



Appendix for test report

1Appendix_A: Effective (Isotropic) Radiated Power Output Data

Part I - Test Results

Test Band	Test Mode	Test Channel	Conducted Power [dBm]	ERP [dBm]	Limit [dBm]	Verdict
WCDMA850	UMTS/TM1	LCH	23.98	16.65	38.5	PASS
		MCH	23.91	16.58	38.5	PASS
		HCH	23.78	16.45	38.5	PASS
Test Band	Test Mode	Test Channel	Conducted Power [dBm]	EIRP [dBm]	Limit [dBm]	Verdict
WCDMA1700	UMTS/TM1	LCH	22.95	22.87	30	PASS
		MCH	23.00	22.92	30	PASS
		HCH	22.96	22.88	30	PASS
WCDMA1900	UMTS/TM1	LCH	22.82	21.45	33	PASS
		MCH	22.76	21.39	33	PASS
		HCH	22.87	21.50	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:

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

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

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

$$\text{SET Sweep time} = \text{auto} - \text{couple.}$$

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	2.140	13	PASS
		MCH	3.190	13	PASS
		HCH	3.200	13	PASS
WCDMA1700	UMTS/TM1	LCH	2.810	13	PASS
		MCH	2.680	13	PASS
		HCH	2.880	13	PASS
WCDMA1900	UMTS/TM1	LCH	2.820	13	PASS
		MCH	3.170	13	PASS
		HCH	2.690	13	PASS

3Appendix_C: Modulation Characteristics

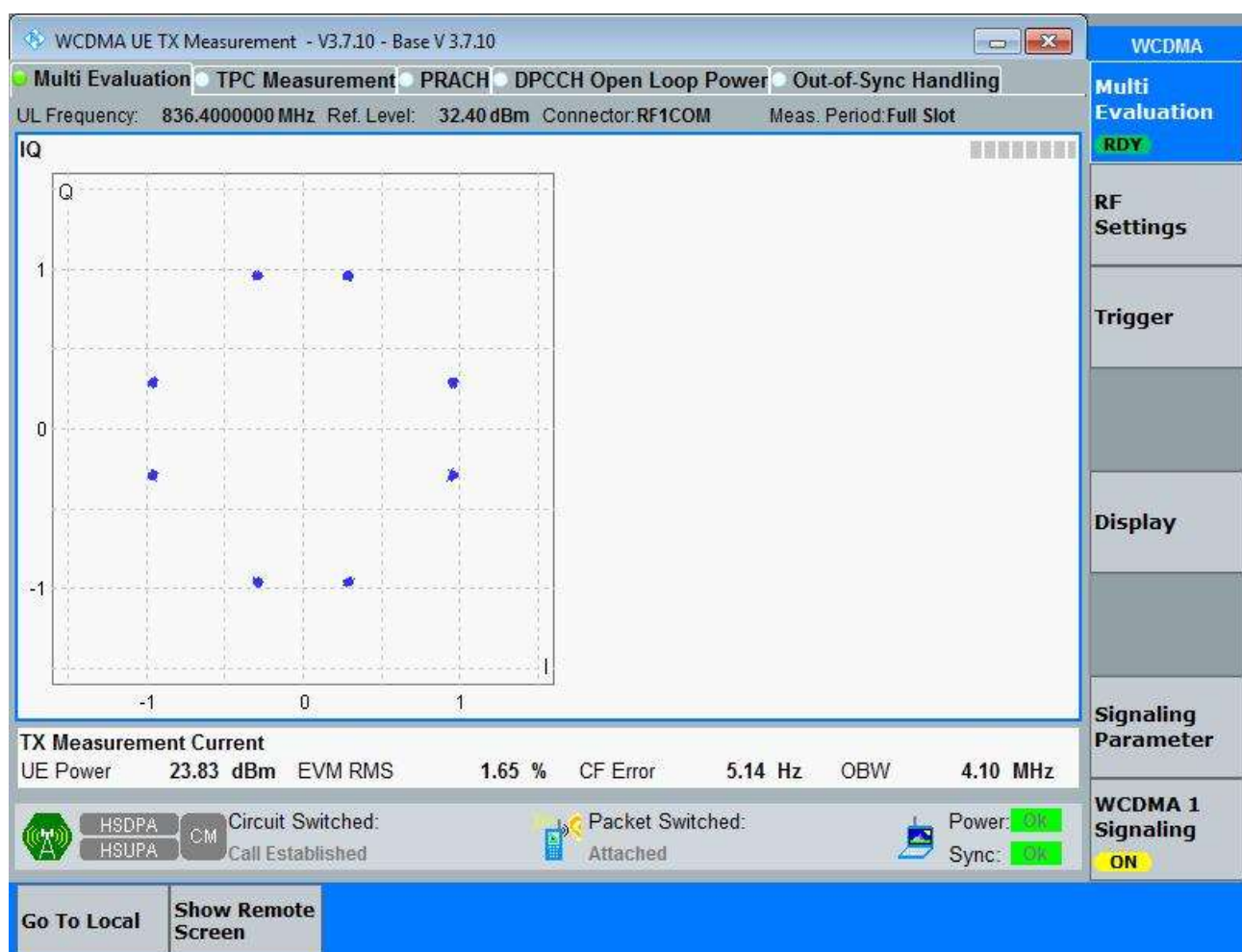
Part I - Test Plots

3.1 For UMTS

3.1.1 Test Band = WCDMA850

3.1.1.1 Test Mode = UMTS/TM1

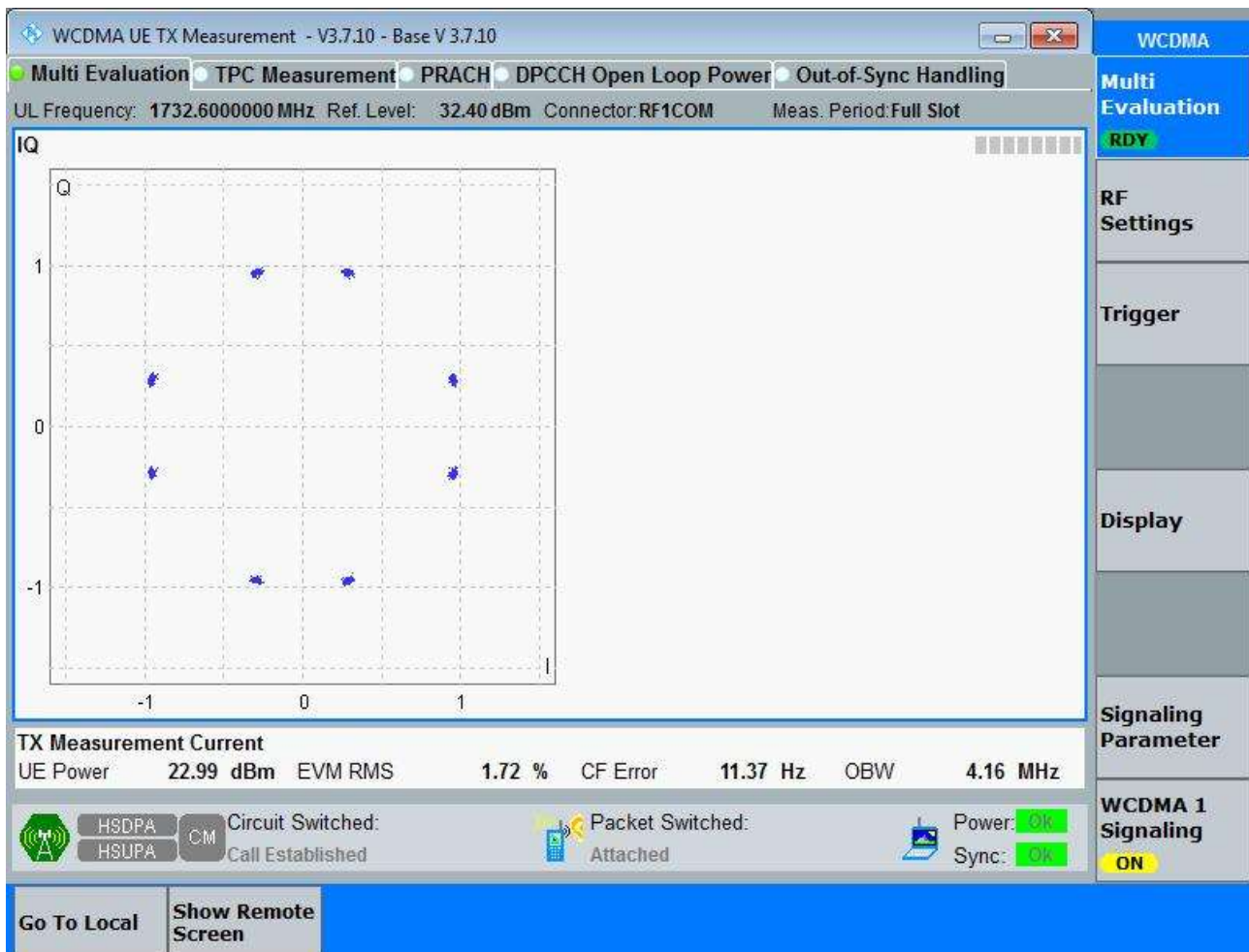
3.1.1.1.1 Test Channel = MCH



3.1.2 Test Band = WCDMA1700

3.1.2.1 Test Mode = UMTS/TM1

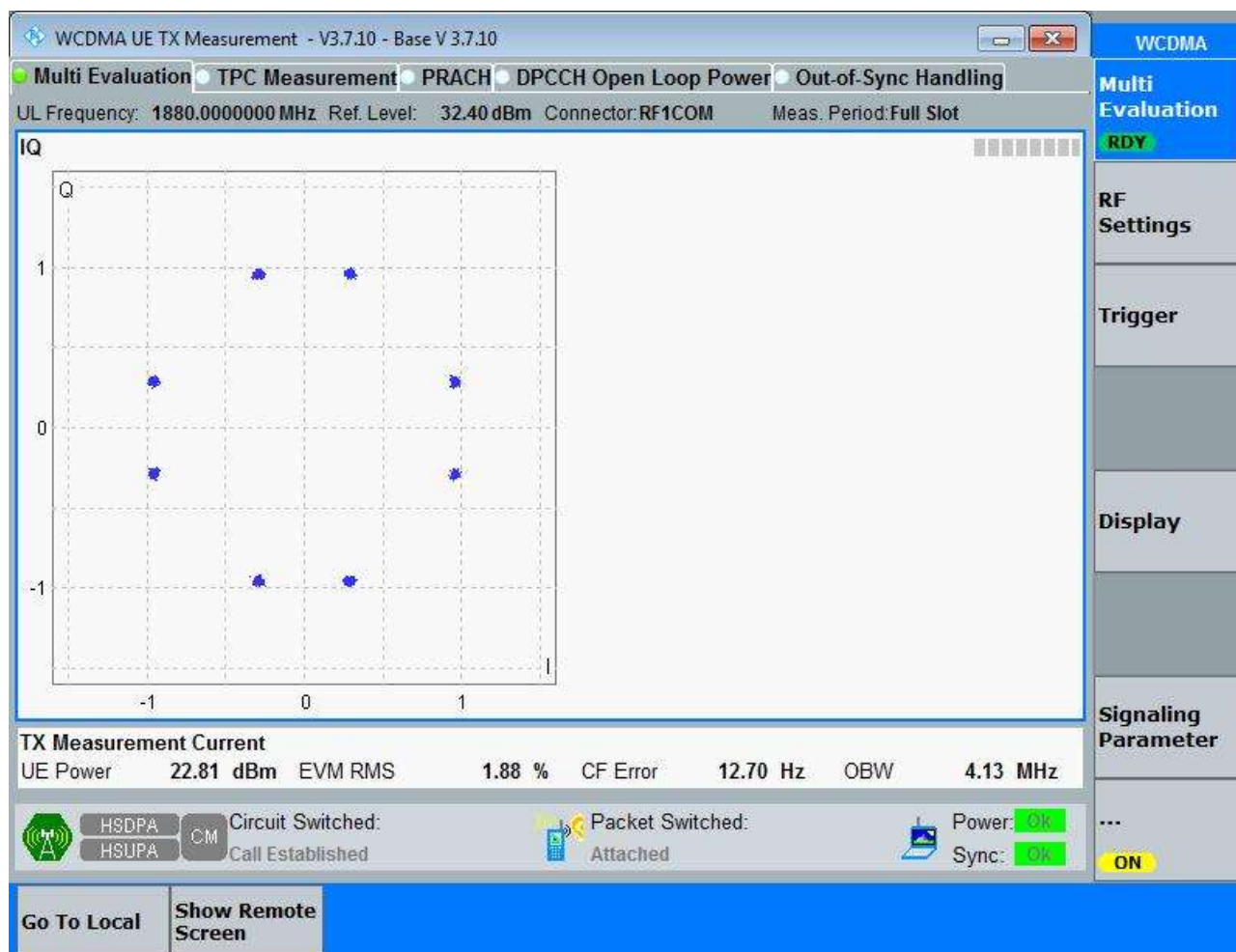
3.1.2.1.1 Test Channel = MCH



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	4.71	Pass
		MCH	4.17	4.71	Pass
		HCH	4.17	4.72	Pass
WCDMA1700	UMTS/TM1	LCH	4.17	4.73	Pass
		MCH	4.18	4.72	Pass
		HCH	4.17	4.77	Pass
WCDMA1900	UMTS/TM1	LCH	4.18	4.73	Pass
		MCH	4.17	4.71	Pass
		HCH	4.16	4.72	Pass

