



Appendix for test report



1 Appendix_A: Effective (Isotropic) Radiated Power Output Data

Part I - Test Results

Test Band	Test Mode	Test Channel	Measured[dBm]	ERP [dBm]	Limit [dBm]	Verdict
WCDMA850	UMTS/TM1	LCH	23.64	17.49	38.5	PASS
		MCH	23.54	17.39	38.5	PASS
		HCH	23.37	17.22	38.5	PASS
WCDMA1900	UMTS/TM1	LCH	23.95	24.95	33	PASS
		MCH	23.83	24.83	33	PASS
		HCH	23.73	24.73	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:

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

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

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

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
WCDMA1900	UMTS/TM1	LCH	2.96	13	PASS
		MCH	3.11	13	PASS
		HCH	3.05	13	PASS

3Appendix_C: Modulation Characteristics

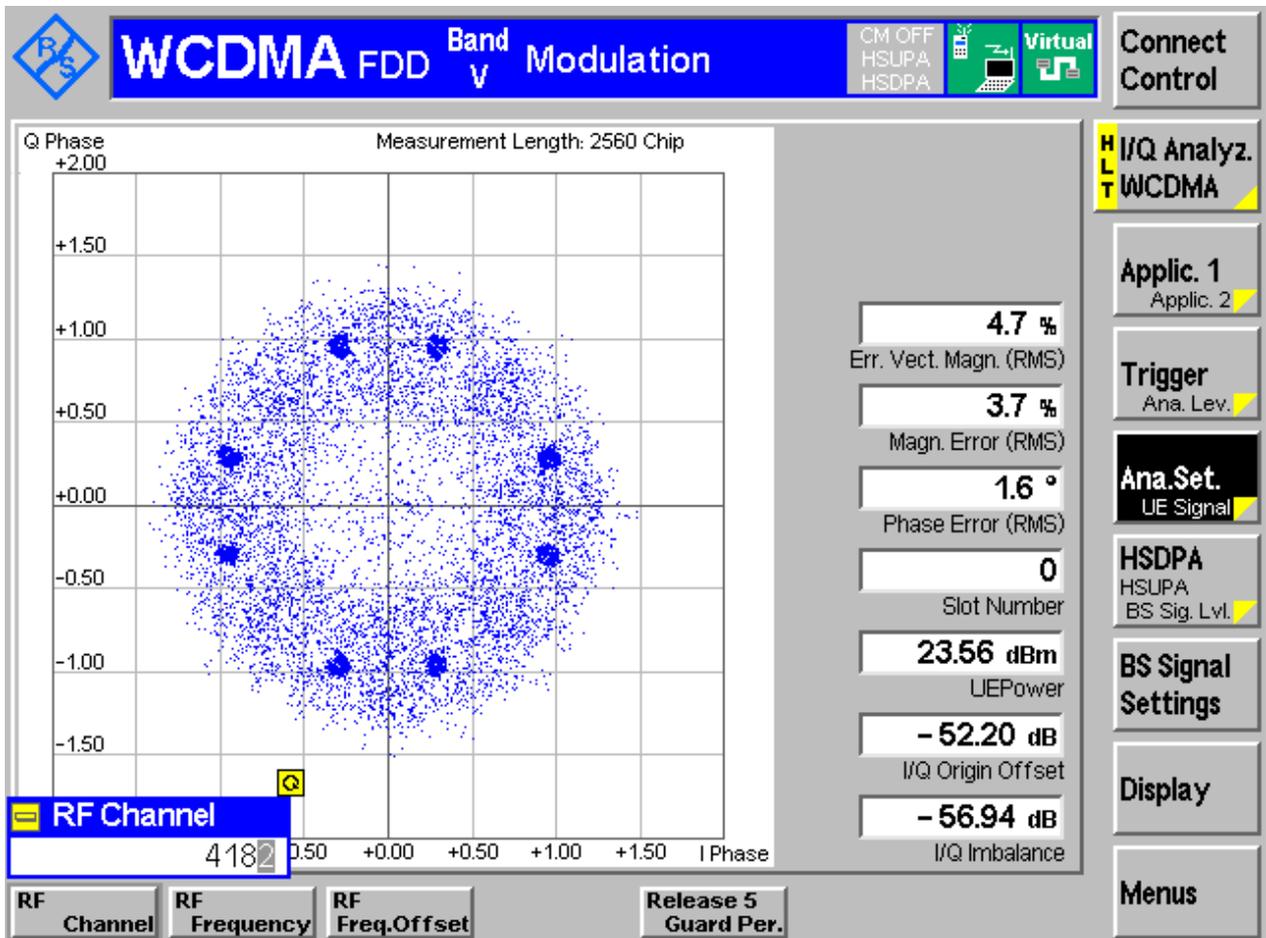
Part I - Test Plots

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

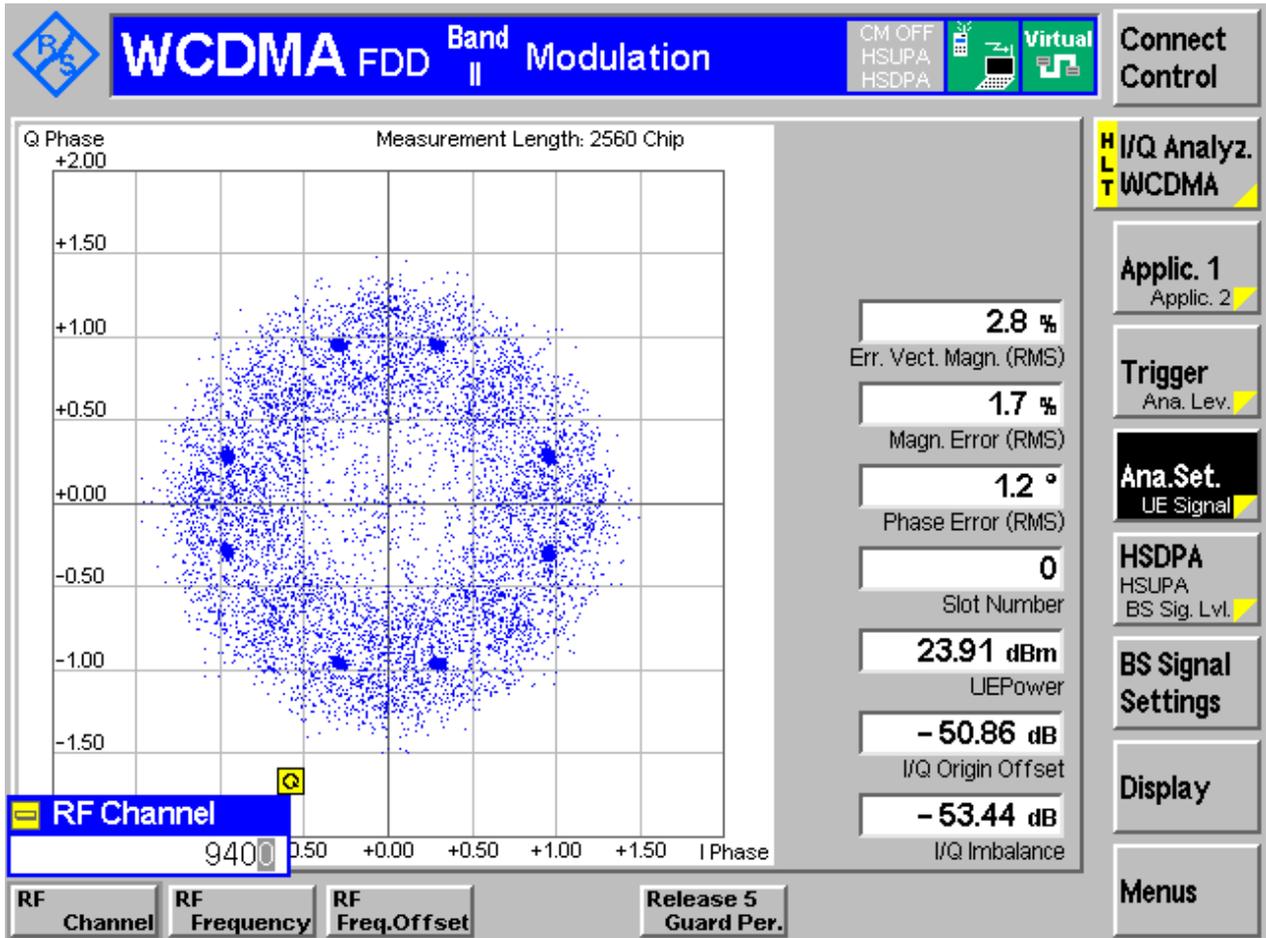


3.2 For UMTS

3.2.1 Test Band = WCDMA1900

3.2.1.1 Test Mode = UMTS/TM1

3.2.1.1.1 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	4.73	Pass
		MCH	4.16	4.72	Pass
		HCH	4.16	4.72	Pass
Test Band	Test Mode	Test Channel	Occupied Bandwidth [MHz]	Emission Bandwidth [MHz]	Verdict
WCDMA1900	UMTS/TM1	LCH	4.16	4.71	Pass
		MCH	4.16	4.71	Pass
		HCH	4.16	4.71	Pass



