Appendix for test report

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1Appendix_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
WCDMA1900	UMTS/TM1	LCH	22.48	20.48	33	PASS
		MCH	22.44	20.44	33	PASS
		HCH	22.43	20.43	33	PASS
WCDMA1700	UMTS/TM1	LCH	22.59	20.59	30	PASS
		MCH	22.44	20.44	30	PASS
		HCH	22.44	20.44	30	PASS

Test Band	Test Mode	Test Channel	Conducted Power [dBm]	ERP [dBm]	Limit [dBm]	Verdict
WCDMA850	UMTS/TM1	LCH	22.95	17.8	38.5	PASS
		MCH	22.93	17.78	38.5	PASS
		HCH	22.95	17.8	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,

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

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

b, SGP=Signal Generator Level

b, SGP=Signal Generator Level

Note2:

SET Span=1.5*OBW

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

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SET VBW>= 3*RBW

SET Sweep time=auto-couple.

Detector: RMS

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2Appendix_B: Peak-to-Average Ratio

Part I - Test Results

Test Band	Test Mode	Test Channel	Measured[dB]	Limit [dB]	Verdict
WCDMA1700	UMTS/TM1	LCH	2.77	13	PASS
		MCH	2.73	13	PASS
		HCH	2.58	13	PASS
WCDMA850	UMTS/TM1	LCH	3.02	13	PASS
		MCH	2.83	13	PASS
		HCH	3.05	13	PASS
WCDMA1900	UMTS/TM1	LCH	9.59	13	PASS
		MCH	2.86	13	PASS
		HCH	2.76	13	PASS

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3Appendix_C: Modulation Characteristics

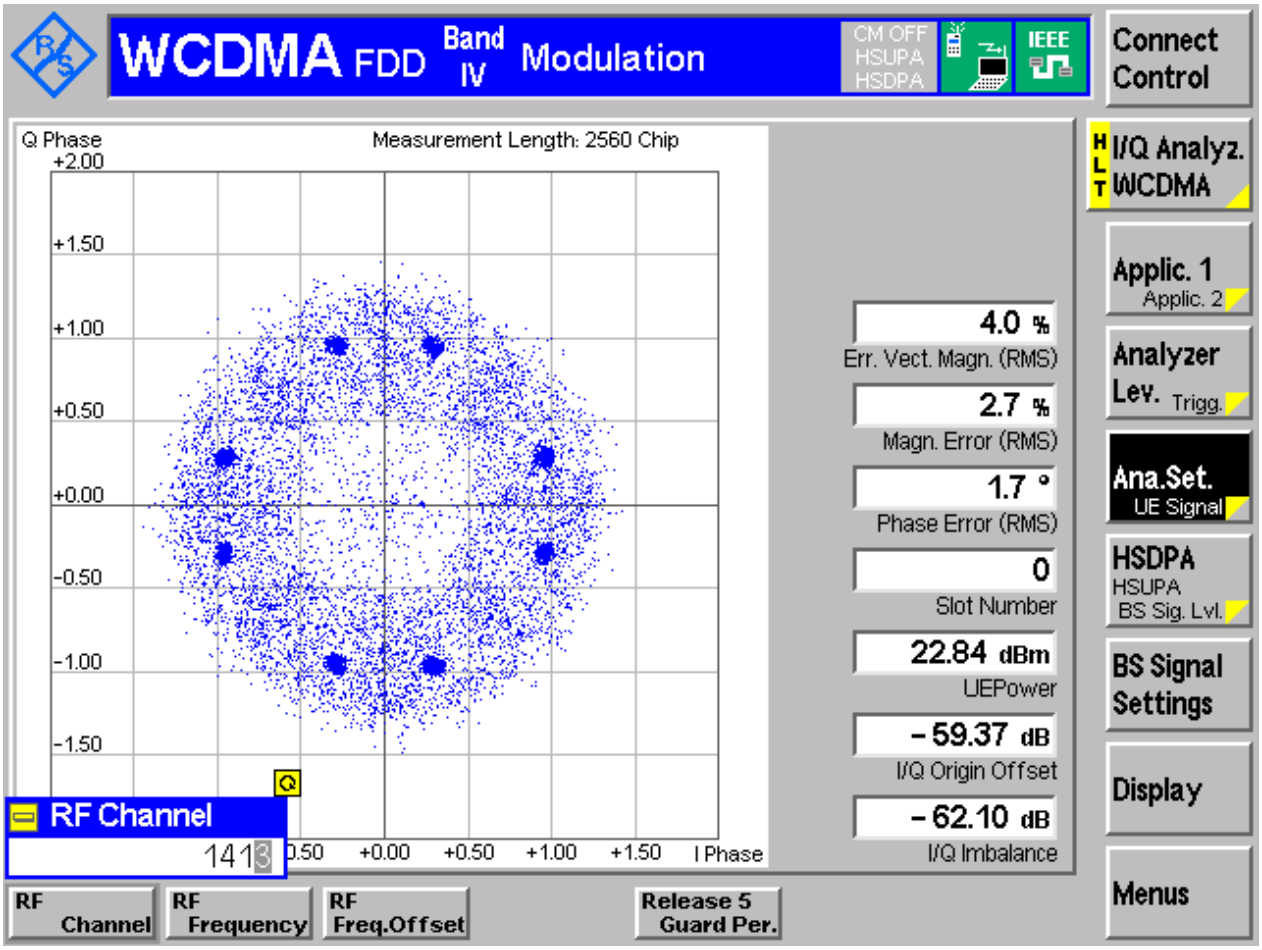
Part I - Test Plots

3.1 For UMTS

3.1.1 Test Band = WCDMA1700

3.1.1.1 Test Mode = UMTS/TM1

3.1.1.1.1 Test Channel = MCH



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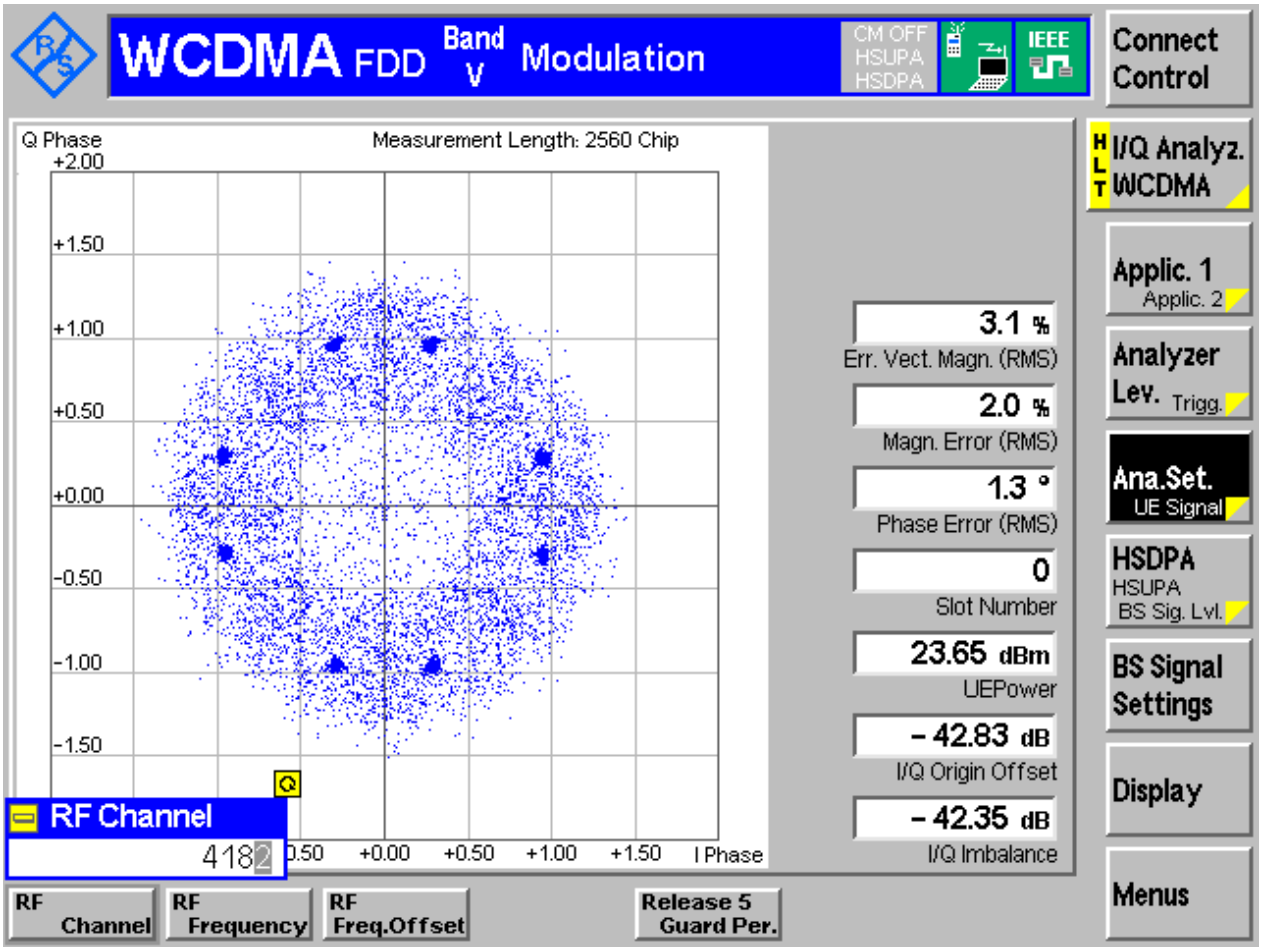
3.1.2 Test Band = WCDMA850

3.1.2.1 Test Mode = UMTS/TM1

3.1.2.1.1 Test Channel = MCH



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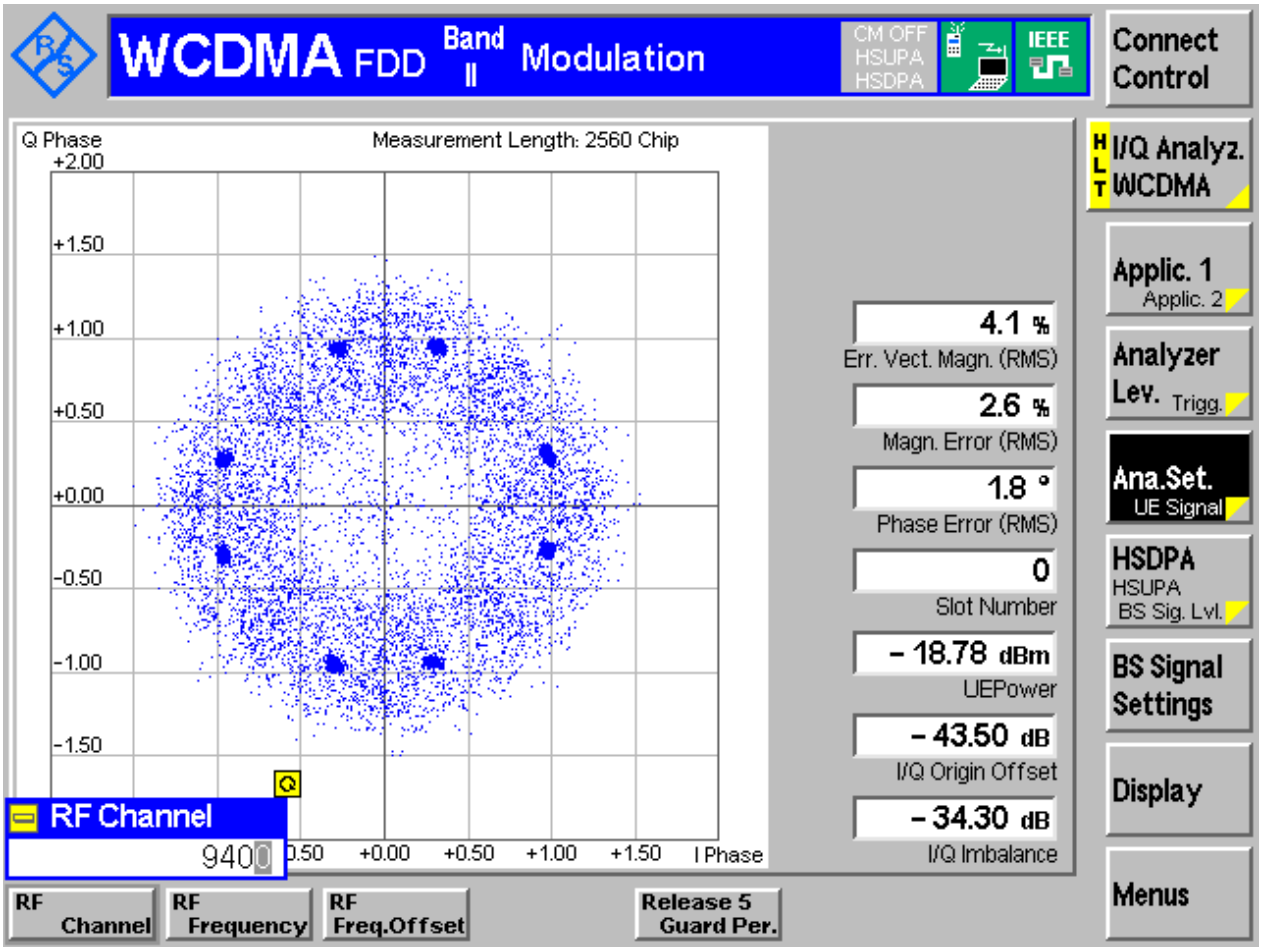
3.1.3 Test Band = WCDMA1900

3.1.3.1 Test Mode = UMTS/TM1

3.1.3.1.1 Test Channel = MCH



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4Appendix_D: Bandwidth

Part I - Test Results

Test Band	Test Mode	Test Channel	Occupied Bandwidth [MHz]	Emission Bandwidth [MHz]	Verdict
WCDMA1900	UMTS/TM1	LCH	4.15	4.72	Pass
		MCH	4.17	4.75	Pass
		HCH	4.15	4.71	Pass
WCDMA1700	UMTS/TM1	LCH	4.15	4.74	Pass
		MCH	4.14	4.72	Pass
		HCH	4.14	4.73	Pass
WCDMA850	UMTS/TM1	LCH	4.14	4.70	Pass
		MCH	4.15	4.76	Pass
		HCH	4.16	4.70	Pass

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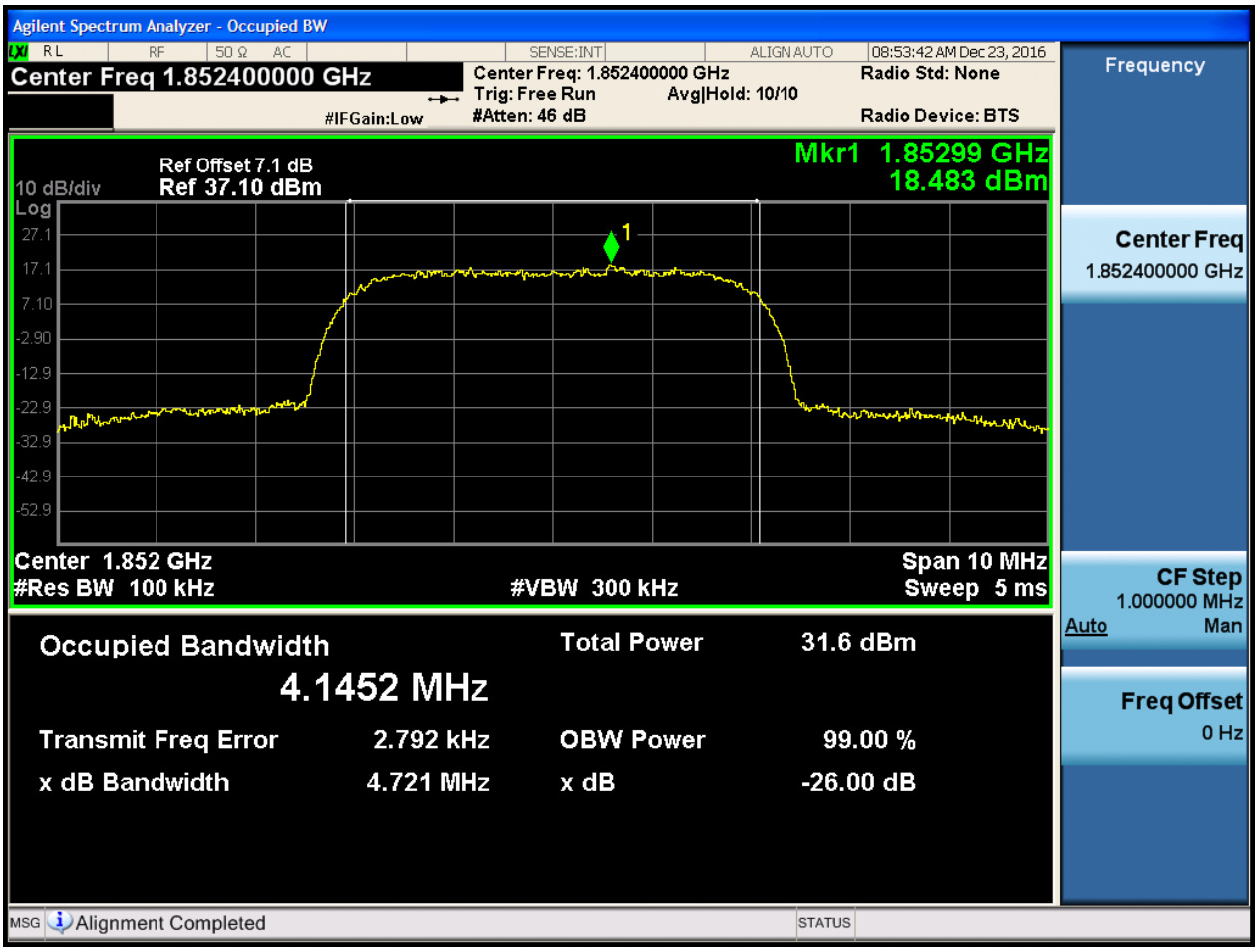
Part II - Test Plots

4.1 For UMTS

4.1.3 Test Band = WCDMA1900

4.1.3.1 Test Mode = UMTS/TM1

4.1.3.1.1 Test Channel = LCH



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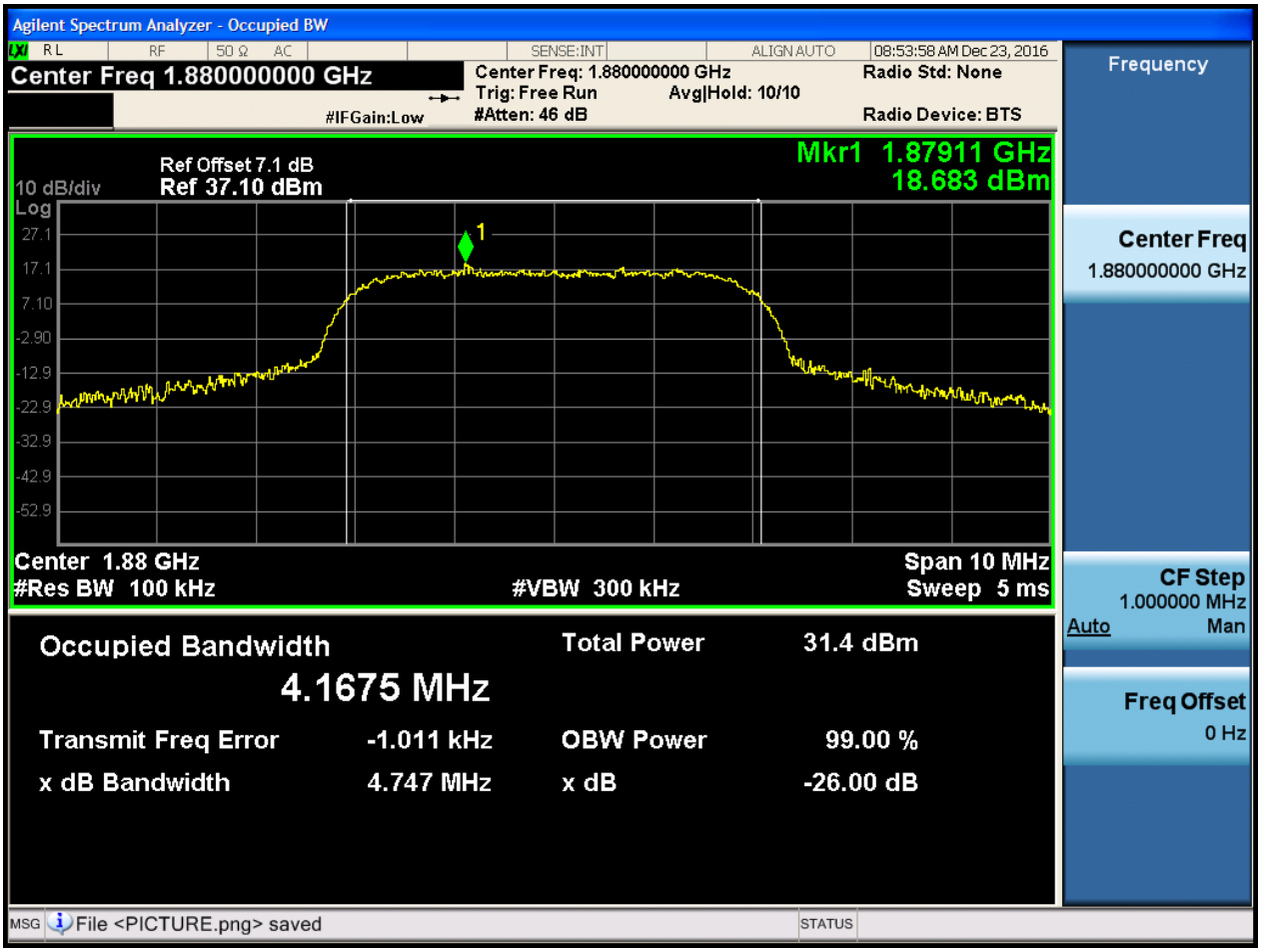
4.1.3.1.2 Test Channel = MCH



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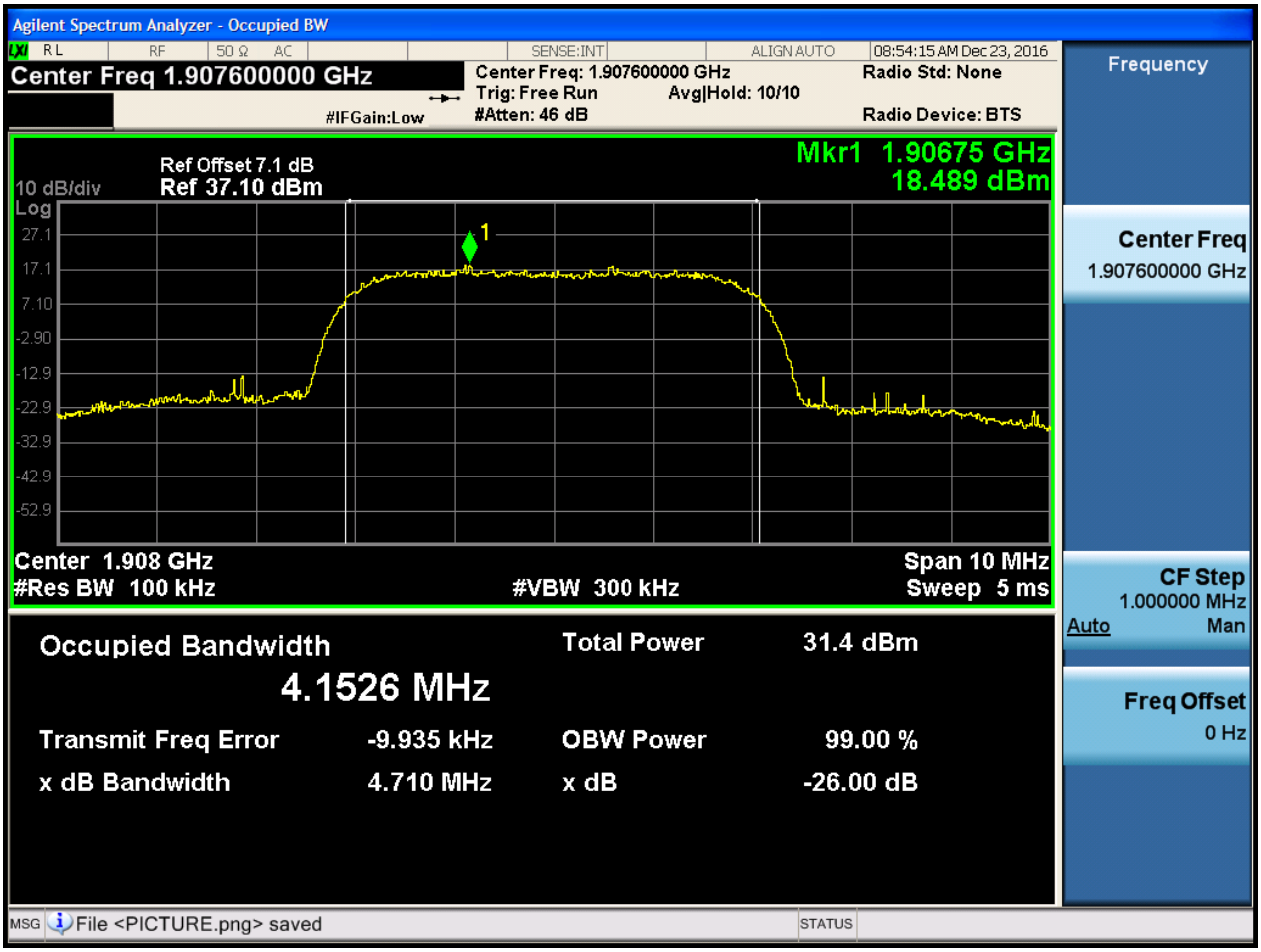
4.1.3.1.3 Test Channel = HCH



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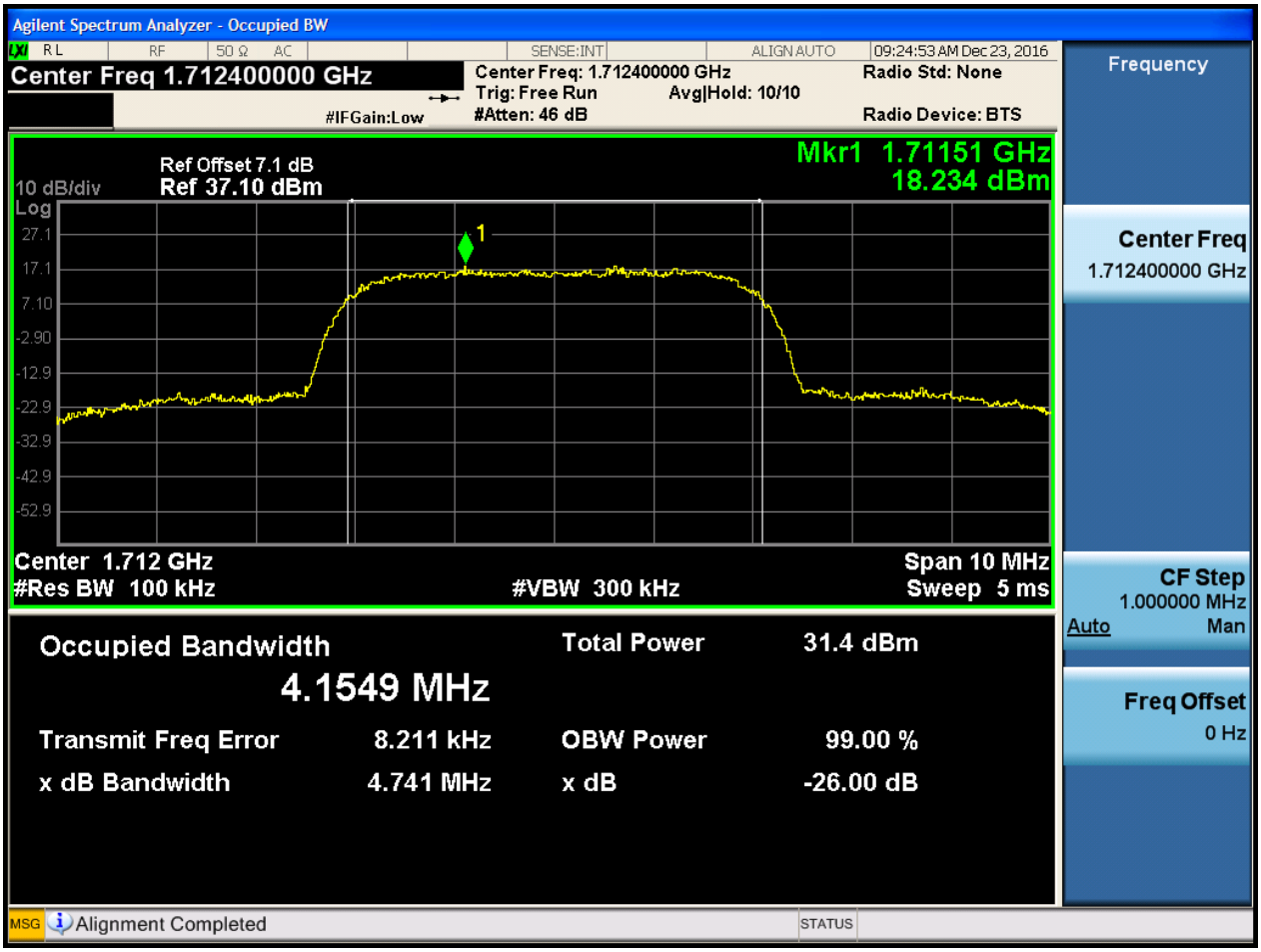
4.1.4 Test Band = WCDMA1700

