



Appendix for test report

1Appendix_A: Effective (Isotropic) Radiated Power Output Data

Part I - Test Results

Test Band	Test Mode	Test Channel	Conducte d Power [dBm]	ERP/EIRP [dBm]	Limit [dBm]	Verdict
WCDMA1900	UMTS/TM1	LCH	23.42	25.52	33	PASS
		MCH	23.45	25.55	33	PASS
		HCH	23.47	25.57	33	PASS
WCDMA1700	UMTS/TM1	LCH	23.18	24.98	30	PASS
		MCH	23.19	24.99	30	PASS
		HCH	23.07	24.87	30	PASS
WCDMA850	UMTS/TM1	LCH	23.42	17.87	38.5	PASS
		MCH	23.33	17.78	38.5	PASS
		HCH	23.18	17.63	38.5	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: RBW > emission bandwidth, VBW > 3 x RBW.

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	2.56	13	PASS
		MCH	2.79	13	PASS
		HCH	2.66	13	PASS
WCDMA1900	UMTS/TM1	LCH	2.84	13	PASS
		MCH	2.97	13	PASS
		HCH	2.82	13	PASS
WCDMA1700	UMTS/TM1	LCH	2.72	13	PASS
		MCH	2.91	13	PASS
		HCH	3.08	13	PASS

3Appendix_C: Modulation Characteristics

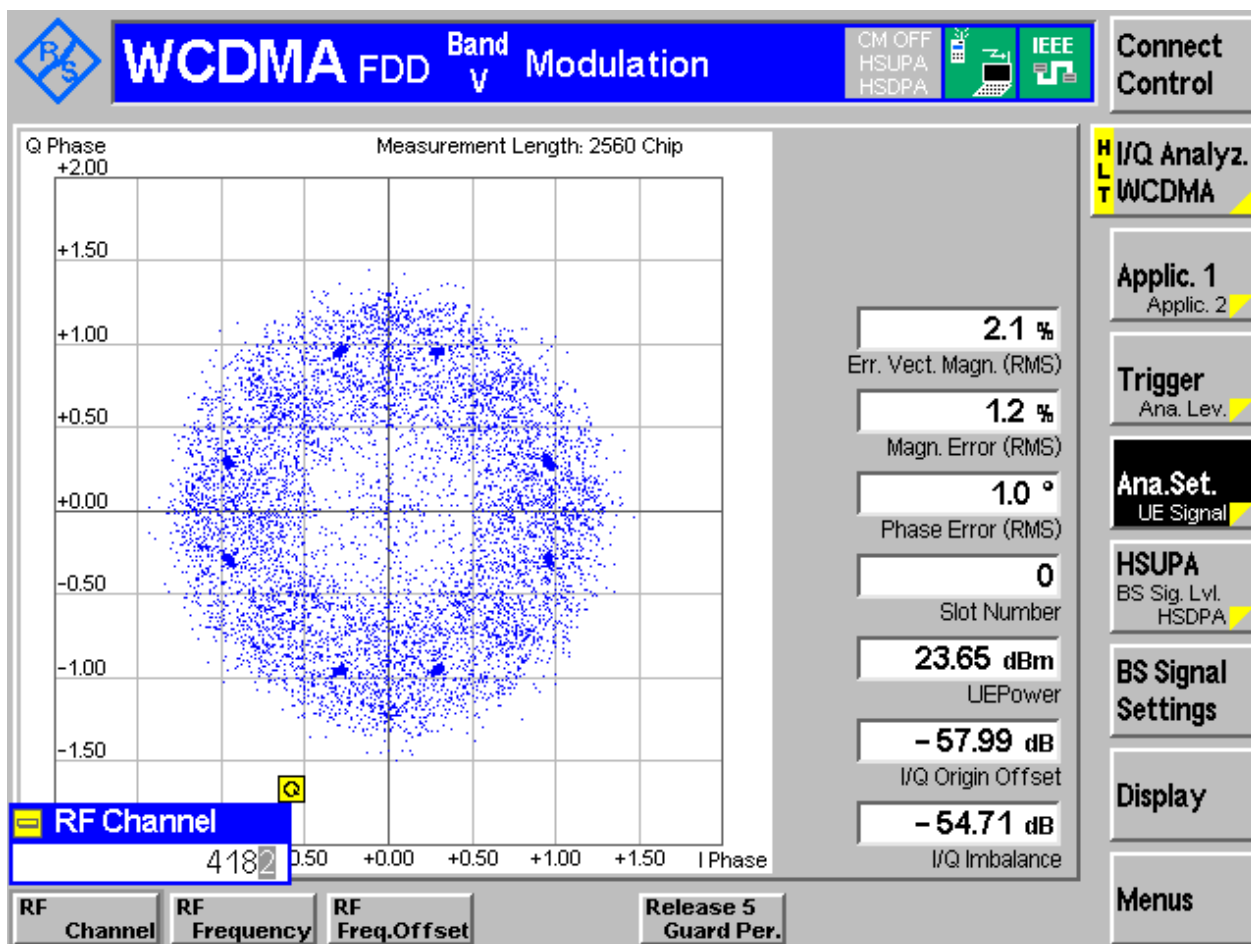
Part I - Test Plots

3.1 For UMTS

3.1.1 Test Band = WCDMA850

3.1.1.1 Test Mode = UMTS/TM1

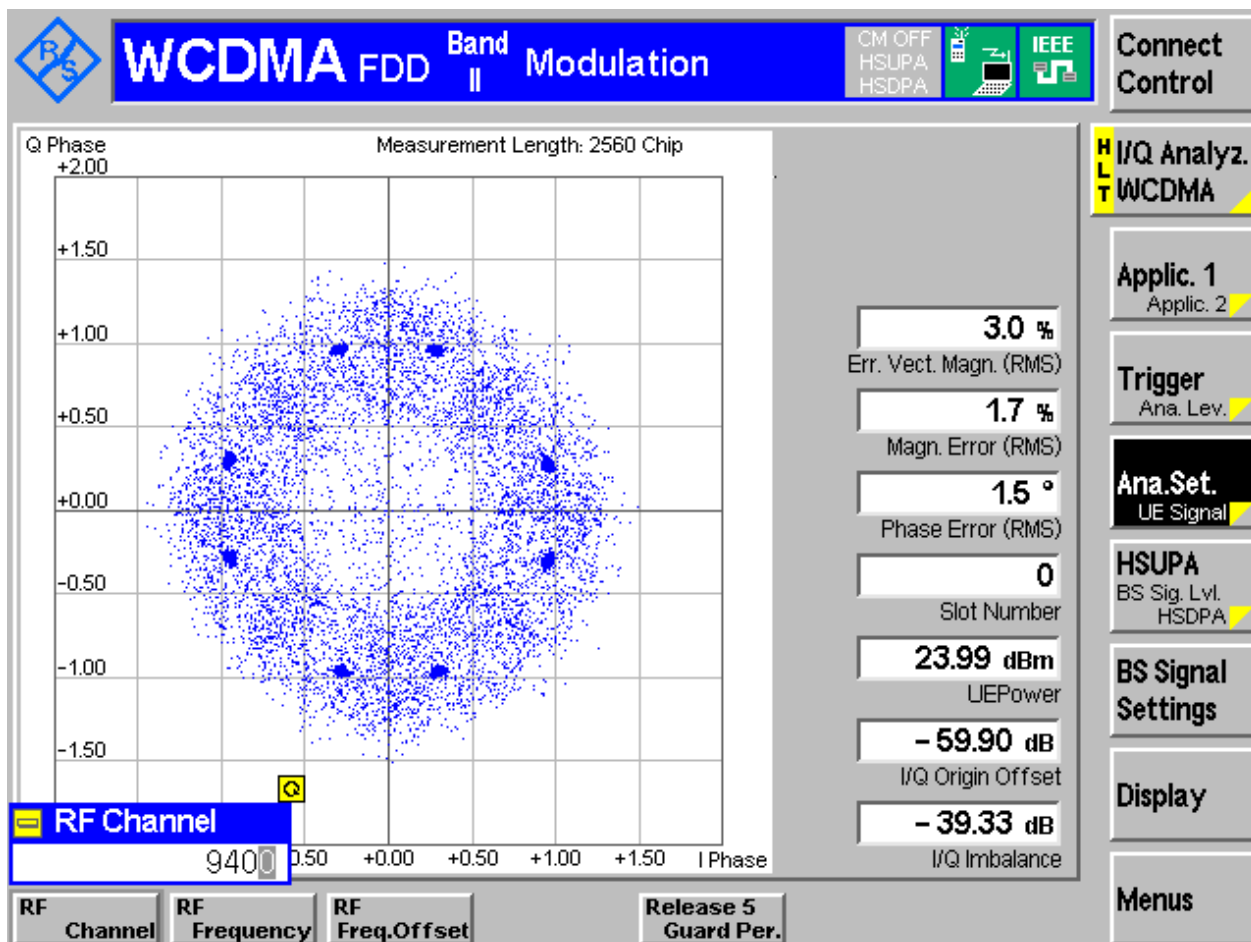
3.1.1.1.1 Test Channel = MCH



3.2.1 Test Band = WCDMA1900

3.2.1.1 Test Mode = UMTS/TM1

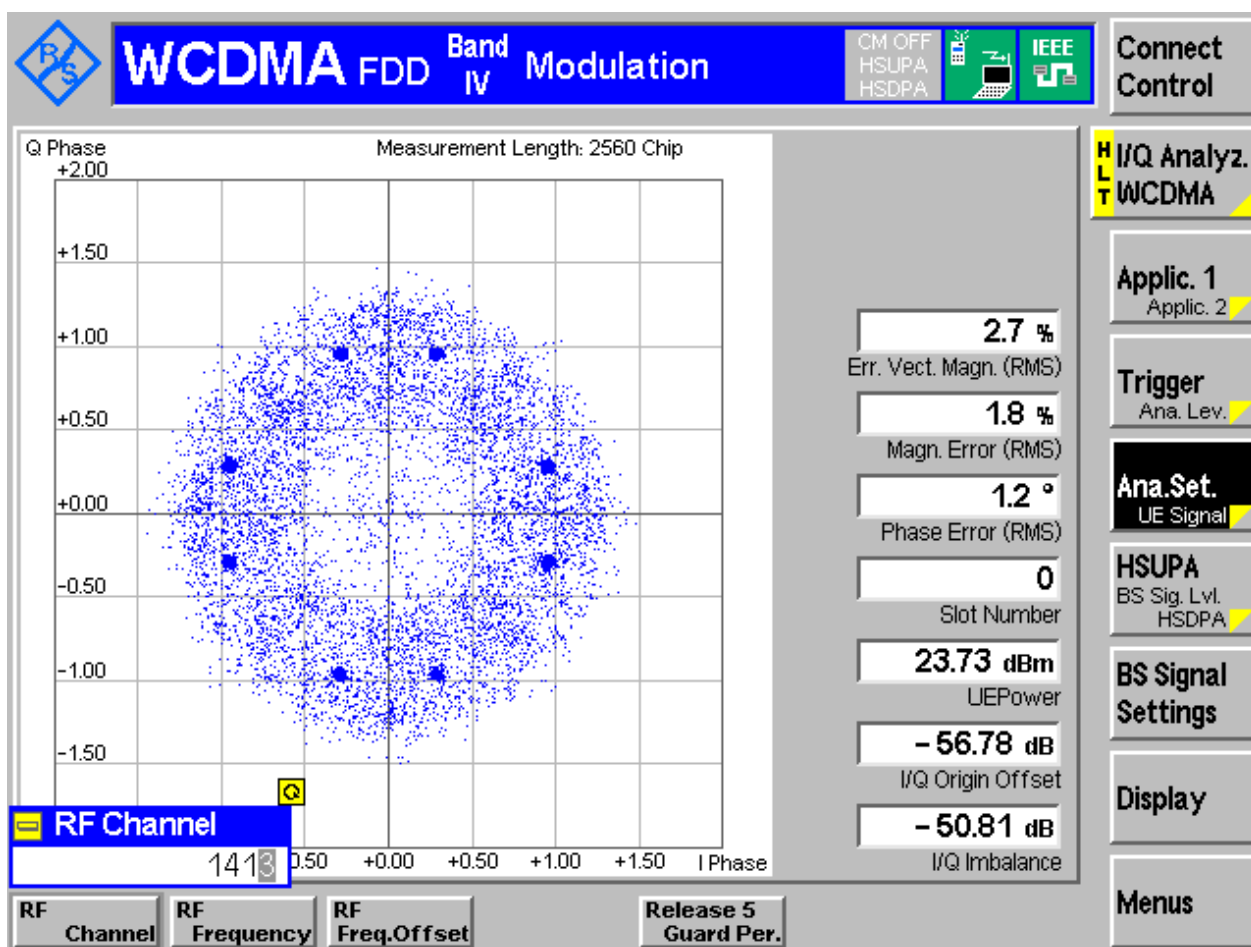
3.2.1.1.1 Test Channel = MCH



3.2.2 Test Band = WCDMA1700

3.2.2.1 Test Mode = UMTS/TM1

3.2.2.1.1 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	4.16	4.74	Pass
		MCH	4.16	4.74	Pass
		HCH	4.16	4.74	Pass
WCDMA1900	UMTS/TM1	LCH	4.16	4.72	Pass
		MCH	4.17	4.72	Pass
		HCH	4.17	4.74	Pass
WCDMA1700	UMTS/TM1	LCH	4.16	4.73	Pass
		MCH	4.15	4.71	Pass
		HCH	4.15	4.72	Pass



