



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	24.05	18.30	38.5	PASS
		MCH	24.05	18.30	38.5	PASS
		HCH	23.97	18.22	38.5	PASS
Test Band	Test Mode	Test Channel	Conducted Power [dBm]	EIRP [dBm]	Limit [dBm]	Verdict
WCDMA1900	UMTS/TM1	LCH	23.48	21.68	33	PASS
		MCH	23.52	21.72	33	PASS
		HCH	23.49	21.69	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
WCDMA850	UMTS/TM1	LCH	3.870	13	PASS
		MCH	3.620	13	PASS
		HCH	3.060	13	PASS
WCDMA1900	UMTS/TM1	LCH	2.930	13	PASS
		MCH	2.600	13	PASS
		HCH	2.840	13	PASS

3Appendix_C: Modulation Characteristics

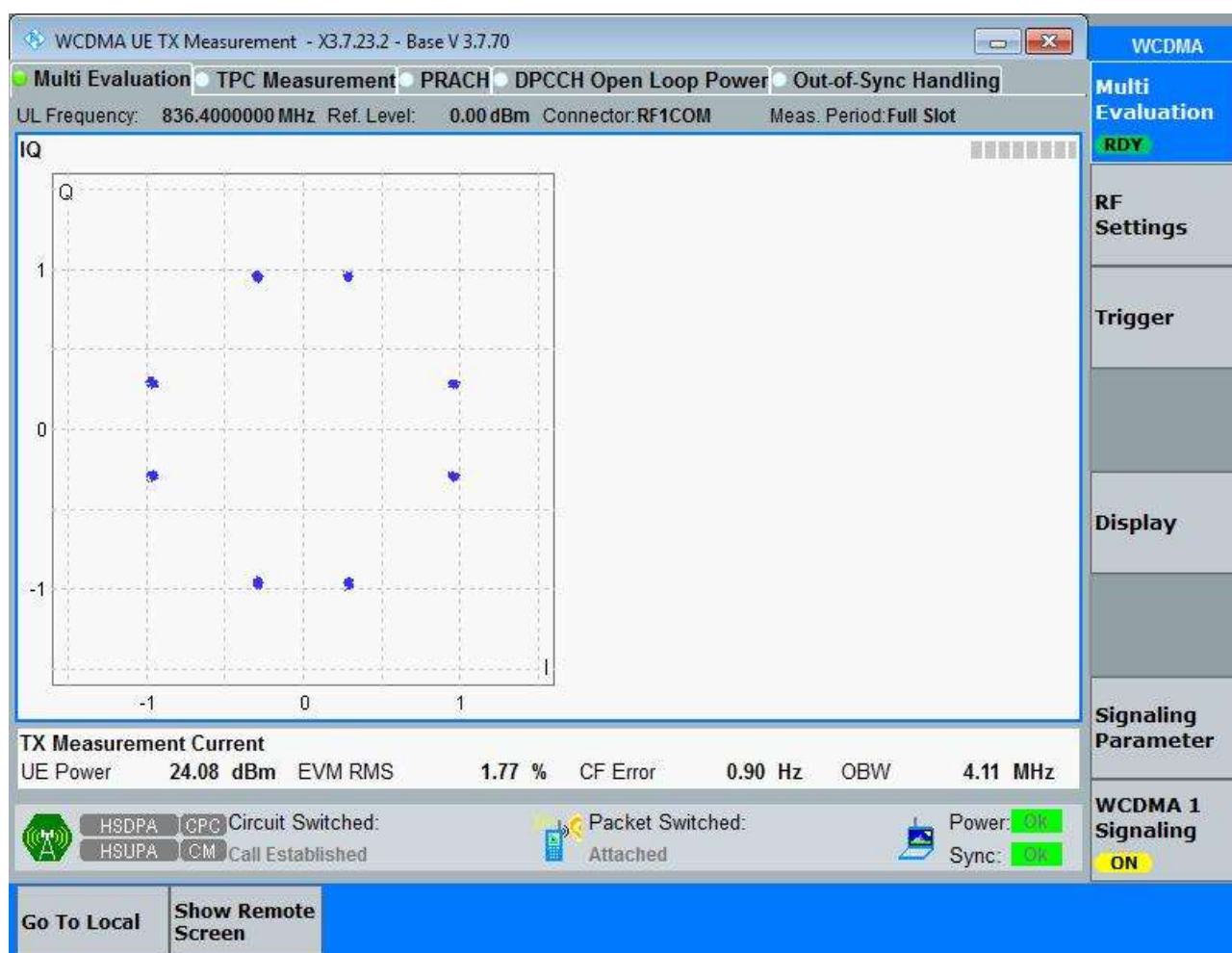
Part I - Test Plots

3.1 For UMTS

3.1.1 Test Band = WCDMA850

3.1.1.1 Test Mode = UMTS/TM1

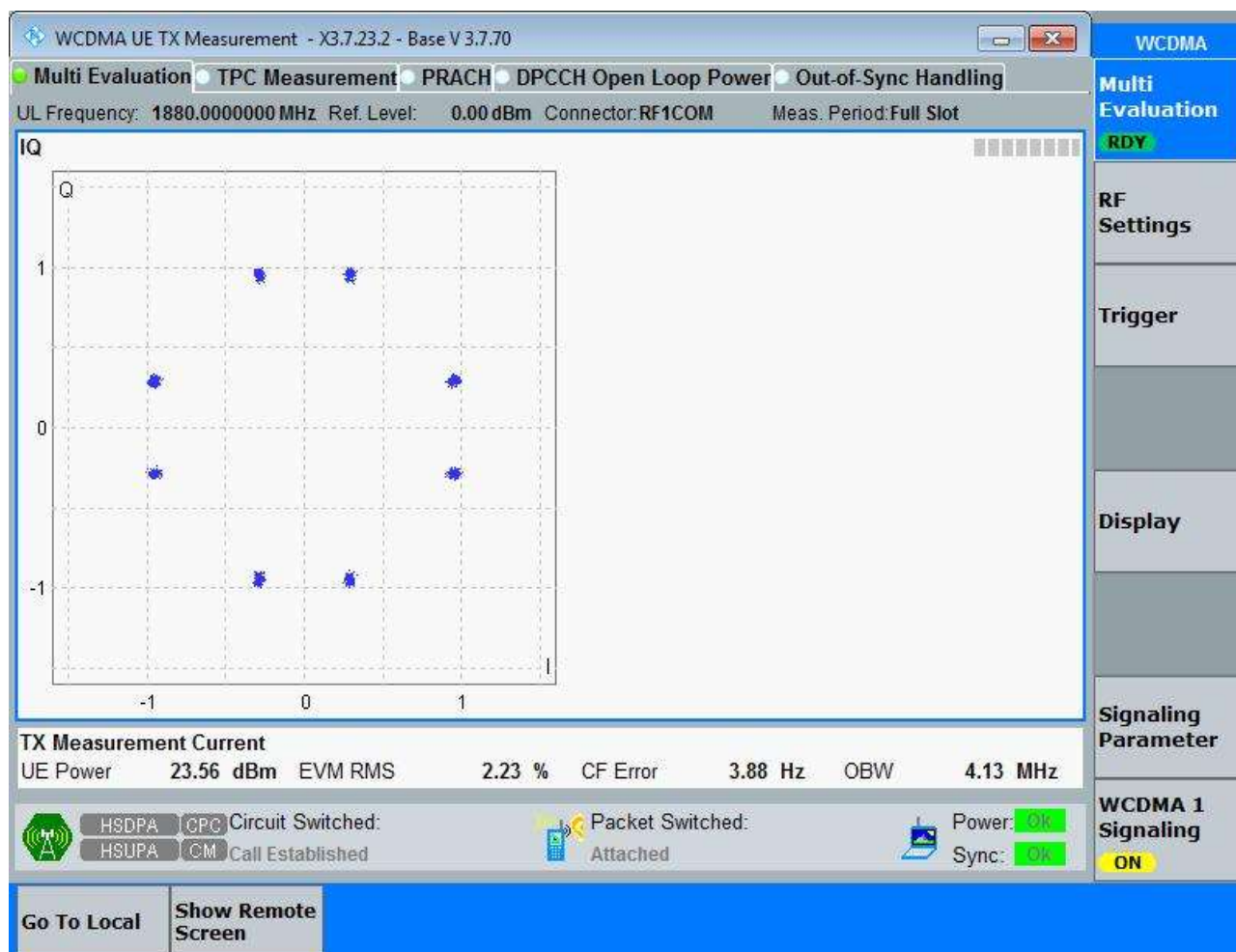
3.1.1.1.1 Test Channel = MCH



3.1.3 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	4.18	4.66	Pass
		MCH	4.16	4.68	Pass
		HCH	4.17	4.70	Pass
WCDMA1900	UMTS/TM1	LCH	4.18	4.70	Pass
		MCH	4.16	4.71	Pass
		HCH	4.18	4.68	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



