Appendix for test report

1Appendix_A: Effective (Isotropic) Radiated Power Output Data

Part I - Test Results

Test Band	Test Mode	Test Channel	Conducted Power [dBm]	ERP [dBm]	Limit [dBm]	Verdict
WCDMA850	UMTS/TM1	LCH	23.88	19.63	38.5	PASS
		MCH	23.81	19.56	38.5	PASS
		HCH	23.75	19.50	38.5	PASS
Test Band	**Test Mode**	**Test Channel**	**Conducted Power [dBm]**	**EIRP [dBm]**	**Limit [dBm]**	**Verdict**
WCDMA1700	UMTS/TM1	LCH	21.76	22.26	30	PASS
		MCH	21.78	22.28	30	PASS
		HCH	21.80	22.30	30	PASS
WCDMA1900	UMTS/TM1	LCH	23.27	24.37	33	PASS
		MCH	23.25	24.35	33	PASS
		HCH	23.17	24.27	33	PASS

Note1:

a, For getting the ERP (Efficient Radiated Power) or EIRP (Efficient Isotropic Radiated Power) in substitution method, the following formula should be taken to calculate it,

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

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

b, SGP = Signal Generator Level

Note2:

SET Span = 1.5 * OBW

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

SET VBW >= 3 * RBW

SET Sweep time = auto - couple.

Detector: RMS

2Appendix_B: Peak-to-Average Ratio

Part I - Test Results

Test Band	Test Mode	Test Channel	Measured[dB]	Limit [dB]	Verdict
WCDMA850	UMTS/TM1	LCH	2.850	13	PASS
		MCH	2.580	13	PASS
		HCH	2.850	13	PASS
WCDMA1700	UMTS/TM1	LCH	5.270	13	PASS
		MCH	3.350	13	PASS
		HCH	3.280	13	PASS
WCDMA1900	UMTS/TM1	LCH	2.820	13	PASS
		MCH	2.820	13	PASS
		HCH	2.760	13	PASS

3Appendix_C: Modulation Characteristics

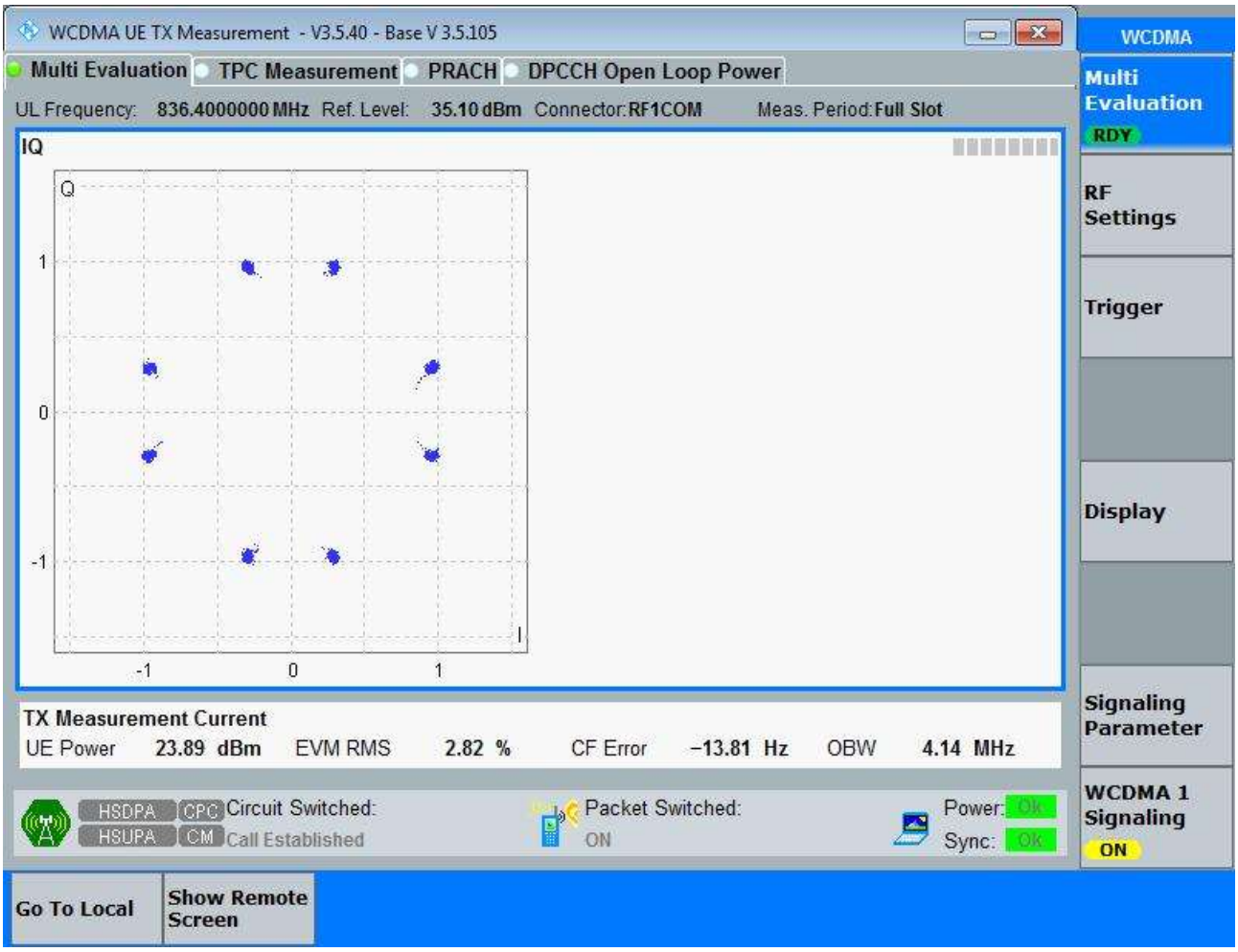
Part I - Test Plots

3.1 For UMTS

3.1.1 Test Band = WCDMA850

3.1.1.1 Test Mode = UMTS/TM1

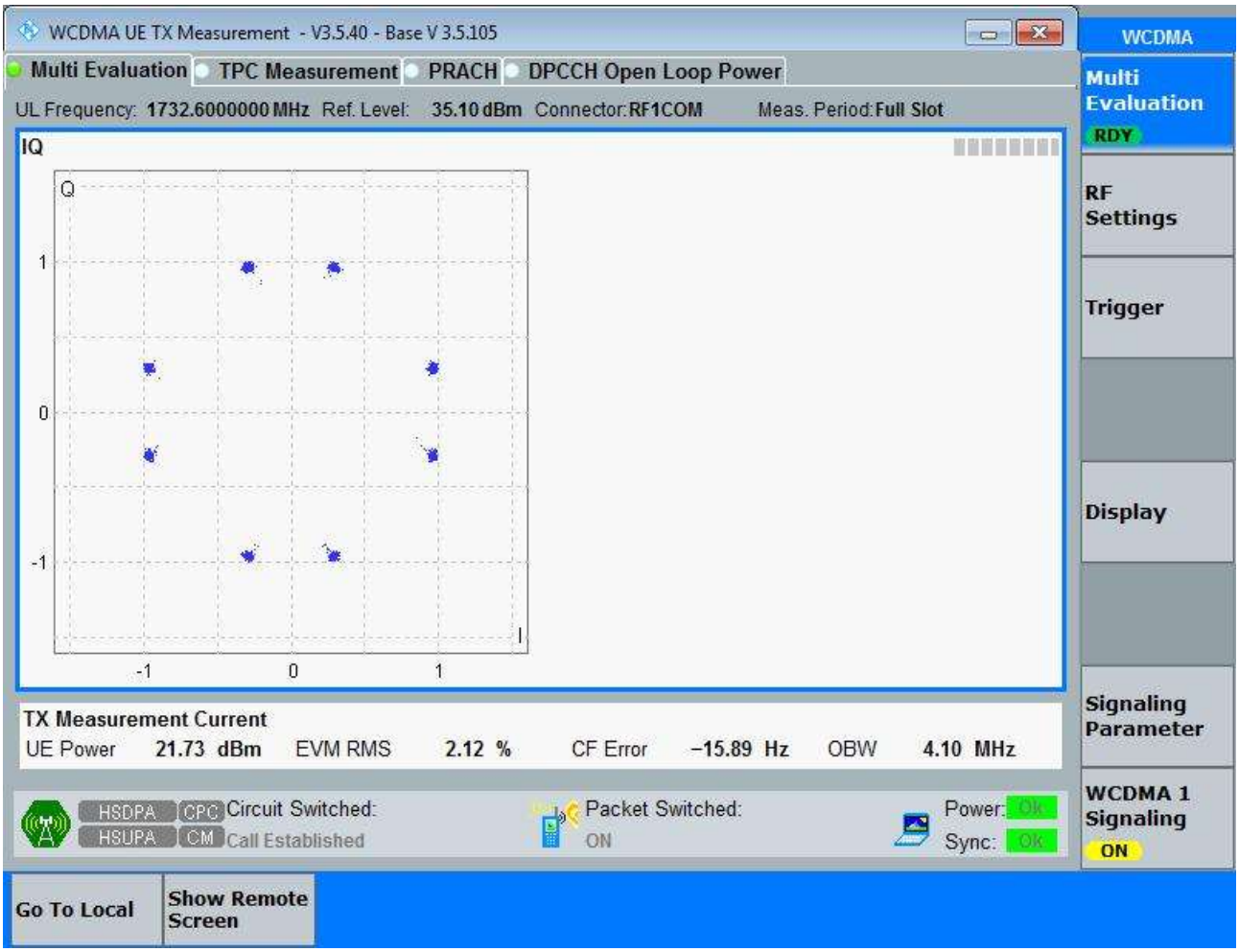
3.1.1.1.1 Test Channel = MCH



3.1.2 Test Band = WCDMA1700

3.1.2.1 Test Mode = UMTS/TM1

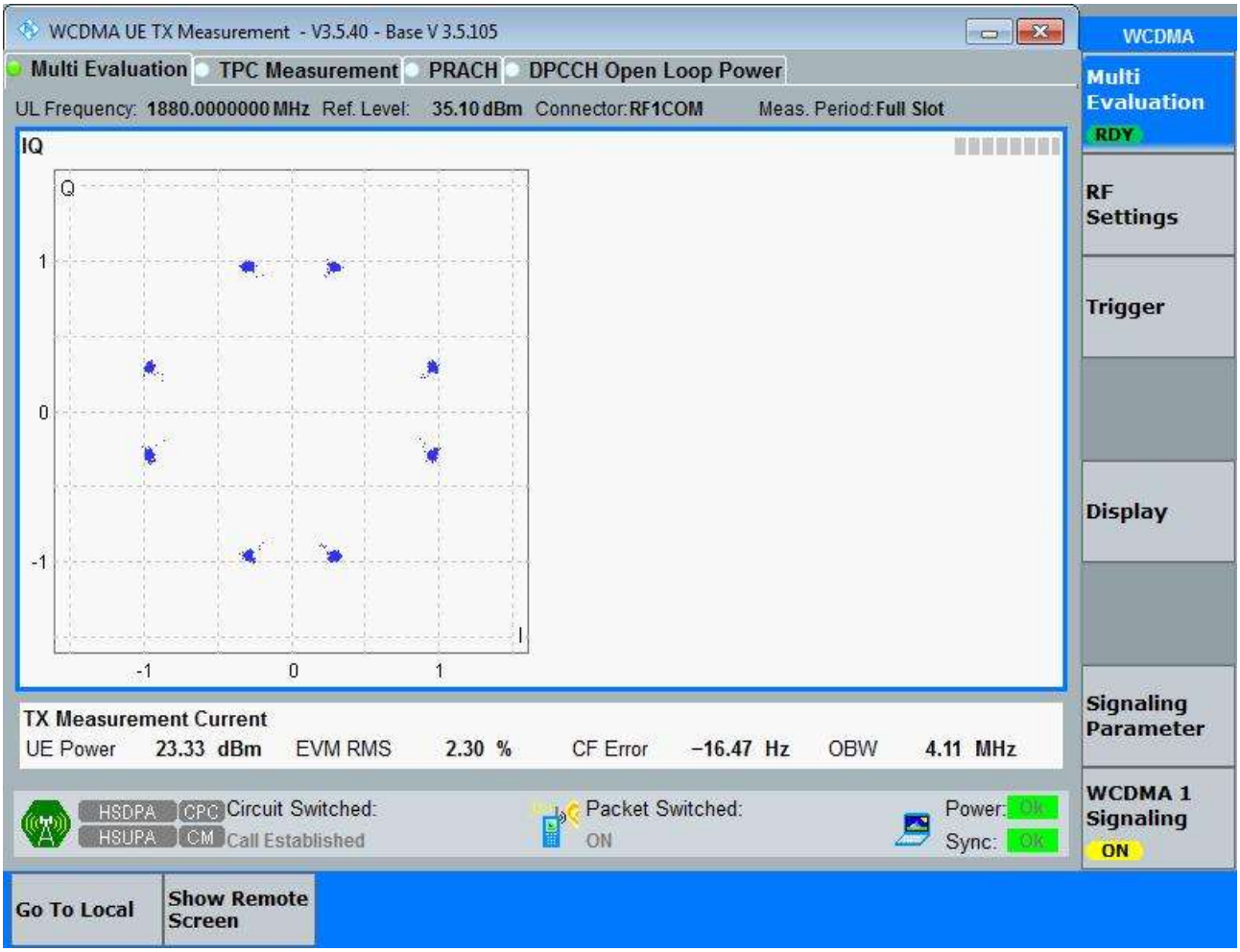
3.1.2.1.1 Test Channel = MCH



3.1.3 Test Band = WCDMA1900

3.1.3.1 Test Mode = UMTS/TM1

3.1.3.1.1 Test Channel = MCH



4Appendix_D: Bandwidth

Part I - Test Results

Test Band	Test Mode	Test Channel	Occupied Bandwidth [MHz]	Emission Bandwidth [MHz]	Verdict
WCDMA850	UMTS/TM1	LCH	4.18	4.70	Pass
		MCH	4.17	4.71	Pass
		HCH	4.17	4.70	Pass
WCDMA1700	UMTS/TM1	LCH	4.17	4.67	Pass
		MCH	4.18	4.70	Pass
		HCH	4.17	4.72	Pass
WCDMA1900	UMTS/TM1	LCH	4.18	4.71	Pass
		MCH	4.18	4.72	Pass
		HCH	4.18	4.72	Pass

