



Appendix for test report



1 Appendix_A: Effective (Isotropic) Radiated Power Output Data

Part I - Test Results

Test Band	Test Mode	Test Channel	Measured[dBm]	ERP(EIRP)[dBm]	Limit [dBm]	Verdict
GSM850	GSM/TM1	LCH	32.20	31.05	38.5	PASS
		MCH	32.29	31.14	38.5	PASS
		HCH	32.27	31.12	38.5	PASS
GSM1900	GSM/TM1	LCH	29.67	30.67	33	PASS
		MCH	29.92	30.92	33	PASS
		HCH	29.97	30.97	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: RBW > emission bandwidth, VBW > 3 x RBW.

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	0.56	13	PASS
		MCH	0.41	13	PASS
		HCH	0.64	13	PASS
GSM1900	GSM/TM1	LCH	0.28	13	PASS
		MCH	0.33	13	PASS
		HCH	0.34	13	PASS

3Appendix_C: Modulation Characteristics

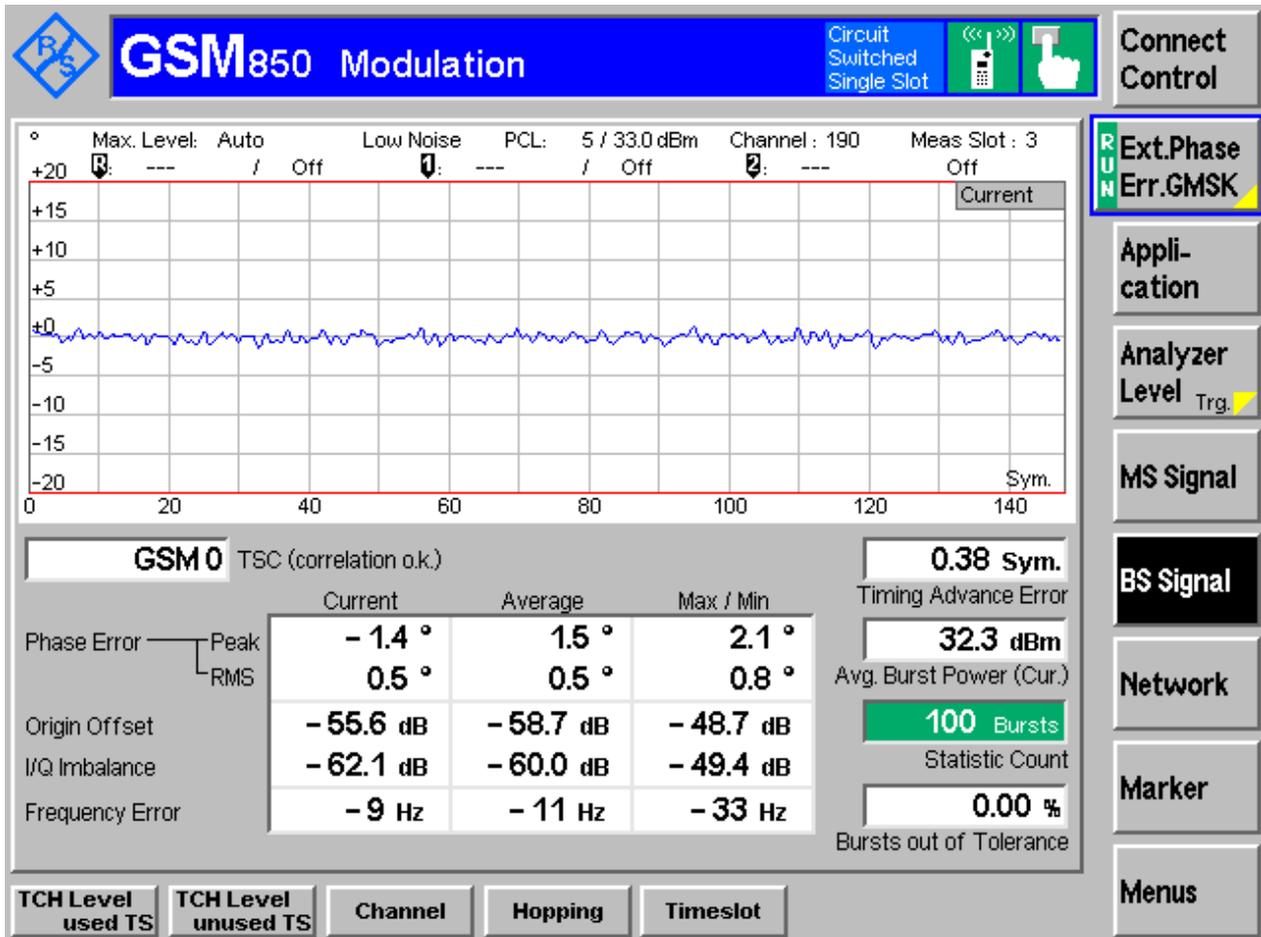
Part I - Test Plots

3.1 For GSM

3.1.1 Test Band = GSM850

3.1.1.1 Test Mode = GSM/TM1

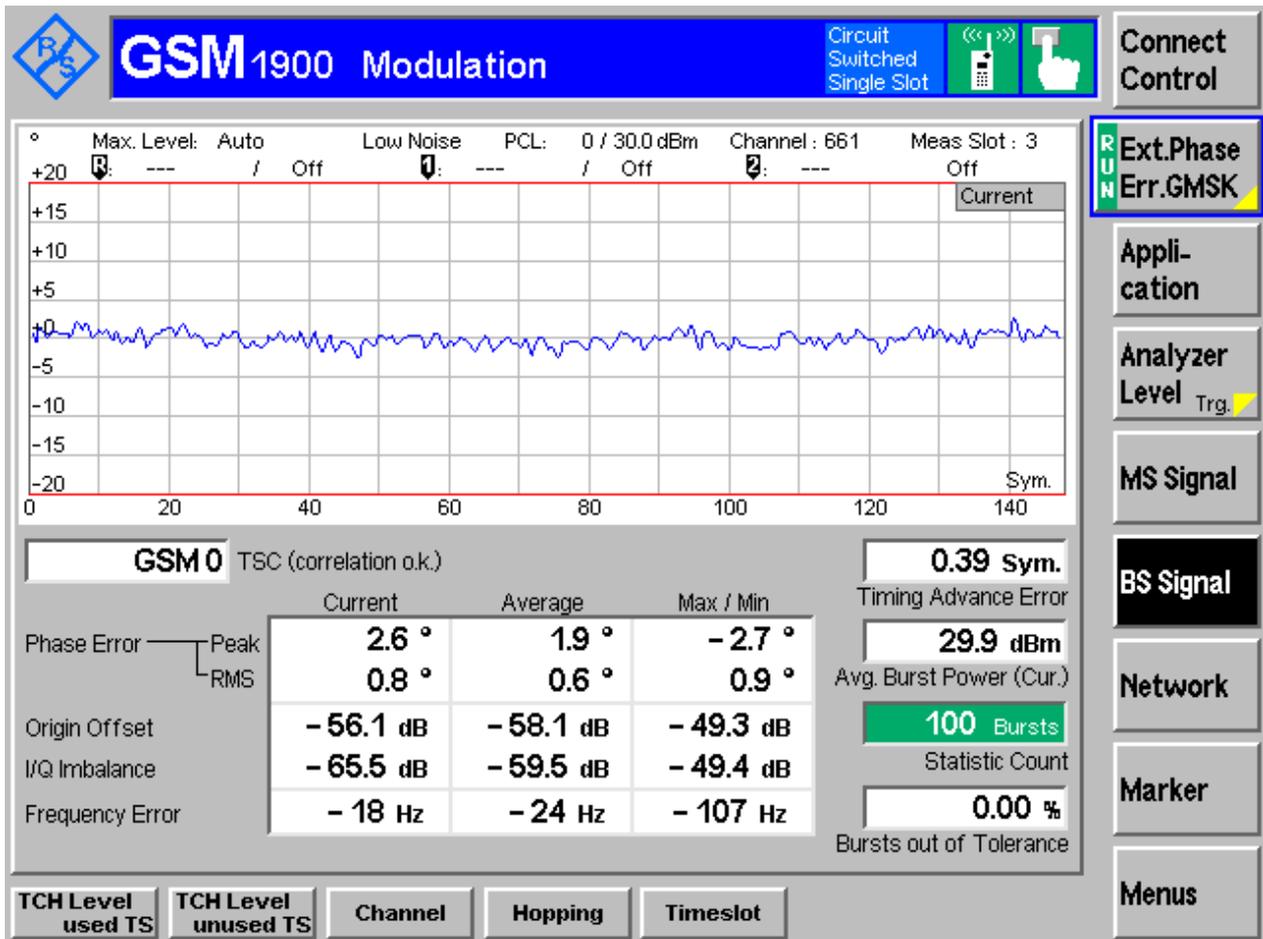
3.1.1.1.1 Test Channel = MCH



3.1.2 Test Band = GSM1900

3.1.2.1 Test Mode = GSM/TM1

3.1.2.1.1 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	245.44	322.6	Pass
		MCH	249.22	313.2	Pass
		HCH	246.20	315.6	Pass
GSM1900	GSM/TM1	LCH	244.55	316.1	Pass
		MCH	245.34	318.3	Pass
		HCH	249.62	321.0	Pass