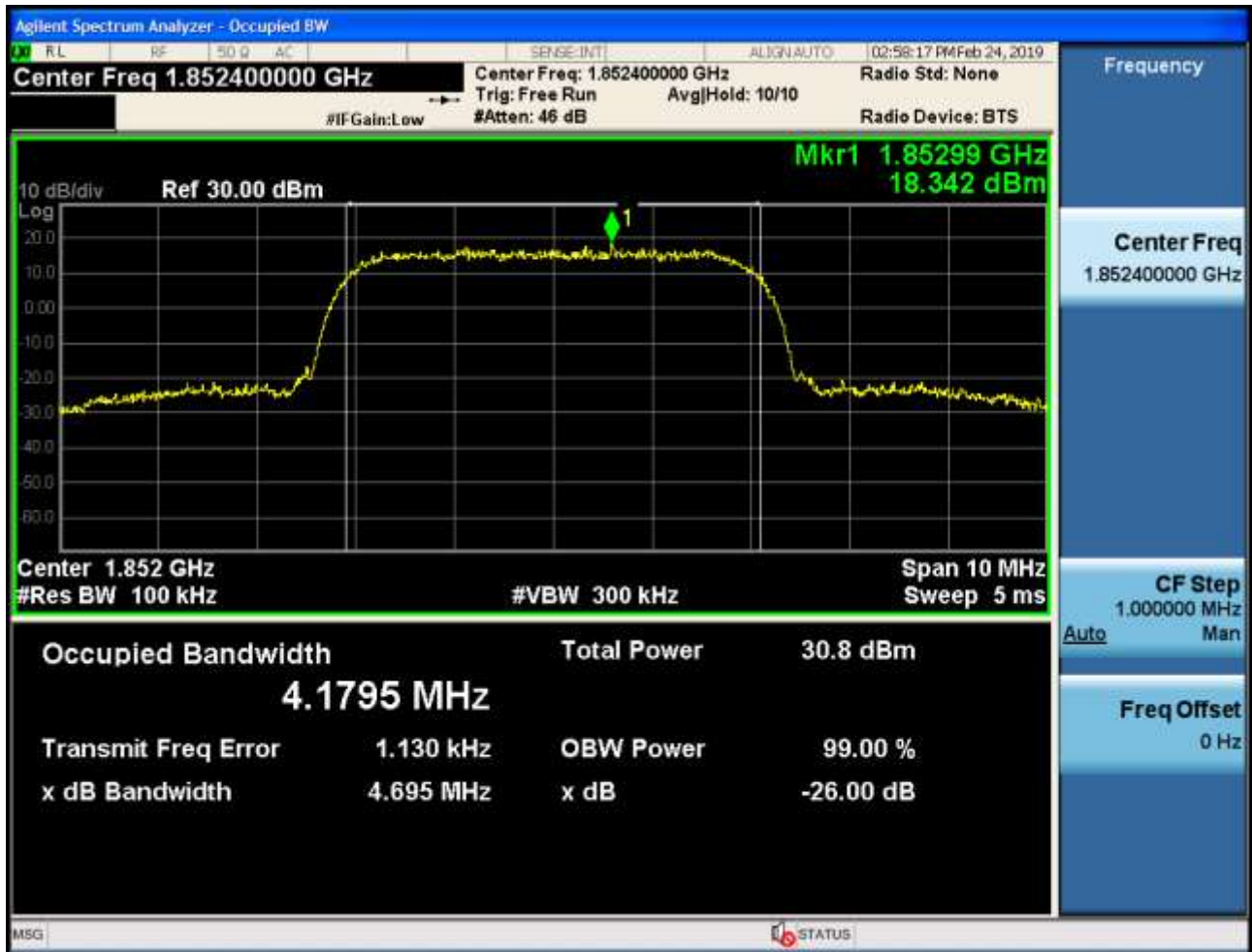
4.1.1.1.3 Test Channel = HCH



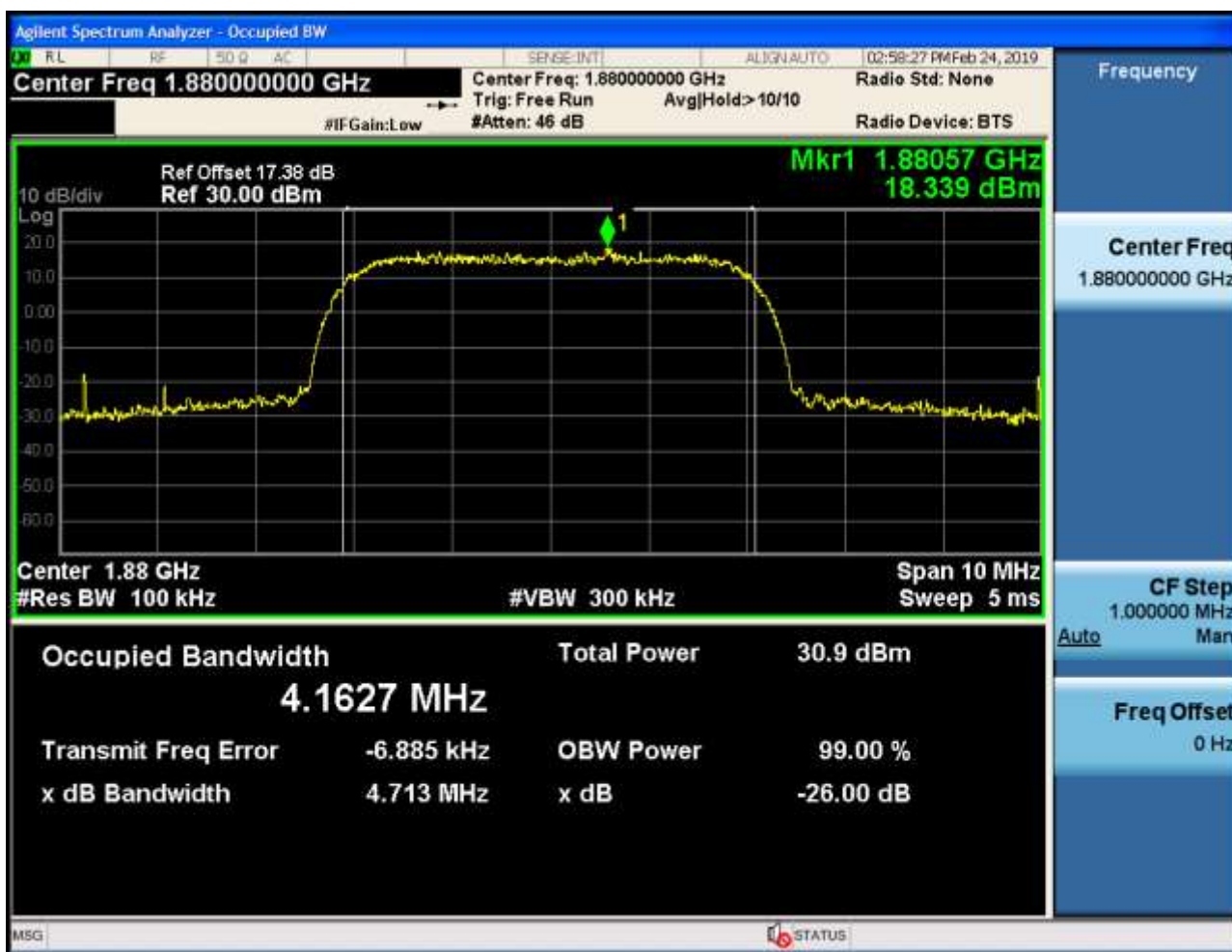
4.1.3 Test Band = WCDMA1900

4.1.3.1 Test Mode = UMTS/TM1

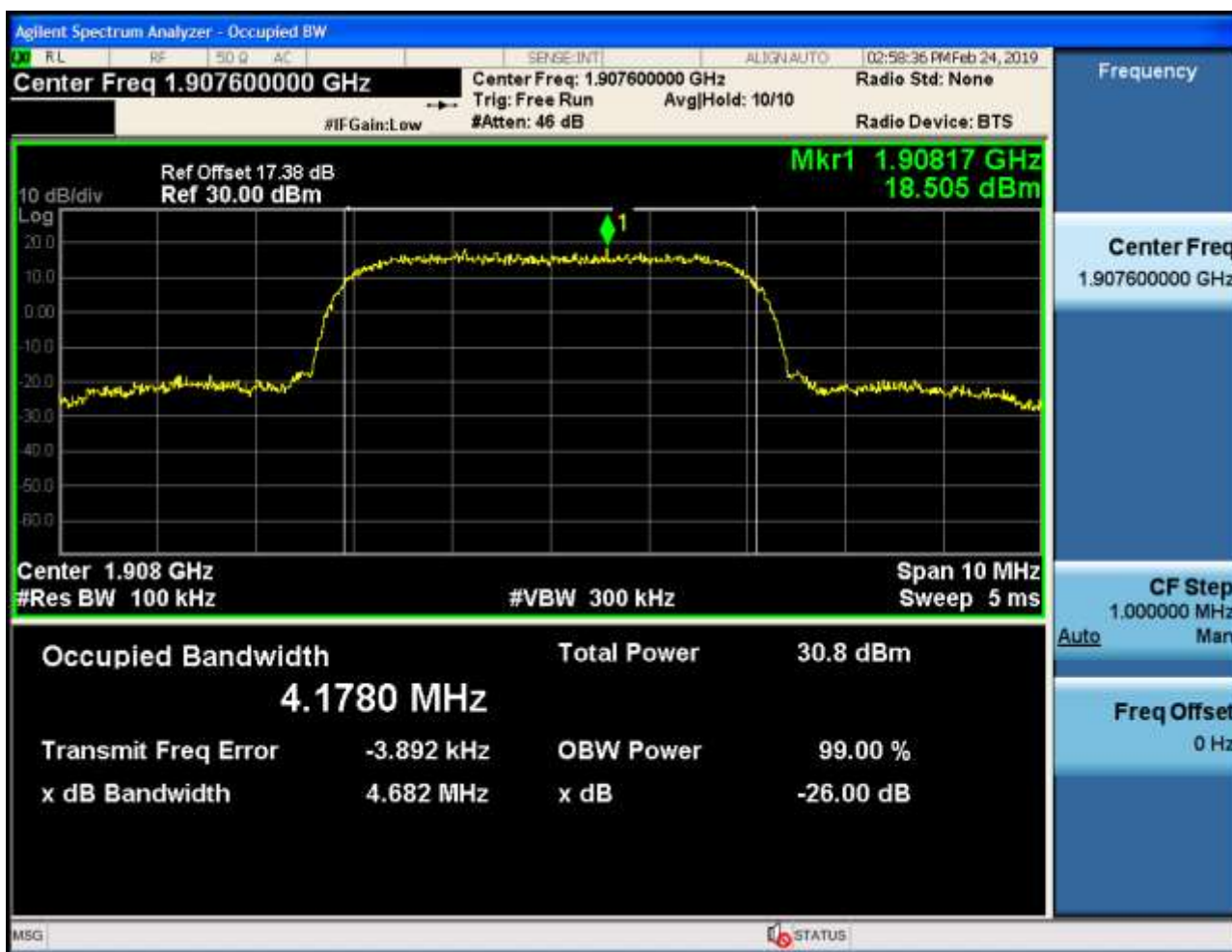
4.1.3.1.1 Test Channel = LCH



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



5.1.3 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.

