



Appendix for test report



1Appendix_A: Effective (Isotropic) Radiated Power Output Data

Part I - Test Results

Test Band	Test Mode	Test Channel	Measured[dBm]	EIRP [dBm]	Limit [dBm]	Verdict
WCDMA1900	UMTS/TM1	LCH	23.2	21.2	33	PASS
		MCH	23.02	21.02	33	PASS
		HCH	22.93	20.93	33	PASS

Test Band	Test Mode	Test Channel	Measured[dBm]	ERP [dBm]	Limit [dBm]	Verdict
WCDMA850	UMTS/TM1	LCH	23.66	20.66	38.5	PASS
		MCH	23.52	20.52	38.5	PASS
		HCH	23.49	20.49	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:

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

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

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

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	3.66	13	PASS
		MCH	2.63	13	PASS
		HCH	3.12	13	PASS
WCDMA850	UMTS/TM1	LCH	2.99	13	PASS
		MCH	2.63	13	PASS
		HCH	3.2	13	PASS

3Appendix_C: Modulation Characteristics

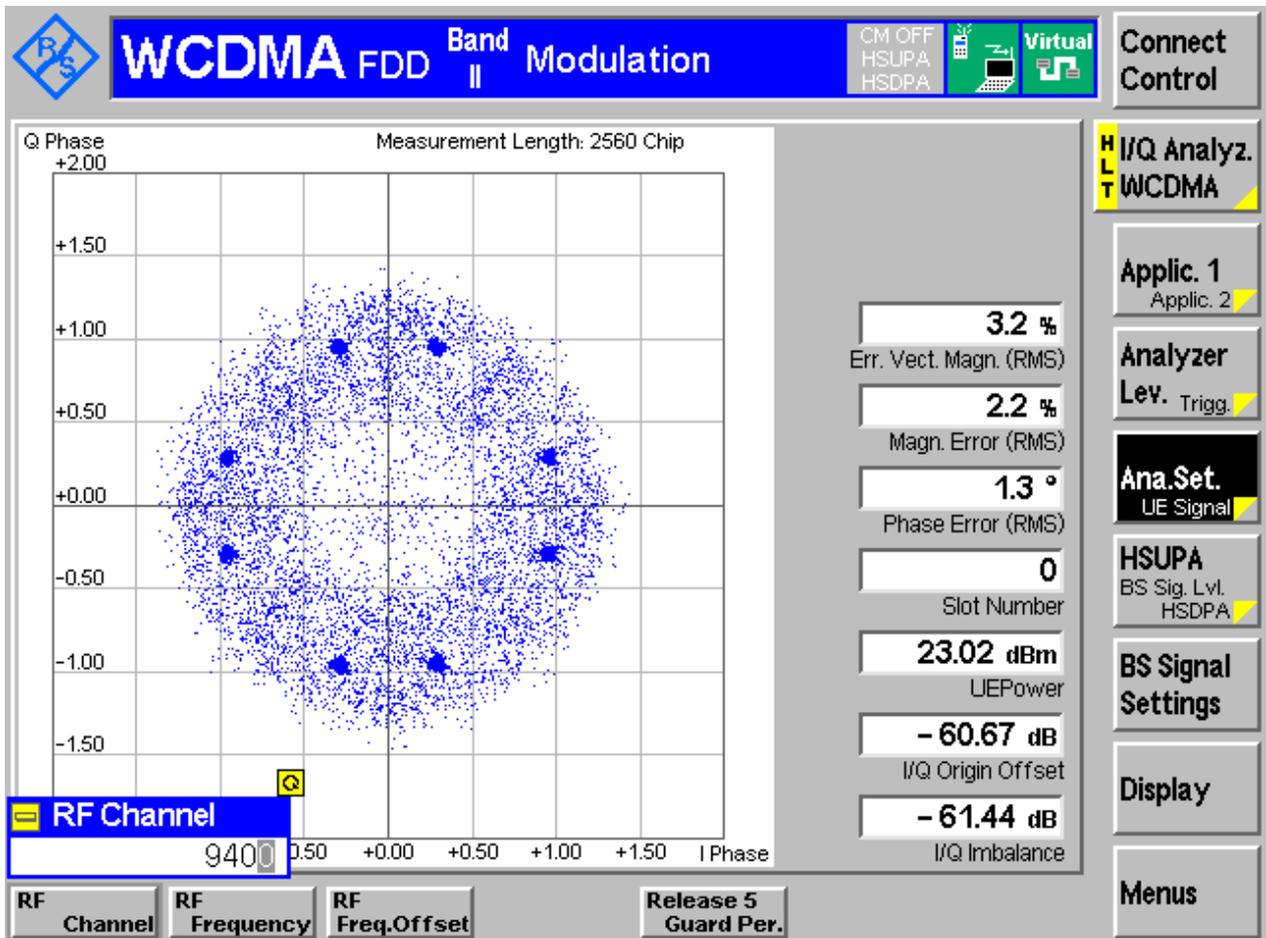
Part I - Test Plots

3.1 For UMTS

3.1.1 Test Band = WCDMA1900

3.1.1.1 Test Mode = UMTS/TM1

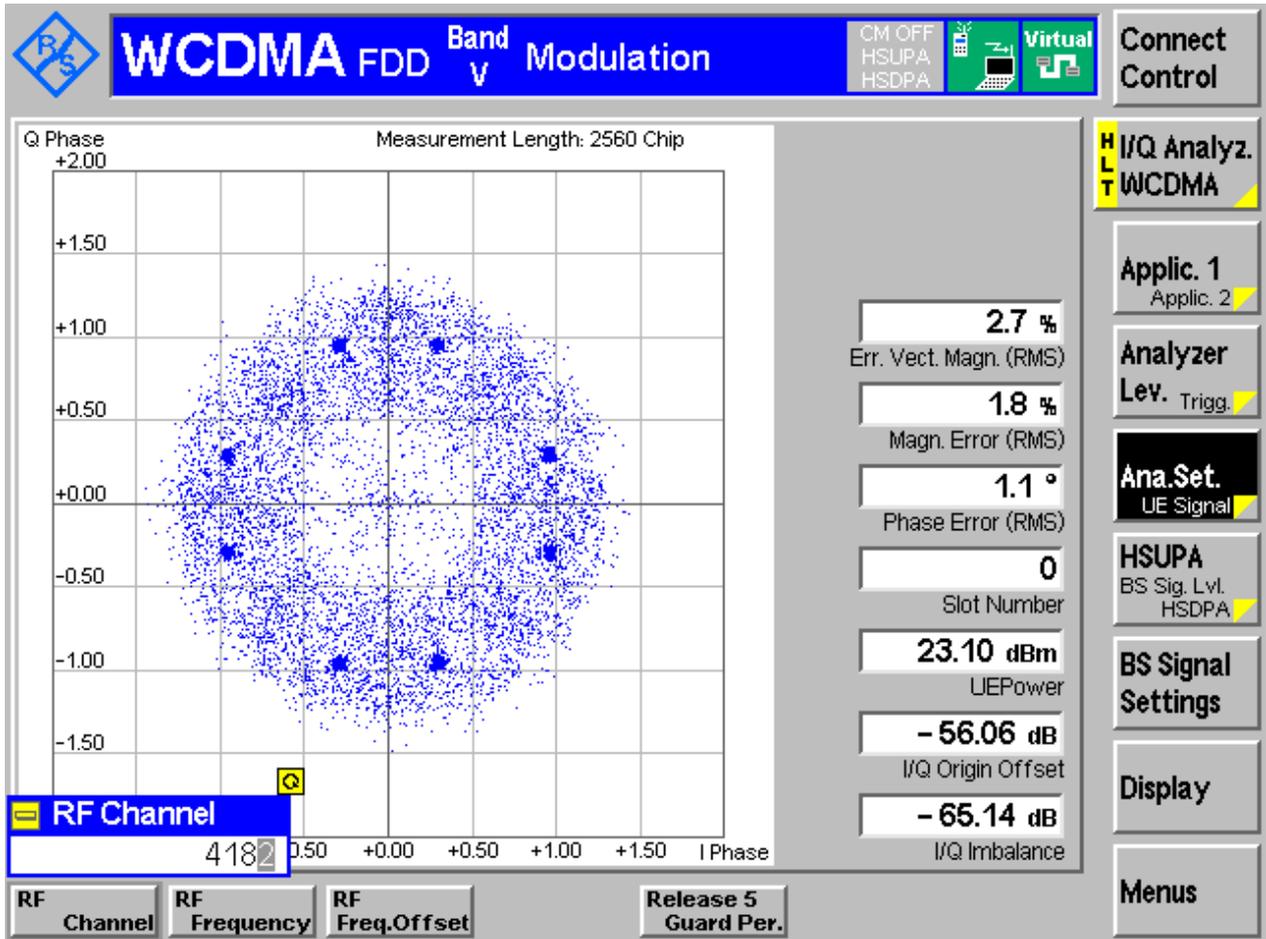
3.1.1.1.1 Test Channel = MCH



3.1.2 Test Band = WCDMA850

3.1.2.1 Test Mode = UMTS/TM1

3.1.2.1.1 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	4.72	Pass
		MCH	4.16	4.73	Pass
		HCH	4.15	4.72	Pass
WCDMA1900	UMTS/TM1	LCH	4.15	4.71	Pass
		MCH	4.15	4.72	Pass
		HCH	4.15	4.72	Pass