4.1.4.1 Test Mode = UMTS/TM1

4.1.4.1.1 Test Channel = LCH



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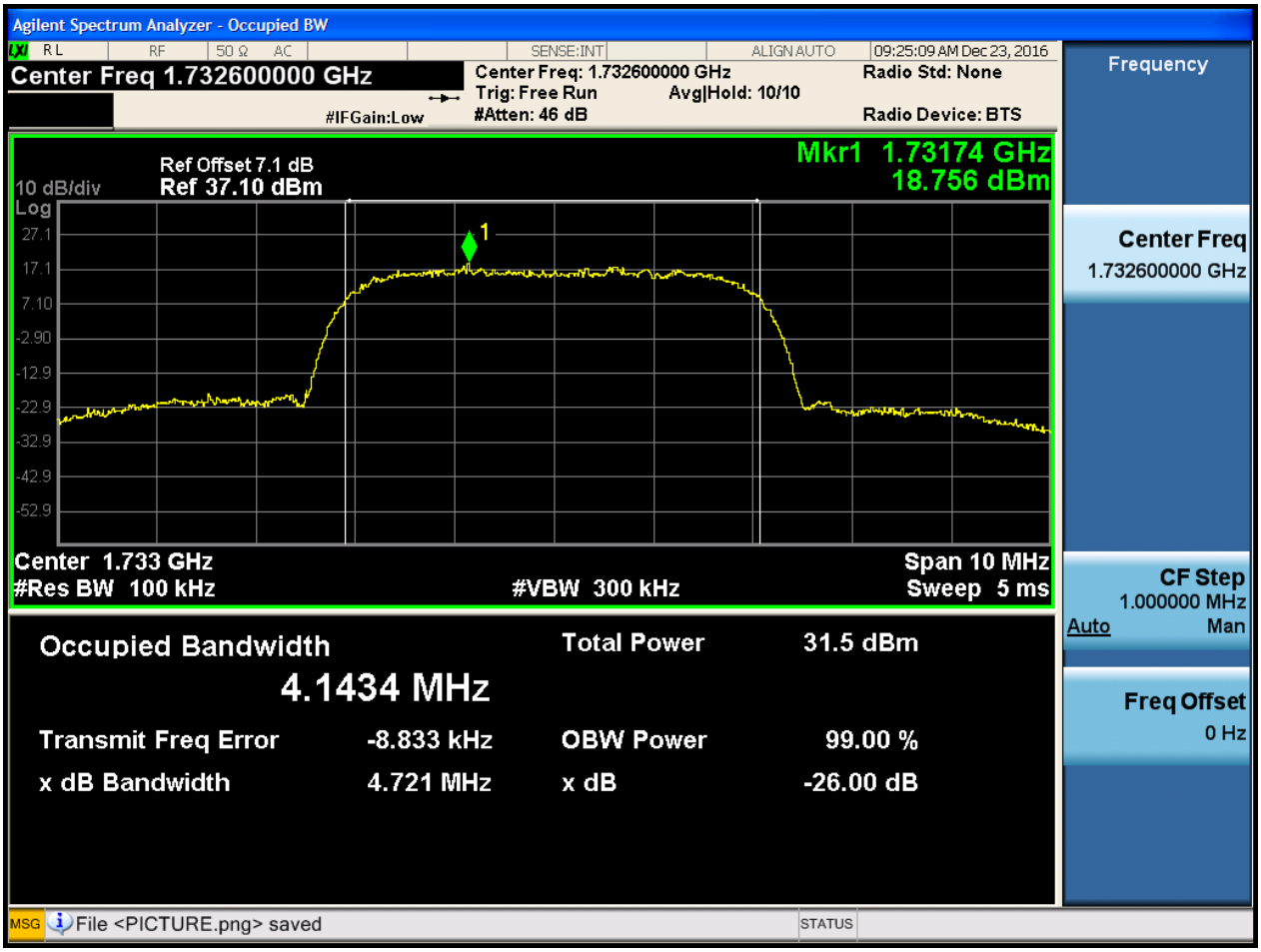
4.1.4.1.2 Test Channel = MCH



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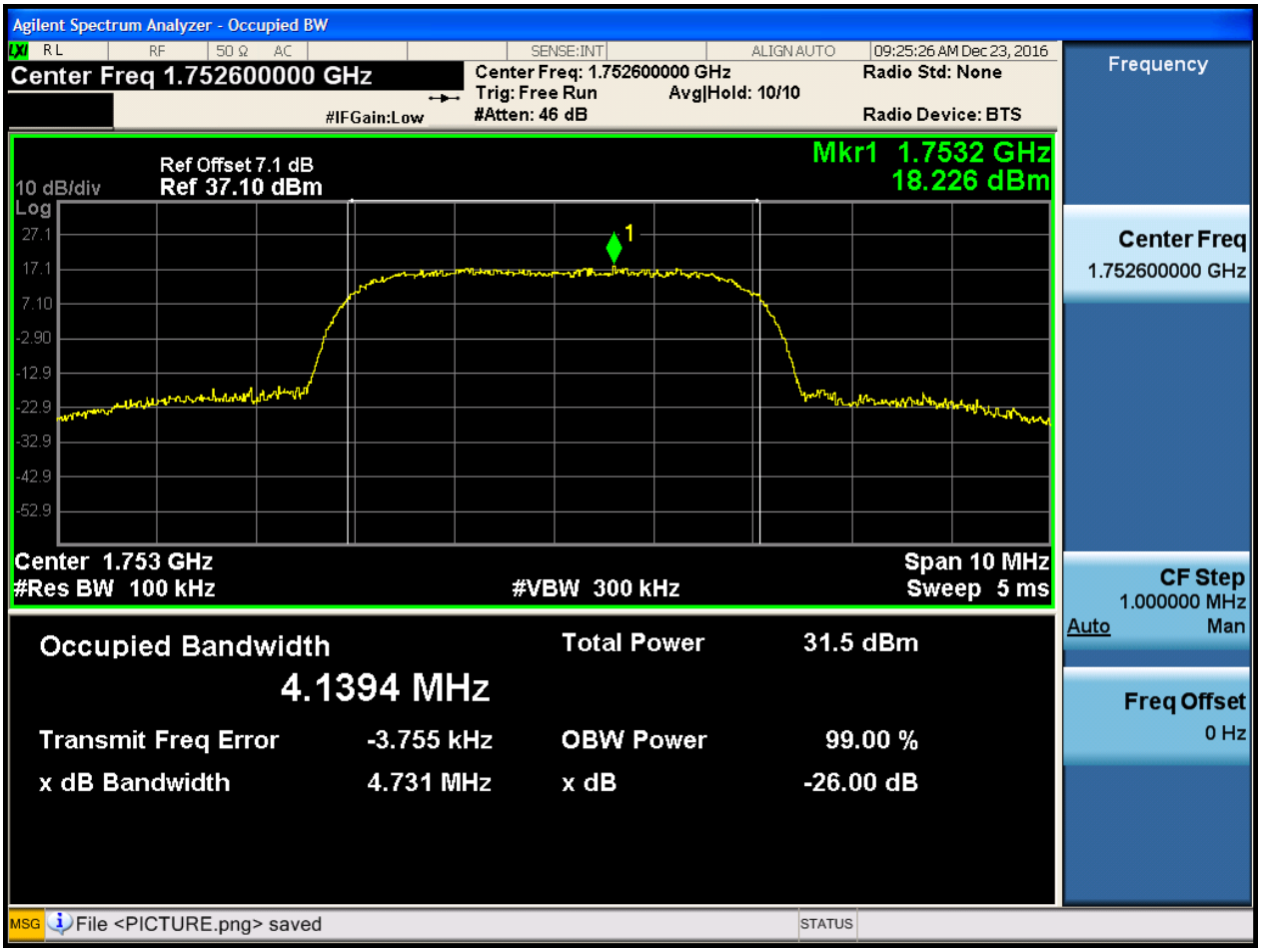
4.1.4.1.3 Test Channel = HCH



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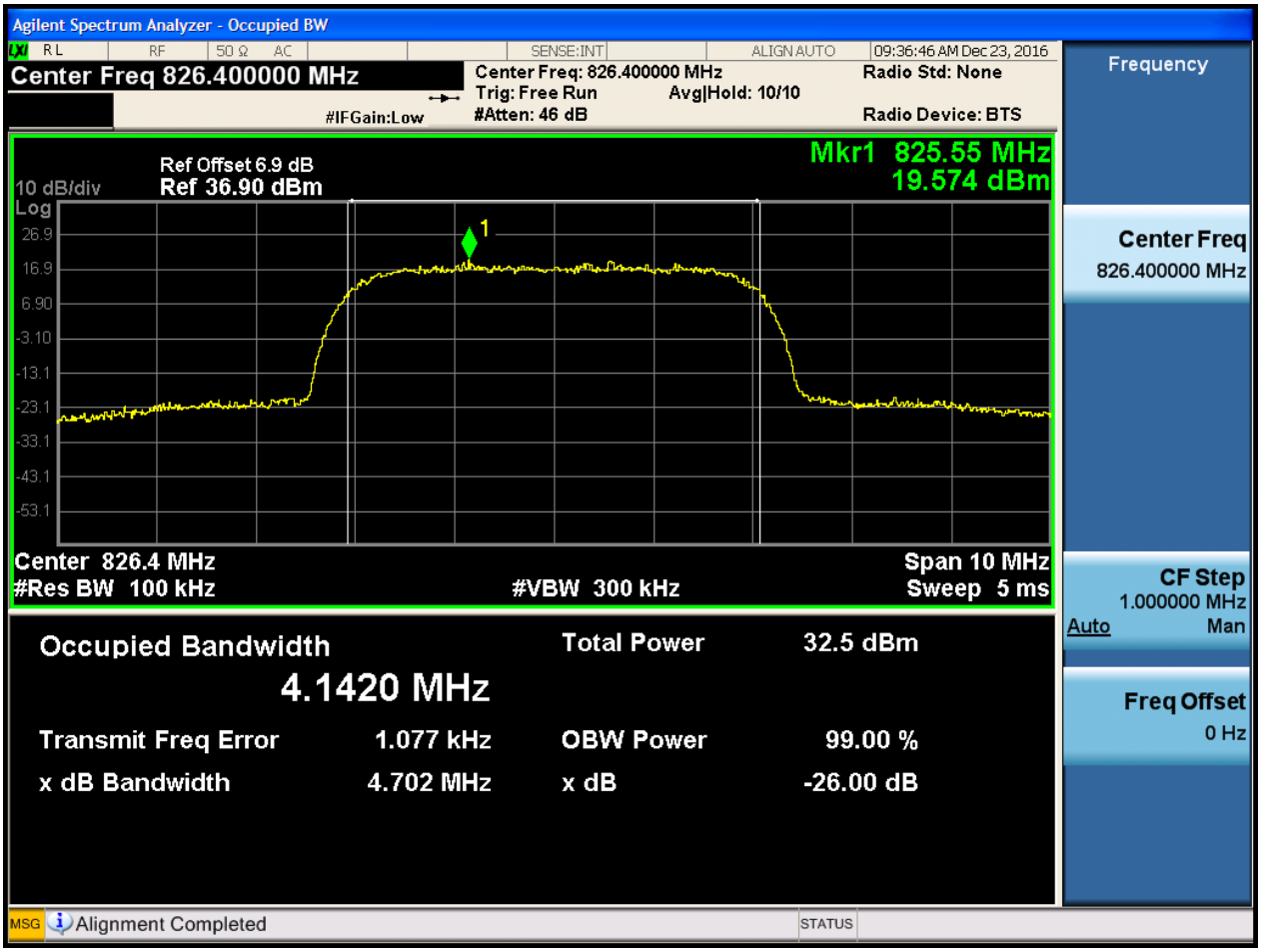
4.1.5 Test Band = WCDMA850

4.1.5.1 Test Mode = UMTS/TM1

4.1.5.1.1 Test Channel = LCH



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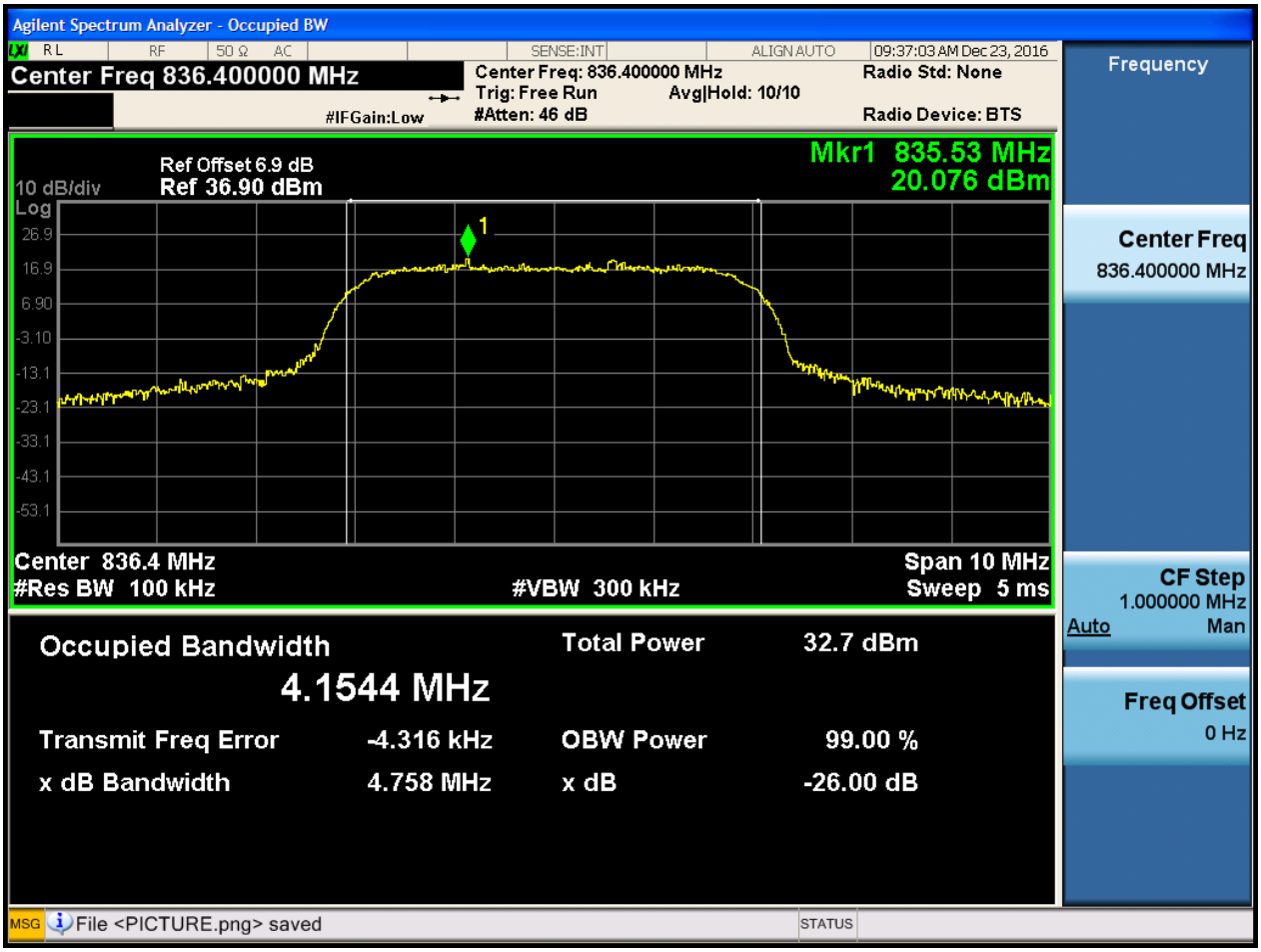
4.1.5.1.2 Test Channel = MCH



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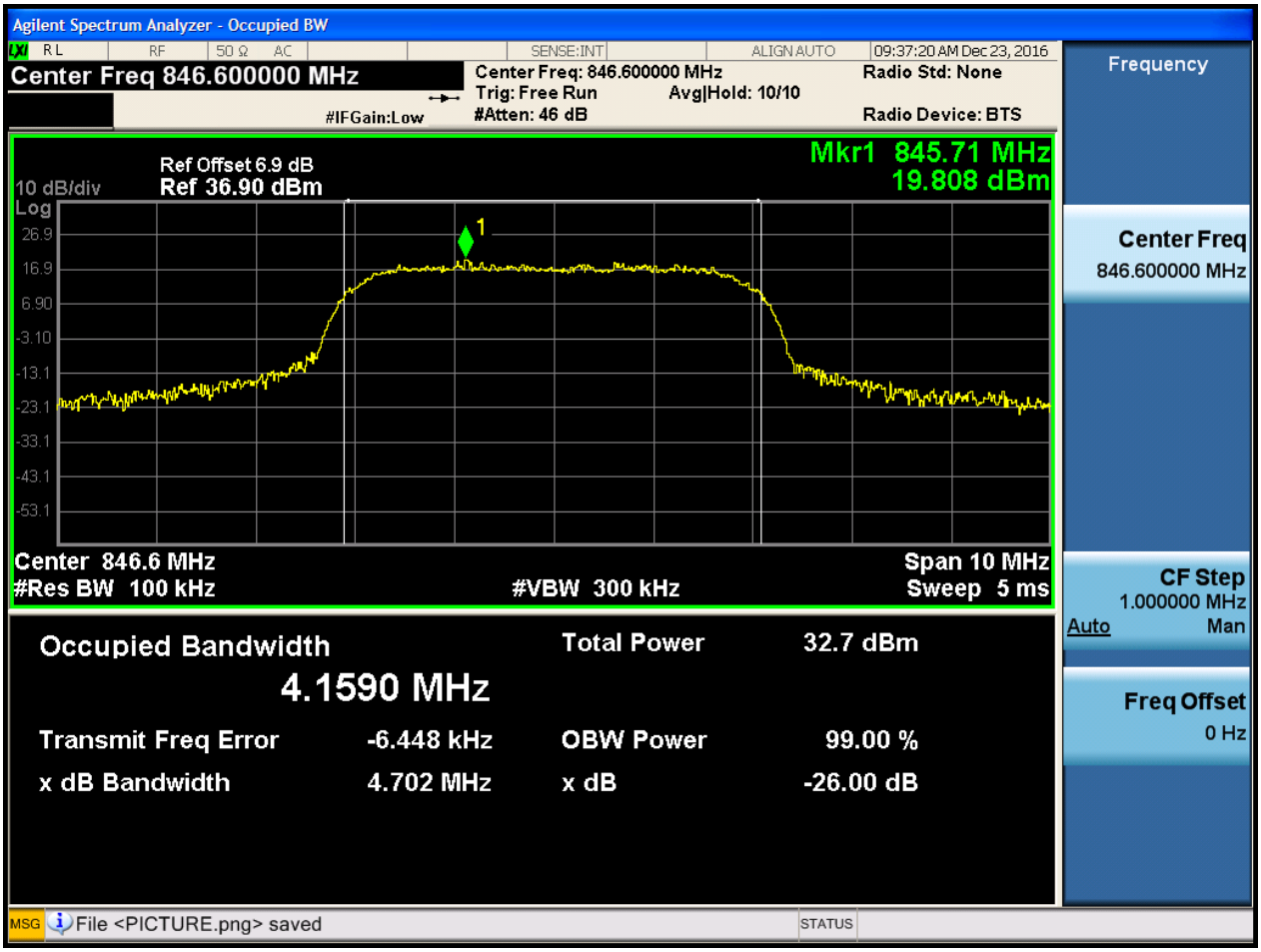
4.1.5.1.3 Test Channel = HCH



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5Appendix_E: Band Edges Compliance

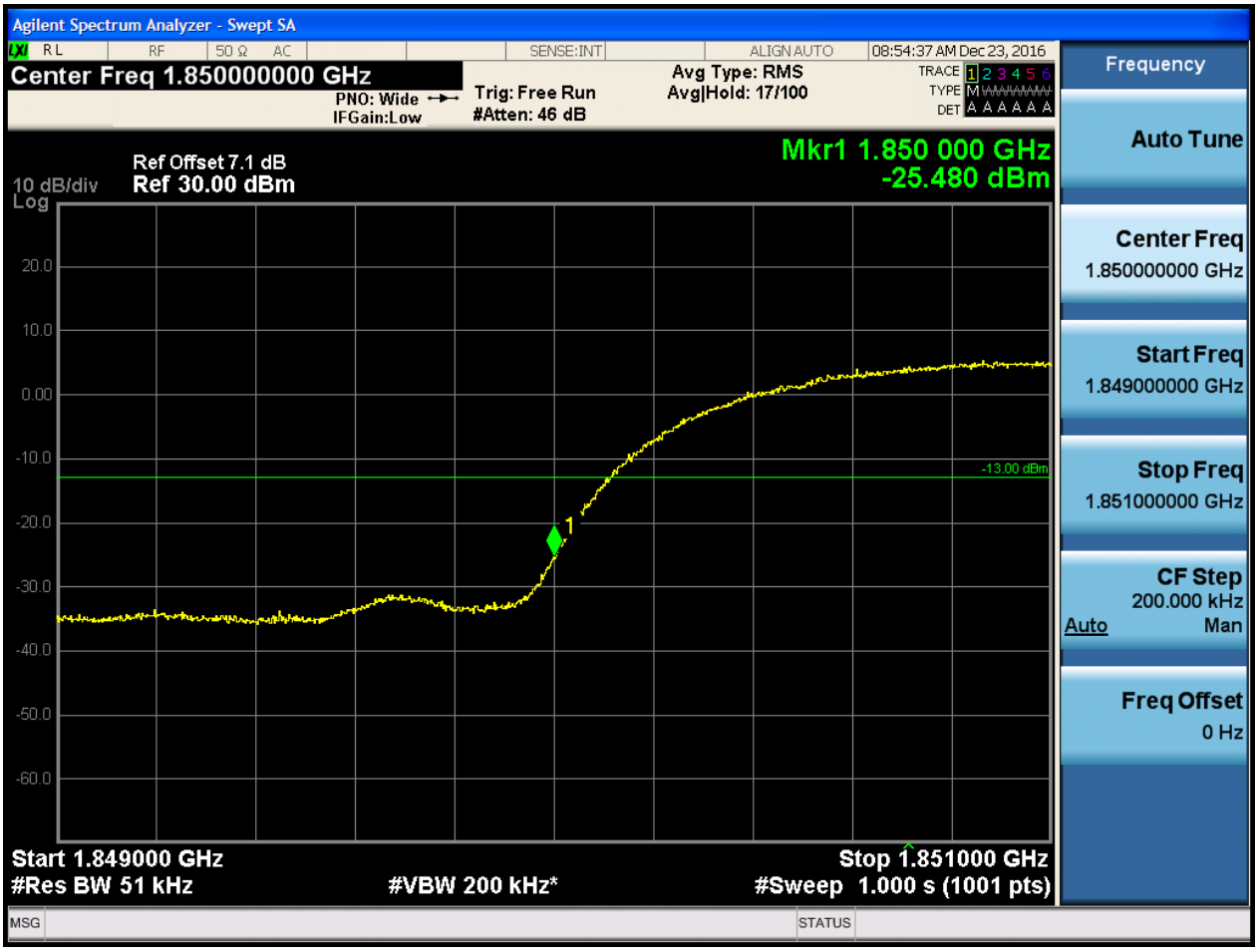
Part I - Test Plots

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



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5.1.1.1.2 Test Channel = HCH

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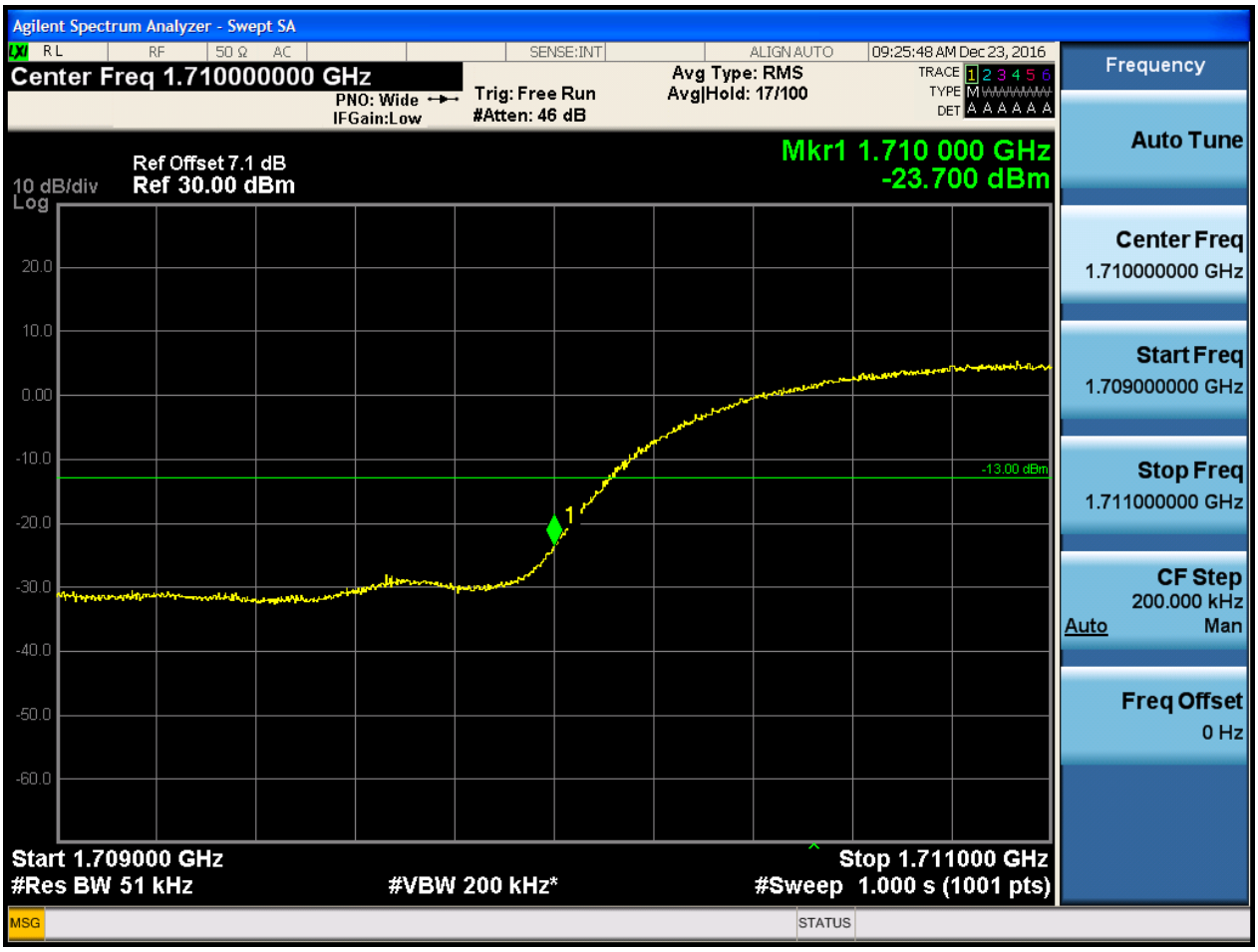
5.1.2 Test Band = WCDMA1700

5.1.2.1 Test Mode = UMTS/TM1

5.1.2.1.1 Test Channel = LCH



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5.1.2.1.2 Test Channel = HCH

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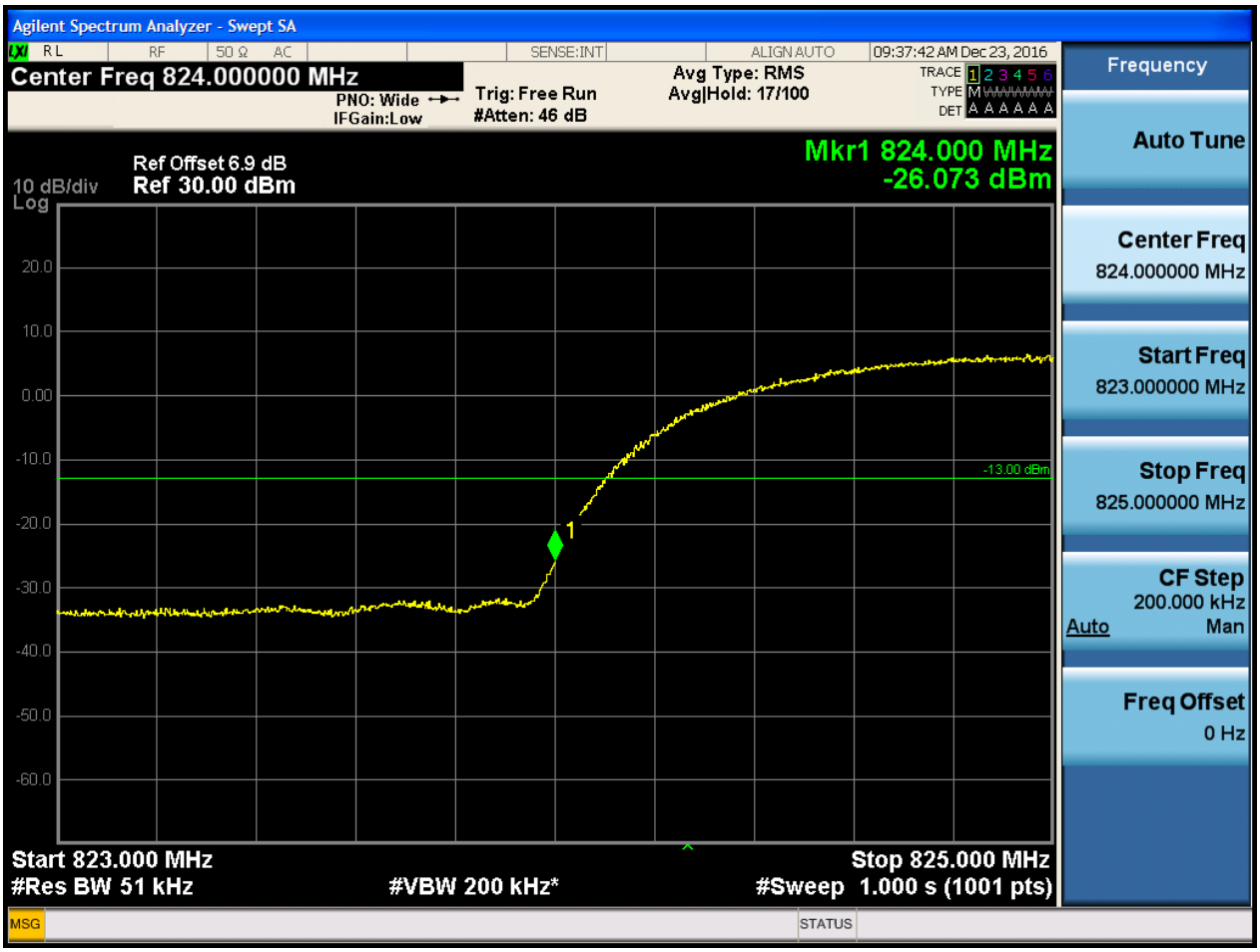
5.1.3 Test Band = WCDMA850

5.1.3.1 Test Mode = UMTS/TM1

5.1.3.1.1 Test Channel = LCH



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5.1.3.1.2 Test Channel = HCH

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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.

