



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	32.79	28.54	38.5	PASS
		MCH	32.95	28.70	38.5	PASS
		HCH	32.91	28.66	38.5	PASS
	GSM/TM2	LCH	27.11	22.86	38.5	PASS
		MCH	27.16	22.91	38.5	PASS
		HCH	27.19	22.94	38.5	PASS
Test Band	Test Mode	Test Channel	Measured[dBm]	EIRP [dBm]	Limit [dBm]	Verdict
PCS1900	GSM/TM1	LCH	30.05	31.15	33	PASS
		MCH	30.02	31.12	33	PASS
		HCH	29.89	30.99	33	PASS
	GSM/TM2	LCH	26.10	27.20	33	PASS
		MCH	26.07	27.17	33	PASS
		HCH	26.12	27.22	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	1.82	13	PASS
		MCH	1.74	13	PASS
		HCH	1.76	13	PASS
	GSM/TM2	LCH	4.58	13	PASS
		MCH	4.76	13	PASS
		HCH	4.65	13	PASS
PCS1900	GSM/TM1	LCH	1.75	13	PASS
		MCH	2.00	13	PASS
		HCH	1.72	13	PASS
	GSM/TM2	LCH	4.73	13	PASS
		MCH	4.76	13	PASS
		HCH	4.65	13	PASS

3Appendix_C: Modulation Characteristics

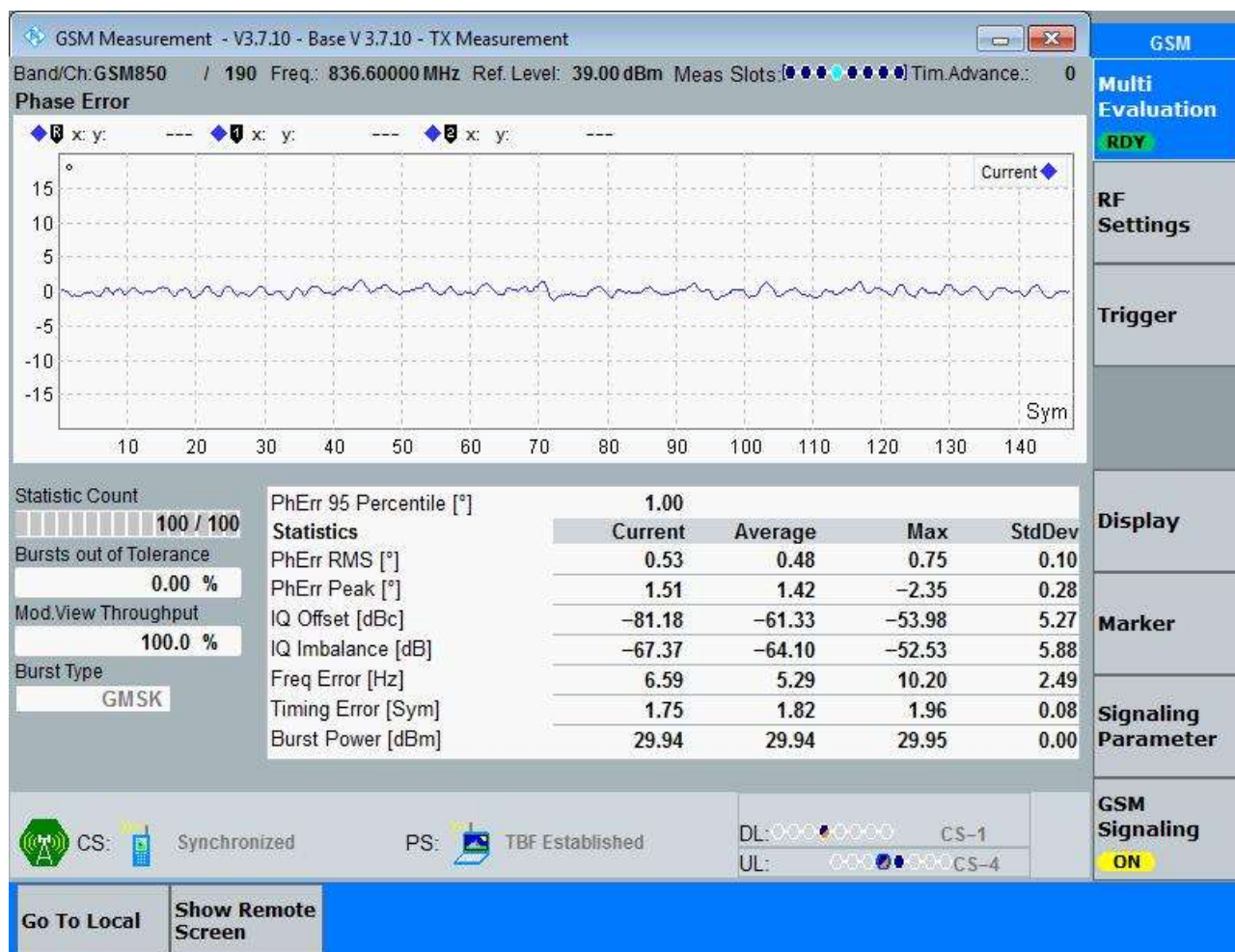
Part I - Test Plots

3.1 For GSM

3.1.1 Test Band = GSM850

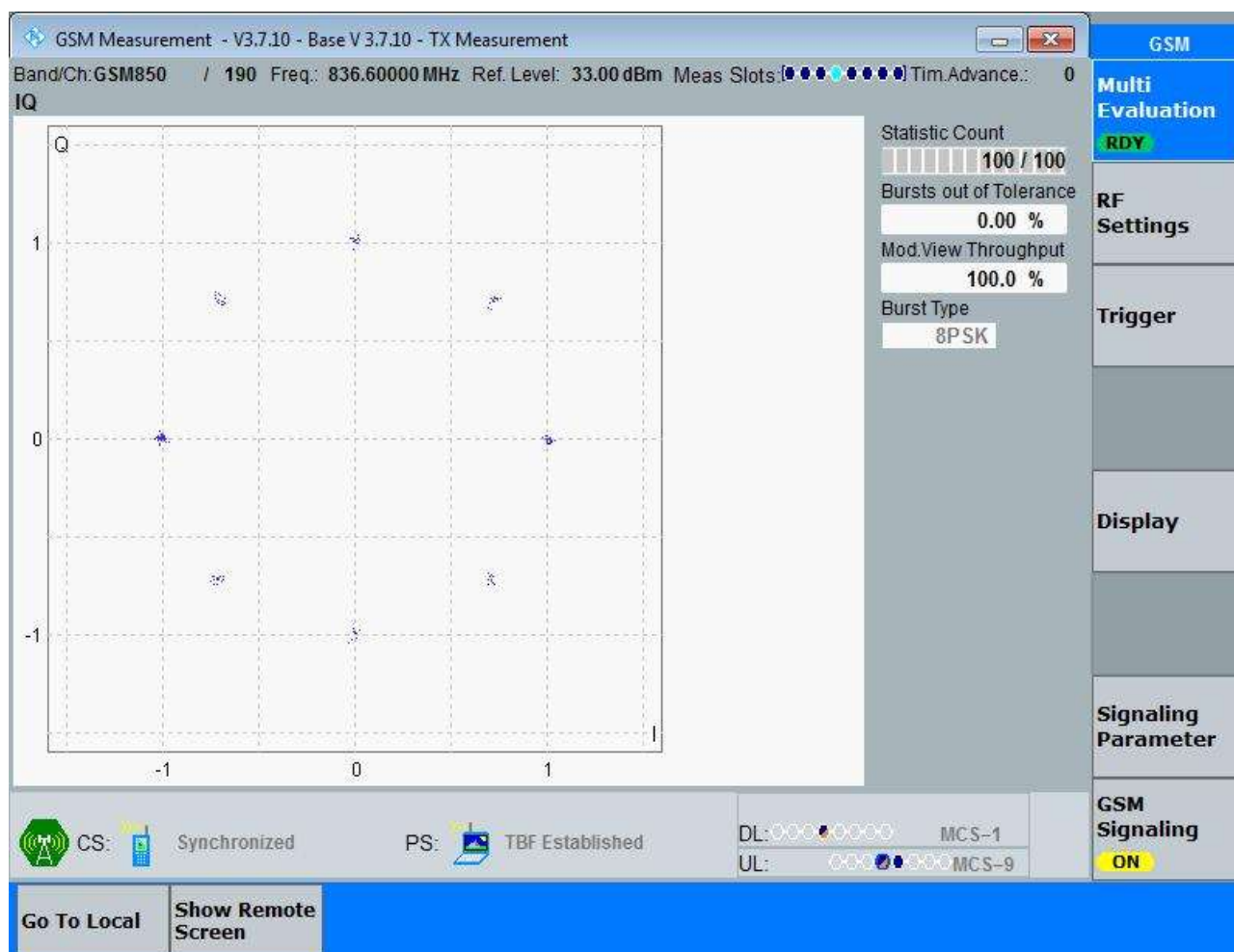
3.1.1.1 Test Mode = GSM/TM1

3.1.1.1.1 Test Channel = MCH



3.1.1.2 Test Mode = GSM/TM2

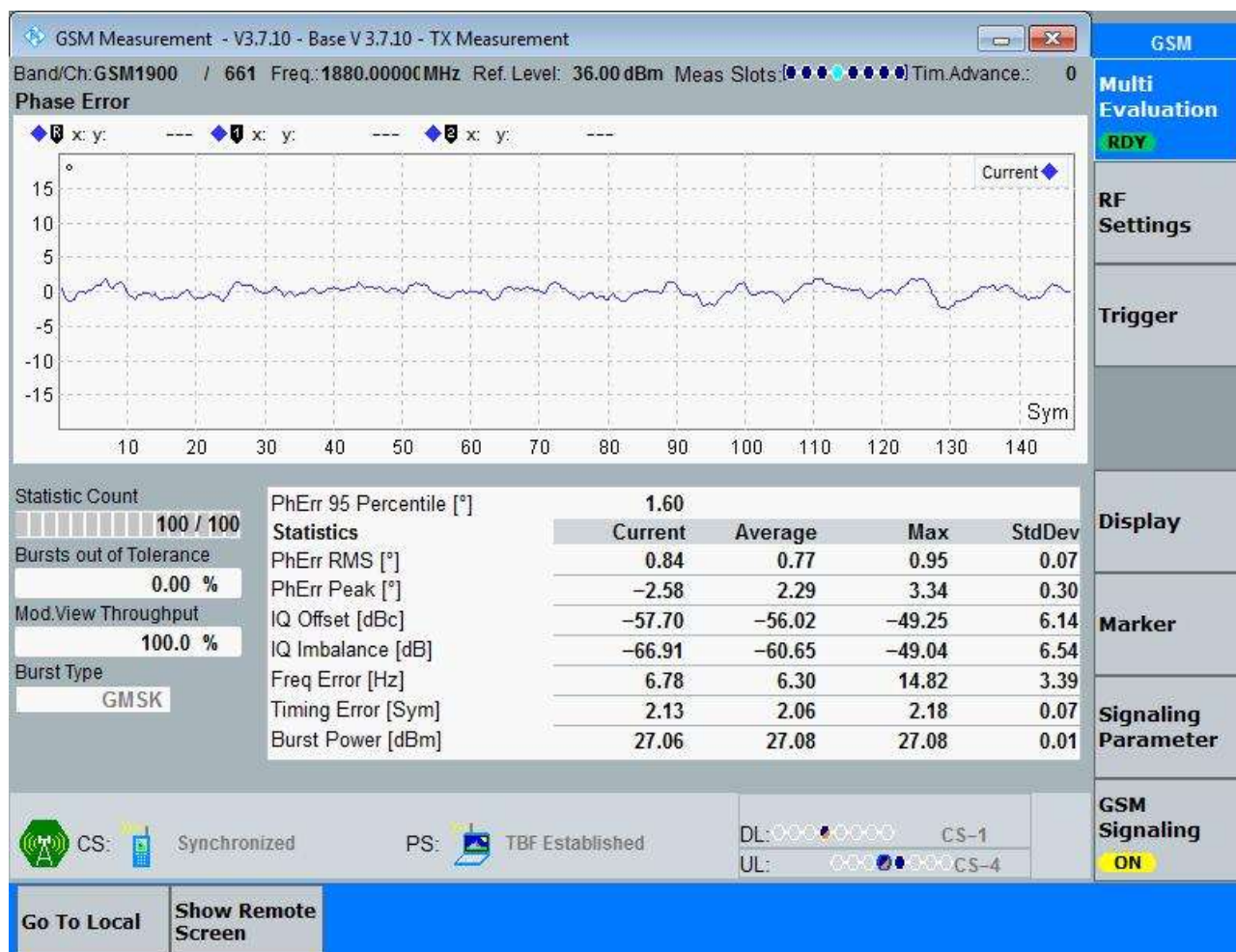
3.1.1.2.1 Test Channel = MCH



3.1.2 Test Band = PCS1900

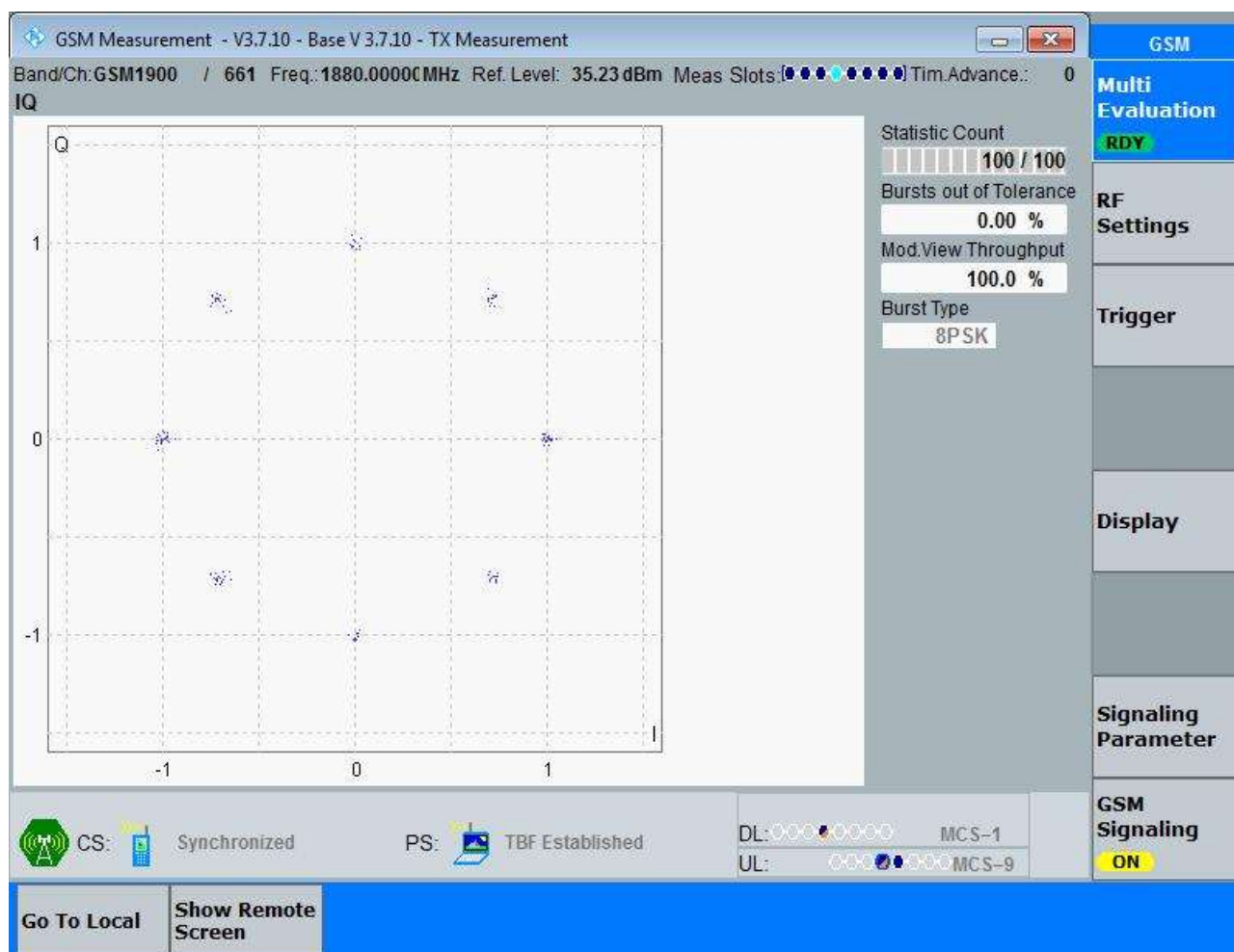
3.1.2.1 Test Mode = GSM/TM1

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	245.01	315.5	Pass
		MCH	245.70	318.3	Pass
		HCH	243.14	313.3	Pass
	GSM/TM2	LCH	247.35	317.1	Pass
		MCH	250.93	312.9	Pass
		HCH	246.00	311.6	Pass
PCS1900	GSM/TM1	LCH	247.17	319.4	Pass
		MCH	246.70	314.9	Pass
		HCH	242.29	315.8	Pass
	GSM/TM2	LCH	243.81	314.7	Pass
		MCH	249.41	319.7	Pass
		HCH	249.18	319.5	Pass