Part II - Test Plots

4.1 For UMTS

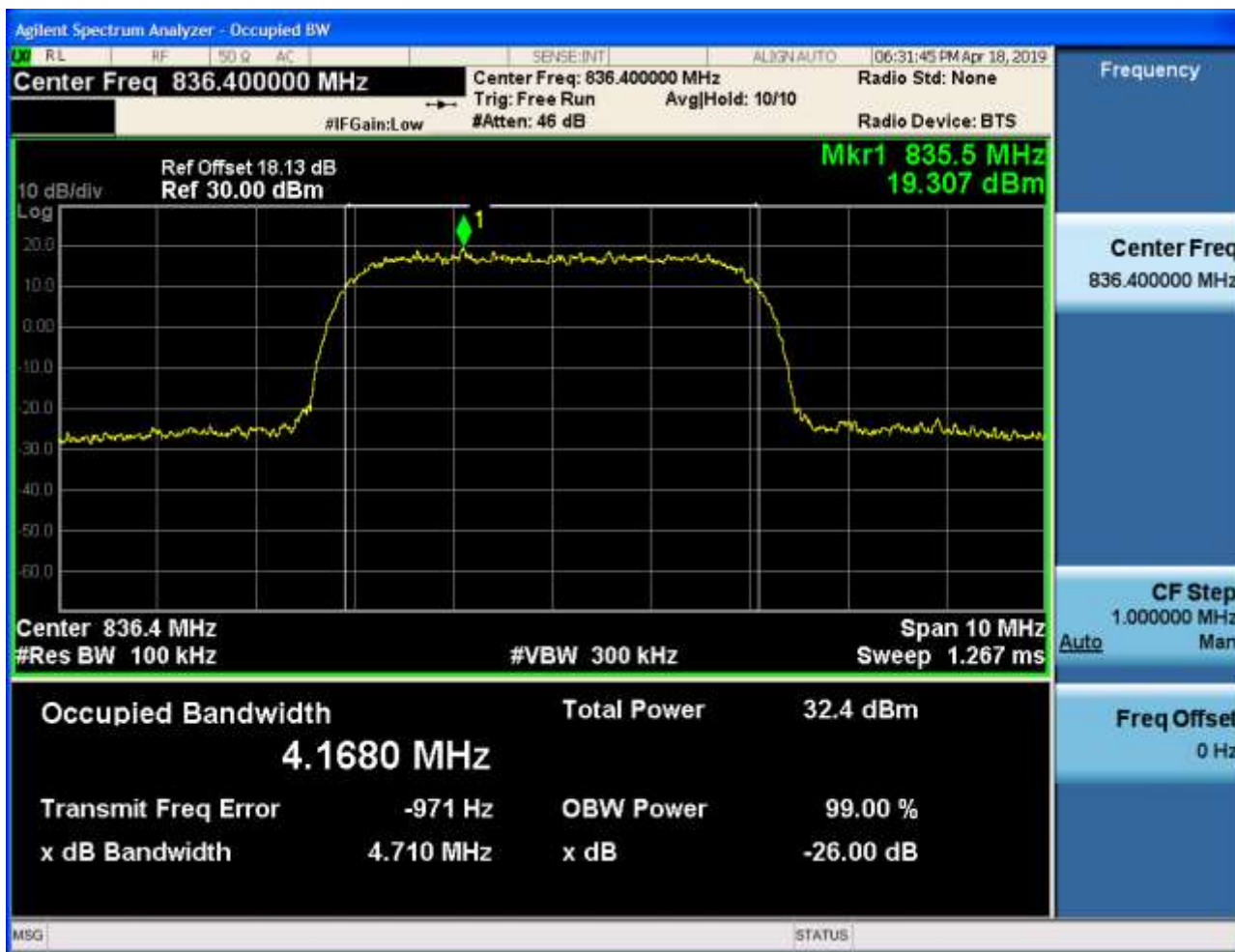
4.1.1 Test Band = WCDMA850

4.1.1.1 Test Mode = UMTS/TM1

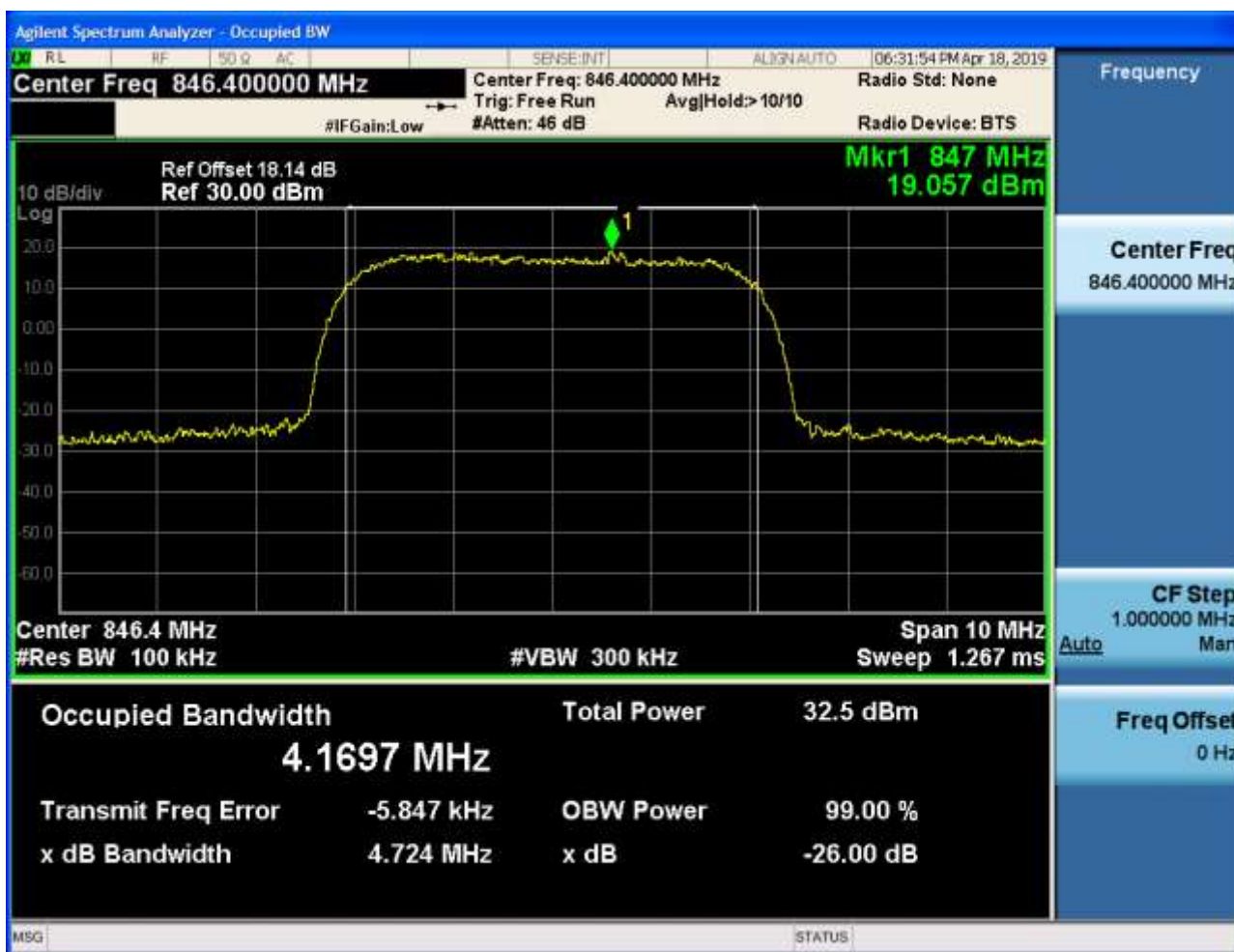
4.1.1.1.1 Test Channel = LCH



4.1.1.1.2 Test Channel = MCH



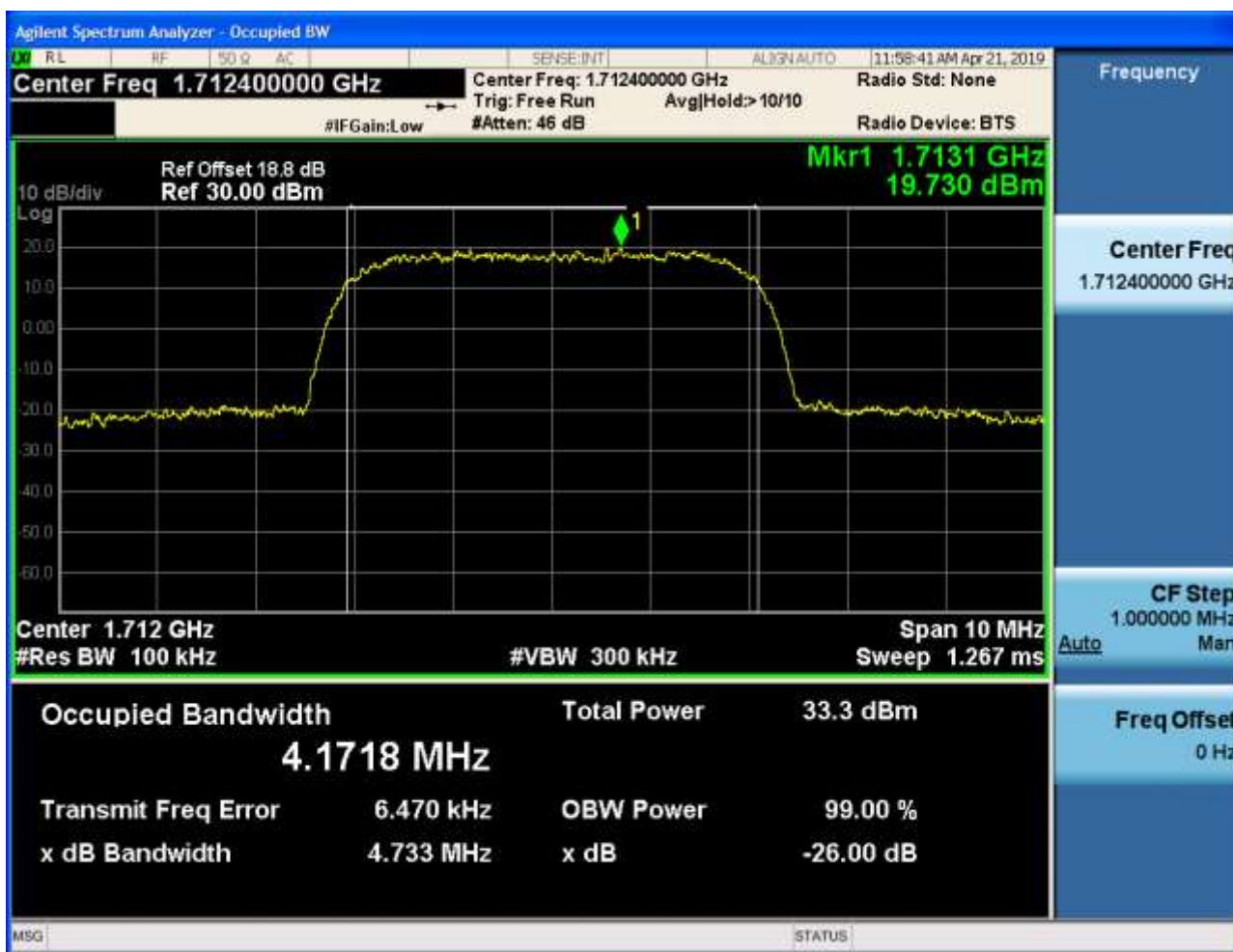
4.1.1.1.3 Test Channel = HCH



4.1.2 Test Band = WCDMA1700

4.1.2.1 Test Mode = UMTS/TM1

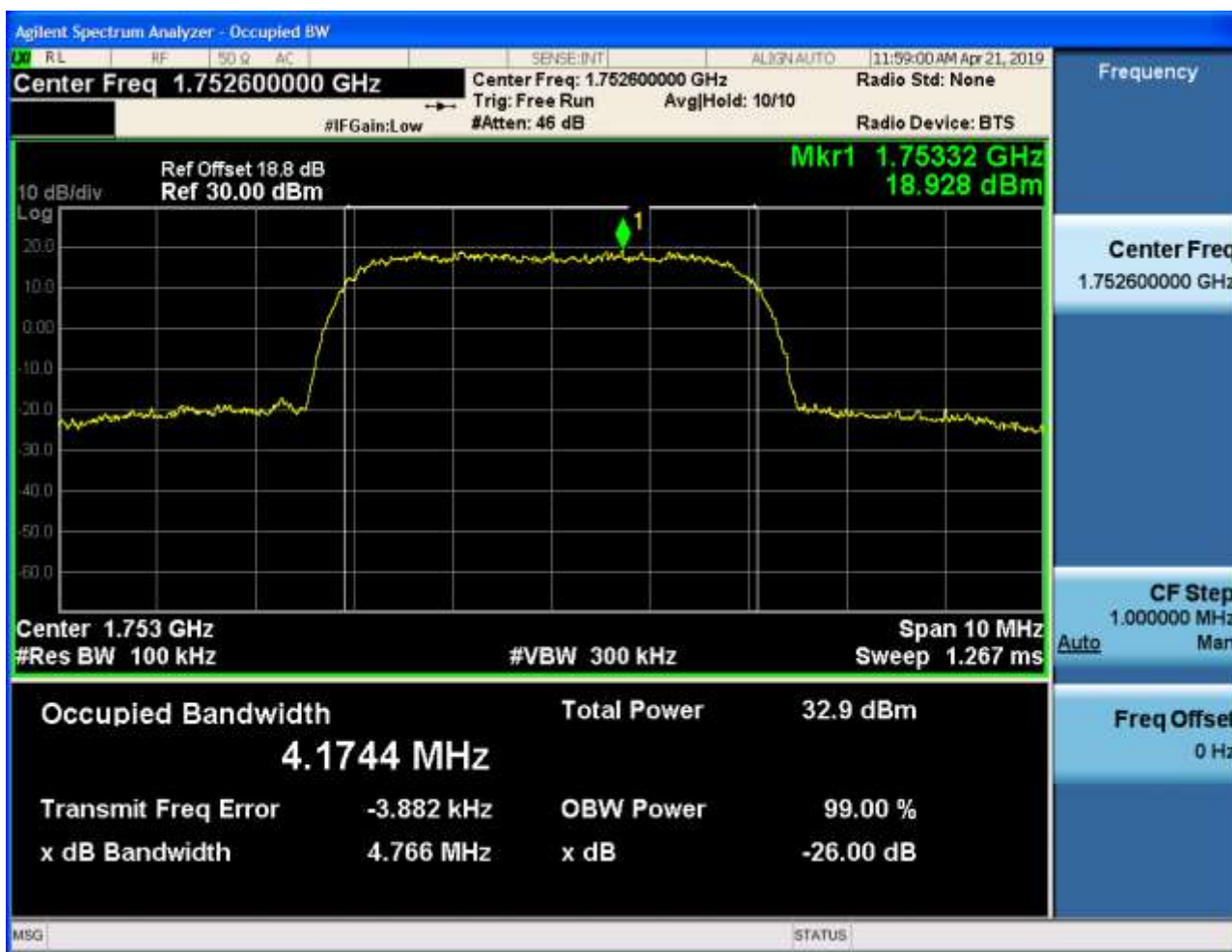
4.1.2.1.1 Test Channel = LCH



4.1.2.1.2 Test Channel = MCH



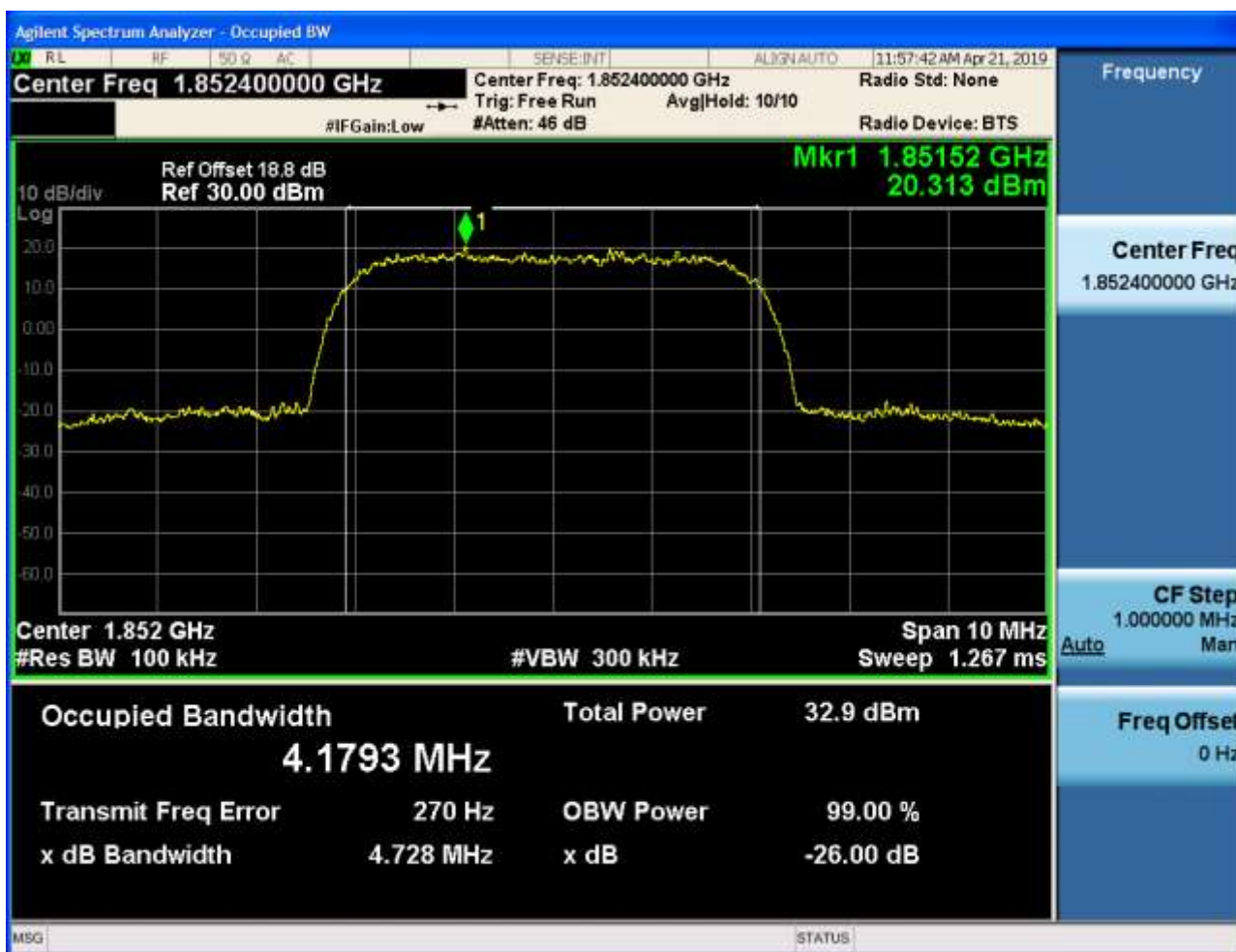
4.1.2.1.3 Test Channel = HCH



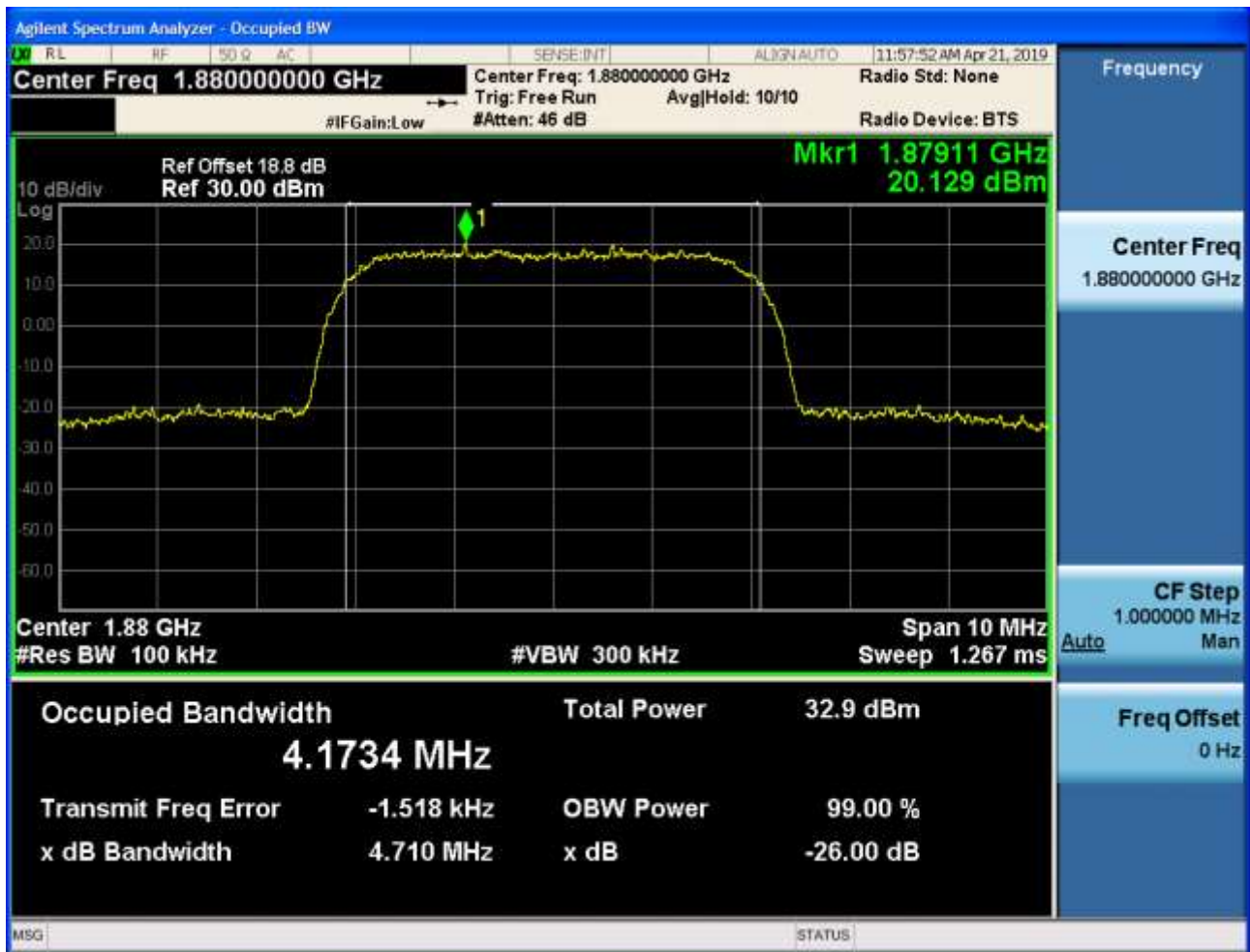
4.1.3 Test Band = WCDMA1900

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 Test Band = WCDMA1700

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 = 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