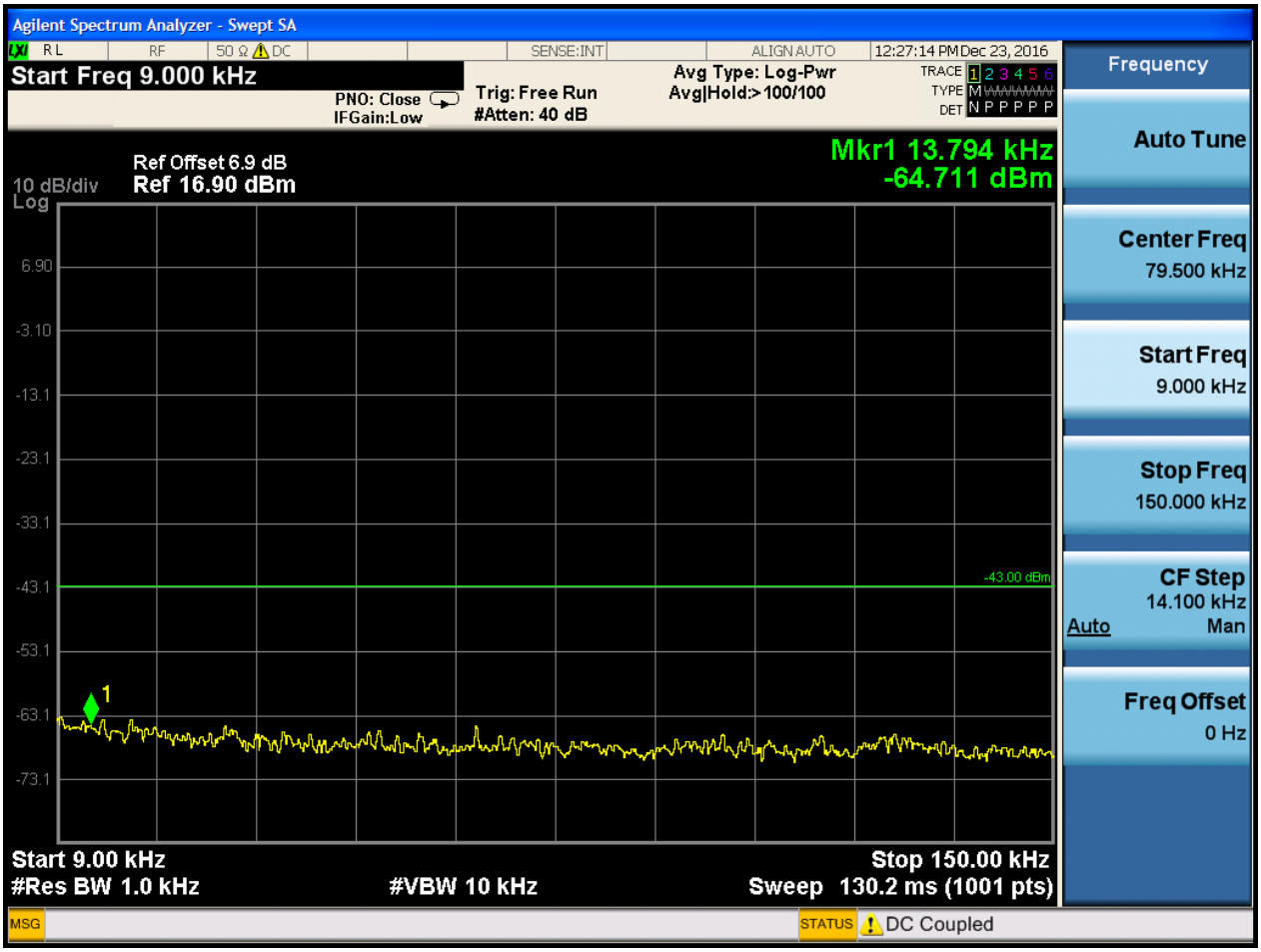
Part I - Test Plots

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



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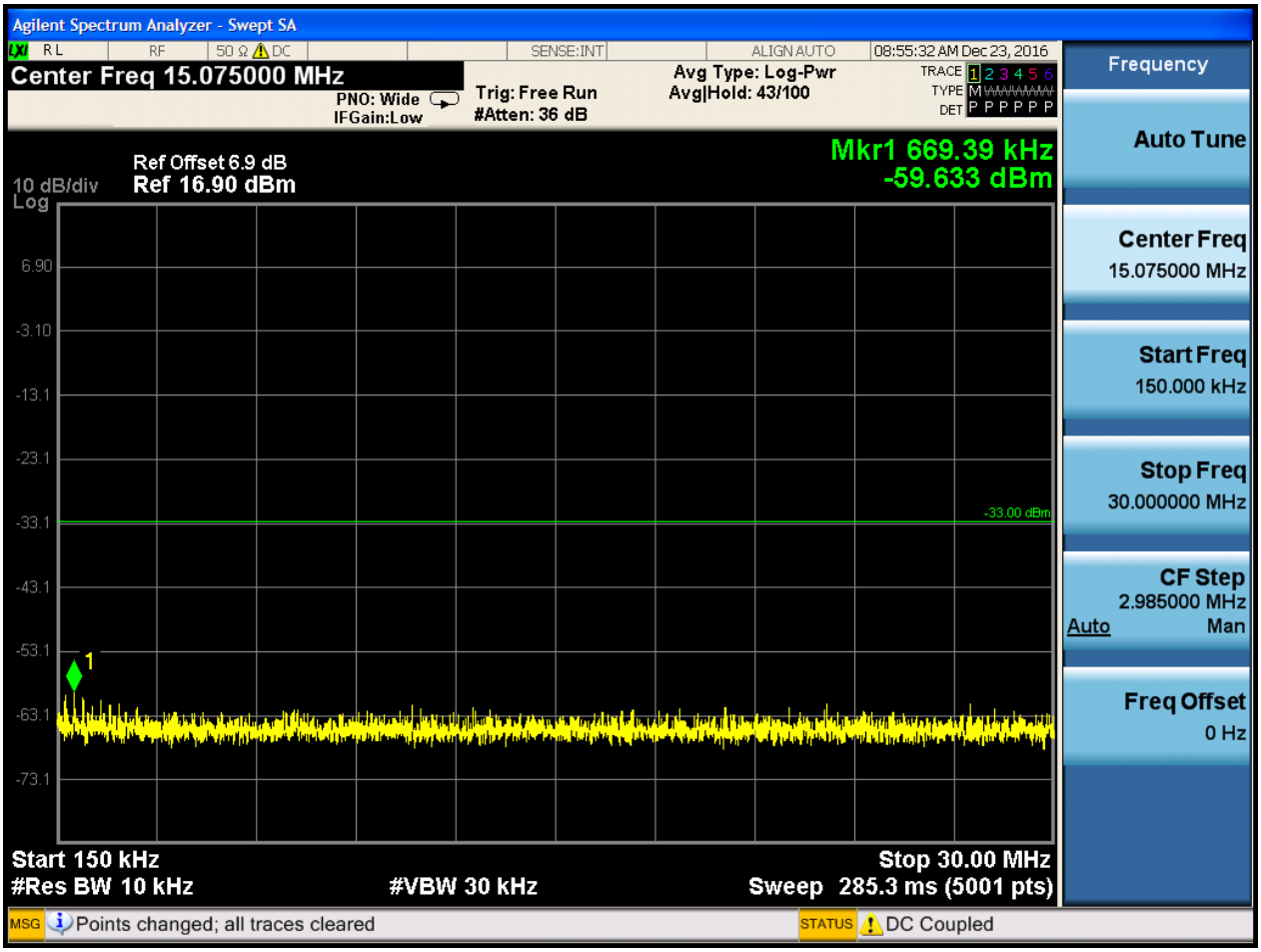

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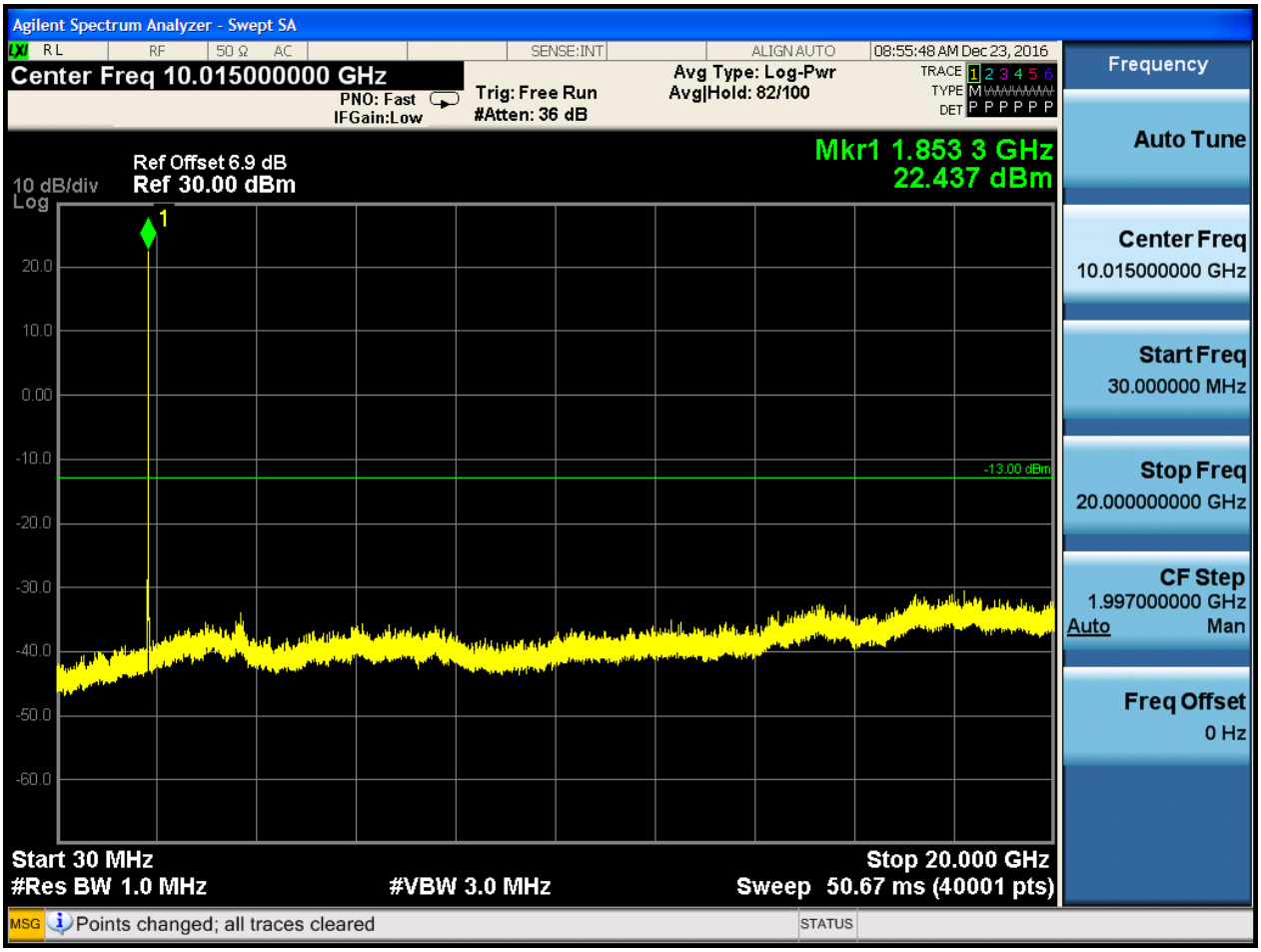

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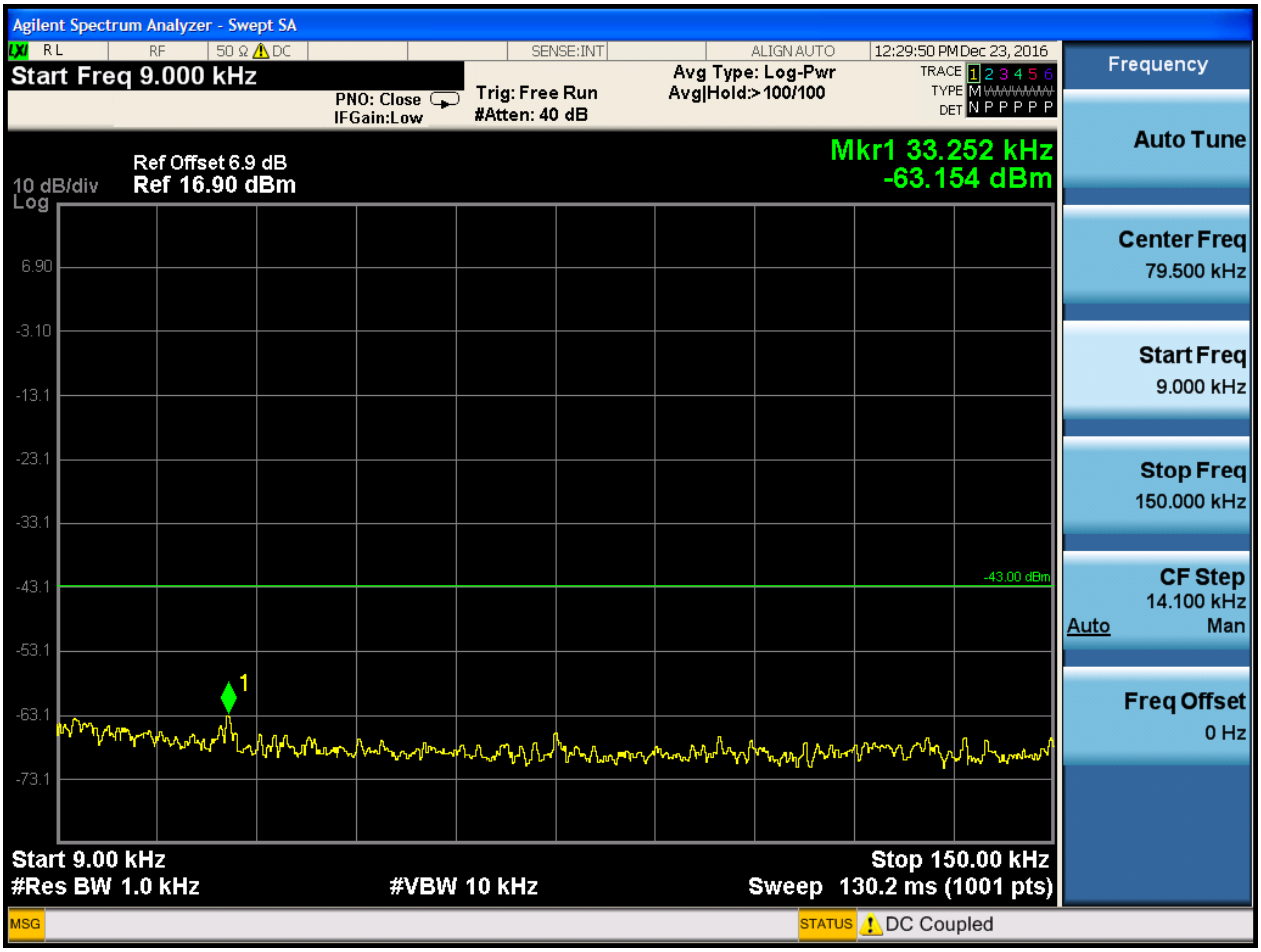

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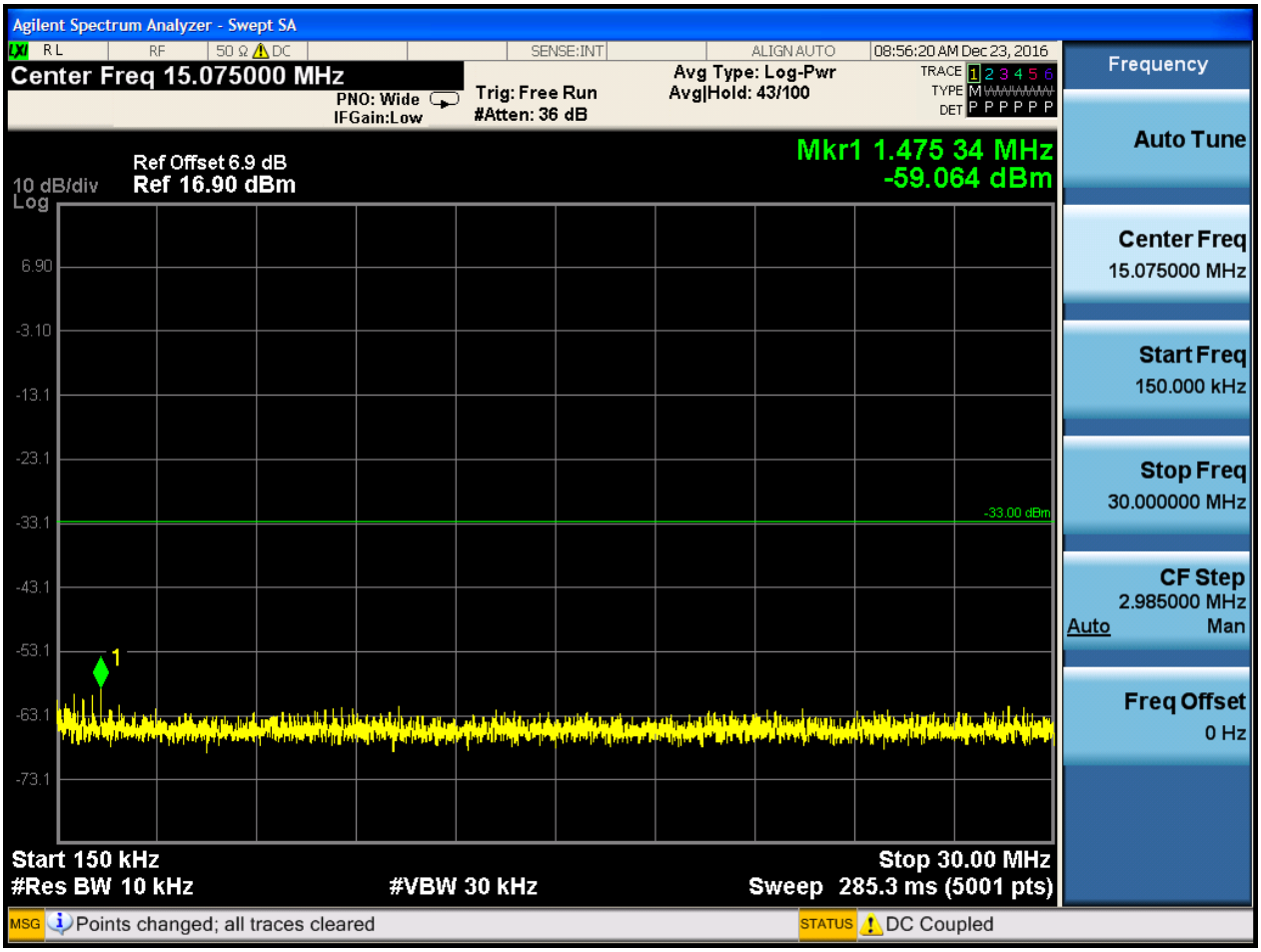

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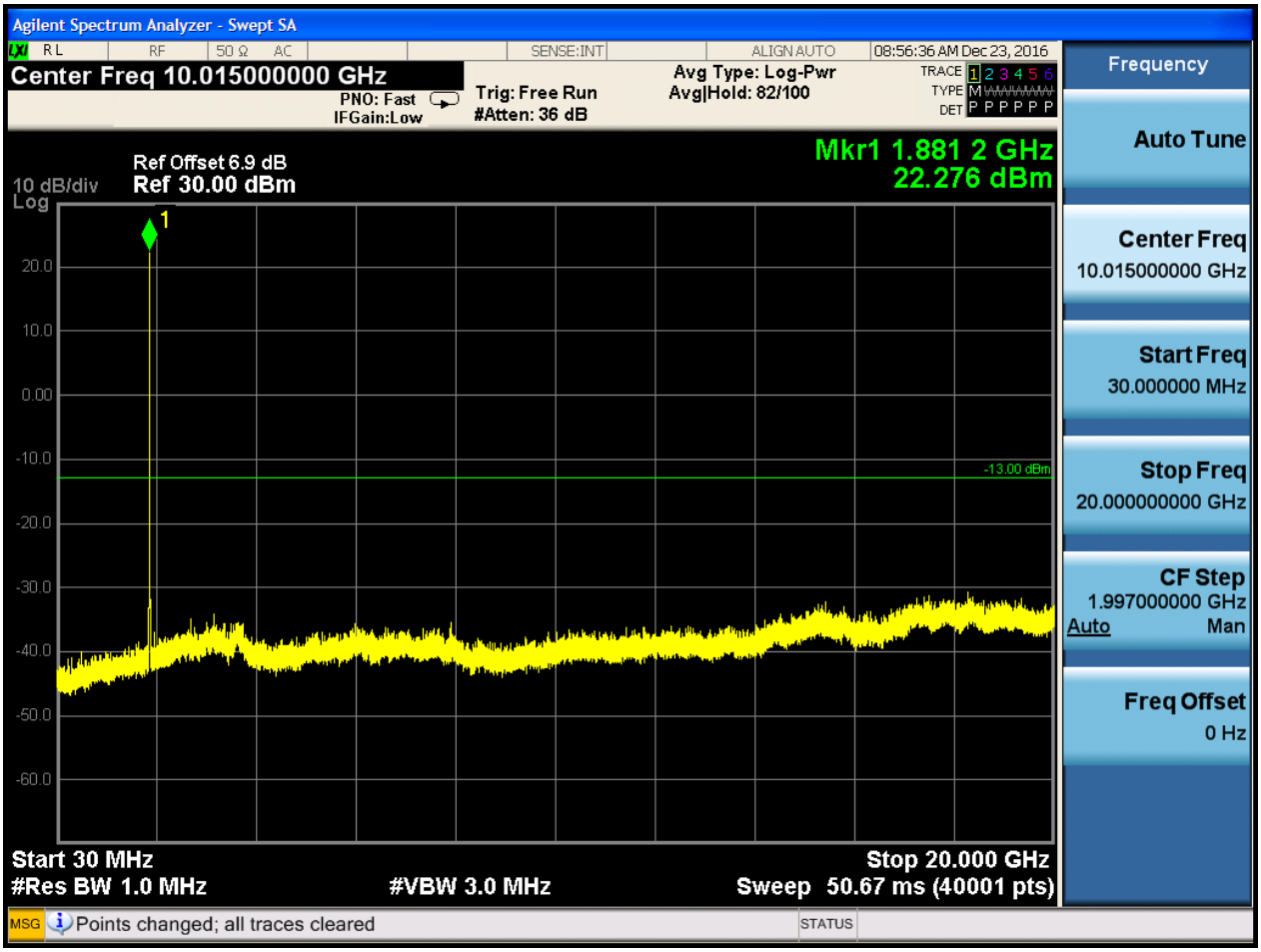

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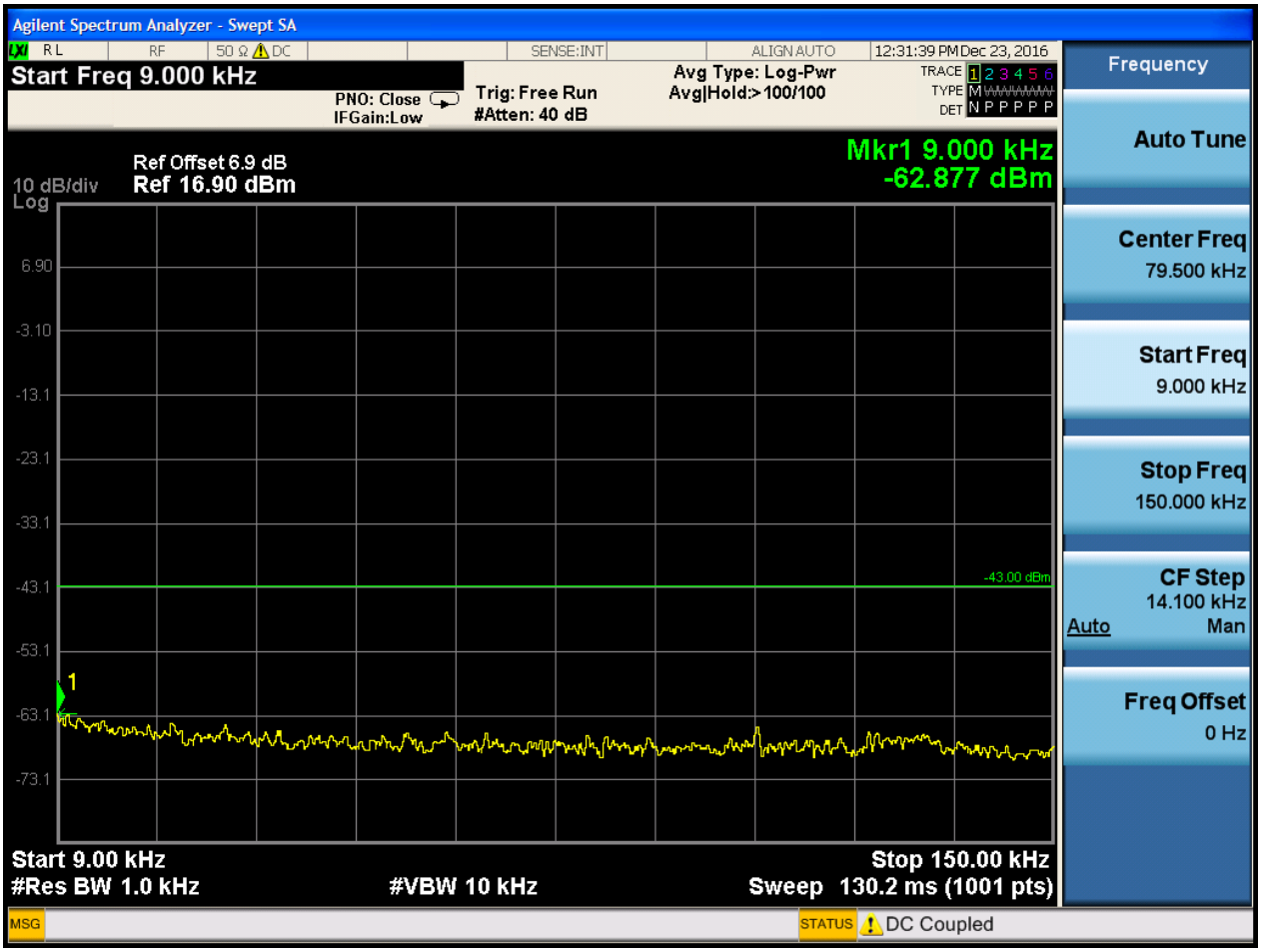
6.1.1.1.3 Test Channel = HCH