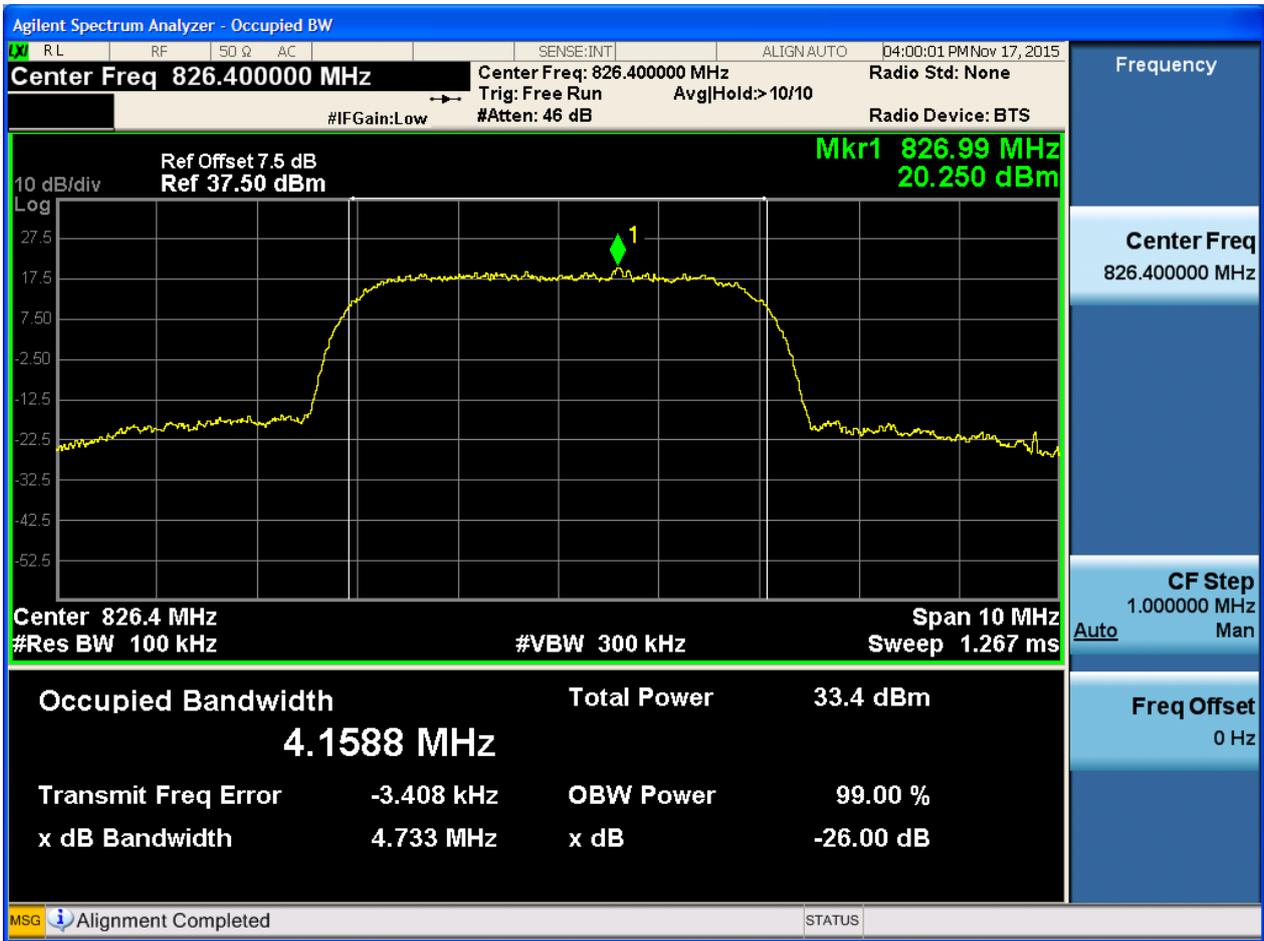
Part II - Test Plots

4.1 For UMTS

4.1.1 Test Band = WCDMA850

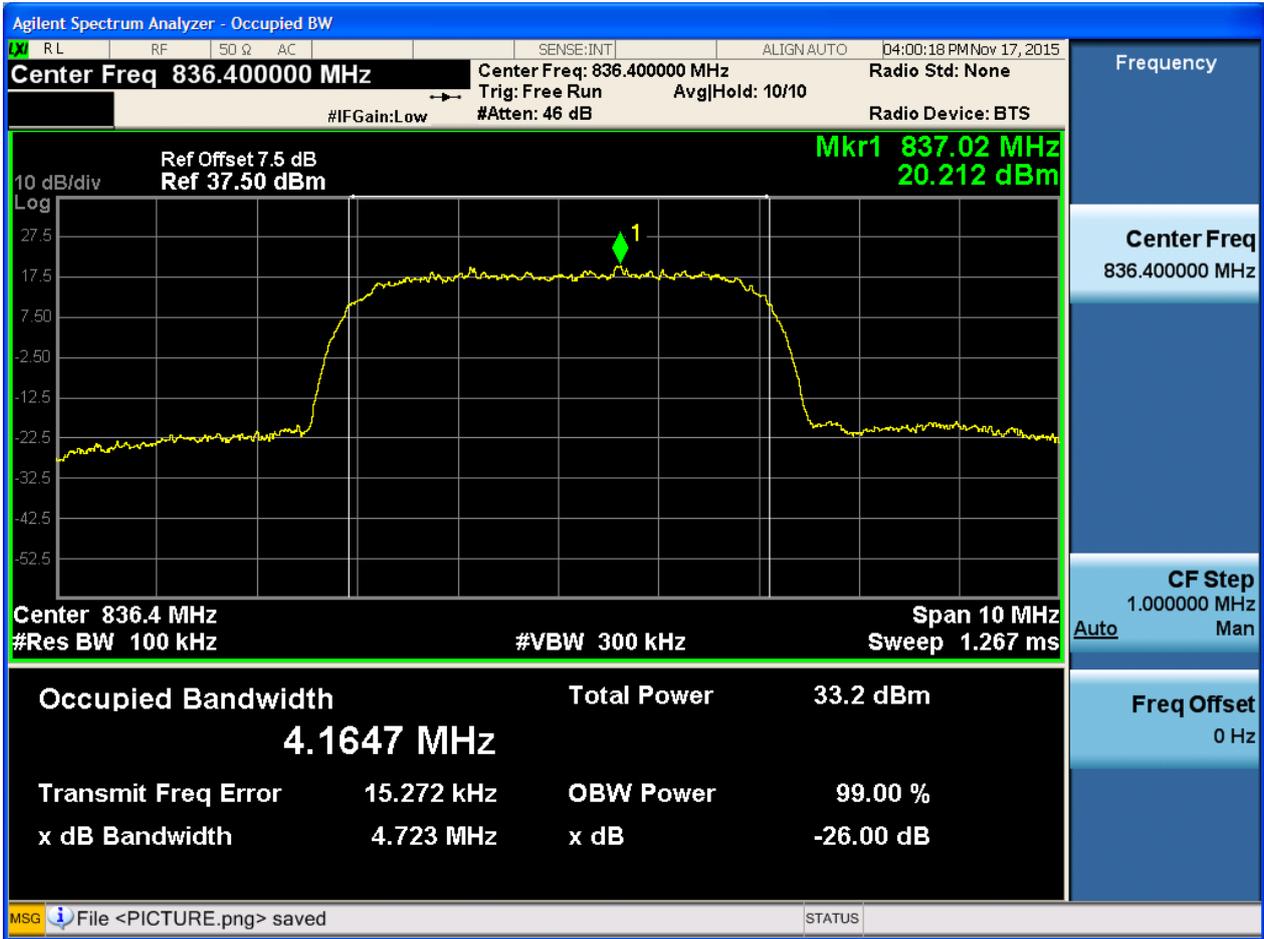
4.1.1.1 Test Mode = UMTS/TM1

4.1.1.1.1 Test Channel = LCH



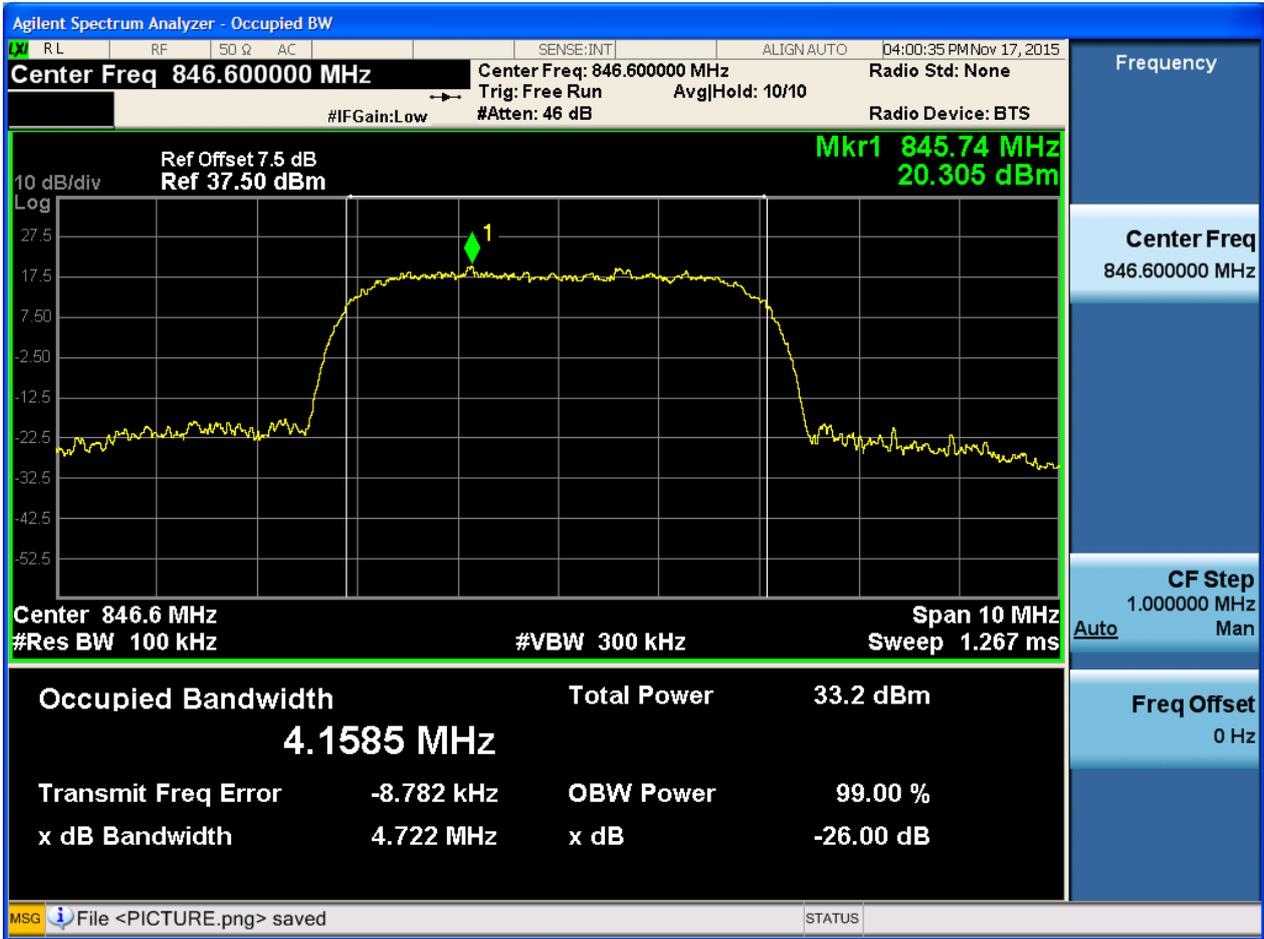


4.1.1.1.2 Test Channel = MCH





4.1.1.1.3 Test Channel = HCH



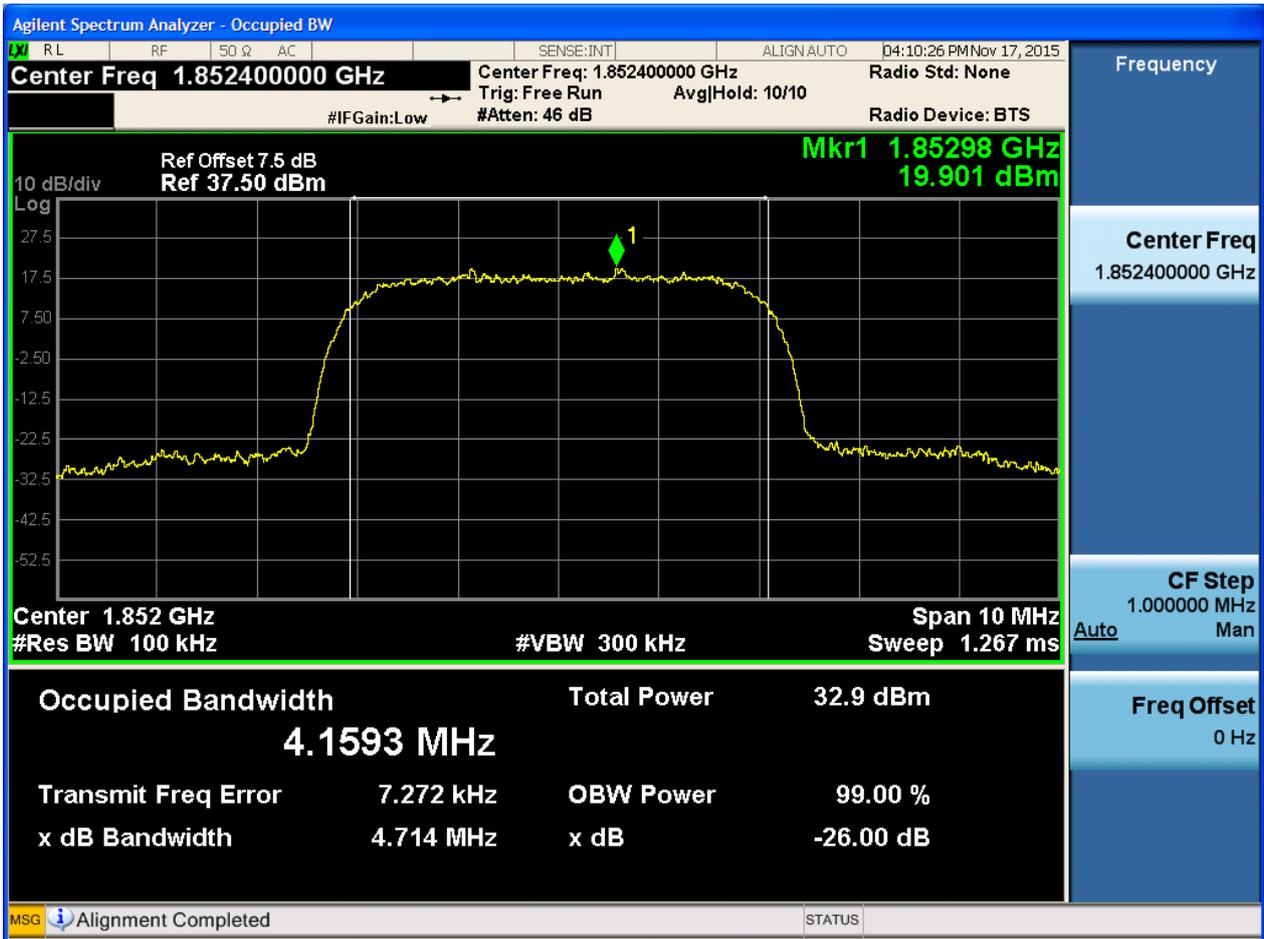


4.2 For UMTS

4.2.1 Test Band = WCDMA1900

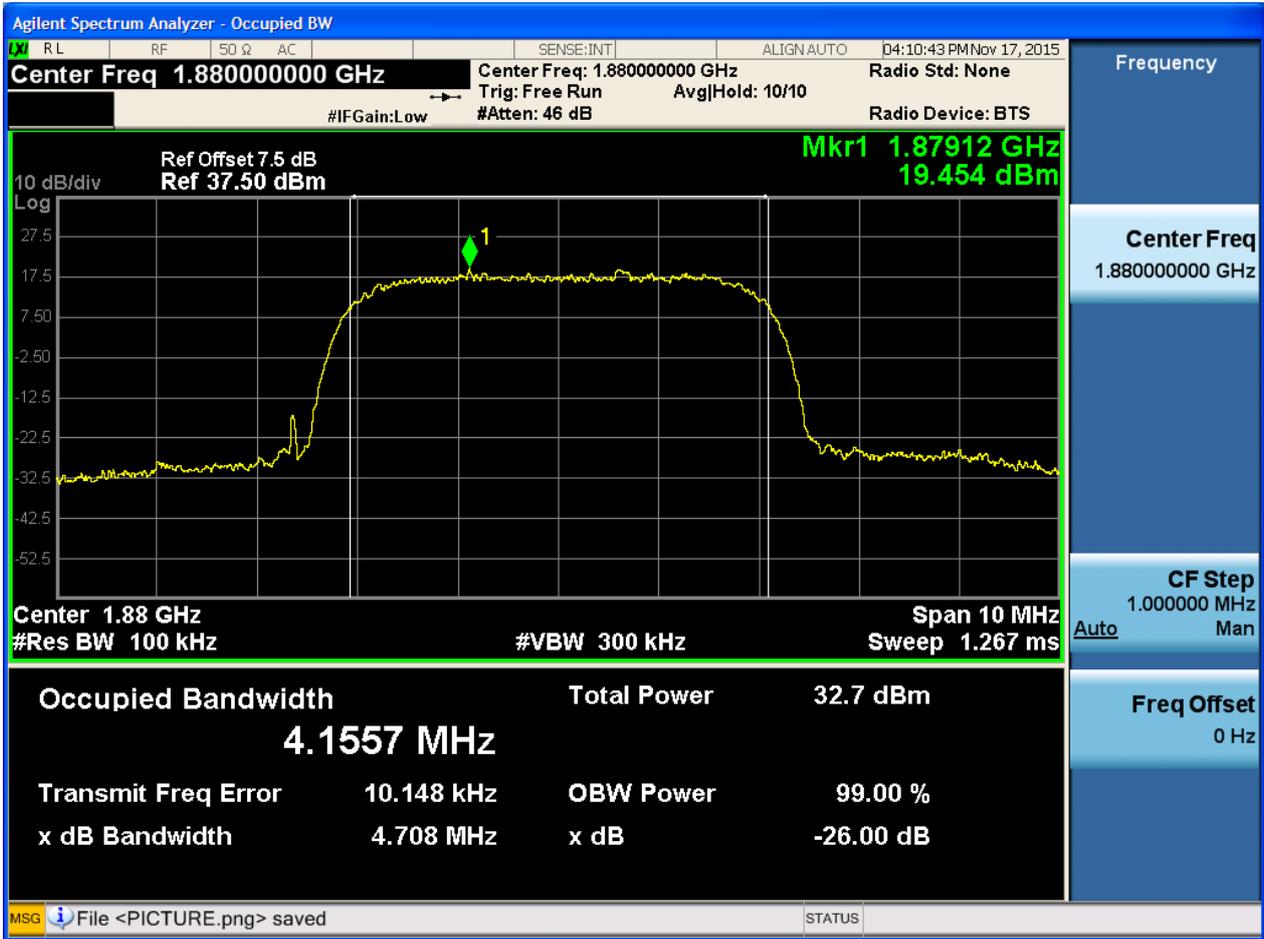
4.2.1.1 Test Mode = UMTS/TM1

4.2.1.1.1 Test Channel = LCH



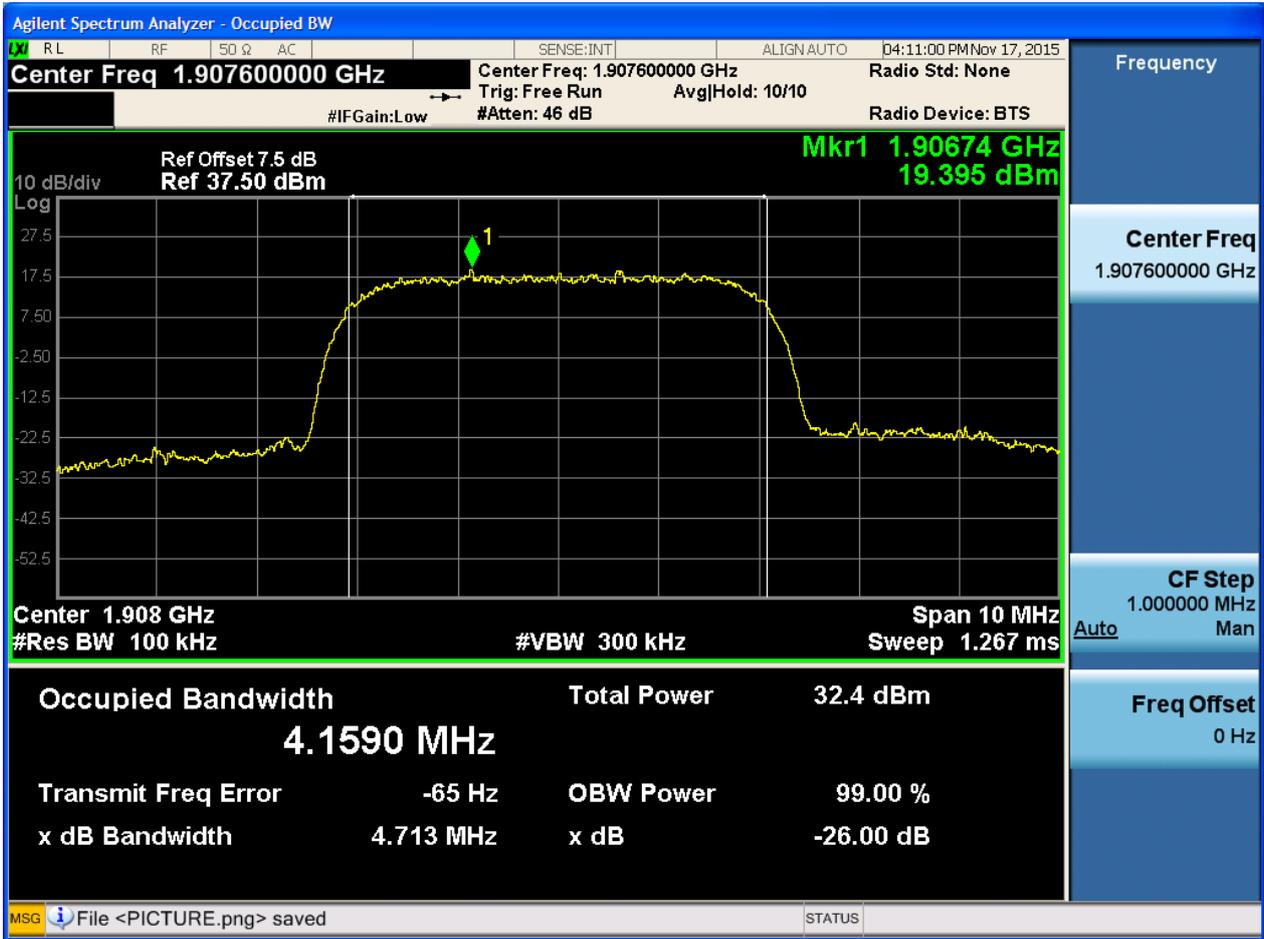


4.2.1.1.2 Test Channel = MCH





4.2.1.1.3 Test Channel = HCH





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 For UMTS

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





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.