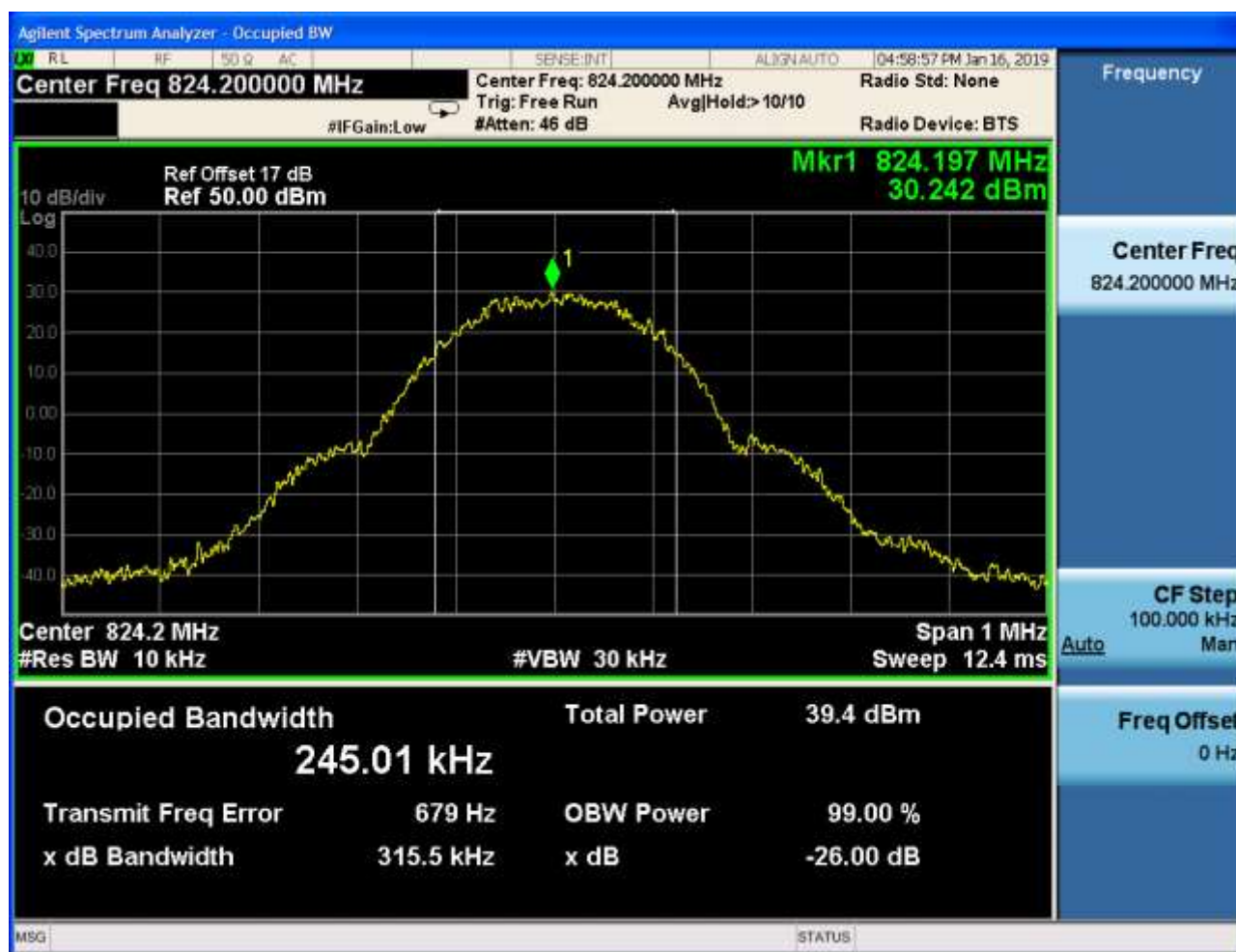
Part II - Test Plots

4.1 For GSM

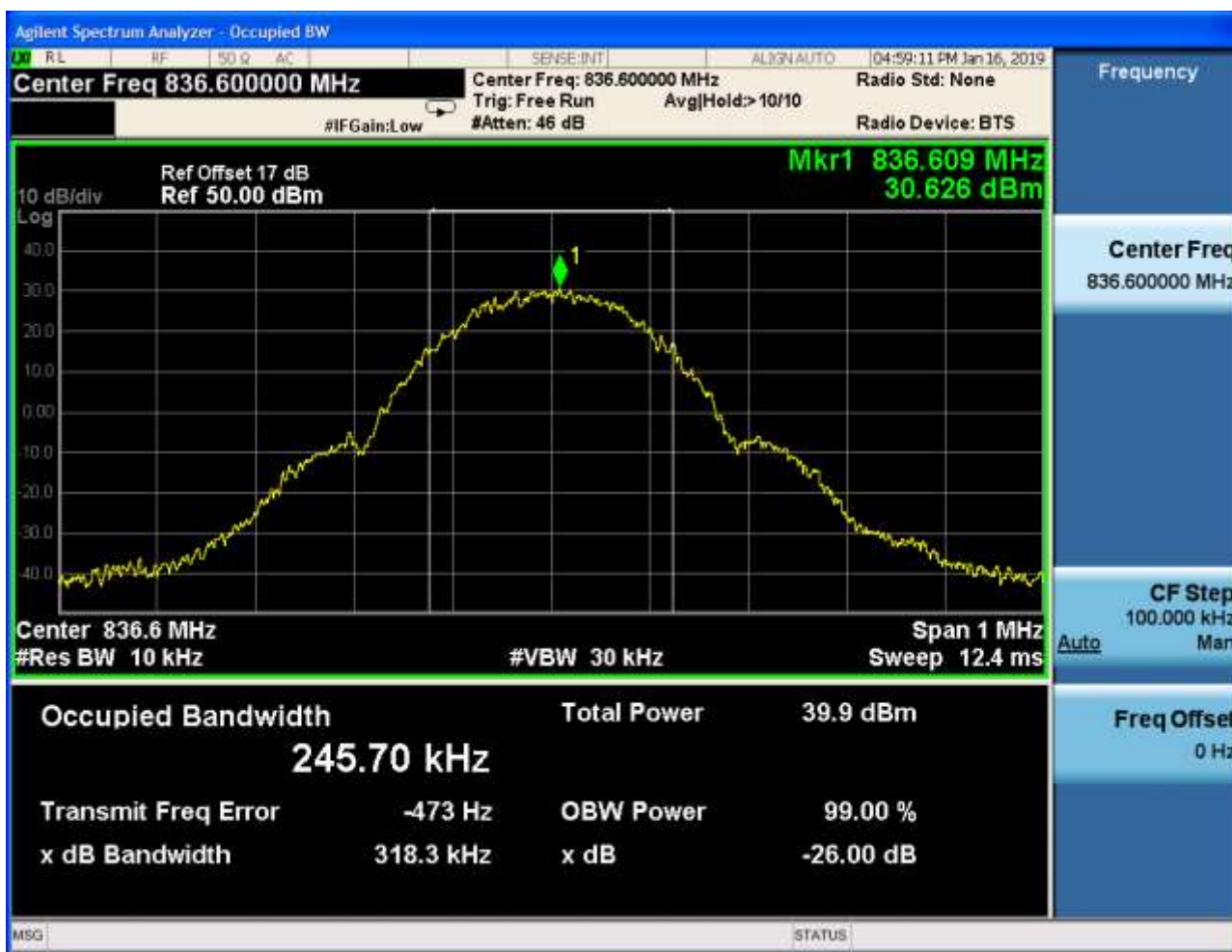
4.1.1 Test Band = GSM850

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

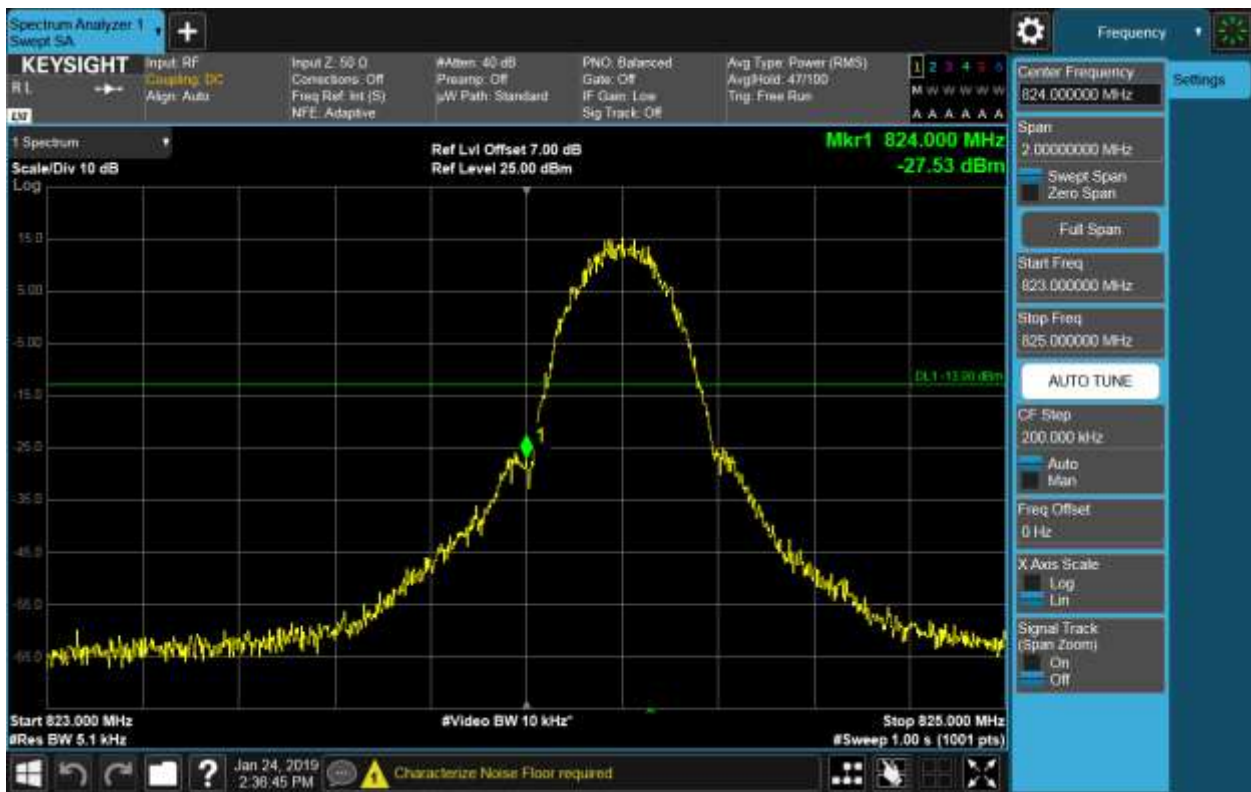


5.1.1.1.2 Test Channel = HCH

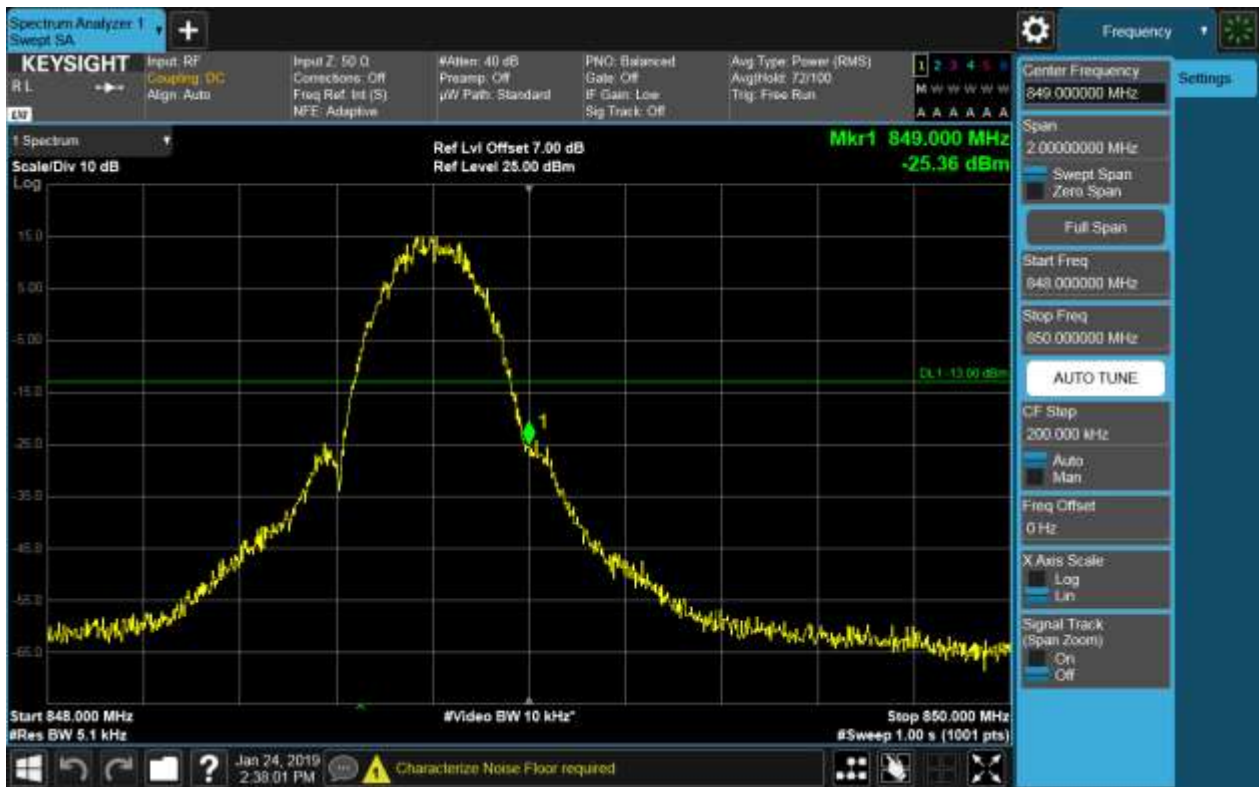


5.1.1.2 Test Mode = GSM/TM2

5.1.1.2.1 Test Channel = LCH