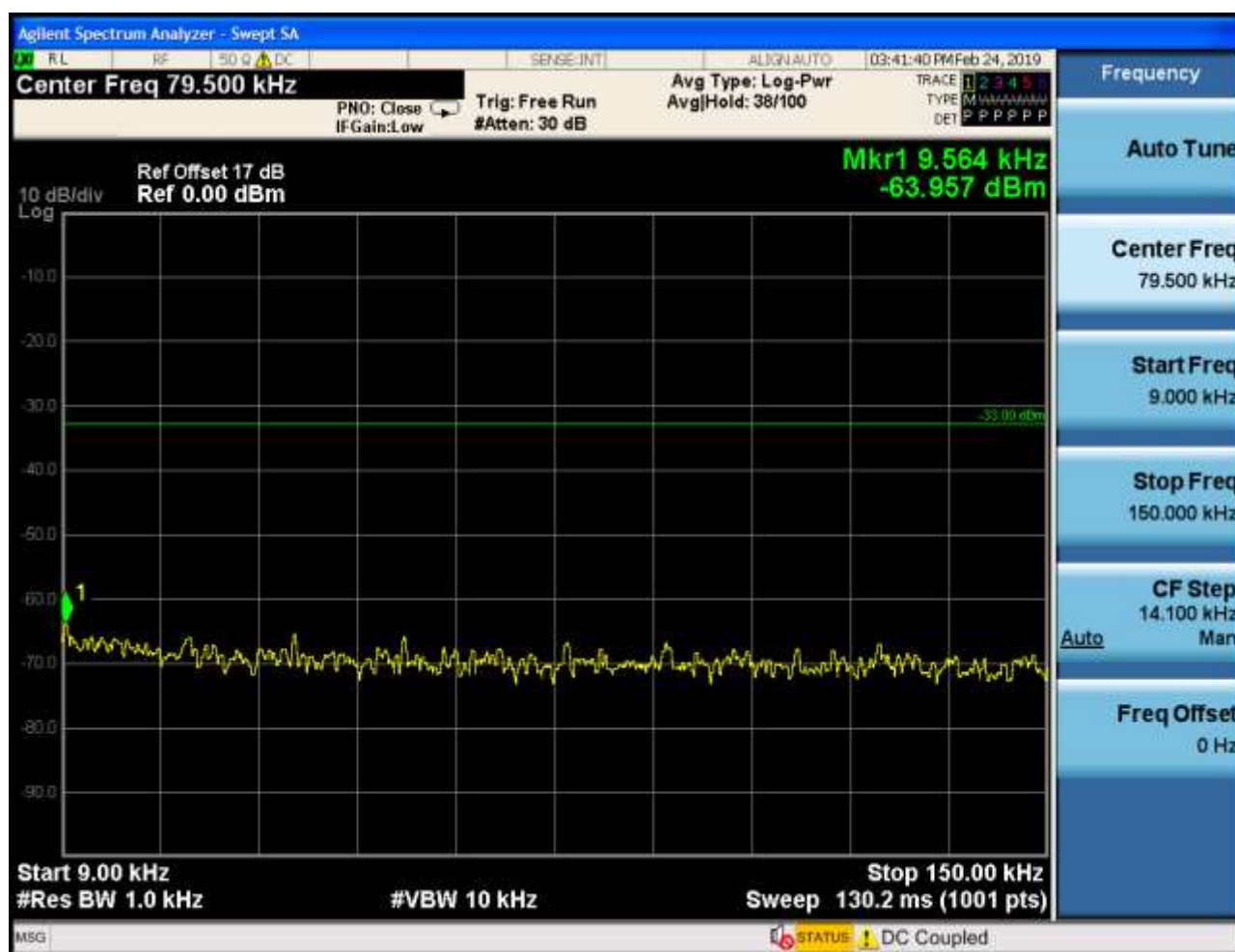
Part I - Test Plots

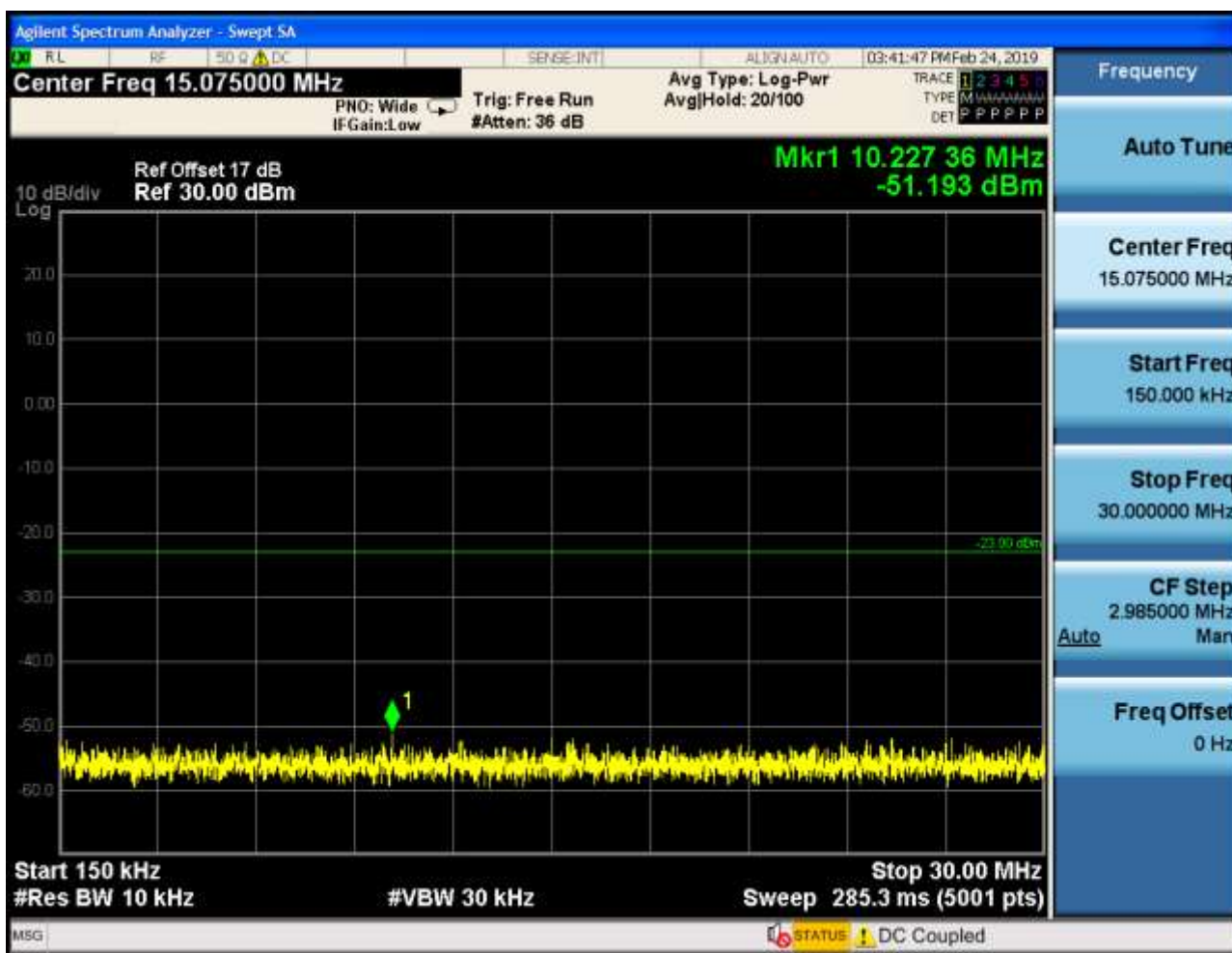
6.1 For UMTS

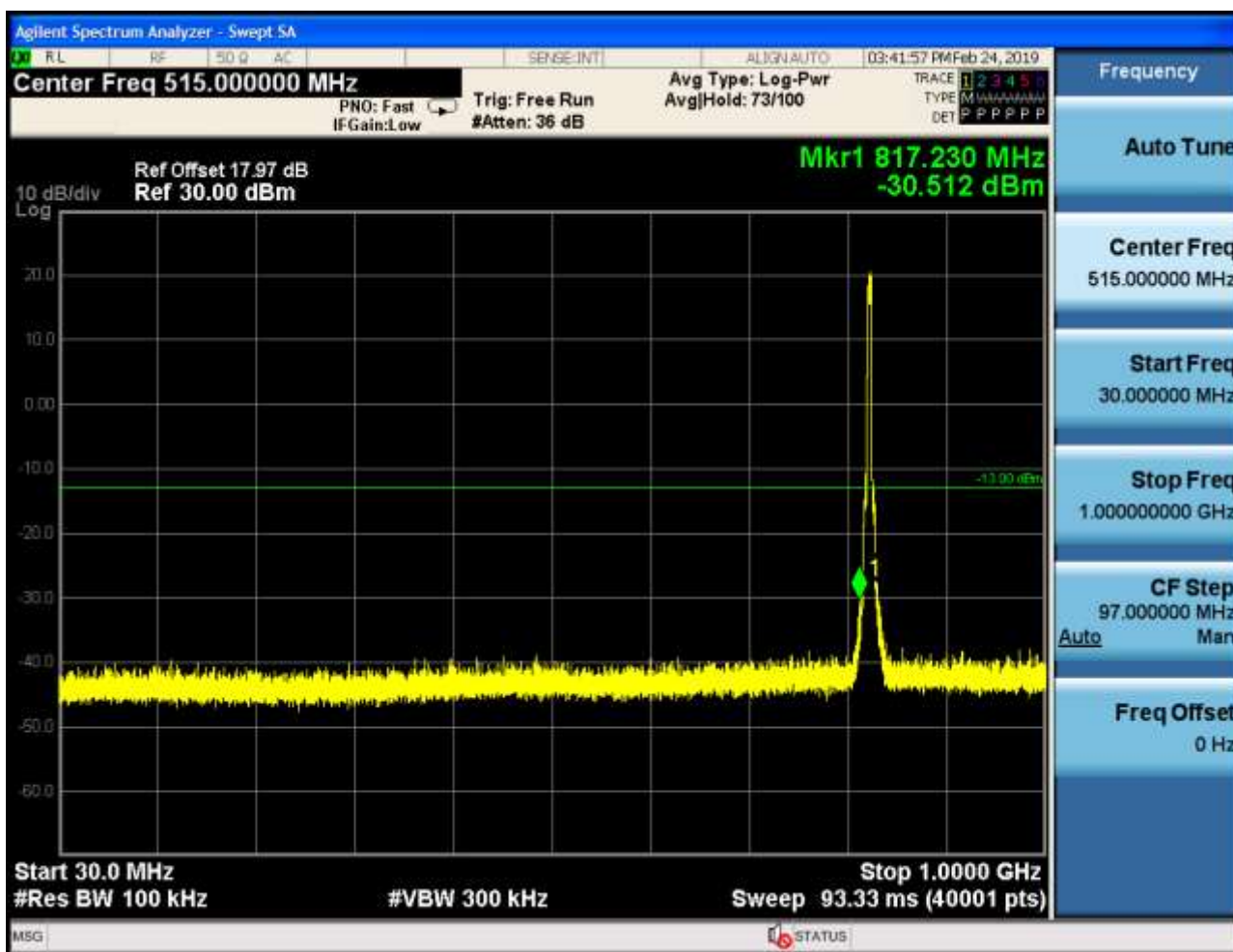
6.1.1 Test Band = WCDMA850

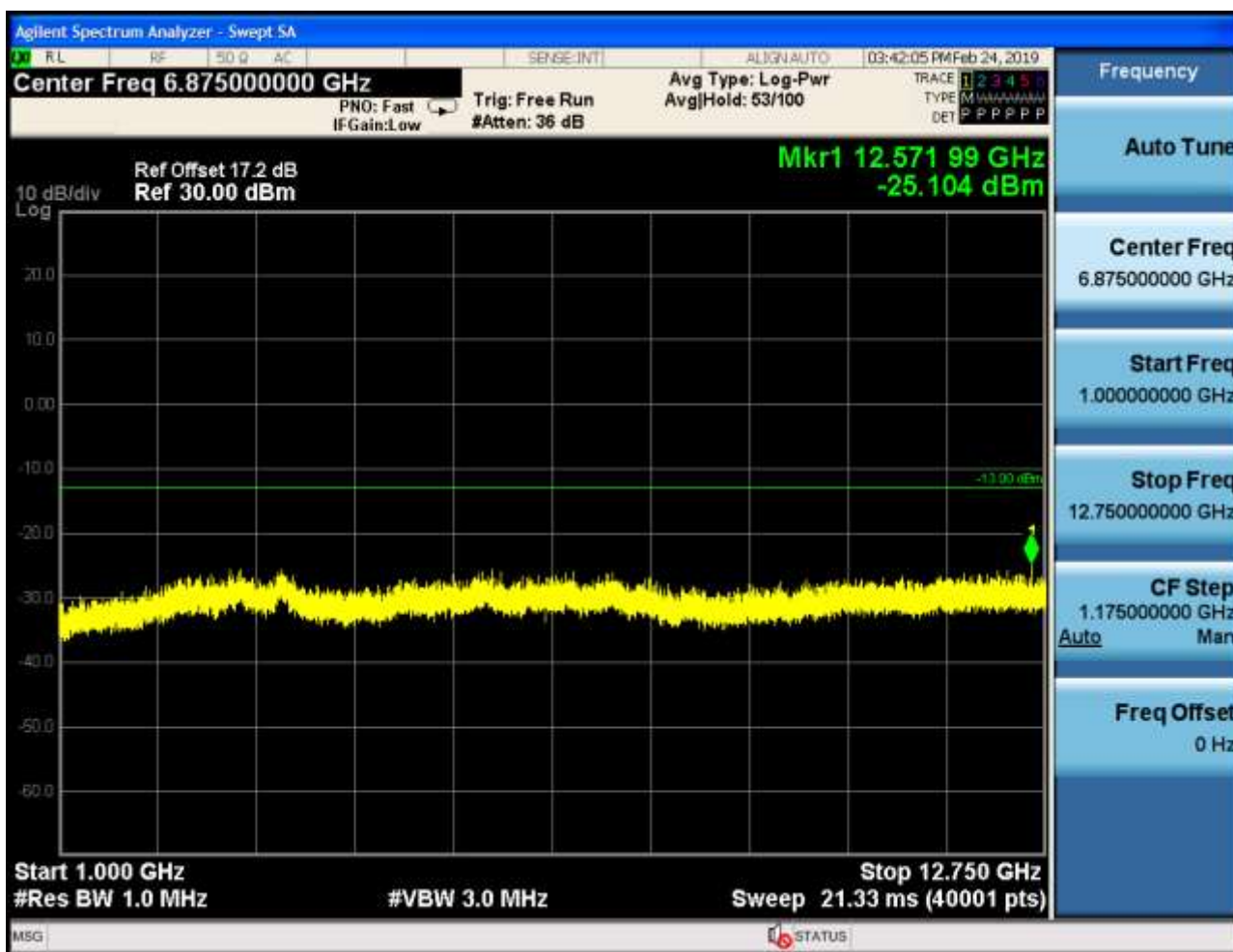
6.1.1.1 Test Mode = UMTS/TM1

6.1.1.1.1 Test Channel = LCH

