



Appendix for test report



1 Appendix_A: Effective (Isotropic) Radiated Power Output Data

Part I - Test Results

Test Band	Test Mode	Test Channel	Conducted Power [dBm]	ERP [dBm]	Limit [dBm]	Verdict
WCDMA850	UMTS/TM1	LCH	23.94	22.11	38.5	PASS
		MCH	23.92	22.09	38.5	PASS
		HCH	23.67	21.84	38.5	PASS
Test Band	Test Mode	Test Channel	Conducted Power	EIRP [dBm]	Limit [dBm]	Verdict
WCDMA1700	UMTS/TM1	LCH	23.31	23.34	30	PASS
		MCH	23.37	23.40	30	PASS
		HCH	23.26	23.29	30	PASS
WCDMA1900	UMTS/TM1	LCH	23.63	23.66	33	PASS
		MCH	23.48	23.51	33	PASS
		HCH	23.36	23.39	33	PASS

Note1:

a, For getting the ERP (Efficient Radiated Power) or EIRP (Efficient Isotropic Radiated Power) in substitution method, the following formula should be taken to calculate it,

$$\text{ERP [dBm]} = \text{SGP [dBm]} - \text{Cable Loss [dB]} + \text{Gain [dBd]}$$

$$\text{EIRP [dBm]} = \text{SGP [dBm]} - \text{Cable Loss [dB]} + \text{Gain [dBi]}$$

b, SGP=Signal Generator Level

Note2:

SET Span=1.5*OBW

SET RBW=1%of the OBW, not to exceed 1MHz

SET VBW>= 3*RBW

SET Sweep time=auto-couple.

Detector: RMS



2Appendix_B: Peak-to-Average Ratio

Part I - Test Results

Test Band	Test Mode	Test Channel	Measured[dB]	Limit [dB]	Verdict
WCDMA850	UMTS/TM1	LCH	2.84	13	PASS
		MCH	2.55	13	PASS
		HCH	3.1	13	PASS
WCDMA1700	UMTS/TM1	LCH	2.81	13	PASS
		MCH	2.73	13	PASS
		HCH	2.75	13	PASS
WCDMA1900	UMTS/TM1	LCH	2.57	13	PASS
		MCH	2.76	13	PASS
		HCH	2.85	13	PASS

3Appendix_C: Modulation Characteristics

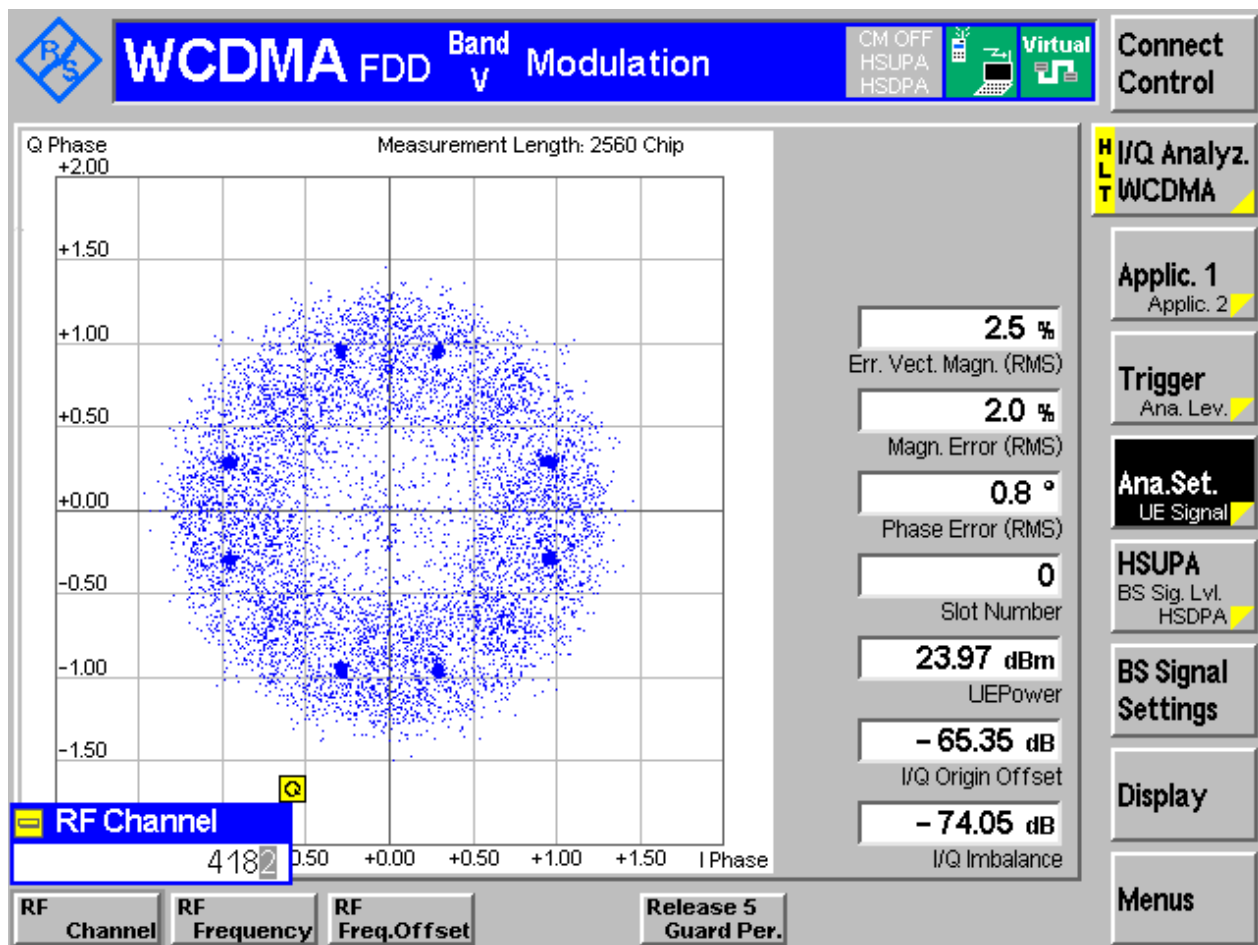
Part I - Test Plots

3.1 For UMTS

3.1.1 Test Band = WCDMA850

3.1.1.1 Test Mode = UMTS/TM1

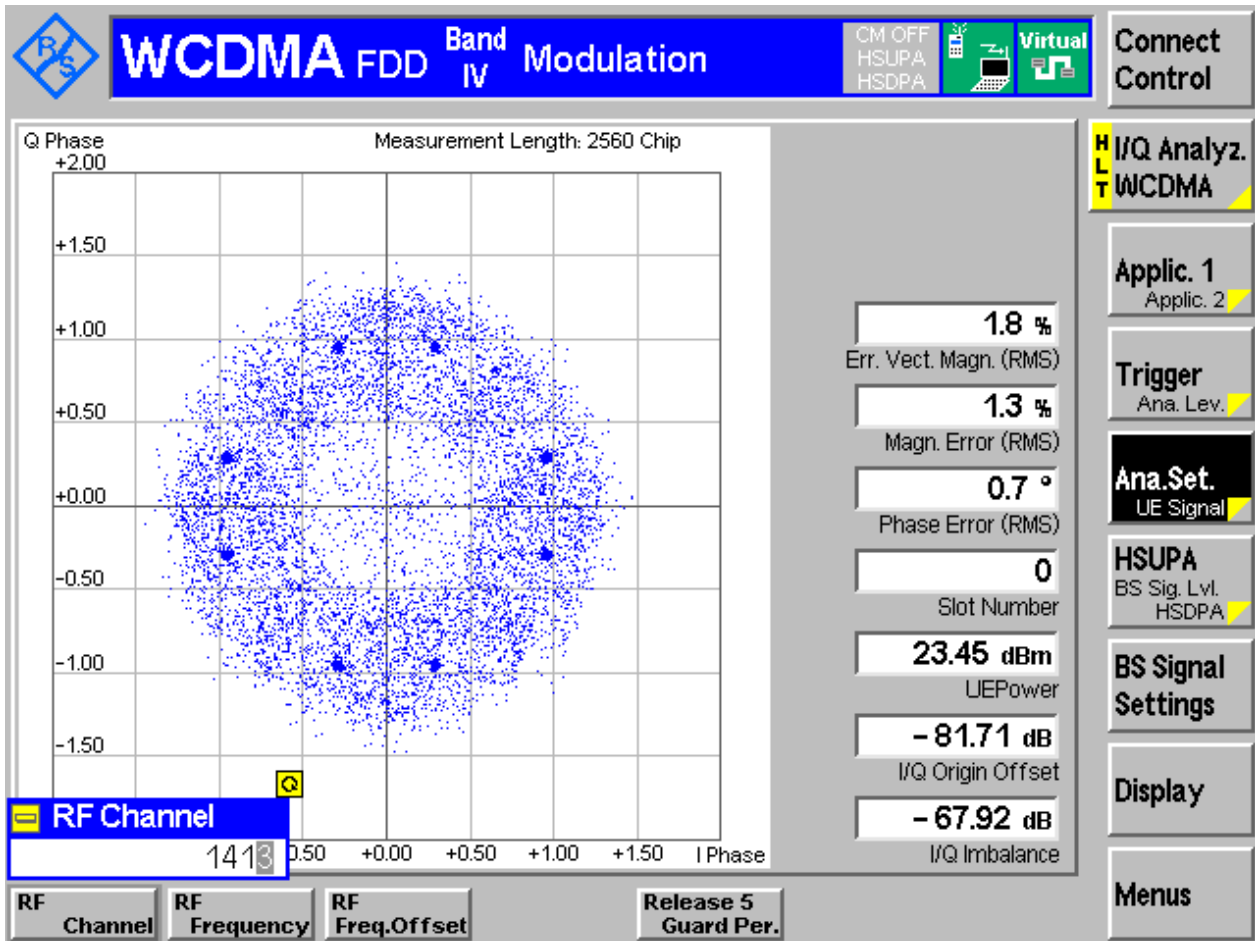
3.1.1.1.1 Test Channel = MCH



3.1.2 Test Band = WCDMA1700

3.1.2.1 Test Mode = UMTS/TM1

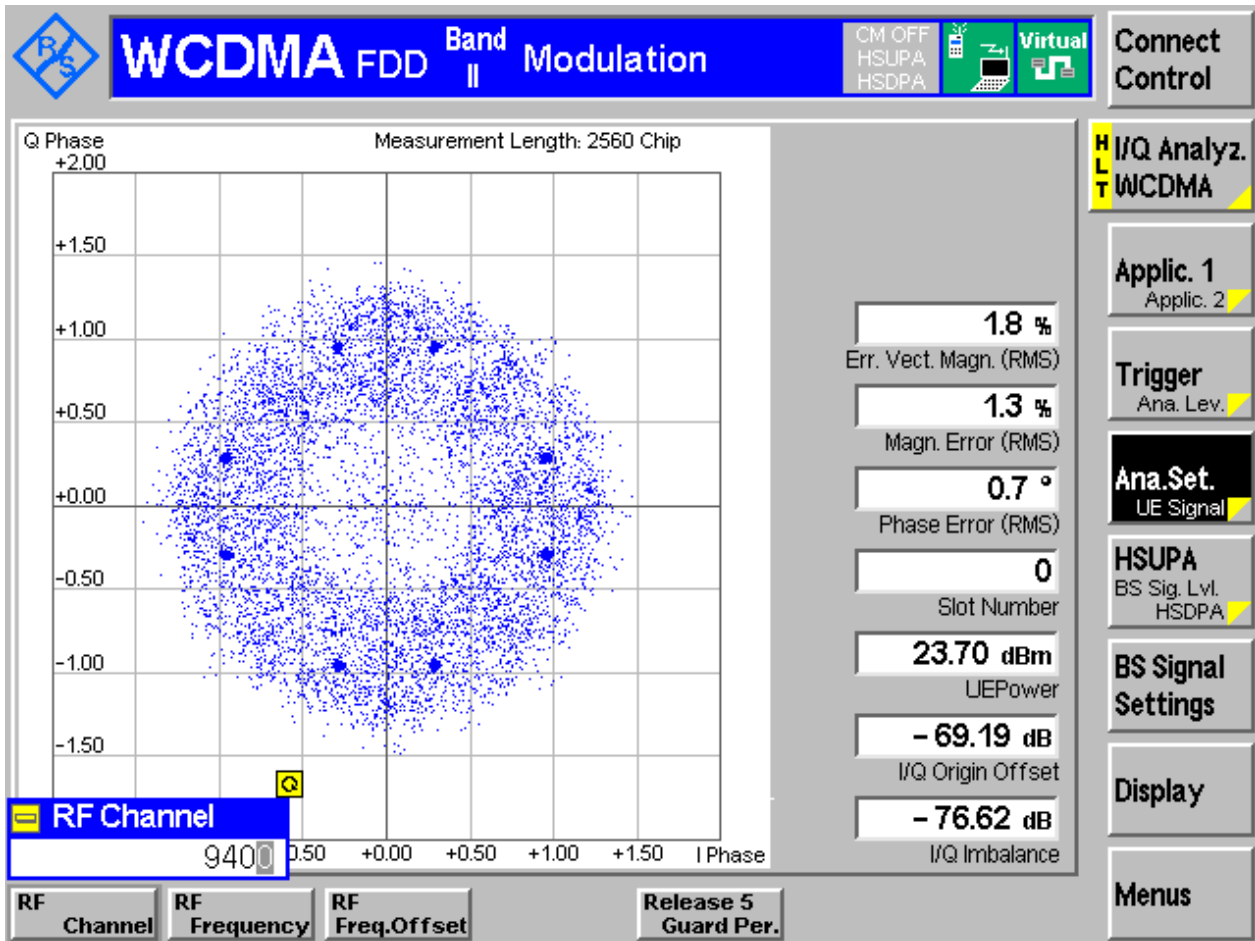
3.1.2.1.1 Test Channel = MCH



3.1.3 Test Band = WCDMA1900

3.1.3.1 Test Mode = UMTS/TM1

3.1.3.1.1 Test Channel = MCH





4Appendix_D: Bandwidth

Part I - Test Results

Test Band	Test Mode	Test Channel	Occupied Bandwidth [MHz]	Emission Bandwidth [MHz]	Verdict
WCDMA850	UMTS/TM1	LCH	4.17	4.70	Pass
		MCH	4.17	4.73	Pass
		HCH	4.16	4.70	Pass
WCDMA1900	UMTS/TM1	LCH	4.17	4.71	Pass
		MCH	4.17	4.72	Pass
		HCH	4.16	4.72	Pass
WCDMA1700	UMTS/TM1	LCH	4.17	4.74	Pass
		MCH	4.16	4.73	Pass
		HCH	4.16	4.72	Pass

