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	23.79	20.11	38.5	PASS
		MCH	23.74	20.11	38.5	PASS
		HCH	23.77	20.13	38.5	PASS
Test Band	**Test Mode**	**Test Channel**	**Conducted Power [dBm]**	**EIRP[dBm]**	**Limit [dBm]**	**Verdict**
WCDMA1700	UMTS/TM1	LCH	22.39	22.22	30	PASS
		MCH	22.23	21.78	30	PASS
		HCH	22.2	22.00	30	PASS
WCDMA1900	UMTS/TM1	LCH	23.76	22.78	33	PASS
		MCH	23.7	22.66	33	PASS
		HCH	23.64	22.87	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	3.13	13	PASS
		MCH	2.89	13	PASS
		HCH	2.87	13	PASS
WCDMA1700	UMTS/TM1	LCH	3.29	13	PASS
		MCH	3.28	13	PASS
		HCH	3.38	13	PASS
WCDMA1900	UMTS/TM1	LCH	2.95	13	PASS
		MCH	2.95	13	PASS
		HCH	2.72	13	PASS

3Appendix_C: Modulation Characteristics

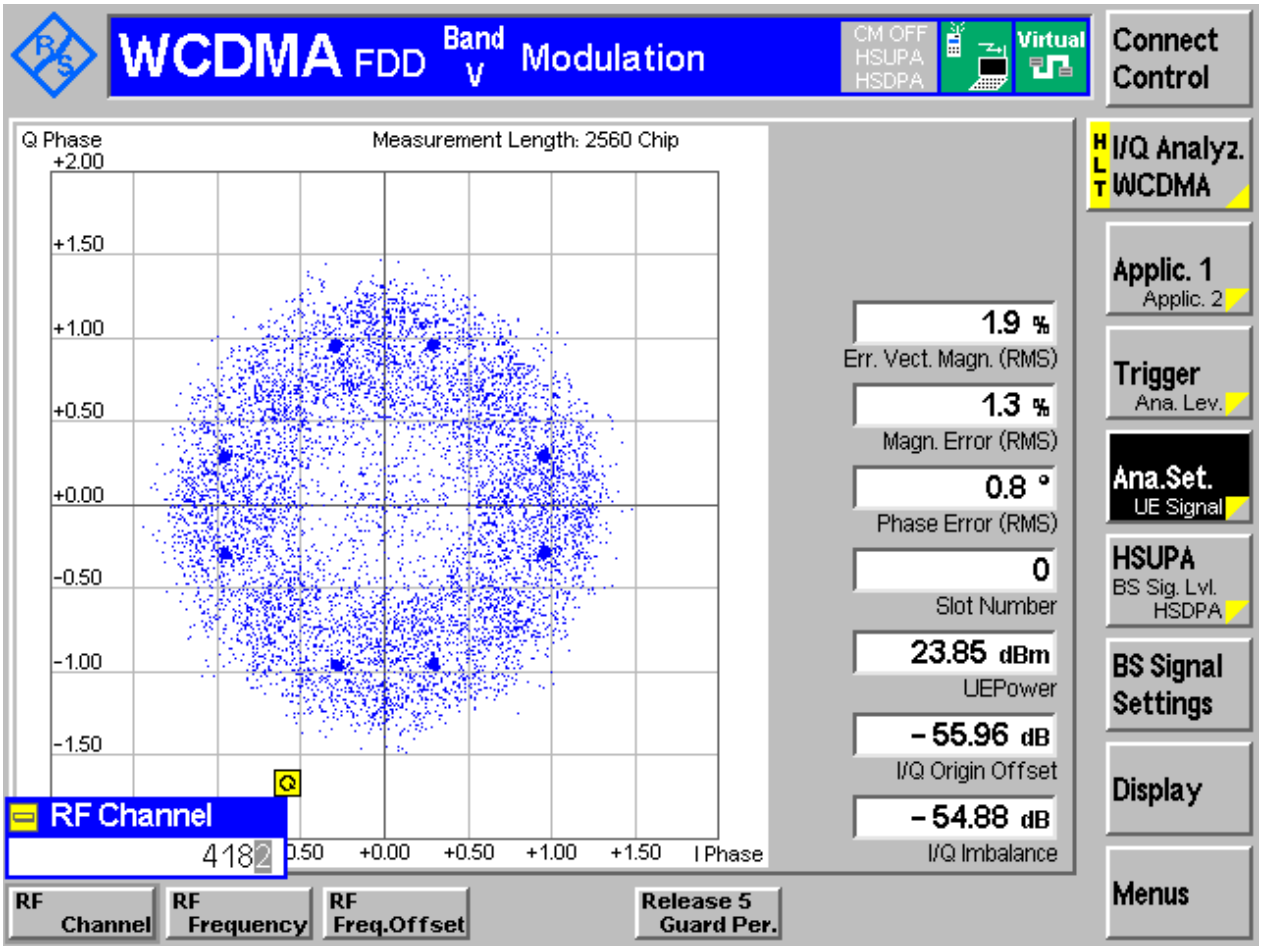
Part I - Test Plots

3.1 For UMTS

3.1.1 Test Band = WCDMA850

3.1.1.1 Test Mode = UMTS/TM1

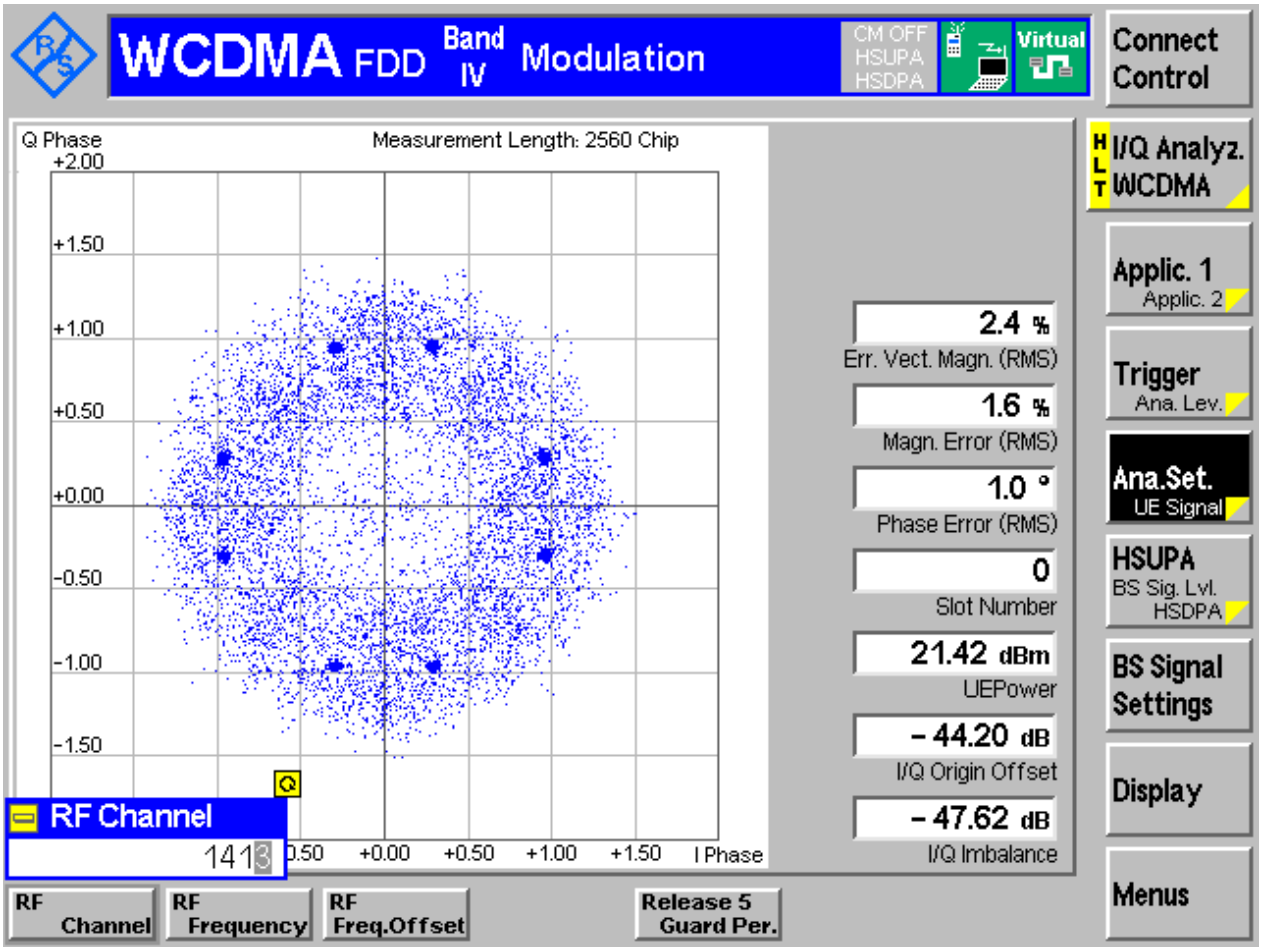
3.1.1.1.1 Test Channel = MCH



3.1.2 Test Band = WCDMA1700

3.1.2.1 Test Mode = UMTS/TM1

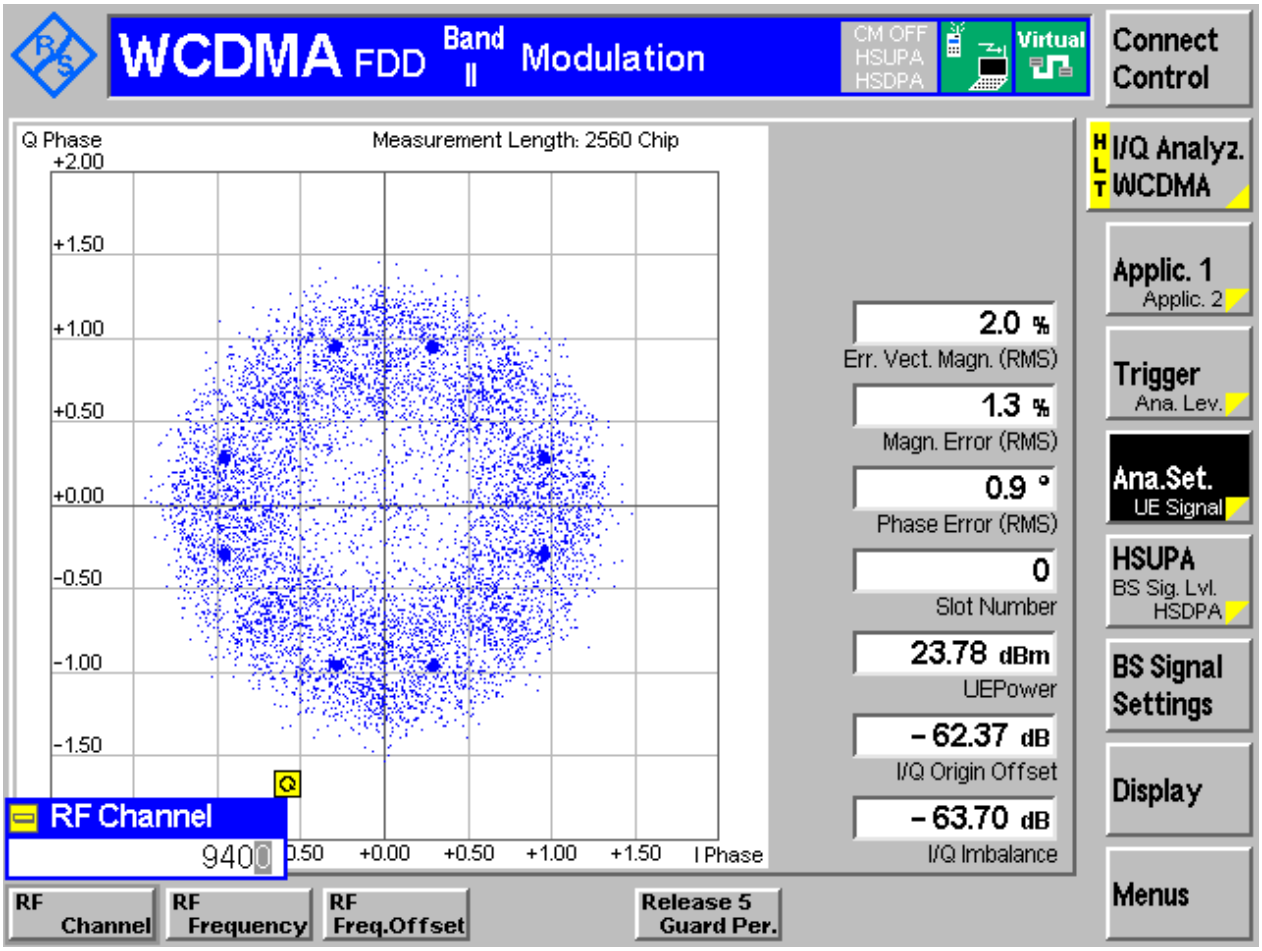
3.1.2.1.1 Test Channel = MCH



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	4.16	4.70	Pass
		MCH	4.16	4.71	Pass
		HCH	4.16	4.71	Pass
WCDMA1700	UMTS/TM1	LCH	4.16	4.69	Pass
		MCH	4.15	4.70	Pass
		HCH	4.16	4.70	Pass
WCDMA1900	UMTS/TM1	LCH	4.16	4.71	Pass
		MCH	4.16	4.71	Pass
		HCH	4.17	4.72	Pass