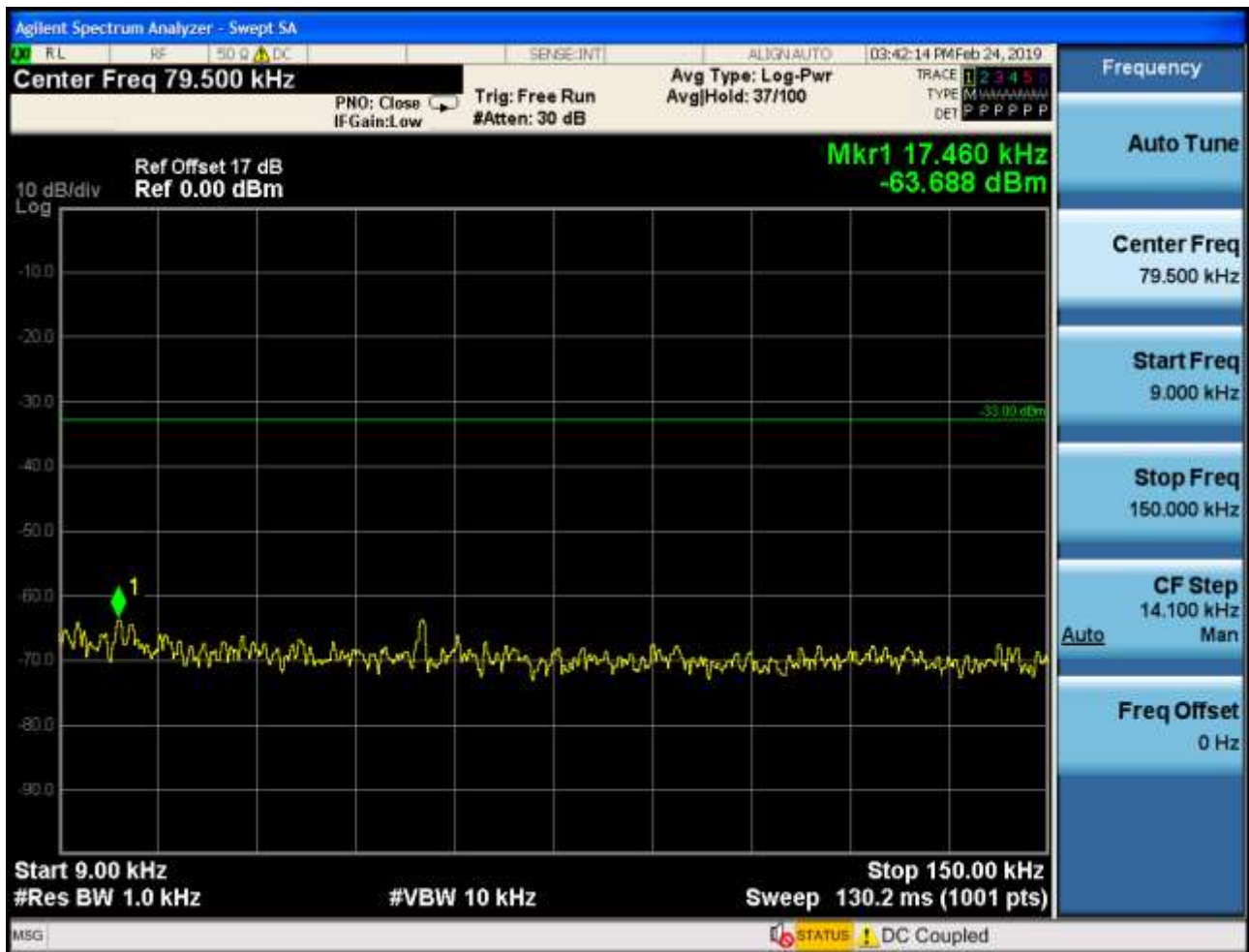


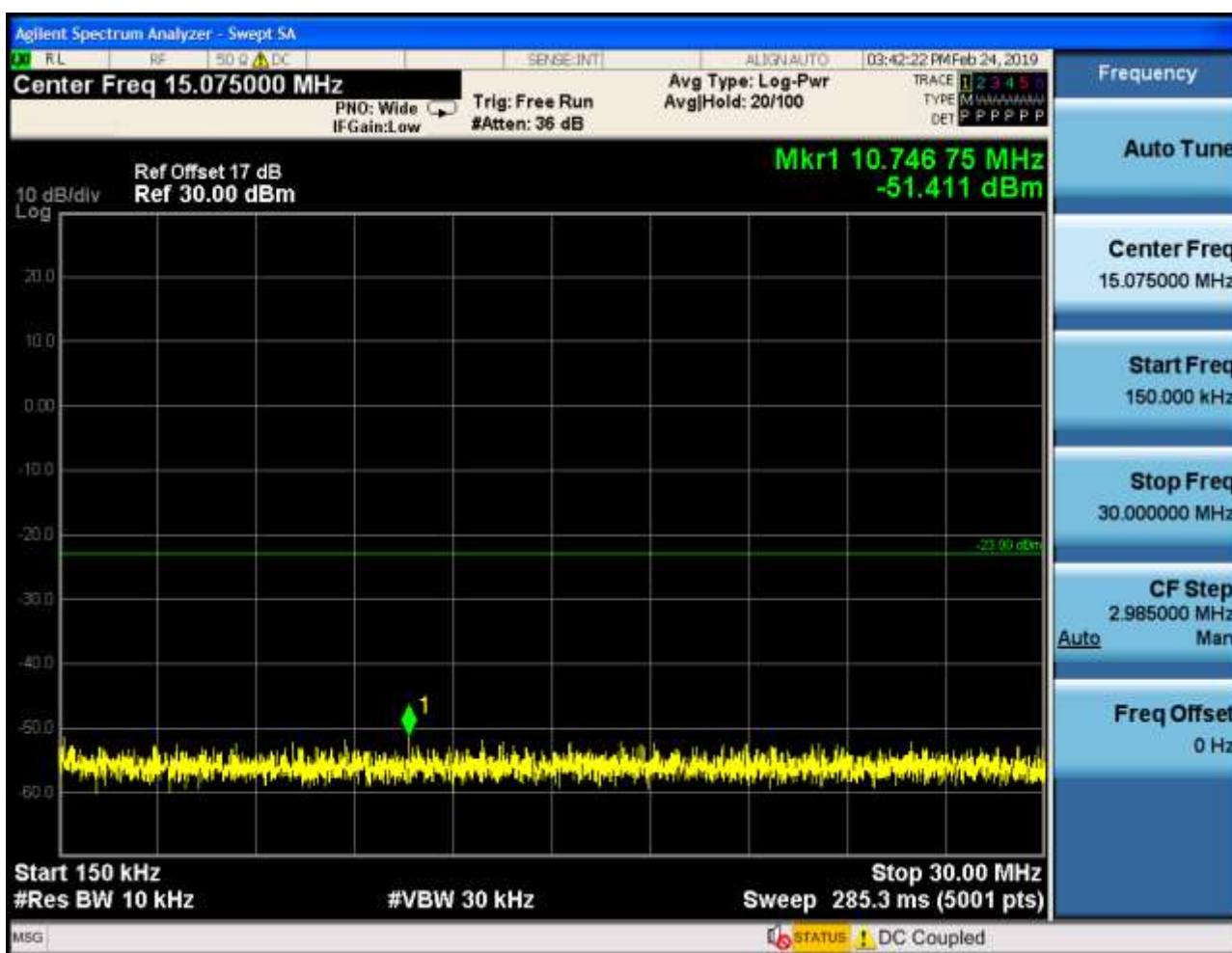


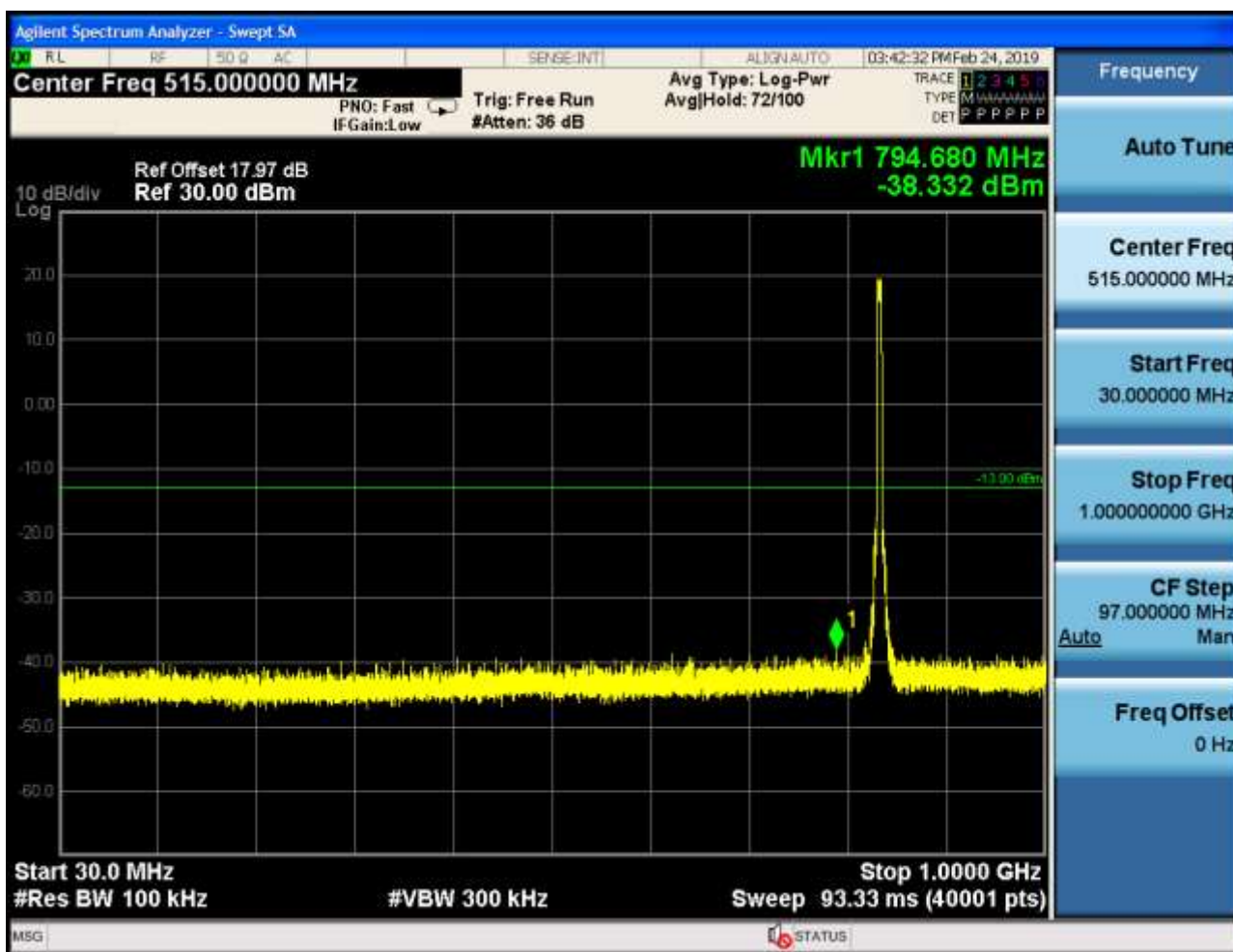


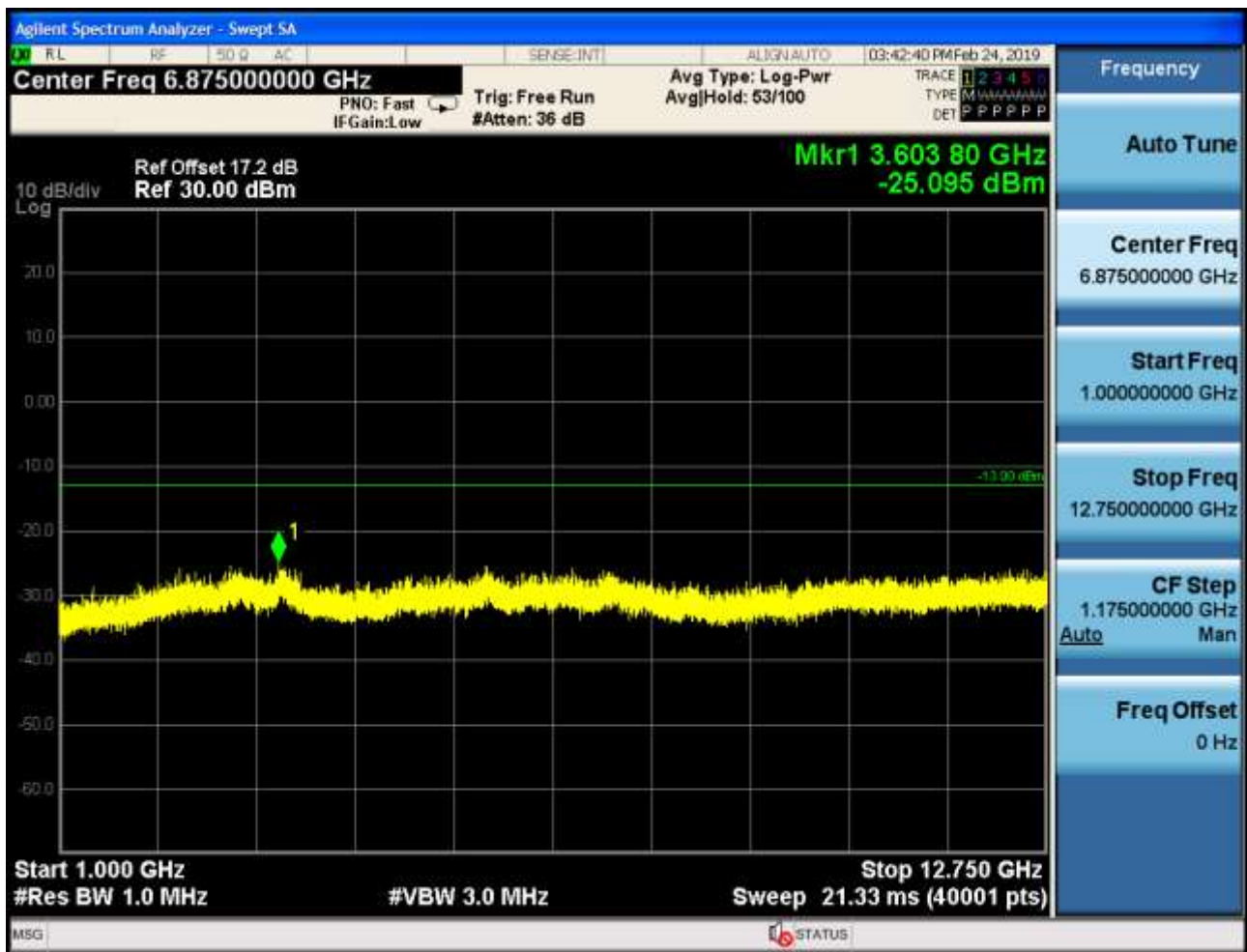


6.1.1.1.2 Test Channel = MCH

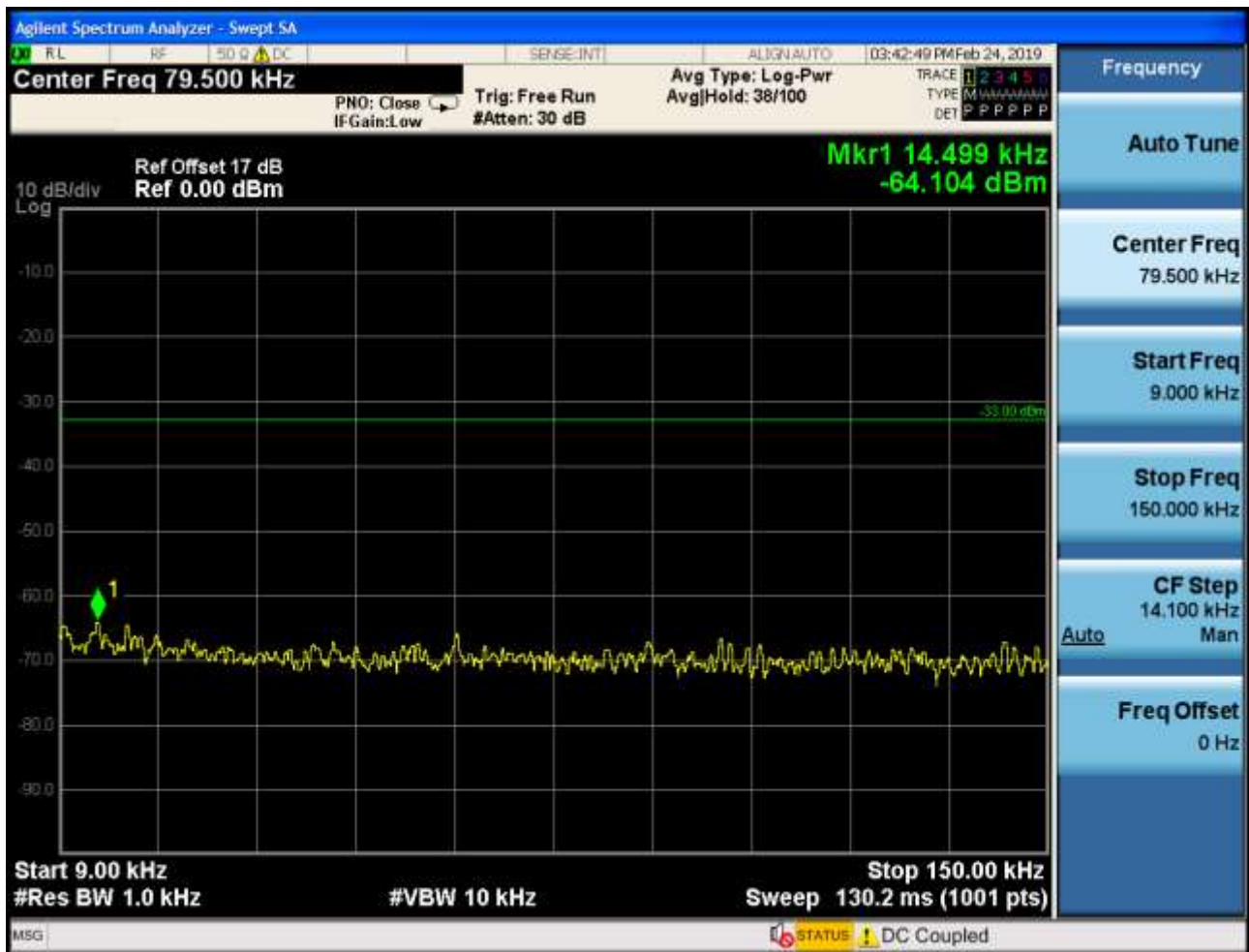


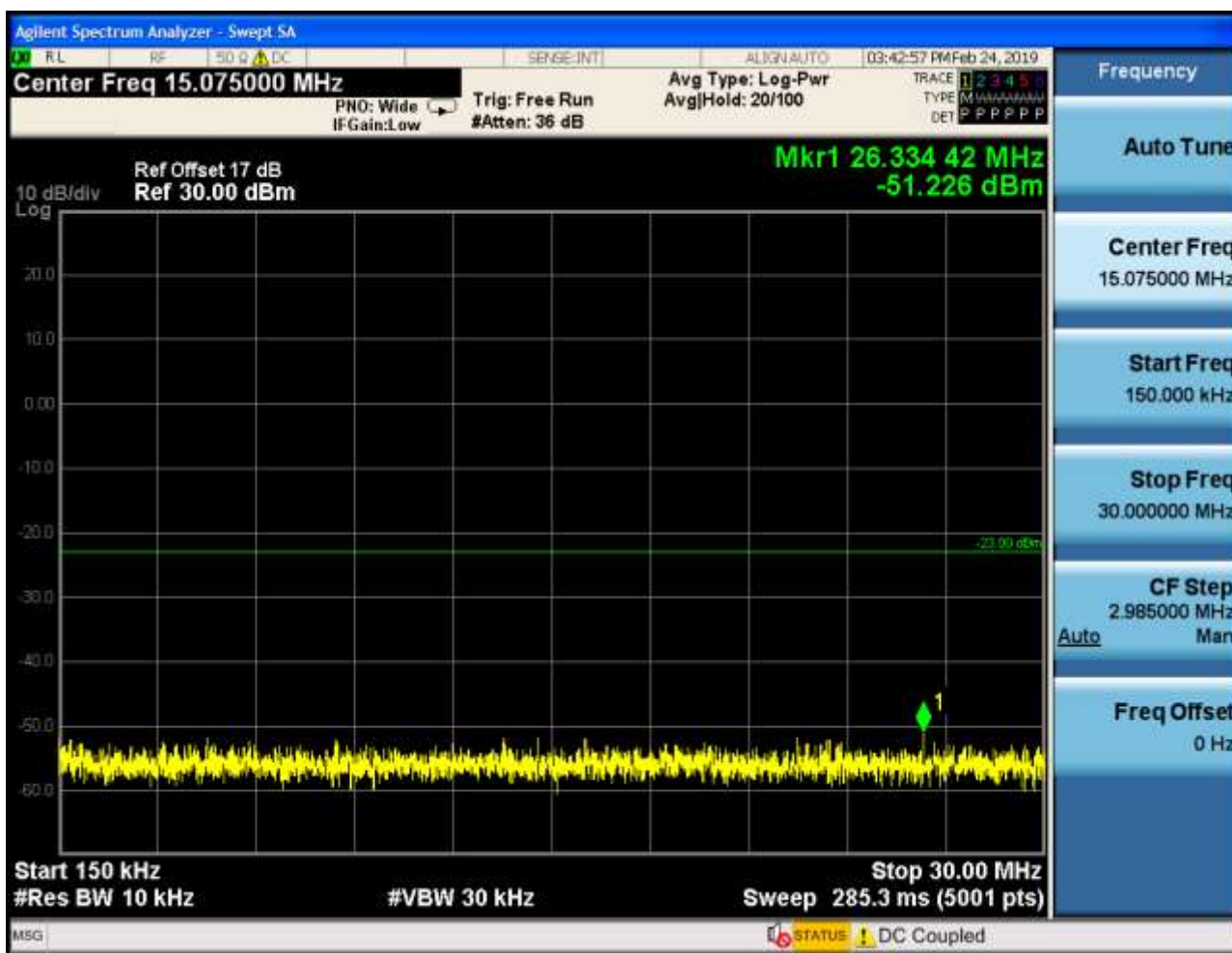


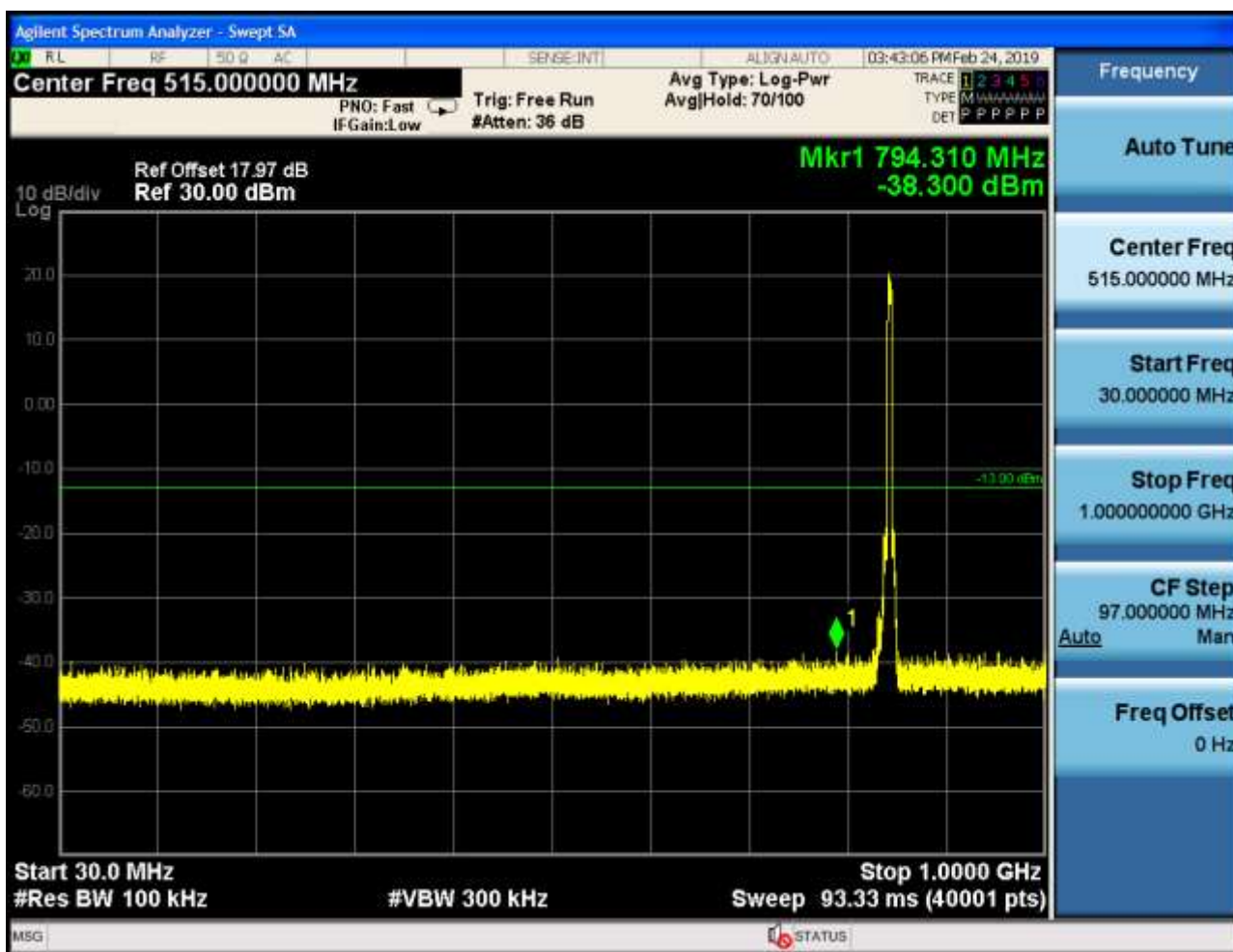