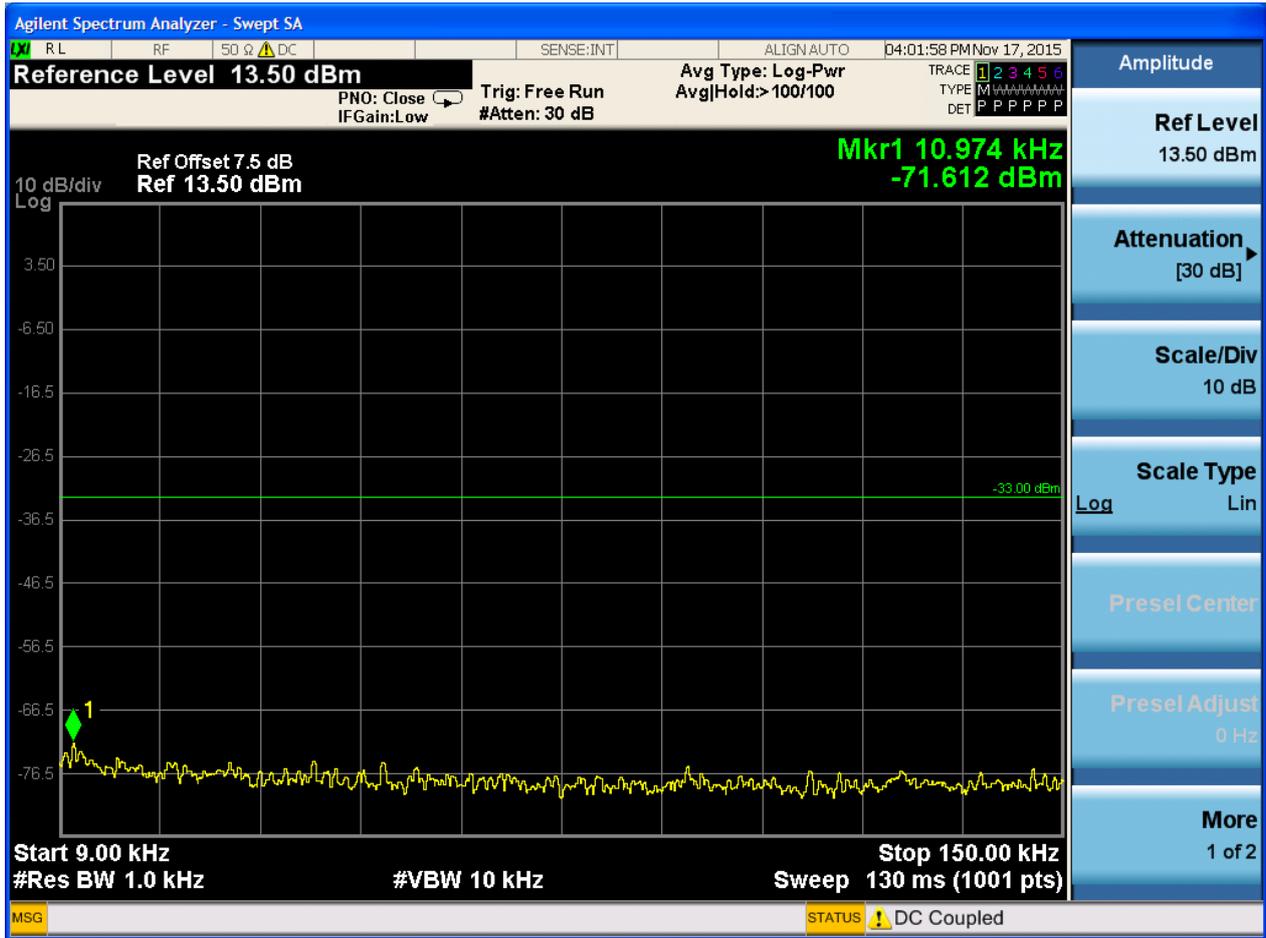
Part I - Test Plots

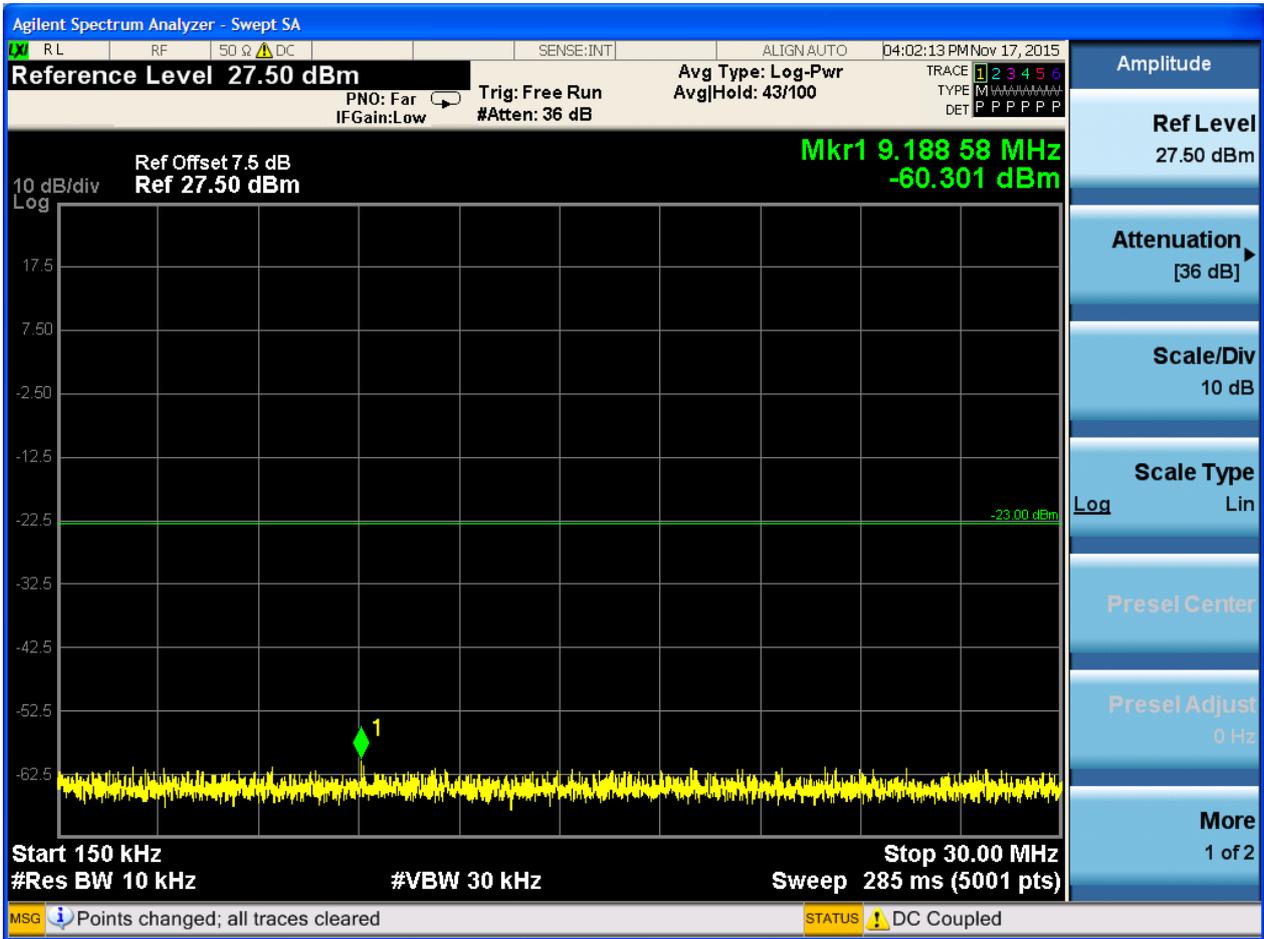
6.1 For UMTS

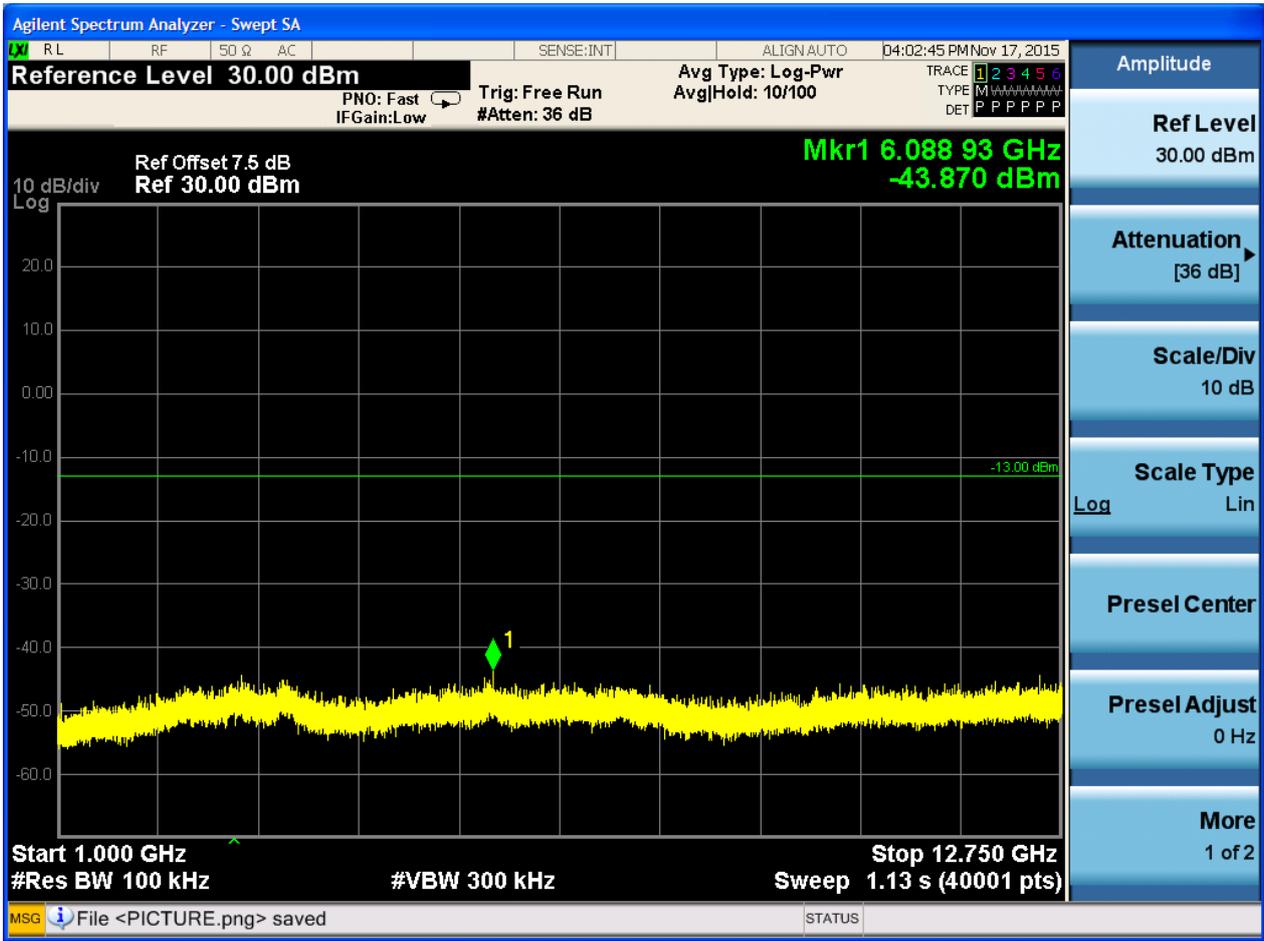
6.1.1 Test Band = WCDMA850

6.1.1.1 Test Mode = UMTS/TM1

6.1.1.1.1 Test Channel = LCH