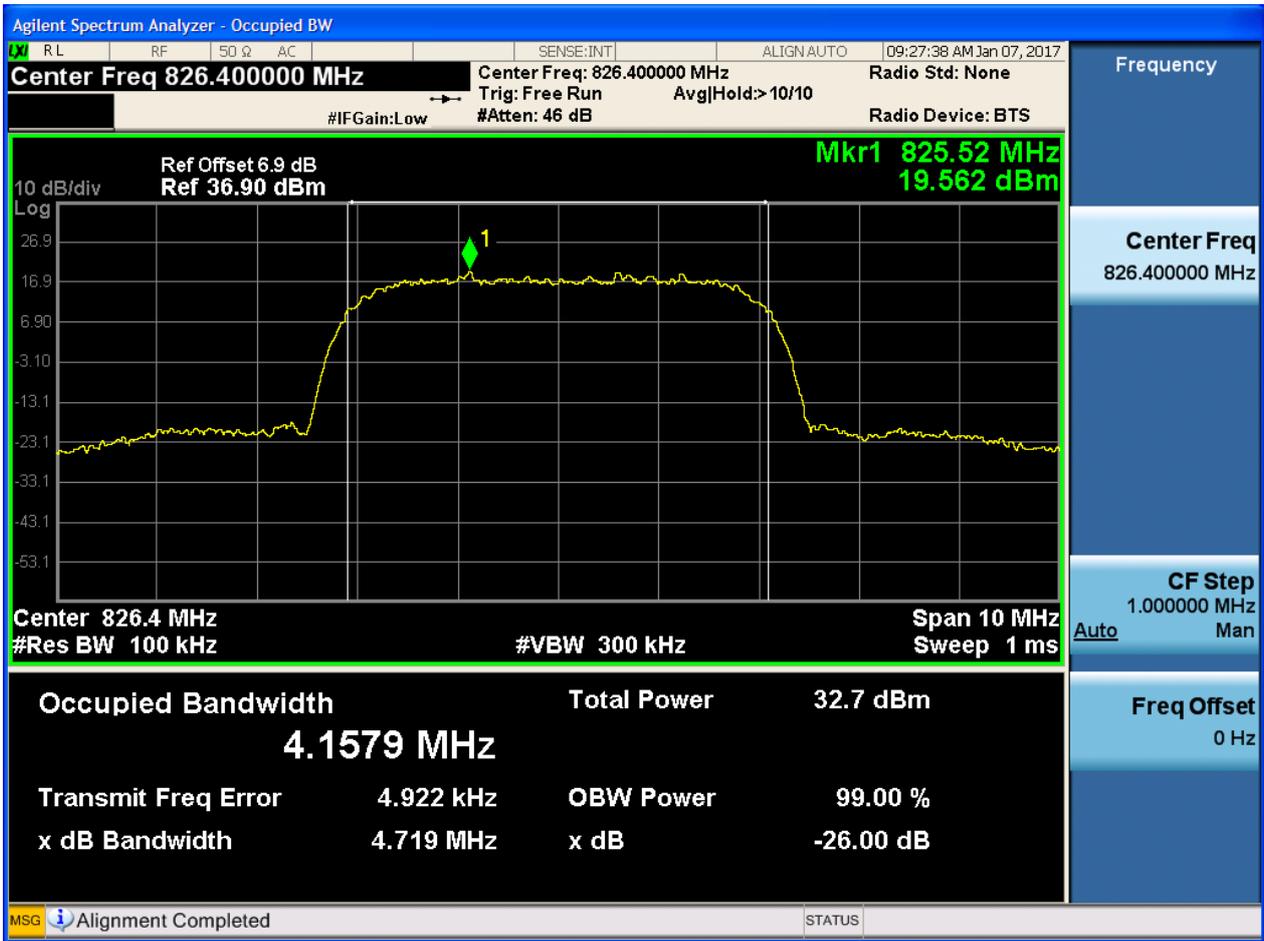
Part II - Test Plots

4.1 For UMTS

4.1.1 Test Band = WCDMA850

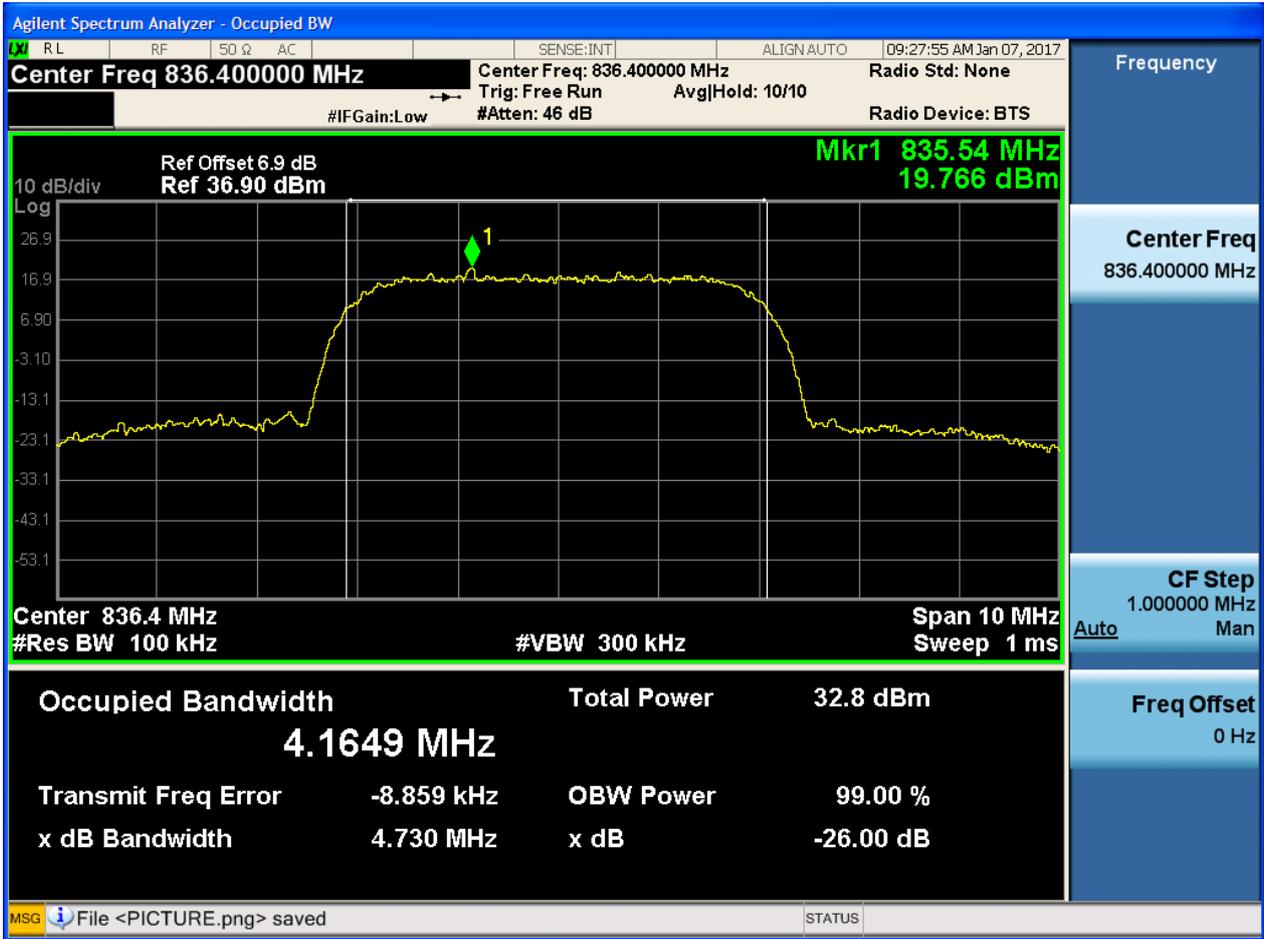
4.1.1.1 Test Mode = UMTS/TM1

4.1.1.1.1 Test Channel = LCH



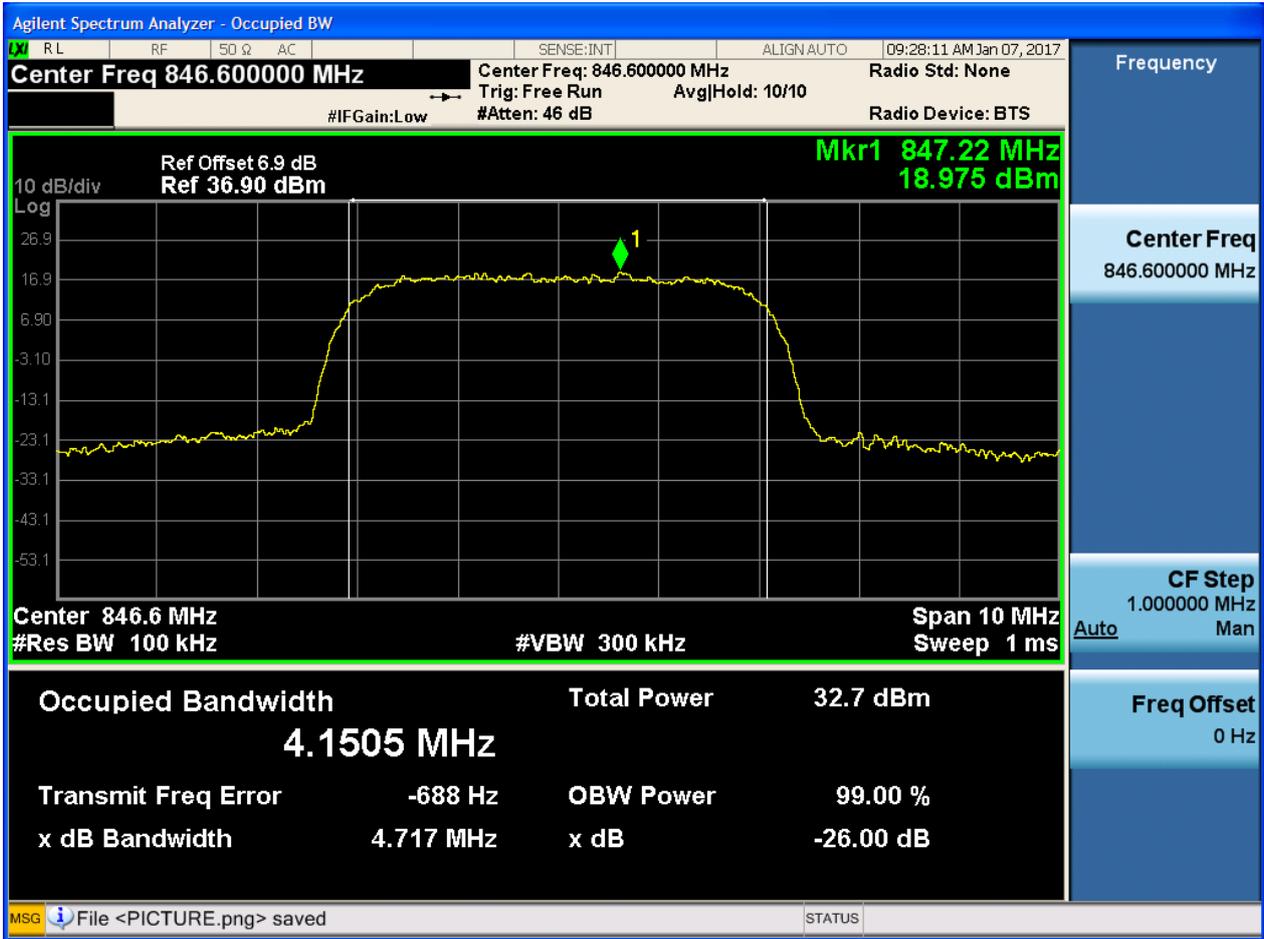


4.1.1.1.2 Test Channel = MCH





4.1.1.1.3 Test Channel = HCH

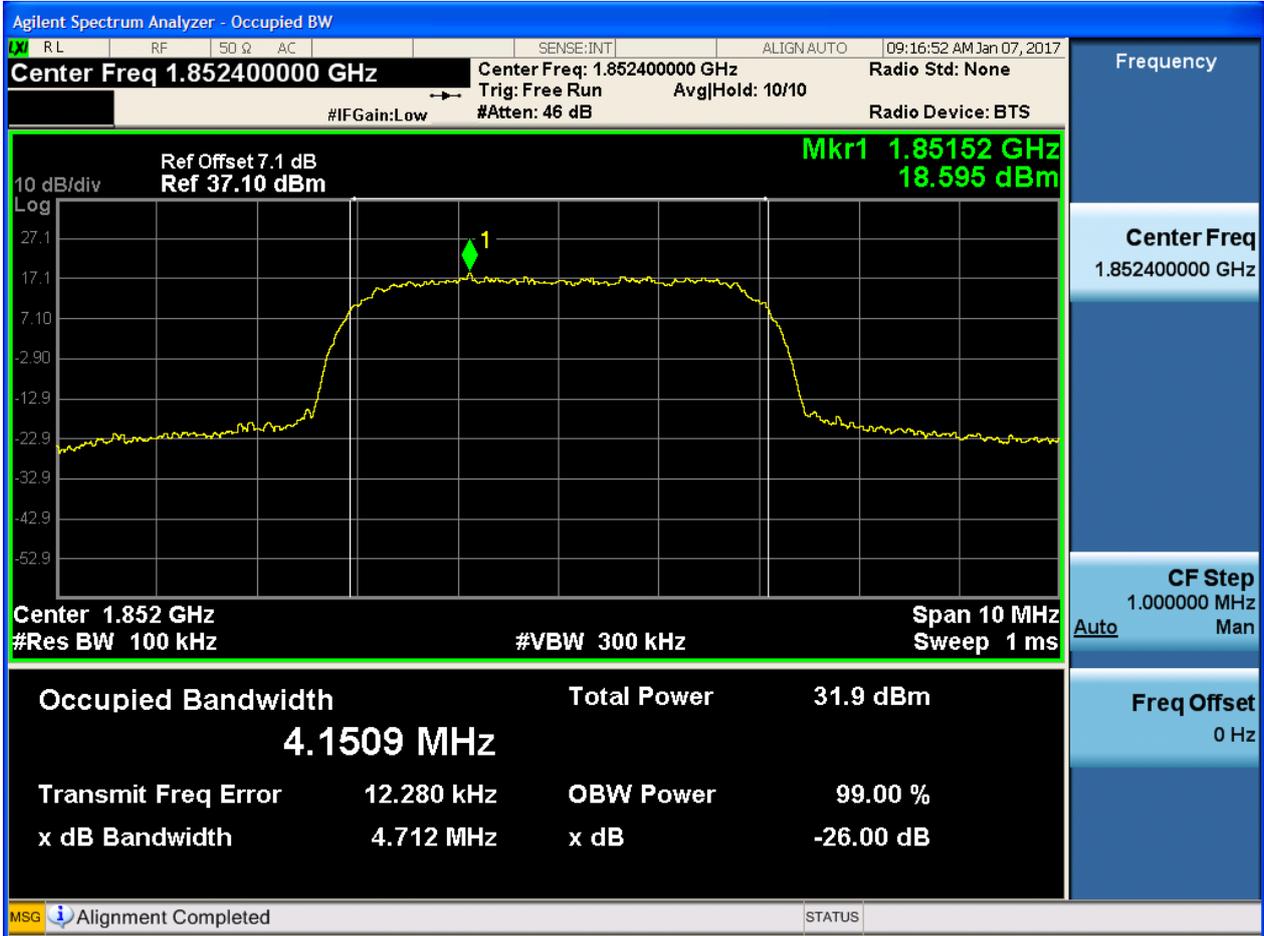