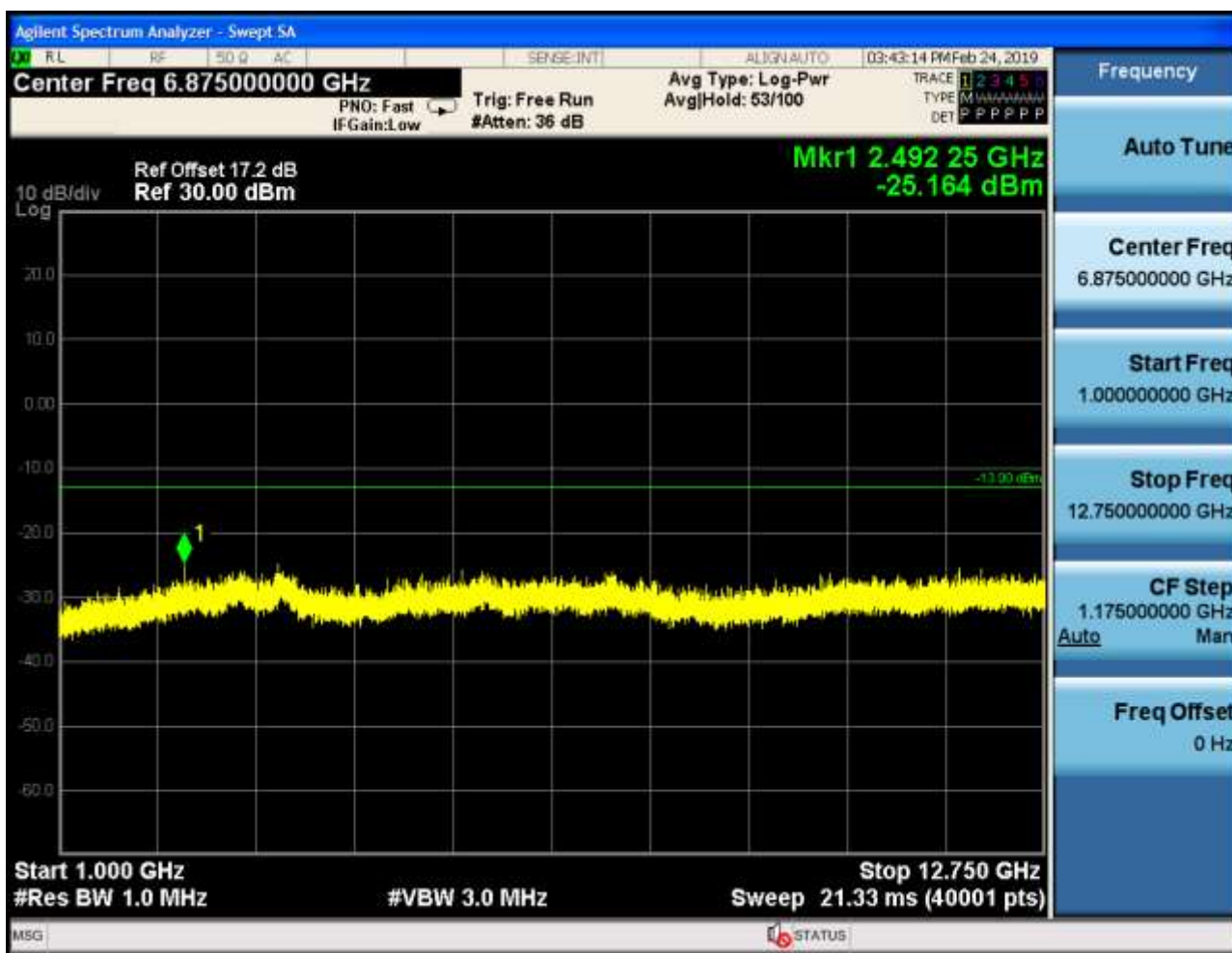


6.1.1.1.3 Test Channel = HCH







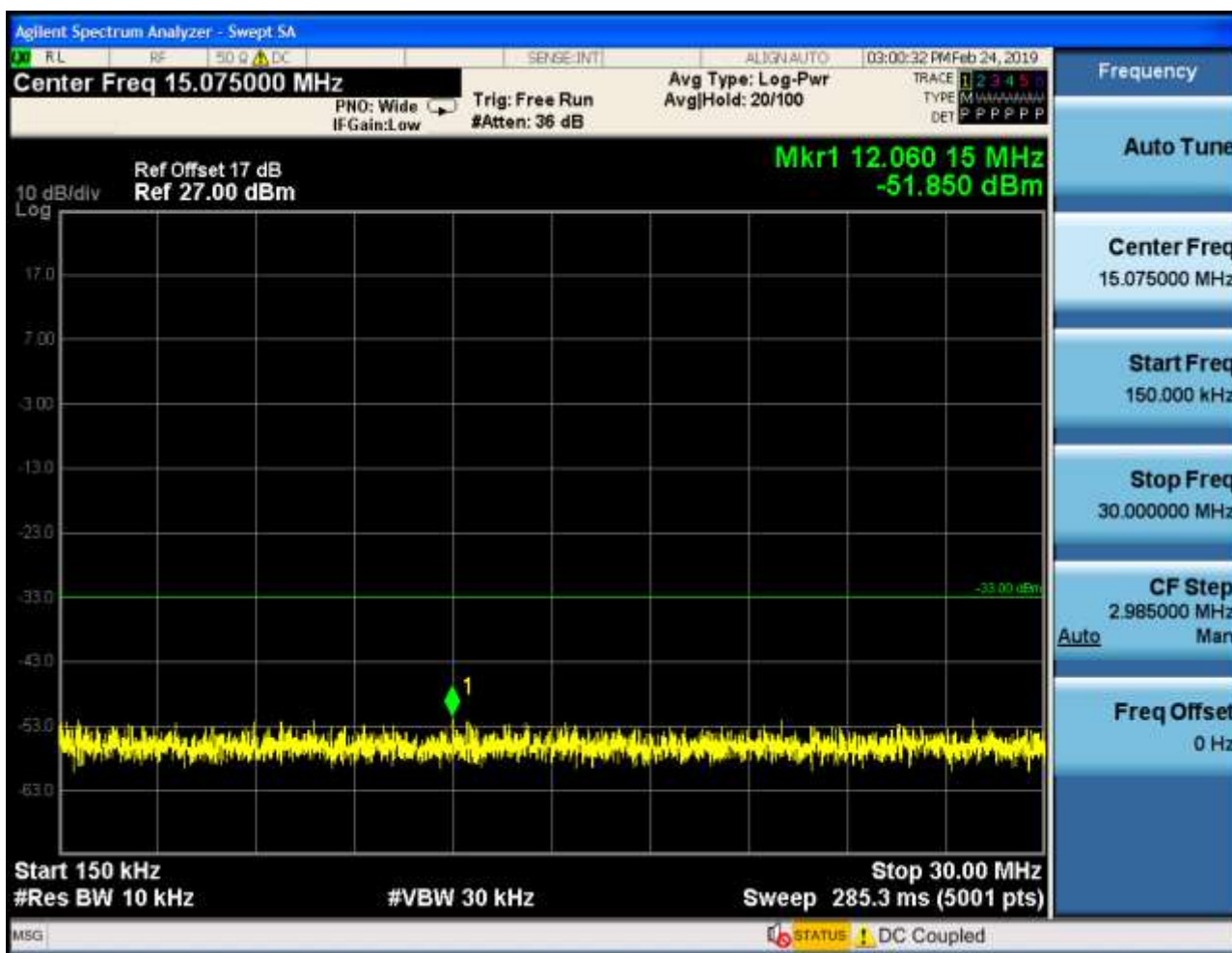


6.1.3 Test Band = WCDMA1900

6.1.3.1 Test Mode = UMTS/TM1

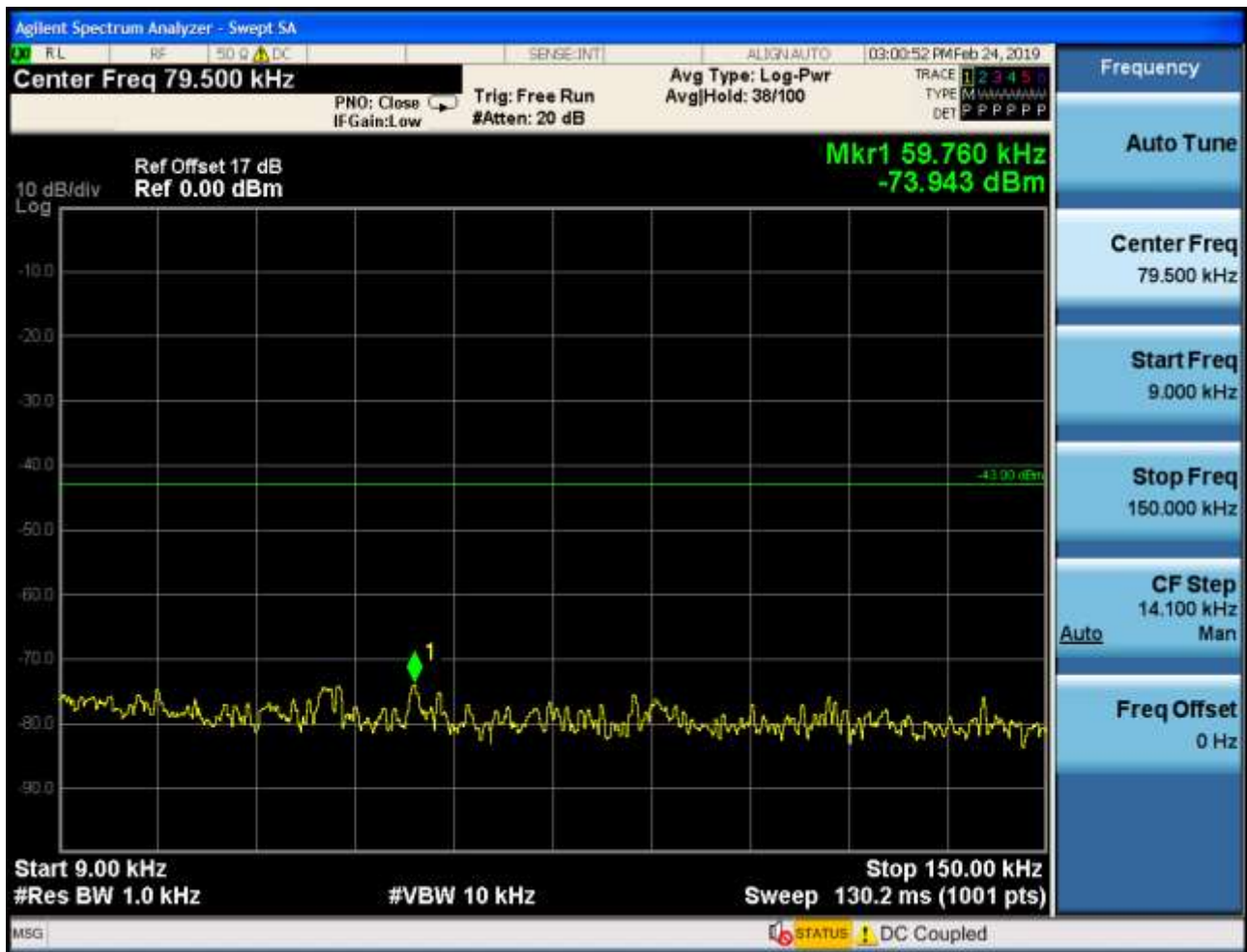
6.1.3.1.1 Test Channel = LCH

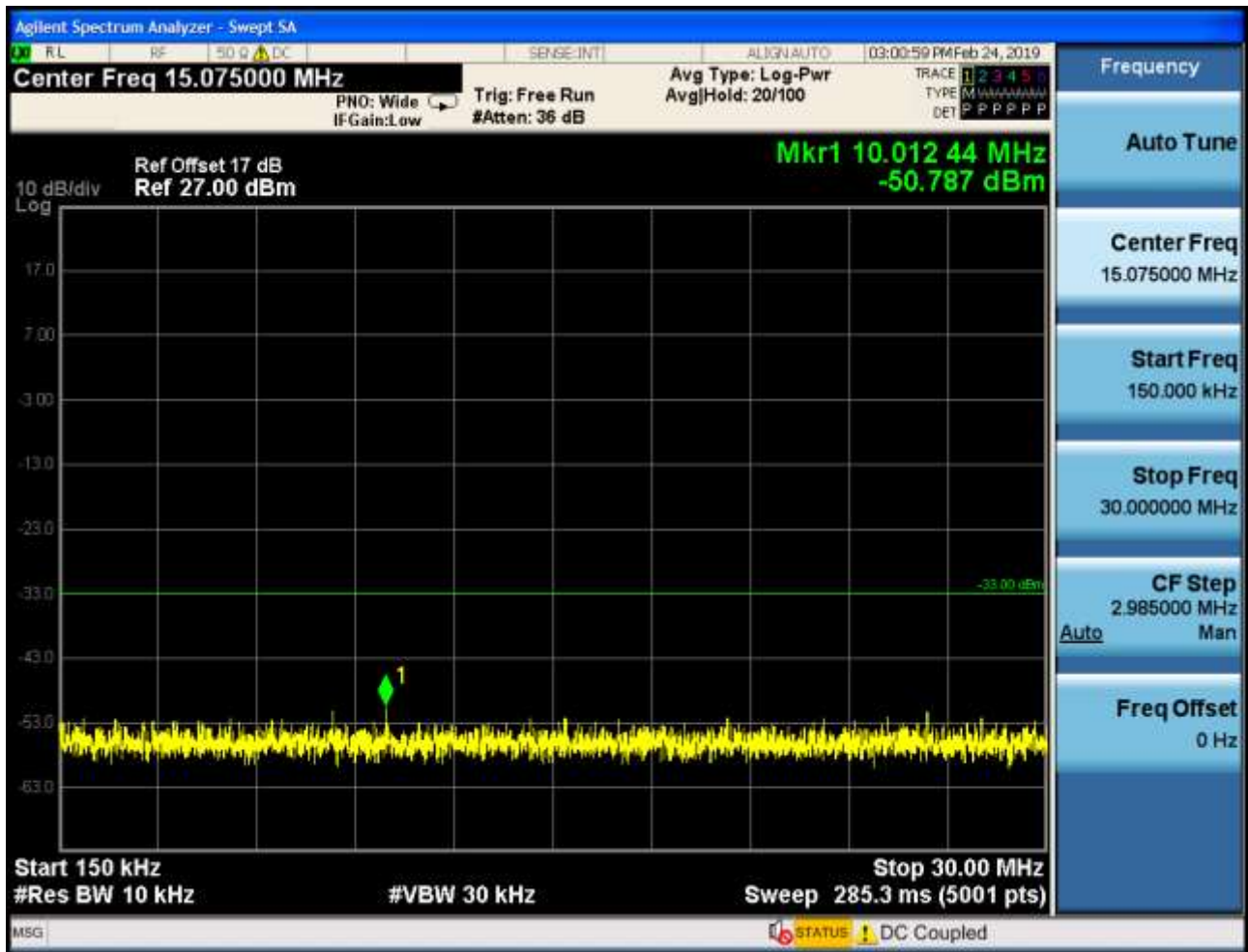






