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]	ERP/EIRP [dBm]	Limit [dBm]	Verdict
WCDMA1900	UMTS/TM1	LCH	23.05	20.05	33	PASS
		MCH	23.21	20.21	33	PASS
		HCH	23.18	20.18	33	PASS
WCDMA1700	UMTS/TM1	LCH	23.86	20.66	30	PASS
		MCH	23.77	20.57	30	PASS
		HCH	23.82	20.62	30	PASS
WCDMA850	UMTS/TM1	LCH	23.93	15.03	38.5	PASS
		MCH	23.74	14.84	38.5	PASS
		HCH	23.72	14.82	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

Note2: RBW > emission bandwidth, VBW > 3 x RBW.

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
WCDMA1900	UMTS/TM1	LCH	2.88	13	PASS
		MCH	3.11	13	PASS
		HCH	3.3	13	PASS
WCDMA1700	UMTS/TM1	LCH	3.13	13	PASS
		MCH	2.68	13	PASS
		HCH	3.29	13	PASS
WCDMA850	UMTS/TM1	LCH	2.73	13	PASS
		MCH	2.65	13	PASS
		HCH	2.67	13	PASS

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3Appendix_C: Modulation Characteristics

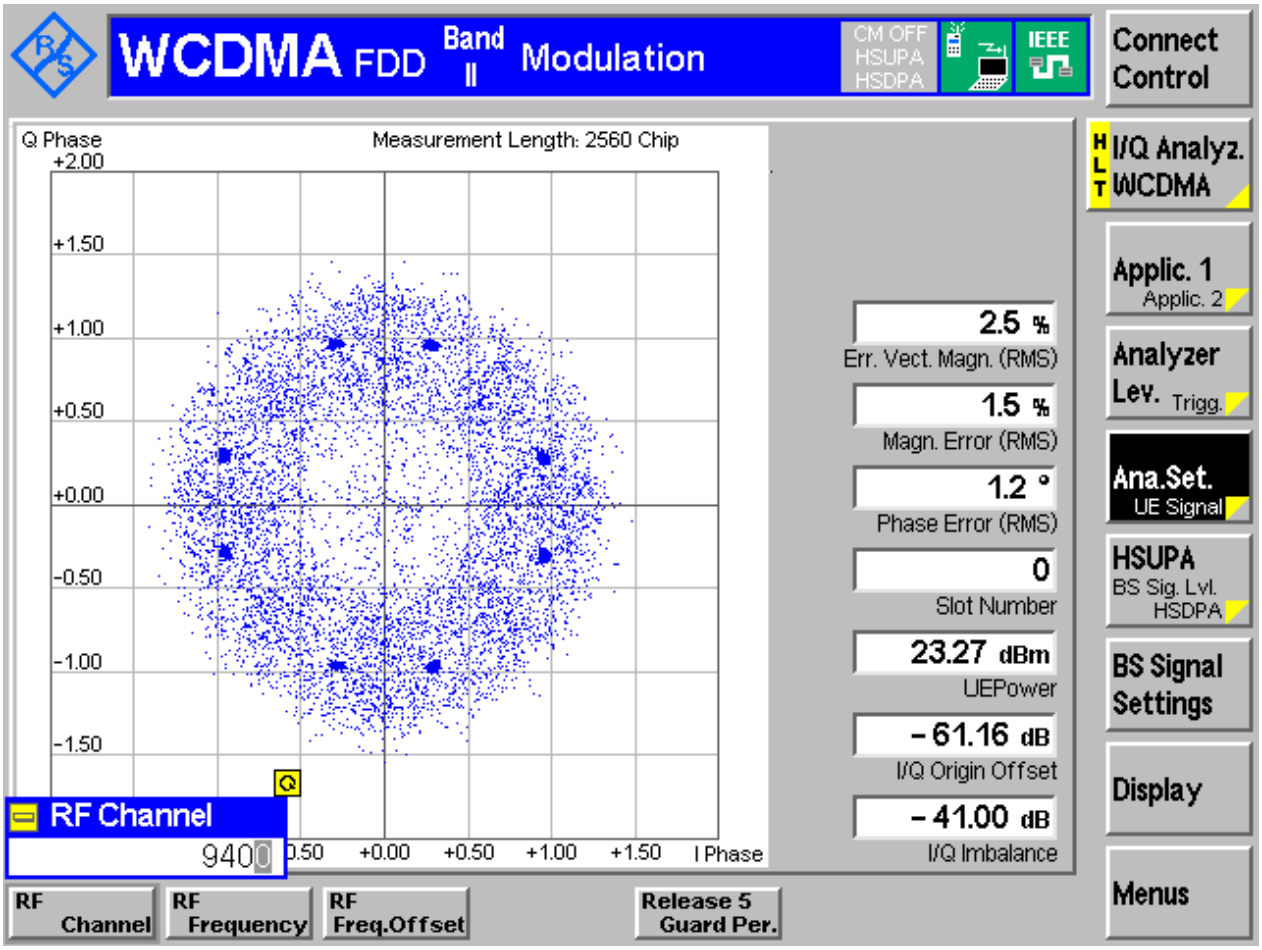
Part I - Test Plots

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



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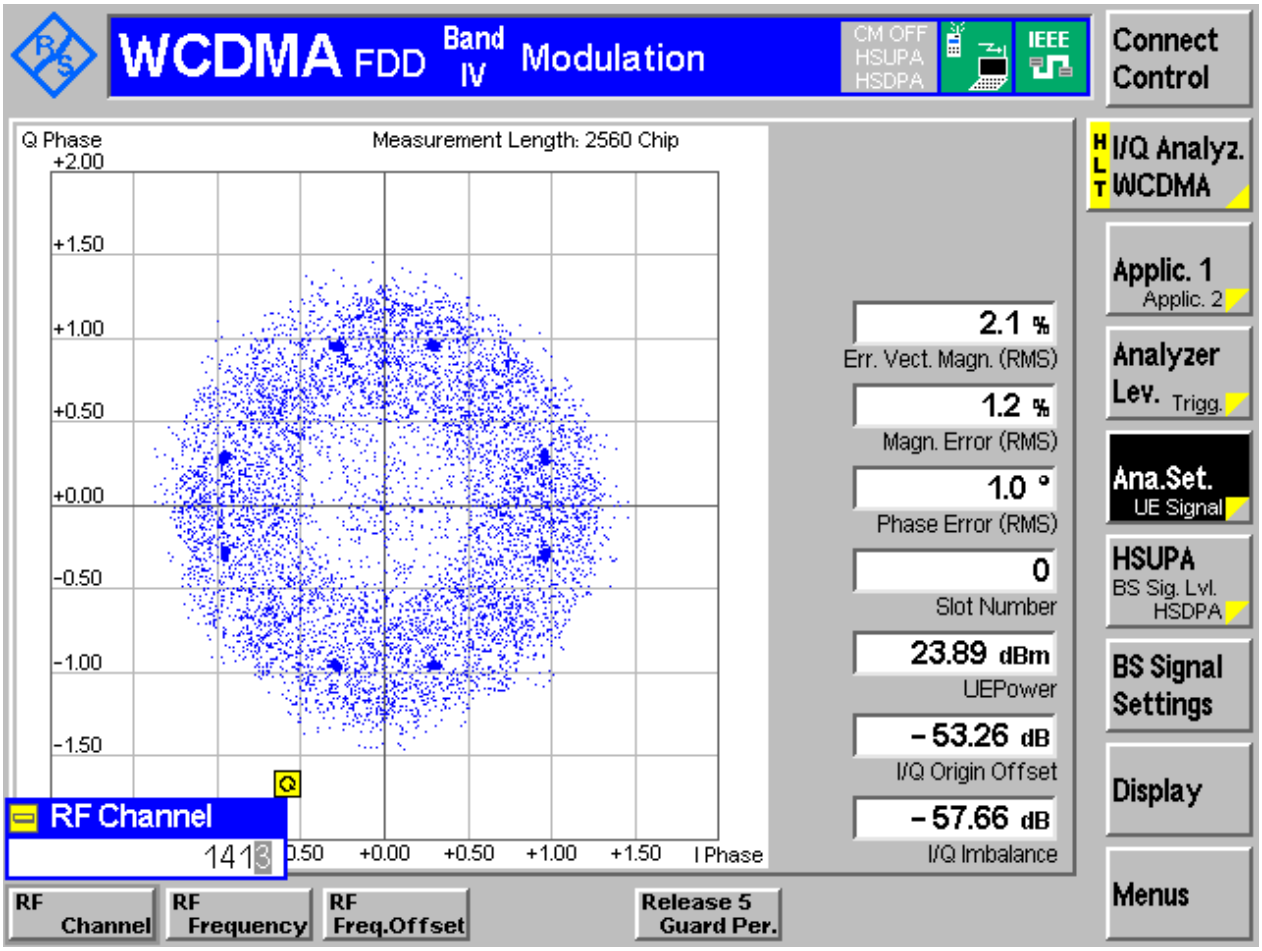
3.1.2 Test Band = WCDMA1700

3.1.2.1 Test Mode = UMTS/TM1

3.1.2.1.1 Test Channel = MCH



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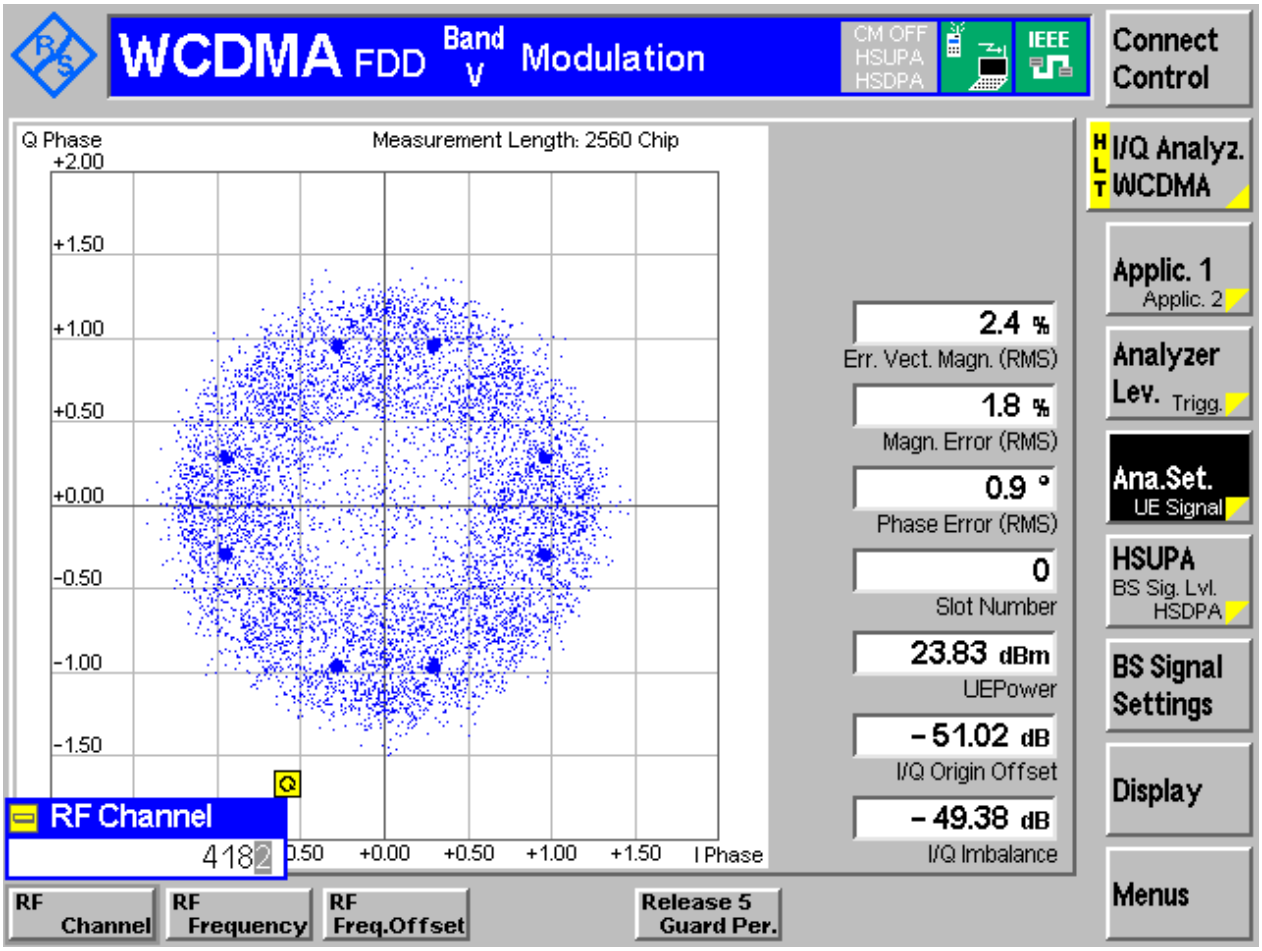
3.1.3 Test Band = WCDMA850

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	4.16	4.71	Pass
		MCH	4.15	4.70	Pass
		HCH	4.15	4.71	Pass
WCDMA1700	UMTS/TM1	LCH	4.15	4.71	Pass
		MCH	4.17	4.74	Pass
		HCH	4.16	4.70	Pass
WCDMA850	UMTS/TM1	LCH	4.16	4.72	Pass
		MCH	4.16	4.72	Pass
		HCH	4.16	4.72	Pass

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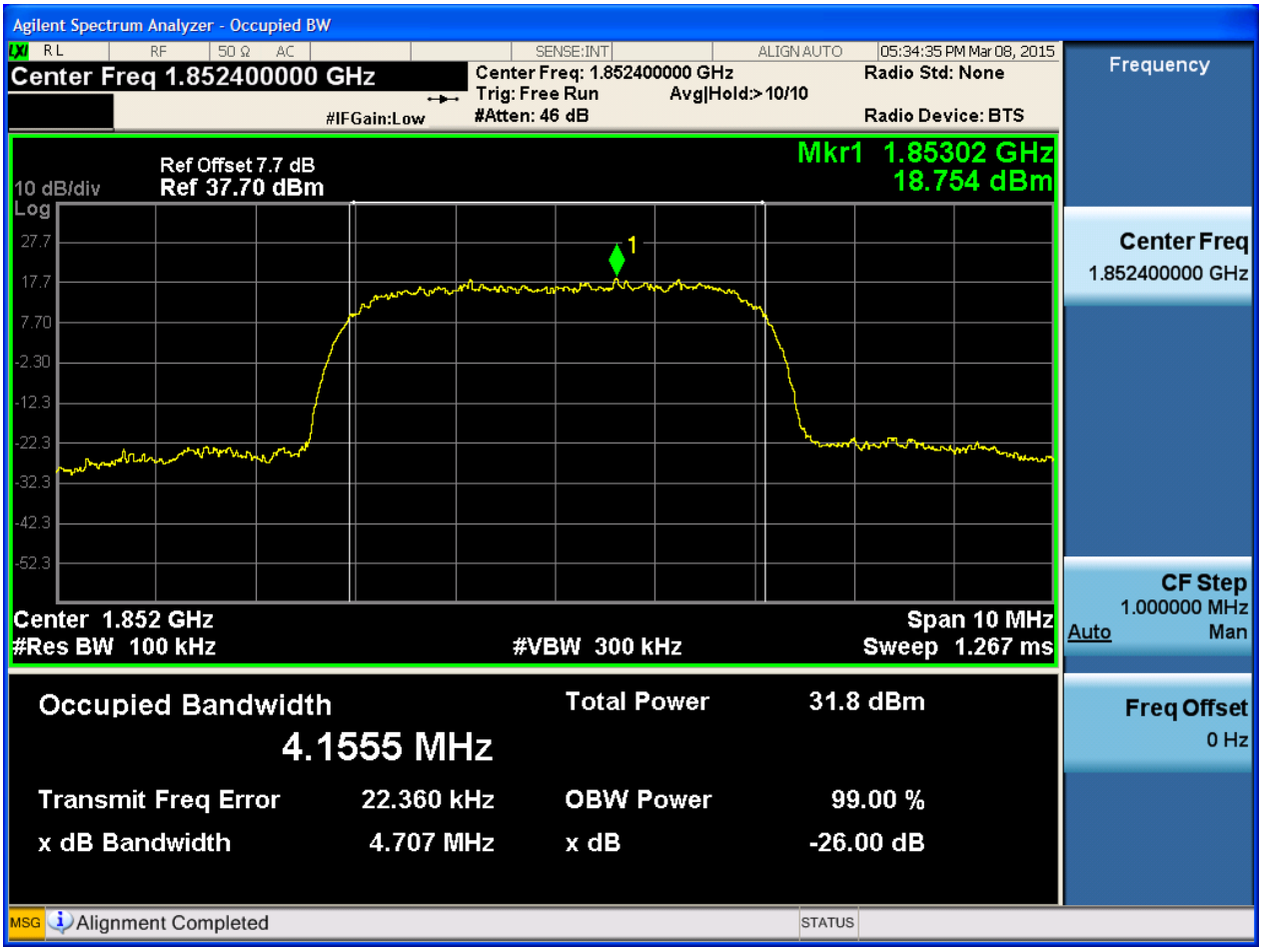
Part II - Test Plots

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



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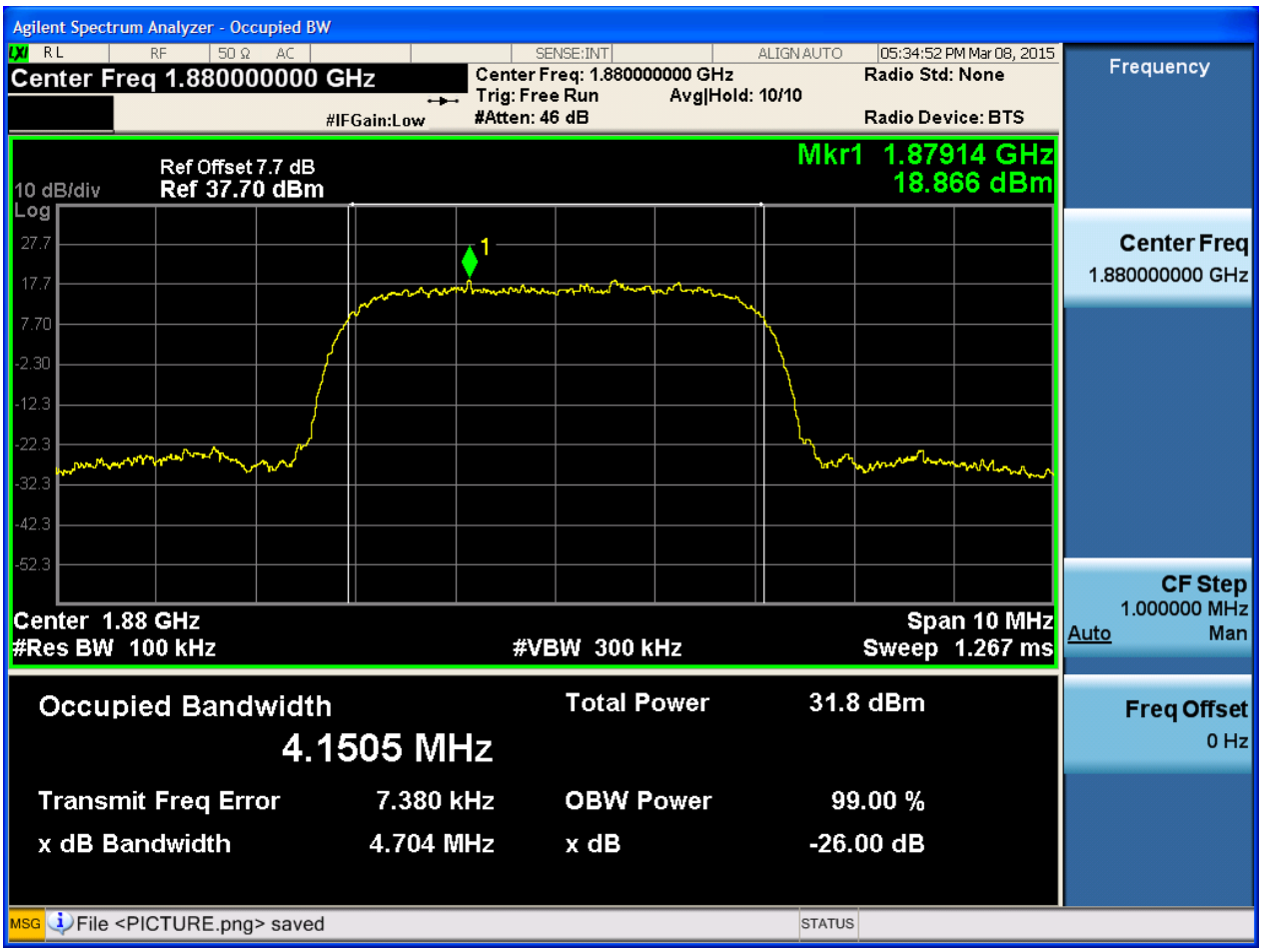
4.1.1.1.2 Test Channel = MCH



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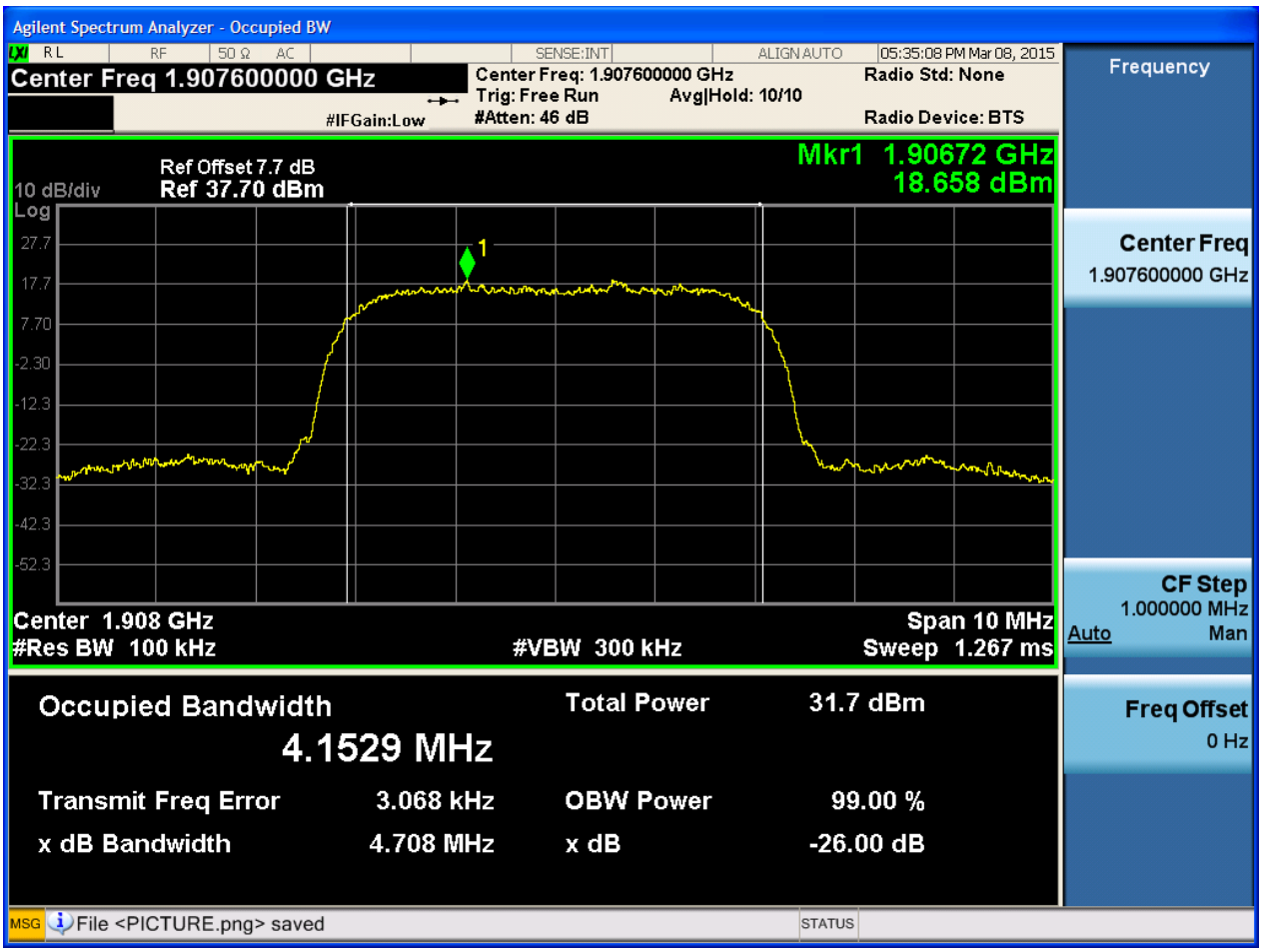
4.1.1.1.3 Test Channel = HCH



