



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	32.46	28.21	38.5	PASS
		MCH	32.43	28.18	38.5	PASS
		HCH	32.33	28.08	38.5	PASS
	GSM/TM2	LCH	26.78	22.53	38.5	PASS
		MCH	26.82	22.57	38.5	PASS
		HCH	26.86	22.61	38.5	PASS
Test Band	Test Mode	Test Channel	Measured[dBm]	EIRP [dBm]	Limit [dBm]	Verdict
PCS1900	GSM/TM1	LCH	29.75	28.35	33	PASS
		MCH	29.79	28.39	33	PASS
		HCH	29.63	28.23	33	PASS
	GSM/TM2	LCH	25.41	24.01	33	PASS
		MCH	25.39	23.99	33	PASS
		HCH	25.08	23.68	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:

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

SET RBW = 1% 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	1.91	13	PASS
		MCH	1.85	13	PASS
		HCH	2.02	13	PASS
	GSM/TM2	LCH	4.74	13	PASS
		MCH	4.85	13	PASS
		HCH	4.87	13	PASS
PCS1900	GSM/TM1	LCH	1.65	13	PASS
		MCH	1.84	13	PASS
		HCH	1.79	13	PASS
	GSM/TM2	LCH	4.45	13	PASS
		MCH	4.72	13	PASS
		HCH	4.58	13	PASS