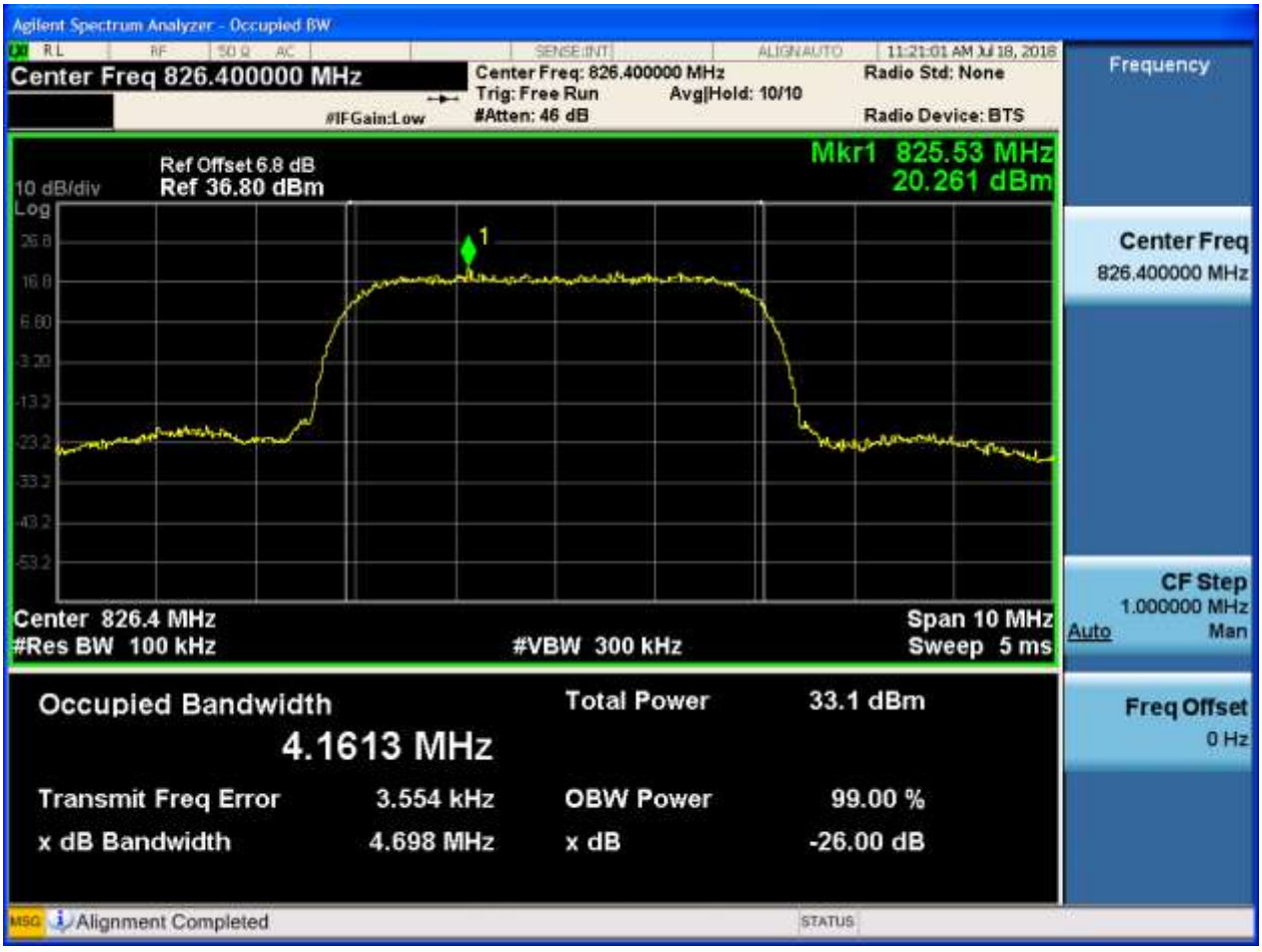
Part II - Test Plots

4.1 For UMTS

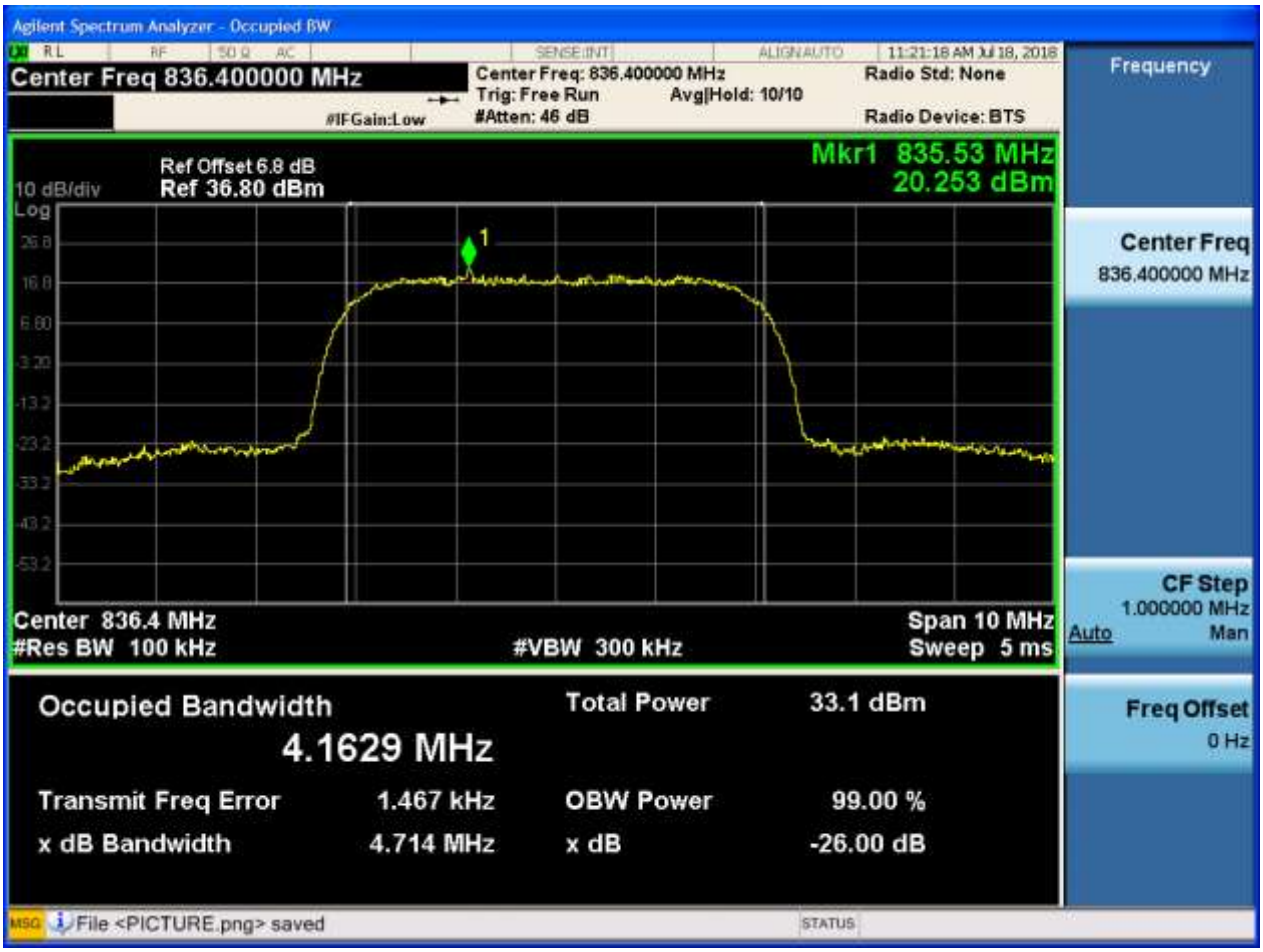
4.1.1 Test Band = WCDMA850

4.1.1.1 Test Mode = UMTS/TM1

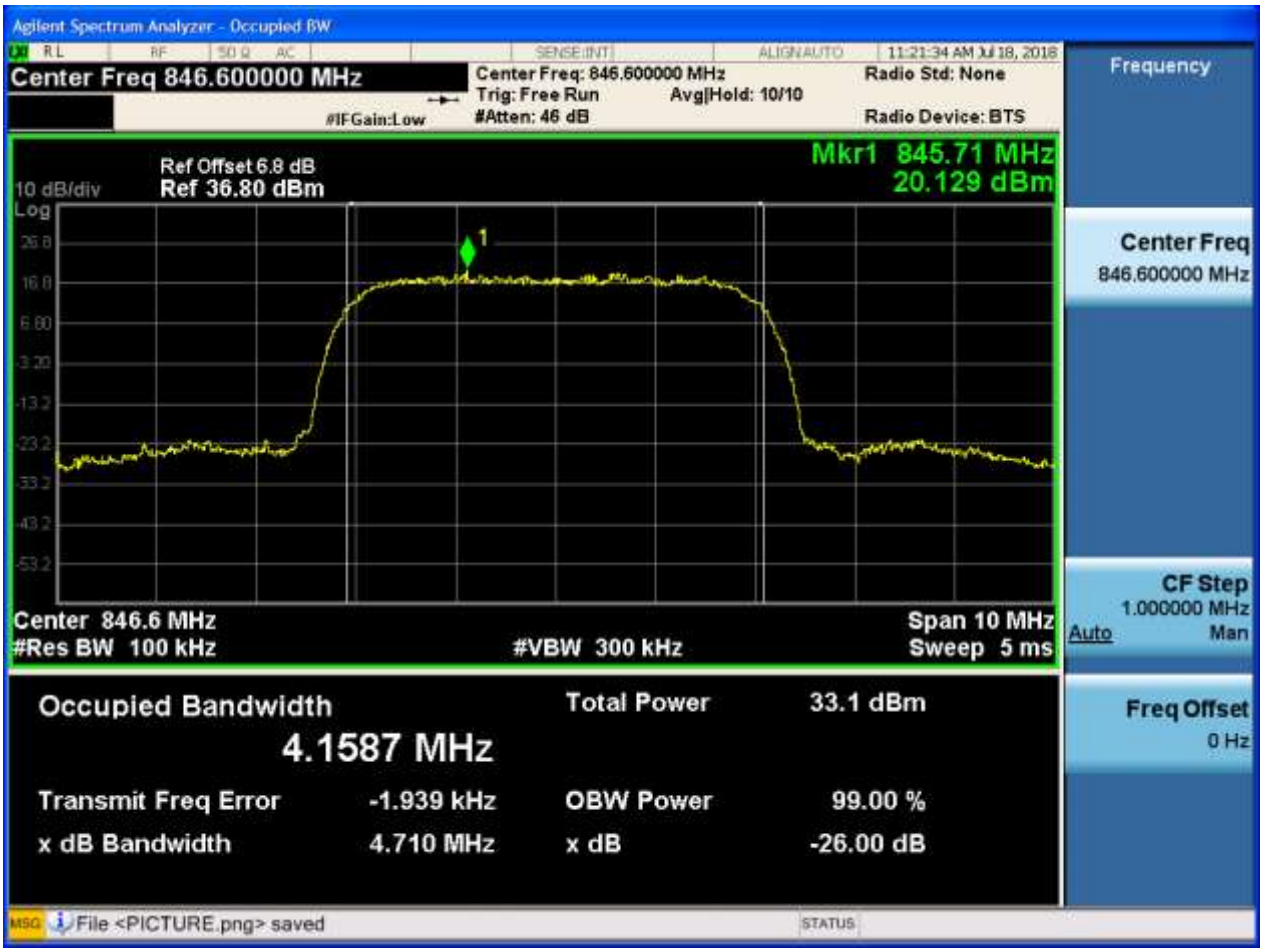
4.1.1.1.1 Test Channel = LCH



4.1.1.1.2 Test Channel = MCH



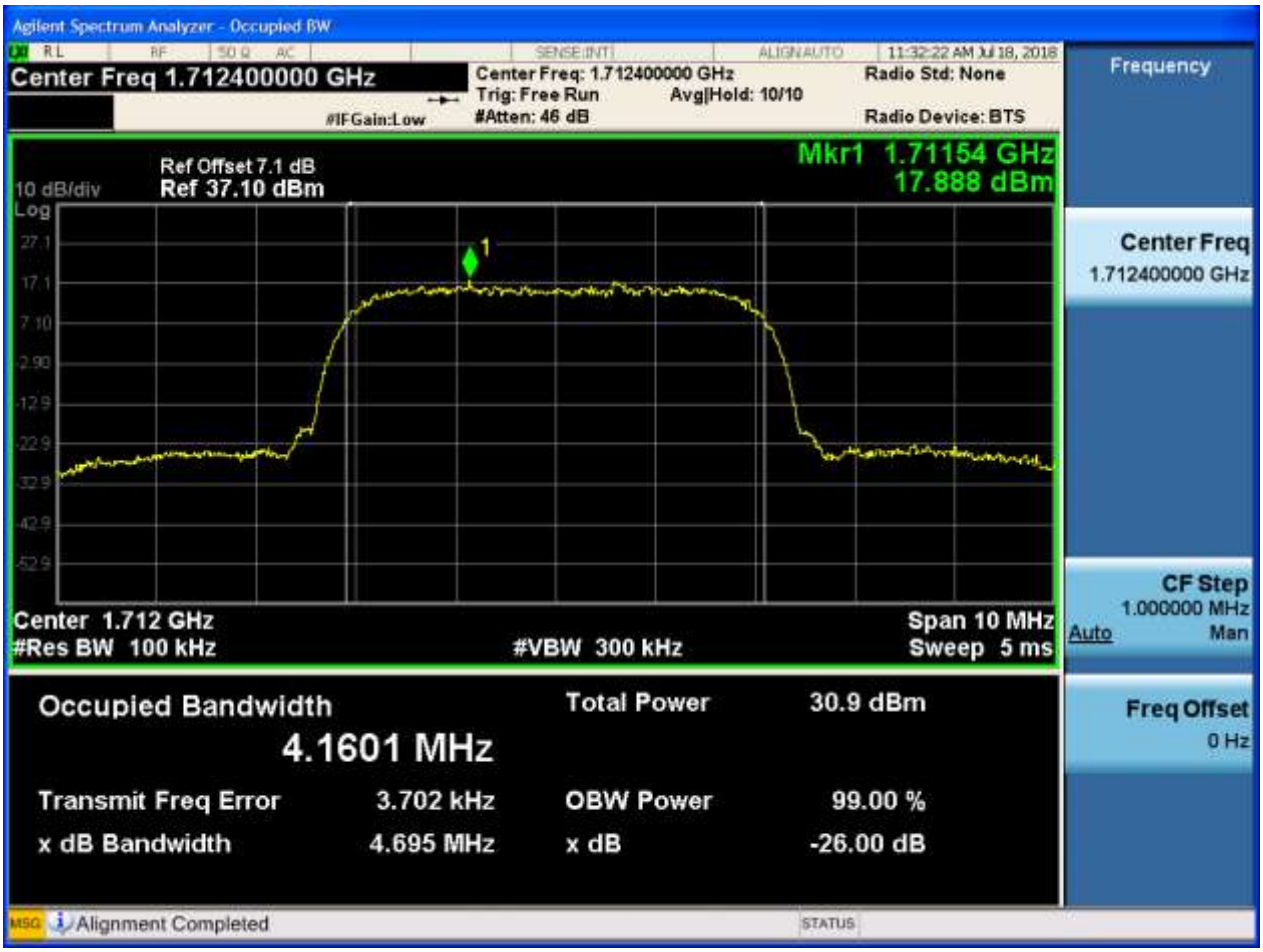
4.1.1.1.3 Test Channel = HCH



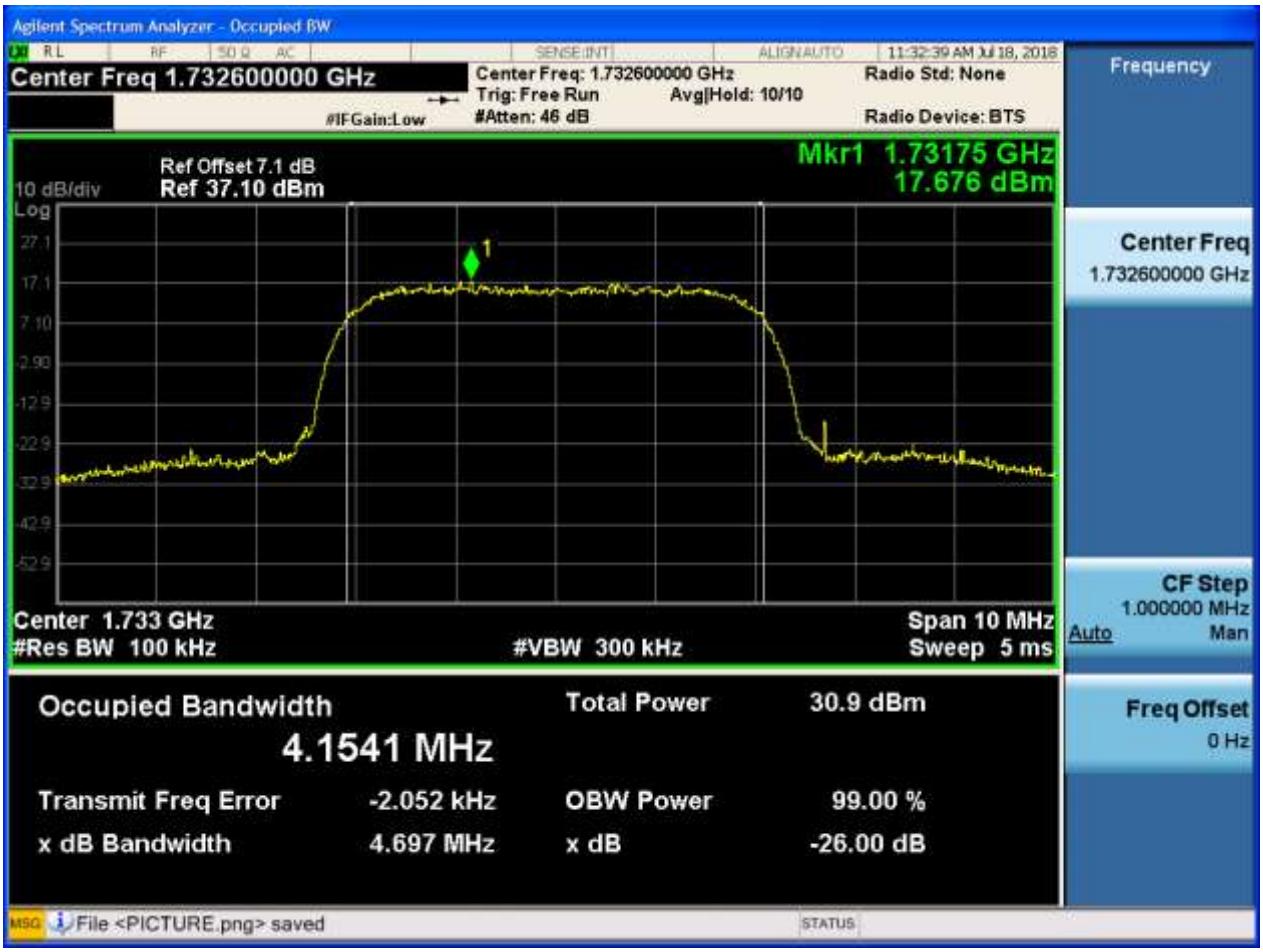
4.1.2 Test Band = WCDMA1700

4.1.2.1 Test Mode = UMTS/TM1

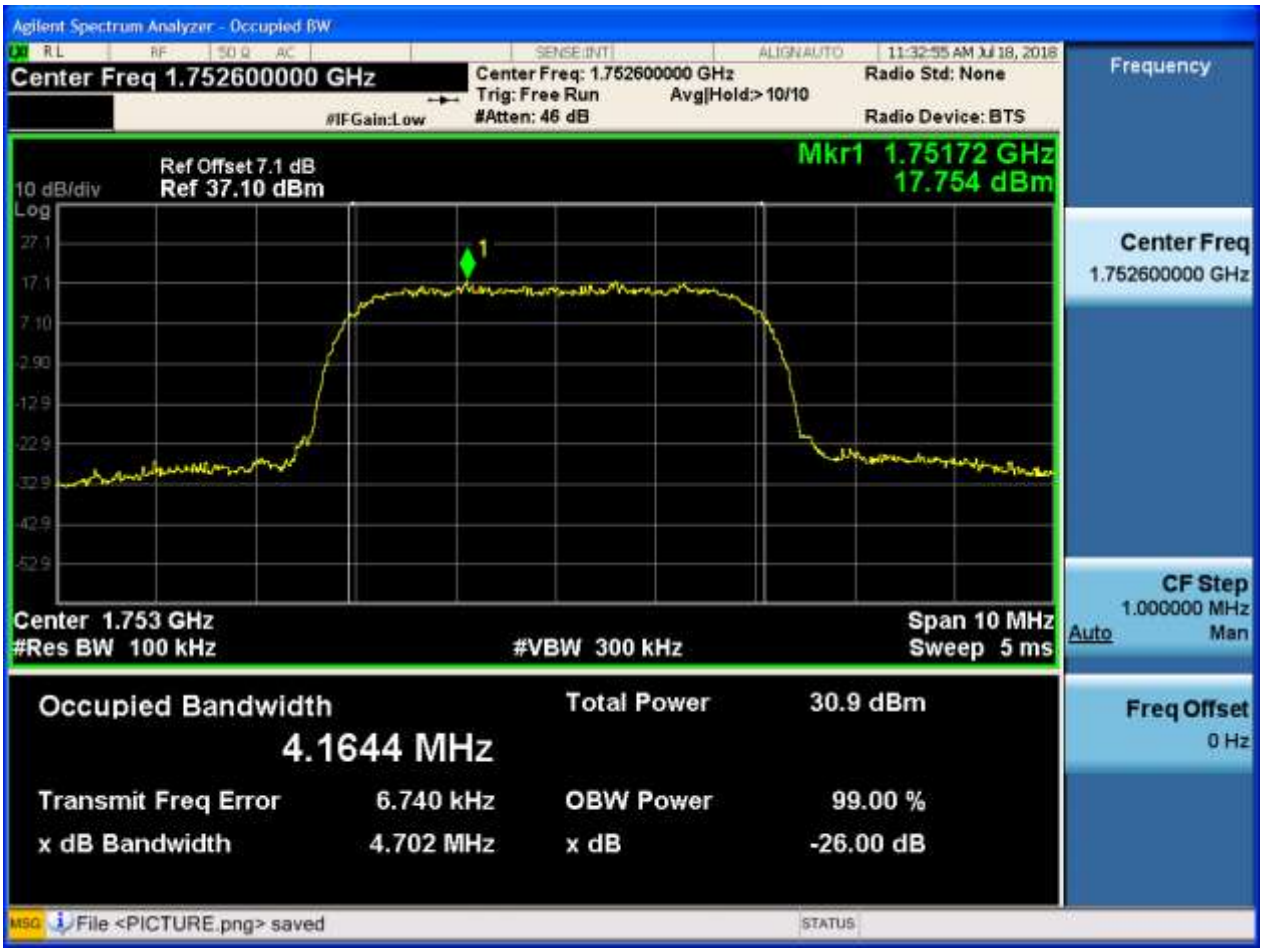
4.1.2.1.1 Test Channel = LCH



4.1.2.1.2 Test Channel = MCH



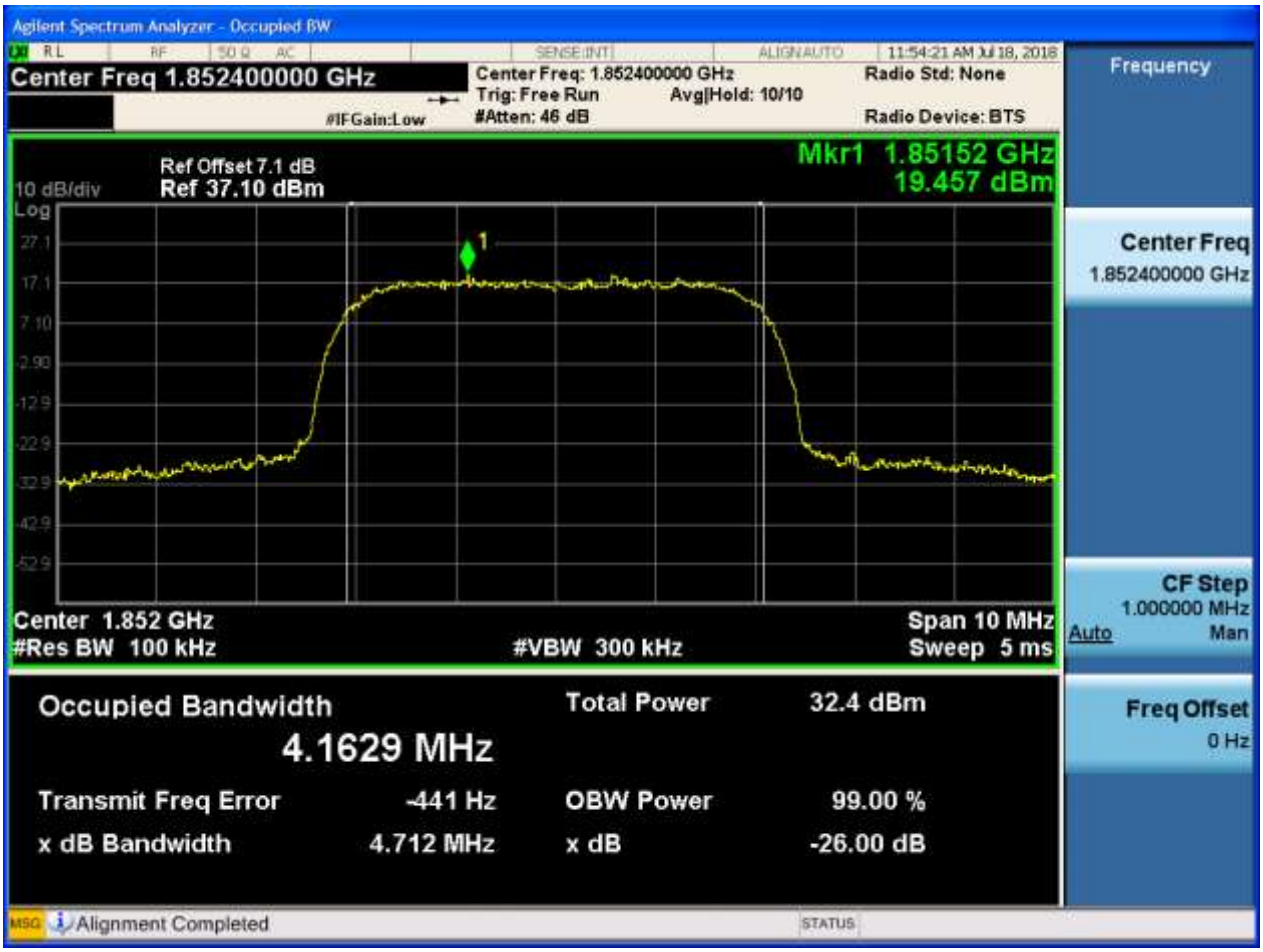
4.1.2.1.3 Test Channel = HCH



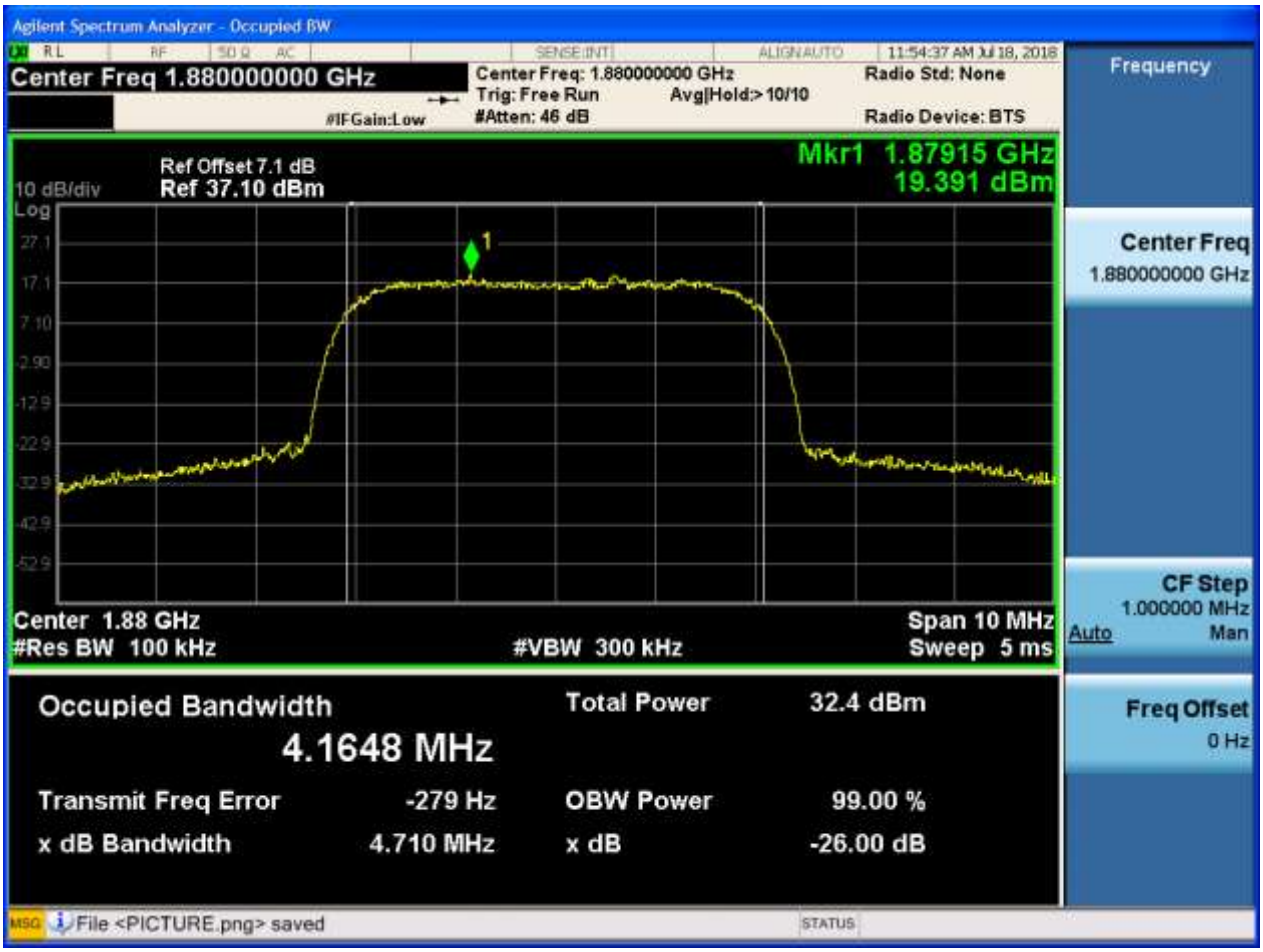
4.1.3 Test Band = WCDMA1900

4.1.3.1 Test Mode = UMTS/TM1

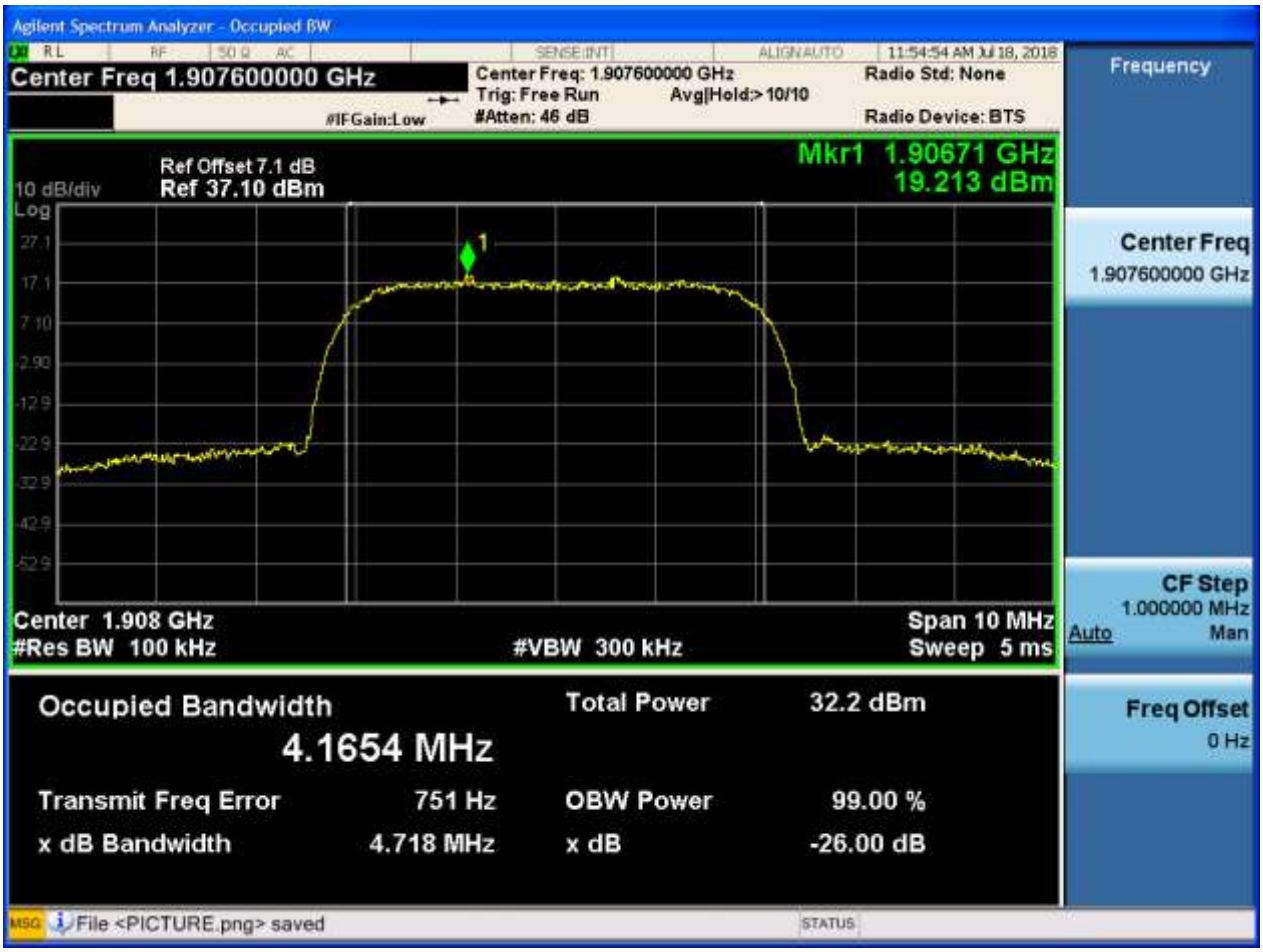
4.1.3.1.1 Test Channel = LCH



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.