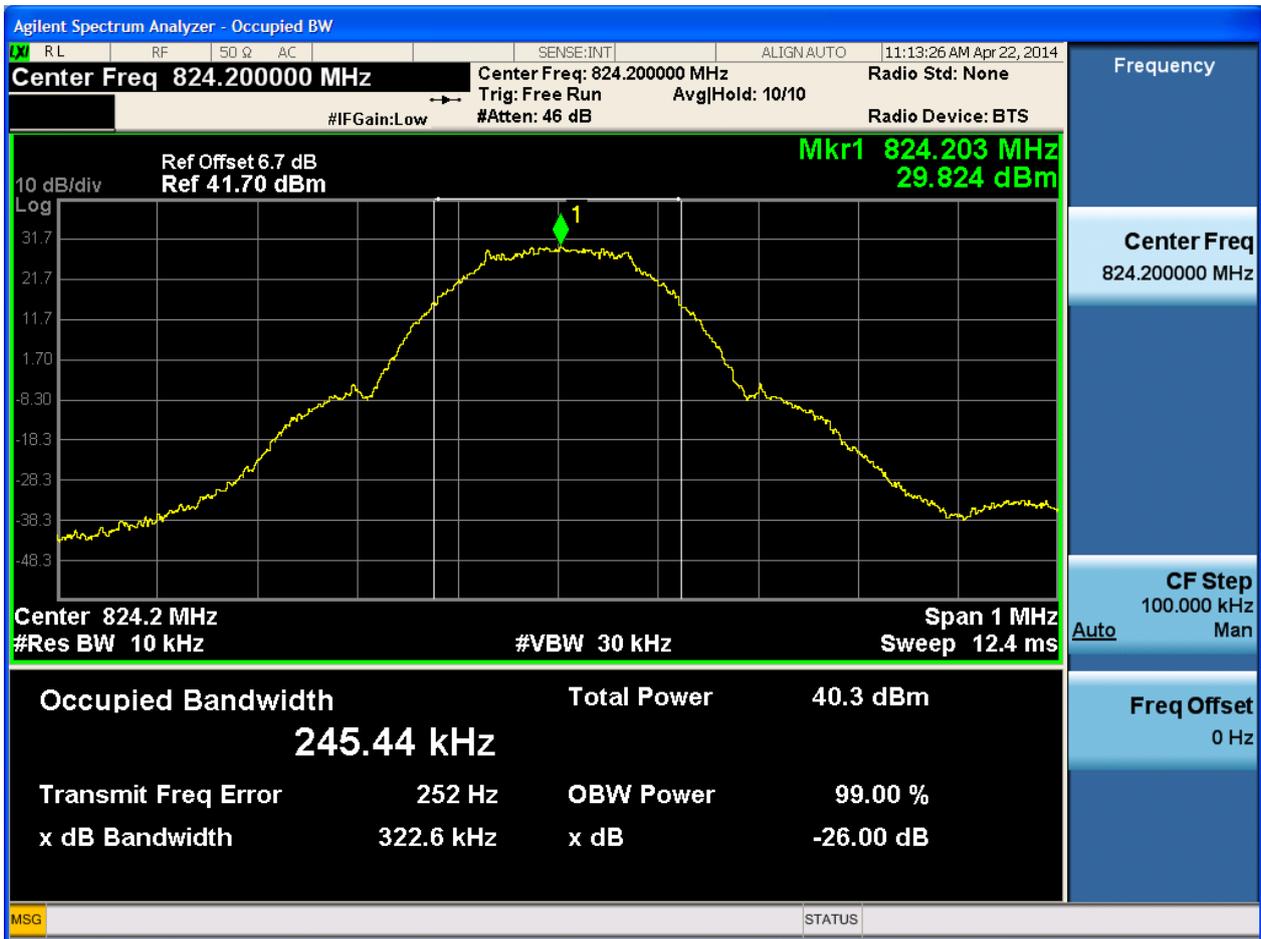
Part II - Test Plots

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





4.1.2 Test Band = GSM1900

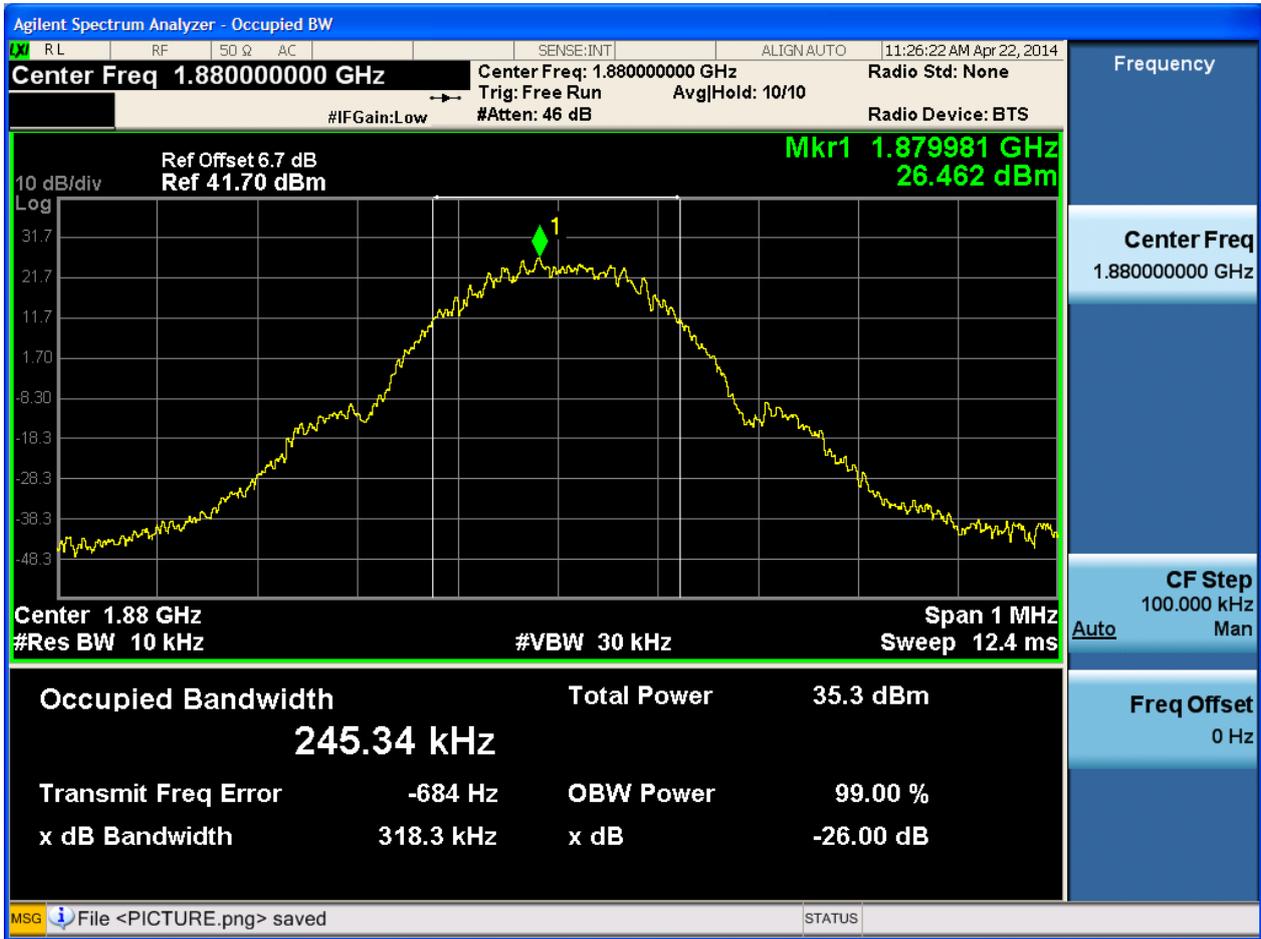
4.1.2.1 Test Mode = GSM/TM1

4.1.2.1.1 Test Channel = LCH