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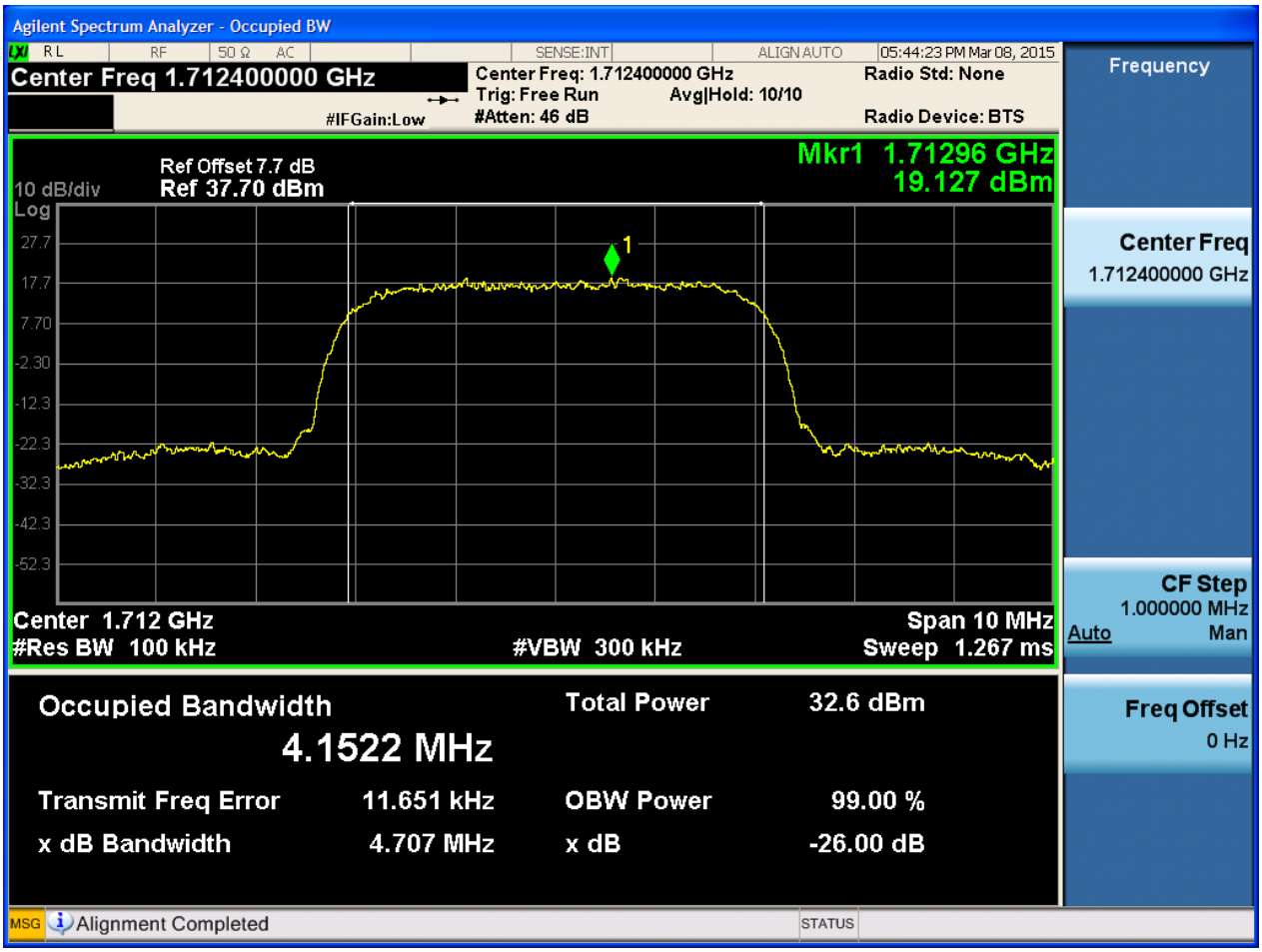
4.1.2 Test Band = WCDMA1700

4.1.2.1 Test Mode = UMTS/TM1

4.1.2.1.1 Test Channel = LCH



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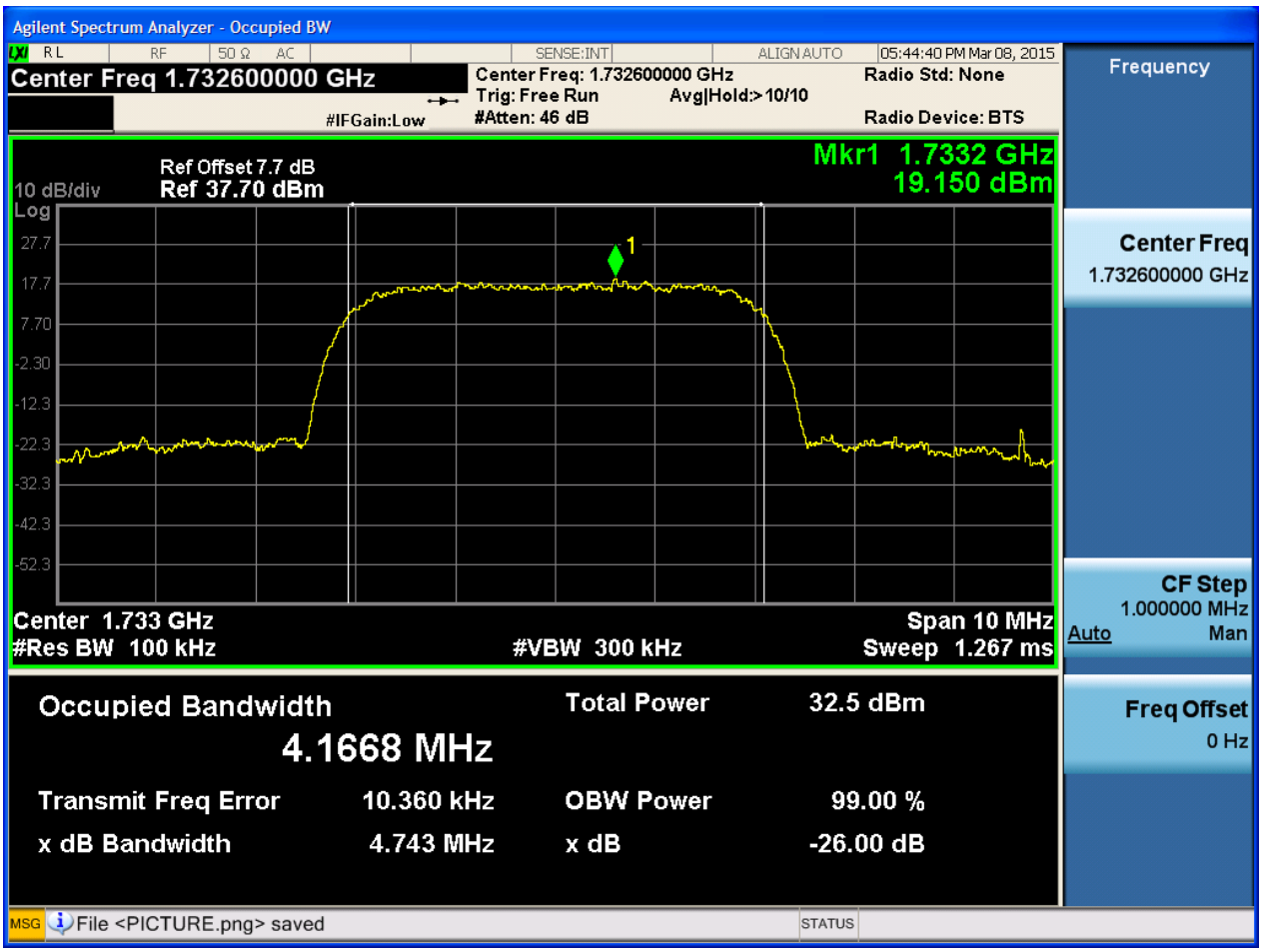
4.1.2.1.2 Test Channel = MCH



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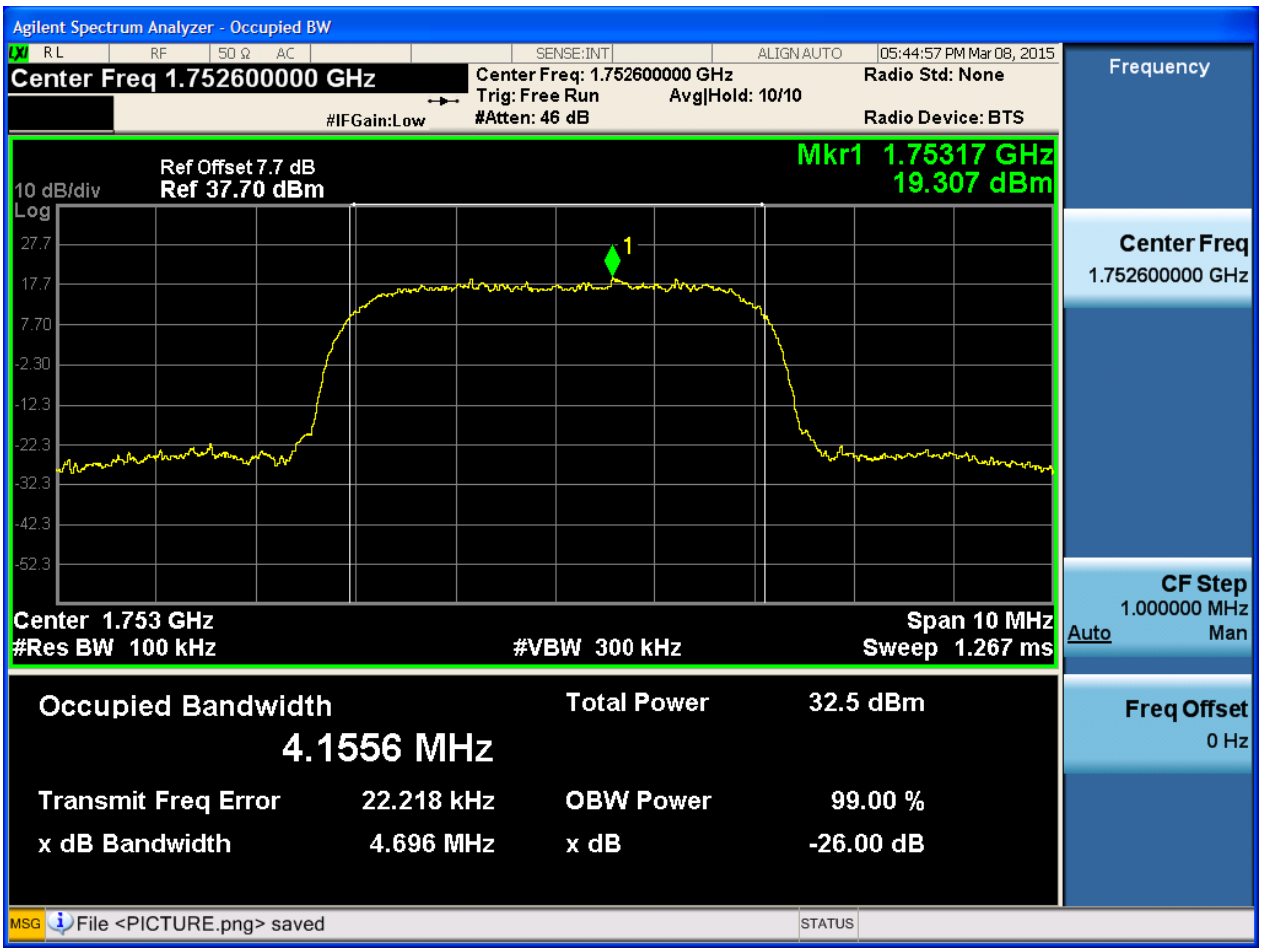
4.1.2.1.3 Test Channel = HCH



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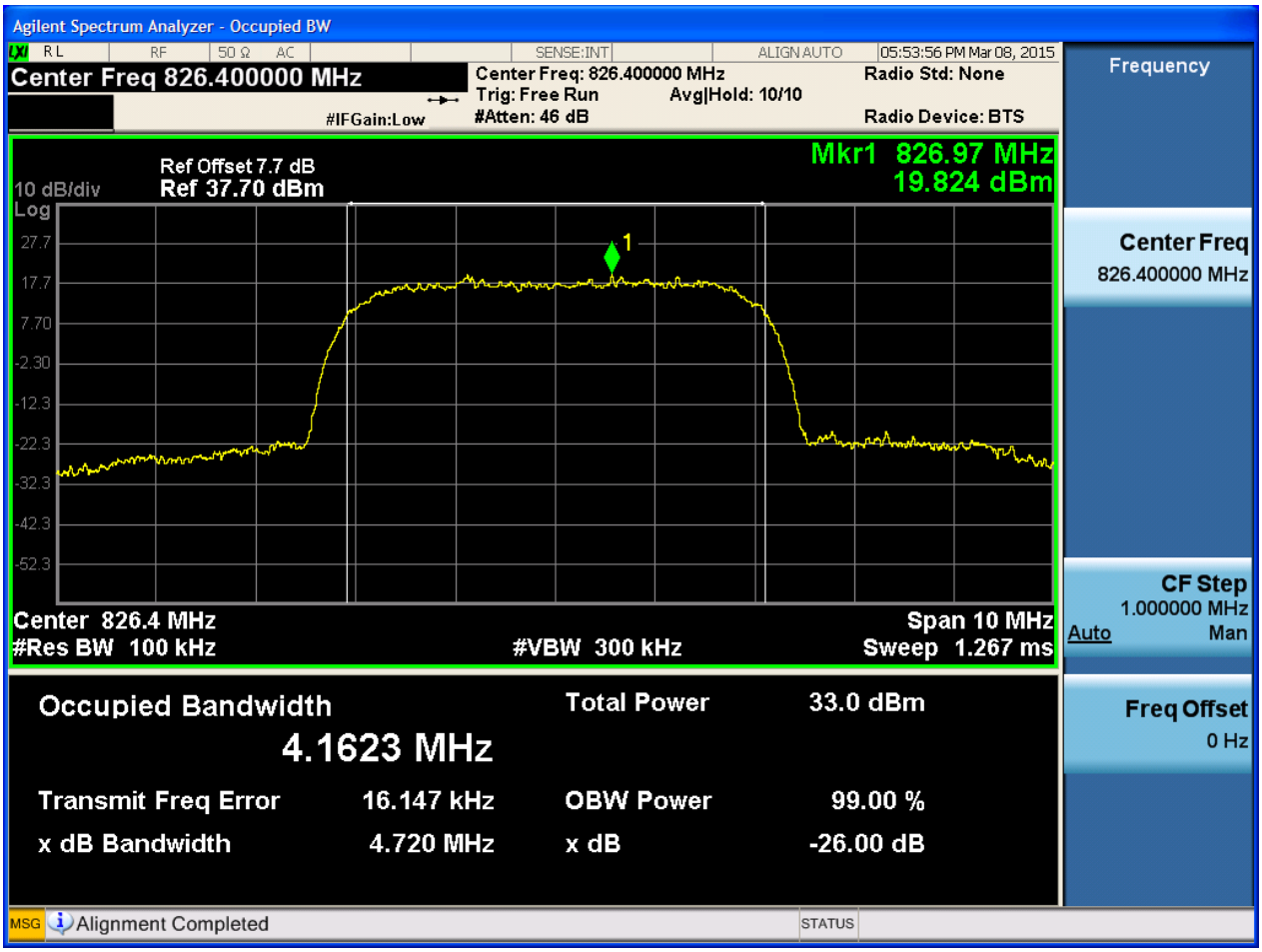
4.1.3 Test Band = WCDMA850

4.1.3.1 Test Mode = UMTS/TM1

4.1.3.1.1 Test Channel = LCH



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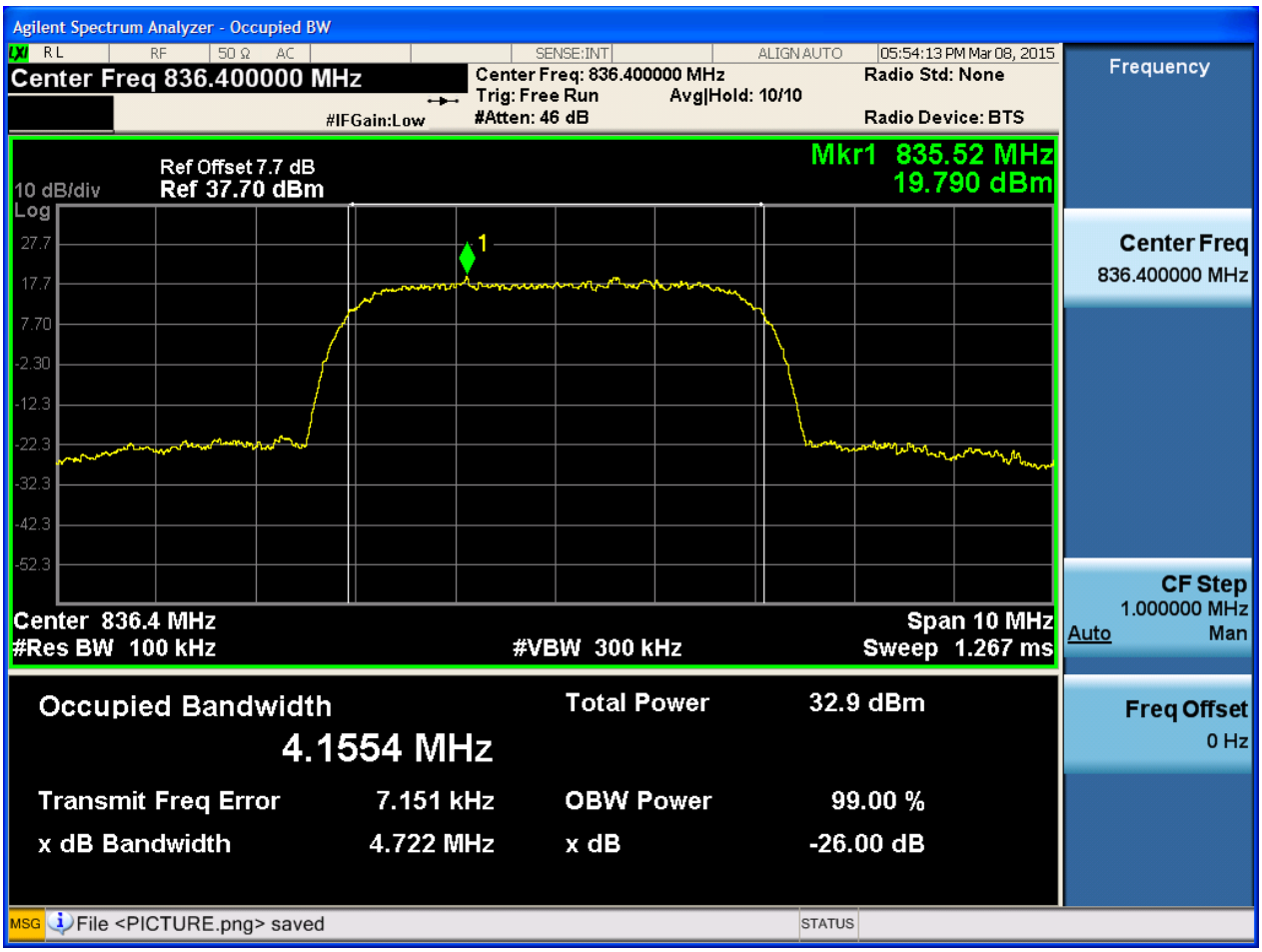
4.1.3.1.2 Test Channel = MCH



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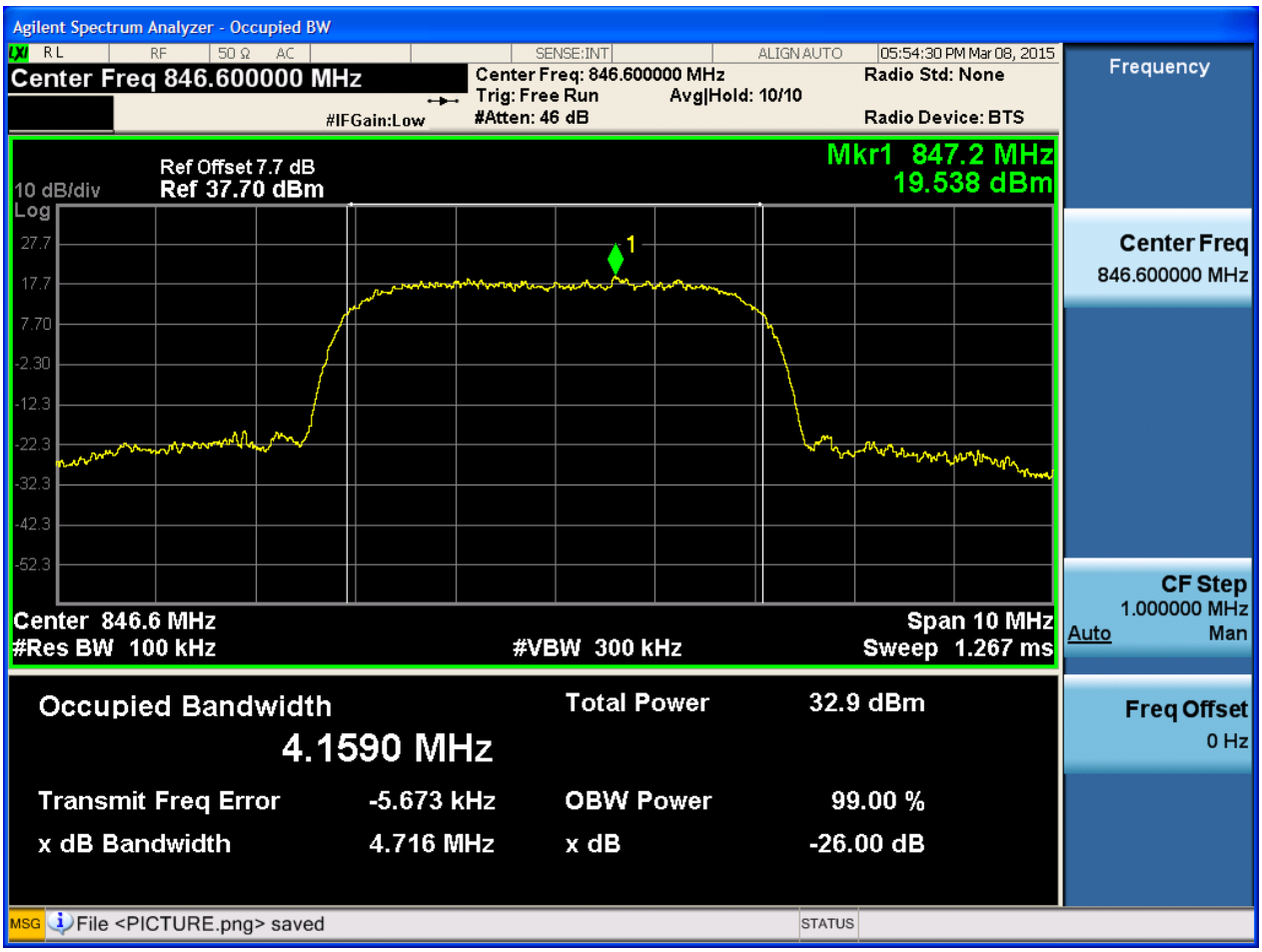
4.1.3.1.3 Test Channel = HCH



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5Appendix_E: Band Edges Compliance