4.1.2 Test Band = WCDMA1900

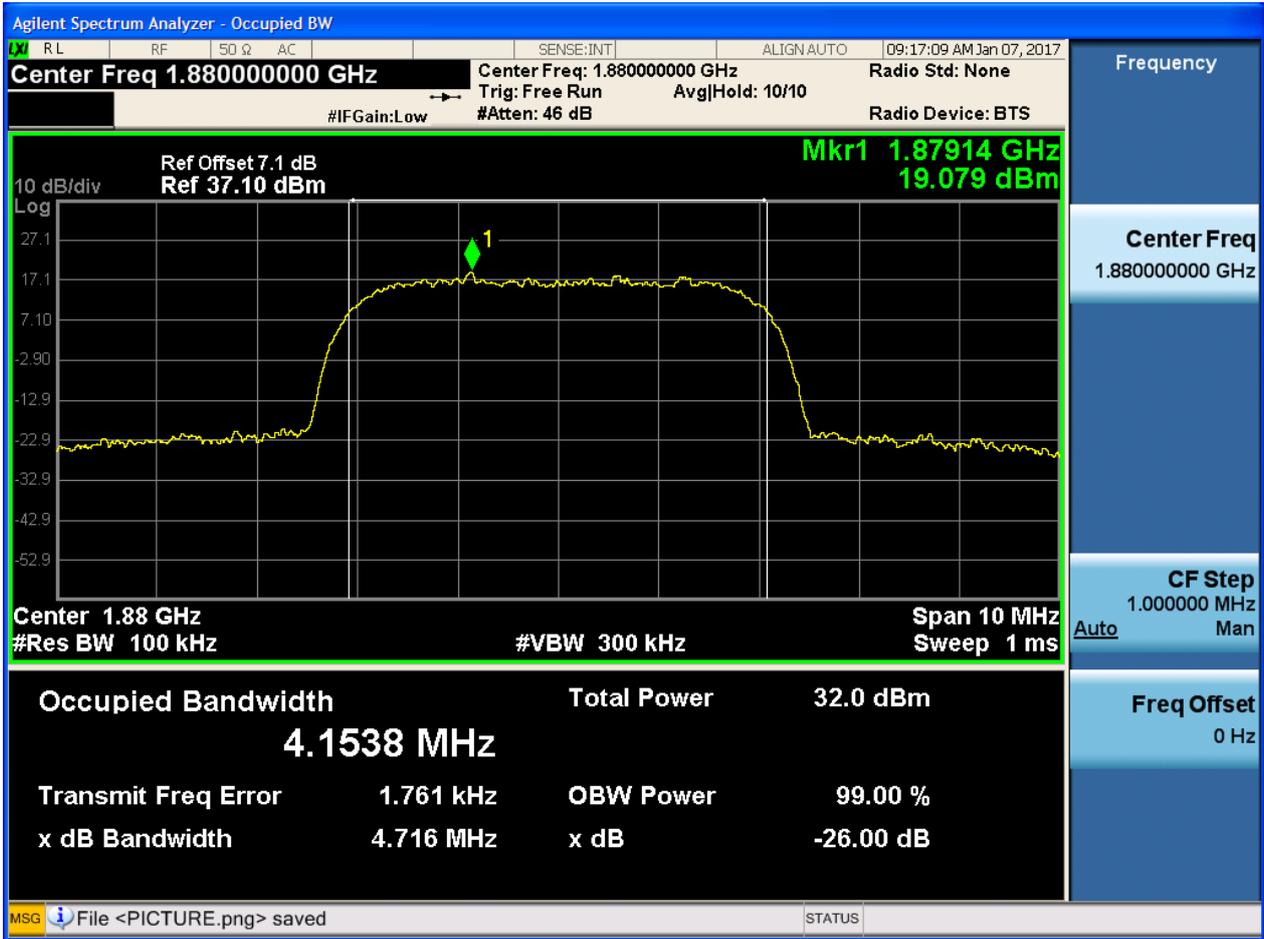
4.1.2.1 Test Mode = UMTS/TM1

4.1.2.1.1 Test Channel = LCH



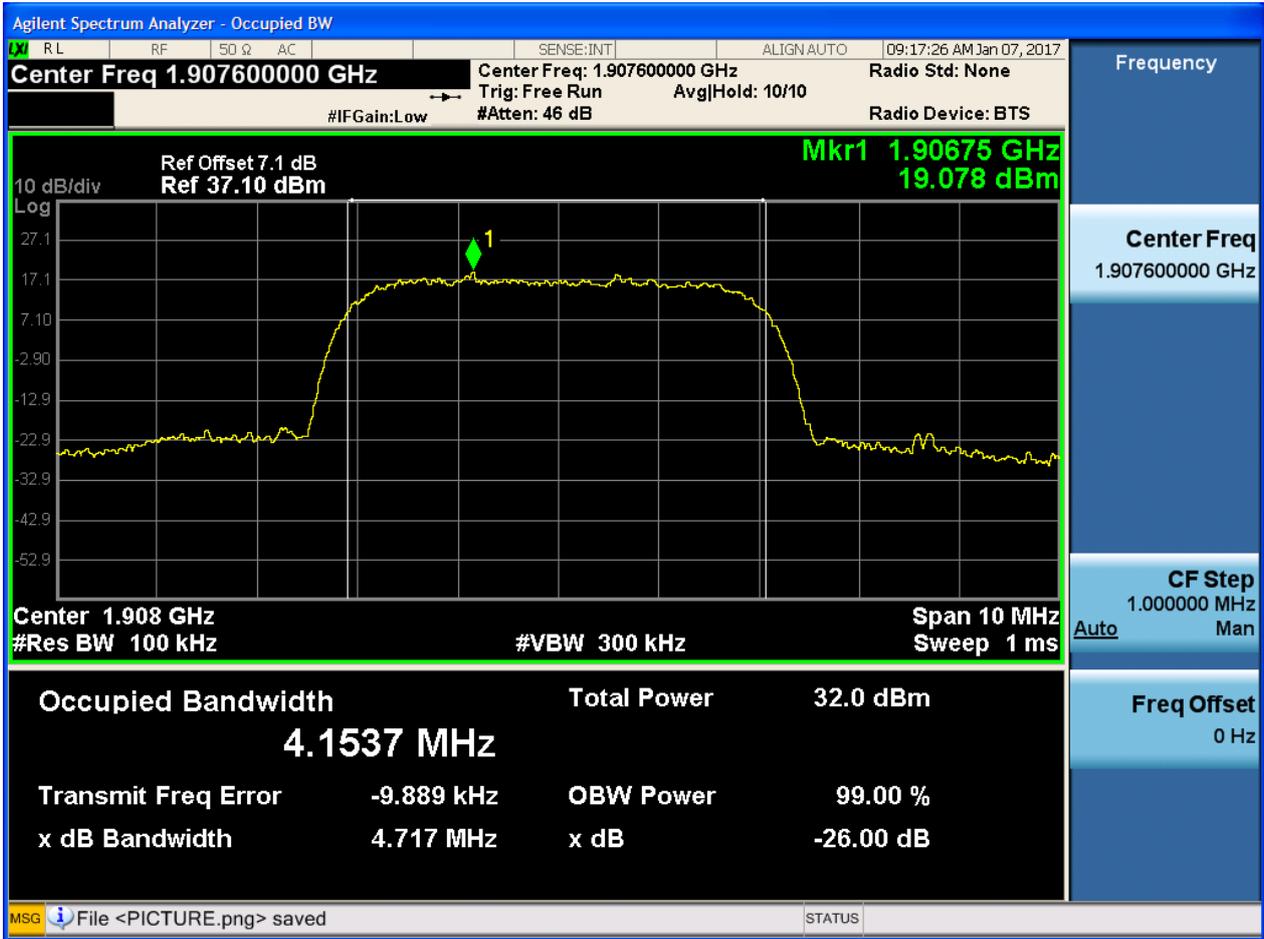


4.1.2.1.2 Test Channel = MCH





4.1.2.1.3 Test Channel = HCH





5.1.1.1.2 Test Channel = HCH

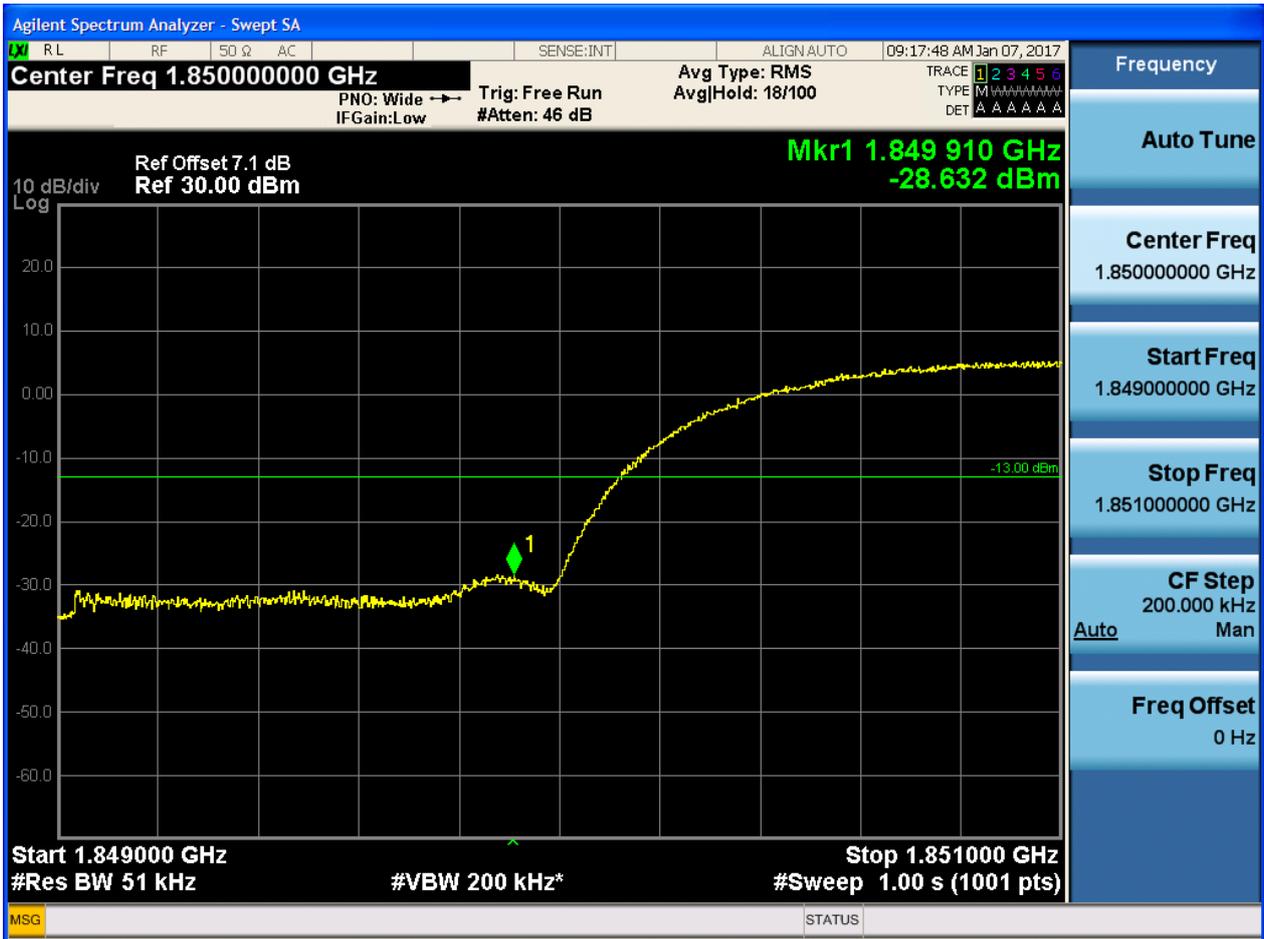




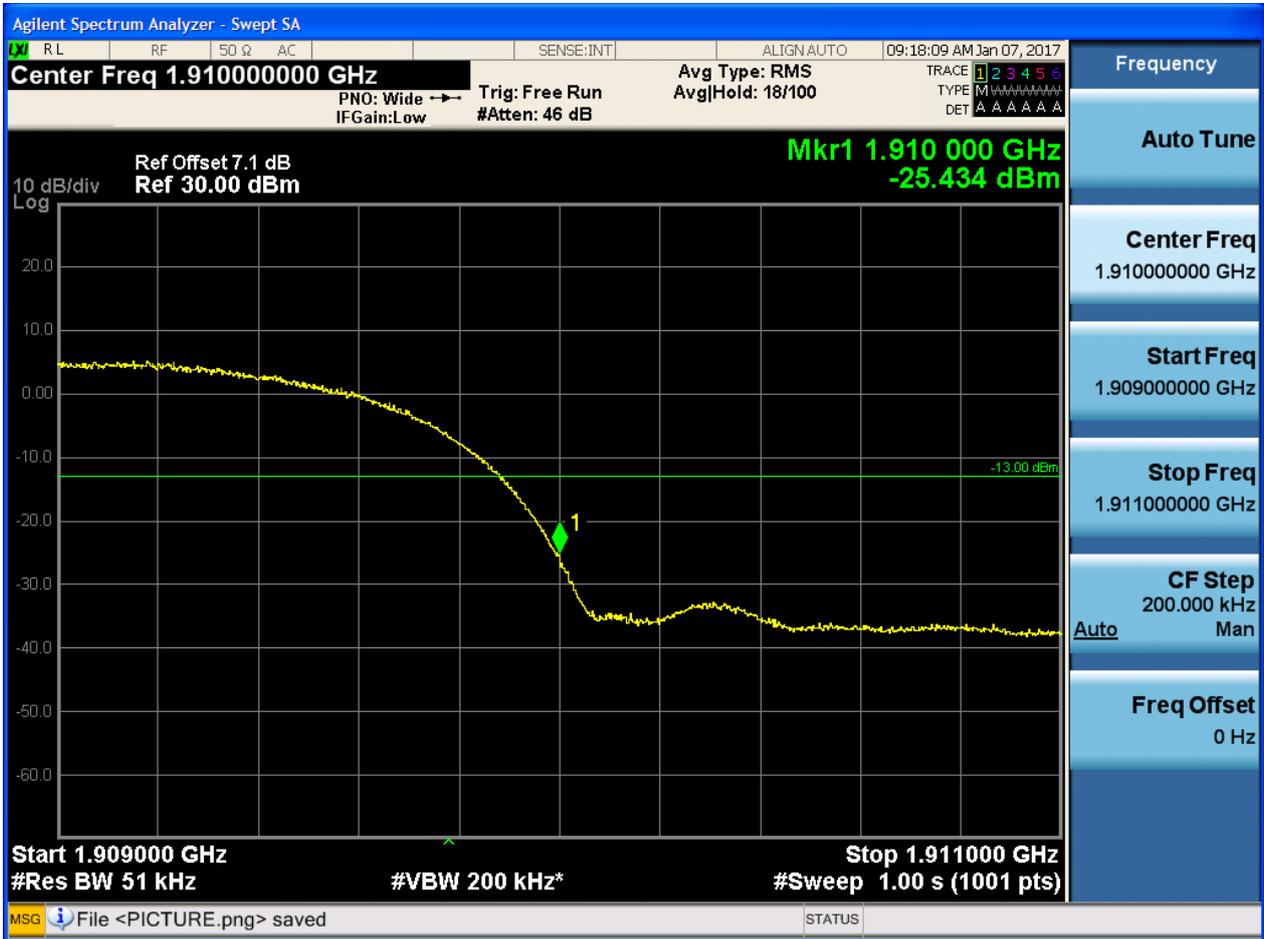
5.1.2 Test Band = WCDMA1900