3Appendix_C: Modulation Characteristics

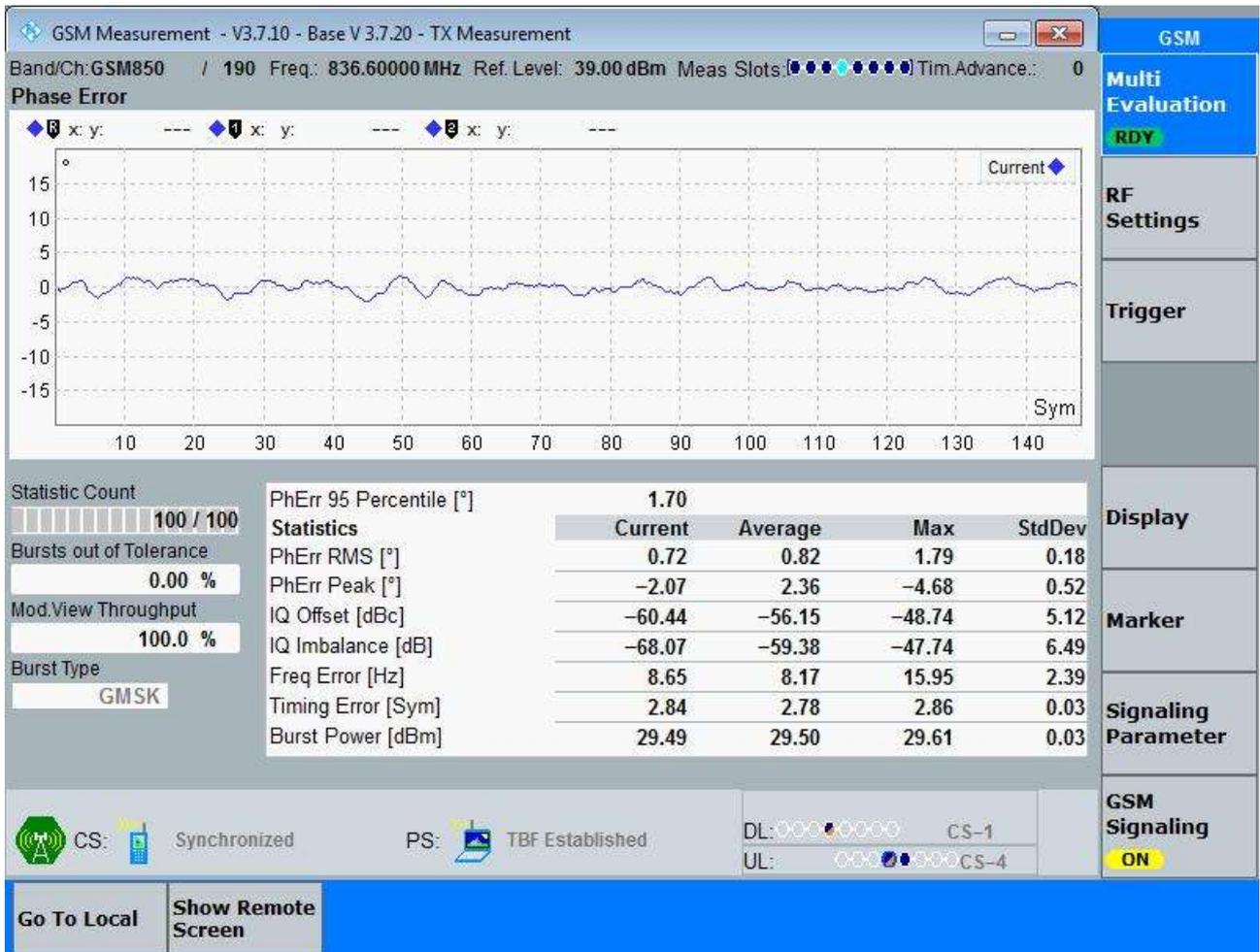
Part I - Test Plots

3.1 For GSM

3.1.1 Test Band = GSM850

3.1.1.1 Test Mode = GSM/TM1

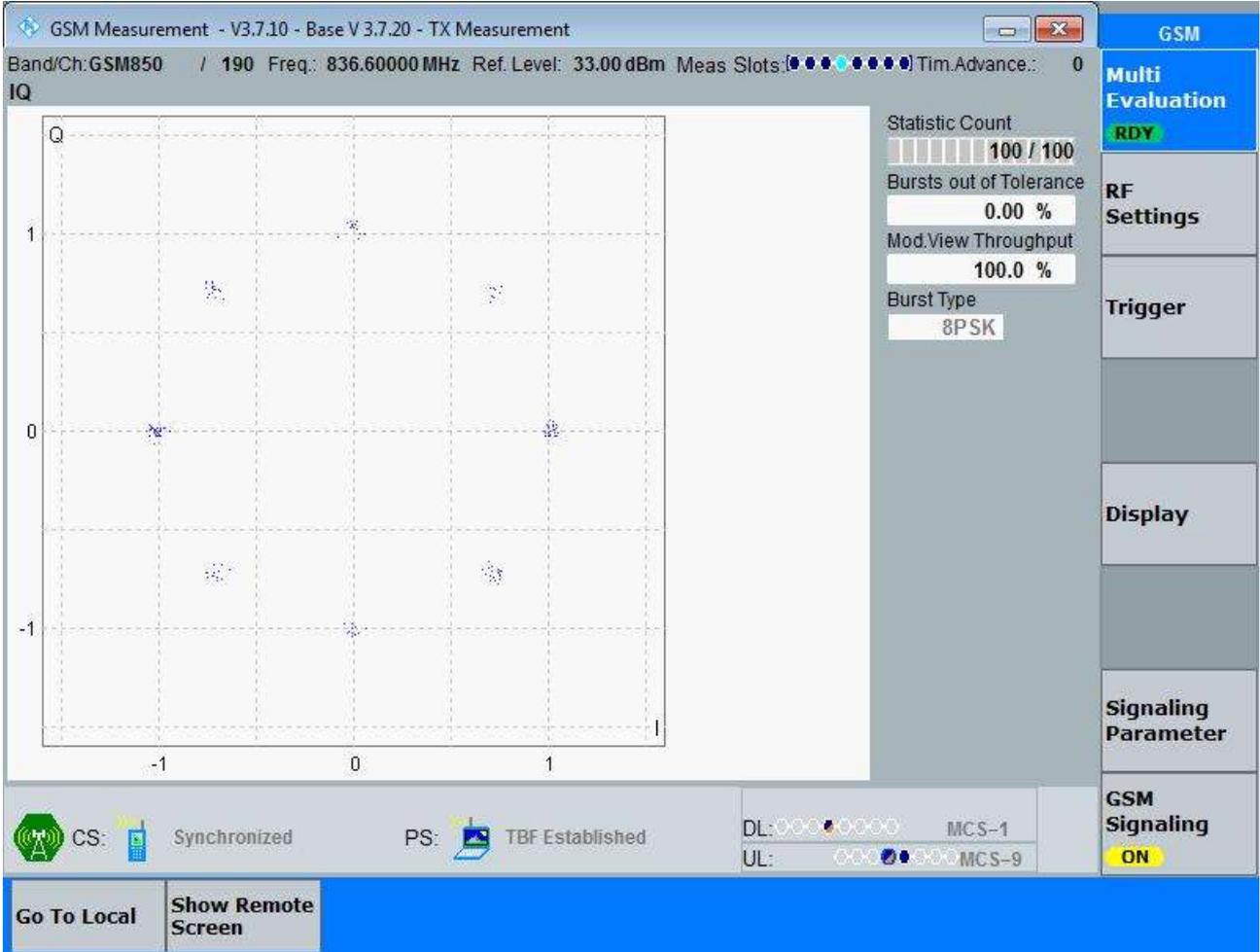
3.1.1.1.1 Test Channel = MCH





3.1.1.2 Test Mode = GSM/TM2

3.1.1.2.1 Test Channel = MCH

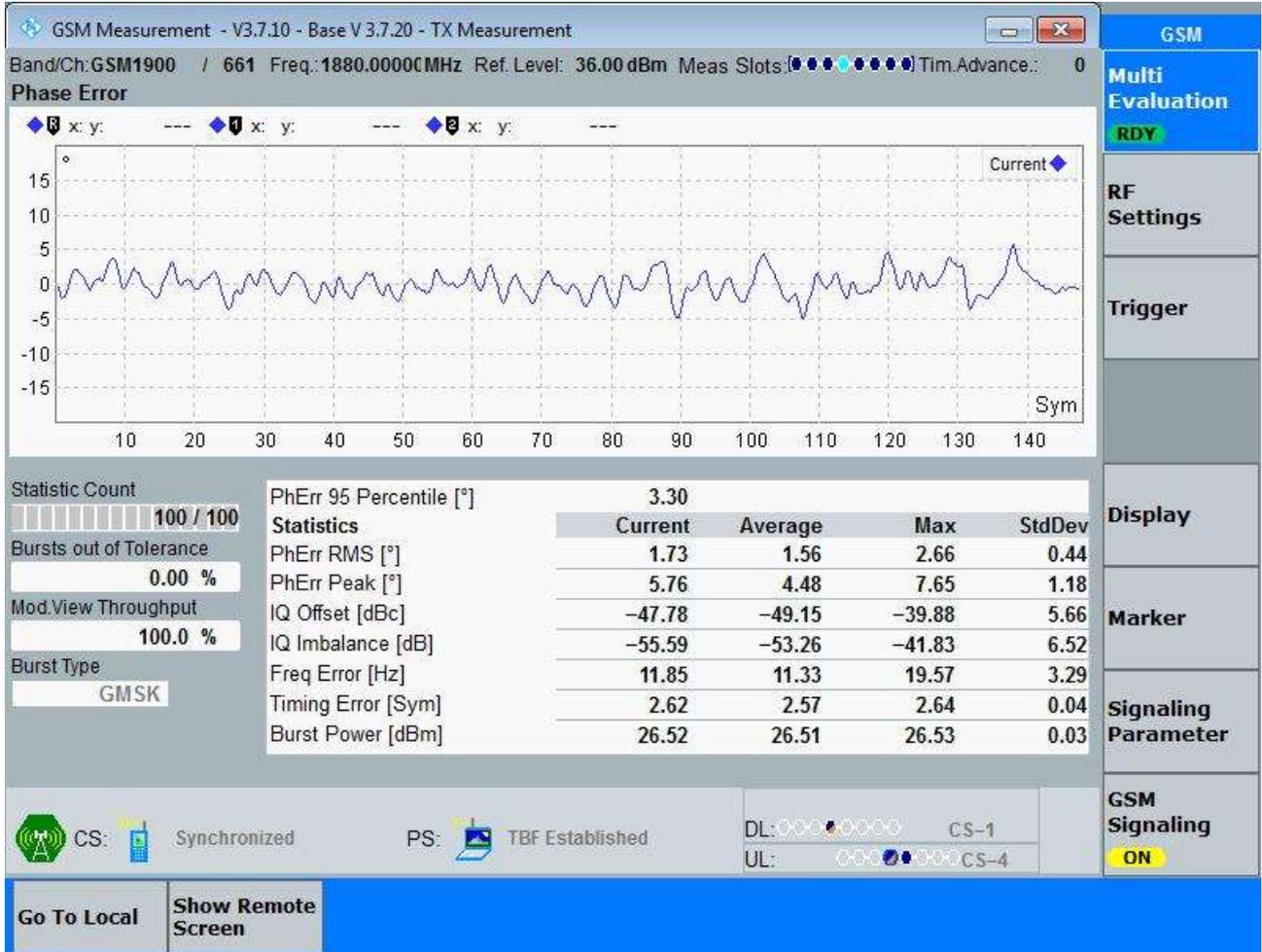




3.1.2 Test Band = PCS1900

3.1.2.1 Test Mode = GSM/TM1

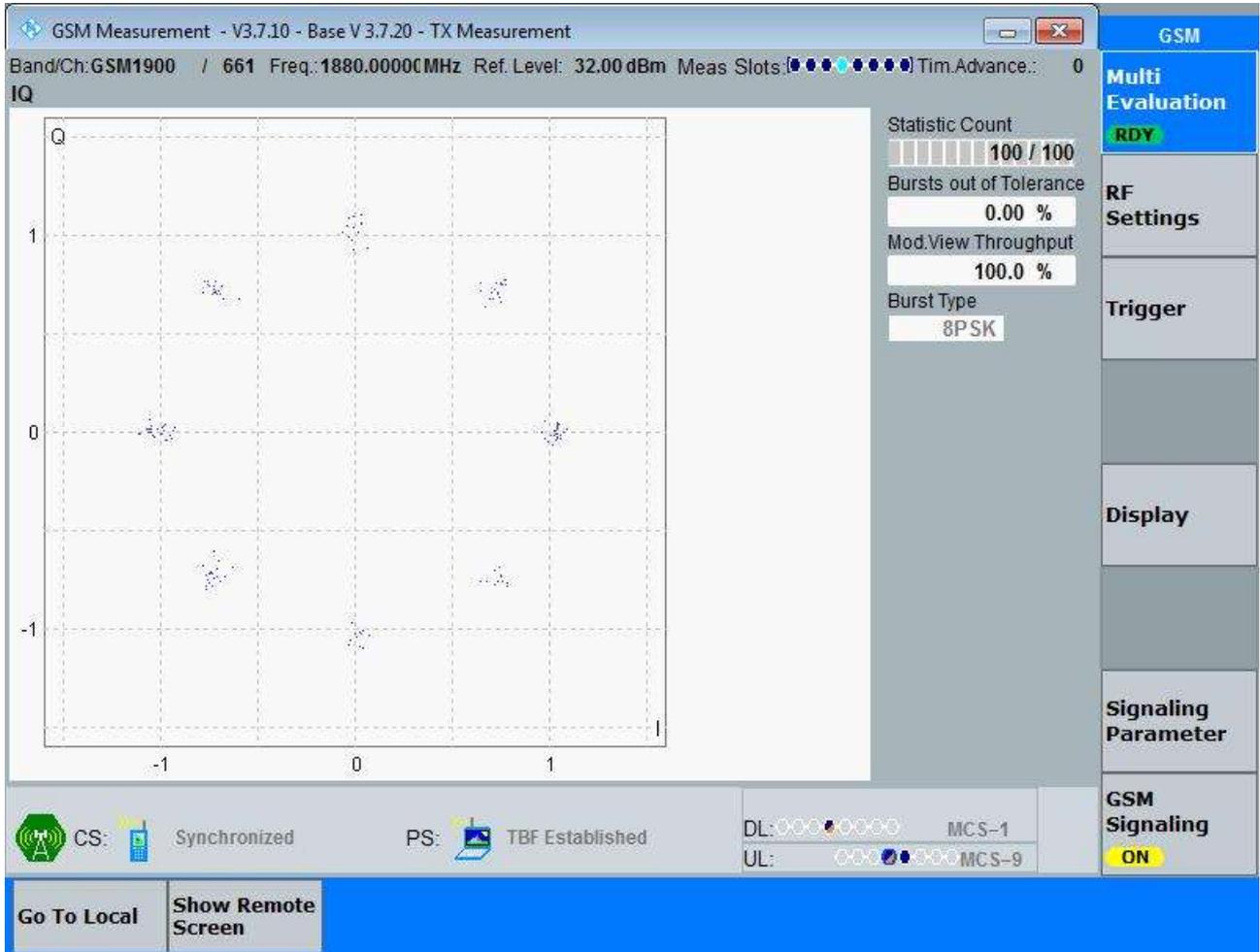
3.1.2.1.1 Test Channel = MCH





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	245.19	316.0	Pass
		MCH	247.02	315.2	Pass
		HCH	240.26	309.2	Pass
	GSM/TM2	LCH	247.19	307.2	Pass
		MCH	250.16	313.2	Pass
		HCH	250.64	314.0	Pass
PCS1900	GSM/TM1	LCH	247.25	320.5	Pass
		MCH	251.13	316.4	Pass
		HCH	244.20	317.7	Pass
	GSM/TM2	LCH	251.52	329.8	Pass
		MCH	248.86	312.1	Pass
		HCH	253.79	326.7	Pass

