



Appendix for test report



1 Appendix_A: Effective (Isotropic) Radiated Power Output Data

Part I - Test Results

Test Band	Test Mode	Test Channel	Conducte d Power [dBm]	ERP [dBm]	Limit [dBm]	Verdict
WCDMA850	UMTS/TM1	LCH	23.84	19.54	38.5	PASS
		MCH	23.73	19.48	38.5	PASS
		HCH	23.71	19.47	38.5	PASS

Test Band	Test Mode	Test Channel	Conducte d Power [dBm]	EIRP [dBm]	Limit [dBm]	Verdict
WCDMA1900	UMTS/TM1	LCH	22.67	24.58	33	PASS
		MCH	22.50	24.40	33	PASS
		HCH	22.53	24.24	33	PASS
WCDMA1700	UMTS/TM1	LCH	23.31	24.14	30	PASS
		MCH	23.35	24.33	30	PASS
		HCH	23.17	24.18	30	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	3.01	13	PASS
		MCH	3.08	13	PASS
		HCH	2.9	13	PASS
WCDMA1700	UMTS/TM1	LCH	3.03	13	PASS
		MCH	3.01	13	PASS
		HCH	3.02	13	PASS
WCDMA1900	UMTS/TM1	LCH	3	13	PASS
		MCH	3.07	13	PASS
		HCH	3.11	13	PASS

3Appendix_C: Modulation Characteristics

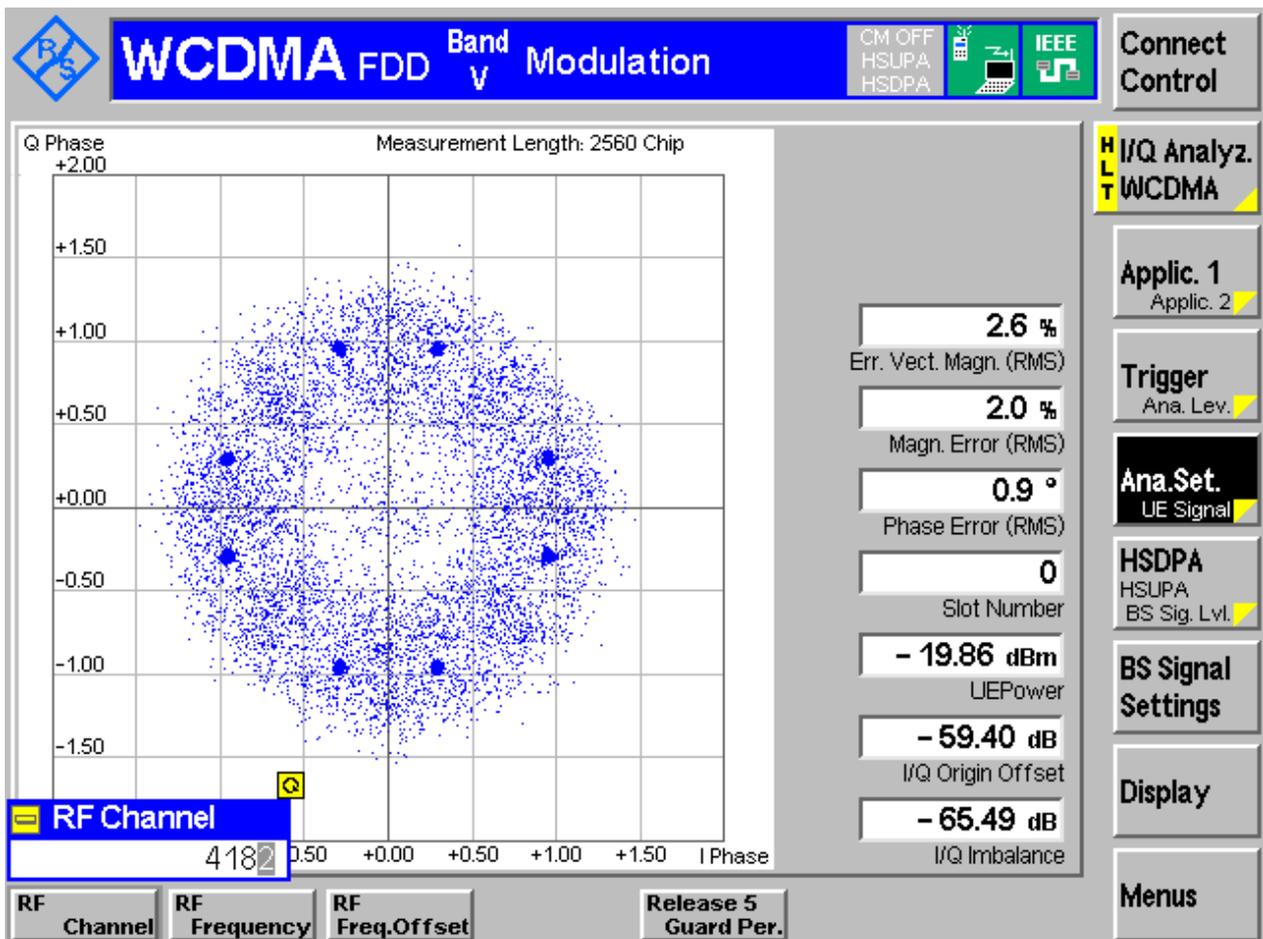
Part I - Test Plots

3.1 For UMTS

3.1.1 Test Band = WCDMA850

3.1.1.1 Test Mode = UMTS/TM1

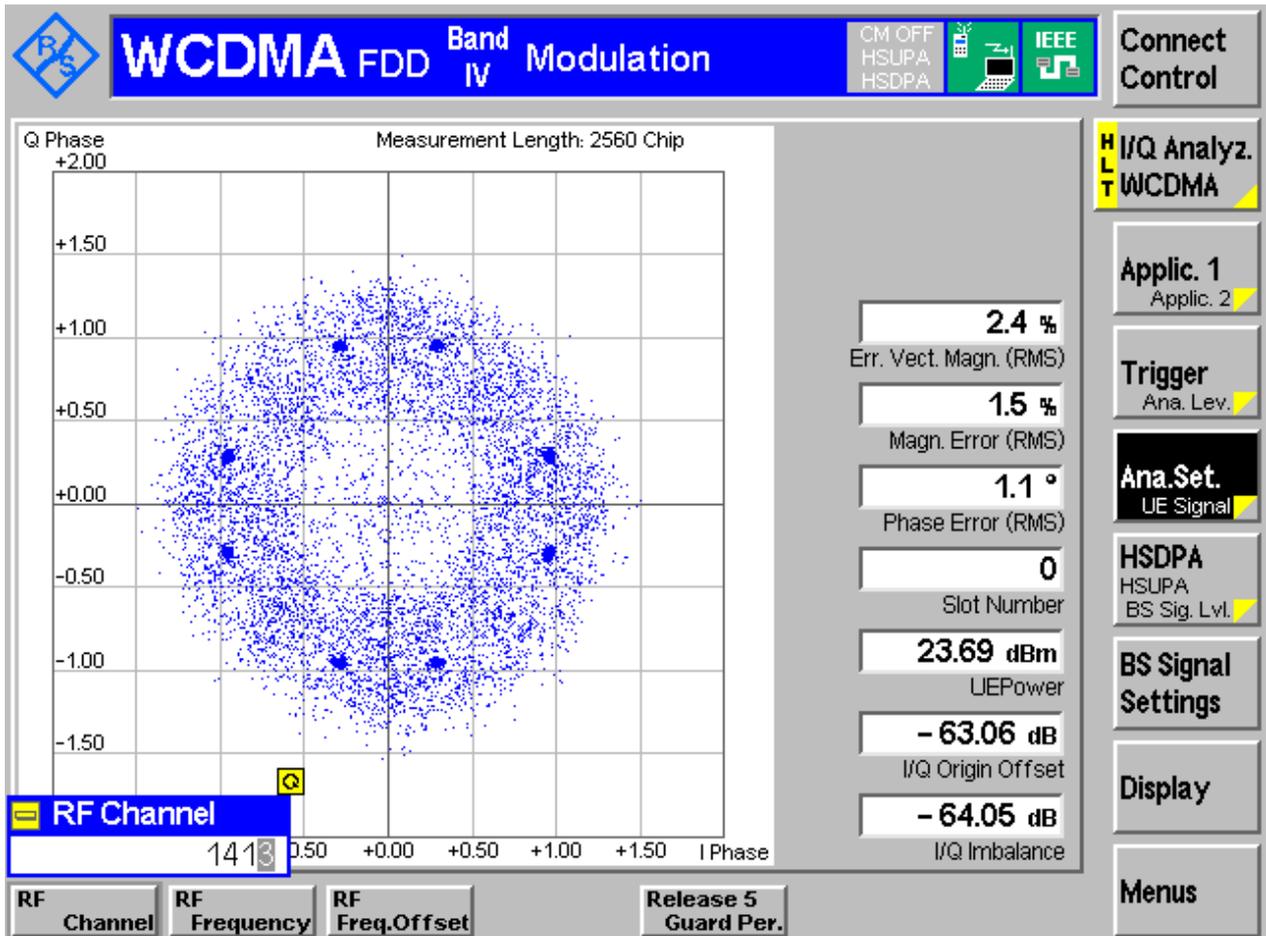
3.1.1.1.1 Test Channel = MCH



3.1.2 Test Band = WCDMA1700

3.1.2.1 Test Mode = UMTS/TM1

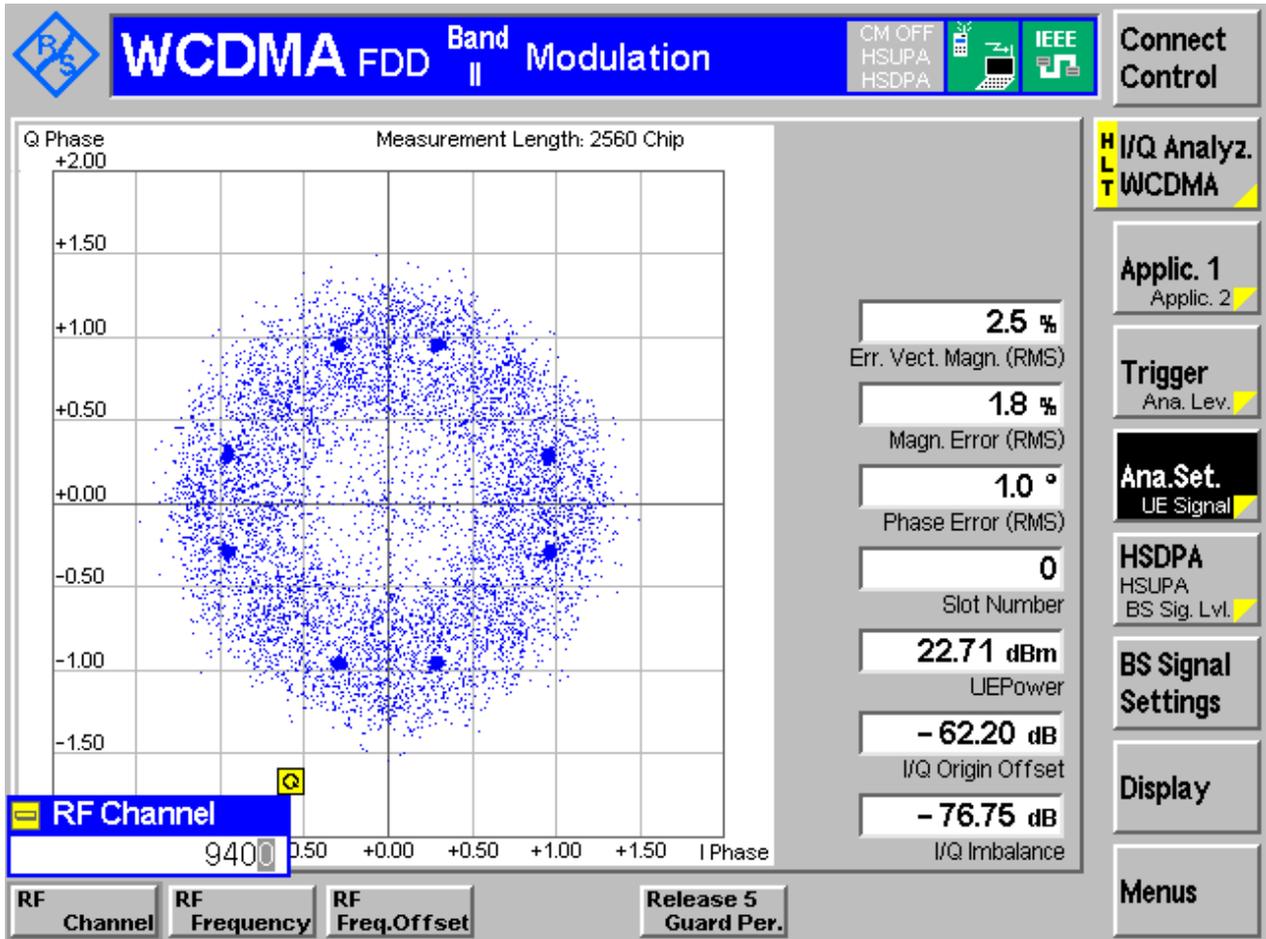
3.1.2.1.1 Test Channel = MCH



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	4.16	4.67	Pass
		MCH	4.16	4.67	Pass
		HCH	4.16	4.67	Pass
WCDMA1700	UMTS/TM1	LCH	4.17	4.68	Pass
		MCH	4.18	4.68	Pass
		HCH	4.17	4.67	Pass
WCDMA1900	UMTS/TM1	LCH	4.17	4.69	Pass
		MCH	4.18	4.70	Pass
		HCH	4.18	4.69	Pass