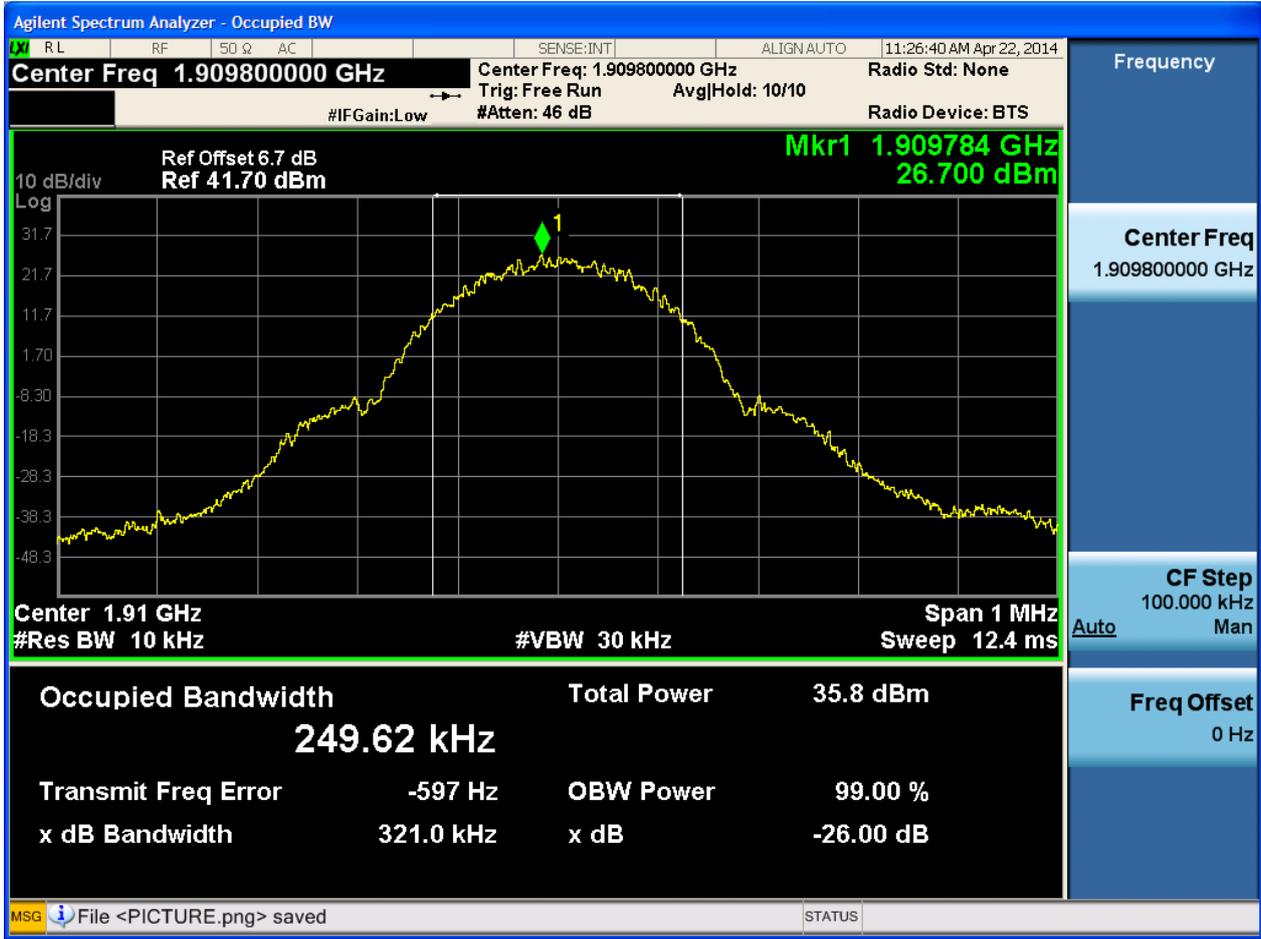


4.1.2.1.2 Test Channel = MCH





4.1.2.1.3 Test Channel = HCH





5Appendix_E: Band Edges Compliance

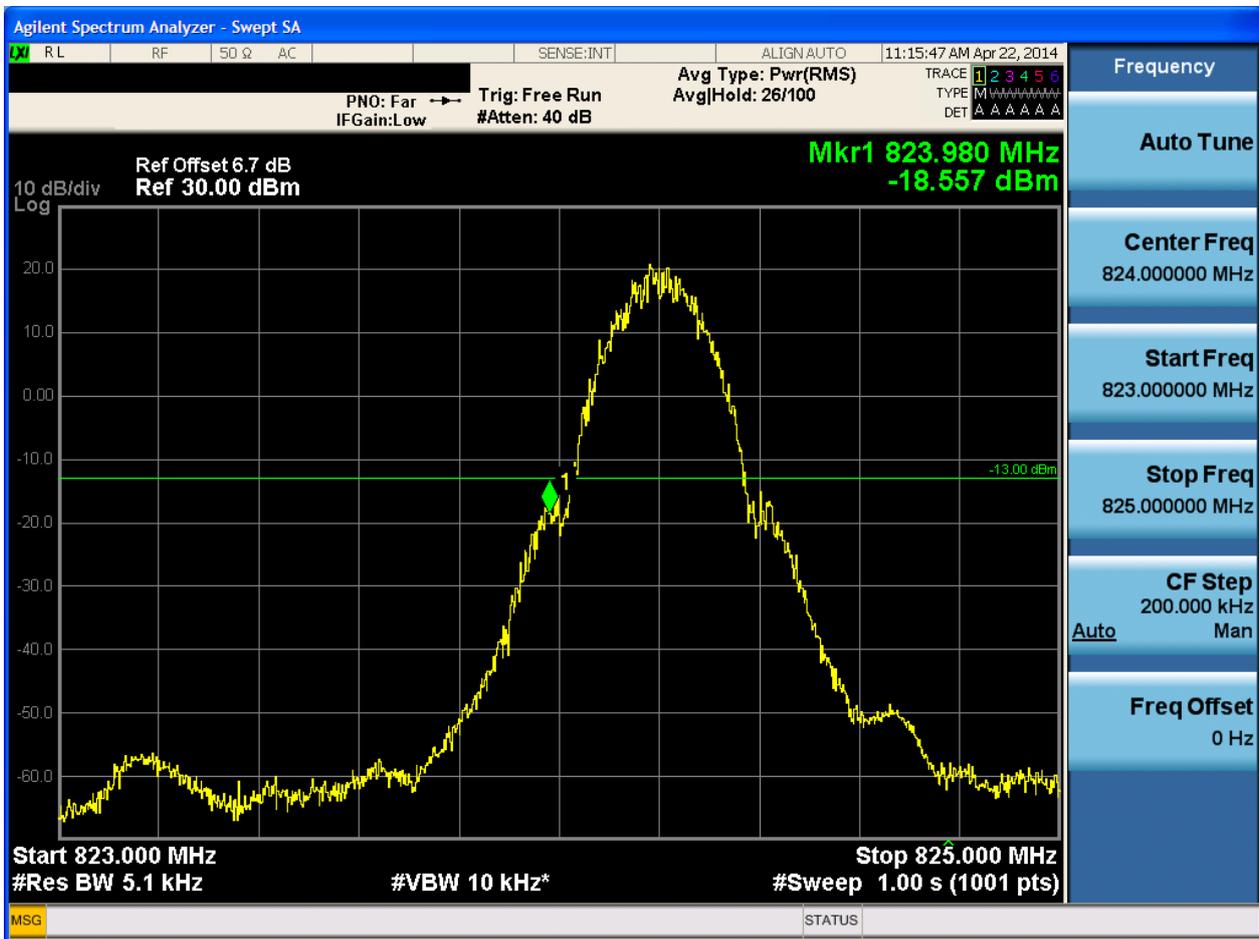
Part I - Test Plots