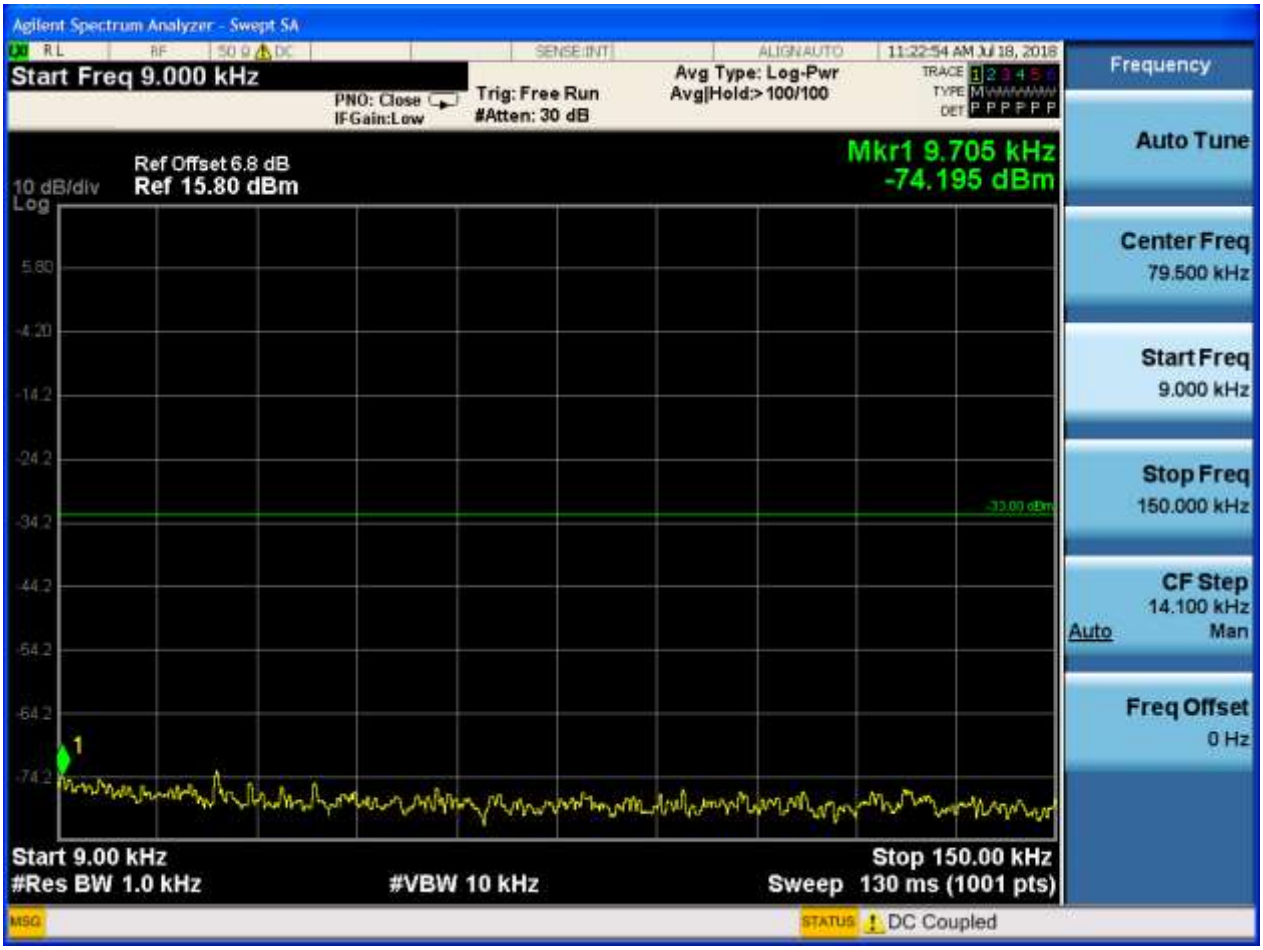
Part I - Test Plots

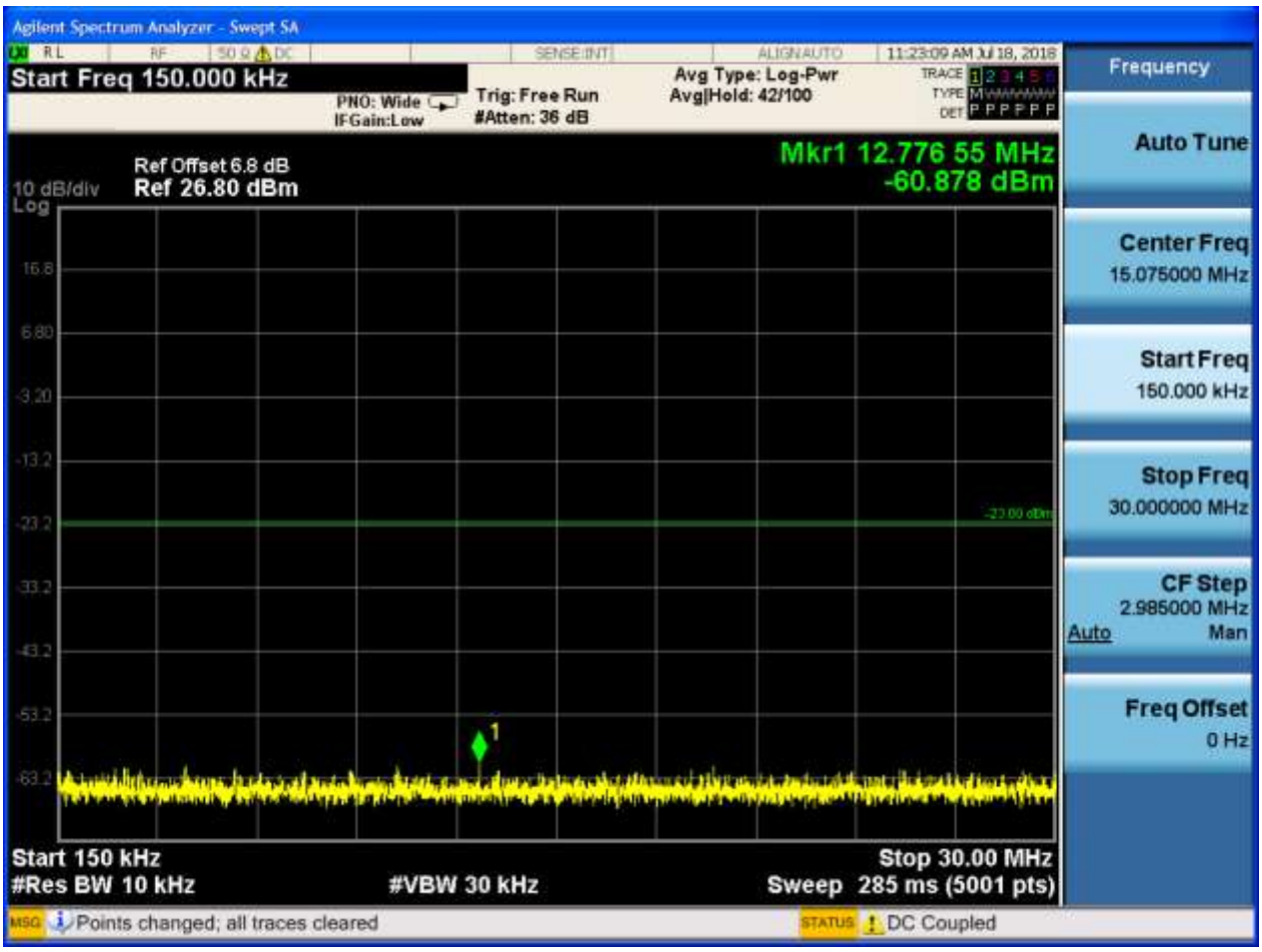
6.1 For UMTS

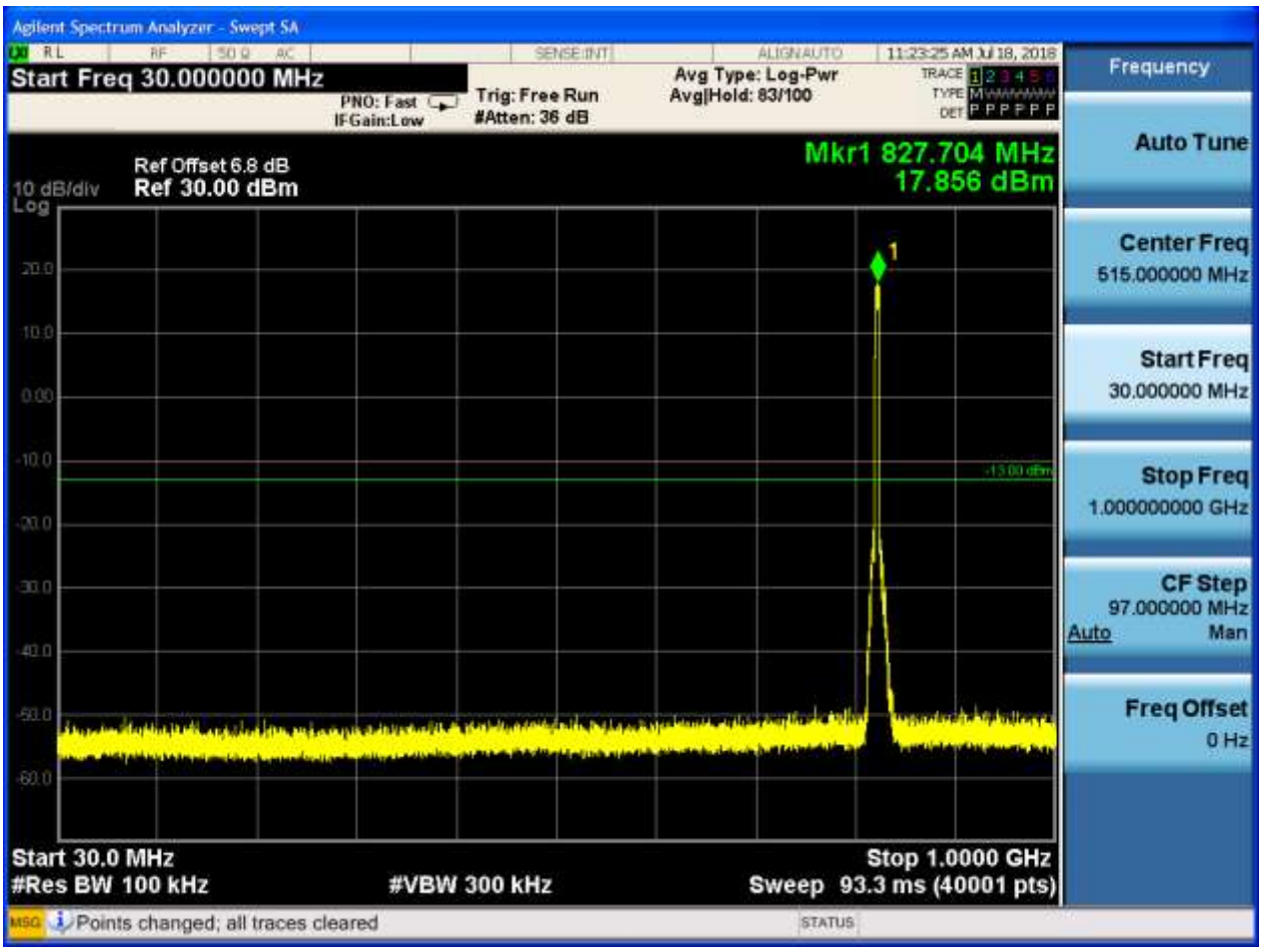
6.1.1 Test Band = WCDMA850

6.1.1.1 Test Mode = UMTS/TM1

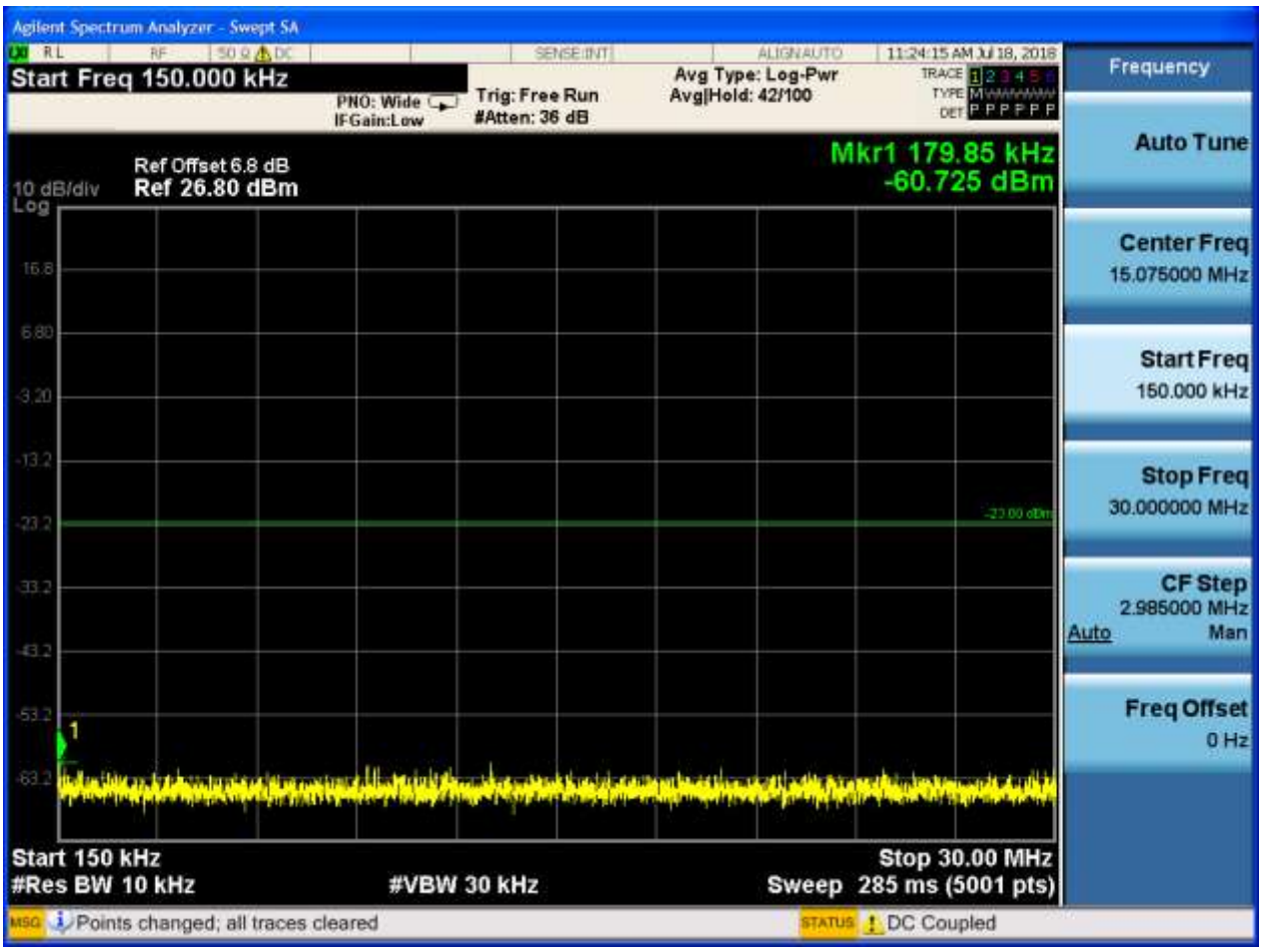
6.1.1.1.1 Test Channel = LCH

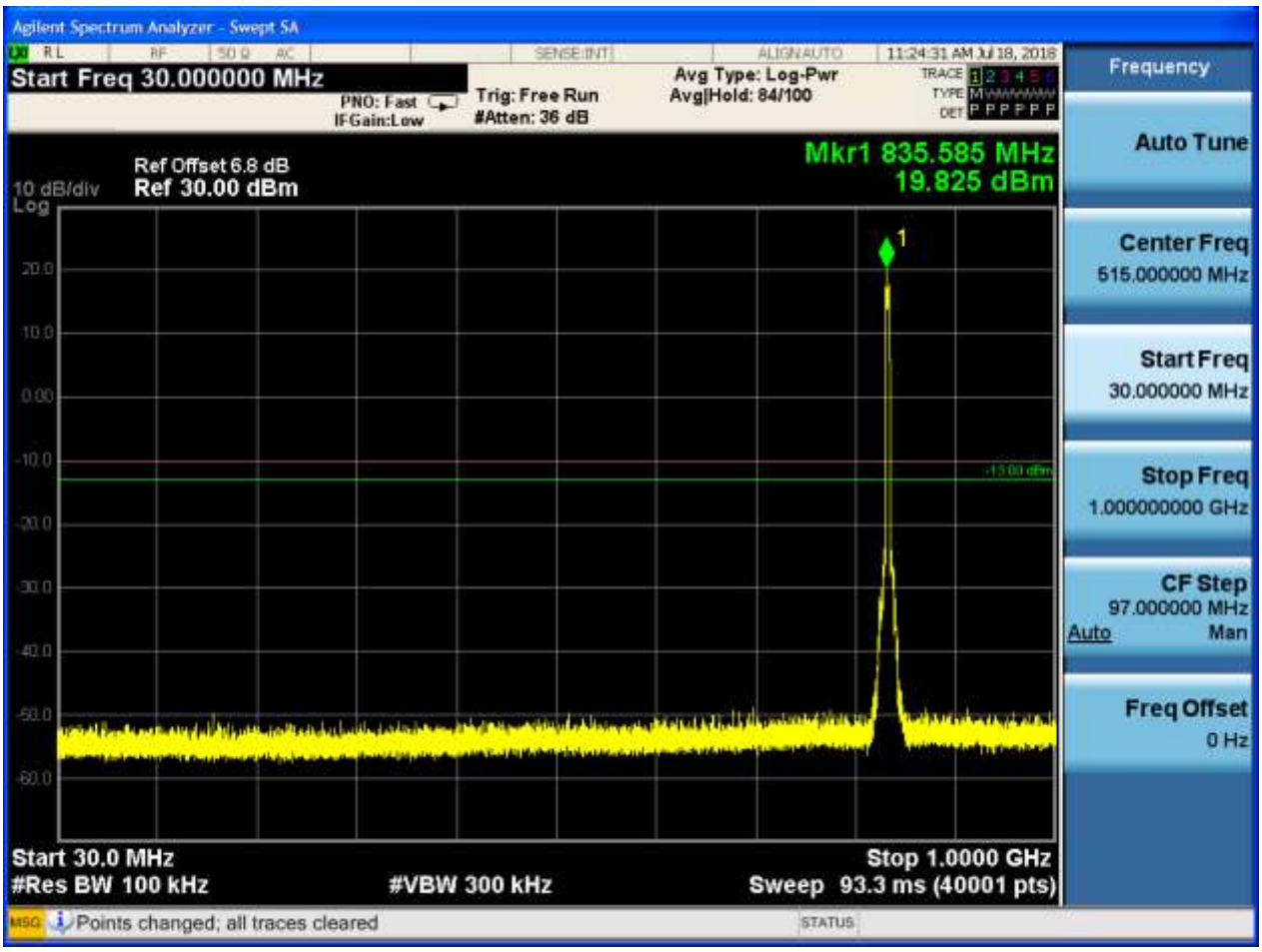




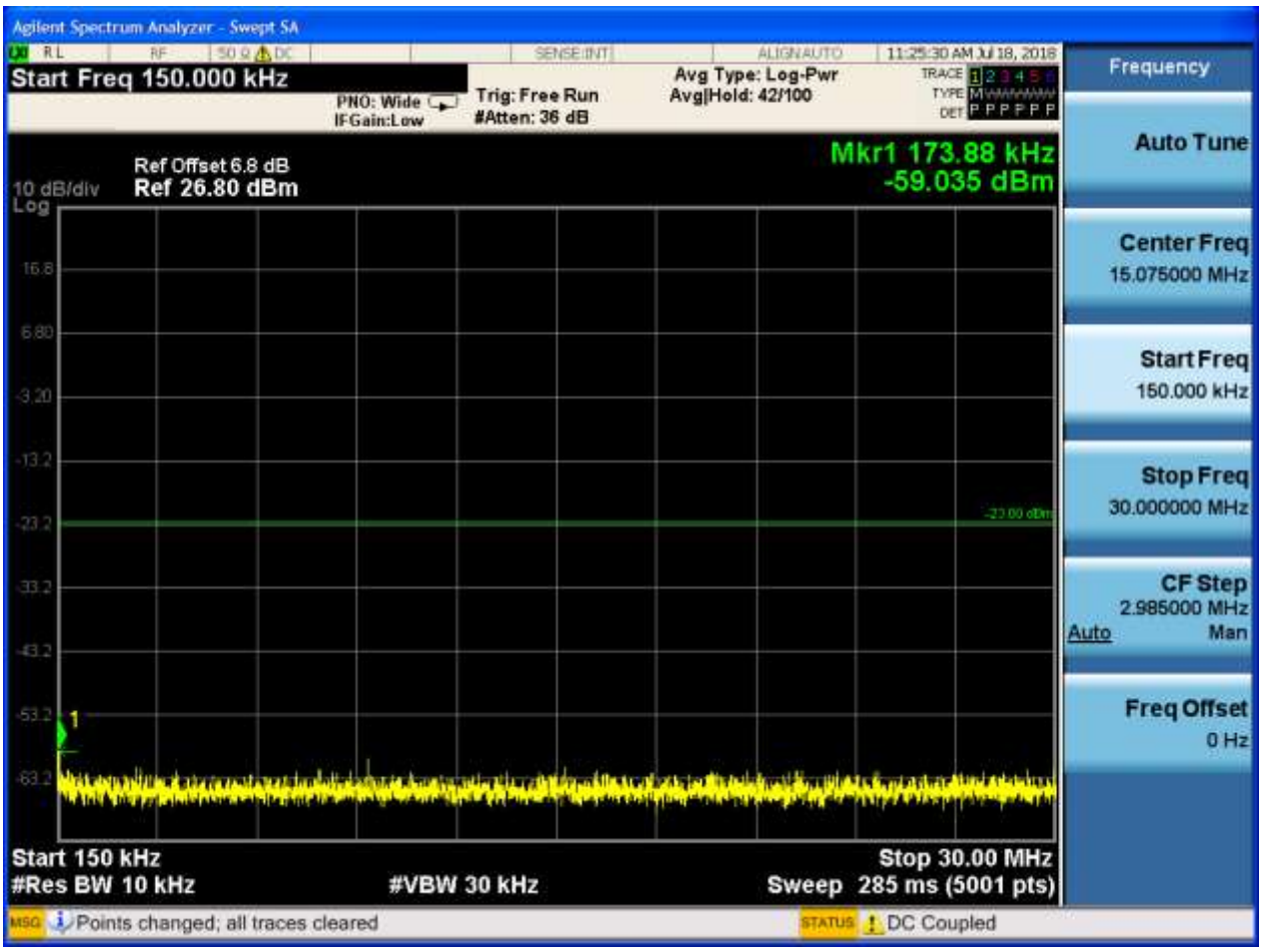


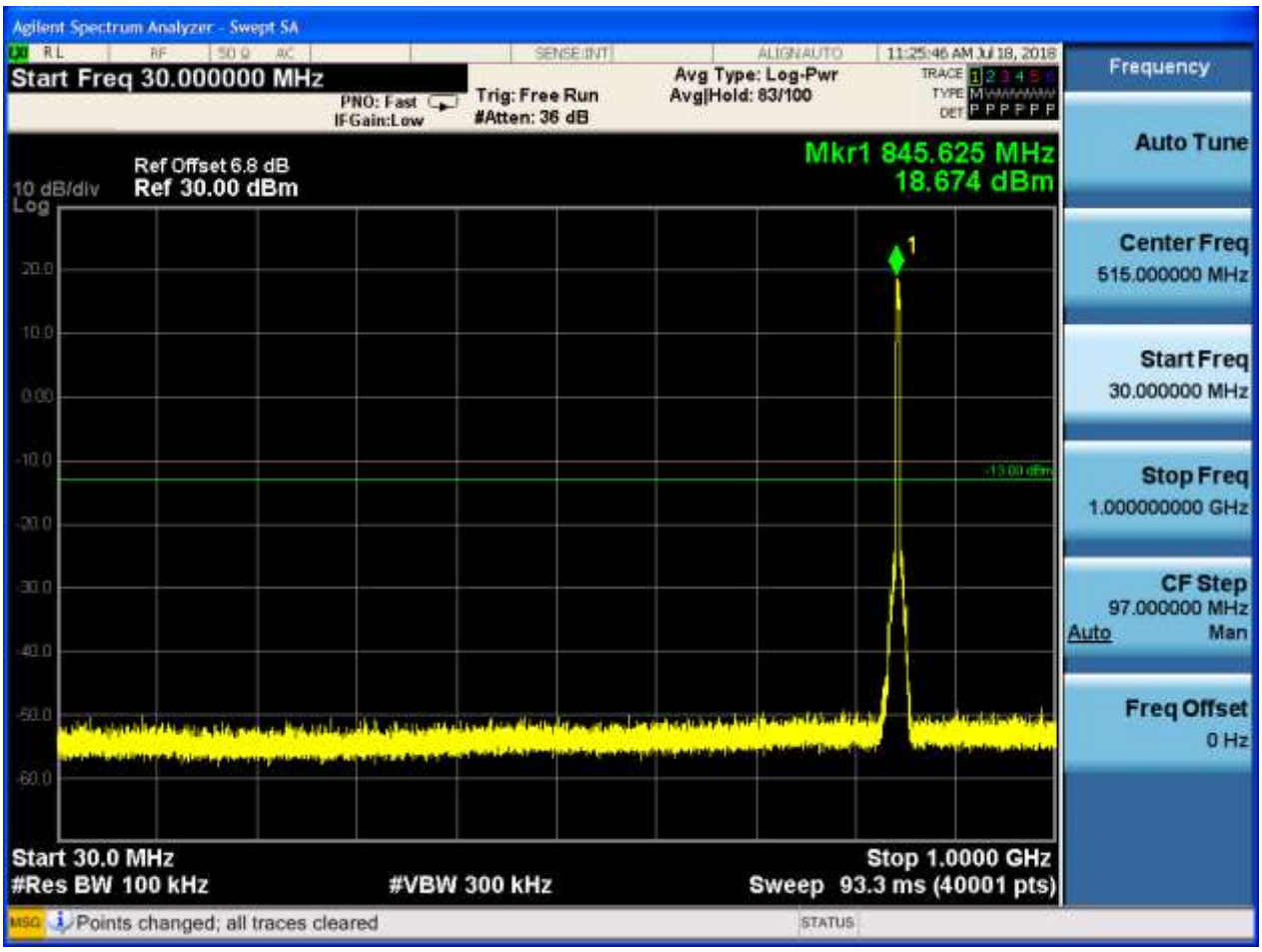
