Appendix for test report

Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

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
WCDMA850	UMTS/TM1	LCH	24.01	20.06	38.5	PASS
		MCH	24.04	20.09	38.5	PASS
		HCH	23.92	19.97	38.5	PASS
WCDMA1700	UMTS/TM1	LCH	22.61	22.91	30	PASS
		MCH	22.48	22.78	30	PASS
		HCH	22.56	22.86	30	PASS
WCDMA1900	UMTS/TM1	LCH	22.67	22.87	33	PASS
		MCH	22.62	22.82	33	PASS
		HCH	22.59	22.79	33	PASS

Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

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

Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

2Appendix_B: Peak-to-Average Ratio

Part I - Test Results

Test Band	Test Mode	Test Channel	Measured[dB]	Limit [dB]	Verdict
WCDMA850	UMTS/TM1	LCH	3.01	13	PASS
		MCH	3.23	13	PASS
		HCH	3.34	13	PASS
WCDMA1700	UMTS/TM1	LCH	3.32	13	PASS
		MCH	3.23	13	PASS
		HCH	3.34	13	PASS
WCDMA1900	UMTS/TM1	LCH	3.44	13	PASS
		MCH	3.37	13	PASS
		HCH	3.42	13	PASS

Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

3Appendix_C: Modulation Characteristics

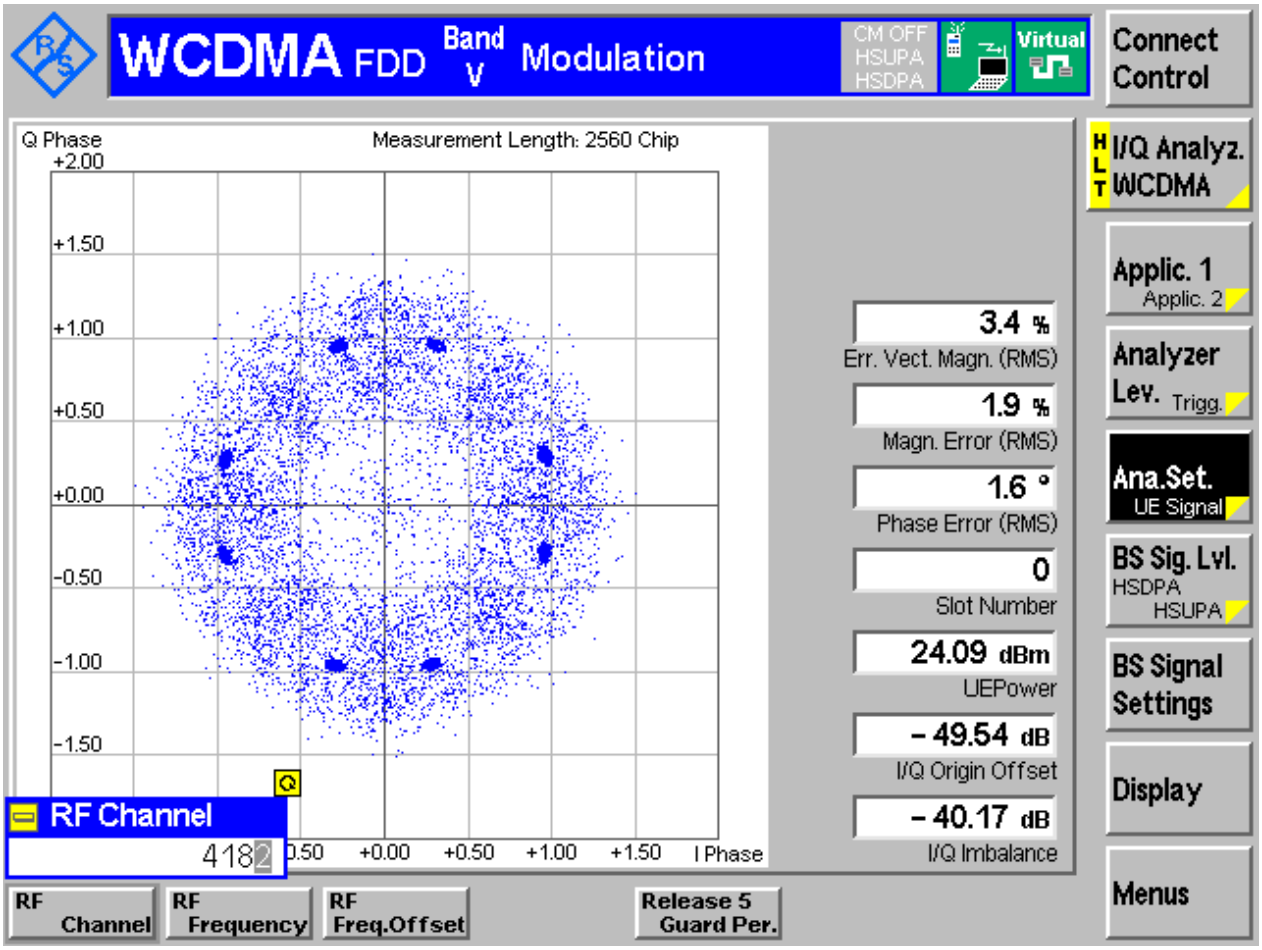
Part I - Test Plots

3.1 For UMTS

3.1.1 Test Band = WCDMA850

3.1.1.1 Test Mode = UMTS/TM1

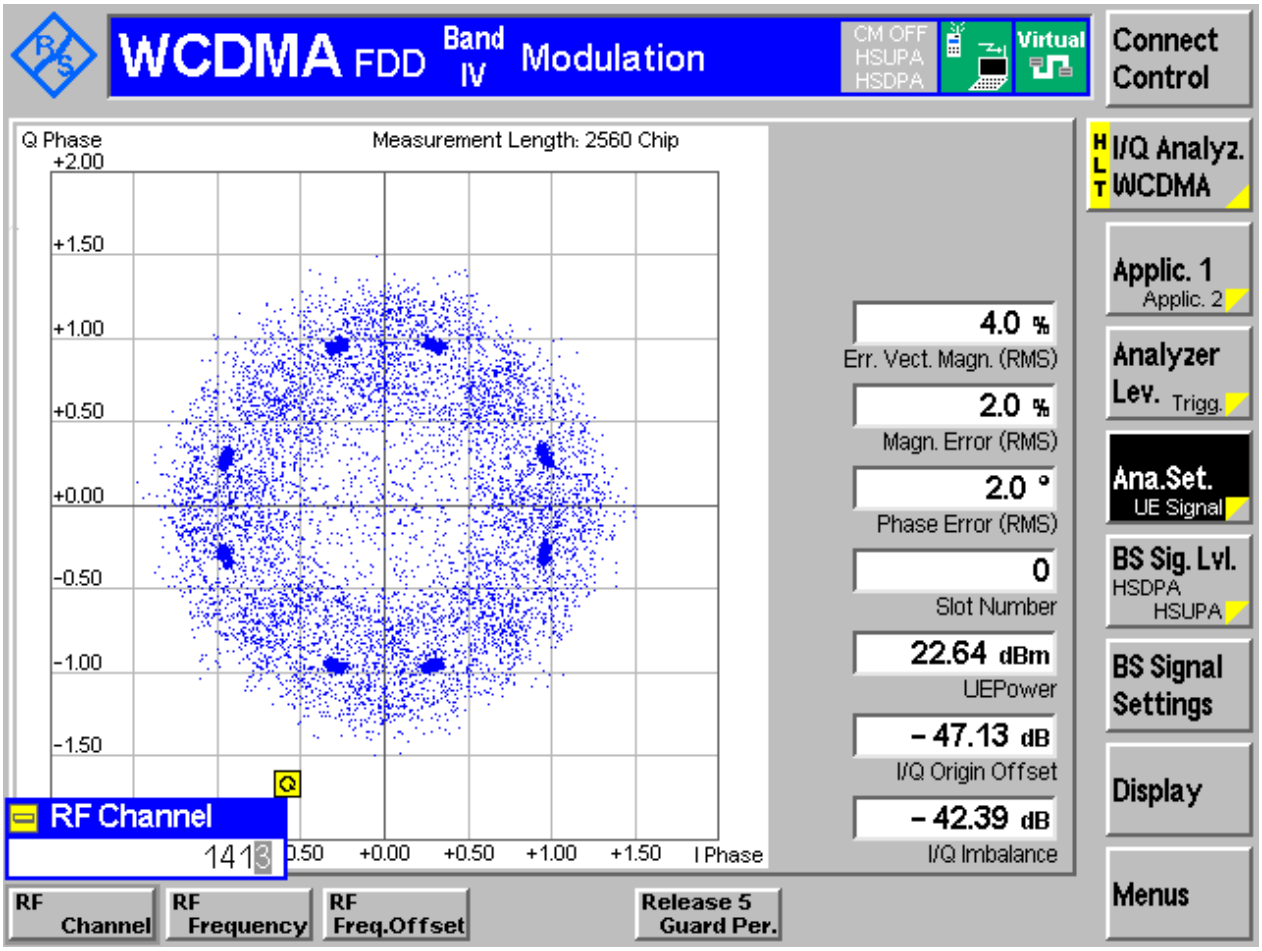
3.1.1.1.1 Test Channel = MCH



3.1.2 Test Band = WCDMA1700

3.1.2.1 Test Mode = UMTS/TM1

3.1.2.1.1 Test Channel = MCH

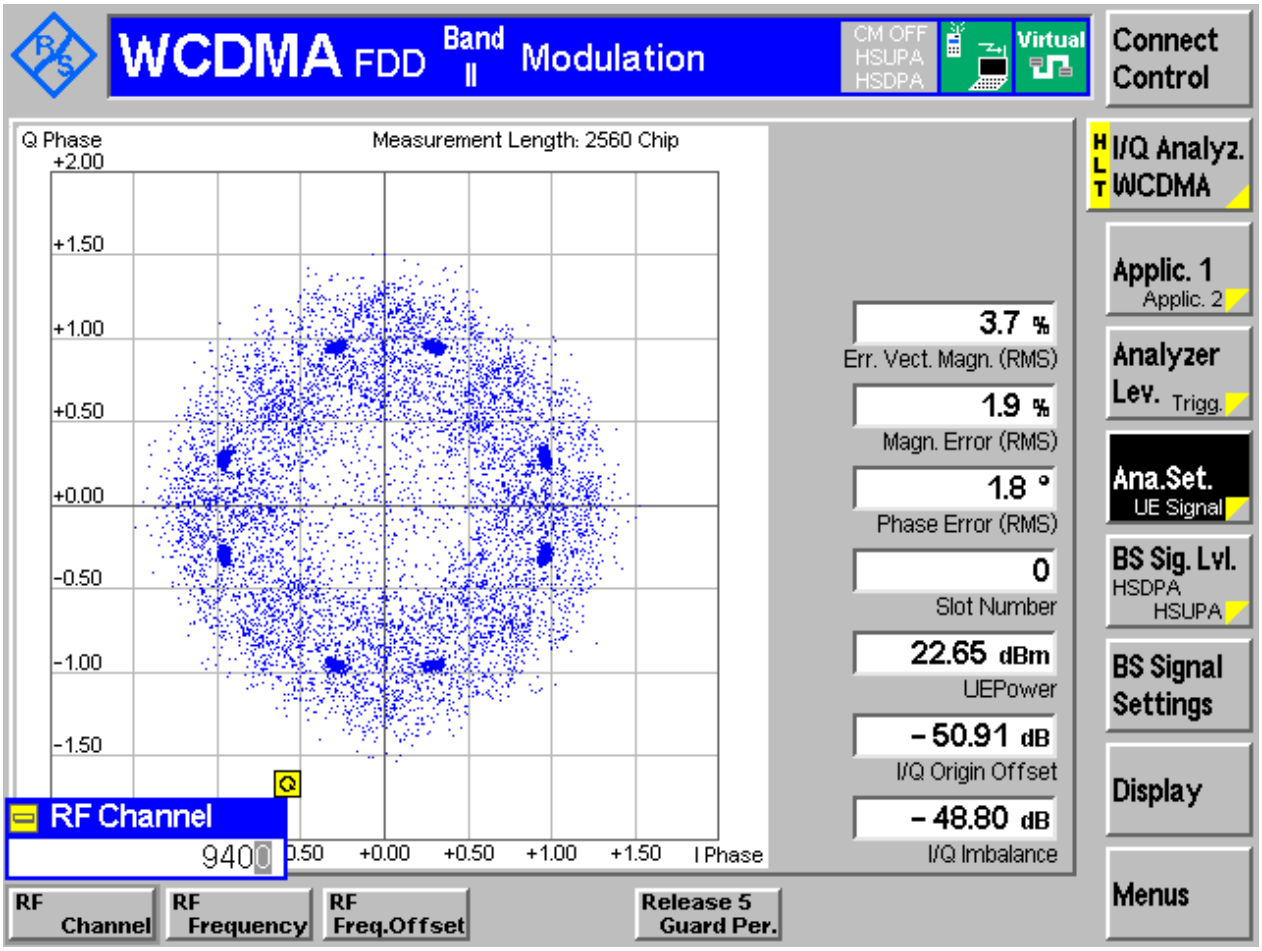


Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

3.1.3 Test Band = WCDMA1900

3.1.3.1 Test Mode = UMTS/TM1

3.1.3.1.1 Test Channel = MCH



Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

4Appendix_D: Bandwidth

Part I - Test Results

Test Band	Test Mode	Test Channel	Occupied Bandwidth [MHz]	Emission Bandwidth [MHz]	Verdict
WCDMA850	UMTS/TM1	LCH	4.12	4.71	Pass
		MCH	4.12	4.70	Pass
		HCH	4.11	4.69	Pass
WCDMA1700	UMTS/TM1	LCH	4.11	4.69	Pass
		MCH	4.12	4.70	Pass
		HCH	4.12	4.70	Pass
WCDMA1900	UMTS/TM1	LCH	4.12	4.69	Pass
		MCH	4.11	4.69	Pass
		HCH	4.11	4.70	Pass

Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

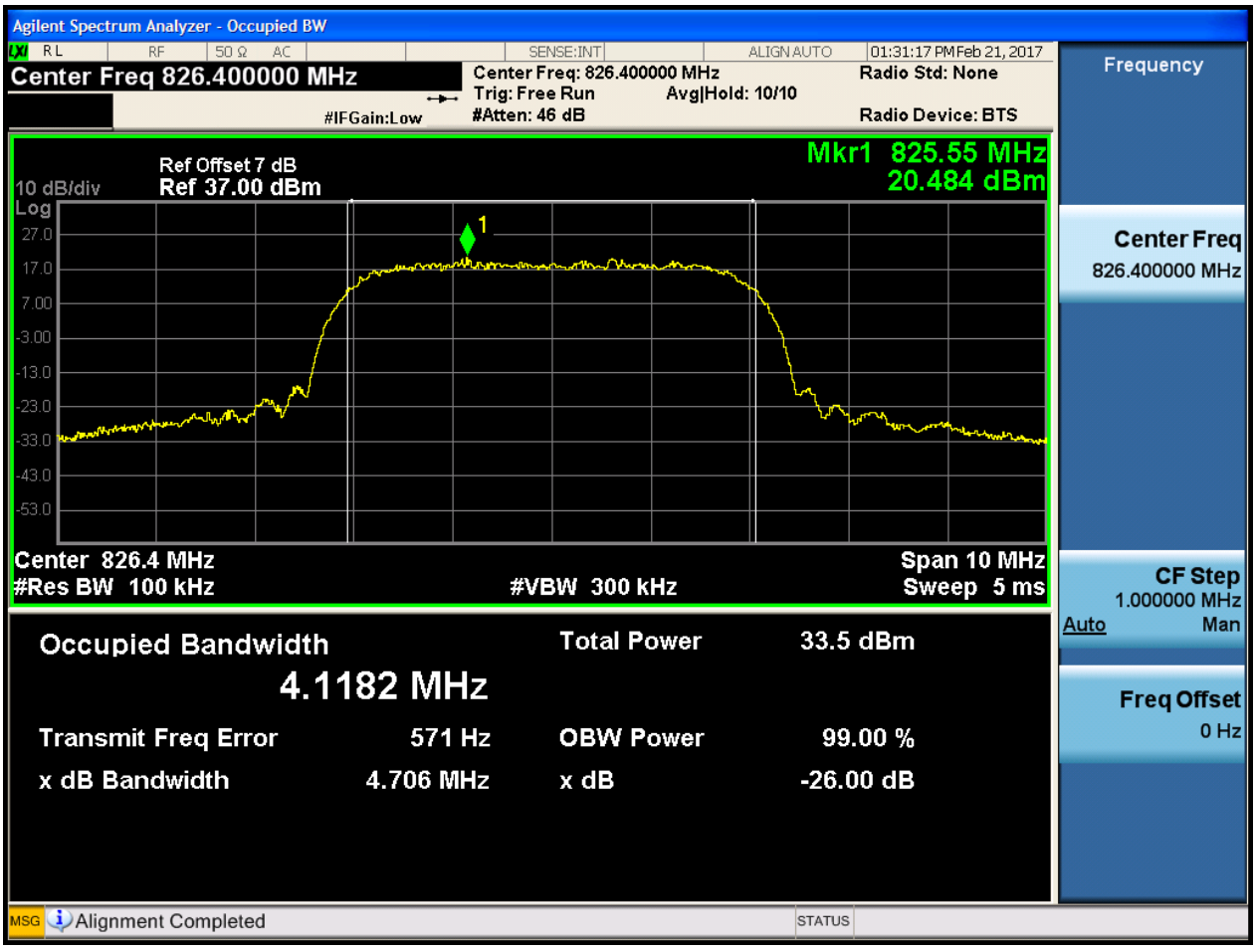
Part II - Test Plots

4.1 For UMTS

4.1.1 Test Band = WCDMA850

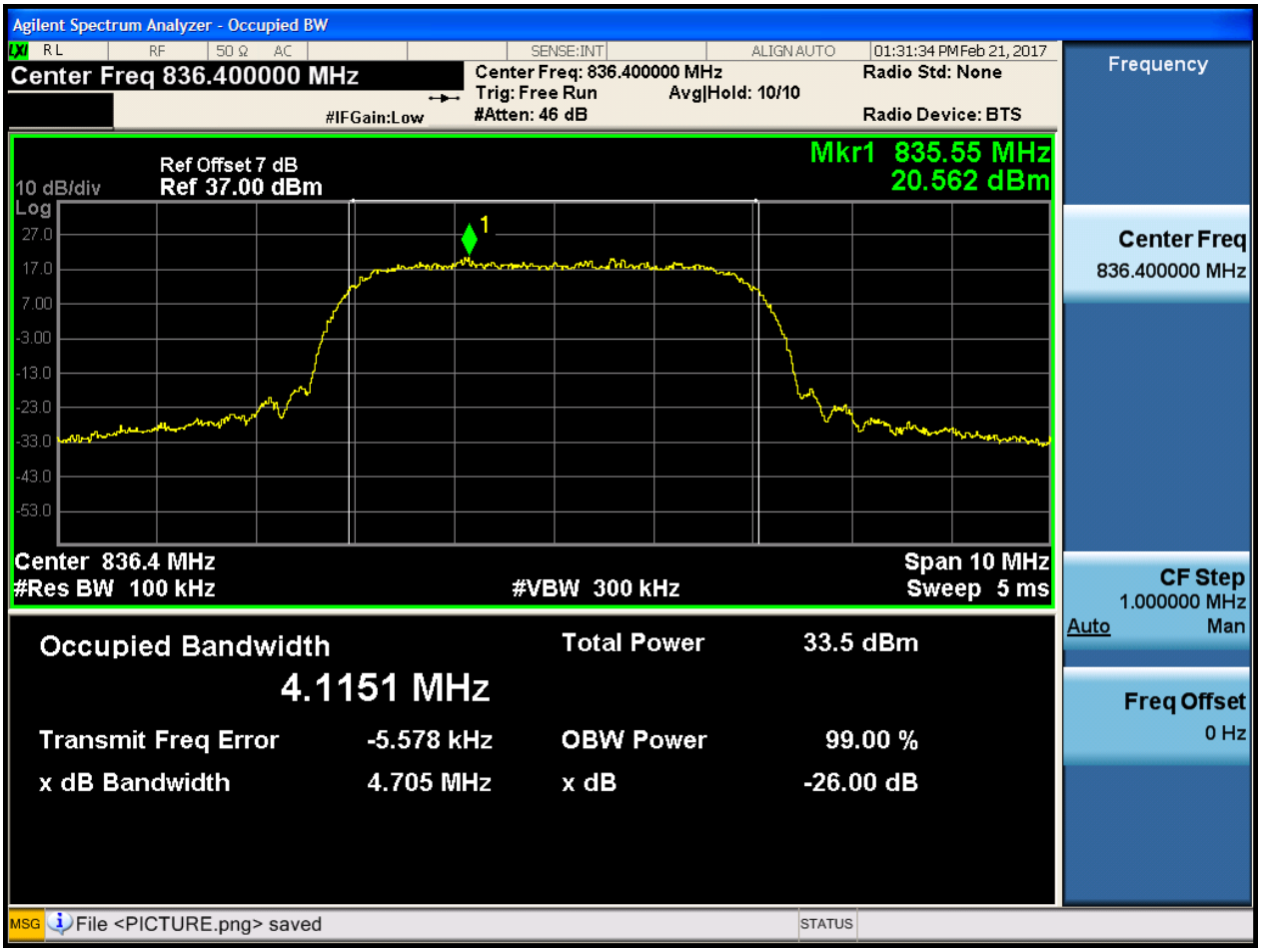
4.1.1.1 Test Mode = UMTS/TM1

4.1.1.1.1 Test Channel = LCH



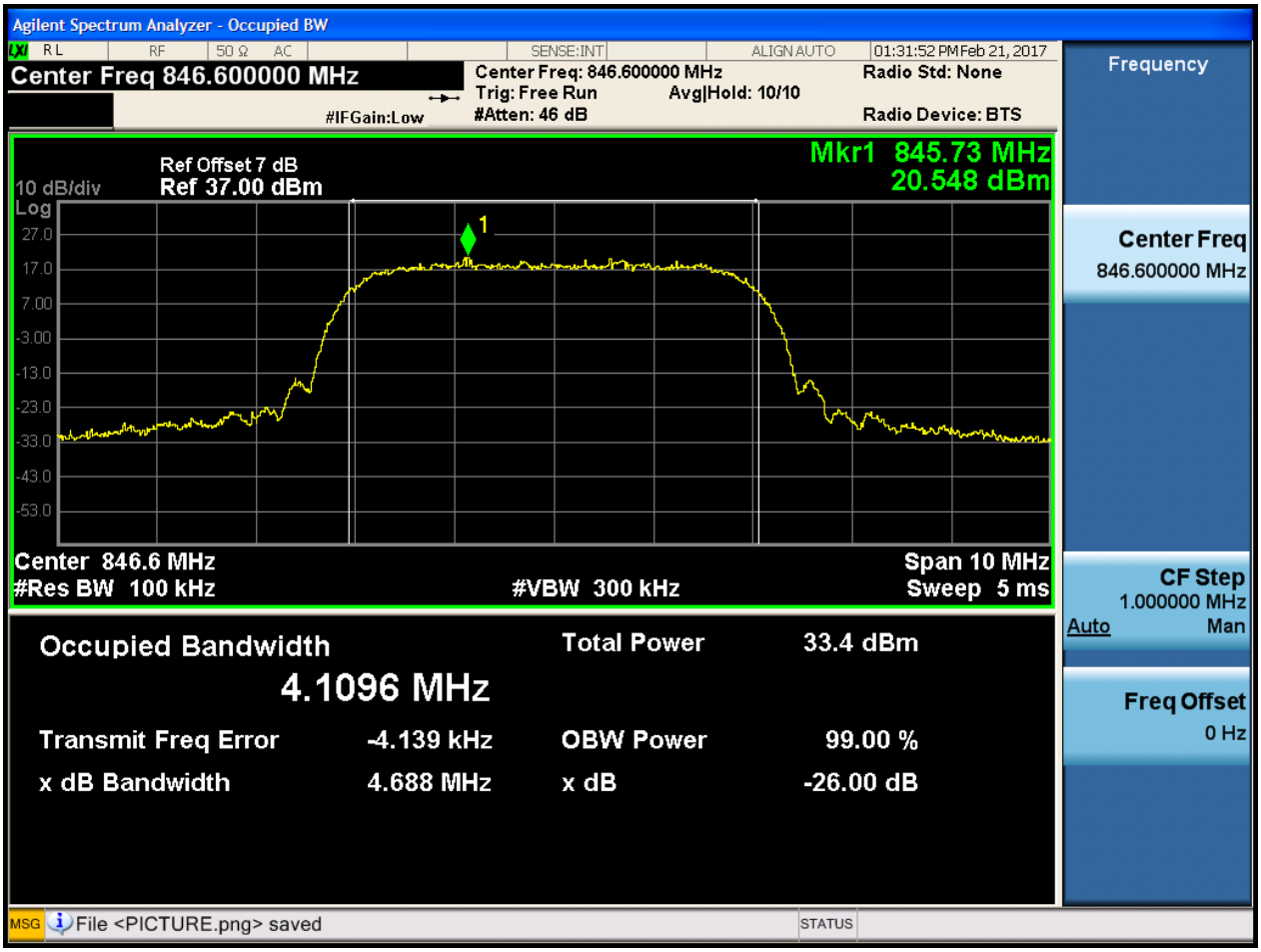
Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