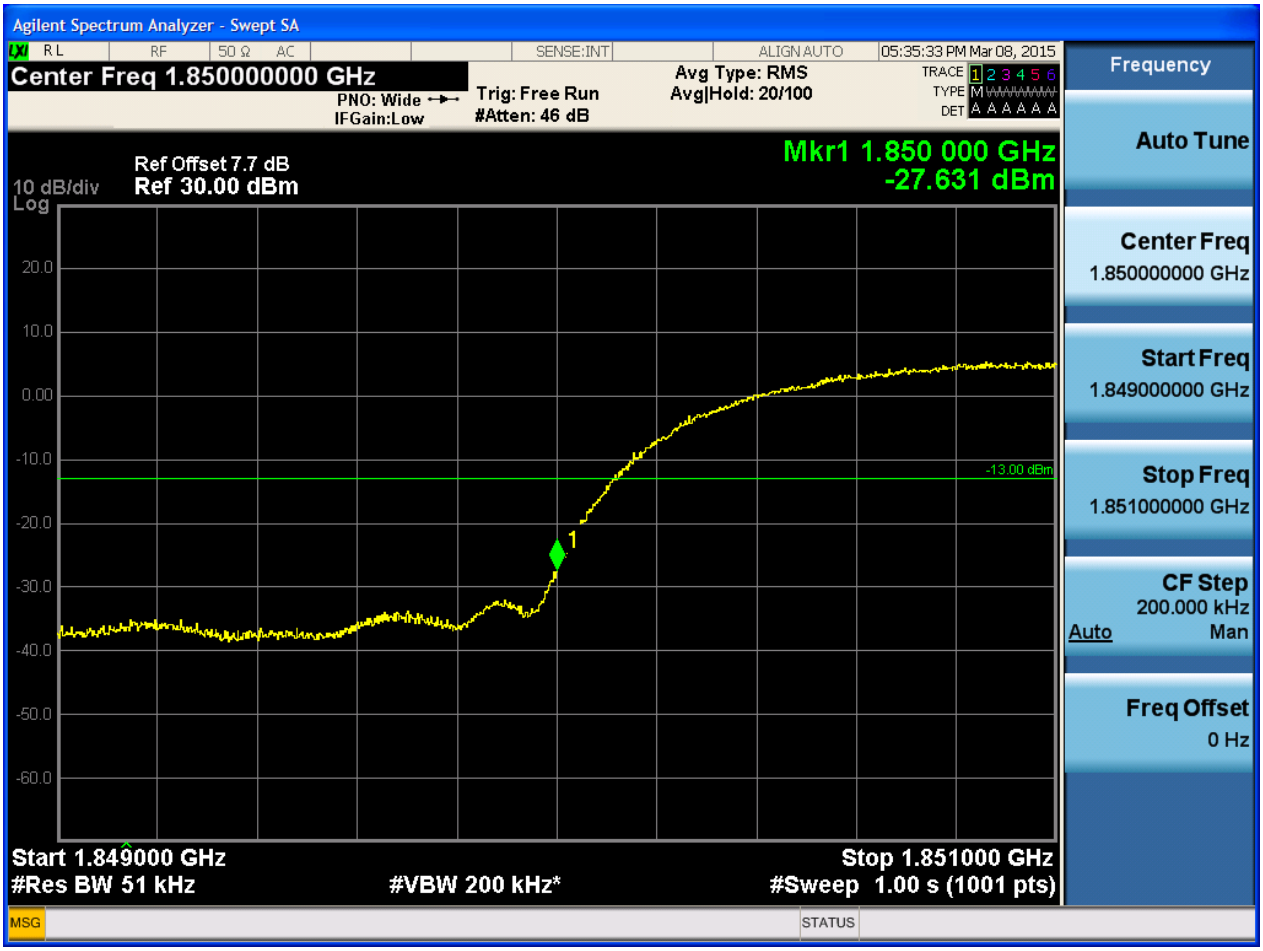
Part I - Test Plots

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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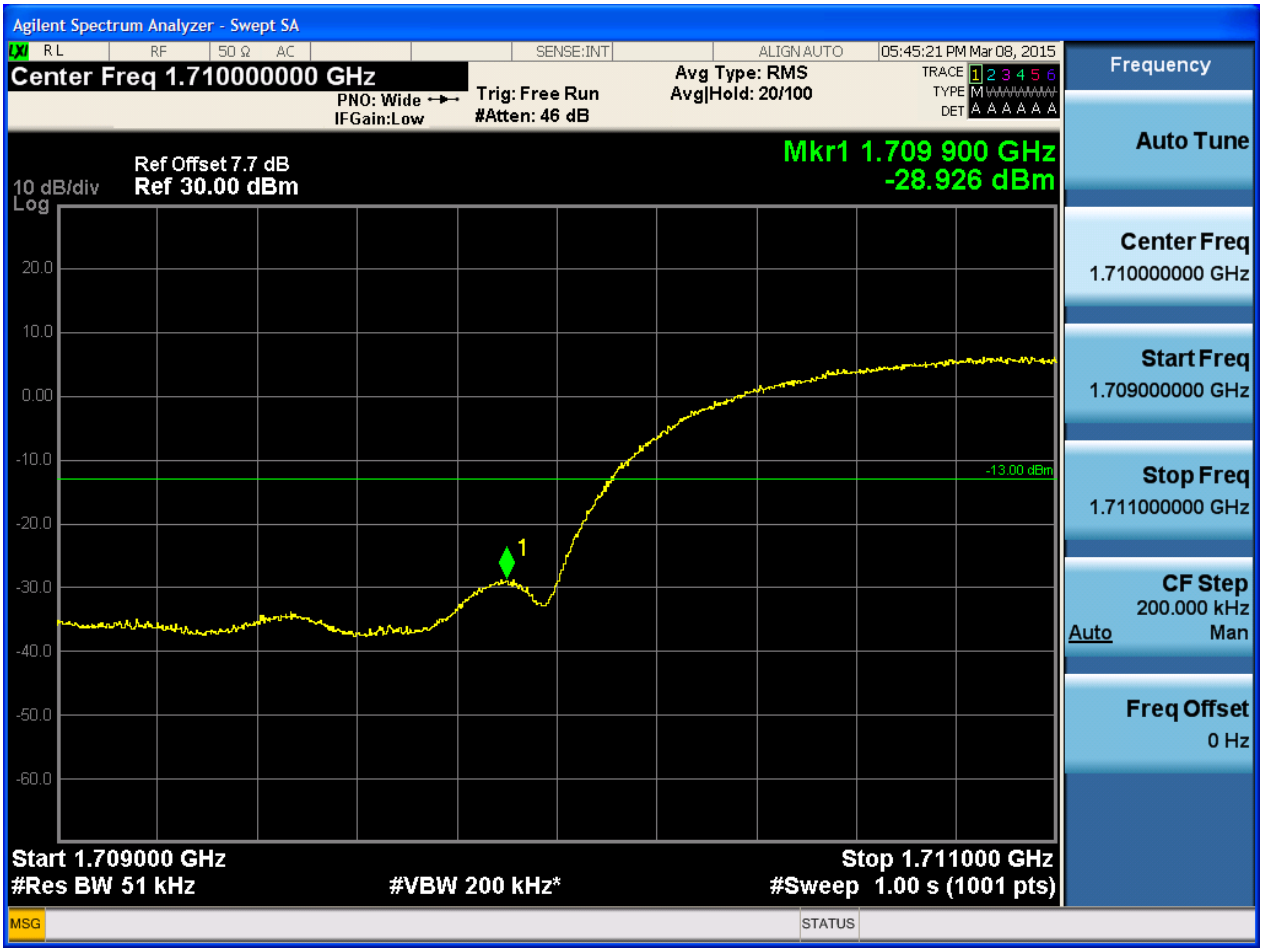
5.1.2 Test Band = WCDMA1700

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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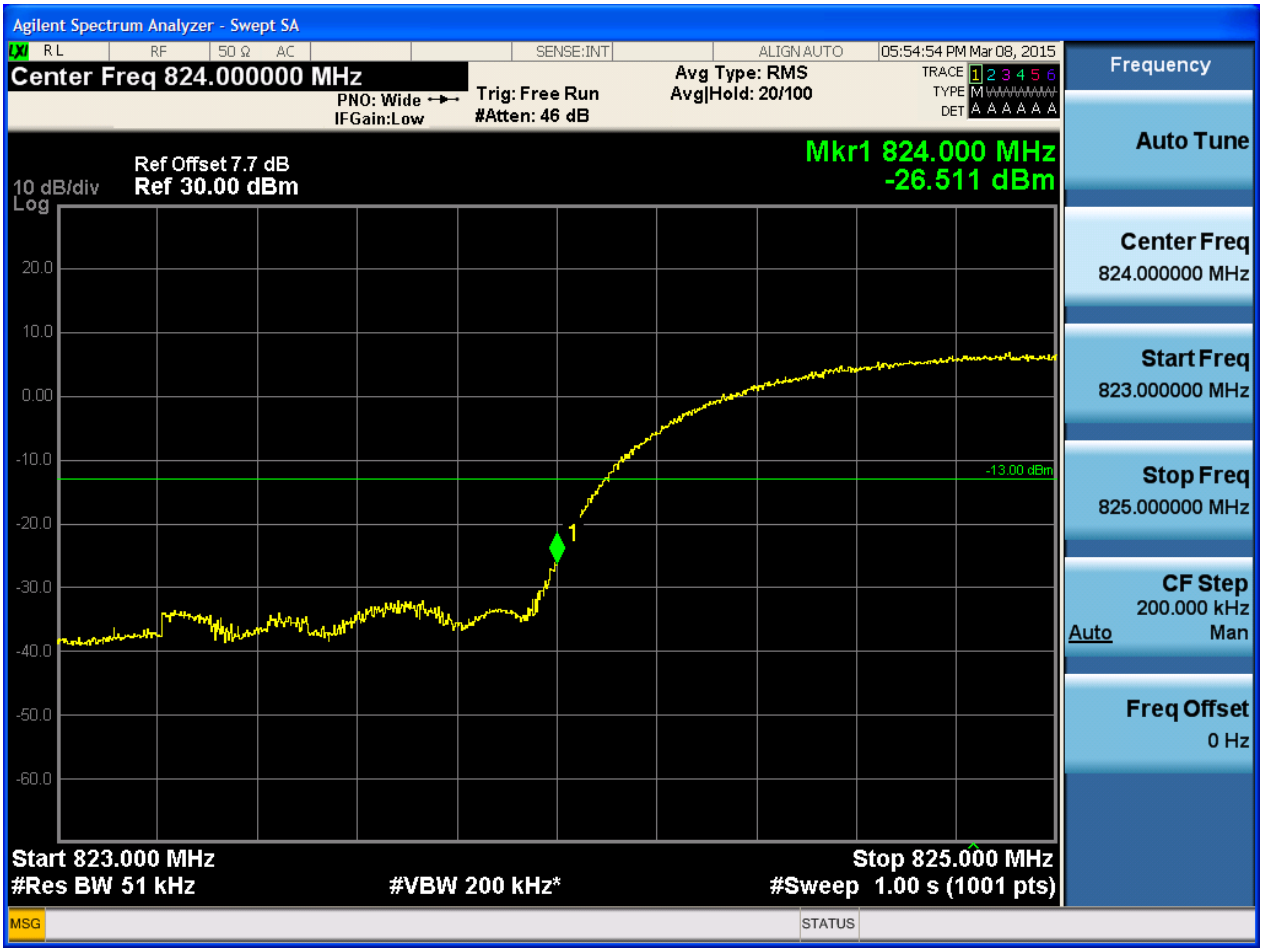
5.1.3 Test Band = WCDMA850

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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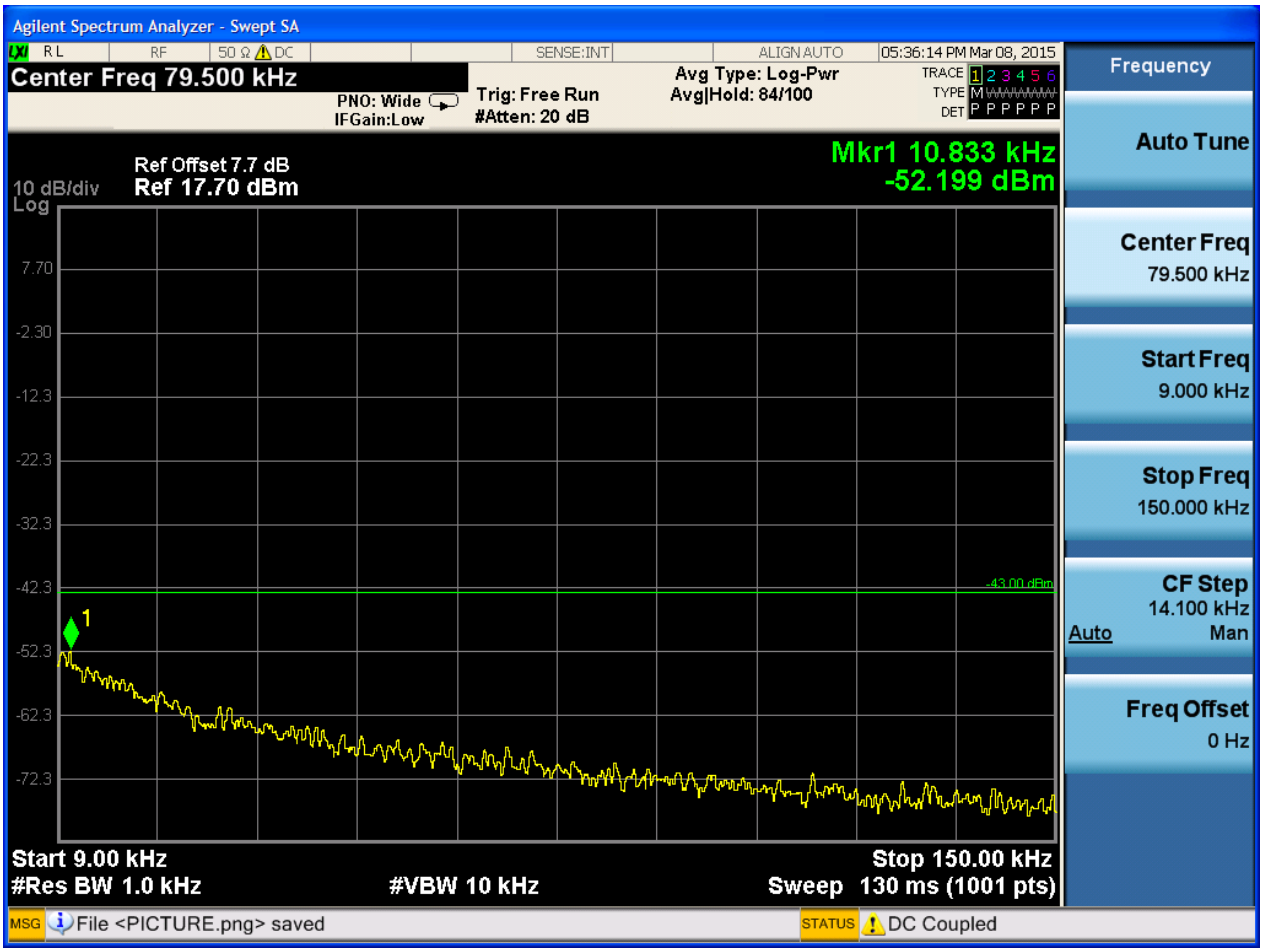

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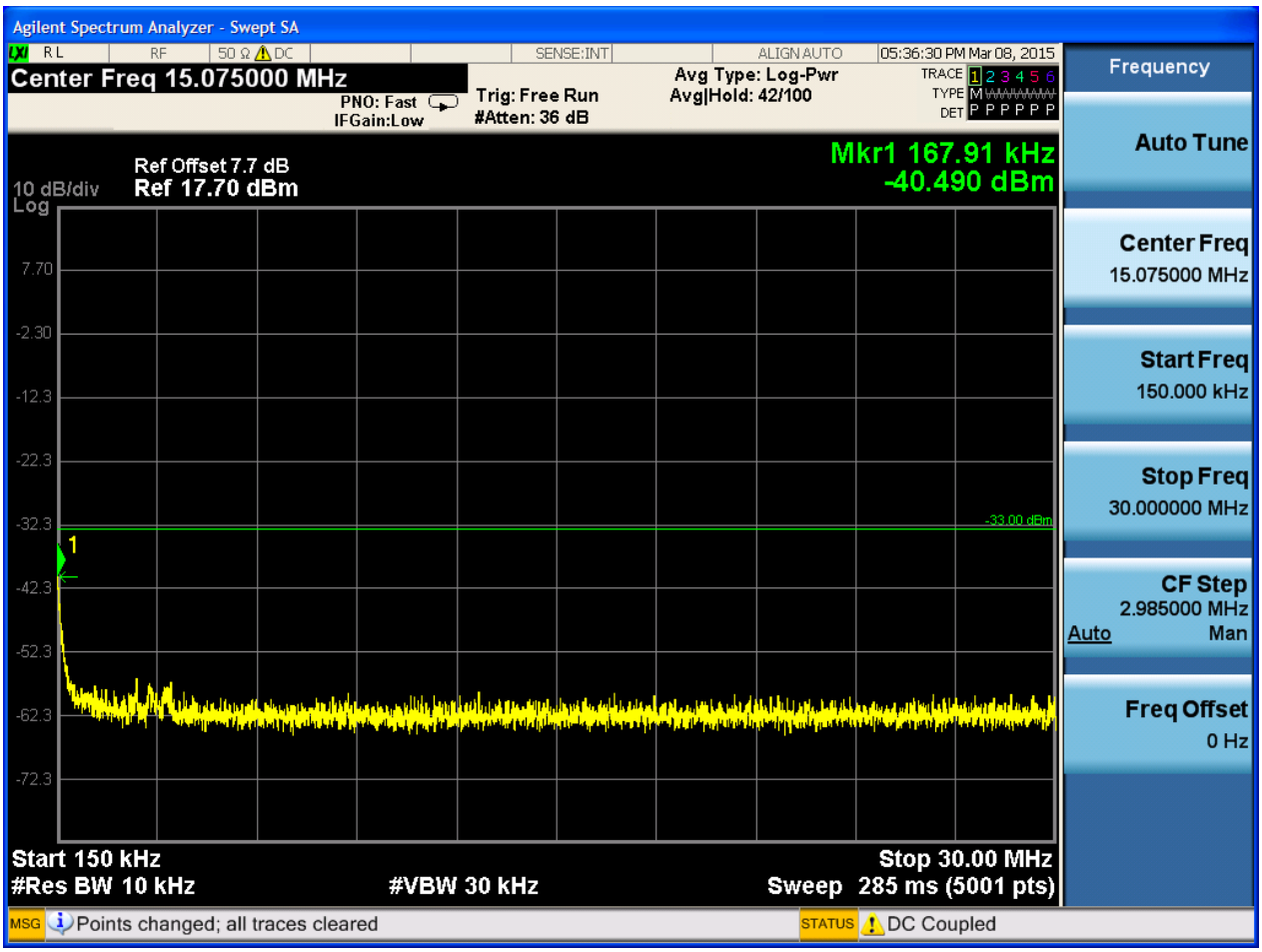

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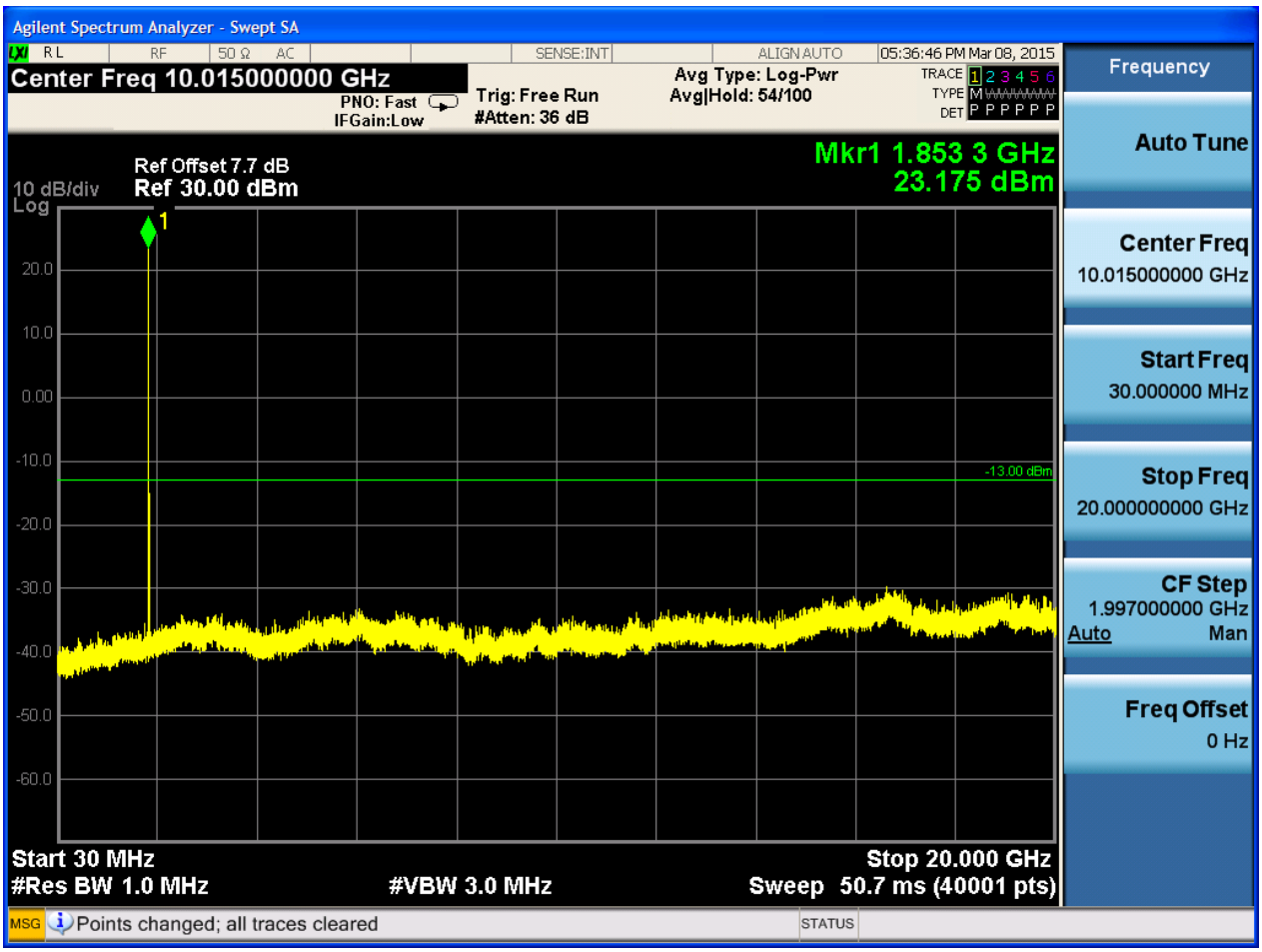

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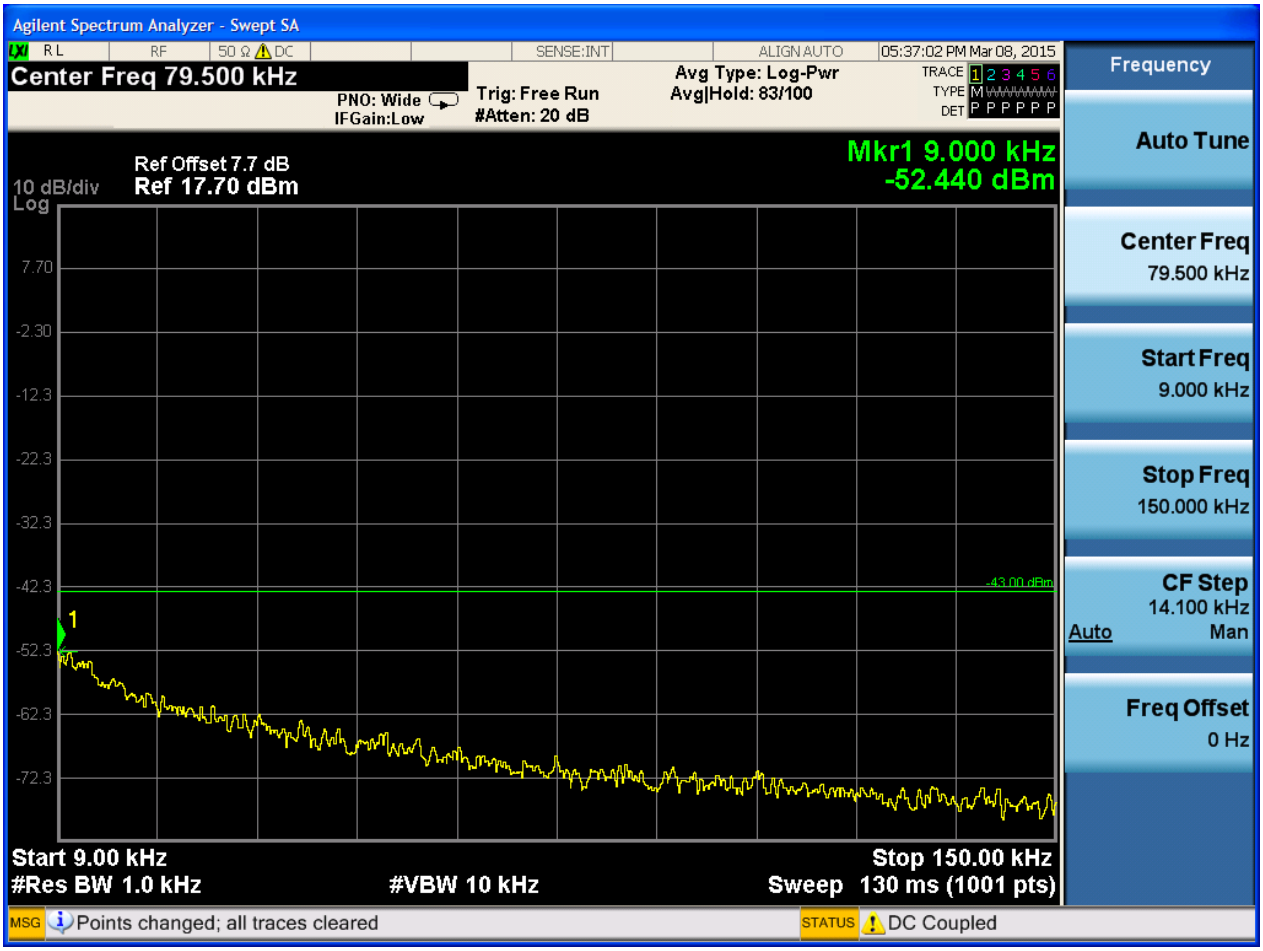
6.1.1.1.2 Test Channel = MCH



