



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	33.11	27.36	38.5	PASS
		MCH	33.07	27.32	38.5	PASS
		HCH	32.87	27.12	38.5	PASS
	GSM/TM2	LCH	25.68	19.93	38.5	PASS
		MCH	25.56	19.81	38.5	PASS
		HCH	25.39	19.64	38.5	PASS
Test Band	Test Mode	Test Channel	Measured[dBm]	EIRP [dBm]	Limit [dBm]	Verdict
PCS1900	GSM/TM1	LCH	29.99	28.19	33	PASS
		MCH	29.89	28.09	33	PASS
		HCH	30.03	28.23	33	PASS
	GSM/TM2	LCH	25.10	23.30	33	PASS
		MCH	25.14	23.34	33	PASS
		HCH	25.14	23.34	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
GSM850	GSM/TM1	LCH	1.55	13	PASS
		MCH	1.78	13	PASS
		HCH	1.67	13	PASS
	GSM/TM2	LCH	4.68	13	PASS
		MCH	4.69	13	PASS
		HCH	4.97	13	PASS
PCS1900	GSM/TM1	LCH	2.00	13	PASS
		MCH	1.87	13	PASS
		HCH	1.88	13	PASS
	GSM/TM2	LCH	5.00	13	PASS
		MCH	4.70	13	PASS
		HCH	4.53	13	PASS

3Appendix_C: Modulation Characteristics

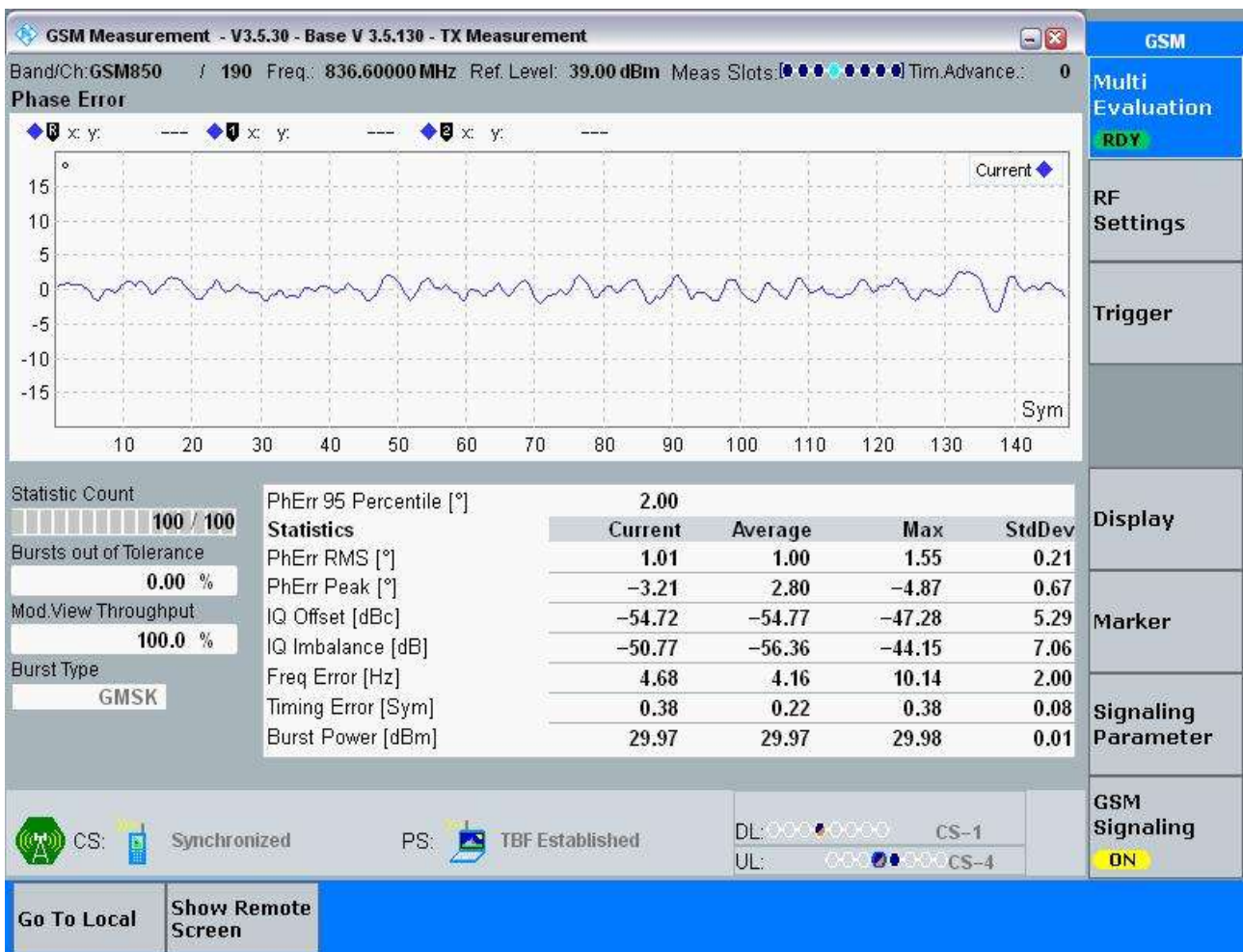
Part I - Test Plots

3.1 For GSM

3.1.1 Test Band = GSM850

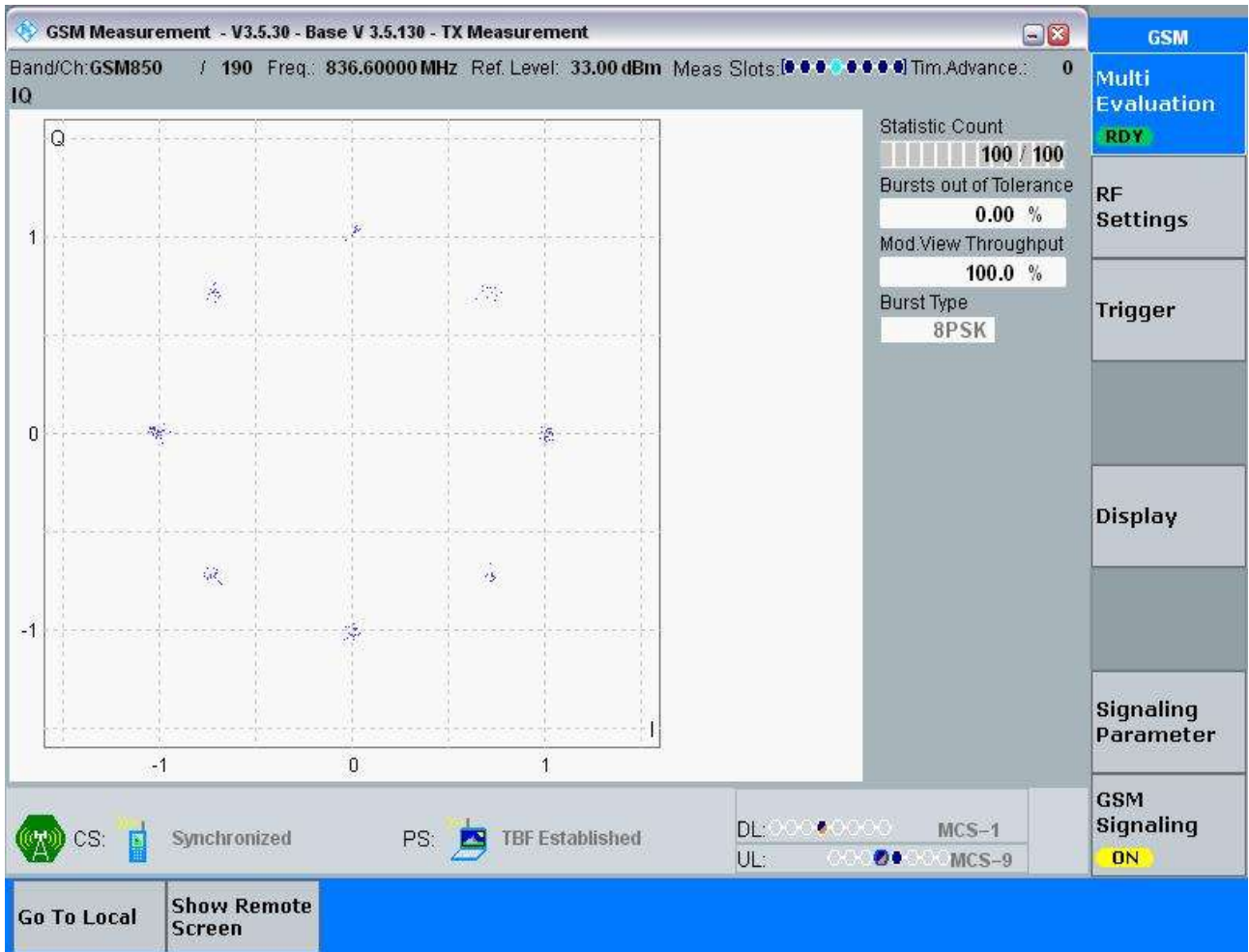
3.1.1.1 Test Mode = GSM/TM1

3.1.1.1.1 Test Channel = MCH



3.1.1.2 Test Mode = GSM/TM2

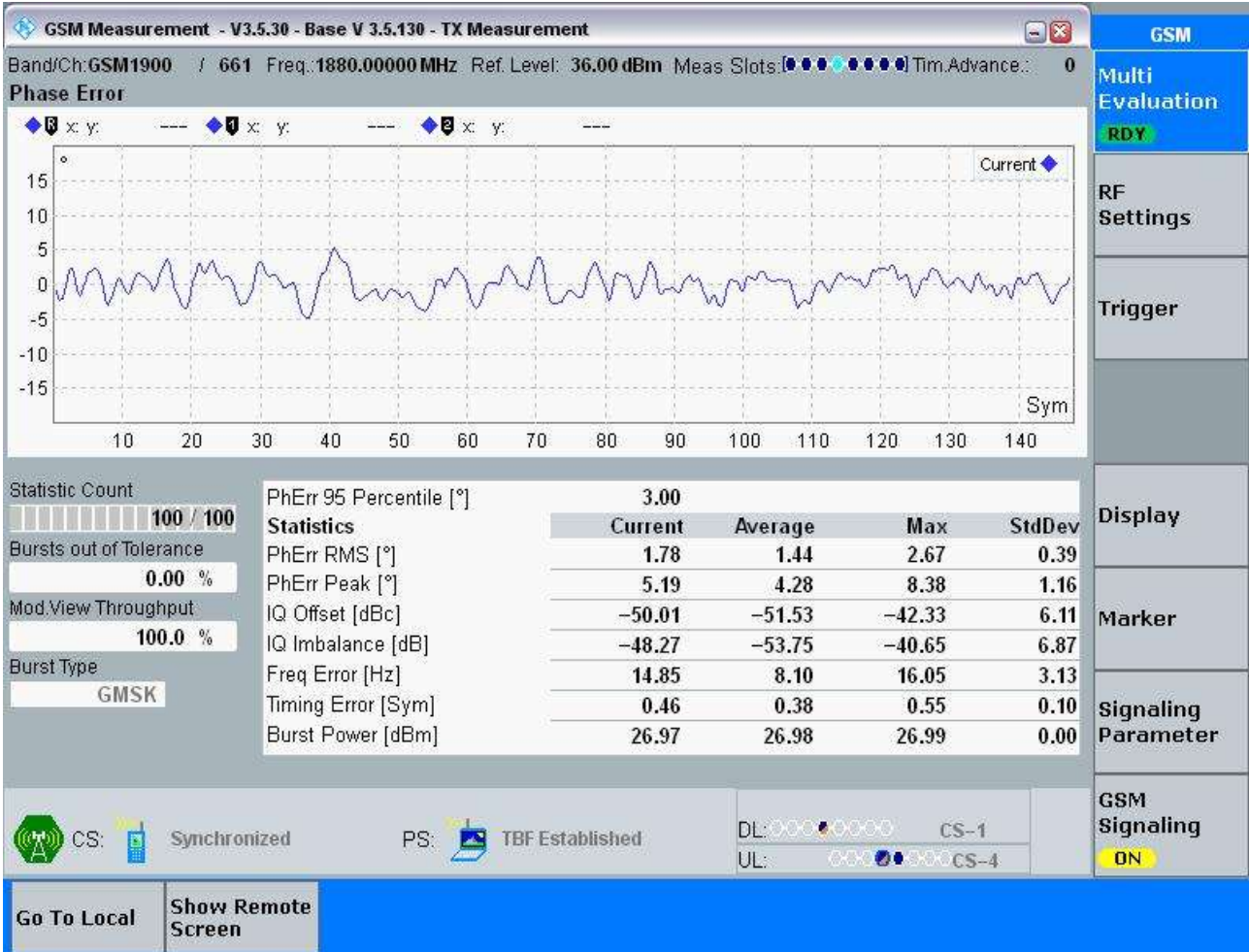
3.1.1.2.1 Test Channel = MCH



3.1.2 Test Band = PCS1900

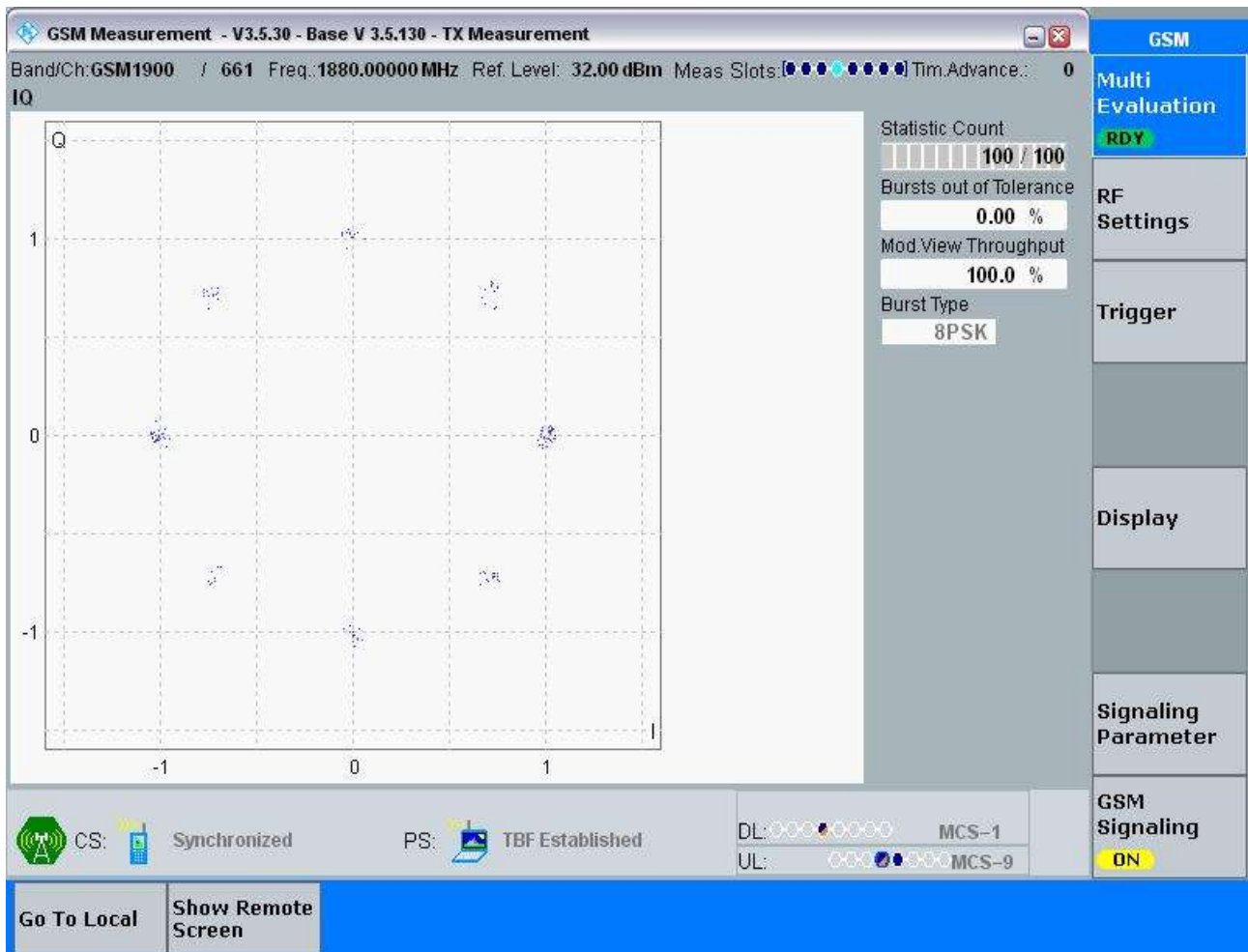
3.1.2.1 Test Mode = GSM/TM1

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	245.48	313.0	Pass
		MCH	246.62	320.9	Pass
		HCH	241.79	309.7	Pass
	GSM/TM2	LCH	251.33	323.8	Pass
		MCH	249.29	316.5	Pass
		HCH	246.62	322.0	Pass
PCS1900	GSM/TM1	LCH	245.56	313.1	Pass
		MCH	249.56	319.1	Pass
		HCH	244.65	314.2	Pass
	GSM/TM2	LCH	249.99	312.9	Pass
		MCH	254.38	315.0	Pass
		HCH	248.71	317.0	Pass