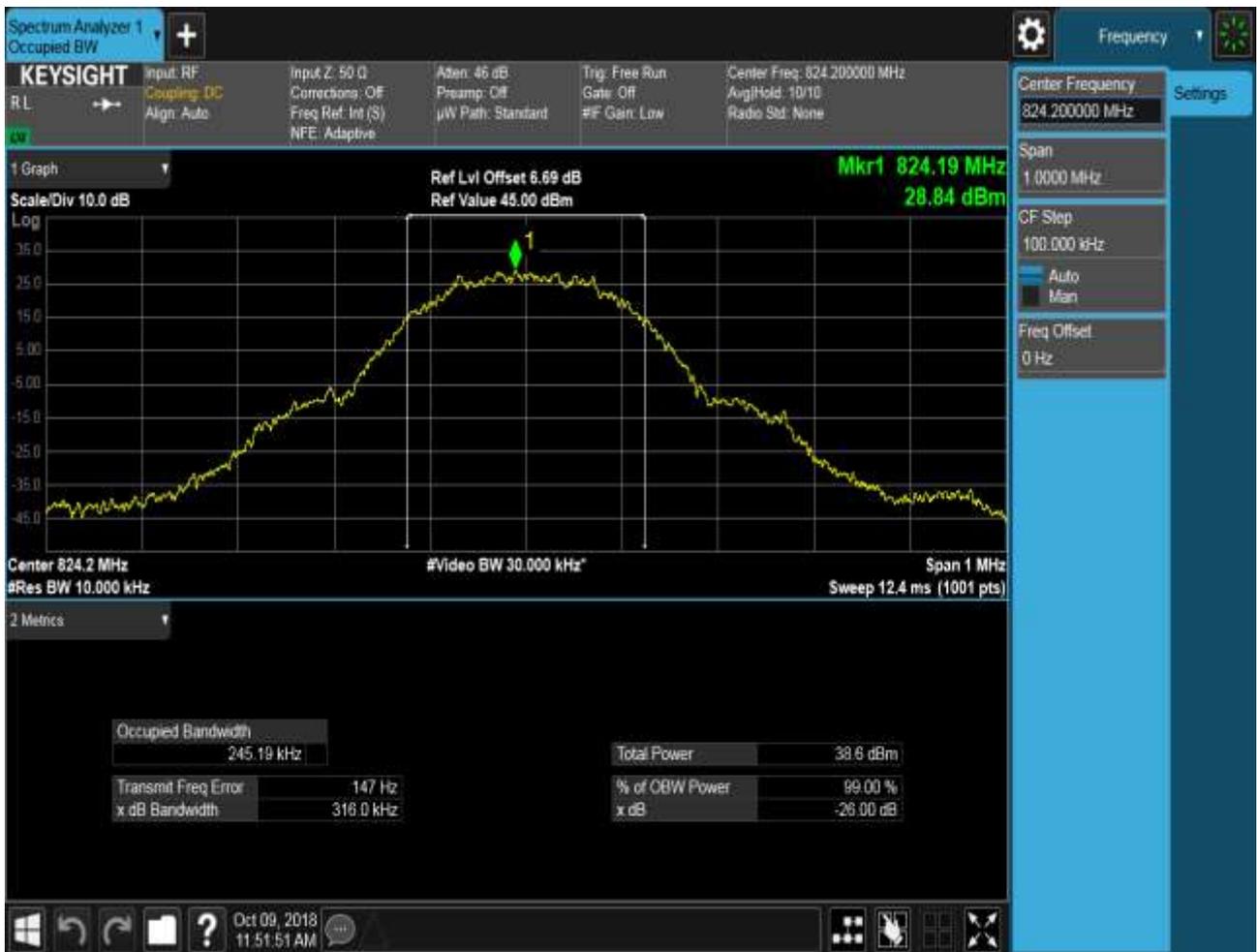
Part II - Test Plots

4.1 For GSM

4.1.1 Test Band = GSM850

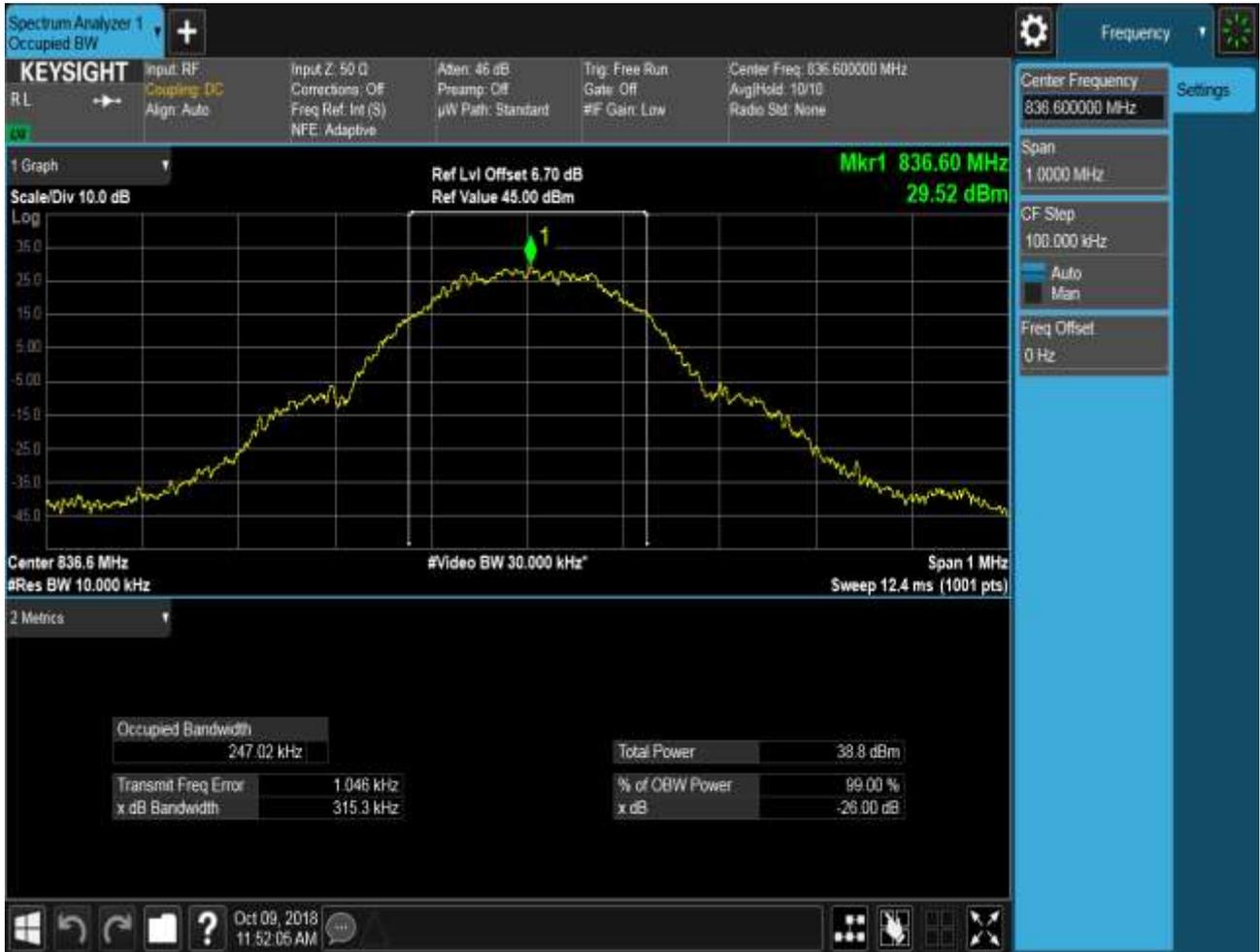
4.1.1.1 Test Mode = GSM/TM1

4.1.1.1.1 Test Channel = LCH

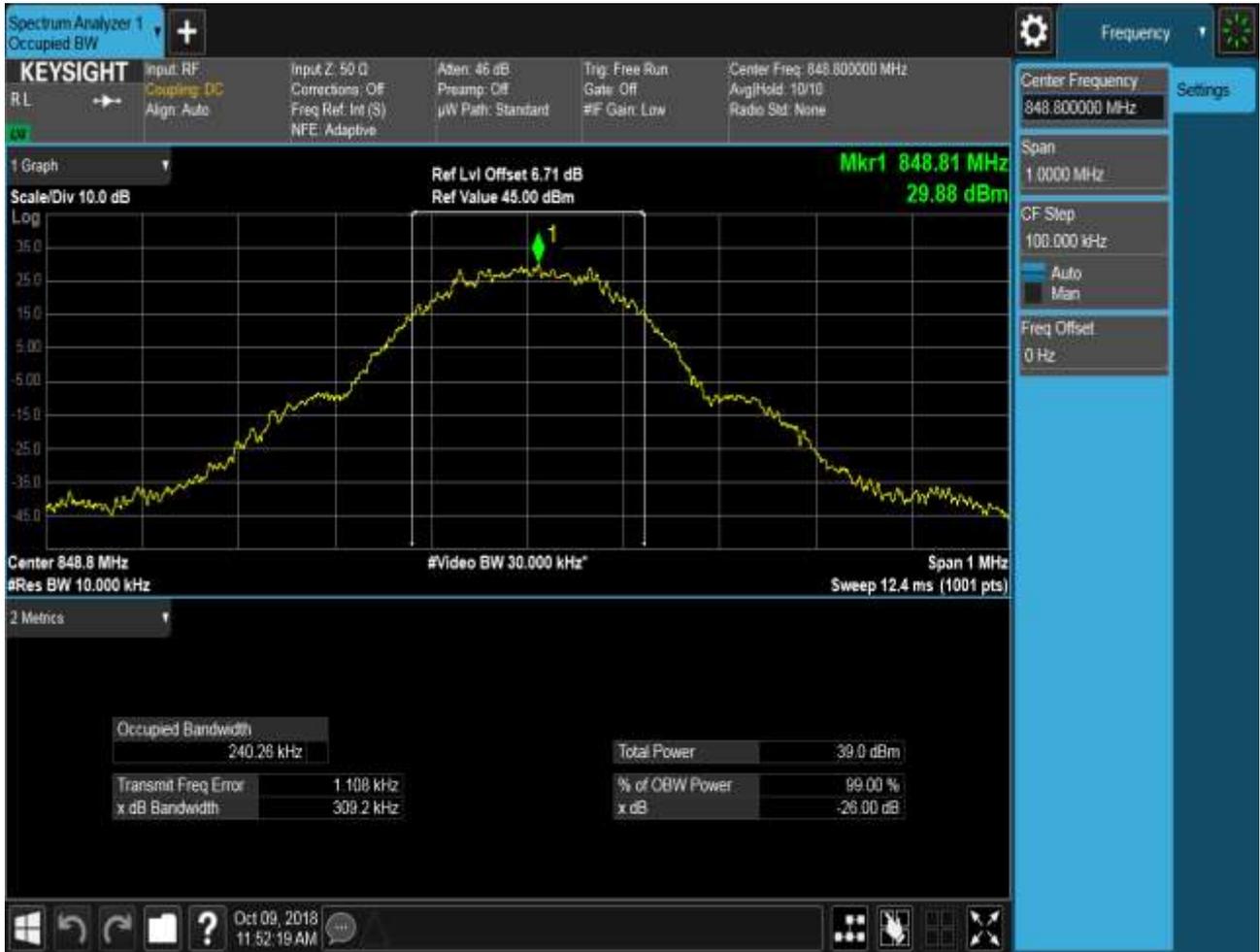




4.1.1.1.2 Test Channel = MCH



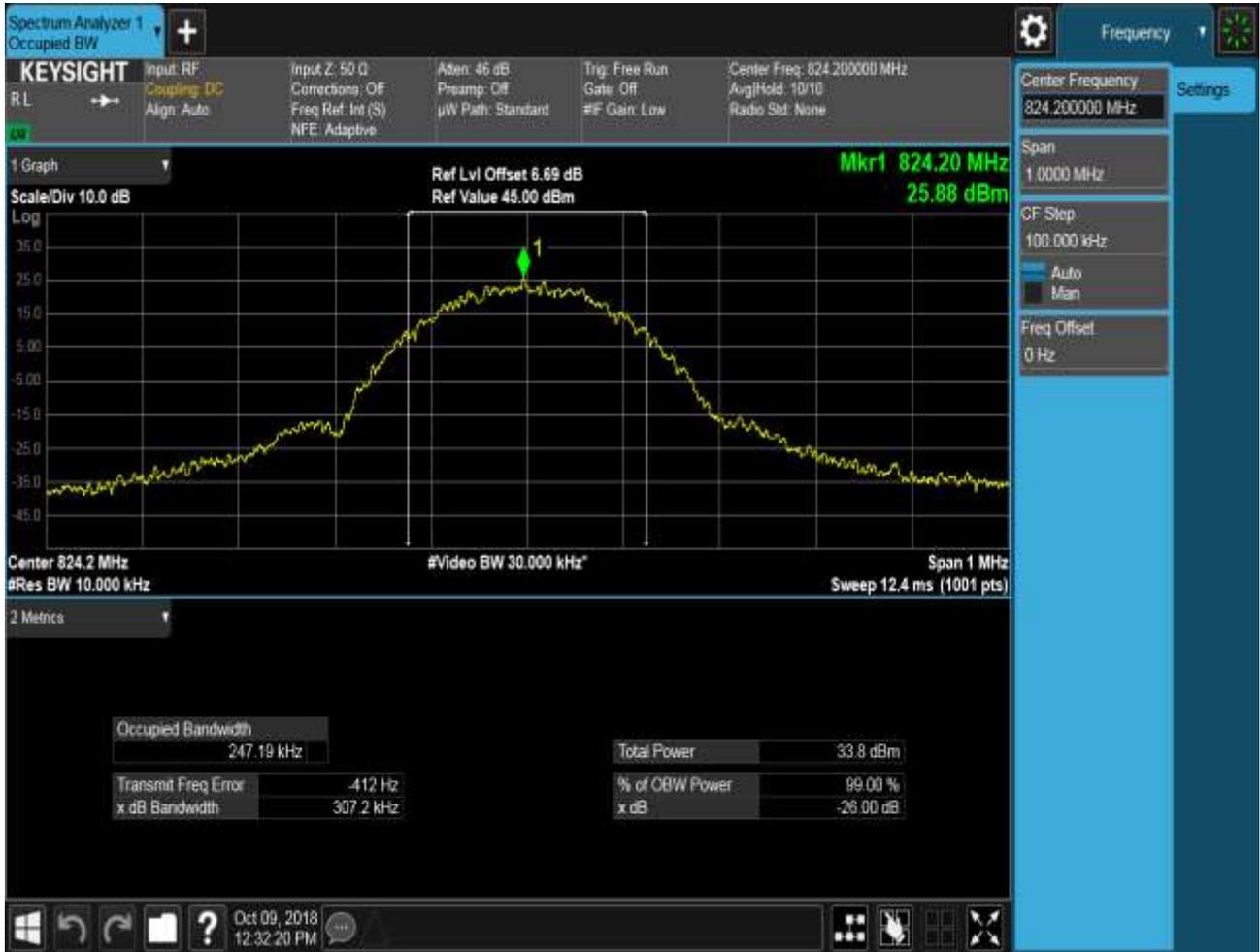
4.1.1.1.3 Test Channel = HCH



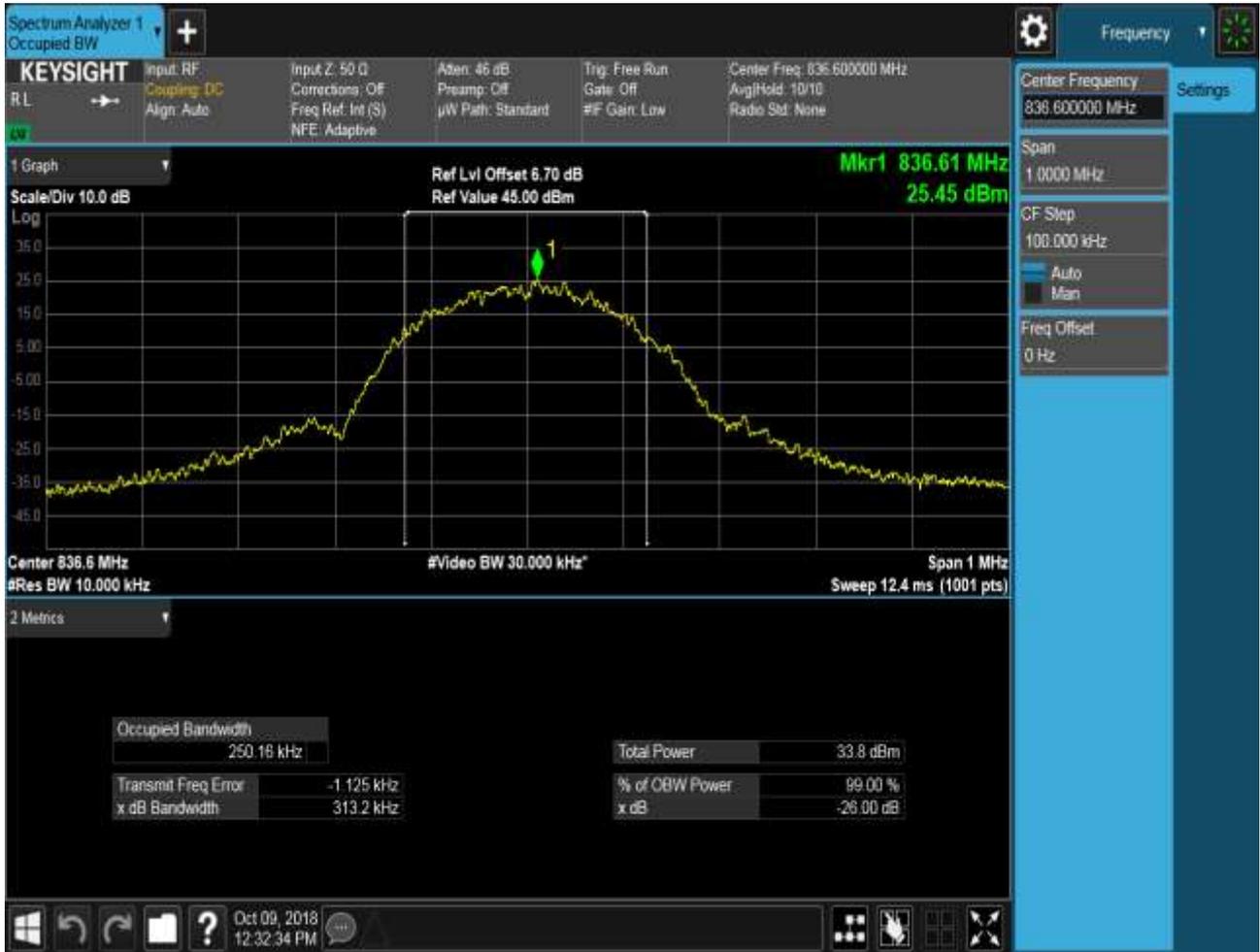


4.1.1.2 Test Mode = GSM/TM2

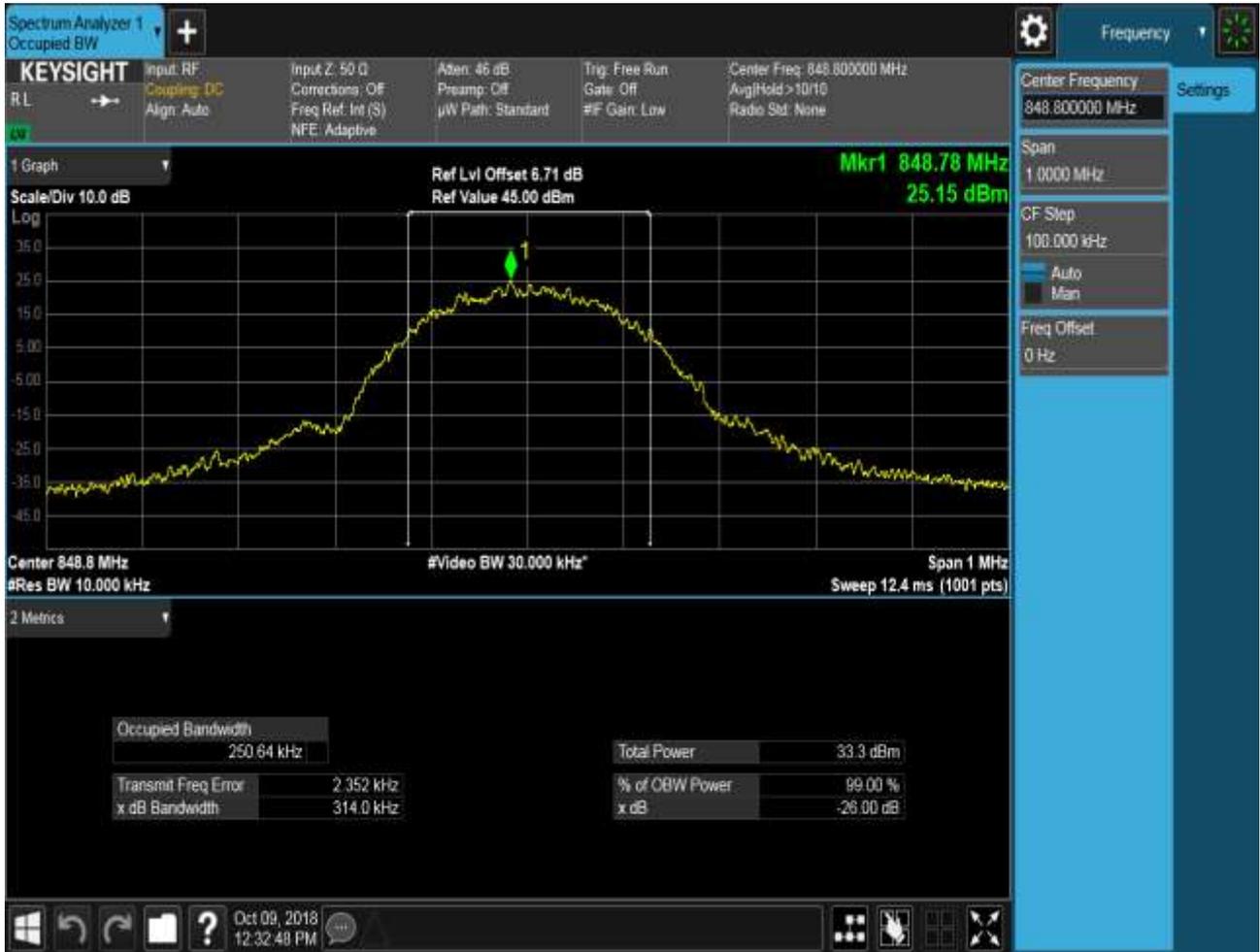
4.1.1.2.1 Test Channel = LCH



4.1.1.2.2 Test Channel = MCH



4.1.1.2.3 Test Channel = HCH





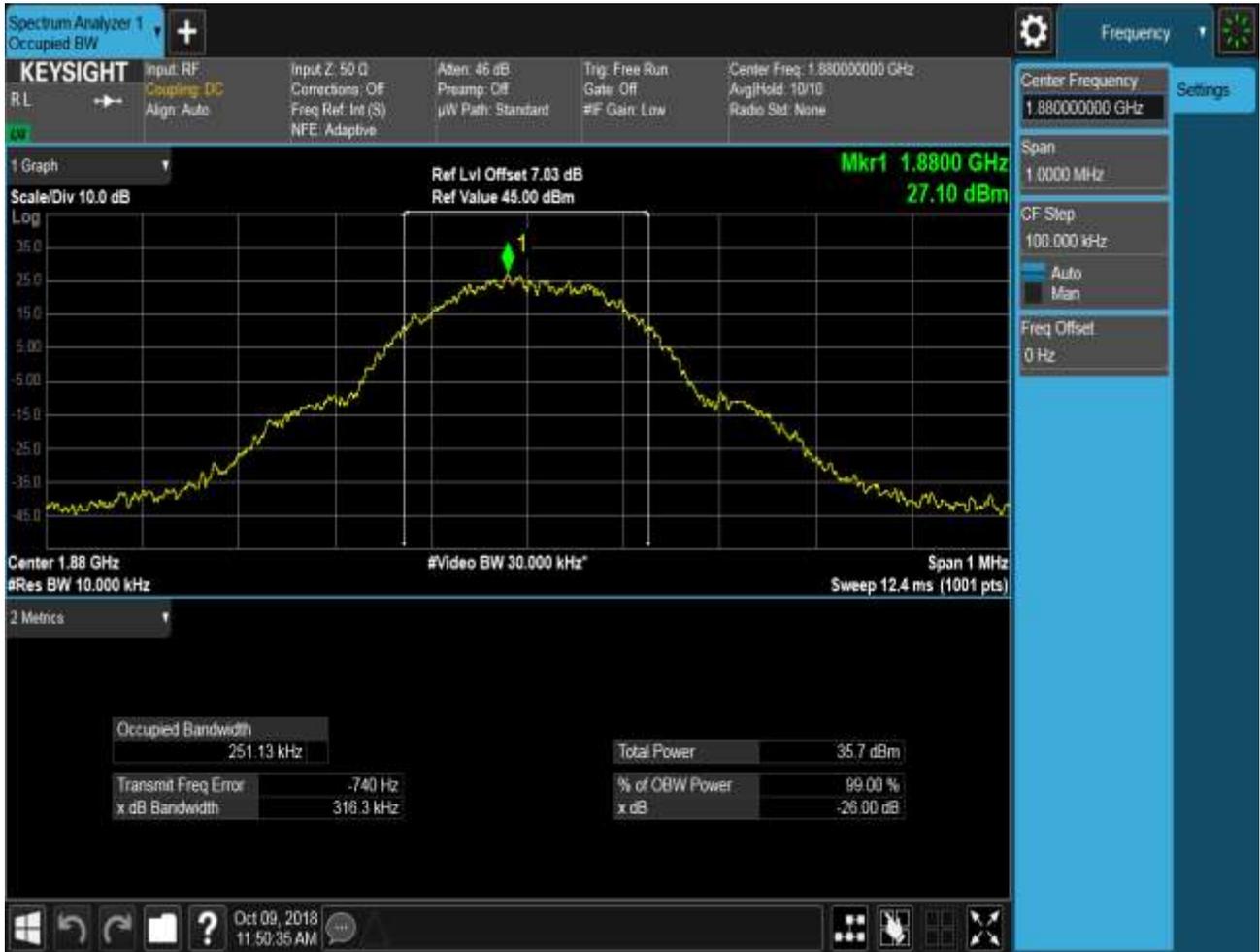
4.1.2 Test Band = PCS1900

4.1.2.1 Test Mode = GSM/TM1

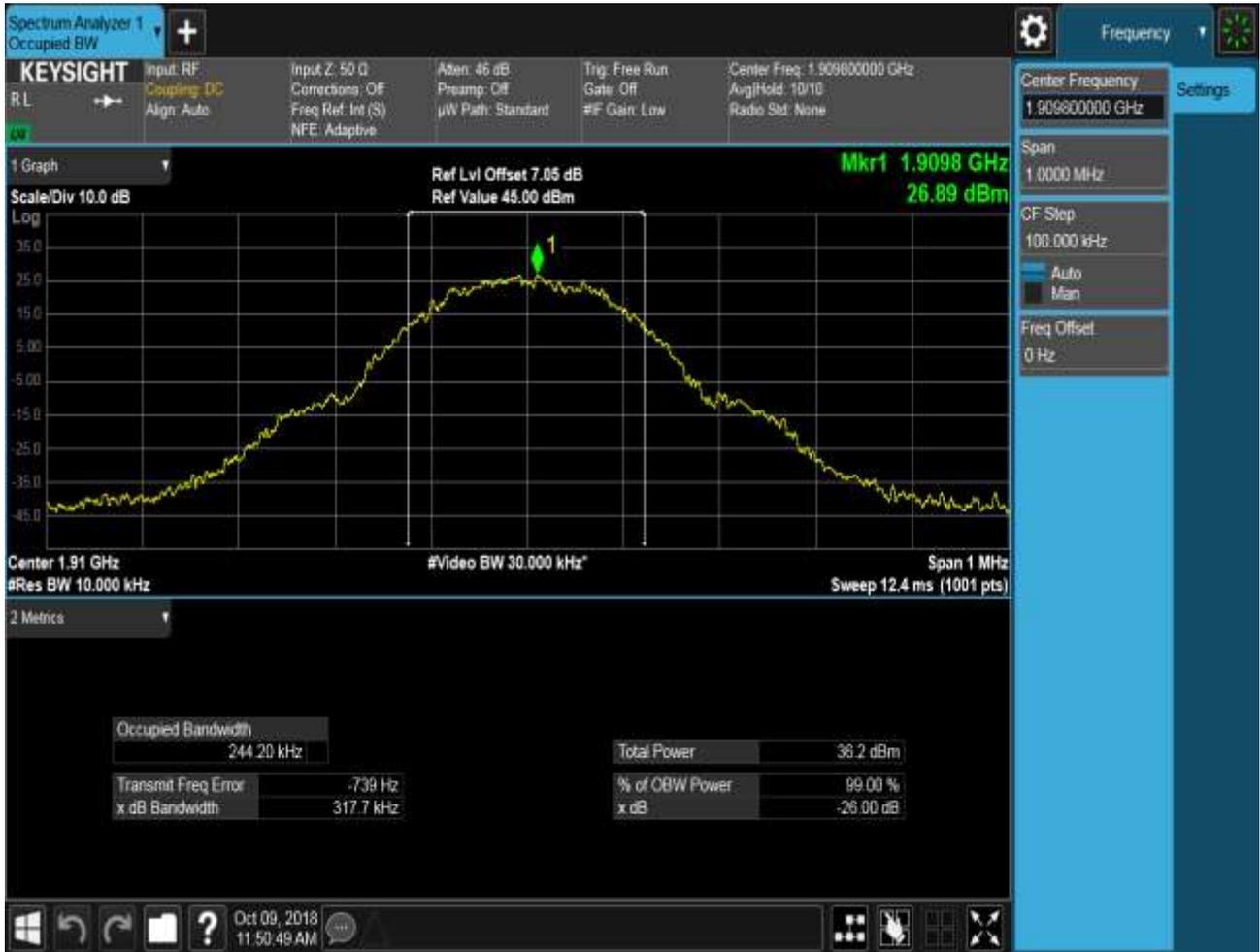
4.1.2.1.1 Test Channel = LCH



4.1.2.1.2 Test Channel = MCH



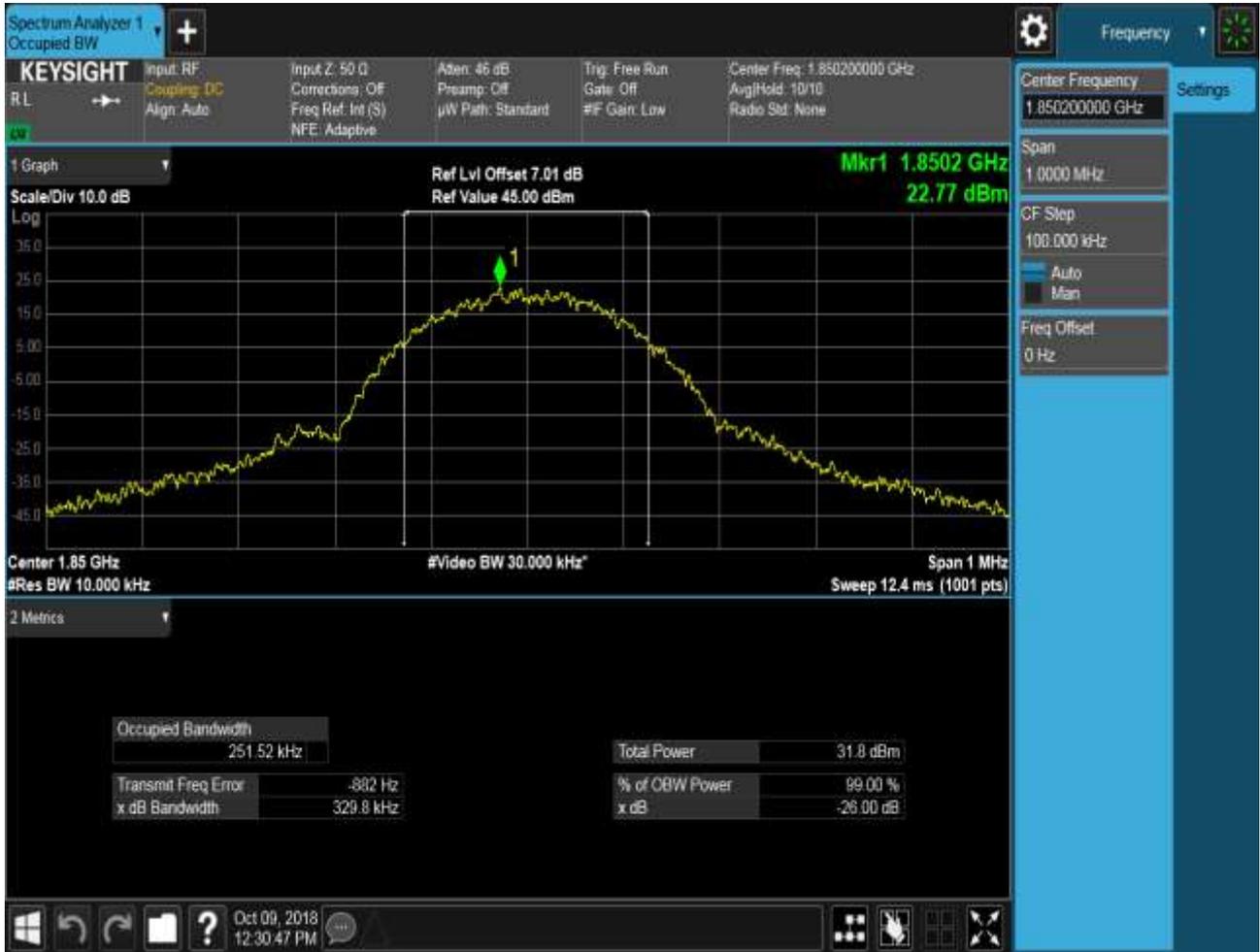
4.1.2.1.3 Test Channel = HCH





4.1.2.2 Test Mode = GSM/TM2

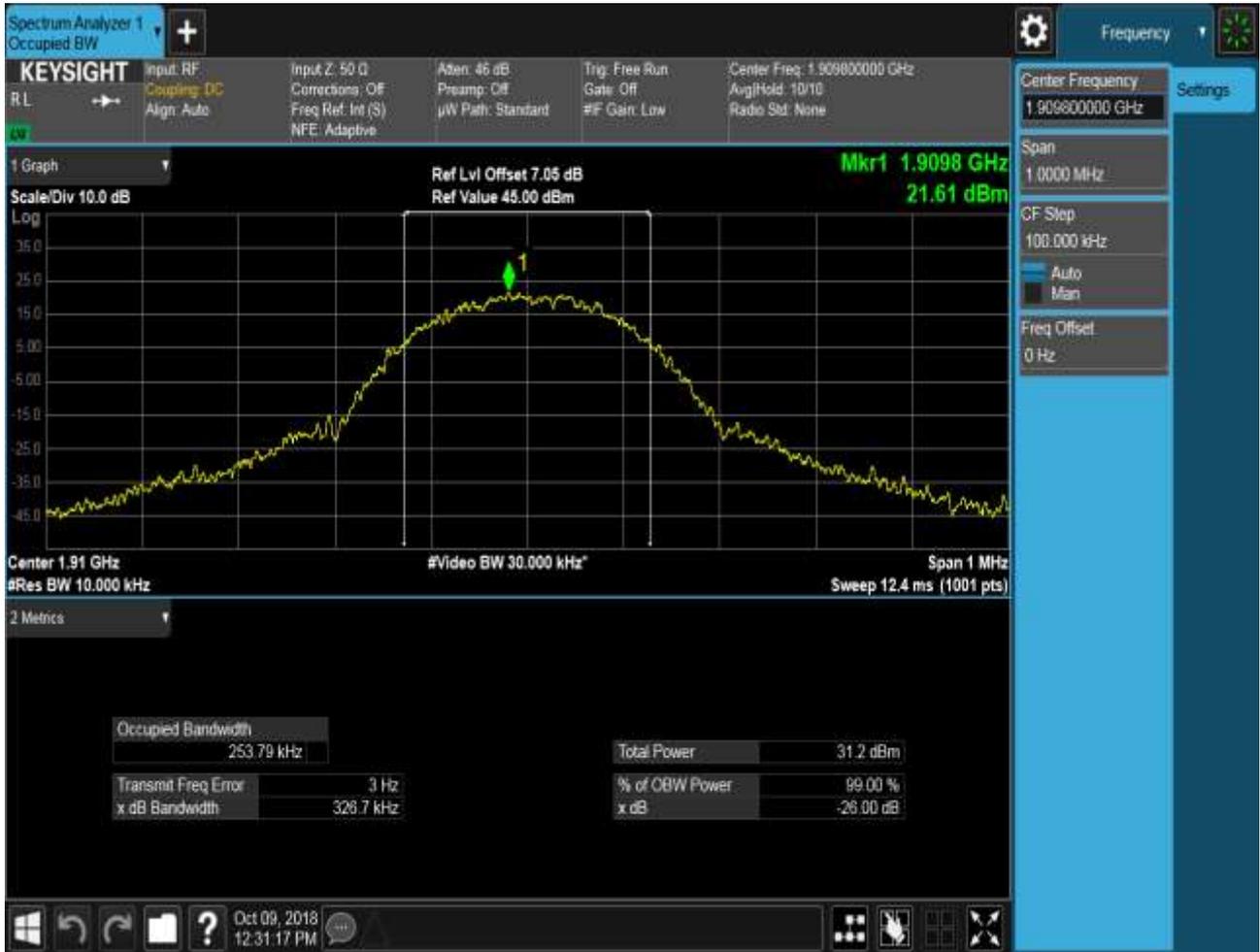
4.1.2.2.1 Test Channel = LCH



4.1.2.2.2 Test Channel = MCH



4.1.2.2.3 Test Channel = HCH



5Appendix_E: Band Edges Compliance

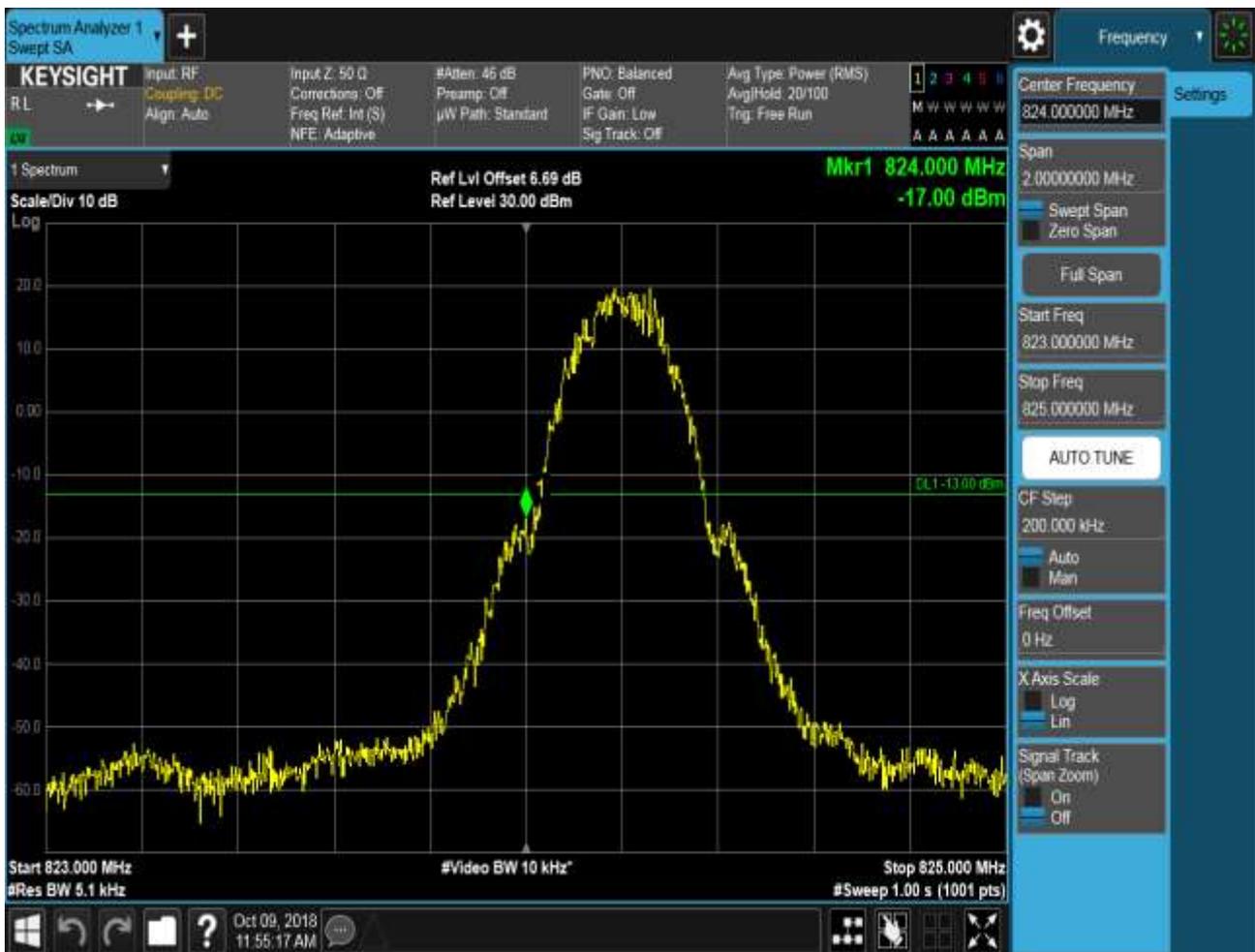
Part I - Test Plots

5.1 For GSM

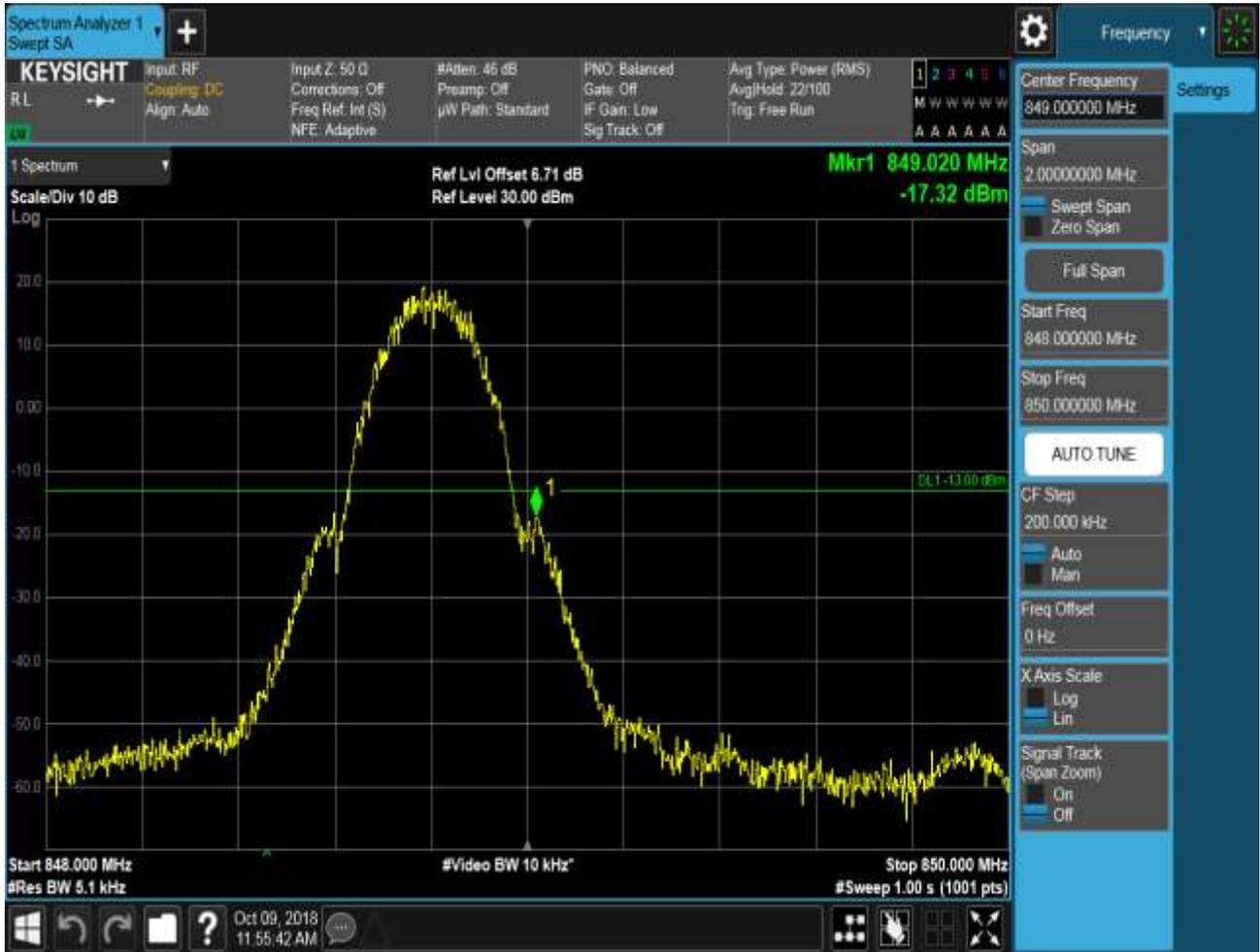
