



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	23.93	21.68	38.5	PASS
		MCH	23.97	21.72	38.5	PASS
		HCH	23.92	21.67	38.5	PASS
Test Band	Test Mode	Test Channel	Conducted Power [dBm]	EIRP [dBm]	Limit [dBm]	Verdict
WCDMA1900	UMTS/TM1	LCH	23.08	21.18	33	PASS
		MCH	23.14	21.18	33	PASS
		HCH	23.04	21.28	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,

$$\text{ERP [dBm]} = \text{SGP [dBm]} - \text{Cable Loss [dB]} + \text{Gain [dBd]}$$

$$\text{EIRP [dBm]} = \text{SGP [dBm]} - \text{Cable Loss [dB]} + \text{Gain [dBi]}$$

b, SGP = Signal Generator Level

Note2:

$$\text{SET Span} = 1.5 * \text{OBW}$$

$$\text{SET RBW} = 1\% \text{ of the OBW, not to exceed 1MHz}$$

$$\text{SET VBW} \geq 3 * \text{RBW}$$

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	2.46	13	PASS
		MCH	2.32	13	PASS
		HCH	2.76	13	PASS
WCDMA1900	UMTS/TM1	LCH	2.80	13	PASS
		MCH	2.86	13	PASS
		HCH	2.95	13	PASS

3Appendix_C: Modulation Characteristics

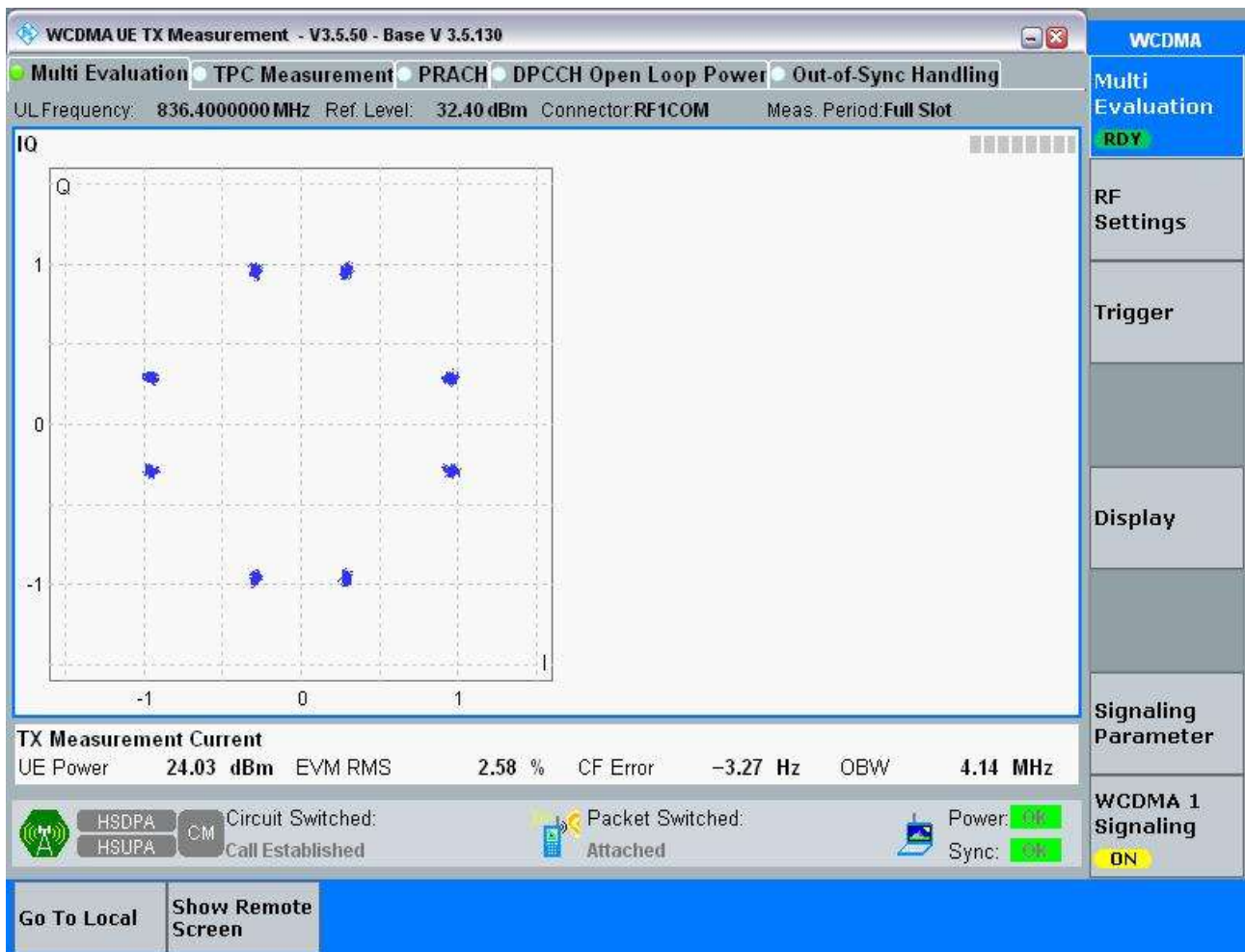
Part I - Test Plots

3.1 For UMTS

3.1.1 Test Band = WCDMA850

3.1.1.1 Test Mode = UMTS/TM1

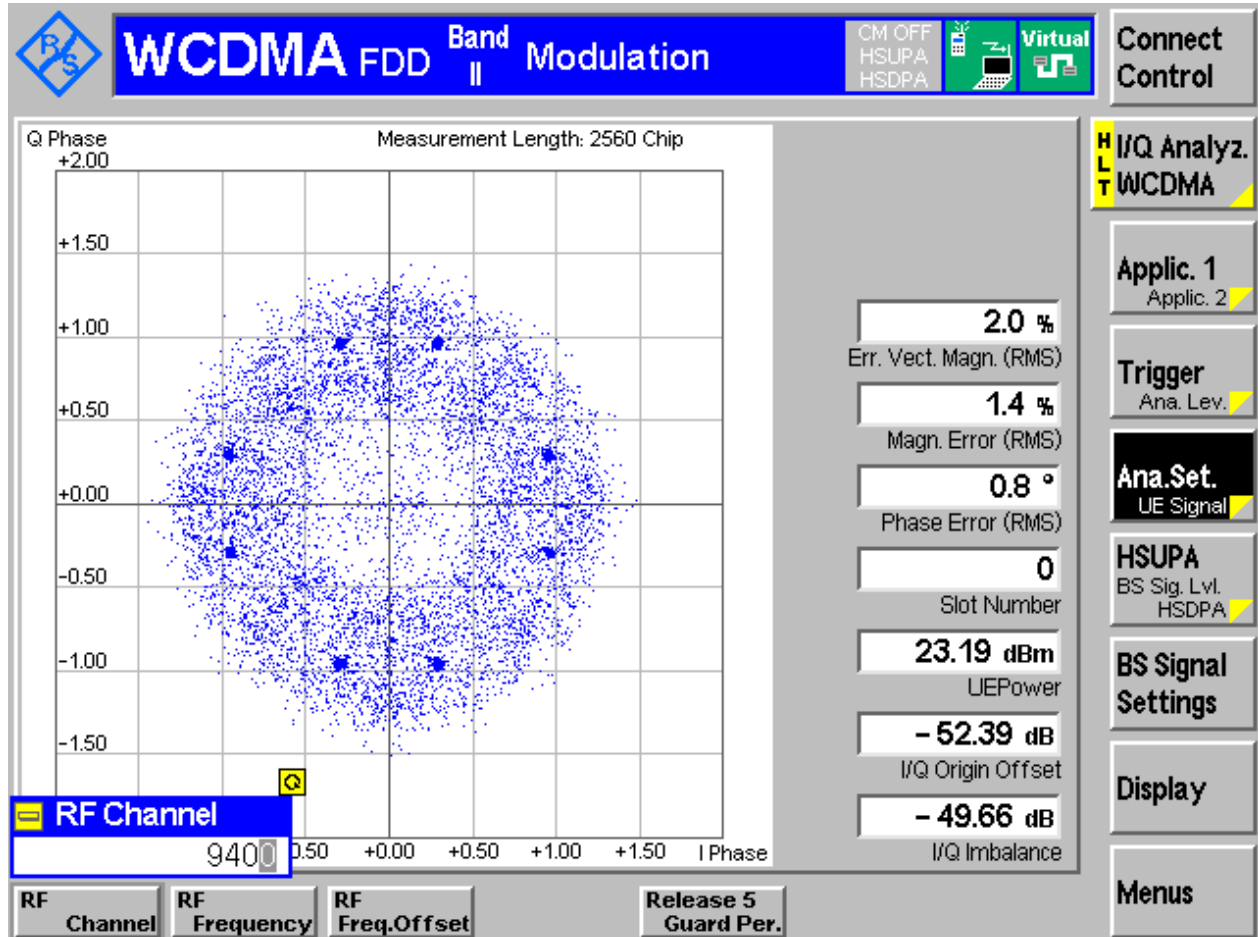
3.1.1.1.1 Test Channel = MCH



3.1.2 Test Band = WCDMA1900

3.1.2.1 Test Mode = UMTS/TM1

3.1.2.1.1 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	4.19	4.70	Pass
		MCH	4.19	4.72	Pass
		HCH	4.17	4.70	Pass
WCDMA1900	UMTS/TM1	LCH	4.17	4.72	Pass
		MCH	4.16	4.72	Pass
		HCH	4.16	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



