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	24.42	17.37	38.5	PASS
		MCH	24.33	17.28	38.5	PASS
		HCH	24.30	17.25	38.5	PASS
Test Band	**Test Mode**	**Test Channel**	**Conducted Power [dBm]**	**EIRP [dBm]**	**Limit [dBm]**	**Verdict**
WCDMA1700	UMTS/TM1	LCH	24.11	22.80	30	PASS
		MCH	24.11	22.80	30	PASS
		HCH	23.92	22.62	30	PASS
WCDMA1900	UMTS/TM1	LCH	23.56	21.36	33	PASS
		MCH	23.63	21.43	33	PASS
		HCH	23.56	21.36	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	2.660	13	PASS
		MCH	2.890	13	PASS
		HCH	2.750	13	PASS
WCDMA1700	UMTS/TM1	LCH	2.700	13	PASS
		MCH	2.800	13	PASS
		HCH	2.770	13	PASS
WCDMA1900	UMTS/TM1	LCH	2.960	13	PASS
		MCH	3.040	13	PASS
		HCH	2.760	13	PASS

3Appendix_C: Modulation Characteristics

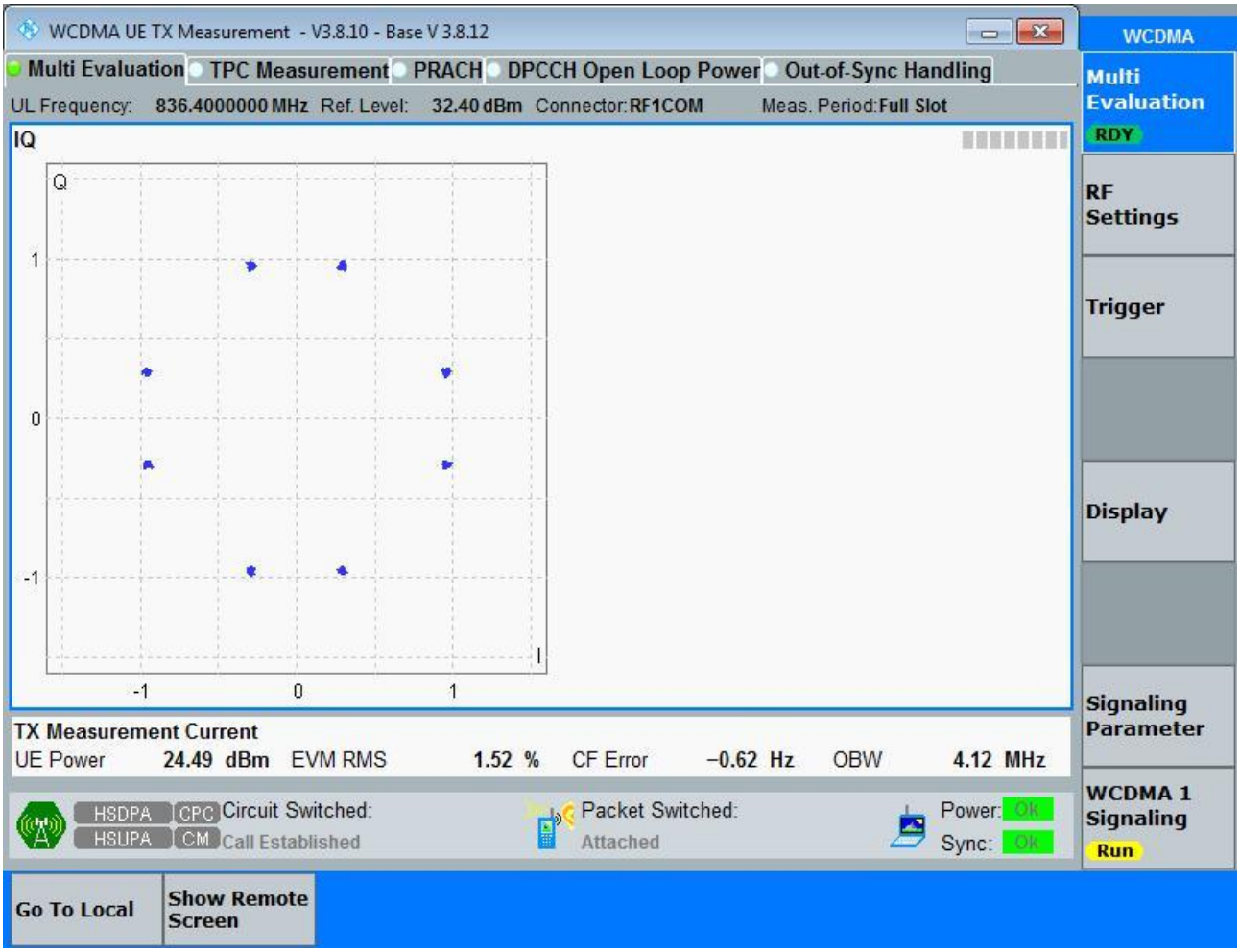
Part I - Test Plots

3.1 For UMTS

3.1.1 Test Band = WCDMA850

3.1.1.1 Test Mode = UMTS/TM1

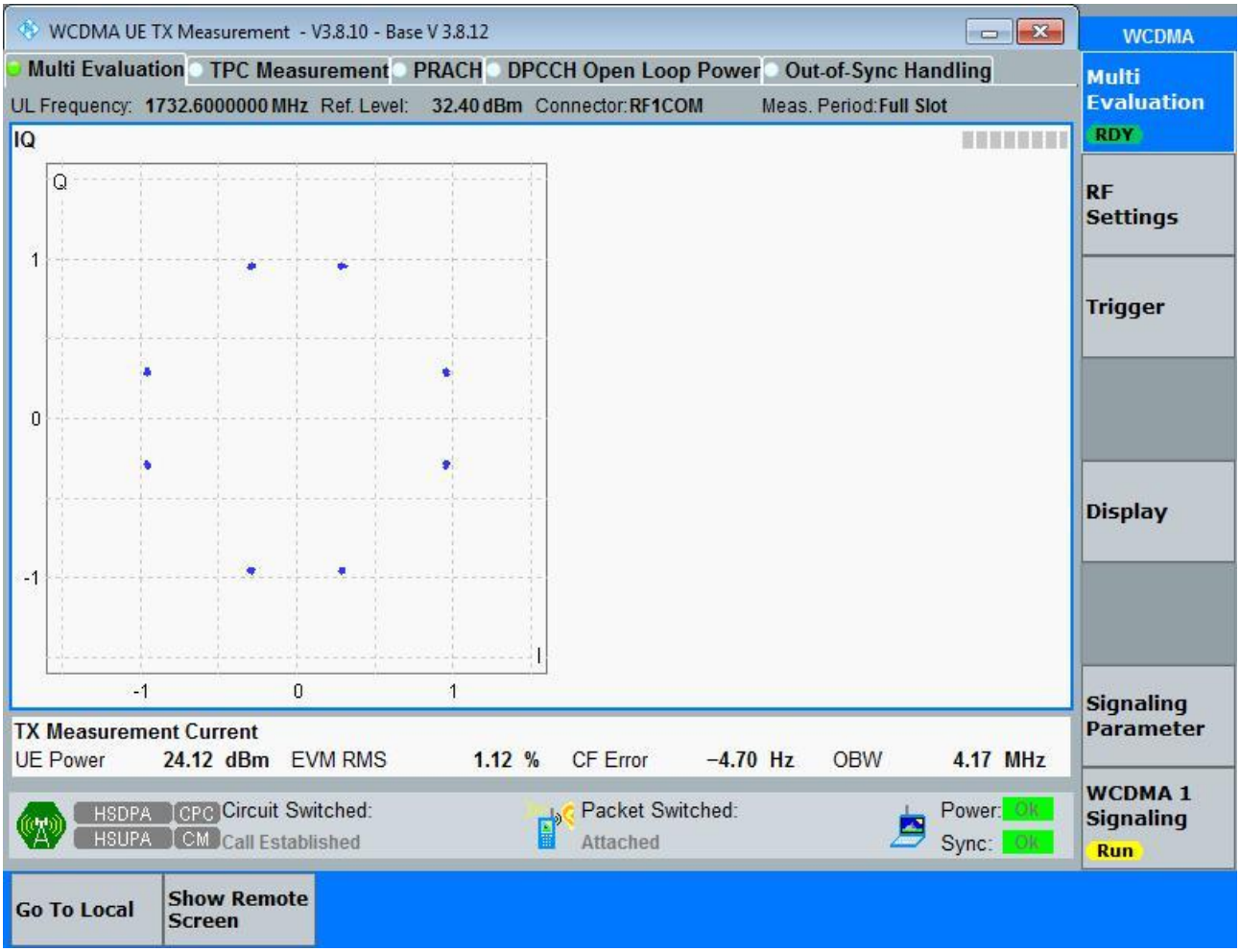
3.1.1.1.1 Test Channel = MCH



3.1.2 Test Band = WCDMA1700

3.1.2.1 Test Mode = UMTS/TM1

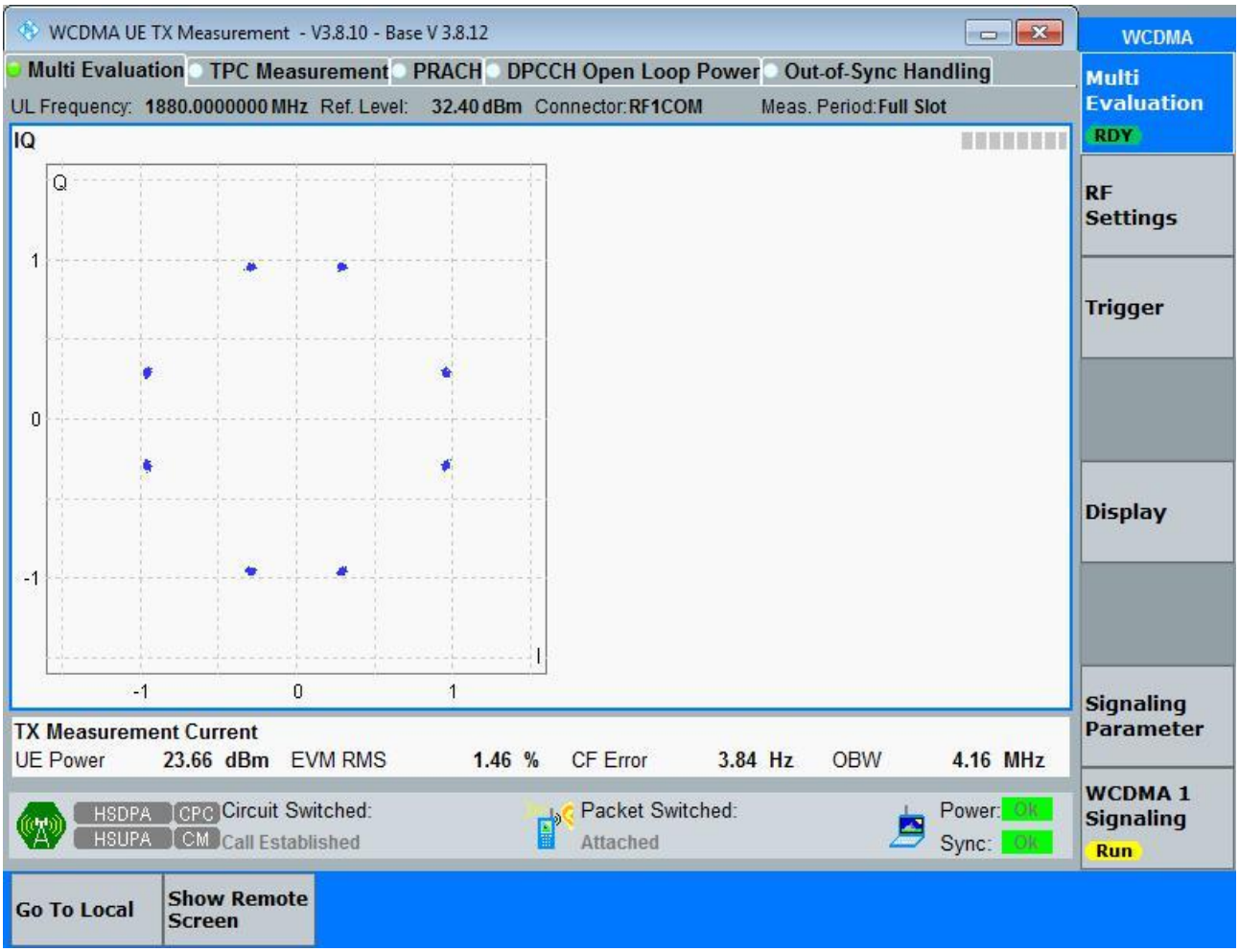
3.1.2.1.1 Test Channel = MCH



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	4.14	4.73	Pass
		MCH	4.15	4.72	Pass
		HCH	4.15	4.72	Pass
WCDMA1700	UMTS/TM1	LCH	4.17	4.76	Pass
		MCH	4.16	4.73	Pass
		HCH	4.14	4.71	Pass
WCDMA1900	UMTS/TM1	LCH	4.15	4.71	Pass
		MCH	4.16	4.71	Pass
		HCH	4.14	4.73	Pass

