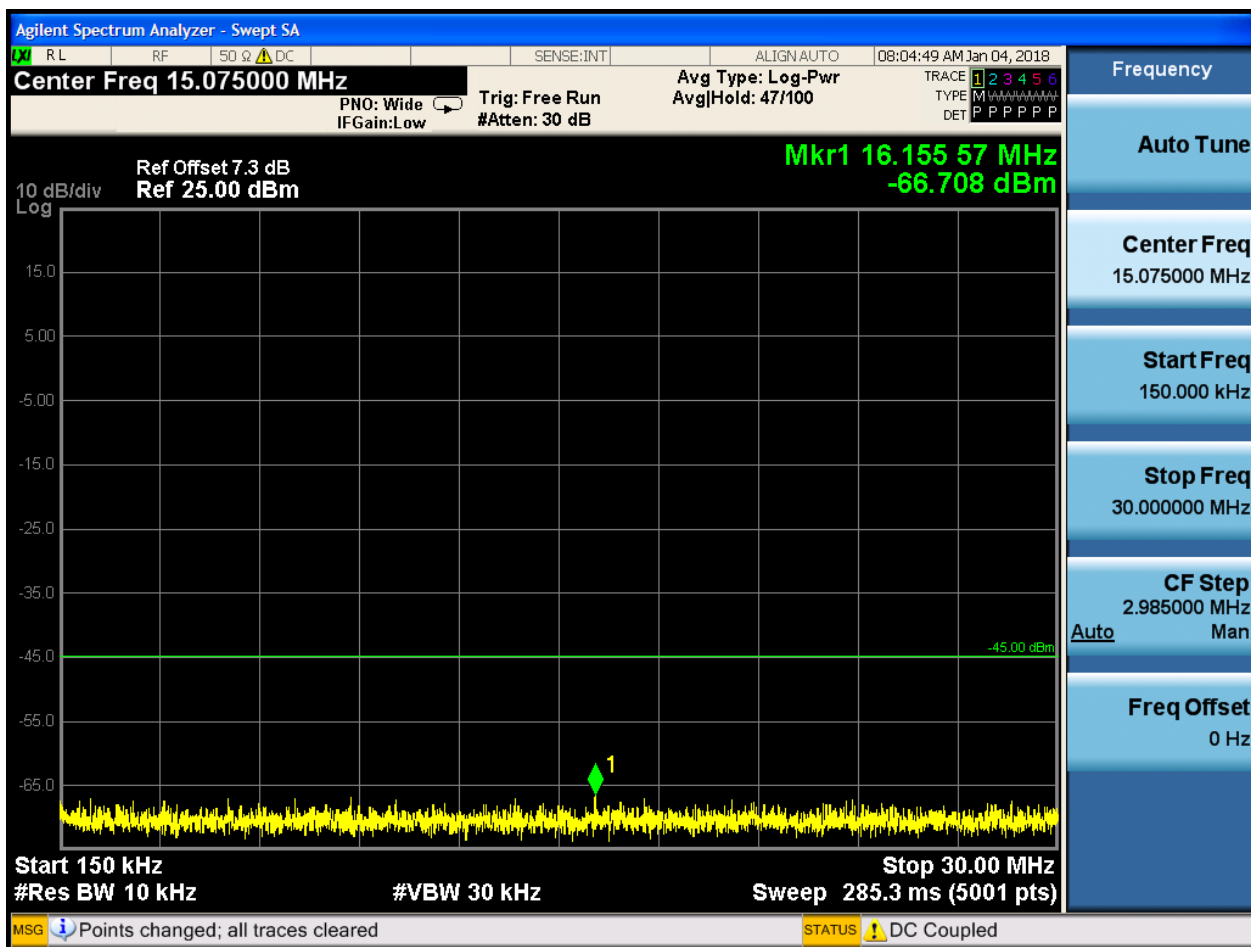


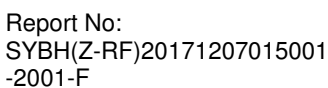


6.1.1.1.3.3 Test Channel = HCH

6.1.1.1.3.3.1 Test RB = RB1#0





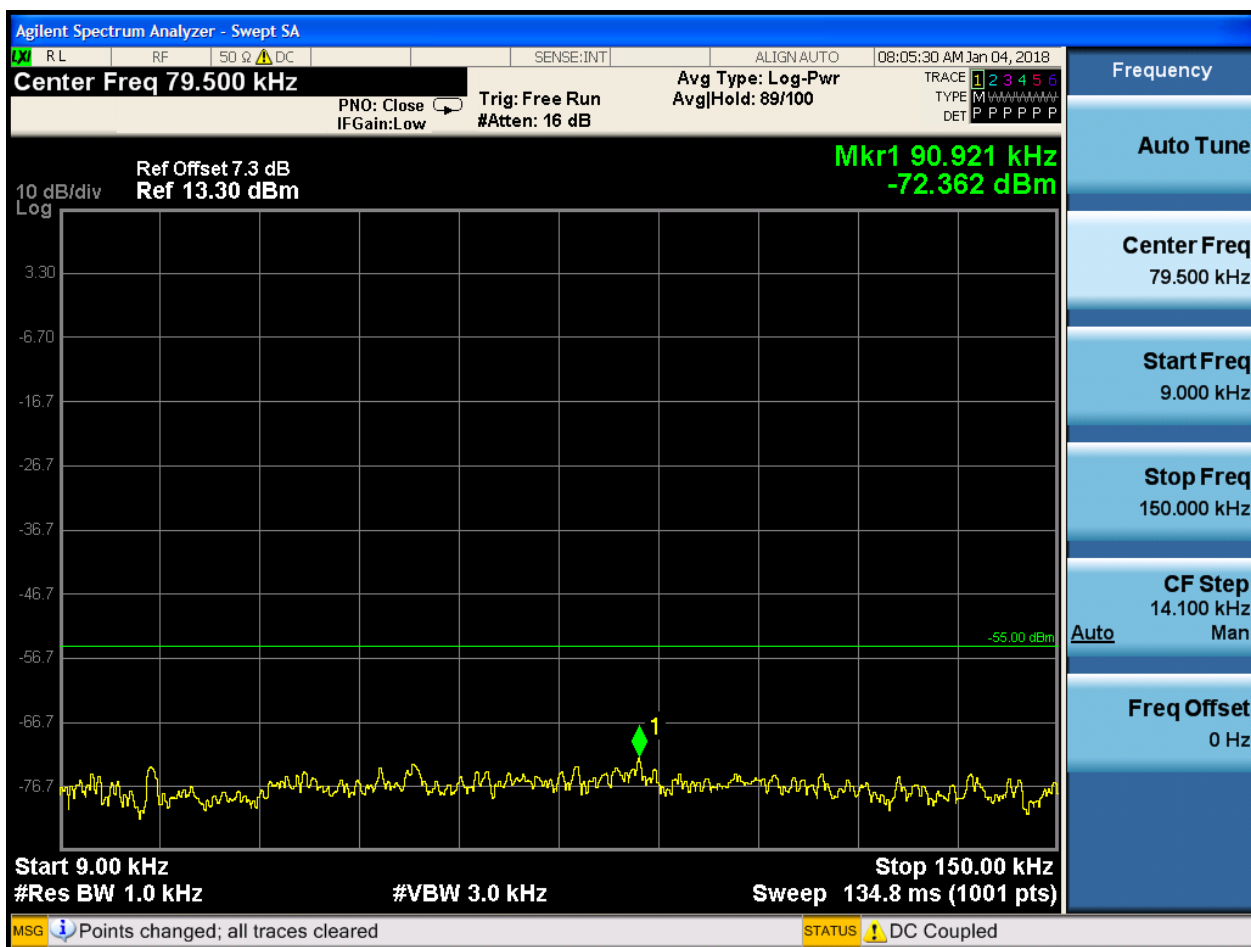


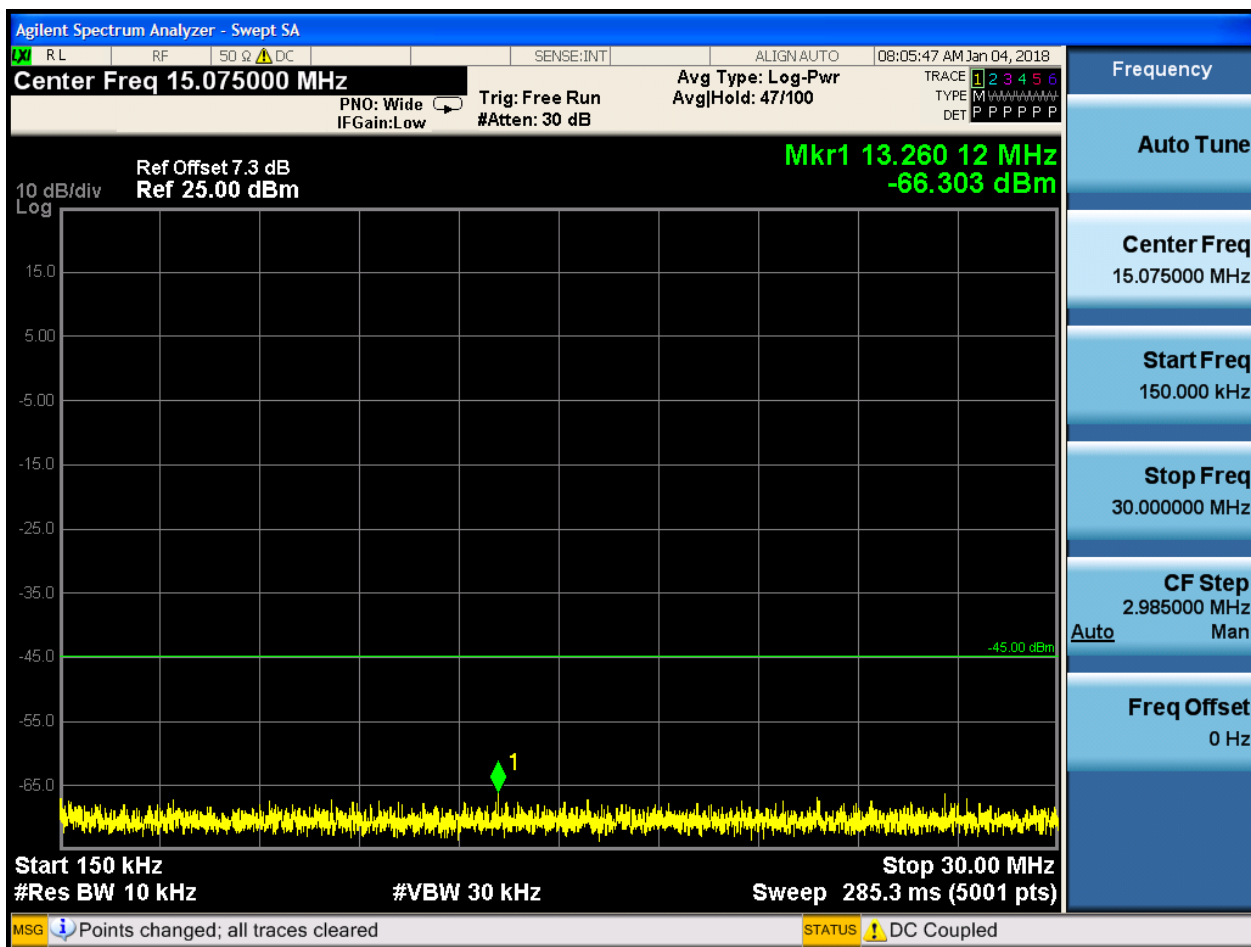


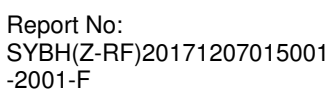
6.1.1.1.4 Test Bandwidth = 20

6.1.1.1.4.1 Test Channel = LCH

6.1.1.1.4.1.1 Test RB = RB1#0



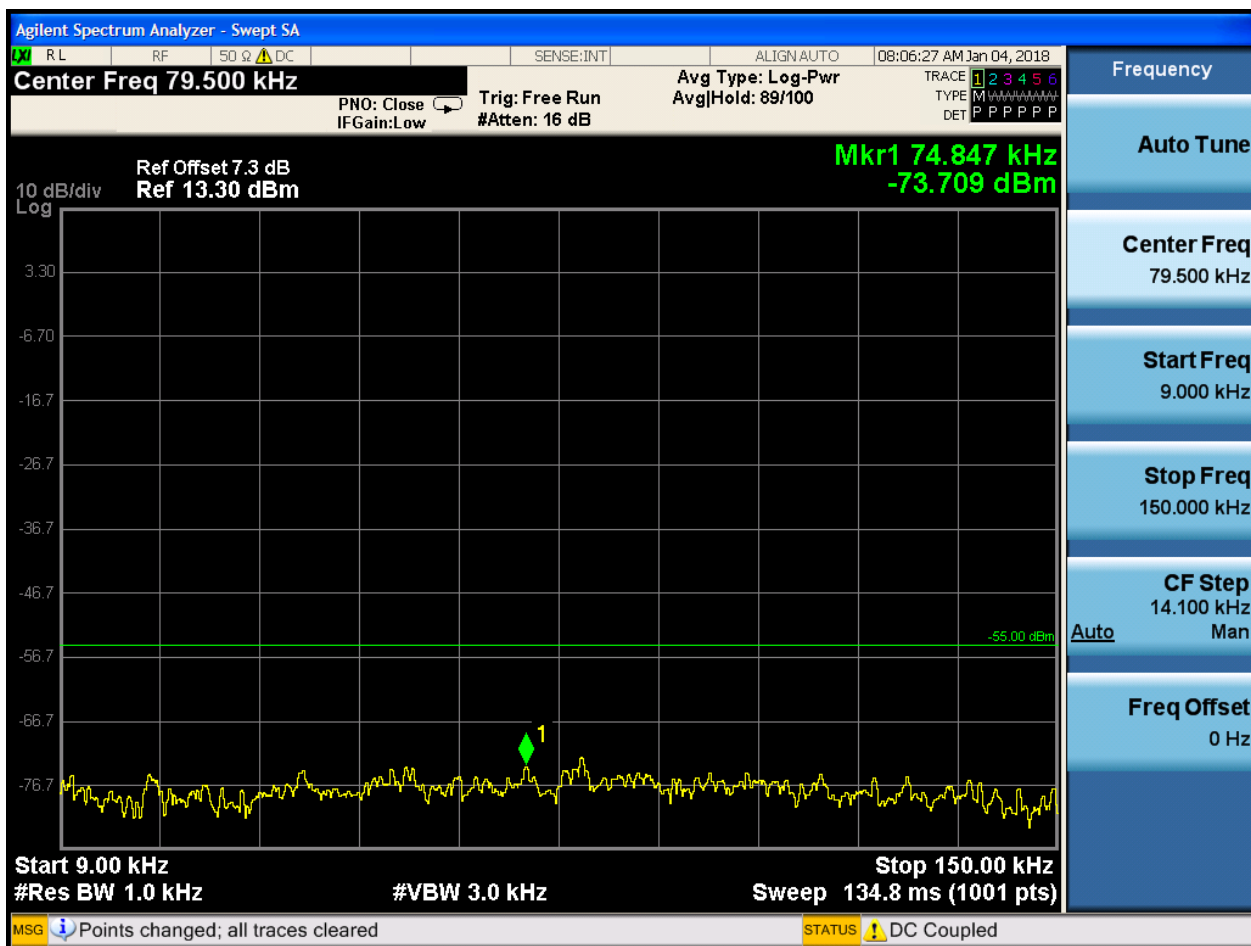


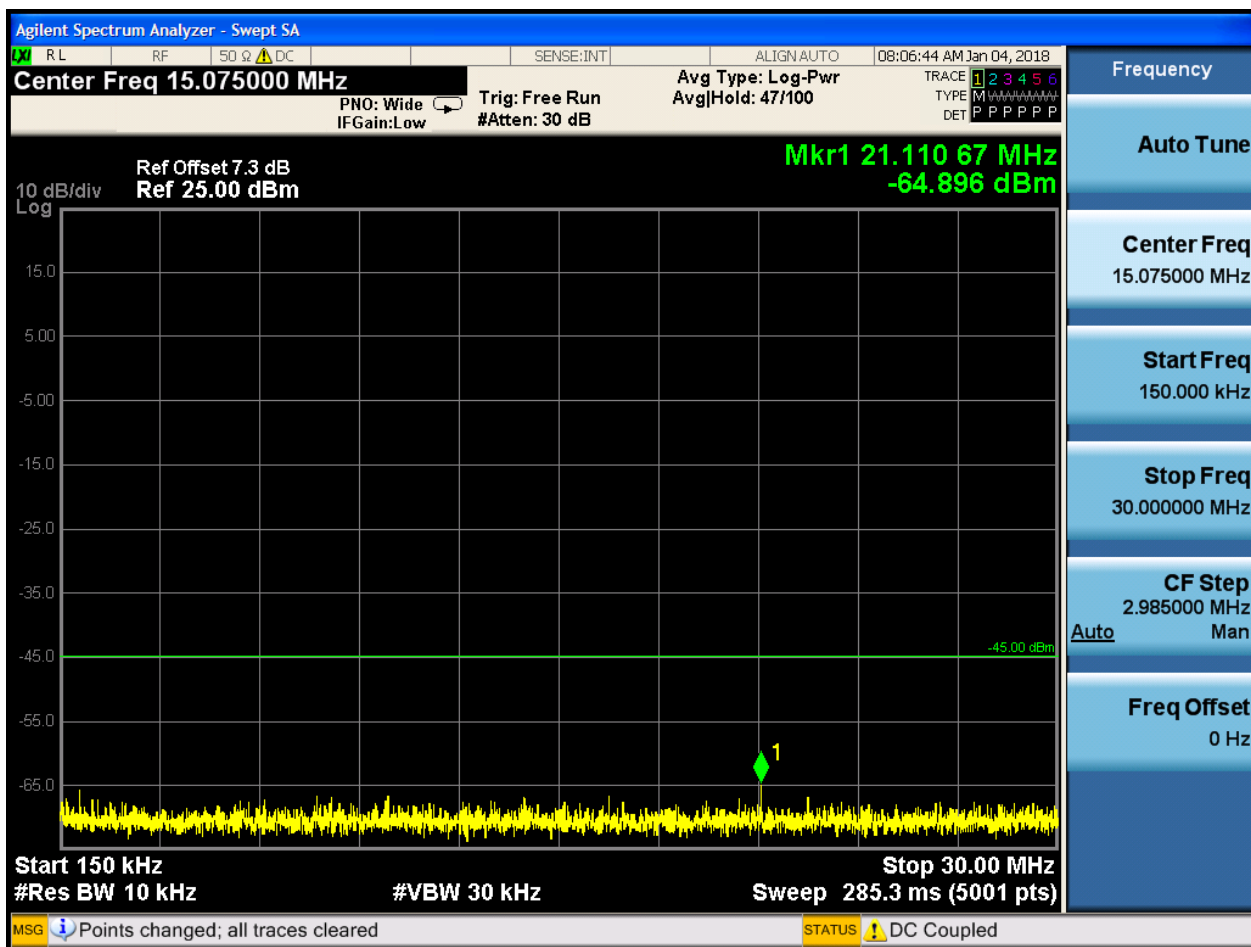


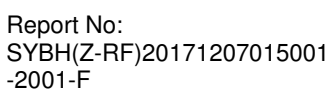


6.1.1.1.4.2 Test Channel = MCH

6.1.1.1.4.2.1 Test RB = RB1#0

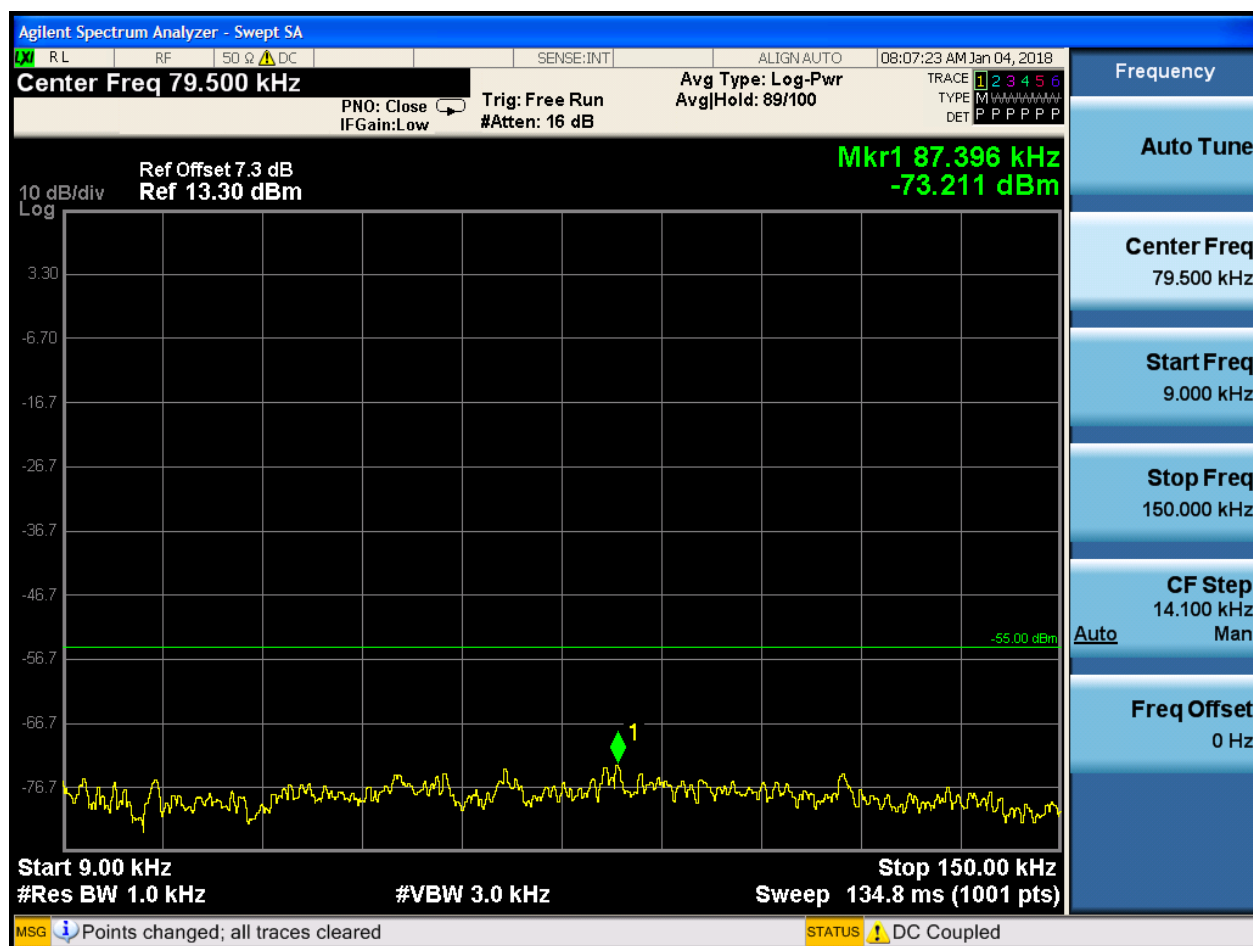


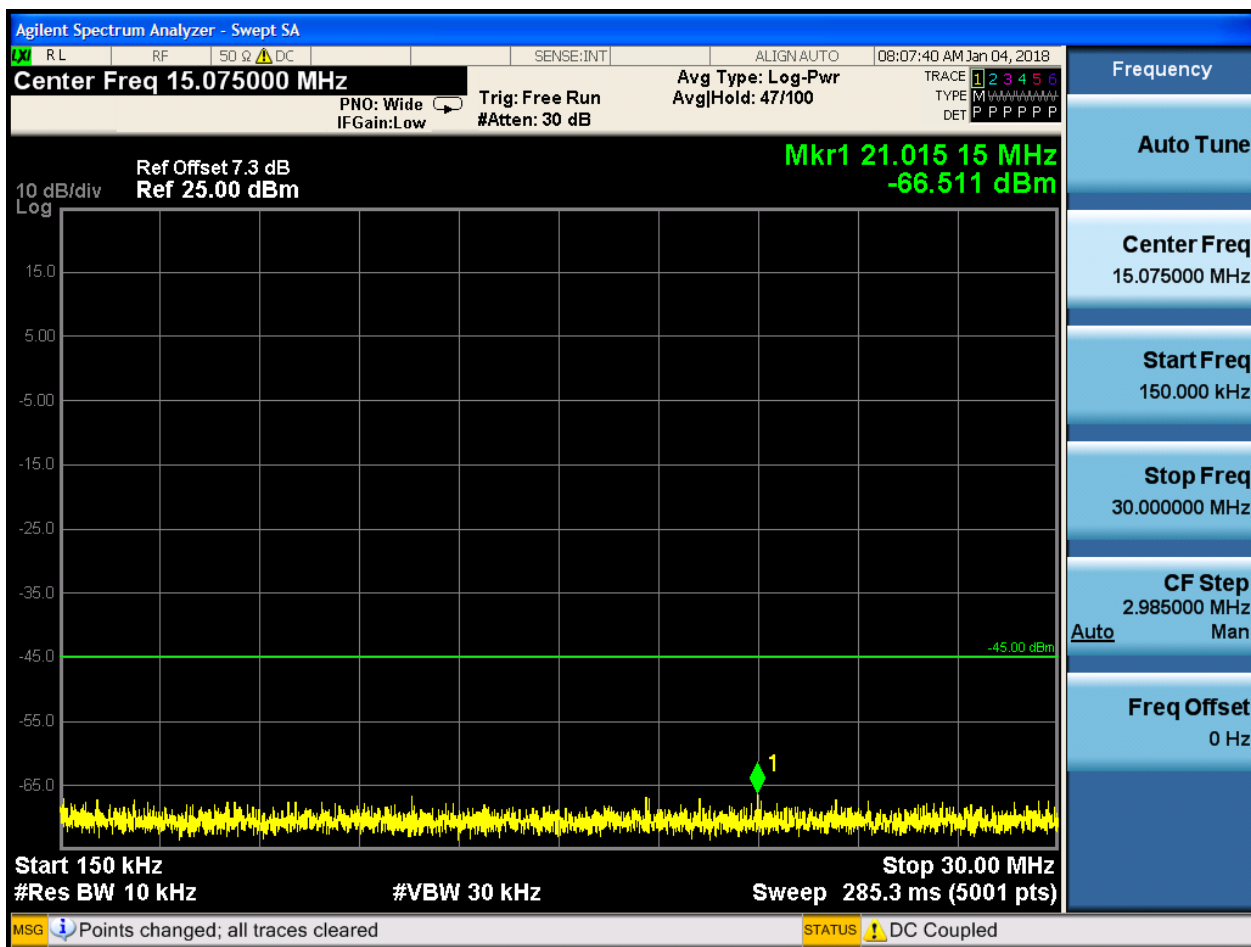