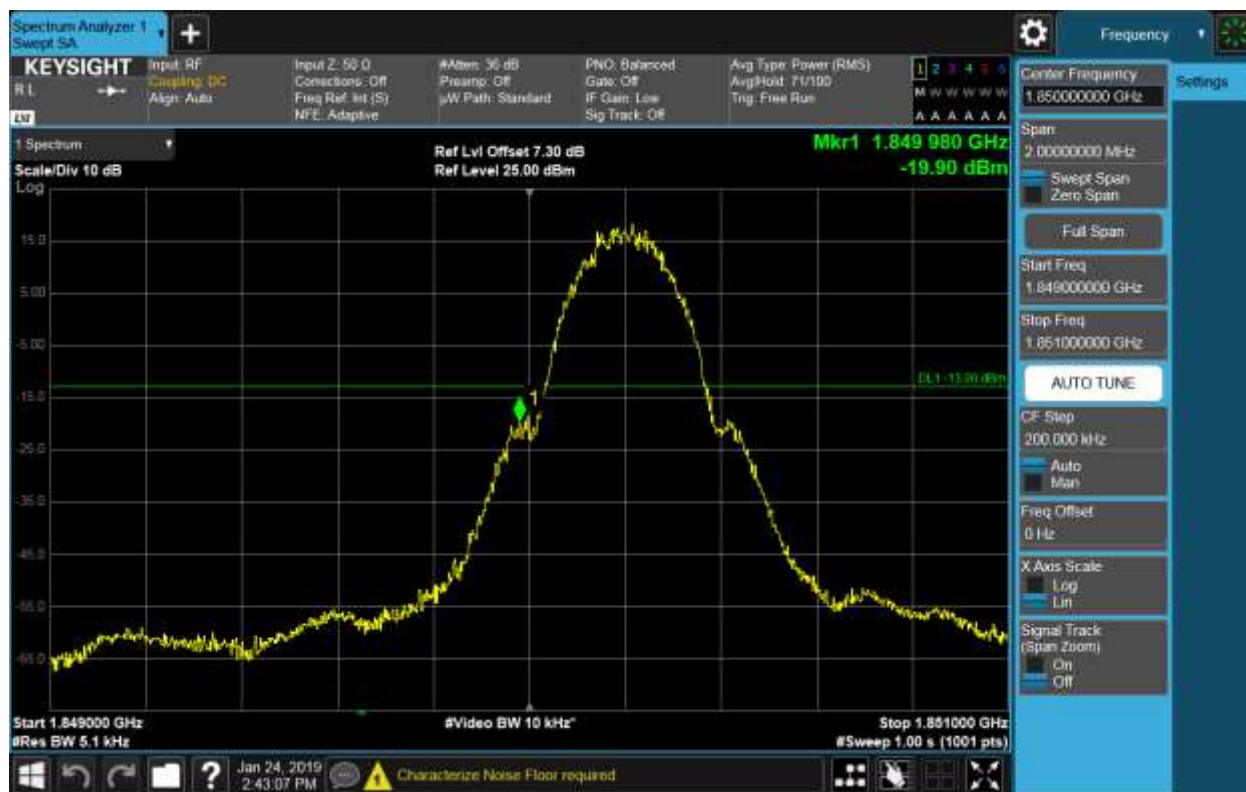
5.1.1.2.2 Test Channel = HCH



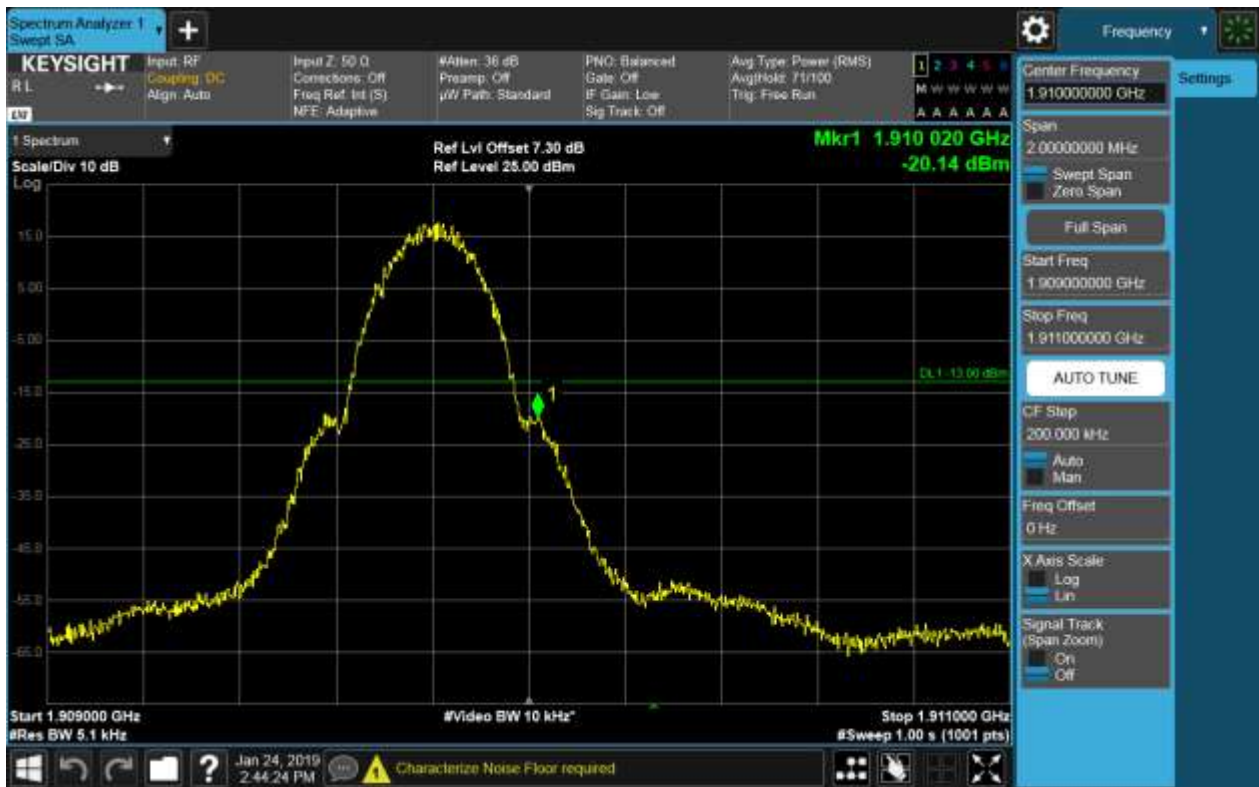
5.1.2 Test Band = PCS1900

5.1.2.1 Test Mode = GSM/TM1

5.1.2.1.1 Test Channel = LCH

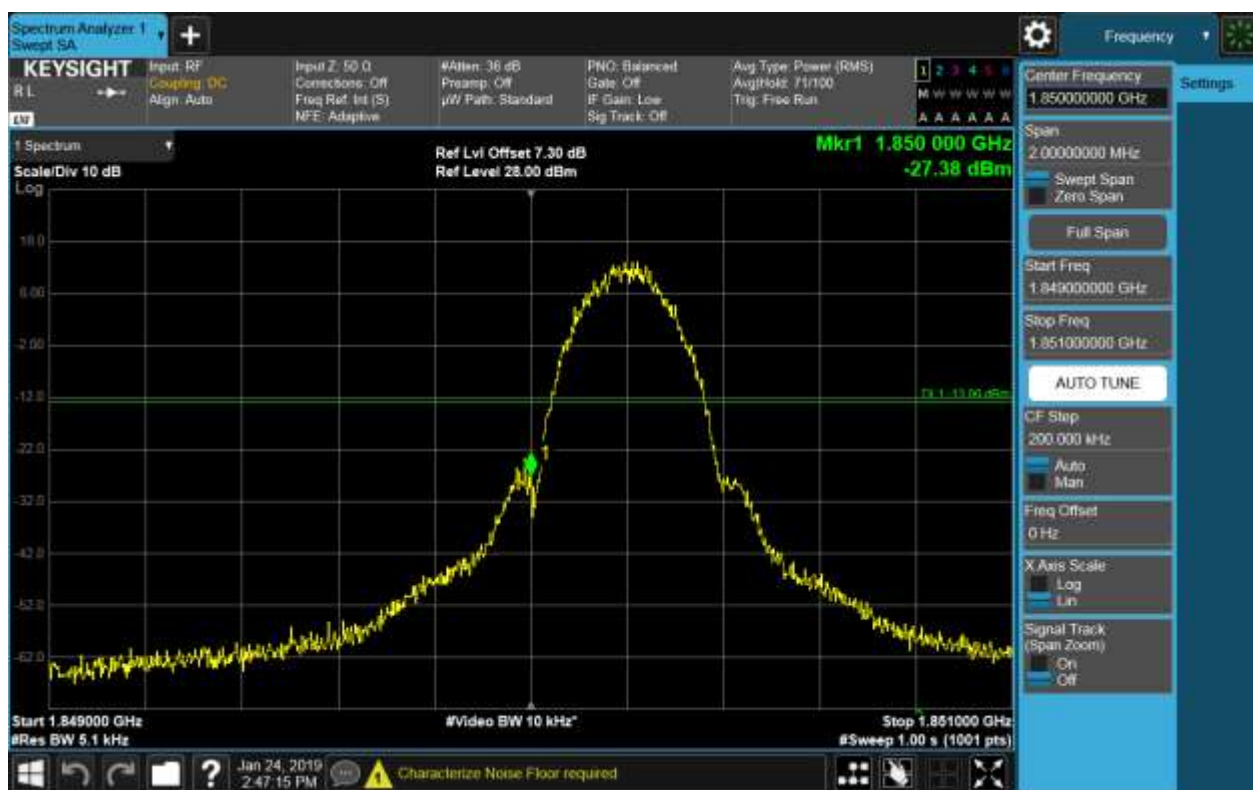


5.1.2.1.2 Test Channel = HCH

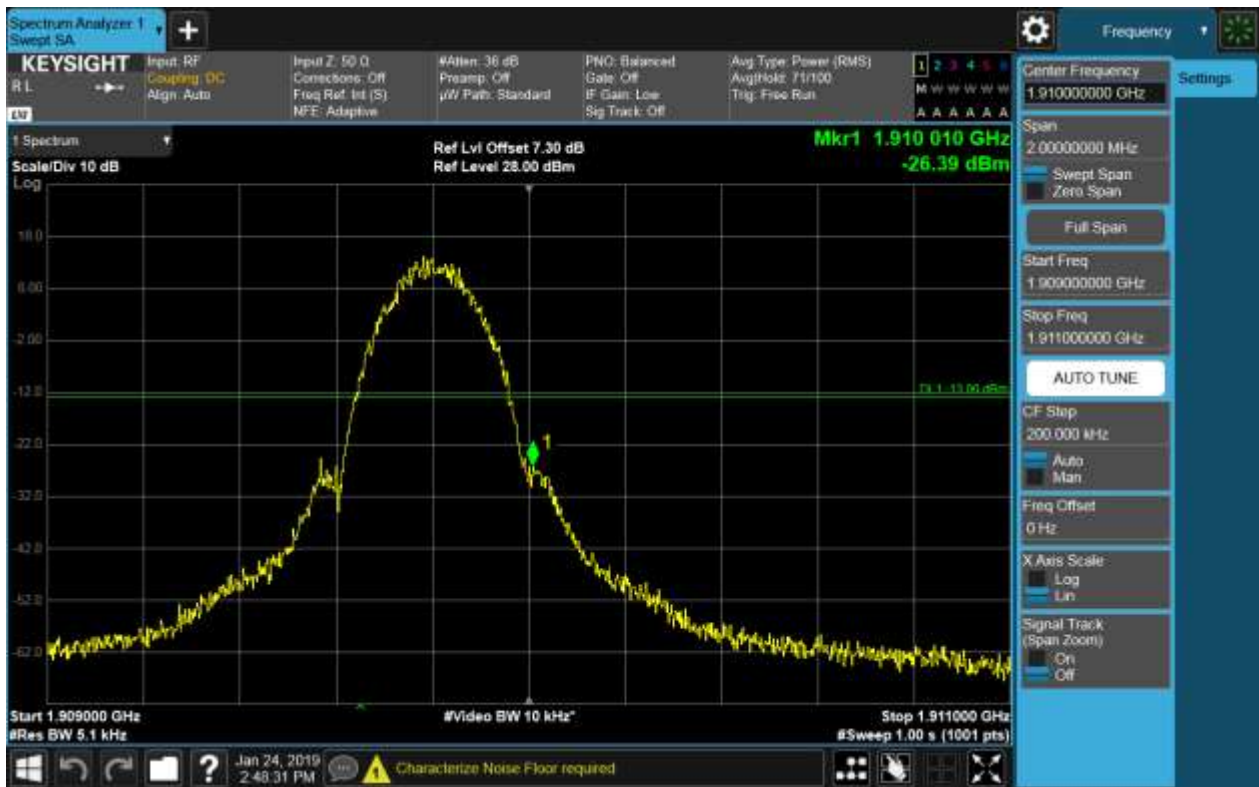


5.1.2.2 Test Mode = GSM/TM2

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.