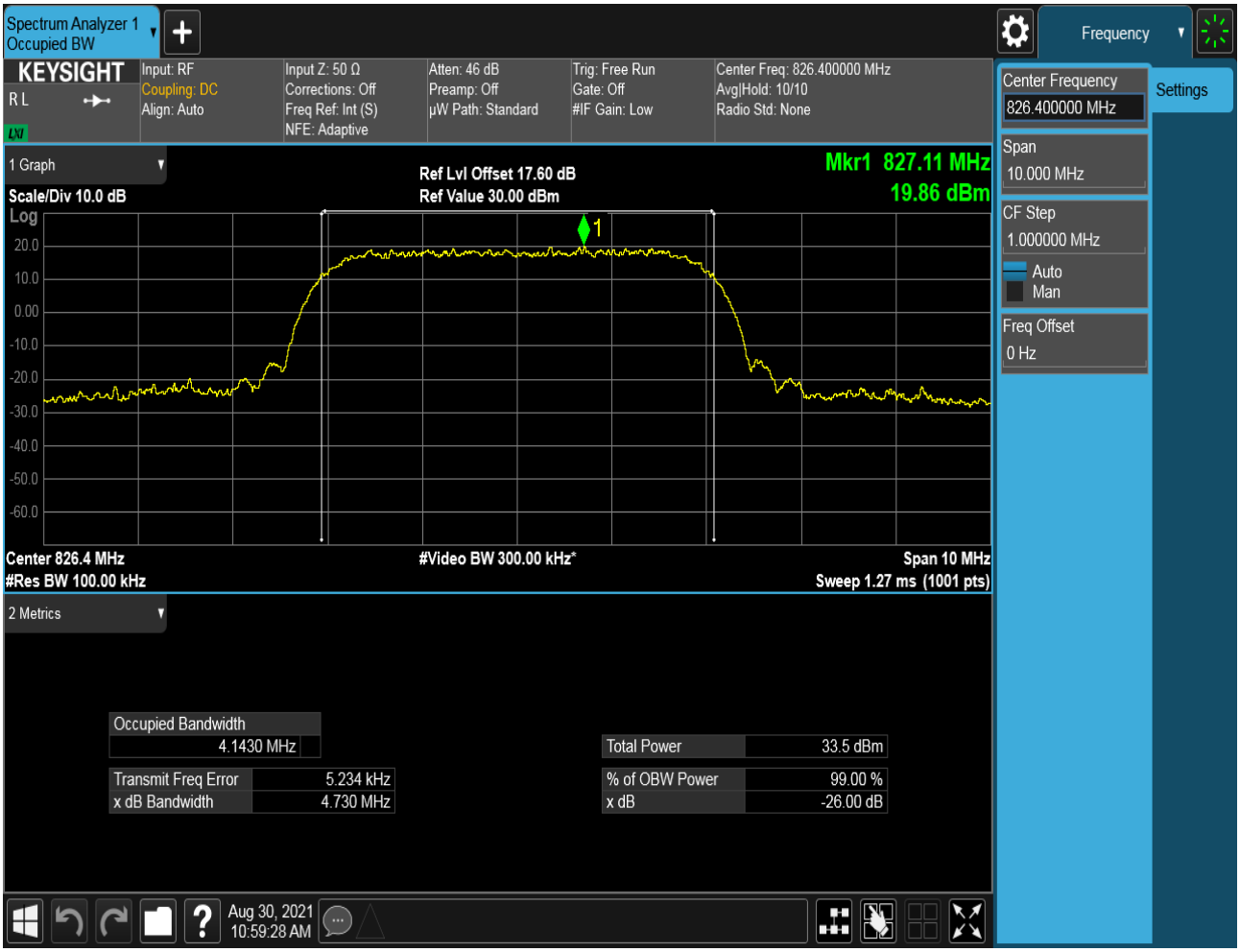
Part II - Test Plots

4.1 For UMTS

4.1.1 Test Band = WCDMA850

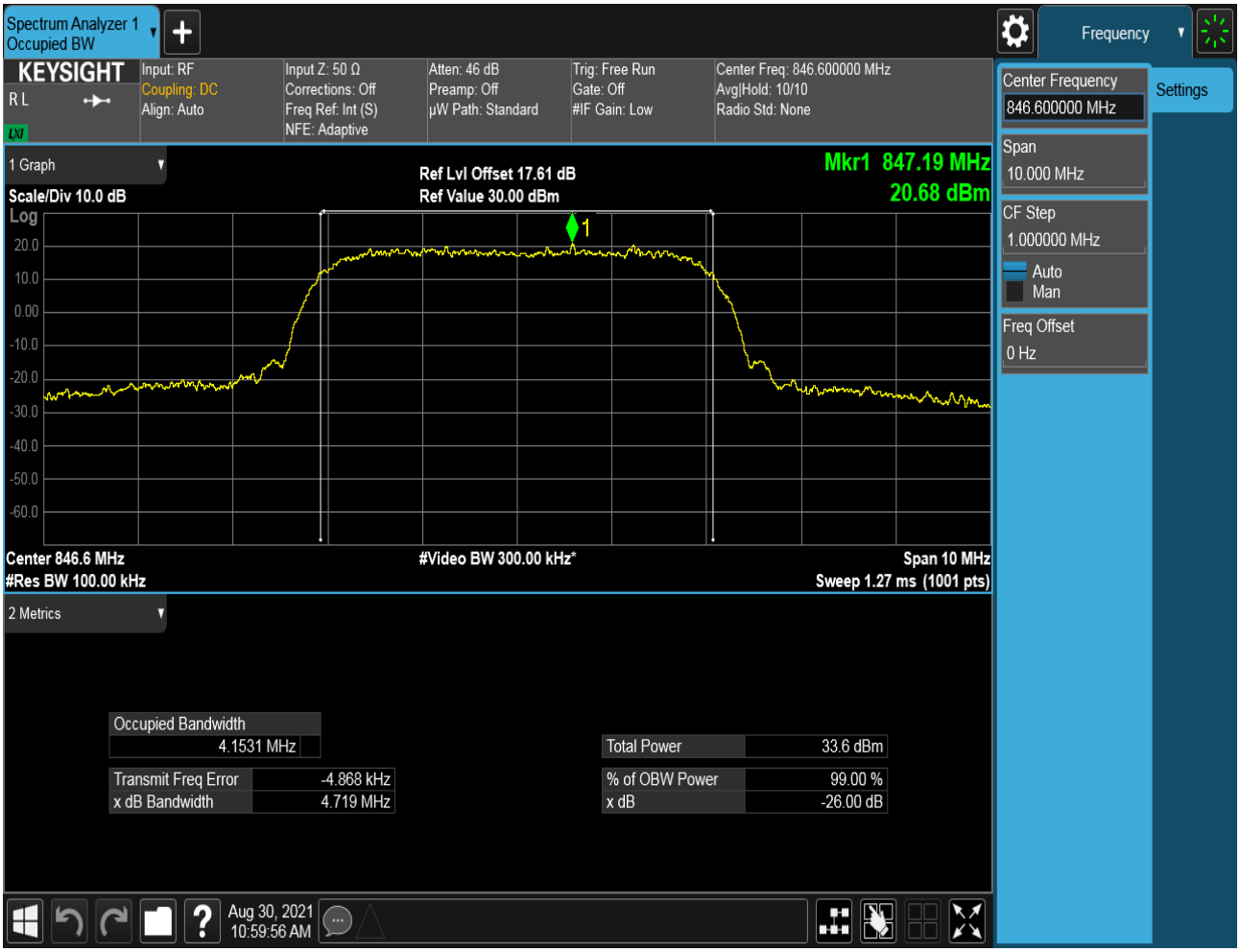
4.1.1.1 Test Mode = UMTS/TM1

4.1.1.1.1 Test Channel = LCH



4.1.1.1.2 Test Channel = MCH

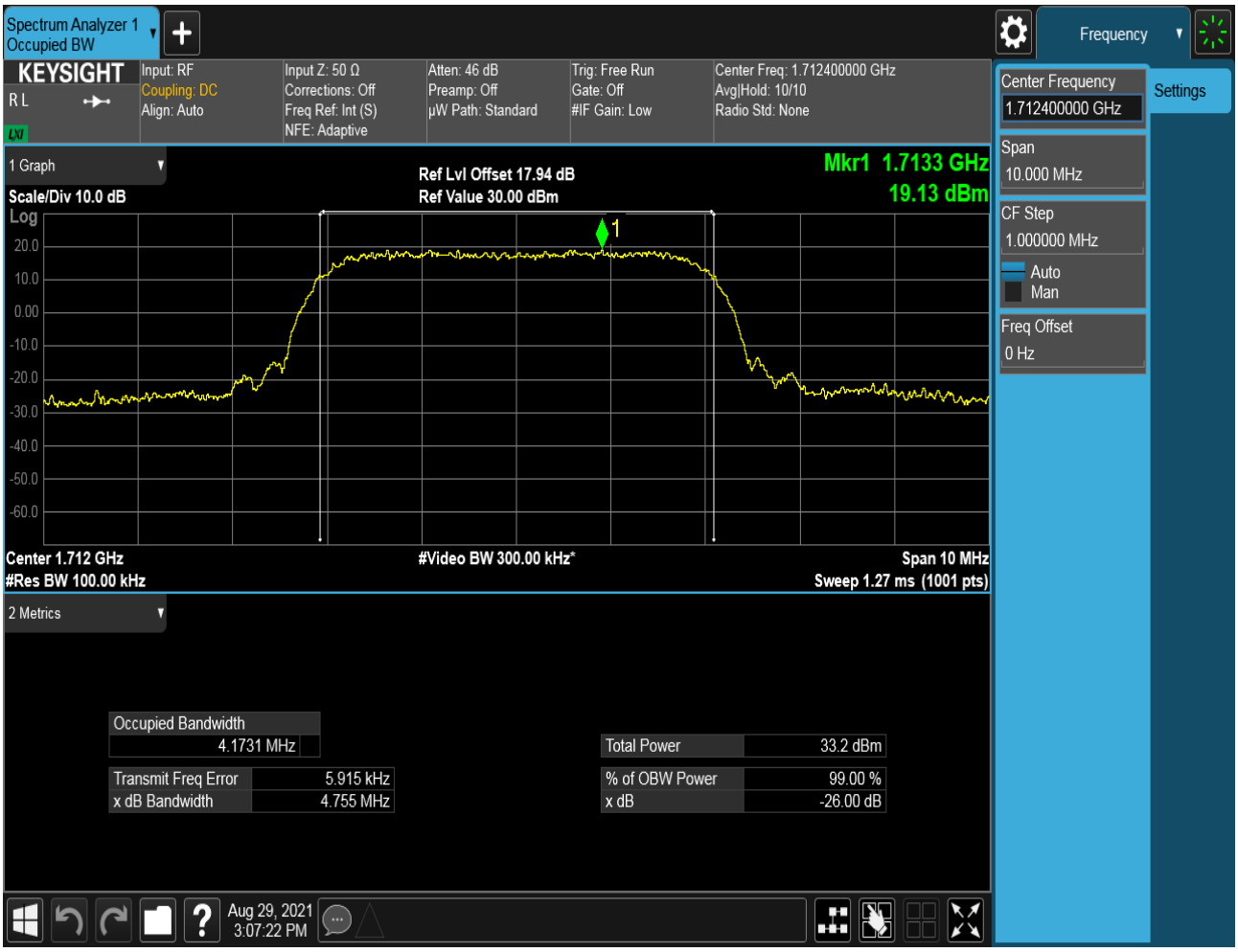
4.1.1.1.3 Test Channel = HCH



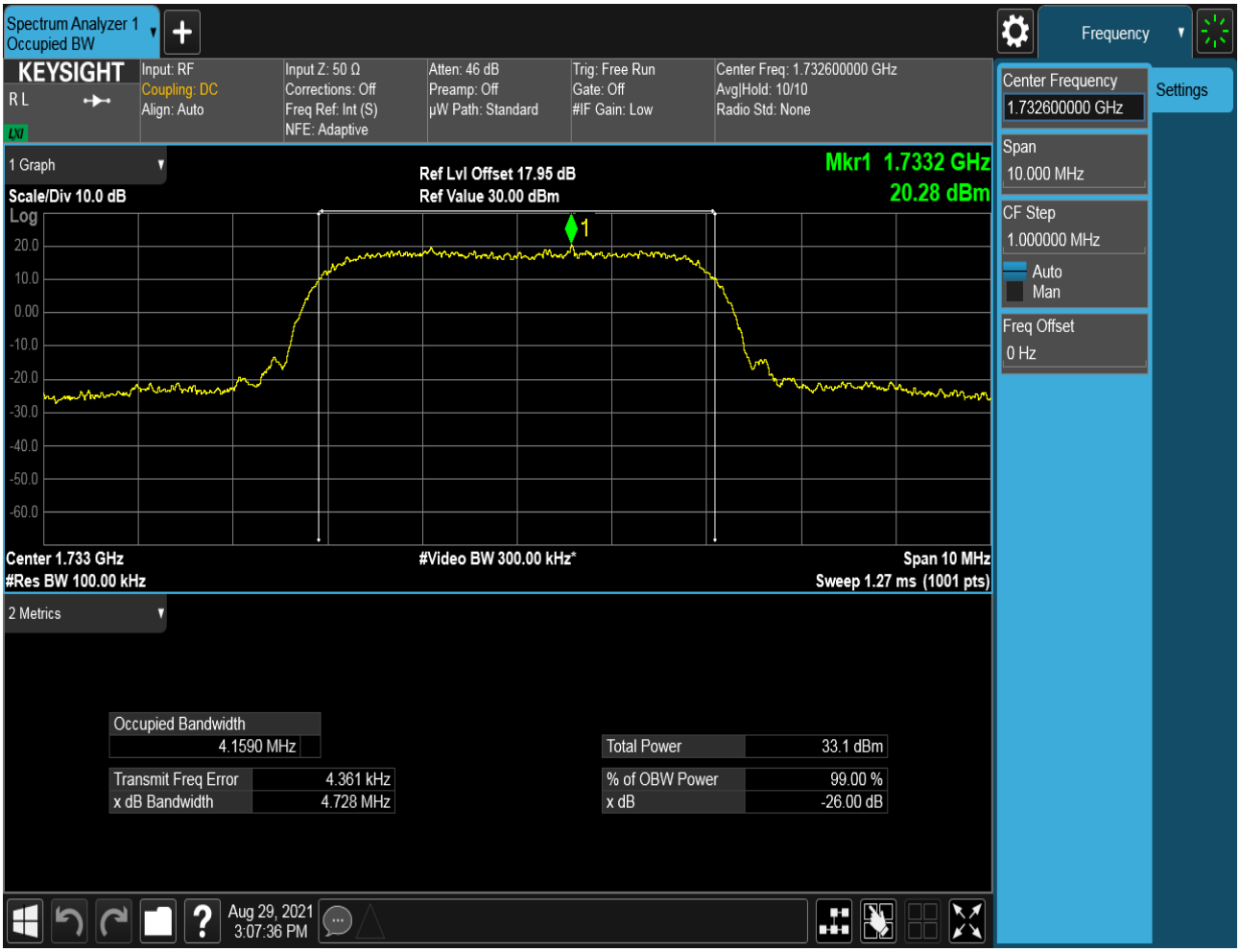
4.1.2 Test Band = WCDMA1700

4.1.2.1 Test Mode = UMTS/TM1

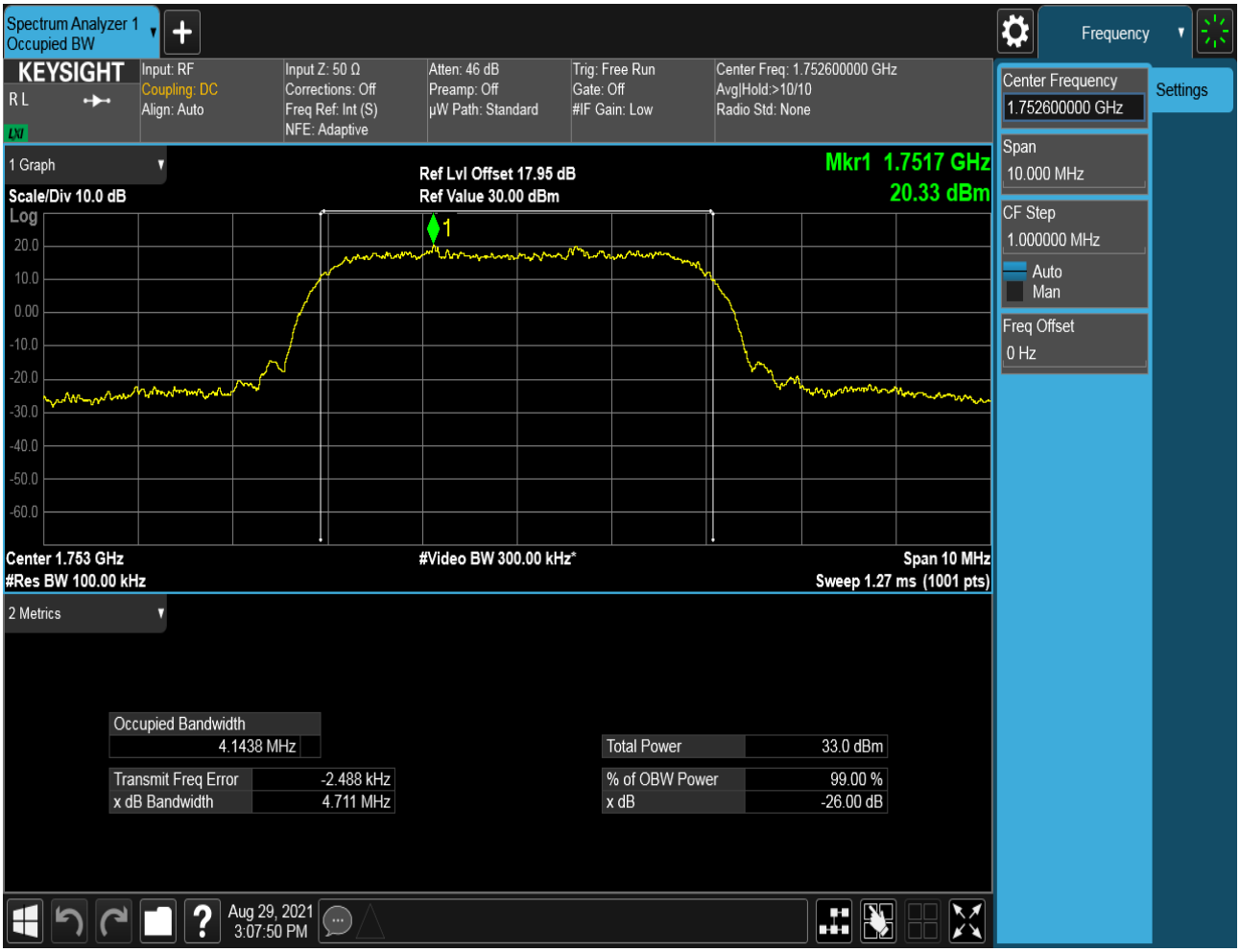
4.1.2.1.1 Test Channel = LCH



4.1.2.1.2 Test Channel = MCH



4.1.2.1.3 Test Channel = HCH

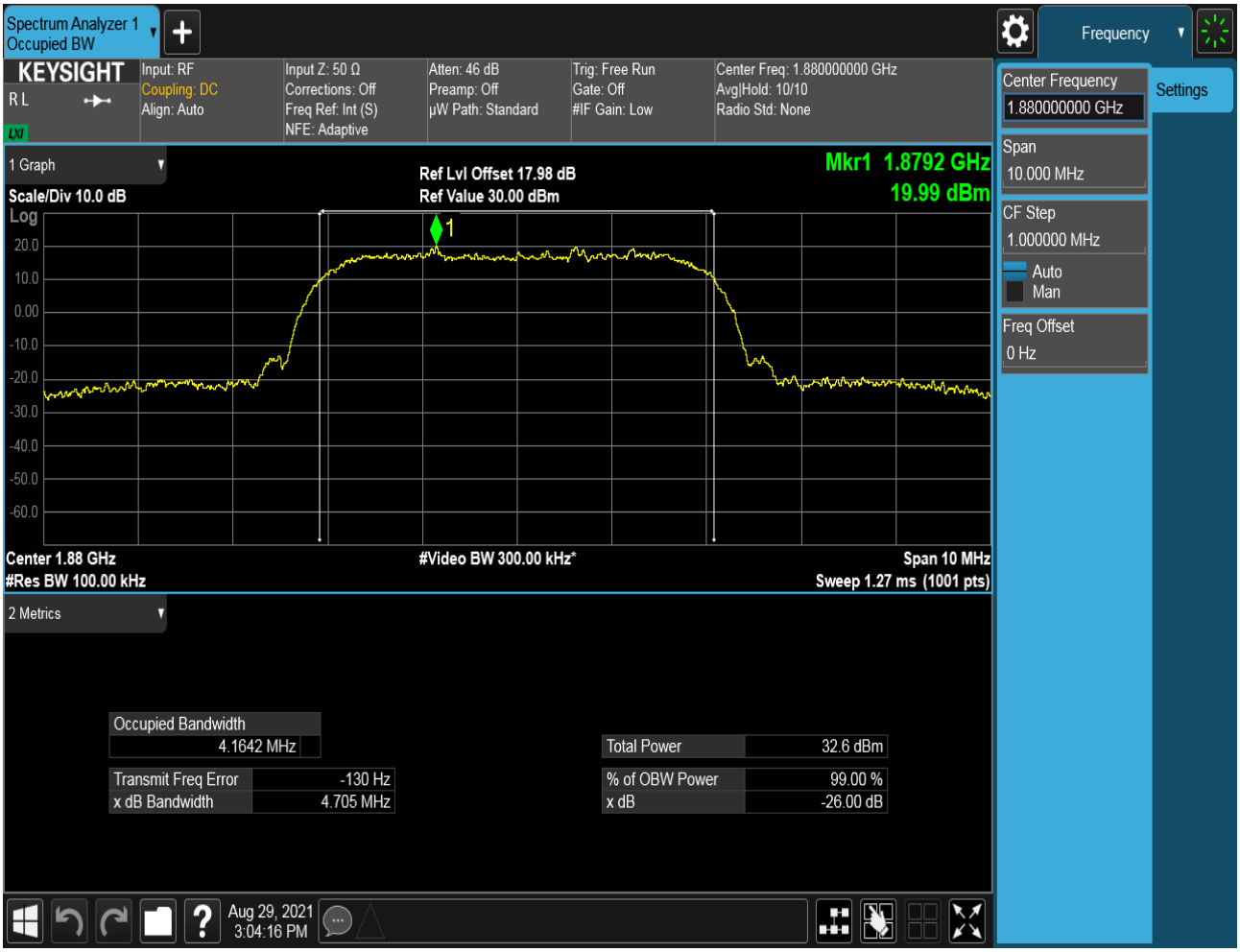


4.1.3 Test Band = WCDMA1900

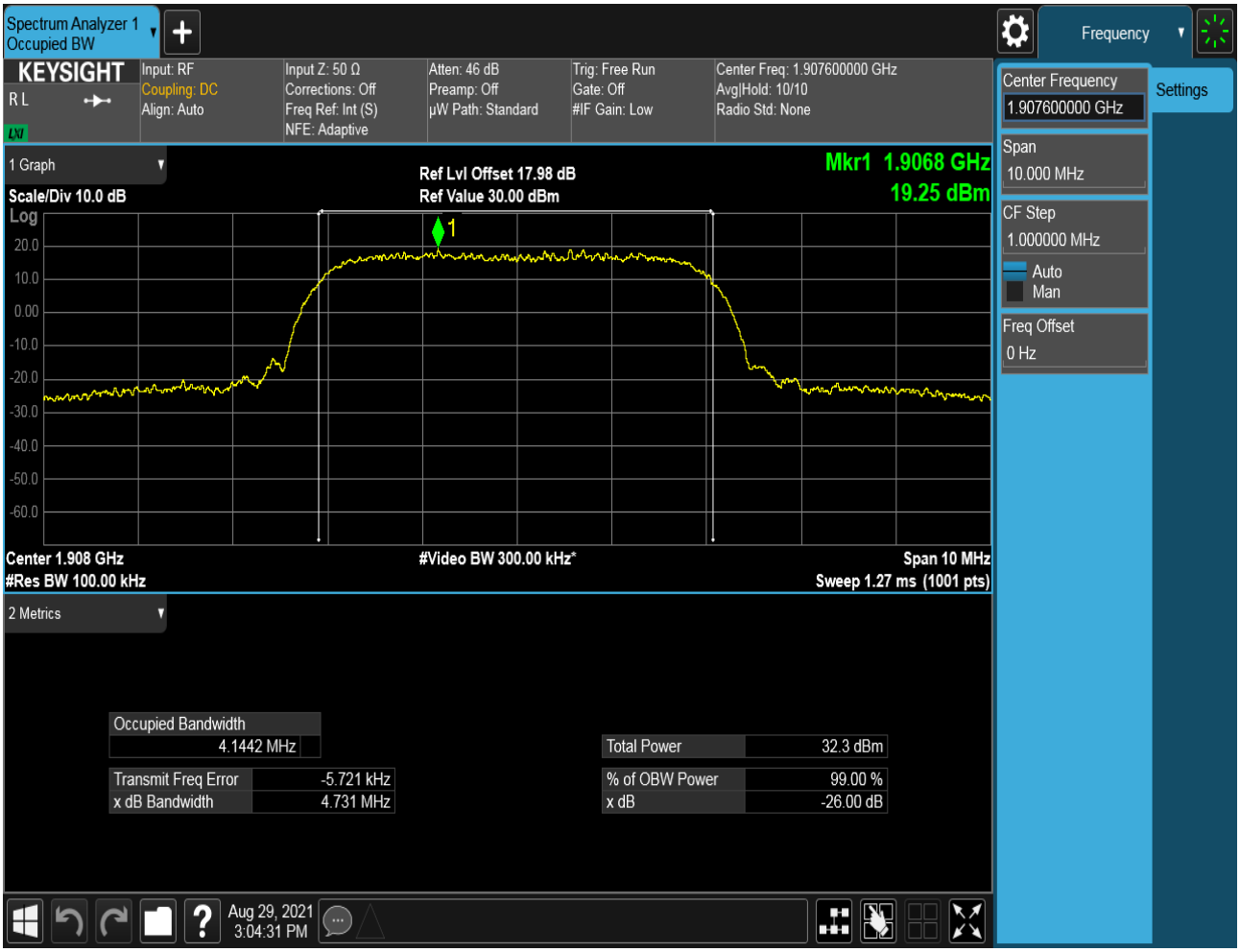
4.1.3.1 Test Mode = UMTS/TM1

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.