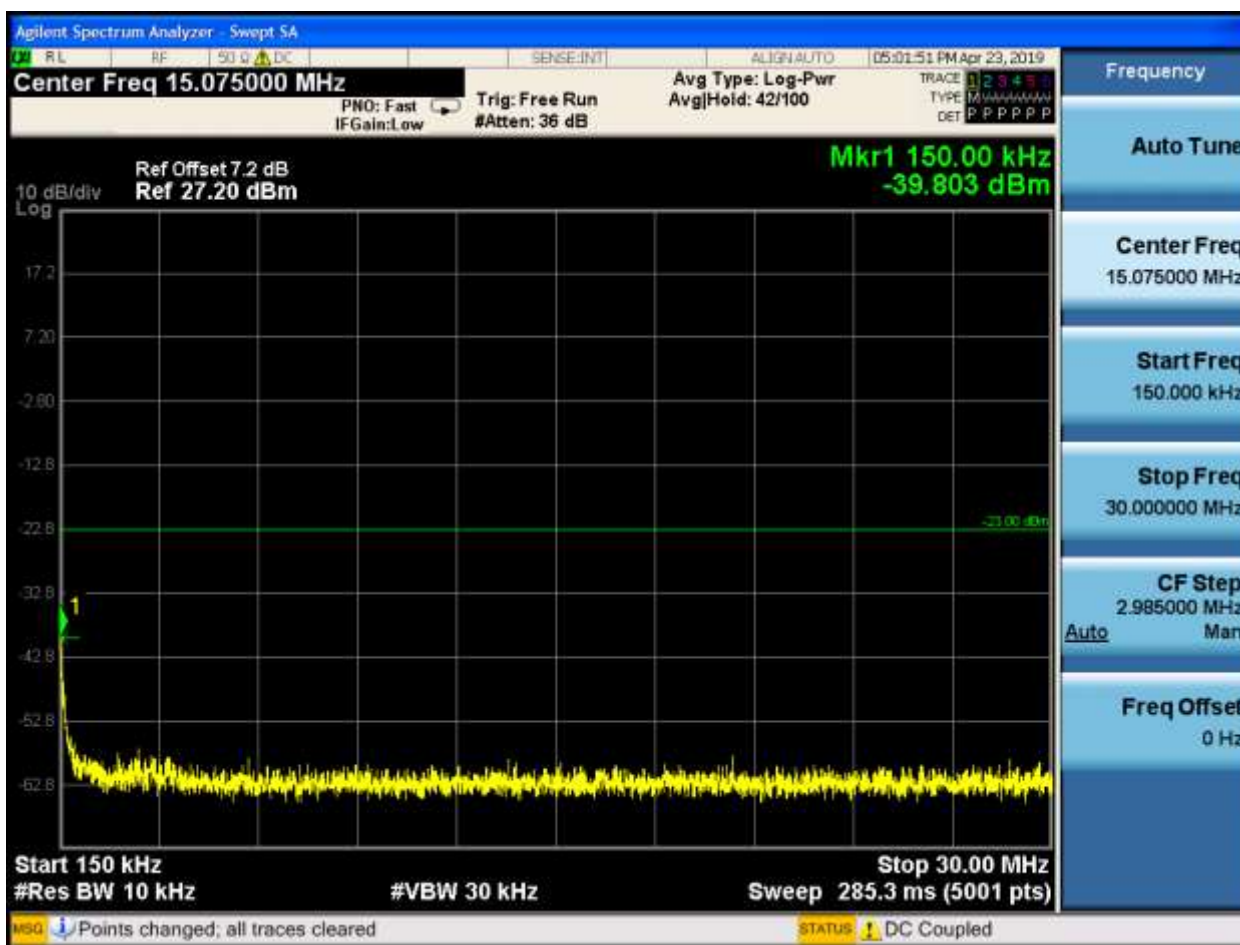
6.1 For UMTS

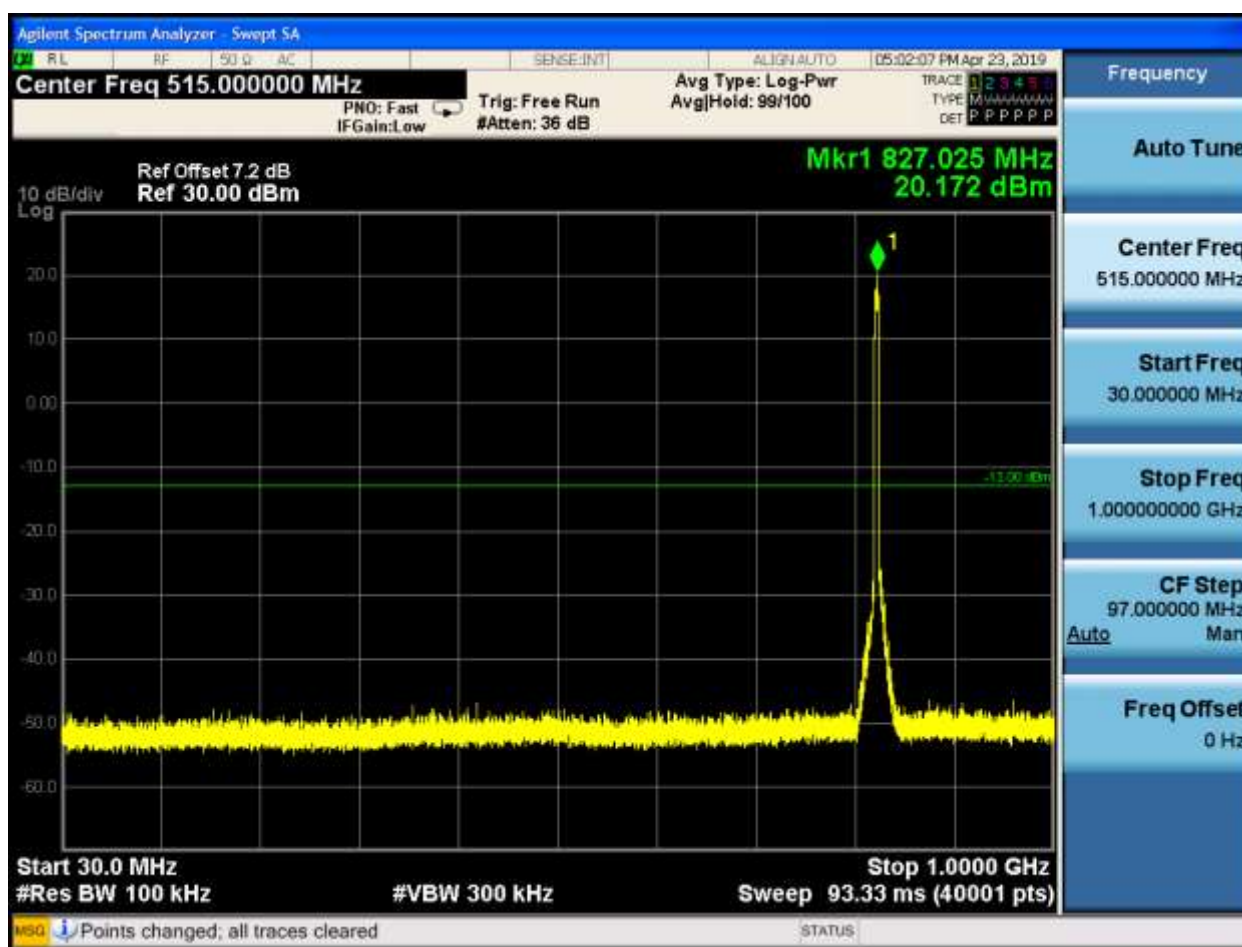
6.1.1 Test Band = WCDMA850

6.1.1.1 Test Mode = UMTS/TM1

6.1.1.1.1 Test Channel = LCH



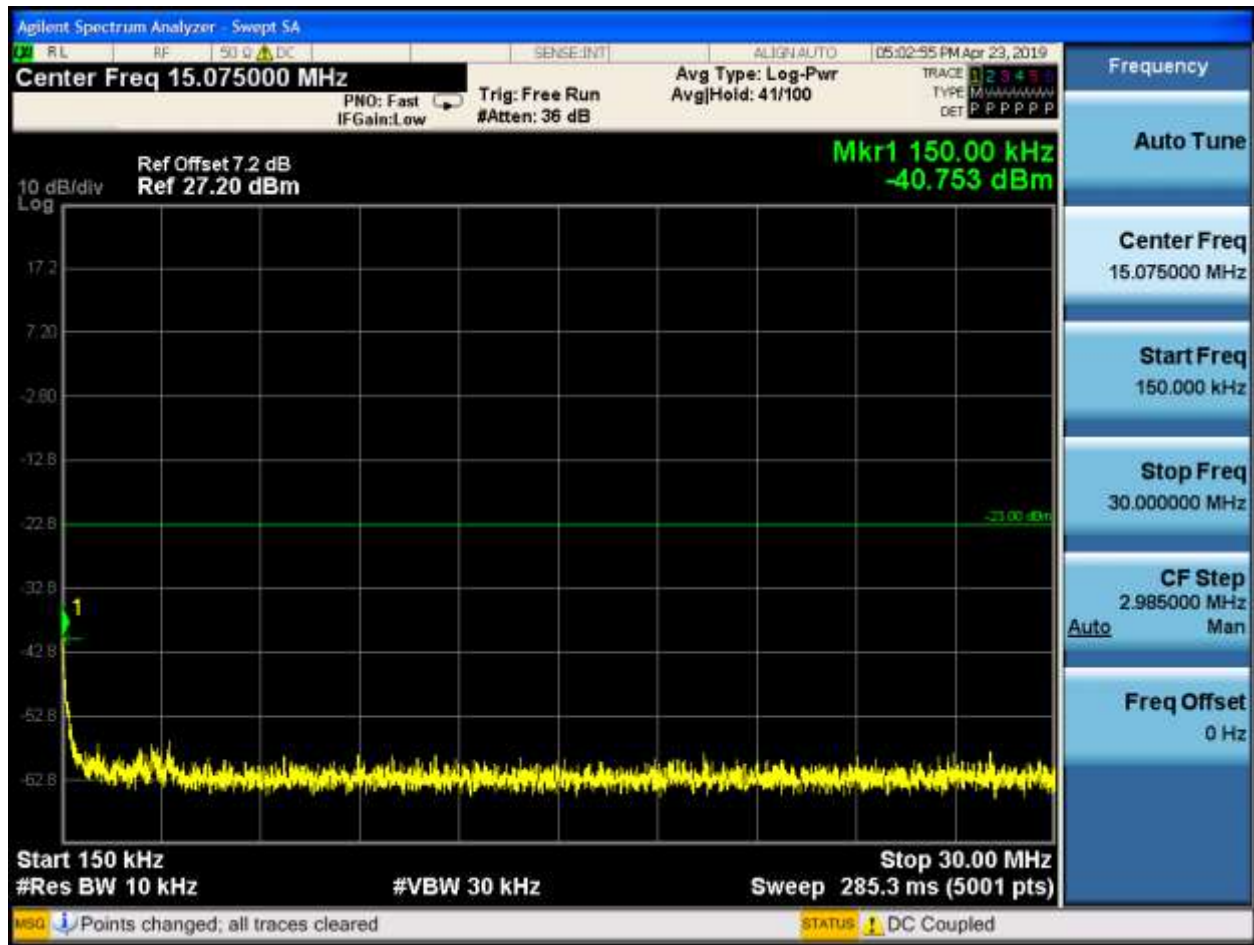


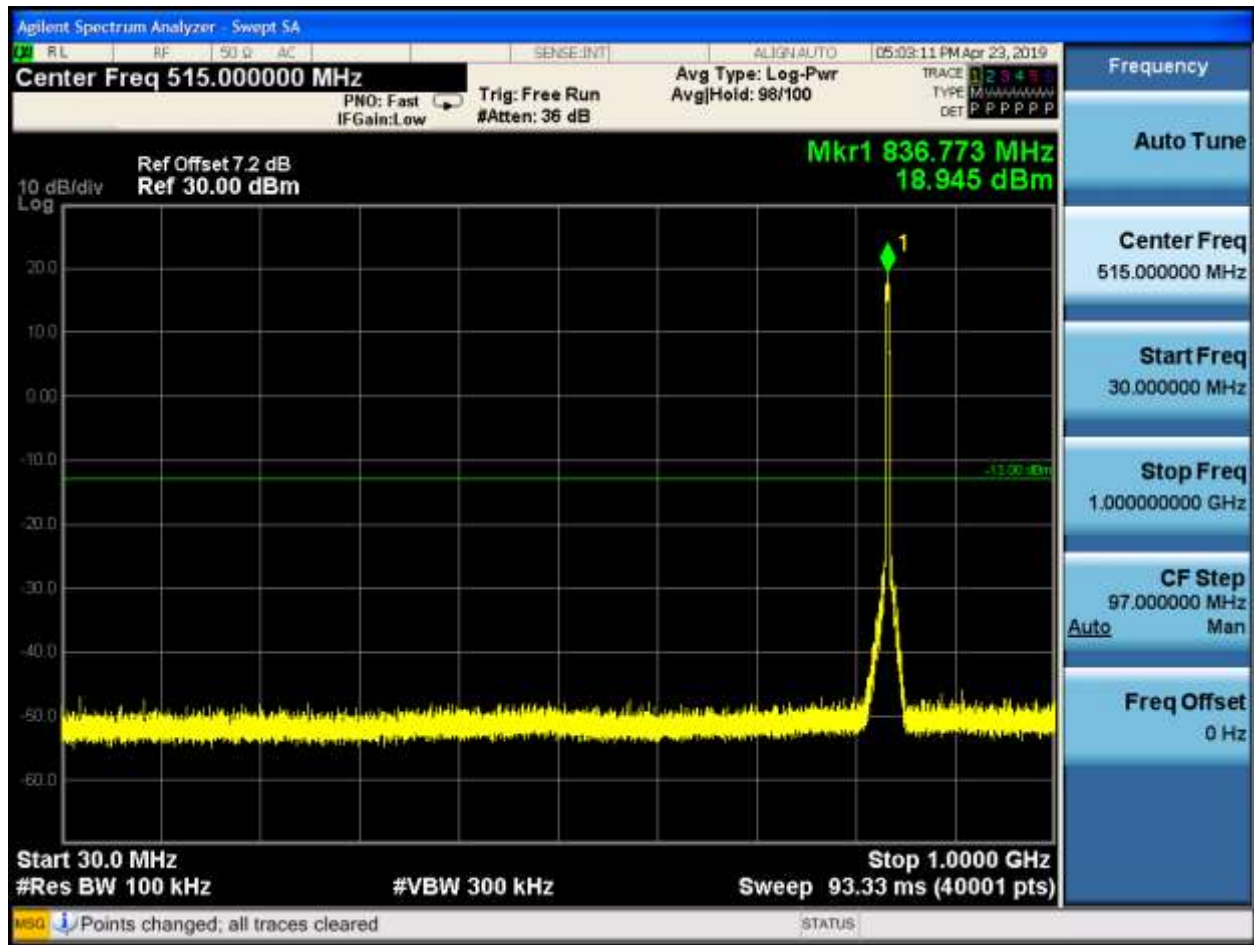




6.1.1.1.2 Test Channel = MCH

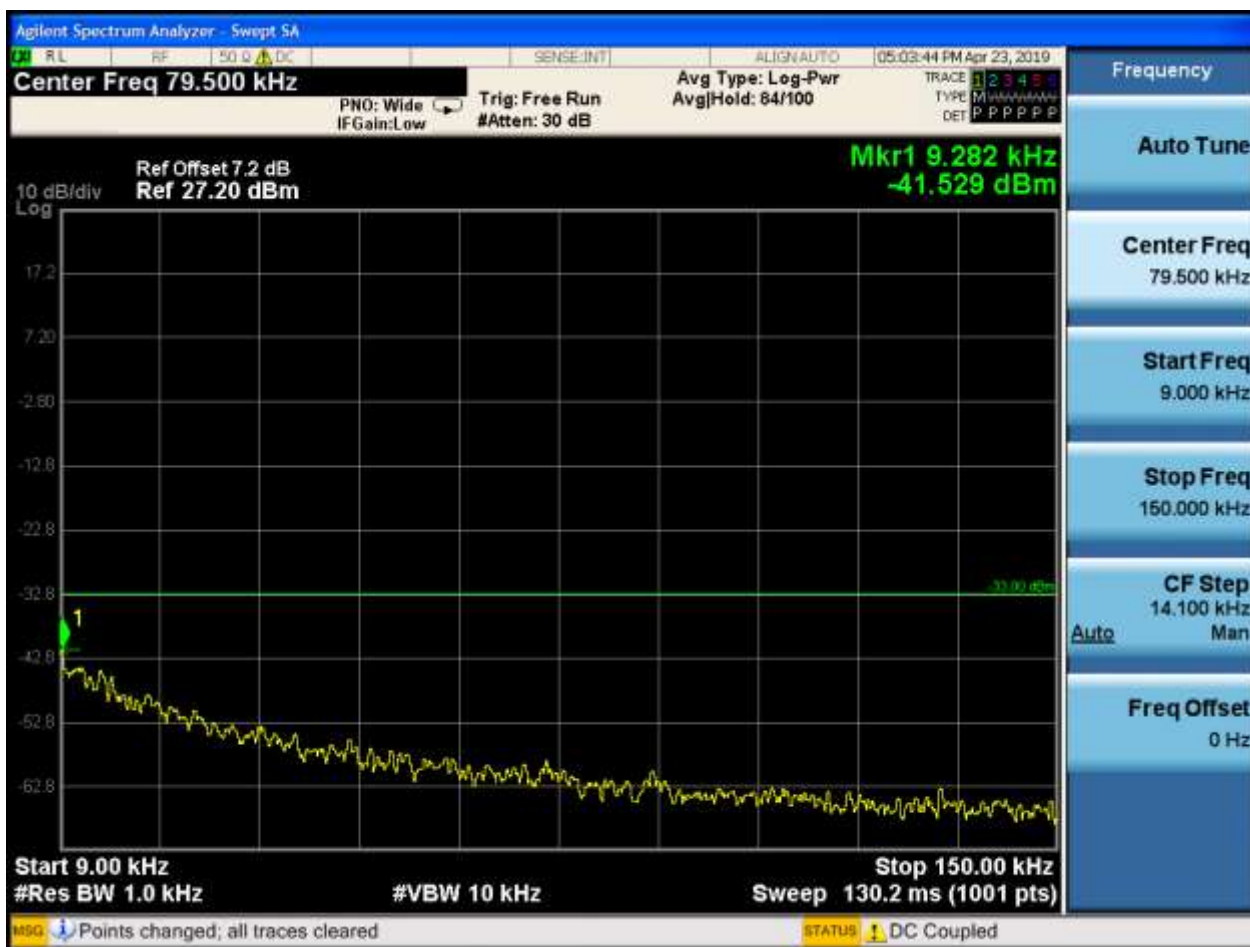


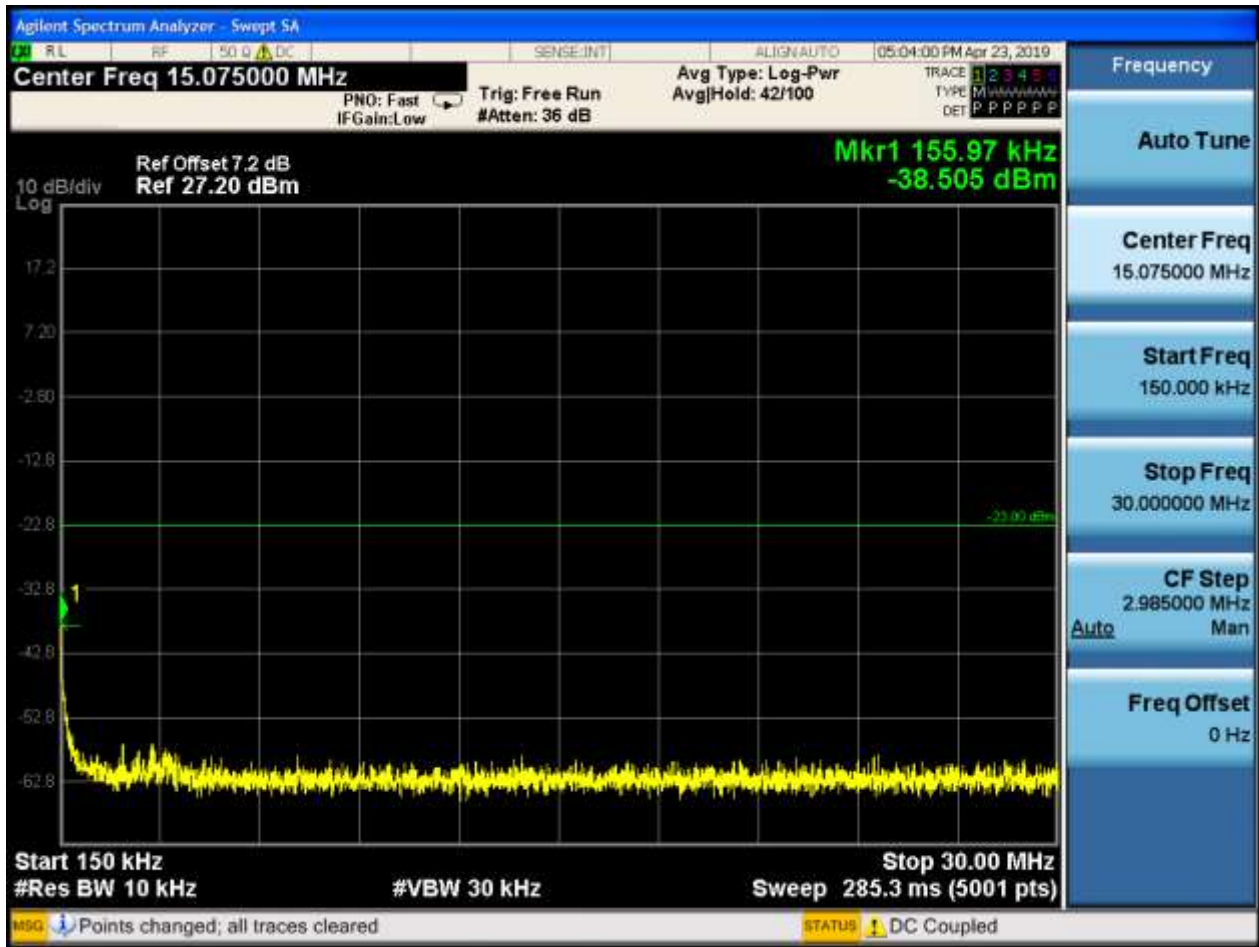