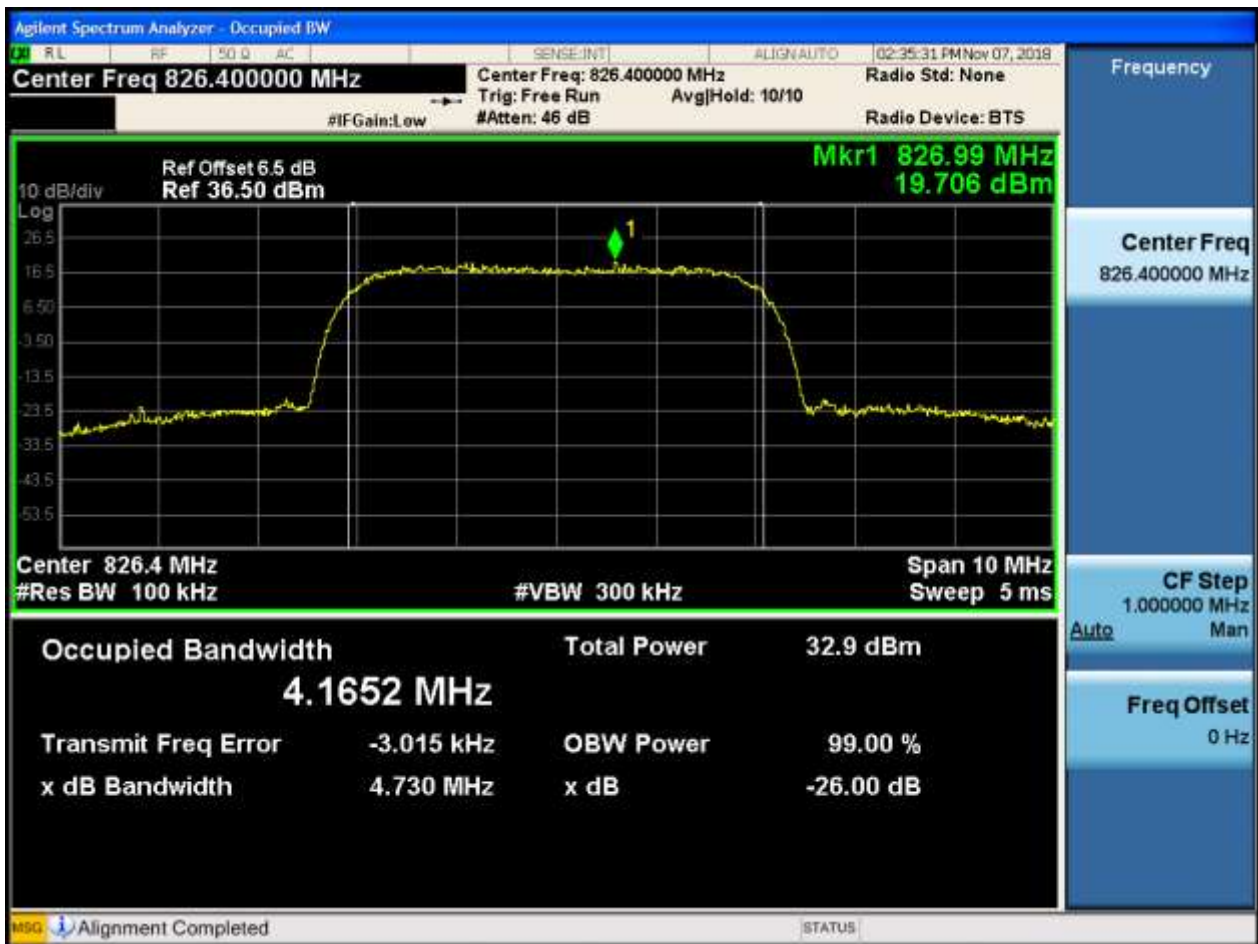
Part II - Test Plots

4.1 For UMTS

4.1.1 Test Band = WCDMA850

4.1.1.1 Test Mode = UMTS/TM1

4.1.1.1.1 Test Channel = LCH





4.1.1.1.2 Test Channel = MCH





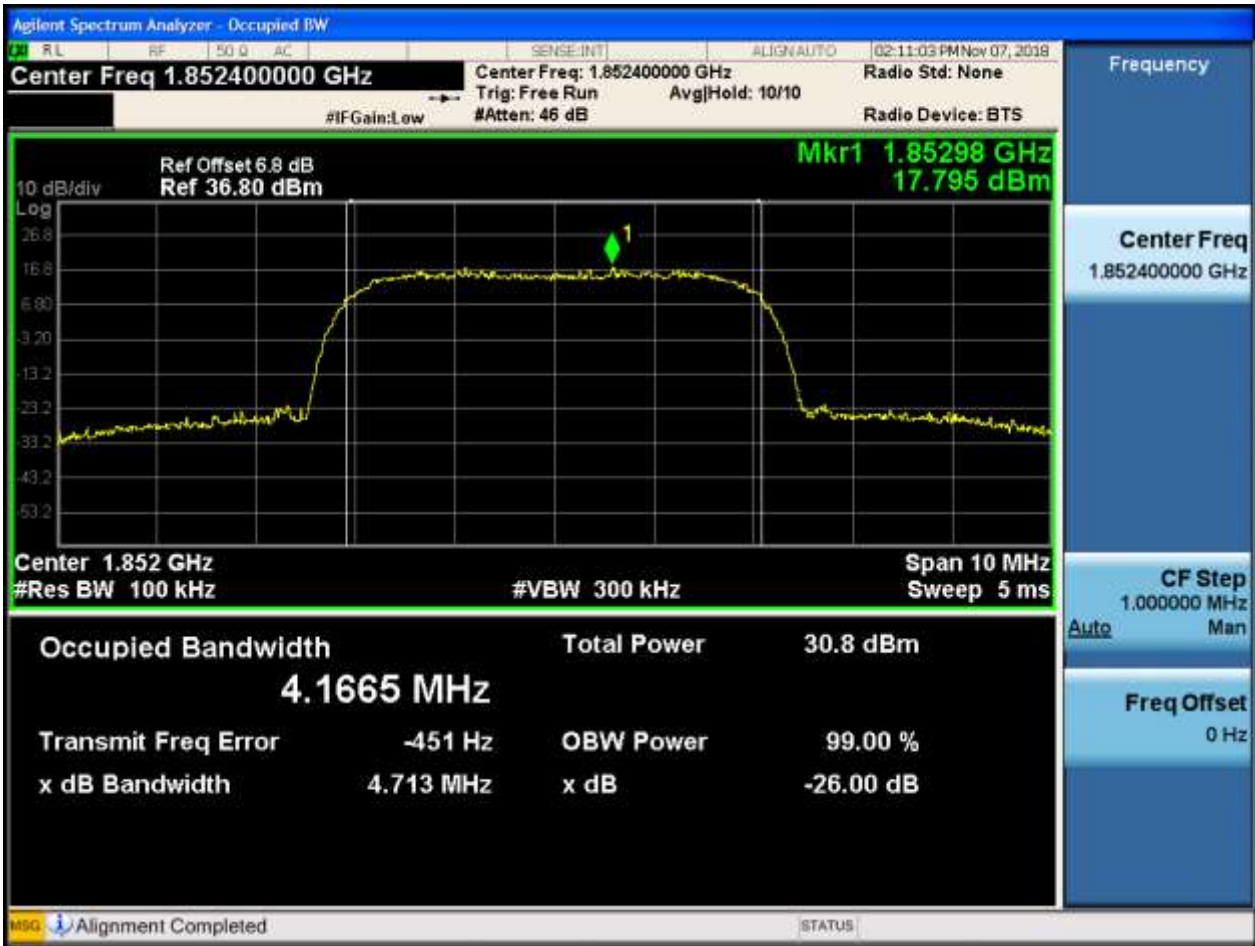
4.1.1.1.3 Test Channel = HCH



4.1.2 Test Band = WCDMA1900

4.1.2.1 Test Mode = UMTS/TM1

4.1.2.1.1 Test Channel = LCH





4.1.2.1.2 Test Channel = MCH





4.1.2.1.3 Test Channel = HCH

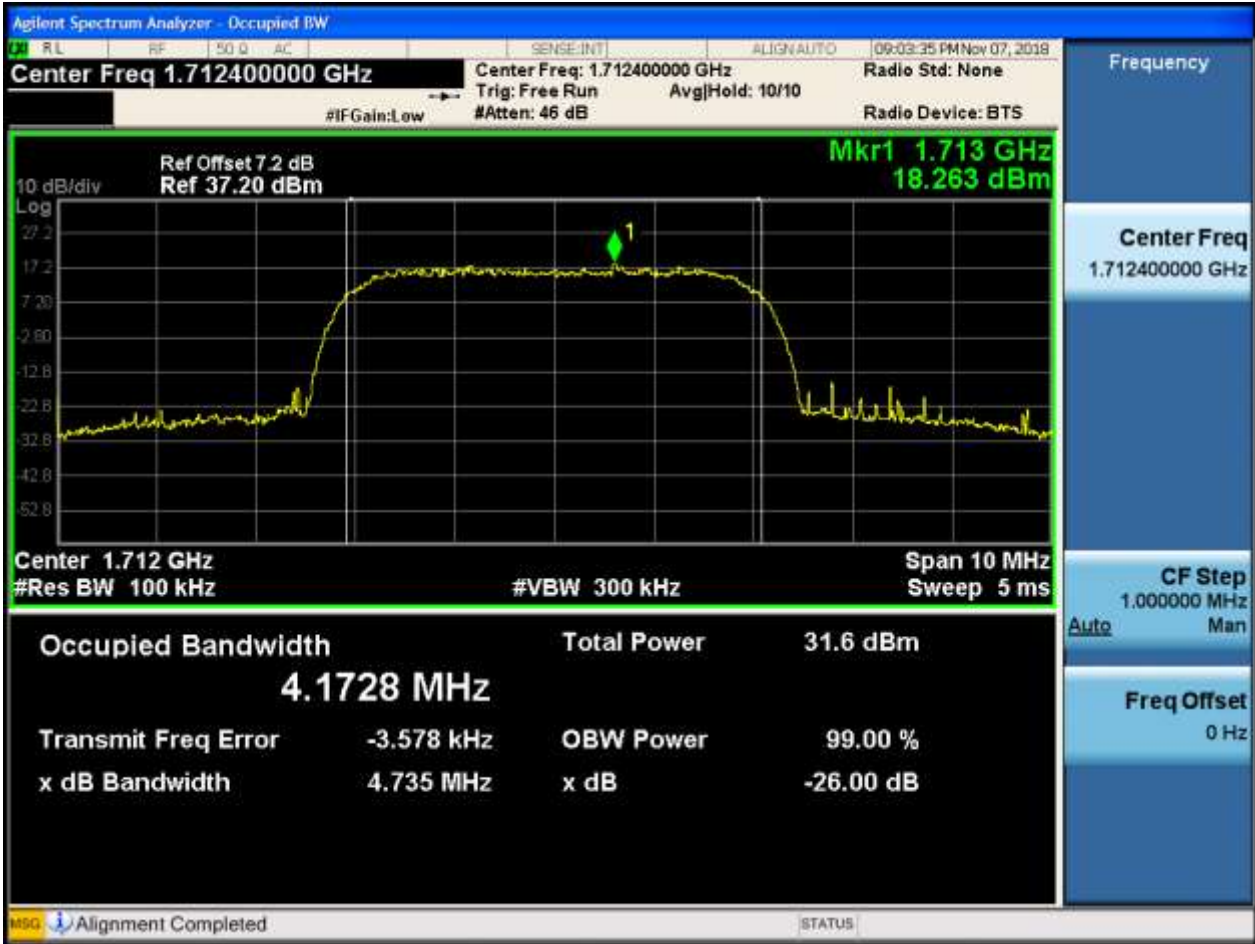




4.1.3 Test Band = WCDMA1700

4.1.3.1 Test Mode = UMTS/TM1

4.1.3.1.1 Test Channel = LCH

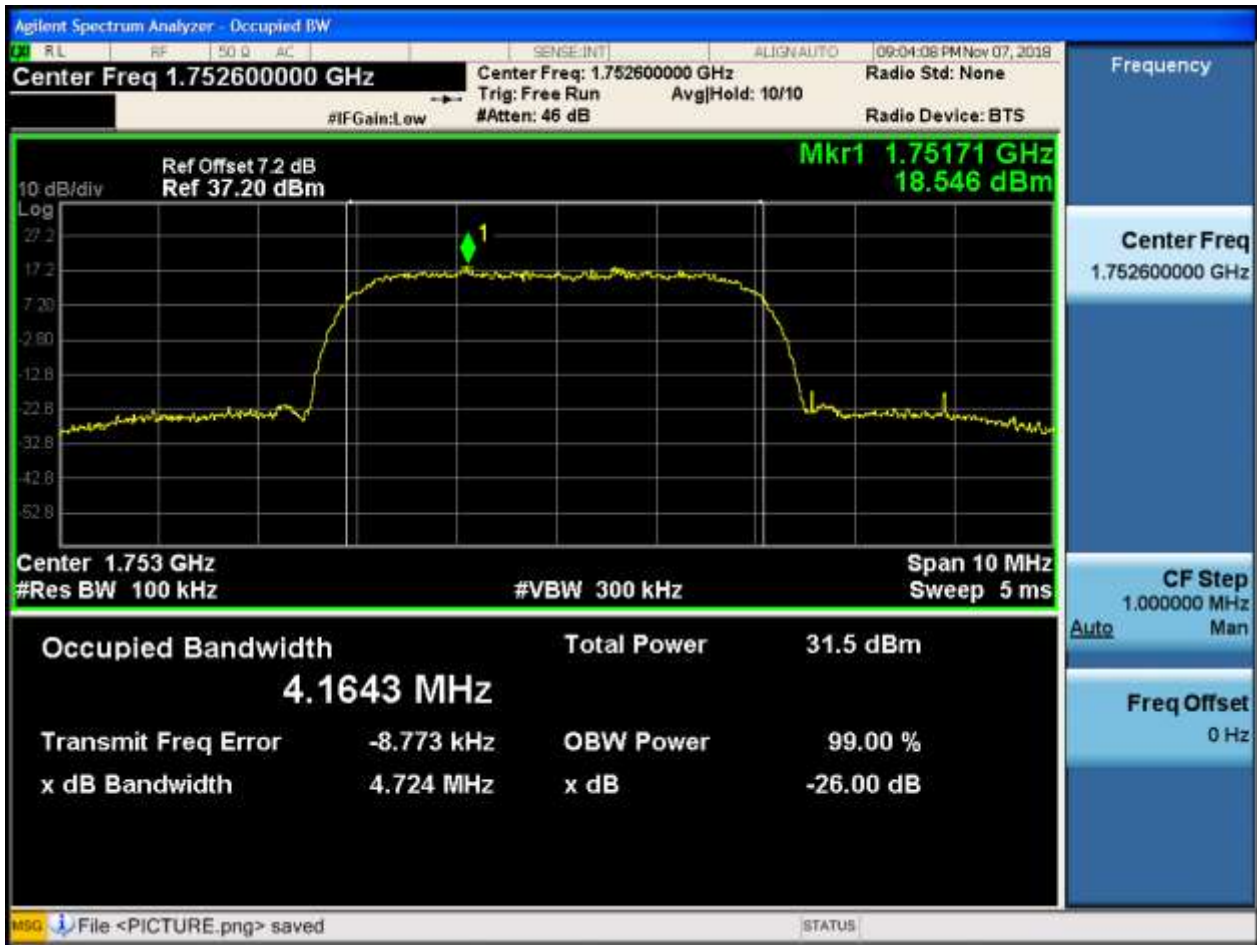




4.1.3.1.2 Test Channel = MCH



4.1.3.1.3 Test Channel = HCH





5Appendix_E: Band Edges Compliance

Part I - Test Plots

5.1 For UMTS

5.1.1 Test Band = WCDMA850

5.1.1.1 Test Mode = UMTS/TM1

5.1.1.1.1 Test Channel = LCH



5.1.1.1.2 Test Channel = HCH





5.1.2 Test Band = WCDMA1900

5.1.2.1 Test Mode = UMTS/TM1

5.1.2.1.1 Test Channel = LCH



5.1.2.1.2 Test Channel = HCH





5.1.3 Test Band = WCDMA1700

5.1.3.1 Test Mode = UMTS/TM1

5.1.3.1.1 Test Channel = LCH



5.1.3.1.2 Test Channel = HCH





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.

