



Appendix for test report

1Appendix_A: Effective (Isotropic) Radiated Power Output Data

Part I - Test Result

Test Band	Test Mode	Test Channel	Conducte d Power [dBm]	ERP/EIRP [dBm]	Limit [dBm]	Verdict
WCDMA850	UMTS/TM1	LCH	24.36	20.41	38.5	PASS
		MCH	24.43	20.48	38.5	PASS
		HCH	24.36	20.41	38.5	PASS
WCDMA1700	UMTS/TM1	LCH	23.94	24.24	30	PASS
		MCH	23.87	24.17	30	PASS
		HCH	23.89	24.19	30	PASS
WCDMA1900	UMTS/TM1	LCH	23.97	24.17	33	PASS
		MCH	23.86	24.06	33	PASS
		HCH	23.86	24.06	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:

$$\text{SET Span} = 1.5 \times \text{OBW}$$

$$\text{SET RBW} = 1\% \text{ of the OBW, not to exceed 1MHz}$$

$$\text{SET VBW} \geq 3 \times \text{RBW}$$

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	2.54	13	PASS
		MCH	2.67	13	PASS
		HCH	2.33	13	PASS
WCDMA1700	UMTS/TM1	LCH	2.95	13	PASS
		MCH	2.84	13	PASS
		HCH	2.87	13	PASS
WCDMA1900	UMTS/TM1	LCH	2.7	13	PASS
		MCH	3.14	13	PASS
		HCH	3	13	PASS

3Appendix_C: Modulation Characteristics

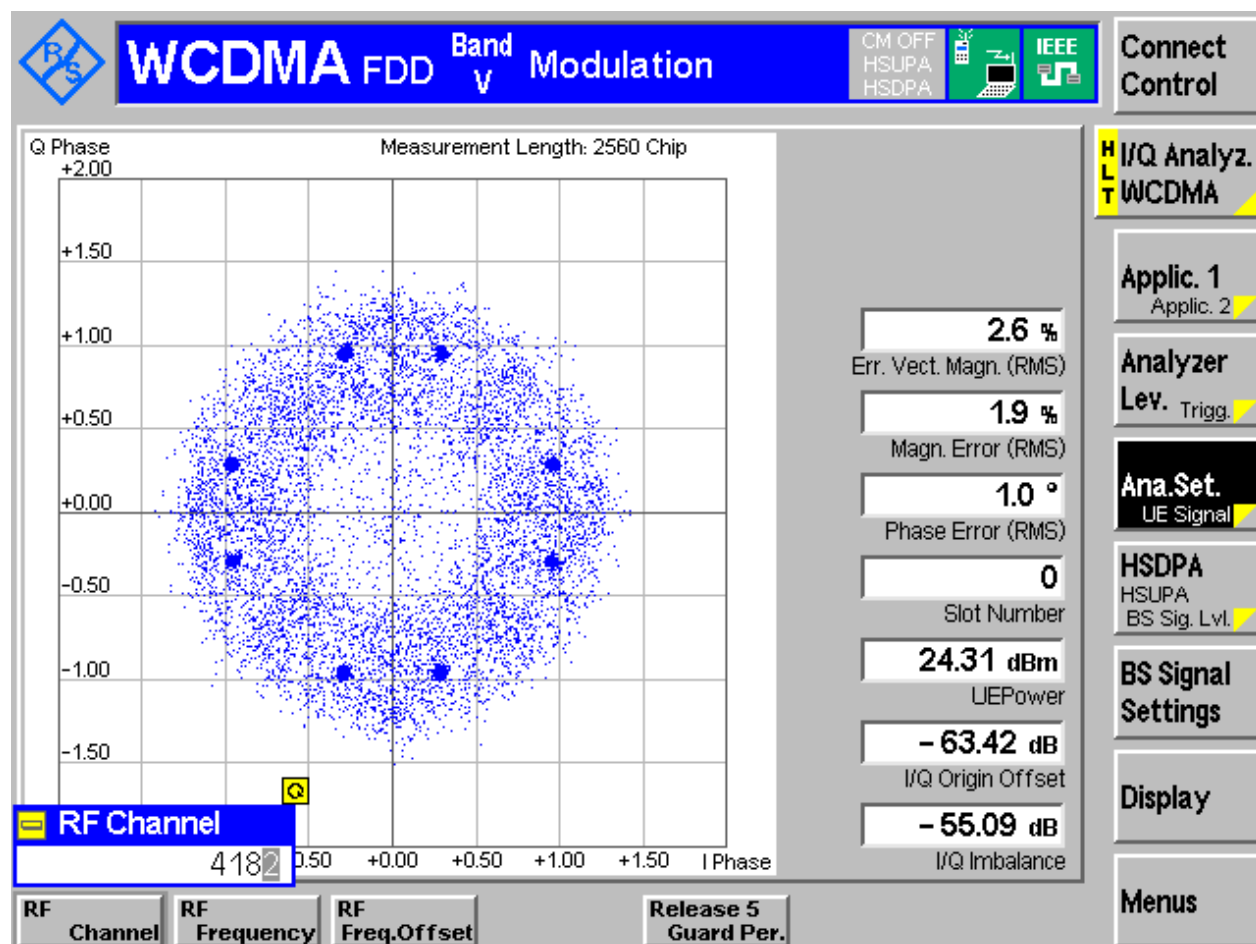
Part I - Test Plots

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

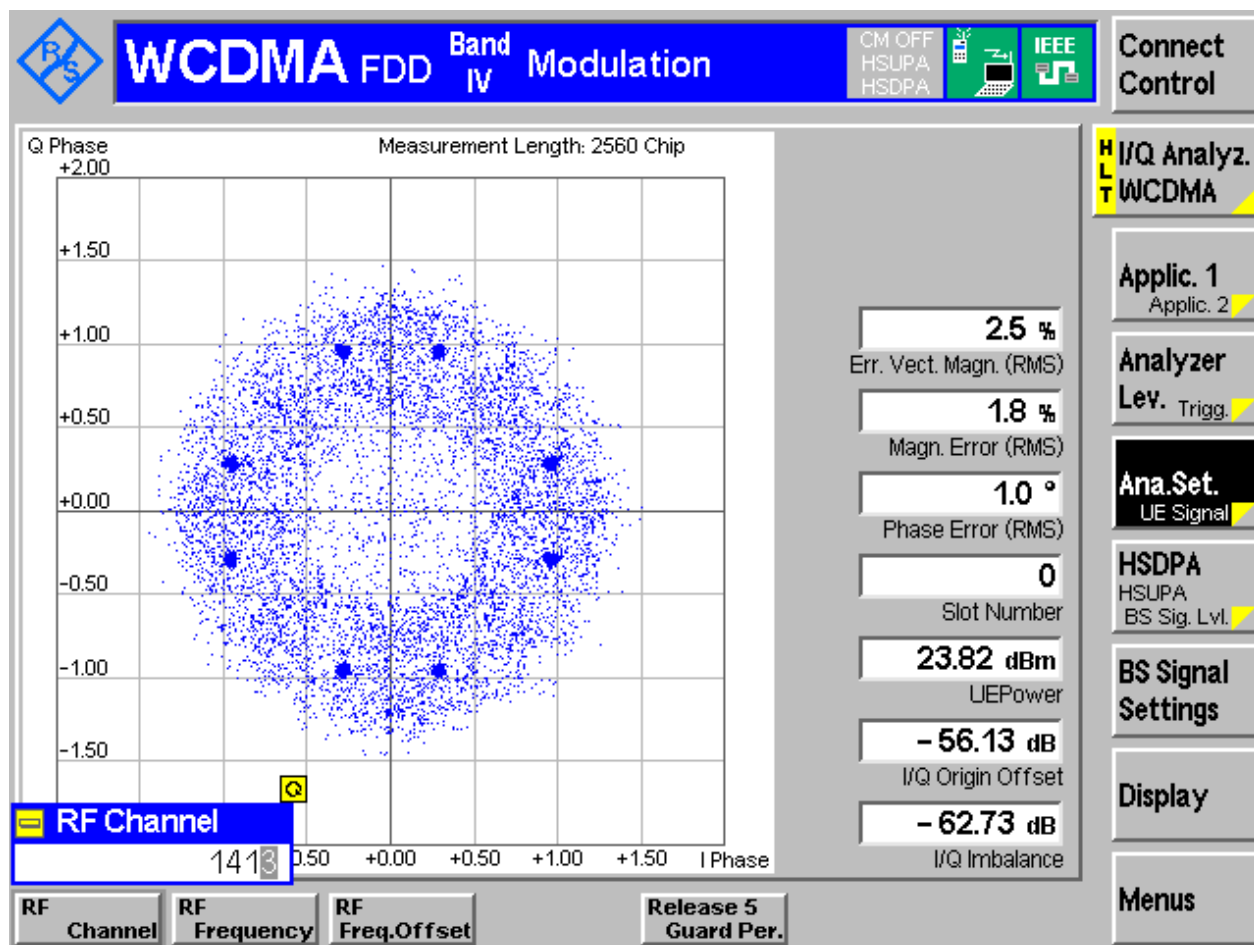


3.2 For UMTS

3.2.1 Test Band = WCDMA1700

3.2.1.1 Test Mode = UMTS/TM1

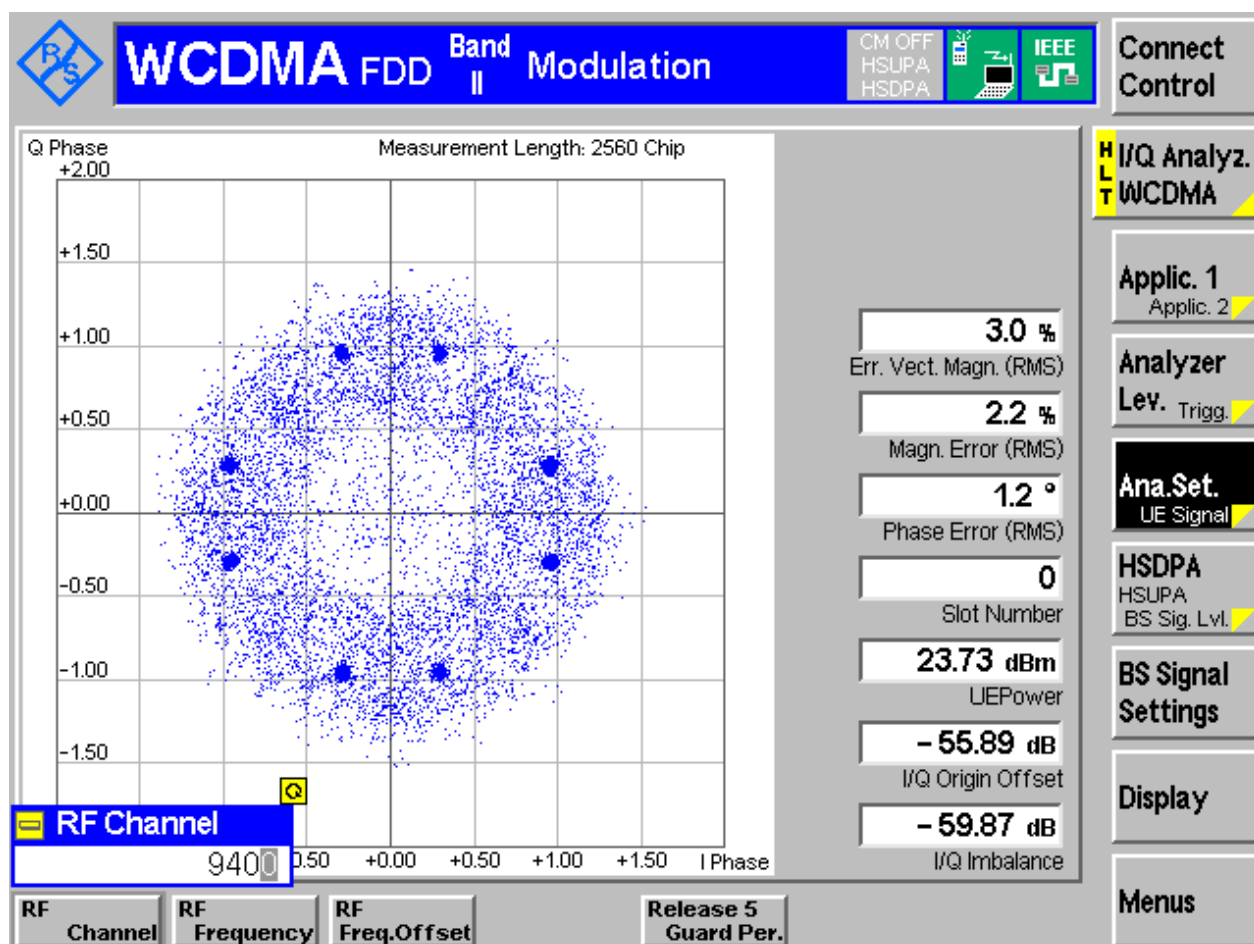
3.2.1.1.1 Test Channel = MCH



3.2.2 Test Band = WCDMA1900

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
WCDMA1900	UMTS/TM1	LCH	4.19	4.74	Pass
		MCH	4.18	4.74	Pass
		HCH	4.17	4.73	Pass
WCDMA1700	UMTS/TM1	LCH	4.16	4.72	Pass
		MCH	4.16	4.75	Pass
		HCH	4.17	4.74	Pass
WCDMA850	UMTS/TM1	LCH	4.18	4.75	Pass
		MCH	4.19	4.74	Pass
		HCH	4.19	4.77	Pass

