



Appendix for test report

1Appendix_A: Effective (Isotropic) Radiated Power Output Data

Part I - Test Results

Test Band	Test Mode	Test Channel	Measured[dBm]	ERP [dBm]	Limit [dBm]	Verdict
GSM850	GSM/TM1	LCH	32.70	25.95	38.5	PASS
		MCH	32.52	25.77	38.5	PASS
		HCH	32.60	25.85	38.5	PASS
	GSM/TM2	LCH	26.36	19.61	38.5	PASS
		MCH	26.41	19.66	38.5	PASS
		HCH	26.45	19.7	38.5	PASS
Test Band	Test Mode	Test Channel	Measured[dBm]	EIRP [dBm]	Limit [dBm]	Verdict
PCS1900	GSM/TM1	LCH	29.89	28.89	33	PASS
		MCH	29.85	28.85	33	PASS
		HCH	29.93	28.93	33	PASS
	GSM/TM2	LCH	25.70	24.7	33	PASS
		MCH	25.75	24.75	33	PASS
		HCH	25.88	24.88	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:

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

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

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

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
GSM850	GSM/TM1	LCH	1.88	13	PASS
		MCH	1.81	13	PASS
		HCH	1.95	13	PASS
	GSM/TM2	LCH	4.54	13	PASS
		MCH	4.52	13	PASS
		HCH	4.39	13	PASS
PCS1900	GSM/TM1	LCH	1.98	13	PASS
		MCH	1.92	13	PASS
		HCH	1.94	13	PASS
	GSM/TM2	LCH	5.13	13	PASS
		MCH	4.53	13	PASS
		HCH	4.72	13	PASS

3Appendix_C: Modulation Characteristics

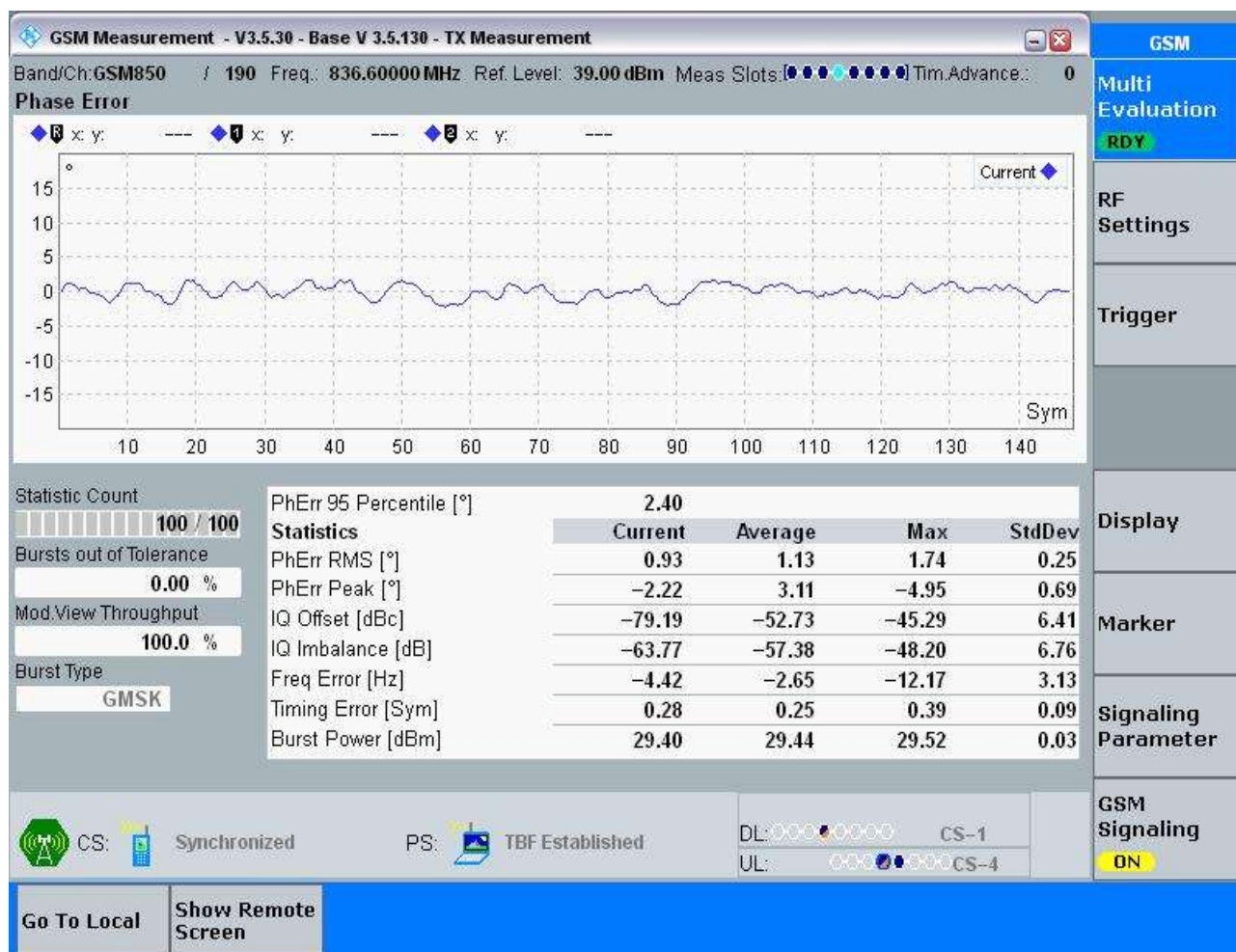
Part I - Test Plots

3.1 For GSM

3.1.1 Test Band = GSM850

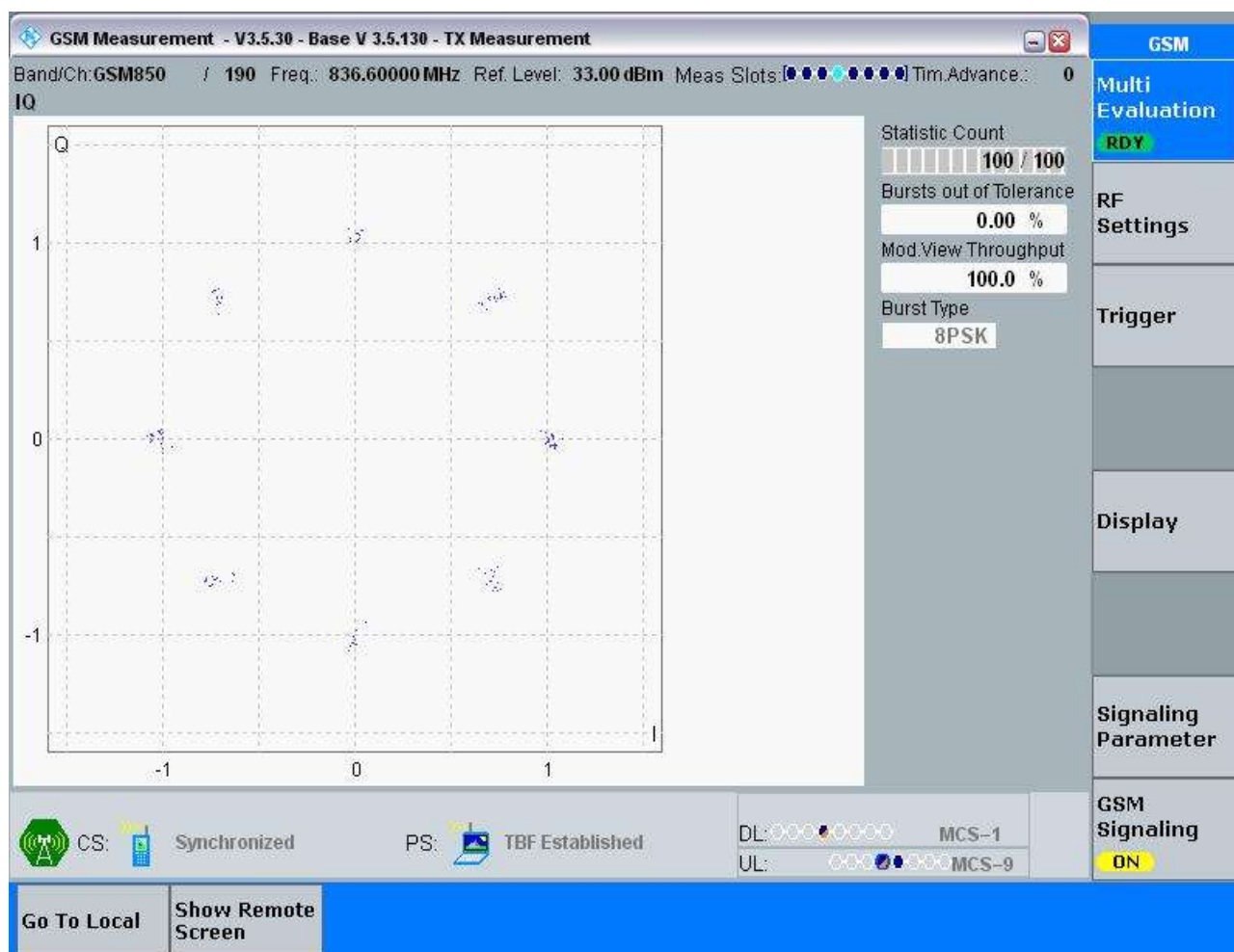
3.1.1.1 Test Mode = GSM/TM1

3.1.1.1.1 Test Channel = MCH



3.1.1.2 Test Mode = GSM/TM2

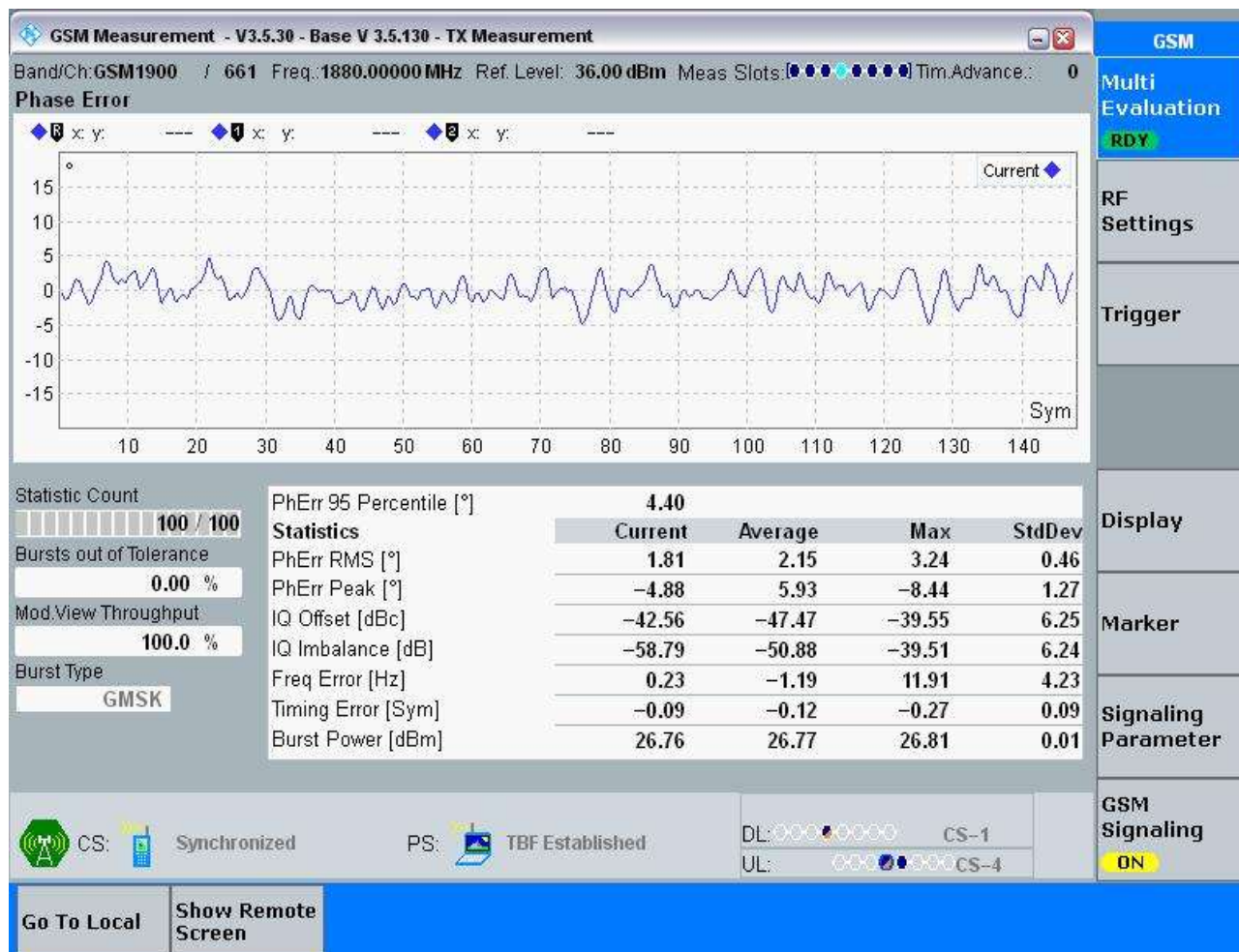
3.1.1.2.1 Test Channel = MCH



3.1.2 Test Band = PCS1900

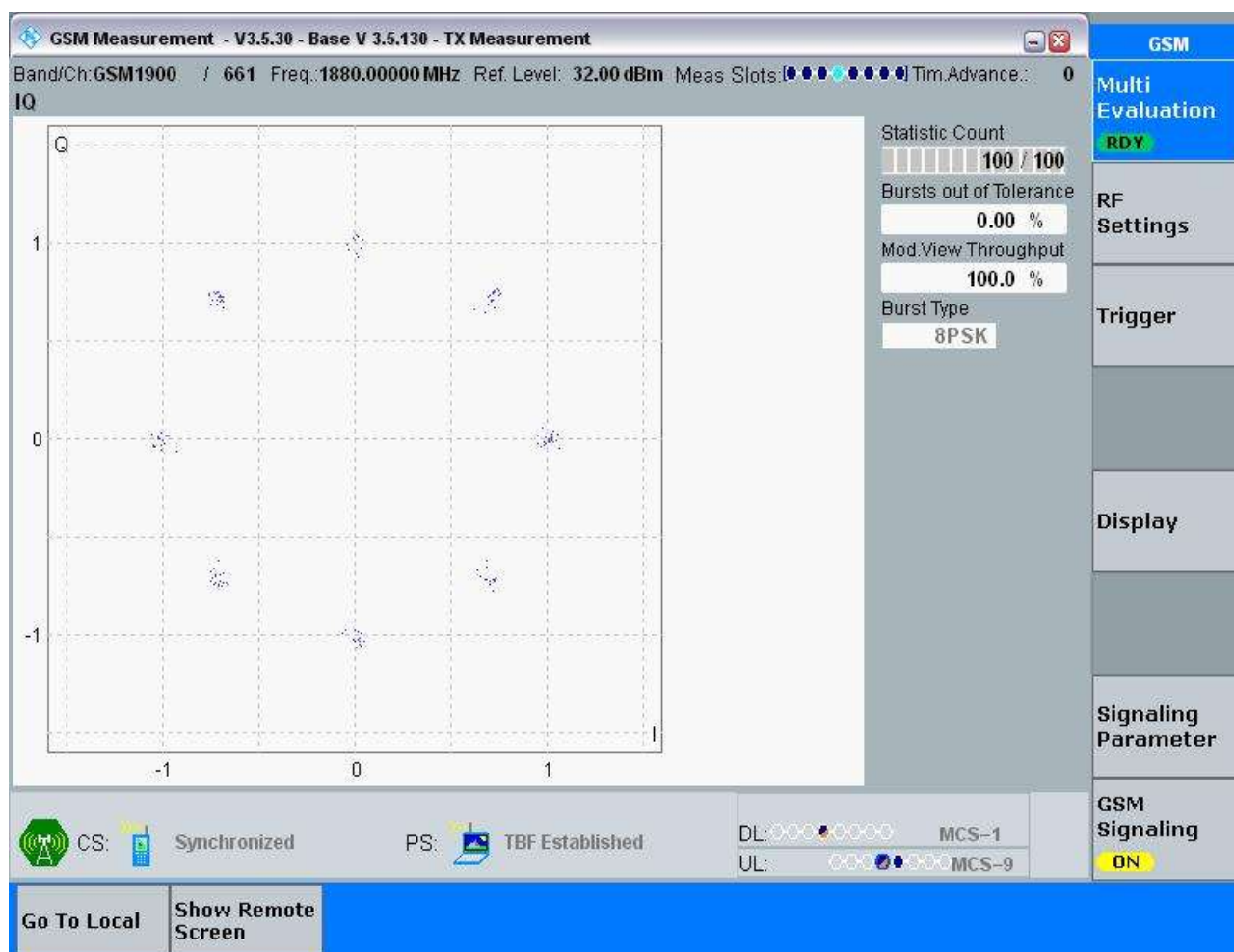
3.1.2.1 Test Mode = GSM/TM1

3.1.2.1.1 Test Channel = MCH



3.1.2.2 Test Mode = GSM/TM2

3.1.2.2.1 Test Channel = MCH



4Appendix_D: Bandwidth

Part I - Test Results

Test Band	Test Mode	Test Channel	Occupied Bandwidth [kHz]	Emission Bandwidth [kHz]	Verdict
GSM850	GSM/TM1	LCH	241.66	319.5	Pass
		MCH	242.54	313.8	Pass
		HCH	245.08	308.2	Pass
	GSM/TM2	LCH	256.40	334.7	Pass
		MCH	251.94	324.7	Pass
		HCH	256.99	316.7	Pass
PCS1900	GSM/TM1	LCH	246.80	315.6	Pass
		MCH	248.12	311.8	Pass
		HCH	246.51	319.0	Pass
	GSM/TM2	LCH	250.01	318.9	Pass
		MCH	247.33	315.3	Pass
		HCH	253.35	317.4	Pass