6.1.1.1.2 Test Channel = MCH





6.1.1.1.3 Test Channel = HCH

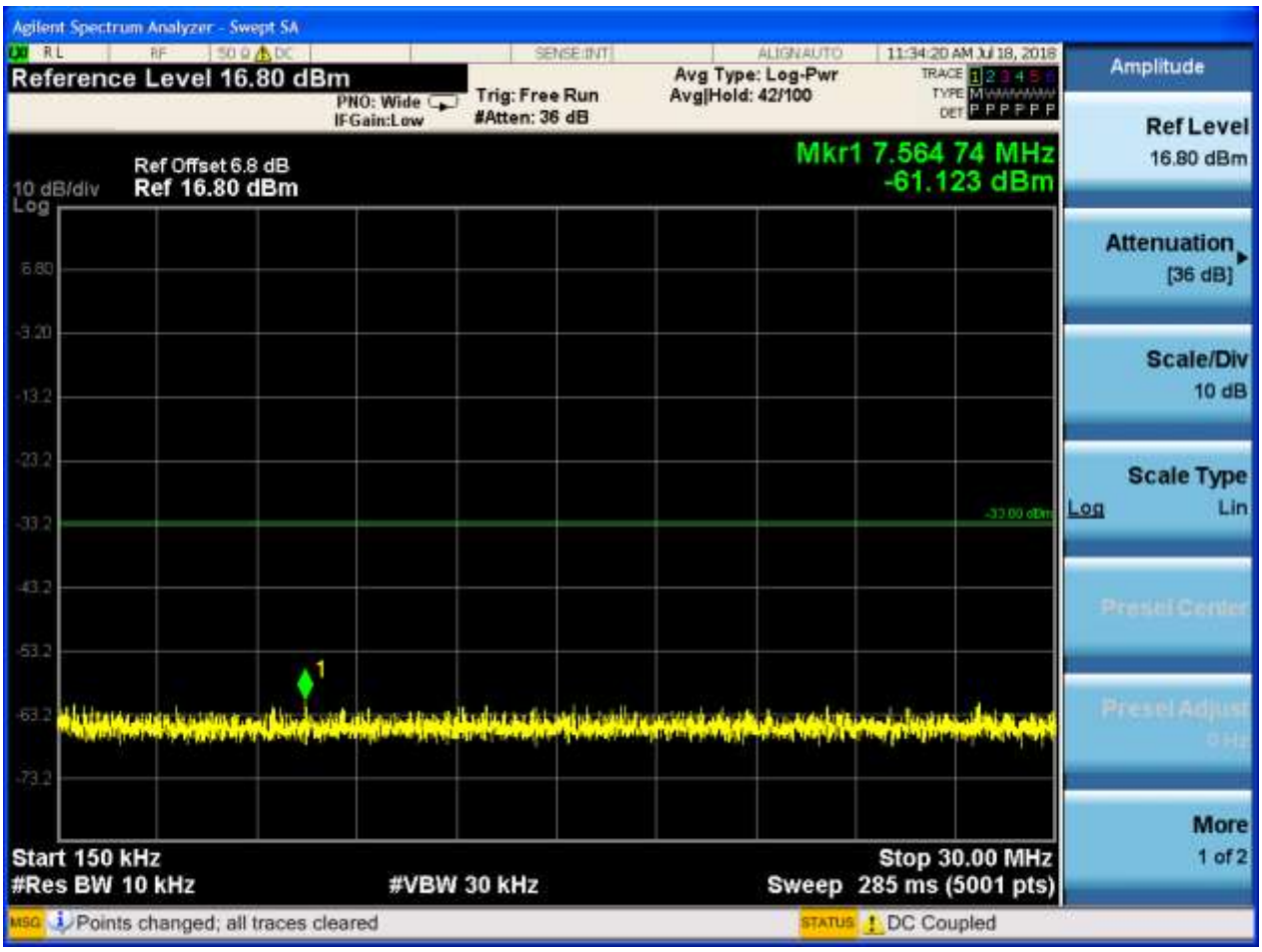




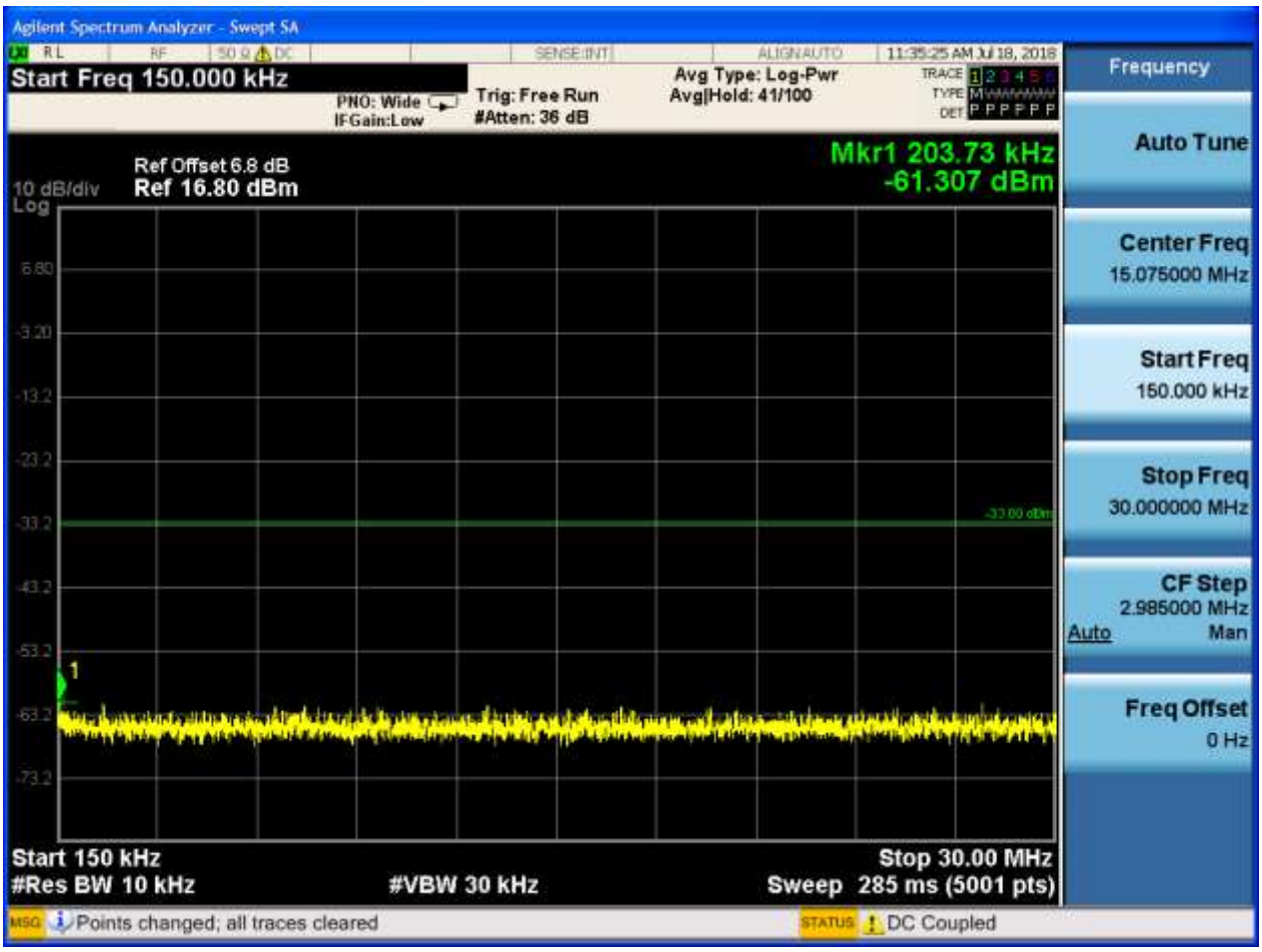
6.1.2 Test Band = WCDMA1700

6.1.2.1 Test Mode = UMTS/TM1

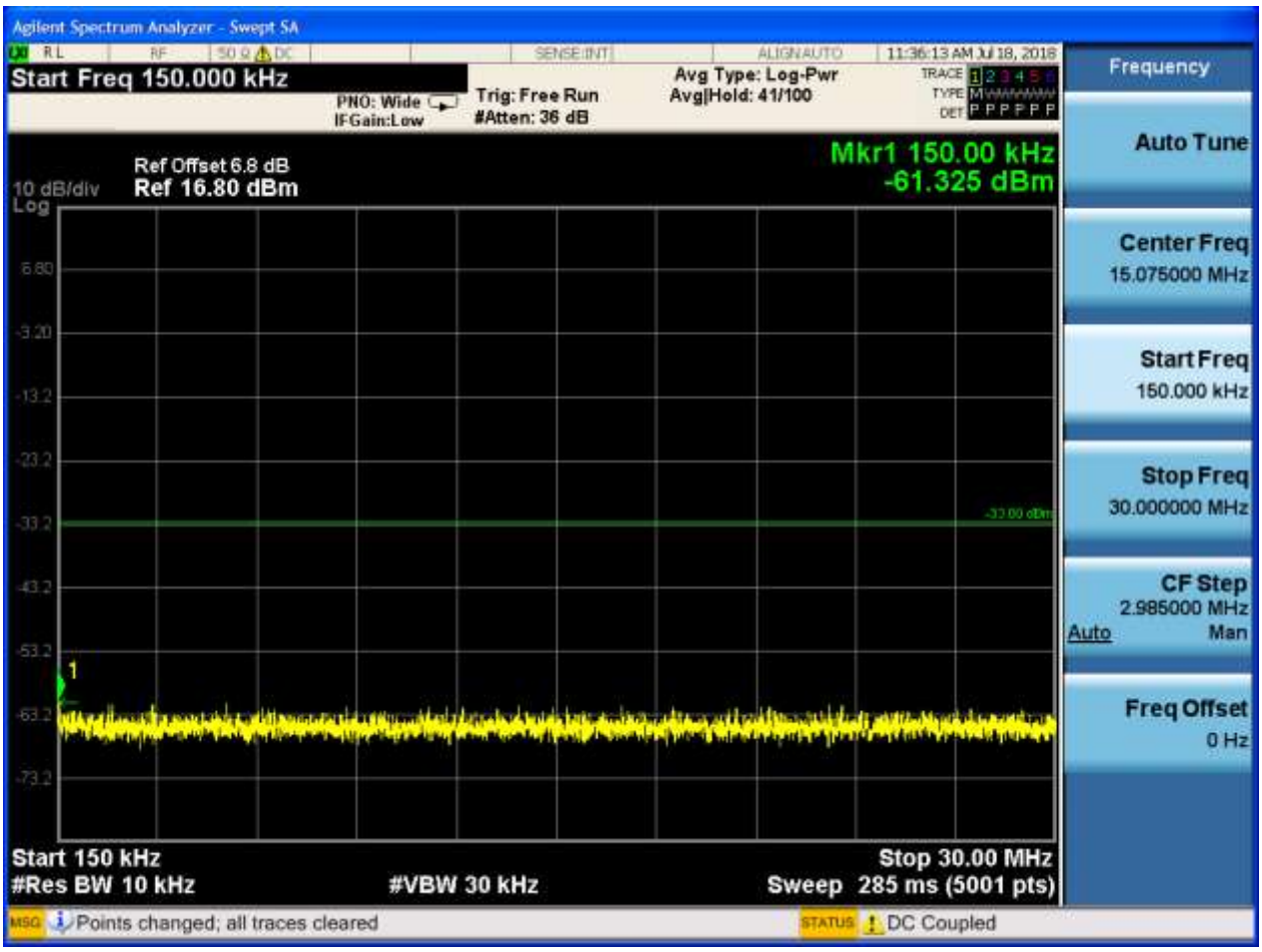
6.1.2.1.1 Test Channel = LCH



6.1.2.1.2 Test Channel = MCH



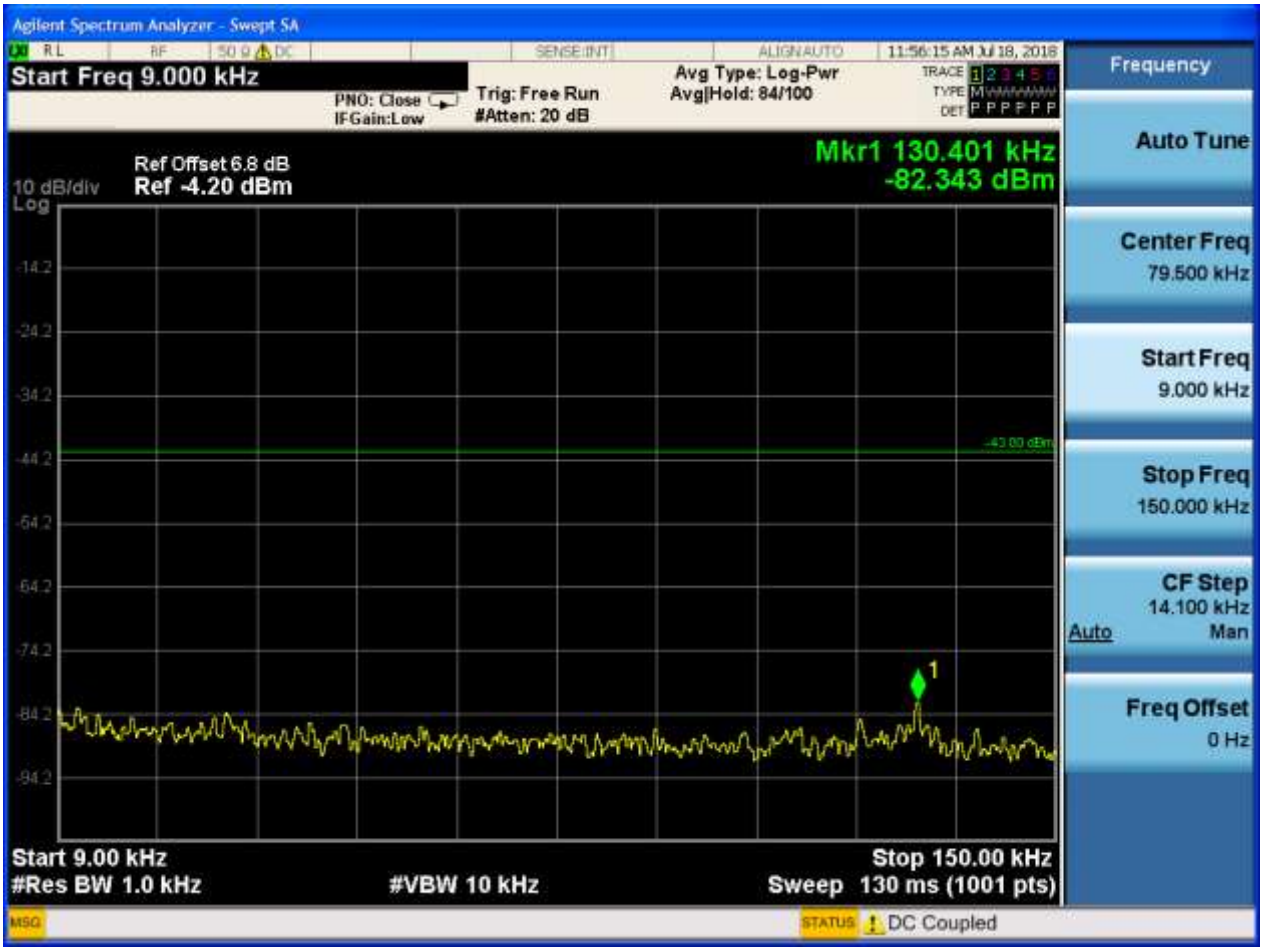
6.1.2.1.3 Test Channel = HCH