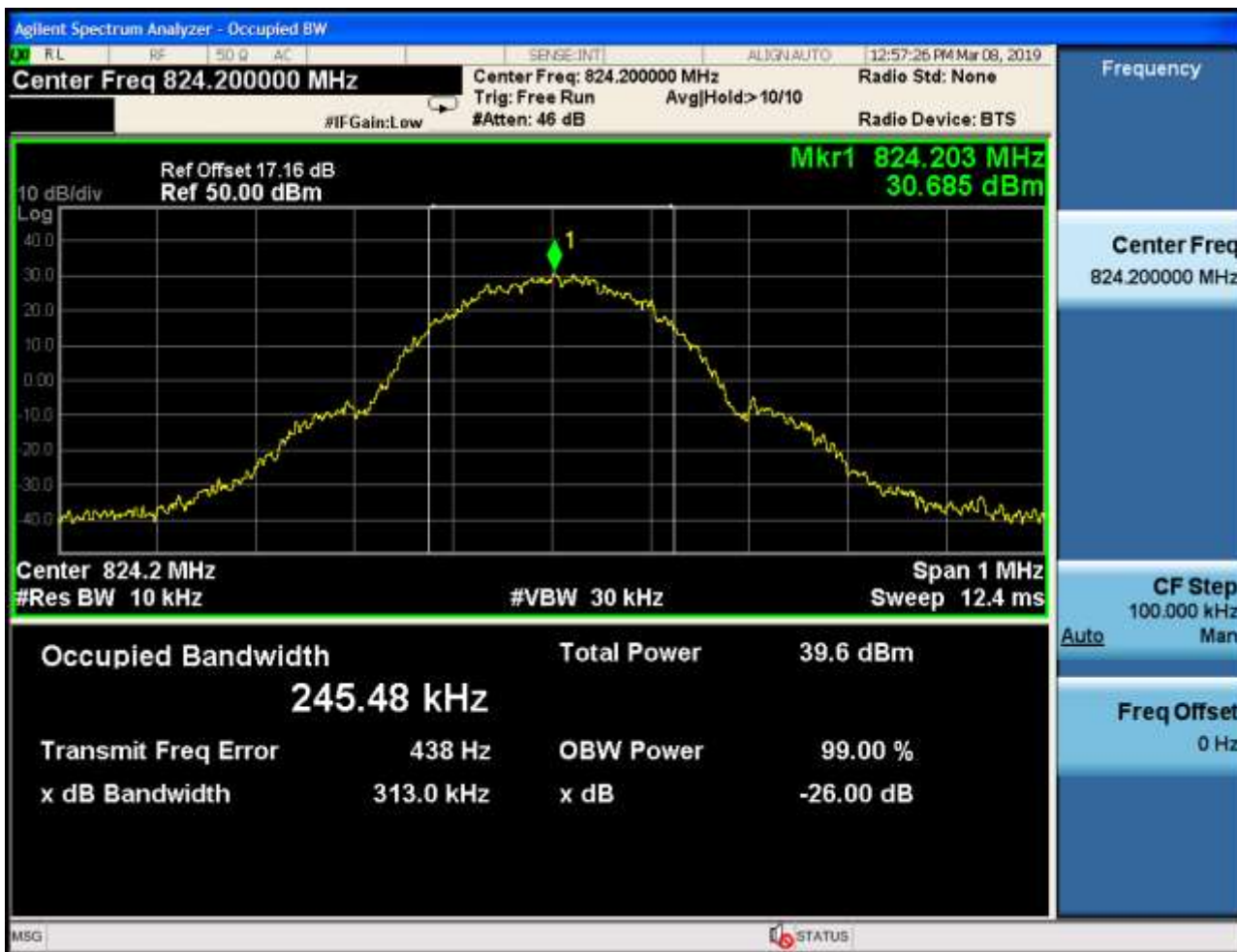
Part II - Test Plots

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

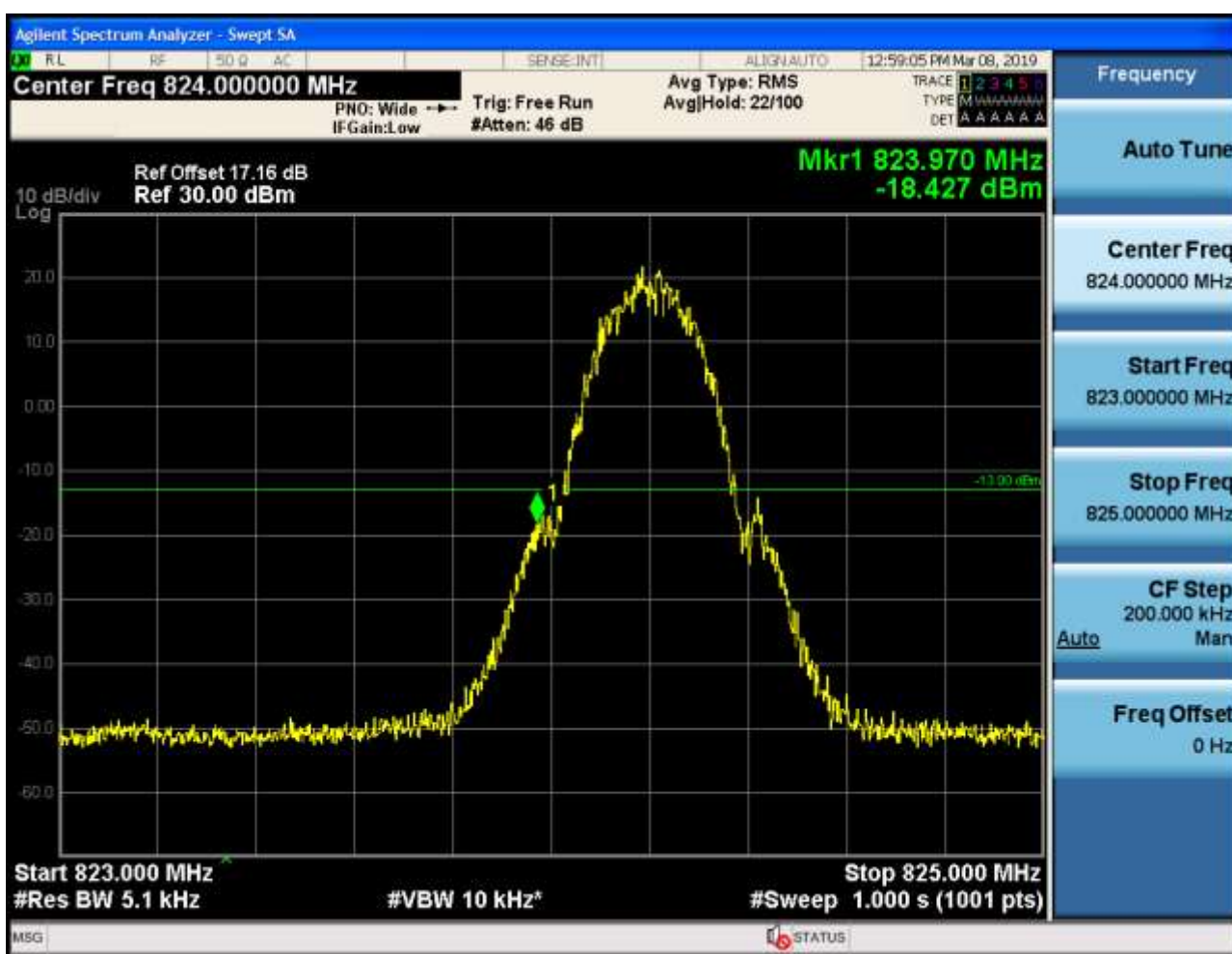
Part I - Test Plots

5.1 For GSM

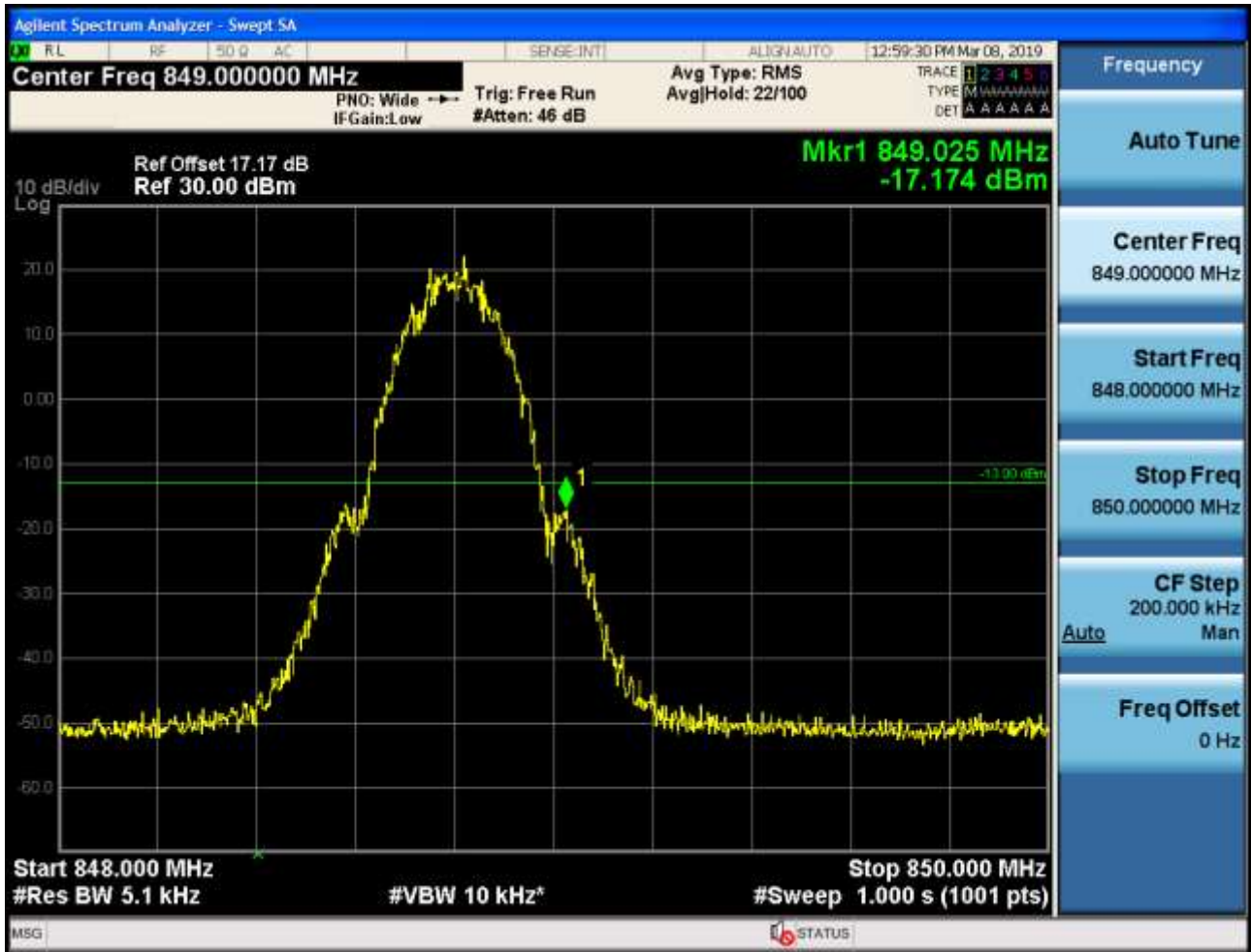
5.1.1 Test Band = GSM850

5.1.1.1 Test Mode = GSM/TM1

5.1.1.1.1 Test Channel = LCH

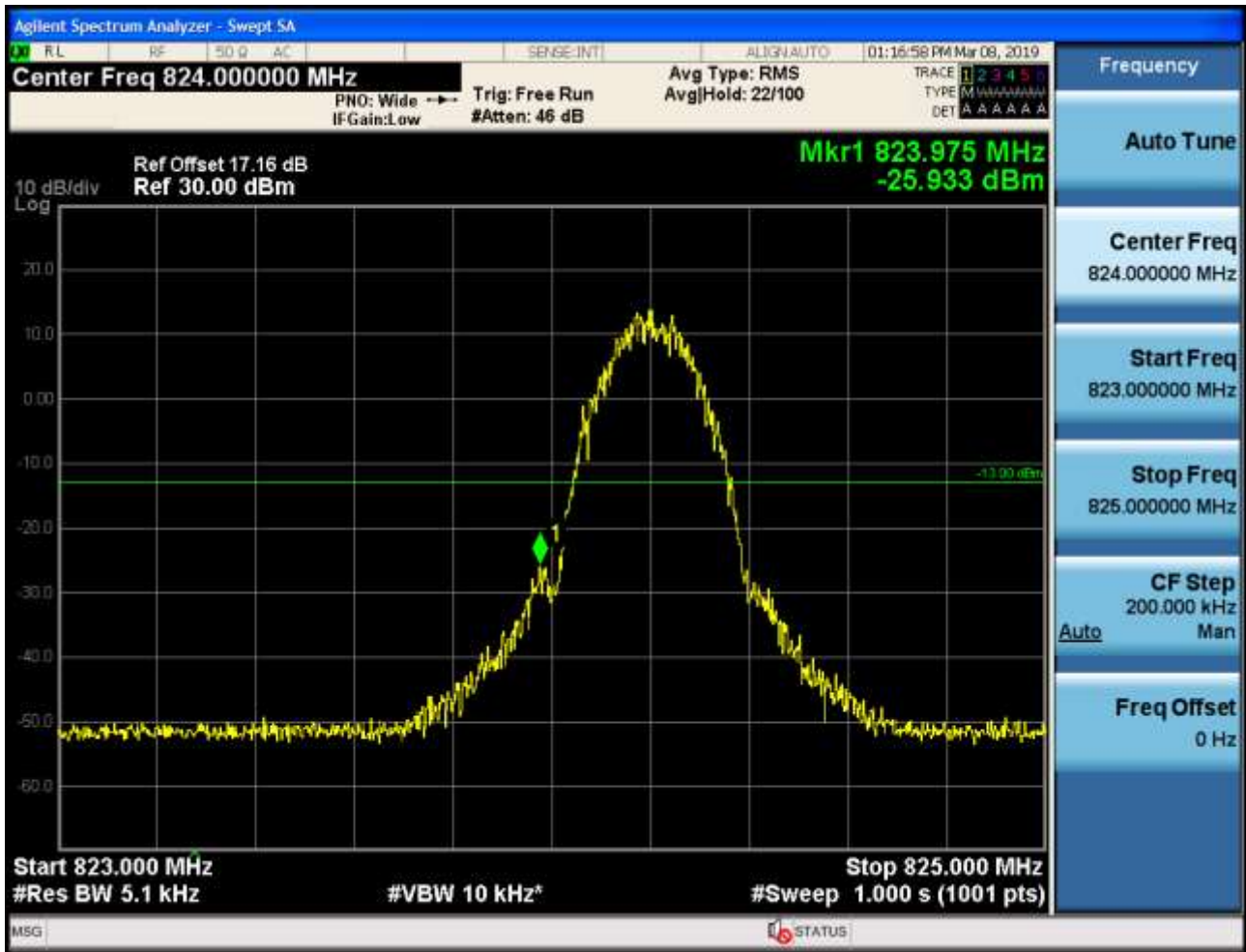


5.1.1.1.2 Test Channel = HCH

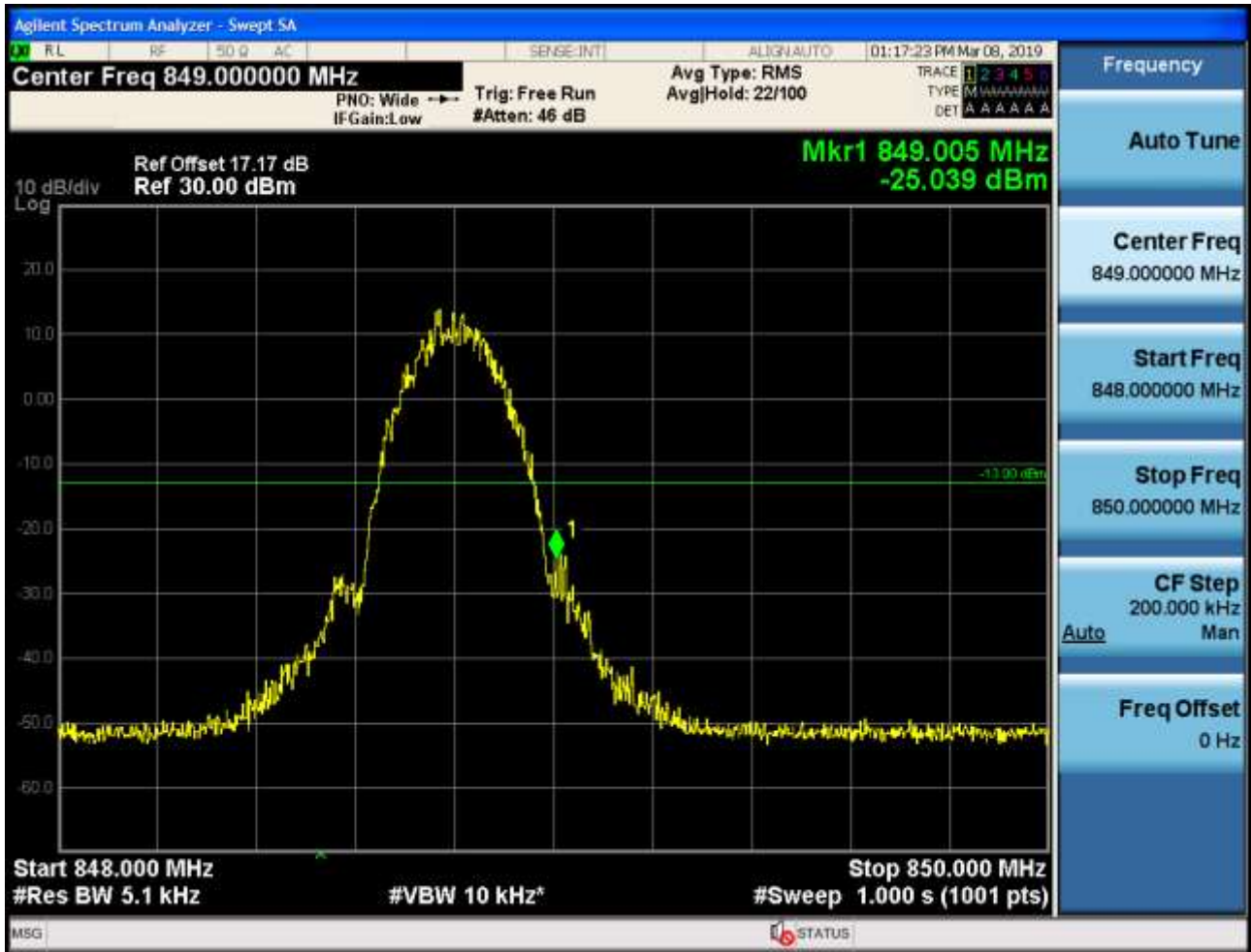