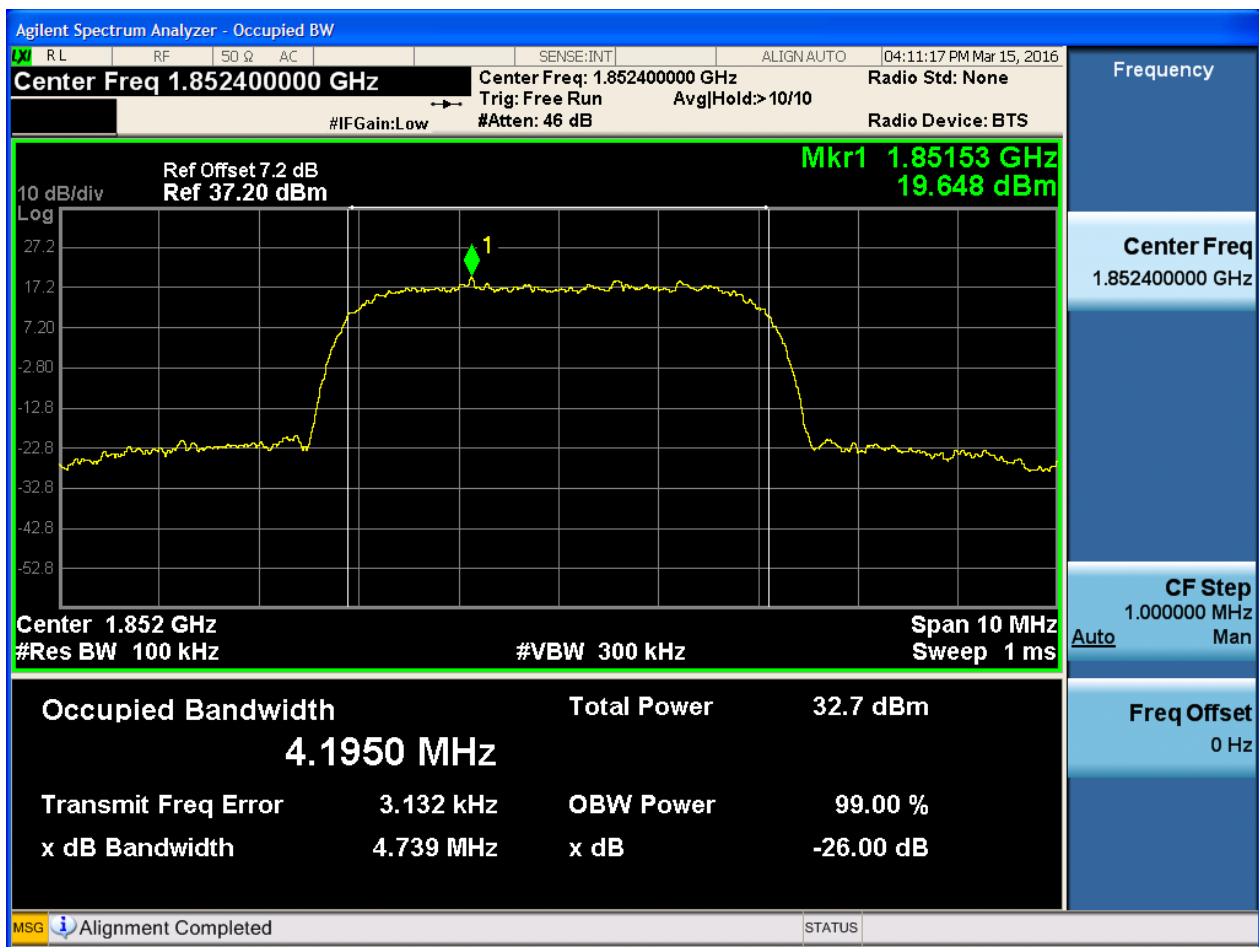
Part II - Test Plots

4.1 For UMTS

4.1.1 Test Band = WCDMA1900

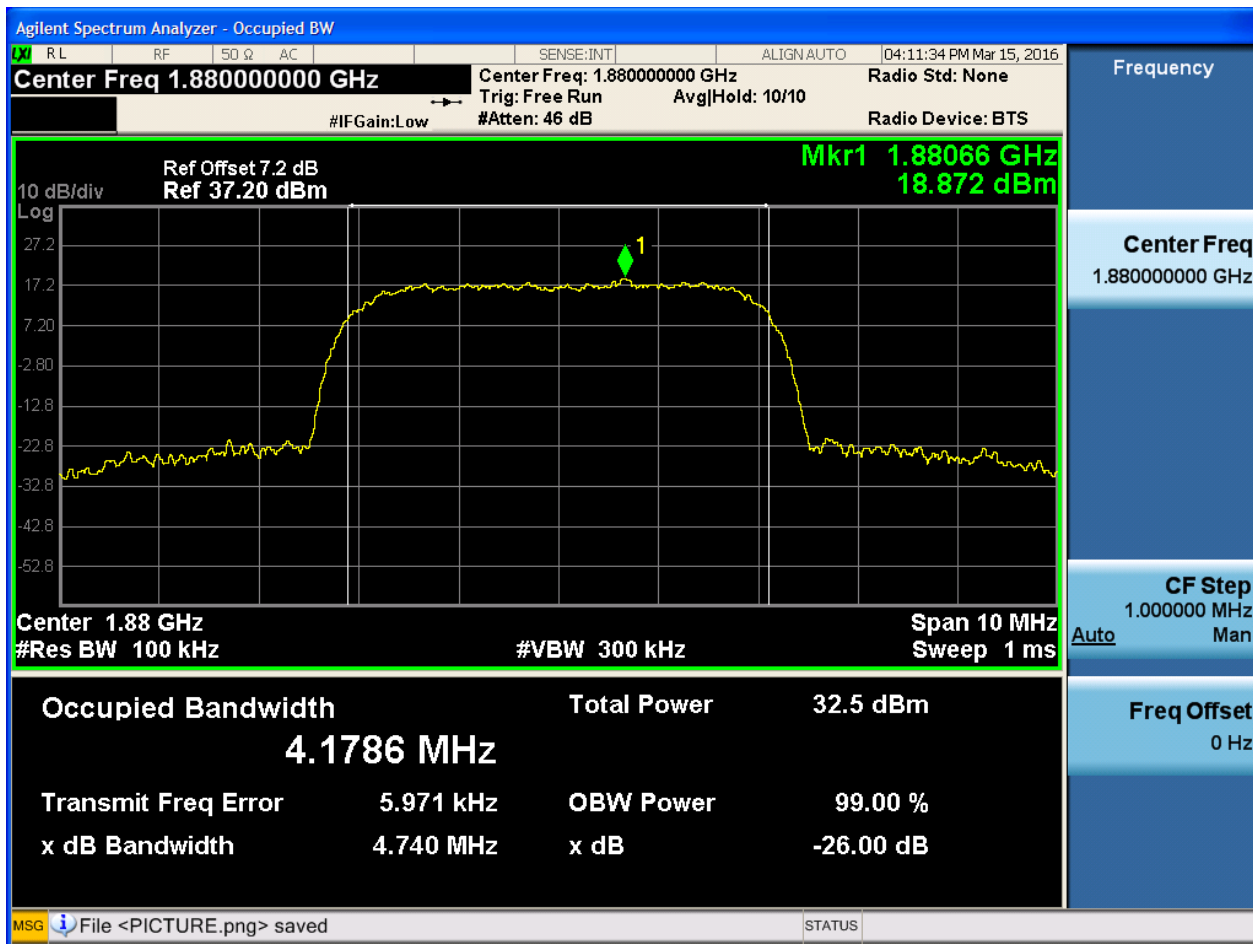
4.1.1.1 Test Mode = UMTS/TM1

4.1.1.1.1 Test Channel = LCH



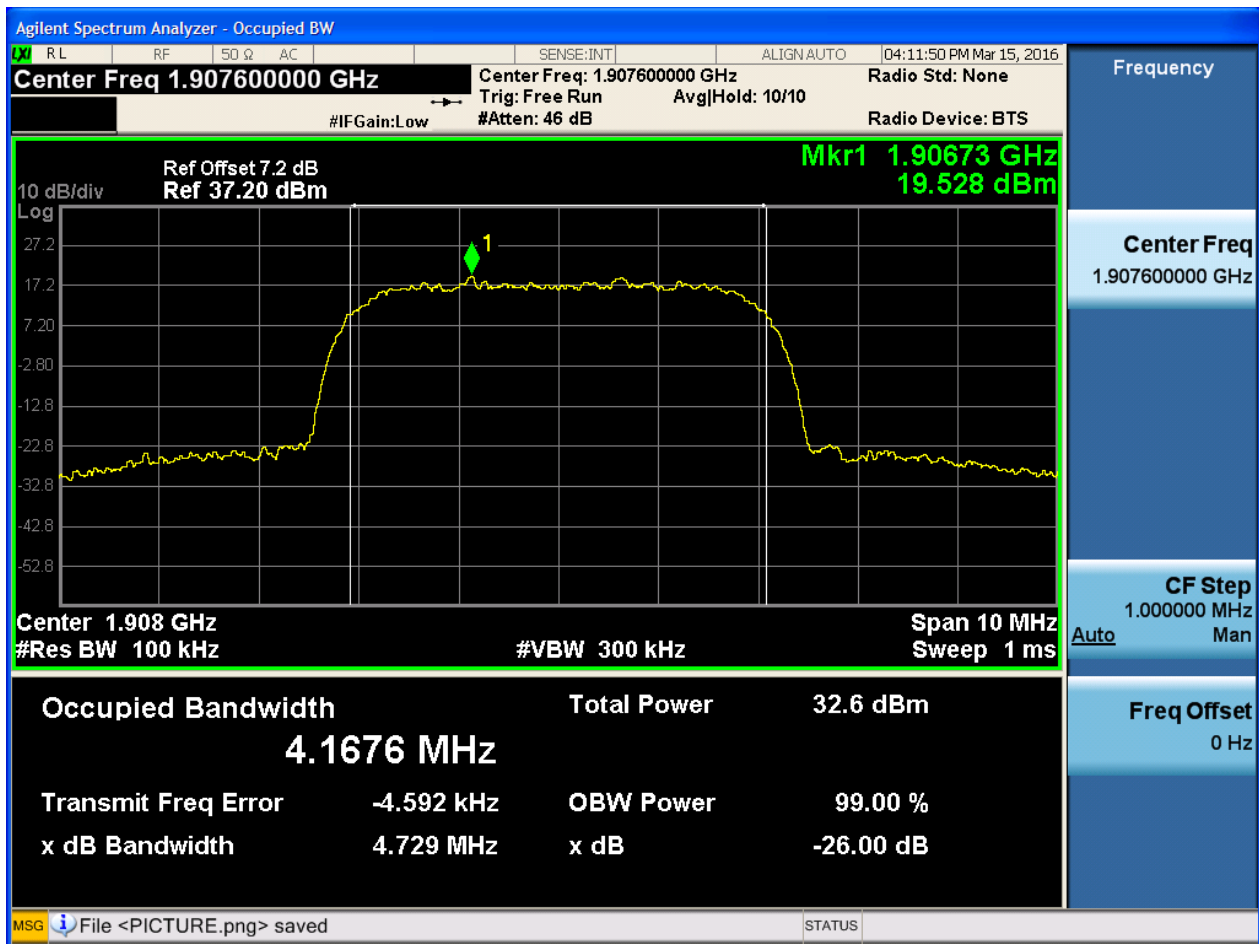


4.1.1.1.2 Test Channel = MCH





4.1.1.1.3 Test Channel = HCH

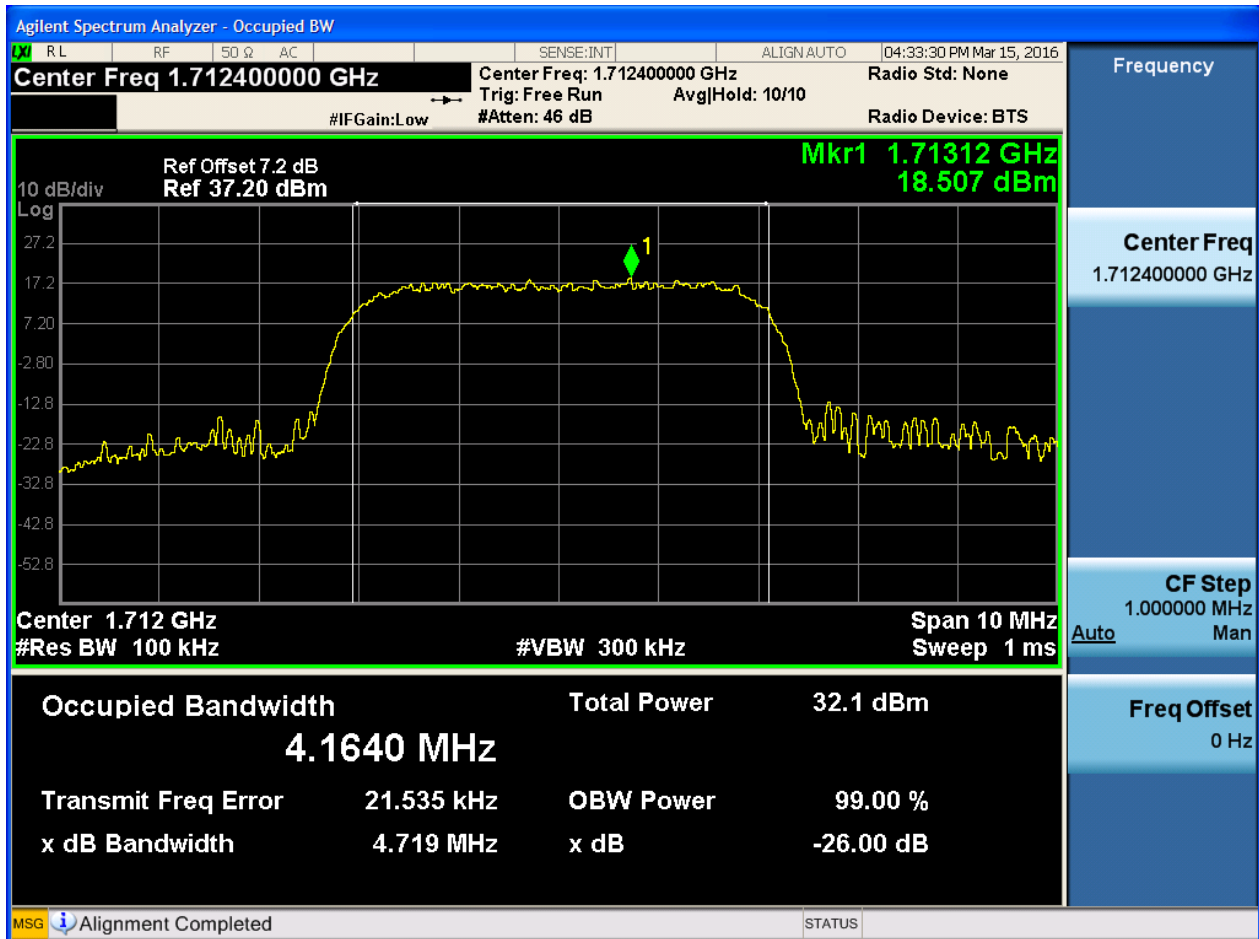




4.2.2 Test Band = WCDMA1700

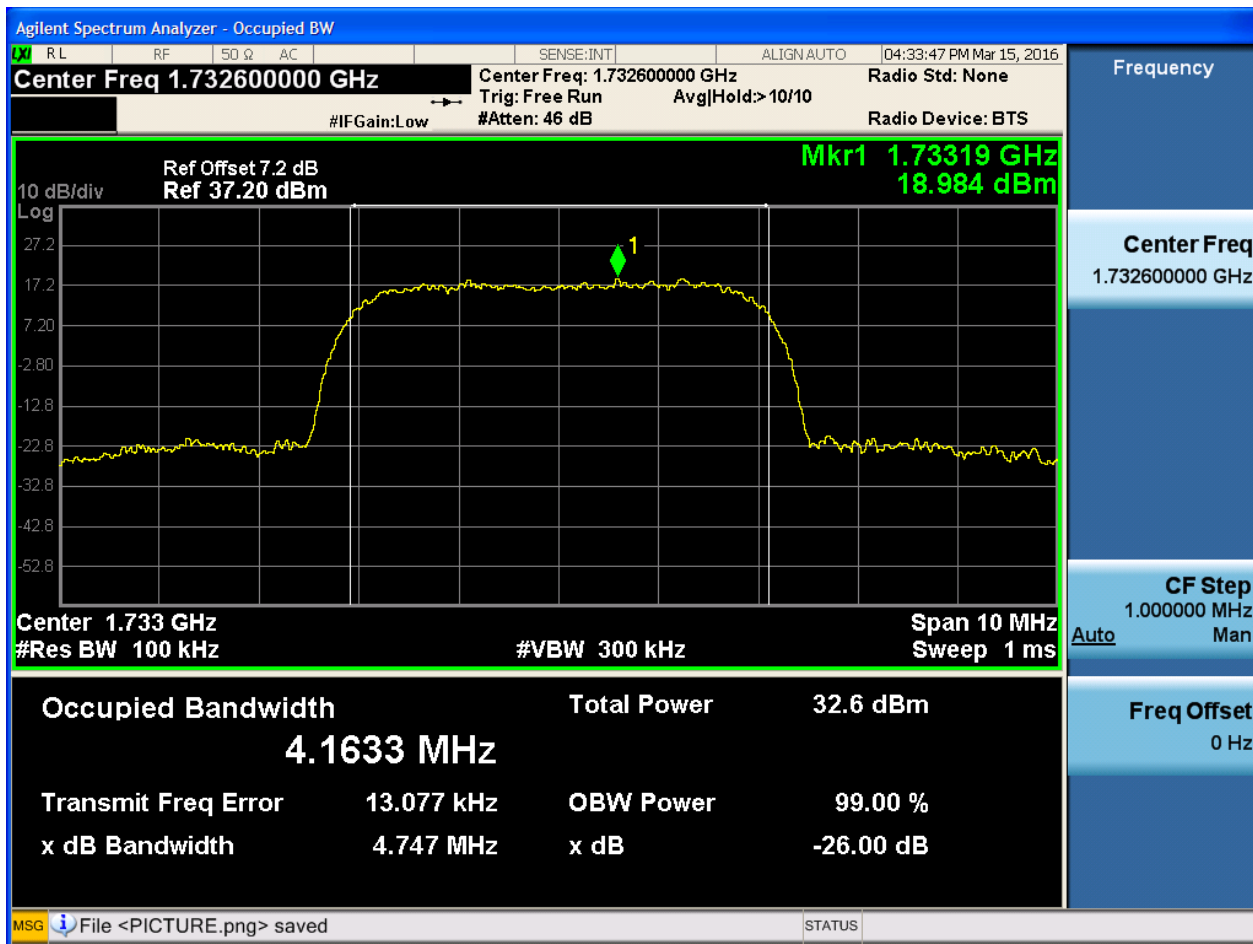
4.2.2.1 Test Mode = UMTS/TM1

4.2.2.1.1 Test Channel = LCH



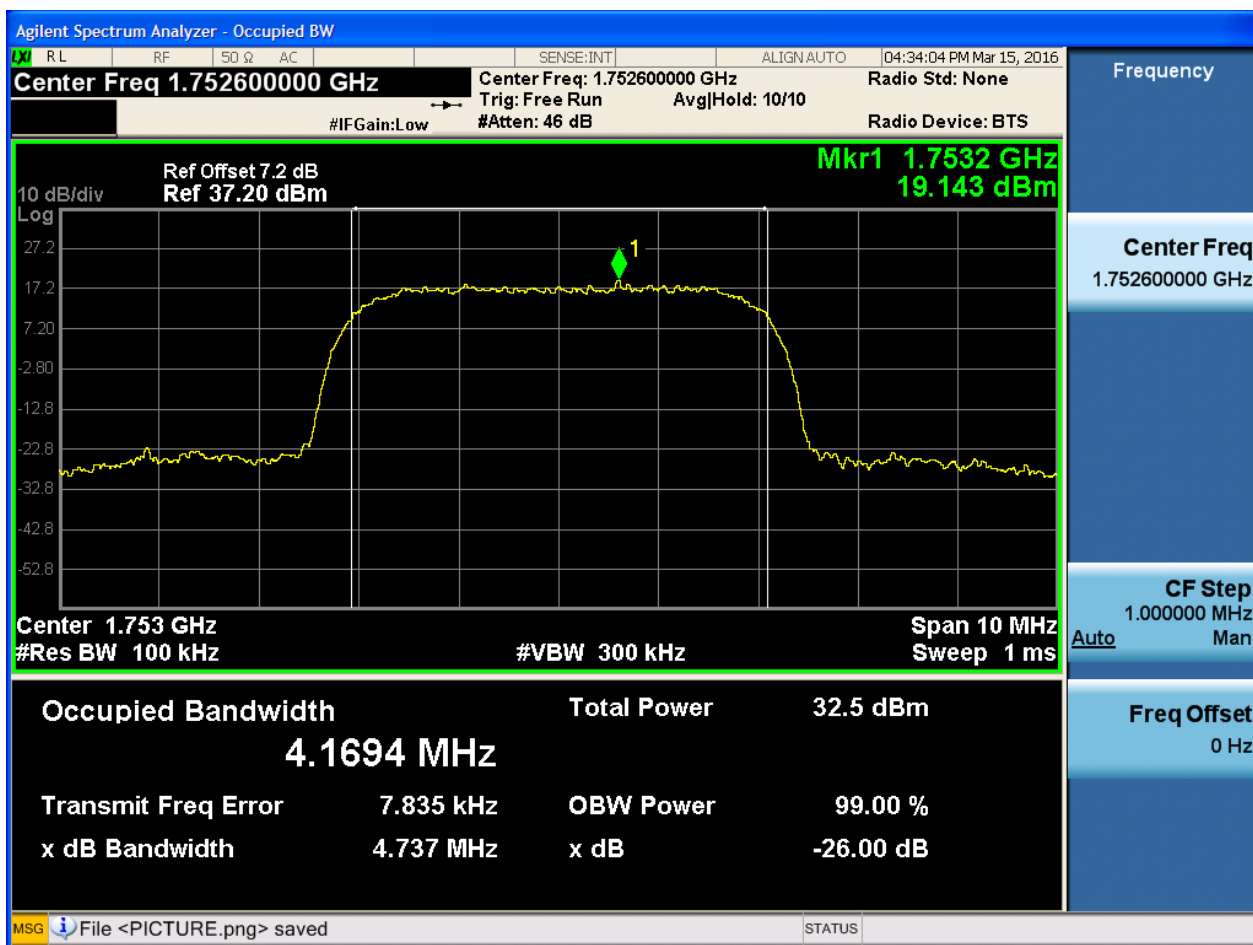