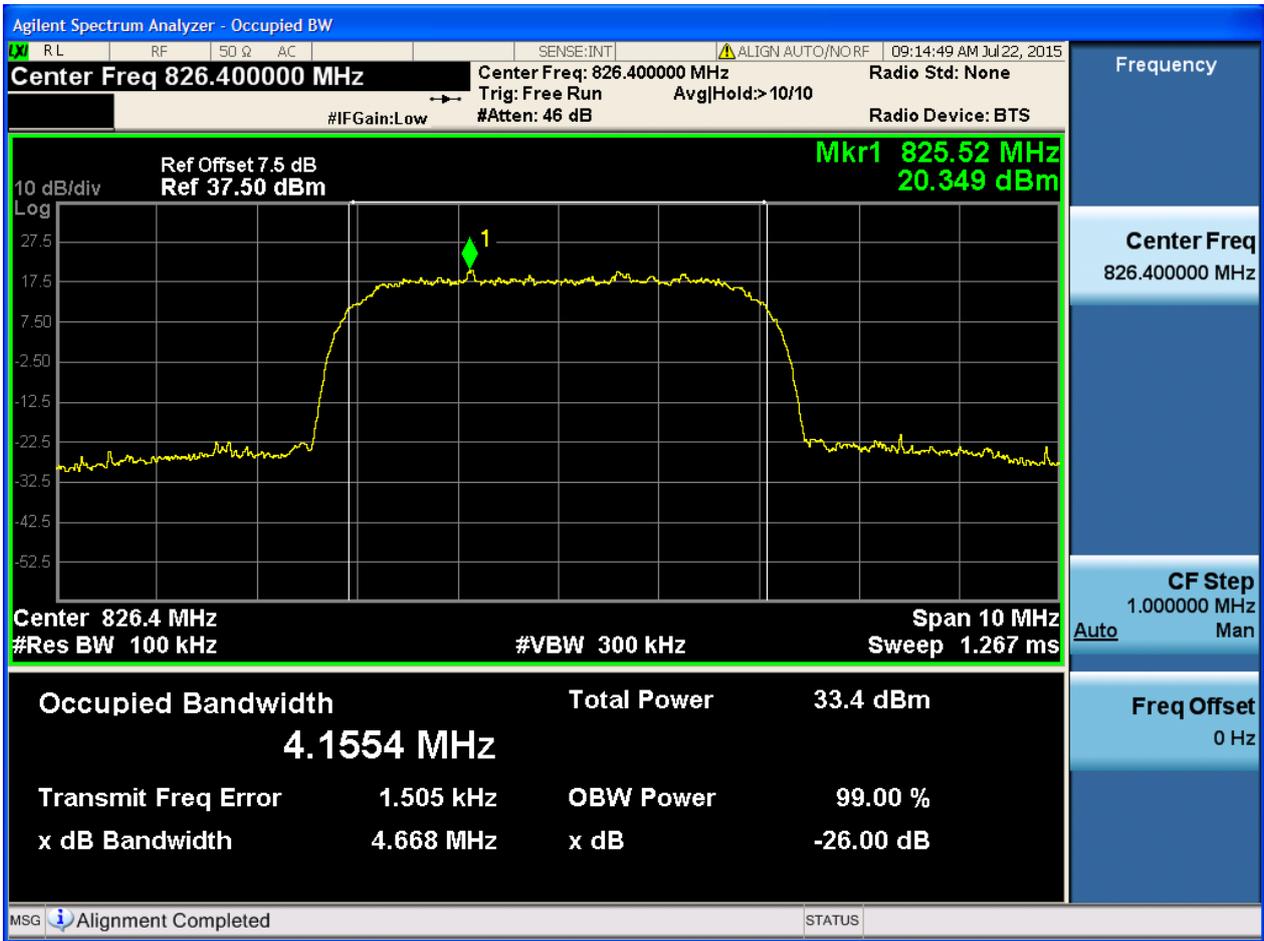
Part II - Test Plots

4.1 For UMTS

4.1.1 Test Band = WCDMA850

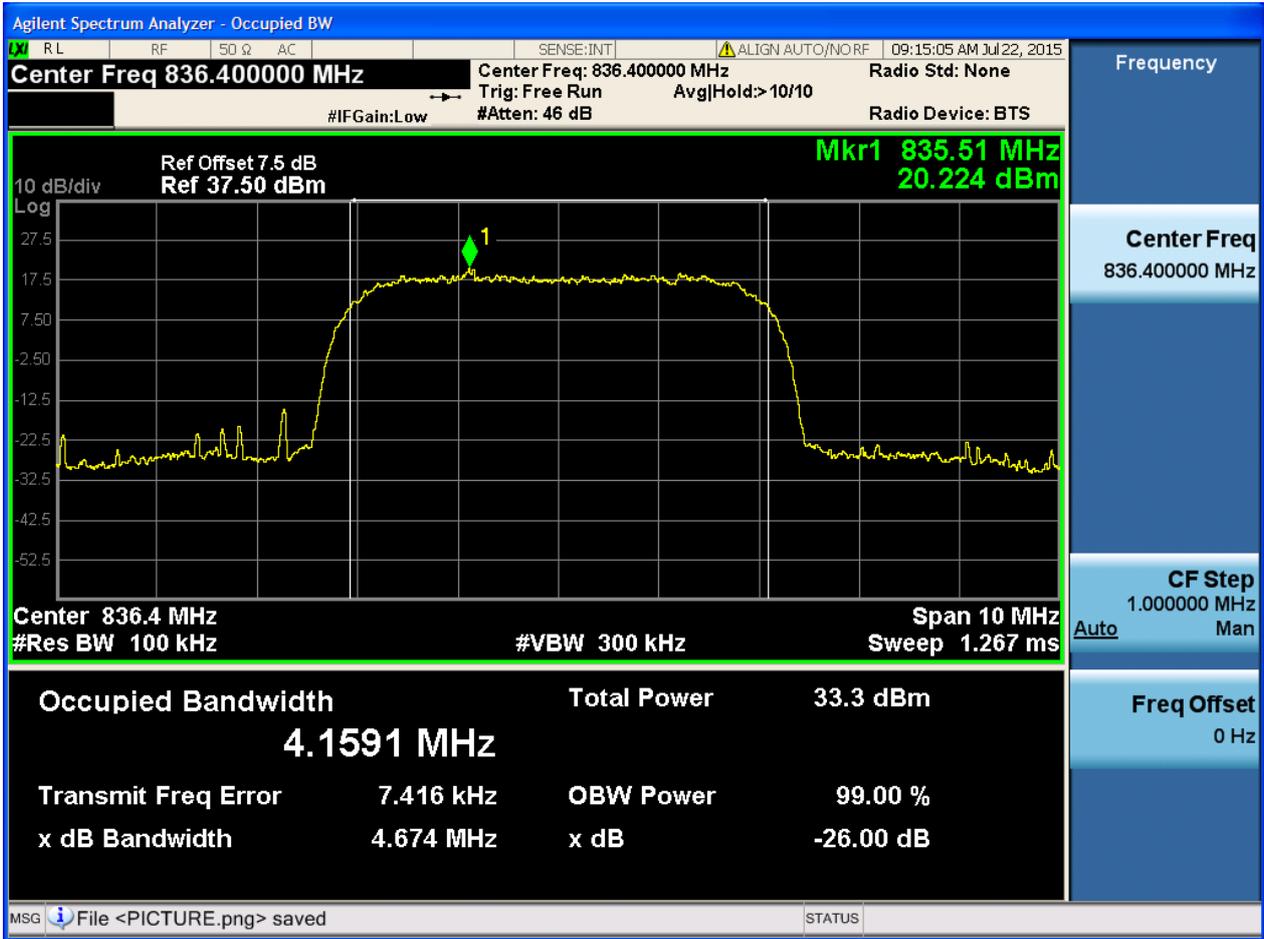
4.1.1.1 Test Mode = UMTS/TM1

4.1.1.1.1 Test Channel = LCH



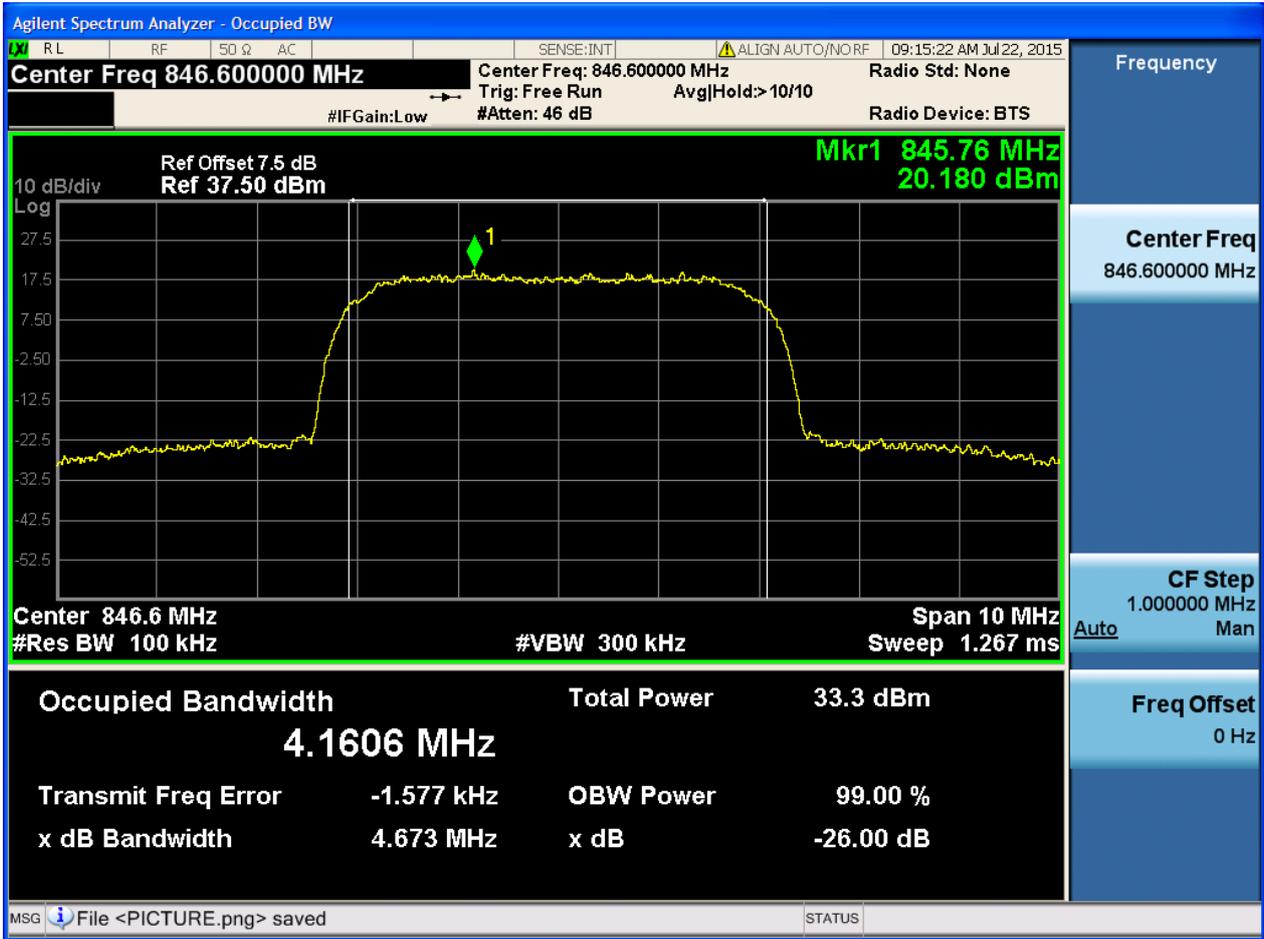


4.1.1.1.2 Test Channel = MCH





4.1.1.1.3 Test Channel = HCH

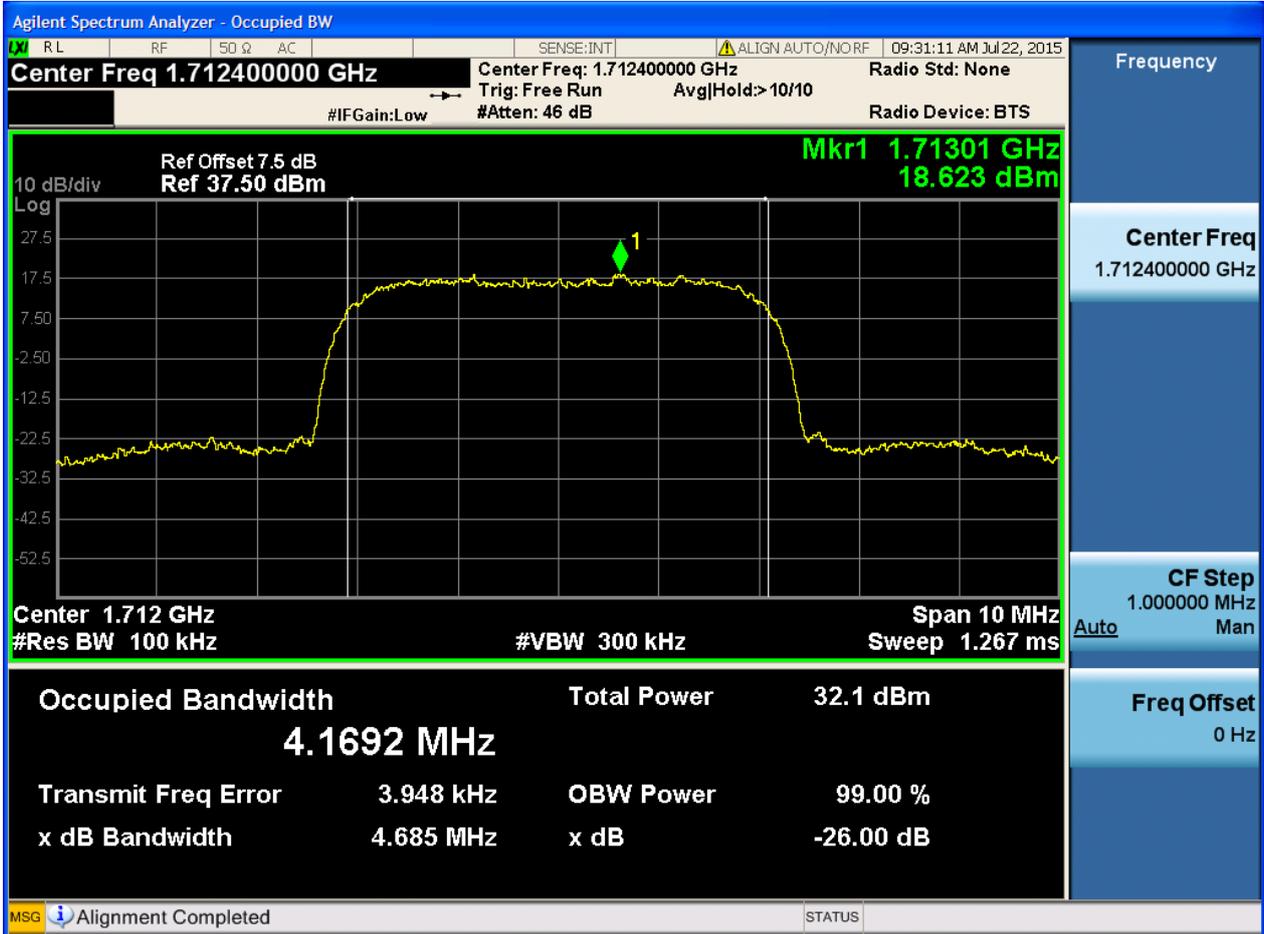




4.1.2 Test Band = WCDMA1700

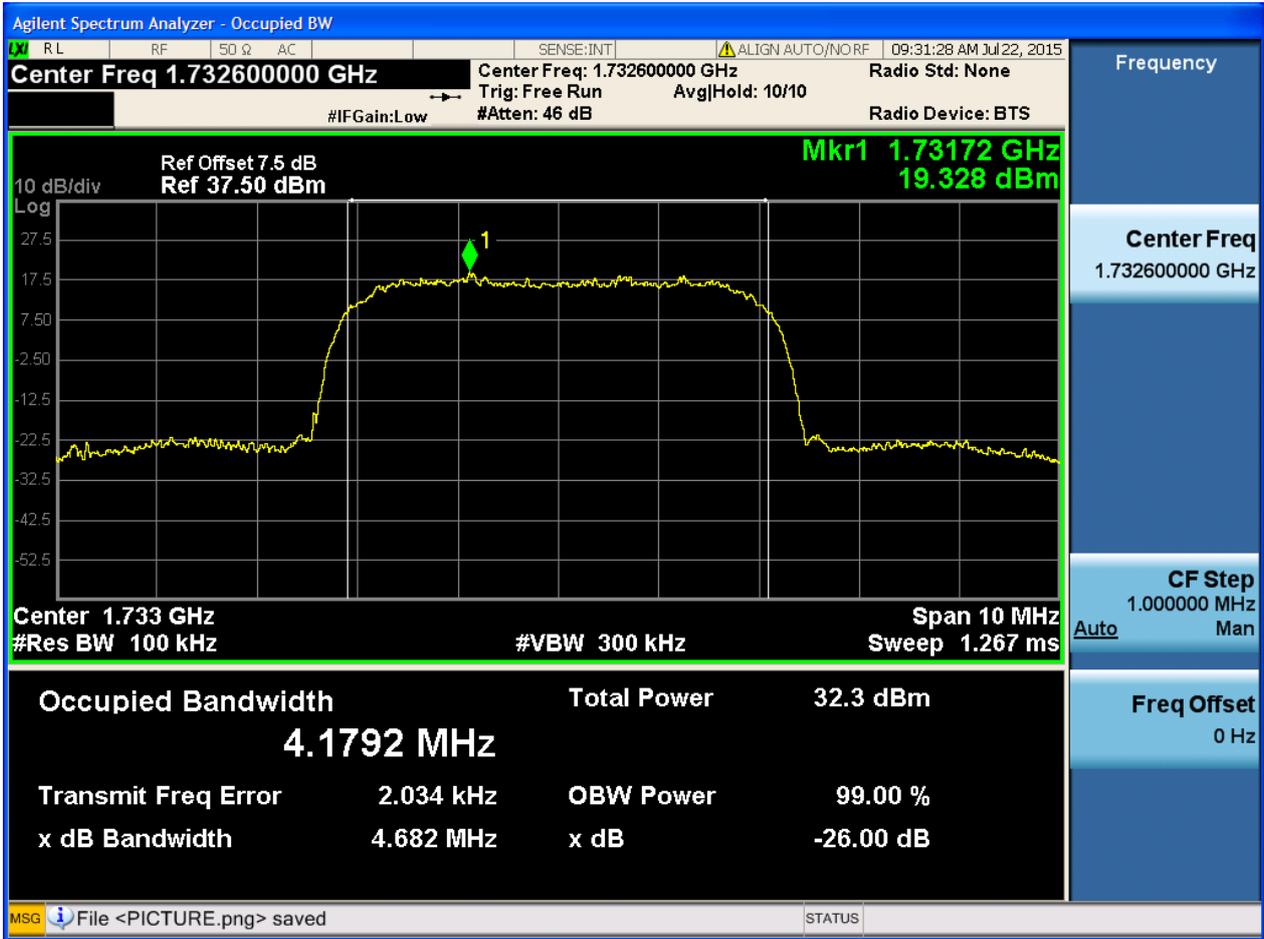
4.1.2.1 Test Mode = UMTS/TM1

4.1.2.1.1 Test Channel = LCH



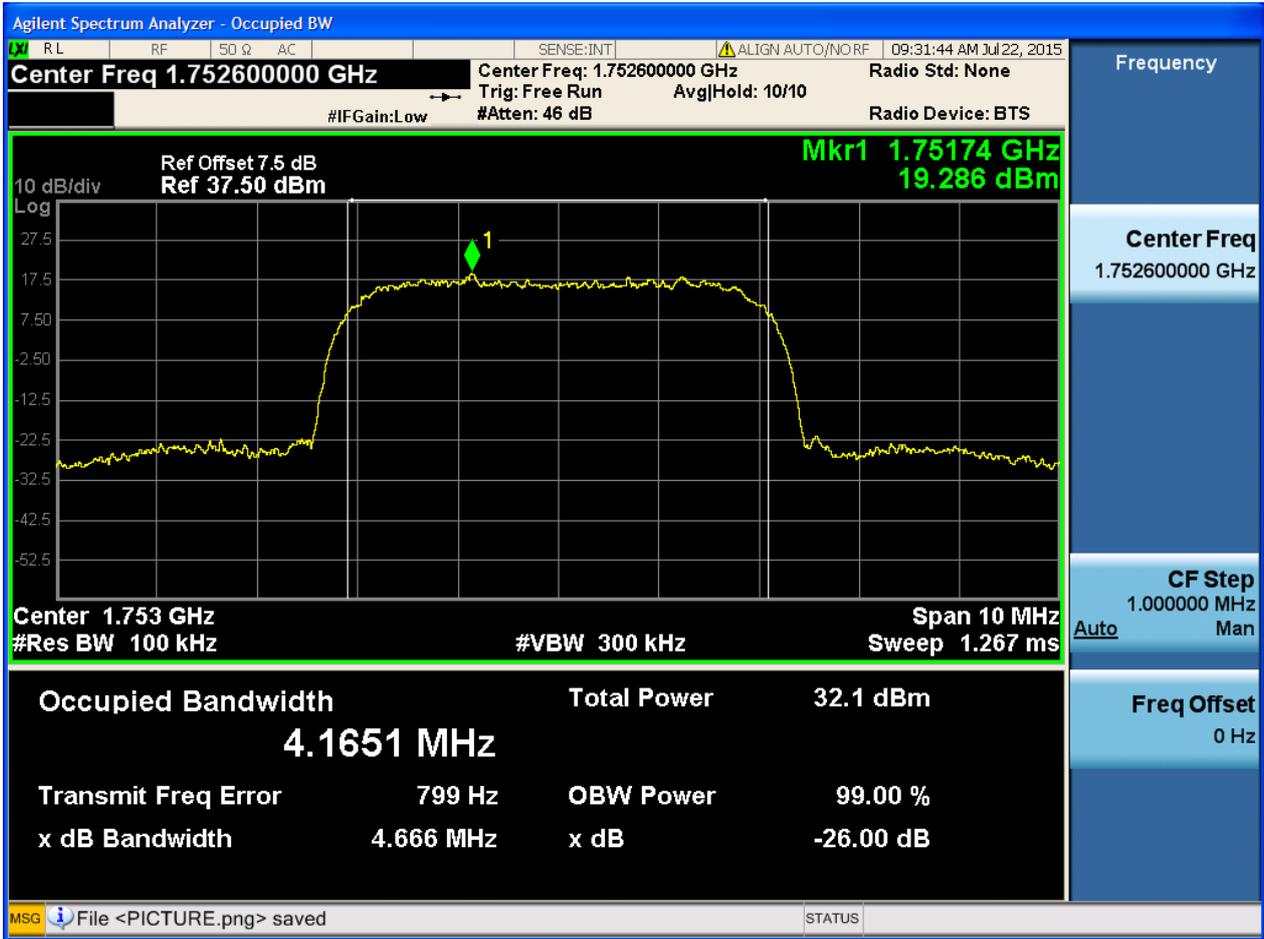