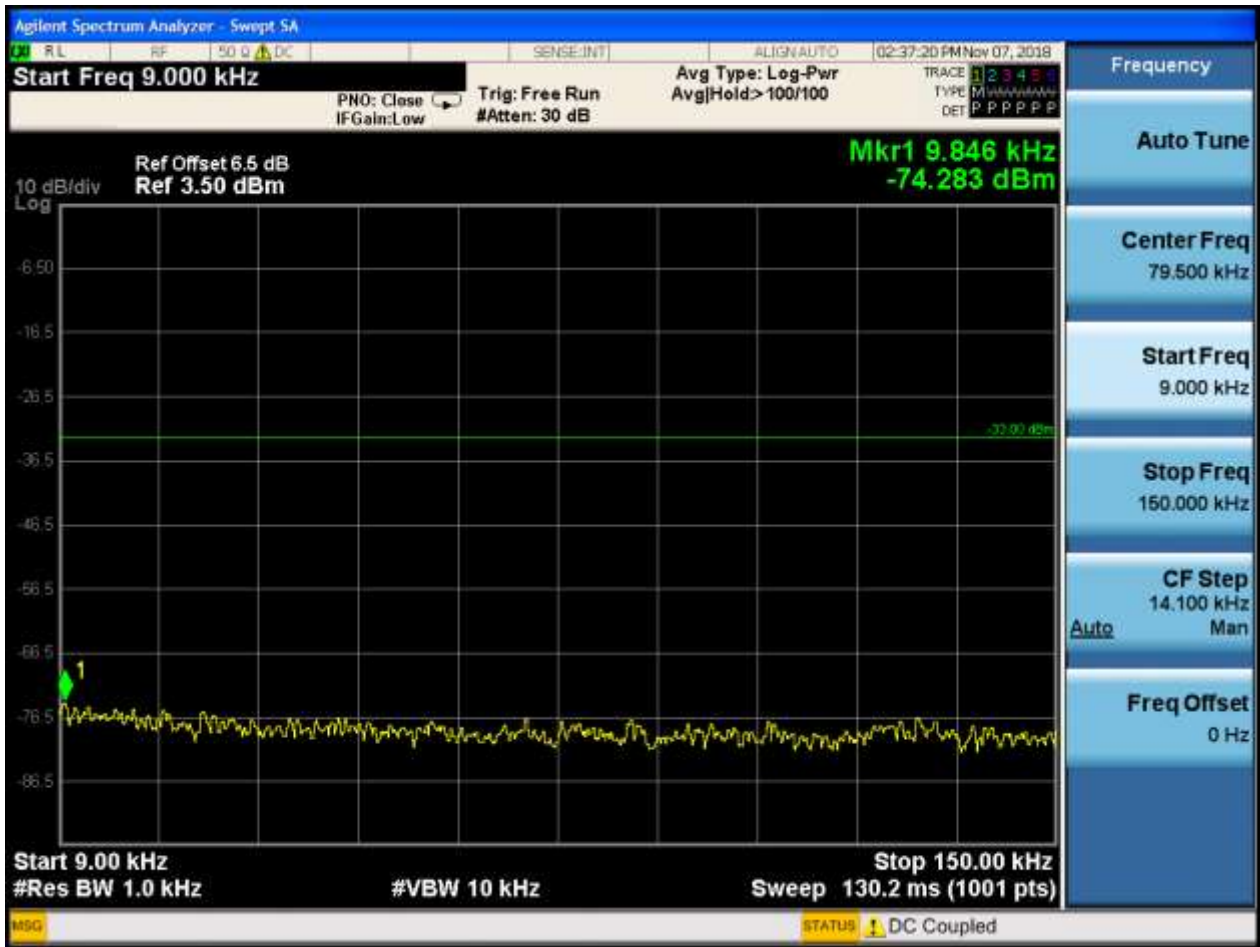
Part I - Test Plots

6.1 For UMTS

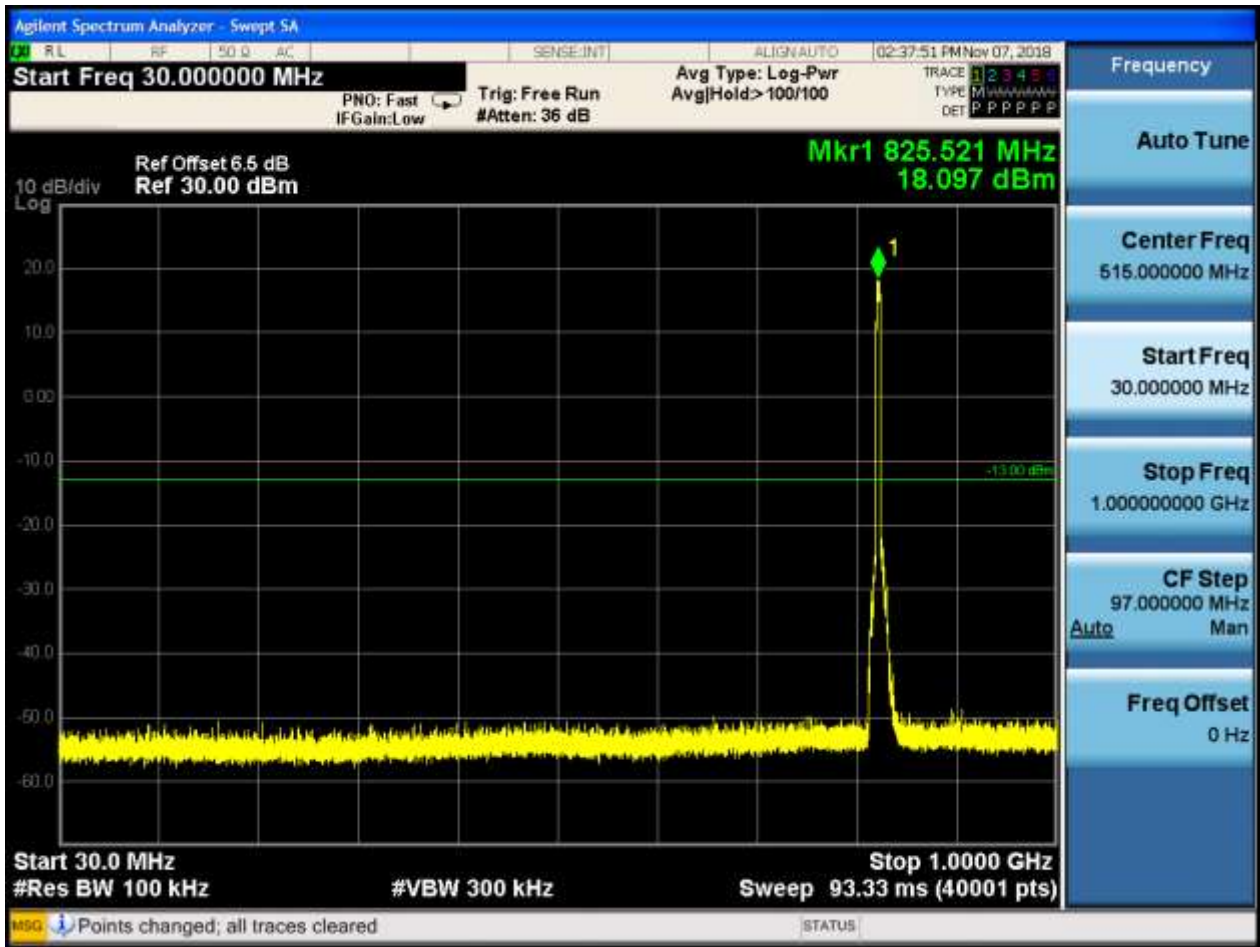
6.1.1 Test Band = WCDMA850

6.1.1.1 Test Mode = UMTS/TM1

6.1.1.1.1 Test Channel = LCH

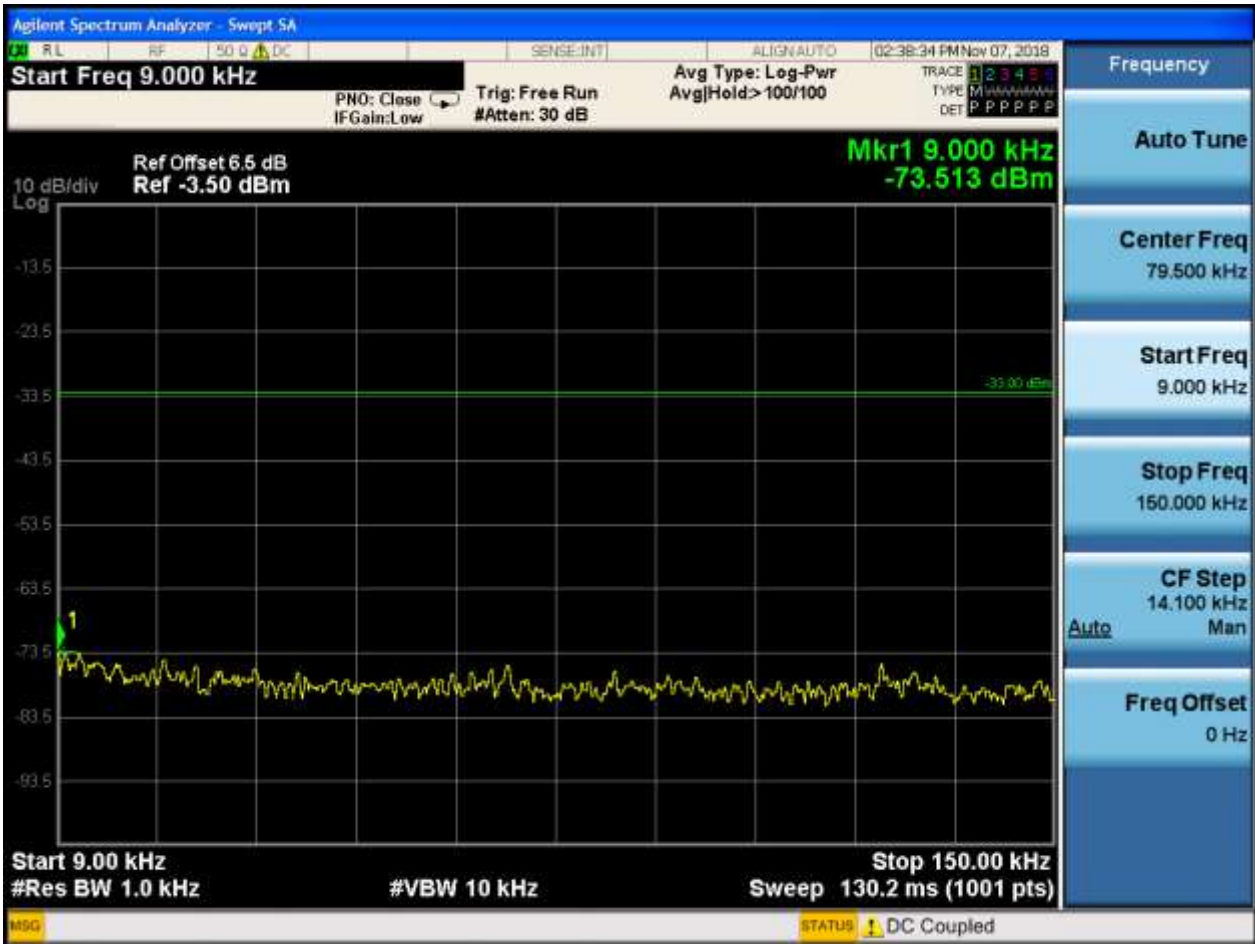


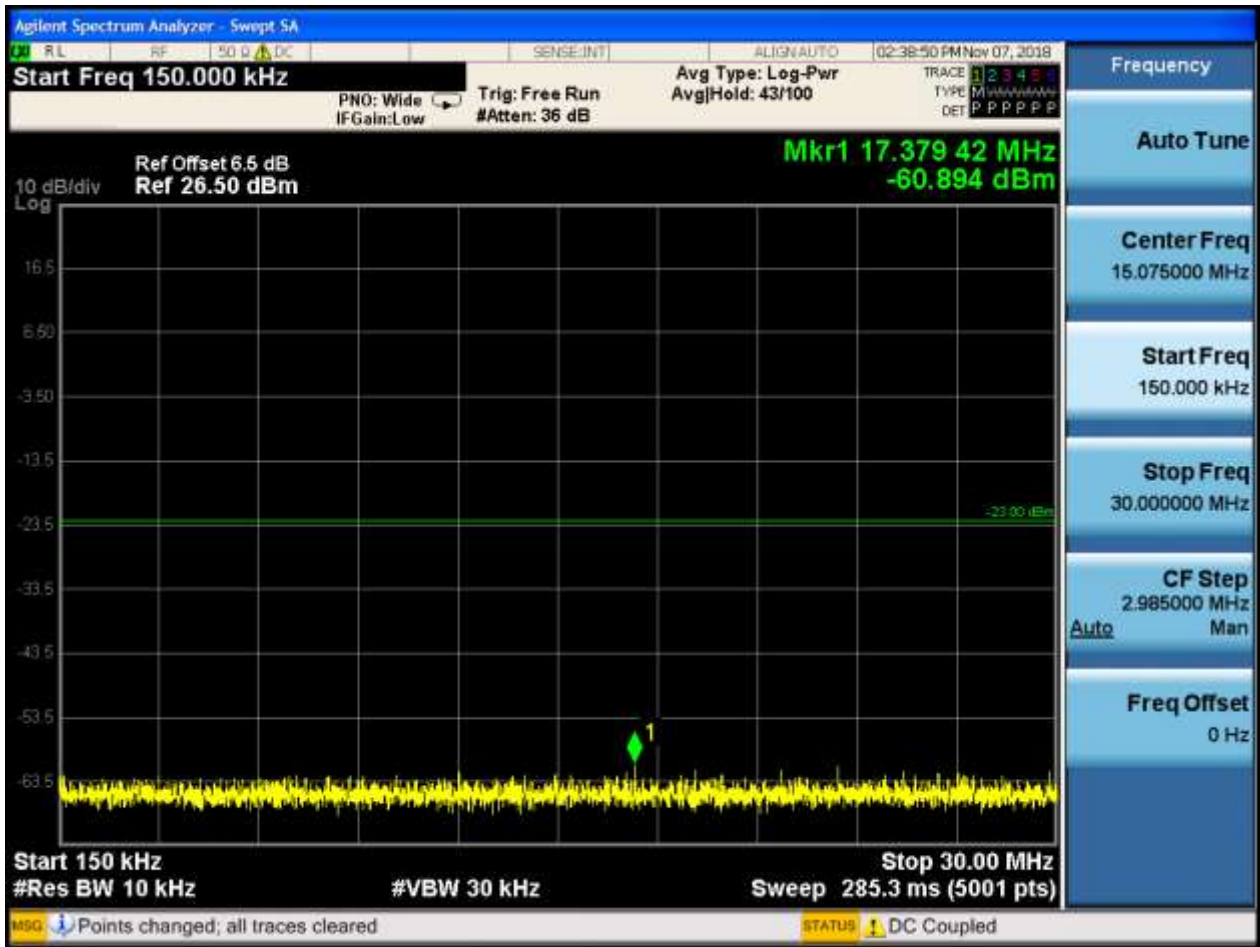


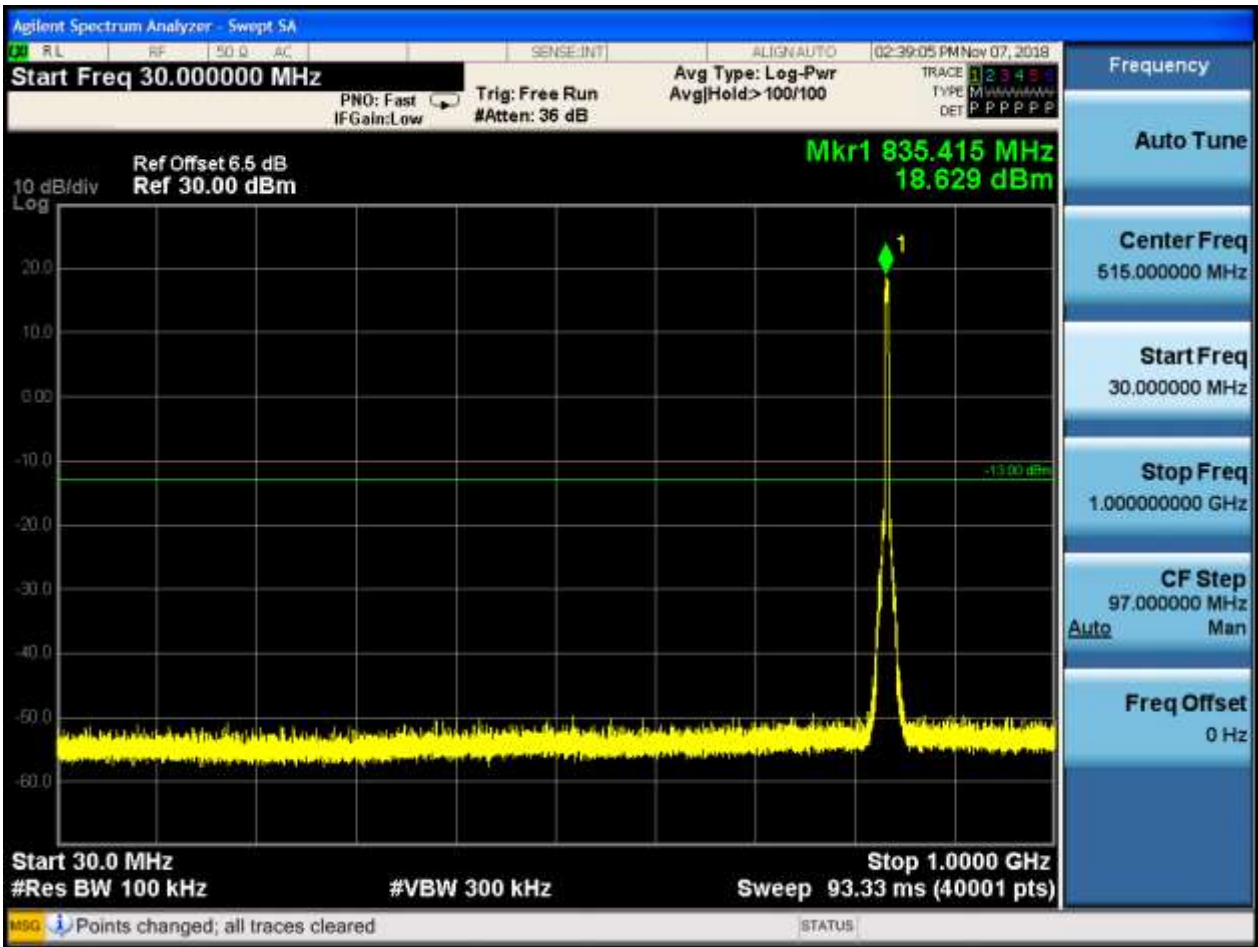




6.1.1.1.2 Test Channel = MCH



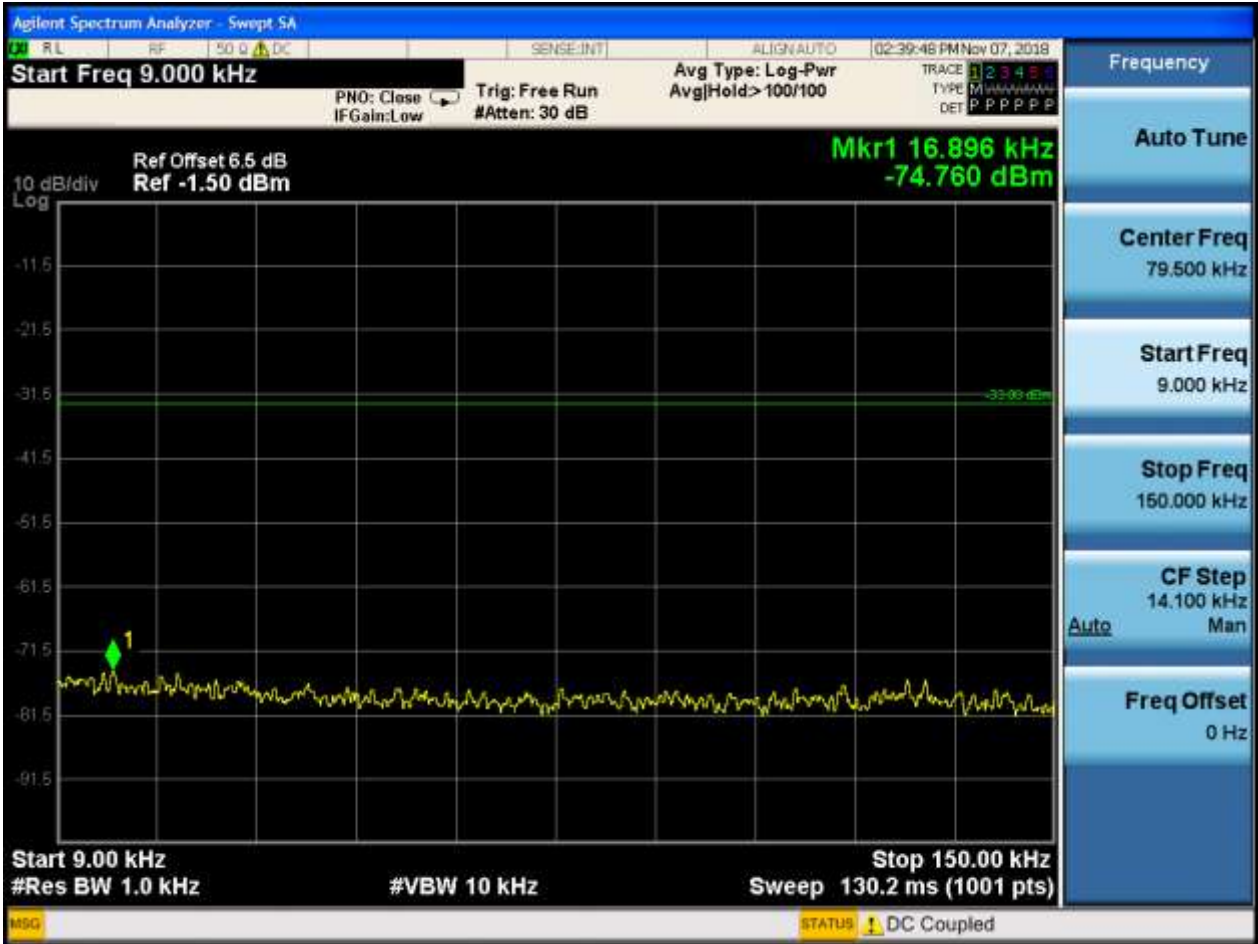


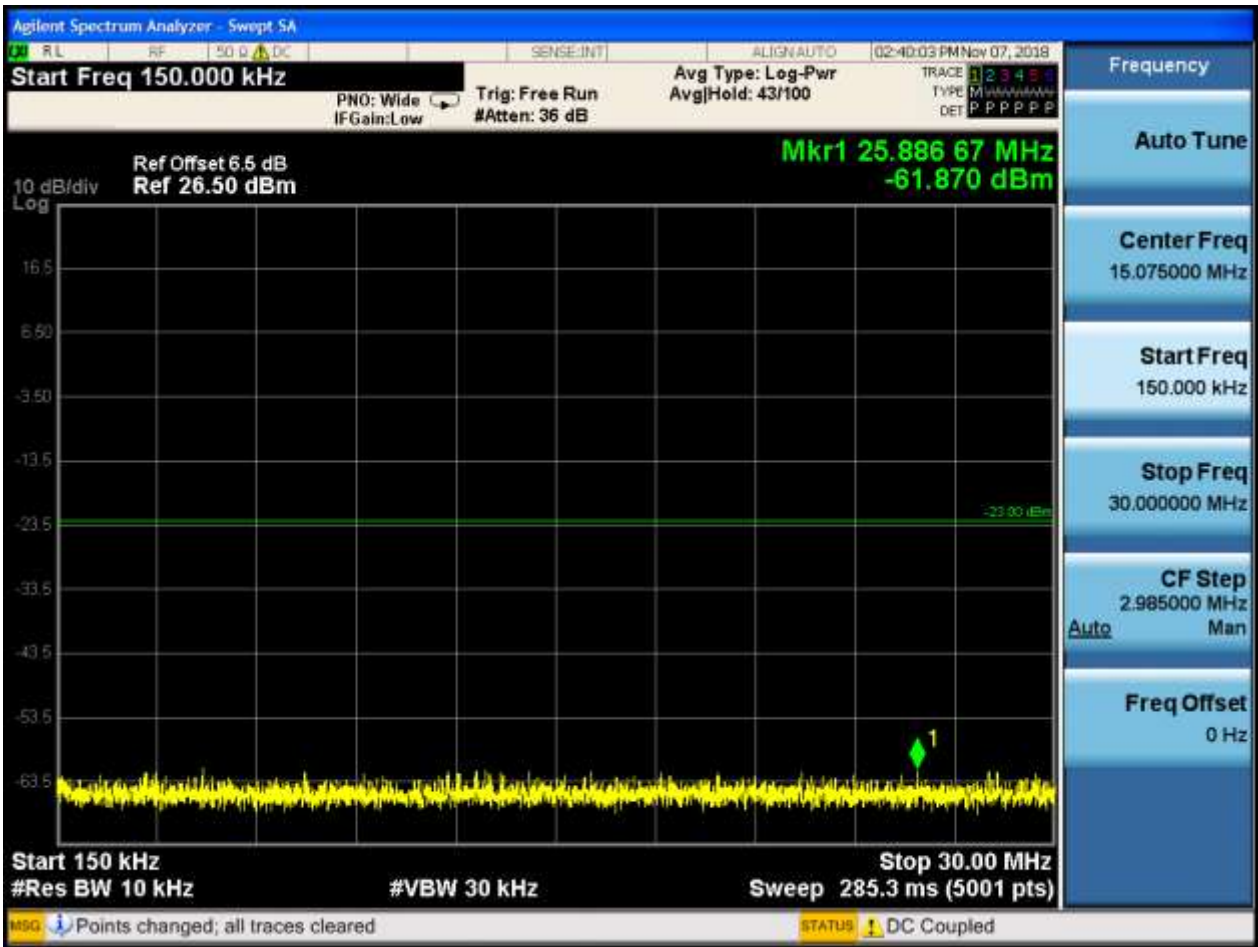


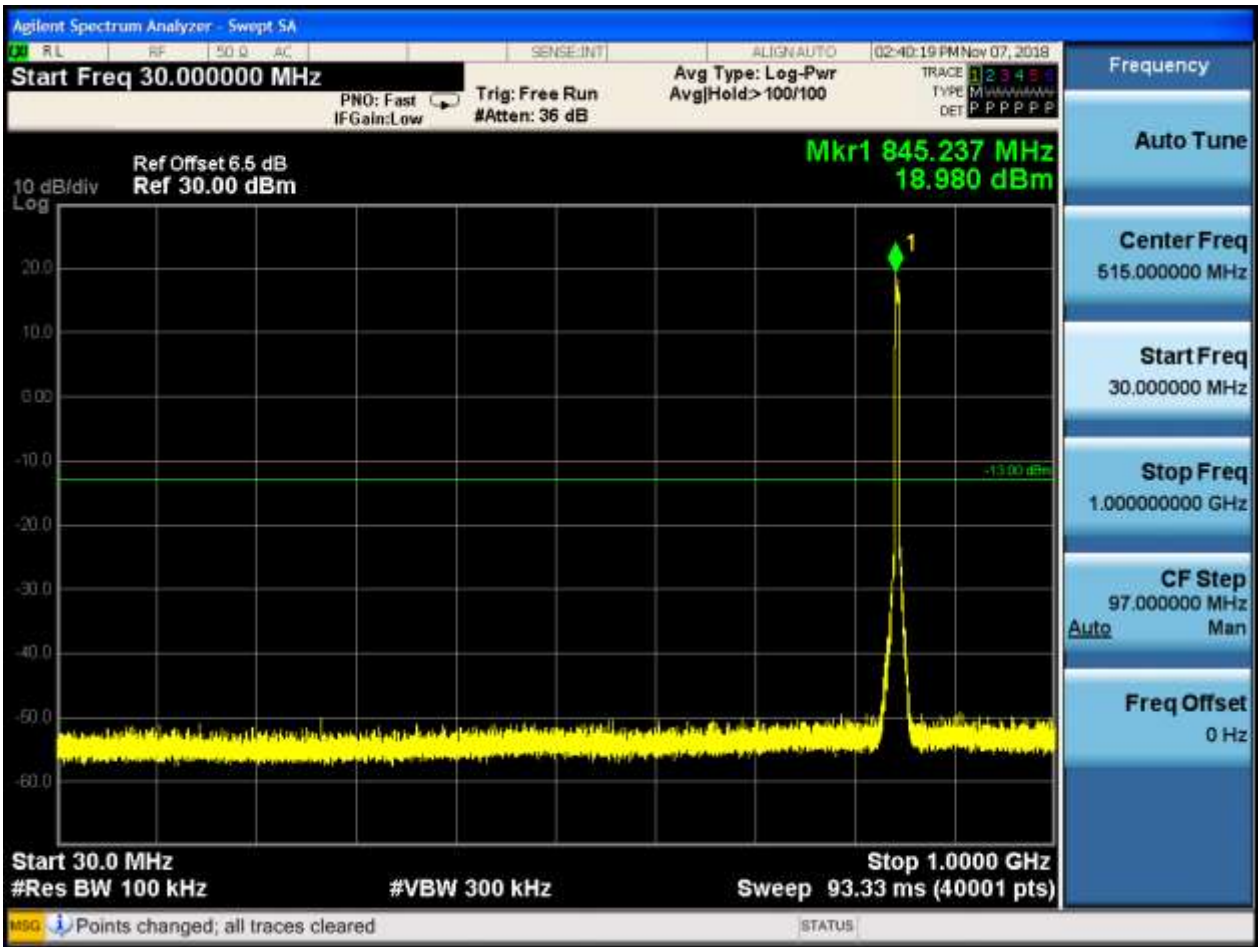




6.1.1.1.3 Test Channel = HCH







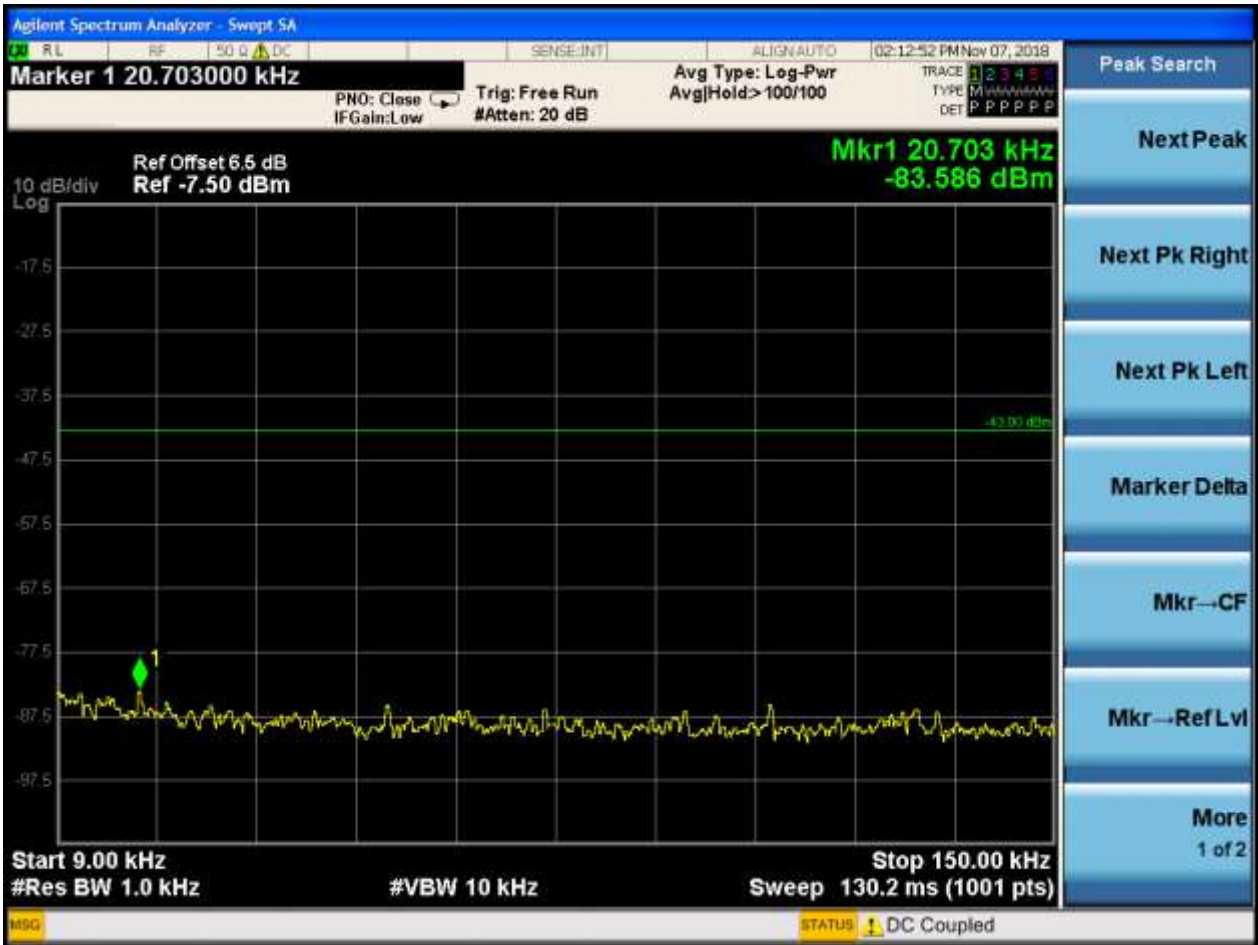


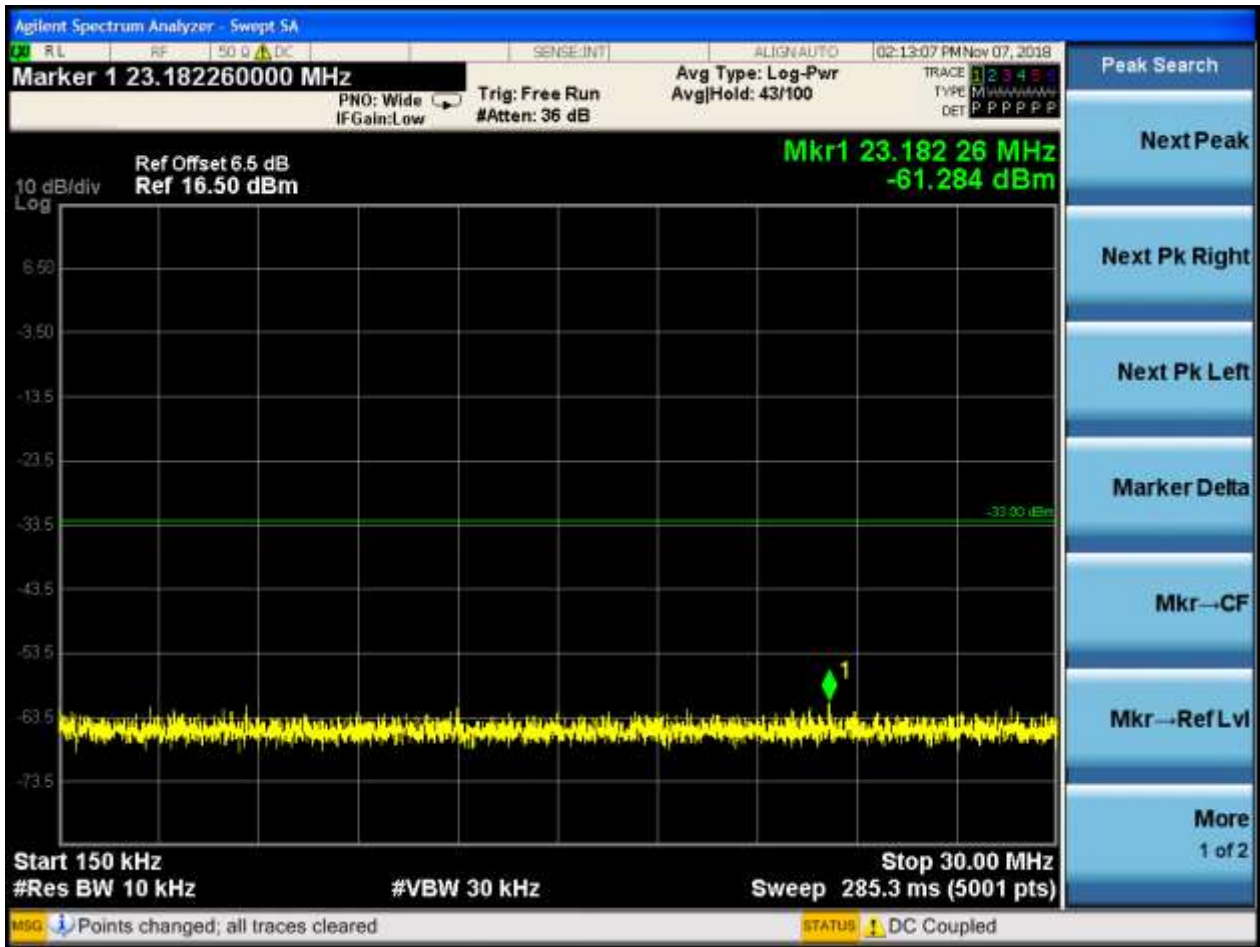


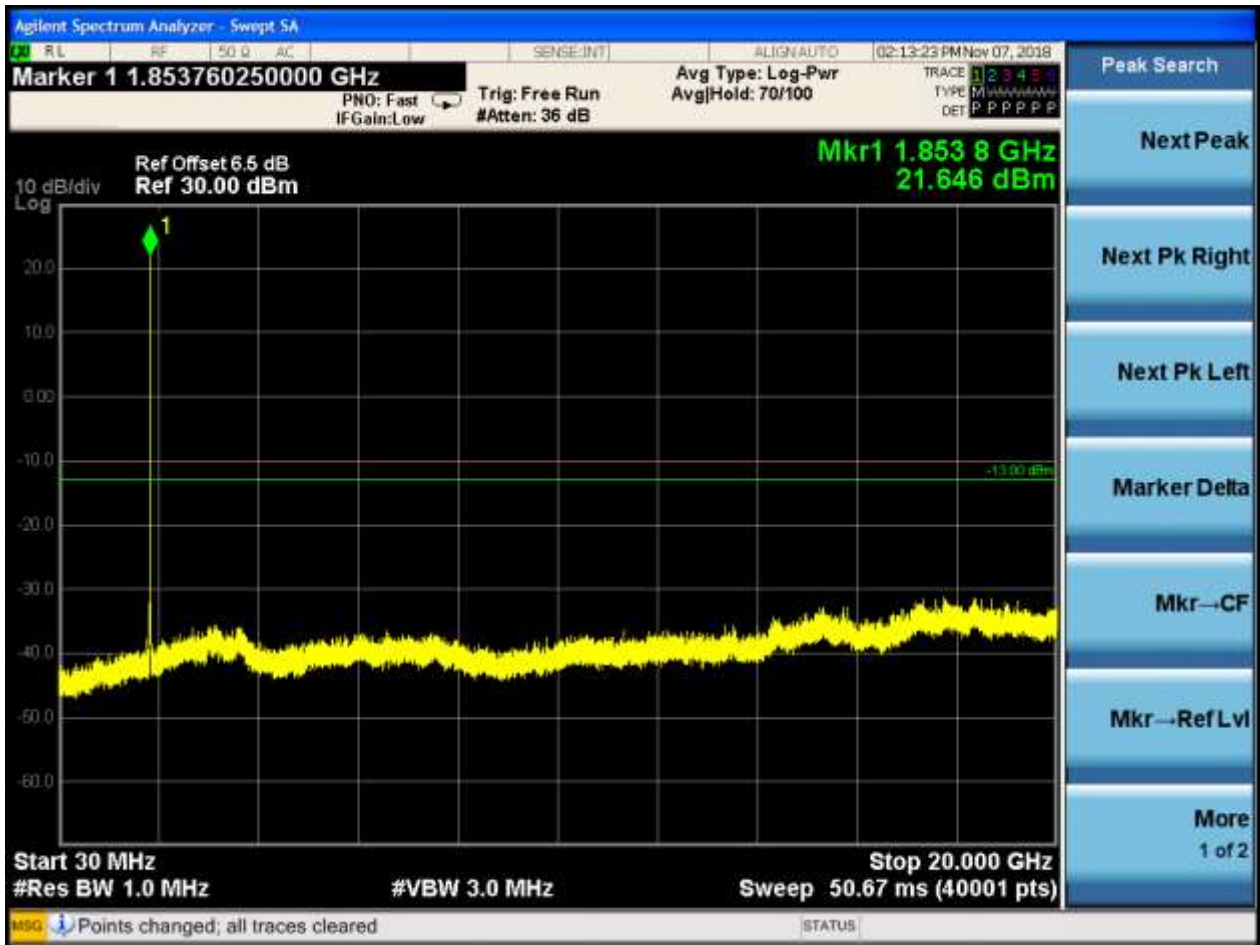
6.1.2 Test Band = WCDMA1900

6.1.2.1 Test Mode = UMTS/TM1

6.1.2.1.1 Test Channel = LCH