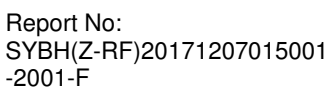


6.1.1.1.4.3 Test Channel = HCH

6.1.1.1.4.3.1 Test RB = RB1#0







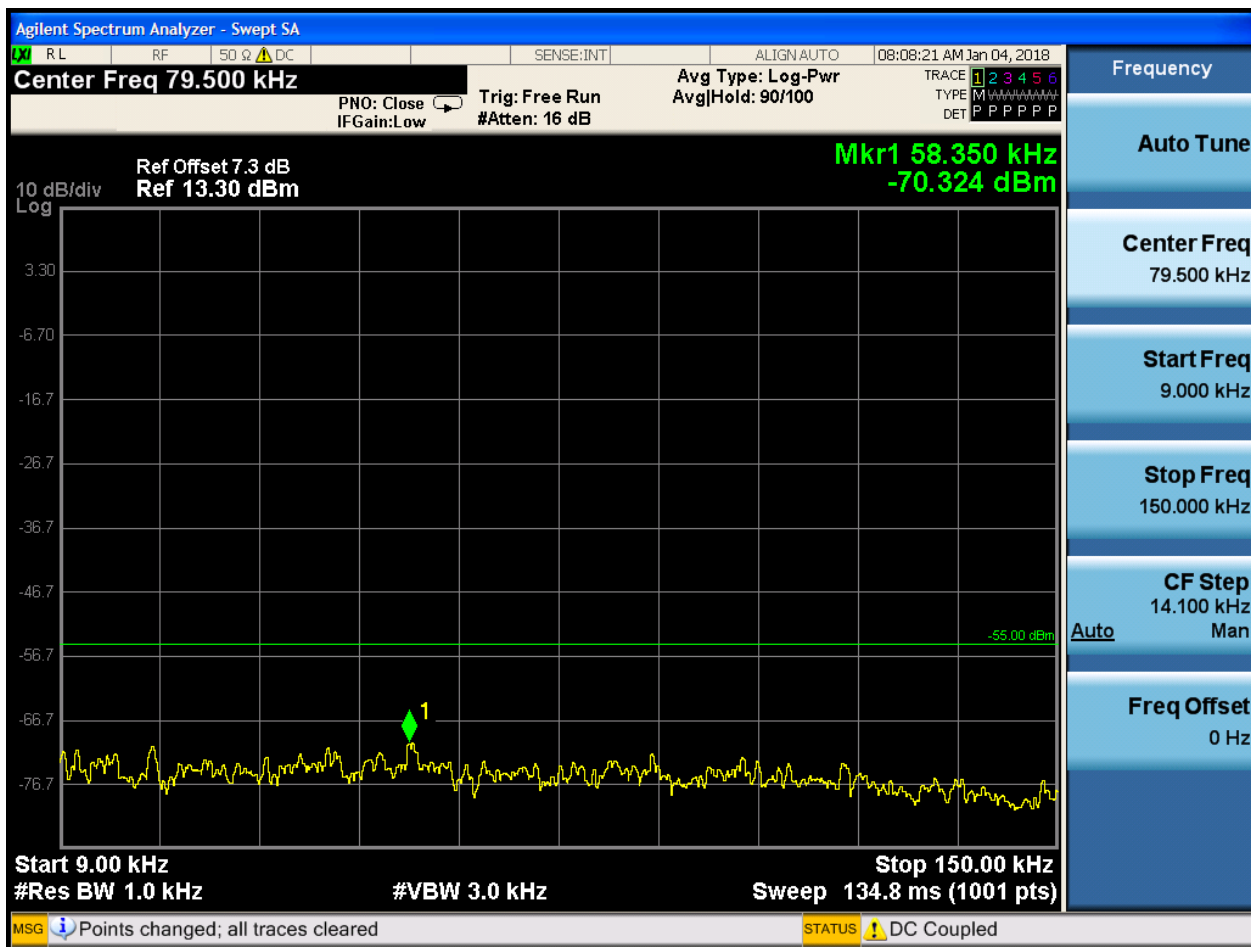


6.1.1.2 Test Mode = LTE/TM2

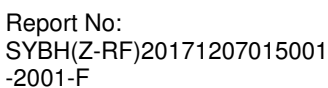
6.1.1.2.1 Test Bandwidth = 5

6.1.1.2.1.1 Test Channel = LCH

6.1.1.2.1.1.1 Test RB = RB1#0



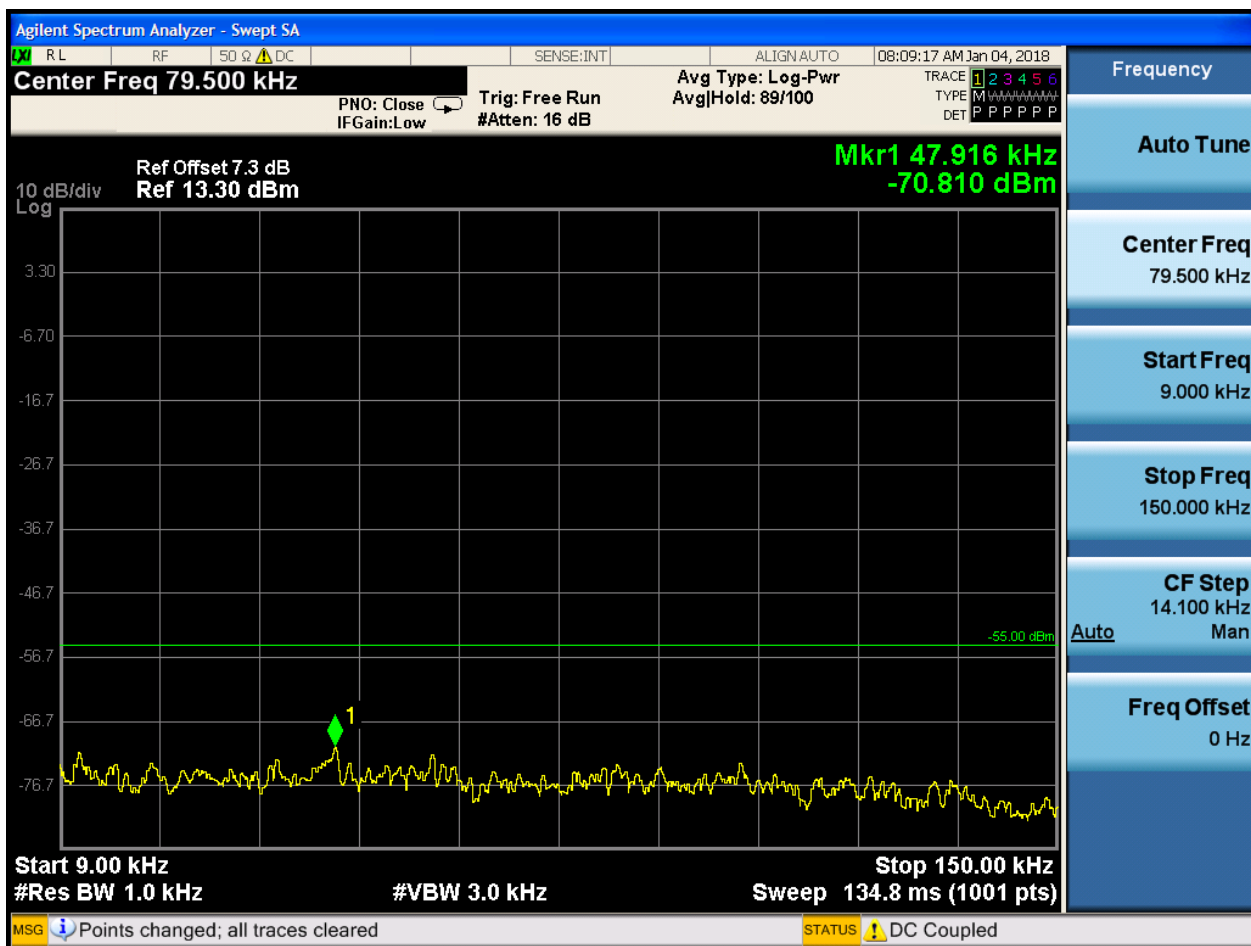


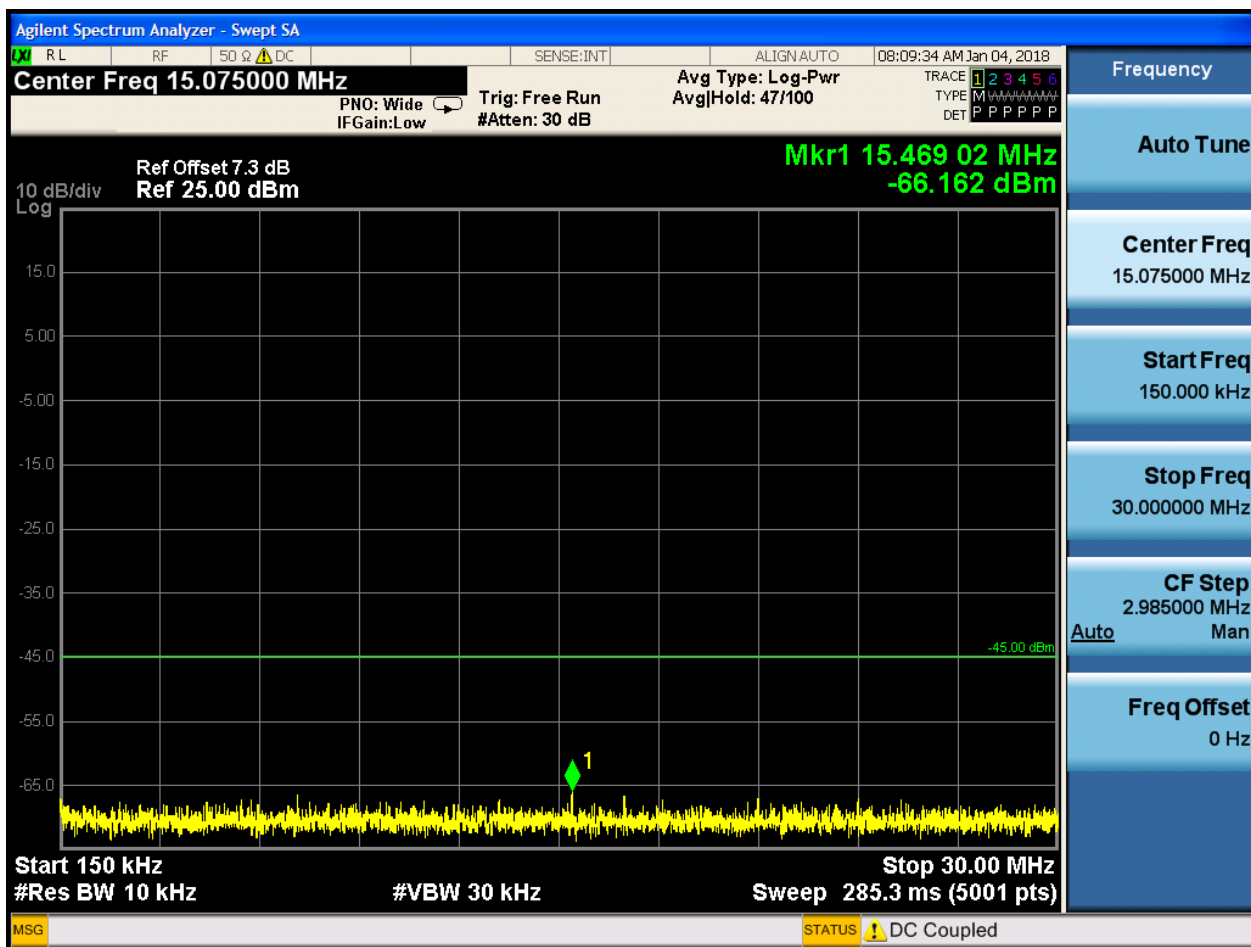


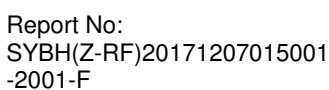


6.1.1.2.1.2 Test Channel = MCH

6.1.1.2.1.2.1 Test RB = RB1#0

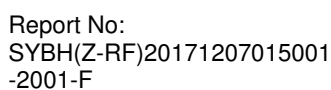


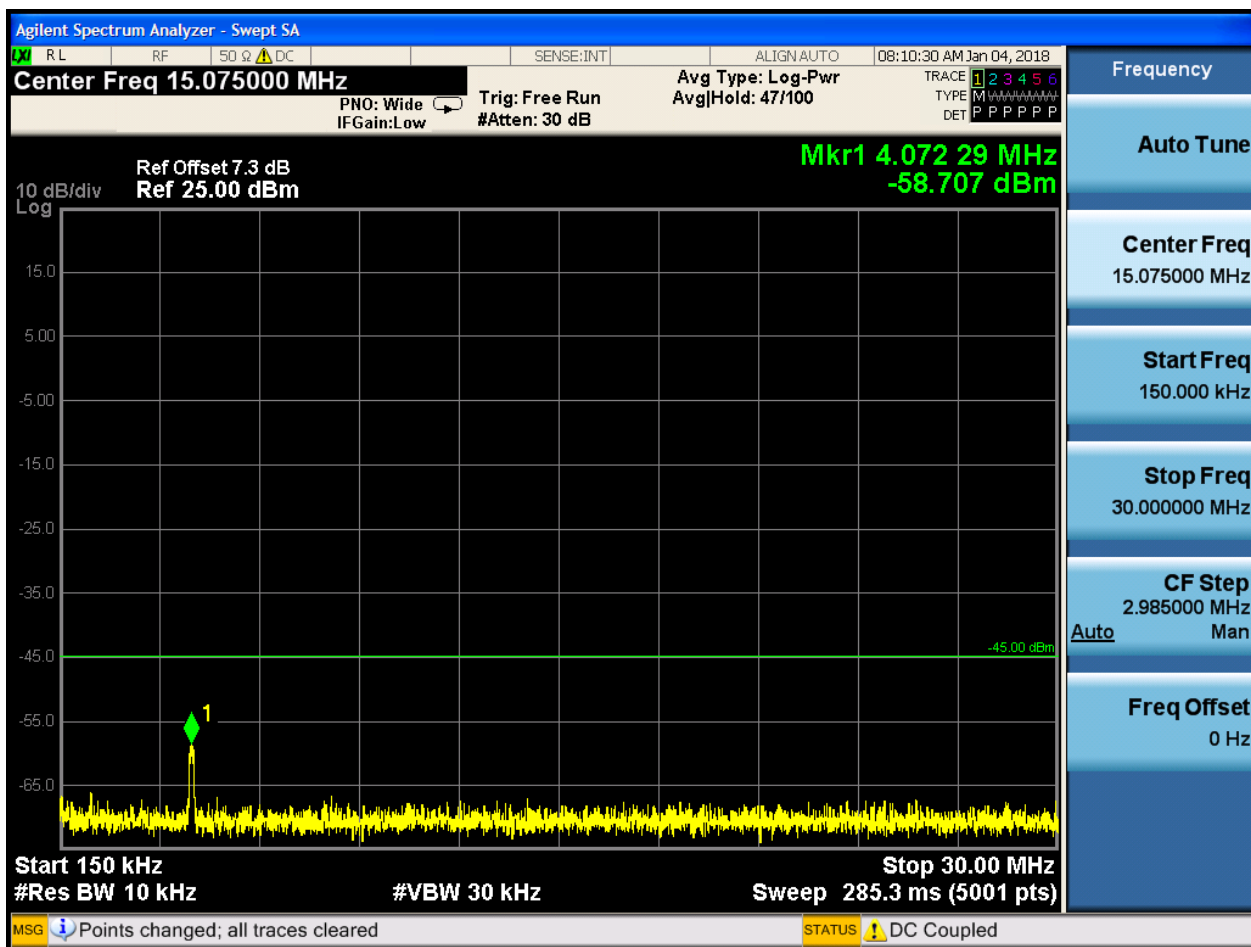


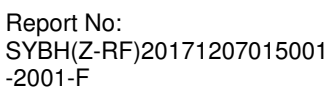




