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	24.13	16.85	38.5	PASS
		MCH	24.02	16.74	38.5	PASS
		HCH	23.90	16.62	38.5	PASS
Test Band	**Test Mode**	**Test Channel**	**Conducted Power [dBm]**	**EIRP [dBm]**	**Limit [dBm]**	**Verdict**
WCDMA1700	UMTS/TM1	LCH	24.03	23.03	30	PASS
		MCH	24.05	23.05	30	PASS
		HCH	24.11	23.11	30	PASS
WCDMA1900	UMTS/TM1	LCH	23.87	21.53	33	PASS
		MCH	23.72	21.38	33	PASS
		HCH	23.93	21.59	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,

ERP [dBm] = SGP [dBm] - Cable Loss [dB] + Gain [dBd]

EIRP [dBm] = SGP [dBm] - Cable Loss [dB] + Gain [dBi]

b, SGP = Signal Generator Level

Note2:

SET Span = 1.5 * OBW

SET RBW = 1% of the OBW, not to exceed 1MHz

SET VBW >= 3 * 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	2.980	13	PASS
		MCH	2.930	13	PASS
		HCH	3.110	13	PASS
WCDMA1700	UMTS/TM1	LCH	2.920	13	PASS
		MCH	3.080	13	PASS
		HCH	2.980	13	PASS
WCDMA1900	UMTS/TM1	LCH	2.780	13	PASS
		MCH	2.920	13	PASS
		HCH	3.220	13	PASS

3Appendix_C: Modulation Characteristics

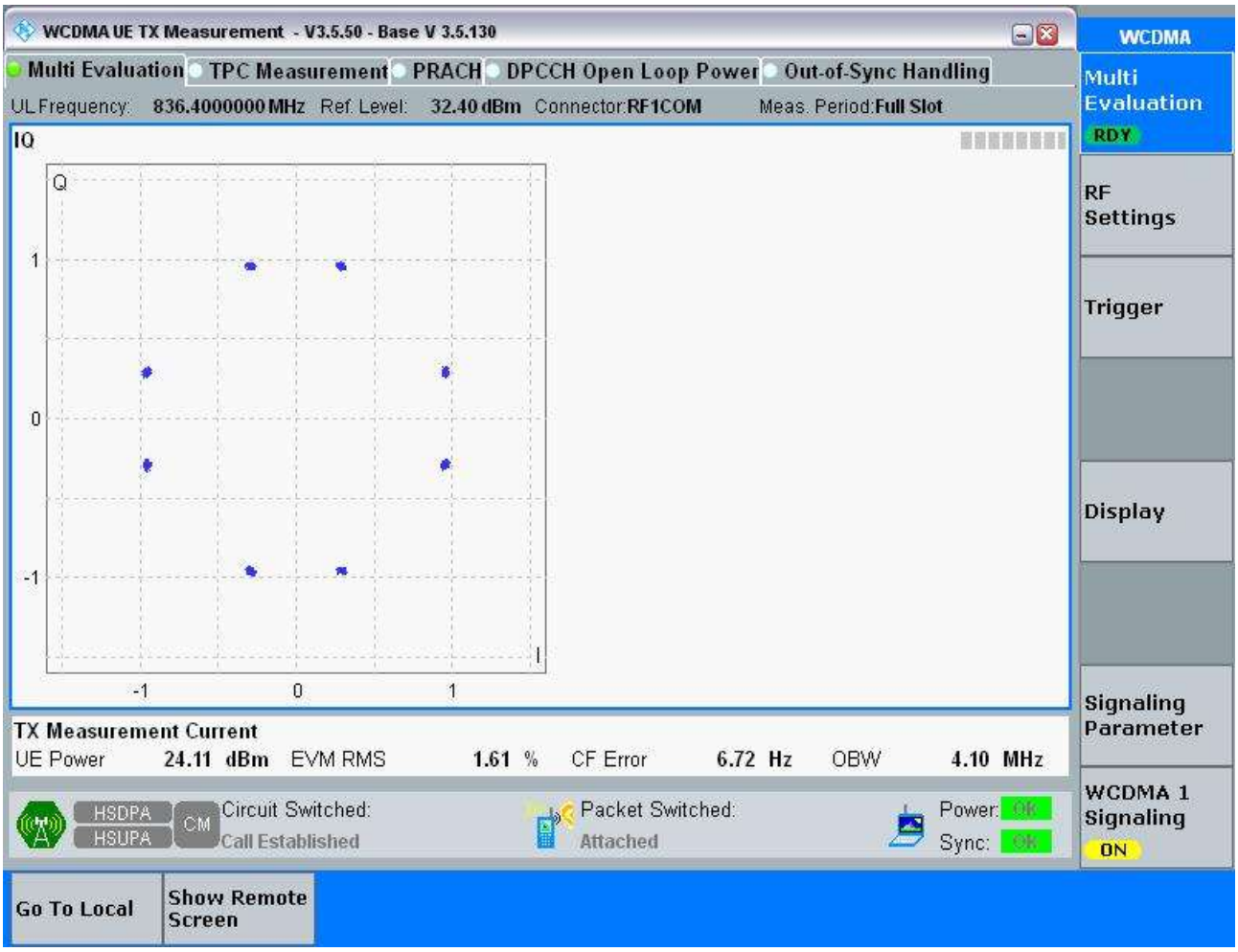
Part I - Test Plots

3.1 For UMTS

3.1.1 Test Band = WCDMA850

3.1.1.1 Test Mode = UMTS/TM1

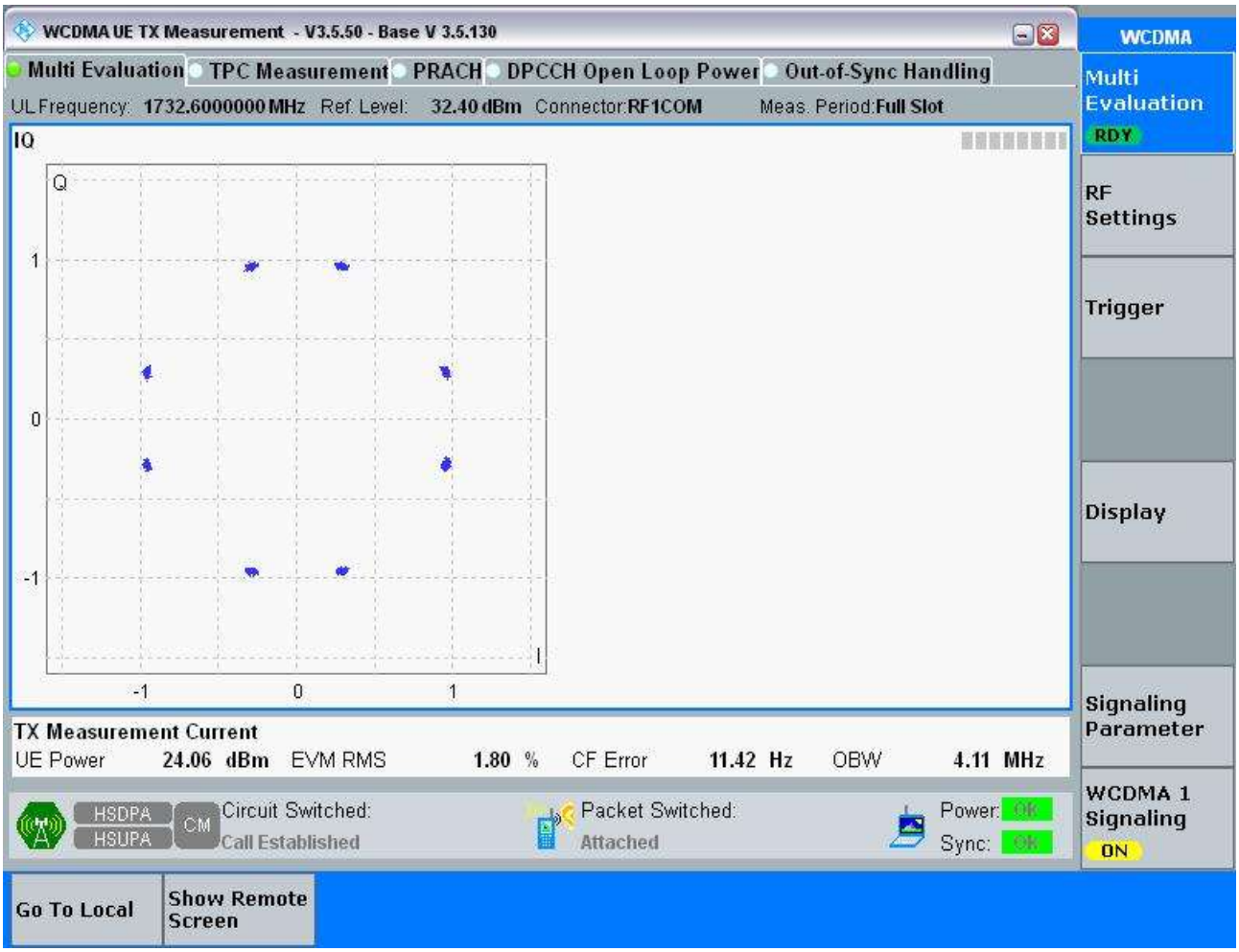
3.1.1.1.1 Test Channel = MCH



3.1.2 Test Band = WCDMA1700

3.1.2.1 Test Mode = UMTS/TM1

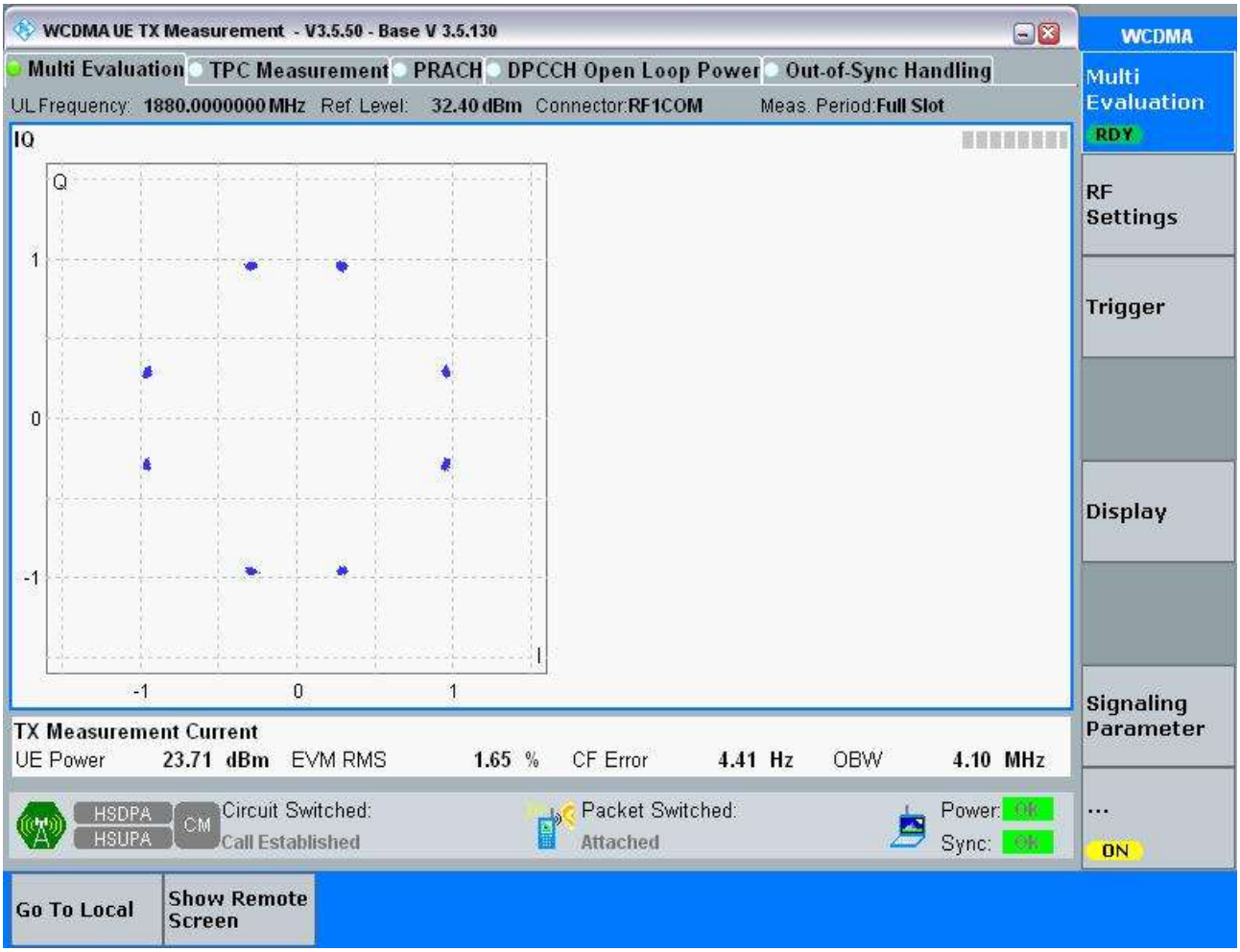
3.1.2.1.1 Test Channel = MCH



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	4.14	4.71	Pass
		MCH	4.16	4.70	Pass
		HCH	4.16	4.69	Pass
WCDMA1700	UMTS/TM1	LCH	4.16	4.71	Pass
		MCH	4.16	4.69	Pass
		HCH	4.17	4.70	Pass
WCDMA1900	UMTS/TM1	LCH	4.17	4.72	Pass
		MCH	4.16	4.70	Pass
		HCH	4.16	4.70	Pass