5.1.1 Test Band = GSM850

5.1.1.1 Test Mode = GSM/TM1

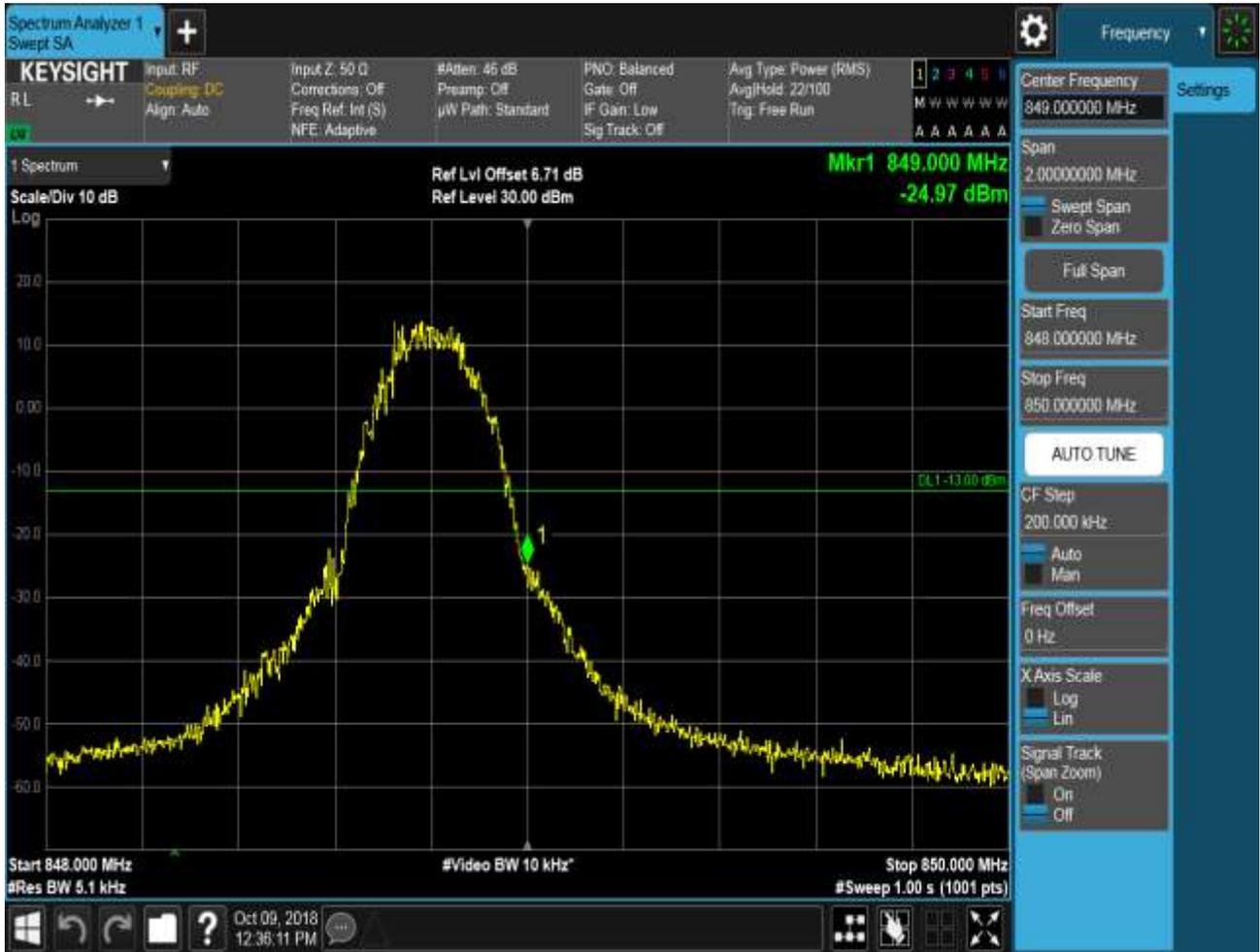
5.1.1.1.1 Test Channel = LCH



5.1.1.1.2 Test Channel = HCH



5.1.1.2.2 Test Channel = HCH

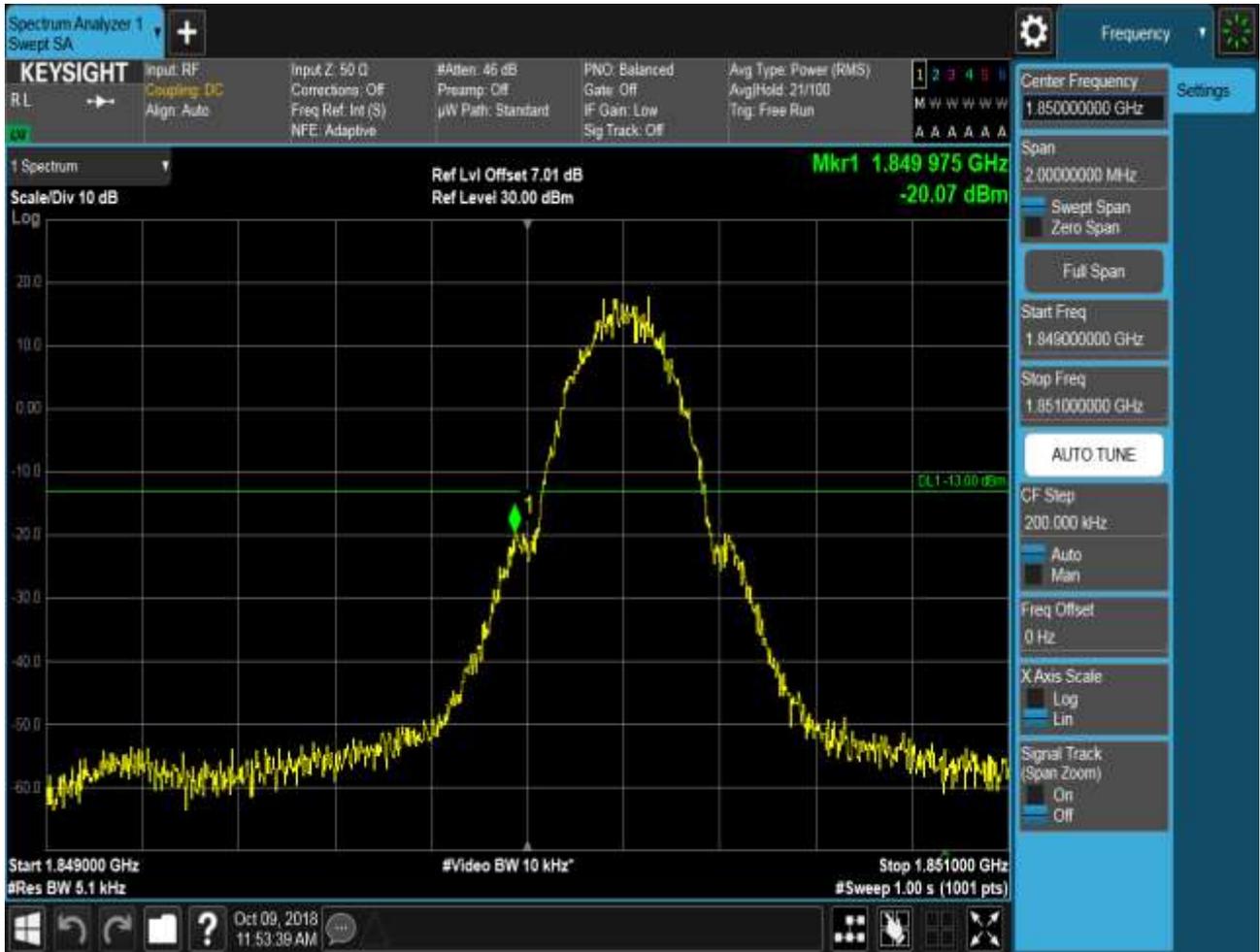




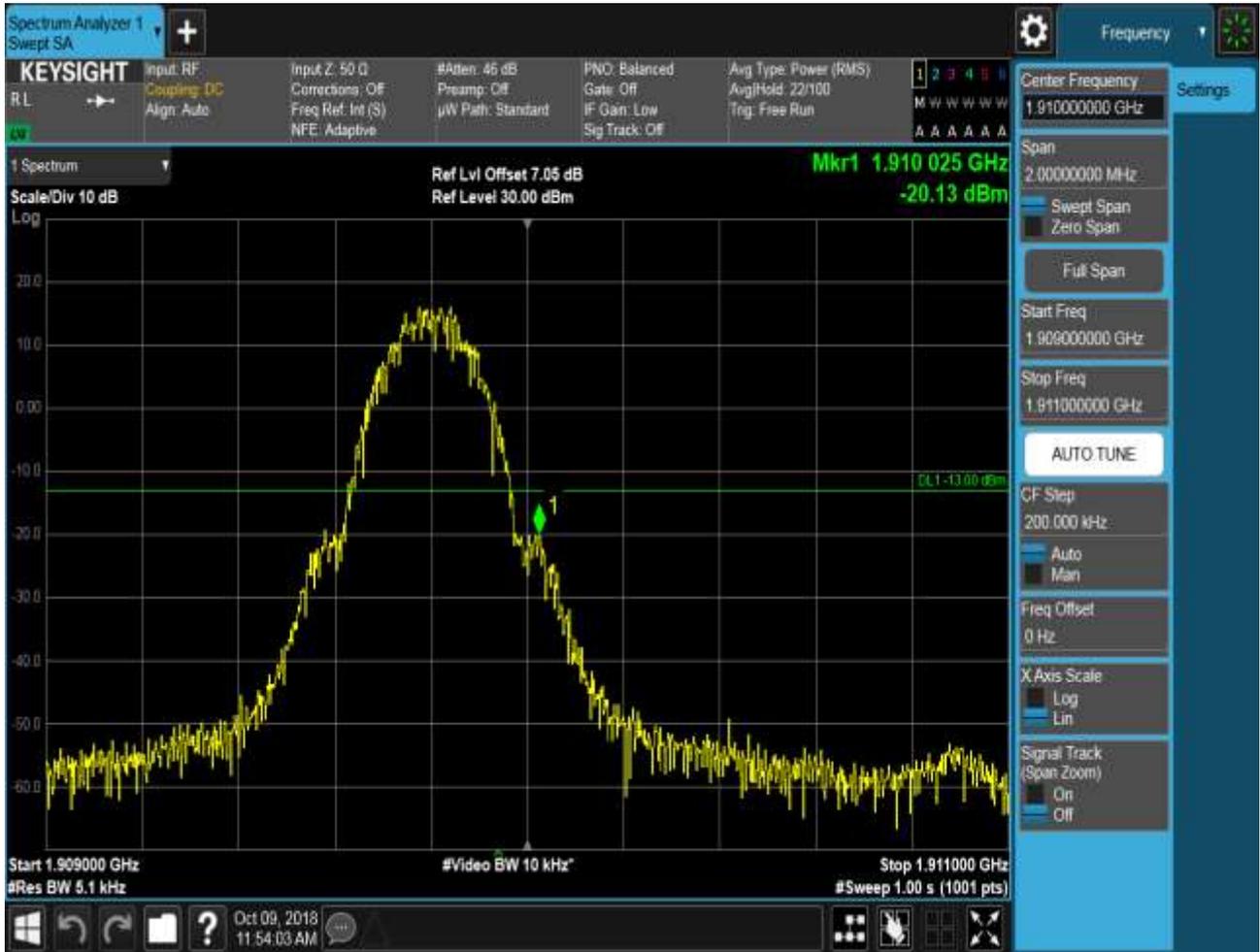
5.1.2 Test Band = PCS1900

5.1.2.1 Test Mode = GSM/TM1

5.1.2.1.1 Test Channel = LCH

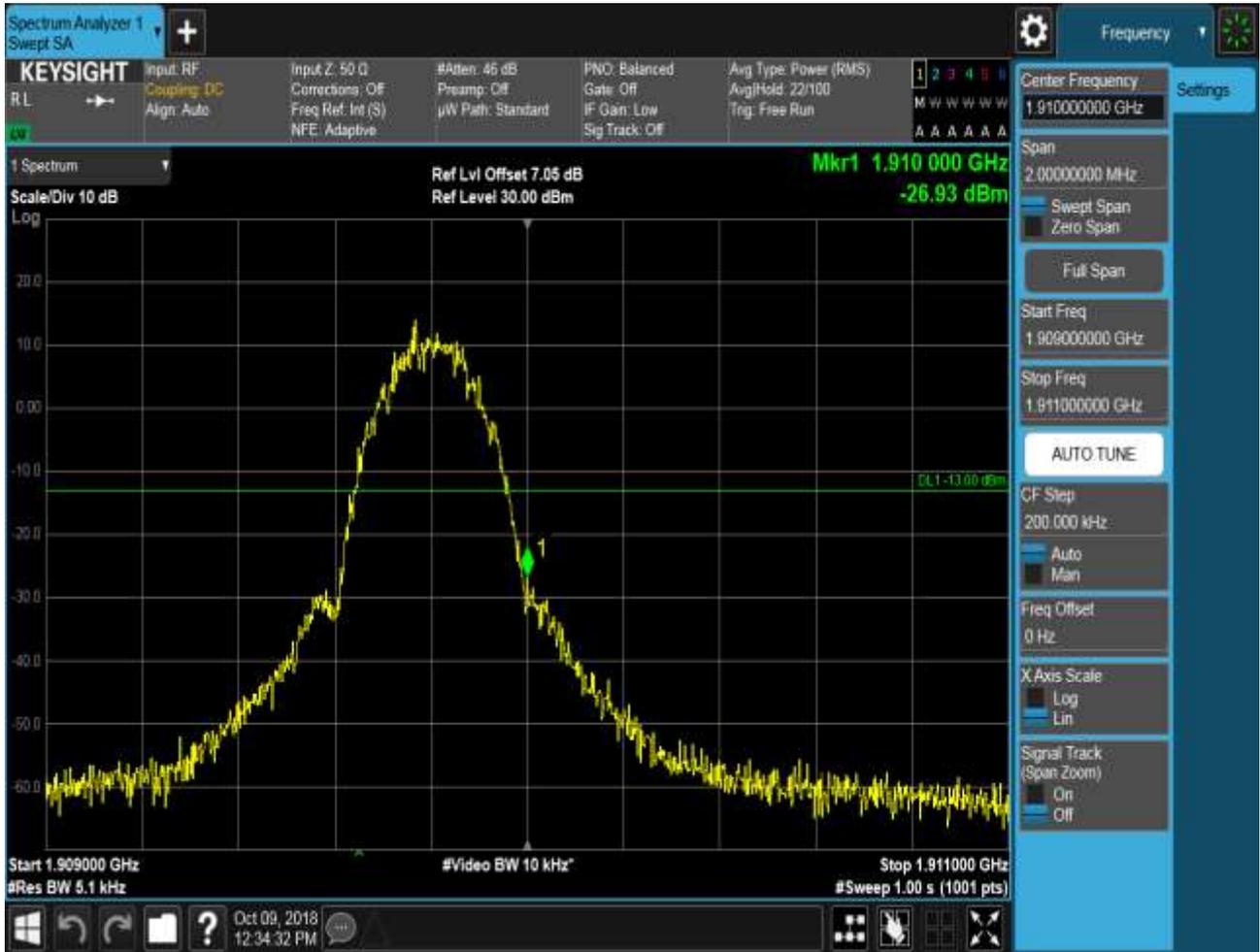


5.1.2.1.2 Test Channel = HCH





5.1.2.2.2 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

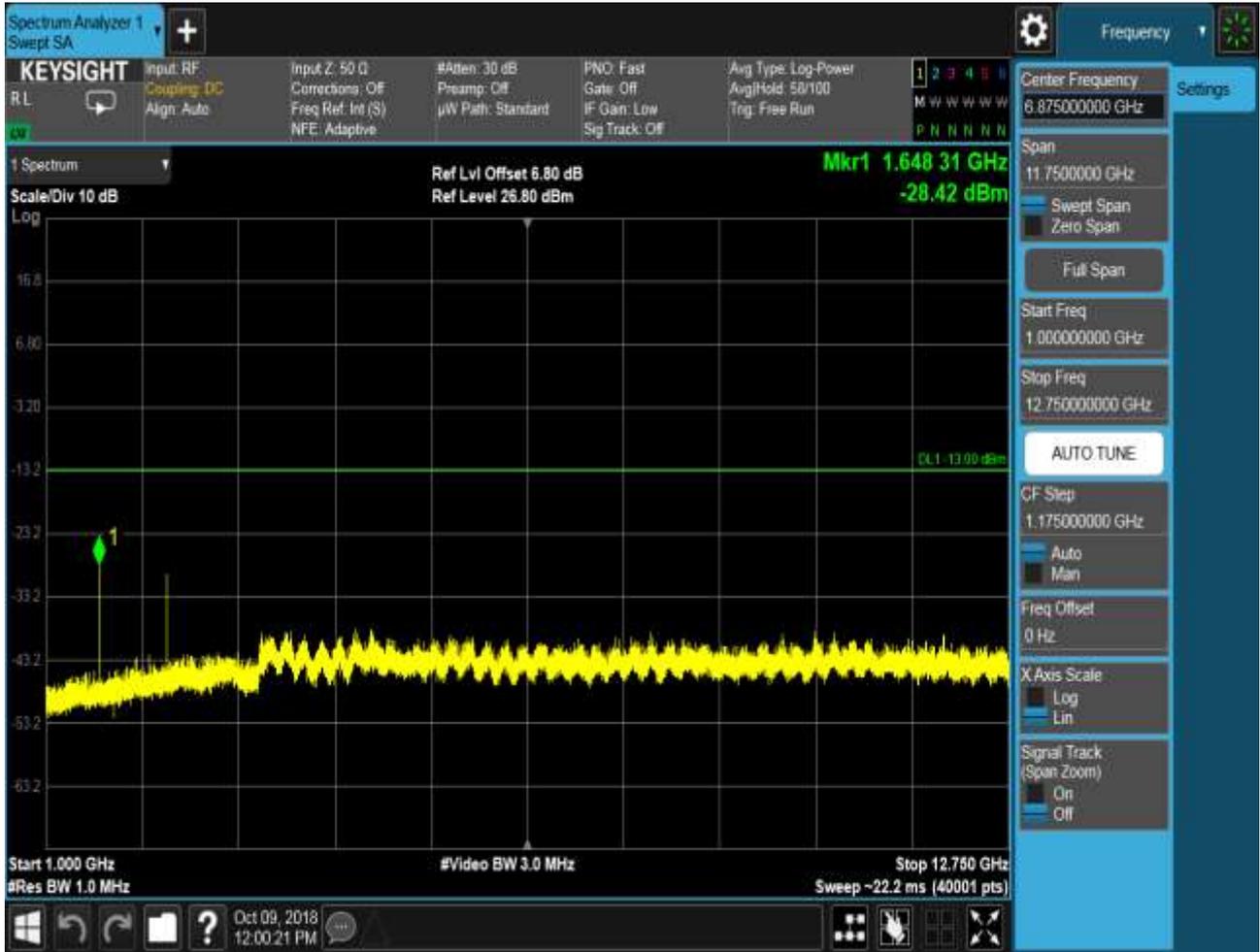
6.1.1.1 Test Mode = GSM/TM1

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









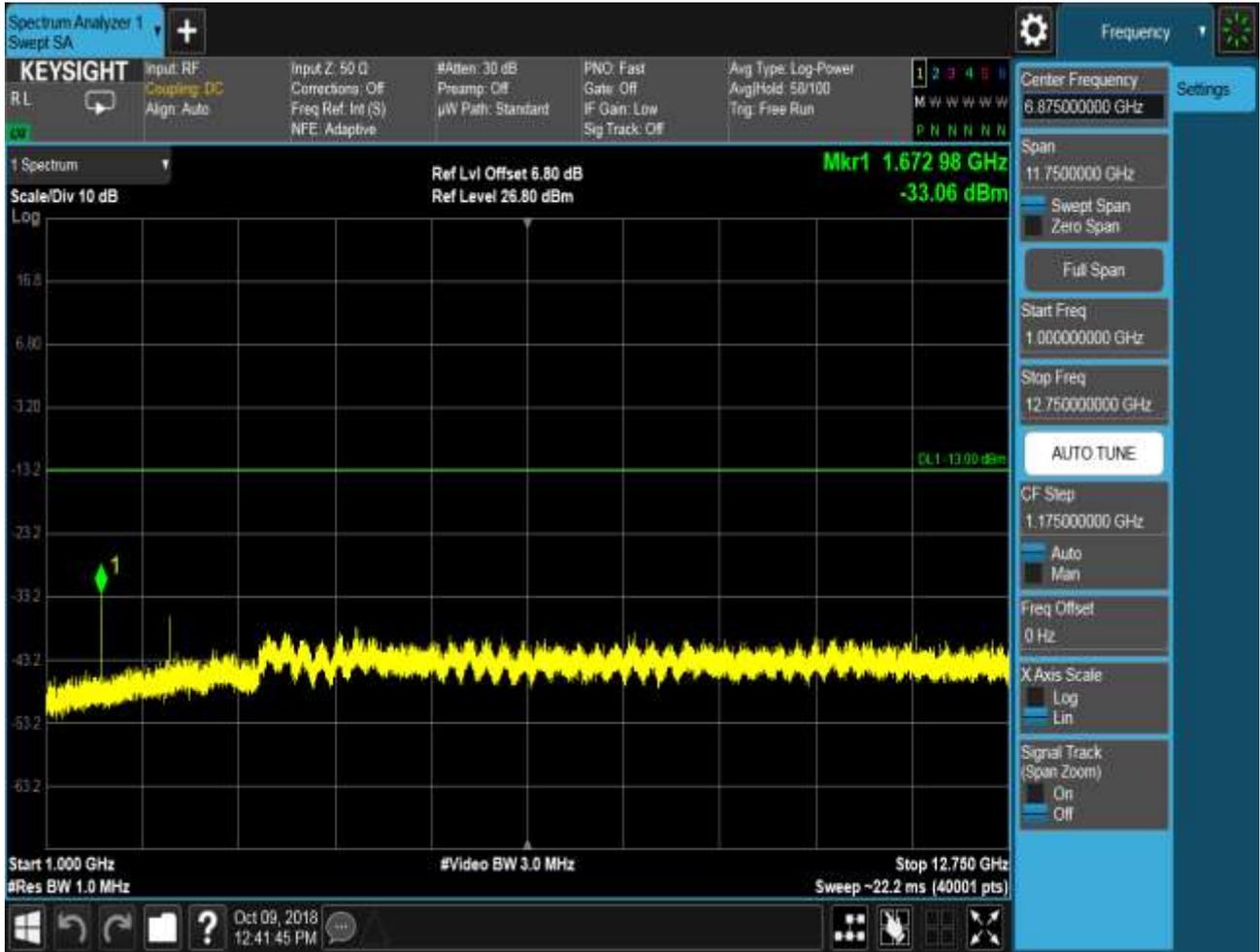


6.1.1.2.2 Test Channel = MCH

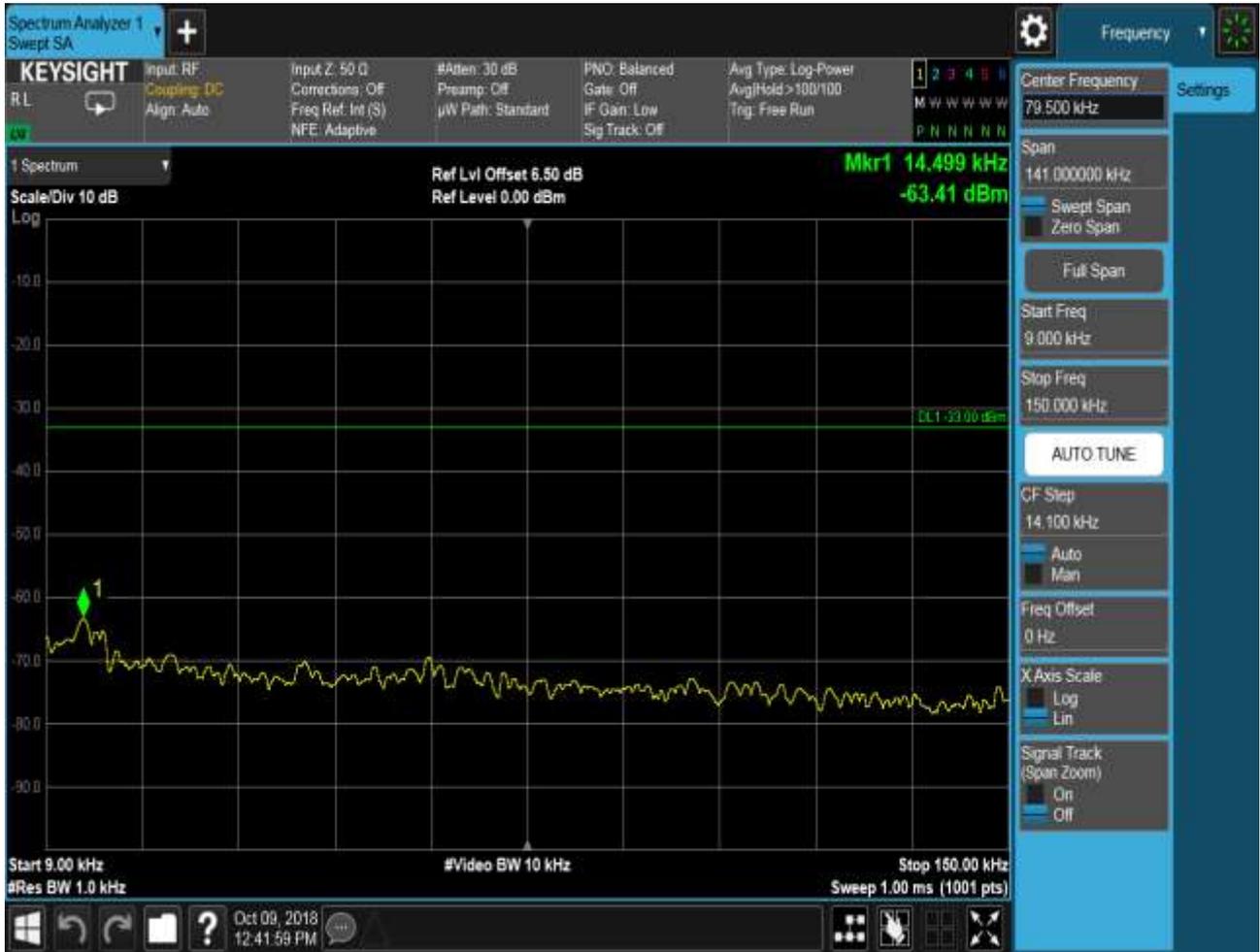








6.1.1.2.3 Test Channel = HCH







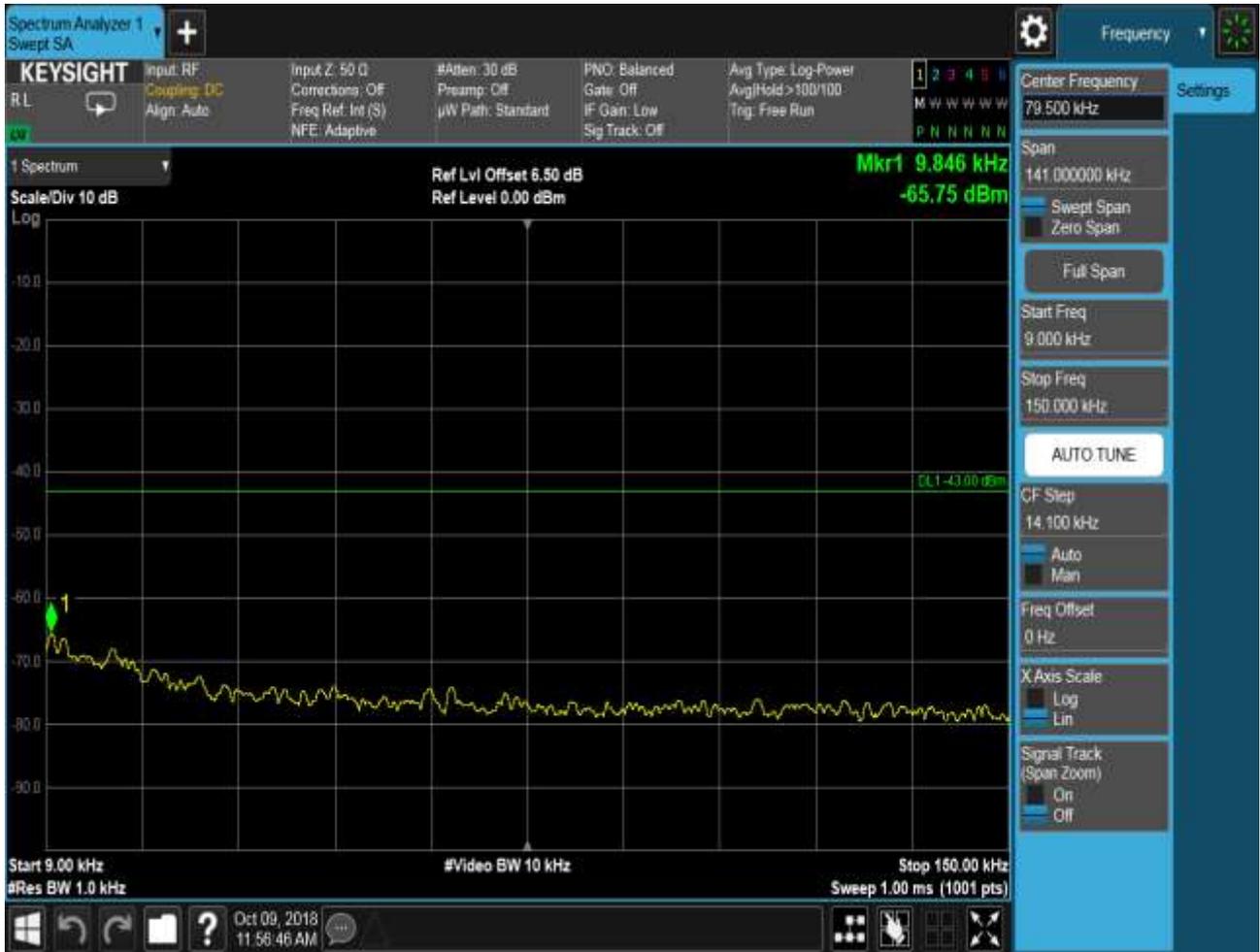




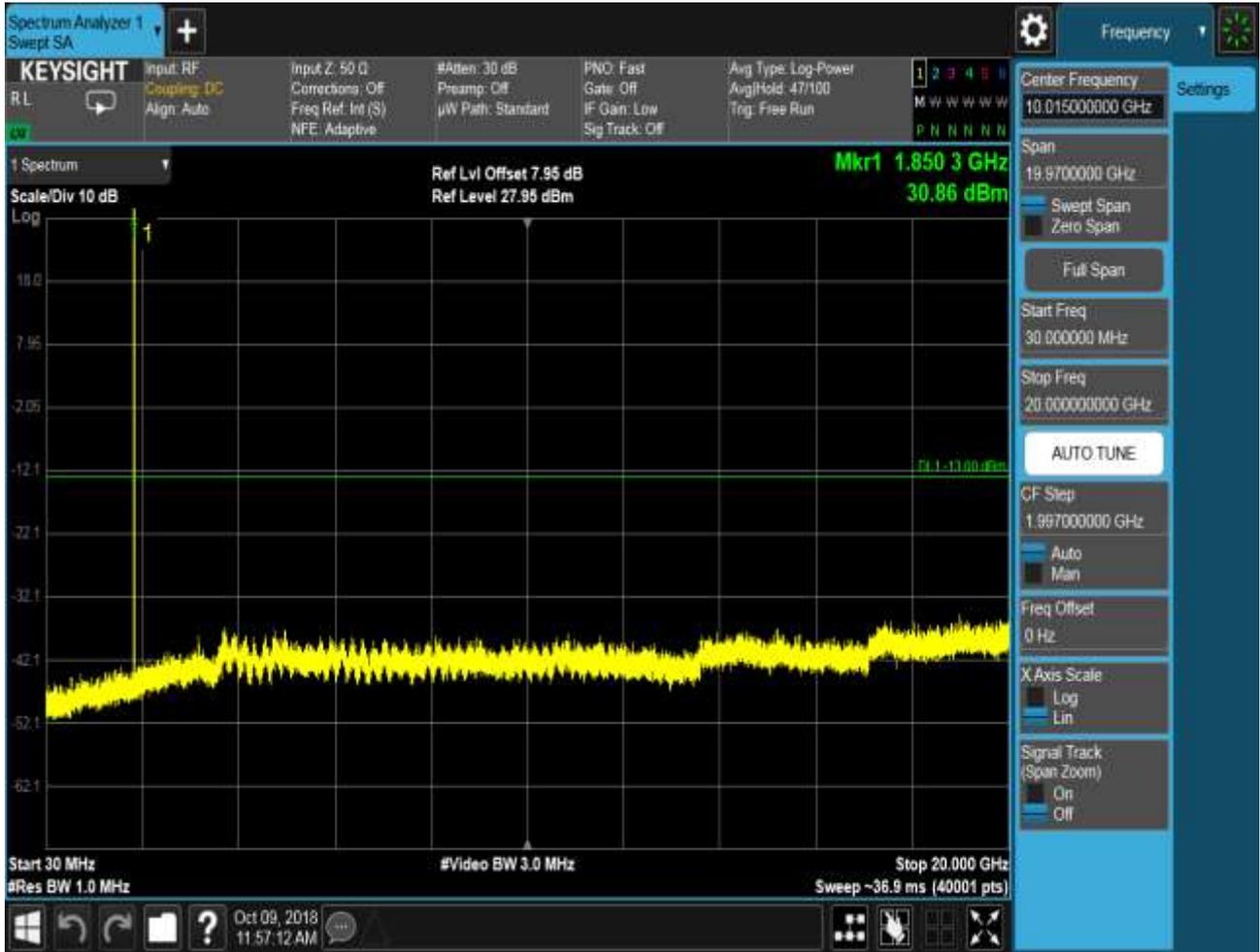
6.1.2 Test Band = PCS1900

6.1.2.1 Test Mode = GSM/TM1

6.1.2.1.1 Test Channel = LCH









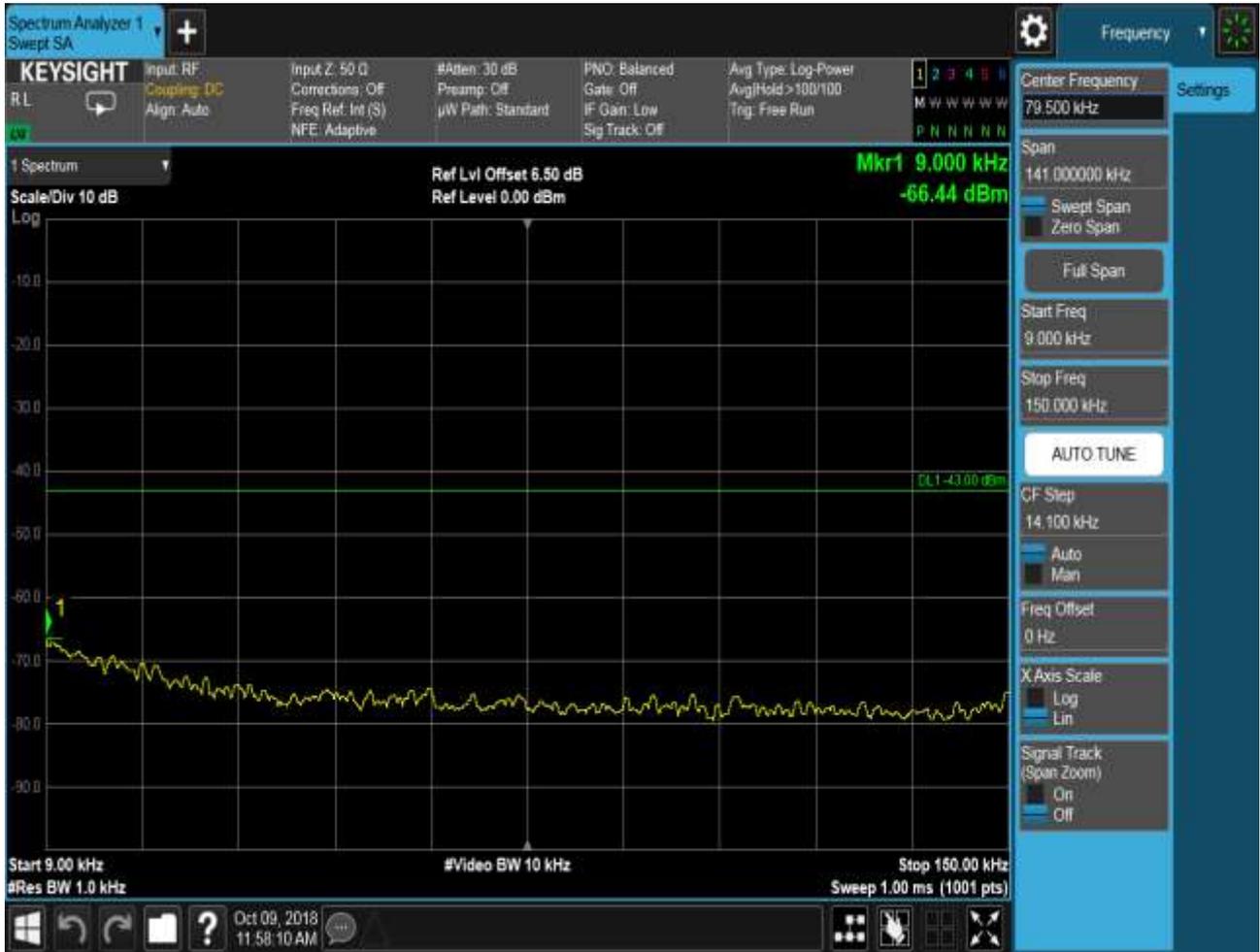
6.1.2.1.2 Test Channel = MCH







6.1.2.1.3 Test Channel = HCH







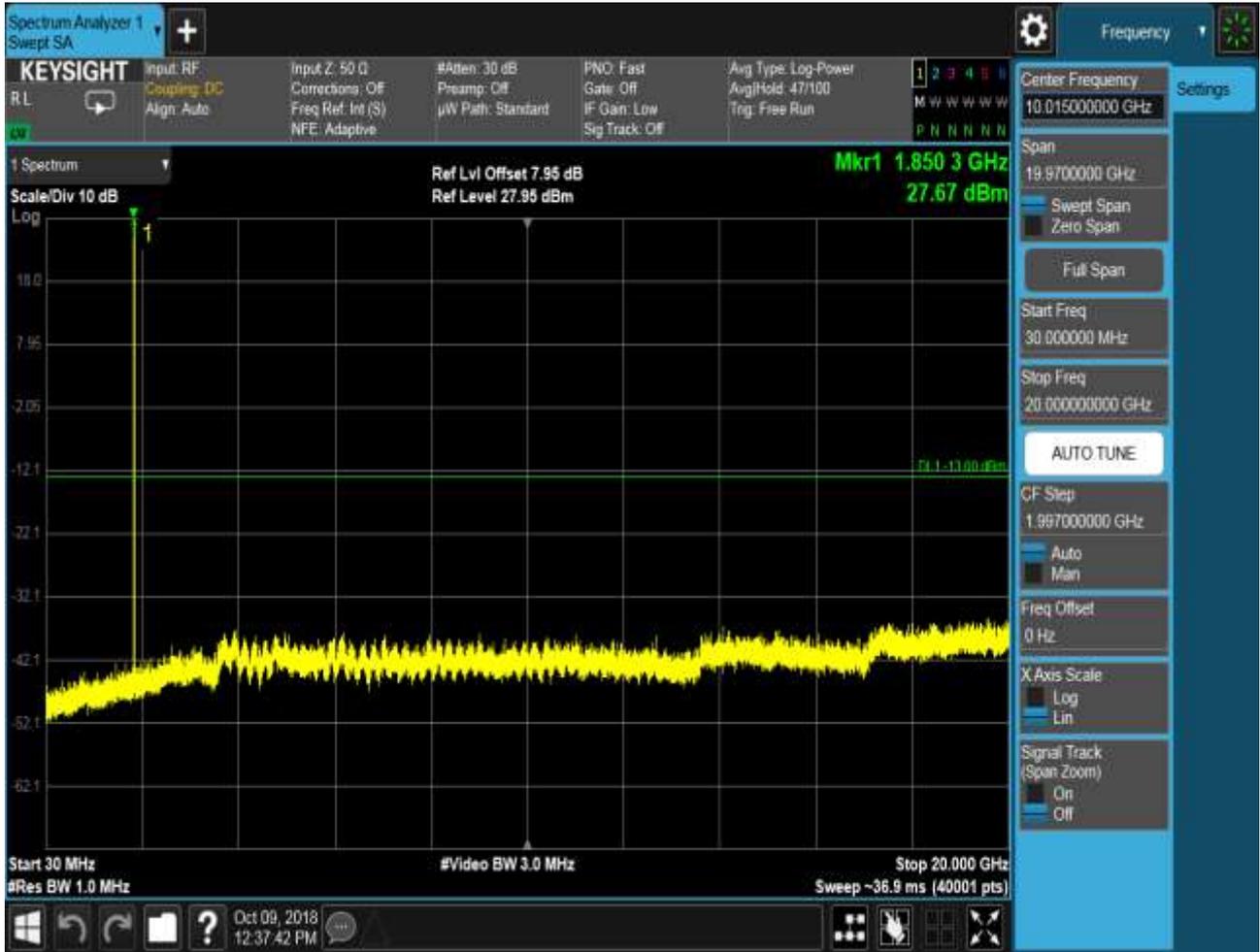


6.1.2.2 Test Mode = GSM/TM2

6.1.2.2.1 Test Channel = LCH





