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 [dBm]	Limit [dBm]	Verdict
WCDMA850	UMTS/TM1	LCH	23.48	20.83	38.5	PASS
		MCH	23.47	20.82	38.5	PASS
		HCH	23.35	20.7	38.5	PASS

Test Band	Test Mode	Test Channel	Conducted Power [dBm]	EIRP [dBm]	Limit [dBm]	Verdict
WCDMA1700	UMTS/TM1	LCH	23.86	24.36	30	PASS
		MCH	23.56	24.06	30	PASS
		HCH	23.54	24.04	30	PASS
WCDMA1900	UMTS/TM1	LCH	23.67	24.17	33	PASS
		MCH	23.78	24.28	33	PASS
		HCH	23.82	24.32	33	PASS

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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

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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	3.3	13	PASS
		MCH	3.3	13	PASS
		HCH	3.15	13	PASS
WCDMA1700	UMTS/TM1	LCH	3.22	13	PASS
		MCH	3.32	13	PASS
		HCH	3.09	13	PASS

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3Appendix_C: Modulation Characteristics

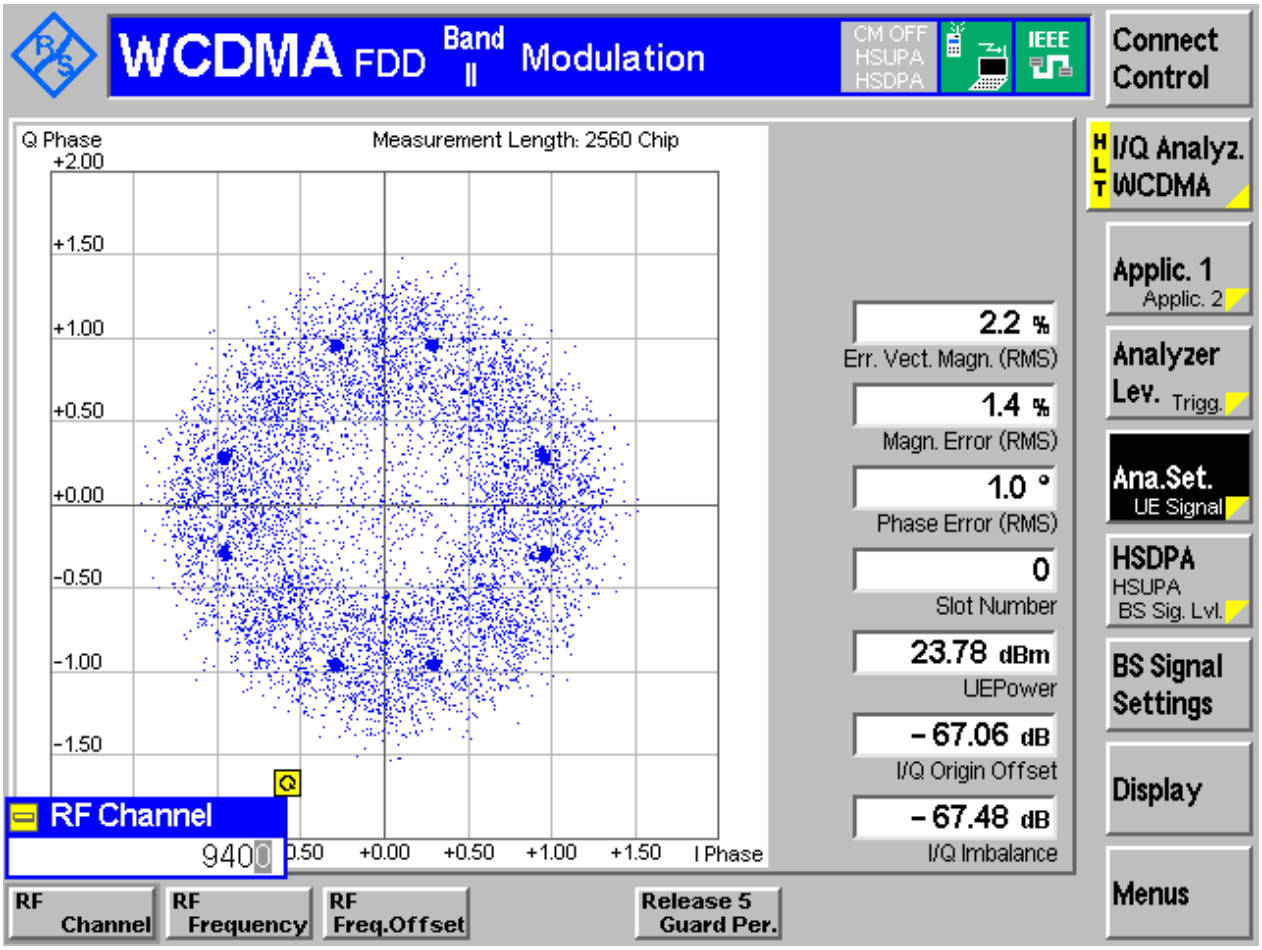
Part I - Test Plots

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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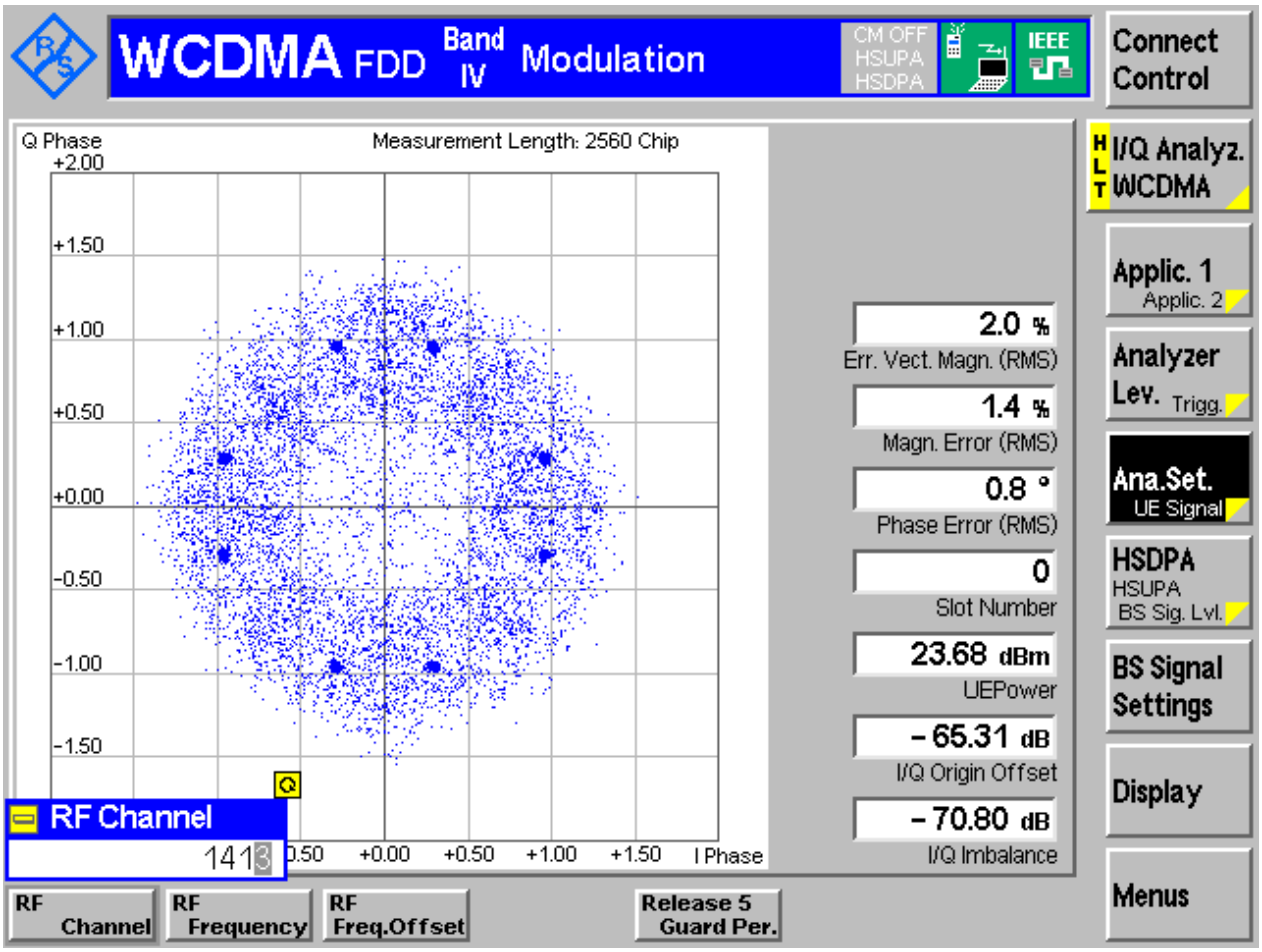
3.2 For UMTS

3.2.1 Test Band = WCDMA1700

3.2.1.1 Test Mode = UMTS/TM1

3.2.1.1.1 Test Channel = MCH



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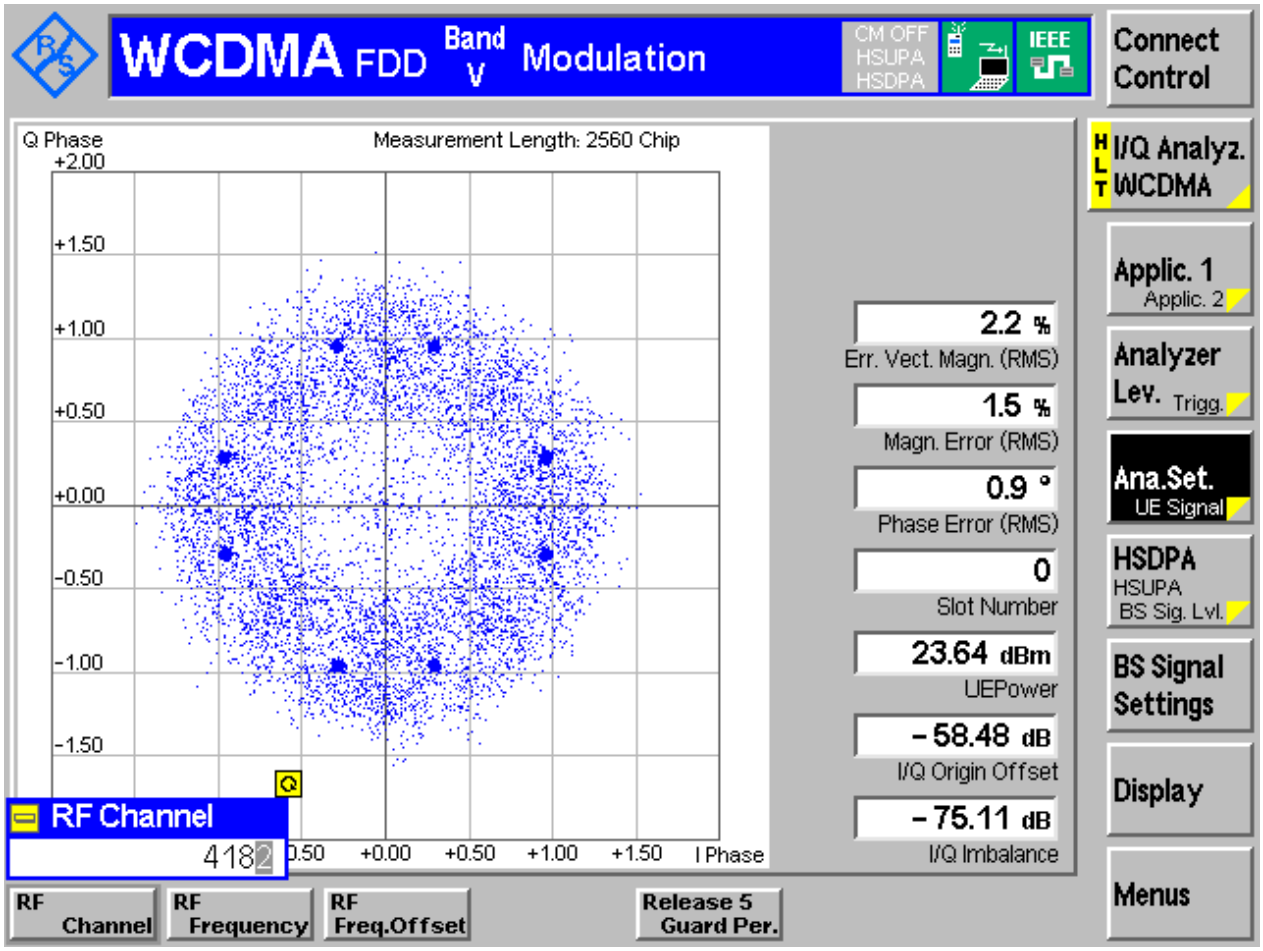
3.2.2 Test Band = WCDMA850

3.2.2.1 Test Mode = UMTS/TM1

3.2.2.1.1 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	4.14	4.70	Pass
		MCH	4.15	4.71	Pass
		HCH	4.14	4.71	Pass
Test Band	**Test Mode**	**Test Channel**	**Occupied Bandwidth [MHz]**	**Emission Bandwidth [MHz]**	**Verdict**
WCDMA1700	UMTS/TM1	LCH	4.15	4.70	Pass
		MCH	4.16	4.70	Pass
		HCH	4.15	4.71	Pass
WCDMA850	UMTS/TM1	LCH	4.14	4.71	Pass
		MCH	4.17	4.70	Pass
		HCH	4.14	4.69	Pass

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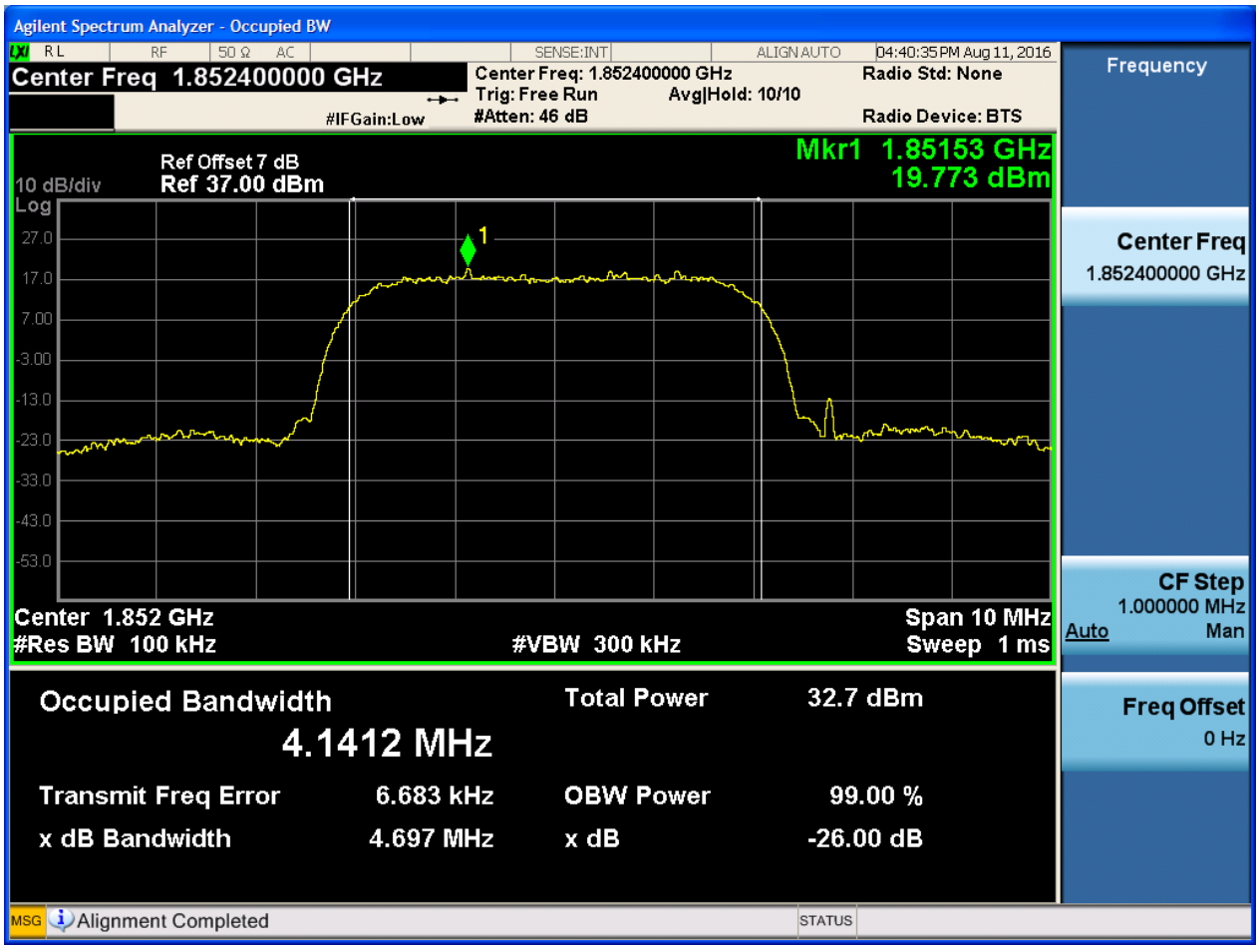
Part II - Test Plots

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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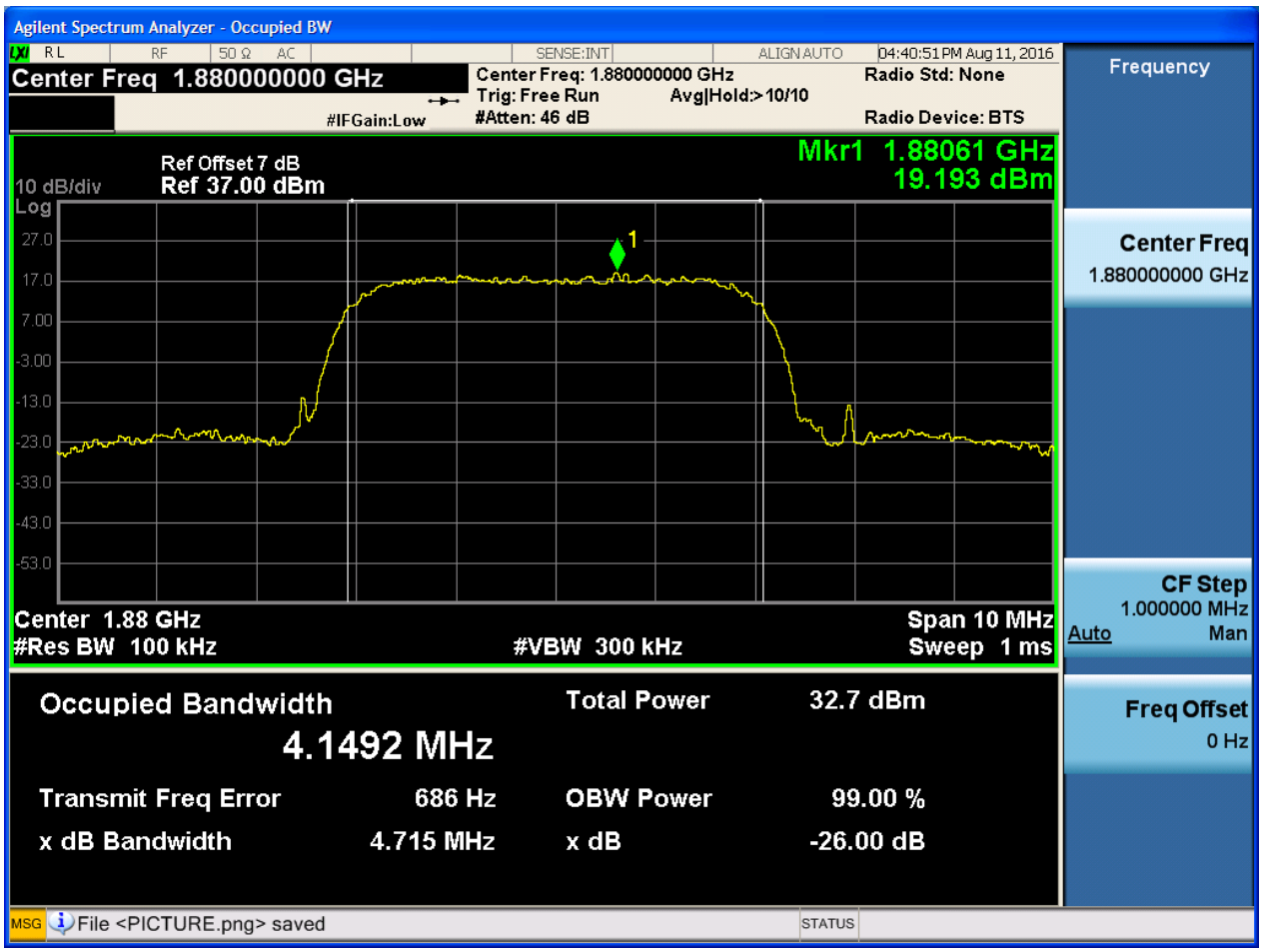
4.1.1.1.2 Test Channel = MCH



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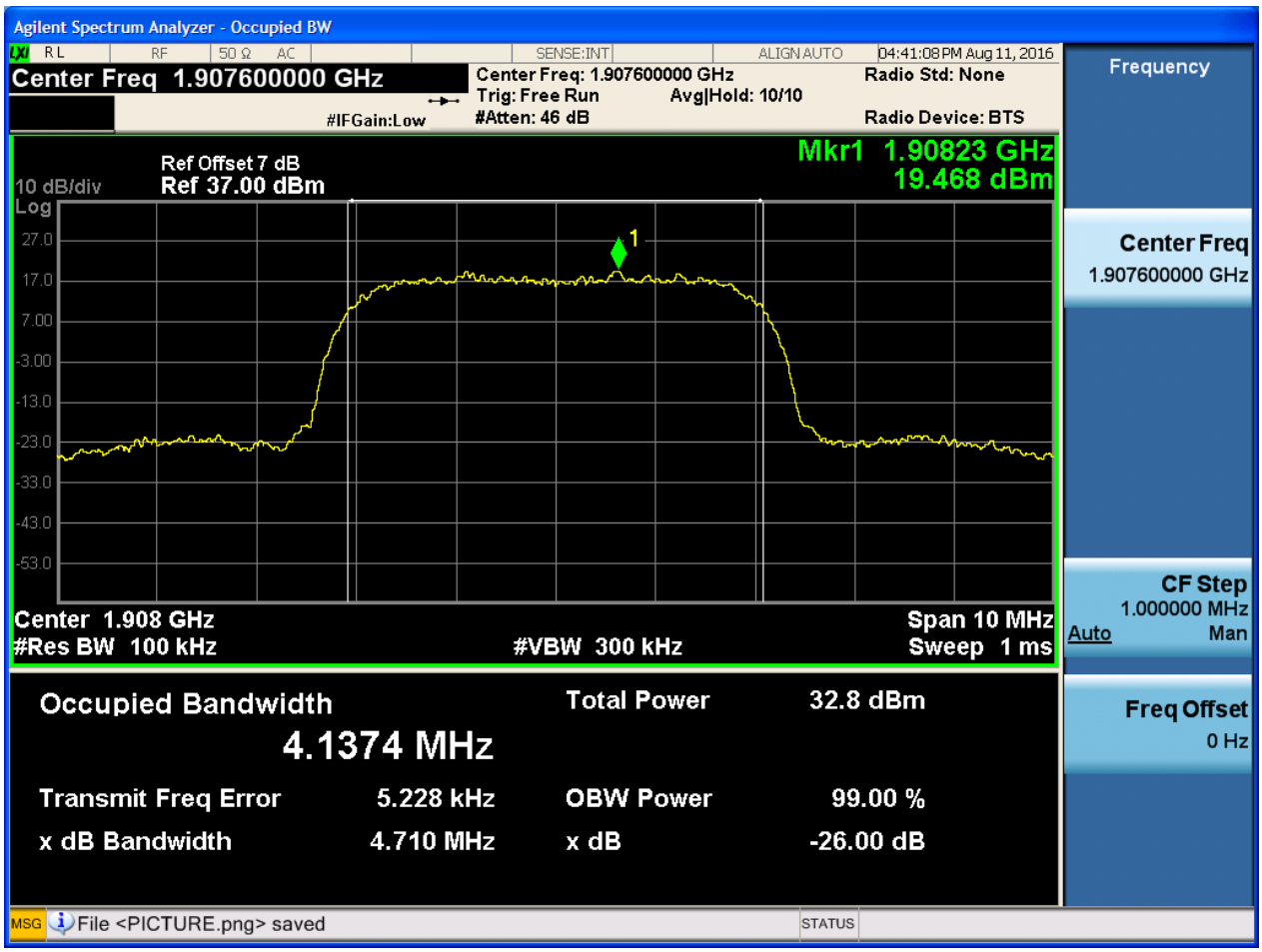
4.1.1.1.3 Test Channel = HCH



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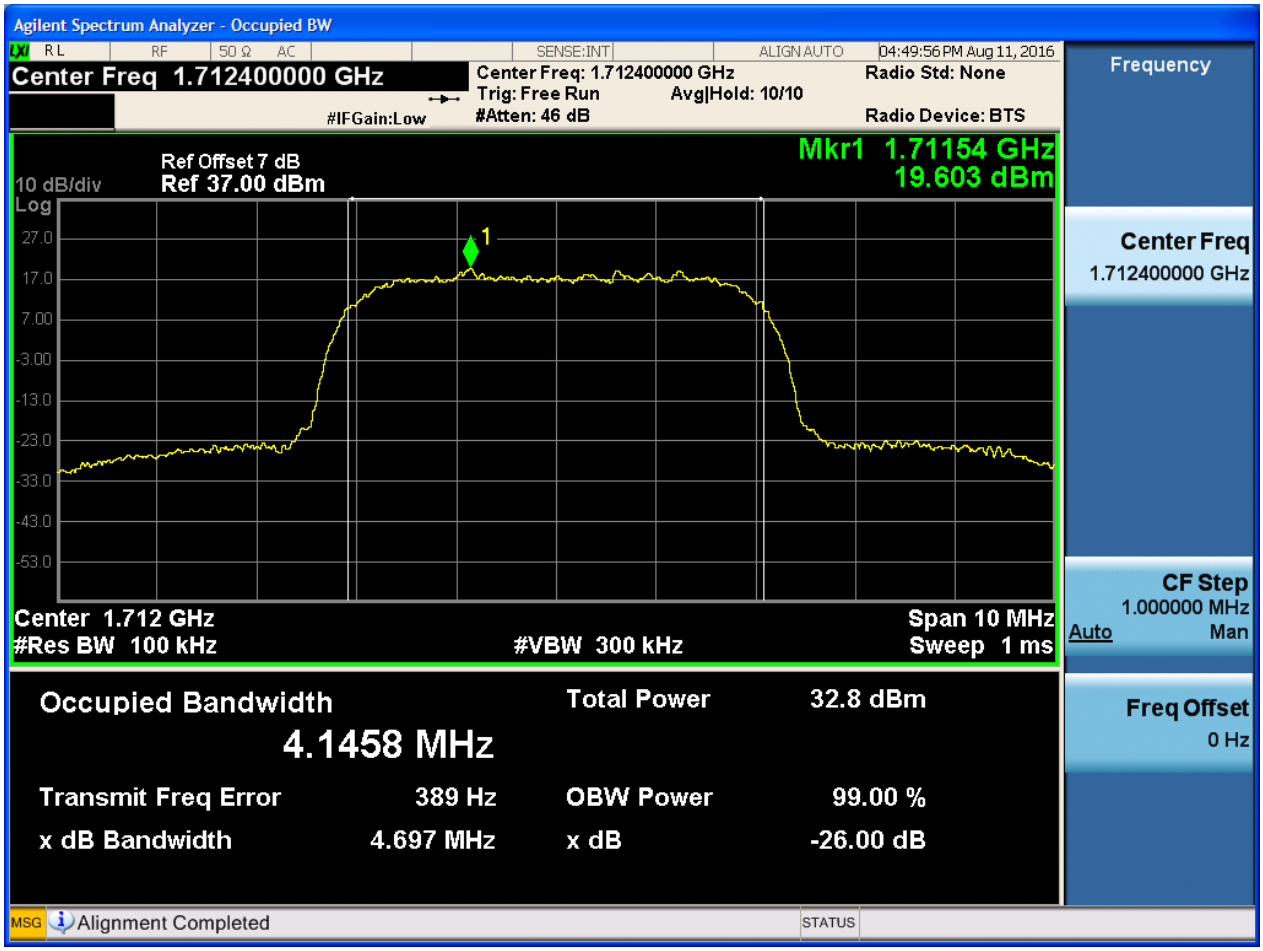
4.2 For UMTS