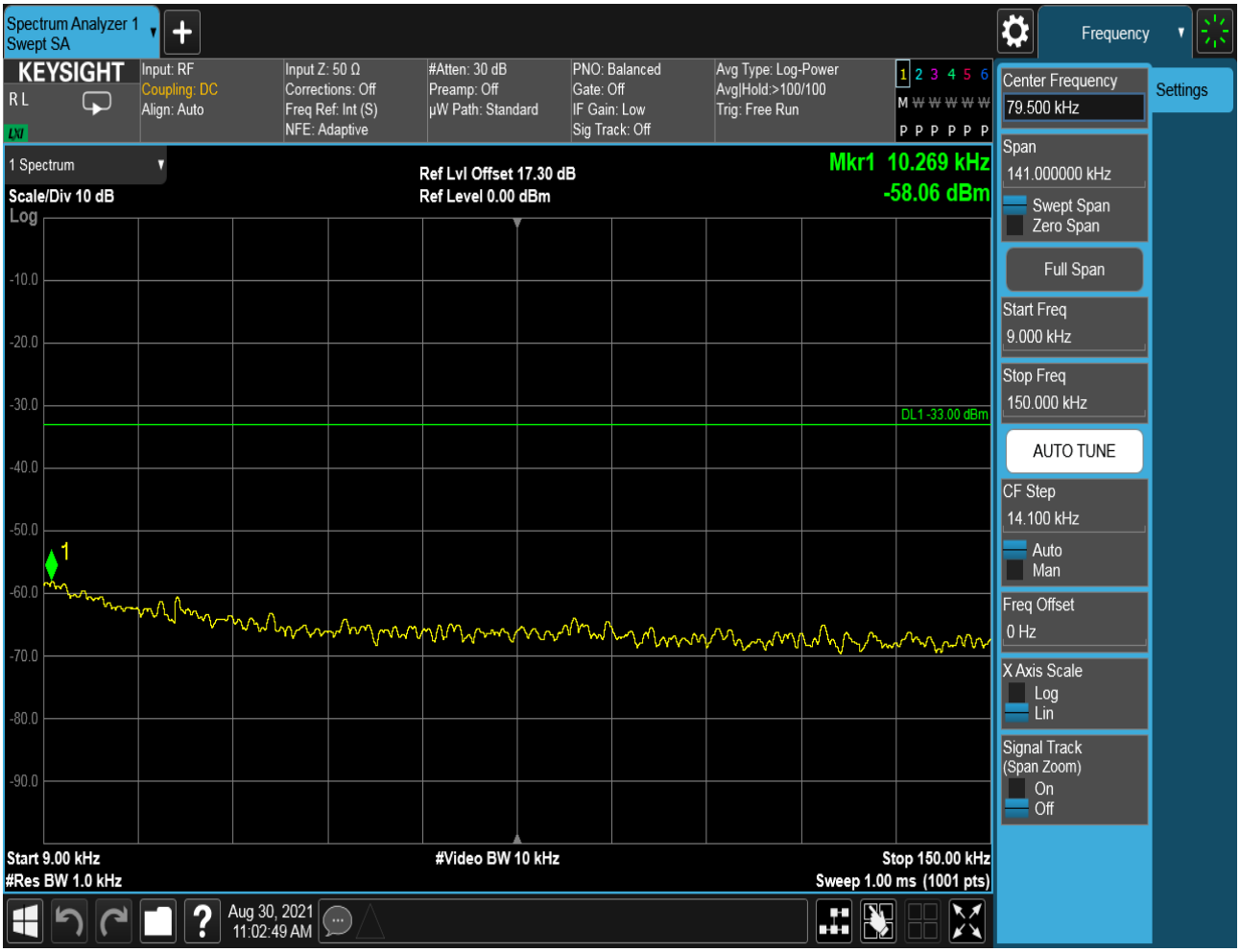
Part I - Test Plots

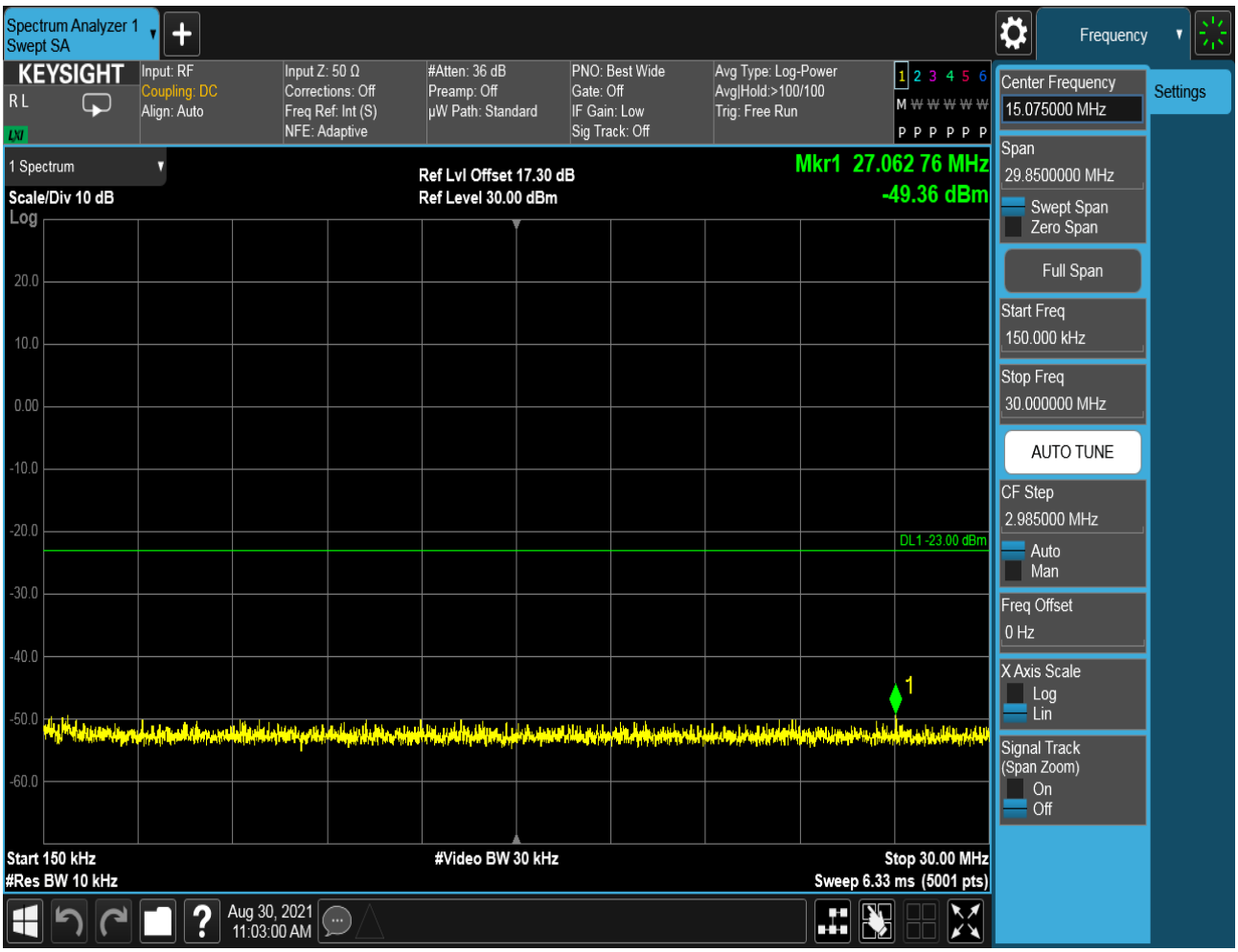
6.1 For UMTS

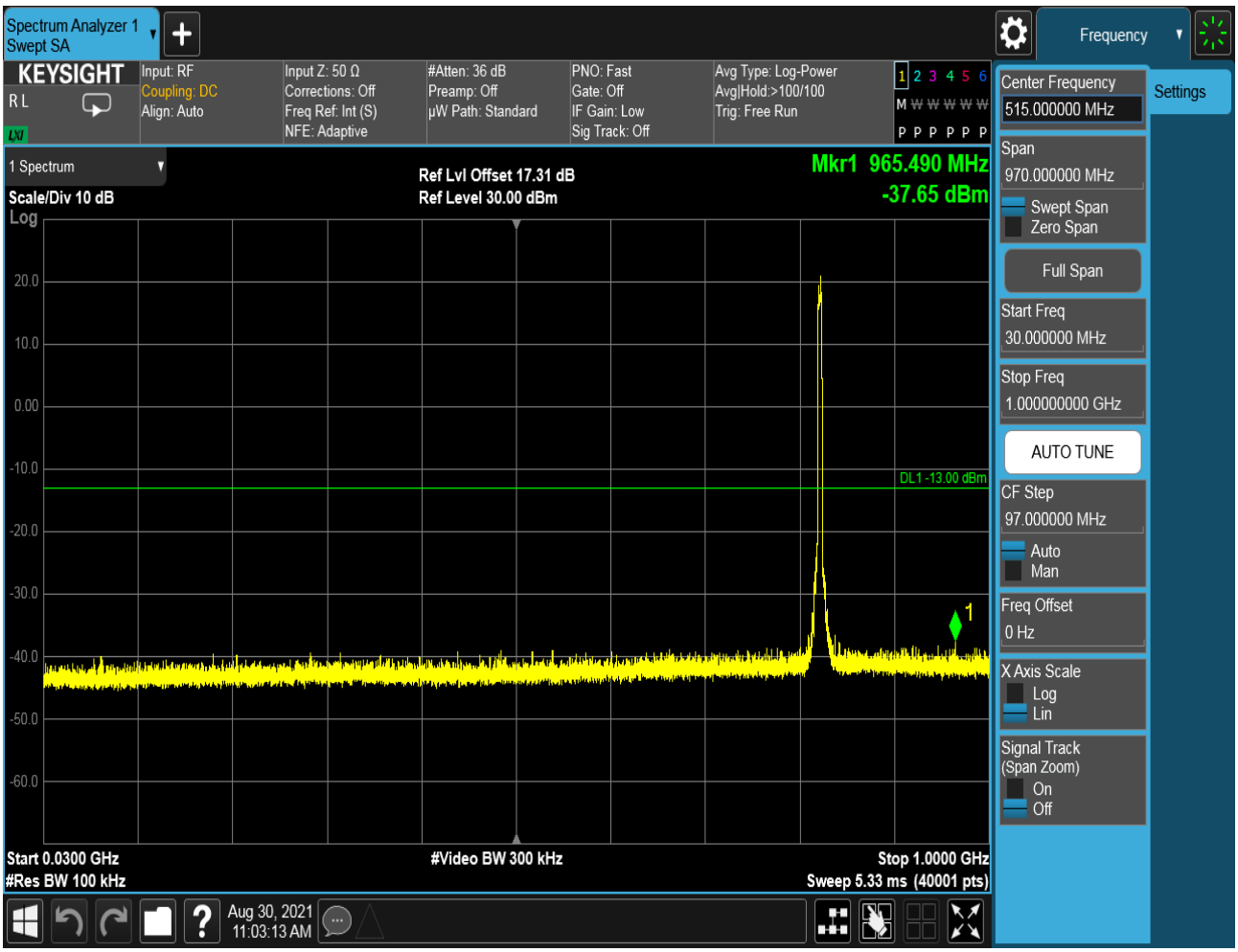
6.1.1 Test Band = WCDMA850

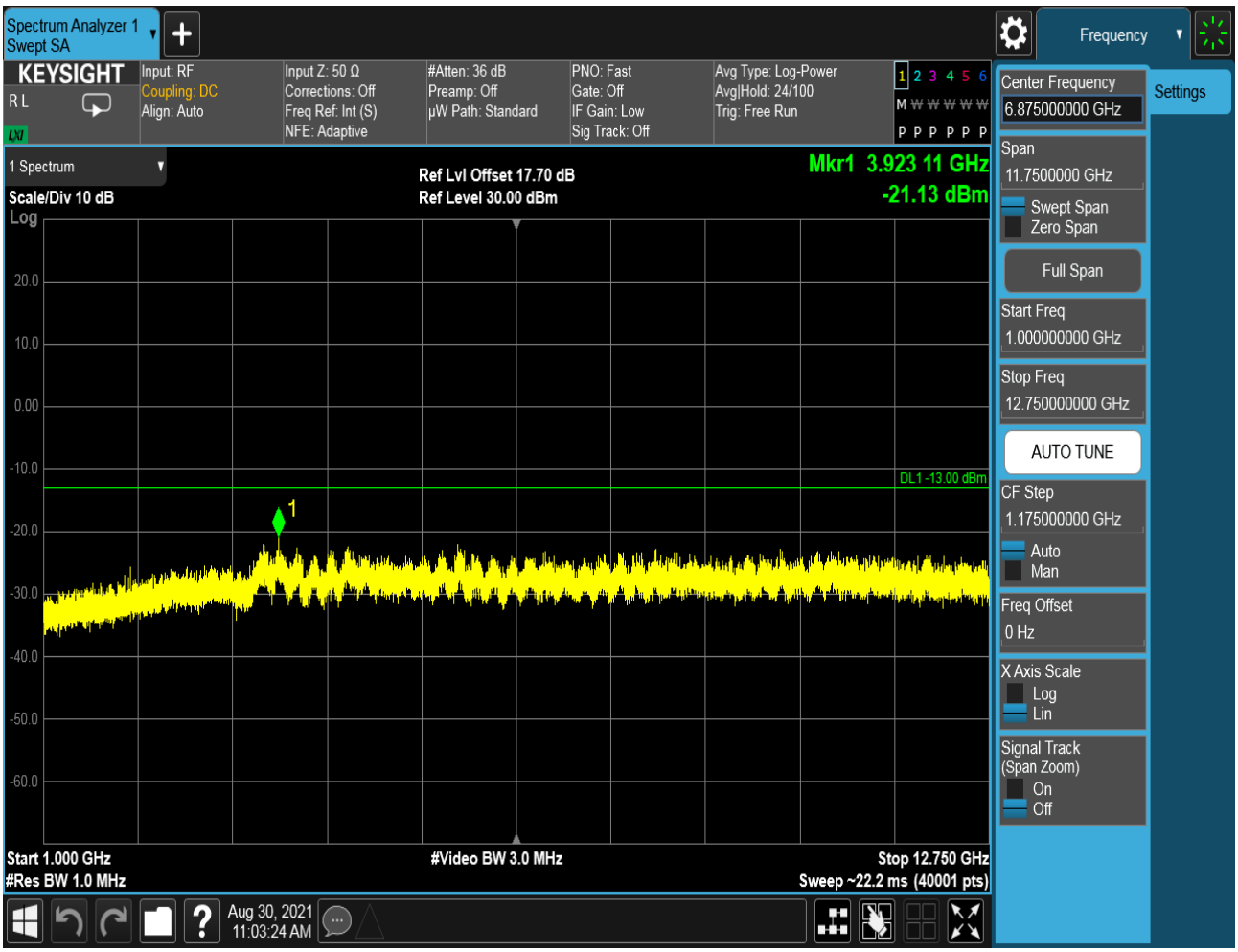
6.1.1.1 Test Mode = UMTS/TM1

6.1.1.1.1 Test Channel = LCH

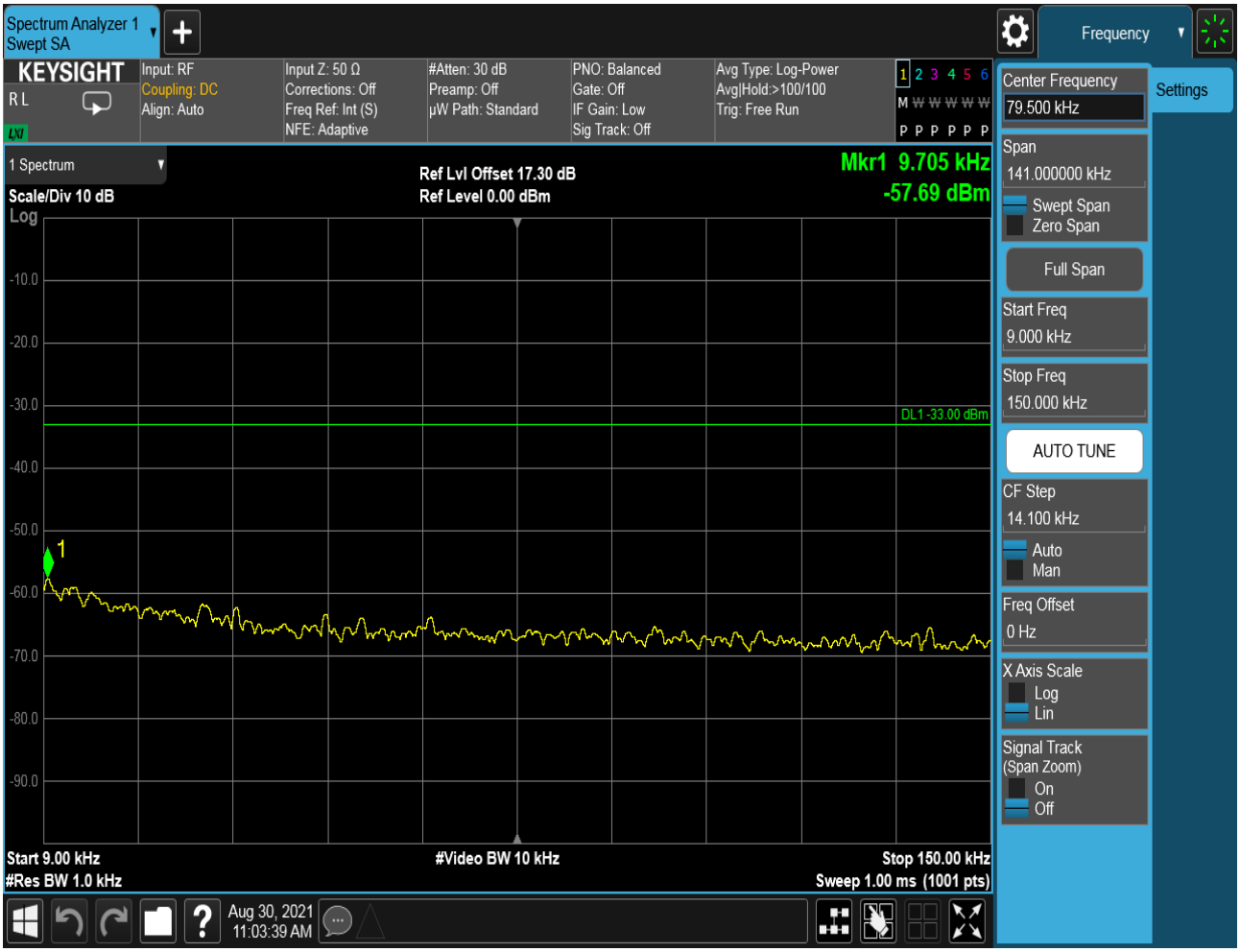


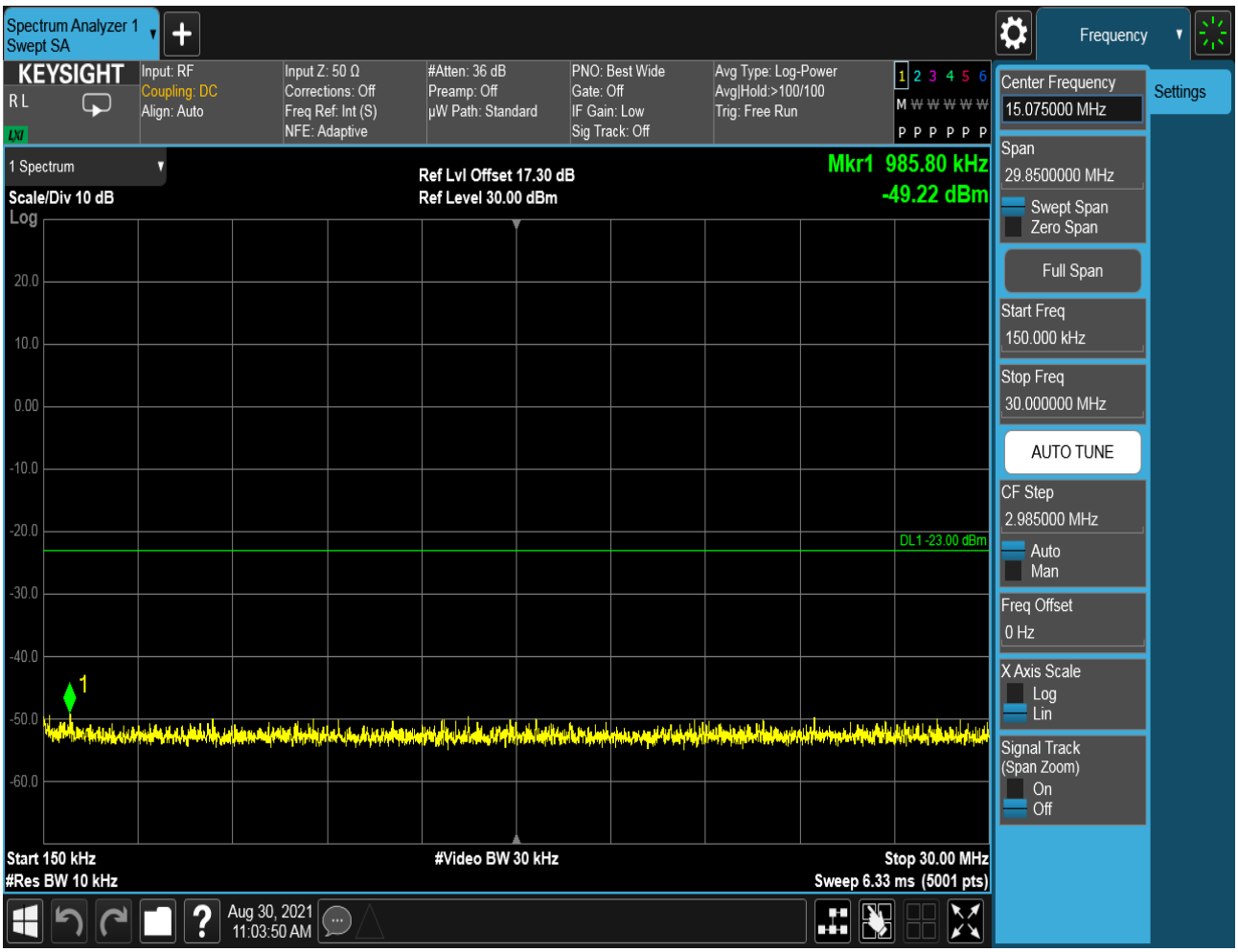


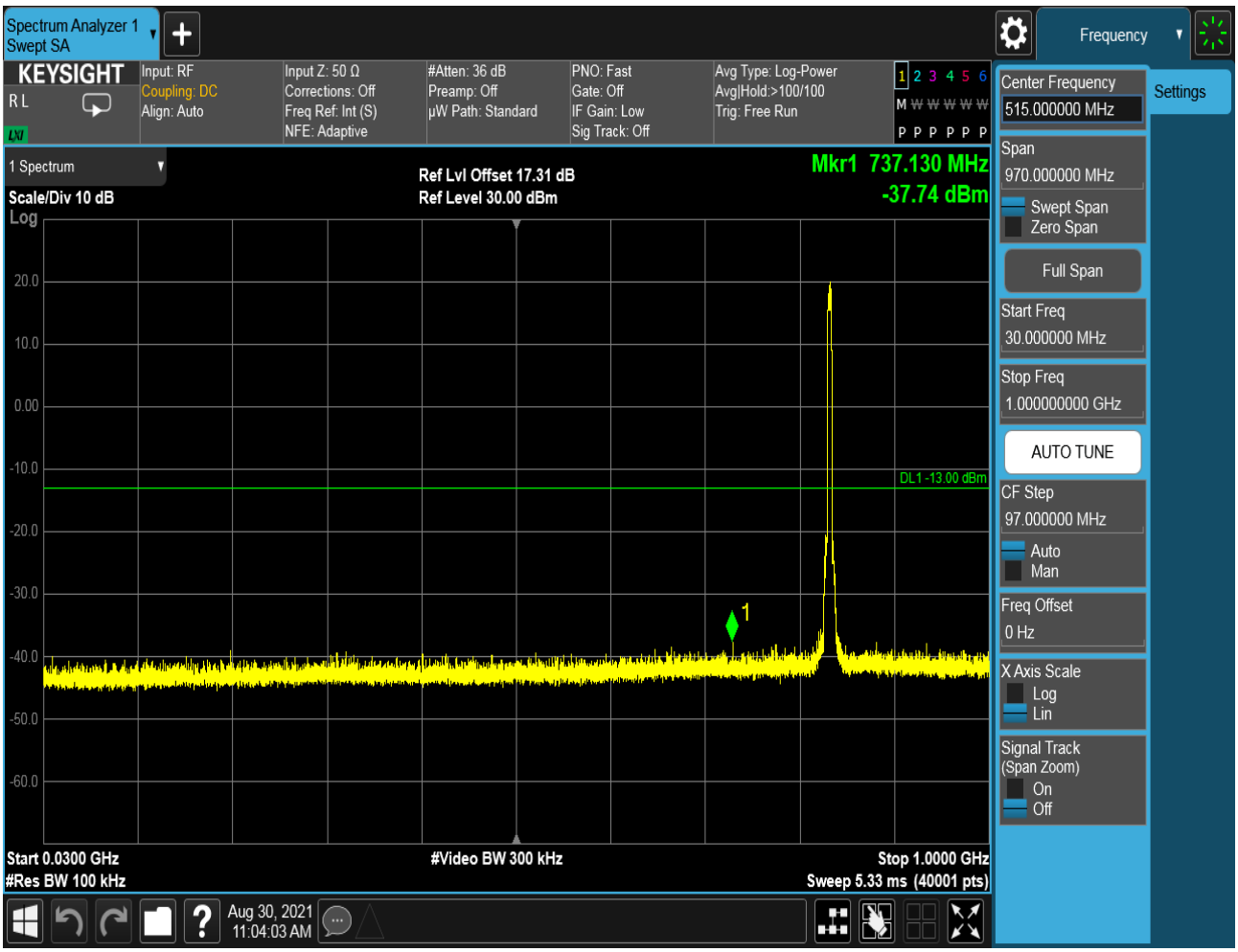


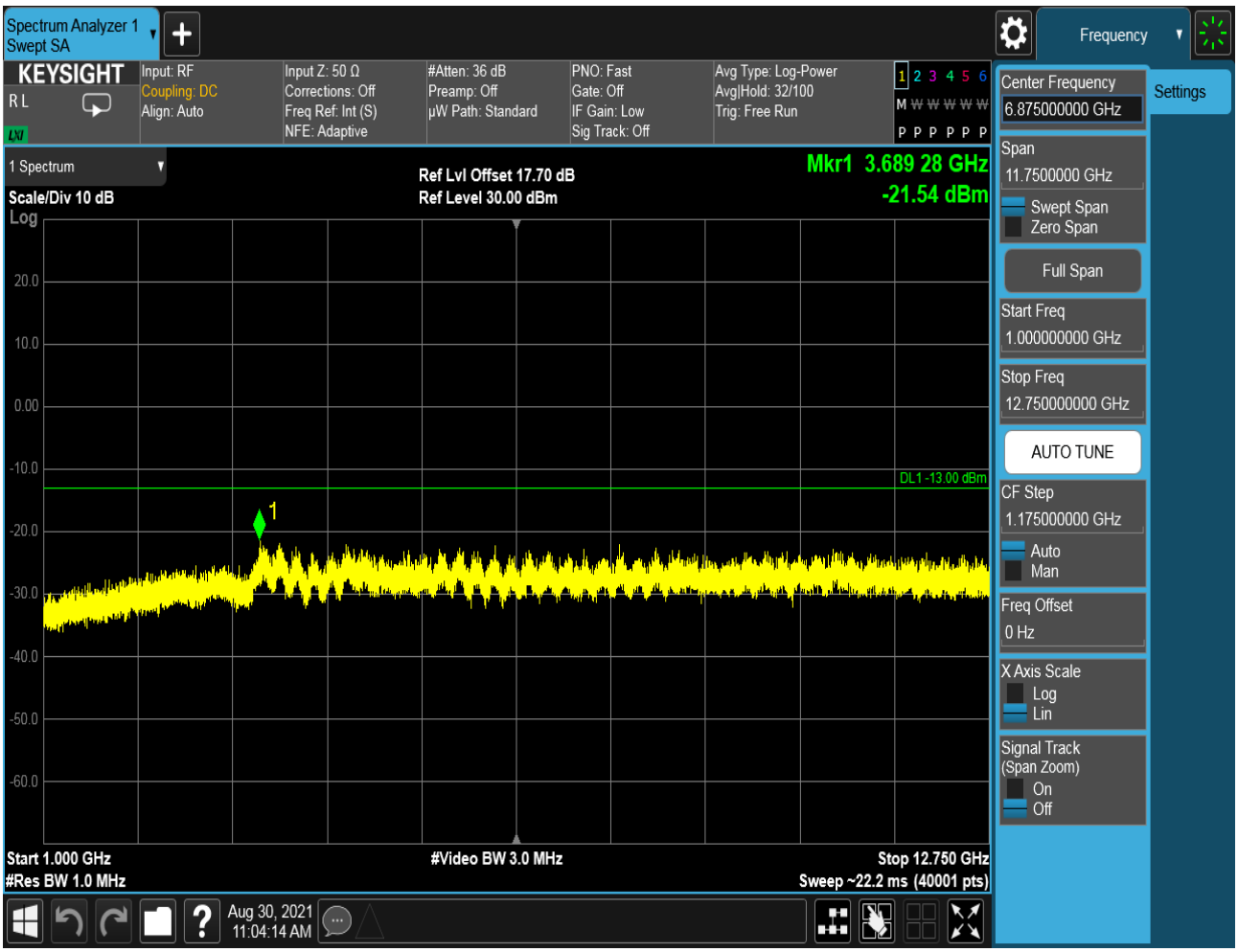


6.1.1.1.2 Test Channel = MCH

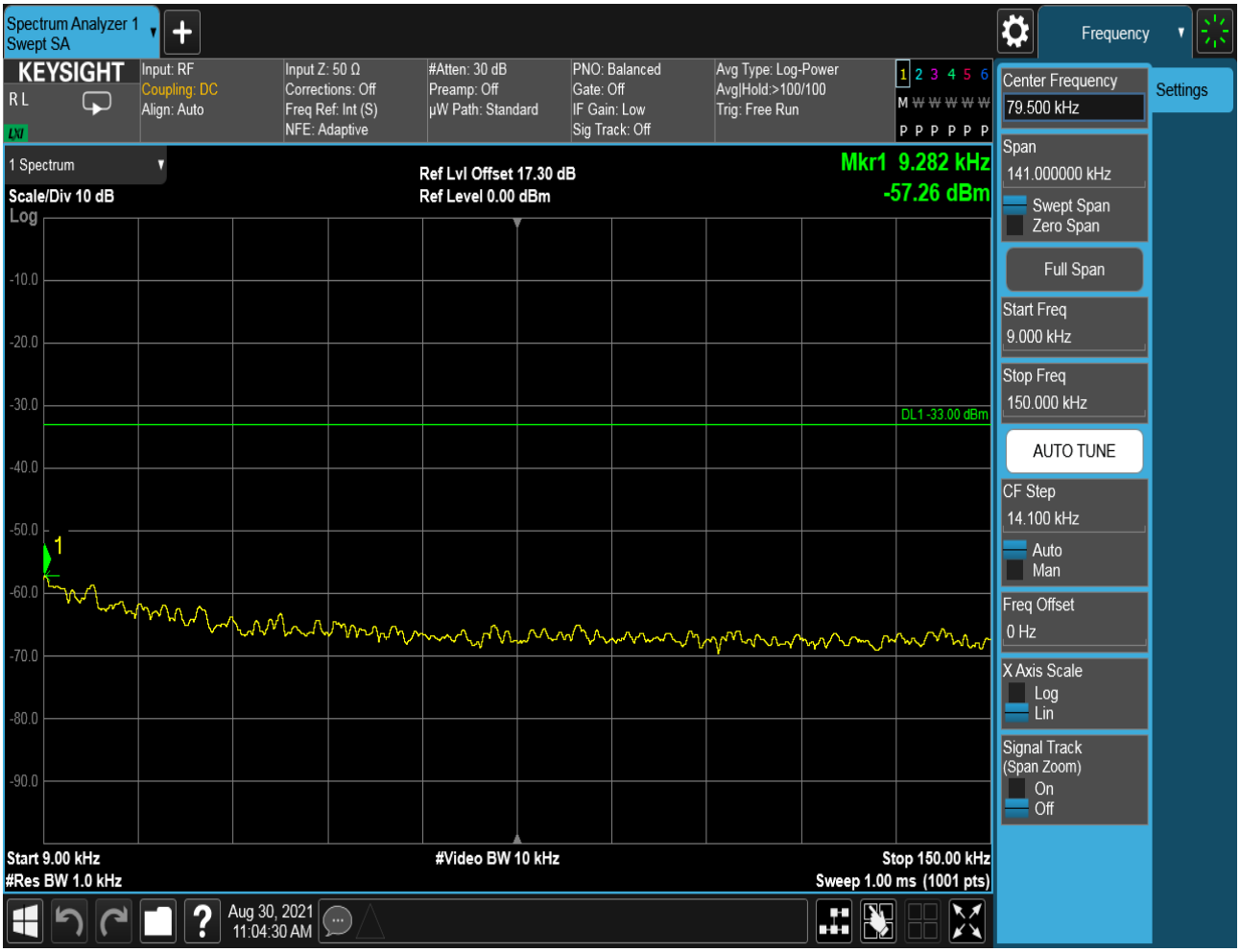


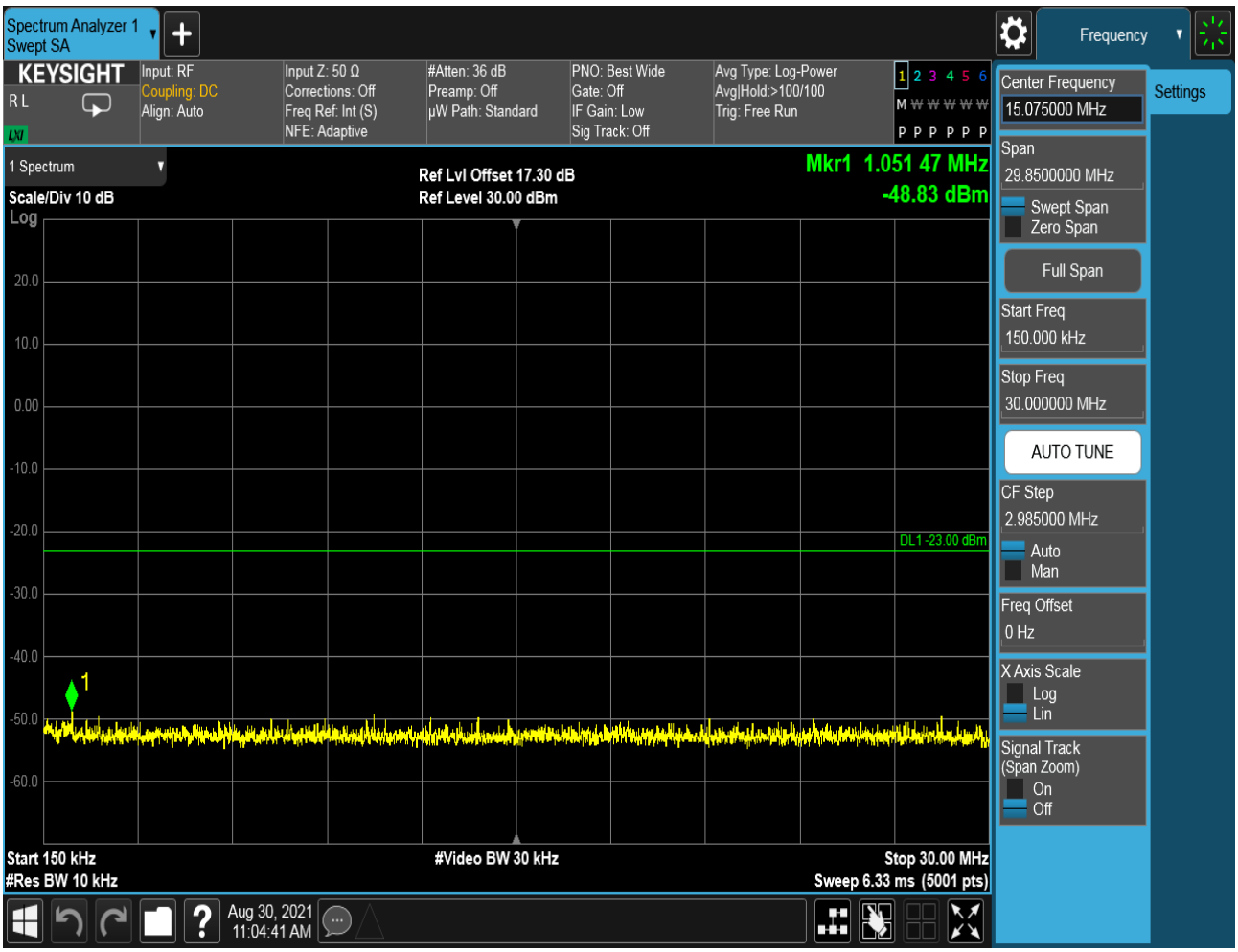


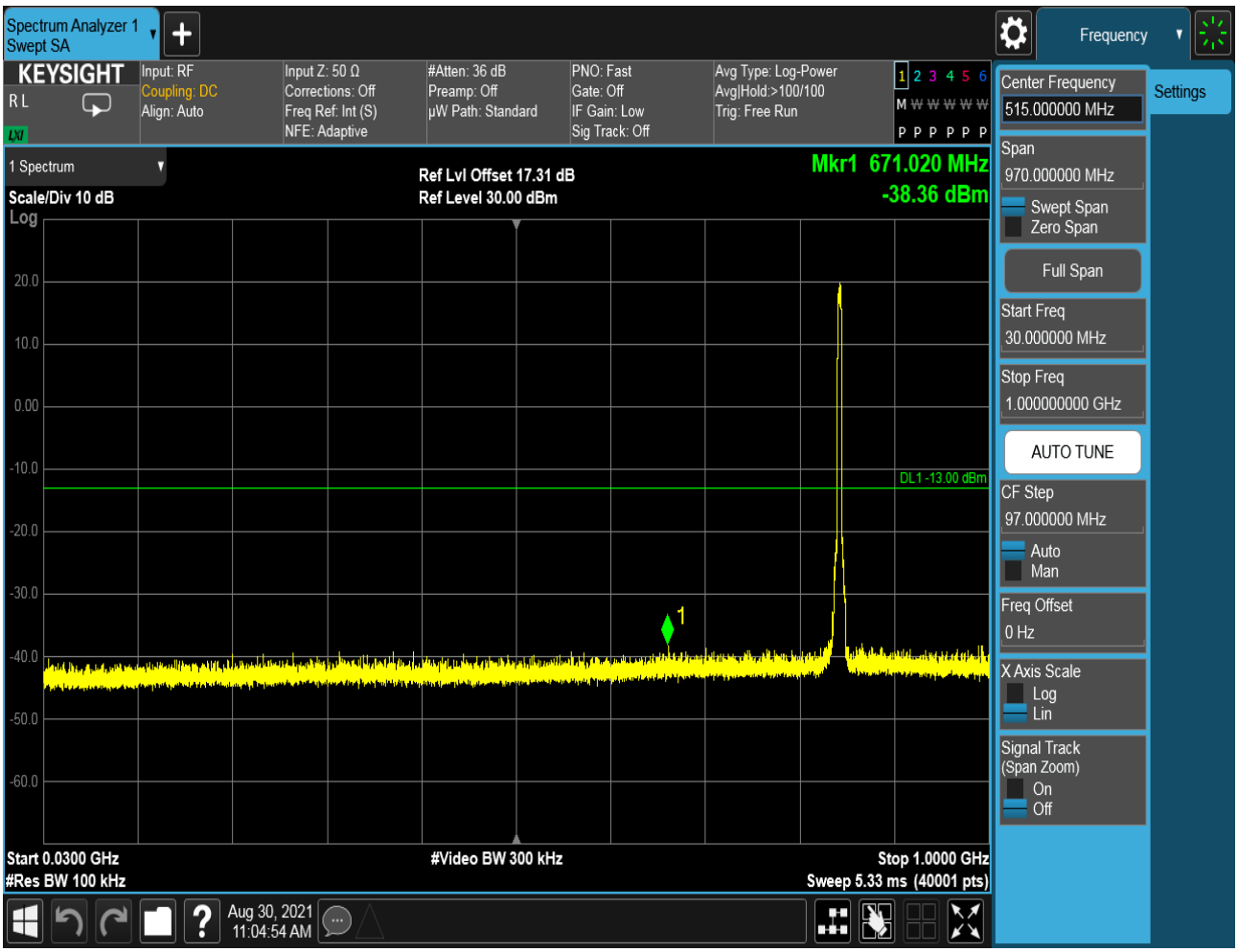


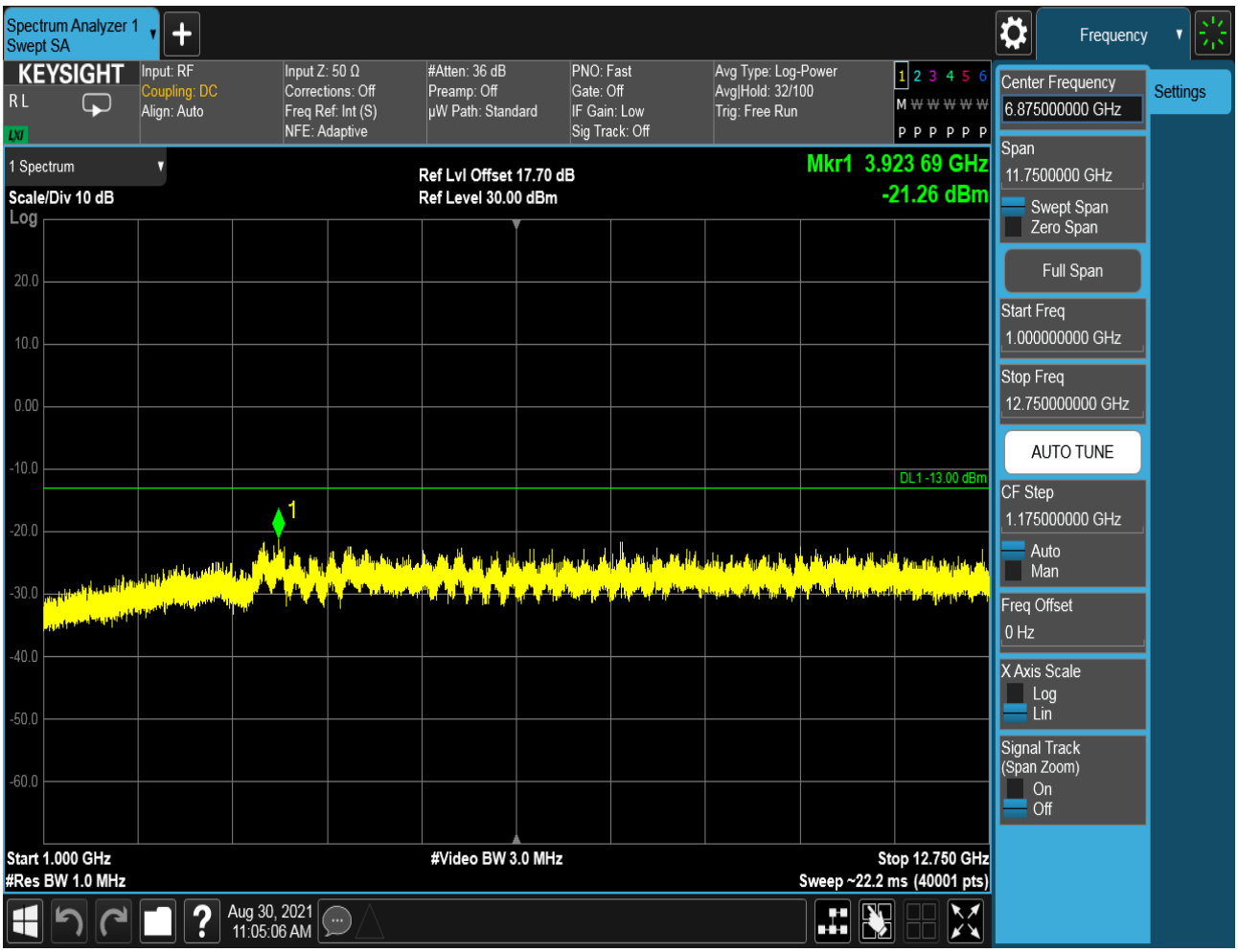


6.1.1.1.3 Test Channel = HCH





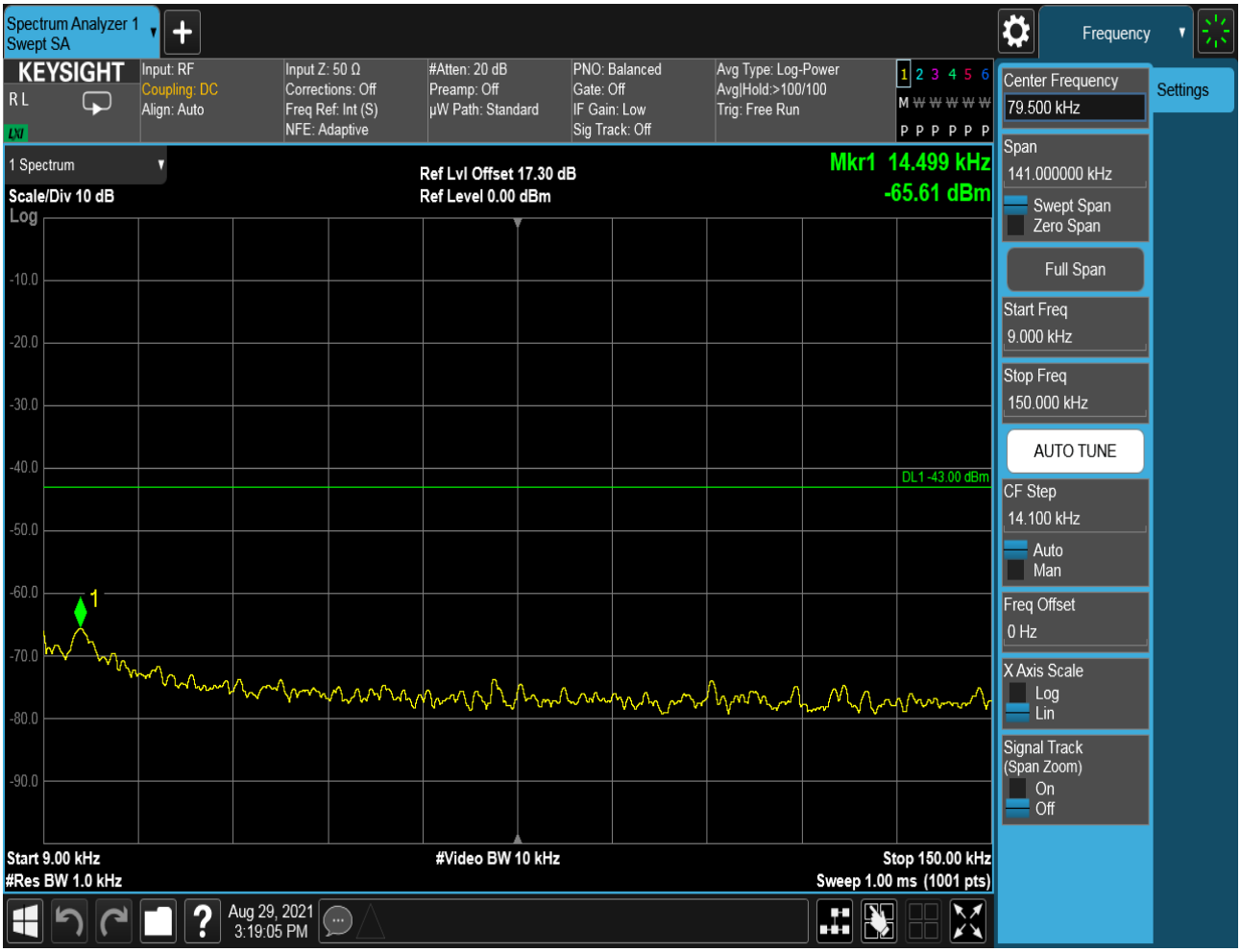


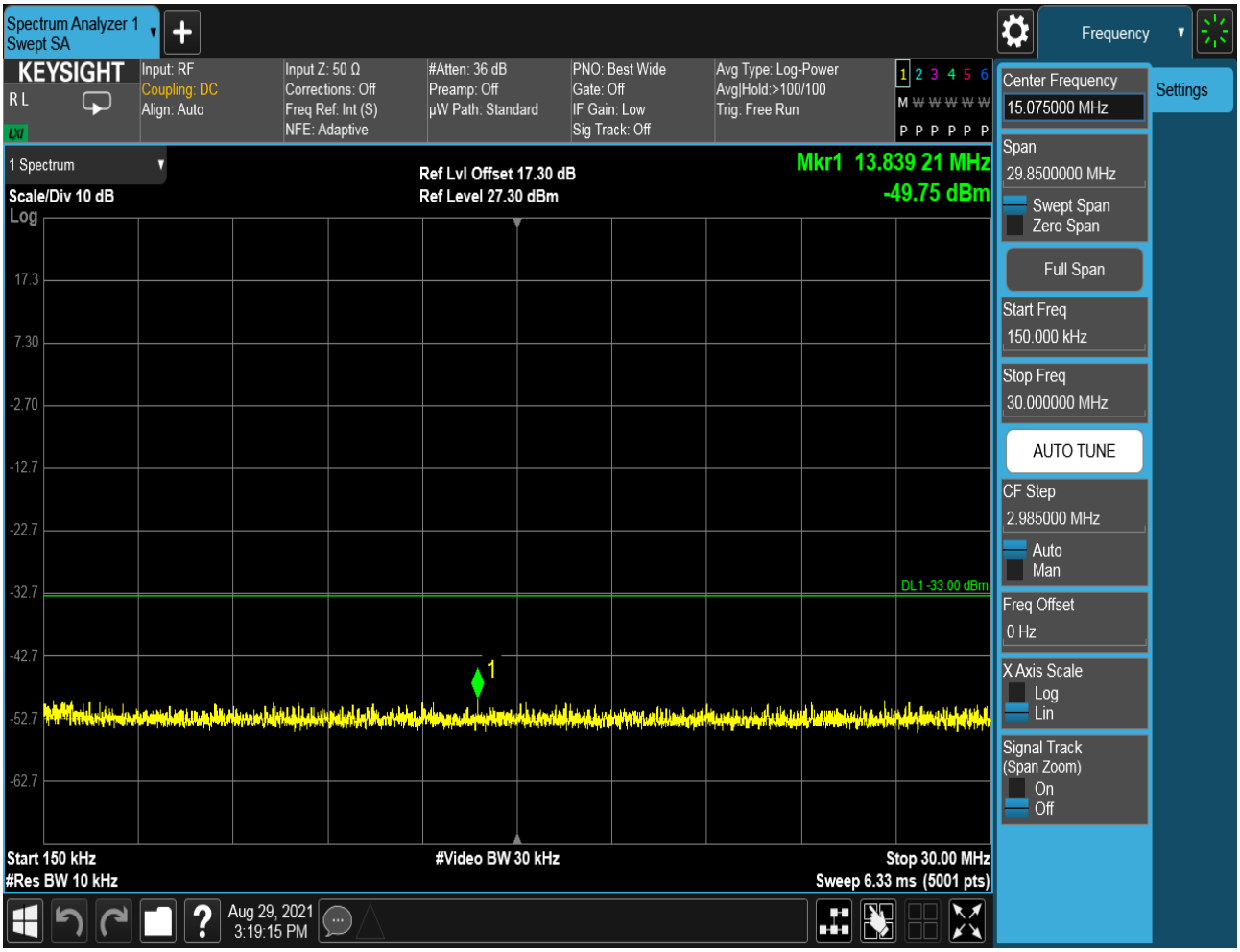


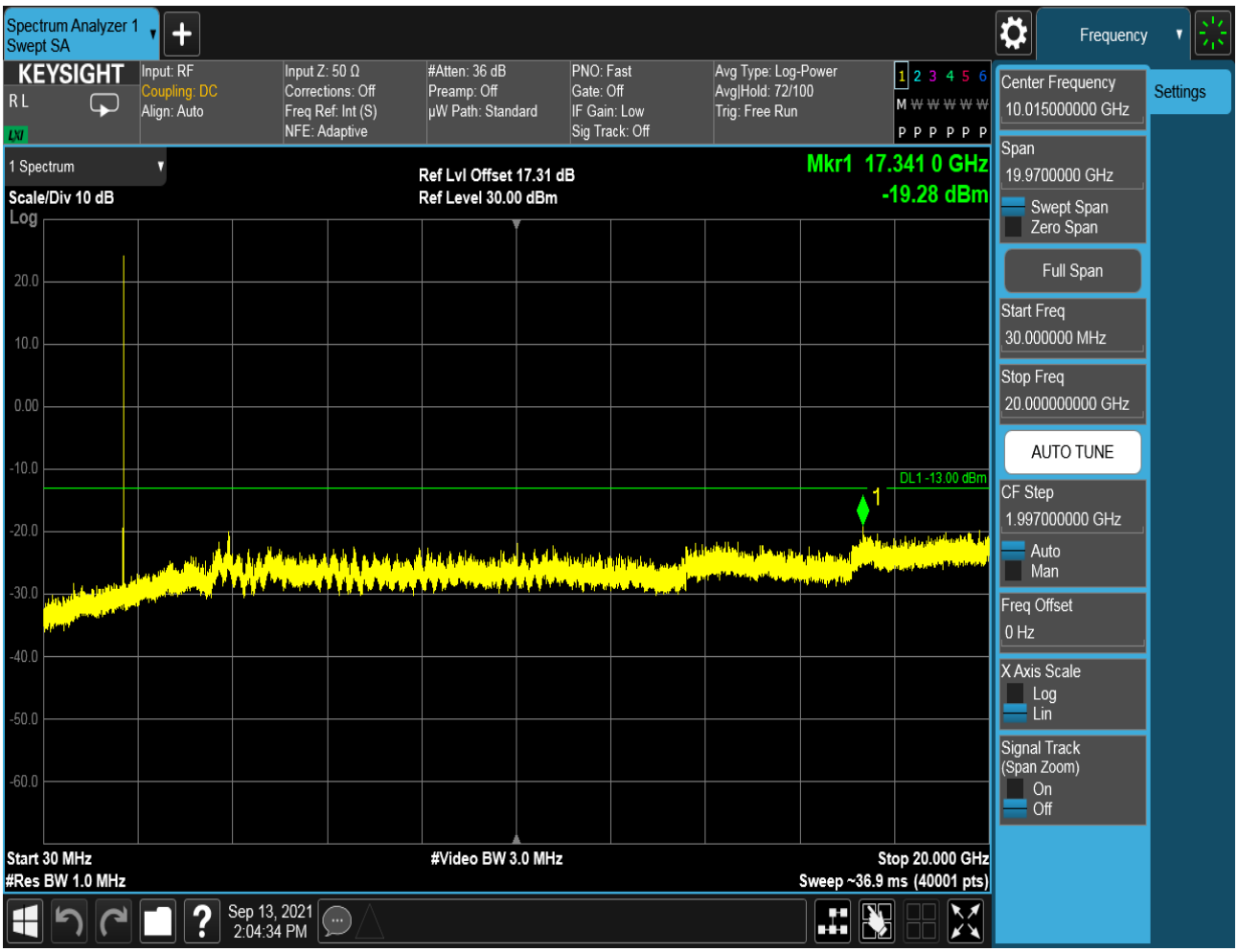
6.1.2 Test Band = WCDMA1700

6.1.2.1 Test Mode = UMTS/TM1

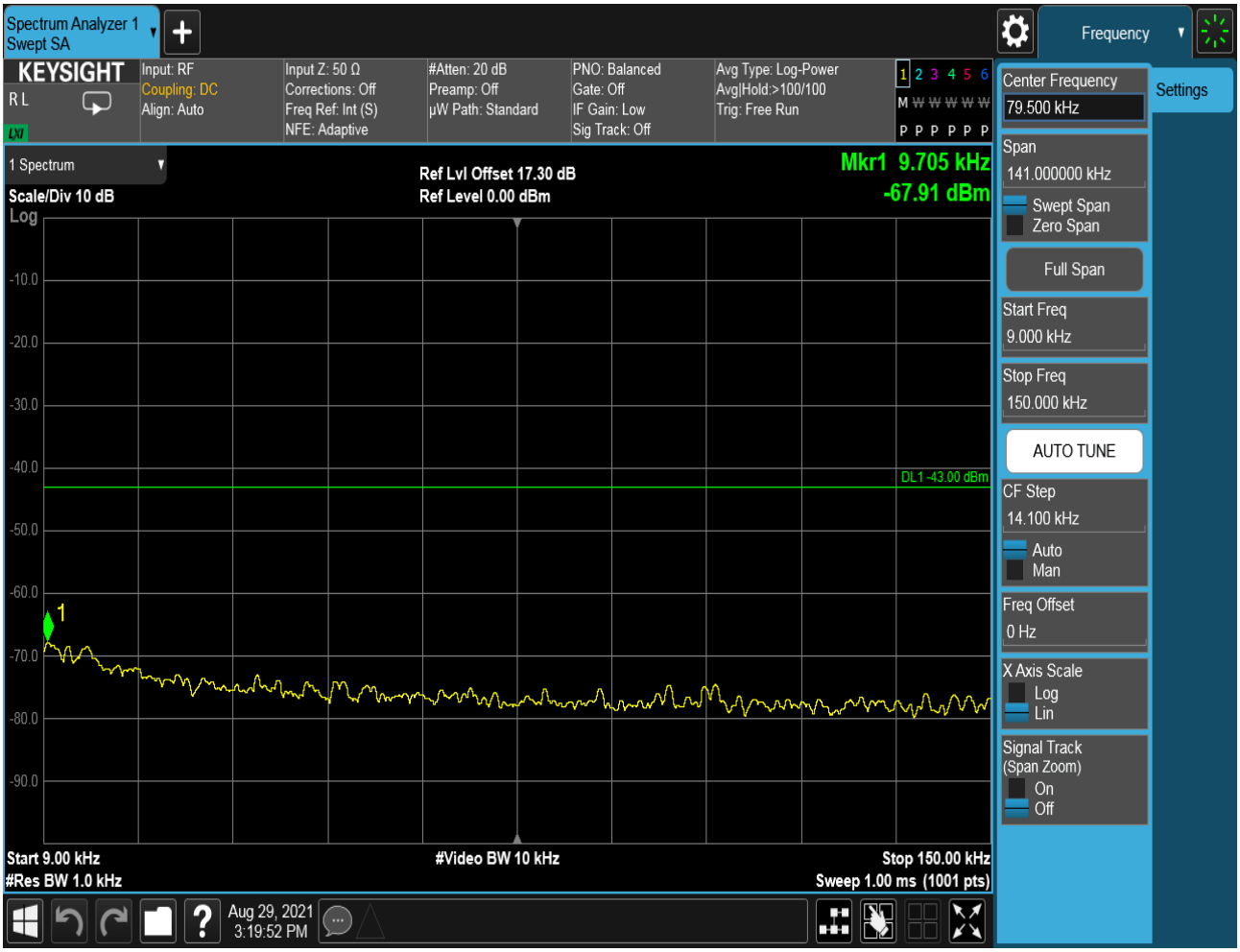
6.1.2.1.1 Test Channel = LCH