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

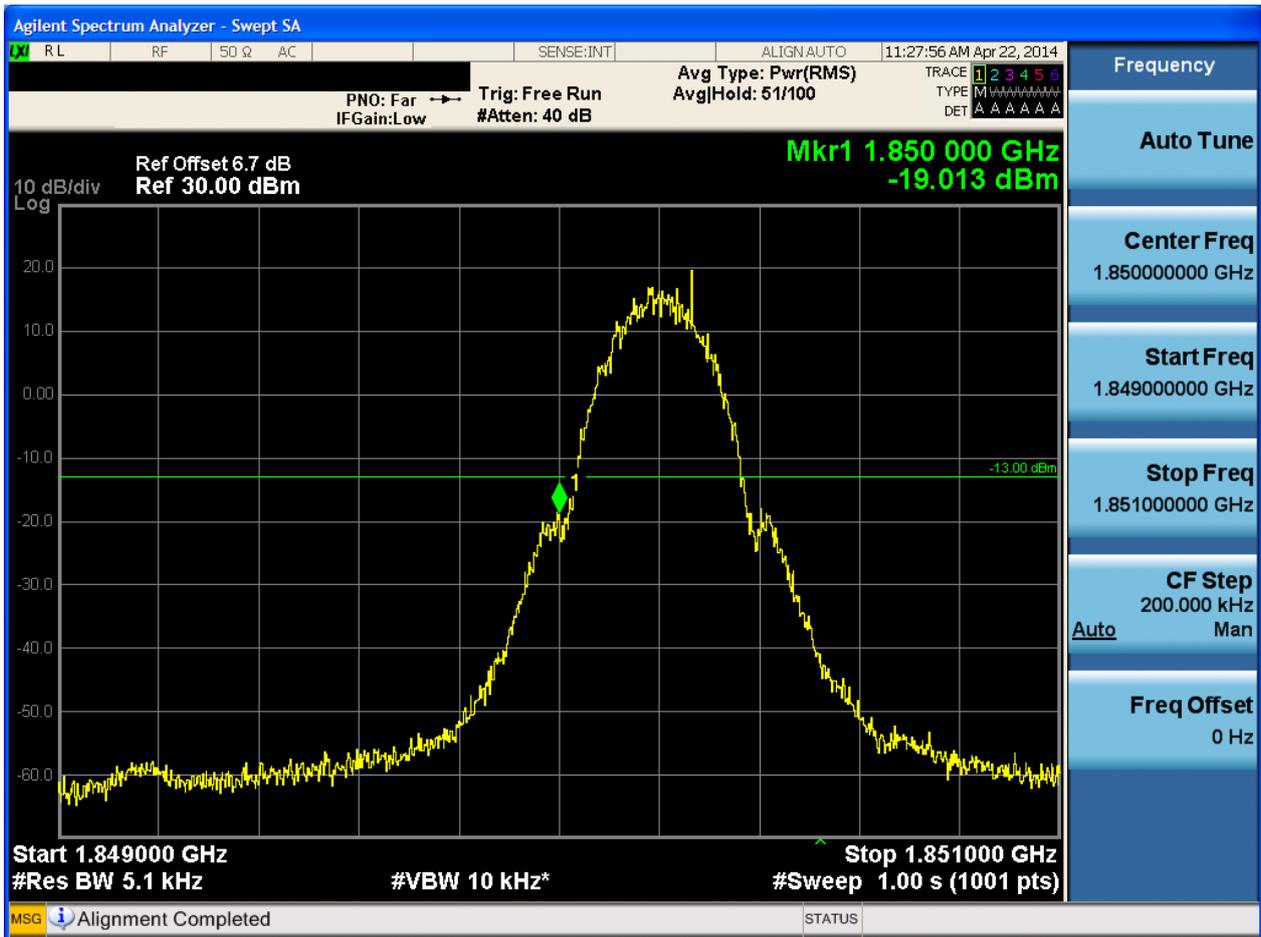




5.1.2 Test Band = GSM1900

5.1.2.1 Test Mode = GSM/TM1

5.1.2.1.1 Test Channel = LCH





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.