4.1.1.1.2 Test Channel = MCH



Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

4.1.1.1.3 Test Channel = HCH

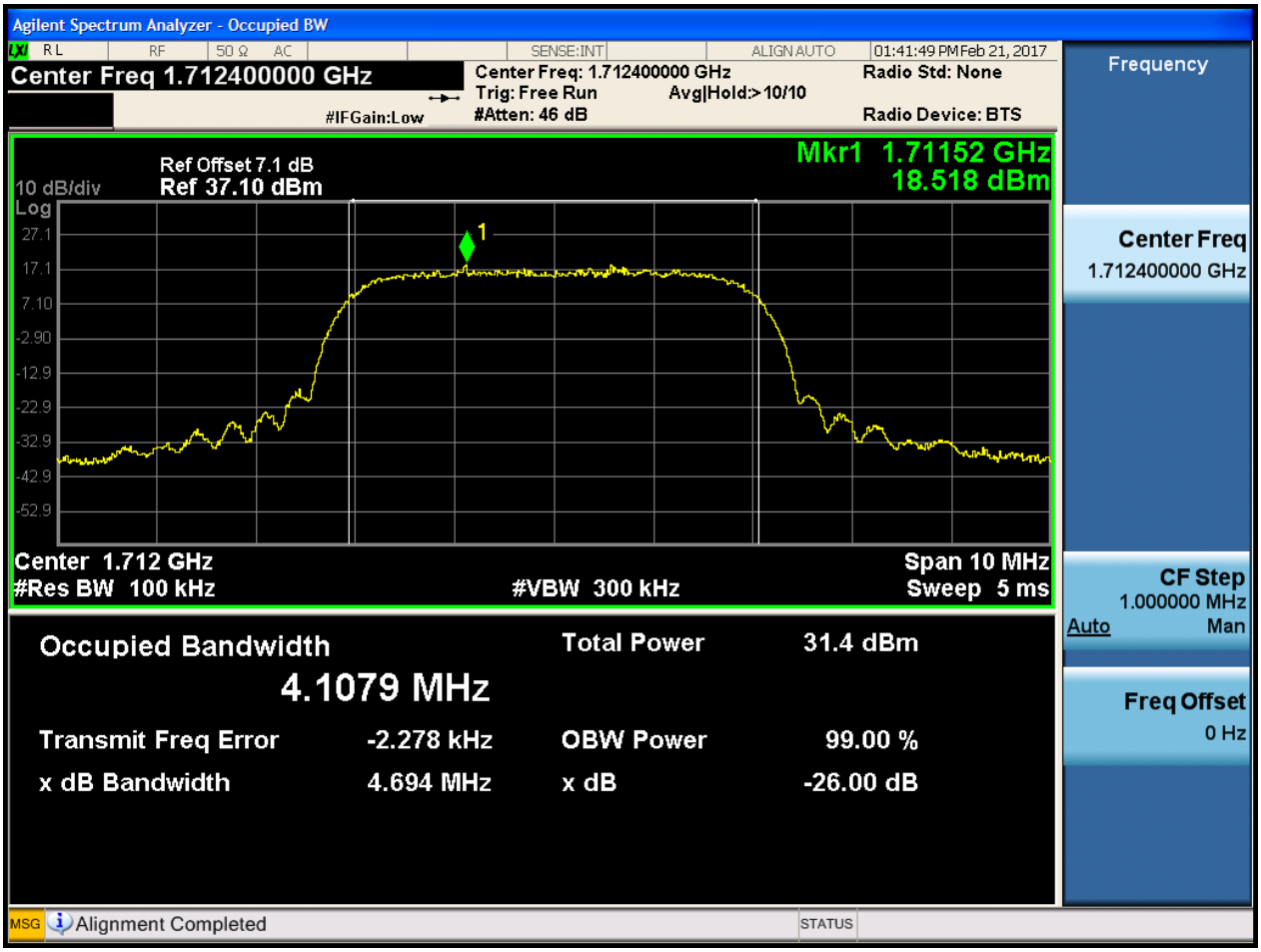


Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

4.1.2 Test Band = WCDMA1700

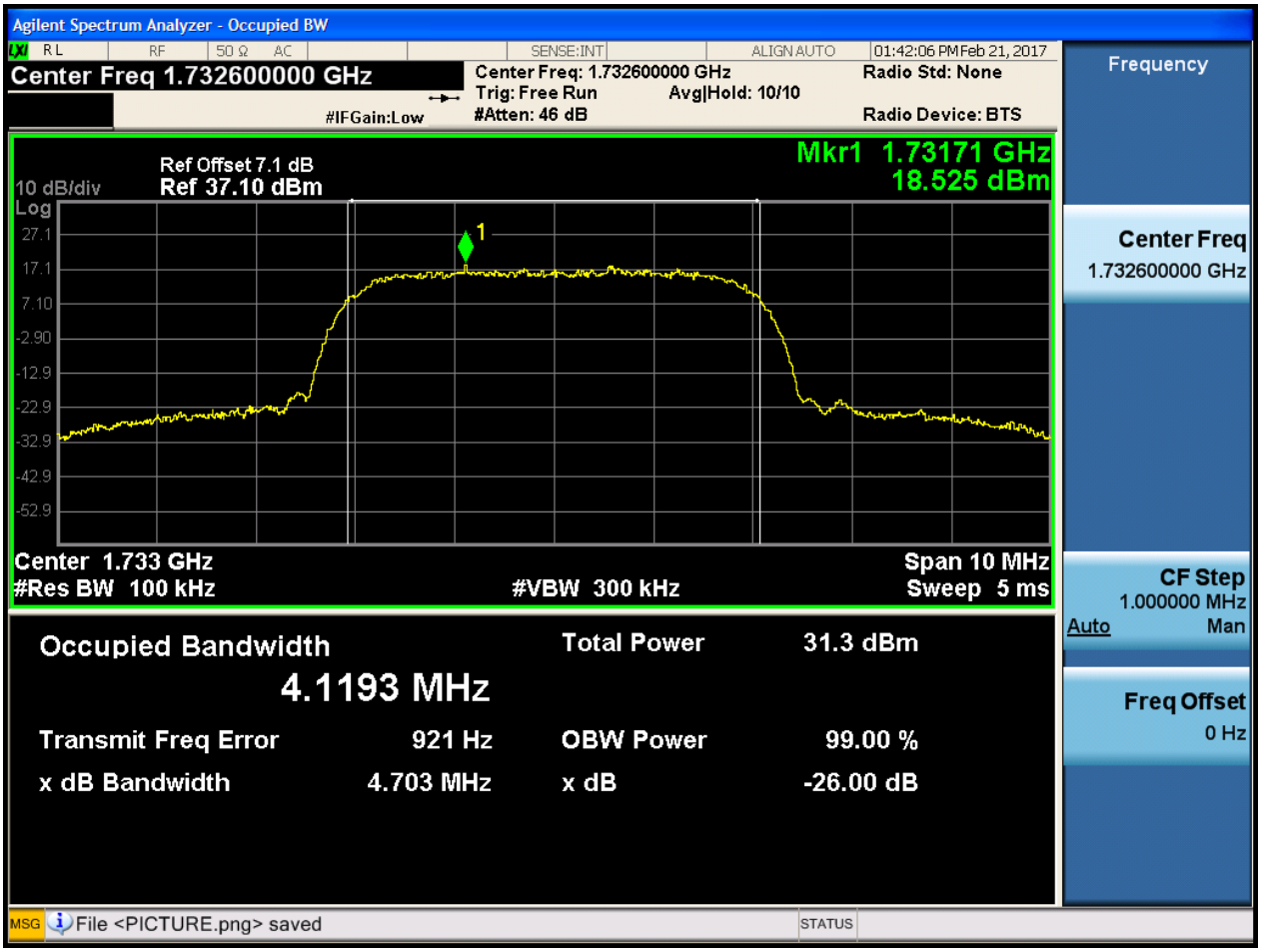
4.1.2.1 Test Mode = UMTS/TM1

4.1.2.1.1 Test Channel = LCH



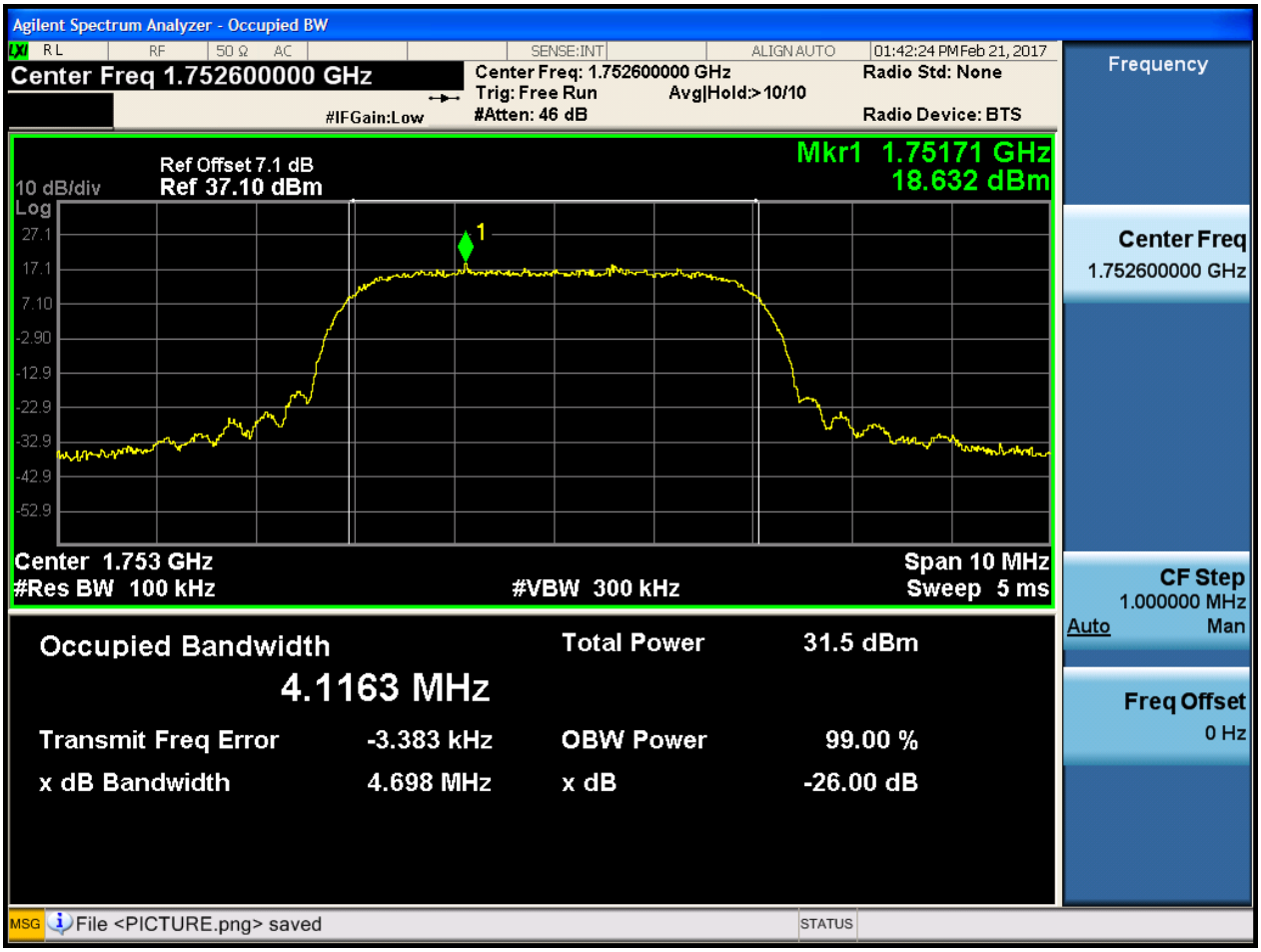
Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

4.1.2.1.2 Test Channel = MCH



Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

4.1.2.1.3 Test Channel = HCH

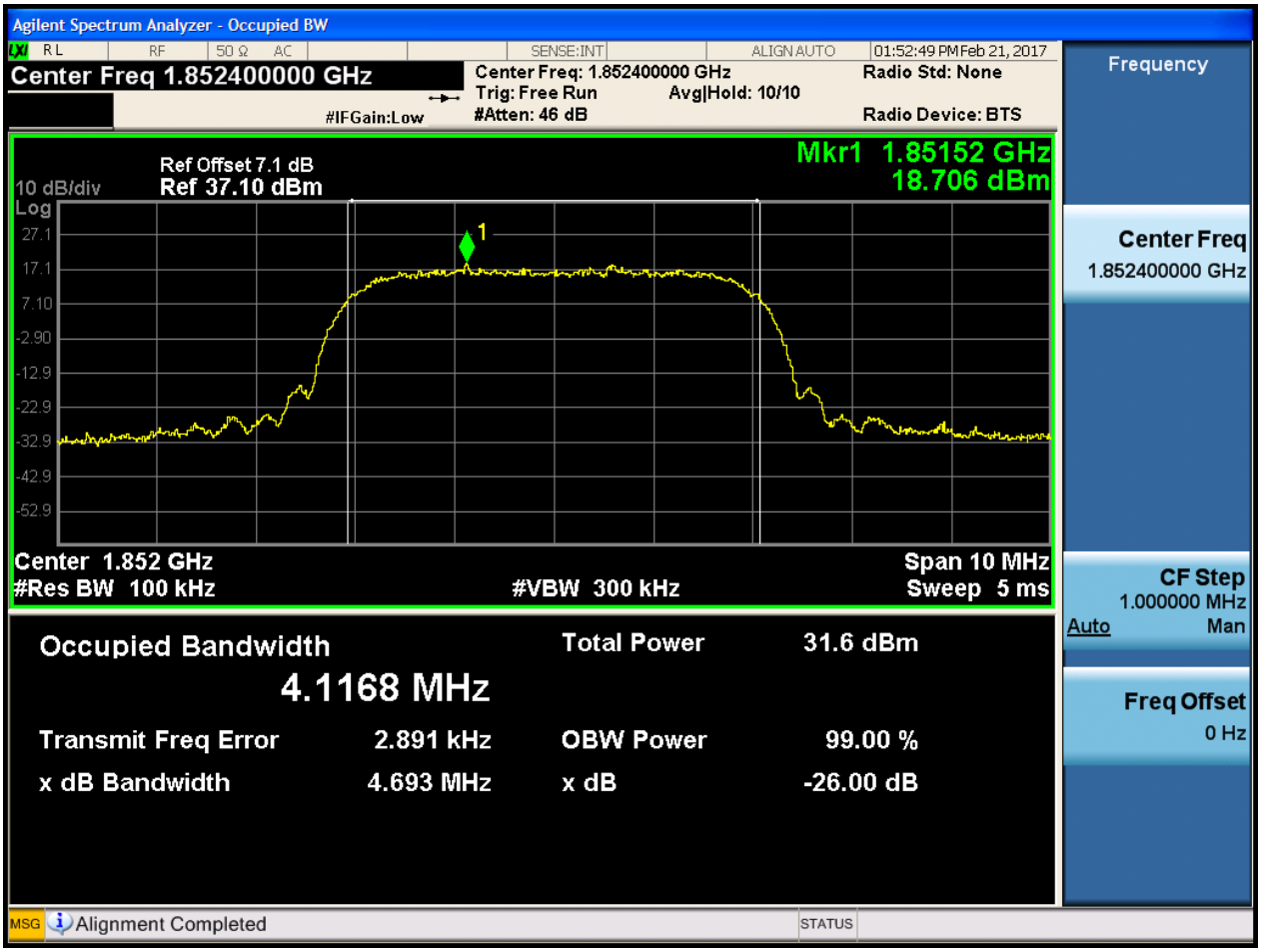


Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

4.1.3 Test Band = WCDMA1900

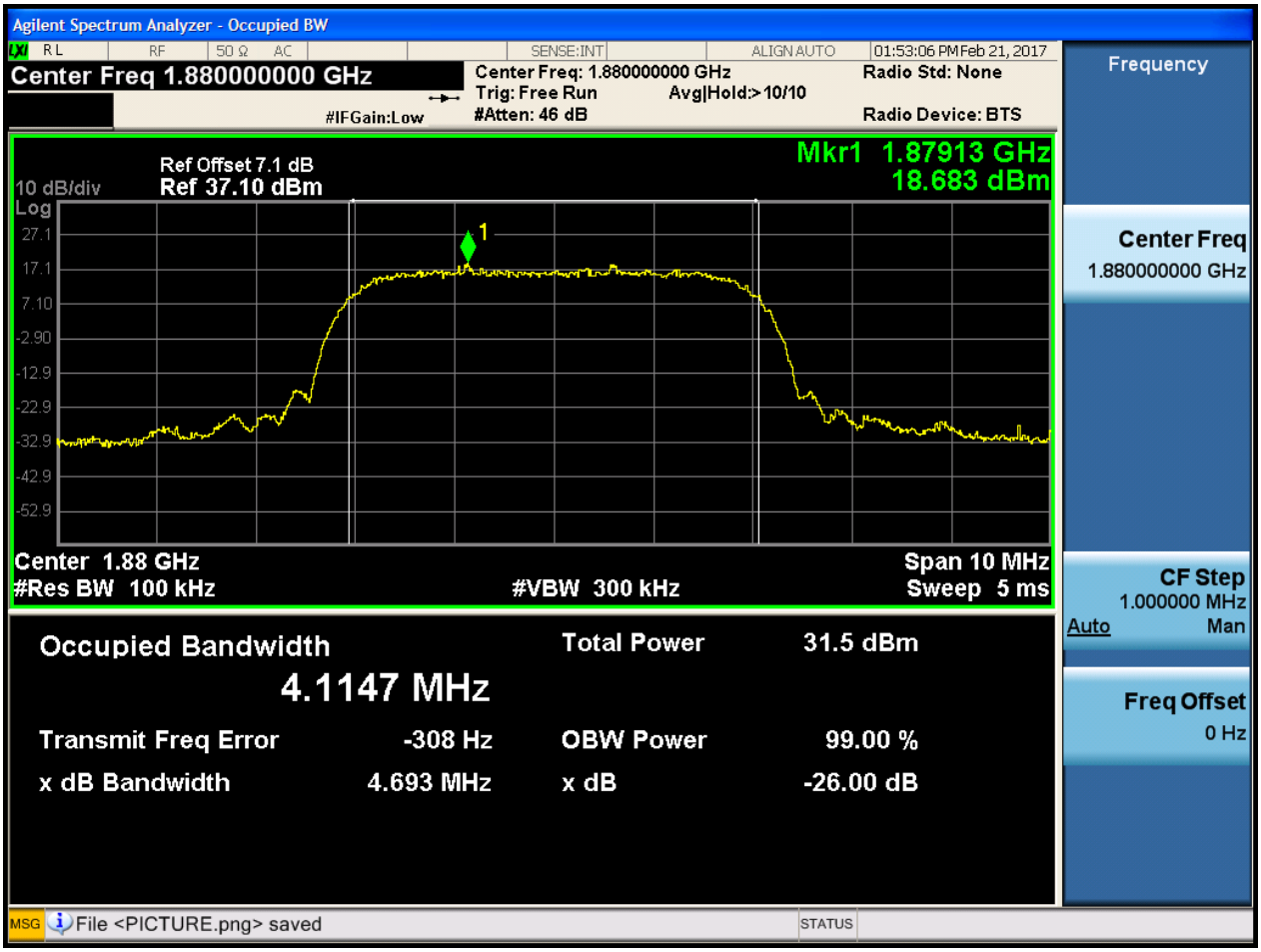
4.1.3.1 Test Mode = UMTS/TM1

4.1.3.1.1 Test Channel = LCH



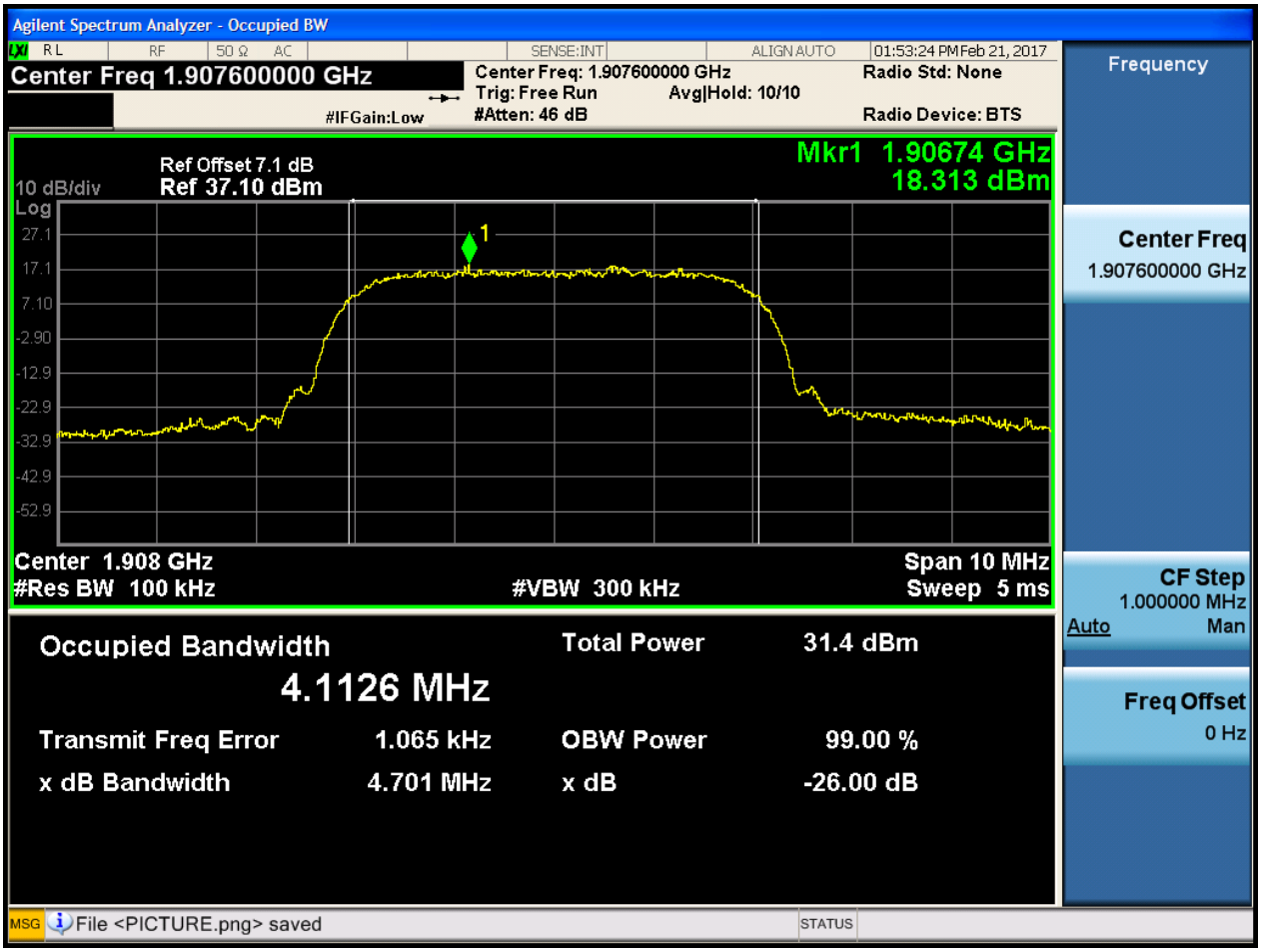
Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

4.1.3.1.2 Test Channel = MCH



Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

4.1.3.1.3 Test Channel = HCH



Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

5Appendix_E: Band Edges Compliance

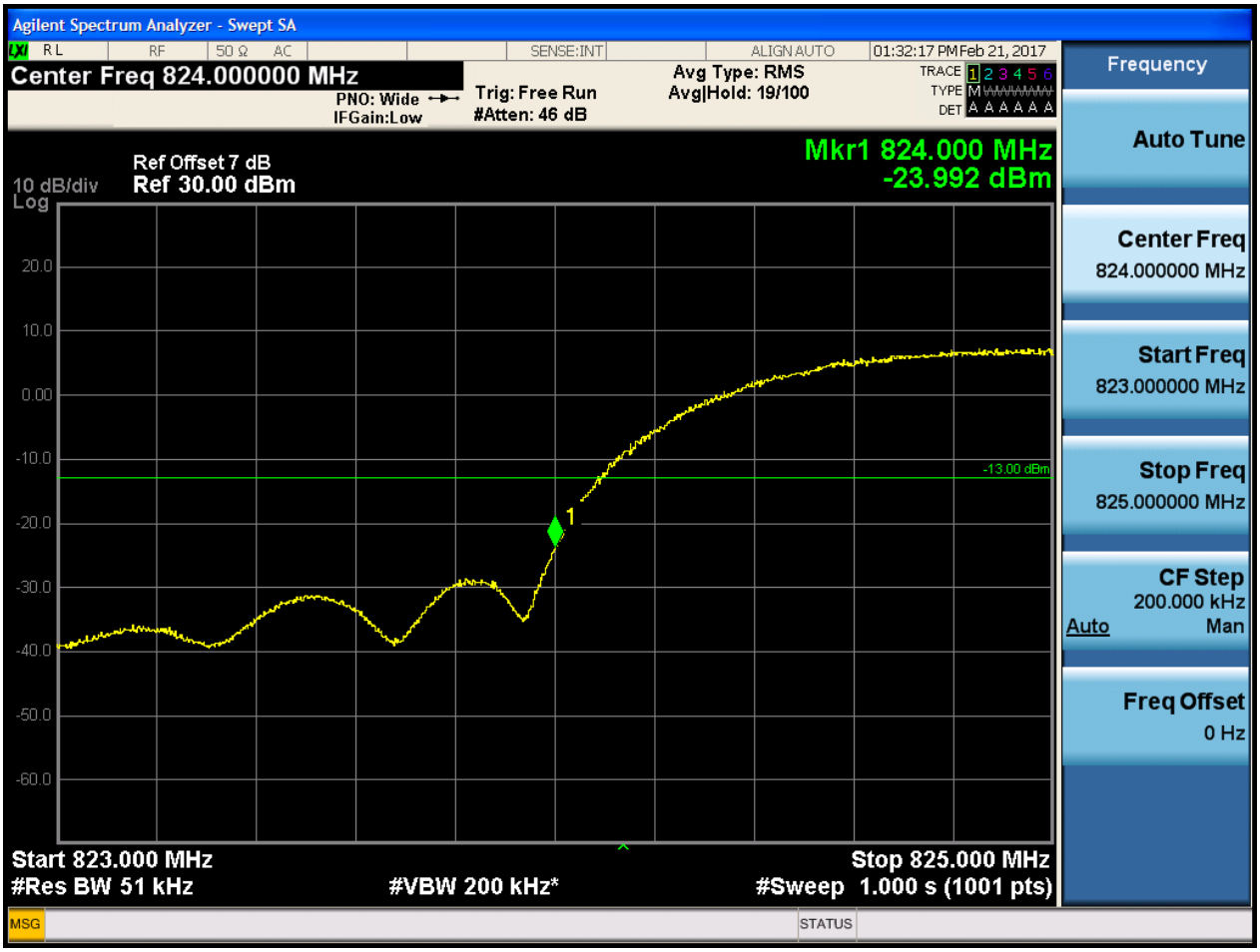
Part I - Test Plots

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



Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

5.1.1.1.2 Test Channel = HCH

Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

5.1.2 Test Band = WCDMA1700

5.1.2.1 Test Mode = UMTS/TM1

5.1.2.1.1 Test Channel = LCH

Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

5.1.2.1.2 Test Channel = HCH

Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

5.1.3 Test Band = WCDMA1900

5.1.3.1 Test Mode = UMTS/TM1

5.1.3.1.1 Test Channel = LCH

Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

5.1.3.1.2 Test Channel = HCH

Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

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.