Part II - Test Plots

4.1 For GSM

4.1.1 Test Band = GSM850

4.1.1.1 Test Mode = GSM/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



4.1.1.2 Test Mode = GSM/TM2

4.1.1.2.1 Test Channel = LCH



4.1.1.2.2 Test Channel = MCH



4.1.1.2.3 Test Channel = HCH



4.1.2 Test Band = PCS1900

4.1.2.1 Test Mode = GSM/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



4.1.2.2 Test Mode = GSM/TM2

4.1.2.2.1 Test Channel = LCH



4.1.2.2.2 Test Channel = MCH



4.1.2.2.3 Test Channel = HCH



5Appendix_E: Band Edges Compliance

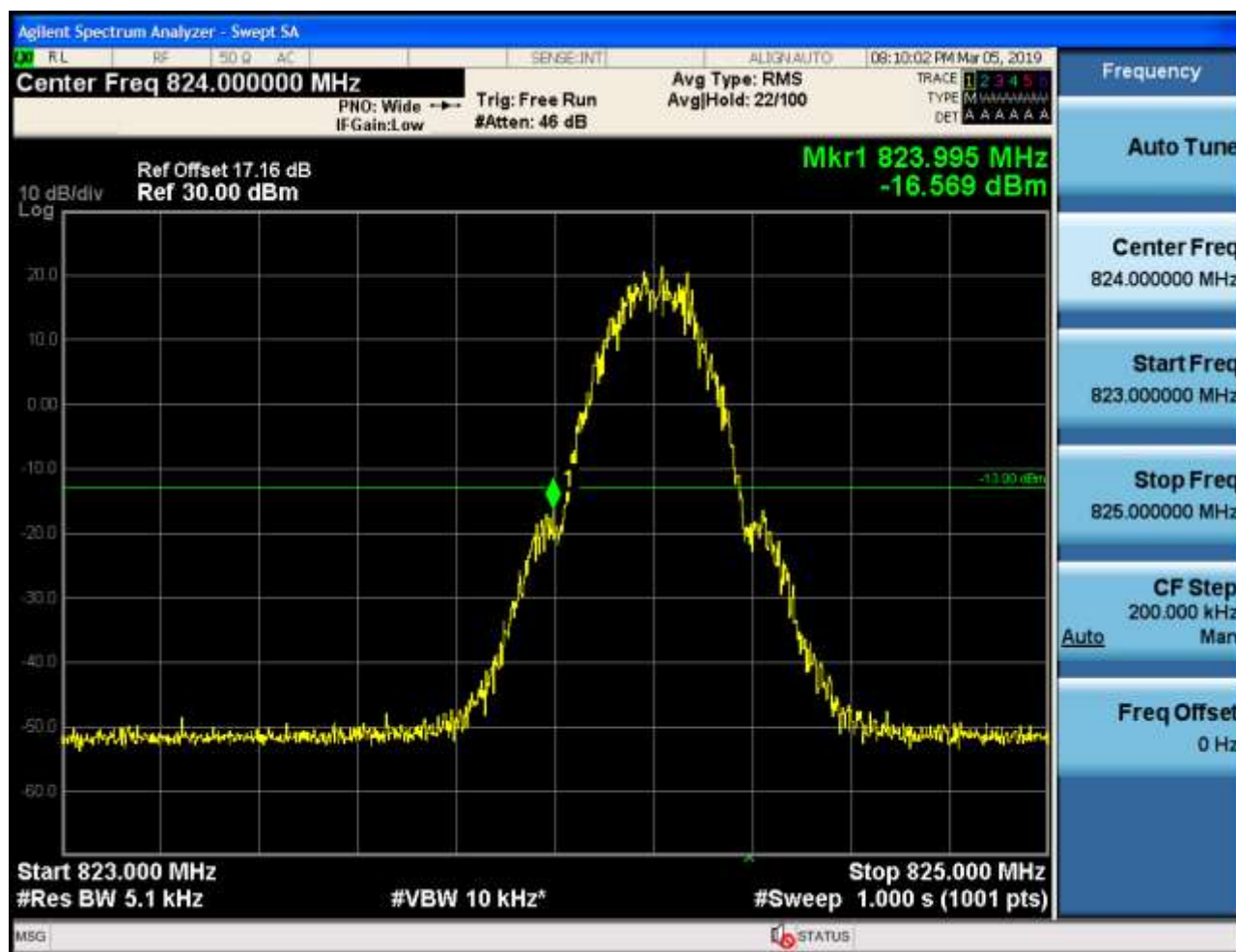
Part I - Test Plots

5.1 For GSM

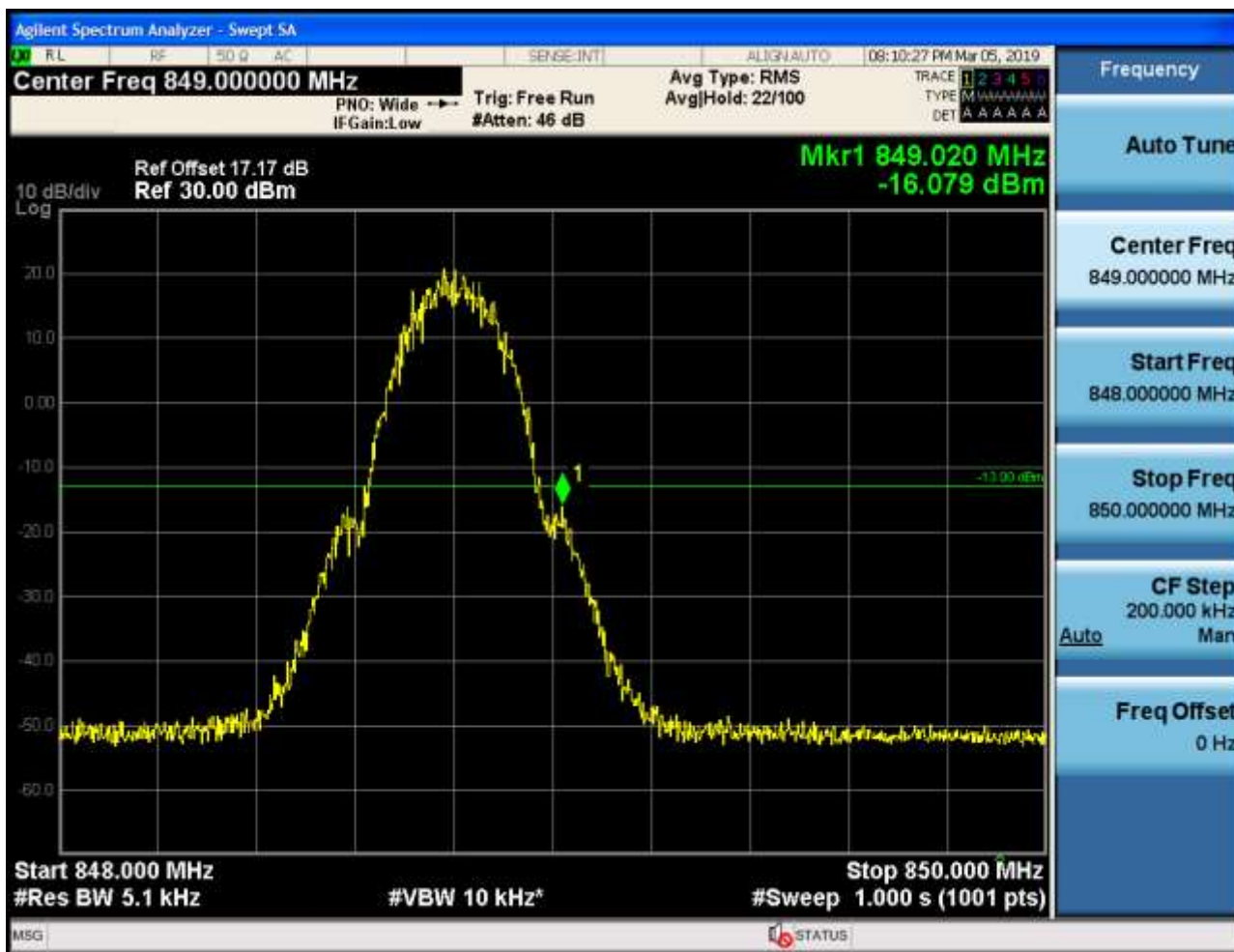
5.1.1 Test Band = GSM850