4.1.2.1.2 Test Channel = MCH





4.1.2.1.3 Test Channel = HCH

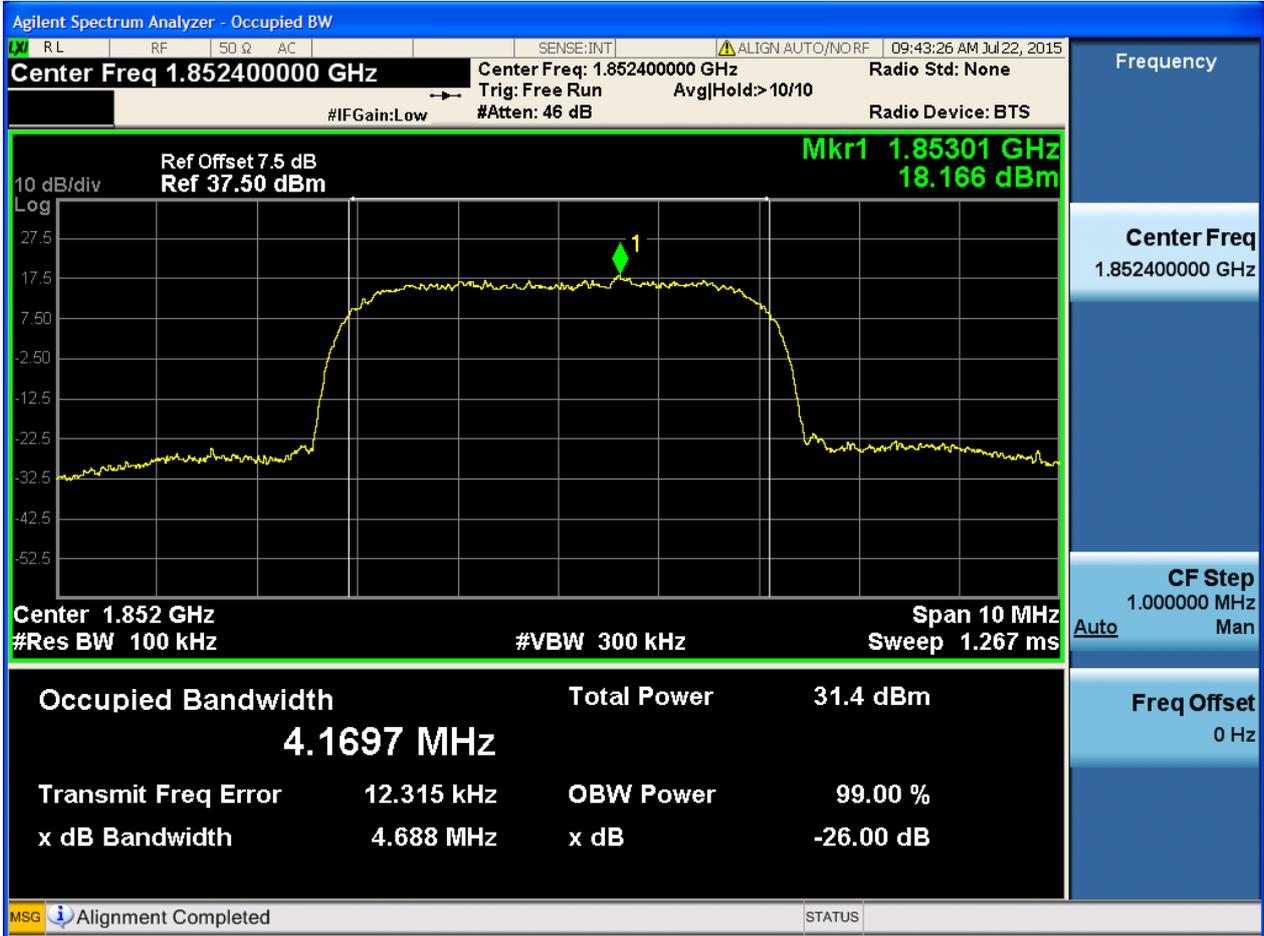




4.1.3 Test Band = WCDMA1900

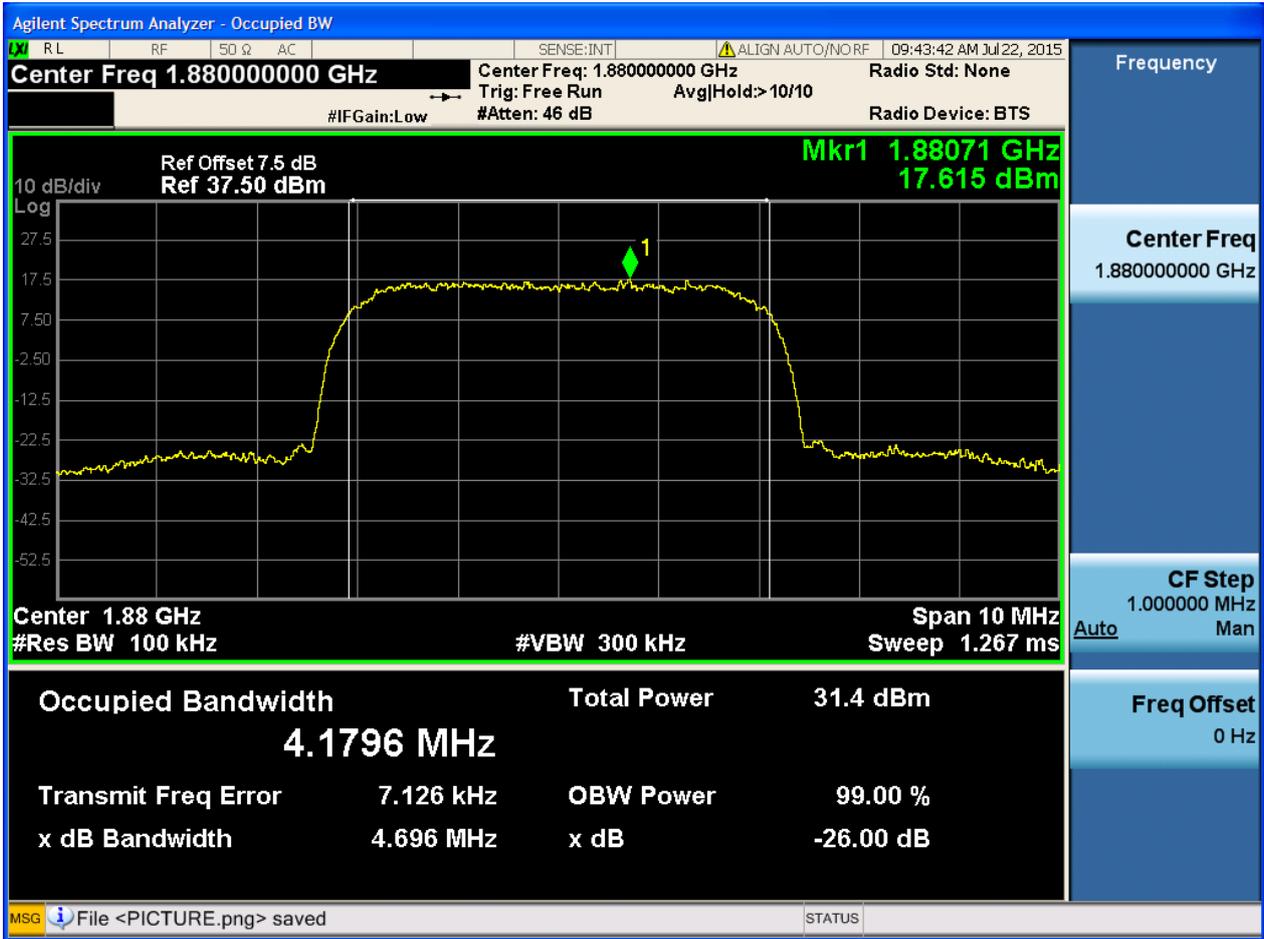
4.1.3.1 Test Mode = UMTS/TM1

4.1.3.1.1 Test Channel = LCH



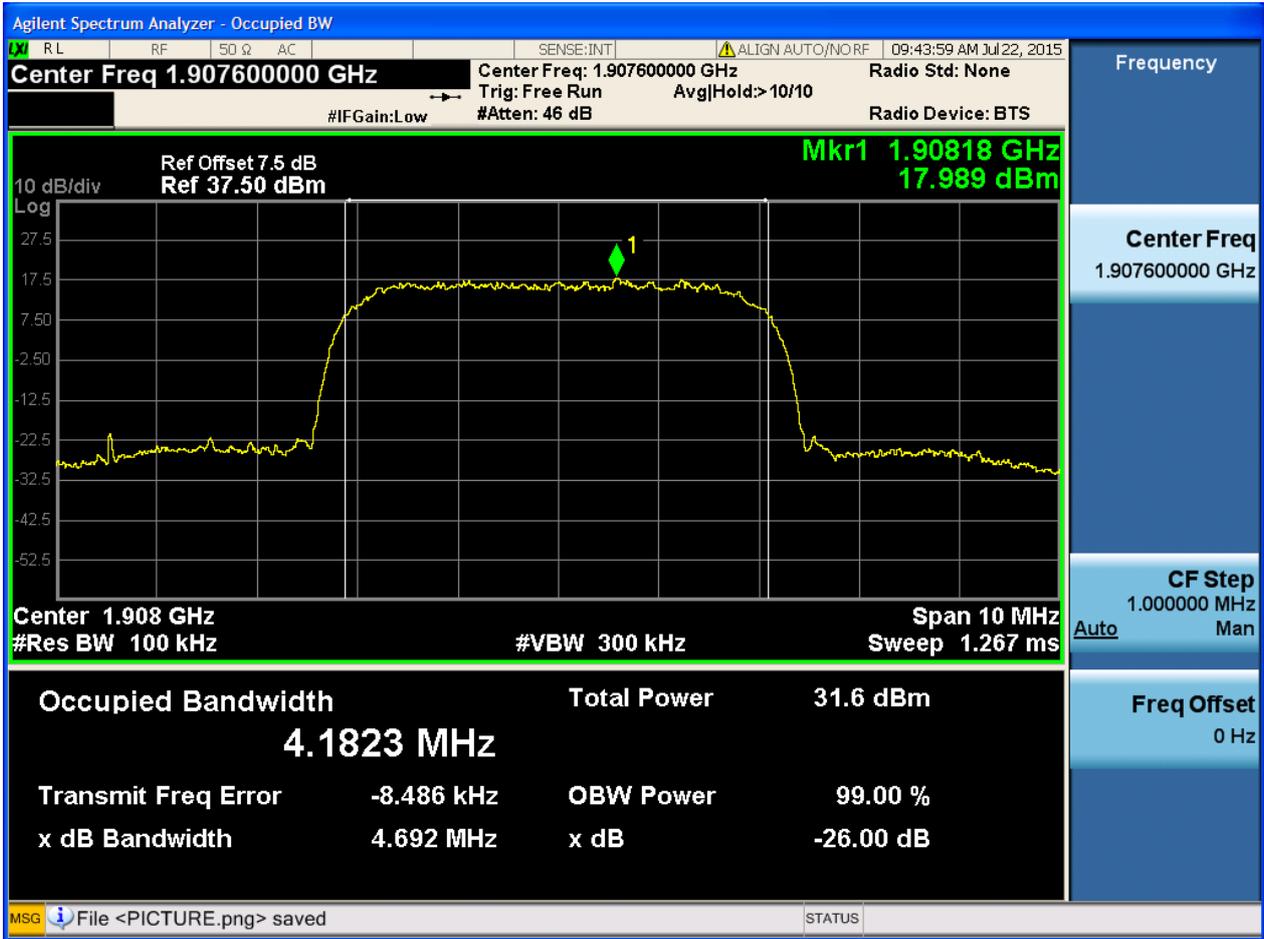


4.1.3.1.2 Test Channel = MCH





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



5.1.2.1.2 Test Channel = HCH





5.1.3 Test Band = WCDMA1900

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.