4.2.2.1.2 Test Channel = MCH





4.2.2.1.3 Test Channel = HCH

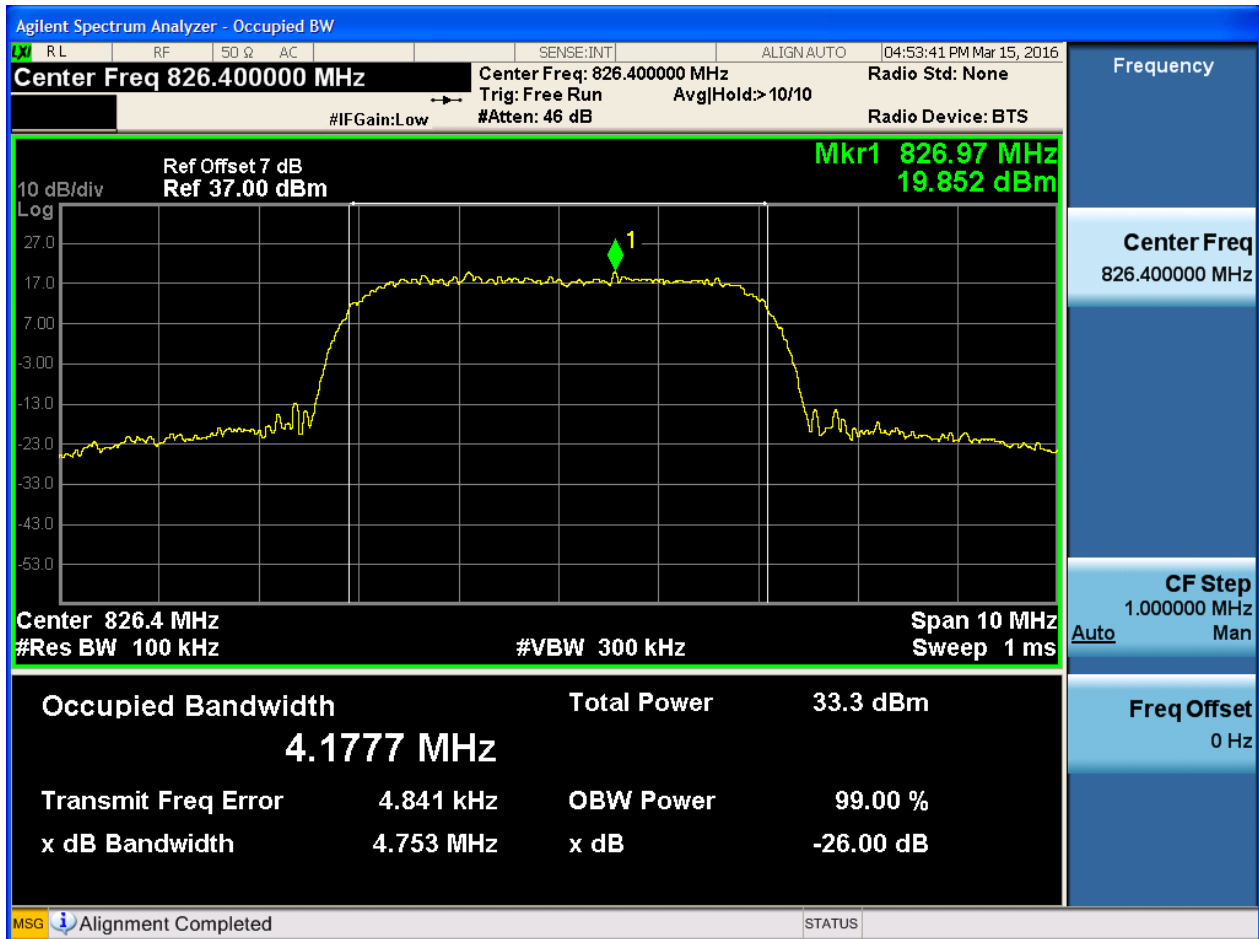




4.2.4 Test Band = WCDMA850

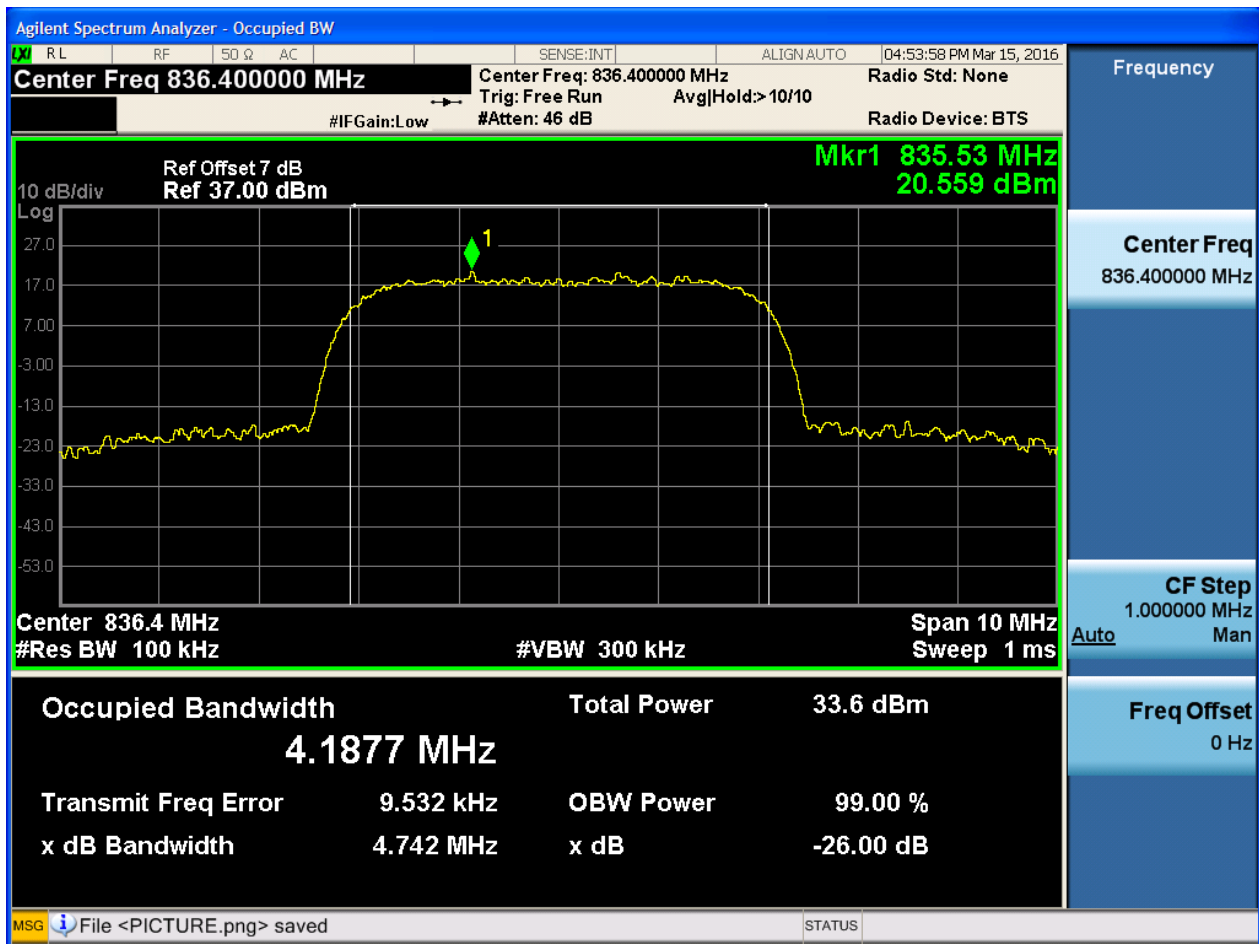
4.2.4.1 Test Mode = UMTS/TM1

4.2.4.1.1 Test Channel = LCH



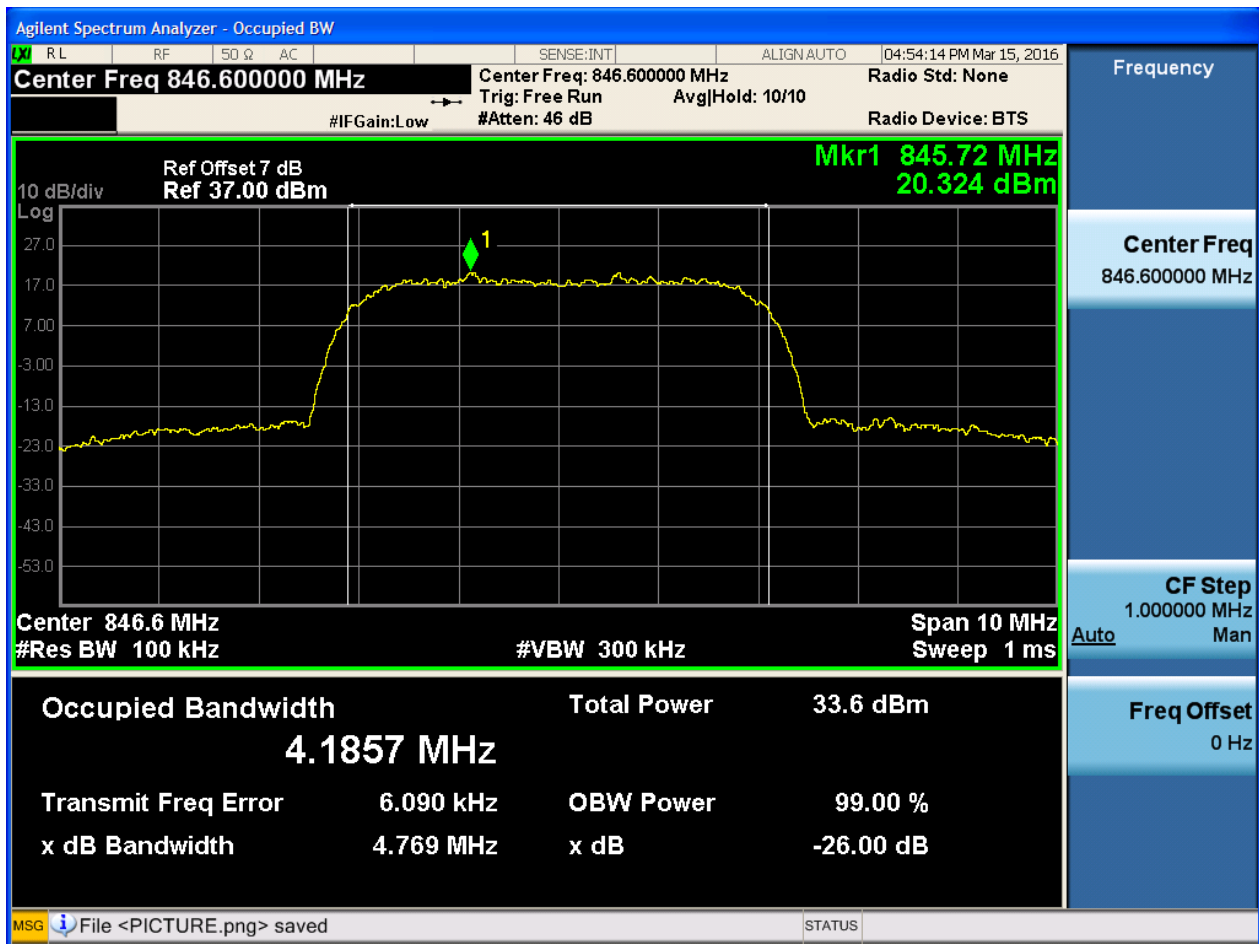


4.2.4.1.2 Test Channel = MCH





4.2.4.1.3 Test Channel = HCH



5Appendix_E: Band Edges Compliance

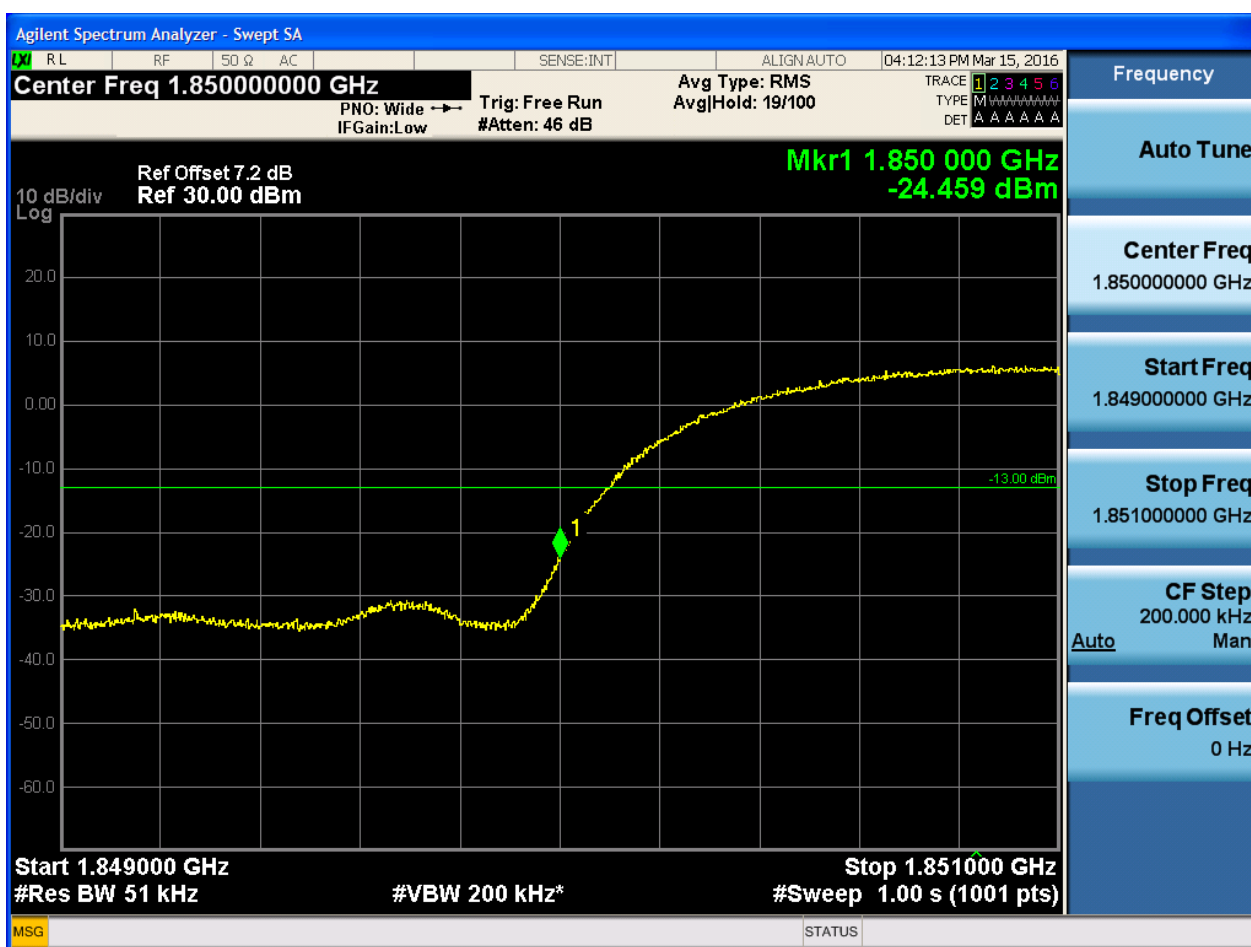
Part I - Test Plots

5.1 For UMTS

5.1.1 Test Band = WCDMA1900

5.1.1.1 Test Mode = UMTS/TM1