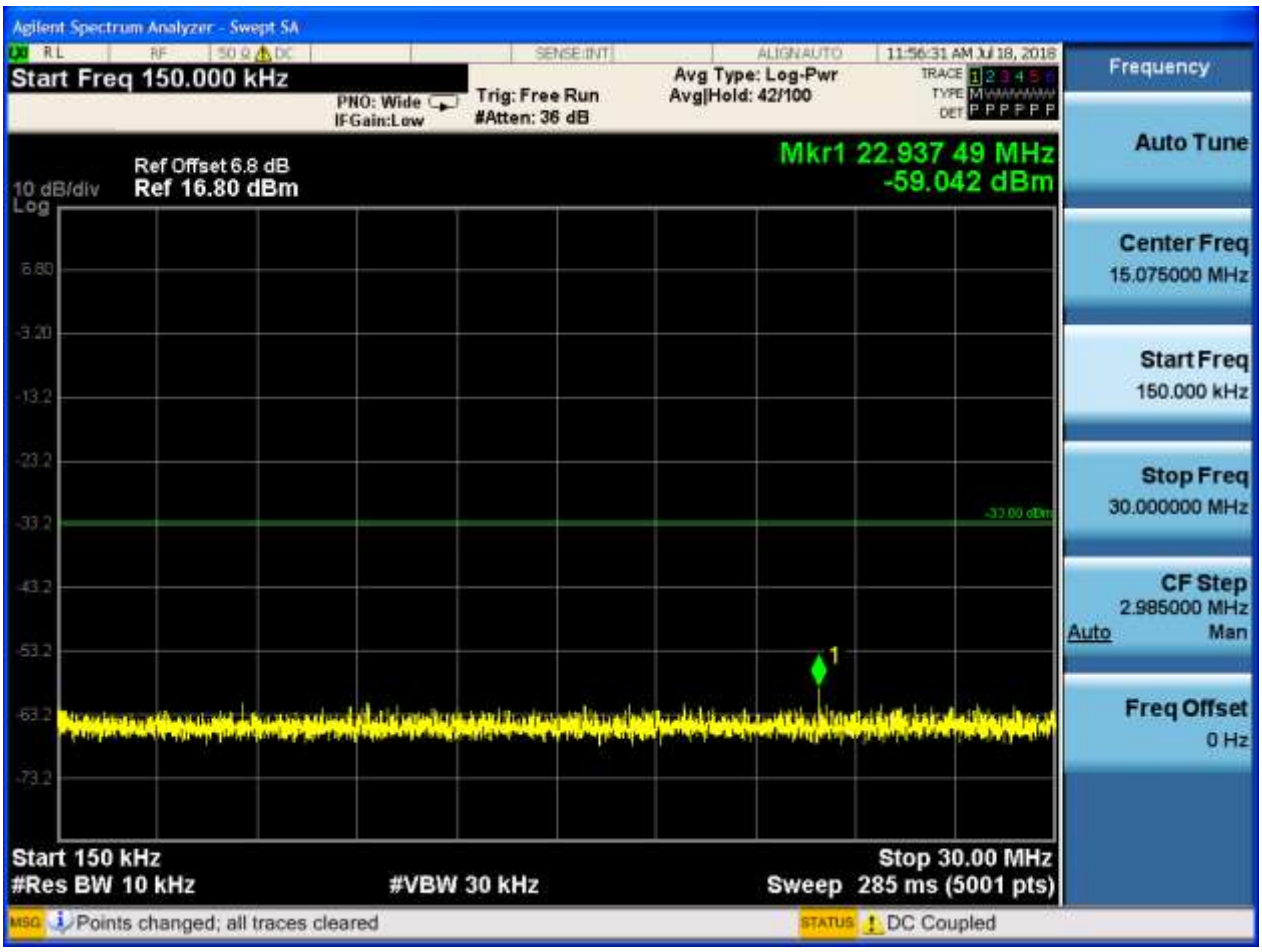


6.1.3 Test Band = WCDMA1900

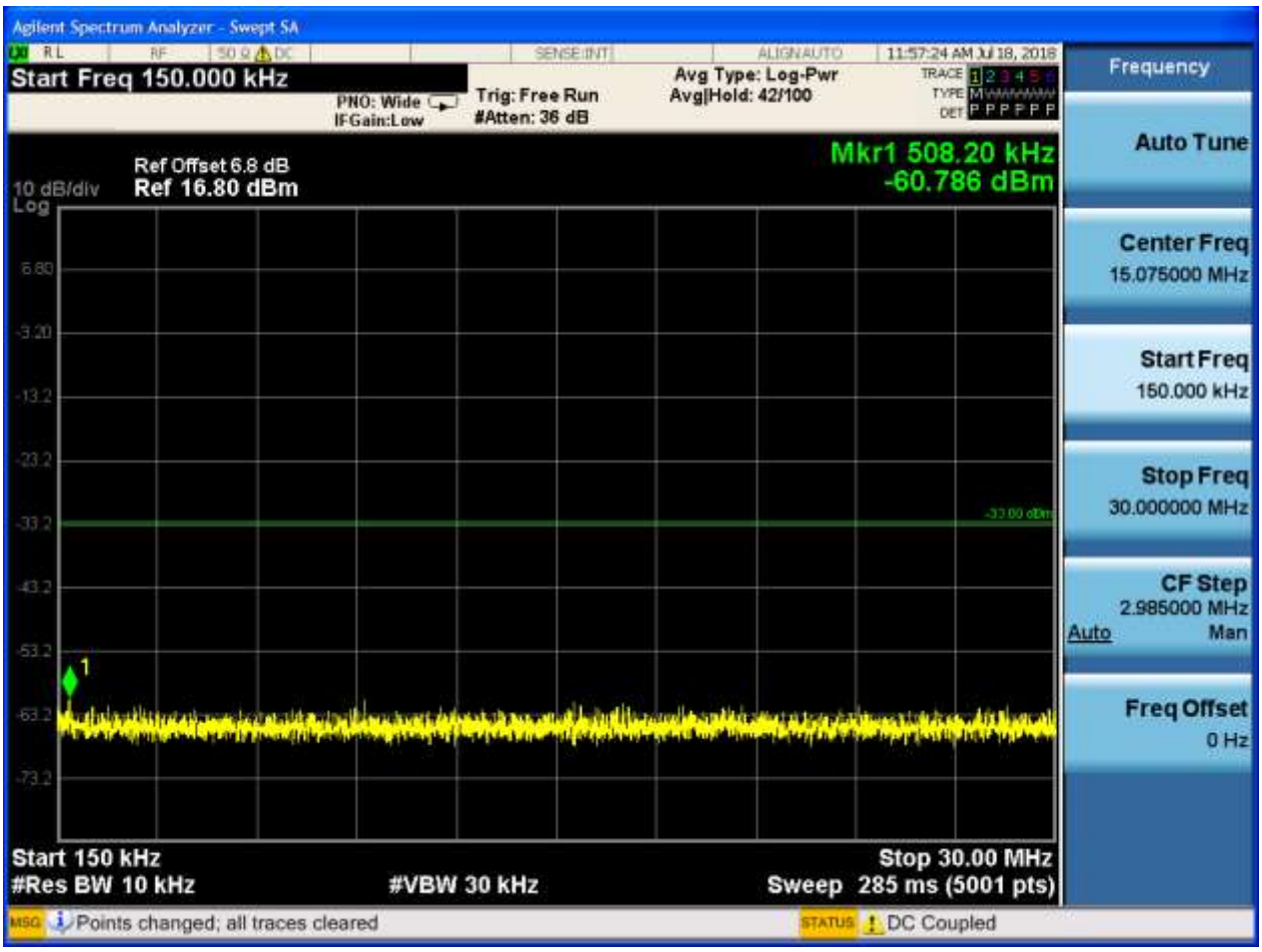
6.1.3.1 Test Mode = UMTS/TM1

6.1.3.1.1 Test Channel = LCH

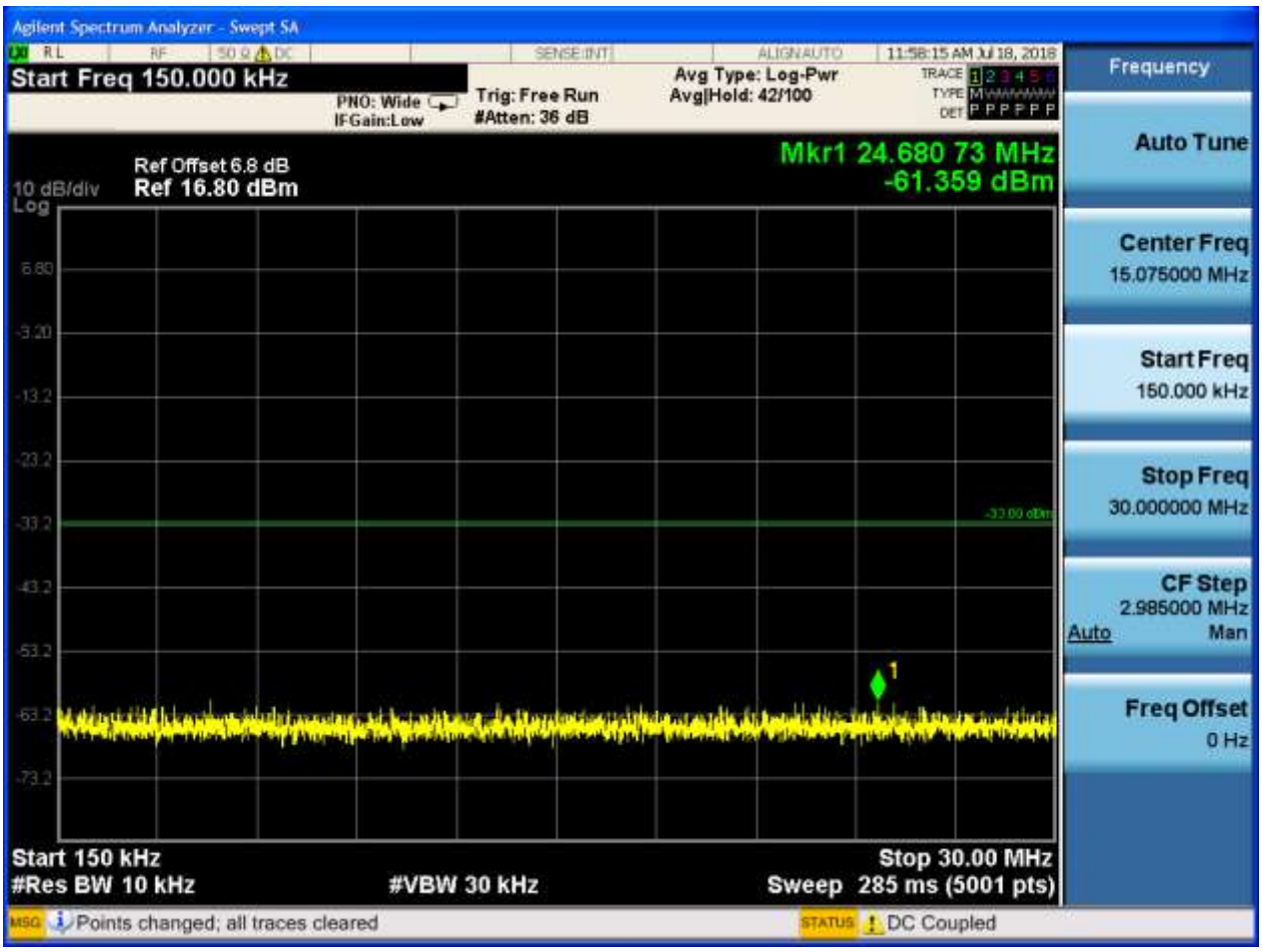




6.1.3.1.2 Test Channel = MCH



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

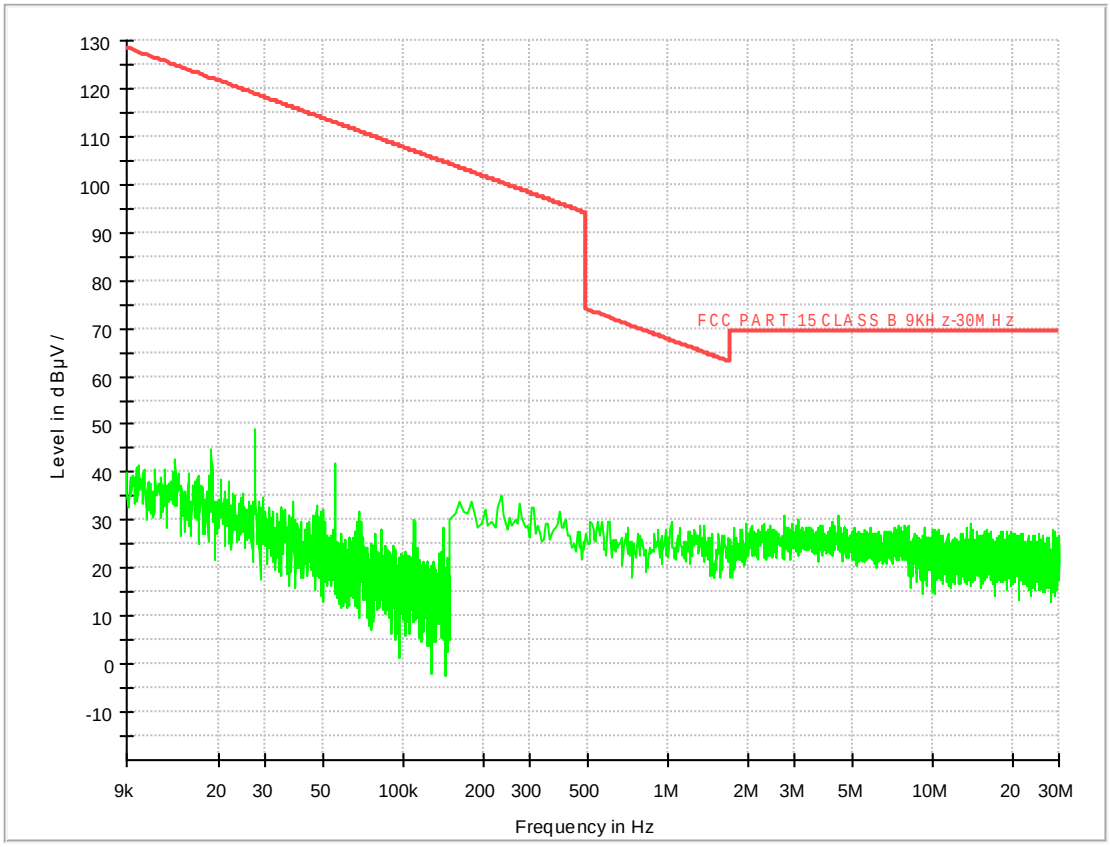
Above 1GHz, RBW = 1 MHz, VBW = 3 MHz. Detector: PK