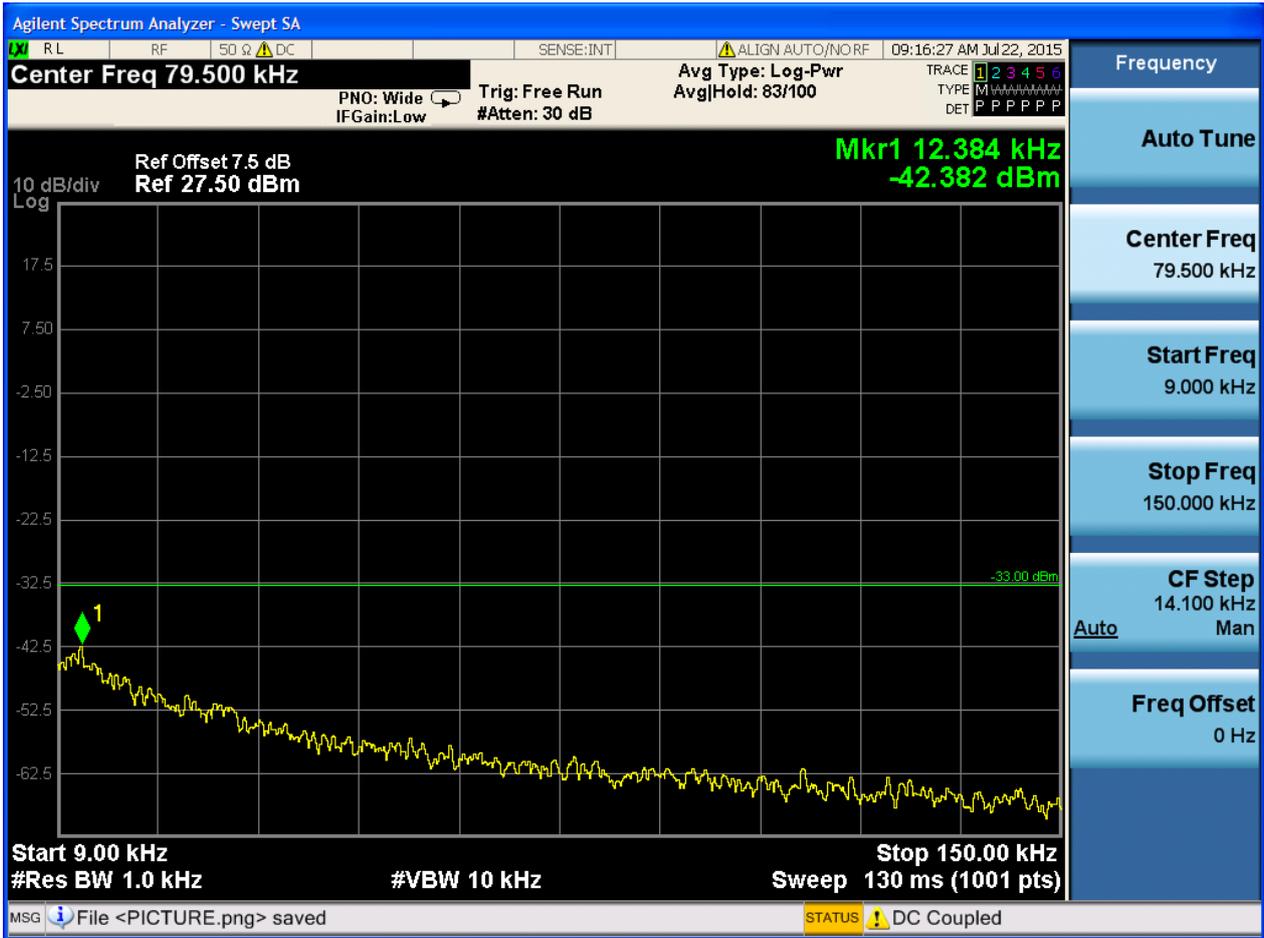
Part I - Test Plots

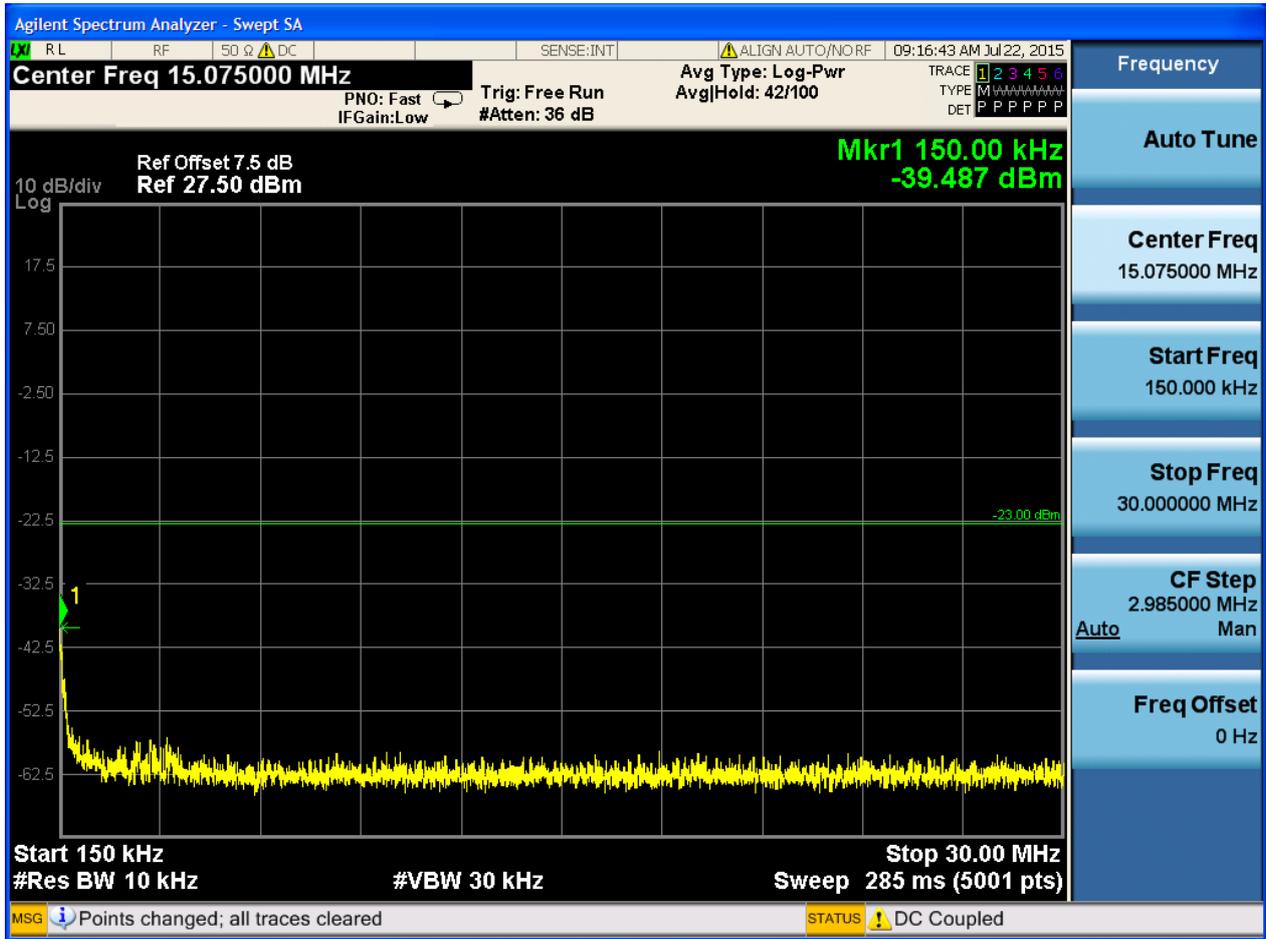
6.1 For UMTS

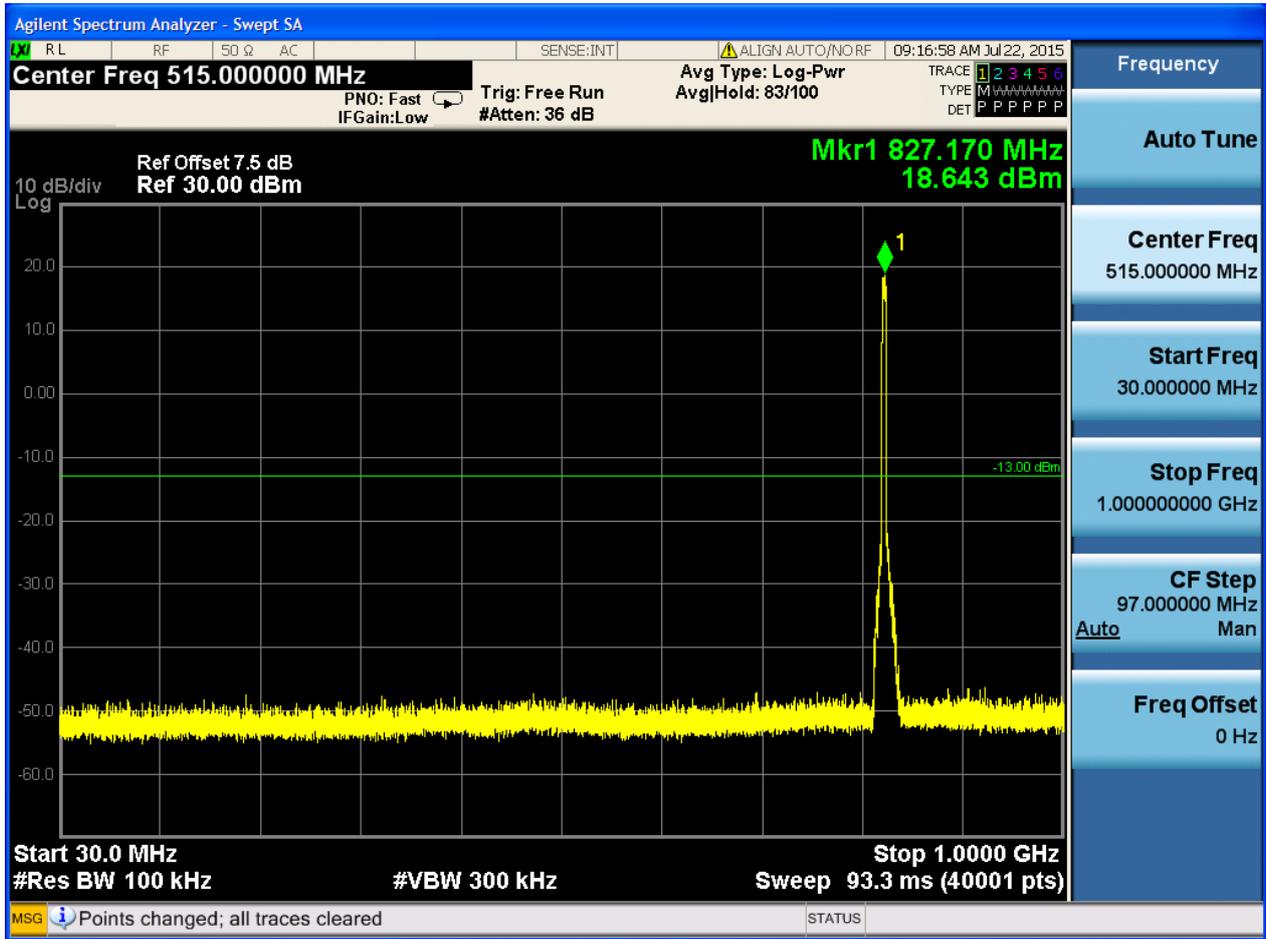
6.1.1 Test Band = WCDMA850

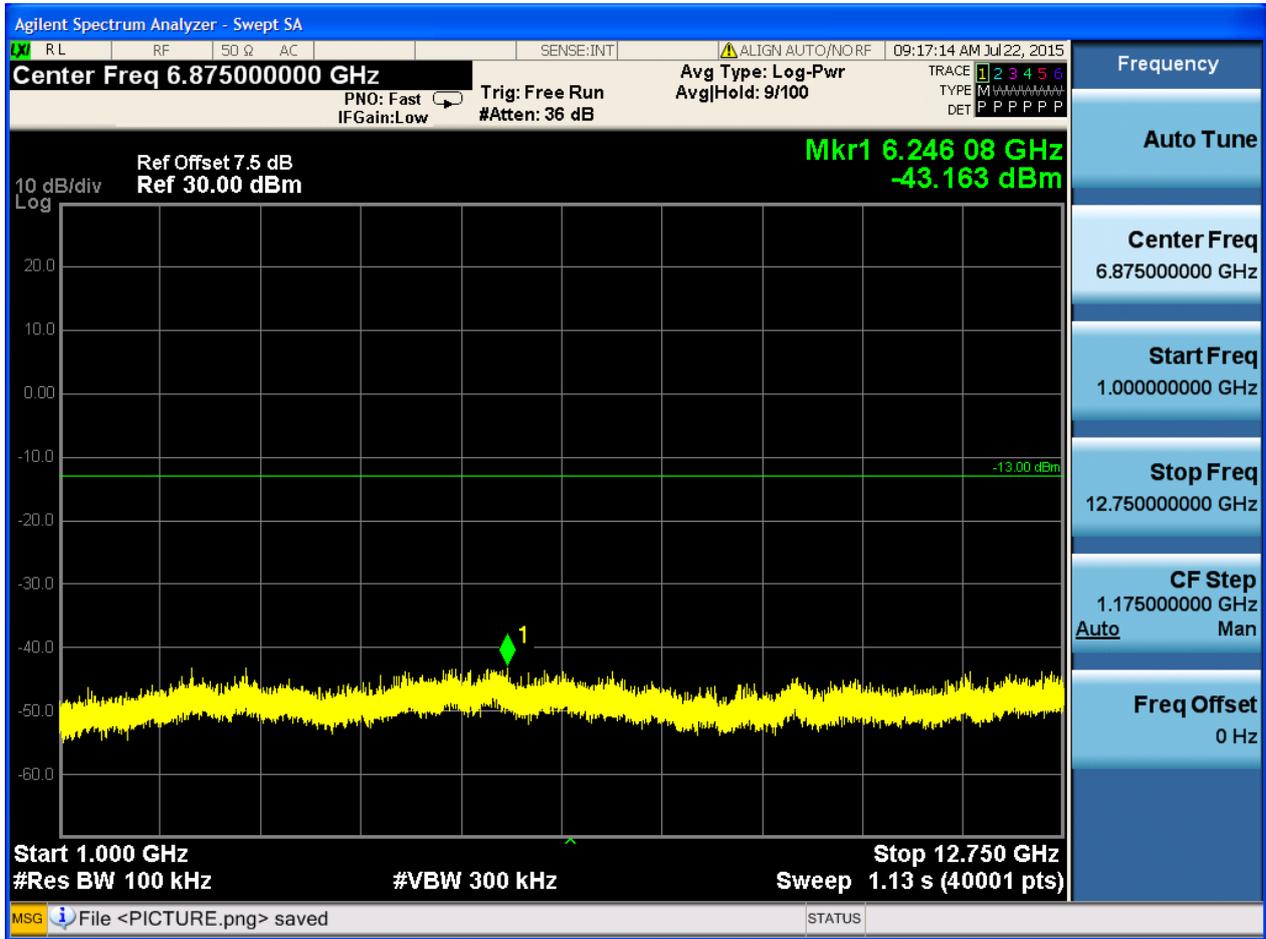
6.1.1.1 Test Mode = UMTS/TM1

6.1.1.1.1 Test Channel = LCH



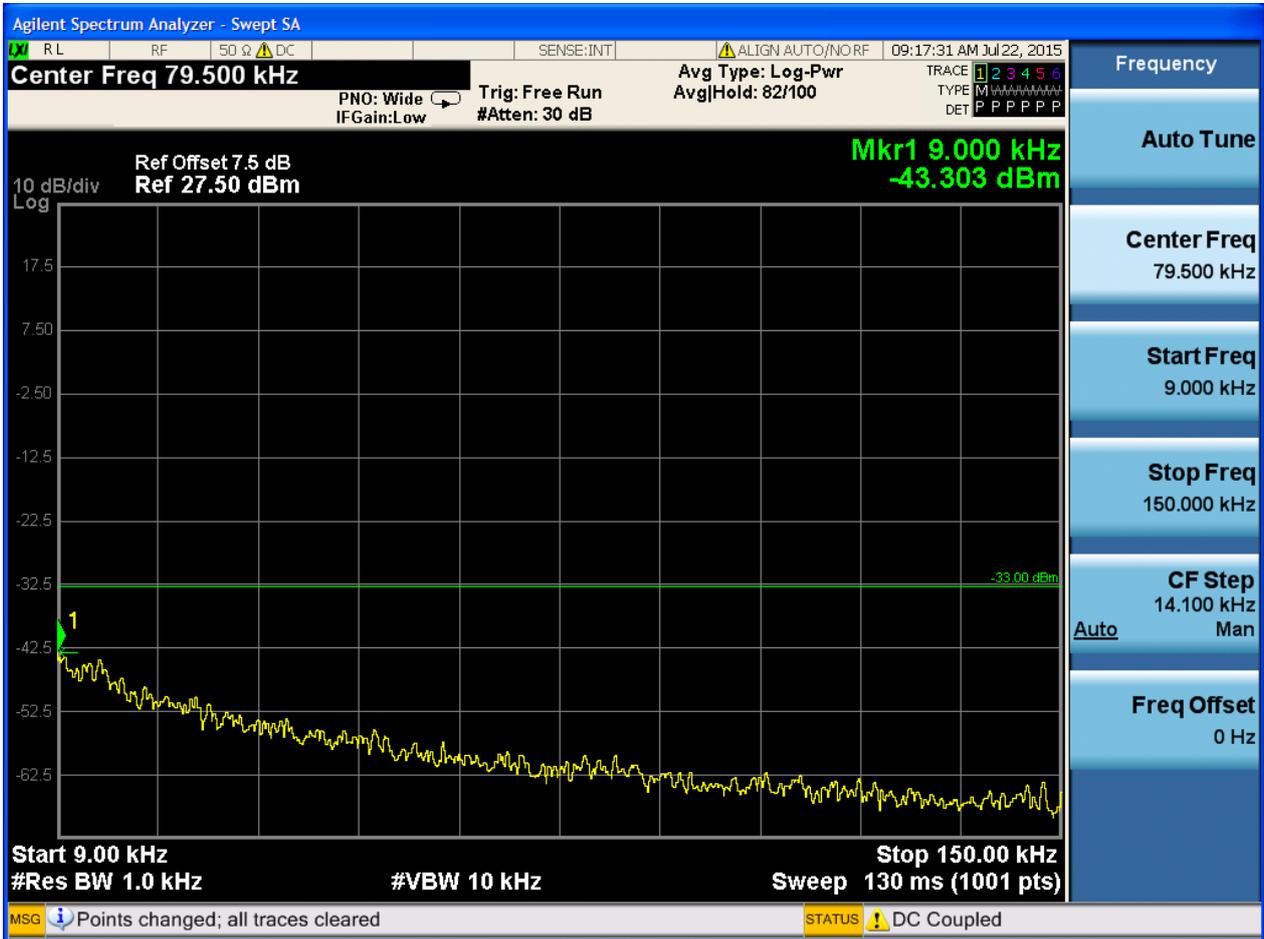


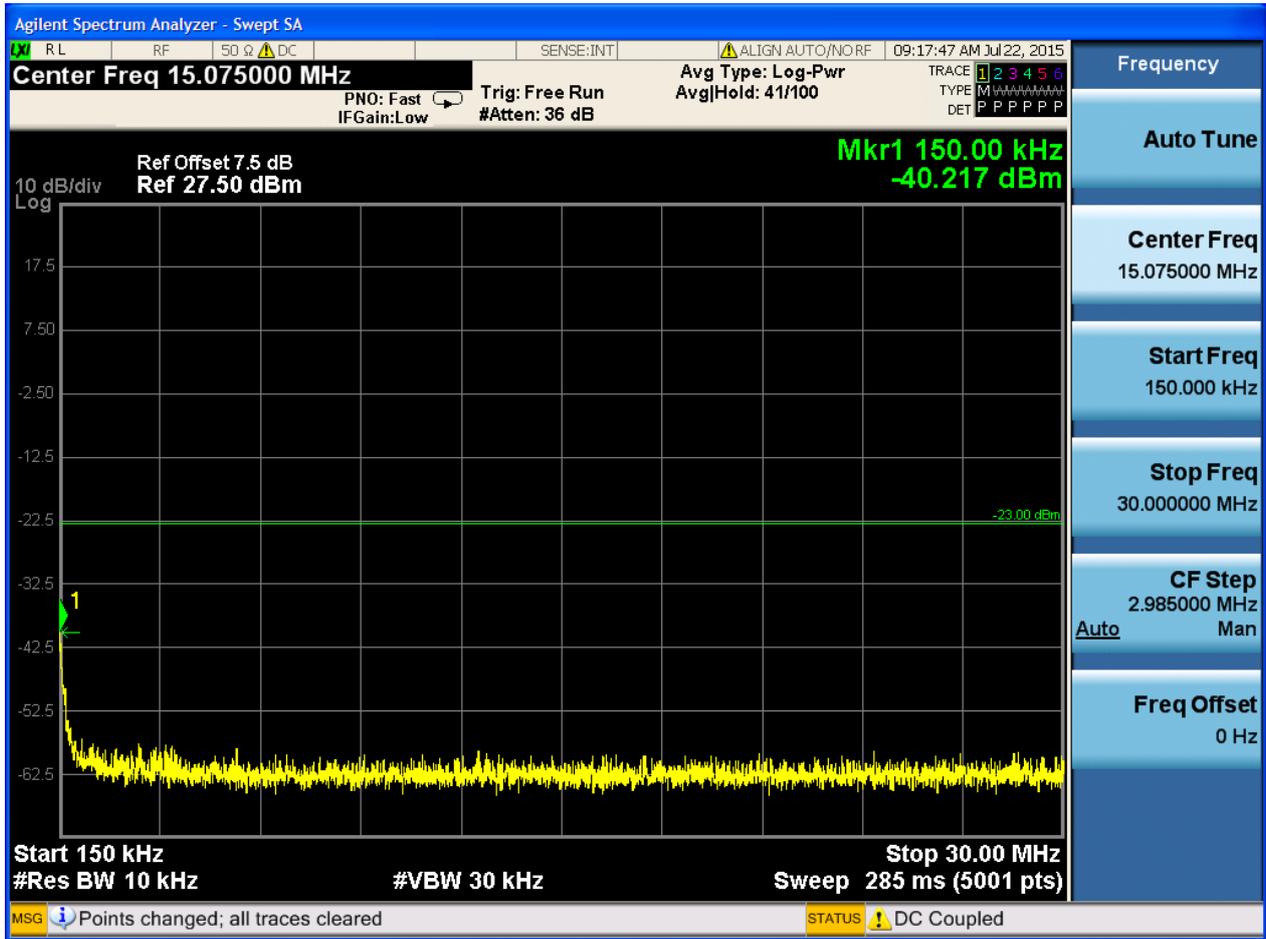