5.1.1.1.1 Test Channel = LCH



5.1.1.1.2 Test Channel = HCH

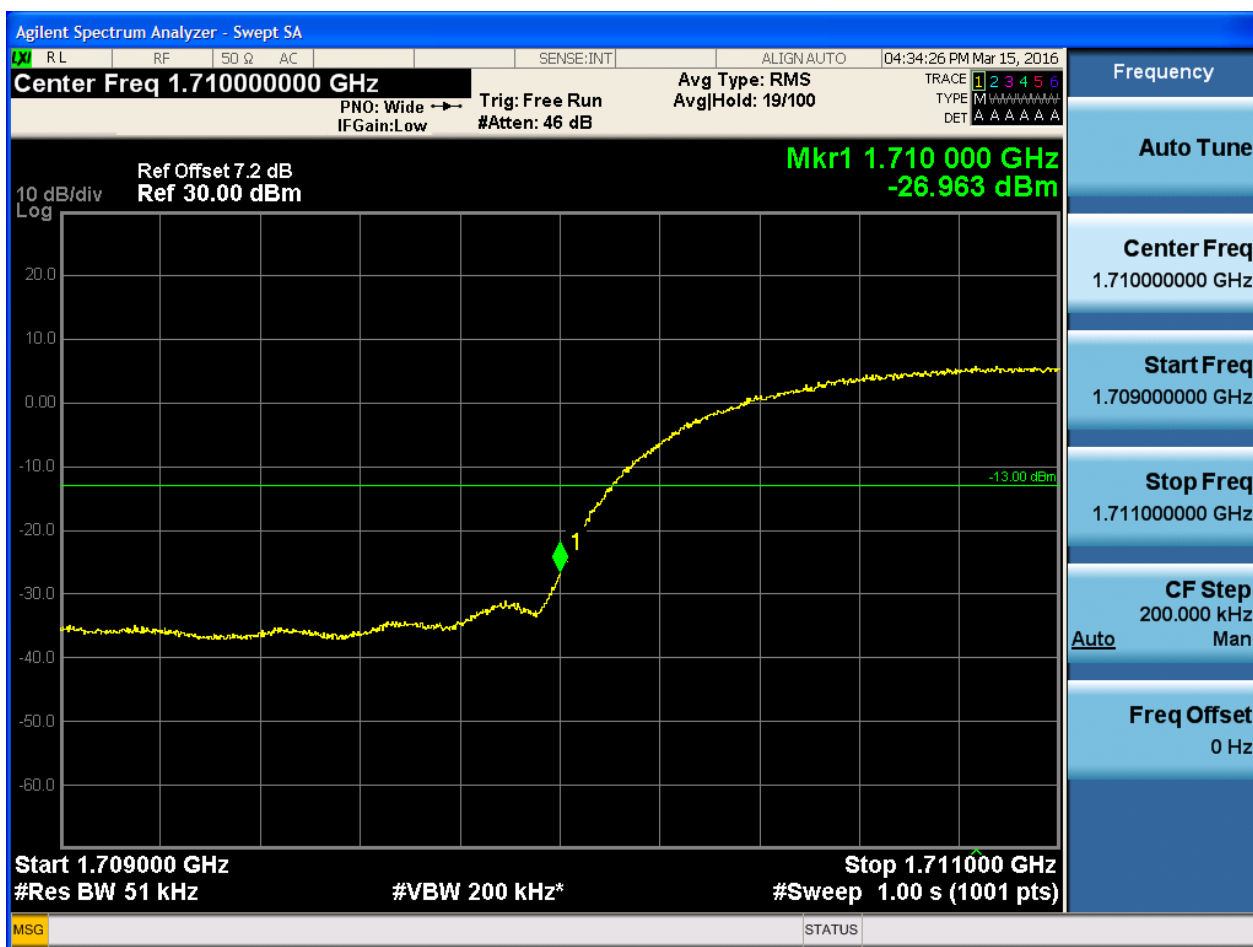




5.2.2 Test Band = WCDMA1700

5.2.2.1 Test Mode = UMTS/TM1

5.2.2.1.1 Test Channel = LCH



5.2.2.1.2 Test Channel = HCH





5.2.4 Test Band = WCDMA850

5.2.4.1 Test Mode = UMTS/TM1

5.2.4.1.1 Test Channel = LCH



5.2.4.1.2 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

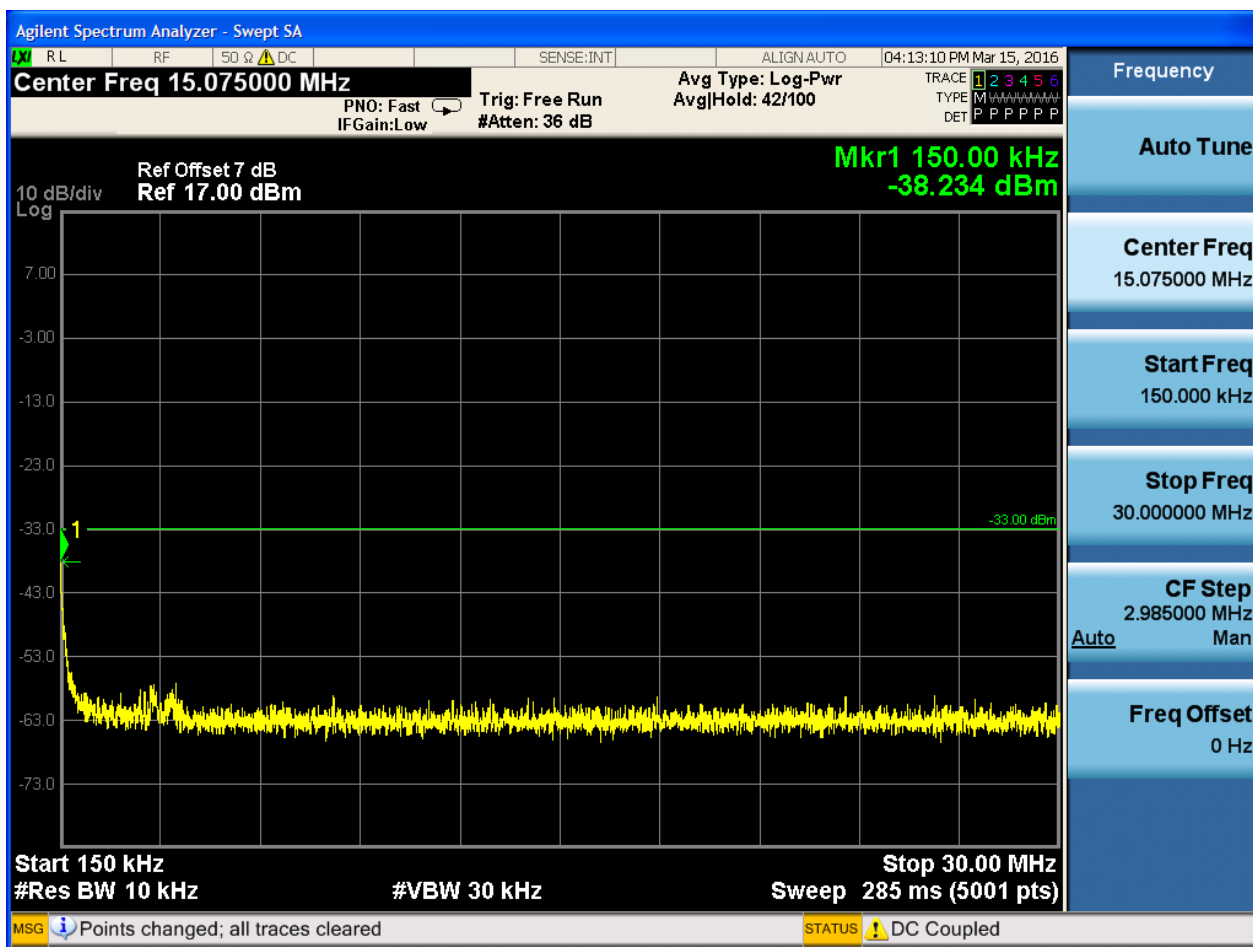
6.1 For UMTS

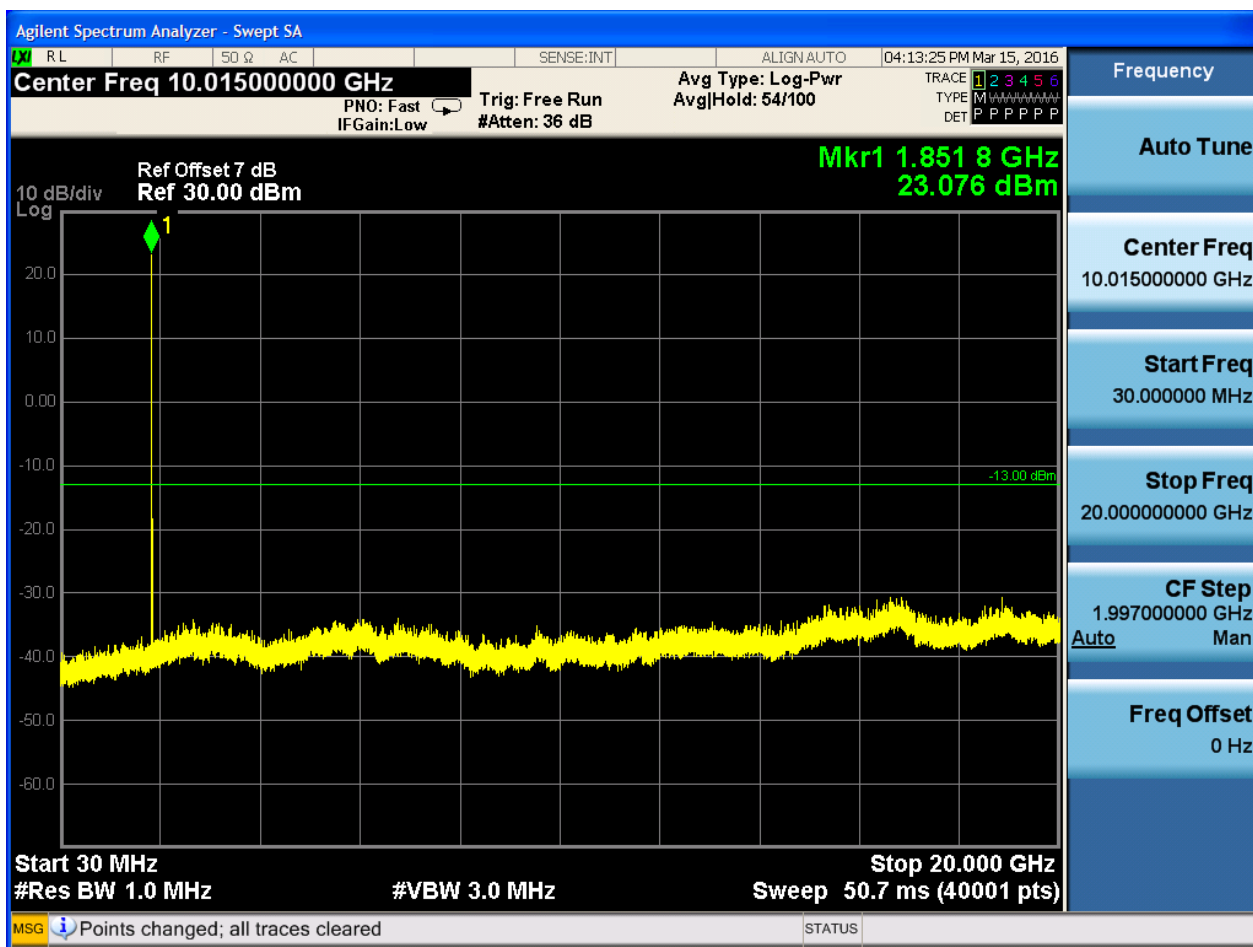
6.1.1 Test Band = WCDMA1900

6.1.1.1 Test Mode = UMTS/TM1