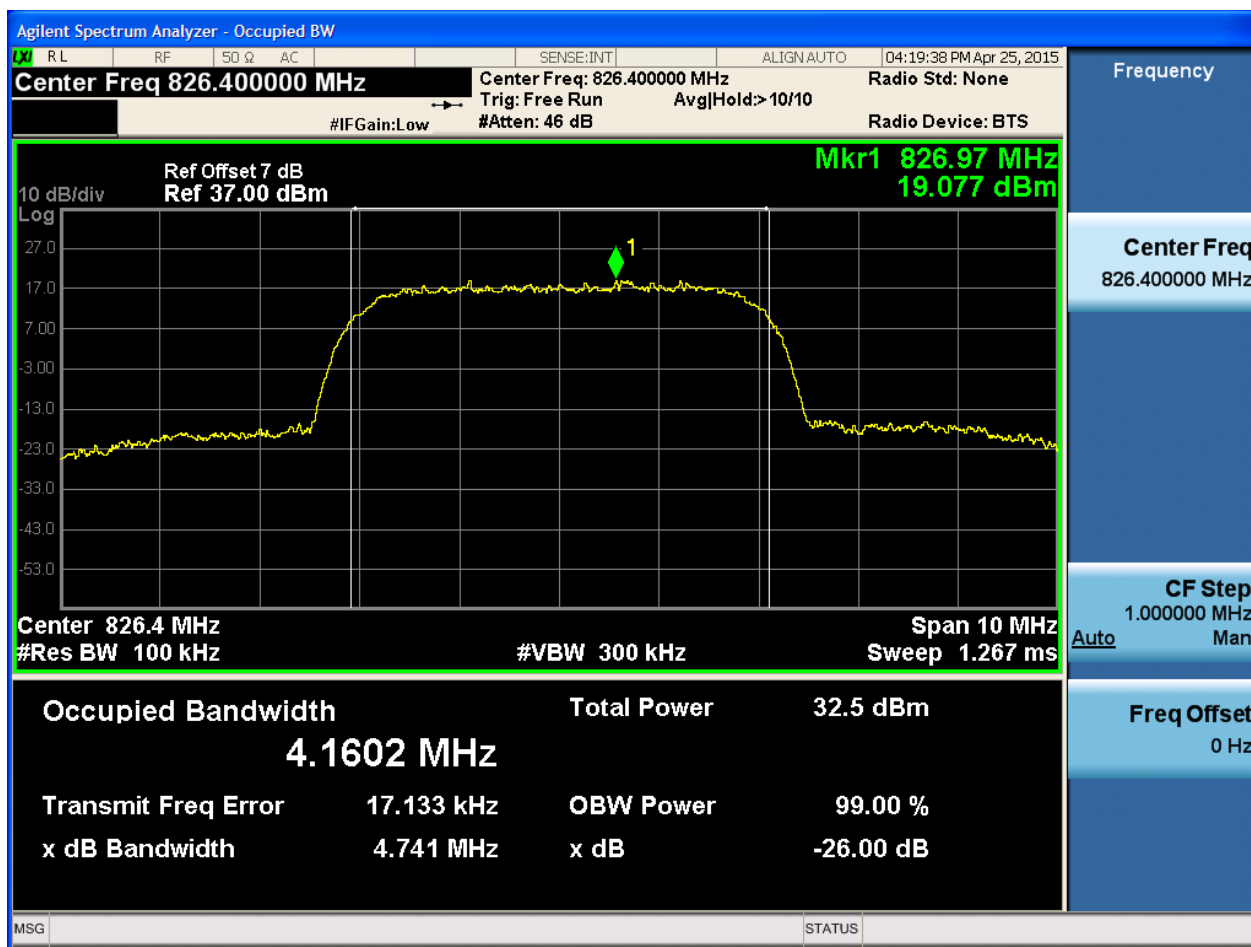
Part II - Test Plots

4.1 For UMTS

4.1.1 Test Band = WCDMA850

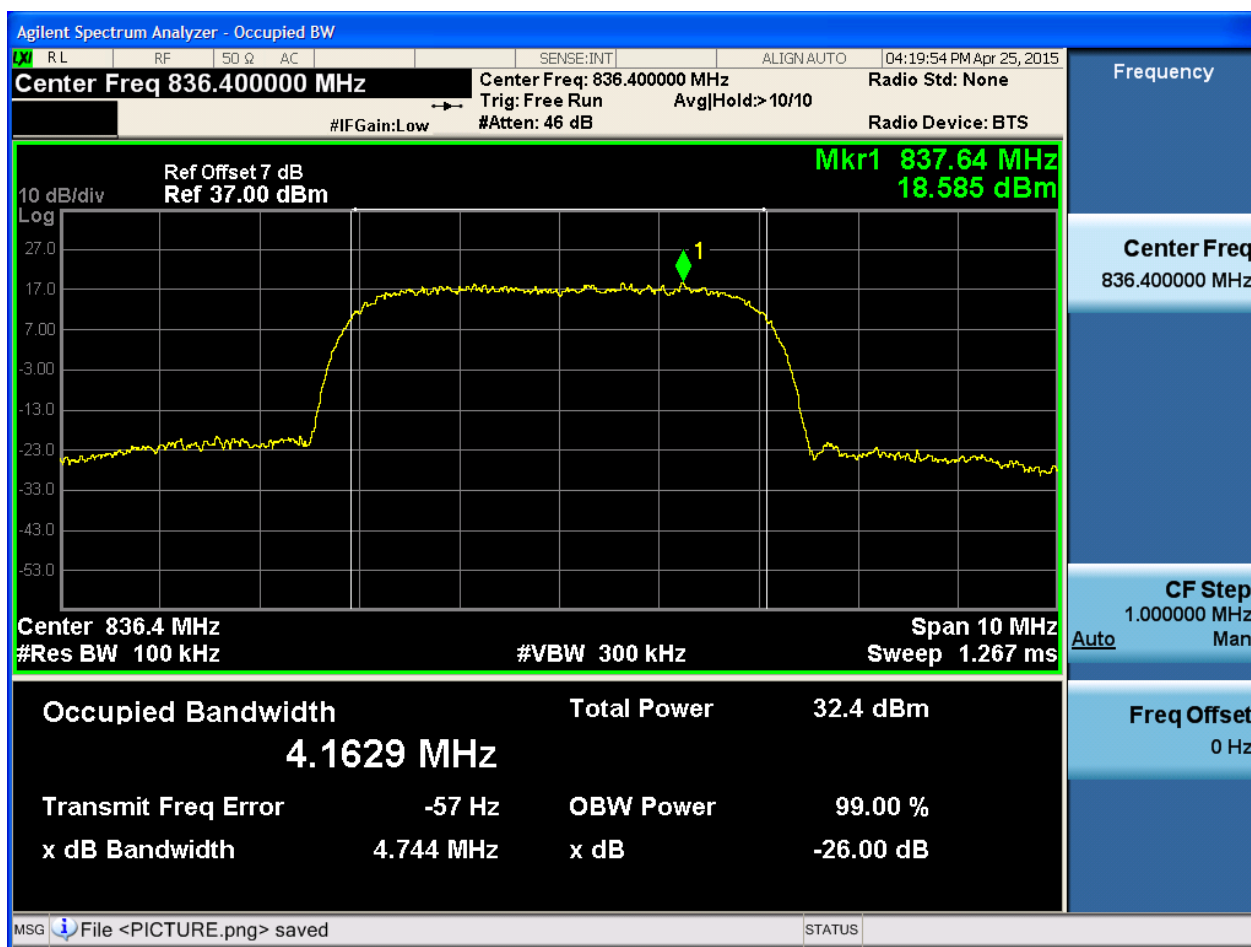
4.1.1.1 Test Mode = UMTS/TM1

4.1.1.1.1 Test Channel = LCH

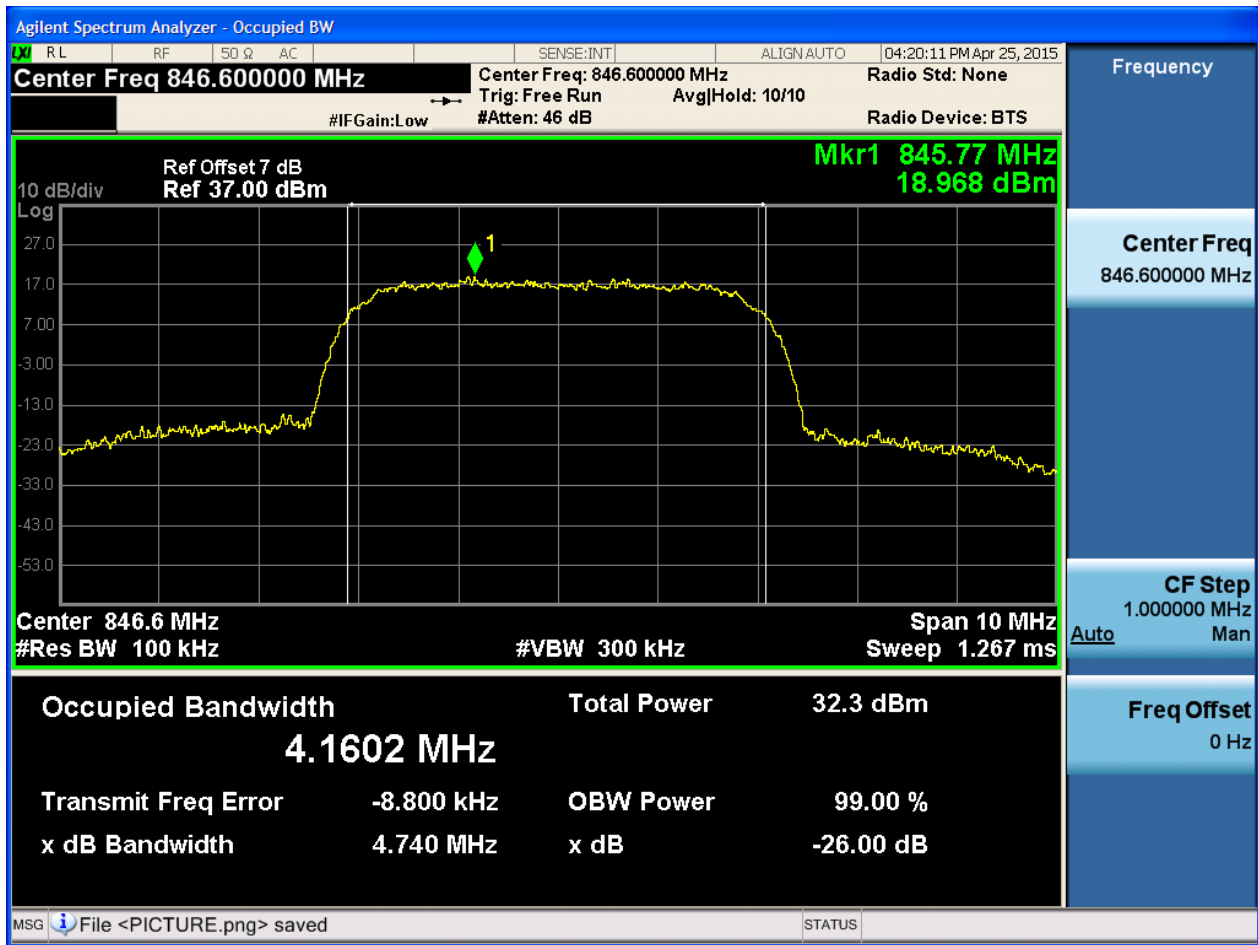




4.1.1.1.2 Test Channel = MCH



4.1.1.1.3 Test Channel = HCH

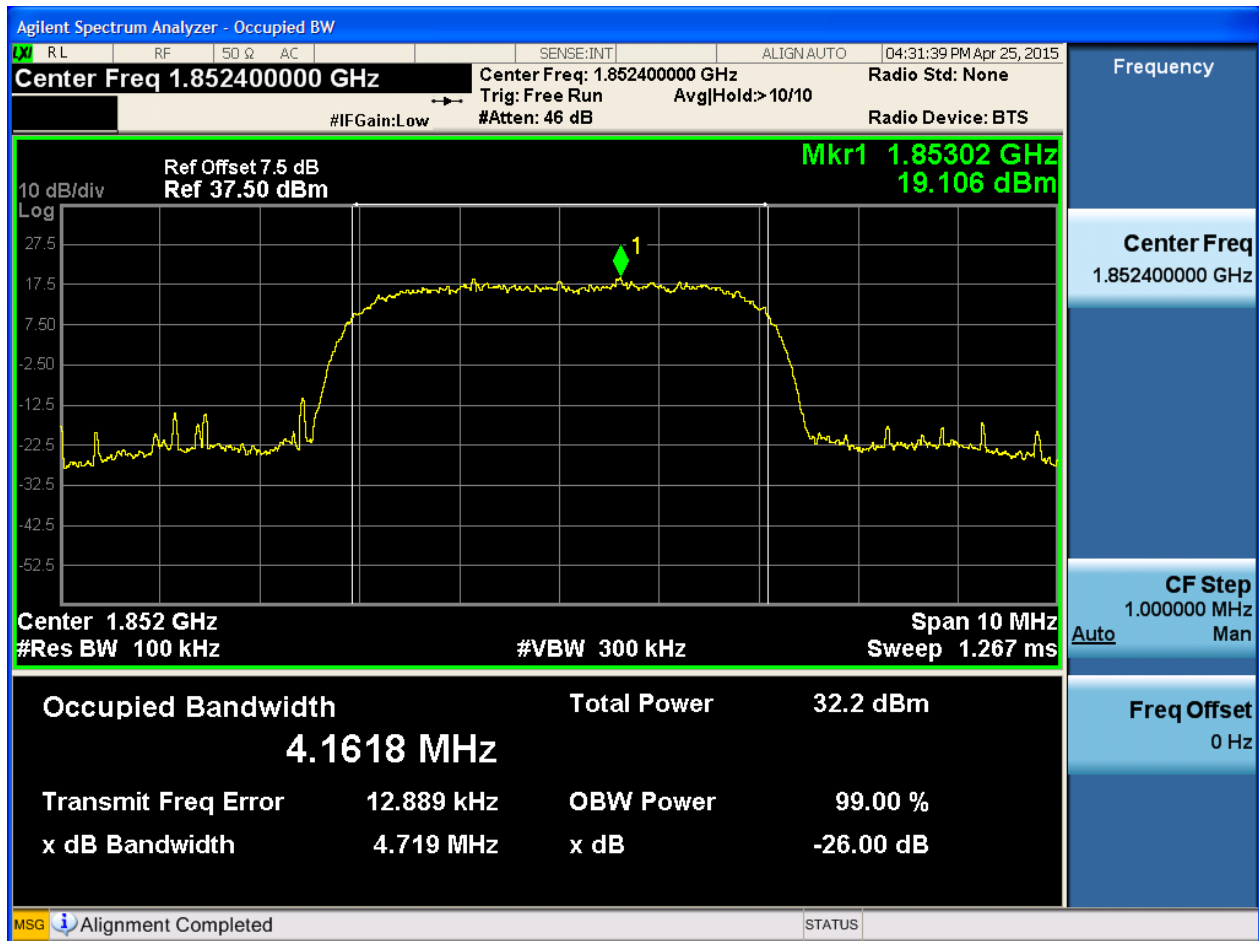




4.2.1 Test Band = WCDMA1900

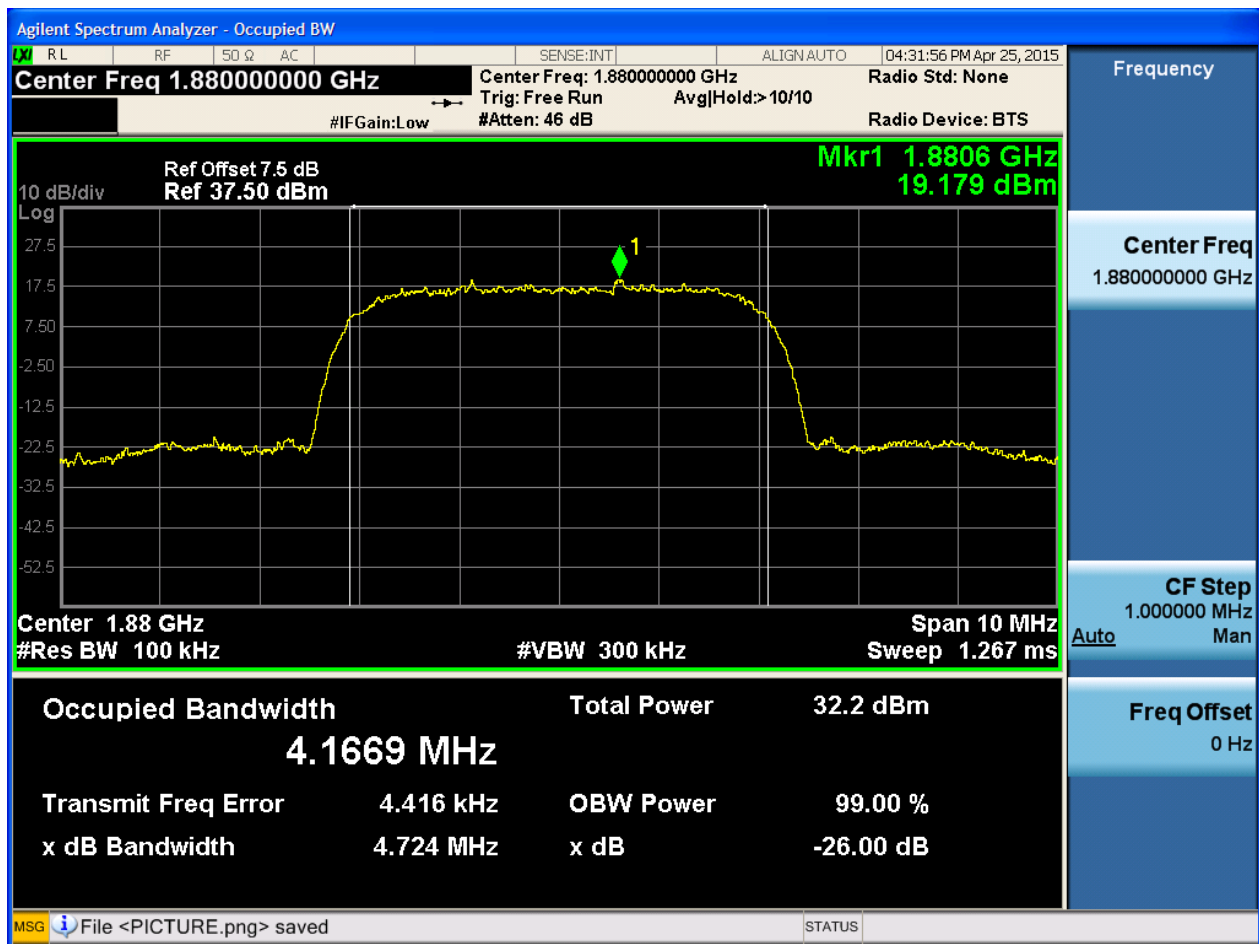
4.2.1.1 Test Mode = UMTS/TM1

4.2.1.1.1 Test Channel = LCH



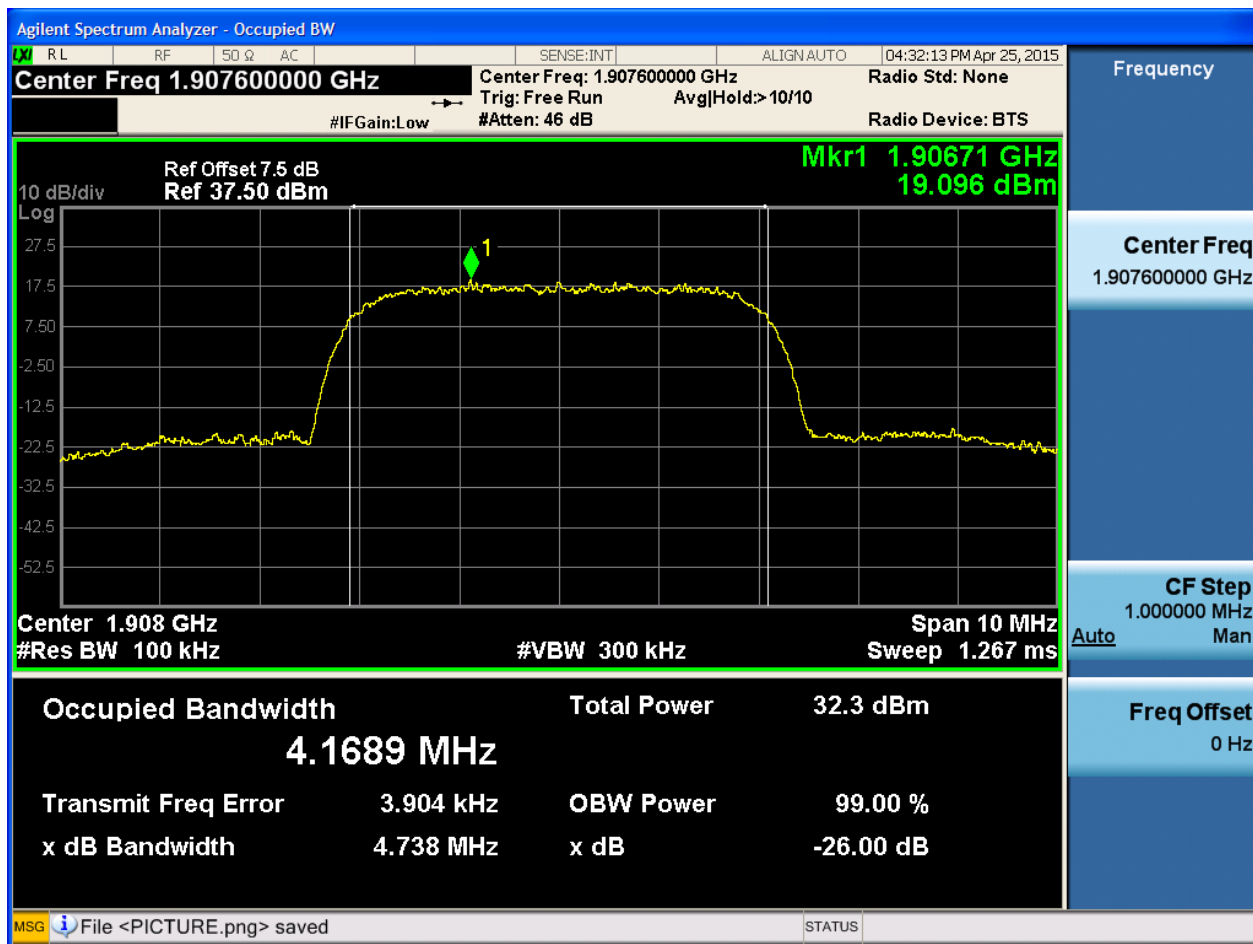


4.2.1.1.2 Test Channel = MCH





4.2.1.1.3 Test Channel = HCH

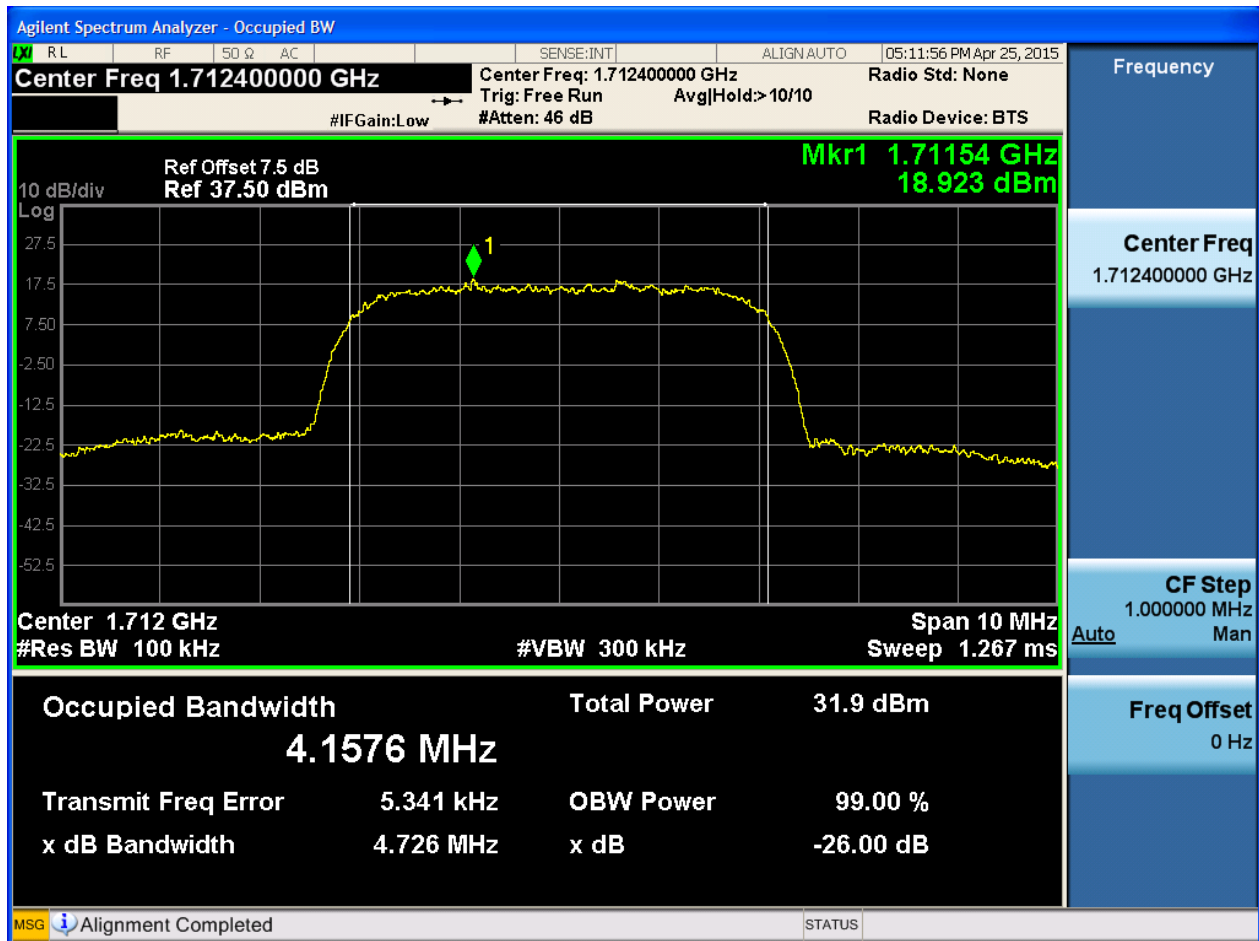




4.2.2 Test Band = WCDMA1700