4.2.1 Test Band = WCDMA1700

4.2.1.1 Test Mode = UMTS/TM1

4.2.1.1.1 Test Channel = LCH



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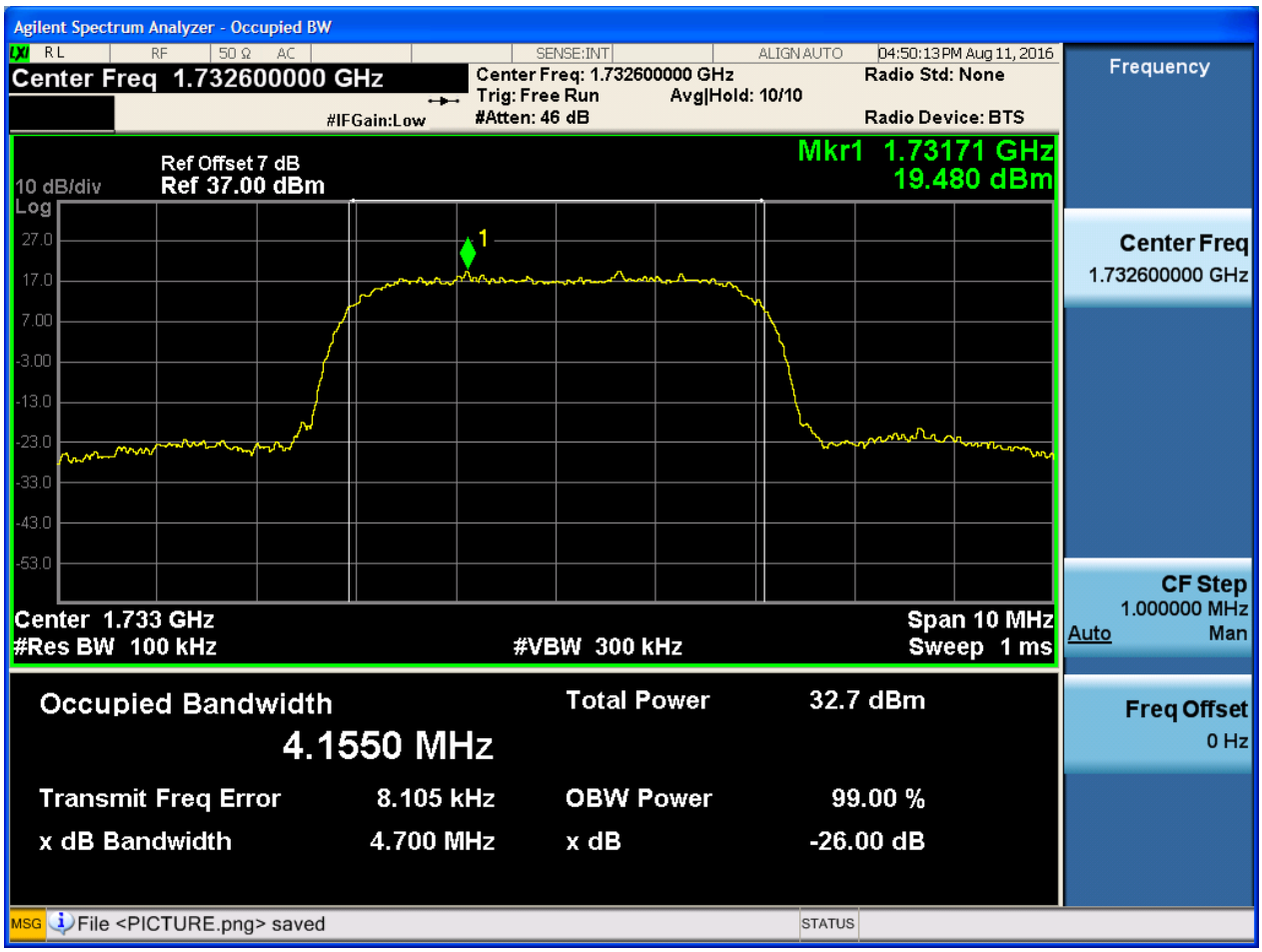
4.2.1.1.2 Test Channel = MCH



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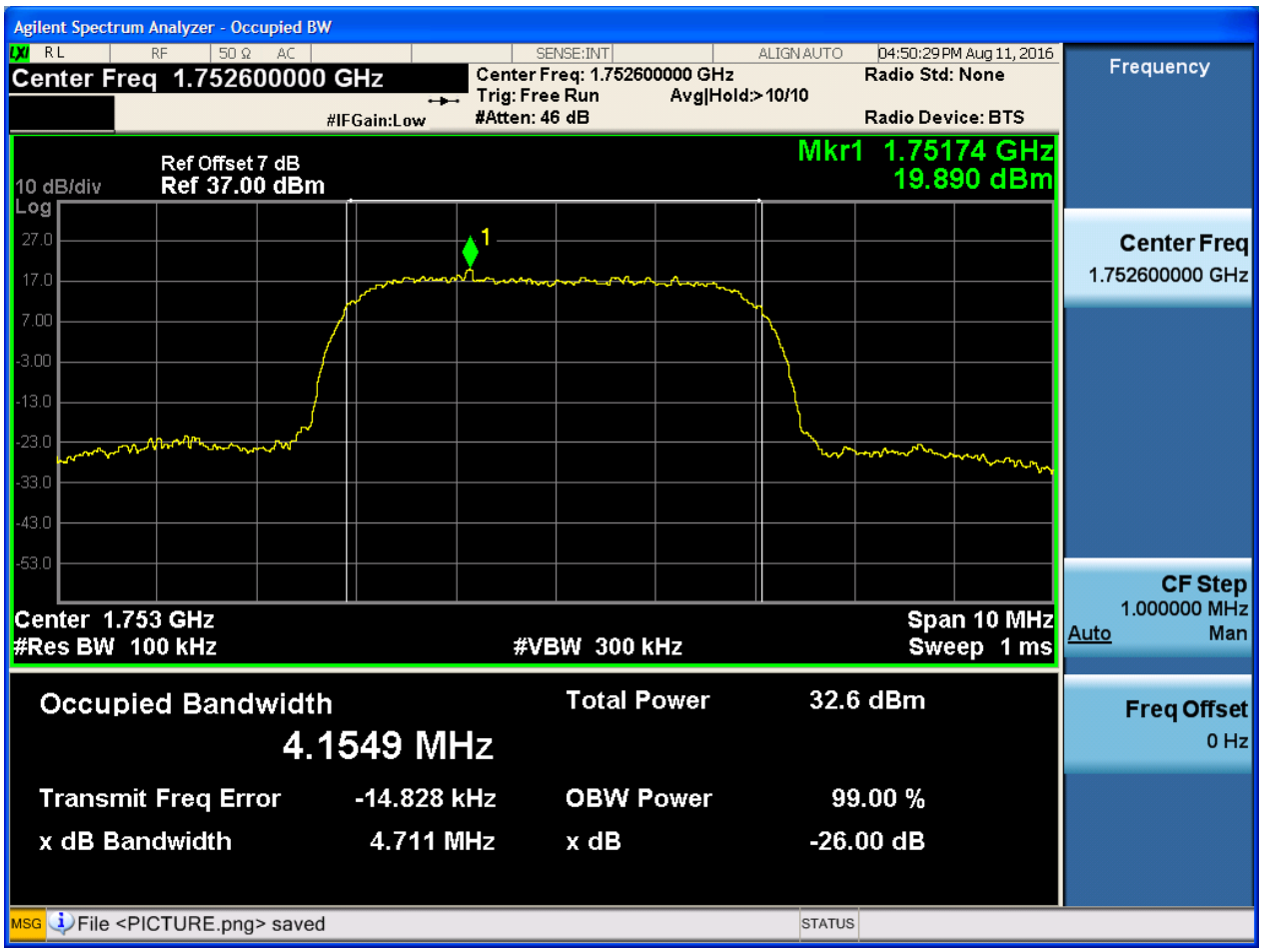
4.2.1.1.3 Test Channel = HCH



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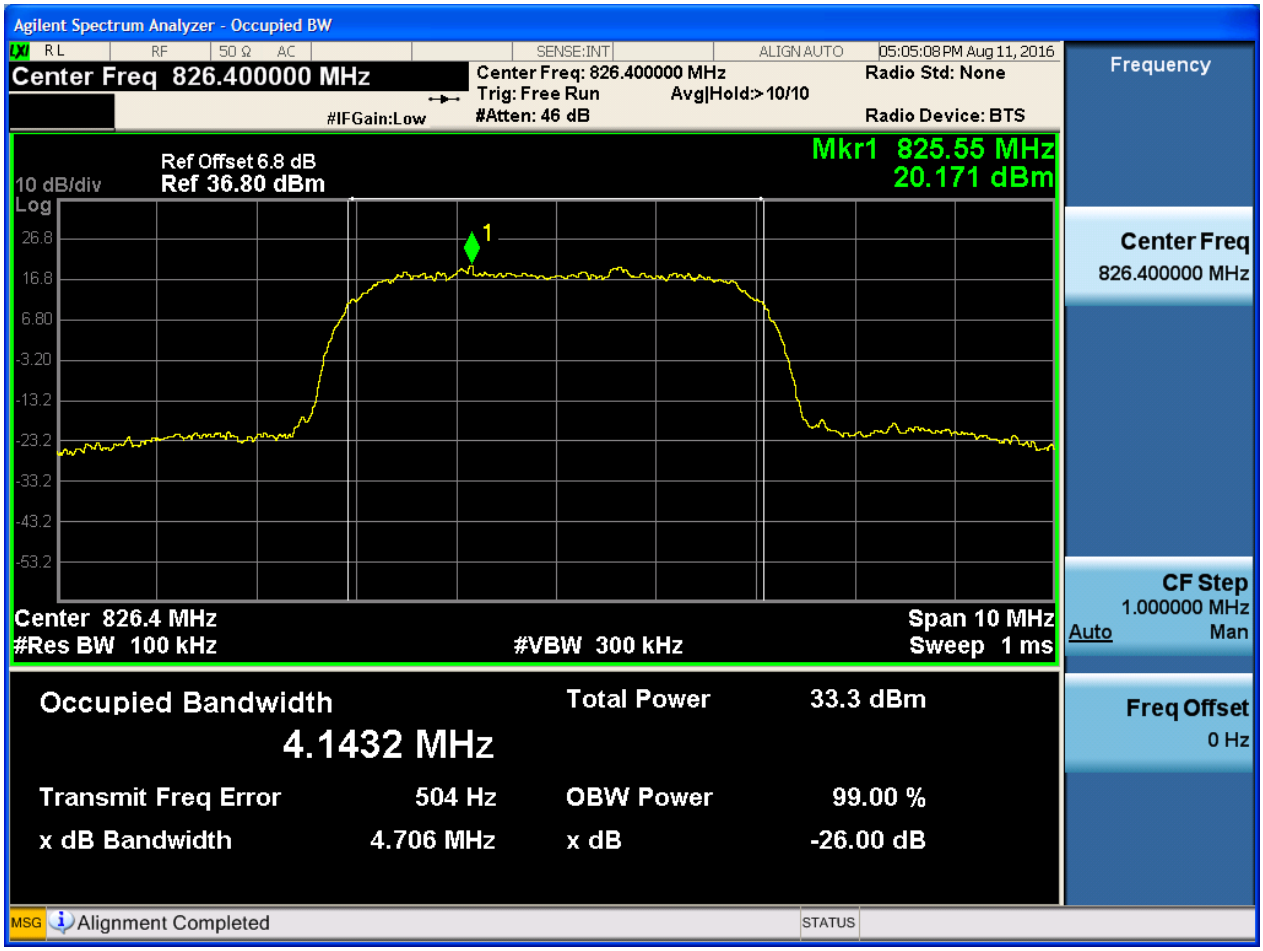
4.2.2 Test Band = WCDMA850

4.2.2.1 Test Mode = UMTS/TM1

4.2.2.1.1 Test Channel = LCH



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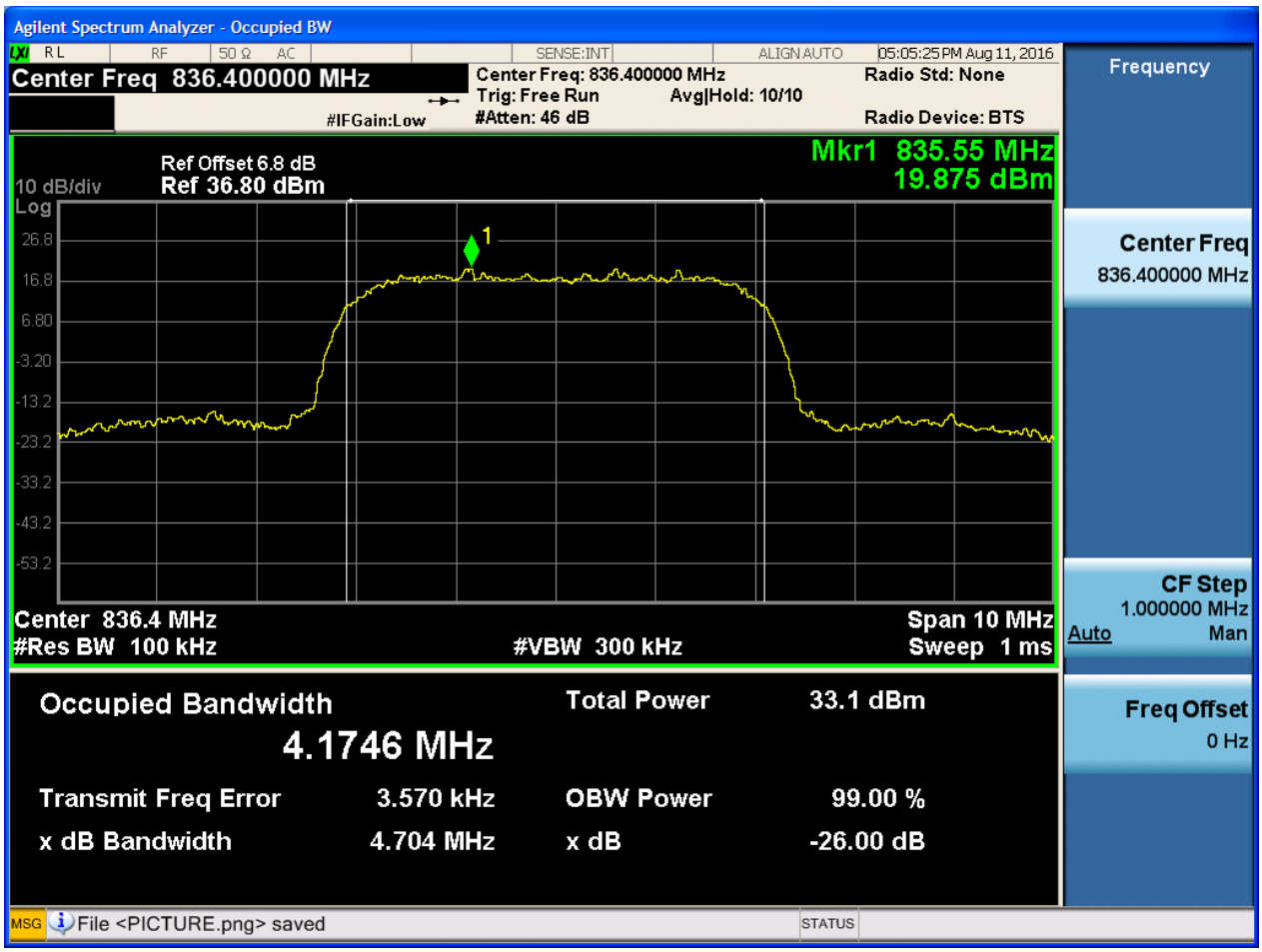
4.2.2.1.2 Test Channel = MCH



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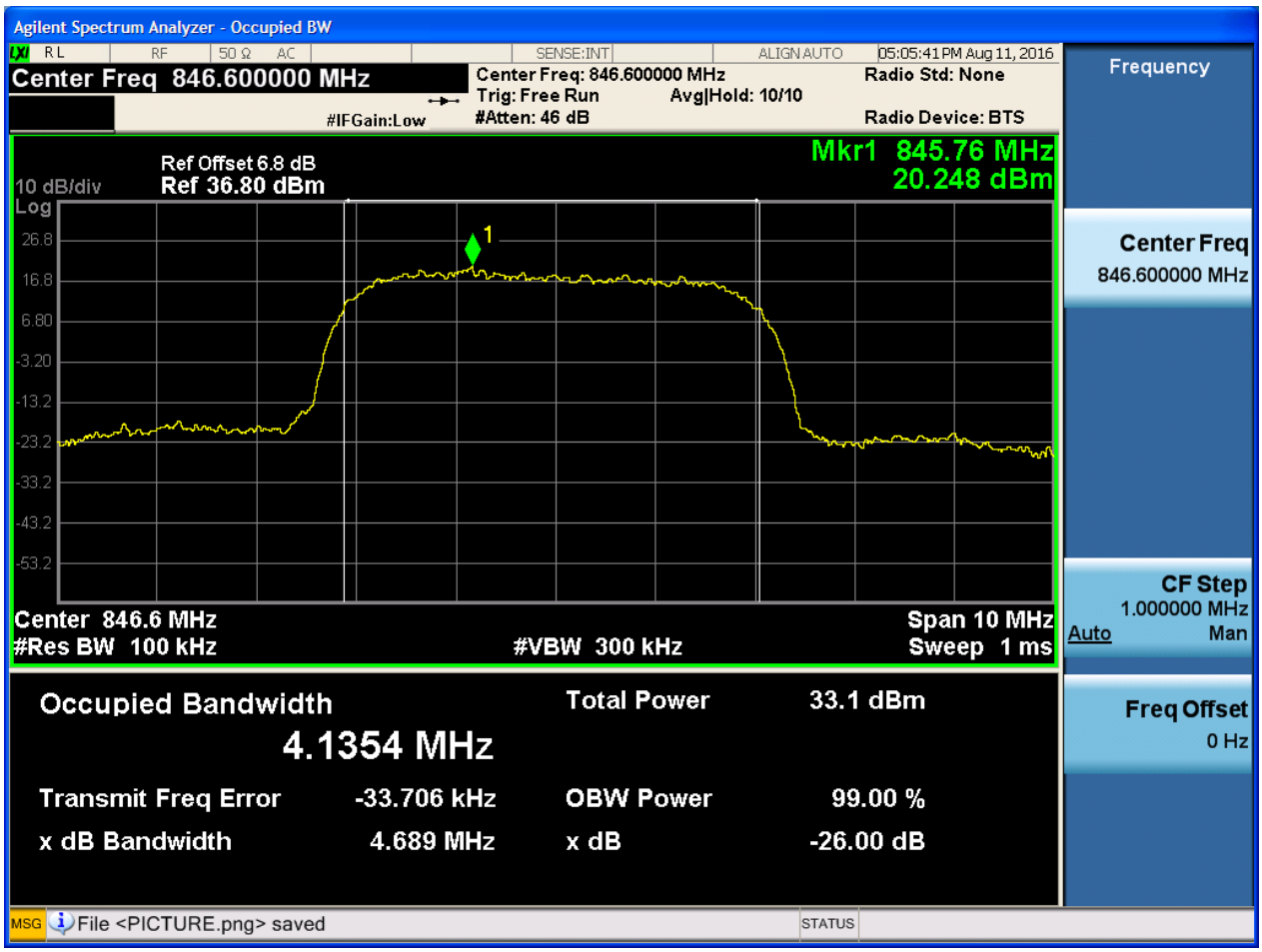
4.2.2.1.3 Test Channel = HCH



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5Appendix_E: Band Edges Compliance

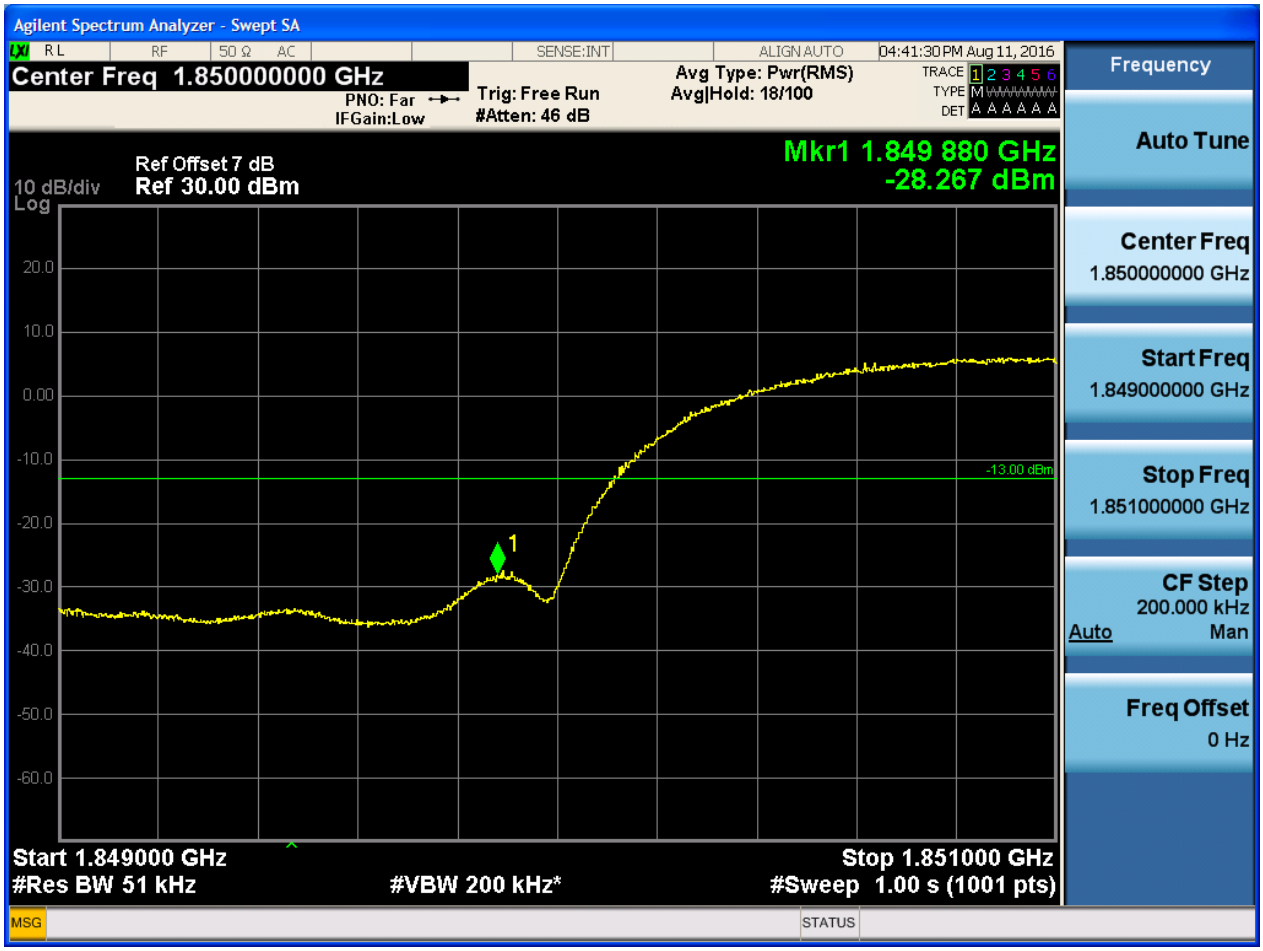
Part I - Test Plots

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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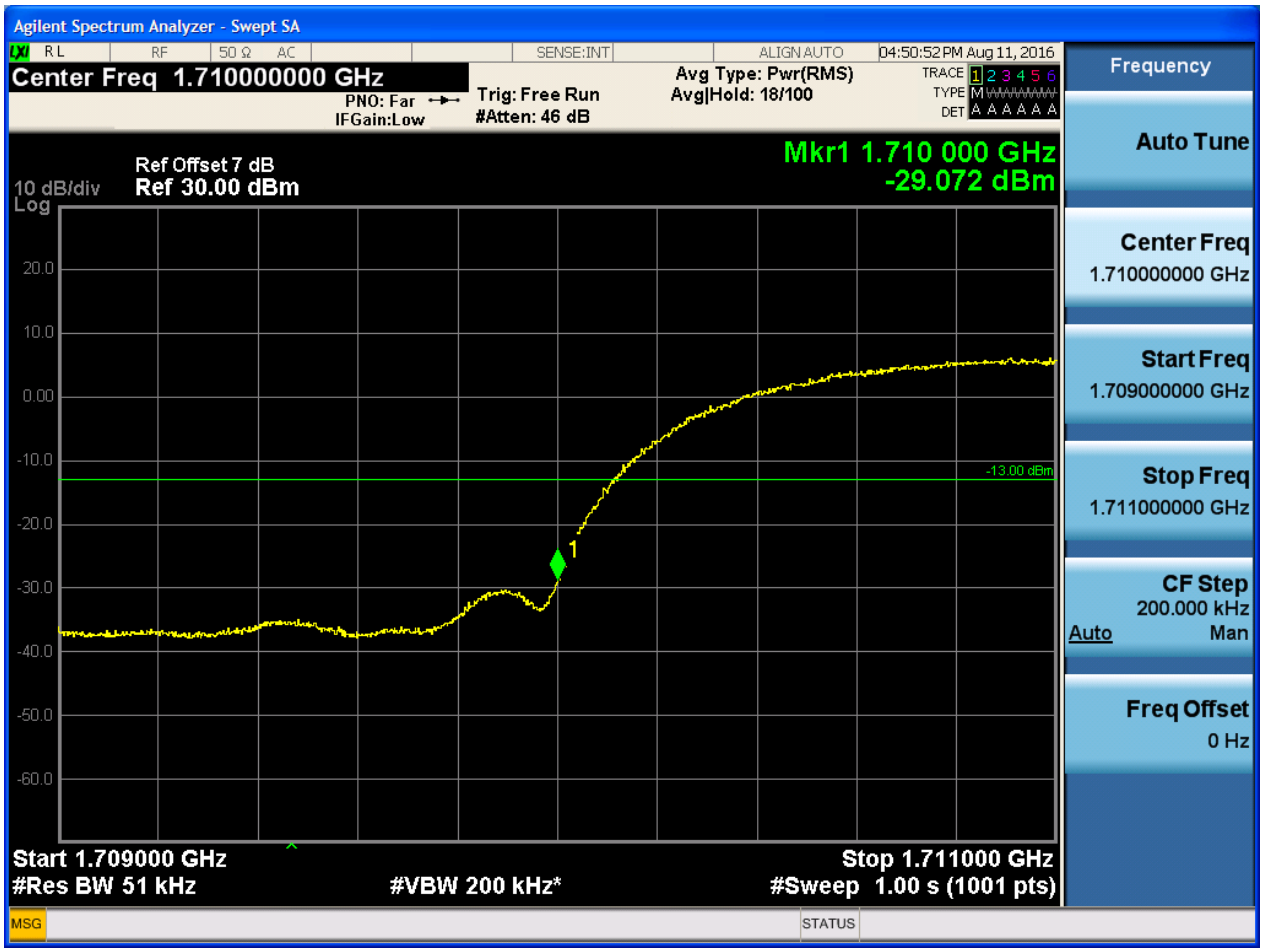
5.2 For UMTS

5.2.1 Test Band = WCDMA1700

5.2.1.1 Test Mode = UMTS/TM1

5.2.1.1.1 Test Channel = LCH



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5.2.1.1.2 Test Channel = HCH

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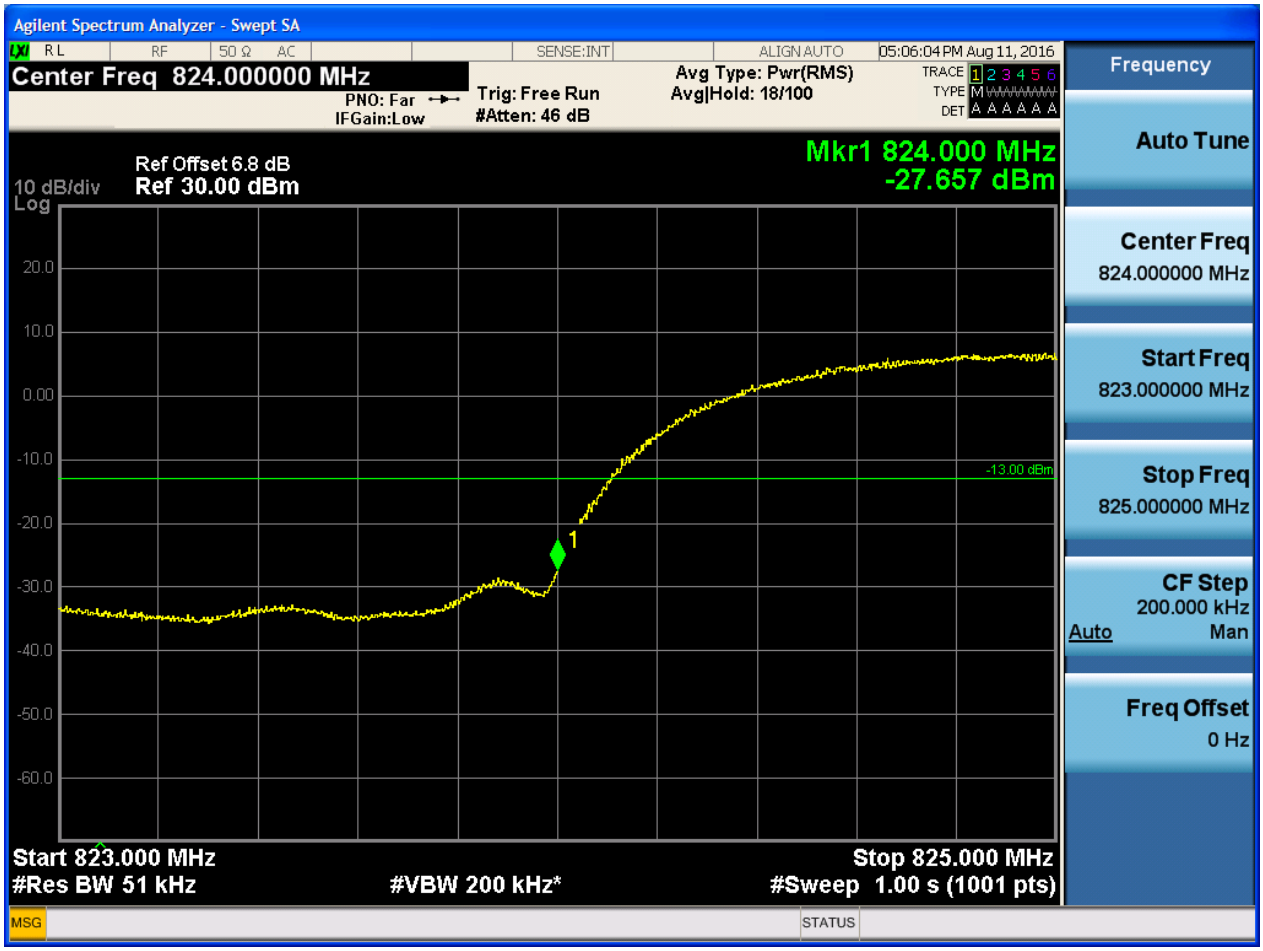
5.2.2 Test Band = WCDMA850

5.2.2.1 Test Mode = UMTS/TM1

5.2.2.1.1 Test Channel = LCH



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5.2.2.1.2 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.