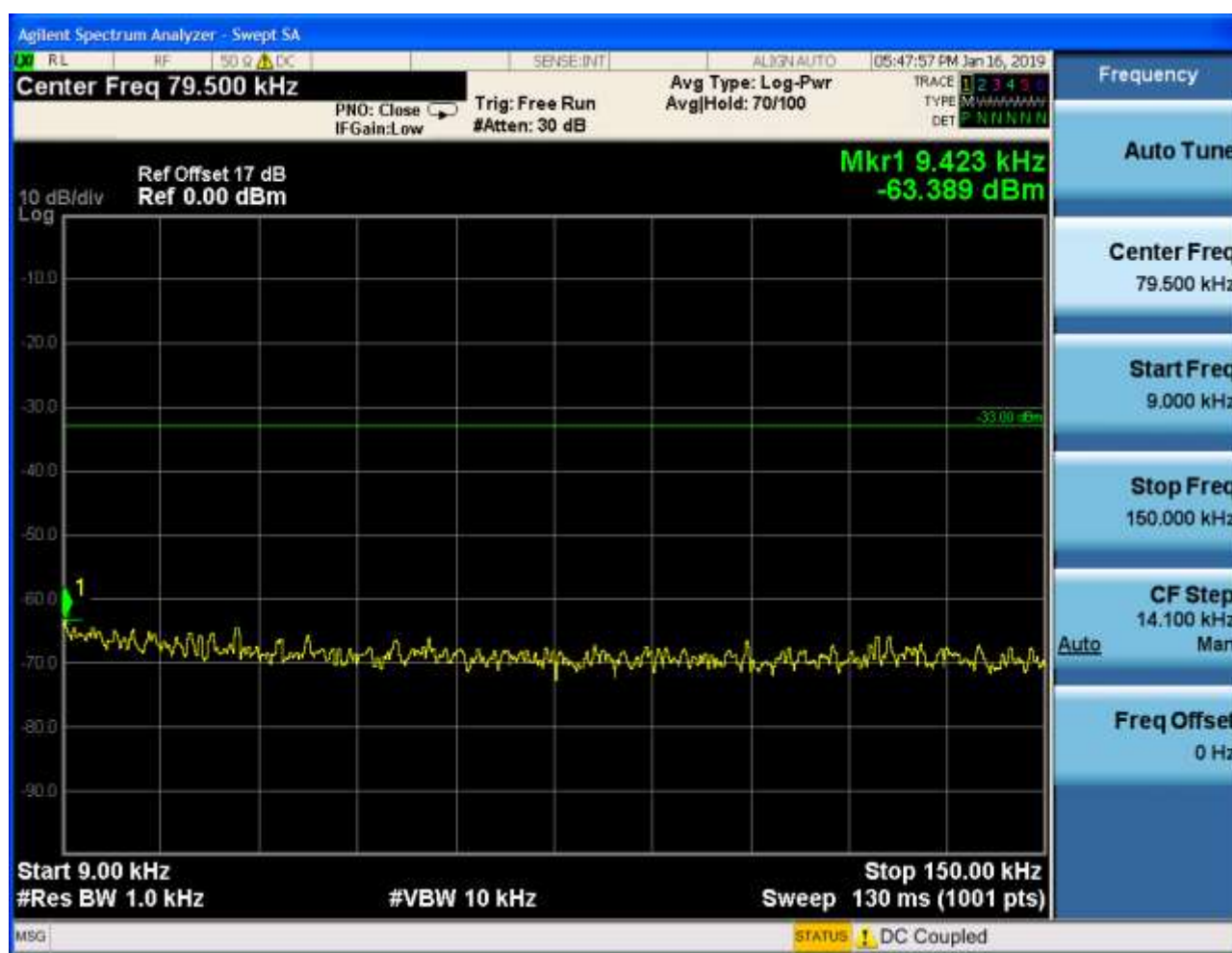
Part I - Test Plots

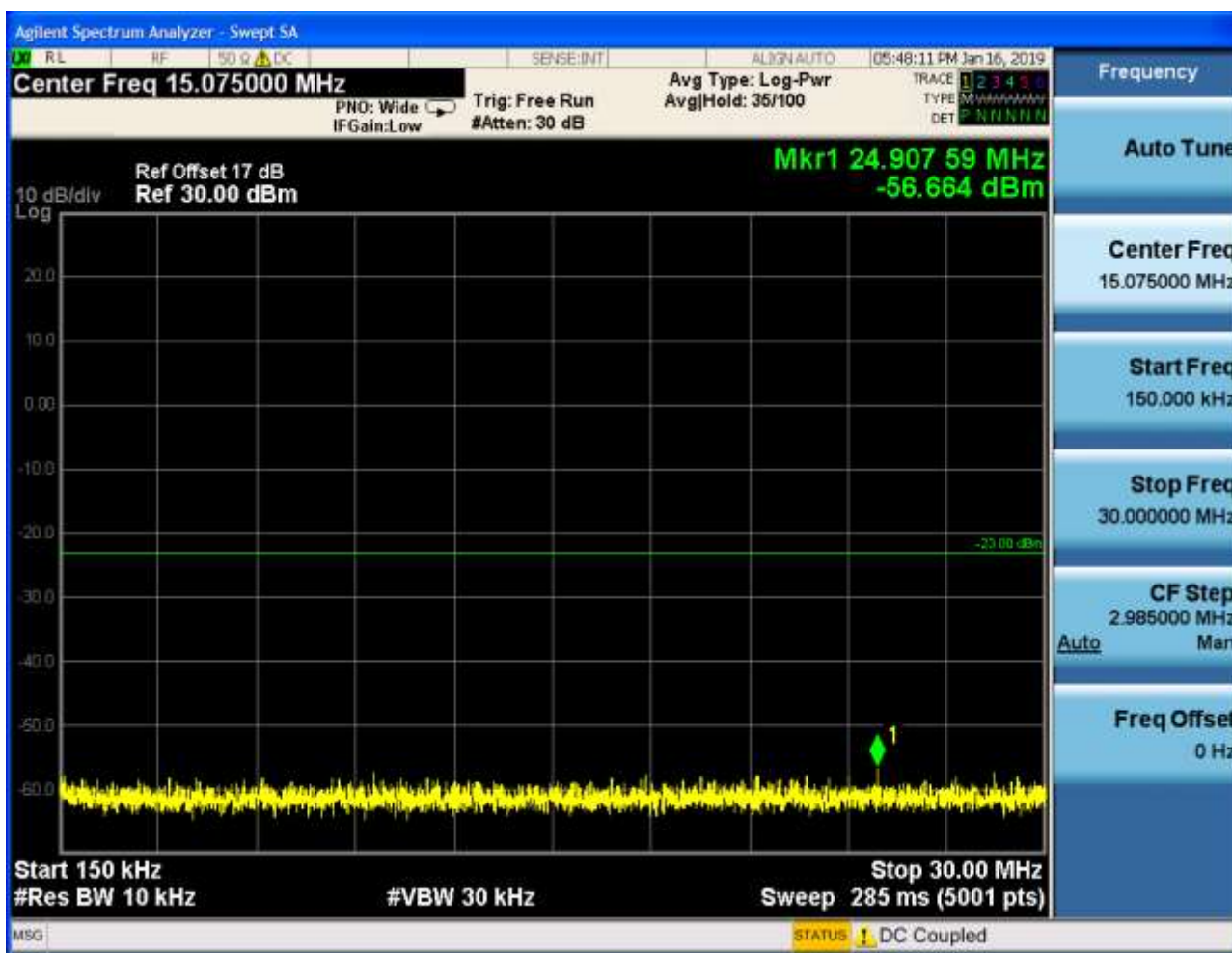
6.1 For GSM

6.1.1 Test Band = GSM850

6.1.1.1 Test Mode = GSM/TM1

6.1.1.1.1 Test Channel = LCH

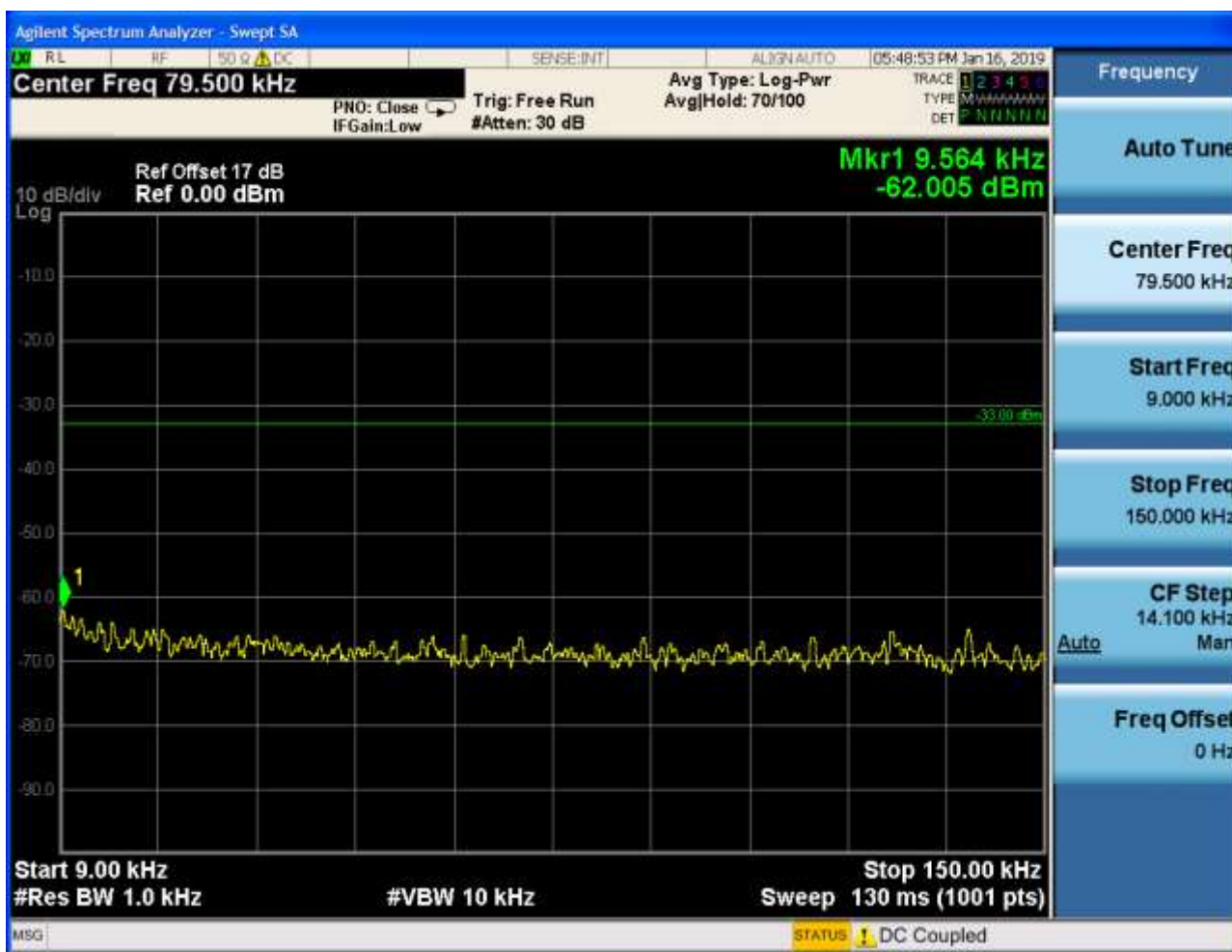


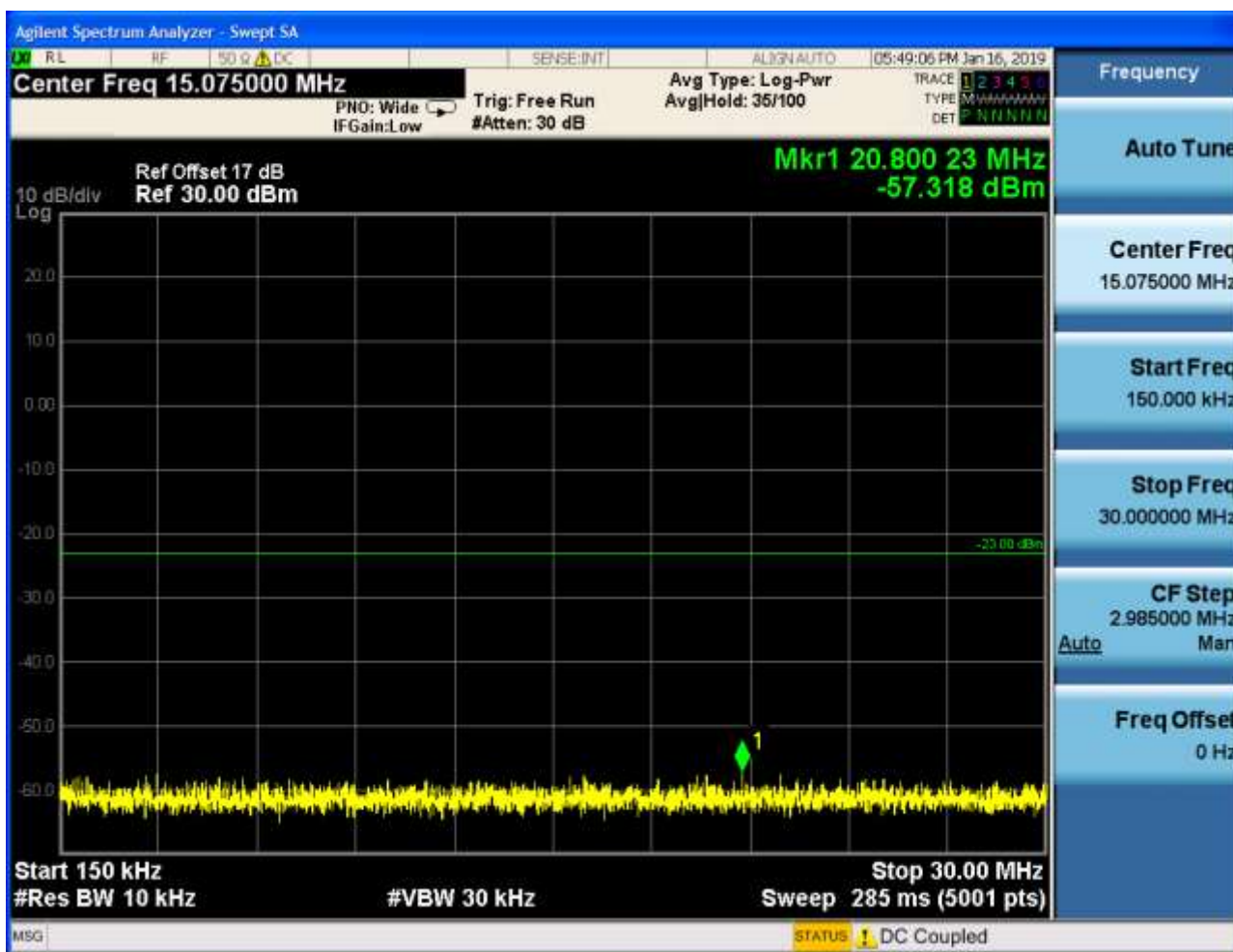


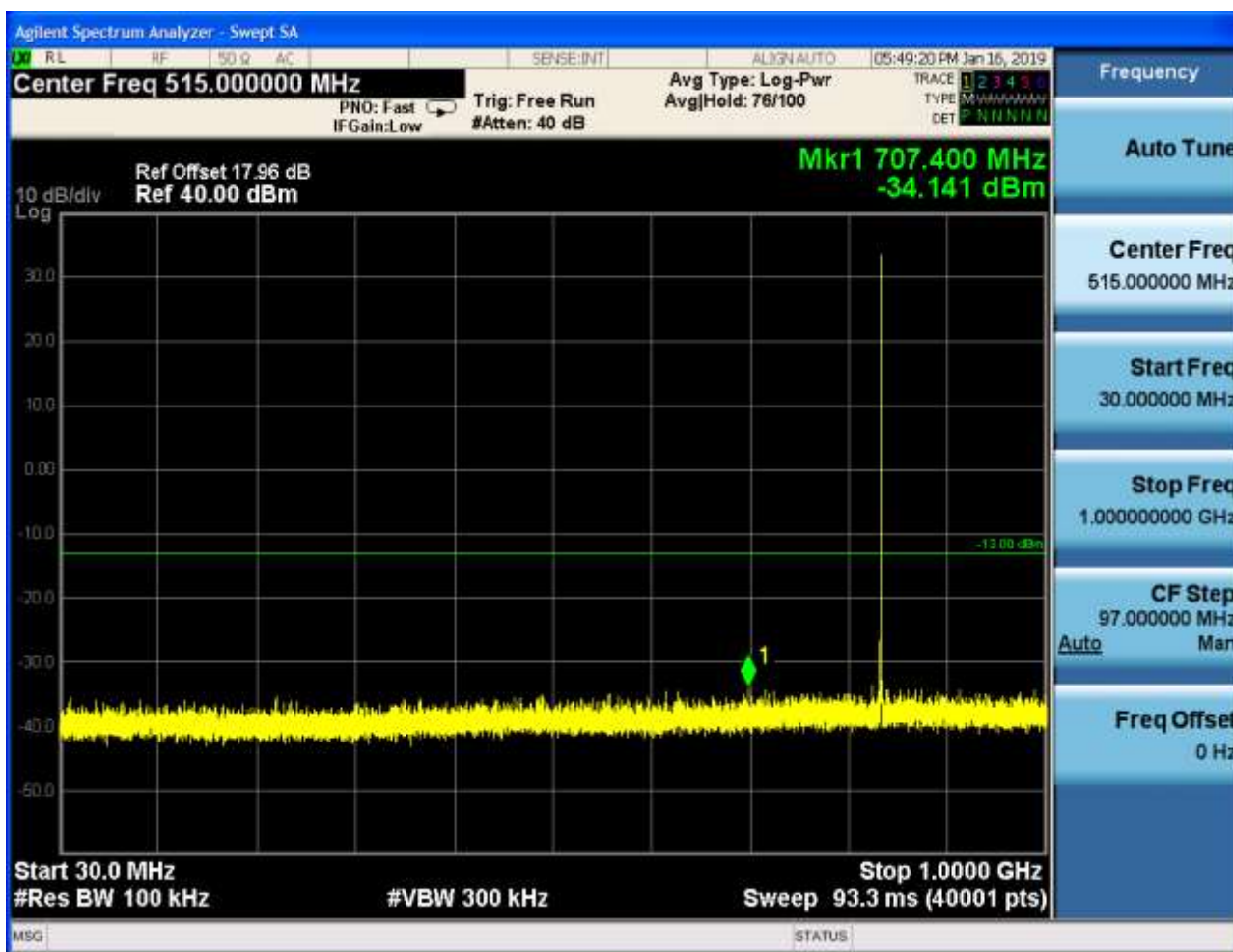




6.1.1.1.2 Test Channel = MCH





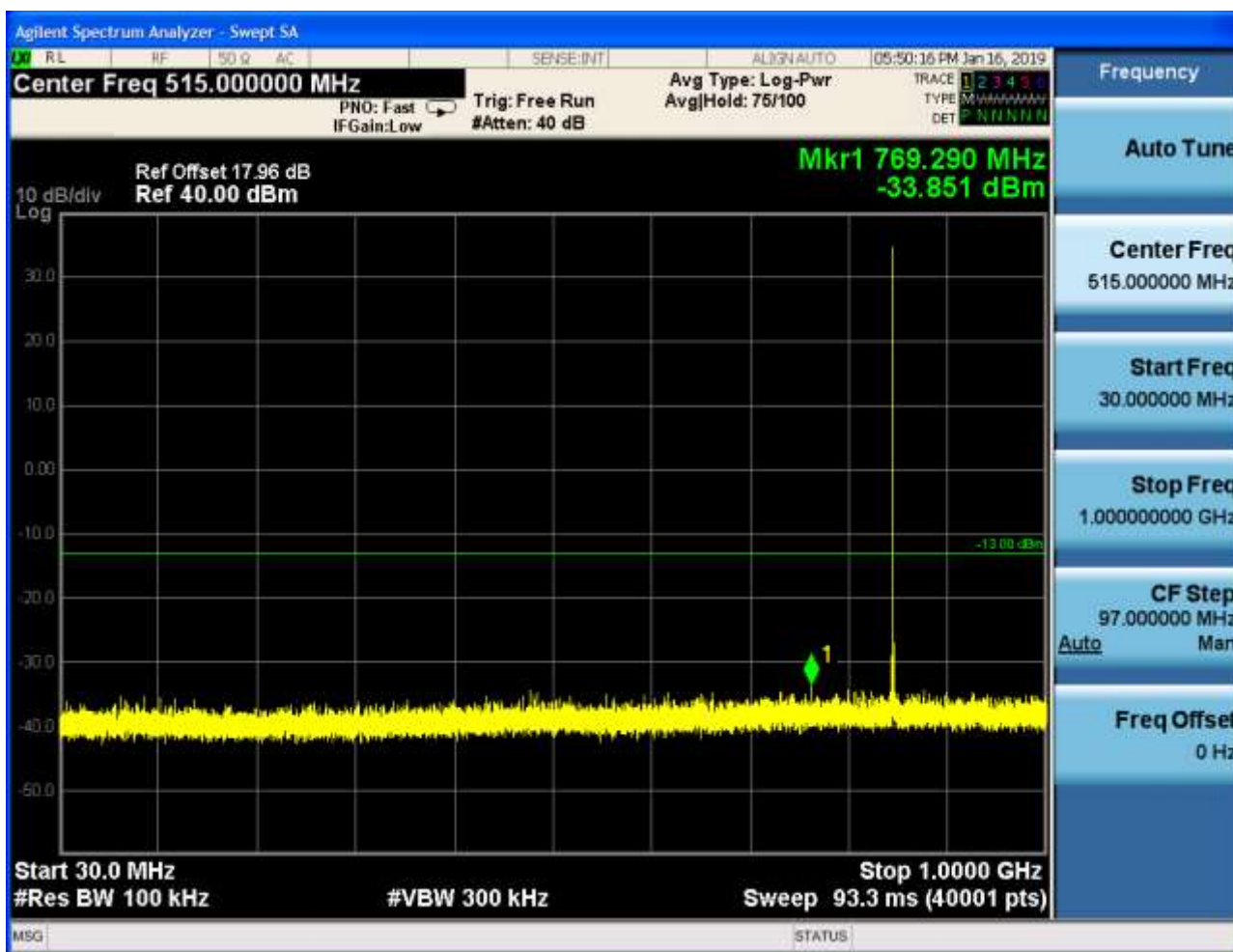


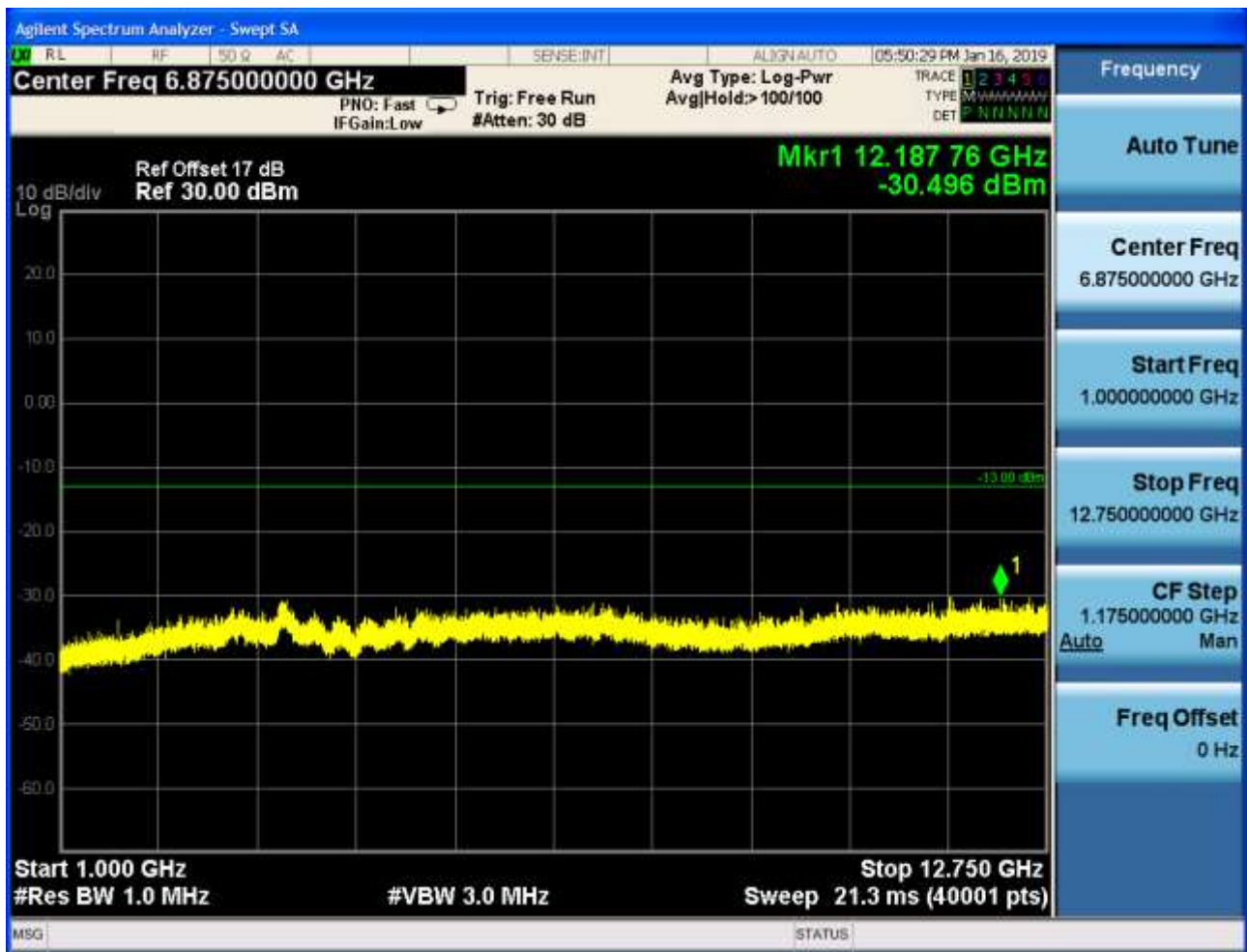


6.1.1.1.3 Test Channel = HCH



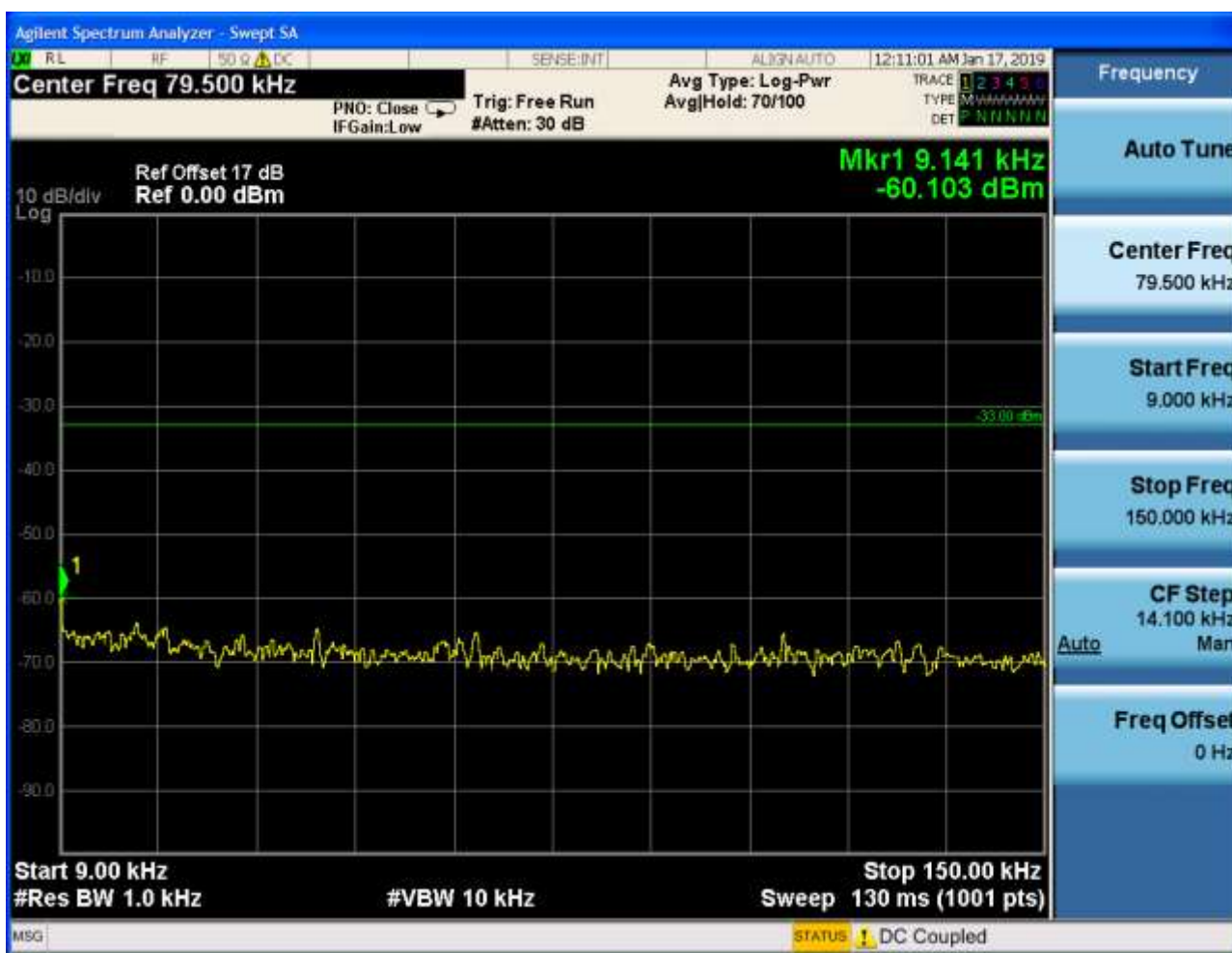


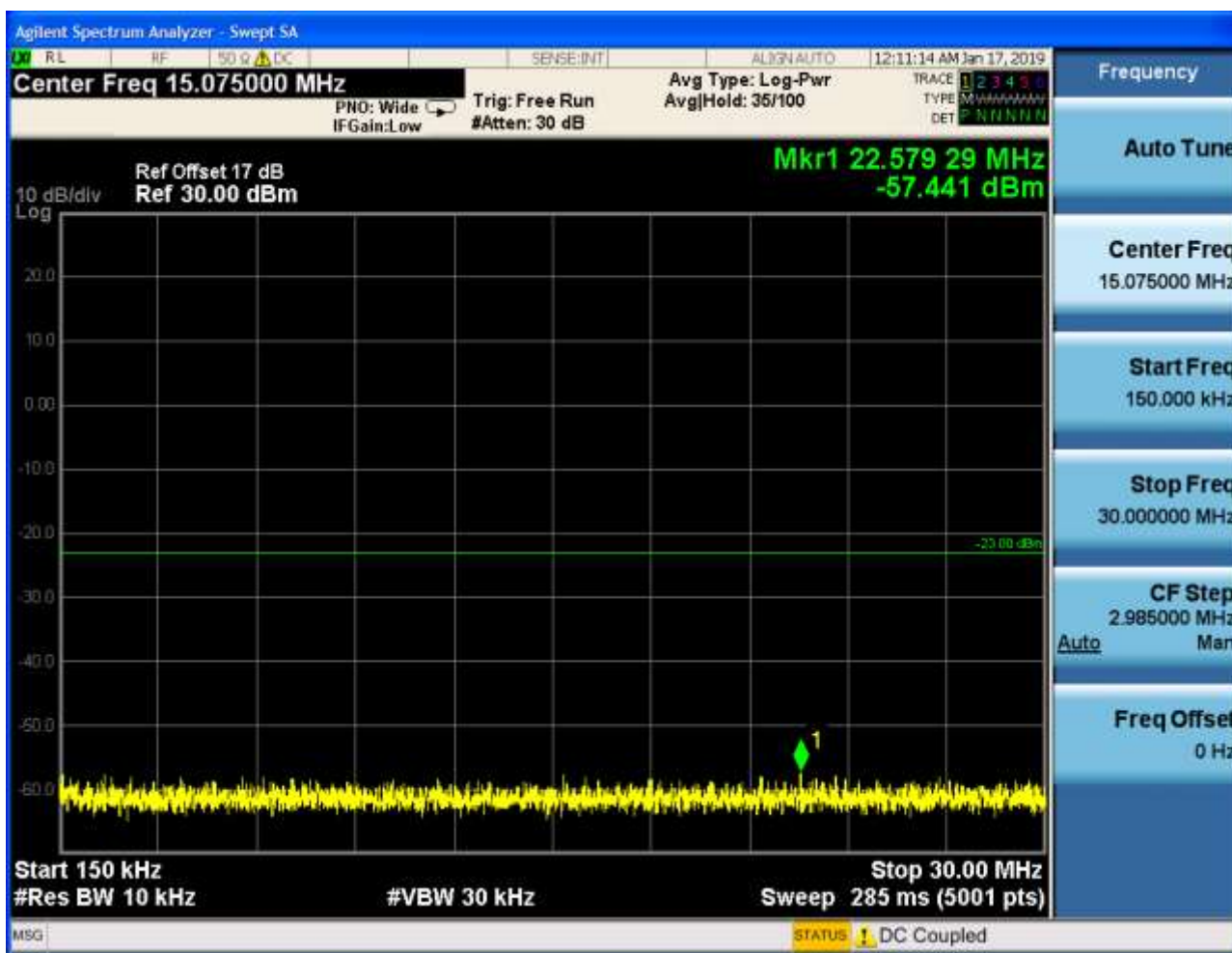


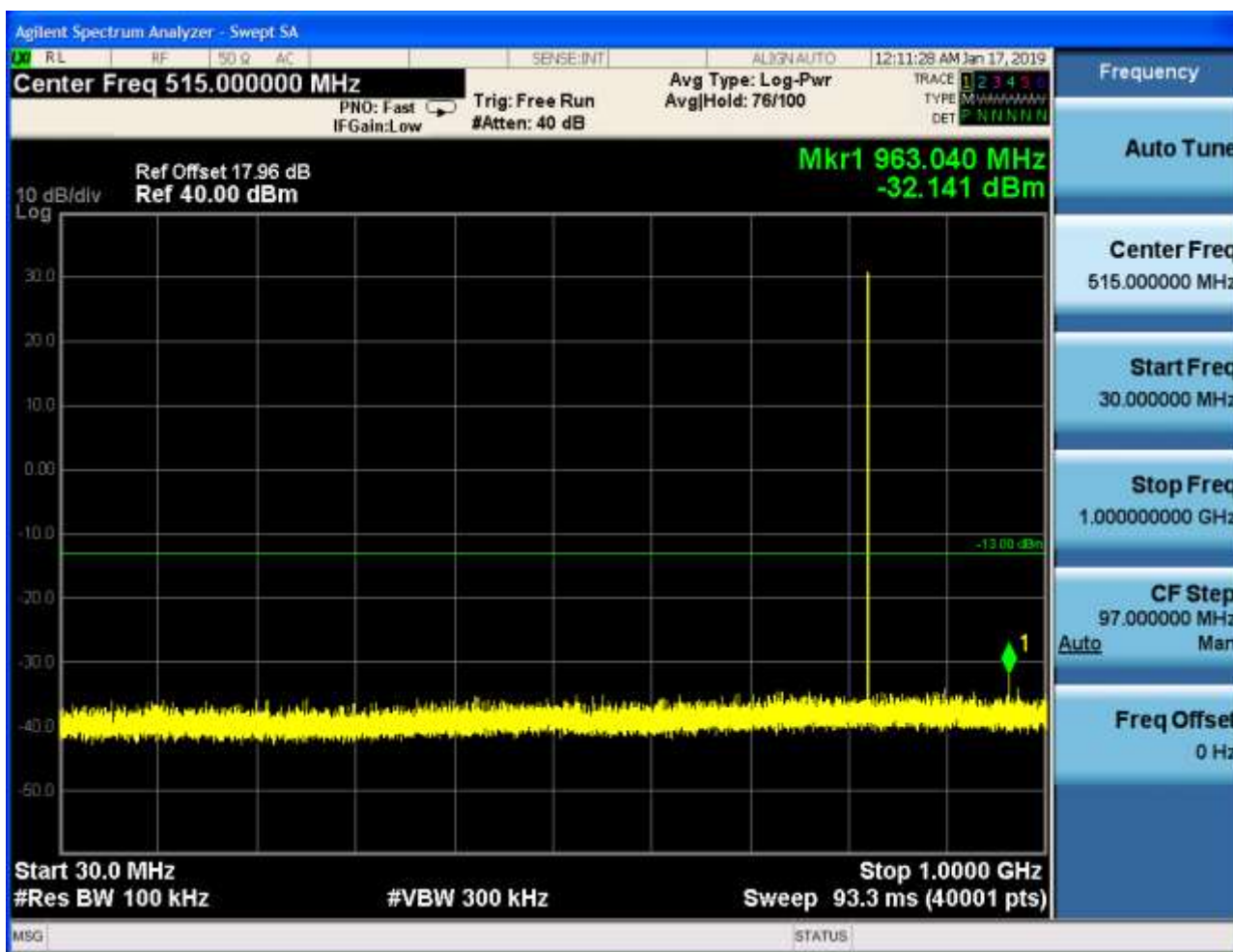


6.1.1.2 Test Mode = GSM/TM2

6.1.1.2.1 Test Channel = LCH

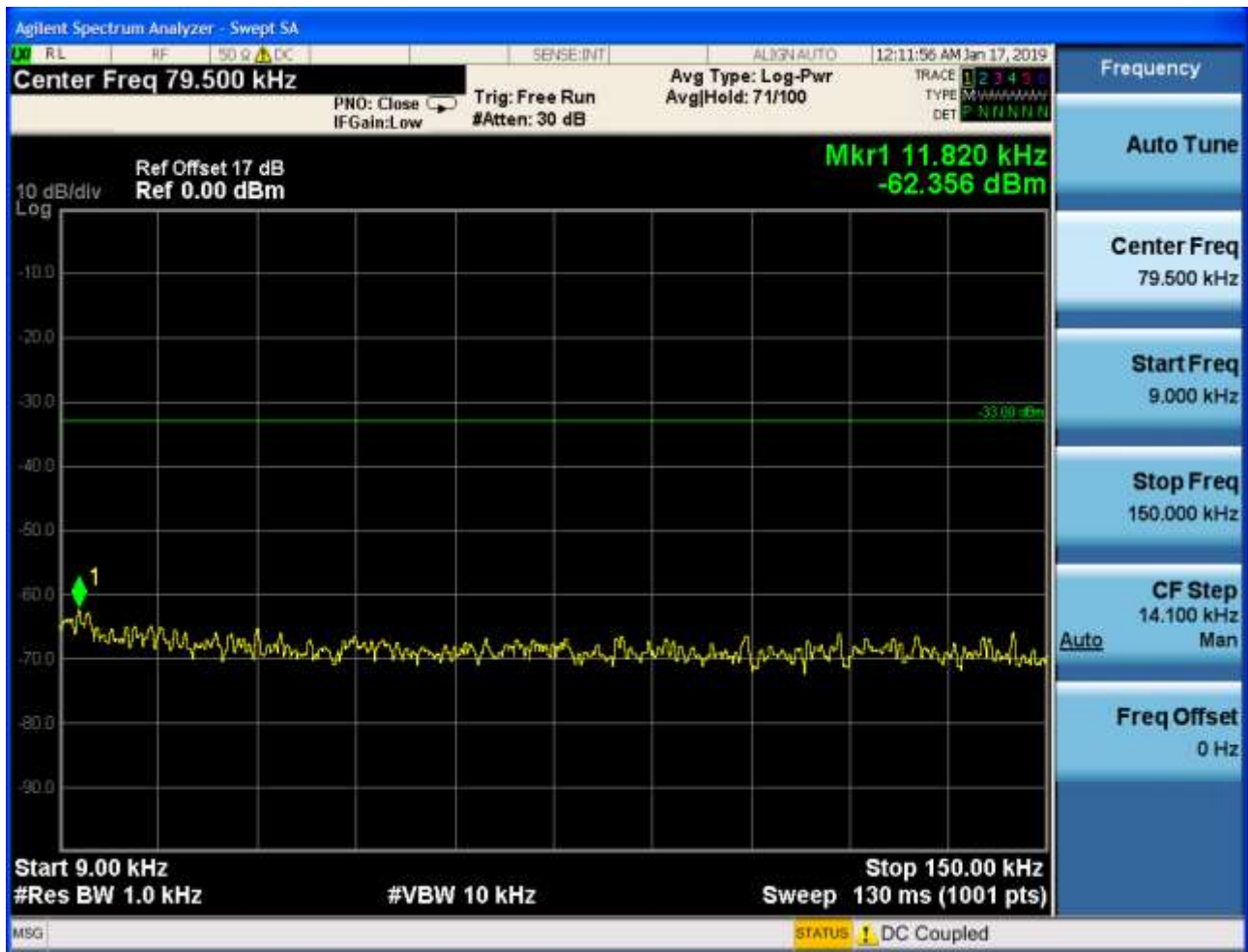


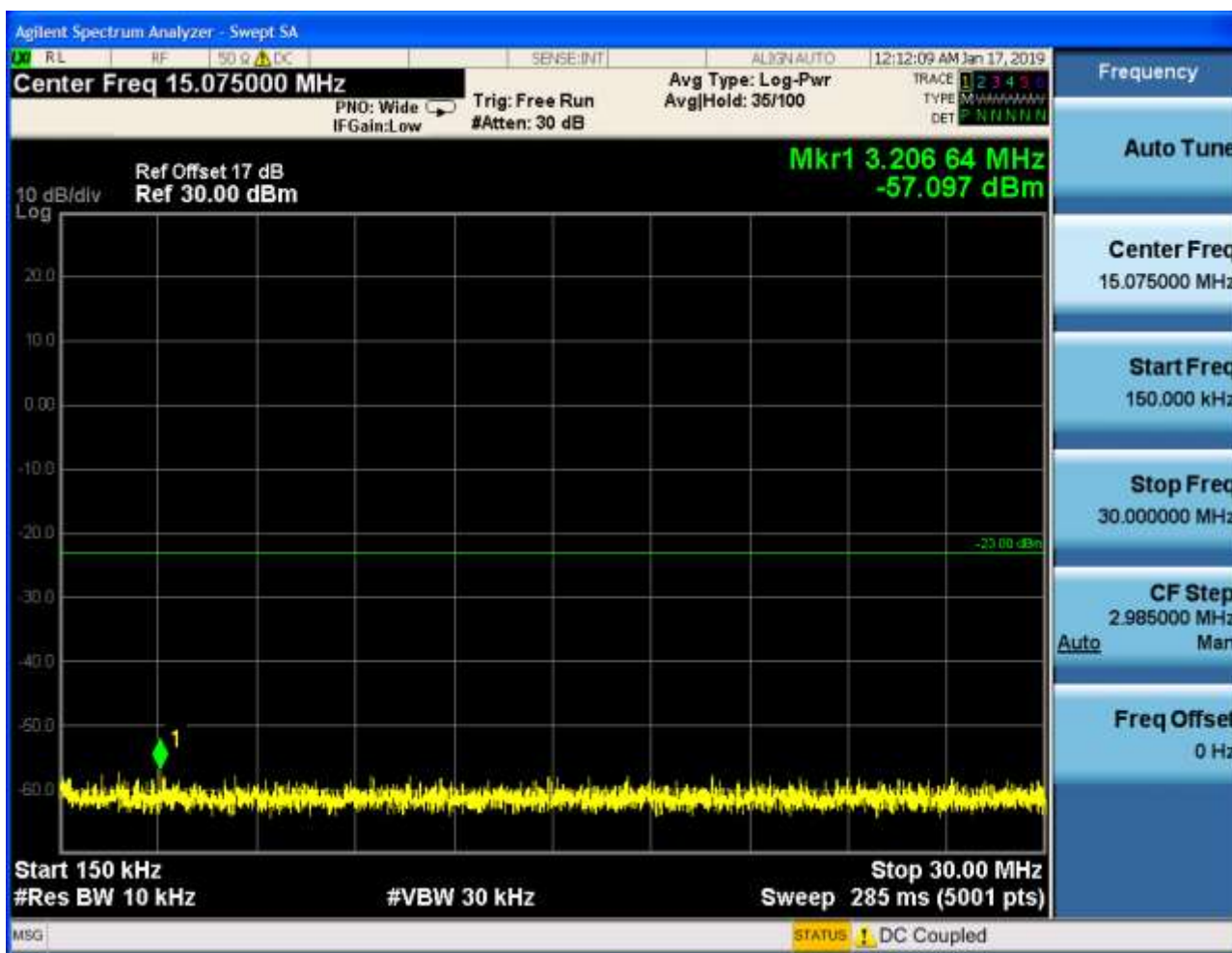


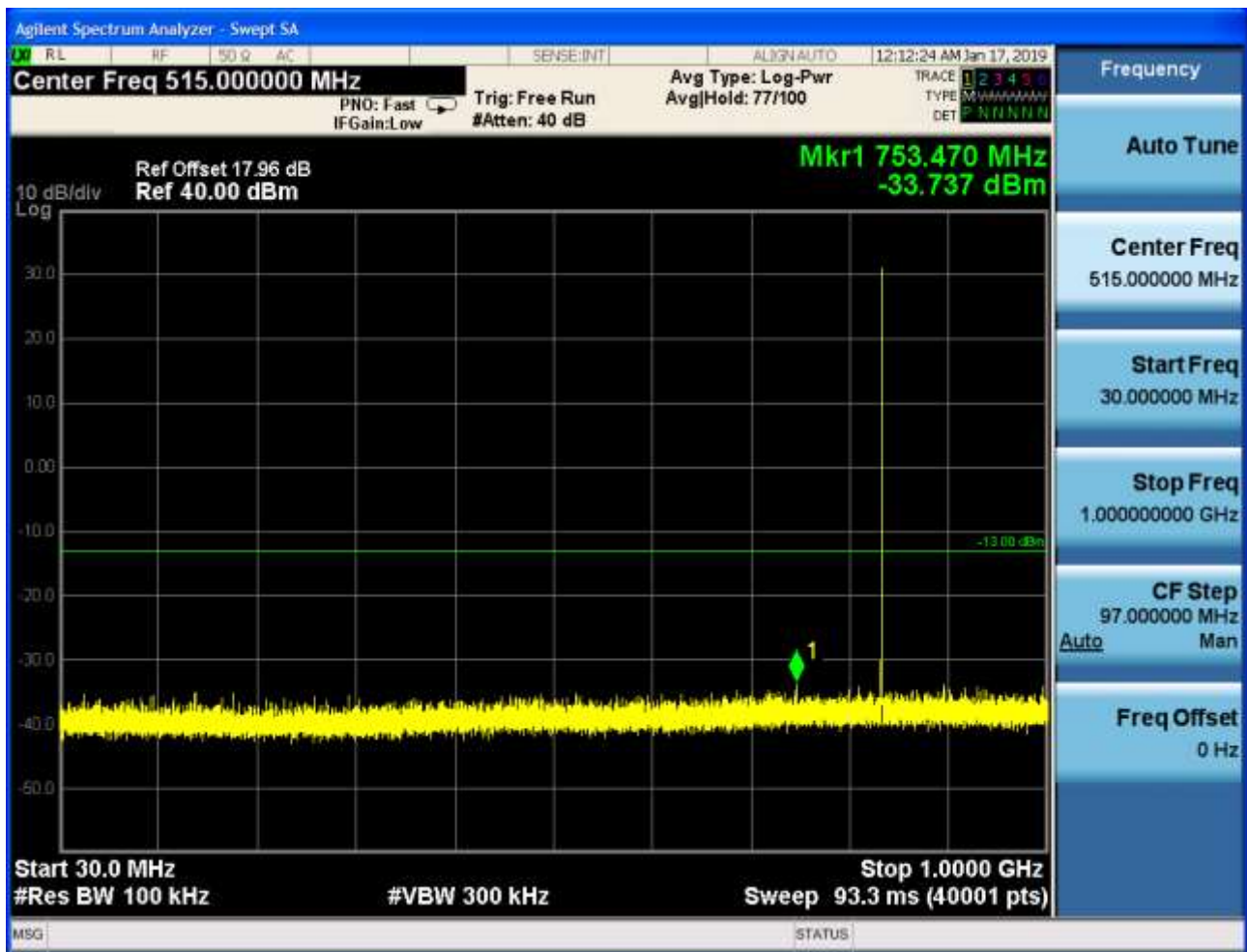


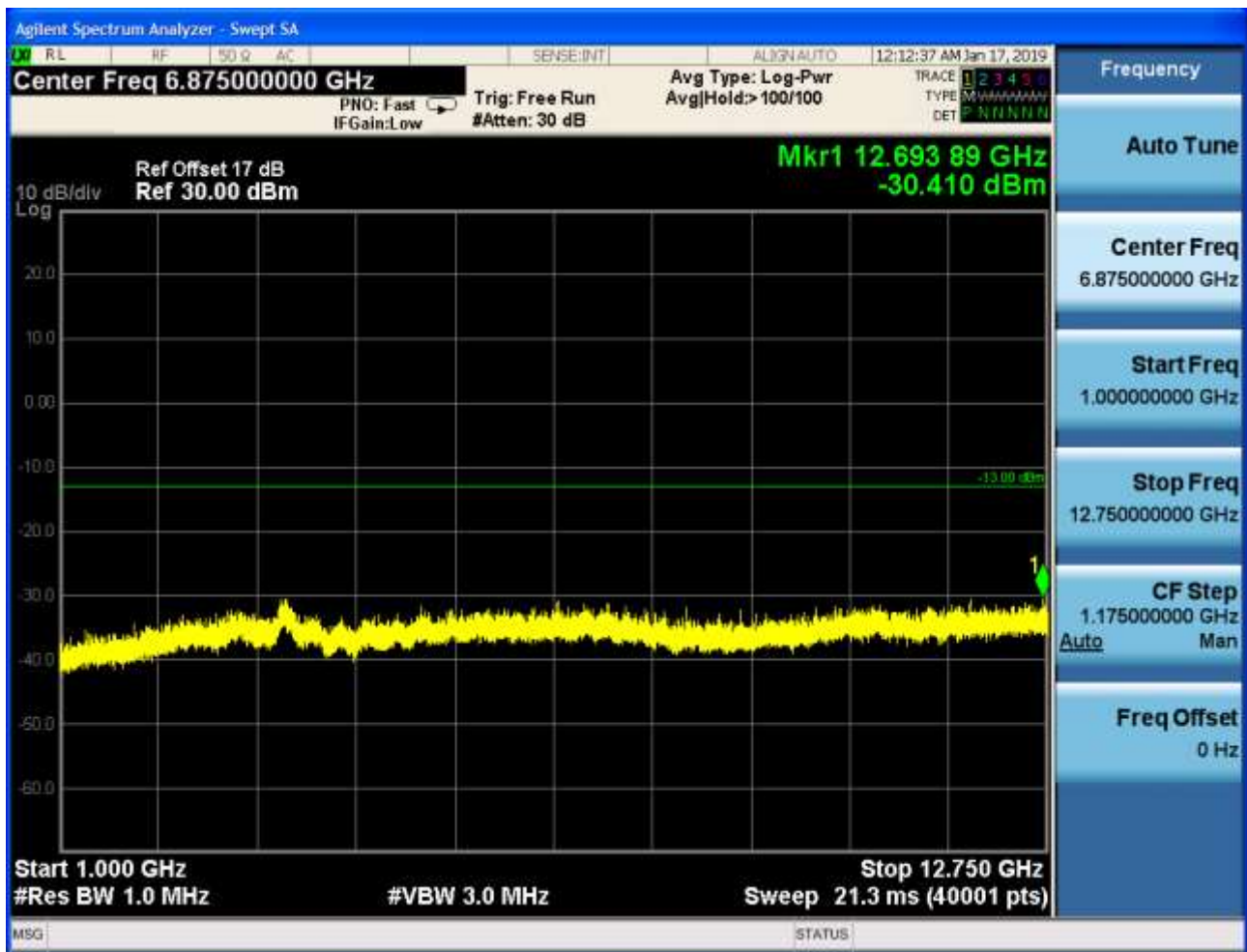


6.1.1.2.2 Test Channel = MCH

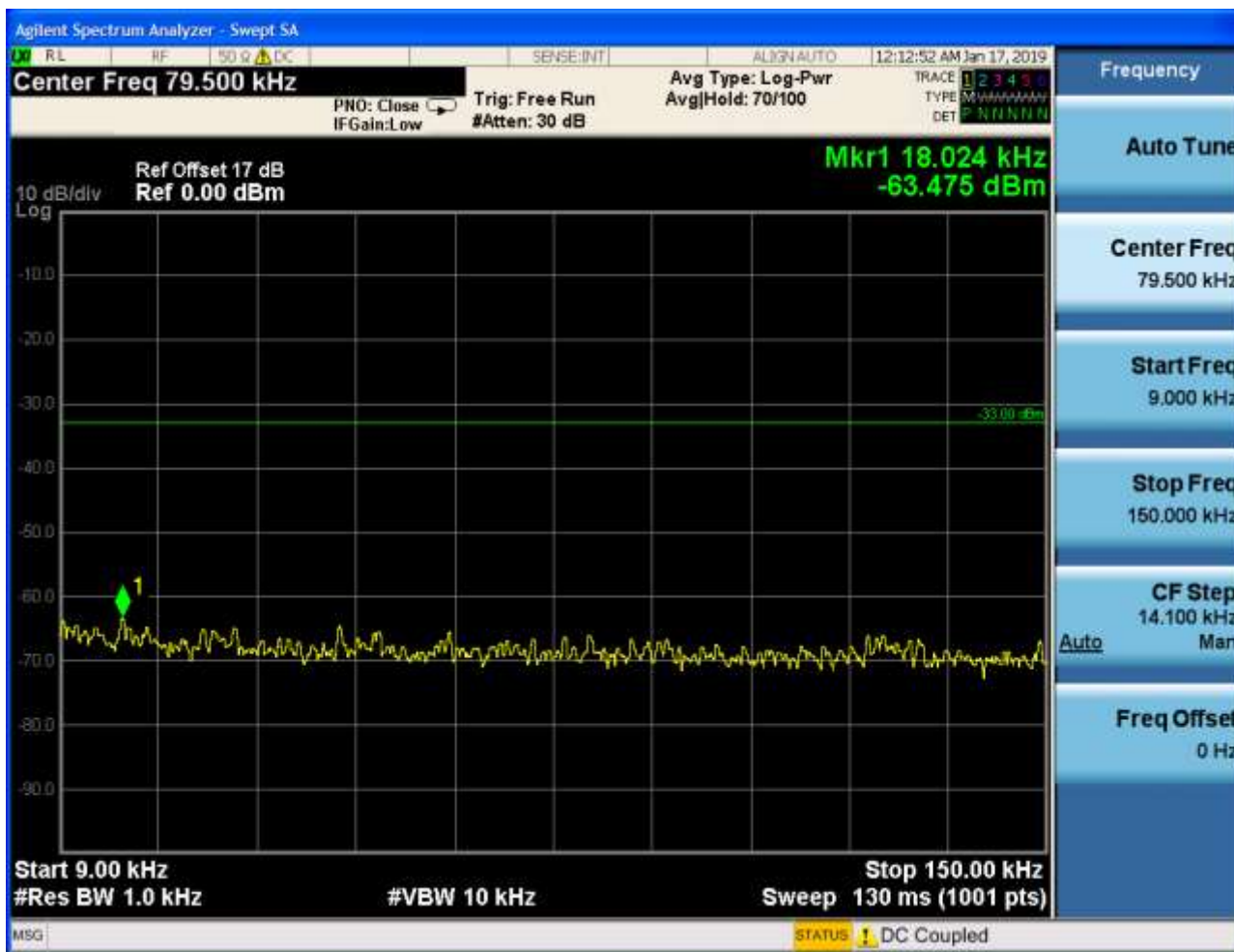




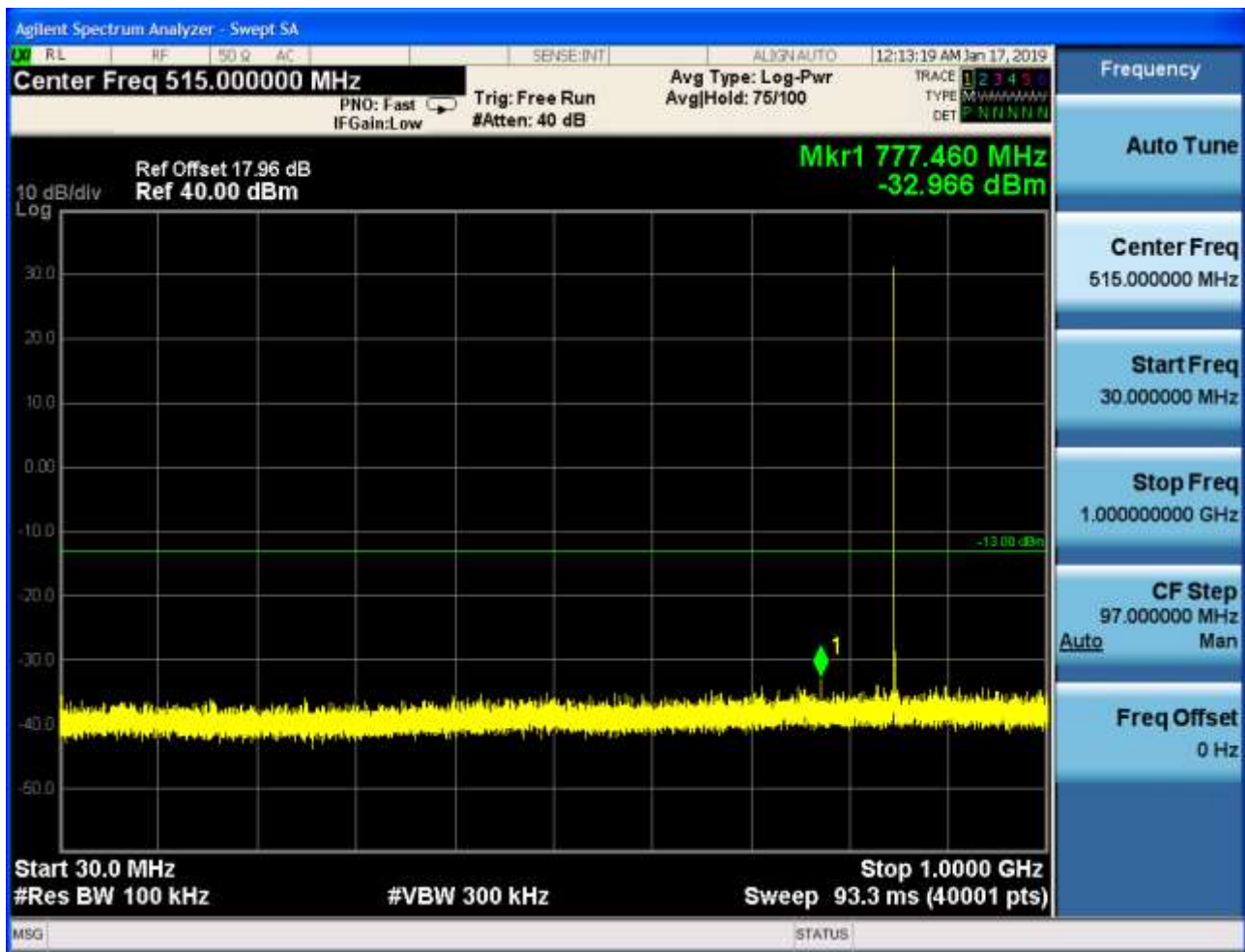




6.1.1.2.3 Test Channel = HCH





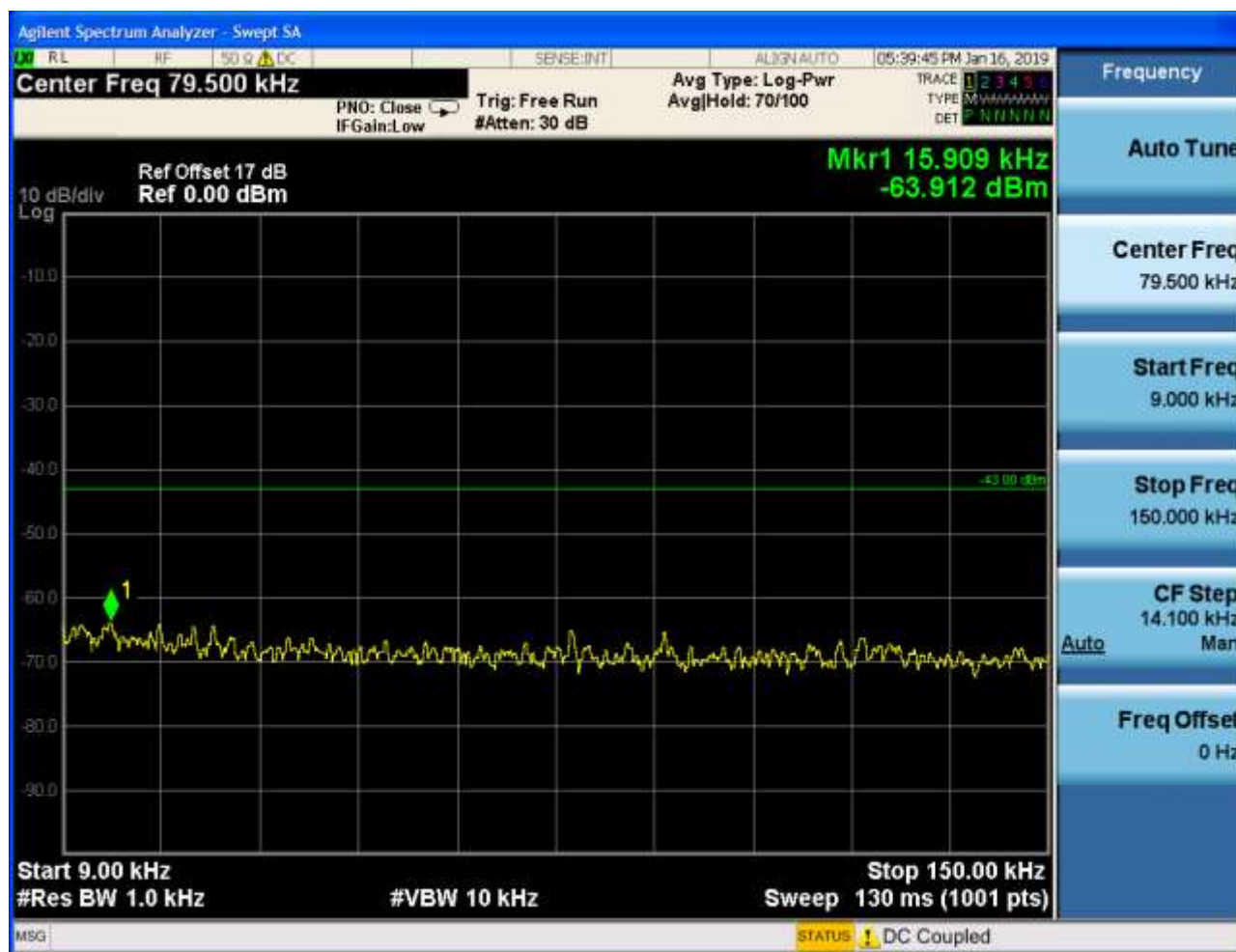


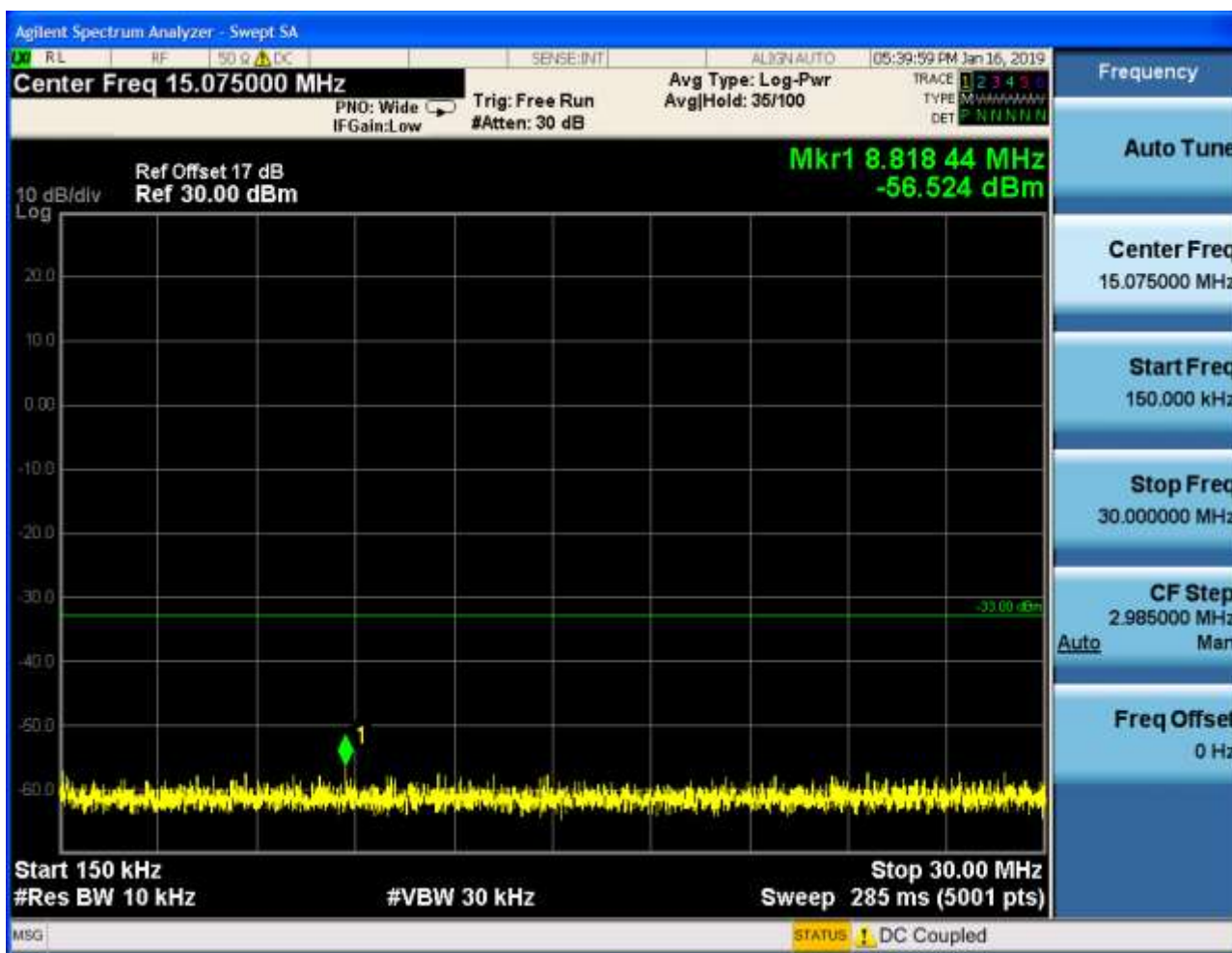


6.1.2 Test Band = PCS1900

6.1.2.1 Test Mode = GSM/TM1

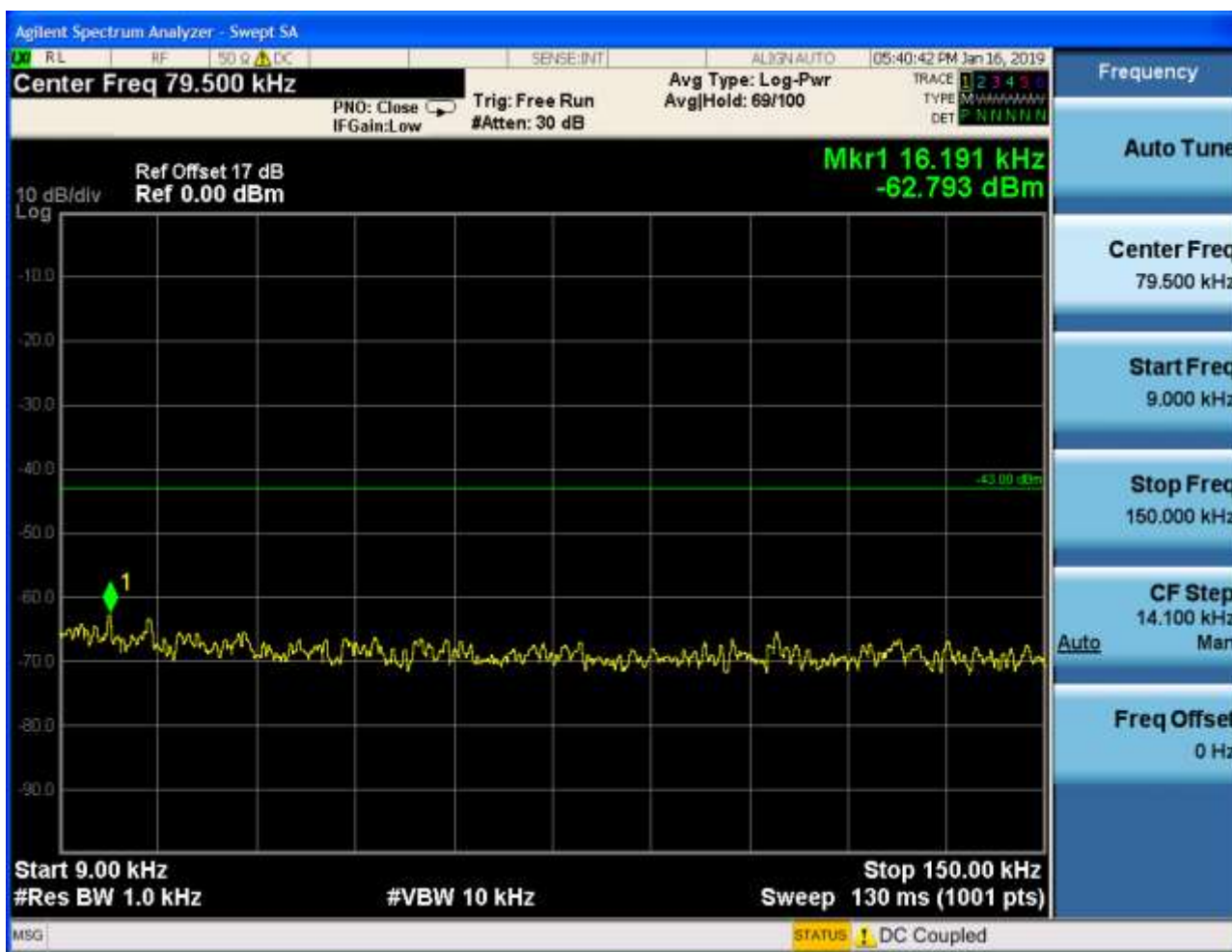
6.1.2.1.1 Test Channel = LCH

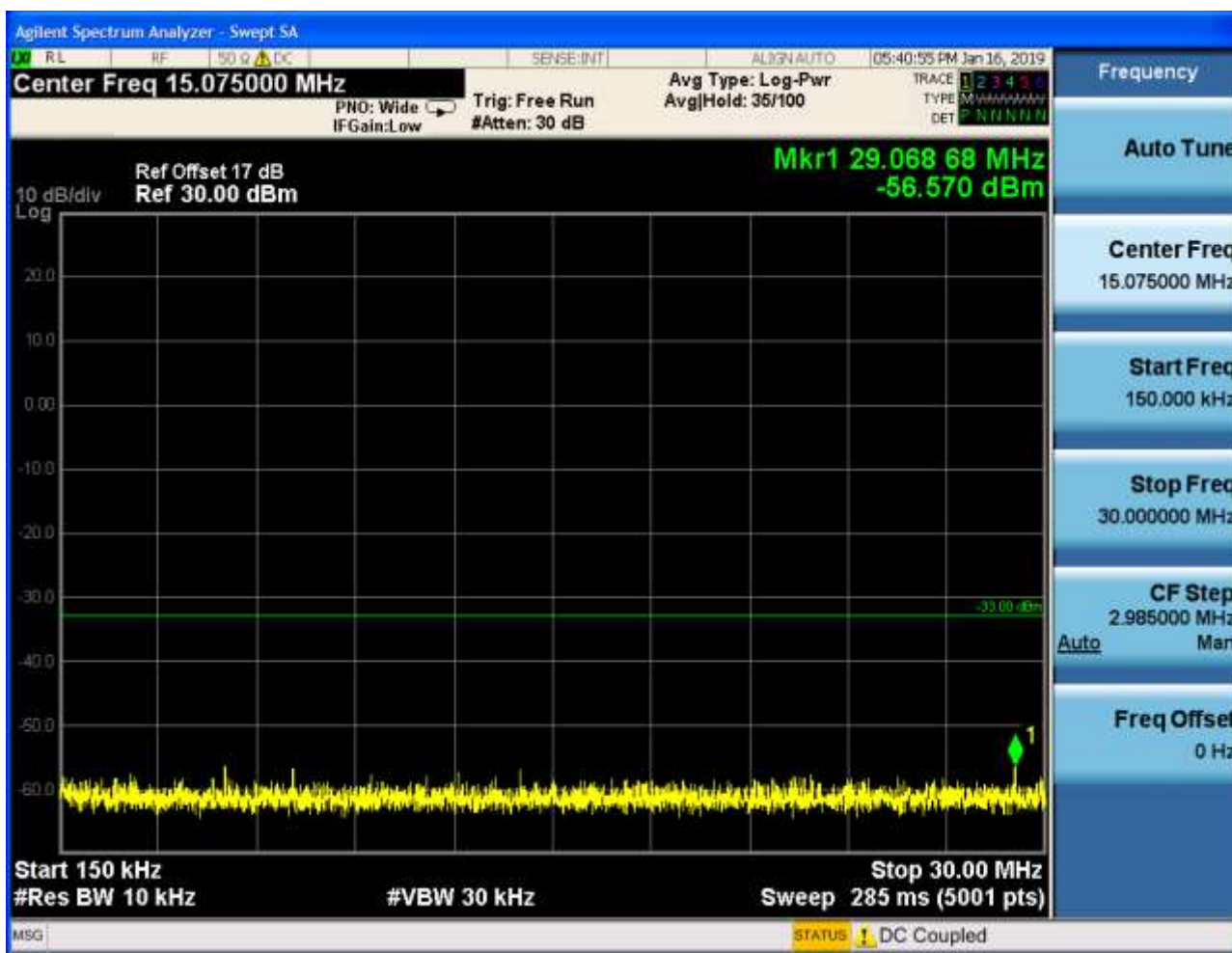