Part II - Test Plots

4.1 For UMTS

4.1.1 Test Band = WCDMA850

4.1.1.1 Test Mode = UMTS/TM1

4.1.1.1.1 Test Channel = LCH

4.1.1.1.2 Test Channel = MCH

4.1.1.1.3 Test Channel = HCH

4.1.2 Test Band = WCDMA1700

4.1.2.1 Test Mode = UMTS/TM1

4.1.2.1.1 Test Channel = LCH

4.1.2.1.2 Test Channel = MCH

4.1.2.1.3 Test Channel = HCH

4.1.3 Test Band = WCDMA1900

4.1.3.1 Test Mode = UMTS/TM1

4.1.3.1.1 Test Channel = LCH

4.1.3.1.2 Test Channel = MCH

4.1.3.1.3 Test Channel = HCH

5Appendix_E: Band Edges Compliance

Part I - Test Plots

5.1 For UMTS

5.1.1 Test Band = WCDMA850

5.1.1.1 Test Mode = UMTS/TM1

5.1.1.1.1 Test Channel = LCH

5.1.1.1.2 Test Channel = HCH

5.1.2 Test Band = WCDMA1700

5.1.2.1 Test Mode = UMTS/TM1

5.1.2.1.1 Test Channel = LCH

5.1.2.1.2 Test Channel = HCH

5.1.3 Test Band = WCDMA1900

5.1.3.1 Test Mode = UMTS/TM1

5.1.3.1.1 Test Channel = LCH

5.1.3.1.2 Test Channel = HCH

6Appendix_F: Spurious Emission at Antenna Terminal

NOTE: For the averaged unwanted emissions measurements, the measurement points in each sweep is greater than twice the Span/RBW in order to ensure bin-to-bin spacing of < RBW/2 so that narrowband signals are not lost between frequency bins. As to the present test item, the "Measurement Points = k * (Span / RBW)" with k between 4 and 5, which results in an acceptable level error of less than 0.5 dB.