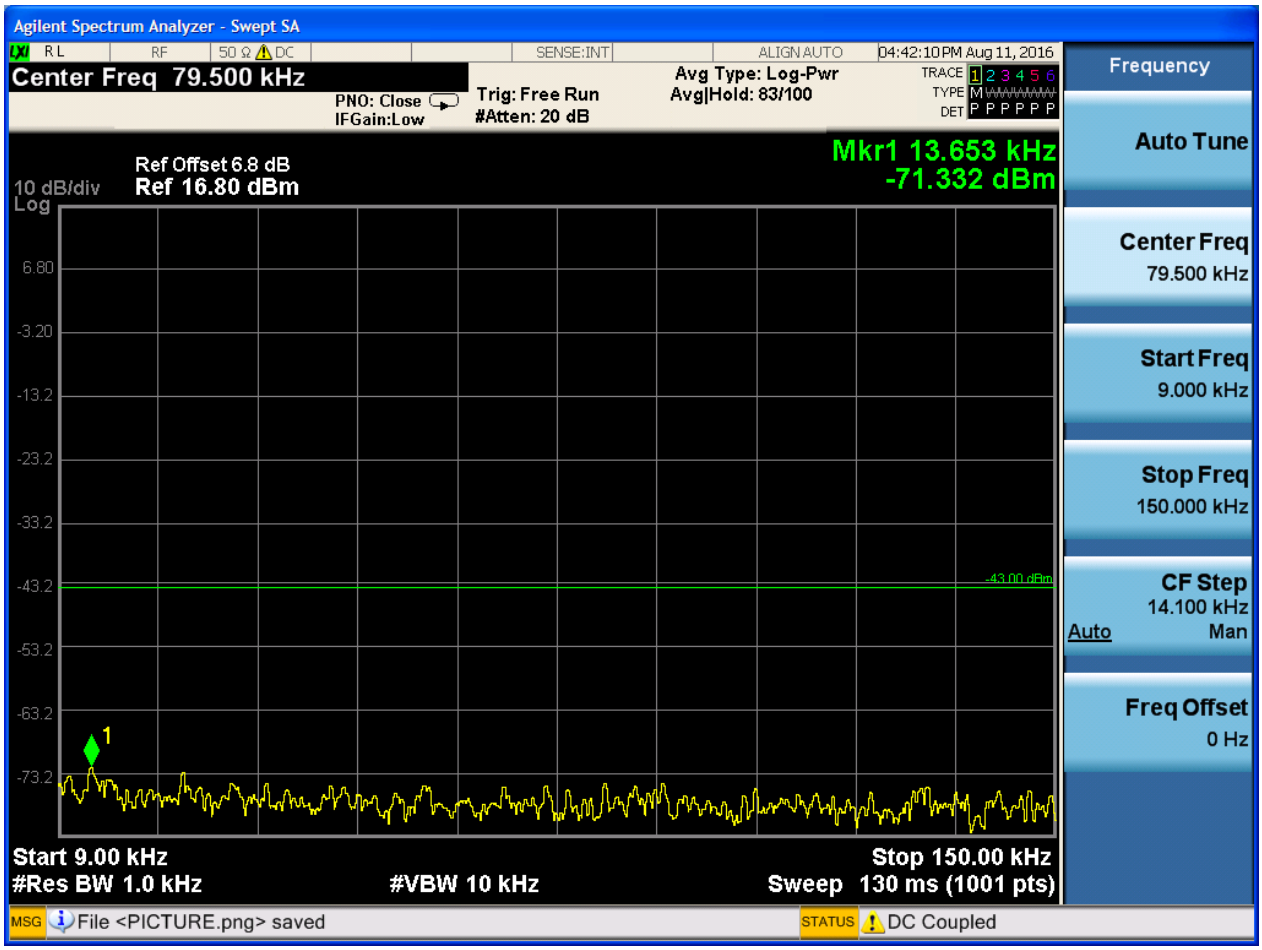
Part I - Test Plots

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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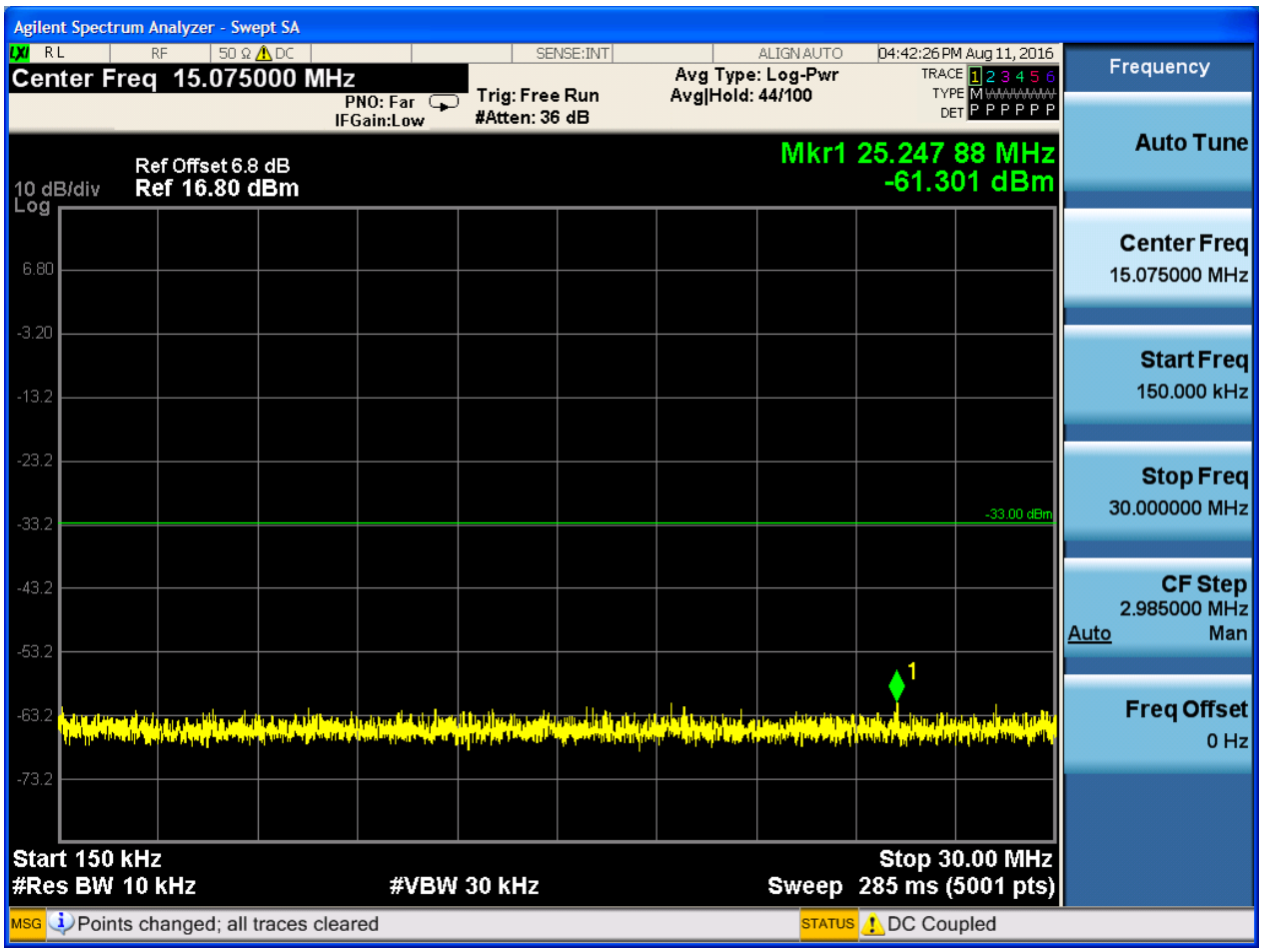

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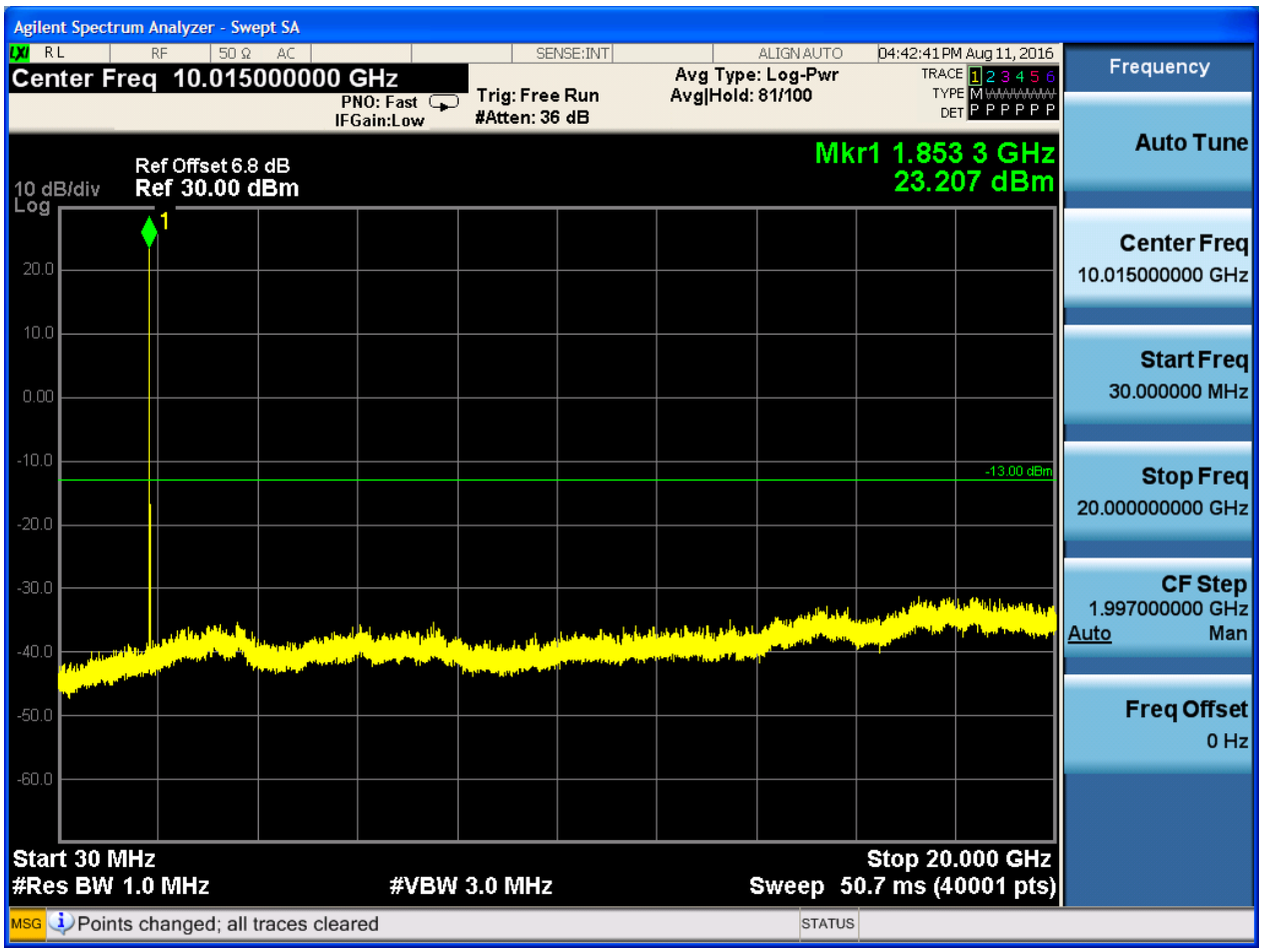

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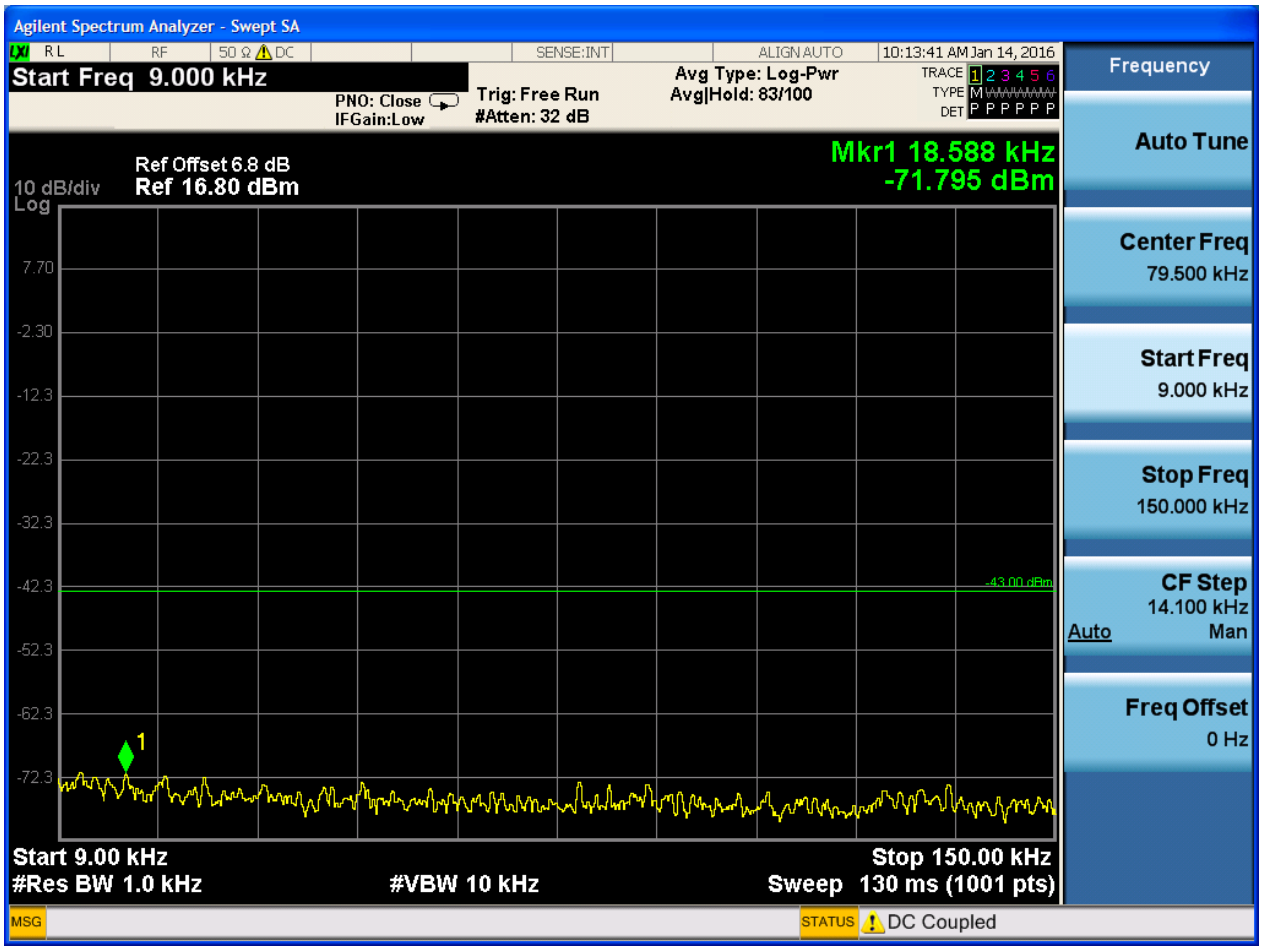
6.1.1.1.2 Test Channel = MCH



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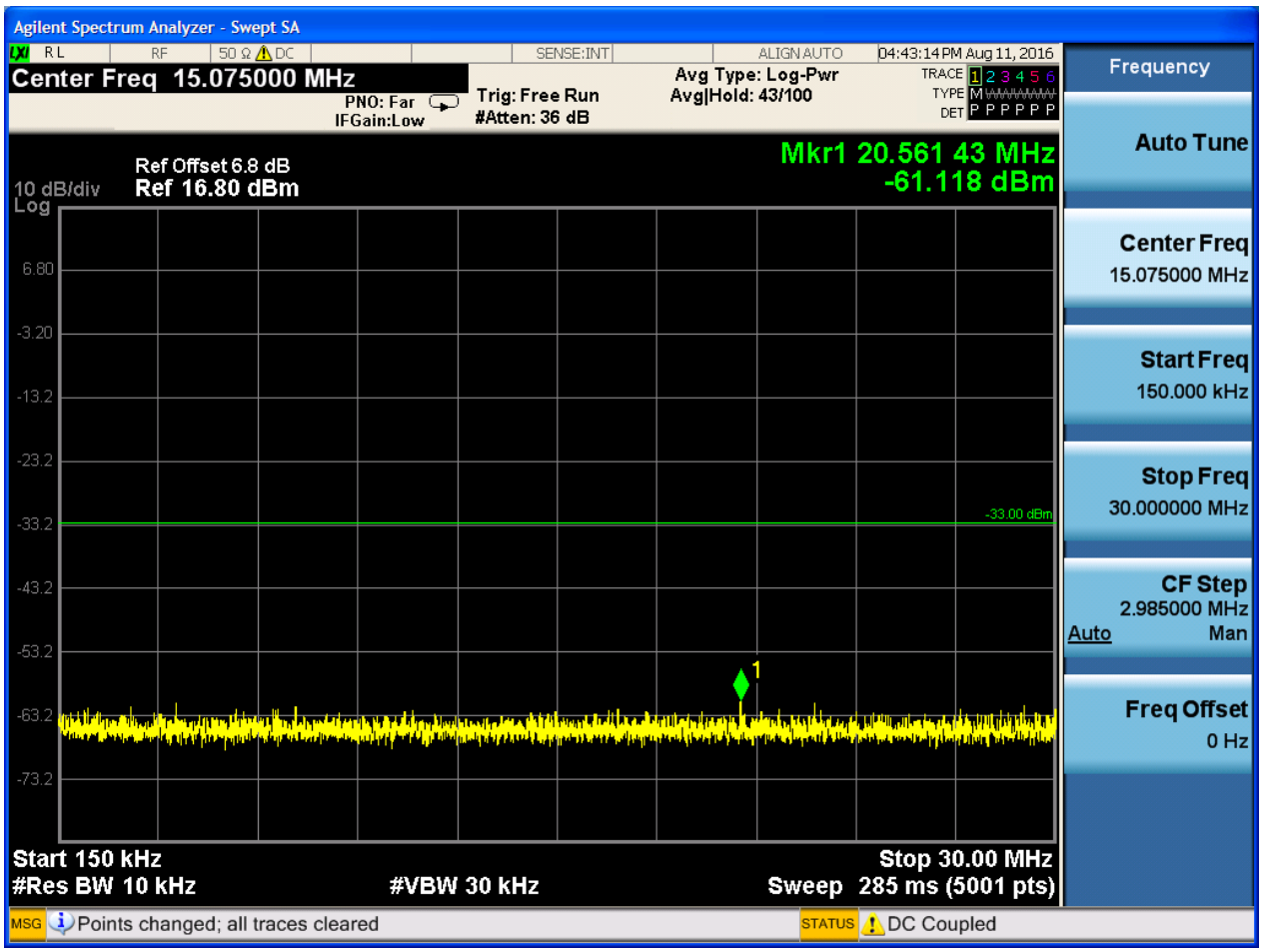

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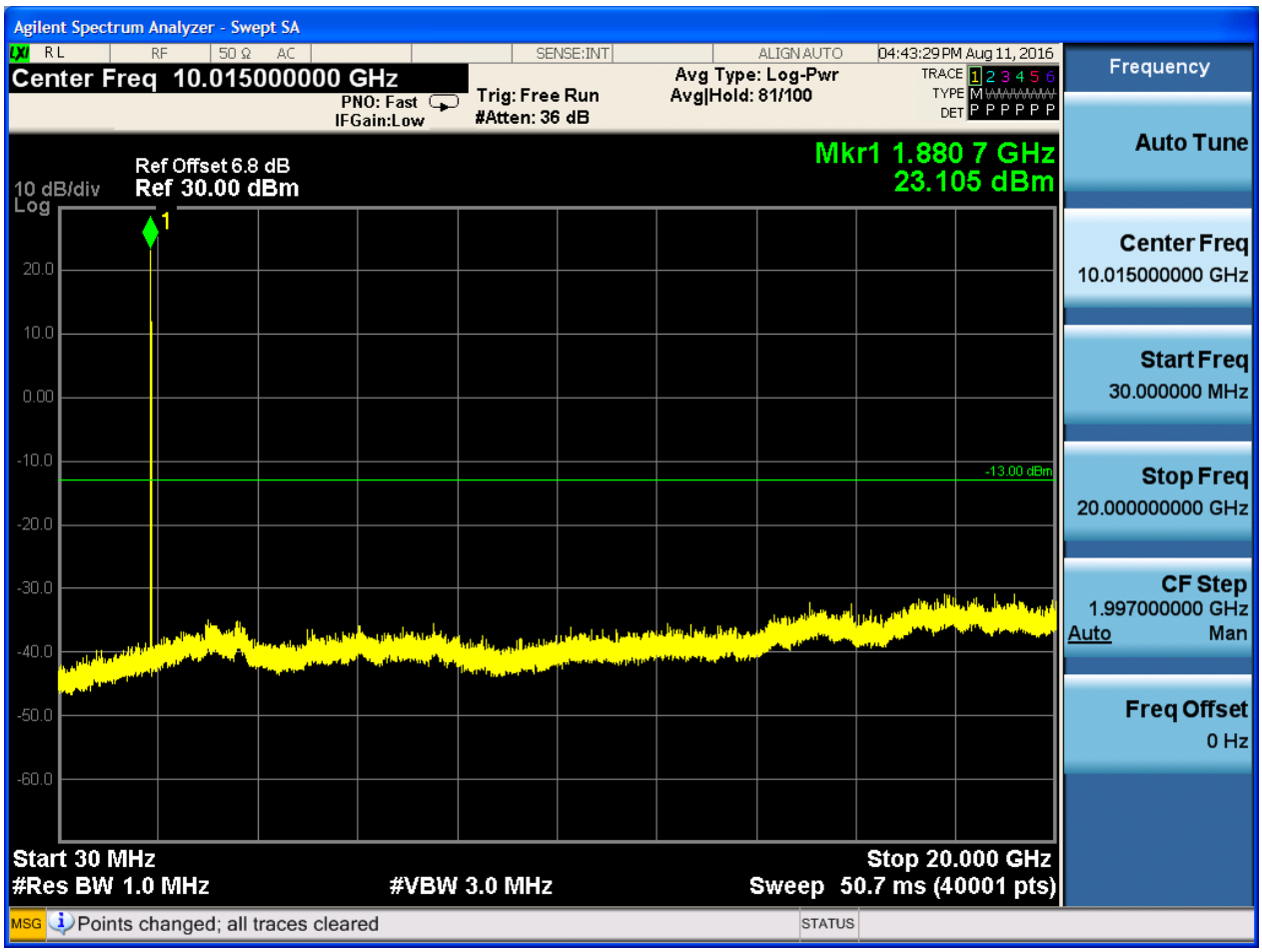

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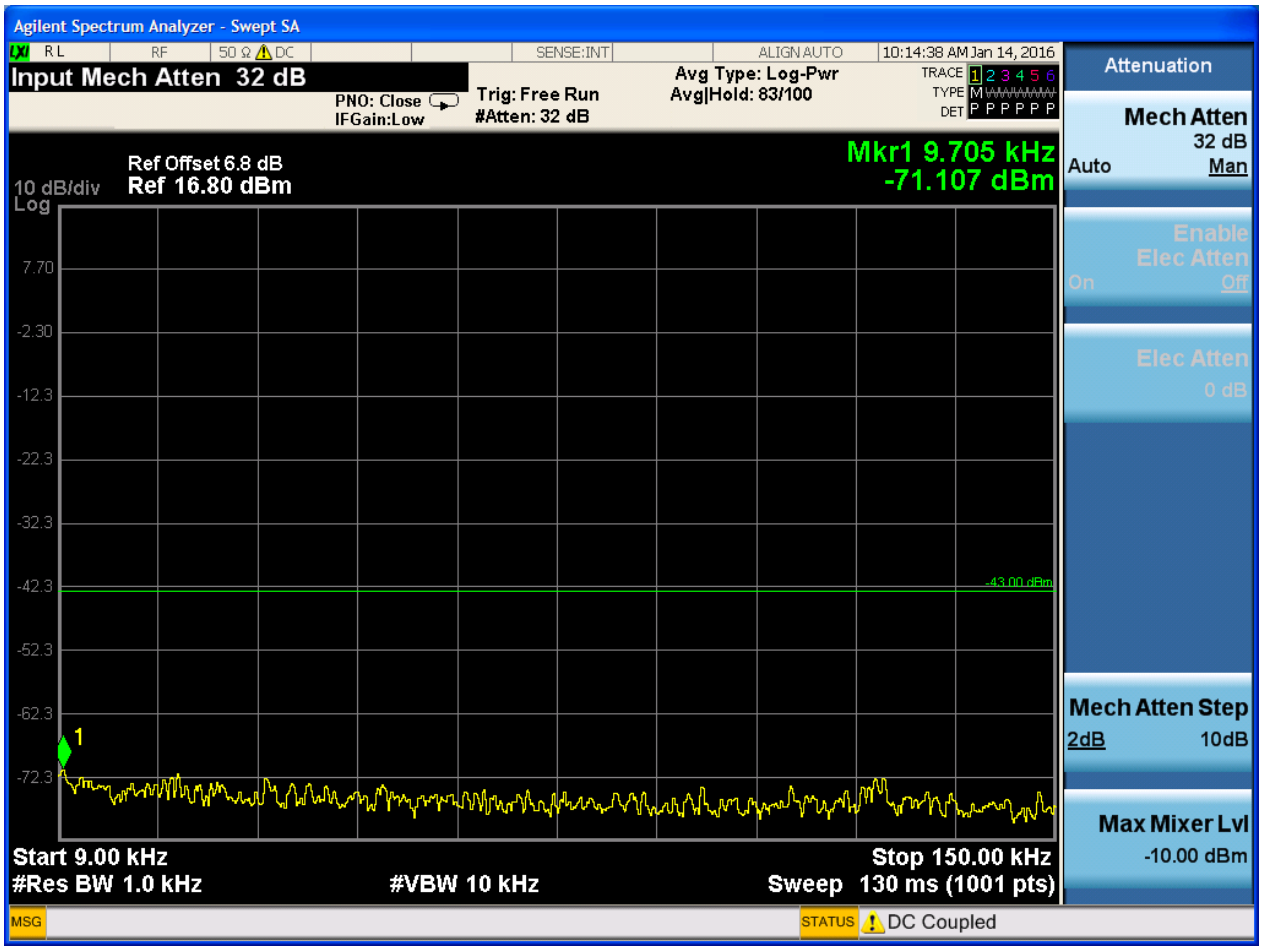
6.1.1.1.3 Test Channel = HCH