5.1.2.1 Test Mode = UMTS/TM1

5.1.2.1.1 Test Channel = LCH



5.1.2.1.2 Test Channel = HCH

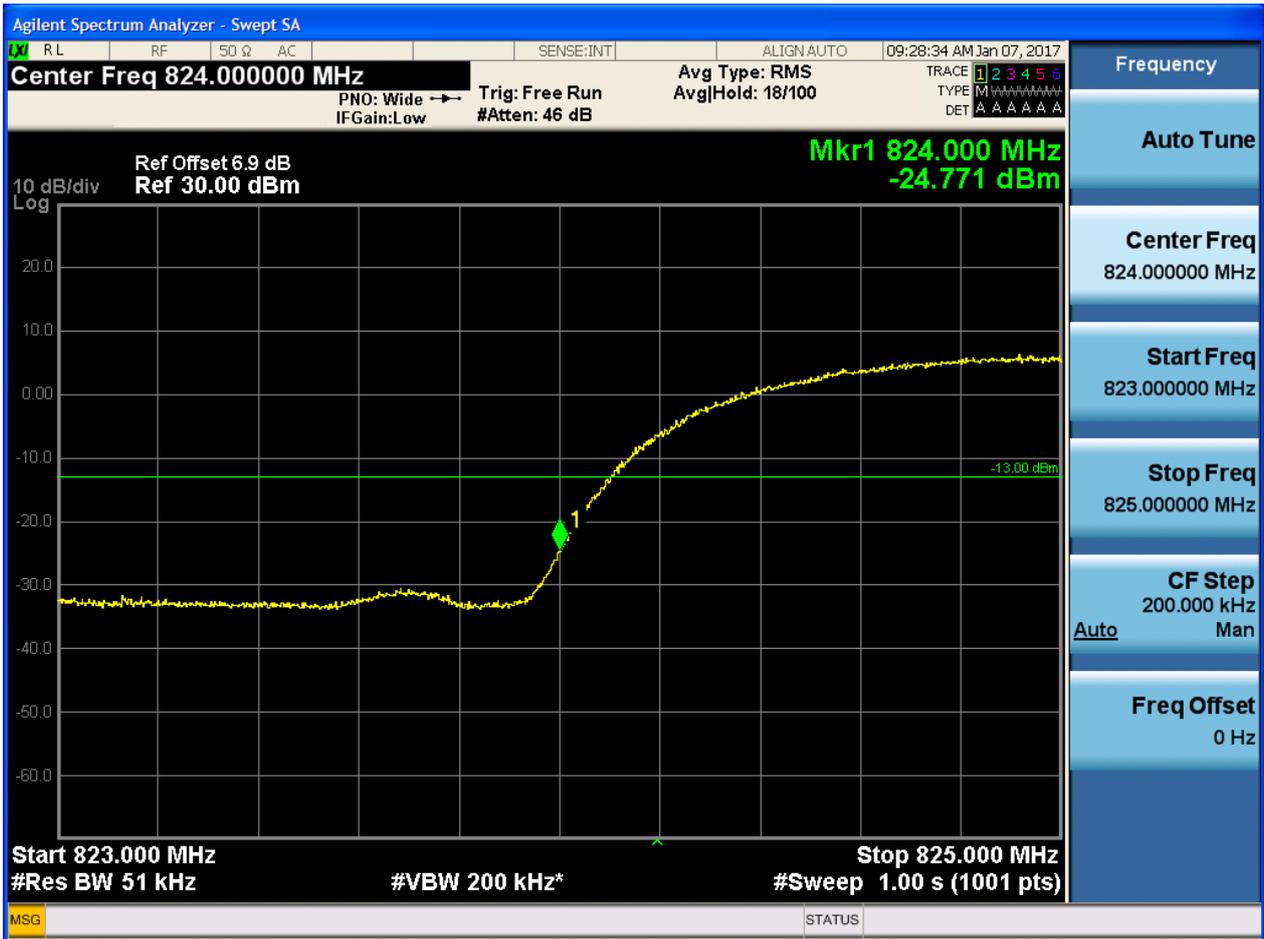




5.1.3 Test Band = WCDMA850

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

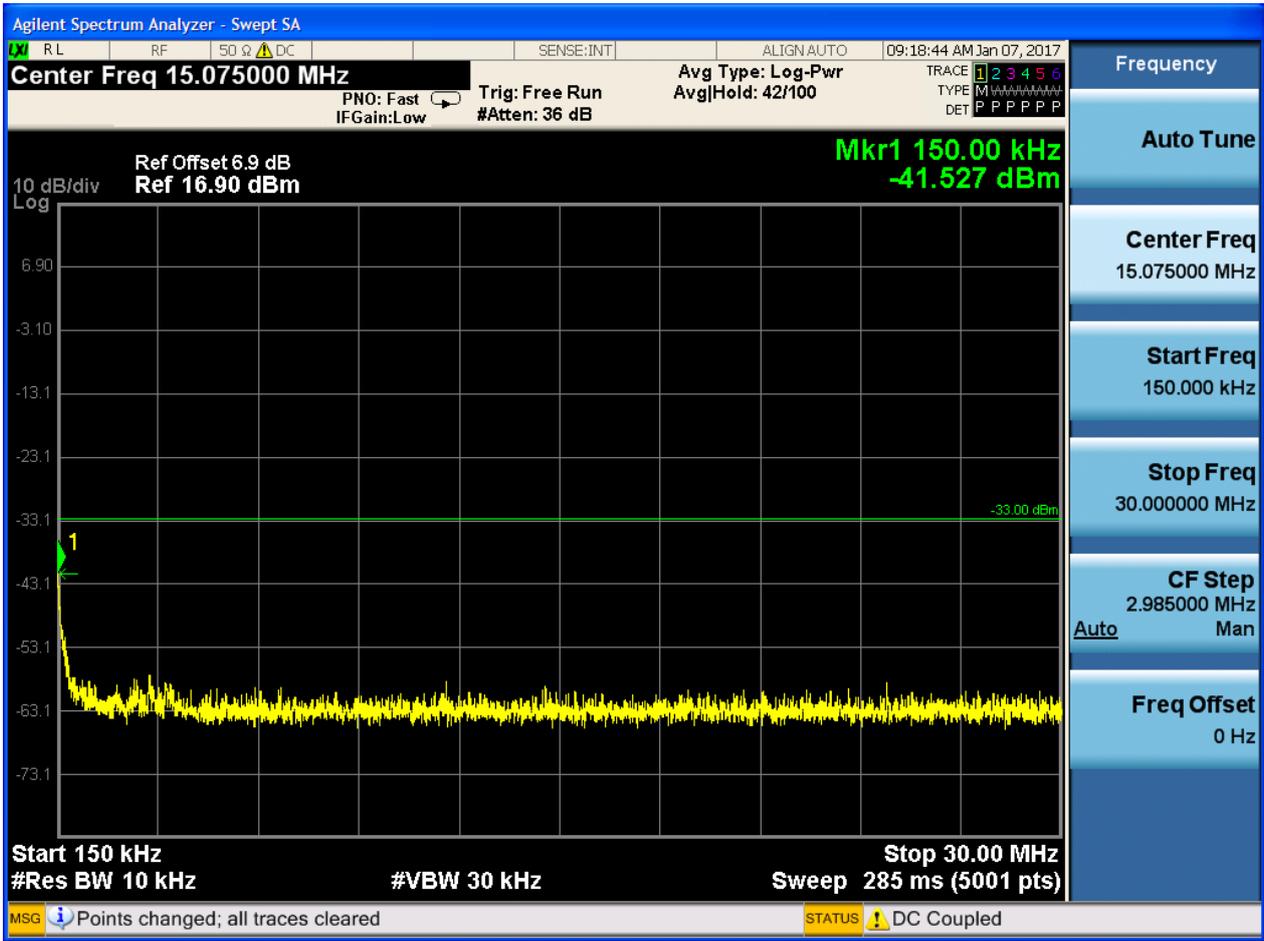
6.1 For UMTS

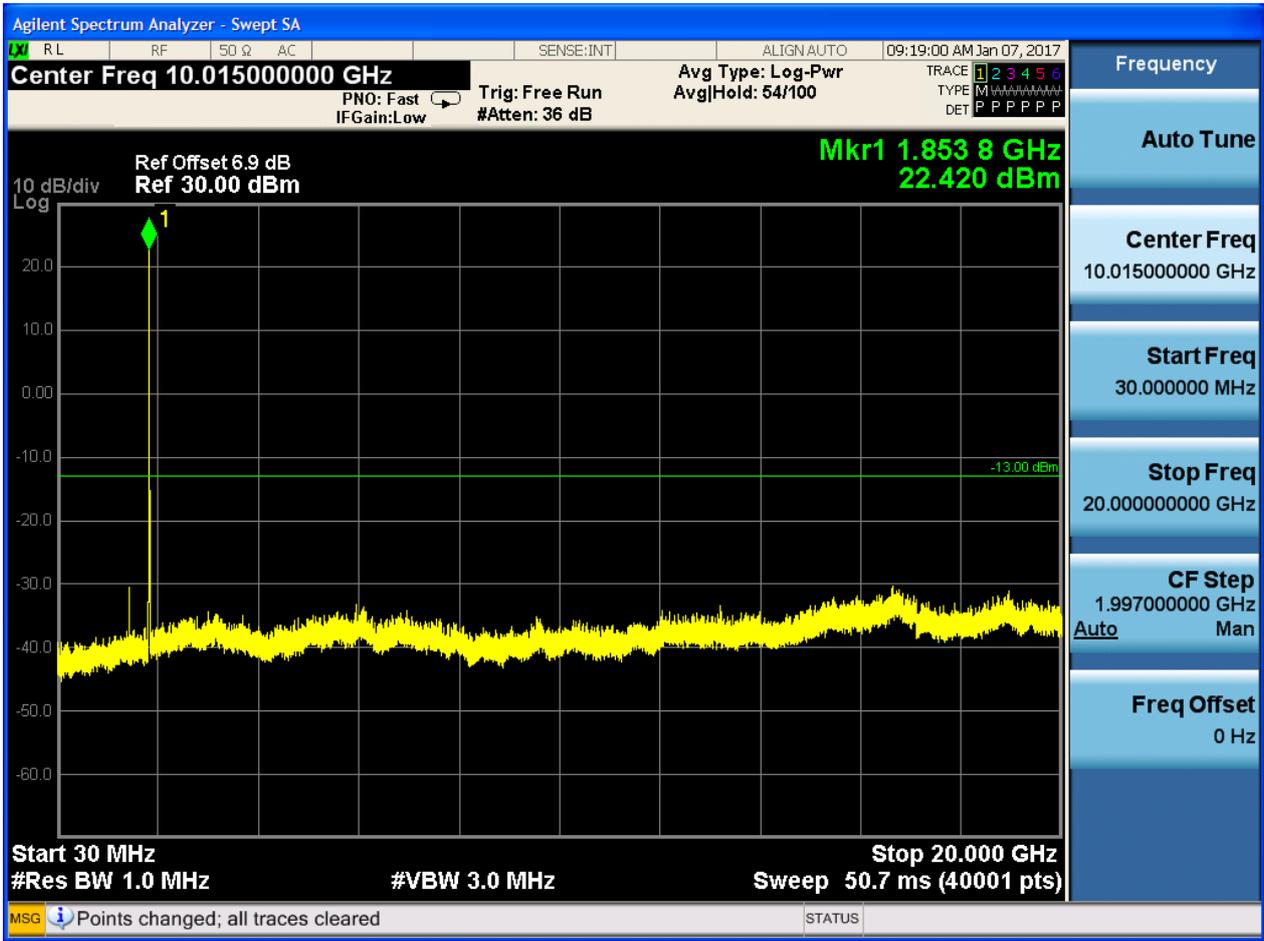
6.1.2 Test Band = WCDMA1900

6.1.2.1 Test Mode = UMTS/TM1