6.1.1.1.1 Test Channel = LCH

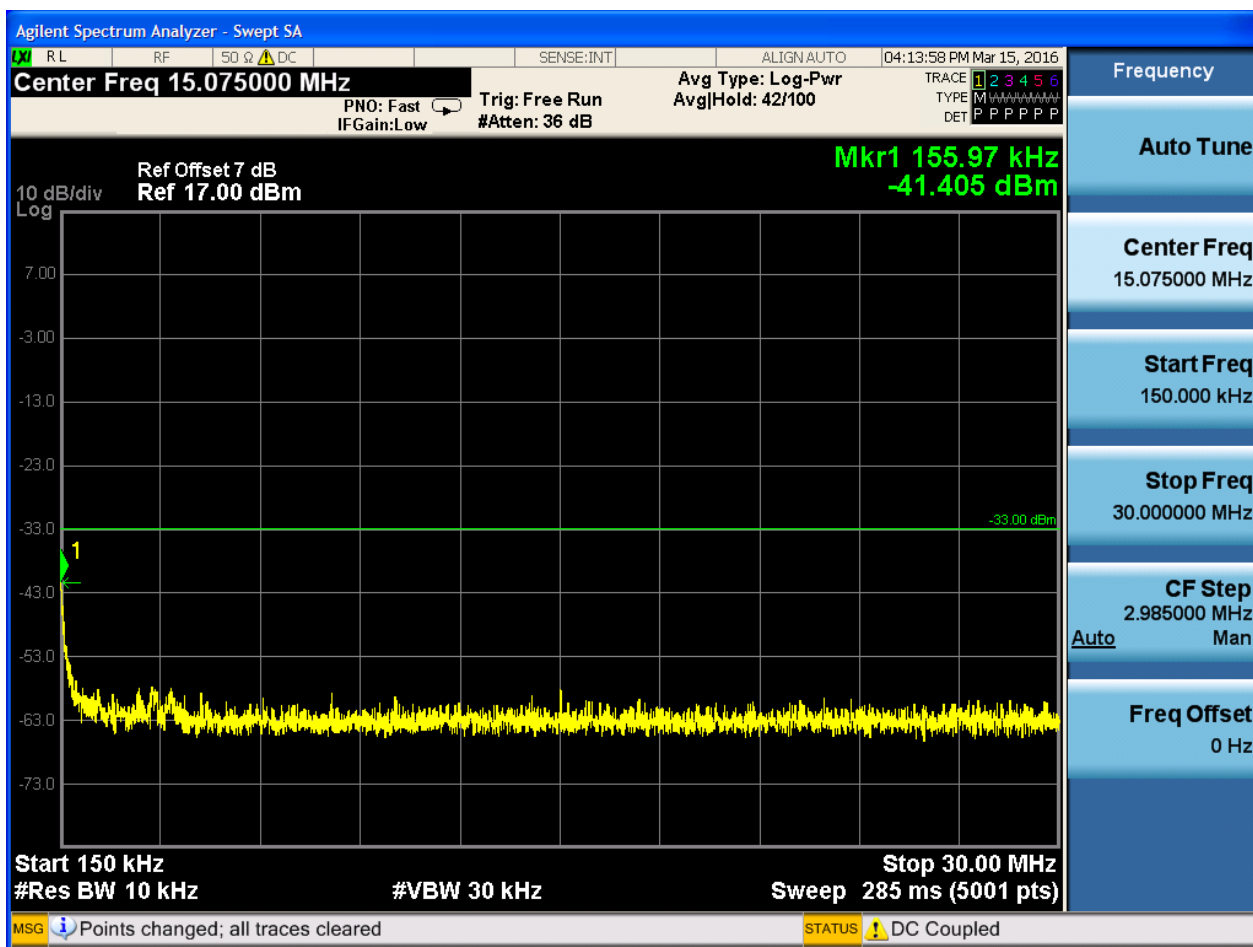


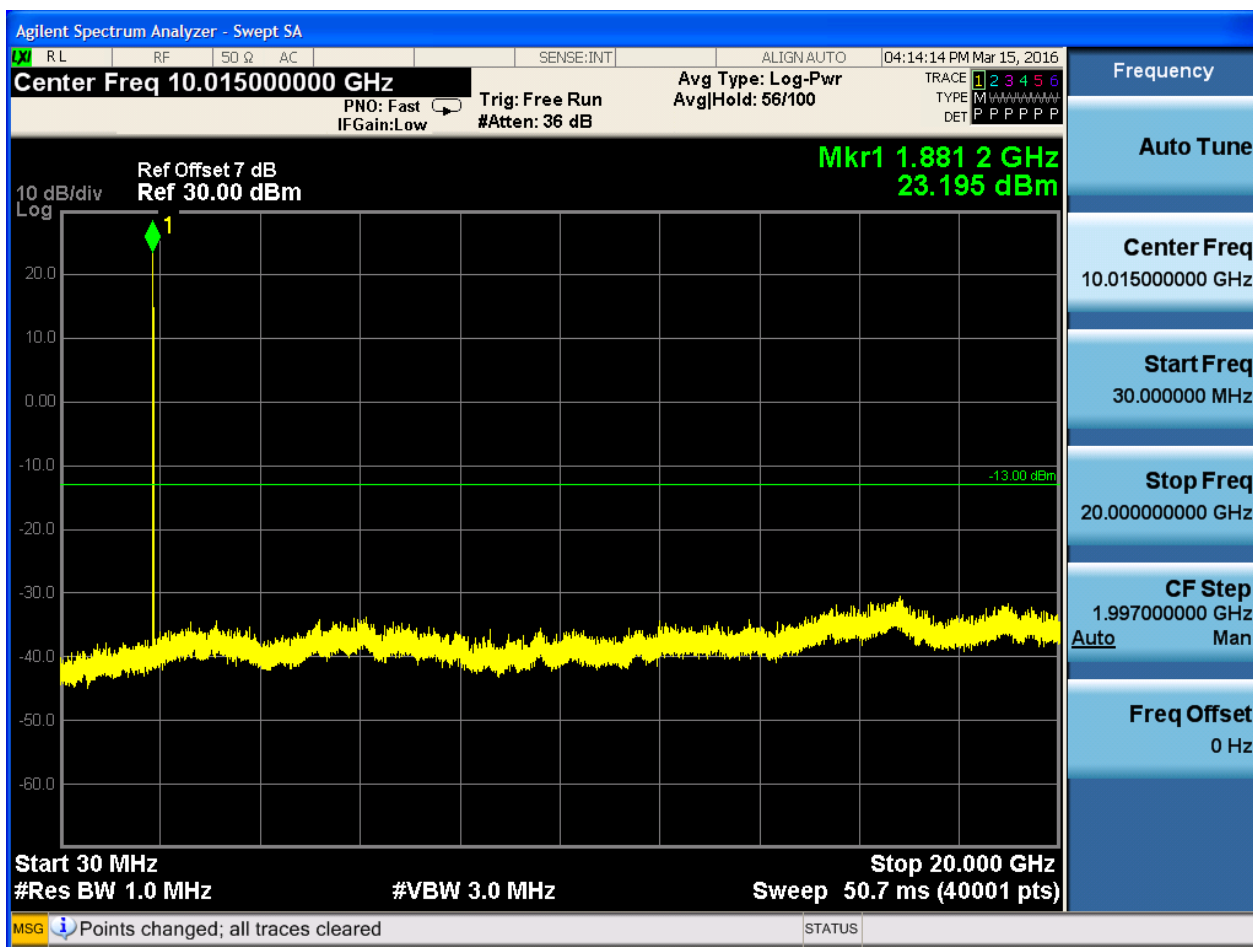




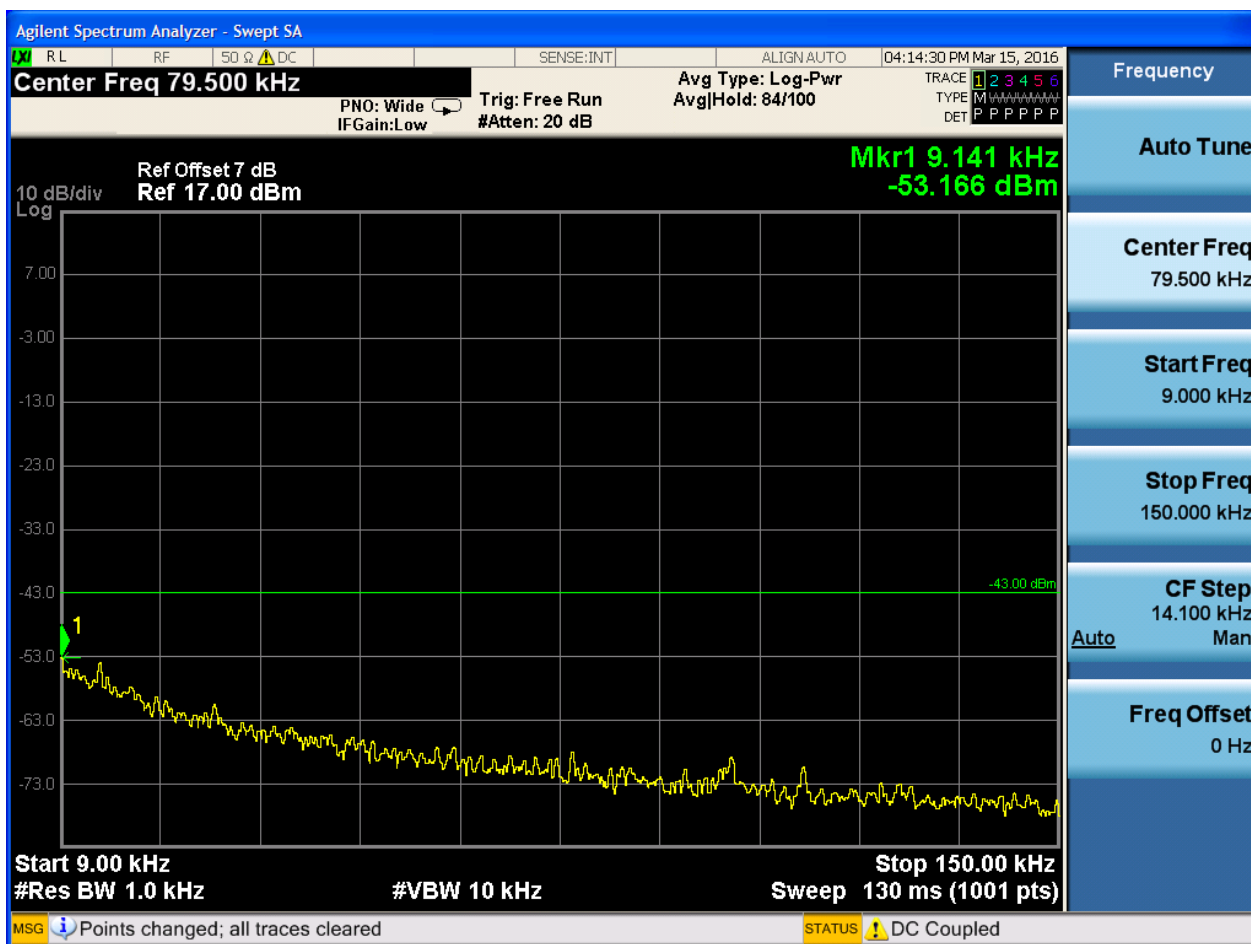
6.1.1.1.2 Test Channel = MCH

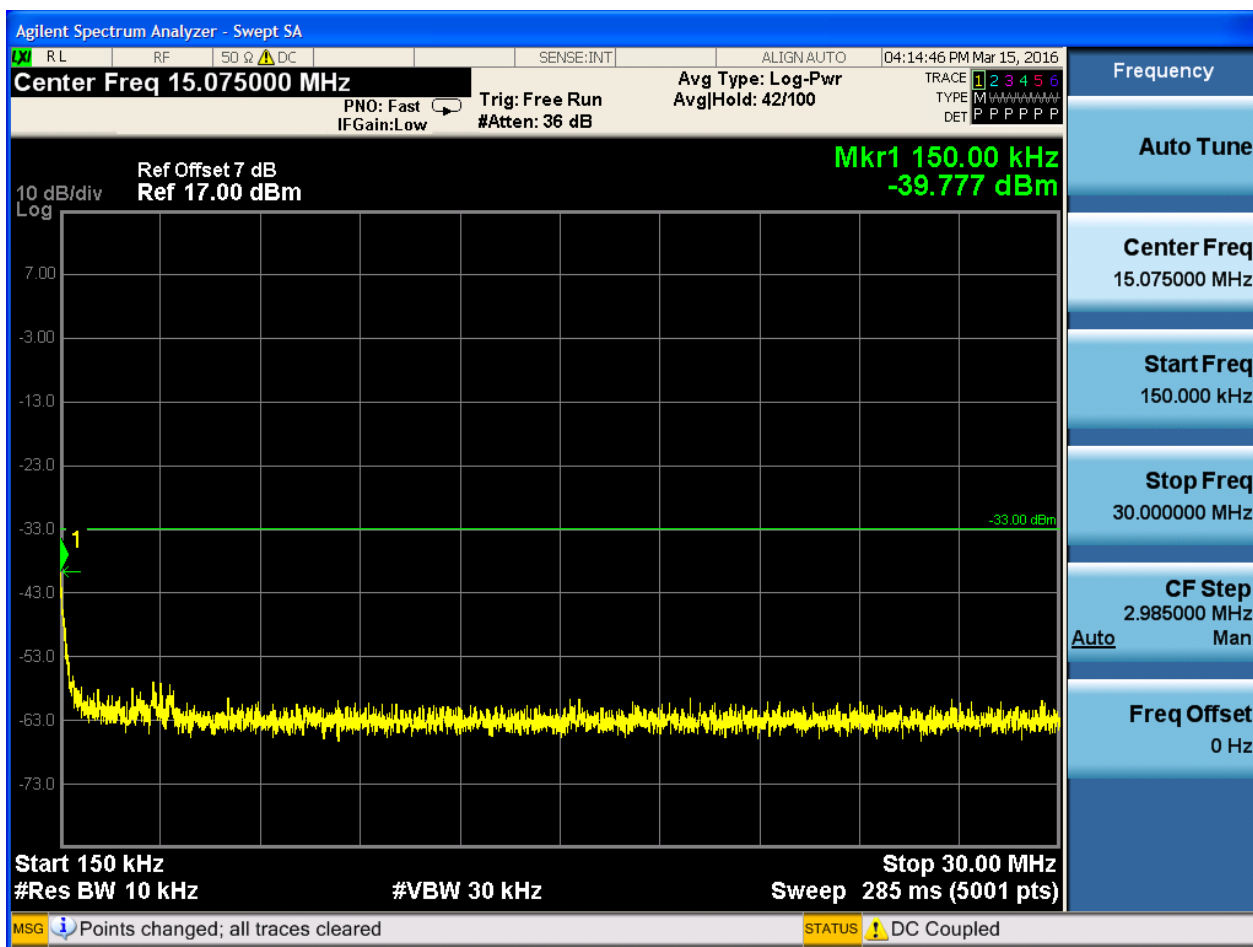


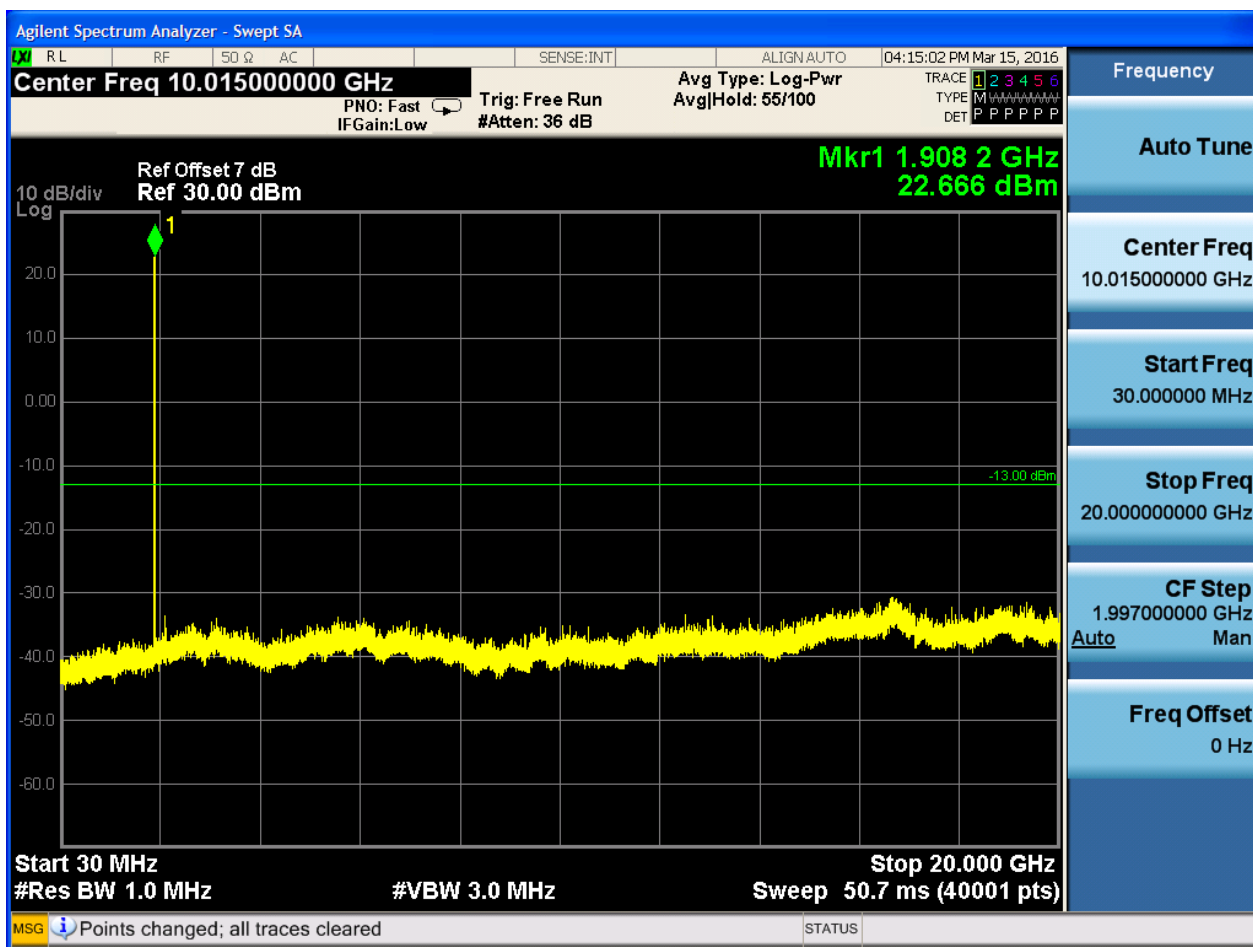




6.1.1.1.3 Test Channel = HCH





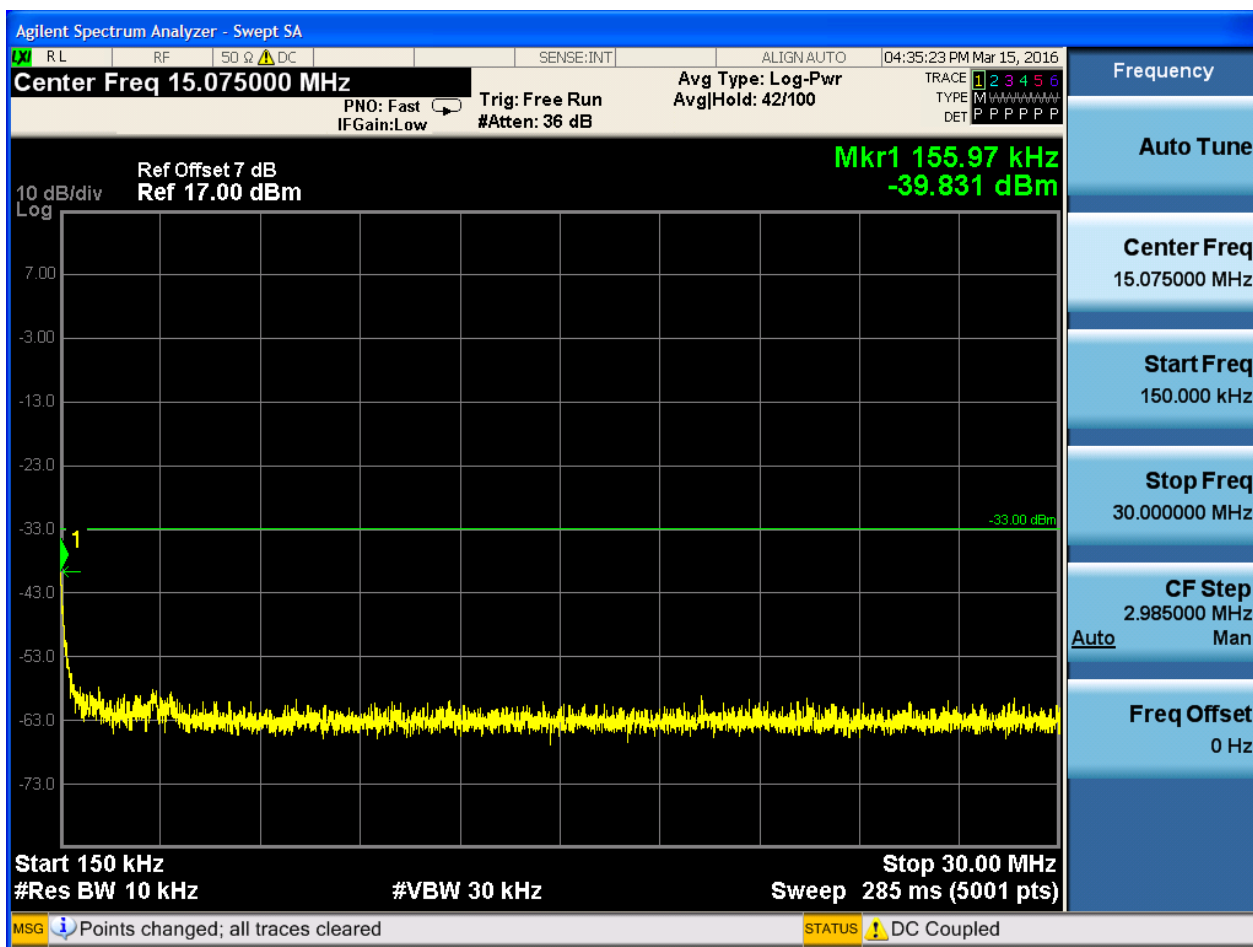


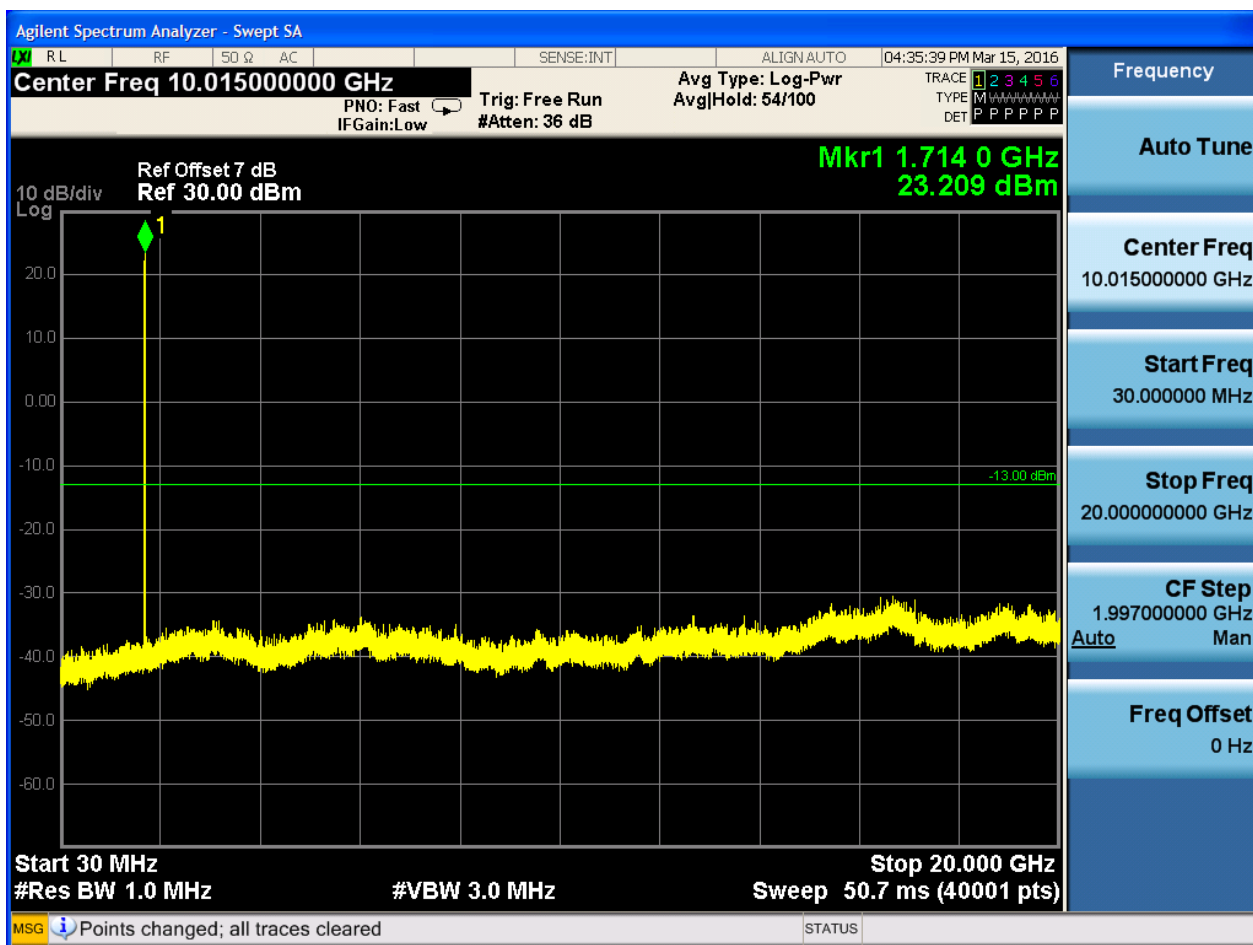
6.2.2 Test Band = WCDMA1700

6.2.2.1 Test Mode = UMTS/TM1

6.2.2.1.1 Test Channel = LCH

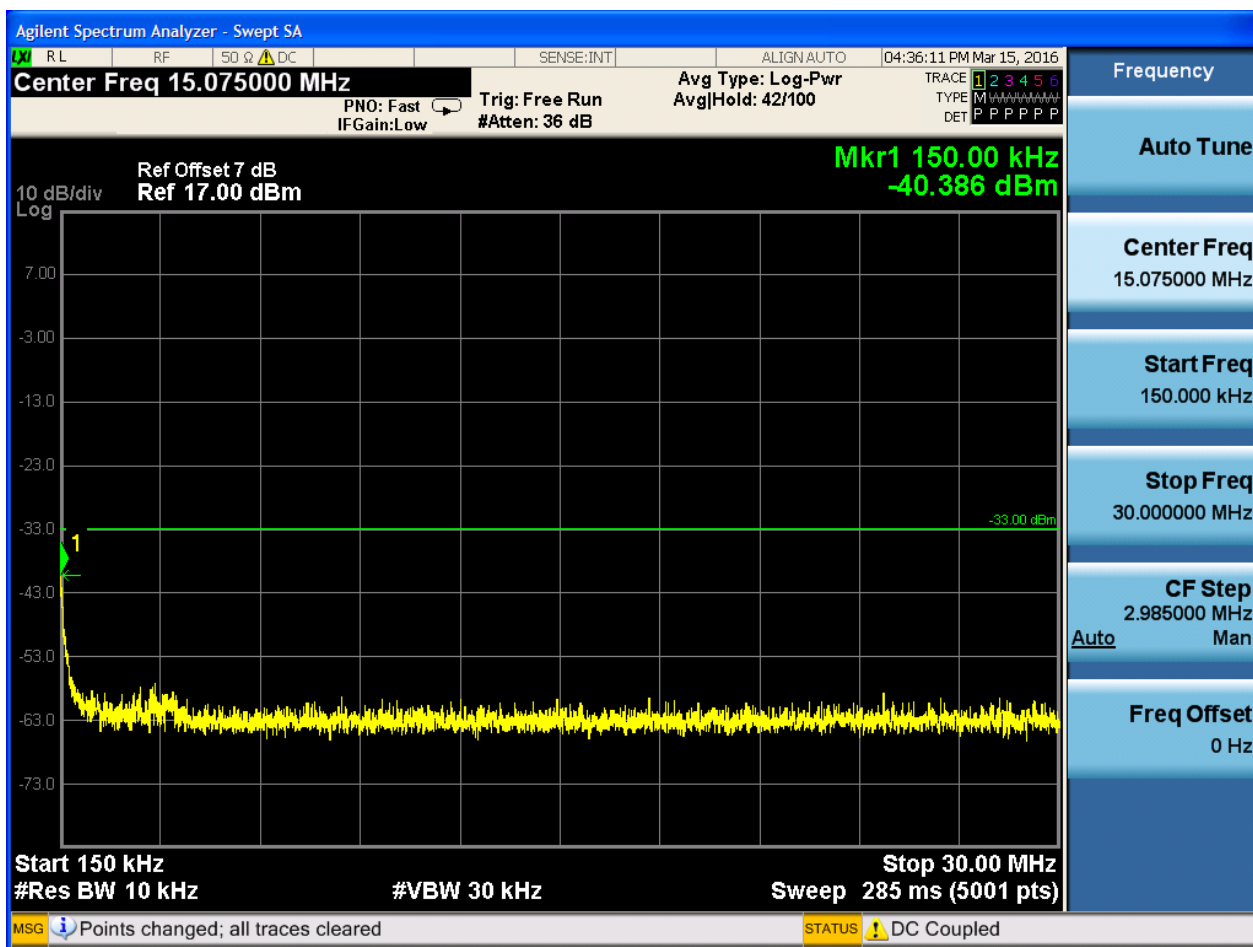