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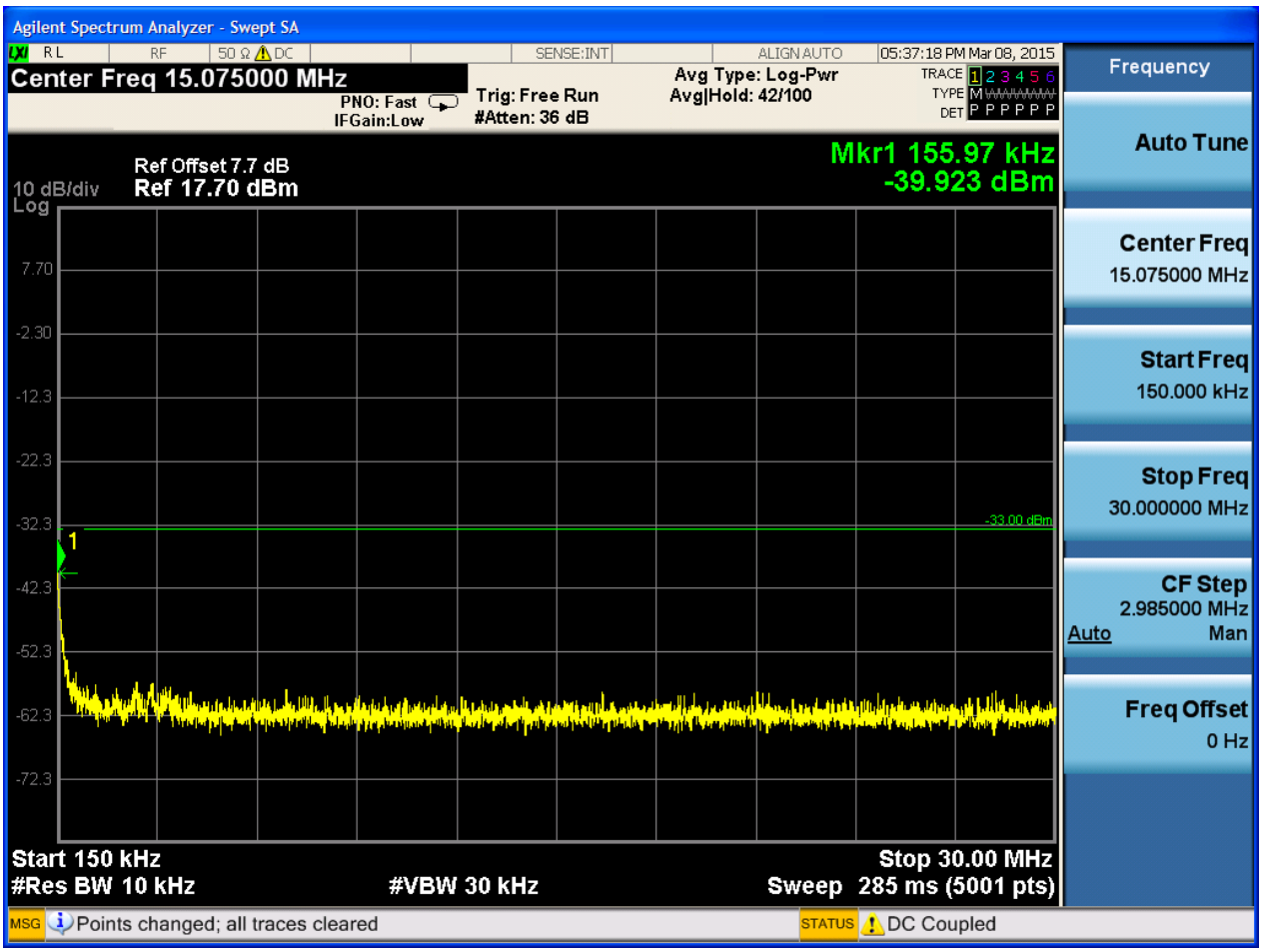

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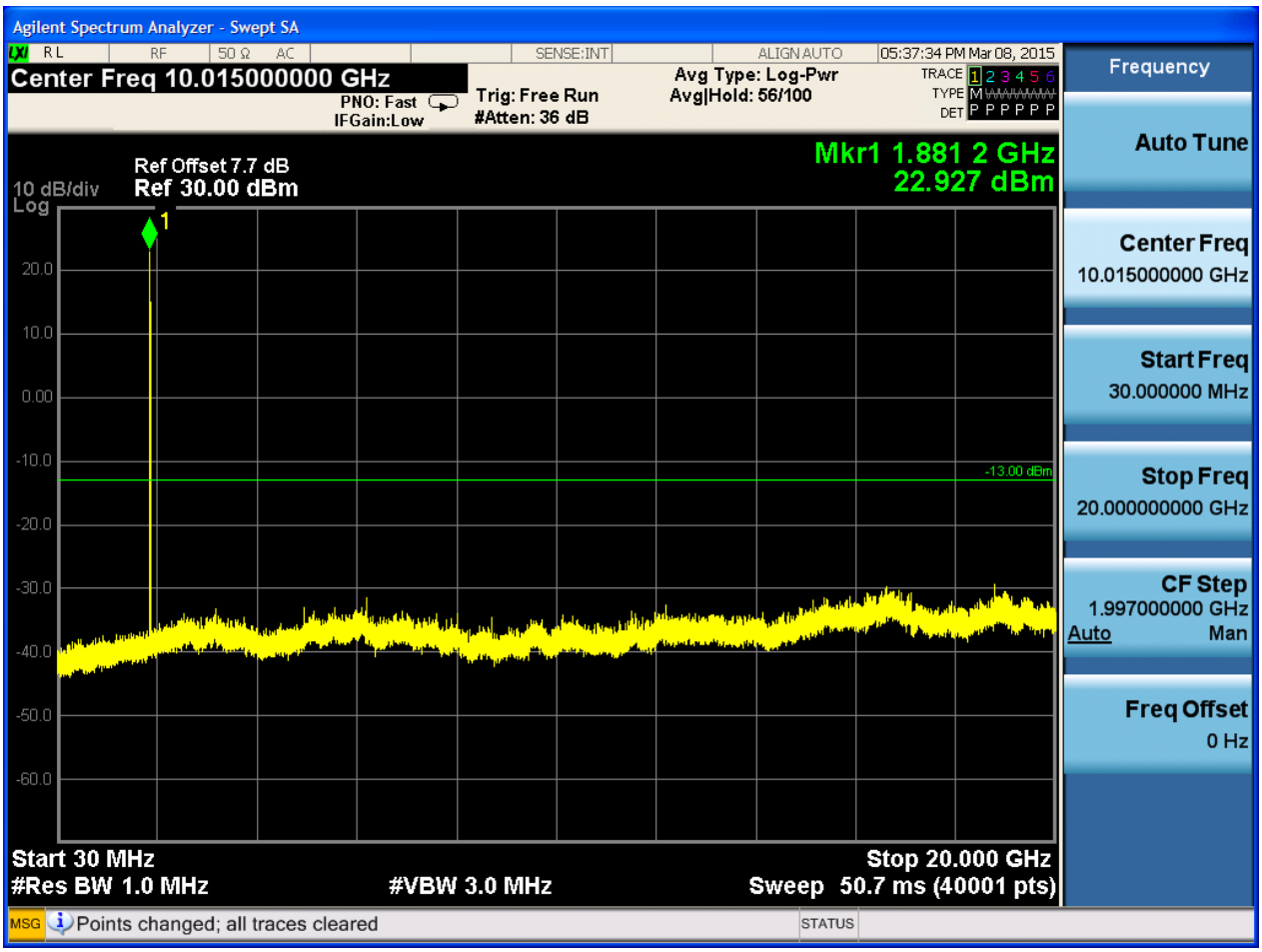

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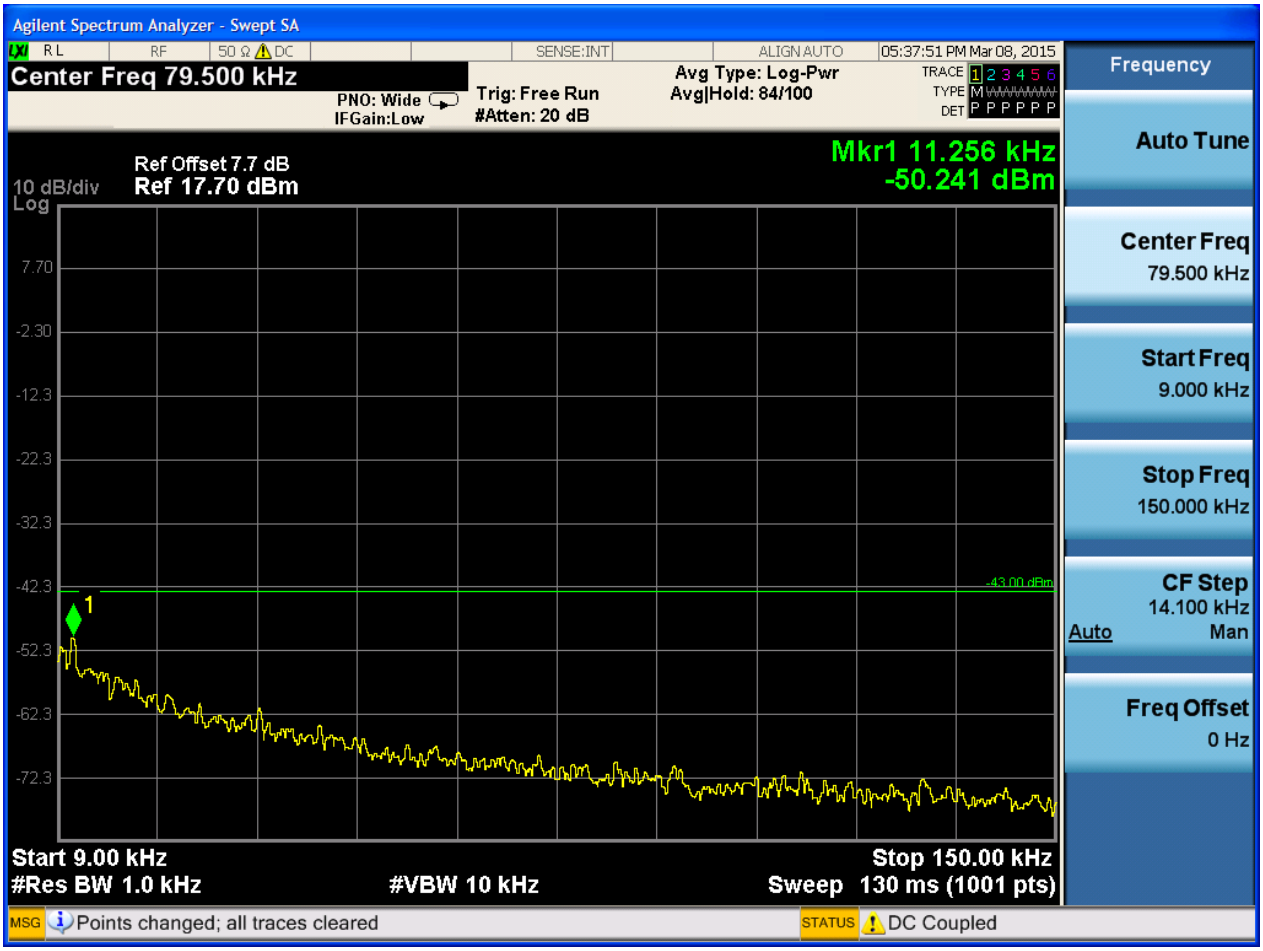
6.1.1.1.3 Test Channel = HCH



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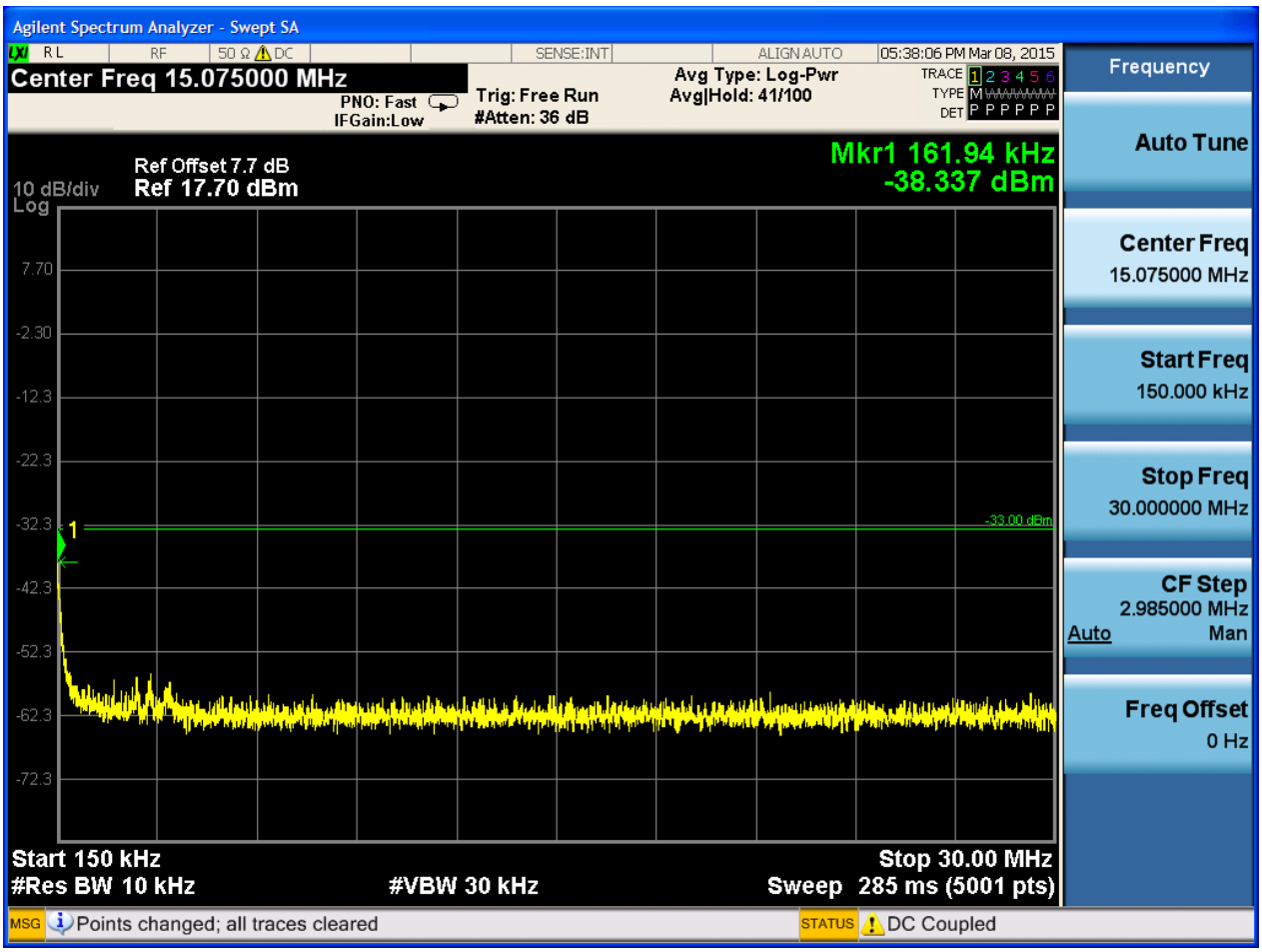

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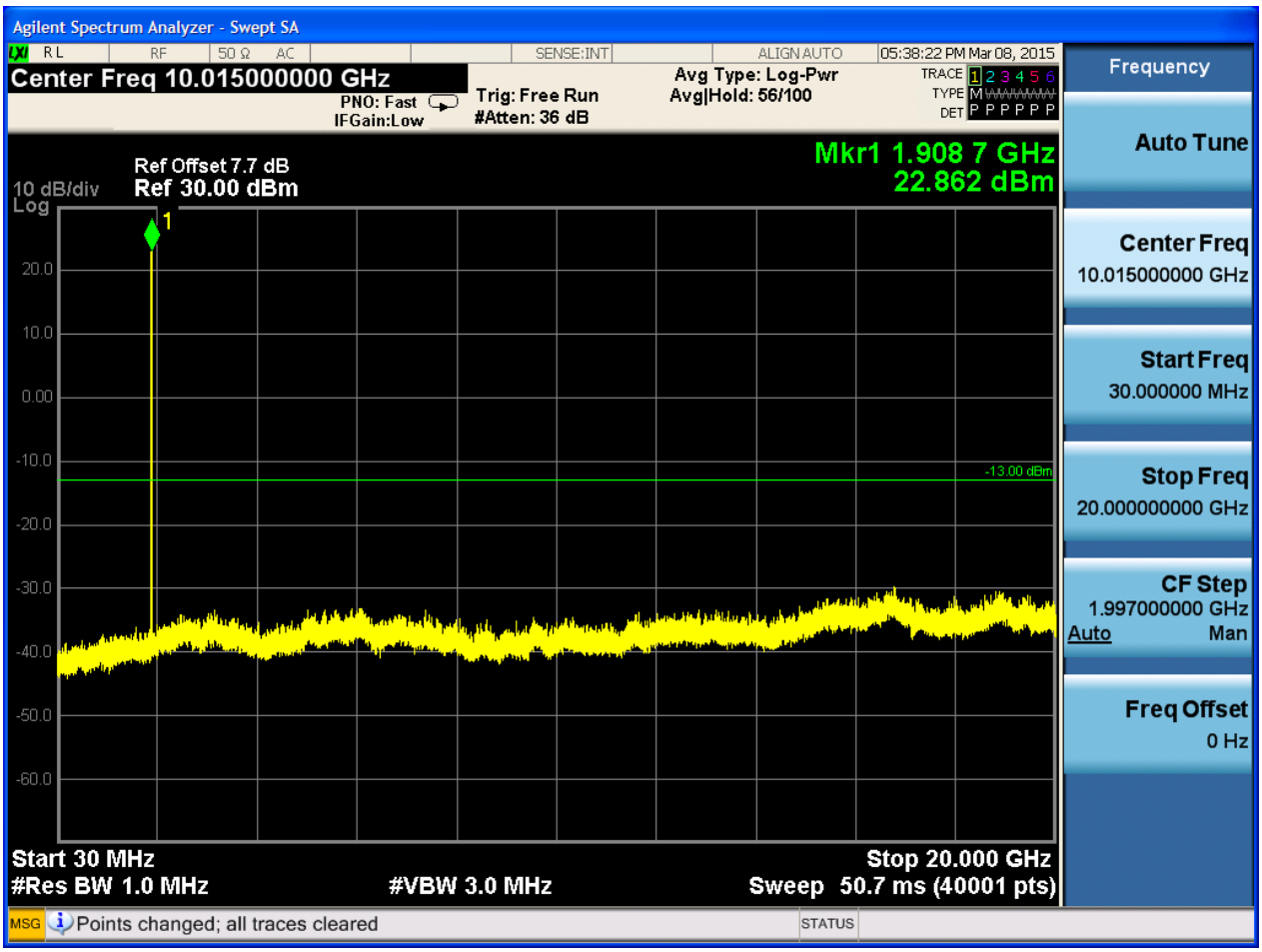

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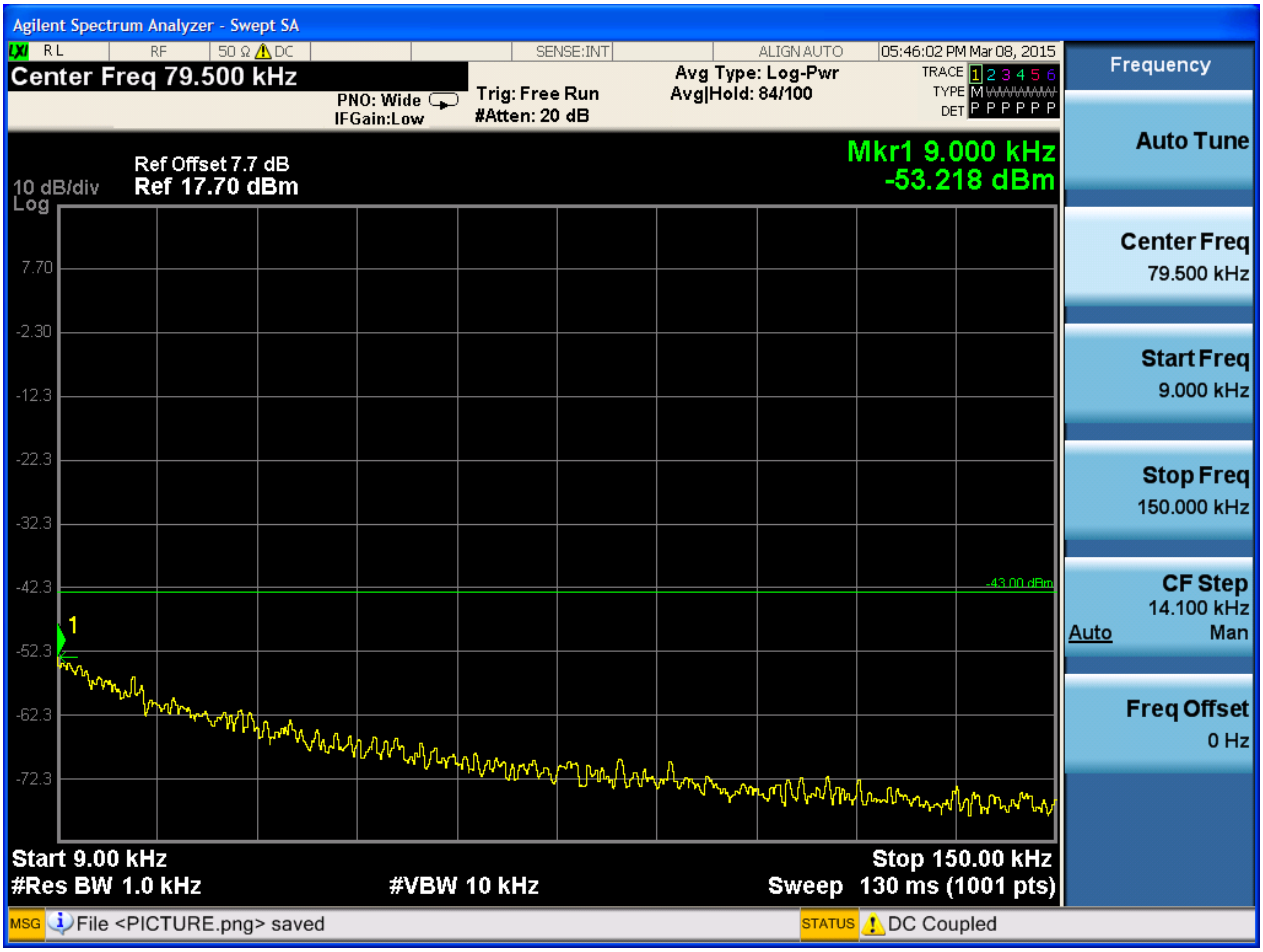
6.1.2 Test Band = WCDMA1700

6.1.2.1 Test Mode = UMTS/TM1

6.1.2.1.1 Test Channel = LCH



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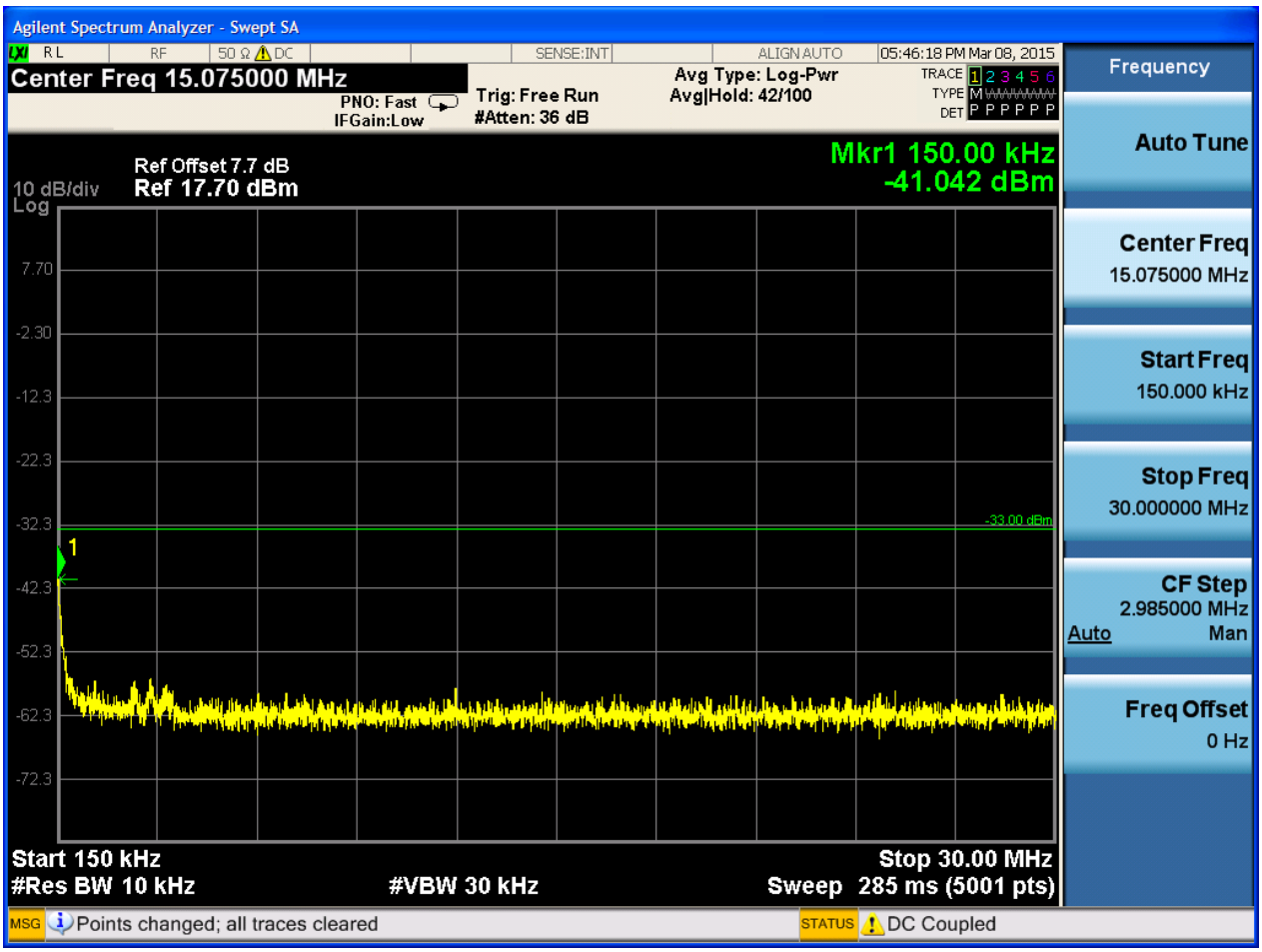