6.1.2.1.1 Test Channel = LCH

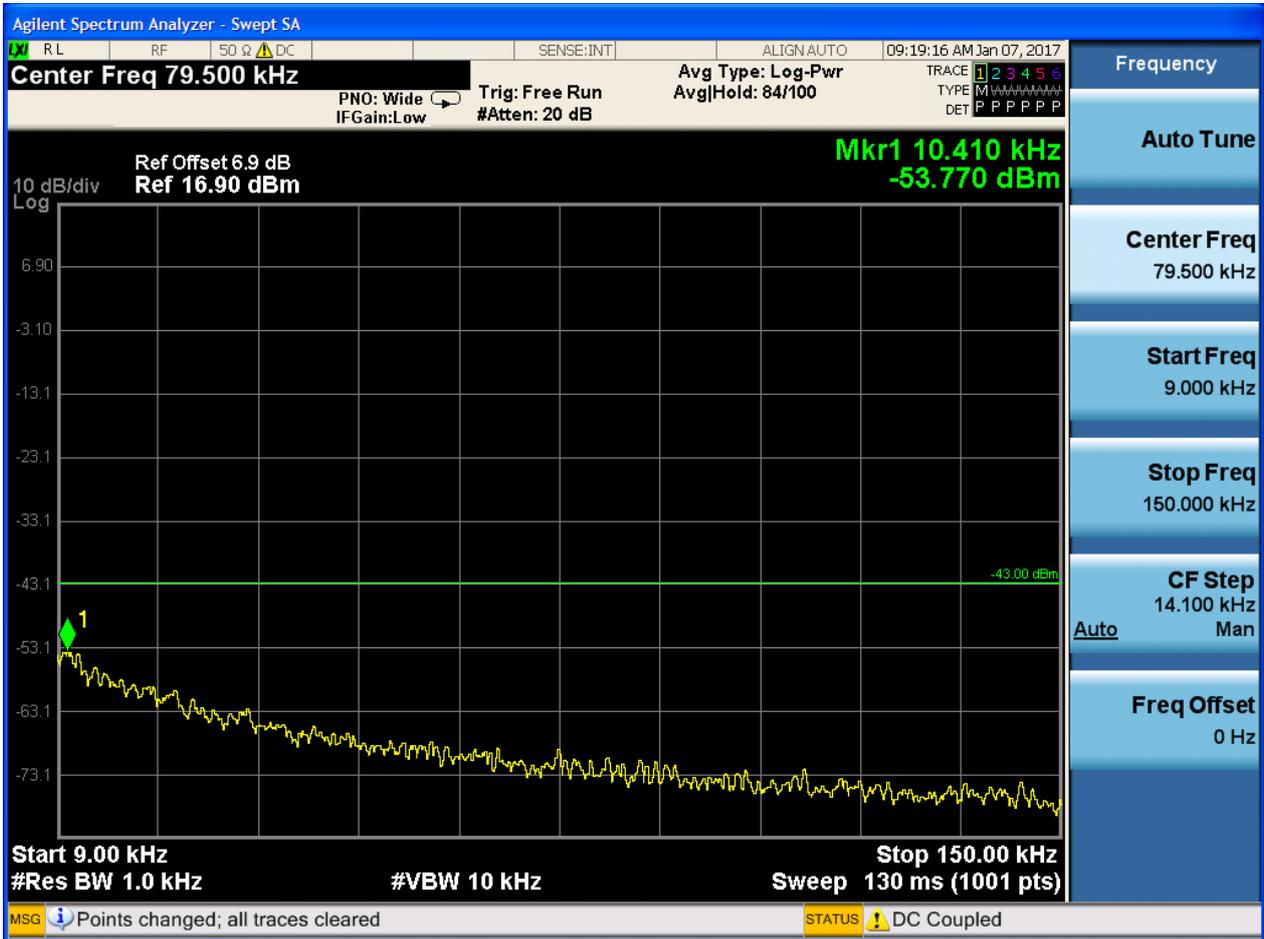


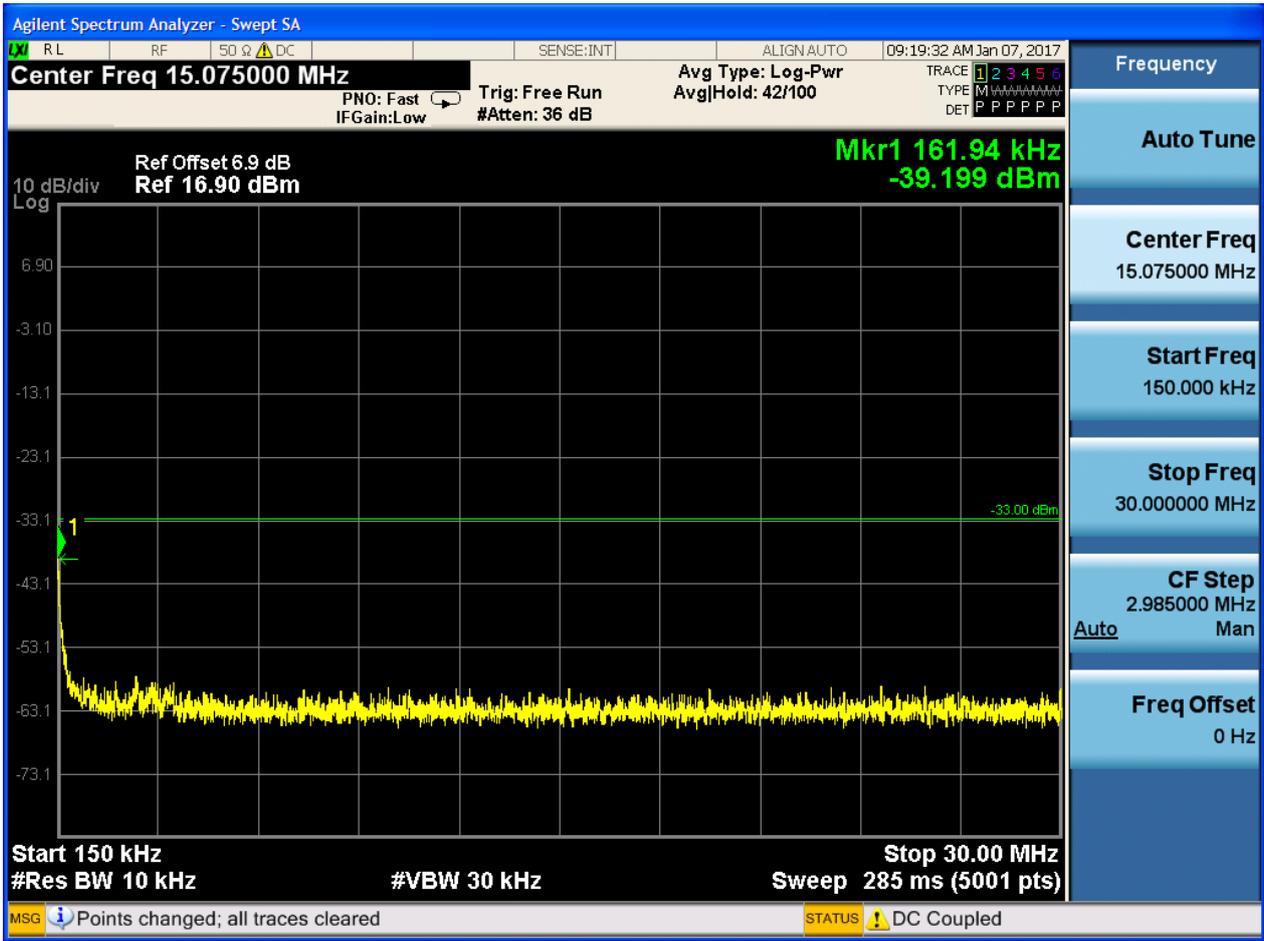


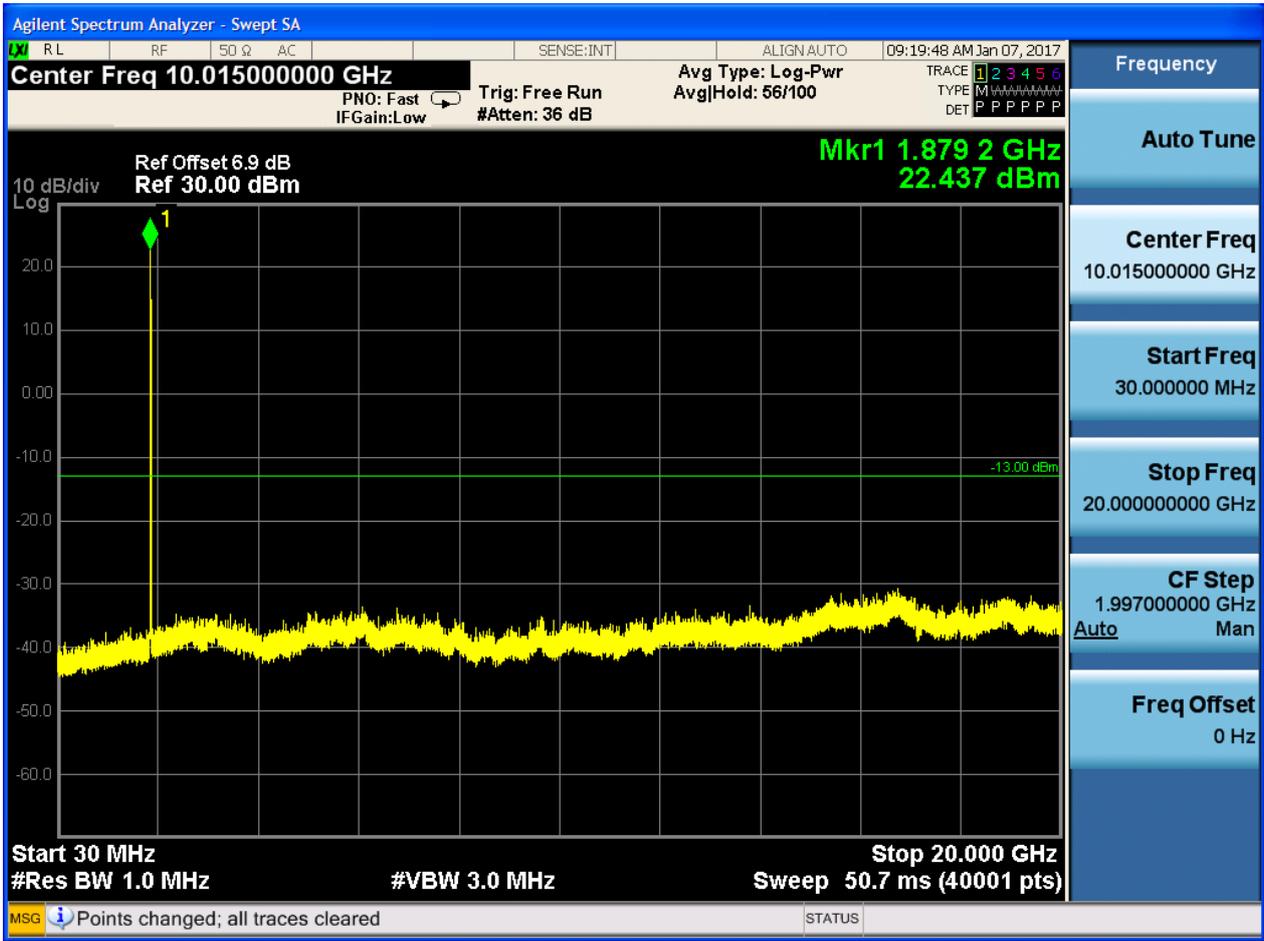




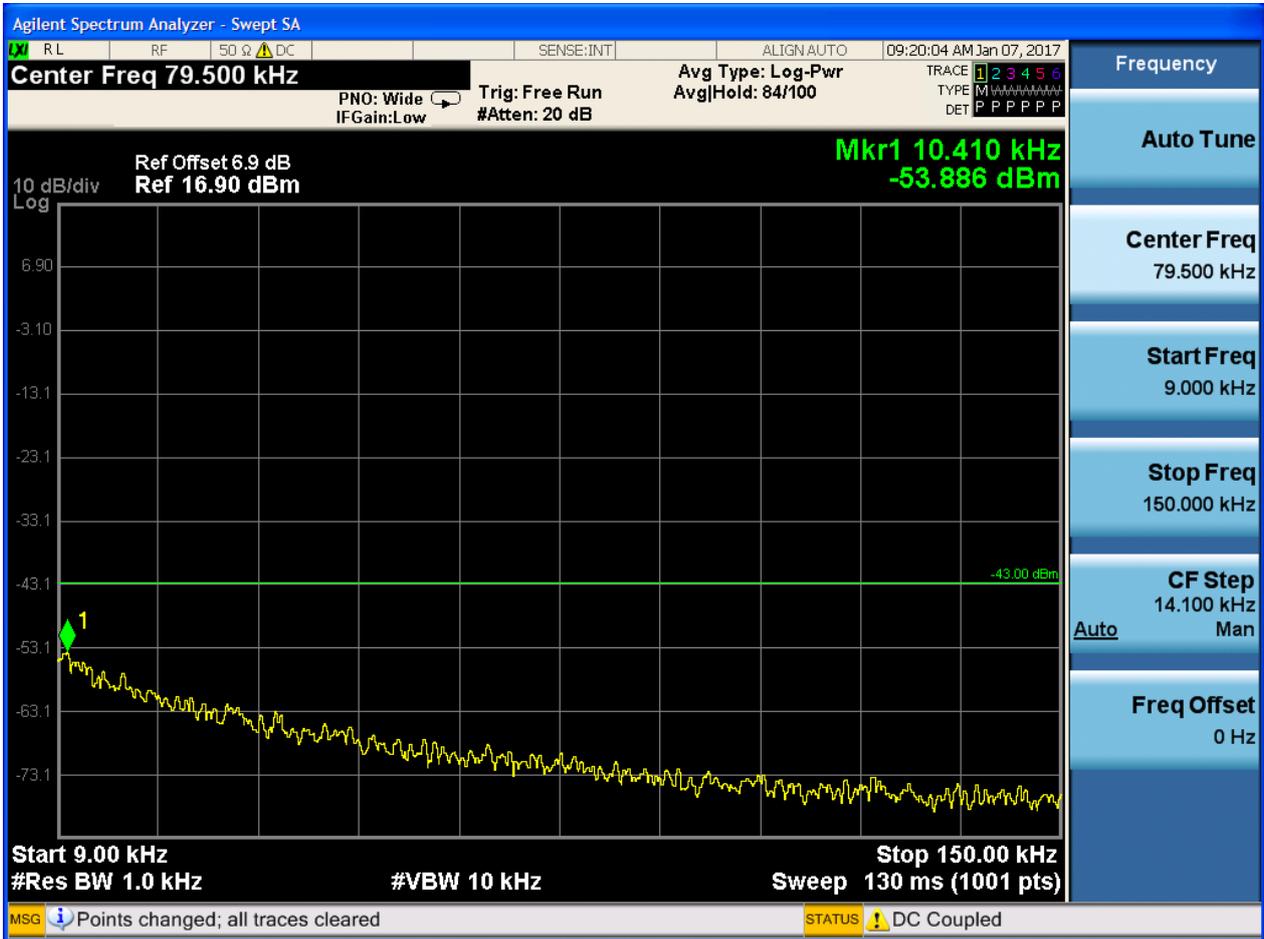
6.1.2.1.2 Test Channel = MCH

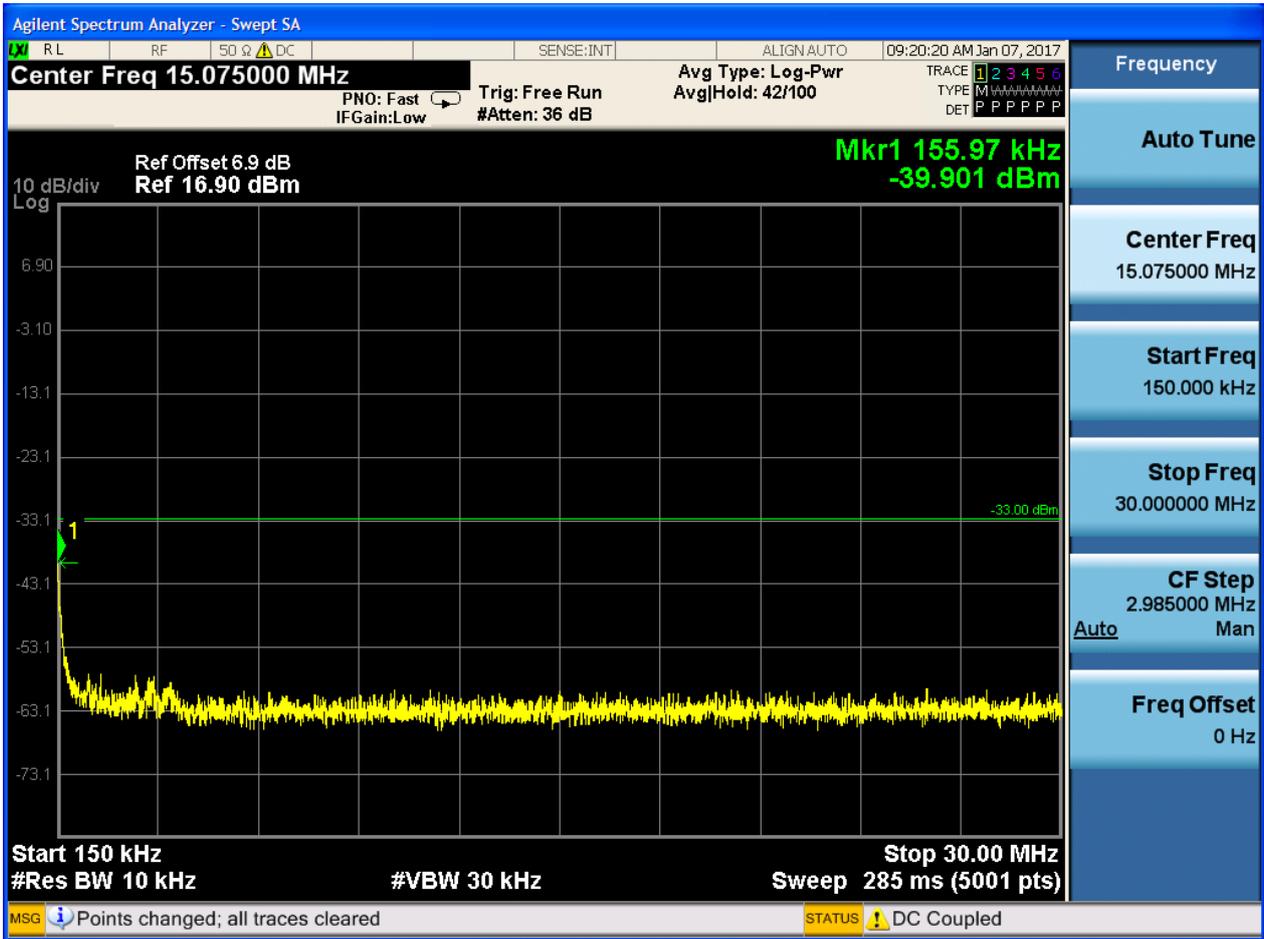


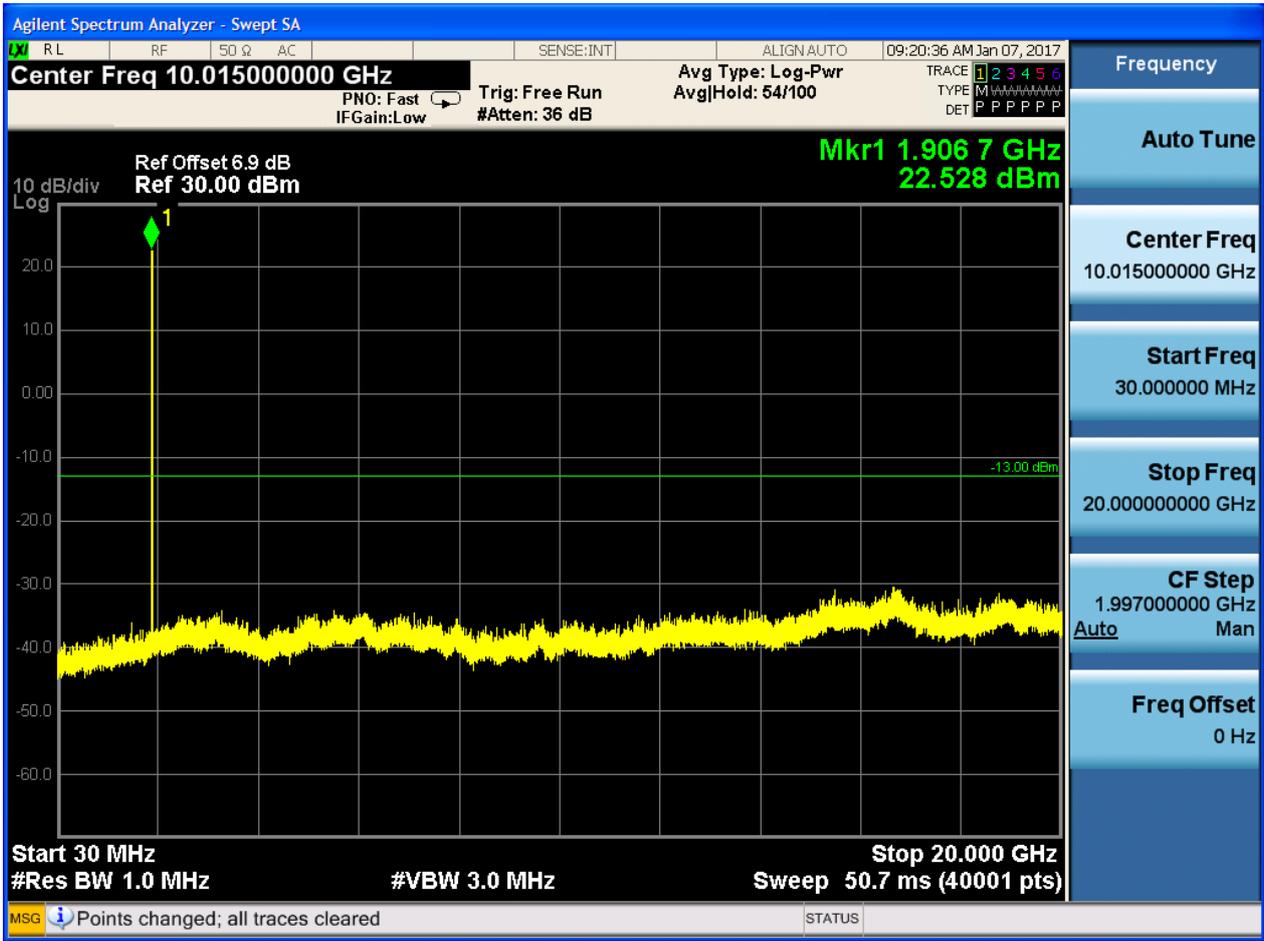




6.1.2.1.3 Test Channel = HCH