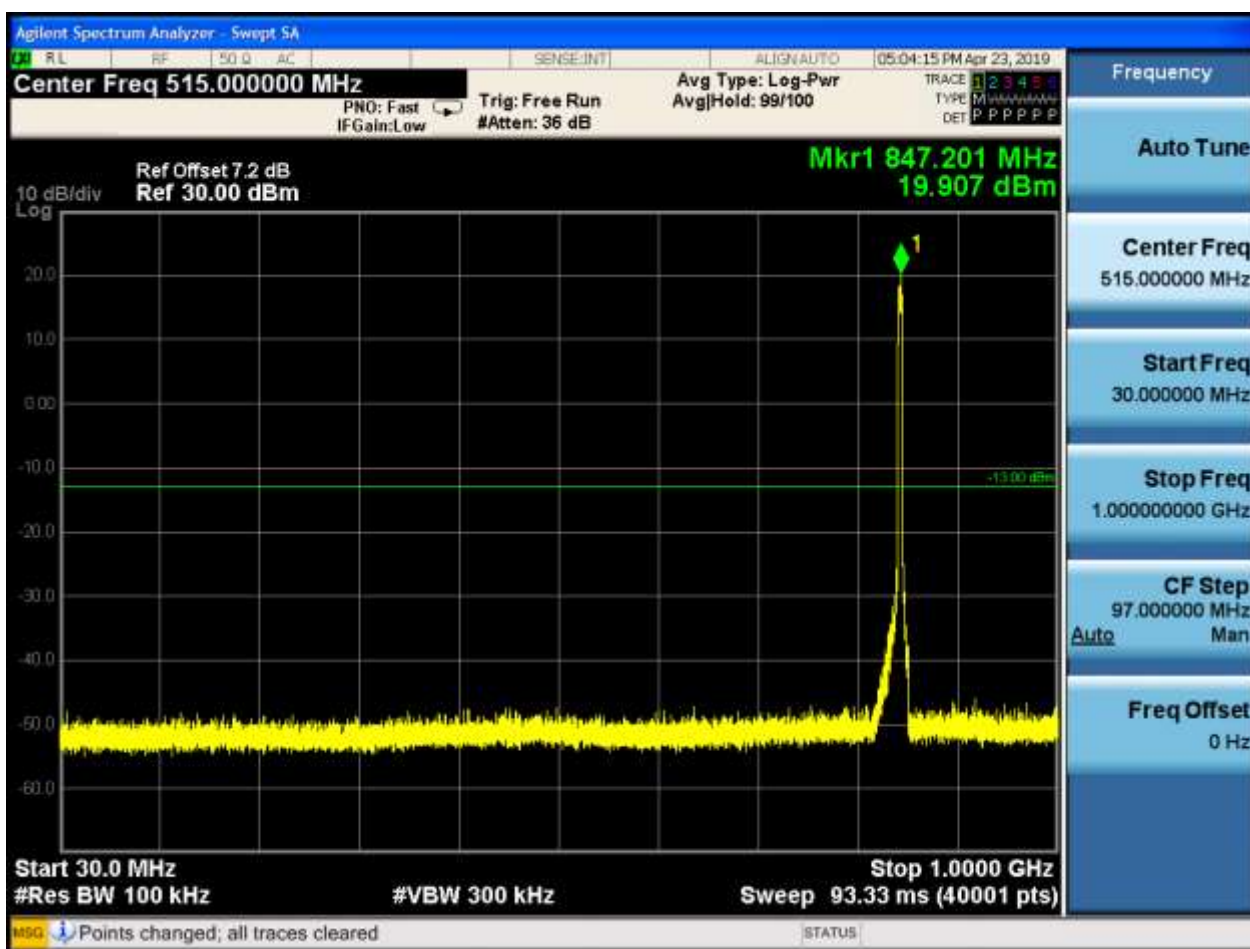




6.1.1.1.3 Test Channel = HCH





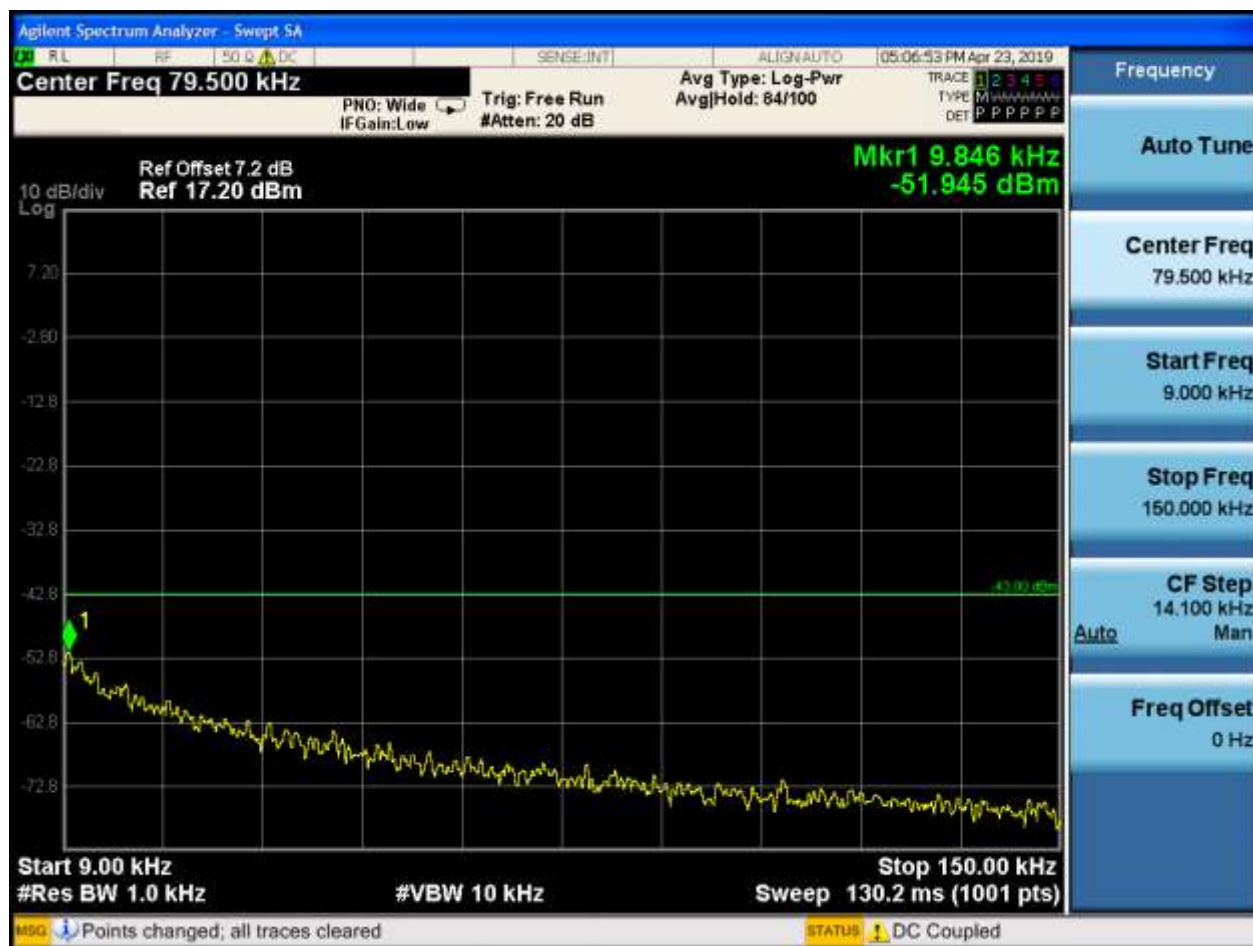


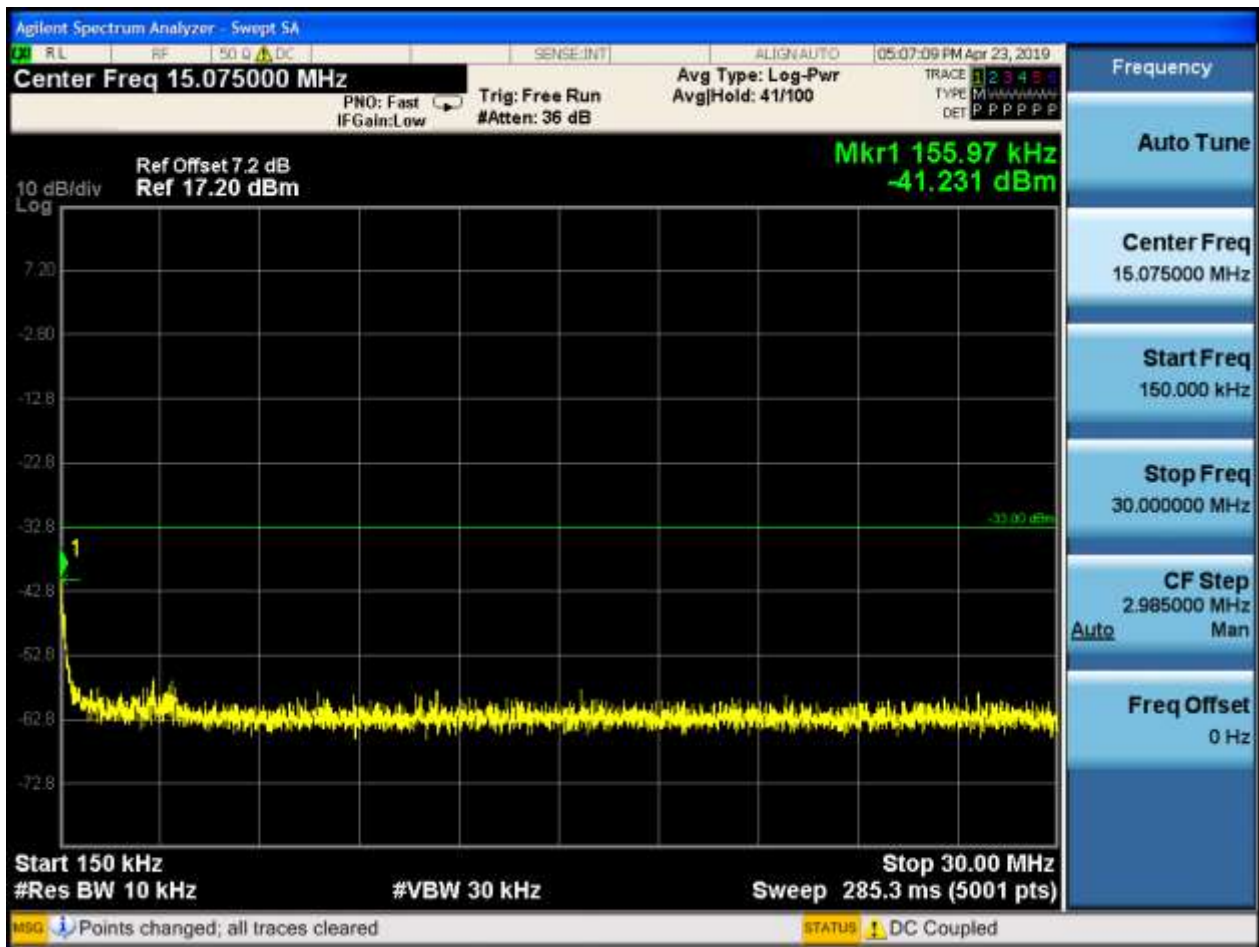


6.1.2 Test Band = WCDMA1700

6.1.2.1 Test Mode = UMTS/TM1

6.1.2.1.1 Test Channel = LCH

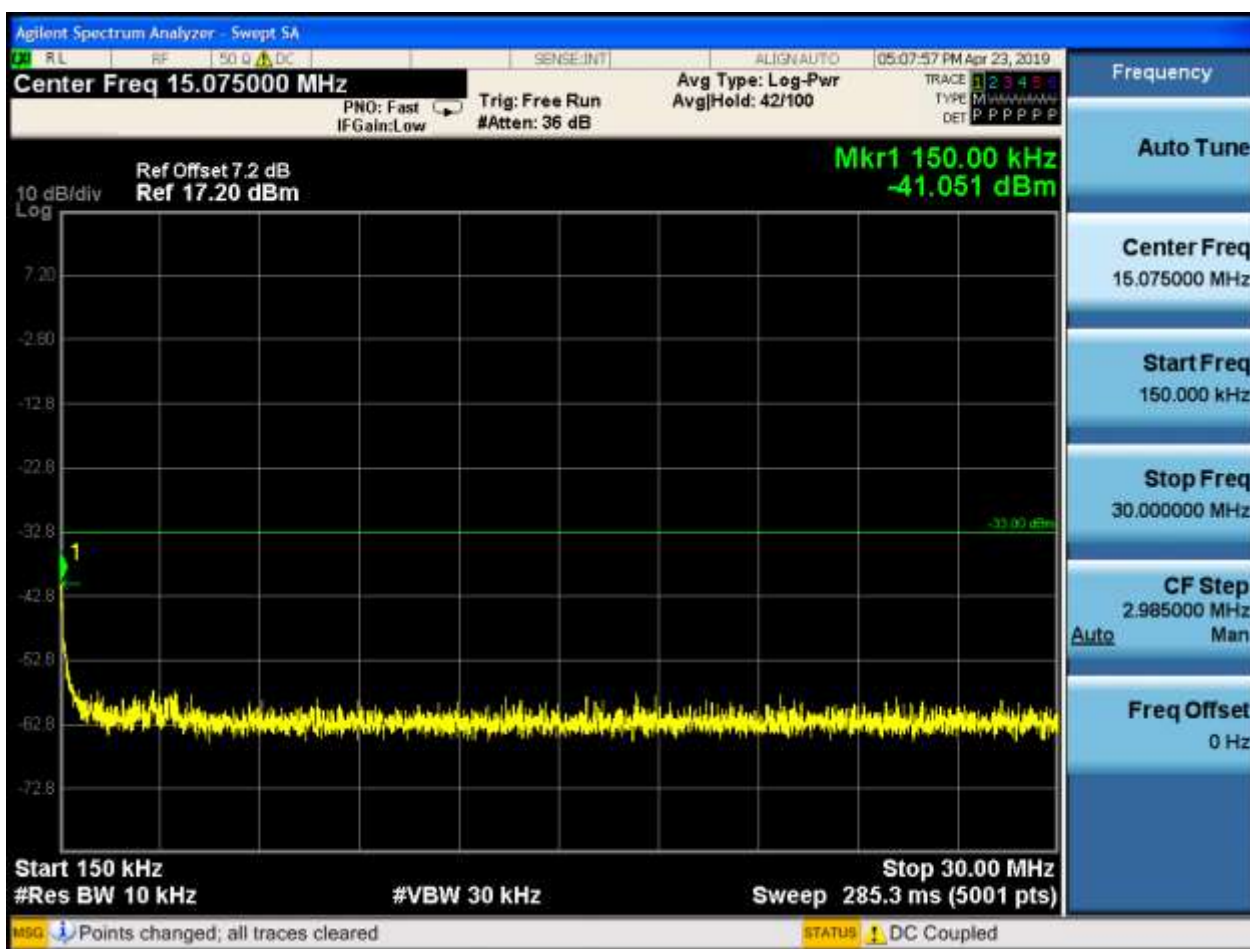






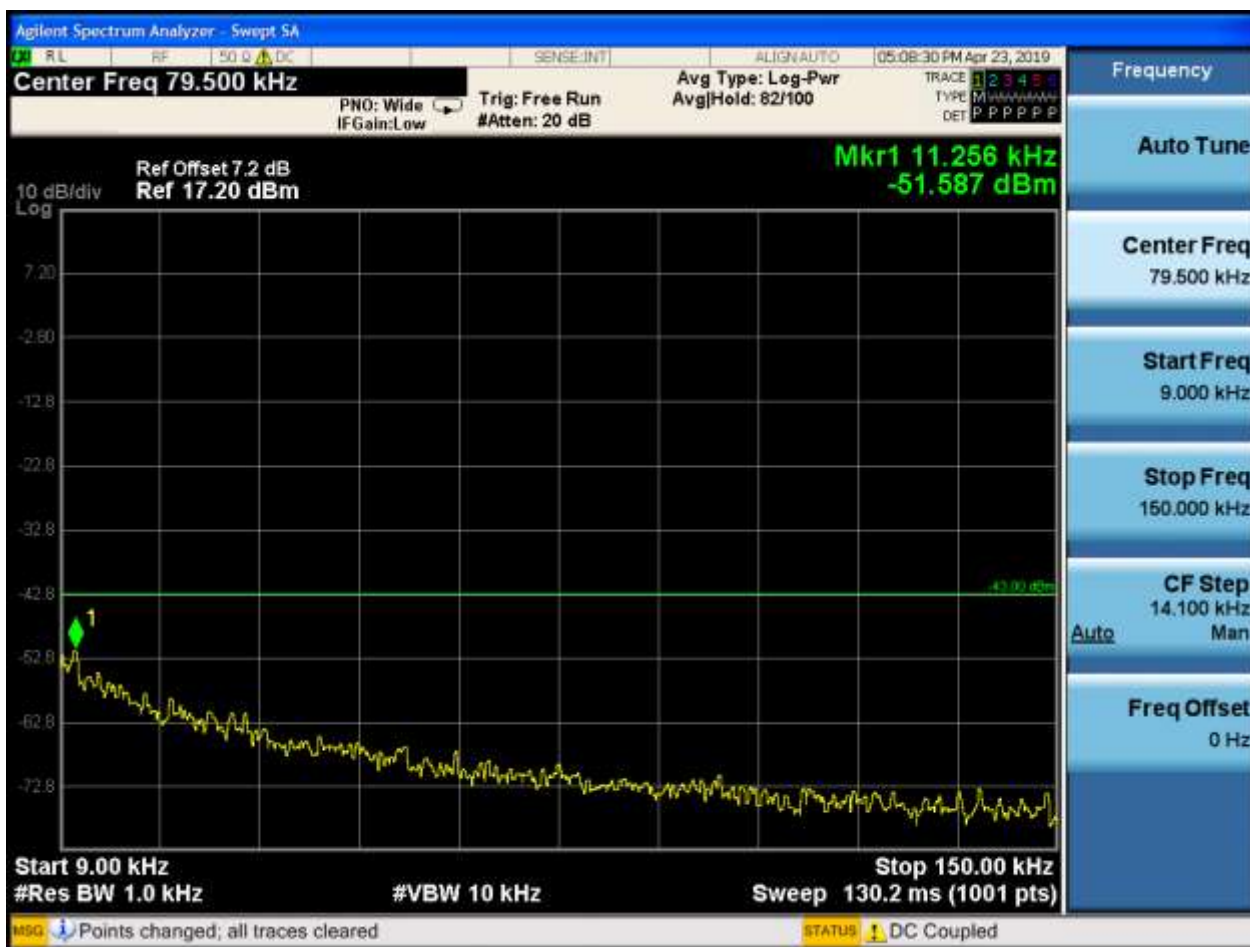
6.1.2.1.2 Test Channel = MCH

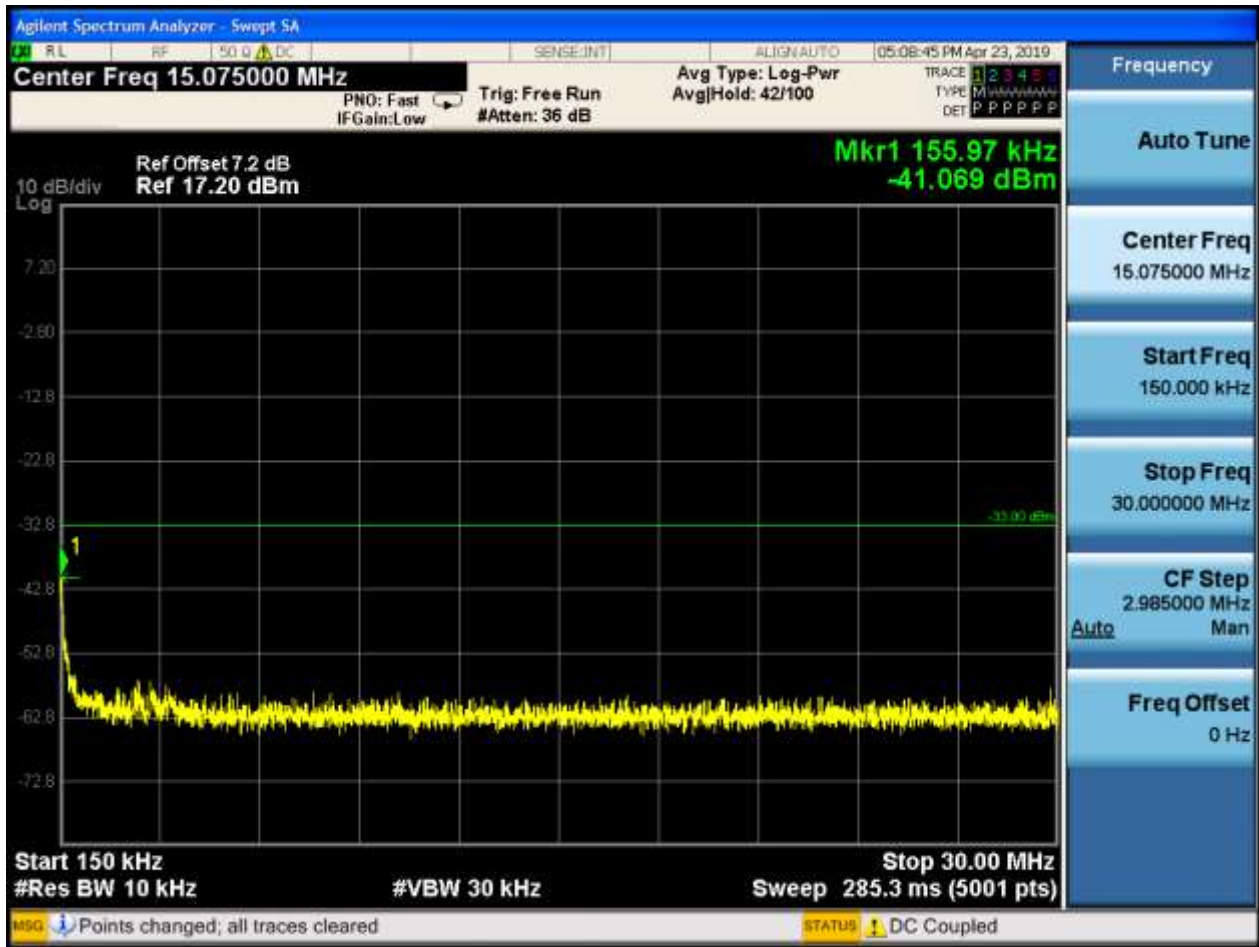






