



Appendix for test report

1 Appendix_A: Effective (Isotropic) Radiated Power Output Data

Part I - Test Results

Test Band	Test Mode	Test Channel	Conducted Power [dBm]	EIRP [dBm]	Limit [dBm]	Verdict
WCDMA1700	UMTS/TM1	LCH	22.89	22.44	30	PASS
		MCH	22.99	22.54	30	PASS
		HCH	22.77	22.32	30	PASS
WCDMA1900	UMTS/TM1	LCH	22.72	21.72	33	PASS
		MCH	22.57	21.57	33	PASS
		HCH	22.92	21.92	33	PASS

Test Band	Test Mode	Test Channel	Conducted Power [dBm]	ERP [dBm]	Limit [dBm]	Verdict
WCDMA850	UMTS/TM1	LCH	22.73	16.38	38.5	PASS
		MCH	22.96	16.61	38.5	PASS
		HCH	22.82	16.47	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:

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

SET RBW=1%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	10.05	13	PASS
		MCH	9.96	13	PASS
		HCH	3.06	13	PASS
WCDMA1700	UMTS/TM1	LCH	3.13	13	PASS
		MCH	2.91	13	PASS
		HCH	2.99	13	PASS
WCDMA850	UMTS/TM1	LCH	2.67	13	PASS
		MCH	2.72	13	PASS
		HCH	2.72	13	PASS

3Appendix_C: Modulation Characteristics

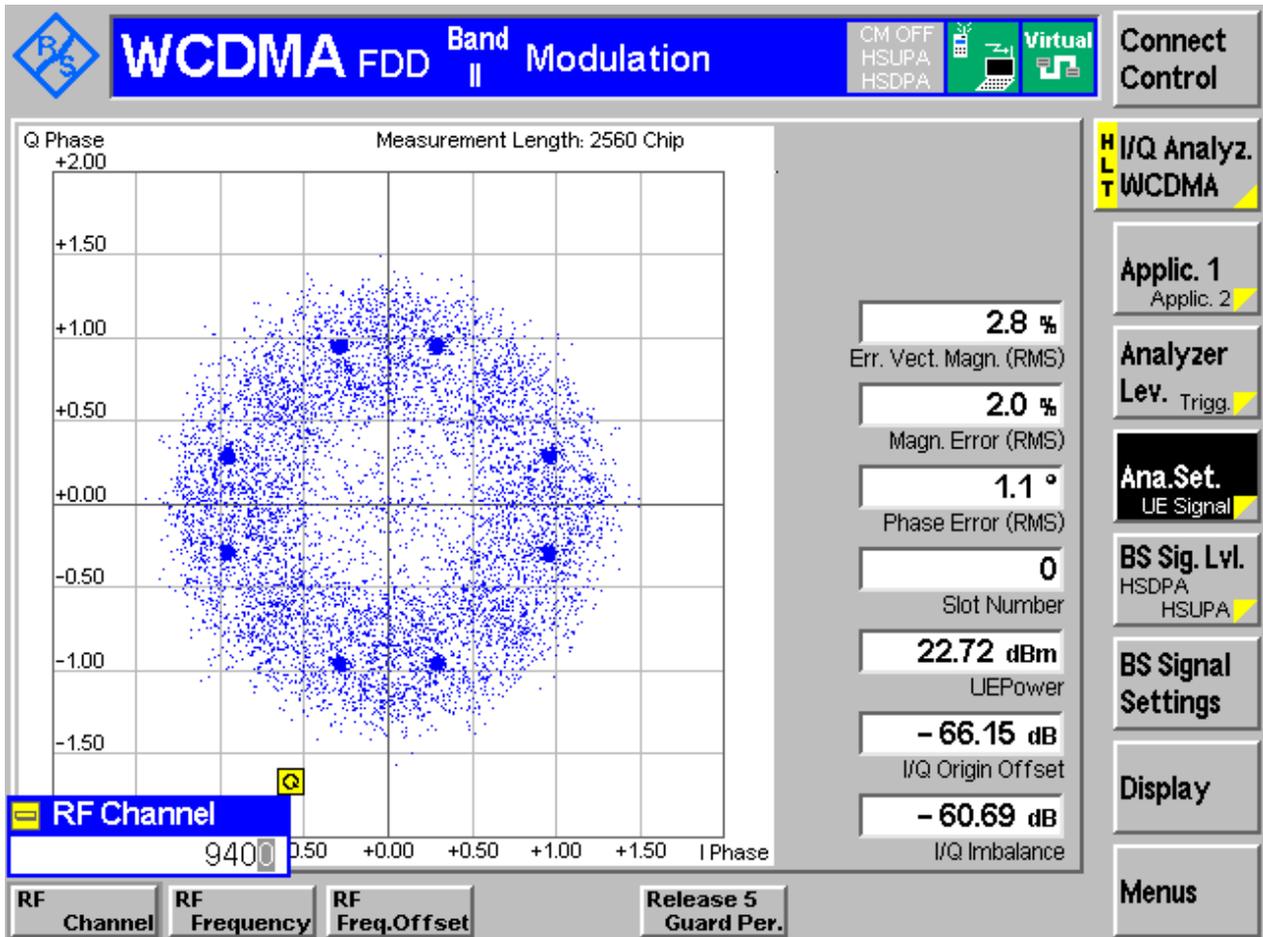
Part I - Test Plots

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

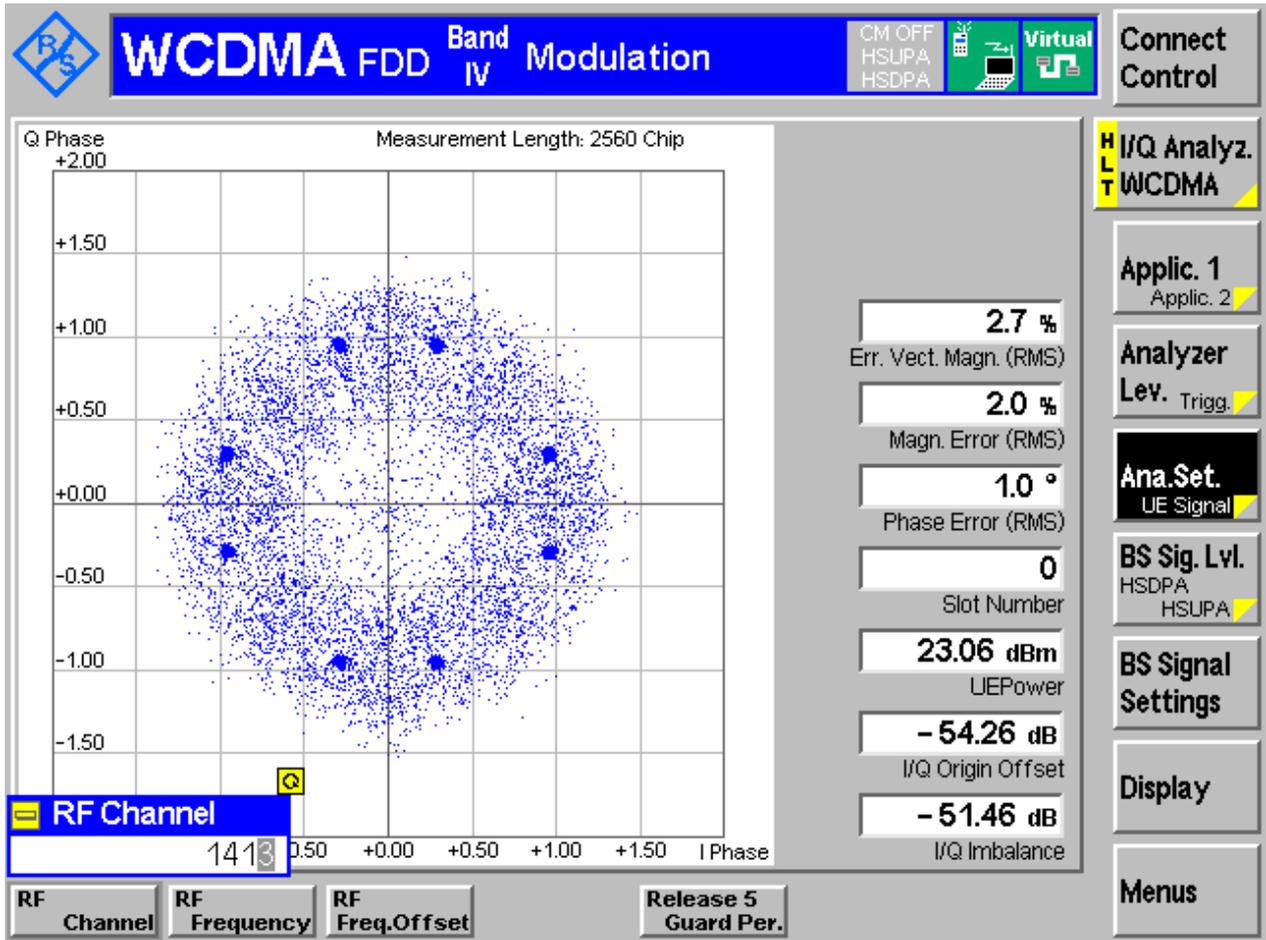


3.2 For UMTS

3.2.1 Test Band = WCDMA1700

3.2.1.1 Test Mode = UMTS/TM1

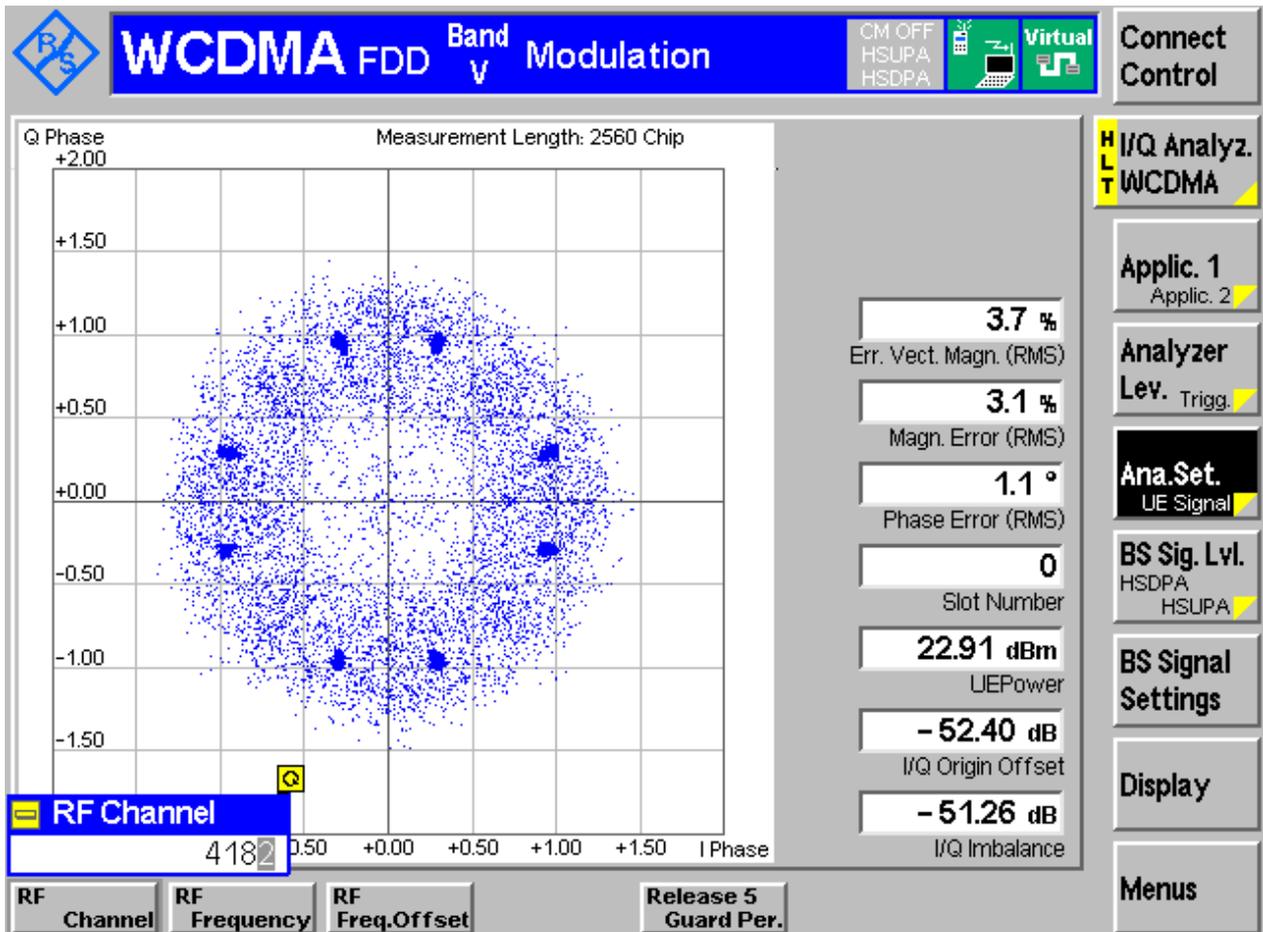
3.2.1.1.1 Test Channel = MCH



3.2.2 Test Band = WCDMA850

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	4.21	4.88	Pass
		MCH	4.21	4.87	Pass
		HCH	4.21	4.84	Pass
WCDMA1700	UMTS/TM1	LCH	4.21	4.85	Pass
		MCH	4.20	4.86	Pass
		HCH	4.20	4.86	Pass
WCDMA850	UMTS/TM1	LCH	4.21	4.88	Pass
		MCH	4.20	4.86	Pass
		HCH	4.21	4.90	Pass