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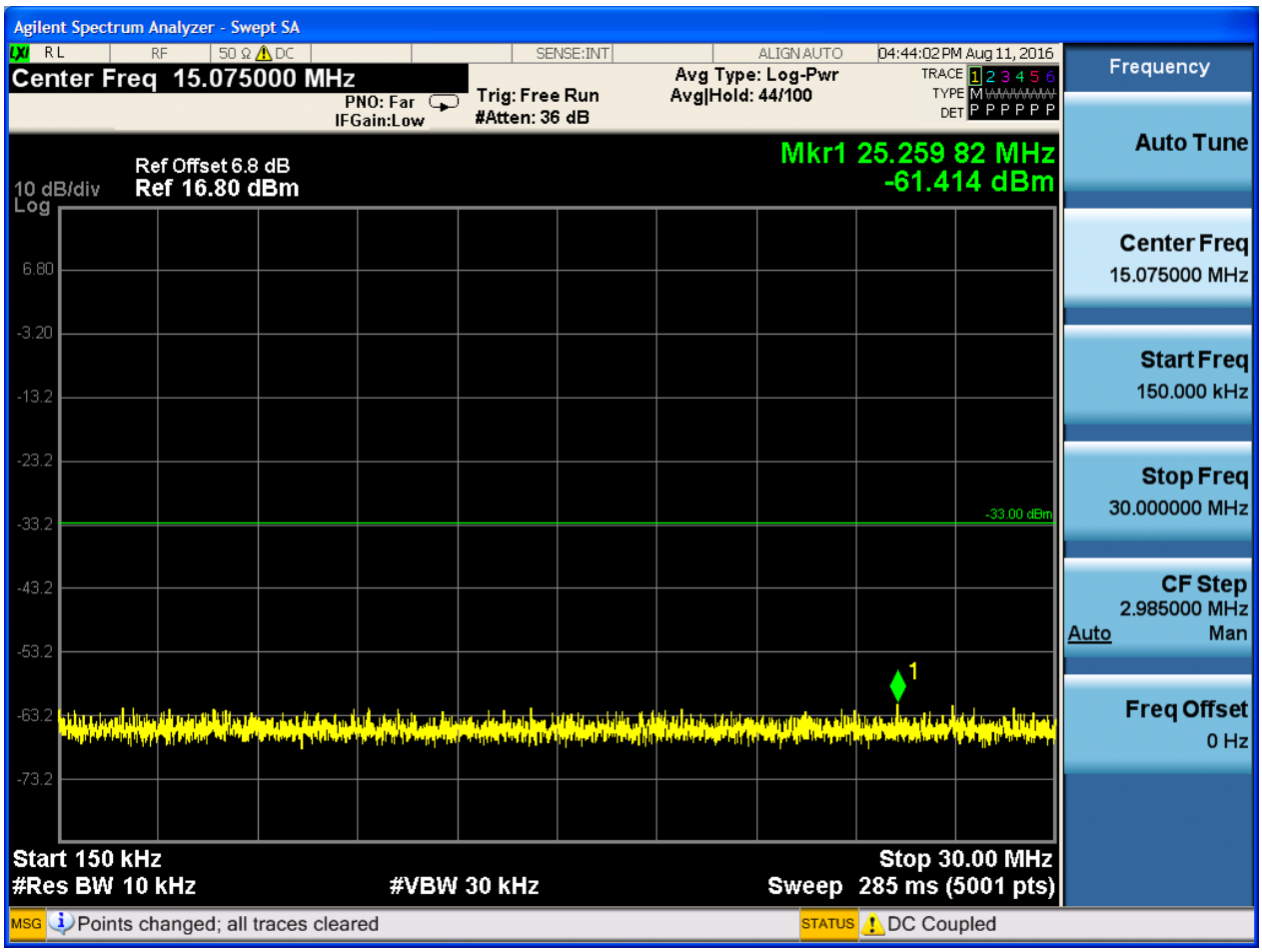

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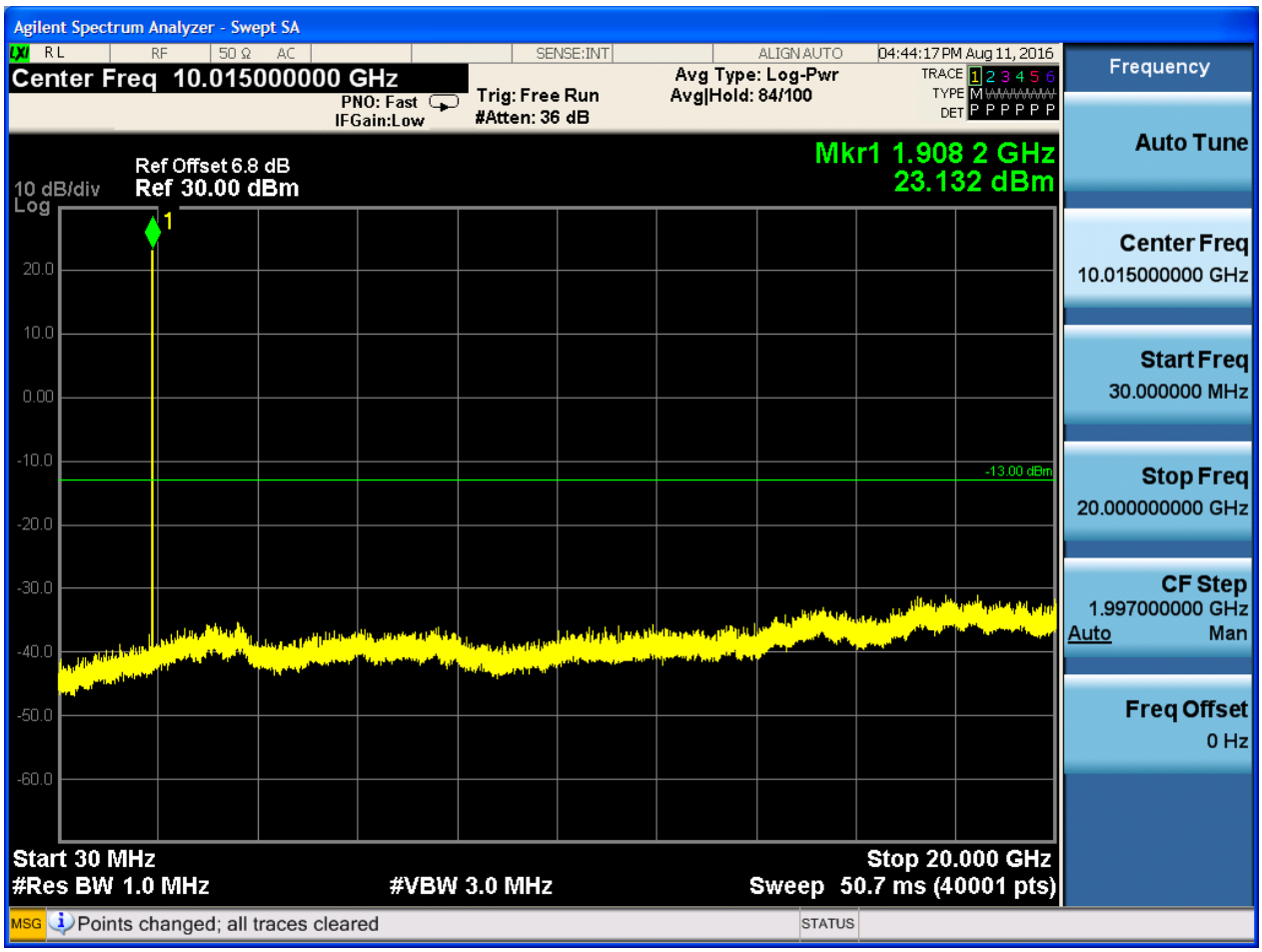

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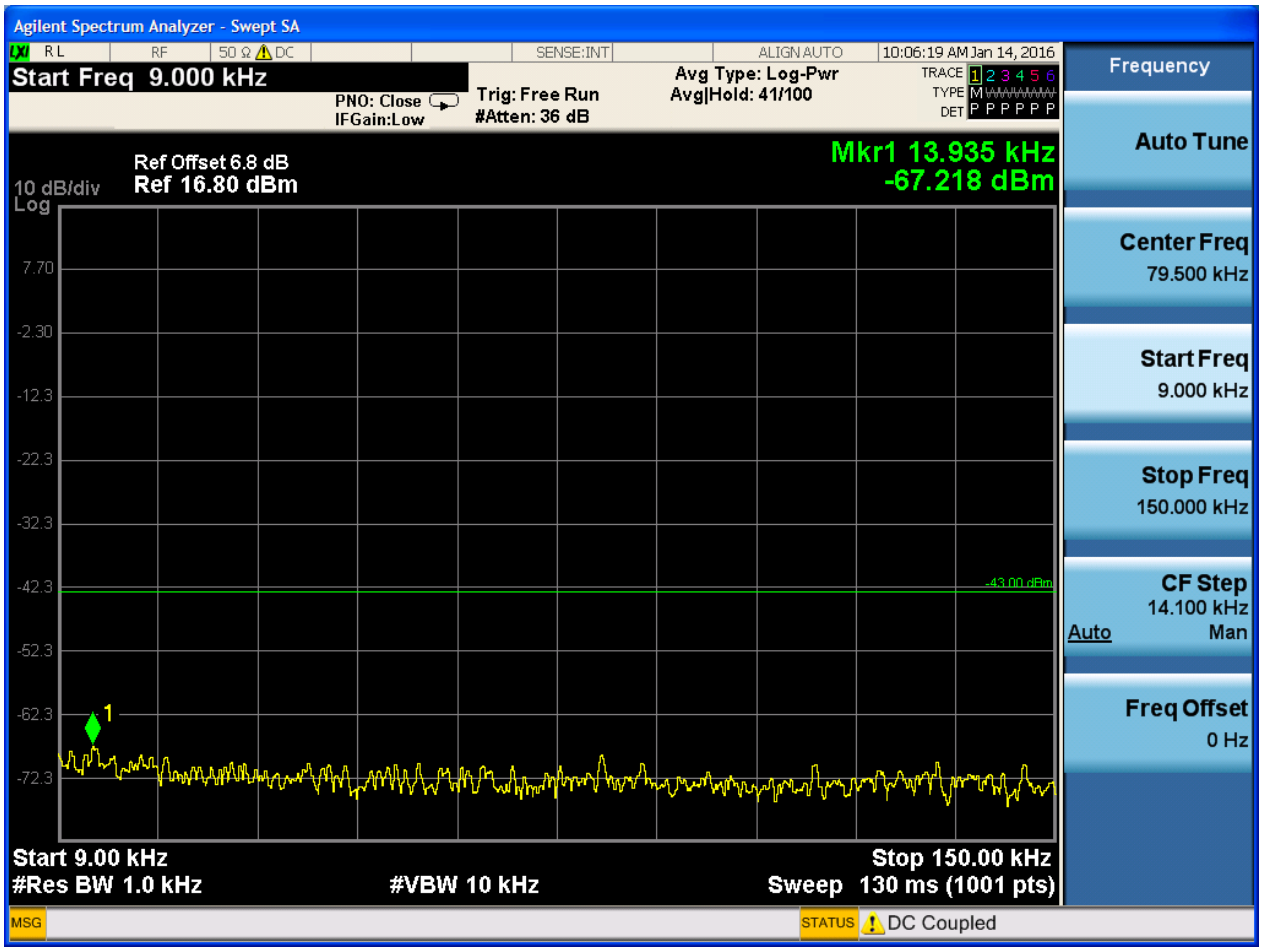
6.2 For UMTS

6.2.1 Test Band = WCDMA1700

6.2.1.1 Test Mode = UMTS/TM1

6.2.1.1.1 Test Channel = LCH



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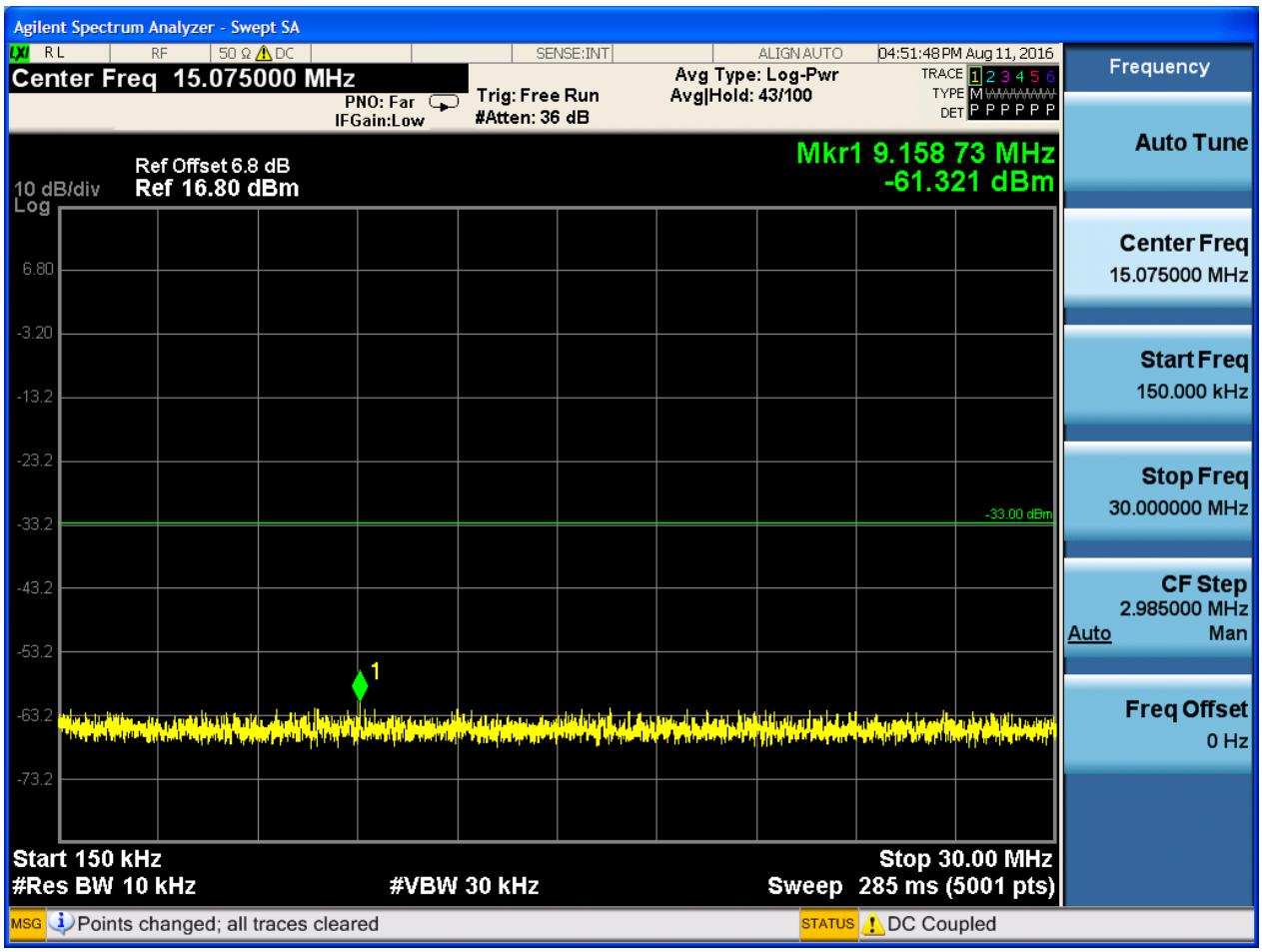

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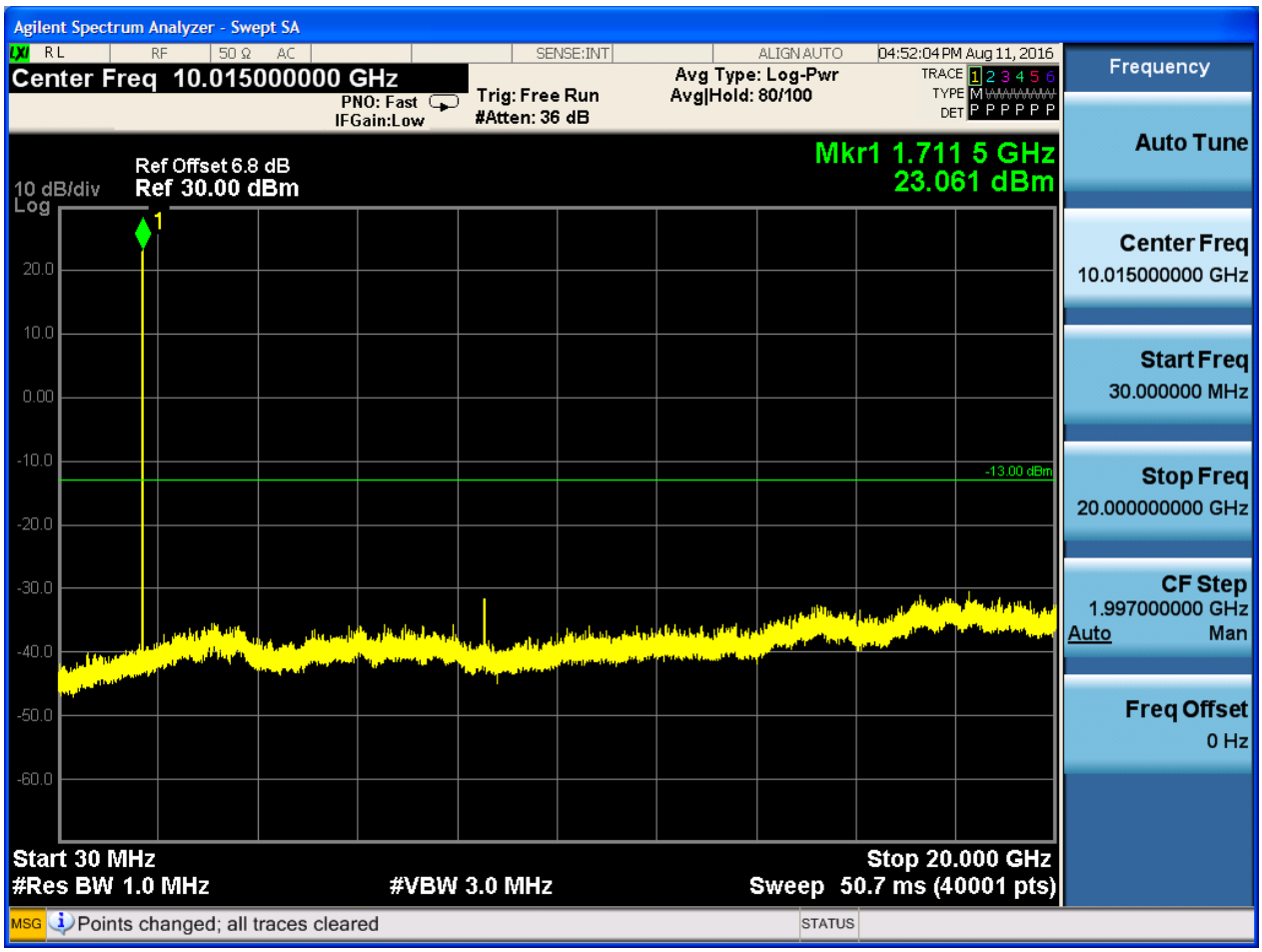

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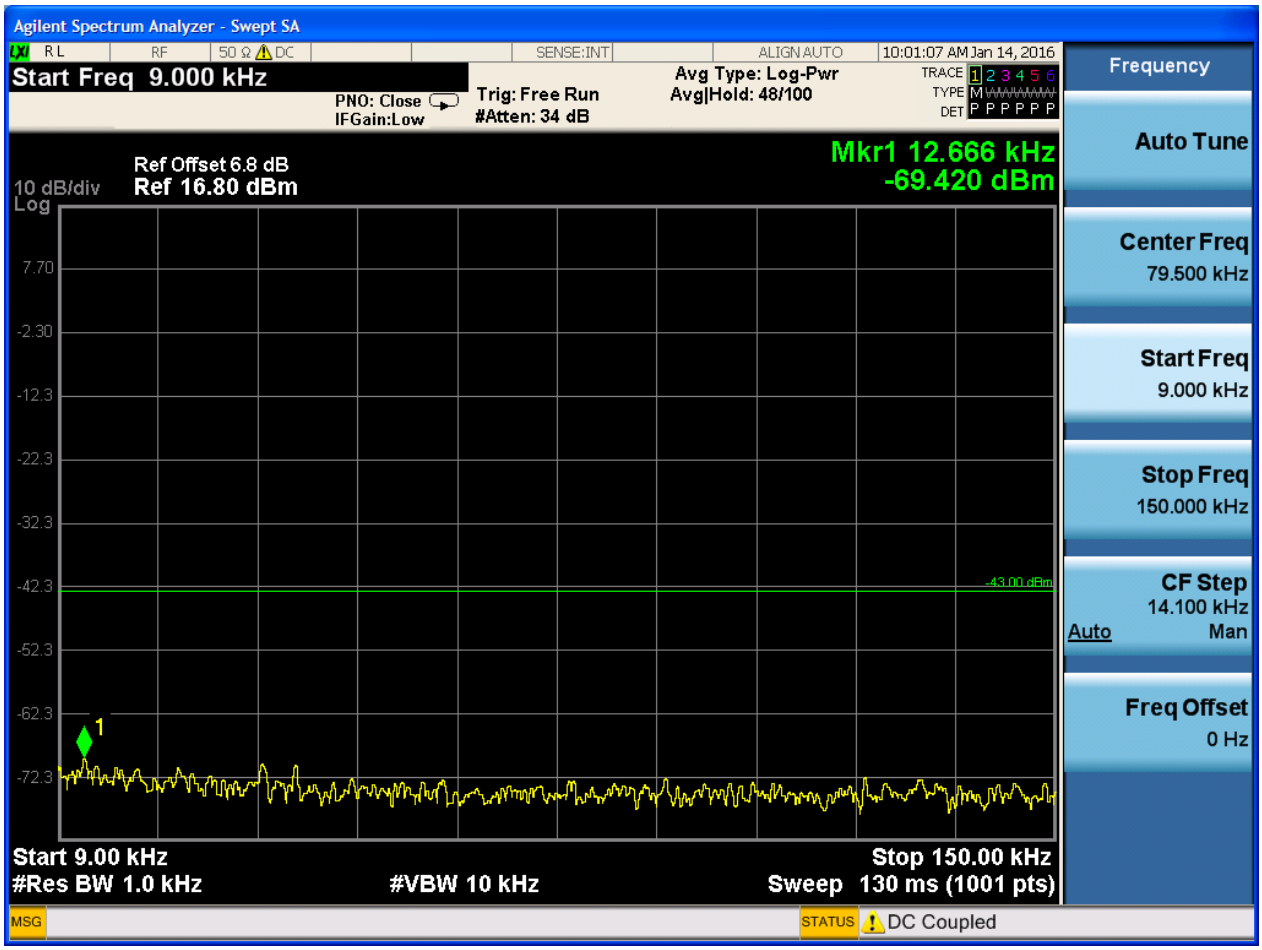
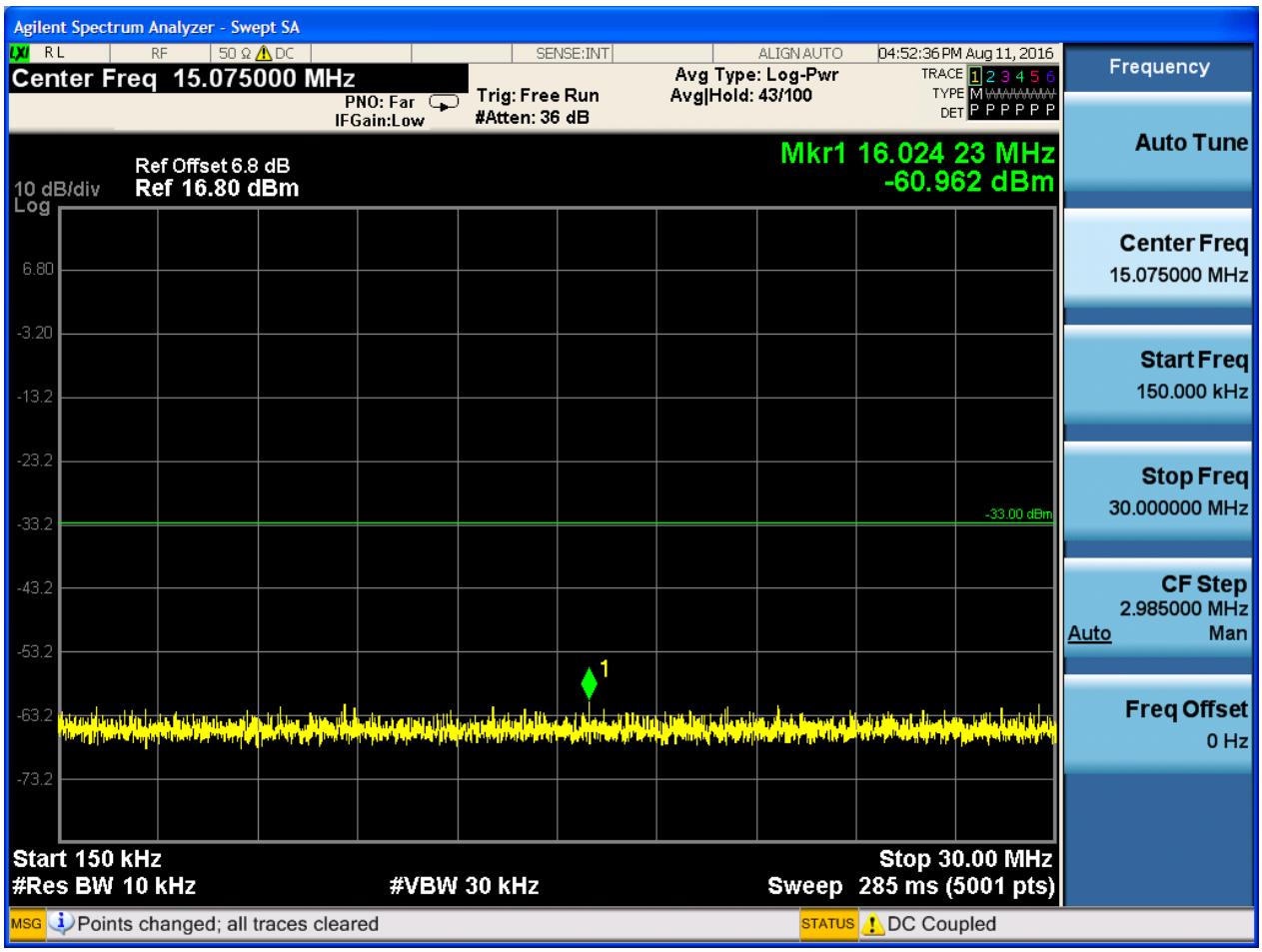
6.2.1.1.2 Test Channel = MCH