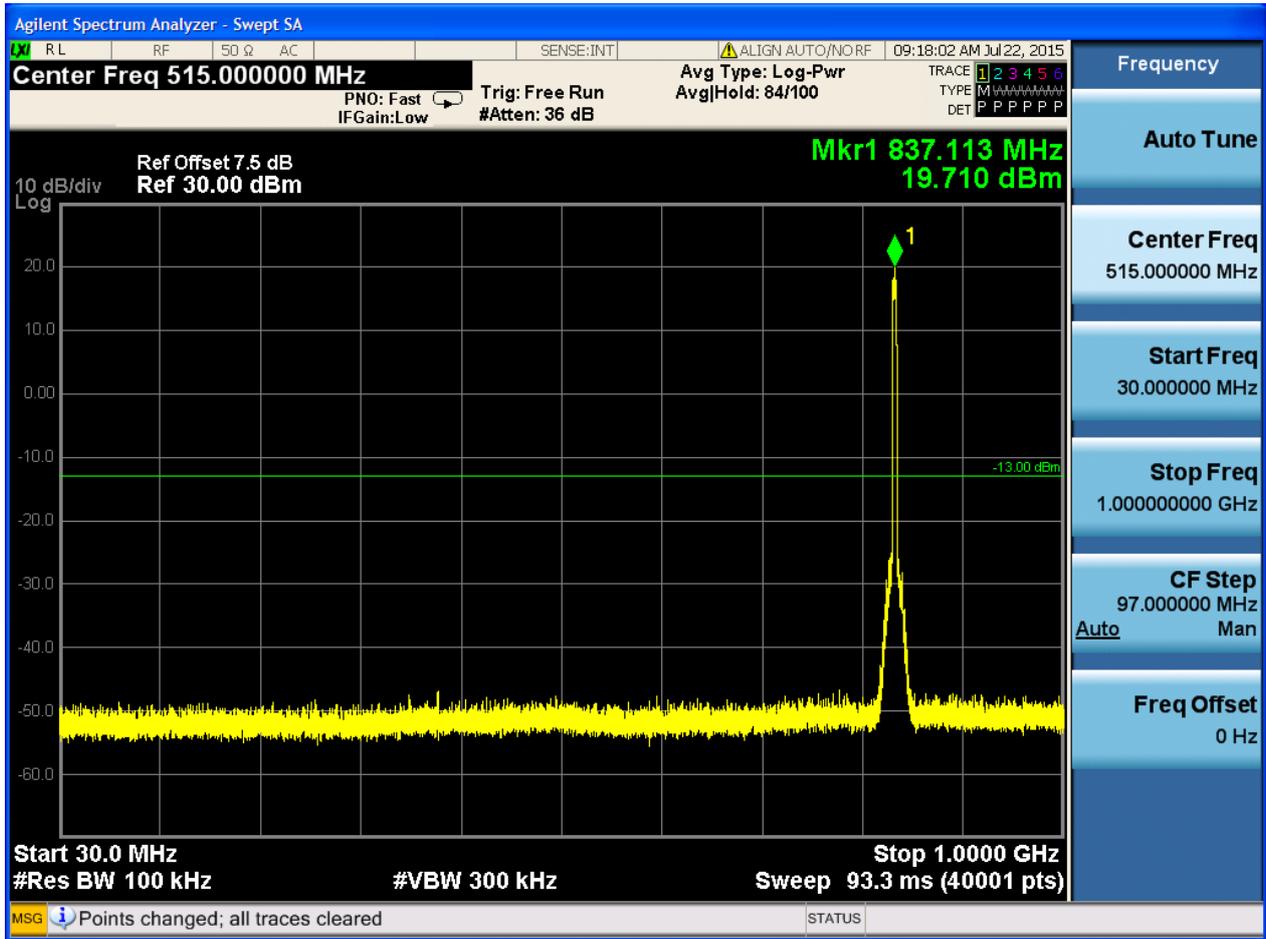


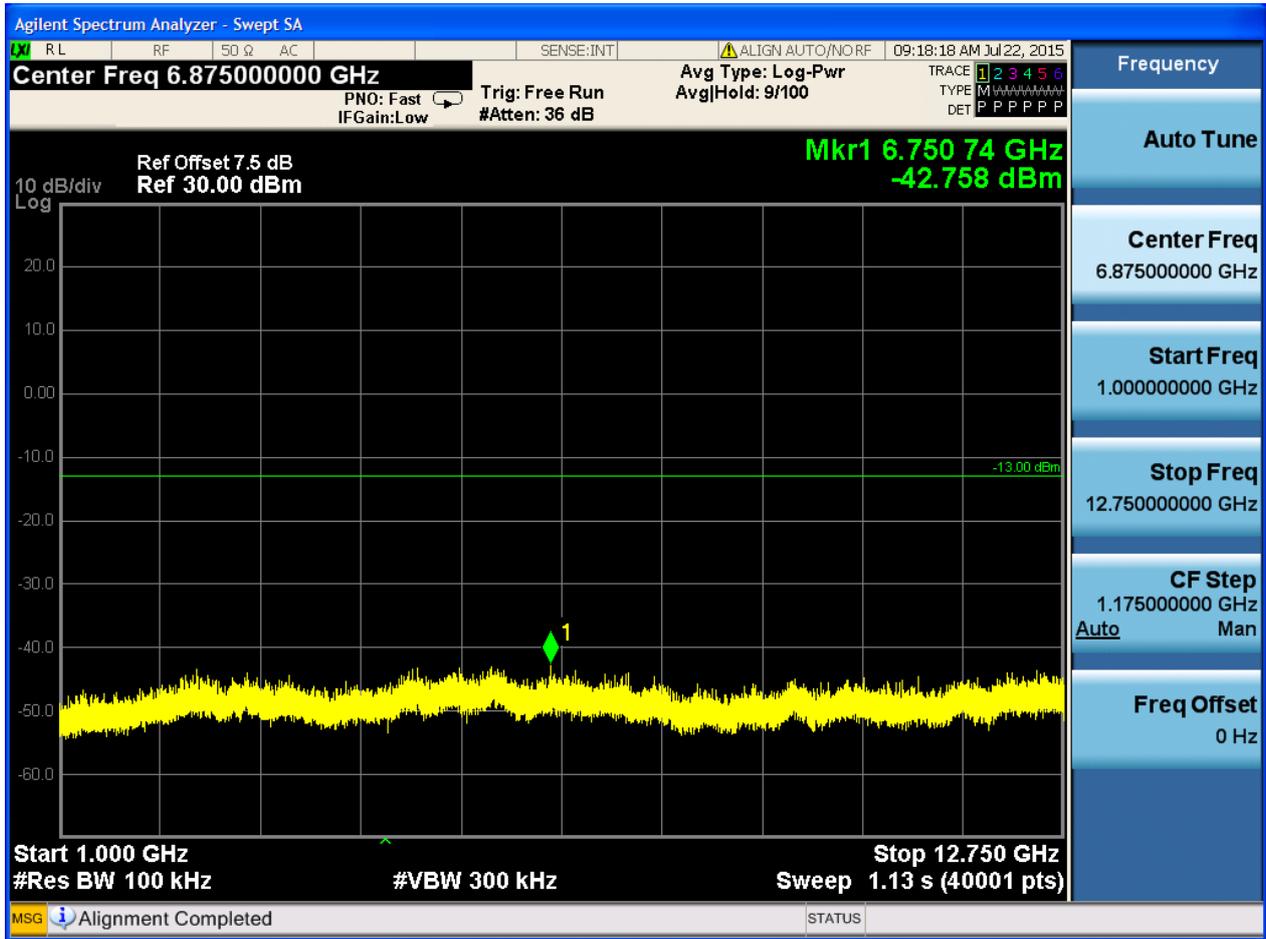


6.1.1.1.2 Test Channel = MCH



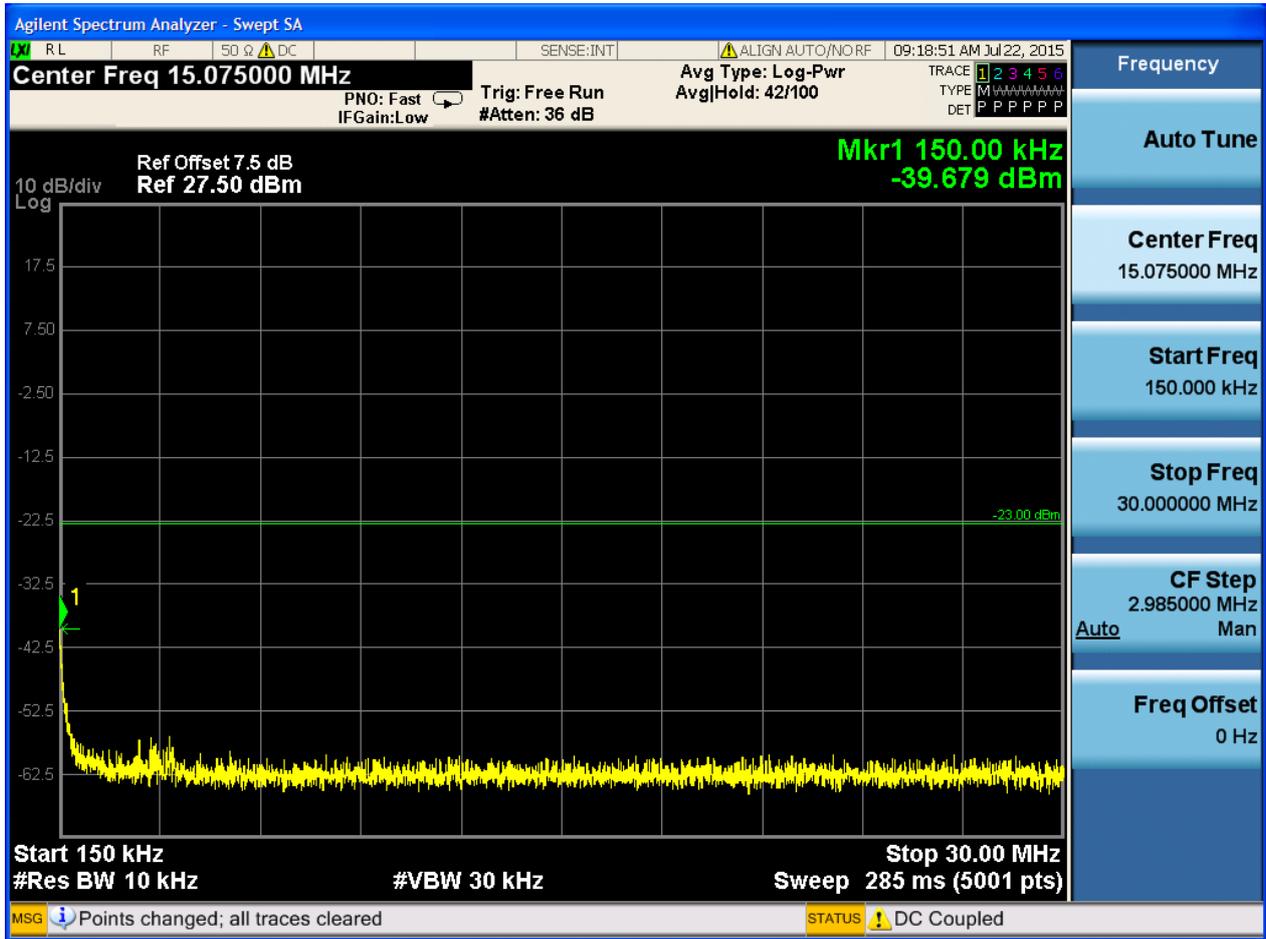


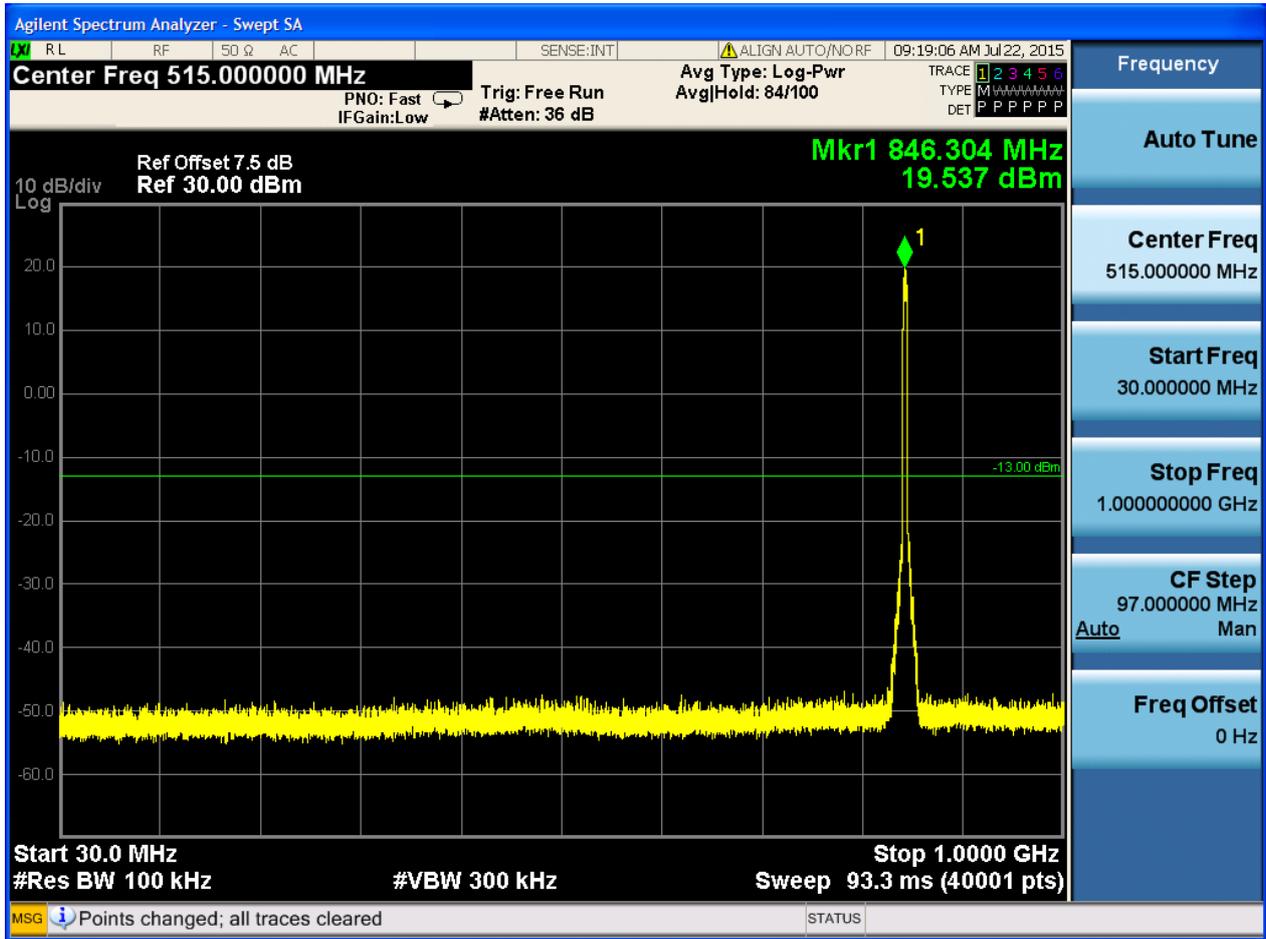




6.1.1.1.3 Test Channel = HCH







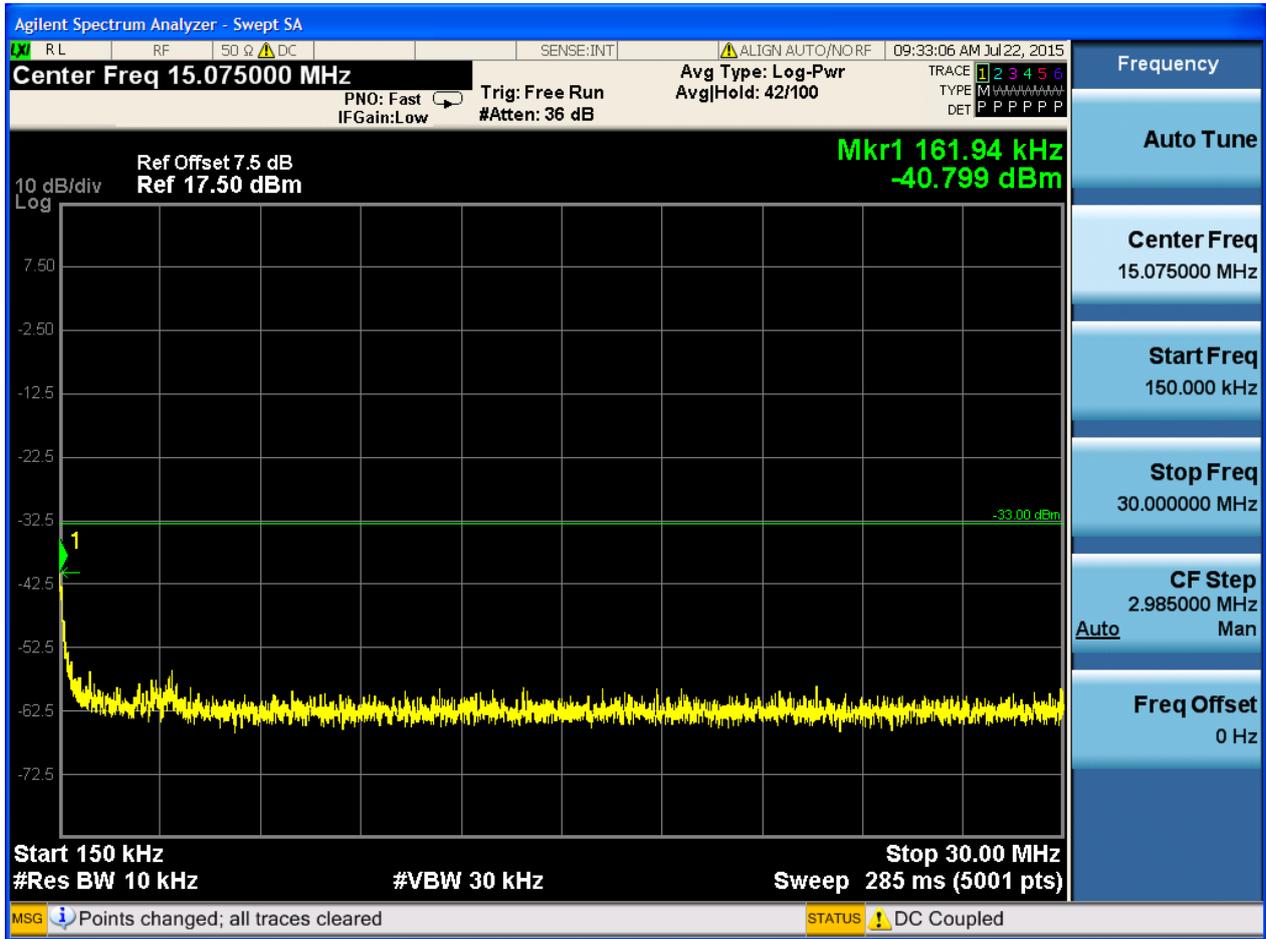


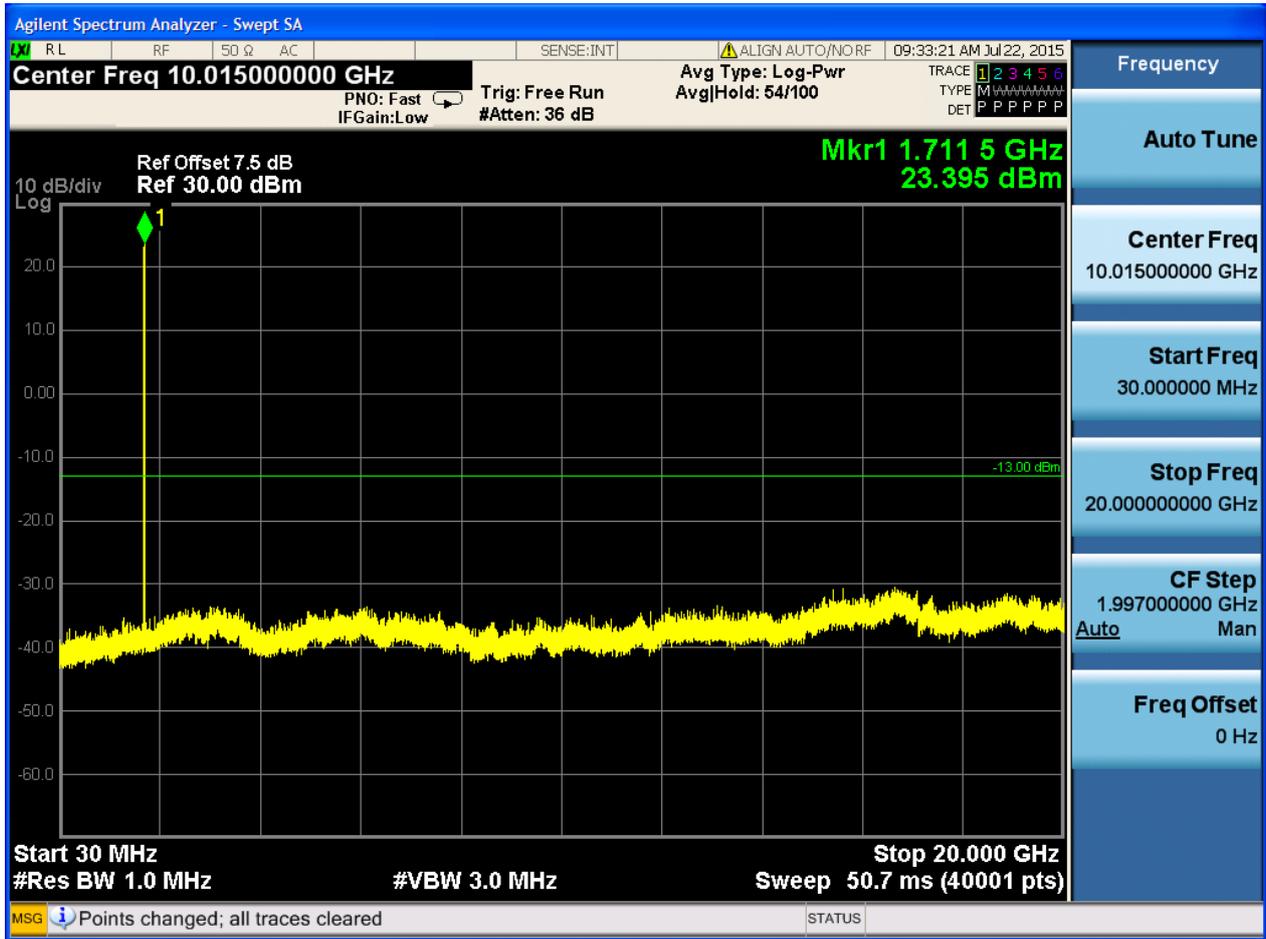
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6.1.2.1 Test Mode = UMTS/TM1