5.1.1.2 Test Mode = GSM/TM2

5.1.1.2.1 Test Channel = LCH



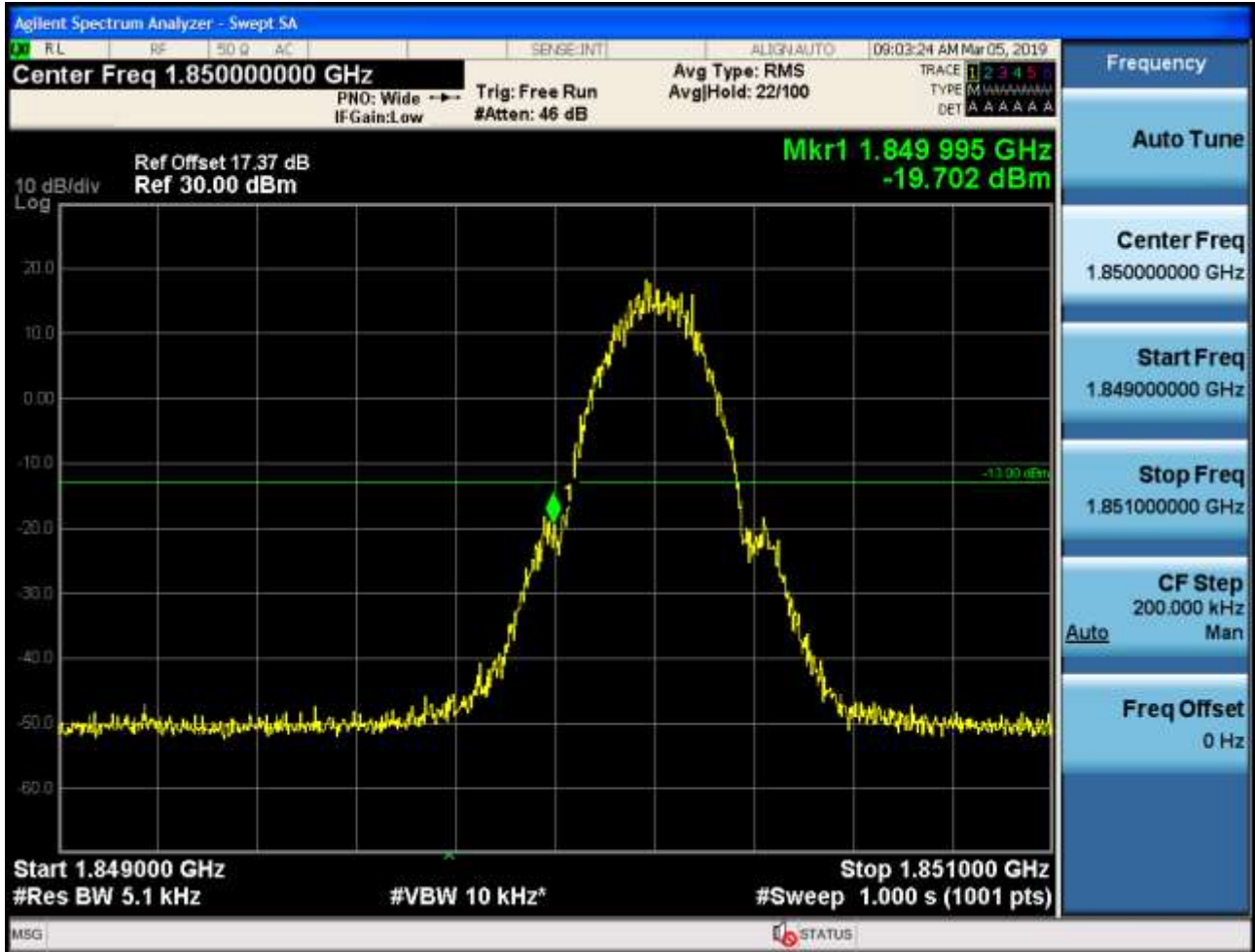
5.1.1.2.2 Test Channel = HCH



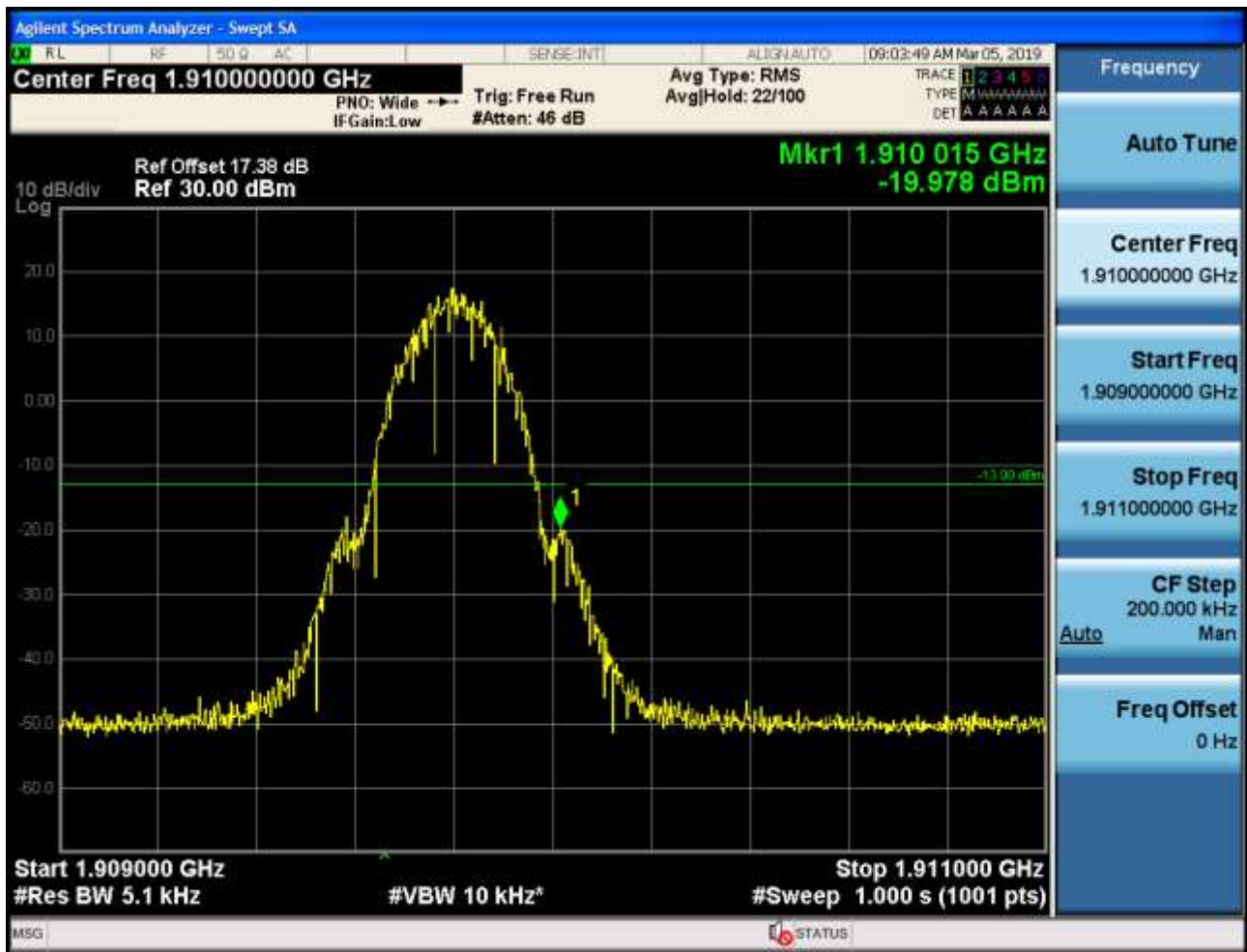
5.1.2 Test Band = PCS1900

5.1.2.1 Test Mode = GSM/TM1

5.1.2.1.1 Test Channel = LCH

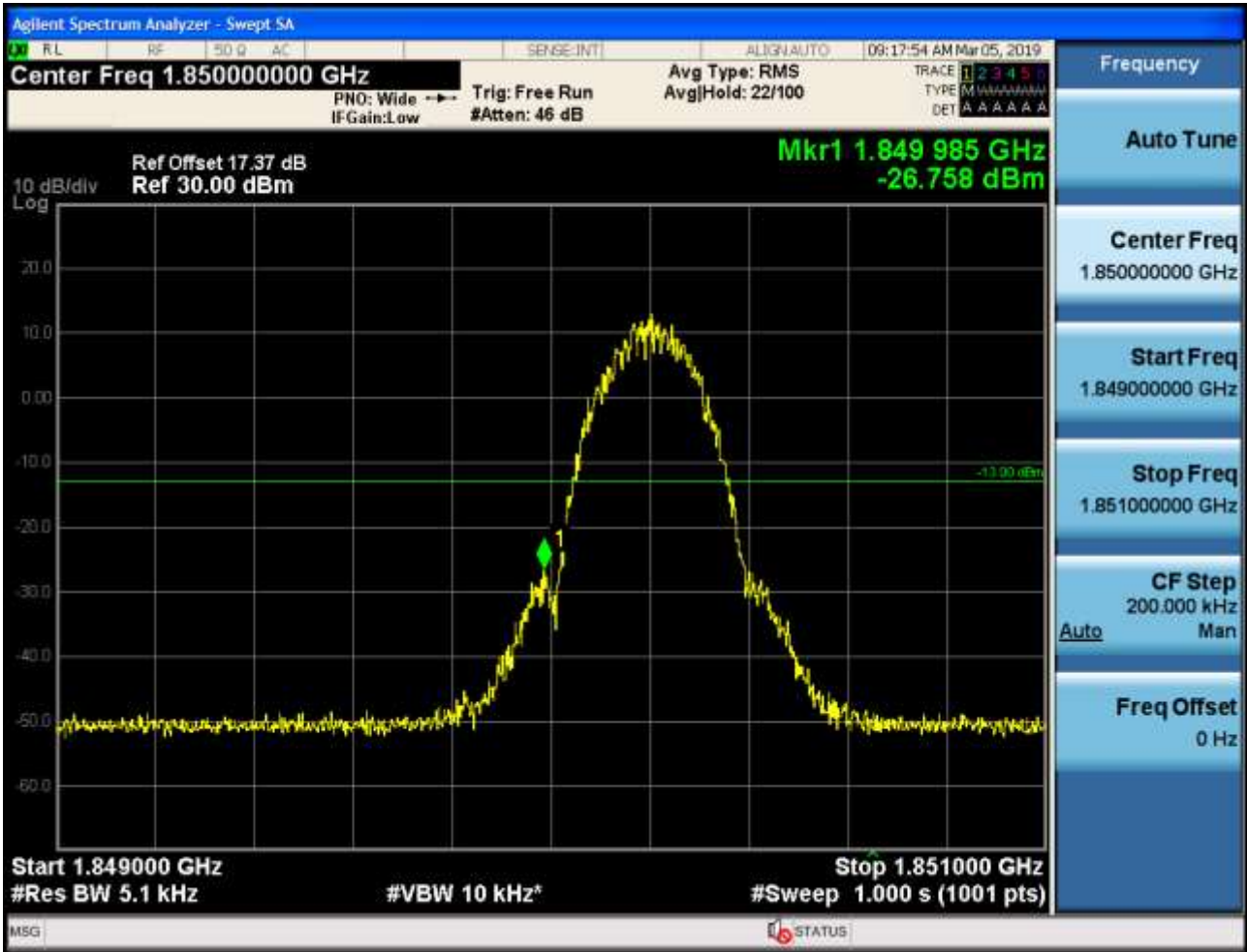


5.1.2.1.2 Test Channel = HCH

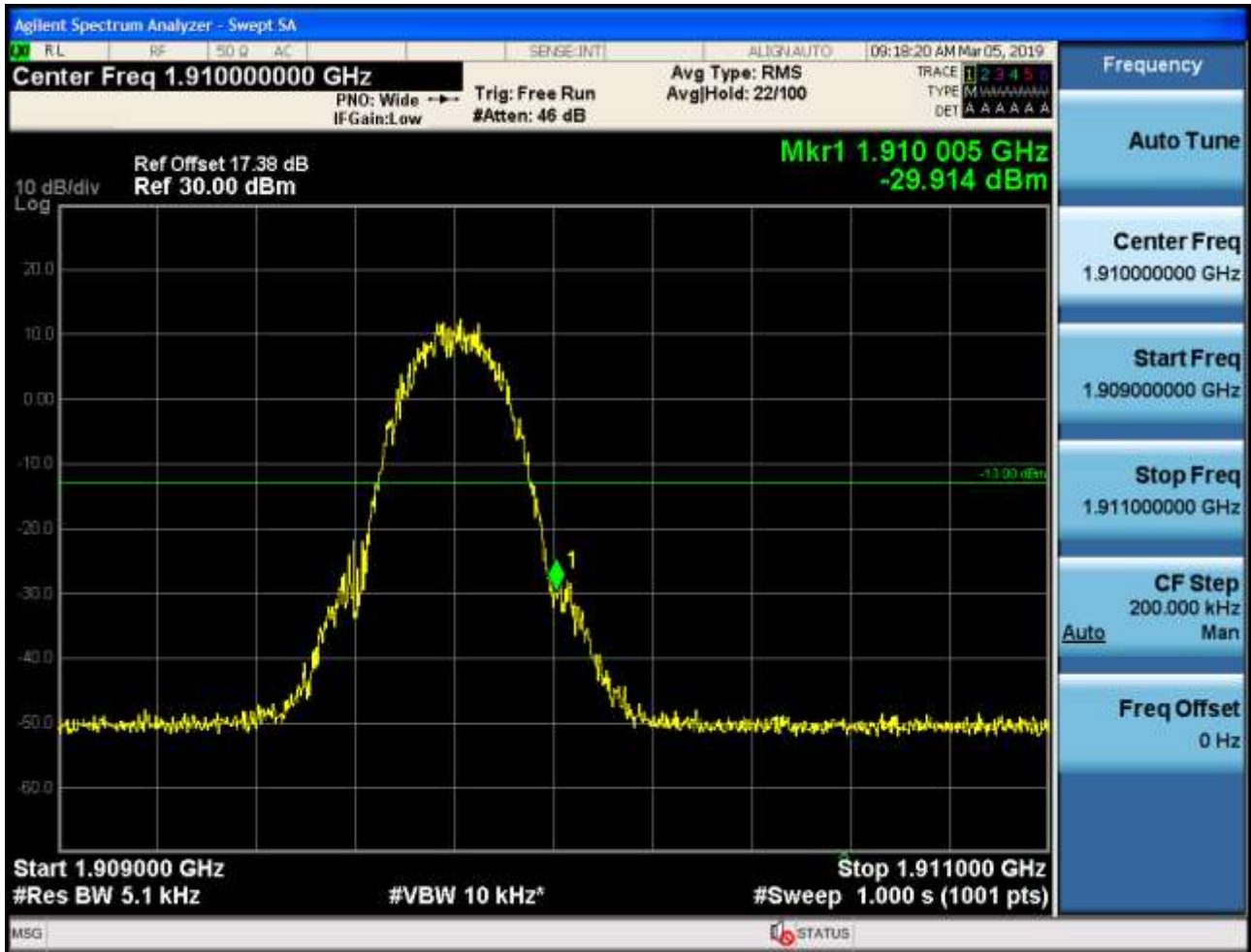


5.1.2.2 Test Mode = GSM/TM2

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.