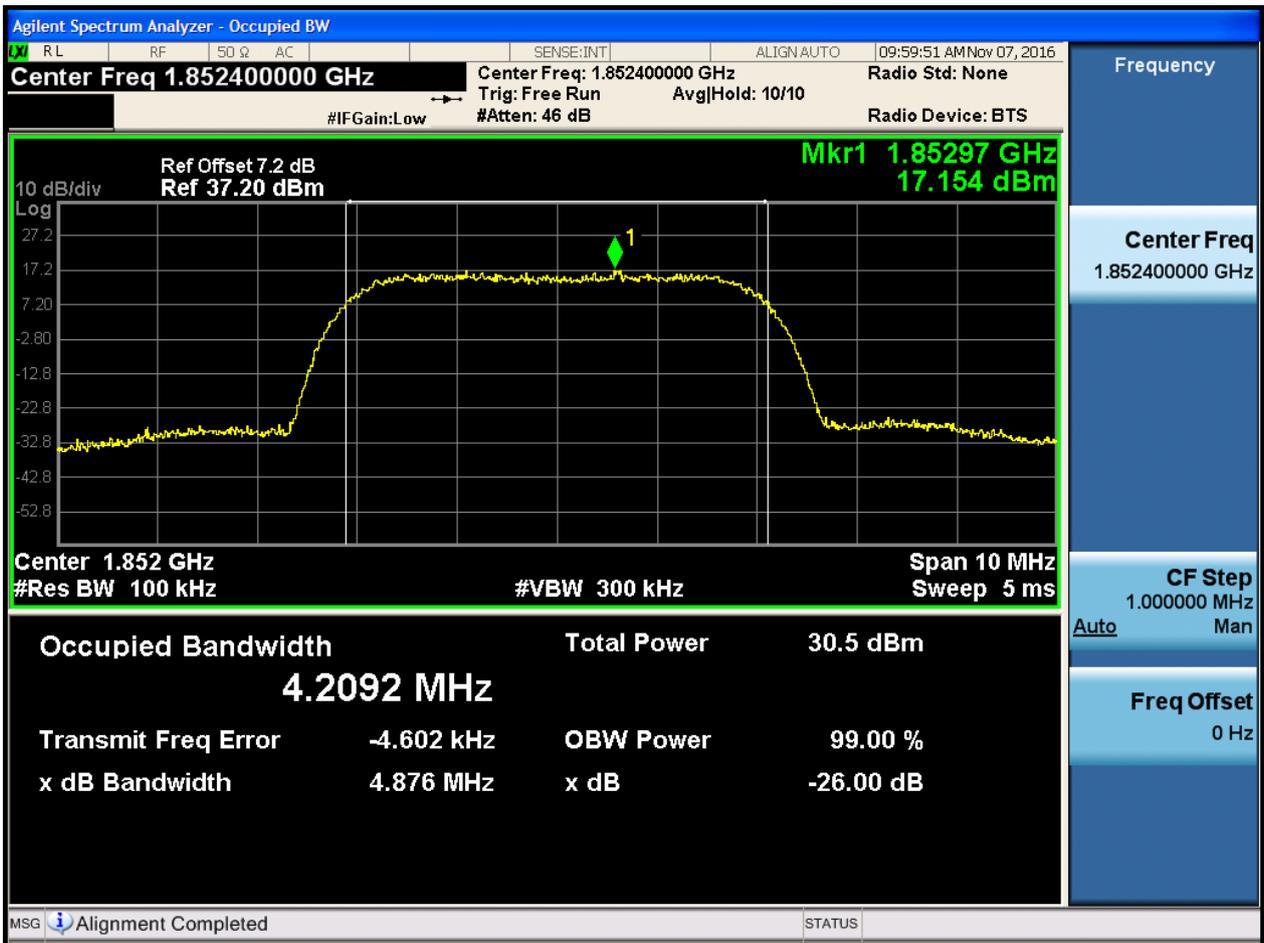
Part II - Test Plots

4.1 For UMTS

4.1.1 Test Band = WCDMA1900

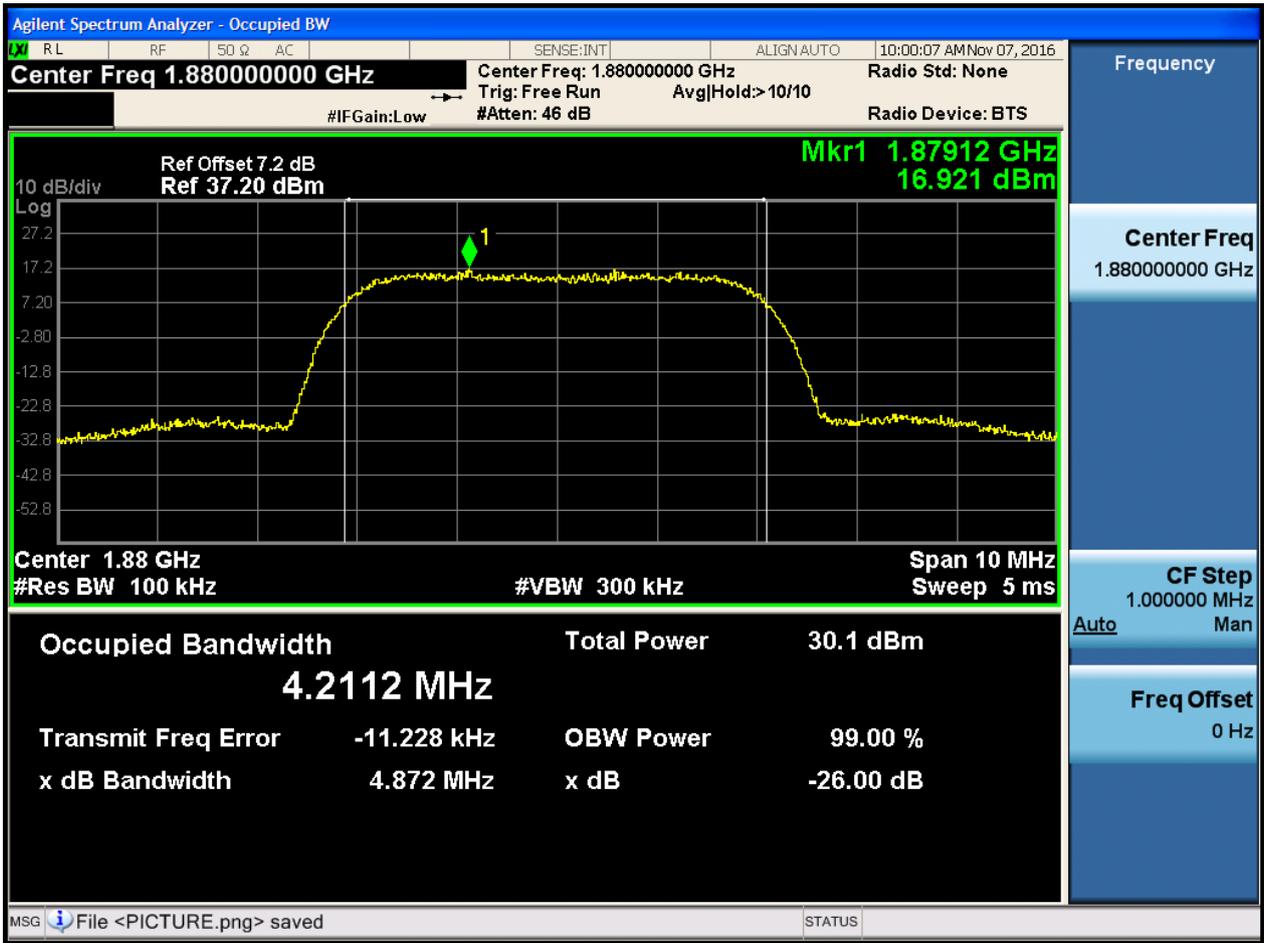
4.1.1.1 Test Mode = UMTS/TM1

4.1.1.1.1 Test Channel = LCH



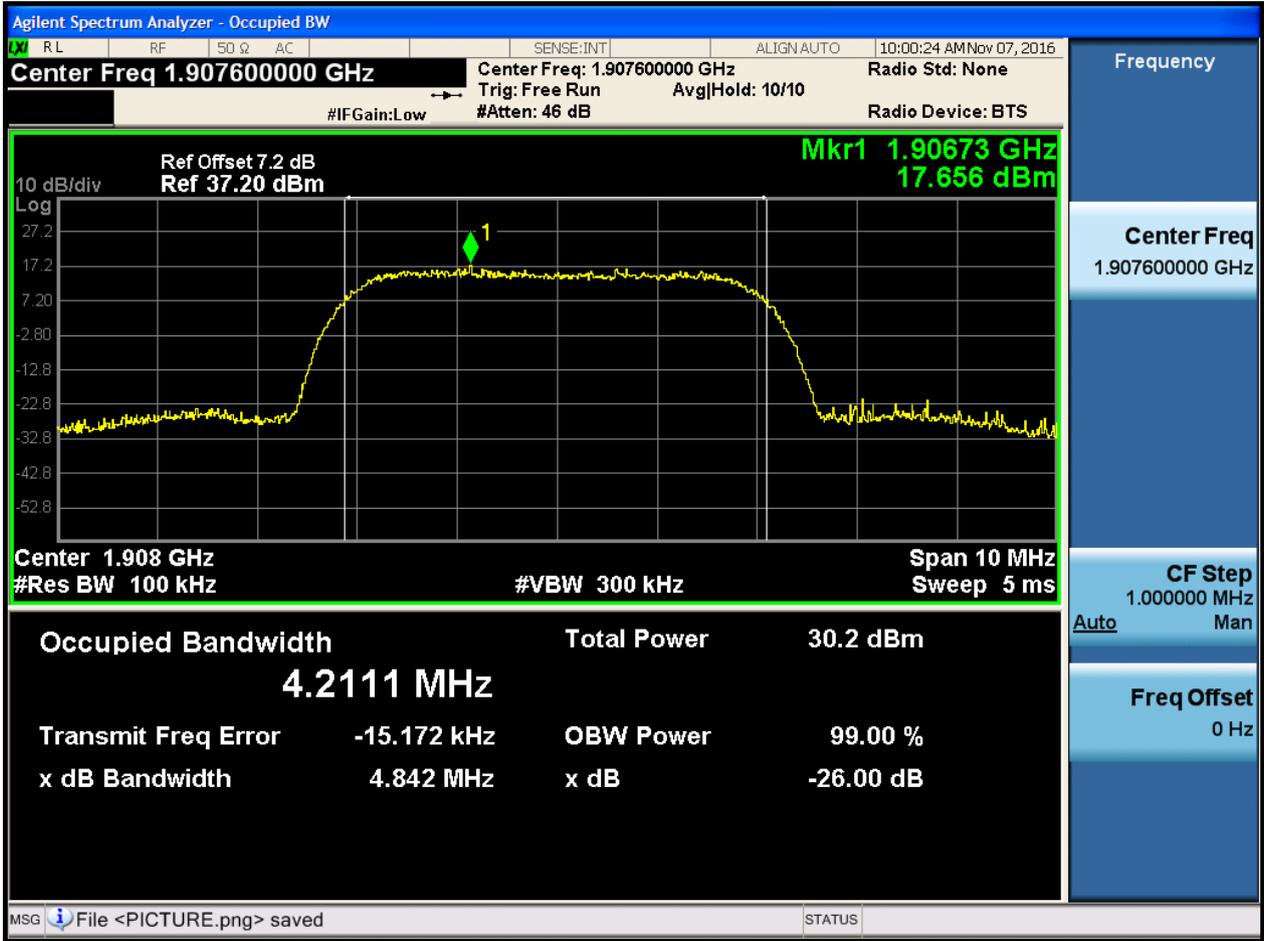


4.1.1.1.2 Test Channel = MCH





4.1.1.1.3 Test Channel = HCH



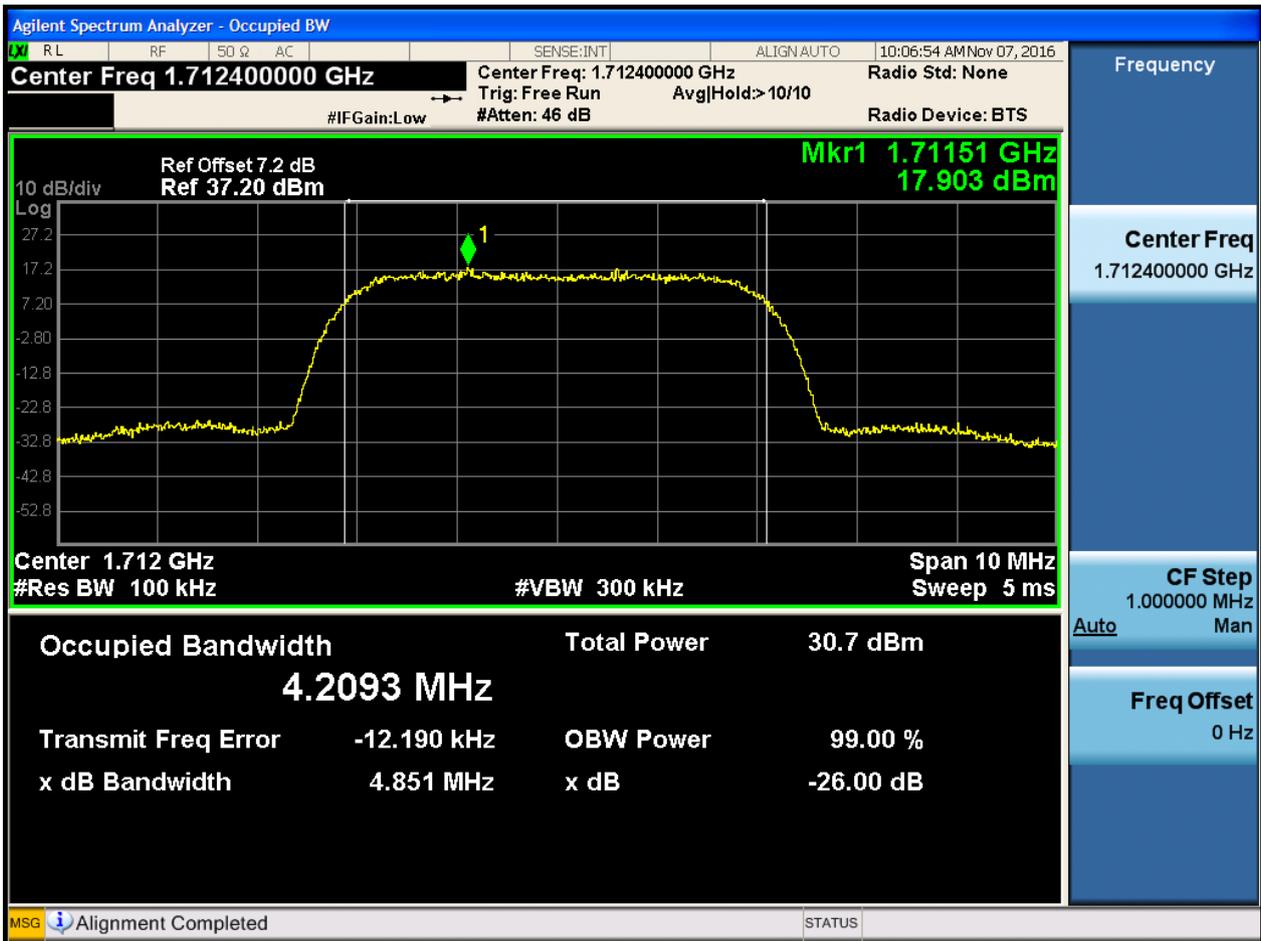


4.2 For UMTS

4.2.1 Test Band = WCDMA1700