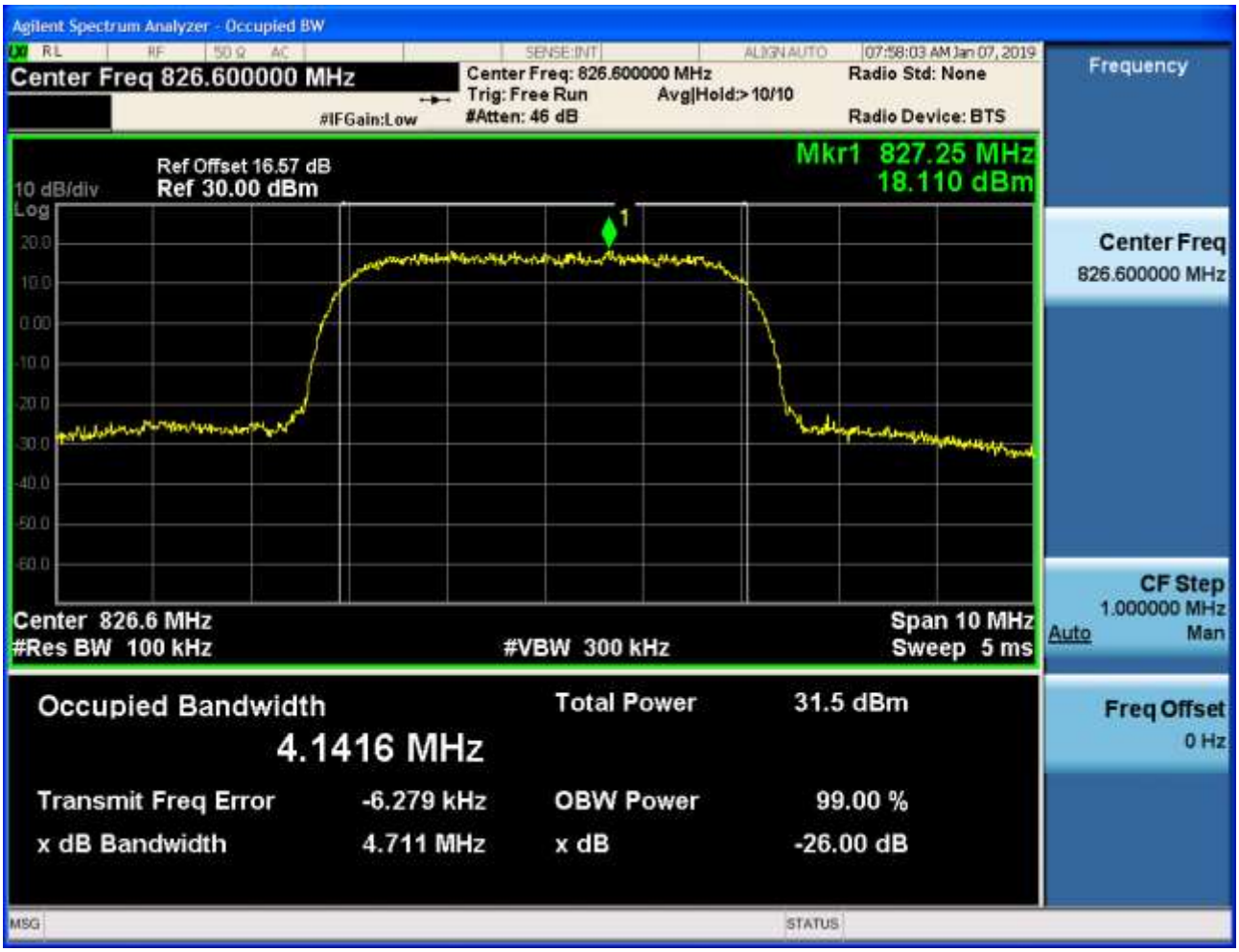
Part II - Test Plots

4.1 For UMTS

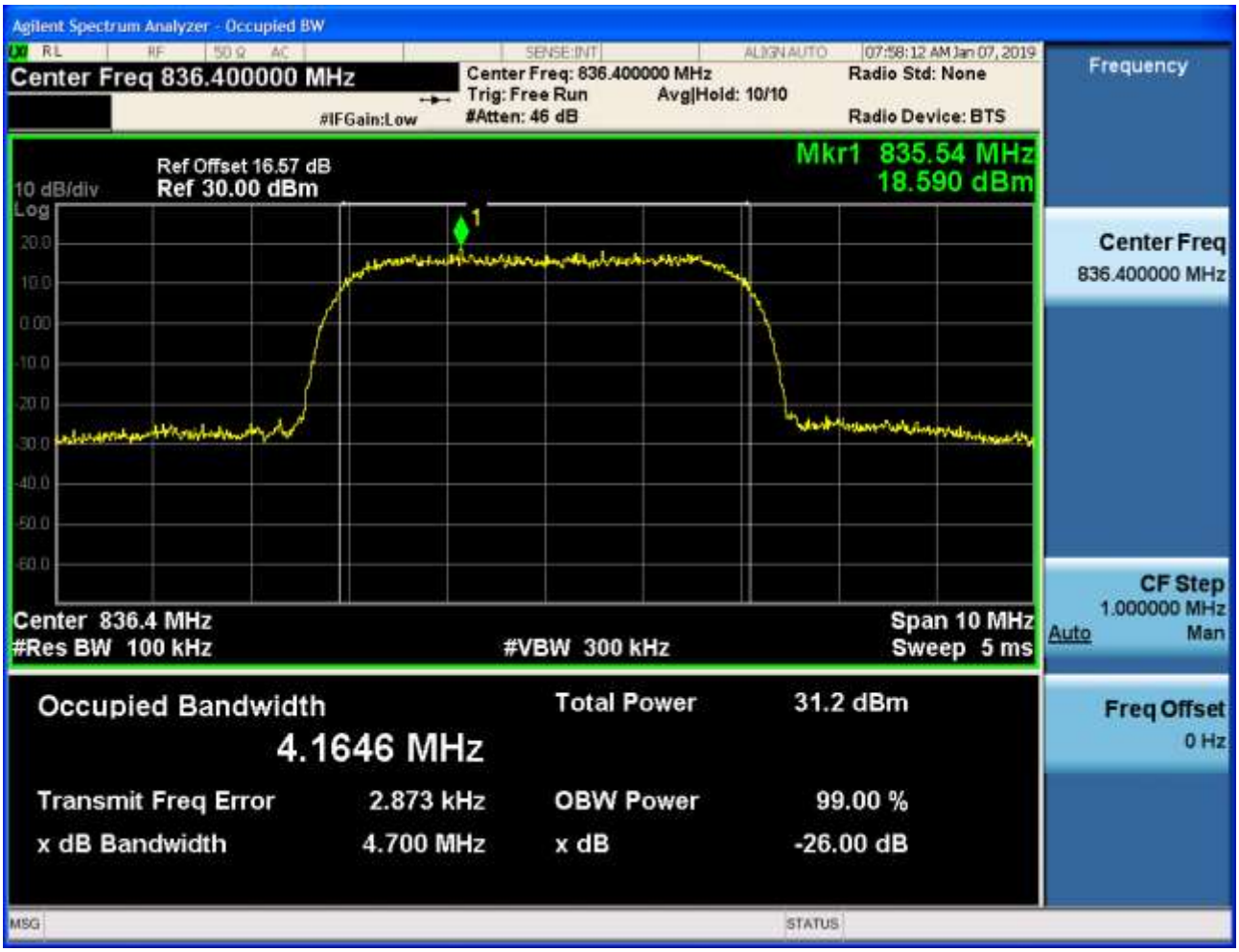
4.1.1 Test Band = WCDMA850

4.1.1.1 Test Mode = UMTS/TM1

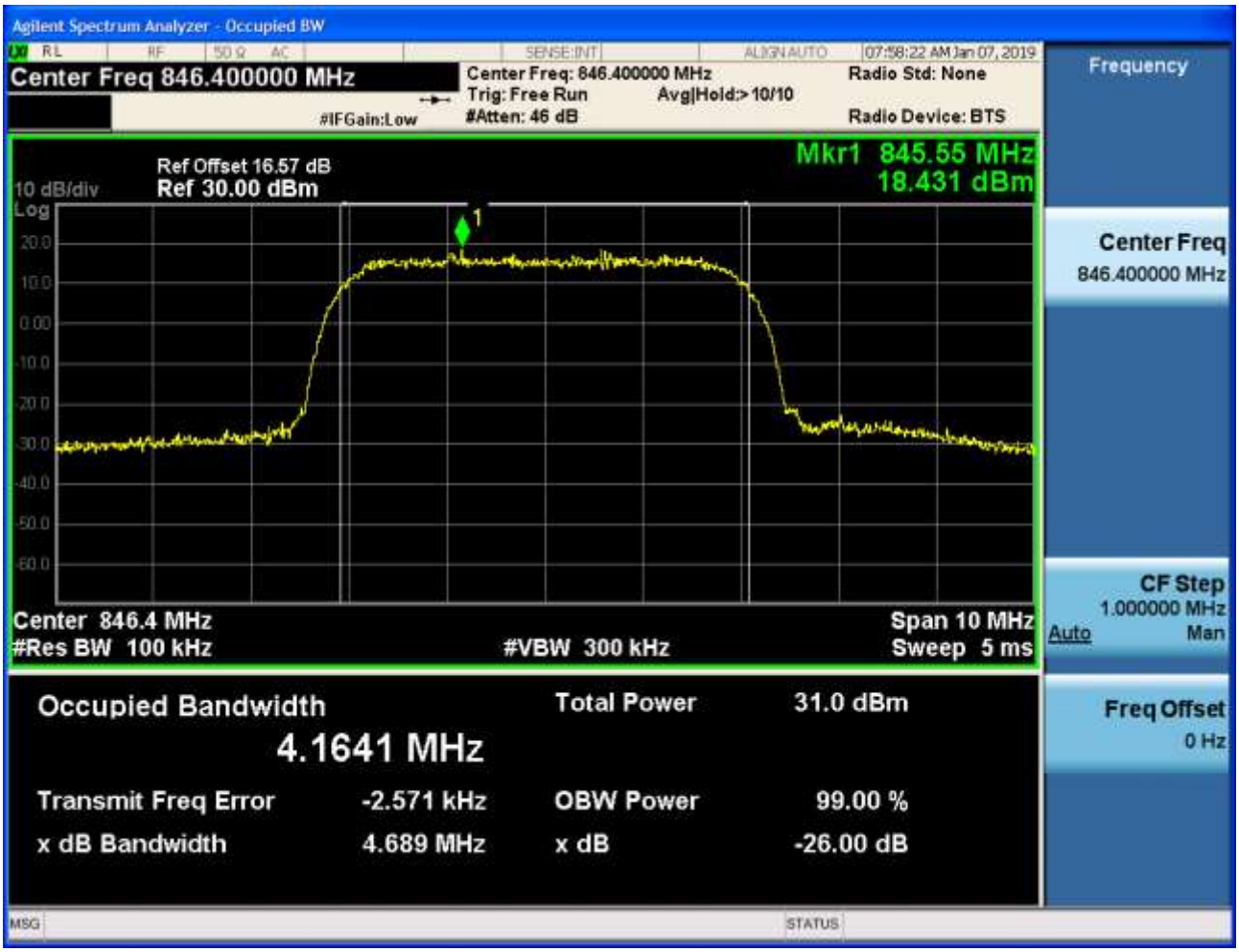
4.1.1.1.1 Test Channel = LCH



4.1.1.1.2 Test Channel = MCH



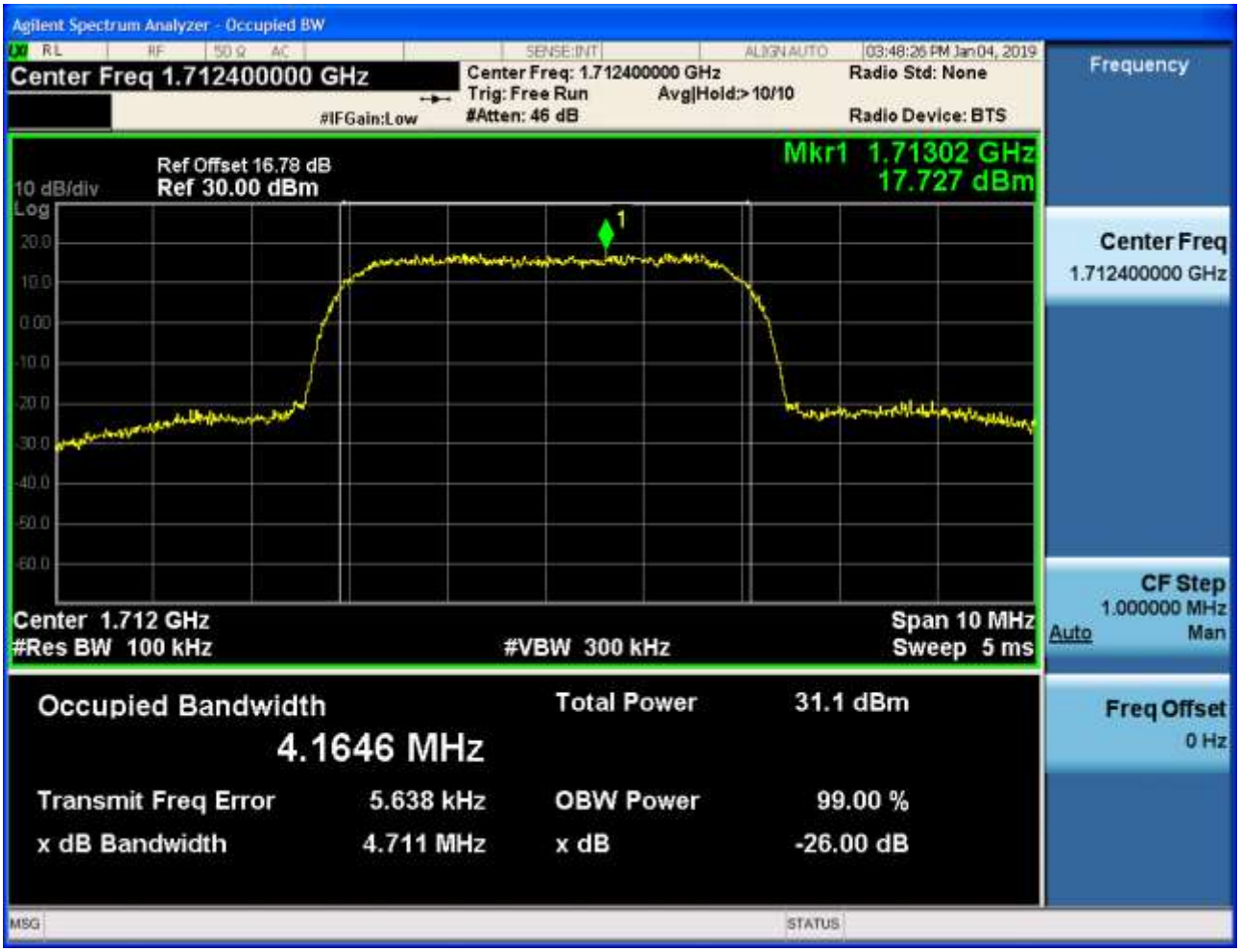
4.1.1.1.3 Test Channel = HCH



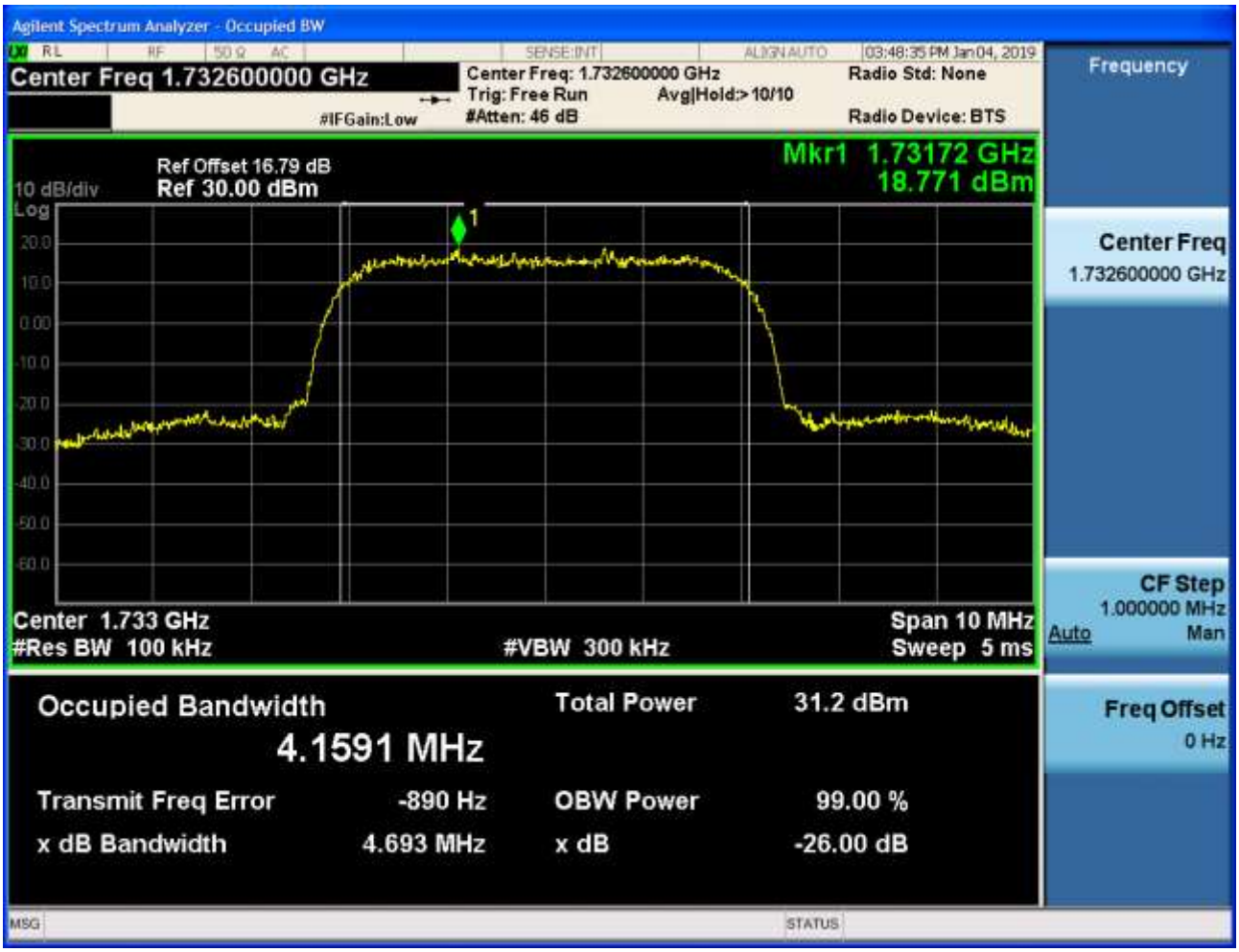
4.1.2 Test Band = WCDMA1700

4.1.2.1 Test Mode = UMTS/TM1

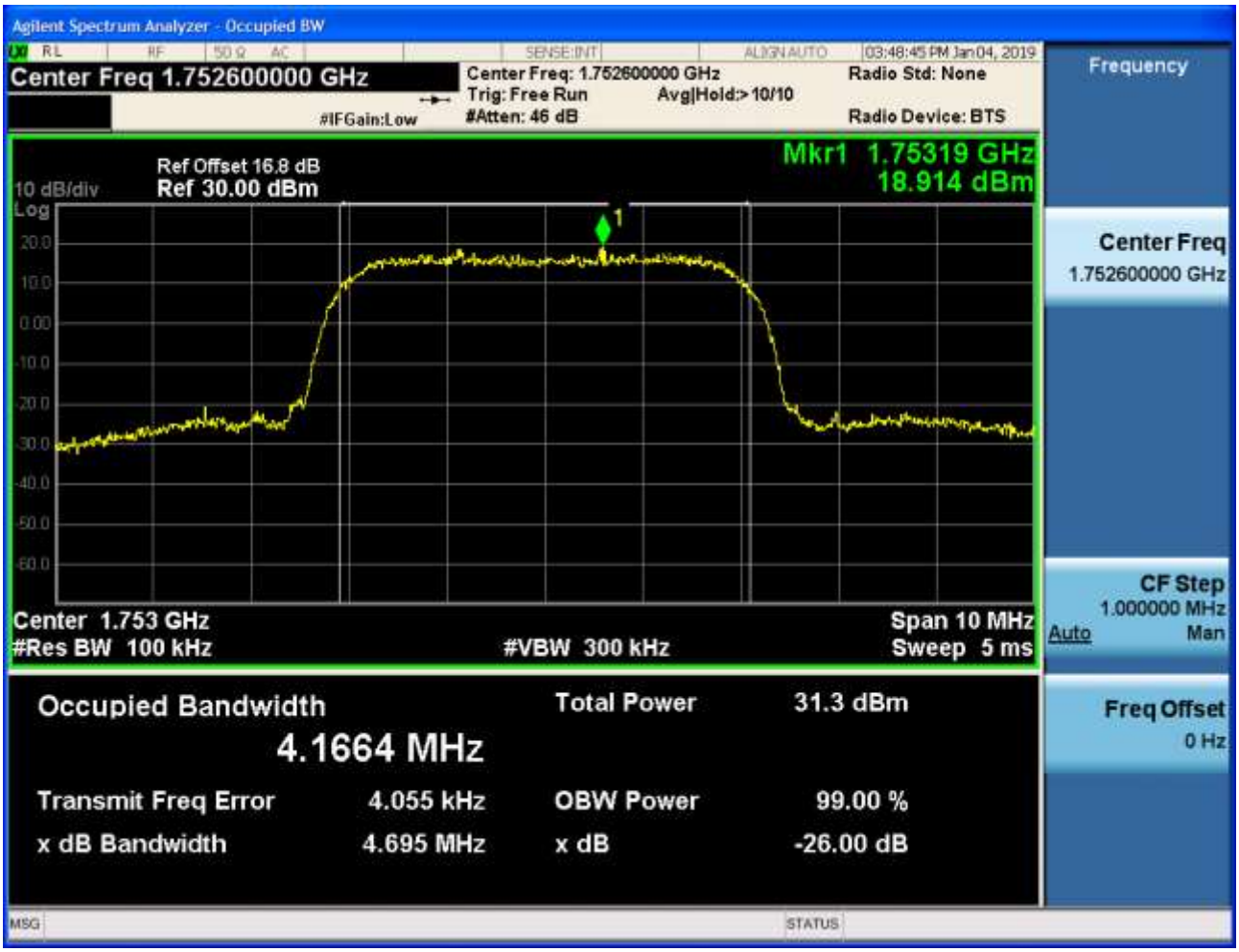
4.1.2.1.1 Test Channel = LCH



4.1.2.1.2 Test Channel = MCH



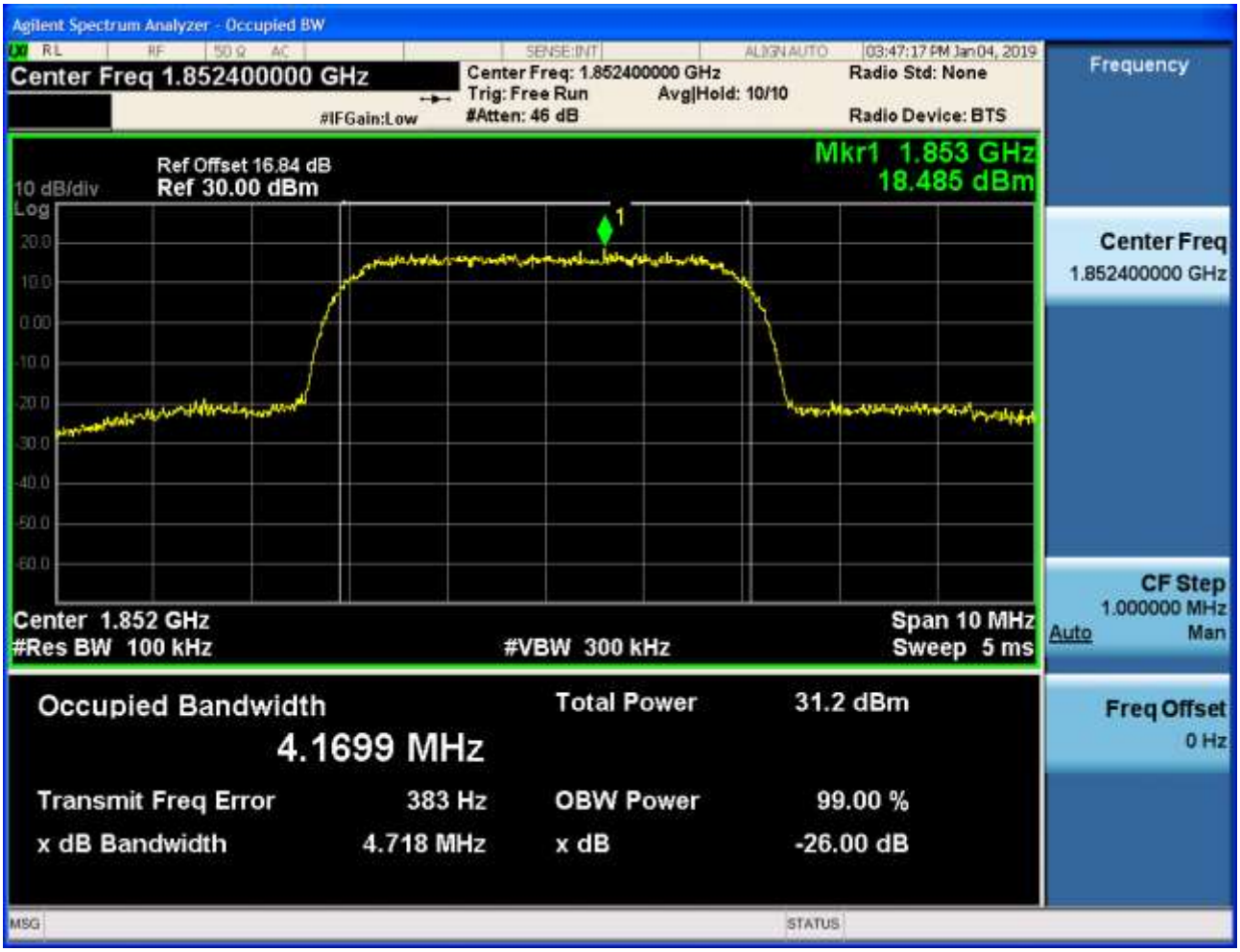
4.1.2.1.3 Test Channel = HCH



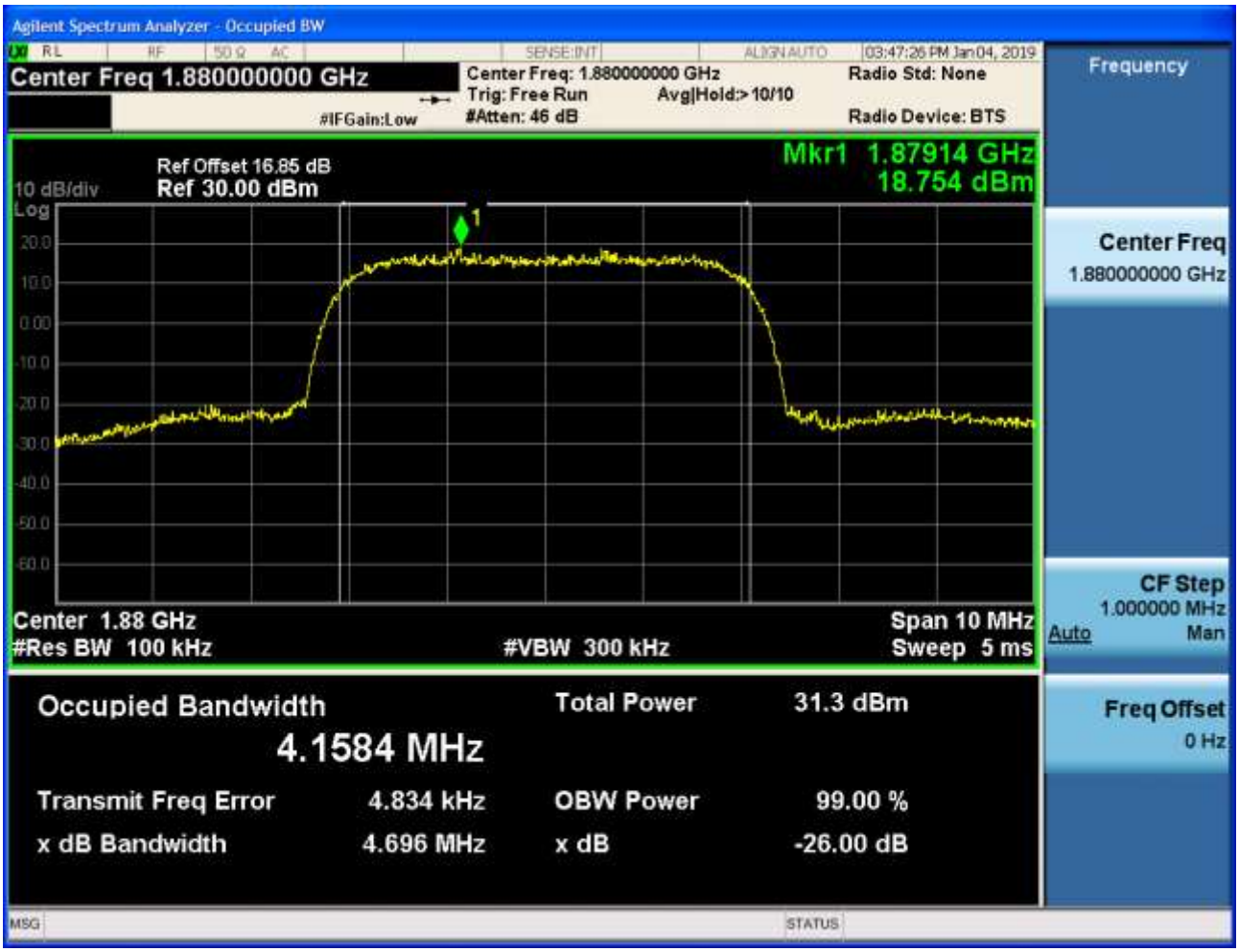
4.1.3 Test Band = WCDMA1900

4.1.3.1 Test Mode = UMTS/TM1

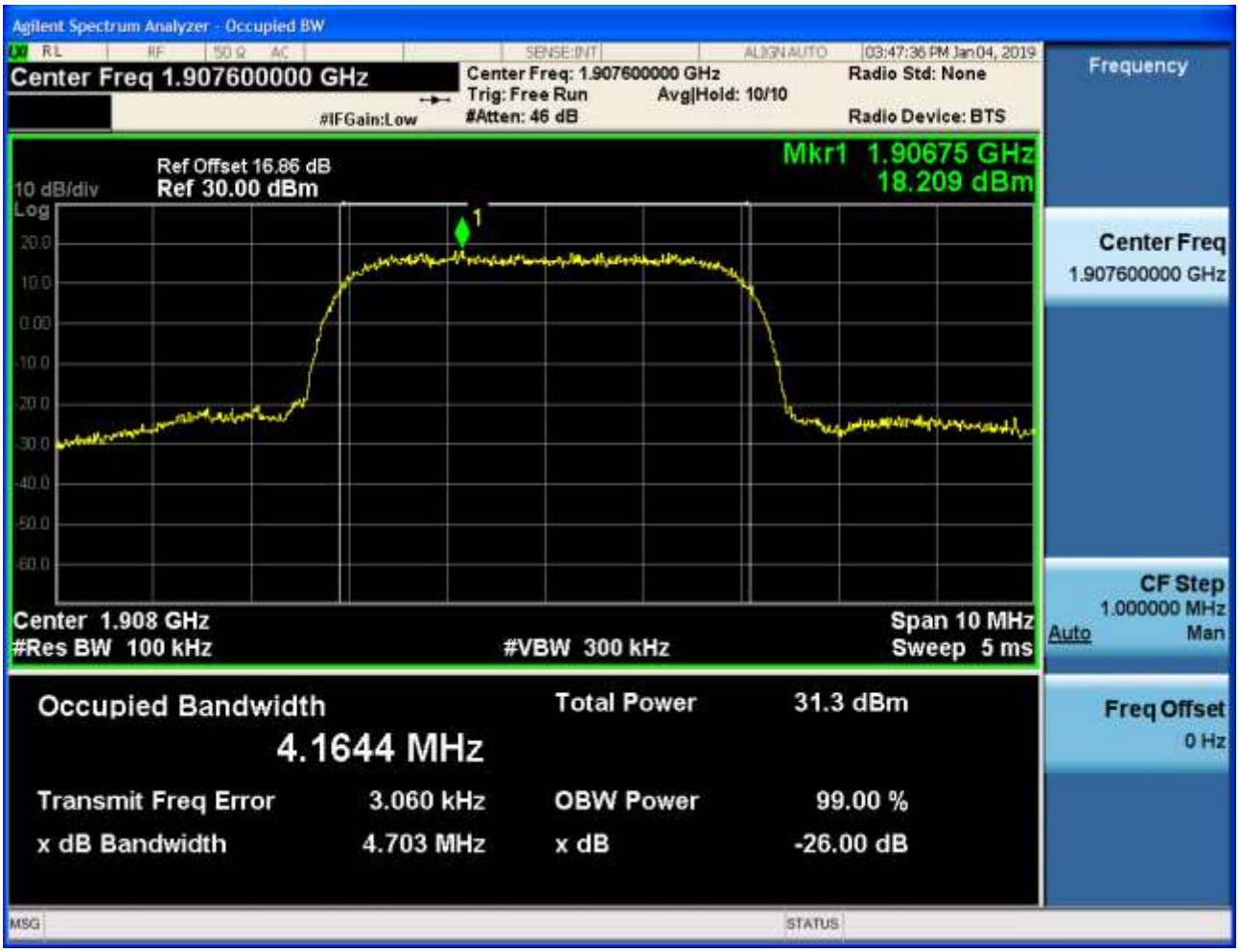
4.1.3.1.1 Test Channel = LCH



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.