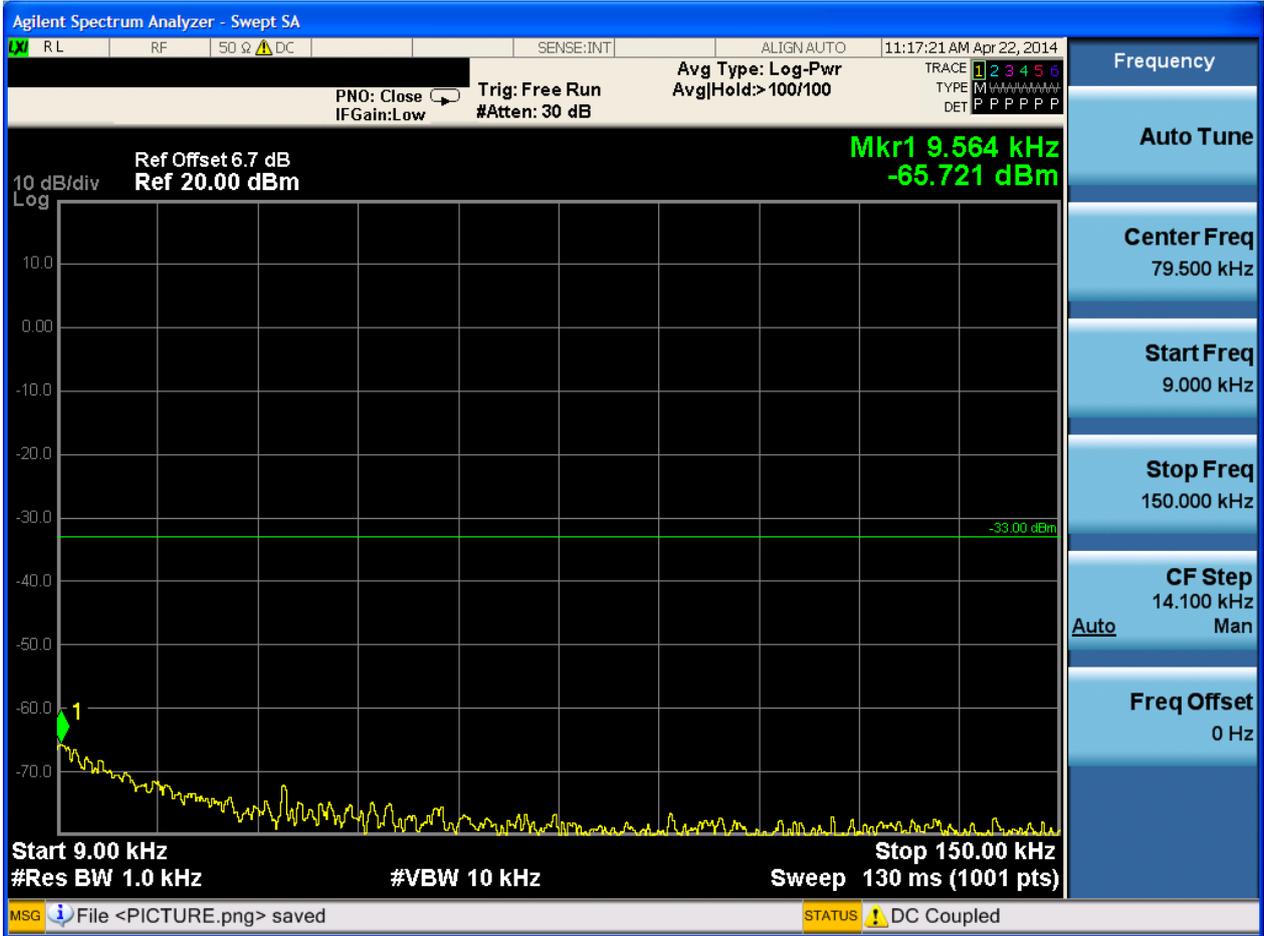
Part I - Test Plots

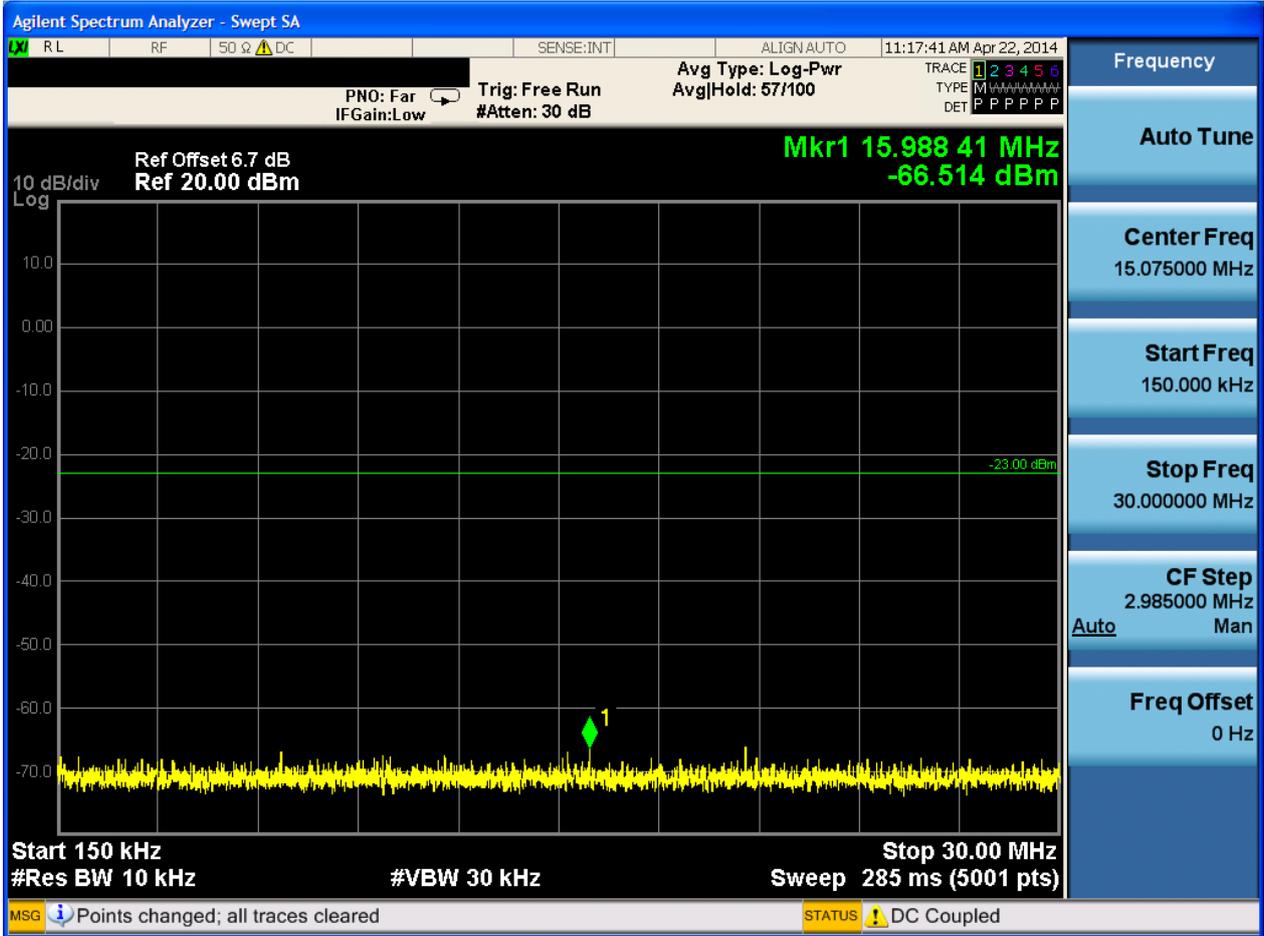