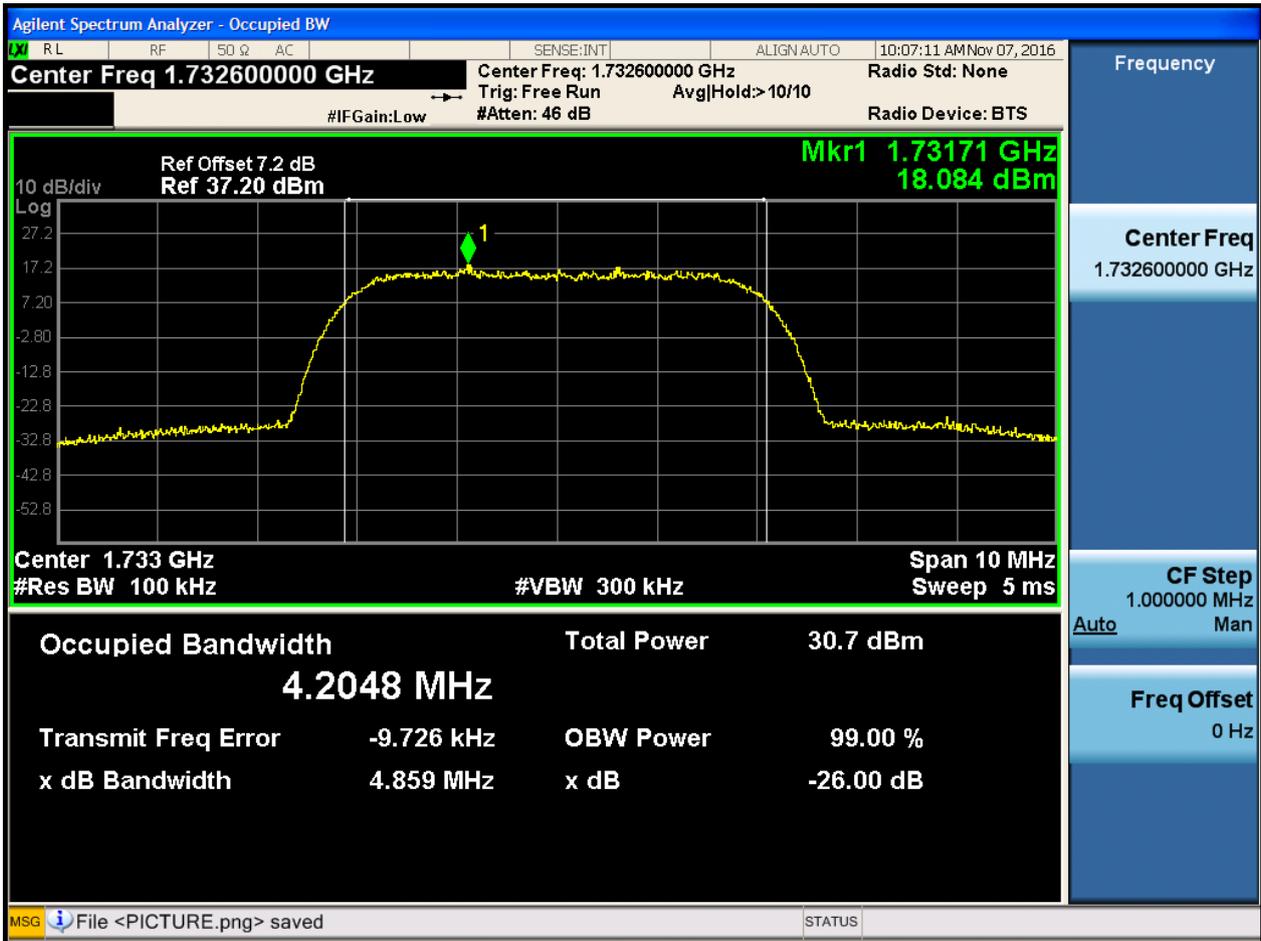
4.2.1.1 Test Mode = UMTS/TM1

4.2.1.1.1 Test Channel = LCH

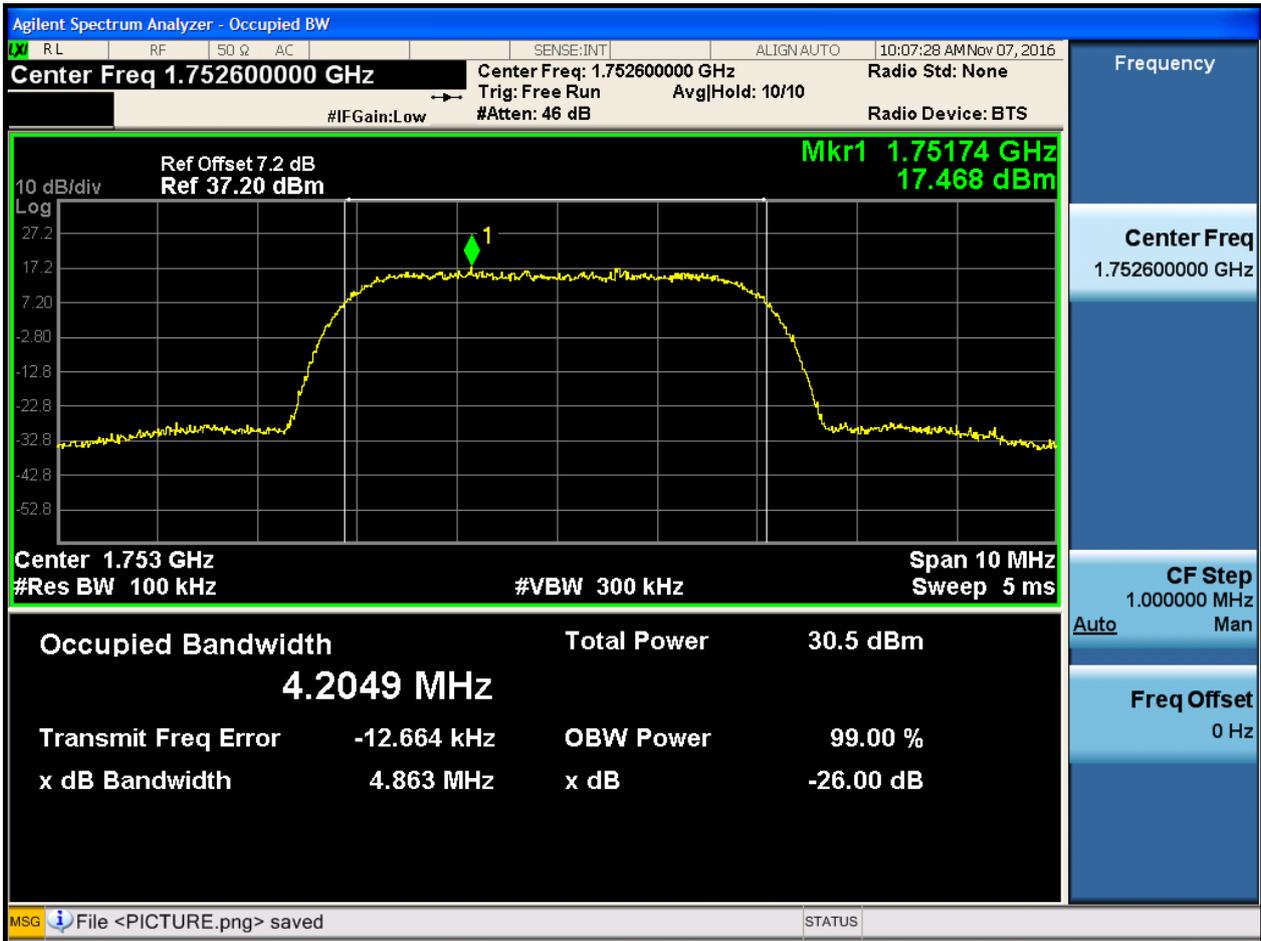




4.2.1.1.2 Test Channel = MCH



4.2.1.1.3 Test Channel = HCH

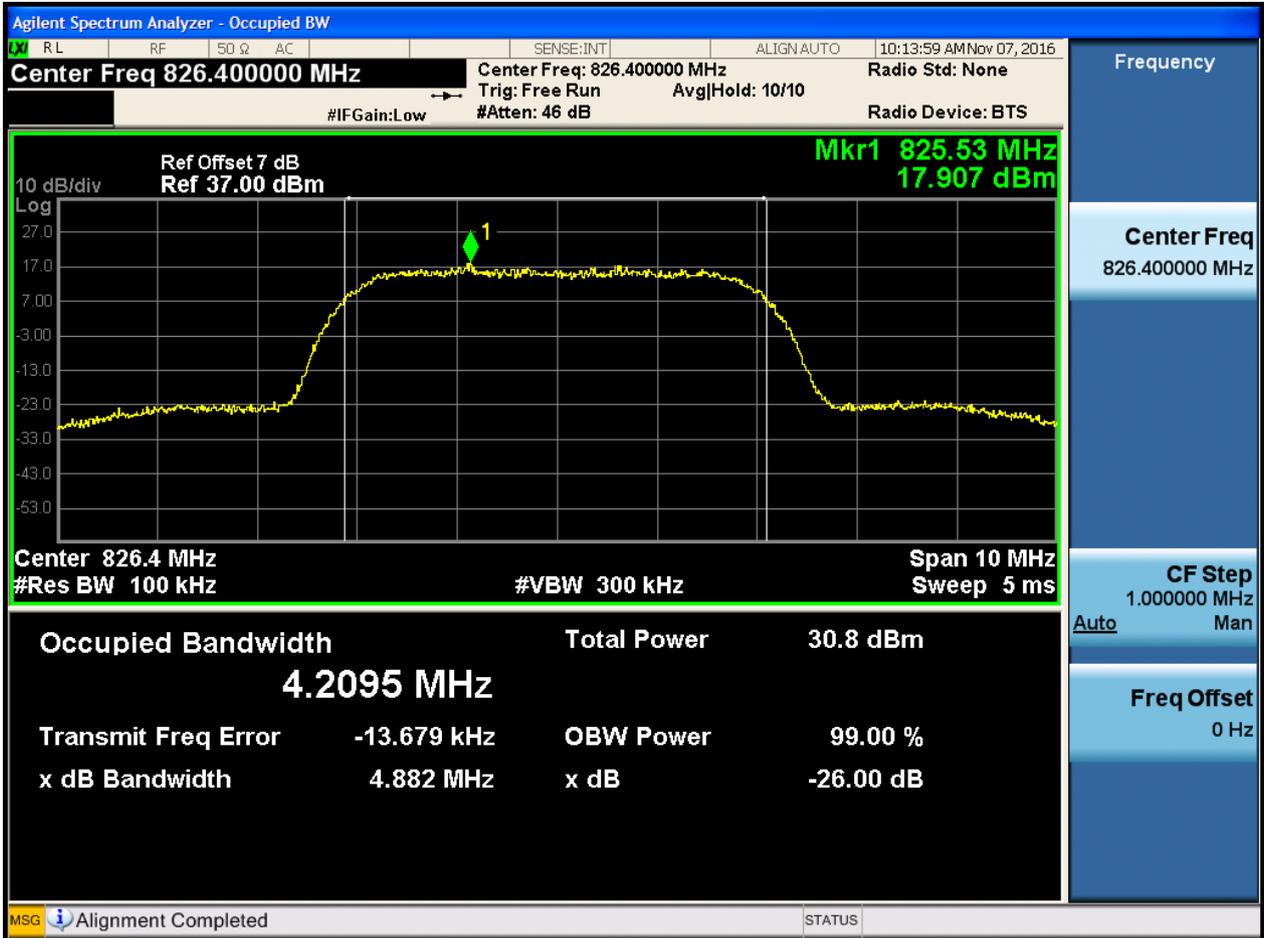




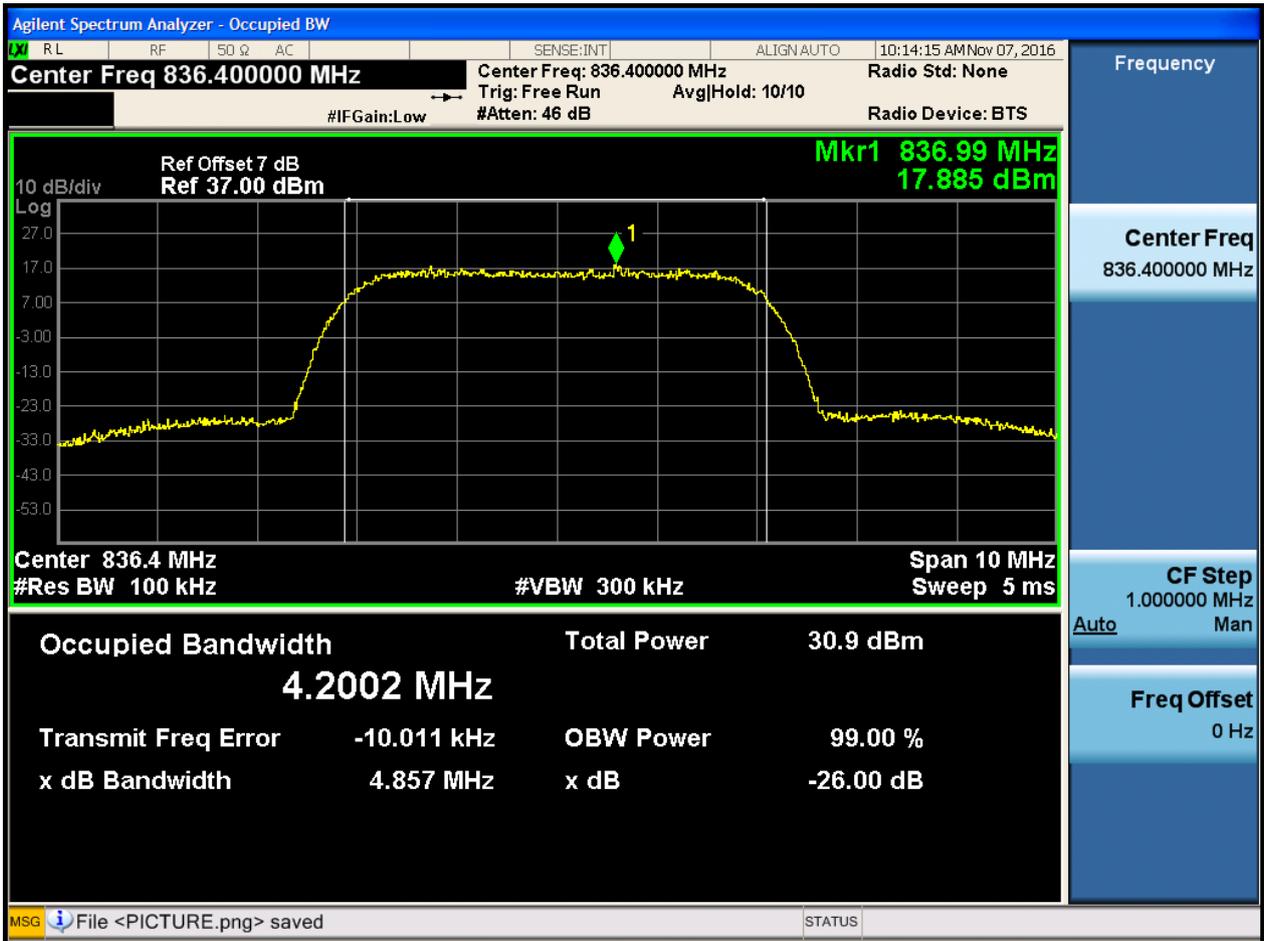
4.2.2 Test Band = WCDMA850

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 = 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 For UMTS