6.1.2.1.3 Test Channel = HCH



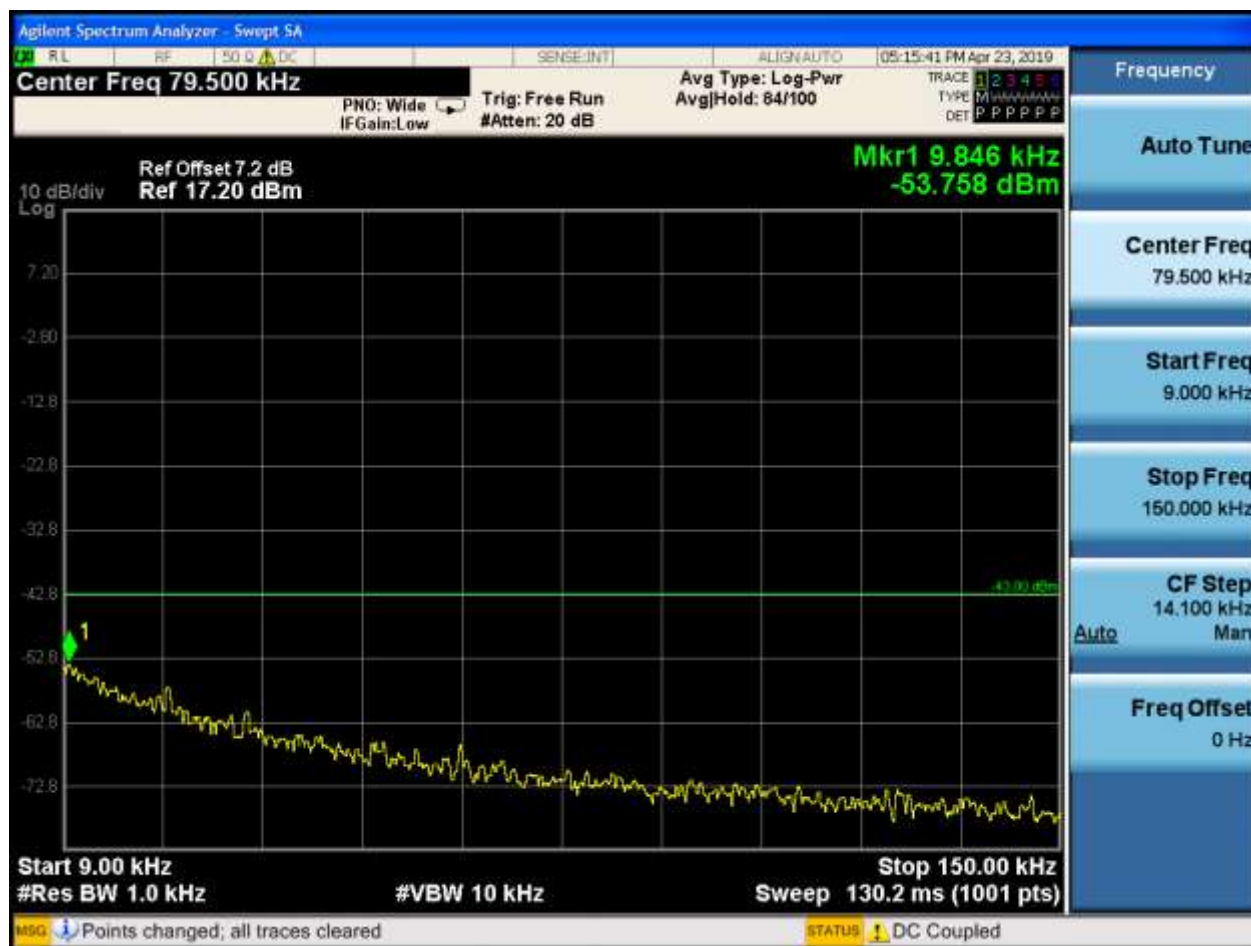


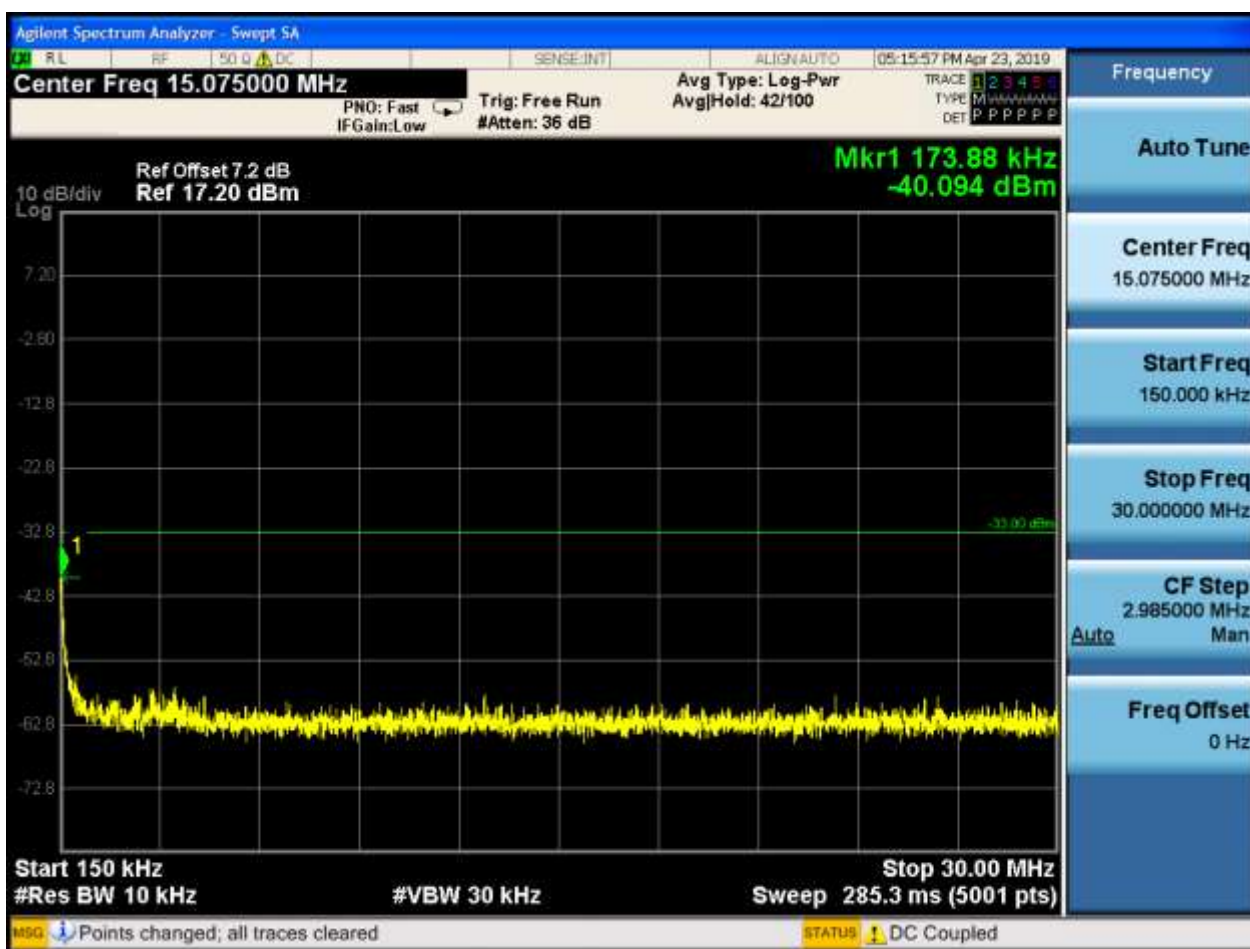


6.1.3 Test Band = WCDMA1900

6.1.3.1 Test Mode = UMTS/TM1

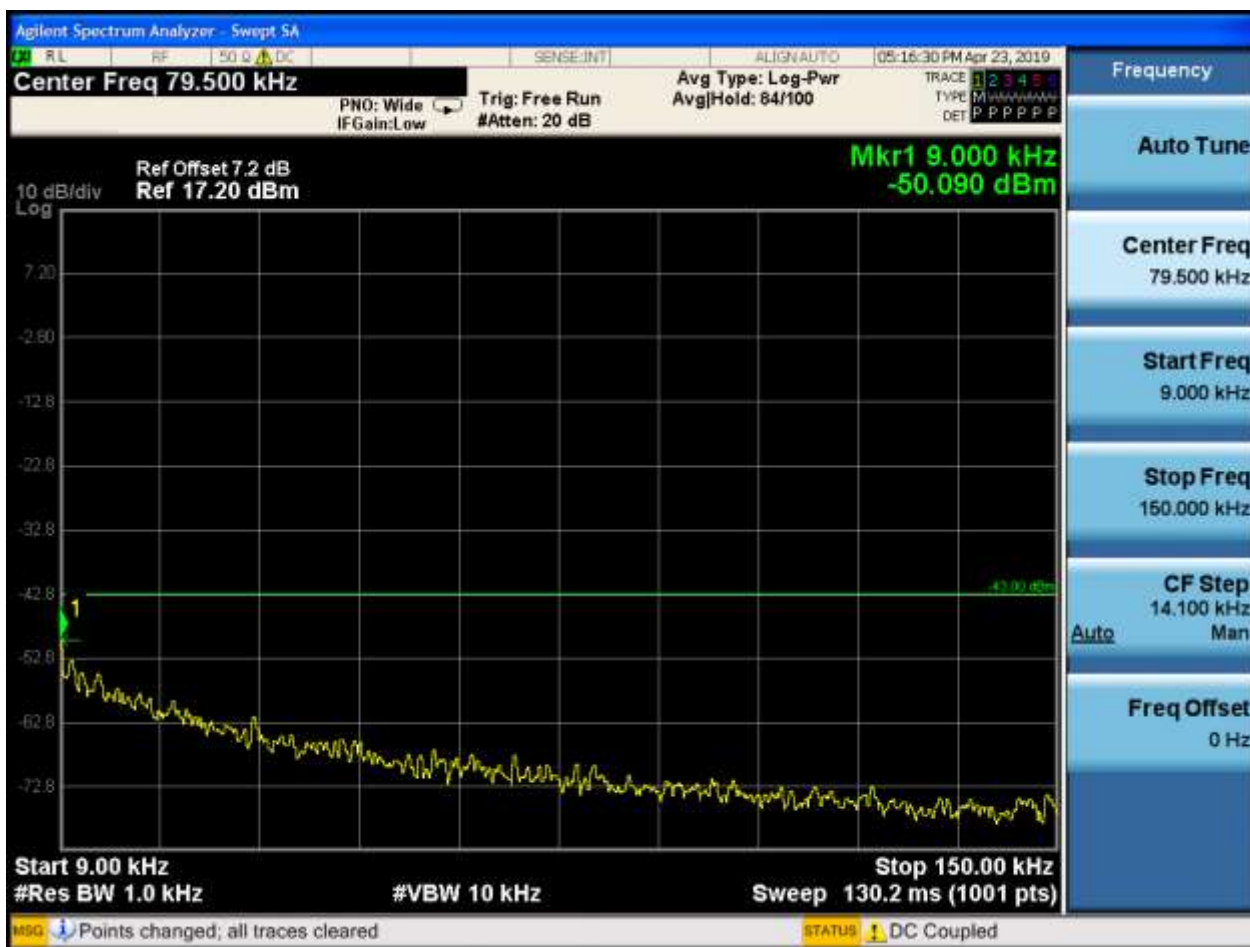
6.1.3.1.1 Test Channel = LCH

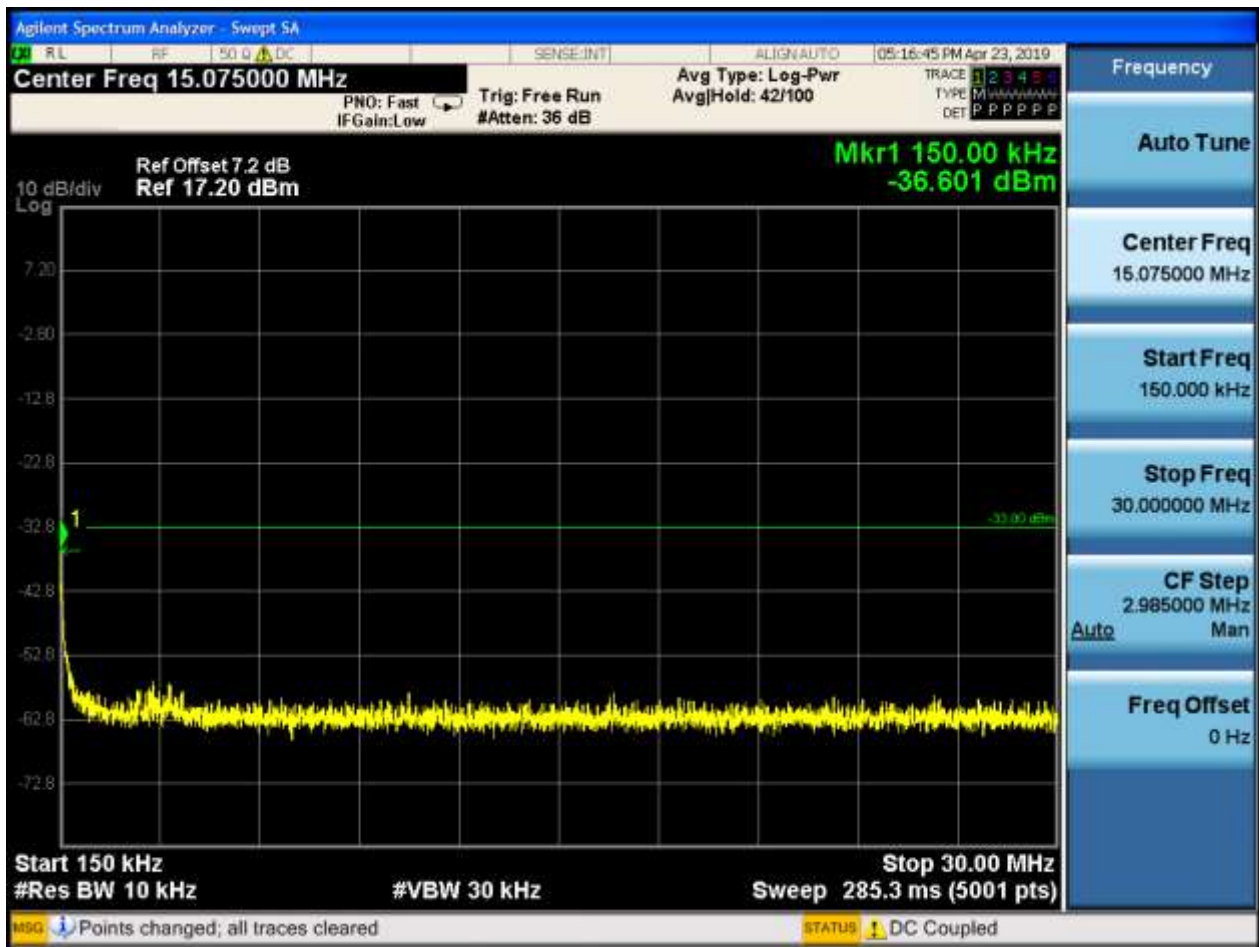






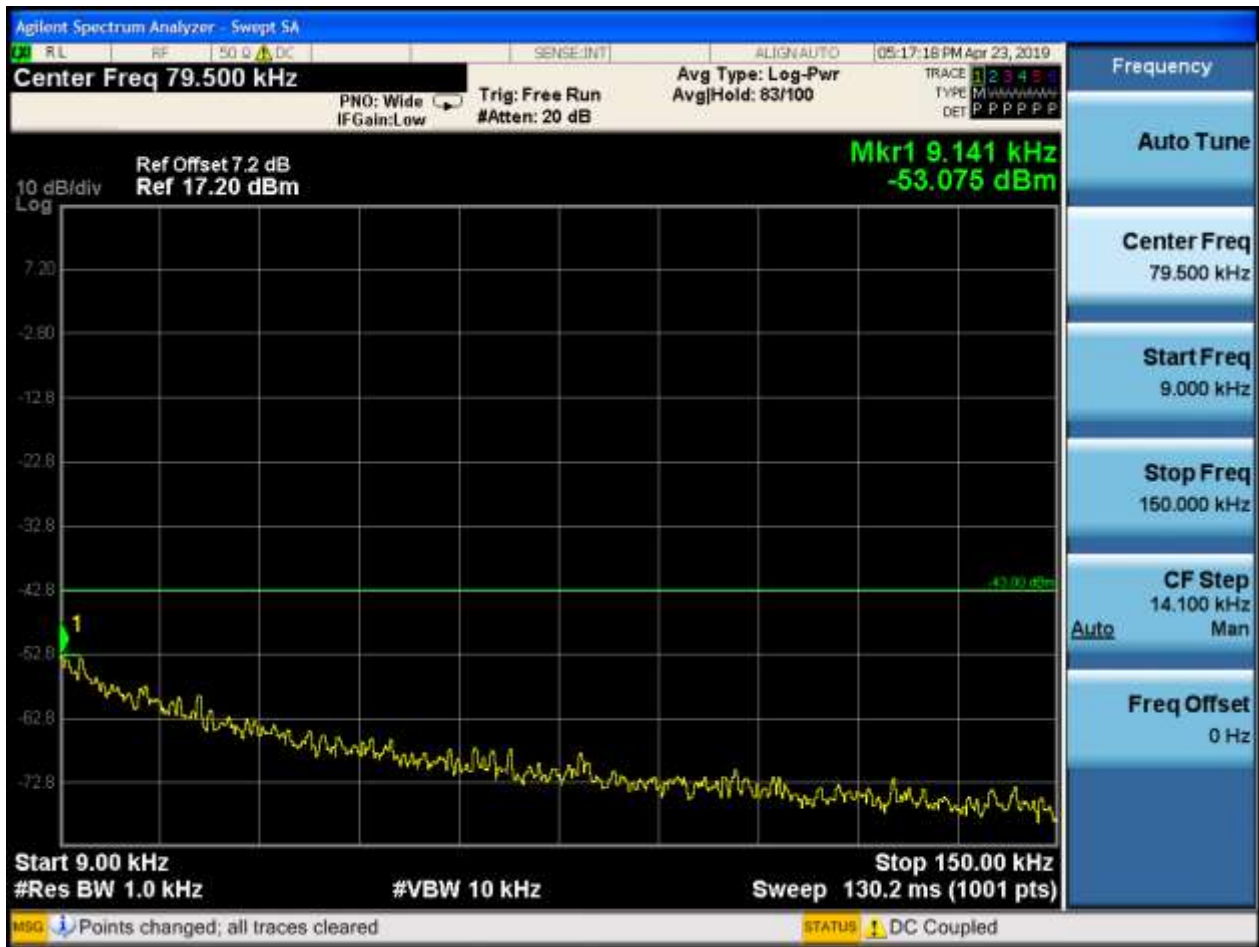
6.1.3.1.2 Test Channel = MCH







6.1.3.1.3 Test Channel = HCH