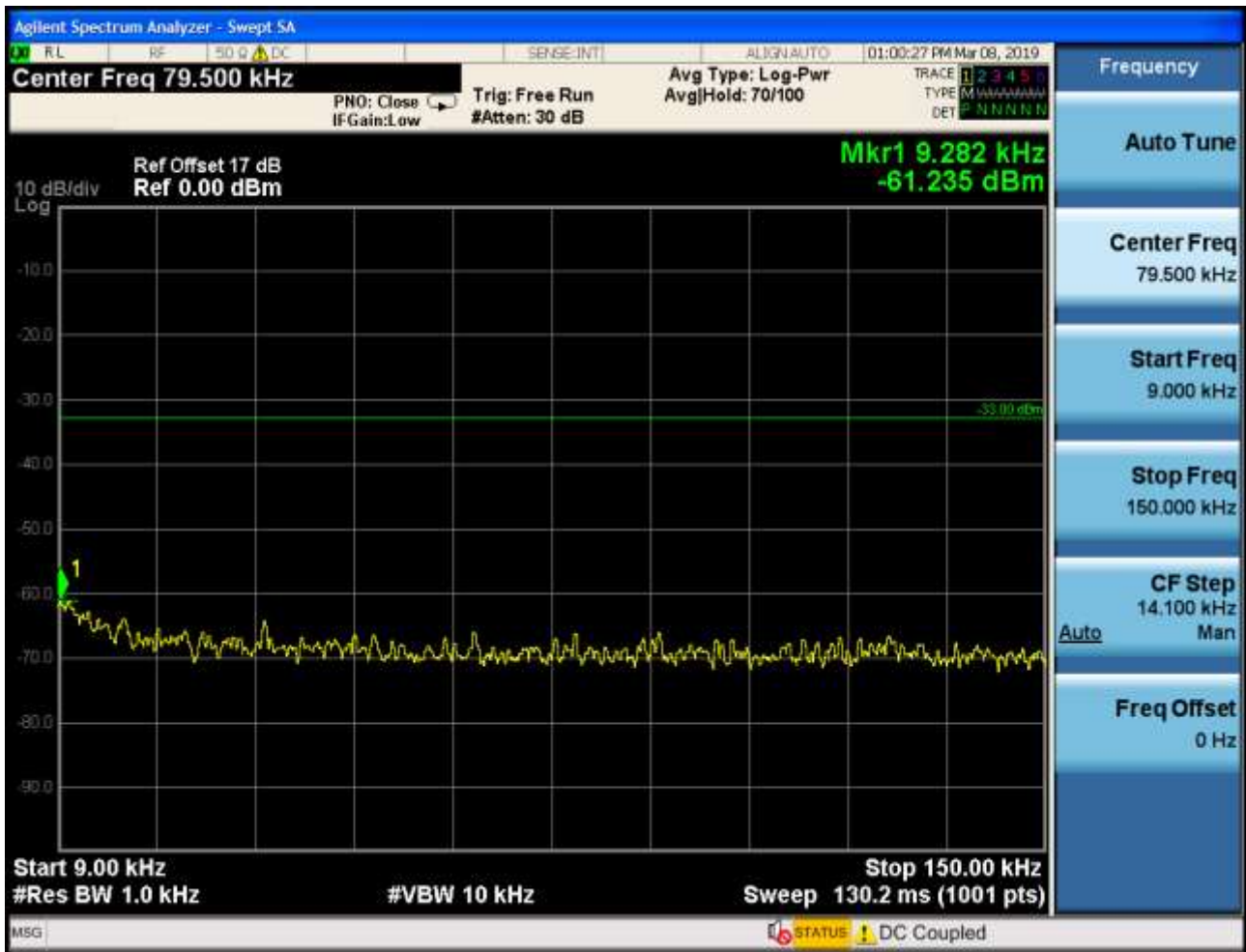
Part I - Test Plots

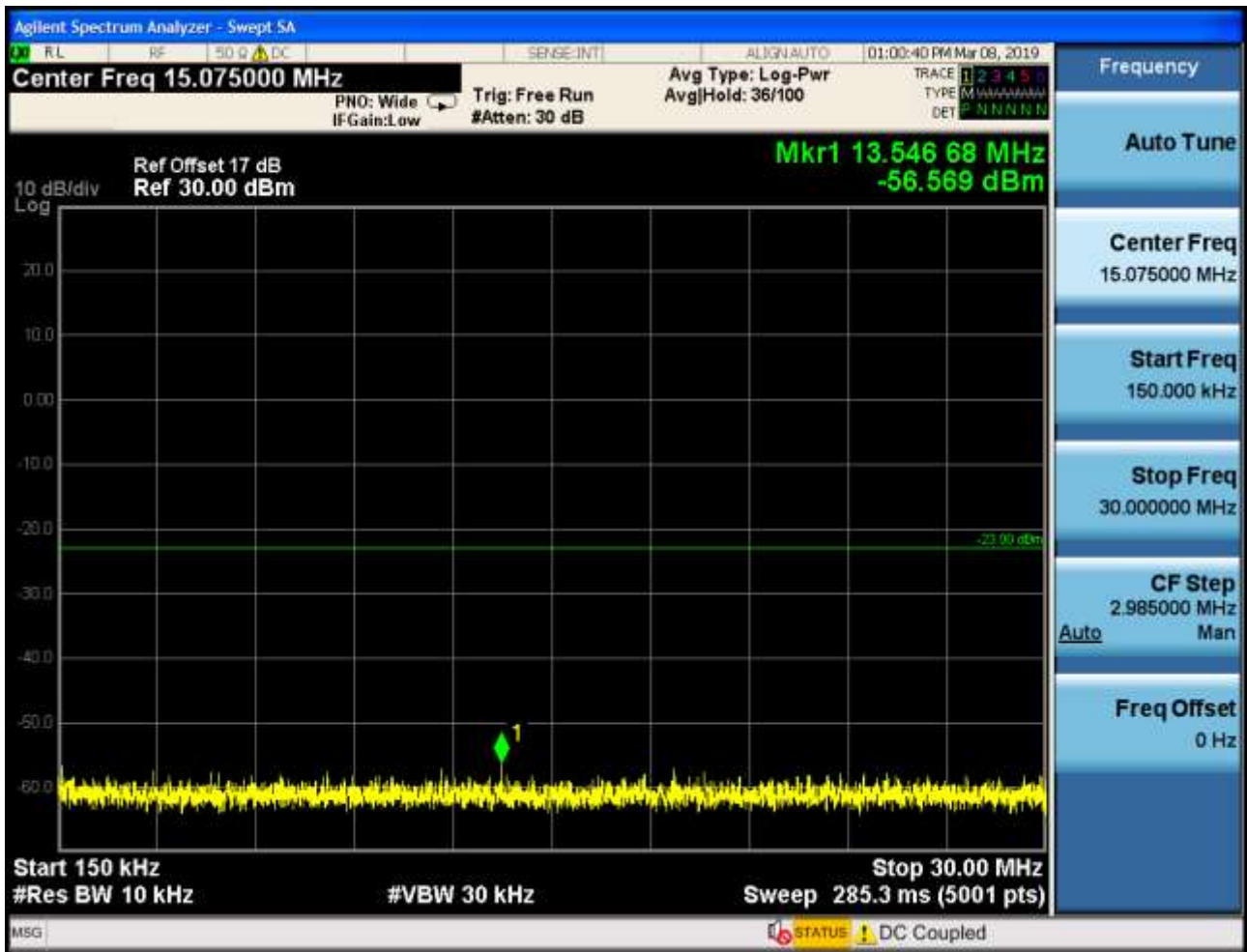
6.1 For GSM

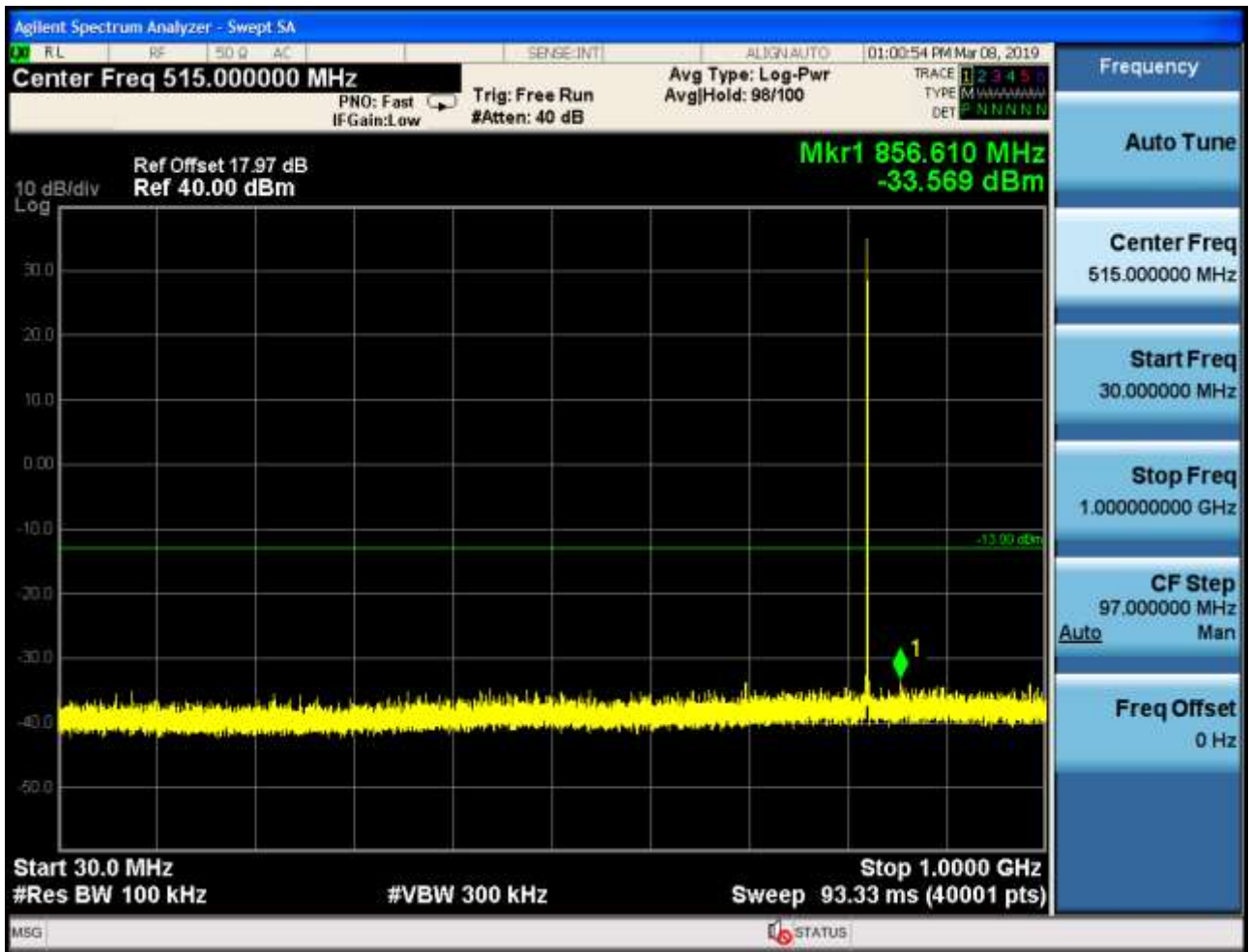
6.1.1 Test Band = GSM850

6.1.1.1 Test Mode = GSM/TM1

6.1.1.1.1 Test Channel = LCH



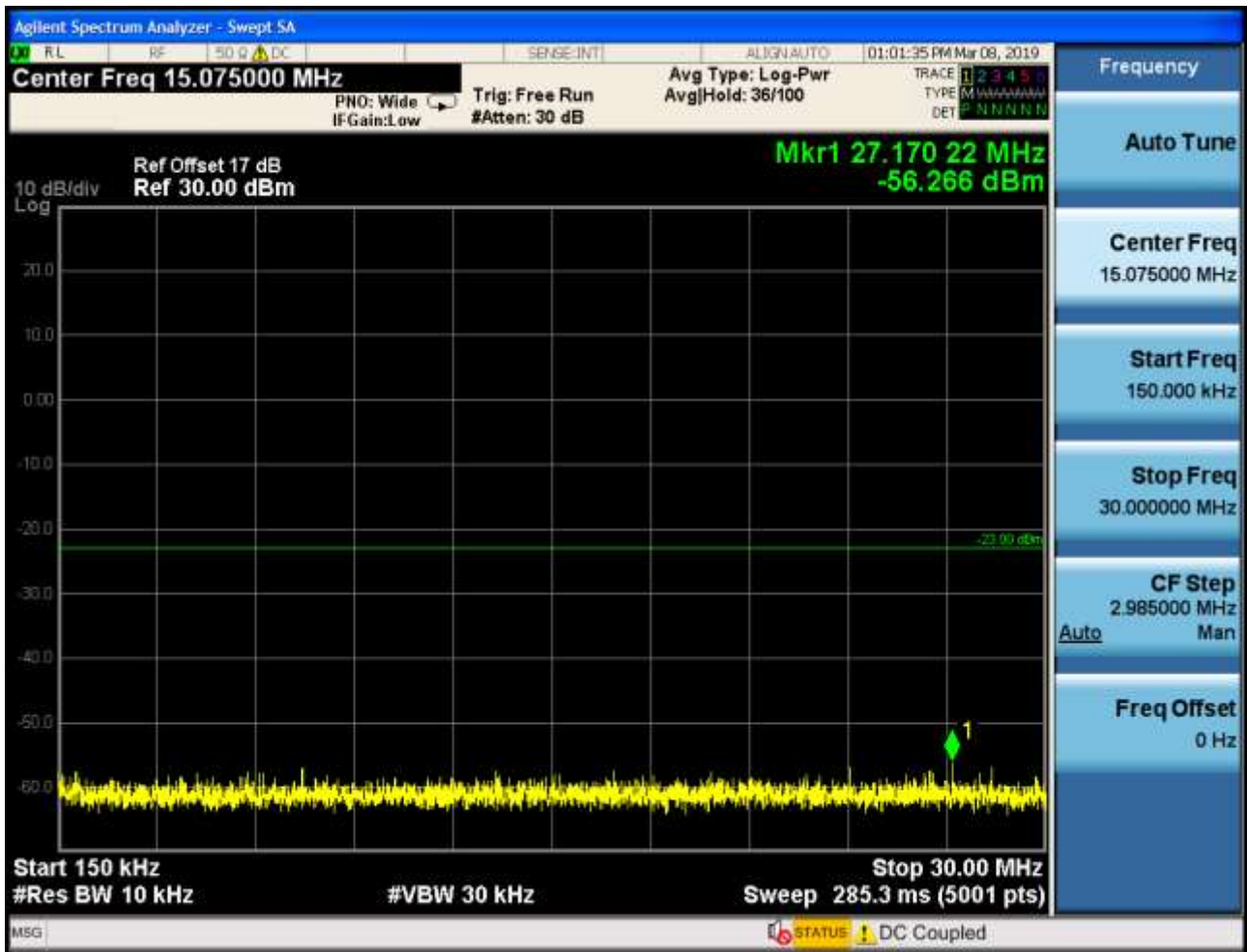


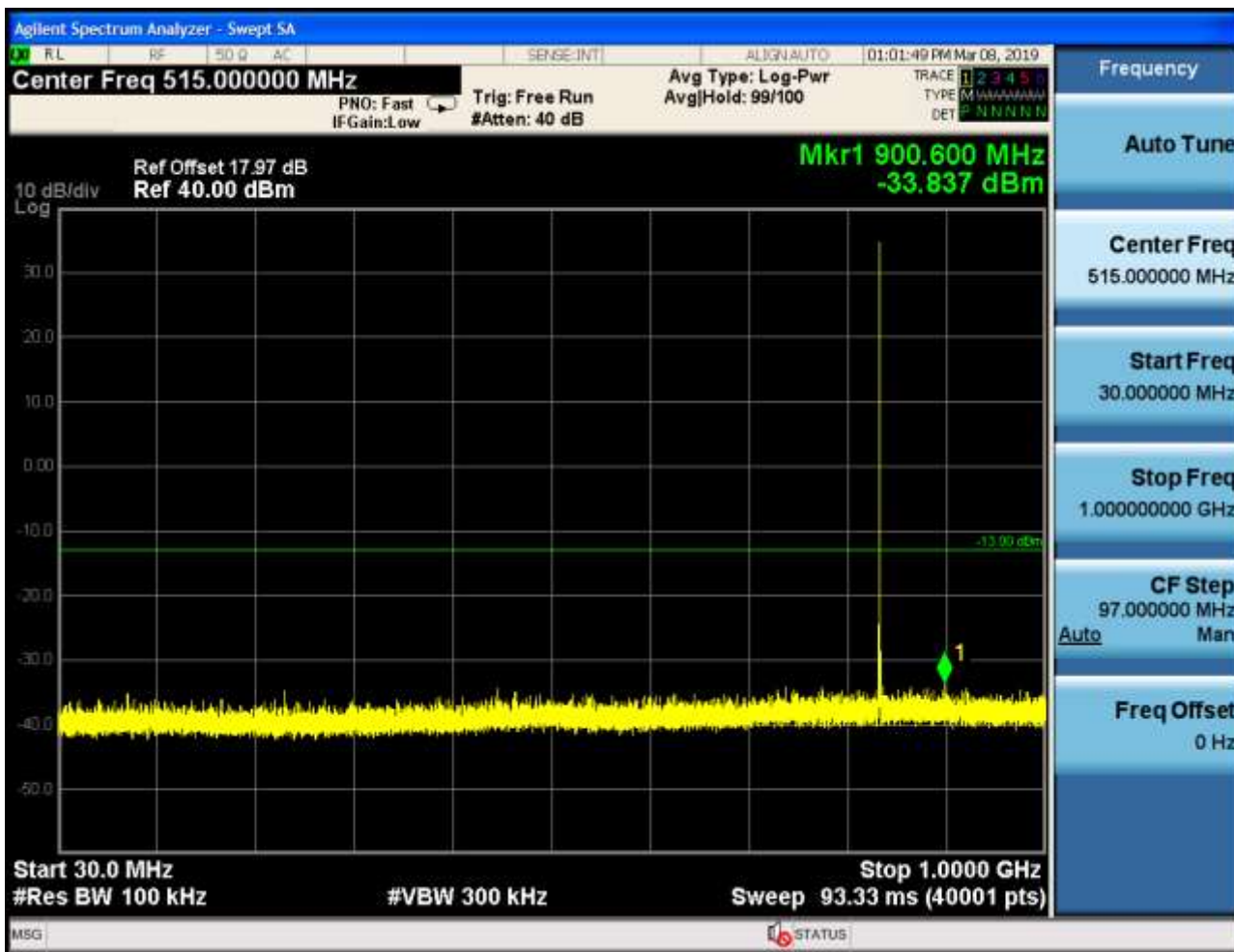




6.1.1.1.2 Test Channel = MCH



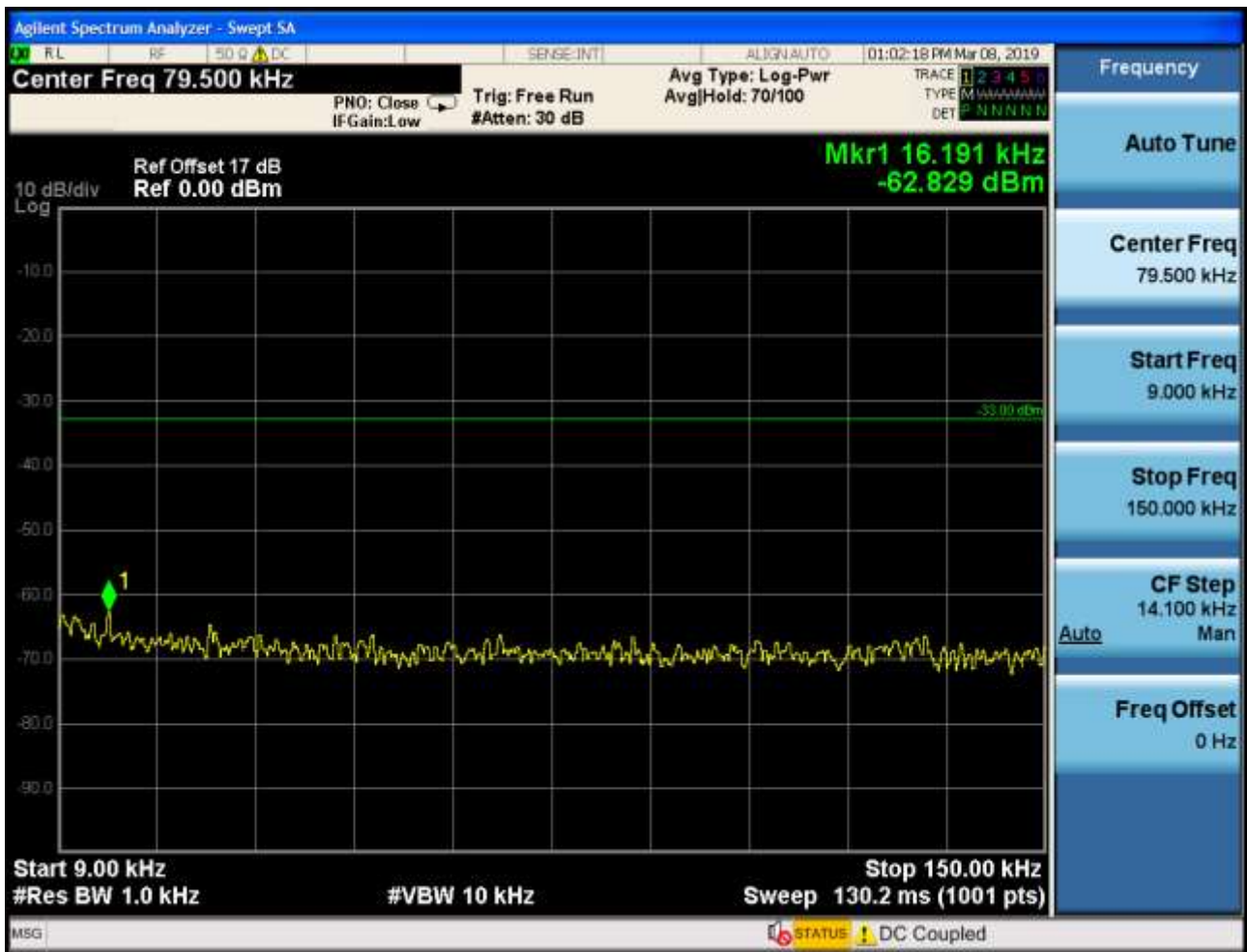


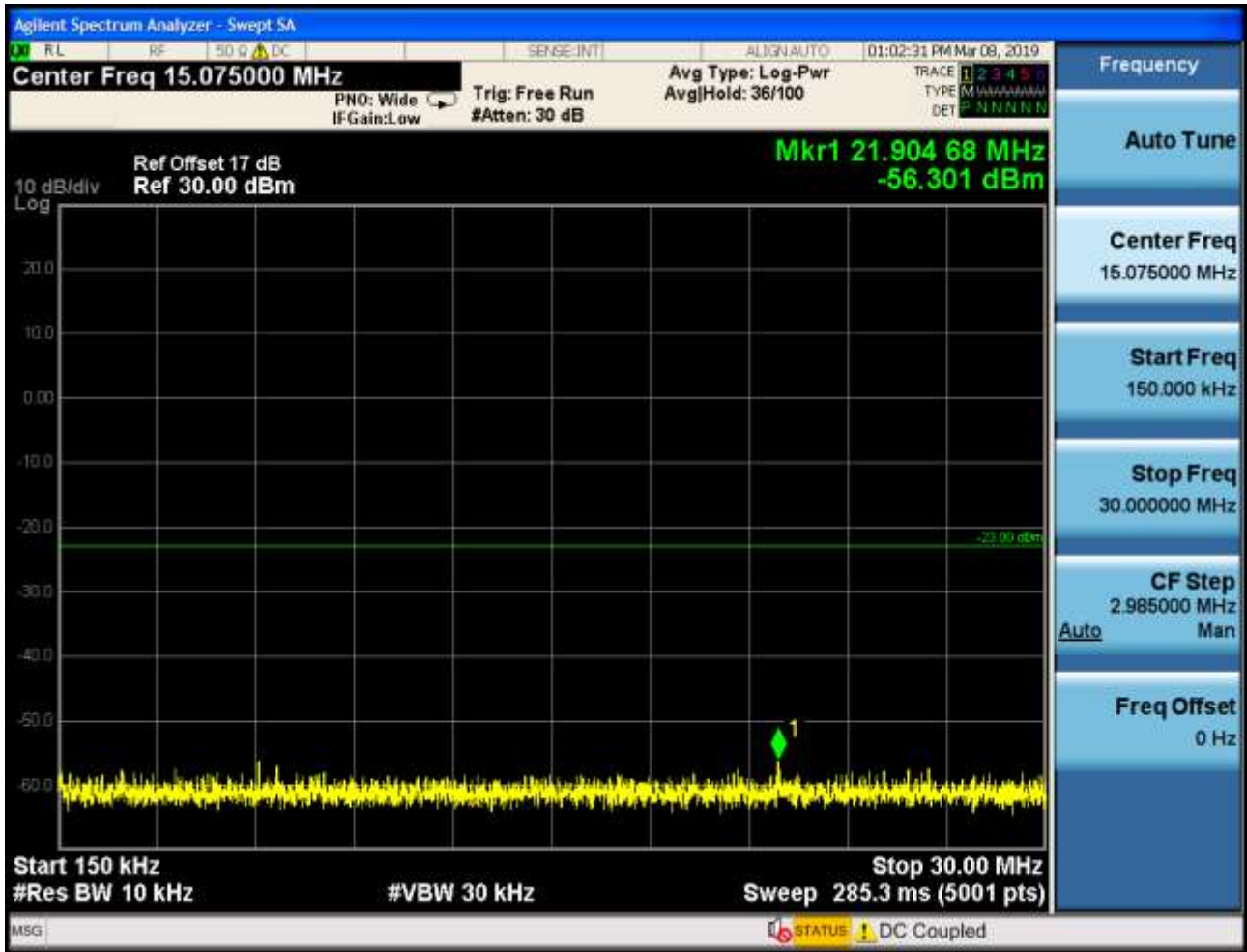


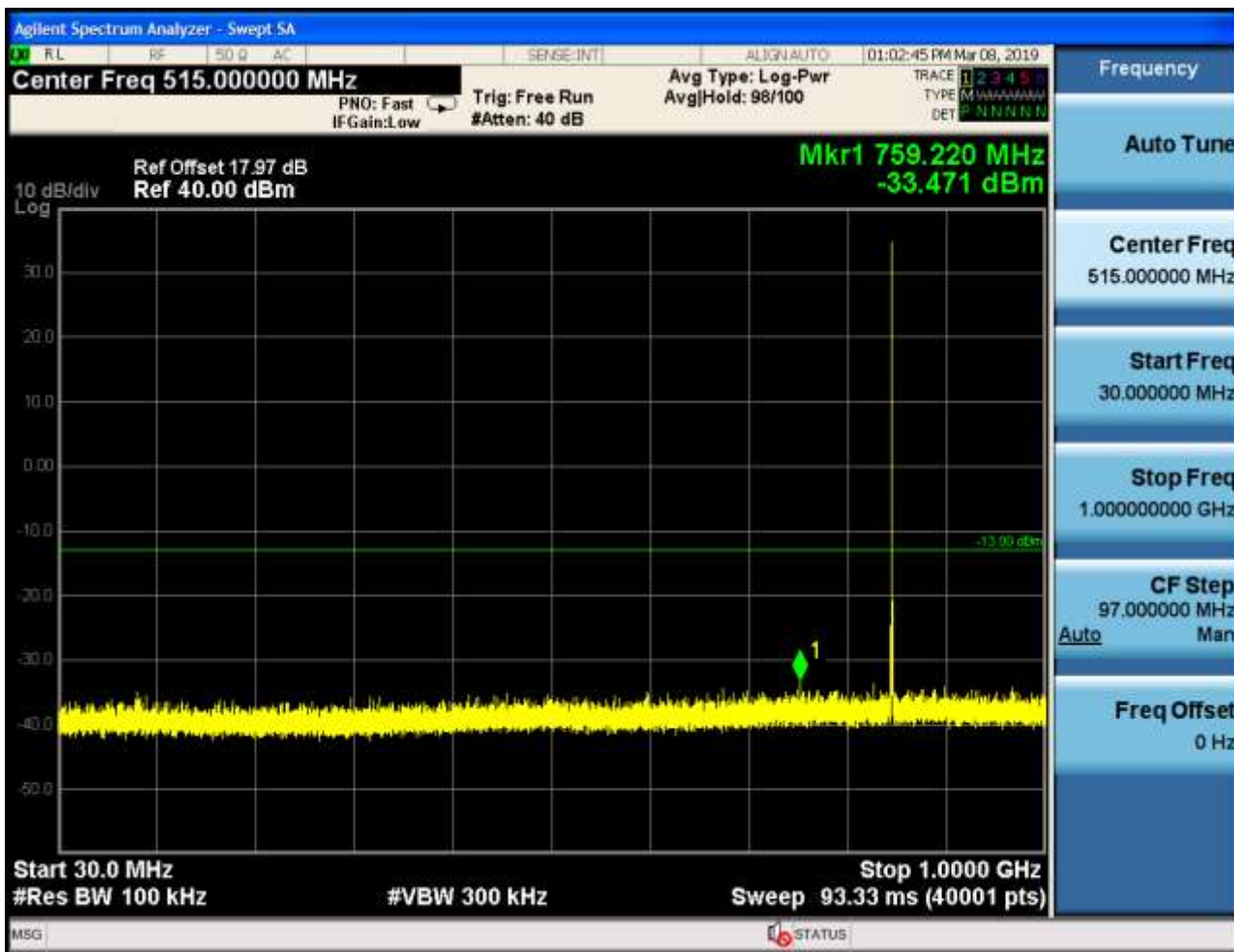




6.1.1.1.3 Test Channel = HCH



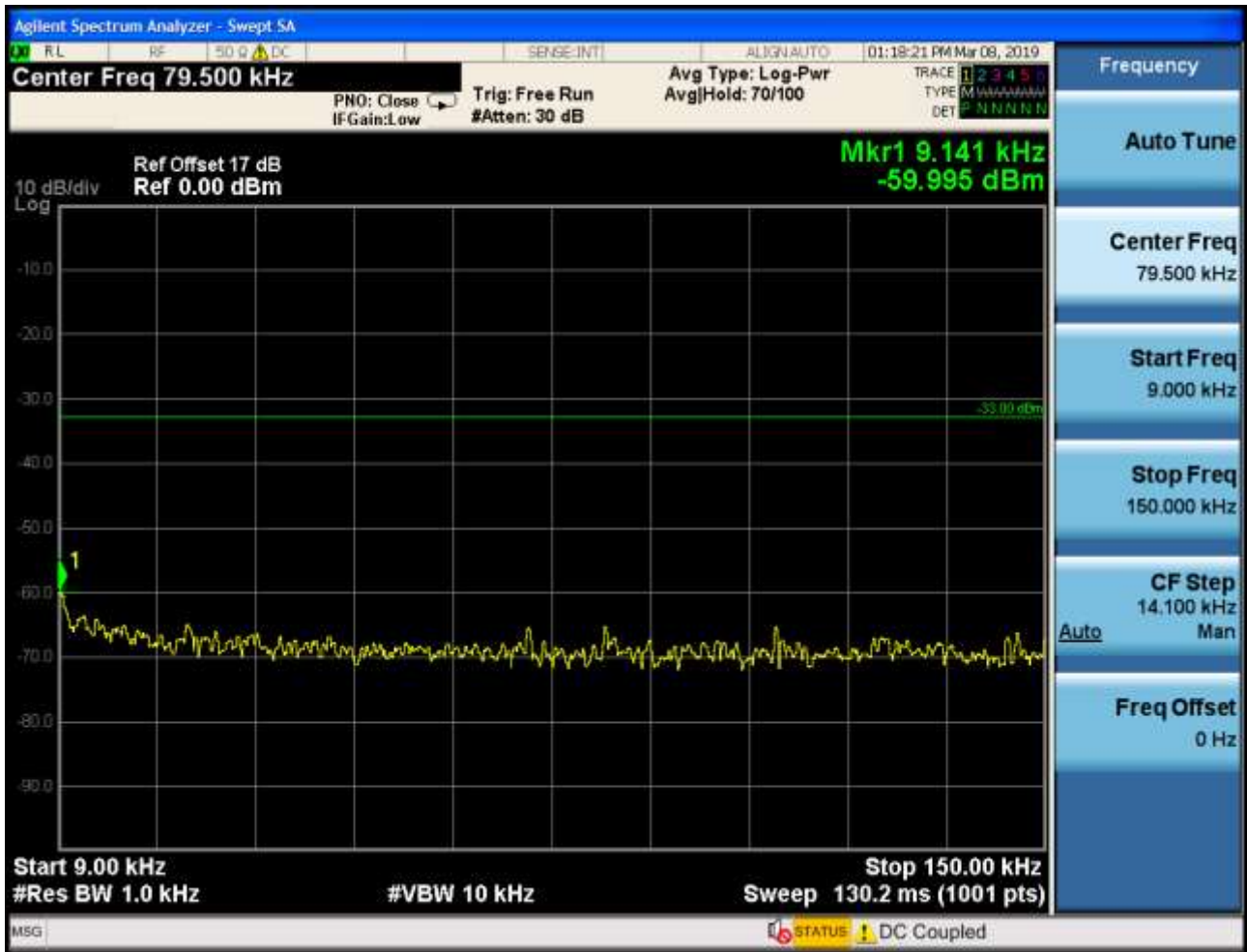


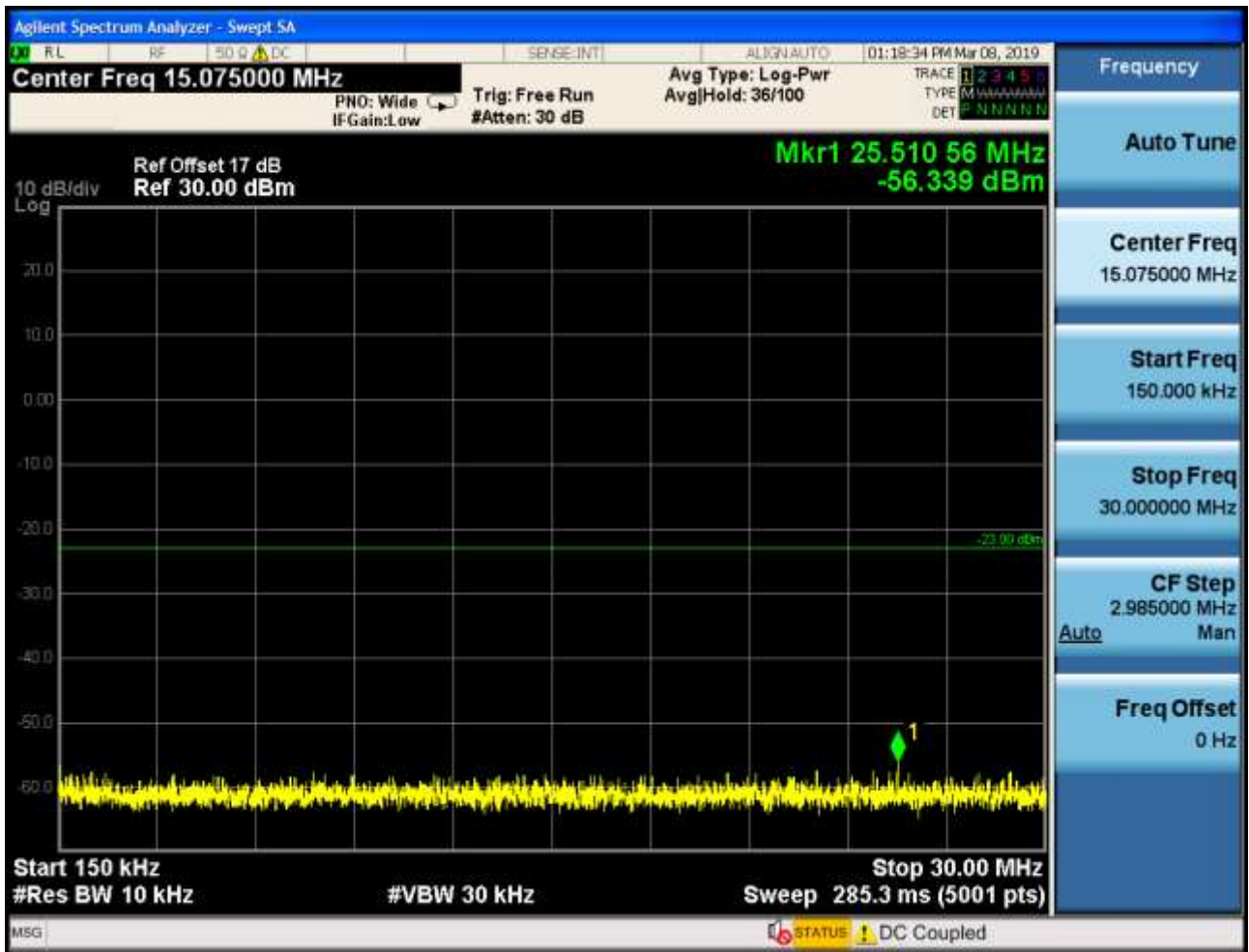


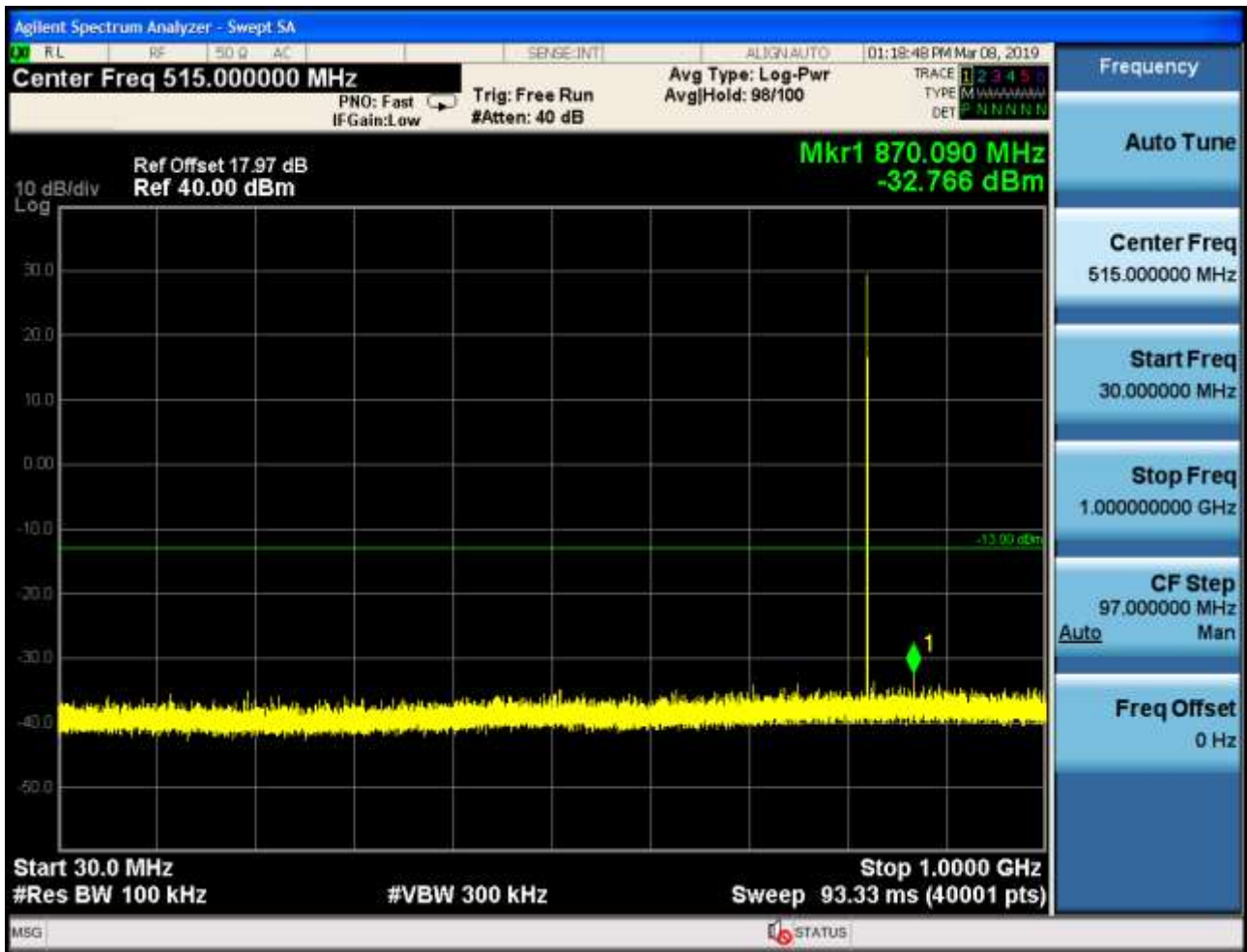


6.1.1.2 Test Mode = GSM/TM2

6.1.1.2.1 Test Channel = LCH

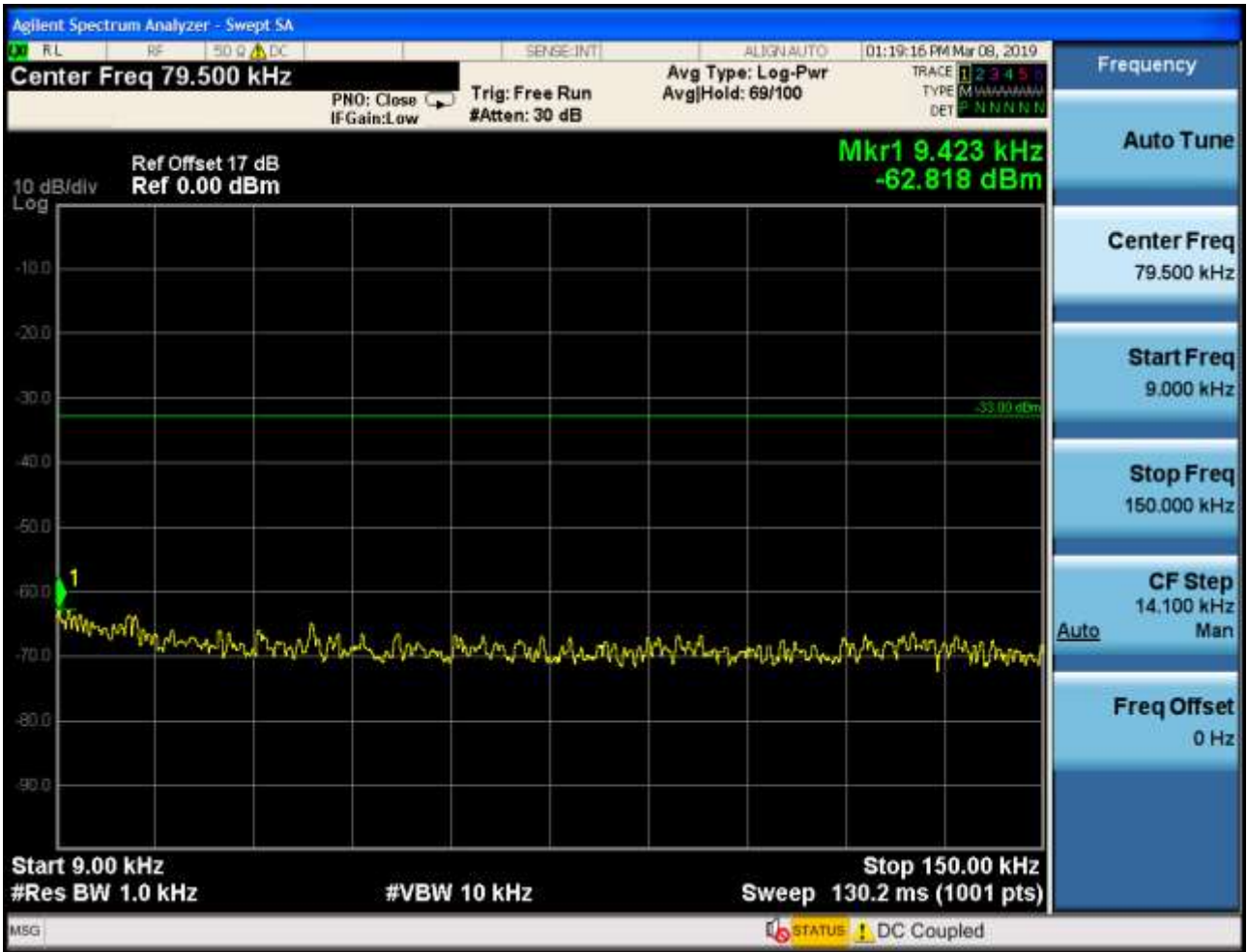


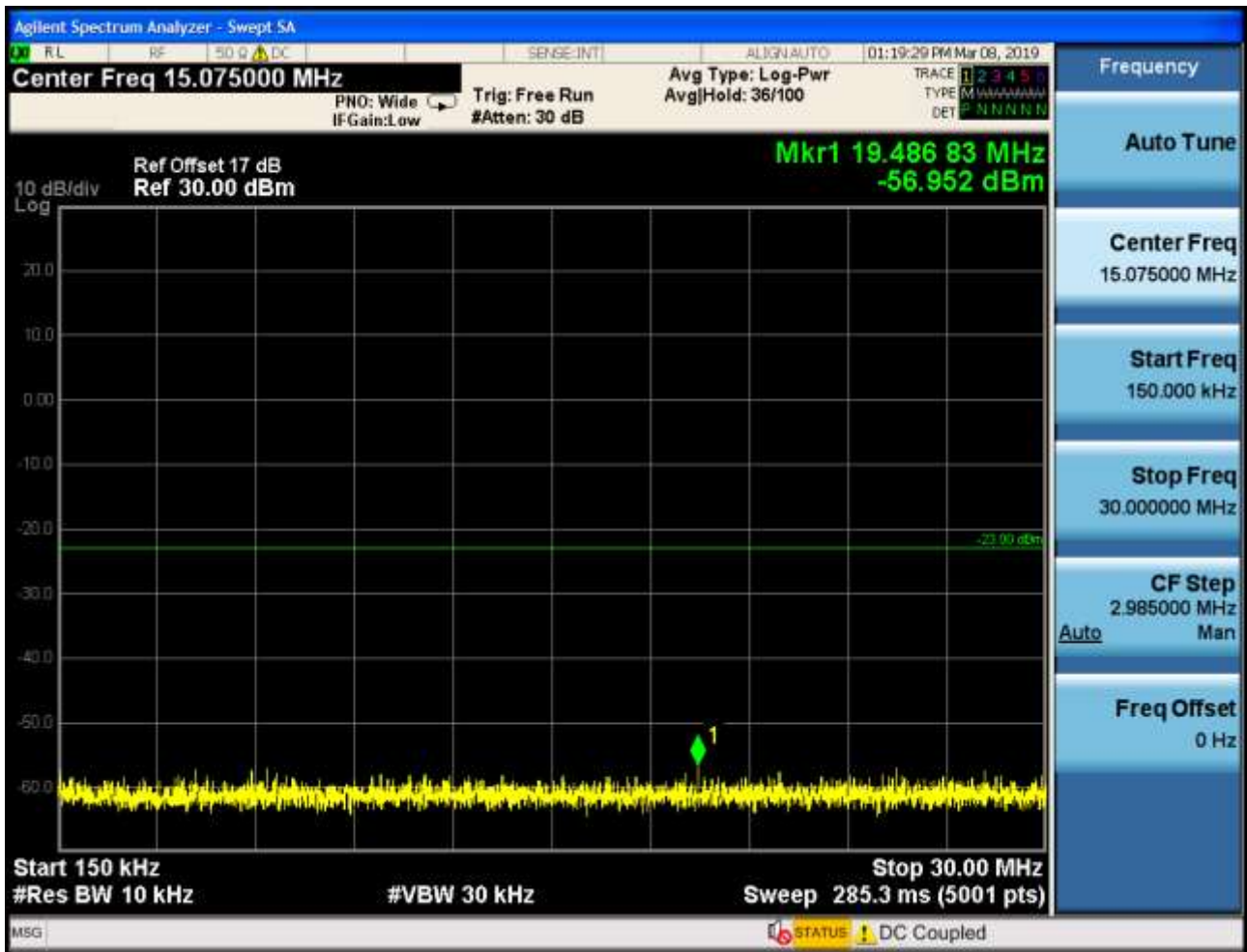


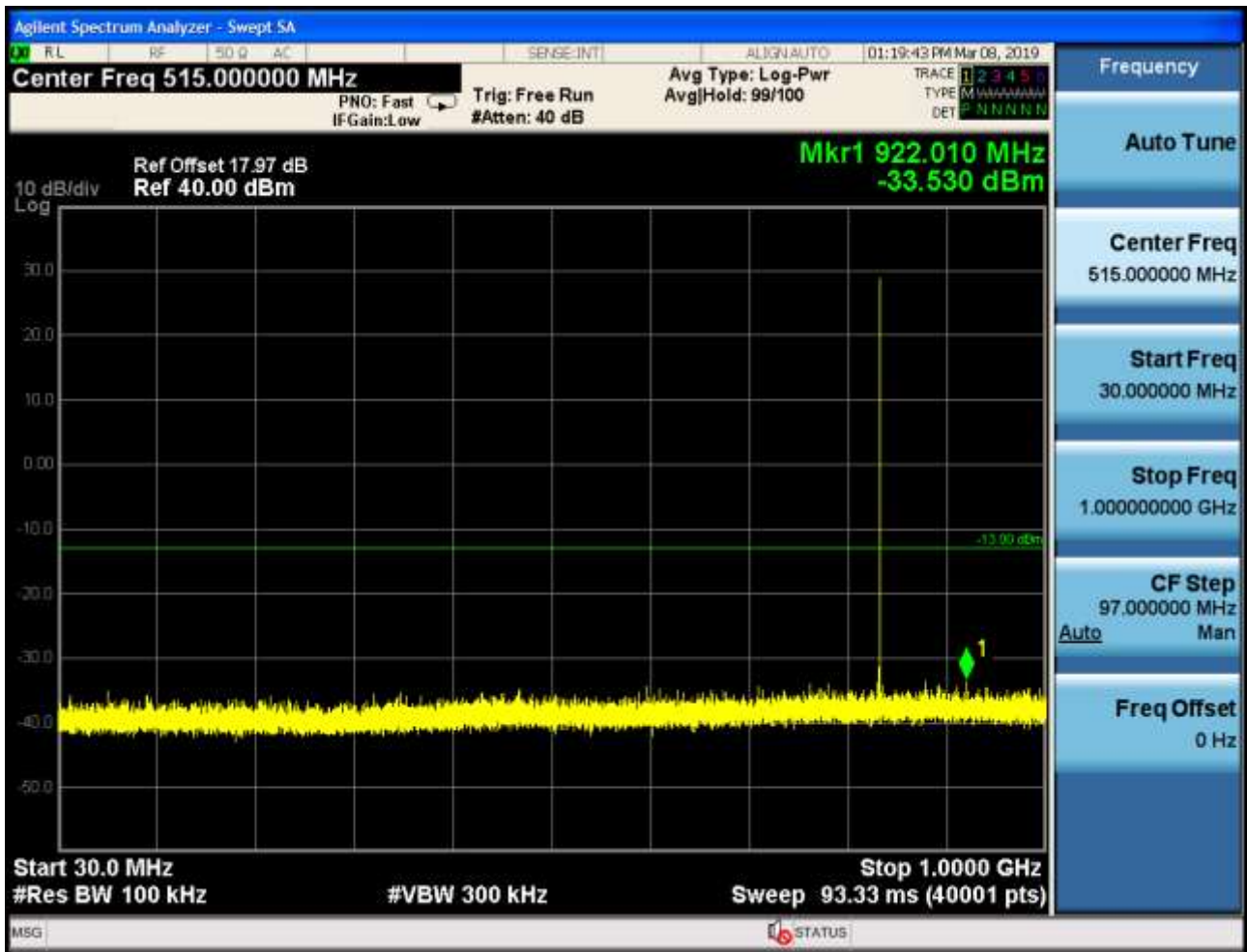




6.1.1.2.2 Test Channel = MCH



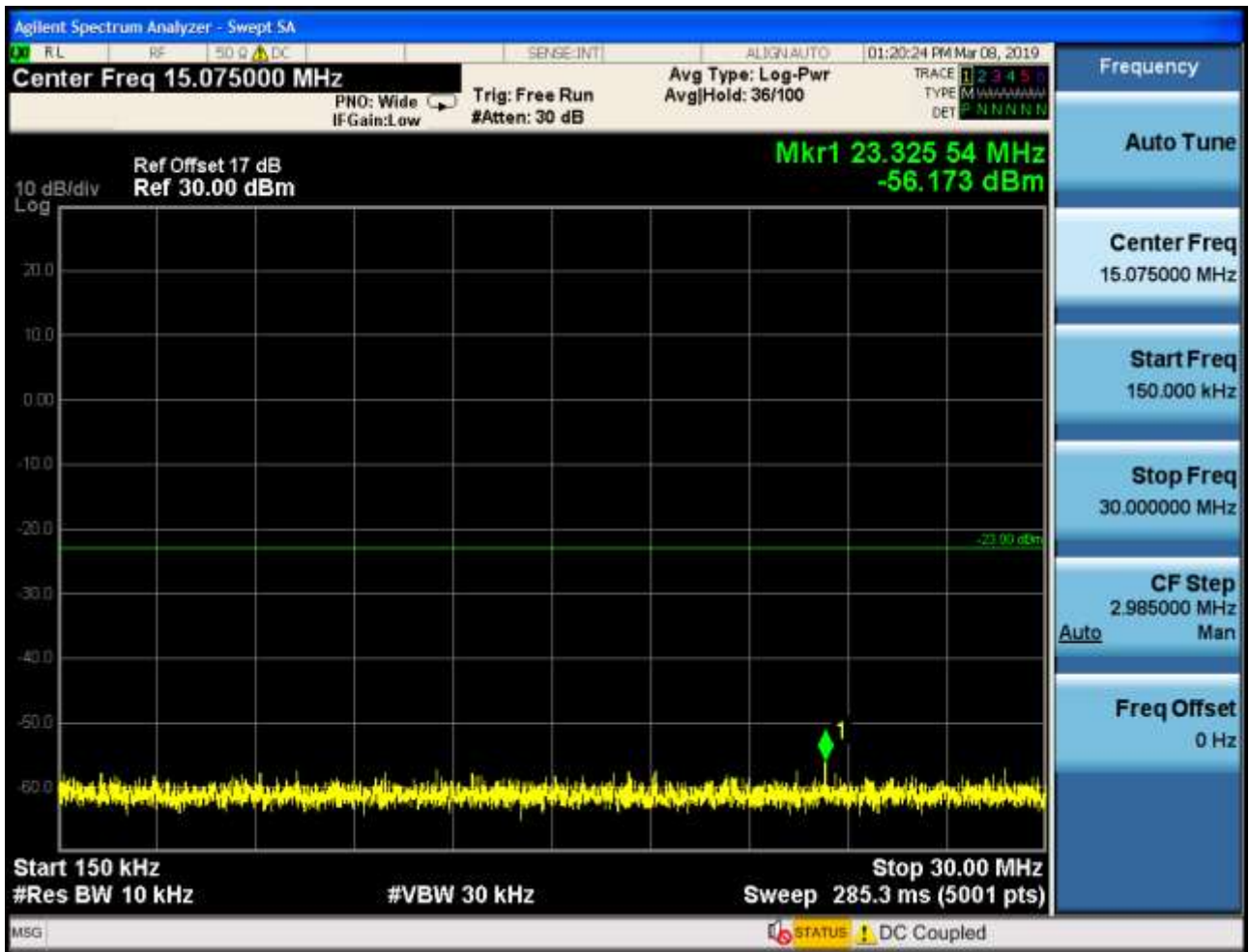


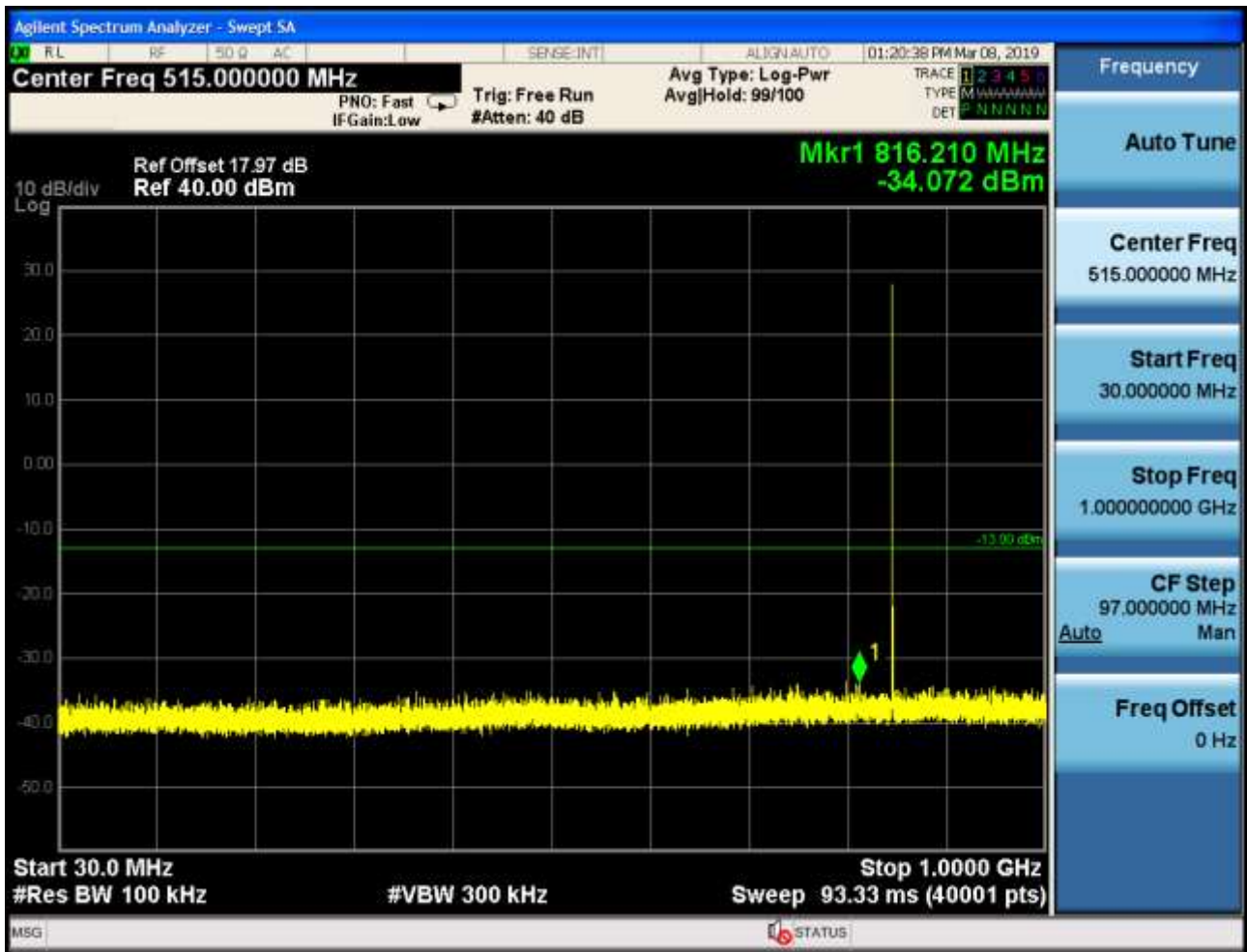




6.1.1.2.3 Test Channel = HCH







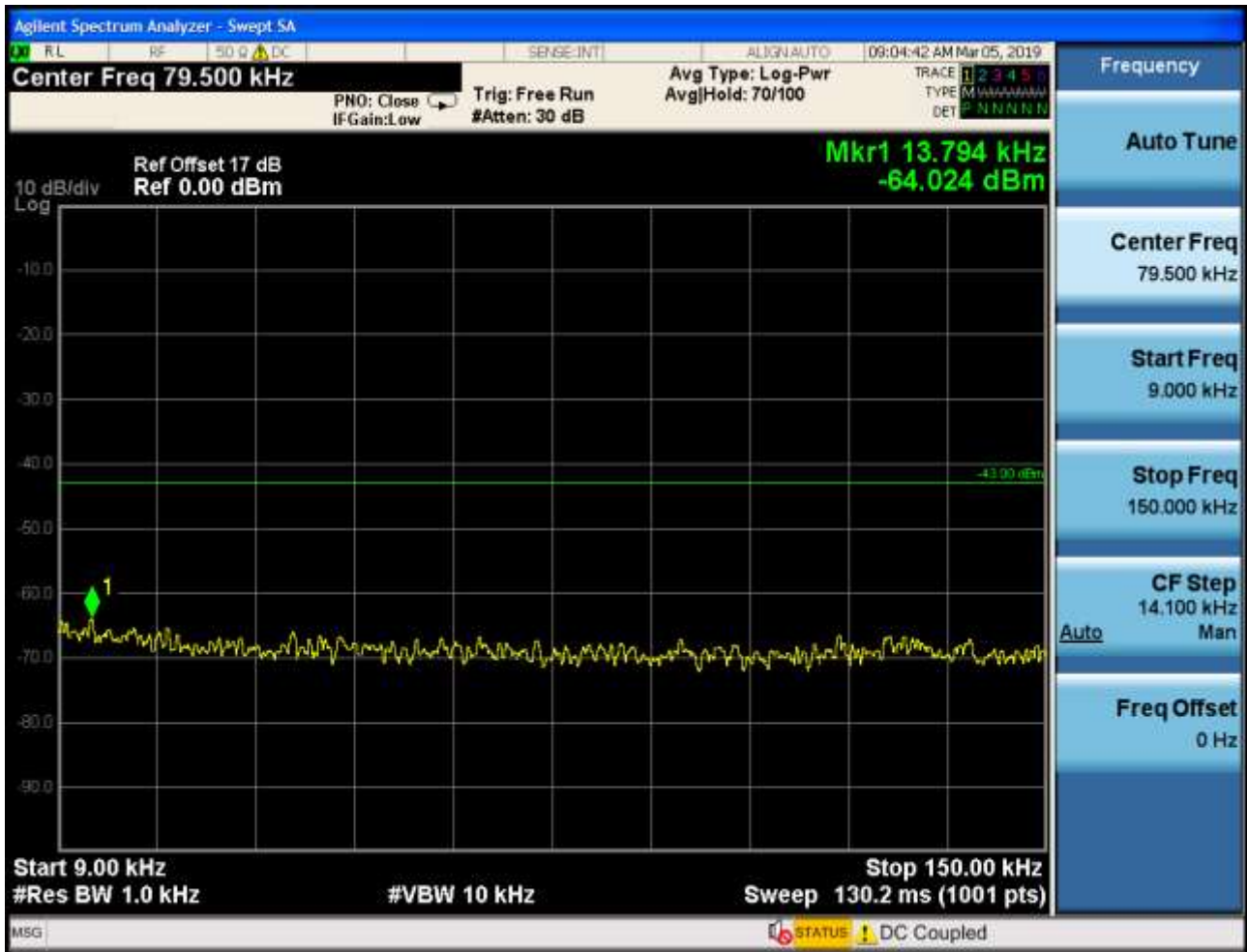


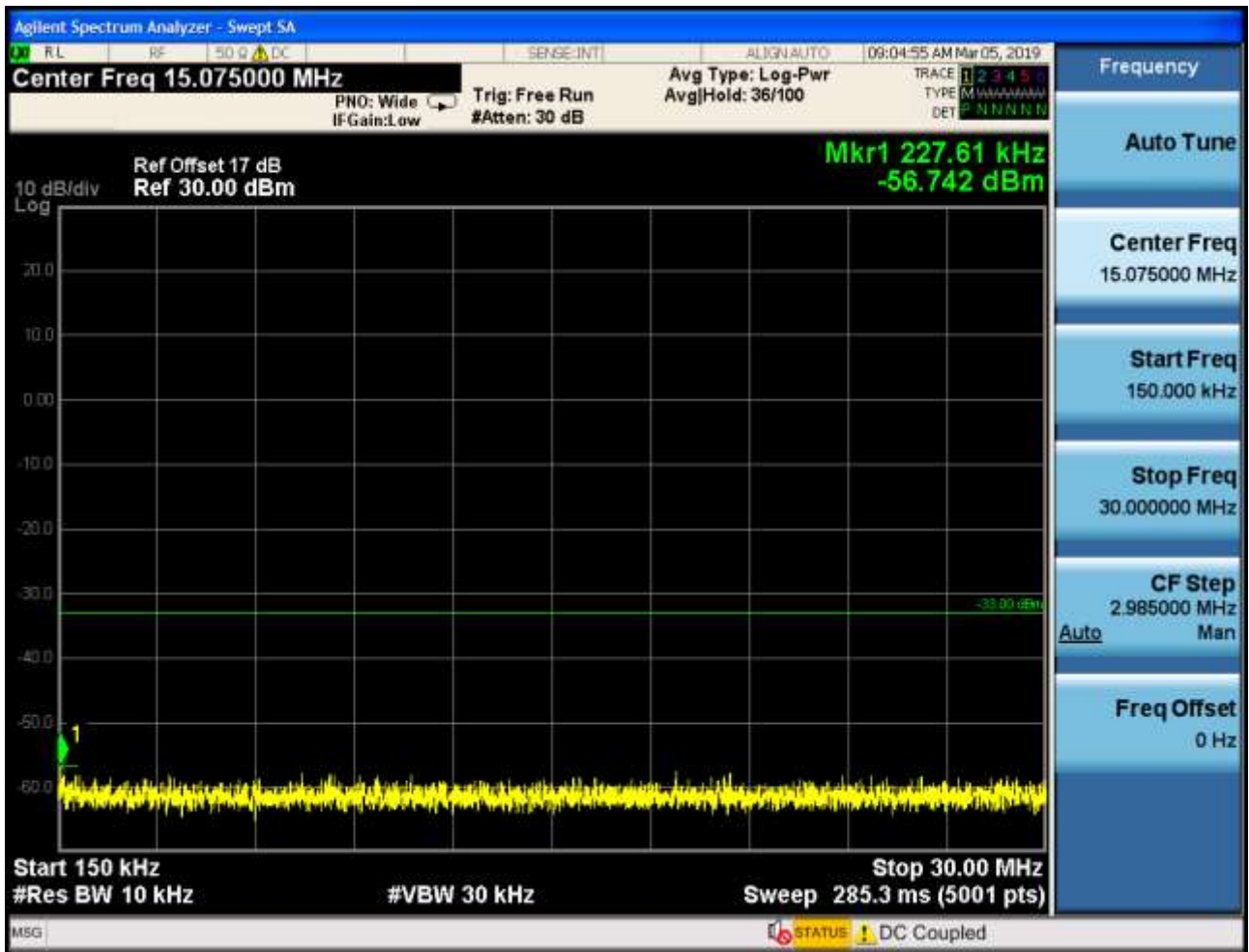


6.1.2 Test Band = PCS1900

6.1.2.1 Test Mode = GSM/TM1

6.1.2.1.1 Test Channel = LCH

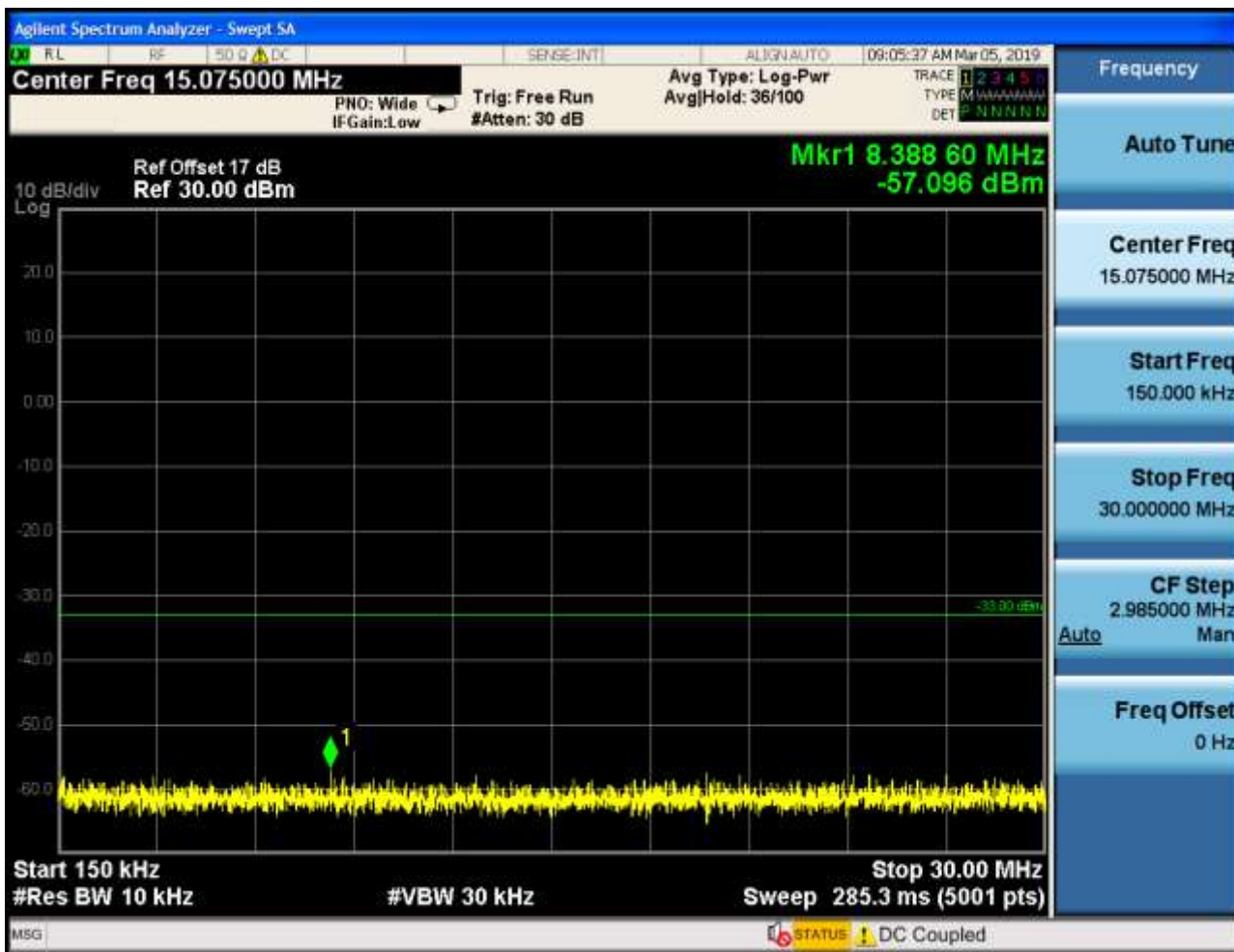






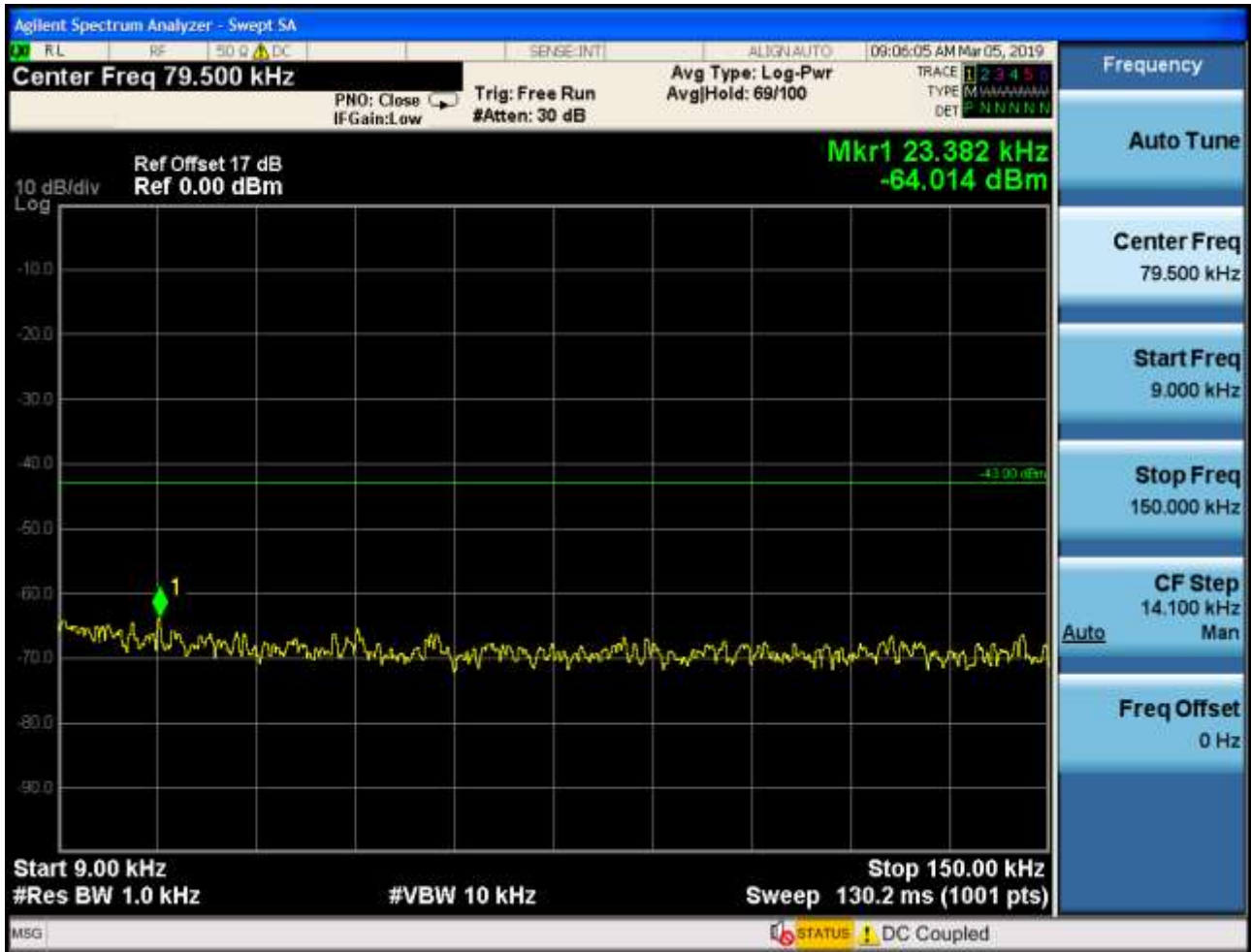
6.1.2.1.2 Test Channel = MCH