5.2.1 Test Band = WCDMA1700

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 = WCDMA850

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

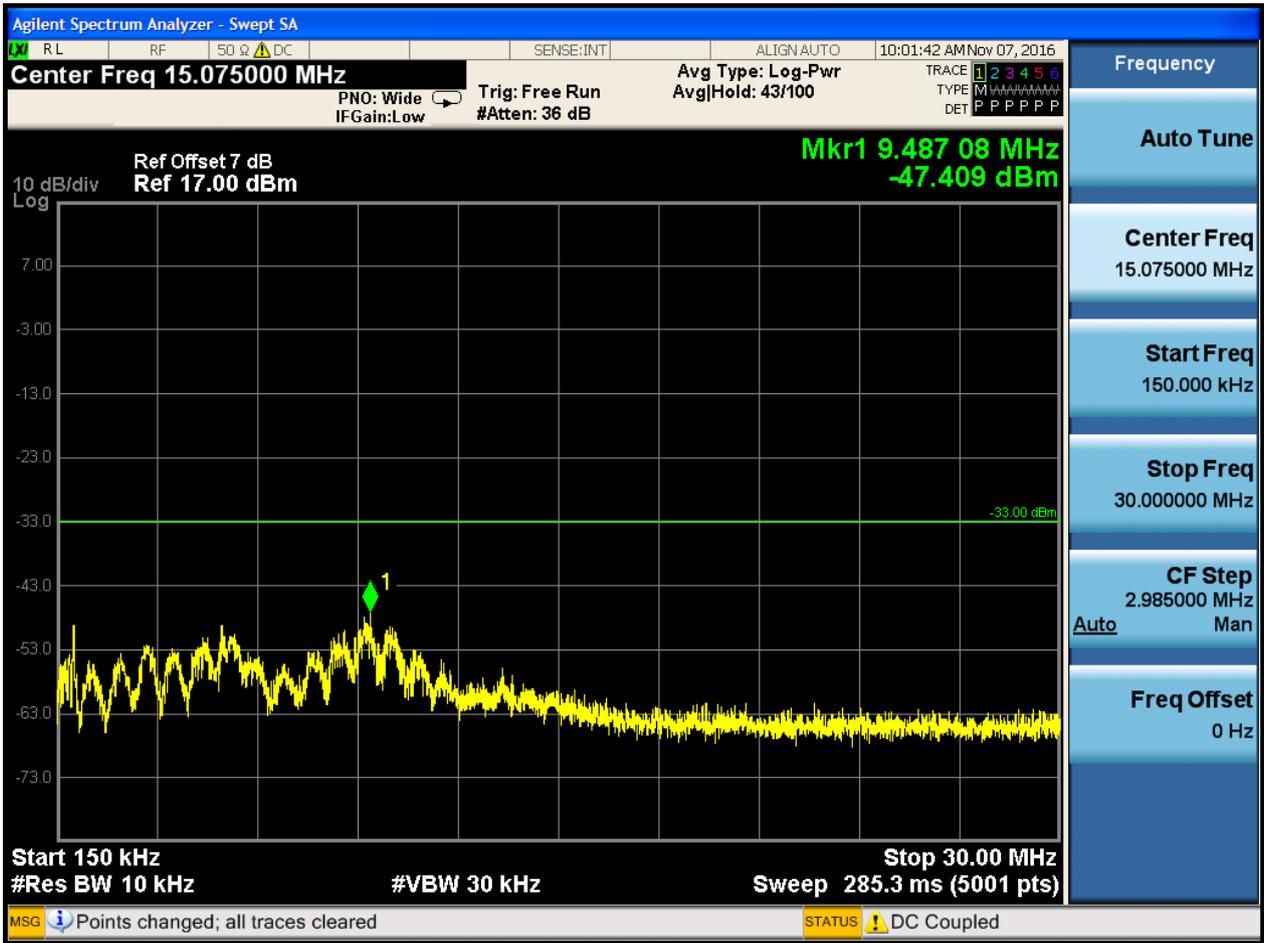
6.1 For UMTS

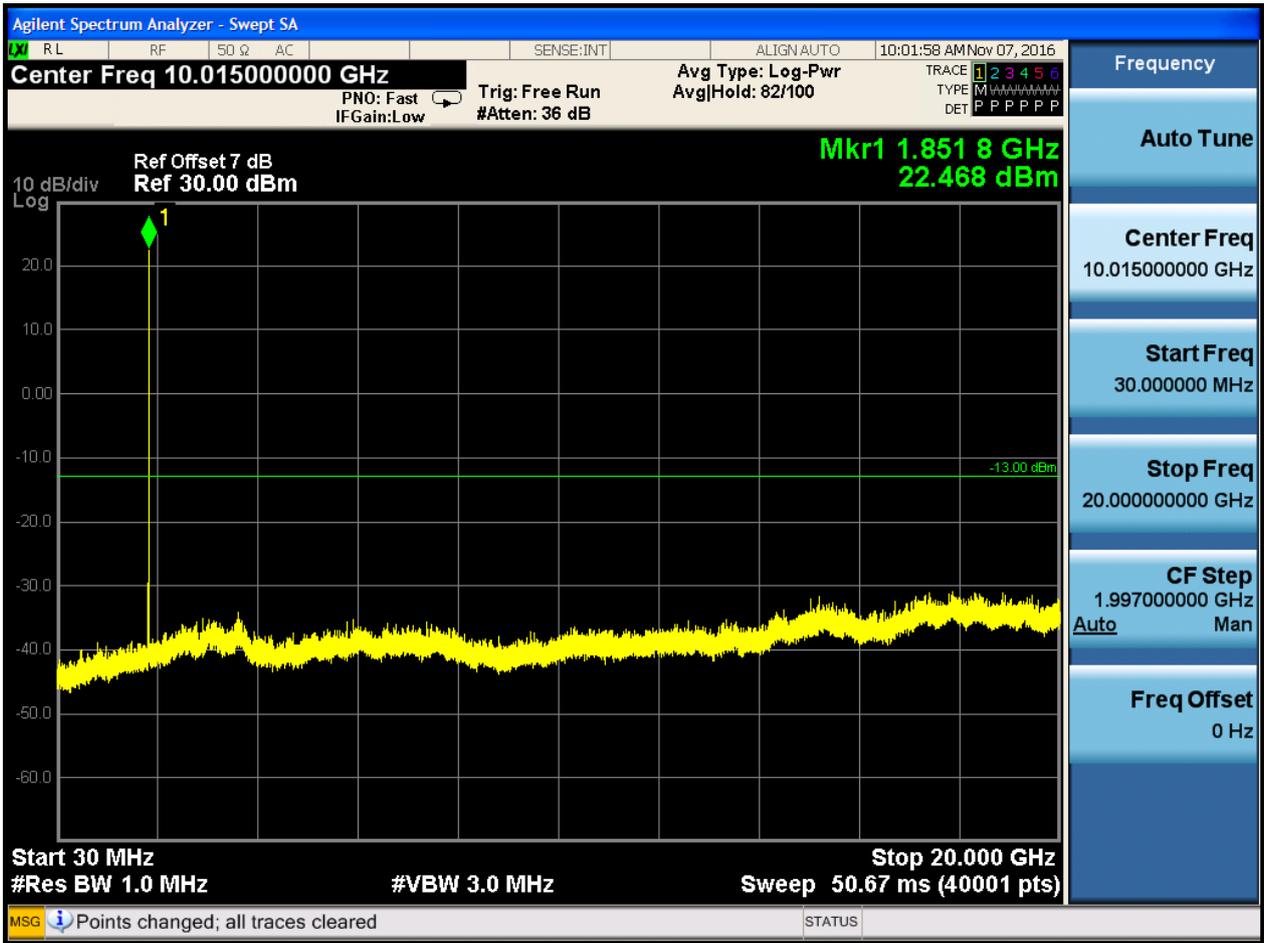
6.1.1 Test Band = WCDMA1900

6.1.1.1 Test Mode = UMTS/TM1

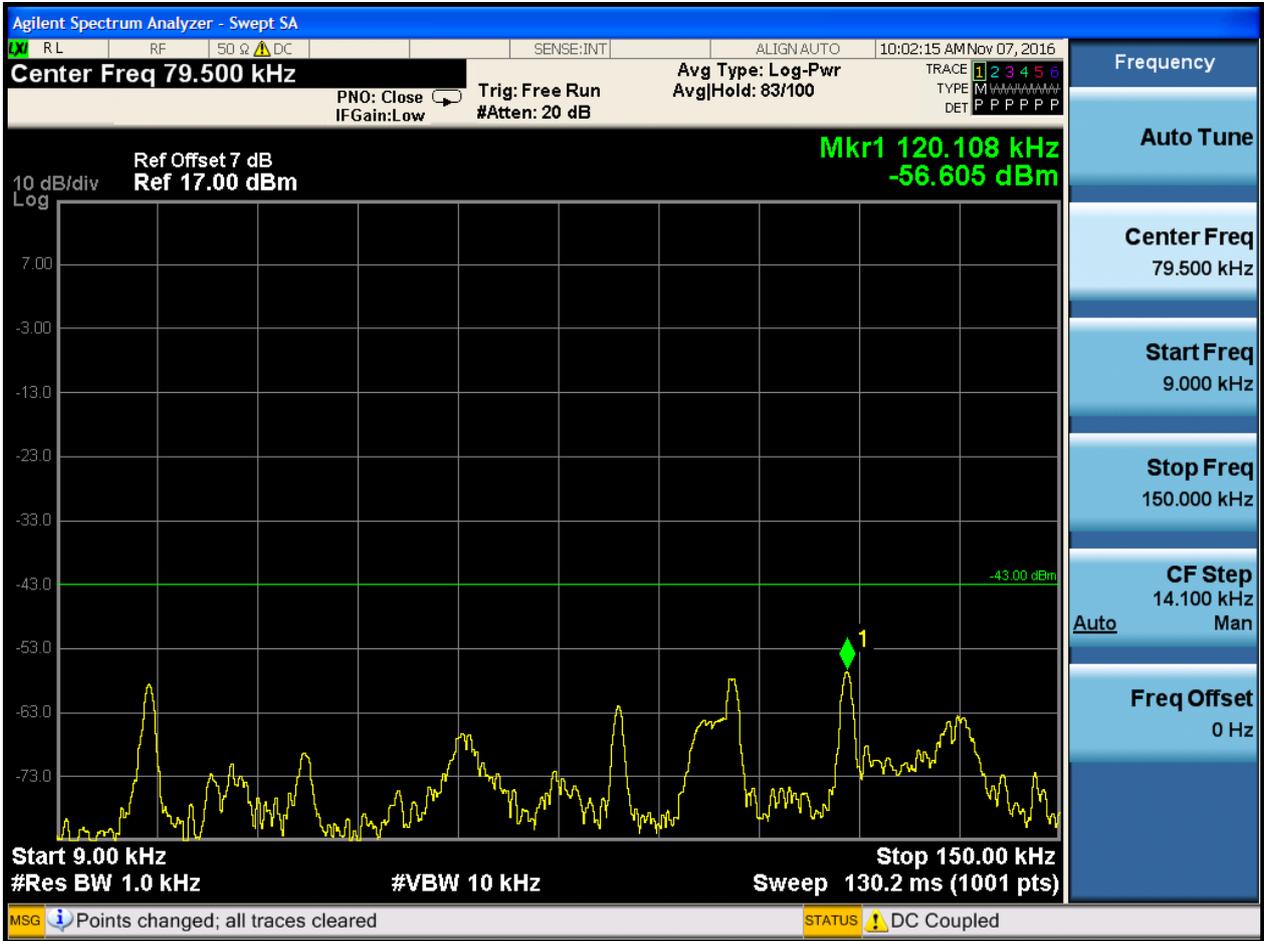
6.1.1.1.1 Test Channel = LCH

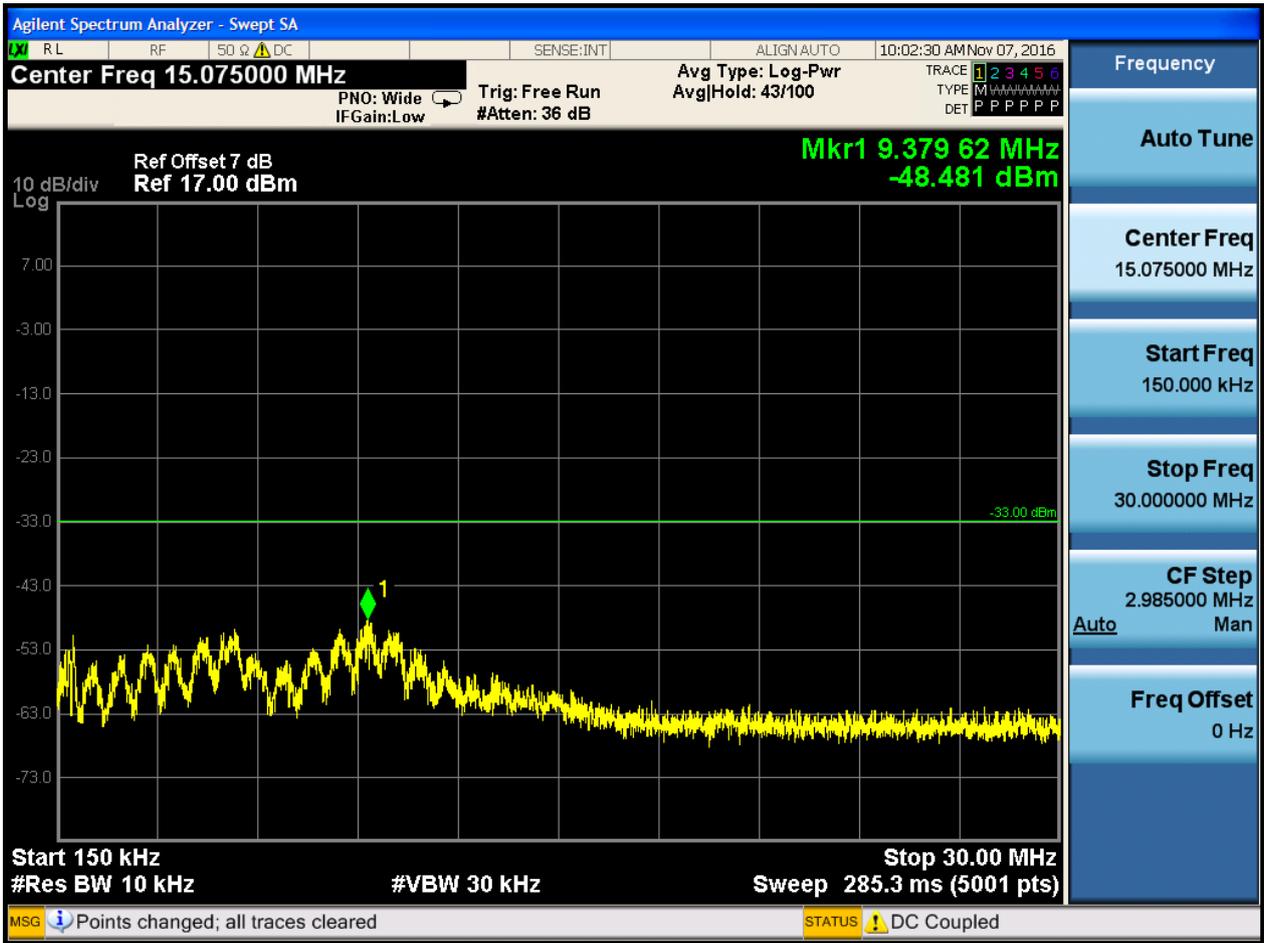


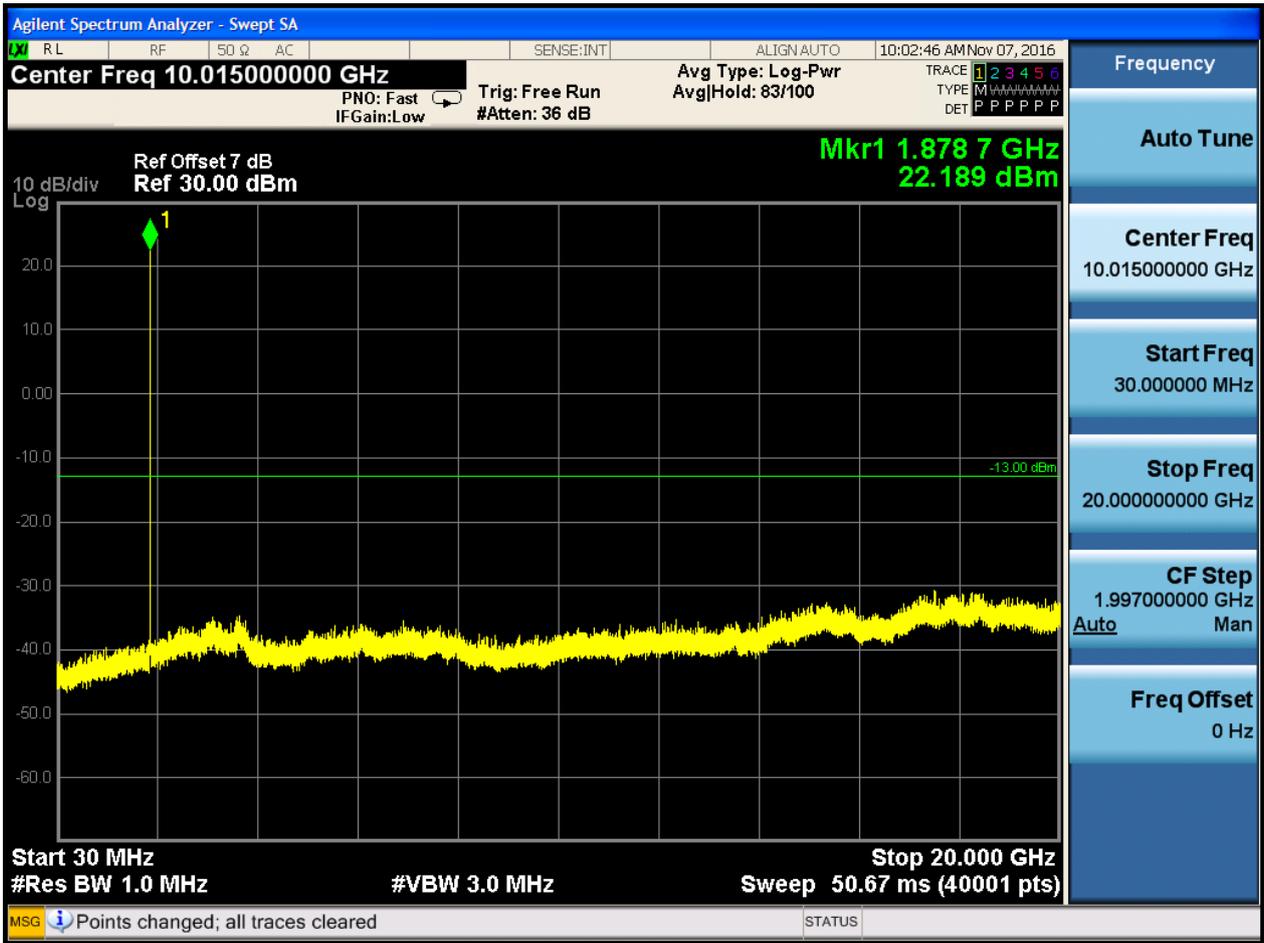