7Appendix_G: Field Strength of Spurious Radiation

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

9kHz~150kHz, RBW = 200Hz, VBW = 600 Hz, Detector: PK

150kHz~30MHz, RBW = 9kHz, VBW = 30k Hz, Detector: PK

30MHz~1GHz, RBW = 100 kHz, VBW = 300 kHz. Detector: PK

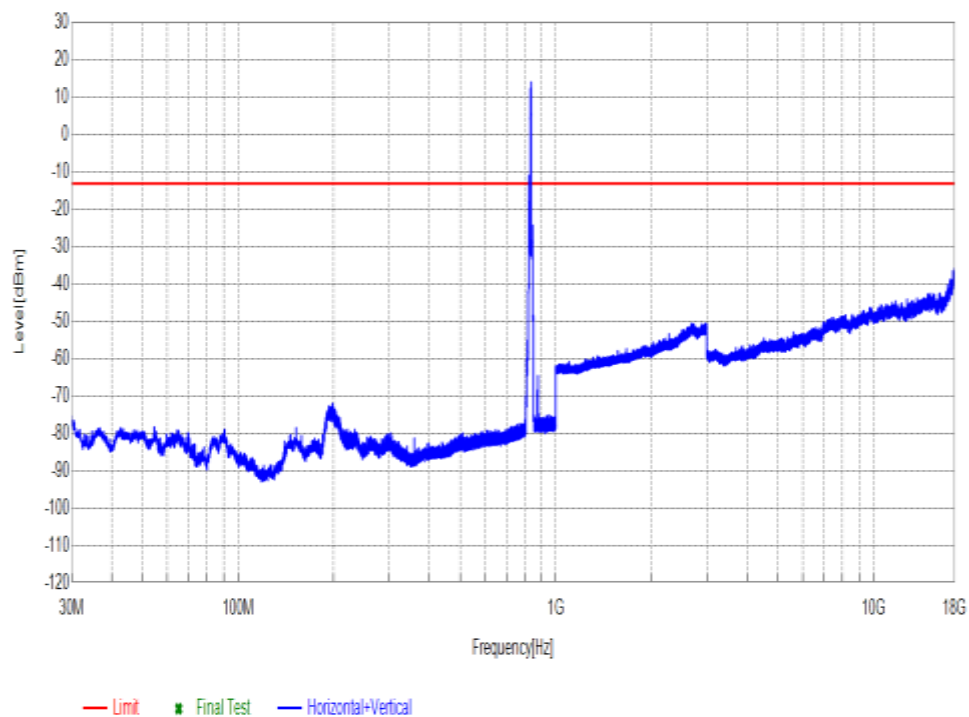
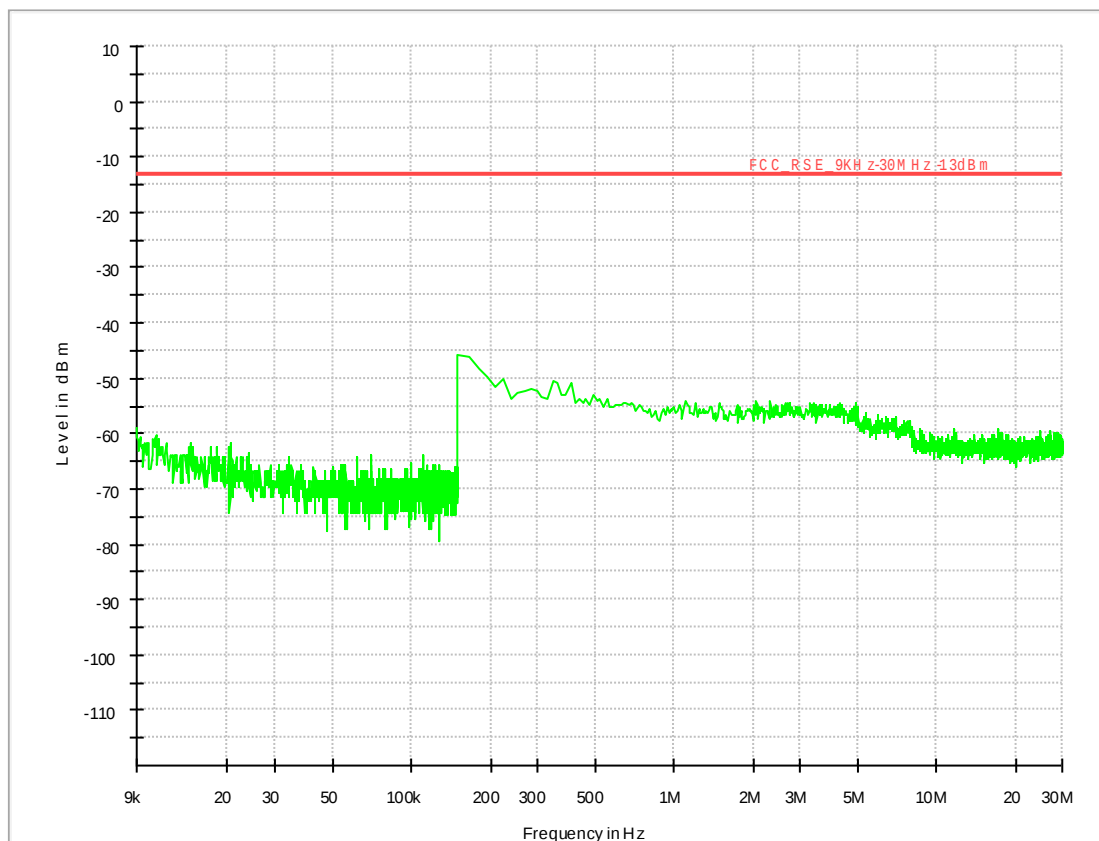
Above 1GHz, RBW = 1 MHz, VBW = 3 MHz. Detector: PK