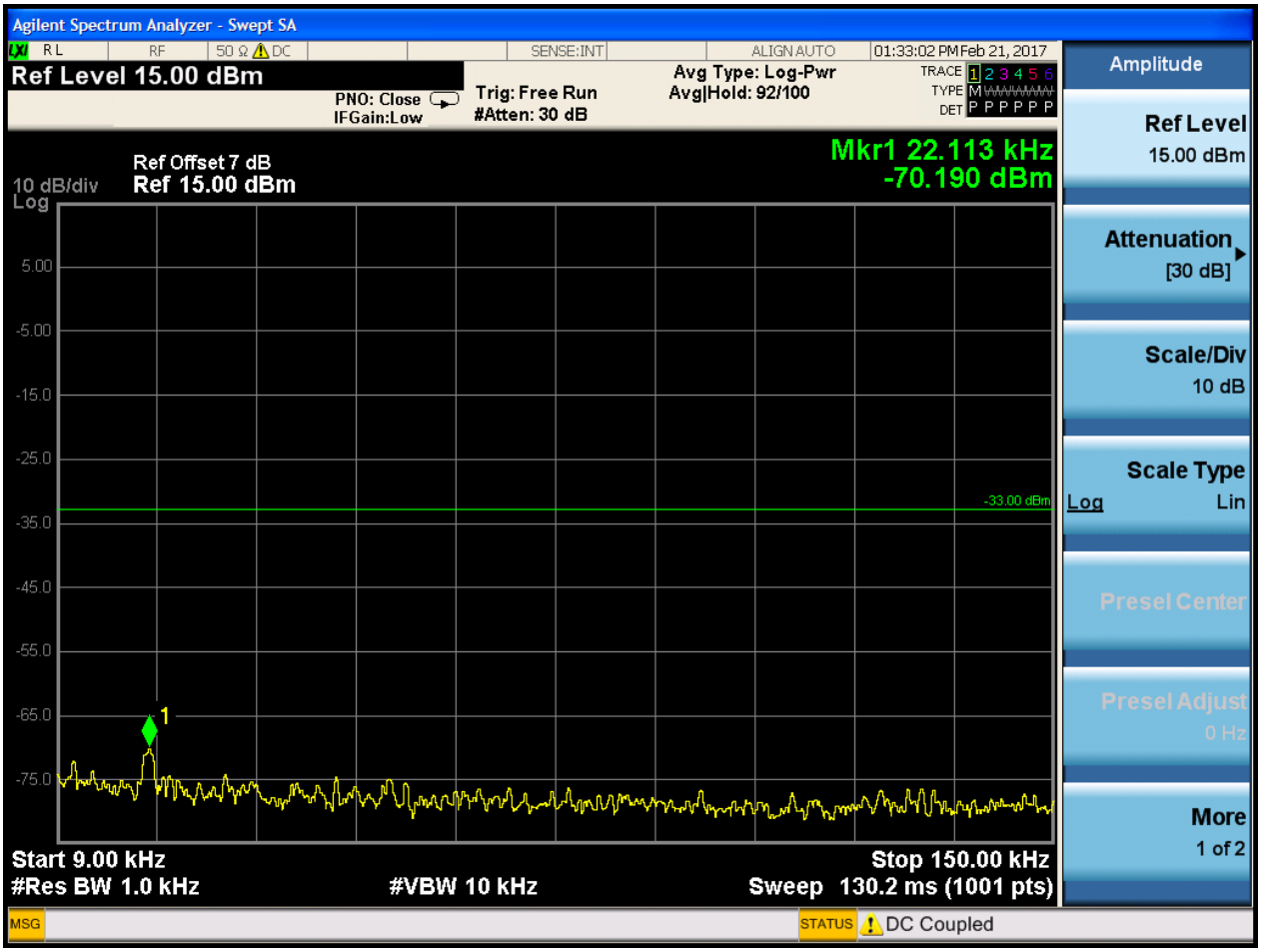
Part I - Test Plots

6.1 For UMTS

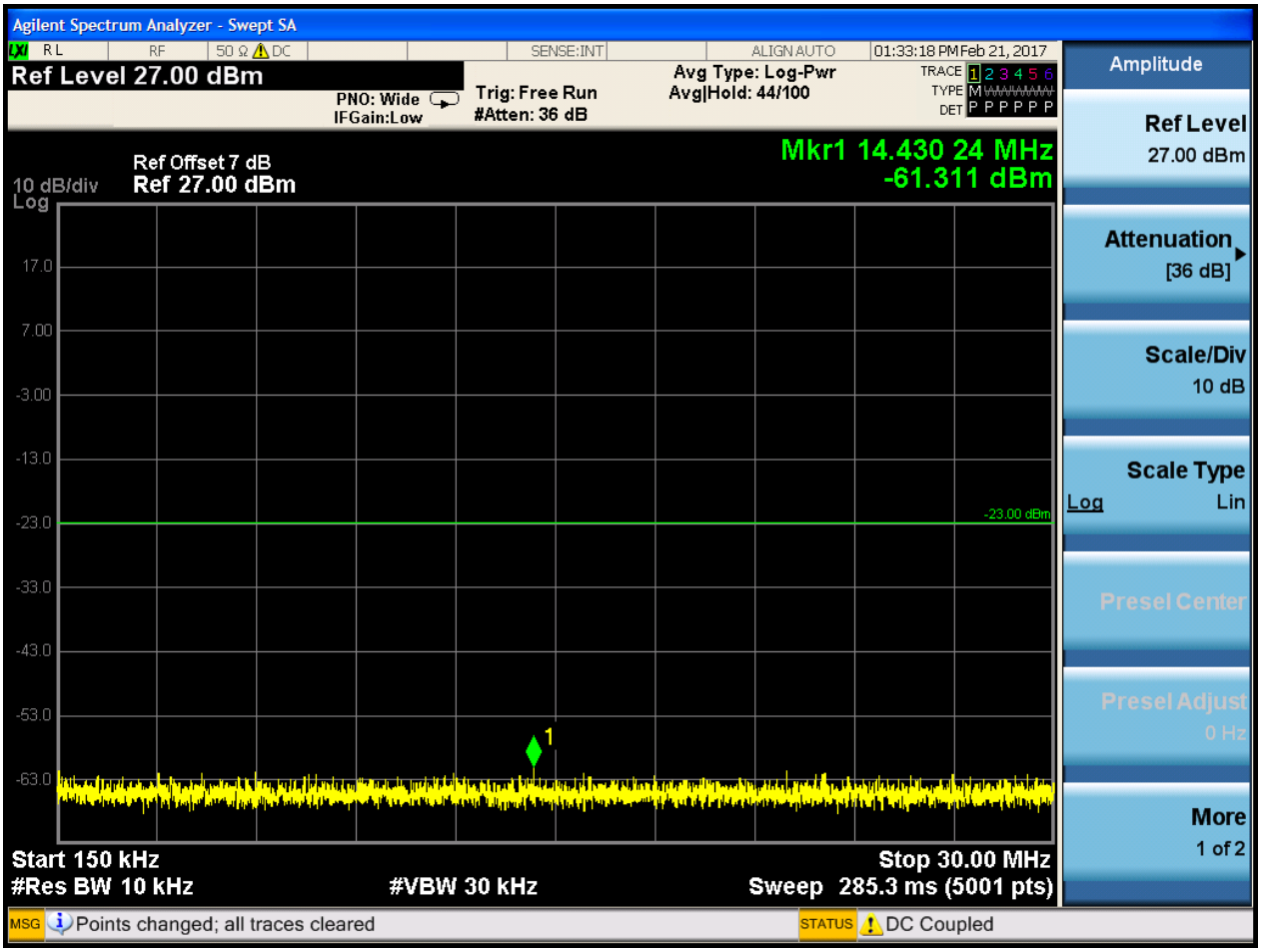
6.1.1 Test Band = WCDMA850

6.1.1.1 Test Mode = UMTS/TM1

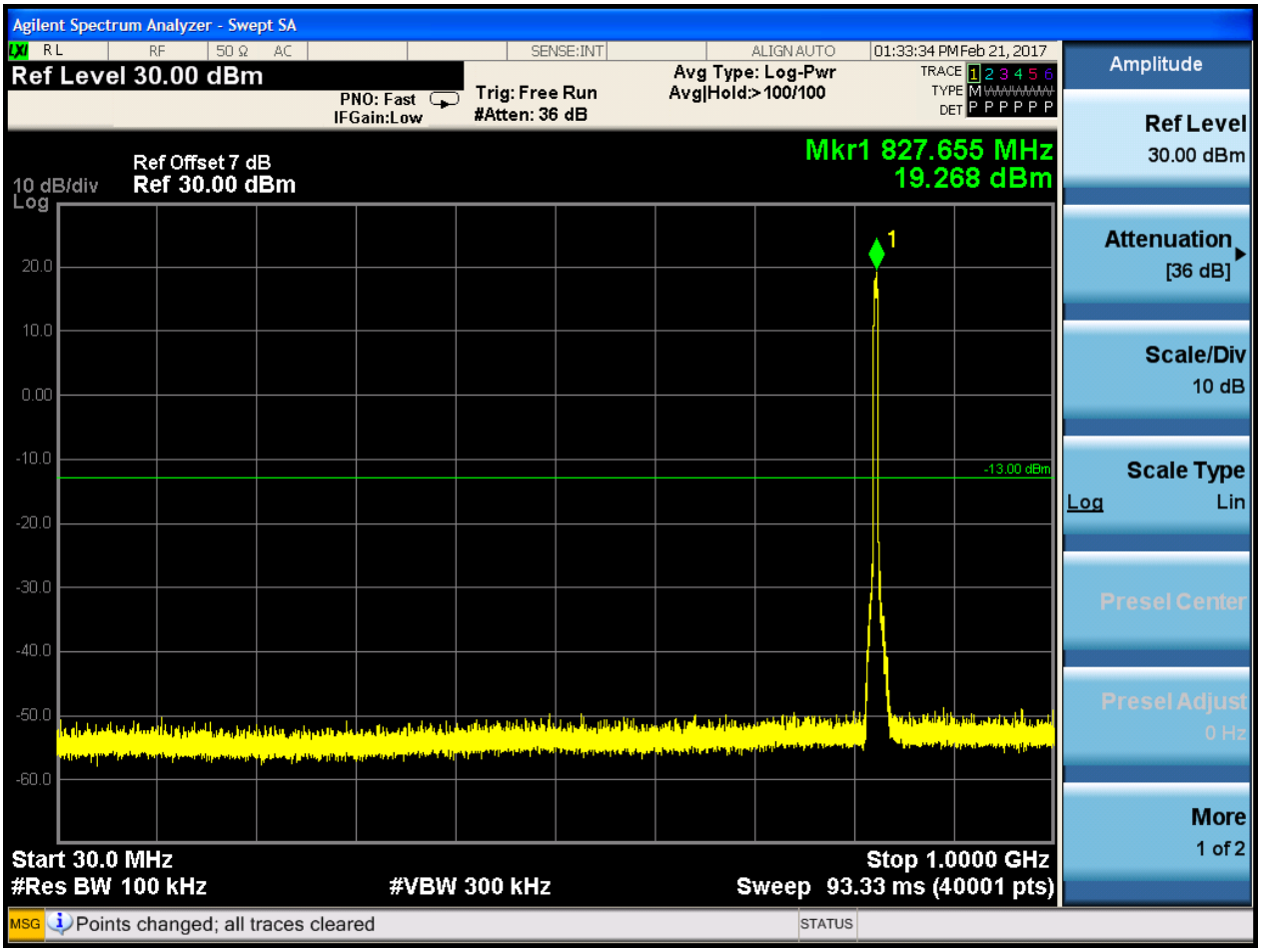
6.1.1.1.1 Test Channel = LCH



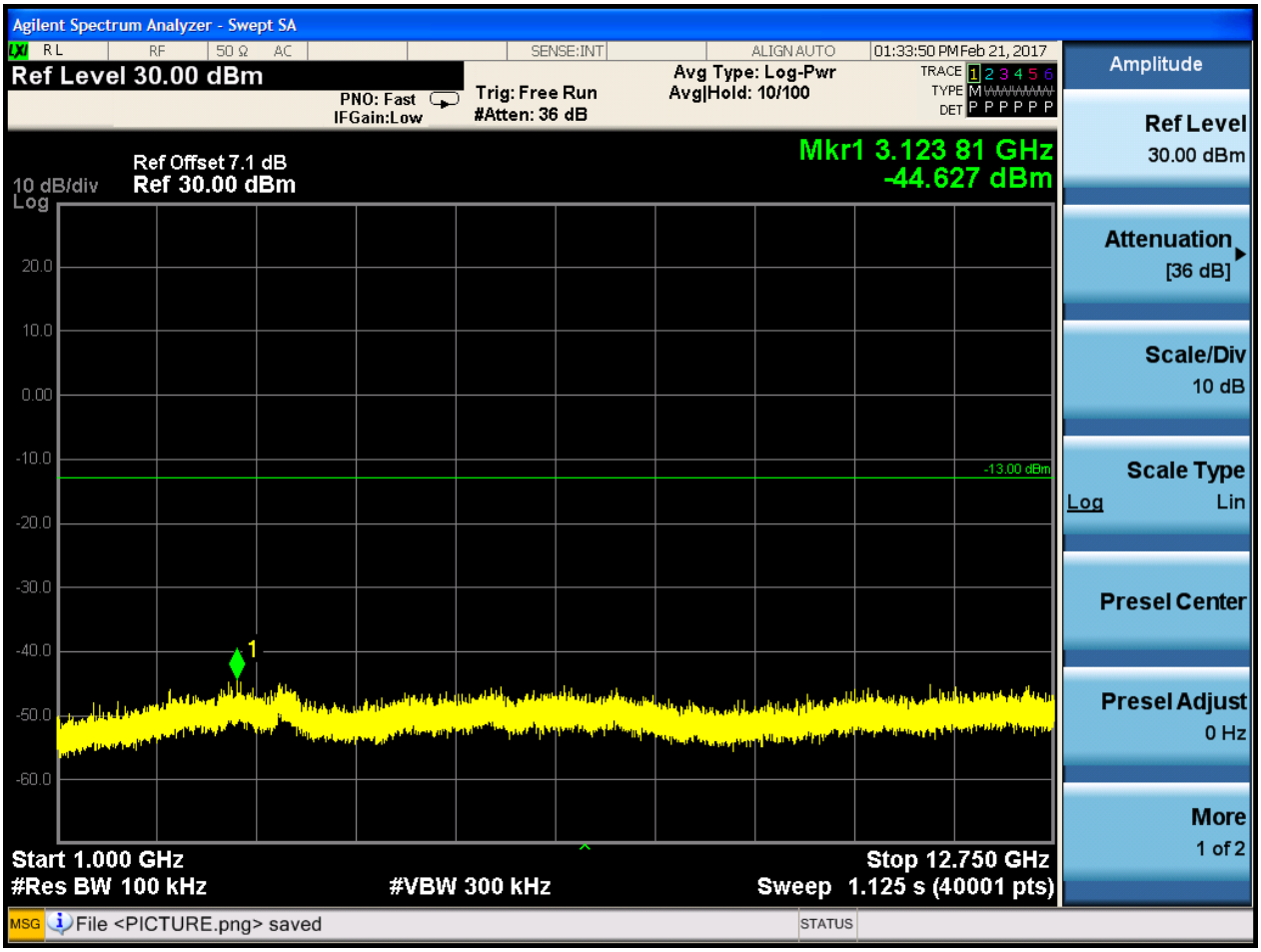
Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.



Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

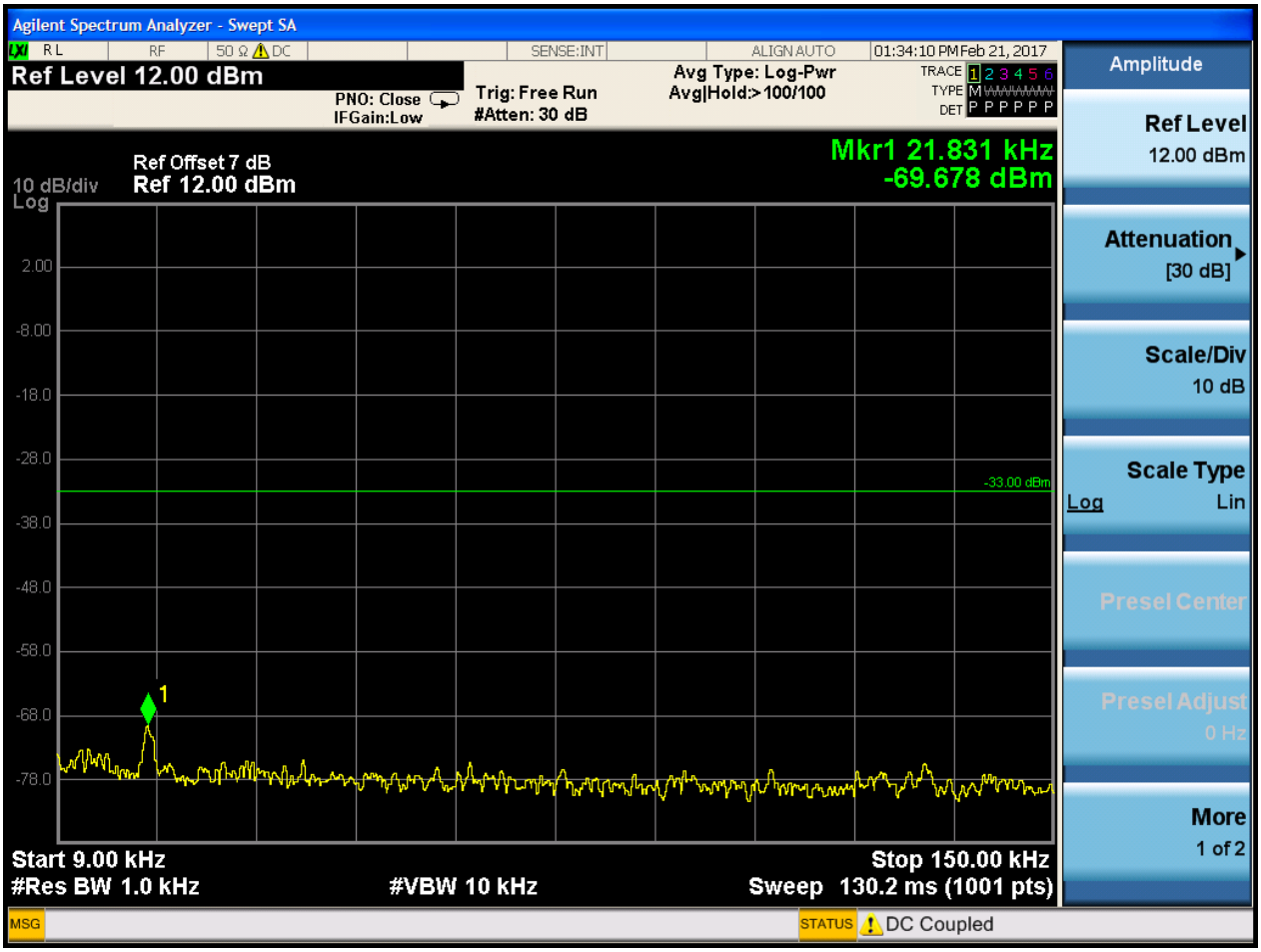


Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

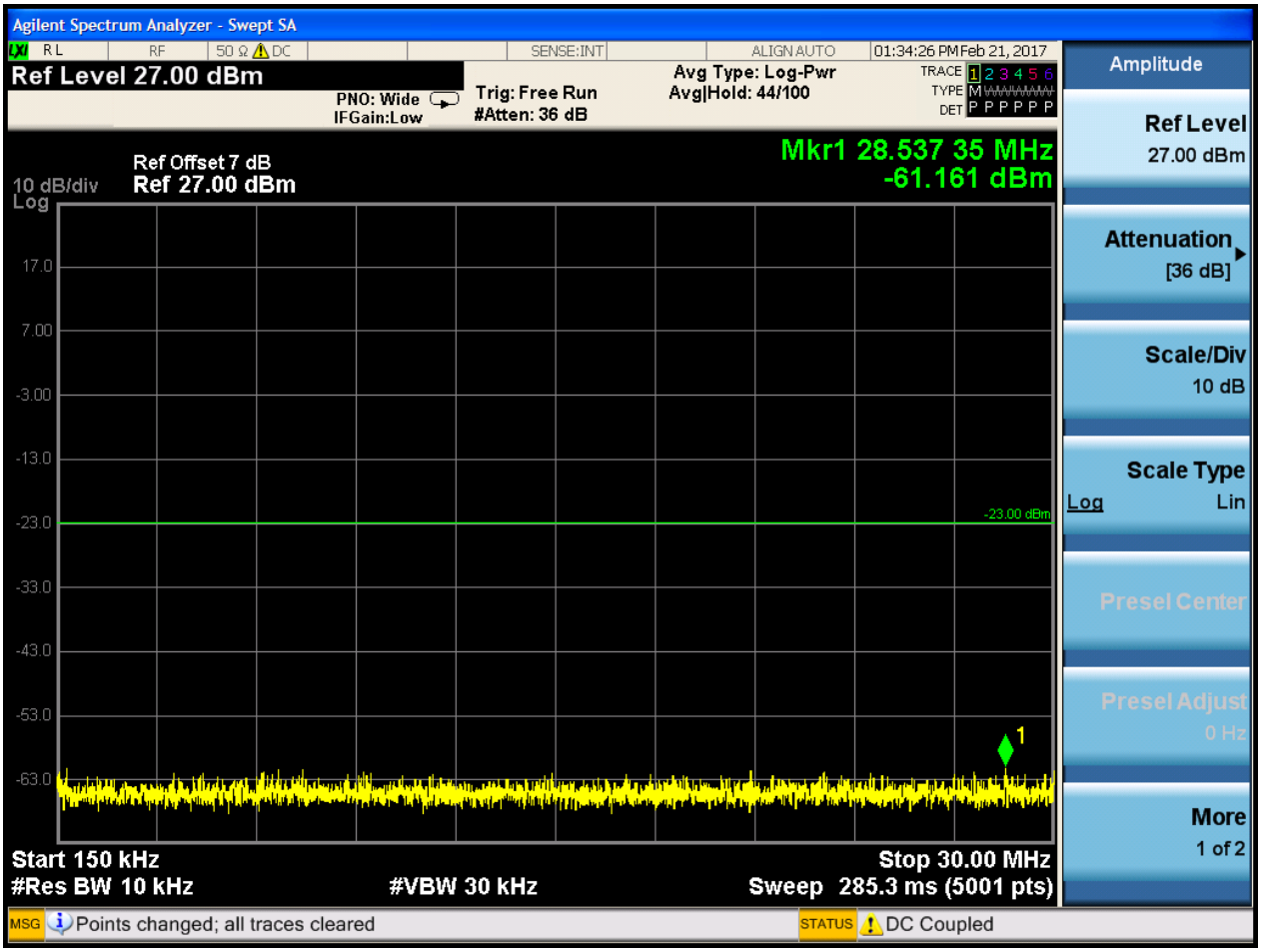


Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

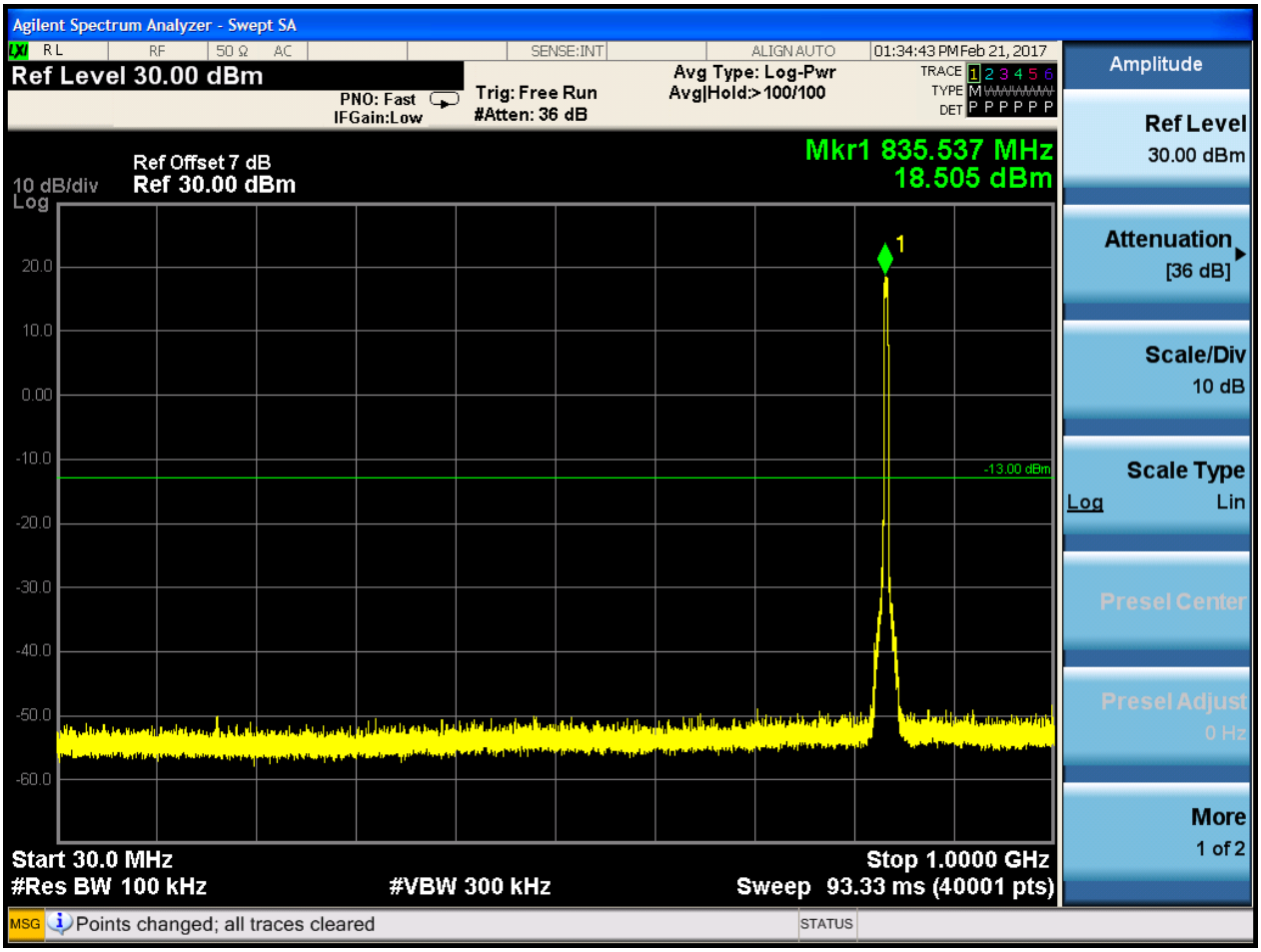
6.1.1.1.2 Test Channel = MCH



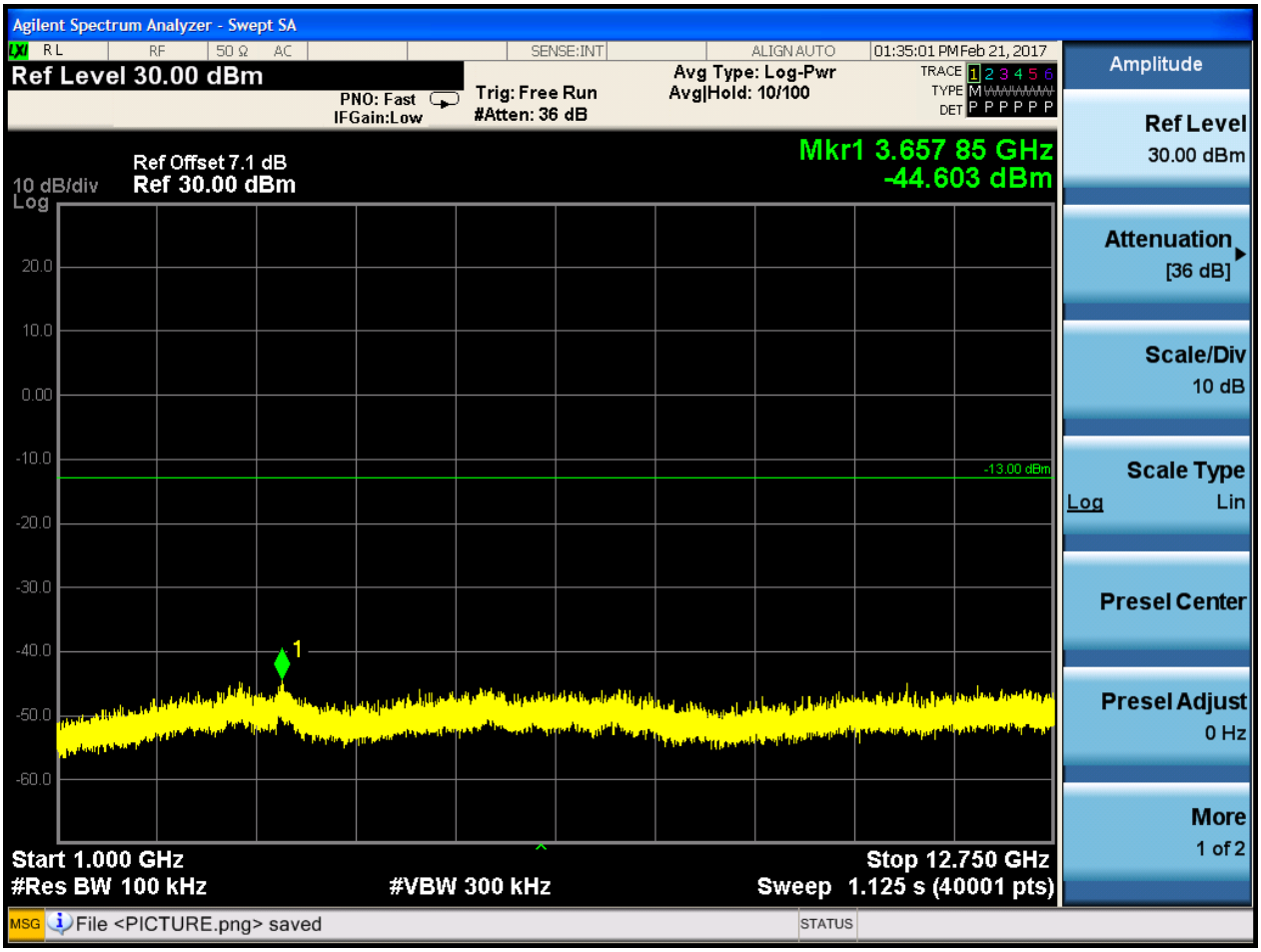
Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.



Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

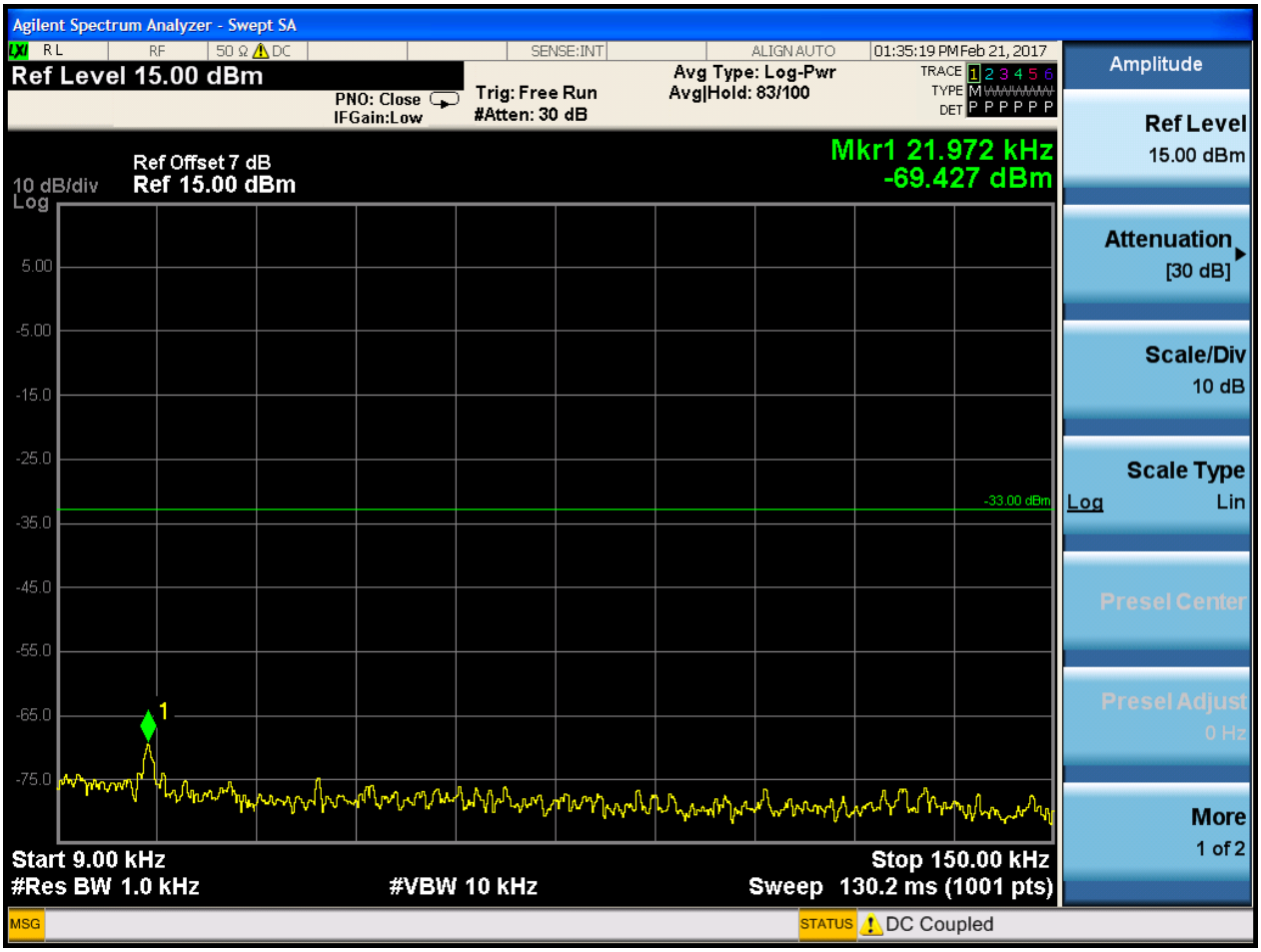


Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

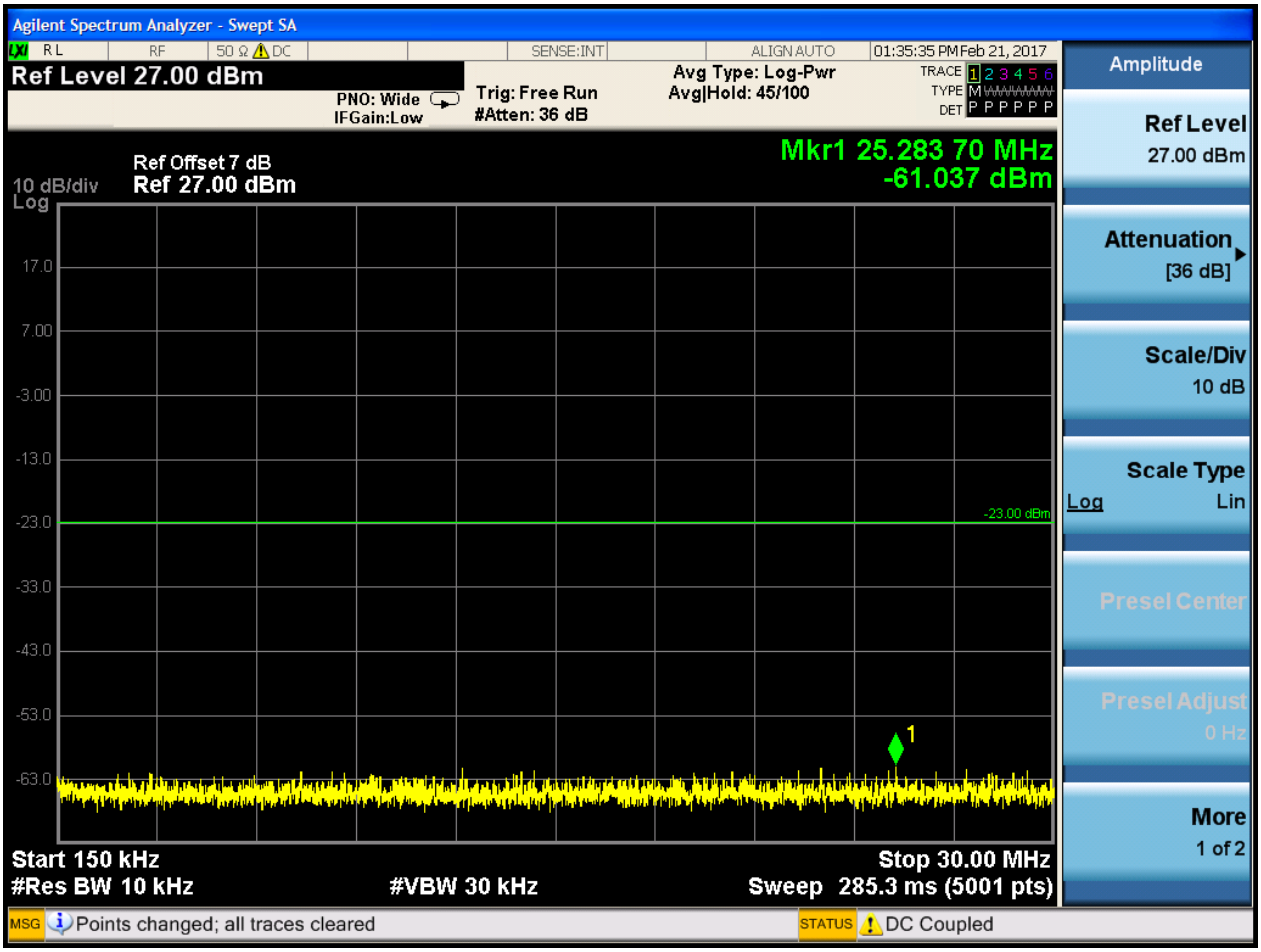


Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

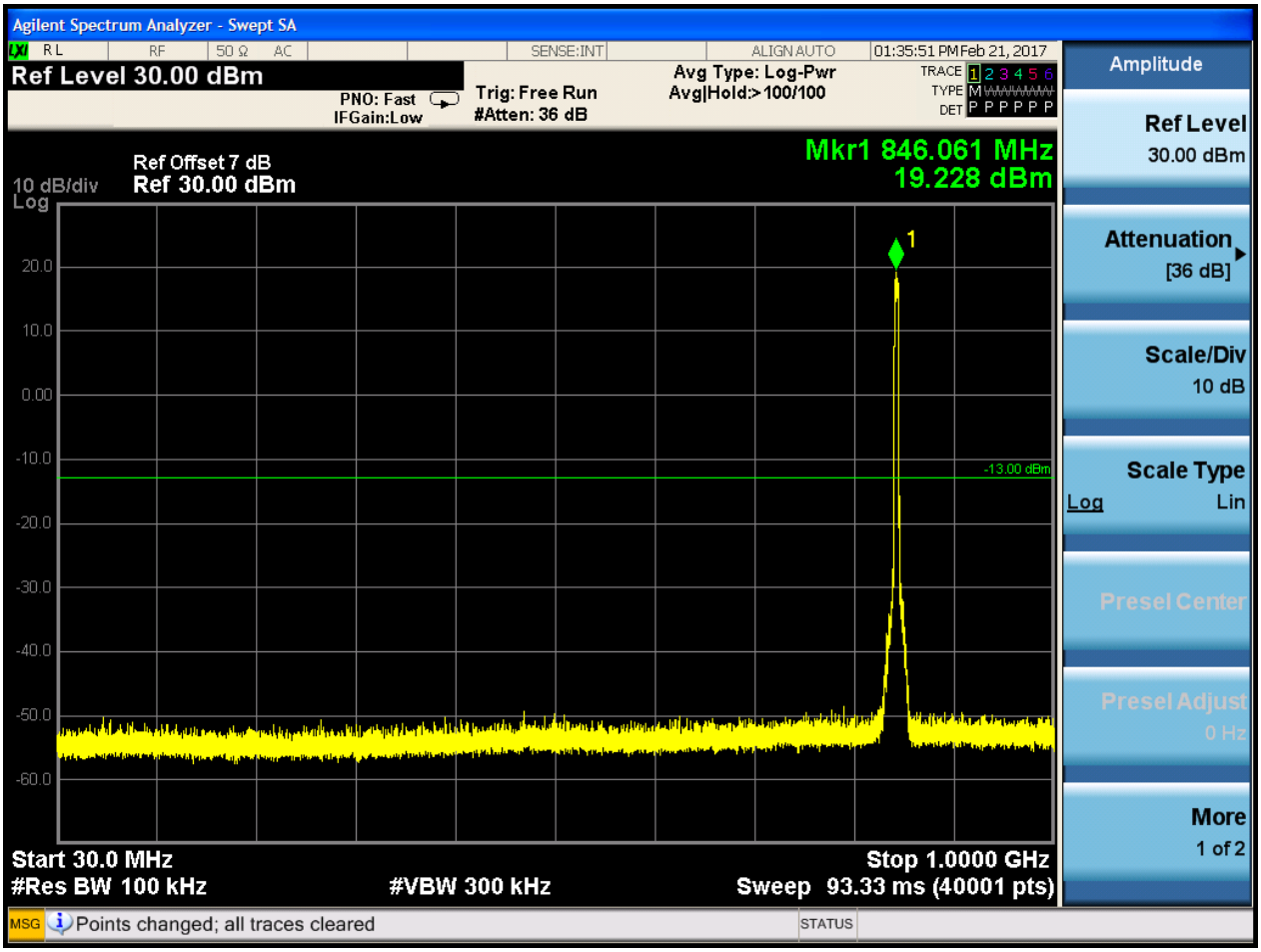
6.1.1.1.3 Test Channel = HCH



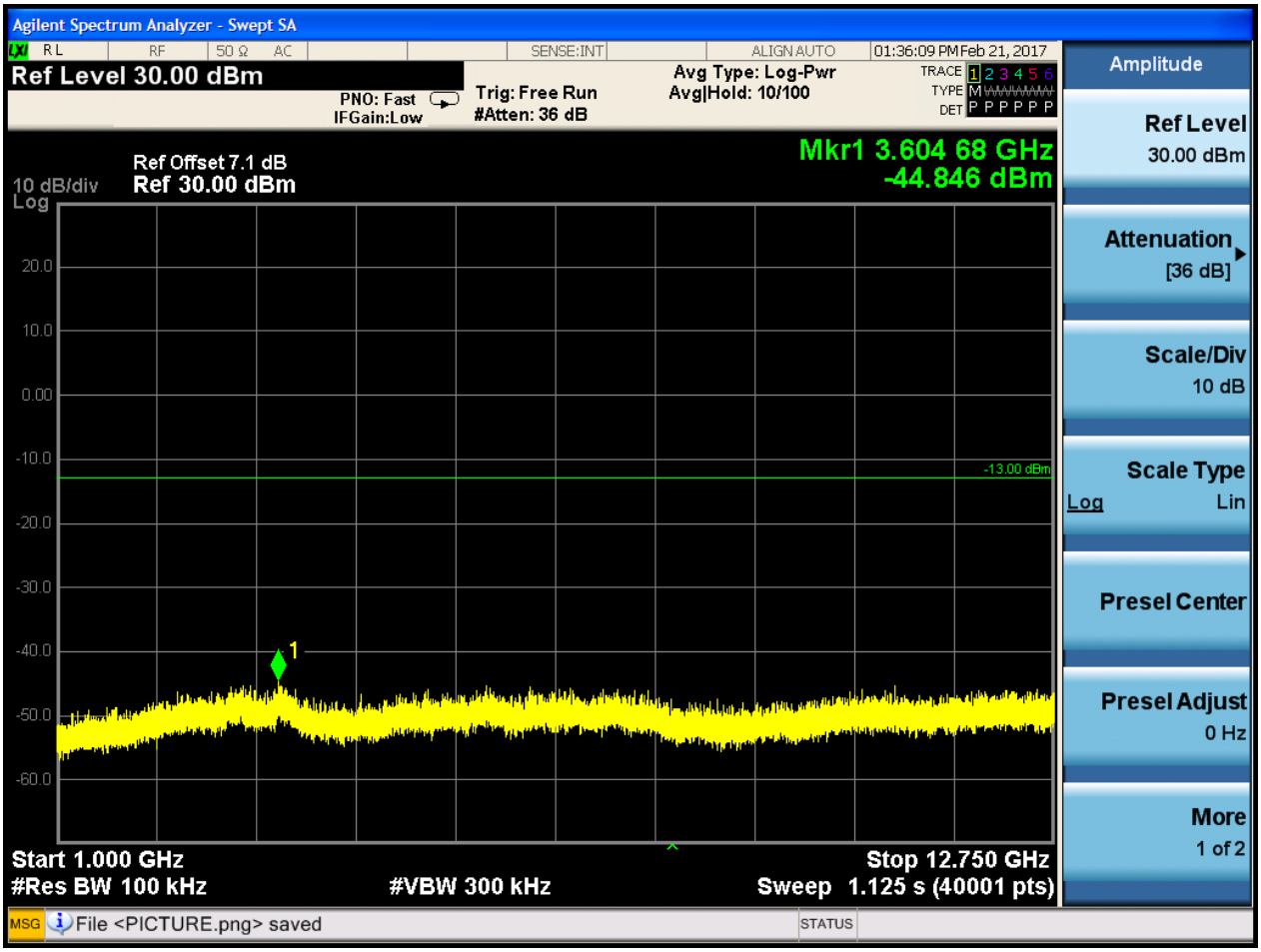
Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.



Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.



Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

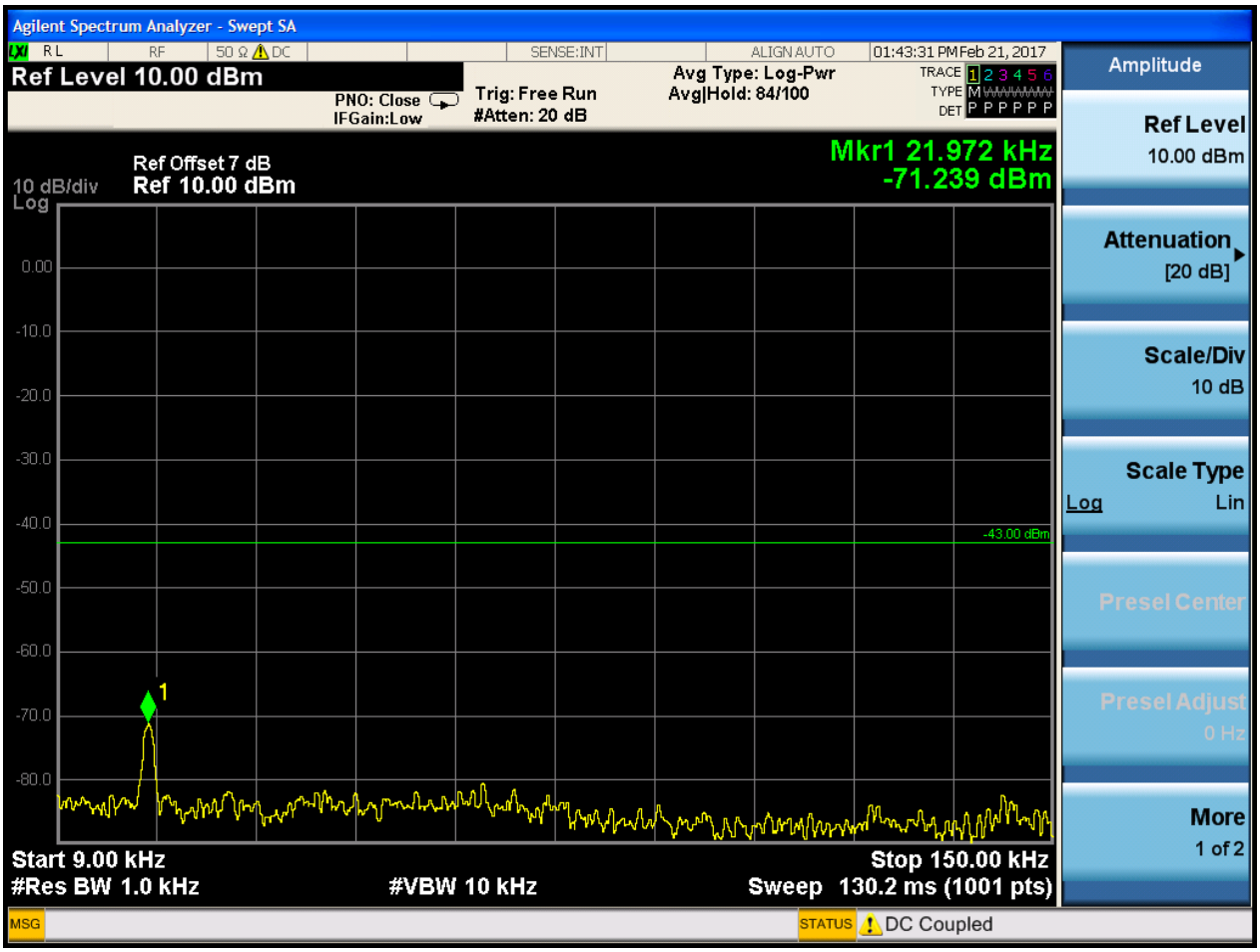


Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

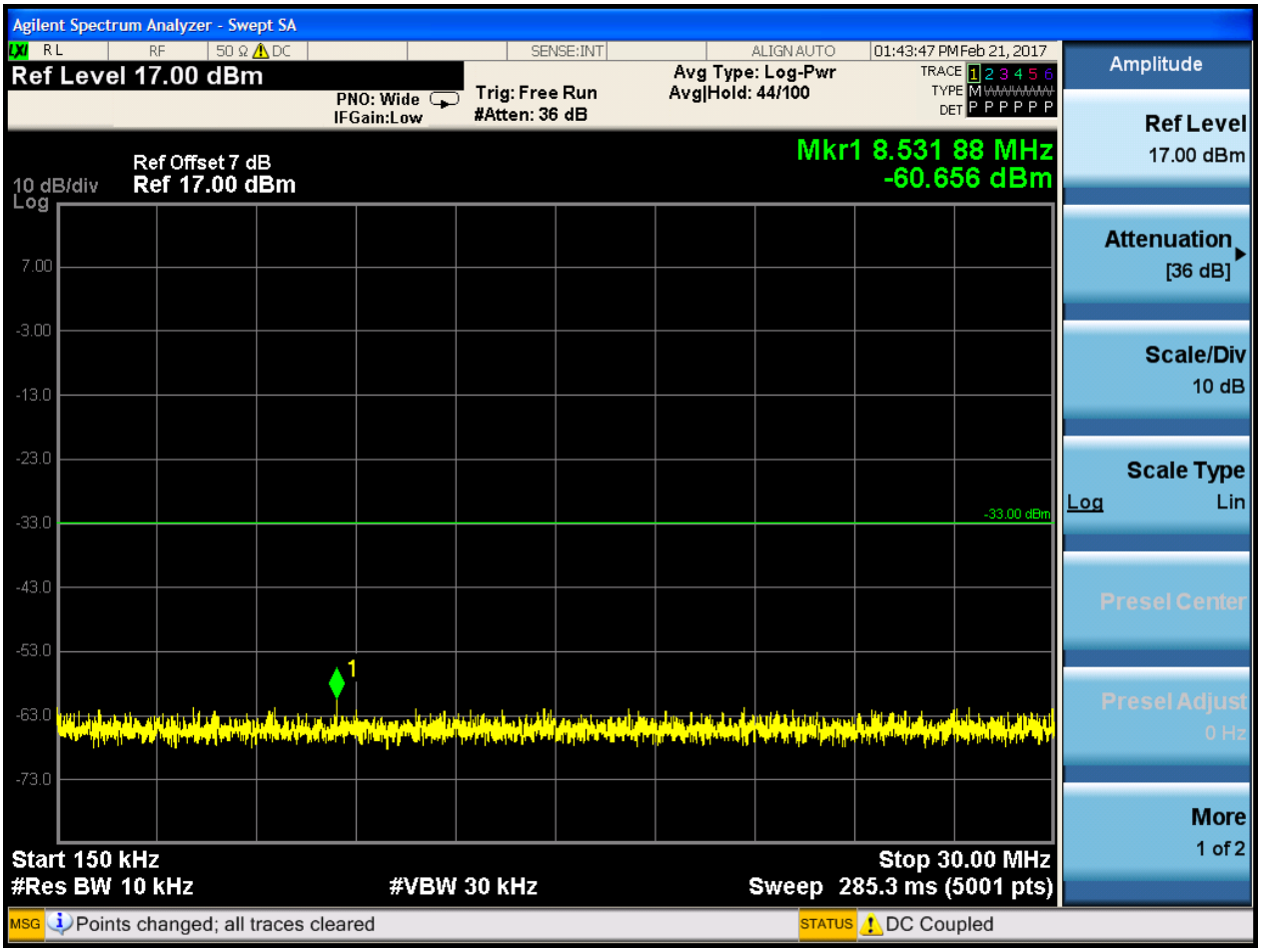
6.1.2 Test Band = WCDMA1700

6.1.2.1 Test Mode = UMTS/TM1

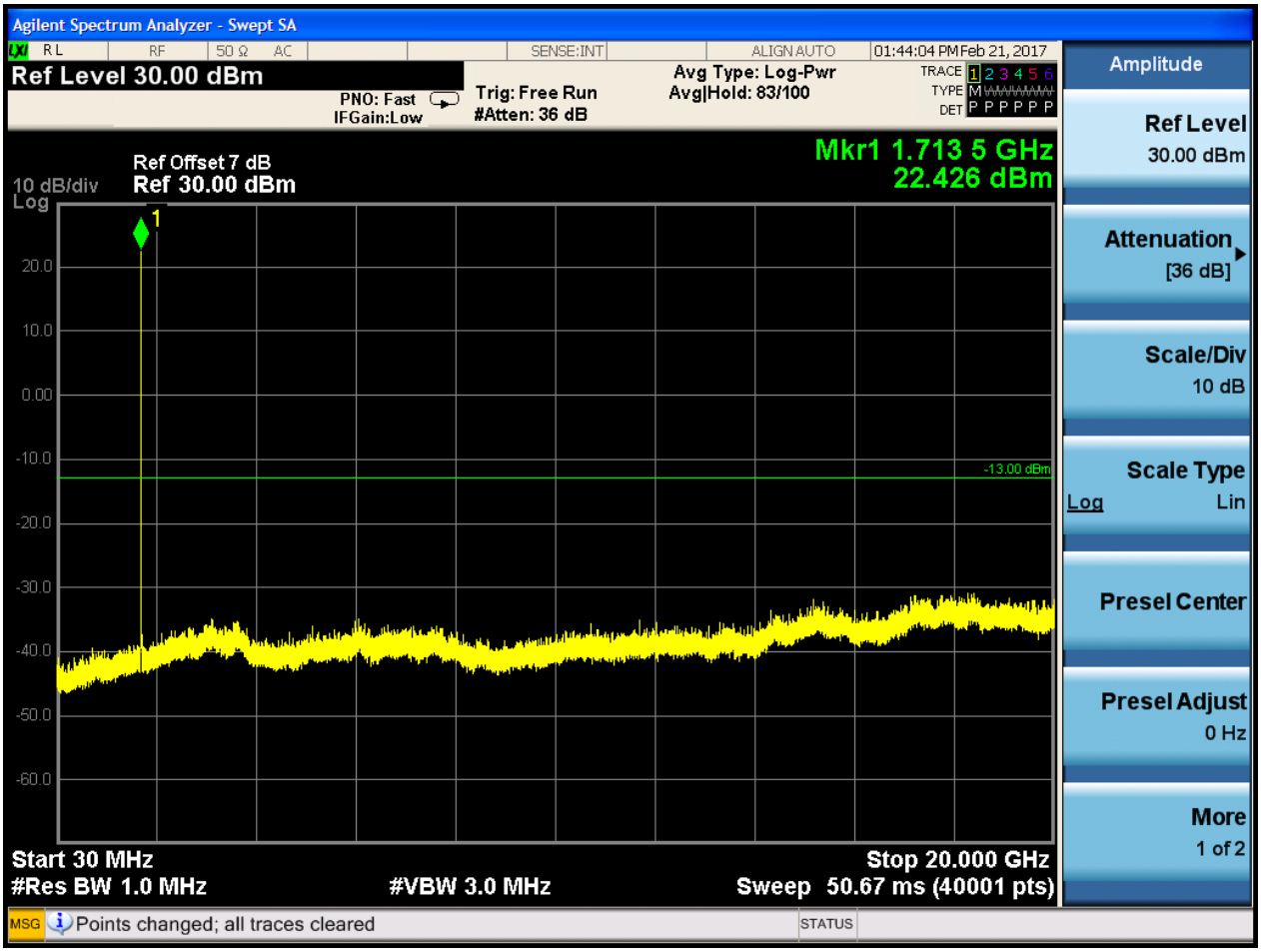
6.1.2.1.1 Test Channel = LCH



Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

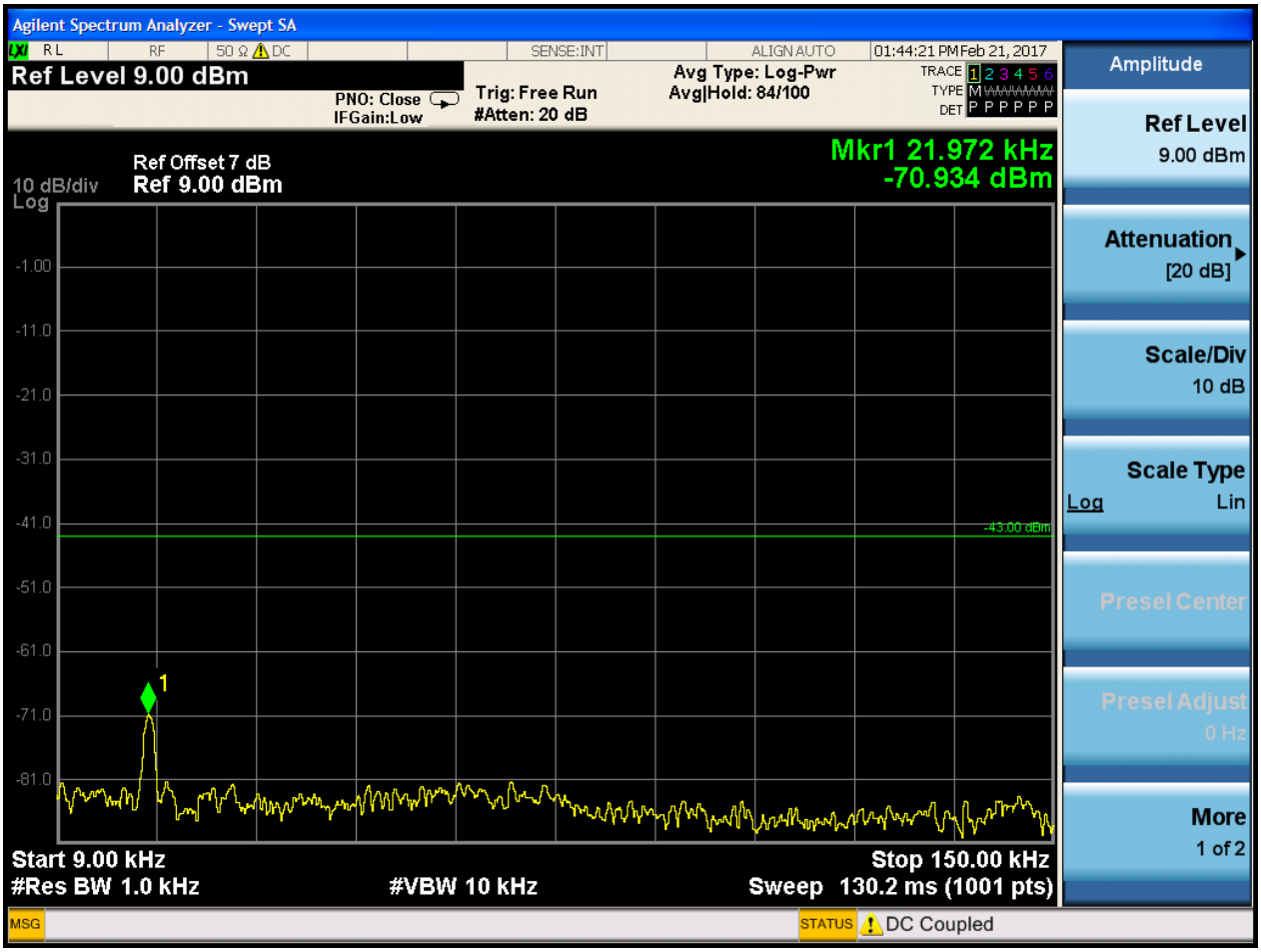


Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

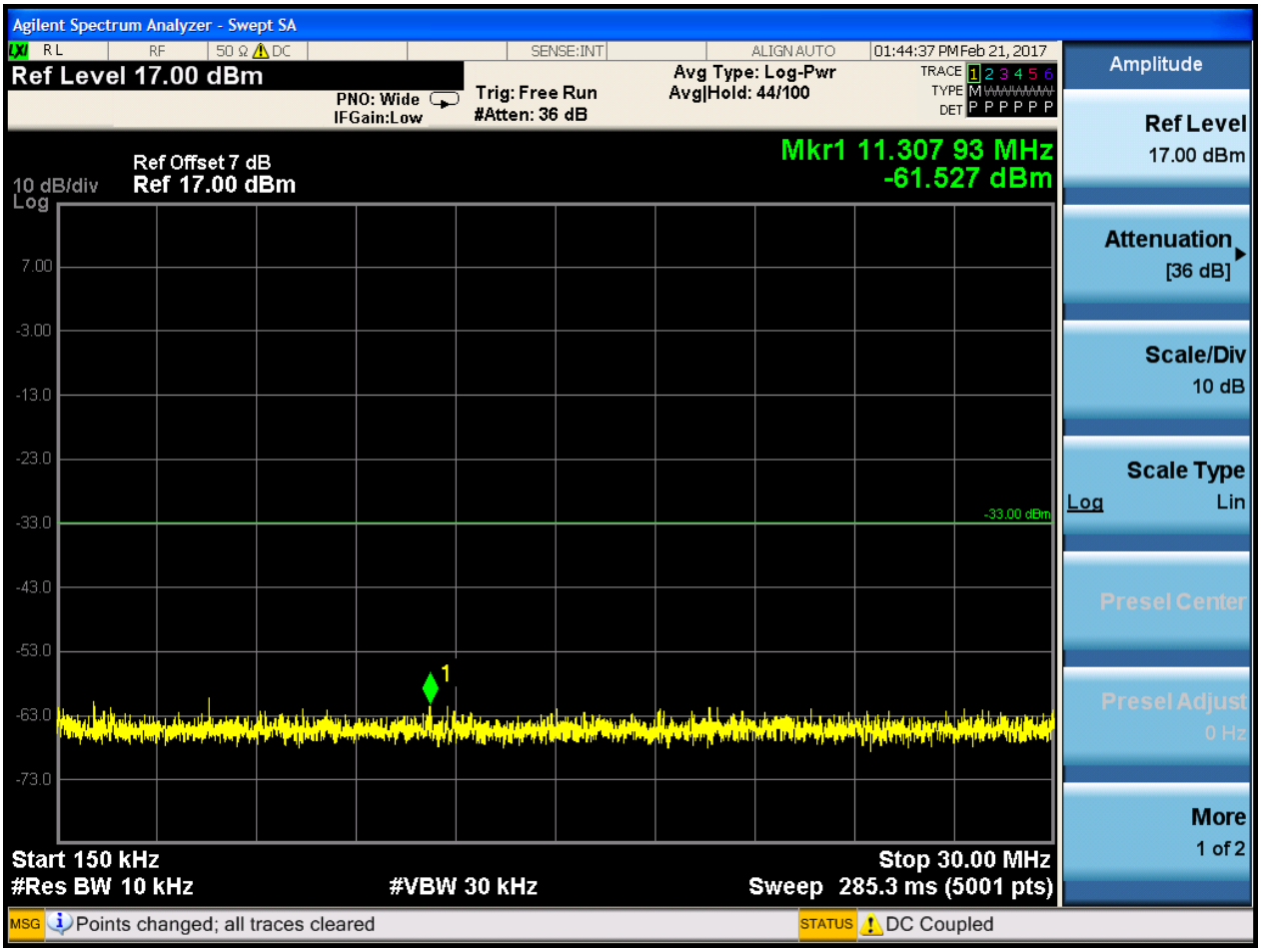


Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

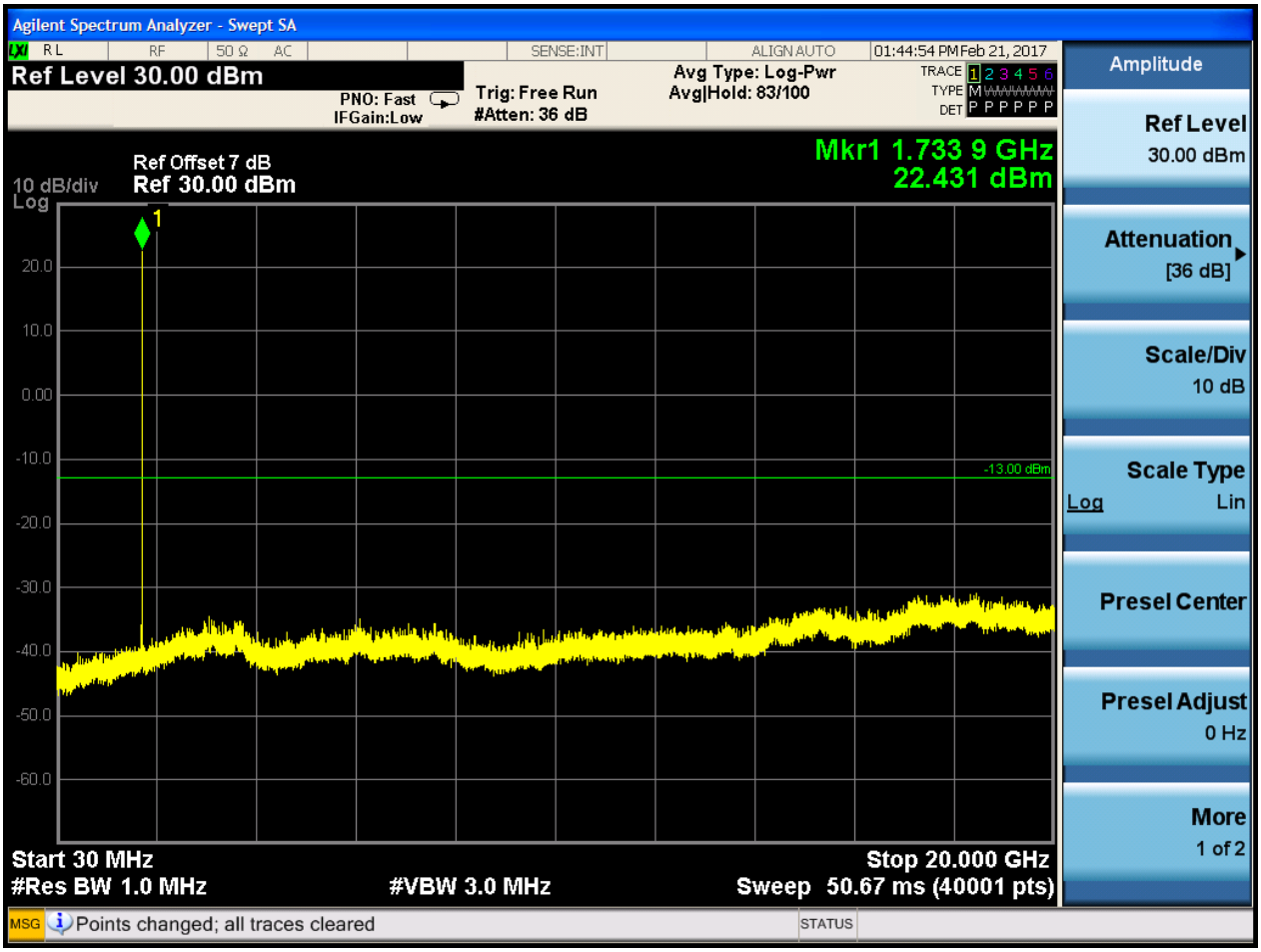
6.1.2.1.2 Test Channel = MCH



Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

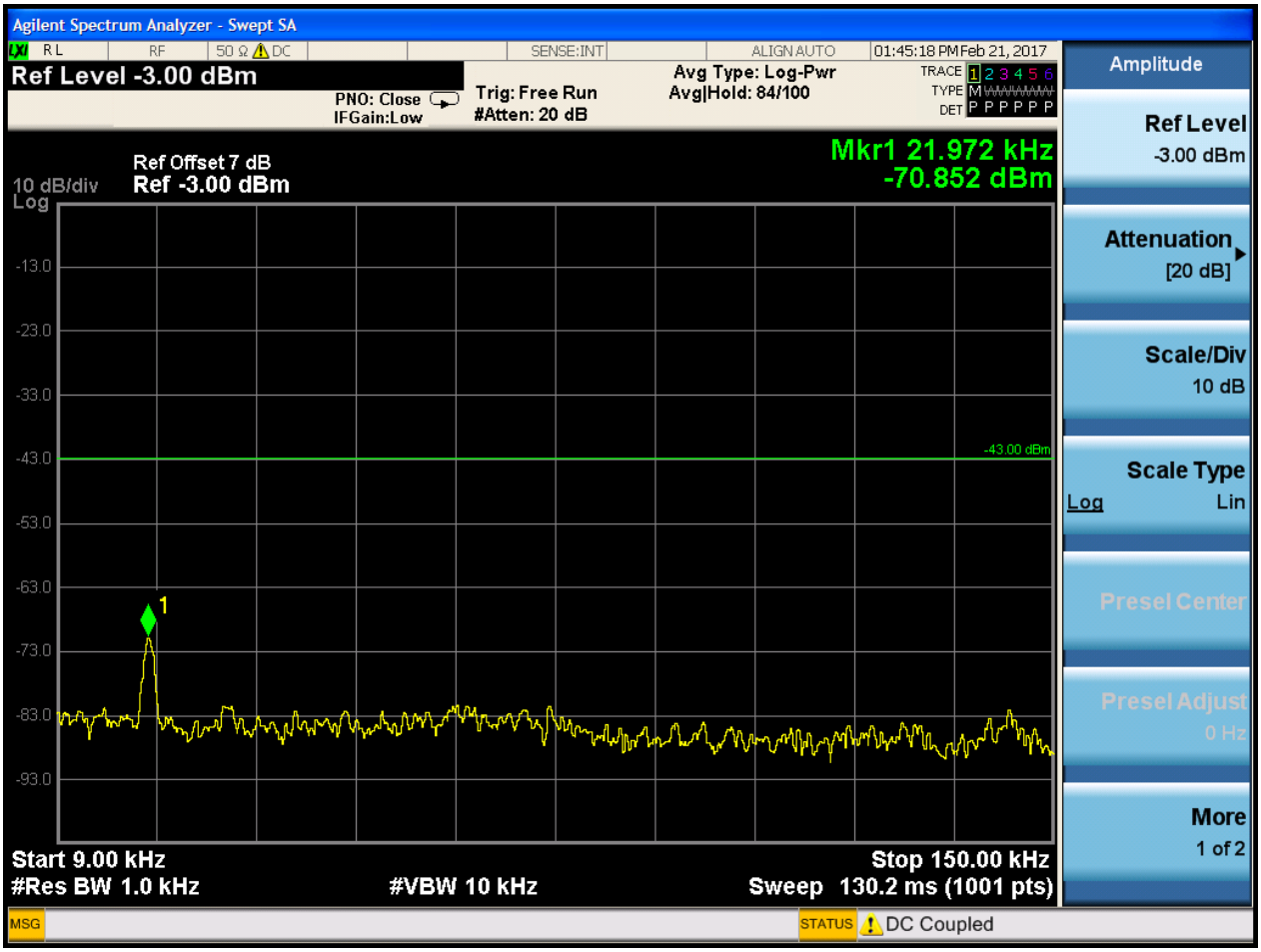


Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

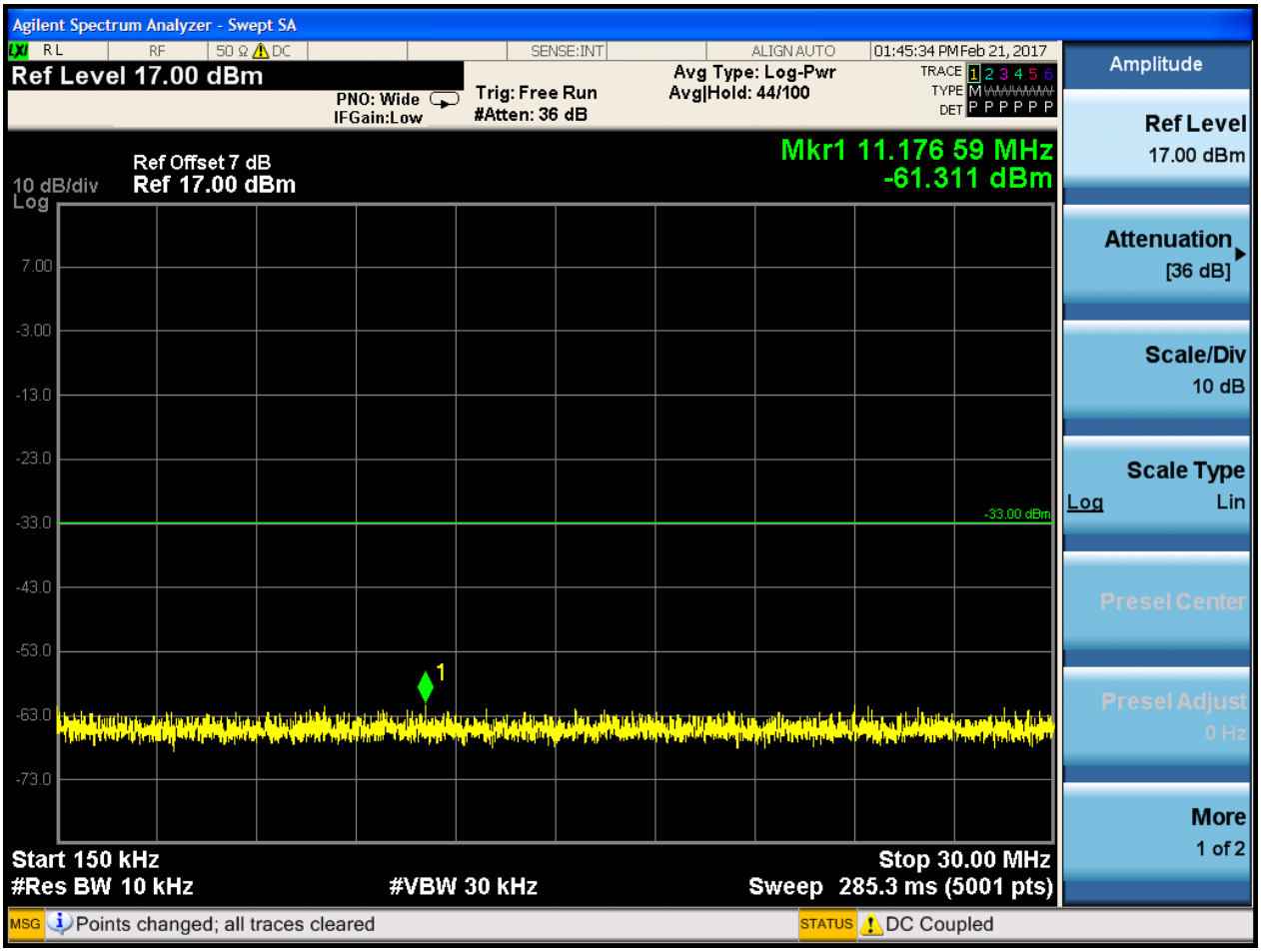


Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

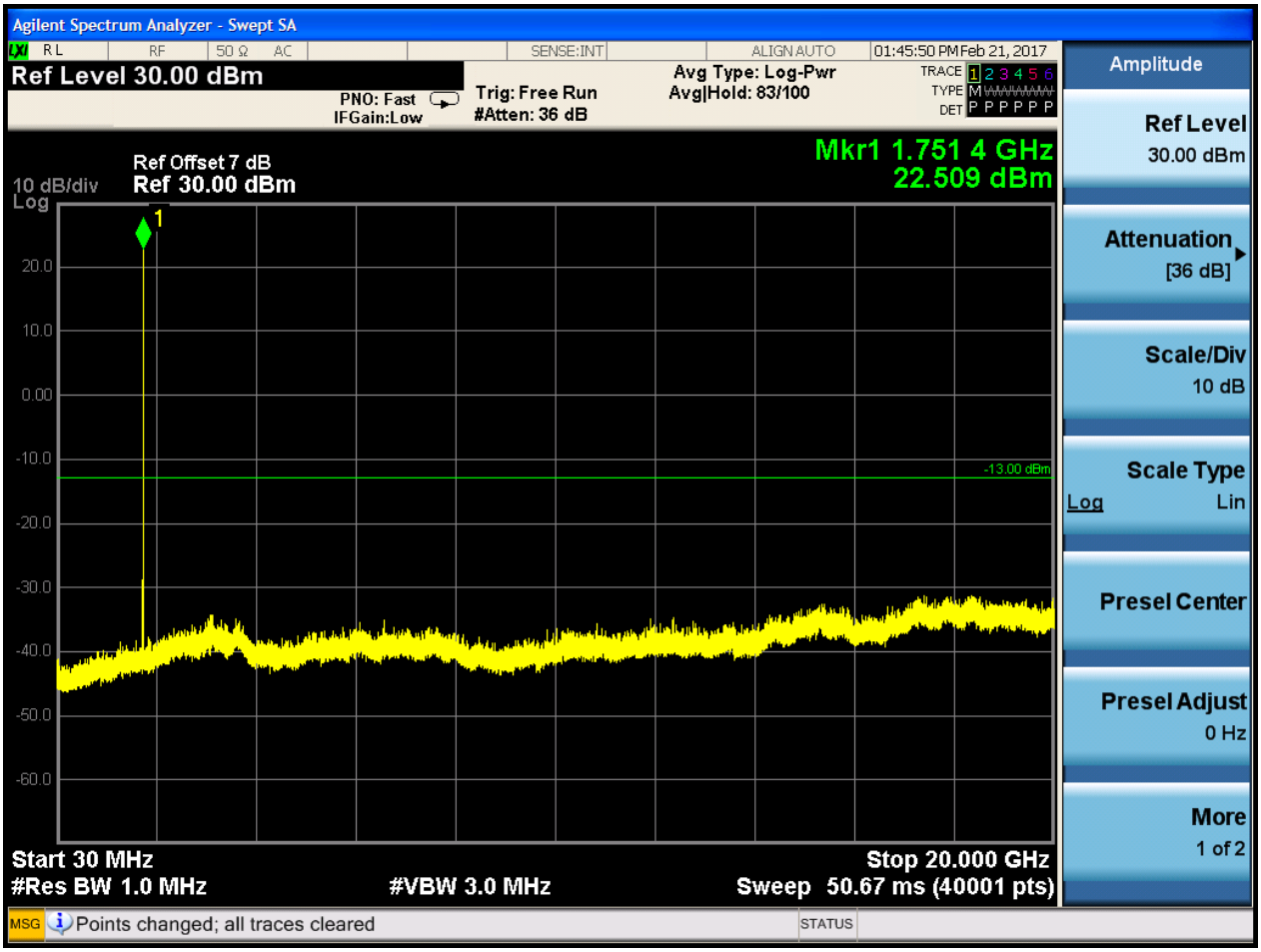
6.1.2.1.3 Test Channel = HCH



Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.



Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

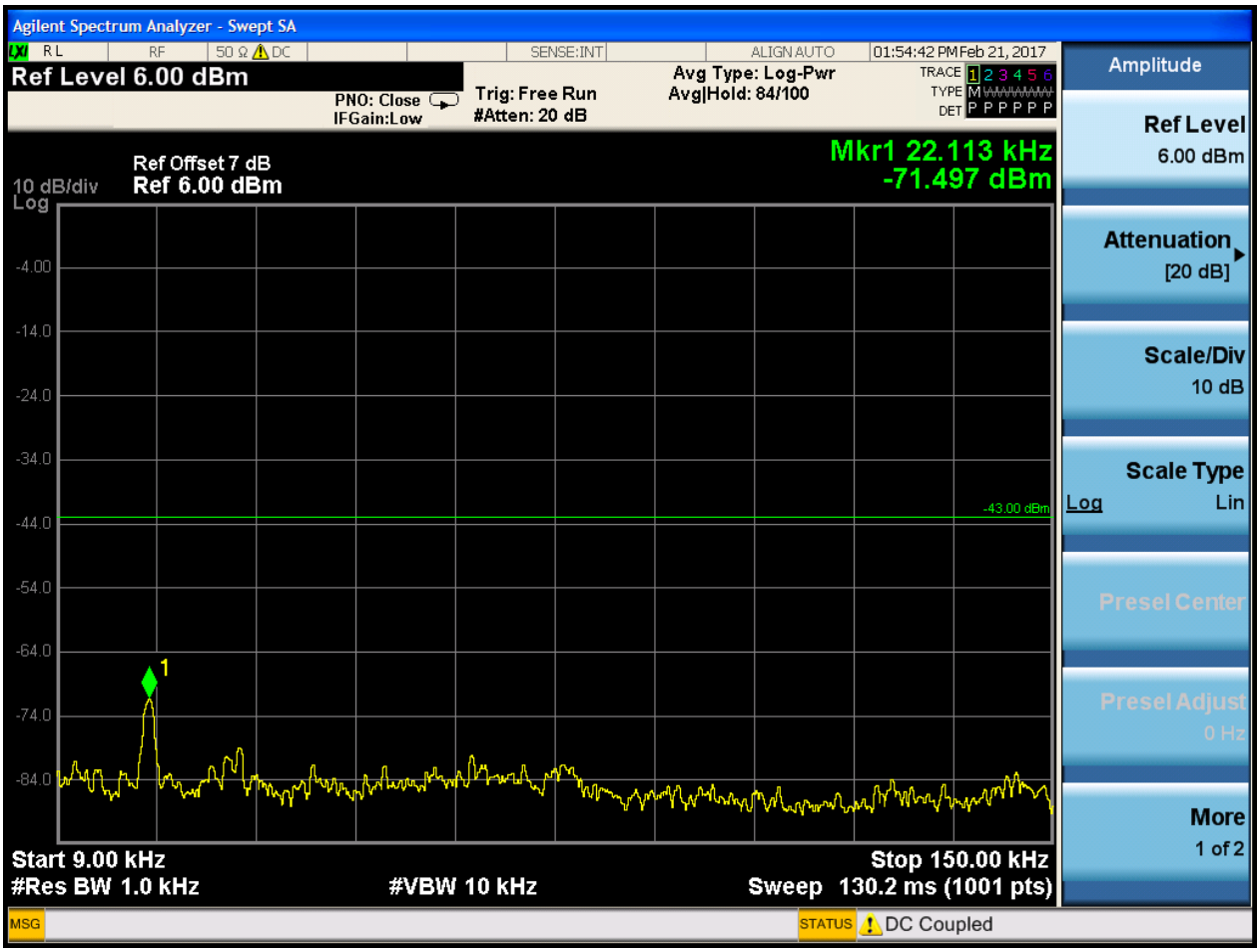


Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

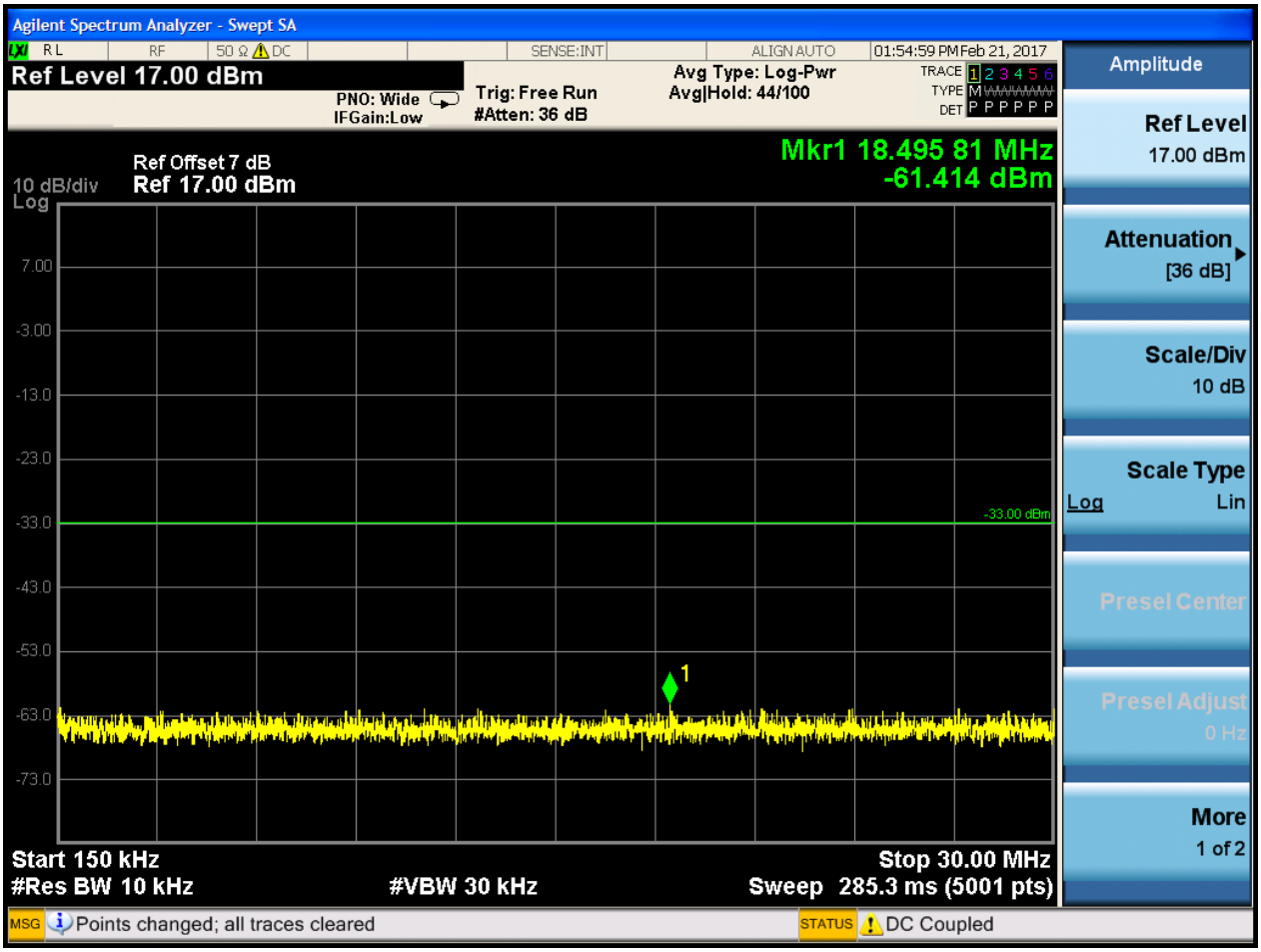
6.1.3 Test Band = WCDMA1900

6.1.3.1 Test Mode = UMTS/TM1

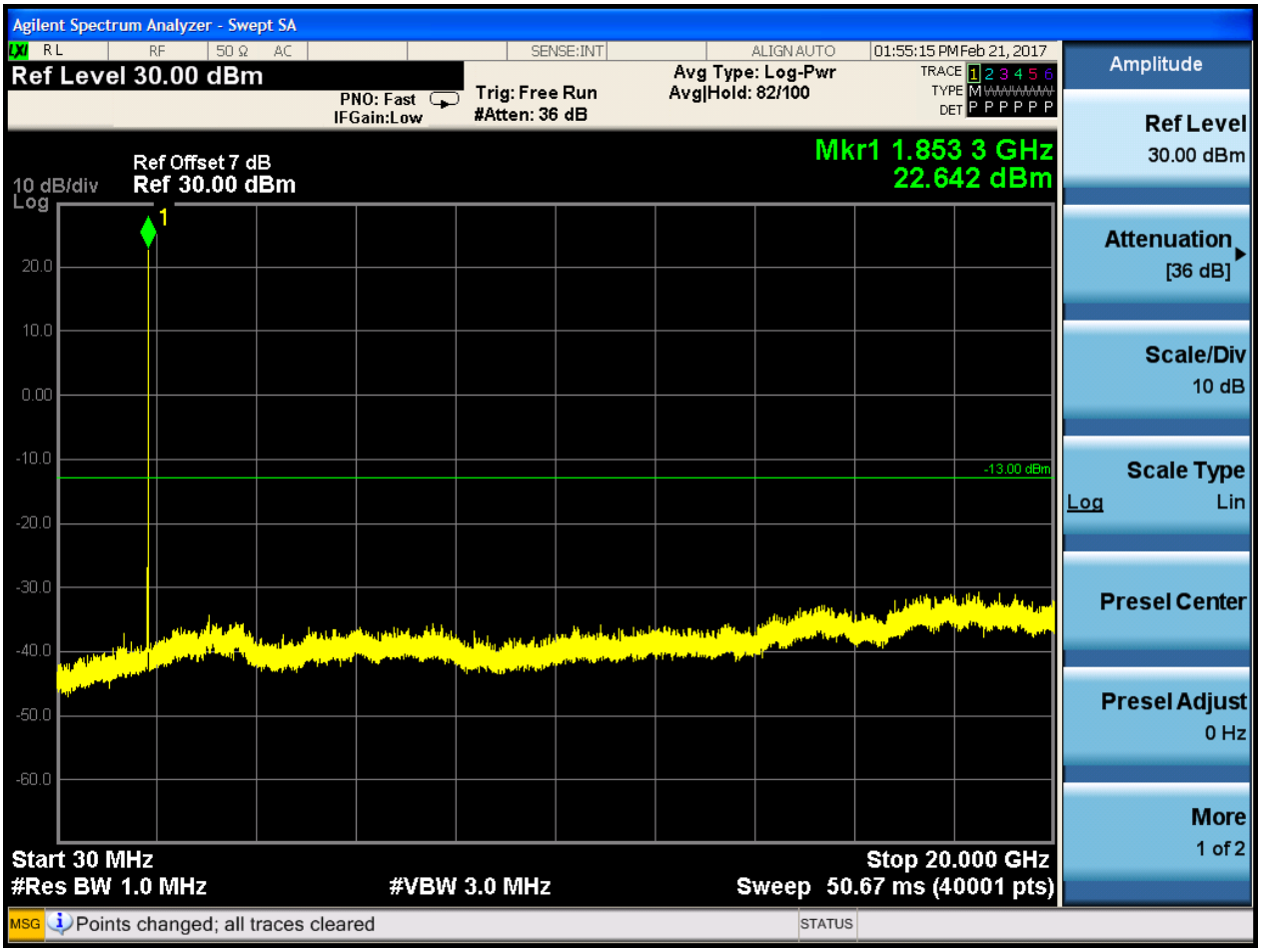
6.1.3.1.1 Test Channel = LCH



Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

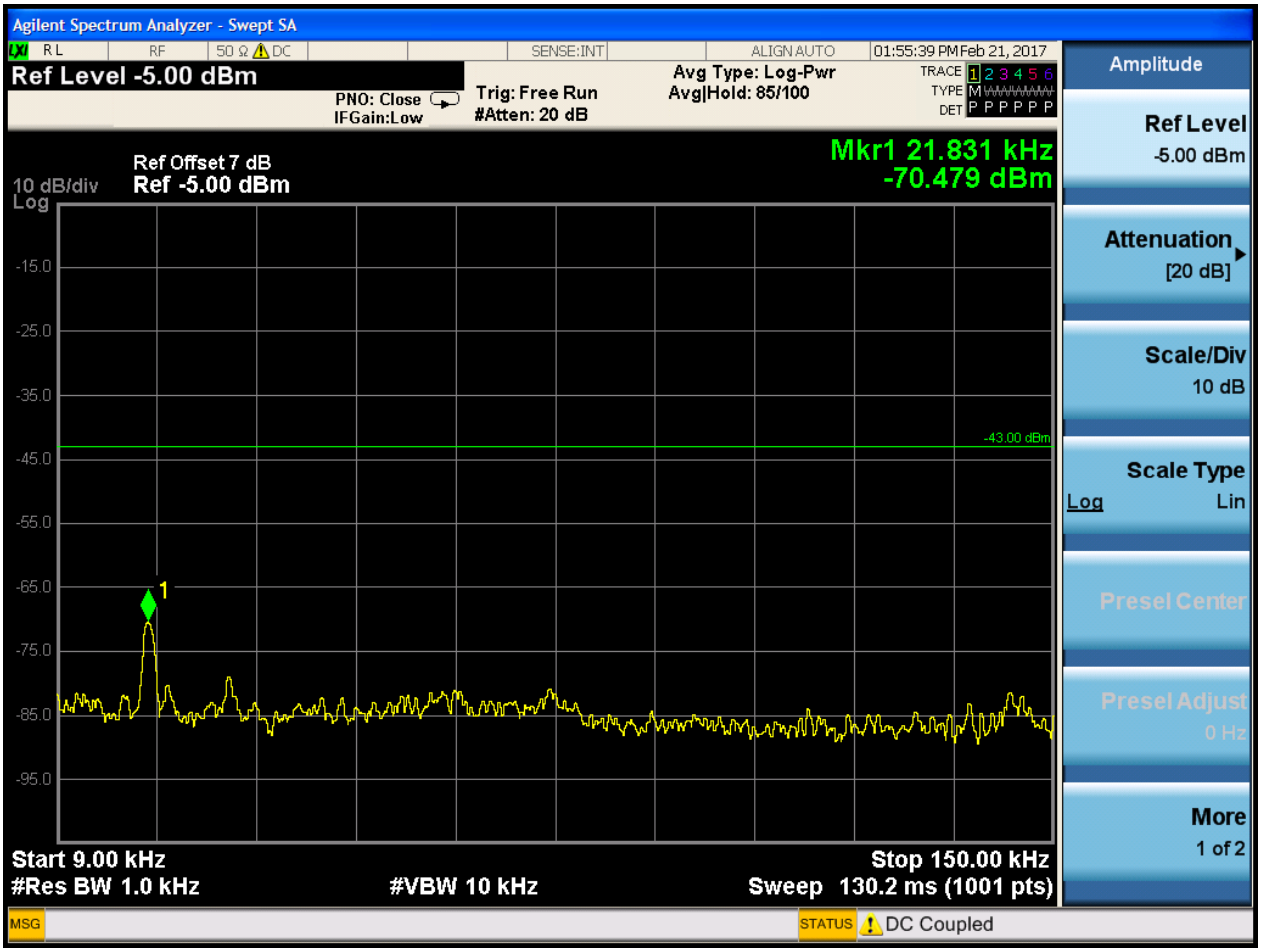


Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

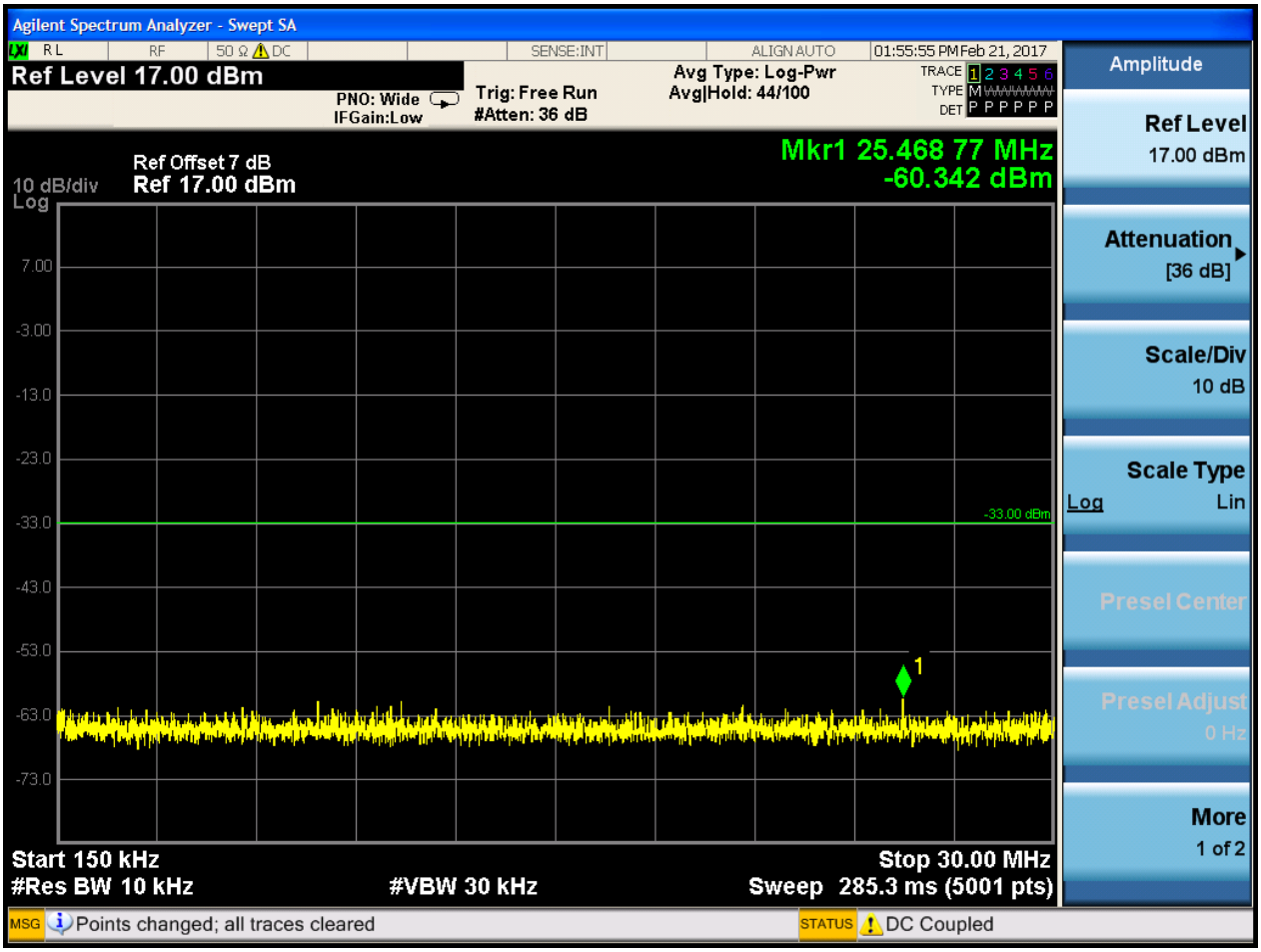


Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

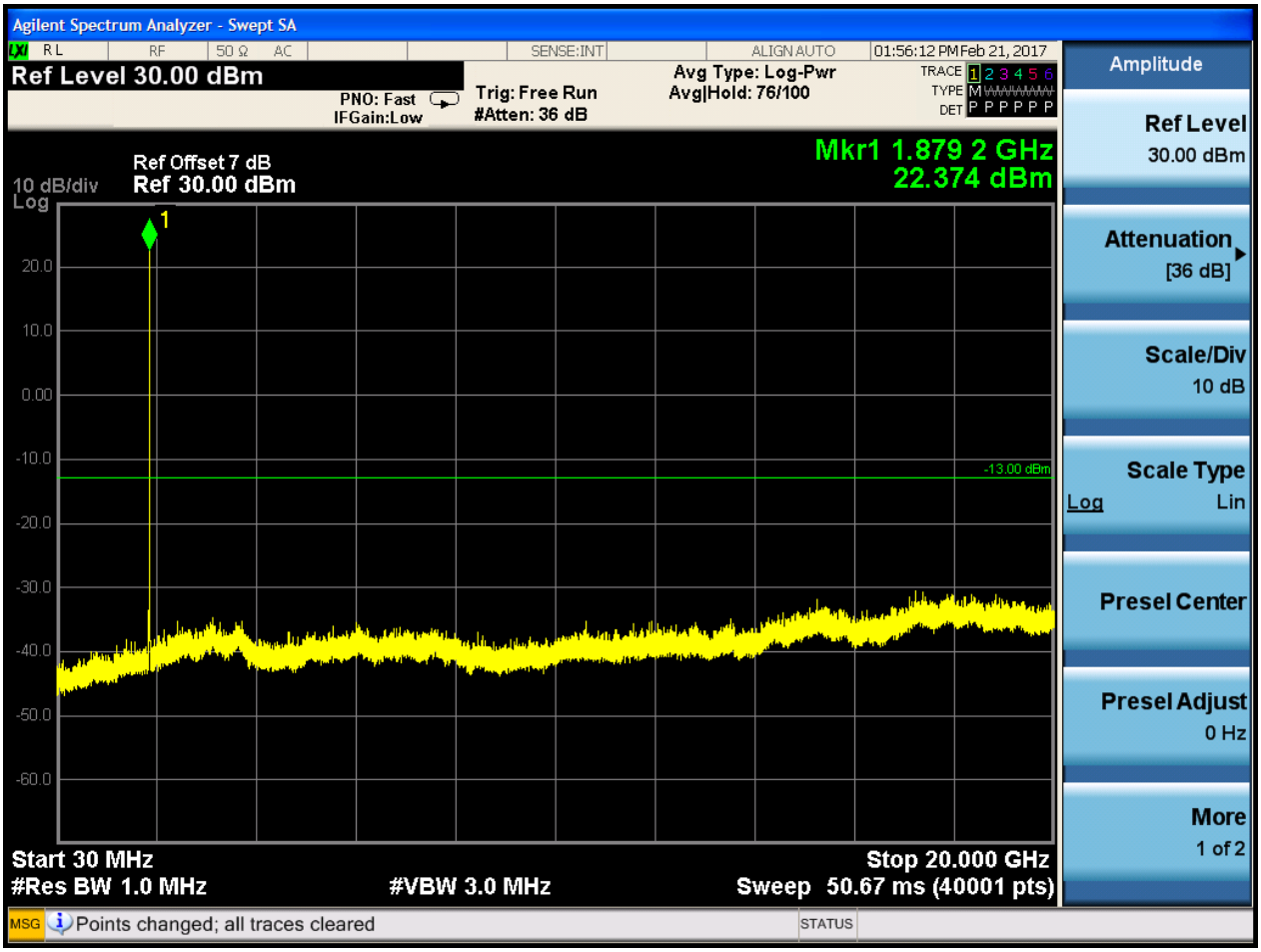
6.1.3.1.2 Test Channel = MCH



Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

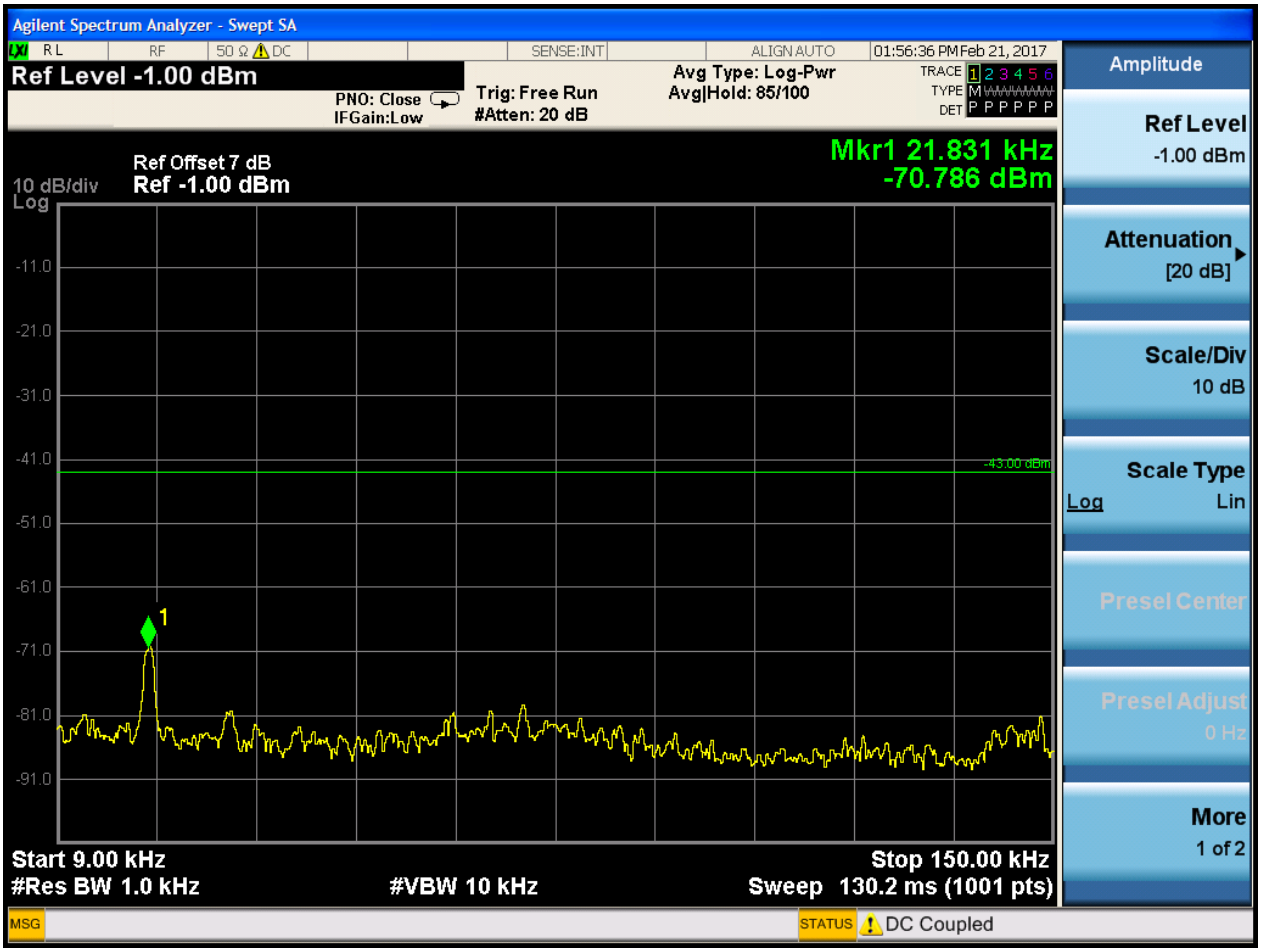


Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

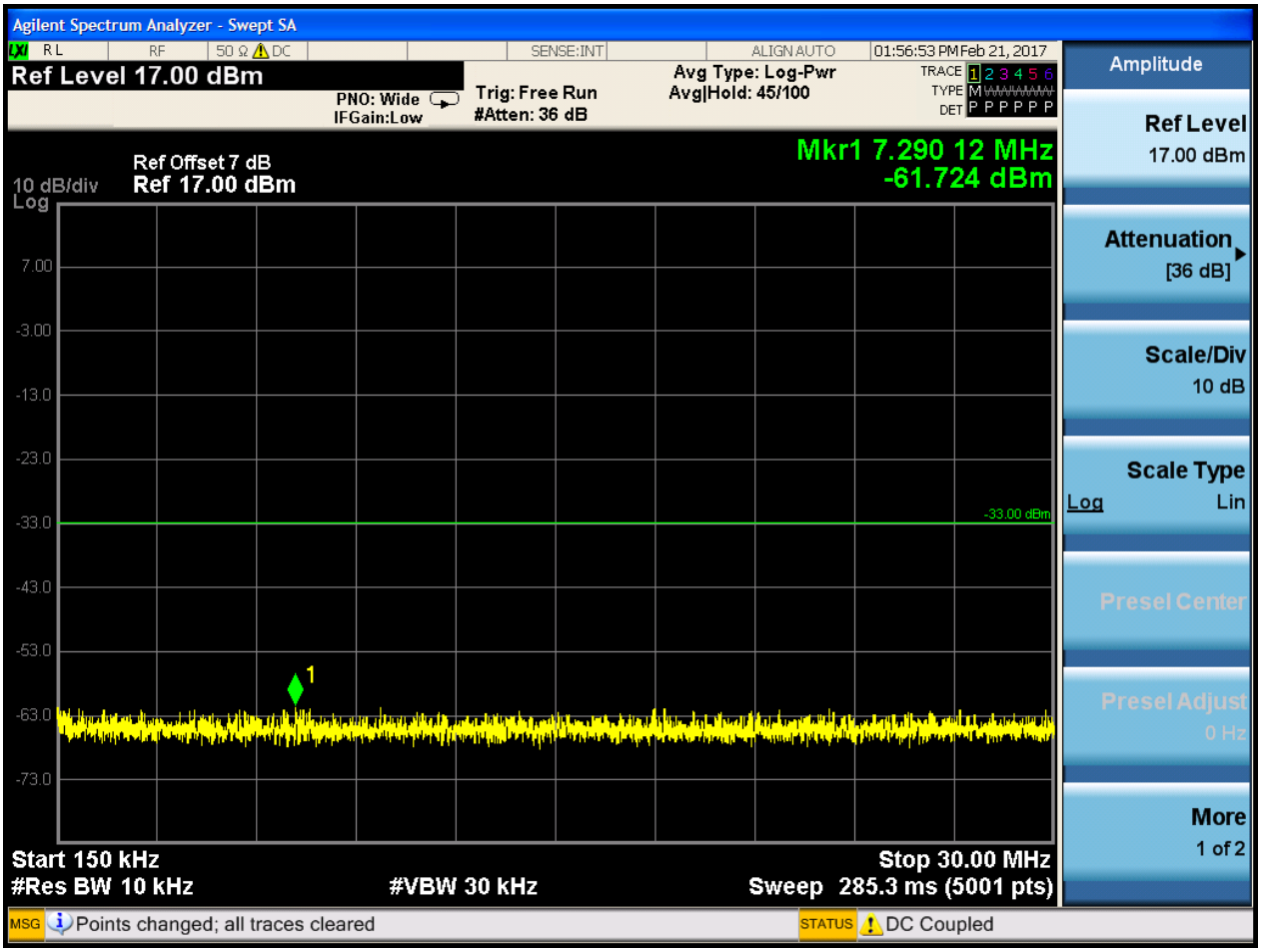


Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

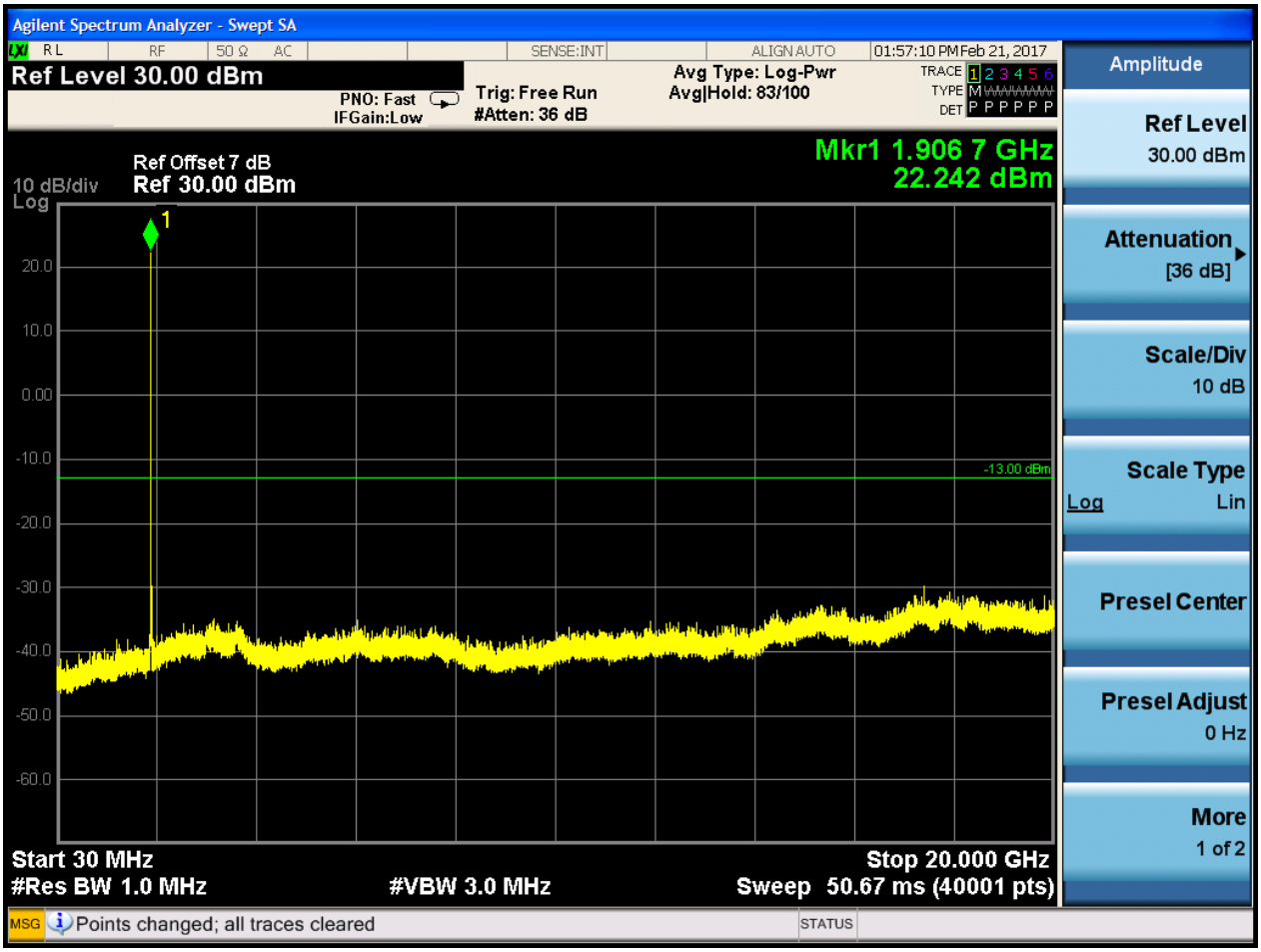
6.1.3.1.3 Test Channel = HCH



Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.



Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.



Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

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

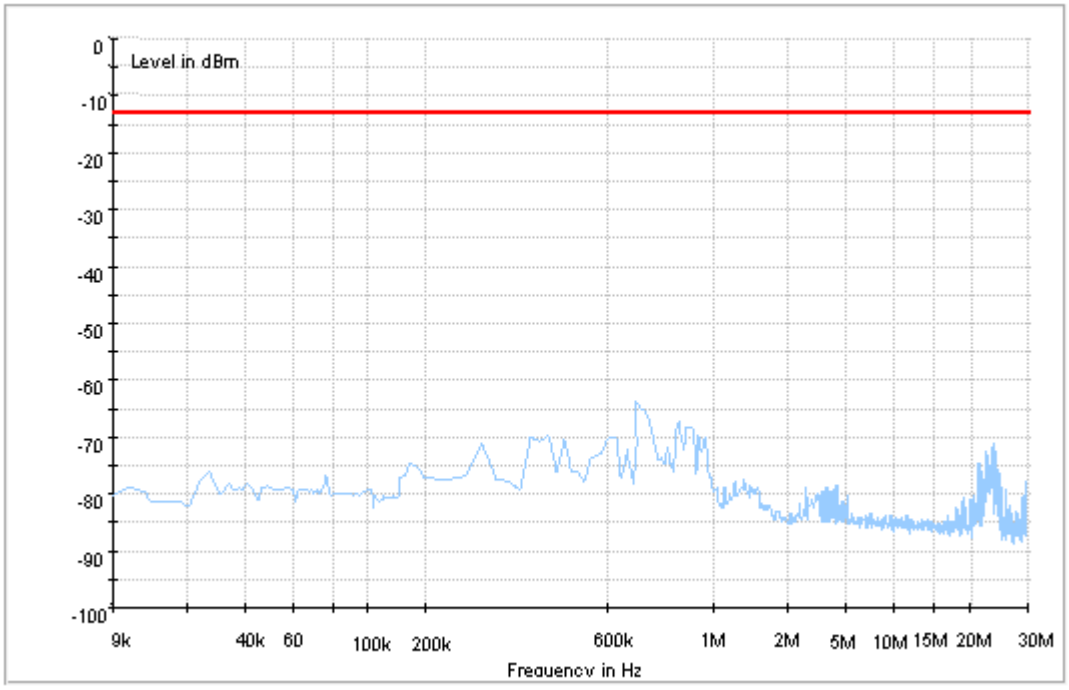
Above 1GHz, RBW = 1 MHz, VBW = 3 MHz. Detector: PK