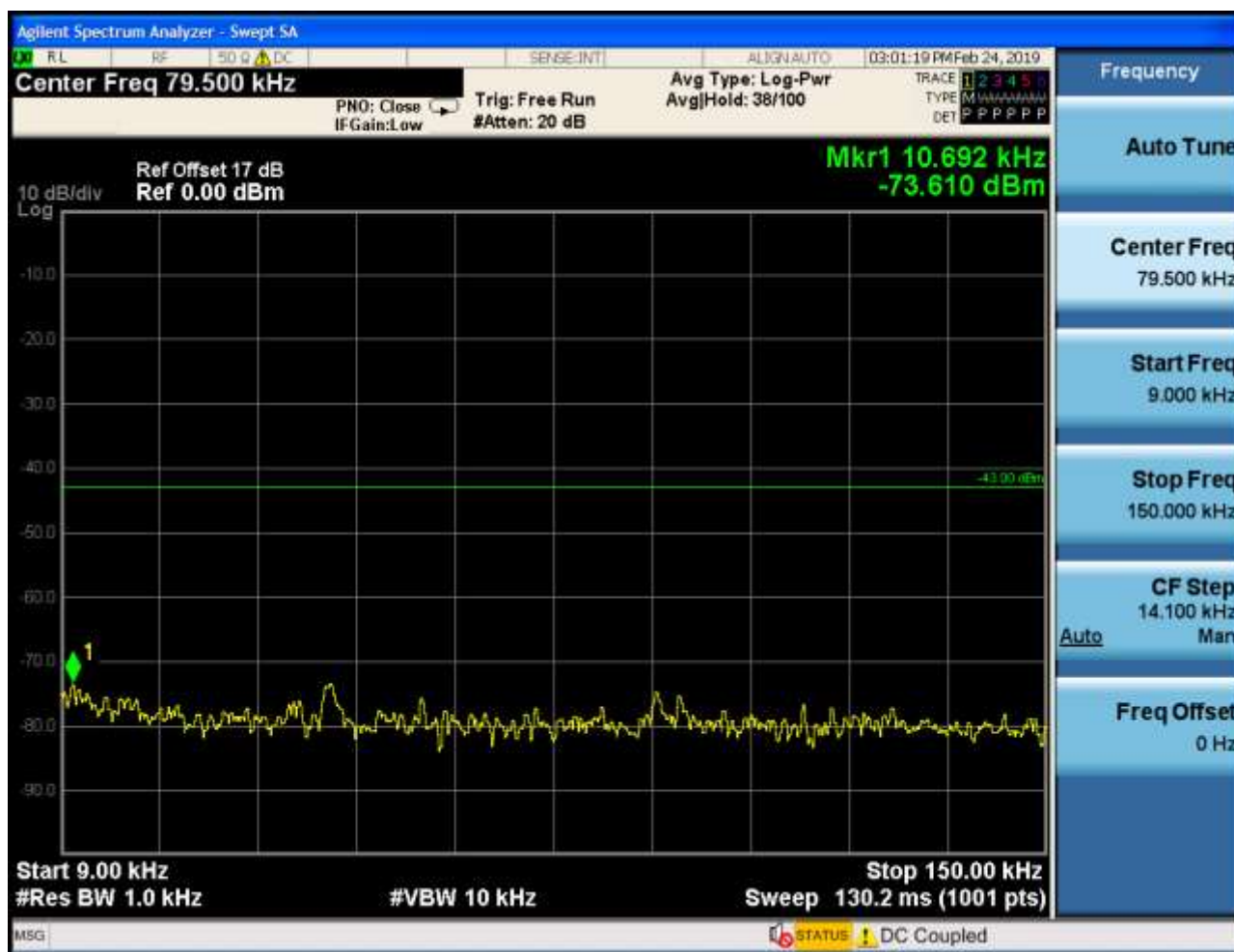
6.1.3.1.2 Test Channel = MCH

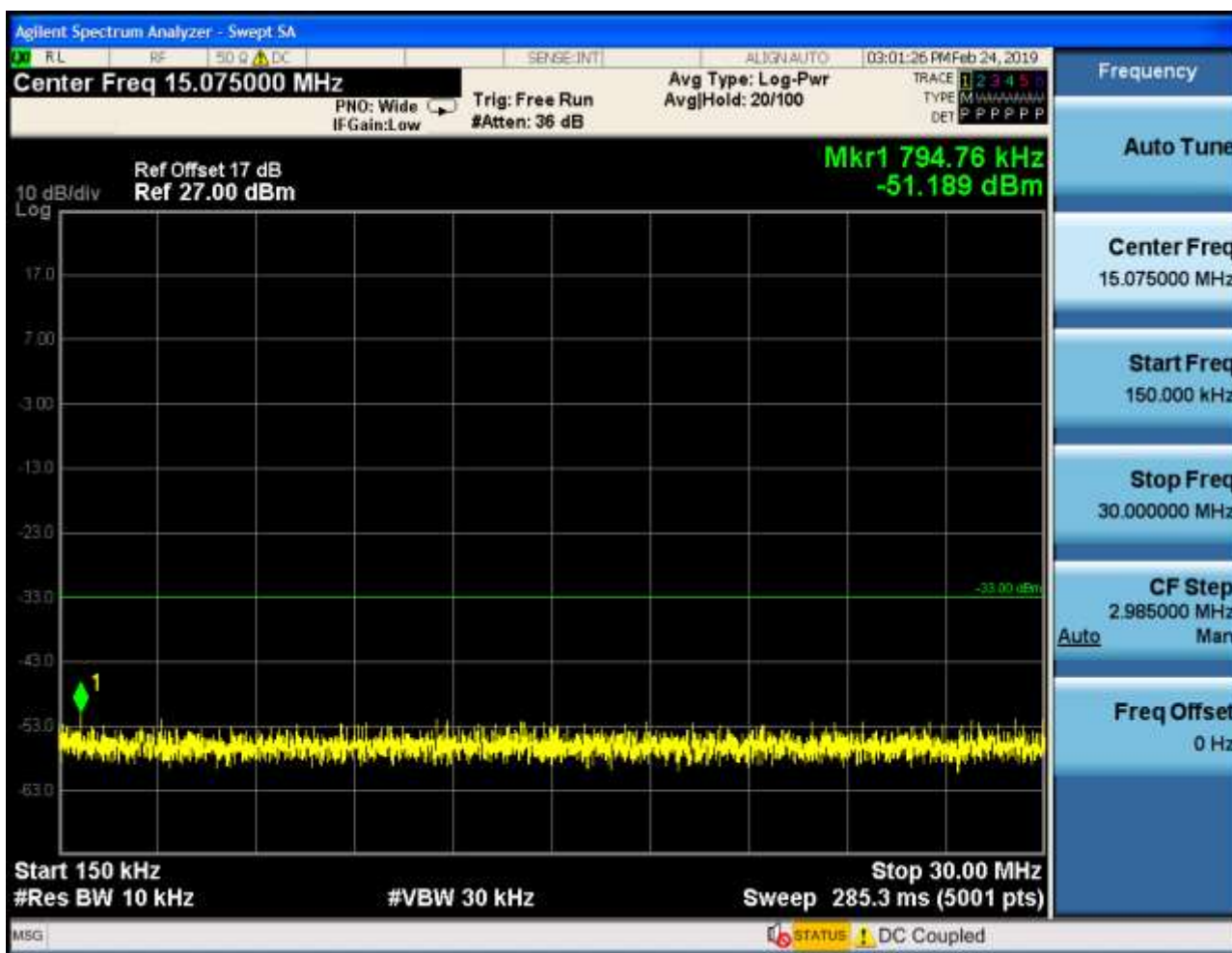






6.1.3.1.3 Test Channel = HCH







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

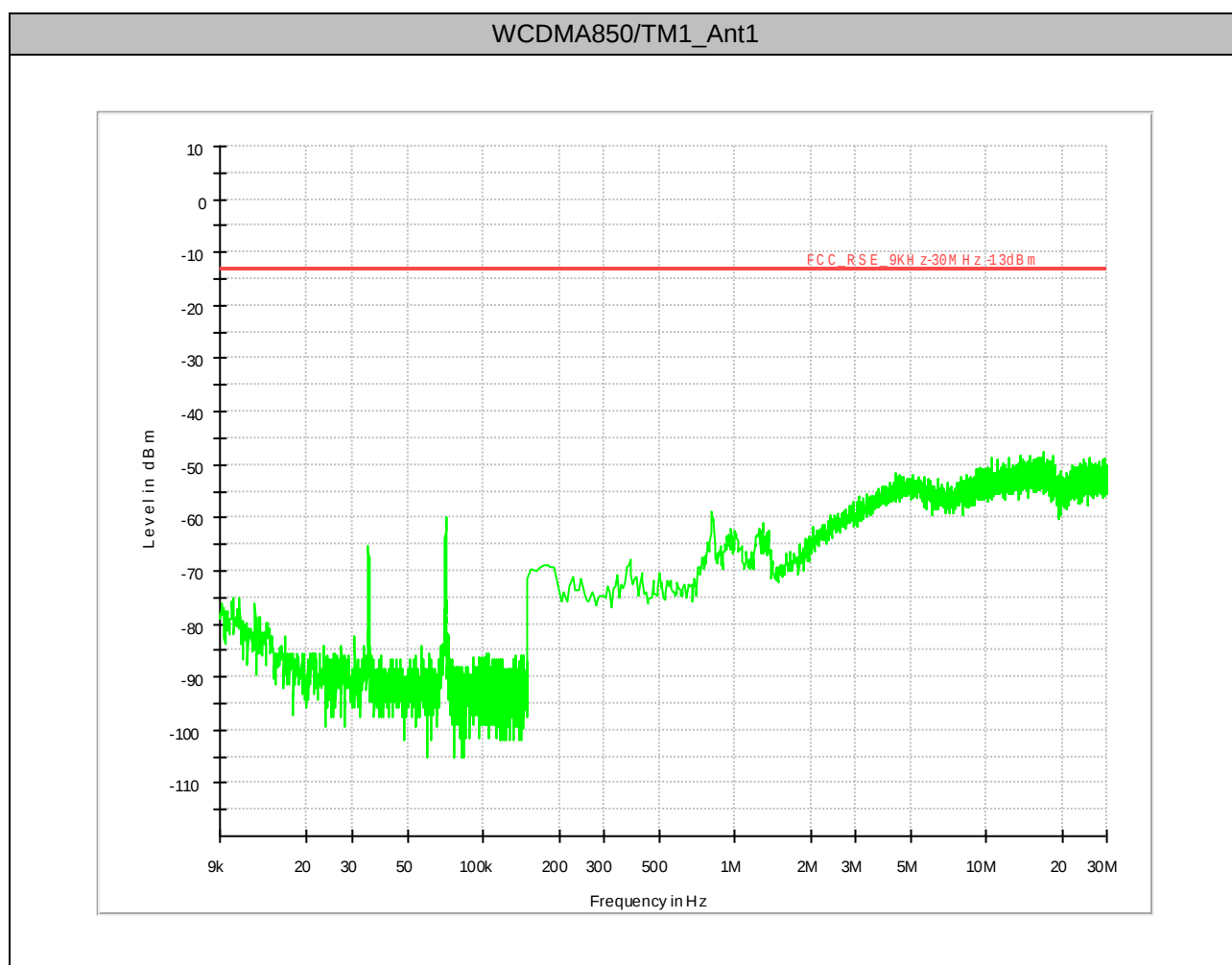
30MHz~1GHz, RBW = 100 kHz, VBW = 300 kHz. Detector: PK