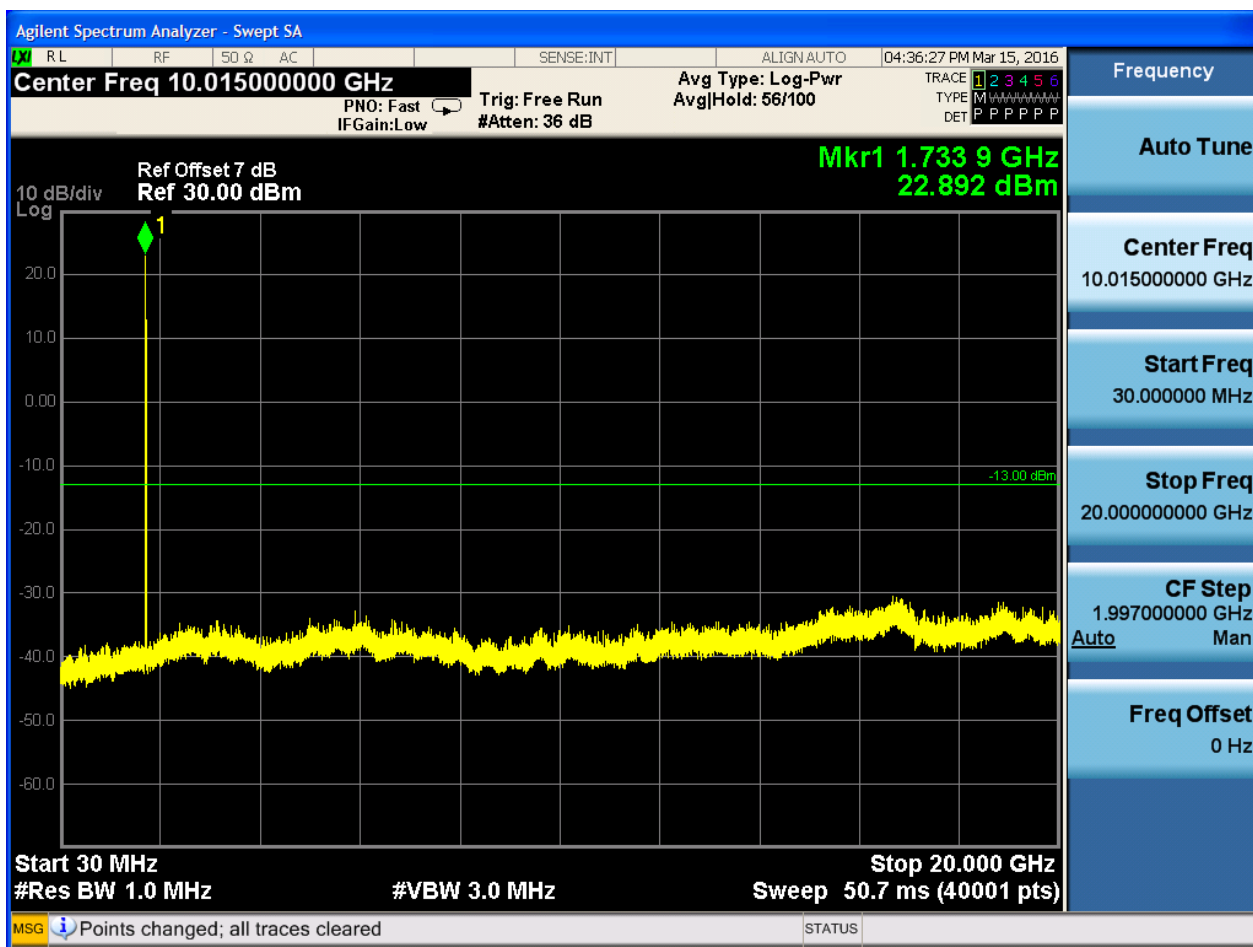




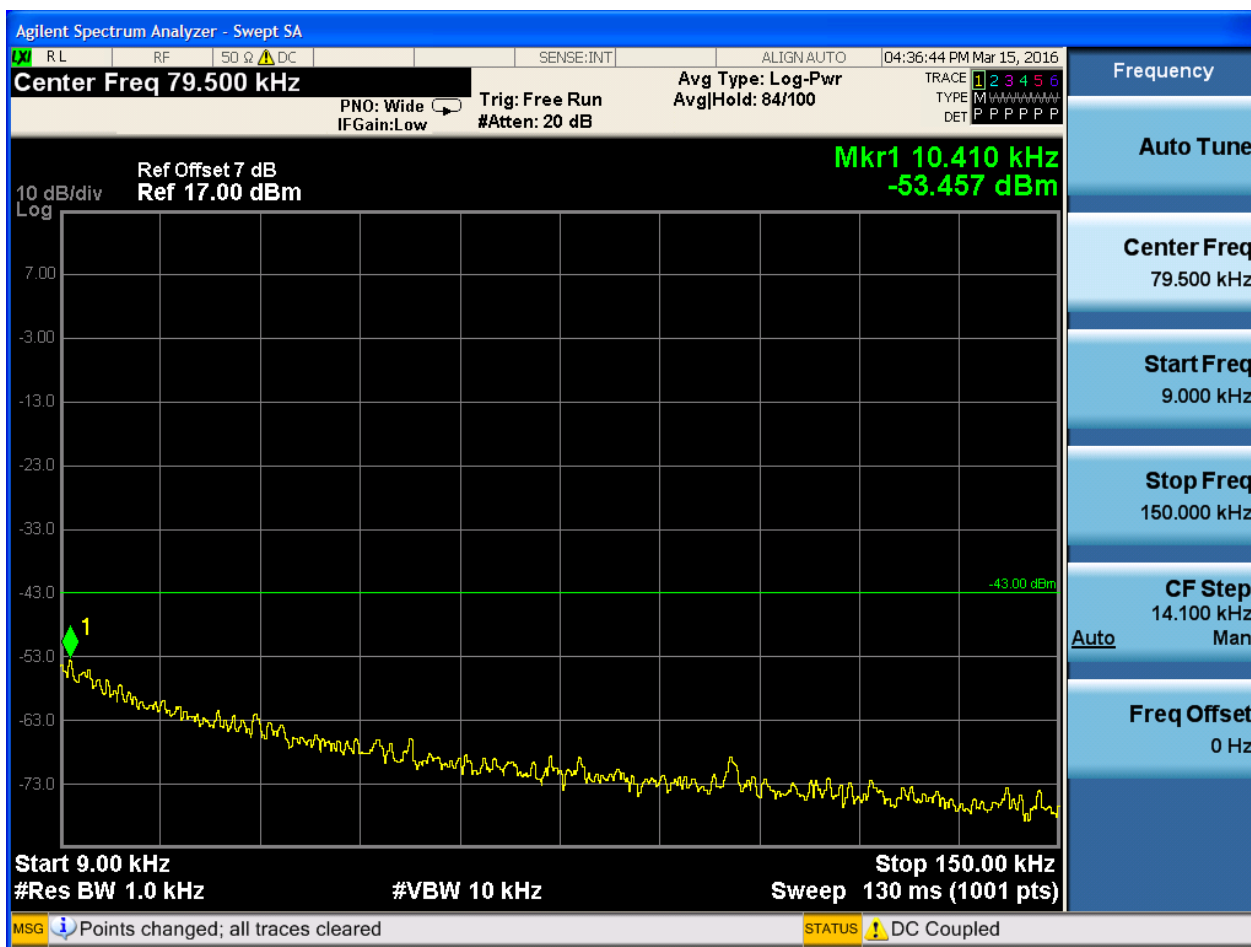
6.2.2.1.2 Test Channel = MCH

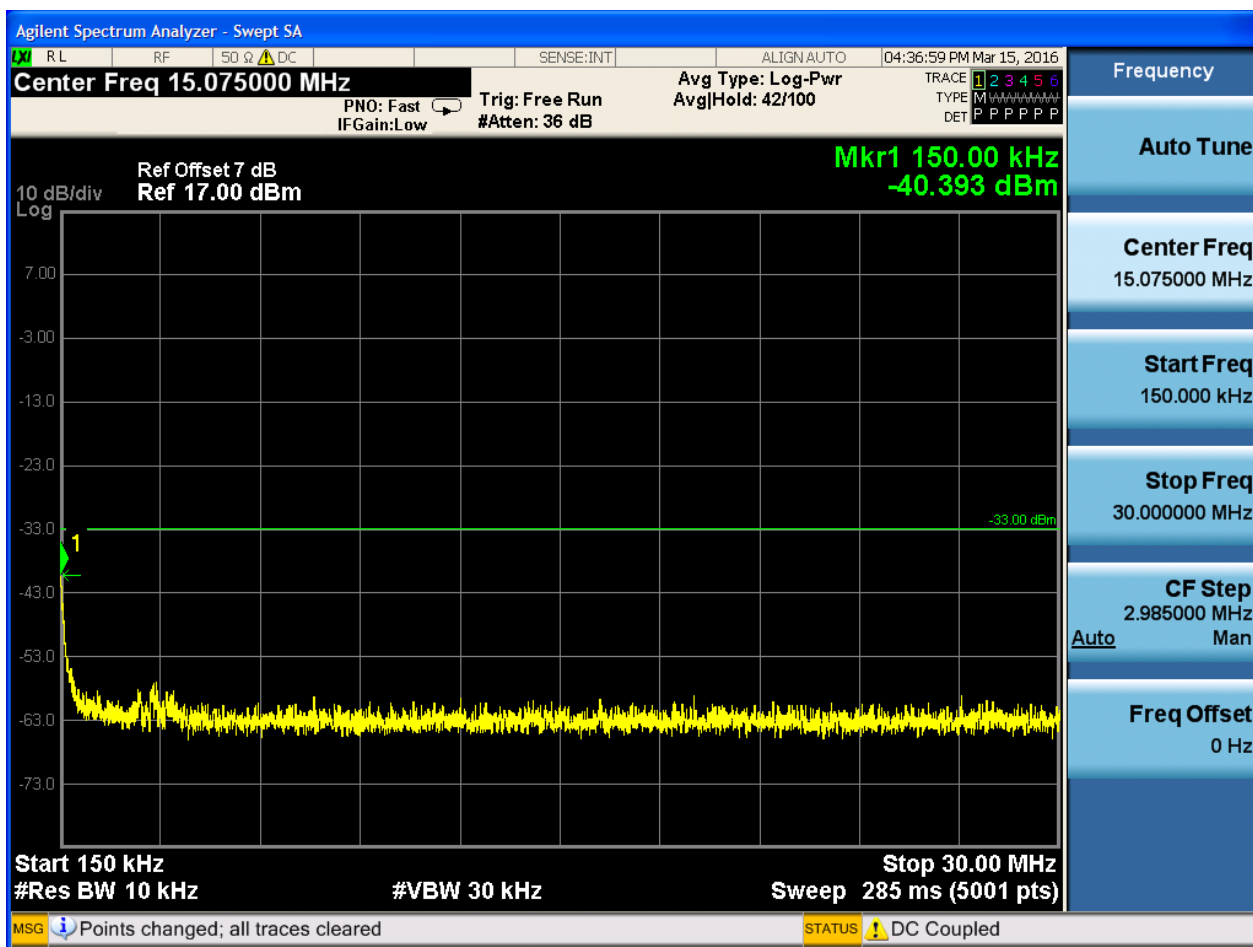


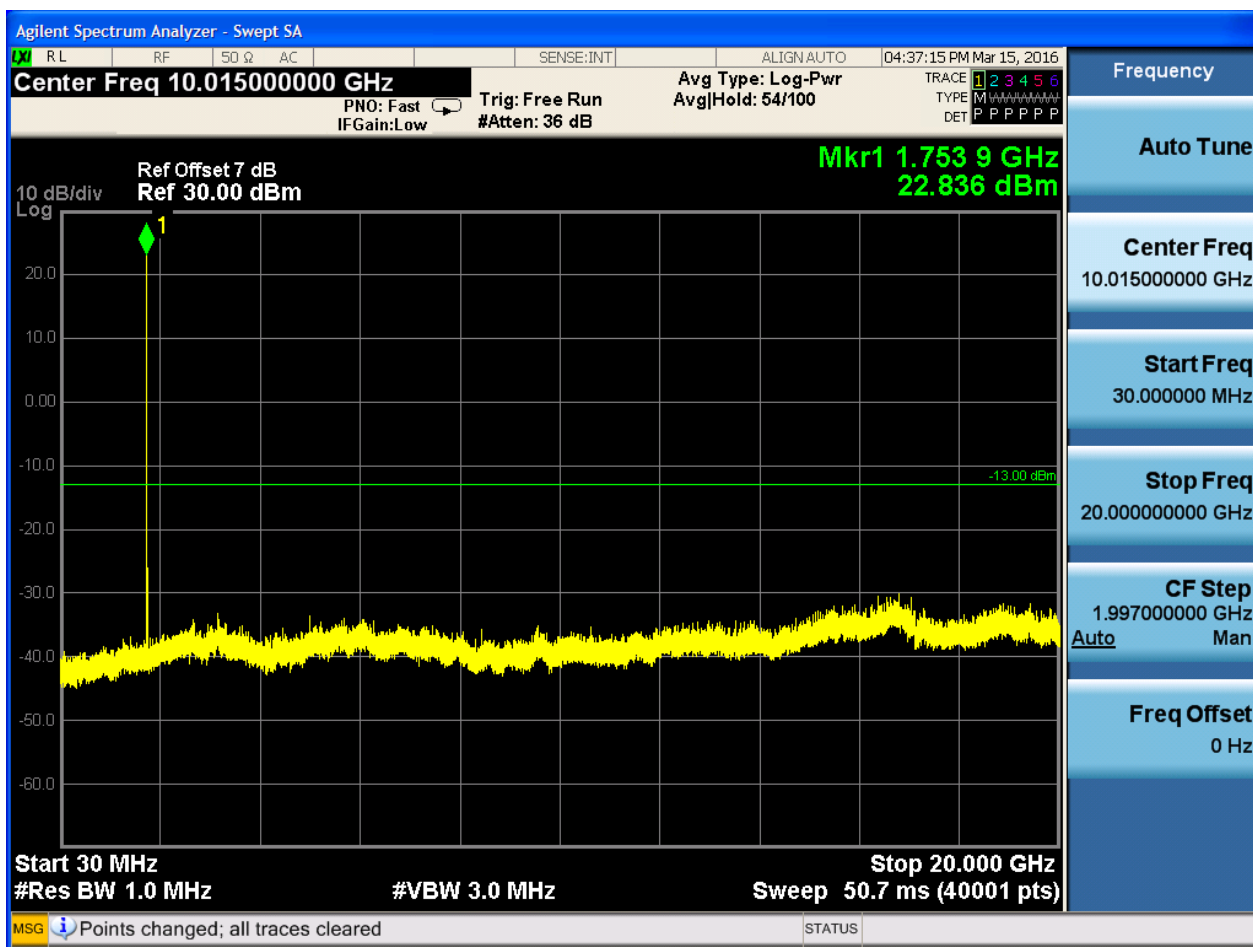




6.2.2.1.3 Test Channel = HCH



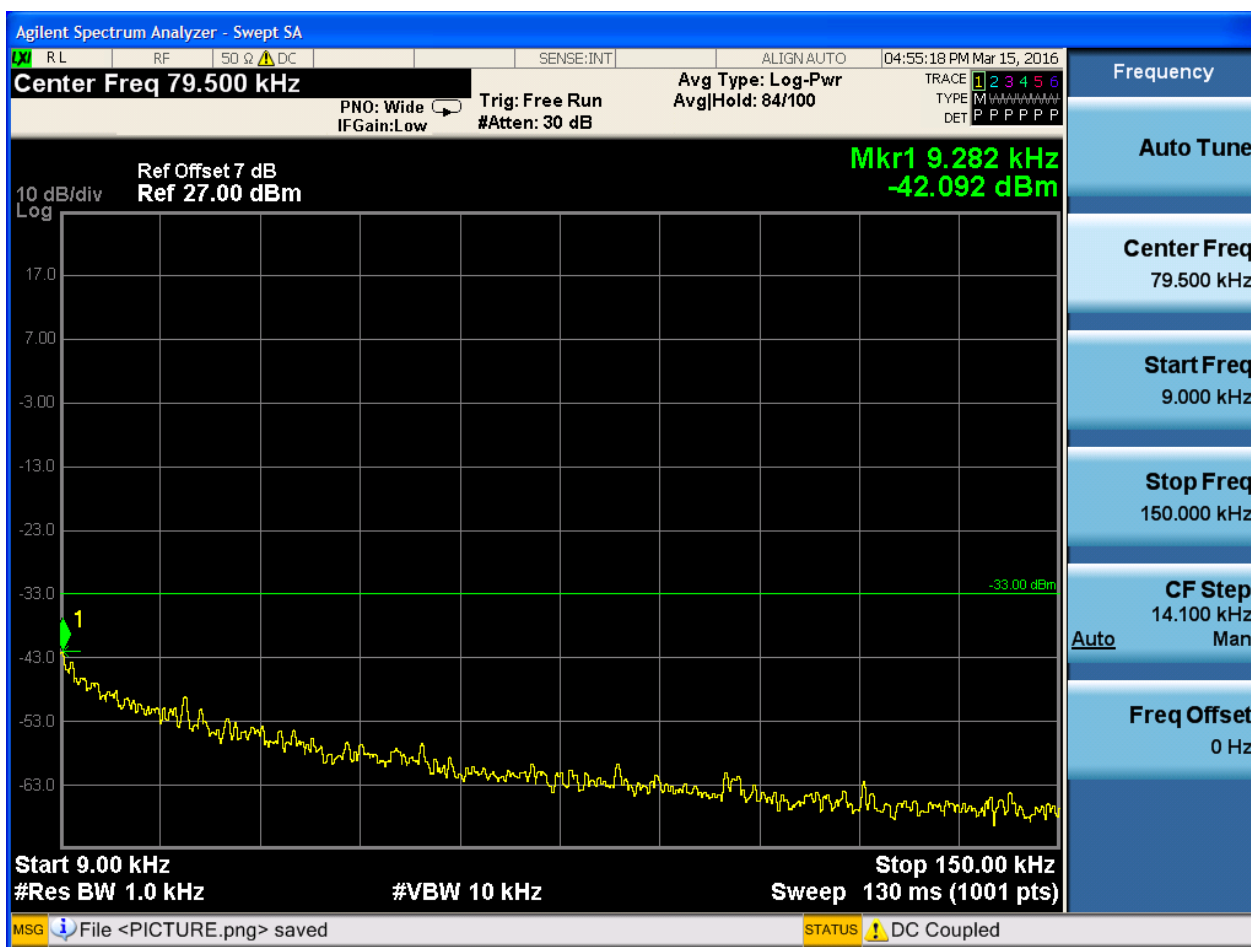


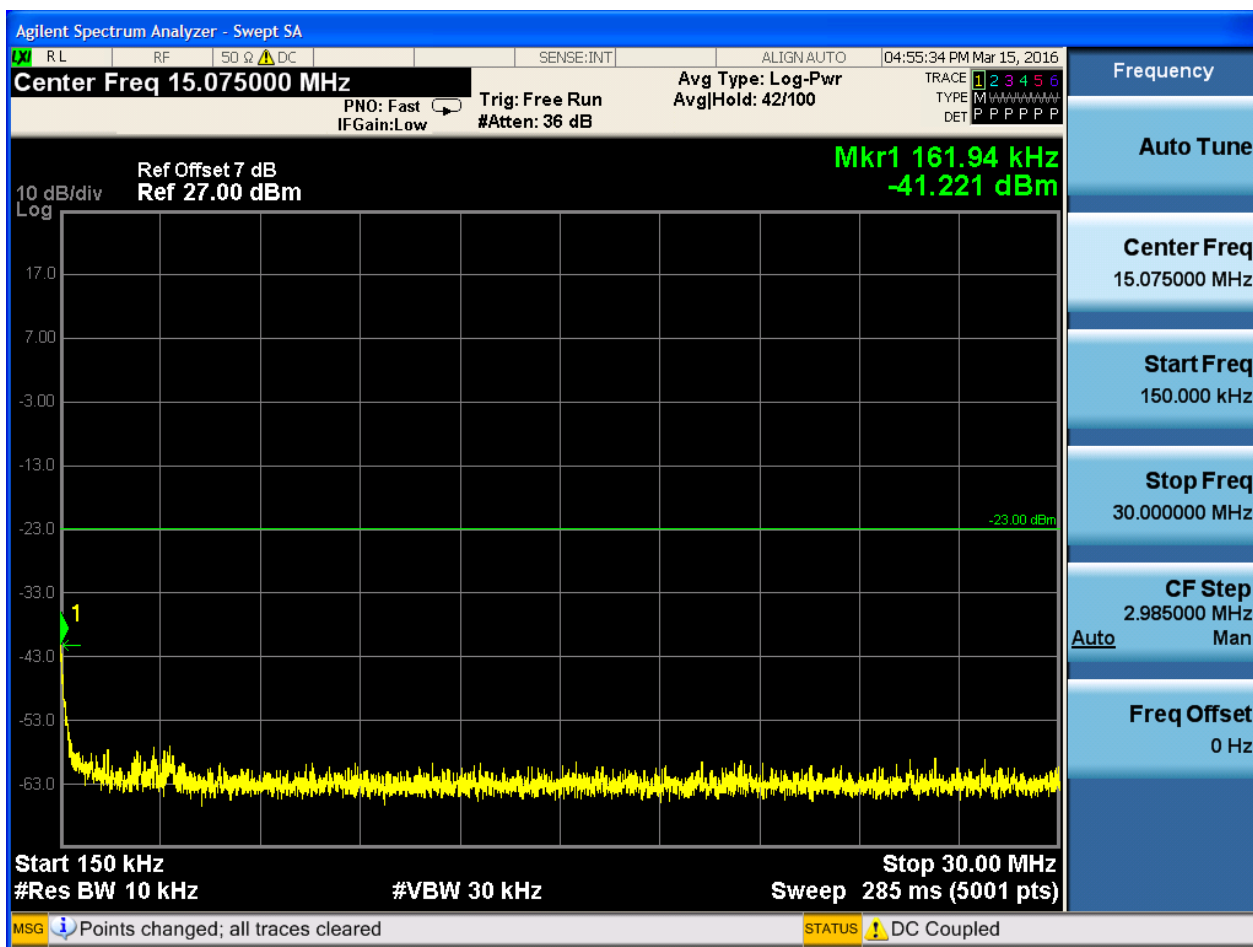


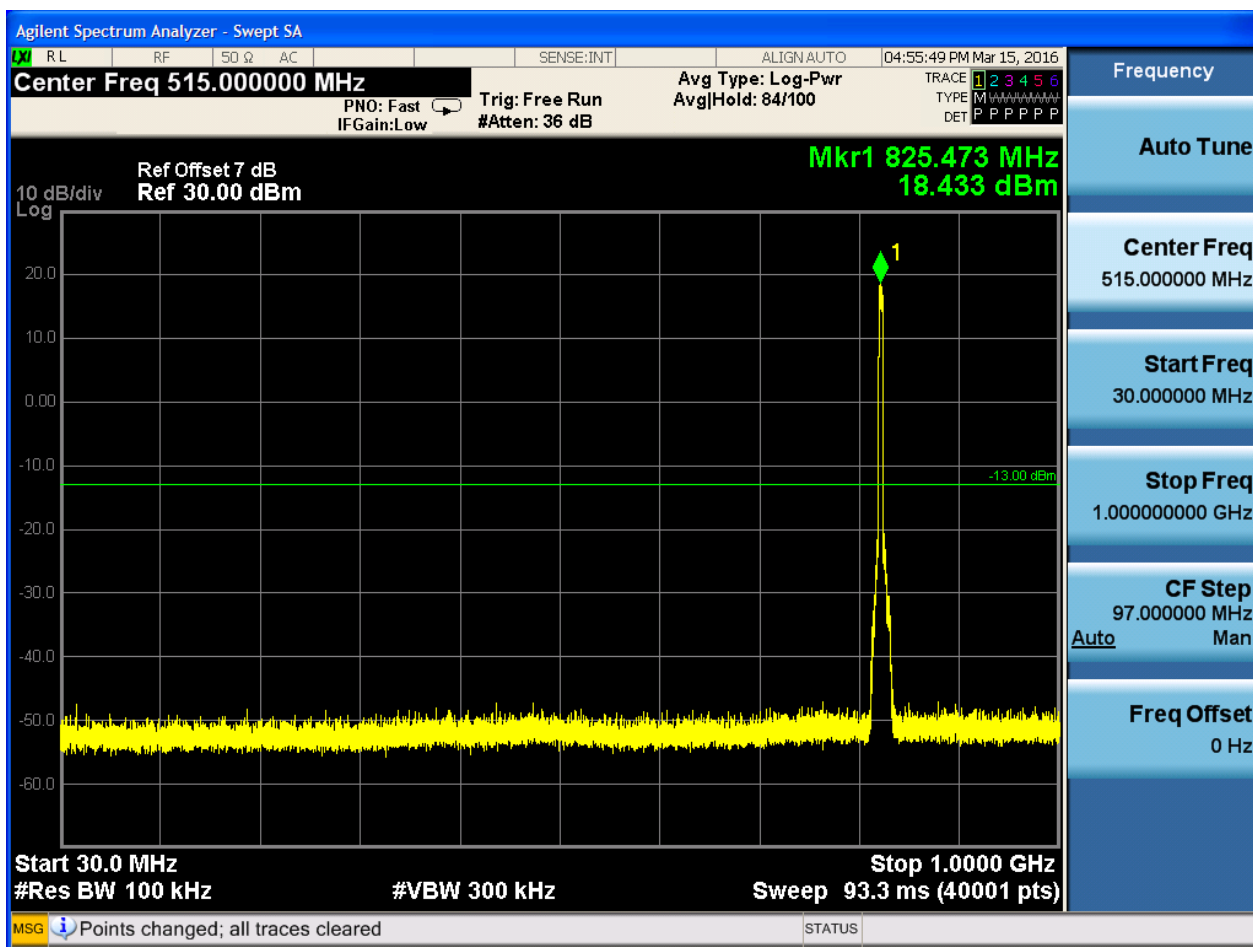
6.2.4 Test Band = WCDMA850

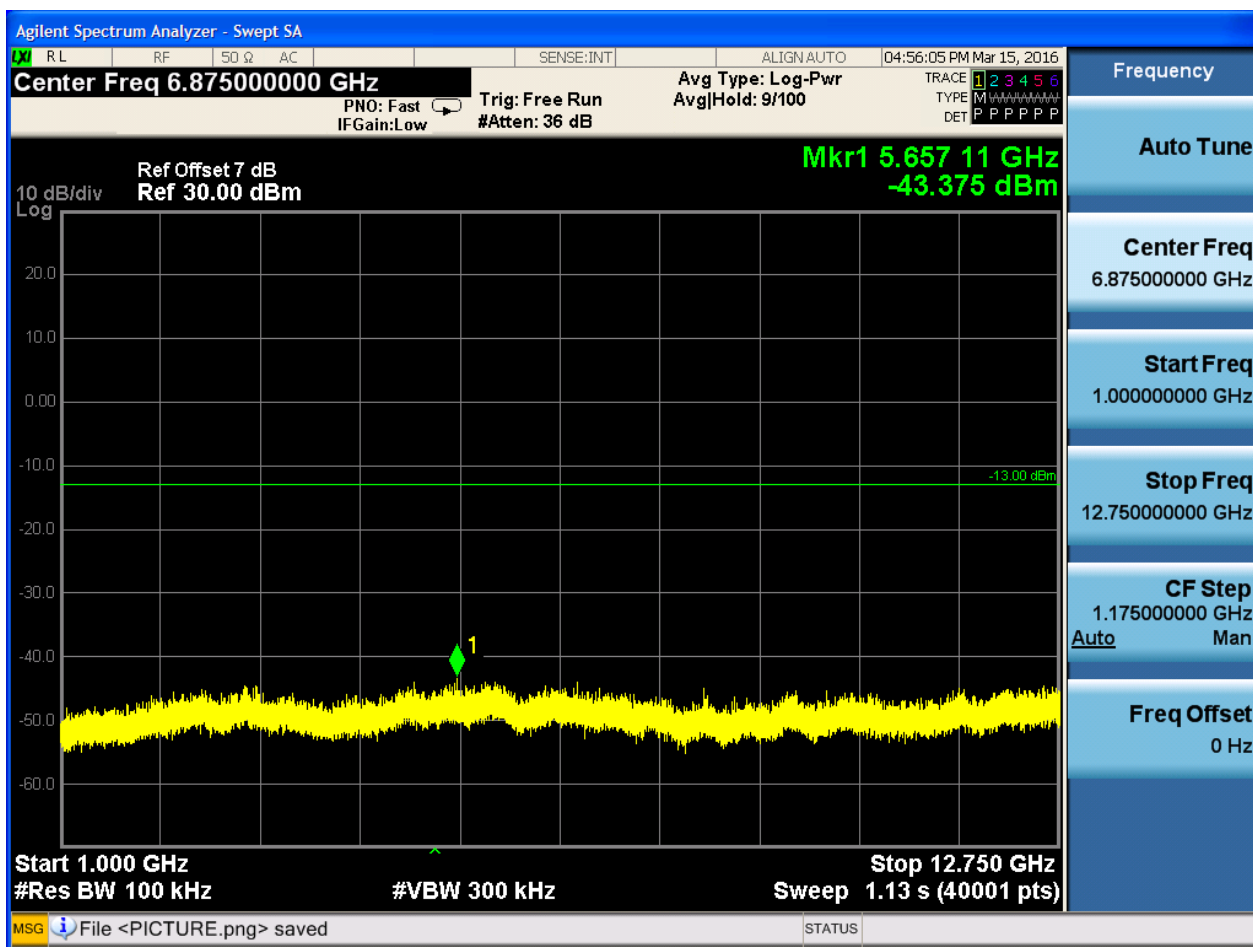
6.2.4.1 Test Mode = UMTS/TM1

6.2.4.1.1 Test Channel = LCH

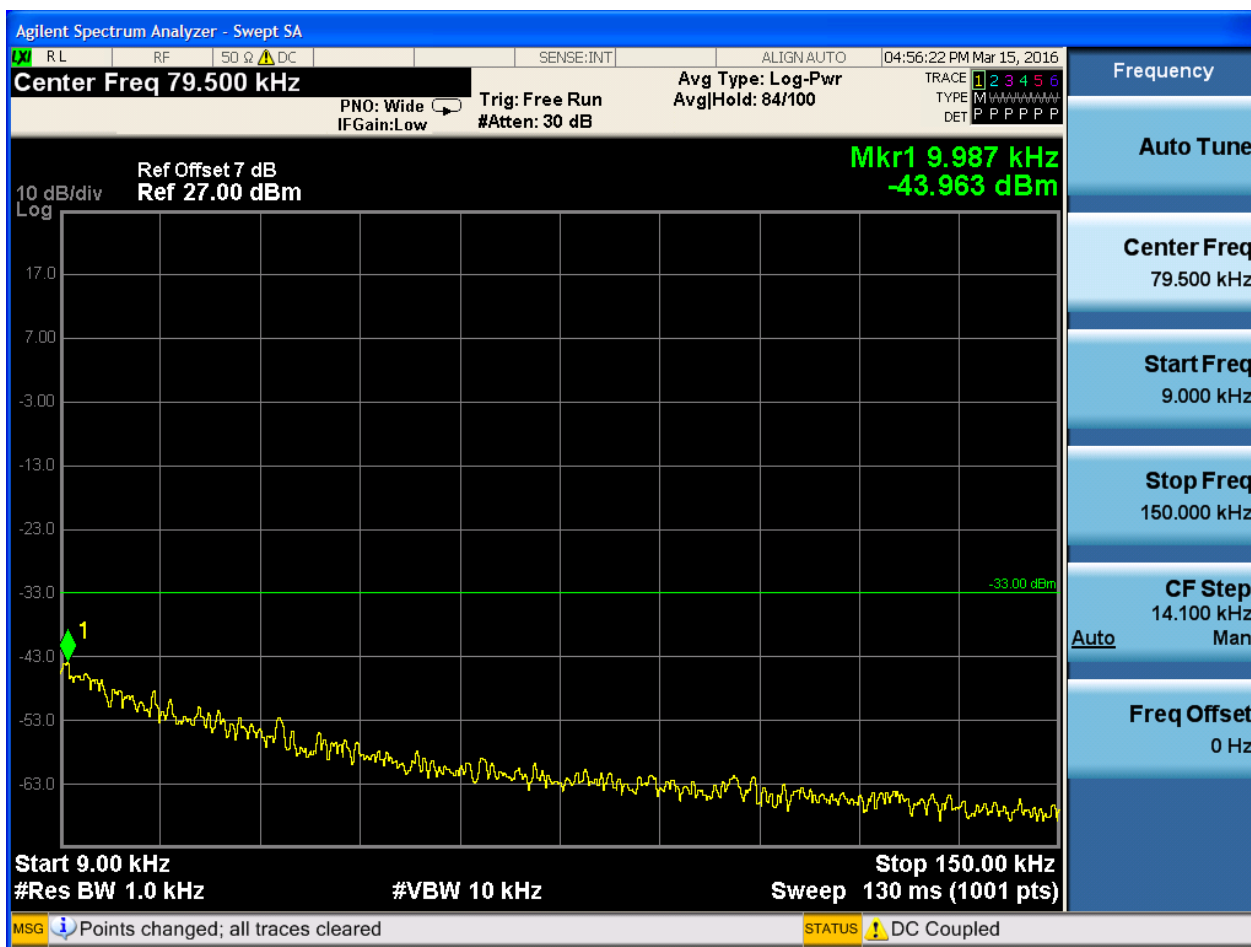