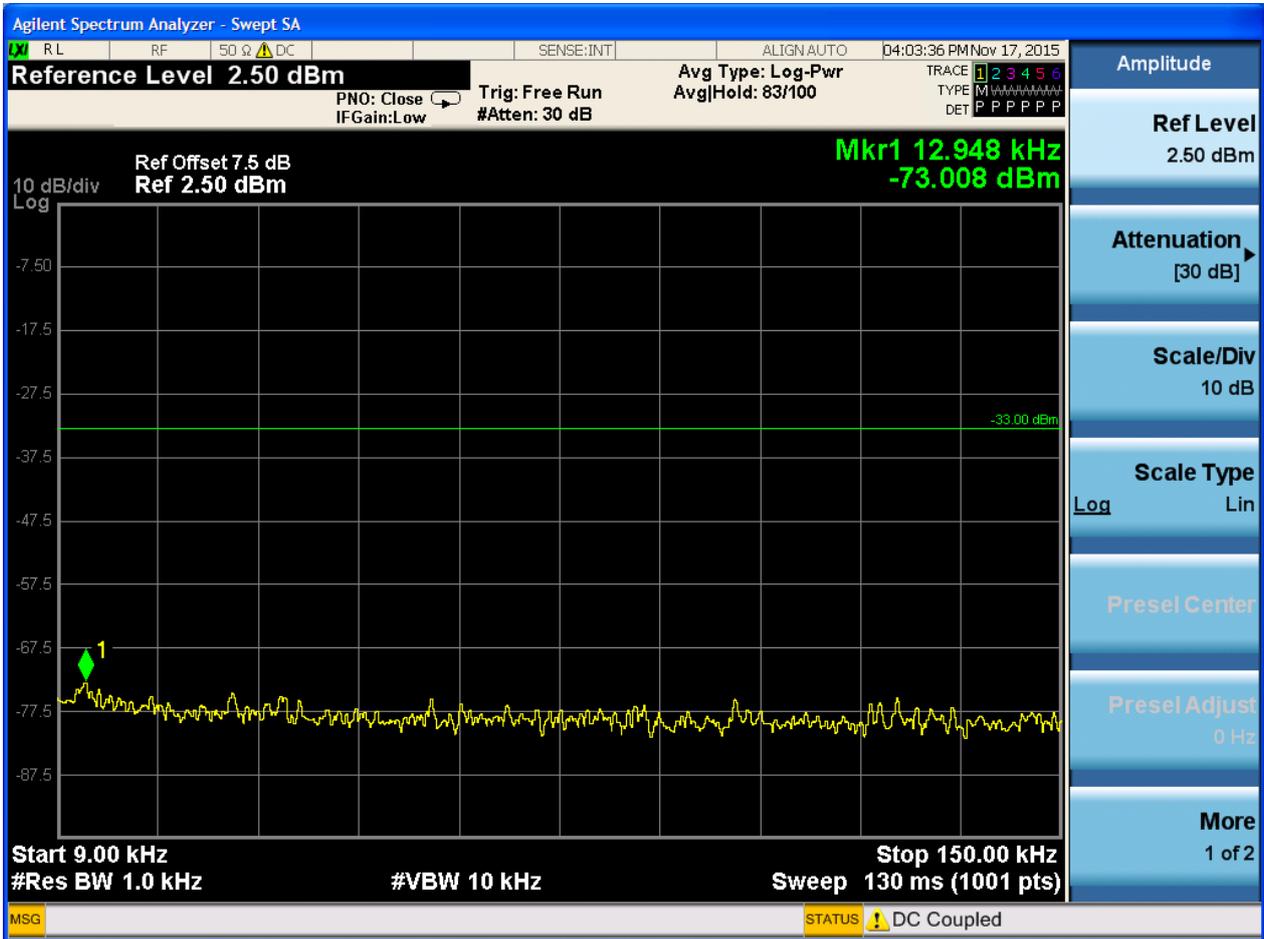


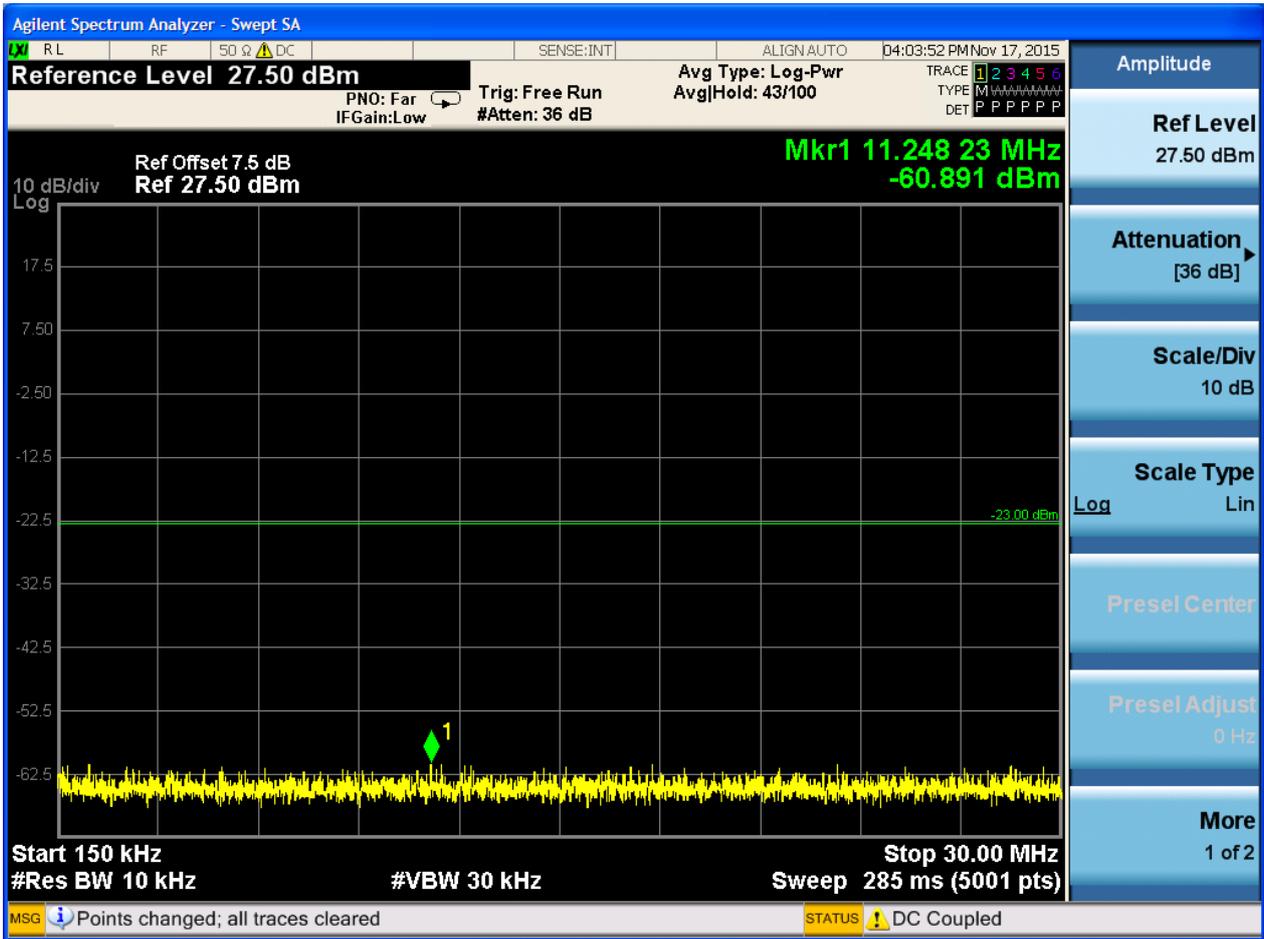


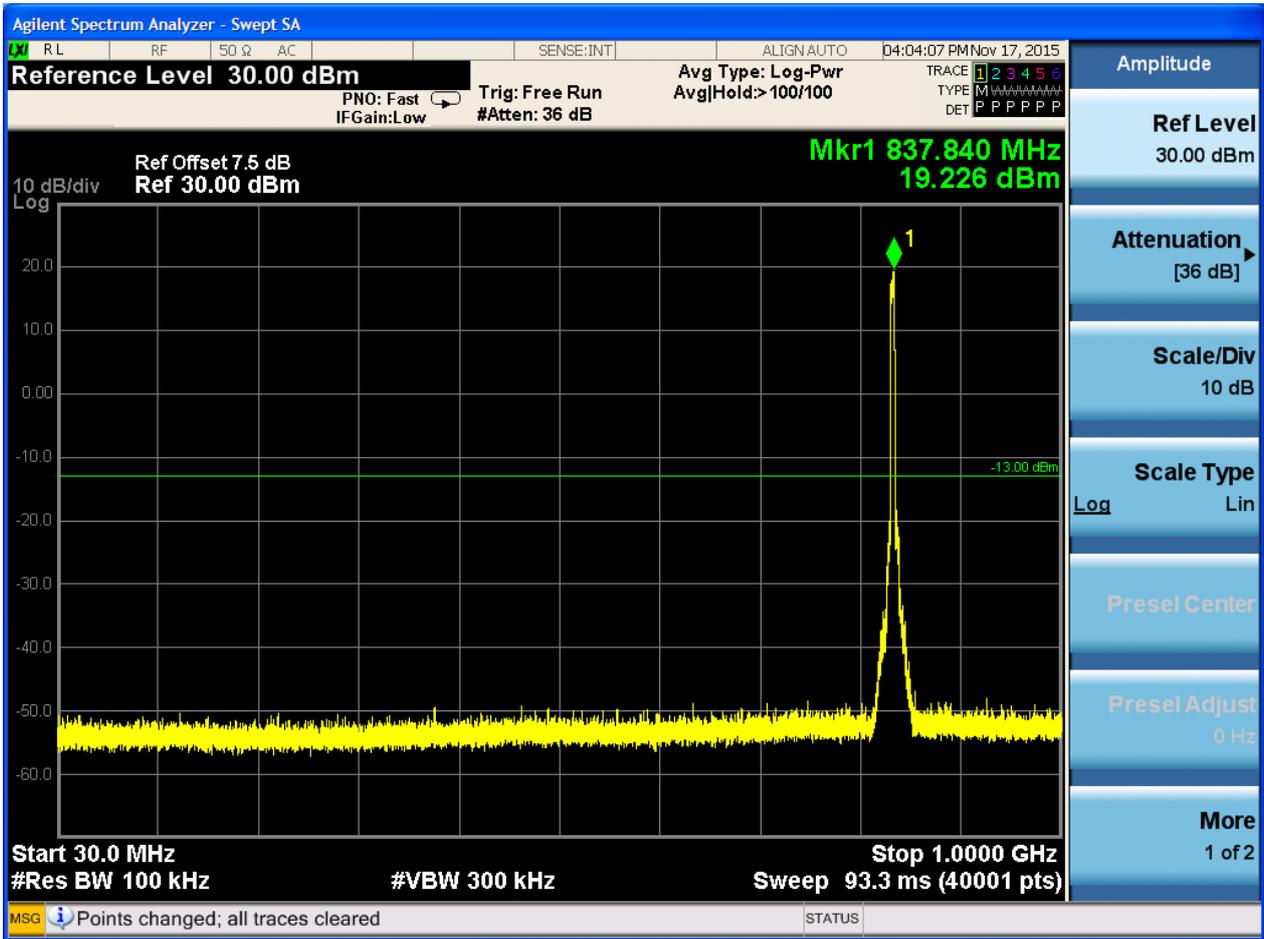


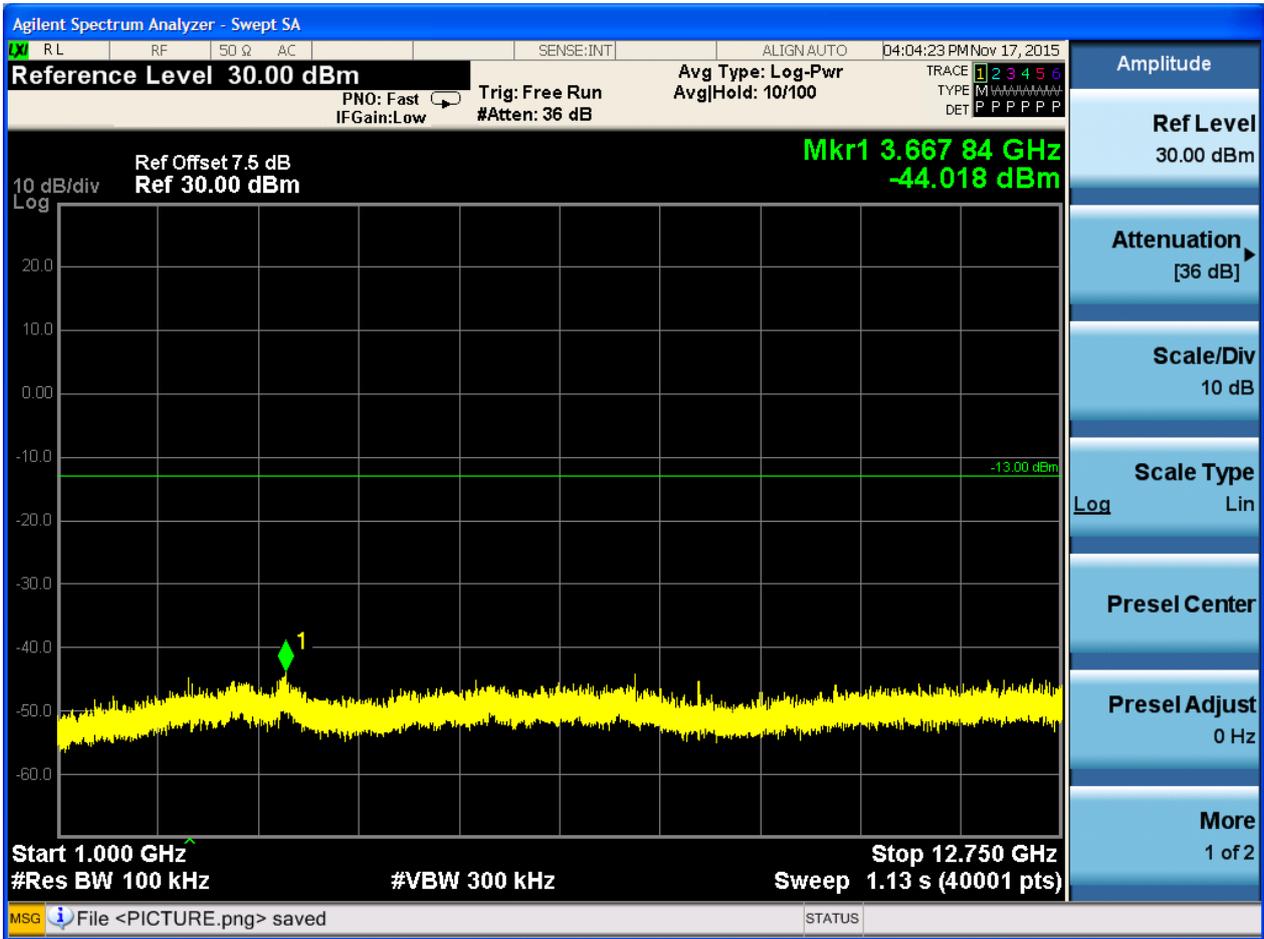


6.1.1.1.2 Test Channel = MCH



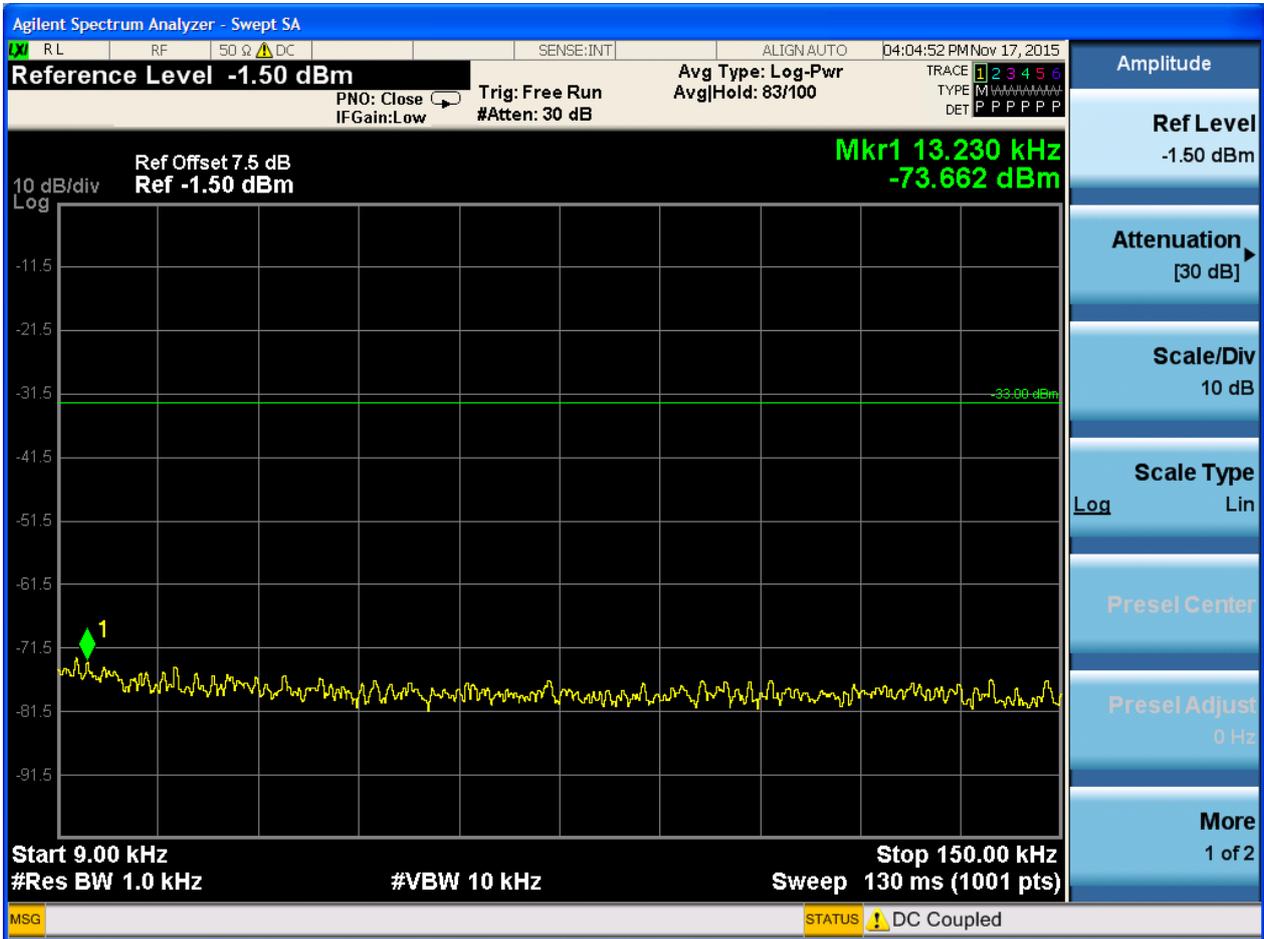