Part I - Test Plots

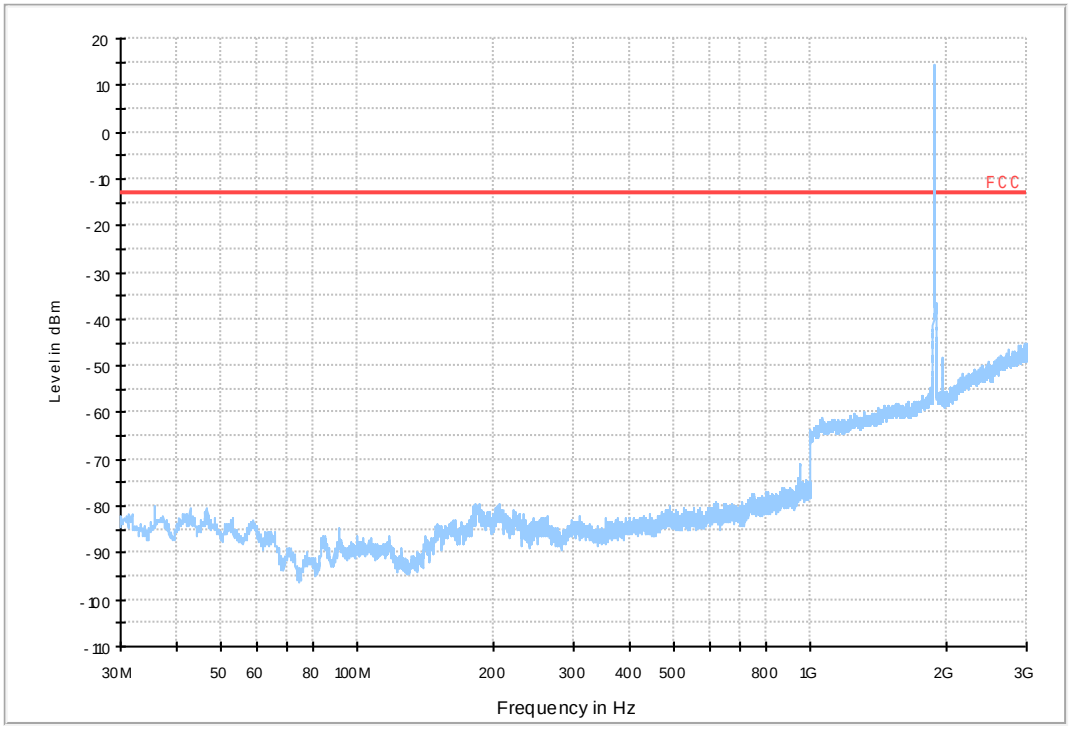
7.1 For UMTS

Test Band = WCDMA1900-Ant1

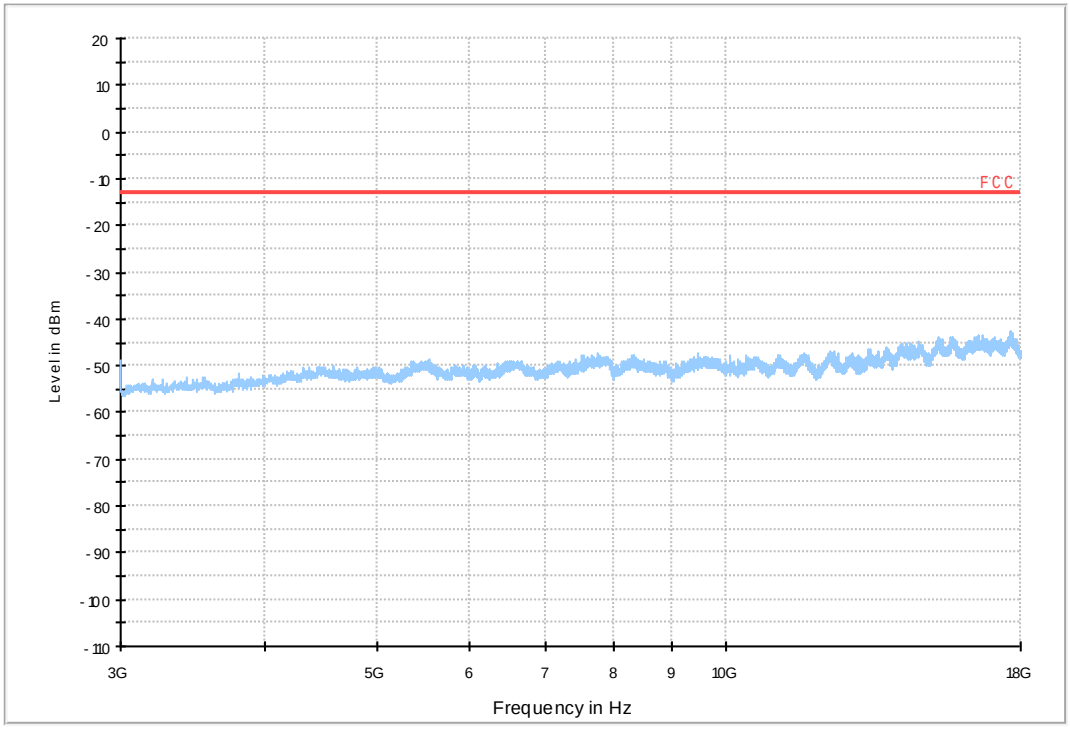
7.1.1.1 Test Mode = UMTS/TM1



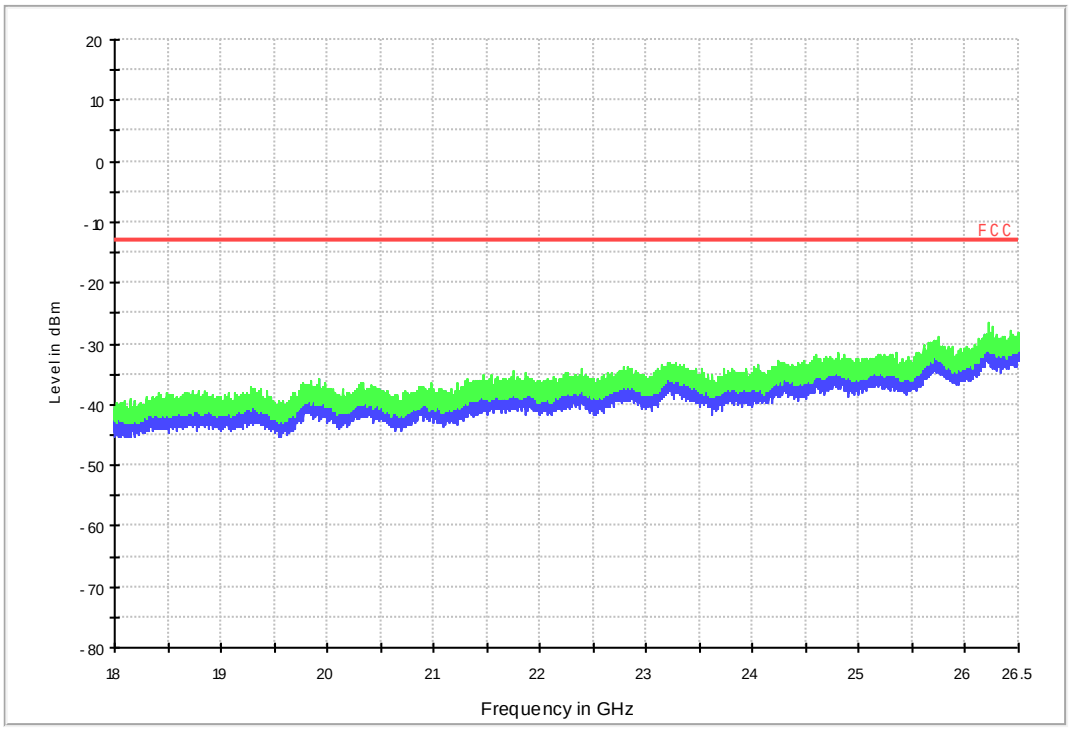
12 FCC PART 24 WCDMA1900_L



11 FCC PART 24 WCDMA1900_H

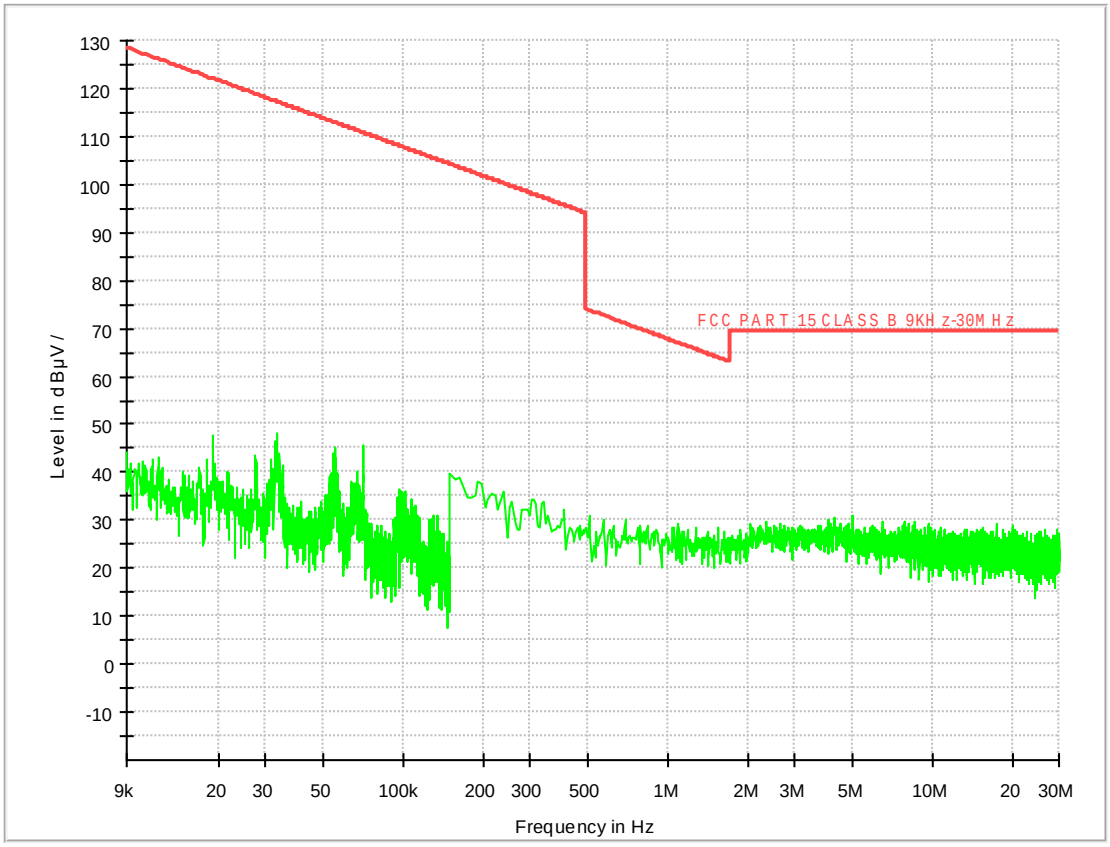


18G~ 26.5G RSE-TX-DIRECTOR ABOVE 1.5G PK

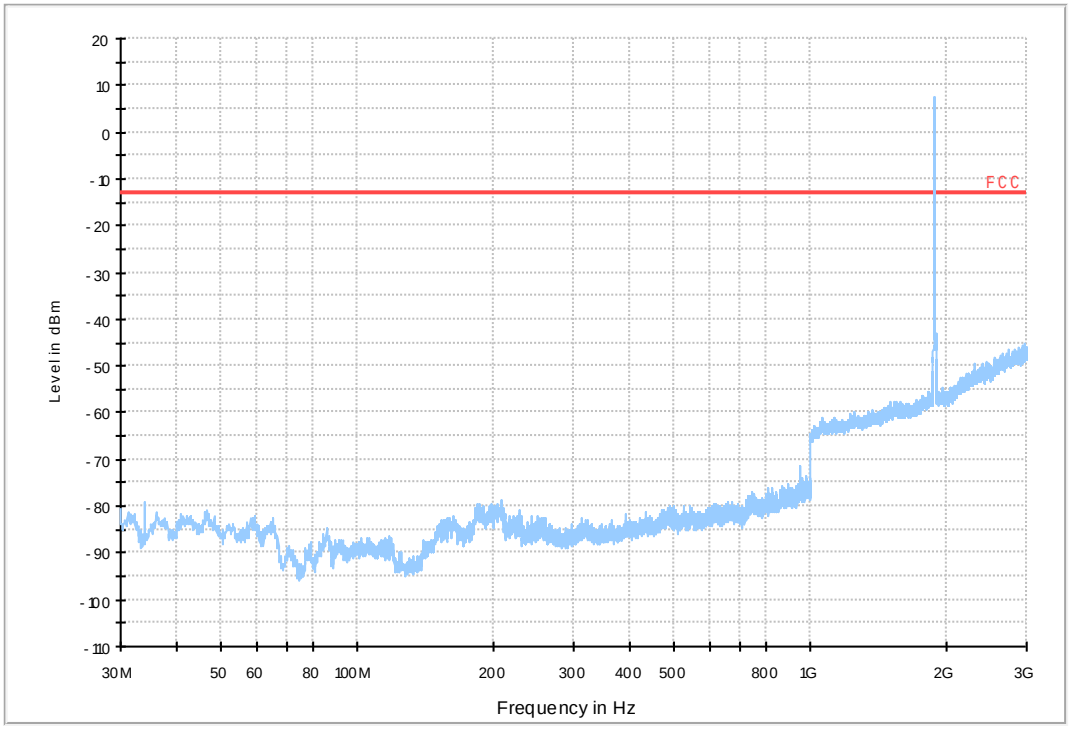


7.1.2 Test Band = WCDMA1900-Ant2

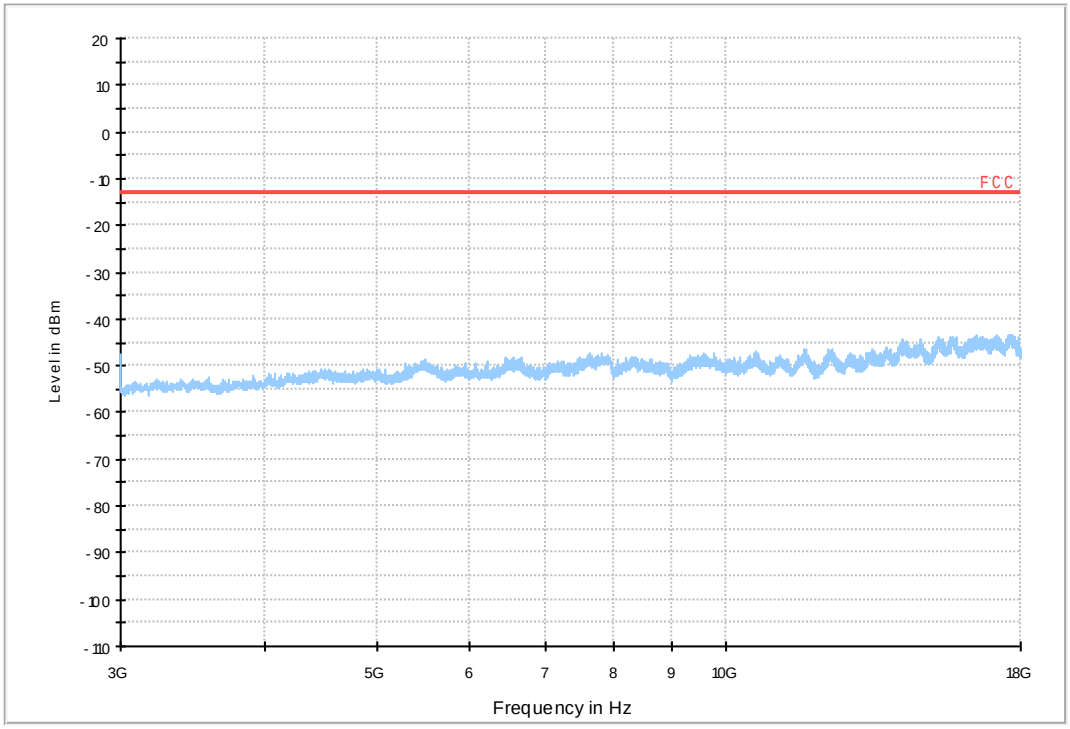
7.1.2.1 Test Mode = UMTS/TM1



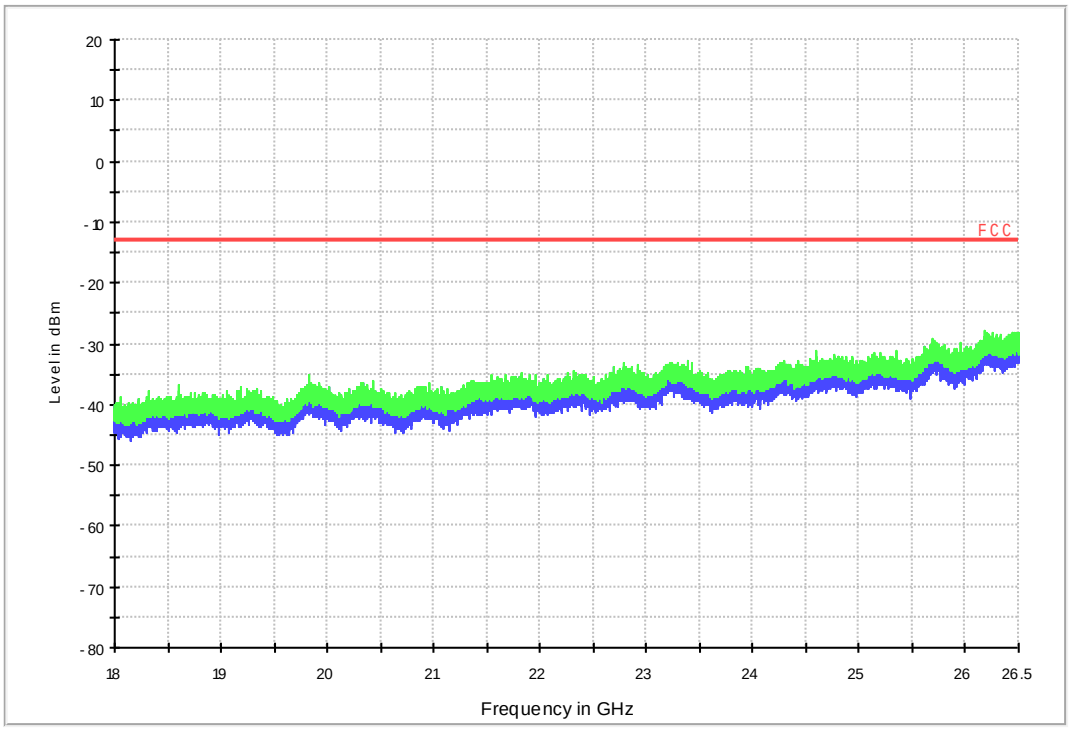
12 FCC PART 24 WCDMA1900_L



11 FCC PART 24 WCDMA1900_H

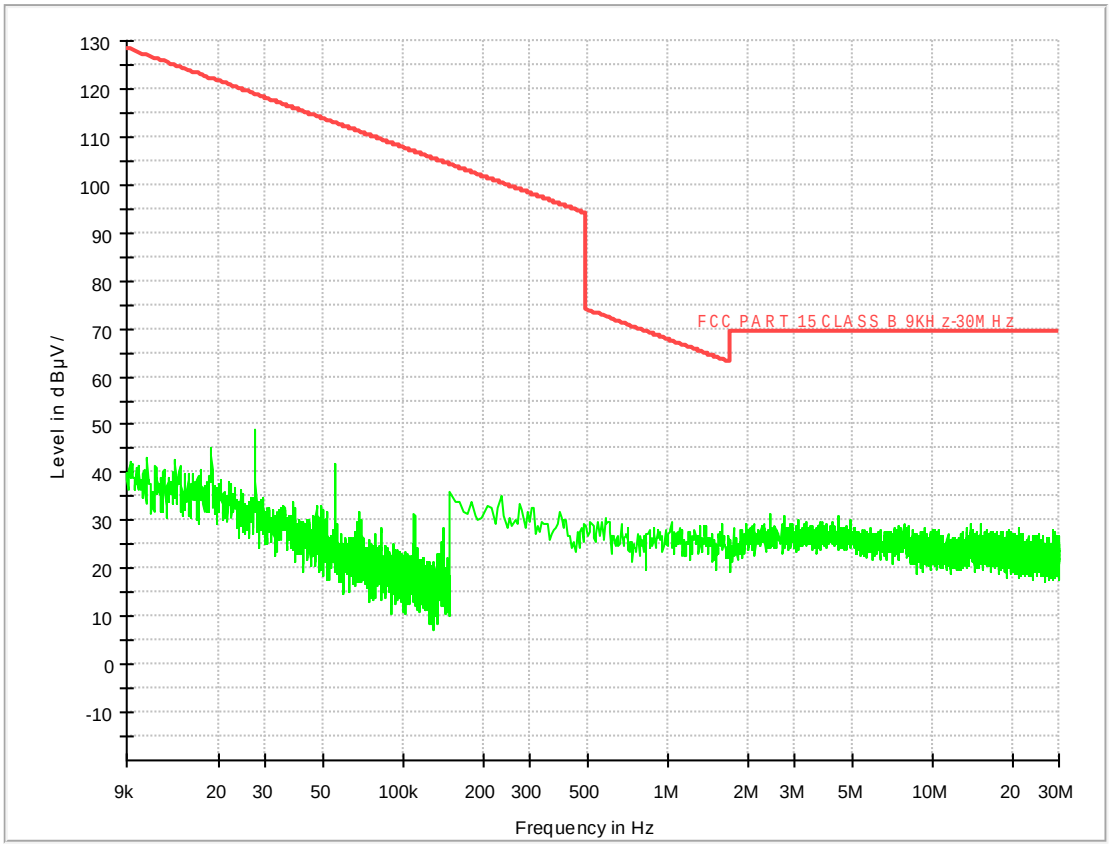


18G~26.5G RSE-TX-DIRECTOR ABOVE 1.5G PK

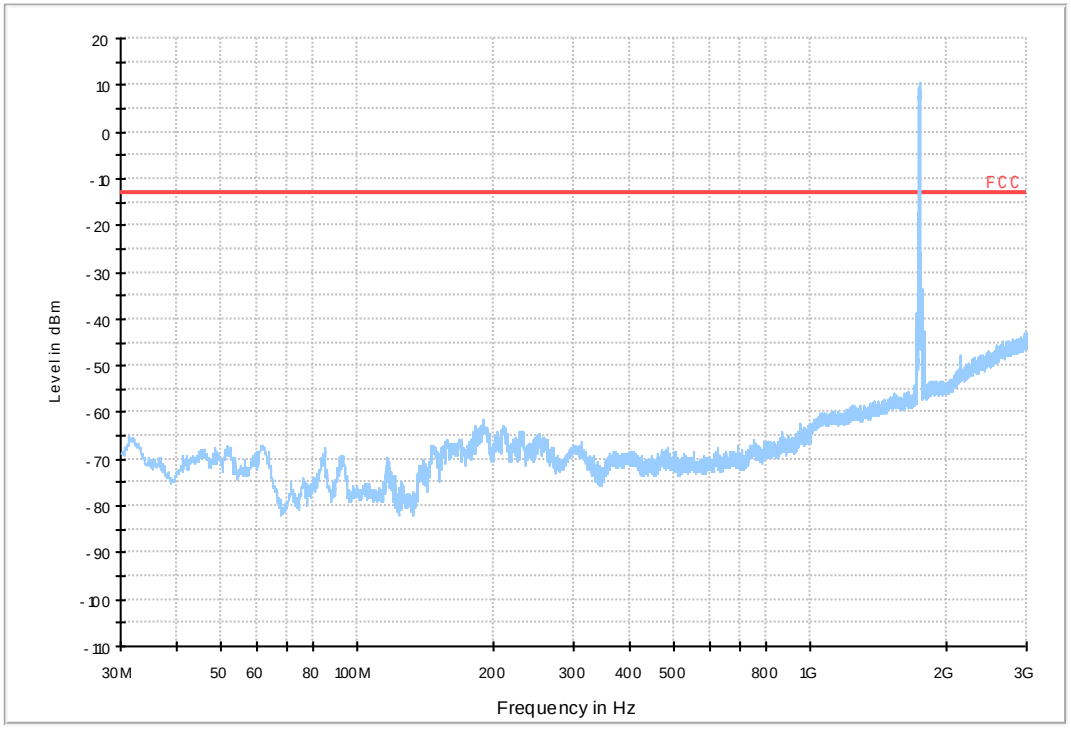


7.1.3 Test Band = WCDMA1700-Ant1

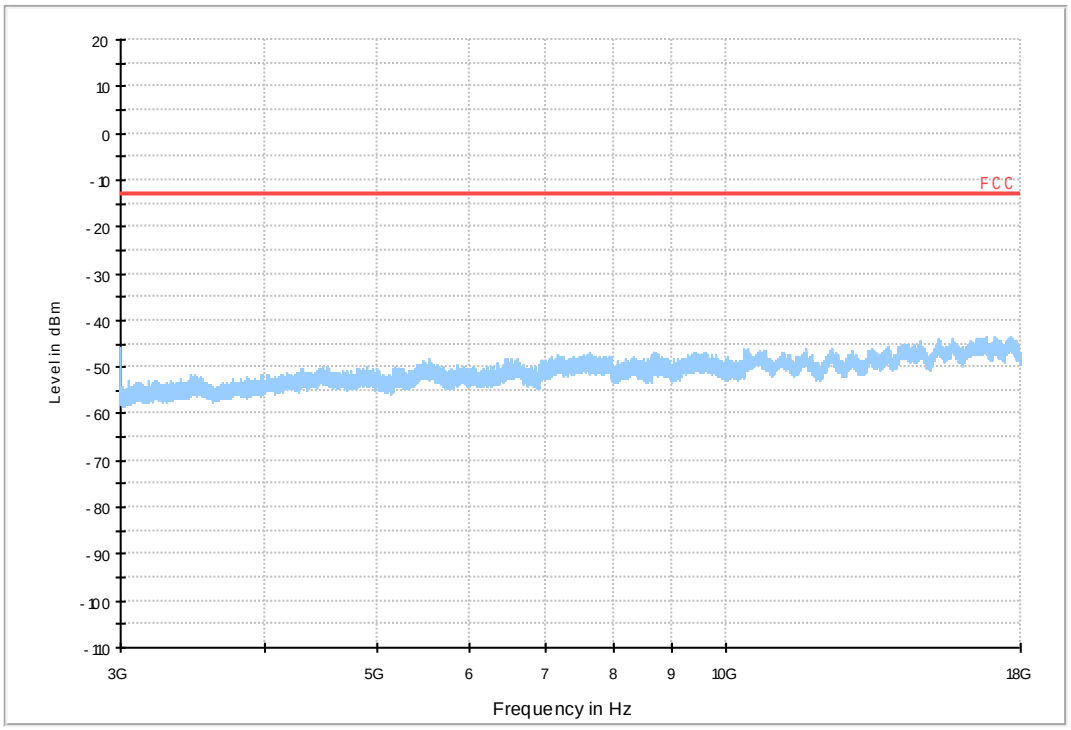
7.1.3.1 Test Mode = UMTS/TM1



18 FCC PART 27 WCDMA1700_L

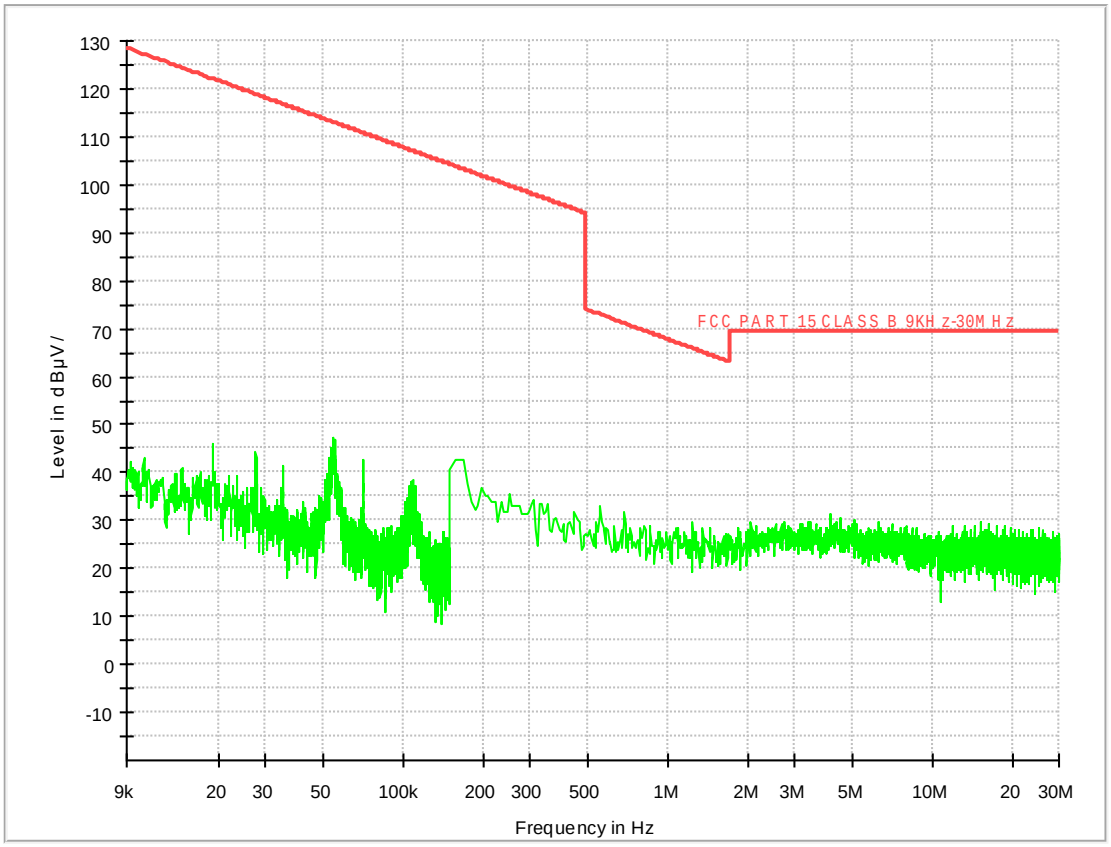


17 FCC PART 27 WCDMA1700_H

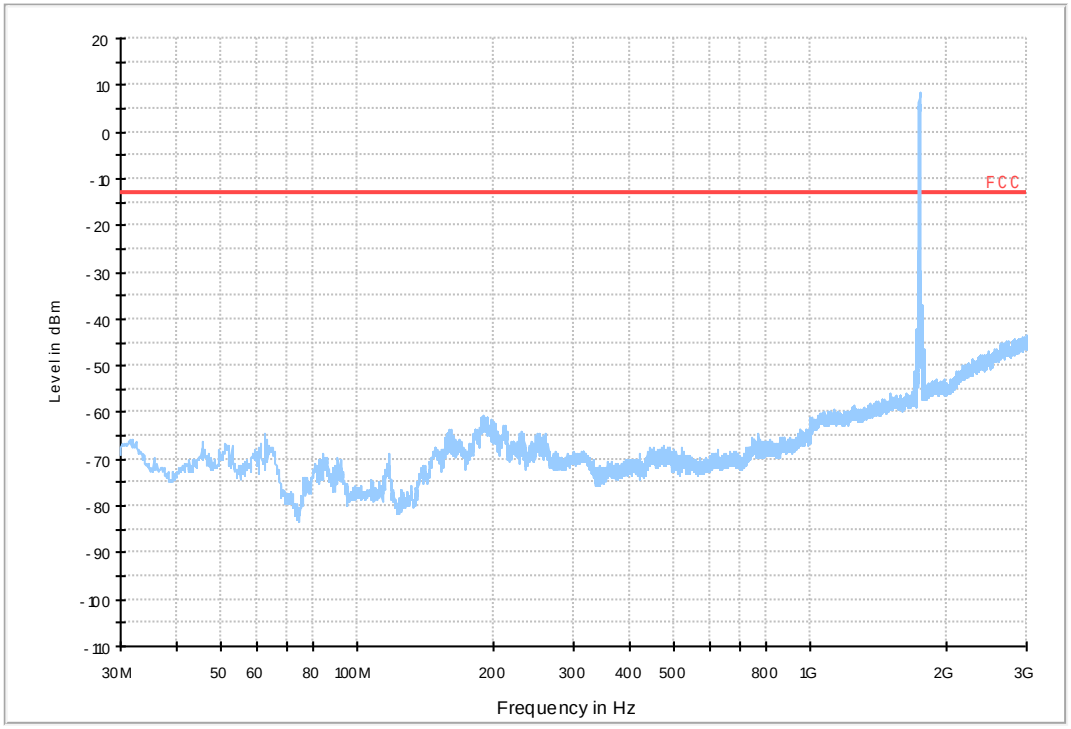


7.1.4 Test Band = WCDMA1700-Ant2

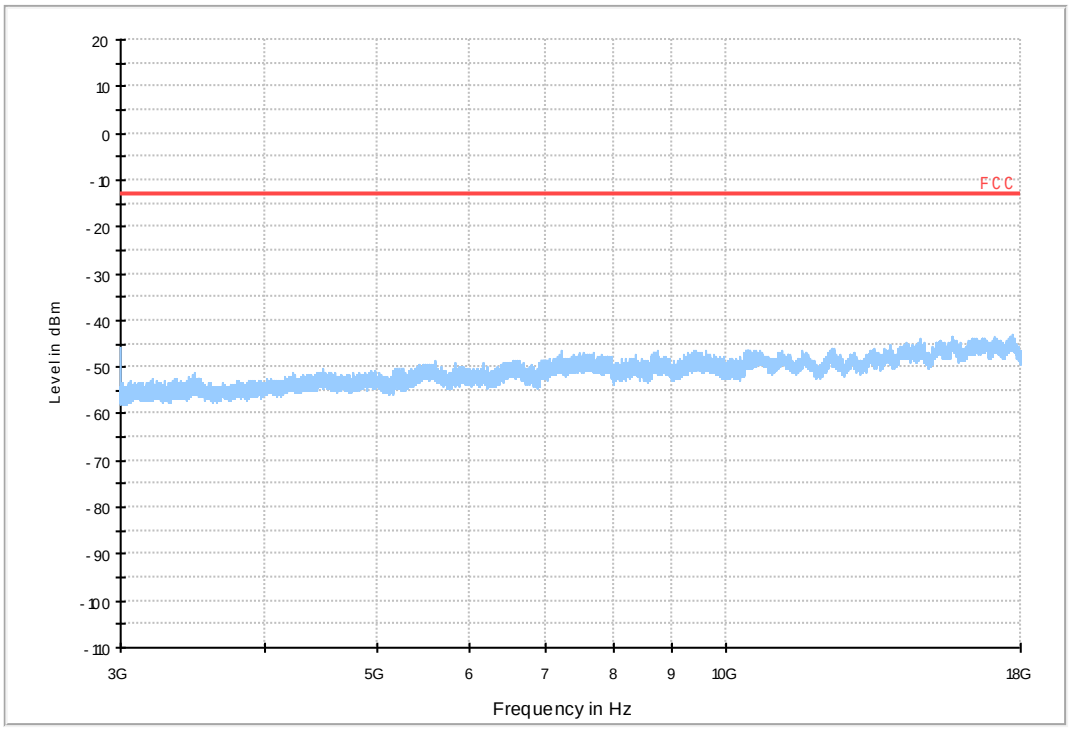
7.1.4.1 Test Mode = UMTS/TM1



18 FCC PART 27 WCDMA1700_L

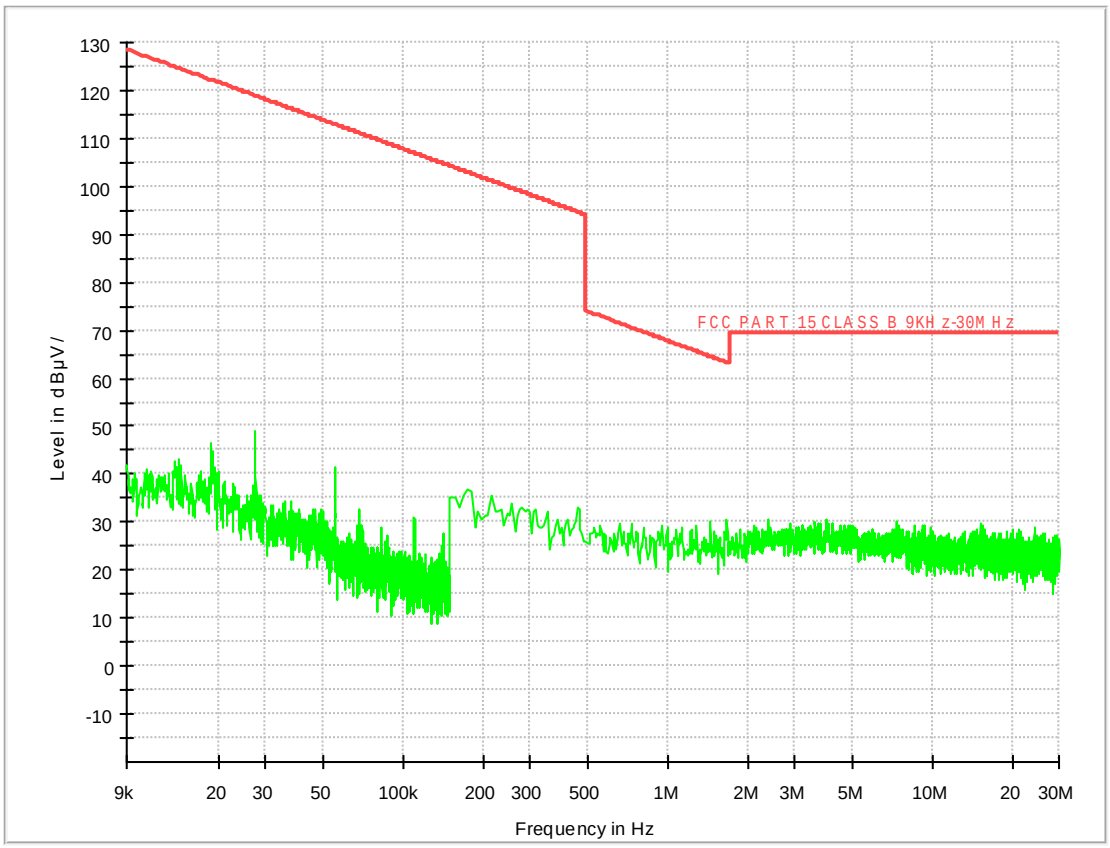


17 FCC PART 27 WCDMA1700_H

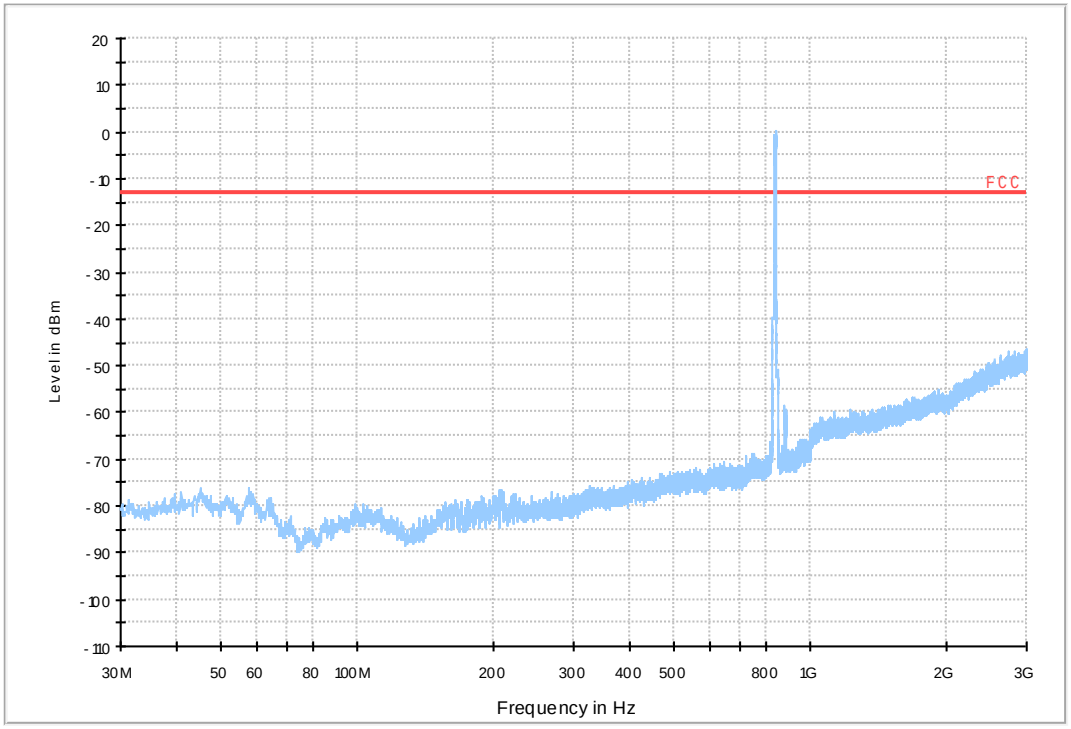


7.1.5 Test Band = WCDMA850-Ant1

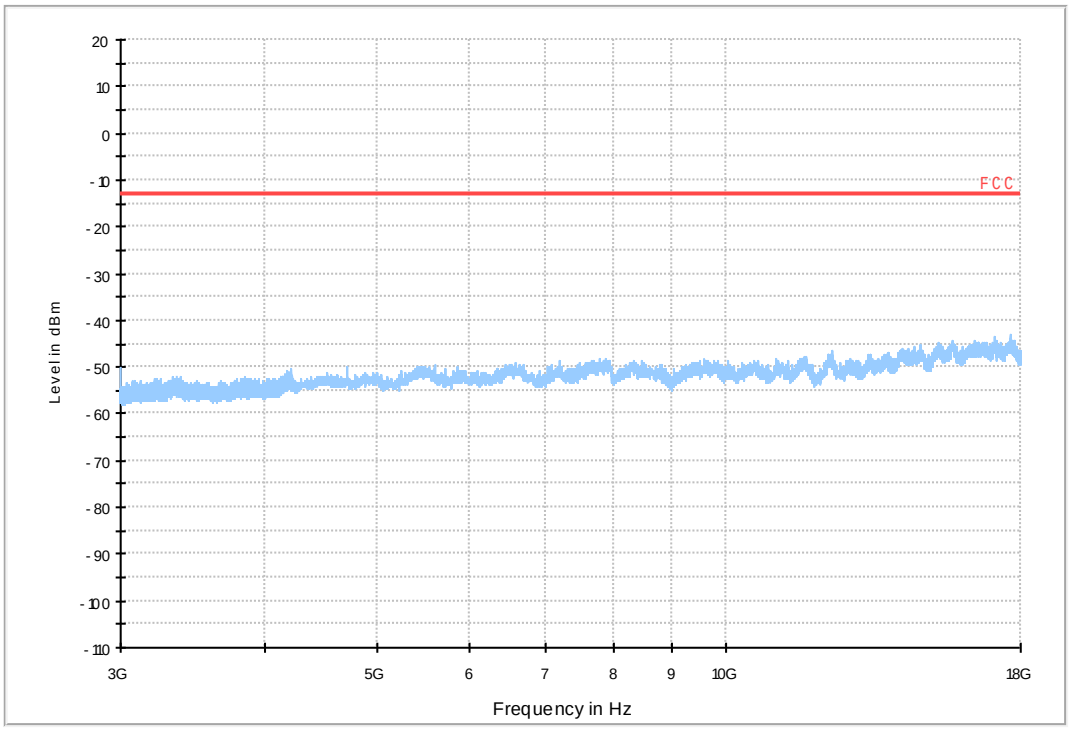
7.1.5.1 Test Mode = UMTS/TM1



06 FCC PART 22 WCDMA850_L

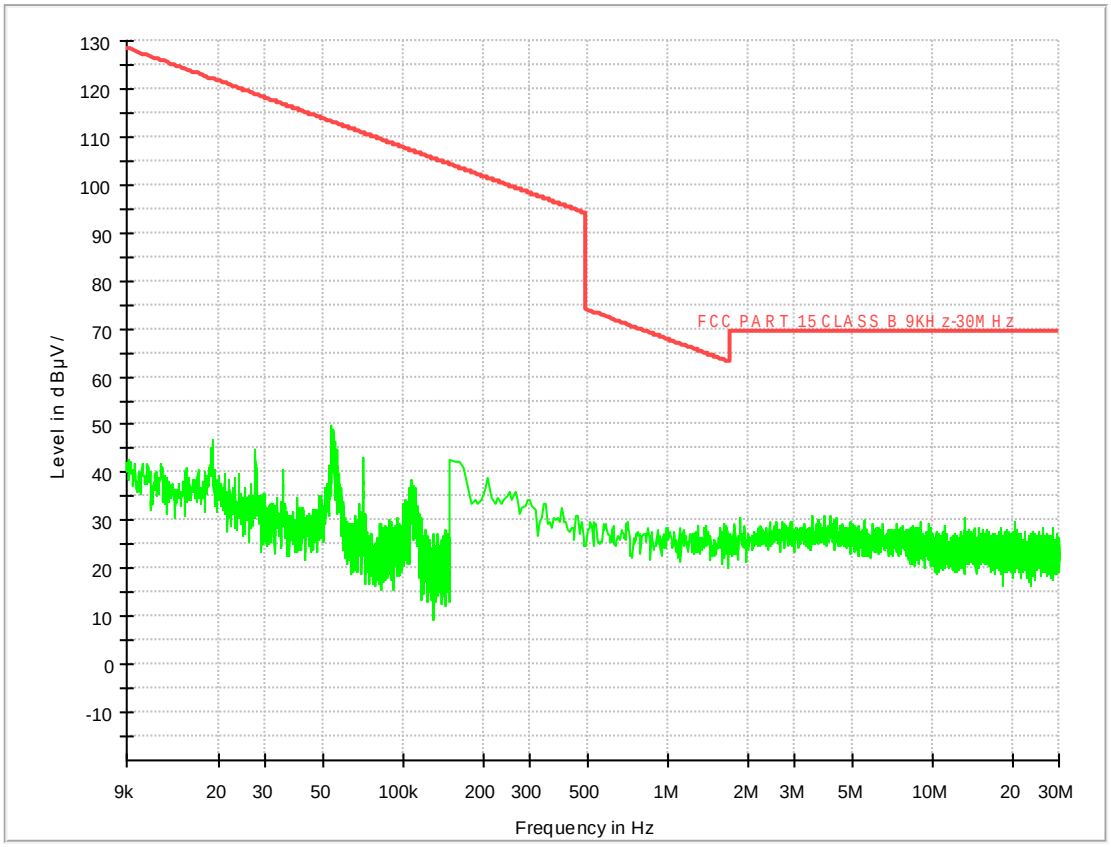


05 FCC PART 22 WCDMA850_H

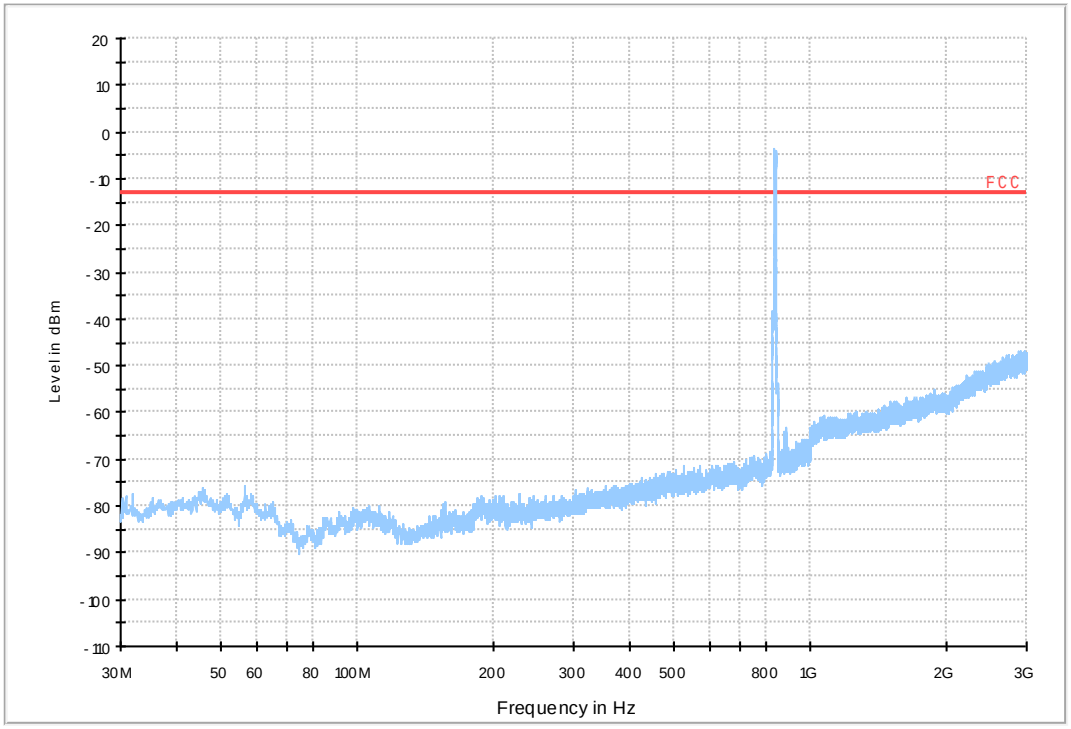


7.1.6 Test Band = WCDMA850-Ant2

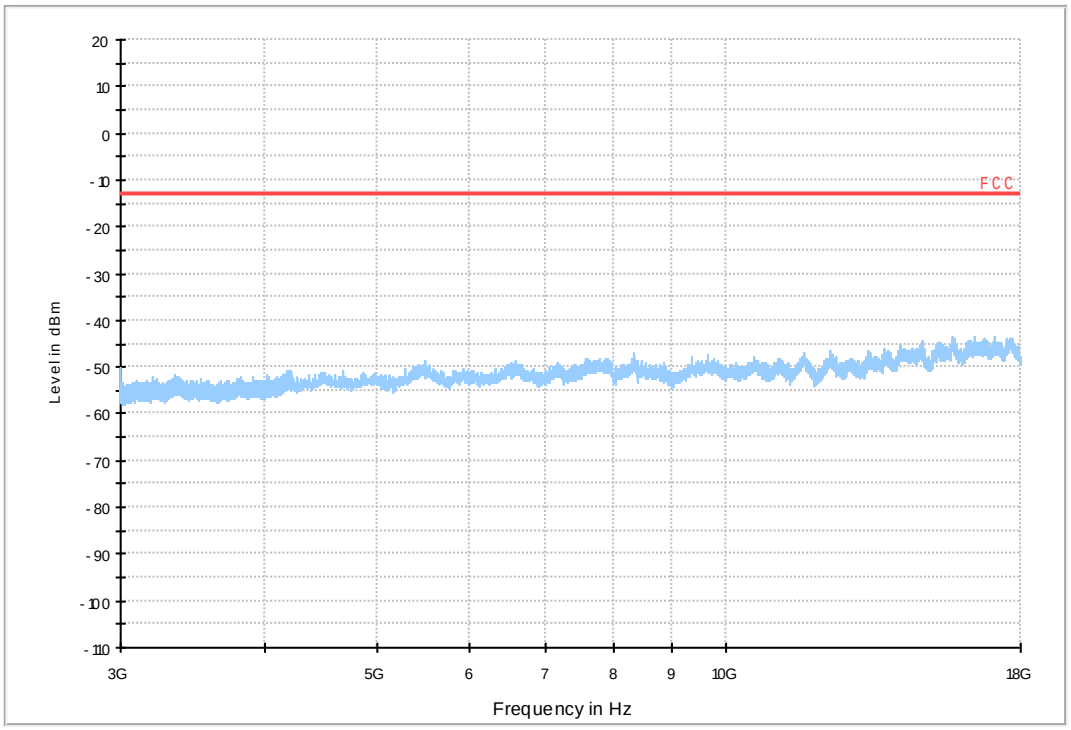
7.1.6.1 Test Mode = UMTS/TM1