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

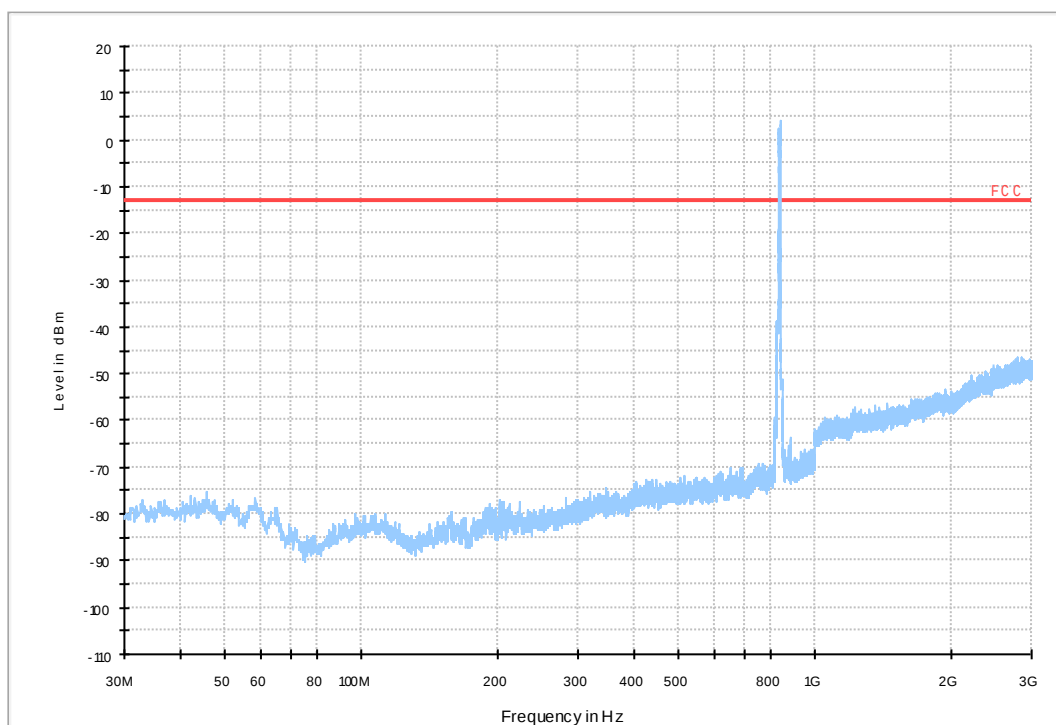
Part I - Test Plots

7.1 For UMTS

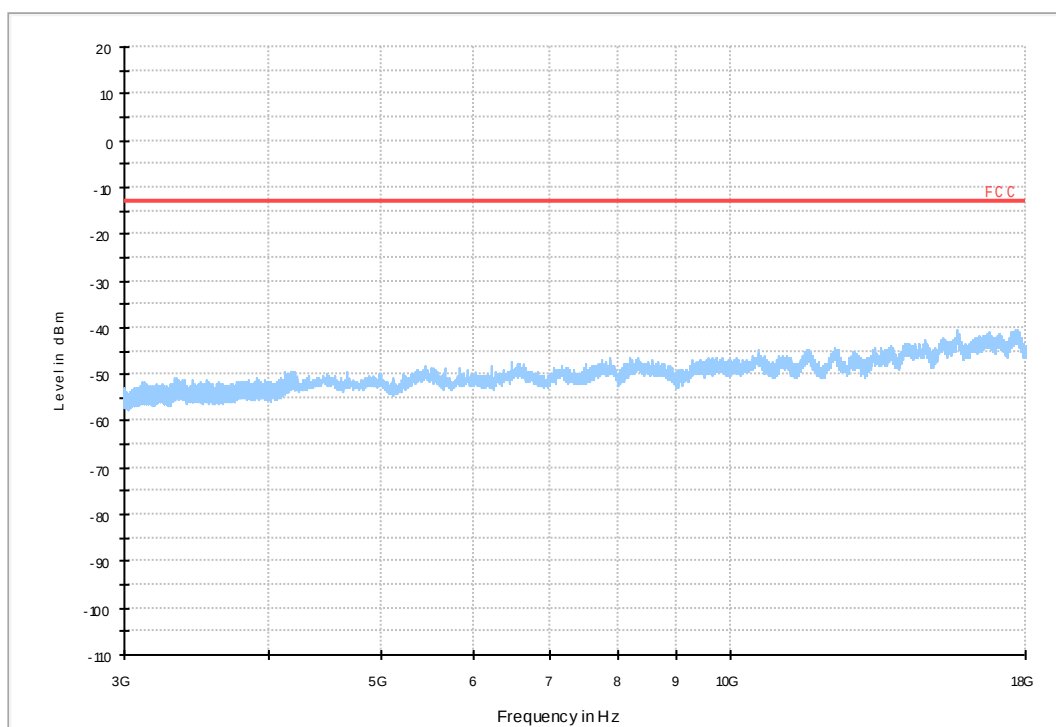
7.1.1 Test Band = WCDMA850



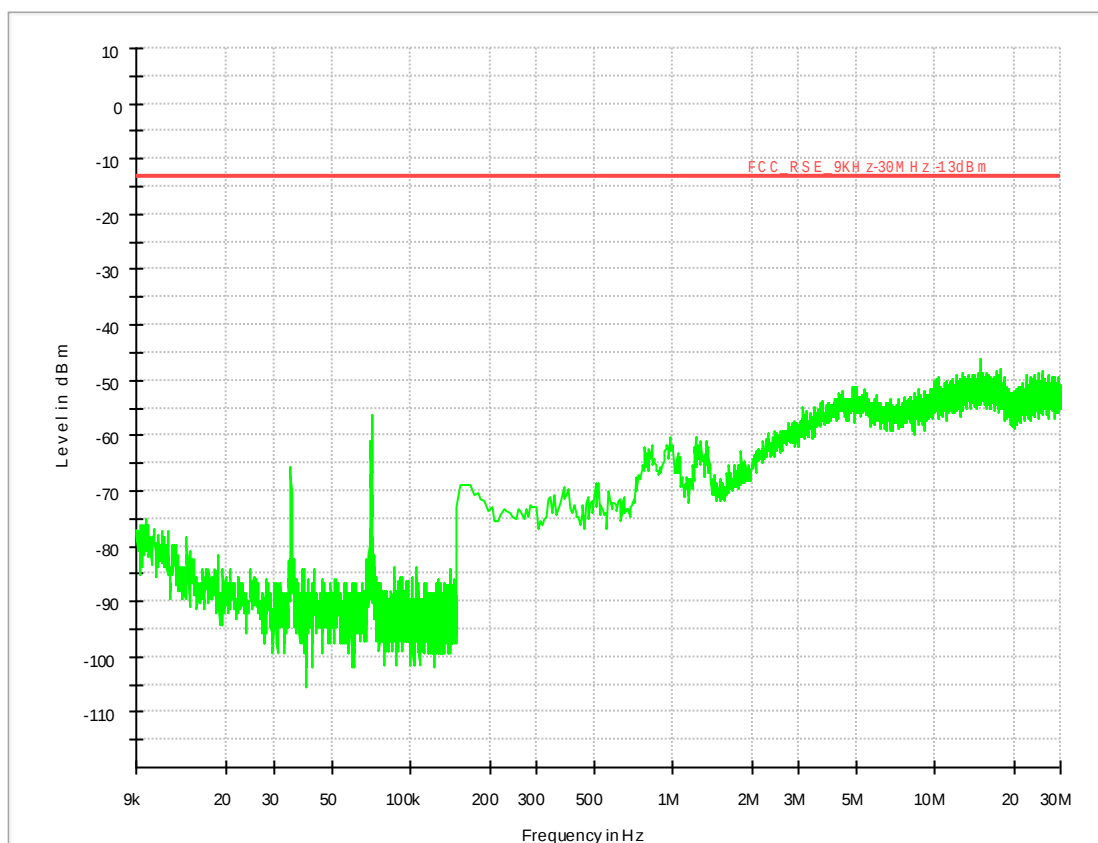
06 FCC PART22 WCDMA850_L



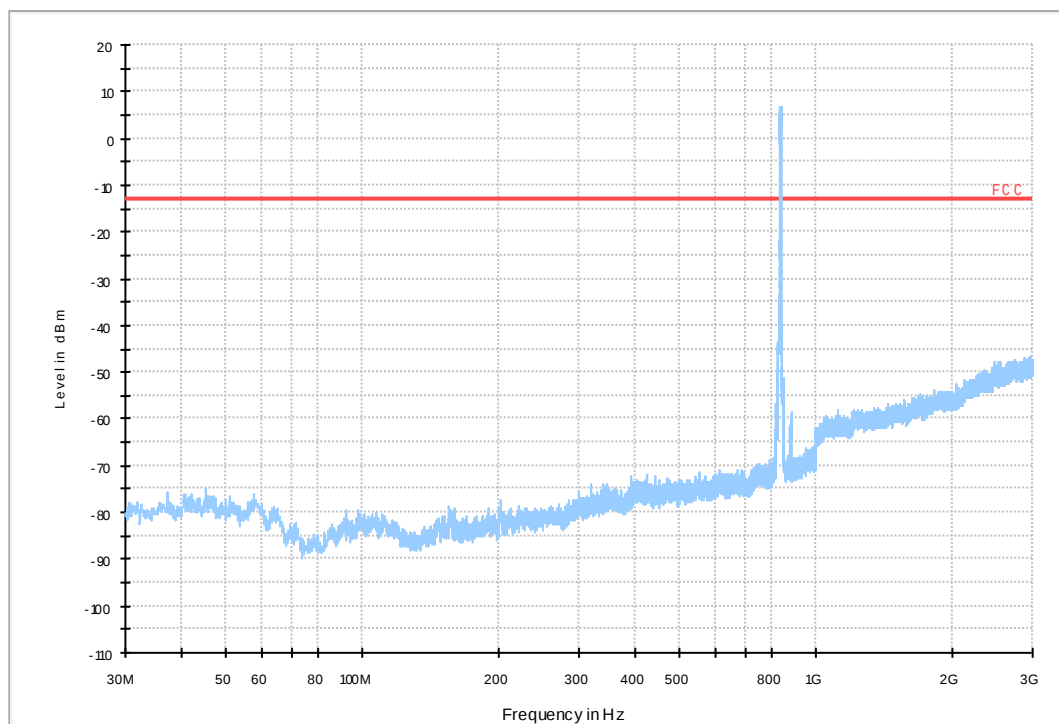
05 FCC PART22 WCDMA850_H



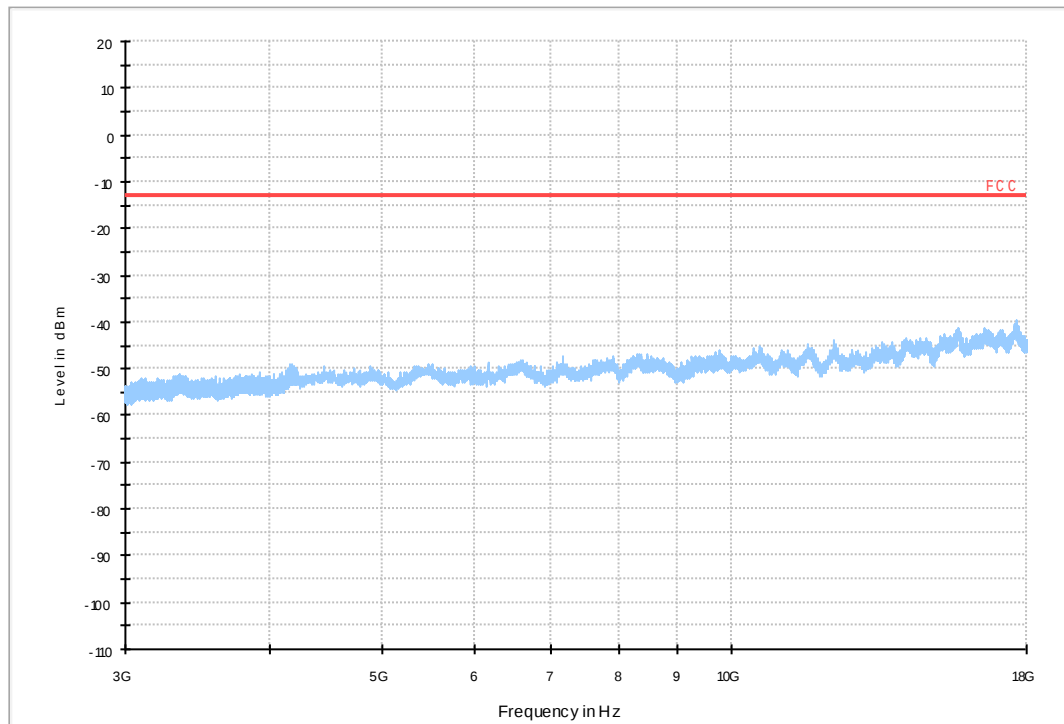
WCDMA850/TM1_Ant2



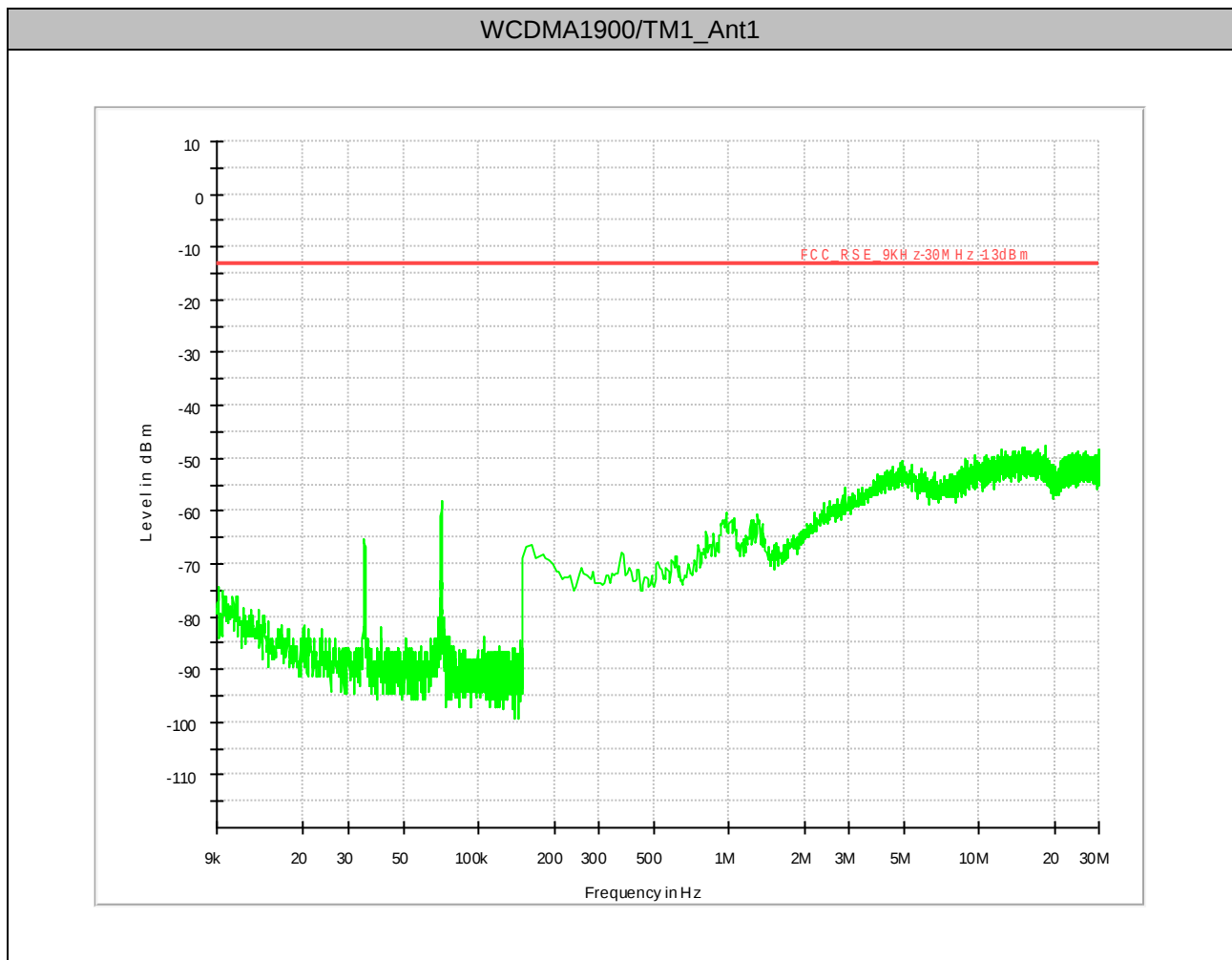
06 FCC PART 22 WCDMA850_L



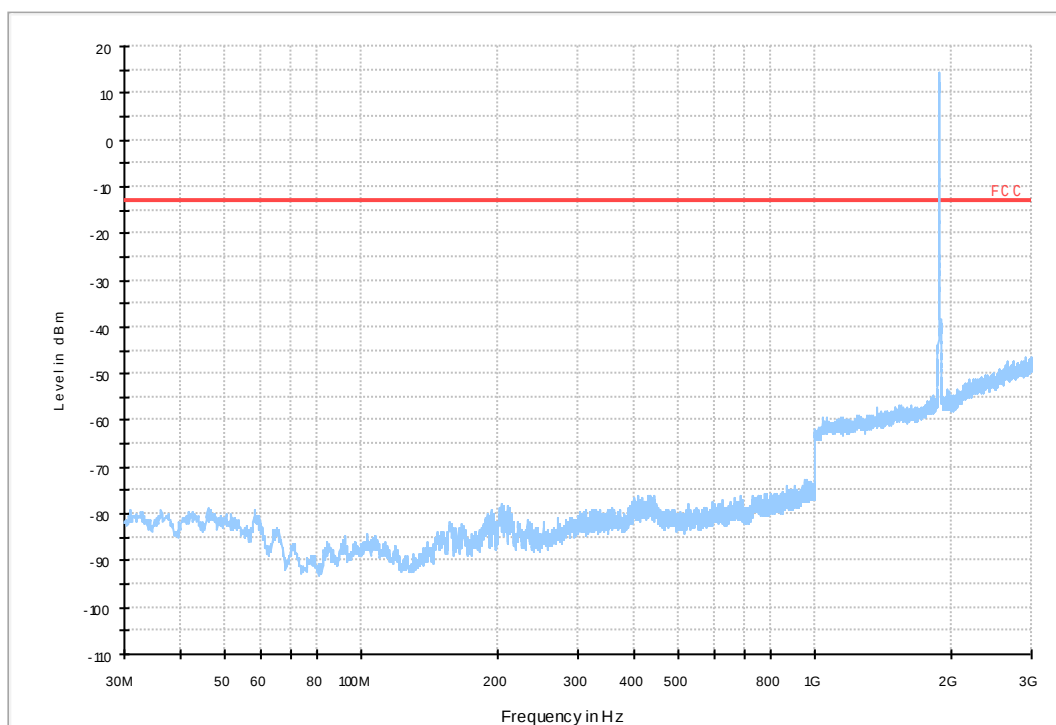
05 FCC PART 22 WCDMA850_H



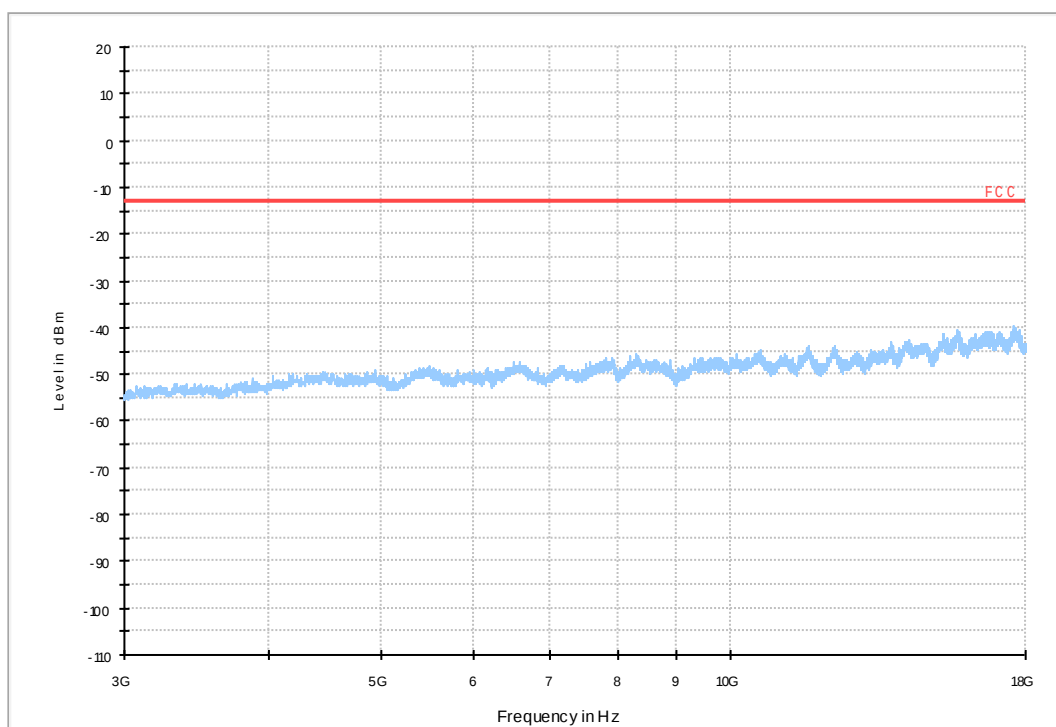
7.1.3 Test Band = WCDMA1900



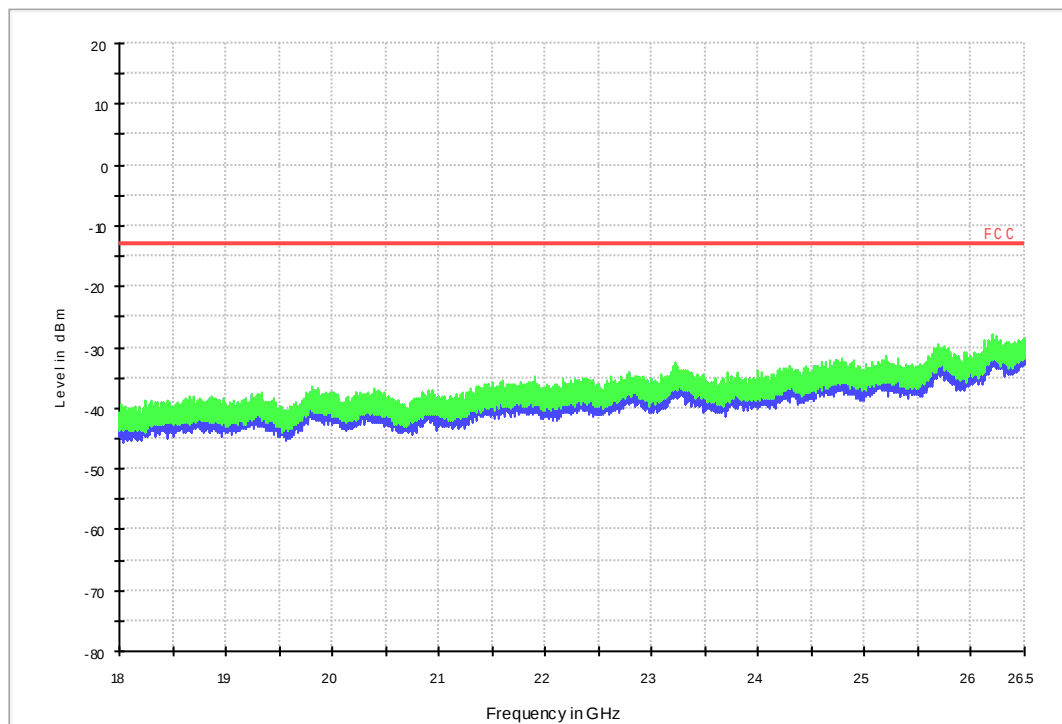
12 FCC PART24 WCDMA1900_L



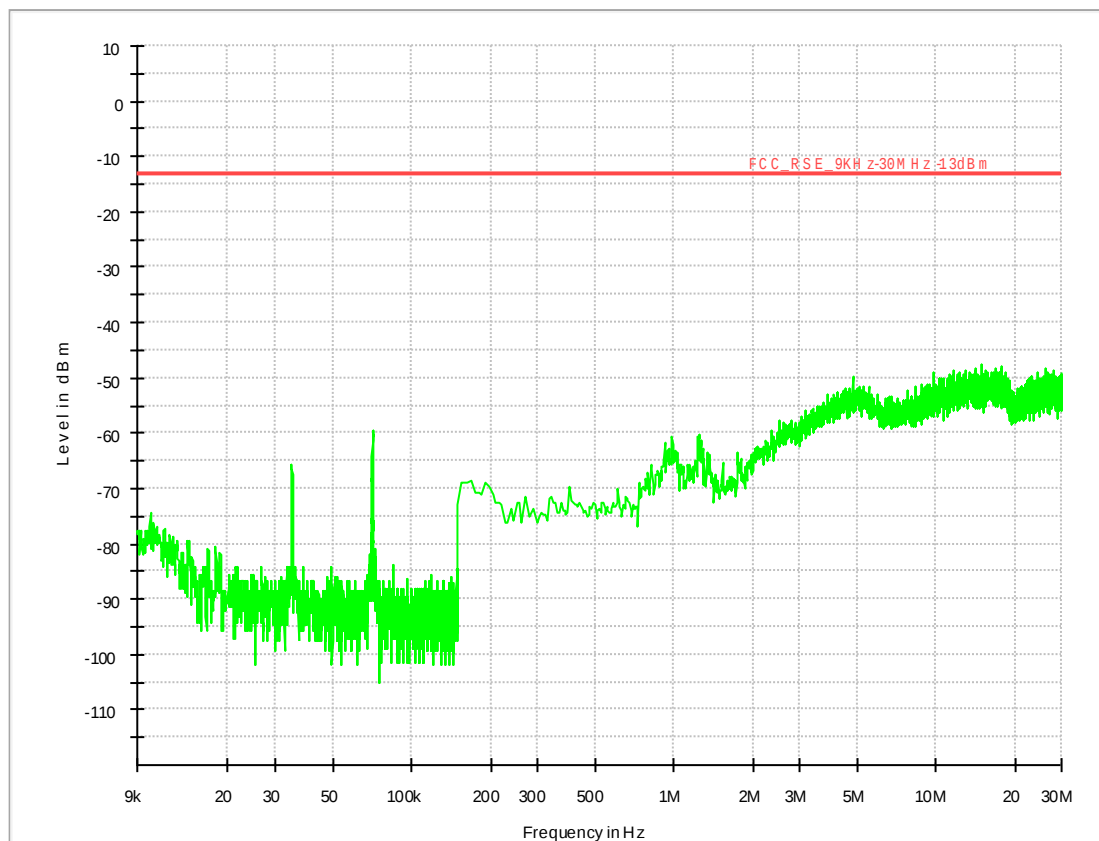
11 FCC PART24 WCDMA1900_H



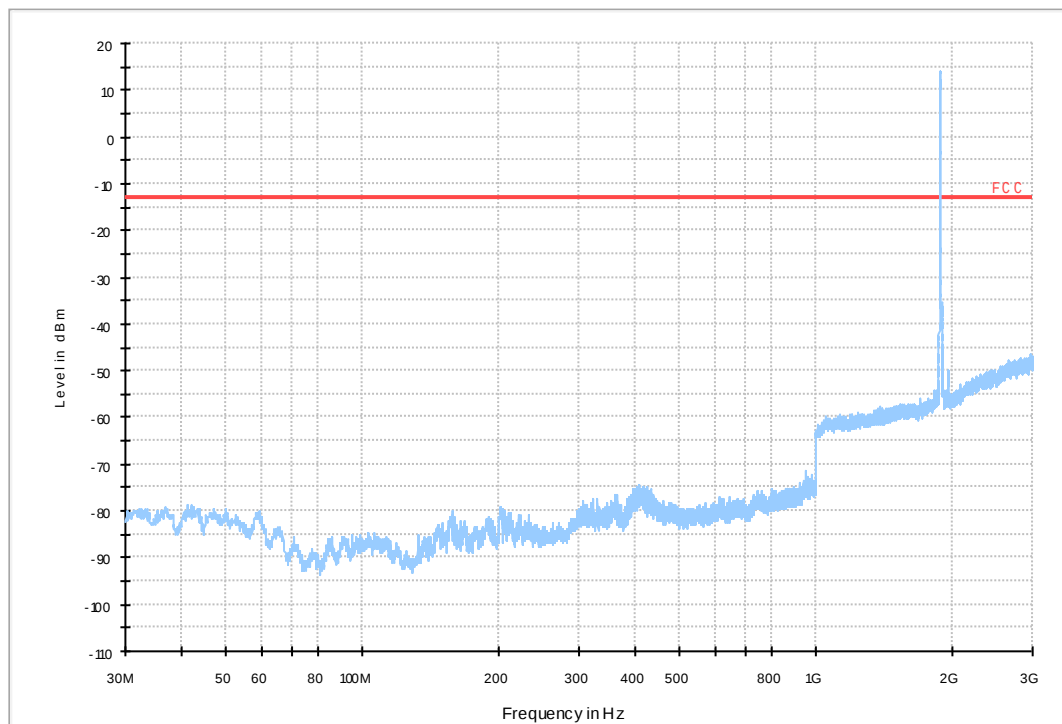
18G~26.5G RSE-TX-DIRECTOR ABOVE 1.5G PK



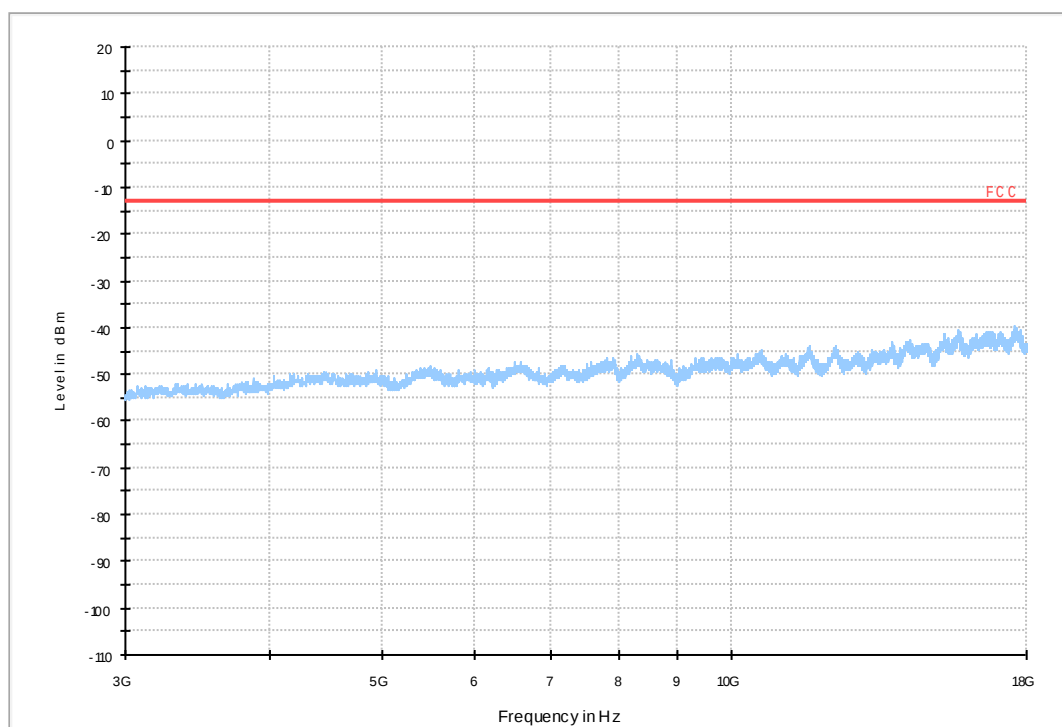
WCDMA1900/TM1_Ant2



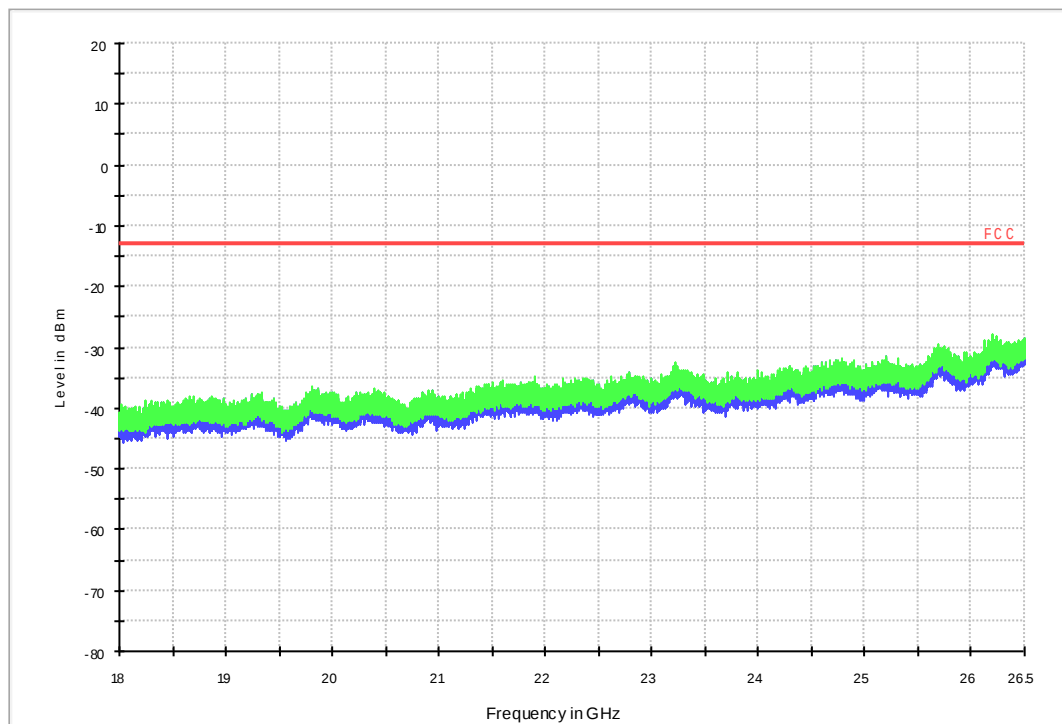
12 FCC PART24 WCDMA1900_L



11 FCC PART24 WCDMA1900_H



18G~26.5G RSE-TX-DIRECTOR ABOVE 1.5G PK



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	-3.89814	-0.00472	PASS
				VN	-4.97818	-0.00602	PASS
				VH	0.93698	0.00113	PASS
		MCH	TN	VL	4.52042	0.00540	PASS
				VN	-5.07832	-0.00607	PASS
				VH	-0.97275	-0.00116	PASS
		HCH	TN	VL	-4.27008	-0.00504	PASS
				VN	-6.10113	-0.00721	PASS
				VH	3.03268	0.00358	PASS
WCDMA1900	UMTS/TM1	LCH	TN	VL	-2.43902	-0.00132	PASS
				VN	1.76668	0.00095	PASS
				VH	1.40905	0.00076	PASS
		MCH	TN	VL	6.62327	0.00352	PASS
				VN	-1.38044	-0.00073	PASS
				VH	-3.68357	-0.00196	PASS
		HCH	TN	VL	7.43866	-0.00132	PASS
				VN	-4.04835	0.00095	PASS
				VH	4.17709	0.00076	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	-3.04699	-0.00369	PASS