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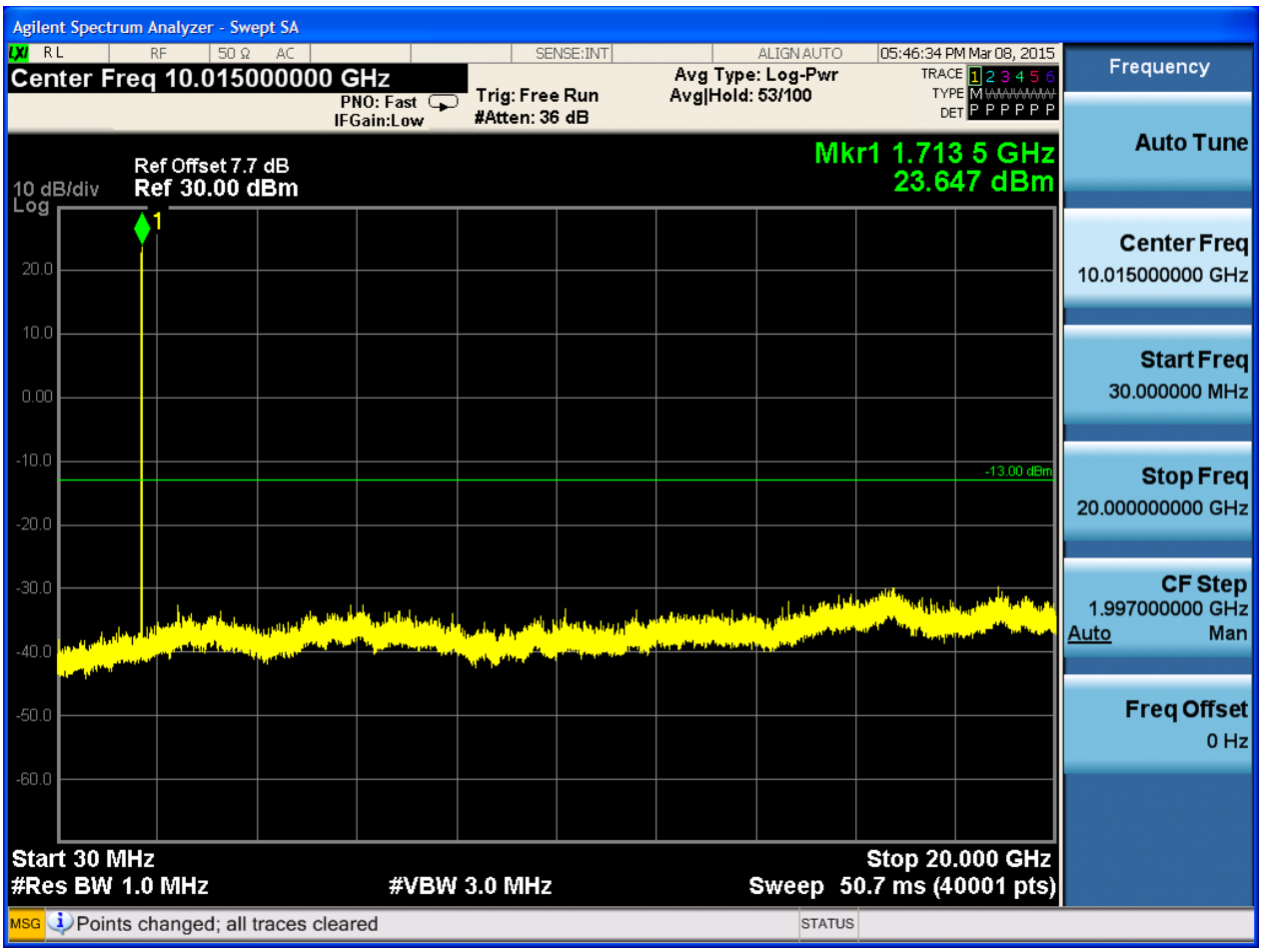

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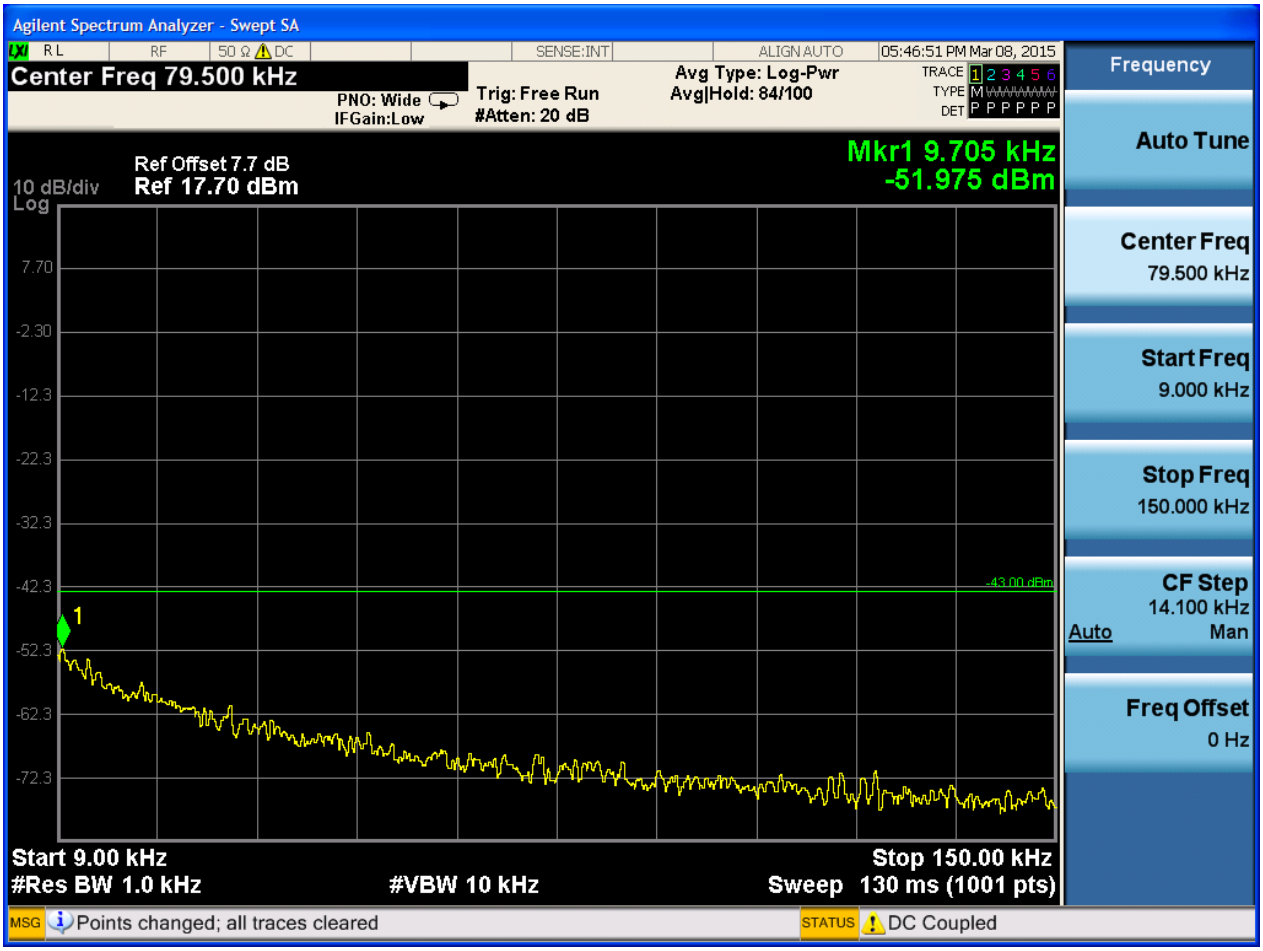
6.1.2.1.2 Test Channel = MCH



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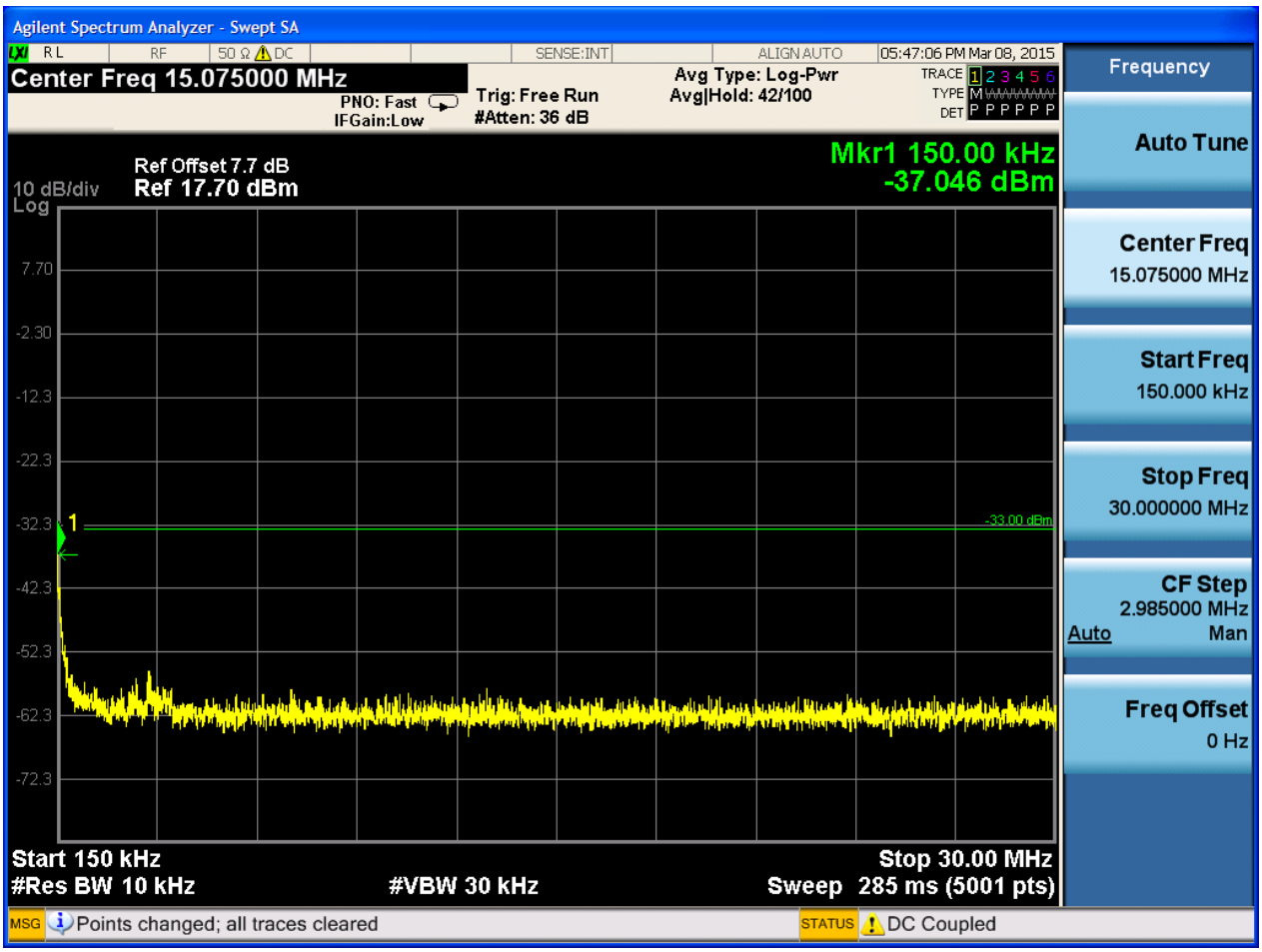

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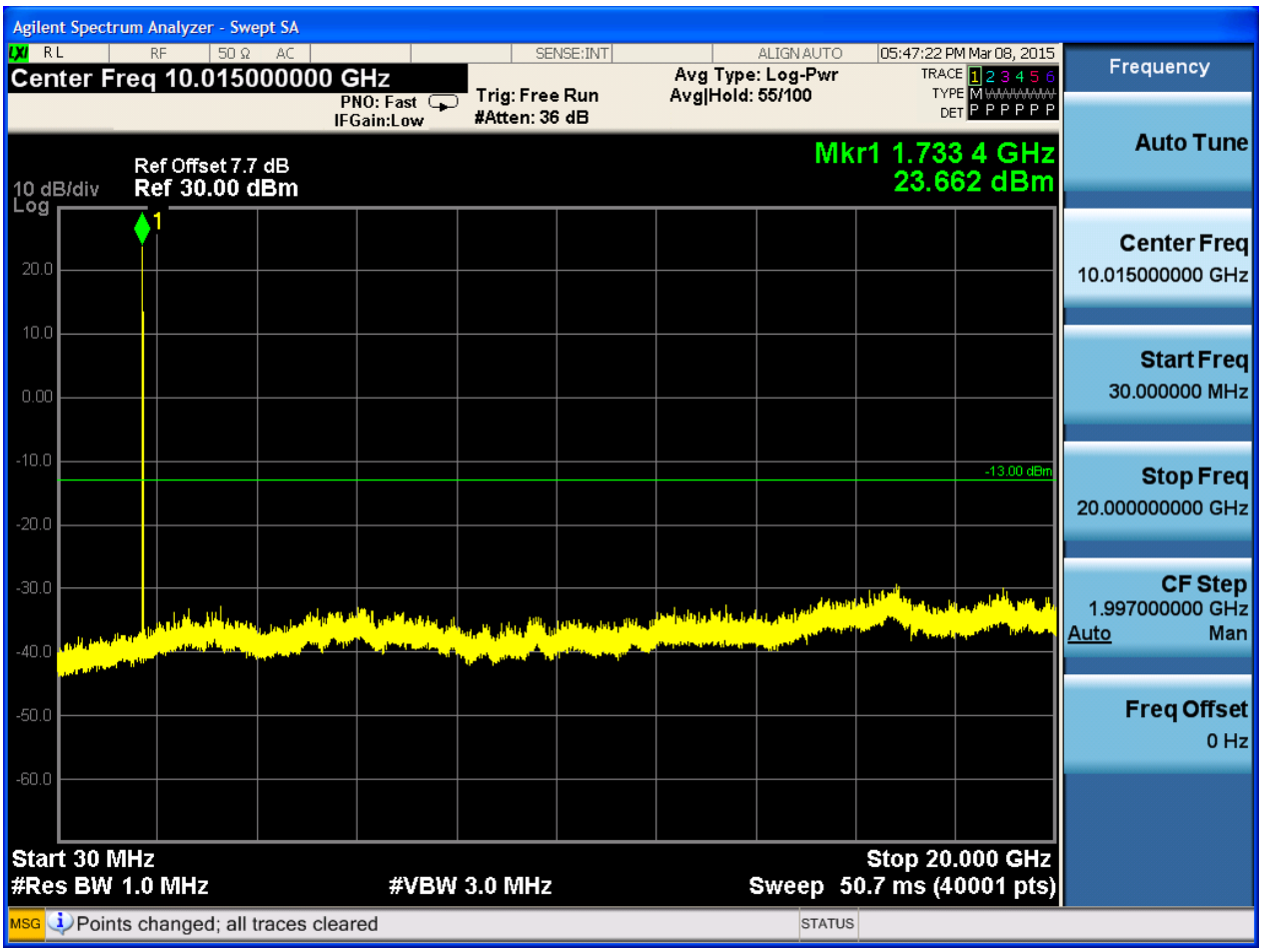

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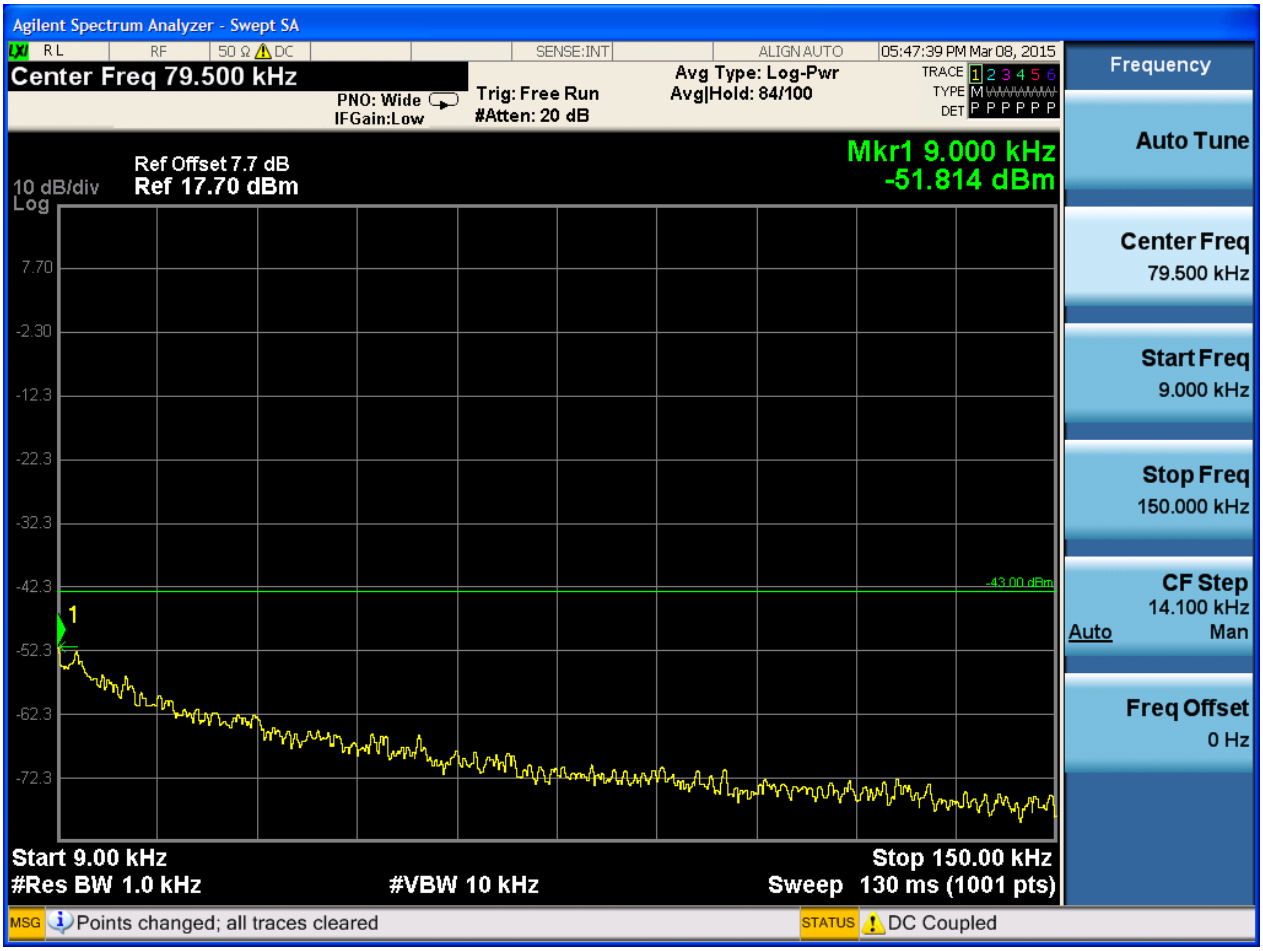
6.1.2.1.3 Test Channel = HCH



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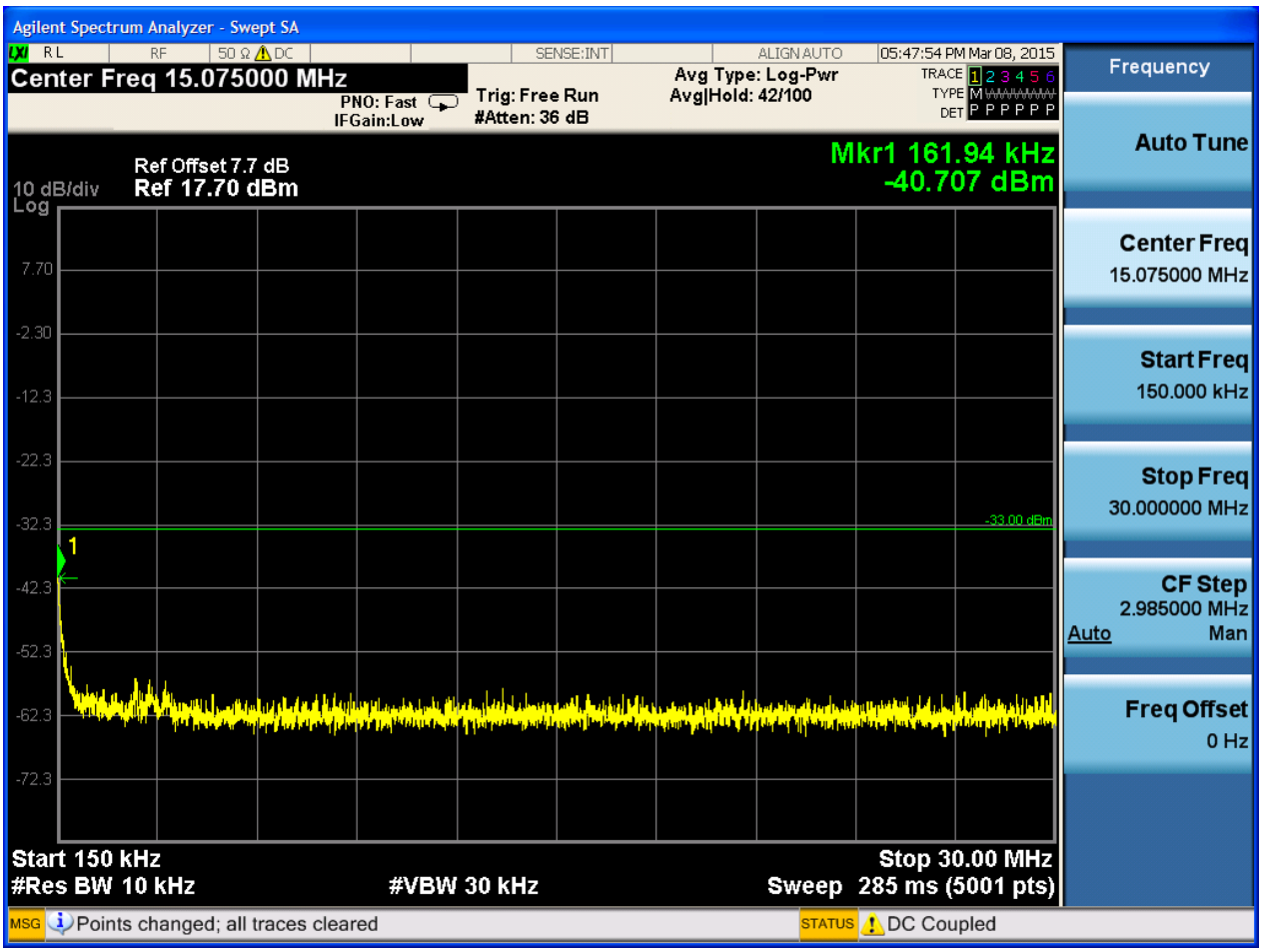

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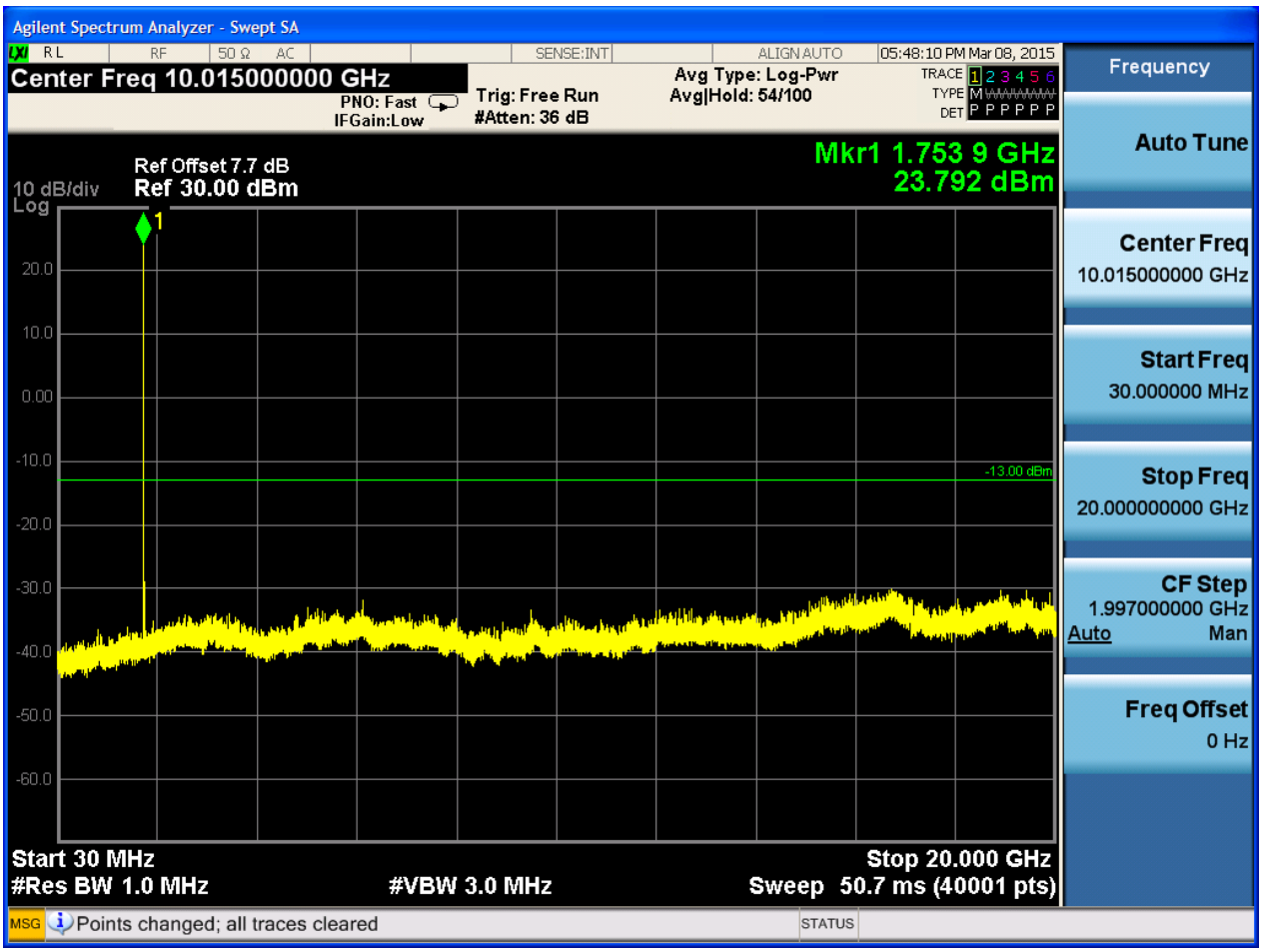