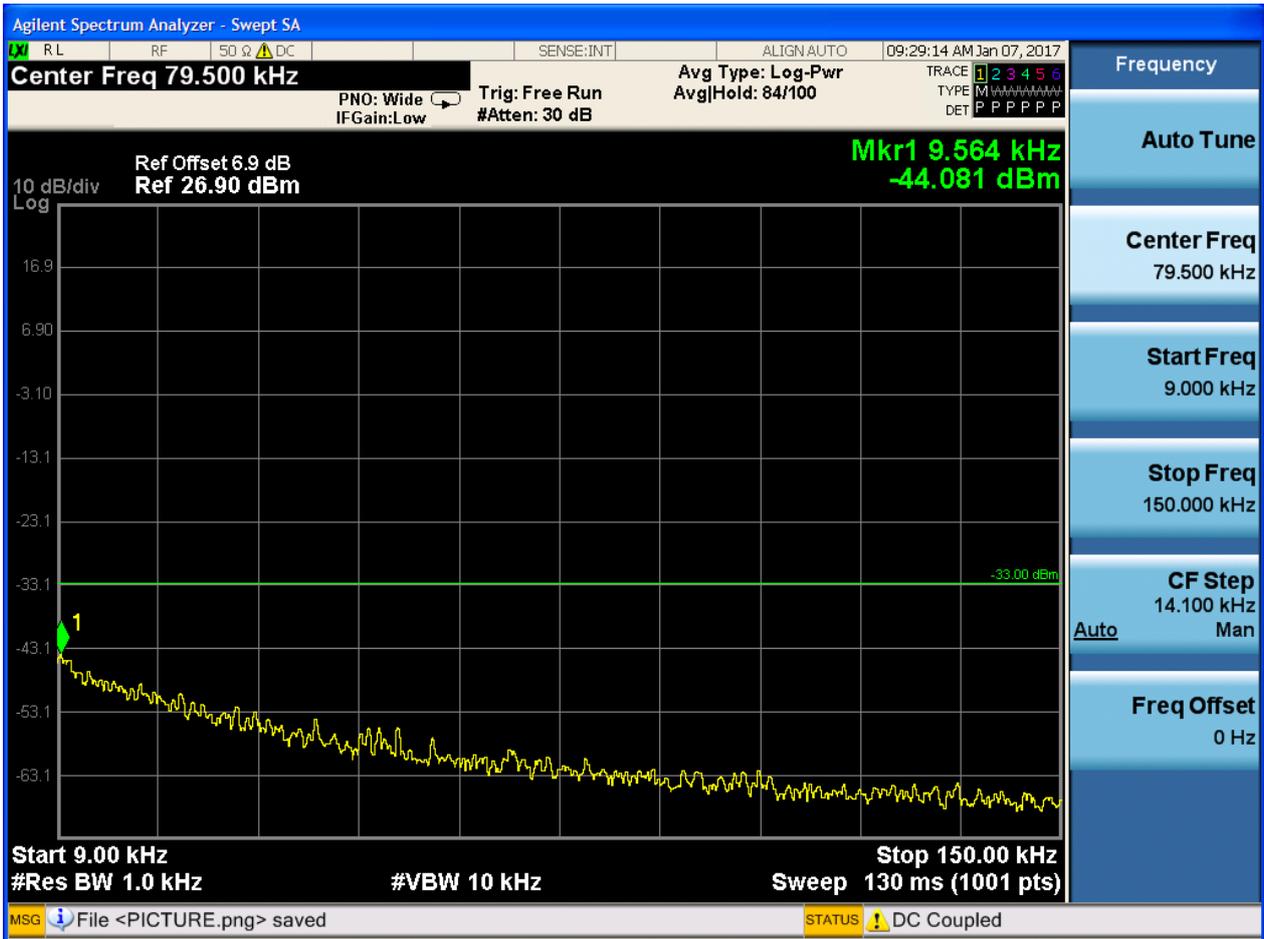


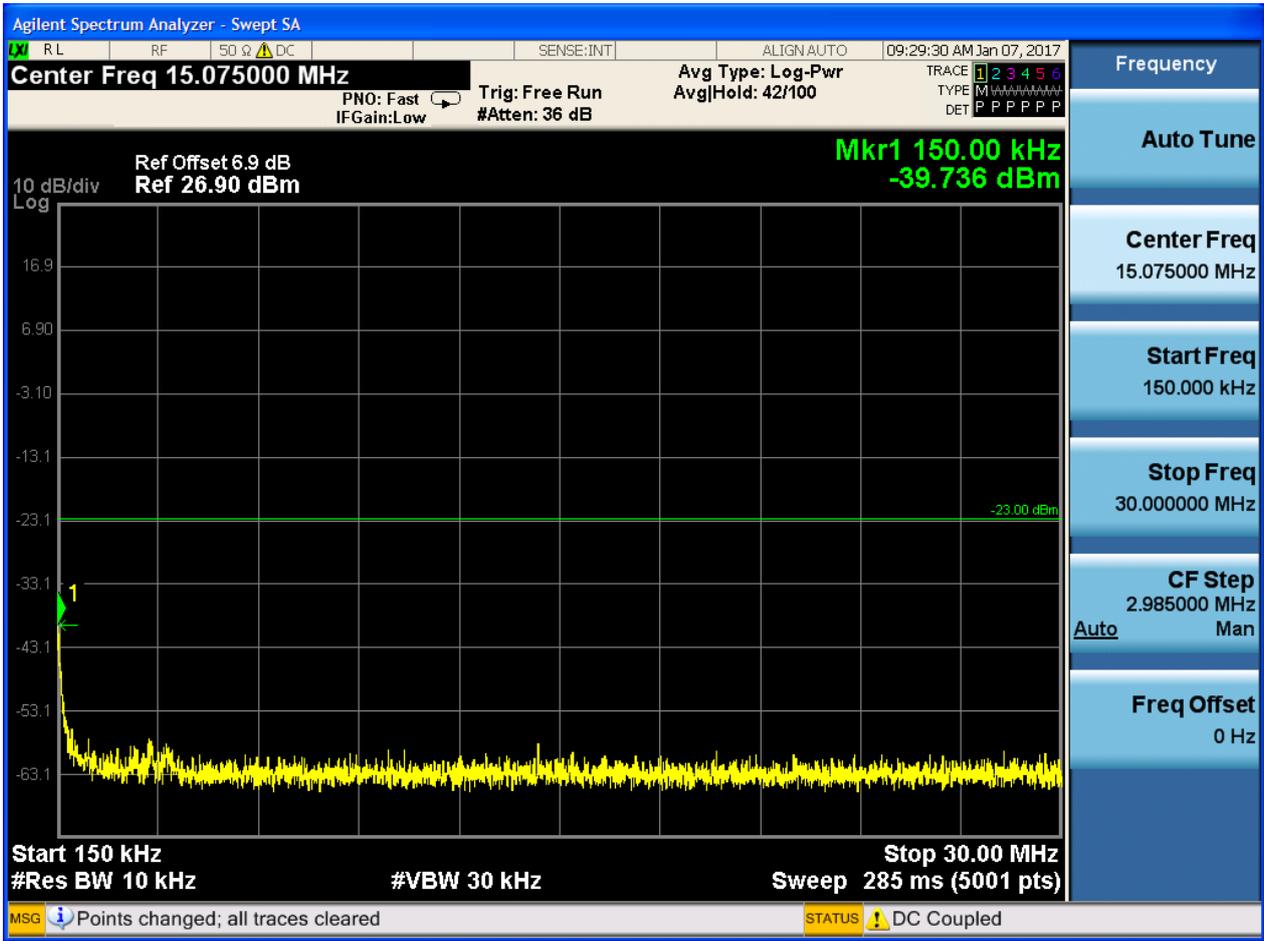


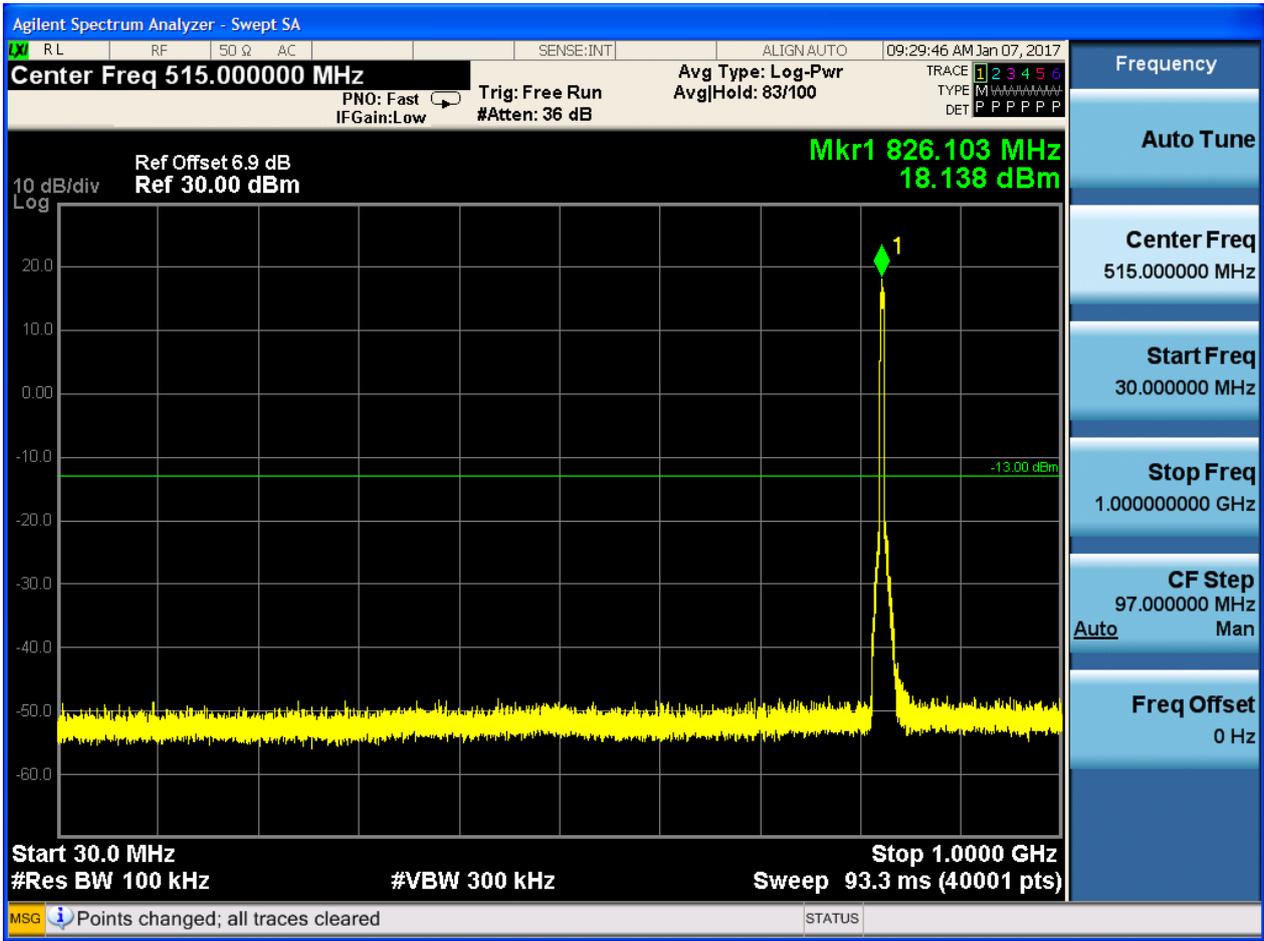
6.1.3 Test Band = WCDMA850

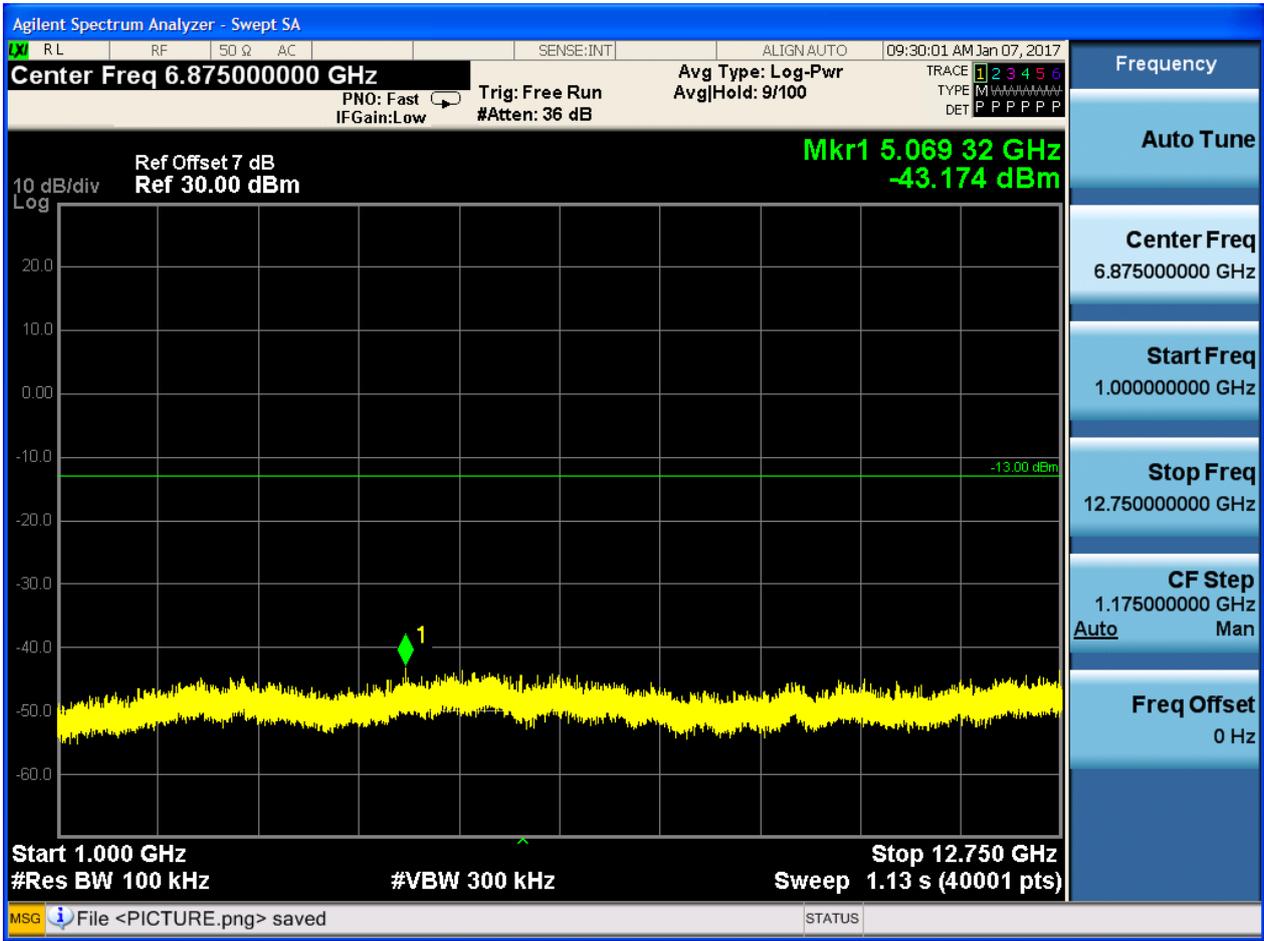
6.1.3.1 Test Mode = UMTS/TM1

6.1.3.1.1 Test Channel = LCH





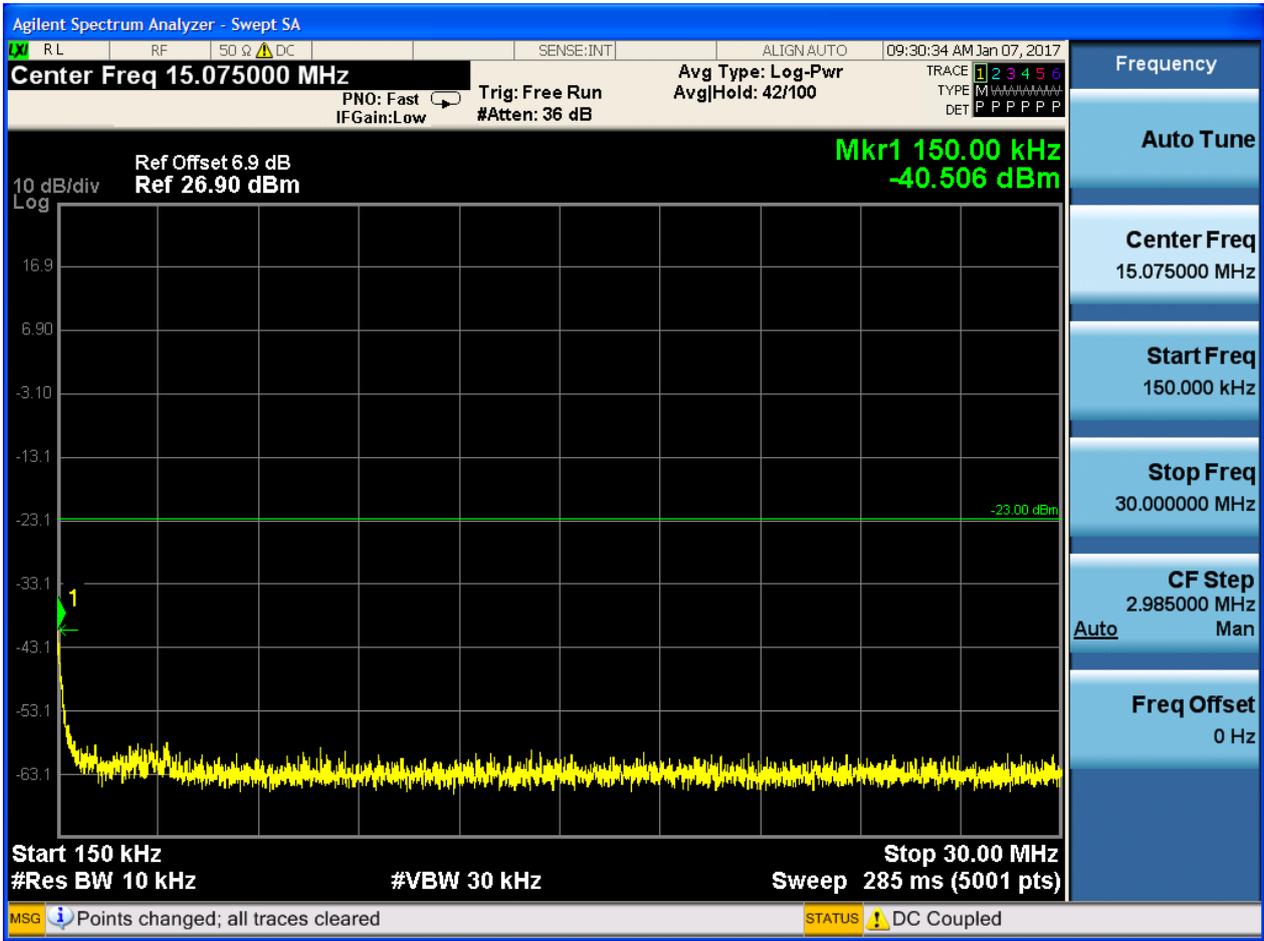


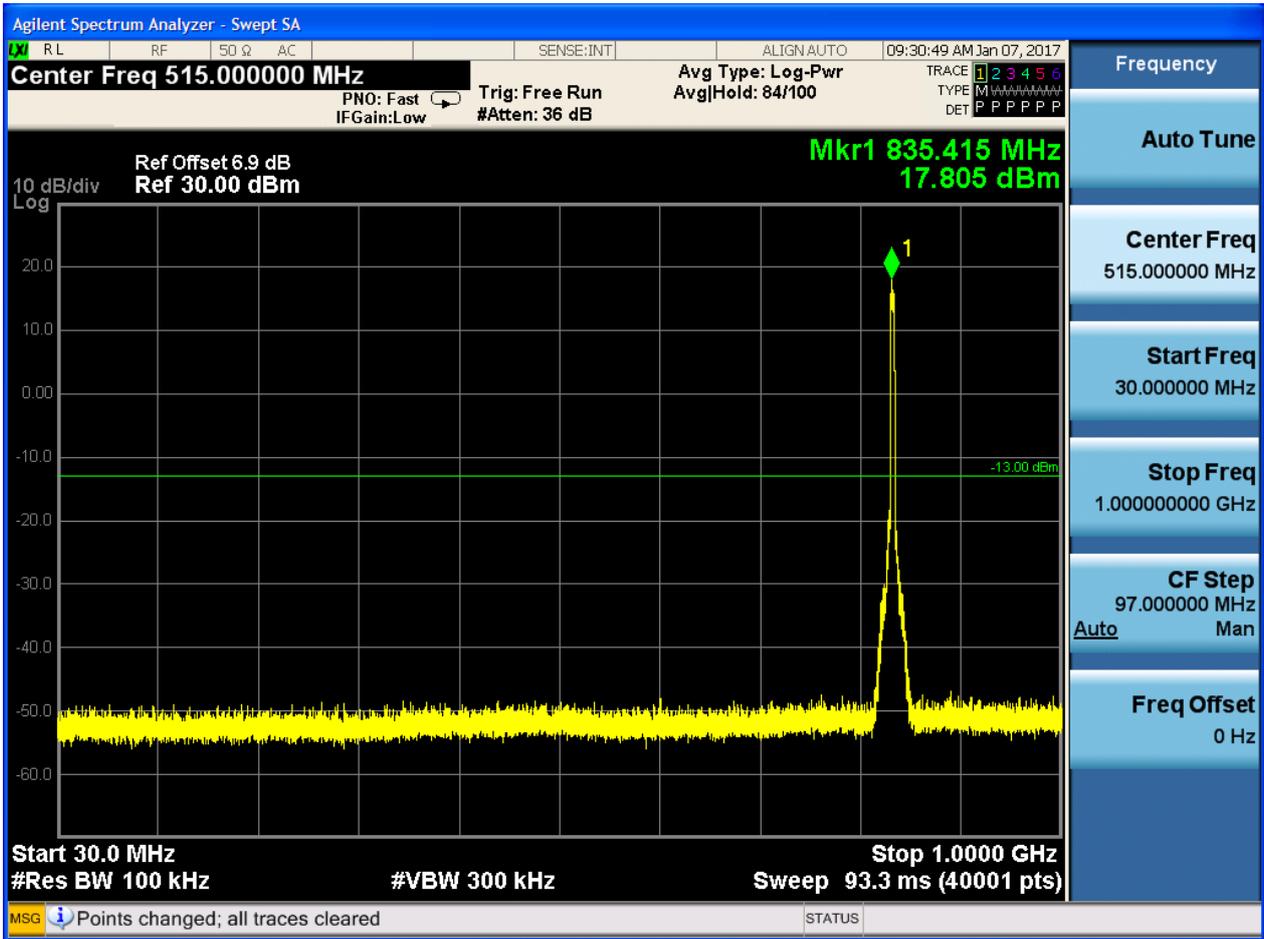


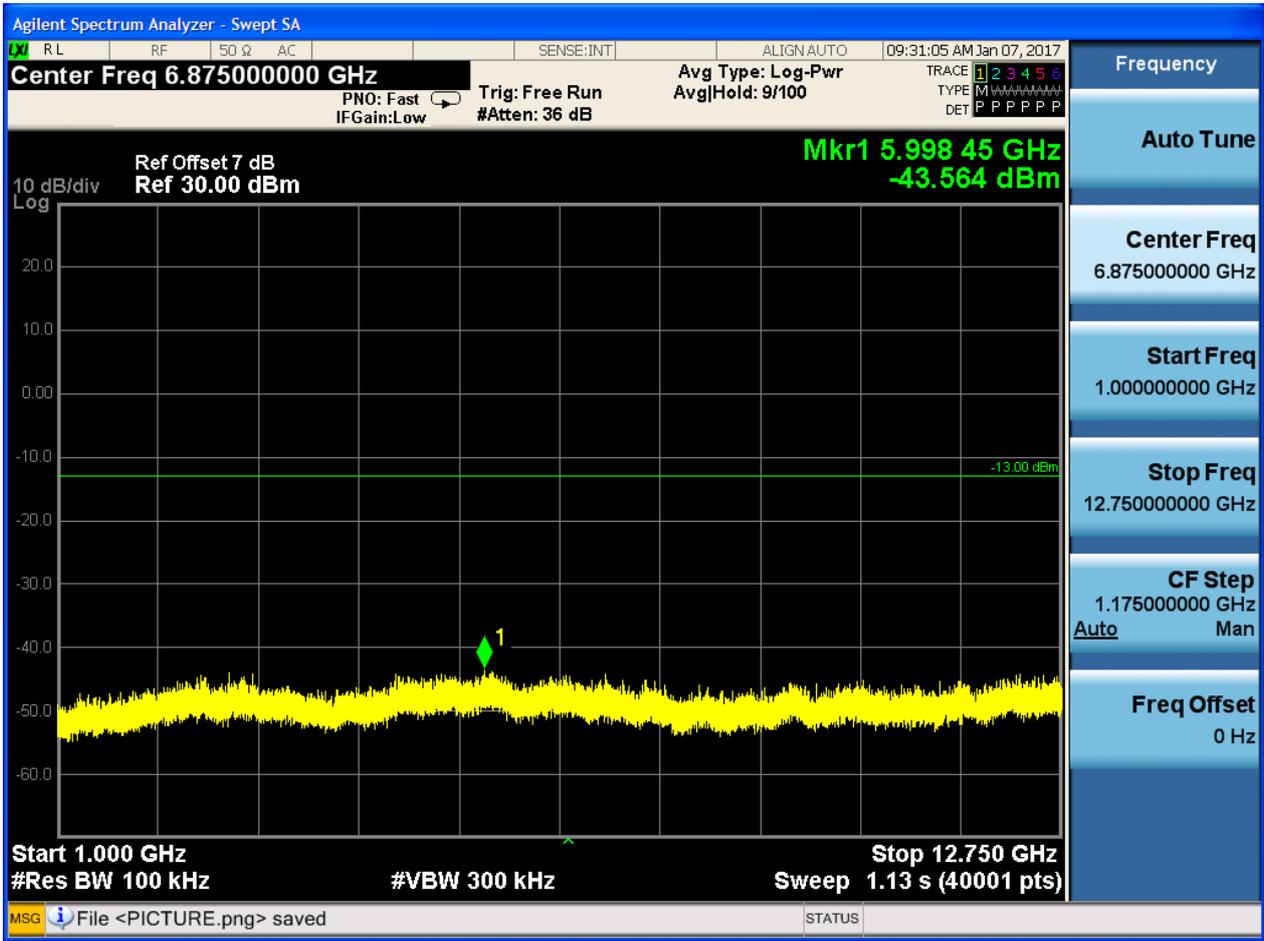