Part I - Test Plots

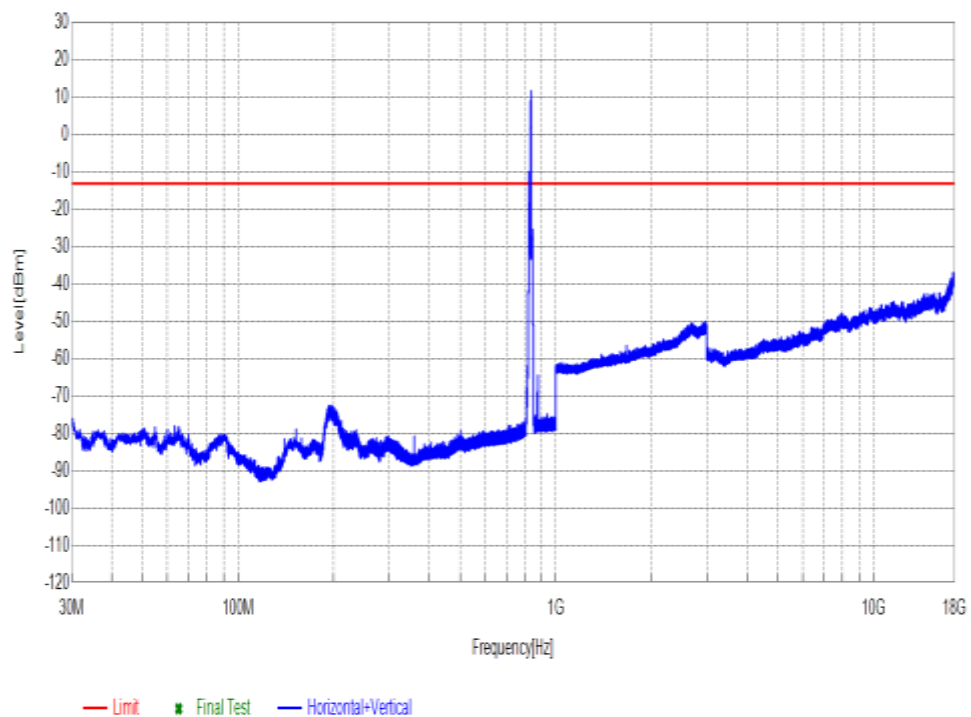
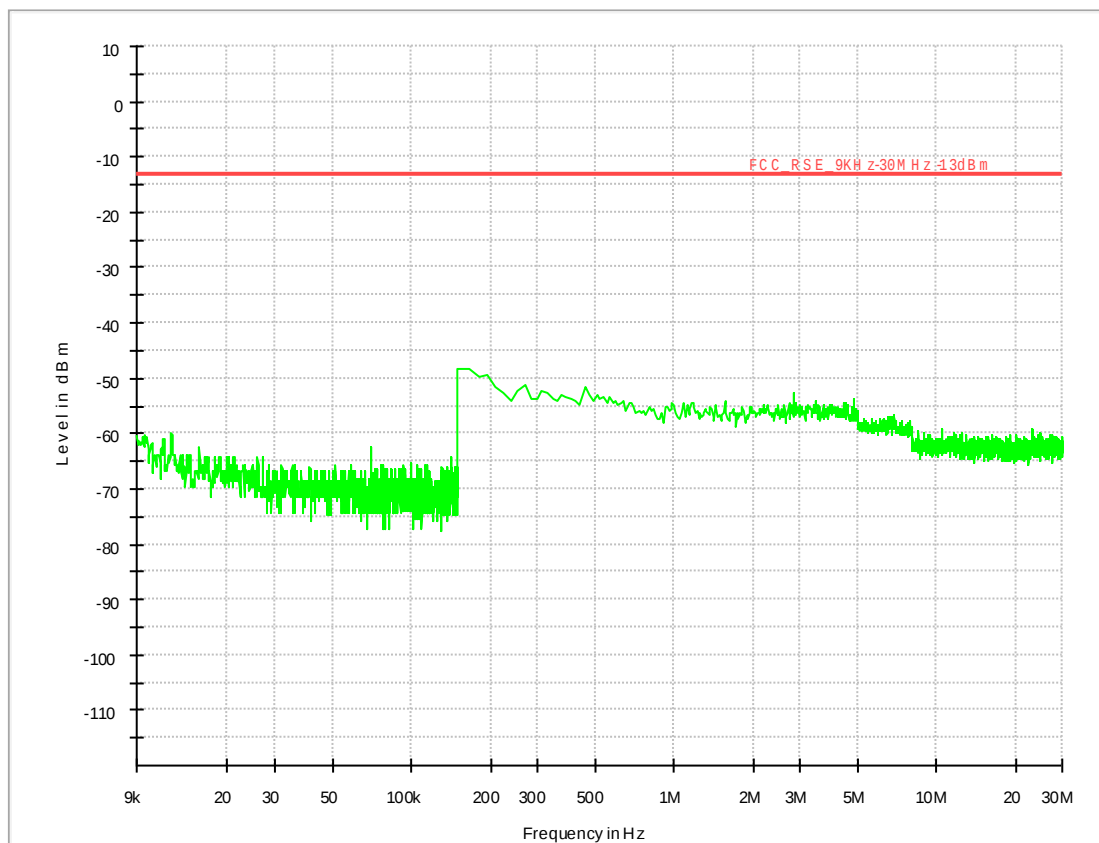
7.1 For UMTS