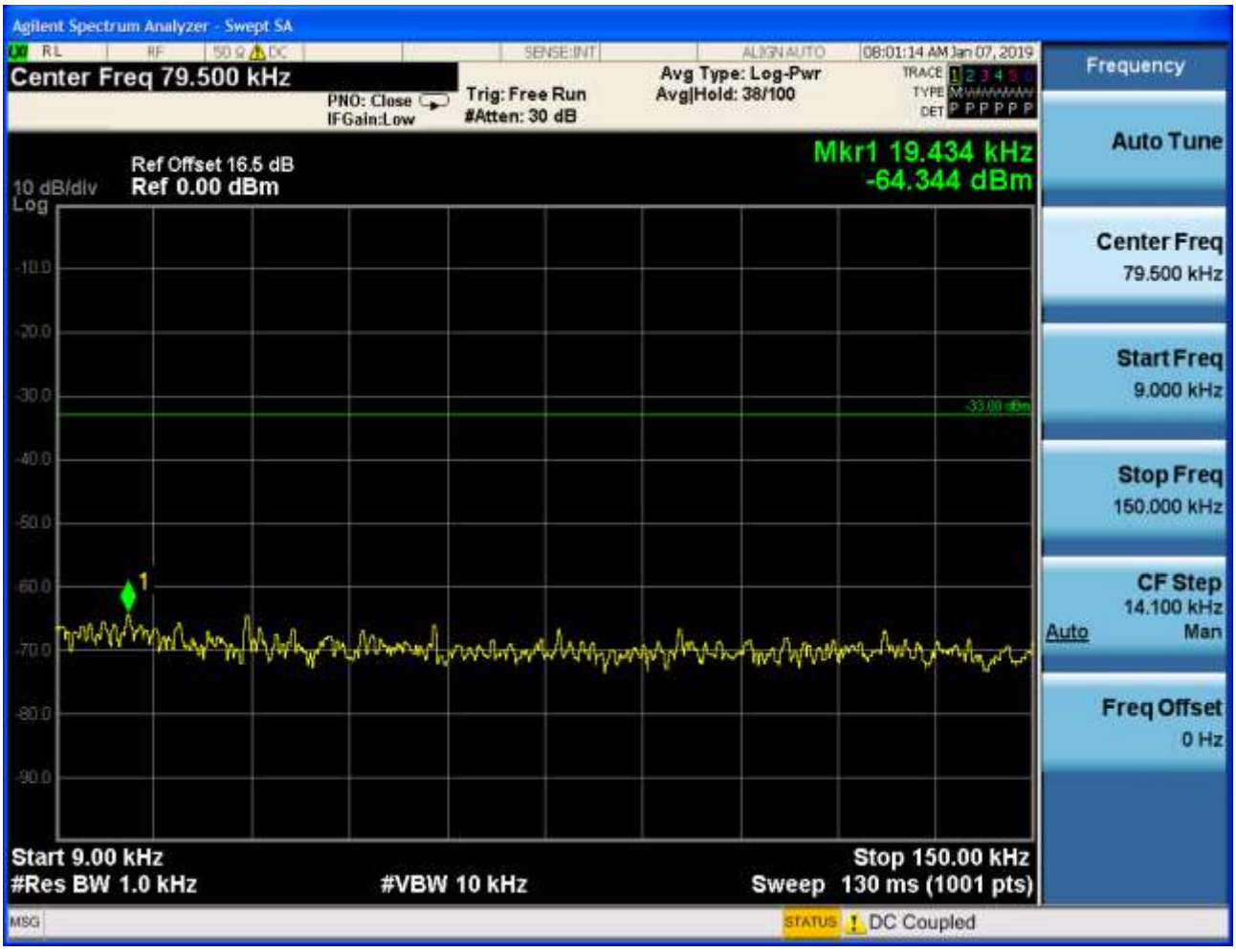
Part I - Test Plots

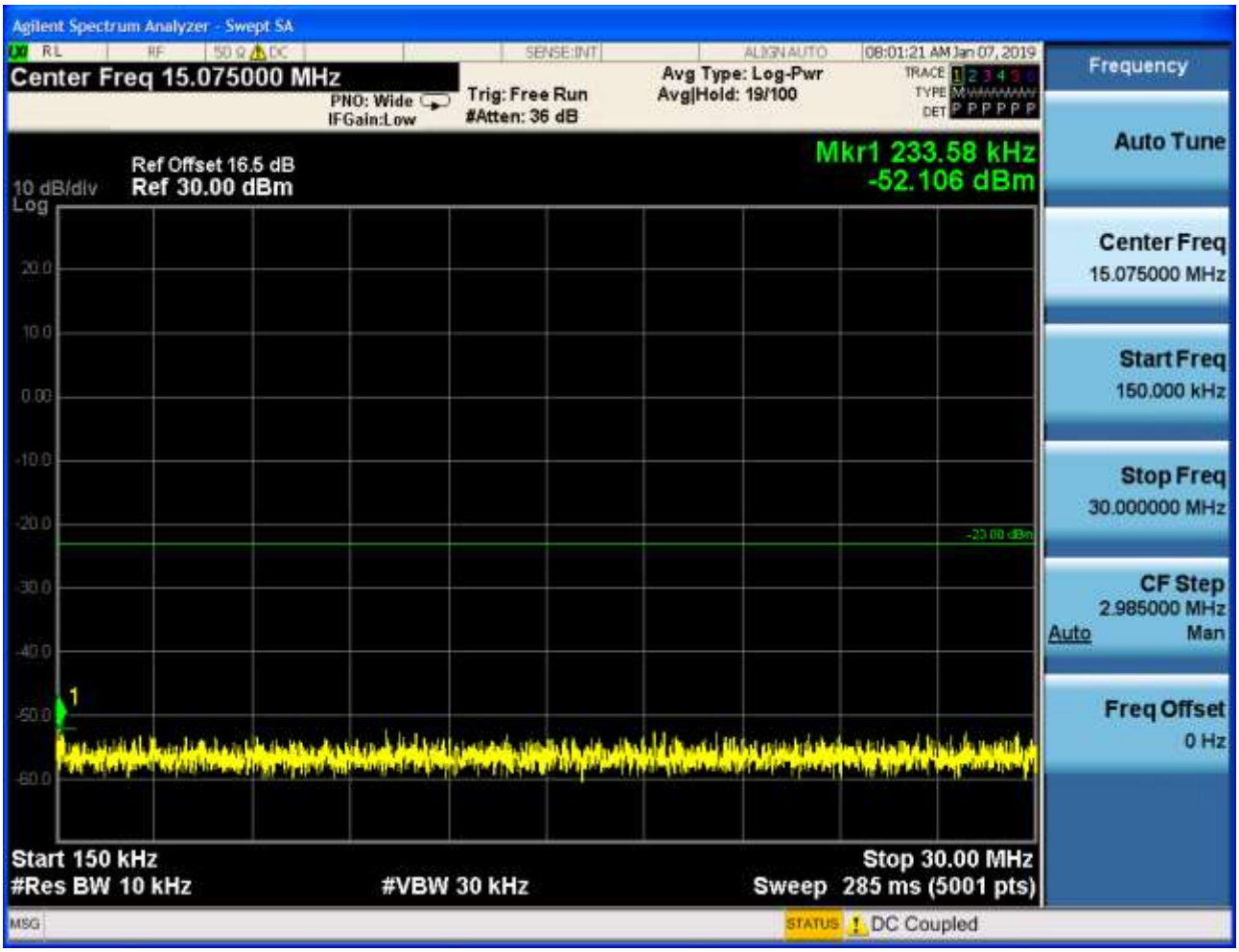
6.1 For UMTS

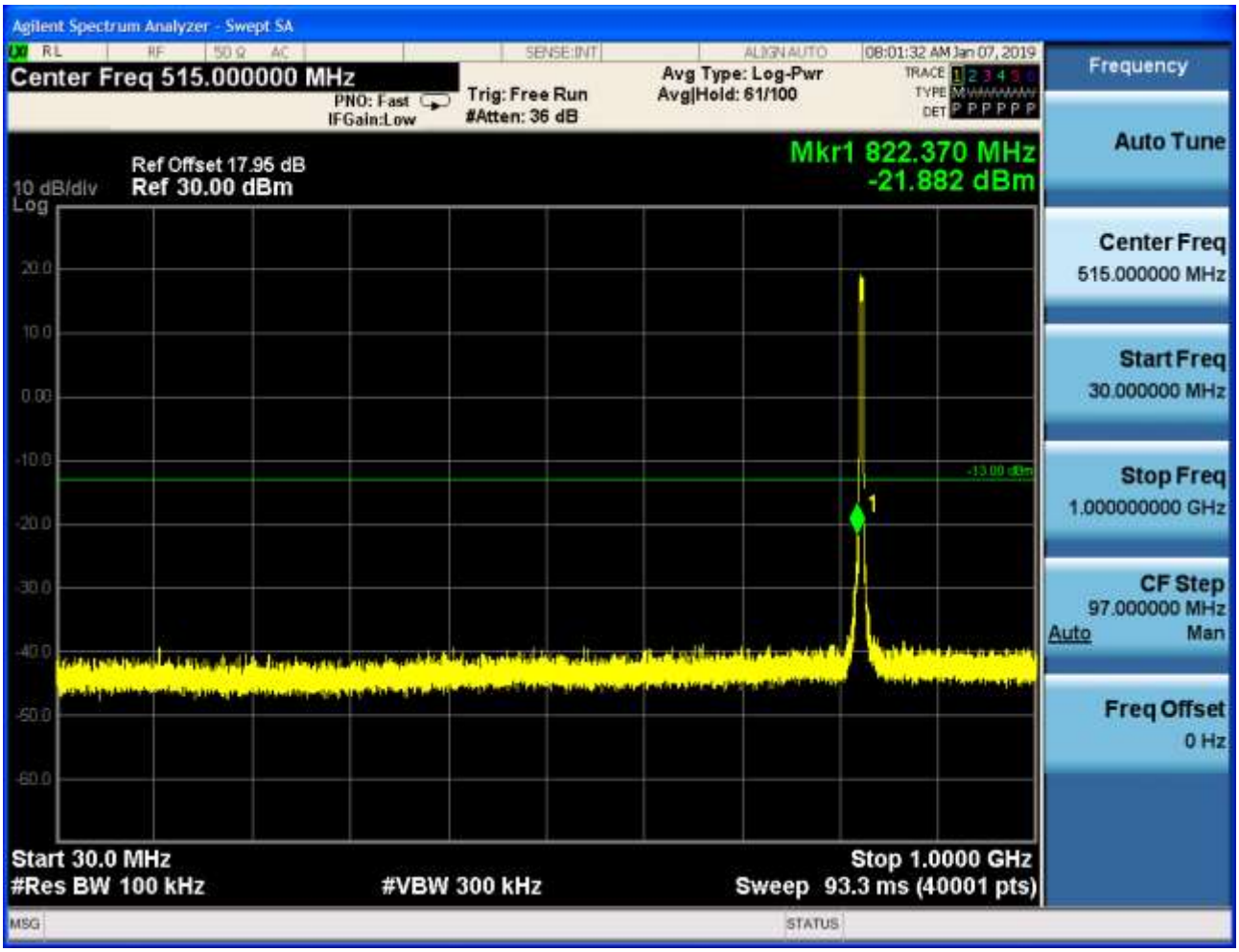
6.1.1 Test Band = WCDMA850

6.1.1.1 Test Mode = UMTS/TM1

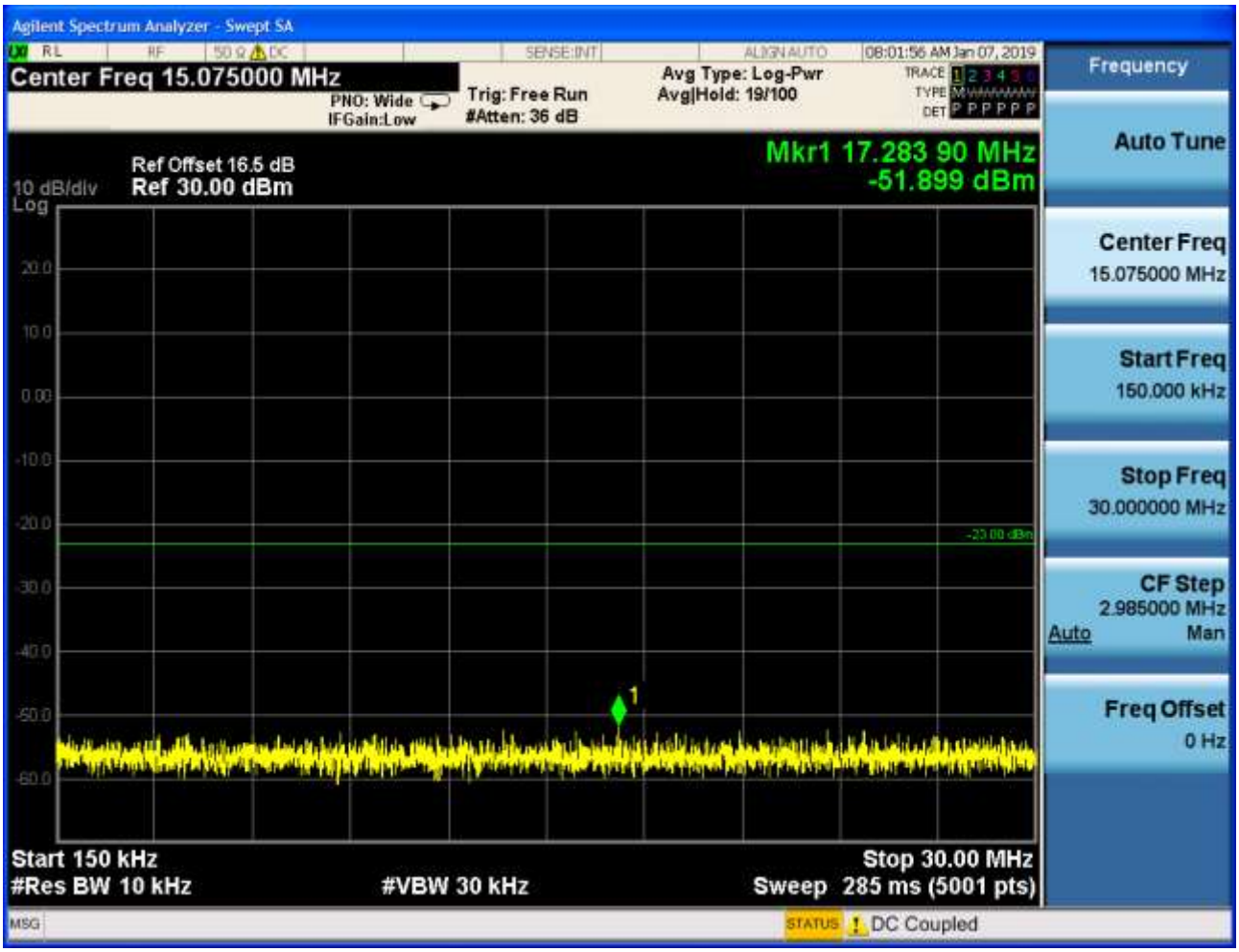
6.1.1.1.1 Test Channel = LCH

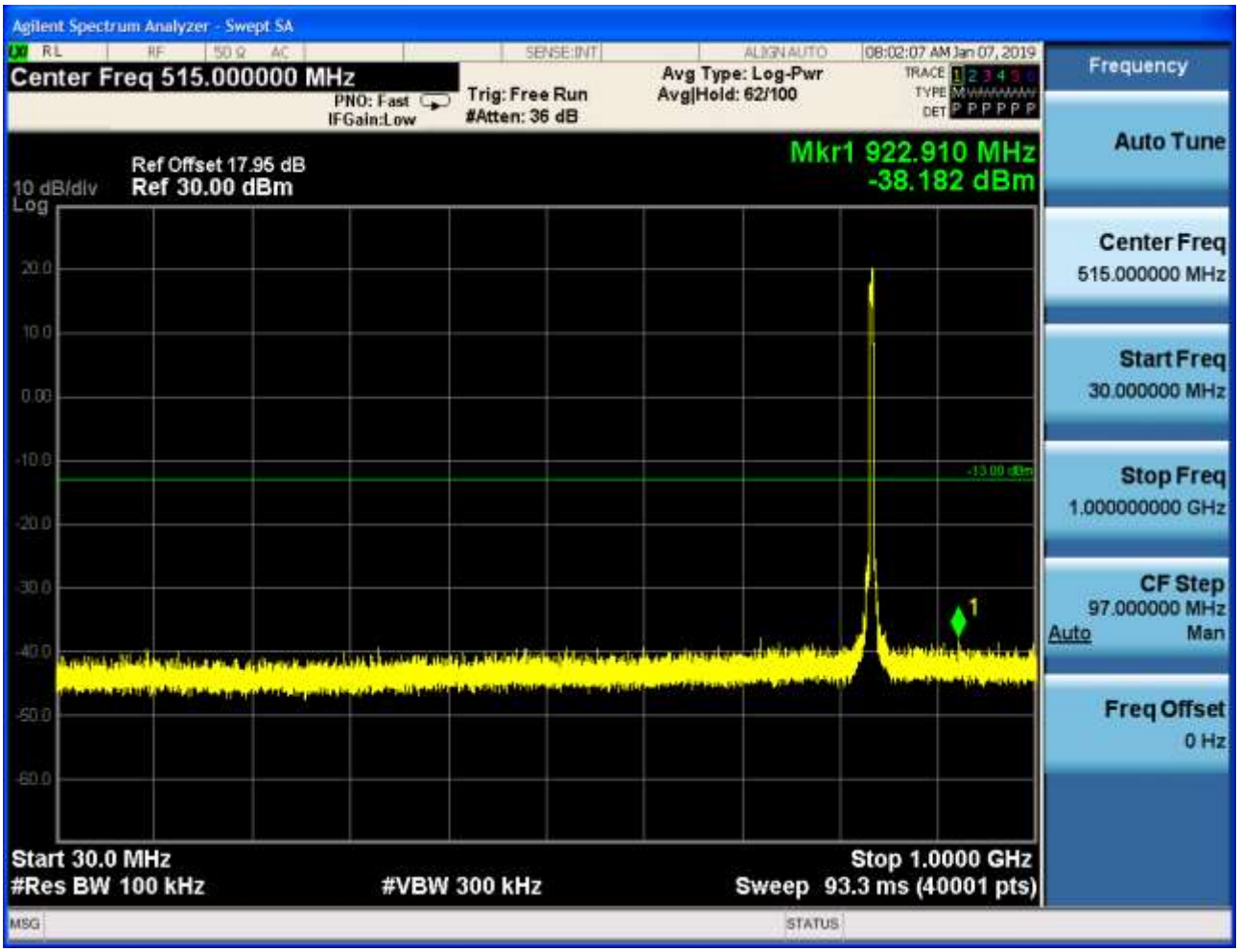




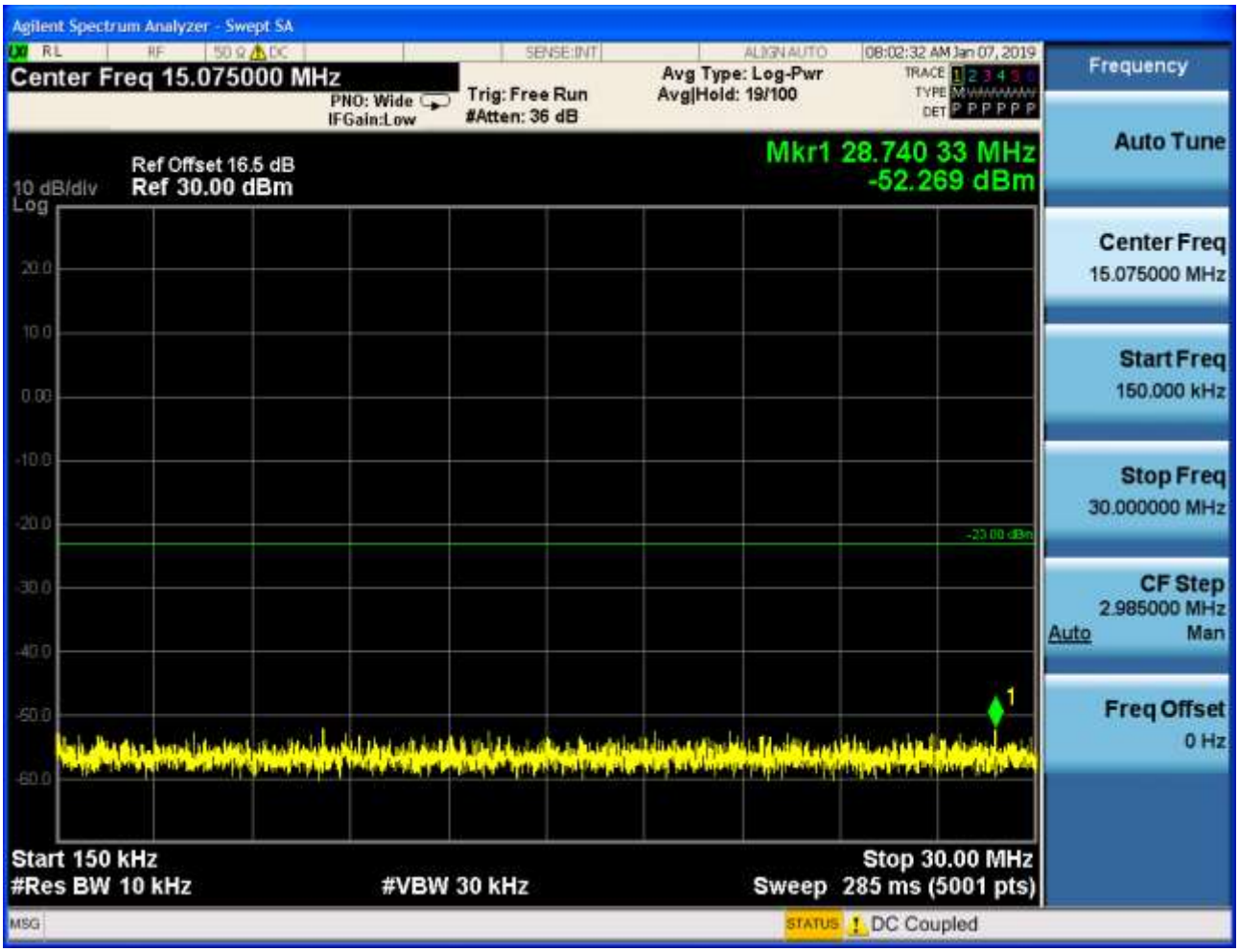


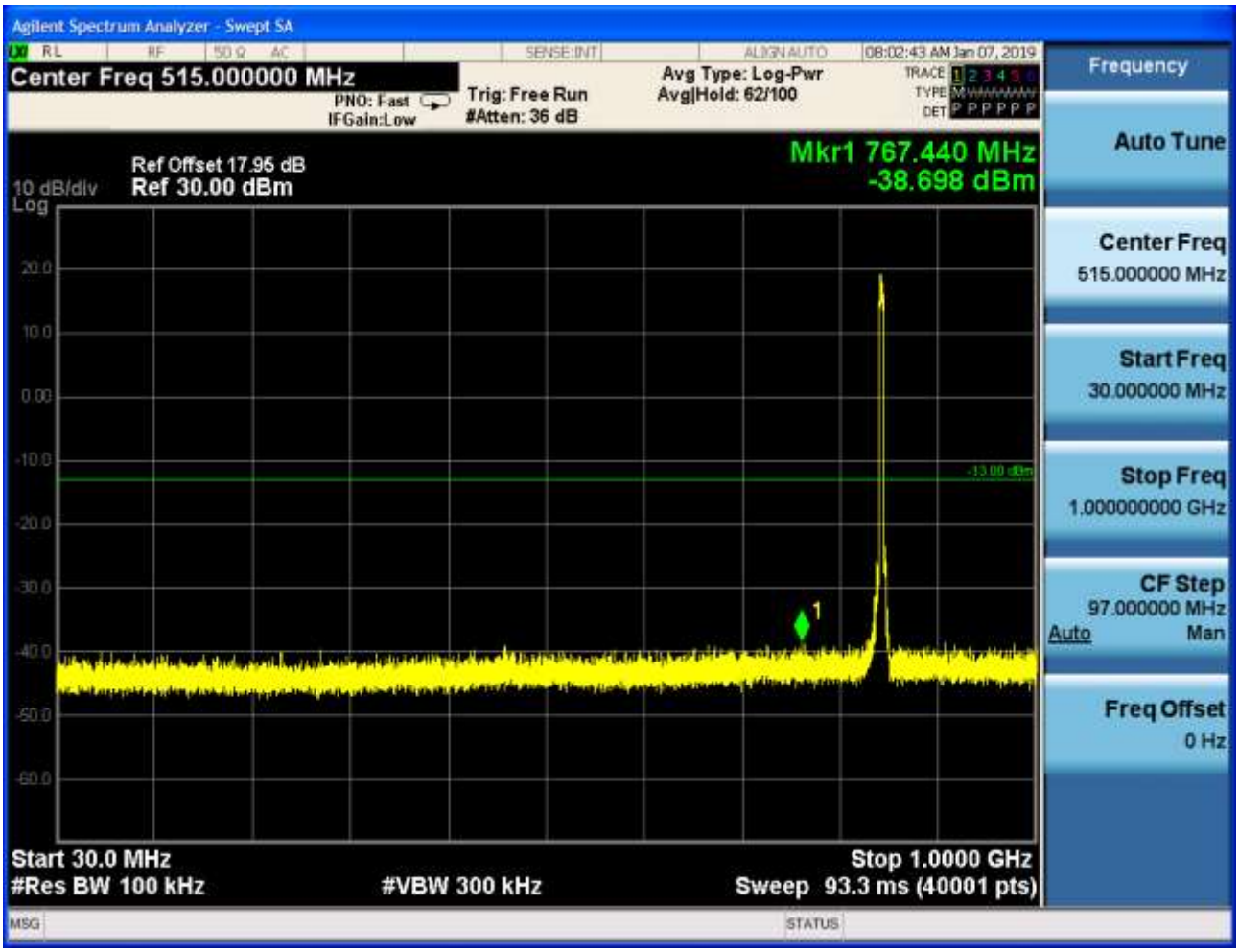
6.1.1.1.2 Test Channel = MCH





6.1.1.1.3 Test Channel = HCH