6.1.2.1.2 Test Channel = MCH

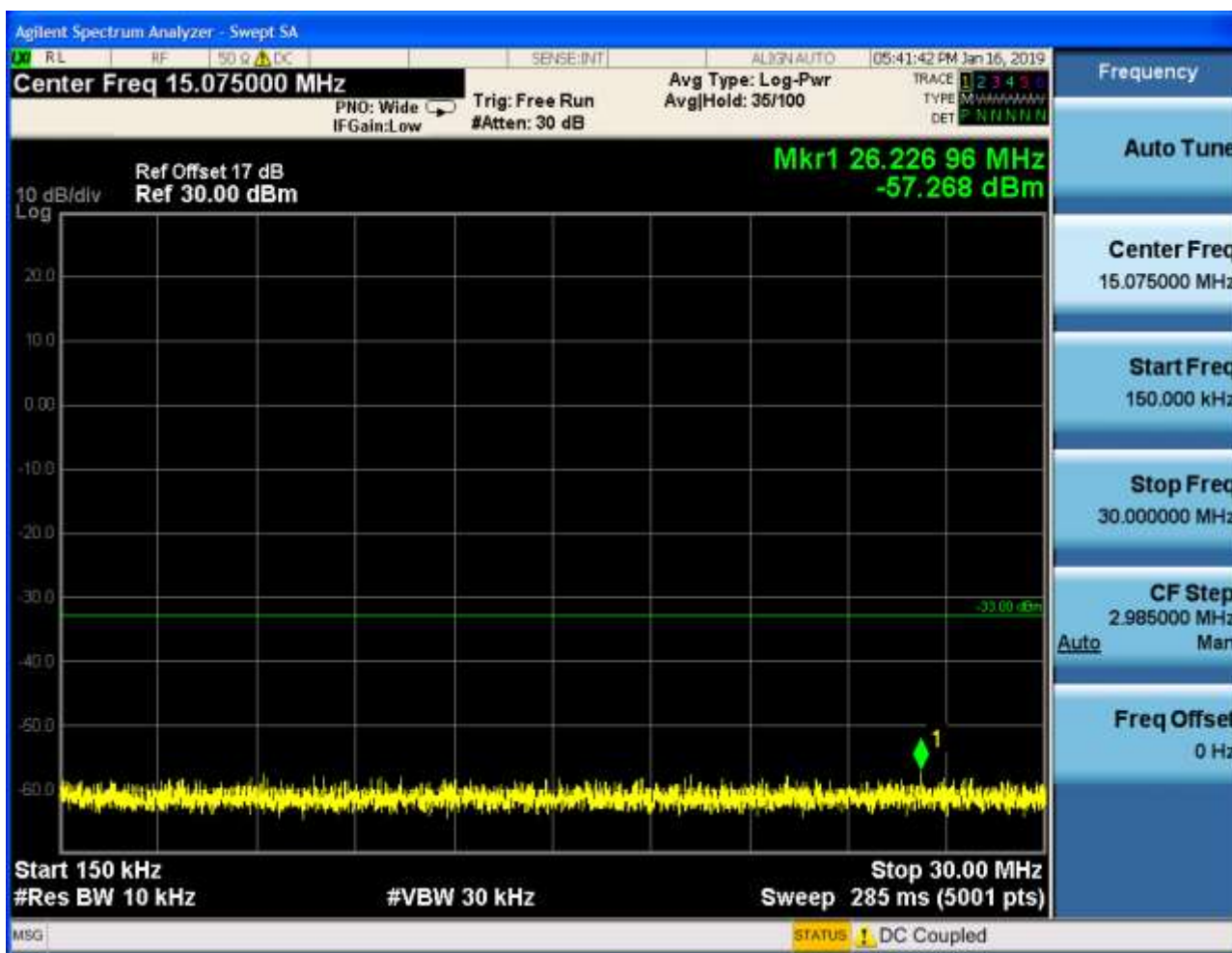






6.1.2.1.3 Test Channel = HCH

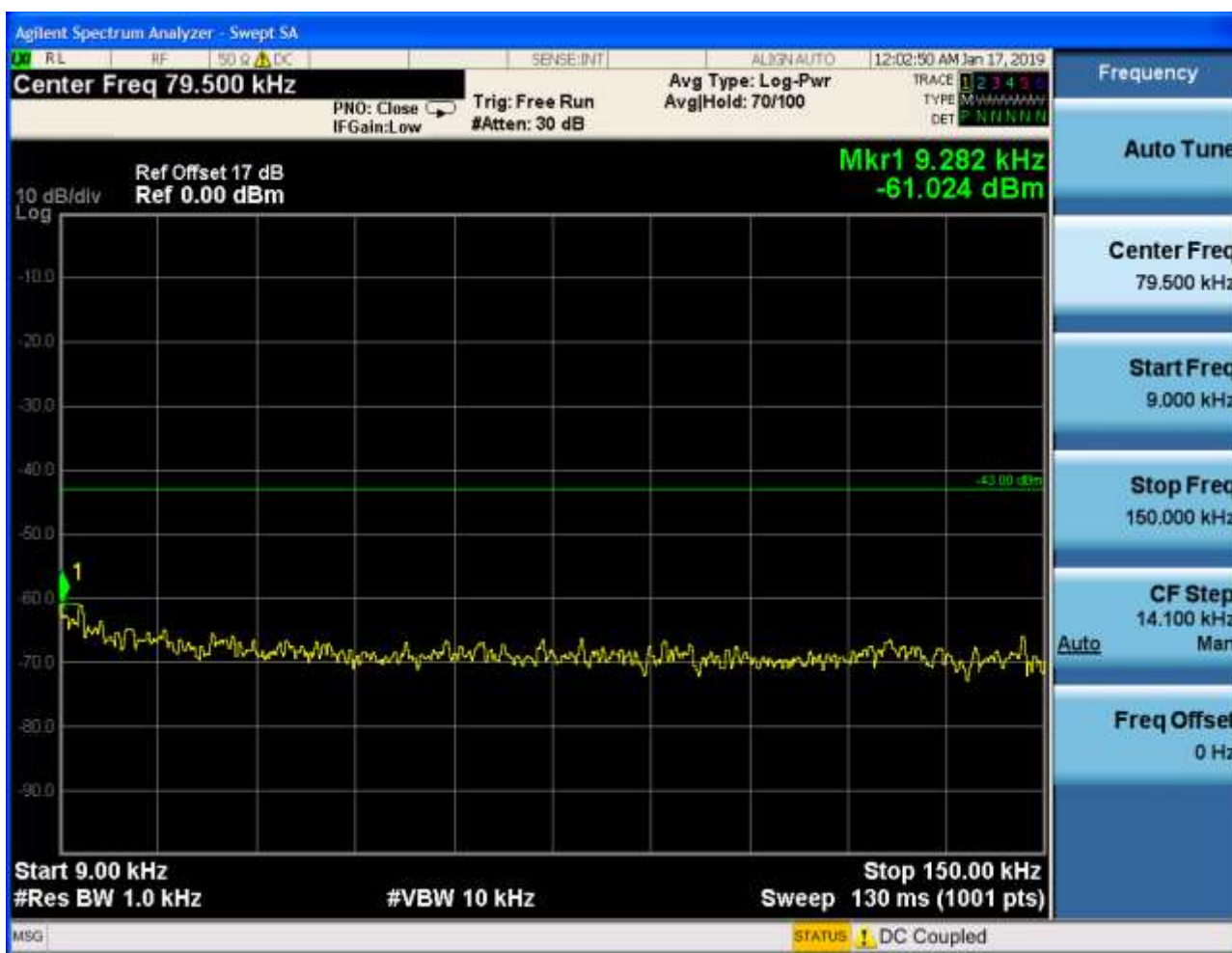






6.1.2.2 Test Mode = GSM/TM2

6.1.2.2.1 Test Channel = LCH







6.1.2.2.2 Test Channel = MCH







6.1.2.2.3 Test Channel = HCH







7Appendix_G: Frequency Stability

7.1 For GSM

7.1.1Frequency 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	8.42661	0.01022	PASS
				VN	11.20319	0.01359	PASS
				VH	9.97633	0.01210	PASS
		MCH	TN	VL	10.07318	0.01204	PASS
				VN	13.23720	0.01582	PASS
				VH	11.30005	0.01351	PASS
		HCH	TN	VL	12.26862	0.01445	PASS
				VN	14.91606	0.01757	PASS
				VH	11.55833	0.01362	PASS
	GSM/TM2	LCH	TN	VL	13.33406	0.01618	PASS
				VN	11.42919	0.01387	PASS
				VH	10.62204	0.01289	PASS
		MCH	TN	VL	14.94835	0.01787	PASS
				VN	12.36548	0.01478	PASS
				VH	15.04521	0.01798	PASS
		HCH	TN	VL	16.75636	0.01974	PASS
				VN	12.78520	0.01506	PASS
				VH	16.78864	0.01978	PASS
PCS1900	GSM/TM1	LCH	TN	VL	16.69178	0.00902	PASS
				VN	20.30780	0.01098	PASS
				VH	19.14551	0.01035	PASS
		MCH	TN	VL	19.01637	0.01012	PASS
				VN	22.63238	0.01204	PASS
				VH	17.04693	0.00907	PASS
		HCH	TN	VL	19.69437	0.00902	PASS
				VN	17.88636	0.01098	PASS
				VH	16.82093	0.01035	PASS