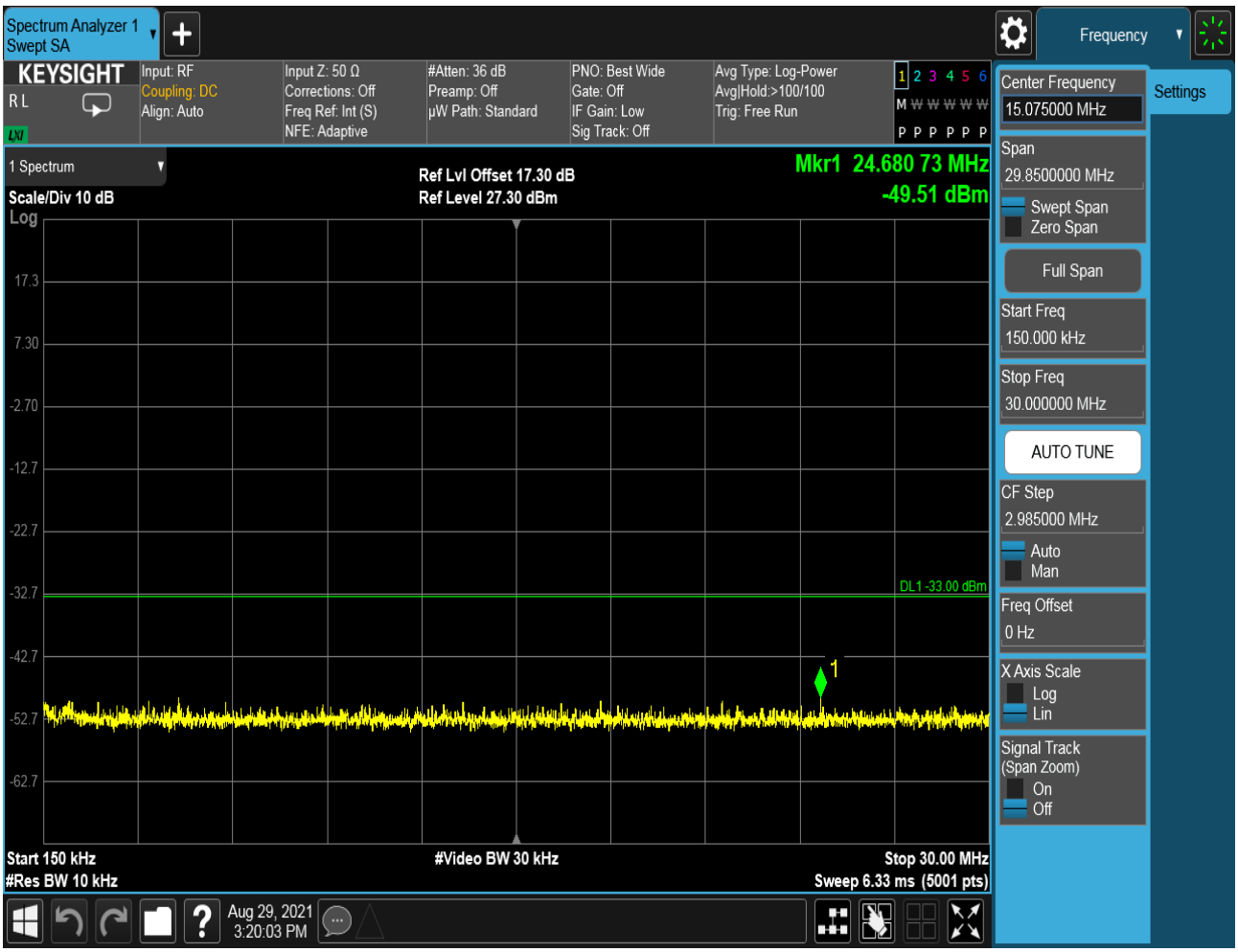


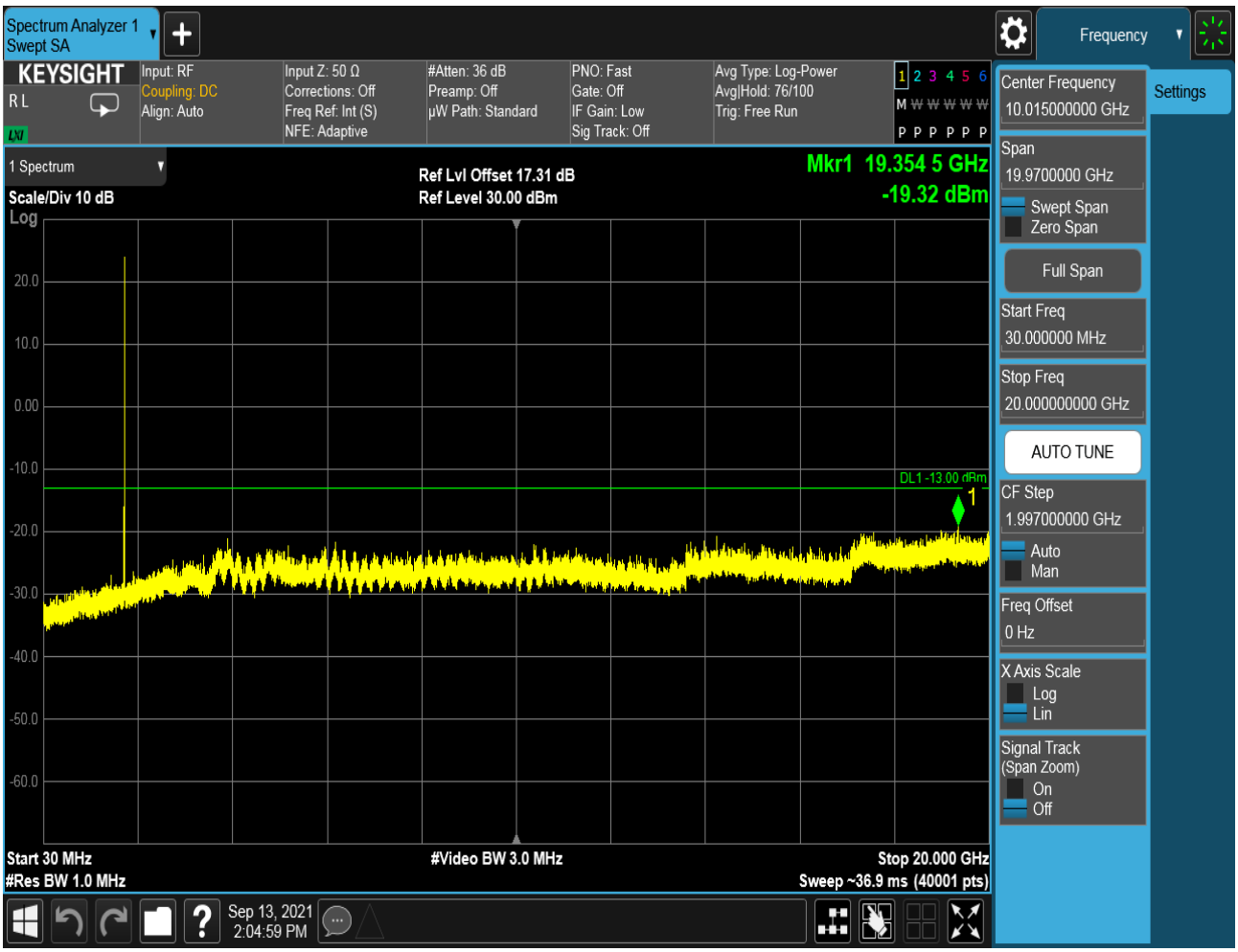




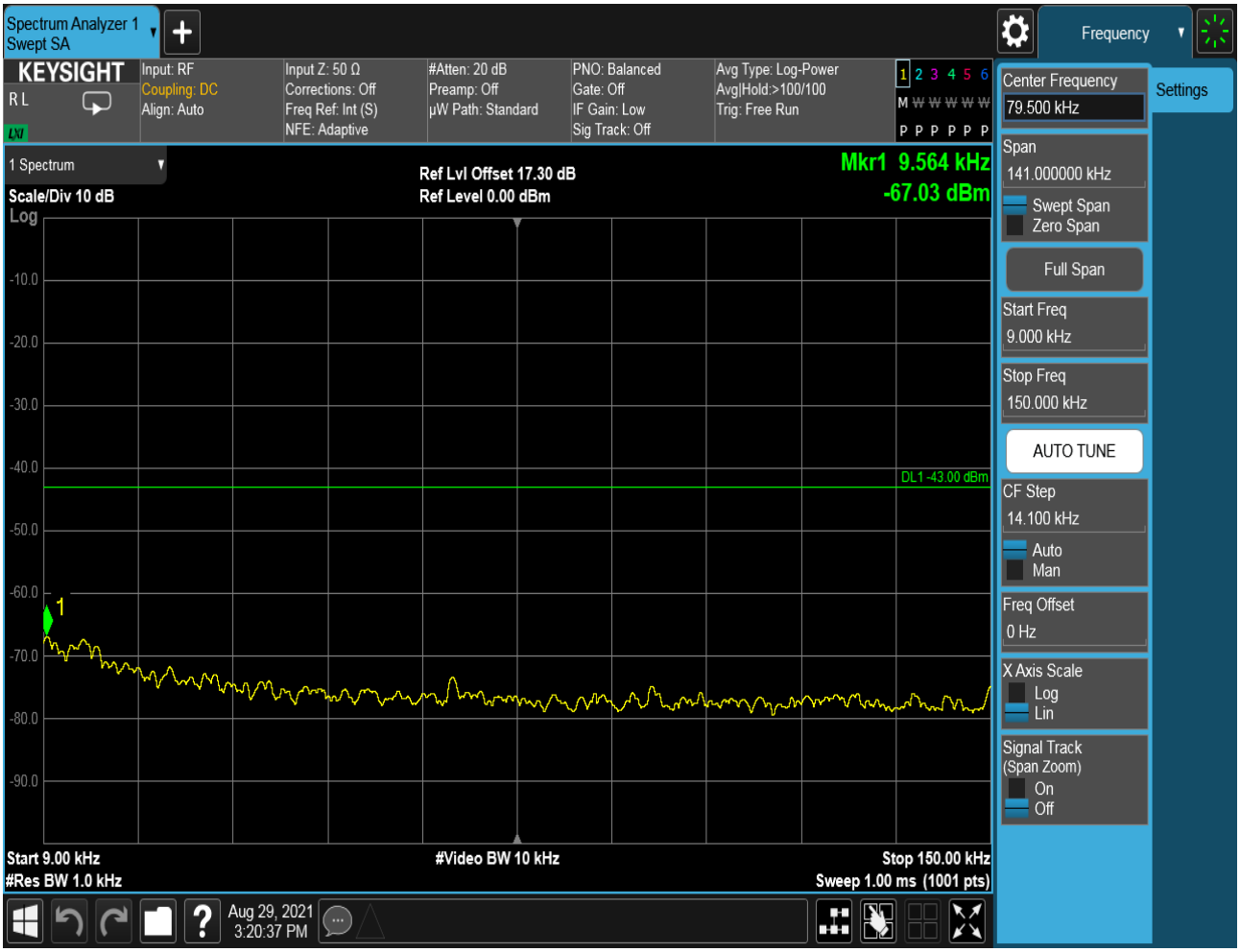
6.1.2.1.2 Test Channel = MCH

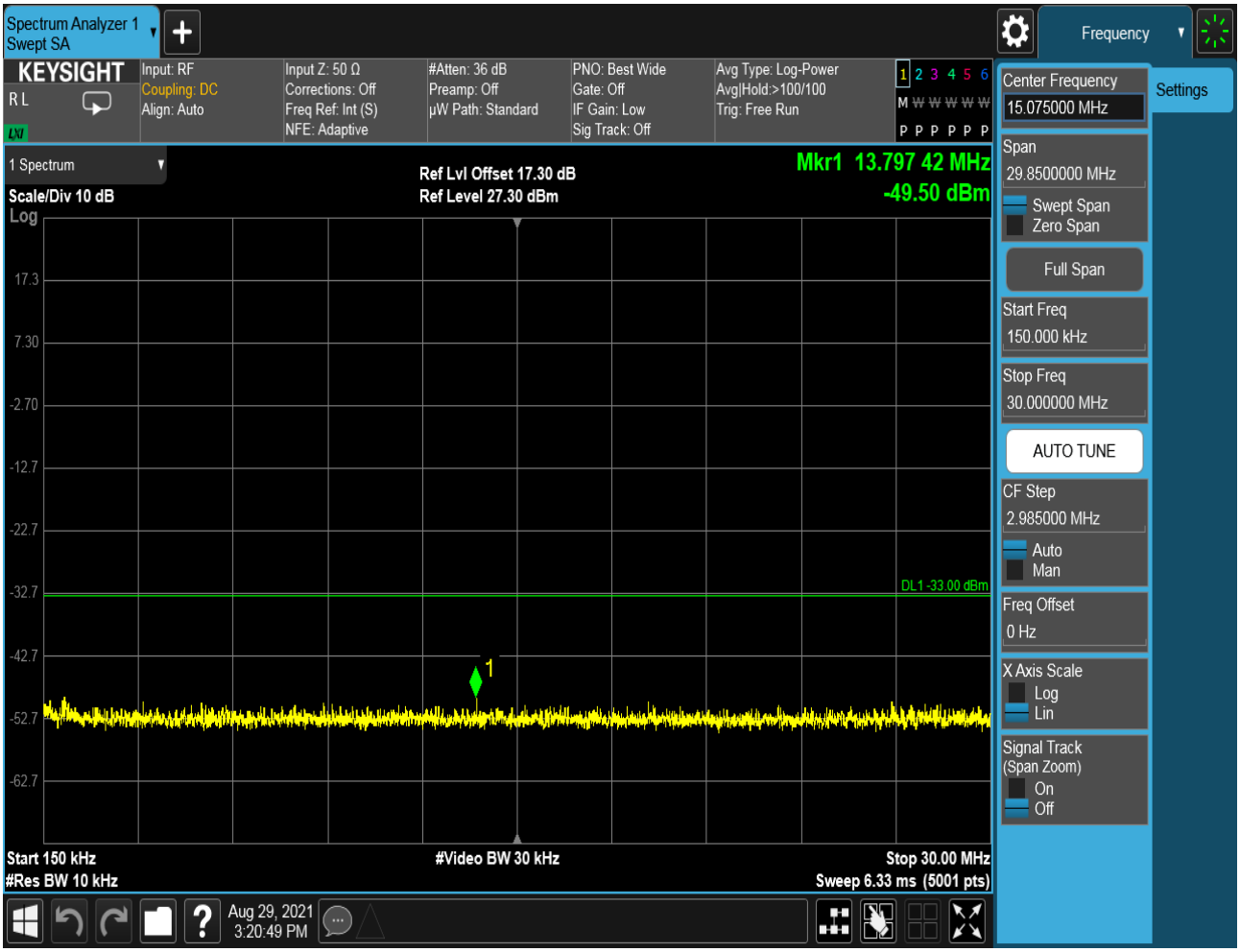


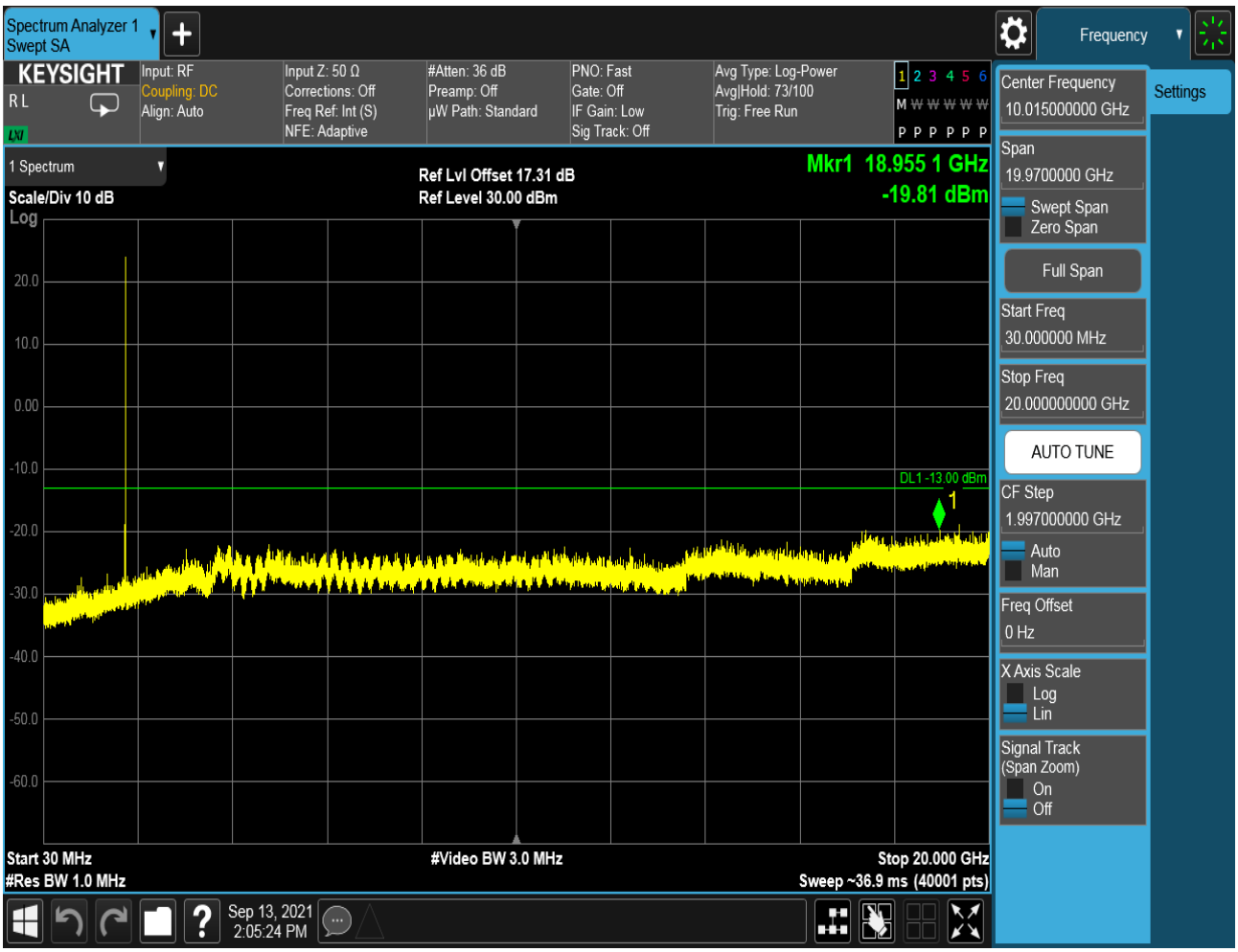




6.1.2.1.3 Test Channel = HCH



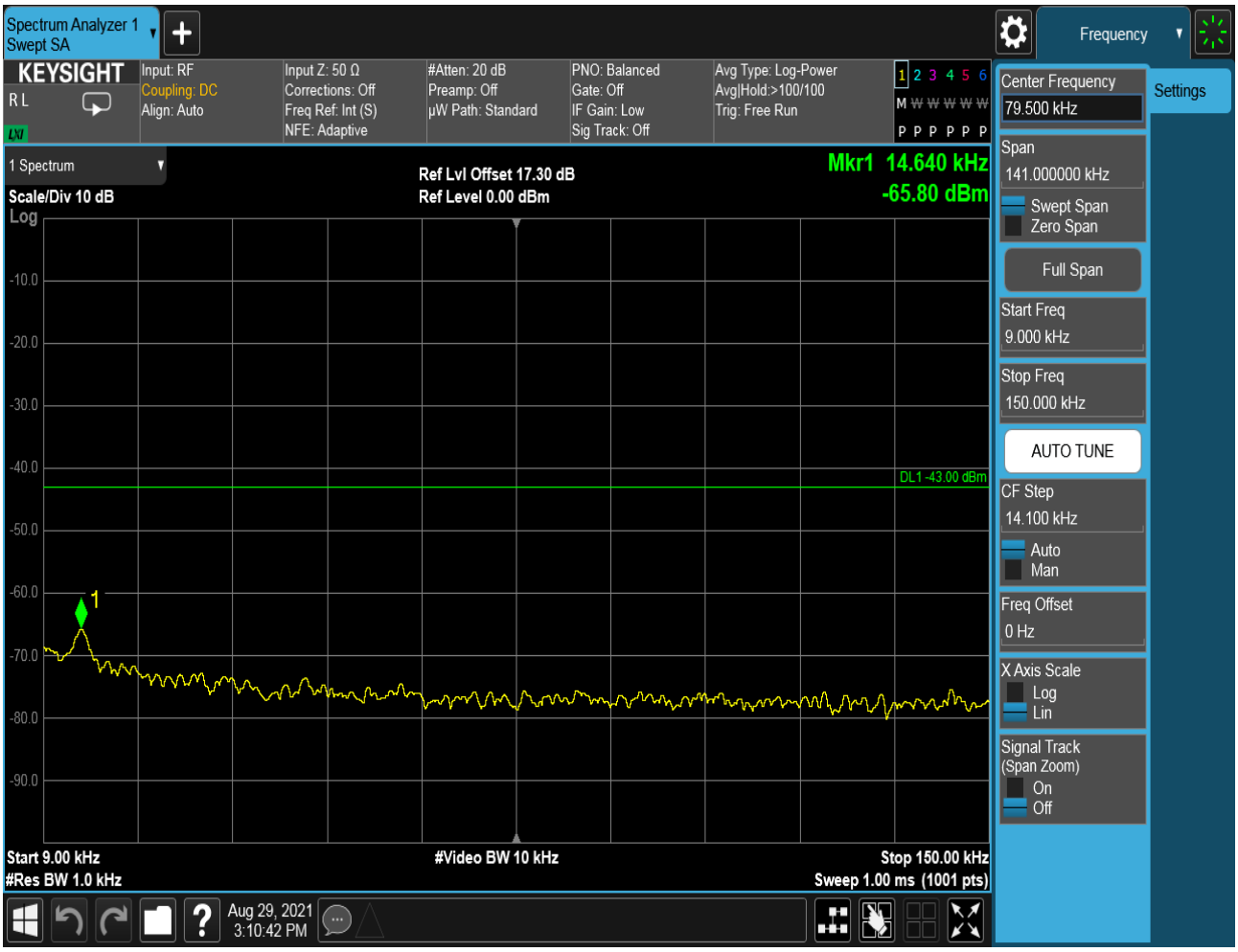


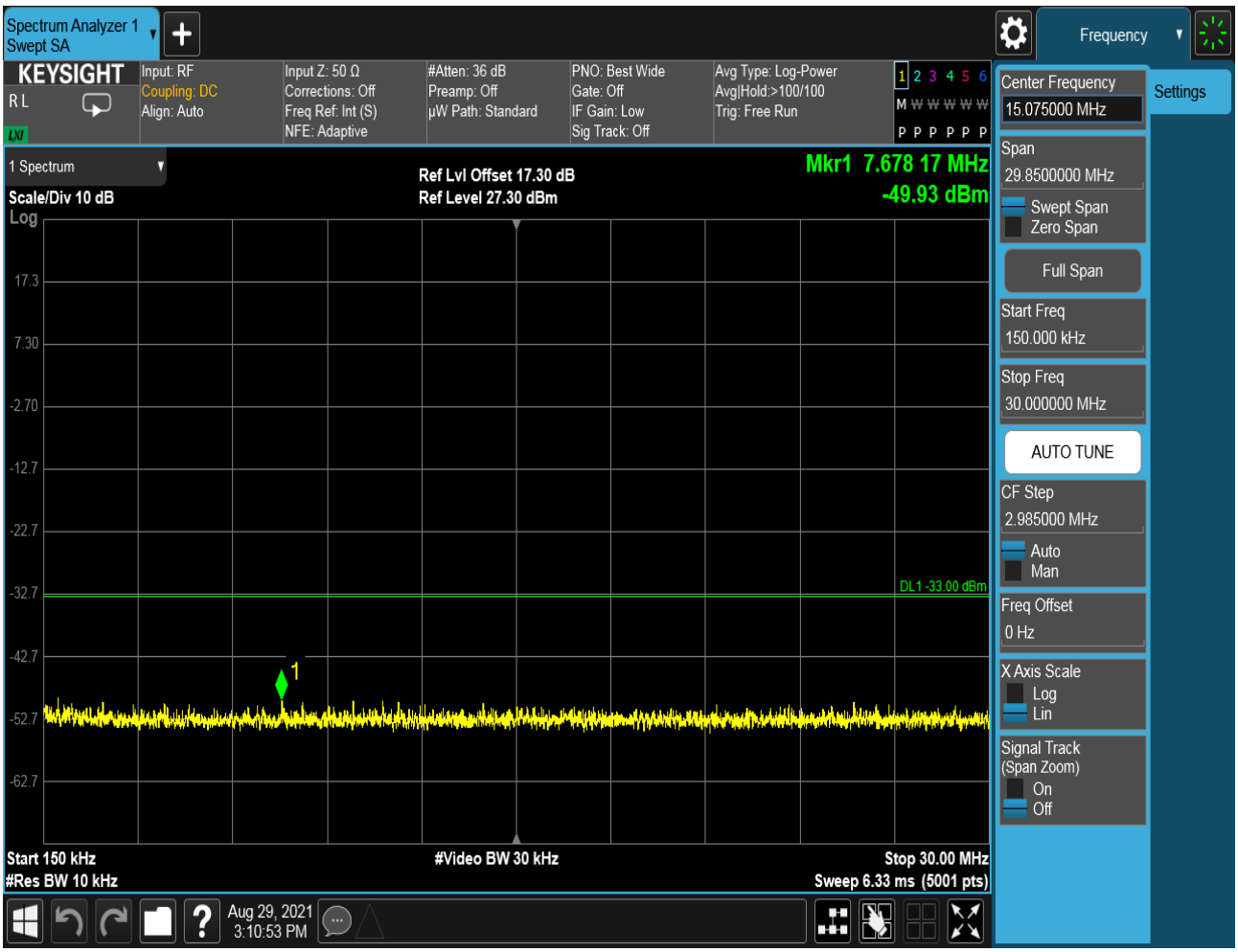


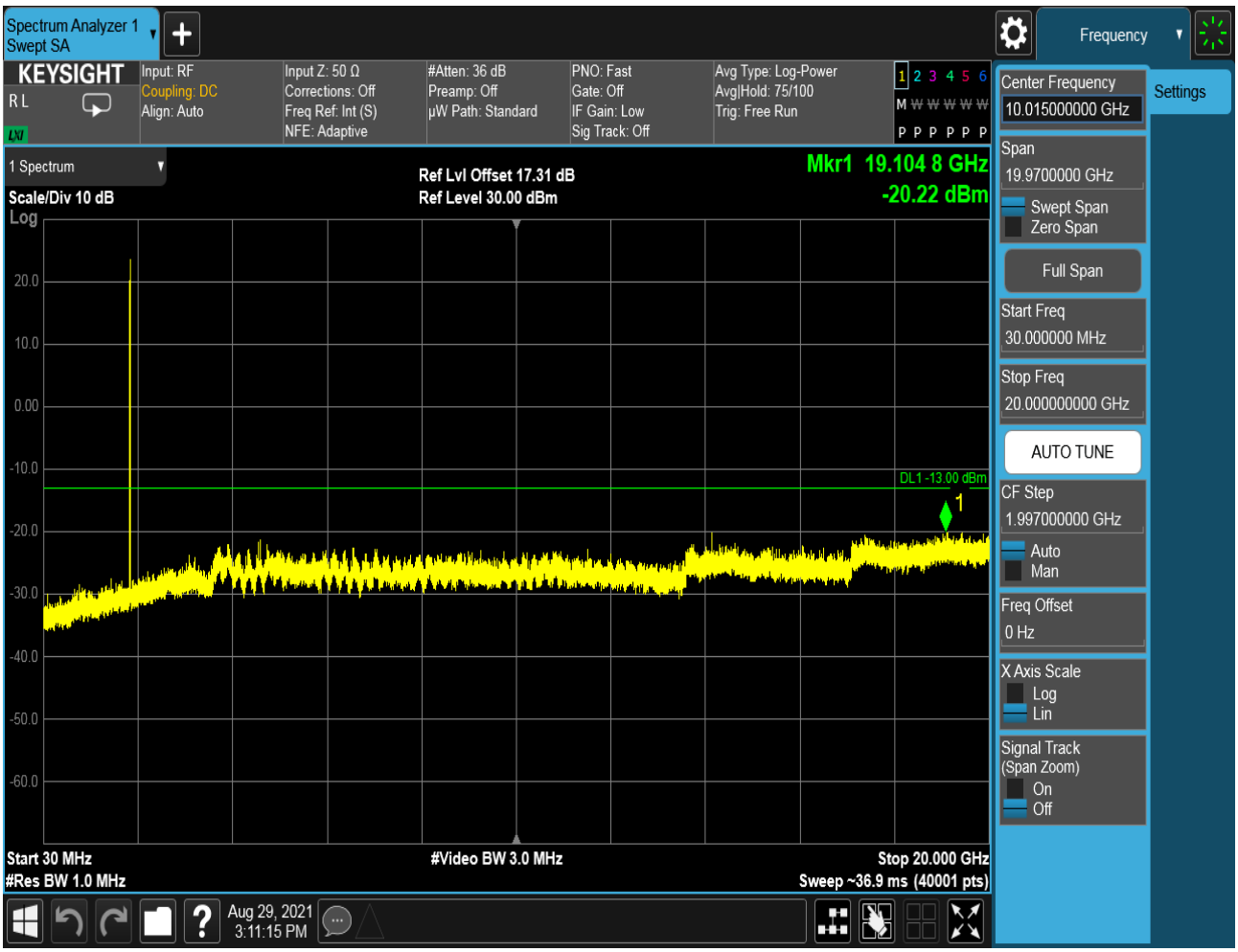
6.1.3 Test Band = WCDMA1900

6.1.3.1 Test Mode = UMTS/TM1

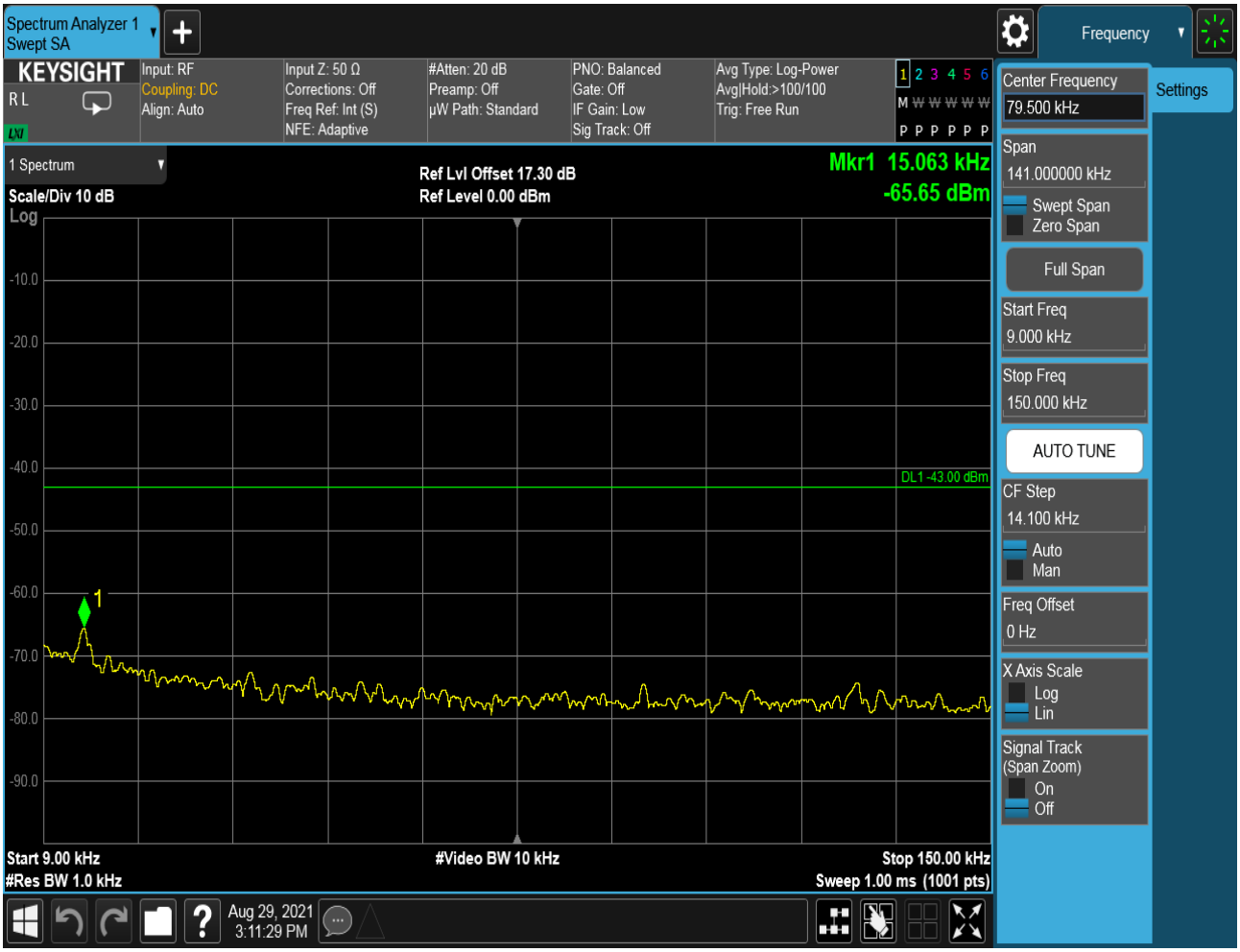
6.1.3.1.1 Test Channel = LCH

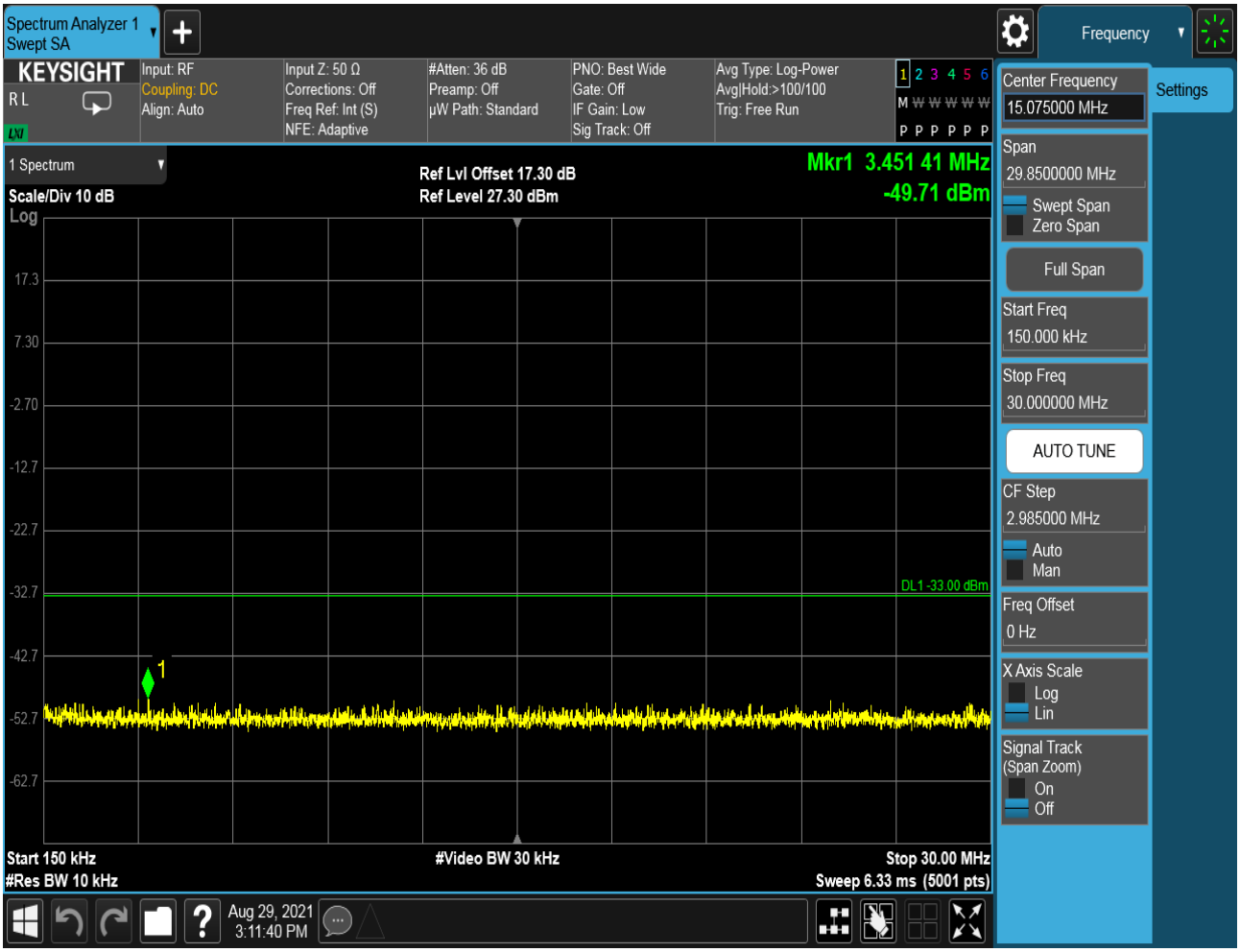


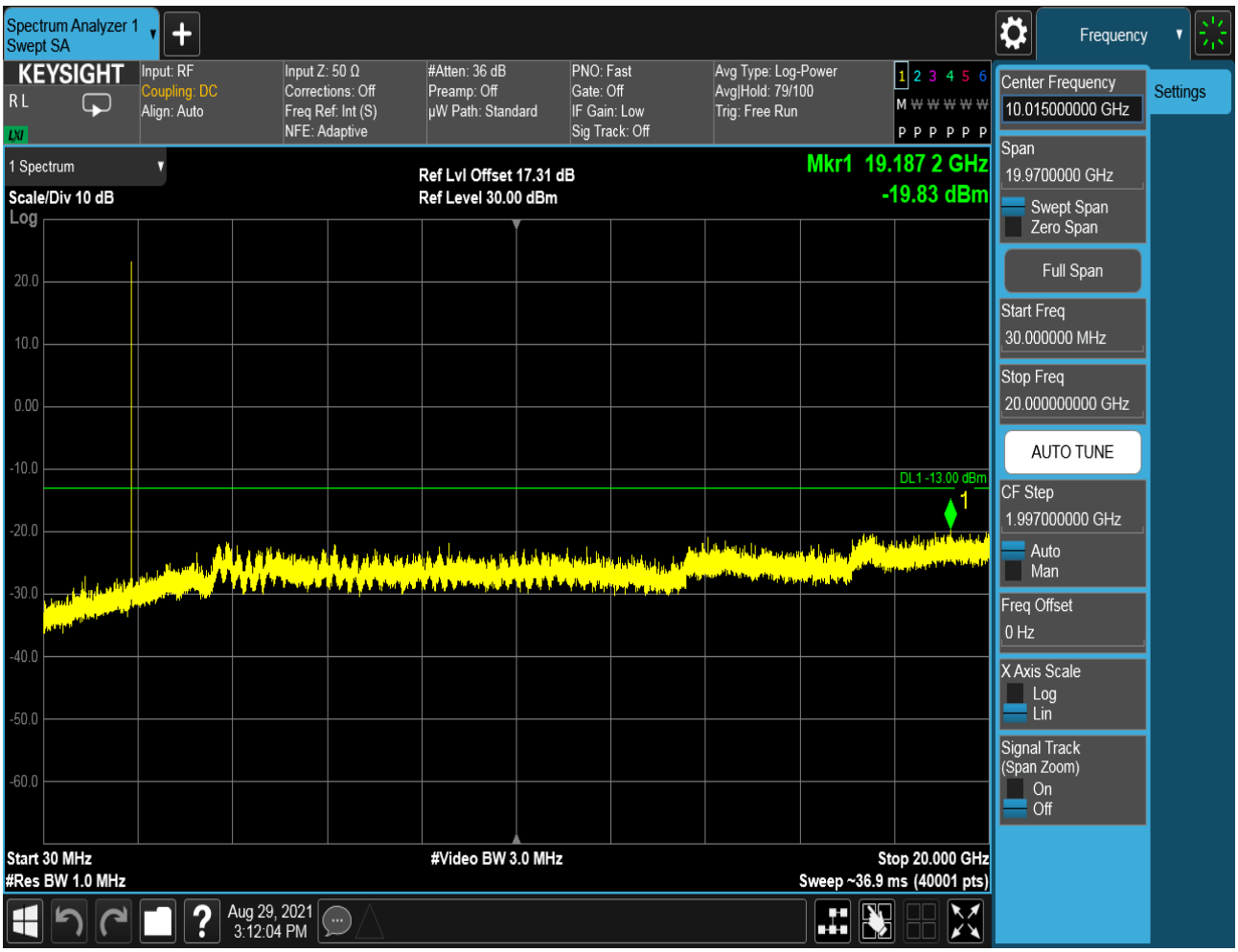




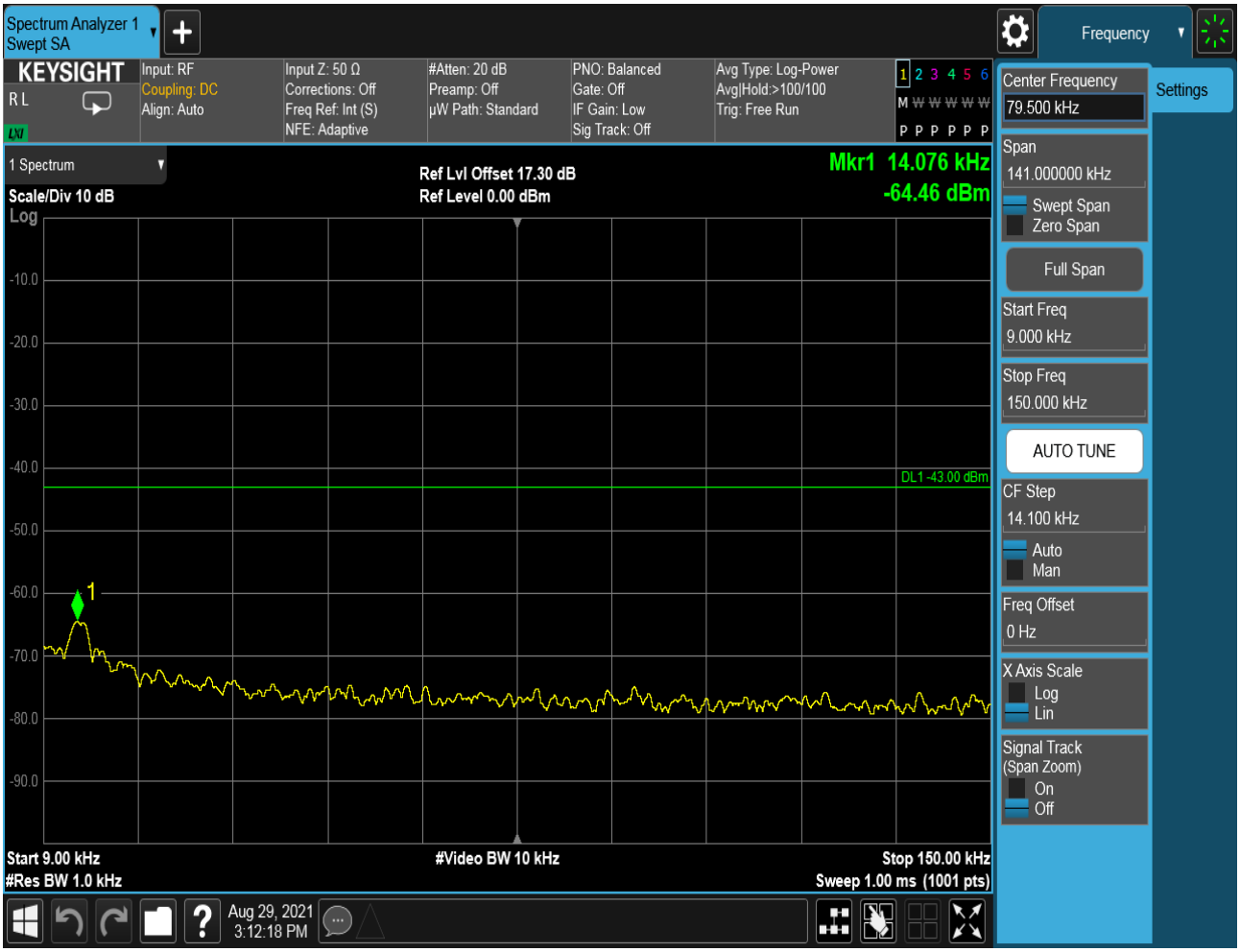
6.1.3.1.2 Test Channel = MCH

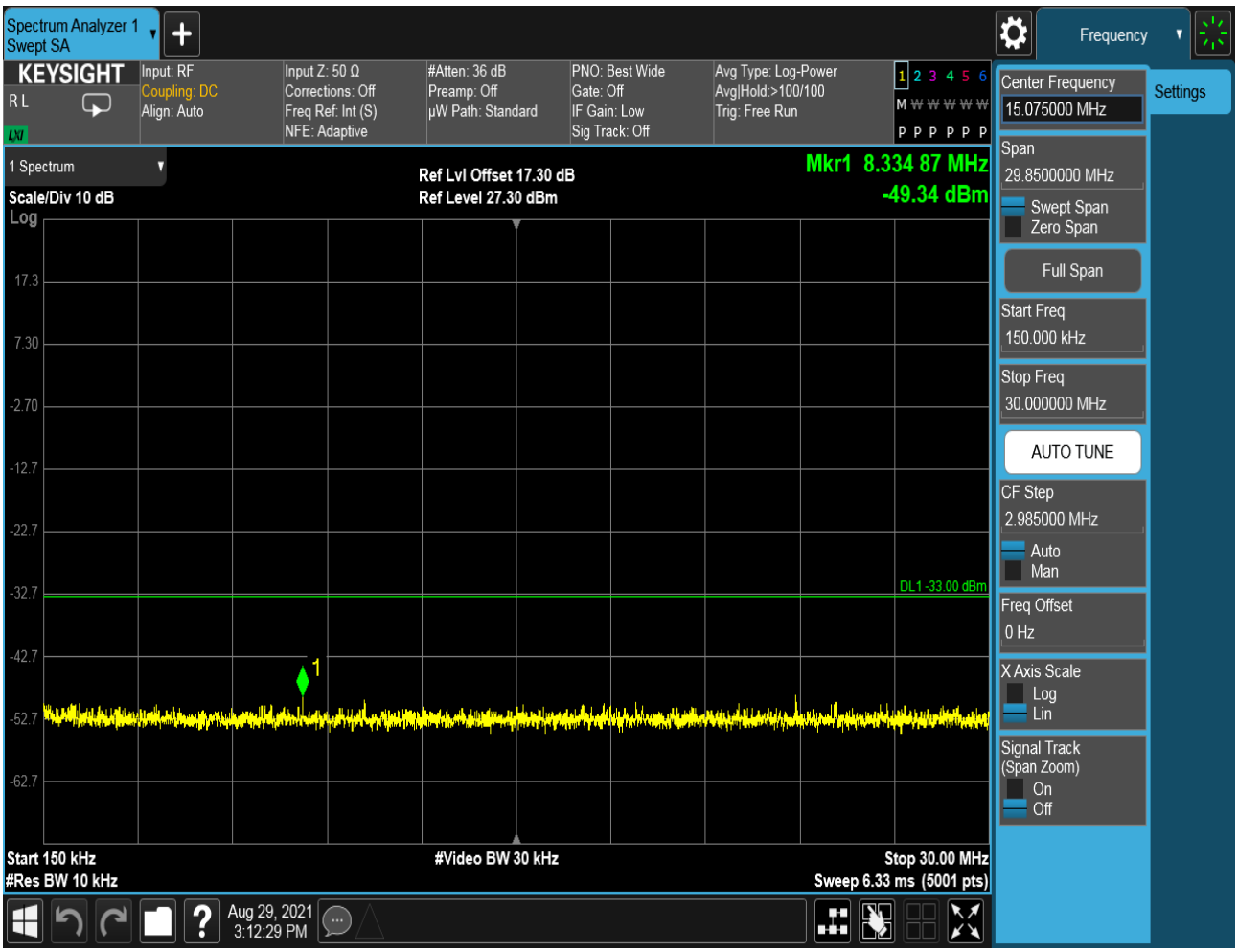


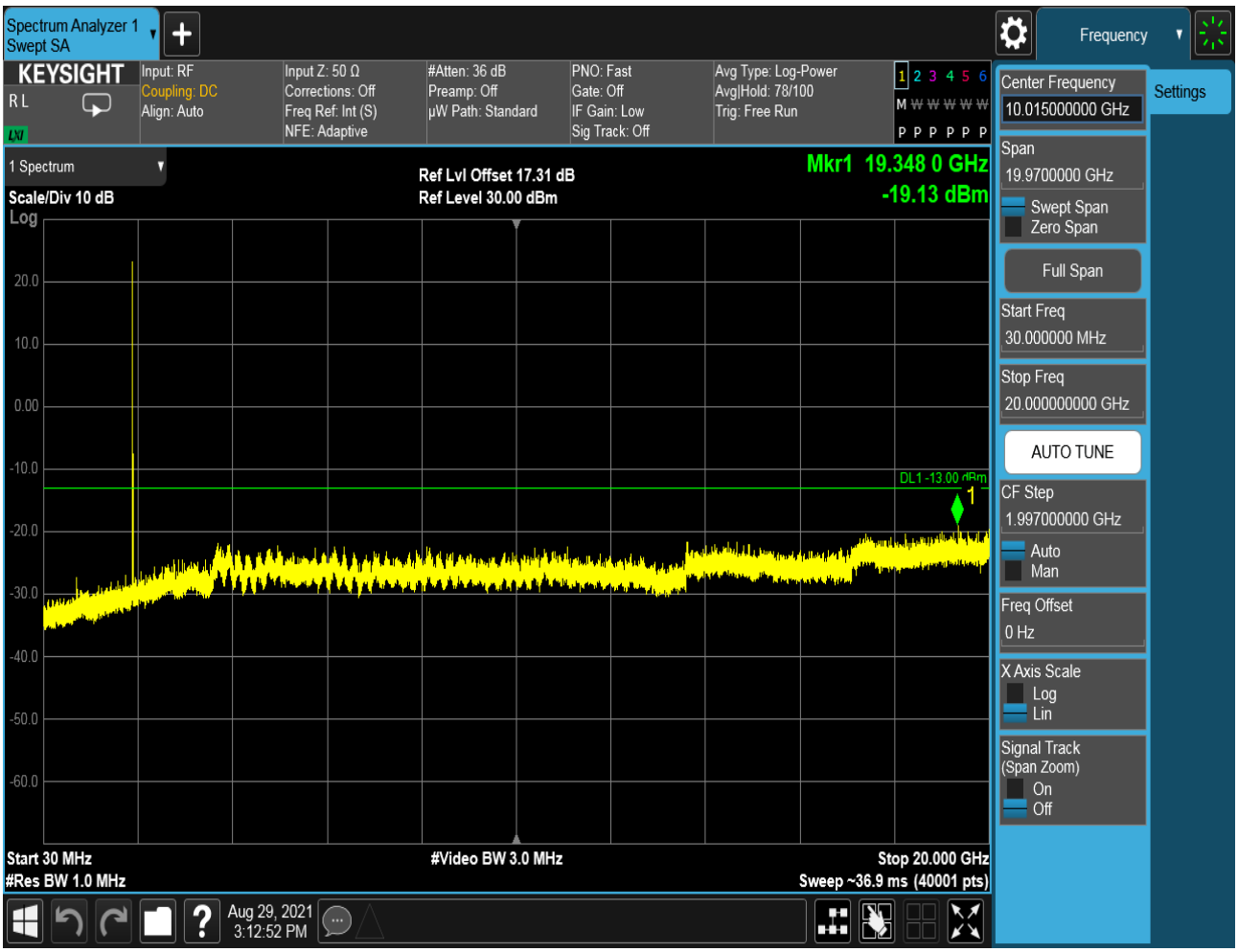




6.1.3.1.3 Test Channel = HCH







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

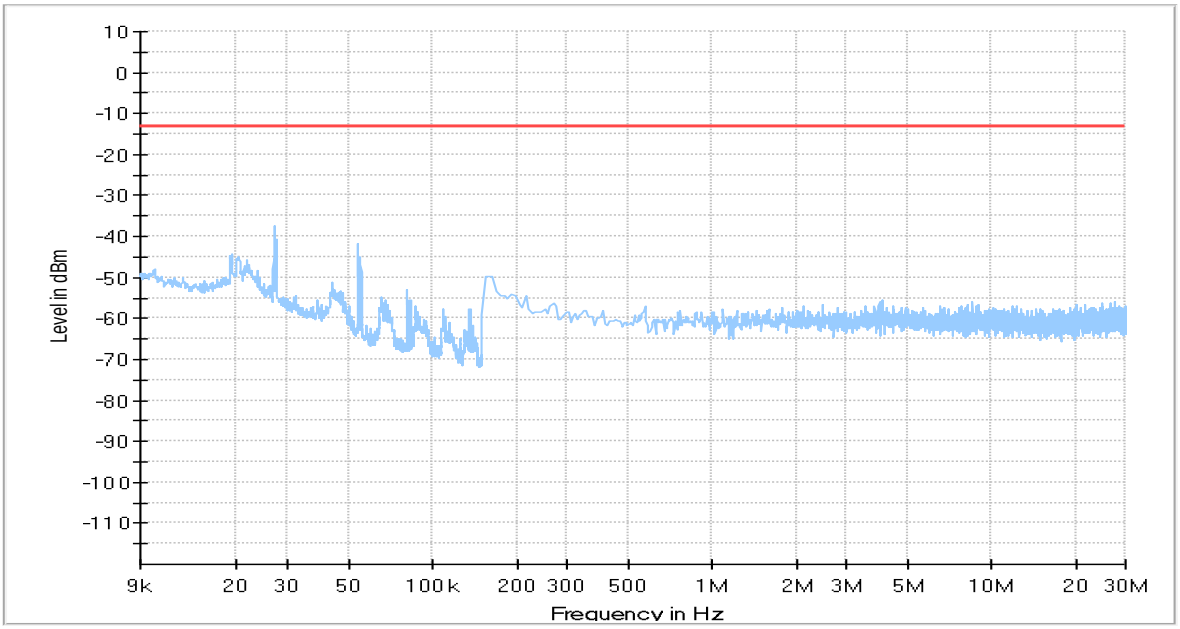
Above 1GHz, RBW = 1 MHz, VBW = 3 MHz. Detector: PK