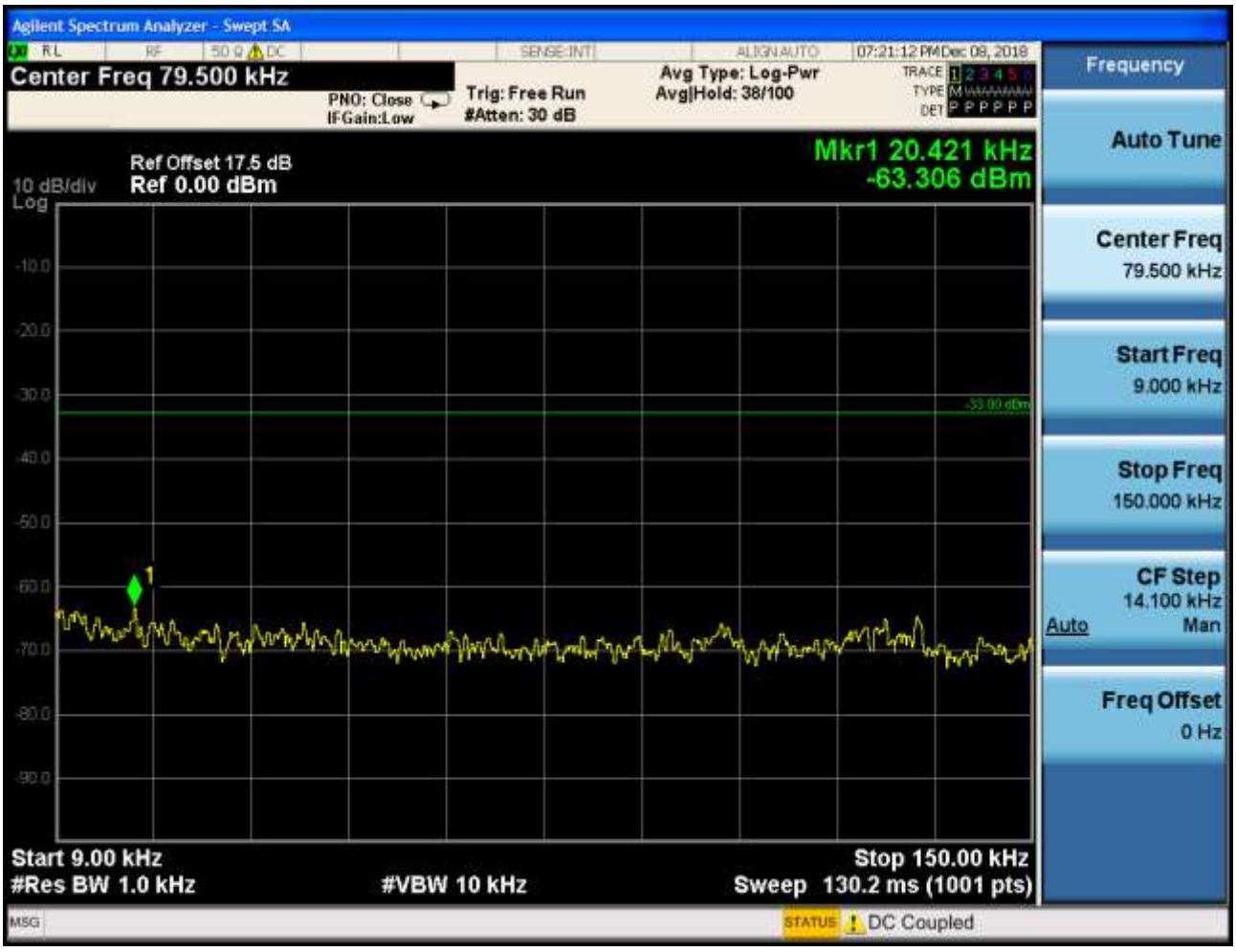
Part I - Test Plots

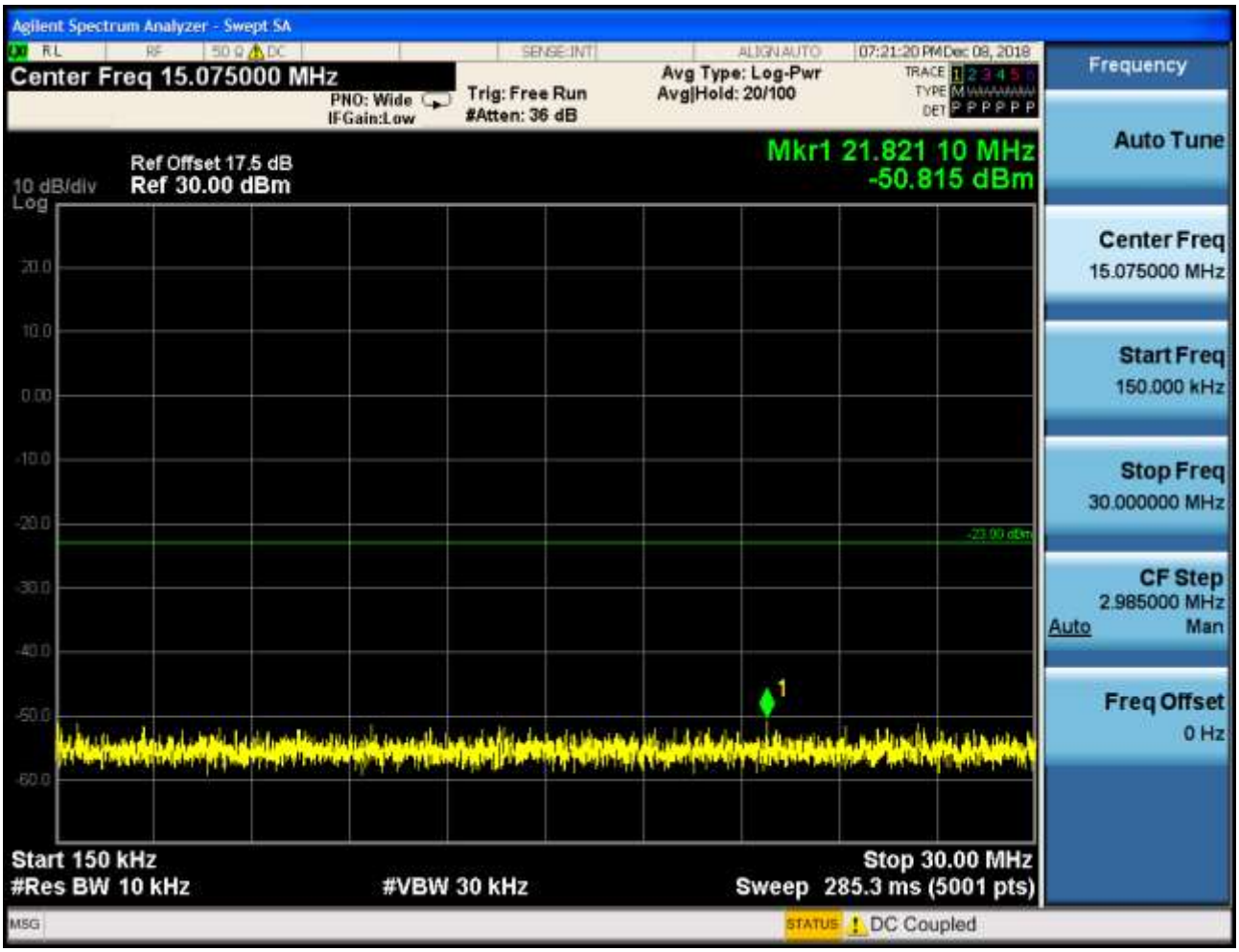
6.1 For UMTS

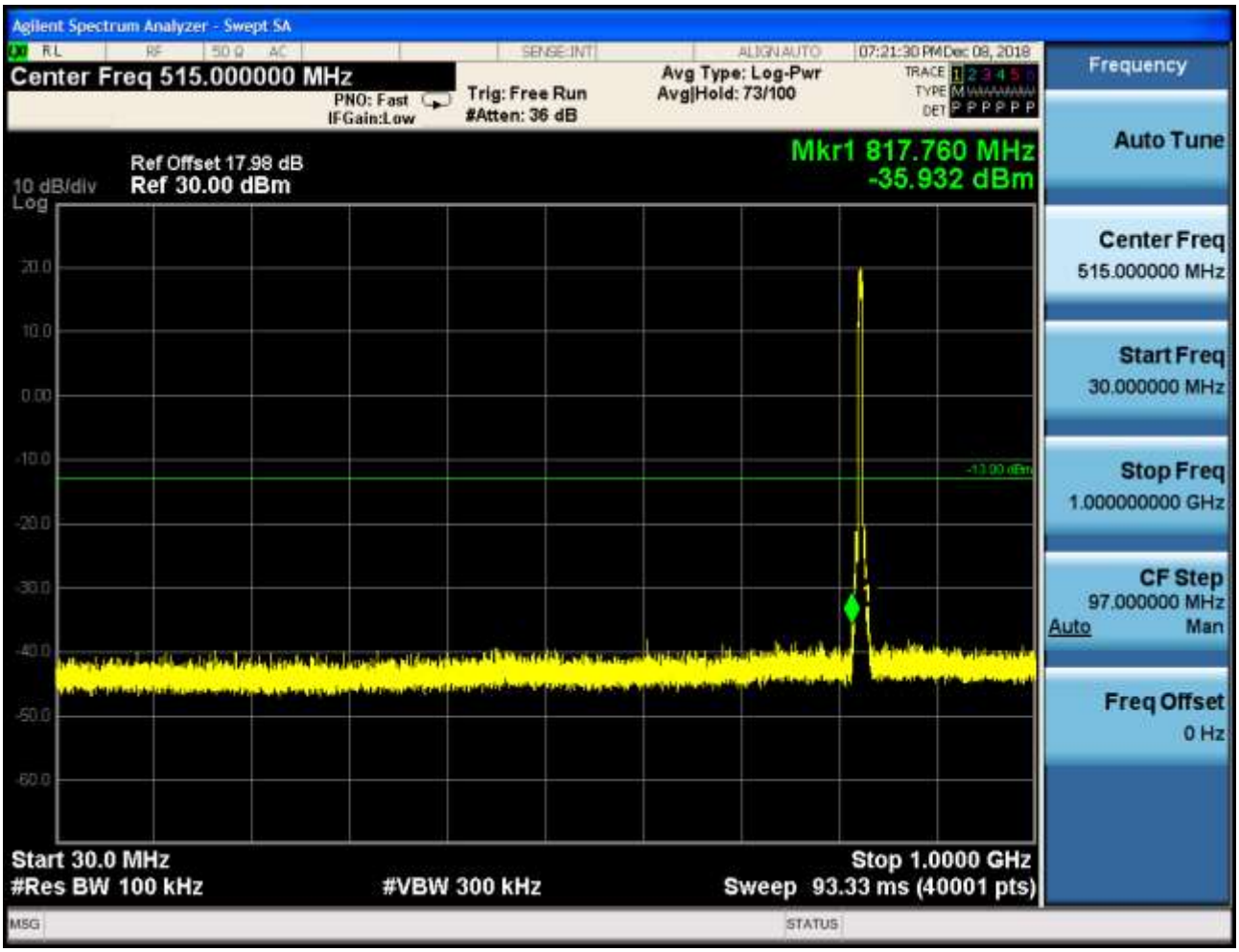
6.1.1 Test Band = WCDMA850

6.1.1.1 Test Mode = UMTS/TM1

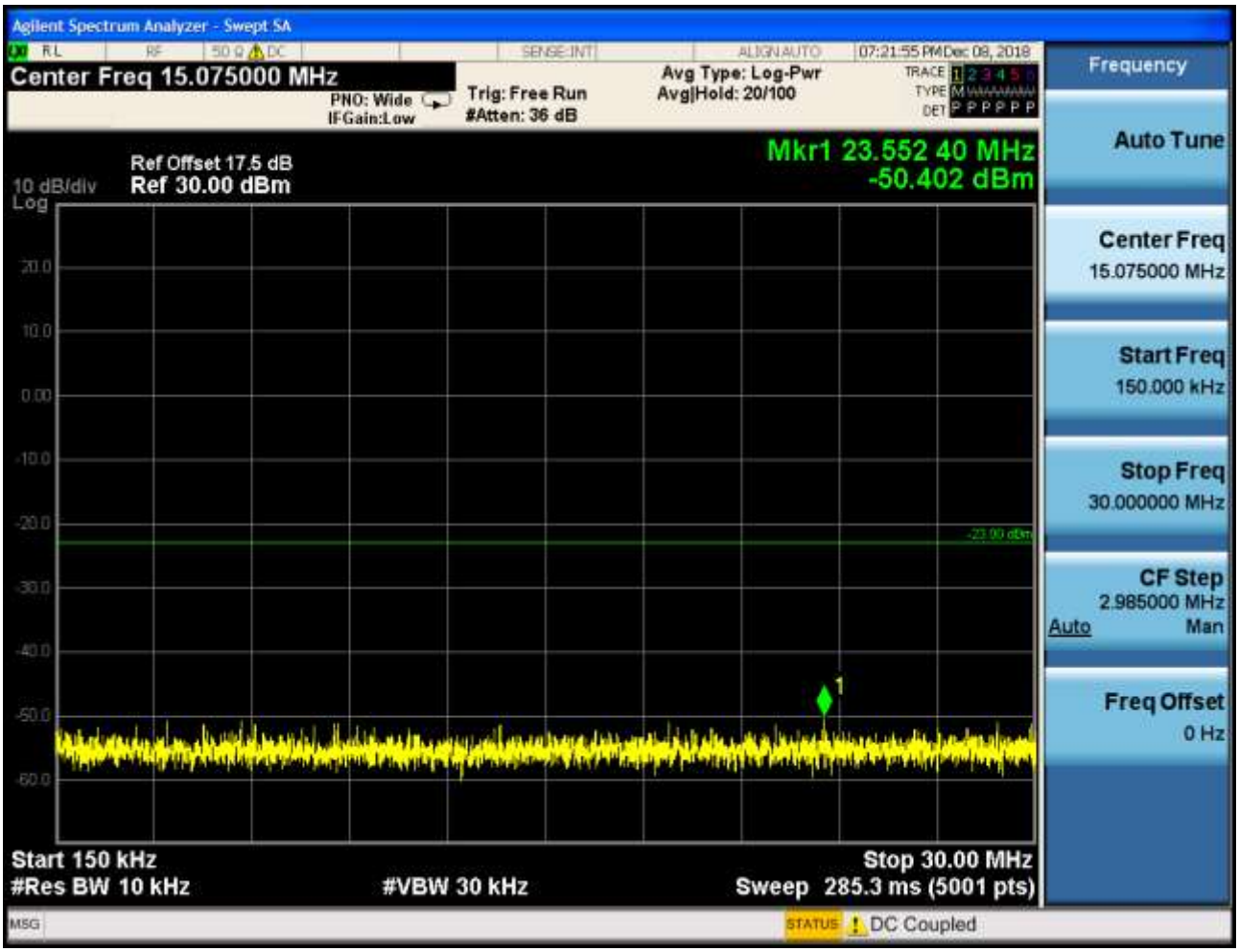
6.1.1.1.1 Test Channel = LCH

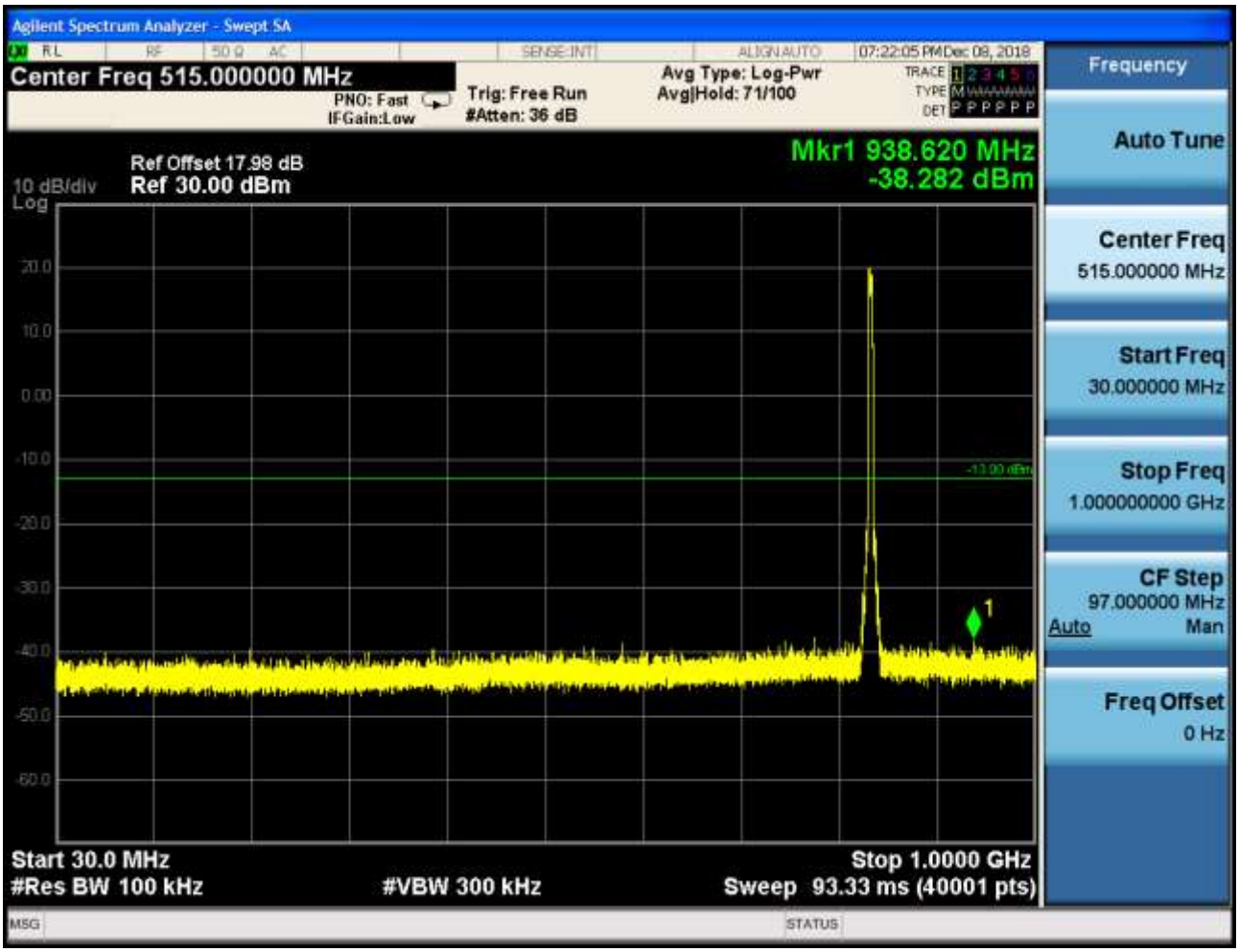




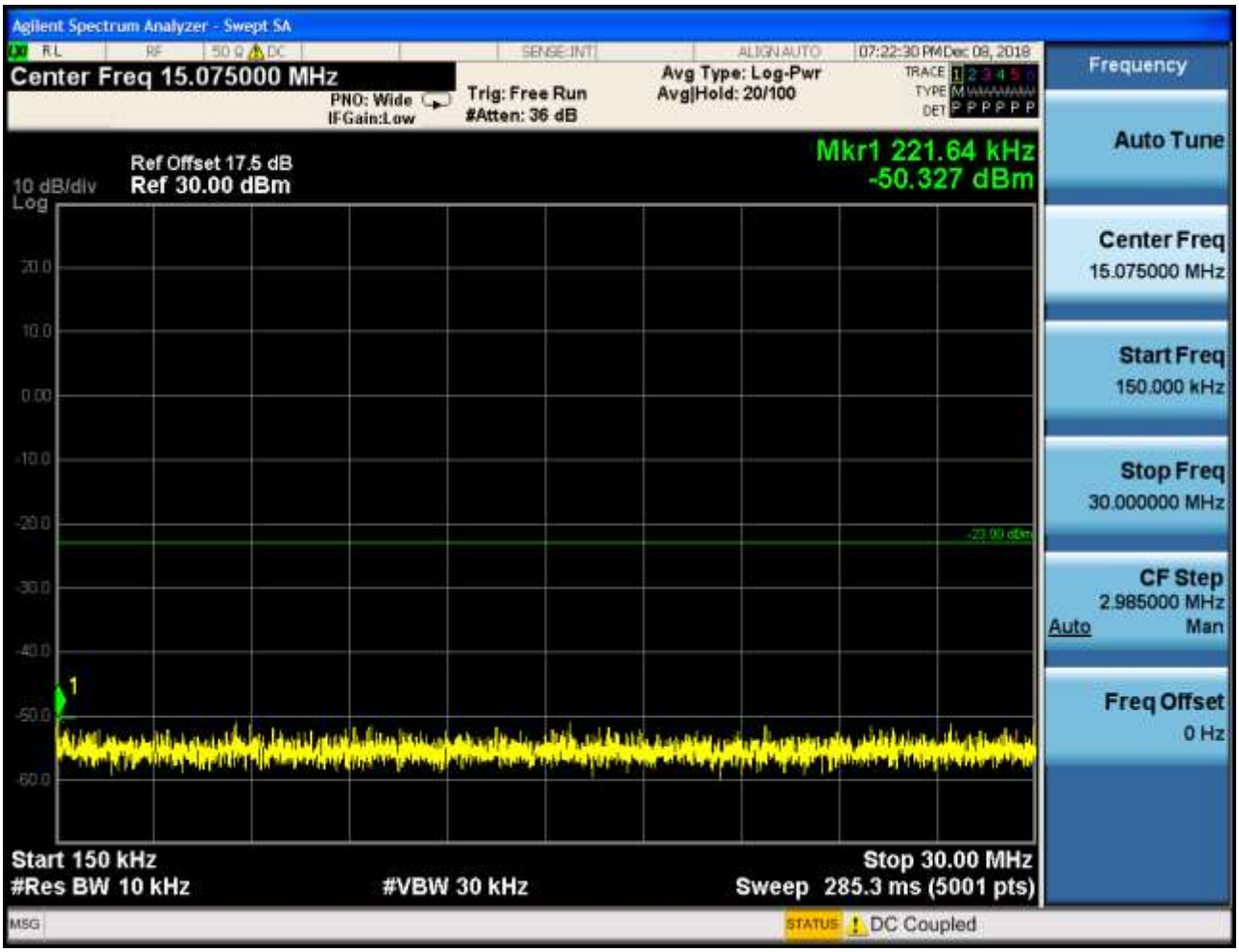