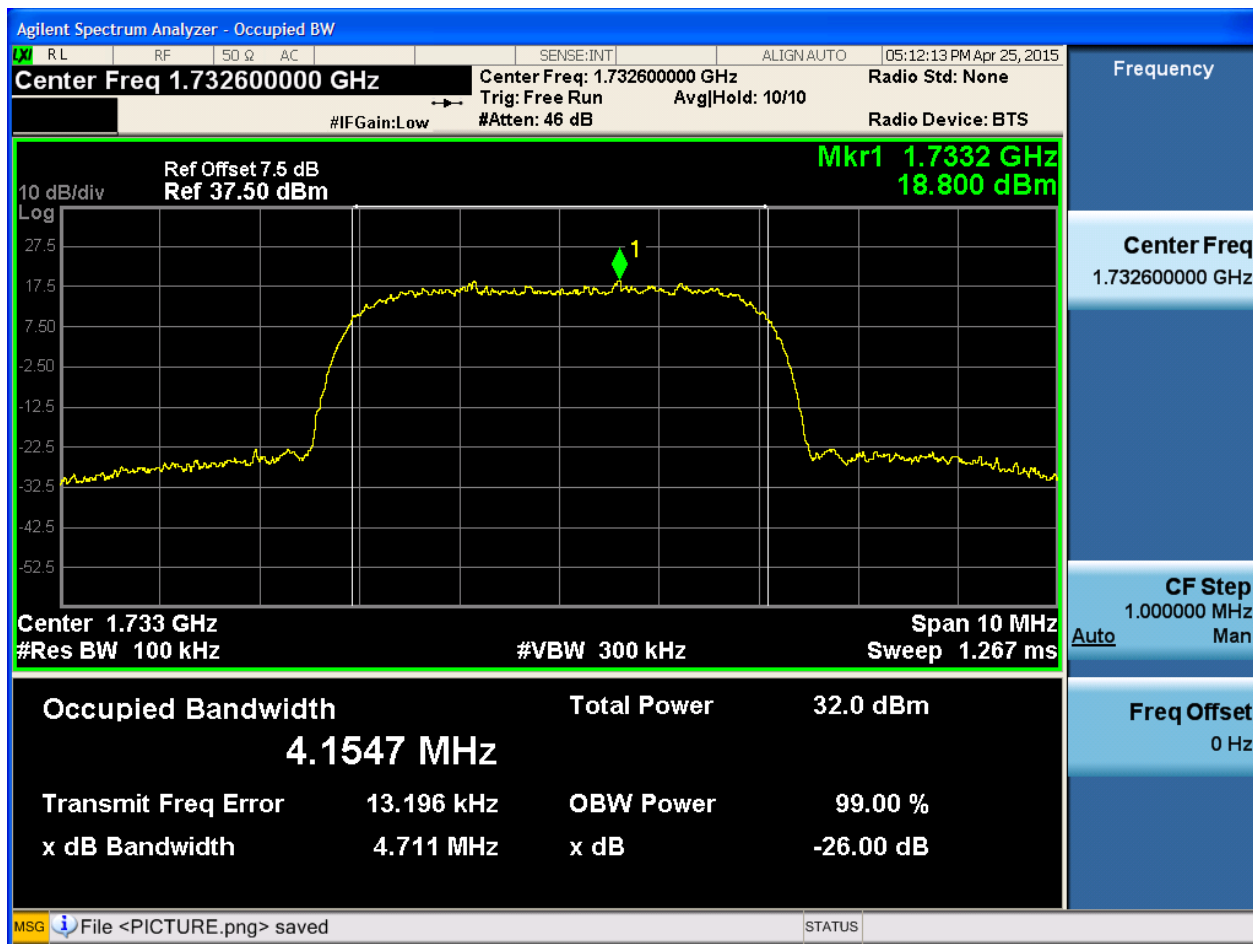
4.2.2.1 Test Mode = UMTS/TM1

4.2.2.1.1 Test Channel = LCH



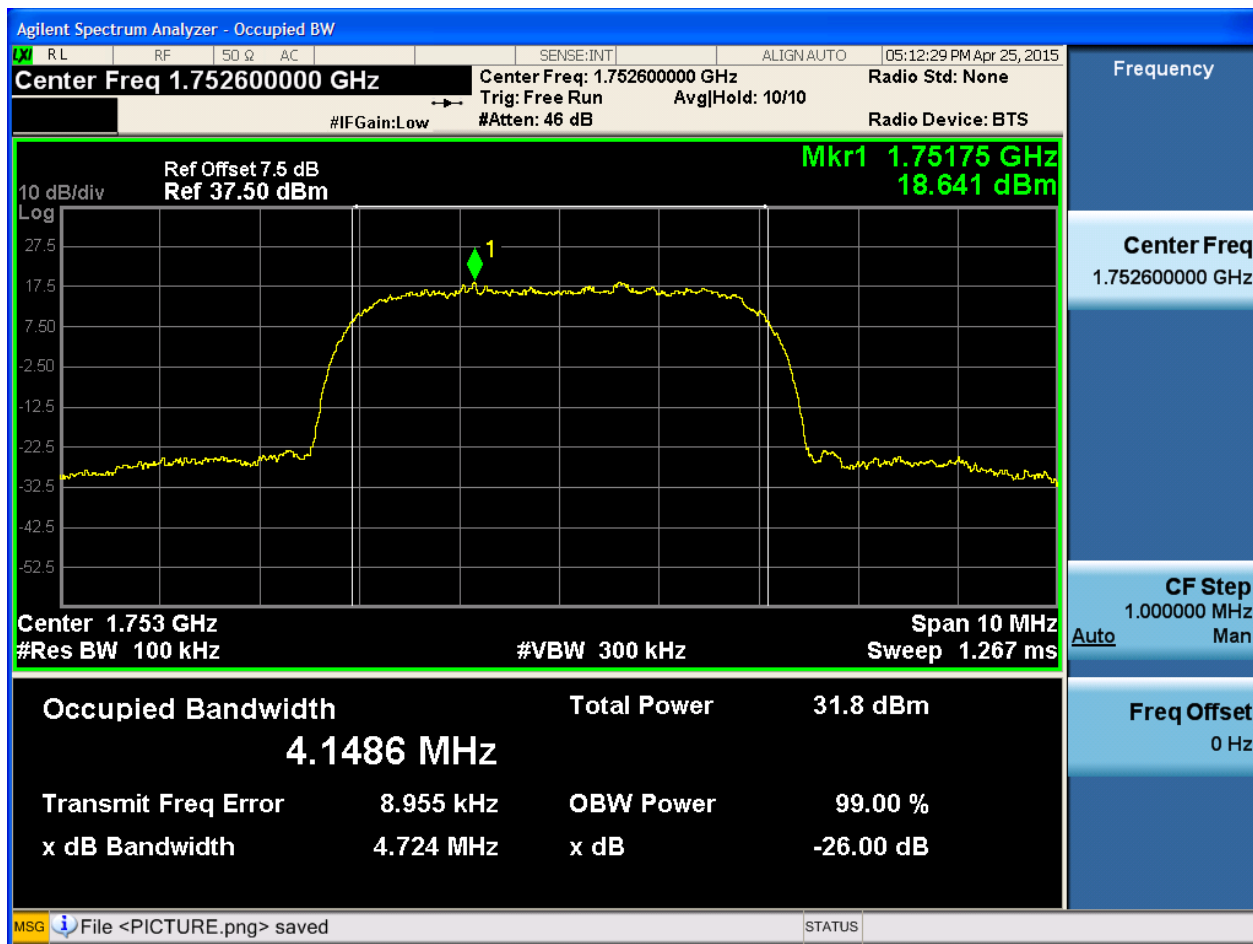


4.2.2.1.2 Test Channel = MCH





4.2.2.1.3 Test Channel = HCH





5Appendix_E: Band Edges Compliance

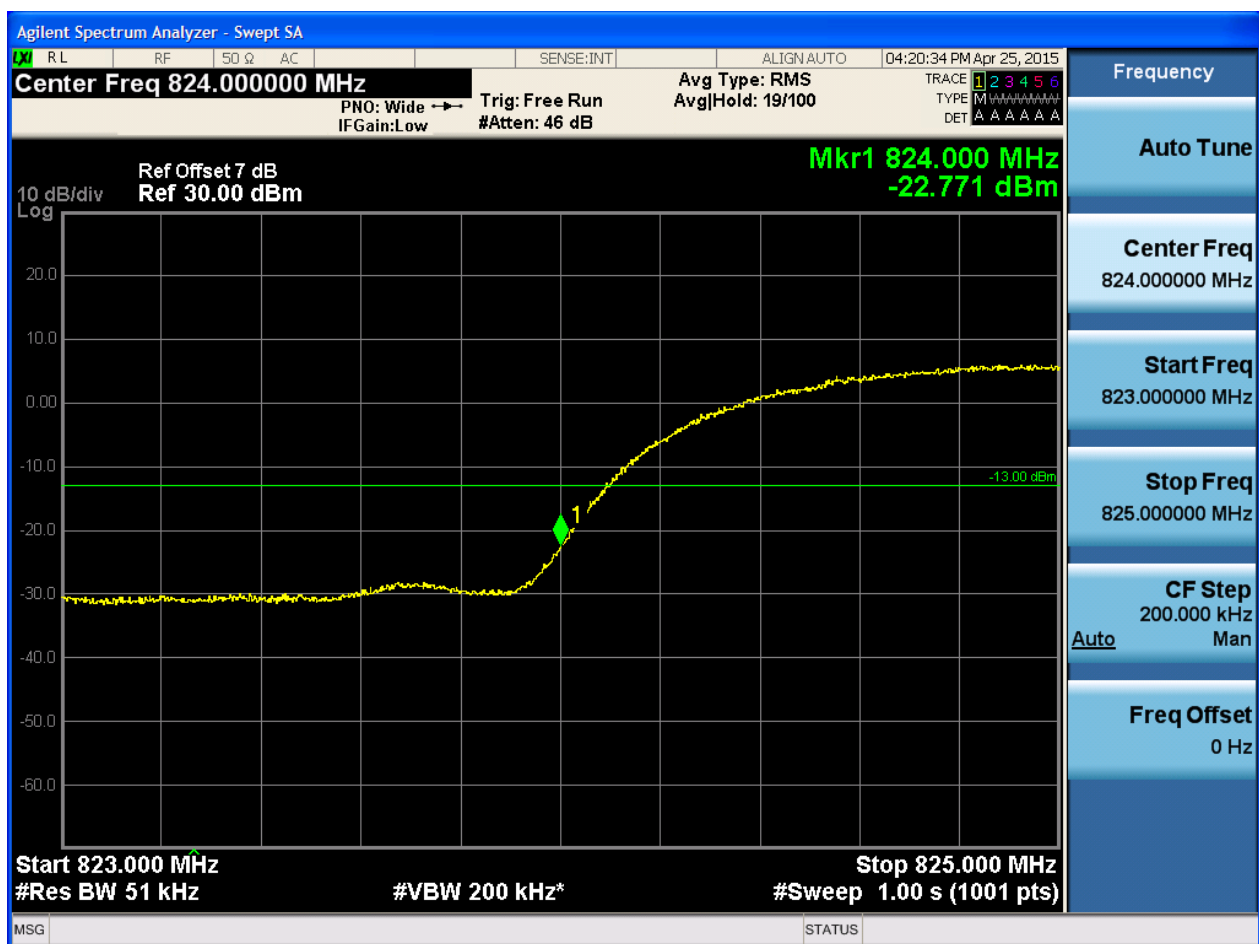
Part I - Test Plots

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





5.2.1 Test Band = WCDMA1900

5.2.1.1 Test Mode = UMTS/TM1

5.2.1.1.1 Test Channel = LCH



5.2.1.1.2 Test Channel = HCH

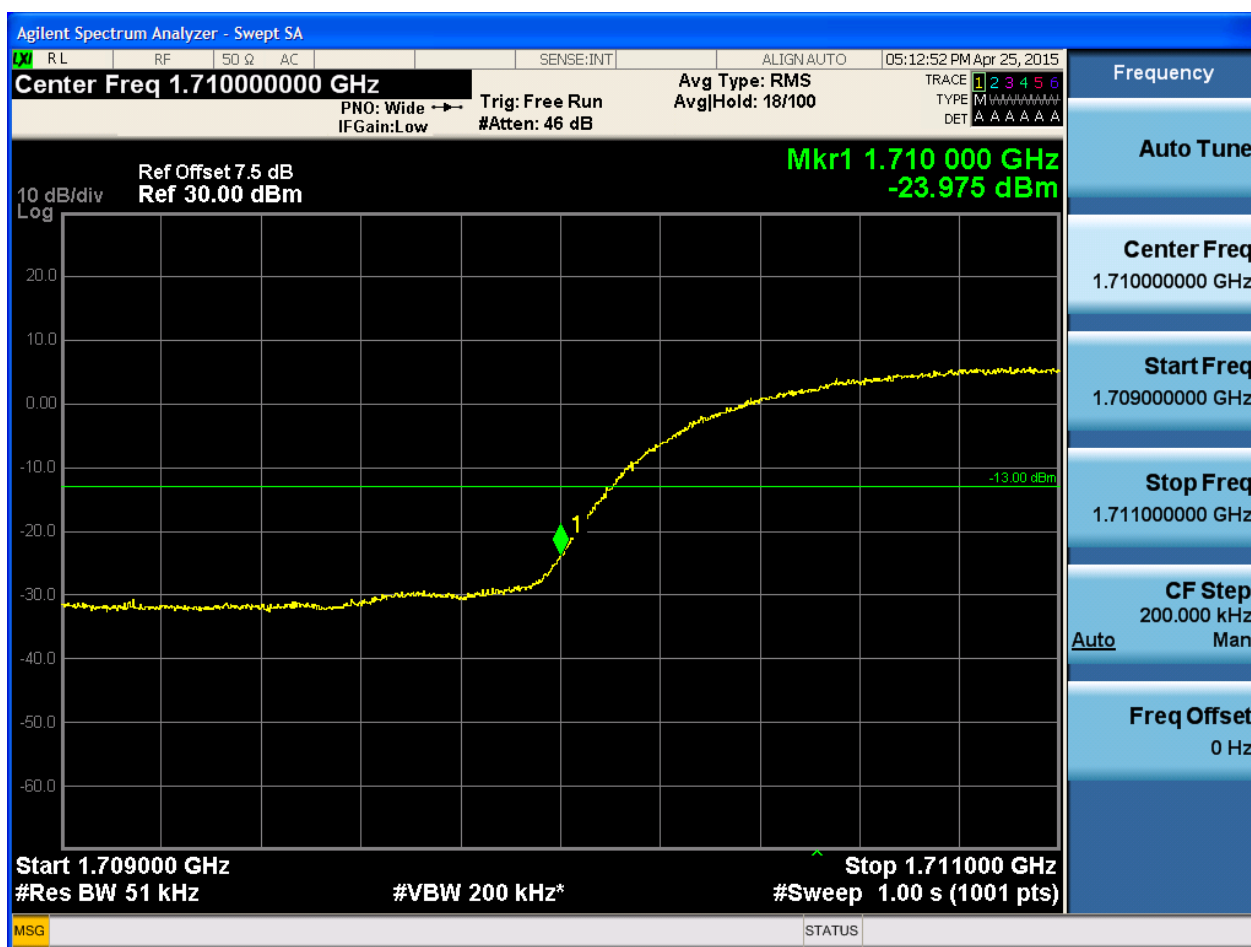




5.2.2 Test Band = WCDMA1700

5.2.2.1 Test Mode = UMTS/TM1

5.2.2.1.1 Test Channel = LCH





5.2.2.1.2 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.