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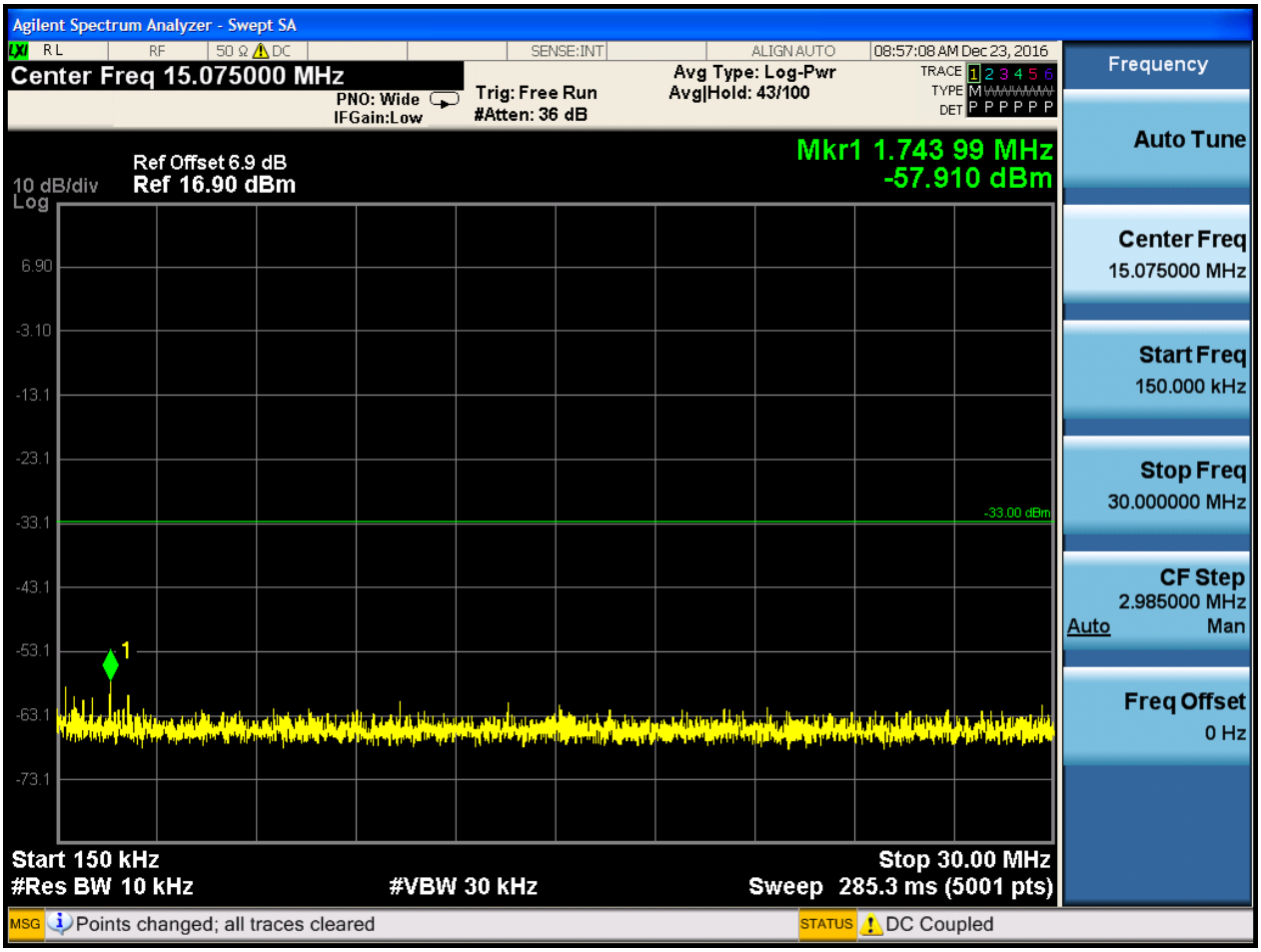

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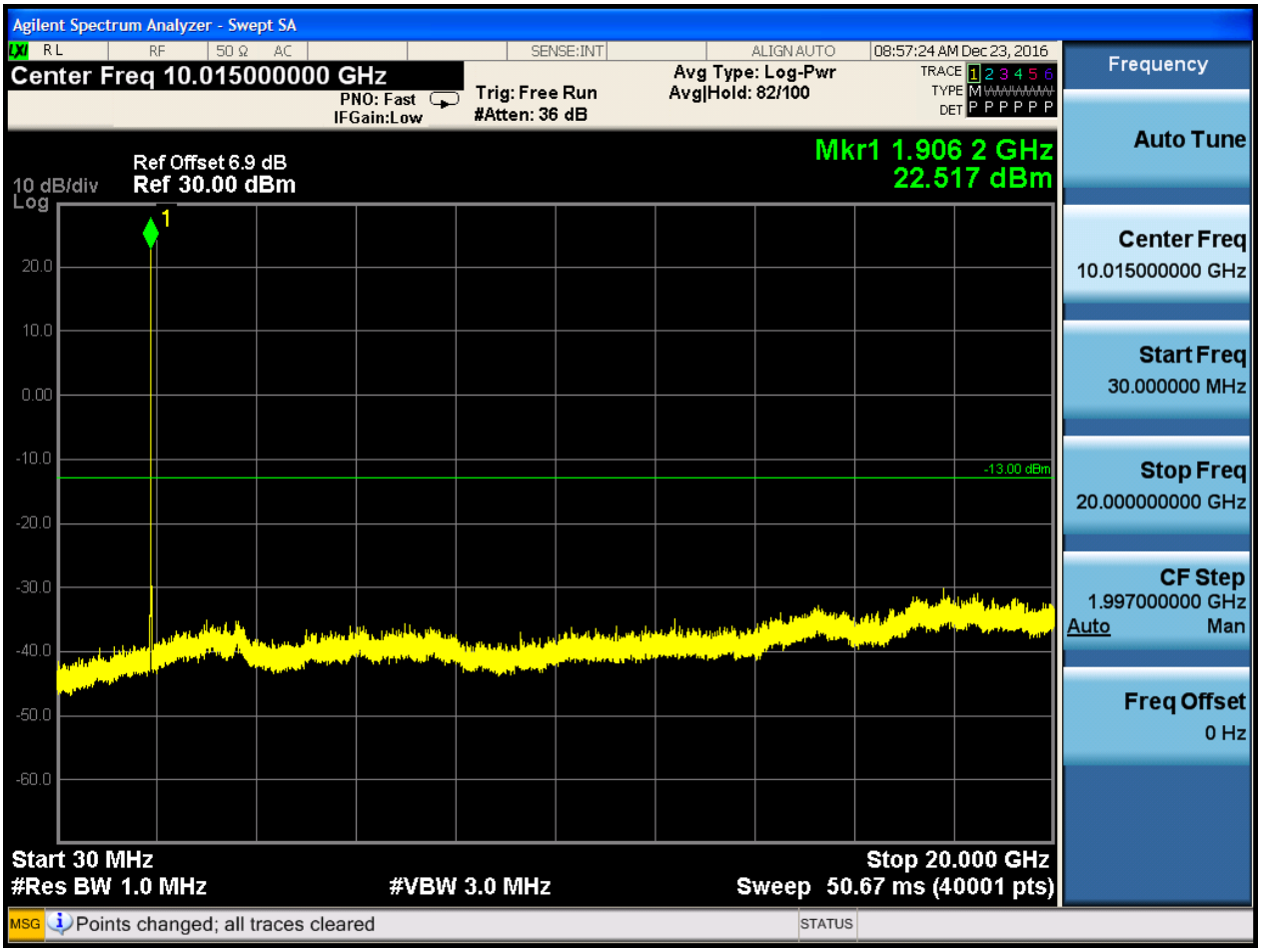

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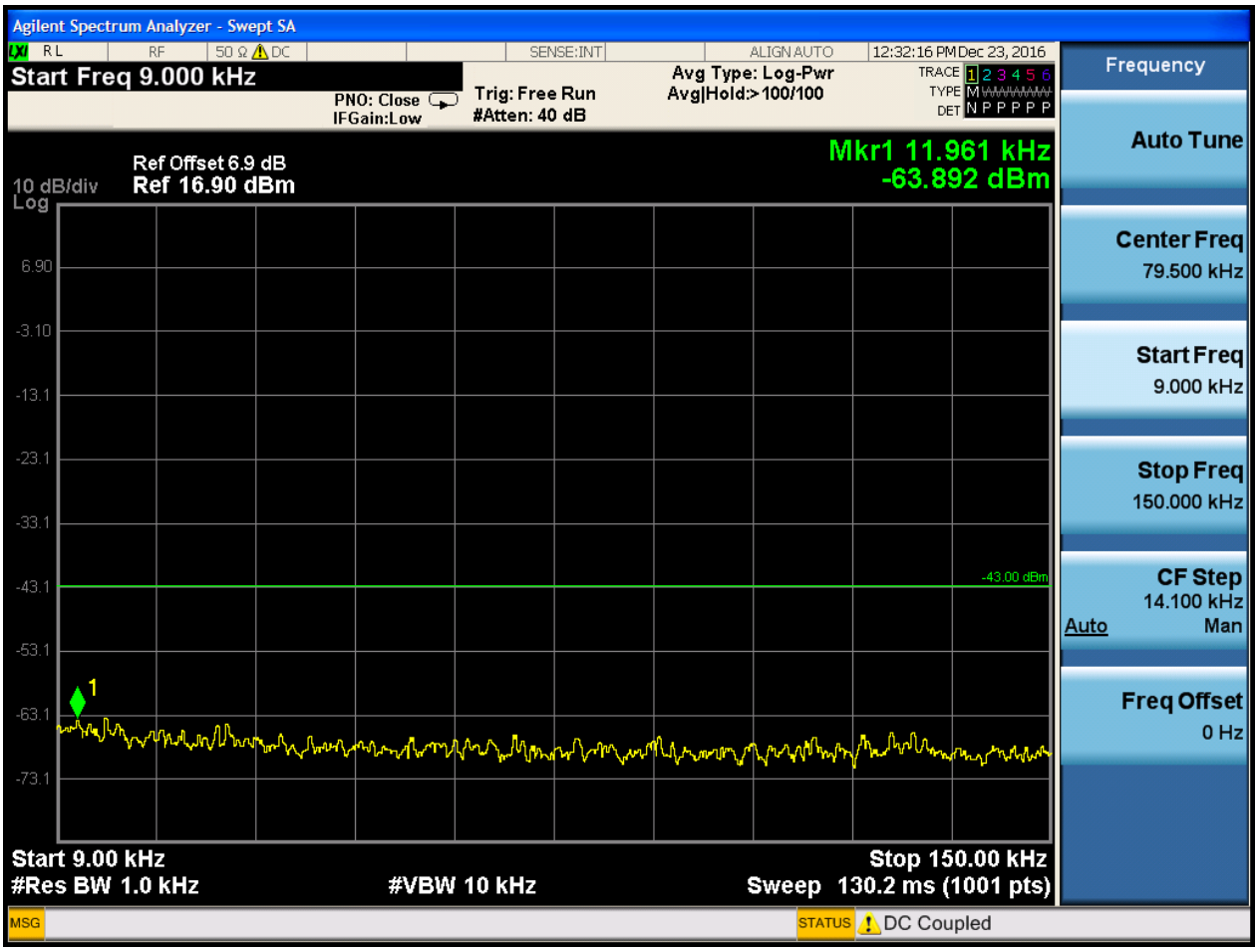
6.1.2 Test Band = WCDMA1700

6.1.2.1 Test Mode = UMTS/TM1

6.1.2.1.1 Test Channel = LCH



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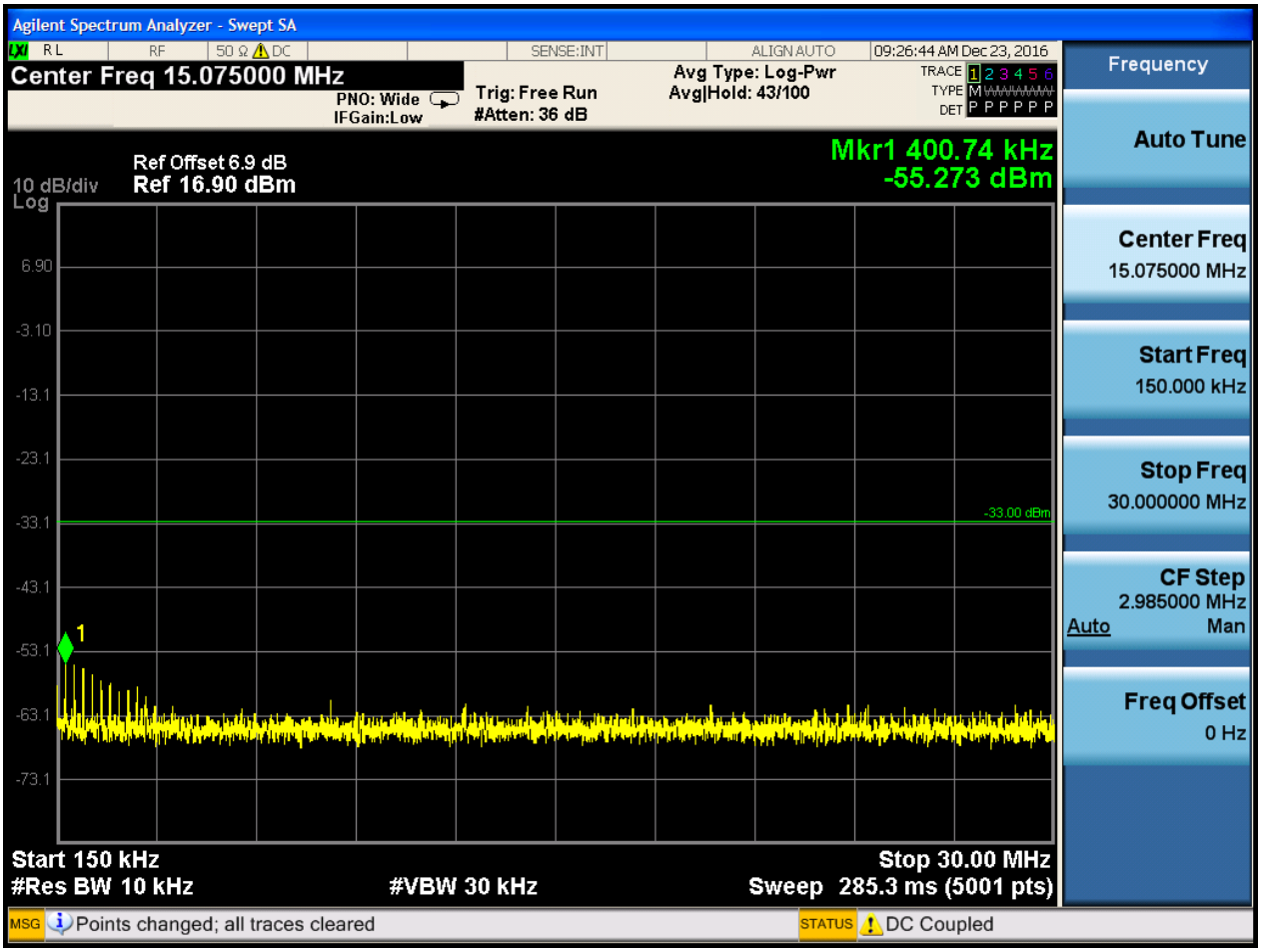

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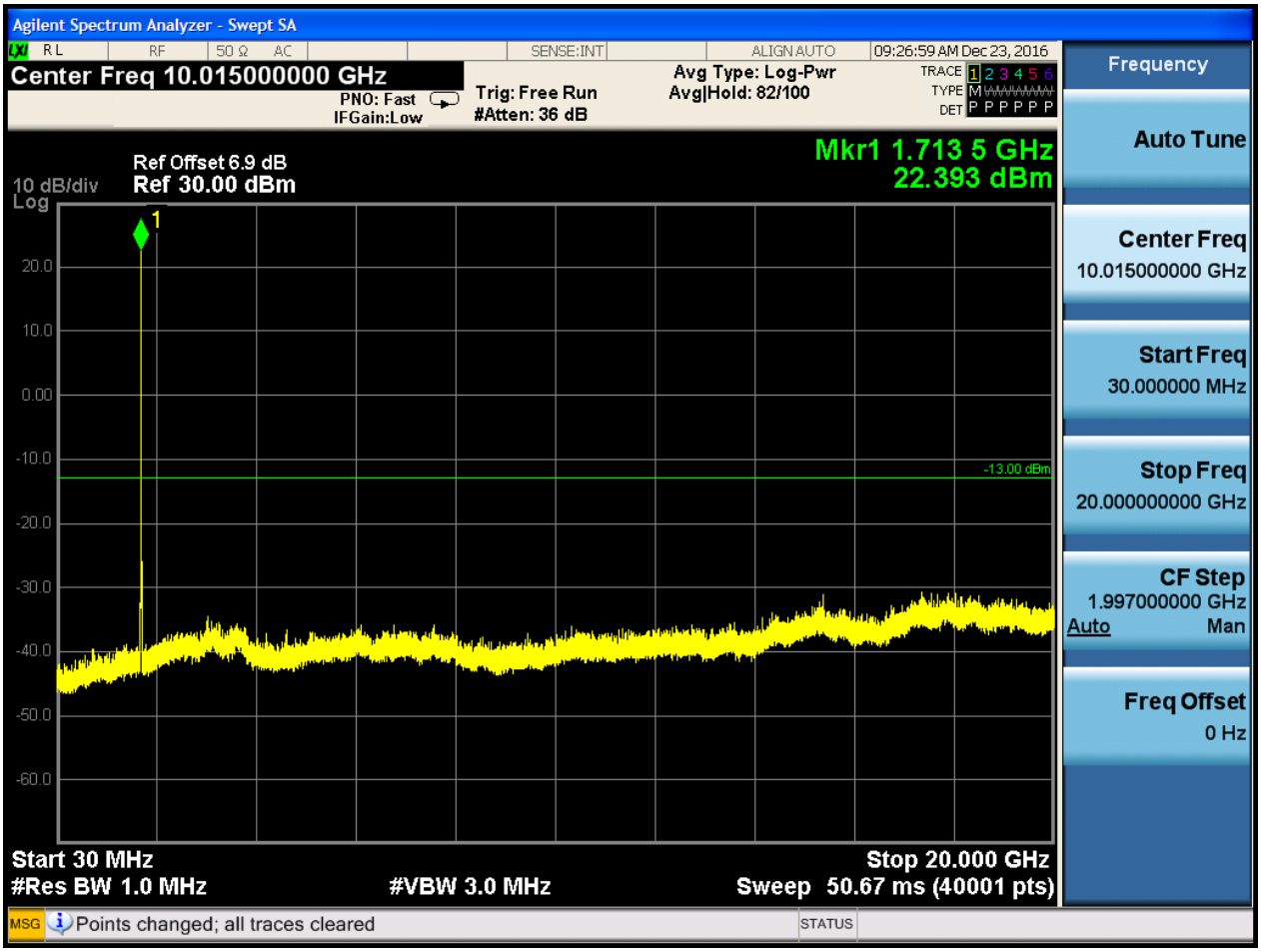

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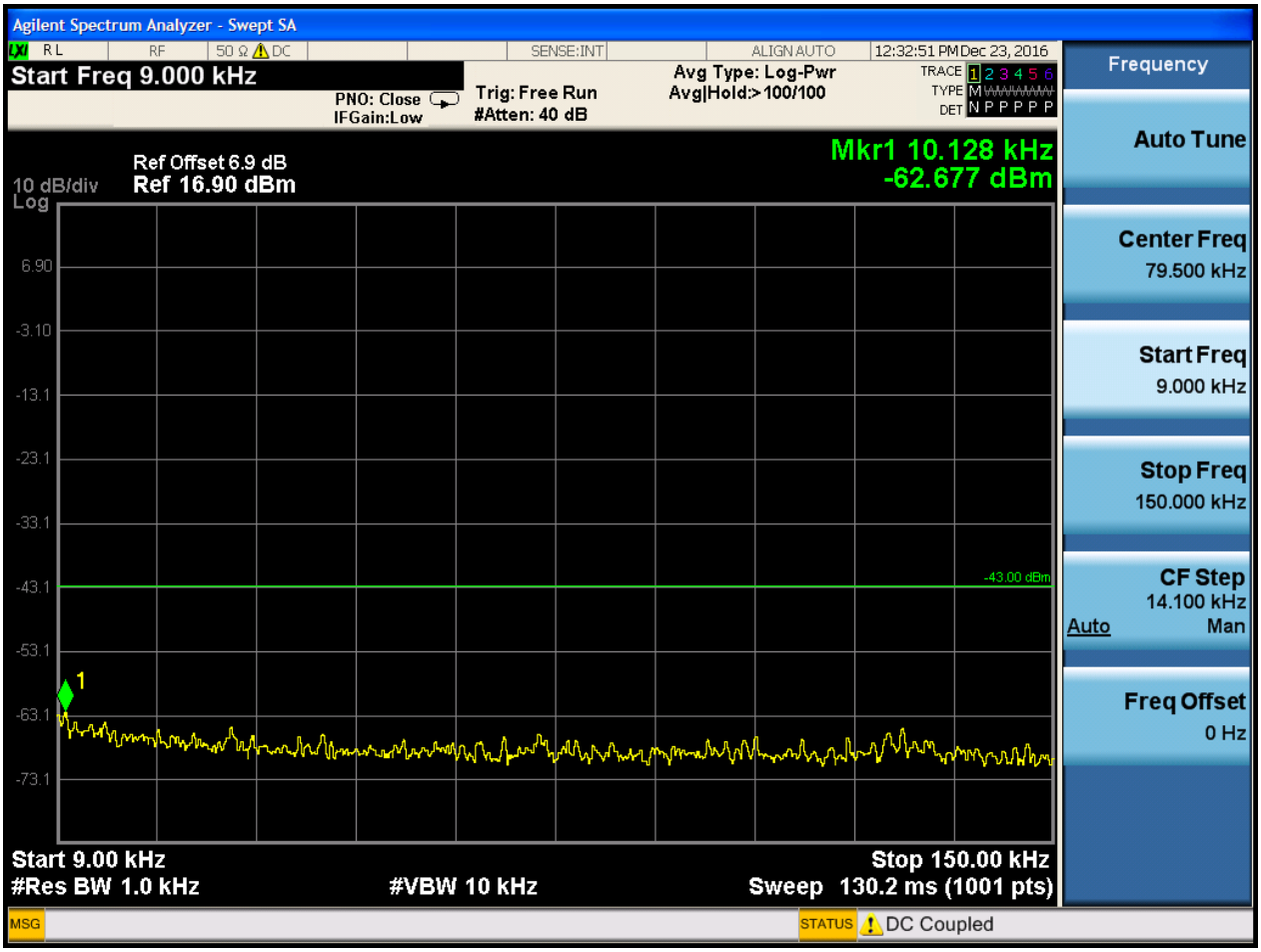
6.1.2.1.2 Test Channel = MCH



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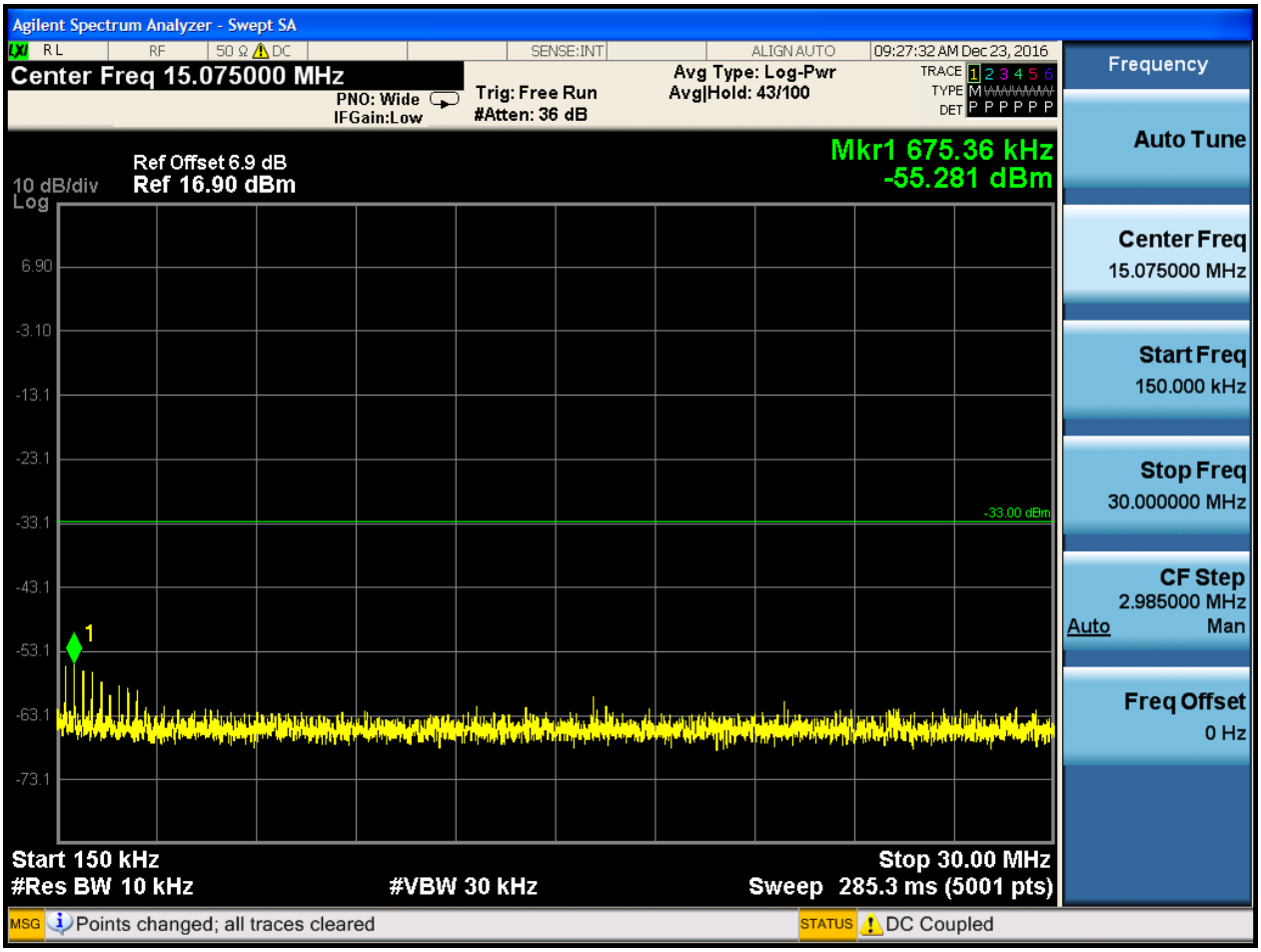