6.1.1.2.1.3.1 Test RB = RB1#0





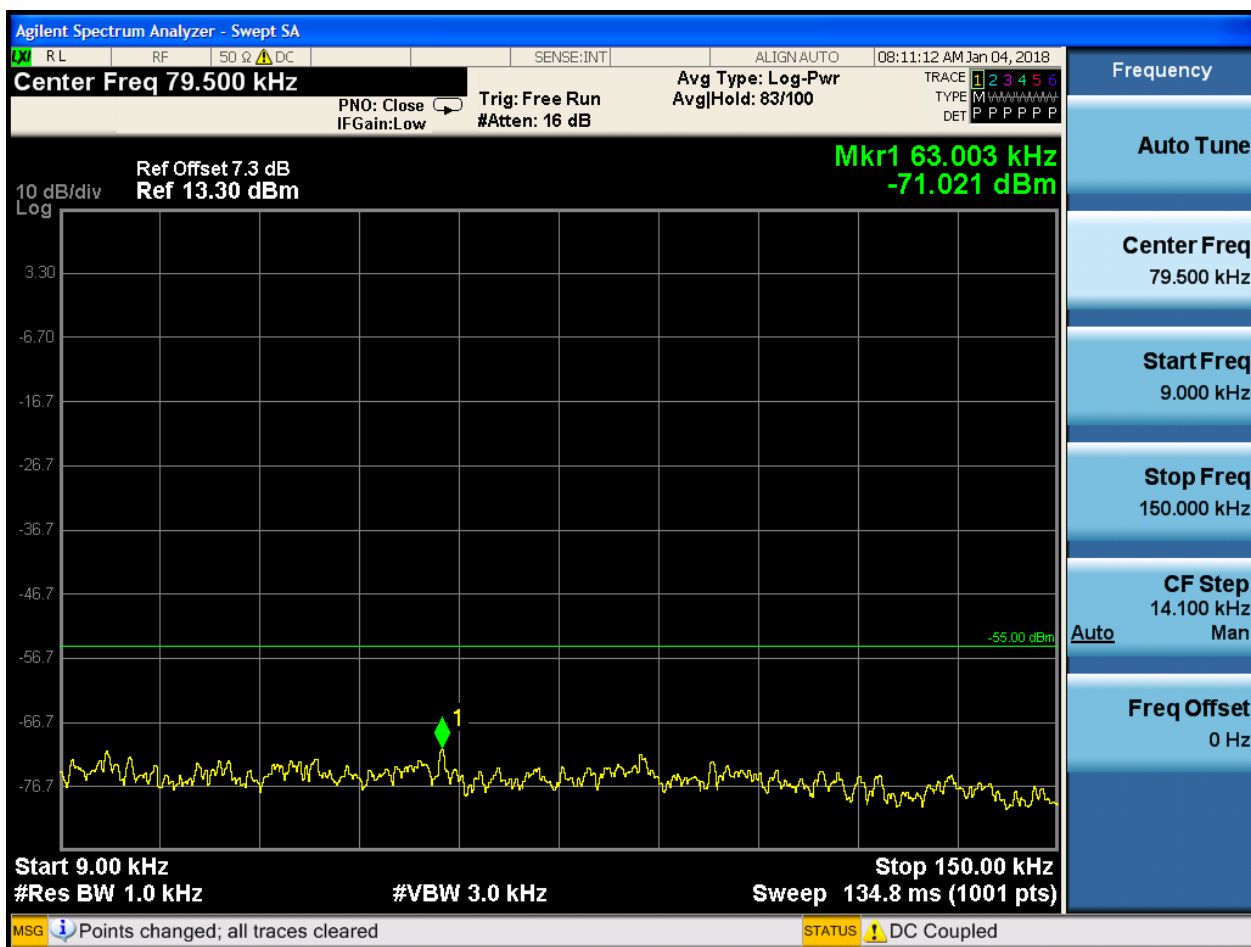


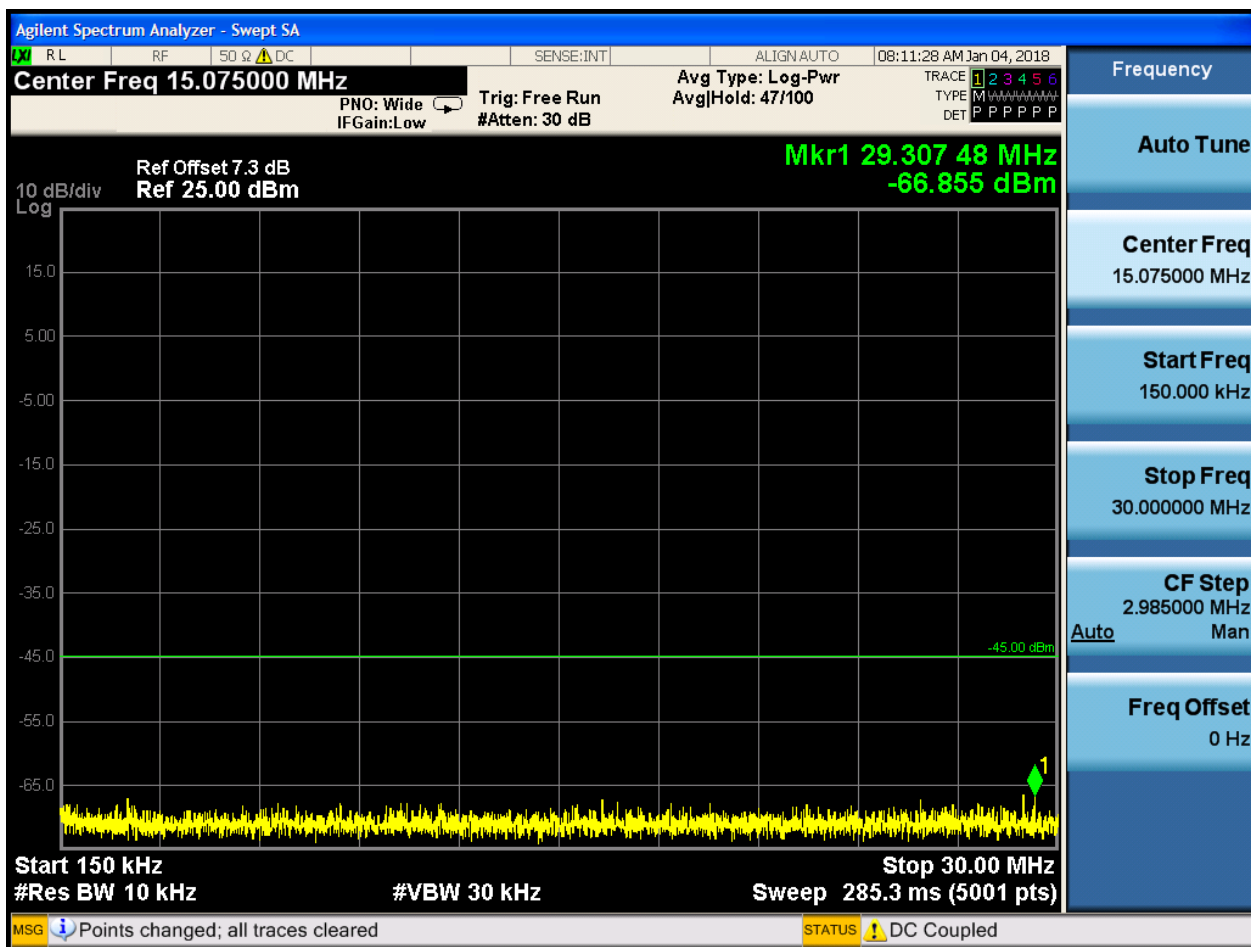


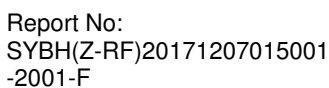
6.1.1.2.2 Test Bandwidth = 10

6.1.1.2.2.1 Test Channel = LCH

6.1.1.2.2.1.1 Test RB = RB1#0



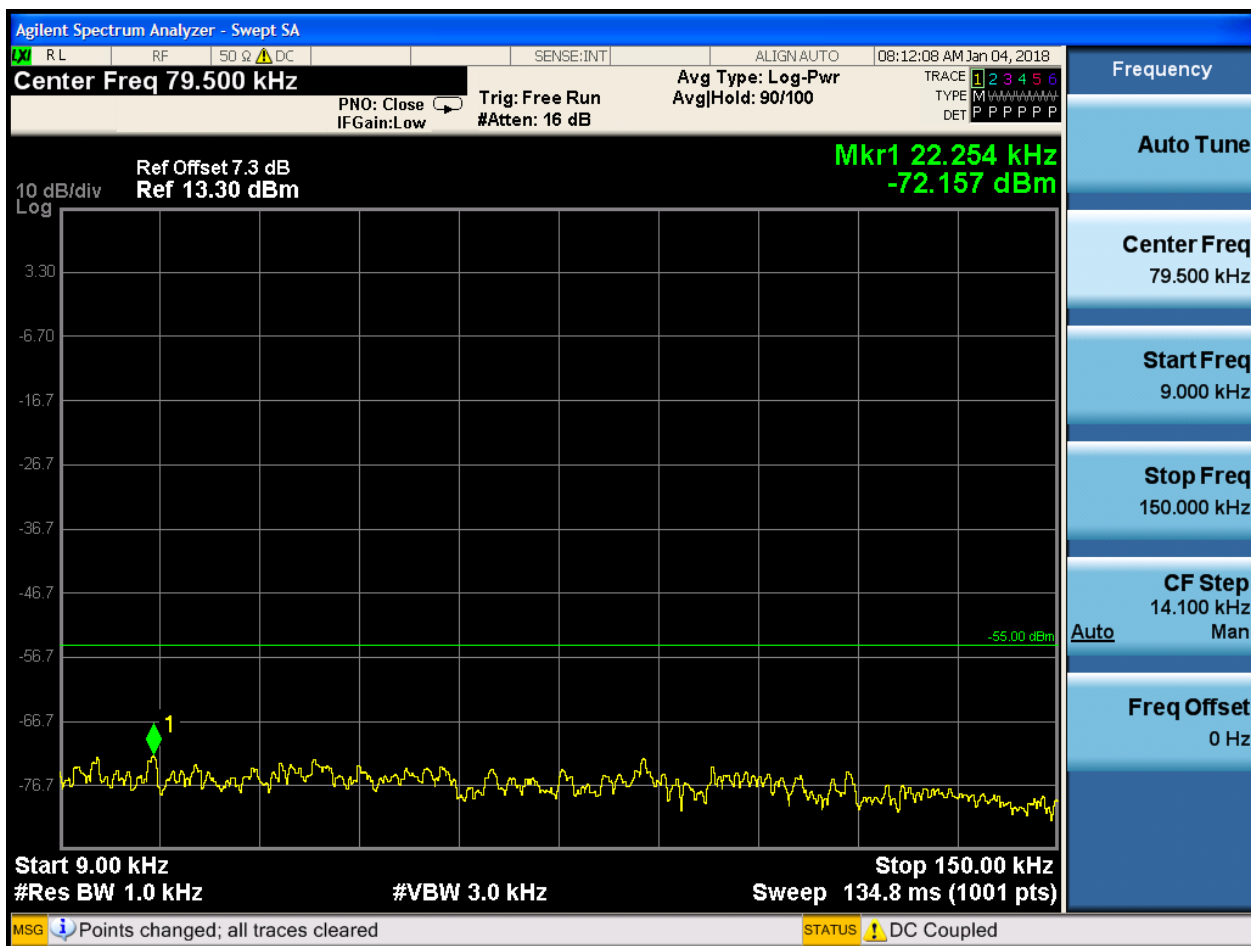


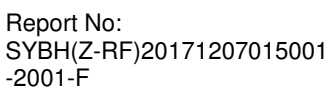


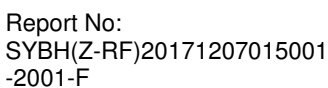


6.1.1.2.2.2 Test Channel = MCH

6.1.1.2.2.2.1 Test RB = RB1#0



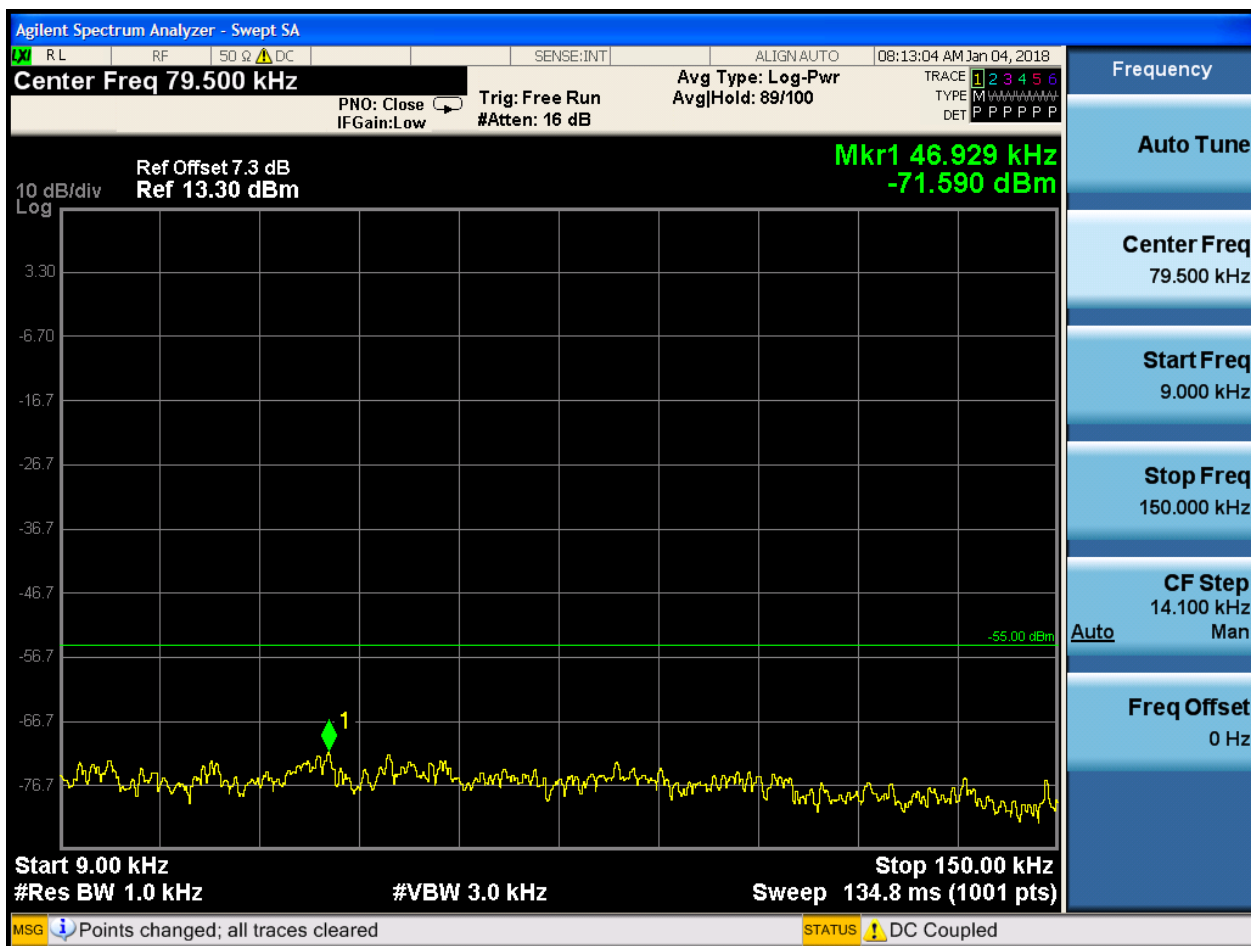


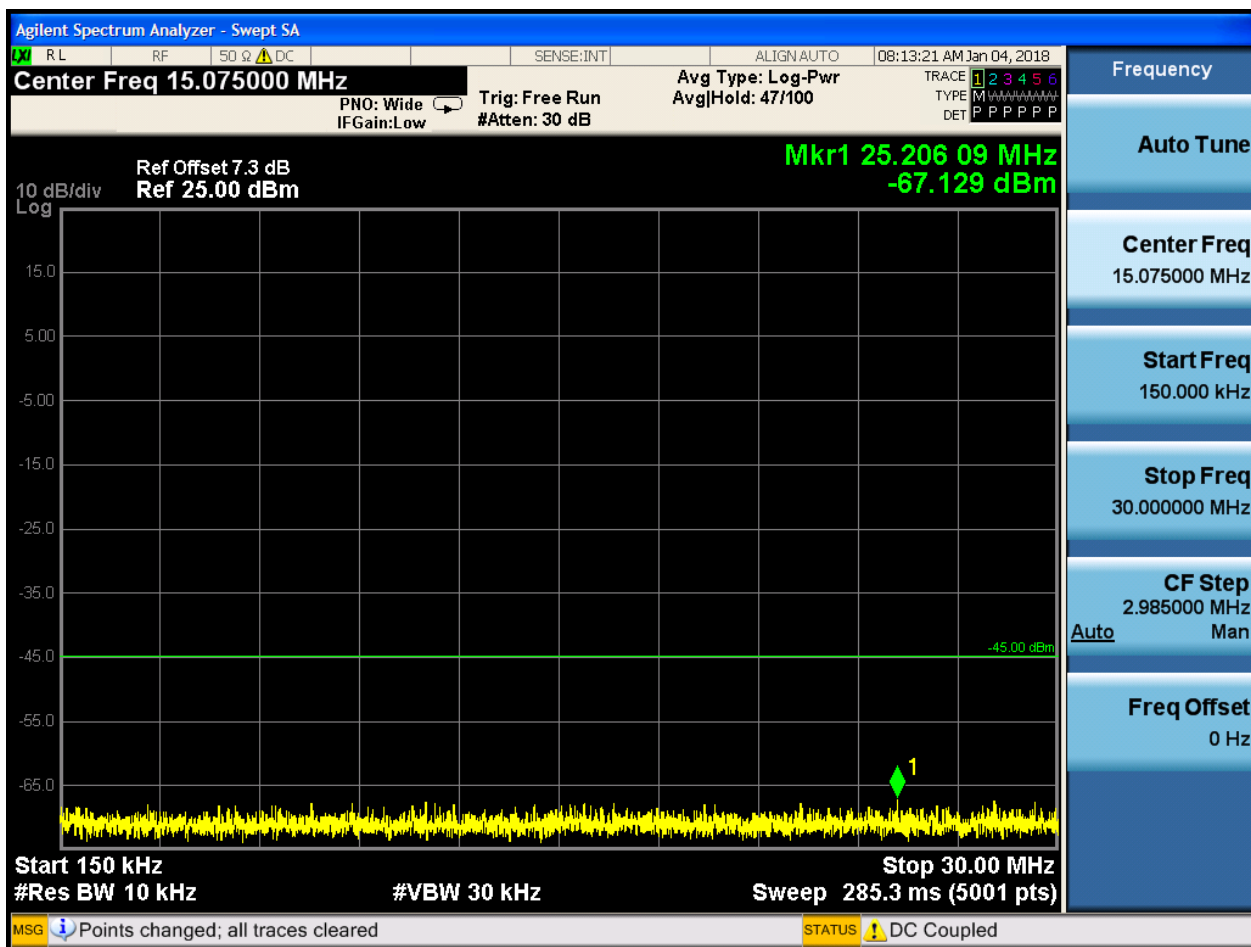


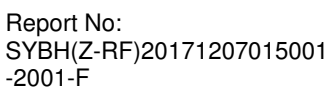


6.1.1.2.2.3 Test Channel = HCH