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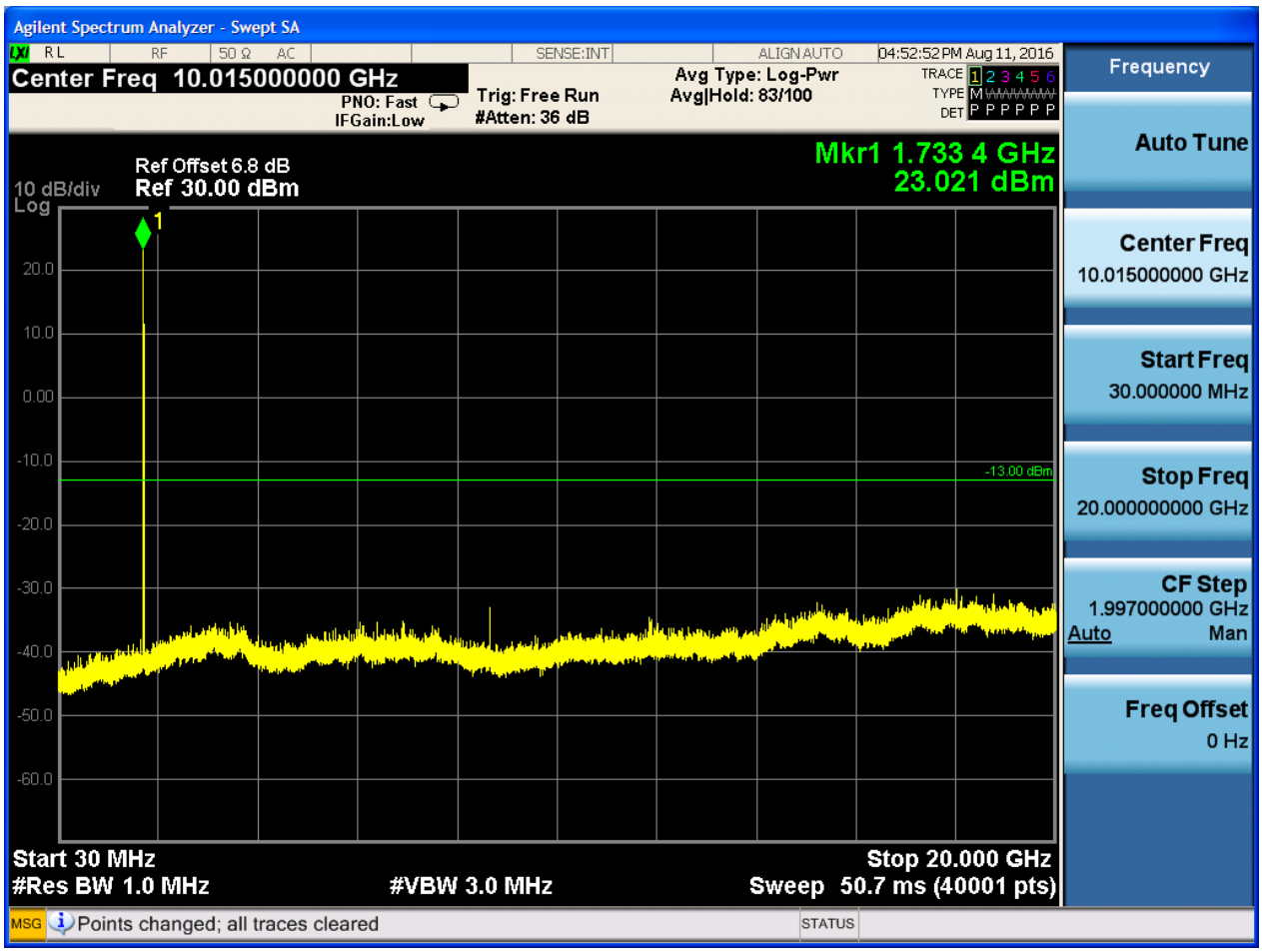

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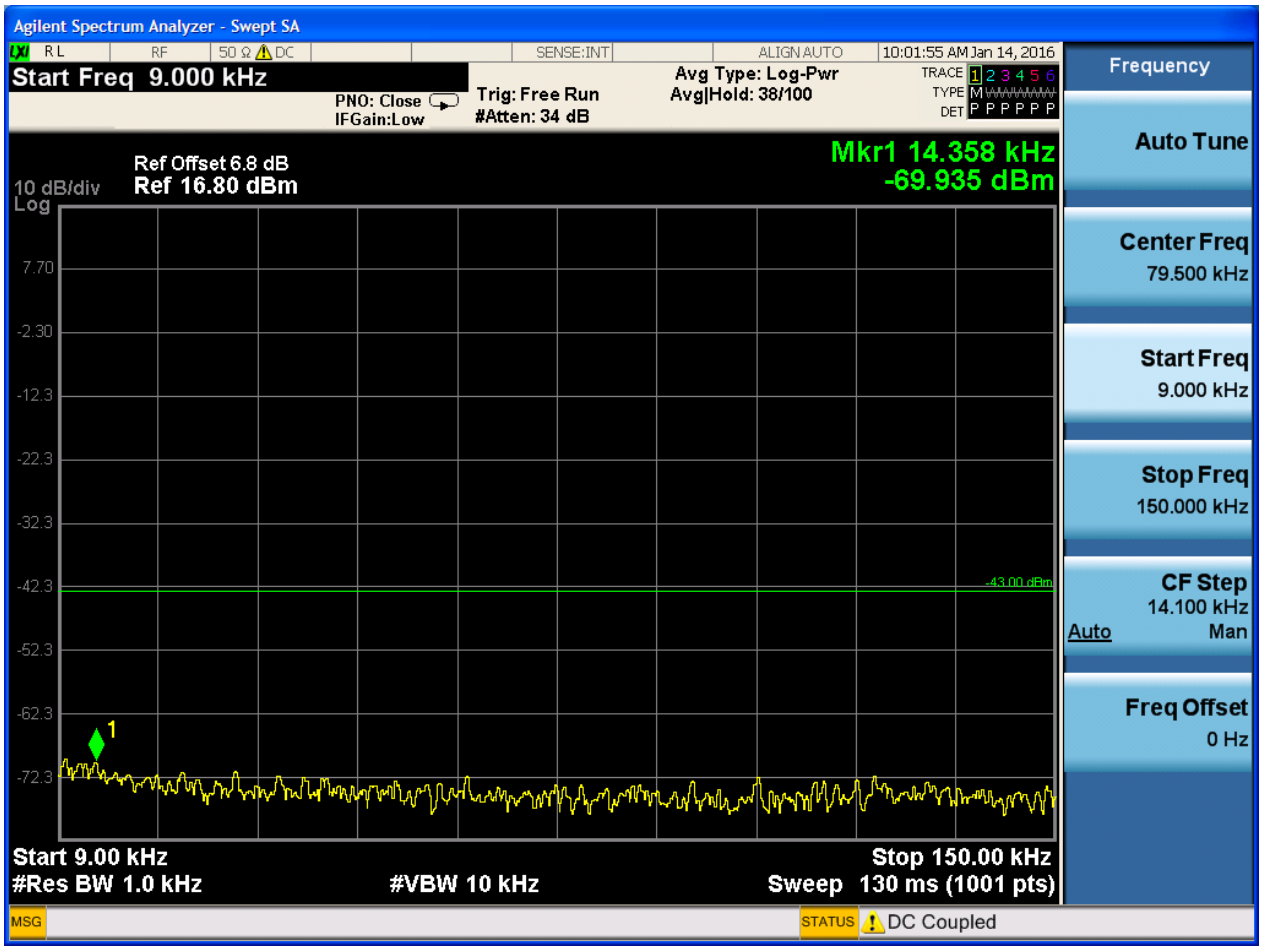
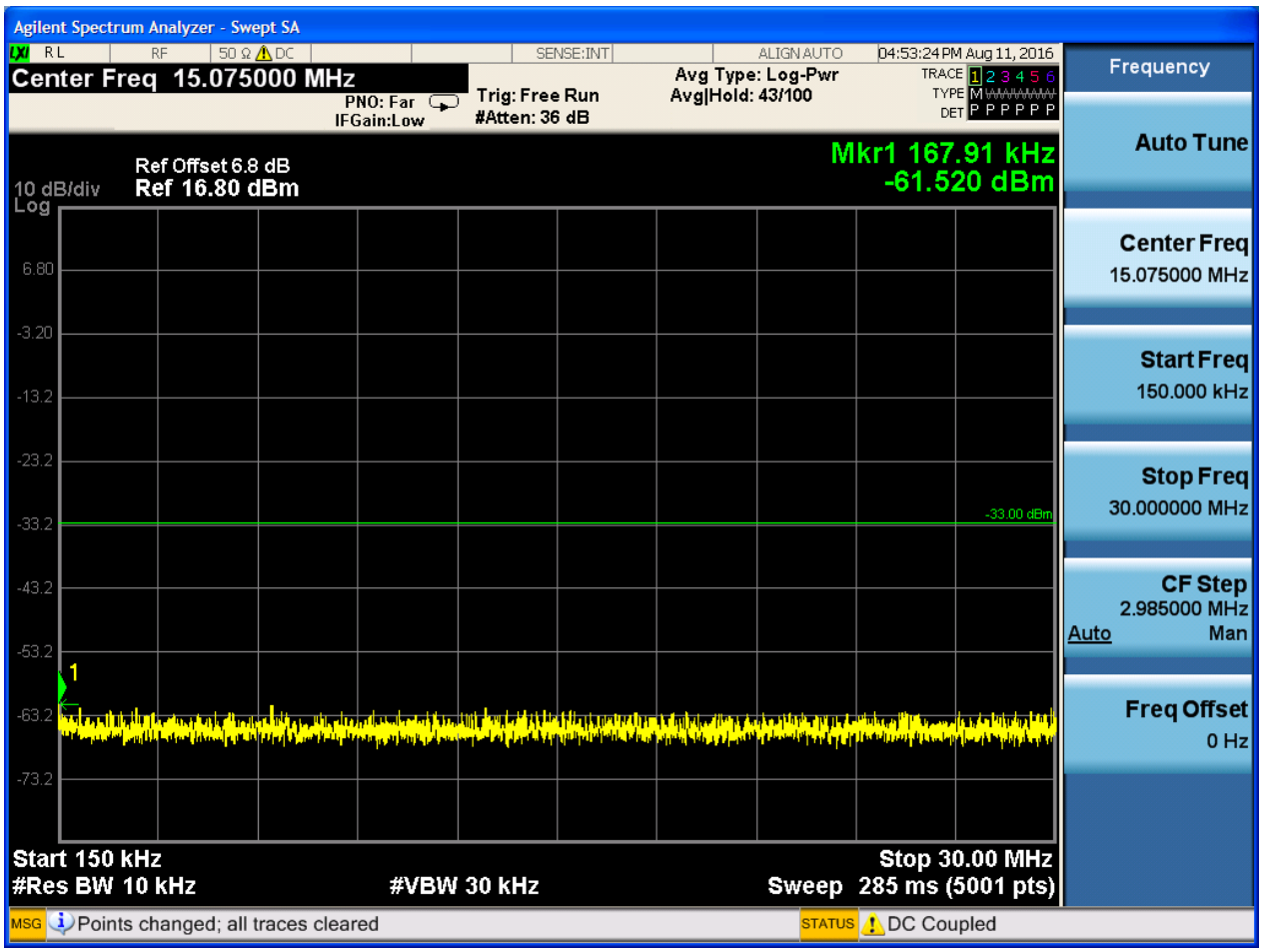
6.2.1.1.3 Test Channel = HCH





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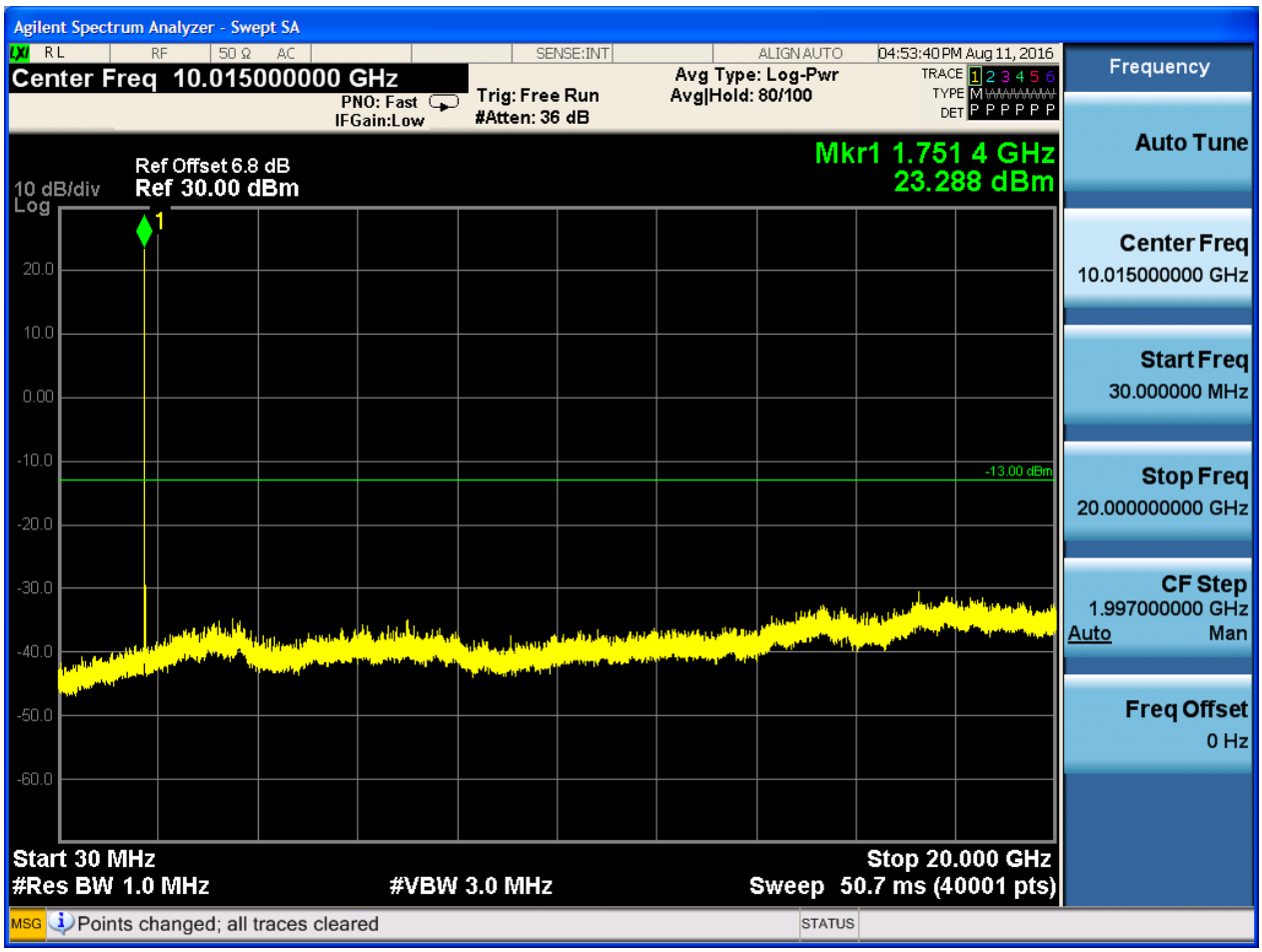

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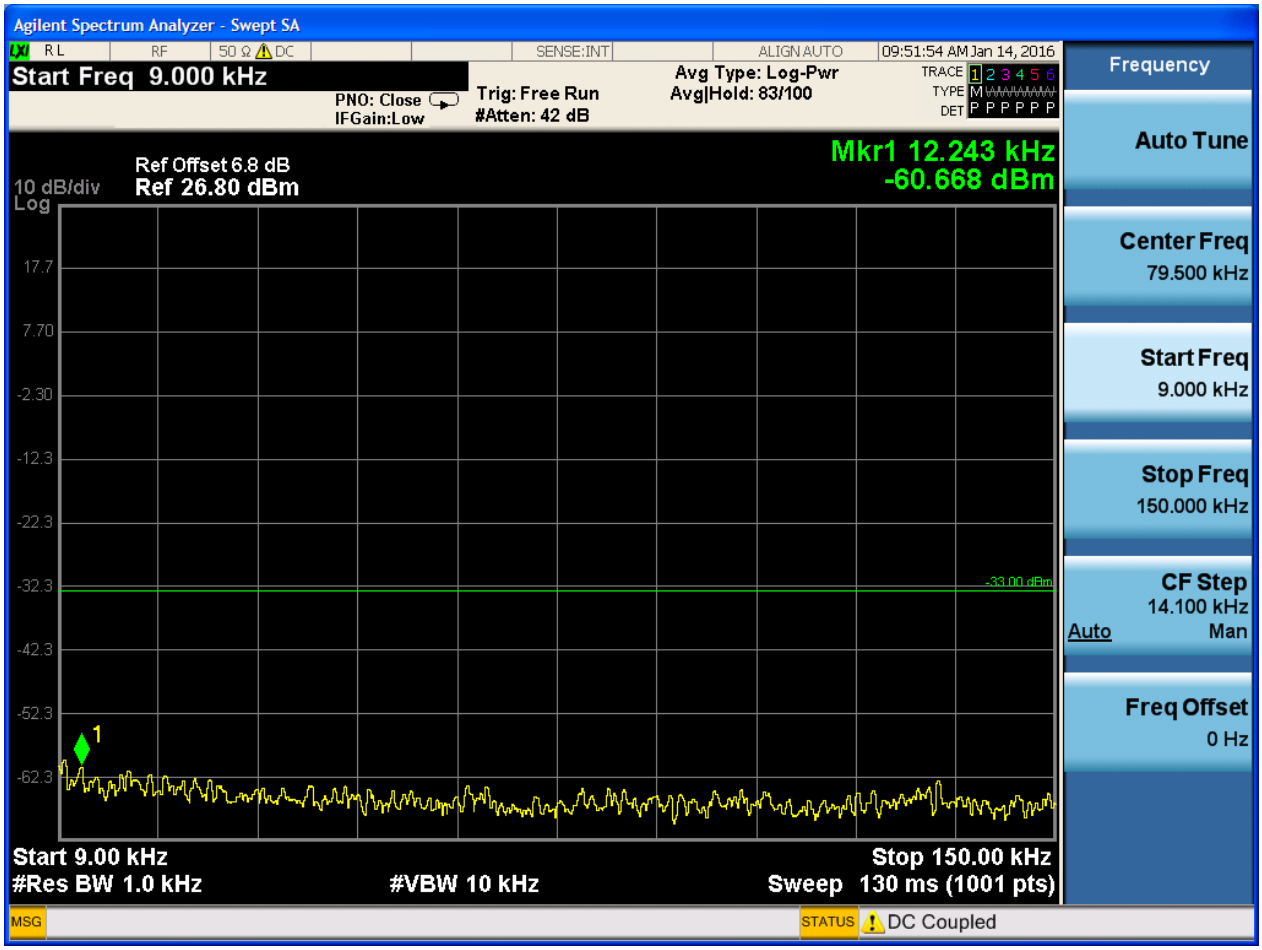
6.2.2 Test Band = WCDMA850

6.2.2.1 Test Mode = UMTS/TM1

6.2.2.1.1 Test Channel = LCH



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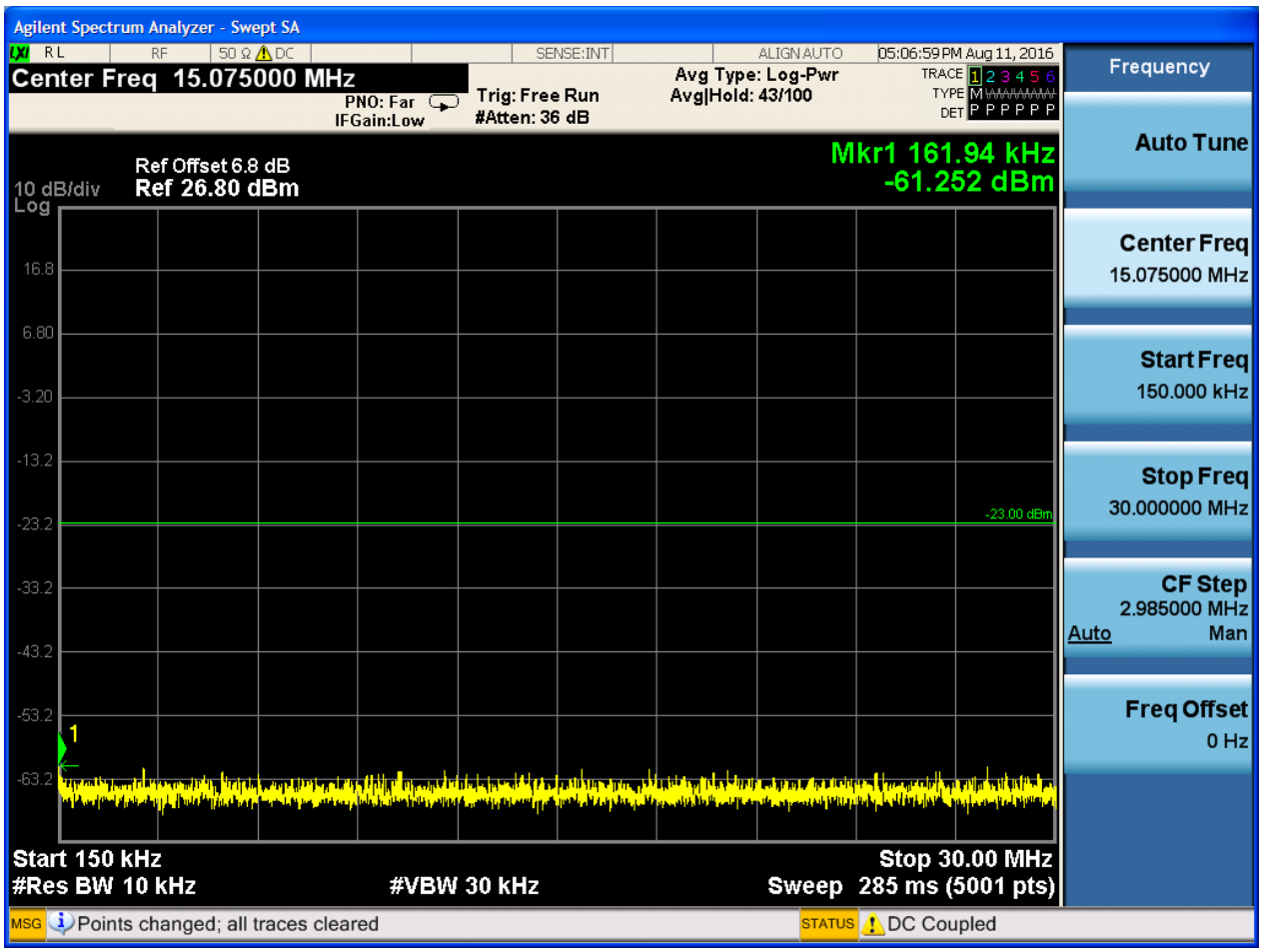

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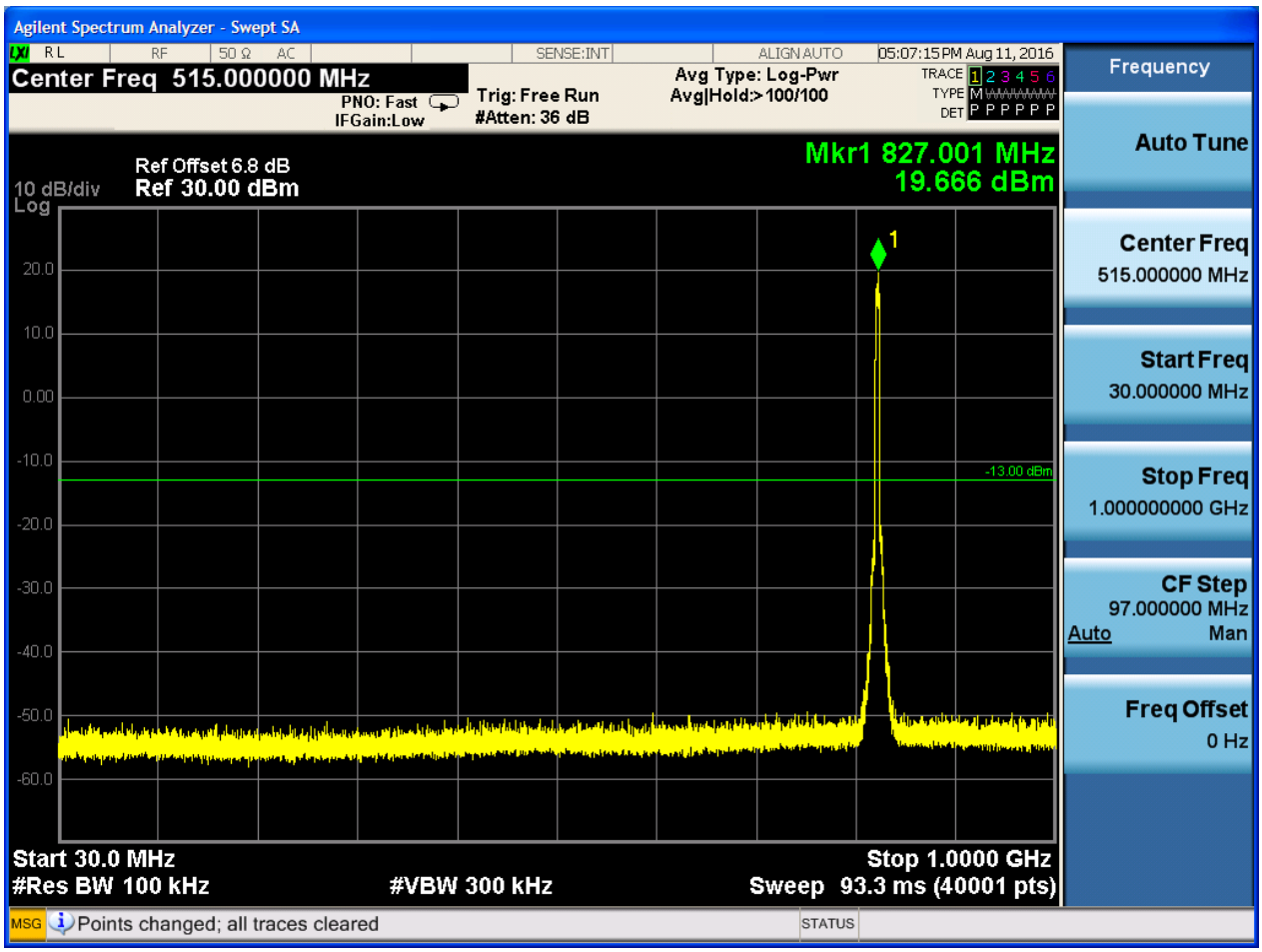

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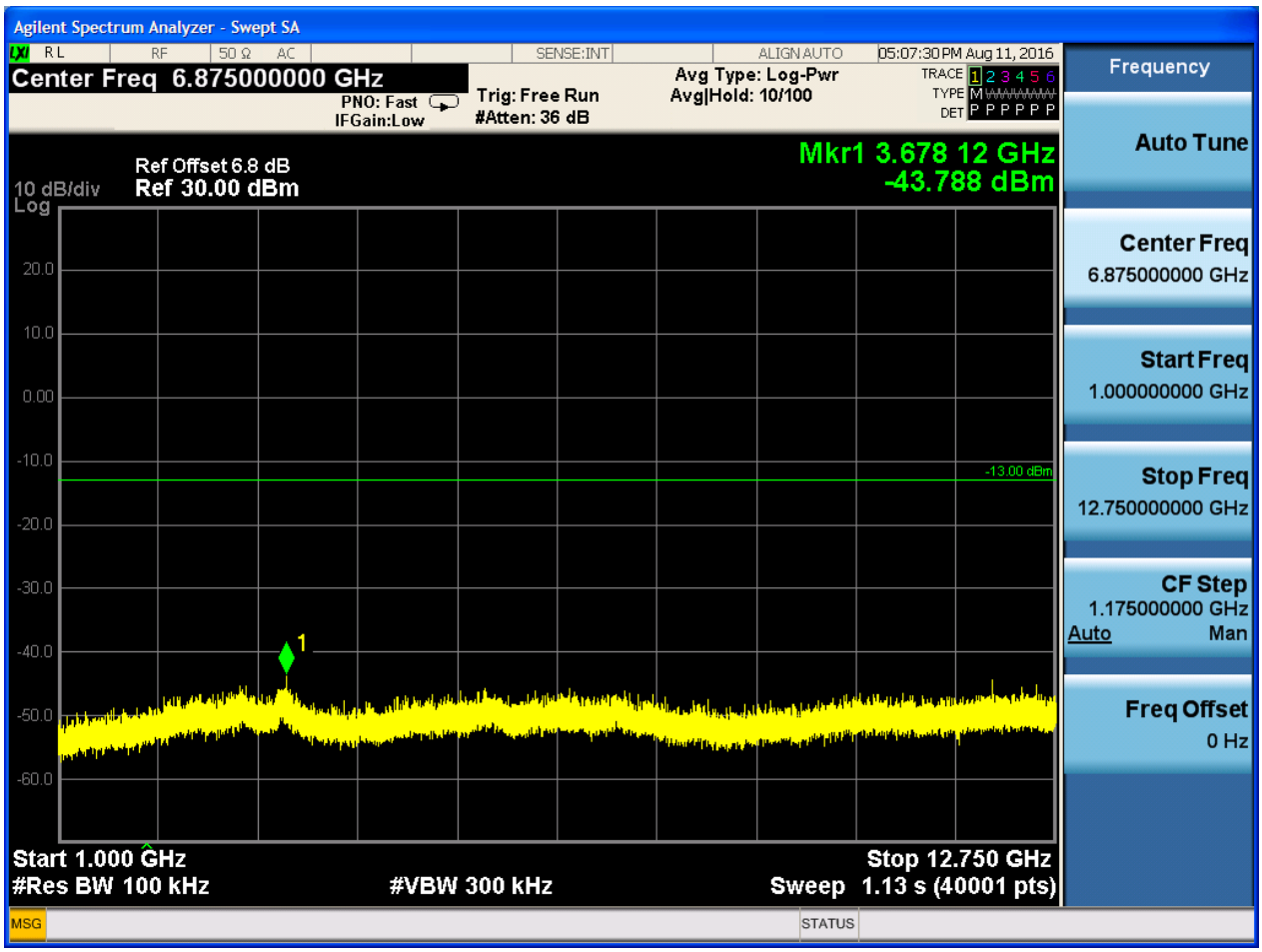