5.1.1.1 Test Mode = GSM/TM1

5.1.1.1.1 Test Channel = LCH

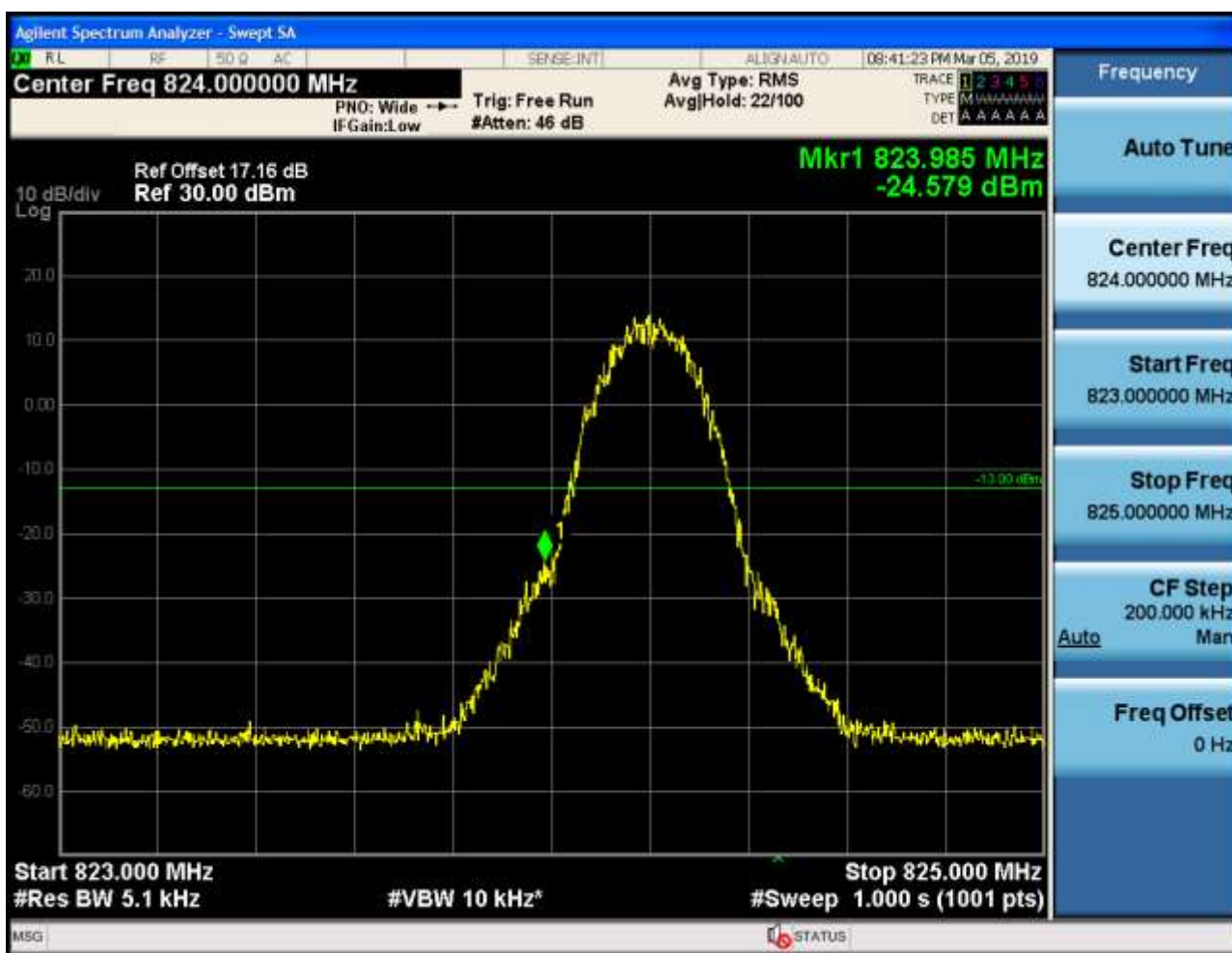


5.1.1.1.2 Test Channel = HCH

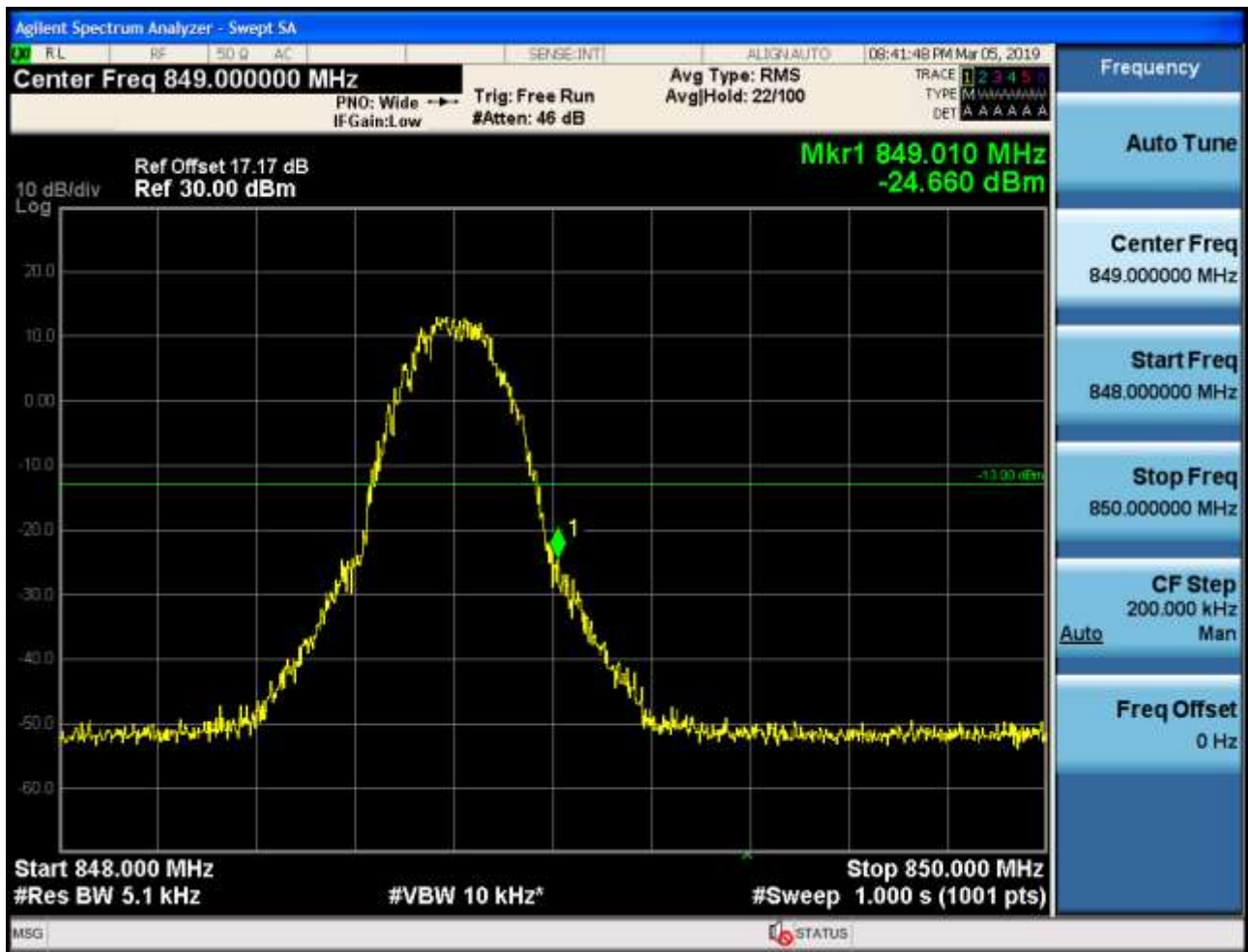


5.1.1.2 Test Mode = GSM/TM2

5.1.1.2.1 Test Channel = LCH



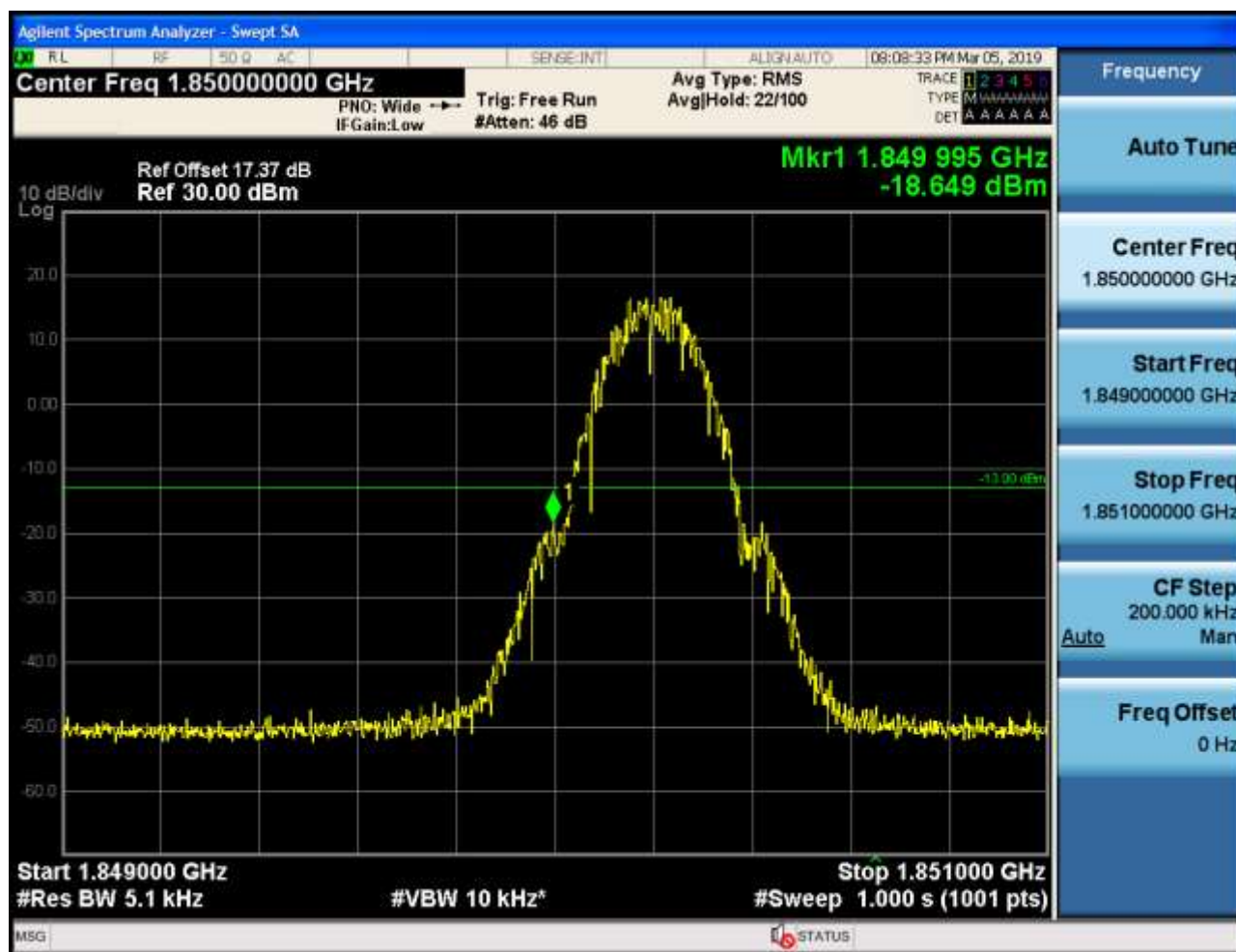
5.1.1.2.2 Test Channel = HCH



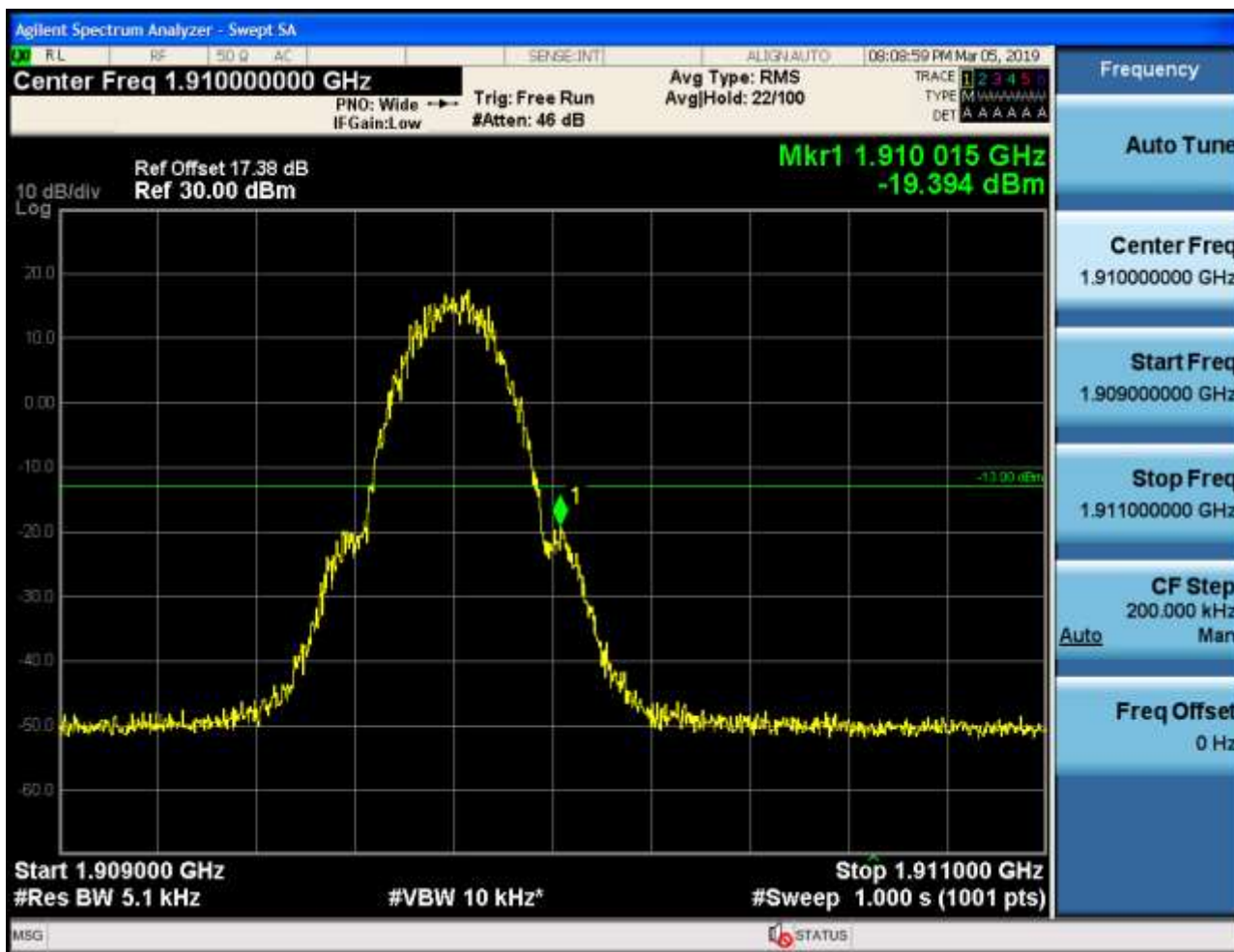
5.1.2 Test Band = PCS1900

5.1.2.1 Test Mode = GSM/TM1

5.1.2.1.1 Test Channel = LCH

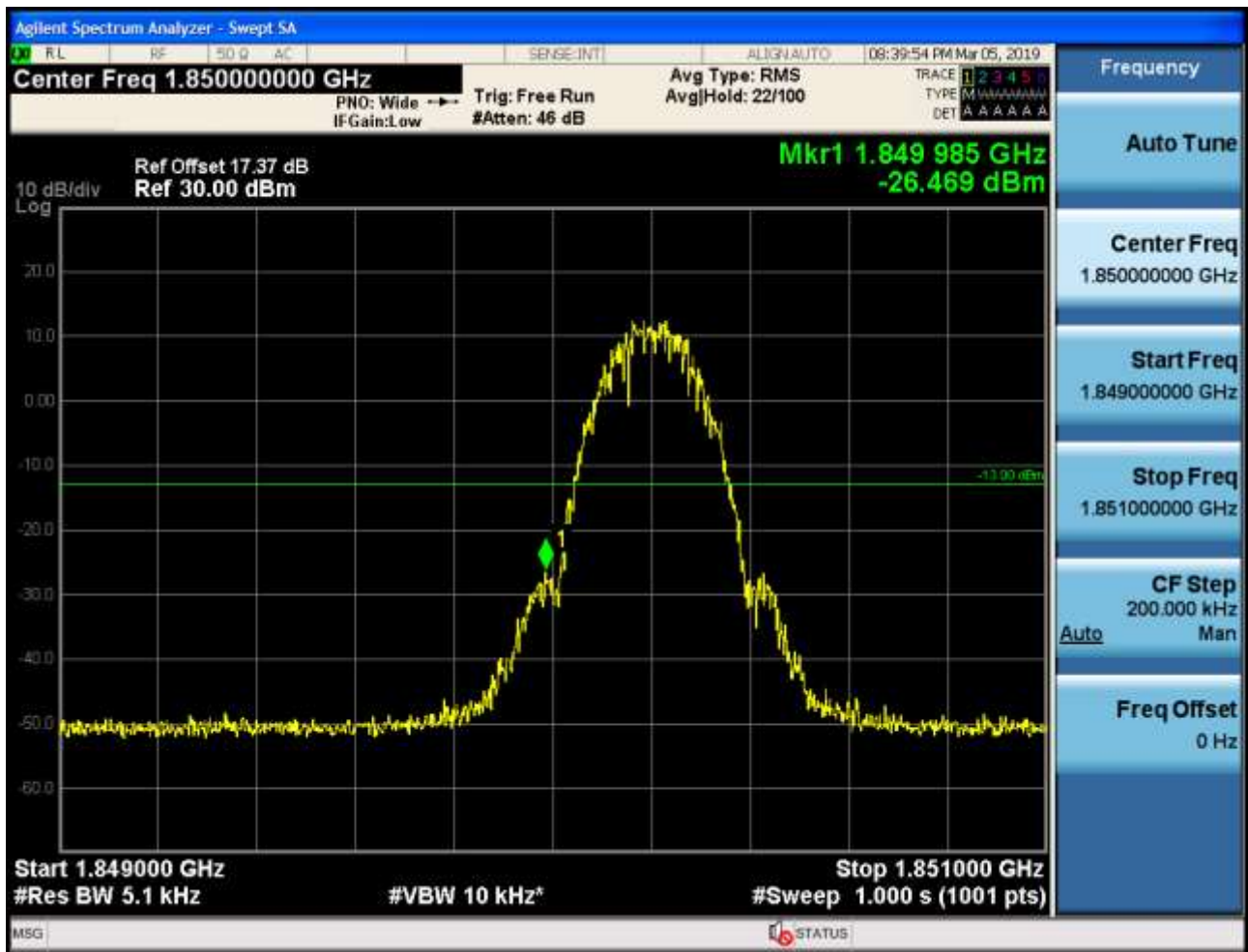


5.1.2.1.2 Test Channel = HCH

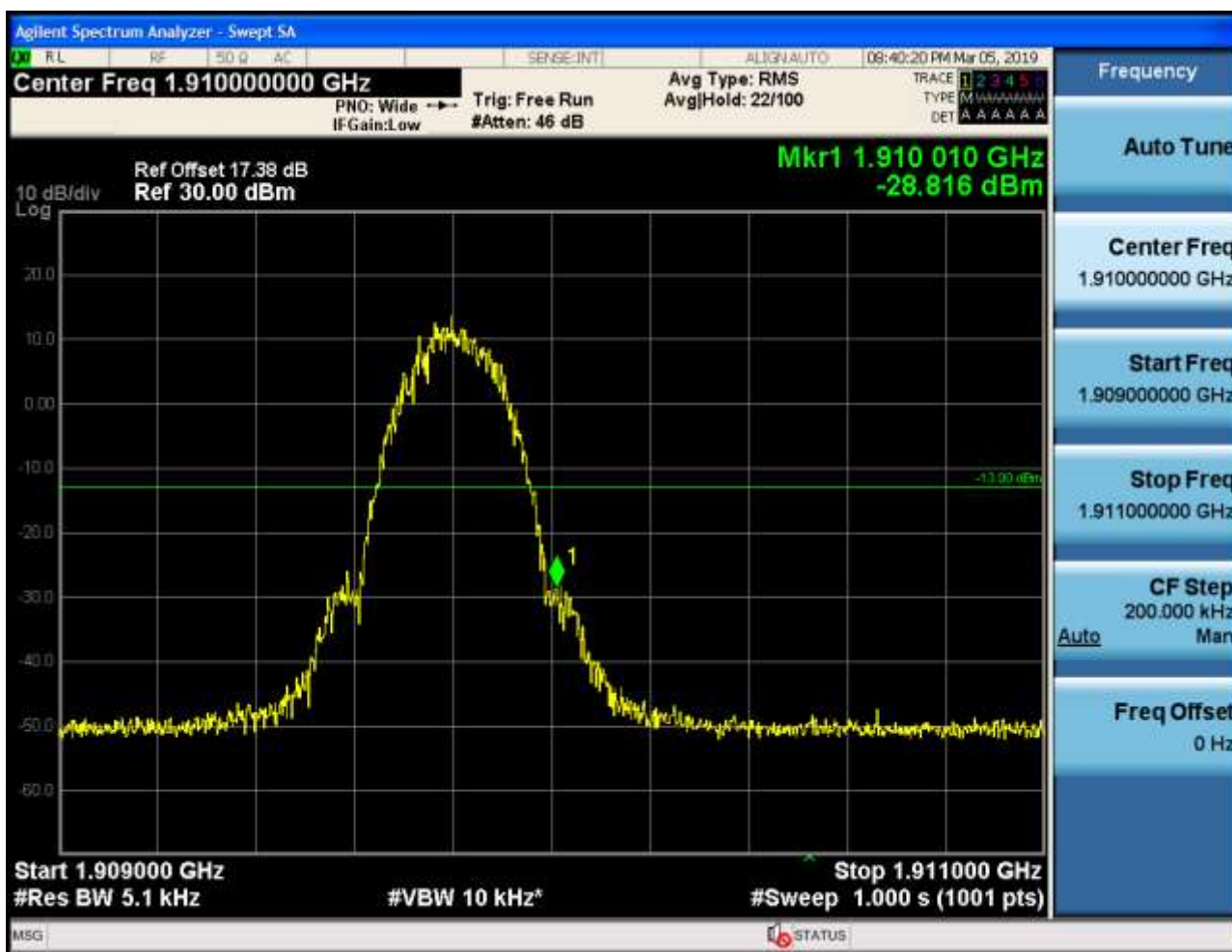


5.1.2.2 Test Mode = GSM/TM2

5.1.2.2.1 Test Channel = LCH



5.1.2.2.2 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.