06 FCC PART 22 WCDMA850_L



05 FCC PART 22 WCDMA850_H



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	4.53	0.00548	PASS
				VN	8.94	0.01082	PASS
				VH	2.21	0.00267	PASS
		MCH	TN	VL	11.52	0.01377	PASS
				VN	13.76	0.01645	PASS
				VH	9.25	0.01106	PASS
		HCH	TN	VL	9.60	0.01134	PASS
				VN	7.80	0.00921	PASS
				VH	12.04	0.01422	PASS
WCDMA1700	UMTS/TM1	LCH	TN	VL	5.29	0.00309	PASS
				VN	9.75	0.00569	PASS
				VH	7.60	0.00444	PASS
		MCH	TN	VL	17.78	0.01026	PASS
				VN	13.67	0.00789	PASS
				VH	8.79	0.00507	PASS
		HCH	TN	VL	9.19	0.00524	PASS
				VN	11.64	0.00664	PASS
				VH	10.79	0.00616	PASS
WCDMA1900	UMTS/TM1	LCH	TN	VL	0.76	0.00041	PASS
				VN	7.60	0.0041	PASS
				VH	6.84	0.00369	PASS
		MCH	TN	VL	11.90	0.00633	PASS
				VN	7.93	0.00422	PASS
				VH	6.59	0.00351	PASS
		HCH	TN	VL	10.91	0.00572	PASS
				VN	12.76	0.00669	PASS
				VH	14.85	0.00778	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	8.13	0.00984	PASS
				-20	10.18	0.01232	PASS
				-10	7.14	0.00864	PASS
				0	13.21	0.01598	PASS
				10	9.38	0.01135	PASS
				20	10.09	0.01221	PASS
				30	9.12	0.01104	PASS
				40	5.58	0.00675	PASS
				50	7.55	0.00914	PASS
		MCH	VN	-30	2.27	0.00271	PASS
				-20	7.95	0.00951	PASS
				-10	6.93	0.00829	PASS
				0	6.74	0.00806	PASS
				10	7.97	0.00953	PASS
				20	7.20	0.00861	PASS
				30	9.16	0.01095	PASS
				40	7.60	0.00909	PASS
				50	-1.50	-0.00179	PASS
		HCH	VN	-30	11.51	0.0136	PASS
				-20	7.58	0.00895	PASS
				-10	6.61	0.00781	PASS
				0	9.32	0.01101	PASS
				10	7.78	0.00919	PASS
				20	7.92	0.00936	PASS
				30	12.74	0.01505	PASS
				40	10.21	0.01206	PASS