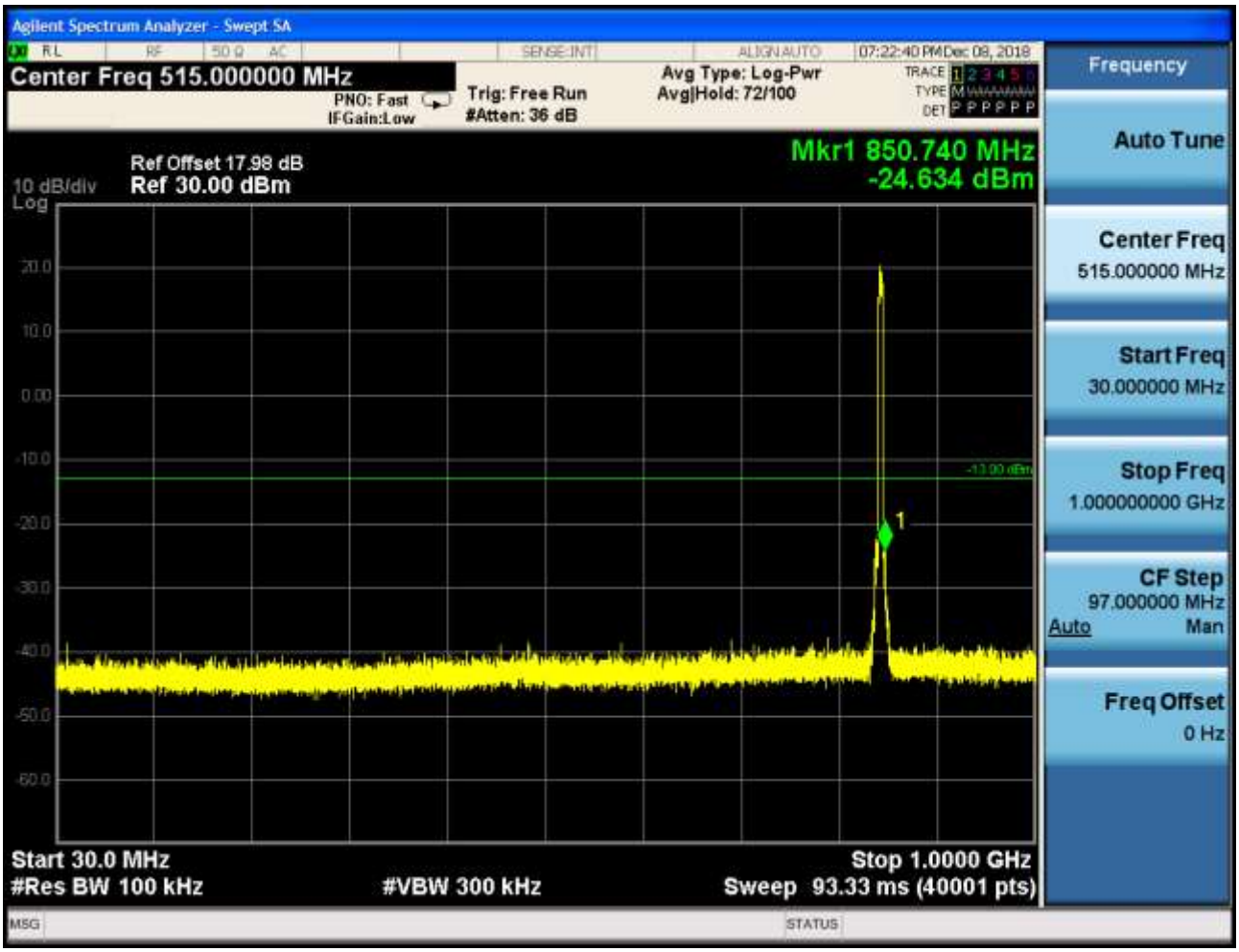
6.1.1.1.2 Test Channel = MCH





6.1.1.1.3 Test Channel = HCH

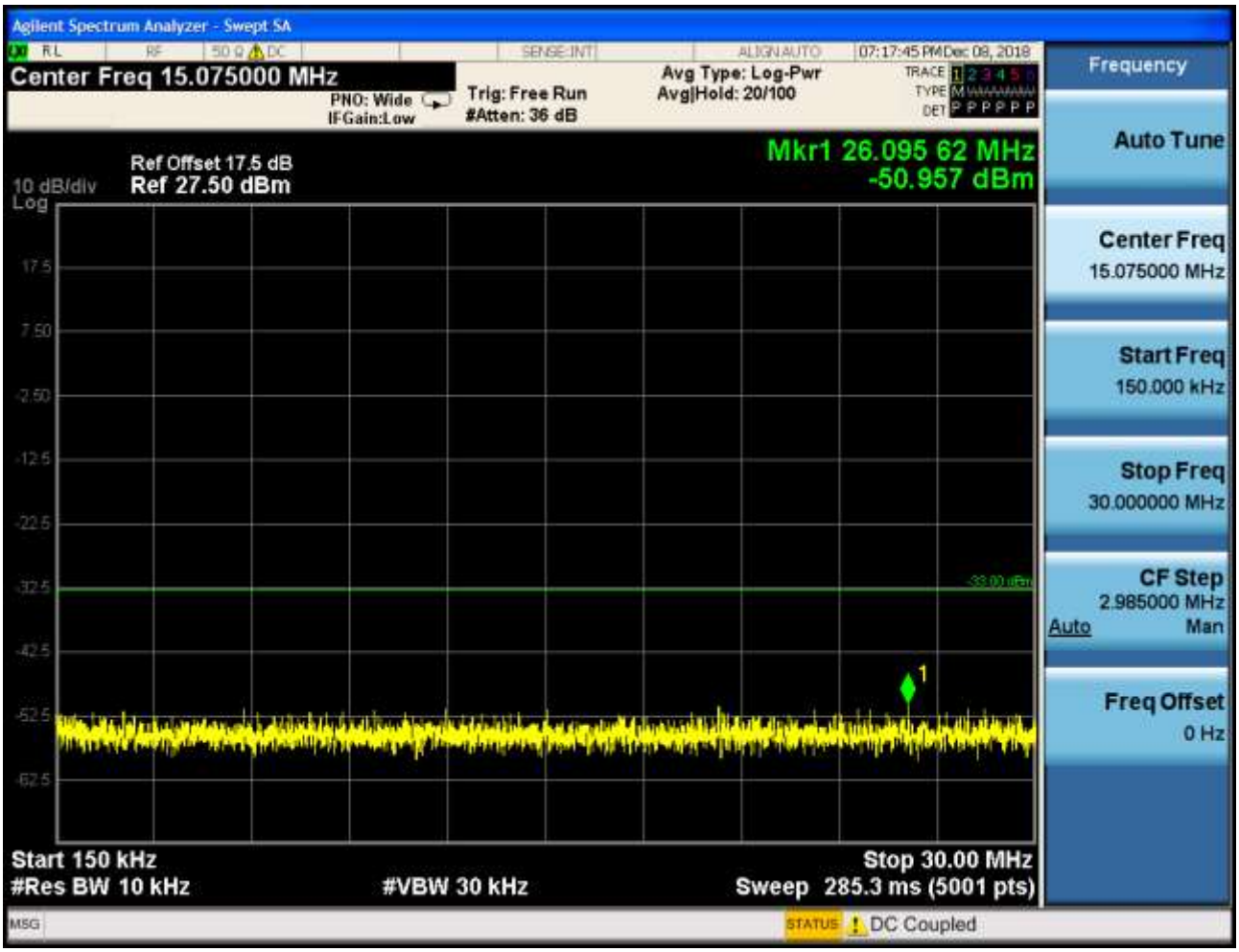




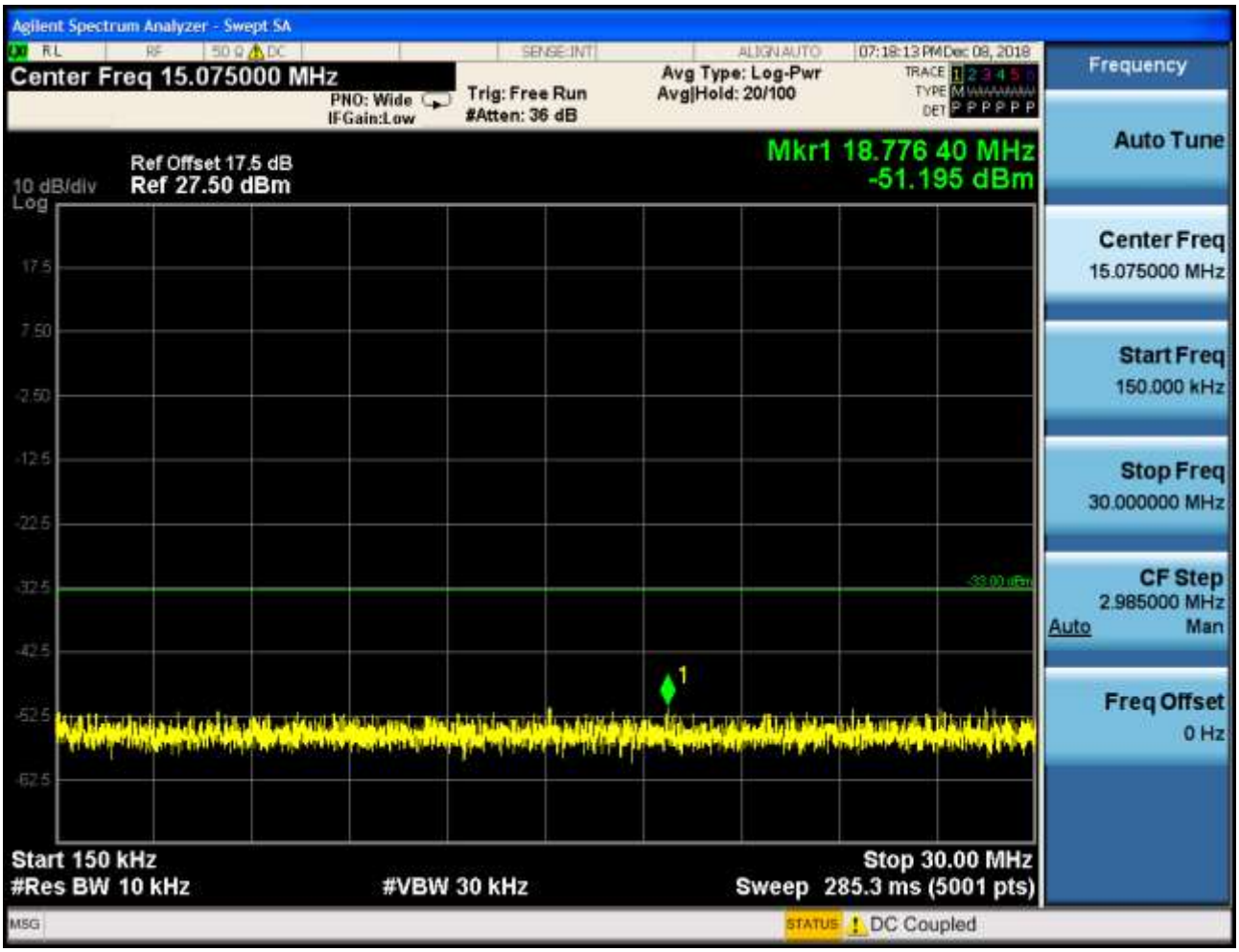
6.1.2 Test Band = WCDMA1700

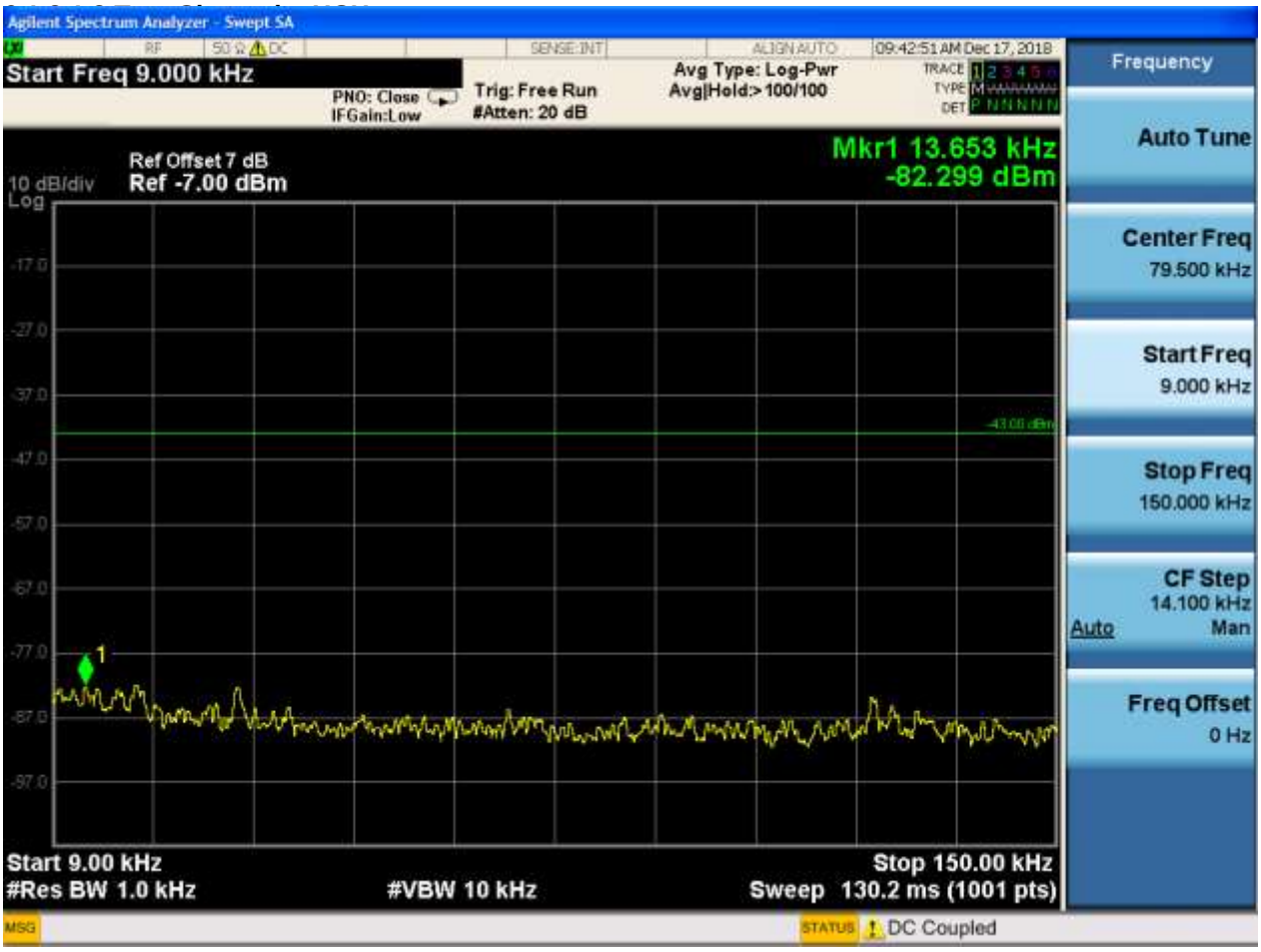
6.1.2.1 Test Mode = UMTS/TM1

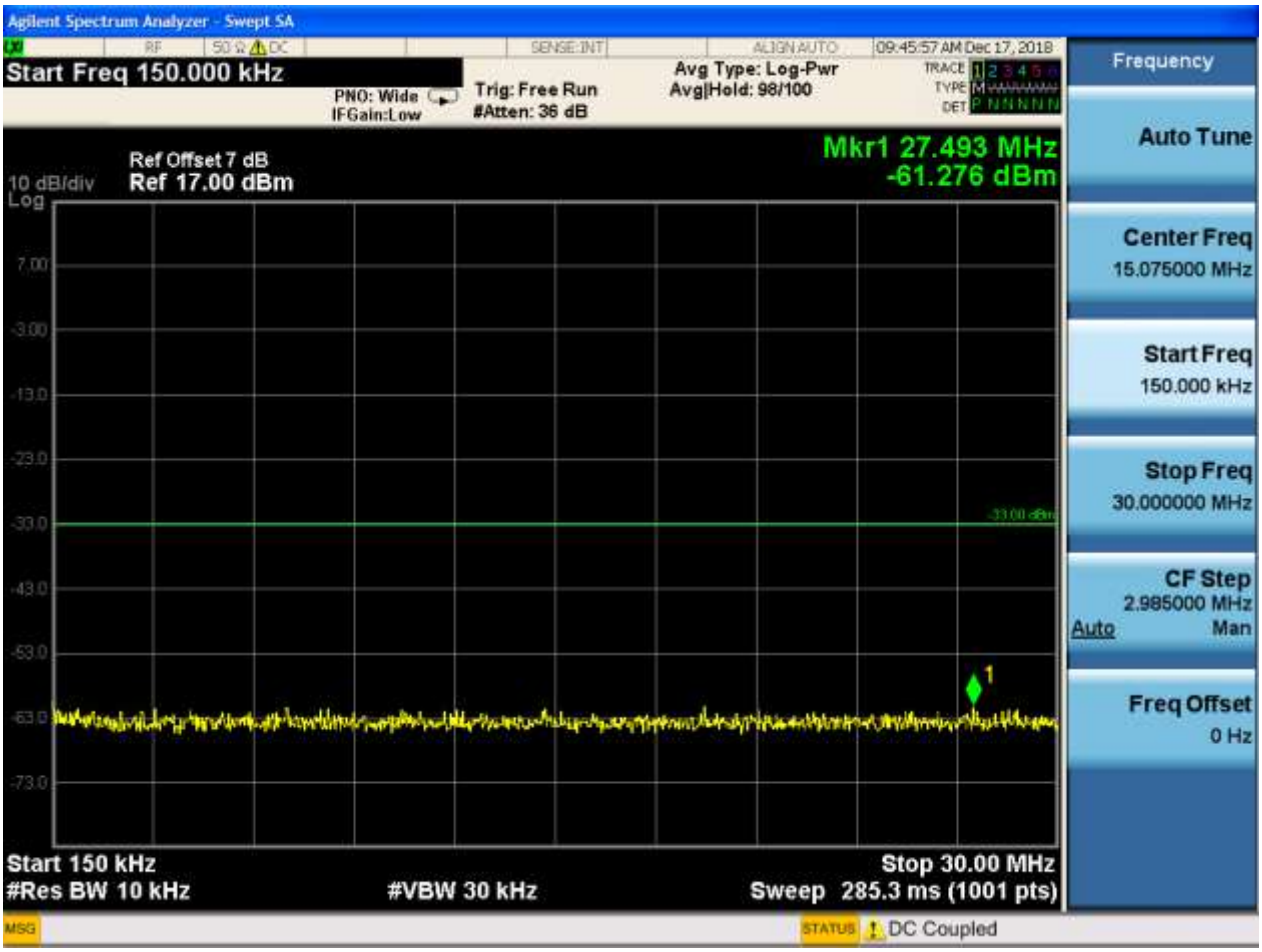