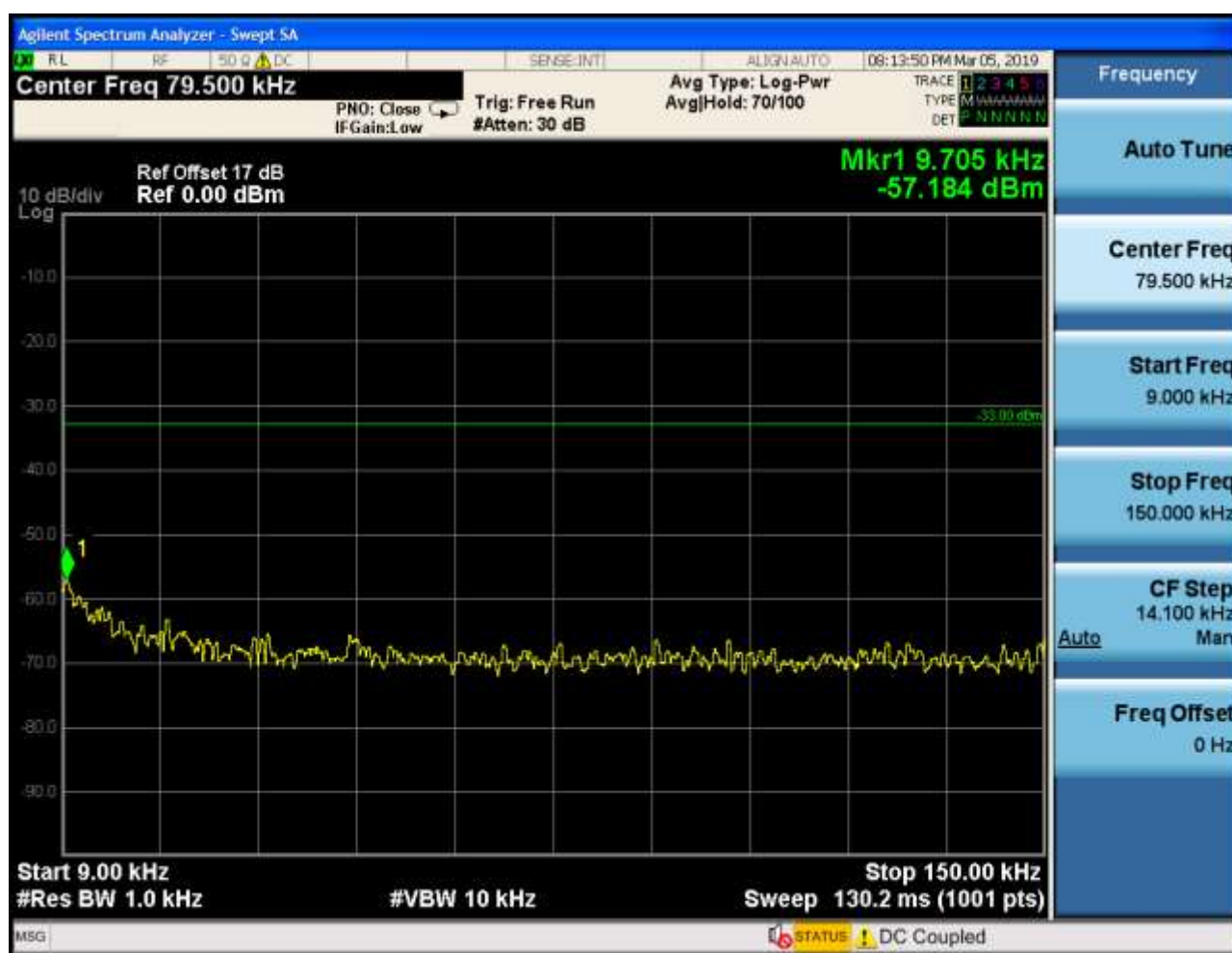
Part I - Test Plots

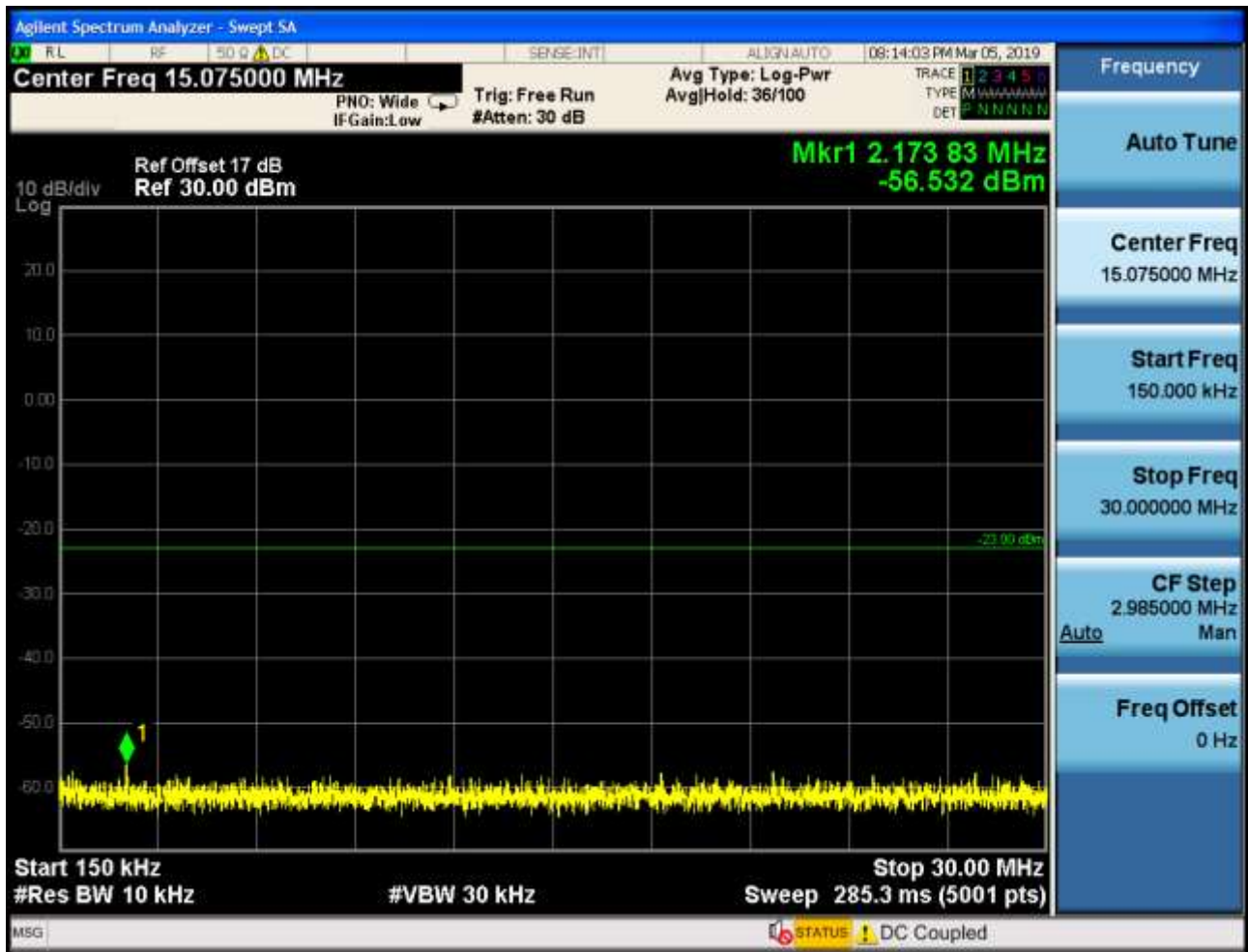
6.1 For GSM

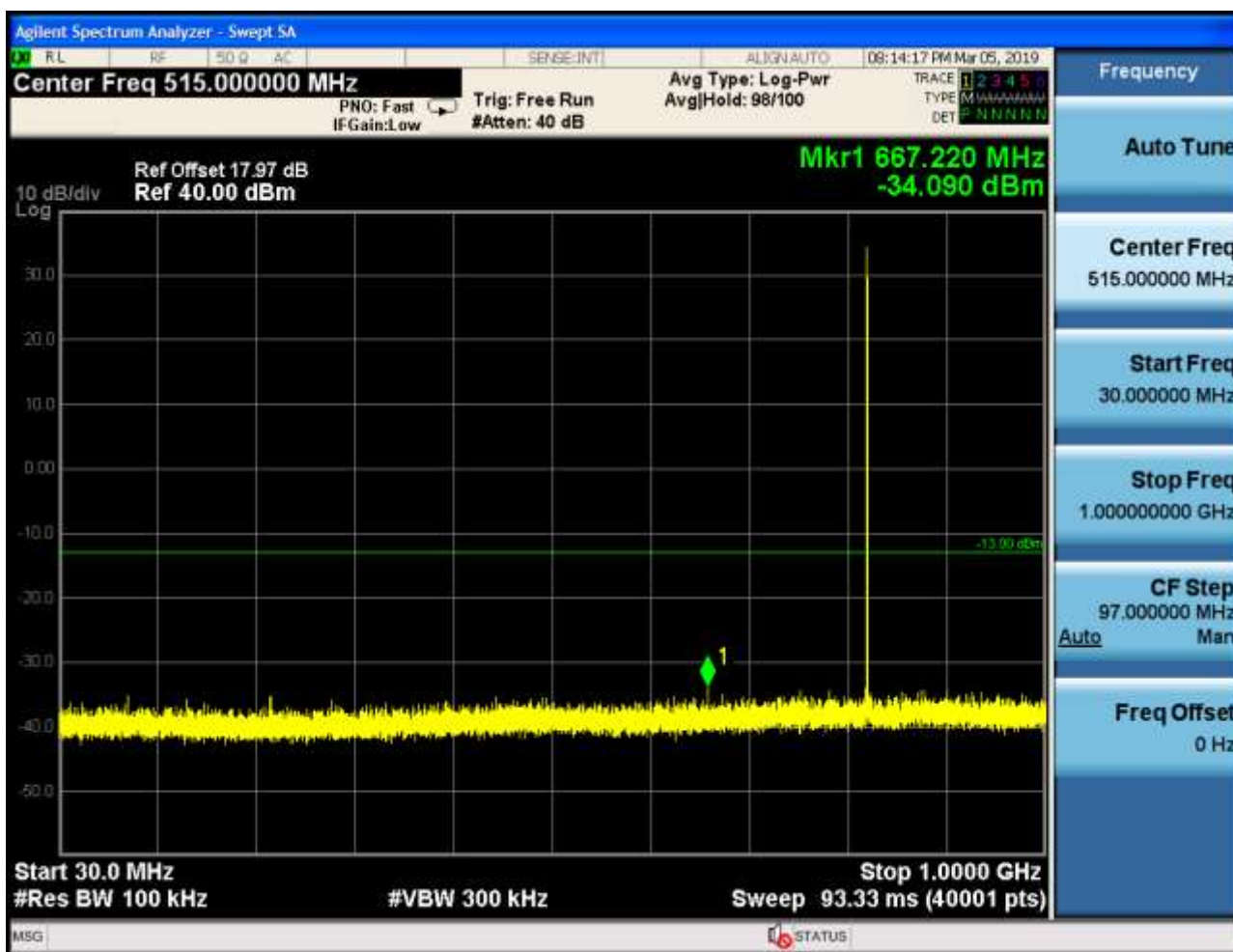
6.1.1 Test Band = GSM850

6.1.1.1 Test Mode = GSM/TM1

6.1.1.1.1 Test Channel = LCH



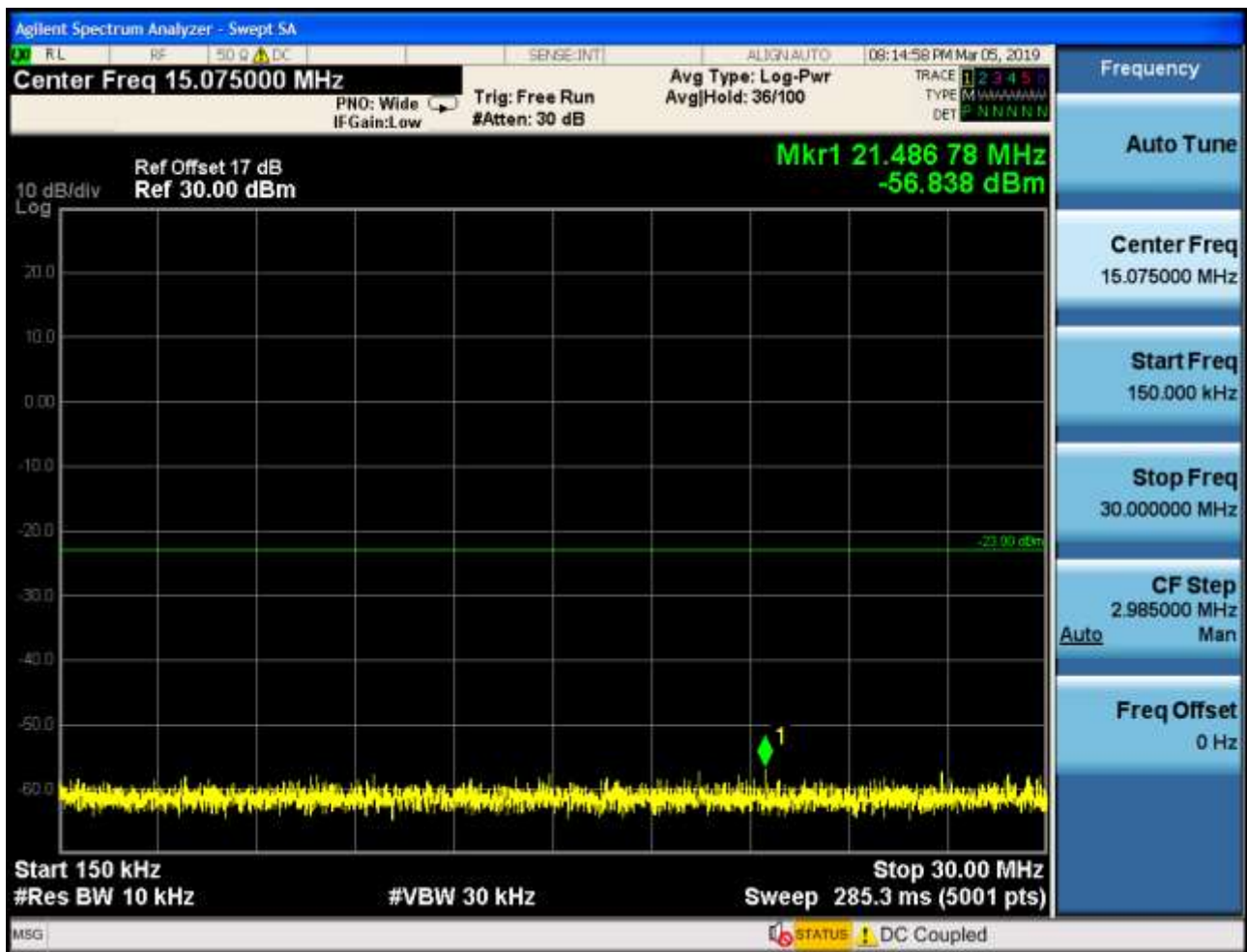


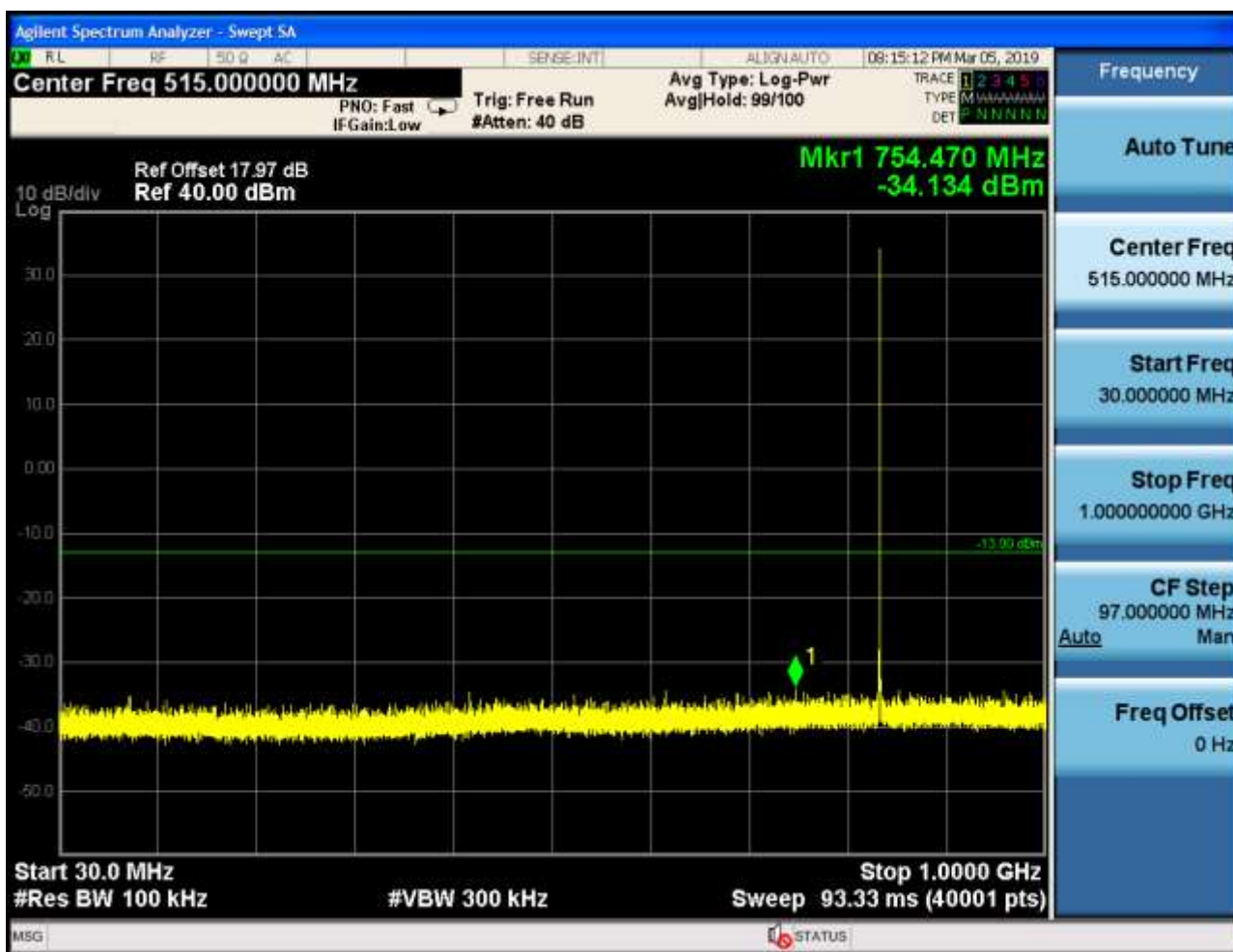




6.1.1.1.2 Test Channel = MCH

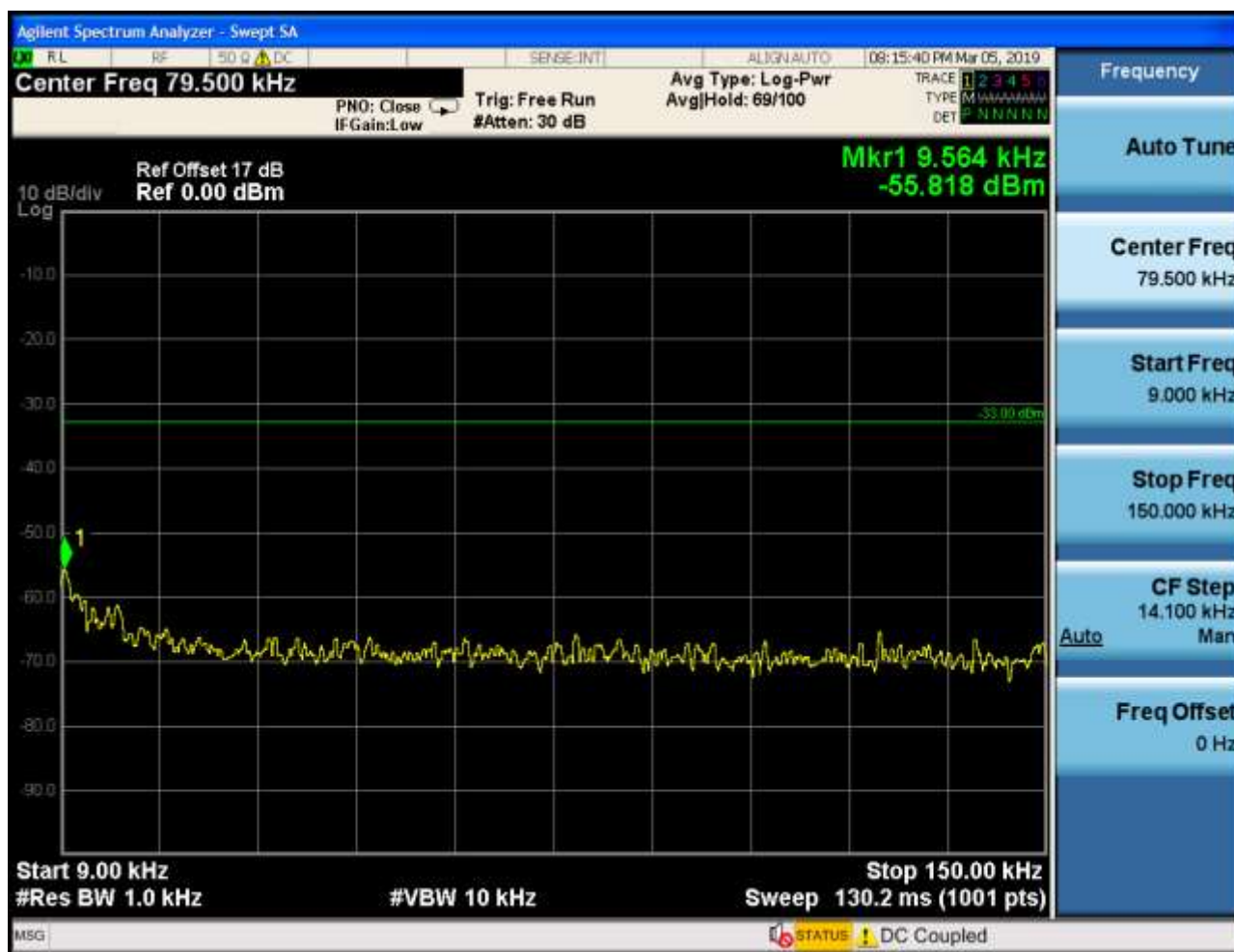


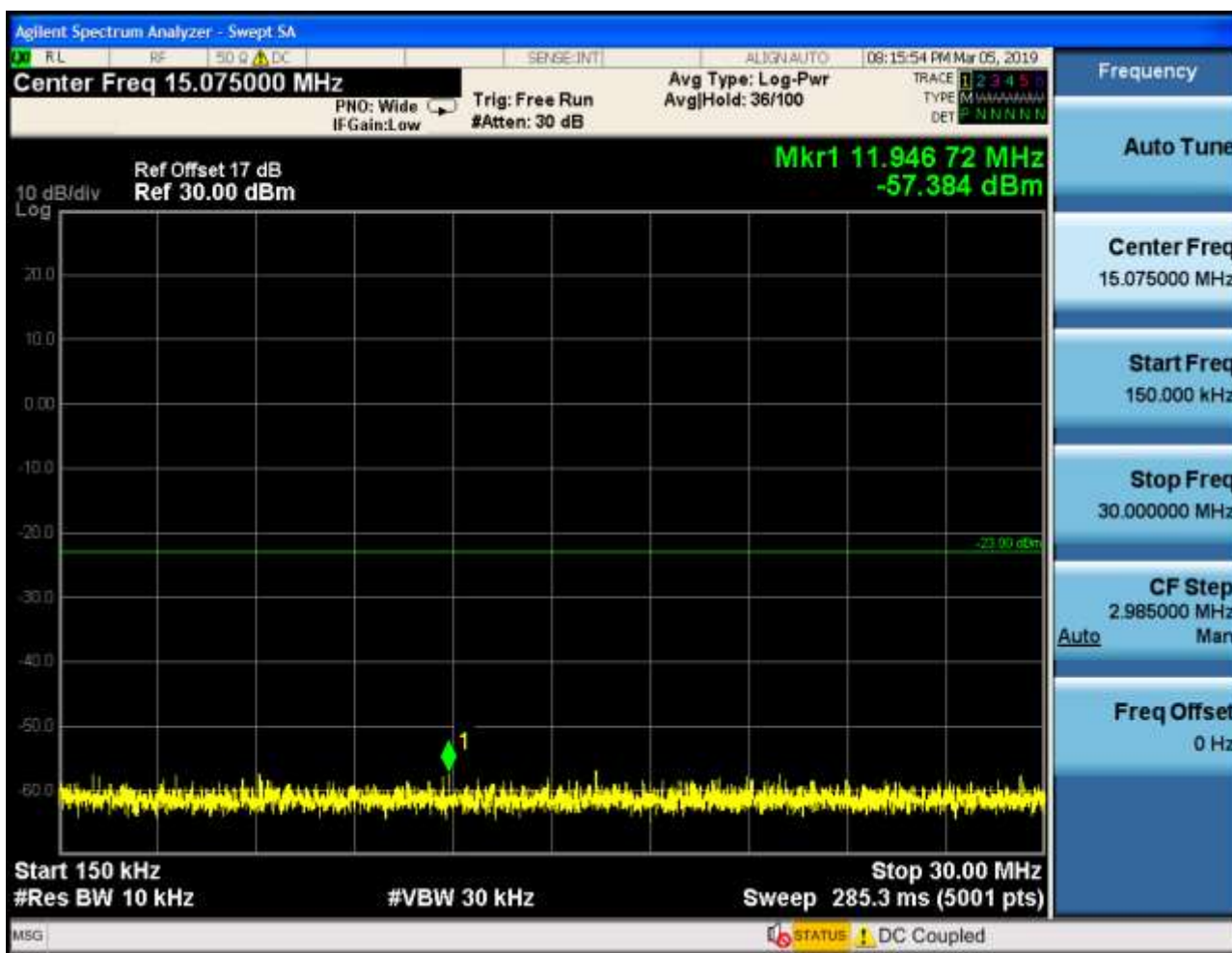


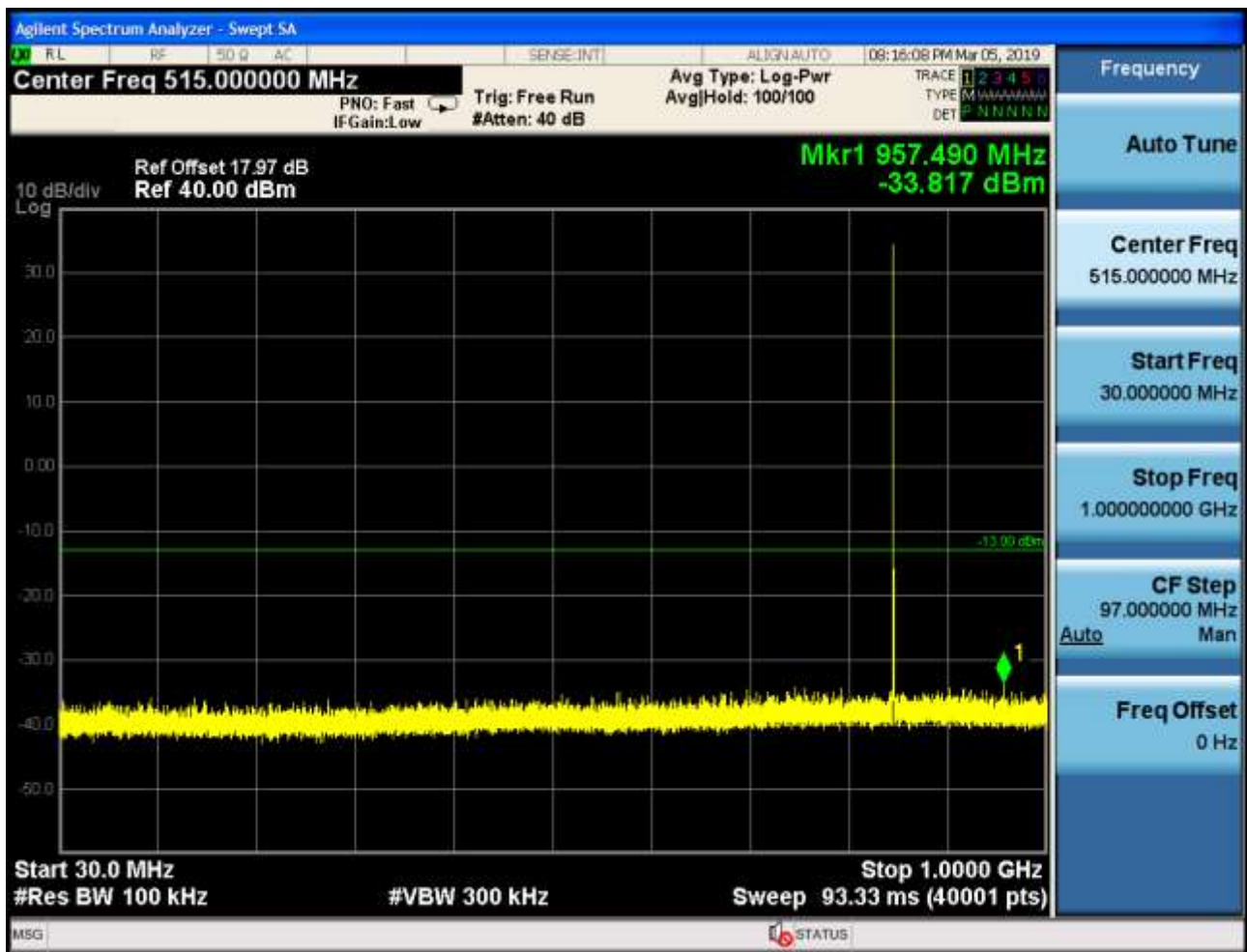




6.1.1.1.3 Test Channel = HCH



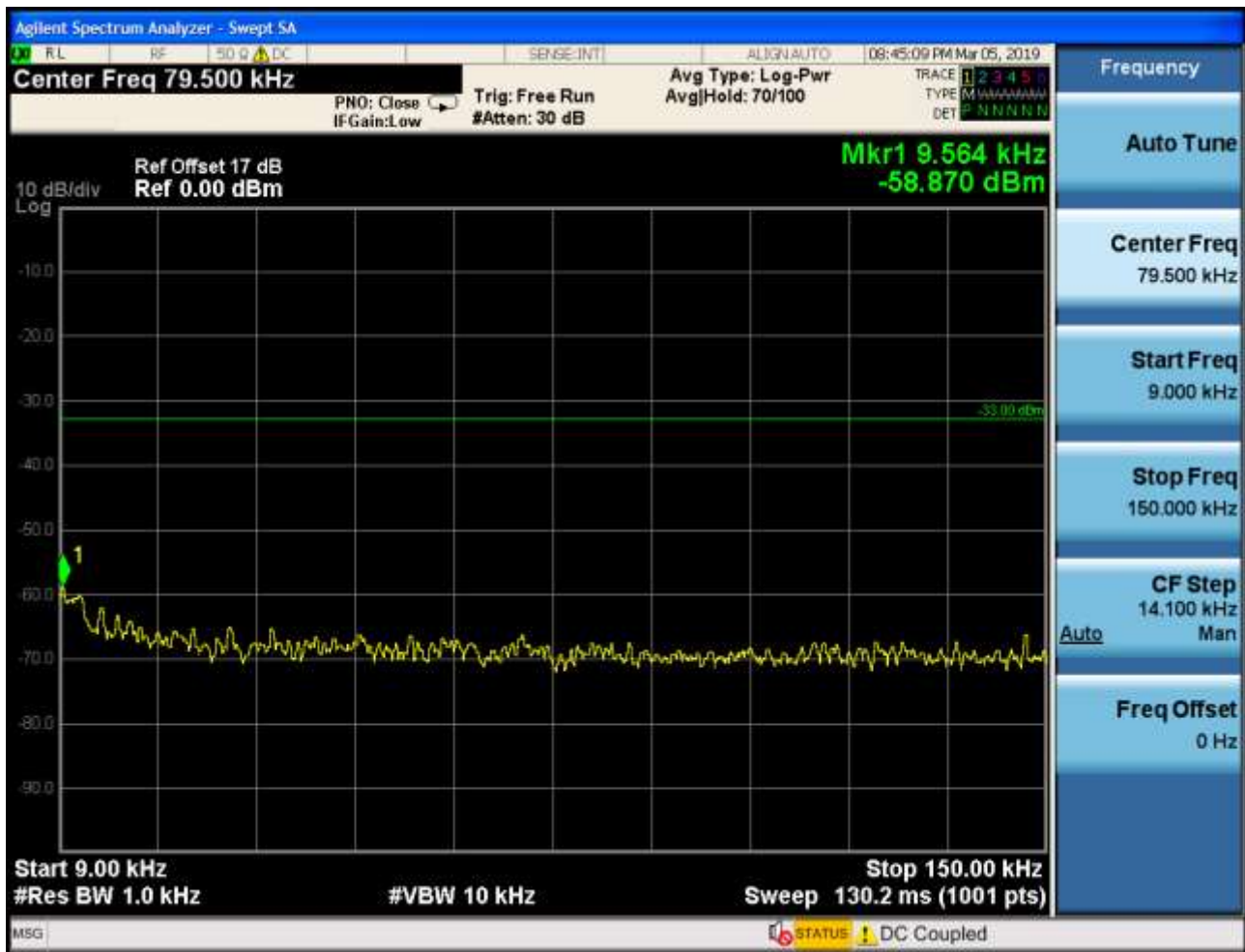




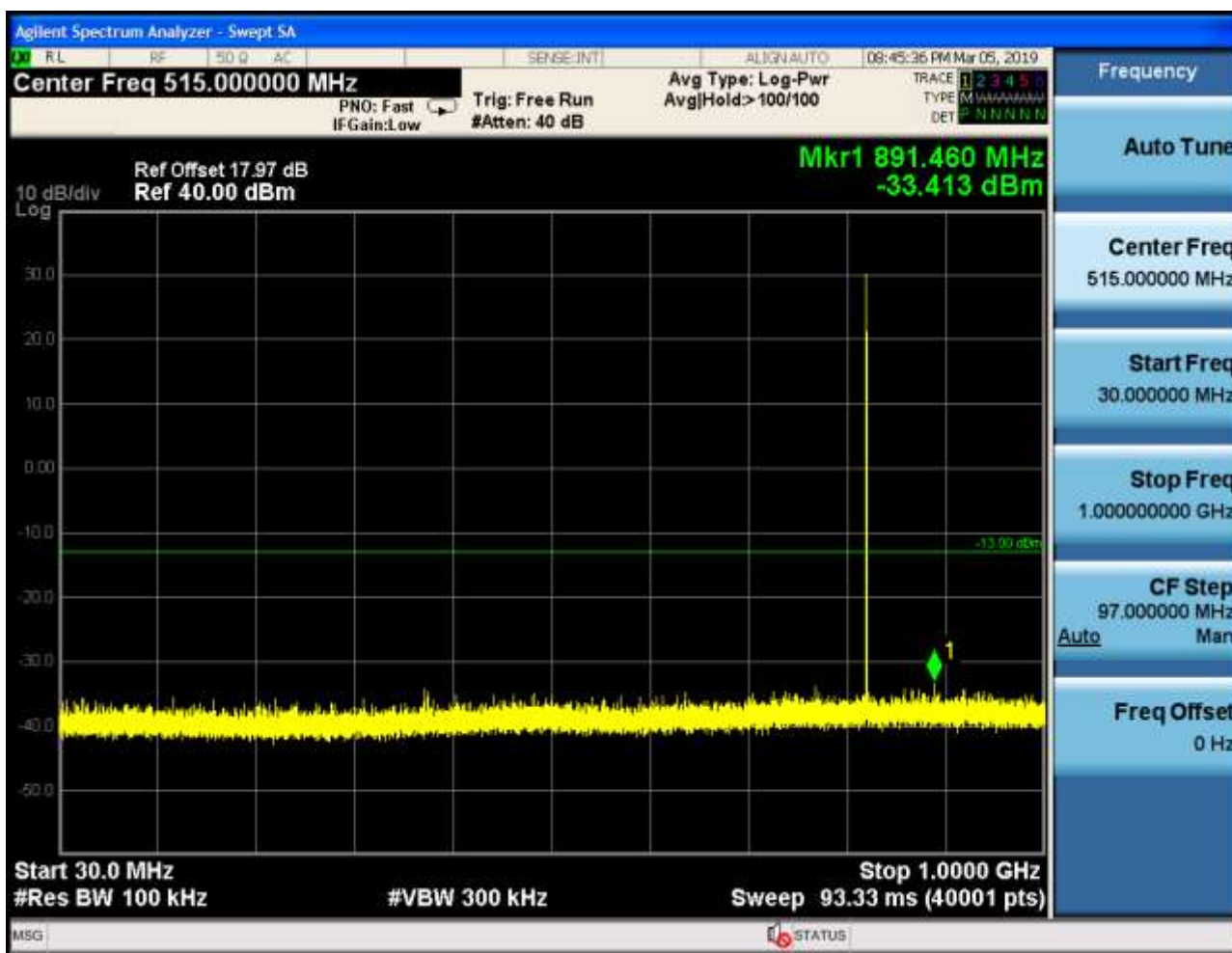


6.1.1.2 Test Mode = GSM/TM2

6.1.1.2.1 Test Channel = LCH

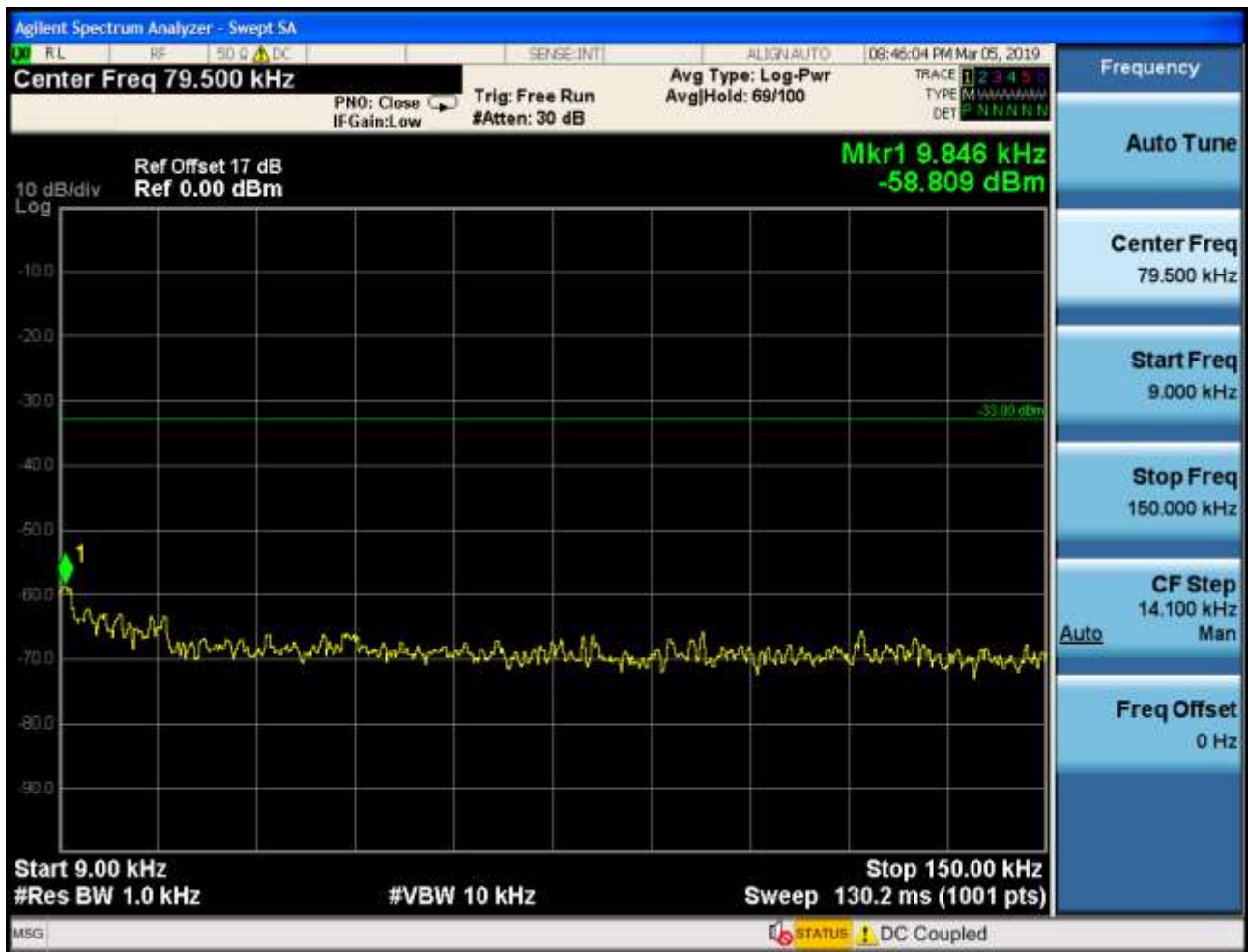


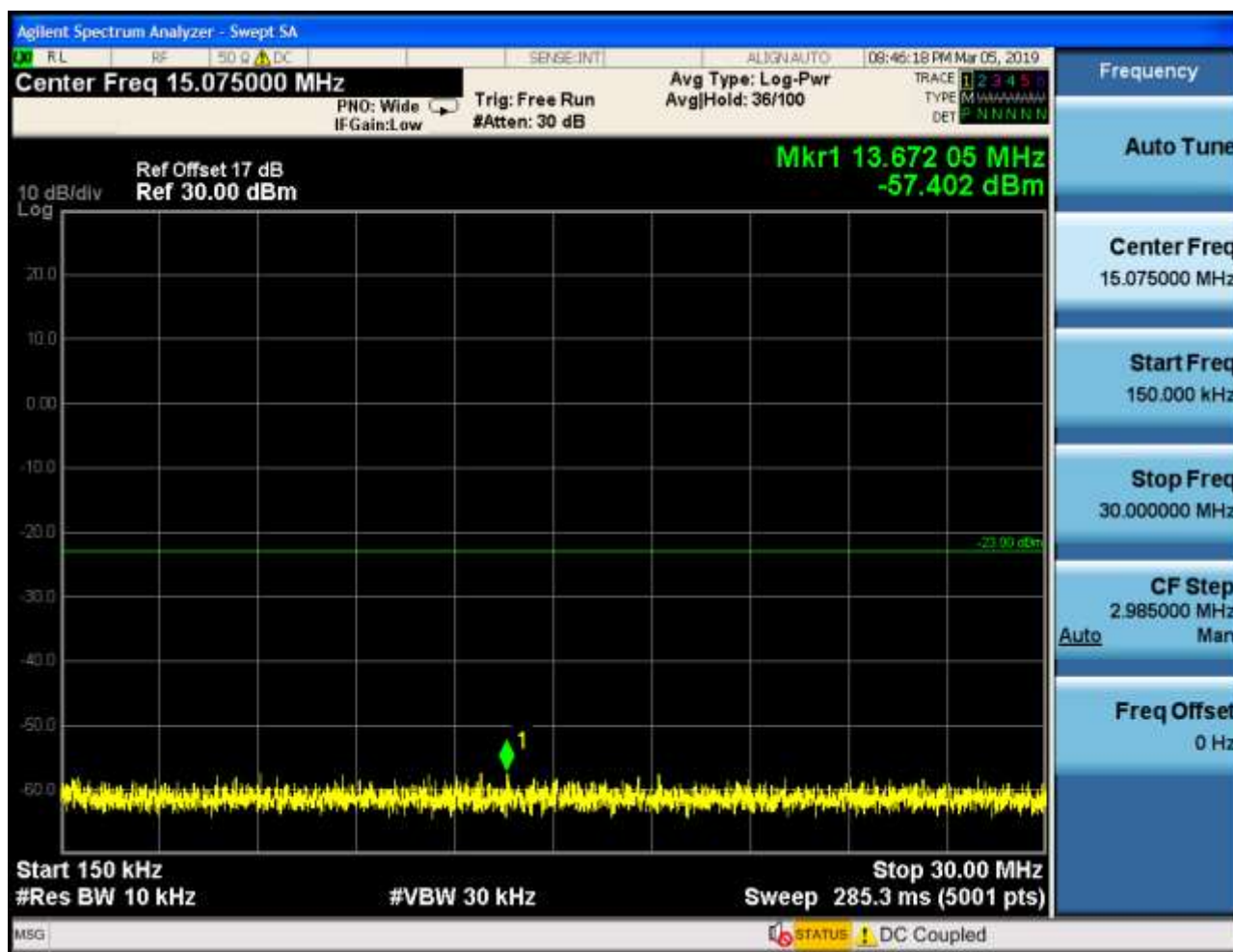


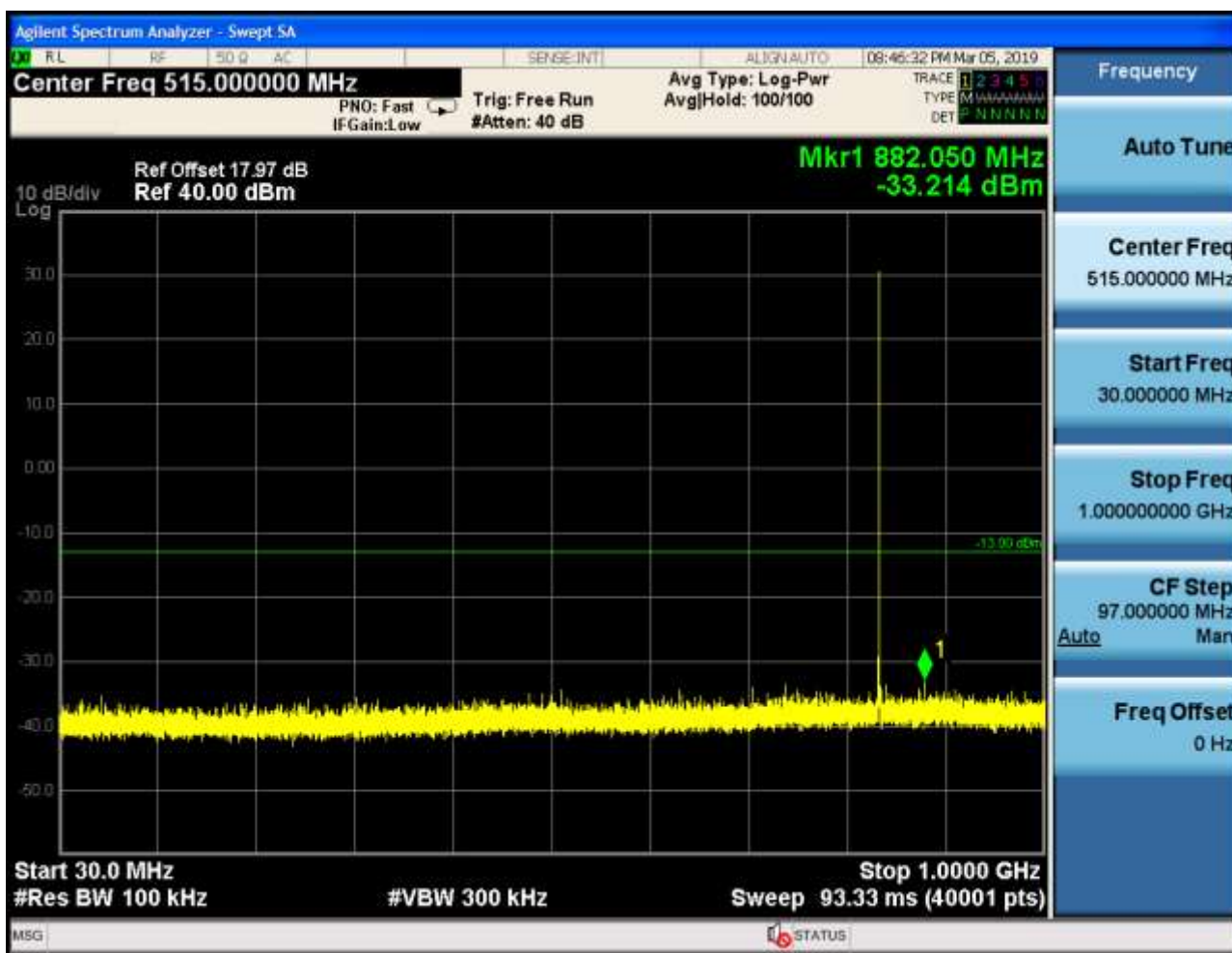




6.1.1.2.2 Test Channel = MCH

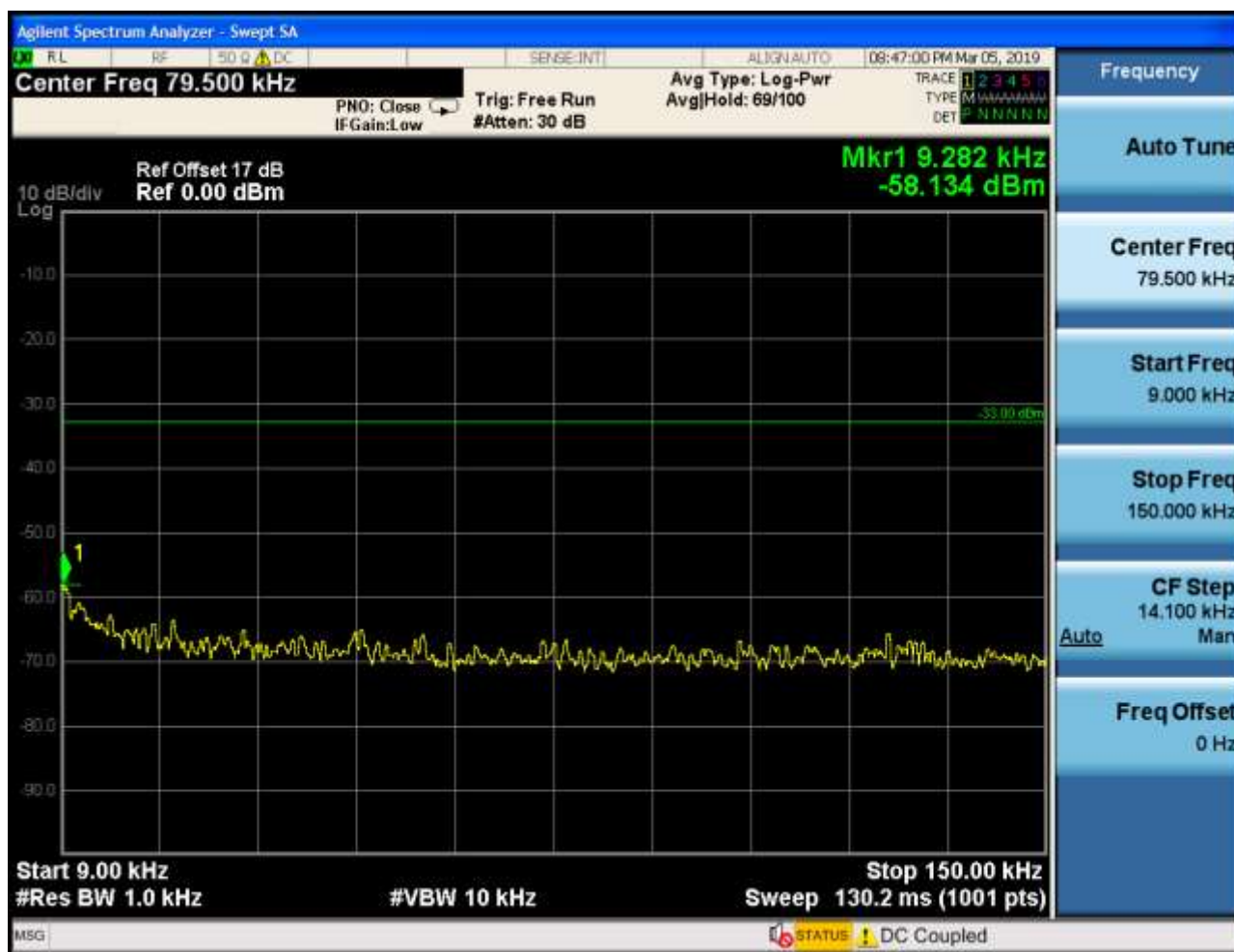


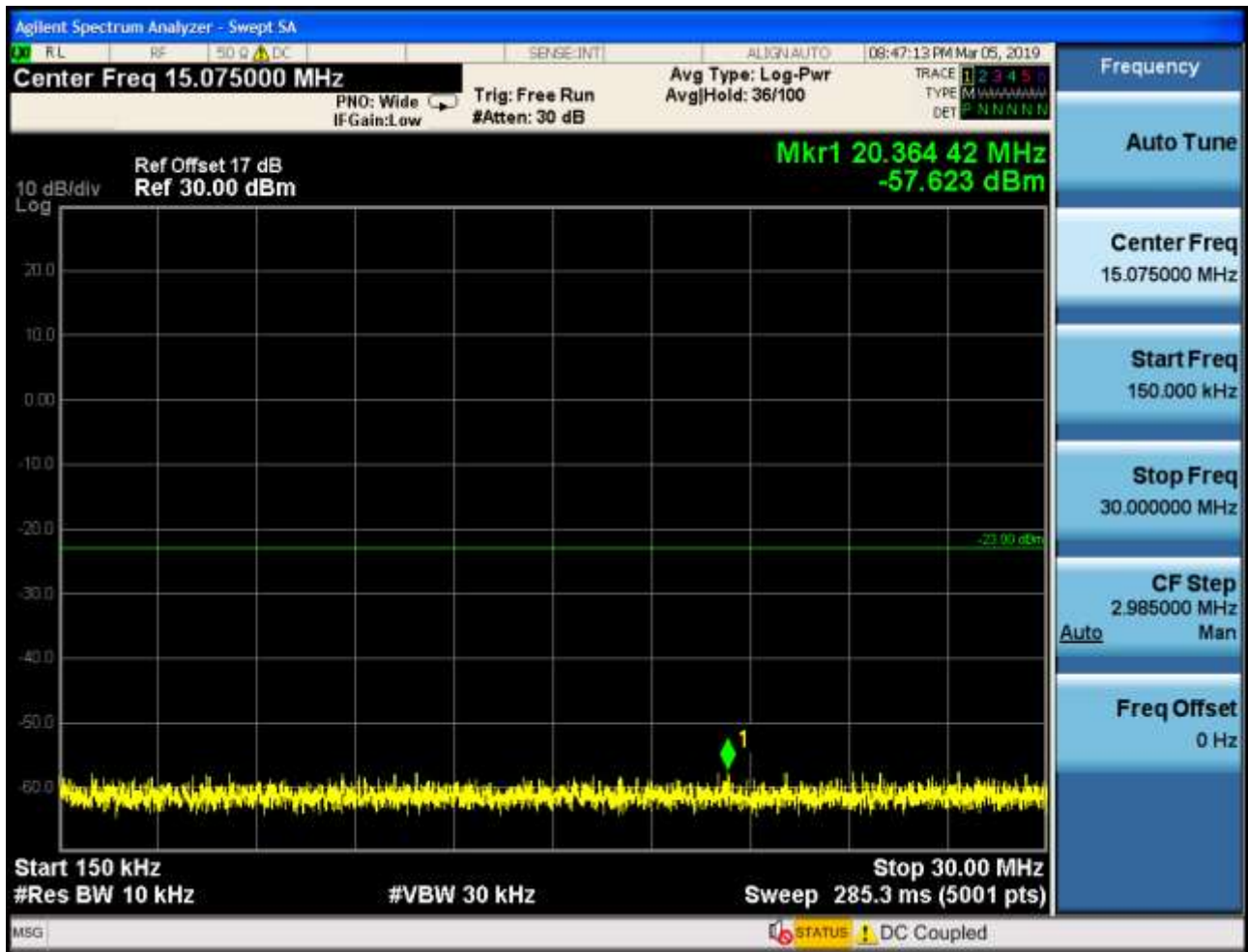


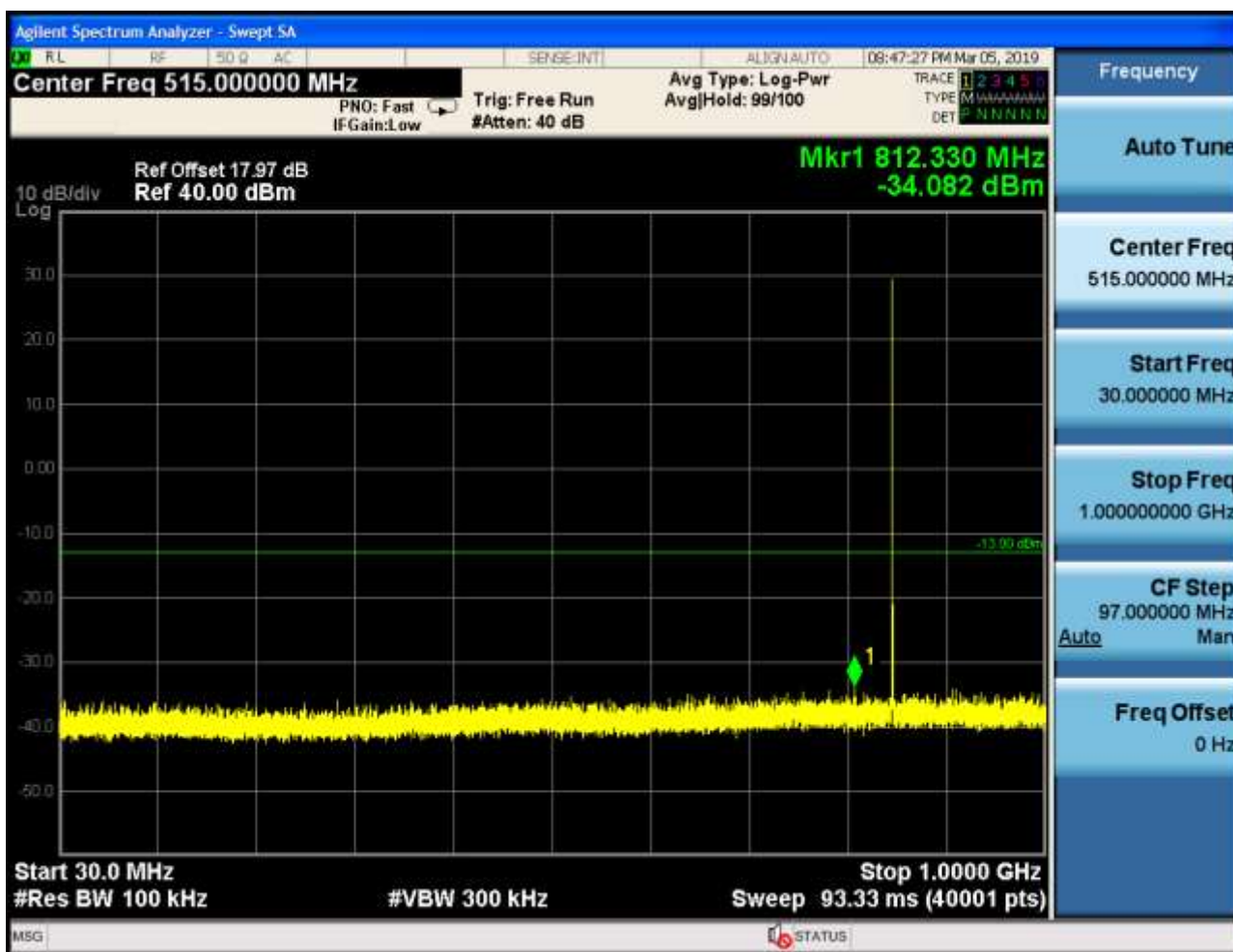


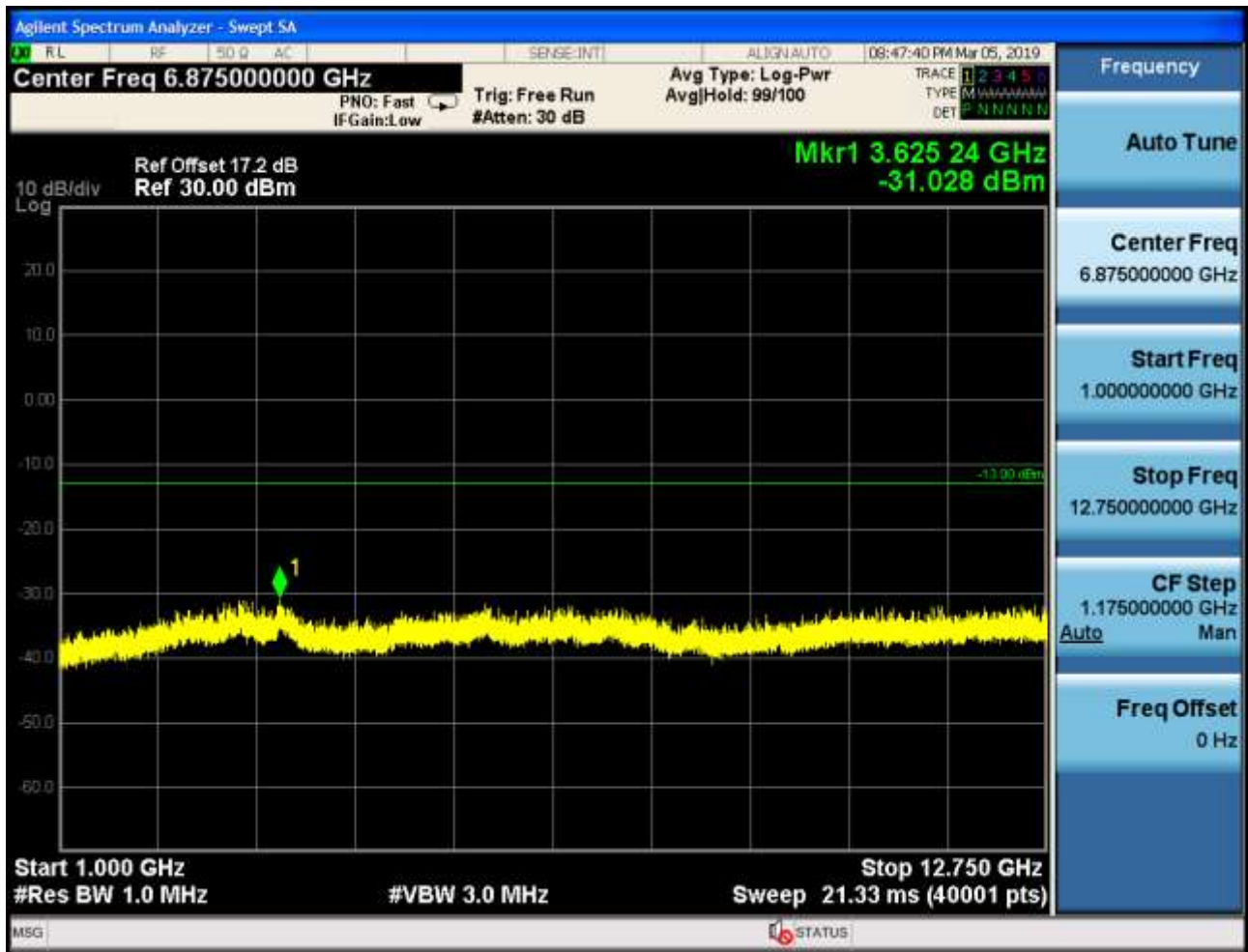


6.1.1.2.3 Test Channel = HCH







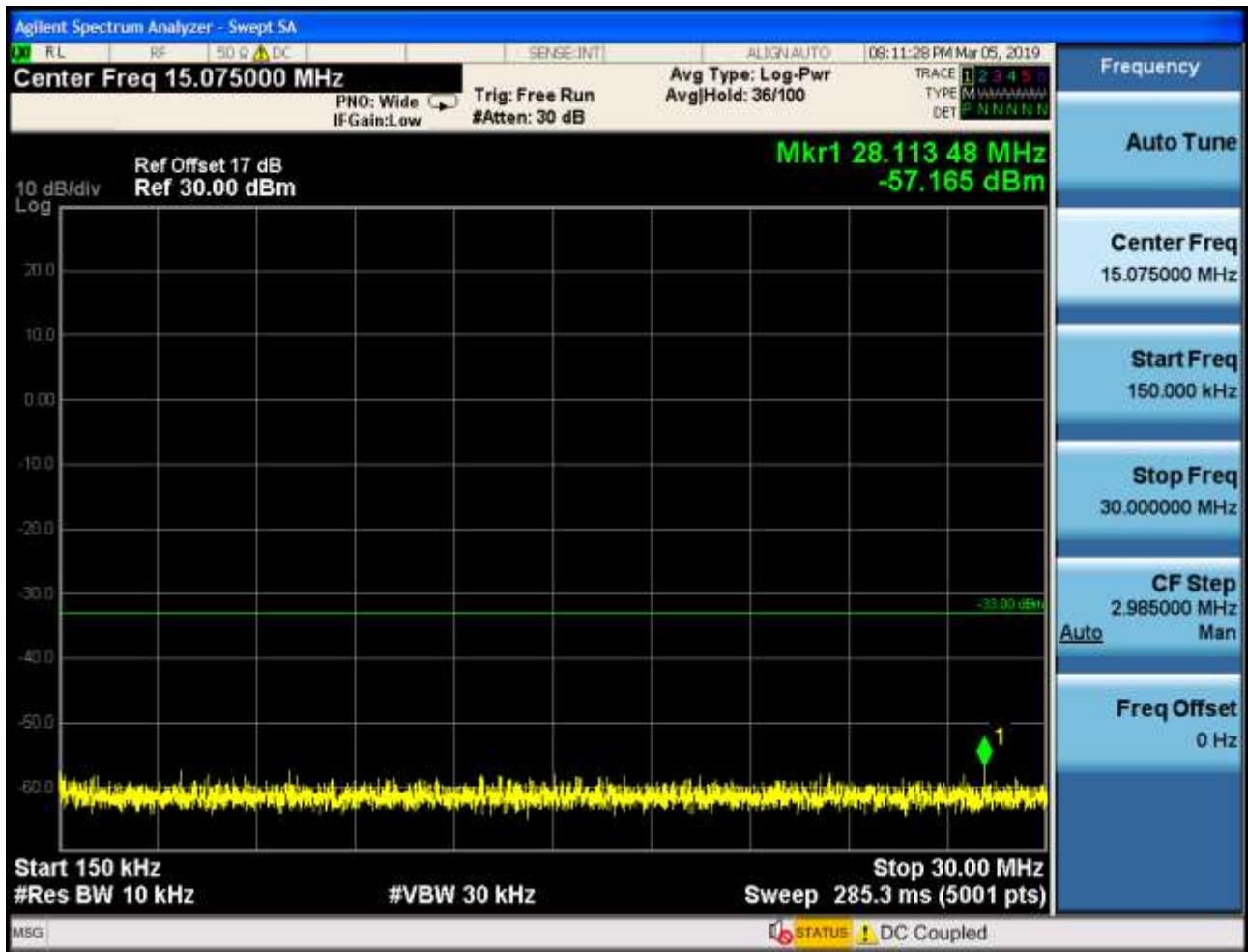


6.1.2 Test Band = PCS1900

6.1.2.1 Test Mode = GSM/TM1

6.1.2.1.1 Test Channel = LCH







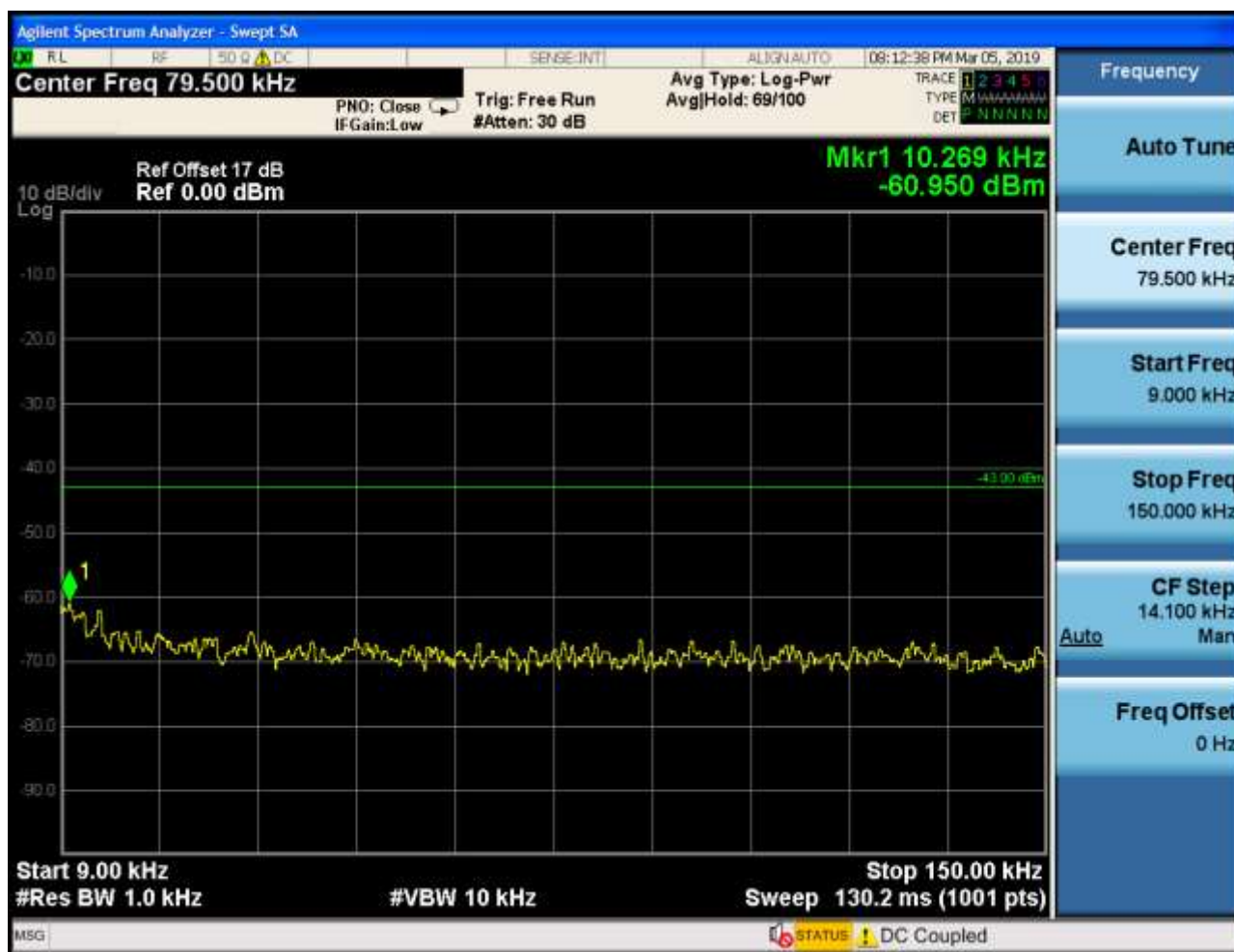
6.1.2.1.2 Test Channel = MCH

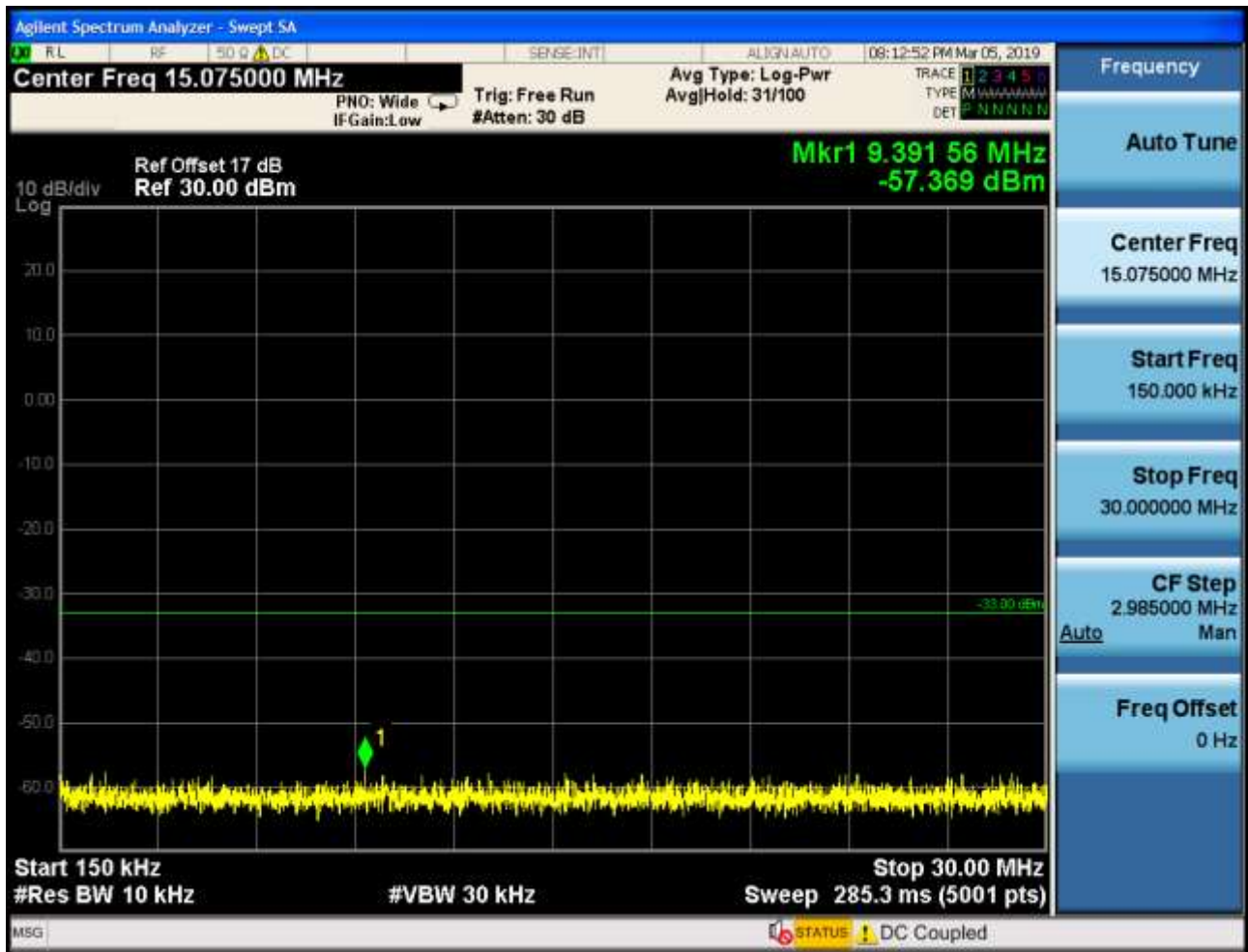






6.1.2.1.3 Test Channel = HCH