6.1.1.2.2.3.1 Test RB = RB1#0





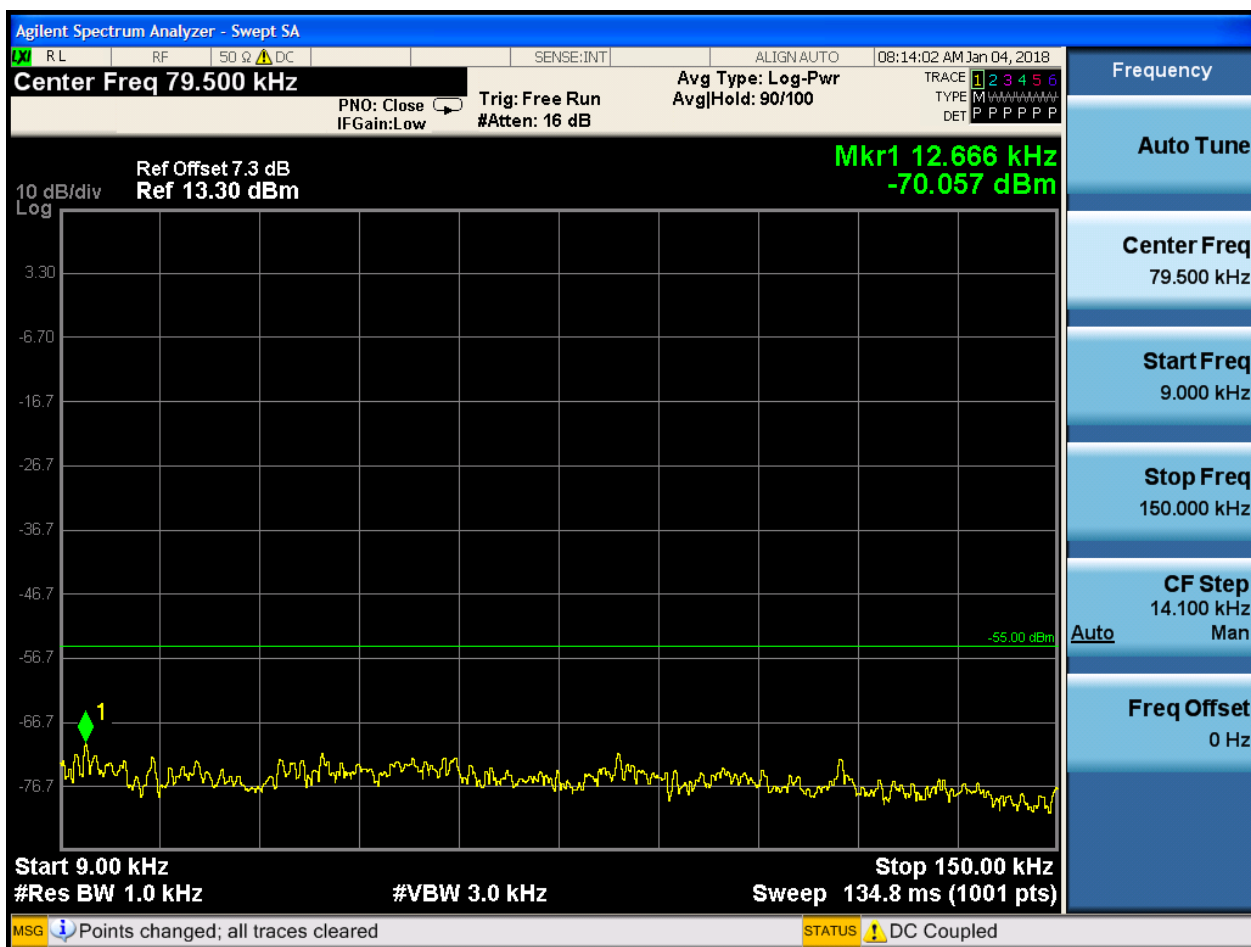




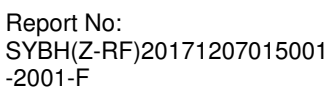
6.1.1.2.3 Test Bandwidth = 15

6.1.1.2.3.1 Test Channel = LCH

6.1.1.2.3.1.1 Test RB = RB1#0



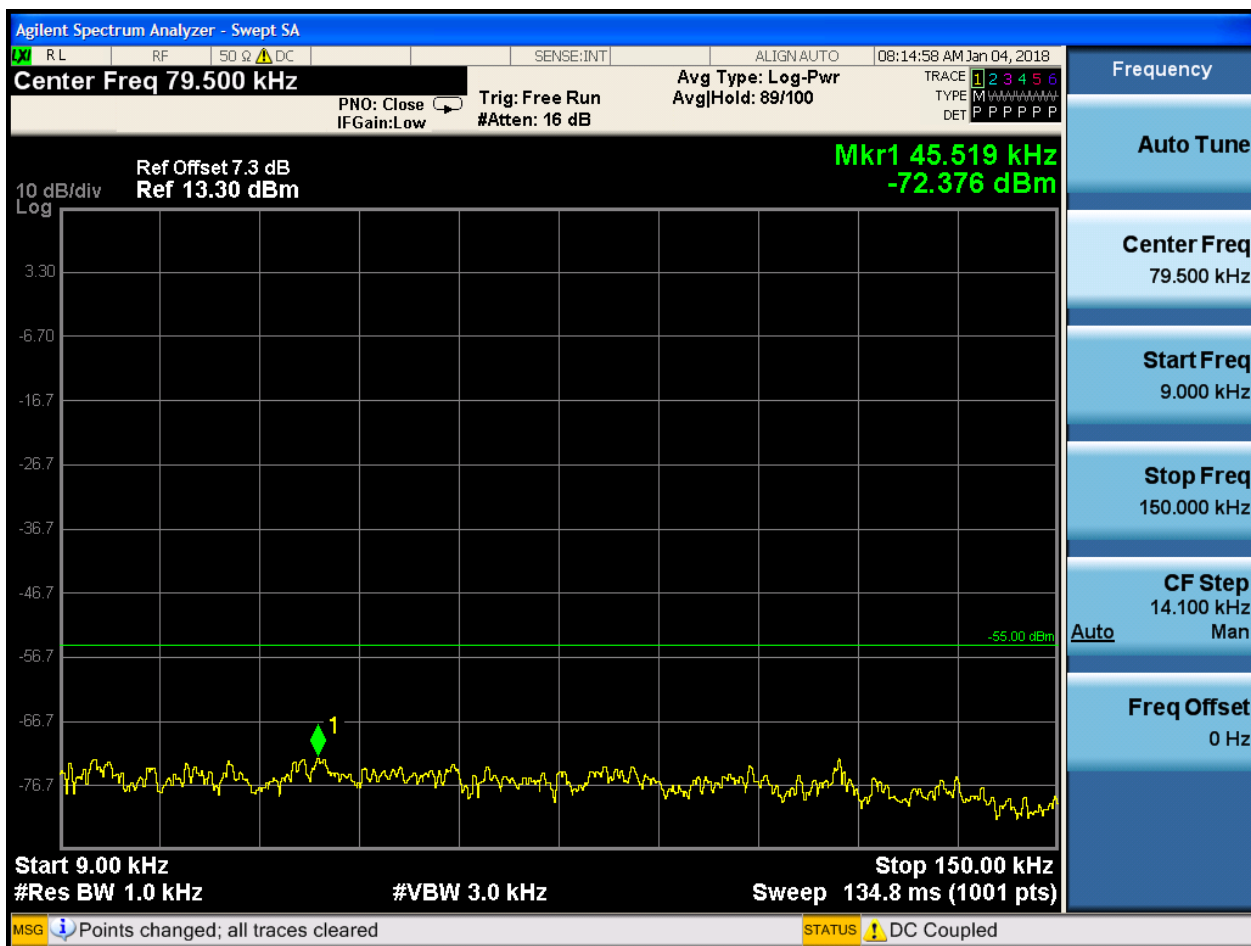


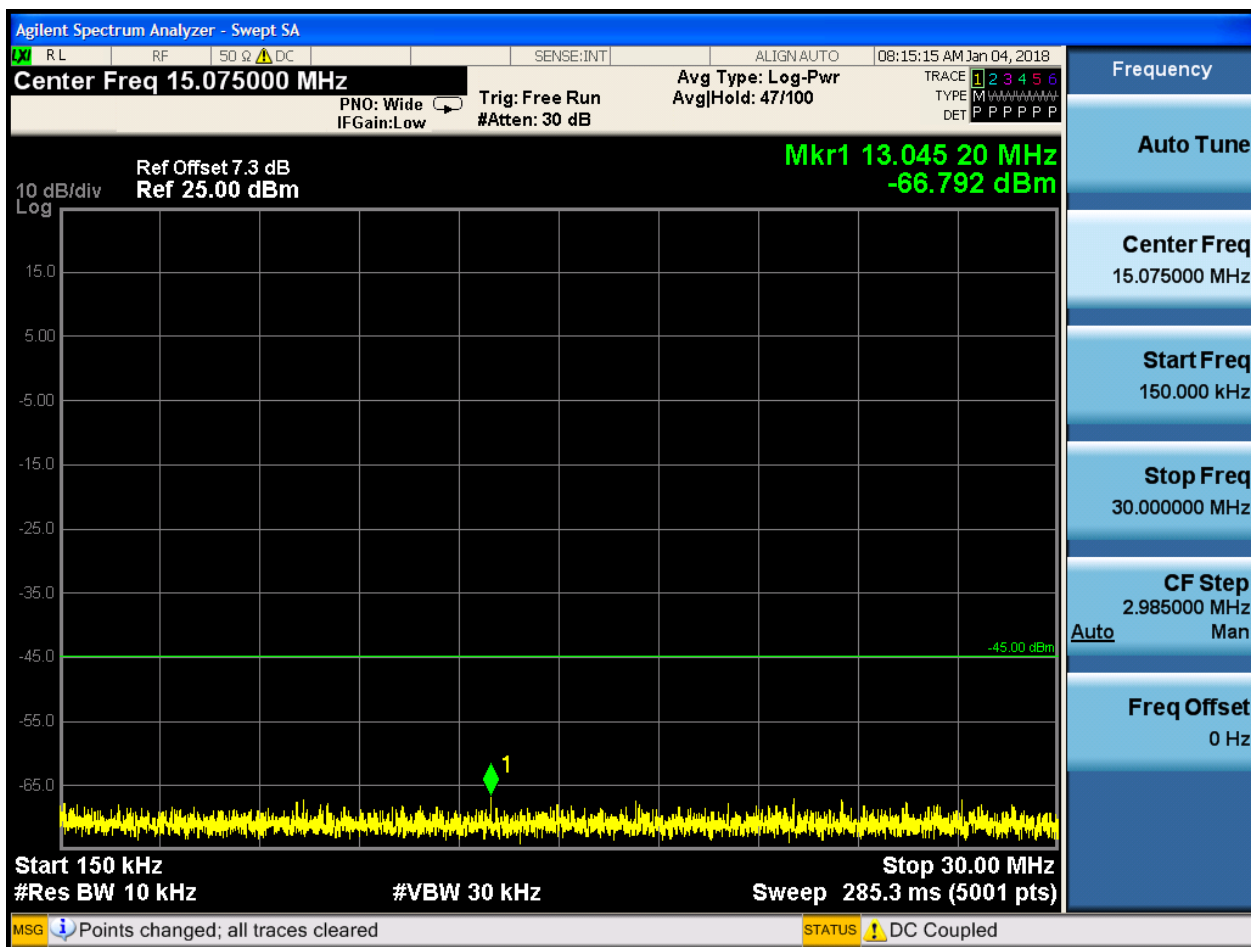


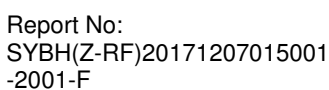


6.1.1.2.3.2 Test Channel = MCH

6.1.1.2.3.2.1 Test RB = RB1#0



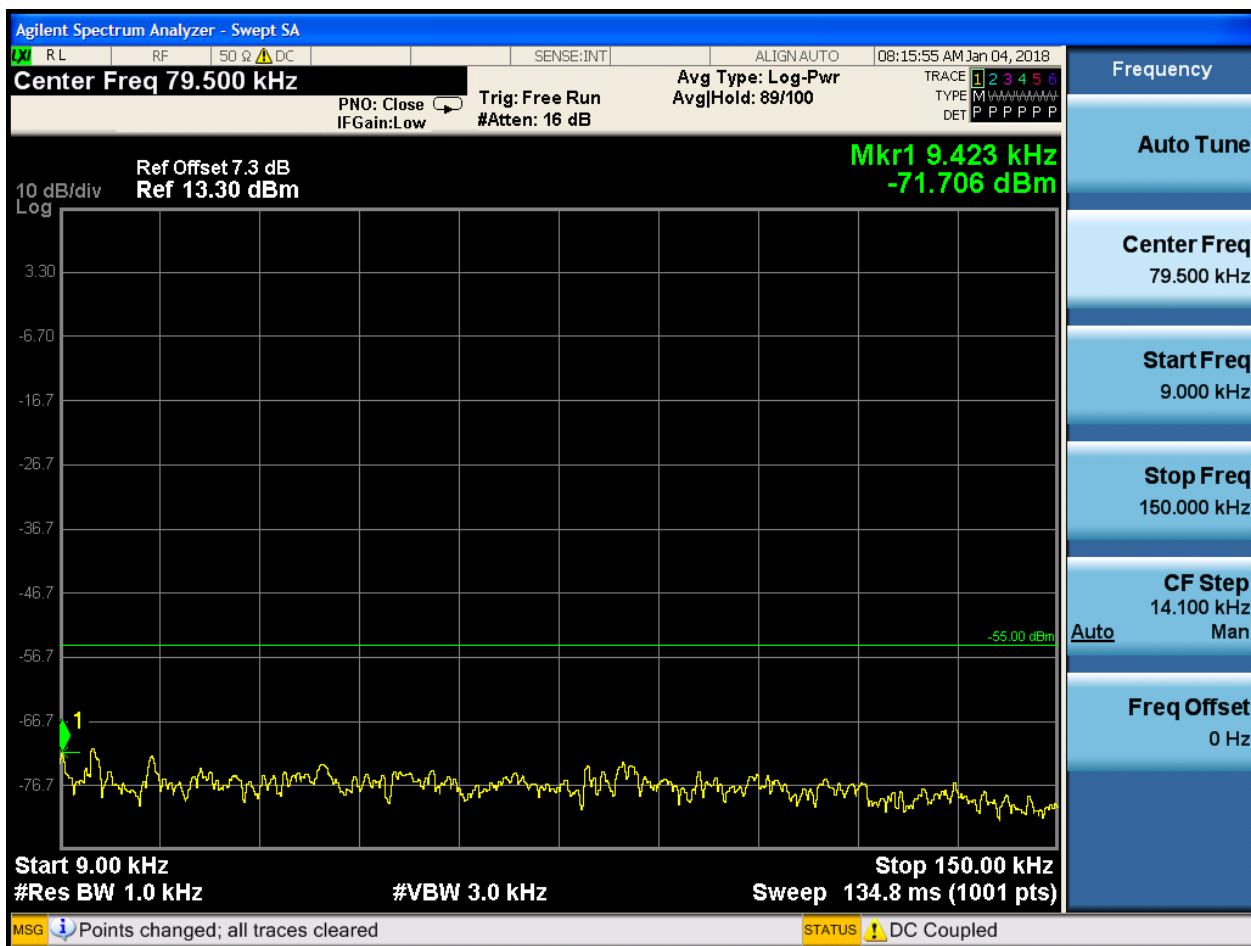


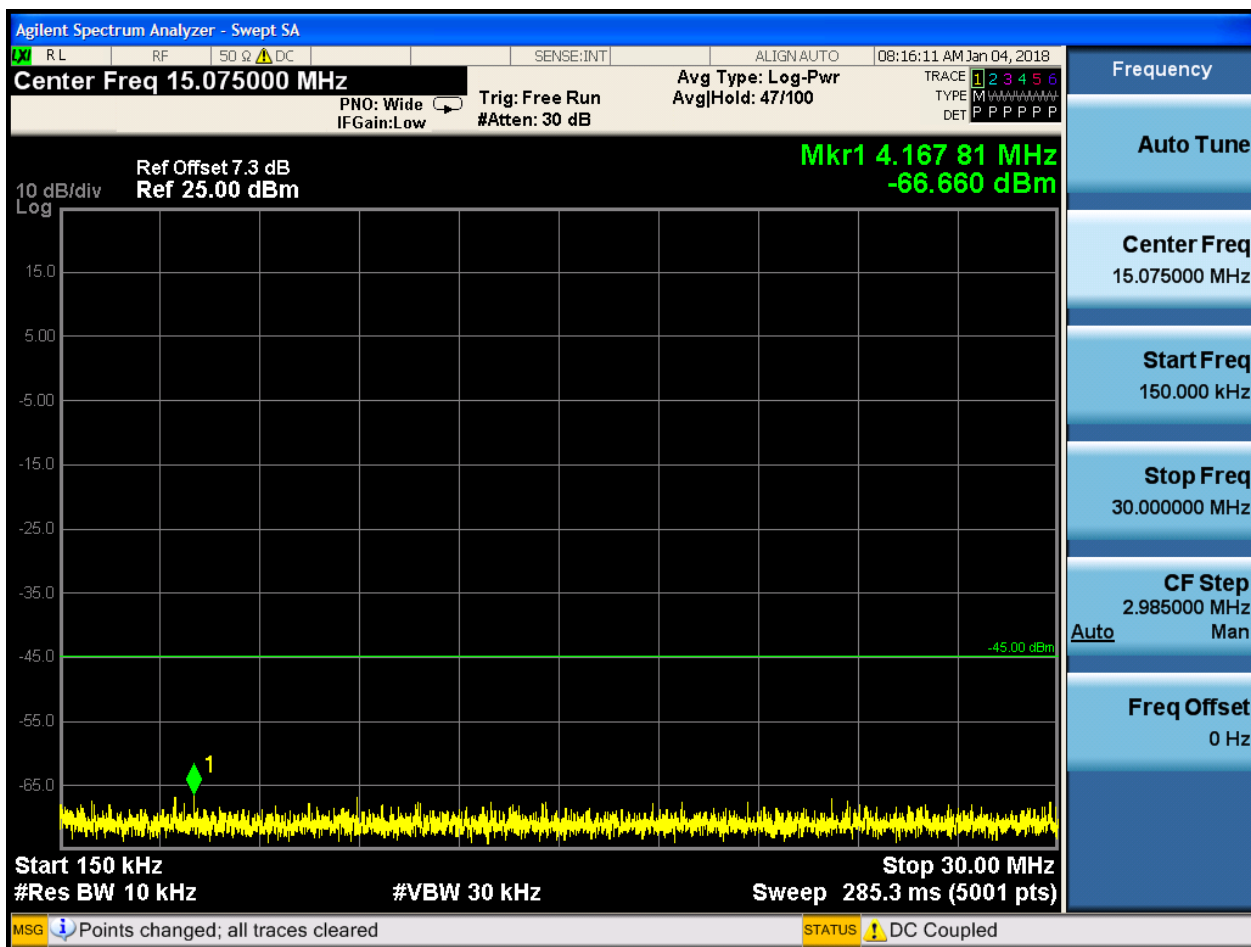


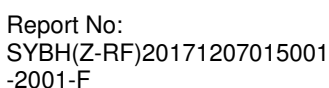


6.1.1.2.3.3 Test Channel = HCH

6.1.1.2.3.3.1 Test RB = RB1#0





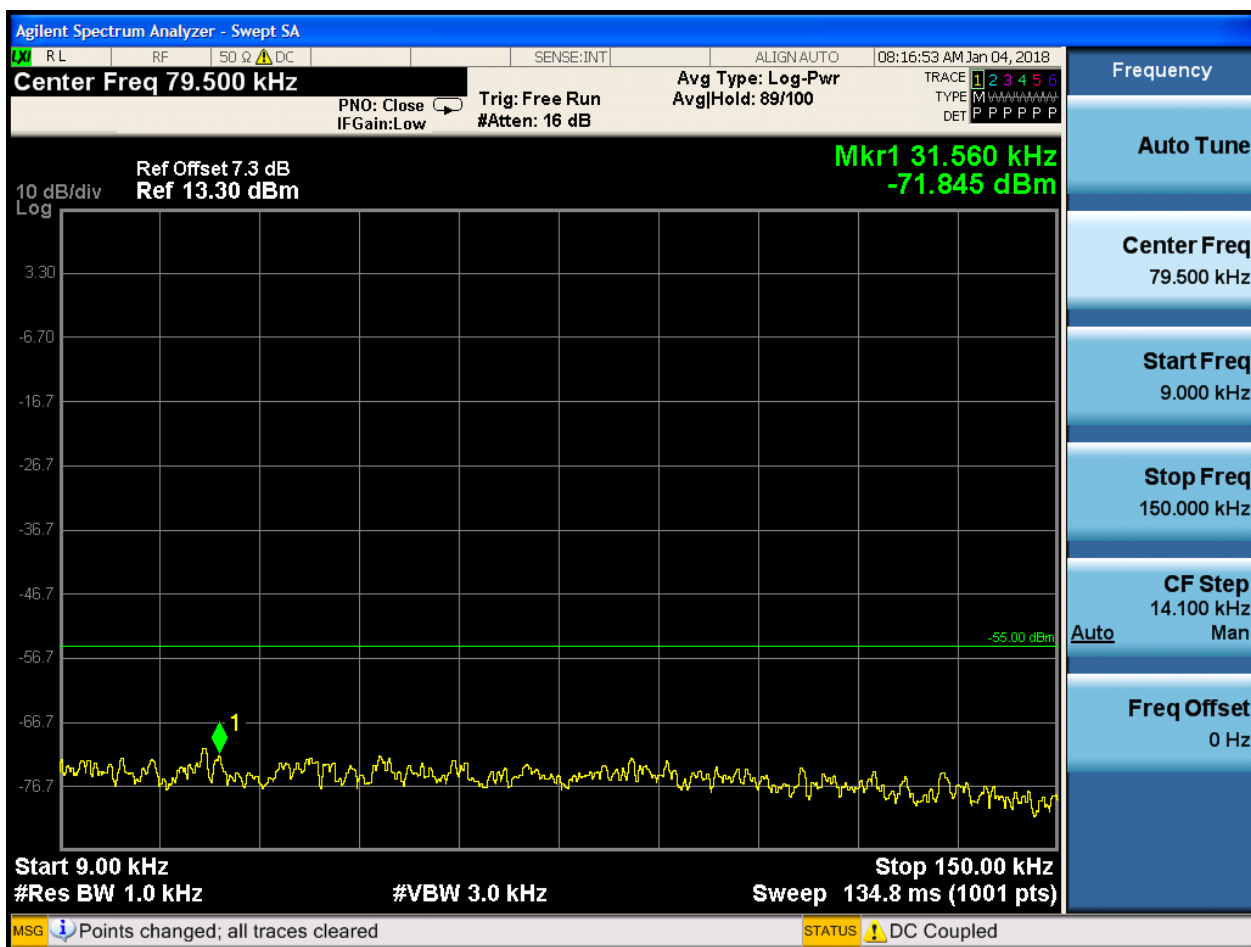