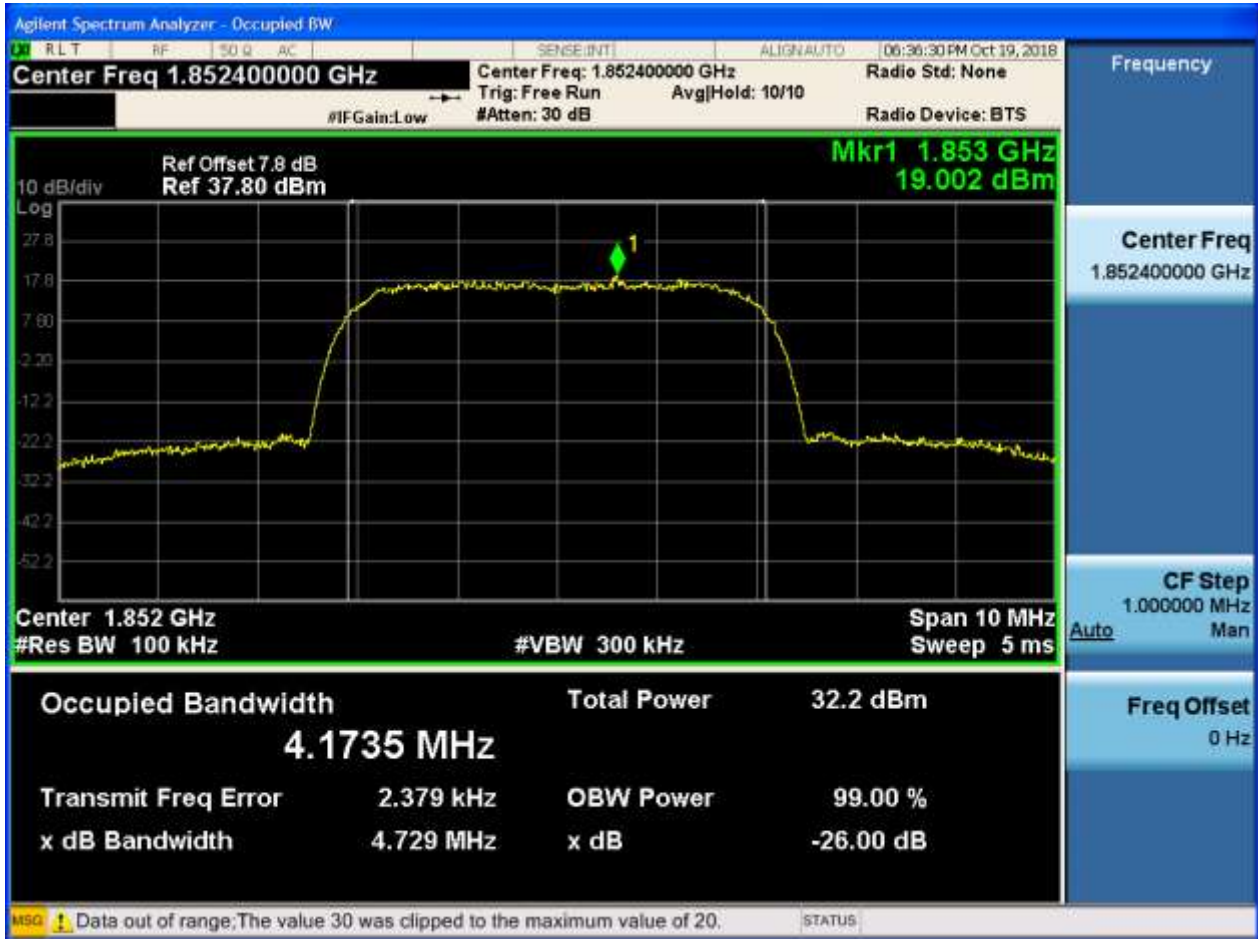
4.1.1.1.3 Test Channel = HCH



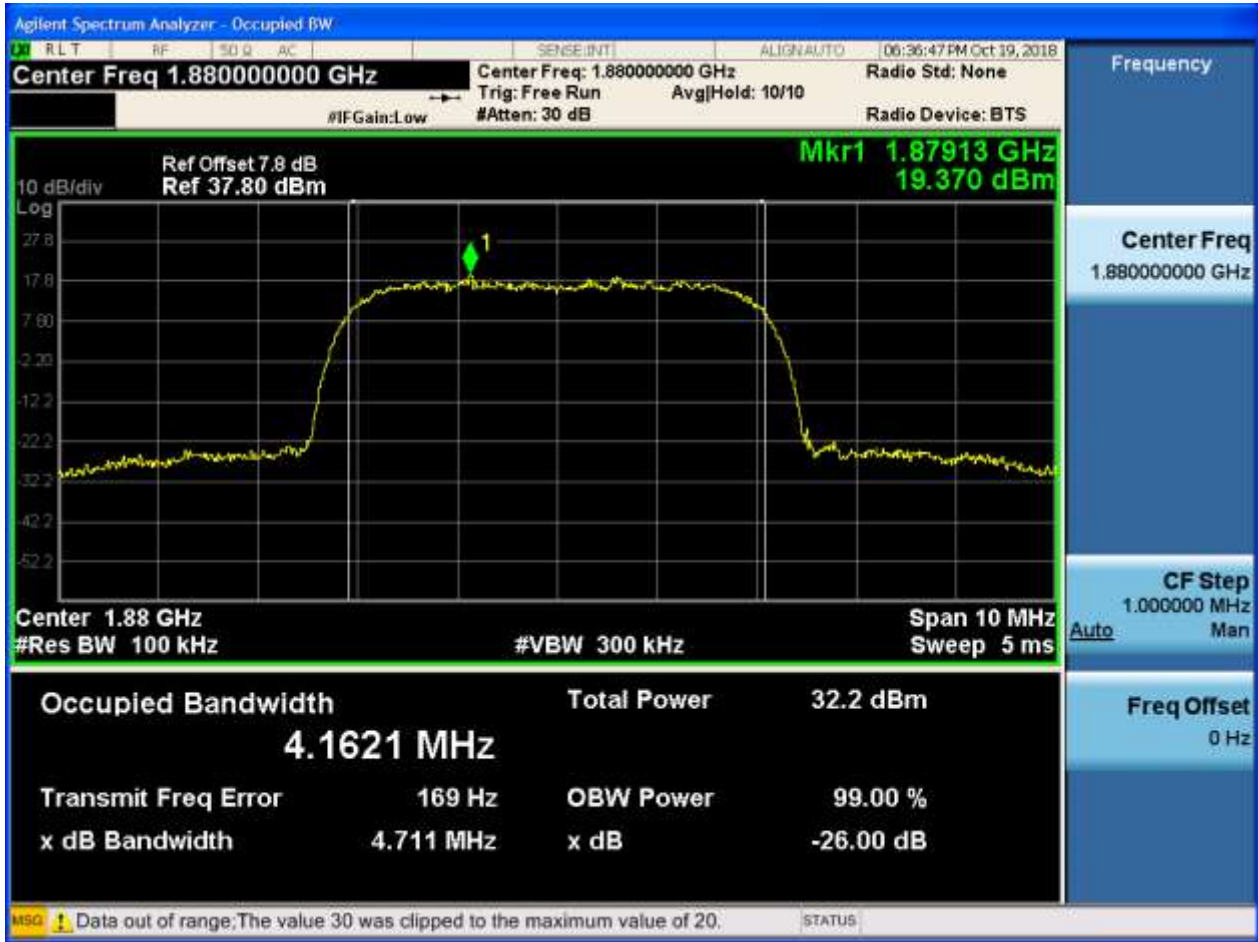
4.1.2 Test Band = WCDMA1900

4.1.2.1 Test Mode = UMTS/TM1

4.1.2.1.1 Test Channel = LCH

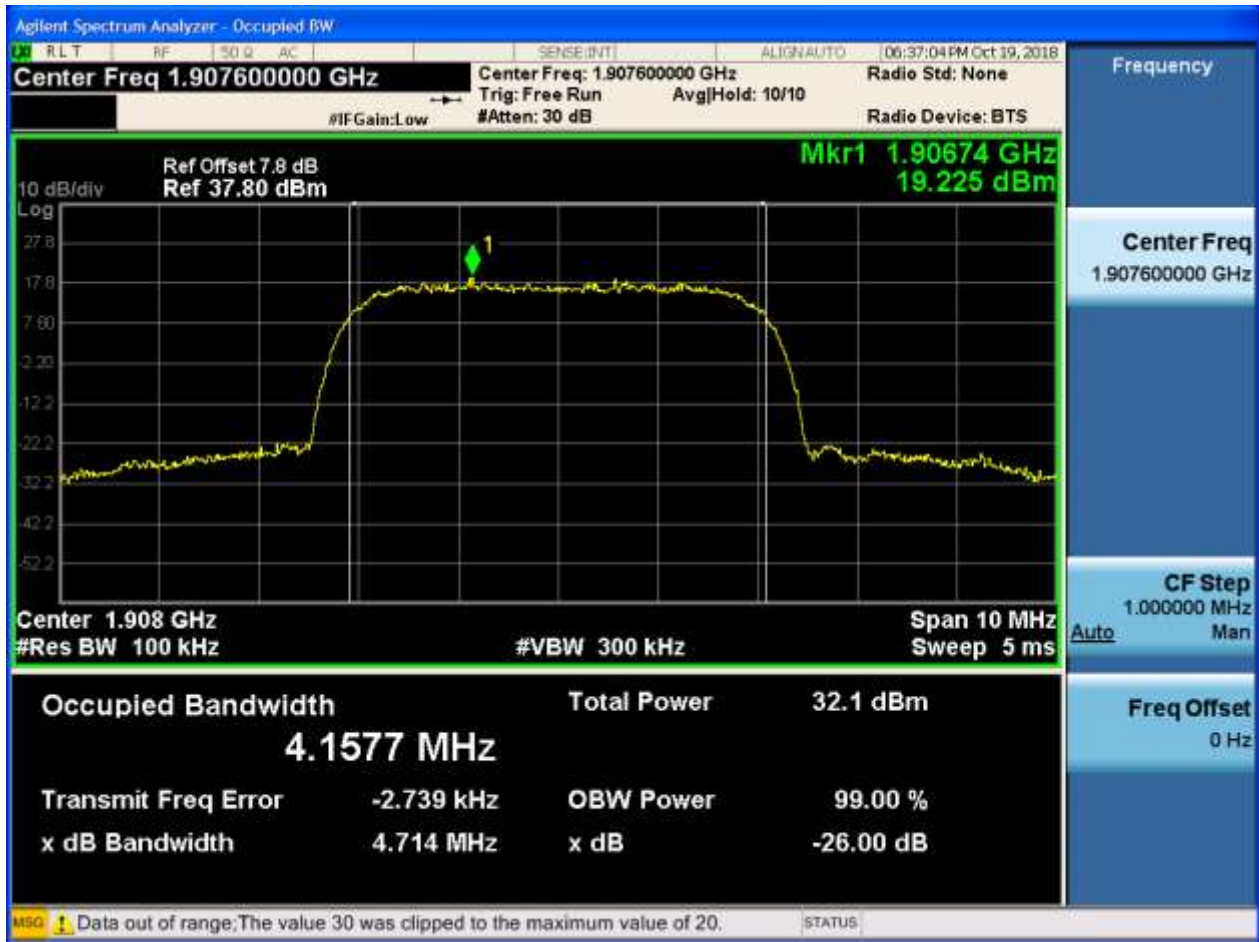


4.1.2.1.2 Test Channel = MCH





4.1.2.1.3 Test Channel = HCH



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 = WCDMA1900

5.1.2.1 Test Mode = UMTS/TM1

5.1.2.1.1 Test Channel = LCH



5.1.2.1.2 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.