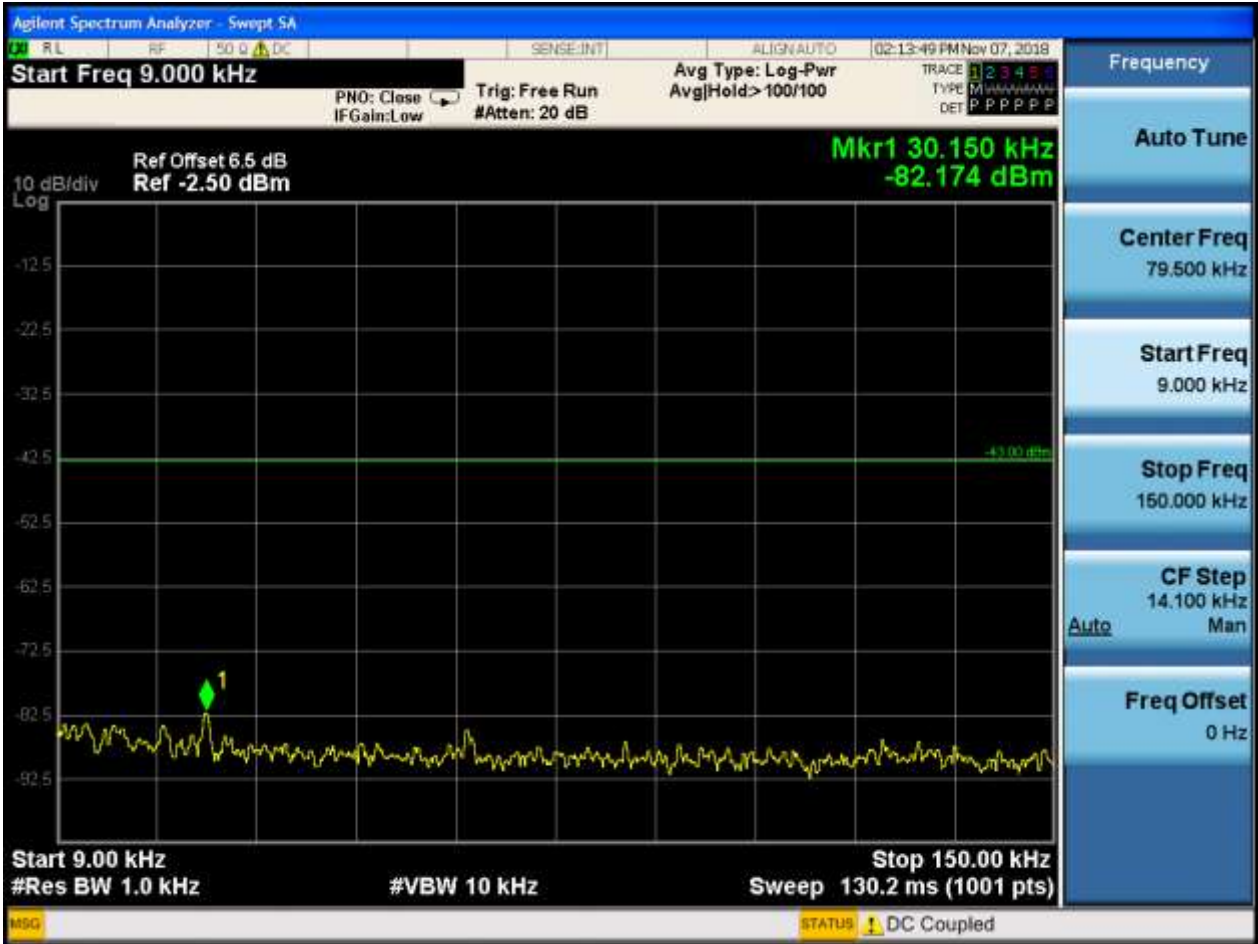


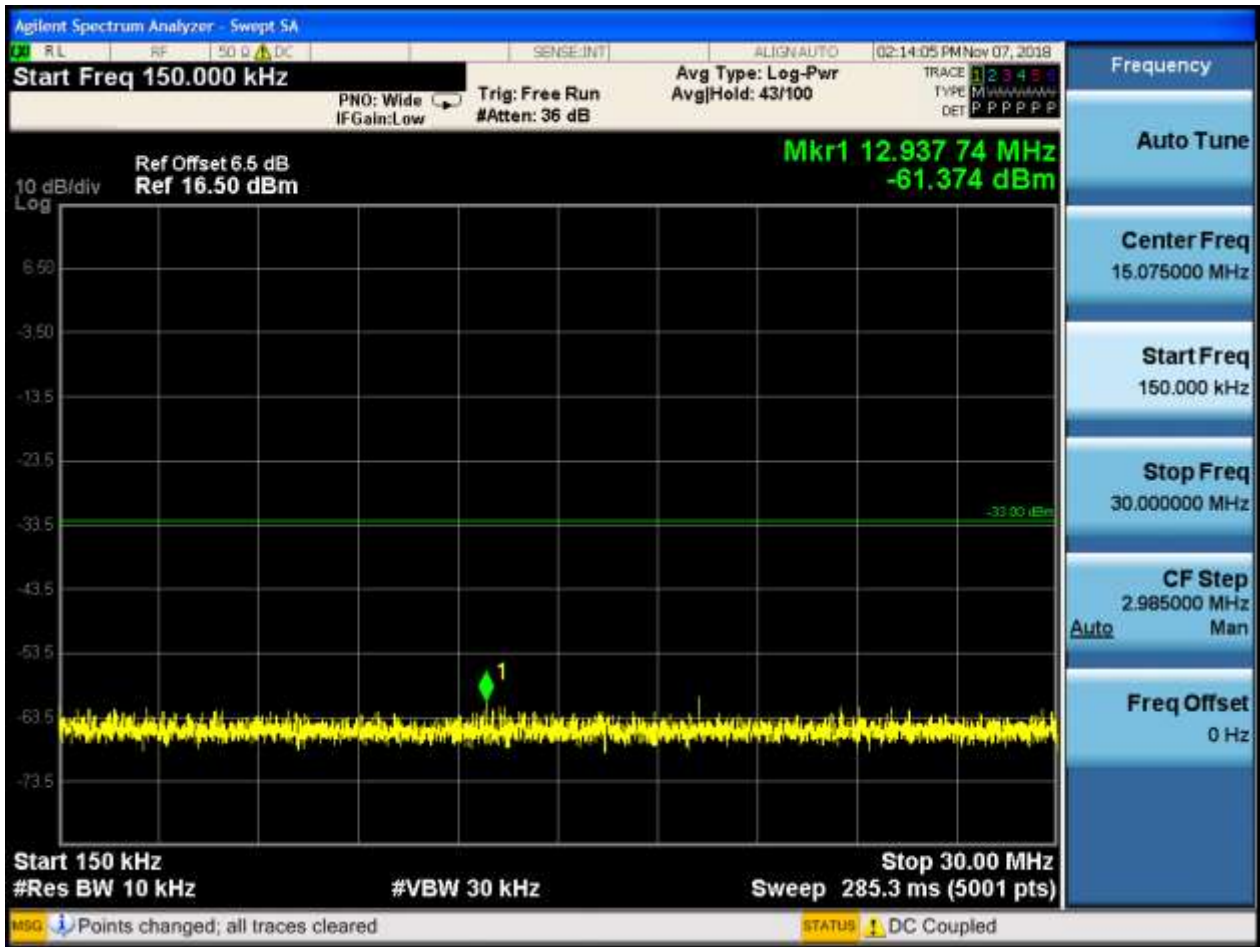






6.1.2.1.2 Test Channel = MCH

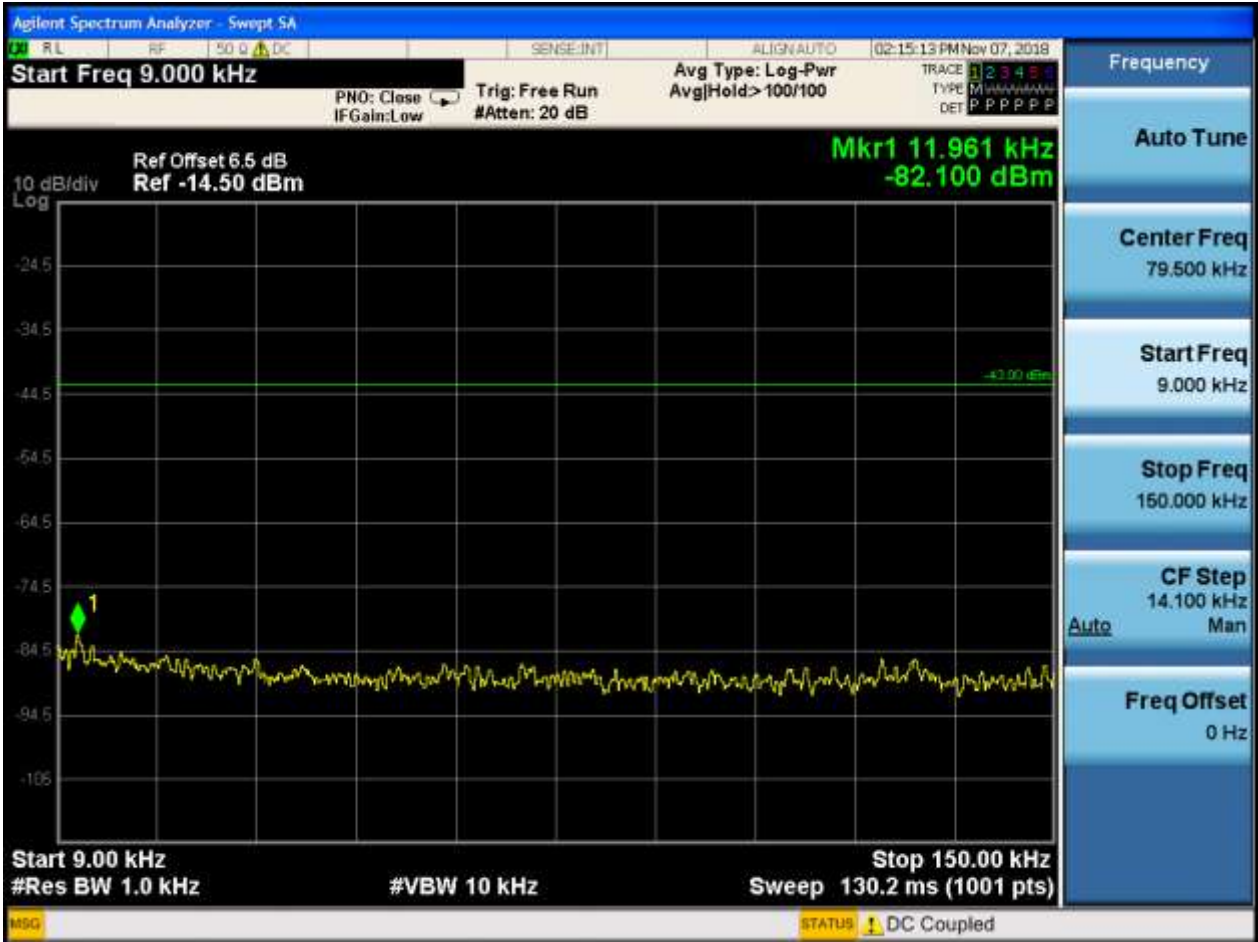


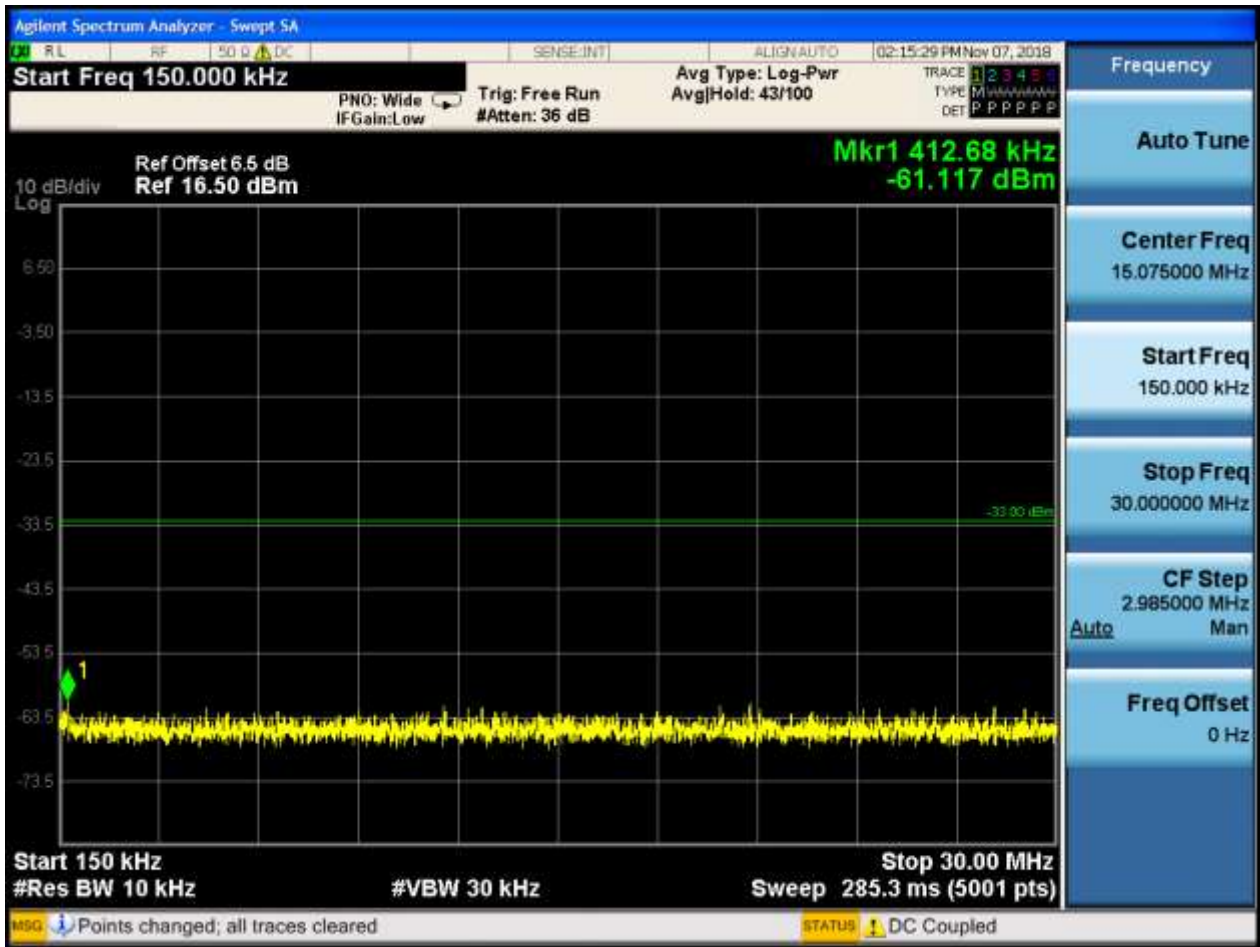






6.1.2.1.3 Test Channel = HCH





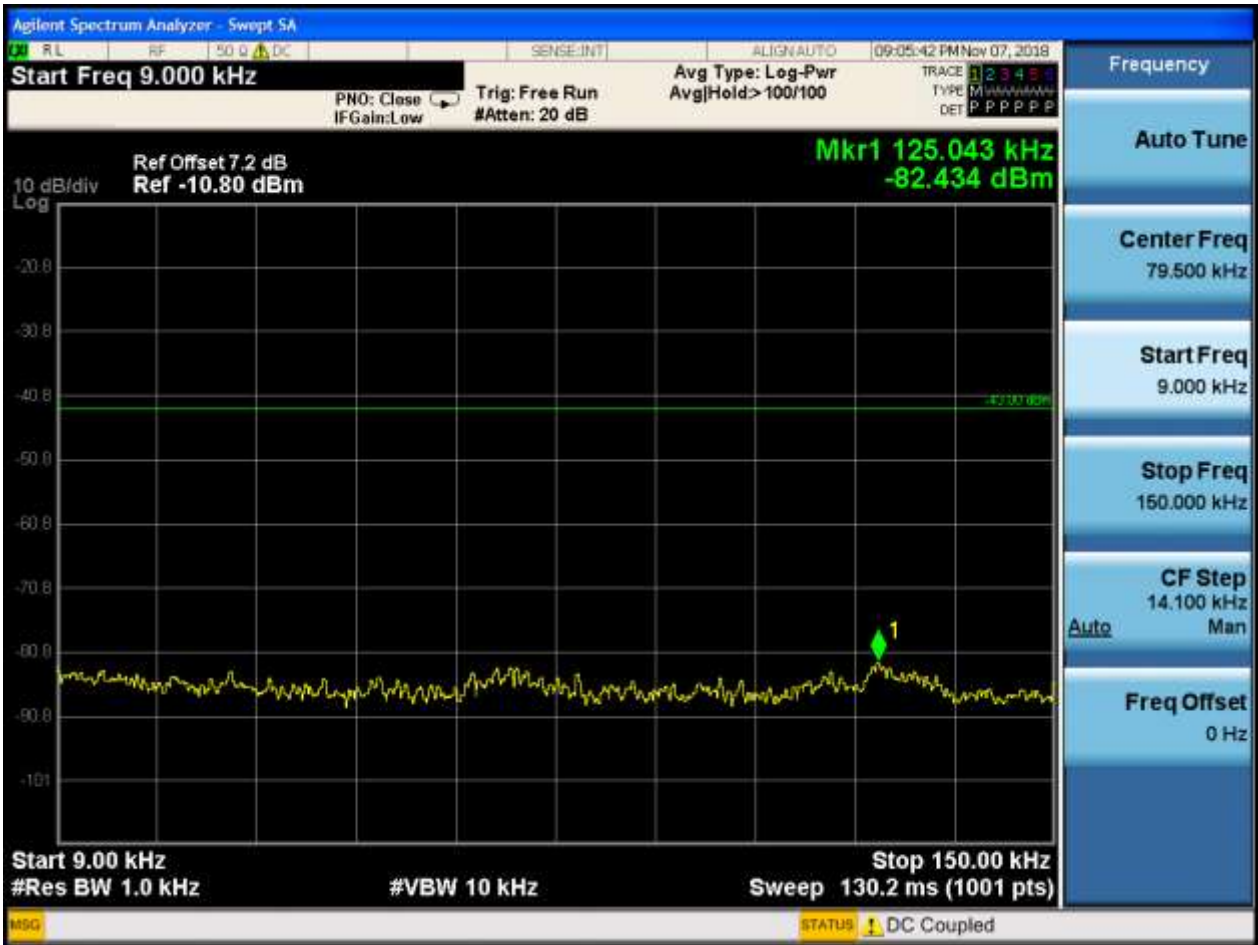


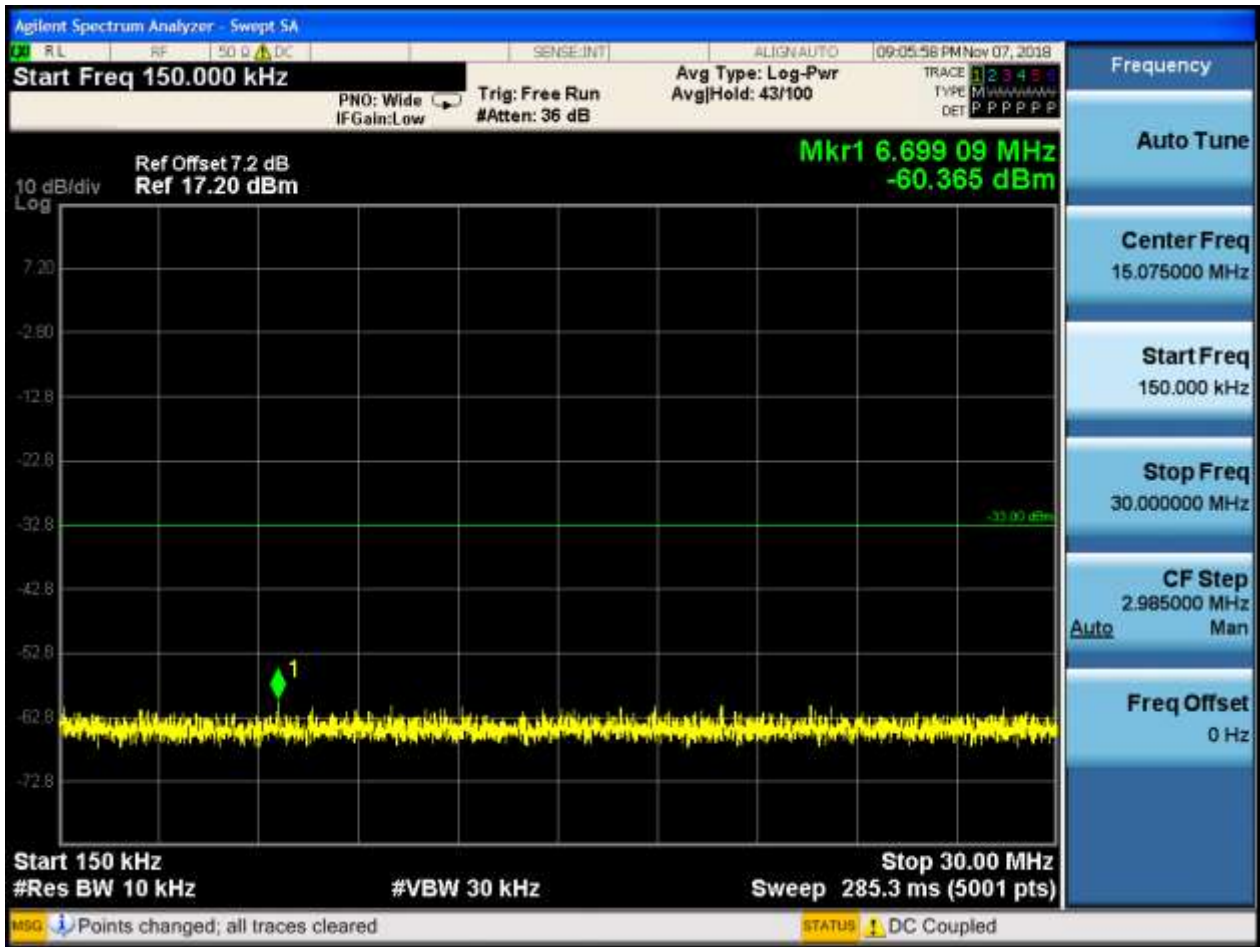


6.1.3 Test Band = WCDMA1700

6.1.3.1 Test Mode = UMTS/TM1

6.1.3.1.1 Test Channel = LCH



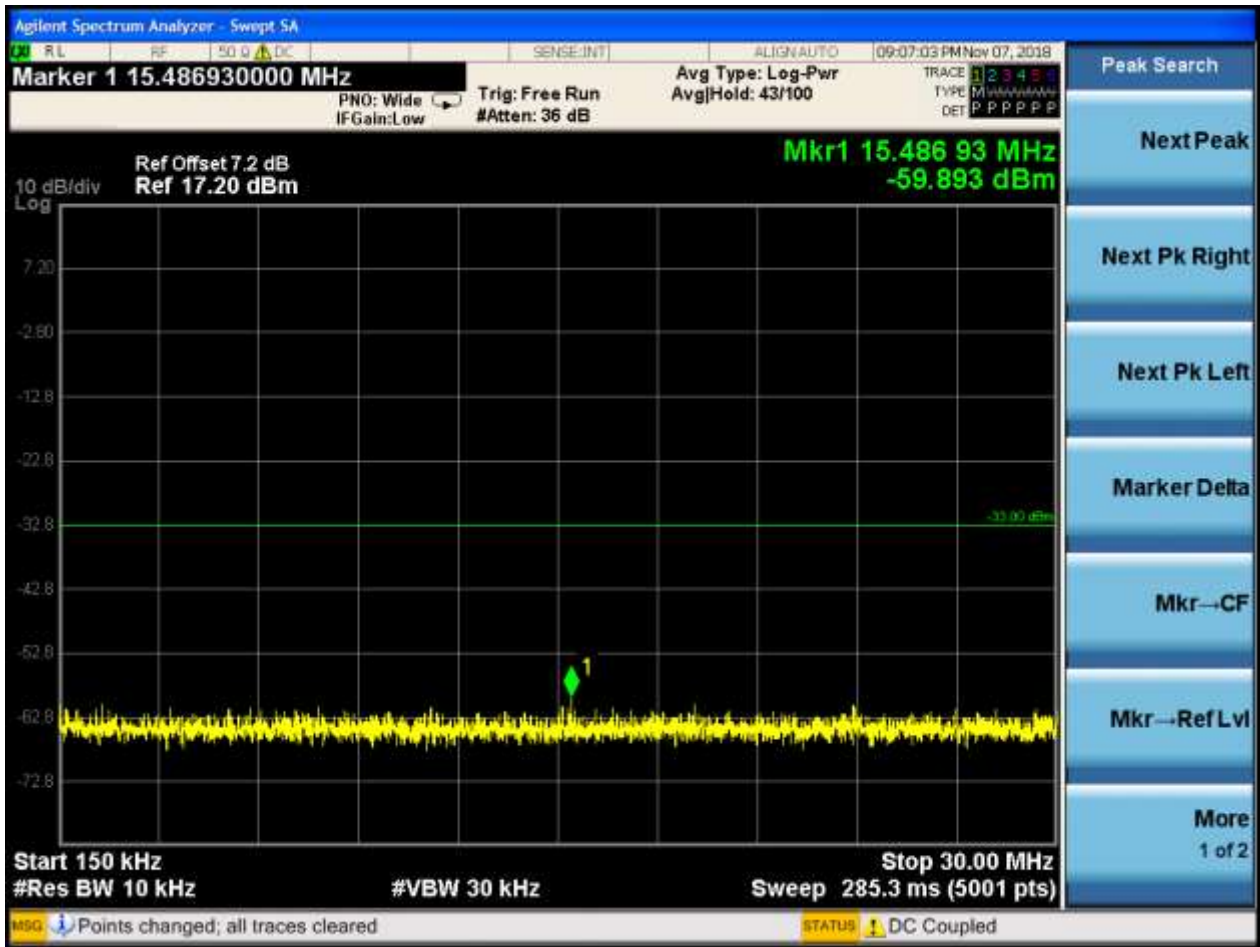






6.1.3.1.2 Test Channel = MCH

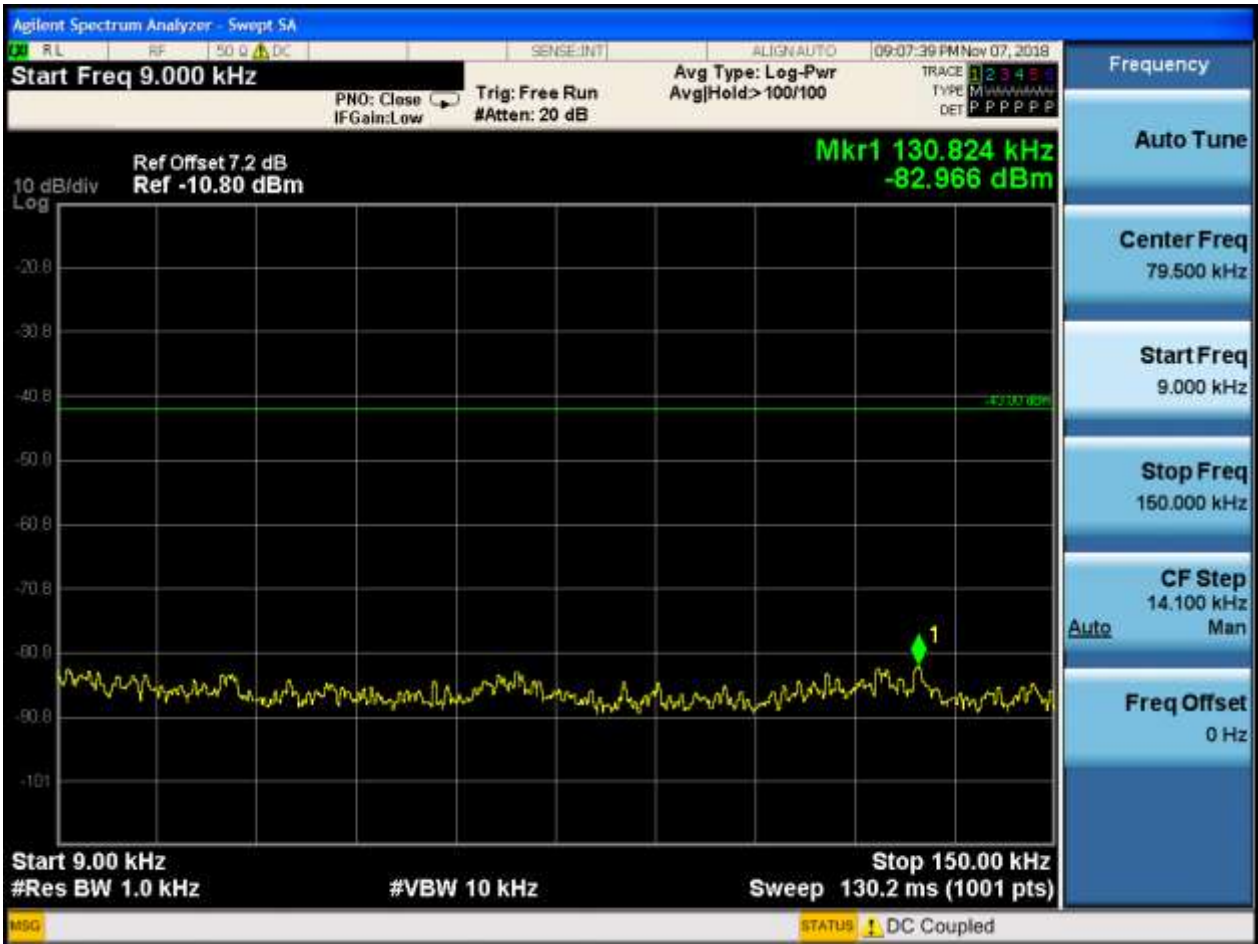


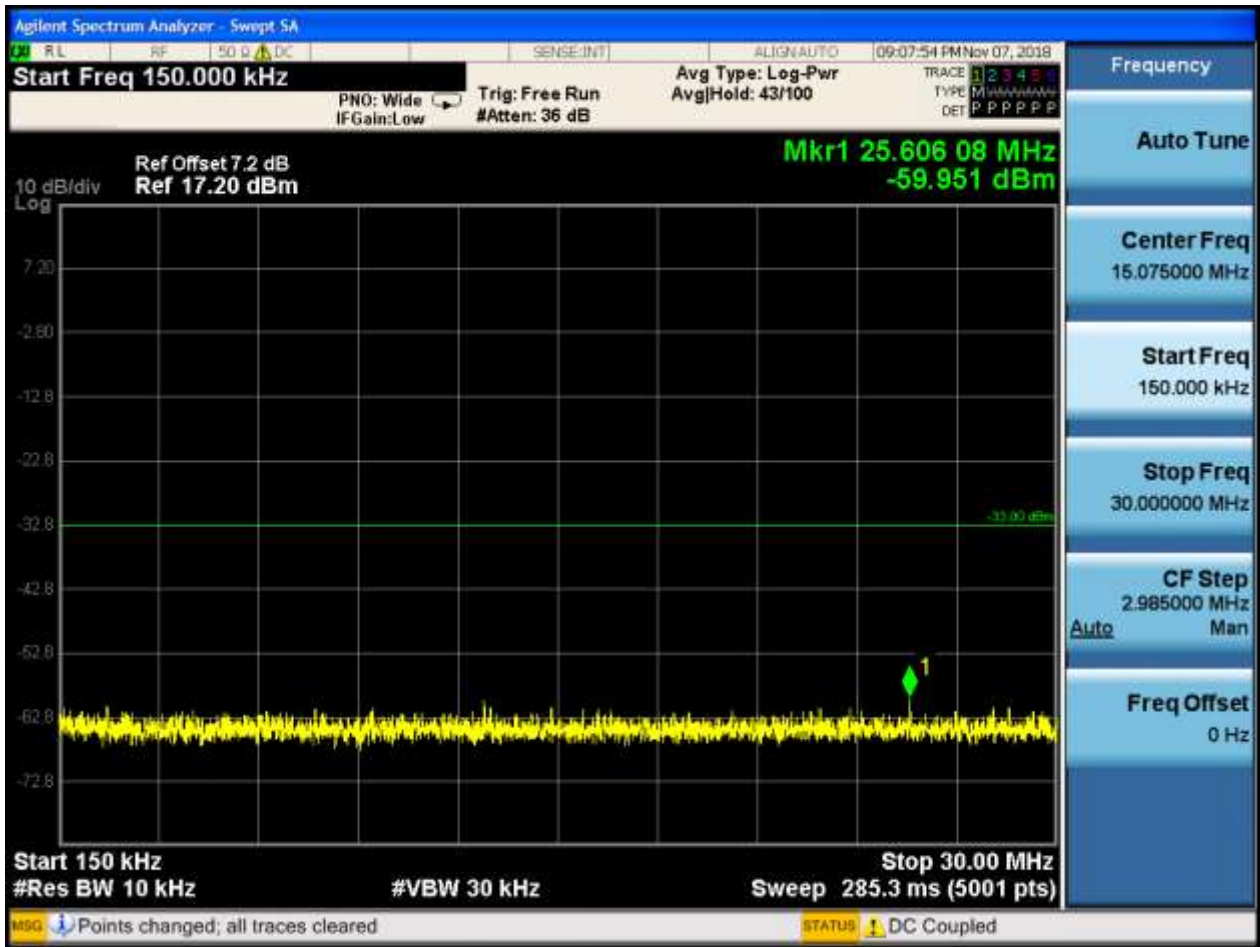






6.1.3.1.3 Test Channel = HCH









7Appendix_G: Frequency Stability

7.1 For UMTS

7.1.1 Frequency Error vs. Voltage:

Test Band	Test Mode	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