6.1.2.1.1 Test Channel = LCH



6.1.2.1.2 Test Channel = MCH



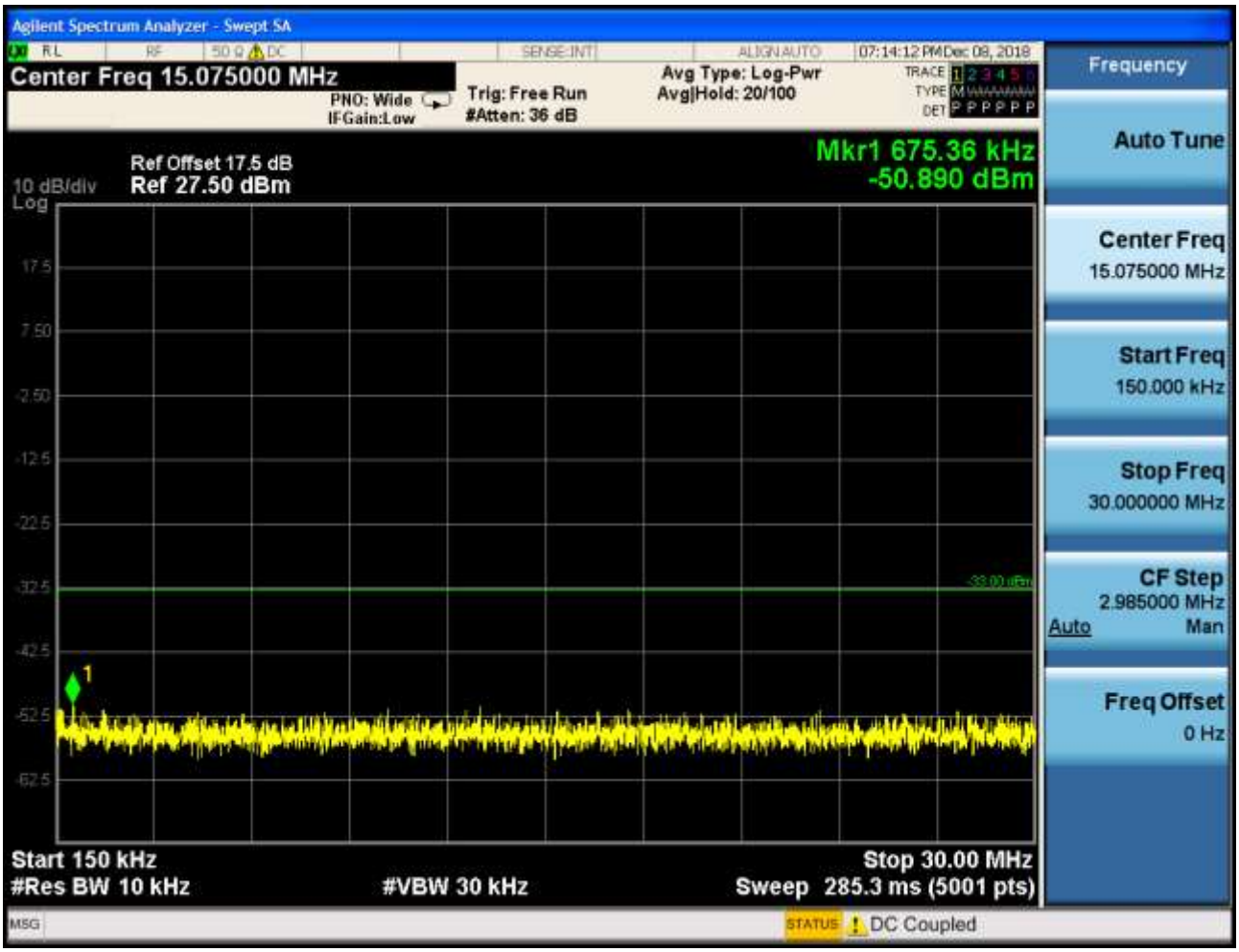




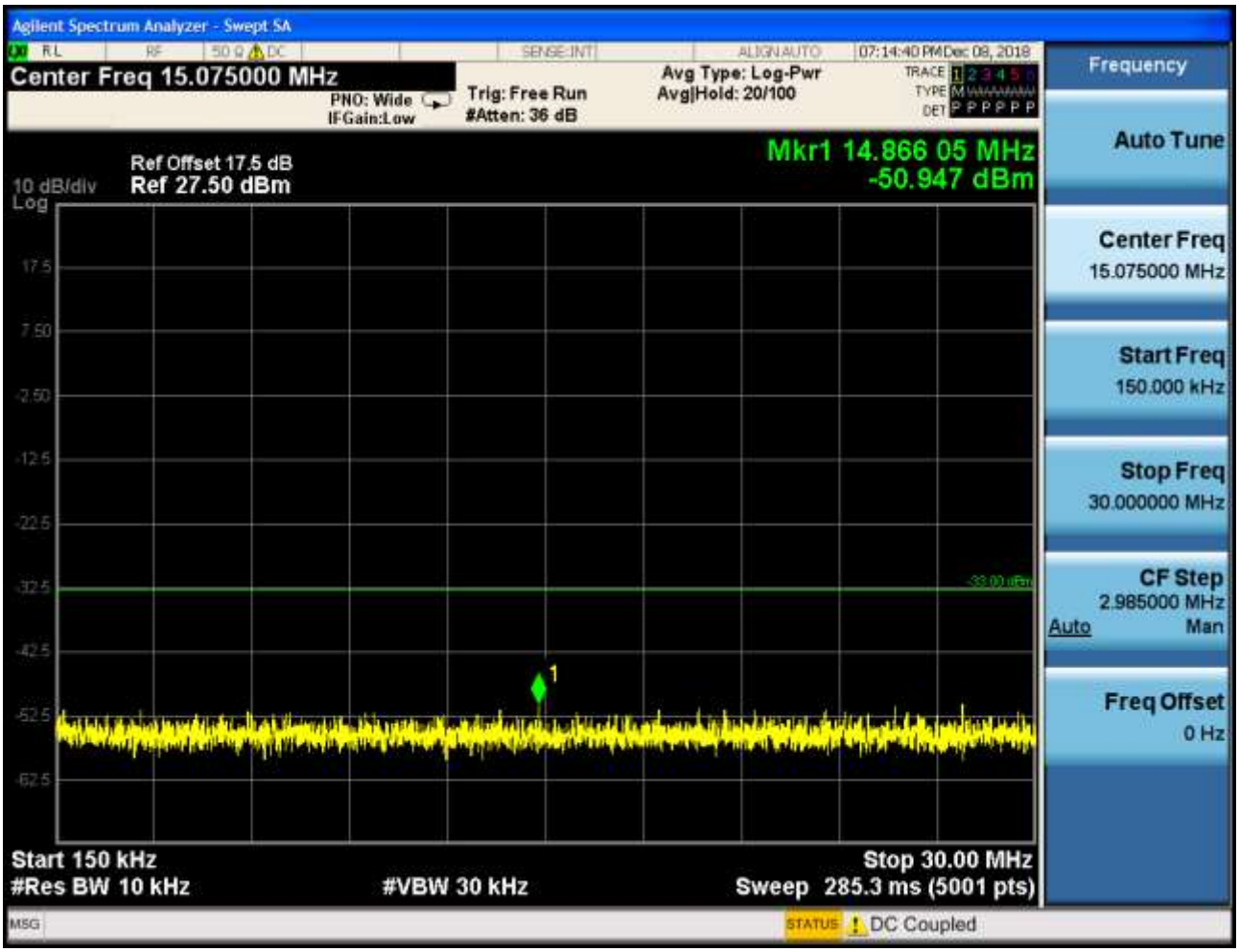
6.1.3 Test Band = WCDMA1900

6.1.3.1 Test Mode = UMTS/TM1

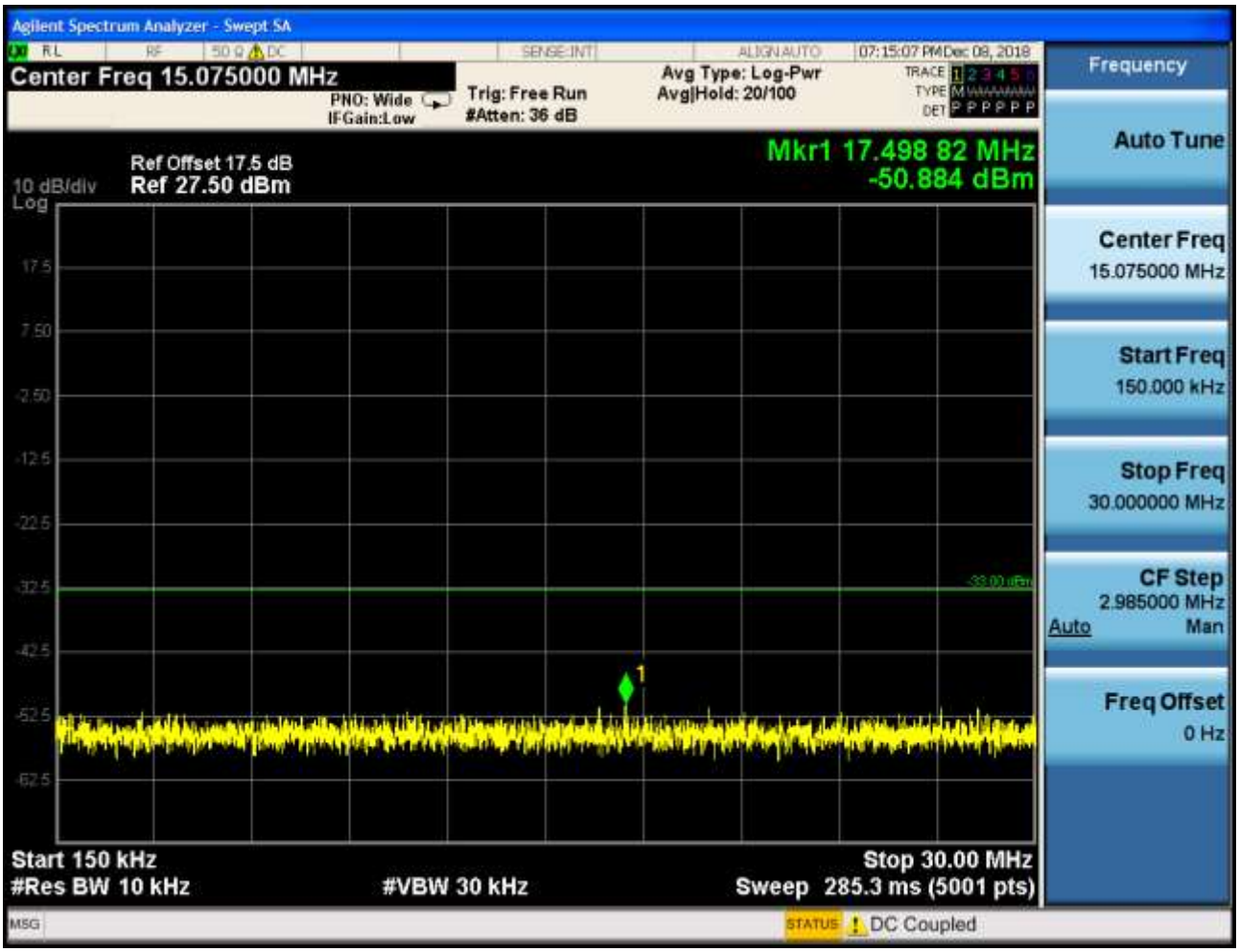
6.1.3.1.1 Test Channel = LCH



6.1.3.1.2 Test Channel = MCH



6.1.3.1.3 Test Channel = HCH