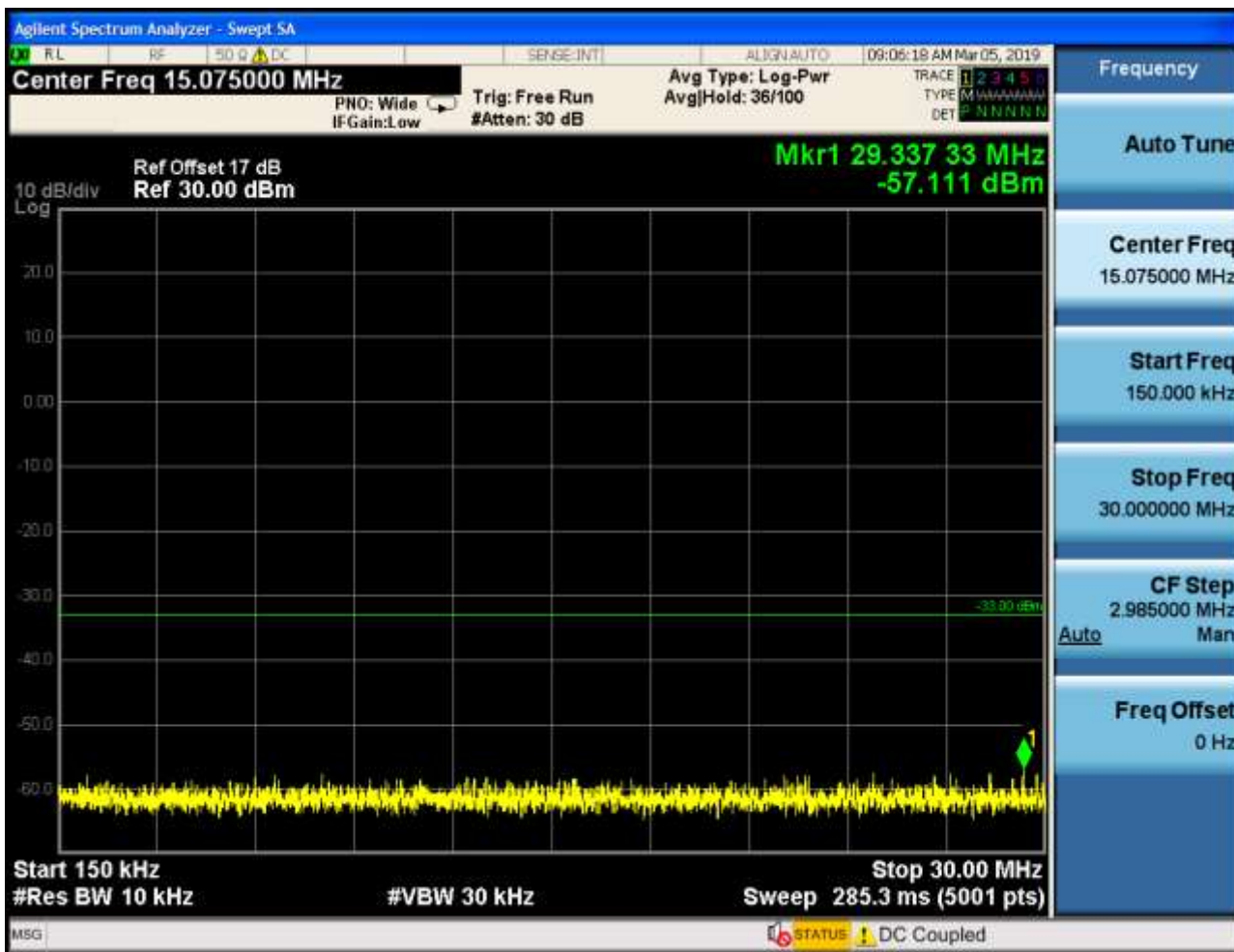






6.1.2.1.3 Test Channel = HCH



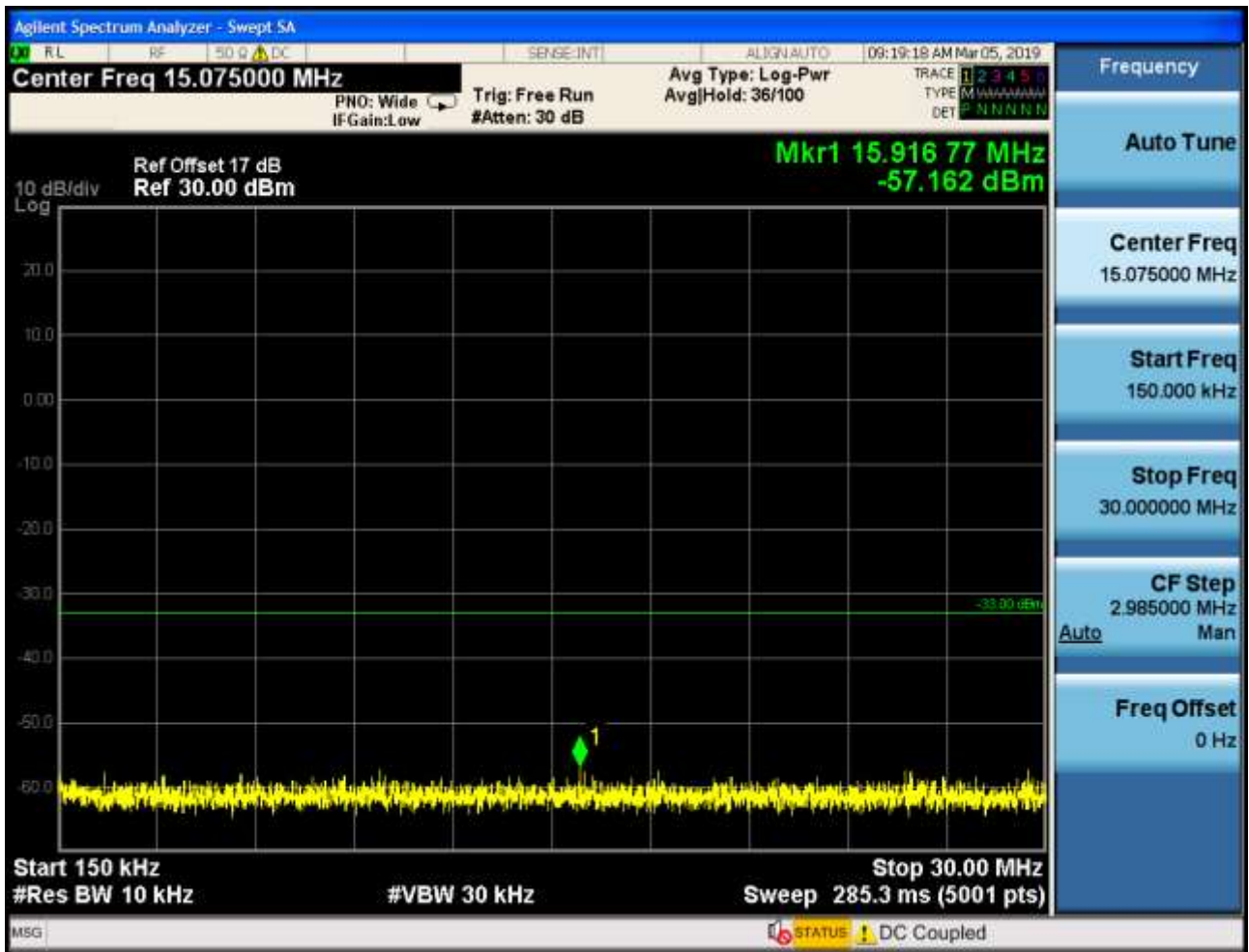




6.1.2.2 Test Mode = GSM/TM2

6.1.2.2.1 Test Channel = LCH

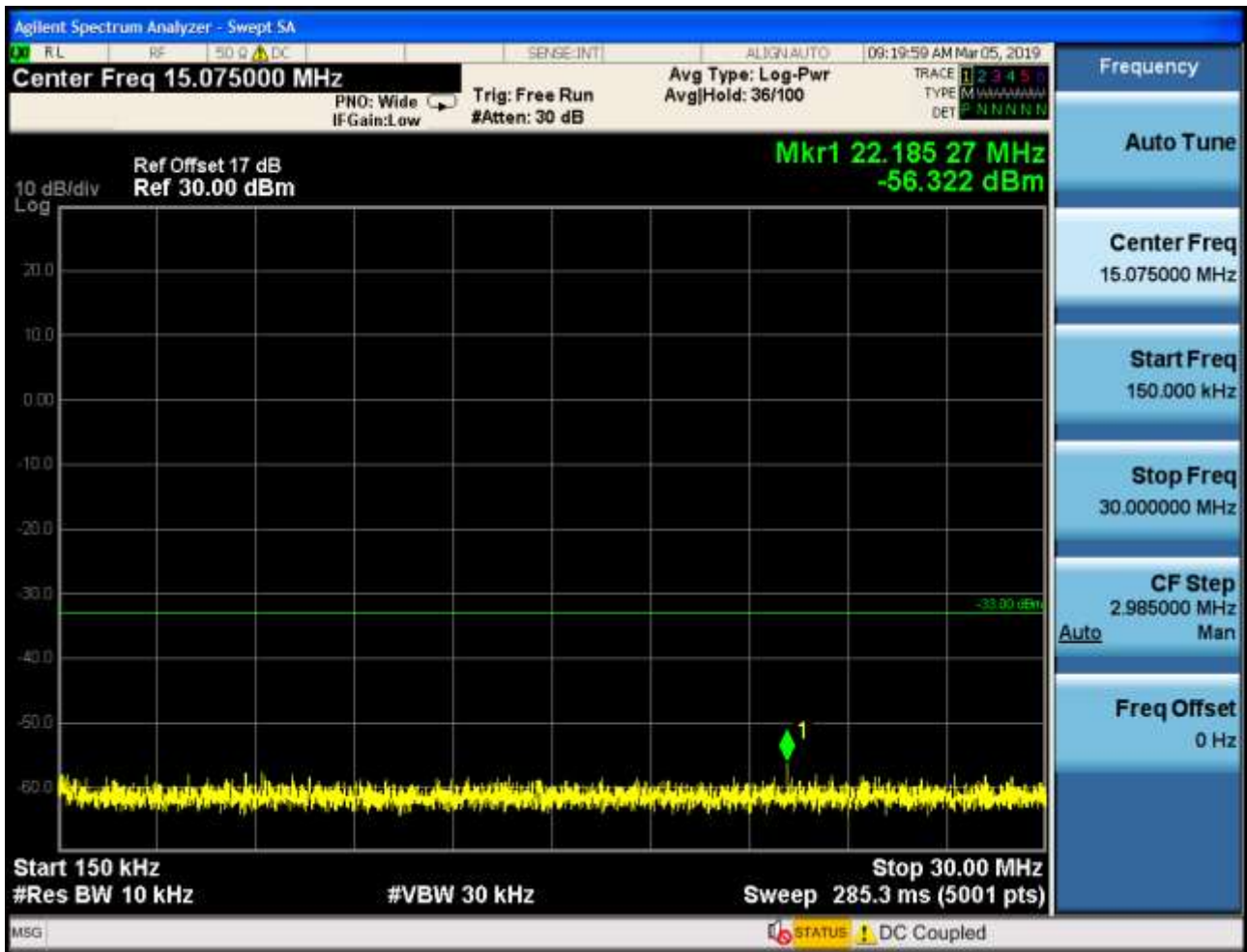






6.1.2.2.2 Test Channel = MCH

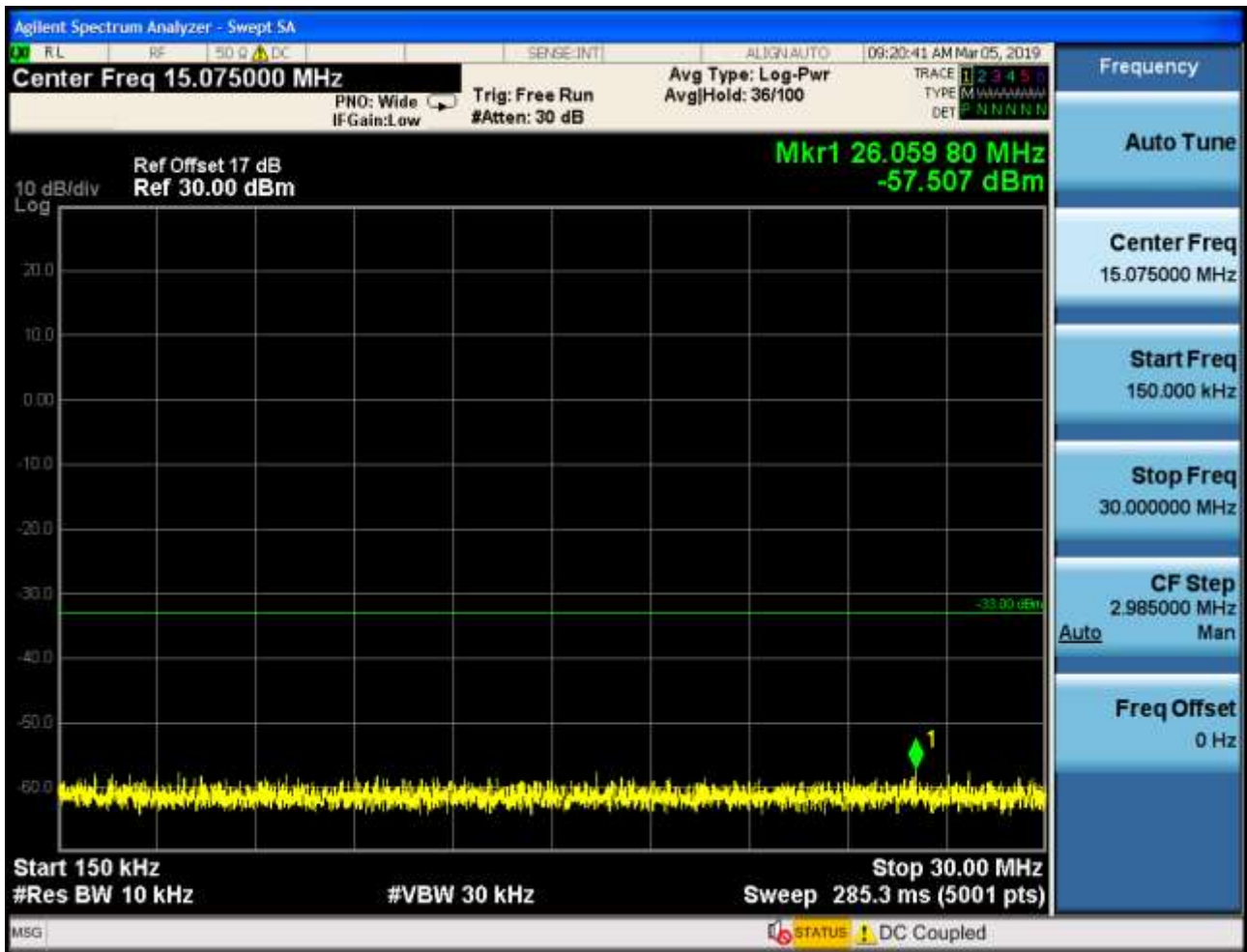


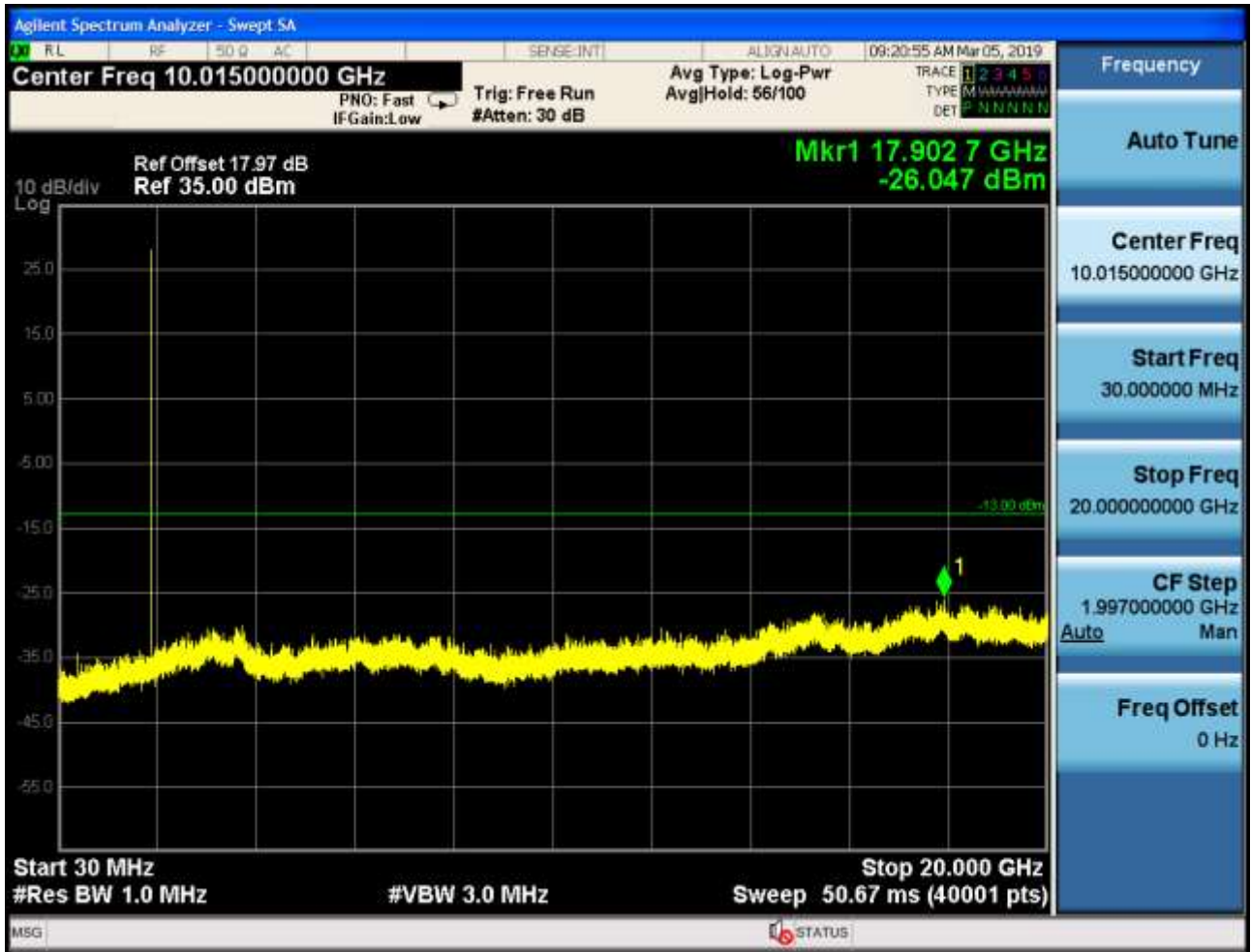




6.1.2.2.3 Test Channel = HCH







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	-0.06457	-0.00008	PASS
				VN	3.90659	0.00474	PASS
				VH	-2.84116	-0.00345	PASS
		MCH	TN	VL	-1.19458	-0.00143	PASS
				VN	4.39088	0.00525	PASS
				VH	-0.54886	-0.00066	PASS
		HCH	TN	VL	1.77572	0.00209	PASS
				VN	4.58459	0.00540	PASS
				VH	-1.42058	-0.00167	PASS
	GSM/TM2	LCH	TN	VL	5.06888	0.00615	PASS
				VN	4.16488	0.00505	PASS
				VH	2.74430	0.00333	PASS
		MCH	TN	VL	3.32544	0.00397	PASS
				VN	6.84460	0.00818	PASS
				VH	5.00431	0.00598	PASS
		HCH	TN	VL	2.61515	0.00308	PASS
				VN	2.64744	0.00312	PASS
				VH	2.38915	0.00281	PASS
PCS1900	GSM/TM1	LCH	TN	VL	5.39174	0.00291	PASS
				VN	8.39432	0.00454	PASS
				VH	4.90745	0.00265	PASS
		MCH	TN	VL	5.00431	0.00266	PASS
				VN	8.68489	0.00462	PASS
				VH	4.45545	0.00237	PASS
		HCH	TN	VL	1.84029	0.00291	PASS
				VN	6.48946	0.00454	PASS
				VH	2.55058	0.00265	PASS
	GSM/TM2	LCH	TN	VL	6.42488	0.00347	PASS