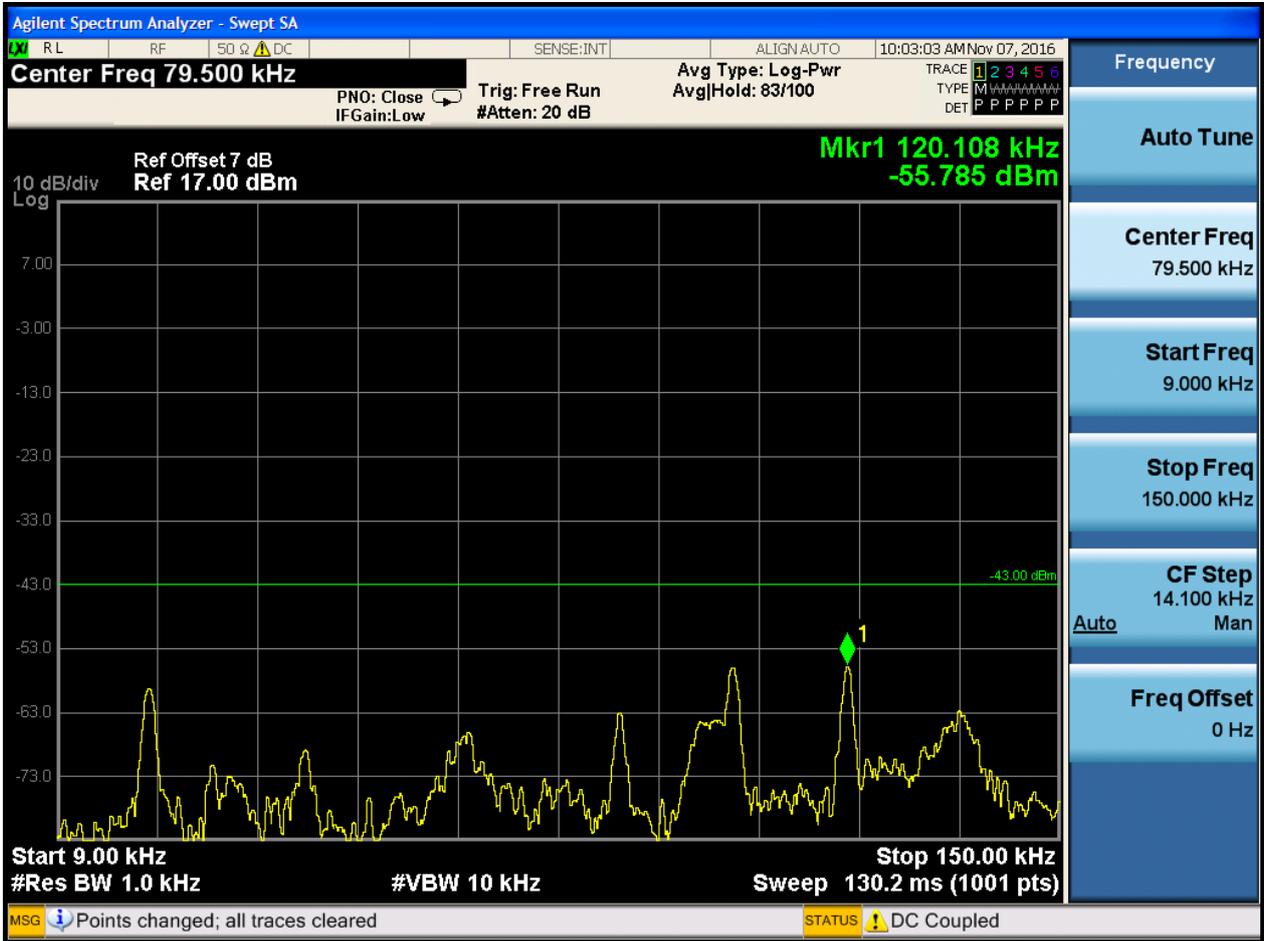
6.1.1.1.2 Test Channel = MCH

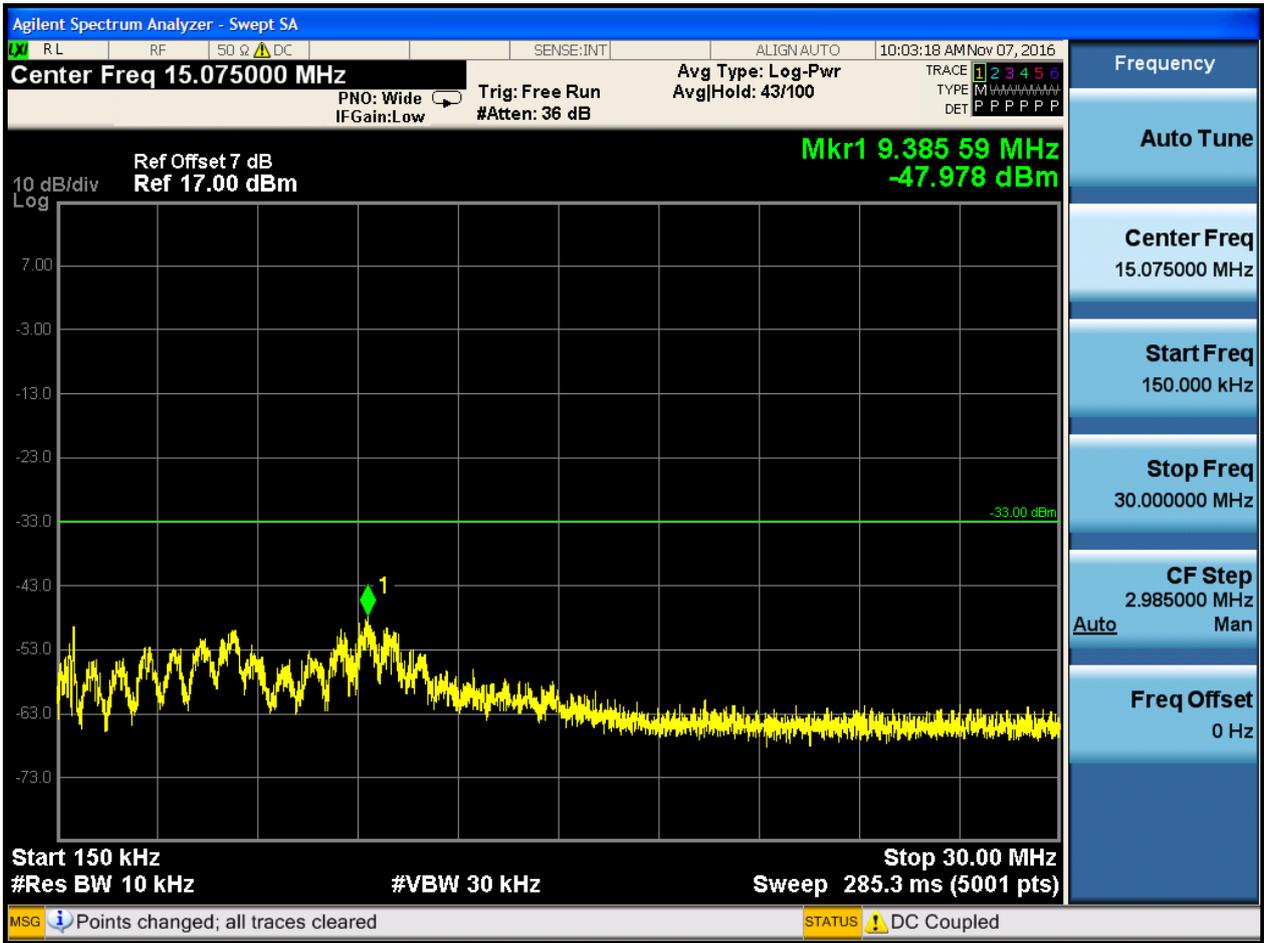


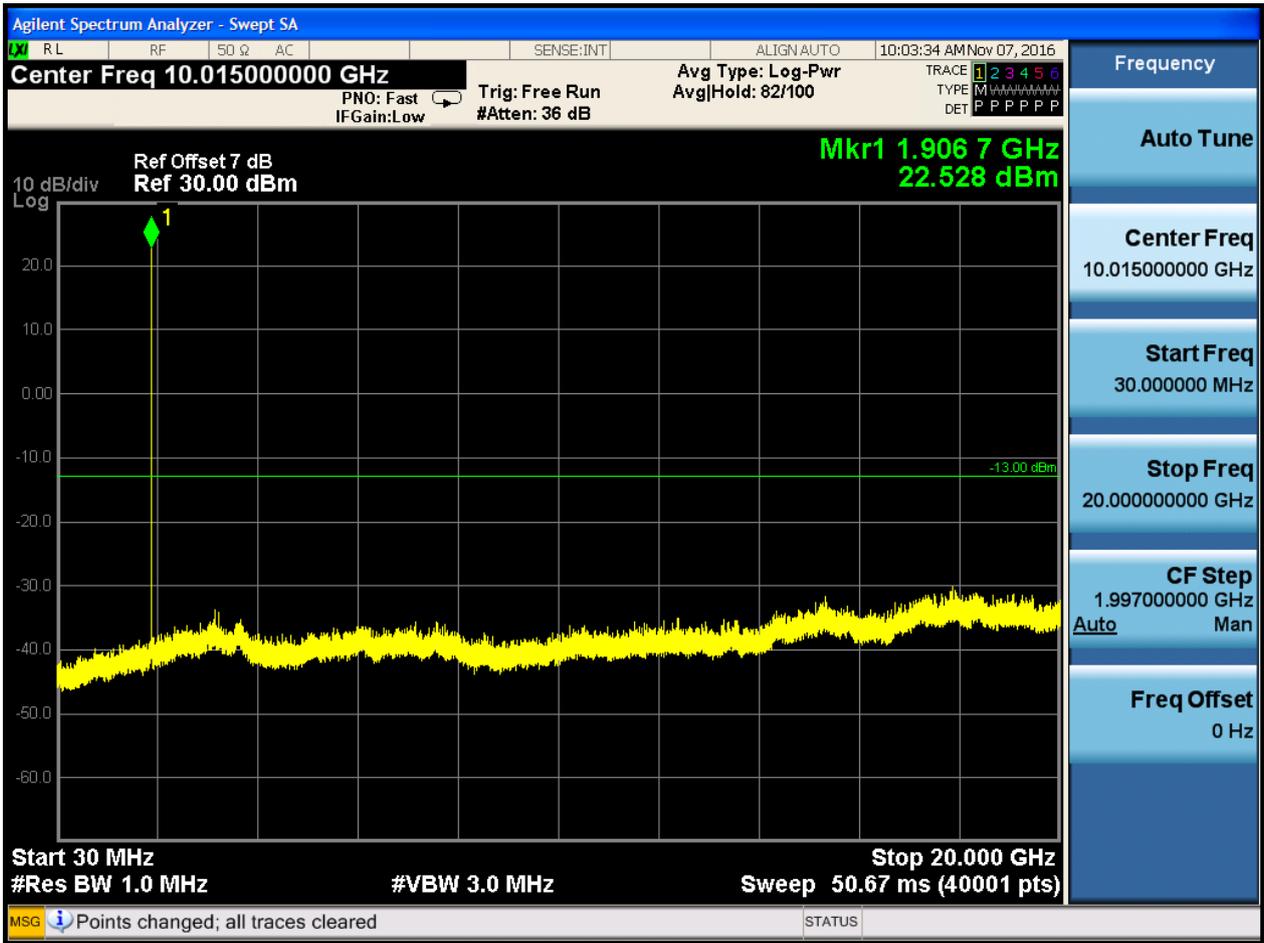




6.1.1.1.3 Test Channel = HCH





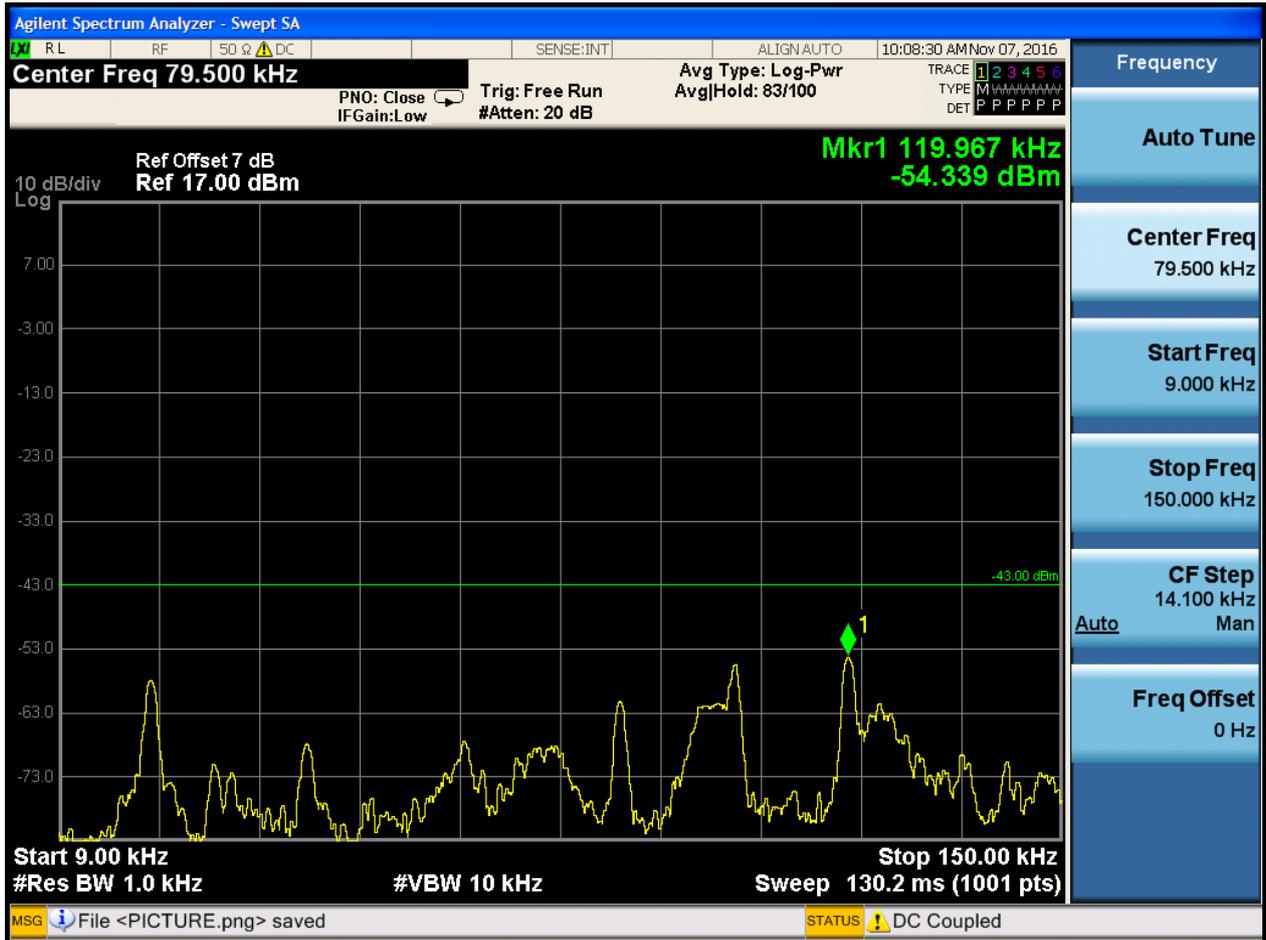


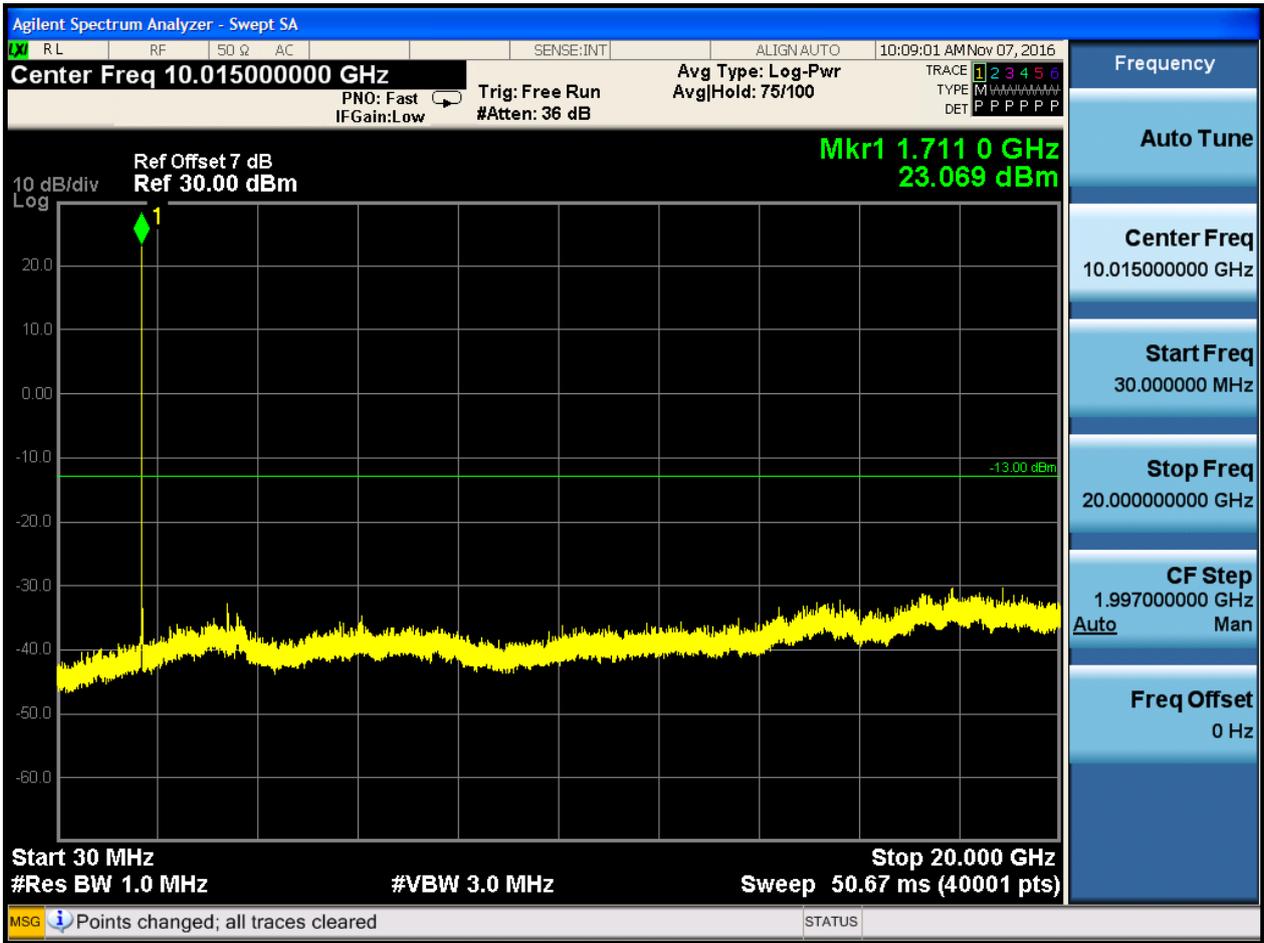
6.2 For UMTS

6.2.1 Test Band = WCDMA1700

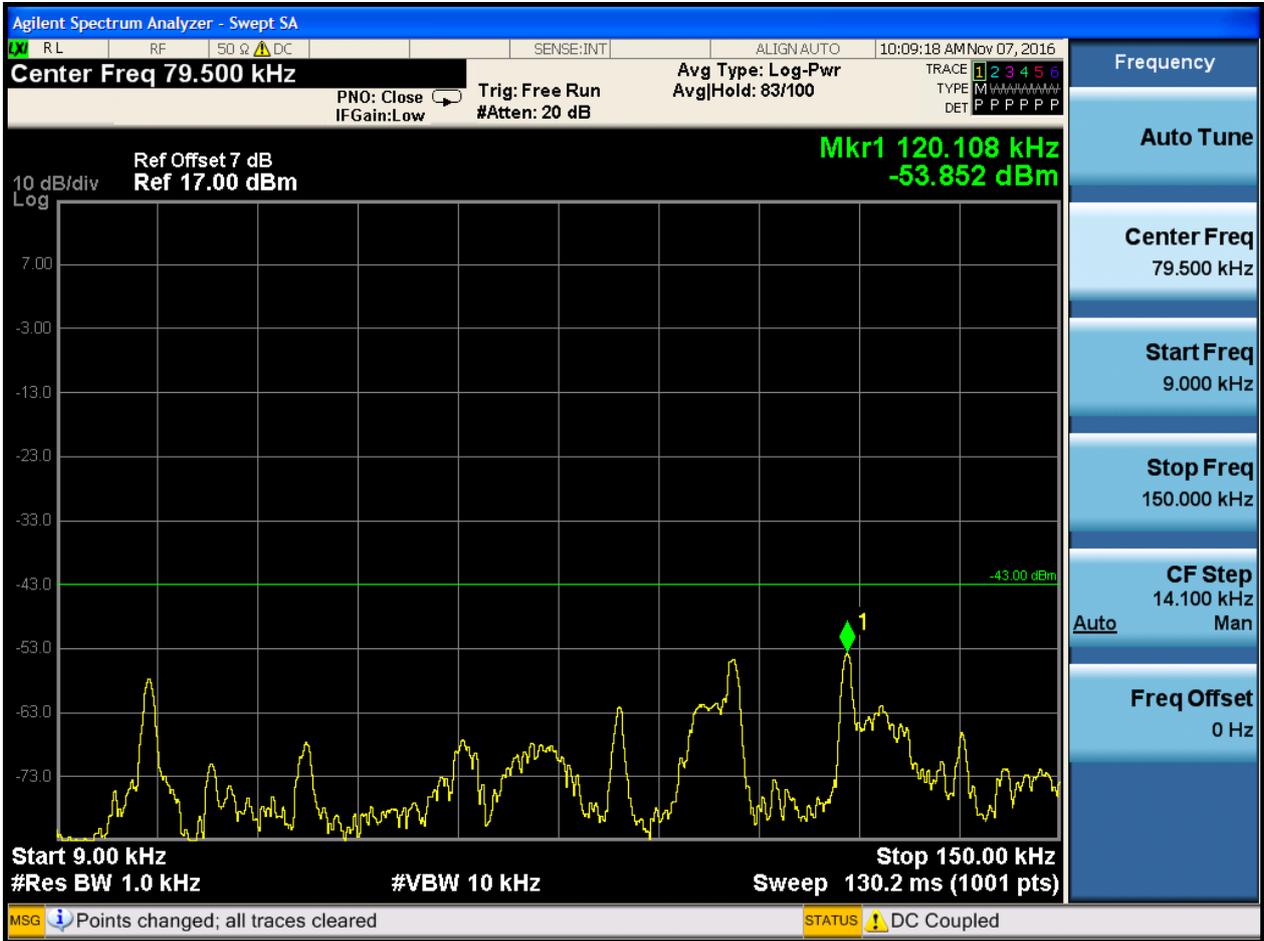
6.2.1.1 Test Mode = UMTS/TM1

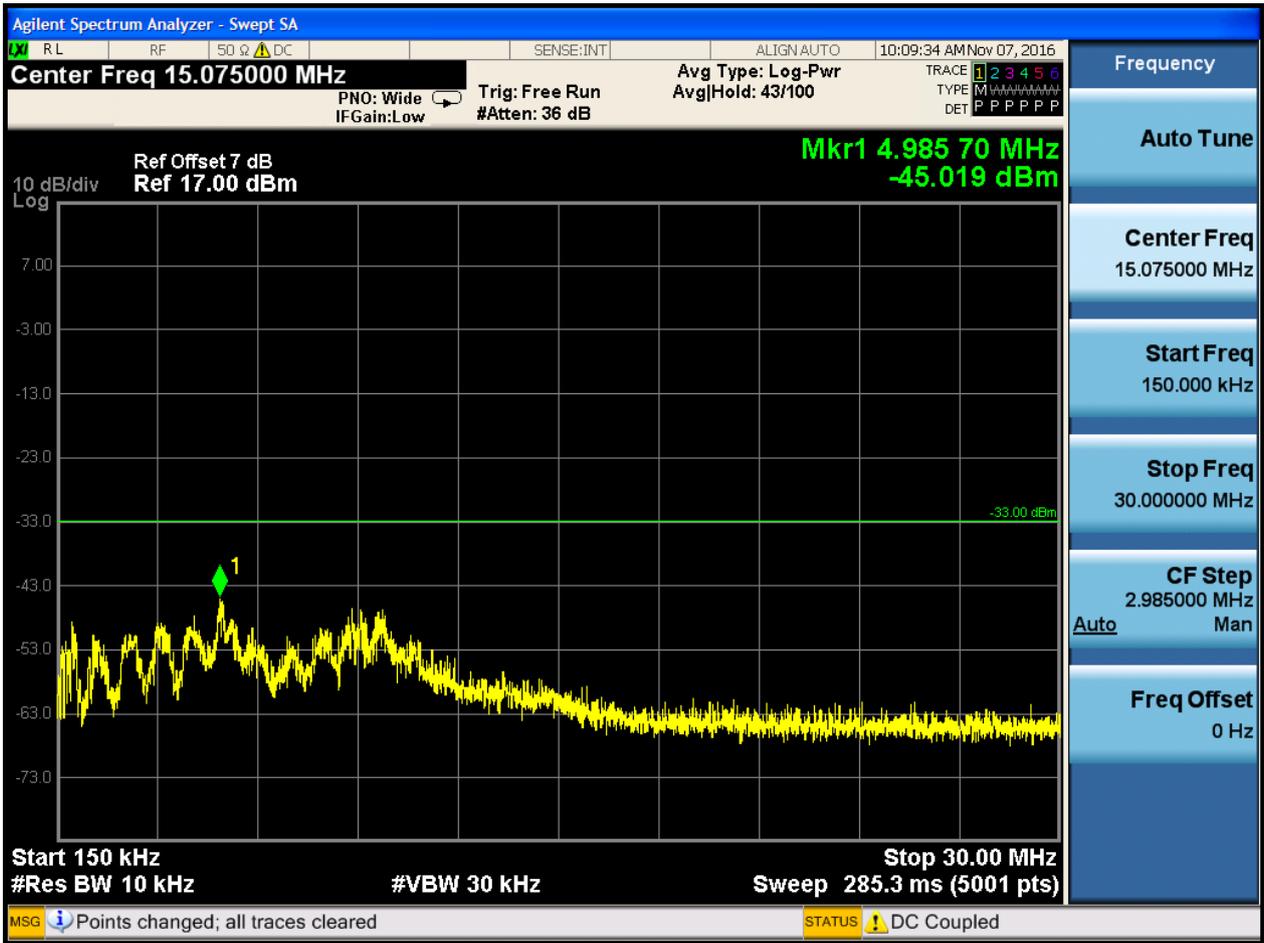