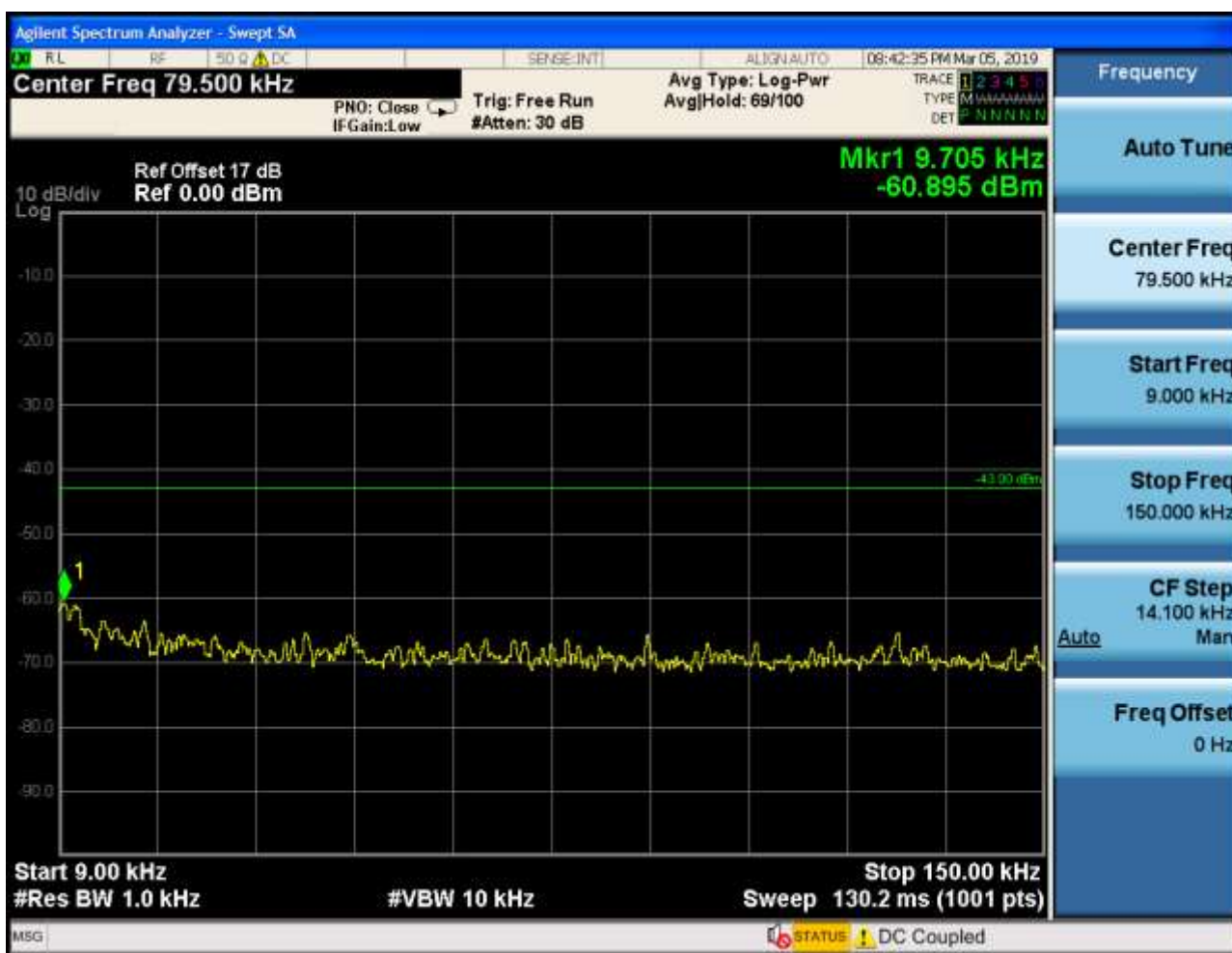


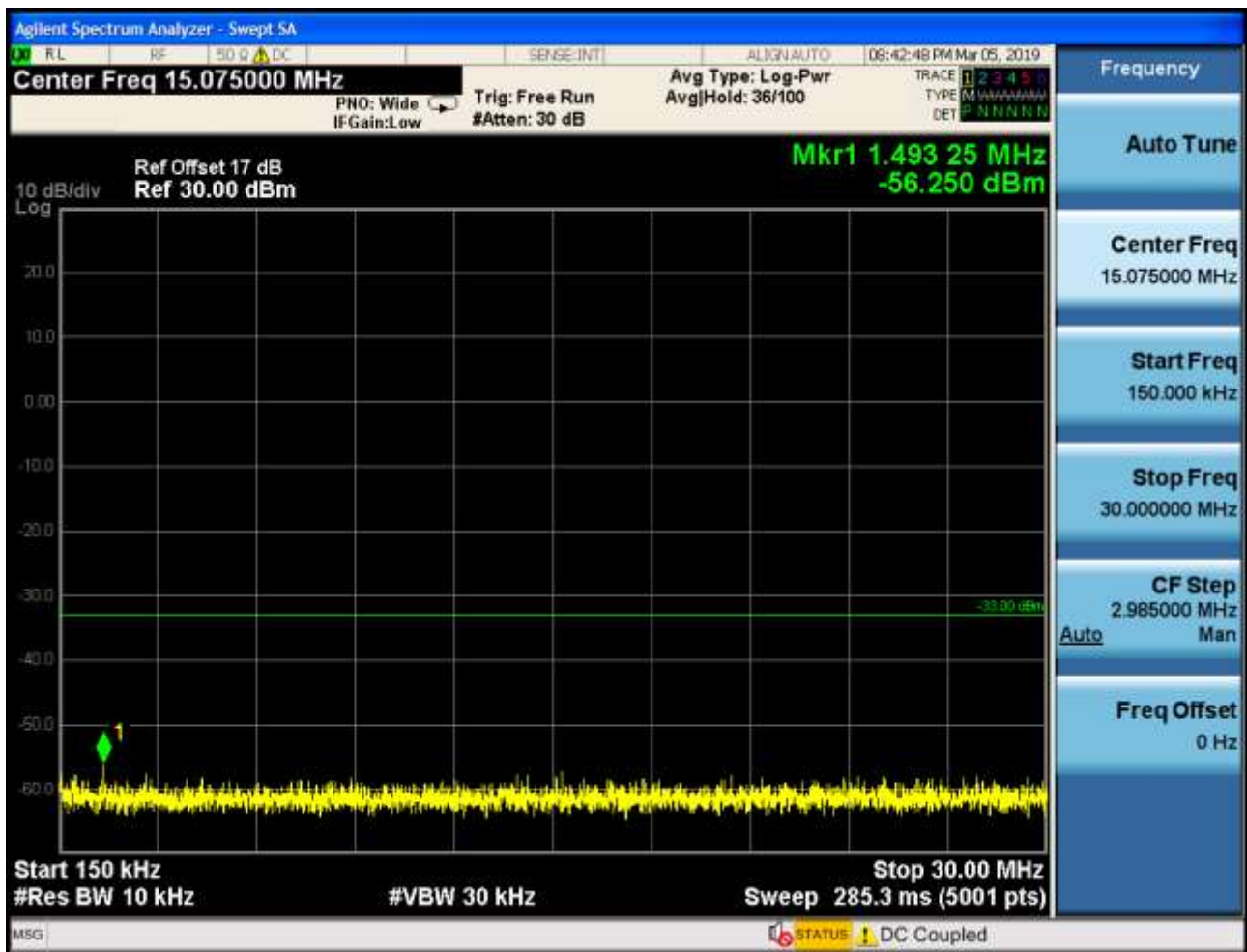




6.1.2.2 Test Mode = GSM/TM2

6.1.2.2.1 Test Channel = LCH

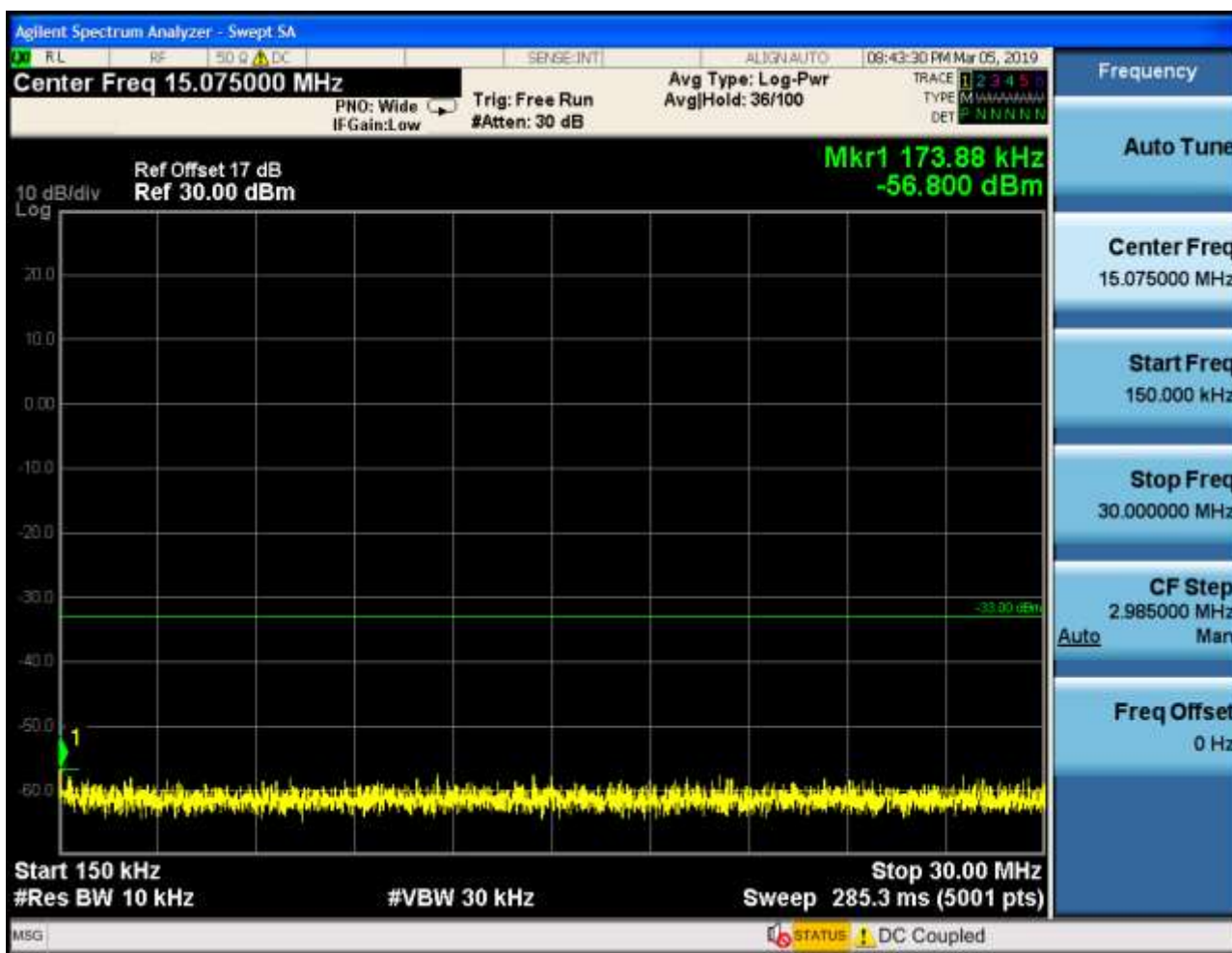






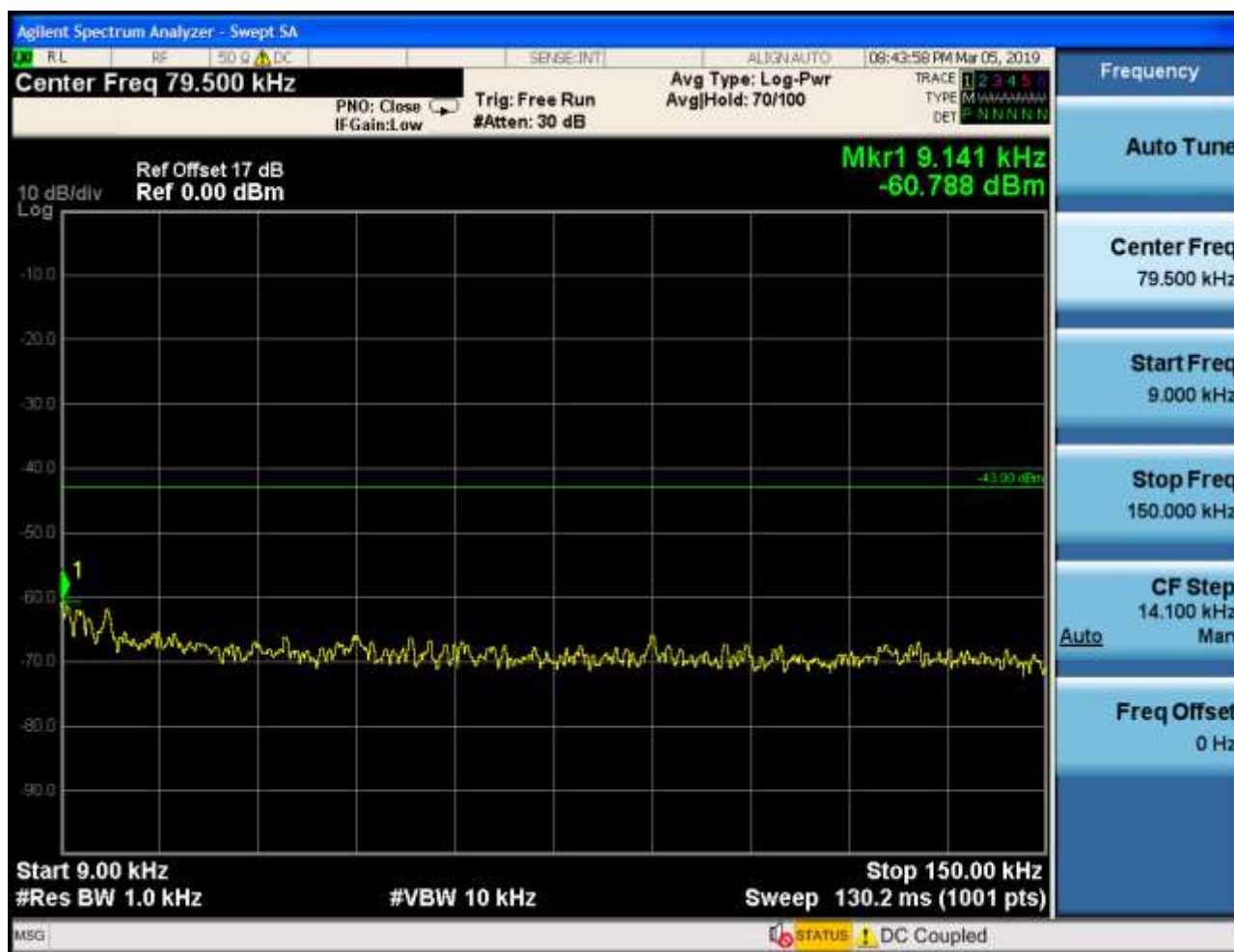
6.1.2.2.2 Test Channel = MCH

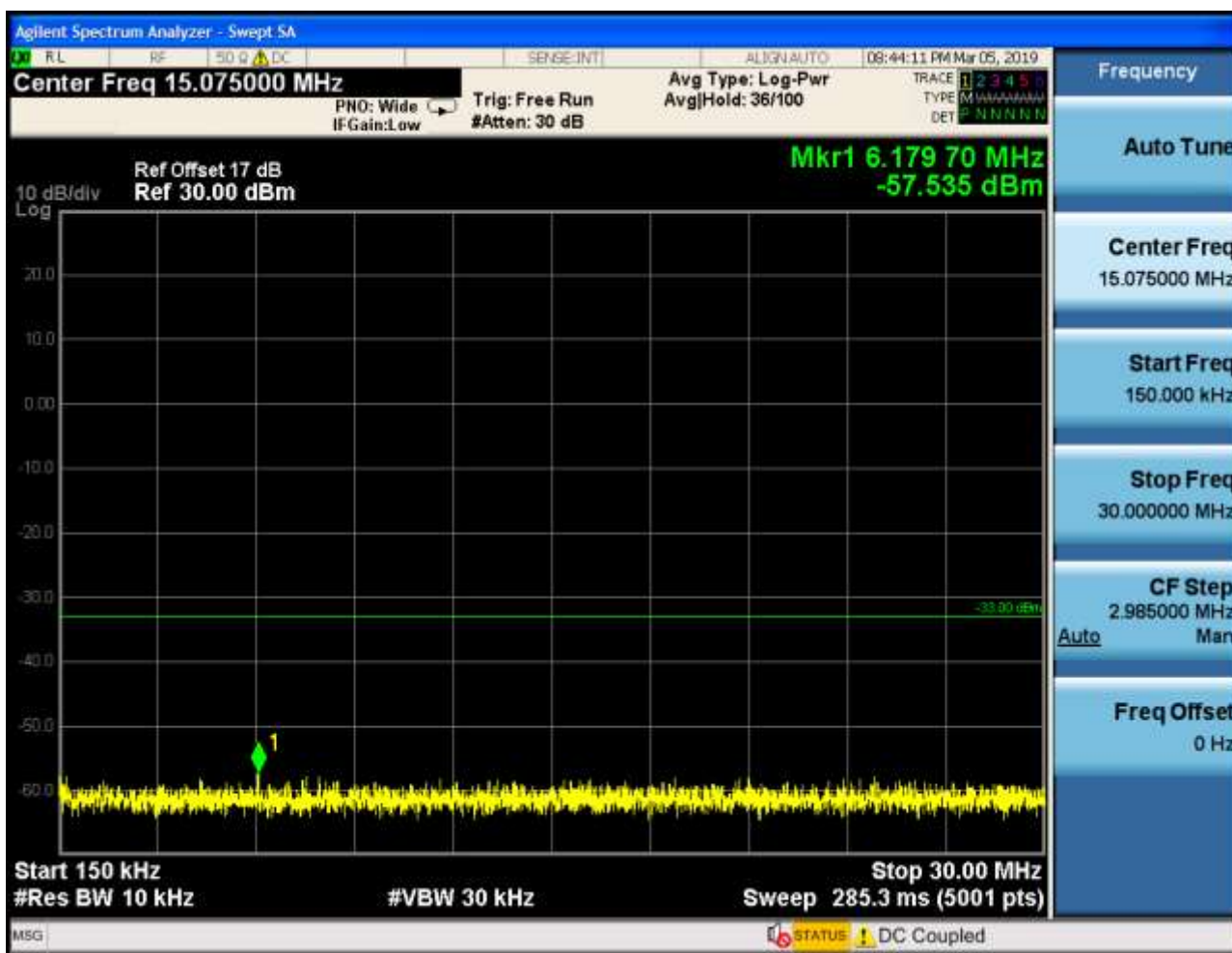






6.1.2.2.3 Test Channel = HCH







8Appendix_G: Frequency Stability

8.1 For GSM

8.1.1Frequency Error vs. Voltage:

Test Band	Test Mode	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
GSM850	GSM/TM1	LCH	TN	VL	0.71029	0.00086	PASS
				VN	-1.96944	-0.00239	PASS
				VH	1.03315	0.00125	PASS
		MCH	TN	VL	-3.87430	-0.00463	PASS
				VN	-1.48515	-0.00178	PASS
				VH	-1.16229	-0.00139	PASS
		HCH	TN	VL	-3.35773	-0.00396	PASS
				VN	-4.16488	-0.00491	PASS
				VH	-1.90487	-0.00224	PASS
	GSM/TM2	LCH	TN	VL	1.03315	0.00125	PASS
				VN	0.25829	0.00031	PASS
				VH	1.61429	0.00196	PASS
		MCH	TN	VL	-1.22686	-0.00147	PASS
				VN	2.00172	0.00239	PASS
				VH	-0.29057	-0.00035	PASS
		HCH	TN	VL	-1.19458	-0.00141	PASS
				VN	-1.25915	-0.00148	PASS
				VH	-2.64744	-0.00312	PASS
PCS1900	GSM/TM1	LCH	TN	VL	-0.77486	-0.00042	PASS
				VN	-0.48429	-0.00026	PASS
				VH	0.67800	0.00037	PASS
		MCH	TN	VL	-2.42144	-0.00129	PASS
				VN	1.80801	0.00096	PASS
				VH	0.41972	0.00022	PASS
		HCH	TN	VL	-2.77658	-0.00042	PASS