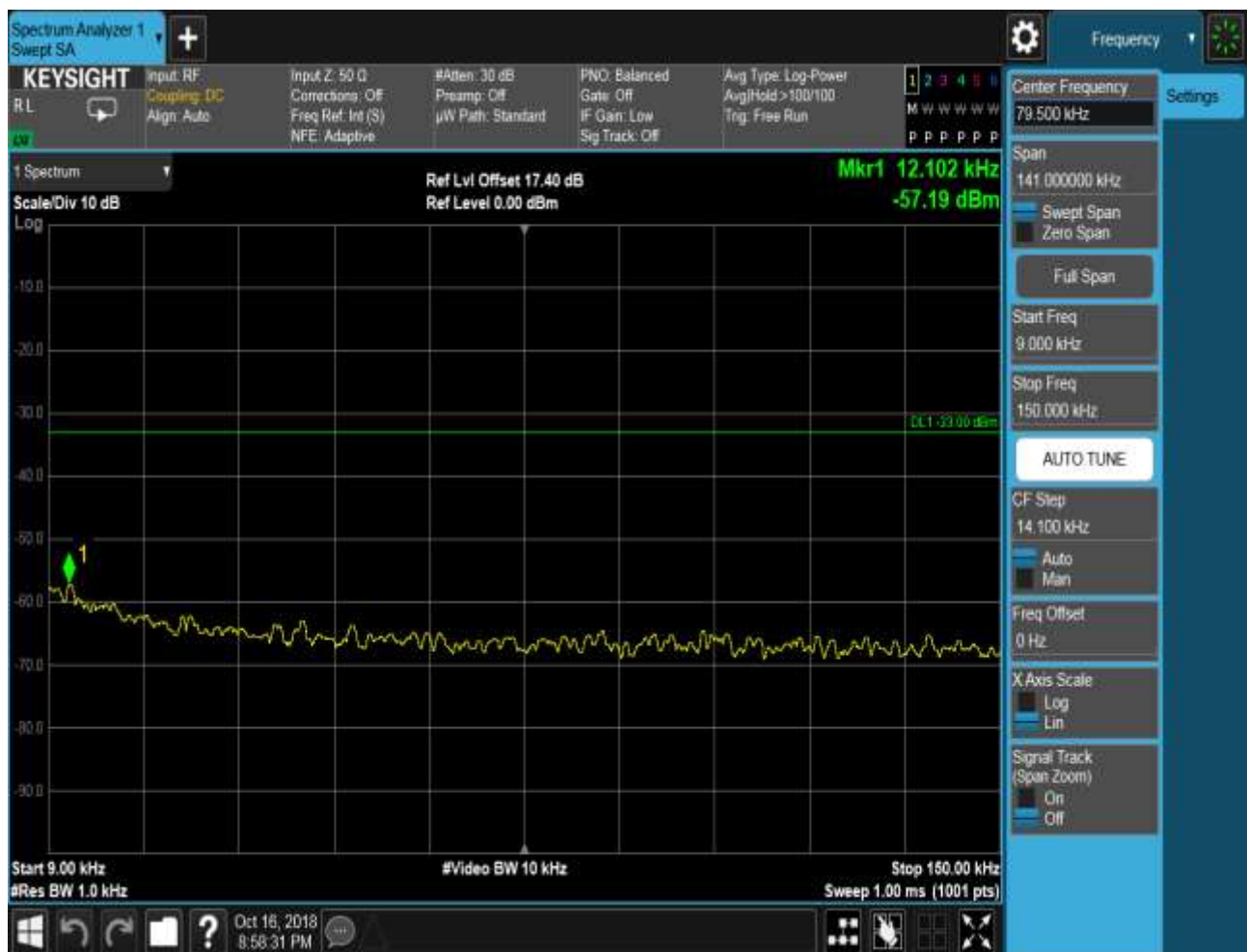
Part I - Test Plots

6.1 For UMTS

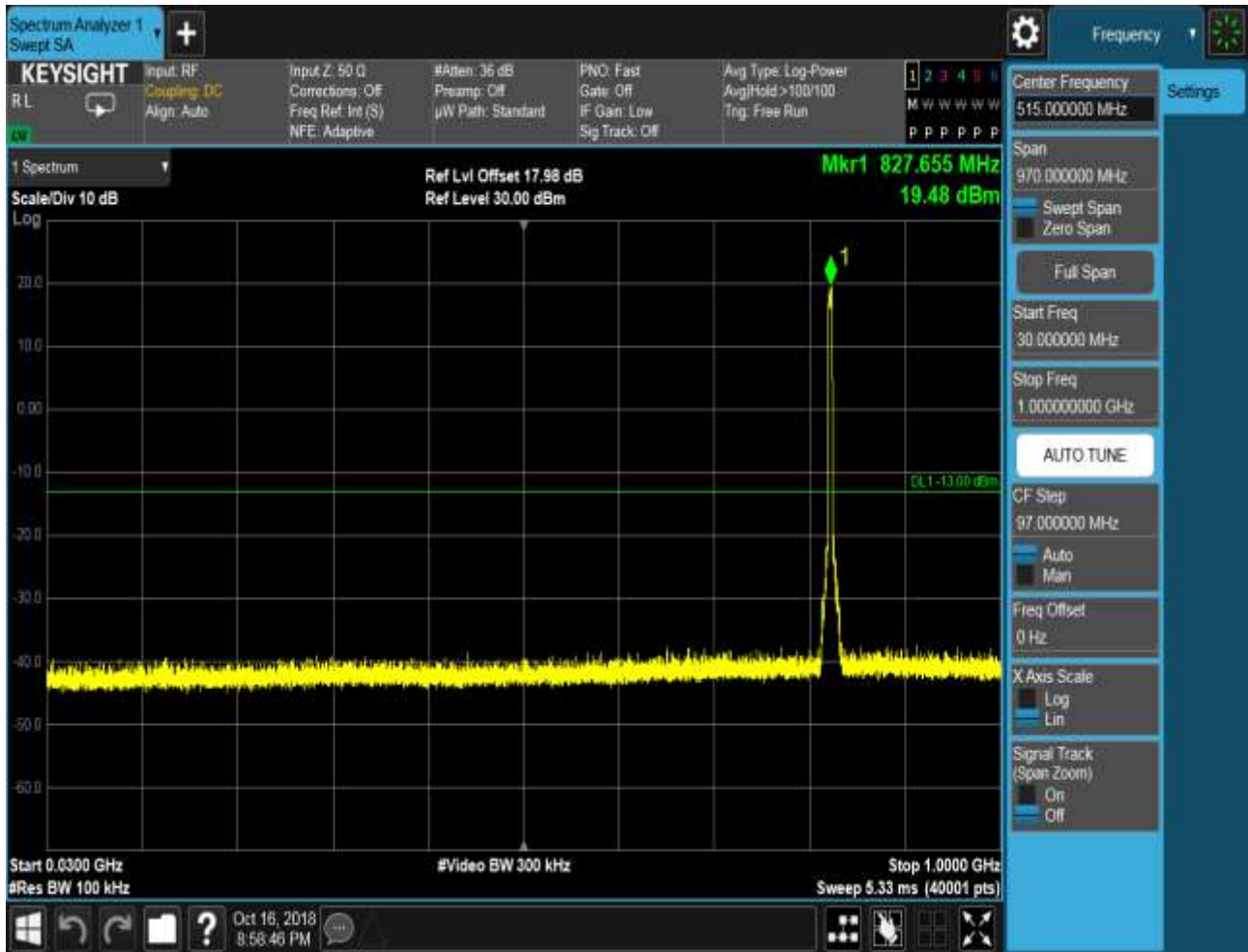
6.1.1 Test Band = WCDMA850

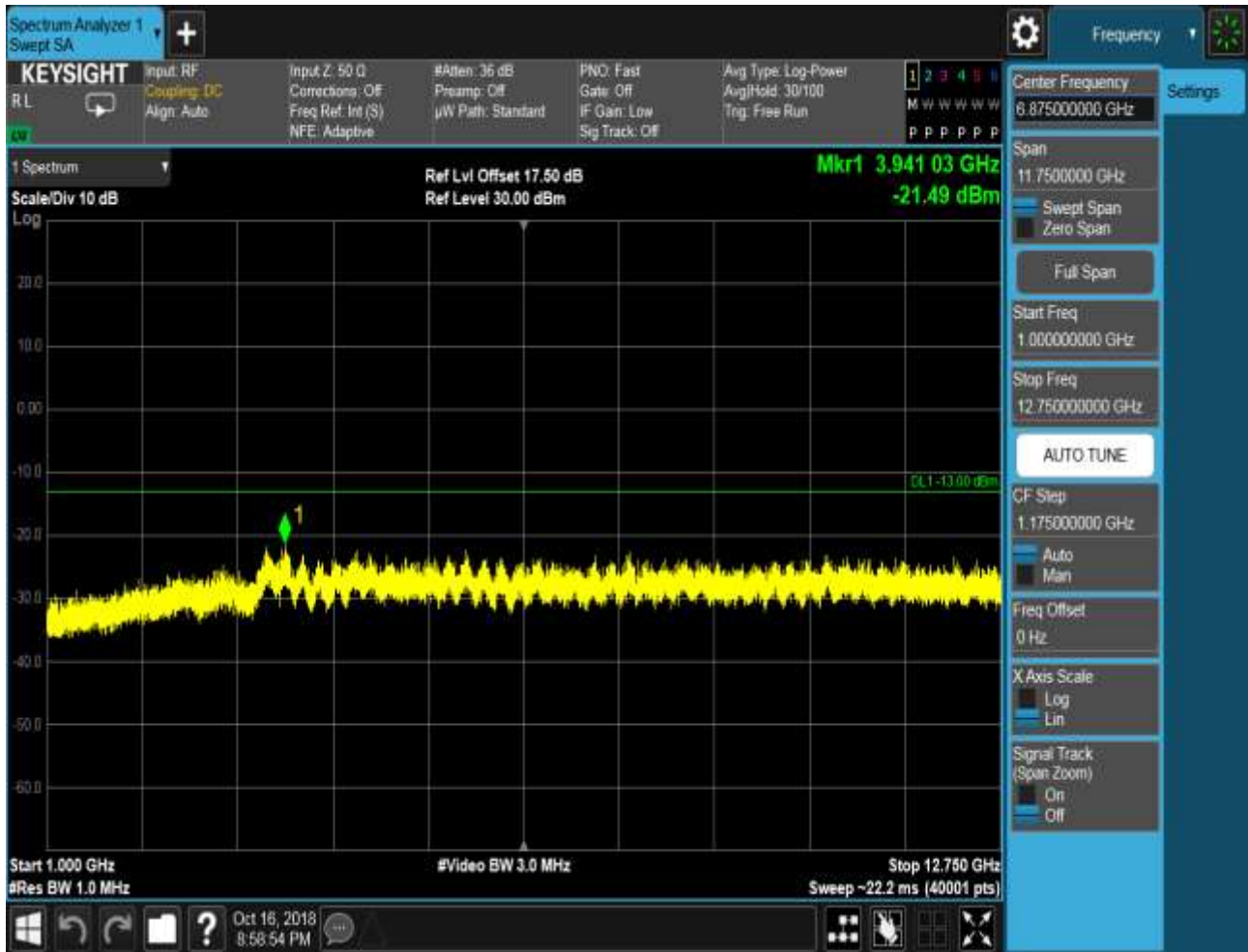
6.1.1.1 Test Mode = UMTS/TM1

6.1.1.1.1 Test Channel = LCH





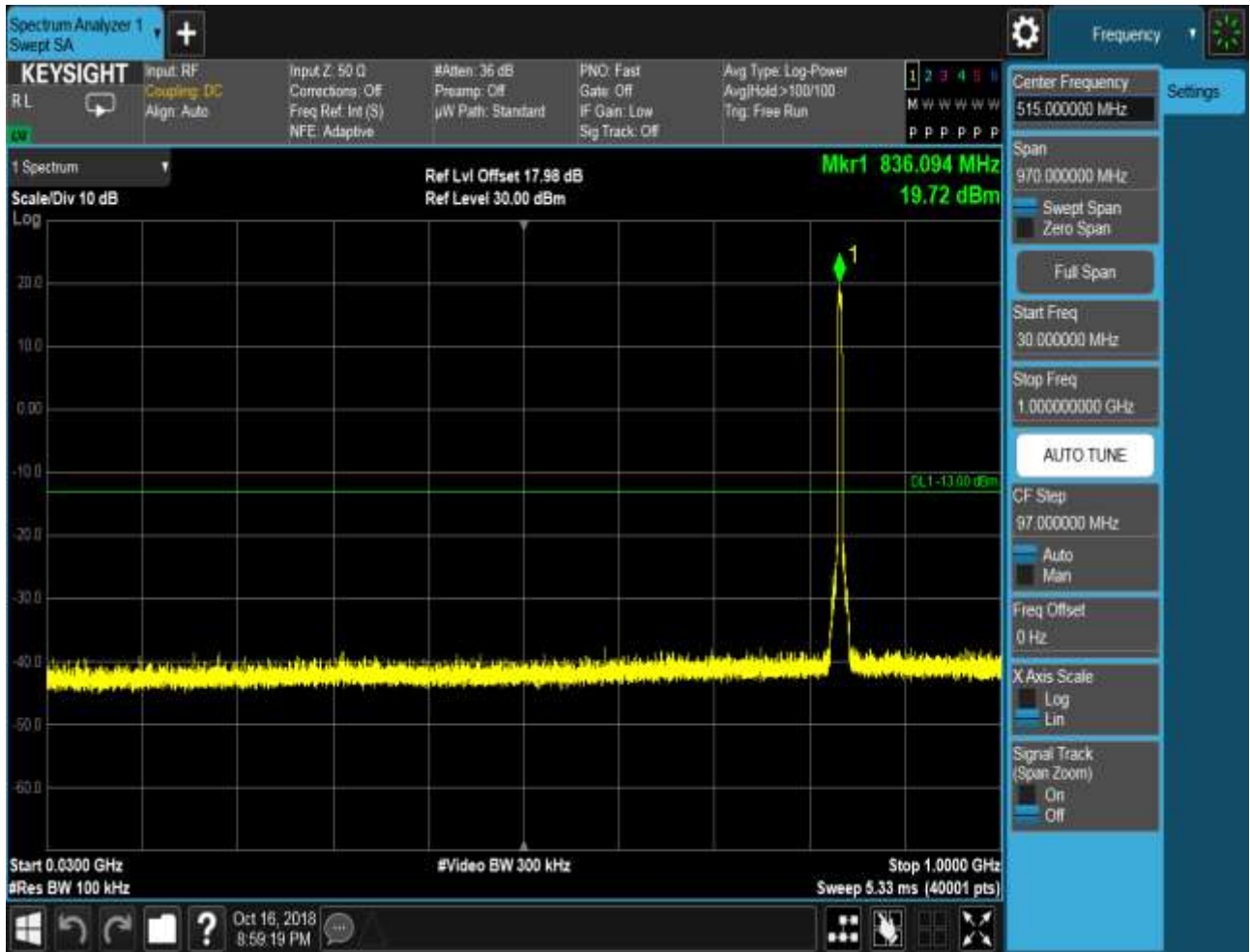




6.1.1.1.2 Test Channel = MCH





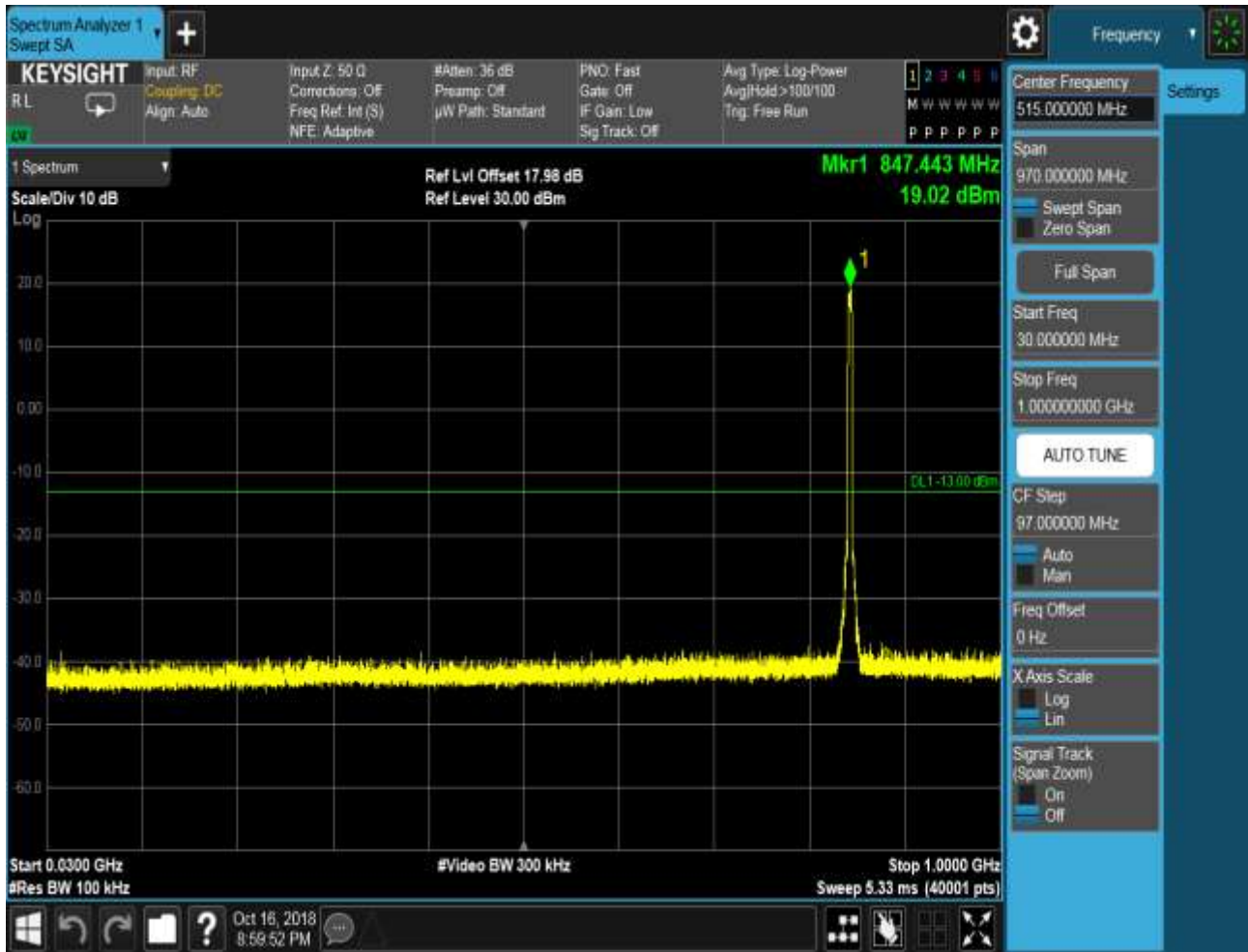


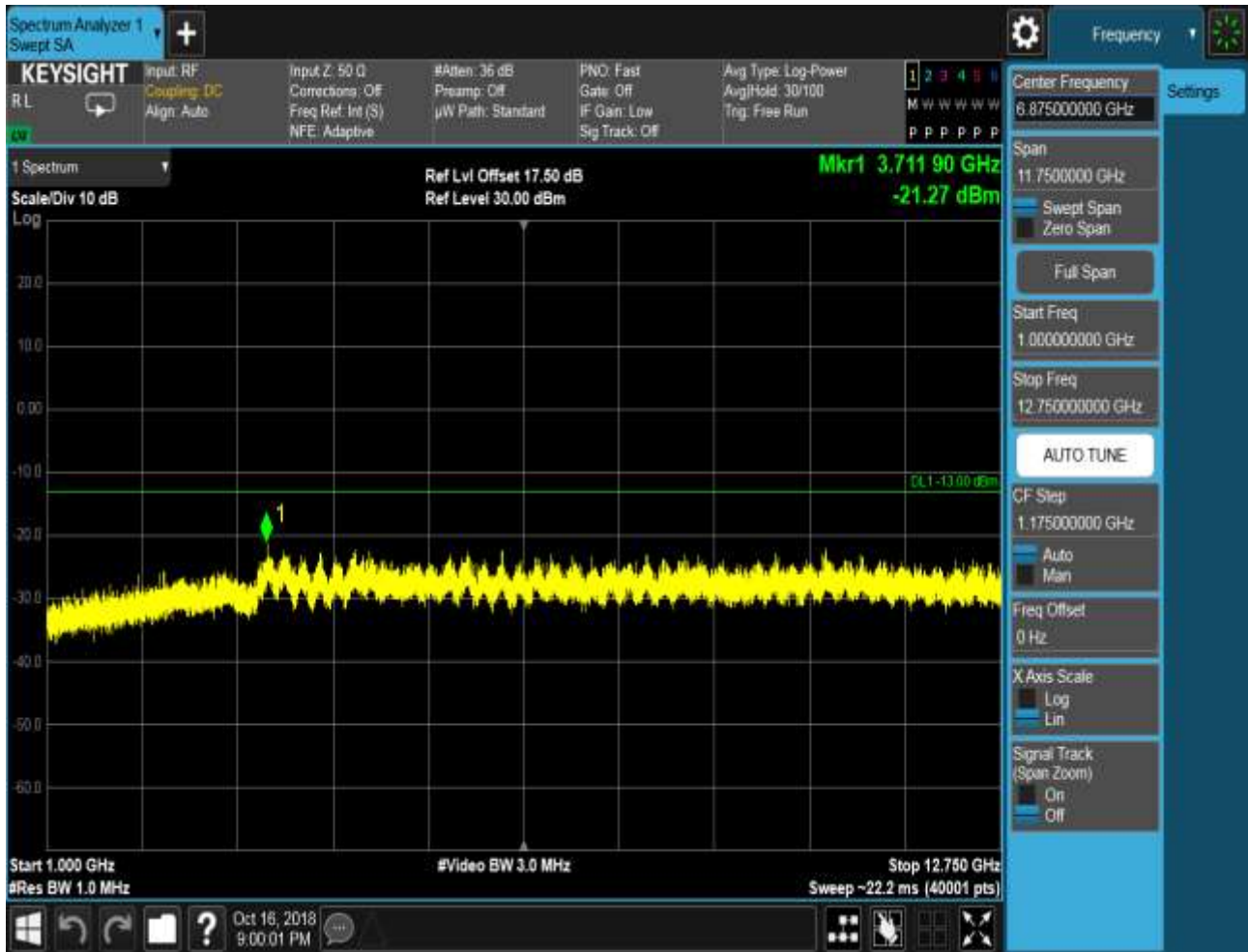


6.1.1.1.3 Test Channel = HCH







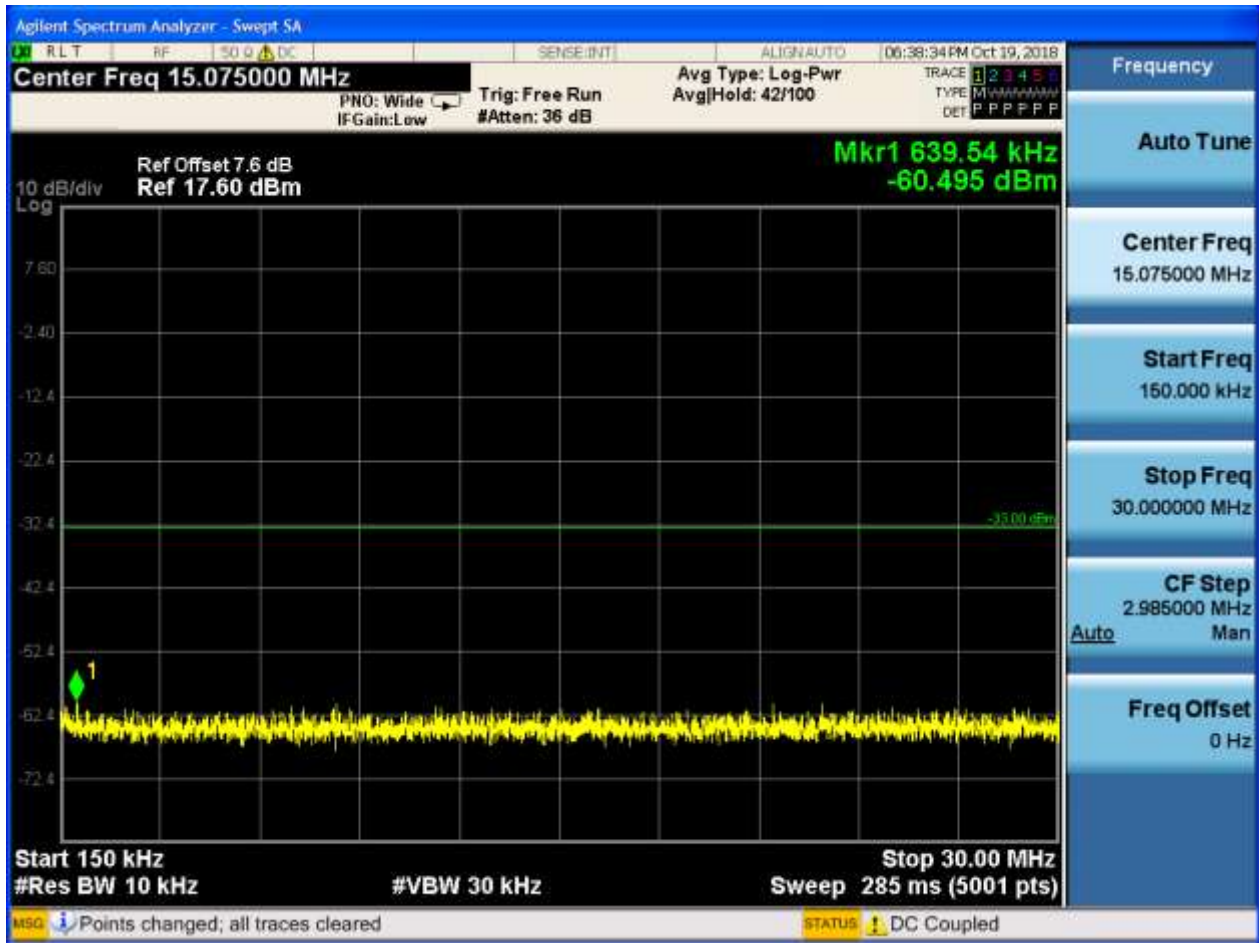


6.1.2 Test Band = WCDMA1900

6.1.2.1 Test Mode = UMTS/TM1

6.1.2.1.1 Test Channel = LCH

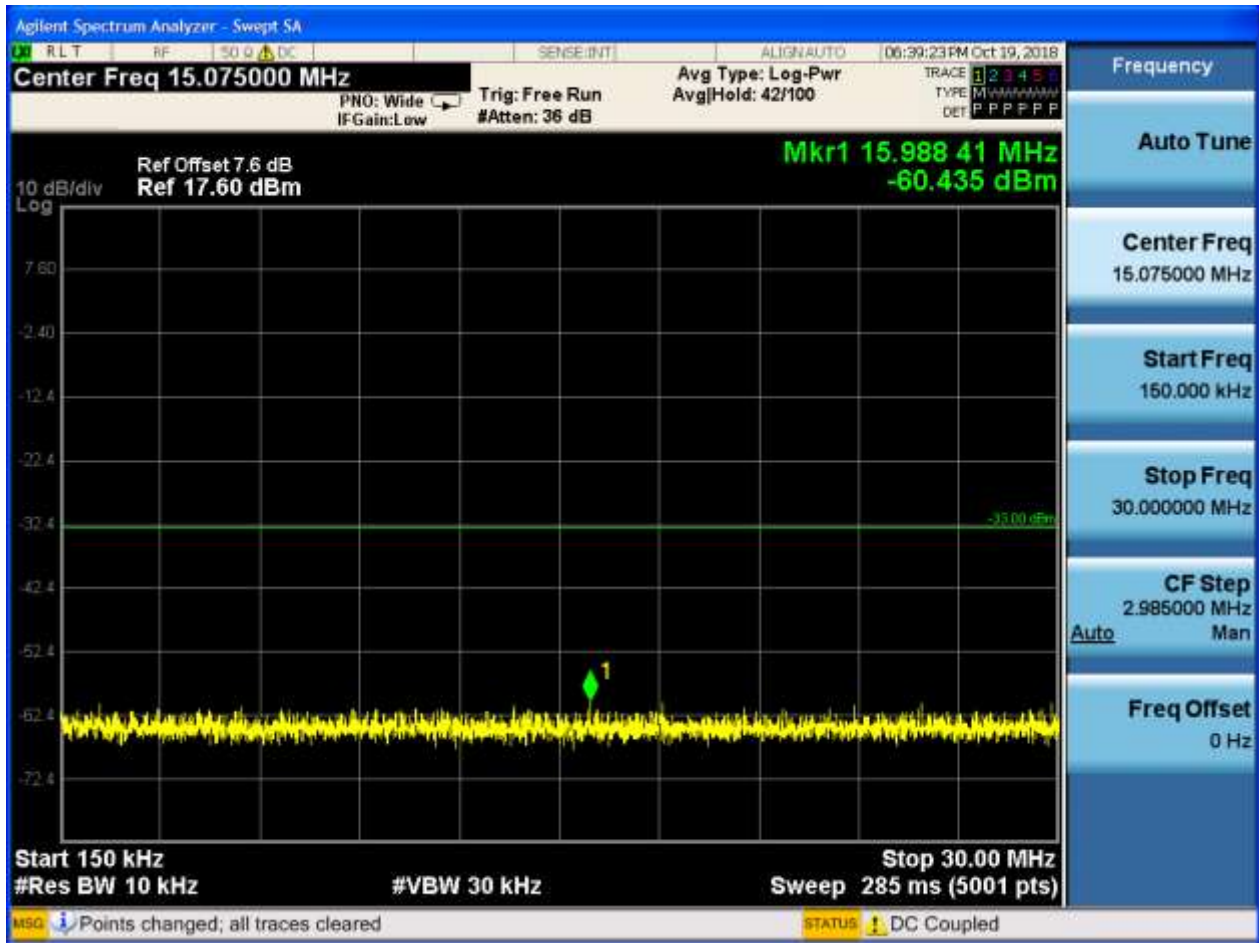






6.1.2.1.2 Test Channel = MCH

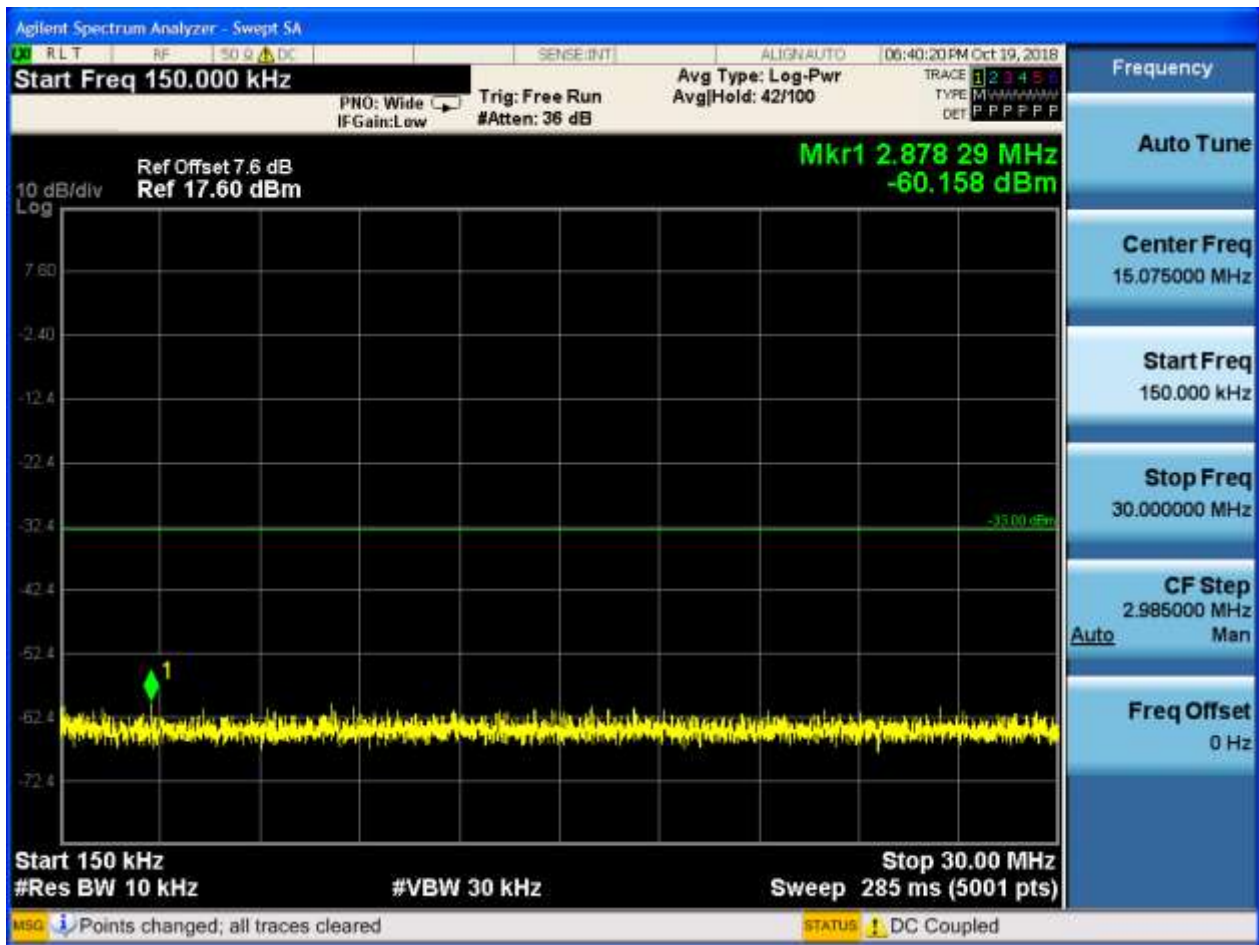






6.1.2.1.3 Test Channel = HCH