				VN	5.68231	0.00307	PASS
				VH	6.58631	0.00356	PASS
		MCH	TN	VL	7.39346	0.00393	PASS
				VN	5.87603	0.00313	PASS
				VH	7.87775	0.00419	PASS
		HCH	TN	VL	5.90831	0.00347	PASS

Test Band	Test Mode	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				VN	2.13087	0.00307	PASS
				VH	3.35773	0.00356	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	1.19458	0.00145	PASS
				-20	3.26087	0.00396	PASS
				-10	3.16401	0.00384	PASS
				0	3.58373	0.00435	PASS
				10	0.93629	0.00114	PASS
				20	3.90659	0.00474	PASS
				30	5.84374	0.00709	PASS
				40	2.77658	0.00337	PASS
				50	2.51830	0.00306	PASS
		MCH	VN	-30	2.26001	0.00270	PASS
				-20	0.09686	0.00012	PASS
				-10	0.77486	0.00093	PASS
				0	2.77658	0.00332	PASS
				10	0.45200	0.00054	PASS
				20	4.39088	0.00525	PASS
				30	3.87430	0.00463	PASS
				40	1.96944	0.00235	PASS
				50	2.45372	0.00293	PASS
		HCH	VN	-30	1.64658	0.00194	PASS
				-20	3.77744	0.00445	PASS
				-10	3.80973	0.00449	PASS
				0	1.48515	0.00175	PASS
				10	1.87258	0.00221	PASS
				20	4.58459	0.00540	PASS
	30			1.25915	0.00148	PASS	
	40			2.77658	0.00327	PASS	
	50			3.68059	0.00434	PASS	
	GSM/TM2	LCH	VN	-30	2.19544	0.00266	PASS
				-20	6.97374	0.00846	PASS
				-10	3.87430	0.00470	PASS
0				4.26173	0.00517	PASS	
10				4.68145	0.00568	PASS	
20				4.16488	0.00505	PASS	