6.1 For GSM

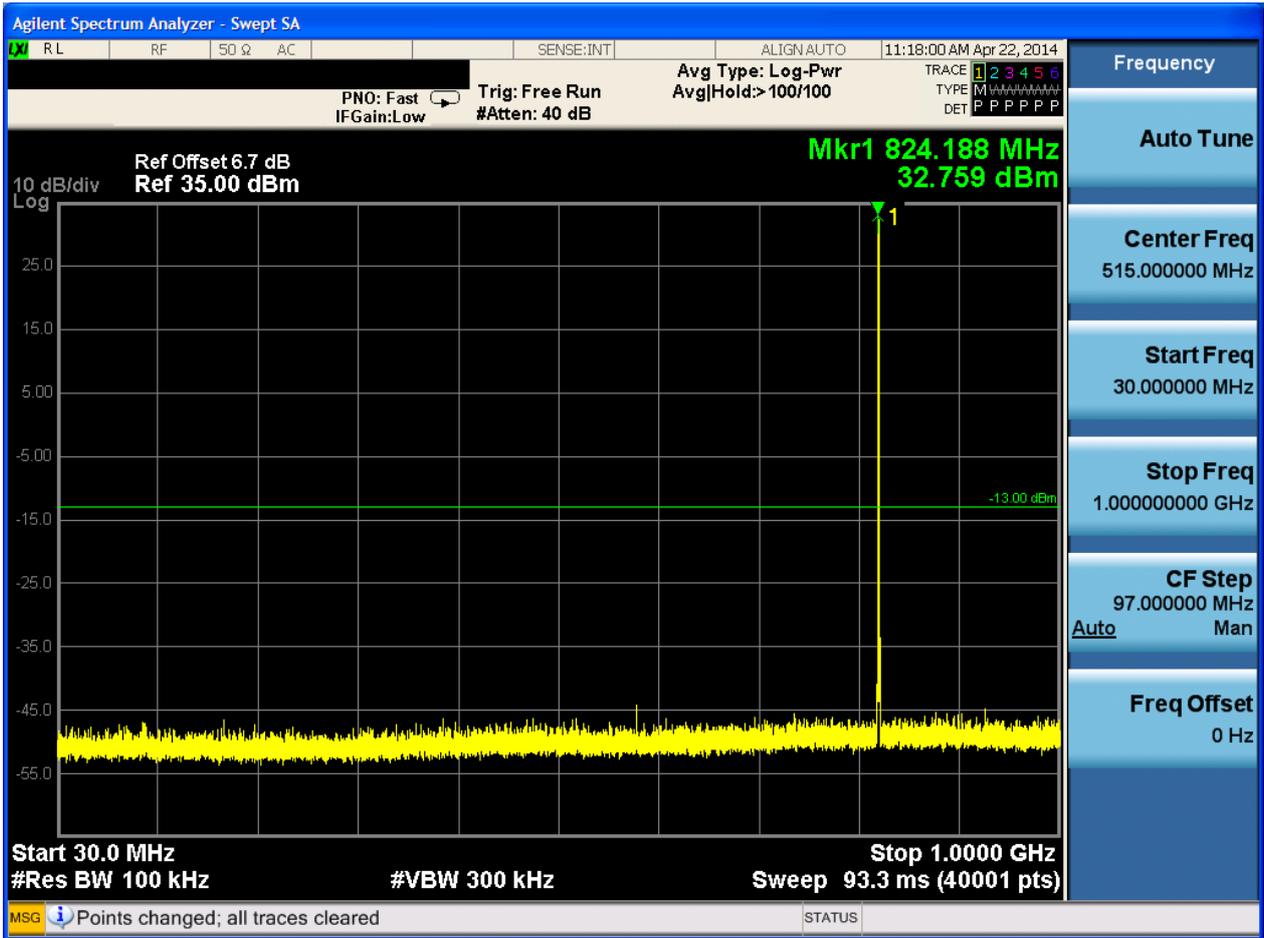
6.1.1 Test Band = GSM850