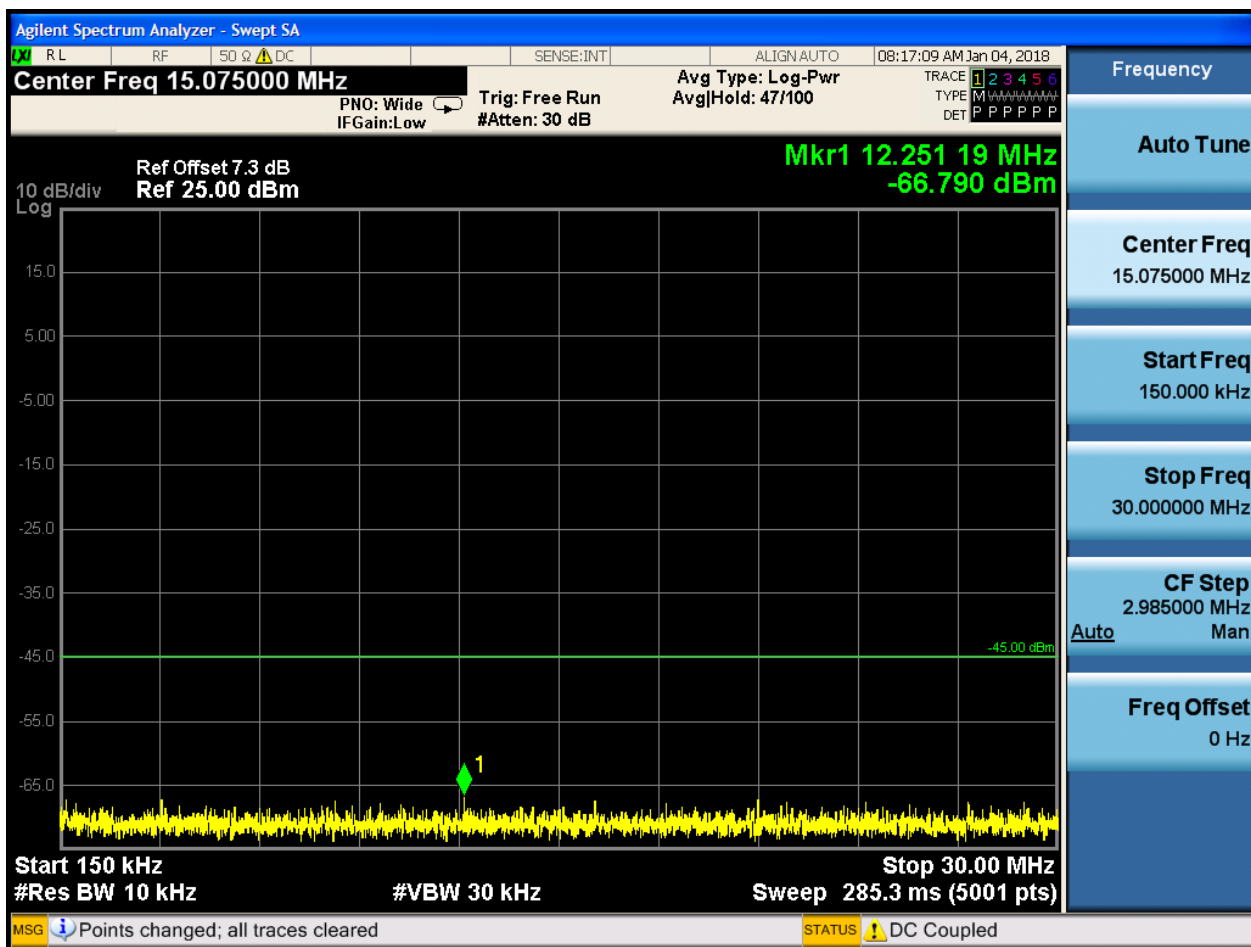


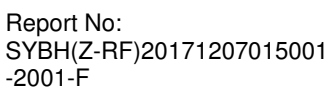
6.1.1.2.4 Test Bandwidth = 20

6.1.1.2.4.1 Test Channel = LCH

6.1.1.2.4.1.1 Test RB = RB1#0

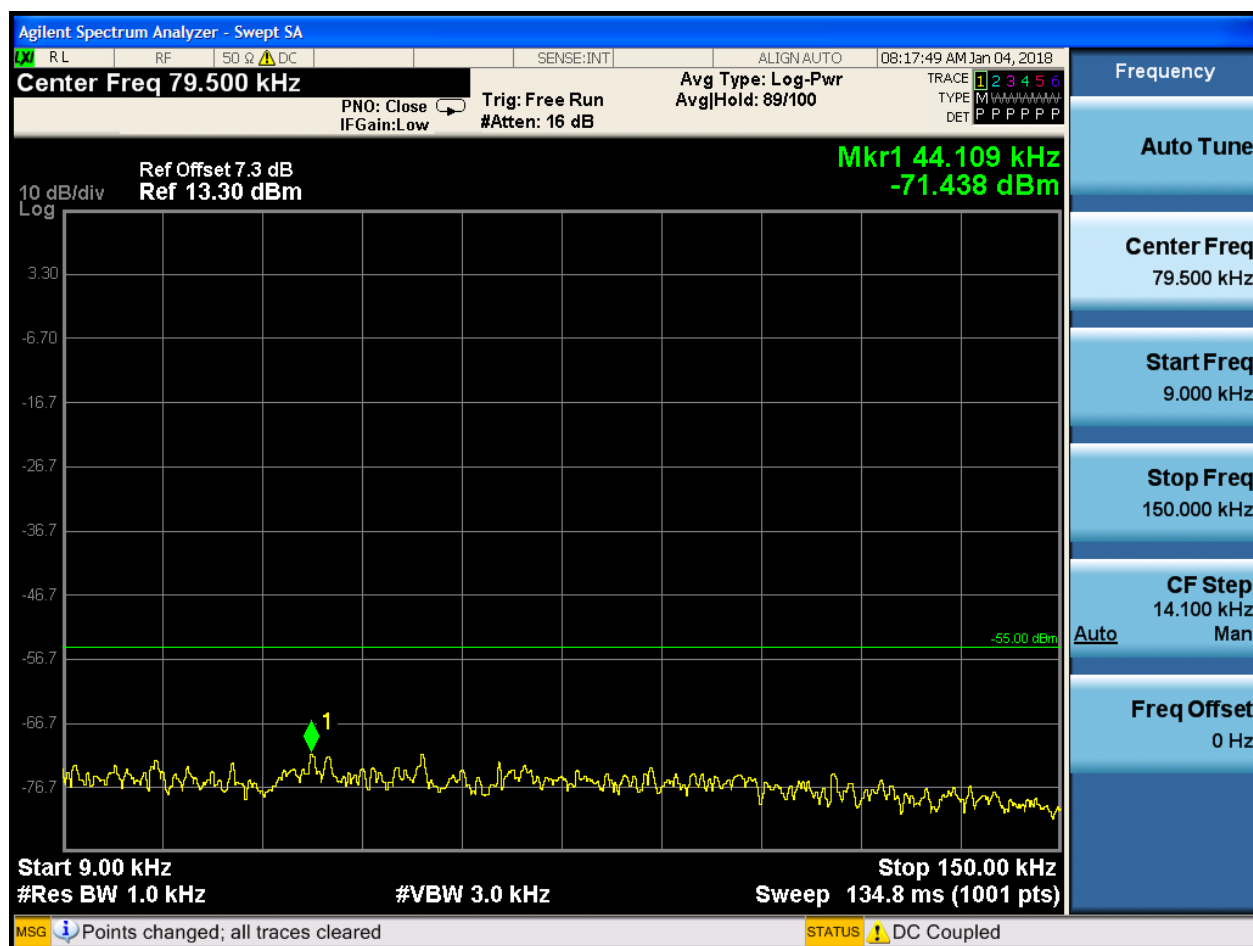


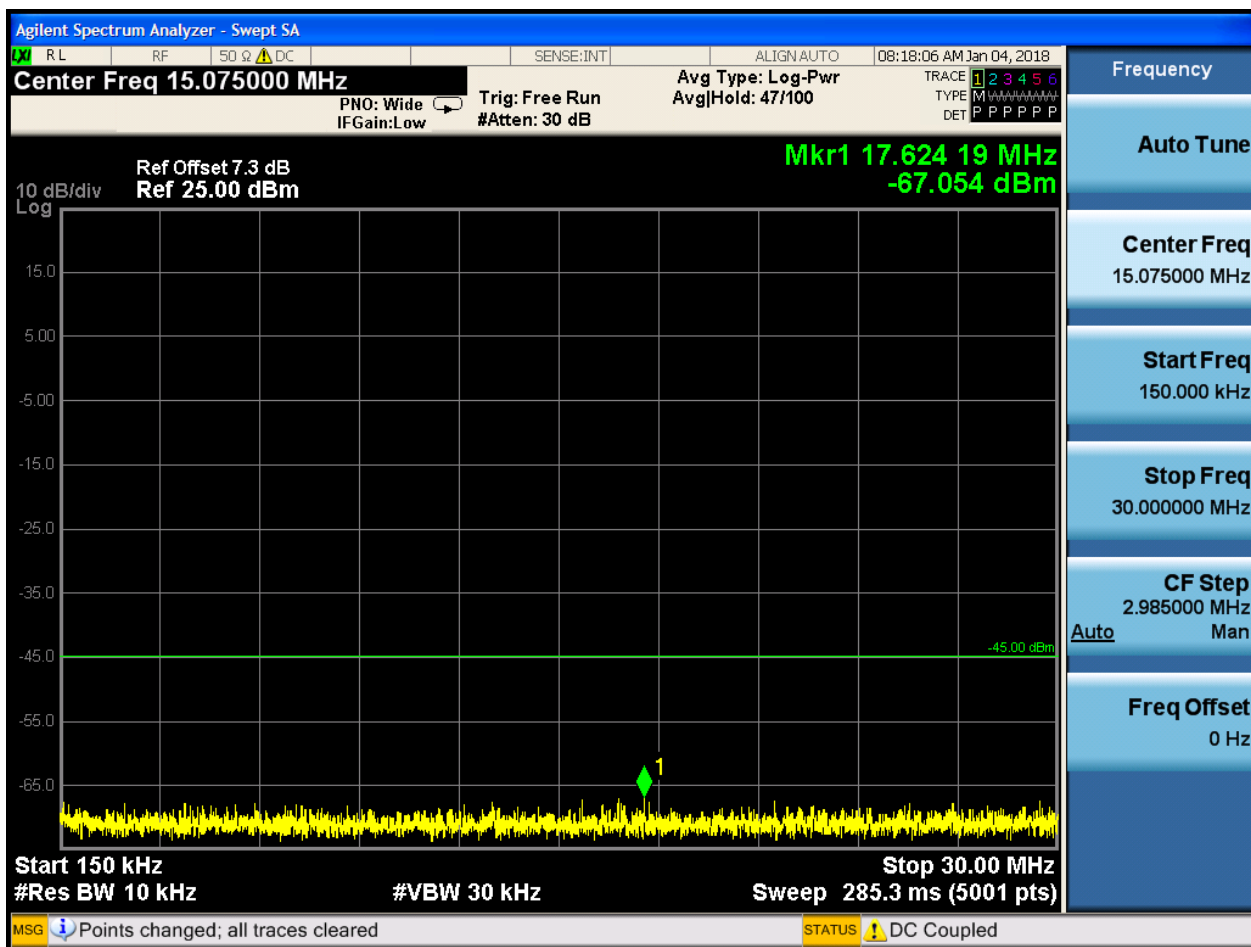


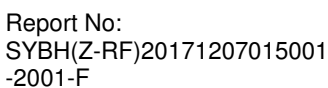


6.1.1.2.4.2 Test Channel = MCH

6.1.1.2.4.2.1 Test RB = RB1#0



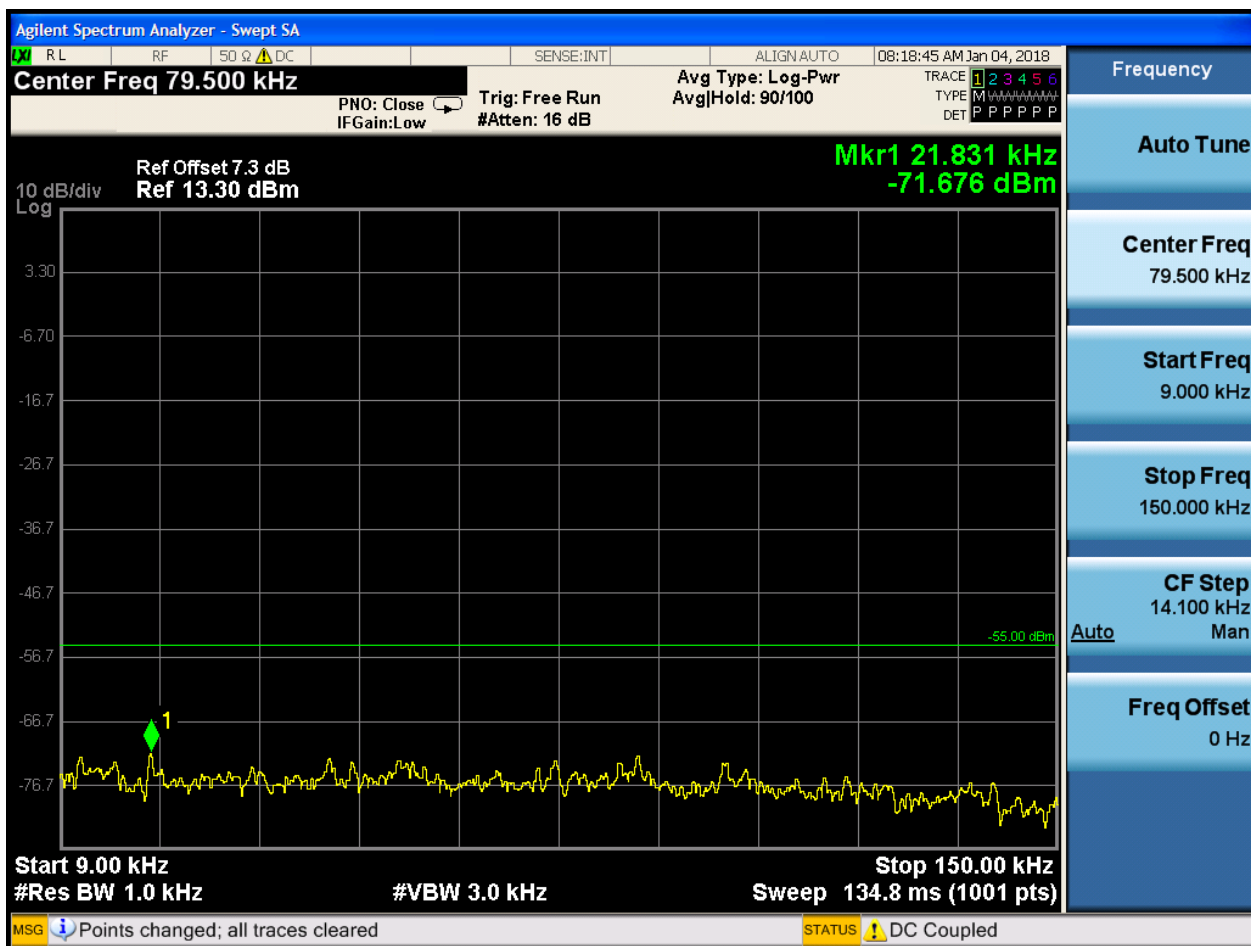


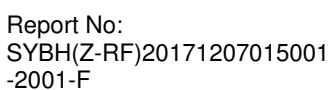


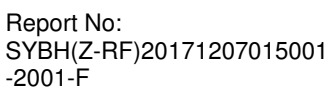


6.1.1.2.4.3 Test Channel = HCH

6.1.1.2.4.3.1 Test RB = RB1#0







7Appendix_G: Field Strength of Spurious Radiation

Note:

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

150kHz~30MHz, RBW = 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

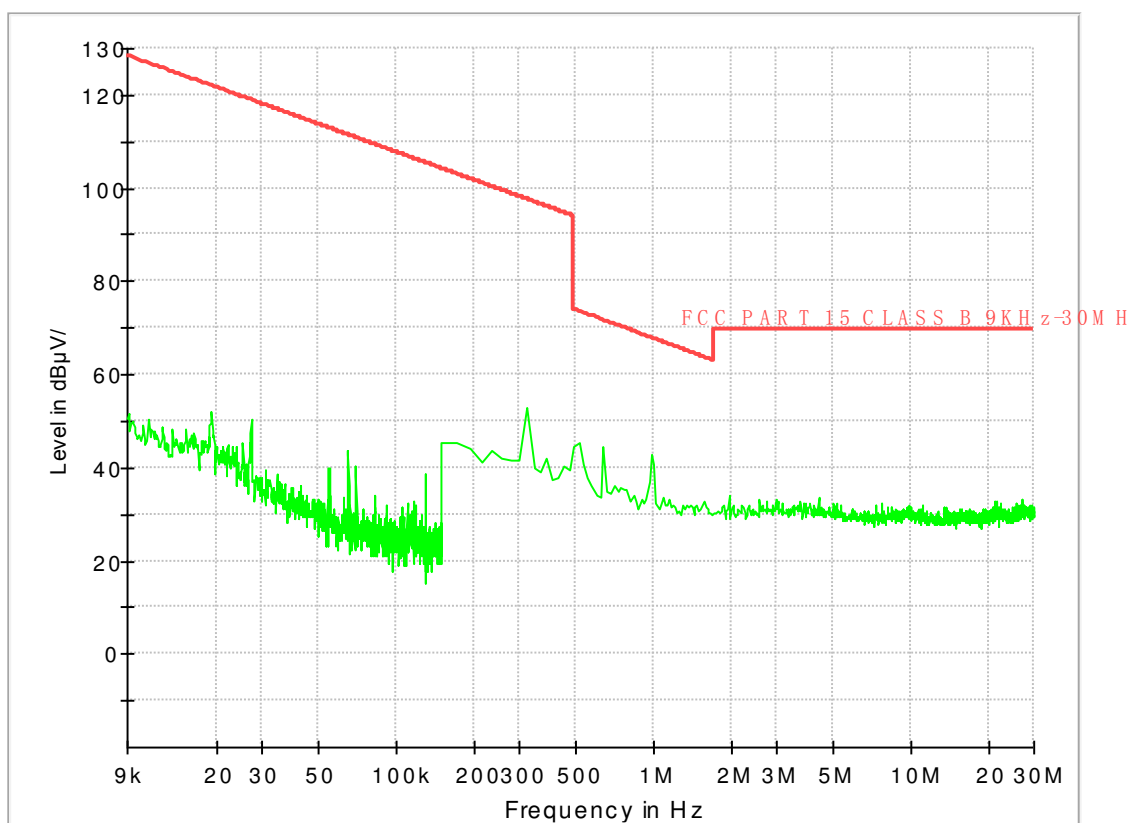
We tested all modes, but the data presented below is the worst case.

Part I - Test Plots

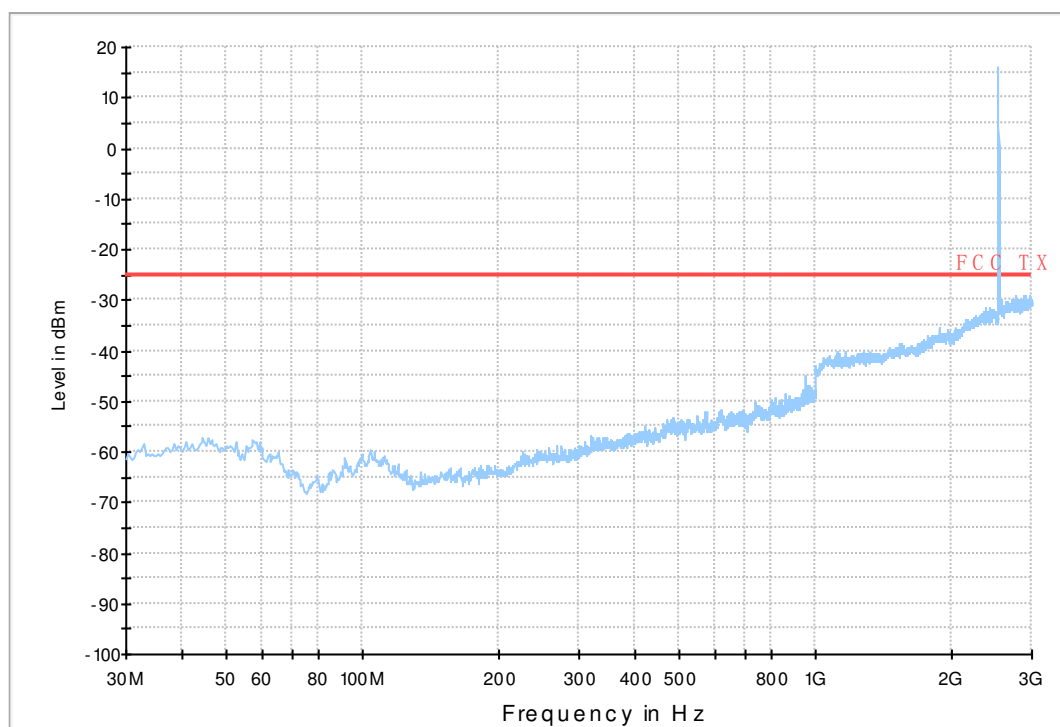
7.1 For LTE

7.1.1 Test Band = BAND7_ANT1

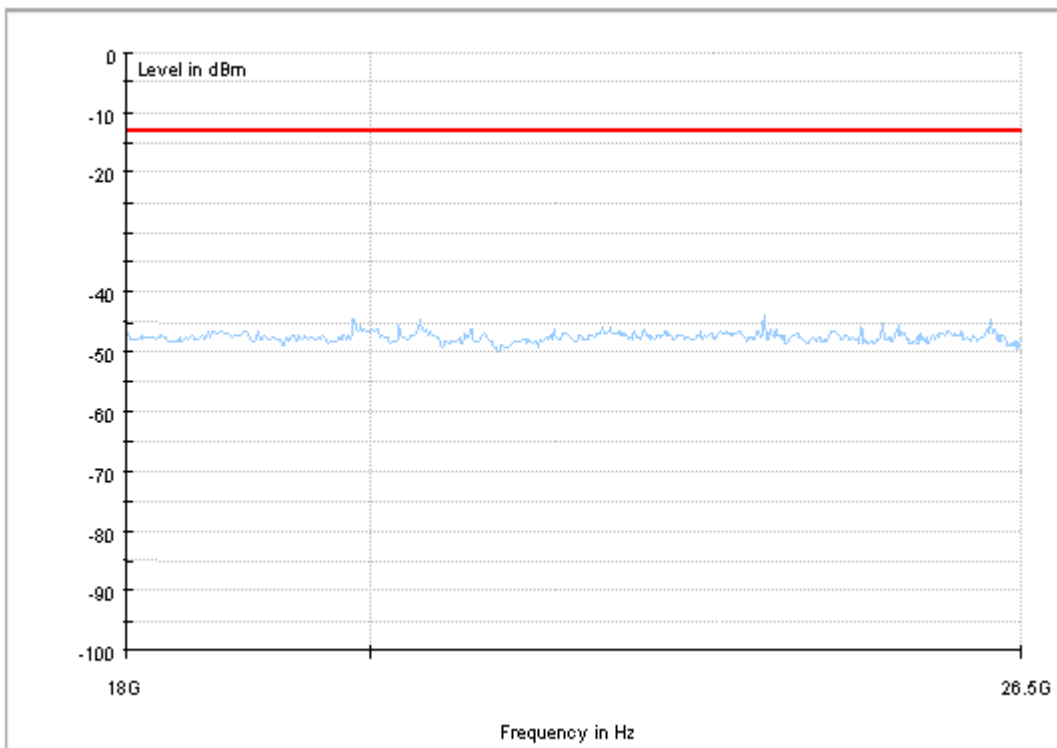
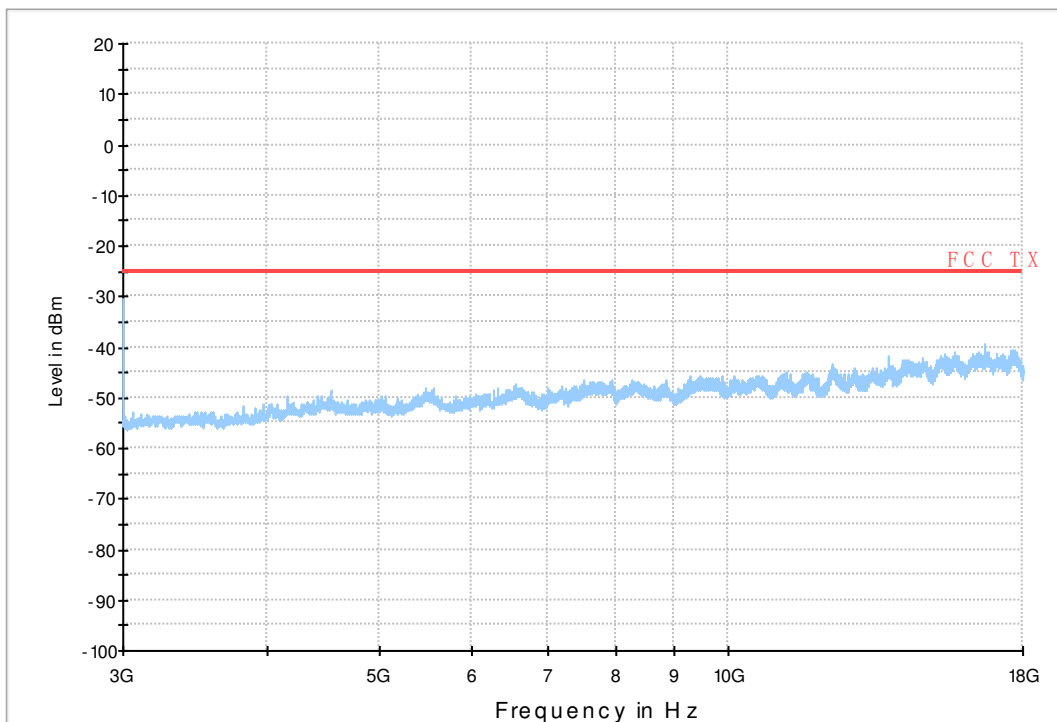
7.1.1.1 Test Bandwidth = 5



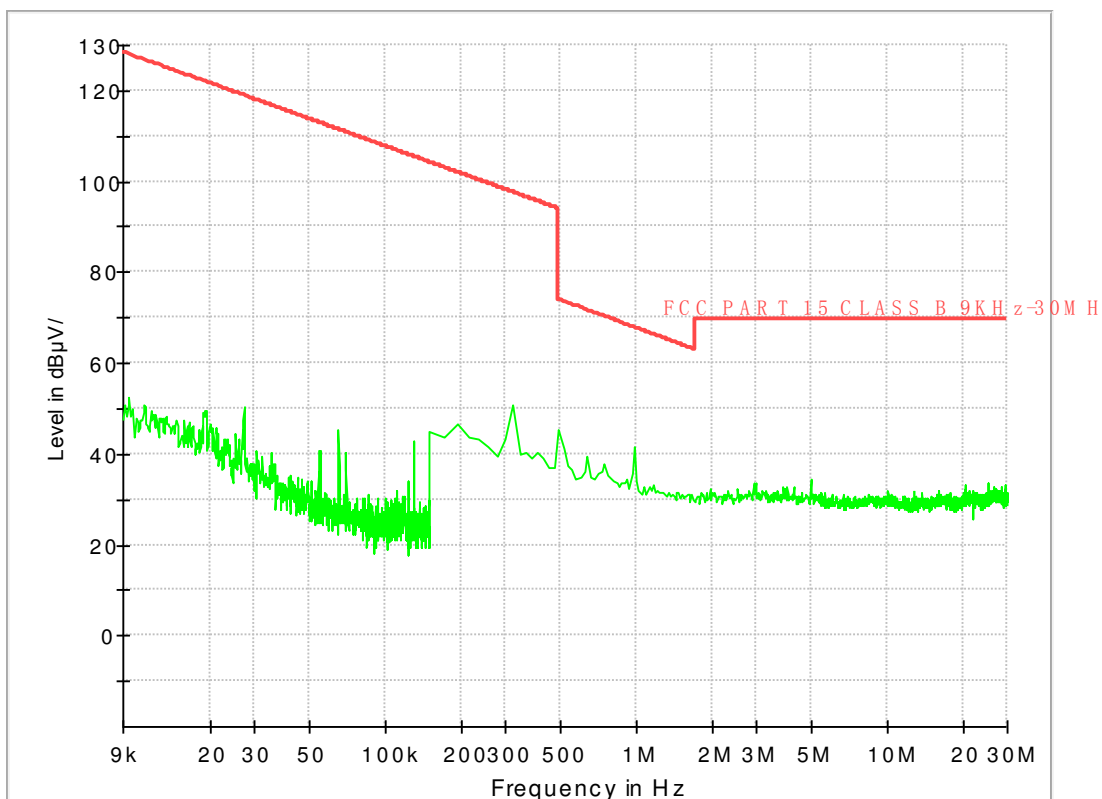
Copy of RSE-TX-DIRECTOR ABOVE 1.5G Limit -25_L



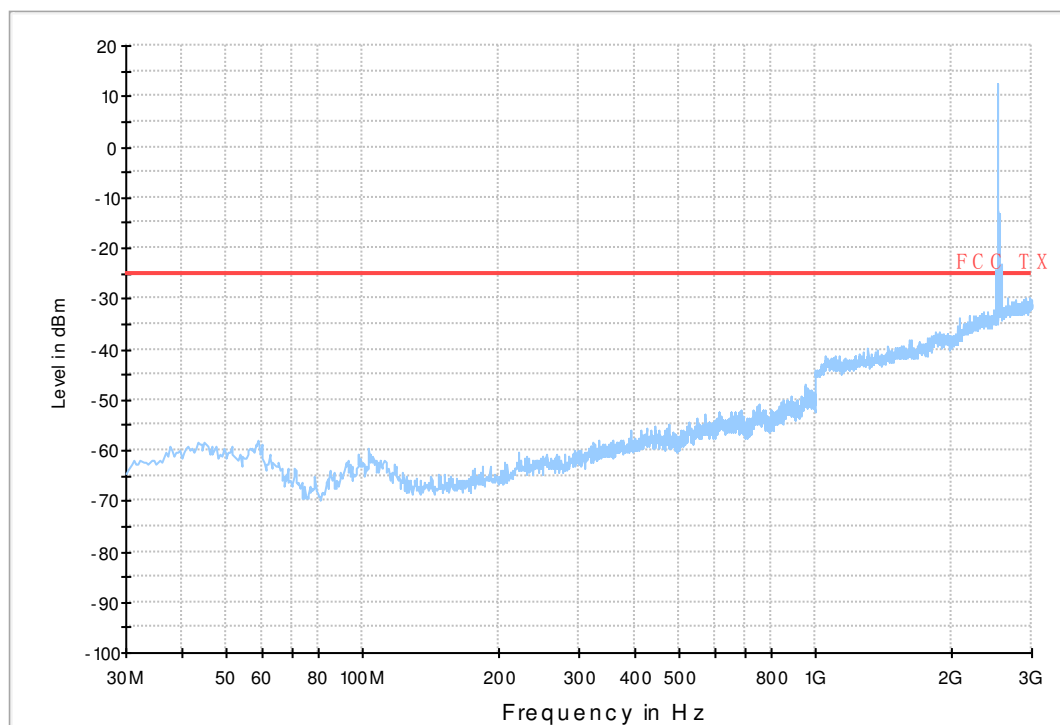
Copy of RSE-TX-DIRECTOR ABOVE 1.5G Limit -25_H