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

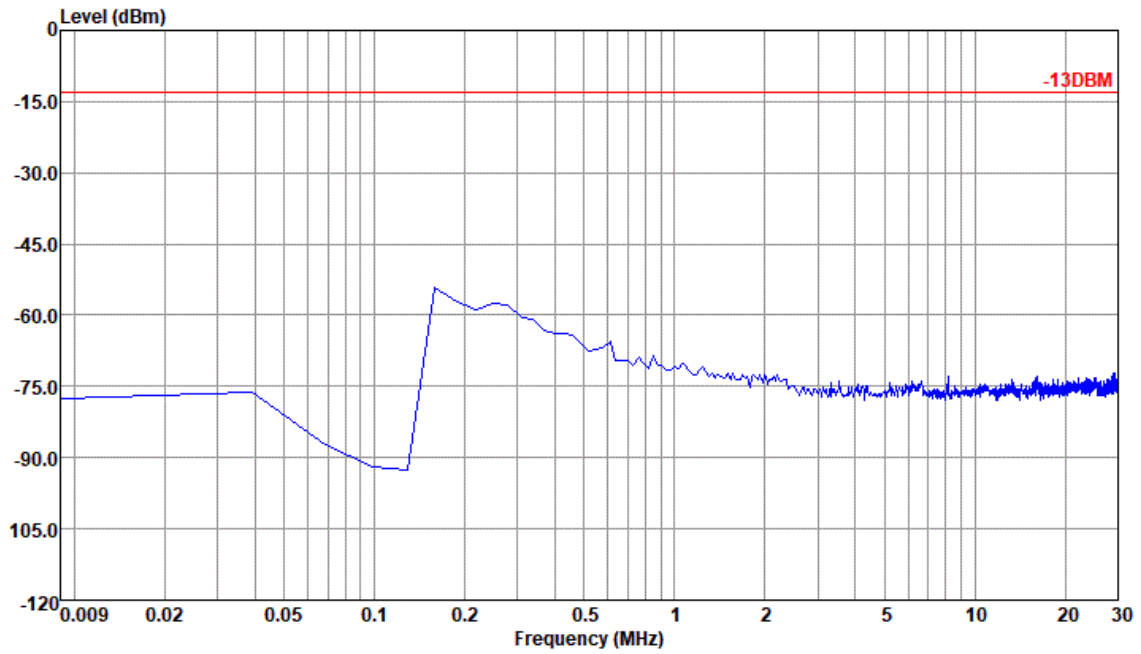
7.1 For UMTS

7.1.1 Test Band = WCDMA850_ANT1

7.1.1.1 Test Mode = UMTS/TM1

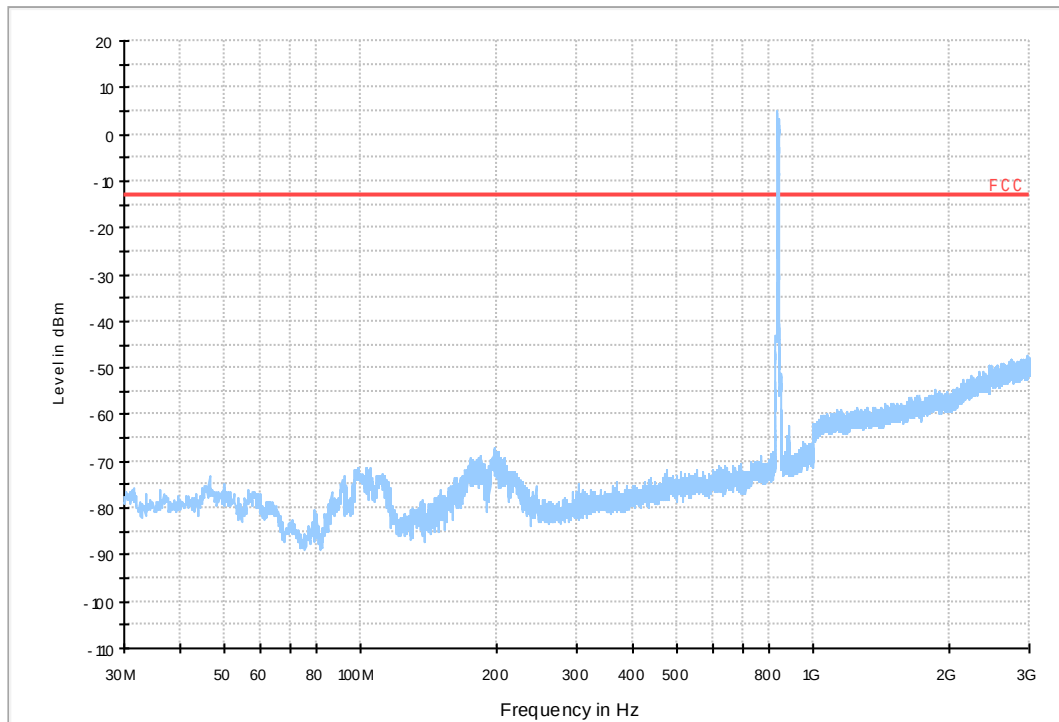


Data: 27

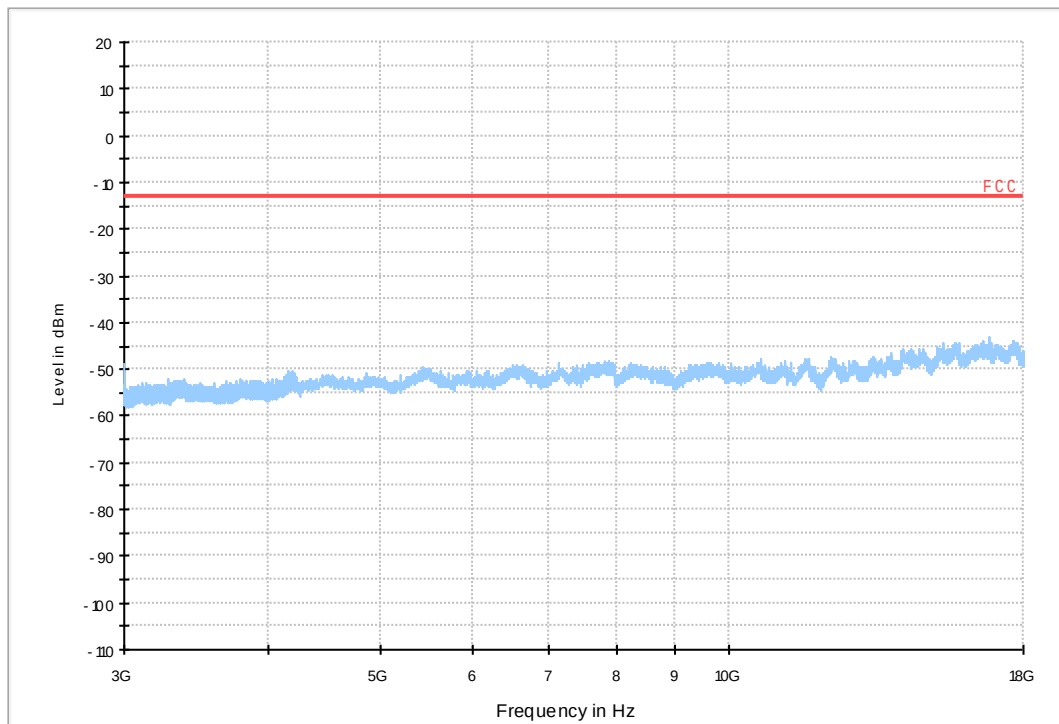


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06 FCC PART 22 WCDMA850_L



05 FCC PART 22 WCDMA850_H

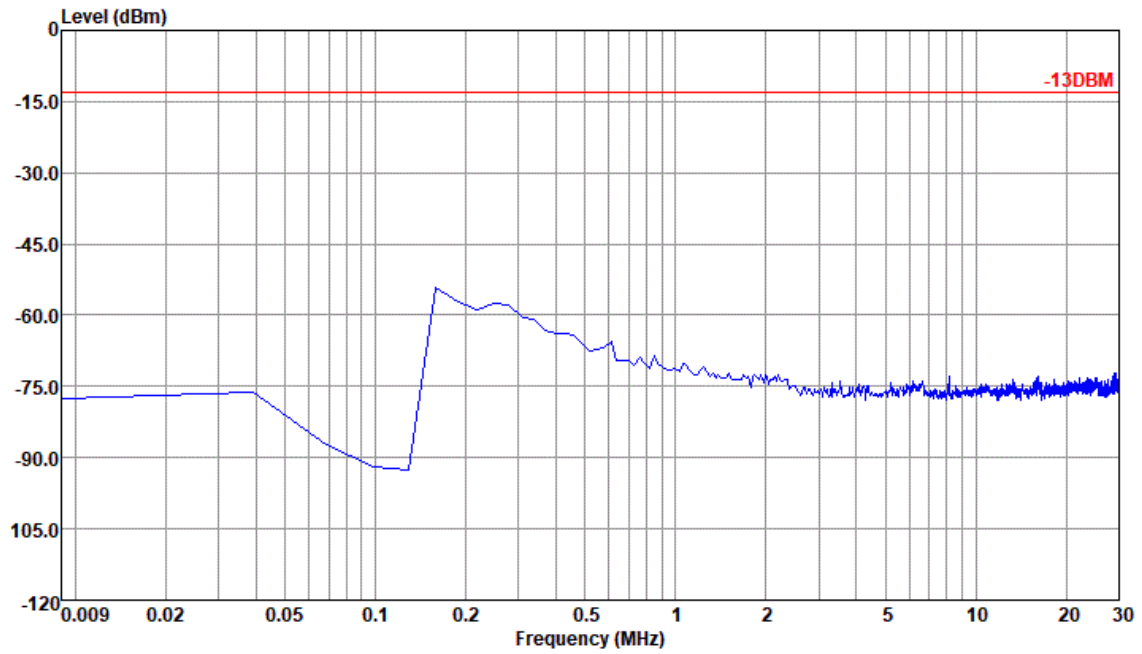


7.1.2 Test Band = WCDMA850_ANT2

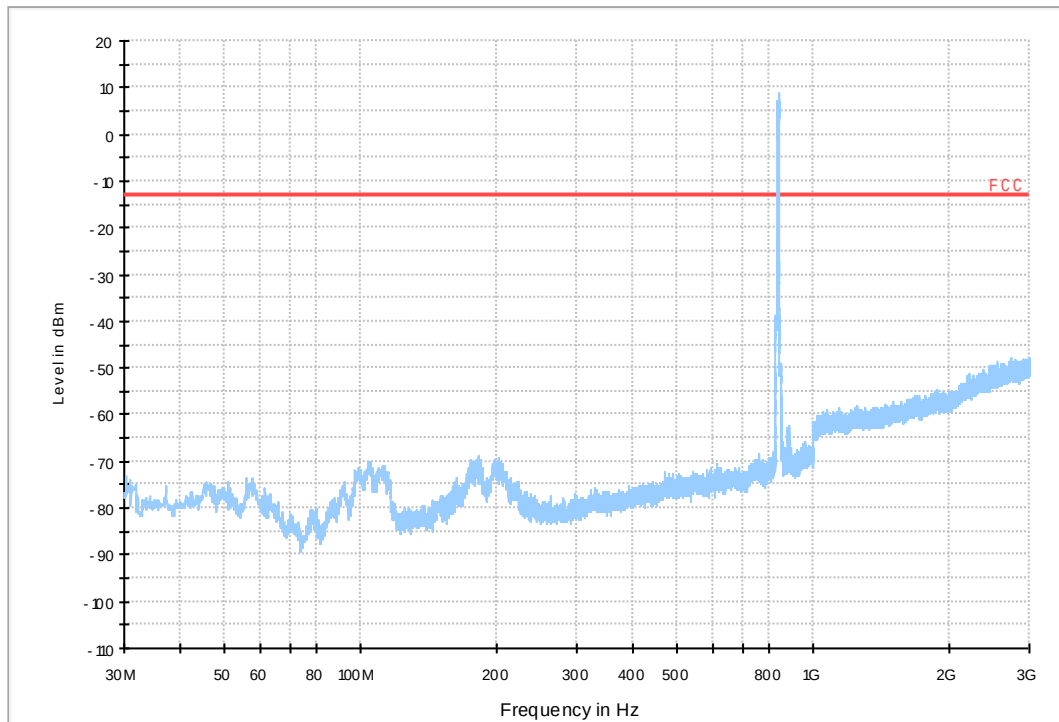
7.1.2.1 Test Mode = UMTS/TM1



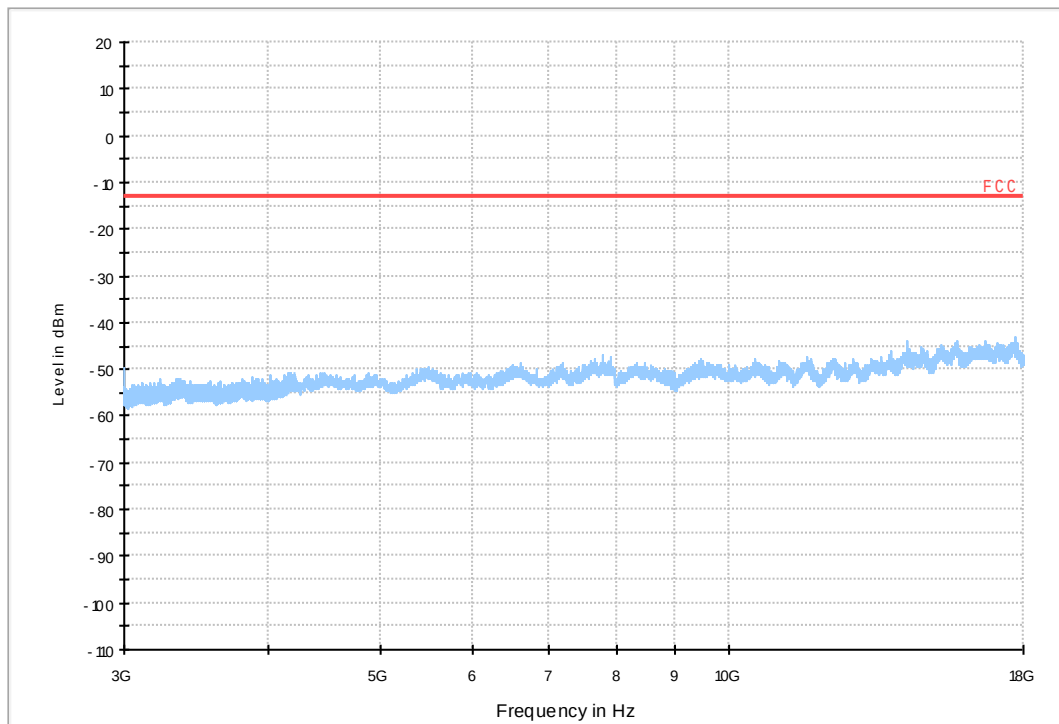
Data: 28



06 FCC PART 22 WCDMA850_L



05 FCC PART 22 WCDMA850_H

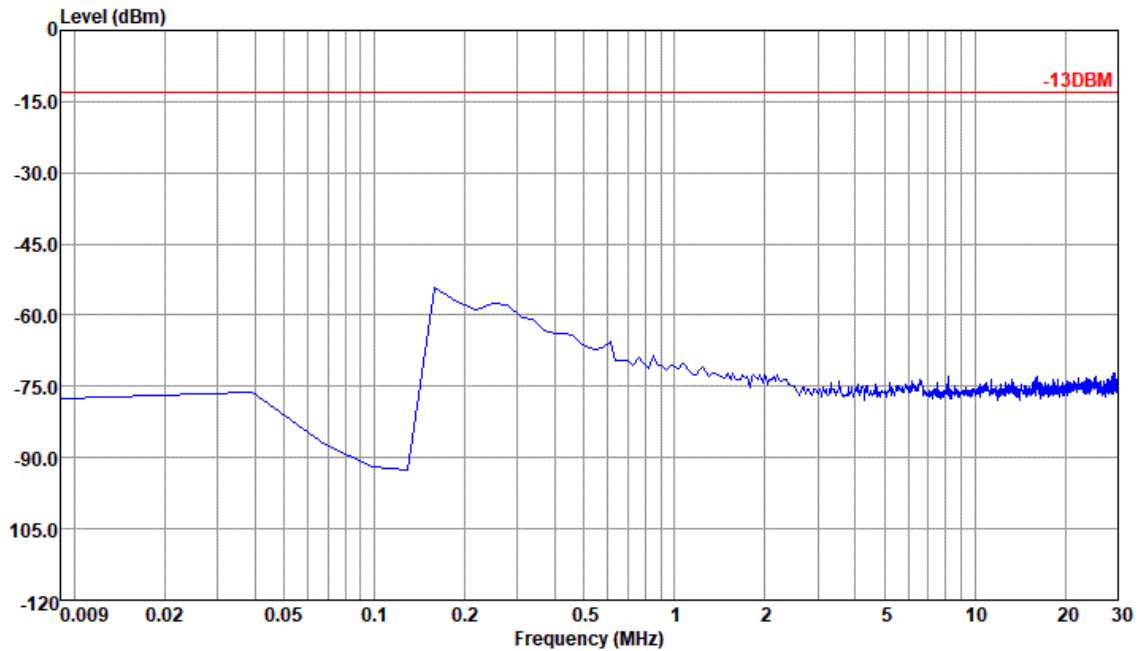


7.1.3 Test Band = WCDMA1900_ANT1