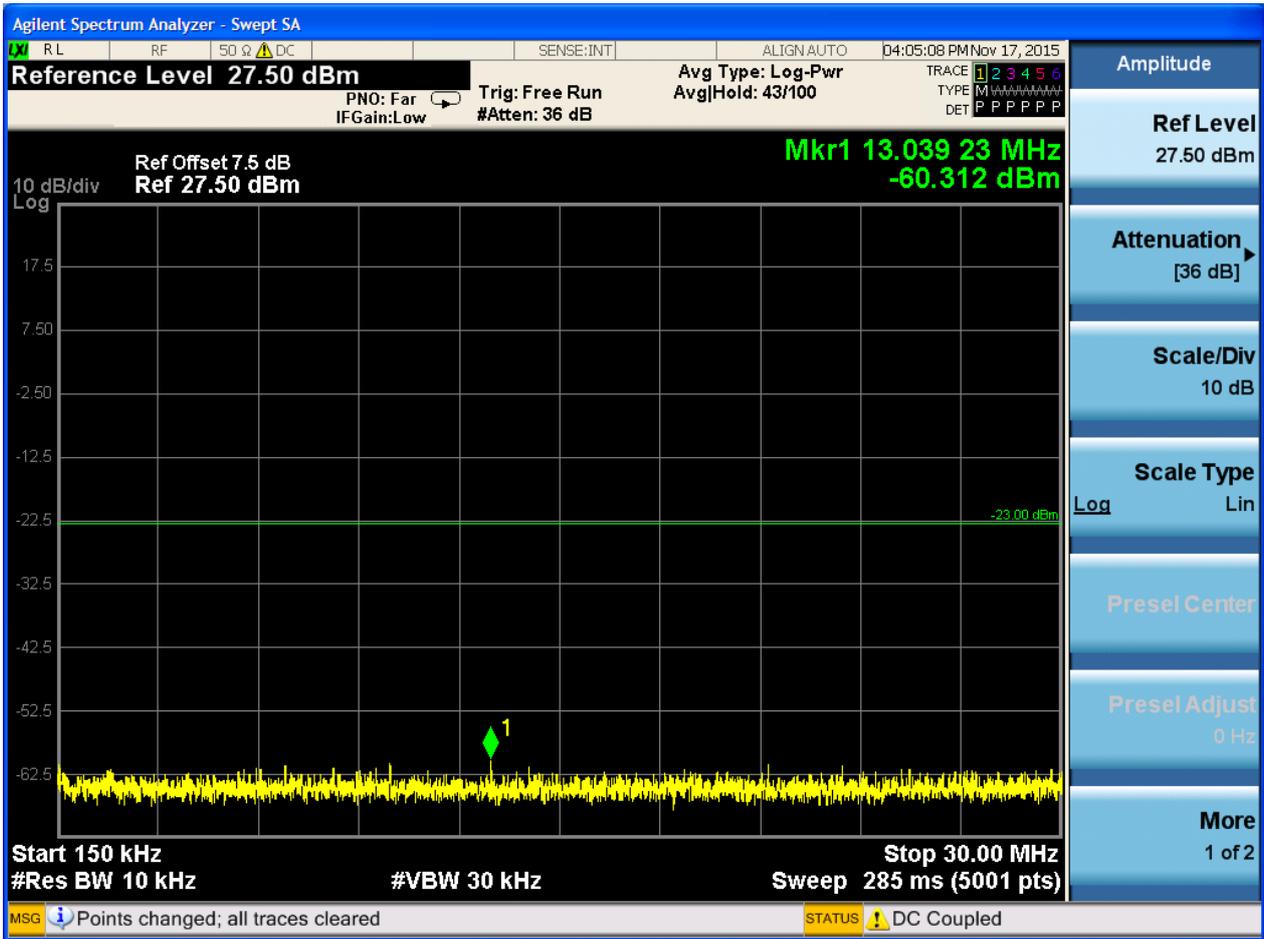


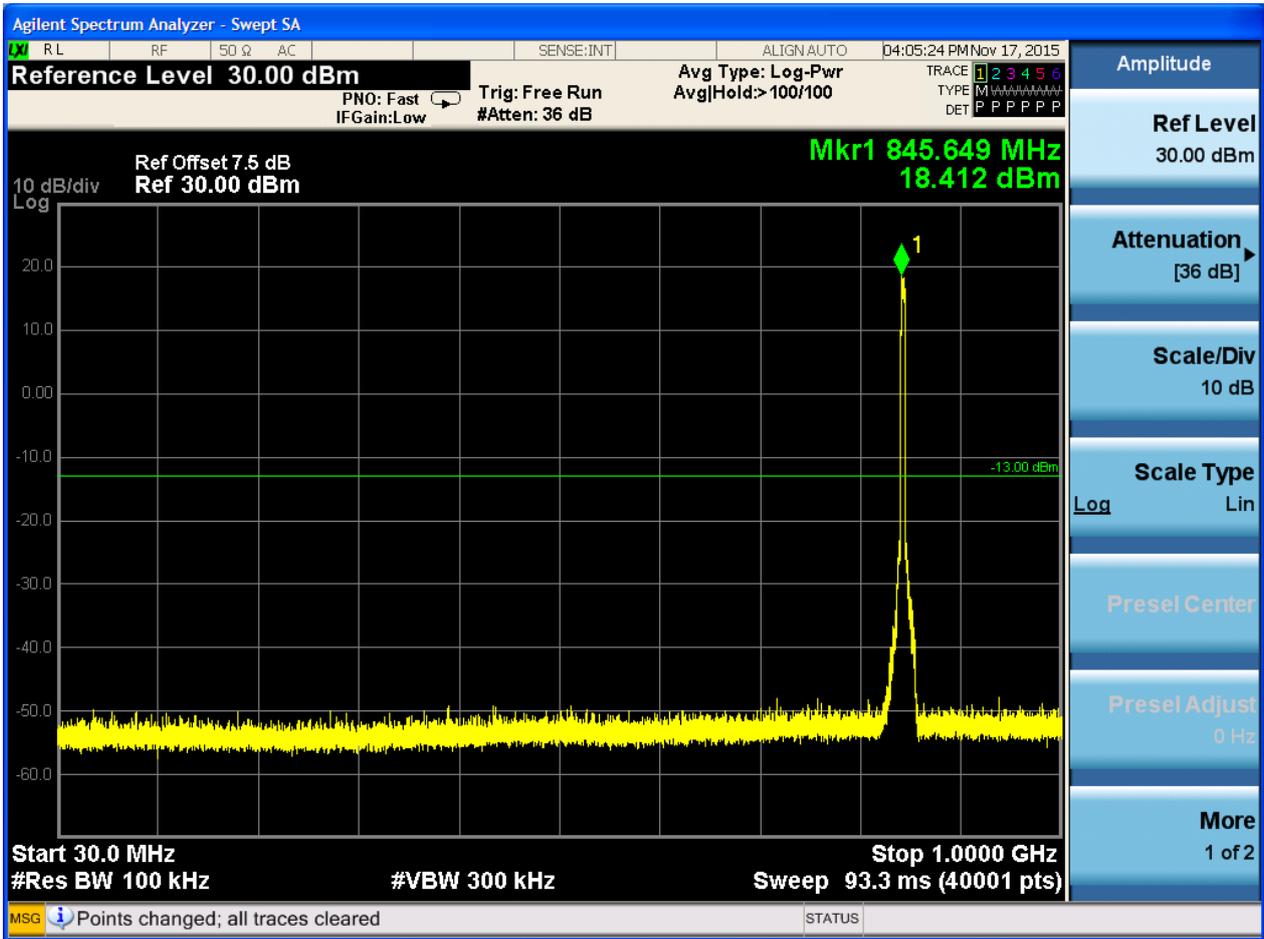


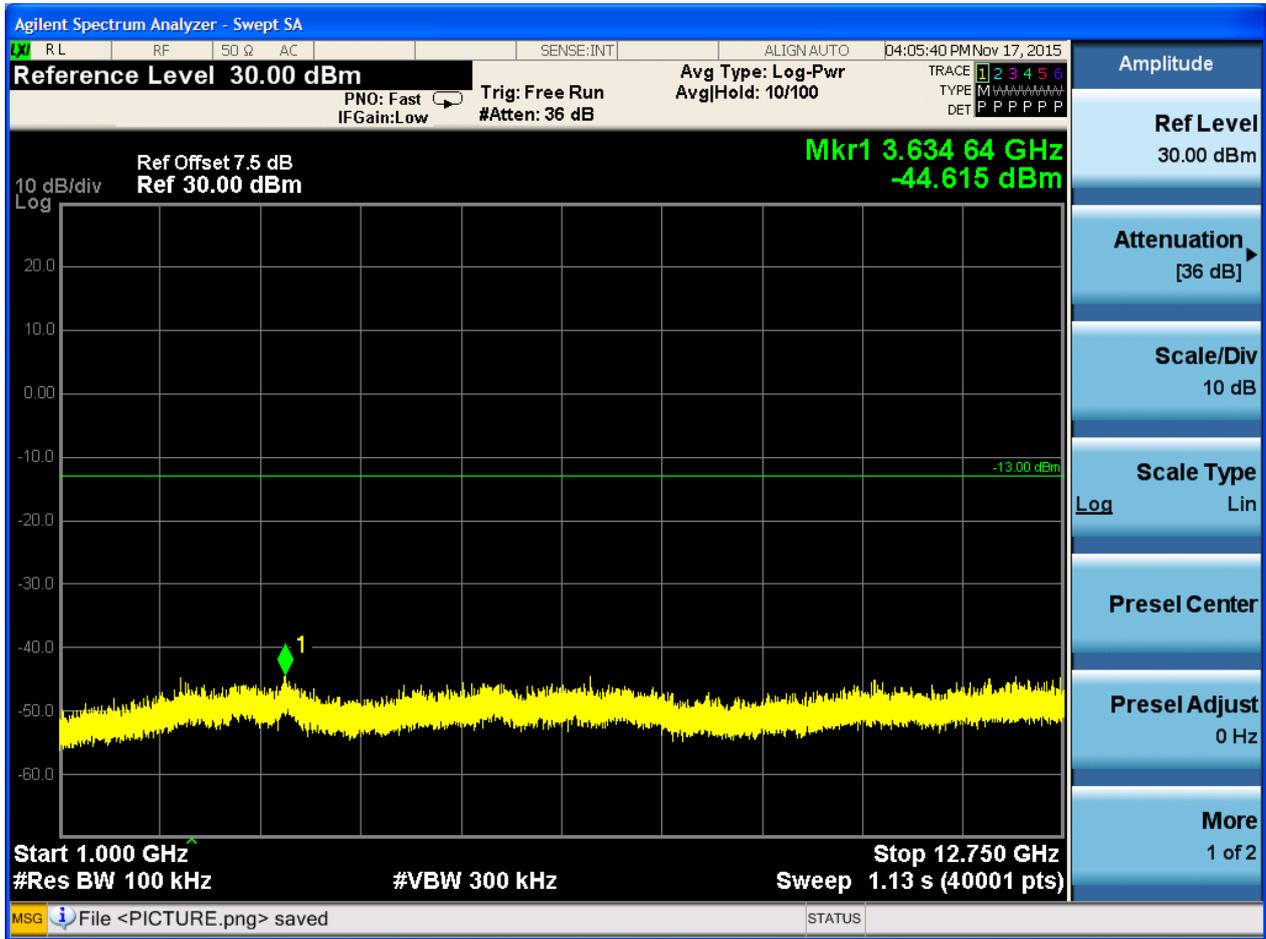


6.1.1.1.3 Test Channel = HCH









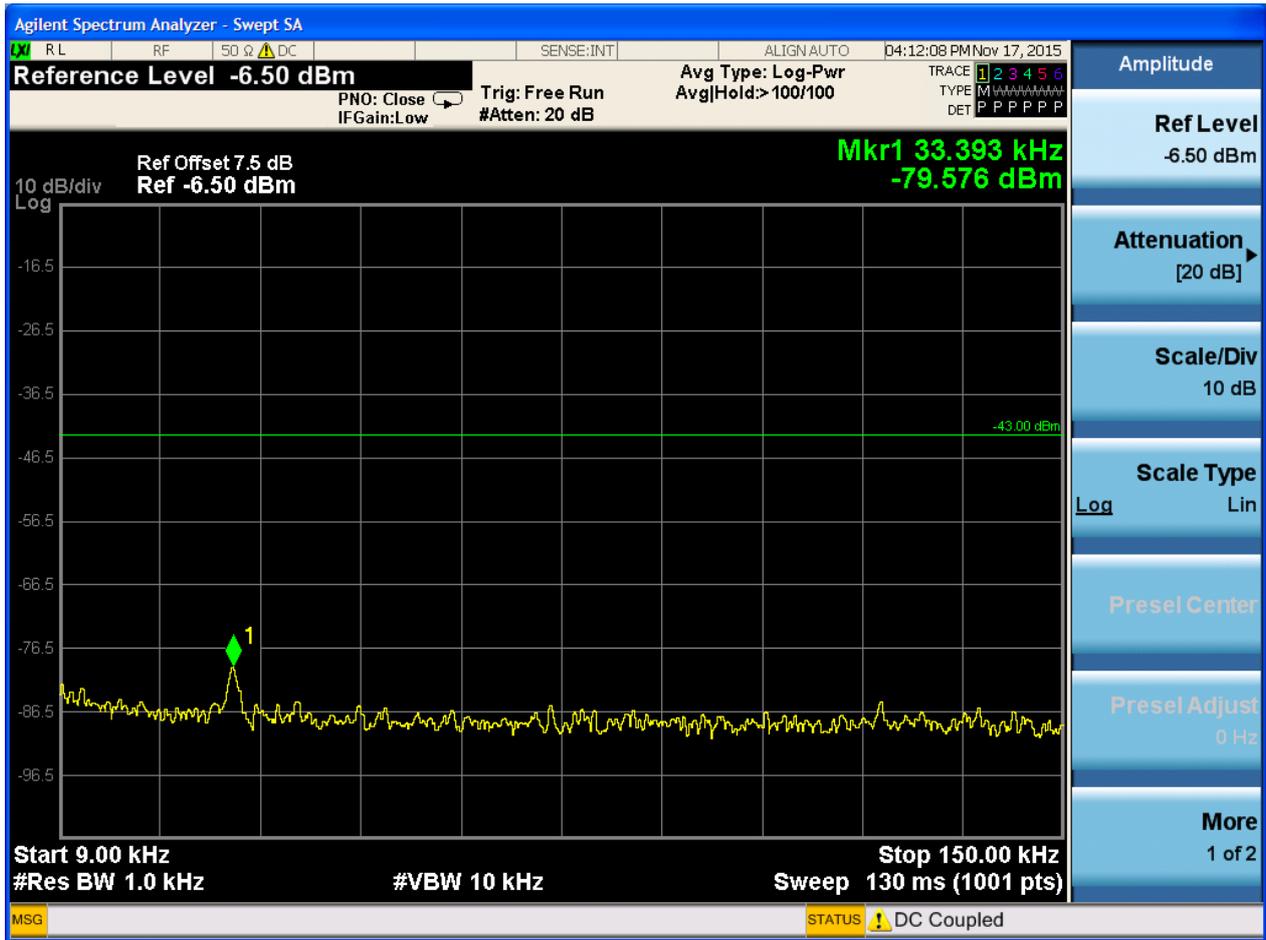


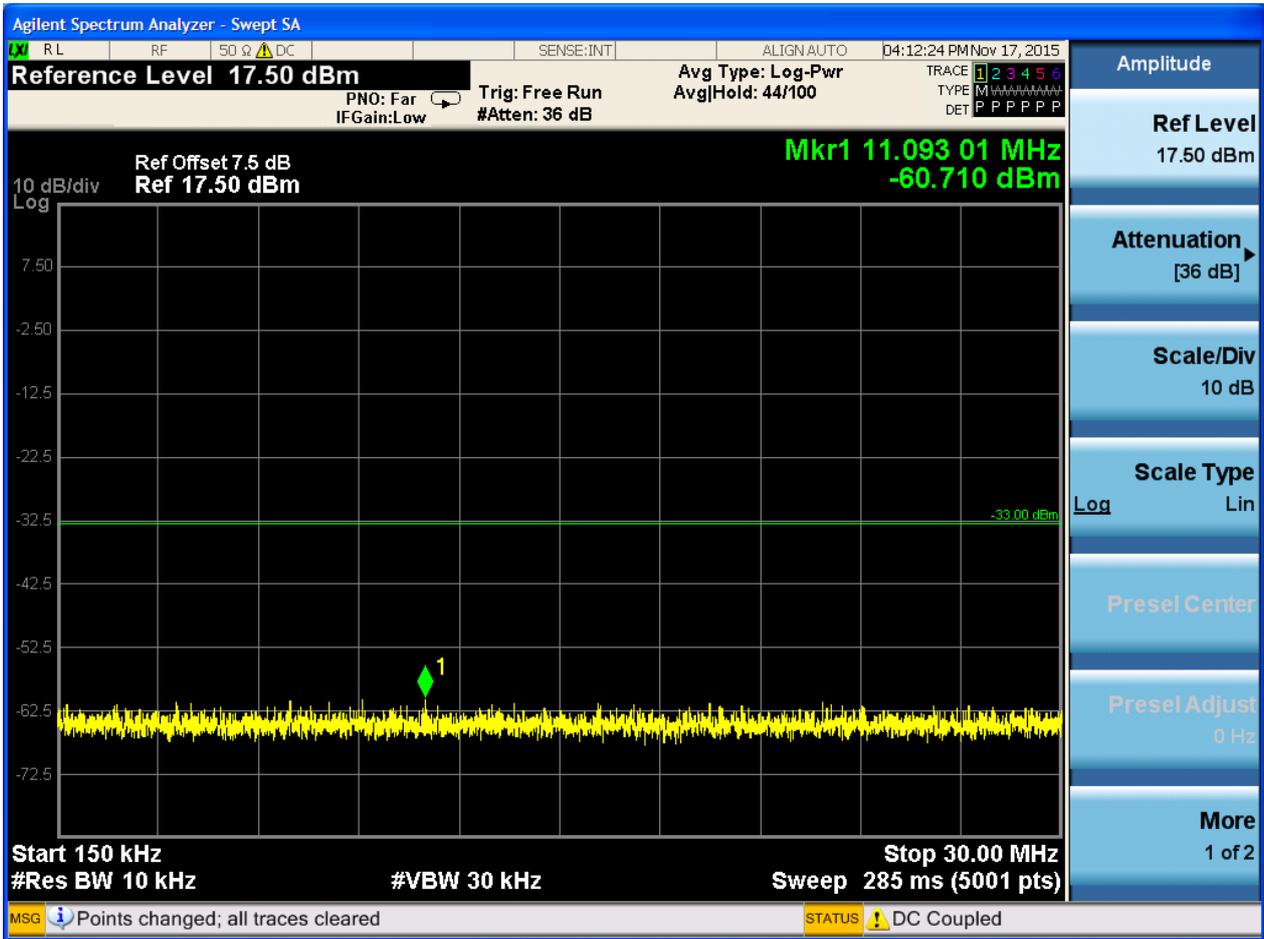
6.2 For UMTS