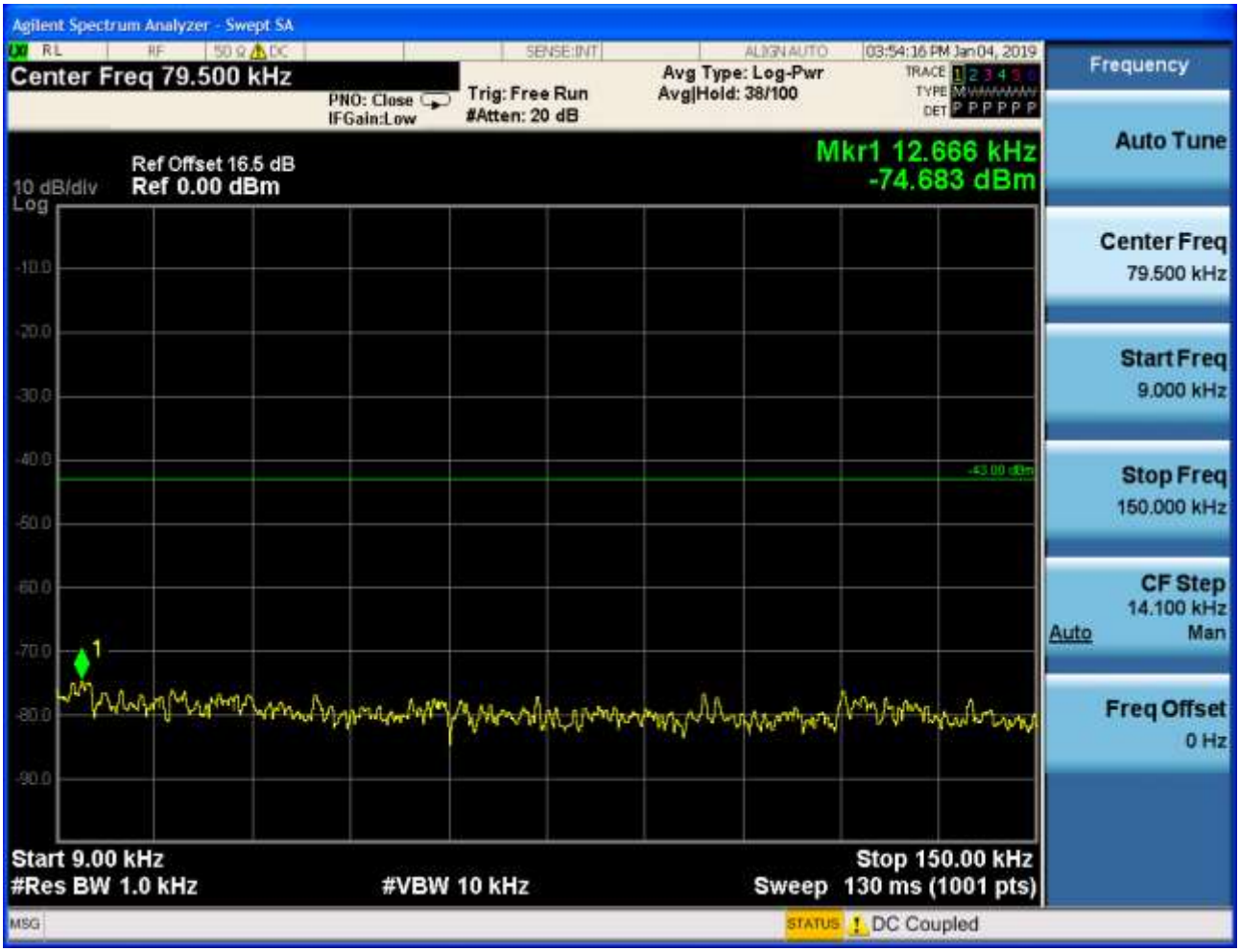


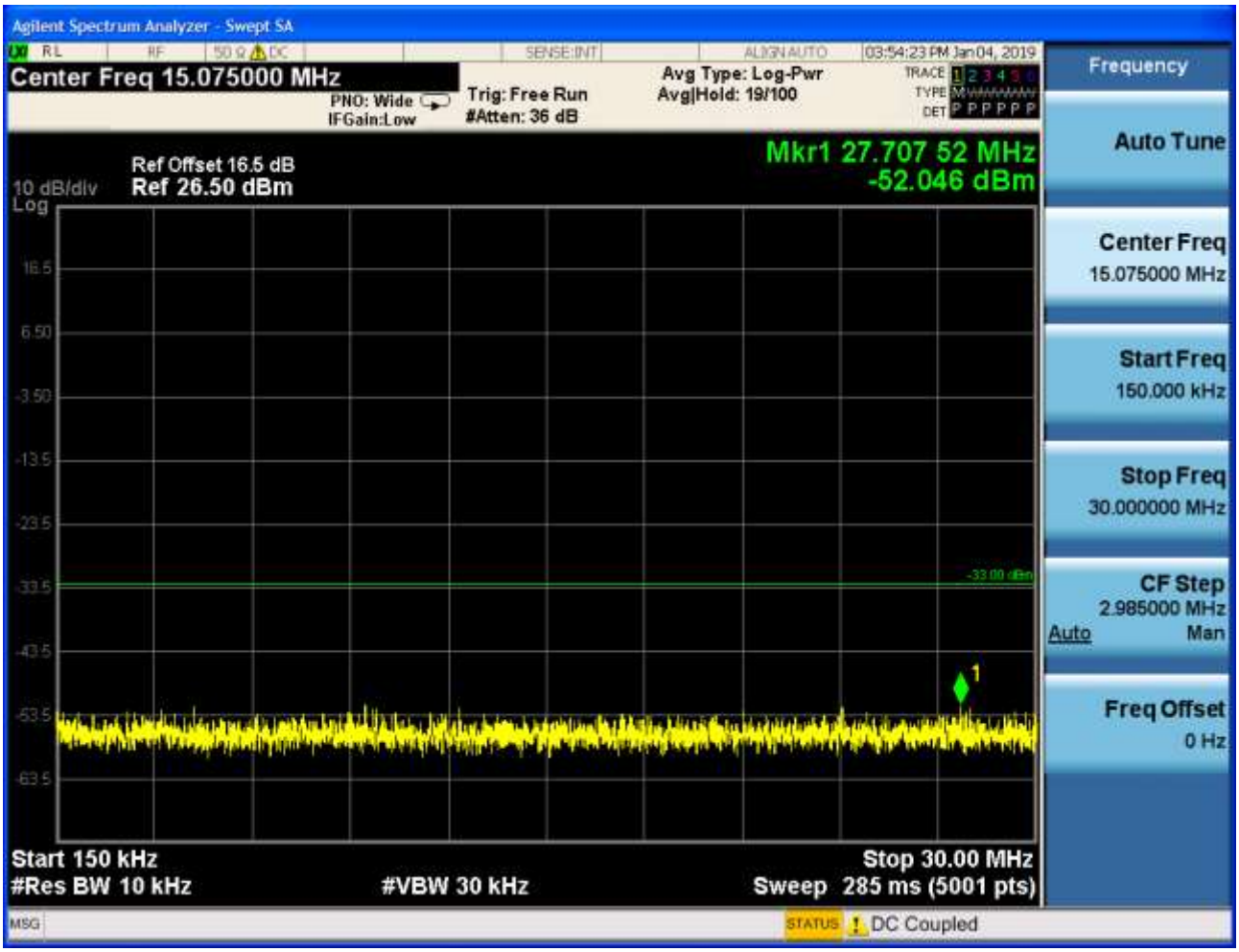


6.1.2 Test Band = WCDMA1700

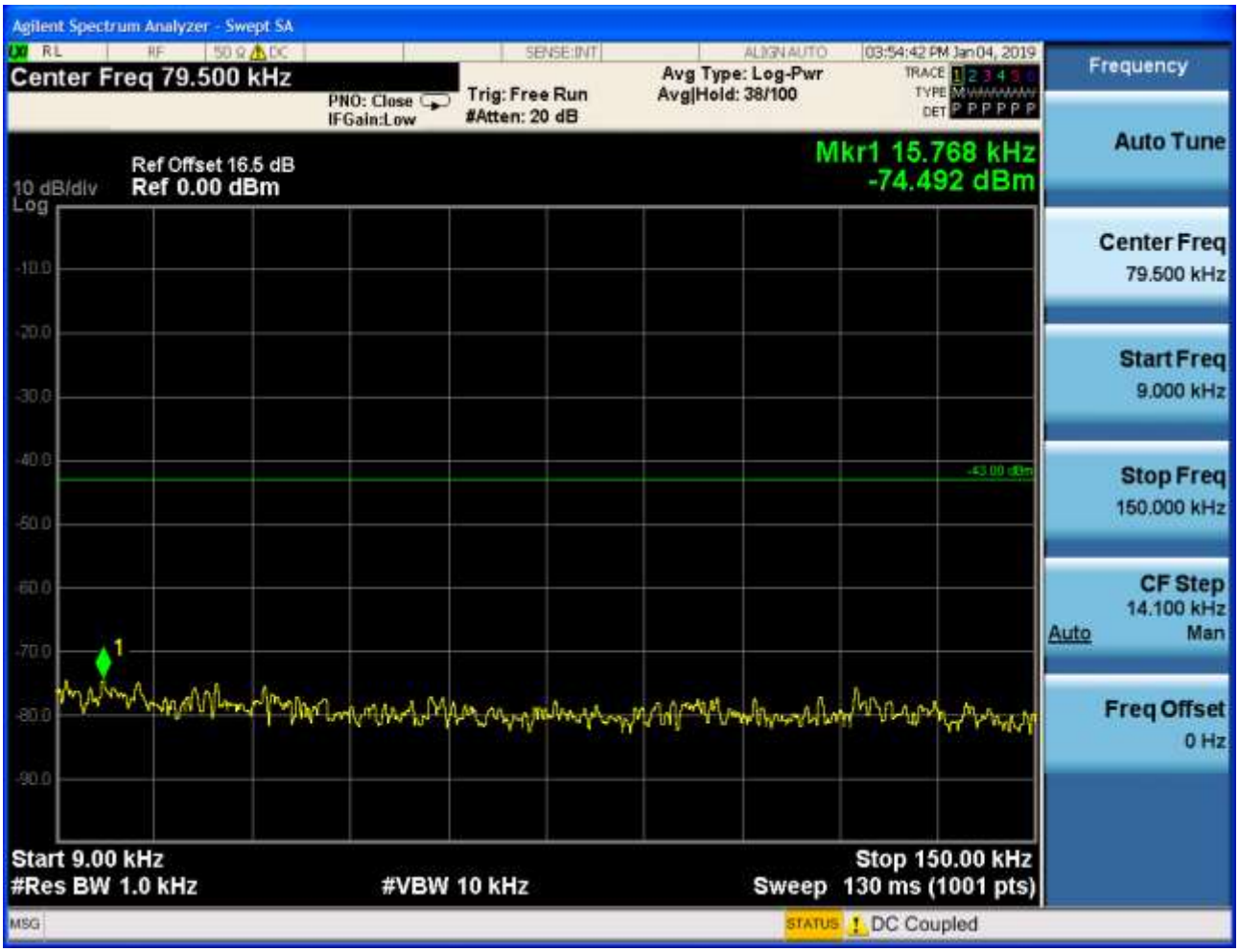
6.1.2.1 Test Mode = UMTS/TM1

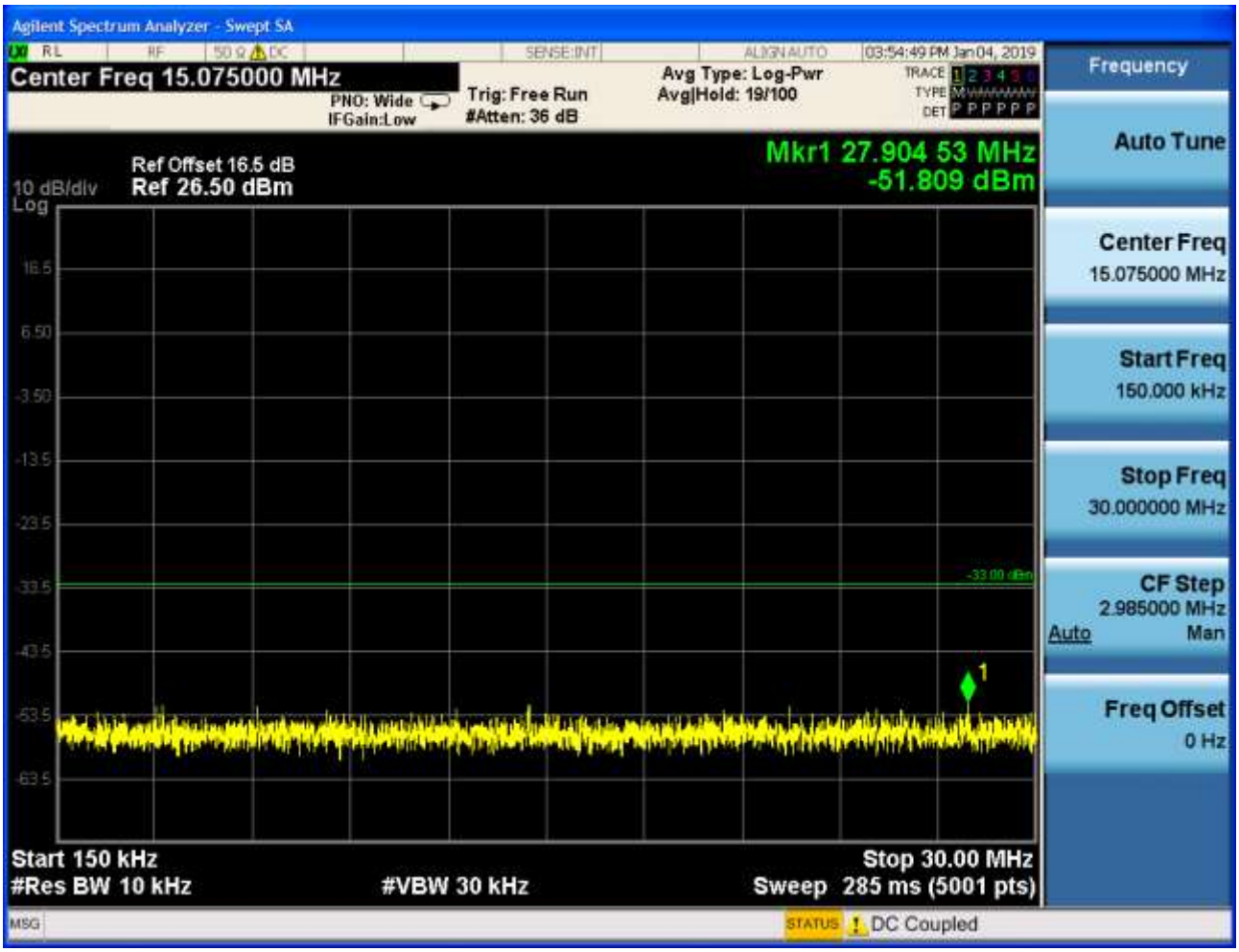
6.1.2.1.1 Test Channel = LCH



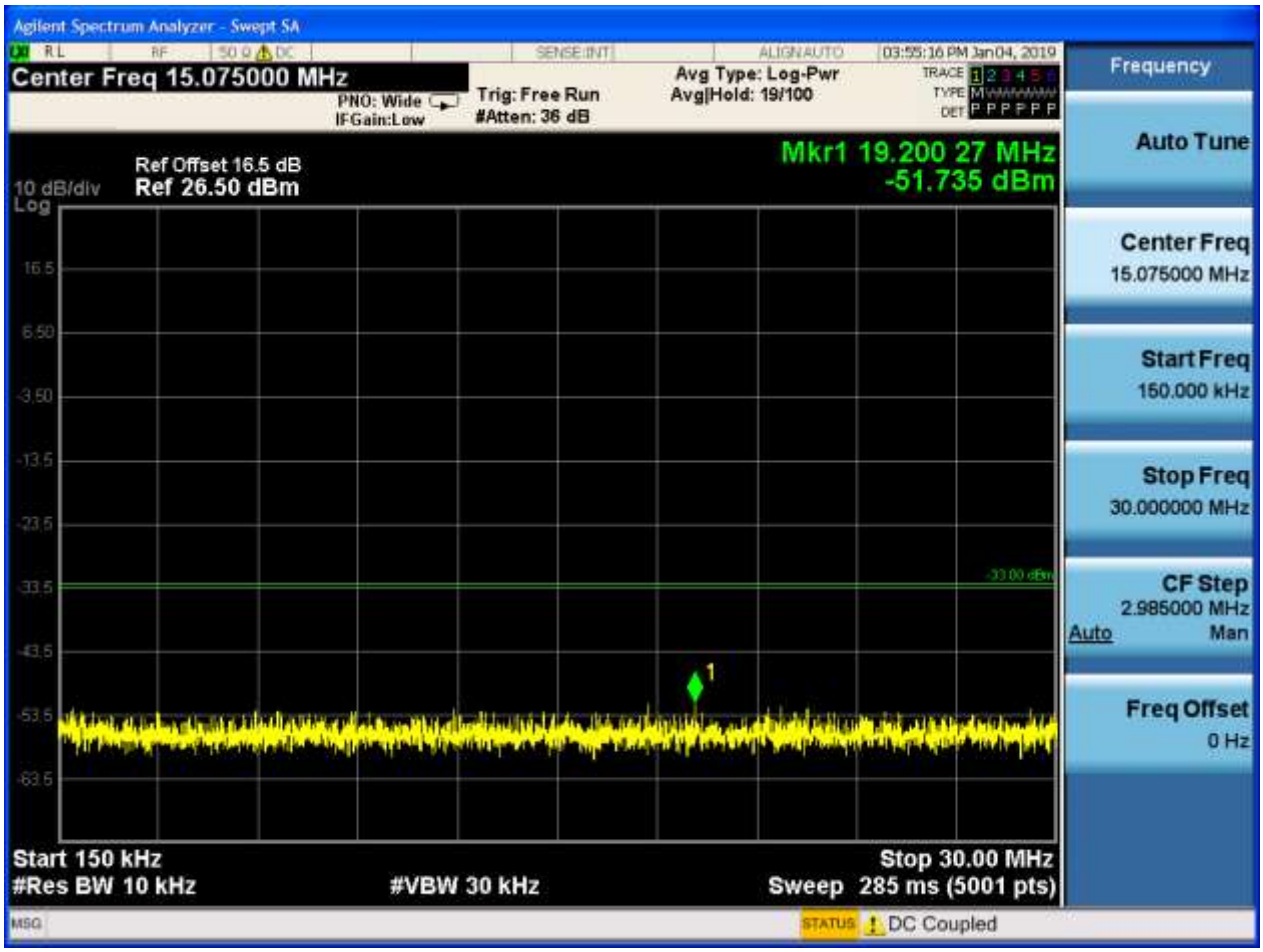


6.1.2.1.2 Test Channel = MCH





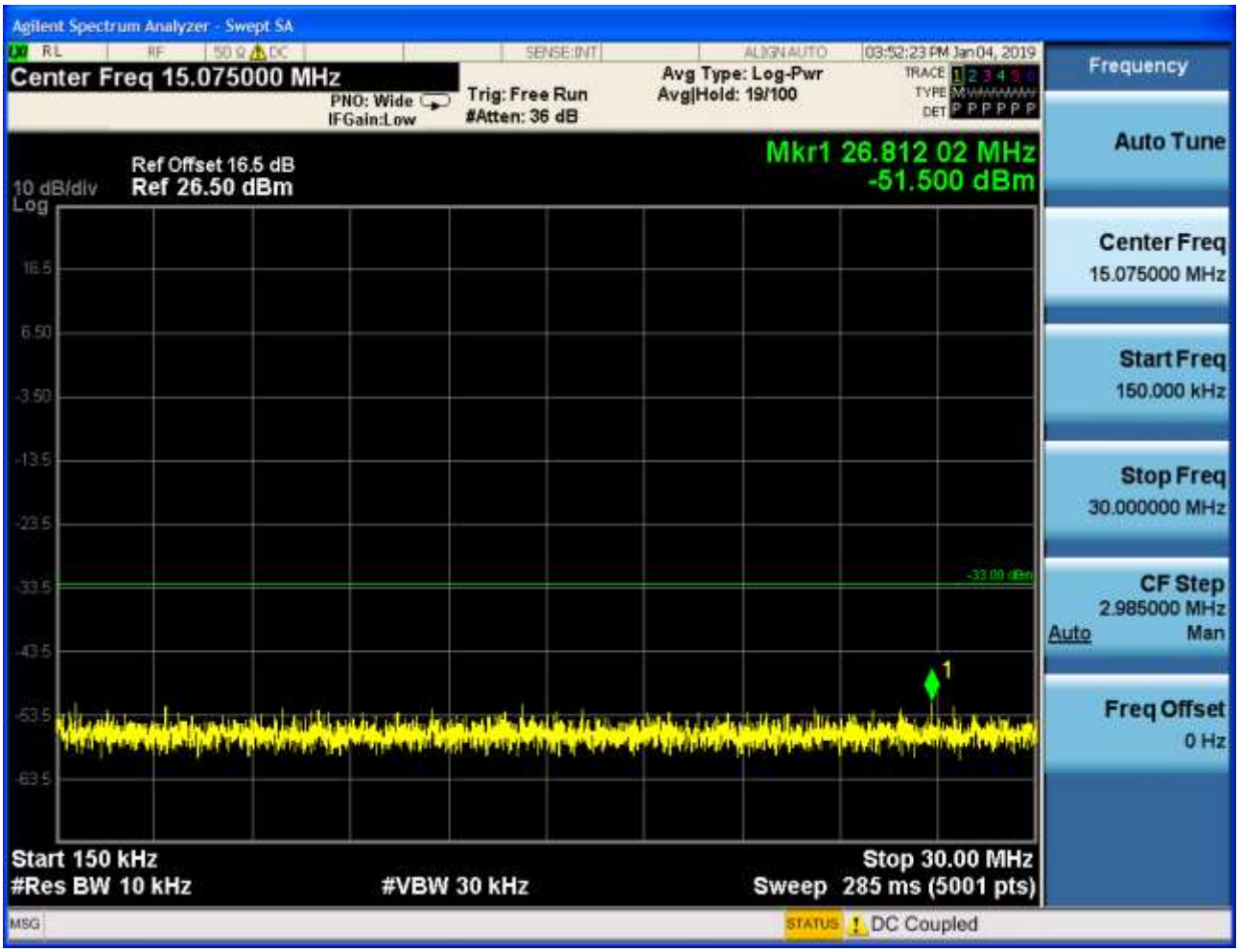
6.1.2.1.3 Test Channel = HCH



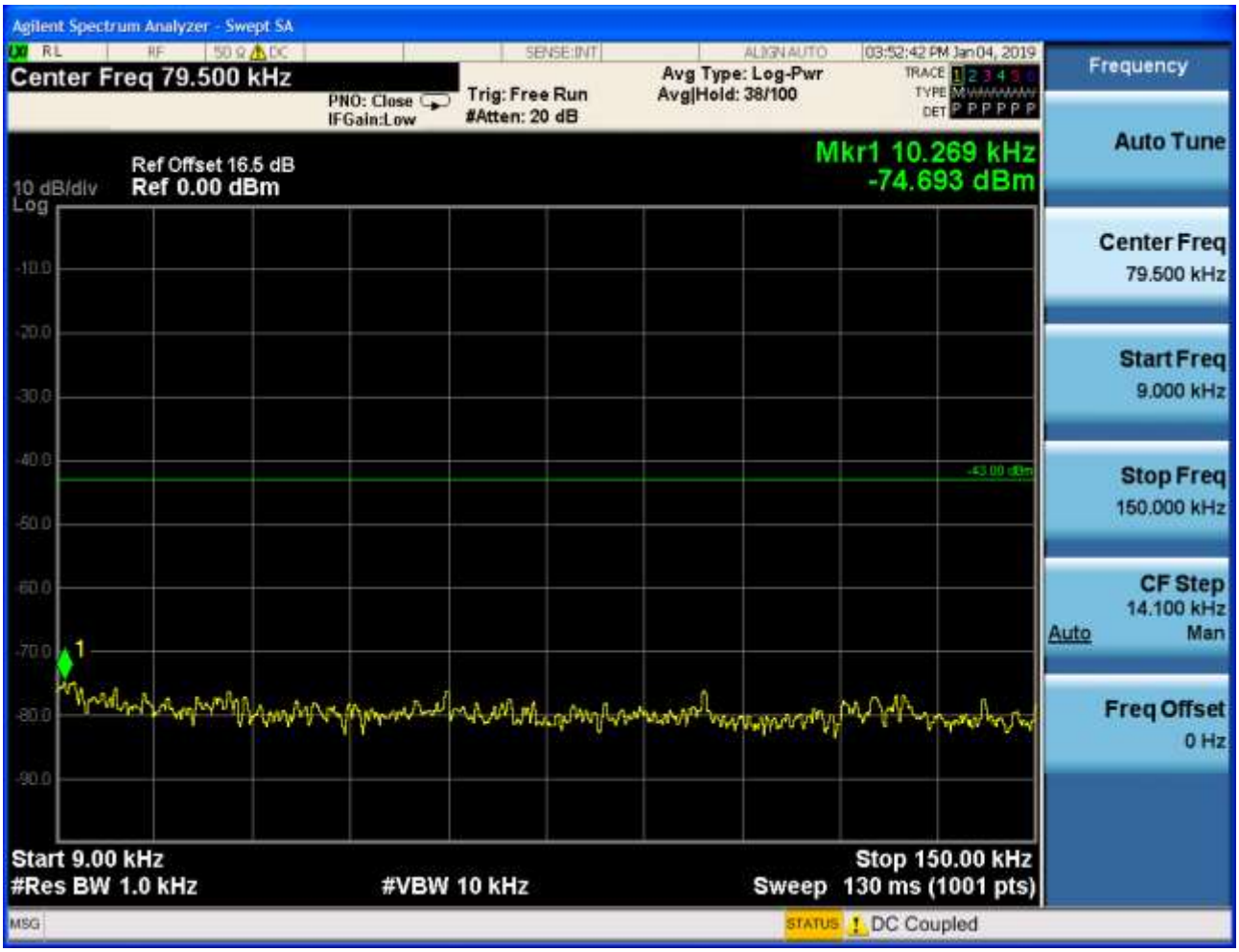
6.1.3 Test Band = WCDMA1900

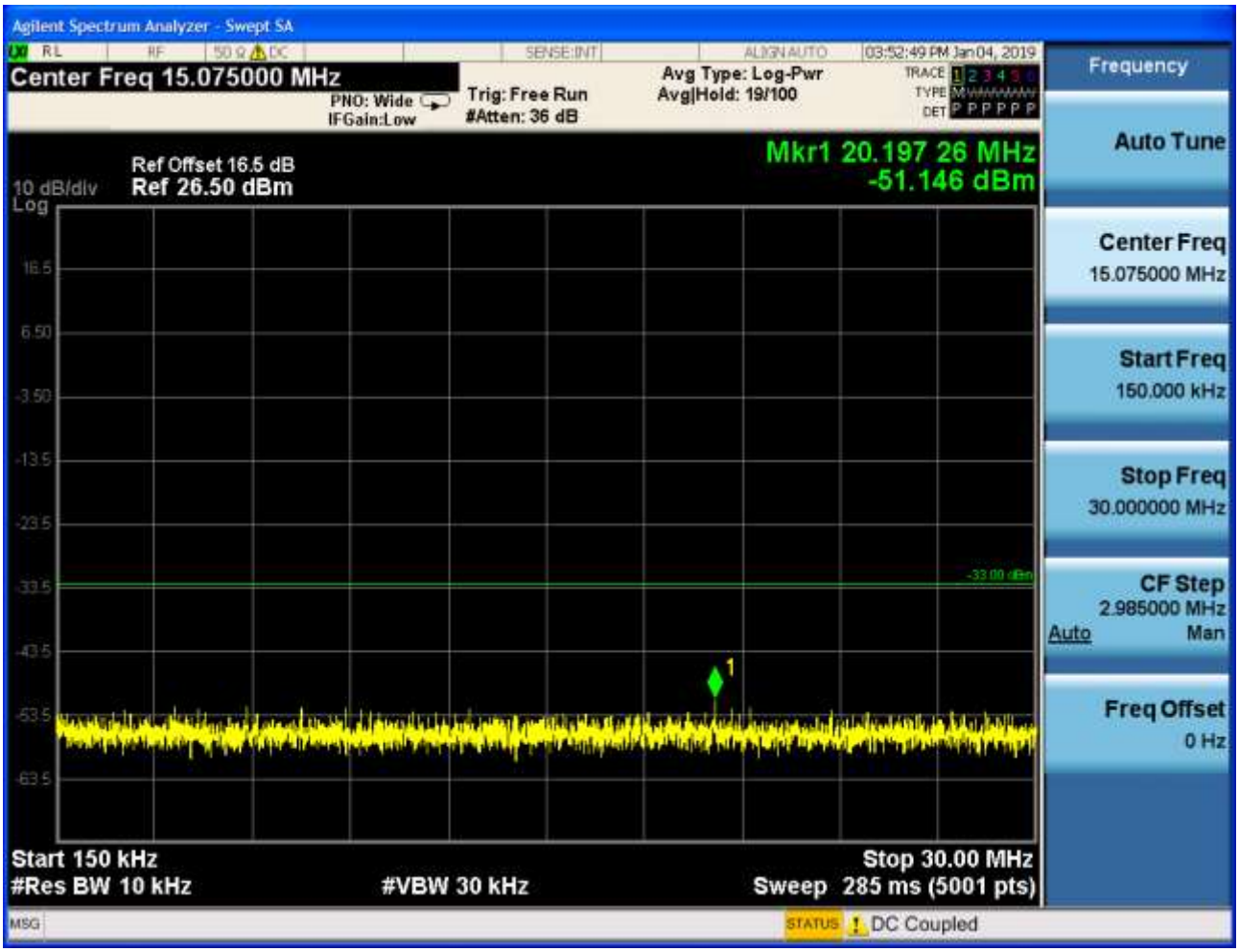