	GSM/TM2	LCH	TN	VL	19.27465	0.01042	PASS
				VN	20.69523	0.01119	PASS
				VH	15.85235	0.00857	PASS
		MCH	TN	VL	21.56695	0.01147	PASS
				VN	18.43522	0.00981	PASS
				VH			

Test Band	Test Mode	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				VH	26.34525	0.01401	PASS
		HCH	TN	VL	25.27982	0.01042	PASS
				VN	19.88808	0.01119	PASS
				VH	22.27724	0.00857	PASS

7.1.2 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	11.84891	0.01438	PASS
				-20	11.71976	0.01422	PASS
				-10	10.10547	0.01226	PASS
				0	15.46492	0.01876	PASS
				10	9.87947	0.01199	PASS
				20	11.20319	0.01359	PASS
				30	12.84977	0.01559	PASS
				40	12.55920	0.01524	PASS
				50	14.78692	0.01794	PASS
		MCH	VN	-30	12.68834	0.01517	PASS
				-20	11.91348	0.01424	PASS
				-10	12.94663	0.01548	PASS
				0	14.20577	0.01698	PASS
				10	12.97891	0.01551	PASS
				20	13.23720	0.01582	PASS
				30	13.14034	0.01571	PASS
				40	15.04521	0.01798	PASS
				50	14.04434	0.01679	PASS
		HCH	VN	-30	13.01120	0.01533	PASS
				-20	15.01292	0.01769	PASS
				-10	13.49548	0.01590	PASS
				0	15.23892	0.01795	PASS
				10	15.59407	0.01837	PASS
				20	14.91606	0.01757	PASS
				30	12.52691	0.01476	PASS
				40	16.62721	0.01959	PASS
				50	16.23978	0.01913	PASS
	GSM/TM2	LCH	VN	-30	11.75205	0.01426	PASS