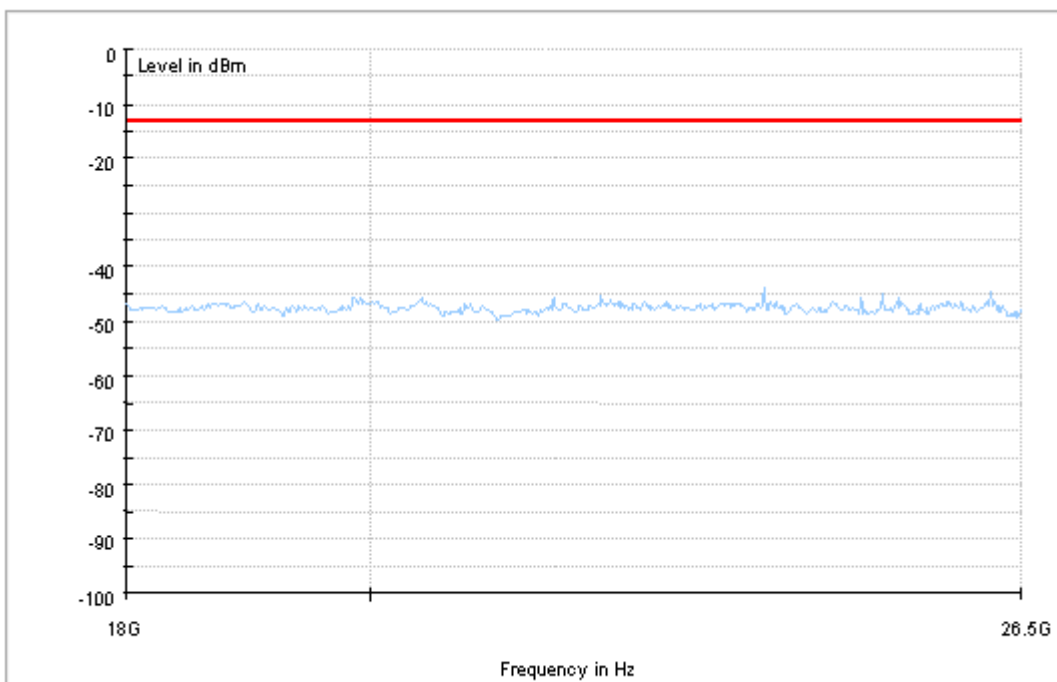
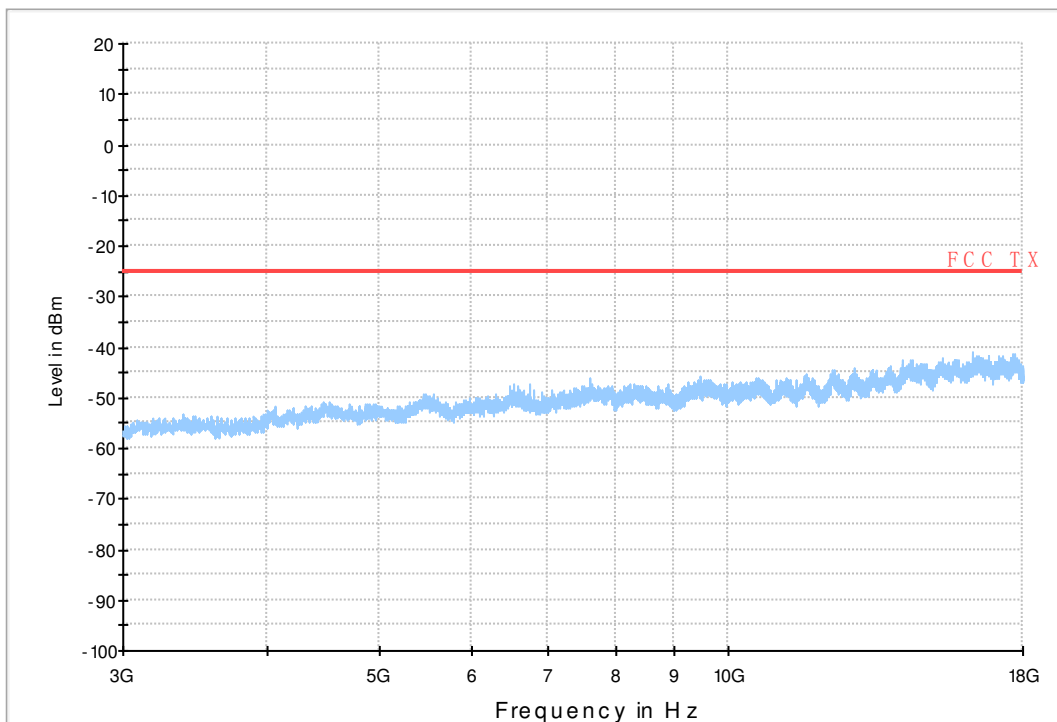
7.1.1.2 Test Bandwidth = 20