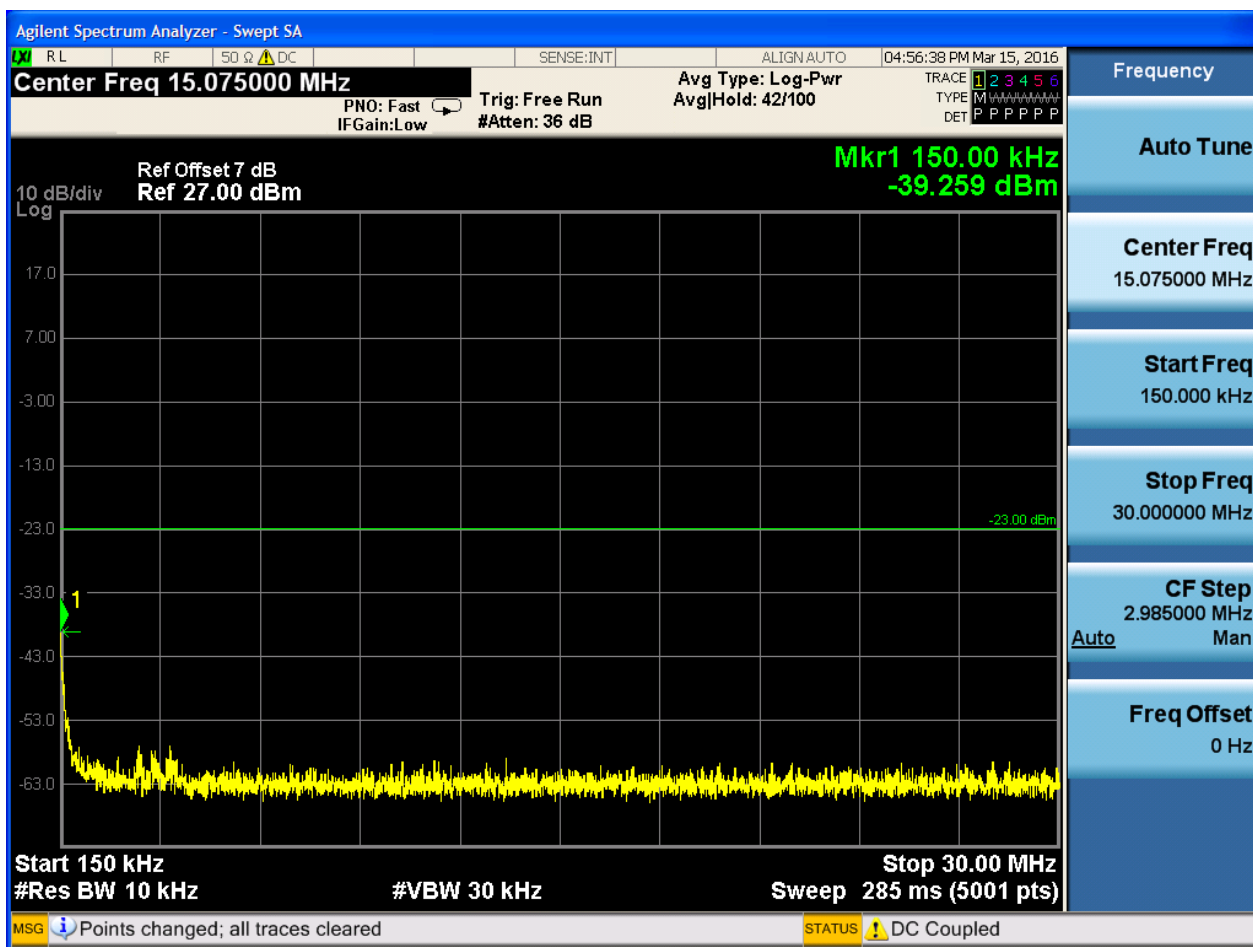


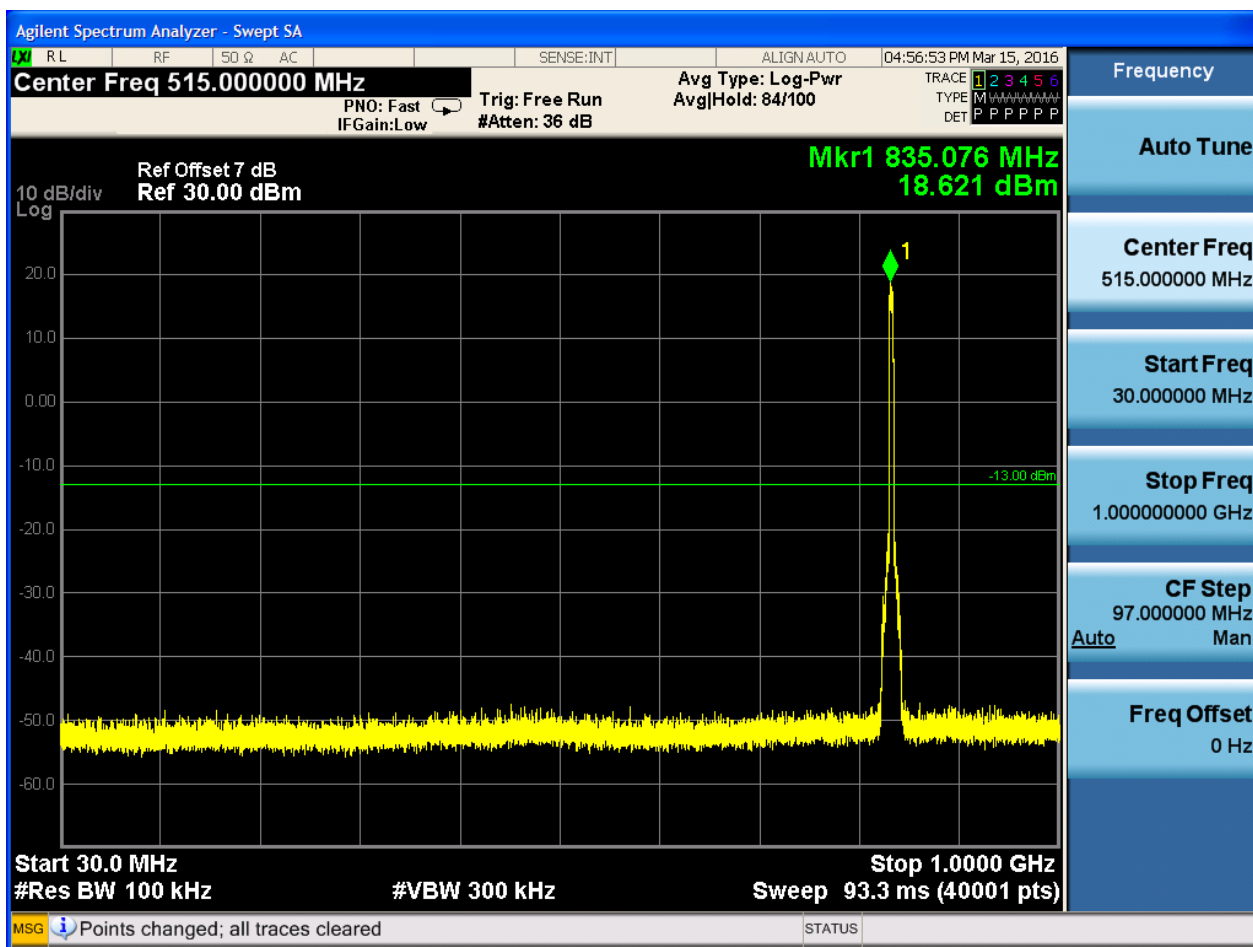


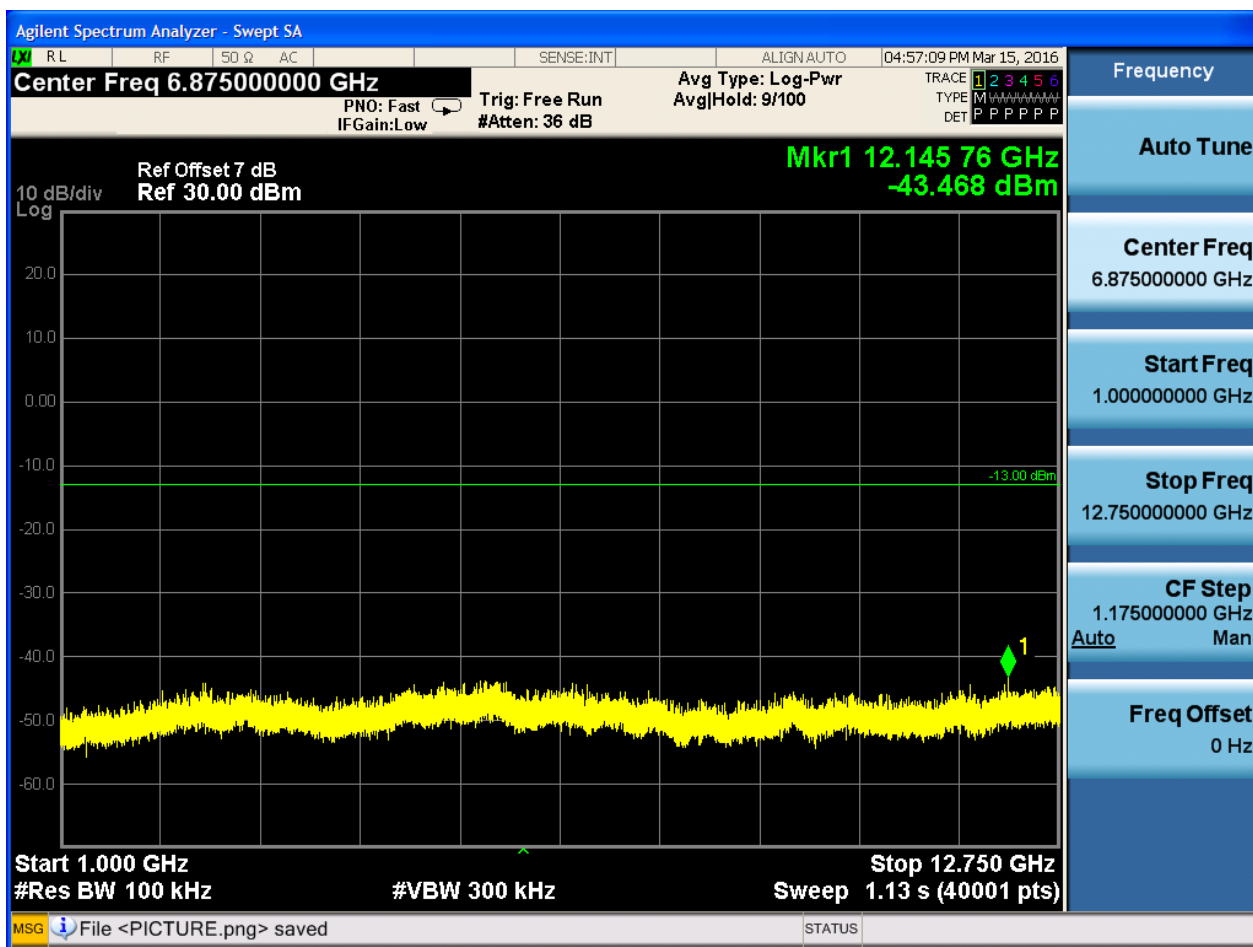


6.2.4.1.2 Test Channel = MCH

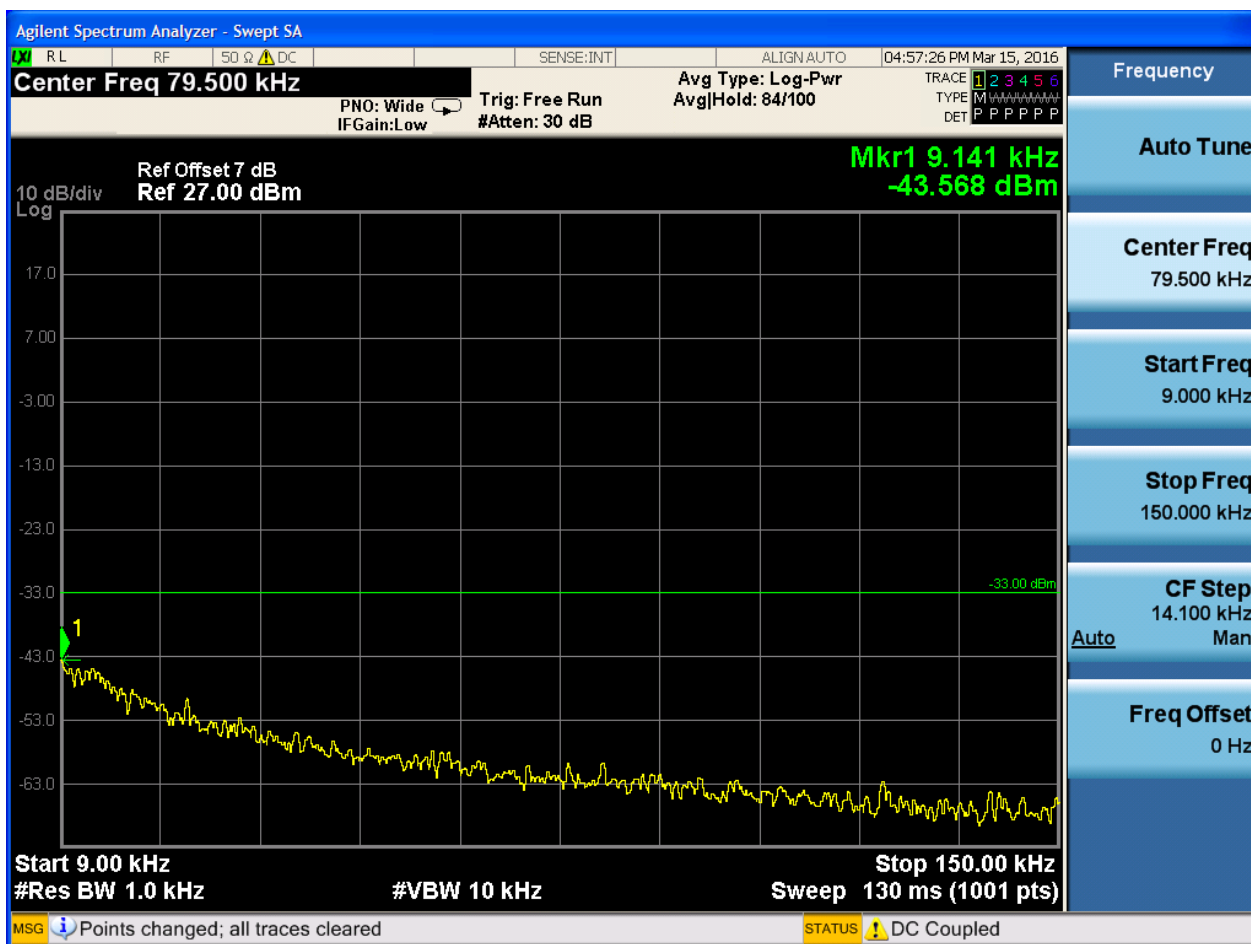


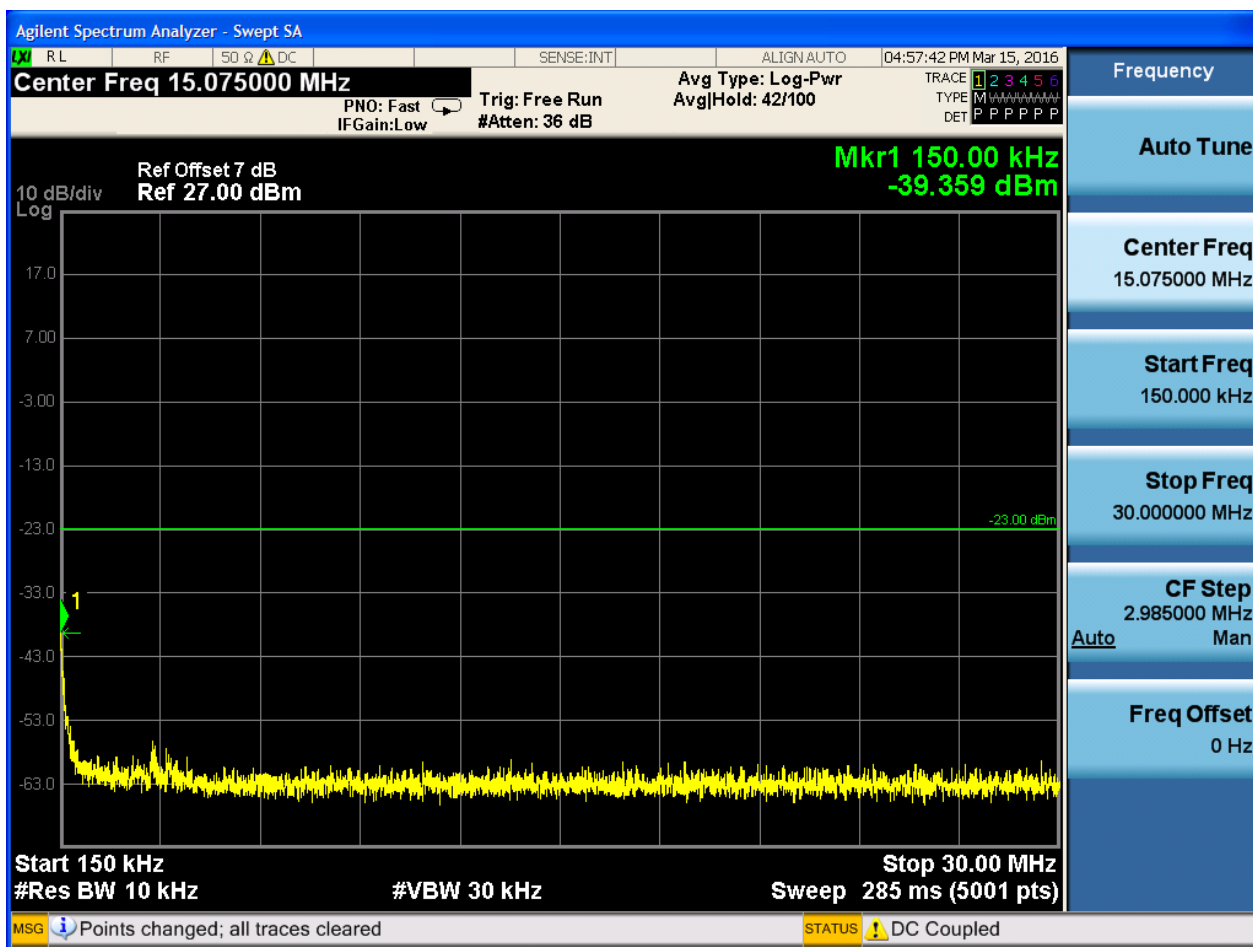


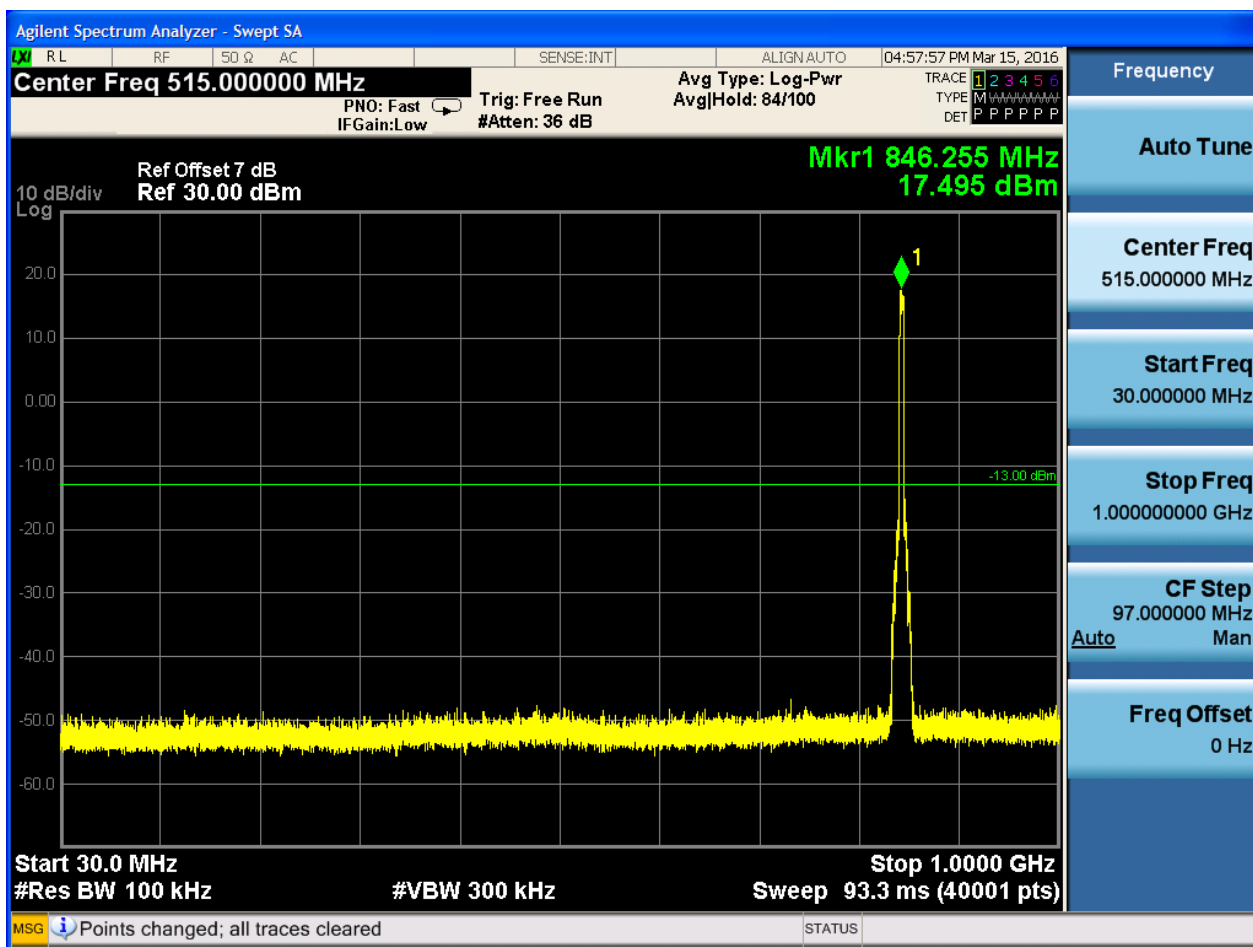


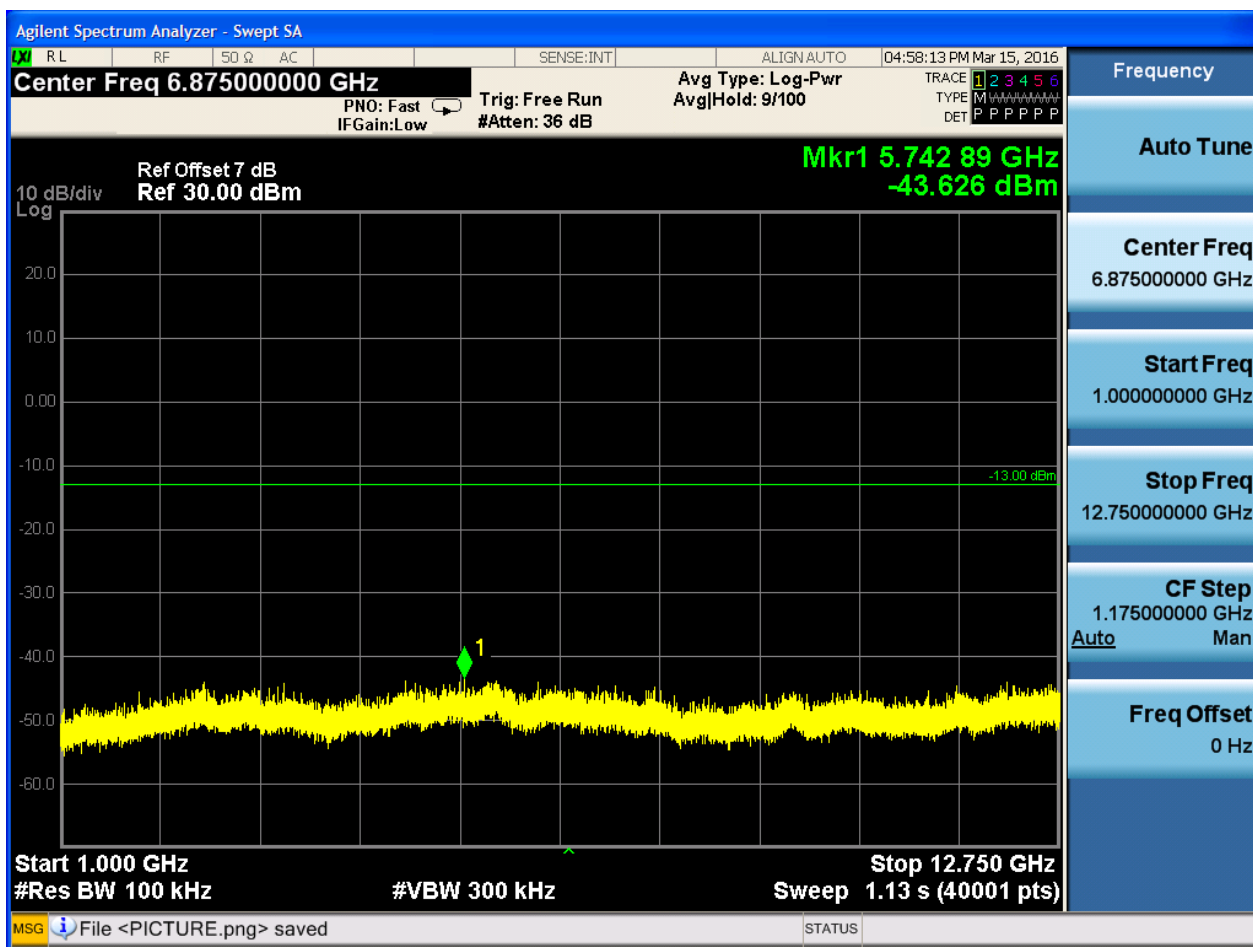


6.2.4.1.3 Test Channel = HCH









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

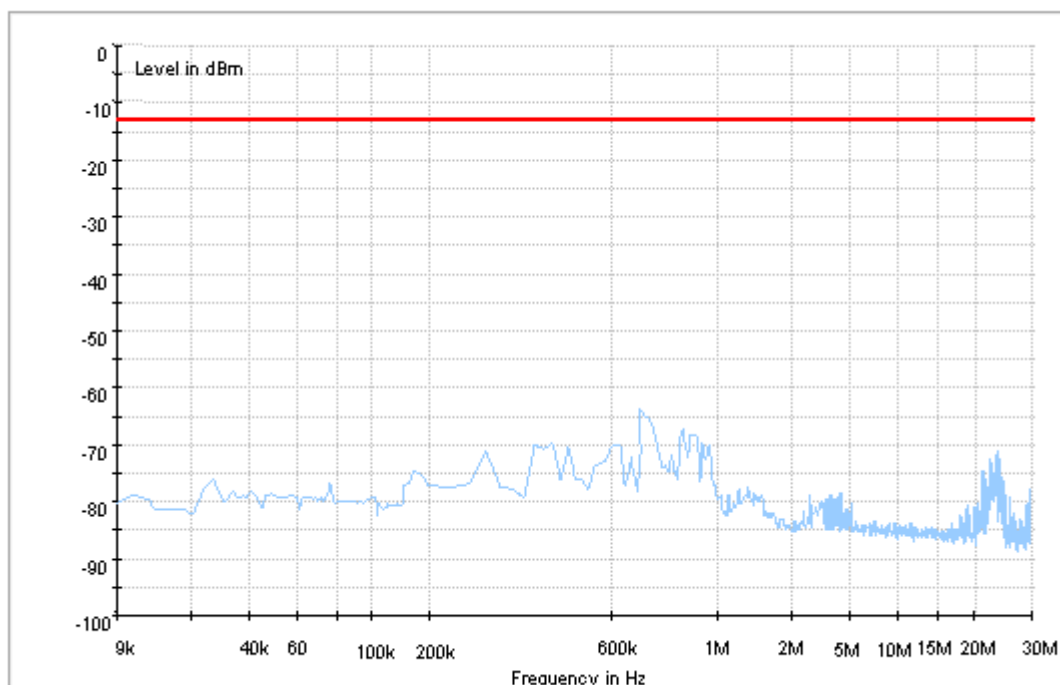
Above 1GHz, RBW = 1 MHz, VBW = 3 MHz. Detector: PK