6.2.1 Test Band = WCDMA1900

6.2.1.1 Test Mode = UMTS/TM1

6.2.1.1.1 Test Channel = LCH

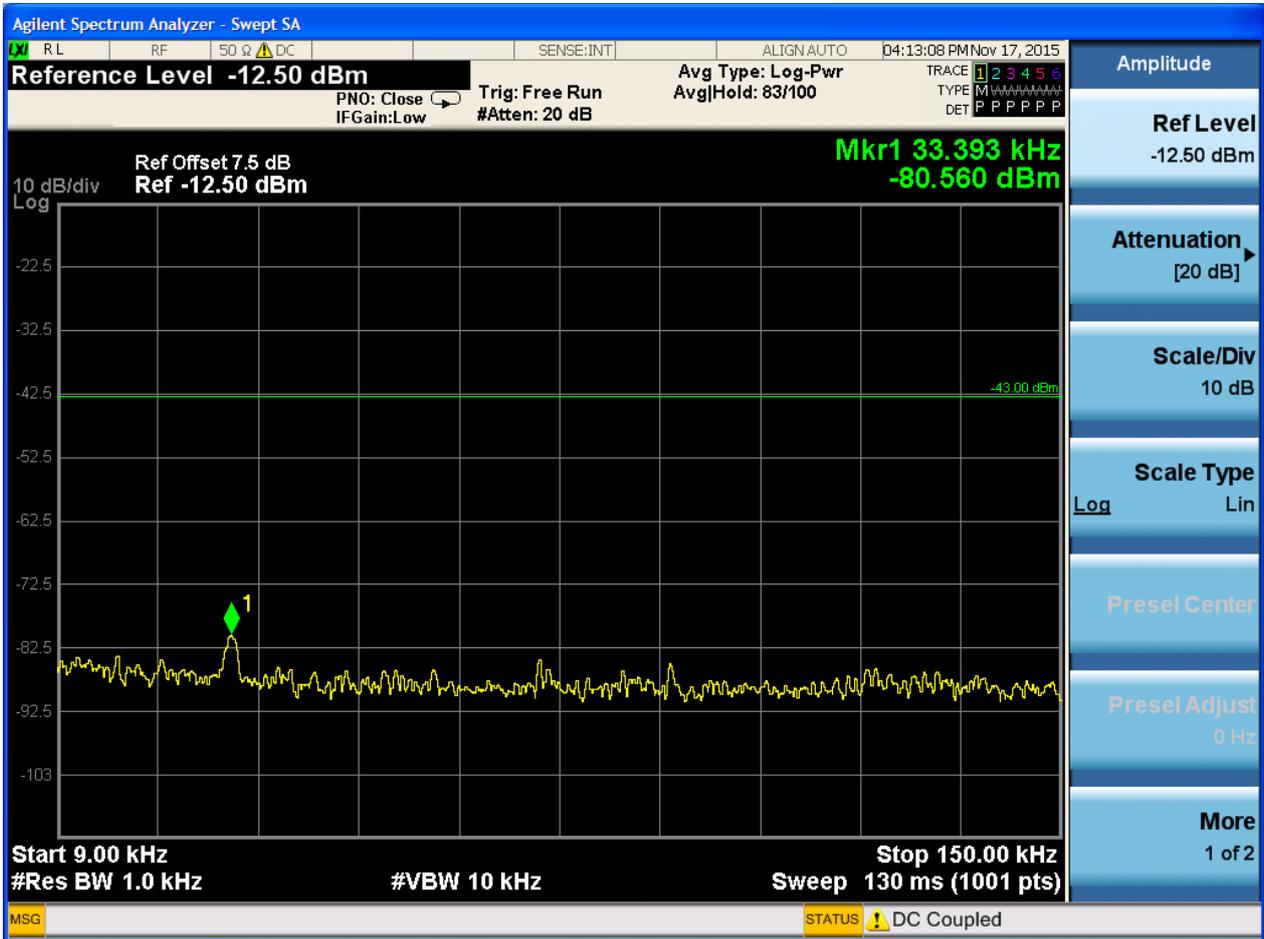


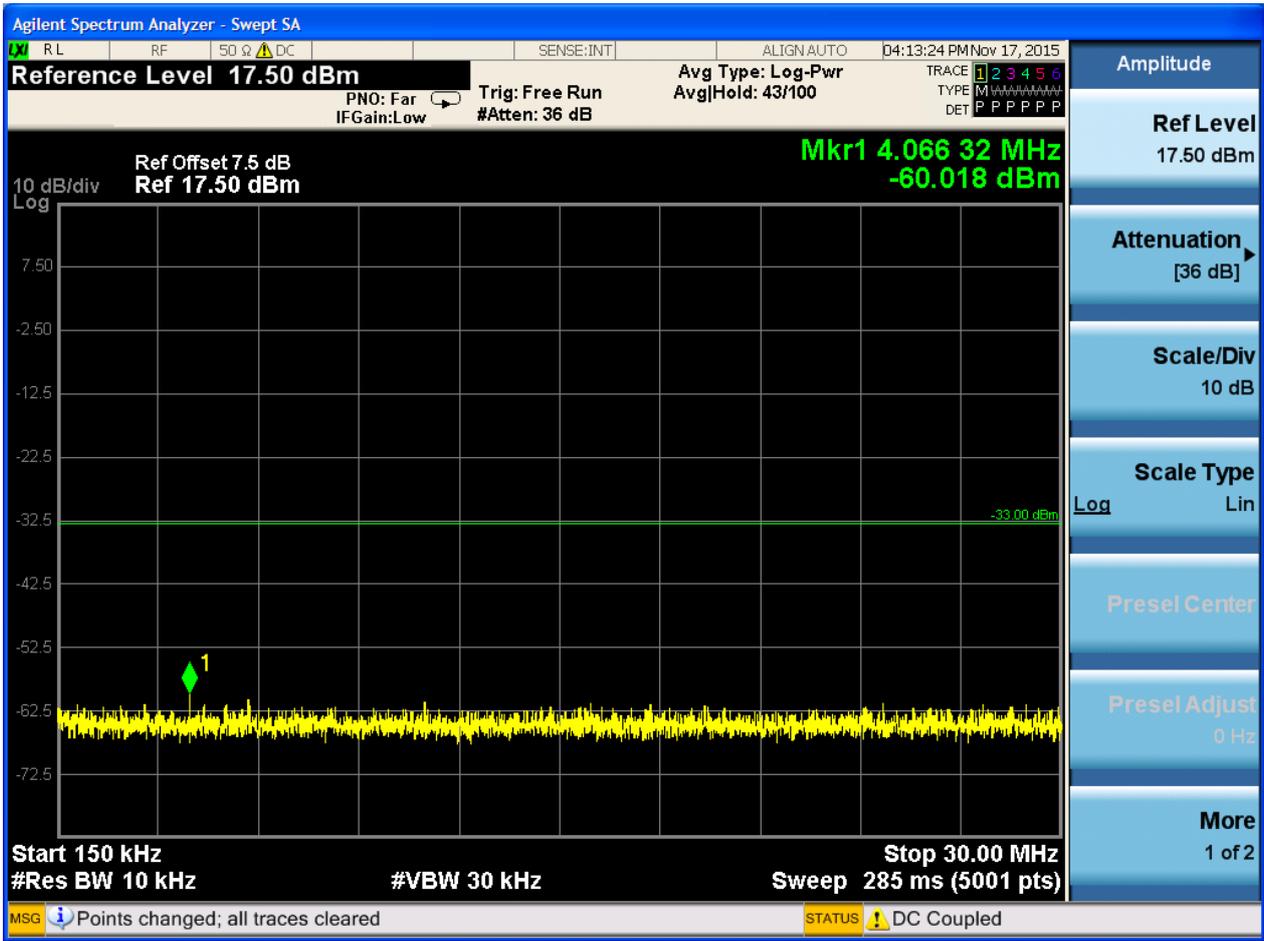


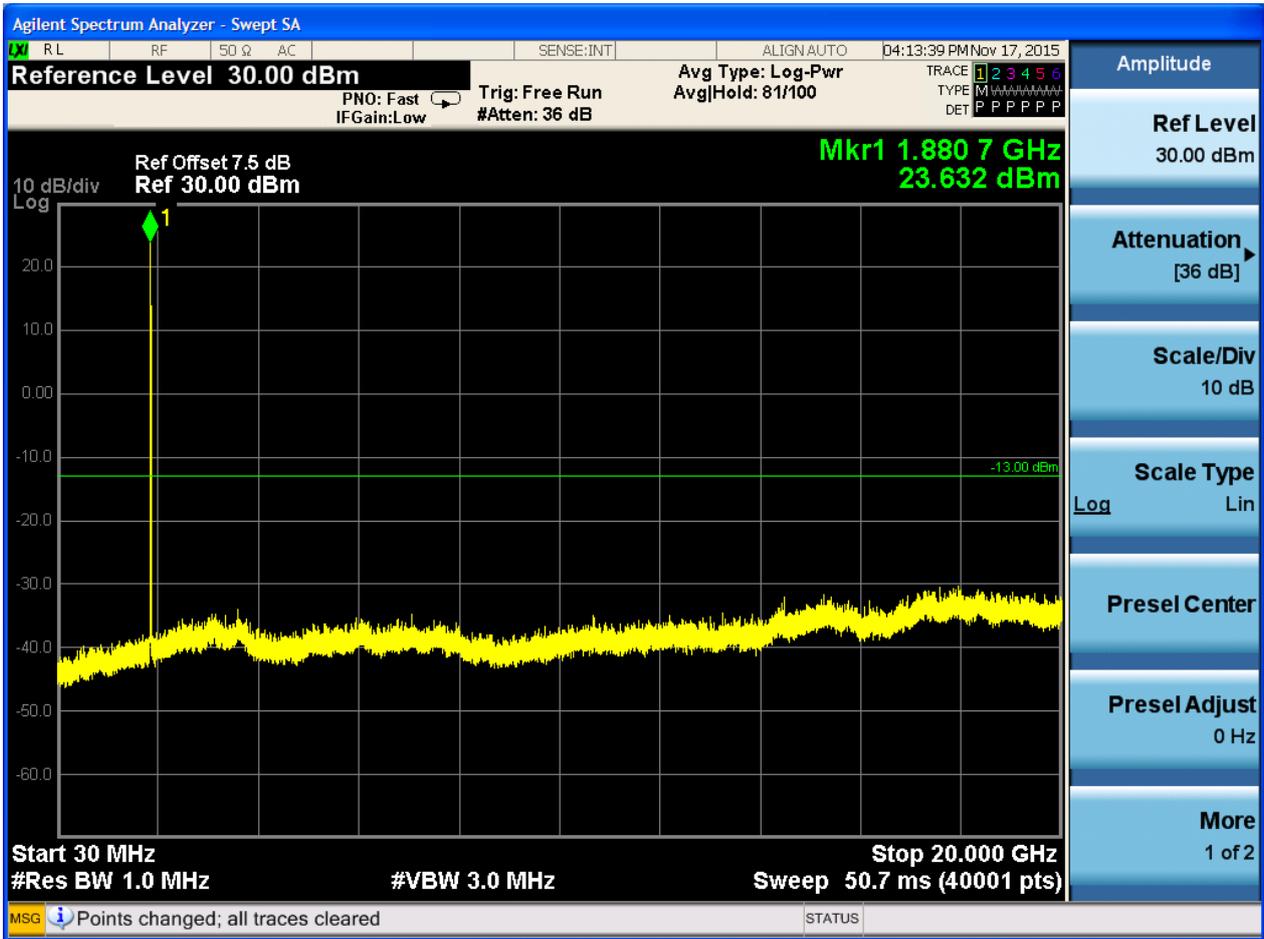




6.2.1.1.2 Test Channel = MCH