6.1.2.1.1 Test Channel = LCH

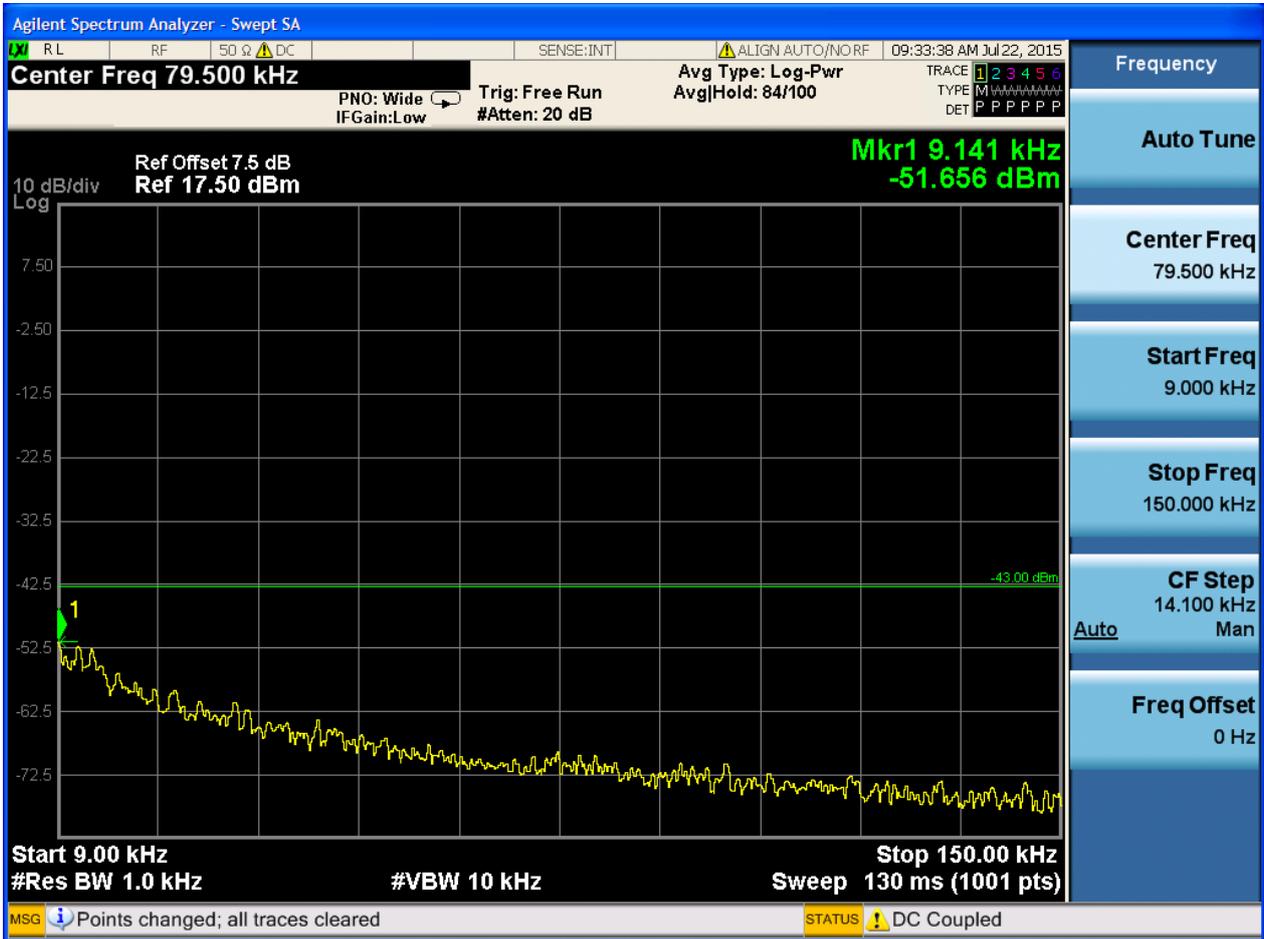


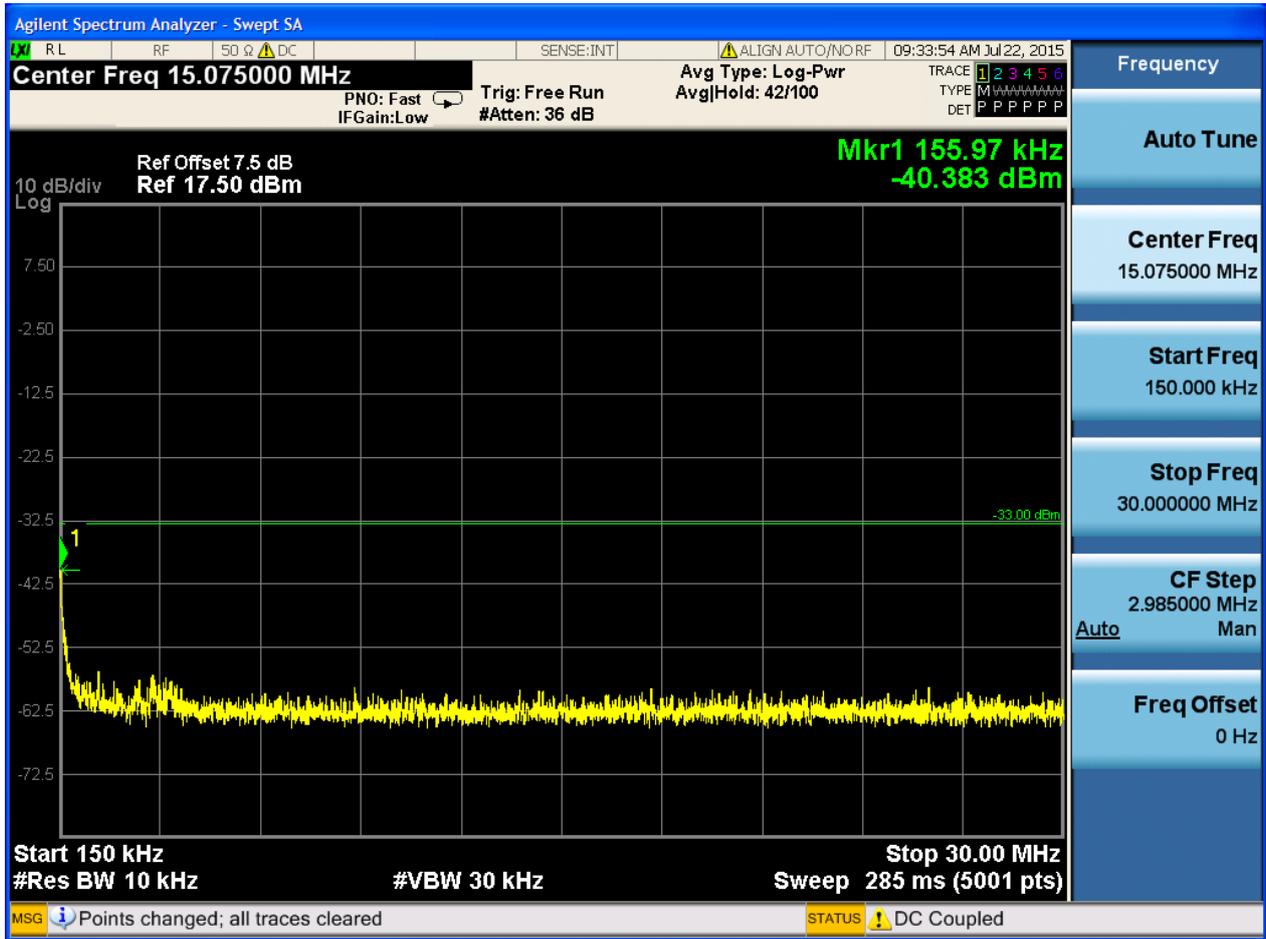


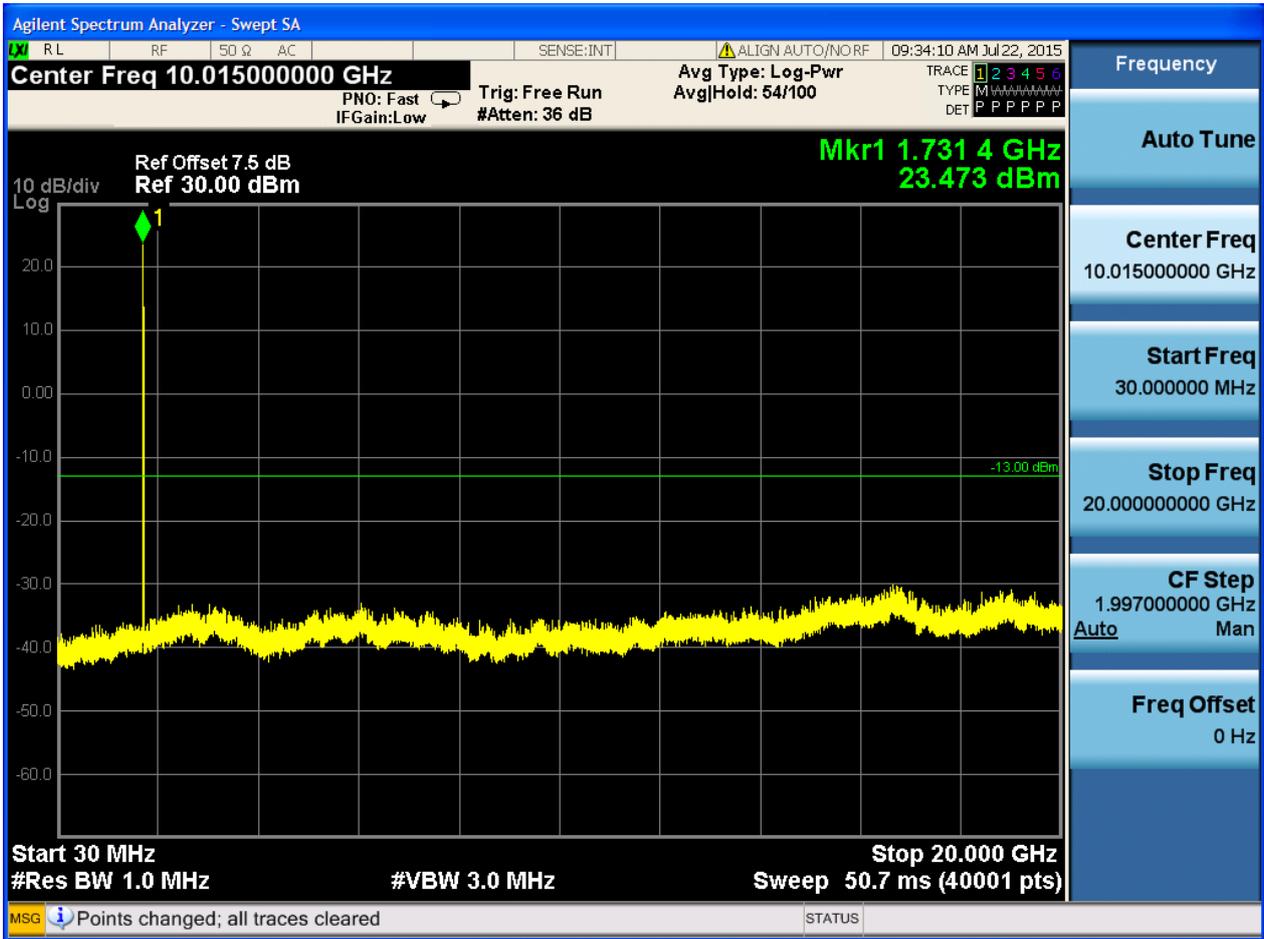




6.1.2.1.2 Test Channel = MCH

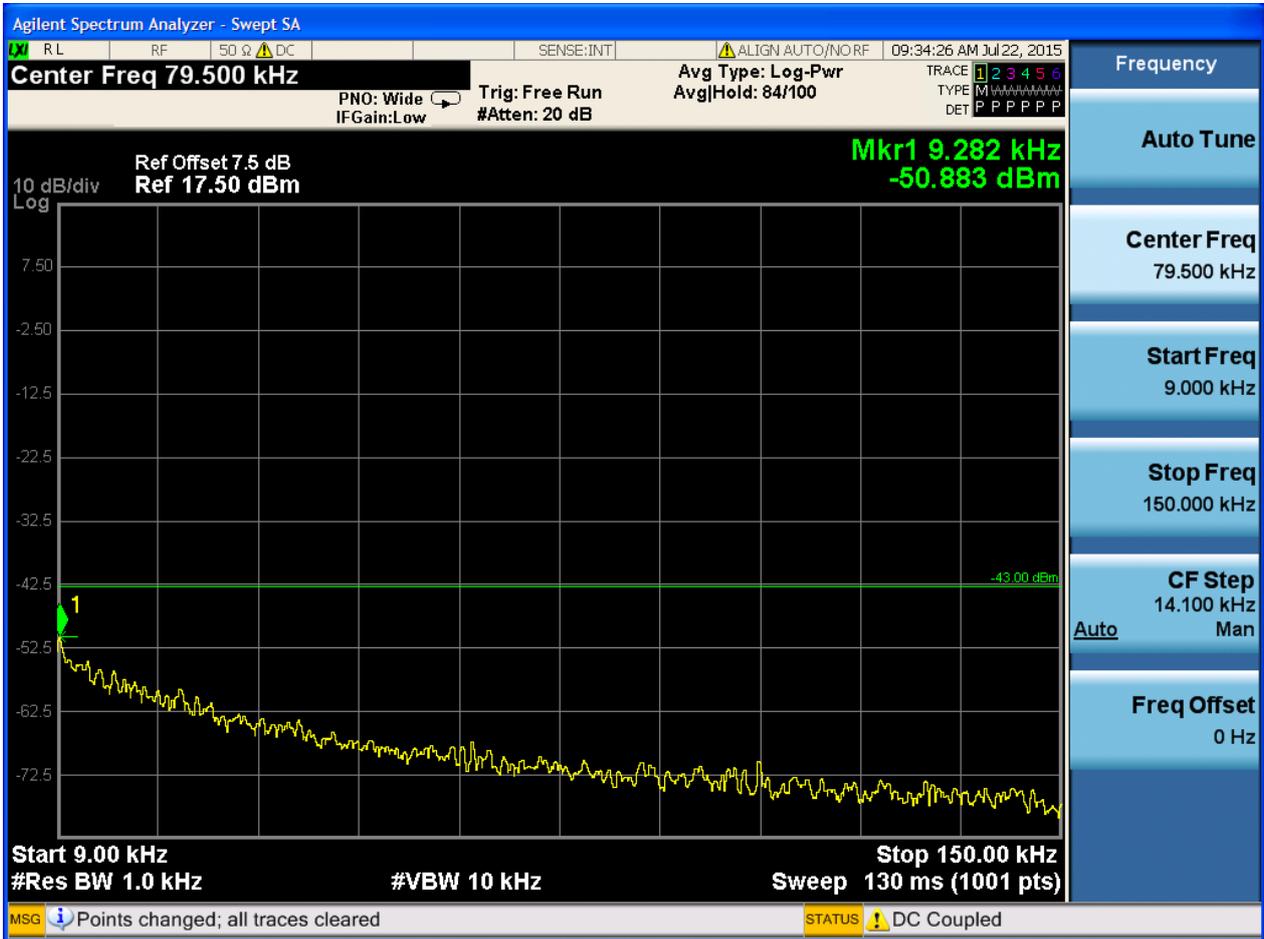


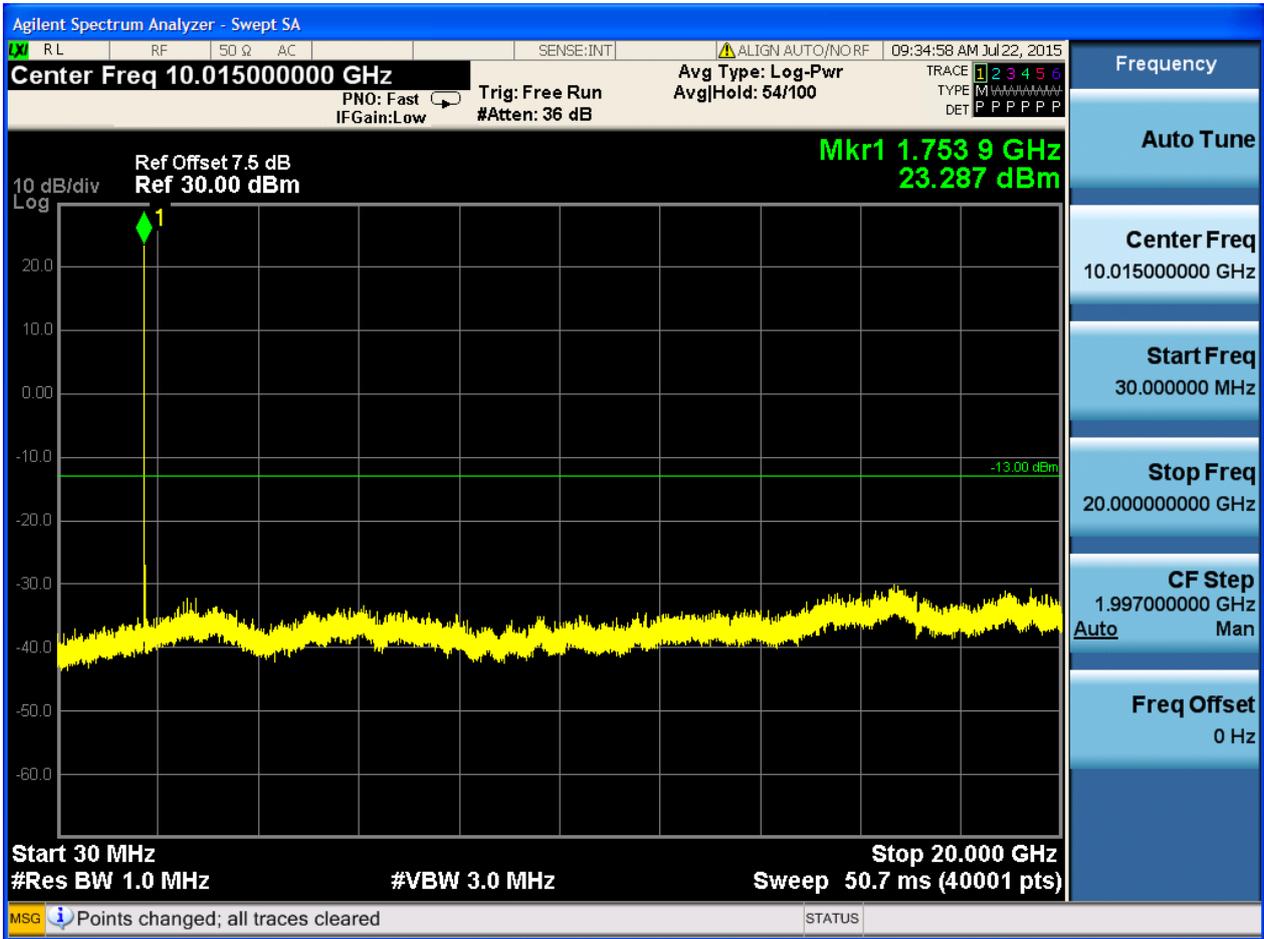






6.1.2.1.3 Test Channel = HCH





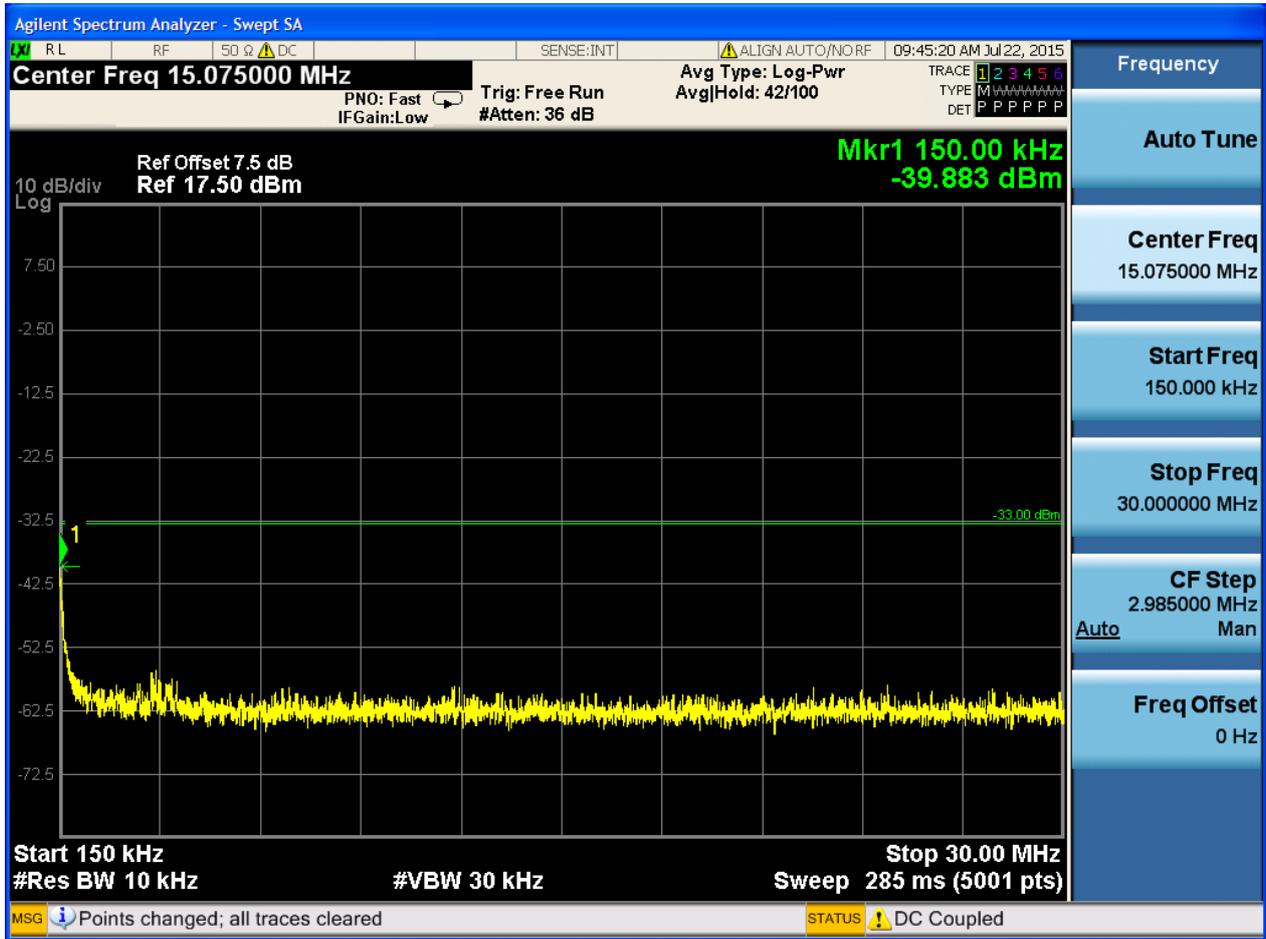


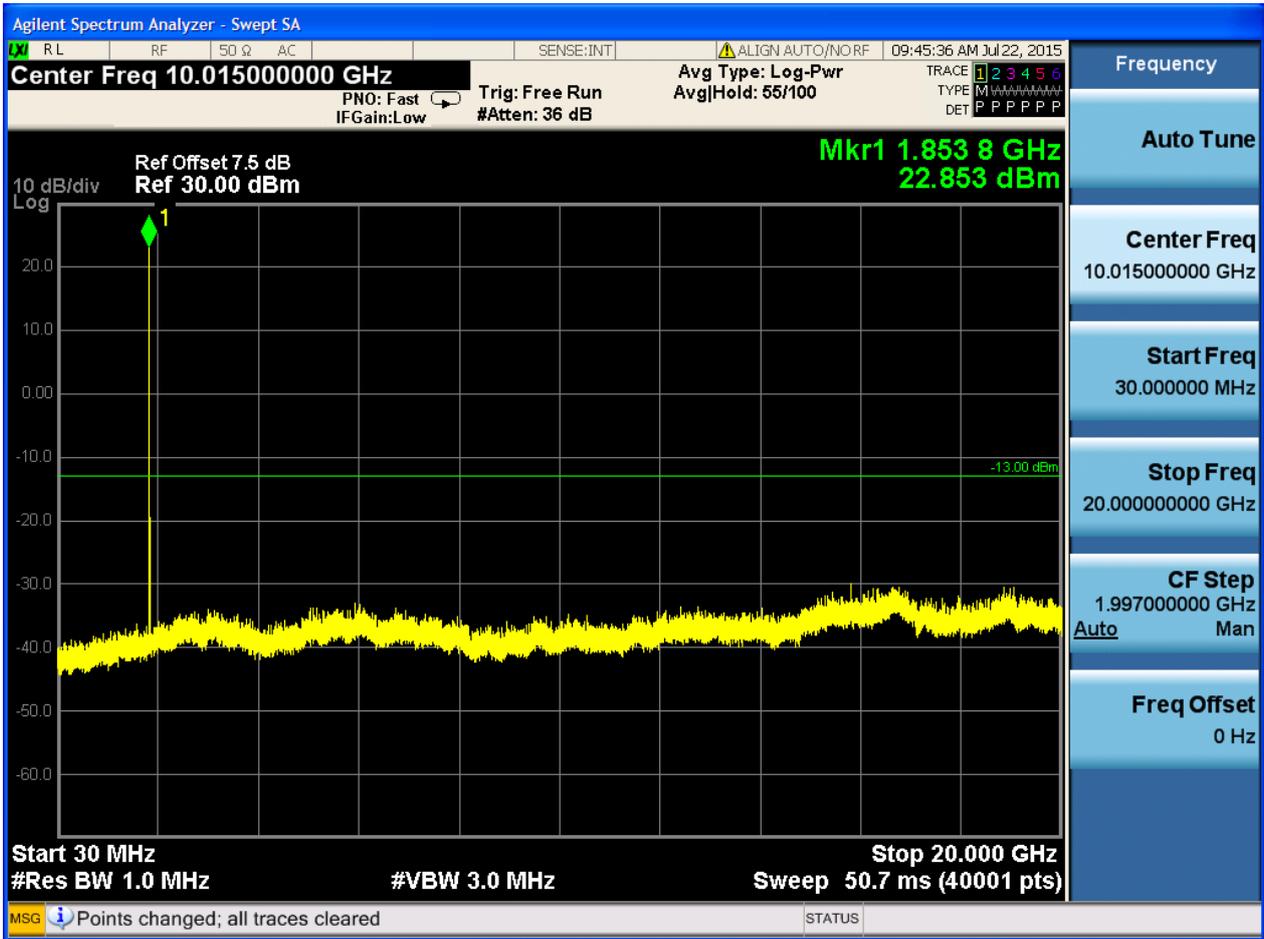
6.1.3 Test Band = WCDMA1900

6.1.3.1 Test Mode = UMTS/TM1

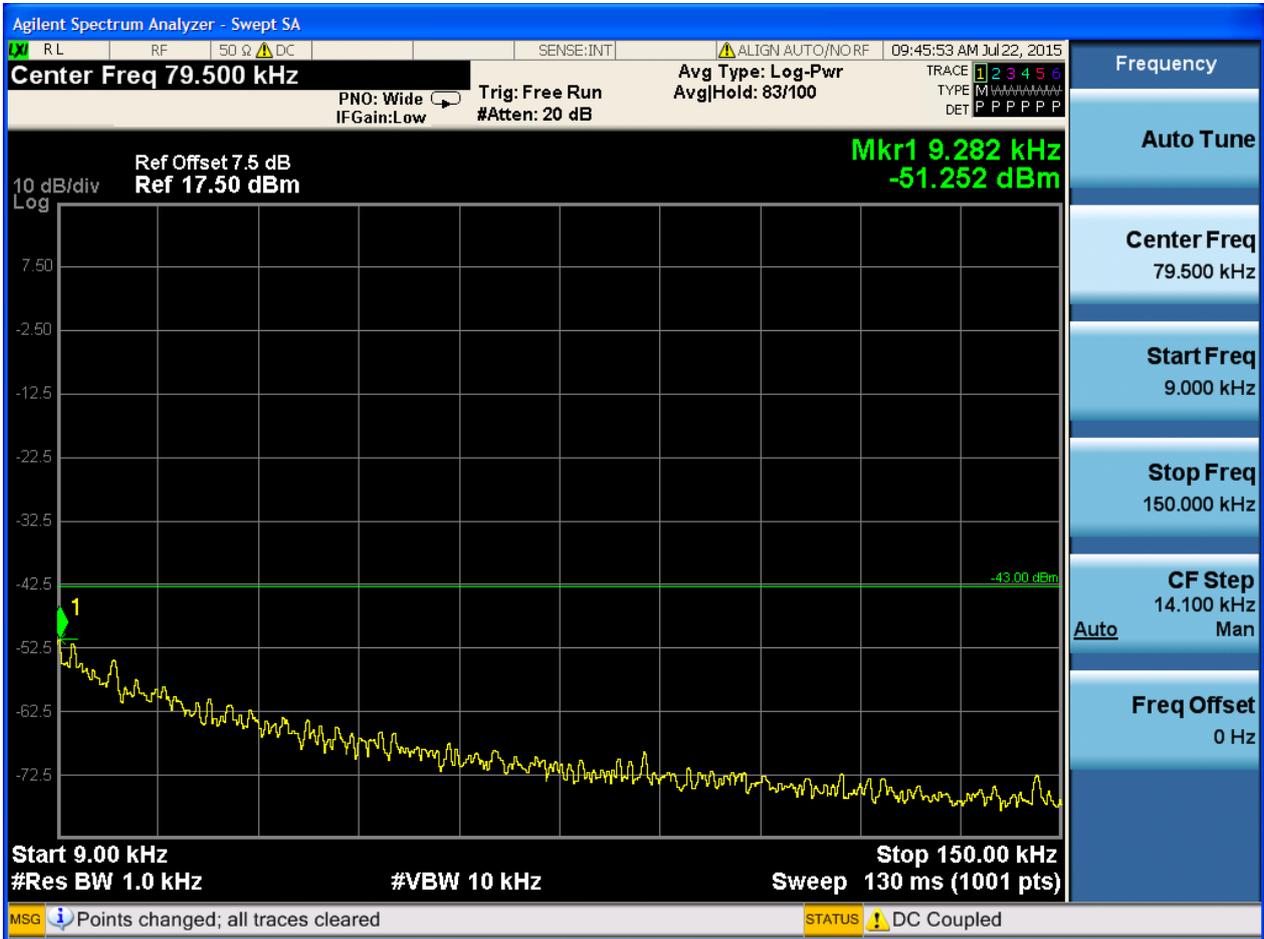
6.1.3.1.1 Test Channel = LCH

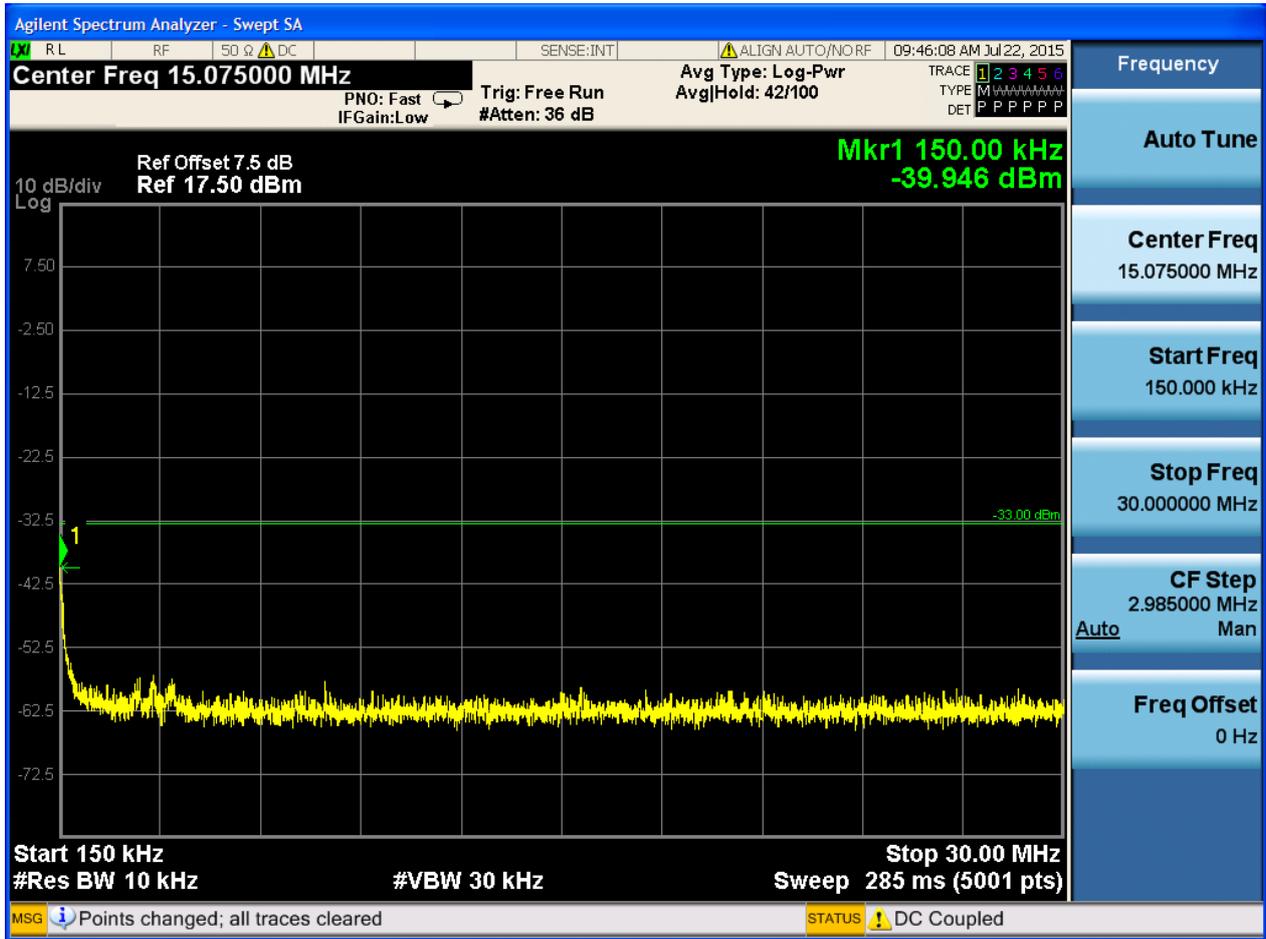


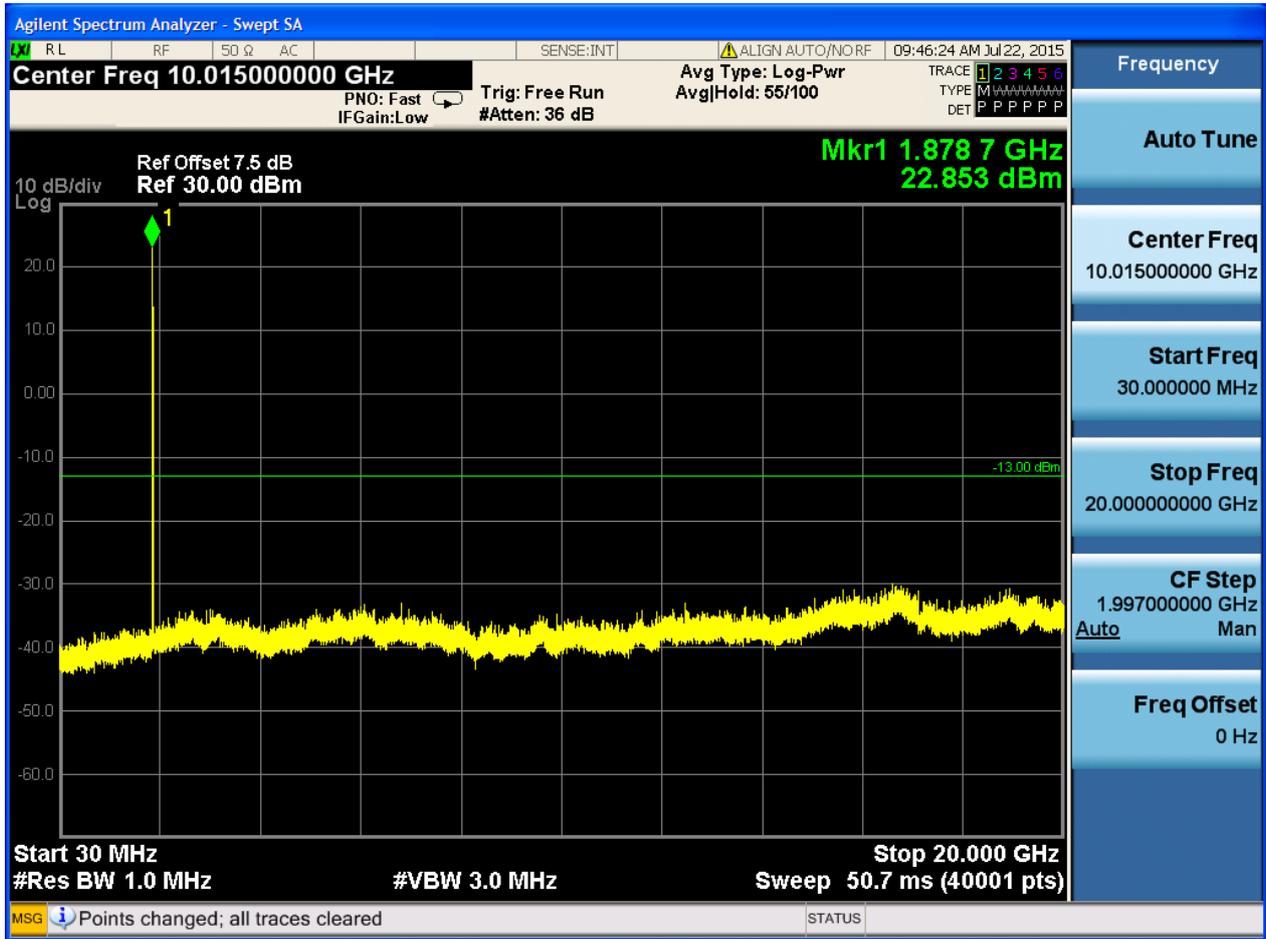