6.1.3.1 Test Mode = UMTS/TM1

6.1.3.1.1 Test Channel = LCH

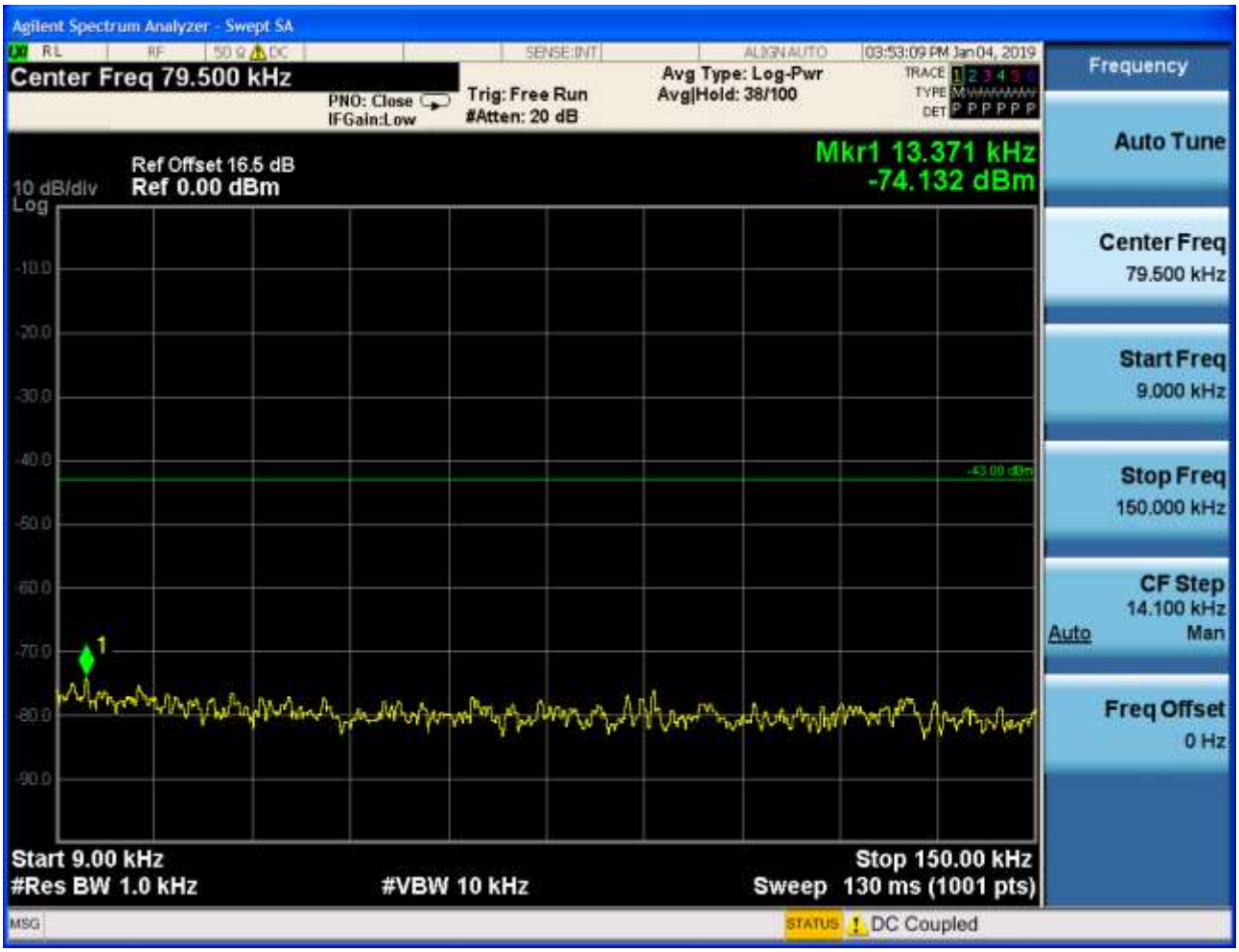


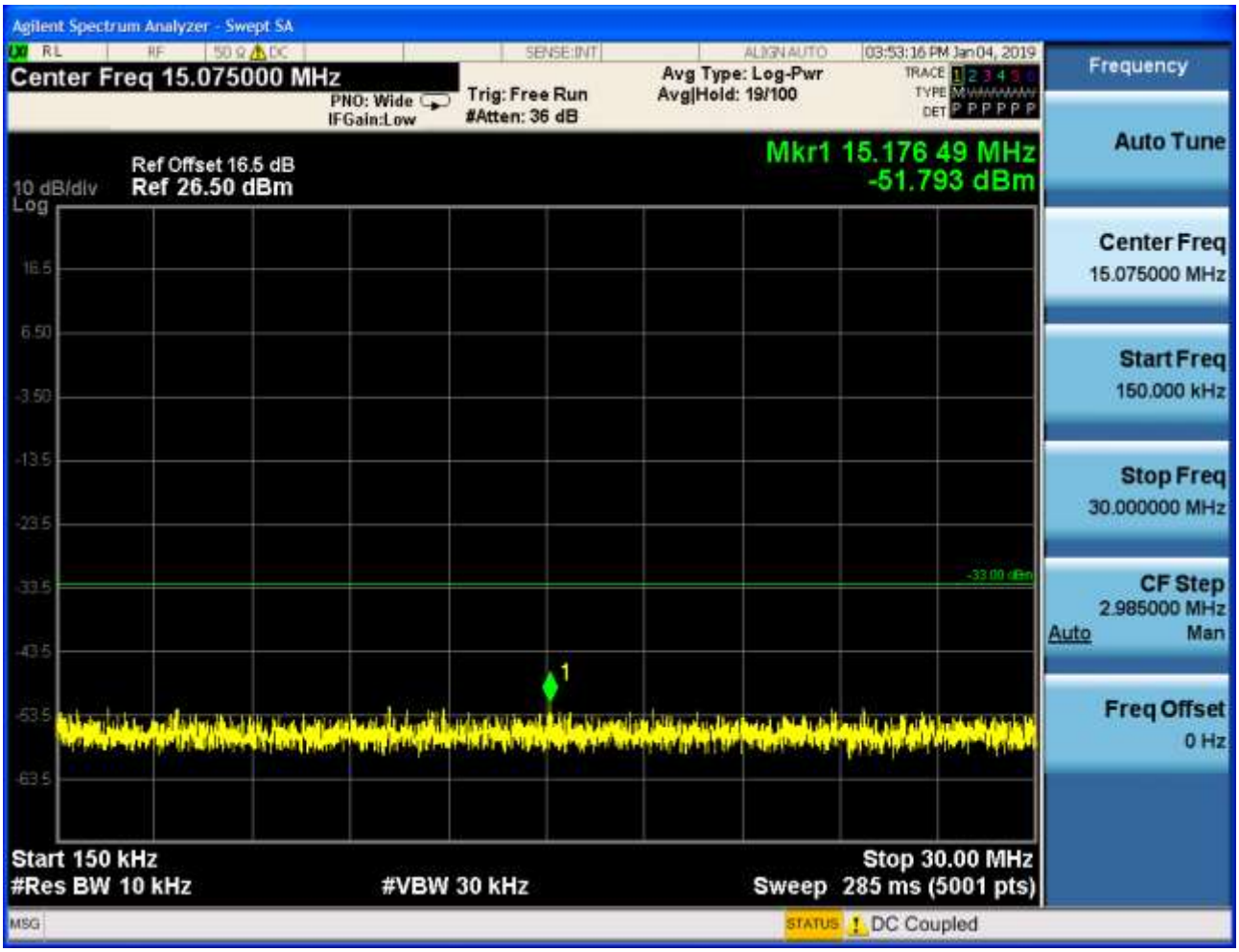
6.1.3.1.2 Test Channel = MCH





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.

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

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

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

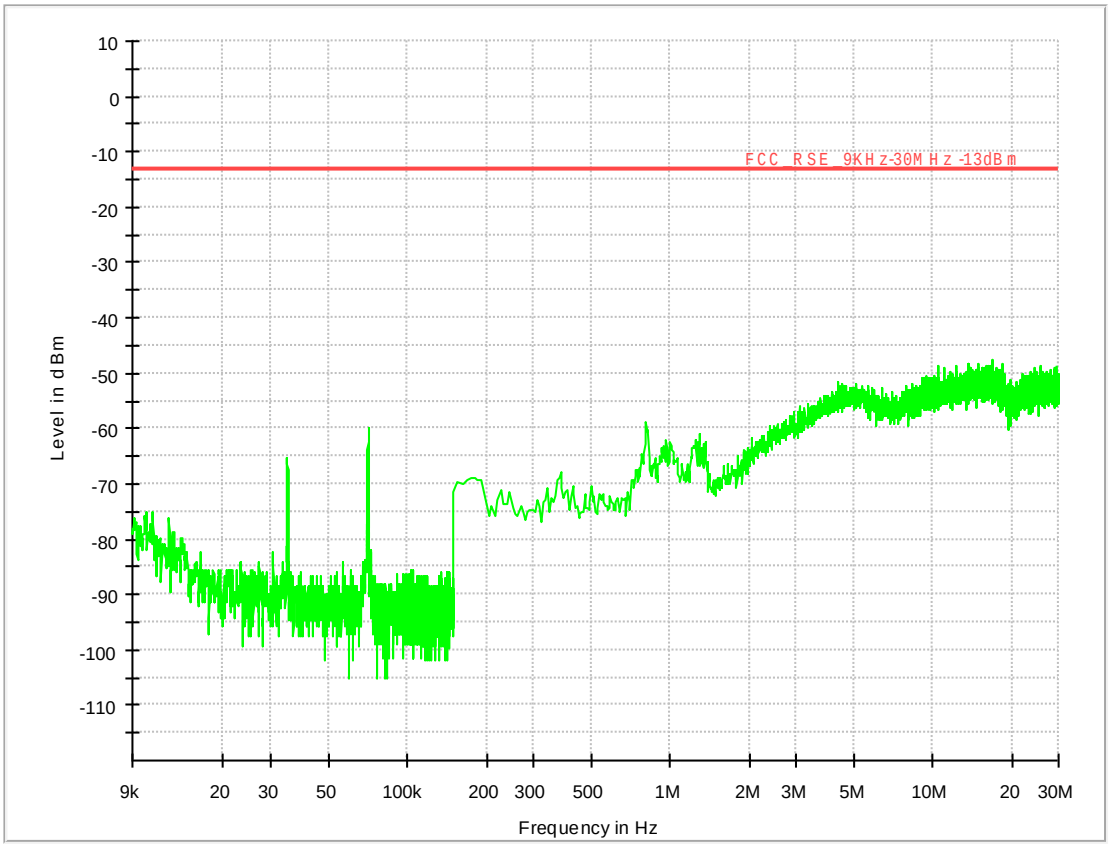
Above 1GHz, RBW = 1 MHz, VBW = 3 MHz Detector: PK