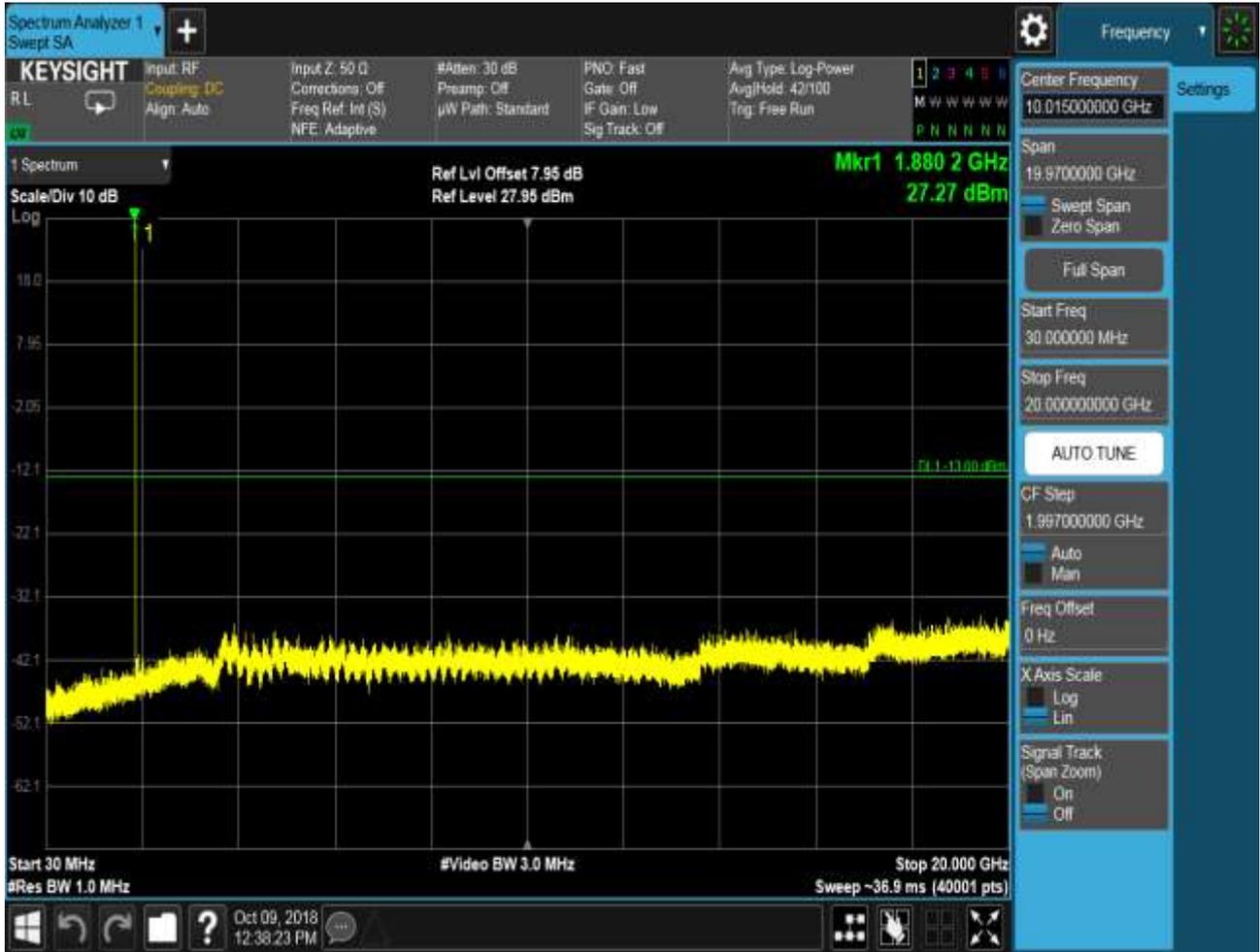




6.1.2.2.2 Test Channel = MCH









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	2.97030	0.00360	PASS
				VN	9.33061	0.01132	PASS
				VH	4.03573	0.00490	PASS
		MCH	TN	VL	3.00258	0.00359	PASS
				VN	9.20147	0.01100	PASS
				VH	3.68059	0.00440	PASS
		HCH	TN	VL	1.03315	0.00122	PASS
				VN	7.68403	0.00905	PASS
				VH	2.51830	0.00297	PASS
	GSM/TM2	LCH	TN	VL	4.42316	0.00537	PASS
				VN	9.23375	0.01120	PASS
				VH	6.19888	0.00752	PASS
		MCH	TN	VL	7.87775	0.00942	PASS
				VN	8.03918	0.00961	PASS
				VH	6.71546	0.00803	PASS
		HCH	TN	VL	4.93973	0.00582	PASS
				VN	8.03918	0.00947	PASS
				VH	8.07146	0.00951	PASS
PCS1900	GSM/TM1	LCH	TN	VL	9.94404	0.00537	PASS
				VN	8.74947	0.00473	PASS
				VH	10.42833	0.00564	PASS
		MCH	TN	VL	5.87603	0.00313	PASS
				VN	9.33061	0.00496	PASS
				VH	8.91089	0.00474	PASS
		HCH	TN	VL	5.58545	0.00537	PASS
				VN	5.90831	0.00473	PASS
				VH	4.68145	0.00564	PASS
	GSM/TM2	LCH	TN	VL	11.07405	0.00599	PASS
				VN	13.59234	0.00735	PASS
				VH	6.97374	0.00377	PASS
		MCH	TN	VL	8.29746	0.00441	PASS
				VN	7.71632	0.00410	PASS
				VH	6.84460	0.00364	PASS