6.1.3.1.2 Test Channel = MCH

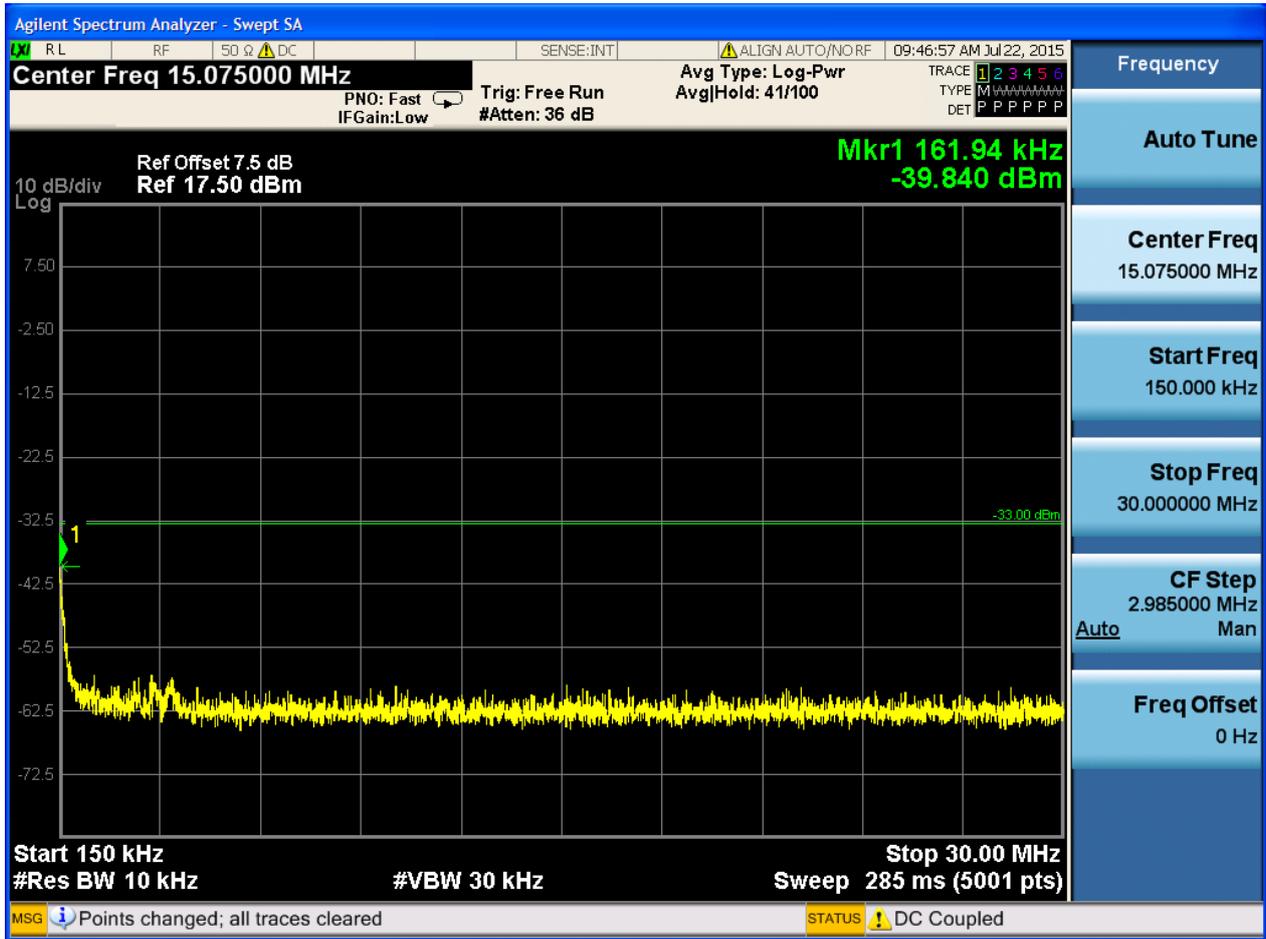


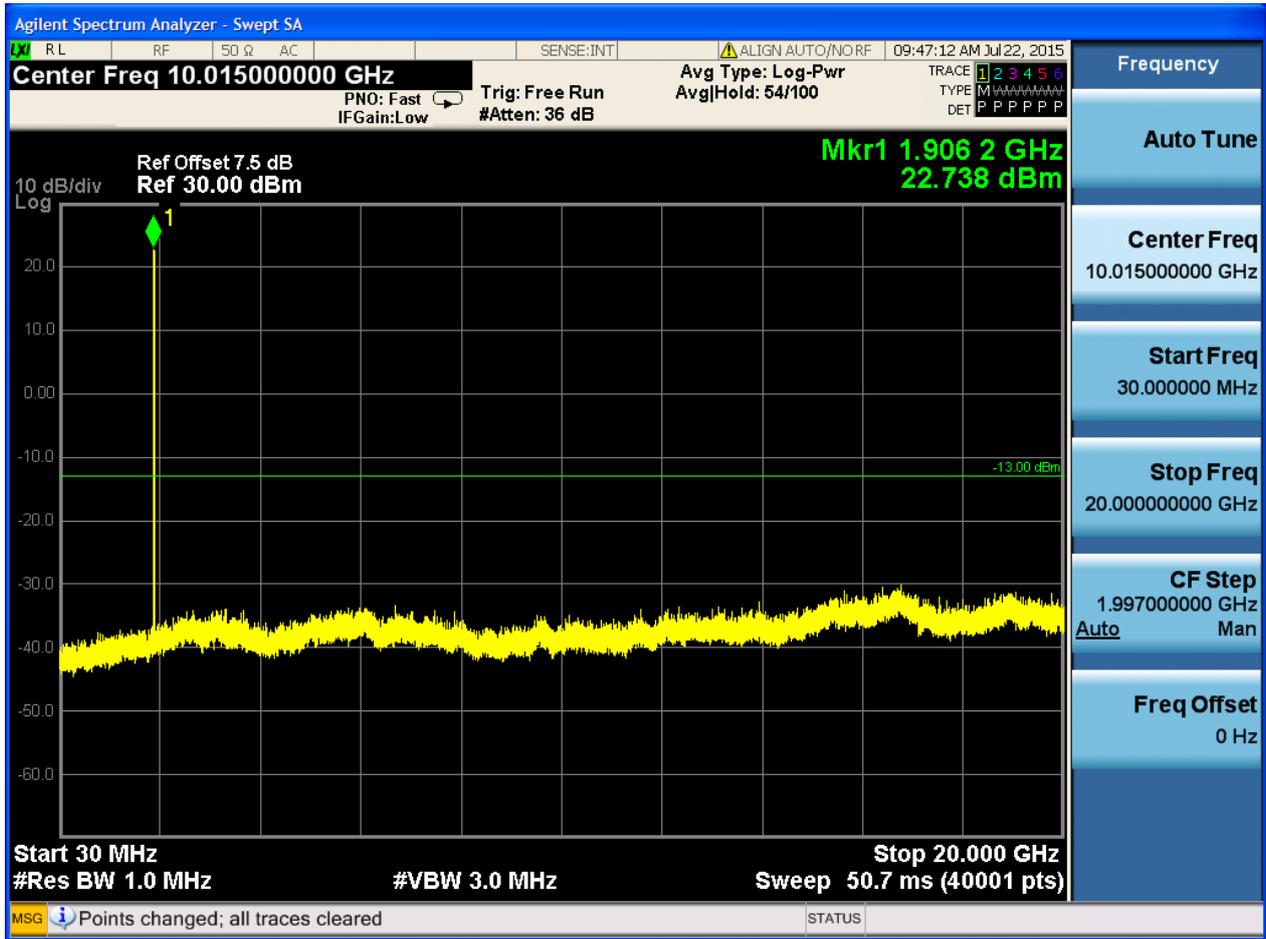




6.1.3.1.3 Test Channel = HCH







7Appendix_G: 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

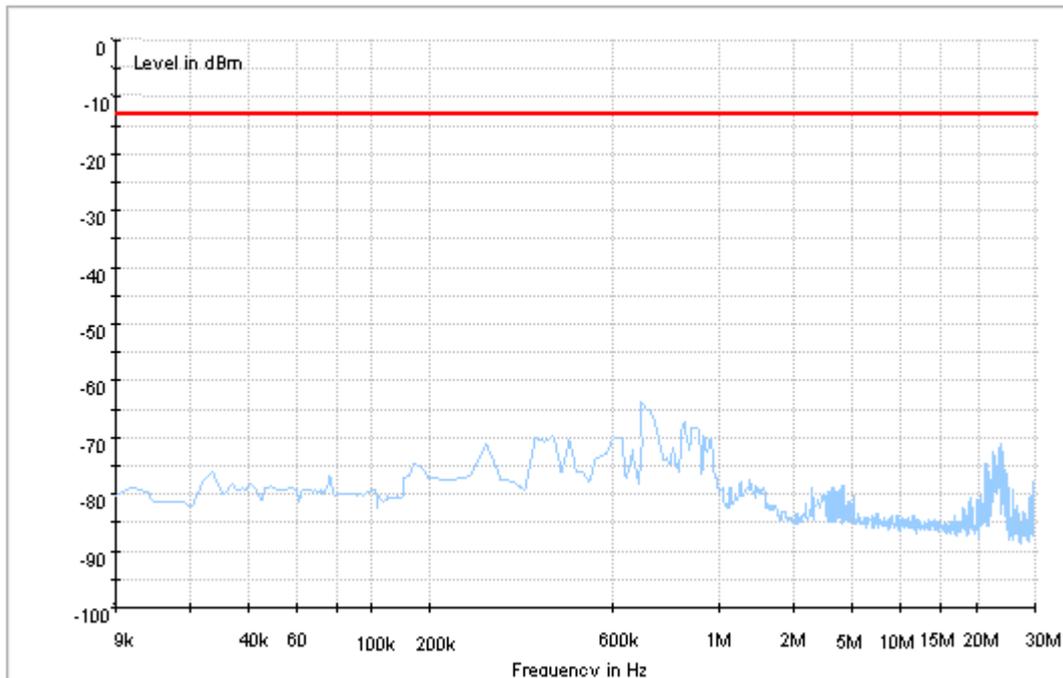
We tested all modes, but the data presented below is the worst case.

Part I - Test Plots

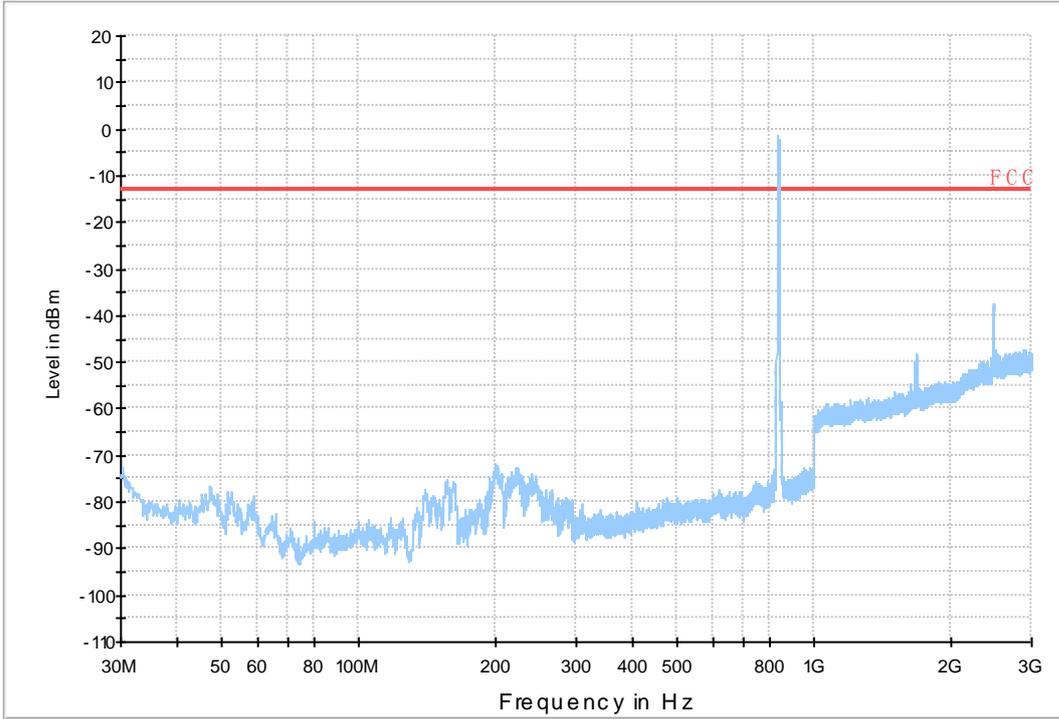
7.1 For UMTS

7.1.1 Test Band = WCDMA850

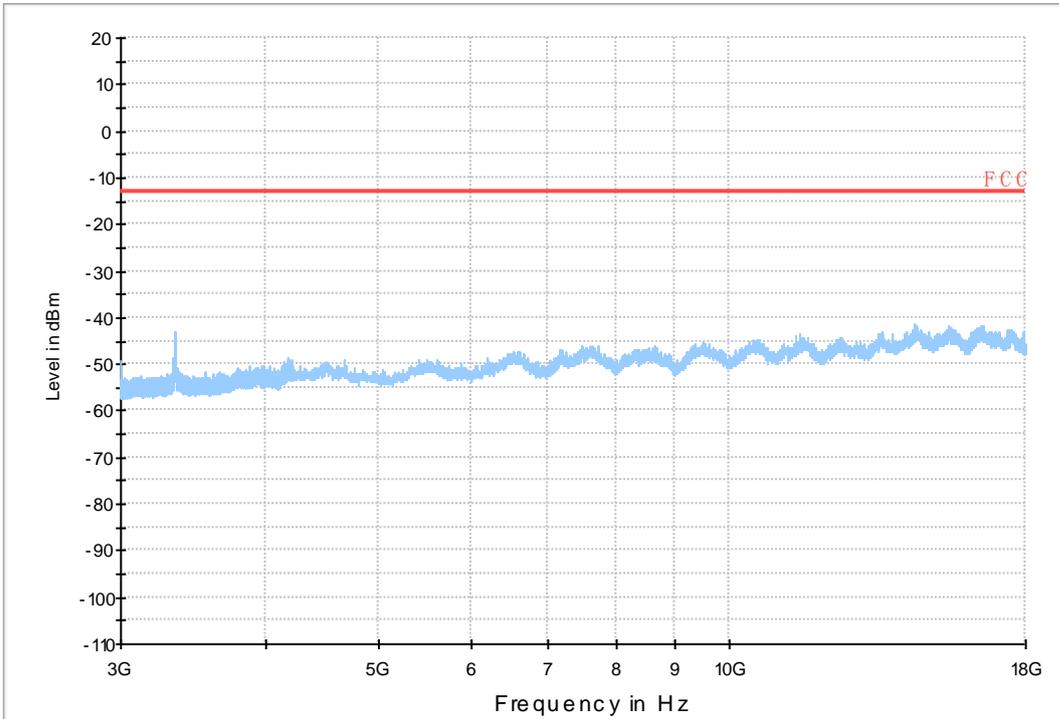
7.1.1.1 Test Mode = UMTS/TM1



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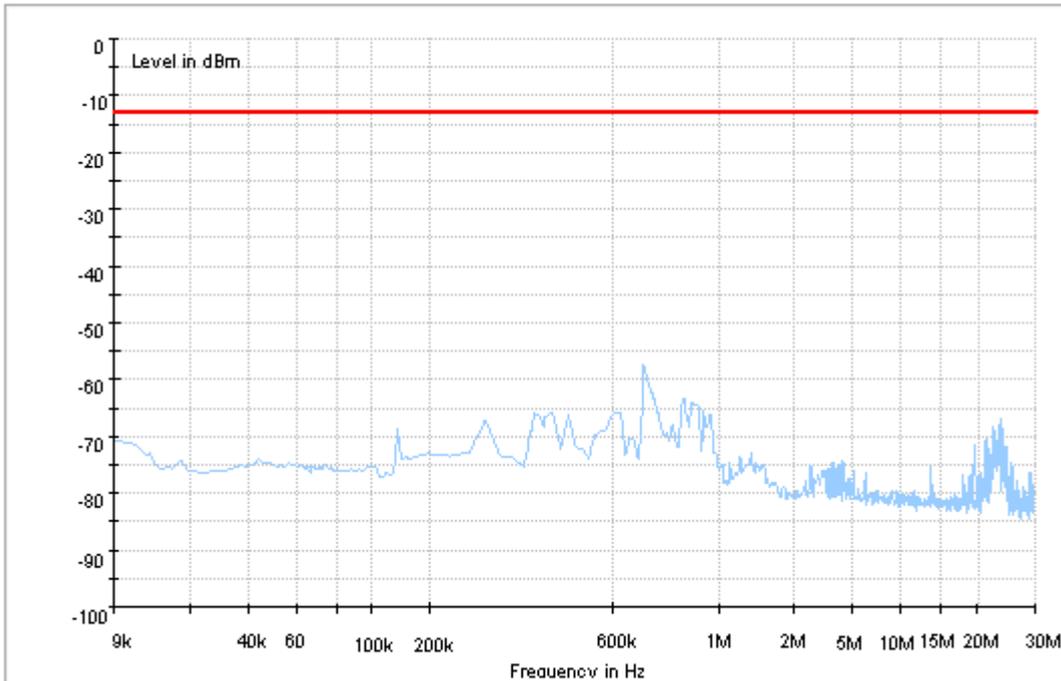