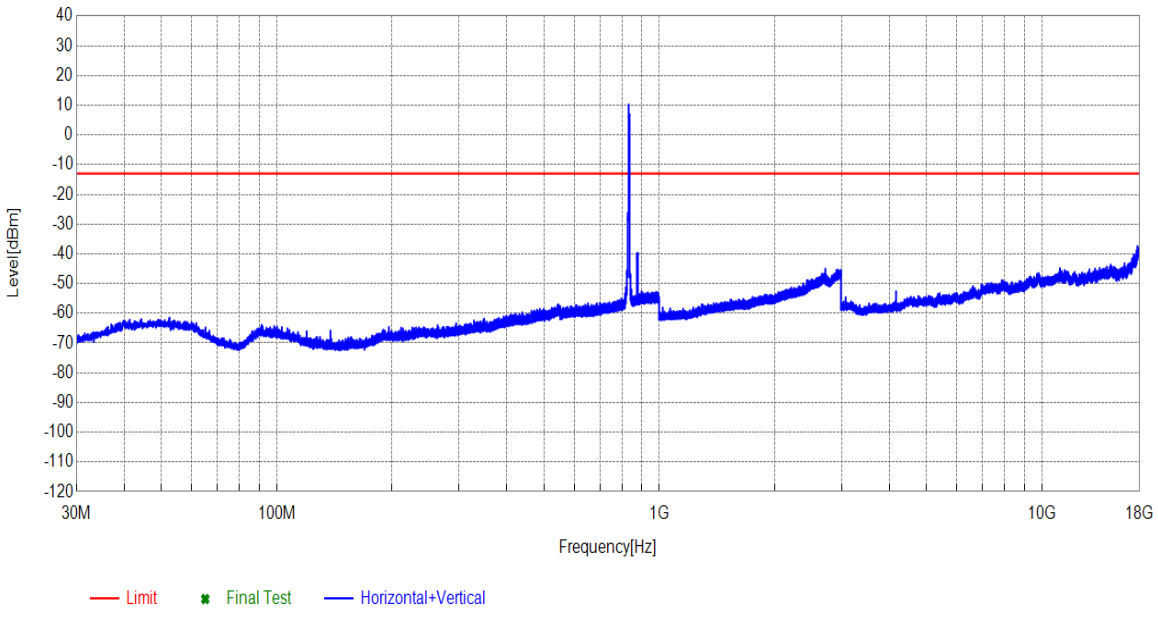
Part I - Test Plots

7.1 For UMTS

7.1.1 Test Band = WCDMA850

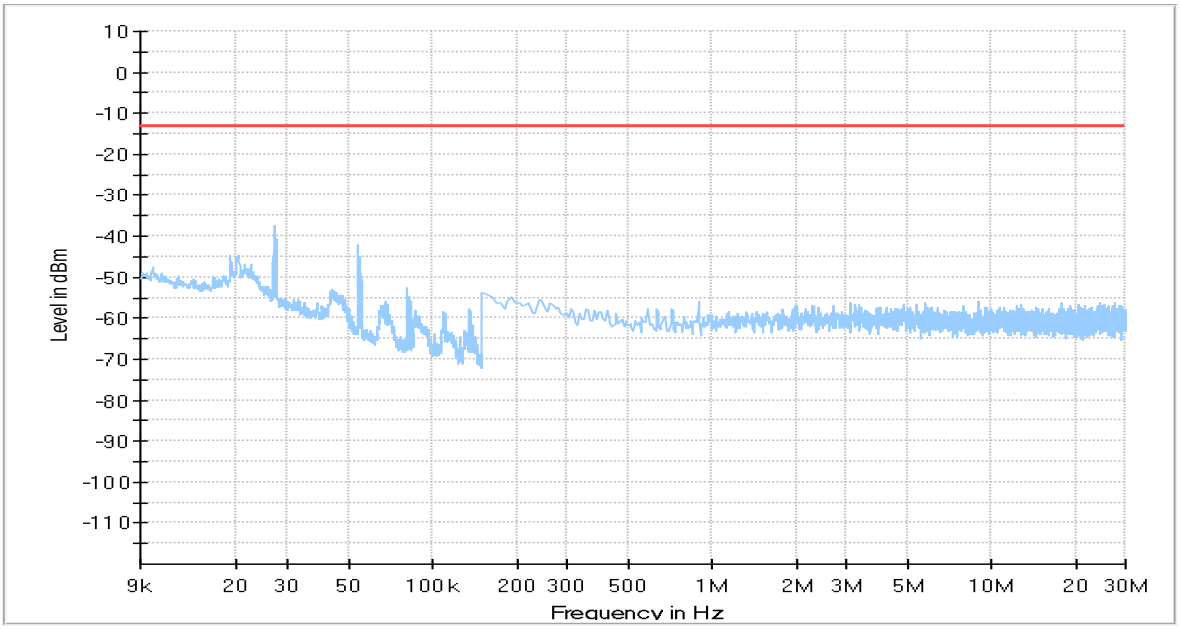
Worst case

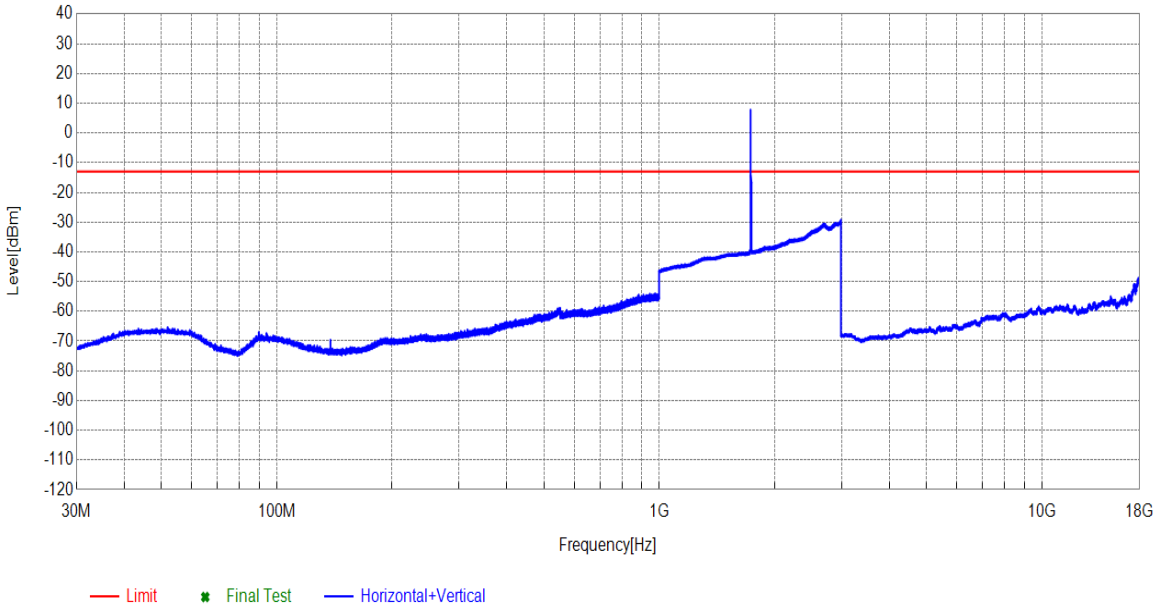




7.1.2 Test Band = WCDMA1700

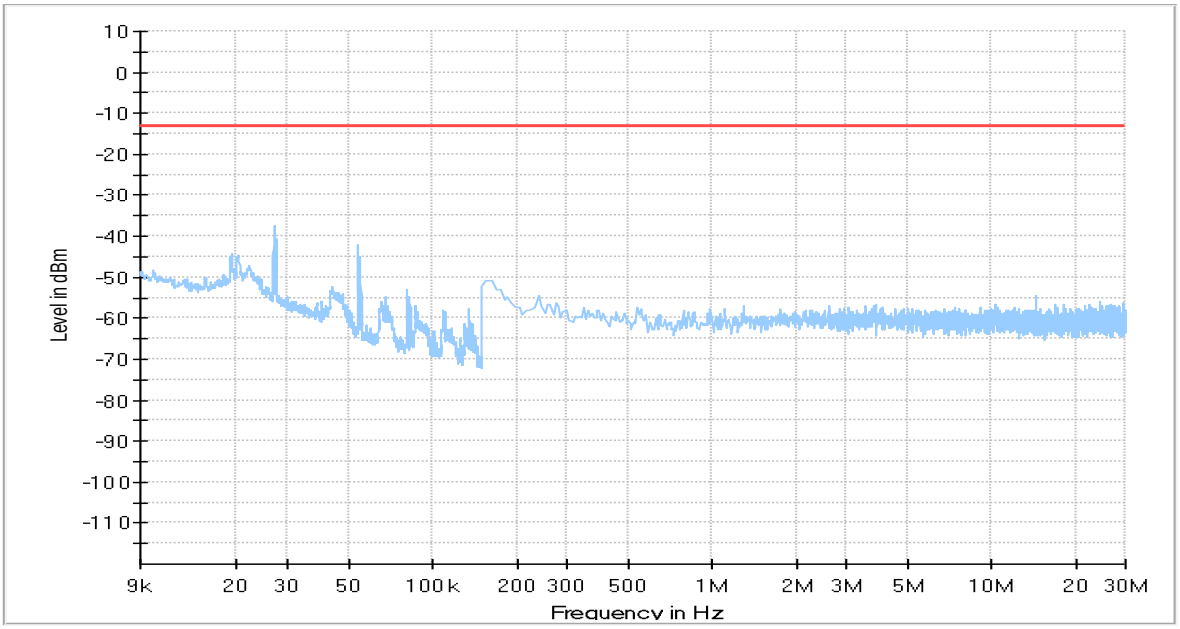
Worst case

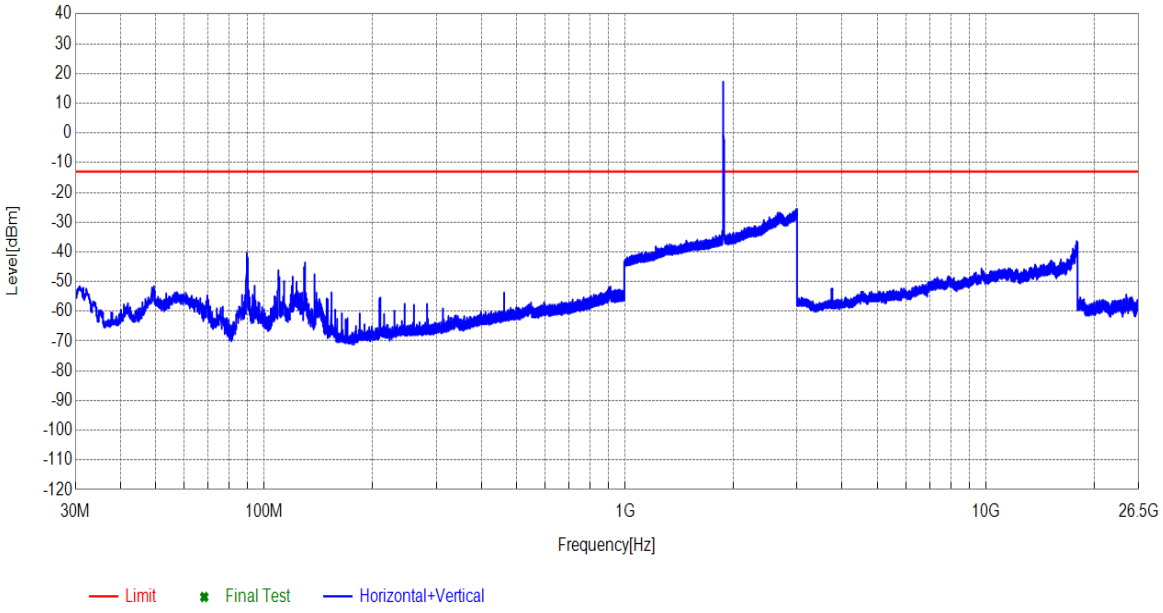




7.1.3 Test Band = WCDMA1900

Worst case





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	-0.05562	-0.00007	PASS
				VN	-0.01837	-0.00002	PASS
				VH	0.25246	0.00031	PASS
		MCH	TN	VL	-1.53669	-0.00184	PASS
				VN	-0.62739	-0.00075	PASS
				VH	-0.62761	-0.00075	PASS
		HCH	TN	VL	-1.20006	-0.00142	PASS
				VN	-1.37317	-0.00162	PASS
				VH	-0.96375	-0.00114	PASS
WCDMA1700	UMTS/TM1	LCH	TN	VL	1.95768	0.00114	PASS
				VN	2.28266	0.00133	PASS
				VH	2.76394	0.00161	PASS
		MCH	TN	VL	-4.71694	-0.00272	PASS
				VN	-3.92314	-0.00226	PASS
				VH	-5.37515	-0.00310	PASS
		HCH	TN	VL	-3.84307	-0.00219	PASS
				VN	-2.40440	-0.00137	PASS
				VH	-3.37208	-0.00192	PASS