WCDMA850	UMTS/TM1	LCH	TN	VL	5.69	0.00689	PASS
				VN	0.27	0.00033	PASS
				VH	-0.14	-0.00017	PASS
		MCH	TN	VL	4.81	0.00575	PASS
				VN	8.68	0.01038	PASS
				VH	0.27	0.00032	PASS
		HCH	TN	VL	3.3	0.0039	PASS
				VN	4.73	0.00559	PASS
				VH	0.95	0.00112	PASS
WCDMA1700	UMTS/TM1	LCH	TN	VL	3.37	0.00197	PASS
				VN	7.2	0.0042	PASS
				VH	2.26	0.00132	PASS
		MCH	TN	VL	-1.66	-0.00096	PASS
				VN	4.17	0.00241	PASS
				VH	2.44	0.00141	PASS
		HCH	TN	VL	0	0	PASS
				VN	0.02	0.00001	PASS
				VH	0.27	0.00015	PASS
WCDMA1900	UMTS/TM1	LCH	TN	VL	-0.93	-0.0005	PASS
				VN	3.98	0.00215	PASS
				VH	7.64	0.00412	PASS
		MCH	TN	VL	1.24	0.00066	PASS
				VN	3.91	0.00208	PASS
				VH	3.45	0.00184	PASS
		HCH	TN	VL	5.6	0.00294	PASS
				VN	8.94	0.00469	PASS