				-20	10.88033	0.01320	PASS
				-10	12.07491	0.01465	PASS
				0	10.81576	0.01312	PASS

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				10	11.20319	0.01359	PASS
				20	11.42919	0.01387	PASS
				30	11.91348	0.01445	PASS
				40	11.75205	0.01426	PASS
				50	11.23548	0.01363	PASS
		MCH	VN	-30	14.94835	0.01787	PASS
				-20	14.17349	0.01694	PASS
				-10	14.78692	0.01768	PASS
				0	12.84977	0.01536	PASS
				10	11.88119	0.01420	PASS
				20	12.36548	0.01478	PASS
				30	12.81748	0.01532	PASS
				40	14.30263	0.01710	PASS
				50	13.75377	0.01644	PASS
		HCH	VN	-30	16.33664	0.01925	PASS
				-20	16.78864	0.01978	PASS
				-10	16.82093	0.01982	PASS
				0	16.14292	0.01902	PASS
				10	14.23806	0.01677	PASS
				20	12.78520	0.01506	PASS
				30	15.23892	0.01795	PASS
				40	15.56178	0.01833	PASS
				50	13.97977	0.01647	PASS
PCS1900	GSM/TM1	LCH	VN	-30	21.11495	0.01141	PASS
				-20	22.05124	0.01192	PASS
				-10	21.01809	0.01136	PASS
				0	20.53380	0.01110	PASS
				10	16.75636	0.00906	PASS
				20	20.30780	0.01098	PASS
				30	16.40121	0.00886	PASS
				40	20.14637	0.01089	PASS
				50	18.53208	0.01002	PASS
		MCH	VN	-30	19.79123	0.01053	PASS
				-20	19.75894	0.01051	PASS
				-10	20.56609	0.01094	PASS
				0	17.20836	0.00915	PASS
				10	26.28068	0.01398	PASS