WCDMA1900	UMTS/TM1	LCH	TN	VL	2.00335	0.00108	PASS
				VN	2.87778	0.00155	PASS
				VH	2.54835	0.00138	PASS
		MCH	TN	VL	0.37251	0.00020	PASS
				VN	1.82702	0.00097	PASS
				VH	0.34895	0.00019	PASS
		HCH	TN	VL	-0.18455	0.00108	PASS
				VN	-0.05818	0.00155	PASS
				VH	0.09156	0.00138	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	0.39981	0.00048	PASS
				-20	-0.11395	-0.00014	PASS
				-10	-0.38093	-0.00046	PASS
				0	0.27271	0.00033	PASS
				10	-0.61928	-0.00075	PASS
				20	-0.01837	-0.00002	PASS
				30	-0.00580	-0.00001	PASS
				40	0.31507	0.00038	PASS
				50	0.12472	0.00015	PASS
		MCH	VN	-30	-0.19990	-0.00024	PASS
				-20	-0.75801	-0.00091	PASS
				-10	-1.12093	-0.00134	PASS
				0	-0.01447	-0.00002	PASS
				10	-0.39356	-0.00047	PASS
				20	-0.62739	-0.00075	PASS
				30	-0.29124	-0.00035	PASS
				40	-0.15241	-0.00018	PASS
				50	-0.97492	-0.00117	PASS
		HCH	VN	-30	-1.21890	-0.00144	PASS
				-20	-1.51992	-0.00180	PASS
				-10	-1.16400	-0.00137	PASS