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict						
				30	5.10116	0.00619	PASS						
				40	5.32716	0.00646	PASS						
				50	2.97030	0.00360	PASS						
		MCH	VN			-30	1.09772	0.00131	PASS				
						-20	3.16401	0.00378	PASS				
						-10	4.42316	0.00529	PASS				
						0	5.10116	0.00610	PASS				
						10	6.48946	0.00776	PASS				
						20	6.84460	0.00818	PASS				
						30	5.03659	0.00602	PASS				
						40	5.13345	0.00614	PASS				
						50	2.00172	0.00239	PASS				
						HCH	VN			-30	2.55058	0.00300	PASS
		-20	4.58459	0.00540	PASS								
		-10	4.06802	0.00479	PASS								
		0	6.16660	0.00727	PASS								
		10	3.42230	0.00403	PASS								
		20	2.64744	0.00312	PASS								
		30	3.55144	0.00418	PASS								
		40	4.48773	0.00529	PASS								
		PCS1900	GSM/TM1	LCH	VN					-30	7.58718	0.00410	PASS
										-20	7.55489	0.00408	PASS
										-10	8.58804	0.00464	PASS
										0	8.36204	0.00452	PASS
10	8.29746									0.00448	PASS		
20	8.39432									0.00454	PASS		
30	9.55661									0.00517	PASS		
40	9.26604									0.00501	PASS		
50	5.74688									0.00311	PASS		
MCH	VN									-30	5.97288	0.00318	PASS
										-20	8.16832	0.00434	PASS
										-10	6.52174	0.00347	PASS
										0	9.97633	0.00531	PASS
										10	7.13517	0.00380	PASS
										20	8.68489	0.00462	PASS