Part I - Test Plots

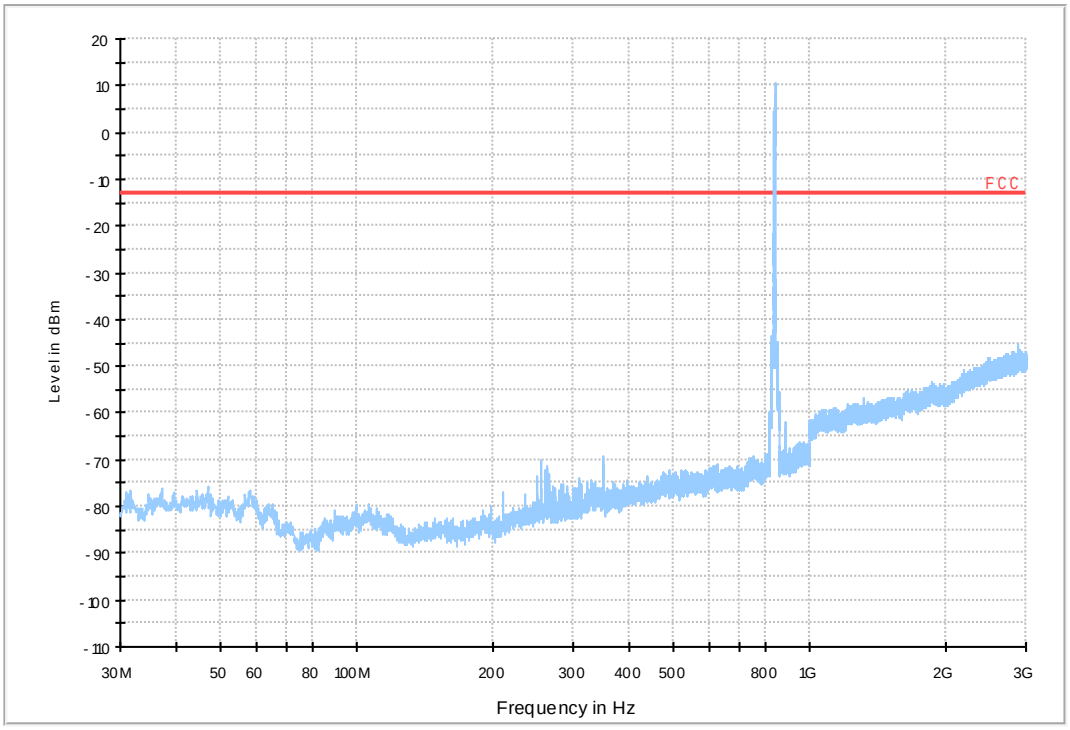
7.1 For UMTS

7.1.1 Test Band = WCDMA850_ANT1

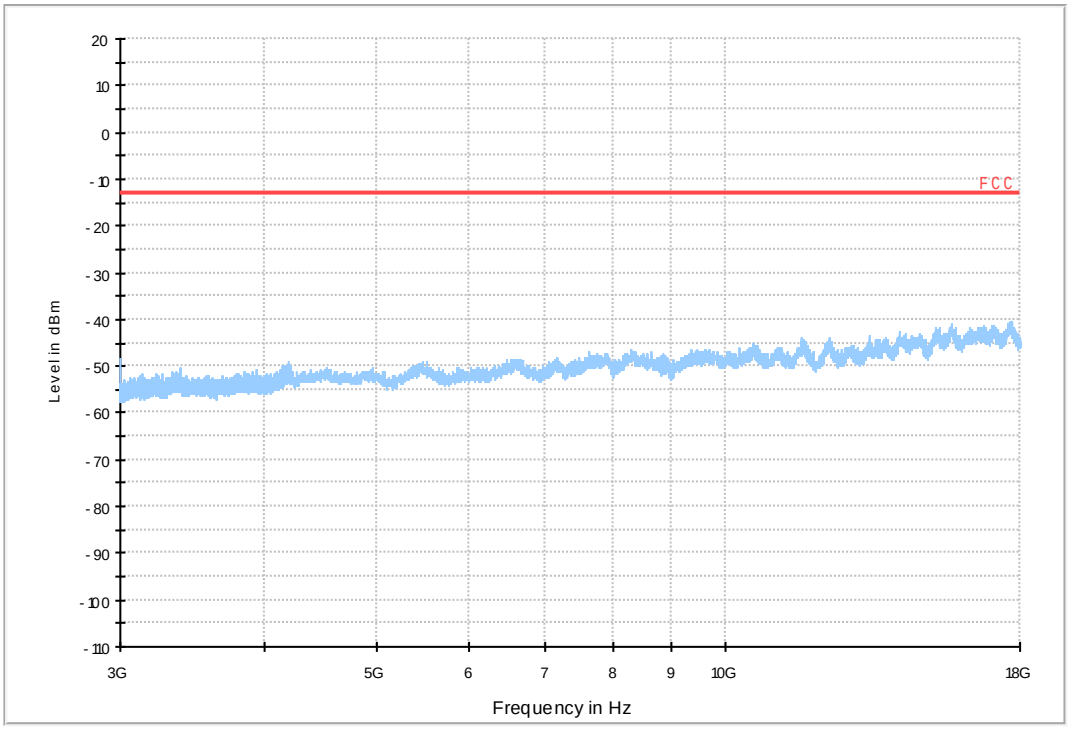
7.1.1.1 Test Mode = UMTS/TM1



06 FCC PART 22 WCDMA850_L

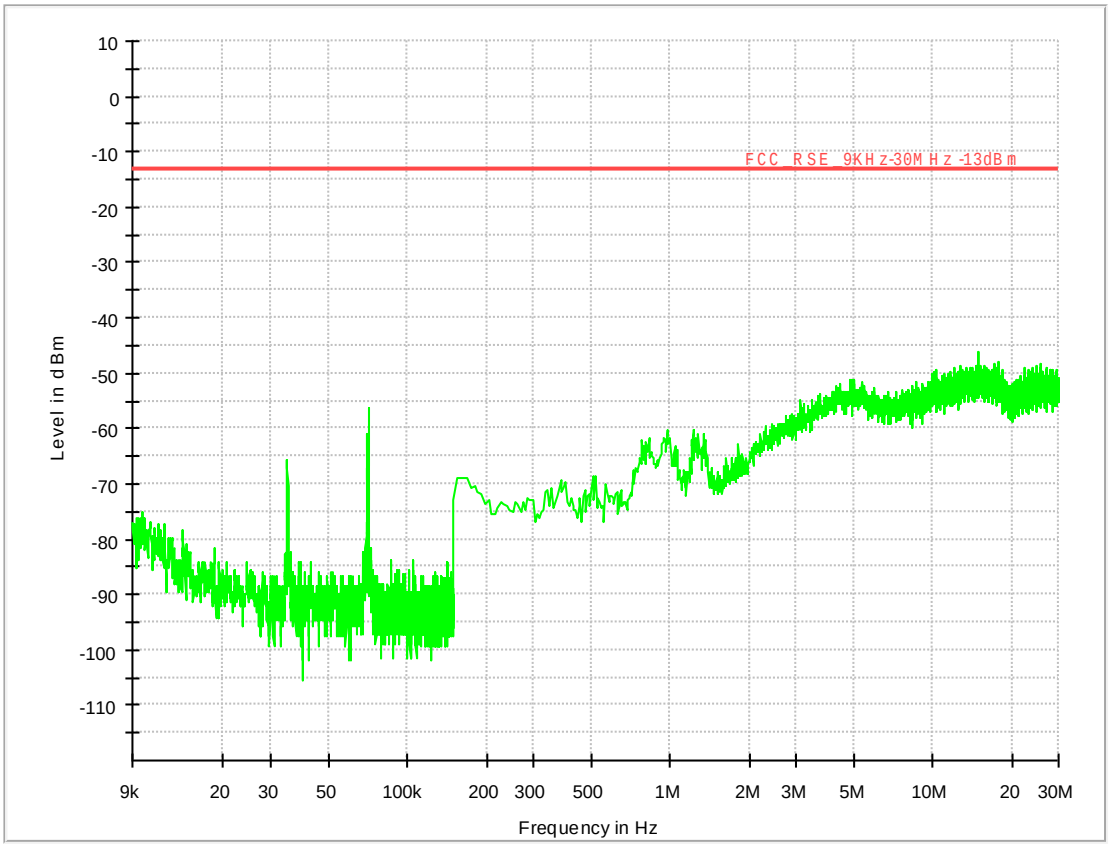


05 FCC PART 22 WCDMA850_H

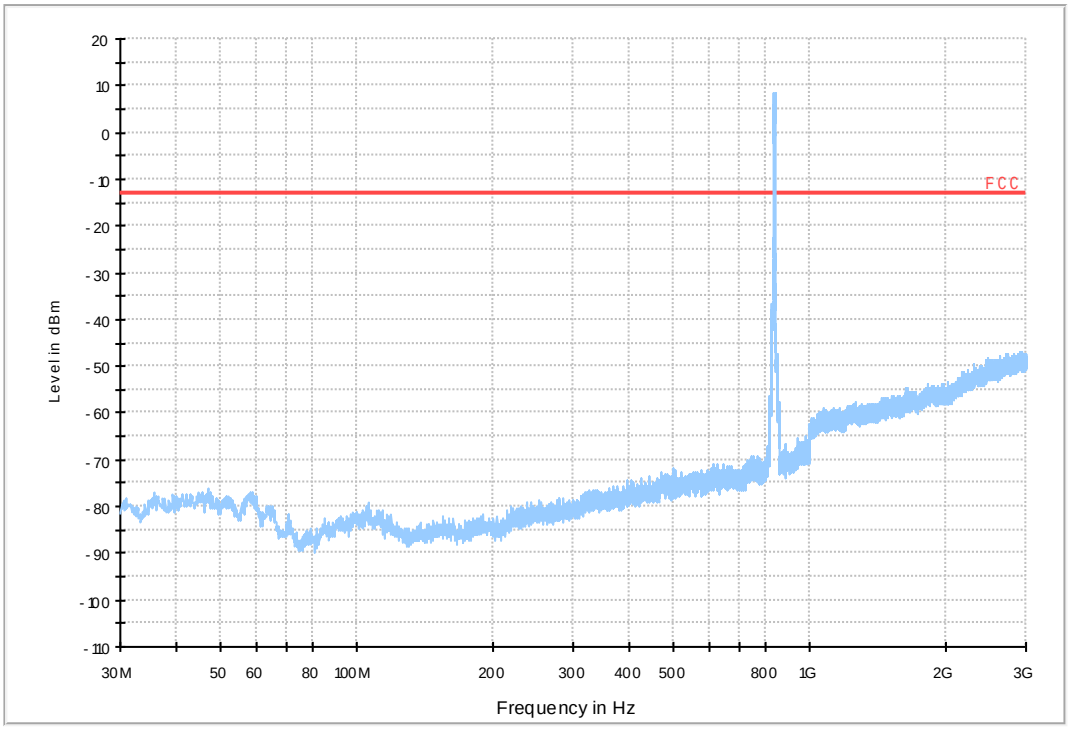


7.1.2 Test Band = WCDMA850_ANT2

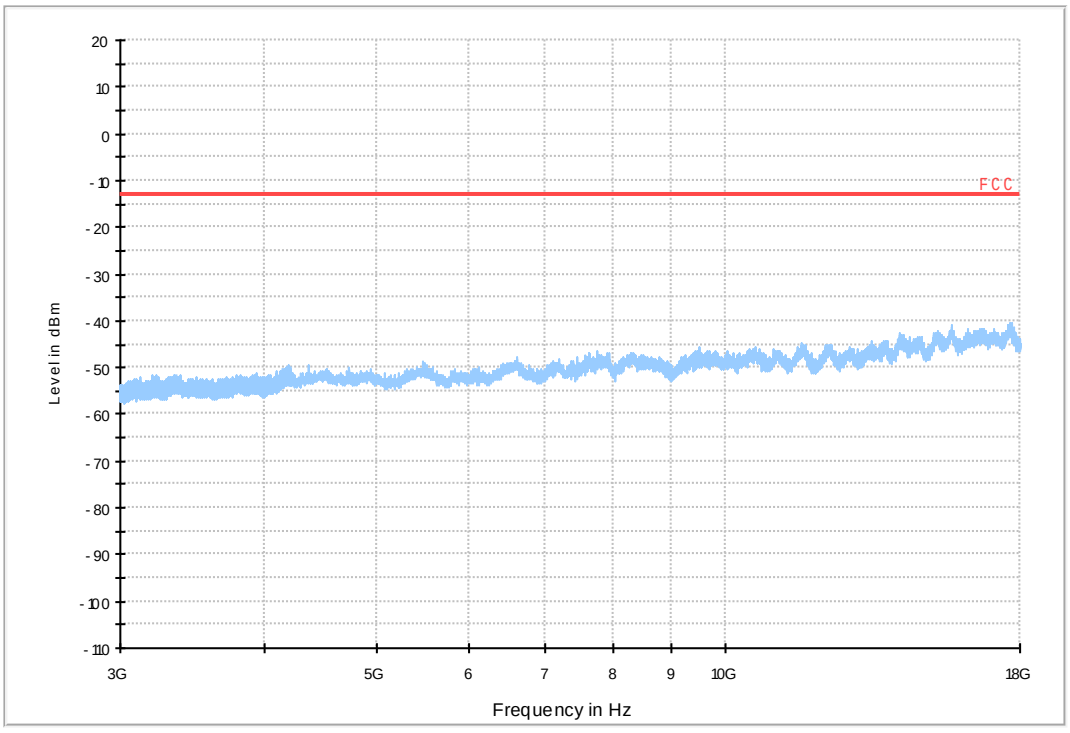
7.1.2.1 Test Mode = UMTS/TM1



06 FCC PART 22 WCDMA850_L

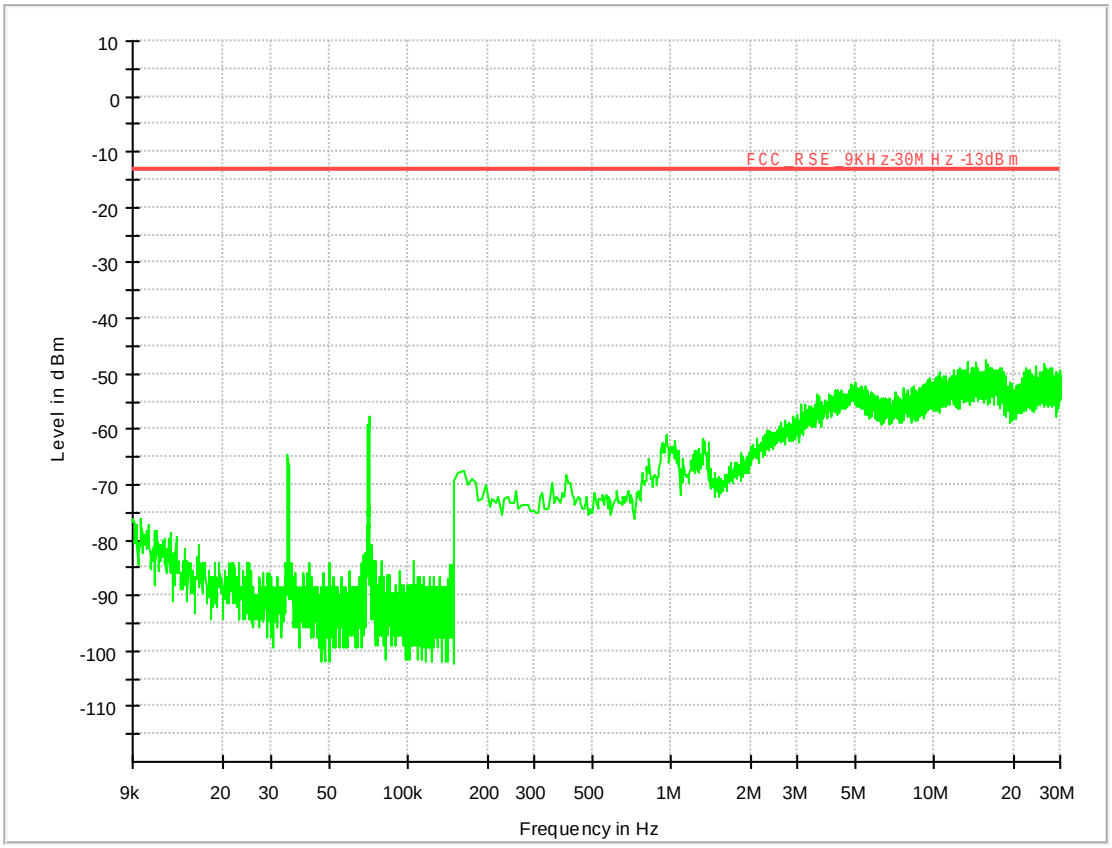


05 FCC PART 22 WCDMA850_H

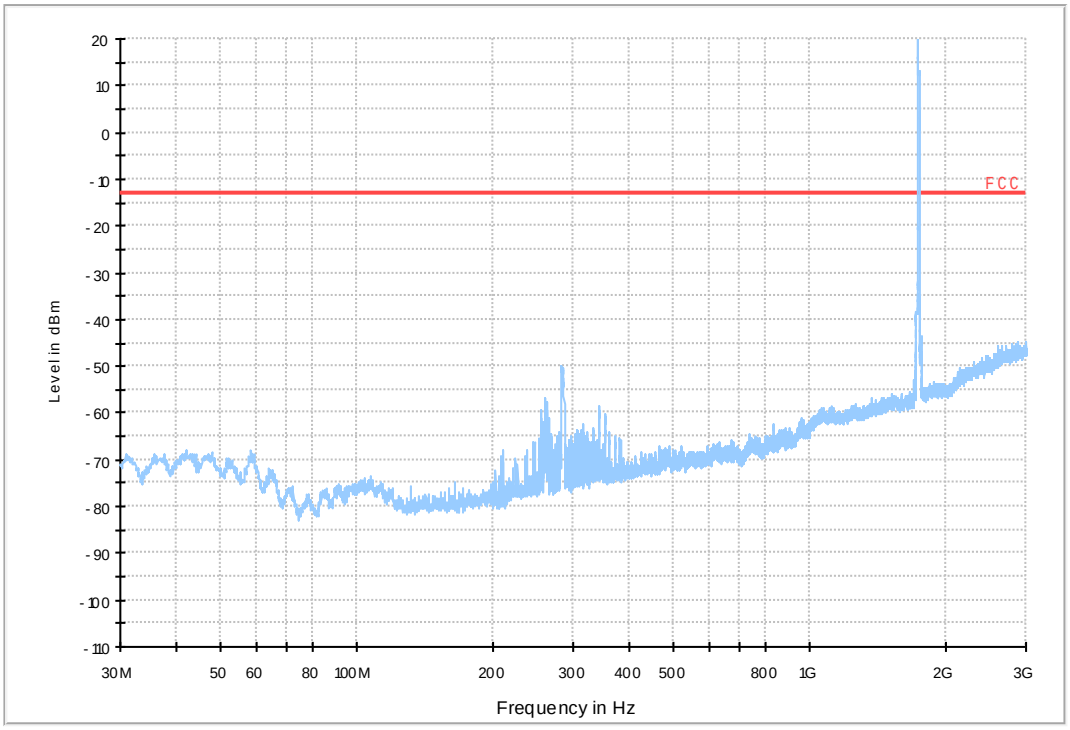


7.1.3 Test Band = WCDMA1700_ANT1

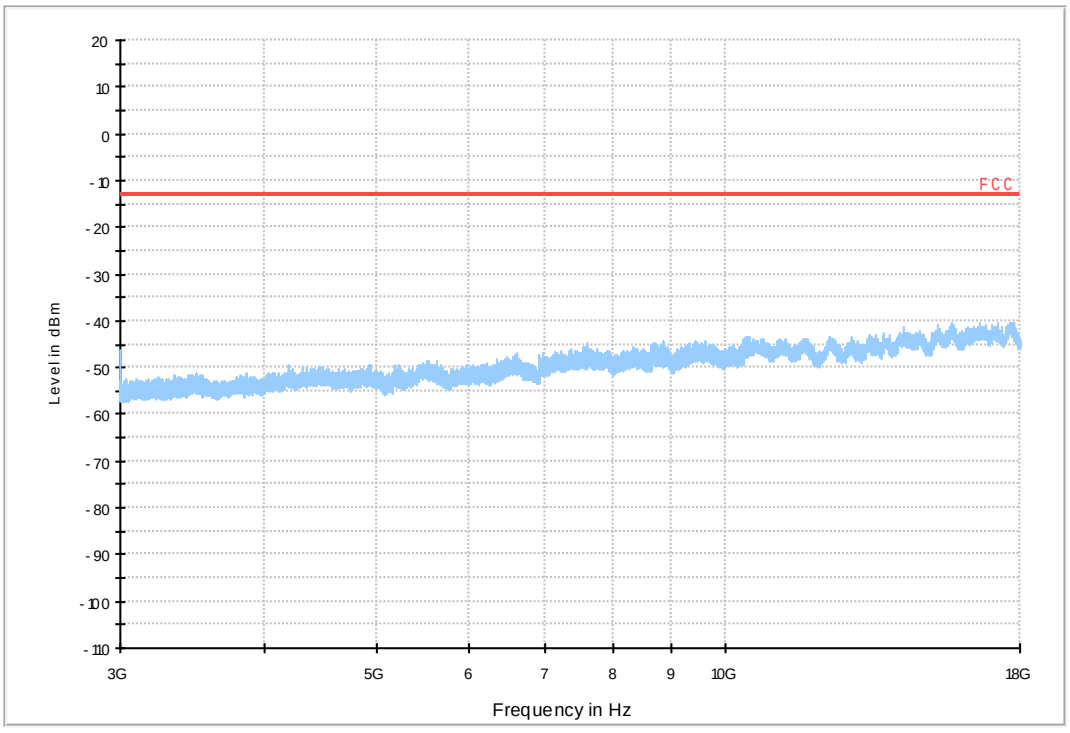
7.1.3.1 Test Mode = UMTS/TM1



18 FCC PART 27 WCDMA1700_L

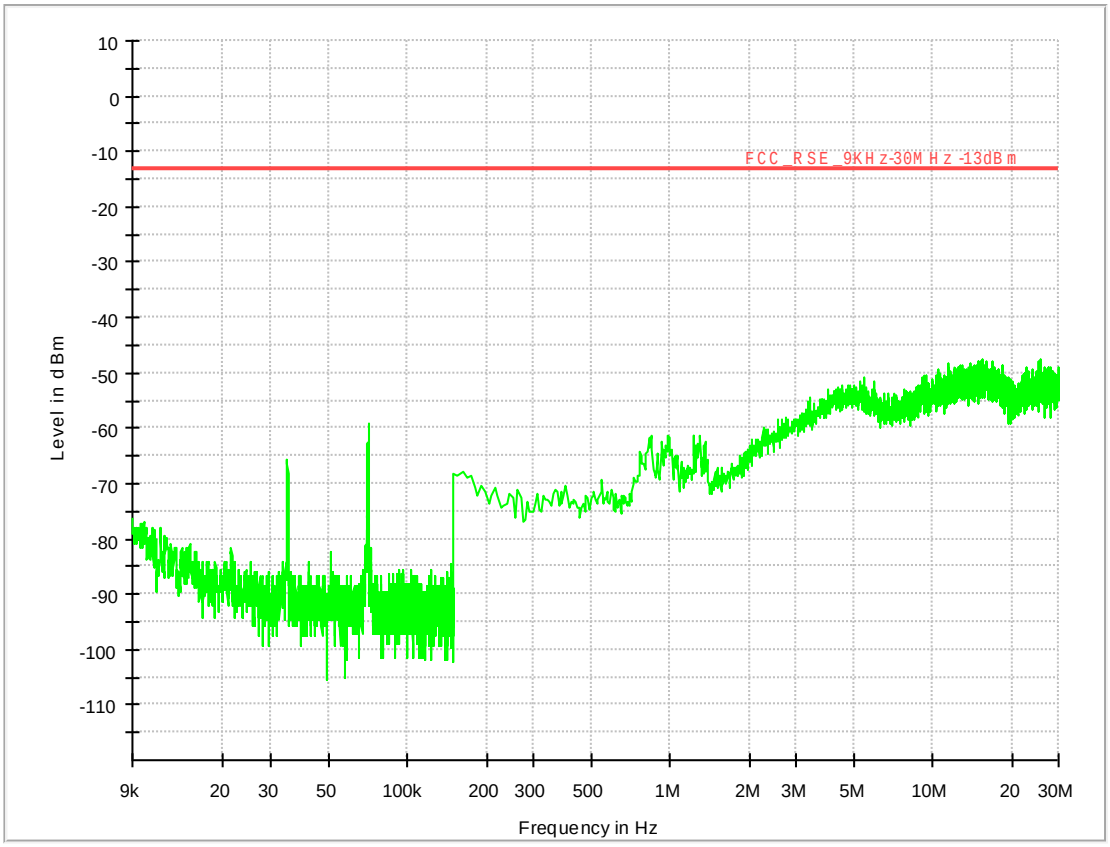


17 FCC PART 27 WCDMA1700_H

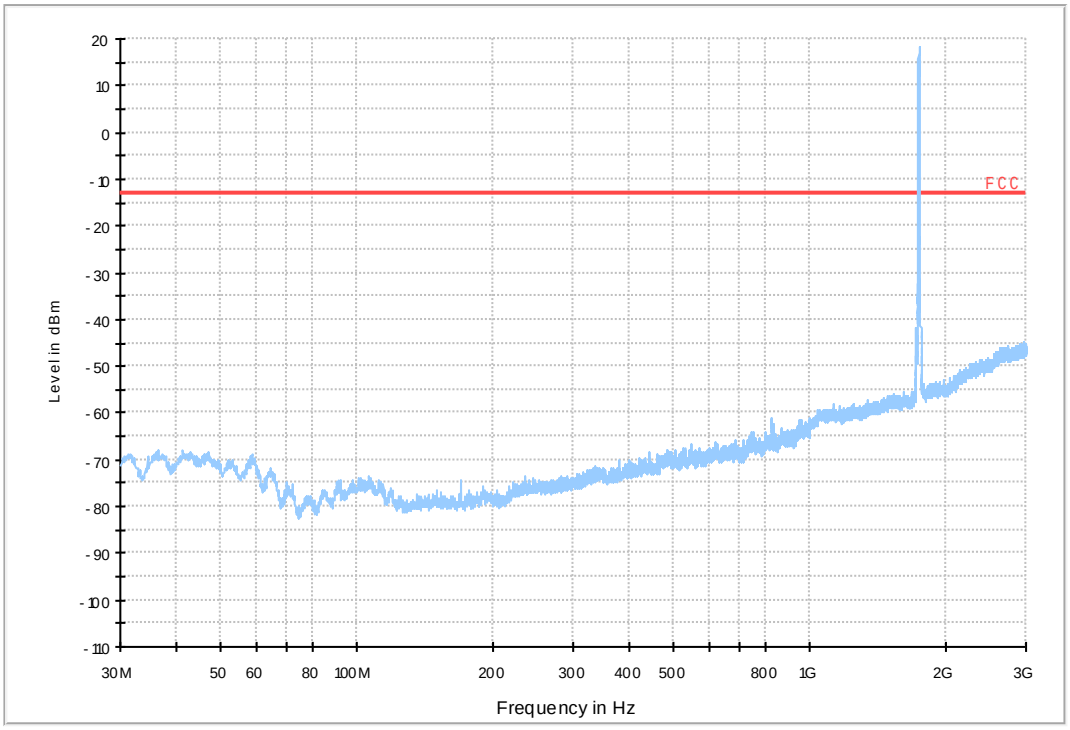


7.1.4 Test Band = WCDMA1700_ANT2

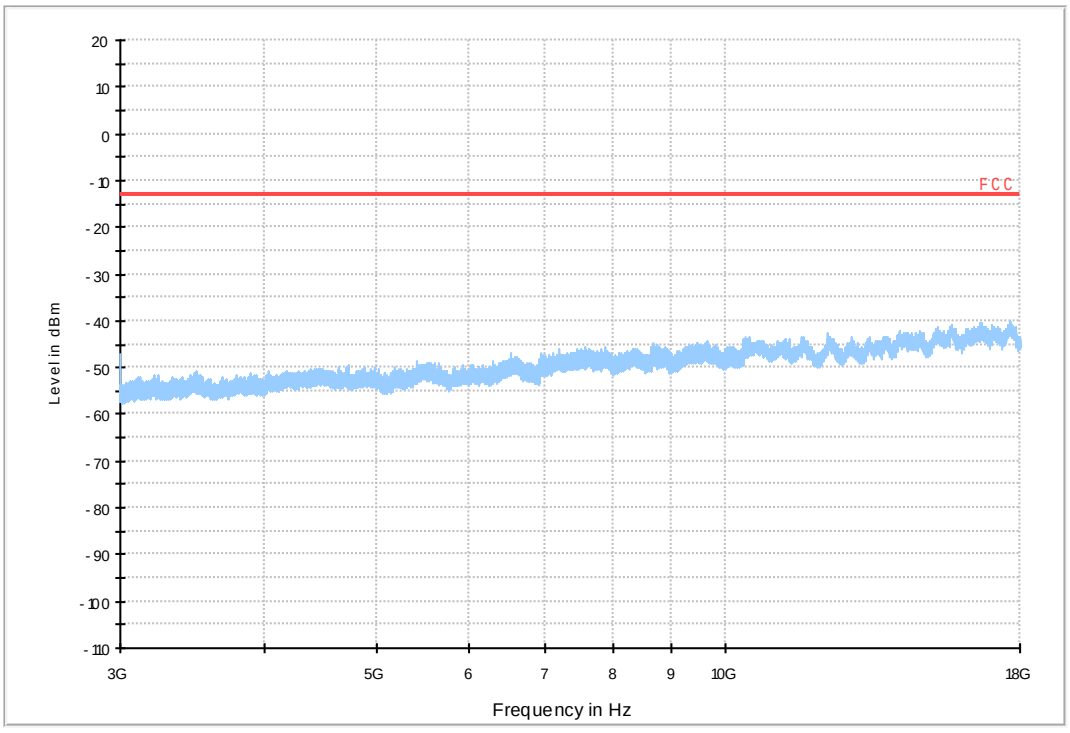
7.1.4.1 Test Mode = UMTS/TM1



18 FCC PART 27 WCDMA1700_L

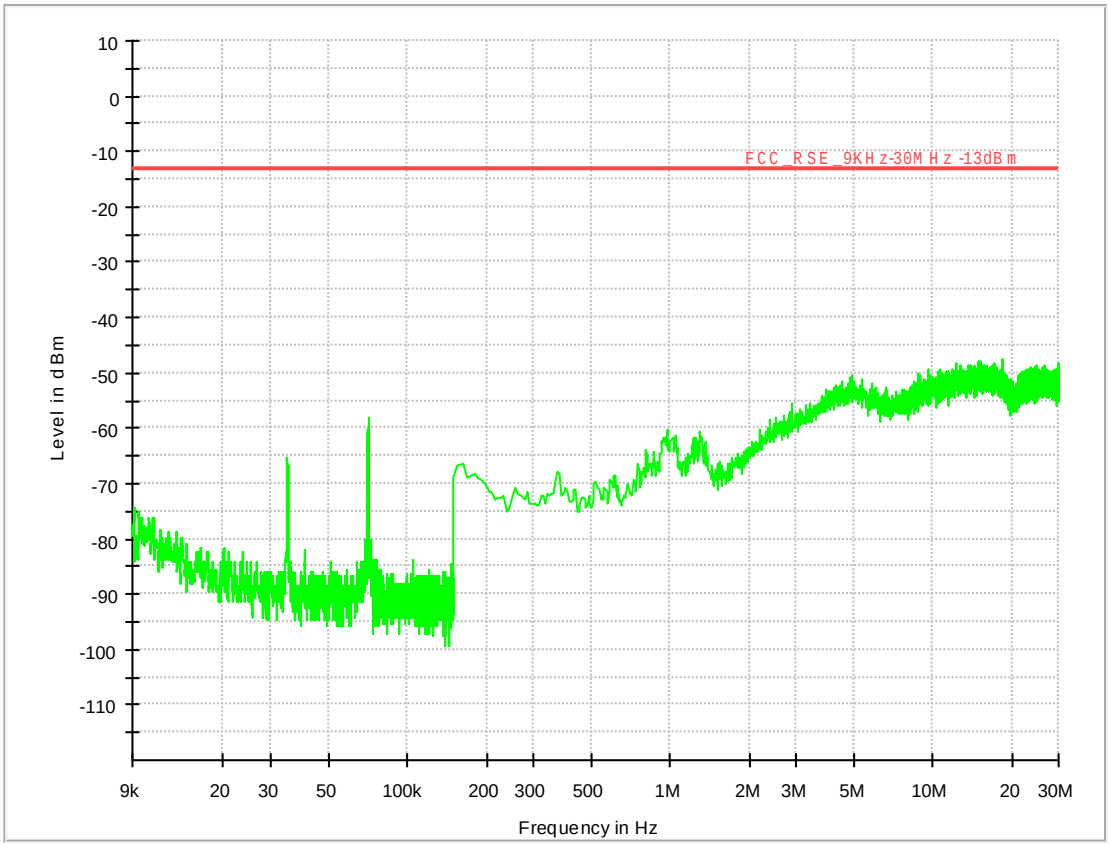


17 FCC PART 27 WCDMA1700_H

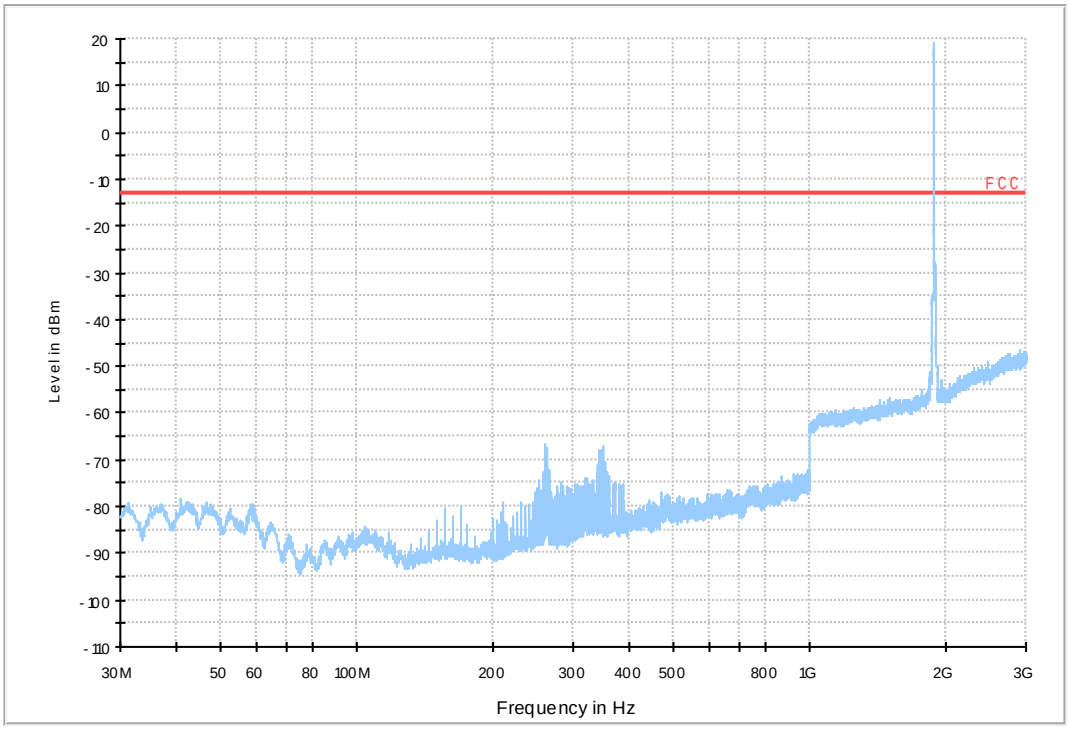


7.1.5 Test Band = WCDMA1900_ANT1

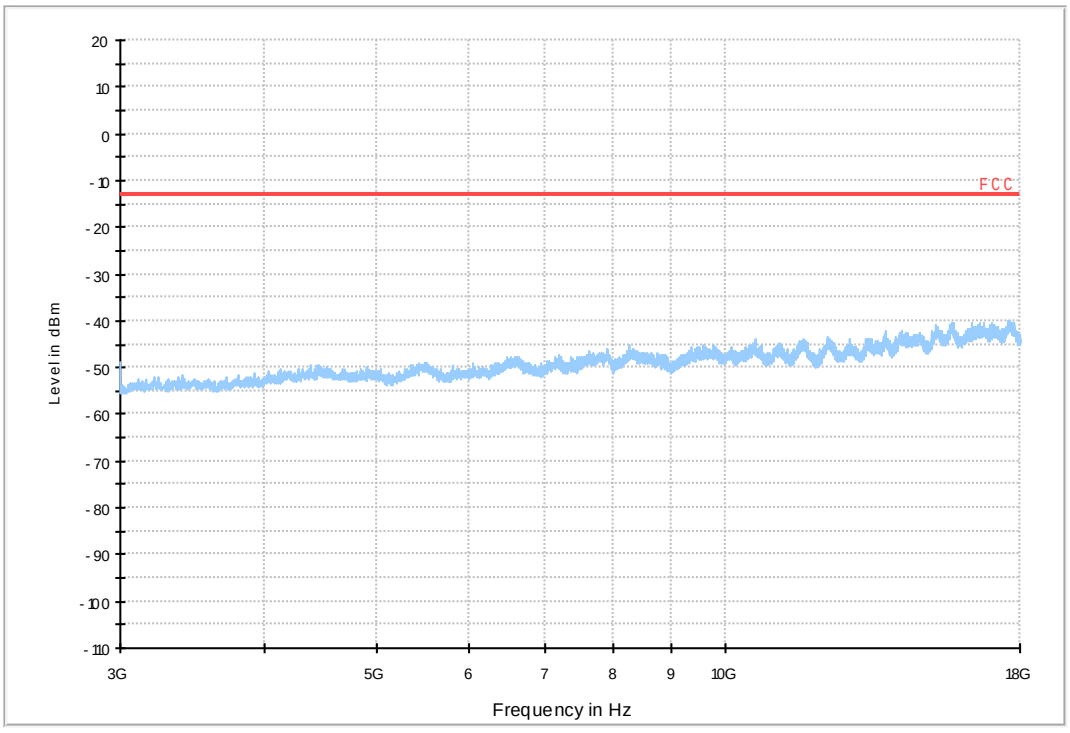
7.1.5.1 Test Mode = UMTS/TM1



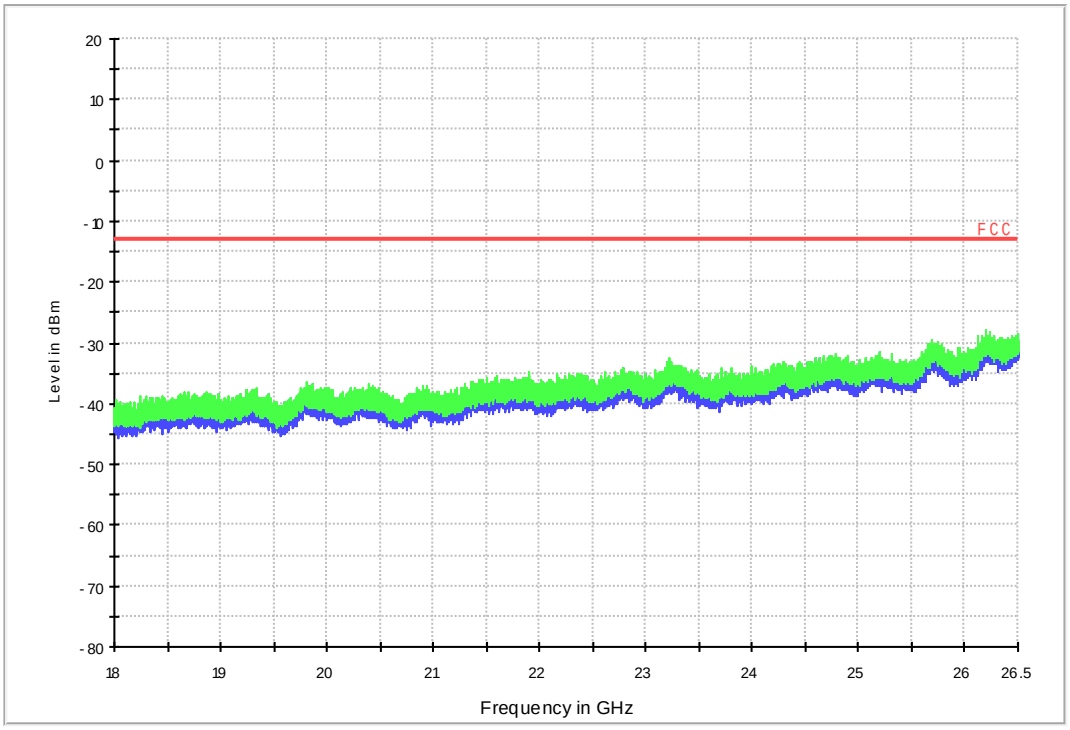
12 FCC PART 24 WCDMA1900_L



11 FCC PART 24 WCDMA1900_H

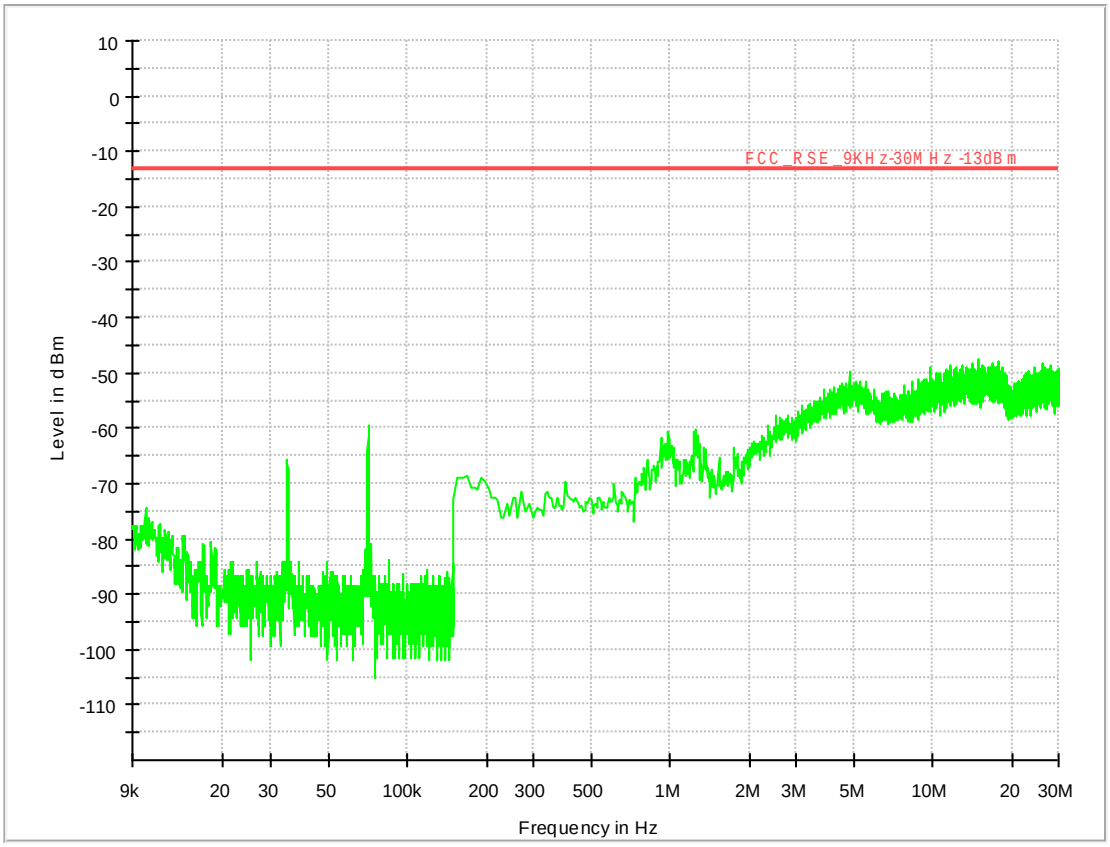


18G~26.5G RSE-TX-DIRECTOR ABOVE 1.5G PK

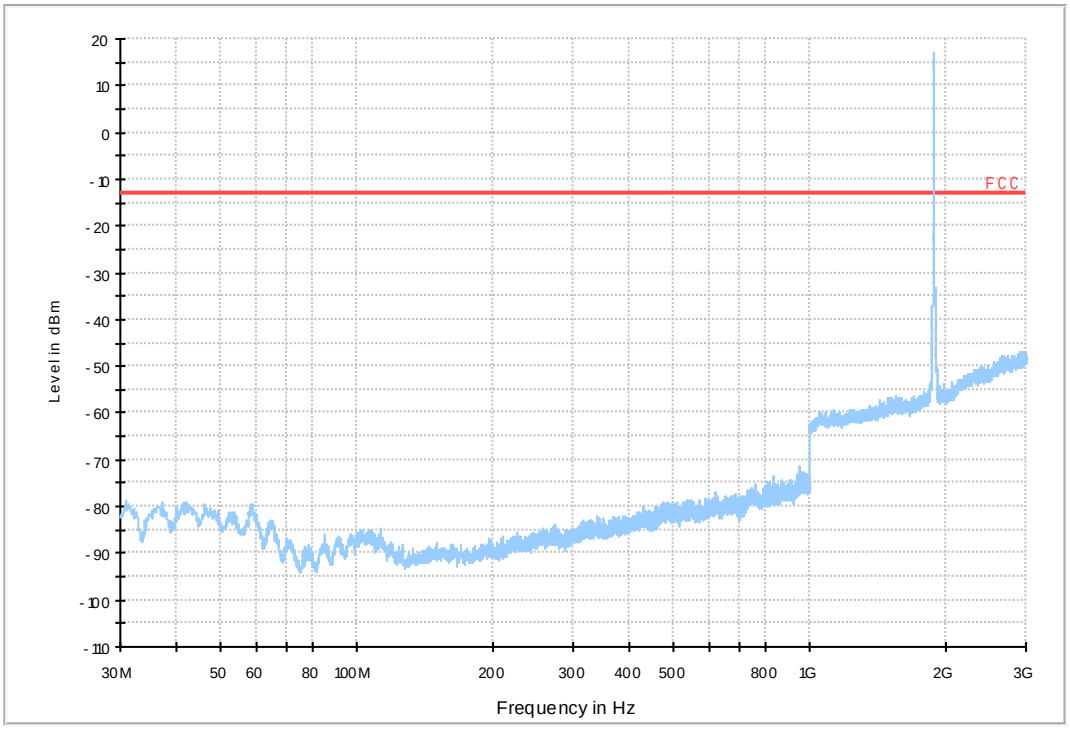


7.1.6 Test Band = WCDMA1900_ANT2

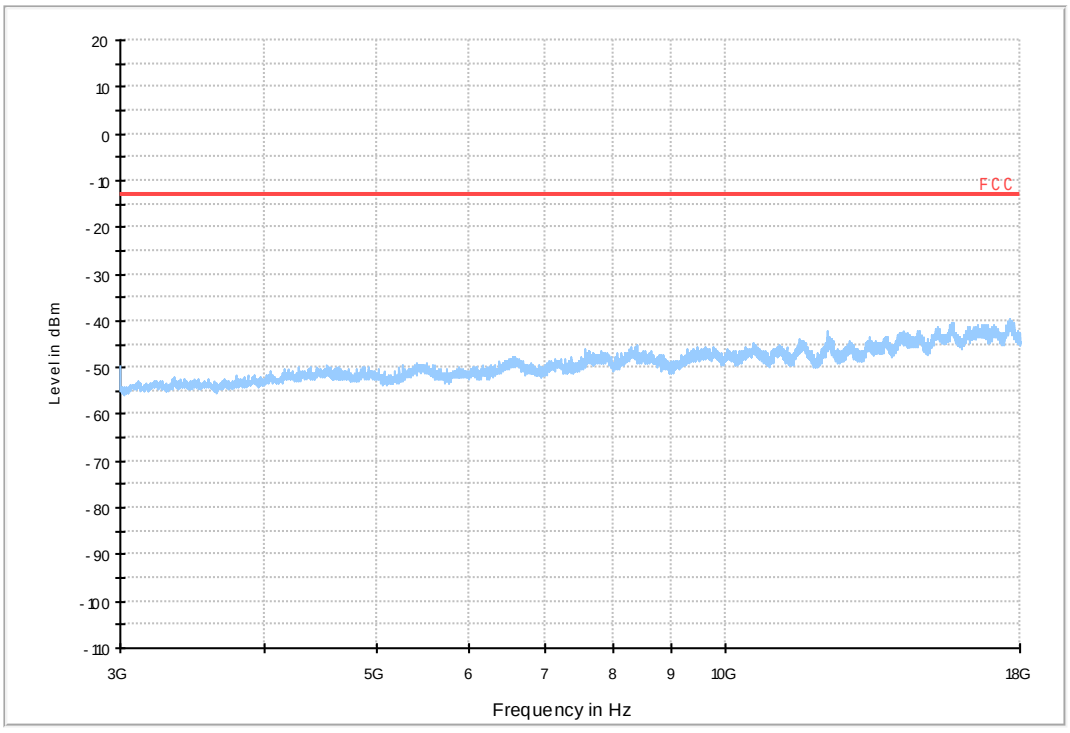
7.1.6.1 Test Mode = UMTS/TM1



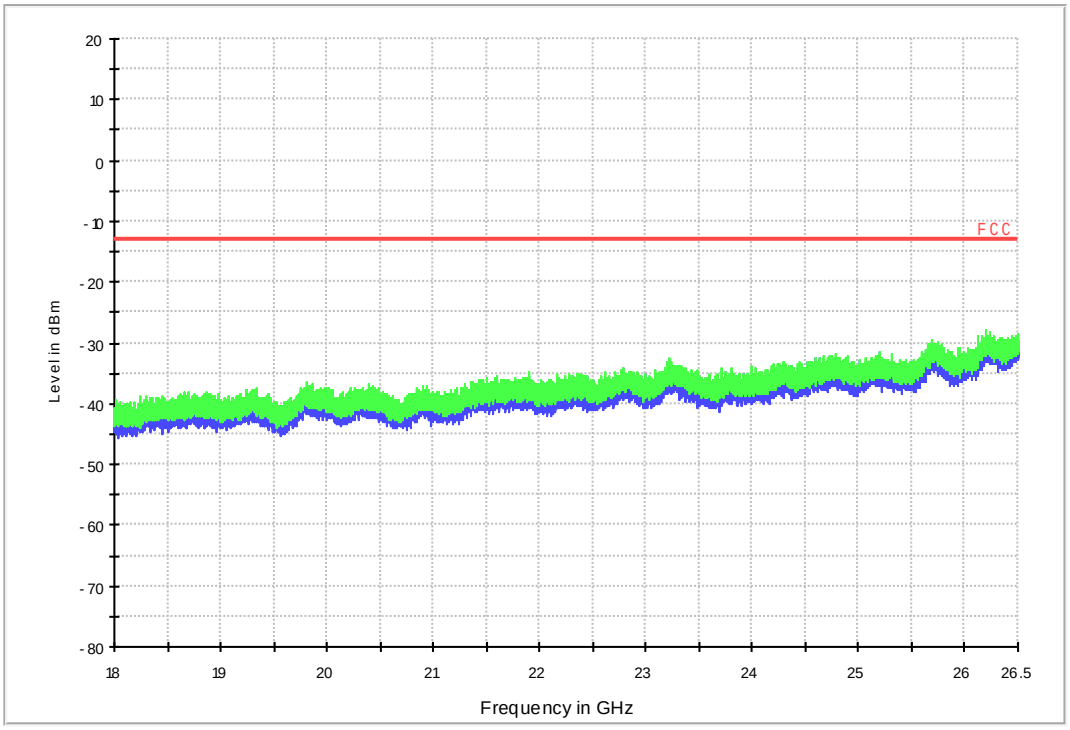
12 FCC PART 24 WCDMA1900_L



11 FCC PART 24 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	2.45333	0.00297	PASS
				VN	1.75953	0.00213	PASS