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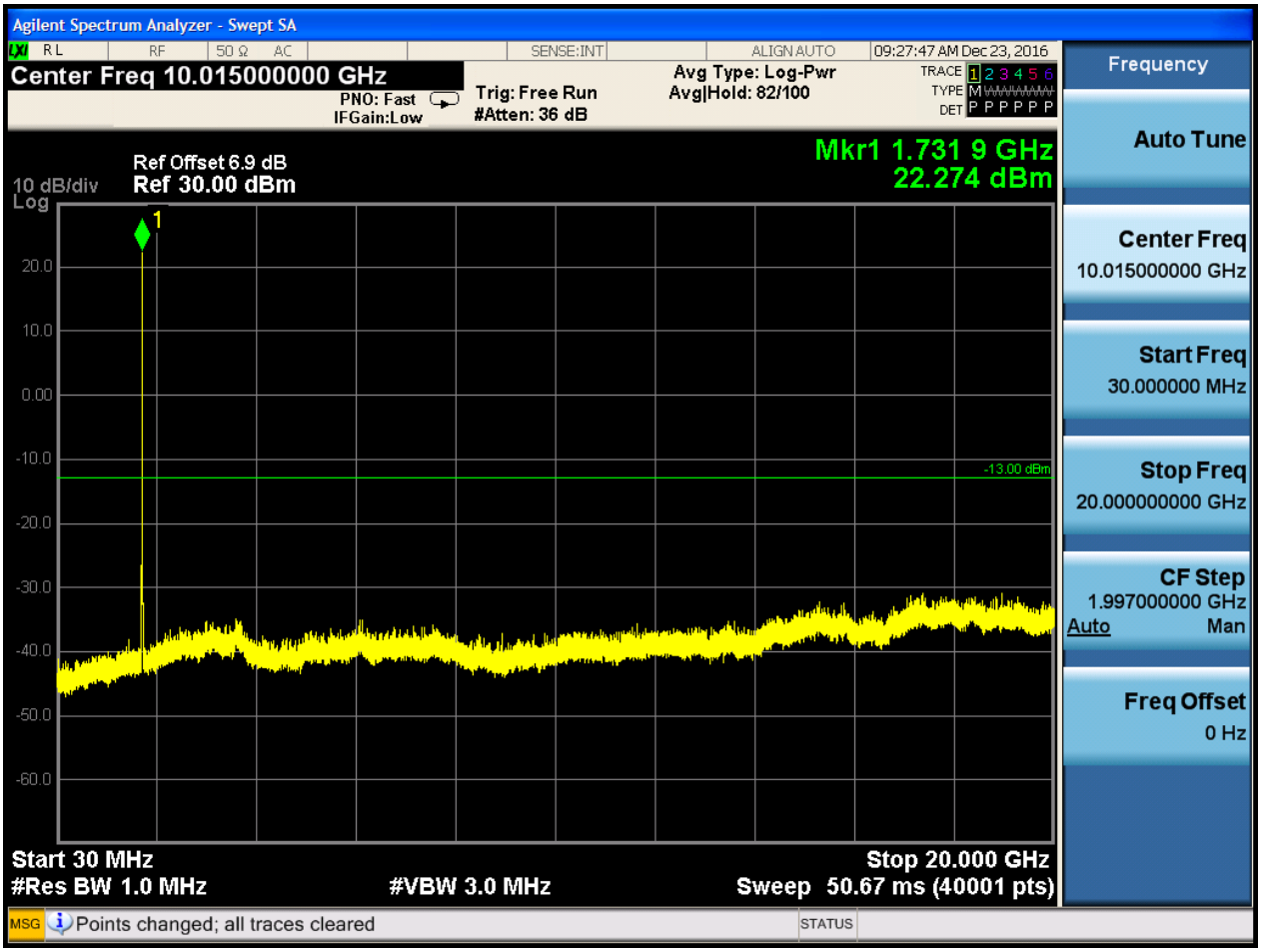

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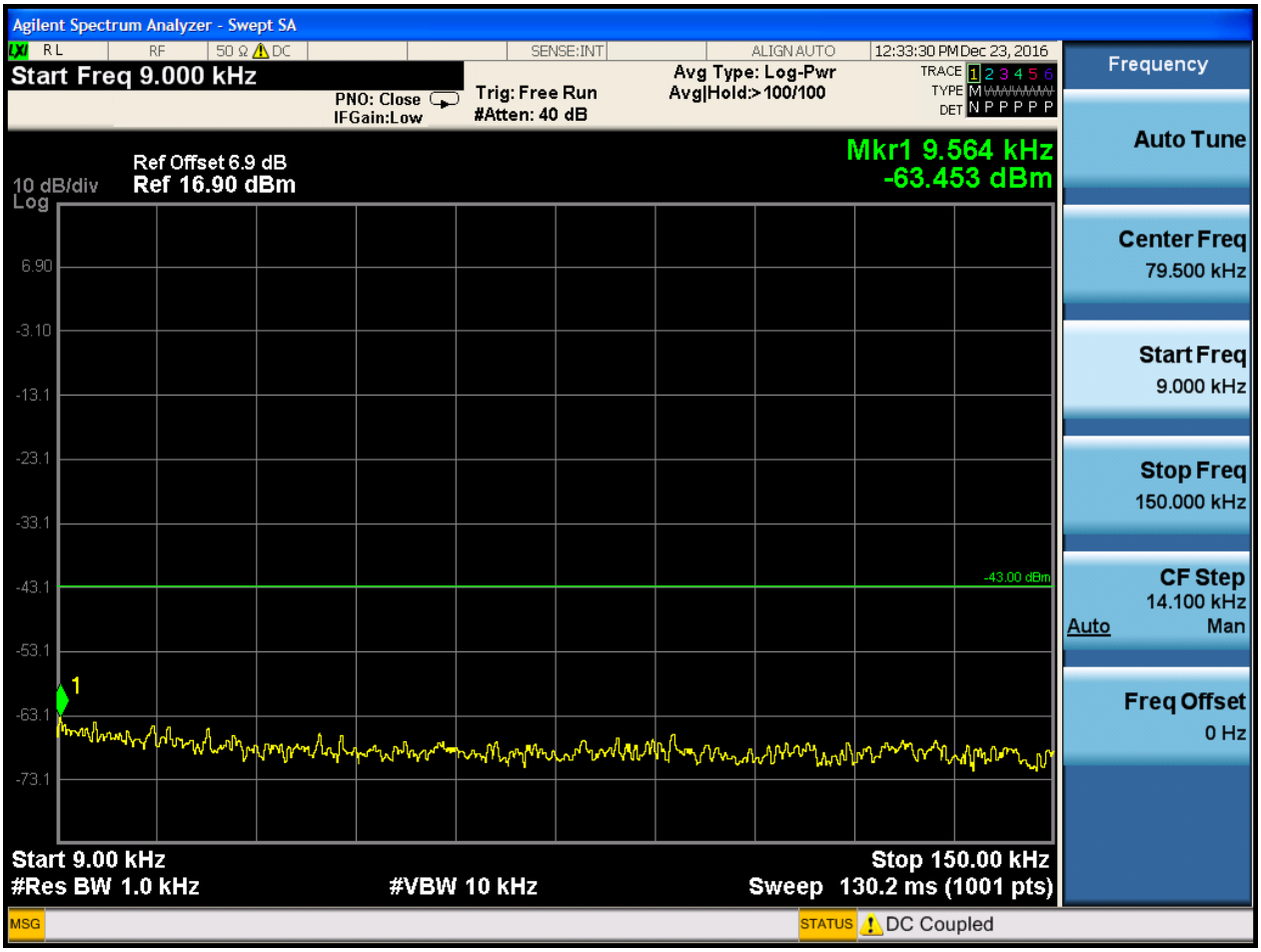
6.1.2.1.3 Test Channel = HCH



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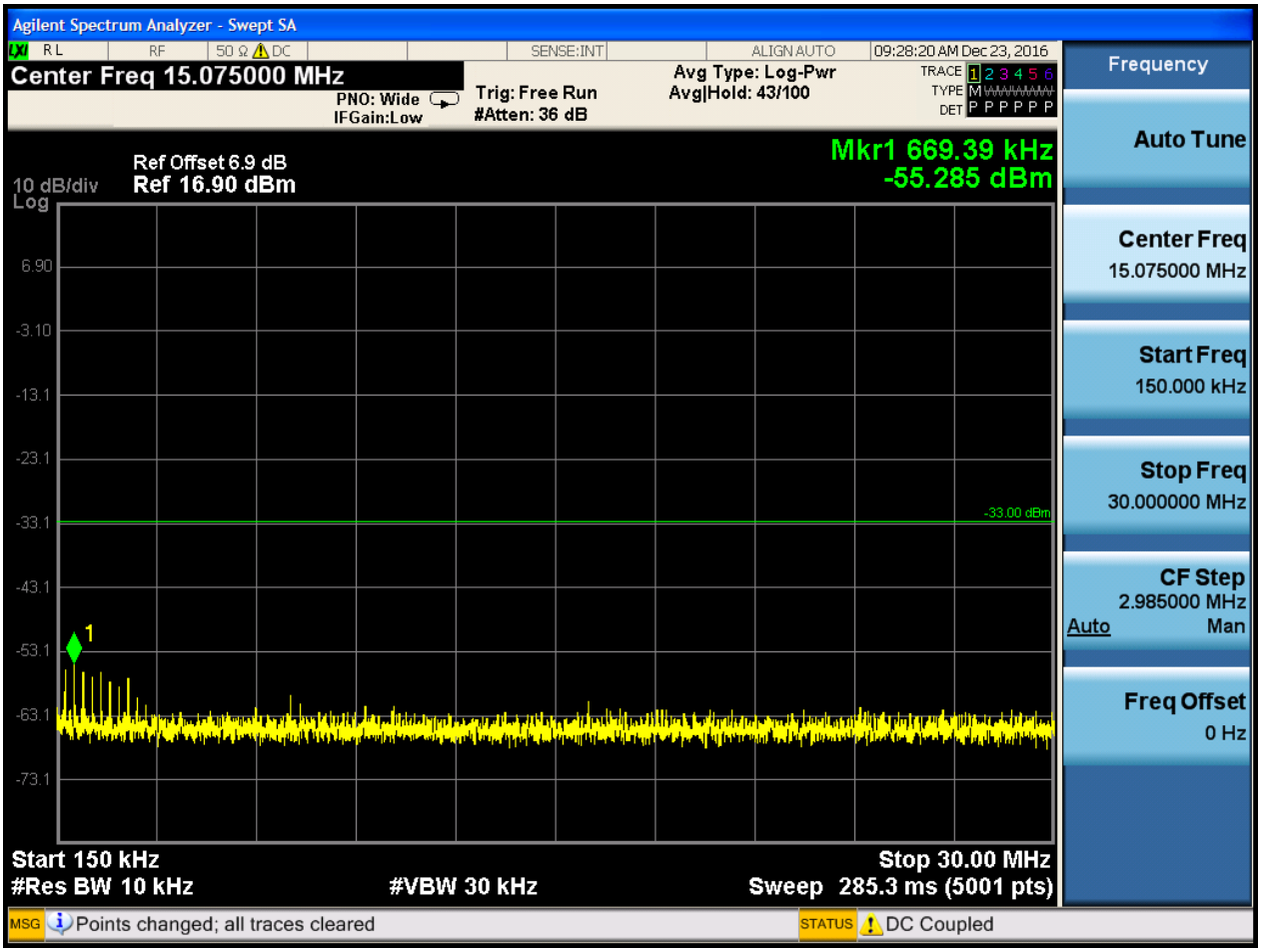

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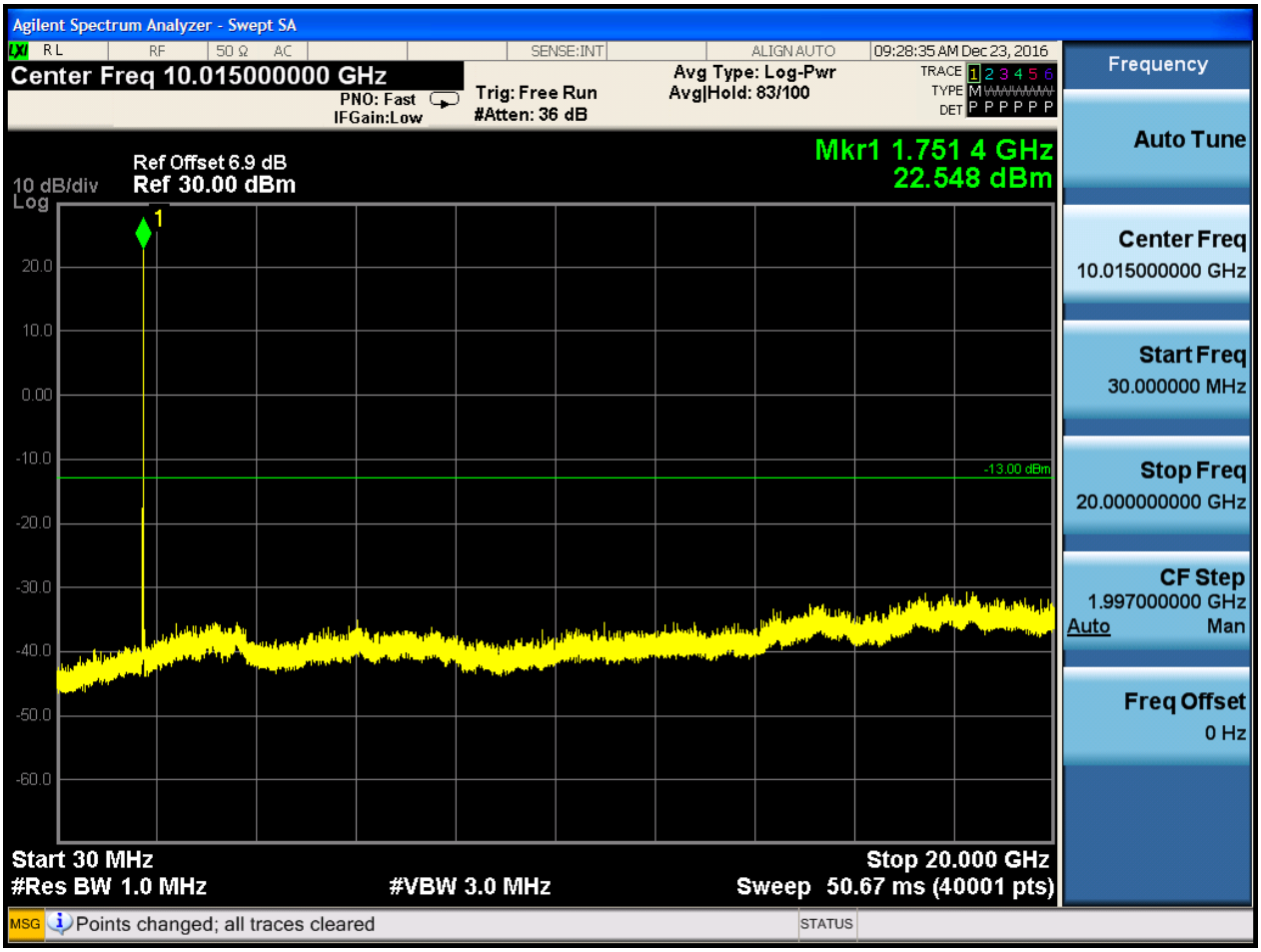

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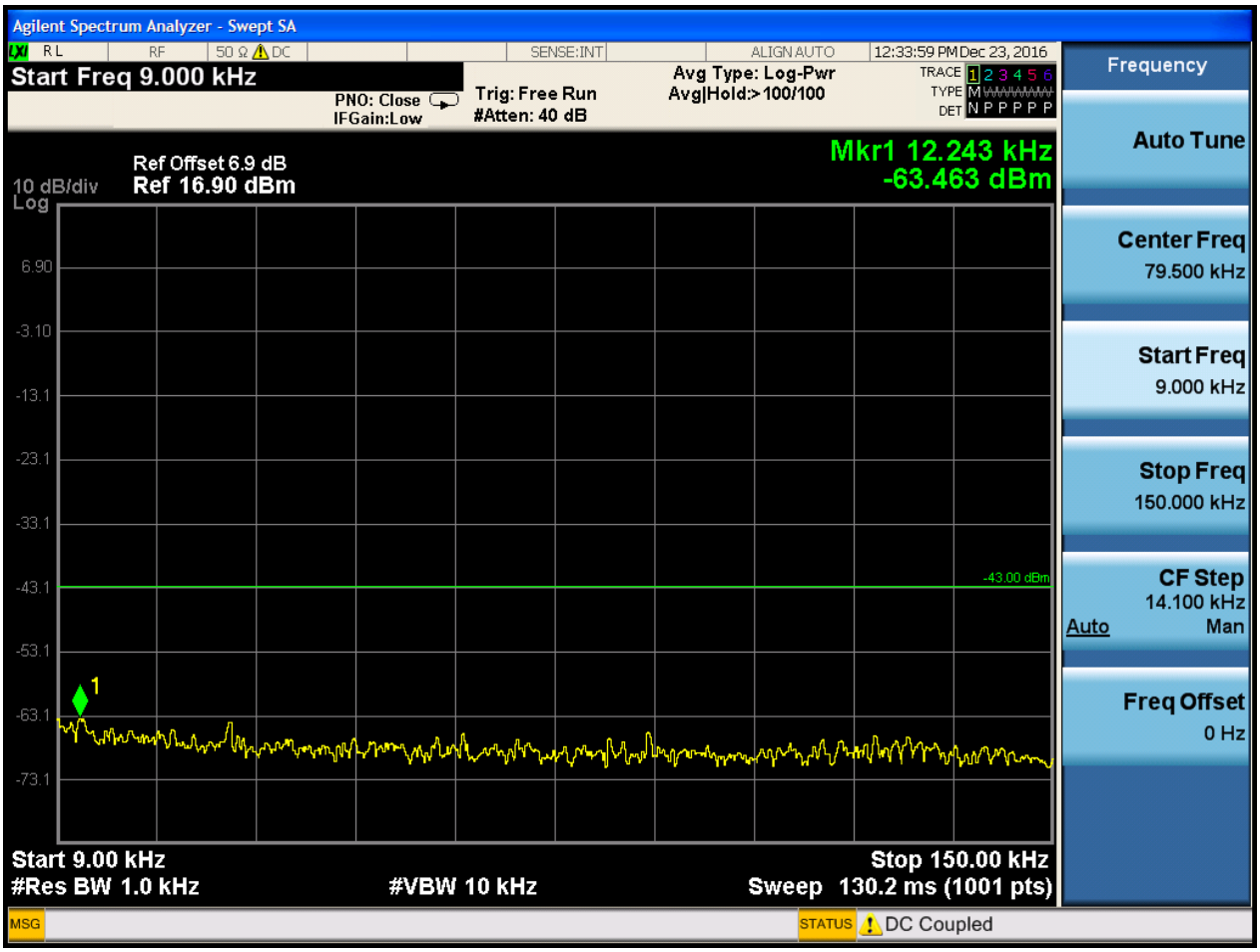
6.1.3 Test Band = WCDMA850

6.1.3.1 Test Mode = UMTS/TM1

6.1.3.1.1 Test Channel = LCH



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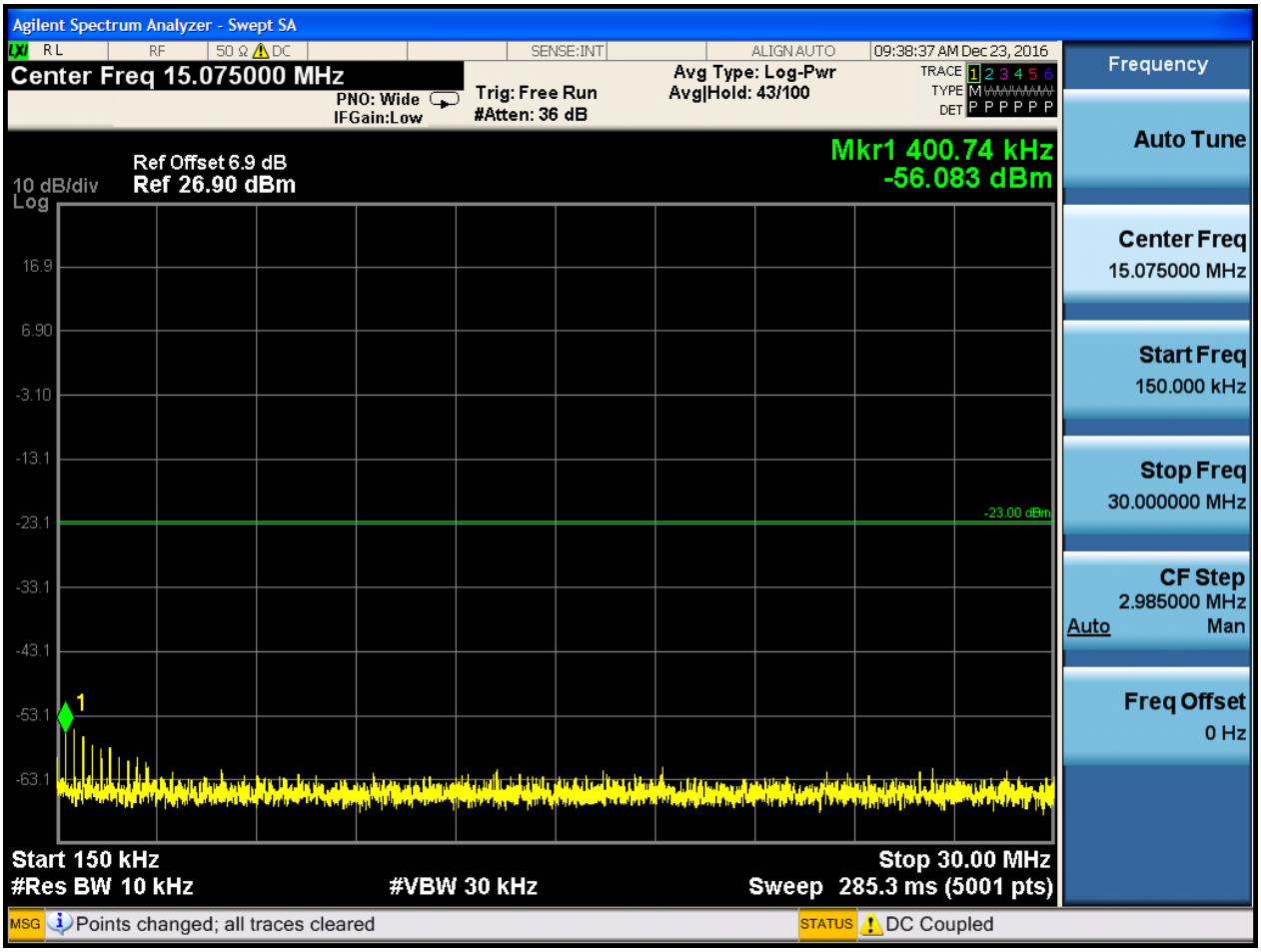

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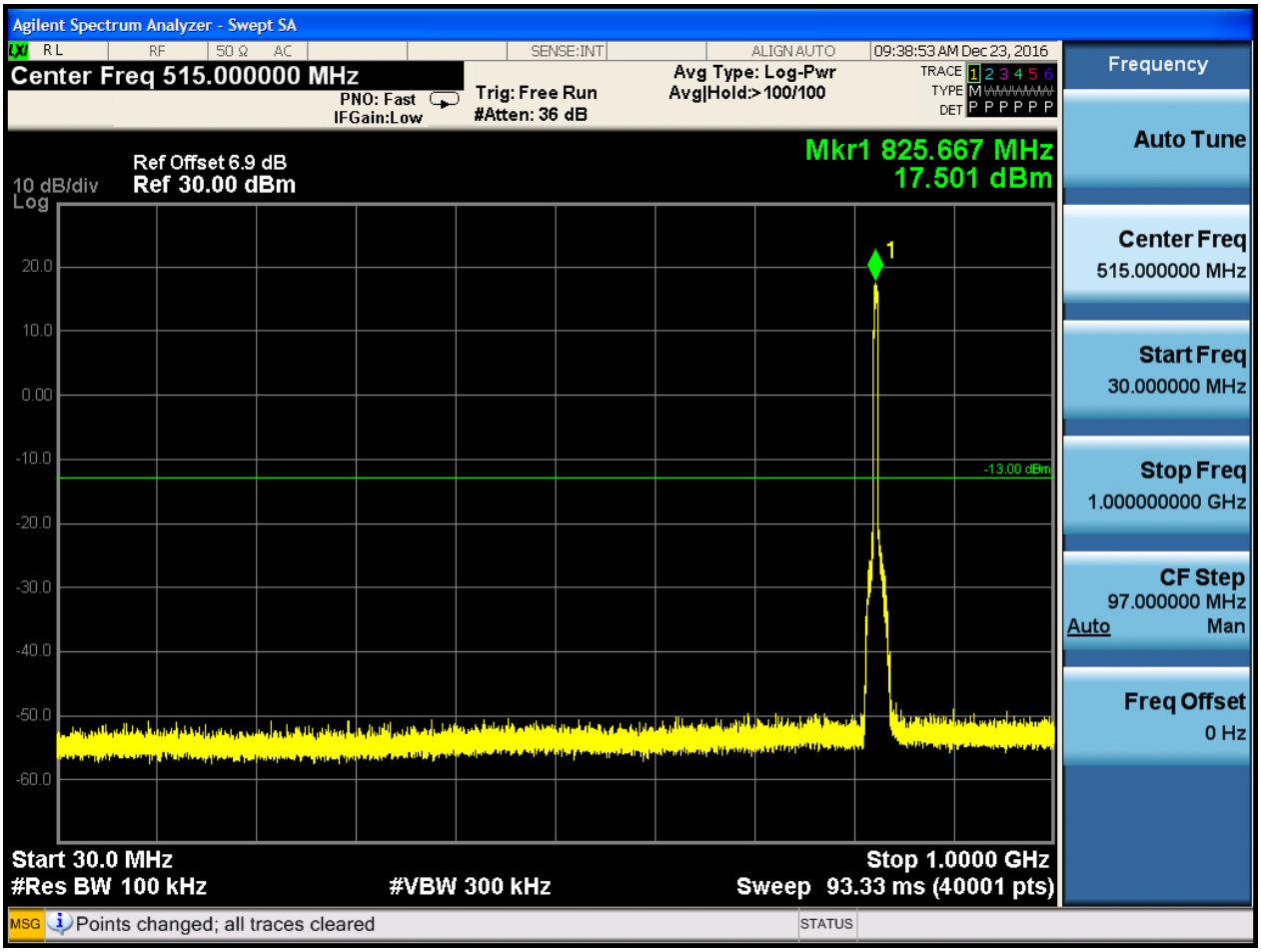

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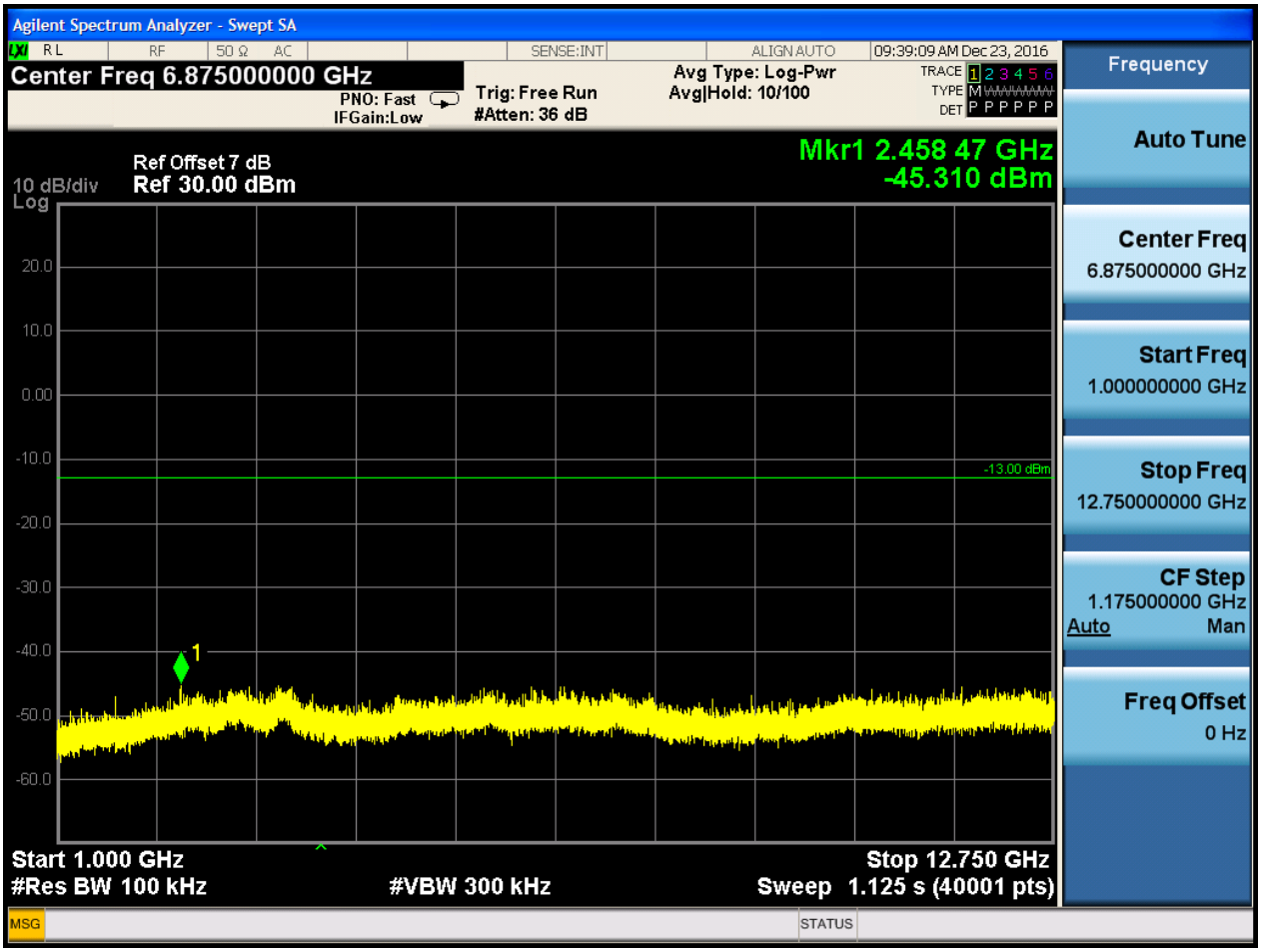