		HCH	TN	VL	7.87775	0.00599	PASS



Test Band	Test Mode	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				VN	6.74774	0.00735	PASS
				VH	6.61860	0.00377	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	7.97461	0.00968	PASS
				-20	7.65175	0.00928	PASS
				-10	3.84202	0.00466	PASS
				0	4.00345	0.00486	PASS
				10	4.68145	0.00568	PASS
				20	9.33061	0.01132	PASS
				30	5.52088	0.00670	PASS
				40	5.55317	0.00674	PASS
		50	4.90745	0.00595	PASS		
		MCH	VN	-30	6.90917	0.00826	PASS
				-20	6.48946	0.00776	PASS
				-10	4.00345	0.00479	PASS
				0	5.94060	0.00710	PASS
				10	4.74602	0.00567	PASS
				20	9.20147	0.01100	PASS
	30			6.39260	0.00764	PASS	
	40	7.52260	0.00899	PASS			
	50	7.13517	0.00853	PASS			
	GSM/TM2	LCH	VN	-30	4.81059	0.00567	PASS
				-20	4.71373	0.00555	PASS
				-10	5.48859	0.00647	PASS
				0	3.77744	0.00445	PASS
				10	5.68231	0.00669	PASS
				20	7.68403	0.00905	PASS
				30	4.90745	0.00578	PASS
				40	6.45717	0.00761	PASS
				50	6.26346	0.00738	PASS
				-30	5.94060	0.00721	PASS
				-20	4.32630	0.00525	PASS
				-10	3.84202	0.00466	PASS
0				6.71546	0.00815	PASS	
10				8.20061	0.00995	PASS	
20				9.23375	0.01120	PASS	



Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict		
				30	5.77917	0.00701	PASS		
				40	6.68317	0.00811	PASS		
				50	3.09944	0.00376	PASS		
		MCH	VN			-30	4.00345	0.00479	PASS
						-20	4.58459	0.00548	PASS
						-10	2.48601	0.00297	PASS
						0	7.55489	0.00903	PASS
						10	6.06974	0.00726	PASS
						20	8.03918	0.00961	PASS
						30	4.90745	0.00587	PASS
						40	8.55575	0.01023	PASS
						50	4.52002	0.00540	PASS
		HCH	VN			-30	3.55144	0.00418	PASS
						-20	5.68231	0.00669	PASS
						-10	5.58545	0.00658	PASS
						0	4.58459	0.00540	PASS
						10	4.48773	0.00529	PASS
						20	8.03918	0.00947	PASS
						30	6.45717	0.00761	PASS
						40	6.48946	0.00765	PASS
		PCS1900	GSM/TM1	LCH	VN		-30	11.10633	0.00600
-20	9.65347						0.00522	PASS	
-10	13.72149						0.00742	PASS	
0	10.42833						0.00564	PASS	
10	10.84805						0.00586	PASS	
20	8.74947						0.00473	PASS	
30	8.84632						0.00478	PASS	
40	5.65002						0.00305	PASS	
50	7.32889						0.00396	PASS	
MCH	VN					-30	8.58804	0.00457	PASS
						-20	11.42919	0.00608	PASS
						-10	8.49118	0.00452	PASS
						0	6.87689	0.00366	PASS
						10	10.36376	0.00551	PASS
						20	9.33061	0.00496	PASS
						30	7.32889	0.00390	PASS