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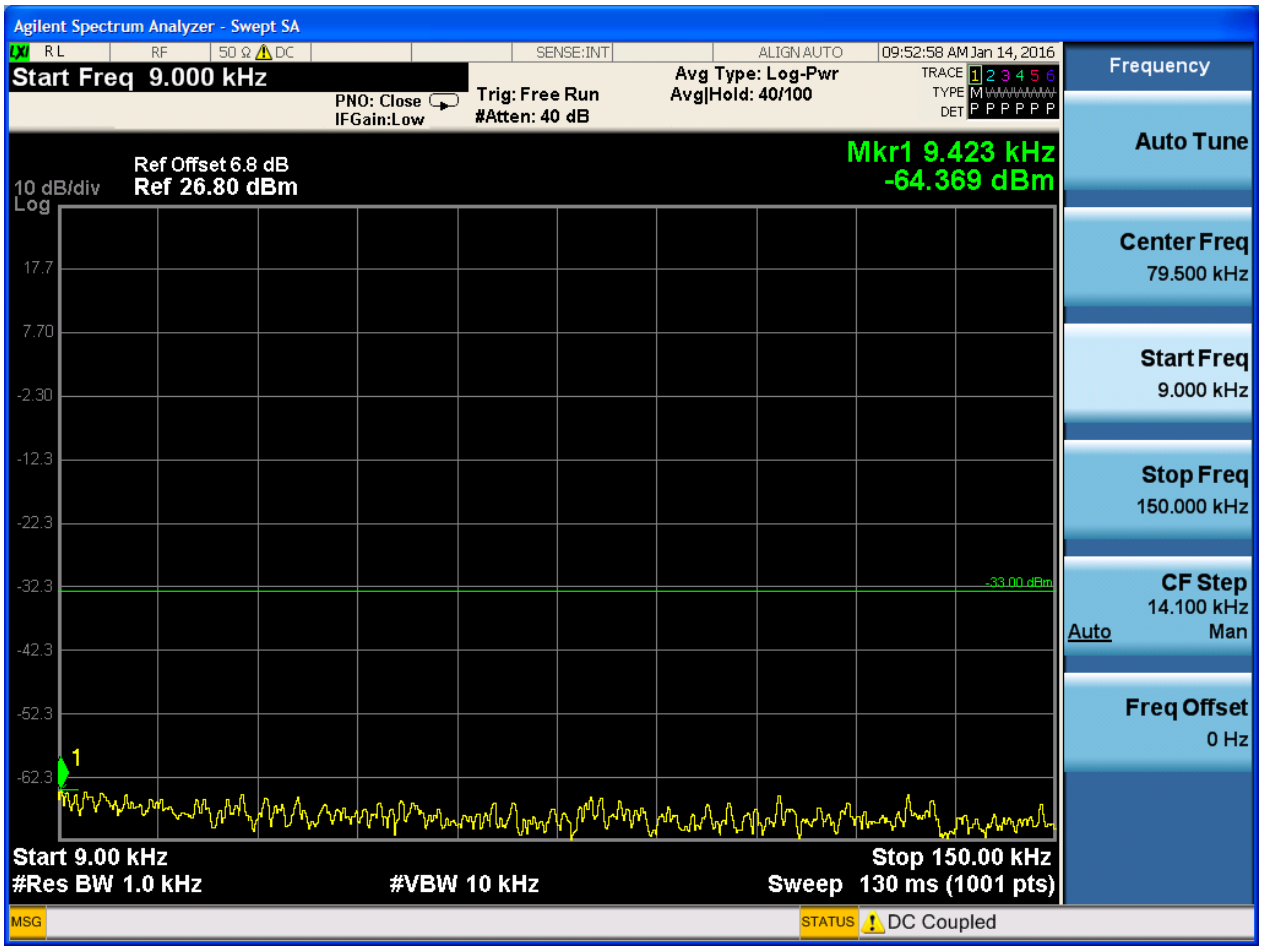
6.2.2.1.2 Test Channel = MCH



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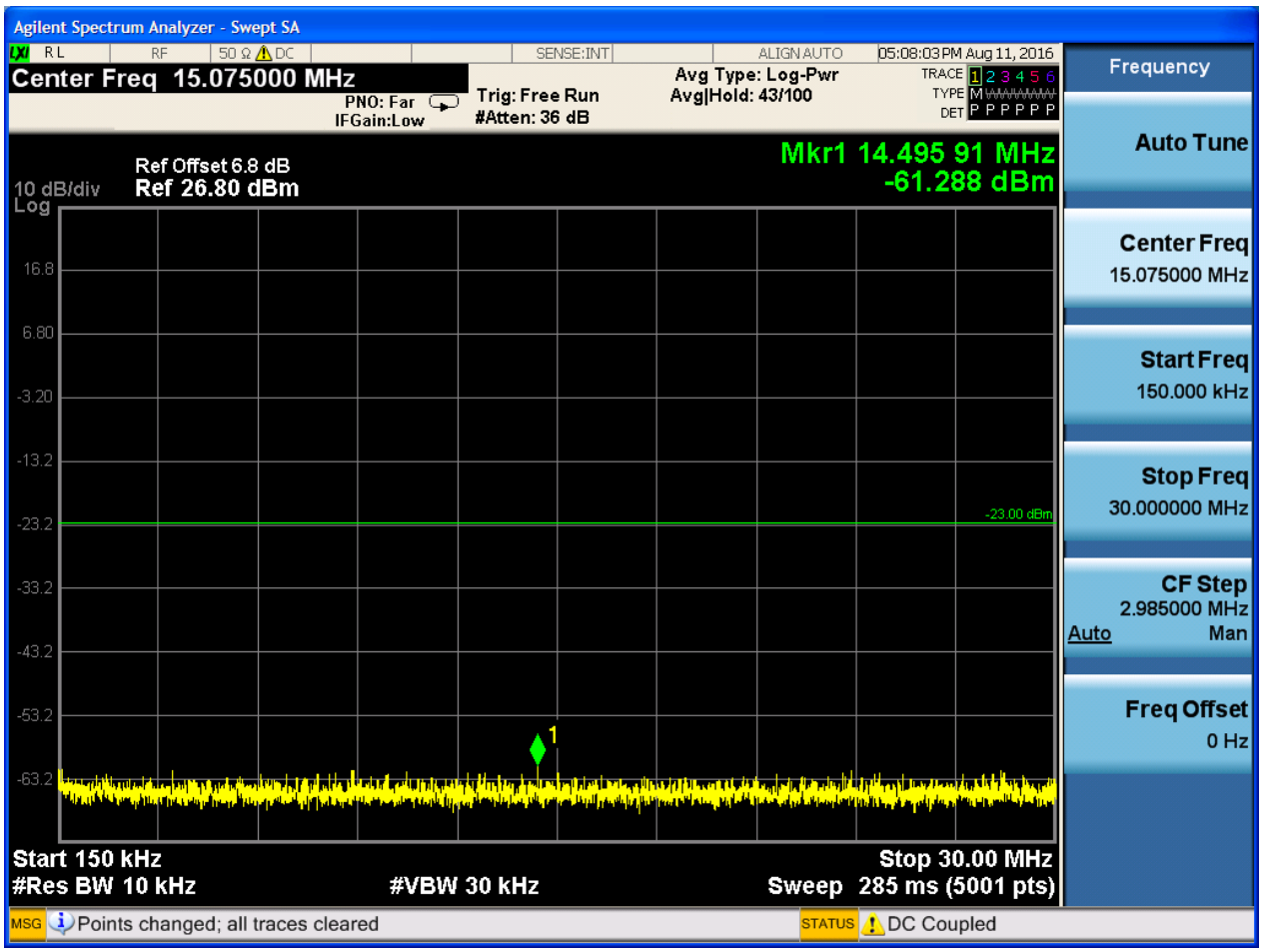

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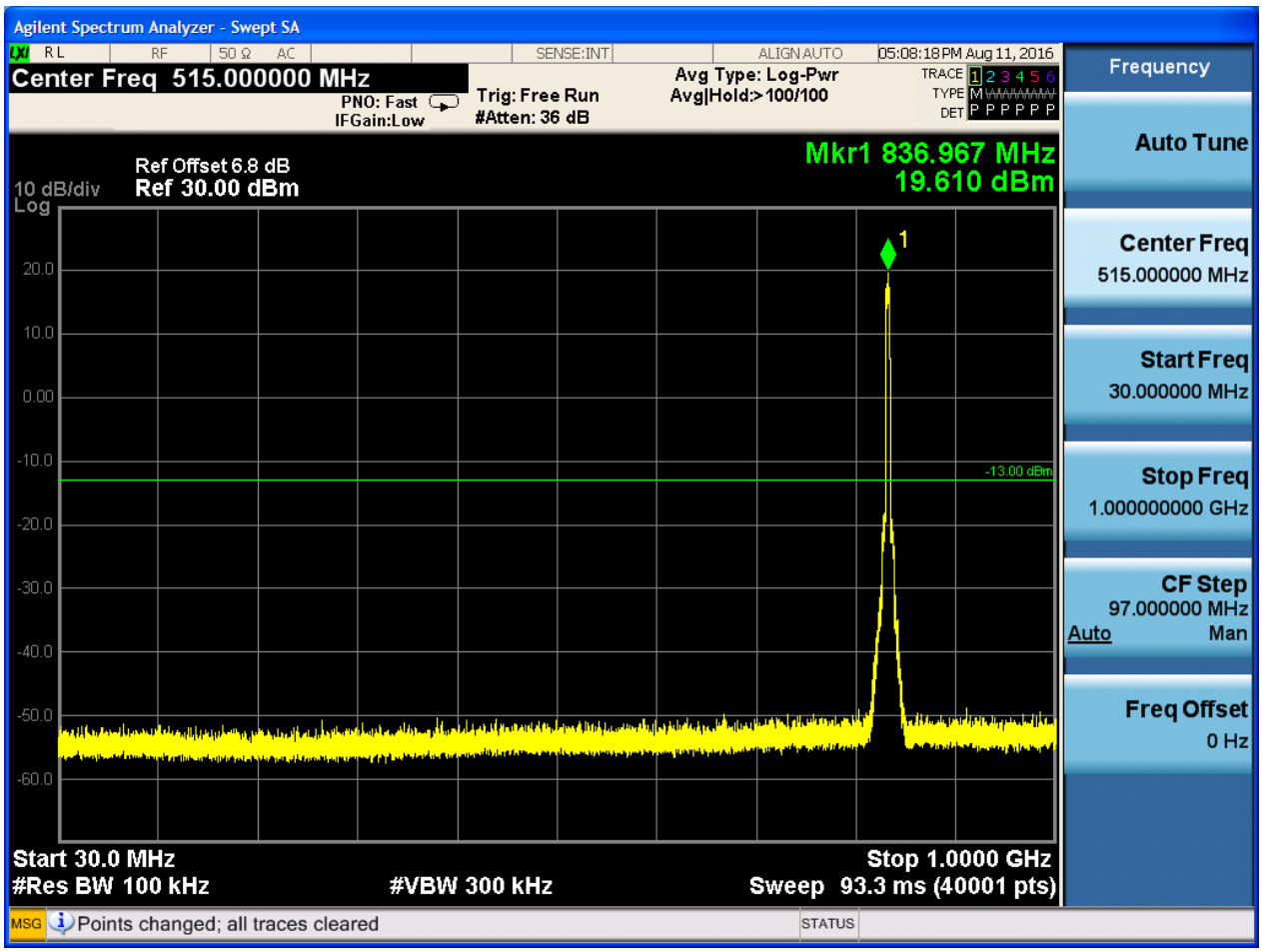

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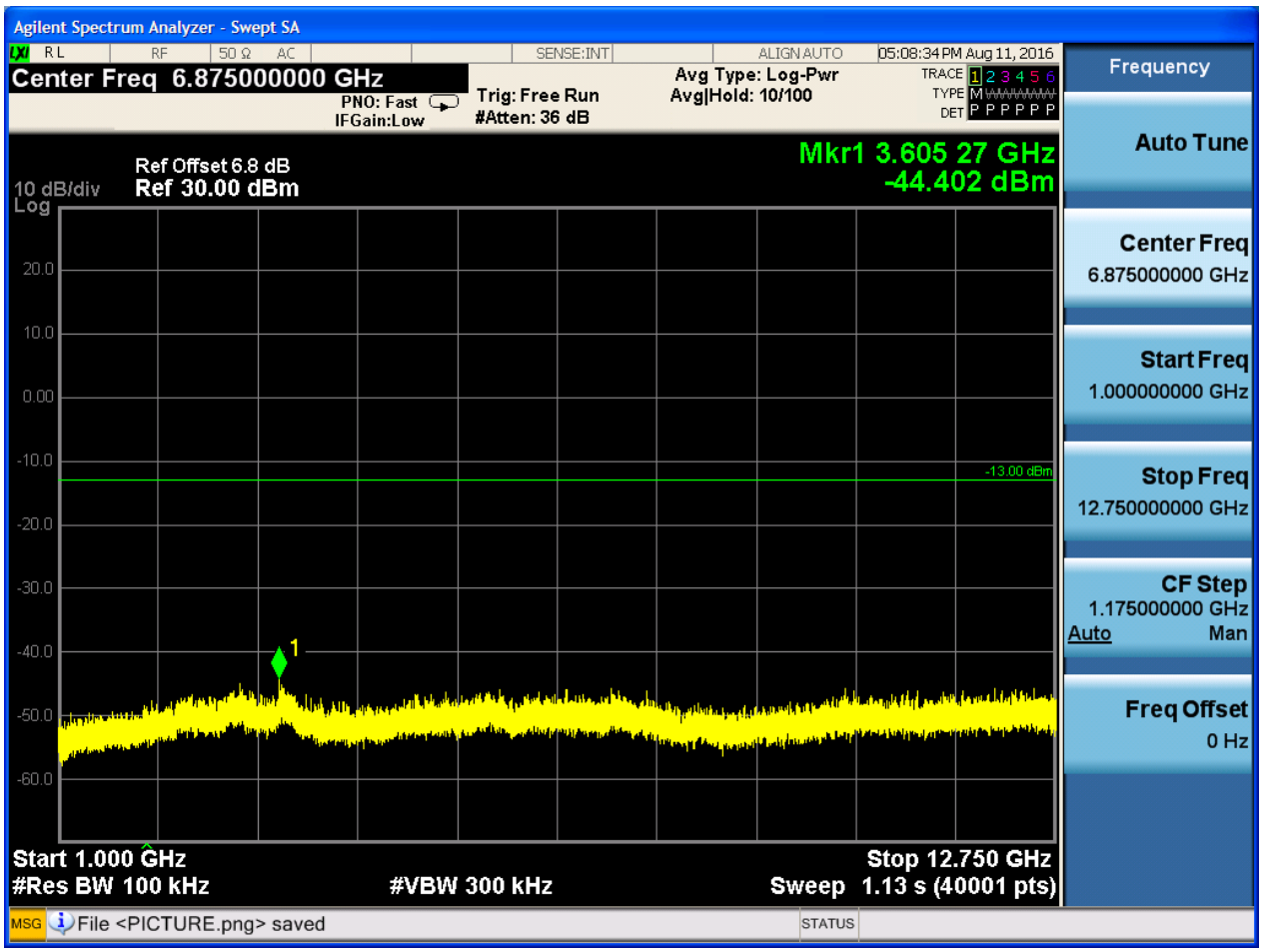

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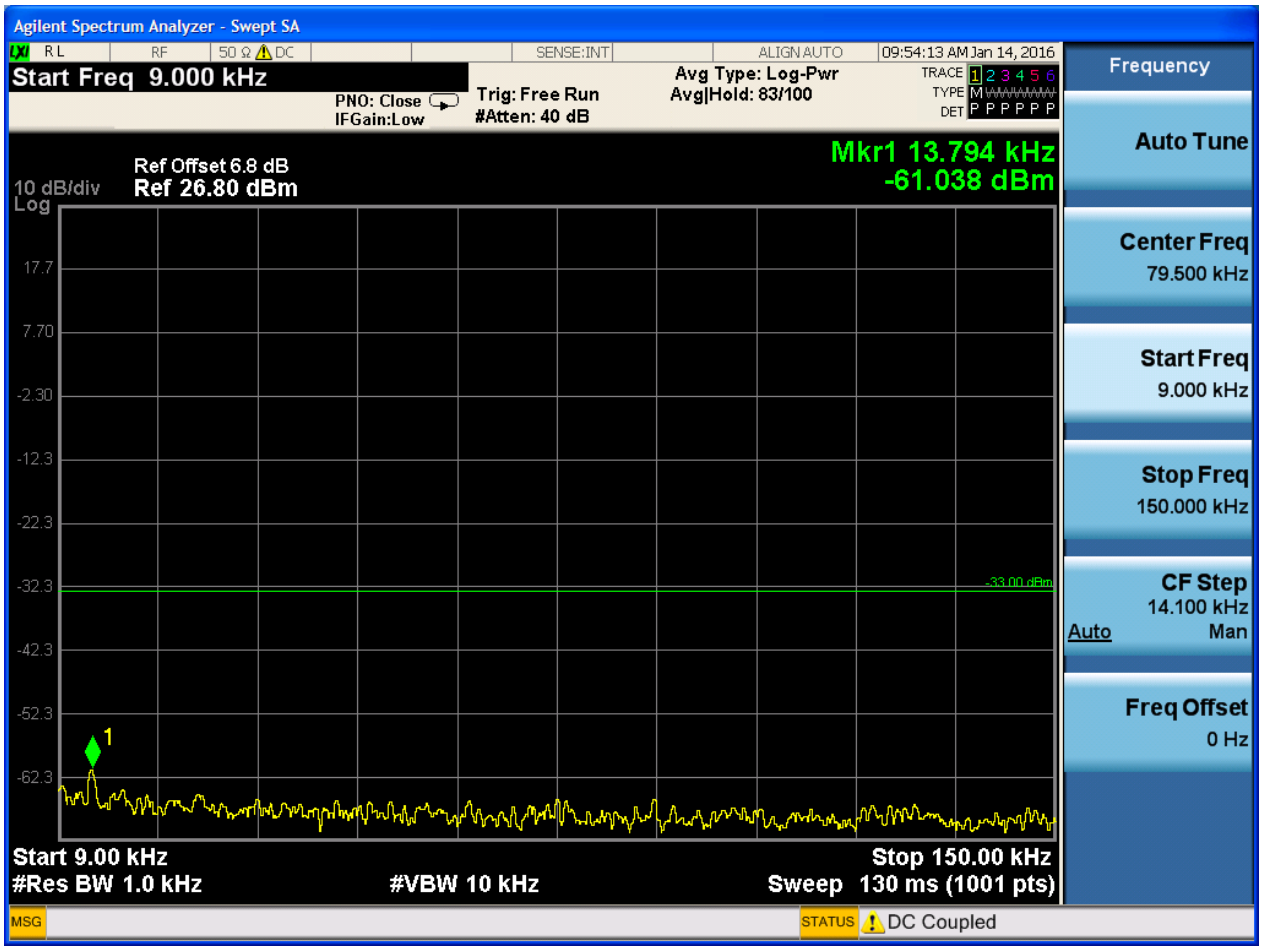
6.2.2.1.3 Test Channel = HCH



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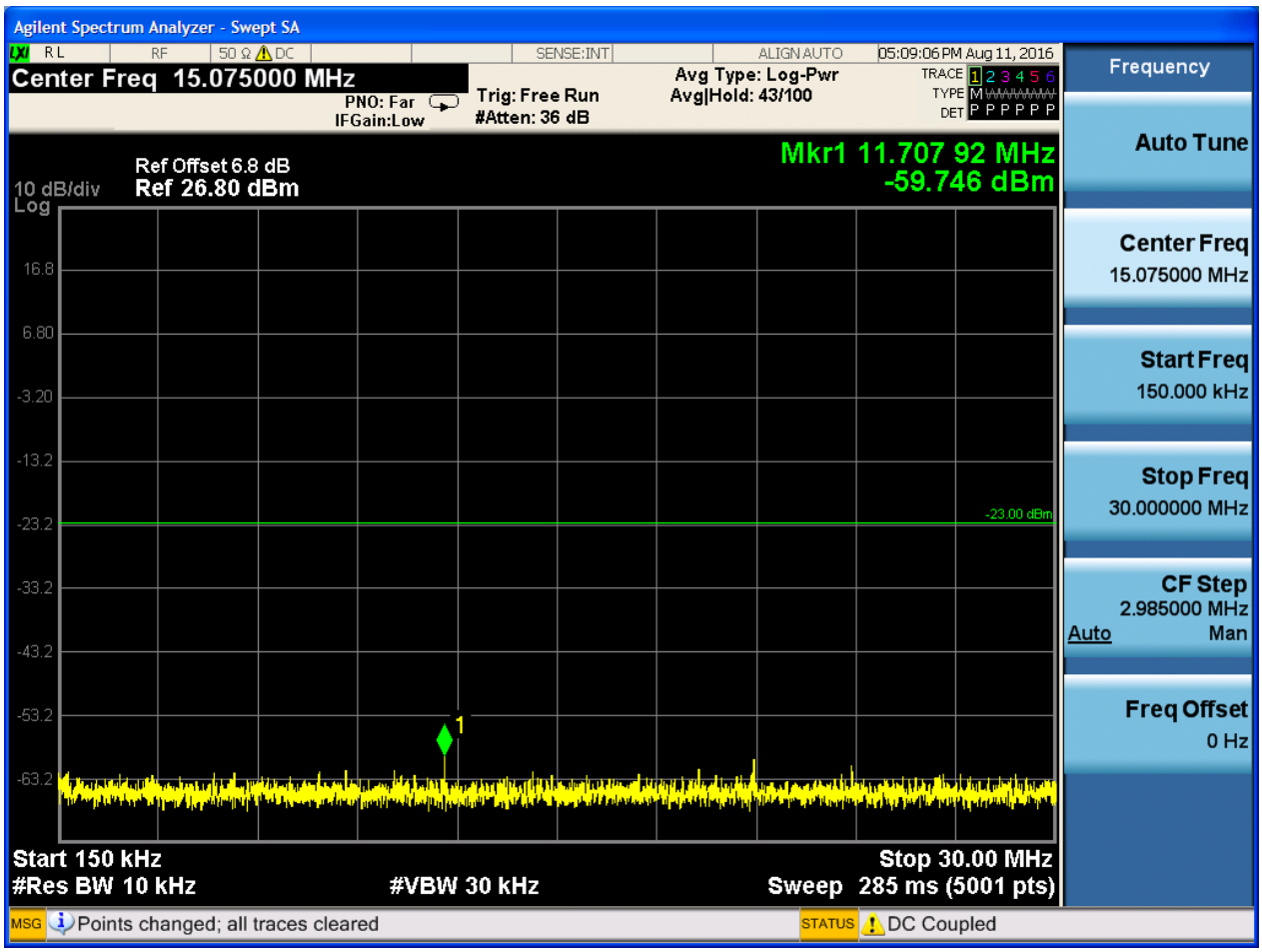

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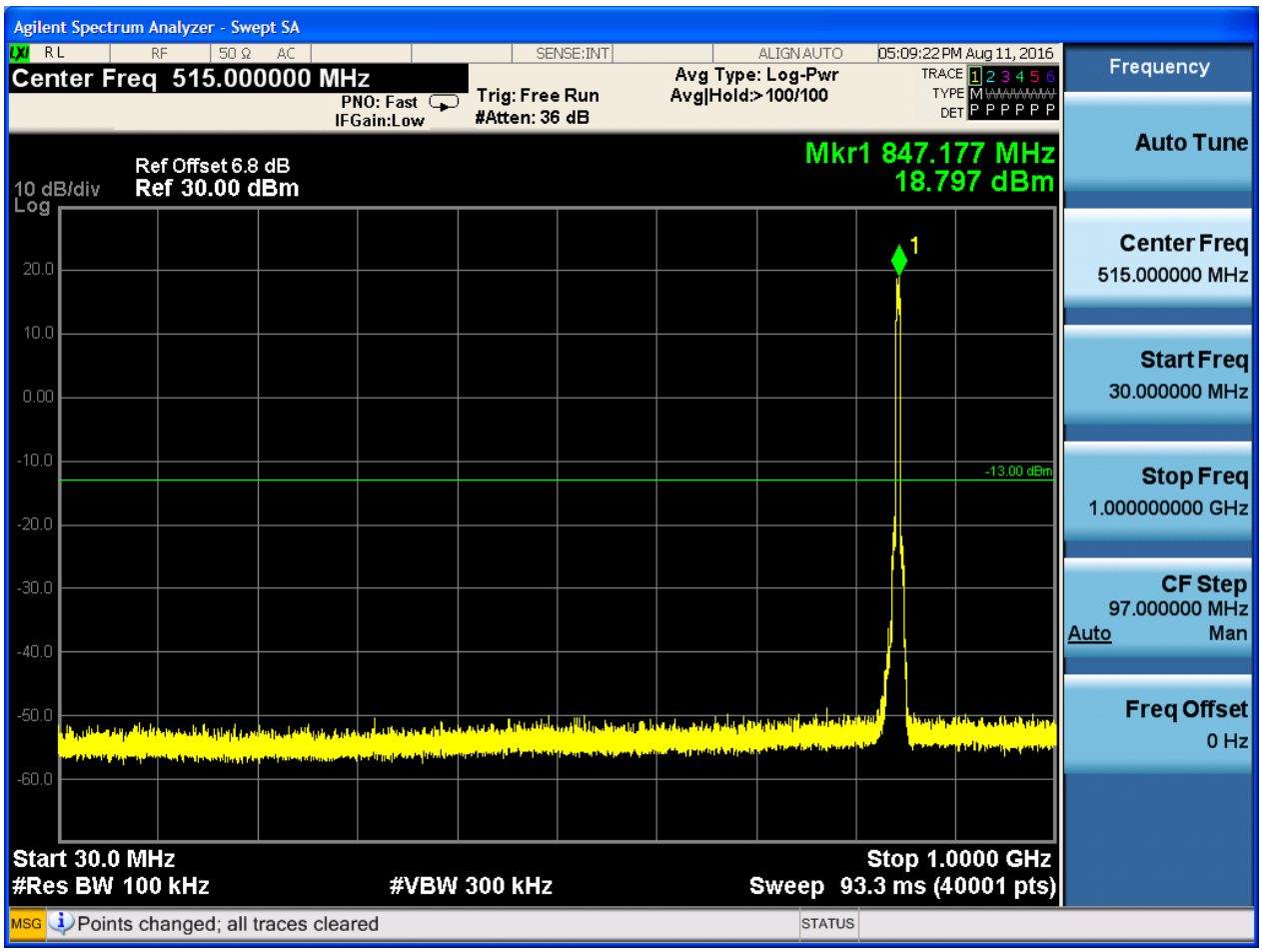