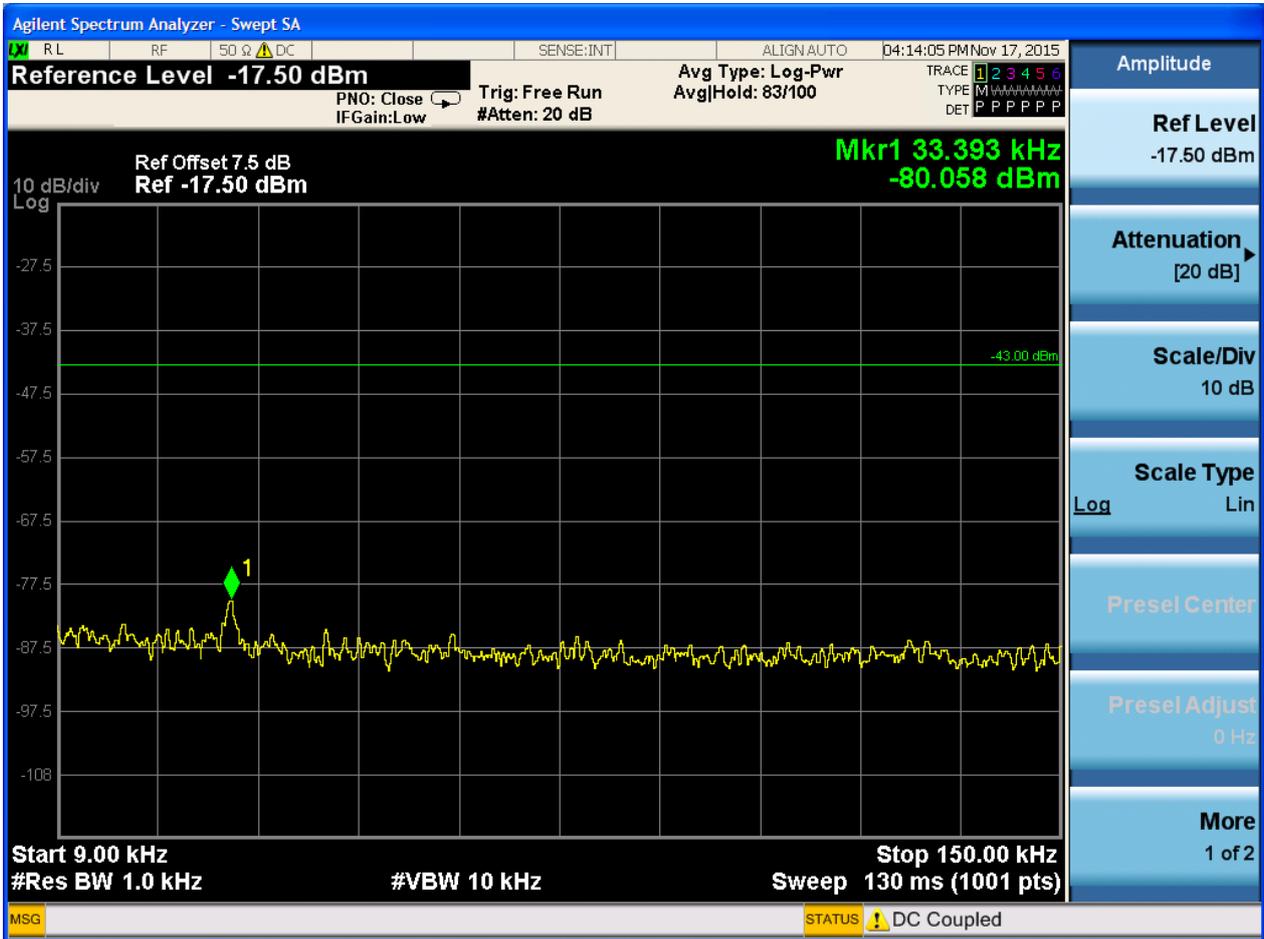


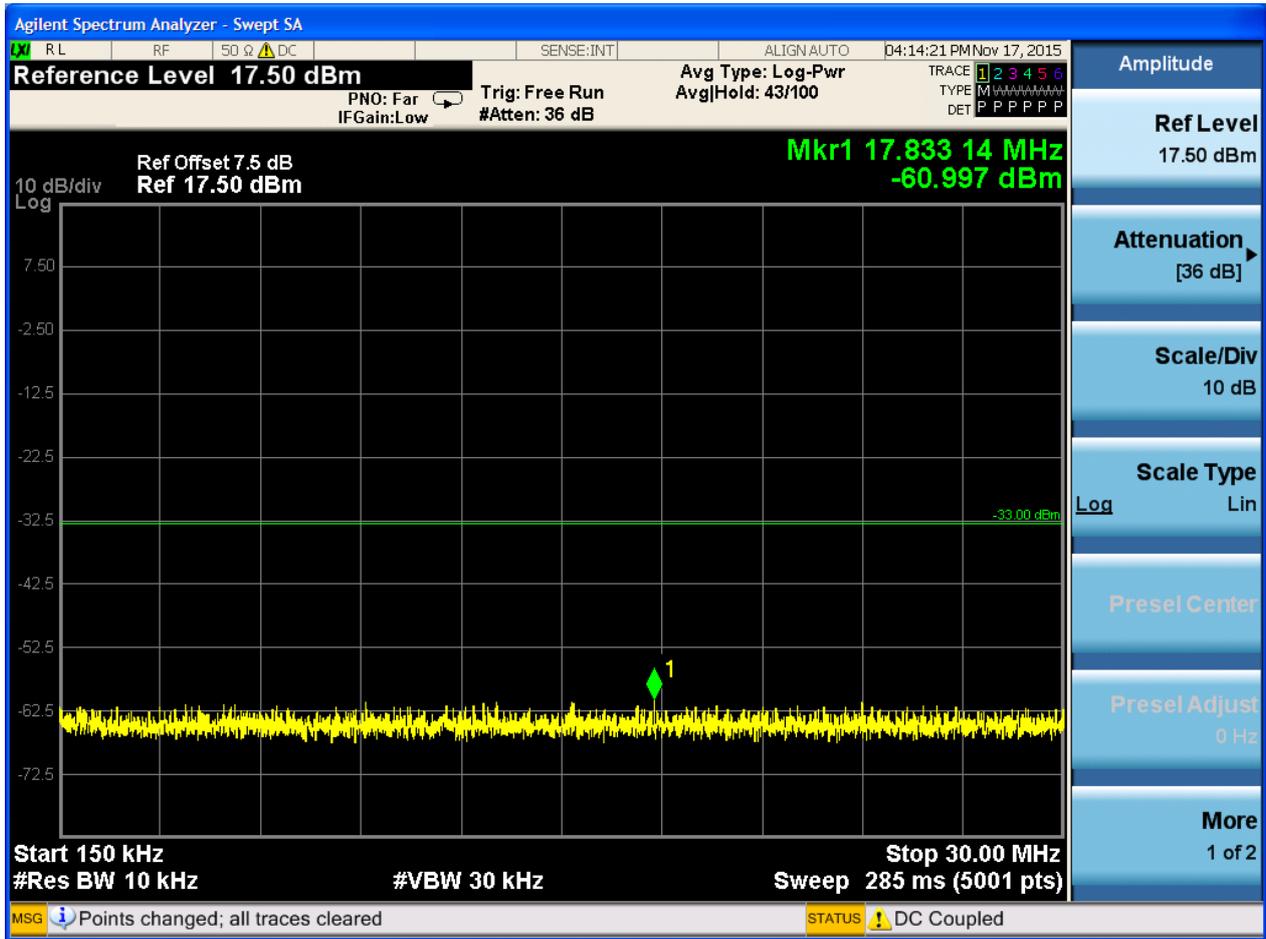






6.2.1.1.3 Test Channel = HCH







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

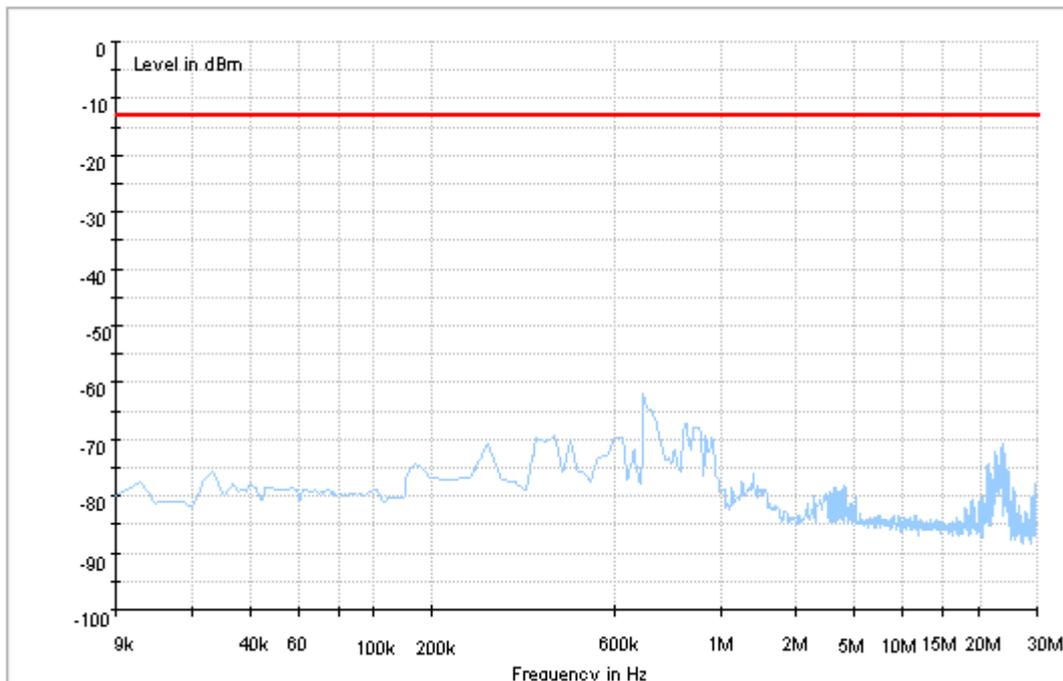
Above 1GHz, RBW = 1 MHz, VBW = 3 MHz. Detector: PK