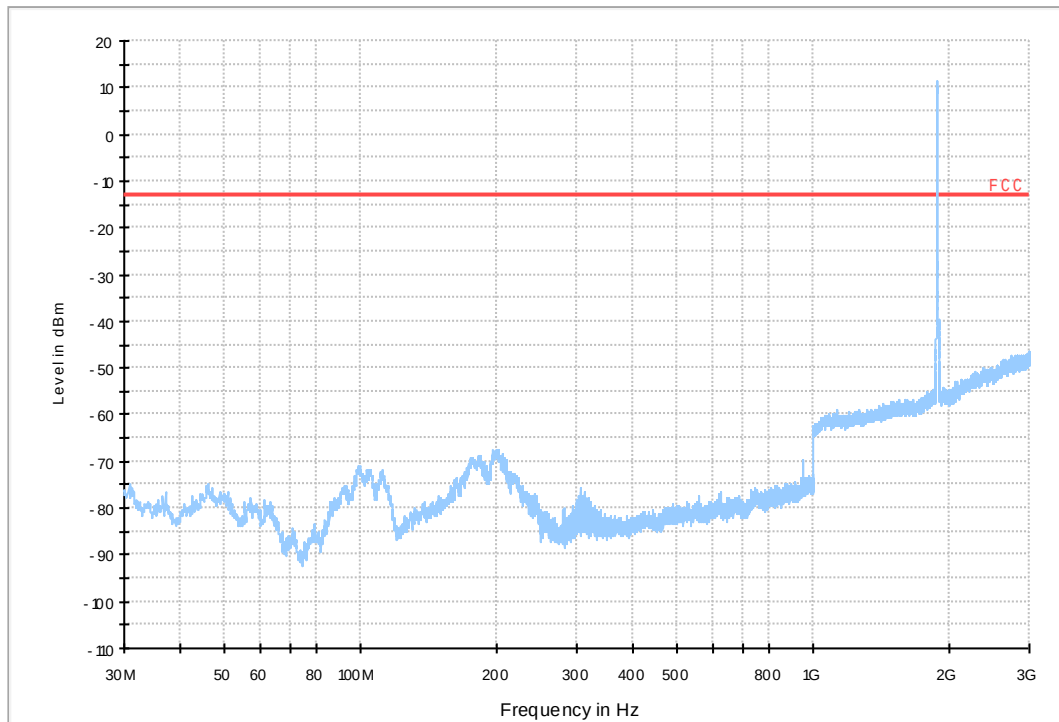
7.1.3.1 Test Mode = UMTS/TM1



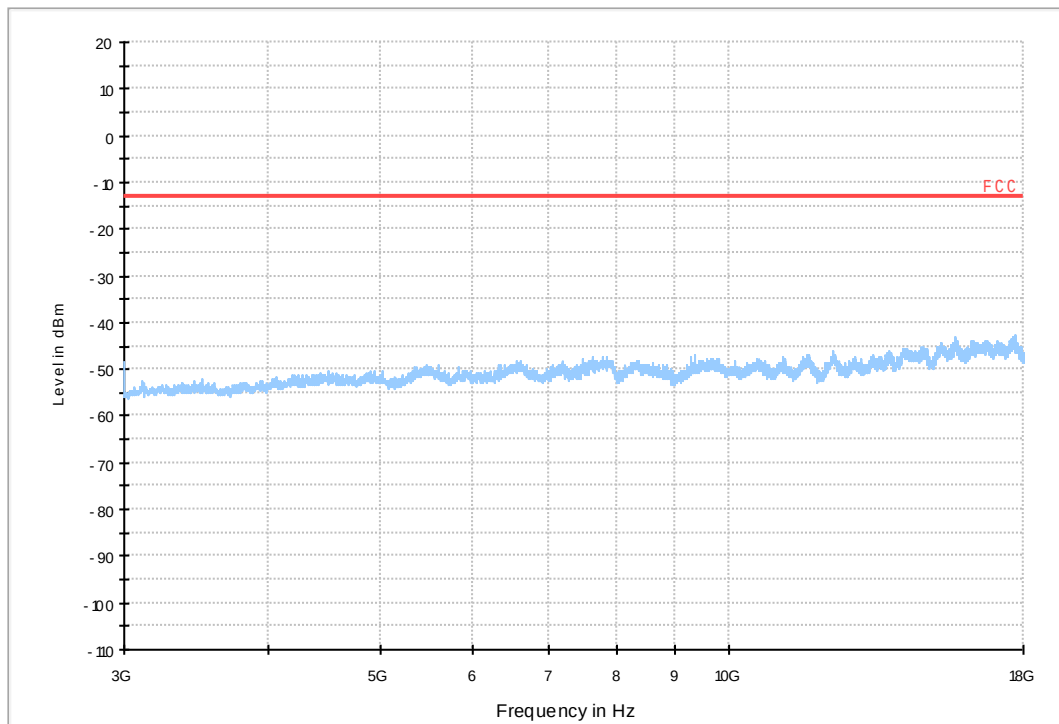
Data: 25



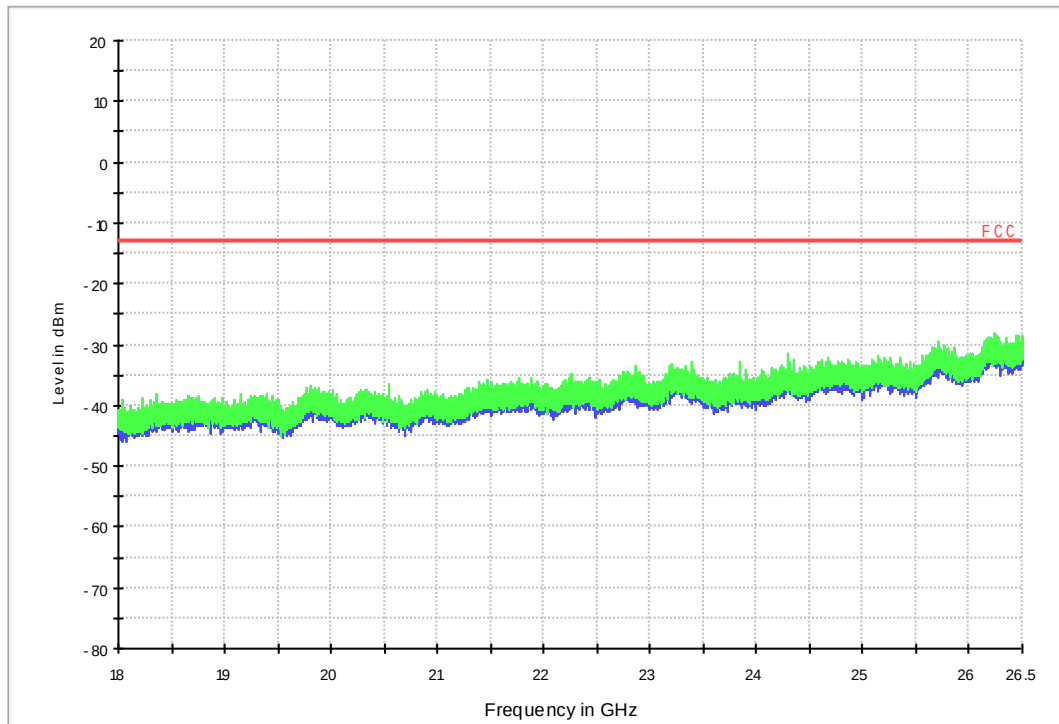
12 FCC PART 24 WCDMA1900_L



11 FCC PART 24 WCDMA1900_H



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

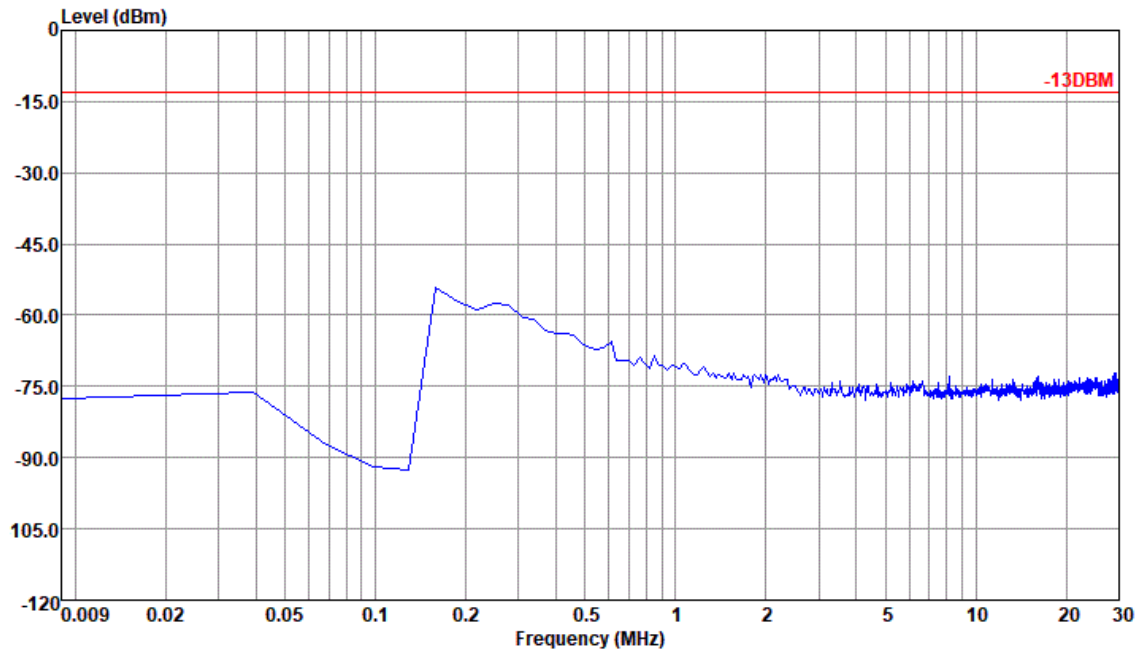


7.1.4 Test Band = WCDMA1900_ANT2

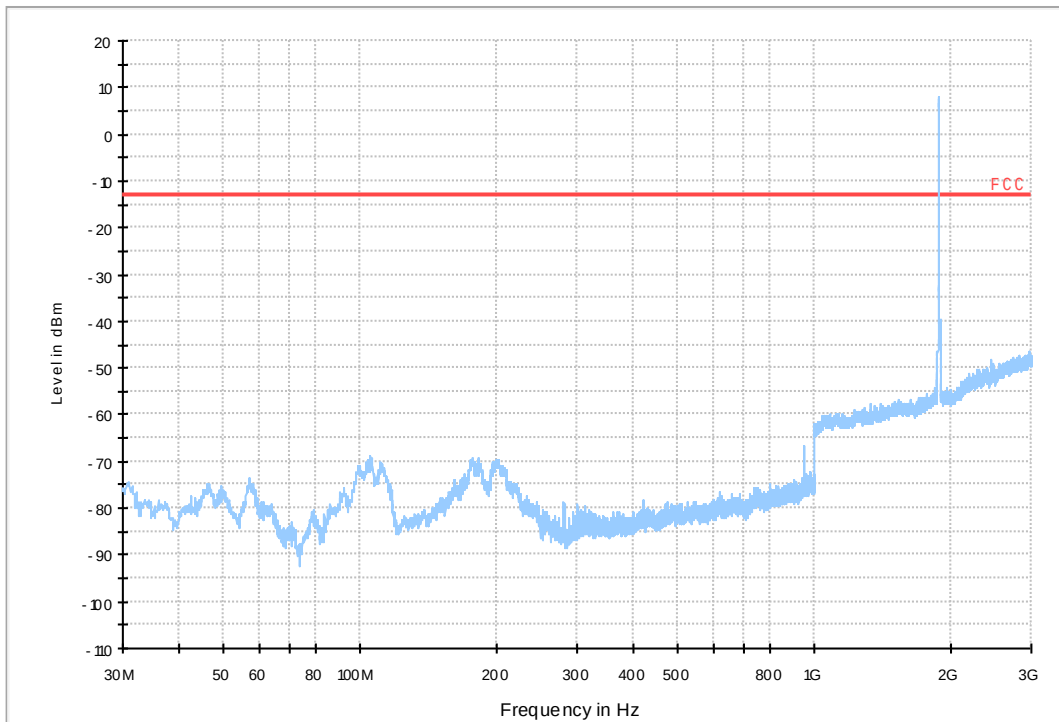
7.1.4.1 Test Mode = UMTS/TM1



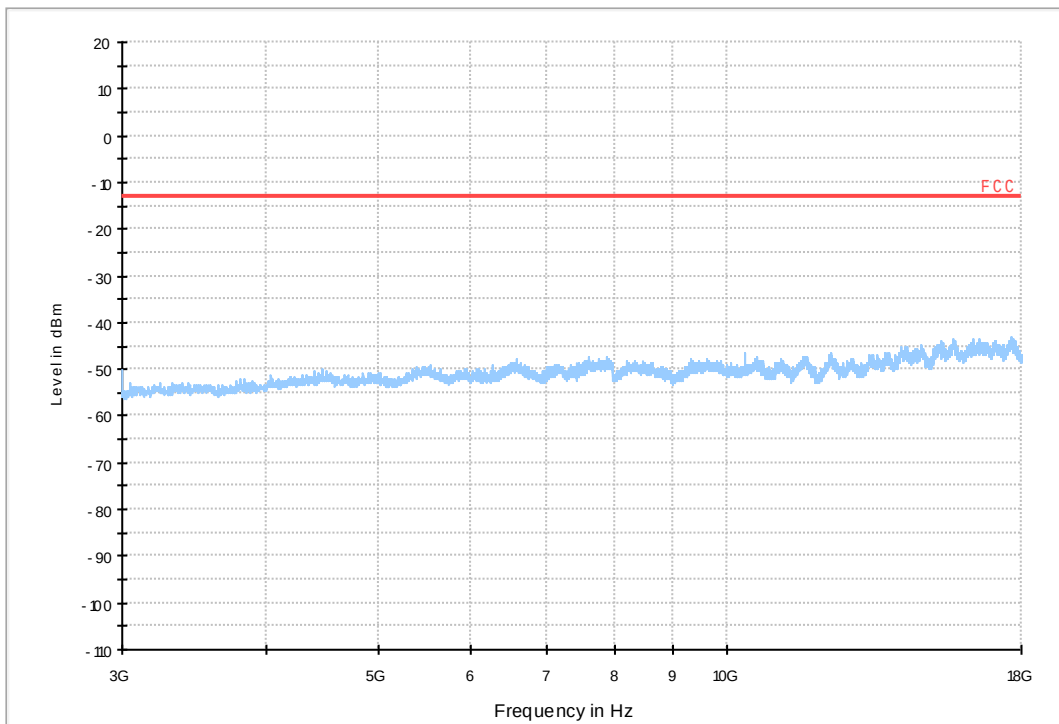
Data: 26



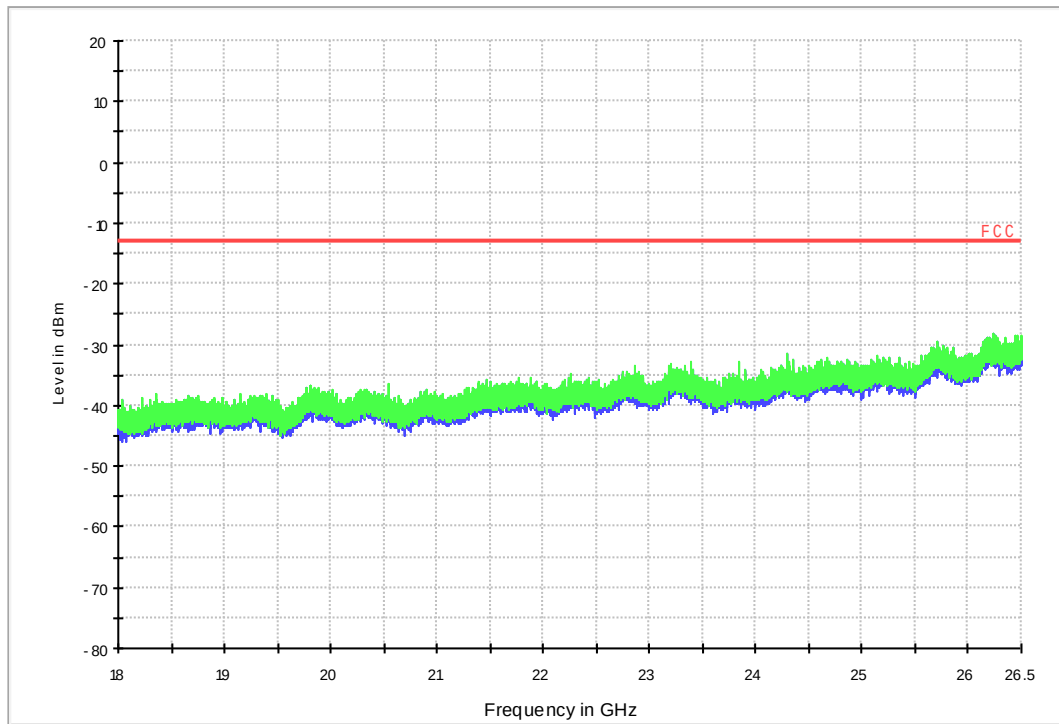
12 FCC PART 24 WCDMA1900_L



11 FCC PART 24 WCDMA1900_H



18G~26.5G R SE-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	-1.59502	-0.00193	PASS
				VN	2.41041	0.00292	PASS
				VH	-7.22408	-0.00874	PASS