Part I - Test Plots

7.1 For UMTS

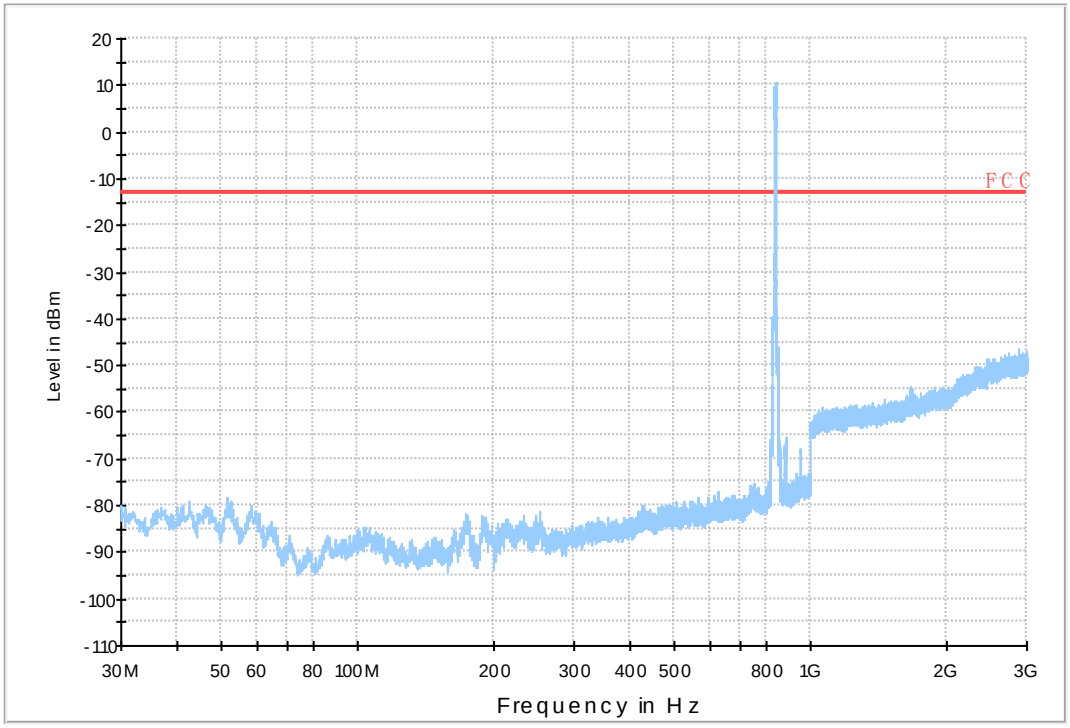
7.1.1 Test Band = WCDMA850

7.1.1.1 Test Mode = UMTS/TM1

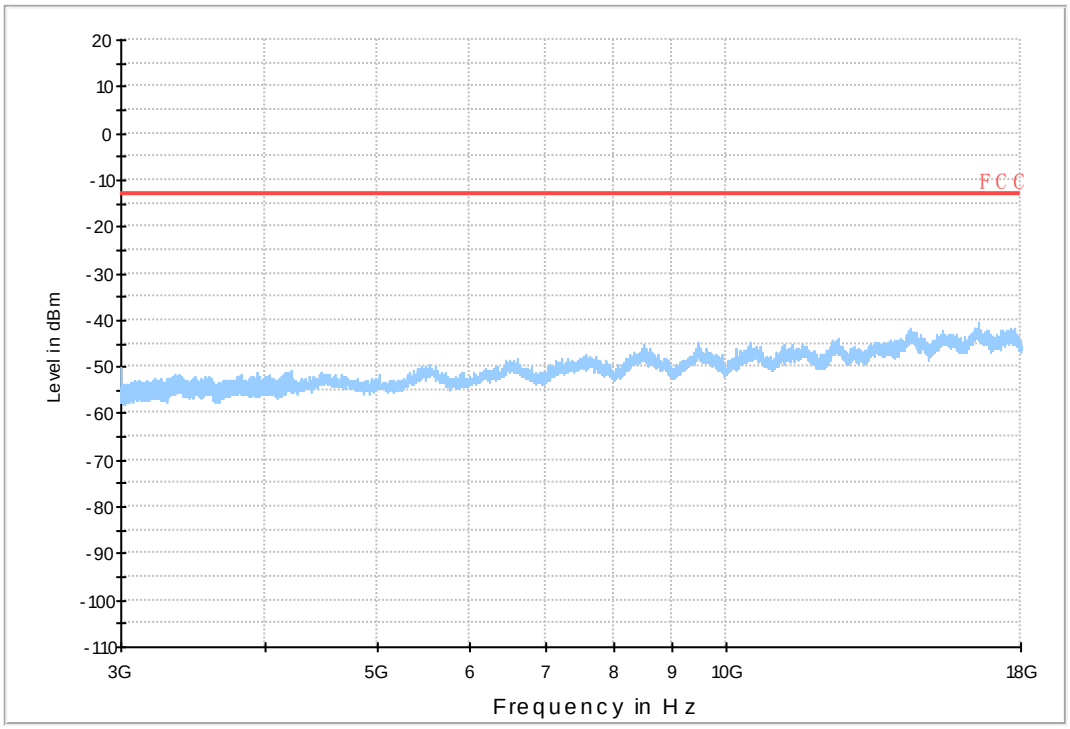


Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

Copy of FCC PART22 WCDMA850_L



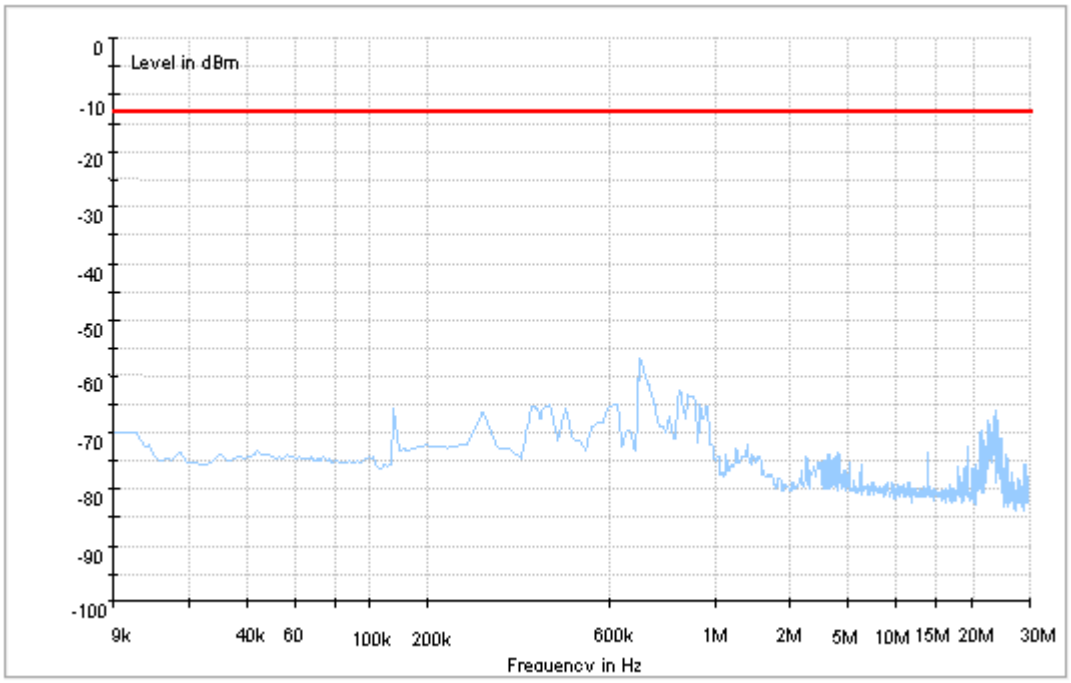
Copy of FCC PART22 WCDMA850_H



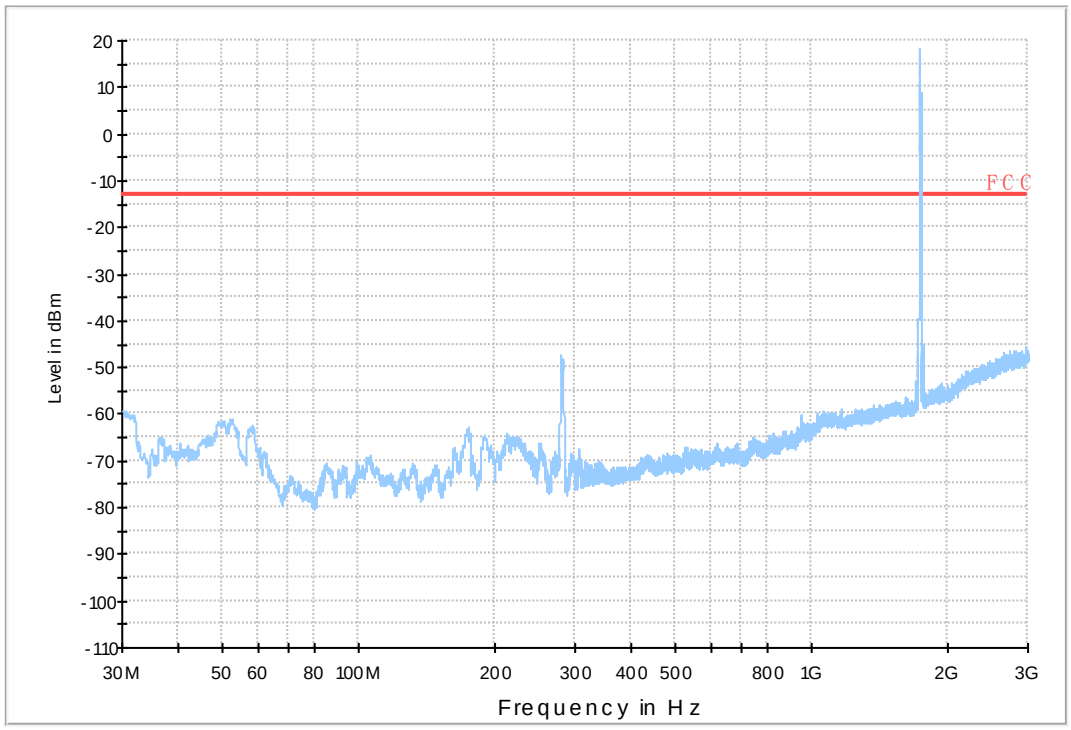
Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

7.1.2 Test Band = WCDMA1700

7.1.2.1 Test Mode = UMTS/TM1

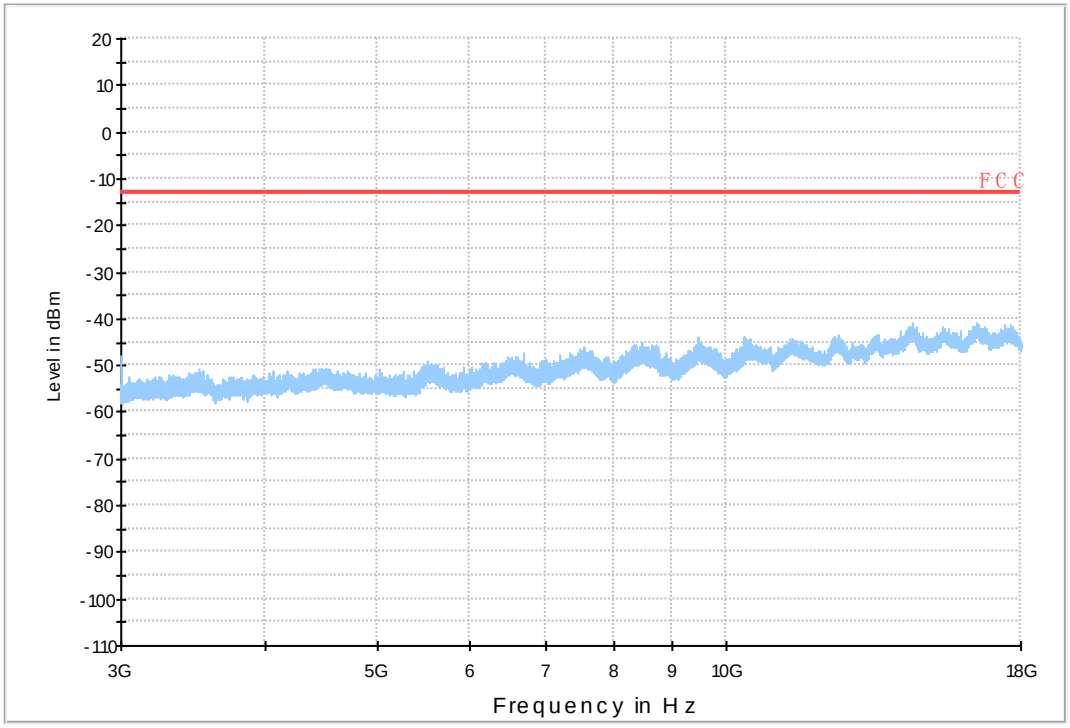


Copy of FCC PART27 WCDMA1700_L



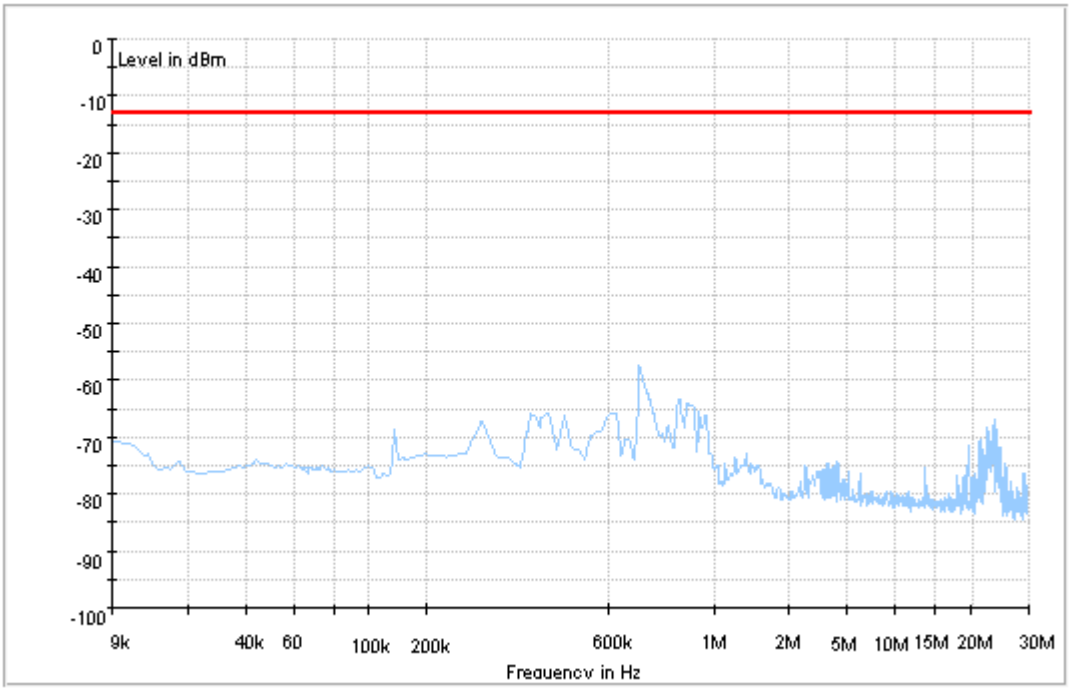
Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

Copy of FCC PART27 WCDMA1700_H



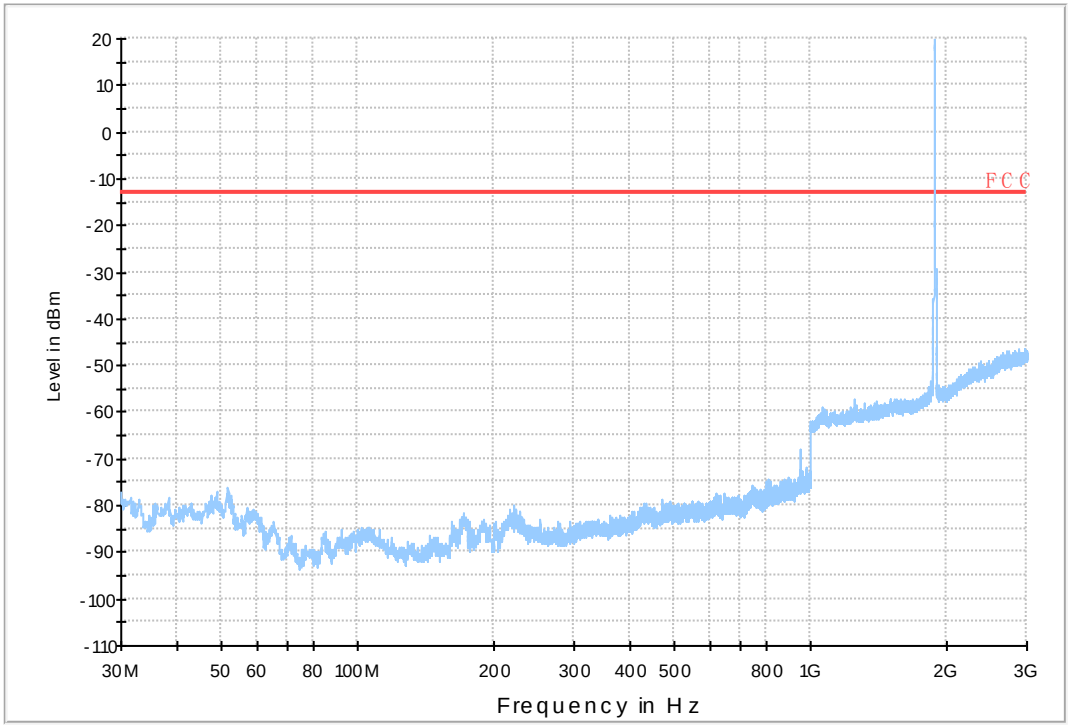
7.1.3 Test Band = WCDMA1900

7.1.3.1 Test Mode = UMTS/TM1

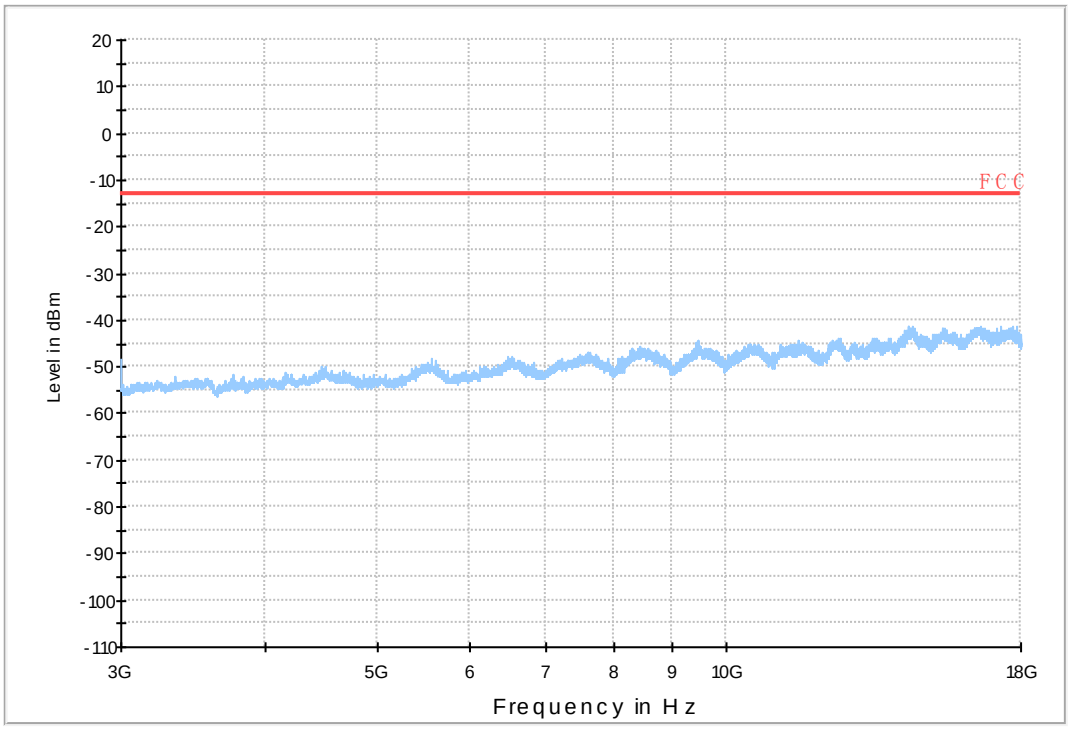


Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

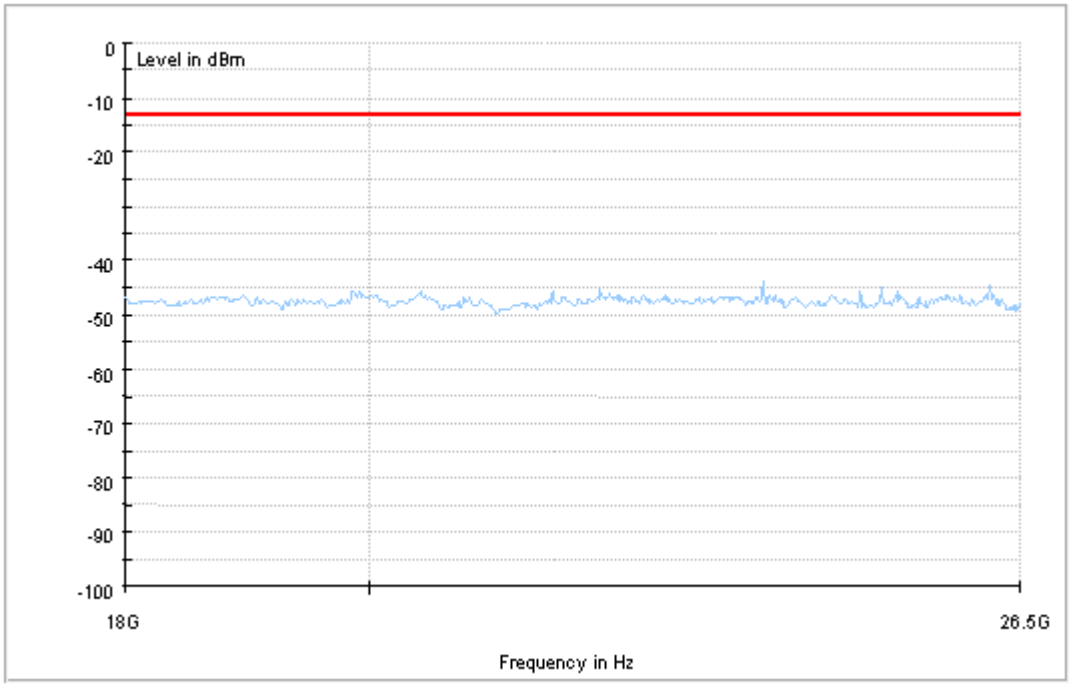
Copy of FCC PART24 WCDMA1900_L



Copy of FCC PART24 WCDMA1900_H



Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.



Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

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	-0.05	-0.00006	PASS
				VN	-0.92	-0.00111	PASS
				VH	0.44	0.00053	PASS
		MCH	TN	VL	-1.48	-0.00177	PASS
				VN	-2.17	-0.00259	PASS
				VH	0.40	0.00048	PASS
		HCH	TN	VL	-2.73	-0.00322	PASS
				VN	-1.10	-0.0013	PASS
				VH	0.03	0.00004	PASS
WCDMA1700	UMTS/TM1	LCH	TN	VL	1.14	0.00067	PASS
				VN	3.74	0.00218	PASS
				VH	-1.89	-0.0011	PASS
		MCH	TN	VL	0.72	0.00042	PASS
				VN	0.66	0.00038	PASS
				VH	-1.60	-0.00092	PASS
		HCH	TN	VL	0.20	0.00011	PASS
				VN	-2.29	-0.00131	PASS
				VH	-3.05	-0.00174	PASS
WCDMA1900	UMTS/TM1	LCH	TN	VL	-1.83	-0.00099	PASS
				VN	2.23	0.0012	PASS
				VH	0.73	0.00039	PASS
		MCH	TN	VL	-0.26	-0.00014	PASS
				VN	1.08	0.00057	PASS
				VH	-0.06	-0.00003	PASS
		HCH	TN	VL	-3.88	-0.00203	PASS
				VN	-2.35	-0.00123	PASS
				VH	-1.19	-0.00062	PASS

Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

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	-0.29	-0.00035	PASS
				-20	0.55	0.00067	PASS
				-10	-0.06	-0.00007	PASS
				0	2.41	0.00292	PASS
				10	1.11	0.00134	PASS
				20	0.37	0.00045	PASS
				30	0.15	0.00018	PASS
				40	0.14	0.00017	PASS
				50	-0.87	-0.00105	PASS
		MCH	VN	-30	-0.24	-0.00029	PASS
				-20	0.61	0.00073	PASS
				-10	-1.82	-0.00218	PASS
				0	0.66	0.00079	PASS
				10	-1.17	-0.0014	PASS
				20	-0.02	-0.00002	PASS
				30	-1.63	-0.00195	PASS
				40	-3.98	-0.00476	PASS
				50	-1.04	-0.00124	PASS
		HCH	VN	-30	0.06	0.00007	PASS
				-20	-1.28	-0.00151	PASS
				-10	0.49	0.00058	PASS
				0	-1.22	-0.00144	PASS
				10	-1.77	-0.00209	PASS
				20	-1.43	-0.00169	PASS
				30	-2.70	-0.00319	PASS
				40	-0.60	-0.00071	PASS
				50	-2.00	-0.00236	PASS
WCDMA1700	UMTS/TM1	LCH	VN	-30	1.08	0.00063	PASS
				-20	1.56	0.00091	PASS
				-10	4.55	0.00266	PASS
				0	0.72	0.00042	PASS
				10	3.92	0.00229	PASS
				20	1.62	0.00095	PASS
				30	3.75	0.00219	PASS
				40	0.21	0.00012	PASS
				50	1.21	0.00071	PASS
		MCH	VN	-30	-1.36	-0.00078	PASS
				-20	-4.01	-0.00231	PASS

Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				-10	1.05	0.00061	PASS
				0	-3.13	-0.00181	PASS
				10	-0.99	-0.00057	PASS
				20	1.57	0.00091	PASS
				30	0.23	0.00013	PASS
				40	1.13	0.00065	PASS
				50	1.60	0.00092	PASS
		HCH	VN	-30	-0.96	-0.00055	PASS
				-20	-0.69	-0.00039	PASS
				-10	-1.11	-0.00063	PASS
				0	-2.23	-0.00127	PASS
				10	-1.50	-0.00086	PASS
				20	-0.05	-0.00003	PASS
				30	-3.10	-0.00177	PASS
				40	0.64	0.00037	PASS
				50	-1.22	-0.0007	PASS
WCDMA1900	UMTS/TM1	LCH	VN	-30	1.42	0.00077	PASS
				-20	-0.21	-0.00011	PASS
				-10	2.03	0.0011	PASS
				0	1.07	0.00058	PASS
				10	-2.47	-0.00133	PASS
				20	-0.41	-0.00022	PASS
				30	-0.99	-0.00053	PASS
				40	-0.93	-0.0005	PASS
				50	-0.87	-0.00047	PASS
		MCH	VN	-30	-1.85	-0.00098	PASS
				-20	0.09	0.00005	PASS
				-10	-2.43	-0.00129	PASS
				0	-2.50	-0.00133	PASS
				10	1.08	0.00057	PASS
				20	-1.66	-0.00088	PASS
				30	-2.62	-0.00139	PASS
				40	-3.92	-0.00209	PASS
				50	0.03	0.00002	PASS
		HCH	VN	-30	-0.24	-0.00013	PASS
				-20	-0.47	-0.00025	PASS
				-10	-0.06	-0.00003	PASS
				0	0.99	0.00052	PASS
				10	-2.61	-0.00137	PASS
				20	-0.49	-0.00026	PASS

Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				30	-1.39	-0.00073	PASS
				40	-0.66	-0.00035	PASS
				50	-0.87	-0.00046	PASS

END

Huawei Proprietary and Confidential
Copyright © Huawei Technologies Co., Ltd.