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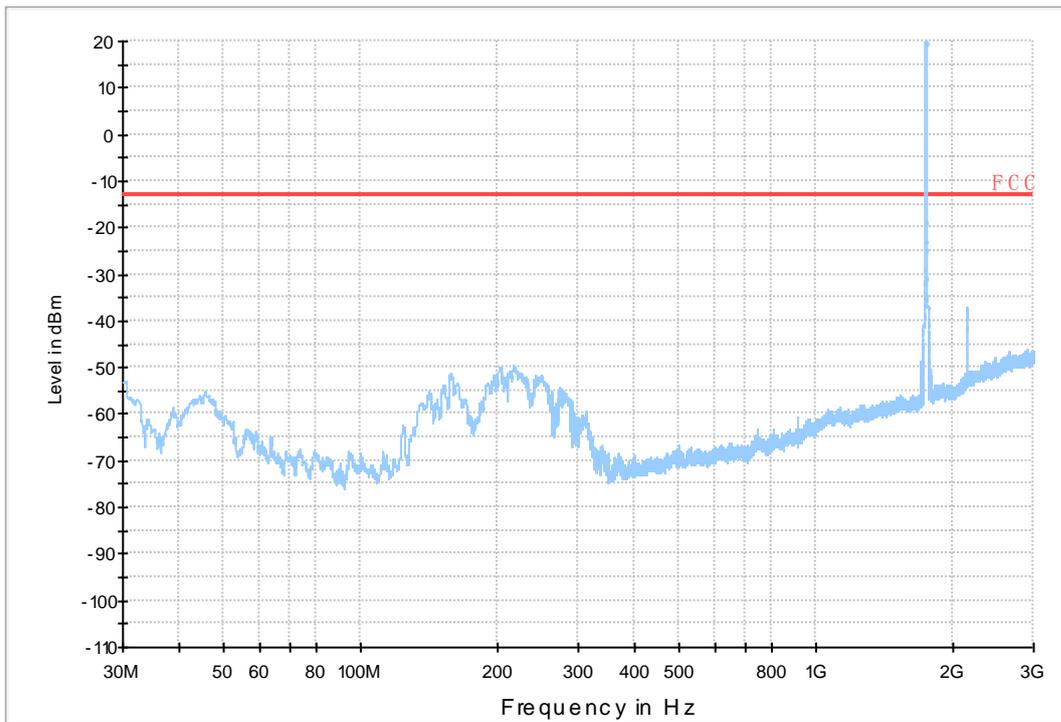


7.1.2 Test Band = WCDMA1700

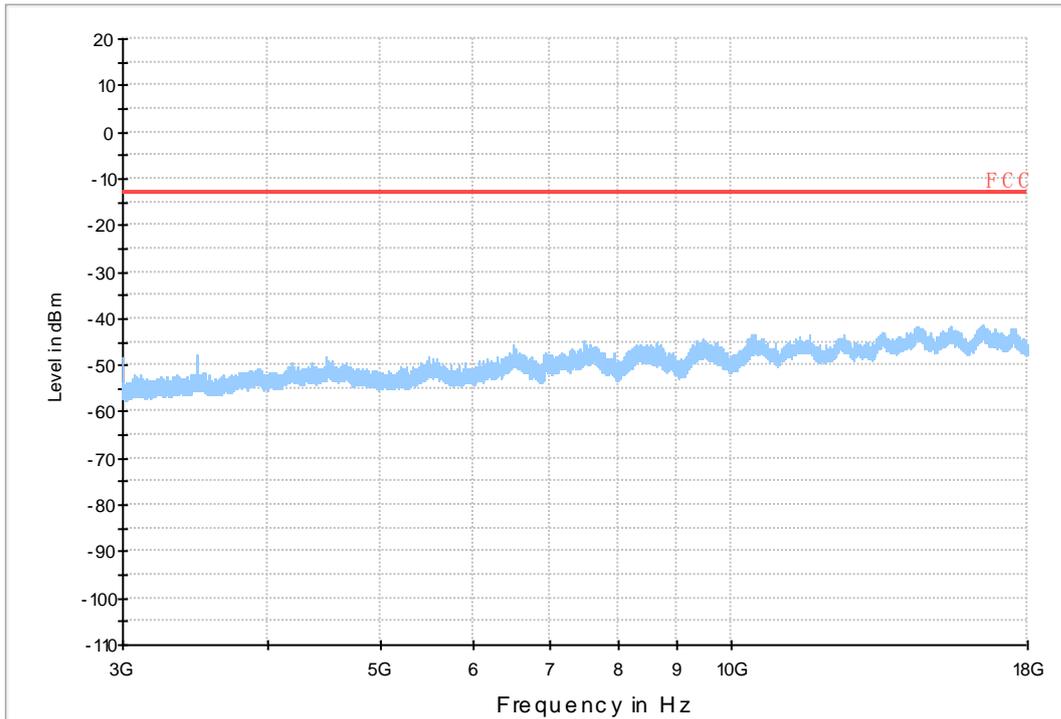
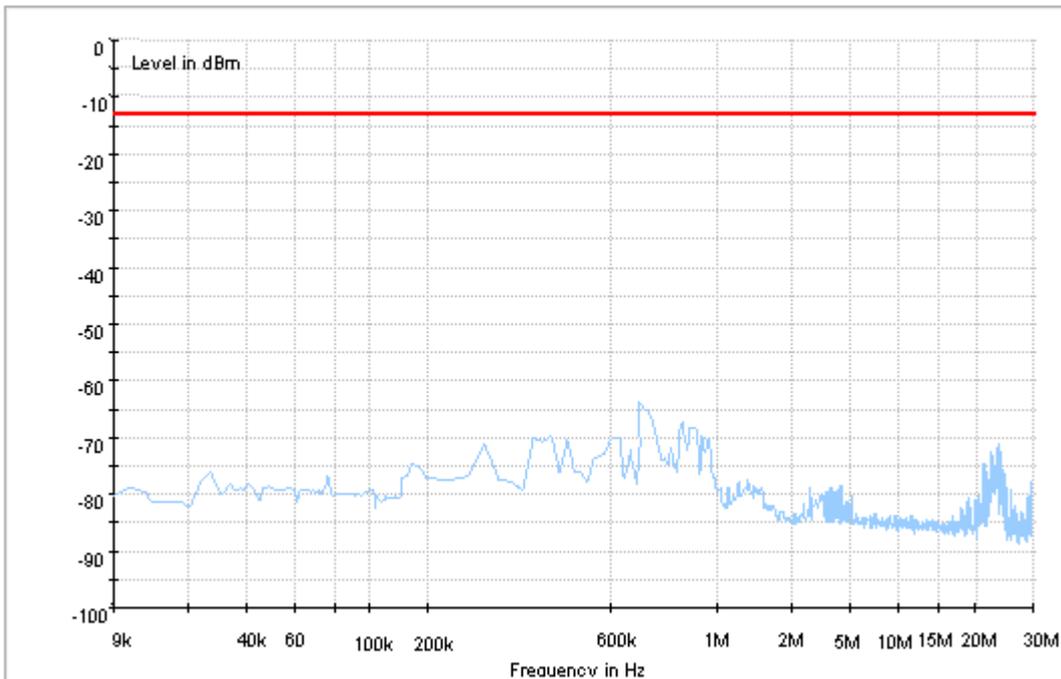
7.1.2.1 Test Mode = UMTS/TM1



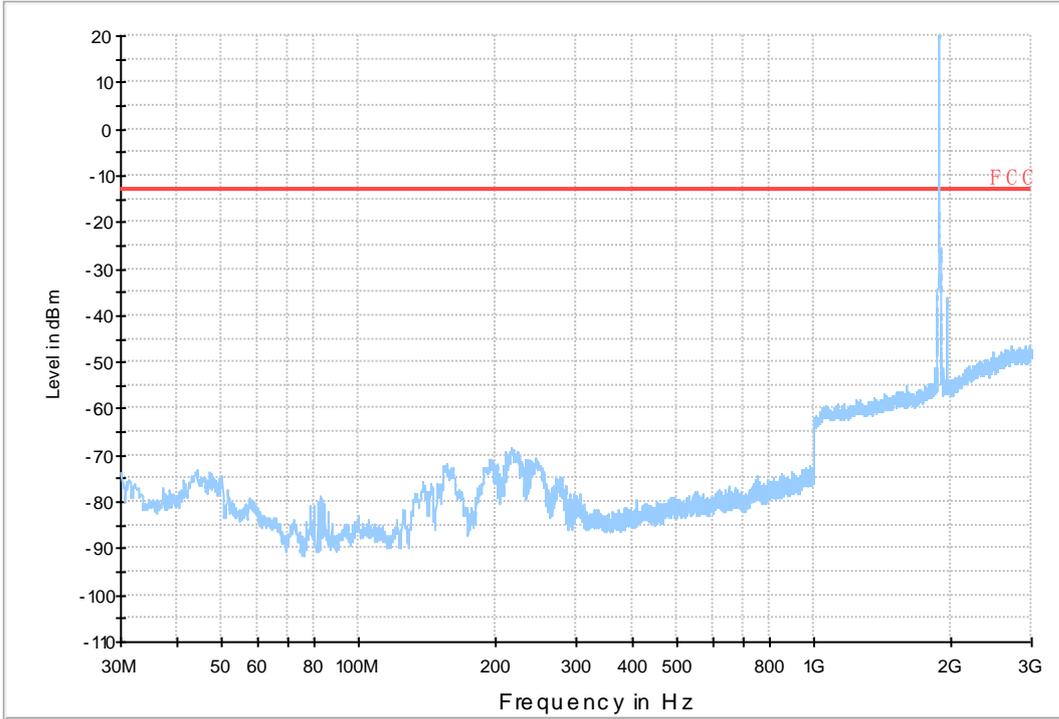
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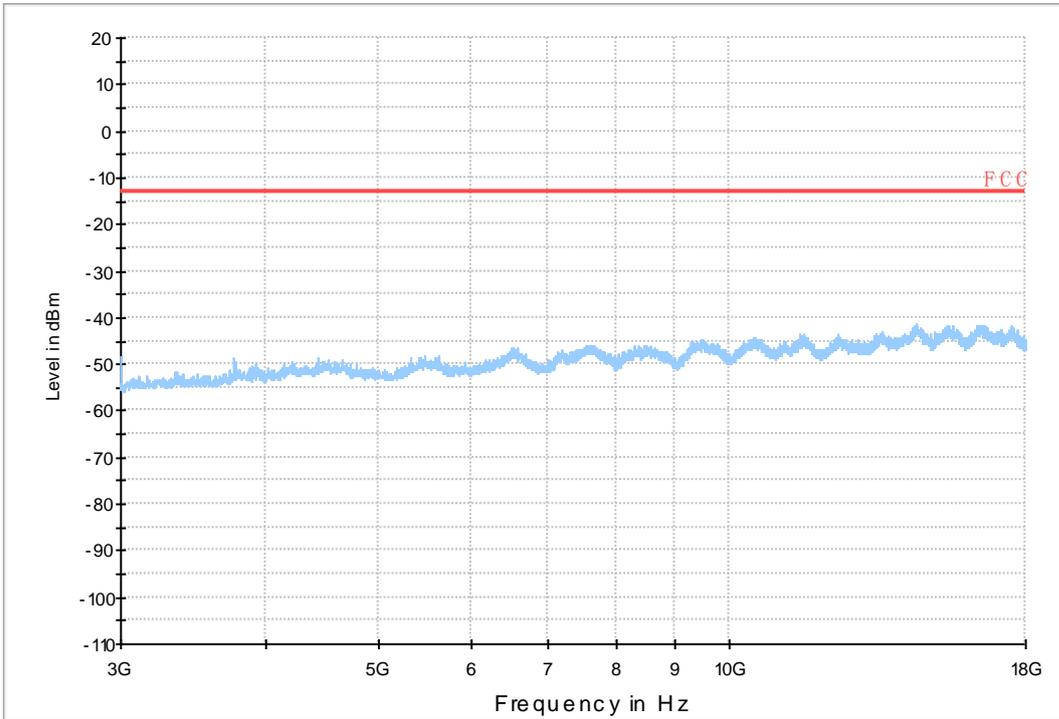
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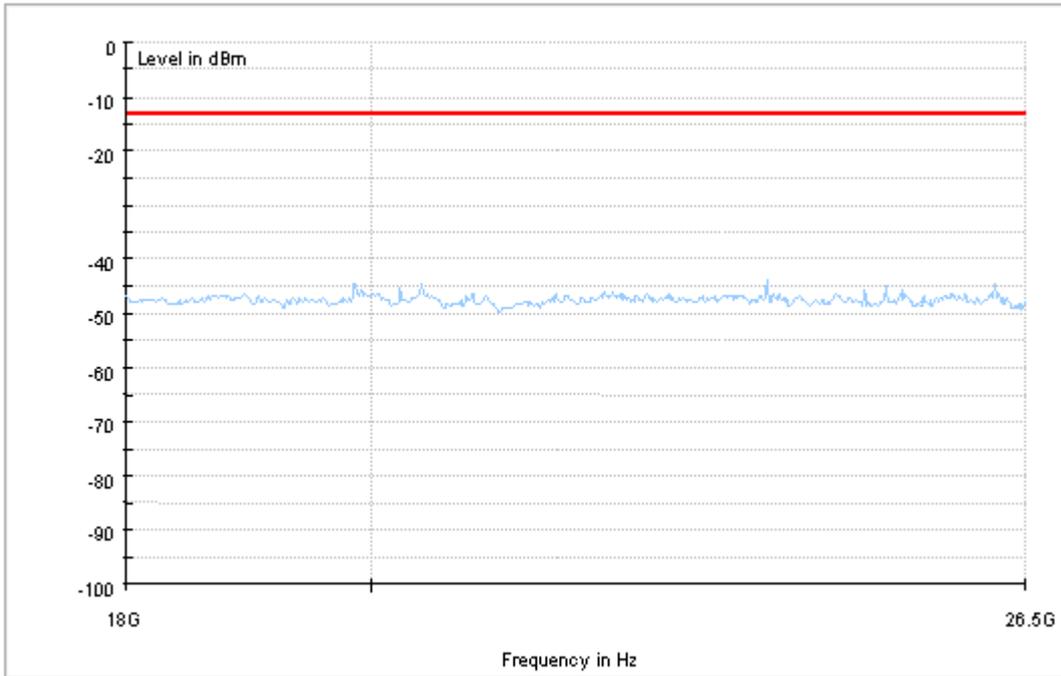
**7.1.3 Test Band = WCDMA1900****7.1.3.1 Test Mode = UMTS/TM1**

Copy of FCC PART24 W CDMA1900_L



Copy of FCC PART24 W CDMA1900_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
WCDMA850	UMTS/TM1	LCH	TN	VL	1.3	0.00157	PASS
				VN	-0.06	-0.00007	PASS
				VH	0.35	0.00042	PASS
		MCH	TN	VL	0.87	0.00104	PASS
				VN	0.5	0.0006	PASS
				VH	0.64	0.00077	PASS
		HCH	TN	VL	-1.57	-0.00185	PASS
				VN	-0.46	-0.00054	PASS
				VH	2.3	0.00272	PASS
WCDMA1700	UMTS/TM1	LCH	TN	VL	10.62	0.0062	PASS
				VN	17.61	0.01028	PASS
				VH	19.49	0.01138	PASS
		MCH	TN	VL	-2	-0.00115	PASS
				VN	2.15	0.00124	PASS
				VH	4.23	0.00244	PASS
		HCH	TN	VL	-13.06	-0.00745	PASS
				VN	-17.76	-0.01013	PASS
				VH	-14.5	-0.00827	PASS
WCDMA1900	UMTS/TM1	LCH	TN	VL	6.9	0.00372	PASS
				VN	5.68	0.00307	PASS
				VH	3.04	0.00164	PASS
		MCH	TN	VL	-2.84	-0.00151	PASS
				VN	-0.99	-0.00053	PASS
				VH	-2.35	-0.00125	PASS
		HCH	TN	VL	0.56	0.00029	PASS
				VN	-3.25	-0.0017	PASS
				VH	-8.76	-0.00459	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	0.58	0.0007	PASS
				-20	-0.67	-0.00081	PASS
				-10	0.11	0.00013	PASS
				0	0.41	0.0005	PASS
				10	0.29	0.00035	PASS
				20	0.31	0.00038	PASS
				30	-0.24	-0.00029	PASS
				40	0.29	0.00035	PASS
				50	0.27	0.00033	PASS
		MCH	VN	-30	0.89	0.00106	PASS
				-20	1.46	0.00175	PASS
				-10	-1.88	-0.00225	PASS
				0	0.26	0.00031	PASS
				10	1.31	0.00157	PASS
				20	-0.12	-0.00014	PASS
				30	-2.01	-0.0024	PASS
				40	-1.71	-0.00204	PASS
				50	-2.03	-0.00243	PASS
		HCH	VN	-30	-0.27	-0.00032	PASS
				-20	1.24	0.00146	PASS
				-10	-1.62	-0.00191	PASS
				0	0.31	0.00037	PASS
				10	1.28	0.00151	PASS
				20	-2.78	-0.00328	PASS
				30	-0.63	-0.00074	PASS
				40	-0.81	-0.00096	PASS
				50	-0.75	-0.00089	PASS
WCDMA1700	UMTS/TM1	LCH	VN	-30	22.34	0.01305	PASS
				-20	15.44	0.00902	PASS
				-10	16.92	0.00988	PASS
				0	16.57	0.00968	PASS
				10	18.01	0.01052	PASS
				20	19.55	0.01142	PASS
				30	17.58	0.01027	PASS
				40	18.28	0.01068	PASS
				50	16.46	0.00961	PASS
		MCH	VN	-30	2.58	0.00149	PASS
				-20	-4.03	-0.00233	PASS
				-10	0.18	0.0001	PASS
				0	-3.92	-0.00226	PASS



Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				10	5.31	0.00306	PASS
				20	1.08	0.00062	PASS
				30	-3.36	-0.00194	PASS
				40	-4.78	-0.00276	PASS
				50	3.49	0.00201	PASS
		HCH	VN	-30	-20.78	-0.01186	PASS
				-20	-19.52	-0.01114	PASS
				-10	-16.37	-0.00934	PASS
				0	-11.08	-0.00632	PASS
				10	-17.03	-0.00972	PASS
				20	-17.75	-0.01013	PASS
				30	-17.23	-0.00983	PASS
				40	-15.14	-0.00864	PASS
				50	-17.61	-0.01005	PASS
WCDMA1900	UMTS/TM1	LCH	VN	-30	1.62	0.00087	PASS
				-20	5.81	0.00314	PASS
				-10	9.25	0.00499	PASS
				0	8.56	0.00462	PASS
				10	7.14	0.00385	PASS
				20	3.04	0.00164	PASS
				30	1.27	0.00069	PASS
				40	4.93	0.00266	PASS
				50	2.67	0.00144	PASS
		MCH	VN	-30	4.7	0.0025	PASS
				-20	-0.78	-0.00041	PASS
				-10	-3.2	-0.0017	PASS
				0	-1.89	-0.00101	PASS
				10	-2.94	-0.00156	PASS
				20	-3.42	-0.00182	PASS
				30	-9.75	-0.00519	PASS
				40	-0.5	-0.00027	PASS
				50	3.56	0.00189	PASS
		HCH	VN	-30	-0.14	-0.00007	PASS
				-20	-3.83	-0.00201	PASS
				-10	-4.52	-0.00237	PASS
				0	2.66	0.00139	PASS
				10	-6.03	-0.00316	PASS
				20	2.82	0.00148	PASS
				30	-6.15	-0.00322	PASS
				40	-8.9	-0.00467	PASS



Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				50	-2.38	-0.00125	PASS

END