				VN	-3.55144	-0.00026	PASS
				VH	-4.77831	0.00037	PASS
	GSM/TM2	LCH	TN	VL	1.00086	0.00054	PASS
				VN	-3.00258	-0.00162	PASS
				VH	0.25829	0.00014	PASS
		MCH	TN	VL	-1.32372	-0.00070	PASS
				VN	-4.48773	-0.00239	PASS
				VH			

Test Band	Test Mode	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
		HCH	TN	VH	-1.03315	-0.00055	PASS
				VL	-7.16746	0.00054	PASS
				VN	-7.36117	-0.00162	PASS
				VH	-5.97288	0.00014	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
GSM850	GSM/TM1	LCH	VN	-30	-0.25829	-0.00031	PASS
				-20	-2.84116	-0.00345	PASS
				-10	-1.45286	-0.00176	PASS
				0	-1.80801	-0.00219	PASS
				10	-0.48429	-0.00059	PASS
				20	-1.96944	-0.00239	PASS
				30	-2.93801	-0.00356	PASS
				40	-2.03401	-0.00247	PASS
				50	-2.13087	-0.00259	PASS
		MCH	VN	-30	0.12914	0.00015	PASS
				-20	-2.42144	-0.00289	PASS
				-10	0.71029	0.00085	PASS
				0	0.03229	0.00004	PASS
				10	-0.96858	-0.00116	PASS
				20	-1.48515	-0.00178	PASS
				30	-2.32458	-0.00278	PASS
				40	-0.51657	-0.00062	PASS
				50	-2.51830	-0.00301	PASS
		HCH	VN	-30	-1.77572	-0.00209	PASS
				-20	-5.32716	-0.00628	PASS
				-10	-3.16401	-0.00373	PASS
				0	-1.32372	-0.00156	PASS
				10	-3.06716	-0.00361	PASS
				20	-4.16488	-0.00491	PASS
				30	-1.87258	-0.00221	PASS
				40	-3.68059	-0.00434	PASS