				VH	2.53	0.00133	PASS

7.1.2 Frequency Error vs. Temperature:

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
WCDMA850	UMTS/TM1	LCH	VN	-30	-0.63	-0.00076	PASS
				-20	-4.9	-0.00593	PASS
				-10	5.51	0.00667	PASS
				0	-0.73	-0.00088	PASS
				10	2.53	0.00306	PASS
				20	4.62	0.00559	PASS
				30	-2.66	-0.00322	PASS
				40	-0.38	-0.00046	PASS
				50	6.35	0.00768	PASS
		MCH	VN	-30	4.85	0.0058	PASS
				-20	1.85	0.00221	PASS
				-10	0.56	0.00067	PASS
				0	0.78	0.00093	PASS
				10	-1.1	-0.00132	PASS
				20	0.69	0.00082	PASS
				30	-0.93	-0.00111	PASS
				40	9.26	0.01107	PASS
				50	3.25	0.00389	PASS
		HCH	VN	-30	6.91	0.00816	PASS
				-20	3.83	0.00452	PASS
				-10	9.02	0.01065	PASS
				0	3.48	0.00411	PASS
				10	2.53	0.00299	PASS
				20	-0.76	-0.0009	PASS
30	-4.44			-0.00524	PASS		
40	-2.11			-0.00249	PASS		
50	-4.36			-0.00515	PASS		
WCDMA1700	UMTS/TM1	LCH	VN	-30	3.69	0.00215	PASS
				-20	7.55	0.00441	PASS
				-10	5.45	0.00318	PASS
				0	-3.72	-0.00217	PASS
				10	4.26	0.00249	PASS
				20	-2.58	-0.00151	PASS



		MCH	VN	30	4.17	0.00244	PASS
				40	6.47	0.00378	PASS
				50	2.27	0.00133	PASS
				-30	1.21	0.0007	PASS
				-20	1.95	0.00113	PASS
				-10	4.7	0.00271	PASS
				0	3.83	0.00221	PASS
				10	-4.14	-0.00239	PASS
				20	3.56	0.00205	PASS
				30	-0.34	-0.0002	PASS
		40	0.32	0.00018	PASS		
		50	1.04	0.0006	PASS		
		HCH	VN	-30	-0.67	-0.00038	PASS
				-20	2.26	0.00129	PASS
				-10	6.84	0.0039	PASS
				0	1.11	0.00063	PASS
				10	4.1	0.00234	PASS
				20	4.87	0.00278	PASS
				30	-1.07	-0.00061	PASS
				40	-2.3	-0.00131	PASS
50	3.14			0.00179	PASS		
WCDMA1900	UMTS/TM1			LCH	VN	-30	8.9
		-20	-1.65			-0.00089	PASS
		-10	3.33			0.0018	PASS
		0	4.46			0.00241	PASS
		10	0.06			0.00003	PASS
		20	1.13			0.00061	PASS
		30	4.67			0.00252	PASS
		40	-0.67			-0.00036	PASS
		50	-1.66			-0.0009	PASS
		MCH	VN			-30	13.53
				-20	1.65	0.00088	PASS
				-10	8.22	0.00437	PASS
				0	2.96	0.00157	PASS
				10	6.12	0.00326	PASS
				20	-0.24	-0.00013	PASS
				30	7.93	0.00422	PASS
				40	0.64	0.00034	PASS
				50	1.89	0.00101	PASS
				HCH	VN	-30	3.86



				-20	4.15	0.00218	PASS
				-10	-0.37	-0.00019	PASS
				0	3.56	0.00187	PASS
				10	10.51	0.00551	PASS
				20	10.09	0.00529	PASS
				30	5.97	0.00313	PASS
				40	3.71	0.00194	PASS
				50	3.78	0.00198	PASS

END