7.1.1 Test Band = WCDMA850

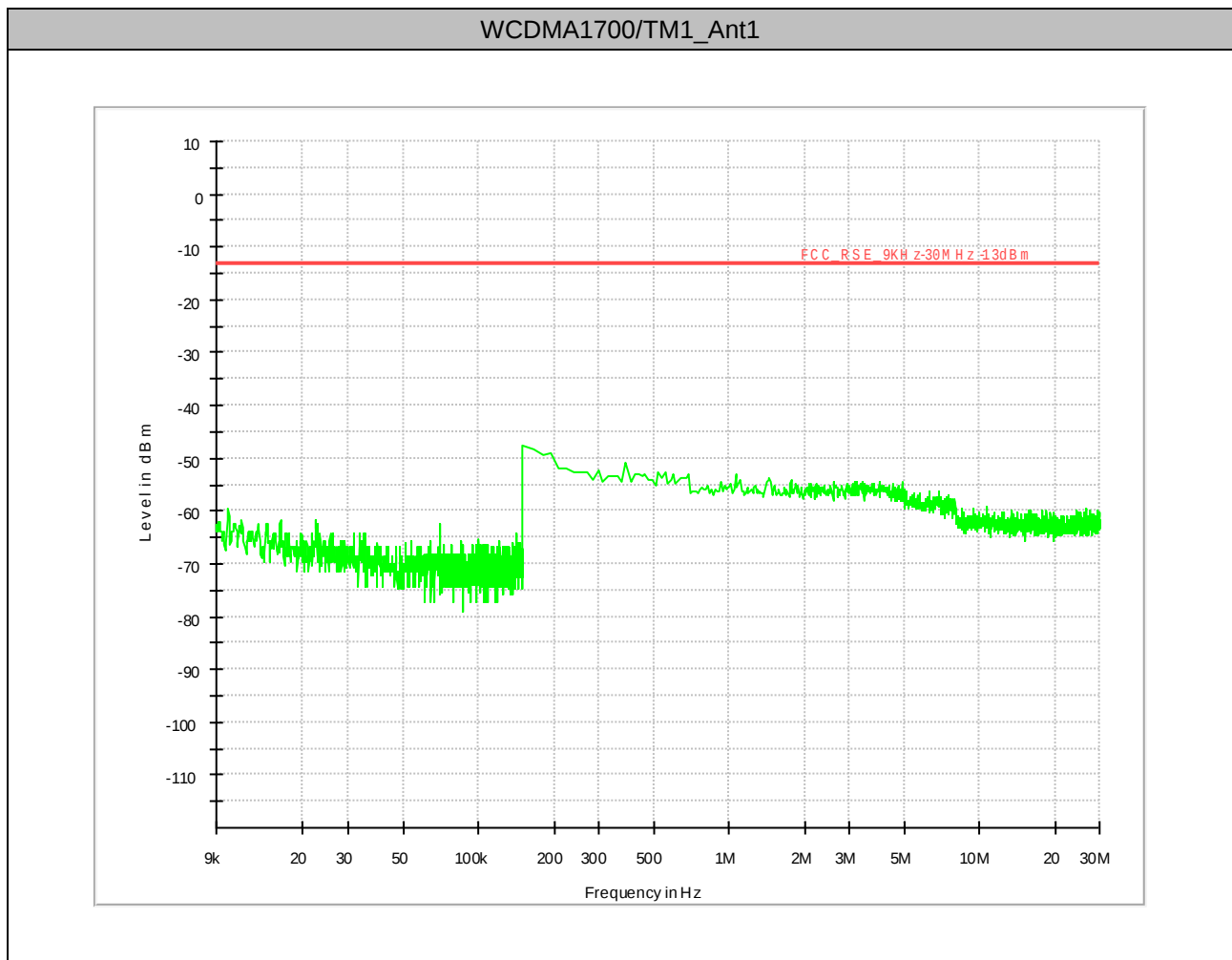
WCDMA850/TM1_Ant1

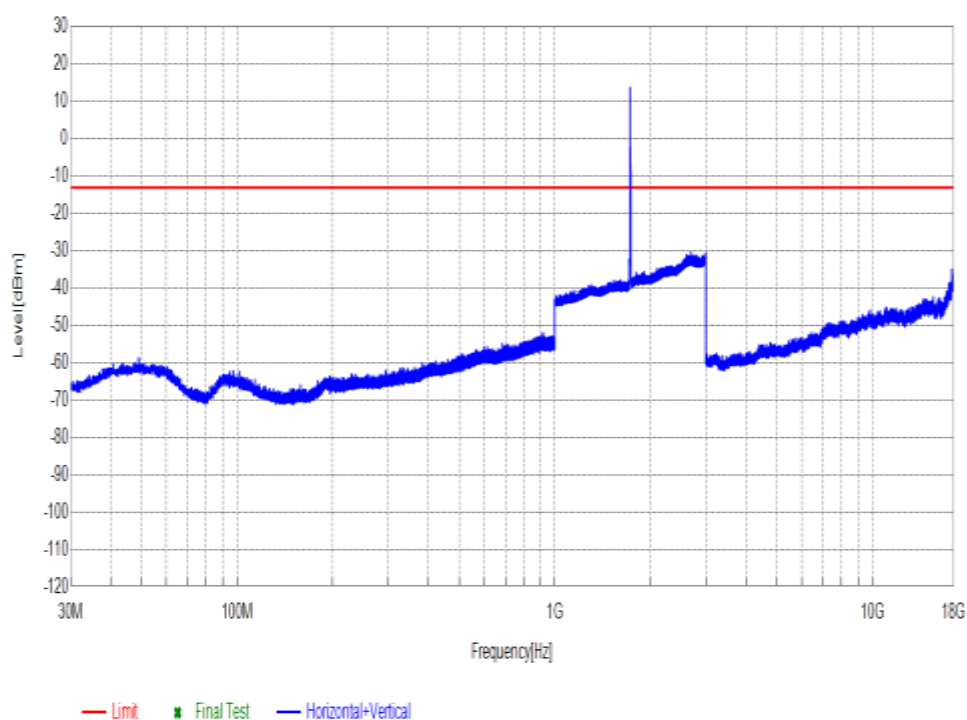


WCDMA850/TM1_Ant2

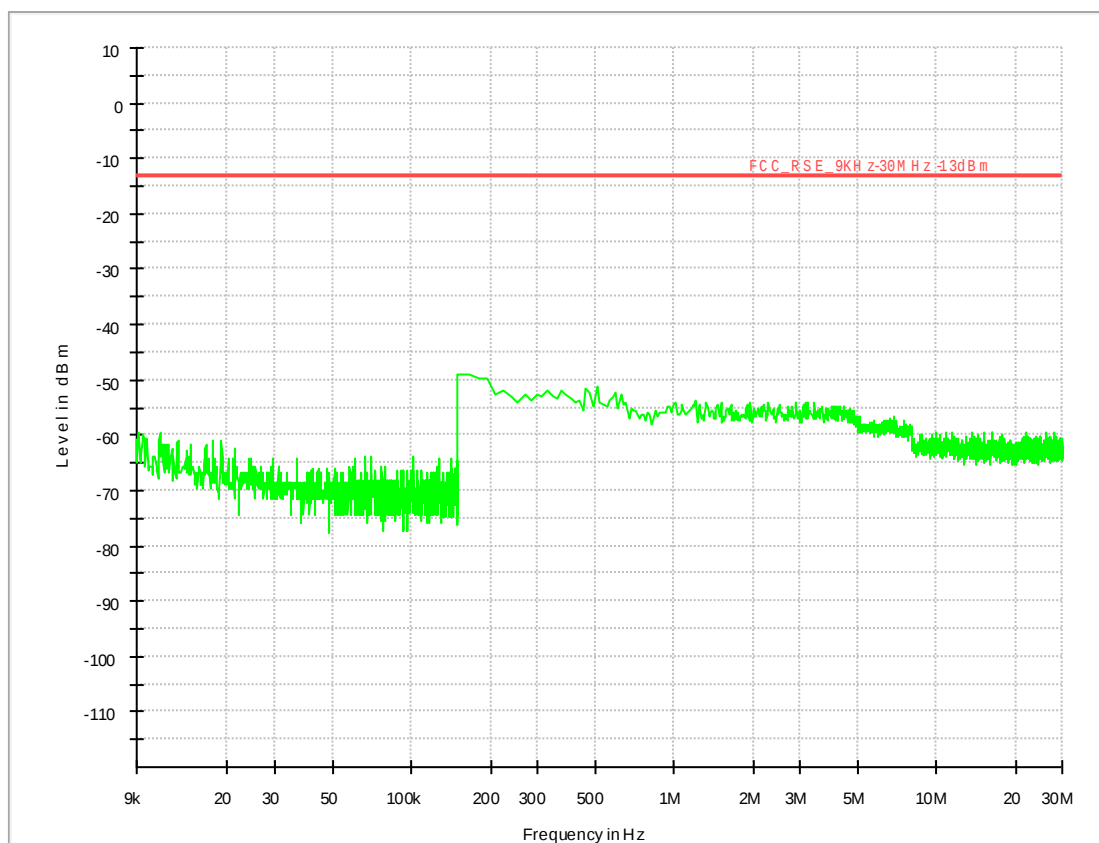


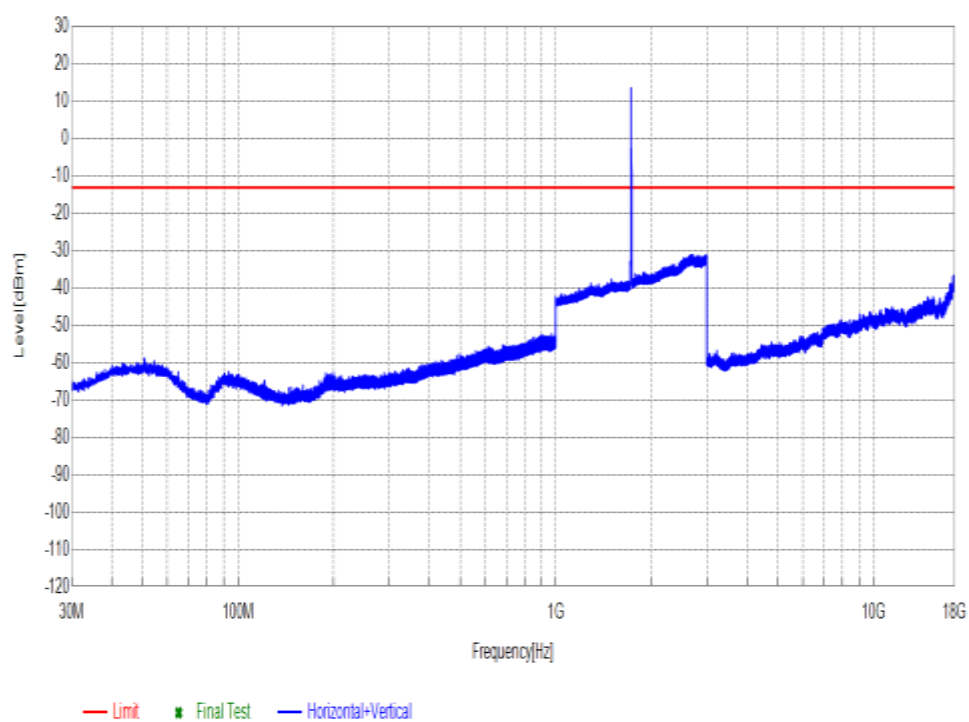
7.1.2 Test Band = WCDMA1700



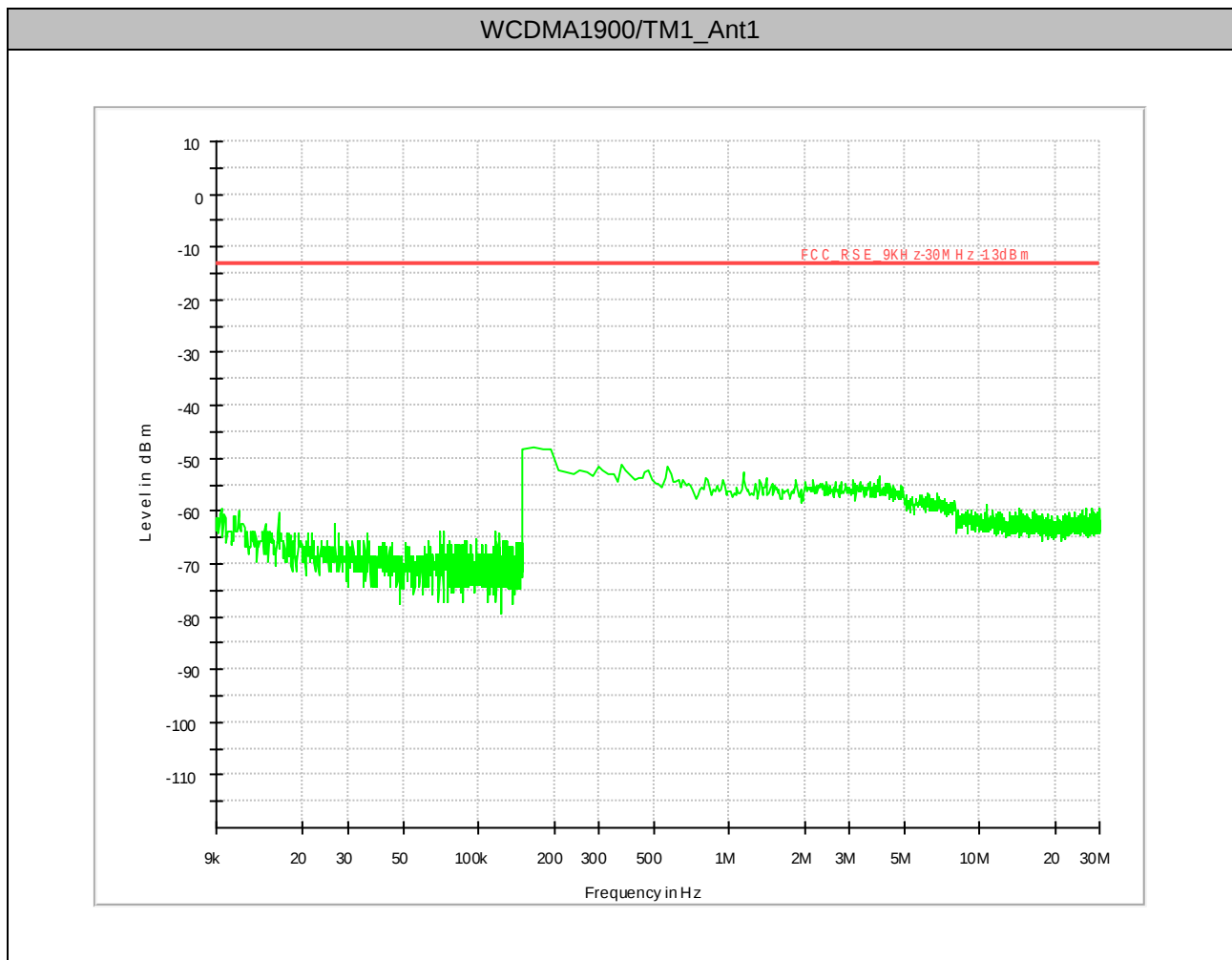


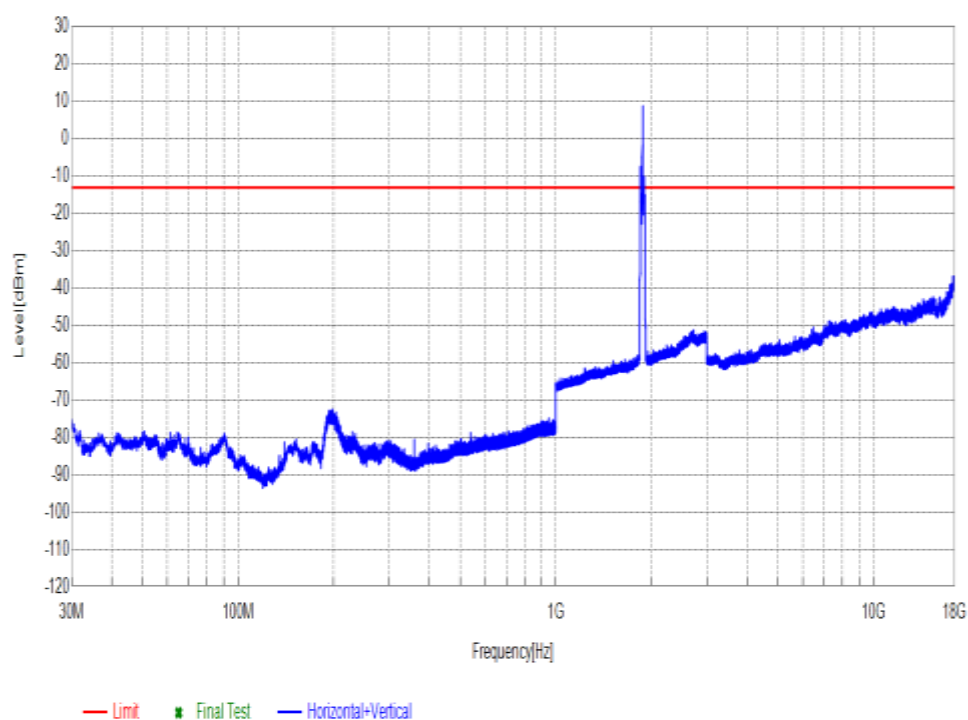
WCDMA1700/TM1_Ant2



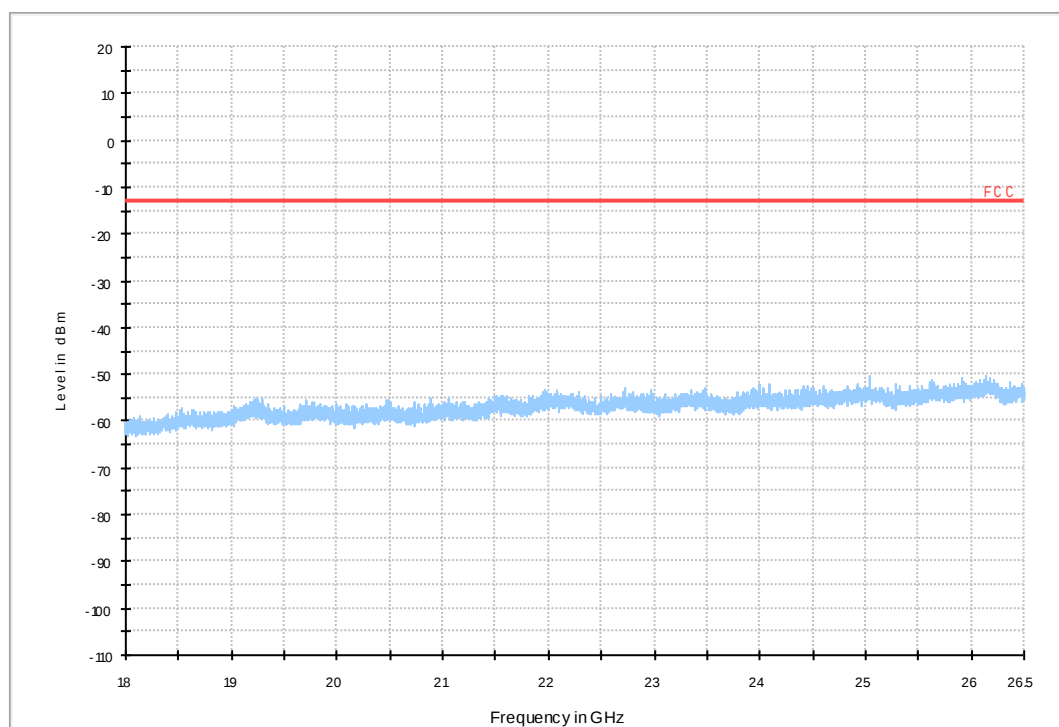


7.1.3 Test Band = WCDMA1900

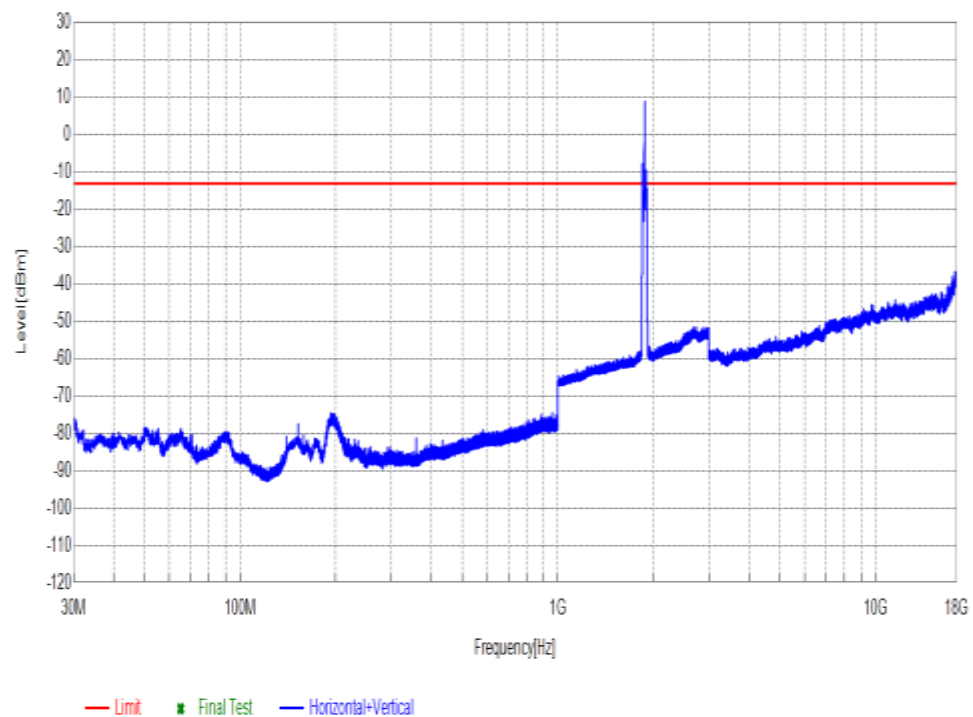
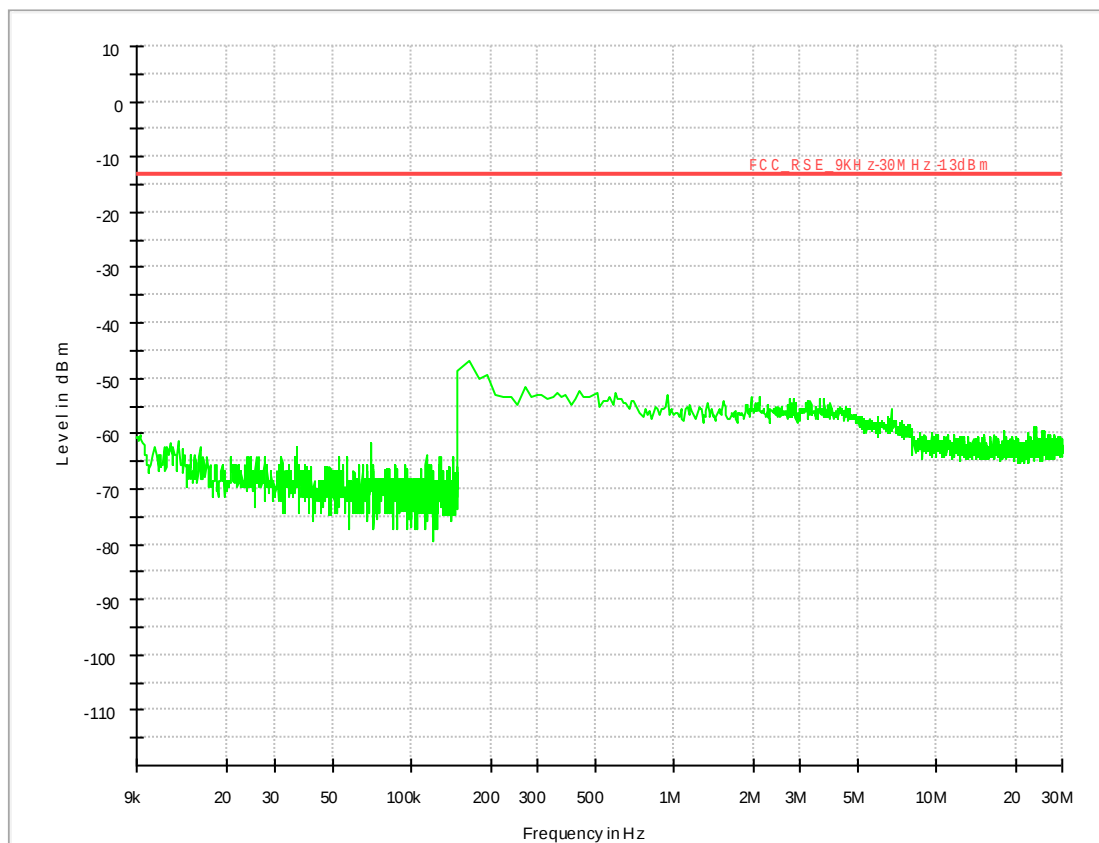


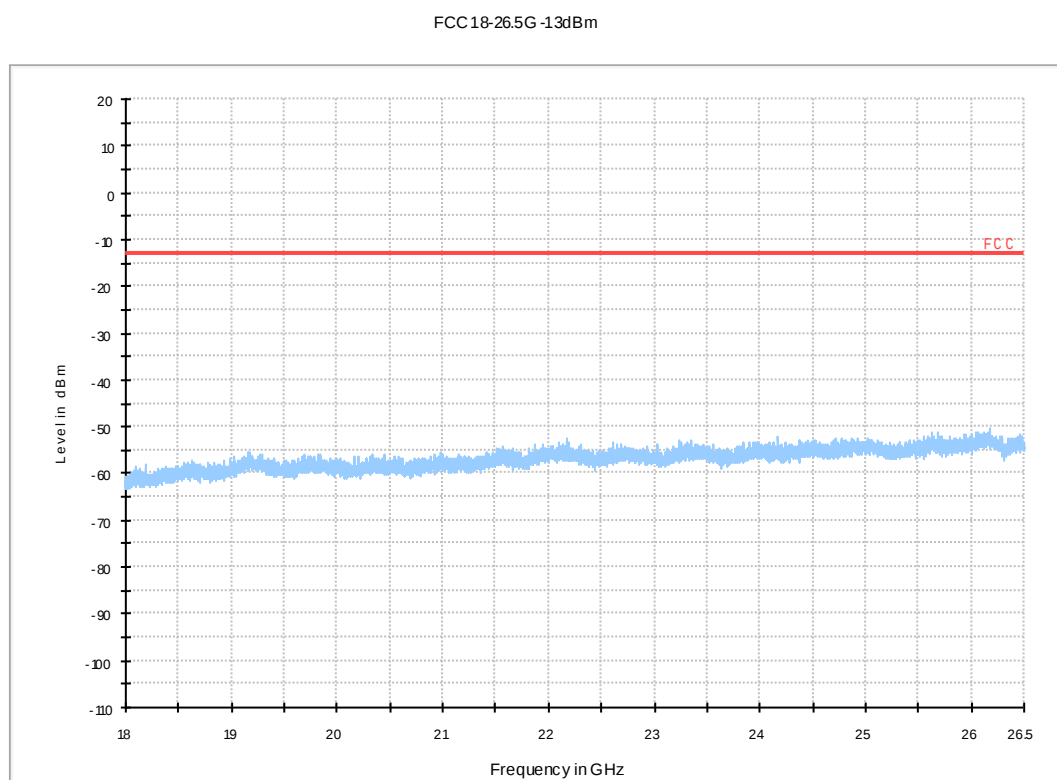


FCC18-26.5G -13dBm



WCDMA1900/TM1_Ant2





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	4.76360	0.00576	PASS
				VN	-1.10865	-0.00134	PASS
				VH	3.98397	0.00482	PASS
		MCH	TN	VL	2.66790	0.00319	PASS
				VN	8.54015	0.01021	PASS
				VH	6.07252	0.00726	PASS
		HCH	TN	VL	5.60045	0.00662	PASS
				VN	1.68800	0.00199	PASS
				VH	5.32866	0.00630	PASS
WCDMA1700	UMTS/TM1	LCH	TN	VL	8.40425	0.00491	PASS
				VN	11.75165	0.00686	PASS
				VH	9.45568	0.00552	PASS
		MCH	TN	VL	4.48465	0.00259	PASS
				VN	9.13382	0.00527	PASS
				VH	3.58343	0.00207	PASS
		HCH	TN	VL	5.65052	0.00322	PASS
				VN	12.31670	0.00703	PASS
				VH	6.07967	0.00347	PASS
WCDMA1900	UMTS/TM1	LCH	TN	VL	9.78470	0.00528	PASS
				VN	9.77755	0.00528	PASS
				VH	5.67198	0.00306	PASS
		MCH	TN	VL	9.77755	0.00520	PASS
				VN	4.62770	0.00246	PASS
				VH	7.89642	0.00420	PASS
		HCH	TN	VL	6.40154	0.00528	PASS
				VN	5.27859	0.00528	PASS
				VH	8.76904	0.00306	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	4.86374	0.00588	PASS
				-20	5.81503	0.00703	PASS
				-10	9.79900	0.01185	PASS
				0	5.47171	0.00662	PASS
				10	8.36134	0.01012	PASS
				20	-1.10865	-0.00134	PASS
				30	7.57456	0.00916	PASS
				40	5.85794	0.00709	PASS
				50	7.48158	0.00905	PASS
		MCH	VN	-30	7.84635	0.00938	PASS
				-20	8.41141	0.01006	PASS
				-10	6.35862	0.00760	PASS
				0	10.46419	0.01251	PASS
				10	3.80516	0.00455	PASS
				20	8.54015	0.01021	PASS
				30	5.70774	0.00682	PASS
				40	10.34975	0.01237	PASS
				50	8.26836	0.00989	PASS
		HCH	VN	-30	7.10249	0.00839	PASS
				-20	-1.35899	-0.00161	PASS
				-10	6.08683	0.00719	PASS
				0	-0.82254	-0.00097	PASS
				10	5.26428	0.00622	PASS
				20	1.68800	0.00199	PASS
				30	7.33137	0.00866	PASS
				40	-0.81539	-0.00096	PASS
				50	6.42300	0.00759	PASS
WCDMA1700	UMTS/TM1	LCH	VN	-30	5.78642	0.00338	PASS
				-20	10.82897	0.00632	PASS
				-10	9.28402	0.00542	PASS
				0	10.84328	0.00633	PASS
				10	10.75745	0.00628	PASS
				20	11.75165	0.00686	PASS
				30	8.32558	0.00486	PASS
				40	12.52413	0.00731	PASS
				50	5.50747	0.00322	PASS
		MCH	VN	-30	2.96831	0.00171	PASS
				-20	3.03984	0.00175	PASS

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				-10	10.34260	0.00597	PASS
				0	11.65152	0.00672	PASS
				10	9.01222	0.00520	PASS
				20	9.13382	0.00527	PASS
				30	10.27822	0.00593	PASS
				40	9.92060	0.00573	PASS
				50	10.88619	0.00628	PASS
		HCH	VN	-30	8.23259	0.00470	PASS
				-20	6.19412	0.00353	PASS
				-10	11.88755	0.00678	PASS
				0	14.24789	0.00813	PASS
				10	10.46419	0.00597	PASS
				20	12.31670	0.00703	PASS
				30	14.25505	0.00813	PASS
				40	6.48737	0.00370	PASS
				50	12.73155	0.00726	PASS
WCDMA1900	UMTS/TM1	LCH	VN	-30	7.23124	0.00390	PASS
				-20	11.34396	0.00612	PASS
				-10	12.32386	0.00665	PASS
				0	8.37565	0.00452	PASS
				10	11.54423	0.00623	PASS
				20	9.77755	0.00528	PASS
				30	7.88212	0.00426	PASS
				40	6.53029	0.00353	PASS
				50	5.11408	0.00276	PASS
		MCH	VN	-30	5.04971	0.00269	PASS
				-20	6.20127	0.00330	PASS
				-10	5.41449	0.00288	PASS
				0	-2.40326	-0.00128	PASS
				10	8.54731	0.00455	PASS
				20	4.62770	0.00246	PASS
				30	0.42200	0.00022	PASS
				40	1.37329	0.00073	PASS
				50	0.41485	0.00022	PASS
		HCH	VN	-30	7.38859	0.00387	PASS
				-20	7.45296	0.00391	PASS
				-10	7.34568	0.00385	PASS
				0	6.50167	0.00341	PASS
				10	7.58171	0.00397	PASS
				20	5.27859	0.00277	PASS



Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				30	-0.79393	-0.00042	PASS
				40	-0.18597	-0.00010	PASS
				50	5.61476	0.00294	PASS

END