6.2.1.1.1 Test Channel = LCH





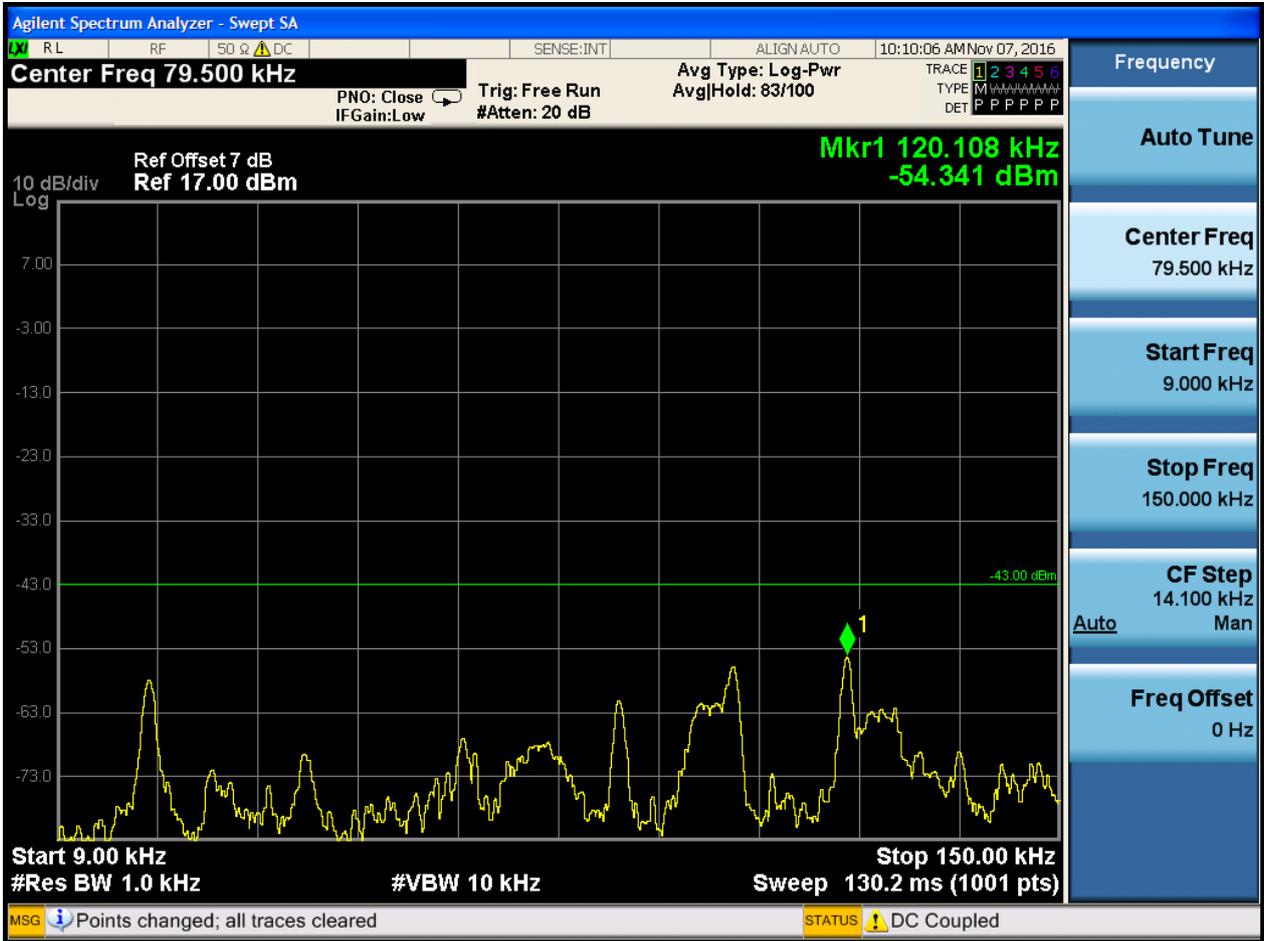
6.2.1.1.2 Test Channel = MCH

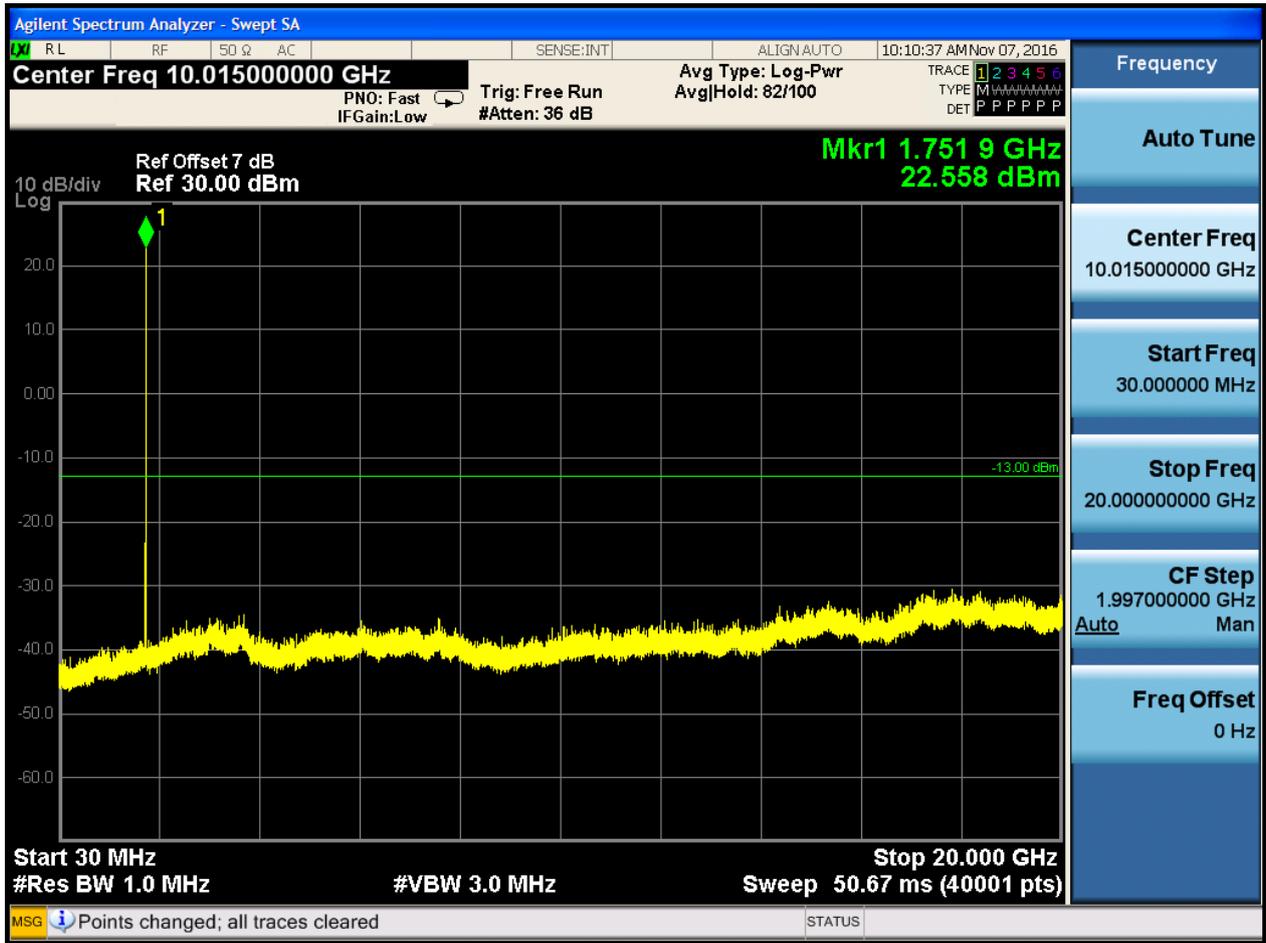






6.2.1.1.3 Test Channel = HCH

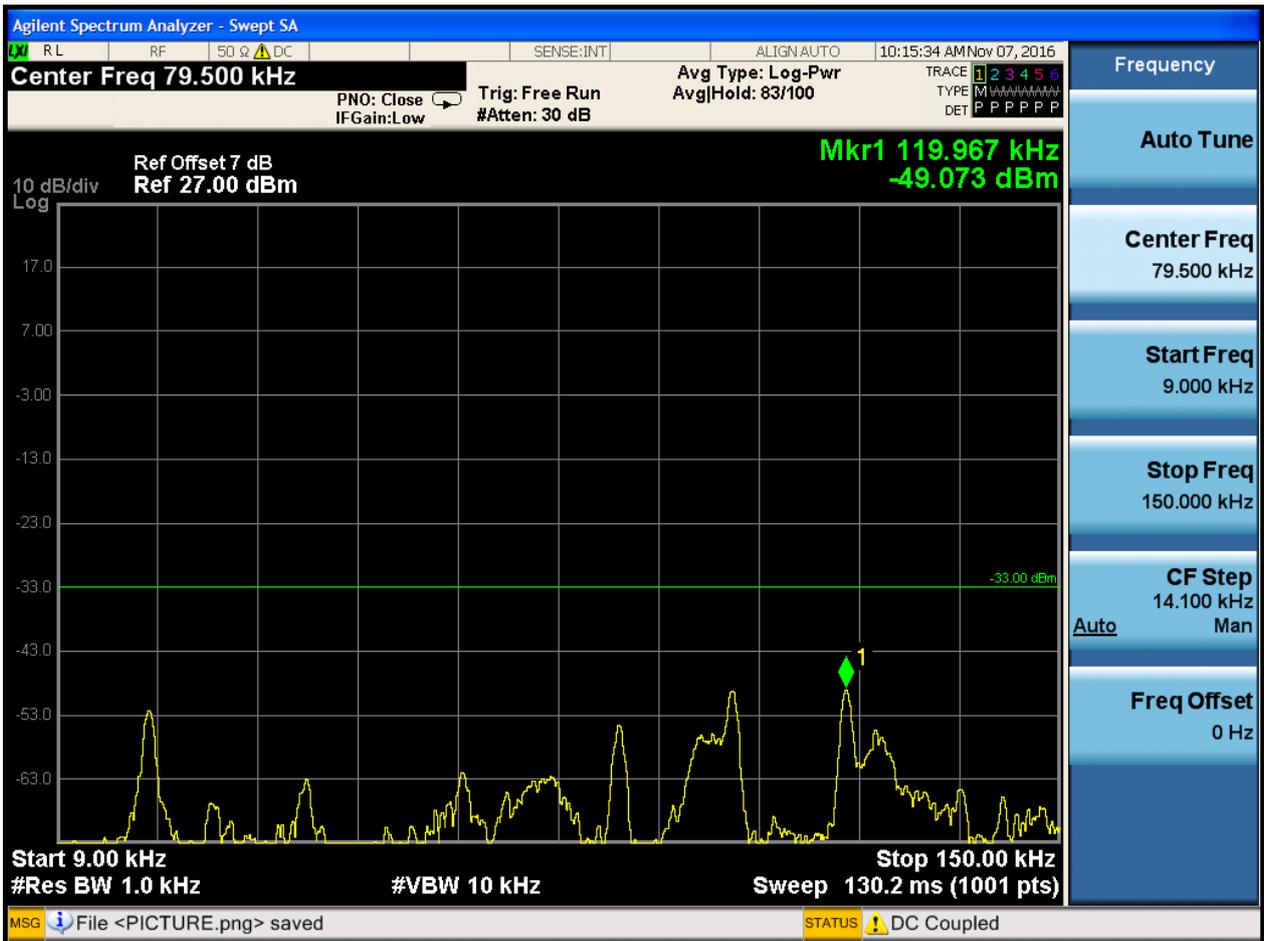


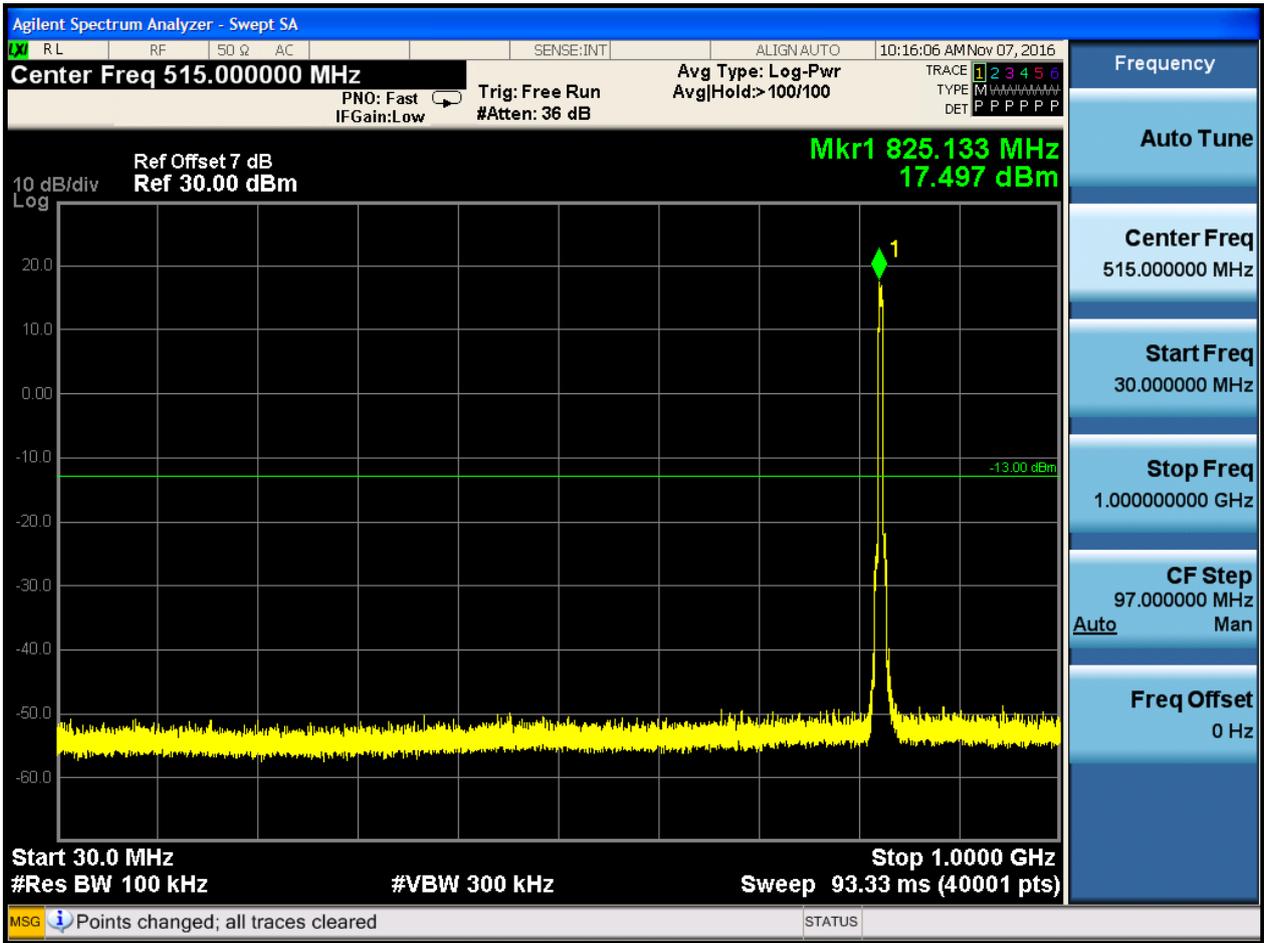


6.2.2 Test Band = WCDMA850

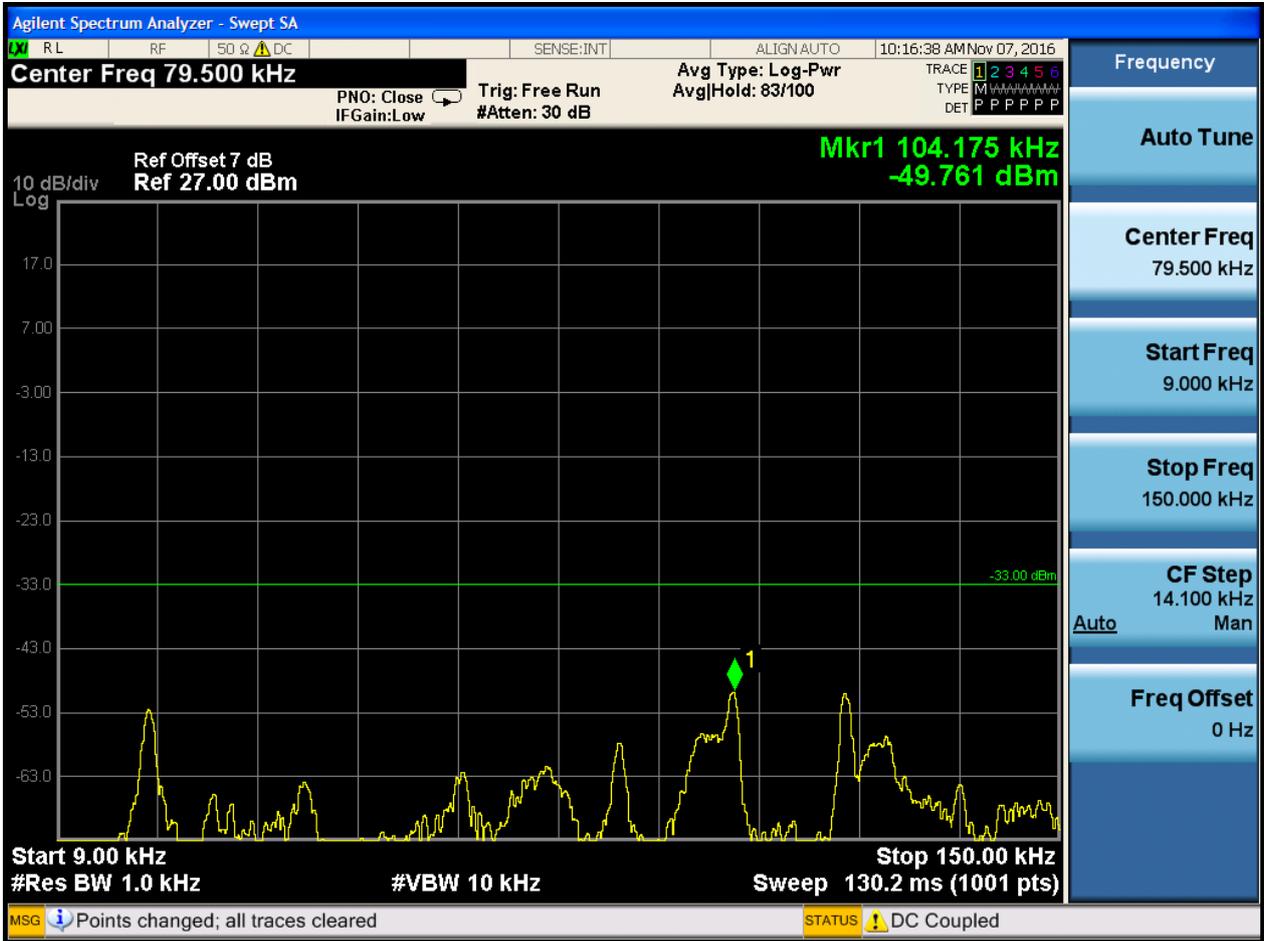
6.2.2.1 Test Mode = UMTS/TM1

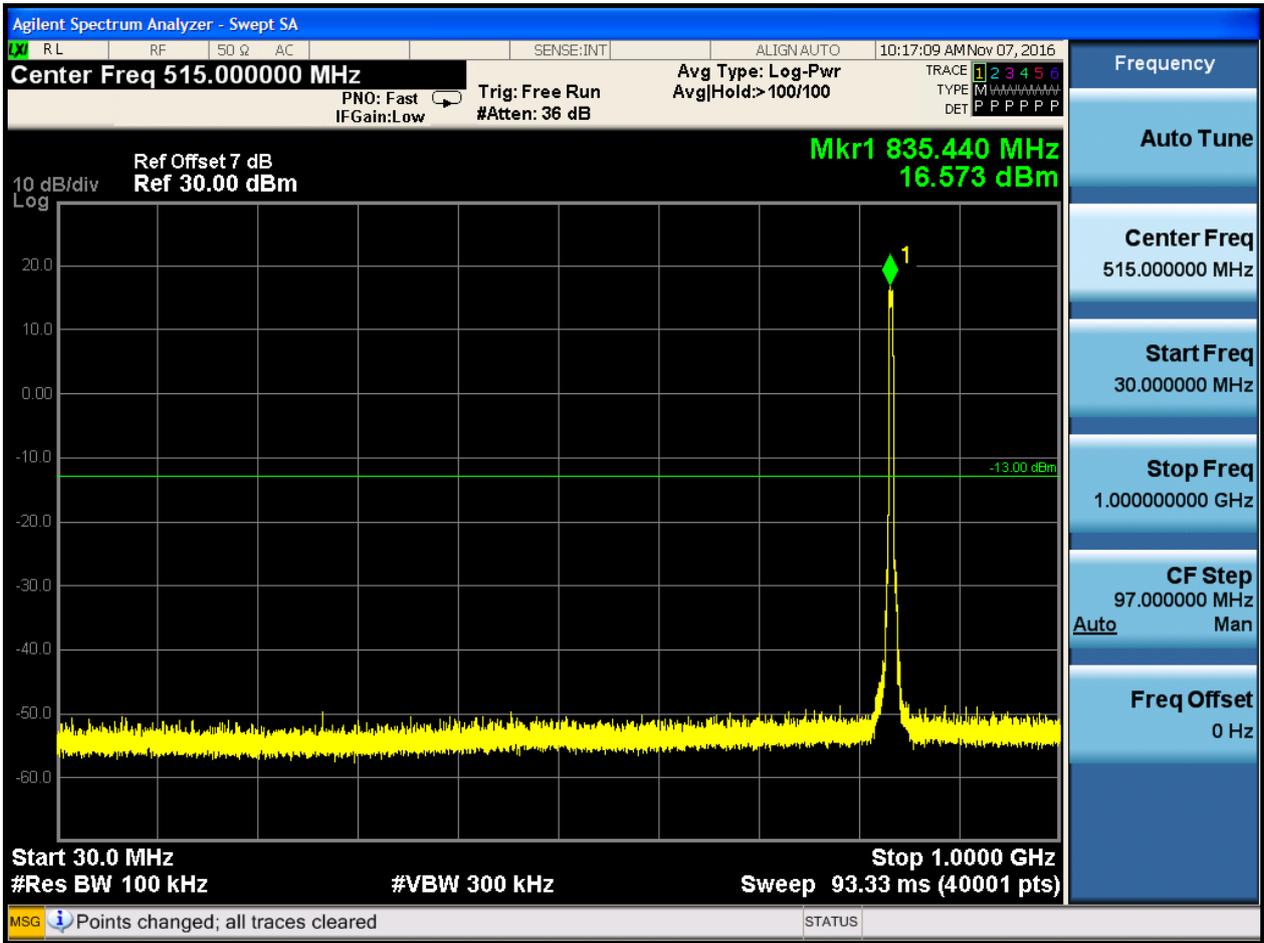
6.2.2.1.1 Test Channel = LCH