				50	-2.51830	-0.00297	PASS
	GSM/TM2	LCH	VN	-30	-2.61515	-0.00317	PASS
				-20	-0.80715	-0.00098	PASS
				-10	-1.38829	-0.00168	PASS
				0	-3.19630	-0.00388	PASS

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				10	0.45200	0.00055	PASS
				20	0.25829	0.00031	PASS
				30	-0.29057	-0.00035	PASS
				40	-0.29057	-0.00035	PASS
				50	-4.06802	-0.00494	PASS
		MCH	VN	-30	0.00000	0.00000	PASS
				-20	2.55058	0.00305	PASS
				-10	0.06457	0.00008	PASS
				0	0.90400	0.00108	PASS
				10	0.19372	0.00023	PASS
				20	2.00172	0.00239	PASS
				30	0.03229	0.00004	PASS
				40	-1.45286	-0.00174	PASS
				50	-2.64744	-0.00316	PASS
		HCH	VN	-30	-4.48773	-0.00529	PASS
				-20	-0.54886	-0.00065	PASS
				-10	-1.74344	-0.00205	PASS
				0	-3.26087	-0.00384	PASS
				10	-2.51830	-0.00297	PASS
				20	-1.25915	-0.00148	PASS
				30	-1.87258	-0.00221	PASS
				40	-1.48515	-0.00175	PASS
				50	-4.58459	-0.00540	PASS
PCS1900	GSM/TM1	LCH	VN	-30	0.77486	0.00042	PASS
				-20	-5.06888	-0.00274	PASS
				-10	-1.16229	-0.00063	PASS
				0	-2.64744	-0.00143	PASS
				10	-3.32544	-0.00180	PASS
				20	-0.48429	-0.00026	PASS
				30	-1.13000	-0.00061	PASS
				40	-1.16229	-0.00063	PASS
				50	-0.09686	-0.00005	PASS
		MCH	VN	-30	-2.32458	-0.00124	PASS
				-20	-1.00086	-0.00053	PASS
				-10	-0.90400	-0.00048	PASS
				0	0.77486	0.00041	PASS