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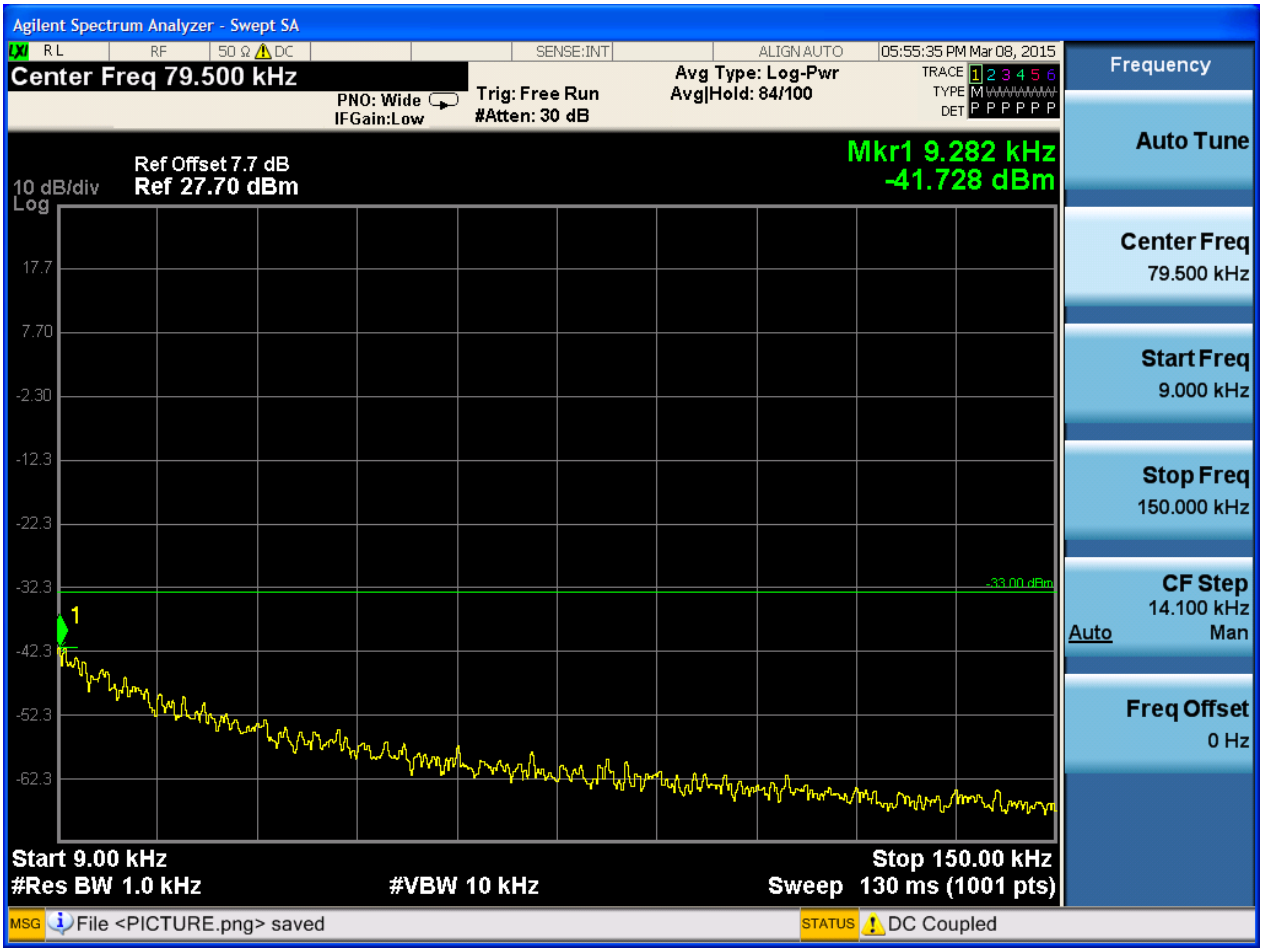
6.1.3 Test Band = WCDMA850

6.1.3.1 Test Mode = UMTS/TM1

6.1.3.1.1 Test Channel = LCH



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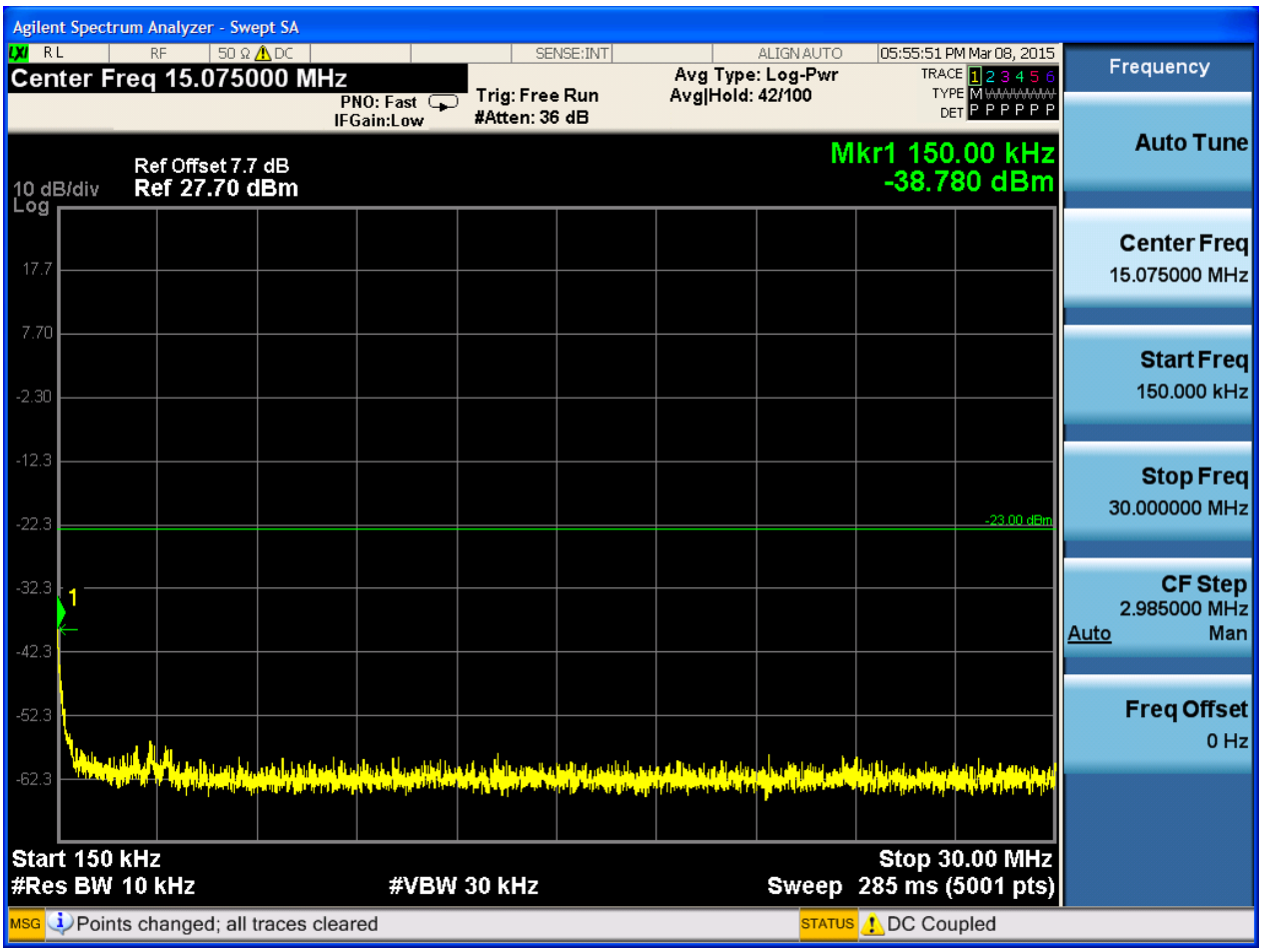

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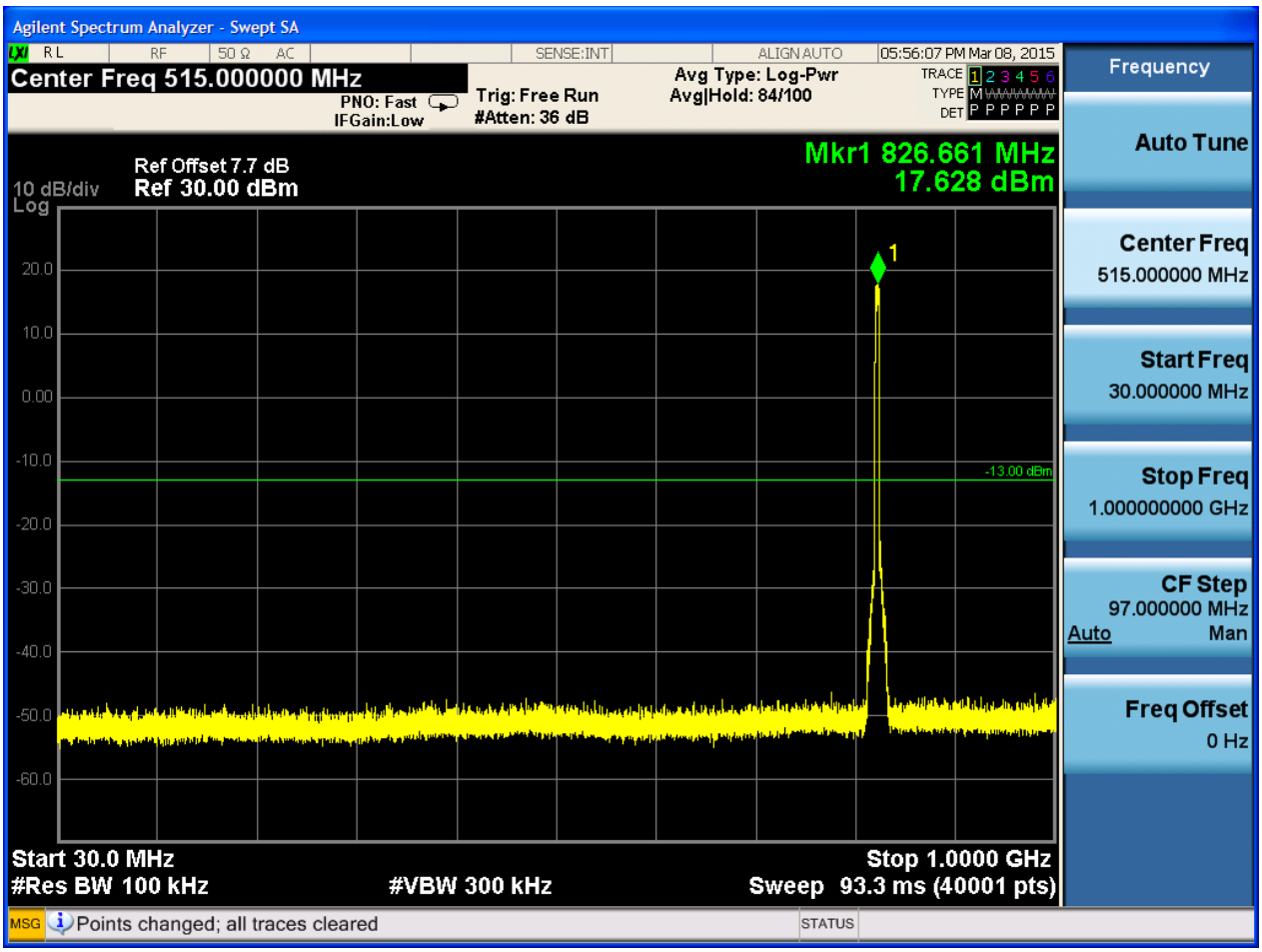

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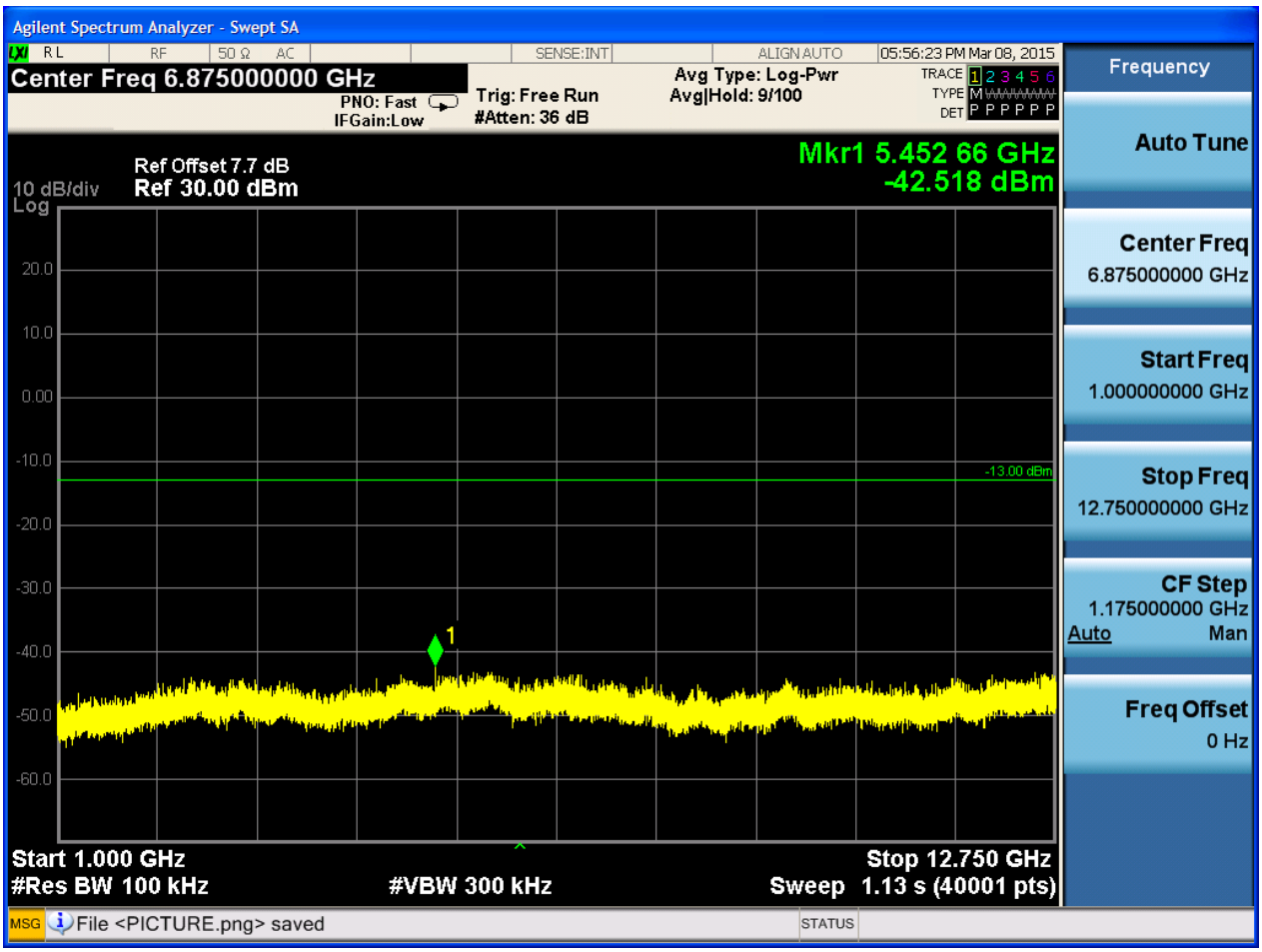

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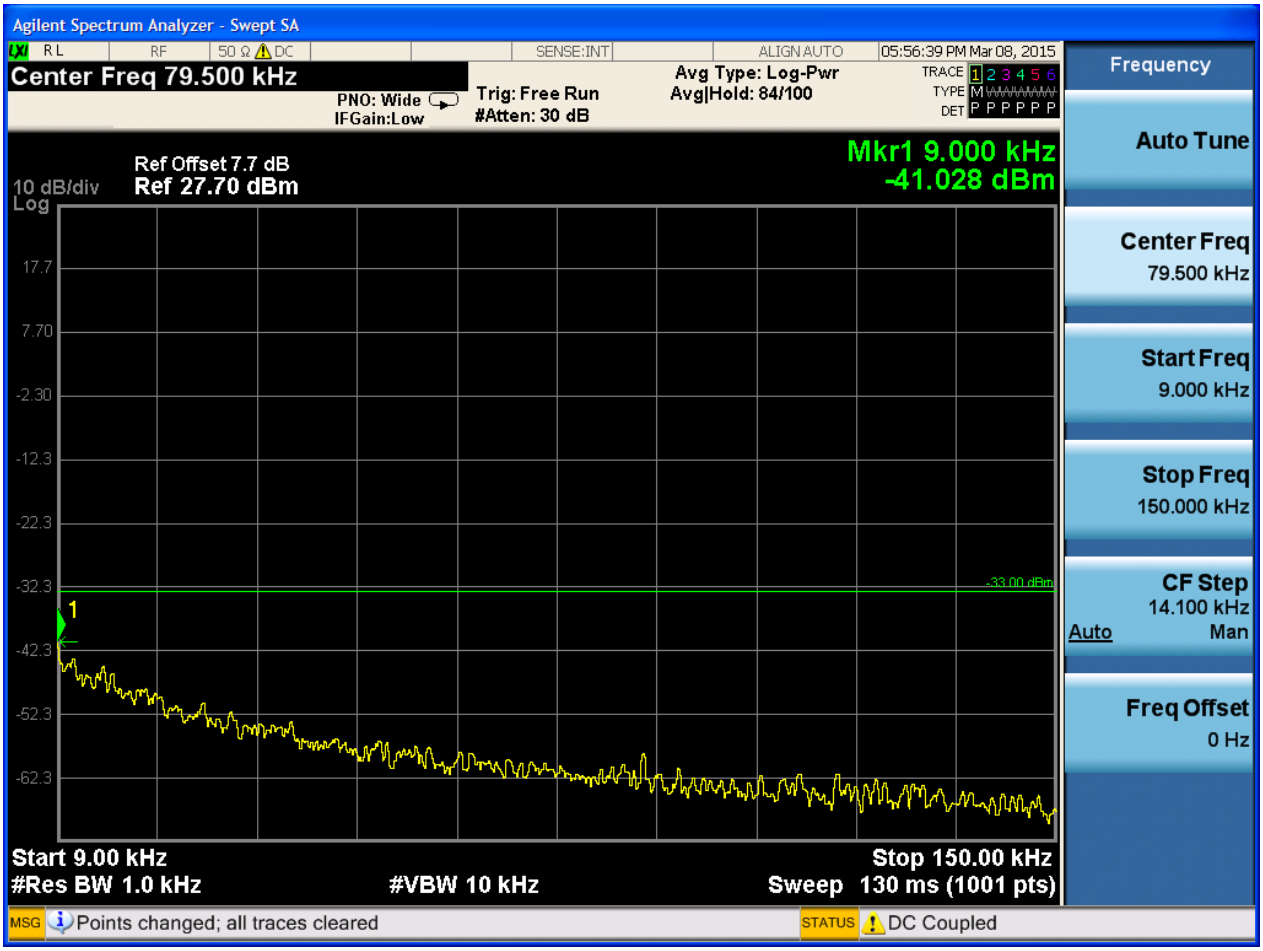
6.1.3.1.2 Test Channel = MCH



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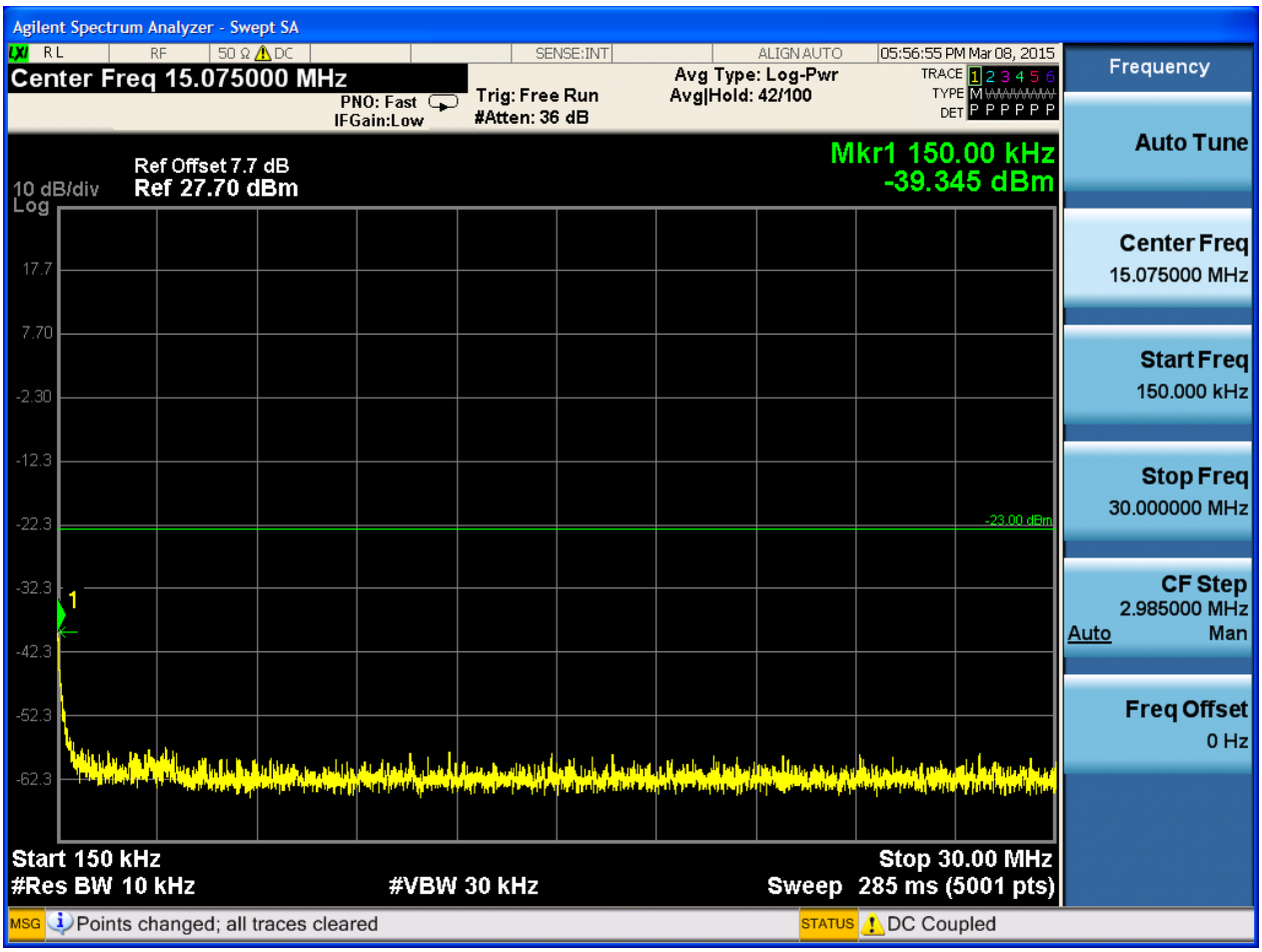

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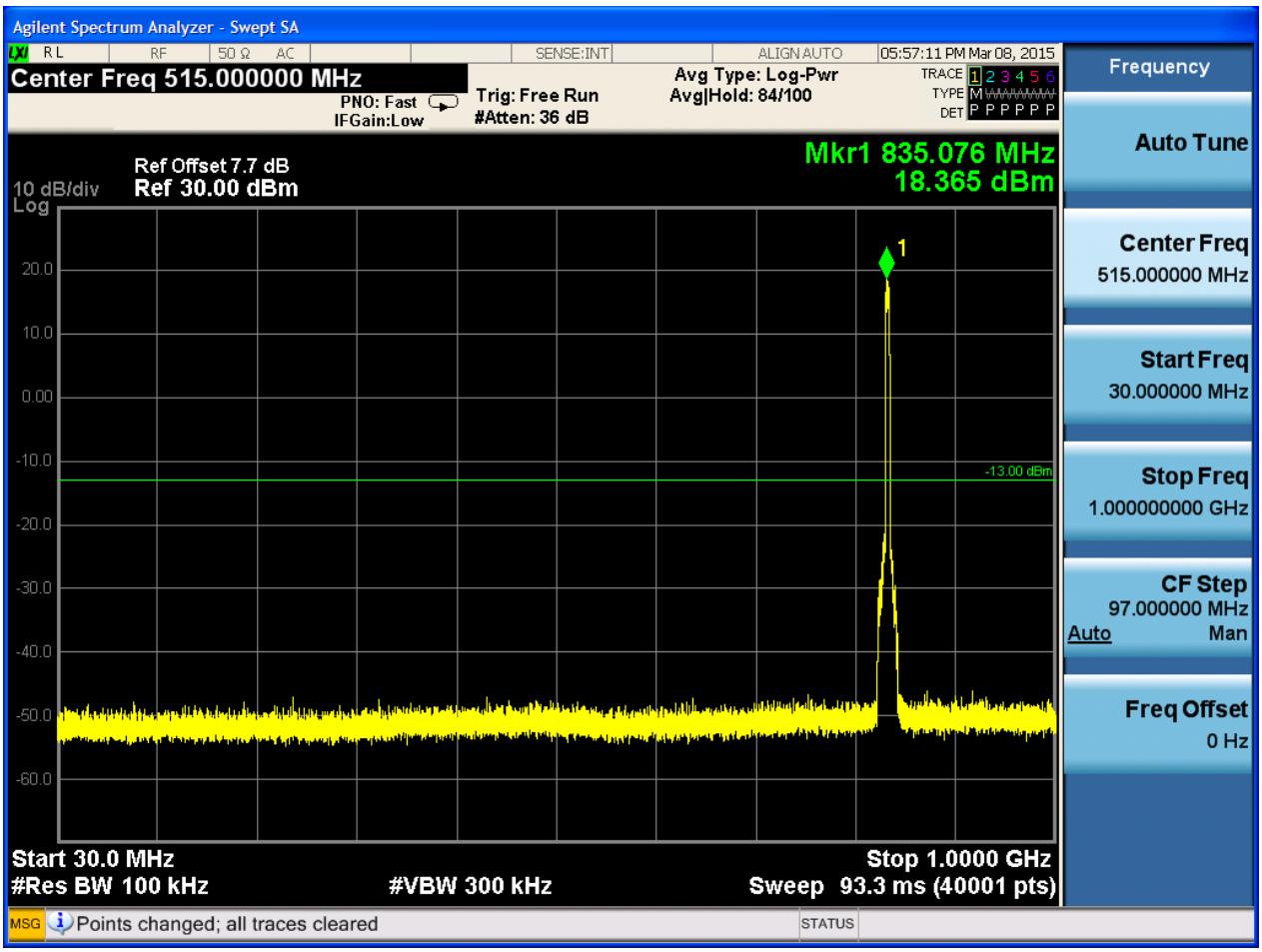