7Appendix_G: Field Strength of Spurious Radiation

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

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

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

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

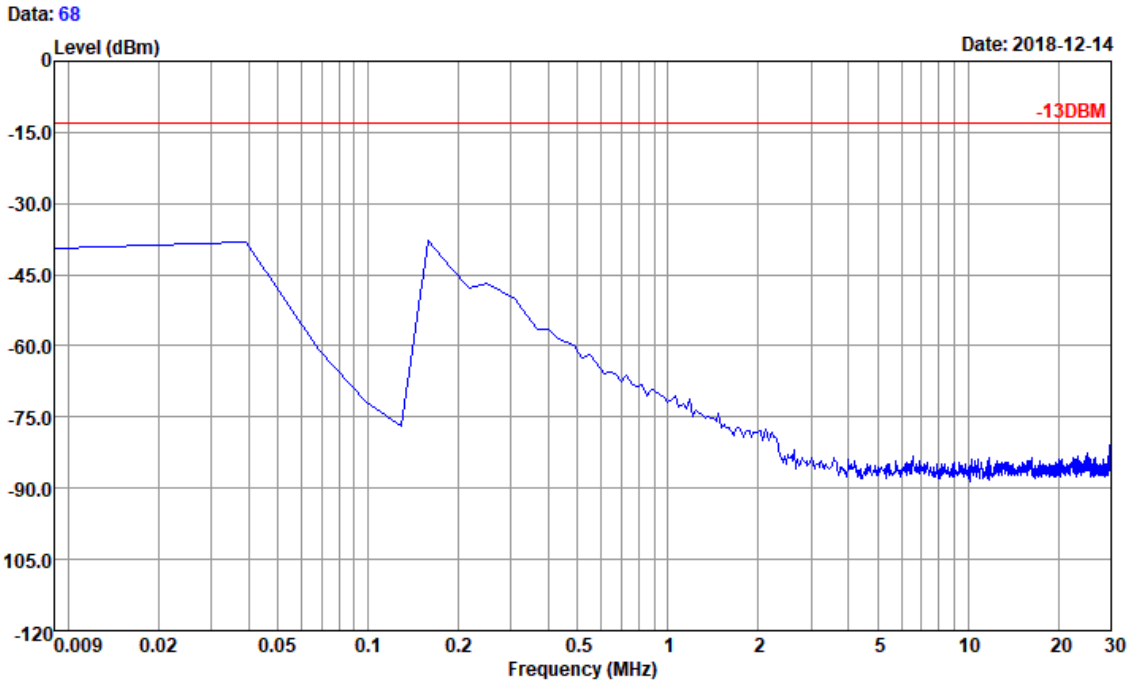
Above 1GHz, RBW = 1 MHz, VBW = 3 MHz. Detector: PK