				VH	4.82798	0.00584	PASS
		MCH	TN	VL	5.34296	0.00639	PASS
				VN	4.93527	0.00590	PASS
				VH	0.96560	0.00115	PASS
		HCH	TN	VL	7.74622	0.00915	PASS
				VN	0.11444	0.00014	PASS
				VH	5.80788	0.00686	PASS
WCDMA1700	UMTS/TM1	LCH	TN	VL	11.25813	0.00657	PASS
				VN	6.11544	0.00357	PASS
				VH	10.14233	0.00592	PASS
		MCH	TN	VL	4.78506	0.00276	PASS
				VN	11.78026	0.00680	PASS
				VH	6.73771	0.00389	PASS
		HCH	TN	VL	6.97374	0.00398	PASS
				VN	4.15564	0.00237	PASS
				VH	7.03812	0.00402	PASS
WCDMA1900	UMTS/TM1	LCH	TN	VL	8.62598	0.00466	PASS
				VN	3.61204	0.00195	PASS
				VH	8.13246	0.00439	PASS
		MCH	TN	VL	6.05822	0.00322	PASS
				VN	9.20534	0.00490	PASS
				VH	7.73907	0.00412	PASS
		HCH	TN	VL	8.27551	0.00466	PASS
				VN	-0.89407	0.00195	PASS
				VH	7.20978	0.00439	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
WCDMA850	UMTS/TM1	LCH	VN	-30	12.18081	0.01474	PASS
				-20	7.75337	0.00938	PASS
				-10	6.46591	0.00782	PASS
				0	5.84364	0.00707	PASS
				10	4.74215	0.00574	PASS
				20	1.75953	0.00213	PASS
				30	5.09977	0.00617	PASS
				40	1.01566	0.00123	PASS
				50	6.30140	0.00762	PASS
		MCH	VN	-30	9.29833	0.01112	PASS
				-20	9.26256	0.01107	PASS
				-10	11.73019	0.01402	PASS
				0	11.28674	0.01349	PASS
				10	10.74314	0.01284	PASS
				20	4.93527	0.00590	PASS
				30	9.59158	0.01147	PASS
				40	8.59022	0.01027	PASS
				50	-0.30041	-0.00036	PASS
		HCH	VN	-30	0.37193	0.00044	PASS
				-20	7.29561	0.00862	PASS
				-10	-1.03712	-0.00123	PASS
				0	1.67370	0.00198	PASS
				10	2.88248	0.00341	PASS
				20	0.11444	0.00014	PASS
				30	0.68665	0.00081	PASS
				40	-1.68800	-0.00199	PASS
				50	6.97374	0.00824	PASS
WCDMA1700	UMTS/TM1	LCH	VN	-30	11.43694	0.00668	PASS