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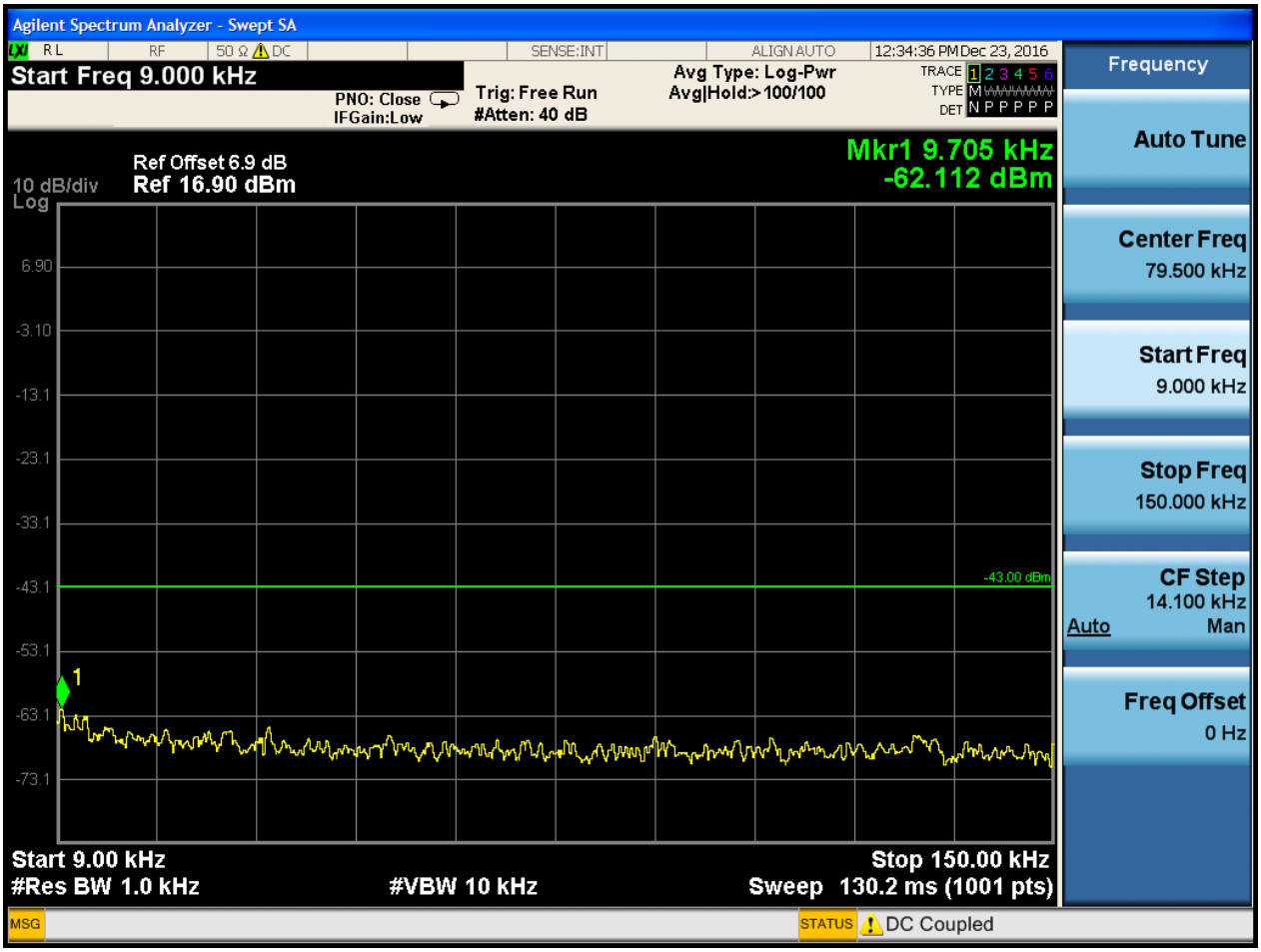
6.1.3.1.2 Test Channel = MCH



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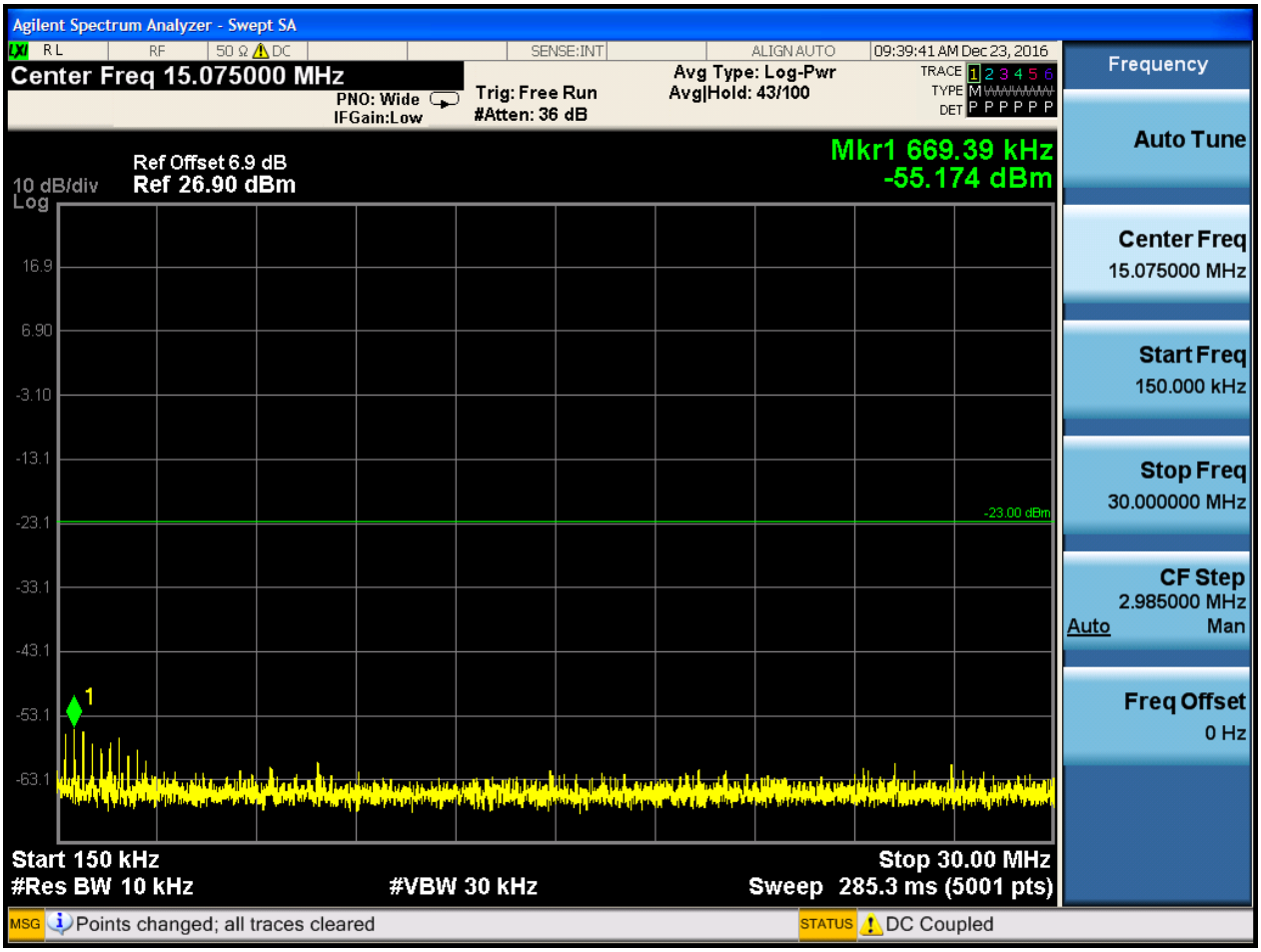

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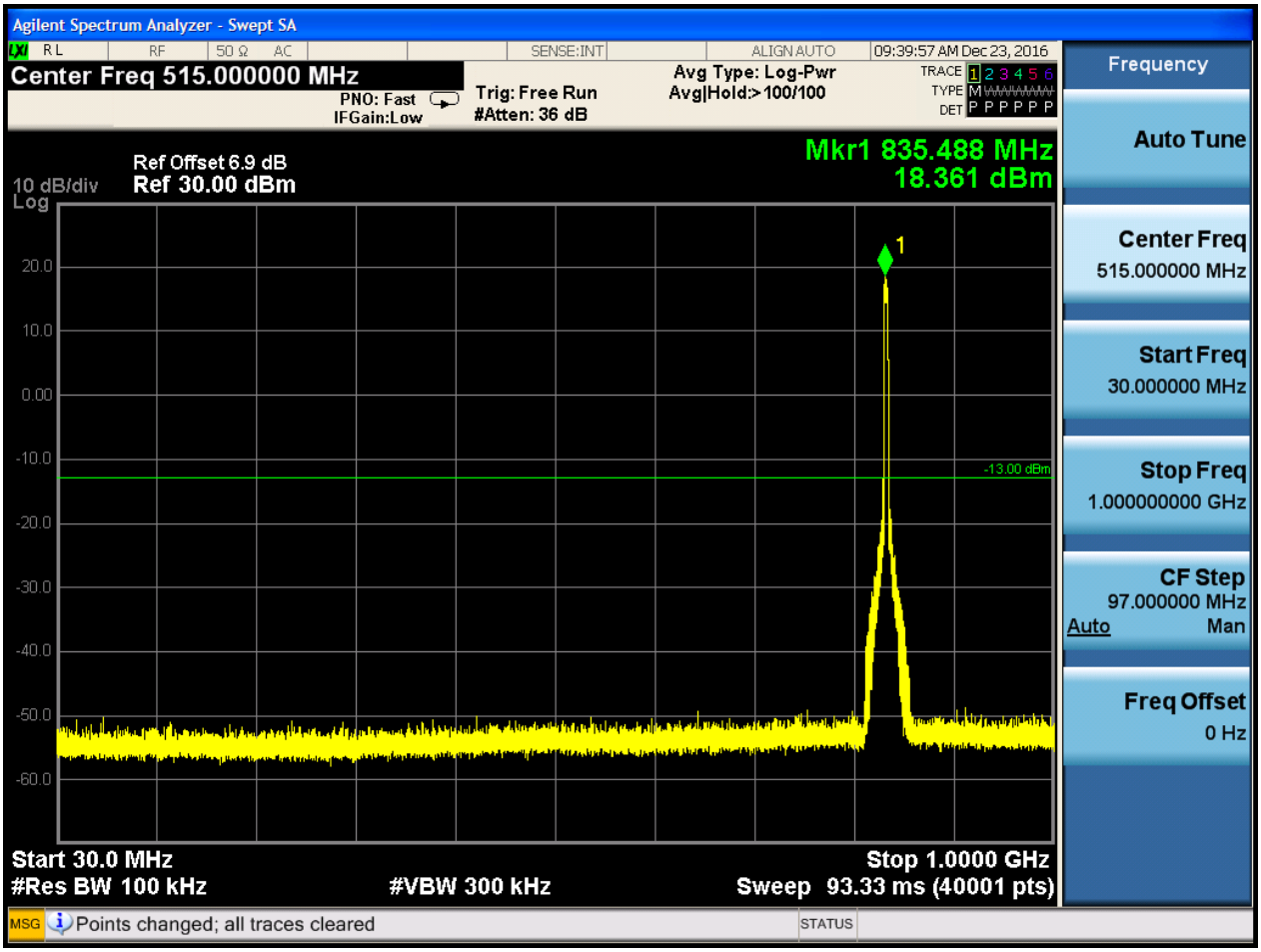

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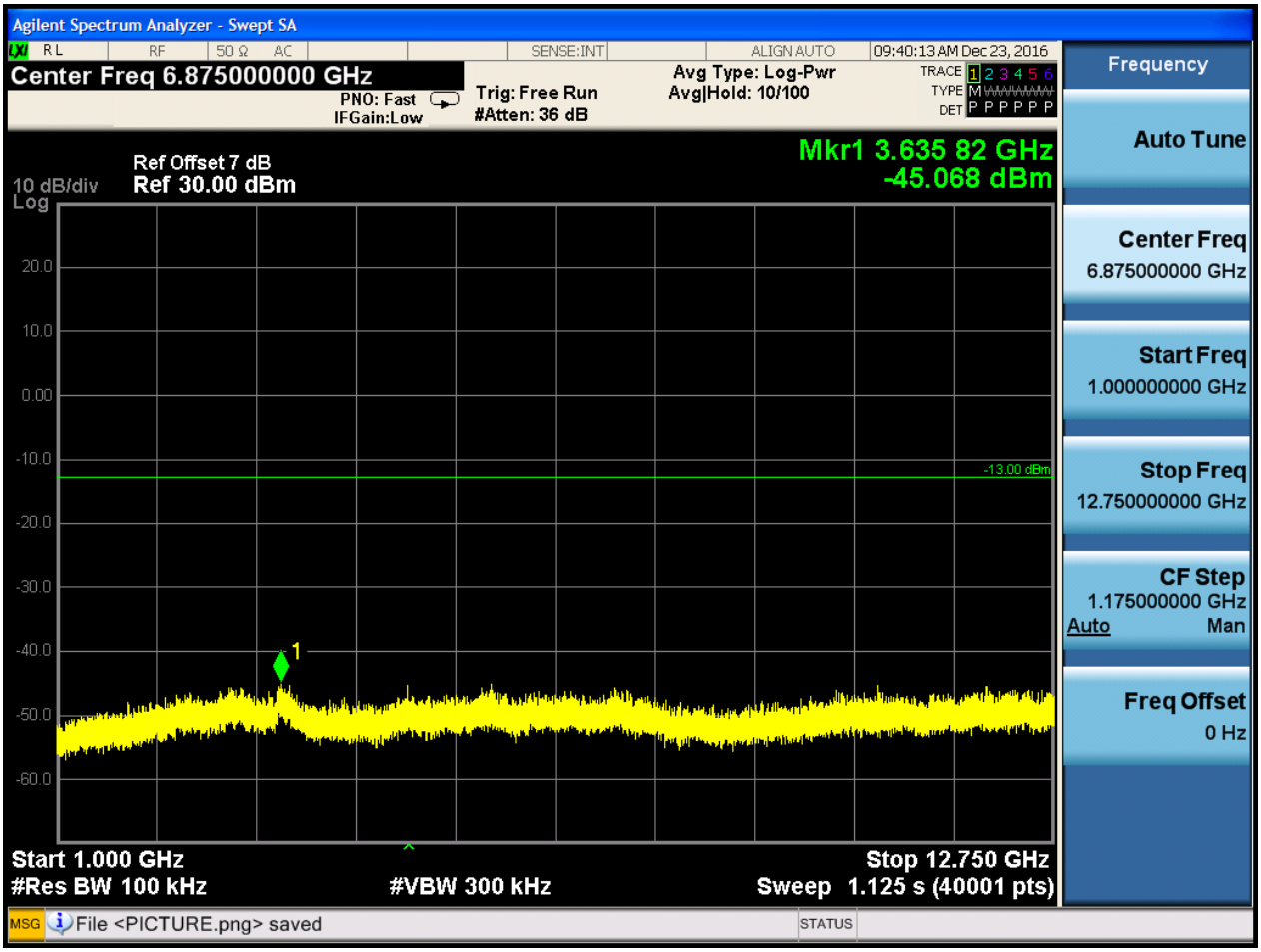

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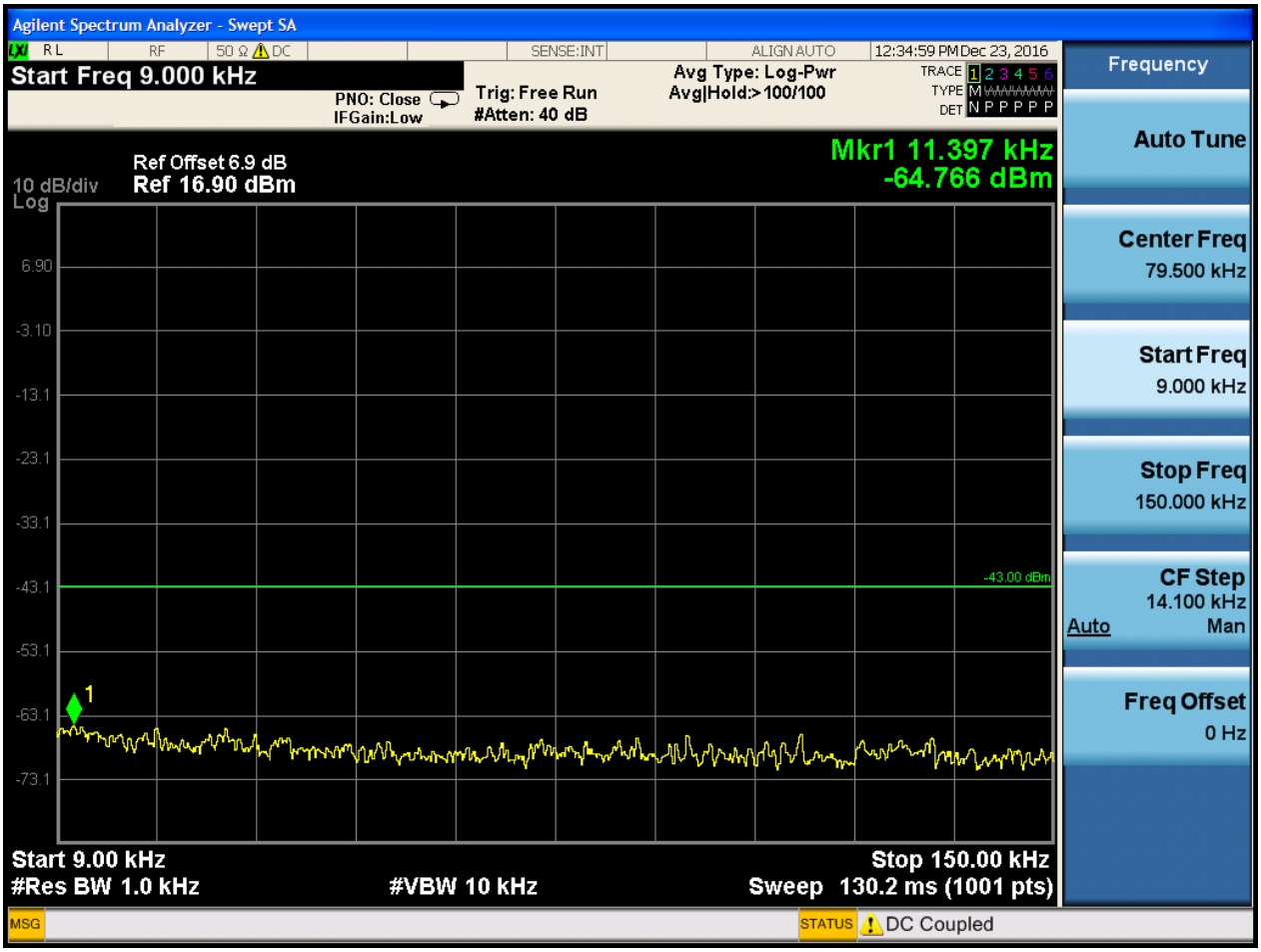
6.1.3.1.3 Test Channel = HCH



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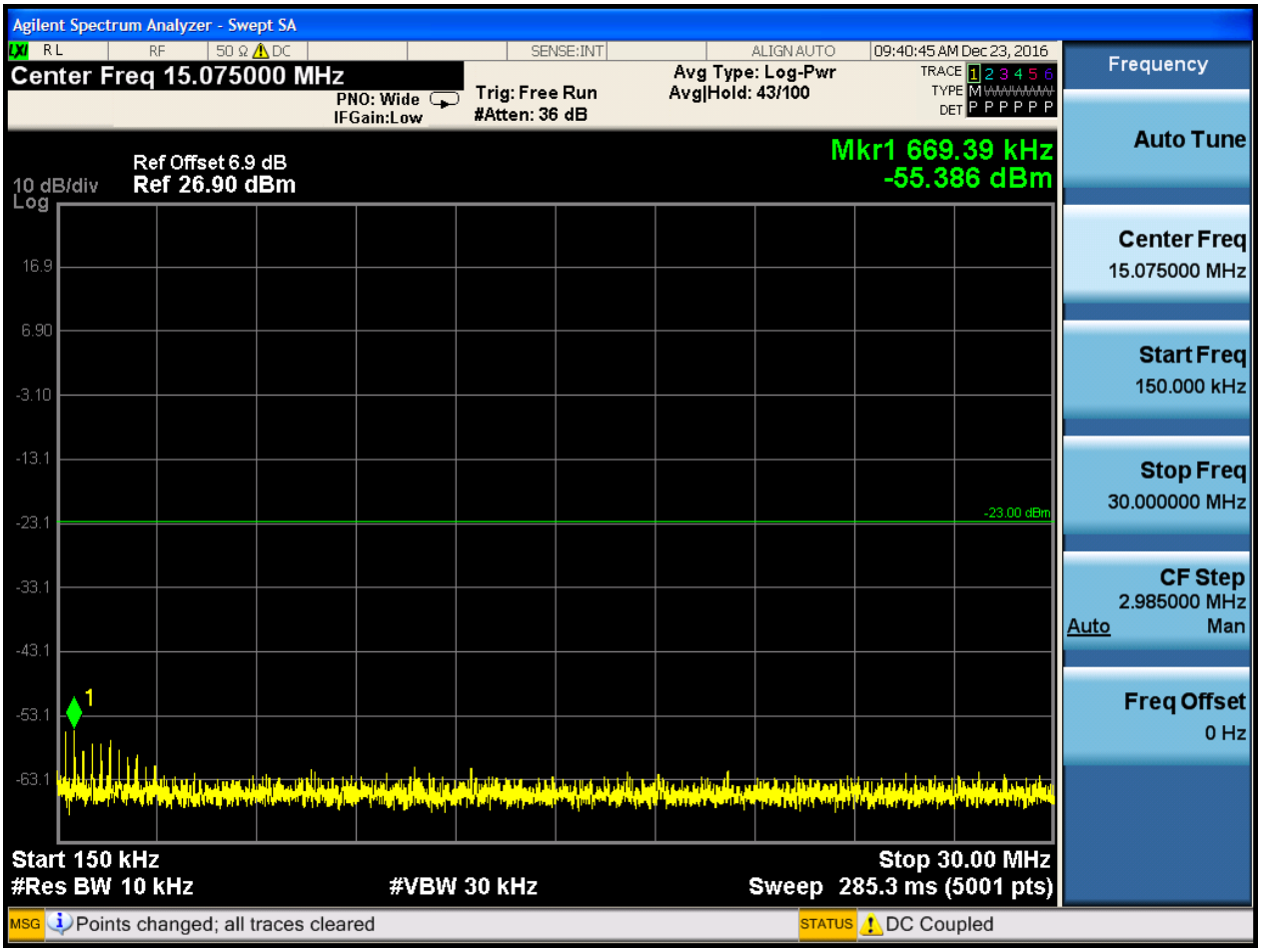

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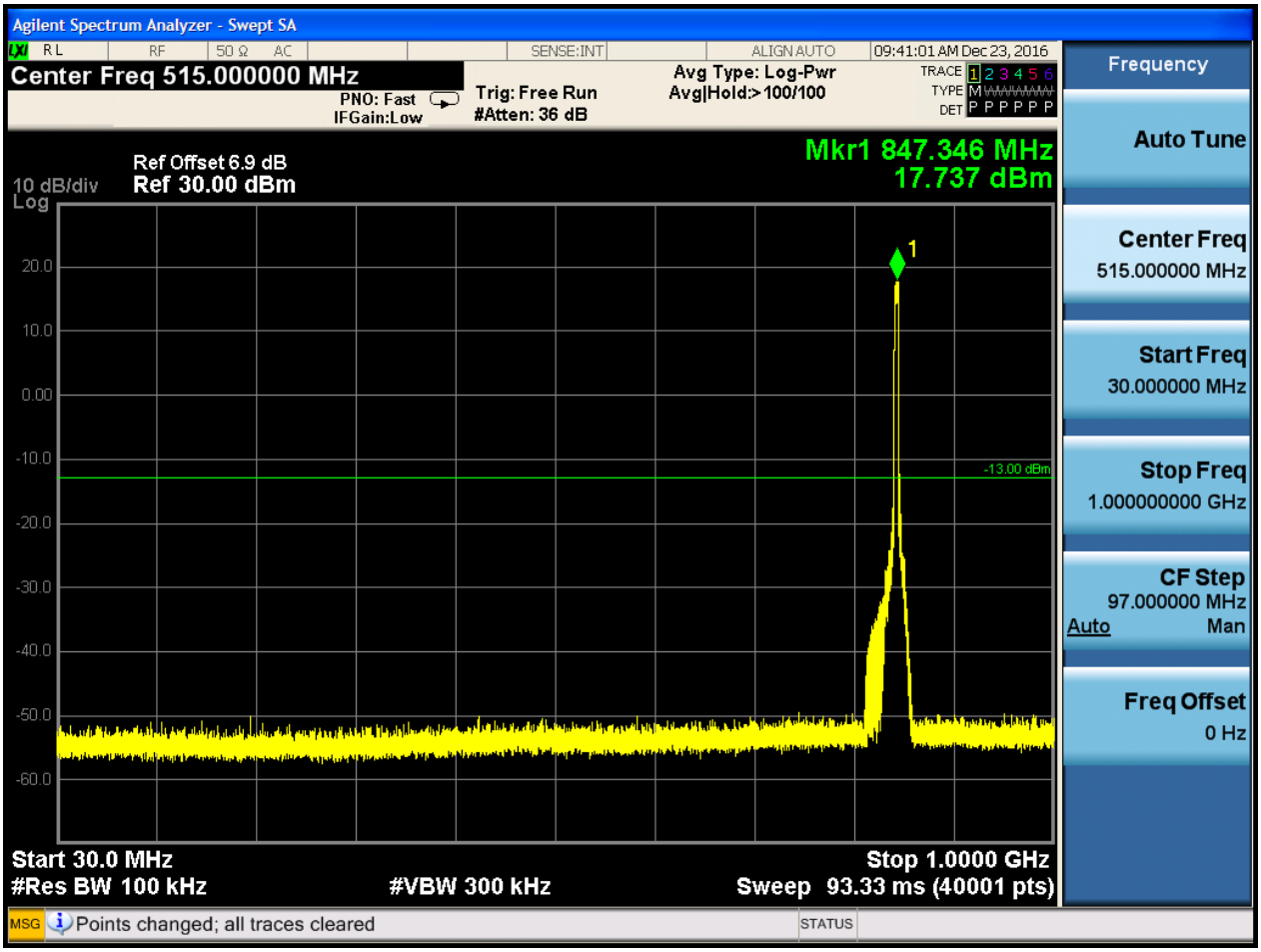