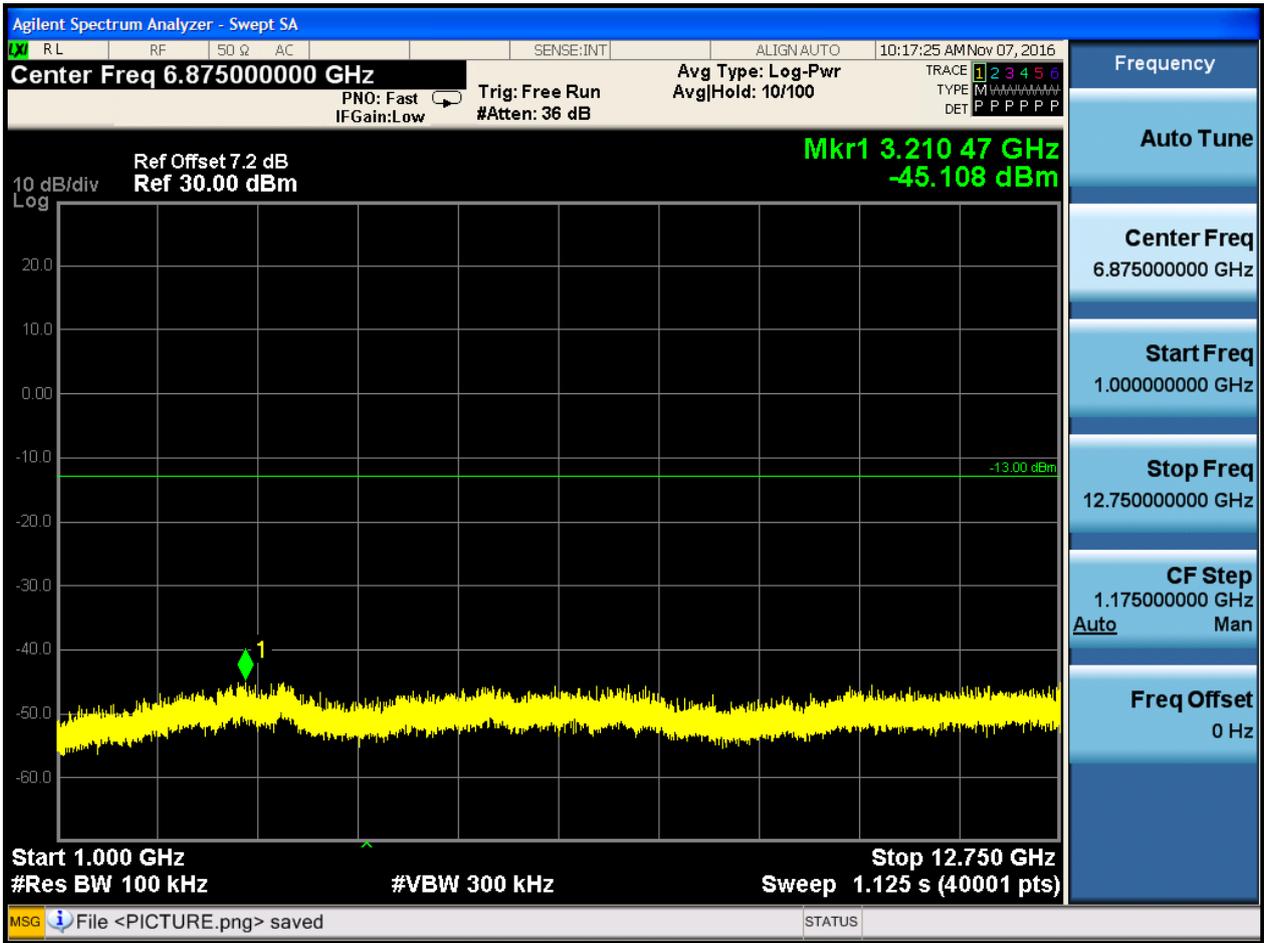




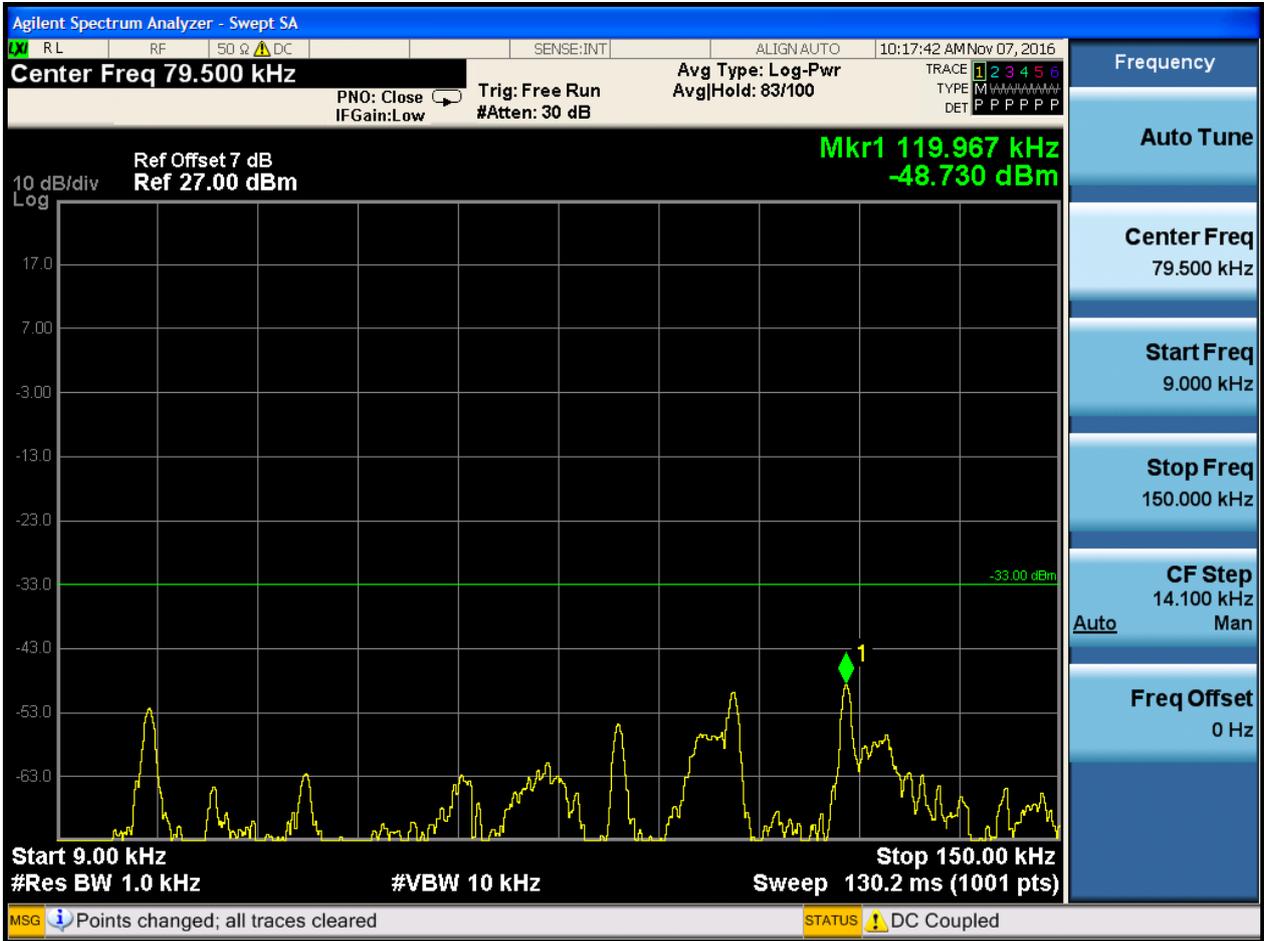
6.2.2.1.2 Test Channel = MCH

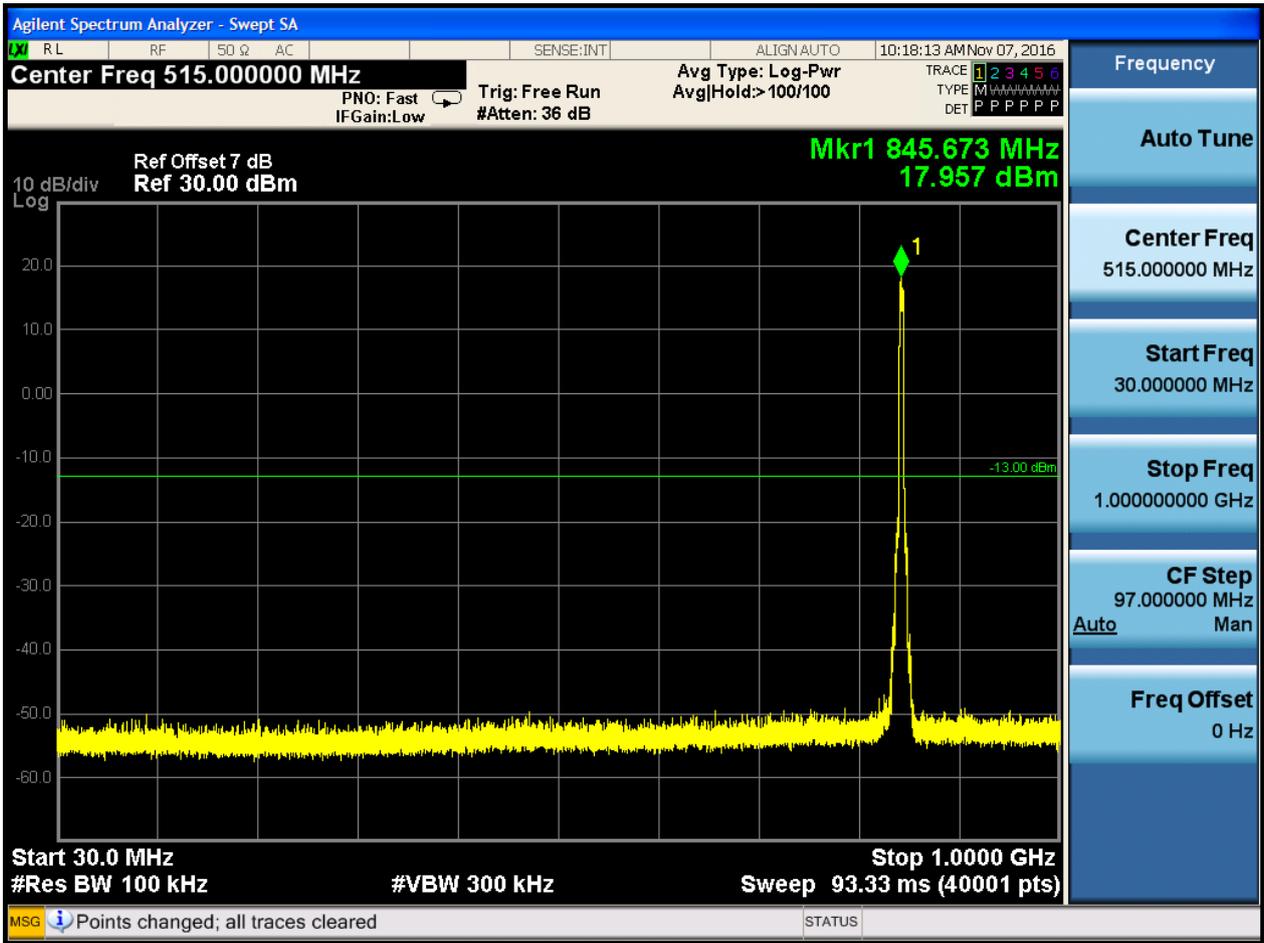


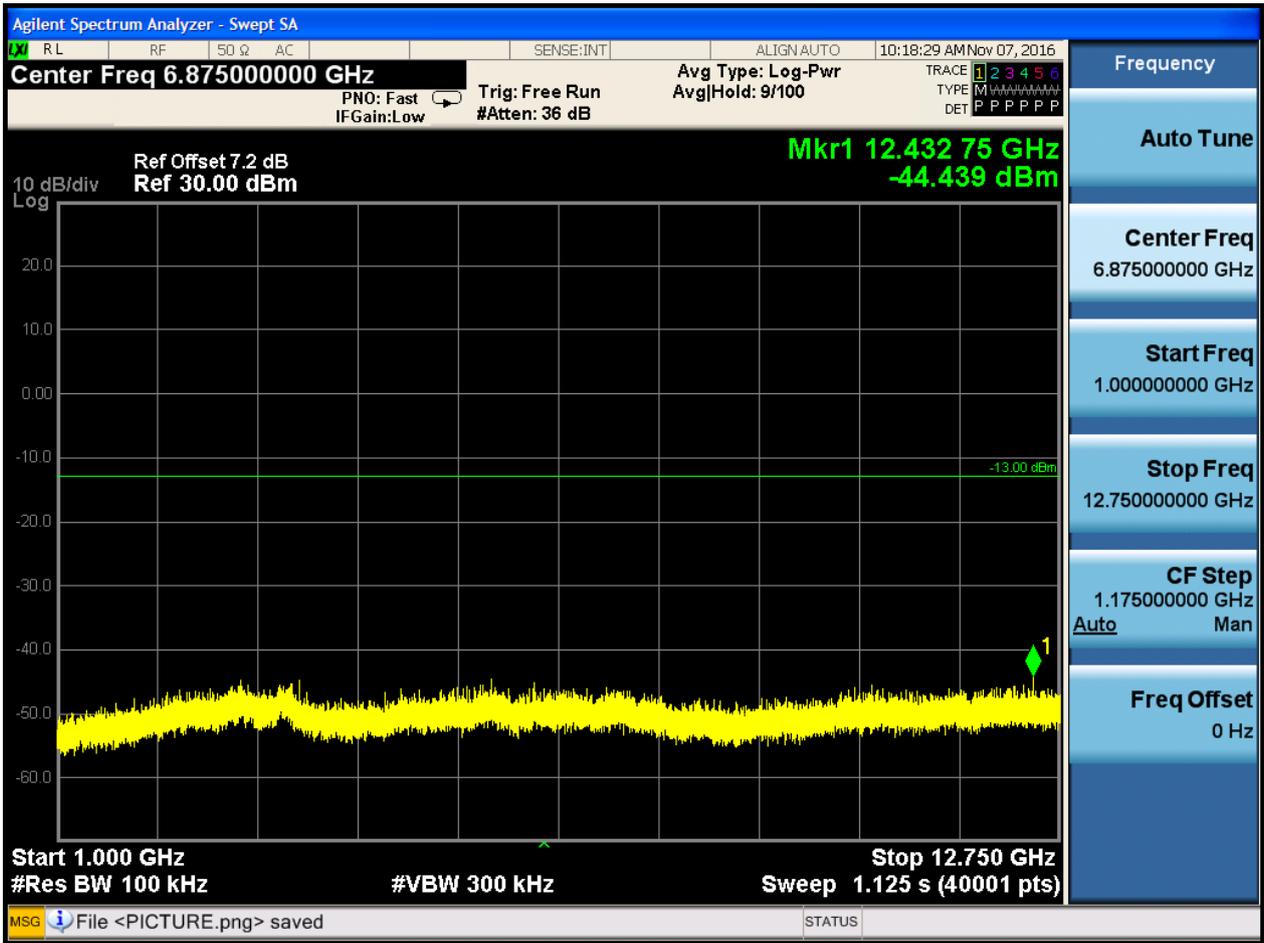




6.2.2.1.3 Test Channel = HCH







7Appendix_G: Field Strength of Spurious Radiation

Note: 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

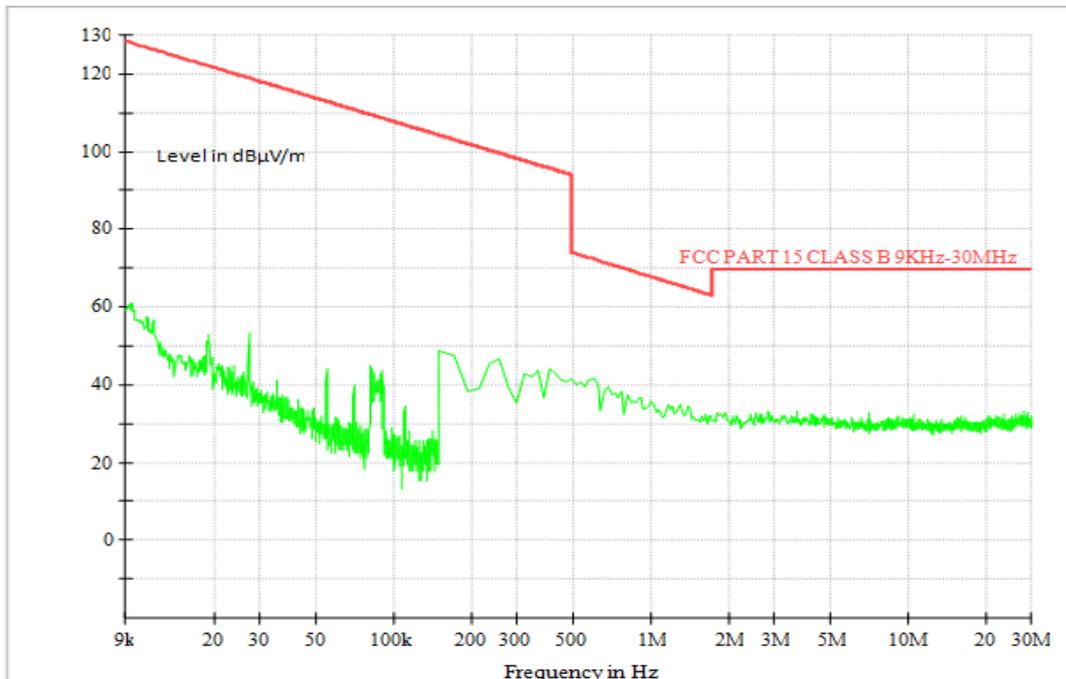
Above 1GHz, RBW = 1 MHz, VBW = 3 MHz. Detector: PK