Part I - Test Plots

7.1 For UMTS

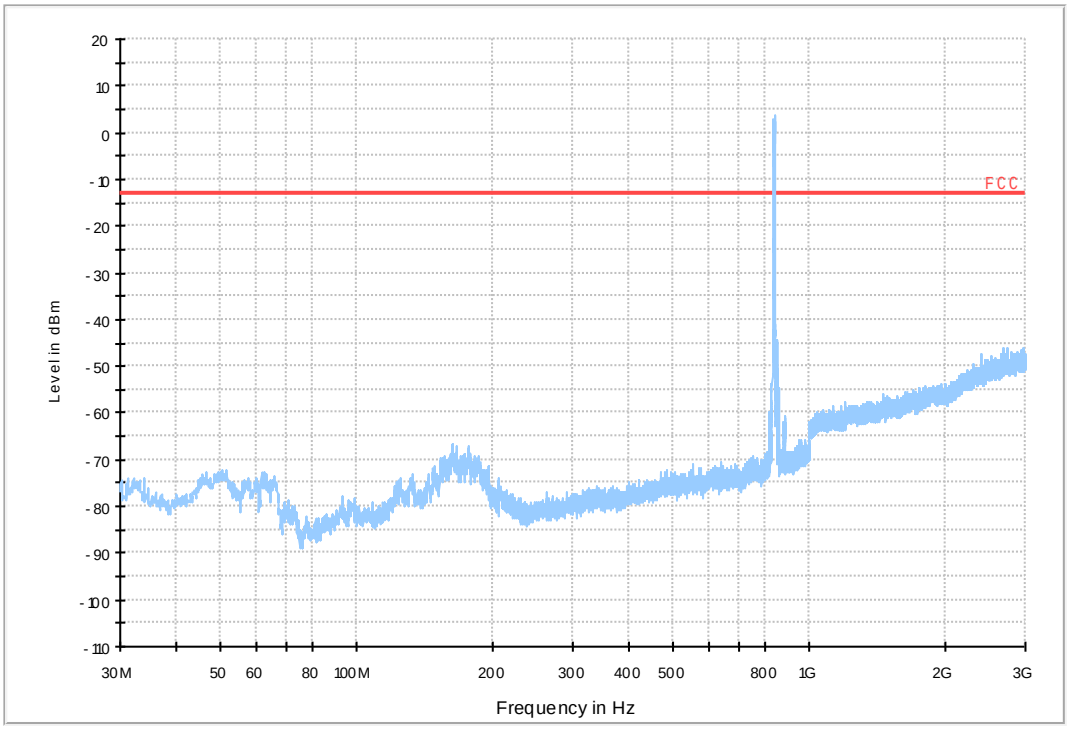
7.1.1 Test Band = WCDMA850_ANT1

7.1.1.1 Test Mode = UMTS/TM1

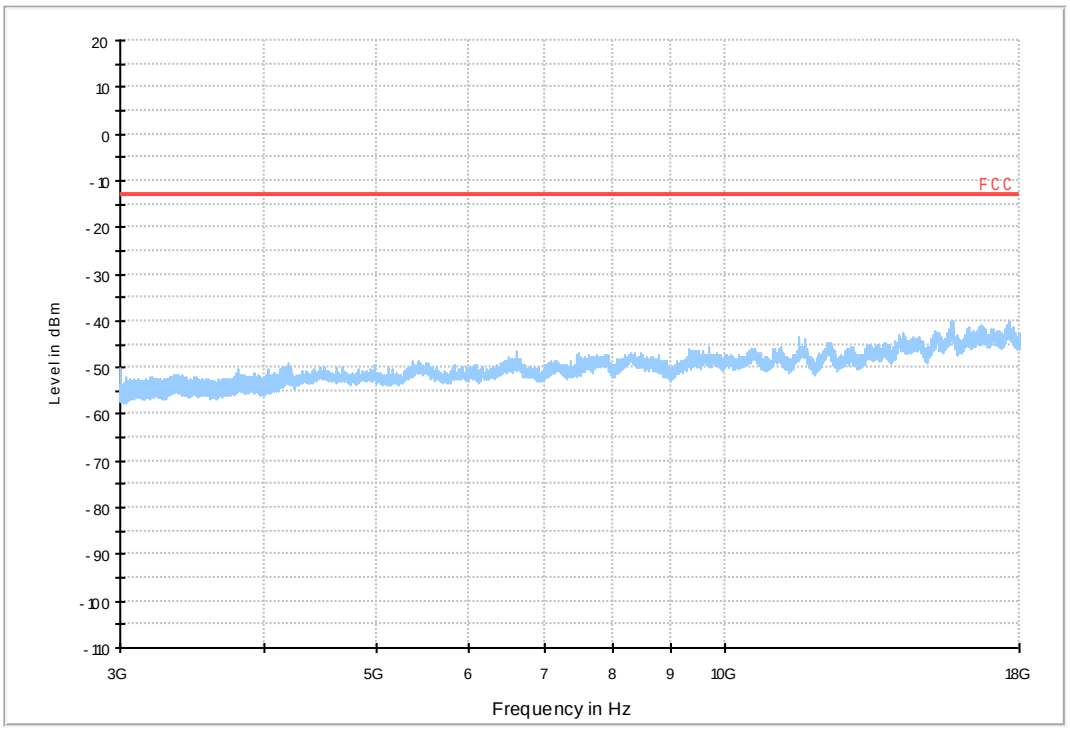


Site : 03CH01-SZ
Condition : -13DBM
: RBW:9.000KHz VBW:30.000KHz

06 FCC PART 22 WCDMA850_L

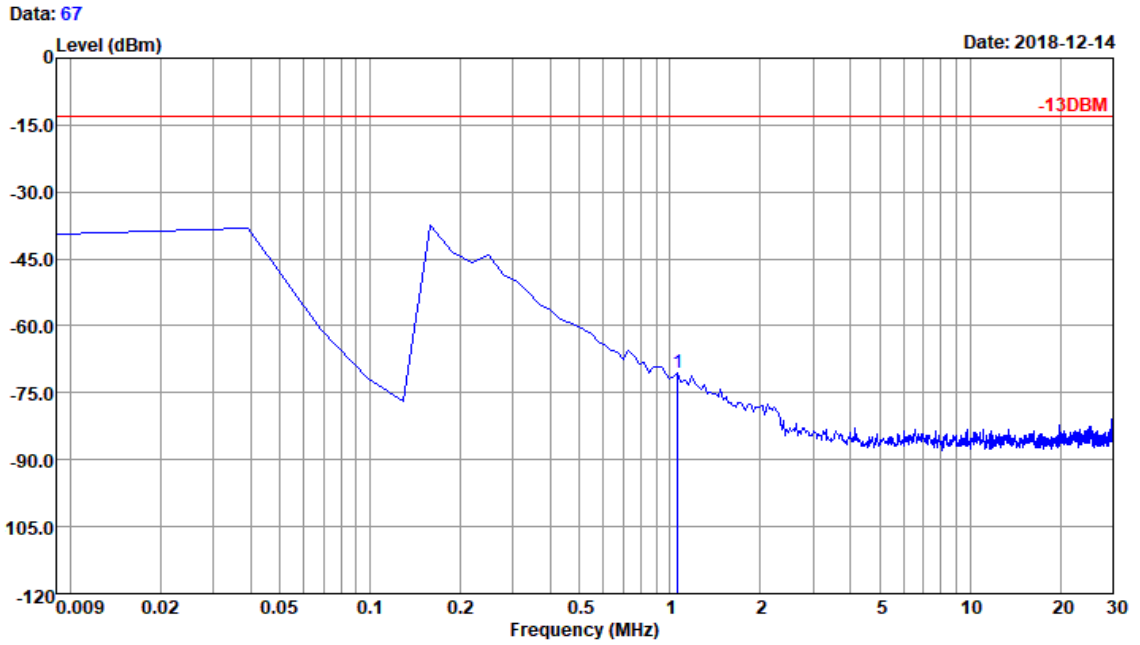


05 FCC PART 22 WCDMA850_H



7.1.2 Test Band = WCDMA1700_ANT1

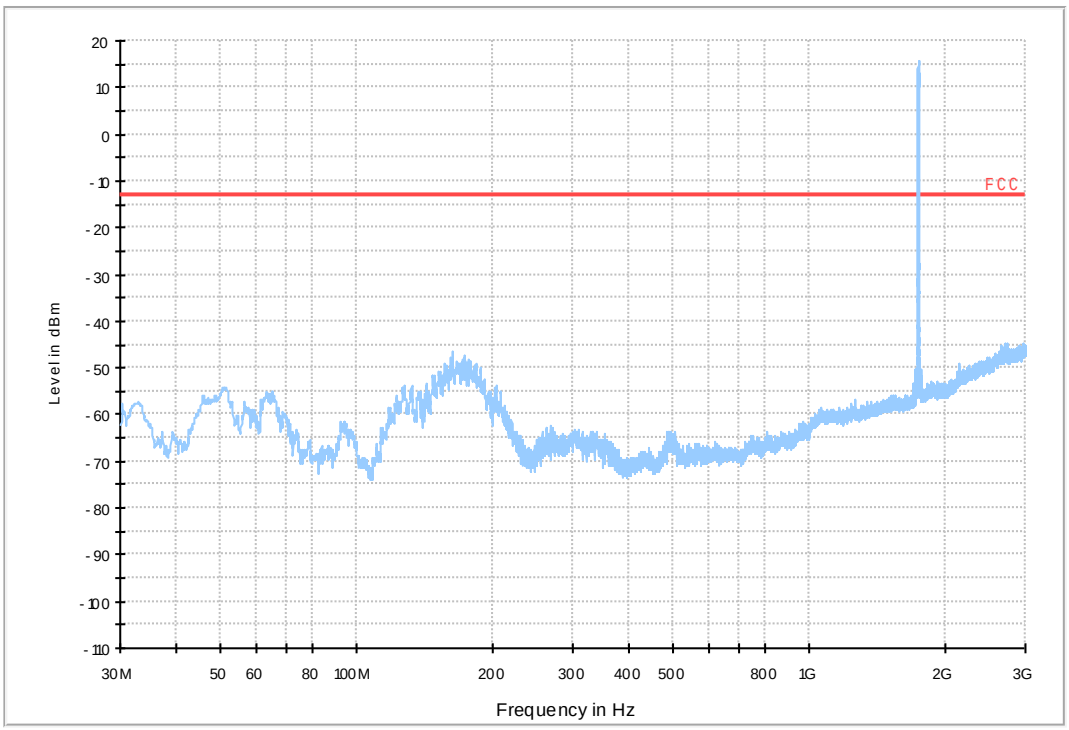
7.1.3.1 Test Mode = UMTS/TM1



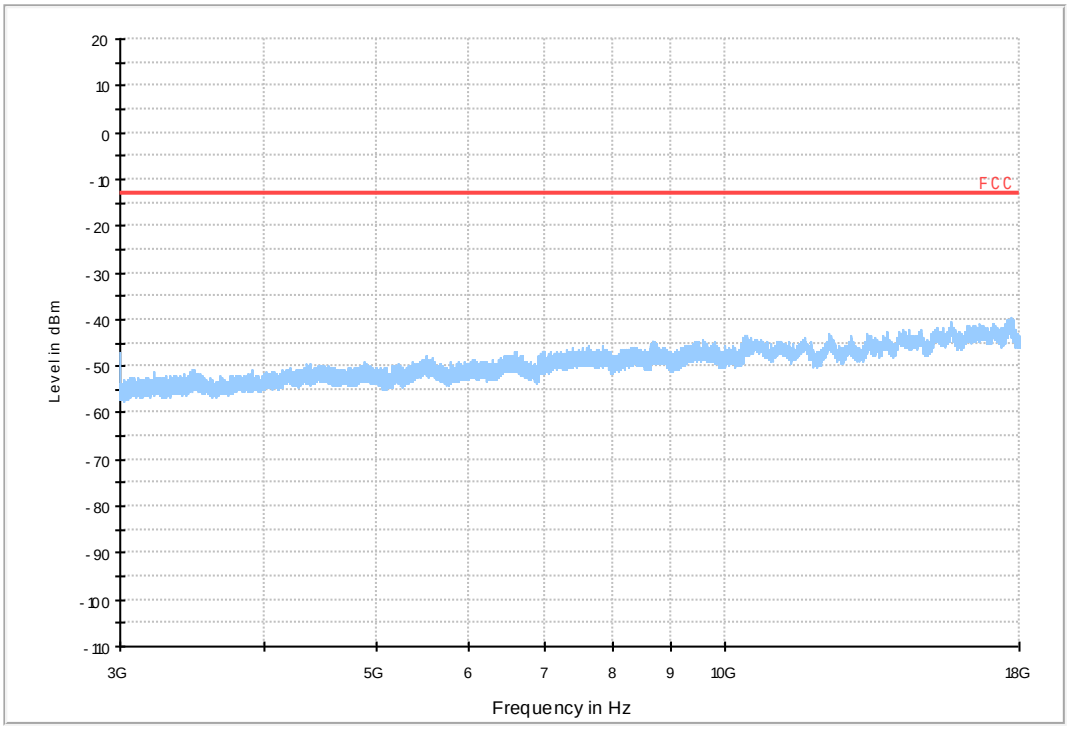
Site : 03CH01-SZ
Condition : -13DBM
: RBW:9.000KHz VBW:30.000KHz

	Freq	Level	Over Limit	Limit Line	ReadAntenna Level	Cable Factor	Preamp Loss	Factor	Remark
	MHz	dBm	dB	dBm	dBm	dB	dB	dB	
1 pp	1.06	-70.51	-57.51	-13.00	-70.51	0.00	0.00	0.00	Peak