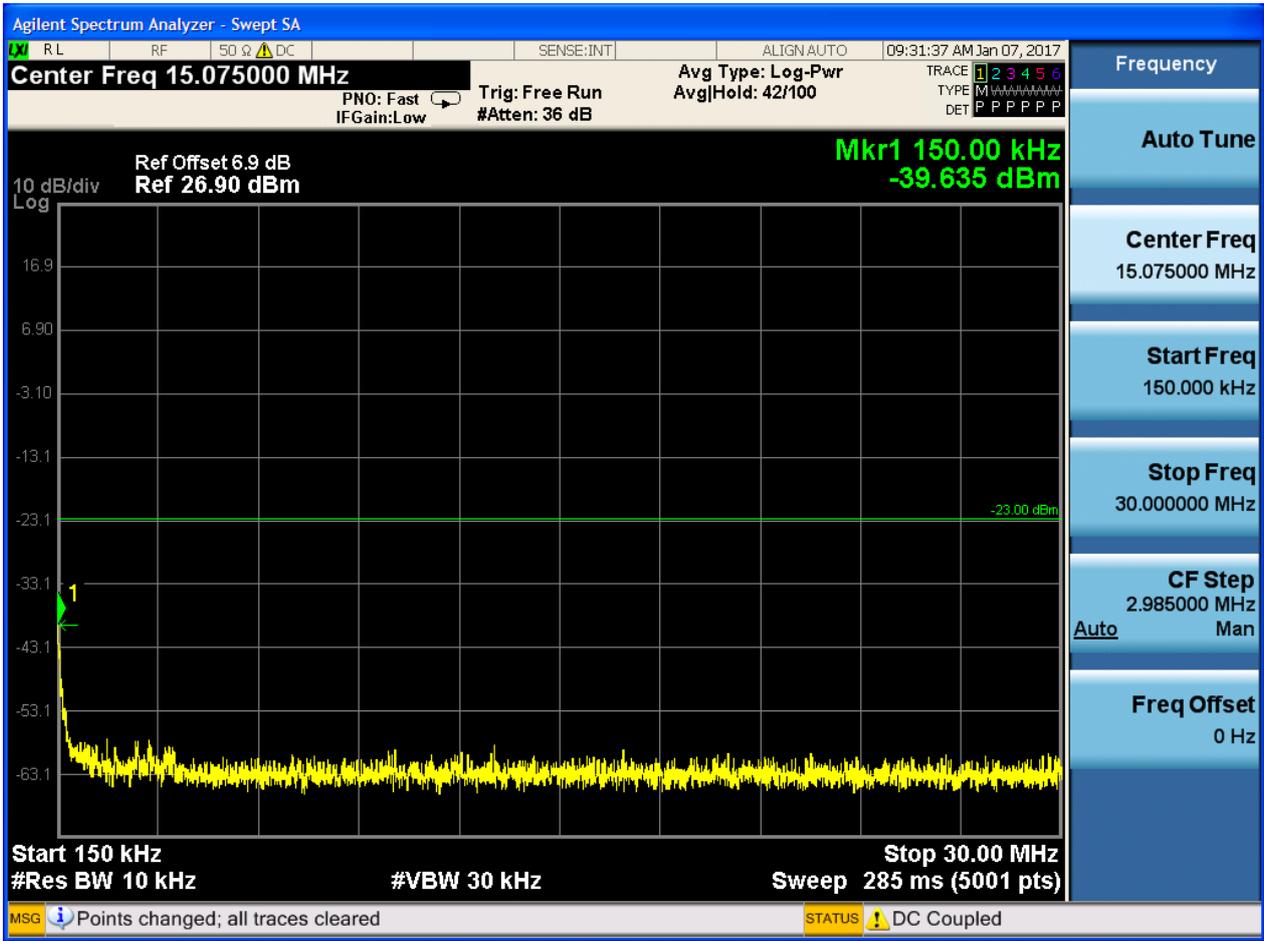
6.1.3.1.2 Test Channel = MCH

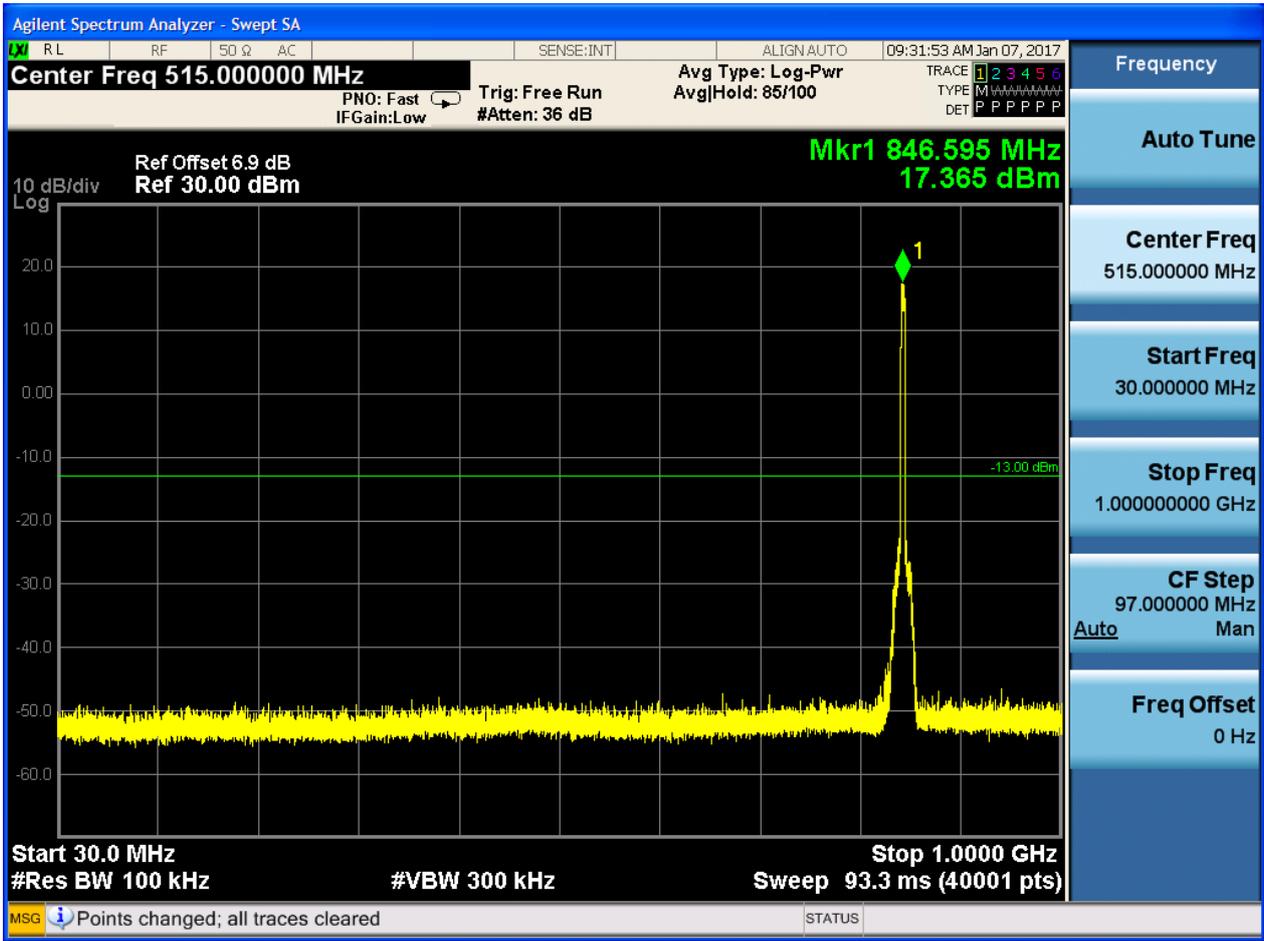


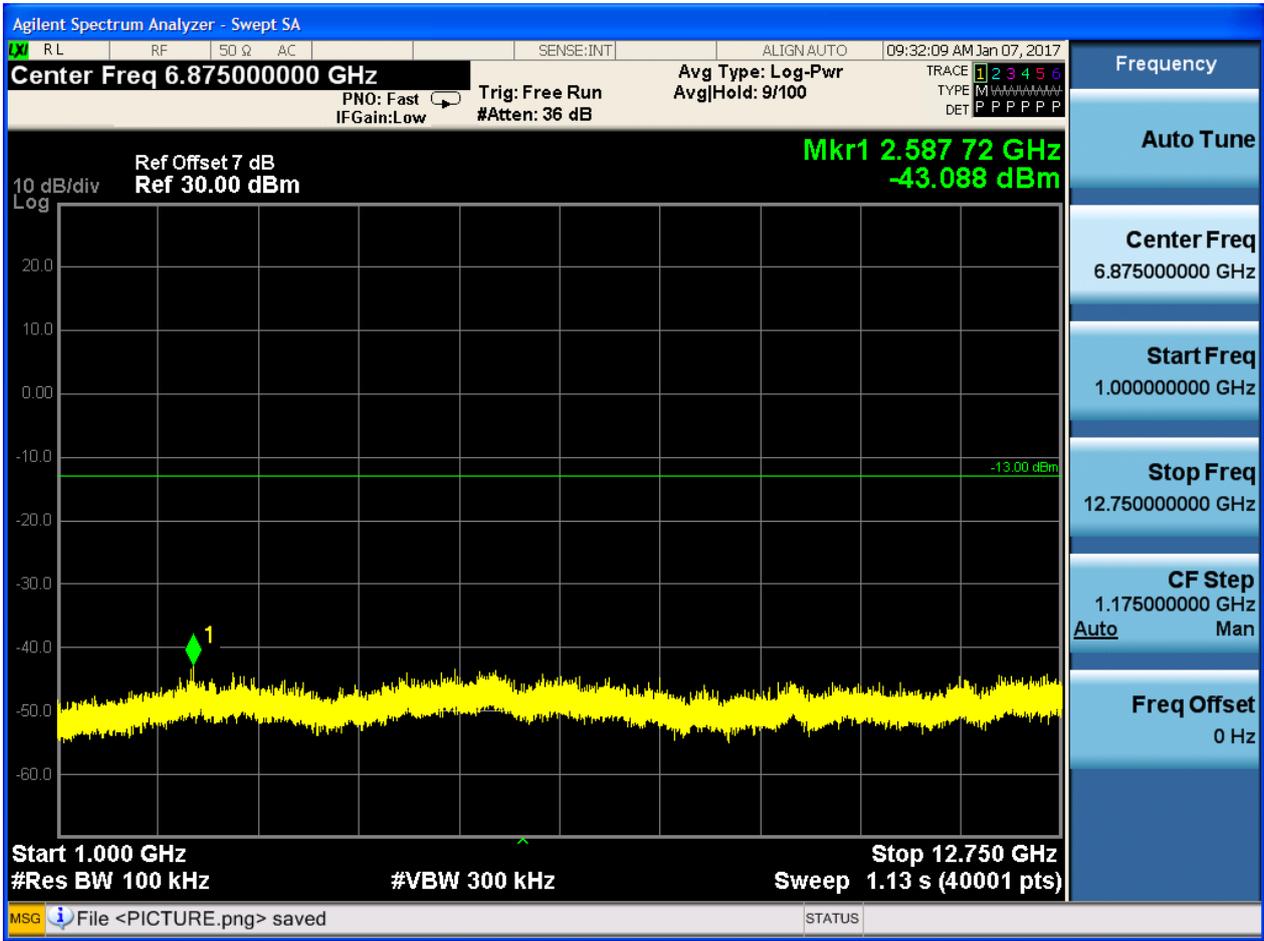












7Appendix_G: Field Strength of Spurious Radiation

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

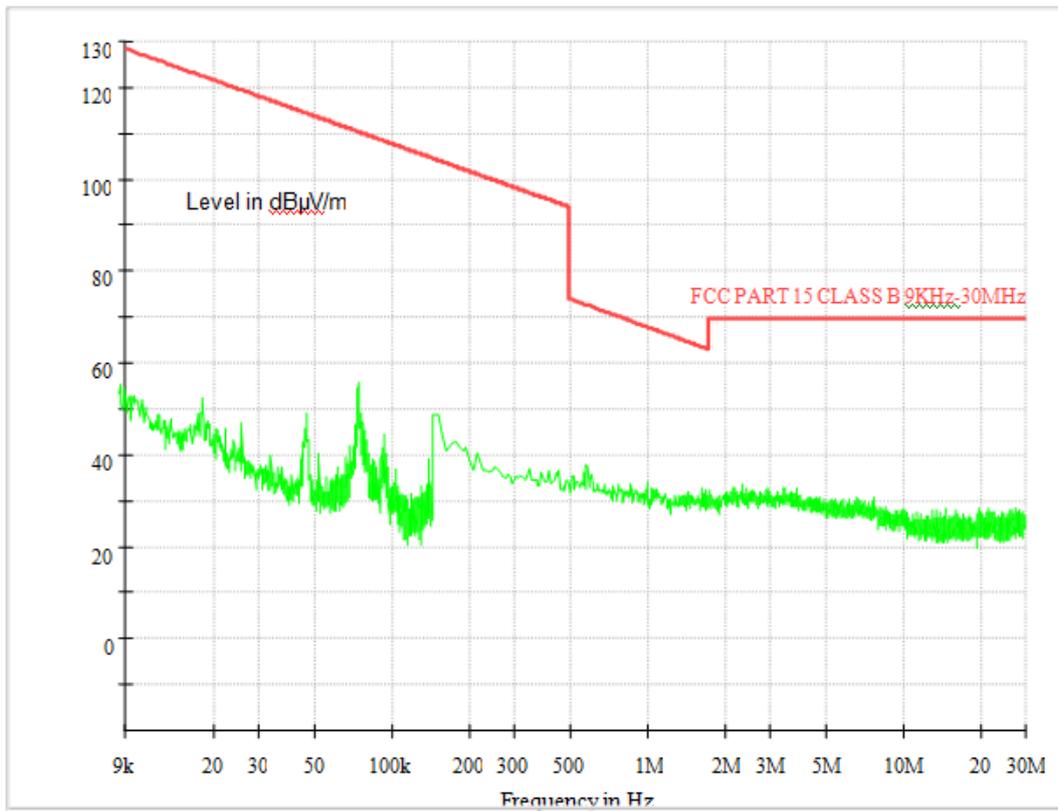
Above 1GHz, RBW = 1 MHz, VBW = 3 MHz. Detector: PK