Part I - Test Plots

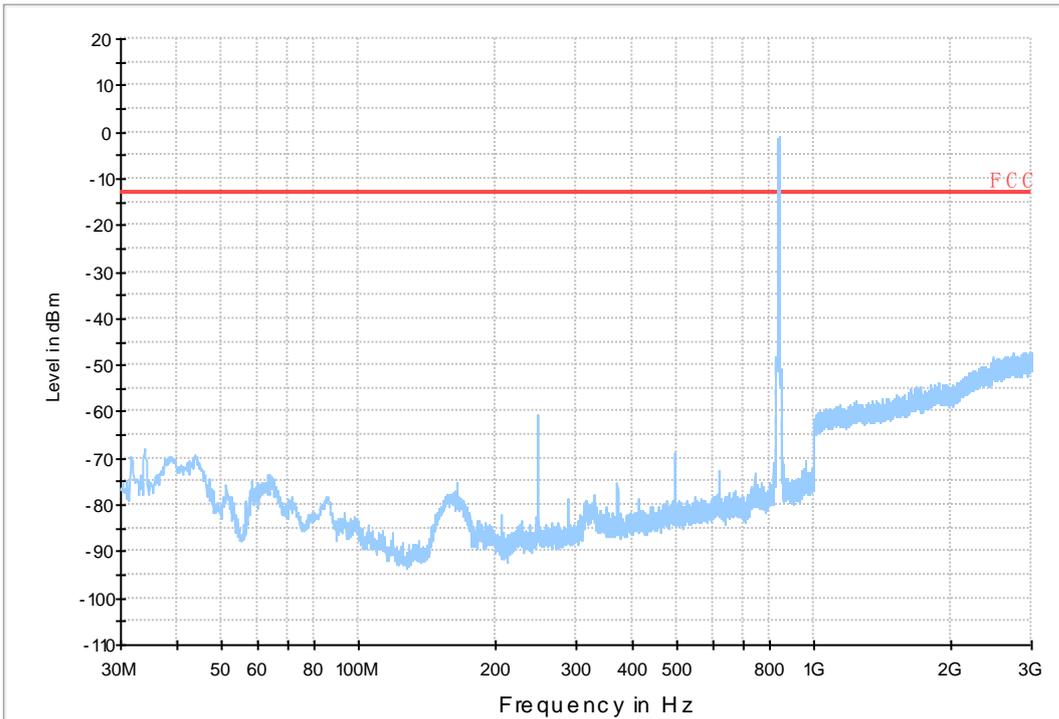
7.1 For UMTS

7.1.1 Test Band = WCDMA850

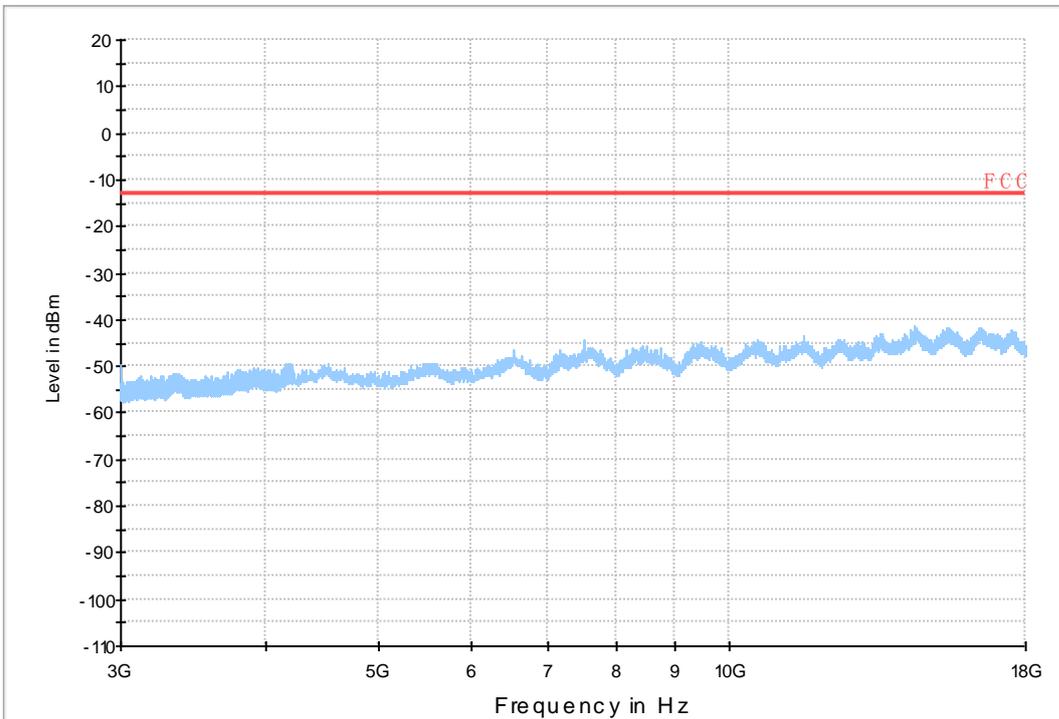
7.1.1.1 Test Mode = UMTS/TM1



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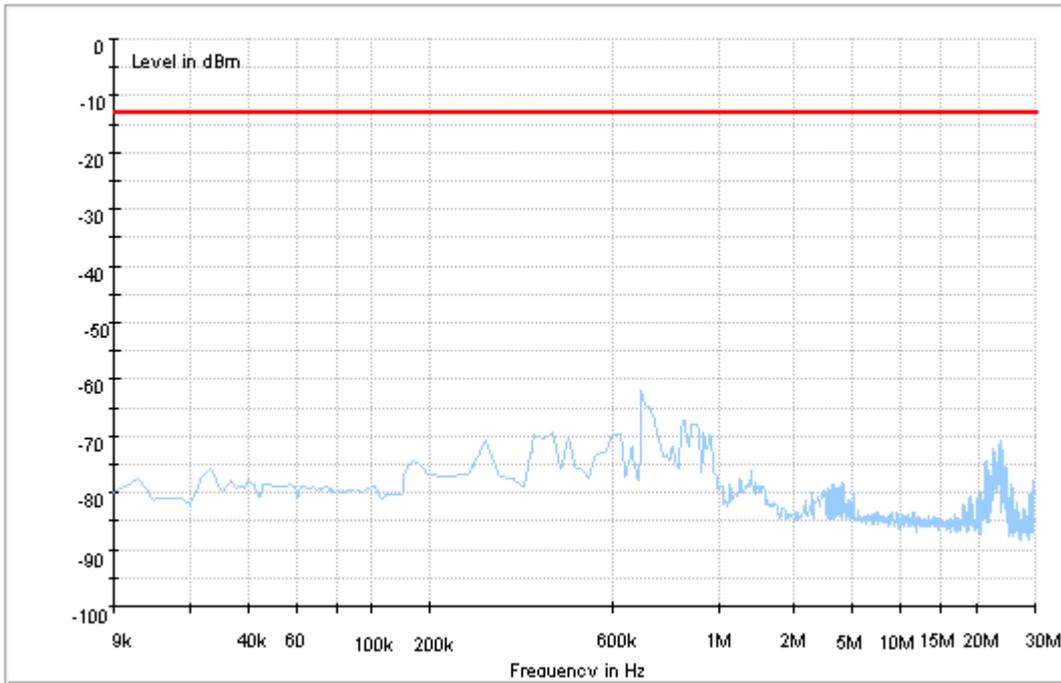
Copy of FCC PART22 W CDMA850_H



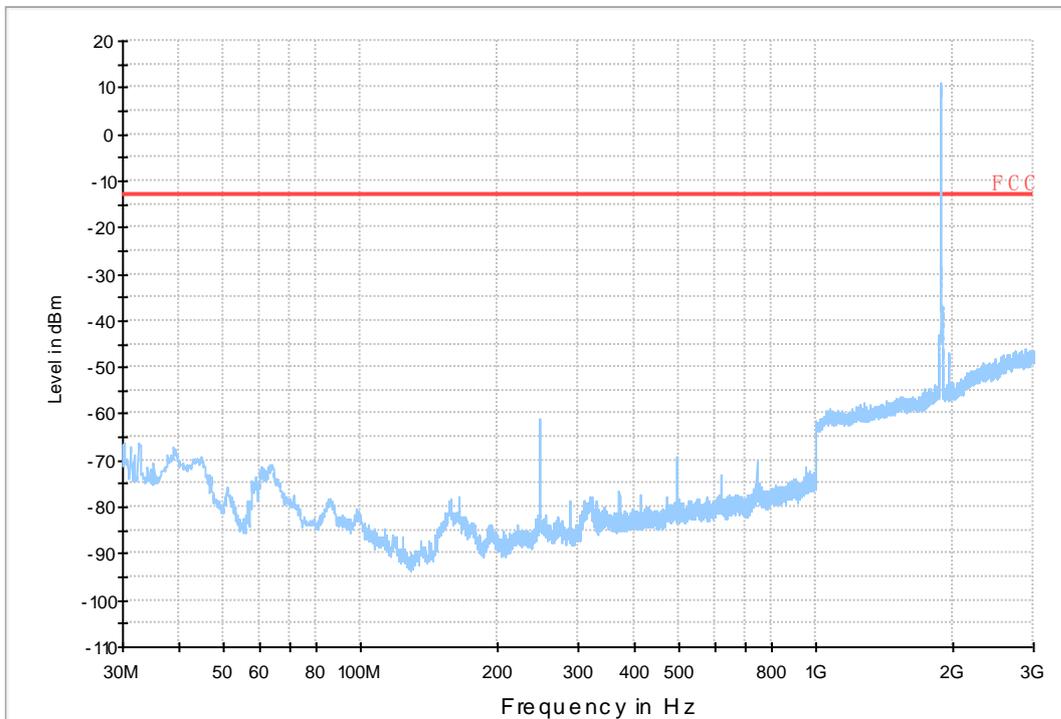
7.2 For UMTS

7.2.1 Test Band = WCDMA1900

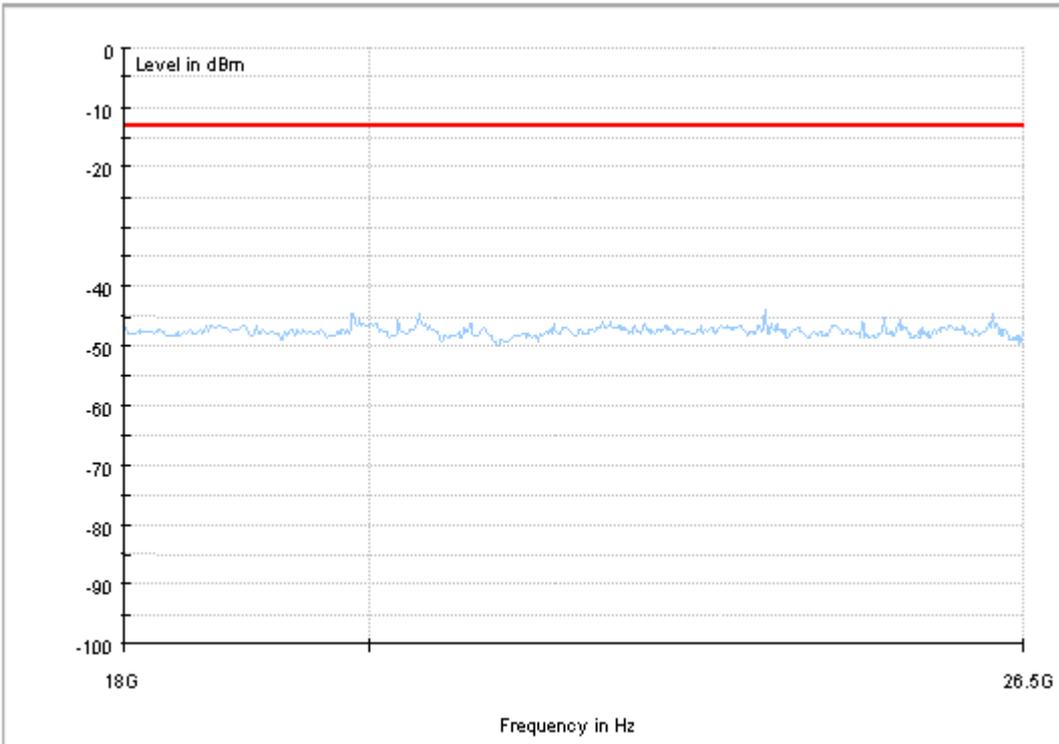
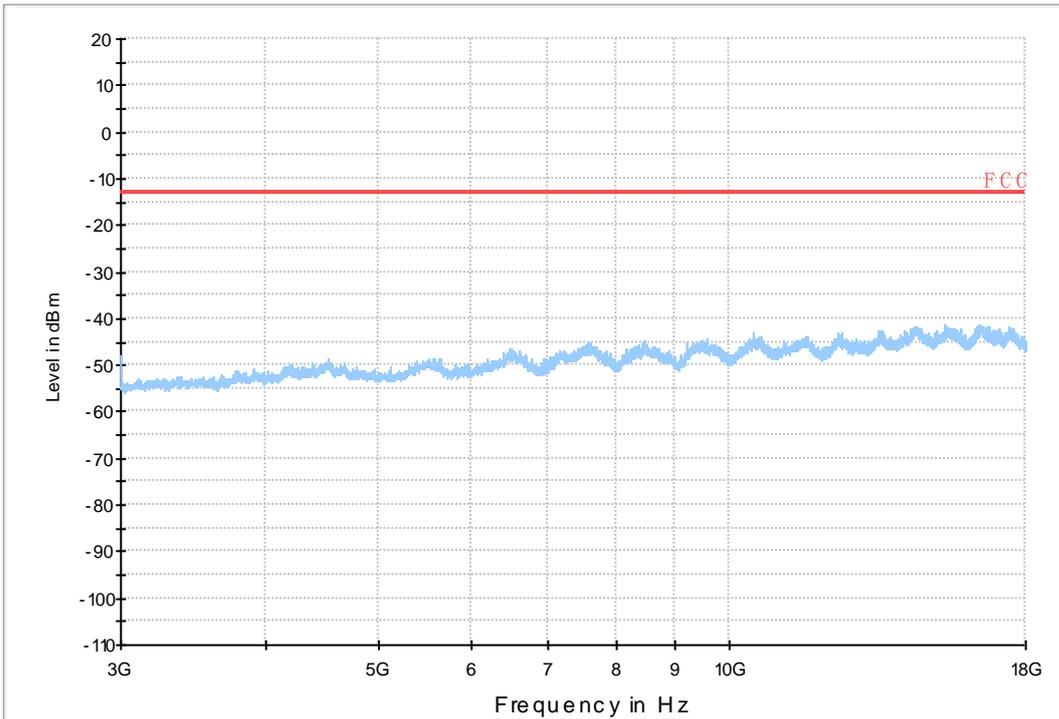
7.2.1.1 Test Mode = UMTS/TM1



Copy of FCC PART24 W CDMA1900_L



Copy of FCC PART24 W CDMA1900_H



8Appendix_H: Frequency Stability

8.1 For UMTS

8.1.1 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	-20.19	-0.02443	PASS
				VN	6.85	0.00829	PASS
				VH	-1.53	-0.00185	PASS
		MCH	TN	VL	-20.10	-0.02403	PASS
				VN	10.74	0.01284	PASS
				VH	-5.95	-0.00711	PASS
		HCH	TN	VL	-24.35	-0.02876	PASS
				VN	12.04	0.01422	PASS
				VH	-5.26	-0.00621	PASS

8.1.2 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	-19.10	-0.02311	PASS
				-20	0.06	0.00007	PASS
				-10	2.93	0.00355	PASS
				0	-3.14	-0.0038	PASS
				10	-0.02	-0.00002	PASS
				20	-1.59	-0.00192	PASS
				30	0.31	0.00038	PASS
				40	-3.40	-0.00411	PASS
		MCH	VN	-30	-20.03	-0.02395	PASS
				-20	9.78	0.01169	PASS
				-10	-2.44	-0.00292	PASS
				0	5.16	0.00617	PASS
				10	4.68	0.0056	PASS
				20	-2.41	-0.00288	PASS
		30	7.71	0.00922	PASS		

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				40	-3.30	-0.00395	PASS
				50	2.87	0.00343	PASS
		HCH	VN	-30	-20.16	-0.02381	PASS
				-20	11.37	0.01343	PASS
				-10	-0.49	-0.00058	PASS
				0	0.05	0.00006	PASS
				10	4.10	0.00484	PASS
				20	-3.16	-0.00373	PASS
				30	-0.78	-0.00092	PASS
				40	4.93	0.00582	PASS
				50	0.38	0.00045	PASS

8.2 For UMTS

8.2.1 Frequency 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	4.00	0.00216	PASS
				VN	5.69	0.00307	PASS
				VH	-3.02	-0.00163	PASS
		MCH	TN	VL	-8.35	-0.00444	PASS
				VN	7.34	0.0039	PASS
				VH	9.12	0.00485	PASS
		HCH	TN	VL	-9.81	-0.00514	PASS
				VN	6.15	0.00322	PASS
				VH	1.11	0.00058	PASS

8.2.2 Frequency Error vs. Temperature:

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
WCDMA1900	UMTS/TM1	LCH	VN	-30	0.76	0.00041	PASS
				-20	-5.57	-0.00301	PASS
				-10	-0.47	-0.00025	PASS
				0	8.53	0.0046	PASS
				10	1.63	0.00088	PASS
				20	-3.83	-0.00207	PASS
				30	2.53	0.00137	PASS
				40	-5.48	-0.00296	PASS
				50	1.82	0.00098	PASS



Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
		MCH	VN	-30	-4.04	-0.00215	PASS
				-20	-6.85	-0.00364	PASS
				-10	3.49	0.00186	PASS
				0	2.81	0.00149	PASS
				10	-0.06	-0.00003	PASS
				20	-3.37	-0.00179	PASS
				30	0.70	0.00037	PASS
				40	6.15	0.00327	PASS
				50	-1.92	-0.00102	PASS
		HCH	VN	-30	1.65	0.00086	PASS
				-20	0.15	0.00008	PASS
				-10	-3.08	-0.00161	PASS
				0	-7.06	-0.0037	PASS
				10	-2.59	-0.00136	PASS
				20	0.55	0.00029	PASS
				30	-5.98	-0.00313	PASS
				40	-1.54	-0.00081	PASS
				50	-0.17	-0.00009	PASS

END