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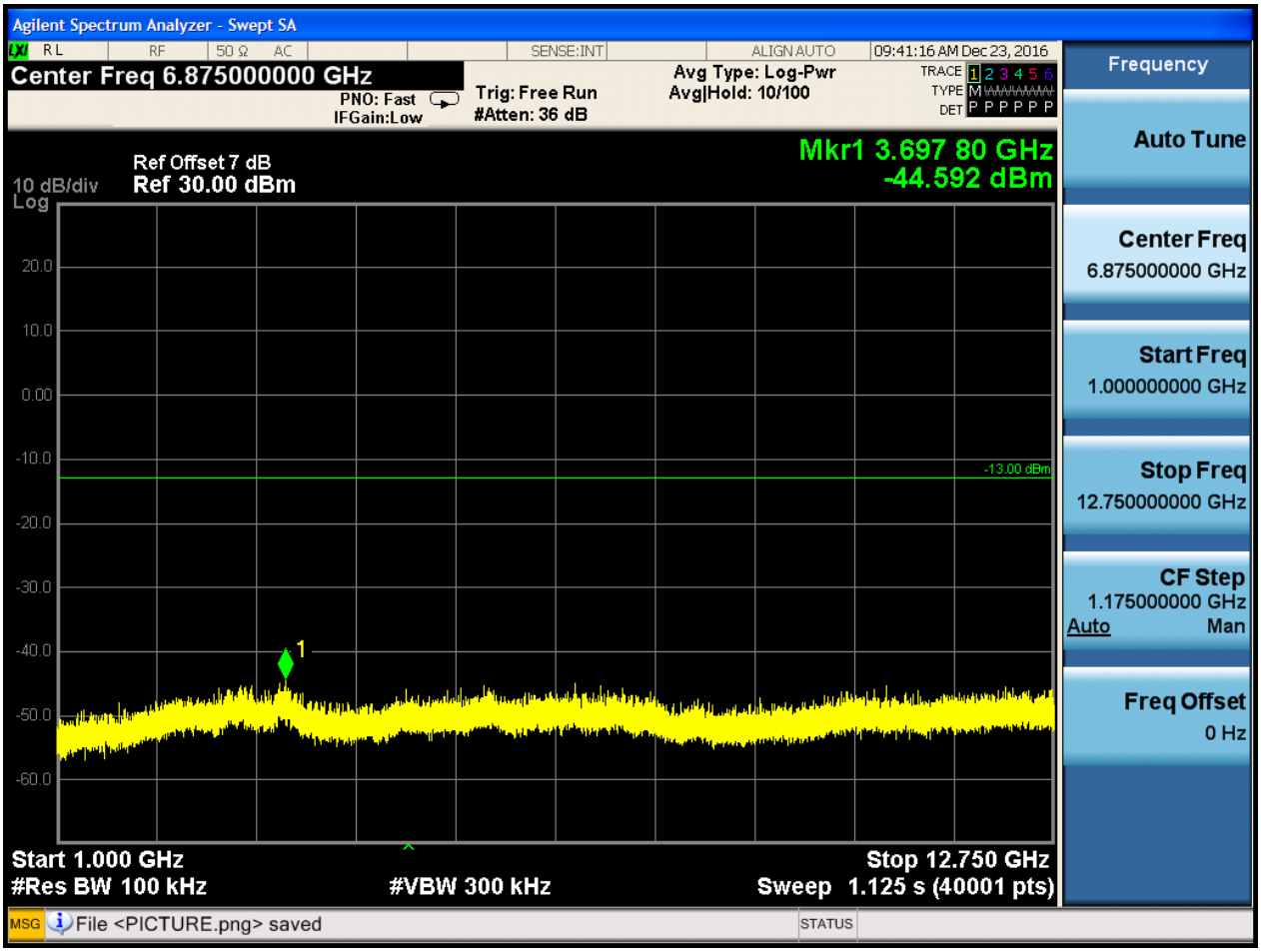

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7Appendix_G: Field Strength of Spurious Radiation

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

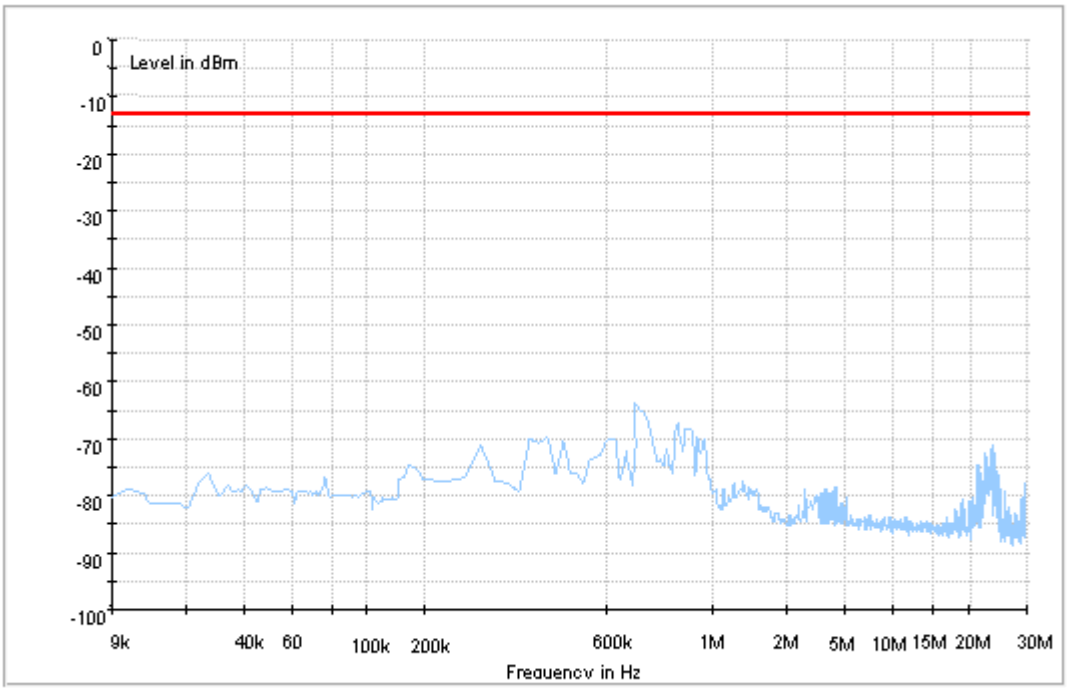
Above 1GHz, RBW = 1 MHz, VBW = 3 MHz. Detector: PK

Part I - Test Plots

7.1 For UMTS

7.1.1 Test Band = WCDMA1900_Ant1

7.1.1.1 Test Mode = UMTS/TM1



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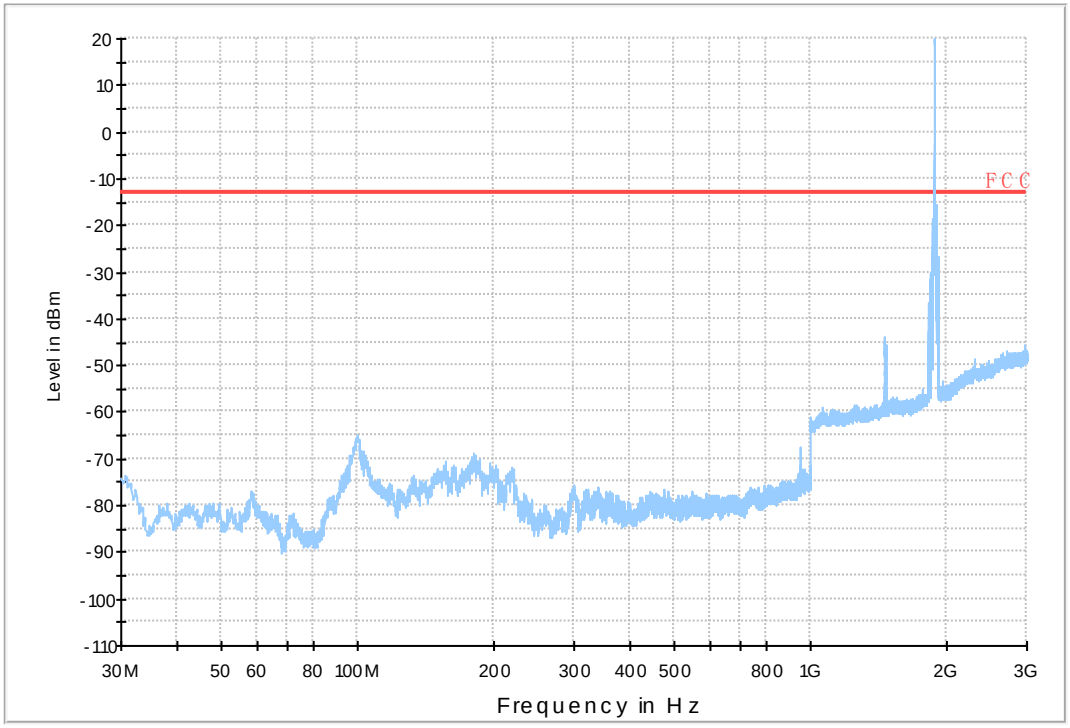
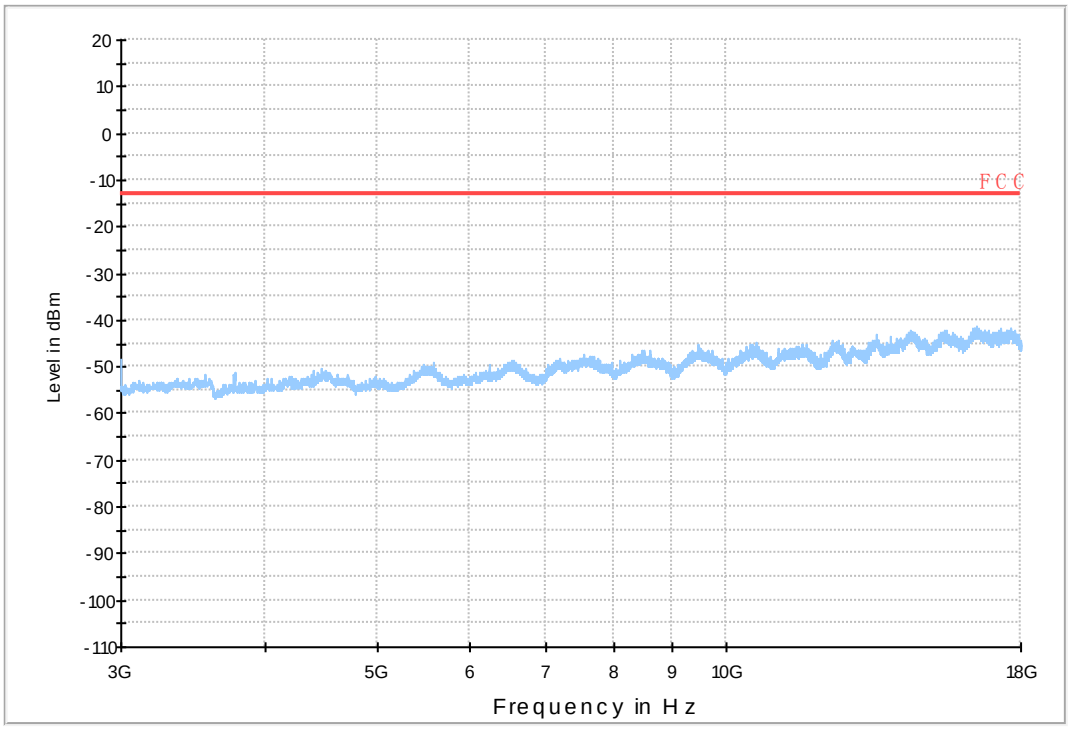
Copy of FCC PART24 WCDMA1900_L



Copy of FCC PART24 WCDMA1900_H



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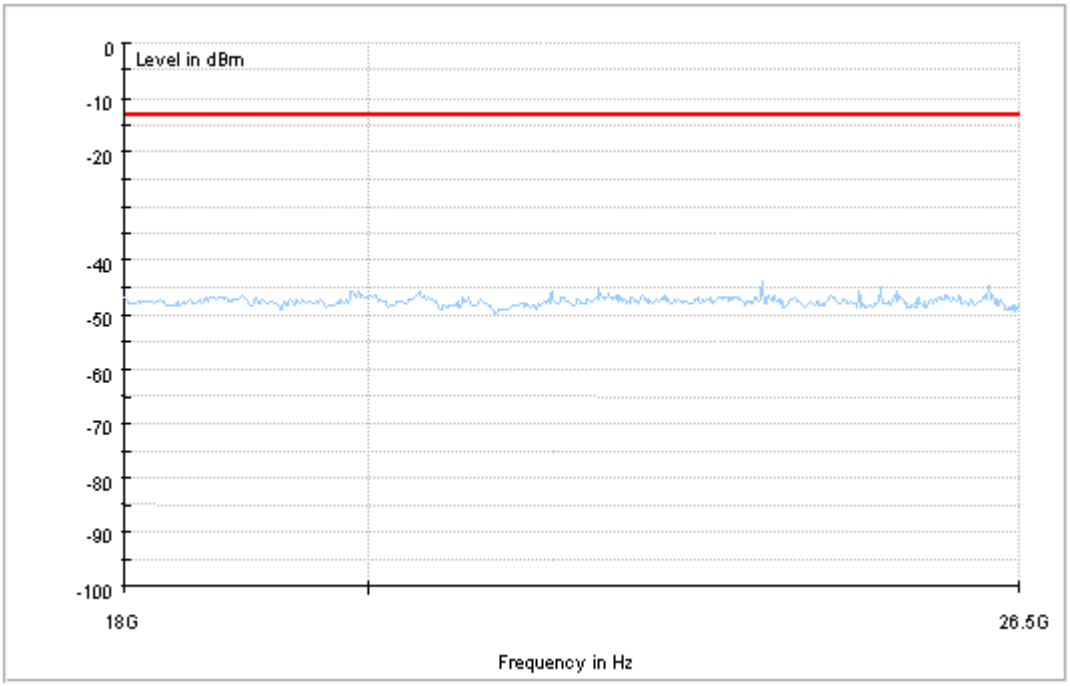

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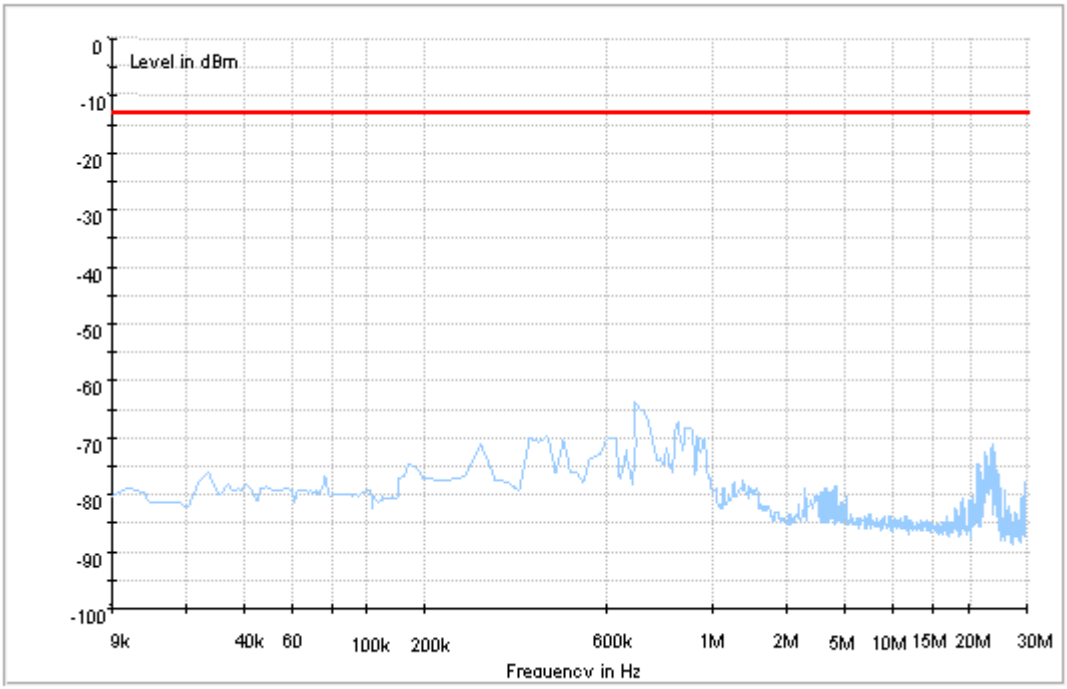
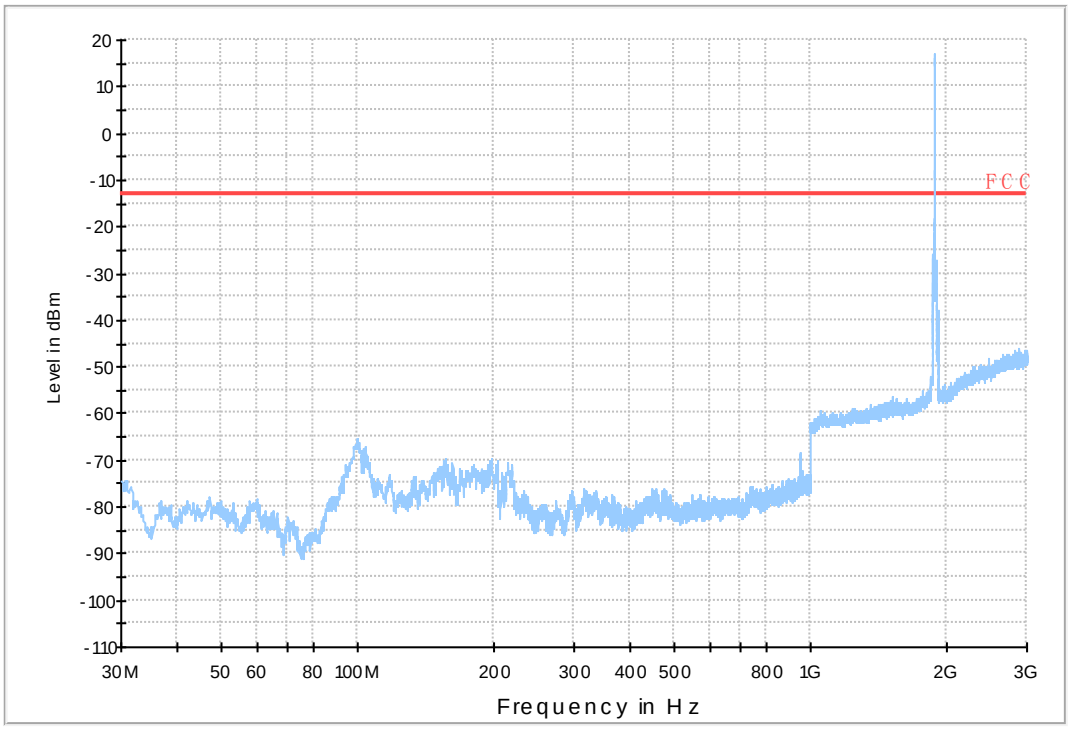
7.1.2 Test Band = WCDMA1900_Ant2

7.1.2.1 Test Mode = UMTS/TM1



Copy of FCC PART24 WCDMA1900_L



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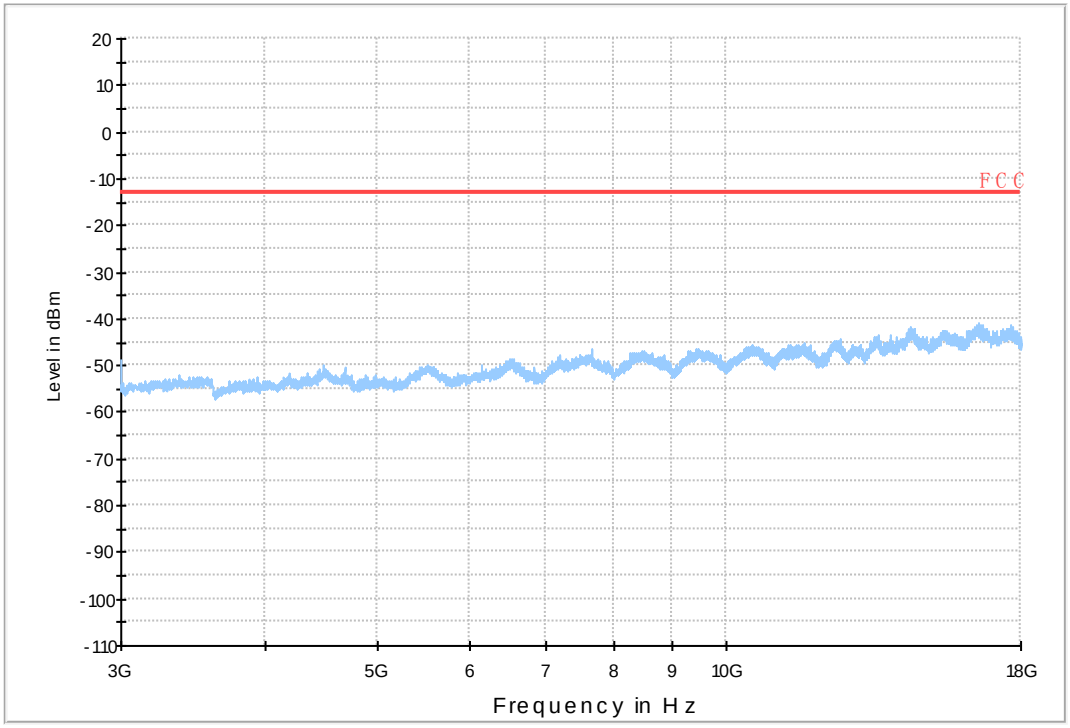
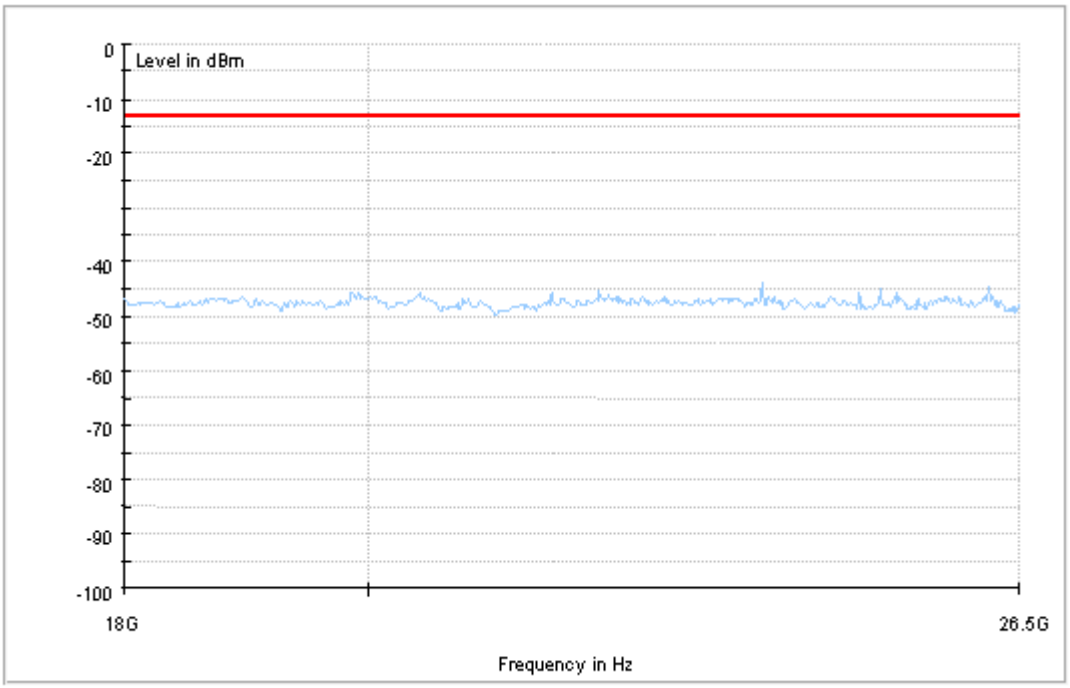
Copy of FCC PART24 WCDMA1900_H





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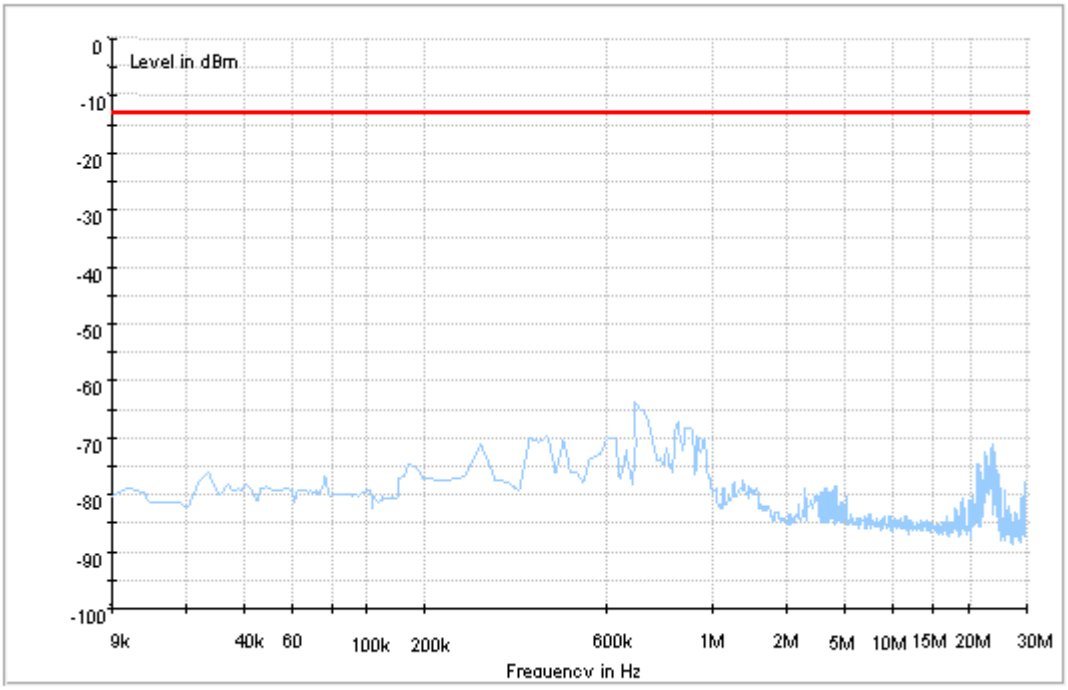
7.2 For UMTS

7.2.1 Test Band = WCDMA1700_Ant1

7.2.1.1 Test Mode = UMTS/TM1



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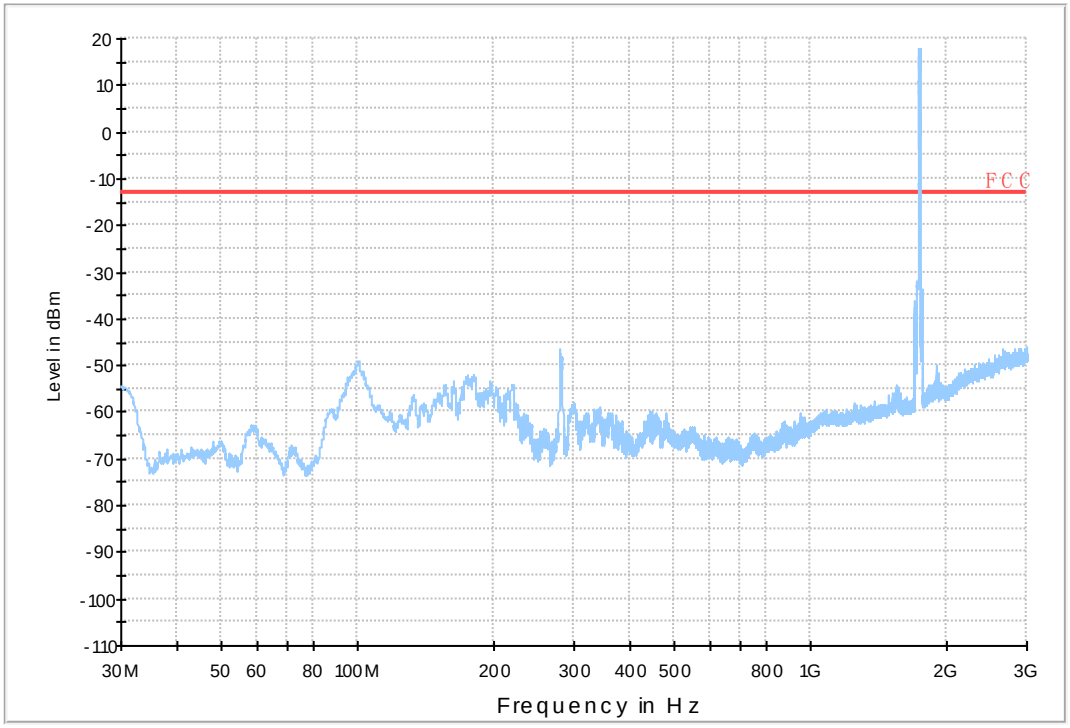
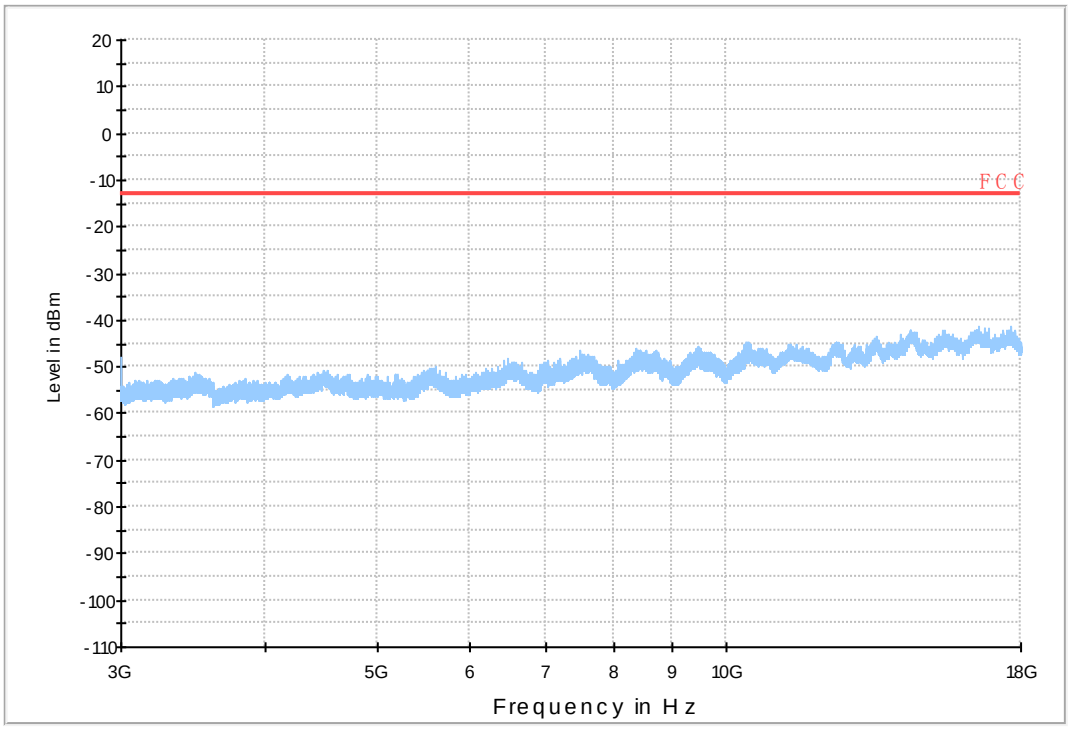
Copy of FCC PART27 WCDMA1700_L