Part I - Test Plots

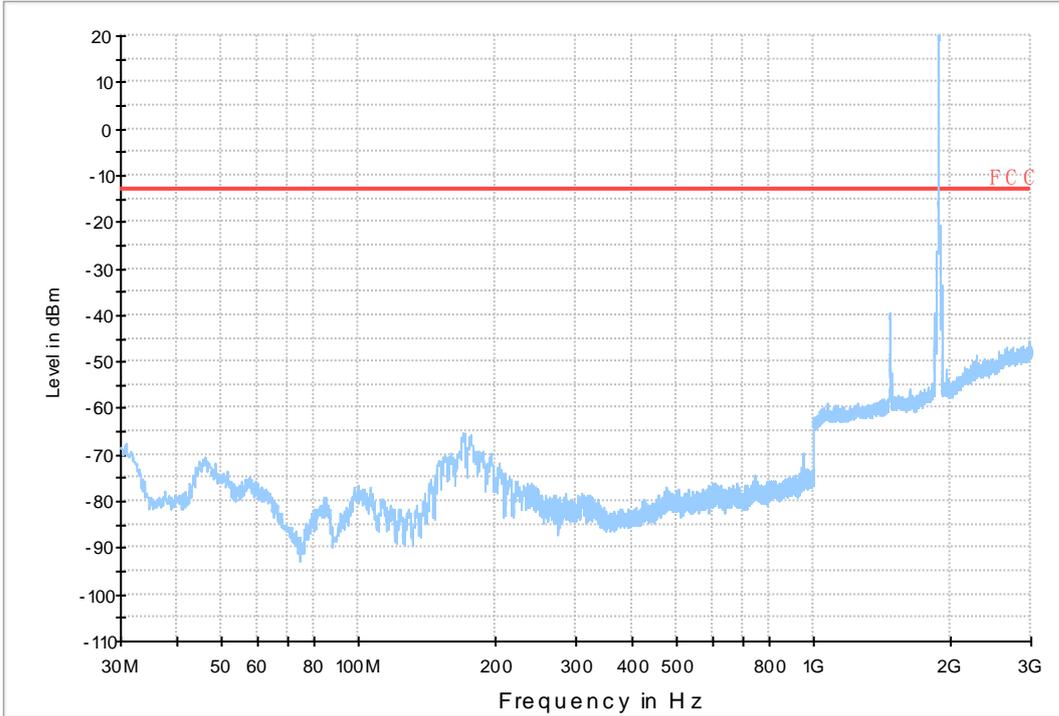
7.1 For UMTS

7.1.1 Test Band = WCDMA1900

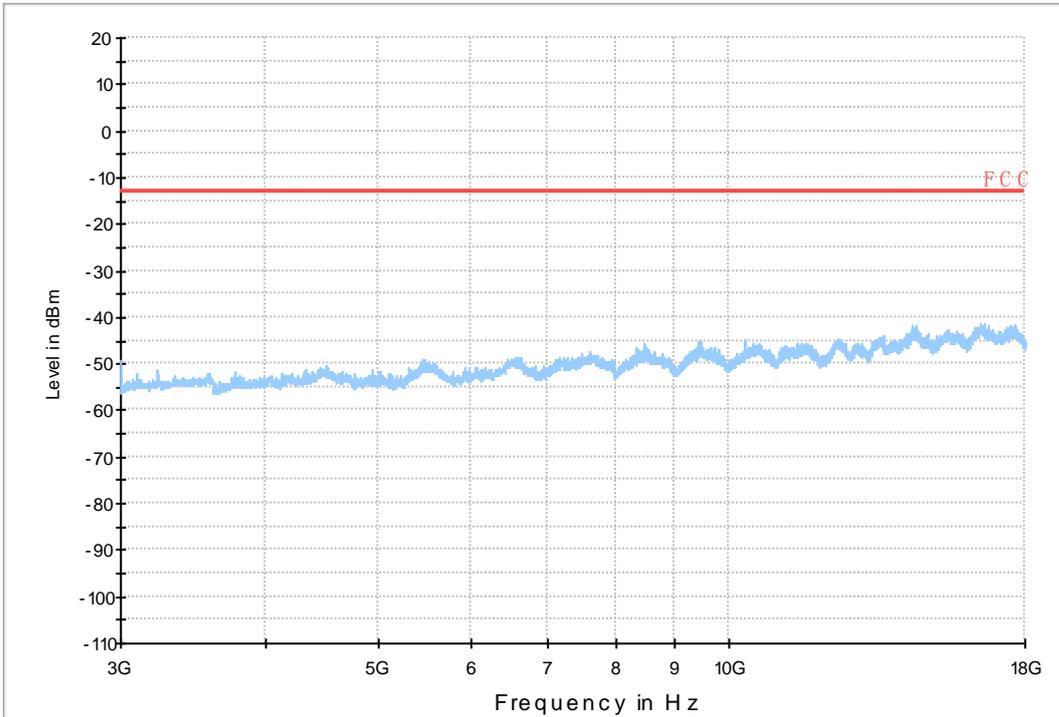
7.1.1.1 Test Mode = UMTS/TM1

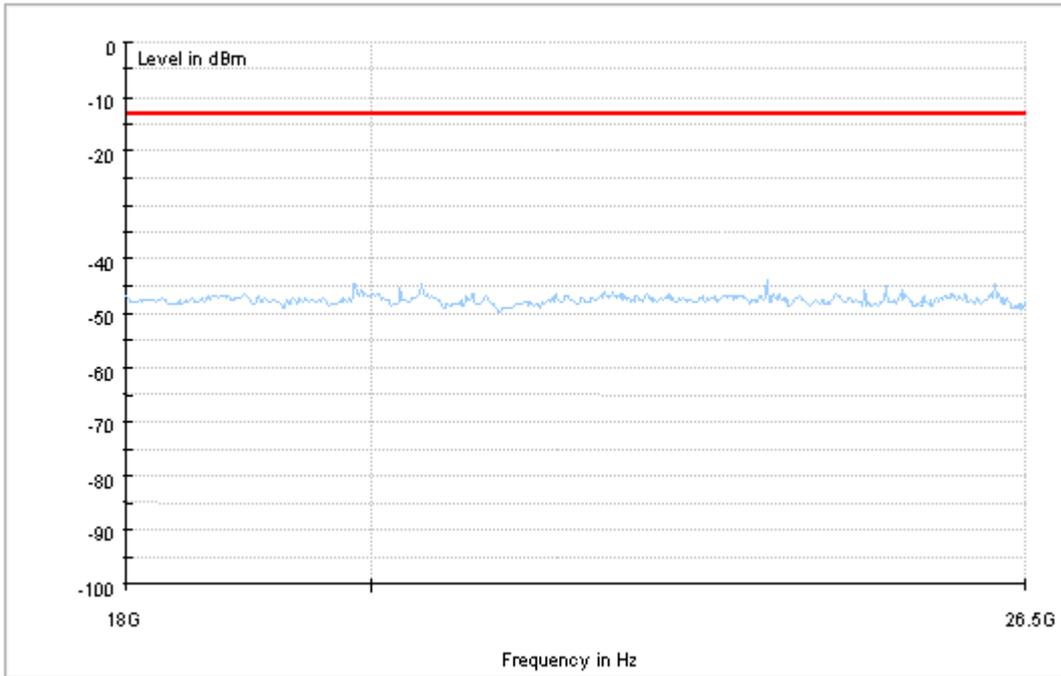


Copy of FCC PART24 W CDMA1900_L



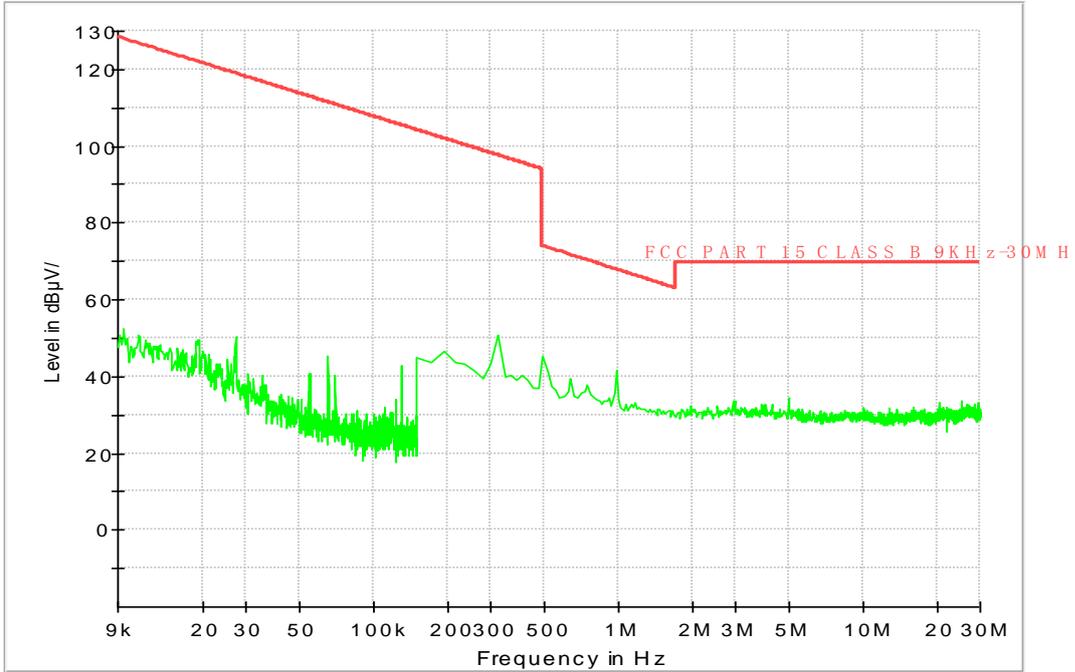
Copy of FCC PART24 W CDMA1900_H



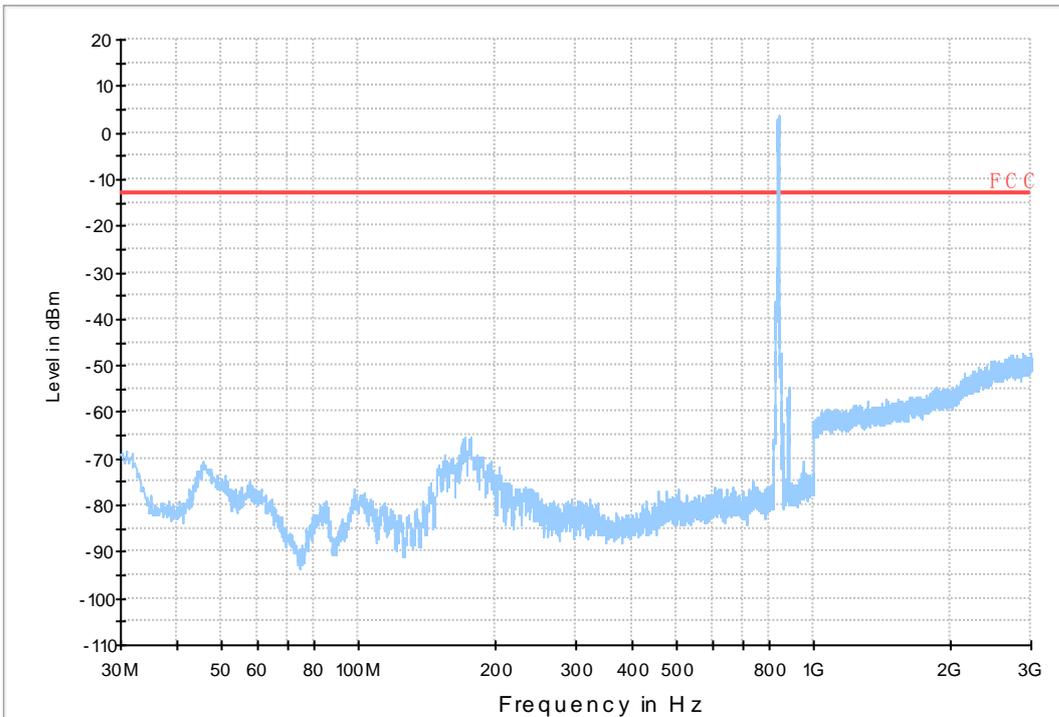


7.1.2 Test Band = WCDMA850

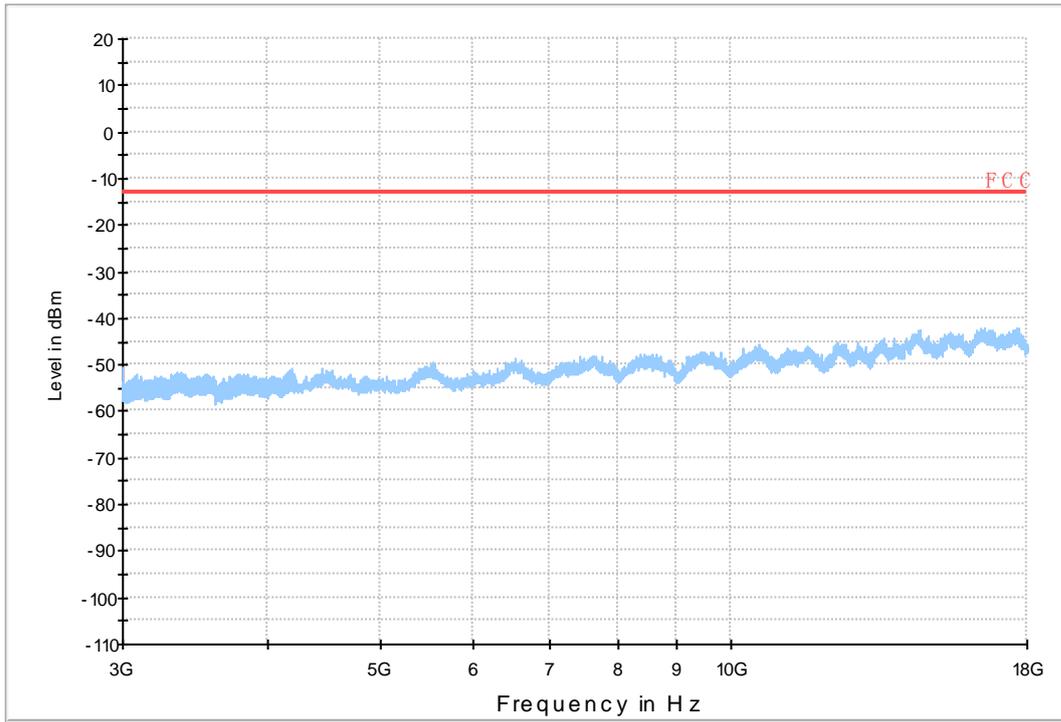
7.1.2.1 Test Mode = UMTS/TM1



Copy of FCC PART22 W CDMA850_L



Copy of FCC PART22 W CDMA850_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
WCDMA1900	UMTS/TM1	LCH	TN	VL	-12.76	-0.00689	PASS
				VN	-1.92	-0.00104	PASS
				VH	-6.82	-0.00368	PASS
		MCH	TN	VL	1.16	0.00062	PASS
				VN	-1.42	-0.00076	PASS
				VH	-2.00	-0.00106	PASS
		HCH	TN	VL	1.04	0.00055	PASS
				VN	0.93	0.00049	PASS
				VH	-2.76	-0.00145	PASS
WCDMA850	UMTS/TM1	LCH	TN	VL	-5.57	-0.00674	PASS
				VN	-2.38	-0.00288	PASS
				VH	0.60	0.00073	PASS
		MCH	TN	VL	-2.69	-0.00322	PASS
				VN	1.92	0.0023	PASS
				VH	-6.42	-0.00768	PASS
		HCH	TN	VL	4.67	0.00552	PASS
				VN	-3.14	-0.00371	PASS
				VH	3.10	0.00366	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
WCDMA1900	UMTS/TM1	LCH	VN	-30	-5.87	-0.00317	PASS
				-20	-9.61	-0.00519	PASS
				-10	1.22	0.00066	PASS
				0	3.05	0.00165	PASS
				10	-6.23	-0.00336	PASS
				20	-4.44	-0.0024	PASS
				30	-4.61	-0.00249	PASS
				40	-8.85	-0.00478	PASS
				50	-0.05	-0.00003	PASS



Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
		MCH	VN	-30	-0.79	-0.00042	PASS
				-20	1.24	0.00066	PASS
				-10	-4.97	-0.00264	PASS
				0	2.11	0.00112	PASS
				10	1.69	0.0009	PASS
				20	7.75	0.00412	PASS
				30	8.79	0.00468	PASS
				40	-0.53	-0.00028	PASS
				50	1.02	0.00054	PASS
		HCH	VN	-30	-12.34	-0.00647	PASS
				-20	3.34	0.00175	PASS
				-10	-3.16	-0.00166	PASS
				0	0.64	0.00034	PASS
				10	-2.09	-0.0011	PASS
				20	-5.39	-0.00283	PASS
				30	1.57	0.00082	PASS
				40	1.08	0.00057	PASS
				50	-4.53	-0.00237	PASS
WCDMA850	UMTS/TM1	LCH	VN	-30	3.33	0.00403	PASS
				-20	-0.37	-0.00045	PASS
				-10	0.31	0.00038	PASS
				0	2.29	0.00277	PASS
				10	-4.24	-0.00513	PASS
				20	-1.08	-0.00131	PASS
				30	-0.81	-0.00098	PASS
				40	0.29	0.00035	PASS
				50	-5.46	-0.00661	PASS
		MCH	VN	-30	0.53	0.00063	PASS
				-20	3.72	0.00445	PASS
				-10	1.82	0.00218	PASS
				0	2.37	0.00283	PASS
				10	2.21	0.00264	PASS
				20	5.49	0.00656	PASS
				30	3.74	0.00447	PASS
				40	0.49	0.00059	PASS
				50	1.89	0.00226	PASS
		HCH	VN	-30	3.36	0.00397	PASS
				-20	-0.92	-0.00109	PASS
				-10	1.22	0.00144	PASS
				0	-7.37	-0.00871	PASS



Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				10	5.66	0.00669	PASS
				20	5.94	0.00702	PASS
				30	-1.65	-0.00195	PASS
				40	0.70	0.00083	PASS
				50	-6.67	-0.00788	PASS

END