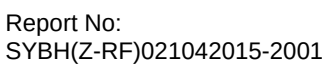
Part I - Test Plots

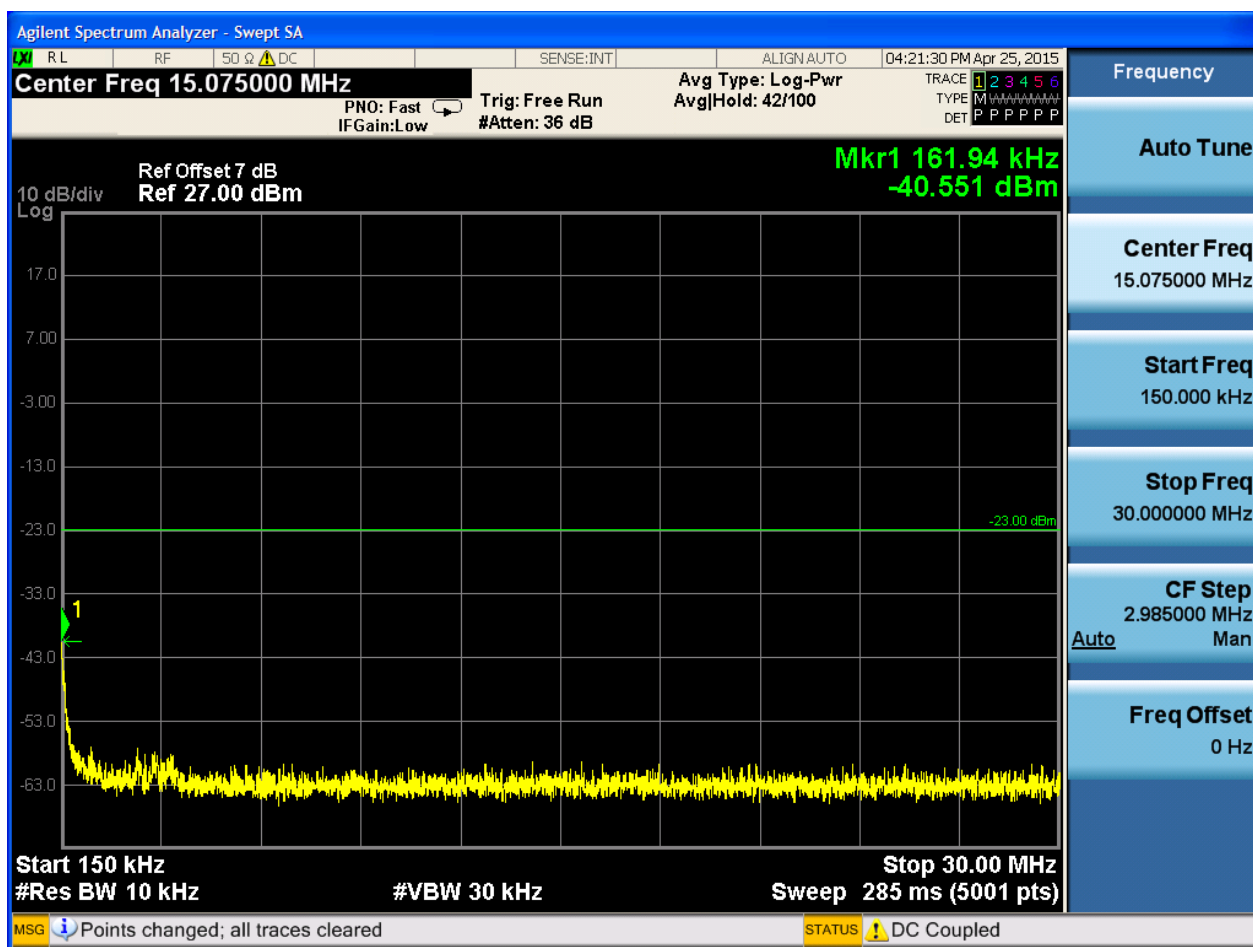
6.1 For UMTS

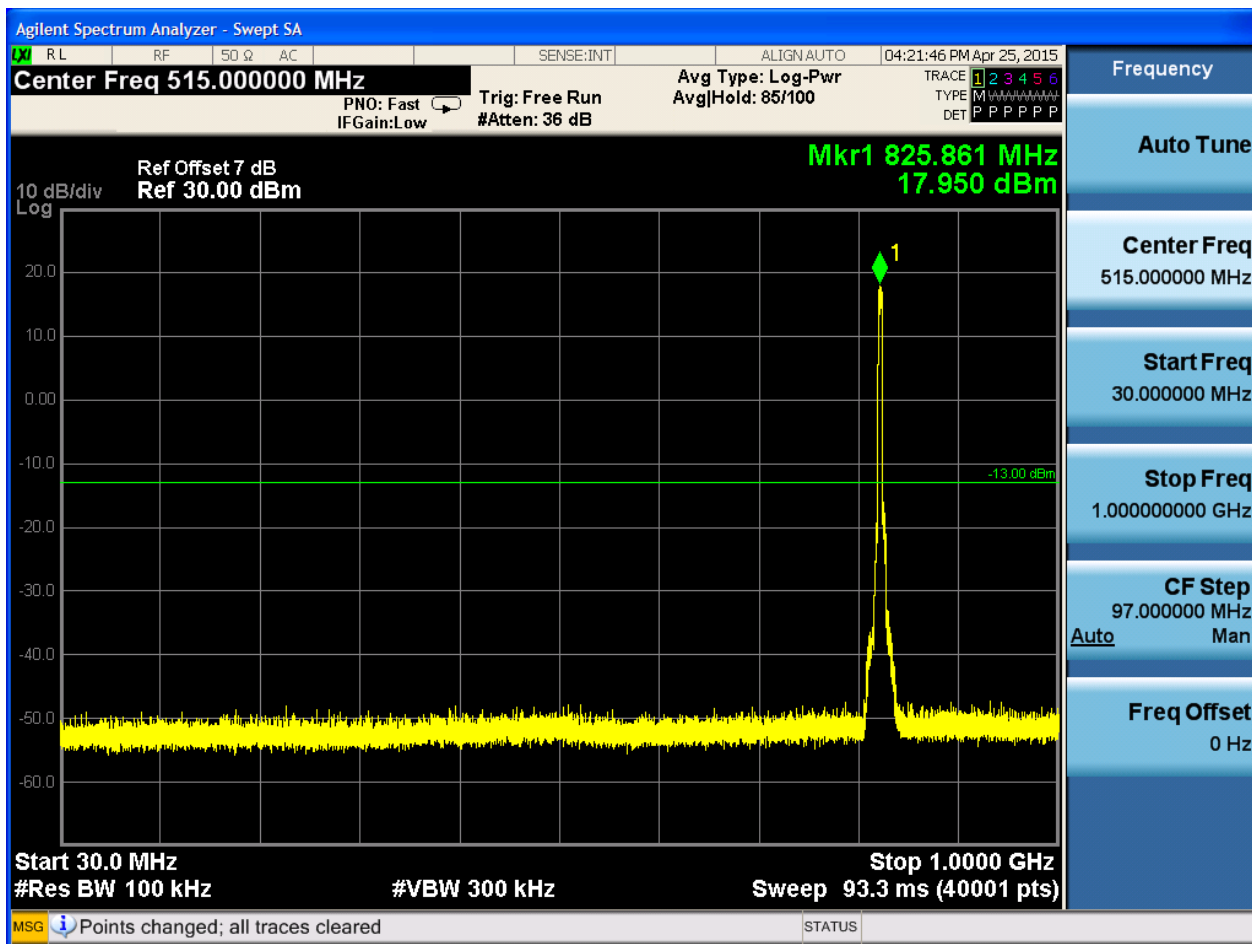
6.1.1 Test Band = WCDMA850

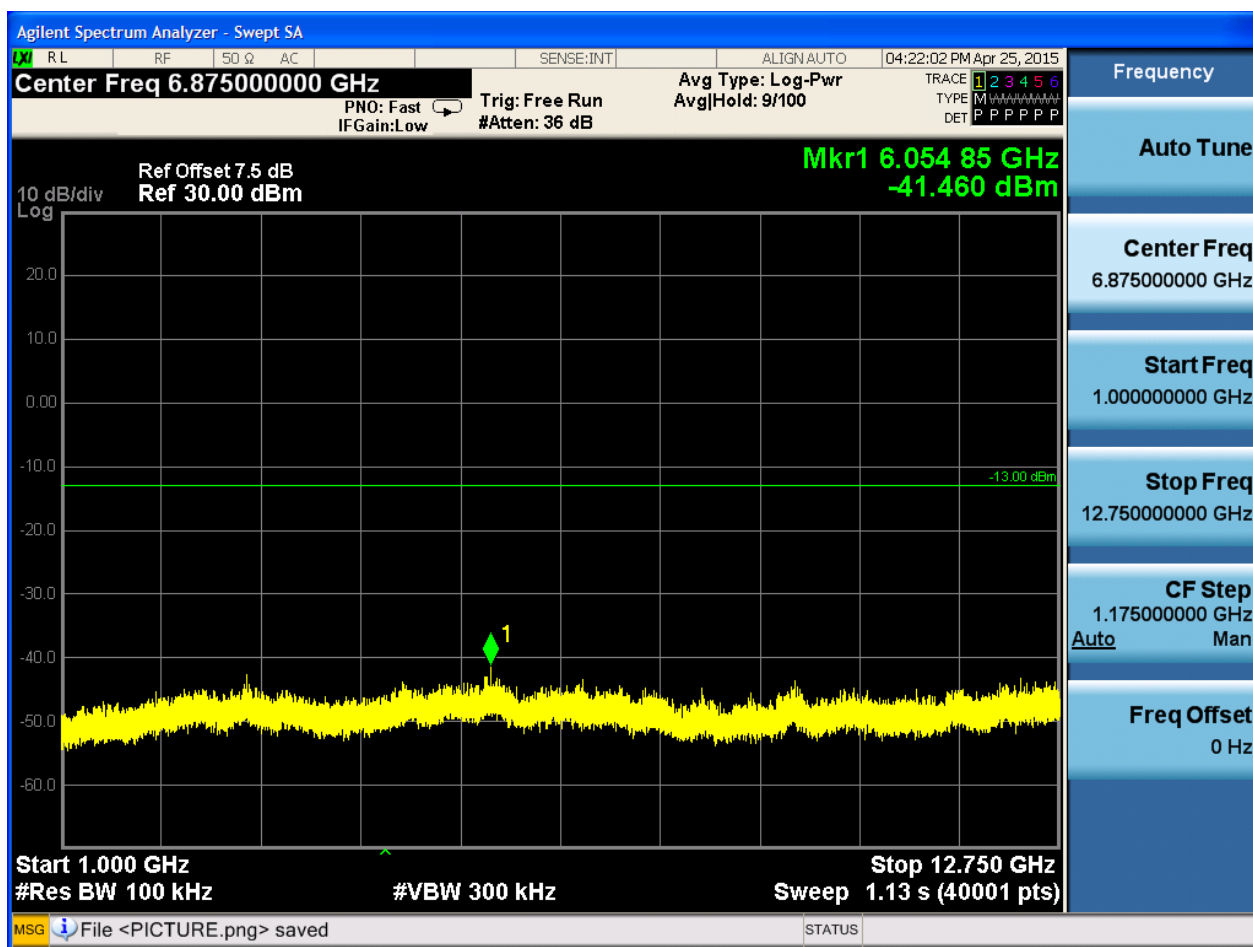
6.1.1.1 Test Mode = UMTS/TM1

6.1.1.1.1 Test Channel = LCH

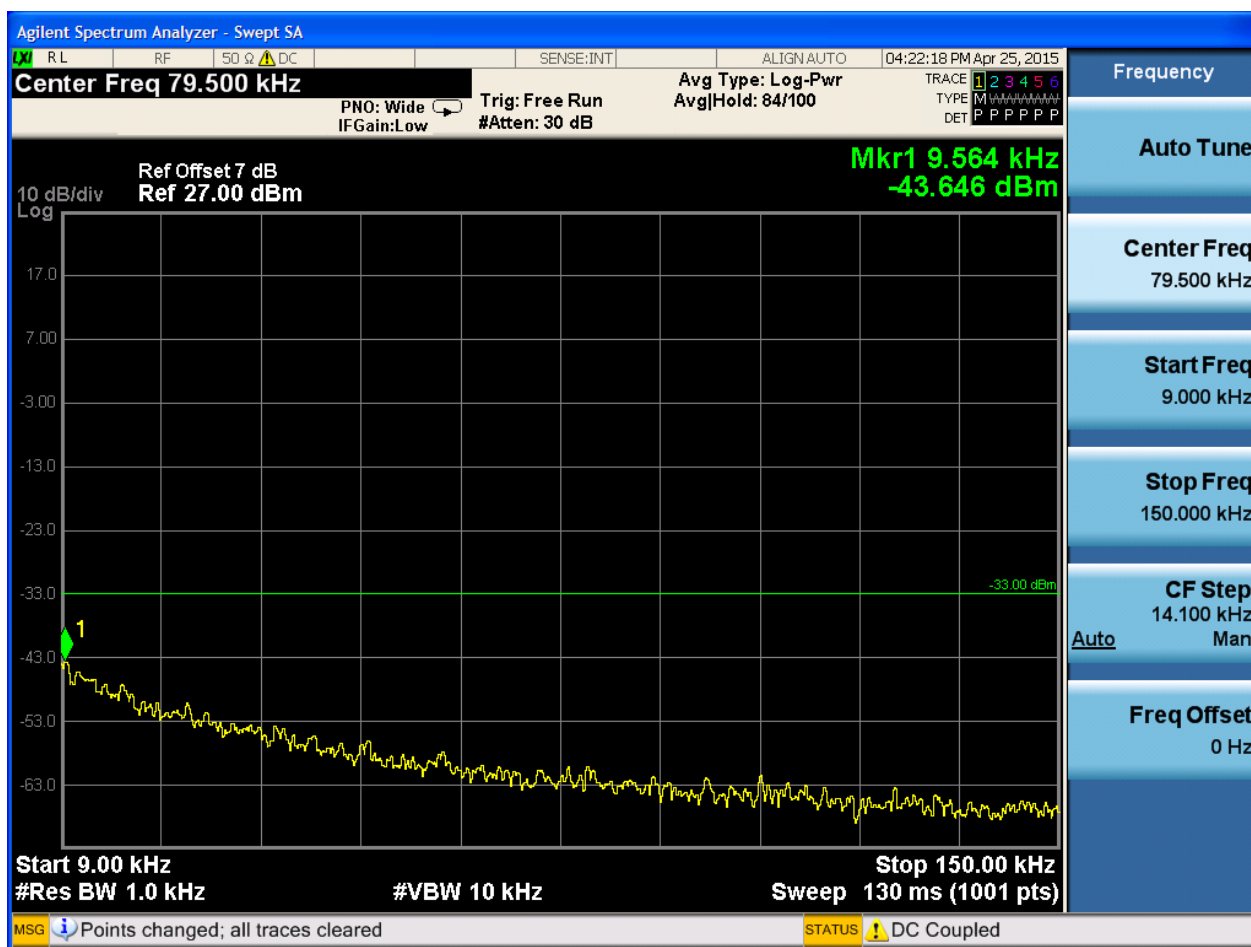


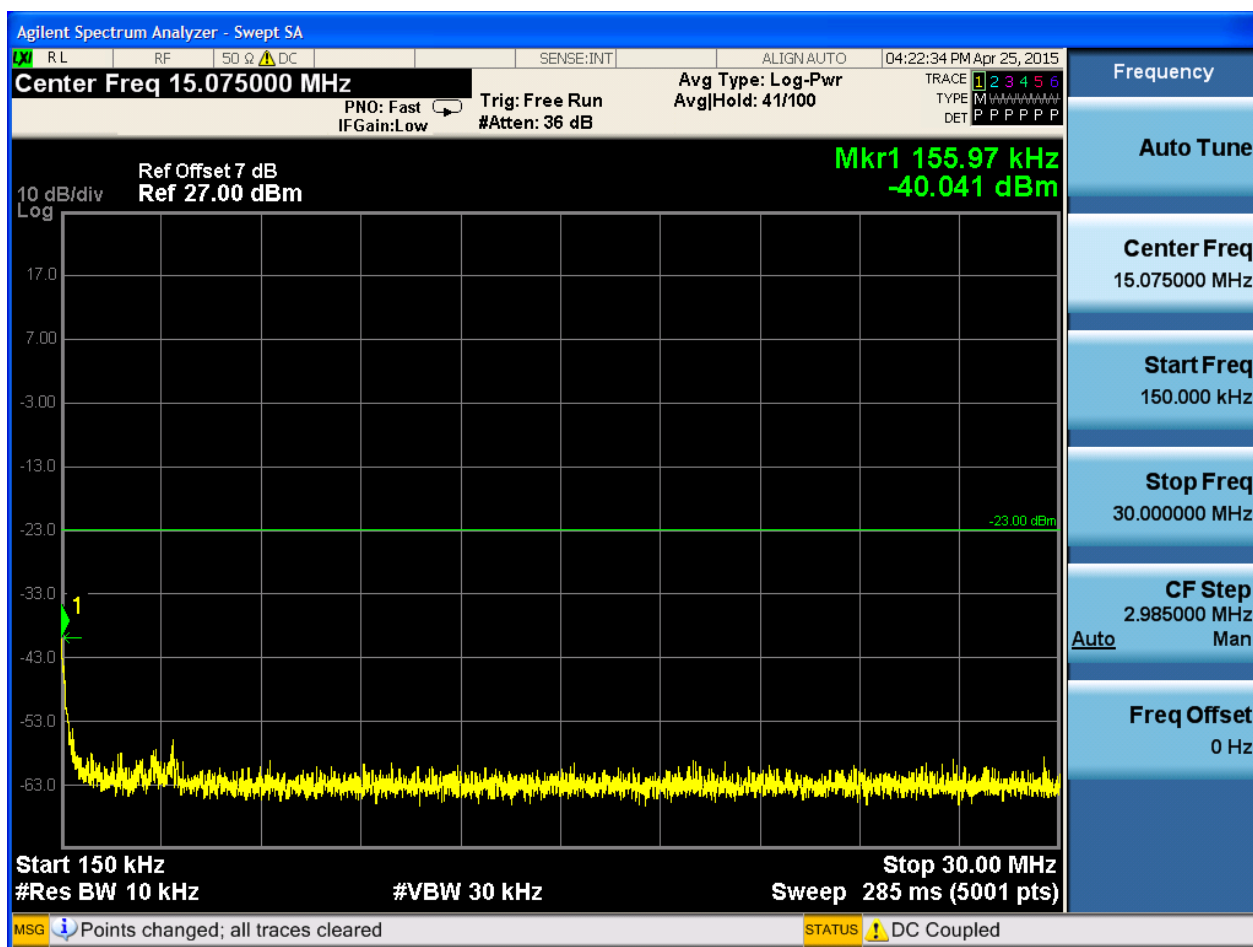


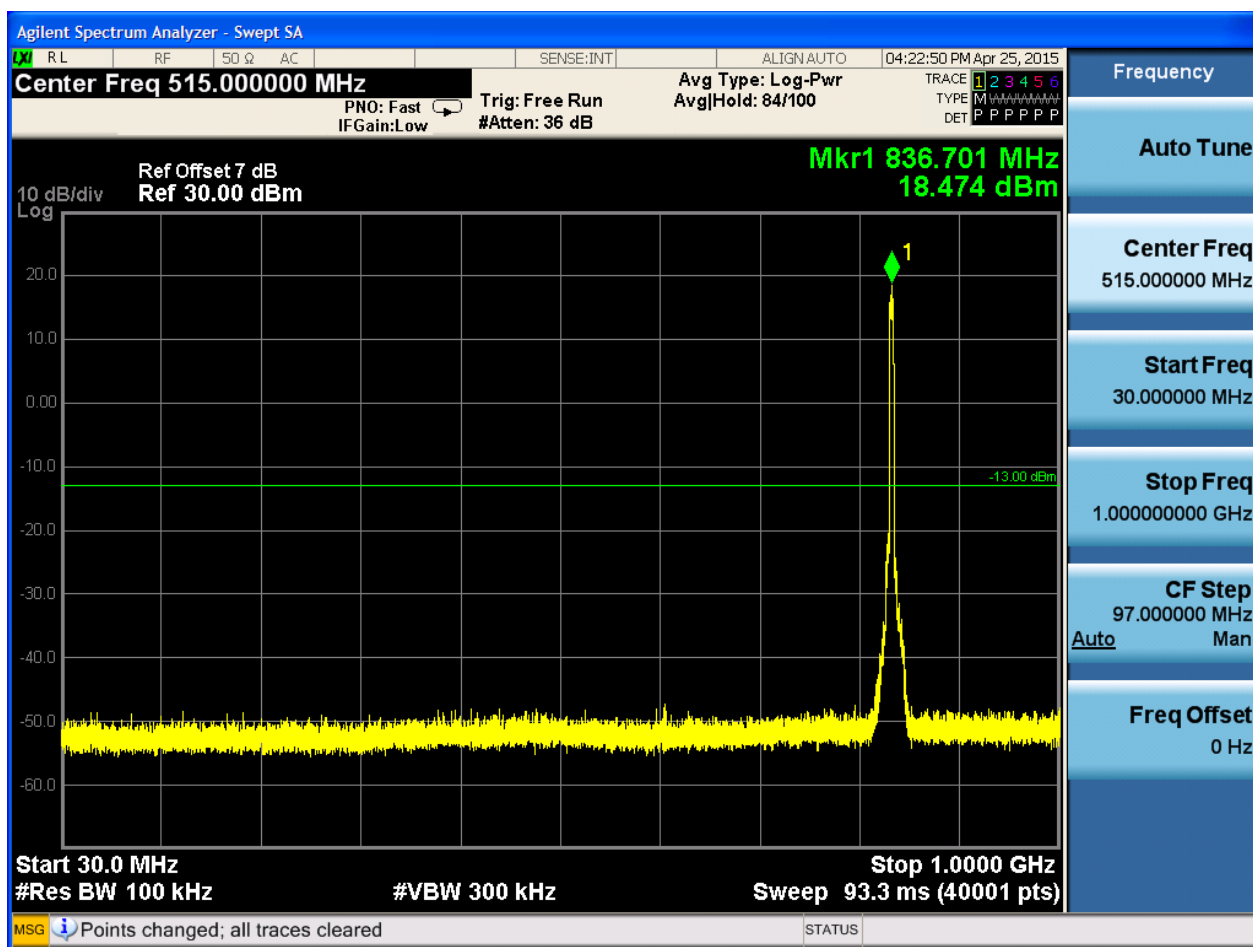


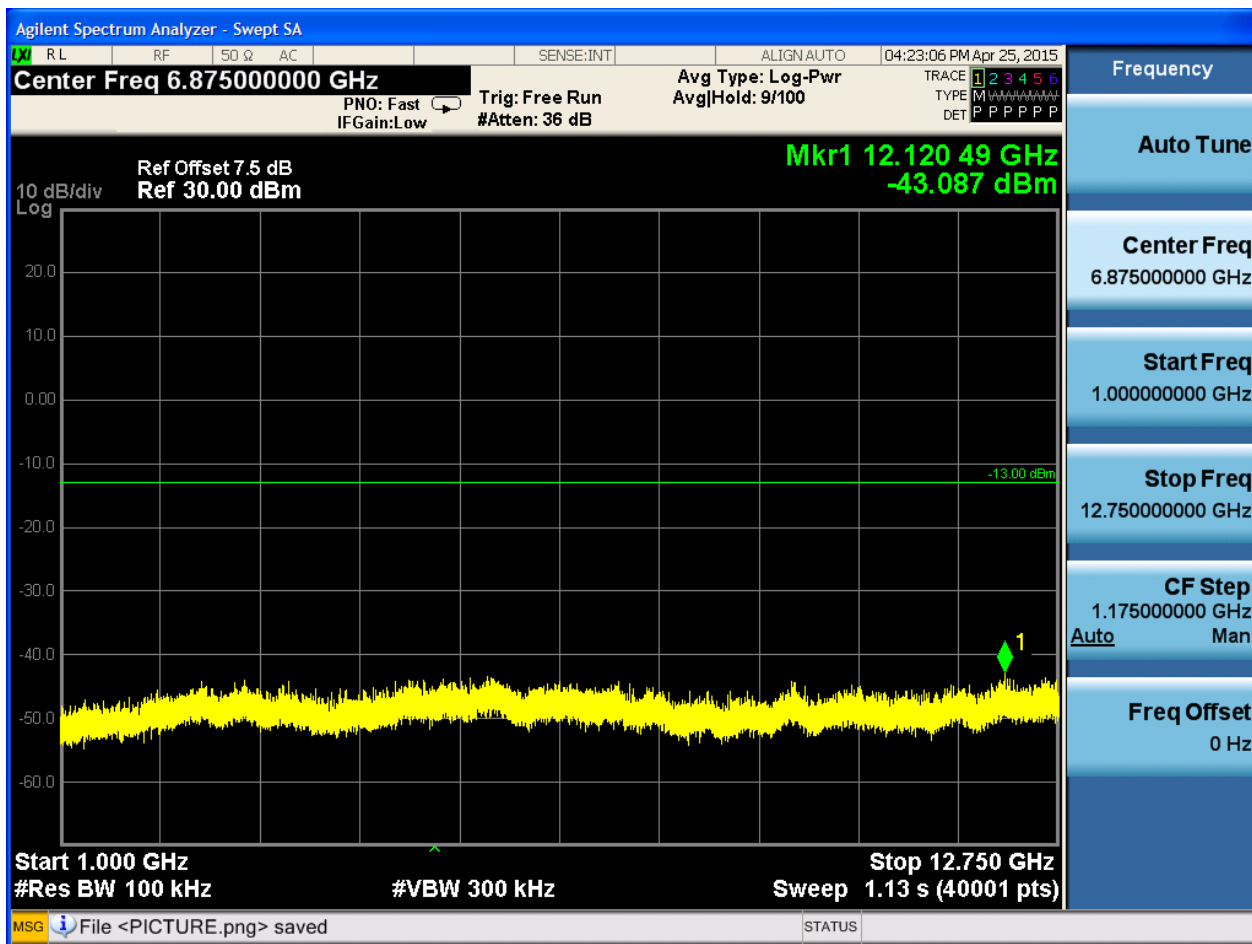


6.1.1.1.2 Test Channel = MCH