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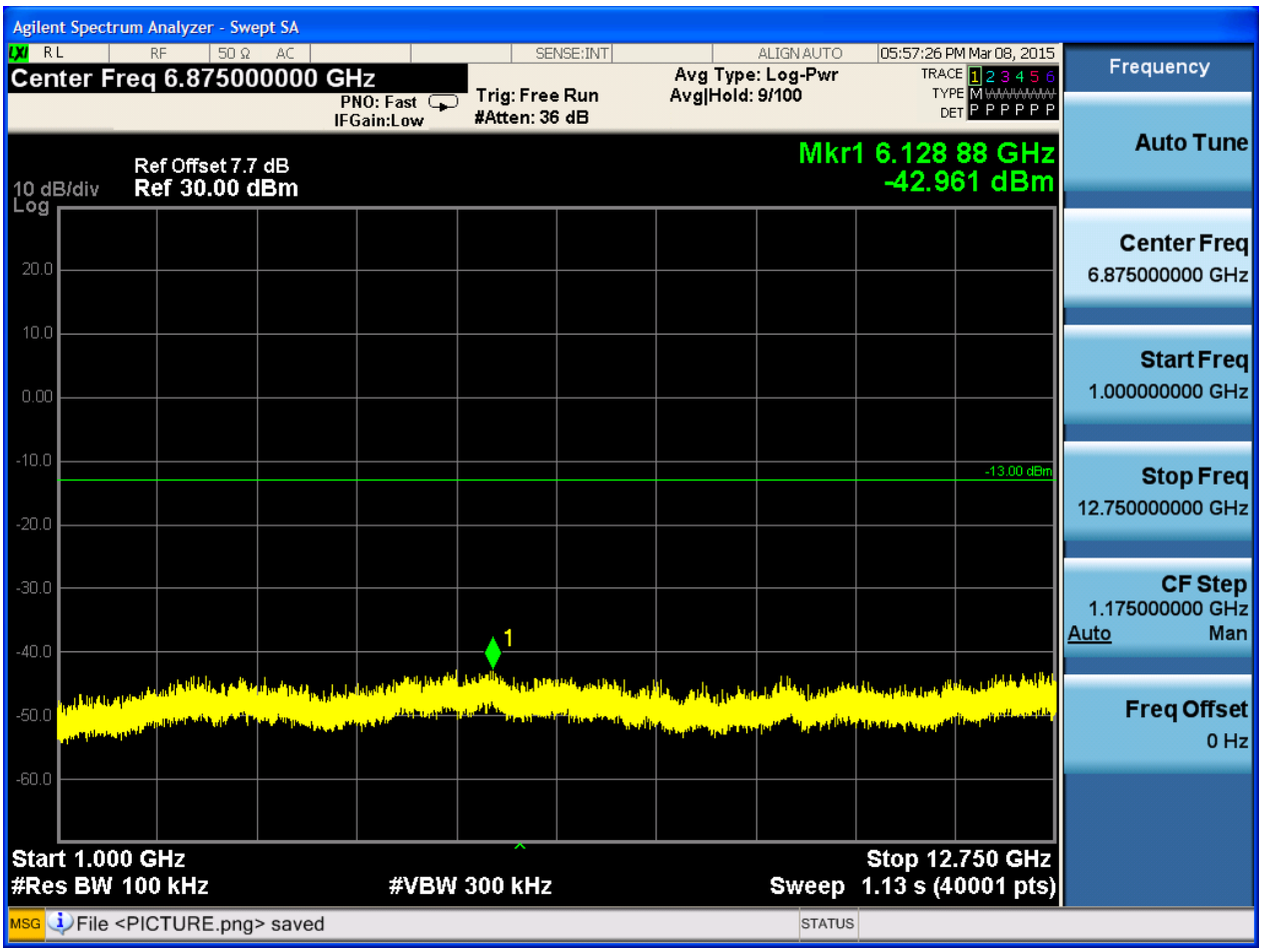

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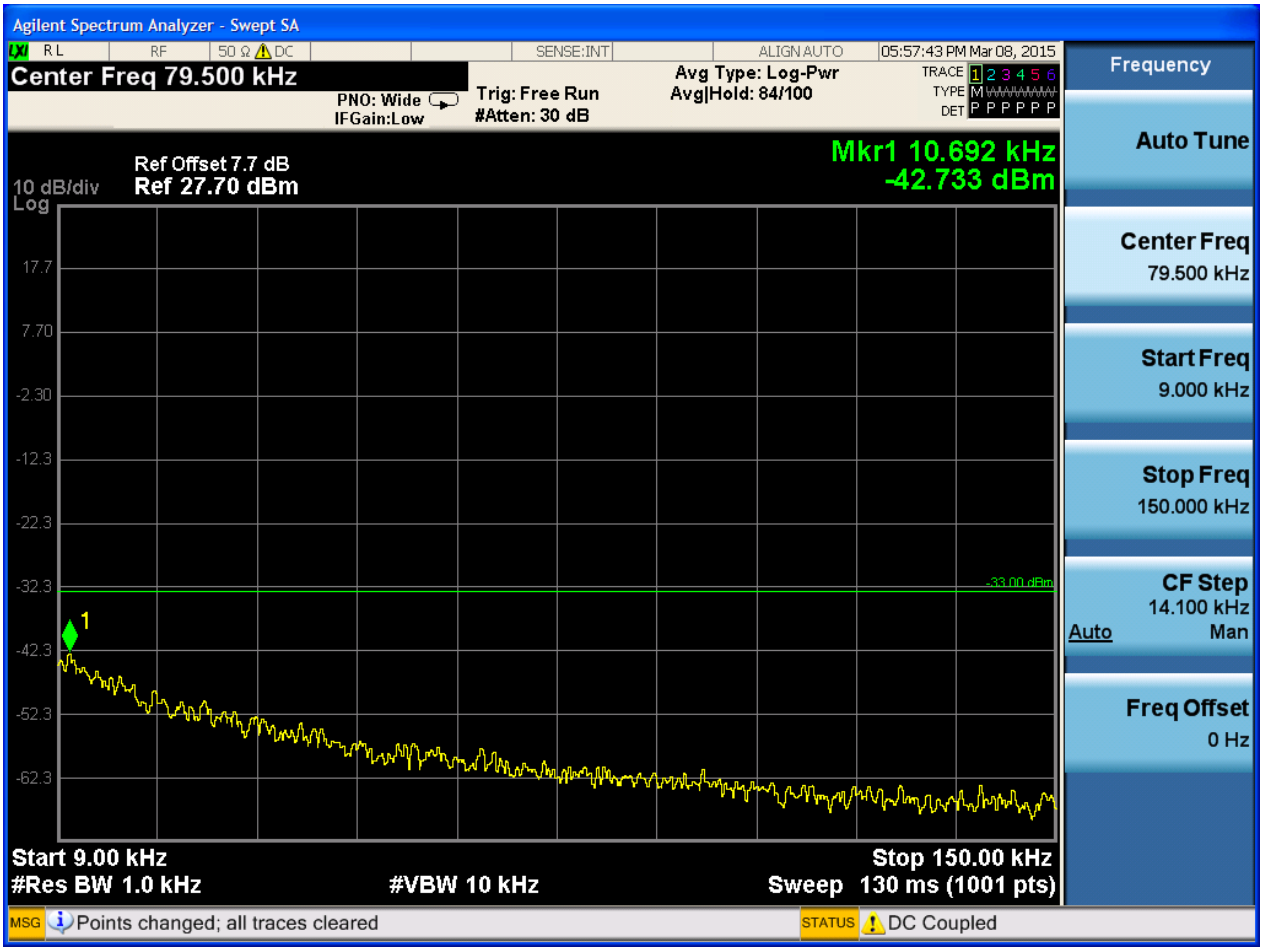
6.1.3.1.3 Test Channel = HCH



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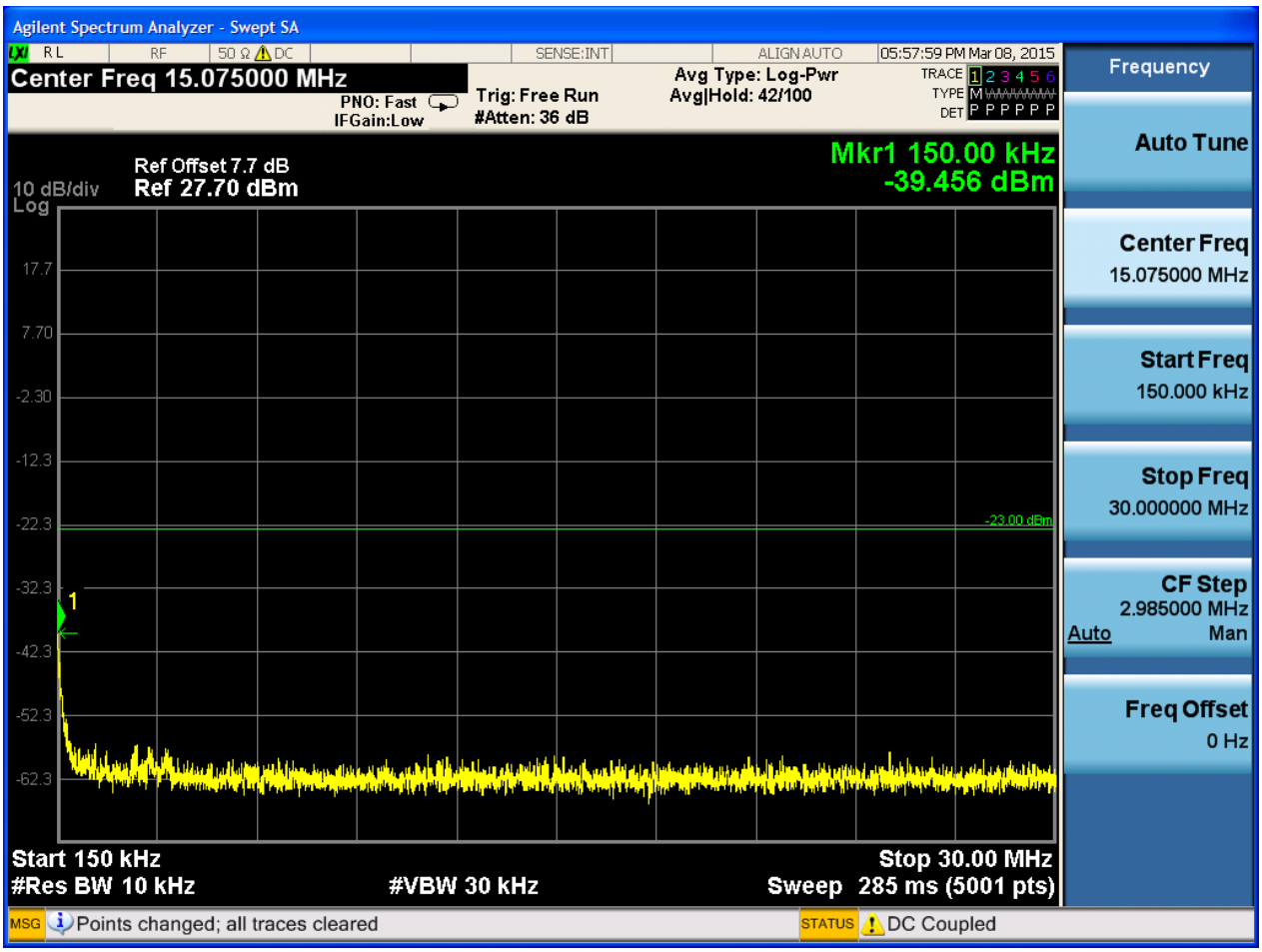

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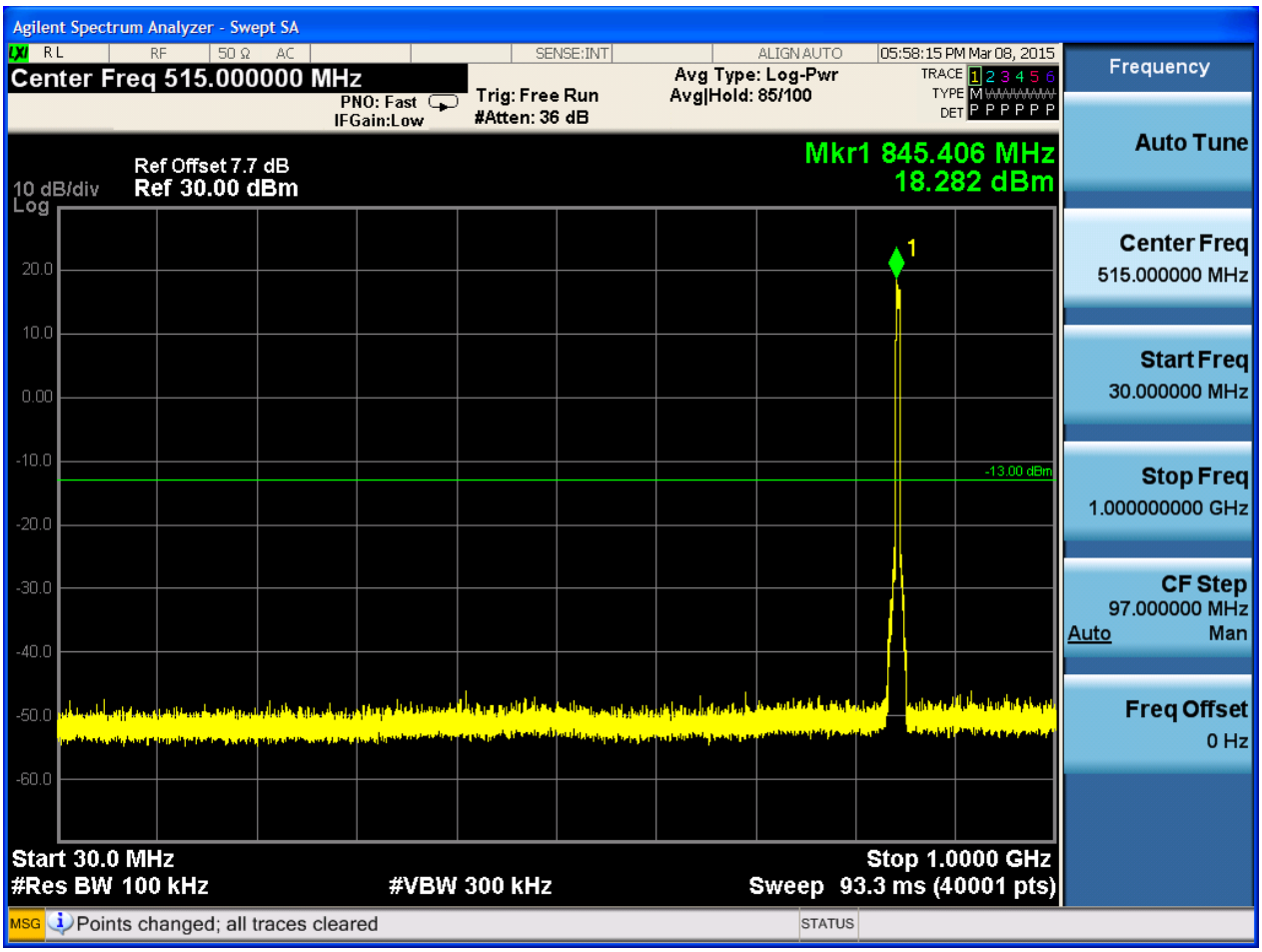

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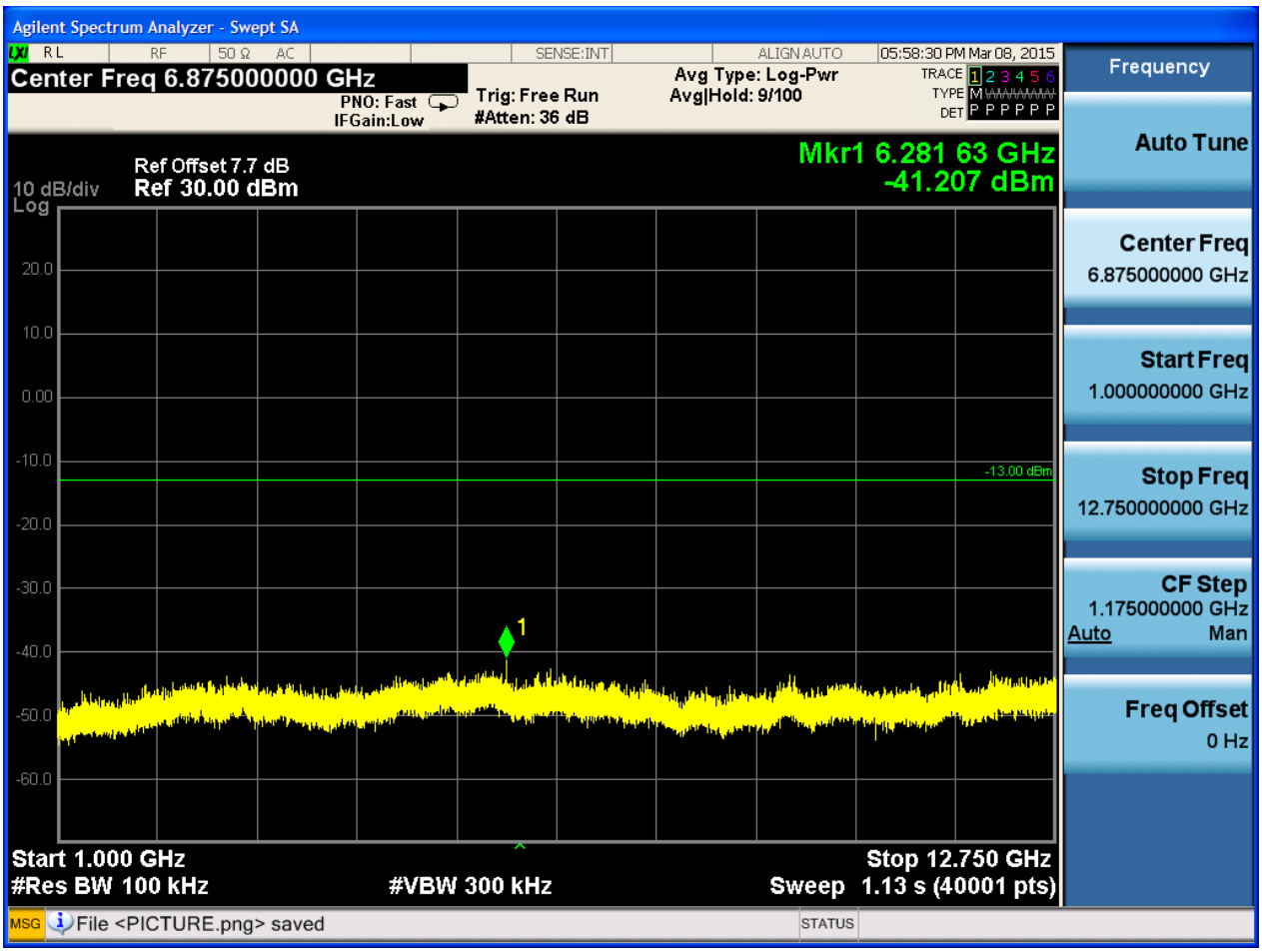

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7Appendix_G: Field Strength of Spurious Radiation

Note:

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

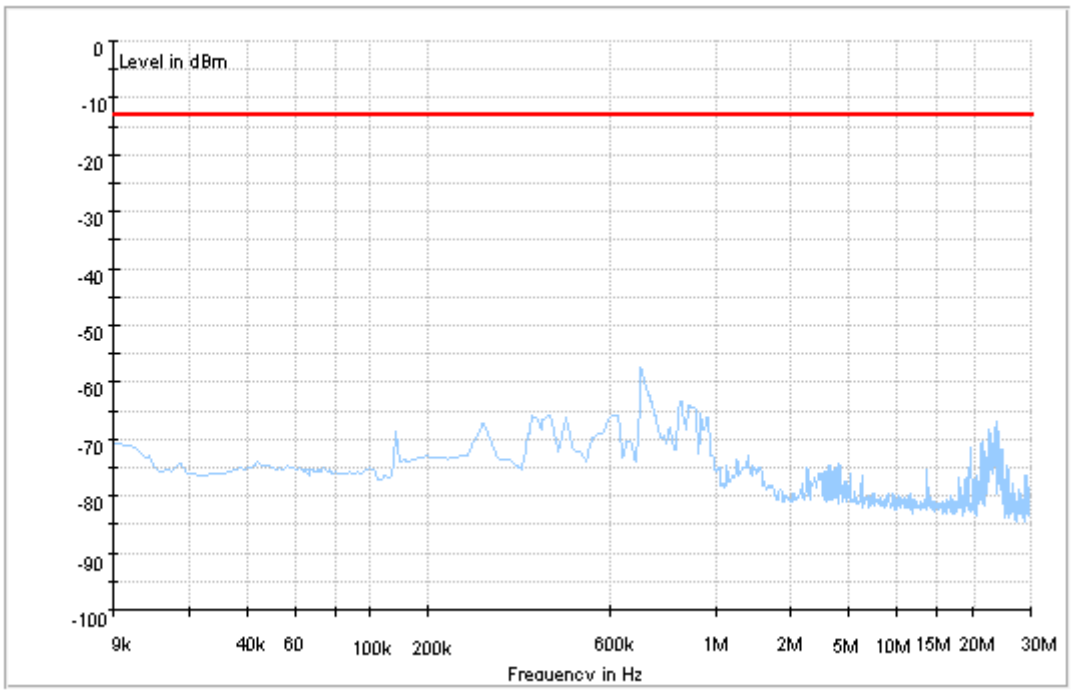
We tested all modes, but the data presented below is the worst case.