Part I - Test Plots

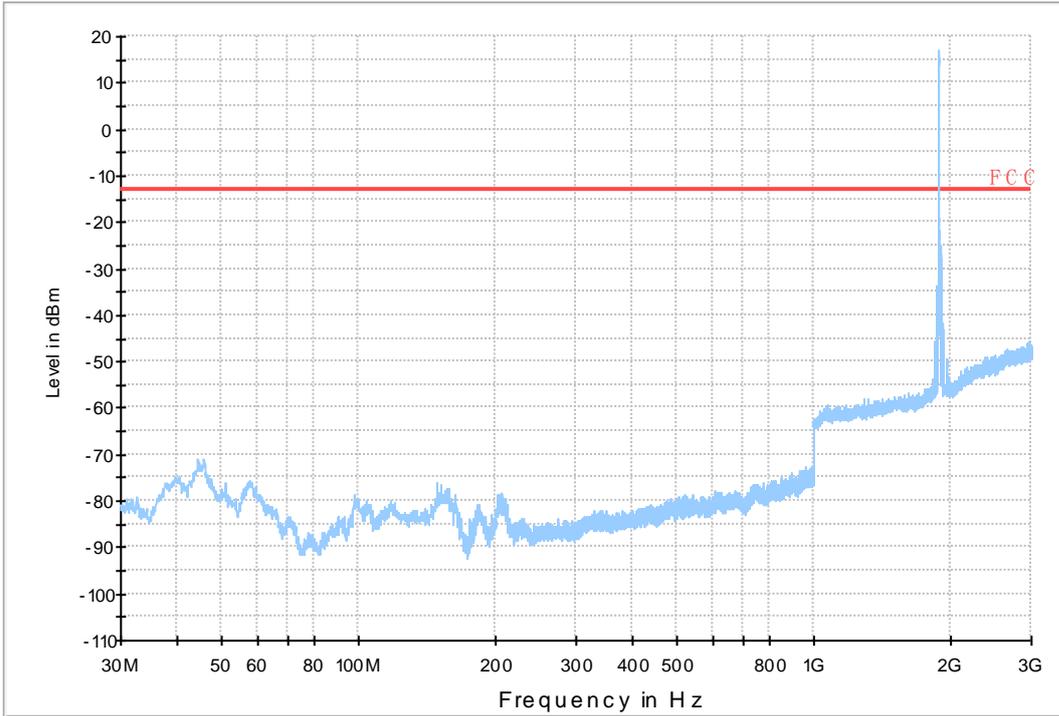
7.1 For UMTS

7.1.1 Test Band = WCDMA1900

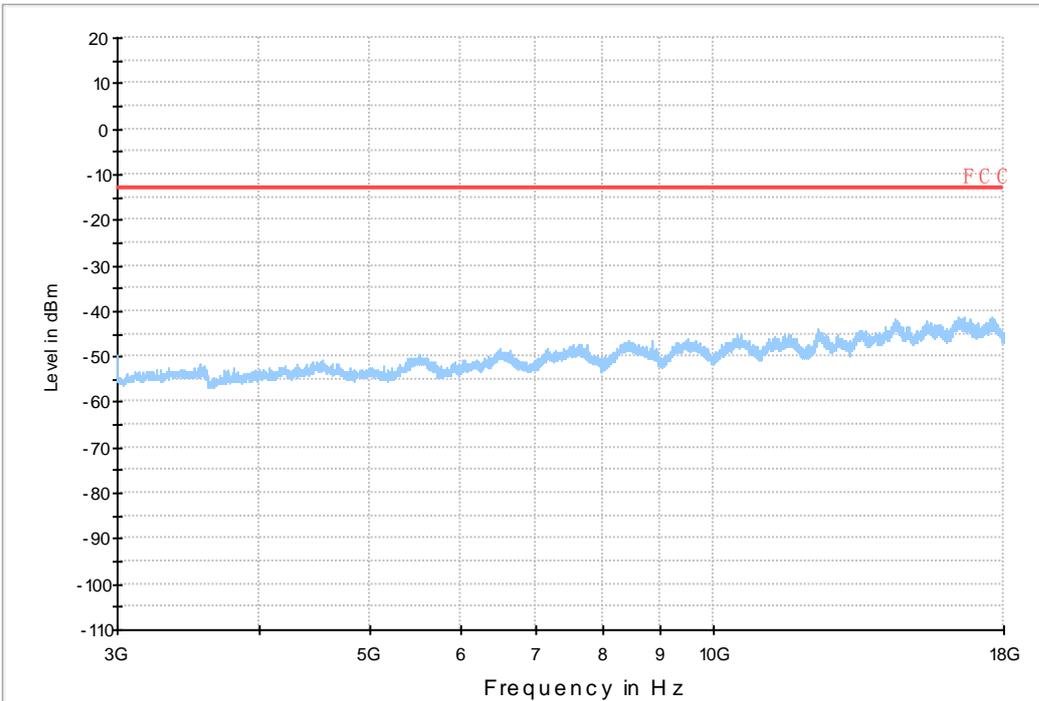
7.1.1.1 Test Mode = UMTS/TM1

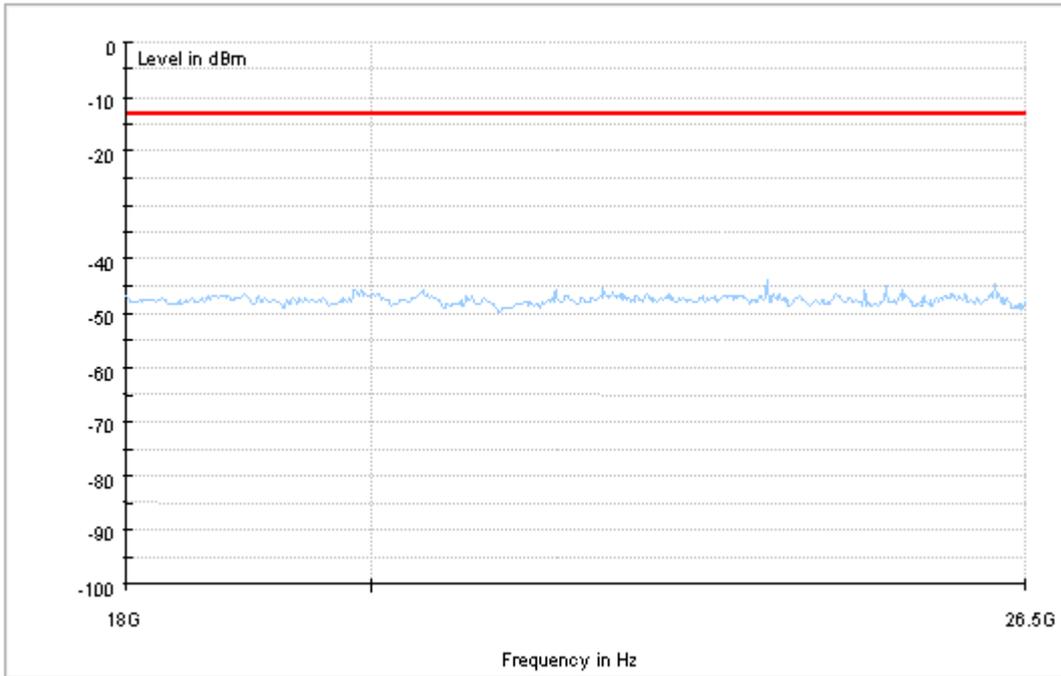


Copy of FCC PART24 W CDMA1900_L



Copy of FCC PART24 W CDMA1900_H

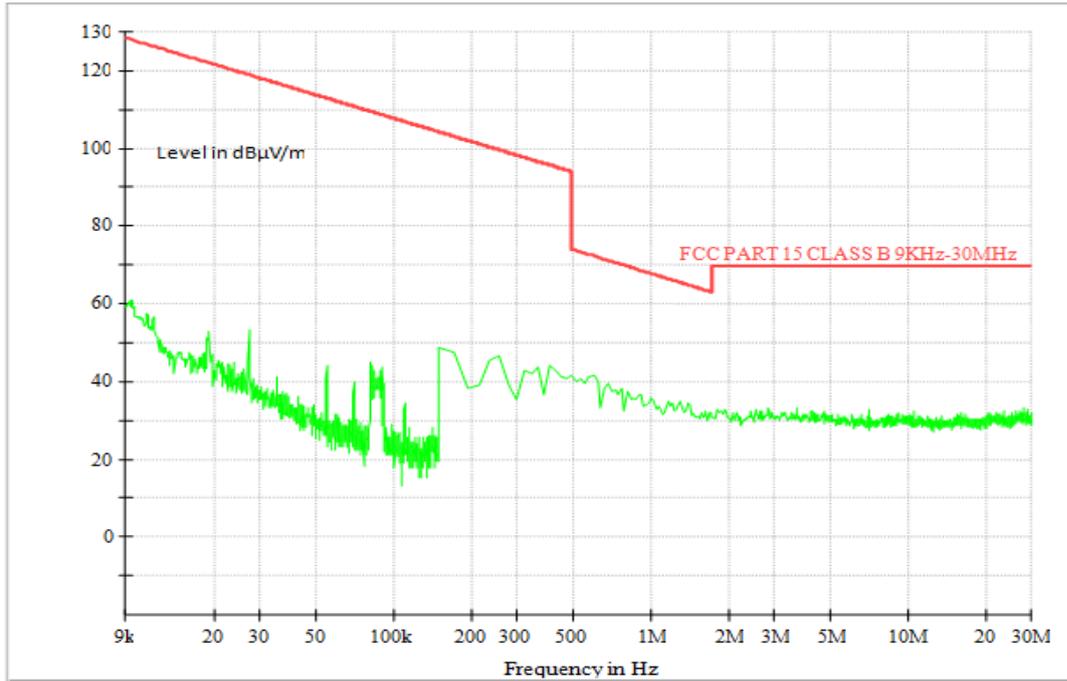




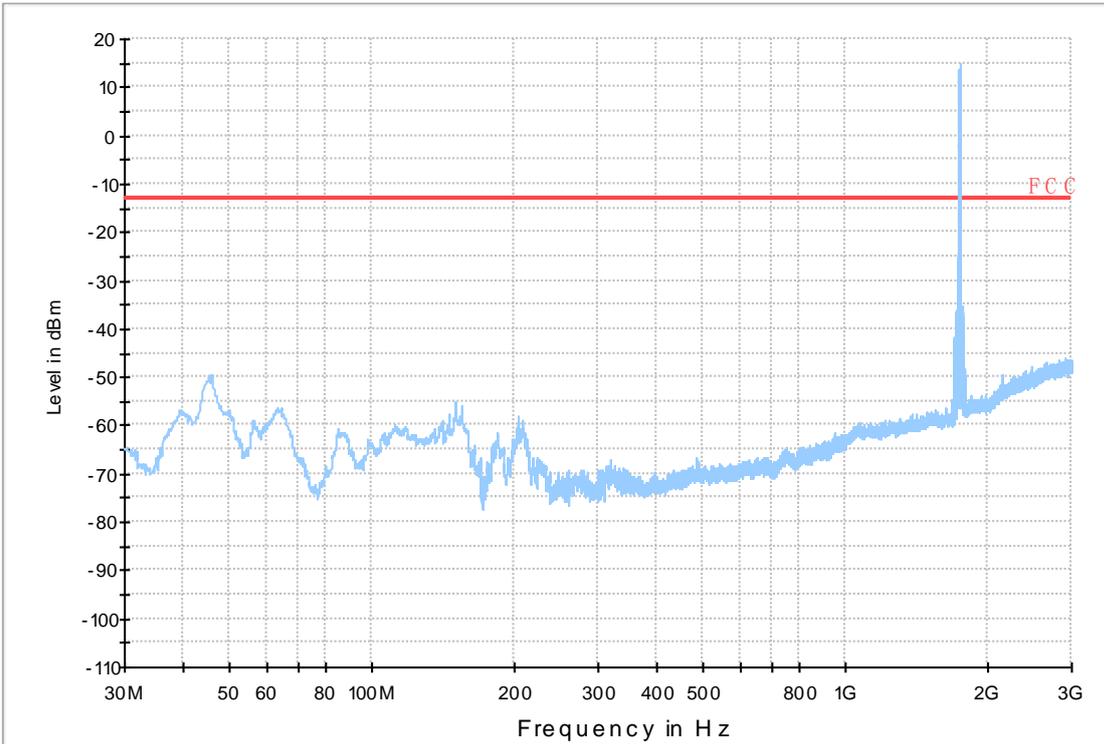
7.2 For UMTS

7.2.1 Test Band = WCDMA1700_Ant1

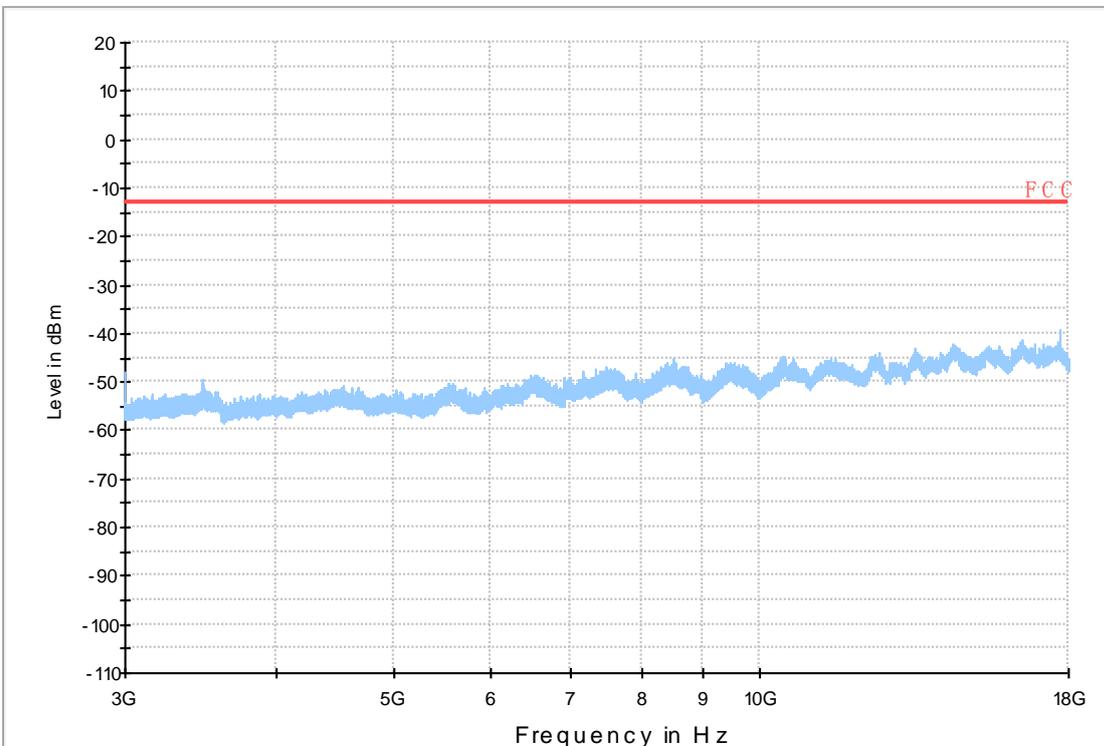
7.2.1.1 Test Mode = UMTS/TM1



Copy of FCC PART27 W CDMA1700_L



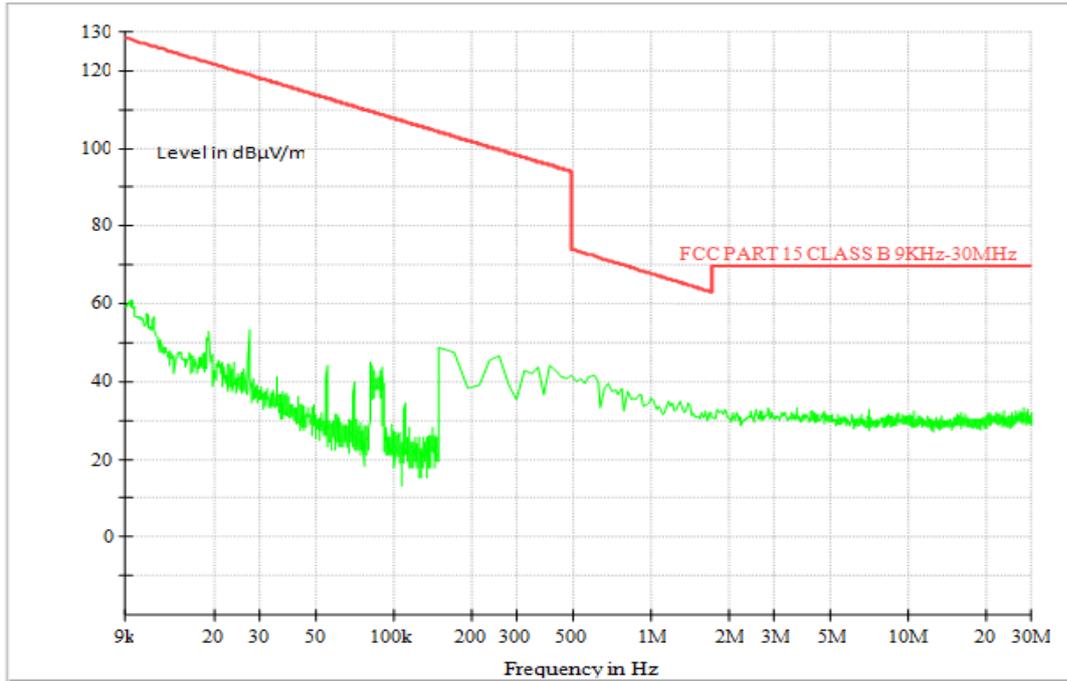
Copy of FCC PART27 W CDMA1700_H



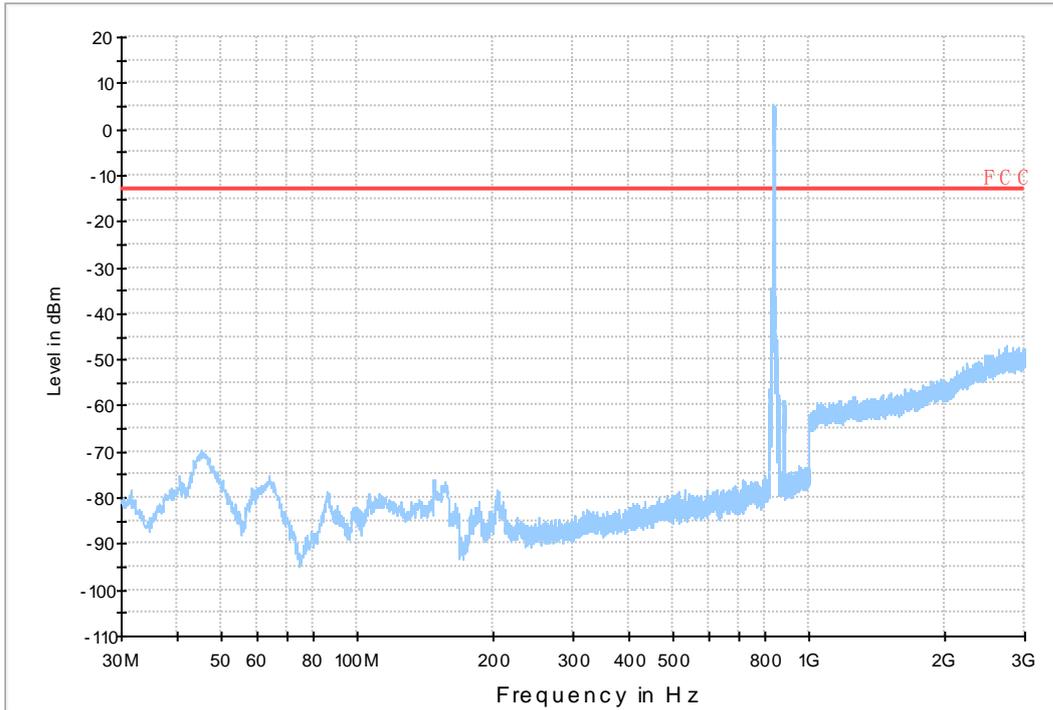
7.3 For UMTS

7.3.1 Test Band = WCDMA850_Ant1

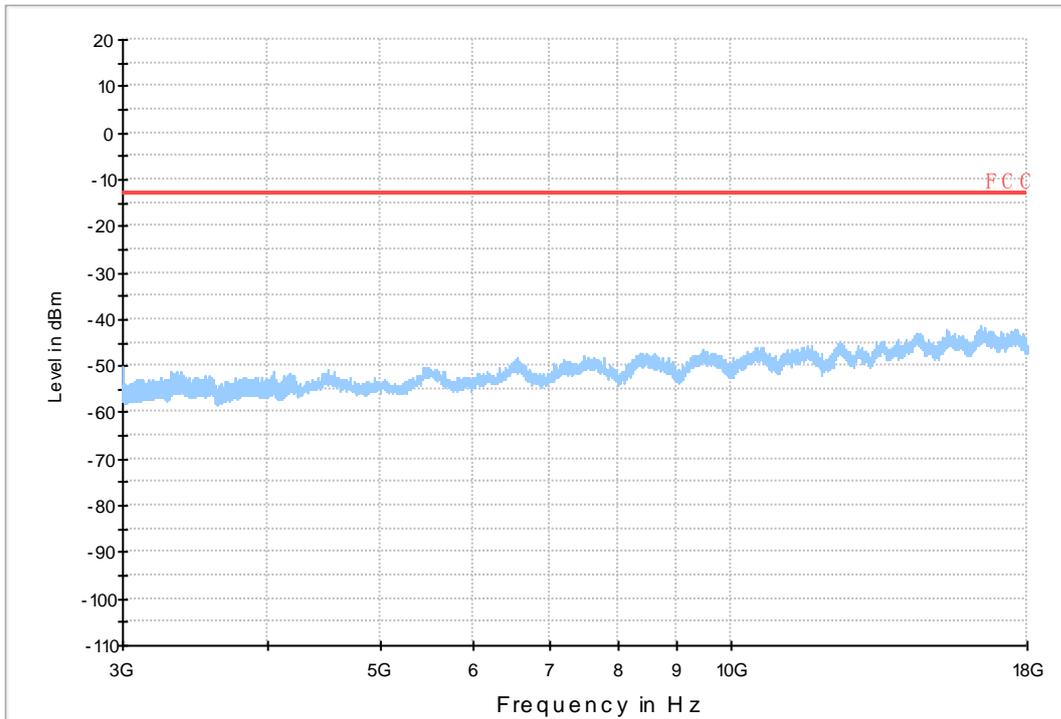
7.3.1.1 Test Mode = UMTS/TM1



Copy of FCC PART22 W CDMA850_L



Copy of FCC PART22 W CDMA850_H



8Appendix_H: Frequency Stability

8.1 For UMTS

8.1.1Frequency 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	-1.79	-0.00097	PASS
				VN	-3.78	-0.00204	PASS
				VH	-3.92	-0.00212	PASS
		MCH	TN	VL	2.30	0.00122	PASS
				VN	-1.36	-0.00072	PASS
				VH	-0.95	-0.00051	PASS
		HCH	TN	VL	-2.00	-0.00105	PASS
				VN	0.23	0.00012	PASS
				VH	2.35	0.00123	PASS
WCDMA1700	UMTS/TM1	LCH	TN	VL	-2.85	-0.00166	PASS
				VN	-1.95	-0.00114	PASS
				VH	-3.66	-0.00214	PASS
		MCH	TN	VL	-0.56	-0.00032	PASS
				VN	-0.66	-0.00038	PASS
				VH	-8.01	-0.00462	PASS
		HCH	TN	VL	-1.33	-0.00076	PASS
				VN	-2.87	-0.00164	PASS
				VH	-0.89	-0.00051	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
WCDMA1900	UMTS/TM1	LCH	VN	-30	-3.57	-0.00193	PASS
				-20	-5.46	-0.00295	PASS
				-10	-2.67	-0.00144	PASS
				0	-1.85	-0.001	PASS
				10	2.23	0.0012	PASS
				20	-3.77	-0.00204	PASS
				30	2.76	0.00149	PASS



Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				40	-2.81	-0.00152	PASS
				50	-1.88	-0.00101	PASS
		MCH	VN	-30	-4.56	-0.00243	PASS
				-20	-1.59	-0.00085	PASS
				-10	-0.38	-0.0002	PASS
				0	0.38	0.0002	PASS
				10	3.05	0.00162	PASS
				20	0.67	0.00036	PASS
				30	2.49	0.00132	PASS
				40	-1.28	-0.00068	PASS
				50	-1.56	-0.00083	PASS
				HCH	VN	-30	0.08
		-20	1.48			0.00078	PASS
		-10	-2.67			-0.0014	PASS
		0	2.14			0.00112	PASS
		10	2.00			0.00105	PASS
		20	2.35			0.00123	PASS
		30	0.08			0.00004	PASS
		40	1.13			0.00059	PASS
		50	4.20	0.0022	PASS		
WCDMA1700	UMTS/TM1	LCH	VN	-30	-0.29	-0.00017	PASS
				-20	-1.43	-0.00084	PASS
				-10	-1.27	-0.00074	PASS
				0	-2.40	-0.0014	PASS
				10	-2.04	-0.00119	PASS
				20	-3.16	-0.00185	PASS
				30	-5.39	-0.00315	PASS
				40	-0.89	-0.00052	PASS
				50	0.76	0.00044	PASS
		MCH	VN	-30	-0.14	-0.00008	PASS
				-20	-4.99	-0.00288	PASS
				-10	1.83	0.00106	PASS
				0	-0.02	-0.00001	PASS
				10	-1.77	-0.00102	PASS
				20	-2.04	-0.00118	PASS
				30	-3.69	-0.00213	PASS
				40	-5.20	-0.003	PASS
		50	-5.72	-0.0033	PASS		
		HCH	VN	-30	-0.40	-0.00023	PASS
				-20	-6.85	-0.00391	PASS

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				-10	-2.33	-0.00133	PASS
				0	0.06	0.00003	PASS
				10	0.15	0.00009	PASS
				20	0.29	0.00017	PASS
				30	-4.27	-0.00244	PASS
				40	-1.16	-0.00066	PASS
				50	3.63	0.00207	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
WCDMA850	UMTS/TM1	LCH	TN	VL	-4.91	-0.00594	PASS
				VN	-5.33	-0.00645	PASS
				VH	-3.30	-0.00399	PASS
		MCH	TN	VL	1.74	0.00208	PASS
				VN	-5.16	-0.00617	PASS
				VH	2.44	0.00292	PASS
		HCH	TN	VL	3.85	0.00455	PASS
				VN	-4.99	-0.00589	PASS
				VH	0.93	0.0011	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
WCDMA850	UMTS/TM1	LCH	VN	-30	0.95	0.00115	PASS
				-20	-2.35	-0.00284	PASS
				-10	-0.98	-0.00119	PASS
				0	-0.99	-0.0012	PASS
				10	2.30	0.00278	PASS
				20	-4.85	-0.00587	PASS
				30	0.95	0.00115	PASS
				40	2.75	0.00333	PASS
				50	-0.31	-0.00038	PASS
		MCH	VN	-30	1.34	0.0016	PASS
				-20	-0.15	-0.00018	PASS
				-10	0.21	0.00025	PASS
				0	4.20	0.00502	PASS
				10	3.27	0.00391	PASS

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				20	0.34	0.00041	PASS
				30	-1.25	-0.00149	PASS
				40	3.88	0.00464	PASS
				50	-1.45	-0.00173	PASS
		HCH	VN	-30	3.27	0.00386	PASS
				-20	-3.46	-0.00409	PASS
				-10	-3.60	-0.00425	PASS
				0	-3.74	-0.00442	PASS
				10	-1.54	-0.00182	PASS
				20	-3.36	-0.00397	PASS
				30	-0.12	-0.00014	PASS
				40	-3.14	-0.00371	PASS
				50	1.22	0.00144	PASS

END