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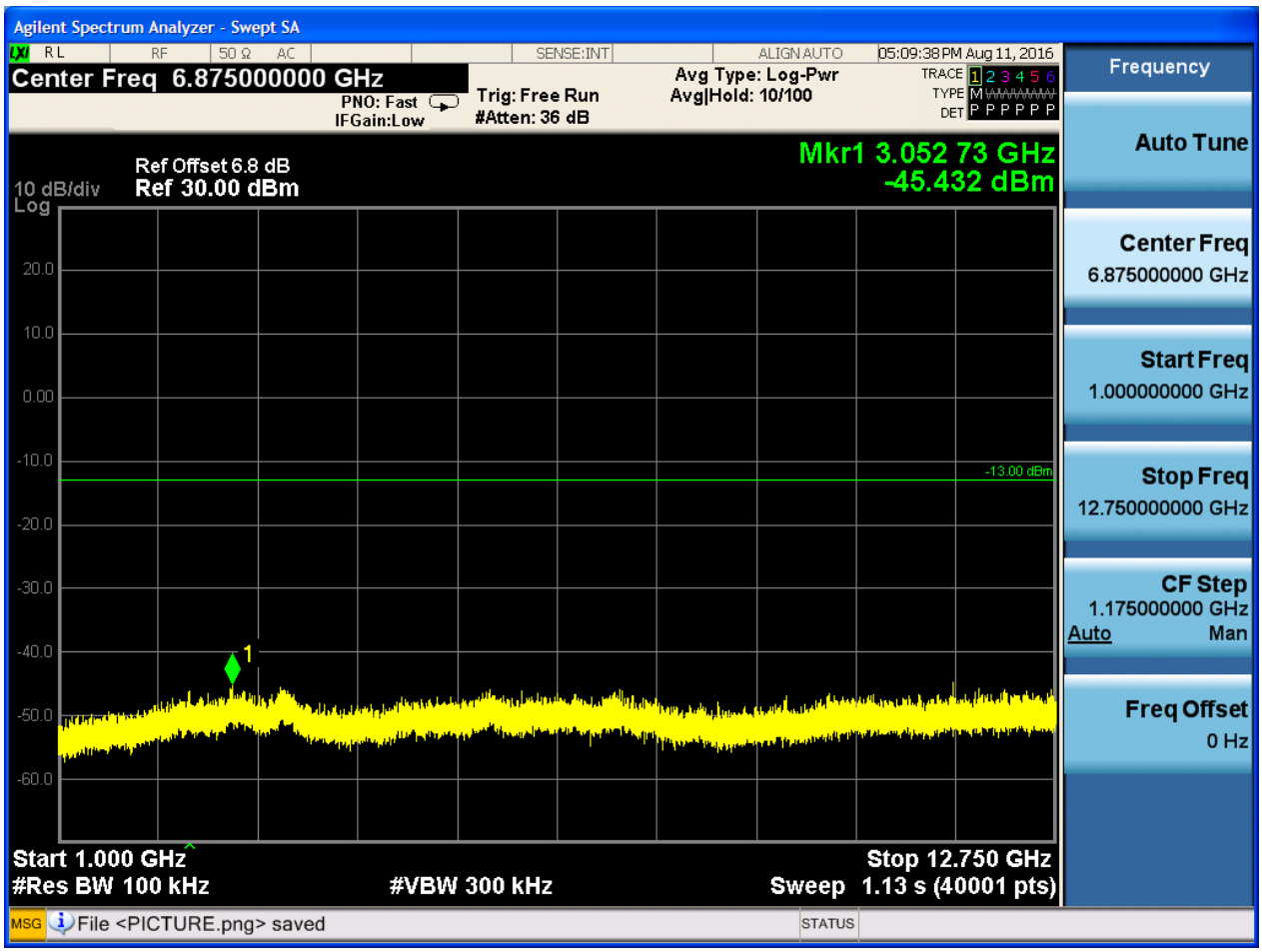

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7Appendix_G: Field Strength of Spurious Radiation

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

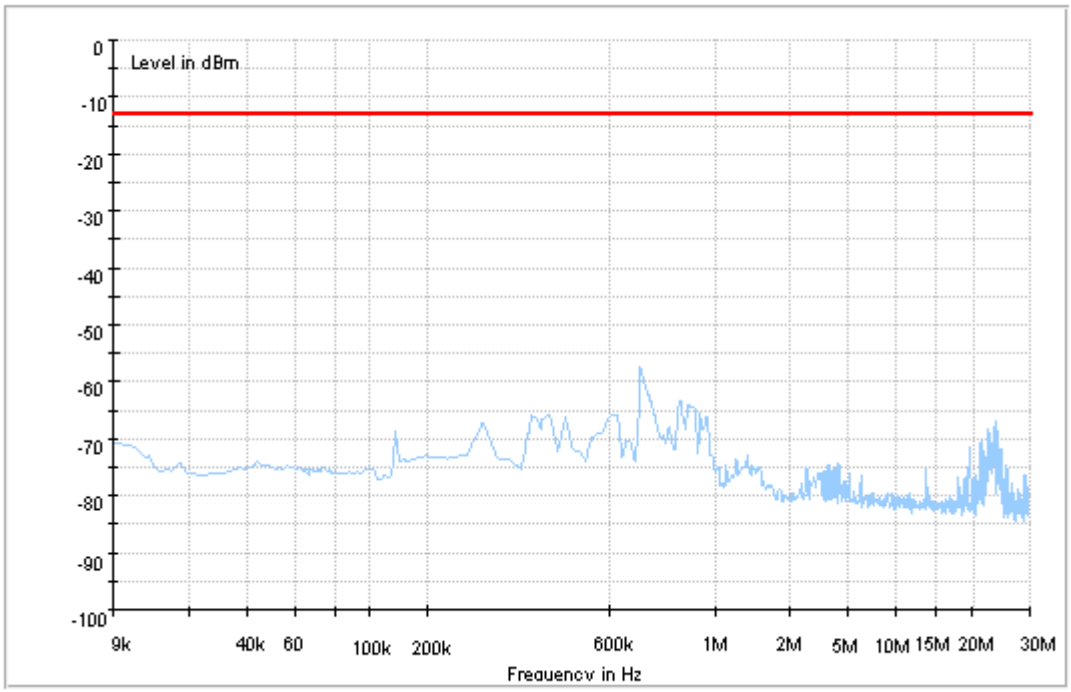
Above 1GHz, RBW = 1 MHz, VBW = 3 MHz. Detector: PK

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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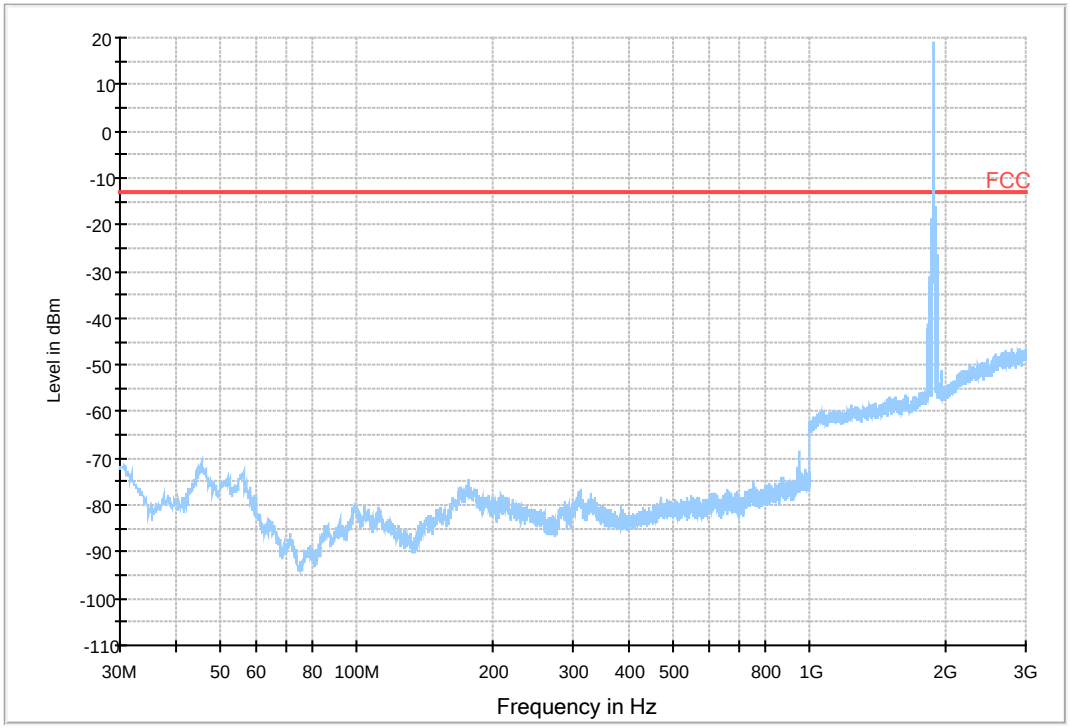
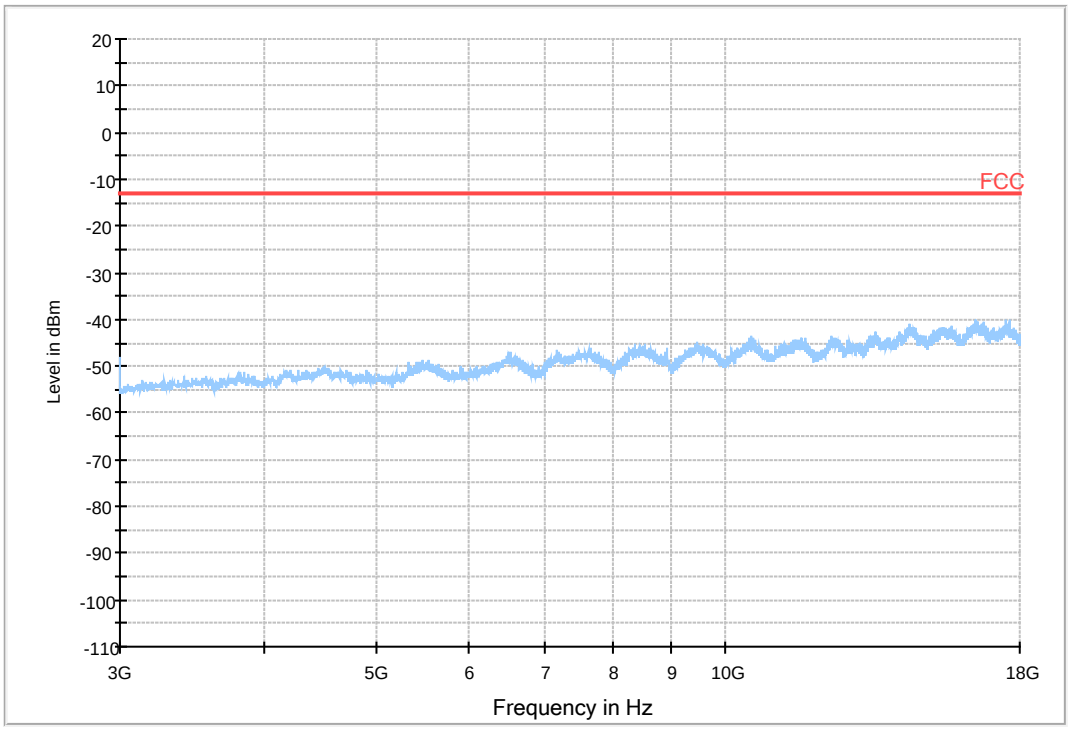
Copy of FCC PART24 WCDMA1900_L



Copy of FCC PART24 WCDMA1900_H



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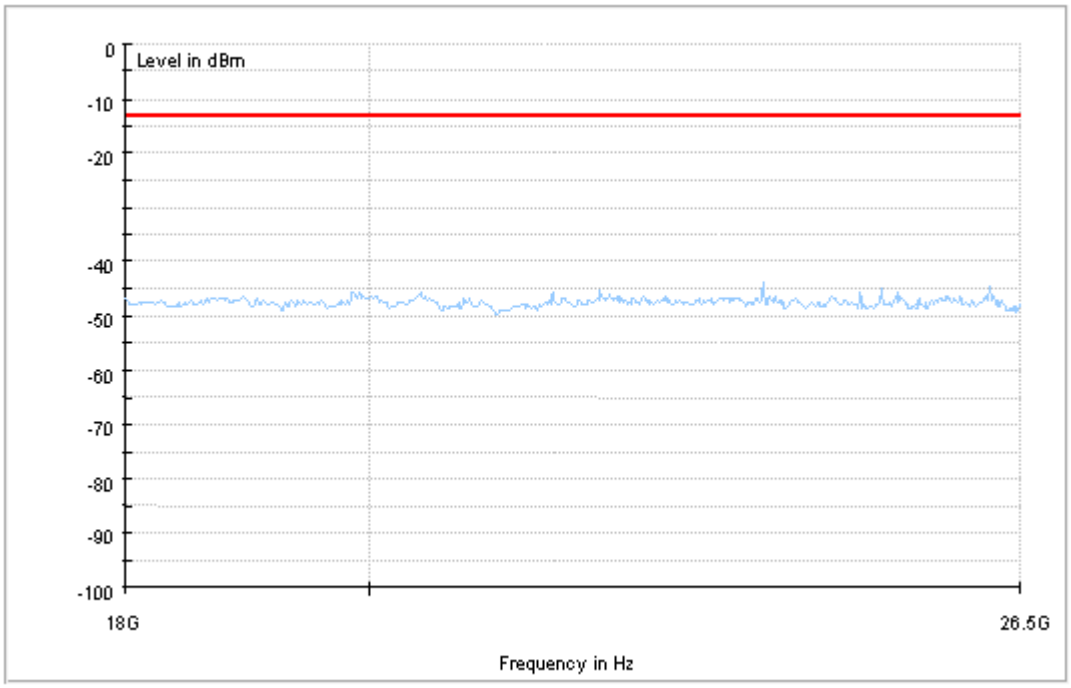

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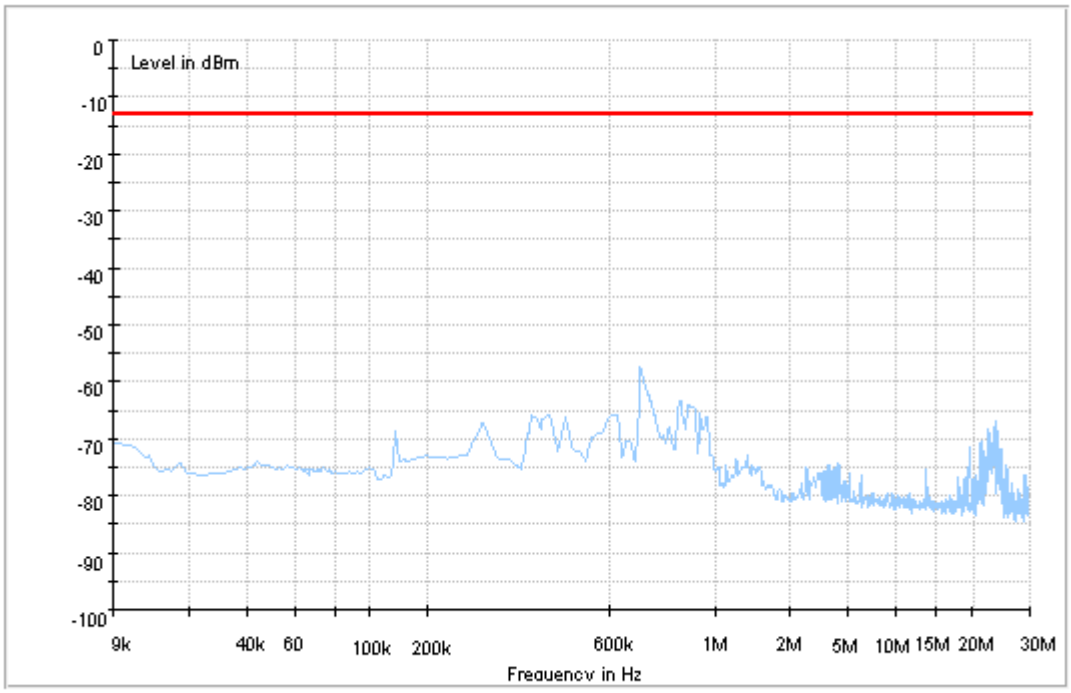
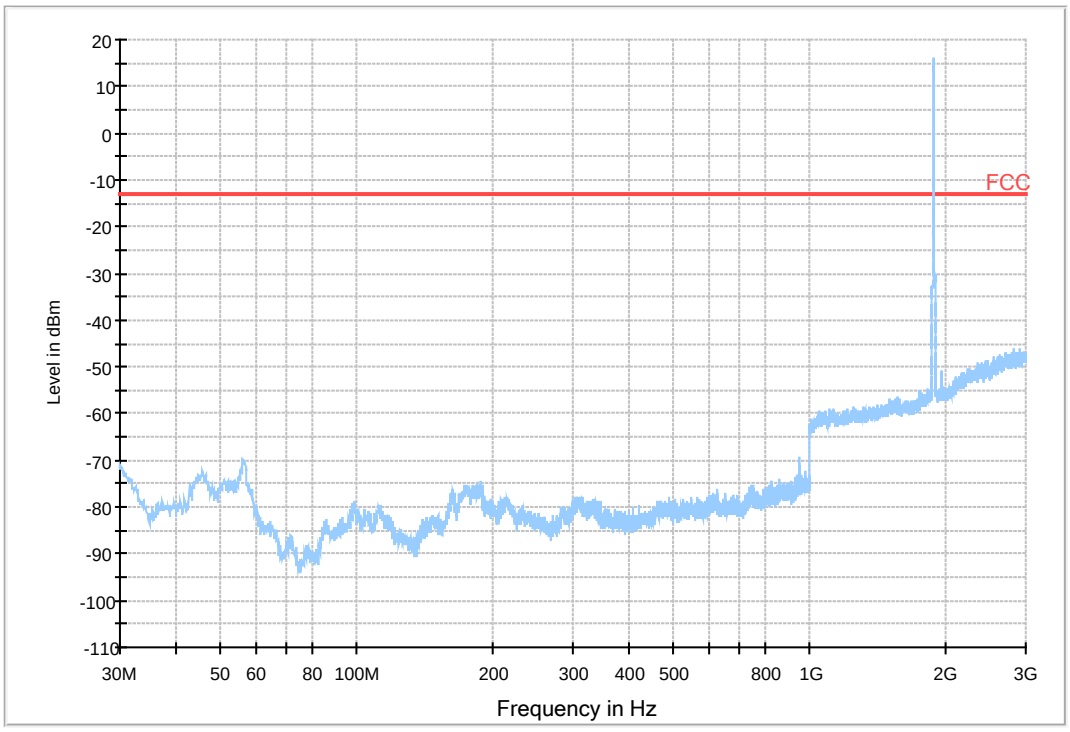
7.1.2 Test Band = WCDMA1900_Ant2

7.1.2.1 Test Mode = UMTS/TM1



Copy of FCC PART24 WCDMA1900_L



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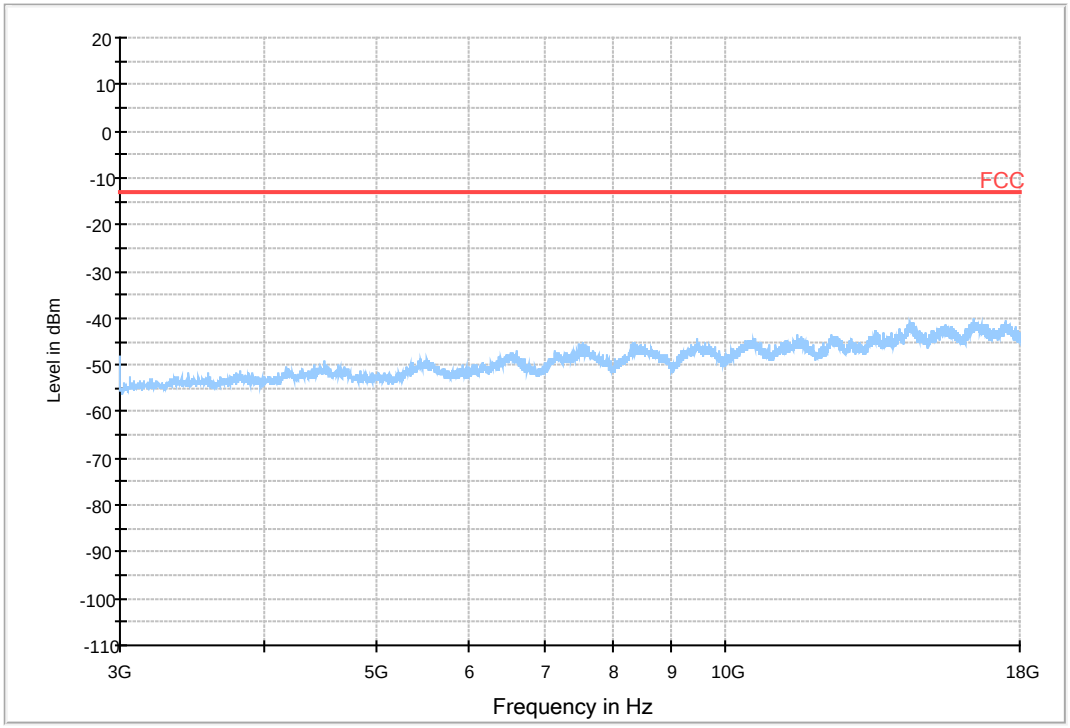
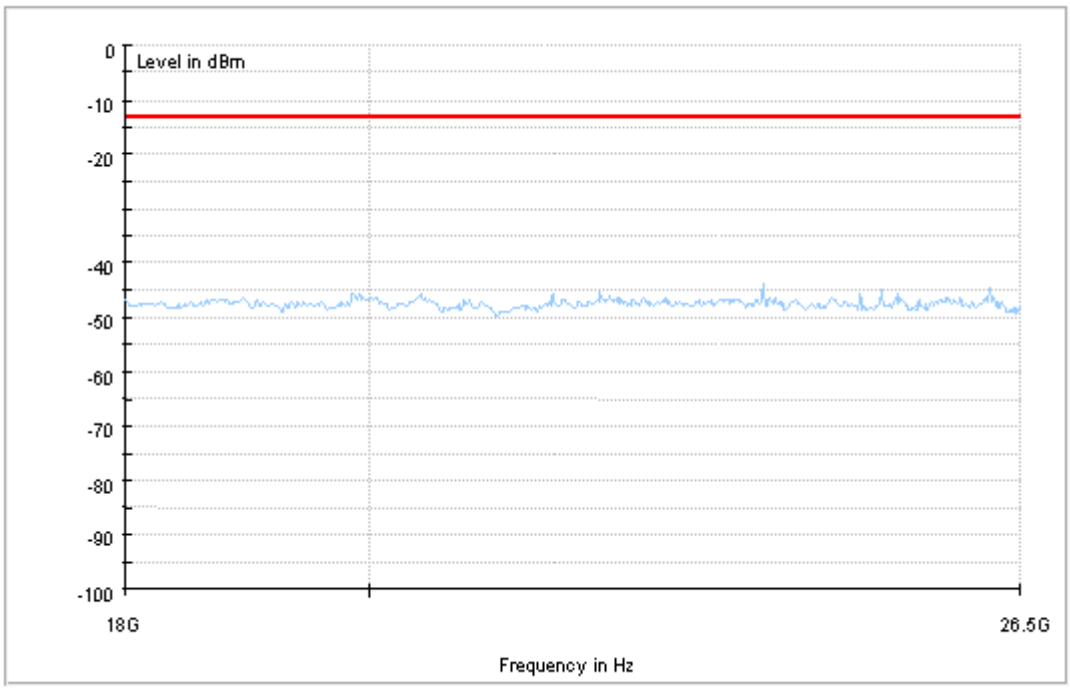
Copy of FCC PART24 WCDMA1900_H





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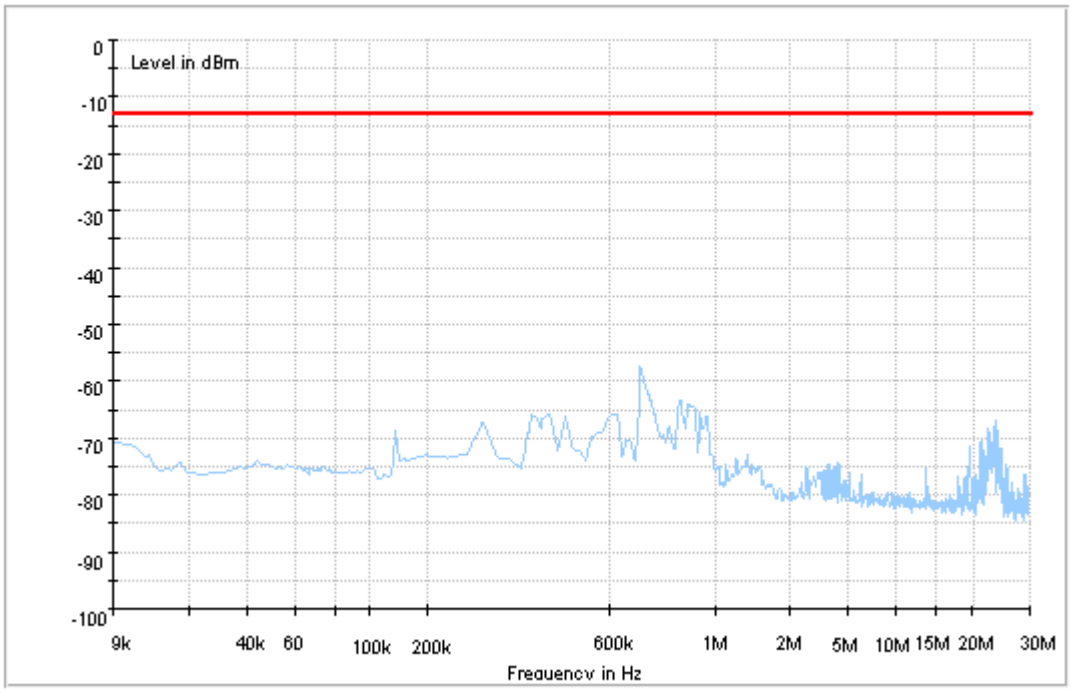
7.2 For UMTS

7.2.1 Test Band = WCDMA1700_Ant1

7.2.1.1 Test Mode = UMTS/TM1



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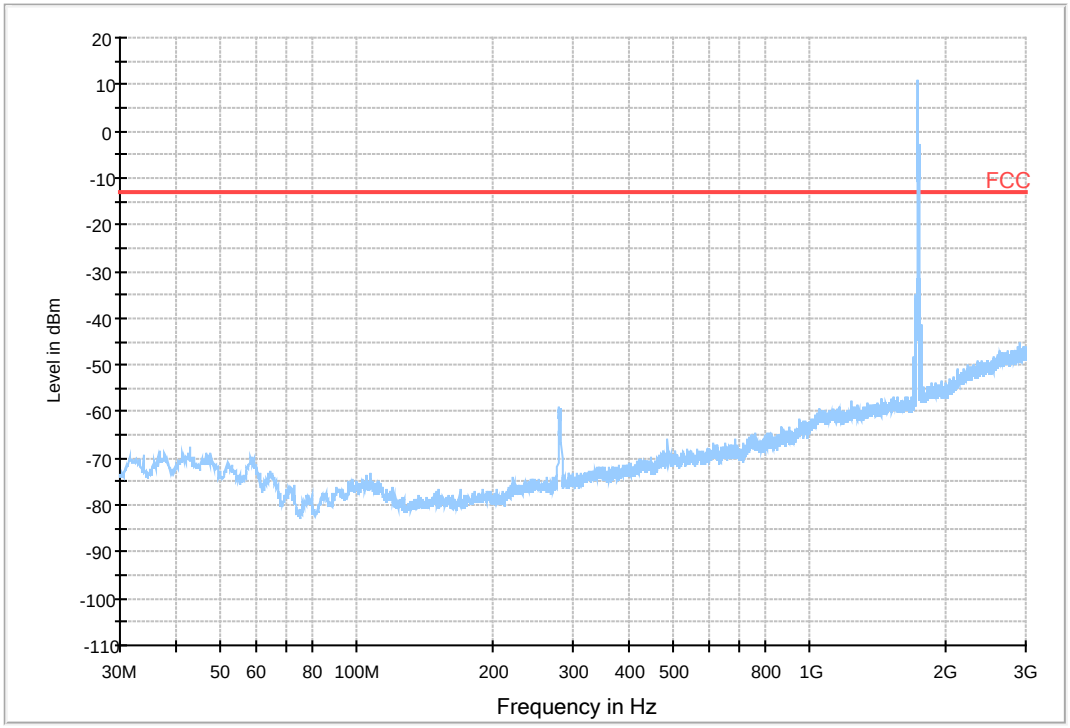
Copy of FCC PART27 WCDMA1700_L



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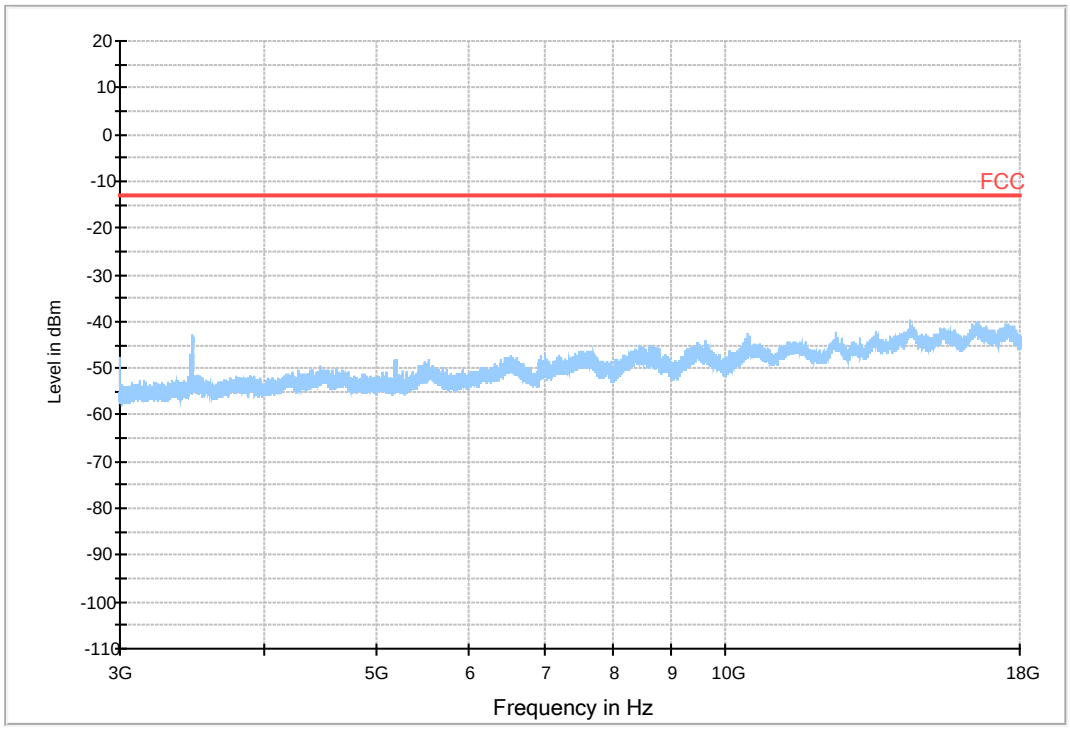