				-20	-2.31743	-0.00280	PASS
				-10	2.86818	0.00347	PASS
				0	-1.19448	-0.00145	PASS
				10	3.71933	0.00450	PASS
				20	-4.97818	-0.00602	PASS
				30	-2.88248	-0.00349	PASS
				40	-1.73092	-0.00209	PASS
				50	3.18289	0.00385	PASS
		MCH	VN	-30	-0.99421	-0.00119	PASS
				-20	0.27180	0.00032	PASS
				-10	-0.35763	-0.00043	PASS
				0	0.30041	0.00036	PASS
				10	2.15292	0.00257	PASS
				20	-5.07832	-0.00607	PASS
				30	0.41485	0.00050	PASS
				40	-5.87940	-0.00703	PASS
				50	-3.32594	-0.00398	PASS
		HCH	VN	-30	0.05007	0.00006	PASS
				-20	-0.51498	-0.00061	PASS
				-10	-0.49353	-0.00058	PASS
				0	-2.43902	-0.00288	PASS
				10	-0.59366	-0.00070	PASS
				20	-6.10113	-0.00721	PASS
				30	0.45776	0.00054	PASS
				40	-3.94821	-0.00466	PASS
				50	-4.79221	-0.00566	PASS
WCDMA1900	UMTS/TM1	LCH	VN	-30	1.28746	0.00070	PASS
				-20	1.73807	0.00094	PASS
				-10	-2.22444	-0.00120	PASS
				0	1.62363	0.00088	PASS
				10	-1.10149	-0.00059	PASS
				20	1.76668	0.00095	PASS
				30	1.51634	0.00082	PASS
				40	3.37601	0.00182	PASS
				50	4.82082	0.00260	PASS
		MCH	VN	-30	0.57220	0.00030	PASS
				-20	-0.19312	-0.00010	PASS



Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				-10	-2.65360	-0.00141	PASS
				0	-0.56505	-0.00030	PASS
				10	-3.35455	-0.00178	PASS
				20	-1.38044	-0.00073	PASS
				30	-1.32322	-0.00070	PASS
				40	0.04292	0.00002	PASS
				50	-0.27895	-0.00015	PASS
		HCH	VN	-30	0.85831	0.00045	PASS
				-20	-0.18597	-0.00010	PASS
				-10	-2.09570	-0.00110	PASS
				0	-4.16279	-0.00218	PASS
				10	-2.03848	-0.00107	PASS
				20	-4.04835	-0.00212	PASS
				30	-2.45333	-0.00129	PASS
				40	2.39611	0.00126	PASS
				50	-1.21593	-0.00064	PASS

END