										30	10.62204	0.00565	PASS
										40	8.20061	0.00436	PASS
										50	9.04004	0.00481	PASS
HCH	VN					-30	1.03315	0.00054	PASS				

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict		
				-20	4.35859	0.00228	PASS		
				-10	4.06802	0.00213	PASS		
				0	7.29660	0.00382	PASS		
				10	6.26346	0.00328	PASS		
				20	6.48946	0.00340	PASS		
				30	7.65175	0.00401	PASS		
				40	4.29402	0.00225	PASS		
				50	4.29402	0.00225	PASS		
	GSM/TM2	LCH	VN	-30	8.32975	0.00450	PASS		
				-20	8.62032	0.00466	PASS		
				-10	8.78175	0.00475	PASS		
				0	5.68231	0.00307	PASS		
				10	8.16832	0.00441	PASS		
				20	5.68231	0.00307	PASS		
				30	7.26432	0.00393	PASS		
				40	9.49204	0.00513	PASS		
				50	8.45889	0.00457	PASS		
				MCH	VN	-30	9.23375	0.00491	PASS
						-20	8.84632	0.00471	PASS
						-10	9.42747	0.00501	PASS
						0	5.55317	0.00295	PASS
						10	9.00775	0.00479	PASS
		20	5.87603			0.00313	PASS		
		30	6.78003			0.00361	PASS		
		40	7.49032			0.00398	PASS		
		50	5.23031			0.00278	PASS		
		HCH	VN			-30	4.52002	0.00237	PASS
				-20	6.84460	0.00358	PASS		
				-10	6.65088	0.00348	PASS		
				0	3.90659	0.00205	PASS		
10				5.42402	0.00284	PASS			
20				2.13087	0.00112	PASS			
30				3.77744	0.00198	PASS			
40				6.10203	0.00320	PASS			
50		4.35859	0.00228	PASS					

END