Part I - Test Plots

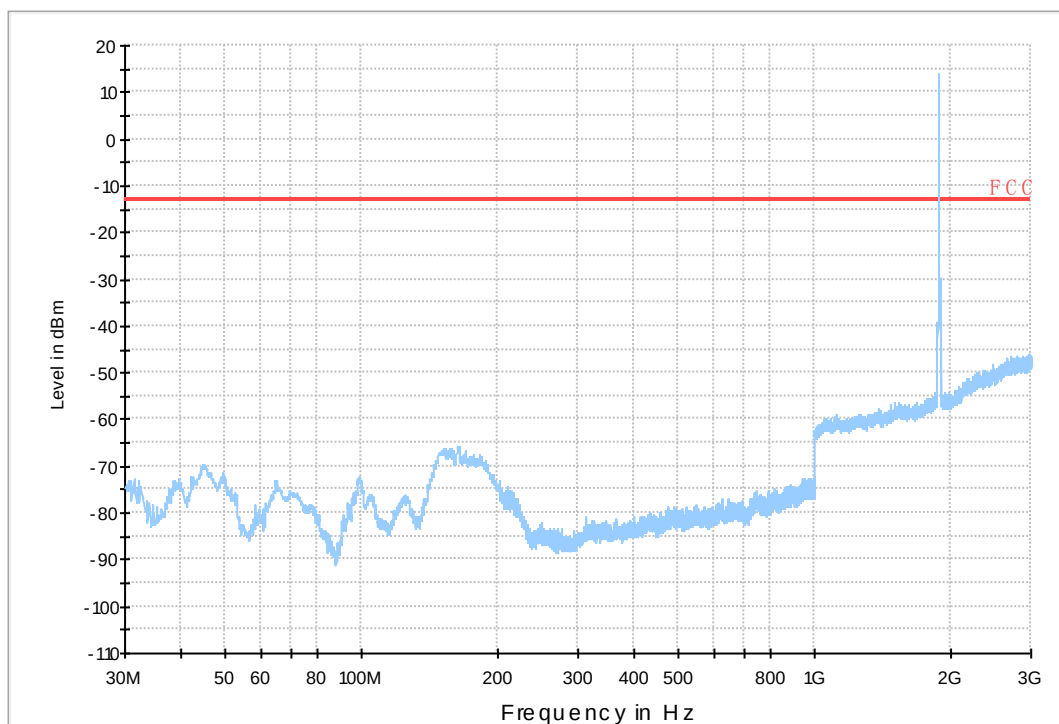
7.1 For UMTS

7.1.1 Test Band = WCDMA1900

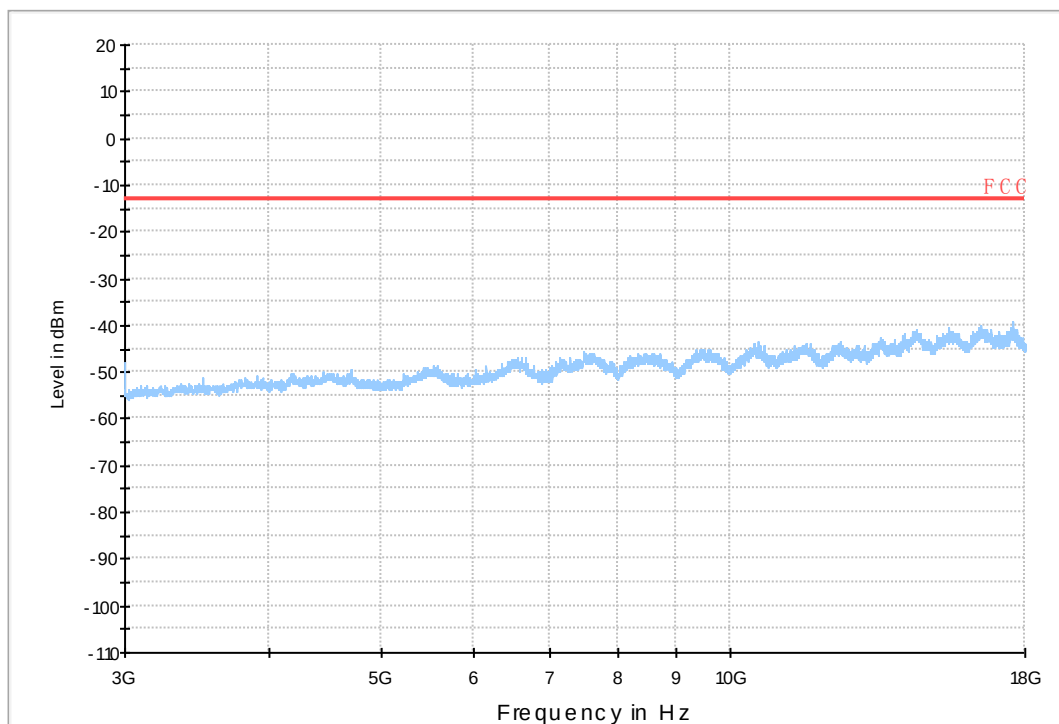
7.1.1.1 Test Mode = UMTS/TM1

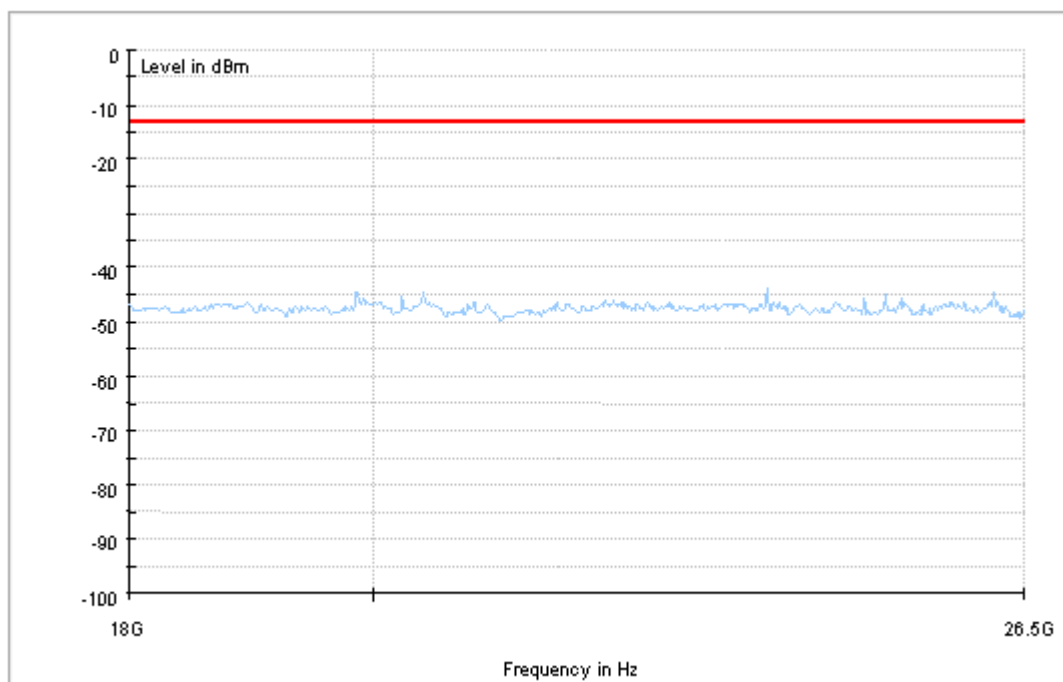


Copy of FCC PART24 W CDMA1900_L



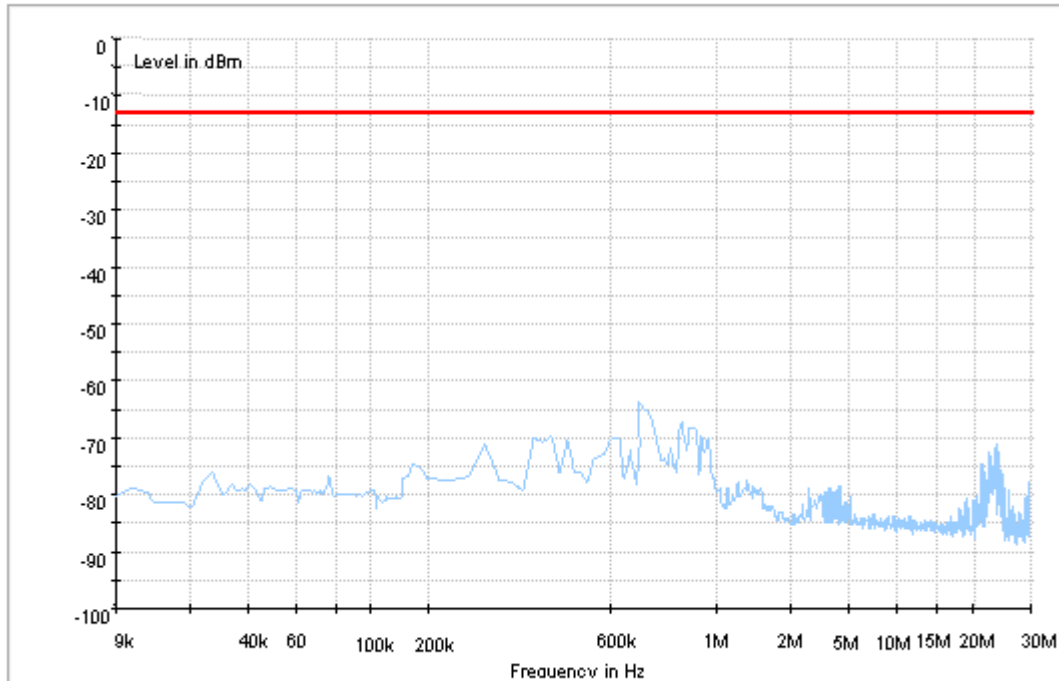
Copy of FCC PART24 W CDMA1900_H



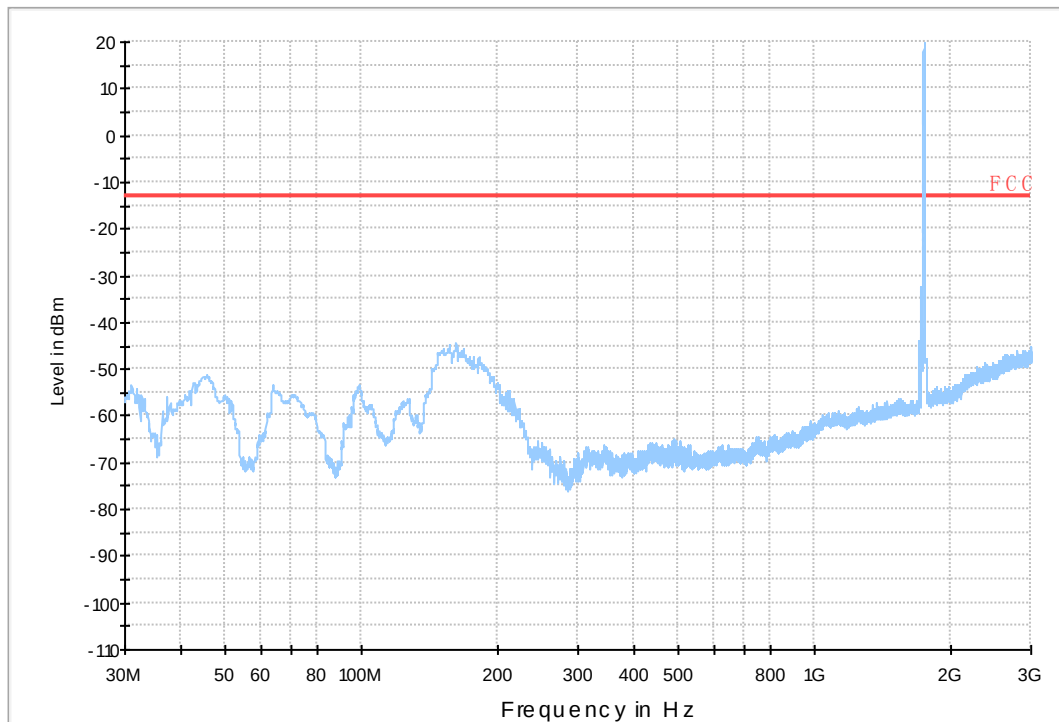


7.2.2 Test Band = WCDMA1700

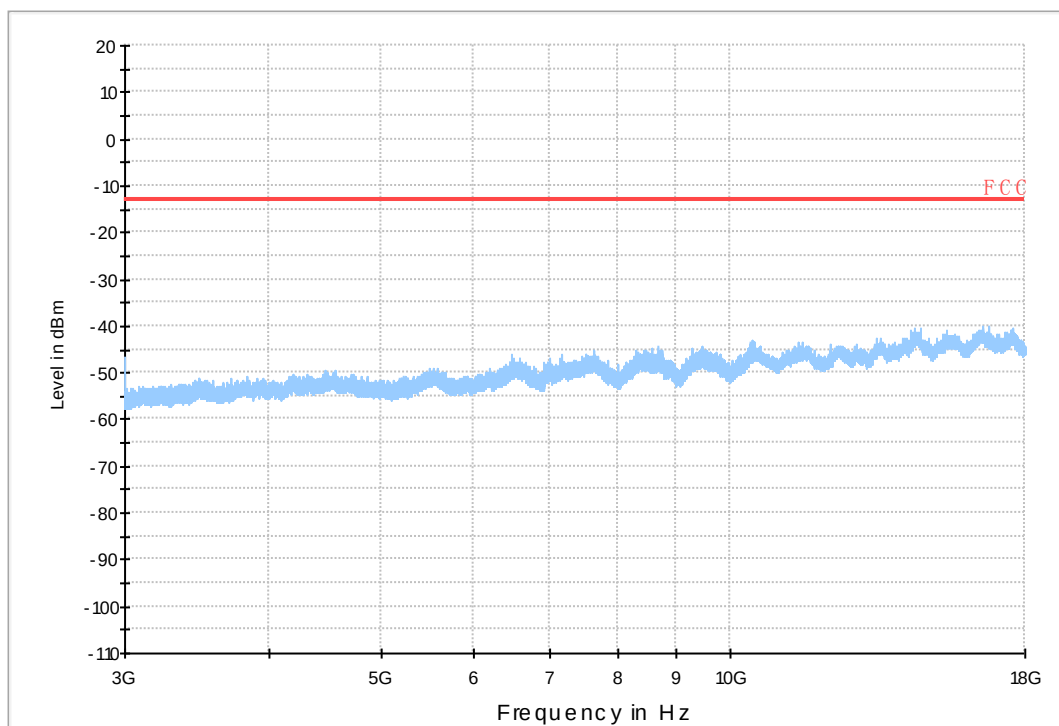
7.2.2.1 Test Mode = UMTS/TM1



Copy of FCC PART27 W CDMA1700_L

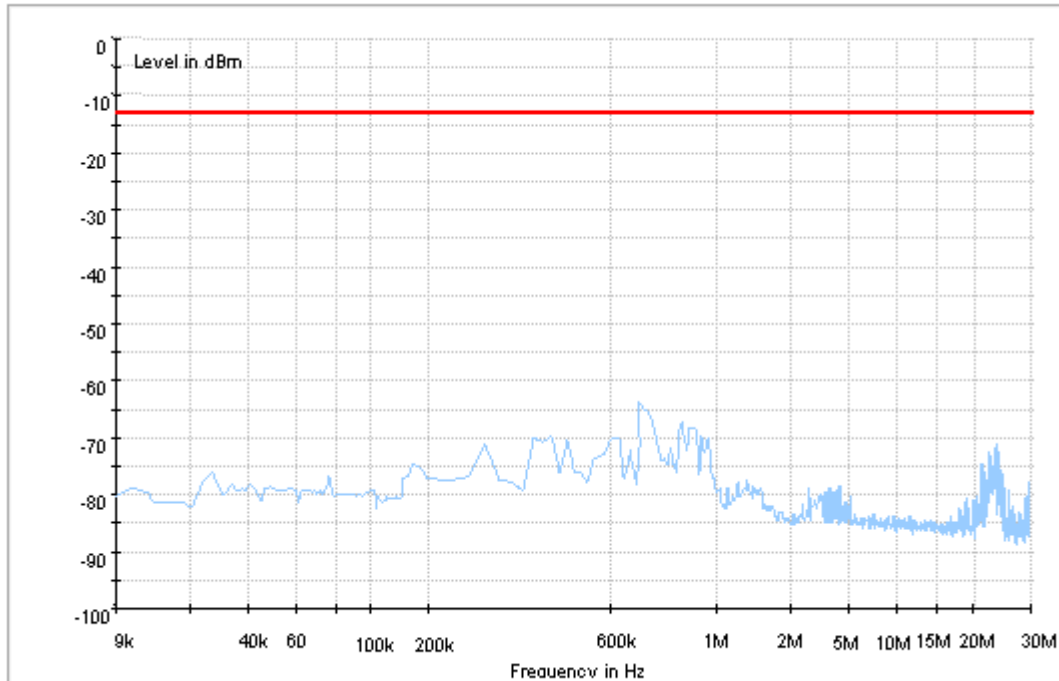


Copy of FCC PART27 W CDMA1700_H

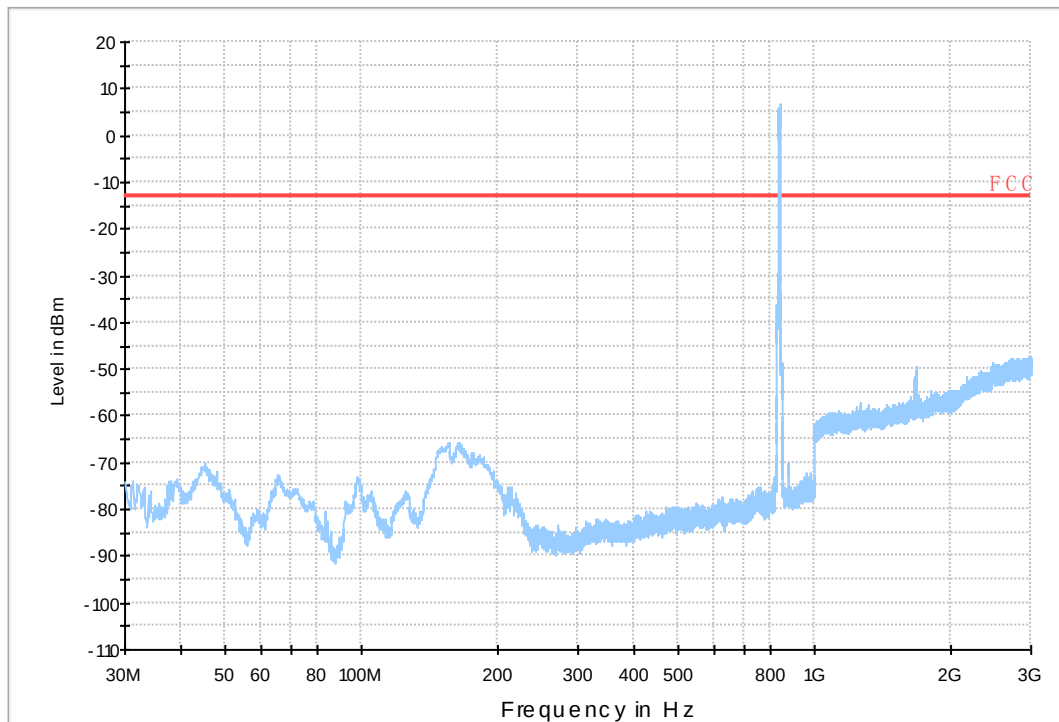


7.2.4 Test Band = WCDMA850

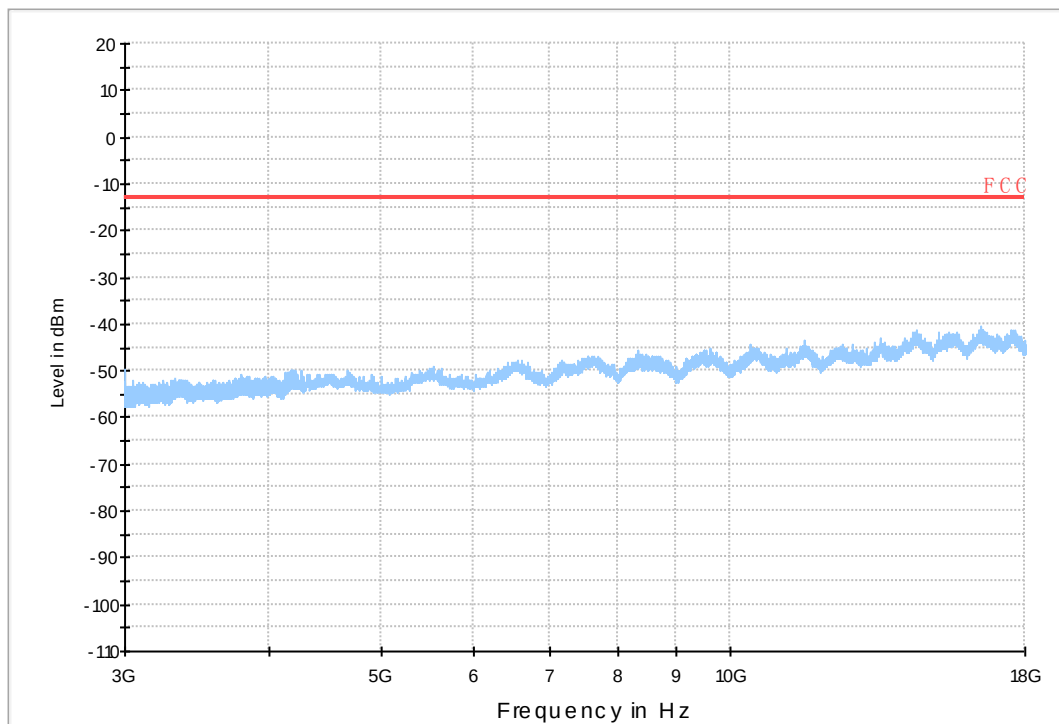
7.2.4.1 Test Mode = UMTS/TM1



Copy of FCC PART22 WCDMA850_L



Copy of FCC PART22 W CDM A850_H



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
WCDMA1900	UMTS/TM1	LCH	TN	VL	-2.81	-0.00152	PASS
				VN	2.30	0.00124	PASS
				VH	-3.91	-0.00211	PASS
		MCH	TN	VL	3.91	0.00208	PASS
				VN	0.24	0.00013	PASS
				VH	-6.56	-0.00349	PASS
		HCH	TN	VL	-0.55	-0.00029	PASS
				VN	-2.50	-0.00131	PASS
				VH	3.80	0.00199	PASS
WCDMA1700	UMTS/TM1	LCH	TN	VL	1.97	0.00115	PASS
				VN	-1.08	-0.00063	PASS
				VH	-1.59	-0.00093	PASS
		MCH	TN	VL	-0.78	-0.00045	PASS
				VN	-0.34	-0.0002	PASS
				VH	3.54	0.00204	PASS
		HCH	TN	VL	5.63	0.00321	PASS
				VN	5.22	0.00298	PASS
				VH	1.37	0.00078	PASS
WCDMA850	UMTS/TM1	LCH	TN	VL	-0.20	-0.00024	PASS
				VN	4.15	0.00502	PASS
				VH	0.84	0.00102	PASS
		MCH	TN	VL	3.49	0.00417	PASS
				VN	-2.09	-0.0025	PASS
				VH	6.39	0.00764	PASS
		HCH	TN	VL	-0.12	-0.00014	PASS
				VN	-4.07	-0.00481	PASS
				VH	-4.27	-0.00504	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
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Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
WCDMA1900	UMTS/TM1	LCH	VN	-30	-9.54	-0.00515	PASS
				-20	-10.50	-0.00567	PASS
				-10	-9.09	-0.00491	PASS
				0	2.91	0.00157	PASS
				10	-2.84	-0.00153	PASS
				20	-1.85	-0.001	PASS
				30	0.00	0	PASS
				40	-3.71	-0.002	PASS
				50	-2.08	-0.00112	PASS
		MCH	VN	-30	-9.64	-0.00513	PASS
				-20	2.53	0.00135	PASS
				-10	-11.67	-0.00621	PASS
				0	0.40	0.00021	PASS
				10	-1.24	-0.00066	PASS
				20	2.85	0.00152	PASS
				30	-3.56	-0.00189	PASS
				40	0.38	0.0002	PASS
				50	0.37	0.0002	PASS
		HCH	VN	-30	-0.75	-0.00039	PASS
				-20	-6.62	-0.00347	PASS
				-10	2.94	0.00154	PASS
				0	2.23	0.00117	PASS
				10	2.40	0.00126	PASS
				20	10.38	0.00544	PASS
				30	-5.48	-0.00287	PASS
				40	6.09	0.00319	PASS
				50	-2.14	-0.00112	PASS
WCDMA1700	UMTS/TM1	LCH	VN	-30	1.42	0.00083	PASS
				-20	-0.29	-0.00017	PASS
				-10	4.90	0.00286	PASS
				0	0.64	0.00037	PASS
				10	3.46	0.00202	PASS
				20	0.70	0.00041	PASS
				30	-0.92	-0.00054	PASS
				40	-1.75	-0.00102	PASS
				50	7.48	0.00437	PASS
		MCH	VN	-30	1.85	0.00107	PASS
				-20	-1.82	-0.00105	PASS
				-10	2.37	0.00137	PASS
				0	2.91	0.00168	PASS

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				10	2.88	0.00166	PASS
				20	0.40	0.00023	PASS
				30	2.44	0.00141	PASS
				40	-1.86	-0.00107	PASS
				50	4.71	0.00272	PASS
		HCH	VN	-30	-0.41	-0.00023	PASS
				-20	-2.62	-0.00149	PASS
				-10	0.64	0.00037	PASS
				0	5.11	0.00292	PASS
				10	0.17	0.0001	PASS
				20	-0.29	-0.00017	PASS
				30	2.41	0.00138	PASS
				40	3.11	0.00177	PASS
				50	-3.46	-0.00197	PASS
WCDMA850	UMTS/TM1	LCH	VN	-30	-0.93	-0.00113	PASS
				-20	-3.62	-0.00438	PASS
				-10	0.47	0.00057	PASS
				0	2.76	0.00334	PASS
				10	5.55	0.00672	PASS
				20	1.50	0.00182	PASS
				30	2.56	0.0031	PASS
				40	-3.42	-0.00414	PASS
				50	0.00	0	PASS
		MCH	VN	-30	4.65	0.00556	PASS
				-20	-1.13	-0.00135	PASS
				-10	-2.12	-0.00253	PASS
				0	1.31	0.00157	PASS
				10	0.00	0	PASS
				20	-1.17	-0.0014	PASS
				30	-2.58	-0.00308	PASS
				40	-3.57	-0.00427	PASS
				50	1.34	0.0016	PASS
		HCH	VN	-30	-1.72	-0.00203	PASS
				-20	0.67	0.00079	PASS
				-10	2.46	0.00291	PASS
				0	2.15	0.00254	PASS
				10	3.88	0.00458	PASS
				20	-1.95	-0.0023	PASS
				30	1.01	0.00119	PASS
				40	-1.79	-0.00211	PASS



Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				50	1.04	0.00123	PASS

END