				0	-0.82892	-0.00098	PASS
				10	-1.43931	-0.00170	PASS
				20	-1.37317	-0.00162	PASS
				30	-1.16260	-0.00137	PASS
				40	-1.31525	-0.00155	PASS
				50	-1.58002	-0.00187	PASS
WCDMA1700	UMTS/TM1	LCH	VN	-30	2.44797	0.00143	PASS
				-20	3.15353	0.00184	PASS
				-10	2.21469	0.00129	PASS
				0	2.55922	0.00149	PASS
				10	2.94107	0.00172	PASS
				20	2.28266	0.00133	PASS
				30	3.43465	0.00201	PASS
				40	1.48807	0.00087	PASS
				50	3.09490	0.00181	PASS
		MCH	VN	-30	-3.64986	-0.00211	PASS
				-20	-4.46270	-0.00258	PASS

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				-10	-3.72202	-0.00215	PASS
				0	-2.86610	-0.00165	PASS
				10	-4.21572	-0.00243	PASS
				20	-3.92314	-0.00226	PASS
				30	-4.61720	-0.00266	PASS
				40	-4.36194	-0.00252	PASS
				50	-3.92913	-0.00227	PASS
		HCH	VN	-30	-2.49223	-0.00142	PASS
				-20	-2.48134	-0.00142	PASS
				-10	-2.58730	-0.00148	PASS
				0	-2.60830	-0.00149	PASS
				10	-3.11231	-0.00178	PASS
				20	-2.40440	-0.00137	PASS