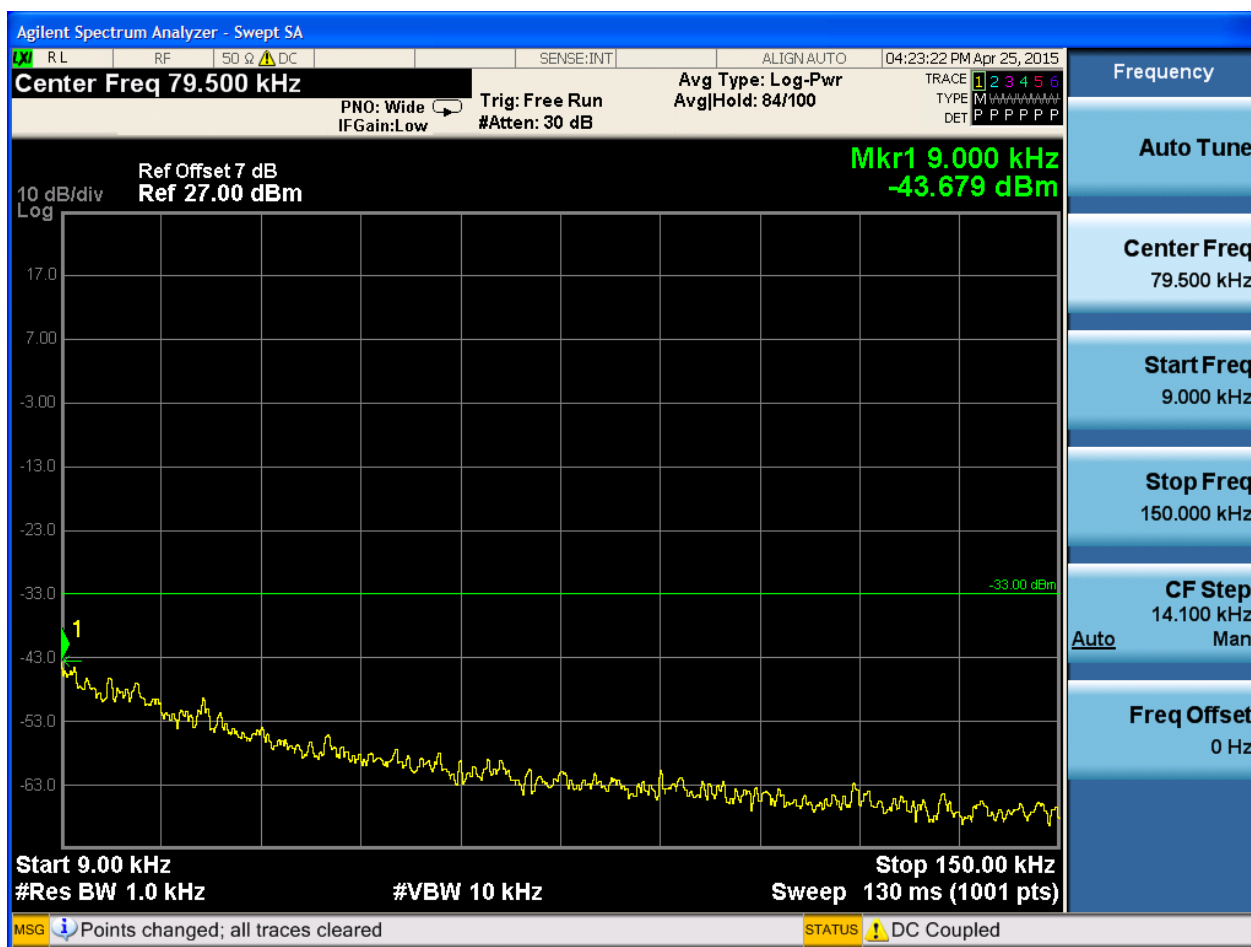


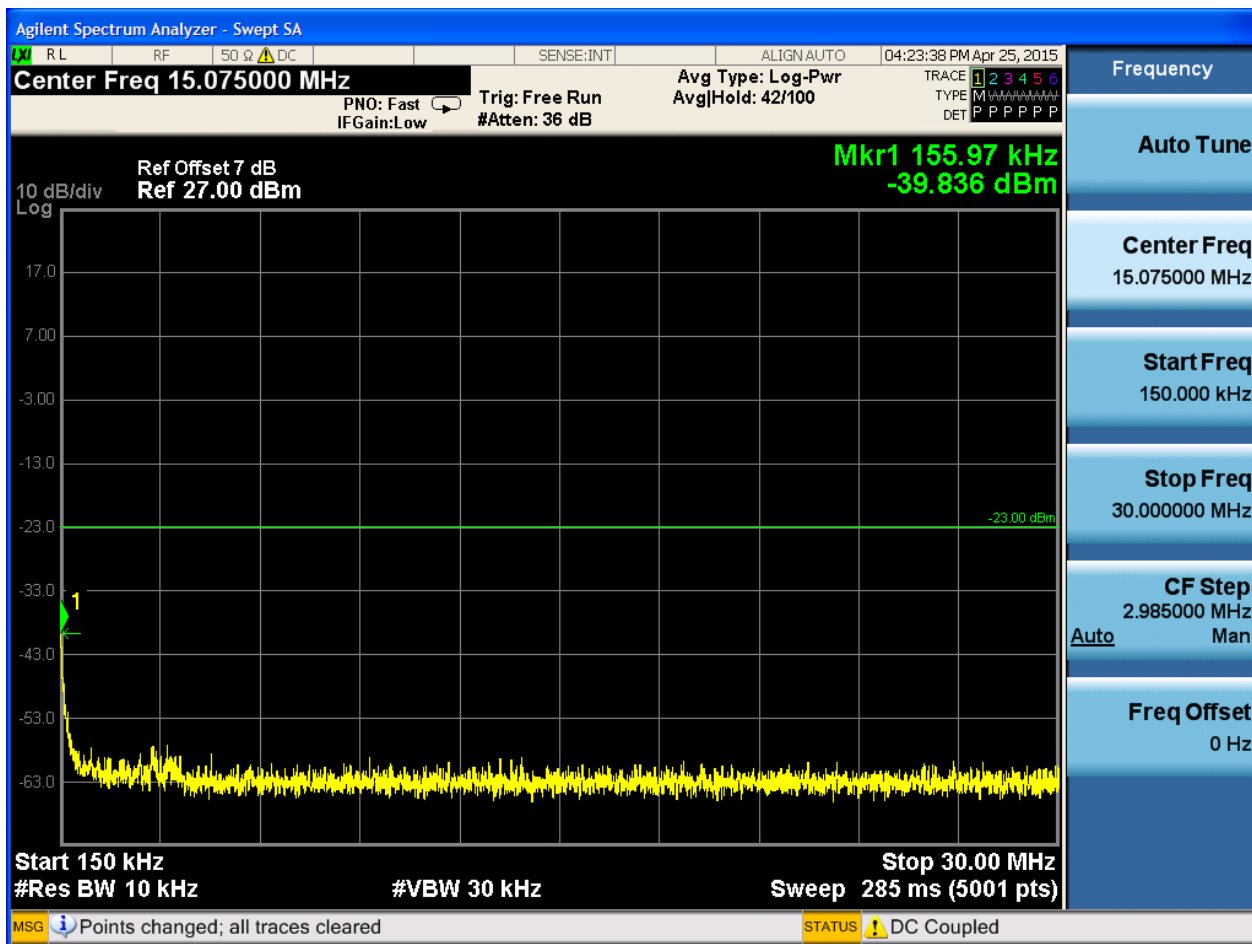


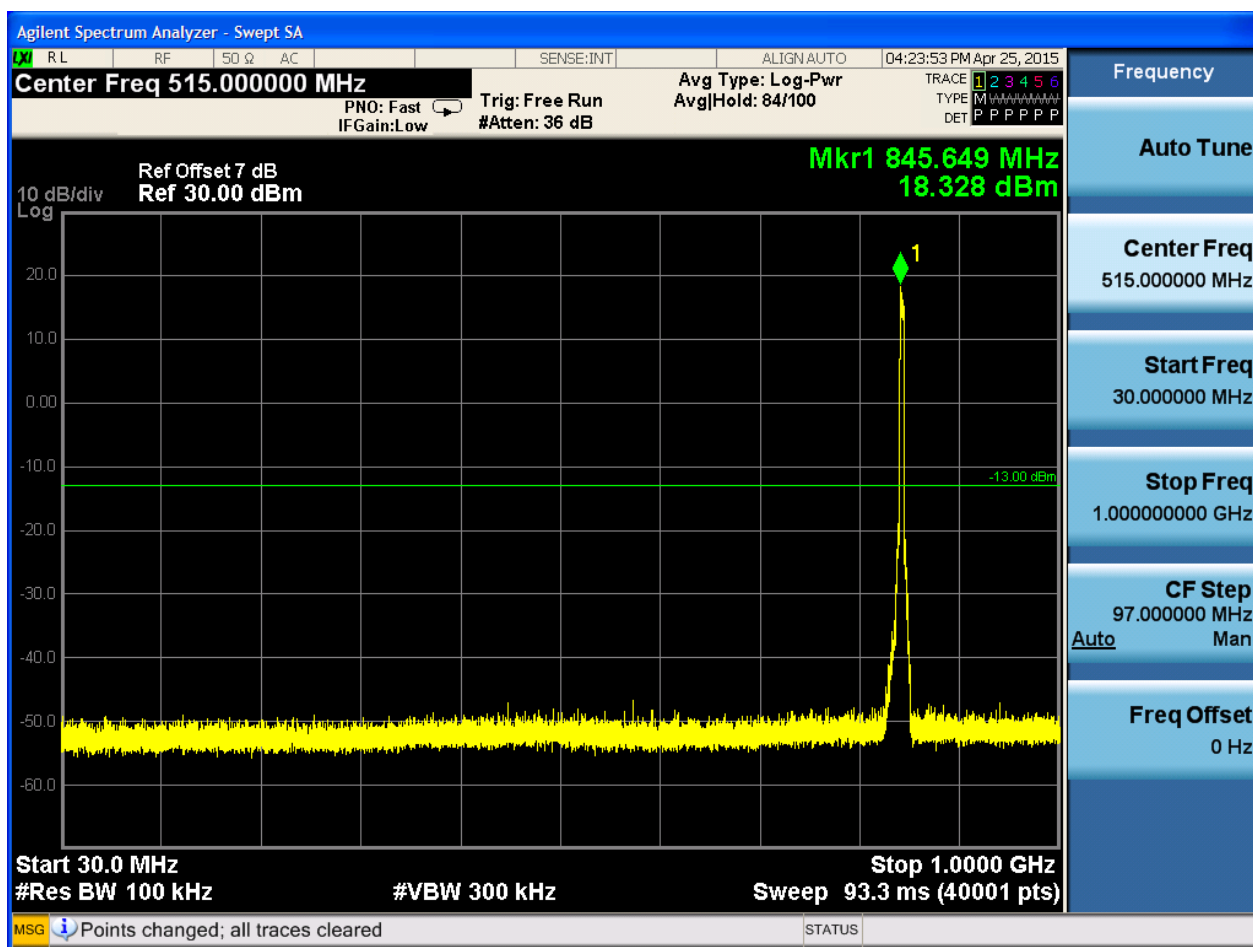


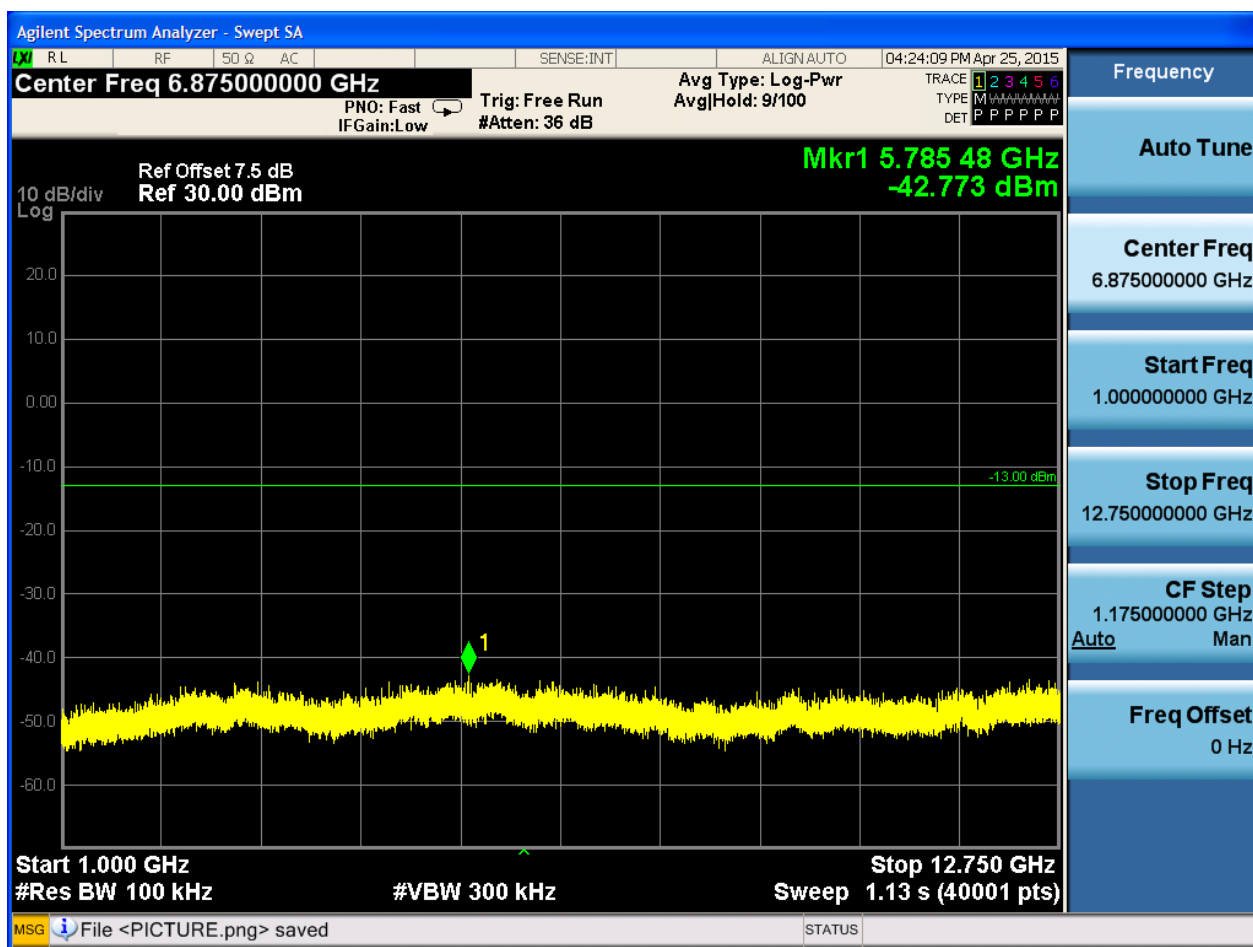


6.1.1.1.3 Test Channel = HCH







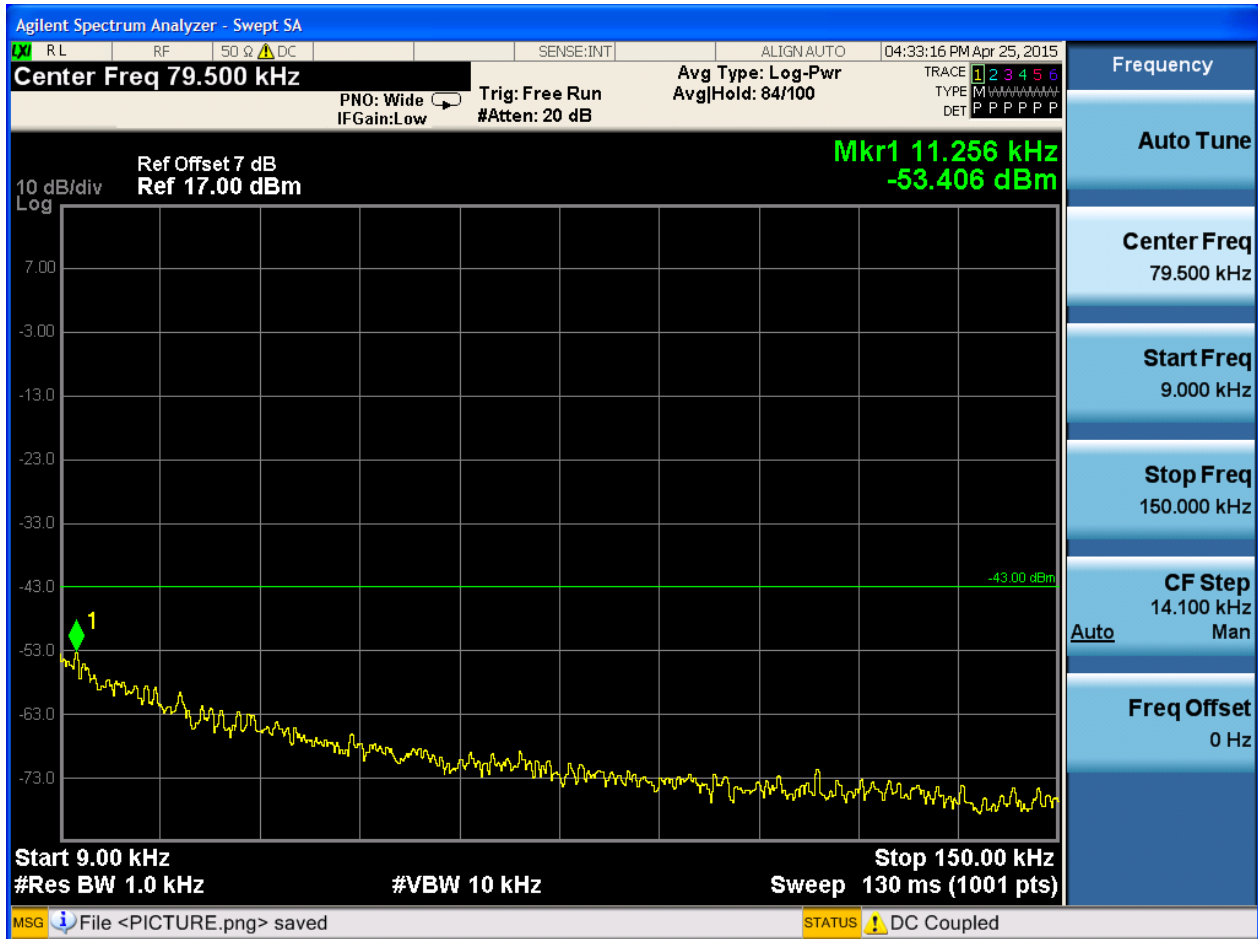


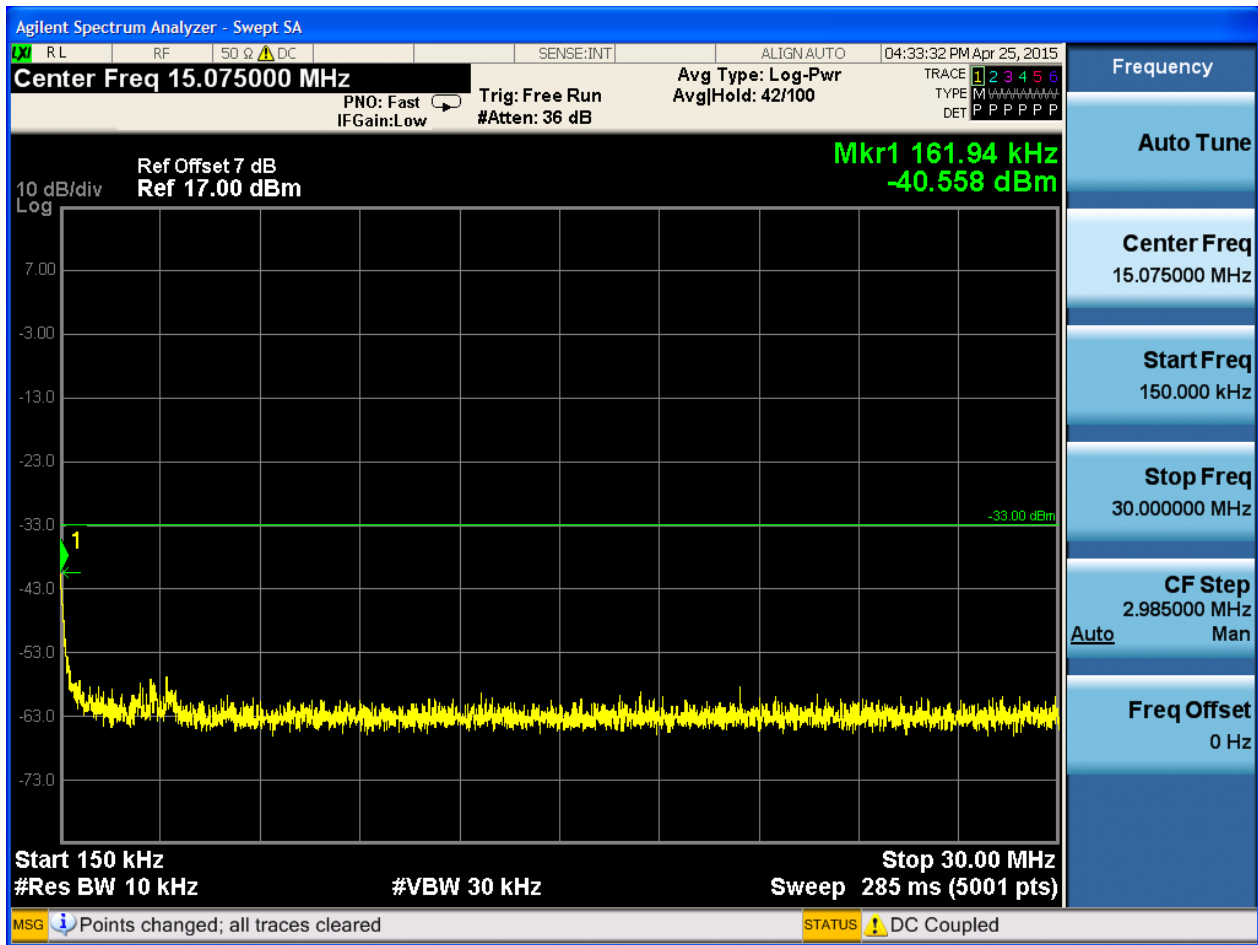


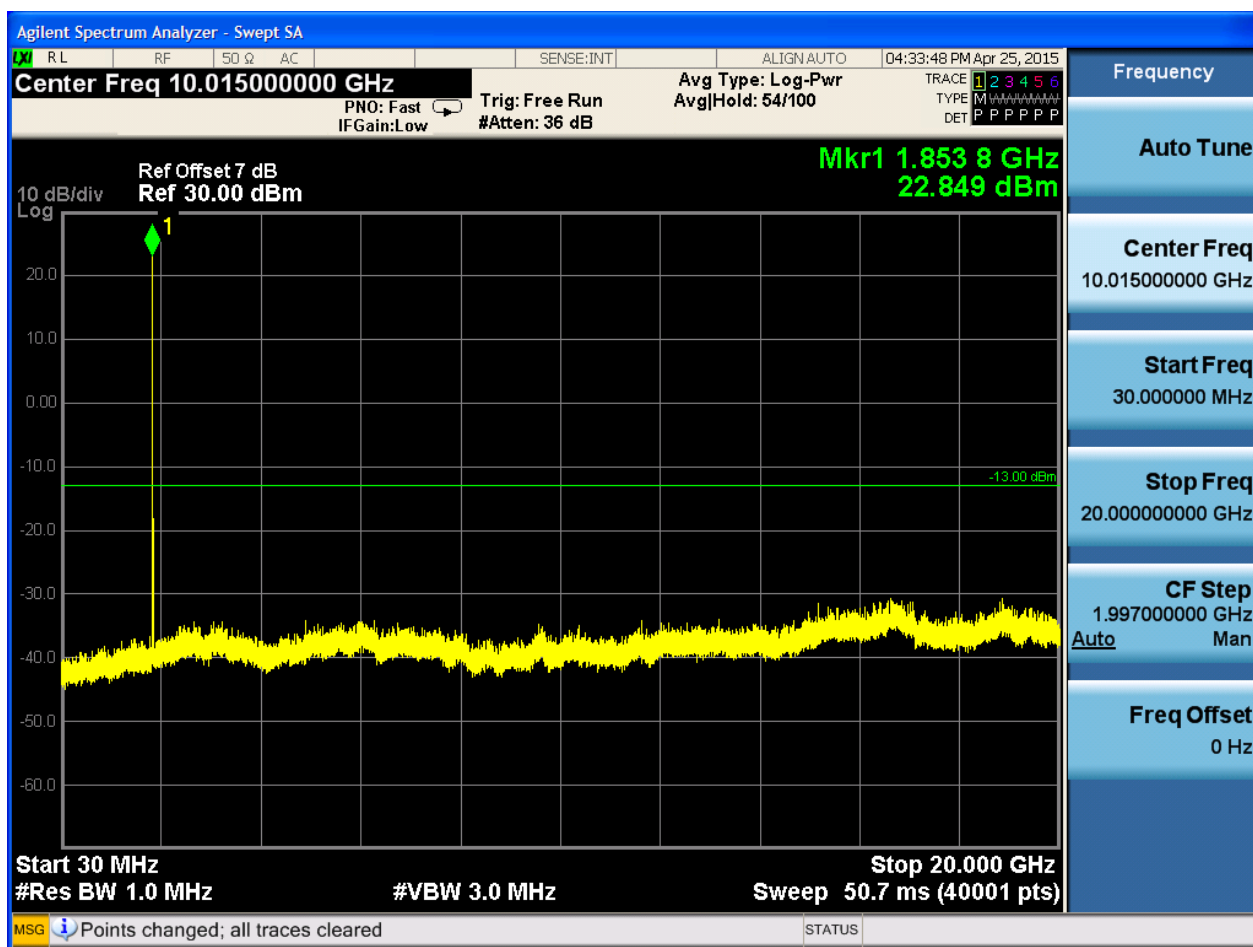
6.2.1 Test Band = WCDMA1900

6.2.1.1 Test Mode = UMTS/TM1

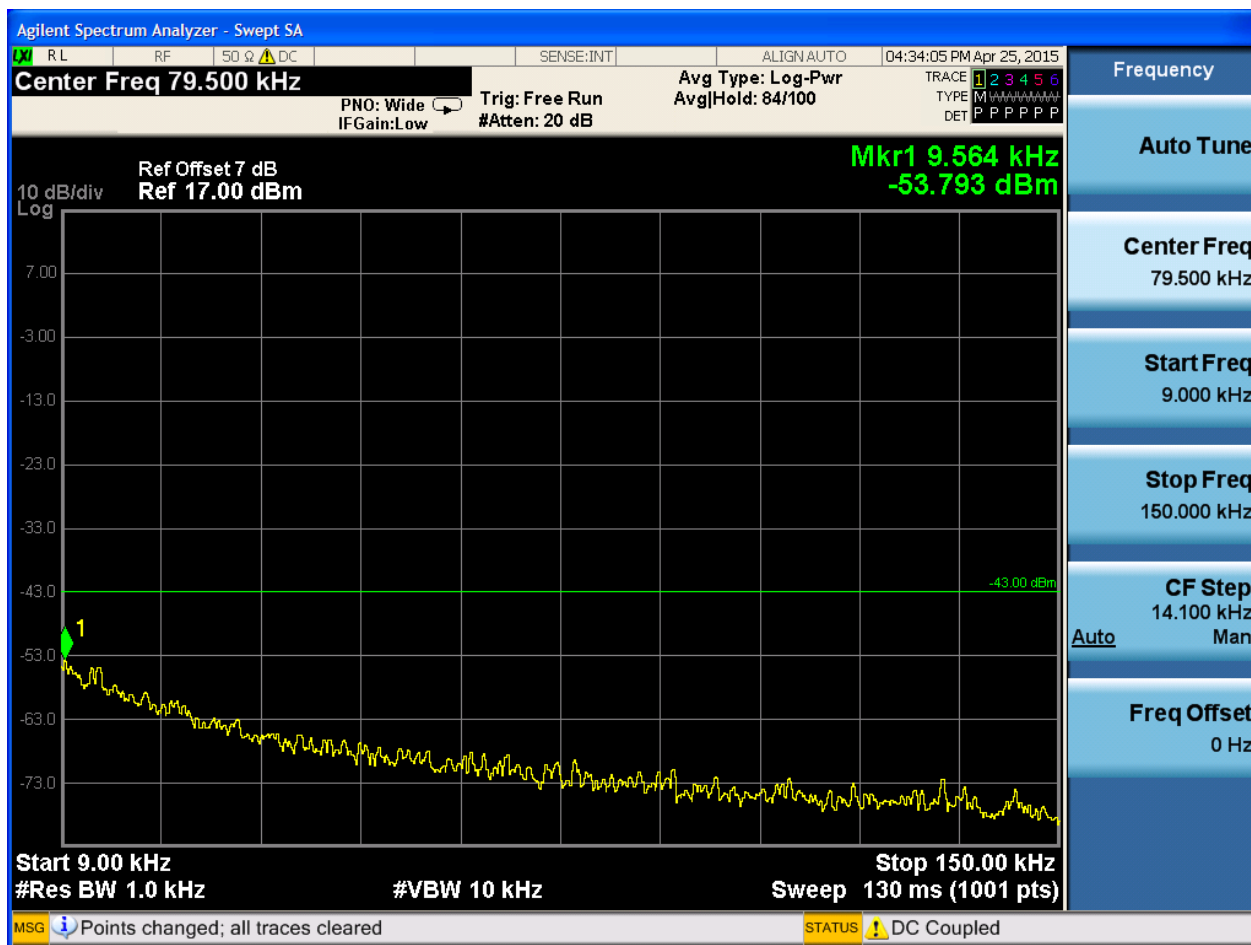
6.2.1.1.1 Test Channel = LCH

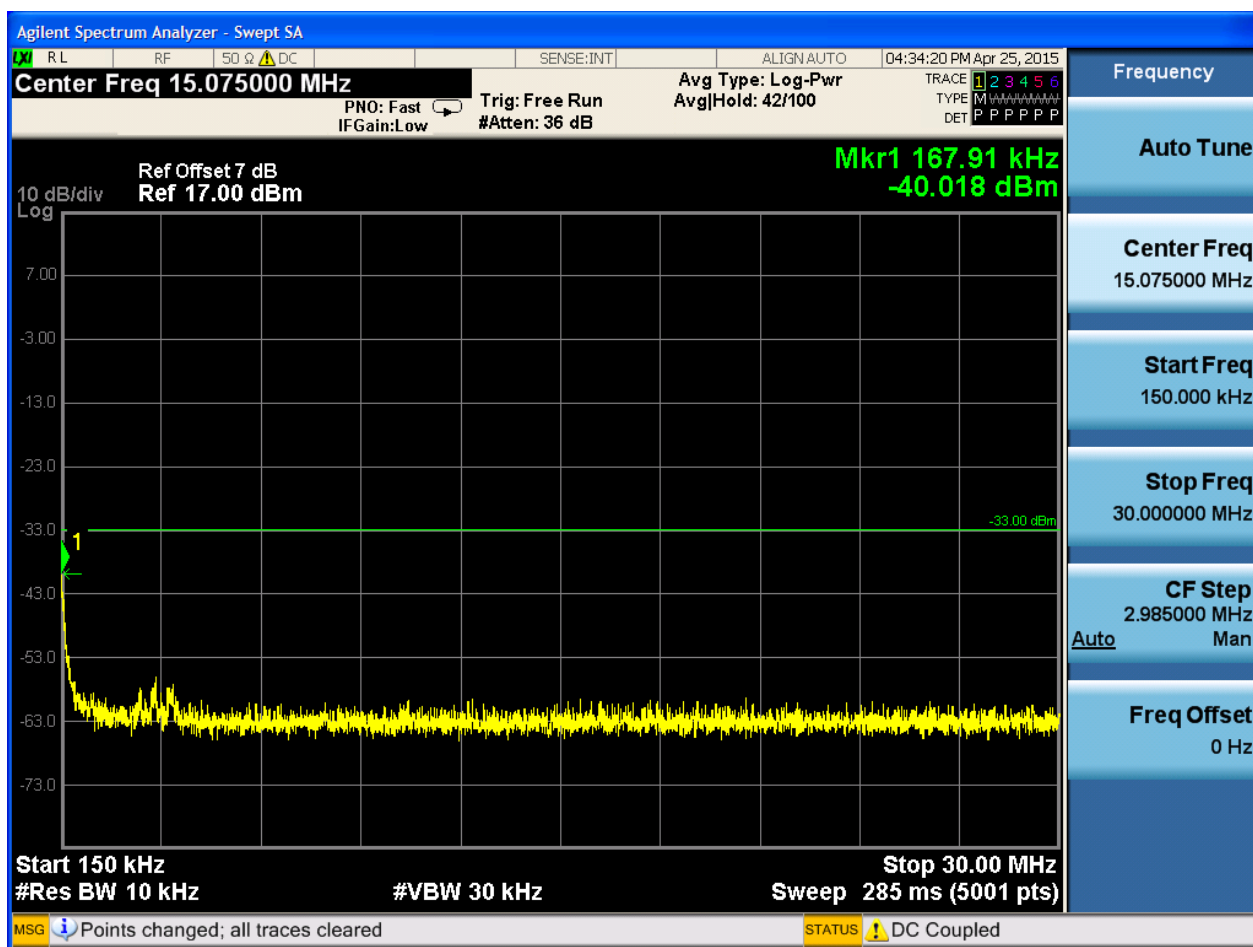