		MCH	TN	VL	-1.20878	-0.00145	PASS
				VN	-6.05822	-0.00724	PASS
				VH	-2.38895	-0.00286	PASS
		HCH	TN	VL	2.17438	0.00257	PASS
				VN	-2.08855	-0.00247	PASS
				VH	-2.04563	-0.00242	PASS
WCDMA1900	UMTS/TM1	LCH	TN	VL	1.78814	0.00097	PASS
				VN	-0.05007	-0.00003	PASS
				VH	5.75066	0.00310	PASS
		MCH	TN	VL	4.11987	0.00219	PASS
				VN	-3.90530	-0.00208	PASS
				VH	0.05722	0.00003	PASS
		HCH	TN	VL	2.57492	0.00097	PASS
				VN	6.93798	-0.00003	PASS
				VH	3.64065	0.00310	PASS

8.1.2 Frequency 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	-0.76532	-0.00093	PASS
				-20	-1.75953	-0.00213	PASS
				-10	-2.17438	-0.00263	PASS
				0	-4.04120	-0.00489	PASS
				10	-2.01702	-0.00244	PASS
				20	2.41041	0.00292	PASS
				30	-2.98262	-0.00361	PASS
				40	3.21150	0.00389	PASS
				50	-1.11580	-0.00135	PASS
		MCH	VN	-30	-0.79393	-0.00095	PASS
				-20	-5.25713	-0.00629	PASS
				-10	2.93970	0.00351	PASS
				0	-1.68085	-0.00201	PASS
				10	2.09570	0.00251	PASS
				20	-6.05822	-0.00724	PASS
				30	6.37293	0.00762	PASS
				40	-5.30004	-0.00634	PASS
				50	-5.90086	-0.00706	PASS
		HCH	VN	-30	-0.71526	-0.00084	PASS
				-20	-5.04971	-0.00596	PASS
				-10	3.42607	0.00405	PASS
				0	-2.54631	-0.00301	PASS
				10	0.22888	0.00027	PASS
				20	-2.08855	-0.00247	PASS
				30	3.61204	0.00427	PASS
				40	-4.98533	-0.00589	PASS
				50	-4.89235	-0.00578	PASS
WCDMA1900	UMTS/TM1	LCH	VN	-30	1.11580	0.00060	PASS
				-20	4.63486	0.00250	PASS
				-10	3.41177	0.00184	PASS
				0	-0.80109	-0.00043	PASS
				10	0.42200	0.00023	PASS
				20	-0.05007	-0.00003	PASS
				30	1.10149	0.00059	PASS
				40	1.47343	0.00080	PASS
				50	-0.50068	-0.00027	PASS
		MCH	VN	-30	-2.73228	-0.00145	PASS
				-20	2.83956	0.00151	PASS



Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				-10	-1.48773	-0.00079	PASS
				0	4.57764	0.00243	PASS
				10	3.59774	0.00191	PASS
				20	-3.90530	-0.00208	PASS
				30	2.96831	0.00158	PASS
				40	1.51634	0.00081	PASS
				50	5.31435	0.00283	PASS
		HCH	VN	-30	-1.56641	-0.00082	PASS
				-20	6.22272	0.00326	PASS
				-10	2.56777	0.00135	PASS
				0	4.55618	0.00239	PASS
				10	1.58072	0.00083	PASS
				20	6.93798	0.00364	PASS
				30	0.93698	0.00049	PASS
				40	3.44753	0.00181	PASS
				50	6.22272	0.00326	PASS

END