				50	5.31	0.00627	PASS
WCDMA1700	UMTS/TM1	LCH	VN	-30	14.19	0.00829	PASS
				-20	15.06	0.00879	PASS
				-10	18.69	0.01091	PASS
				0	14.33	0.00837	PASS
				10	12.50	0.0073	PASS
				20	8.59	0.00502	PASS
				30	14.92	0.00871	PASS
				40	8.09	0.00472	PASS
				50	16.19	0.00945	PASS
		MCH	VN	-30	8.93	0.00515	PASS

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				-20	13.81	0.00797	PASS
				-10	15.11	0.00872	PASS
				0	9.35	0.0054	PASS
				10	14.13	0.00816	PASS
				20	5.75	0.00332	PASS
				30	14.08	0.00813	PASS
				40	7.57	0.00437	PASS
				50	7.17	0.00414	PASS
		HCH	VN	-30	5.92	0.00338	PASS
				-20	12.28	0.00701	PASS
				-10	6.15	0.00351	PASS
				0	8.74	0.00499	PASS
				10	8.67	0.00495	PASS
				20	17.85	0.01018	PASS
				30	10.42	0.00595	PASS
				40	7.37	0.00421	PASS
				50	6.26	0.00357	PASS
WCDMA1900	UMTS/TM1	LCH	VN	-30	2.17	0.00117	PASS
				-20	17.23	0.0093	PASS
				-10	8.76	0.00473	PASS
				0	16.86	0.0091	PASS
				10	8.45	0.00456	PASS
				20	5.17	0.00279	PASS
				30	5.89	0.00318	PASS
				40	10.48	0.00566	PASS
				50	11.35	0.00613	PASS
		MCH	VN	-30	19.74	0.0105	PASS
				-20	14.19	0.00755	PASS
				-10	17.06	0.00907	PASS
				0	18.62	0.0099	PASS
				10	12.50	0.00665	PASS
				20	12.77	0.00679	PASS
				30	11.09	0.0059	PASS
				40	12.82	0.00682	PASS
				50	11.99	0.00638	PASS
		HCH	VN	-30	14.40	0.00755	PASS
				-20	7.77	0.00407	PASS
				-10	7.75	0.00406	PASS
				0	12.50	0.00655	PASS
				10	10.28	0.00539	PASS

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				20	5.04	0.00264	PASS
				30	3.01	0.00158	PASS
				40	14.51	0.00761	PASS
				50	12.15	0.00637	PASS

END