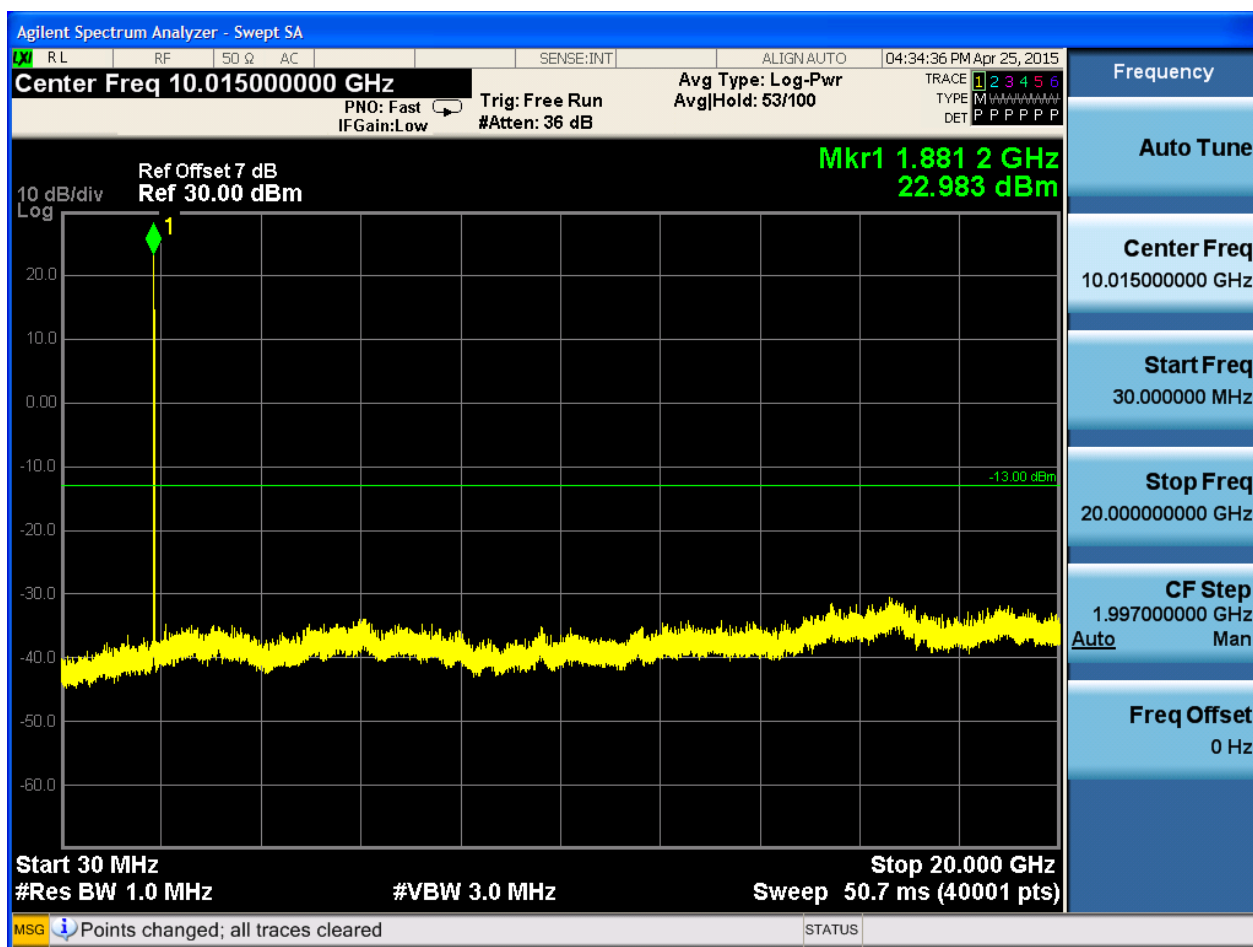




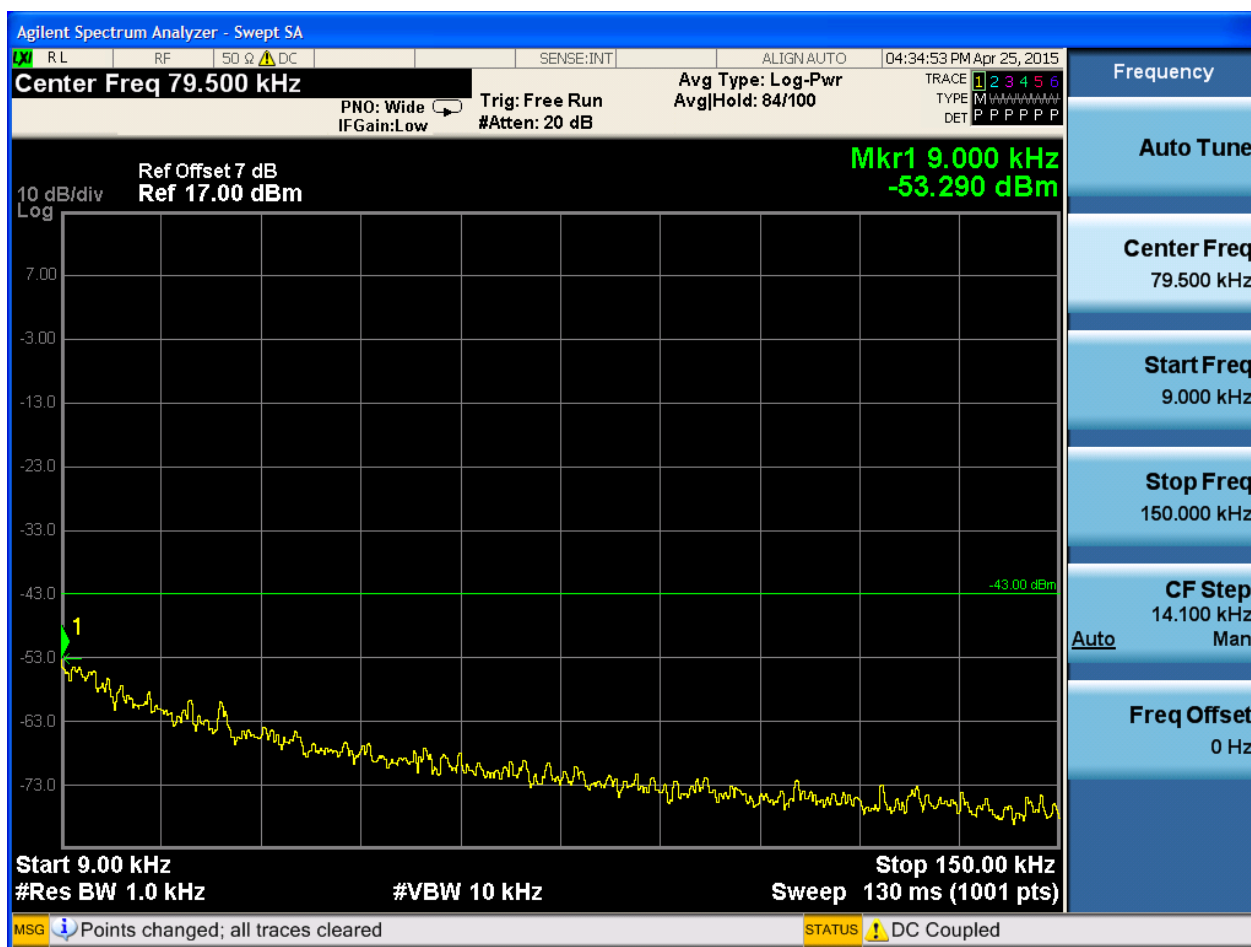
6.2.1.1.2 Test Channel = MCH

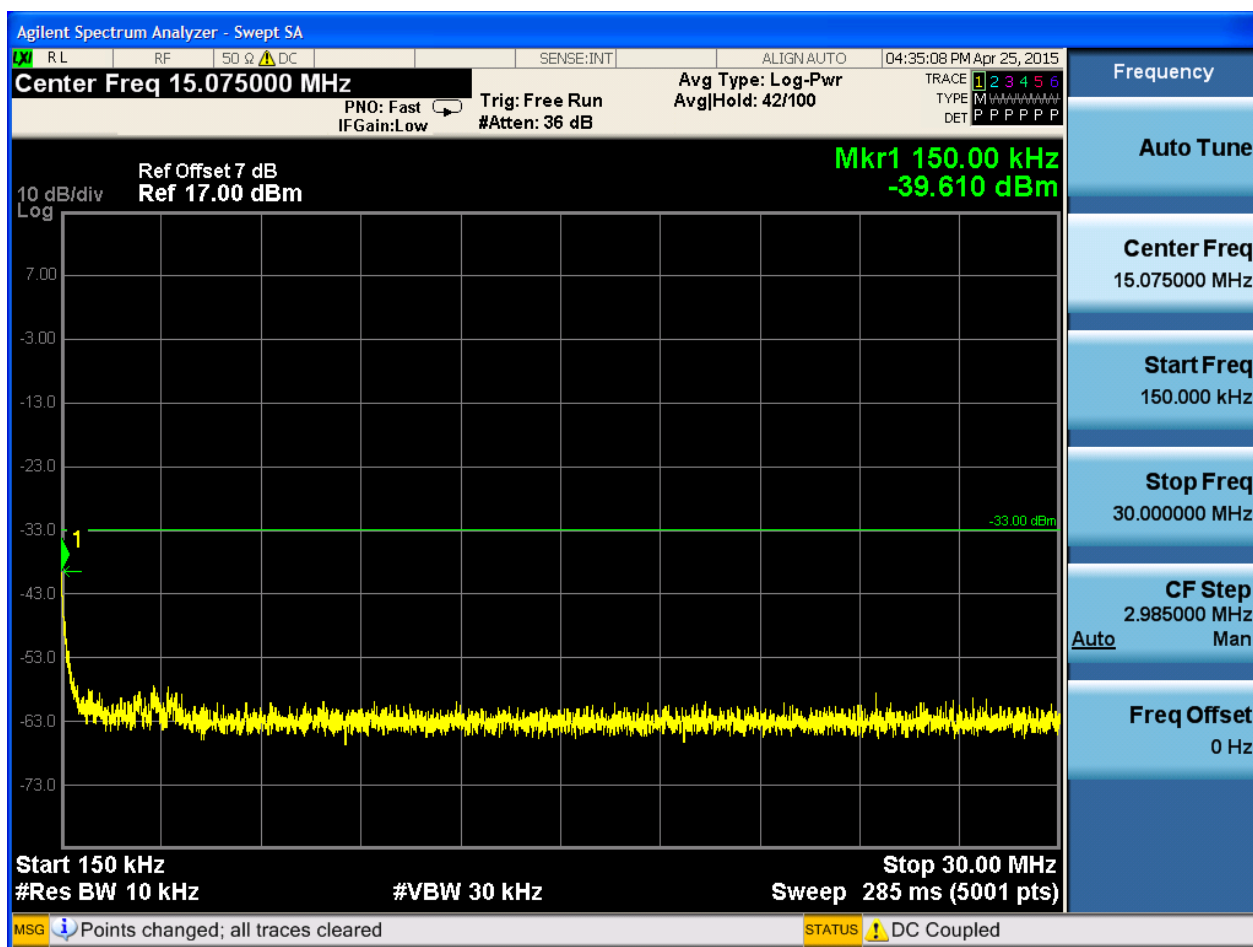


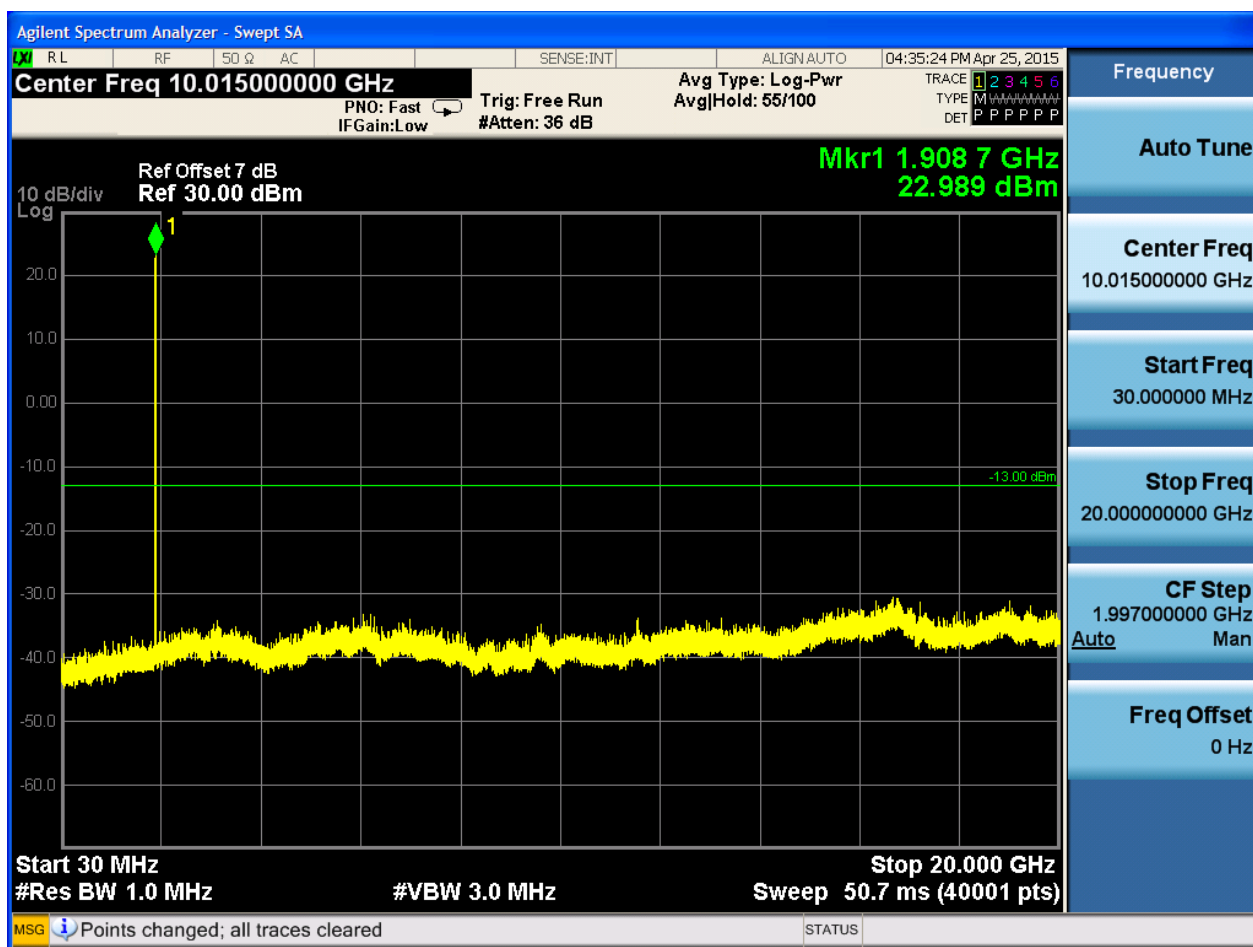




6.2.1.1.3 Test Channel = HCH





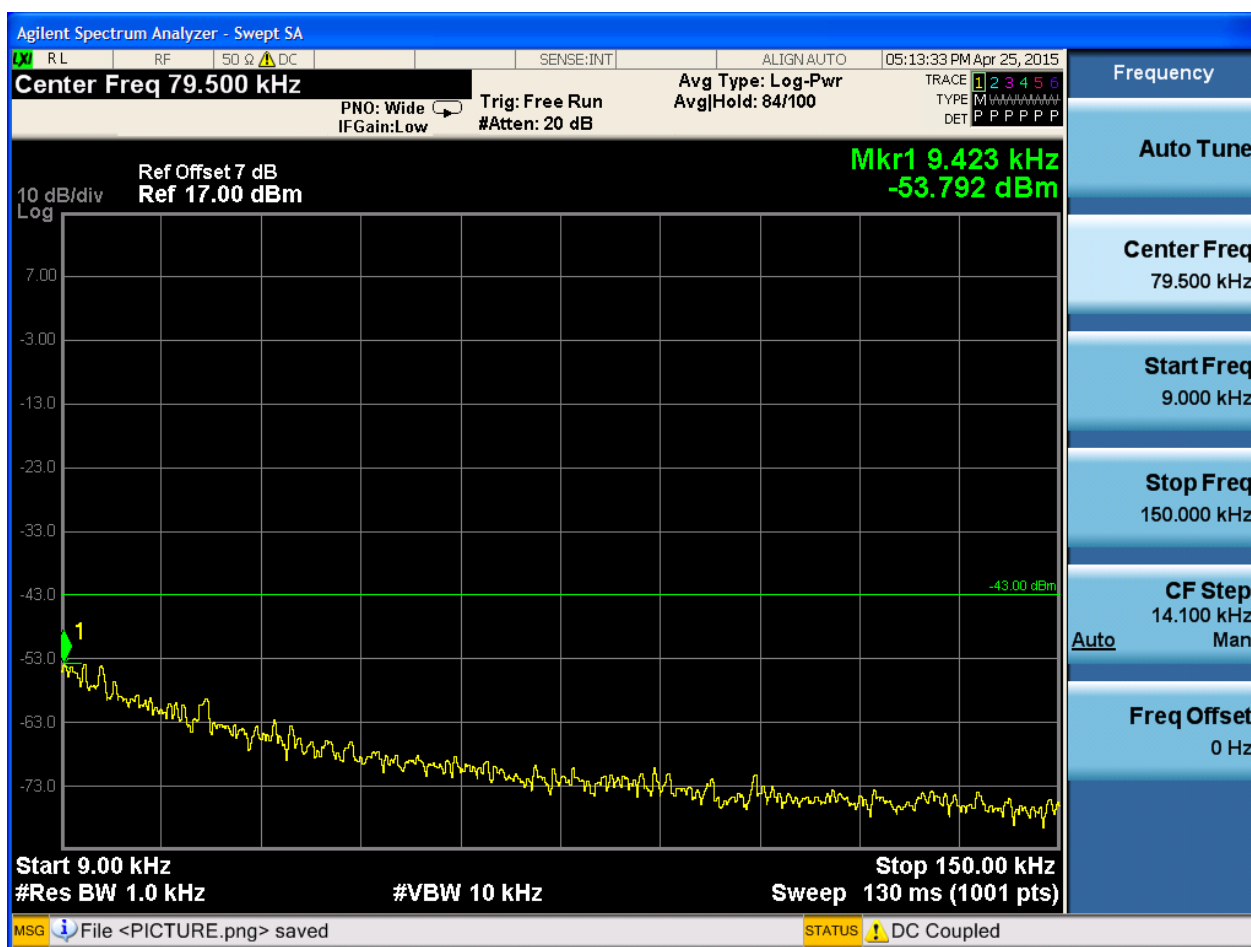


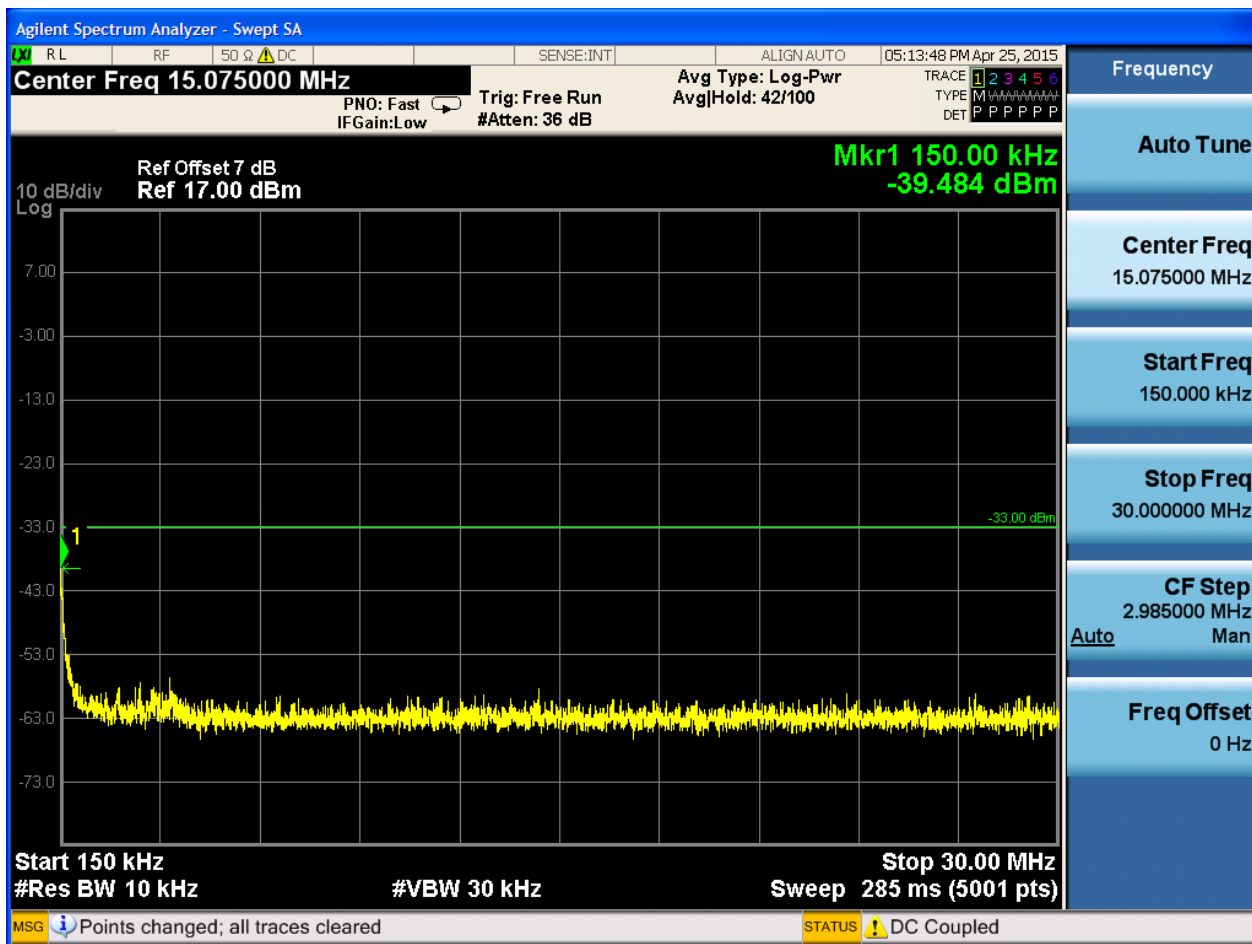


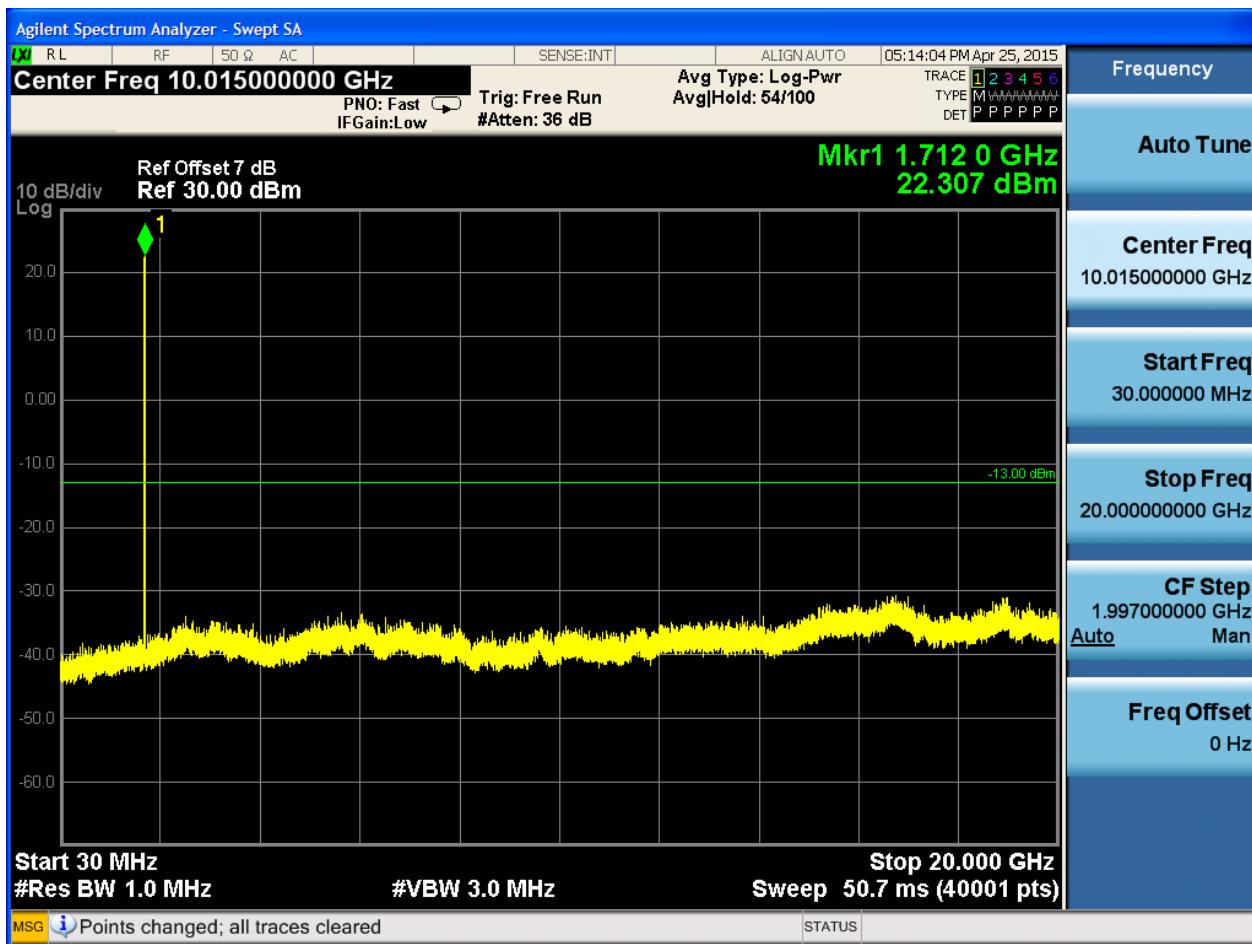
6.2.2 Test Band = WCDMA1700

6.2.2.1 Test Mode = UMTS/TM1

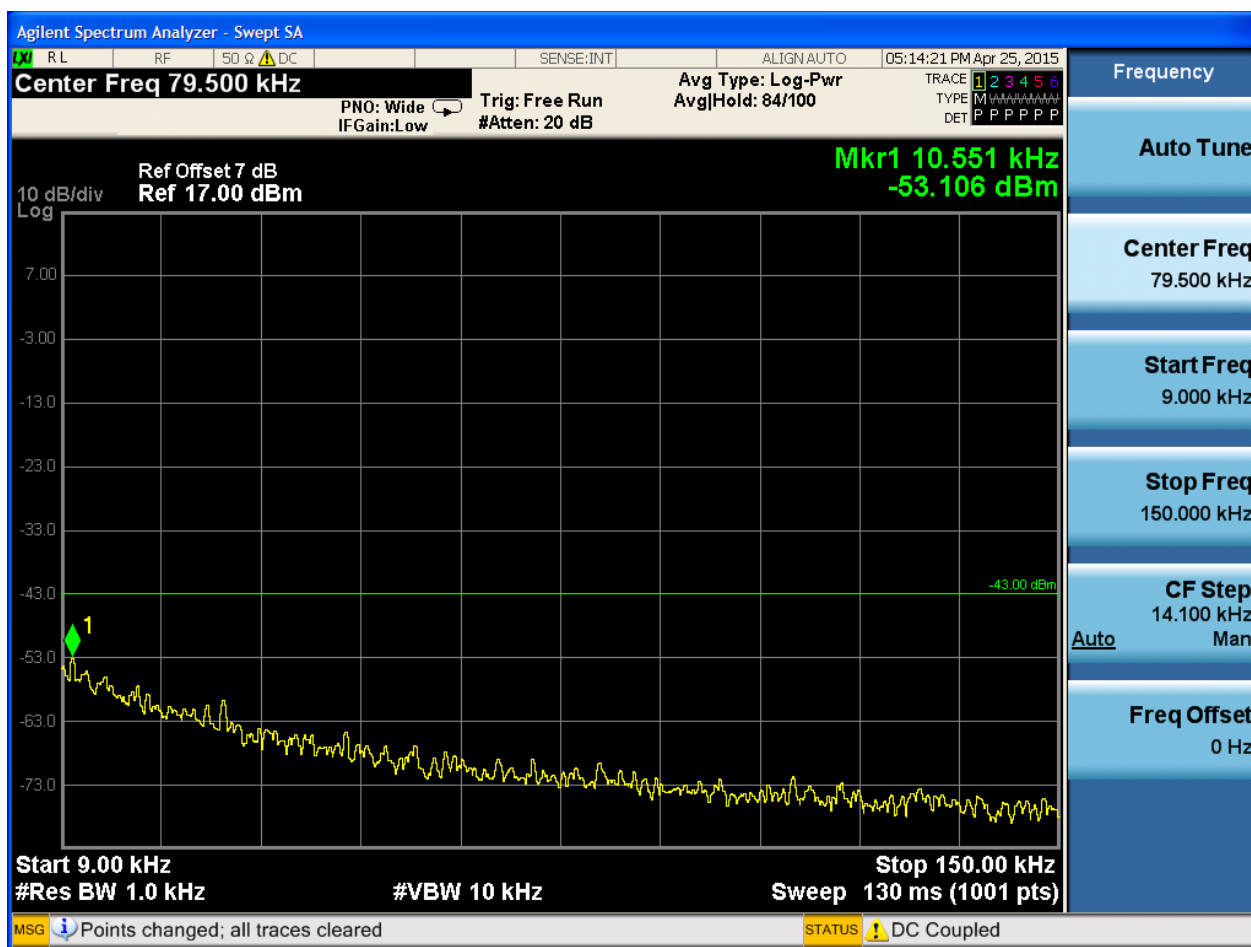
6.2.2.1.1 Test Channel = LCH

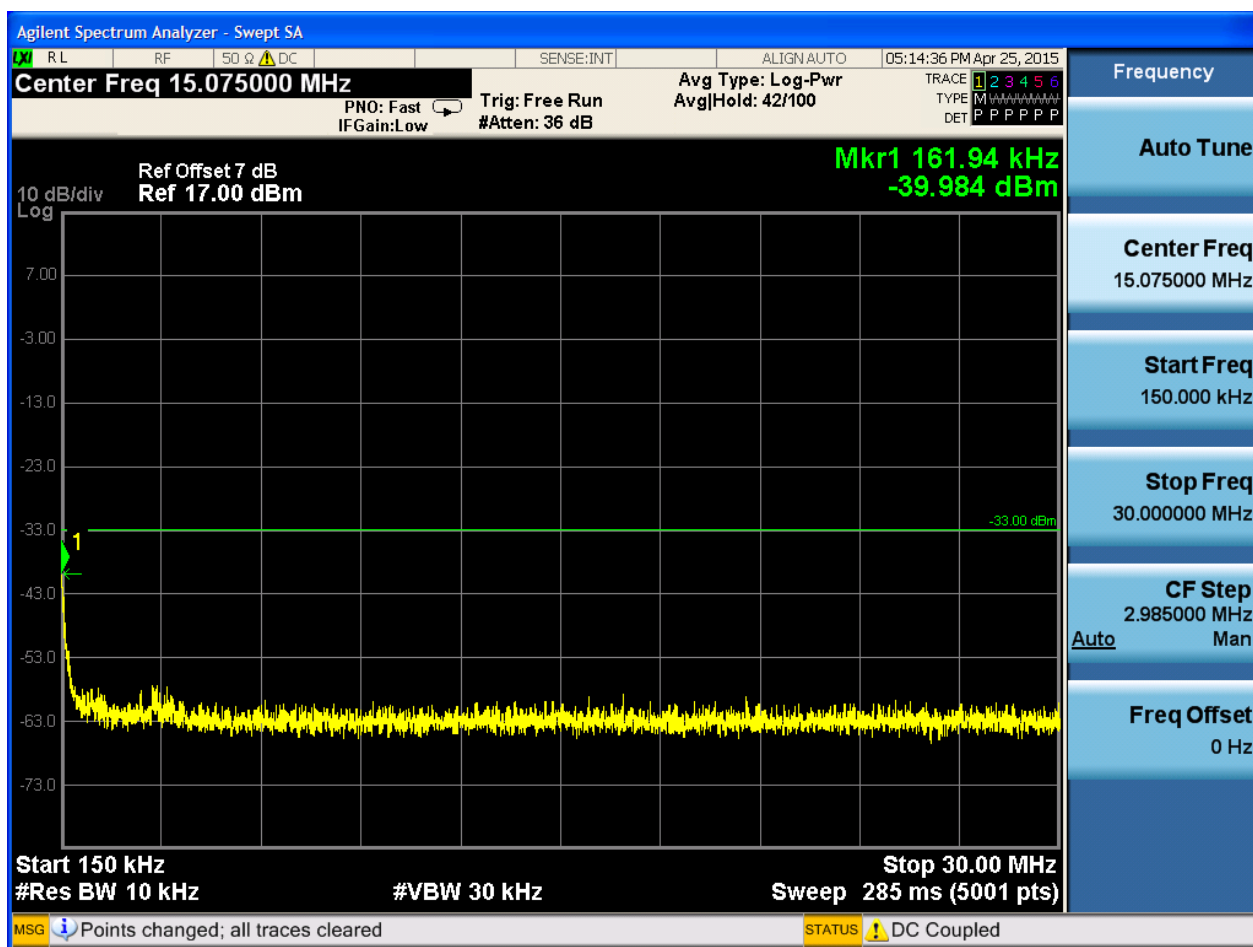