						40	10.13776	0.00539	PASS
50	8.36204			0.00445	PASS				
HCH	VN					-30	5.52088	0.00289	PASS



Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				-20	10.94490	0.00573	PASS
				-10	8.03918	0.00421	PASS
				0	8.45889	0.00443	PASS
				10	8.91089	0.00467	PASS
				20	5.90831	0.00309	PASS
				30	7.00603	0.00367	PASS
				40	6.81231	0.00357	PASS
				50	7.97461	0.00418	PASS
	GSM/TM2	LCH	VN	-30	11.49376	0.00621	PASS
				-20	7.58718	0.00410	PASS
				-10	8.00689	0.00433	PASS
				0	10.75119	0.00581	PASS
				10	10.55747	0.00571	PASS
				20	13.59234	0.00735	PASS
				30	12.81748	0.00693	PASS
				40	13.33406	0.00721	PASS
		50	14.46406	0.00782	PASS		
		MCH	VN	-30	7.55489	0.00402	PASS
				-20	8.29746	0.00441	PASS
				-10	8.42661	0.00448	PASS
				0	11.71976	0.00623	PASS
				10	10.94490	0.00582	PASS
				20	7.71632	0.00410	PASS
				30	9.71804	0.00517	PASS
				40	14.46406	0.00769	PASS
		50	12.23634	0.00651	PASS		
		HCH	VN	-30	6.00517	0.00314	PASS
				-20	5.35945	0.00281	PASS
				-10	3.74516	0.00196	PASS
				0	9.71804	0.00509	PASS
				10	6.68317	0.00350	PASS
				20	6.74774	0.00353	PASS
30	5.77917			0.00303	PASS		
40	6.52174			0.00341	PASS		
50	8.65261	0.00453	PASS				

END