Copy of RSE-TX-DIRECTOR ABOVE 1.5G Limit -25_L

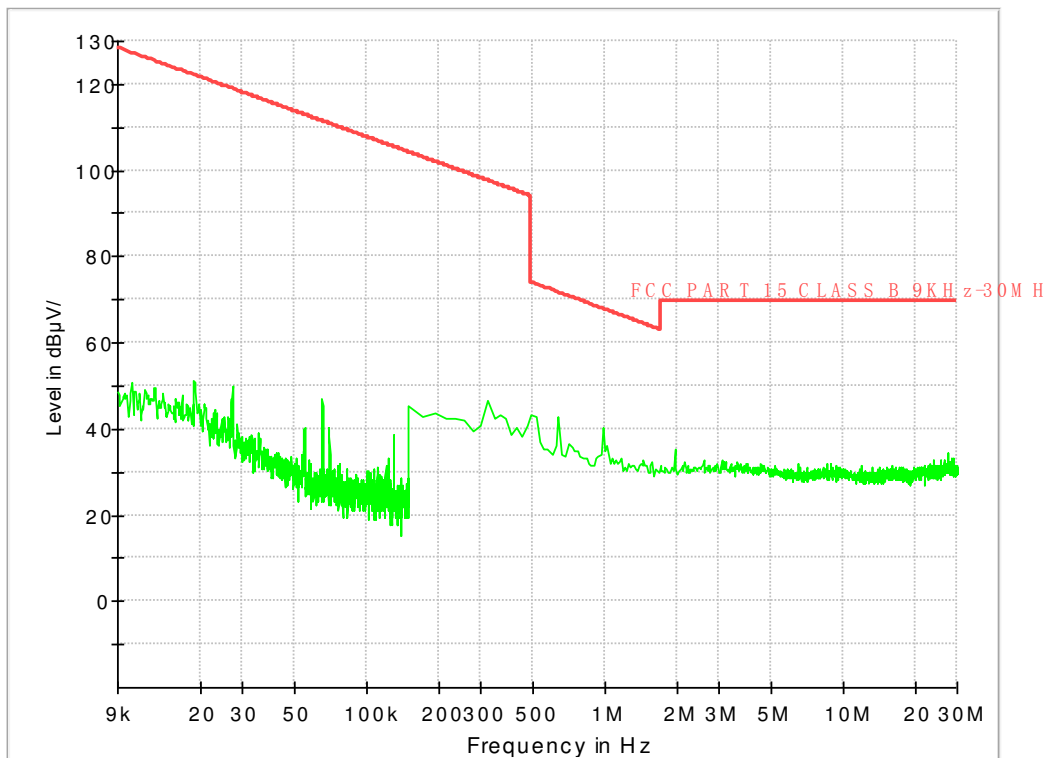


Copy of RSE-TX-DIRECTOR ABOVE 1.5G Limit -25_H

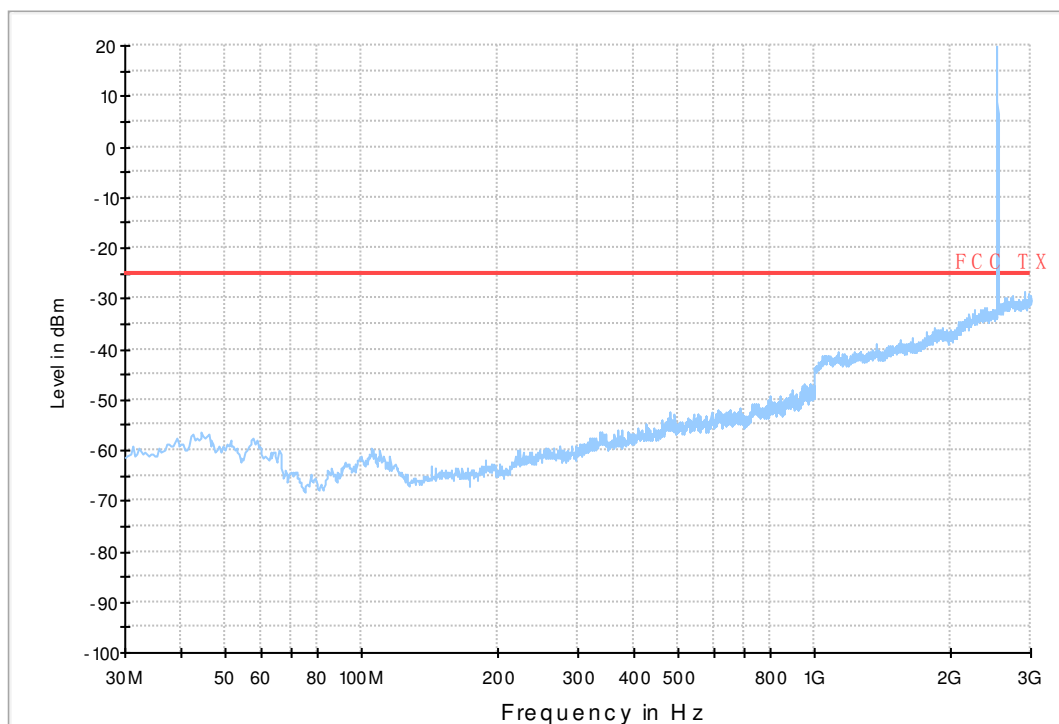


7.1.2 Test Band = BAND7_ANT2

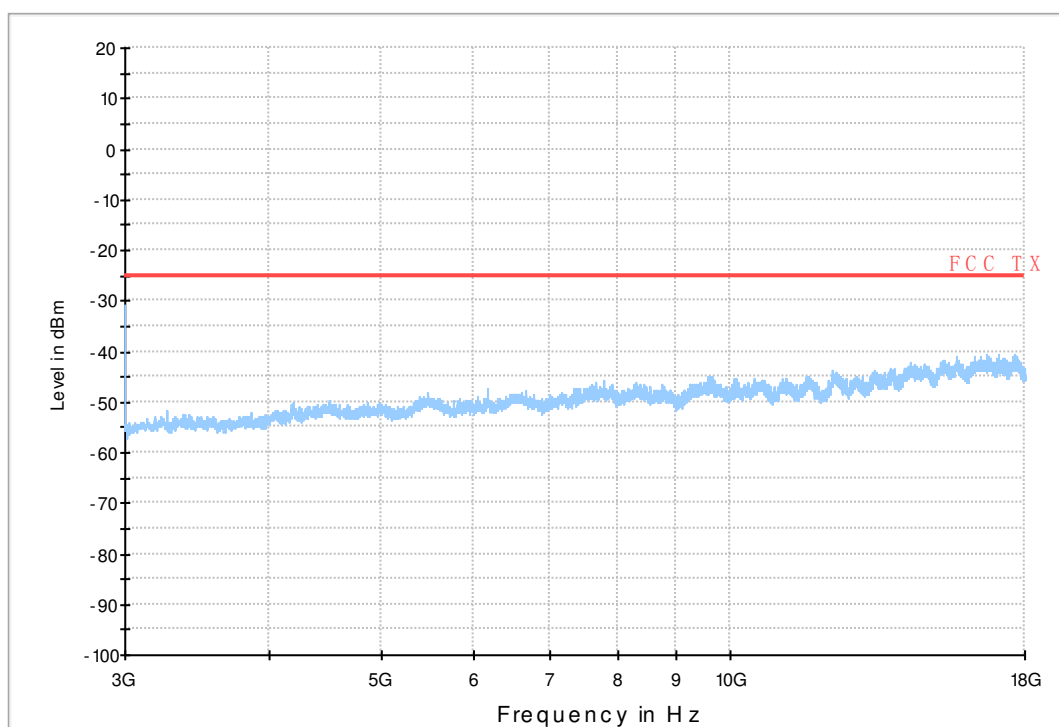
7.1.2.1 Test Bandwidth = 5

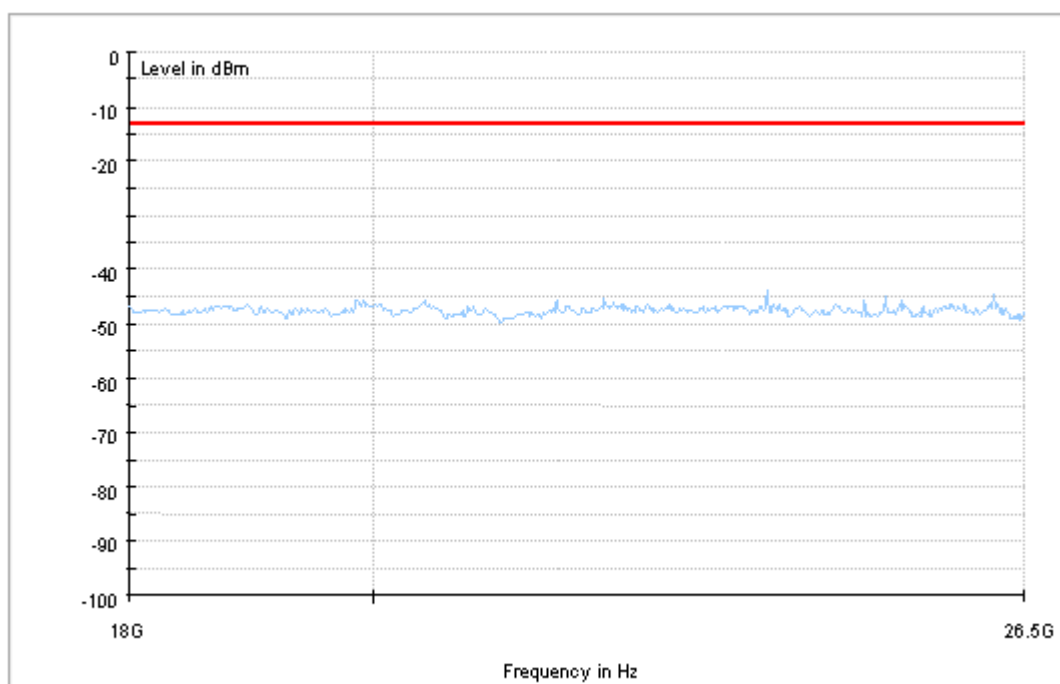


Copy of RSE-TX-DIRECTOR ABOVE 1.5G Limit -25_L

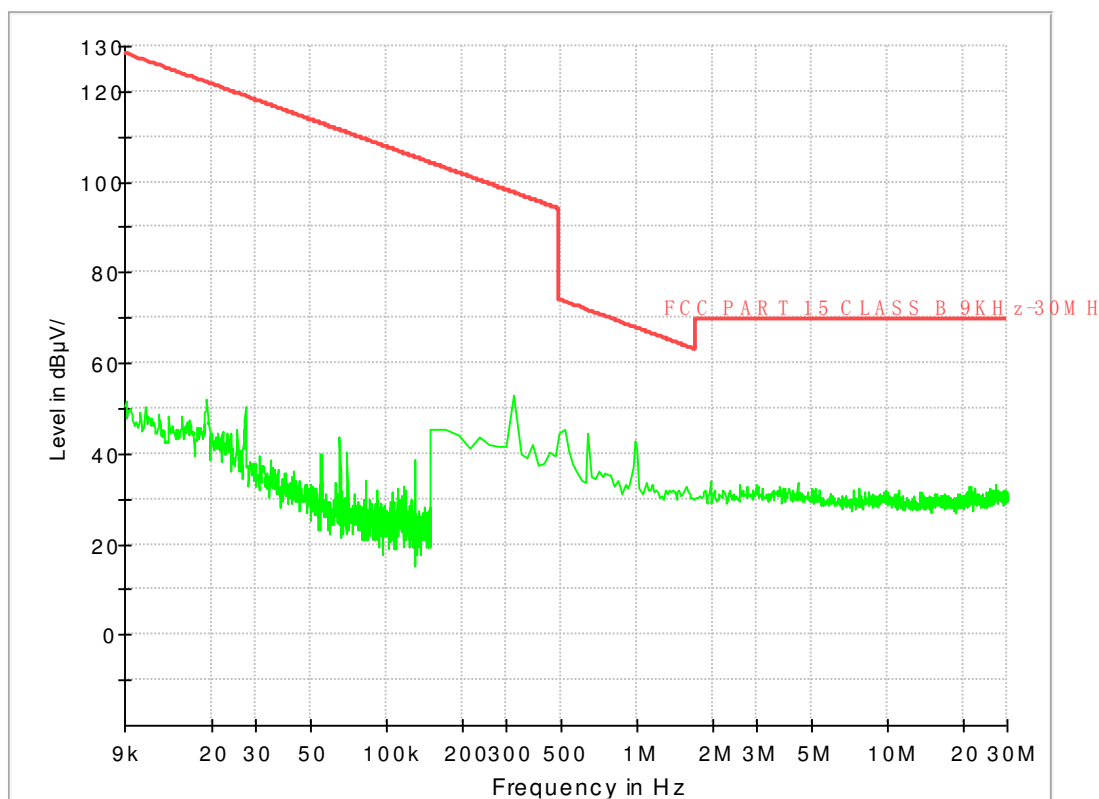


Copy of RSE-TX-DIRECTOR ABOVE 1.5G Limit -25_H

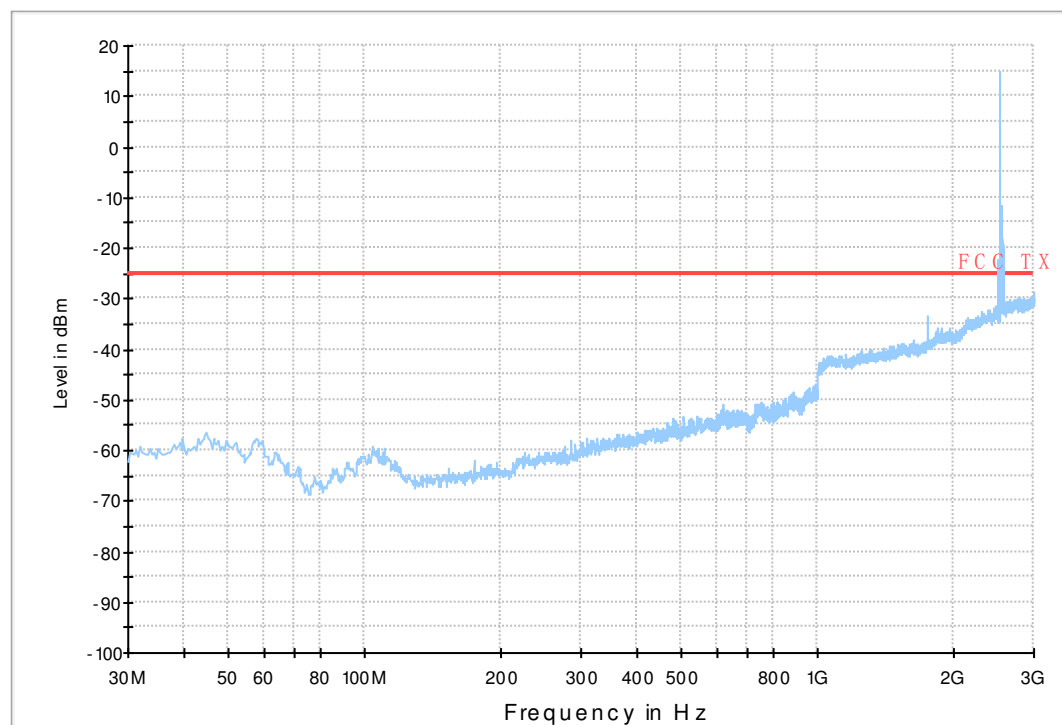




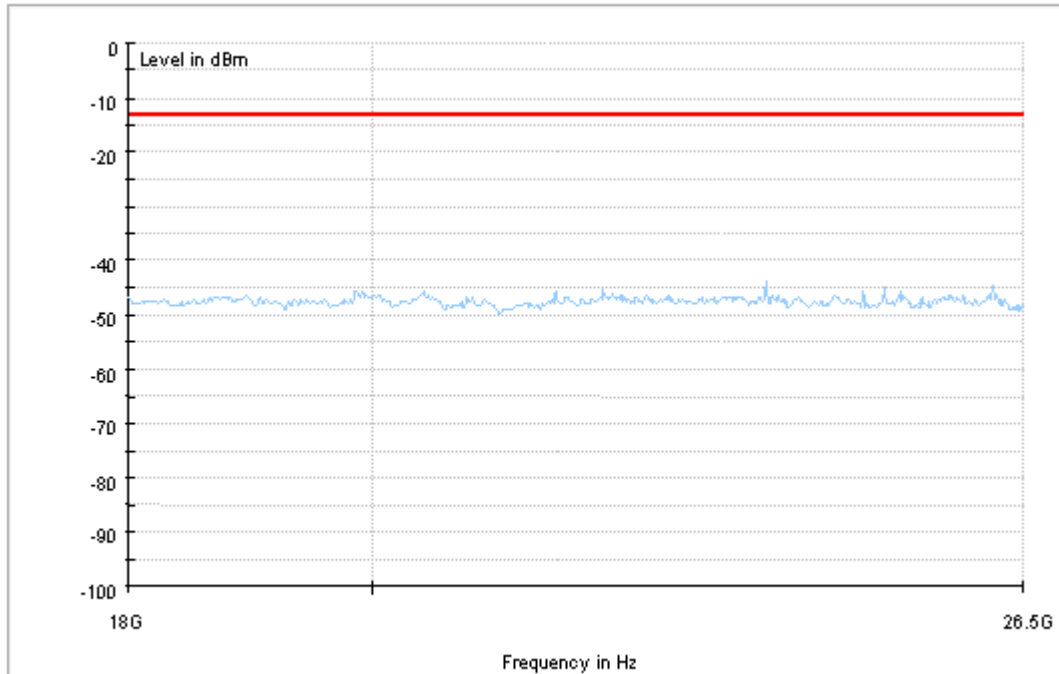
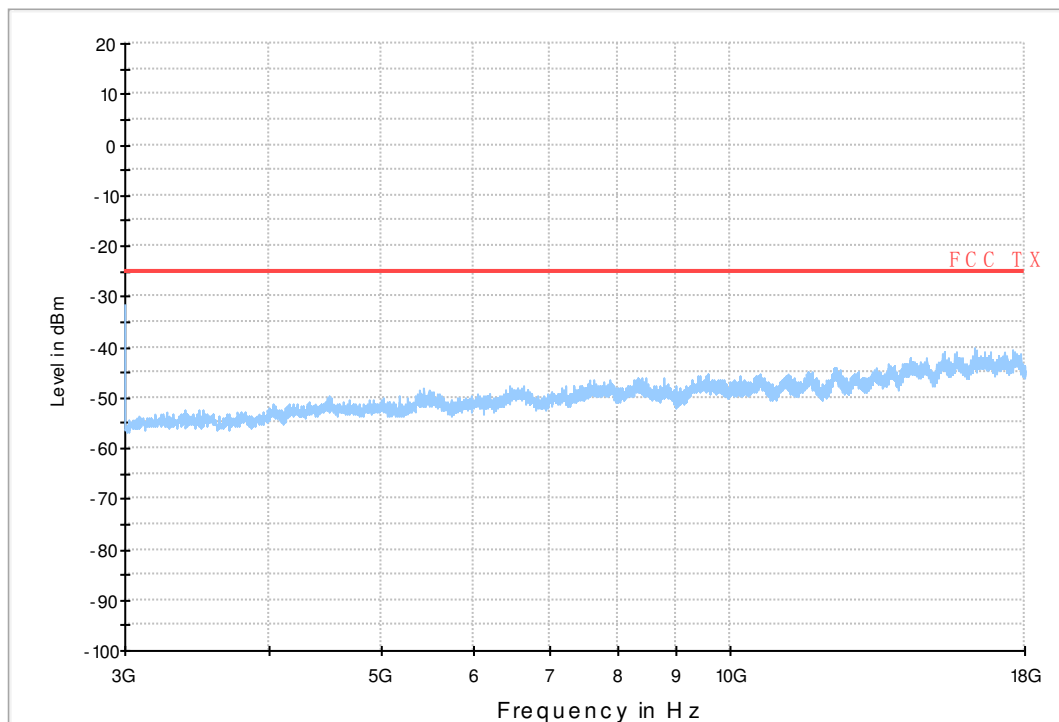
7.1.2.2 Test Bandwidth = 20



Copy of RSE-TX-DIRECTOR ABOVE 1.5G Limit -25_L



Copy of RSE-TX-DIRECTOR ABOVE 1.5G Limit -25_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
BAND7	LTE/TM1	5	LCH	TN	VL	-0.53	-0.00021	PASS
					VN	-0.92	-0.00037	PASS
					VH	-6.34	-0.00253	PASS
			MCH	TN	VL	-5.88	-0.00232	PASS
					VN	-2.93	-0.00116	PASS
					VH	-6.65	-0.00262	PASS
			HCH	TN	VL	-0.5	-0.00019	PASS
					VN	2.68	0.00104	PASS
					VH	-2.79	-0.00109	PASS
		10	LCH	TN	VL	-1.77	-0.00071	PASS
					VN	-4.56	-0.00182	PASS
					VH	-0.7	-0.00028	PASS
			MCH	TN	VL	1.69	0.00067	PASS
					VN	0.8	0.00032	PASS
					VH	-1.56	-0.00062	PASS
			HCH	TN	VL	1.12	0.00044	PASS
					VN	-0.76	-0.0003	PASS
					VH	0.92	0.00036	PASS
		15	LCH	TN	VL	0.82	0.00033	PASS
					VN	-0.94	-0.00037	PASS
					VH	1.13	0.00045	PASS
			MCH	TN	VL	-1.17	-0.00046	PASS
					VN	-0.01	0	PASS
					VH	-0.72	-0.00028	PASS
			HCH	TN	VL	-3.43	-0.00134	PASS
					VN	-2.25	-0.00088	PASS
					VH	-3.02	-0.00118	PASS
		20	LCH	TN	VL	1.17	0.00047	PASS
					VN	-1.43	-0.00057	PASS
					VH	-2.52	-0.001	PASS
			MCH	TN	VL	-1.43	-0.00056	PASS
					VN	-1.07	-0.00042	PASS
					VH	-1.07	-0.00042	PASS

Test Band	Test Mode	Test Bandwidth (MHz)	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
	LTE/TM2		HCH	TN	VH	-2.96	-0.00117	PASS
					VL	-0.84	-0.00033	PASS
					VN	-0.49	-0.00019	PASS
					VH	-2.3	-0.0009	PASS
		5	LCH	TN	VL	2.56	0.00102	PASS
					VN	2.7	0.00108	PASS
					VH	1.73	0.00069	PASS
			MCH	TN	VL	-3.6	-0.00142	PASS
					VN	1.59	0.00063	PASS
					VH	-1.76	-0.00069	PASS
			HCH	TN	VL	0.93	0.00036	PASS
					VN	-3.53	-0.00137	PASS
					VH	-2.83	-0.0011	PASS
		10	LCH	TN	VL	0.73	0.00029	PASS
					VN	1.03	0.00041	PASS
					VH	-3.03	-0.00121	PASS
			MCH	TN	VL	-3.58	-0.00141	PASS
					VN	1.52	0.0006	PASS
					VH	0.13	0.00005	PASS
			HCH	TN	VL	-1.47	-0.00057	PASS
					VN	-1.62	-0.00063	PASS
					VH	-1.4	-0.00055	PASS
		15	LCH	TN	VL	0.17	0.00007	PASS
					VN	2.6	0.00104	PASS
					VH	2.17	0.00087	PASS
			MCH	TN	VL	1.53	0.0006	PASS
					VN	-2.17	-0.00086	PASS
					VH	-0.5	-0.0002	PASS
			HCH	TN	VL	-1.17	-0.00046	PASS
					VN	-1.2	-0.00047	PASS
					VH	1.16	0.00045	PASS
		20	LCH	TN	VL	0.87	0.00035	PASS
					VN	-1.79	-0.00071	PASS
					VH	-0.87	-0.00035	PASS
			MCH	TN	VL	1.42	0.00056	PASS
					VN	-1.87	-0.00074	PASS
					VH	-0.69	-0.00027	PASS
			HCH	TN	VL	0.47	0.00018	PASS

Test Band	Test Mode	Test Bandwidth (MHz)	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
					VN	-0.4	-0.00016	PASS
					VH	-1.6	-0.00063	PASS

8.1.2 Frequency Error vs. Temperature:

Test Band	Test Mode	Test Bandwidth (MHz)	Test Channel	Test Volt.	Test Temp .	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
BAND7	LTE/TM1	5	LCH	VN	-30	0.17	0.00007	PASS
					-20	-1.52	-0.00061	PASS
					-10	1.82	0.00073	PASS
					0	-2.7	-0.00108	PASS
					10	-2.3	-0.00092	PASS
					20	2.2	0.00088	PASS
					30	-0.54	-0.00022	PASS
					40	-2.36	-0.00094	PASS
					50	-9.53	-0.00381	PASS
			MCH	VN	-30	0.64	0.00025	PASS
					-20	0.51	0.0002	PASS
					-10	-15.02	-0.00593	PASS
					0	-0.79	-0.00031	PASS
					10	-0.44	-0.00017	PASS
					20	-2.5	-0.00099	PASS
					30	-3.36	-0.00133	PASS
					40	0.33	0.00013	PASS
					50	-7.4	-0.00292	PASS
			HCH	VN	-30	0.86	0.00033	PASS
					-20	0.26	0.0001	PASS
					-10	-5.44	-0.00212	PASS
					0	-2.4	-0.00093	PASS
					10	-4.52	-0.00176	PASS
					20	-1.63	-0.00063	PASS
					30	-3.58	-0.00139	PASS
					40	-6.12	-0.00238	PASS
					50	1.17	0.00046	PASS
		10	LCH	VN	-30	-2.6	-0.00104	PASS
					-20	-5.36	-0.00214	PASS
					-10	4.63	0.00185	PASS
					0	0.79	0.00032	PASS

Test Band	Test Mode	Test Bandwidth (MHz)	Test Channel	Test Volt.	Test Temp .	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
					10	1.62	0.00065	PASS
					20	-2.55	-0.00102	PASS
					30	-4.12	-0.00164	PASS
					40	-0.27	-0.00011	PASS
					50	0.23	0.00009	PASS
			MCH	VN	-30	1.13	0.00045	PASS
					-20	-1.12	-0.00044	PASS
					-10	0.26	0.0001	PASS
					0	0.73	0.00029	PASS
					10	-0.82	-0.00032	PASS
					20	1.77	0.0007	PASS
					30	-1.23	-0.00049	PASS
					40	-1.29	-0.00051	PASS
					50	-1.7	-0.00067	PASS
			HCH	VN	-30	0.31	0.00012	PASS
					-20	1.22	0.00048	PASS
					-10	0.21	0.00008	PASS
					0	-0.87	-0.00034	PASS
					10	-1.54	-0.0006	PASS
					20	-1.83	-0.00071	PASS
					30	0.51	0.0002	PASS
					40	4.33	0.00169	PASS
					50	-0.64	-0.00025	PASS
		15	LCH	VN	-30	-2.17	-0.00087	PASS
					-20	0.41	0.00016	PASS
					-10	-1.3	-0.00052	PASS
					0	-1.03	-0.00041	PASS
					10	-0.56	-0.00022	PASS
					20	0	0	PASS
					30	-4.05	-0.00162	PASS
					40	-0.6	-0.00024	PASS
					50	-0.89	-0.00035	PASS
			MCH	VN	-30	-1.1	-0.00043	PASS
					-20	-1.06	-0.00042	PASS
					-10	2.42	0.00095	PASS
					0	0.23	0.00009	PASS
					10	0.96	0.00038	PASS
					20	0.29	0.00011	PASS

Test Band	Test Mode	Test Bandwidth (MHz)	Test Channel	Test Volt.	Test Temp .	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
					30	-2.66	-0.00105	PASS
					40	-1.62	-0.00064	PASS
					50	-0.13	-0.00005	PASS
			HCH	VN	-30	-0.41	-0.00016	PASS
					-20	-0.7	-0.00027	PASS
					-10	-1.49	-0.00058	PASS
					0	-1.1	-0.00043	PASS
					10	-0.63	-0.00025	PASS
					20	-0.74	-0.00029	PASS
					30	-1.9	-0.00074	PASS
					40	0.31	0.00012	PASS
					50	-0.63	-0.00025	PASS
		20	LCH	VN	-30	-1.57	-0.00063	PASS
					-20	-3.52	-0.0014	PASS
					-10	2	0.0008	PASS
					0	-1.89	-0.00075	PASS
					10	-1.6	-0.00064	PASS
					20	-1.26	-0.0005	PASS
					30	-1.52	-0.00061	PASS
					40	-1.63	-0.00065	PASS
					50	-0.89	-0.00035	PASS
			MCH	VN	-30	-1.54	-0.00061	PASS
					-20	-0.86	-0.00034	PASS
					-10	-1.62	-0.00064	PASS
					0	0.27	0.00011	PASS
					10	-1.24	-0.00049	PASS
					20	-0.72	-0.00028	PASS
					30	-1.85	-0.00073	PASS
					40	0.41	0.00016	PASS
					50	-3.43	-0.00135	PASS
			HCH	VN	-30	1.52	0.00059	PASS
					-20	0.23	0.00009	PASS
					-10	0.01	0	PASS
					0	-2.86	-0.00112	PASS
					10	-2.49	-0.00097	PASS
					20	-1.47	-0.00057	PASS
					30	-0.64	-0.00025	PASS
					40	-0.66	-0.00026	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	LCH	VN	50	-3.39	-0.00132	PASS
					-30	4.28	0.00171	PASS
					-20	-7.35	-0.00294	PASS
					-10	-0.87	-0.00035	PASS
					0	-2.13	-0.00085	PASS
					10	-4.26	-0.0017	PASS
					20	-0.34	-0.00014	PASS
					30	1.47	0.00059	PASS
					40	-4.82	-0.00193	PASS
					50	-1.66	-0.00066	PASS
			MCH	VN	-30	3.59	0.00142	PASS
					-20	3.32	0.00131	PASS
					-10	1.4	0.00055	PASS
					0	-1.72	-0.00068	PASS
					10	-0.49	-0.00019	PASS
					20	-0.23	-0.00009	PASS
					30	-2.75	-0.00108	PASS
					40	0.07	0.00003	PASS
					50	-1.03	-0.00041	PASS
			HCH	VN	-30	1.02	0.0004	PASS
					-20	-3.66	-0.00143	PASS
					-10	-1.14	-0.00044	PASS
					0	-1.5	-0.00058	PASS
					10	-1.3	-0.00051	PASS
					20	-6.27	-0.00244	PASS
					30	-4.16	-0.00162	PASS
					40	-1.27	-0.00049	PASS
					50	1.56	0.00061	PASS
		10	LCH	VN	-30	1.24	0.0005	PASS
					-20	1.54	0.00061	PASS
					-10	2.36	0.00094	PASS
					0	0.84	0.00034	PASS
					10	-6.18	-0.00247	PASS
					20	-0.66	-0.00026	PASS
					30	-1.75	-0.0007	PASS
					40	1.36	0.00054	PASS
					50	-2.07	-0.00083	PASS
			MCH	VN	-30	-1.86	-0.00073	PASS

Test Band	Test Mode	Test Bandwidth (MHz)	Test Channel	Test Volt.	Test Temp .	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
					-20	-0.77	-0.0003	PASS
					-10	-0.16	-0.00006	PASS
					0	0.84	0.00033	PASS
					10	0.2	0.00008	PASS
					20	1.19	0.00047	PASS
					30	0.39	0.00015	PASS
					40	-0.8	-0.00032	PASS
					50	0.93	0.00037	PASS
			HCH	VN	-30	-1.47	-0.00057	PASS
					-20	-0.06	-0.00002	PASS
					-10	2.36	0.00092	PASS
					0	-3.18	-0.00124	PASS
					10	-1.2	-0.00047	PASS
					20	-2.5	-0.00097	PASS
					30	-0.73	-0.00028	PASS
					40	-0.19	-0.00007	PASS
					50	-0.54	-0.00021	PASS
		15	LCH	VN	-30	-1.46	-0.00058	PASS
					-20	-0.06	-0.00002	PASS
					-10	-0.82	-0.00033	PASS
					0	2.22	0.00089	PASS
					10	-2.27	-0.00091	PASS
					20	0.83	0.00033	PASS
					30	0.24	0.0001	PASS
					40	0.67	0.00027	PASS
					50	-0.19	-0.00008	PASS
			MCH	VN	-30	0.53	0.00021	PASS
					-20	-0.92	-0.00036	PASS
					-10	-0.27	-0.00011	PASS
					0	2.32	0.00092	PASS
					10	0.03	0.00001	PASS
					20	0.92	0.00036	PASS
					30	-0.9	-0.00036	PASS
					40	0.77	0.0003	PASS
					50	-1.54	-0.00061	PASS
			HCH	VN	-30	-3.73	-0.00146	PASS
					-20	-1.22	-0.00048	PASS
					-10	-0.03	-0.00001	PASS

Test Band	Test Mode	Test Bandwidth (MHz)	Test Channel	Test Volt.	Test Temp .	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
					0	-1.16	-0.00045	PASS
					10	-2.49	-0.00097	PASS
					20	0.59	0.00023	PASS
					30	-1.44	-0.00056	PASS
					40	-2.09	-0.00082	PASS
					50	1.29	0.0005	PASS
		20	LCH	VN	-30	1.89	0.00075	PASS
					-20	-1.9	-0.00076	PASS
					-10	-0.62	-0.00025	PASS
					0	-2.46	-0.00098	PASS
					10	-0.56	-0.00022	PASS
					20	1.24	0.00049	PASS
					30	-0.63	-0.00025	PASS
					40	0.2	0.00008	PASS
					50	-0.49	-0.0002	PASS
			MCH	VN	-30	-0.24	-0.00009	PASS
					-20	1.97	0.00078	PASS
					-10	-1.42	-0.00056	PASS
					0	1.14	0.00045	PASS
					10	-0.7	-0.00028	PASS
					20	-3.16	-0.00125	PASS
					30	-0.07	-0.00003	PASS
					40	-2.4	-0.00095	PASS
					50	-1.7	-0.00067	PASS
			HCH	VN	-30	-1.87	-0.00073	PASS
					-20	0.72	0.00028	PASS
					-10	-2.26	-0.00088	PASS
					0	-0.76	-0.0003	PASS
					10	-2.16	-0.00084	PASS
					20	-0.46	-0.00018	PASS
					30	-0.9	-0.00035	PASS
					40	-0.3	-0.00012	PASS
					50	-2.45	-0.00096	PASS

END