				30	-2.18584	-0.00125	PASS
				40	-2.67841	-0.00153	PASS
				50	-2.59786	-0.00148	PASS
WCDMA1900	UMTS/TM1	LCH	VN	-30	2.71570	0.00147	PASS
				-20	3.71063	0.00200	PASS
				-10	3.43144	0.00185	PASS
				0	3.68194	0.00199	PASS
				10	2.56098	0.00138	PASS
				20	2.87778	0.00155	PASS
				30	3.25815	0.00176	PASS
				40	3.99888	0.00216	PASS
				50	3.46964	0.00187	PASS
		MCH	VN	-30	2.61558	0.00139	PASS
				-20	1.28505	0.00068	PASS
				-10	1.16146	0.00062	PASS
				0	1.09783	0.00058	PASS
				10	1.15589	0.00061	PASS
				20	1.82702	0.00097	PASS
				30	0.61699	0.00033	PASS
				40	1.61127	0.00086	PASS
				50	0.89271	0.00047	PASS
		HCH	VN	-30	-0.03786	-0.00002	PASS
				-20	-1.16722	-0.00061	PASS
				-10	0.43066	0.00023	PASS
				0	-0.27632	-0.00014	PASS
				10	-0.67688	-0.00035	PASS
				20	-0.05818	-0.00003	PASS

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				30	-0.33395	-0.00018	PASS
				40	-0.59367	-0.00031	PASS
				50	-0.13270	-0.00007	PASS

END