				10	-1.61429	-0.00086	PASS
				20	1.80801	0.00096	PASS
				30	-3.90659	-0.00208	PASS
				40	-0.16143	-0.00009	PASS

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				50	-1.45286	-0.00077	PASS
		HCH	VN	-30	-1.77572	-0.00093	PASS
				-20	-7.39346	-0.00387	PASS
				-10	-7.91003	-0.00414	PASS
				0	-6.26346	-0.00328	PASS
				10	-6.65088	-0.00348	PASS
				20	-3.55144	-0.00186	PASS
				30	-7.39346	-0.00387	PASS
				40	-5.90831	-0.00309	PASS
				50	-4.64916	-0.00243	PASS
	GSM/TM2	LCH	VN	-30	-1.87258	-0.00101	PASS
				-20	0.12914	0.00007	PASS
				-10	-1.25915	-0.00068	PASS
				0	-0.93629	-0.00051	PASS
				10	-3.16401	-0.00171	PASS
				20	-3.00258	-0.00162	PASS
				30	-1.84029	-0.00099	PASS
				40	-0.12914	-0.00007	PASS
				50	0.90400	0.00049	PASS
		MCH	VN	-30	-0.87172	-0.00046	PASS
				-20	-1.71115	-0.00091	PASS
				-10	-2.03401	-0.00108	PASS
				0	-1.29143	-0.00069	PASS
				10	-1.80801	-0.00096	PASS
				20	-4.48773	-0.00239	PASS
				30	-1.58201	-0.00084	PASS
				40	1.48515	0.00079	PASS
				50	0.45200	0.00024	PASS
		HCH	VN	-30	-3.51916	-0.00184	PASS
				-20	-5.35945	-0.00281	PASS
				-10	-7.00603	-0.00367	PASS
				0	-5.77917	-0.00303	PASS
				10	-6.48946	-0.00340	PASS
				20	-7.36117	-0.00385	PASS
				30	-6.42488	-0.00336	PASS
				40	-6.23117	-0.00326	PASS
				50	-5.81145	-0.00304	PASS

END