				20	22.63238	0.01204	PASS
				30	20.17866	0.01073	PASS
				40	20.82437	0.01108	PASS

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				50	22.47095	0.01195	PASS
		HCH	VN	-30	21.14723	0.01107	PASS
				-20	18.98408	0.00994	PASS
				-10	17.75722	0.00930	PASS
				0	19.43608	0.01018	PASS
				10	15.14206	0.00793	PASS
				20	17.88636	0.00937	PASS
				30	22.69695	0.01188	PASS
				40	17.59579	0.00921	PASS
				50	24.89239	0.01303	PASS
	GSM/TM2	LCH	VN	-30	21.34095	0.01153	PASS
				-20	17.62807	0.00953	PASS
				-10	19.79123	0.01070	PASS
				0	23.95610	0.01295	PASS
				10	20.82437	0.01126	PASS
				20	20.69523	0.01119	PASS
				30	17.17607	0.00928	PASS
				40	21.21180	0.01146	PASS
				50	19.98494	0.01080	PASS
		MCH	VN	-30	18.27379	0.00972	PASS
				-20	20.72752	0.01103	PASS
				-10	18.75808	0.00998	PASS
				0	22.43867	0.01194	PASS
				10	20.79209	0.01106	PASS
				20	18.43522	0.00981	PASS
				30	22.30952	0.01187	PASS
				40	19.37151	0.01030	PASS
				50	20.24323	0.01077	PASS
		HCH	VN	-30	18.27379	0.00957	PASS
				-20	25.86097	0.01354	PASS
				-10	19.33922	0.01013	PASS
				0	20.56609	0.01077	PASS
				10	17.88636	0.00937	PASS
				20	19.88808	0.01041	PASS
				30	26.47440	0.01386	PASS
				40	18.95179	0.00992	PASS
				50	19.24237	0.01008	PASS

END