				-20	10.03504	0.00586	PASS
				-10	11.03640	0.00644	PASS
				0	7.05957	0.00412	PASS
				10	12.68148	0.00741	PASS
				20	6.11544	0.00357	PASS
				30	11.81602	0.00690	PASS
				40	10.54287	0.00616	PASS
				50	13.31806	0.00778	PASS
		MCH	VN	-30	14.29081	0.00825	PASS
				-20	14.20498	0.00820	PASS

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				-10	10.64301	0.00614	PASS
				0	13.74006	0.00793	PASS
				10	10.22816	0.00590	PASS
				20	11.78026	0.00680	PASS
				30	7.90358	0.00456	PASS
				40	6.25134	0.00361	PASS
				50	7.73907	0.00447	PASS
		HCH	VN	-30	9.21249	0.00526	PASS
				-20	5.57184	0.00318	PASS
				-10	5.58615	0.00319	PASS
				0	5.54323	0.00316	PASS
				10	12.25233	0.00699	PASS
				20	4.15564	0.00237	PASS
				30	11.43694	0.00653	PASS
				40	9.74894	0.00556	PASS
				50	8.14676	0.00465	PASS
WCDMA1900	UMTS/TM1	LCH	VN	-30	2.45333	0.00132	PASS
				-20	5.14984	0.00278	PASS
				-10	14.24074	0.00769	PASS
				0	6.05822	0.00327	PASS
				10	8.87632	0.00479	PASS
				20	3.61204	0.00195	PASS
				30	9.68456	0.00523	PASS
				40	0.89407	0.00048	PASS
				50	7.56025	0.00408	PASS
		MCH	VN	-30	8.49009	0.00452	PASS
				-20	10.70023	0.00569	PASS
				-10	14.05478	0.00748	PASS
				0	11.24382	0.00598	PASS
				10	9.96351	0.00530	PASS
				20	9.20534	0.00490	PASS
				30	7.08818	0.00377	PASS
				40	12.07352	0.00642	PASS
				50	-1.29461	-0.00069	PASS
		HCH	VN	-30	12.20942	0.00640	PASS
				-20	5.37157	0.00282	PASS
				-10	5.30004	0.00278	PASS
				0	10.47850	0.00549	PASS
				10	-0.50068	-0.00026	PASS
				20	-0.89407	-0.00047	PASS

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				30	3.50475	0.00184	PASS
				40	7.14541	0.00375	PASS
				50	10.29253	0.00540	PASS

END