18 FCC PART 27 WCDMA1700_L

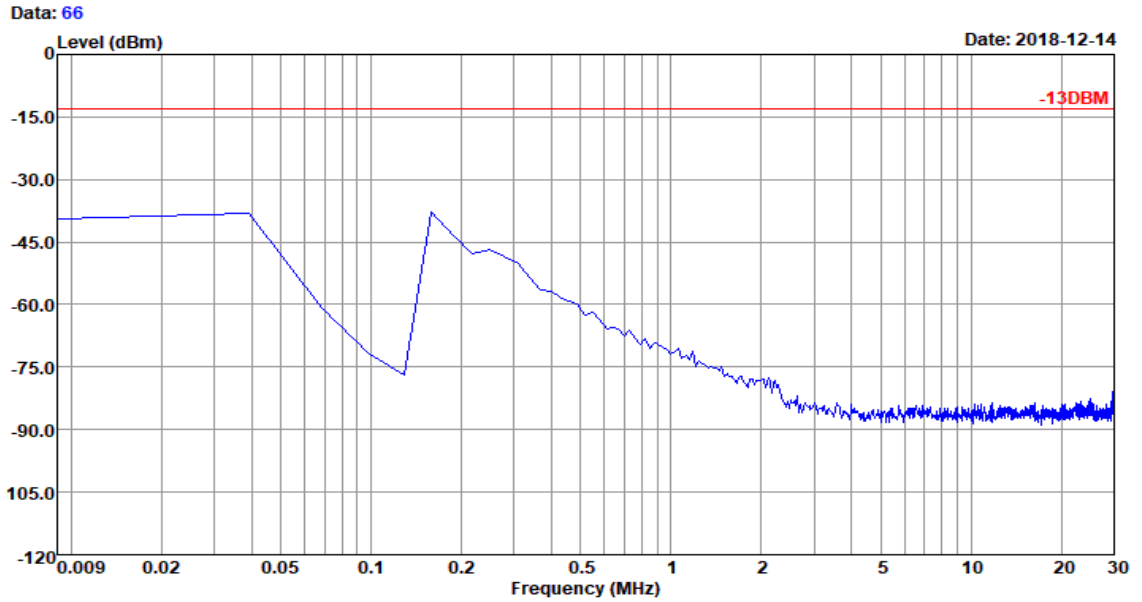


17 FCC PART 27 WCDMA1700_H



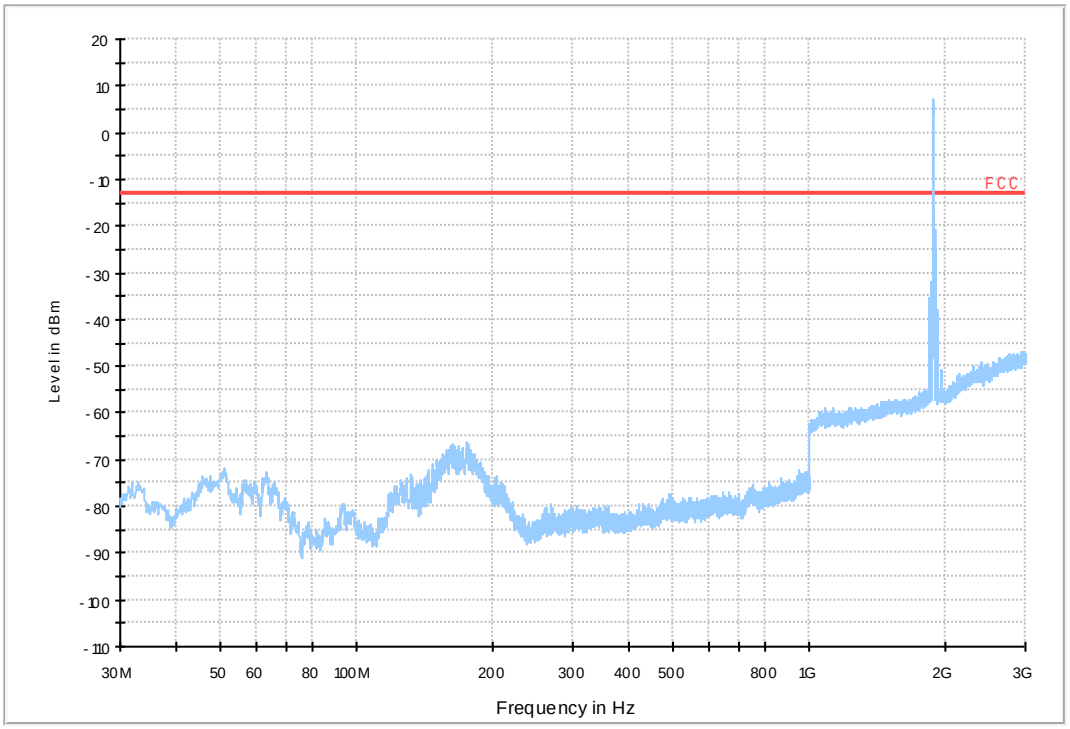
7.1.3 Test Band = WCDMA1900_ANT1

7.1.5.1 Test Mode = UMTS/TM1

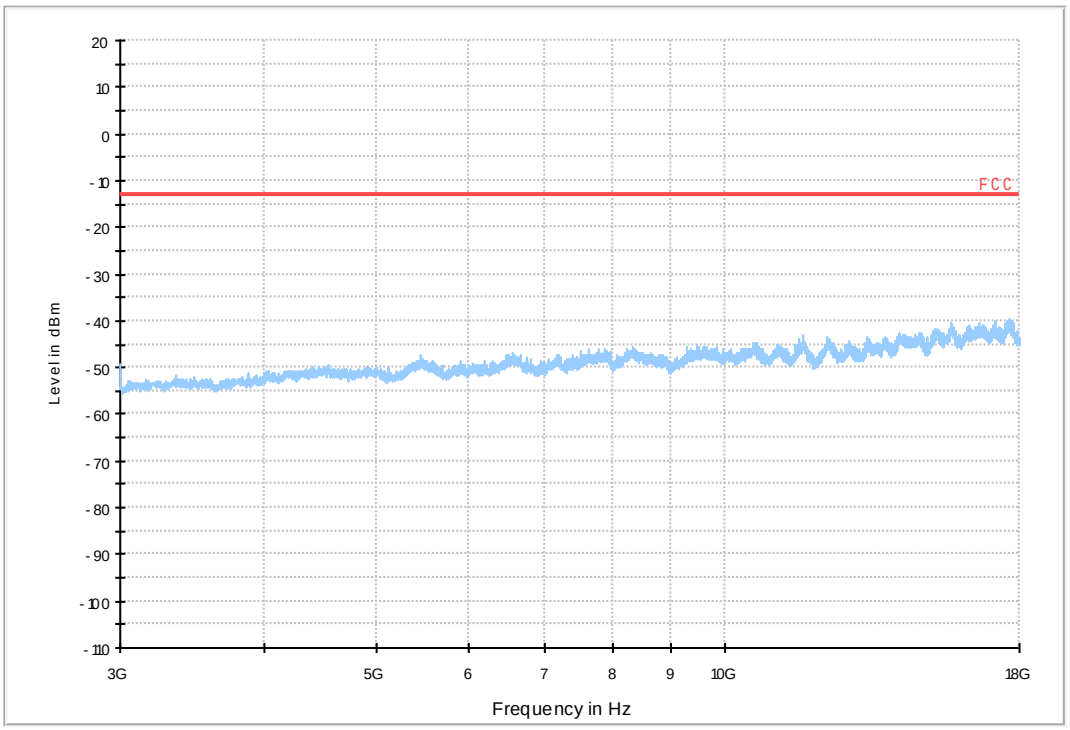


Site : 03CH01-SZ
Condition : -13DBM
: RBW:9.000KHz VBW:30.000KHz

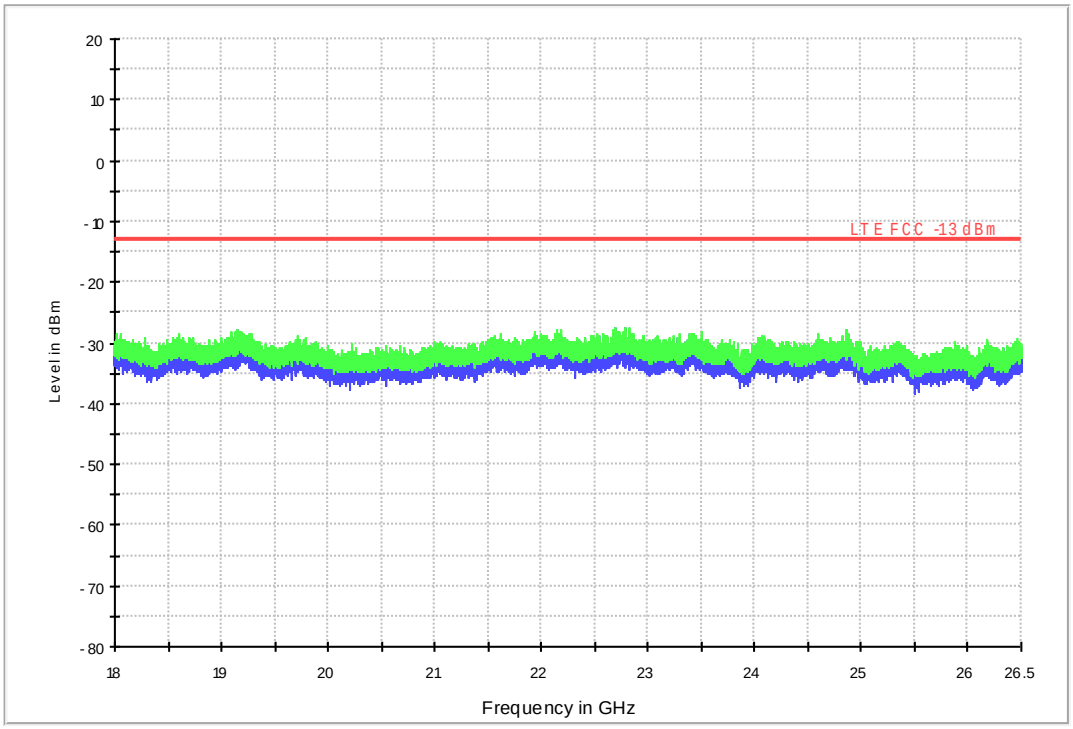
12 FCC PART 24 WCDMA1900_L



11 FCC PART 24 WCDMA1900_H



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



8Appendix_H: Frequency Stability

8.1 For UMTS

8.1.1Frequency Error vs. Voltage:

Test Band	Test Mode	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
WCDMA850	UMTS/TM1	LCH	TN	VL	-10.90765	-0.01320	PASS
				VN	-9.72033	-0.01176	PASS
				VH	-13.30376	-0.01610	PASS
		MCH	TN	VL	-13.01765	-0.01556	PASS
				VN	-13.94749	-0.01668	PASS
				VH	-15.00607	-0.01794	PASS
		HCH	TN	VL	-14.78434	-0.01747	PASS
				VN	-12.23087	-0.01445	PASS
				VH	-13.16071	-0.01555	PASS
WCDMA1700	UMTS/TM1	LCH	TN	VL	-16.34359	-0.00954	PASS
				VN	-13.54694	-0.00791	PASS
				VH	-15.87152	-0.00927	PASS
		MCH	TN	VL	-17.19475	-0.00992	PASS
				VN	-15.37800	-0.00888	PASS
				VH	-16.56532	-0.00956	PASS
		HCH	TN	VL	-15.43522	-0.00881	PASS
				VN	-16.09325	-0.00918	PASS
				VH	-13.41105	-0.00765	PASS
WCDMA1900	UMTS/TM1	LCH	TN	VL	-18.56804	-0.01002	PASS
				VN	-13.36813	-0.00722	PASS
				VH	-13.88311	-0.00749	PASS
		MCH	TN	VL	-20.52784	-0.01092	PASS
				VN	-20.39194	-0.01085	PASS
				VH	-15.13481	-0.00805	PASS
		HCH	TN	VL	-20.84255	-0.01002	PASS
				VN	-18.20326	-0.00722	PASS
				VH	-15.22779	-0.00749	PASS

8.1.2Frequency Error vs. Temperature:

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
WCDMA850	UMTS/TM1	LCH	VN	-30	-11.15084	-0.01349	PASS
				-20	-11.68013	-0.01413	PASS
				-10	-9.46283	-0.01145	PASS
				0	-13.04626	-0.01579	PASS
				10	-10.71453	-0.01297	PASS
				20	-9.72033	-0.01176	PASS
				30	-9.47714	-0.01147	PASS
				40	-14.17637	-0.01715	PASS
				50	-12.01630	-0.01454	PASS
		MCH	VN	-30	-14.29081	-0.01709	PASS
				-20	-12.45260	-0.01489	PASS
				-10	-11.99484	-0.01434	PASS
				0	-14.38379	-0.01720	PASS
				10	-13.76867	-0.01646	PASS
				20	-13.94749	-0.01668	PASS
				30	-13.43250	-0.01606	PASS
				40	-15.37085	-0.01838	PASS
				50	-12.81023	-0.01532	PASS
		HCH	VN	-30	-13.89742	-0.01642	PASS
				-20	-15.60688	-0.01844	PASS
				-10	-12.35247	-0.01459	PASS
				0	-11.85894	-0.01401	PASS
				10	-15.17057	-0.01792	PASS
				20	-12.23087	-0.01445	PASS
				30	-15.95020	-0.01884	PASS
				40	-14.97746	-0.01770	PASS
				50	-12.41684	-0.01467	PASS
WCDMA1700	UMTS/TM1	LCH	VN	-30	-12.99620	-0.00759	PASS
				-20	-13.26084	-0.00774	PASS
				-10	-13.30376	-0.00777	PASS
				0	-16.42942	-0.00959	PASS
				10	-12.30955	-0.00719	PASS
				20	-13.54694	-0.00791	PASS
				30	-14.19783	-0.00829	PASS
				40	-15.06329	-0.00880	PASS
				50	-11.64436	-0.00680	PASS
		MCH	VN	-30	-17.33065	-0.01000	PASS
				-20	-16.37936	-0.00945	PASS

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				-10	-16.60824	-0.00959	PASS
				0	-15.53535	-0.00897	PASS
				10	-16.29353	-0.00940	PASS
				20	-15.37800	-0.00888	PASS
				30	-13.29660	-0.00767	PASS
				40	-15.69986	-0.00906	PASS
				50	-18.38207	-0.01061	PASS
		HCH	VN	-30	-13.55410	-0.00773	PASS
				-20	-13.16071	-0.00751	PASS
				-10	-11.93762	-0.00681	PASS
				0	-15.47098	-0.00883	PASS
				10	-12.43114	-0.00709	PASS
				20	-16.09325	-0.00918	PASS
				30	-16.35790	-0.00933	PASS
				40	-14.61267	-0.00834	PASS
				50	-13.10349	-0.00748	PASS
WCDMA1900	UMTS/TM1	LCH	VN	-30	-14.68420	-0.00793	PASS
				-20	-13.79013	-0.00744	PASS
				-10	-17.01593	-0.00919	PASS
				0	-17.03739	-0.00920	PASS
				10	-16.85143	-0.00910	PASS
				20	-13.36813	-0.00722	PASS
				30	-16.19339	-0.00874	PASS
				40	-14.64844	-0.00791	PASS
				50	-16.32214	-0.00881	PASS
		MCH	VN	-30	-17.98868	-0.00957	PASS
				-20	-15.87868	-0.00845	PASS
				-10	-17.51661	-0.00932	PASS
				0	-16.96587	-0.00902	PASS
				10	-20.60652	-0.01096	PASS
				20	-20.39194	-0.01085	PASS
				30	-16.96587	-0.00902	PASS
				40	-16.38651	-0.00872	PASS
				50	-19.59085	-0.01042	PASS
		HCH	VN	-30	-17.30919	-0.00907	PASS
				-20	-16.66546	-0.00874	PASS
				-10	-16.19339	-0.00849	PASS
				0	-19.64808	-0.01030	PASS
				10	-16.25776	-0.00852	PASS
				20	-18.20326	-0.00954	PASS

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				30	-16.85858	-0.00884	PASS
				40	-20.38479	-0.01069	PASS
				50	-15.44237	-0.00810	PASS

END