Copy of FCC PART27 WCDMA1700_H



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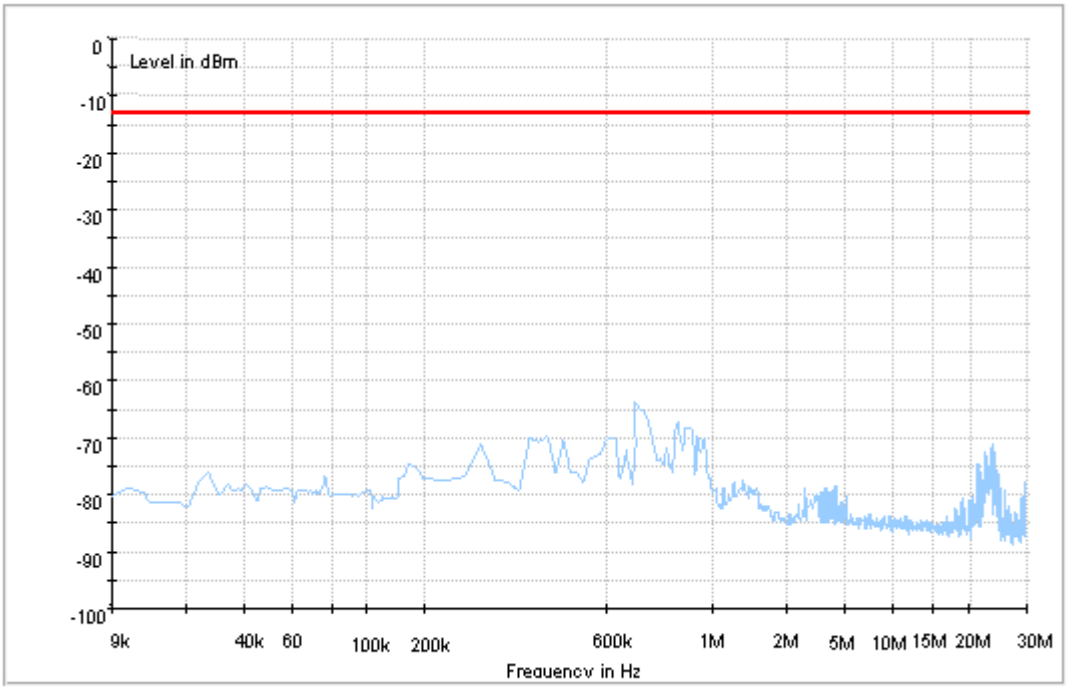
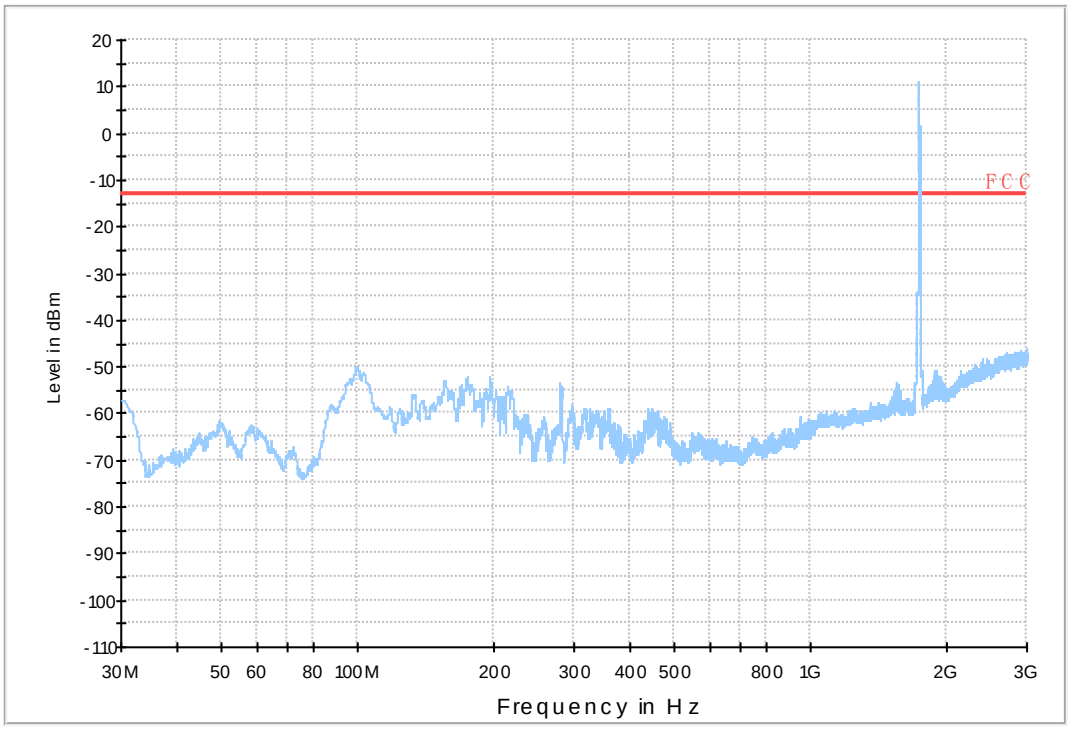
7.2.2 Test Band = WCDMA1700_Ant2

7.2.2.1 Test Mode = UMTS/TM1



Copy of FCC PART27 WCDMA1700_L



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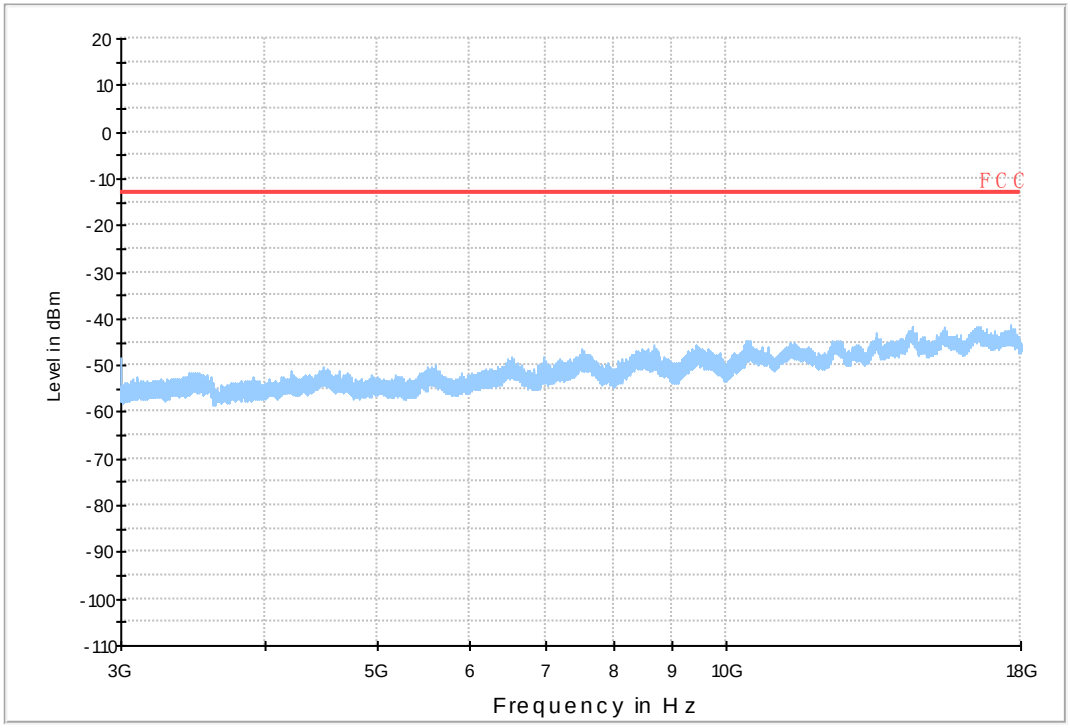
Copy of FCC PART27 WCDMA1700_H



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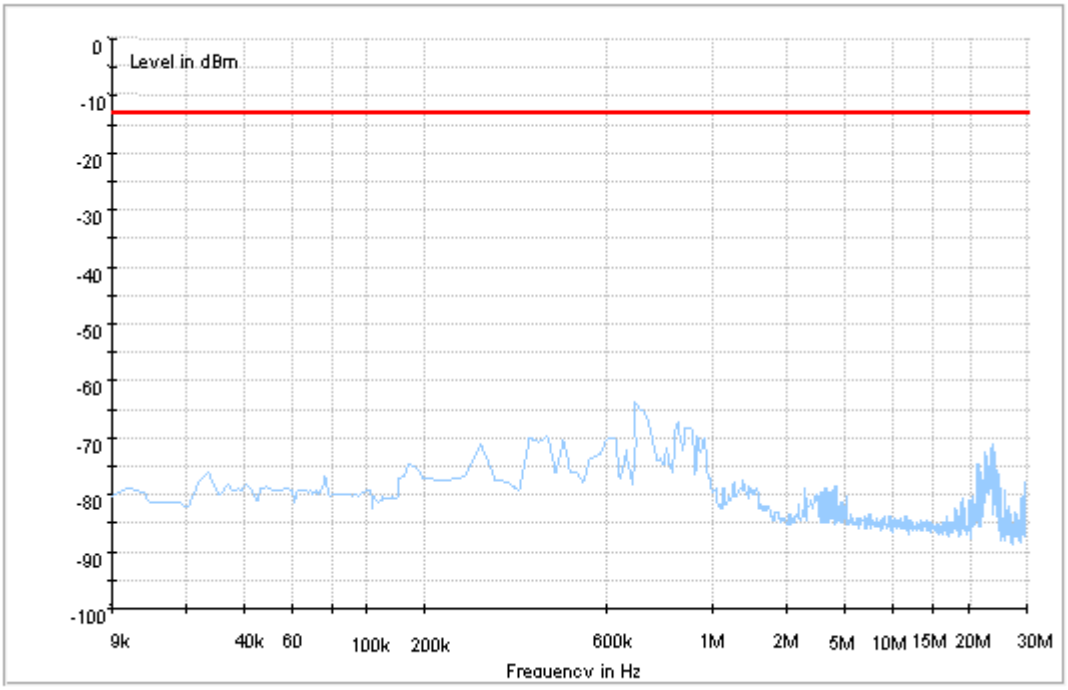
7.3 For UMTS

7.3.1 Test Band = WCDMA850_Ant1

7.3.1.1 Test Mode = UMTS/TM1



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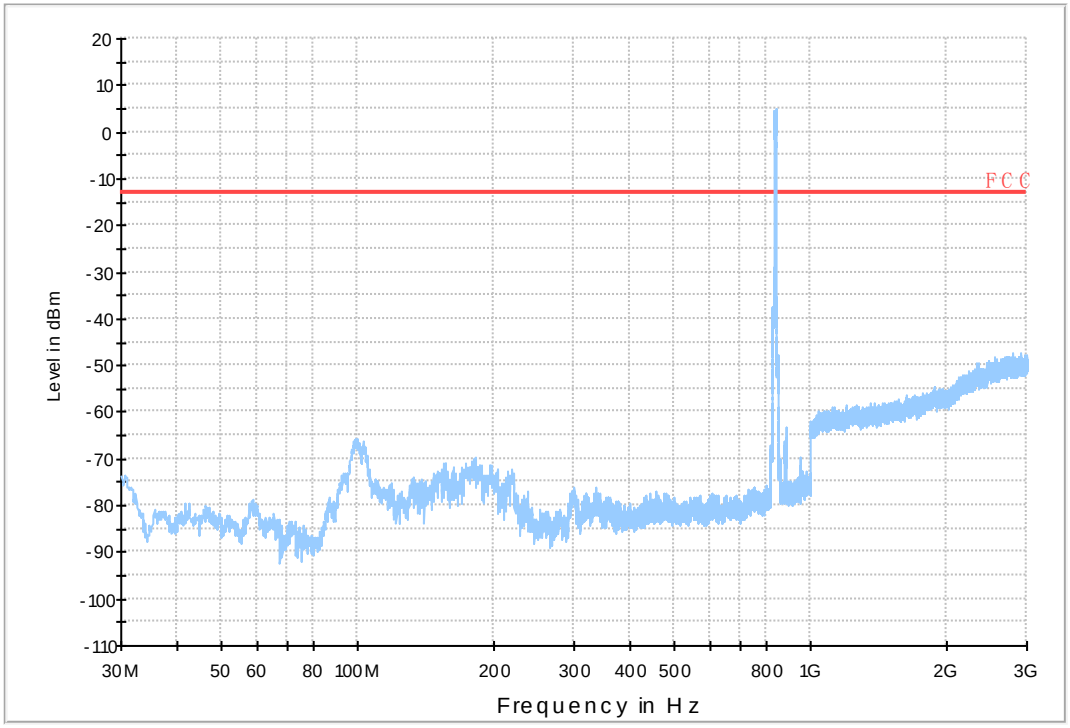
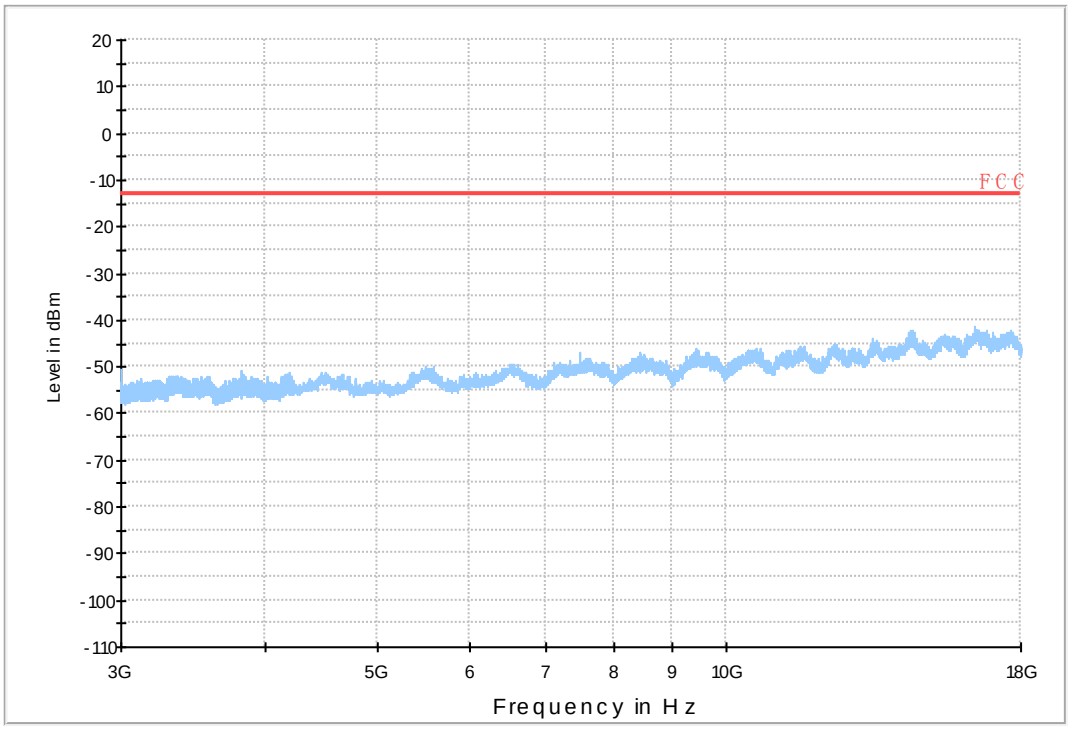
Copy of FCC PART22 WCDMA850_L



Copy of FCC PART22 WCDMA850_H



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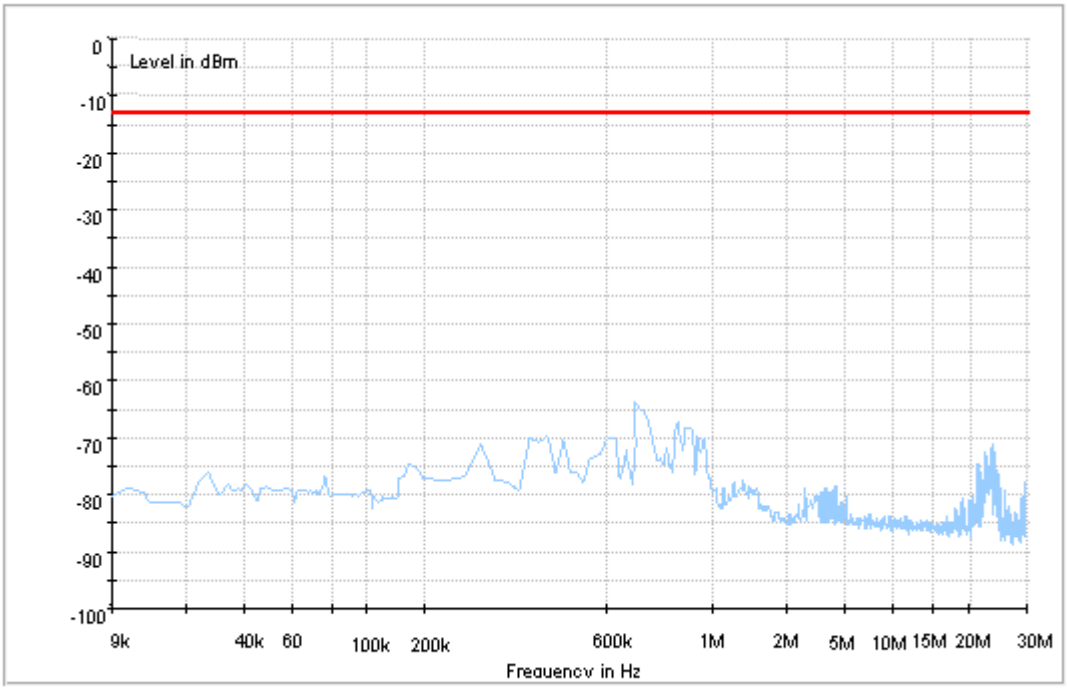
7.3.2 Test Band = WCDMA850_Ant2

7.3.2.1 Test Mode = UMTS/TM1



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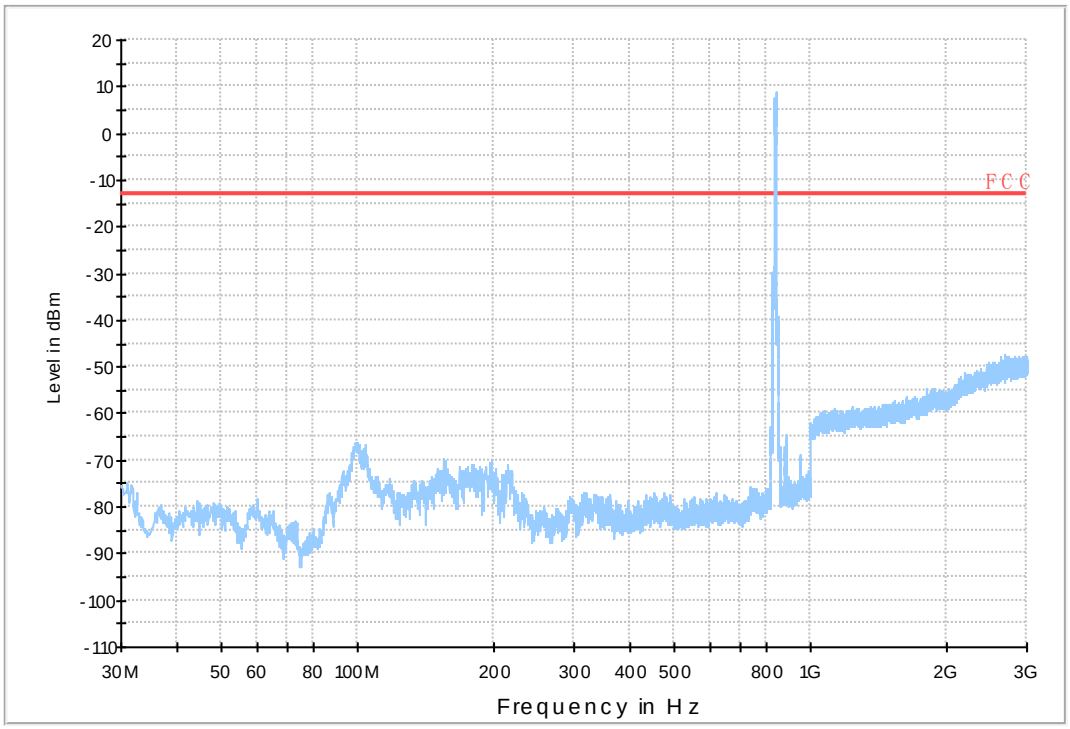

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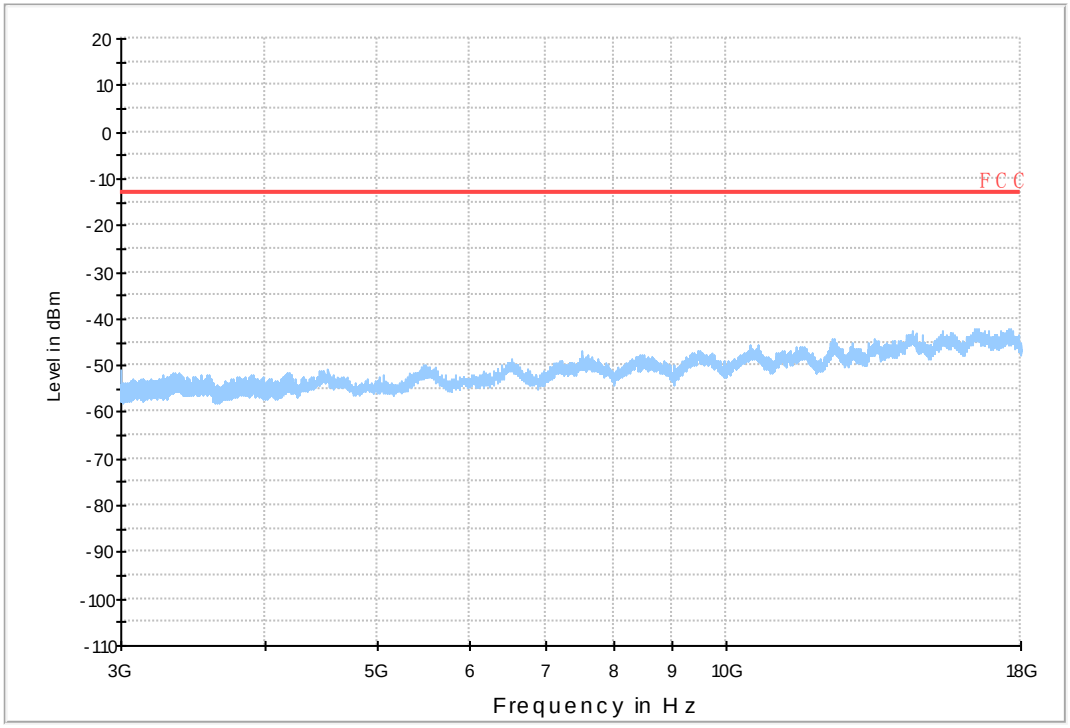
Copy of FCC PART22 WCDMA850_H



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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	-2.40	-0.0013	PASS
				VN	-4.24	-0.00229	PASS
				VH	-12.12	-0.00654	PASS
		MCH	TN	VL	-11.44	-0.00609	PASS
				VN	-20.55	-0.01093	PASS
				VH	-3.22	-0.00171	PASS
		HCH	TN	VL	-3.91	-0.00205	PASS
				VN	-3.86	-0.00202	PASS
				VH	-5.00	-0.00262	PASS
WCDMA1700	UMTS/TM1	LCH	TN	VL	-5.19	-0.00303	PASS
				VN	0.87	0.00051	PASS
				VH	0.90	0.00053	PASS
		MCH	TN	VL	-1.08	-0.00062	PASS
				VN	-1.07	-0.00062	PASS
				VH	-1.34	-0.00077	PASS
		HCH	TN	VL	-2.70	-0.00154	PASS
				VN	5.86	0.00334	PASS
				VH	-7.45	-0.00425	PASS
WCDMA850	UMTS/TM1	LCH	TN	VL	-4.43	-0.00536	PASS
				VN	-11.66	-0.01411	PASS
				VH	-8.36	-0.01012	PASS
		MCH	TN	VL	6.61	0.0079	PASS
				VN	-2.03	-0.00243	PASS
				VH	2.27	0.00271	PASS
		HCH	TN	VL	0.96	0.00113	PASS
				VN	-2.14	-0.00253	PASS
				VH	-13.00	-0.01536	PASS

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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	-12.16	-0.00656	PASS
				-20	-13.76	-0.00743	PASS
				-10	-13.37	-0.00722	PASS
				0	-1.07	-0.00058	PASS
				10	-0.84	-0.00045	PASS
				20	-10.68	-0.00577	PASS
				30	-3.42	-0.00185	PASS
				40	-1.02	-0.00055	PASS
				50	-7.42	-0.00401	PASS
		MCH	VN	-30	-7.63	-0.00406	PASS
				-20	4.30	0.00229	PASS
				-10	-3.45	-0.00184	PASS
				0	4.23	0.00225	PASS
				10	-1.07	-0.00057	PASS
				20	-4.47	-0.00238	PASS
				30	-4.96	-0.00264	PASS
				40	-18.42	-0.0098	PASS
				50	-19.50	-0.01037	PASS
		HCH	VN	-30	6.71	0.00352	PASS
				-20	-11.11	-0.00582	PASS
				-10	-10.53	-0.00552	PASS
				0	-10.39	-0.00545	PASS
				10	-8.73	-0.00458	PASS
				20	-8.53	-0.00447	PASS
				30	-17.75	-0.0093	PASS
				40	-14.39	-0.00754	PASS
				50	-15.82	-0.00829	PASS
WCDMA1700	UMTS/TM1	LCH	VN	-30	-8.27	-0.00483	PASS
				-20	0.81	0.00047	PASS
				-10	-5.16	-0.00301	PASS
				0	9.45	0.00552	PASS
				10	2.91	0.0017	PASS
				20	-1.19	-0.00069	PASS
				30	-6.18	-0.00361	PASS
				40	-1.37	-0.0008	PASS
				50	0.35	0.0002	PASS
		MCH	VN	-30	1.63	0.00094	PASS

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Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				-20	-2.66	-0.00154	PASS
				-10	3.65	0.00211	PASS
				0	-5.19	-0.003	PASS
				10	4.87	0.00281	PASS
				20	-6.97	-0.00402	PASS
				30	-8.68	-0.00501	PASS
				40	-9.32	-0.00538	PASS
				50	-1.74	-0.001	PASS
		HCH	VN	-30	3.36	0.00192	PASS
				-20	-3.77	-0.00215	PASS
				-10	-2.38	-0.00136	PASS
				0	-1.31	-0.00075	PASS
				10	-0.03	-0.00002	PASS
				20	4.24	0.00242	PASS
				30	-5.37	-0.00306	PASS
				40	-10.99	-0.00627	PASS
				50	-3.75	-0.00214	PASS
WCDMA850	UMTS/TM1	LCH	VN	-30	0.66	0.0008	PASS
				-20	-0.60	-0.00073	PASS
				-10	-3.14	-0.0038	PASS
				0	-4.41	-0.00534	PASS
				10	-7.02	-0.00849	PASS
				20	-2.35	-0.00284	PASS
				30	-1.97	-0.00238	PASS
				40	-2.44	-0.00295	PASS
				50	-3.27	-0.00396	PASS
		MCH	VN	-30	-3.05	-0.00365	PASS
				-20	-9.25	-0.01106	PASS
				-10	-12.21	-0.0146	PASS
				0	16.86	0.02016	PASS
				10	-5.04	-0.00603	PASS
				20	-3.10	-0.00371	PASS
				30	0.55	0.00066	PASS
				40	-7.80	-0.00933	PASS
				50	-7.75	-0.00927	PASS
		HCH	VN	-30	3.17	0.00374	PASS
				-20	-1.75	-0.00207	PASS
				-10	-9.75	-0.01152	PASS
				0	0.11	0.00013	PASS
				10	5.20	0.00614	PASS

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Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				20	-6.53	-0.00771	PASS
				30	2.76	0.00326	PASS
				40	-6.20	-0.00732	PASS
				50	-5.07	-0.00599	PASS

END

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