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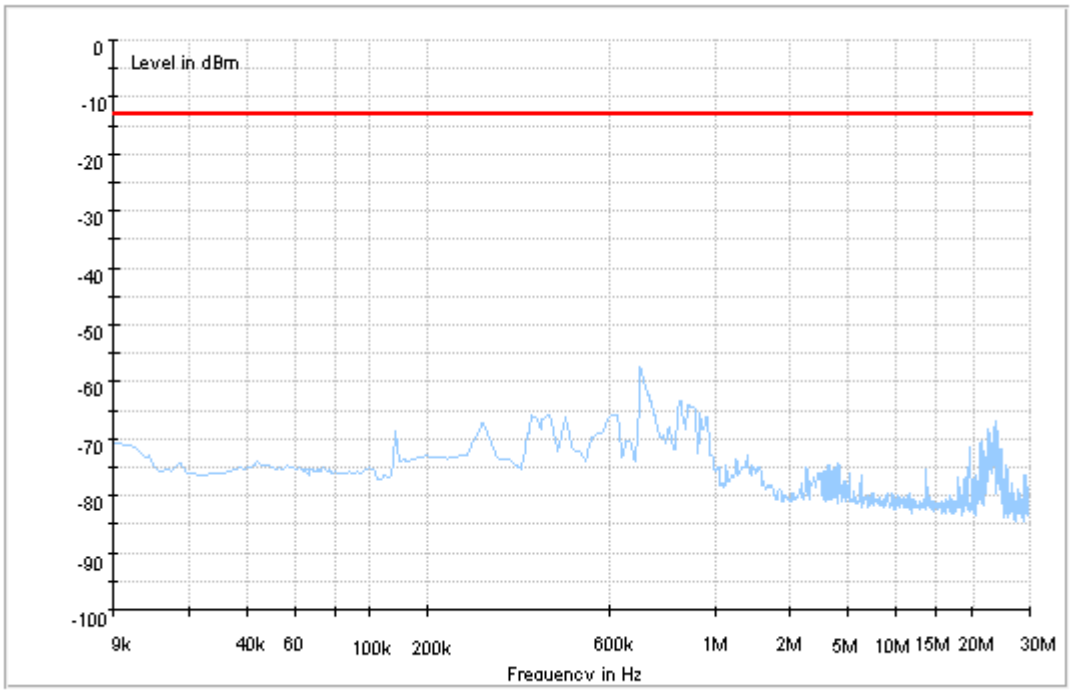
7.2.2 Test Band = WCDMA1700_Ant2

7.2.2.1 Test Mode = UMTS/TM1



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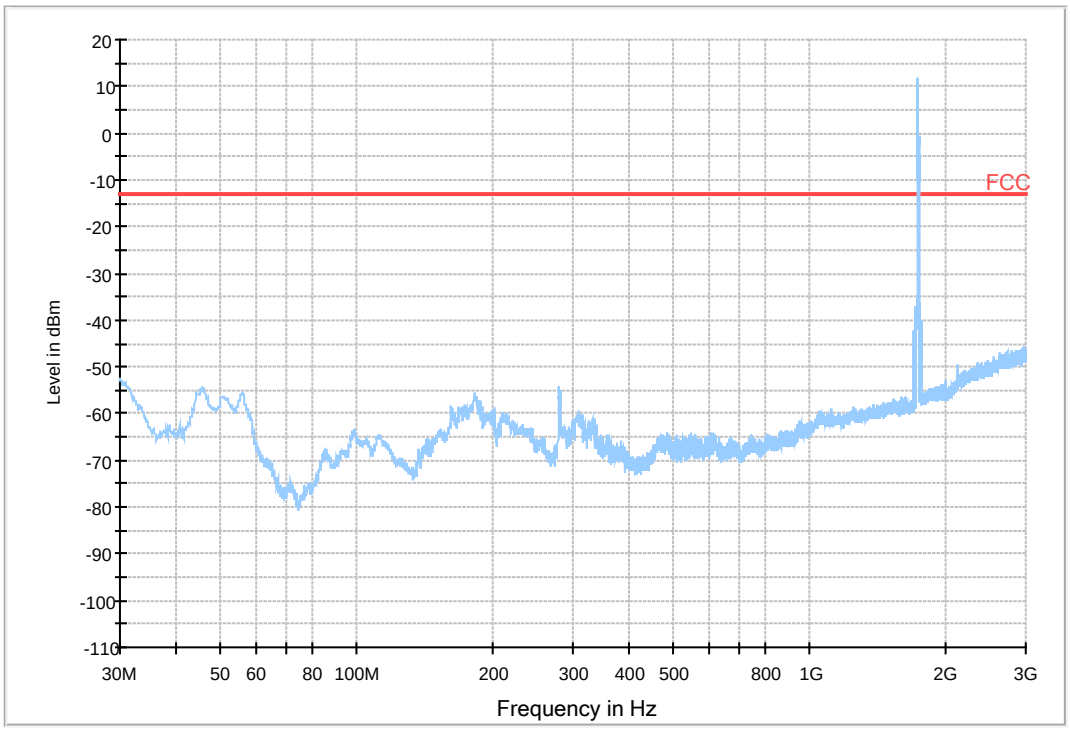

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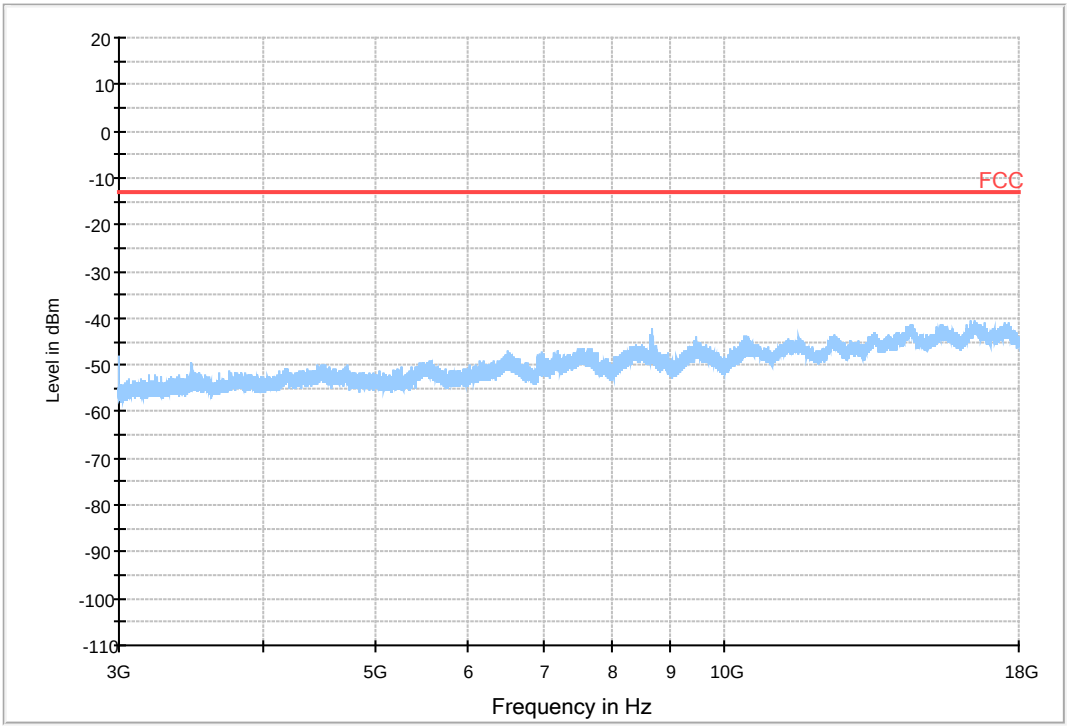
Copy of FCC PART27 WCDMA1700_H



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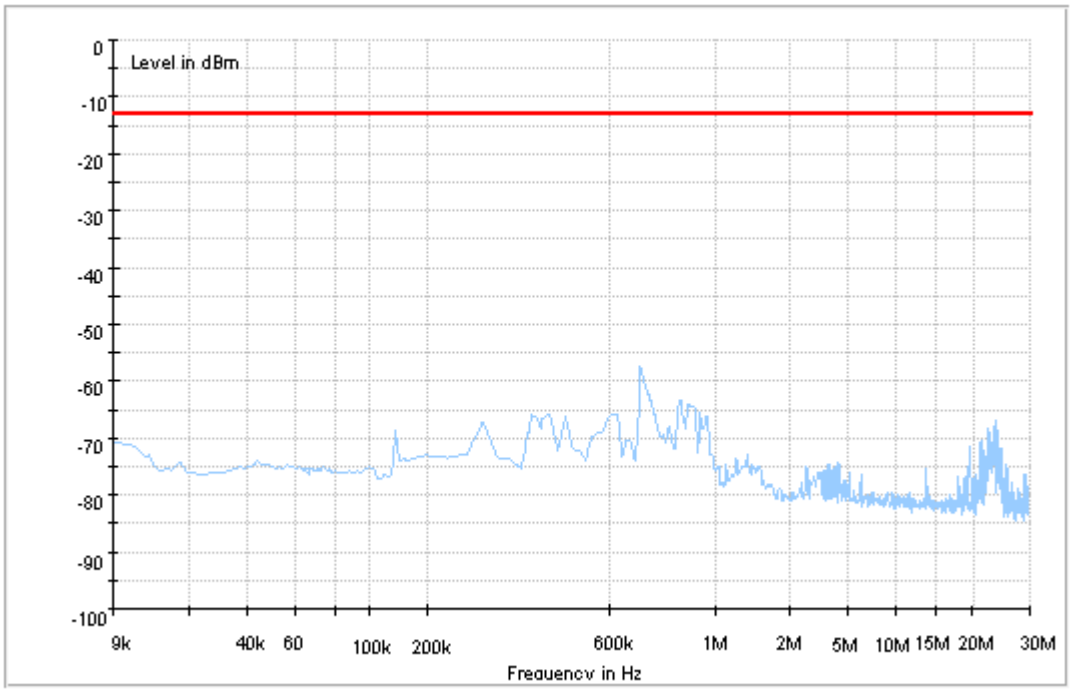
7.3 For UMTS

7.3.1 Test Band = WCDMA850_Ant1

7.3.1.1 Test Mode = UMTS/TM1



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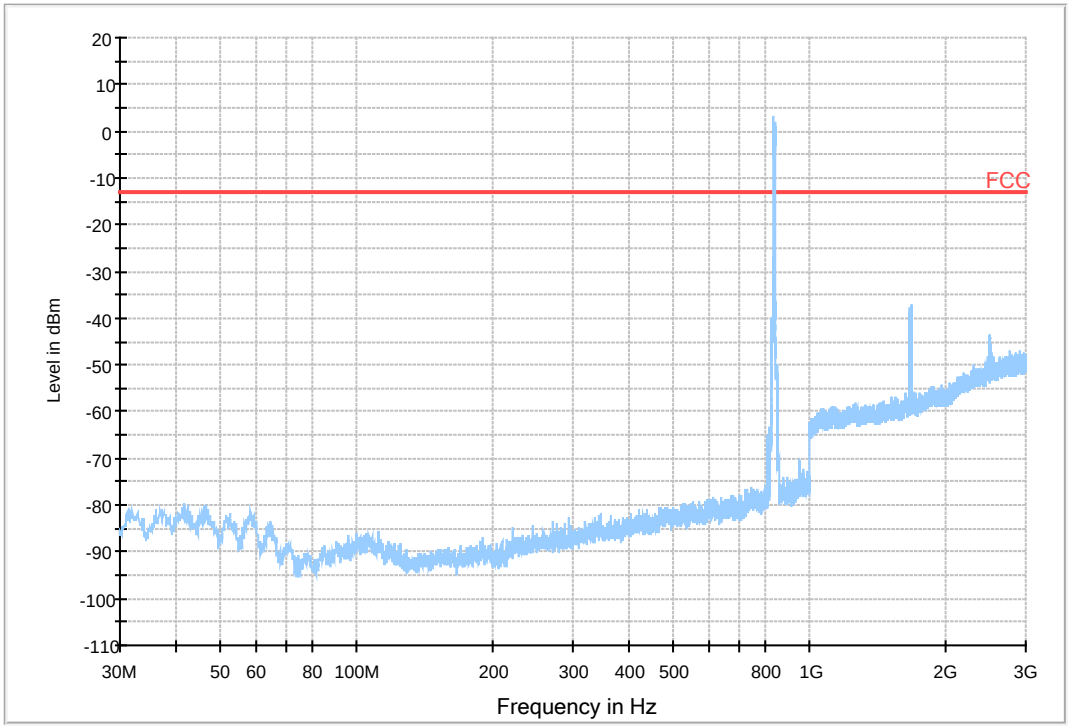
Copy of FCC PART22 WCDMA850_L



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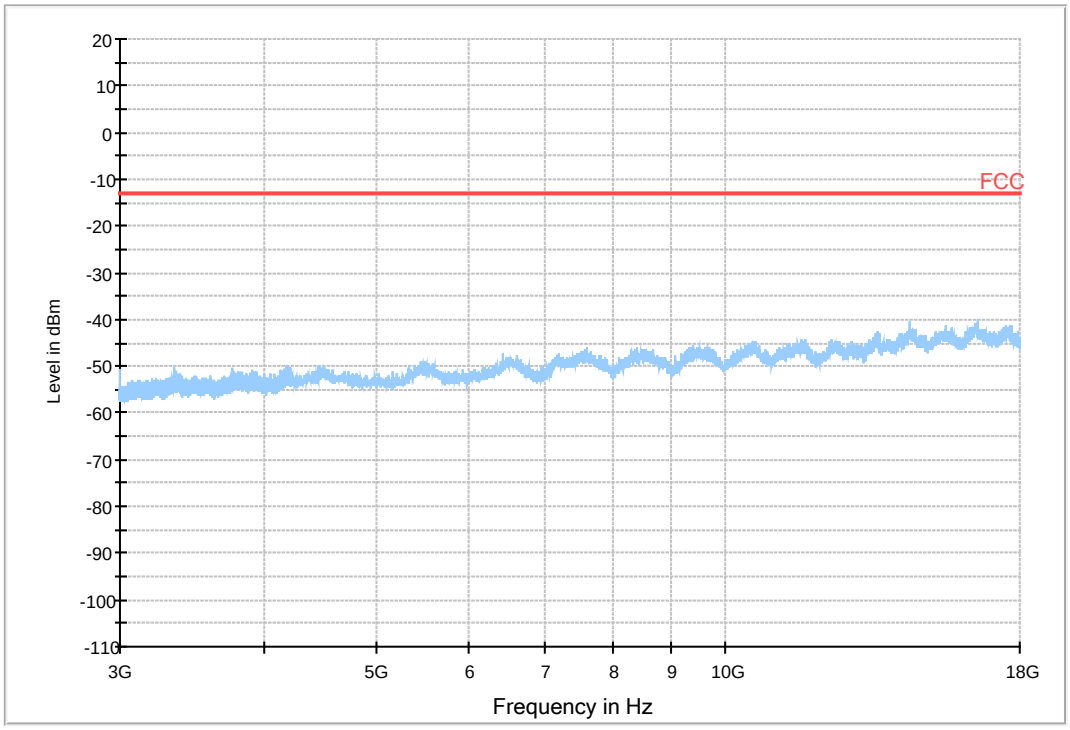

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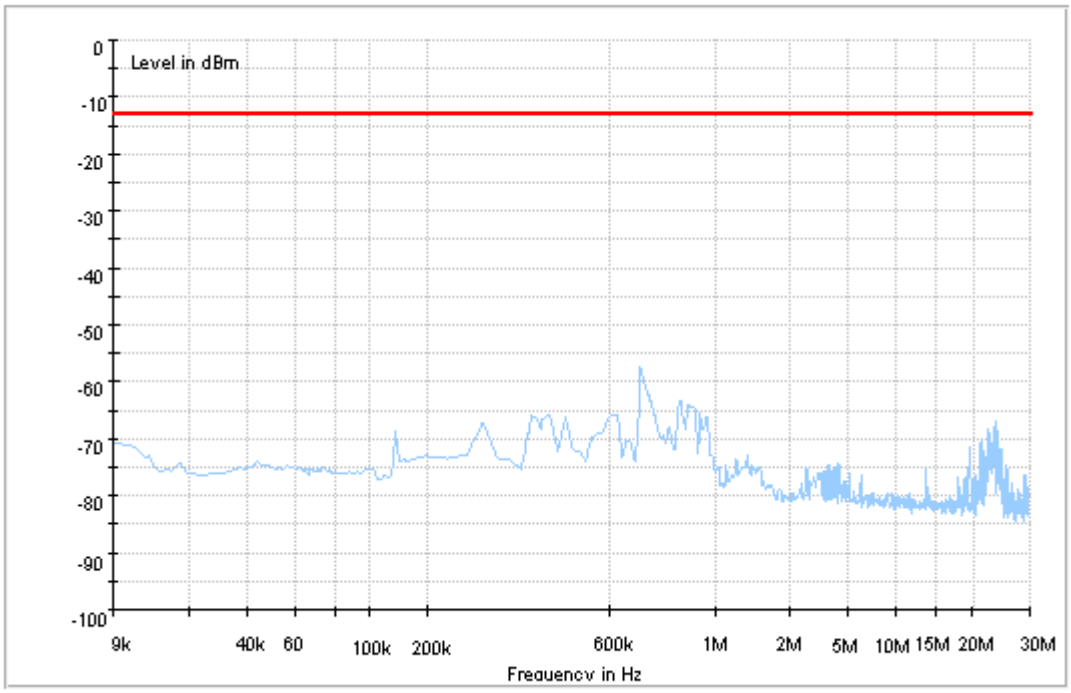
7.3.2 Test Band = WCDMA850_Ant2

7.3.2.1 Test Mode = UMTS/TM1



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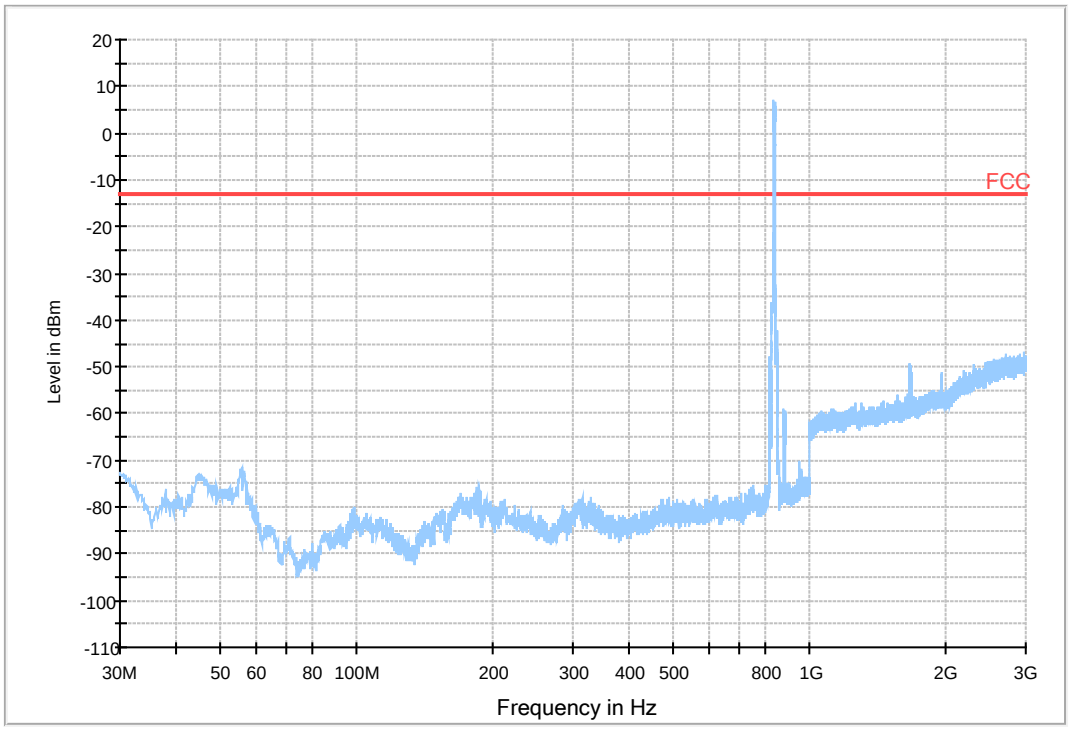

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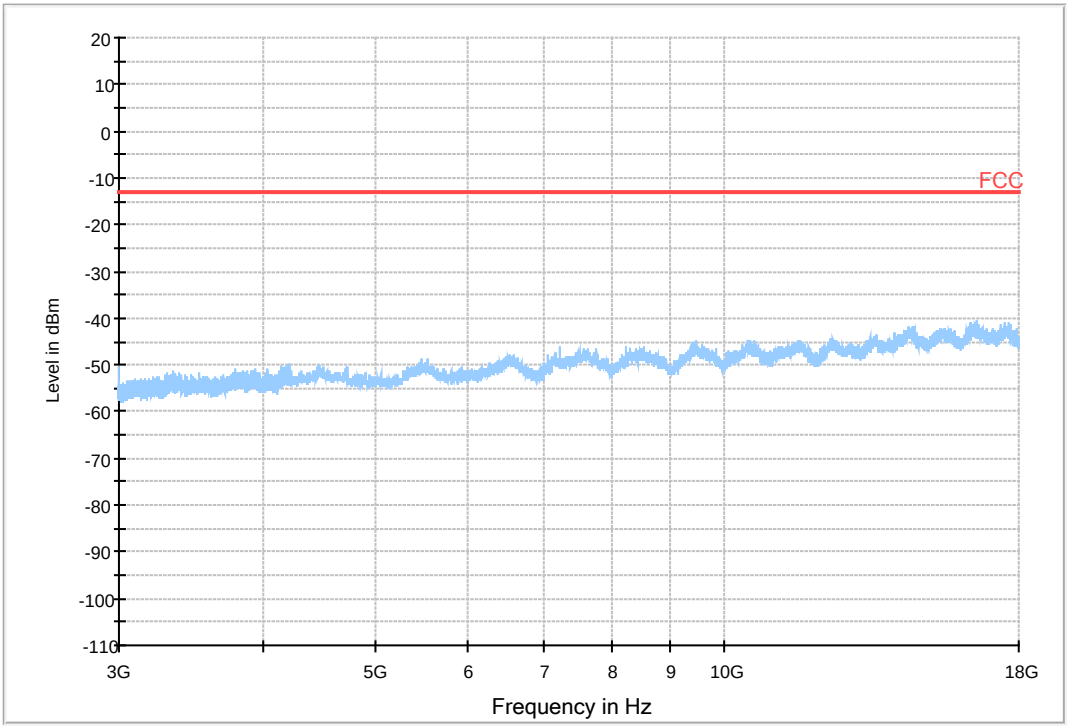

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8Appendix_H: Frequency Stability

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	-1.14	-0.00062	PASS
				VN	-3.88	-0.00209	PASS
				VH	-2.81	-0.00152	PASS
		MCH	TN	VL	-0.70	-0.00037	PASS
				VN	1.66	0.00088	PASS
				VH	4.71	0.00251	PASS
		HCH	TN	VL	-2.33	-0.00122	PASS
				VN	7.54	0.00395	PASS
				VH	1.62	0.00085	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
WCDMA1900	UMTS/TM1	LCH	VN	-30	-6.77	-0.00365	PASS
				-20	-2.18	-0.00118	PASS
				-10	-0.12	-0.00006	PASS
				0	-4.97	-0.00268	PASS
				10	-2.49	-0.00134	PASS
				20	0.90	0.00049	PASS
				30	-1.56	-0.00084	PASS
				40	-2.17	-0.00117	PASS
				50	-9.26	-0.005	PASS
		MCH	VN	-30	-3.27	-0.00174	PASS
				-20	-4.76	-0.00253	PASS
				-10	6.45	0.00343	PASS
				0	-3.75	-0.00199	PASS
				10	7.60	0.00404	PASS
				20	-2.93	-0.00156	PASS
				30	-5.54	-0.00295	PASS

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Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				40	4.32	0.0023	PASS
				50	-2.20	-0.00117	PASS
		HCH	VN	-30	0.11	0.00006	PASS
				-20	-1.50	-0.00079	PASS
				-10	-11.49	-0.00602	PASS
				0	-7.81	-0.00409	PASS
				10	-0.23	-0.00012	PASS
				20	-3.13	-0.00164	PASS
				30	-3.02	-0.00158	PASS
				40	3.01	0.00158	PASS
				50	0.06	0.00003	PASS

8.2 For UMTS

8.2.1Frequency Error vs. Voltage:

Test Band	Test Mode	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
WCDMA1700	UMTS/TM1	LCH	TN	VL	-8.64	-0.00505	PASS
				VN	-4.30	-0.00251	PASS
				VH	13.15	0.00768	PASS
		MCH	TN	VL	-4.55	-0.00263	PASS
				VN	4.56	0.00263	PASS
				VH	1.28	0.00074	PASS
		HCH	TN	VL	2.27	0.0013	PASS
				VN	4.64	0.00265	PASS
				VH	7.29	0.00416	PASS
WCDMA850	UMTS/TM1	LCH	TN	VL	2.55	0.00309	PASS
				VN	1.86	0.00225	PASS
				VH	2.12	0.00257	PASS
		MCH	TN	VL	-5.02	-0.006	PASS
				VN	1.65	0.00197	PASS
				VH	1.69	0.00202	PASS
		HCH	TN	VL	-4.47	-0.00528	PASS
				VN	0.14	0.00017	PASS
				VH	-3.27	-0.00386	PASS

8.2.2Frequency Error vs. Temperature:

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict

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Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
WCDMA1700	UMTS/TM1	LCH	VN	-30	14.80	0.00864	PASS
				-20	-8.33	-0.00486	PASS
				-10	4.58	0.00267	PASS
				0	-1.27	-0.00074	PASS
				10	1.31	0.00077	PASS
				20	-0.02	-0.00001	PASS
				30	12.85	0.0075	PASS
				40	0.29	0.00017	PASS
				50	4.61	0.00269	PASS
		MCH	VN	-30	2.70	0.00156	PASS
				-20	-0.18	-0.0001	PASS
				-10	-0.85	-0.00049	PASS
				0	4.53	0.00261	PASS
				10	4.44	0.00256	PASS
				20	0.38	0.00022	PASS
				30	1.34	0.00077	PASS
				40	-1.36	-0.00078	PASS
				50	8.65	0.00499	PASS
		HCH	VN	-30	2.96	0.00169	PASS
				-20	-2.43	-0.00139	PASS
				-10	0.05	0.00003	PASS
				0	1.88	0.00107	PASS
				10	6.45	0.00368	PASS
				20	2.11	0.0012	PASS
				30	-0.90	-0.00051	PASS
				40	1.88	0.00107	PASS
				50	0.87	0.0005	PASS
WCDMA850	UMTS/TM1	LCH	VN	-30	-5.40	-0.00653	PASS
				-20	-2.98	-0.00361	PASS
				-10	0.31	0.00038	PASS
				0	3.49	0.00422	PASS
				10	9.51	0.01151	PASS
				20	-0.31	-0.00038	PASS
				30	1.98	0.0024	PASS
				40	7.28	0.00881	PASS
				50	3.27	0.00396	PASS
		MCH	VN	-30	11.40	0.01363	PASS
				-20	4.96	0.00593	PASS
				-10	-4.70	-0.00562	PASS
				0	3.74	0.00447	PASS

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Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				10	-4.00	-0.00478	PASS
				20	8.67	0.01037	PASS
				30	-4.53	-0.00542	PASS
				40	14.50	0.01734	PASS
				50	8.18	0.00978	PASS
		HCH	VN	-30	-9.08	-0.01073	PASS
				-20	-5.55	-0.00656	PASS
				-10	-5.62	-0.00664	PASS
				0	9.52	0.01124	PASS
				10	-6.00	-0.00709	PASS
				20	-1.82	-0.00215	PASS
				30	11.55	0.01364	PASS
				40	-6.71	-0.00793	PASS
				50	-0.29	-0.00034	PASS

END

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