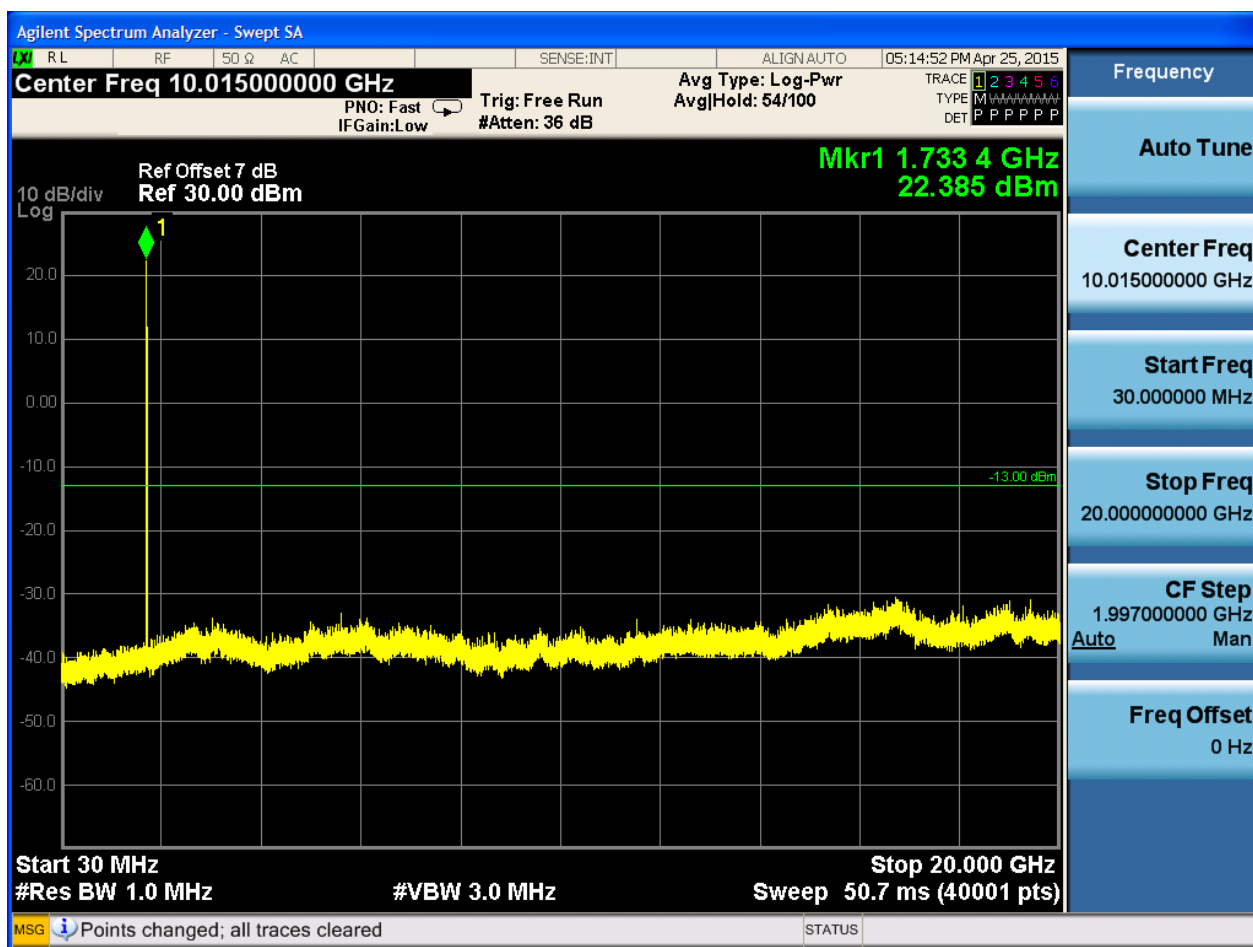




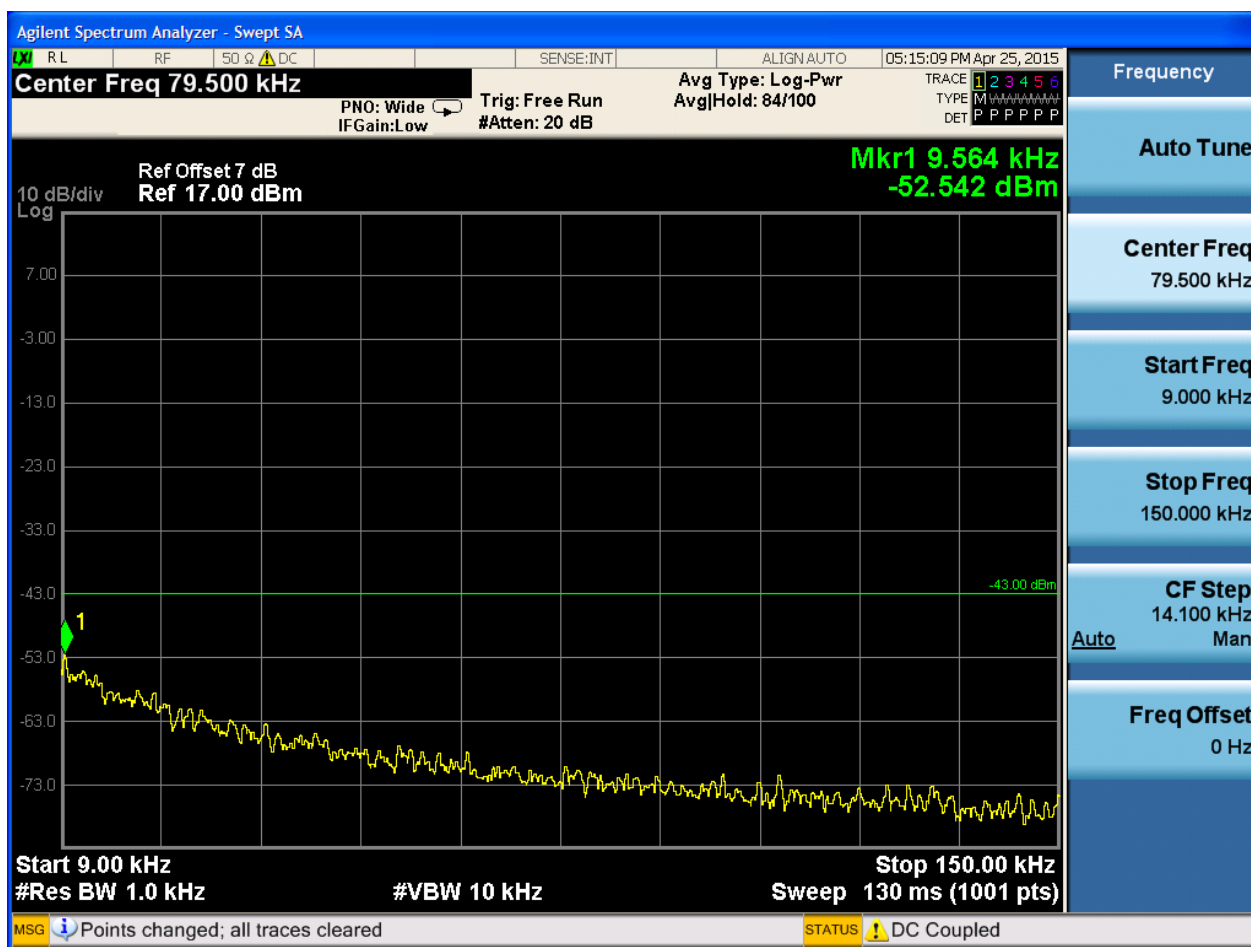
6.2.2.1.2 Test Channel = MCH

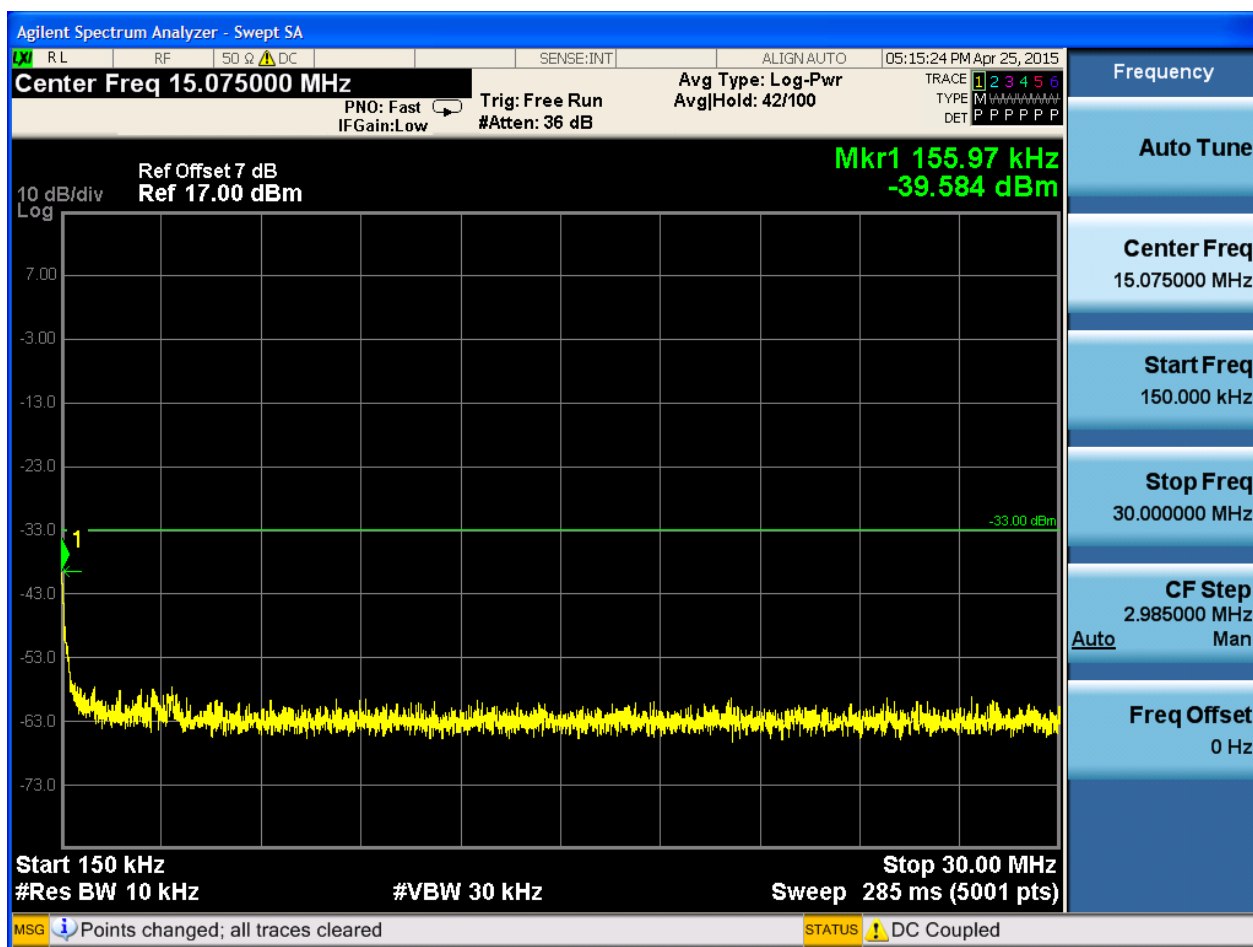


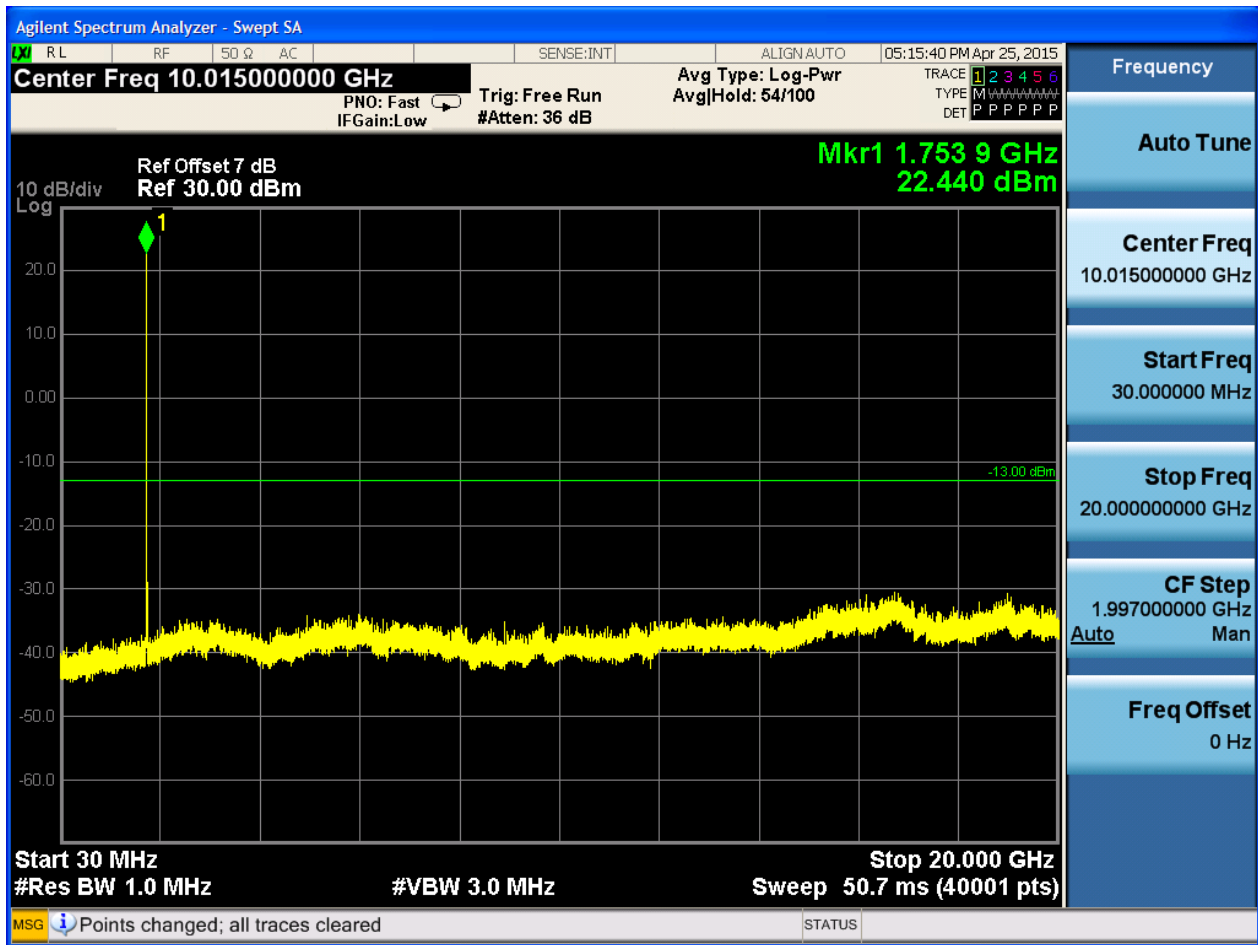




6.2.2.1.3 Test Channel = HCH







7Appendix_G: Field Strength of Spurious Radiation

Note:

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

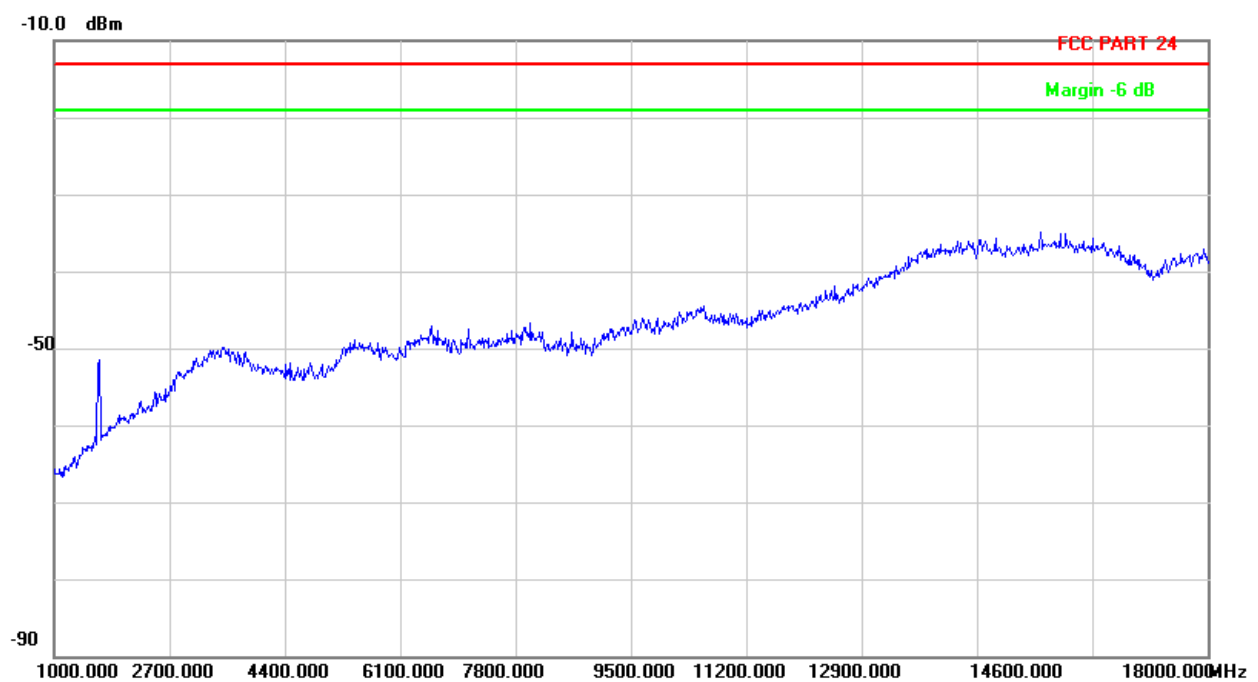
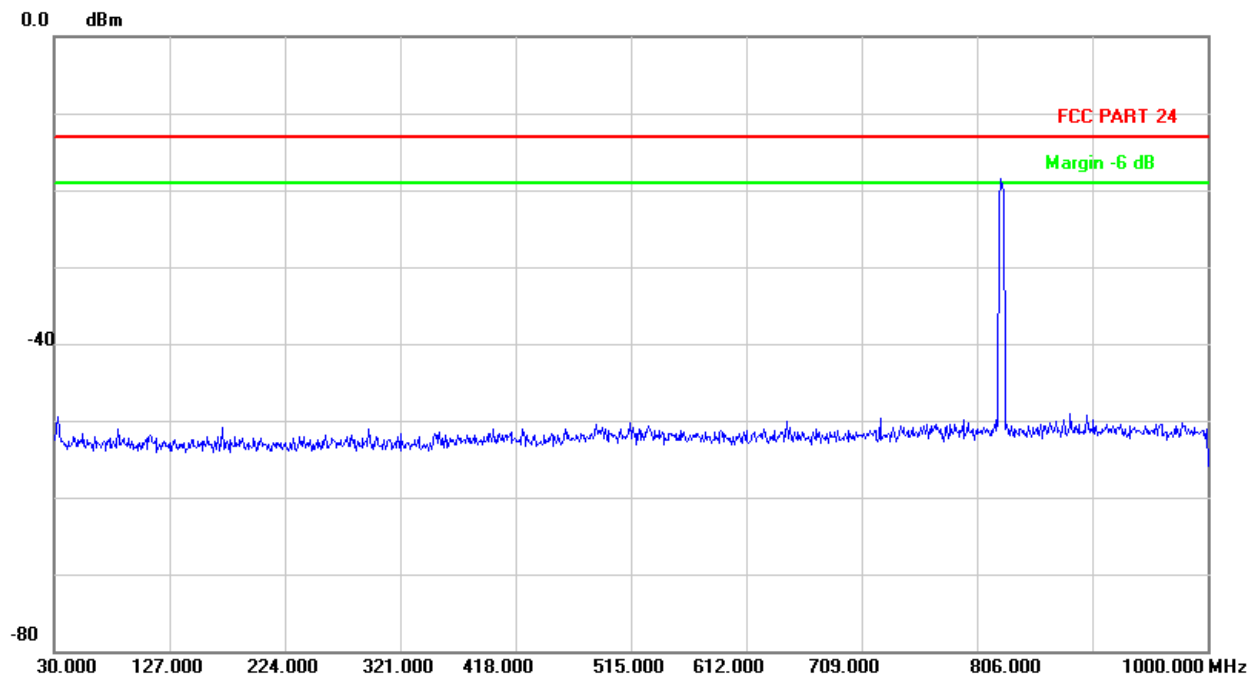
Above 1GHz, RBW = 1 MHz, VBW = 3 MHz. Detector: PK