Part I - Test Plots

7.1 For UMTS

7.1.1 Test Band = WCDMA1900

7.1.1.1 Test Mode = UMTS/TM1



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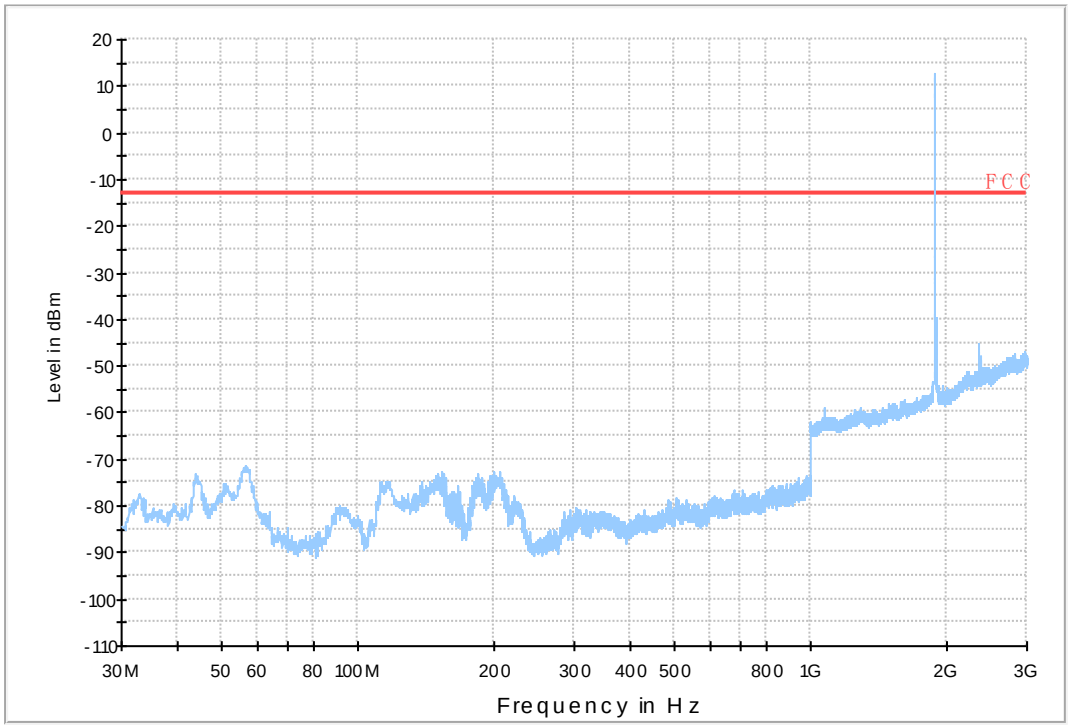
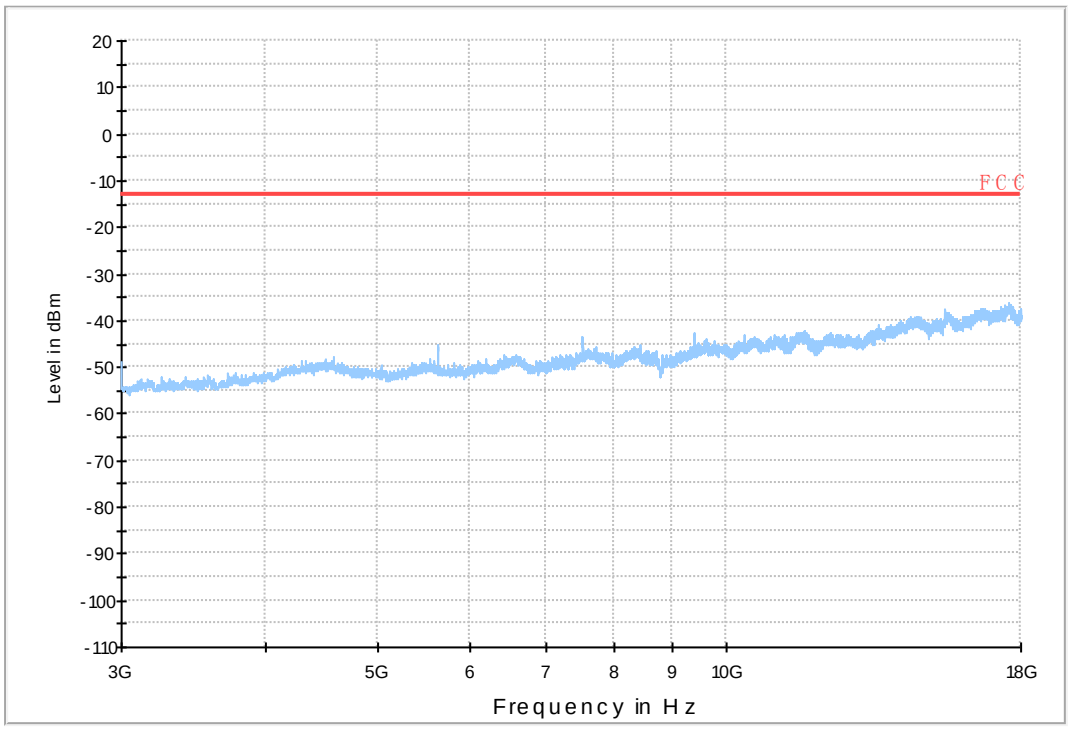
Copy of FCC PART24 WCDMA1900_L



Copy of FCC PART24 WCDMA1900_H



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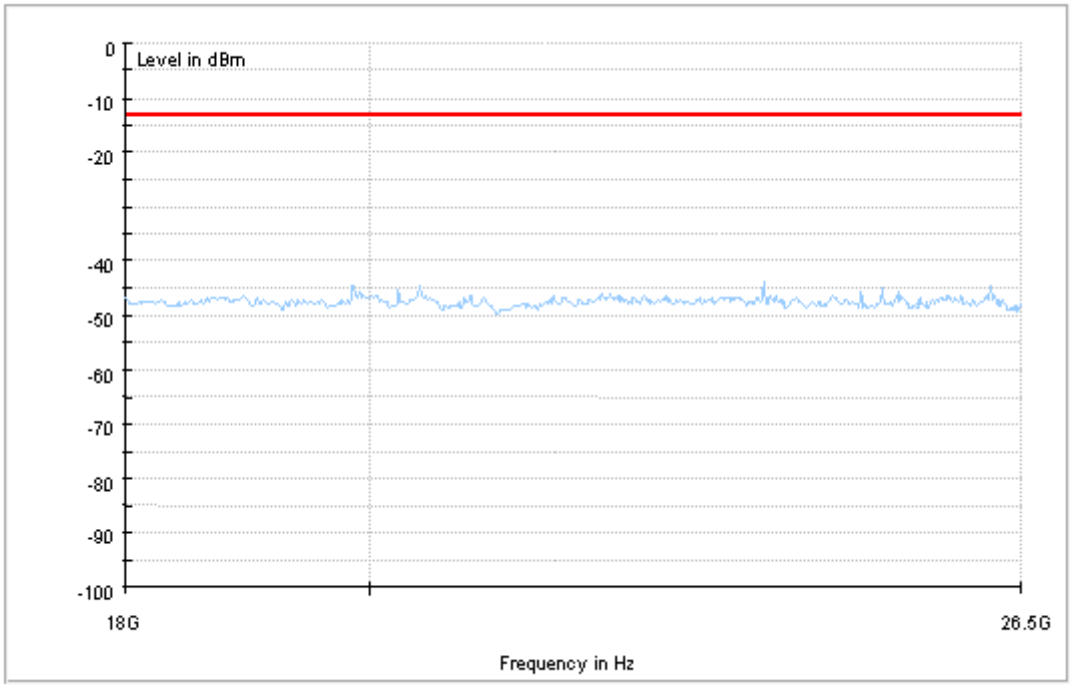
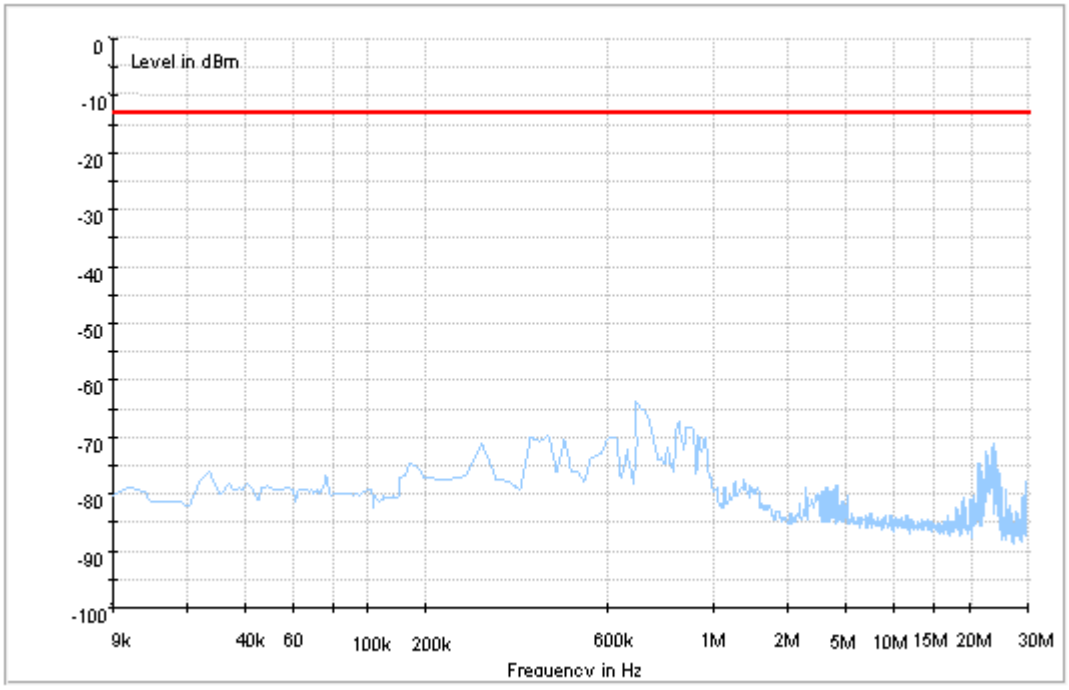


7.1.2 Test Band = WCDMA1700

7.1.2.1 Test Mode = UMTS/TM1



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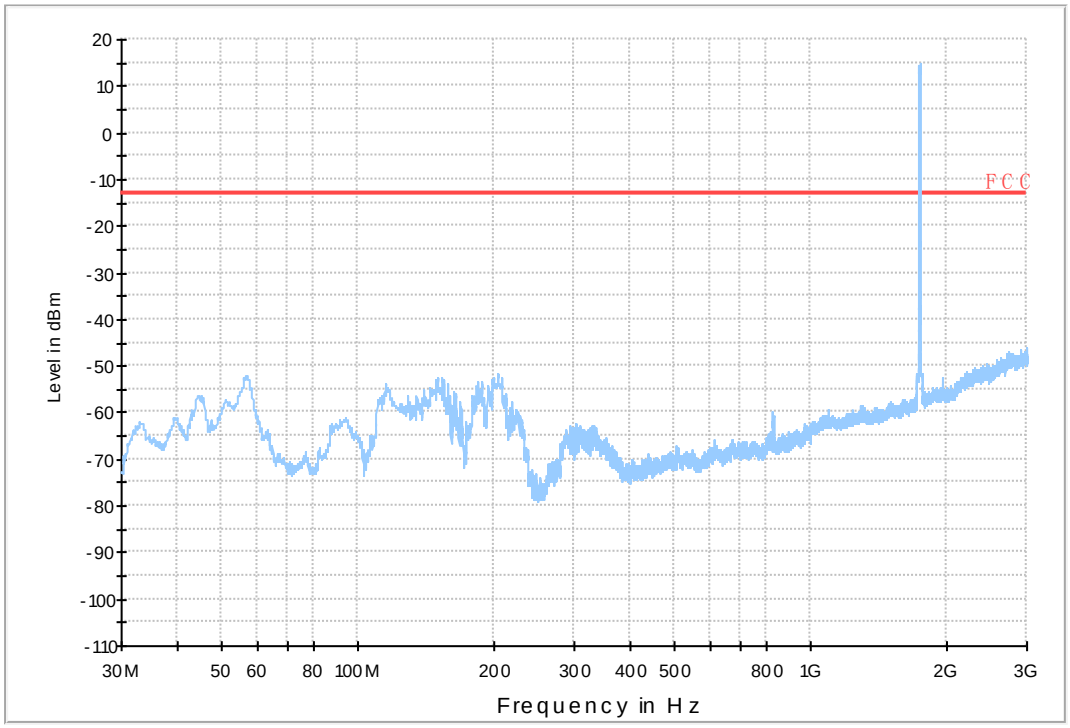
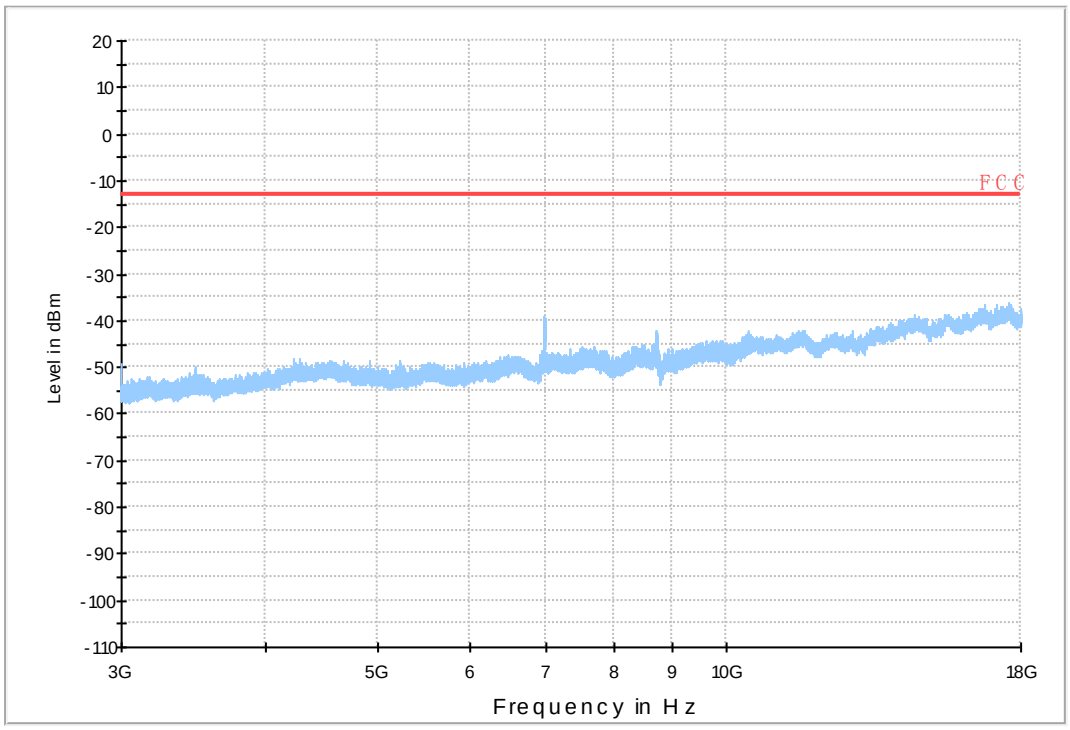
Copy of FCC PART27 WCDMA1700_L



Copy of FCC PART27 WCDMA1700_H



7.1.3 Test Band = WCDMA850

7.1.3.1 Test Mode = UMTS/TM1

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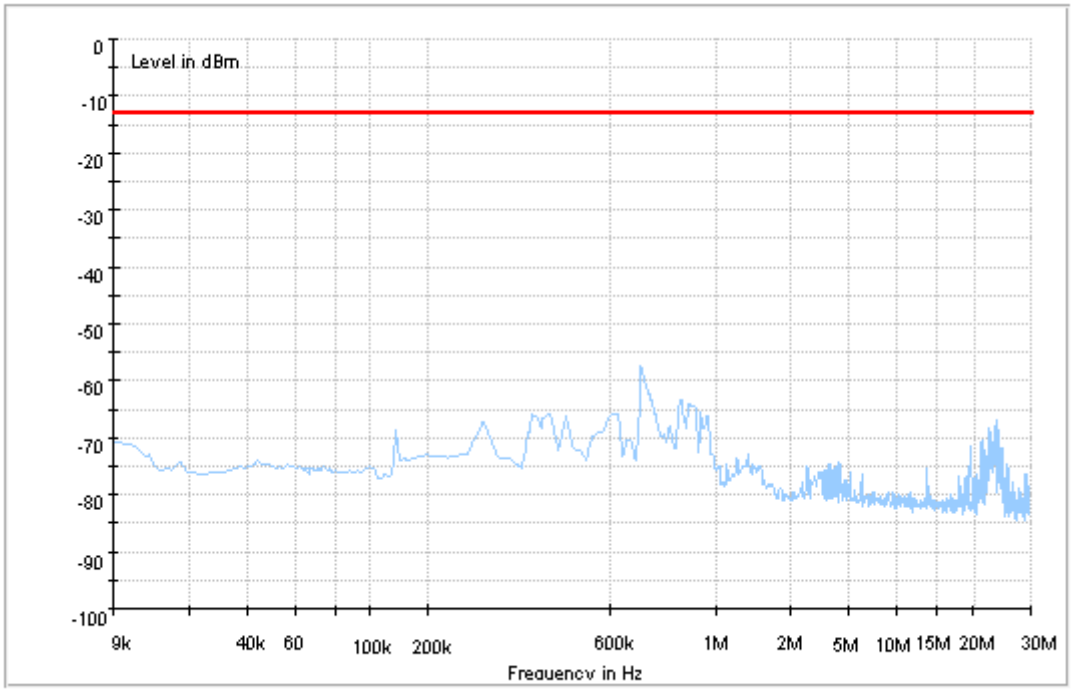
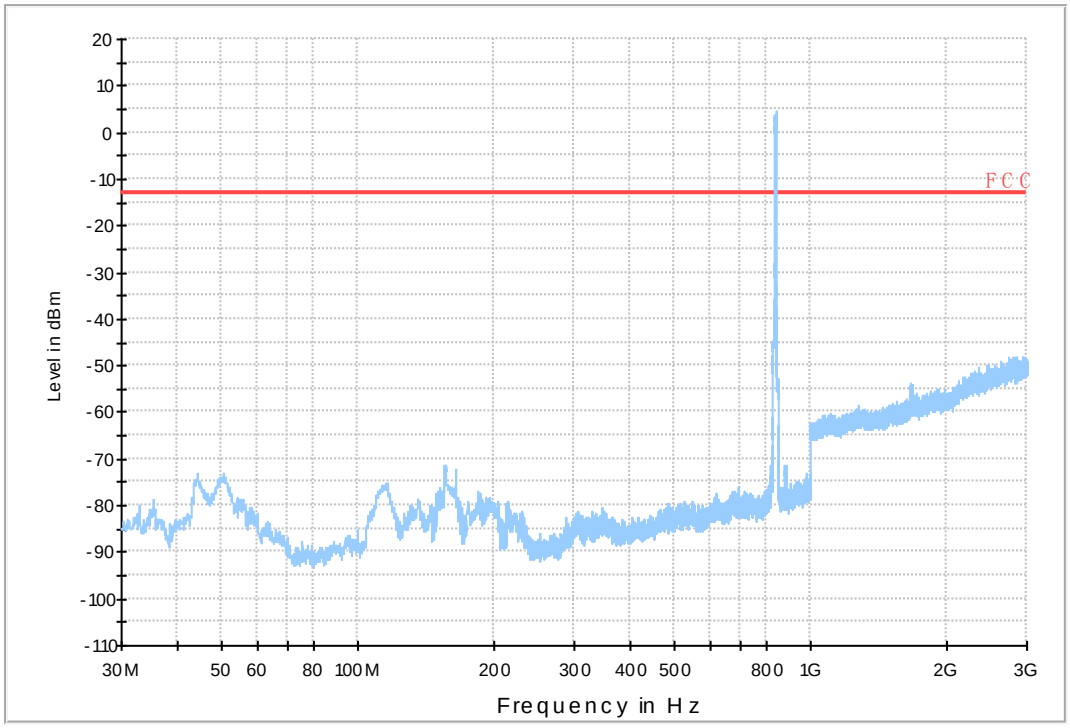


Copy of FCC PART22 WCDMA850_L



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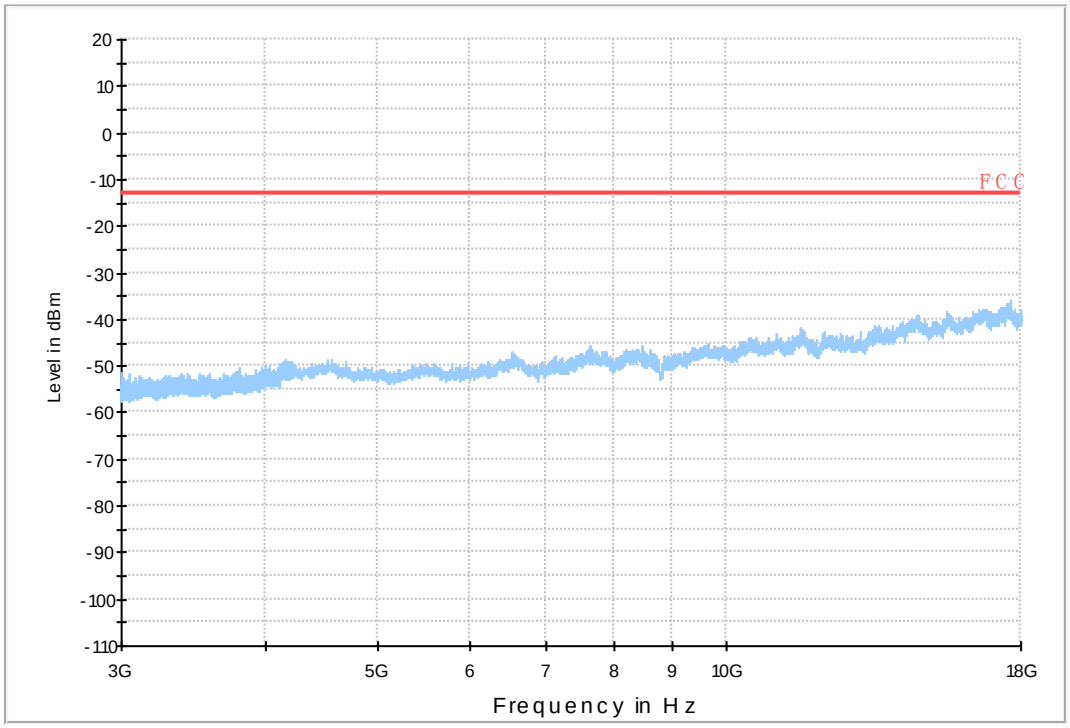
Copy of FCC PART22 WCDMA850_H



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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	23.39	0.01263	PASS
				VN	1.39	0.00075	PASS
				VH	-6.45	-0.00348	PASS
		MCH	TN	VL	1.04	0.00055	PASS
				VN	-3.2	-0.0017	PASS
				VH	-3.98	-0.00212	PASS
		HCH	TN	VL	4.97	0.00261	PASS
				VN	4.41	0.00231	PASS
				VH	3.23	0.00169	PASS
WCDMA1700	UMTS/TM1	LCH	TN	VL	15.78	0.00922	PASS
				VN	4.91	0.00287	PASS
				VH	2.75	0.00161	PASS
		MCH	TN	VL	11.4	0.00658	PASS
				VN	4.49	0.00259	PASS
				VH	-3.71	-0.00214	PASS
		HCH	TN	VL	-4.03	-0.0023	PASS
				VN	-2.98	-0.0017	PASS
				VH	0.67	0.00038	PASS
WCDMA850	UMTS/TM1	LCH	TN	VL	-25.83	-0.03126	PASS
				VN	-7.72	-0.00934	PASS
				VH	-4.67	-0.00565	PASS
		MCH	TN	VL	-25.57	-0.03057	PASS
				VN	-13	-0.01554	PASS
				VH	-7.32	-0.00875	PASS
		HCH	TN	VL	-21.45	-0.02534	PASS
				VN	-7.23	-0.00854	PASS
				VH	0.95	0.00112	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	8.36	0.00451	PASS
				-20	-2.78	-0.0015	PASS
				-10	-5.14	-0.00277	PASS
				0	0.89	0.00048	PASS
				10	-1.65	-0.00089	PASS
				20	16.83	0.00909	PASS
				30	10.44	0.00564	PASS
				40	-7.55	-0.00408	PASS
				50	1.98	0.00107	PASS
		MCH	VN	-30	-14.63	-0.00778	PASS
				-20	1.43	0.00076	PASS
				-10	-0.95	-0.00051	PASS
				0	-0.64	-0.00034	PASS
				10	1.45	0.00077	PASS
				20	1.4	0.00074	PASS
				30	0.06	0.00003	PASS
				40	-8.39	-0.00446	PASS
				50	2.53	0.00135	PASS
		HCH	VN	-30	-2.03	-0.00106	PASS
				-20	-4.38	-0.0023	PASS
				-10	6.3	0.0033	PASS
				0	4.93	0.00258	PASS
				10	5.45	0.00286	PASS
				20	2.88	0.00151	PASS
				30	1.74	0.00091	PASS
				40	4.96	0.0026	PASS
				50	2.43	0.00127	PASS
WCDMA1700	UMTS/TM1	LCH	VN	-30	14.71	0.00859	PASS
				-20	3.34	0.00195	PASS
				-10	2.81	0.00164	PASS
				0	6.87	0.00401	PASS
				10	2.55	0.00149	PASS
				20	3.68	0.00215	PASS
				30	7.78	0.00454	PASS
				40	6.56	0.00383	PASS
				50	1.24	0.00072	PASS
		MCH	VN	-30	0.37	0.00021	PASS

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Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				-20	-2.44	-0.00141	PASS
				-10	4.18	0.00241	PASS
				0	-7.42	-0.00428	PASS
				10	-6.76	-0.0039	PASS
				20	-1.5	-0.00087	PASS
				30	5.89	0.0034	PASS
				40	6.74	0.00389	PASS
				50	7.4	0.00427	PASS
		HCH	VN	-30	22.78	0.013	PASS
				-20	5.66	0.00323	PASS
				-10	14.14	0.00807	PASS
				0	8.7	0.00496	PASS
				10	-0.82	-0.00047	PASS
				20	3.43	0.00196	PASS
				30	6.33	0.00361	PASS
				40	-4.1	-0.00234	PASS
				50	6.45	0.00368	PASS
WCDMA850	UMTS/TM1	LCH	VN	-30	-28.52	-0.03451	PASS
				-20	2.73	0.0033	PASS
				-10	-3.37	-0.00408	PASS
				0	4.12	0.00499	PASS
				10	-11.23	-0.01359	PASS
				20	-14.95	-0.01809	PASS
				30	-3.86	-0.00467	PASS
				40	-11.84	-0.01433	PASS
				50	-5.46	-0.00661	PASS
		MCH	VN	-30	-23.68	-0.02831	PASS
				-20	-6.73	-0.00805	PASS
				-10	-11.31	-0.01352	PASS
				0	1.08	0.00129	PASS
				10	-6.87	-0.00821	PASS
				20	-8.62	-0.01031	PASS
				30	0.84	0.001	PASS
				40	-6.33	-0.00757	PASS
				50	-9.51	-0.01137	PASS
		HCH	VN	-30	-21.07	-0.02489	PASS
				-20	-3.89	-0.00459	PASS
				-10	-4.32	-0.0051	PASS
				0	-16.65	-0.01967	PASS
				10	-18.86	-0.02228	PASS

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Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				20	-7.06	-0.00834	PASS
				30	-5.33	-0.0063	PASS
				40	-10.85	-0.01282	PASS
				50	0.78	0.00092	PASS

END

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