Part I - Test Plots

7.1 For UMTS

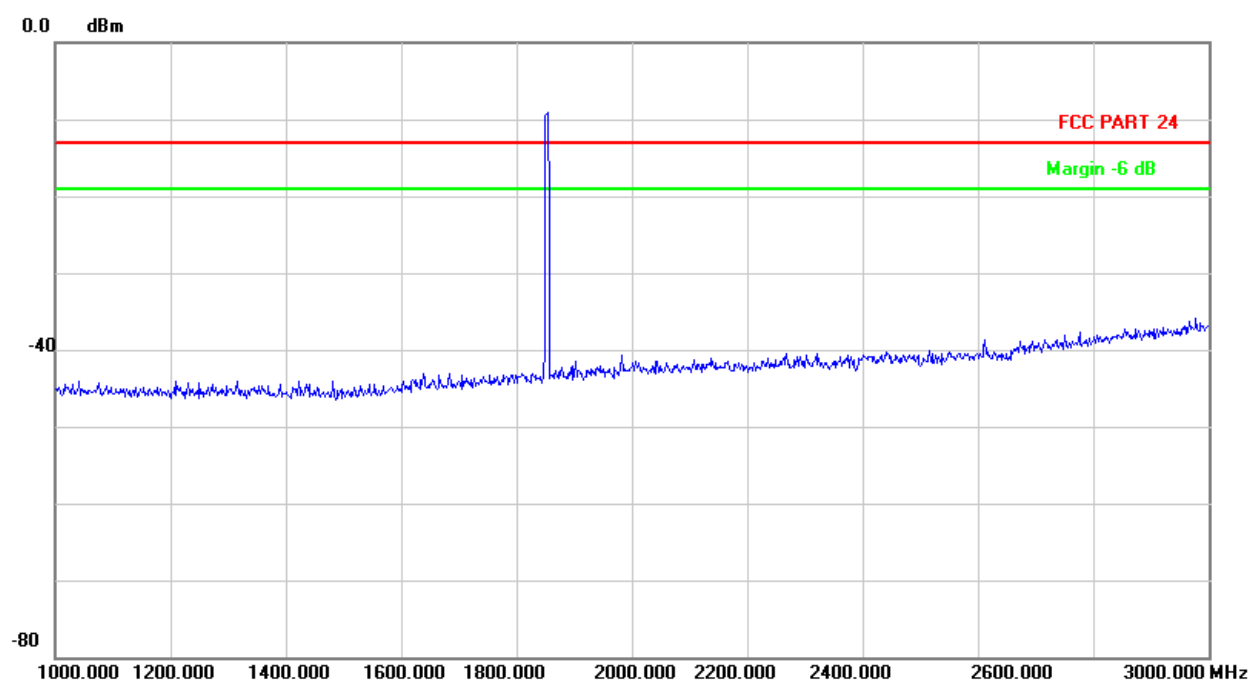
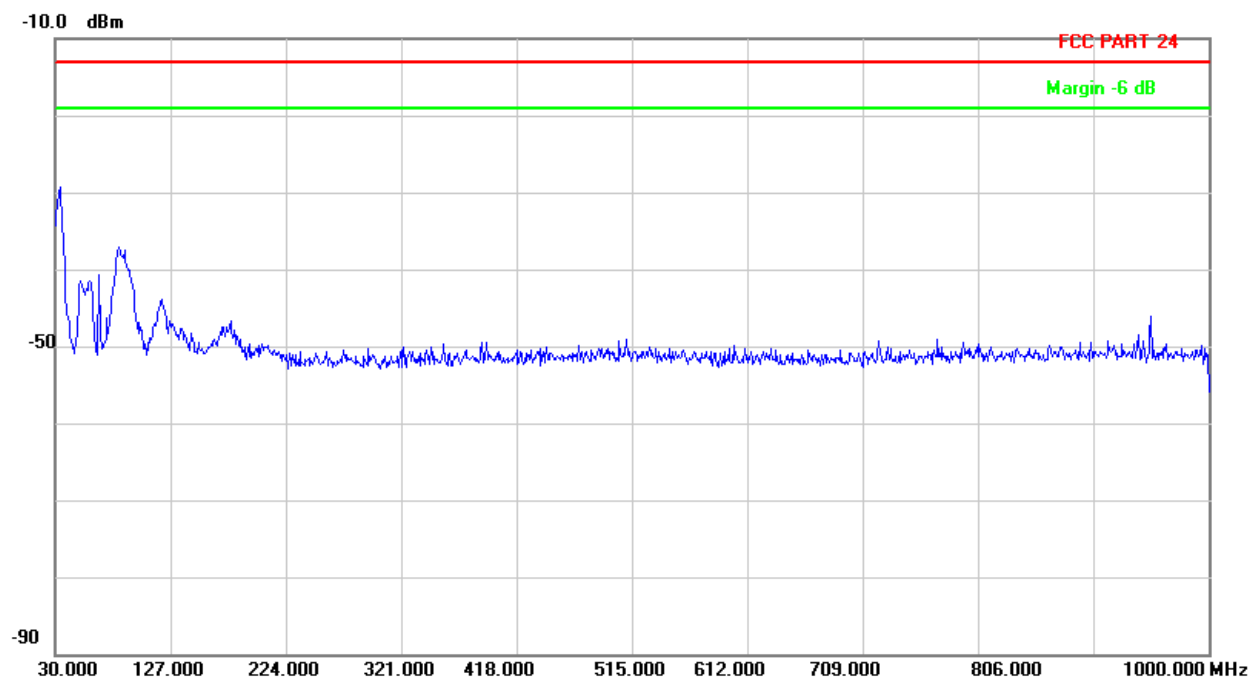
7.1.1 Test Band = WCDMA850

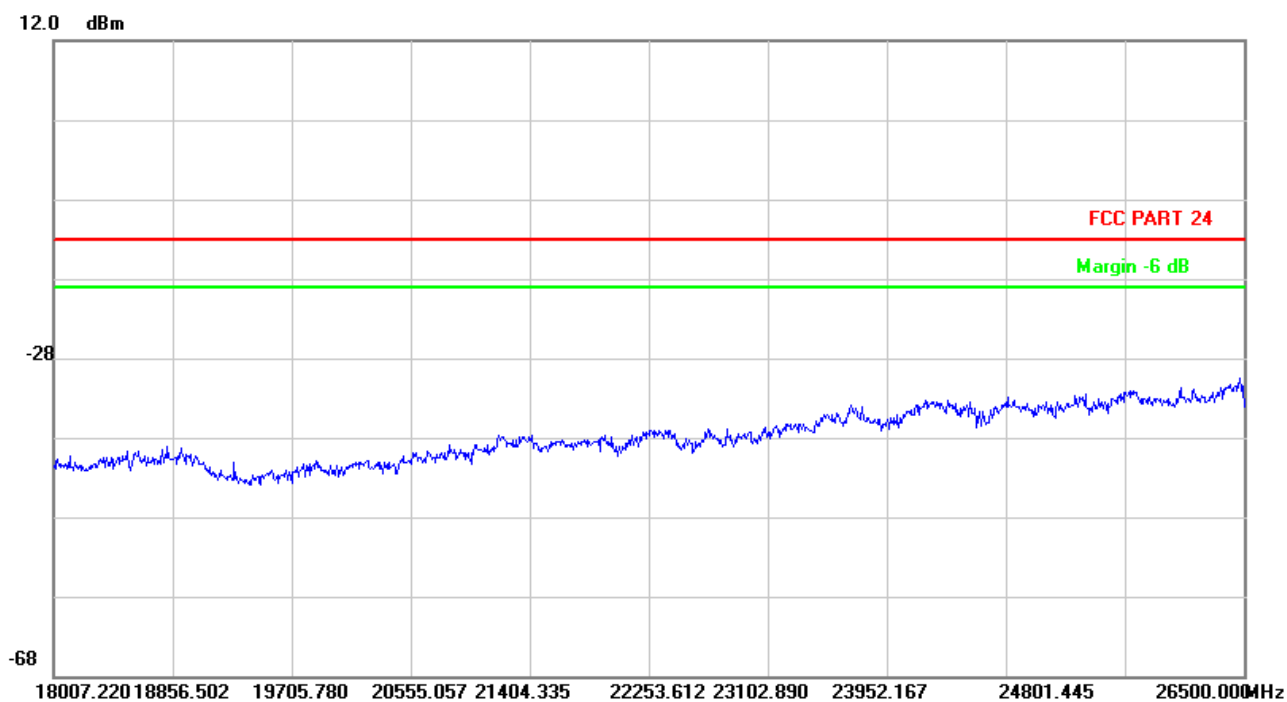
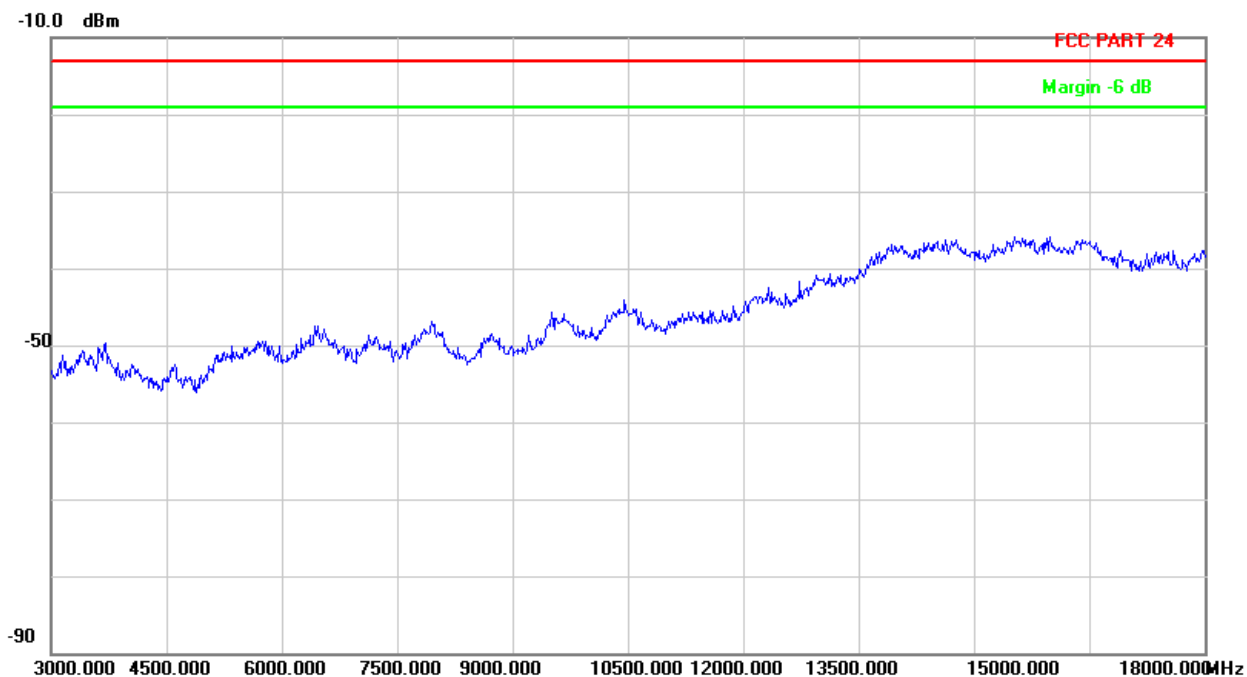
7.1.1.1 Test Mode = UMTS/TM1



7.2.1 Test Band = WCDMA1900

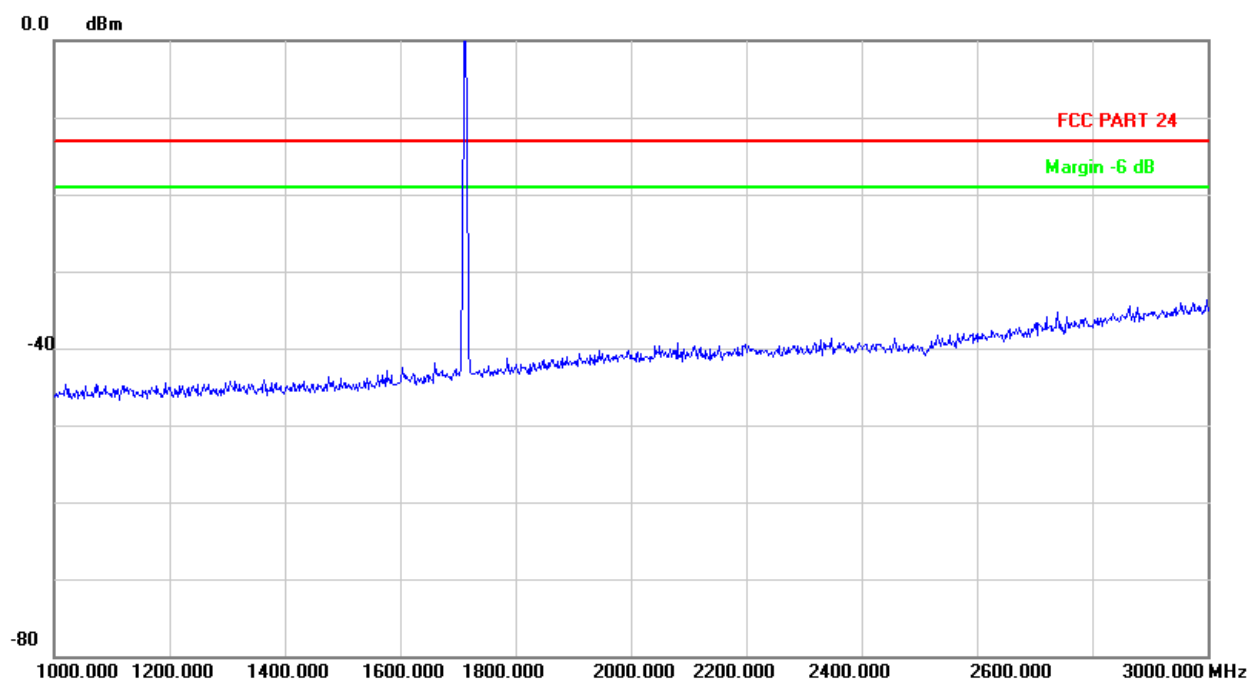
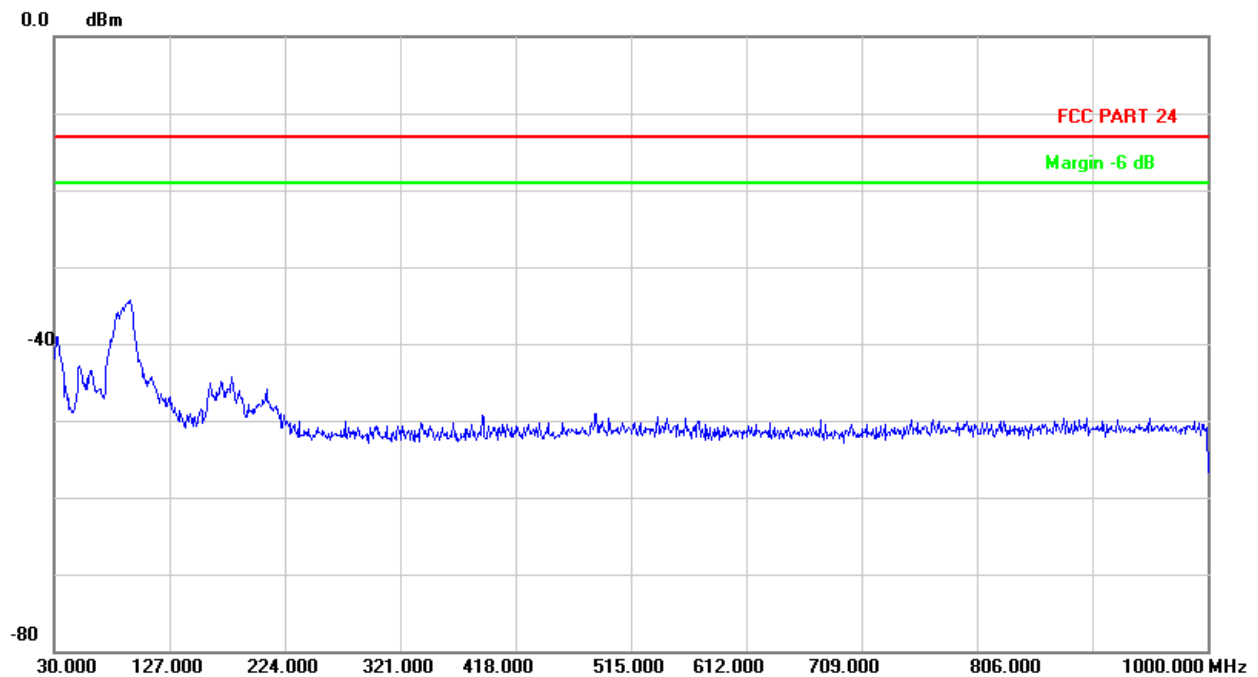
7.2.1.1 Test Mode = UMTS/TM1

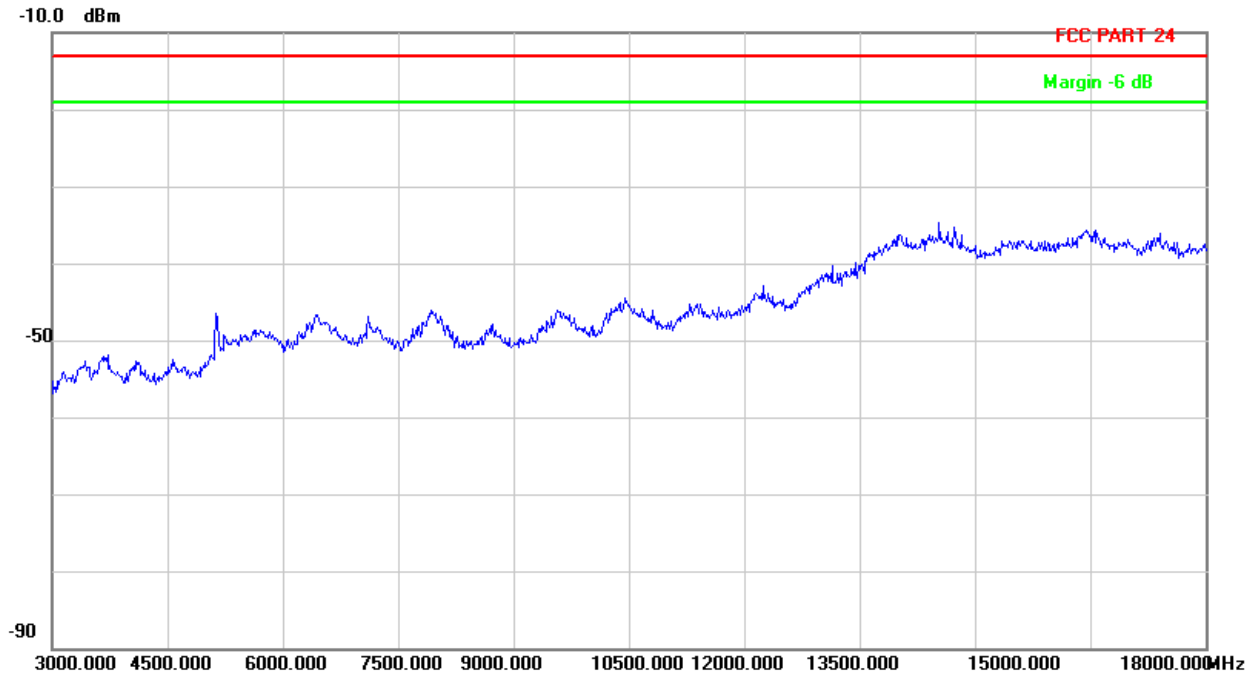




7.2.2 Test Band = WCDMA1700

7.2.2.1 Test Mode = UMTS/TM1





8Appendix_H: Frequency Stability

8.1 For UMTS

8.1.1Frequency 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	-9.16	-0.01108	PASS
				VN	-0.23	-0.00028	PASS
				VH	2.27	0.00275	PASS
		MCH	TN	VL	-9.46	-0.01131	PASS
				VN	10.01	0.01197	PASS
				VH	-0.55	-0.00066	PASS
		HCH	TN	VL	-14.07	-0.01662	PASS
				VN	7.11	0.0084	PASS
				VH	-5.26	-0.00621	PASS
WCDMA1900	UMTS/TM1	LCH	TN	VL	2.04	0.0011	PASS
				VN	6.47	0.00349	PASS
				VH	-1.86	-0.001	PASS
		MCH	TN	VL	-5.72	-0.00304	PASS
				VN	5.16	0.00274	PASS
				VH	-5.36	-0.00285	PASS
		HCH	TN	VL	-3.89	-0.00204	PASS
				VN	0.56	0.00029	PASS
				VH	0.75	0.00039	PASS
WCDMA1700	UMTS/TM1	LCH	TN	VL	-0.79	-0.00046	PASS
				VN	-1.57	-0.00092	PASS
				VH	-1.53	-0.00089	PASS
		MCH	TN	VL	-1.40	-0.00081	PASS
				VN	3.30	0.0019	PASS
				VH	-0.41	-0.00024	PASS
		HCH	TN	VL	4.78	0.00273	PASS
				VN	-2.01	-0.00115	PASS
				VH	11.00	0.00628	PASS

8.1.2Frequency 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	-11.81	-0.01429	PASS
				-20	3.57	0.00432	PASS
				-10	2.18	0.00264	PASS
				0	1.11	0.00134	PASS
				10	1.89	0.00229	PASS
				20	0.96	0.00116	PASS
				30	-7.86	-0.00951	PASS
				40	0.96	0.00116	PASS
				50	5.29	0.0064	PASS
		MCH	VN	-30	-13.55	-0.0162	PASS
				-20	5.68	0.00679	PASS
				-10	3.10	0.00371	PASS
				0	-0.52	-0.00062	PASS
				10	-0.87	-0.00104	PASS
				20	1.63	0.00195	PASS
				30	1.72	0.00206	PASS
				40	1.14	0.00136	PASS
				50	4.78	0.00571	PASS
		HCH	VN	-30	-15.76	-0.01862	PASS
				-20	-0.50	-0.00059	PASS
				-10	1.42	0.00168	PASS
				0	-1.48	-0.00175	PASS
				10	-1.36	-0.00161	PASS
				20	5.51	0.00651	PASS
				30	1.63	0.00193	PASS
				40	2.11	0.00249	PASS
				50	4.00	0.00472	PASS
WCDMA1900	UMTS/TM1	LCH	VN	-30	8.82	0.00476	PASS
				-20	-3.81	-0.00206	PASS
				-10	1.72	0.00093	PASS
				0	-0.20	-0.00011	PASS
				10	-1.34	-0.00072	PASS
				20	4.39	0.00237	PASS
				30	0.92	0.0005	PASS
				40	4.01	0.00216	PASS
				50	5.02	0.00271	PASS
		MCH	VN	-30	8.48	0.00451	PASS
				-20	-4.18	-0.00222	PASS
				-10	-3.19	-0.0017	PASS
				0	3.88	0.00206	PASS

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				10	5.31	0.00282	PASS
				20	-2.50	-0.00133	PASS
				30	0.73	0.00039	PASS
				40	-10.31	-0.00548	PASS
				50	-8.06	-0.00429	PASS
		HCH	VN	-30	7.39	0.00387	PASS
				-20	1.79	0.00094	PASS
				-10	-1.94	-0.00102	PASS
				0	-5.14	-0.00269	PASS
				10	-1.34	-0.0007	PASS
				20	-1.56	-0.00082	PASS
				30	-8.79	-0.00461	PASS
				40	3.92	0.00205	PASS
				50	1.22	0.00064	PASS
				-30	3.97	0.00232	PASS
				-20	12.74	0.00744	PASS
				-10	-4.00	-0.00234	PASS
				0	3.19	0.00186	PASS
				10	-0.31	-0.00018	PASS
WCDMA1700	UMTS/TM1	LCH	VN	20	-1.28	-0.00075	PASS
				30	-4.21	-0.00246	PASS
				40	3.04	0.00178	PASS
				50	1.43	0.00084	PASS
		MCH	VN	-30	-2.94	-0.0017	PASS
				-20	2.90	0.00167	PASS
				-10	-3.72	-0.00215	PASS
				0	-2.26	-0.0013	PASS
				10	8.58	0.00495	PASS
				20	1.71	0.00099	PASS
				30	-2.66	-0.00154	PASS
				40	1.50	0.00087	PASS
				50	-3.27	-0.00189	PASS
		HCH	VN	-30	-4.47	-0.00255	PASS
				-20	-4.33	-0.00247	PASS
				-10	-1.04	-0.00059	PASS
				0	-0.56	-0.00032	PASS
				10	4.18	0.00239	PASS
				20	0.43	0.00025	PASS
				30	-1.21	-0.00069	PASS
				40	-13.55	-0.00773	PASS



Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				50	1.59	0.00091	PASS

END