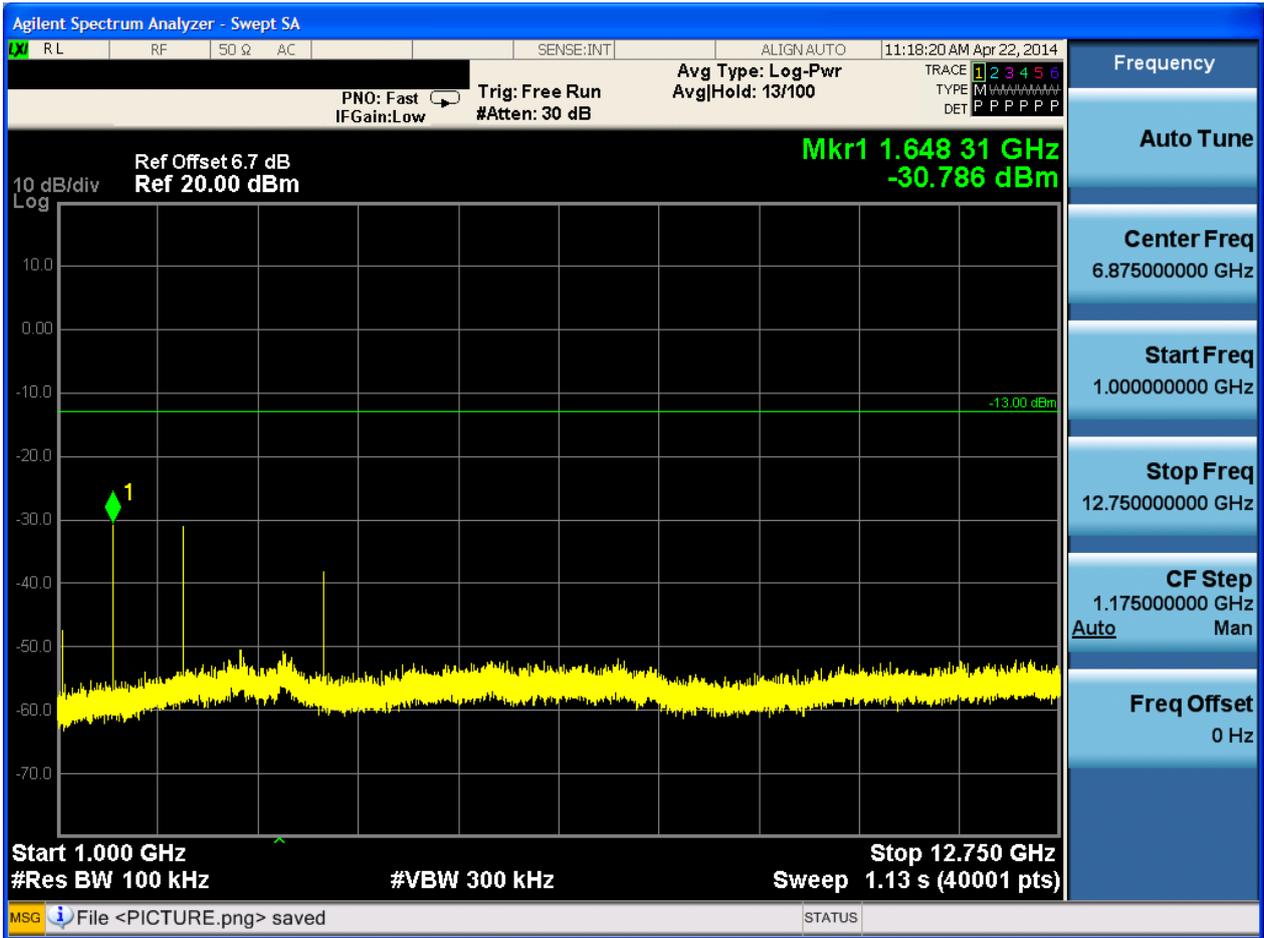
6.1.1.1 Test Mode = GSM/TM1

6.1.1.1.1 Test Channel = LCH



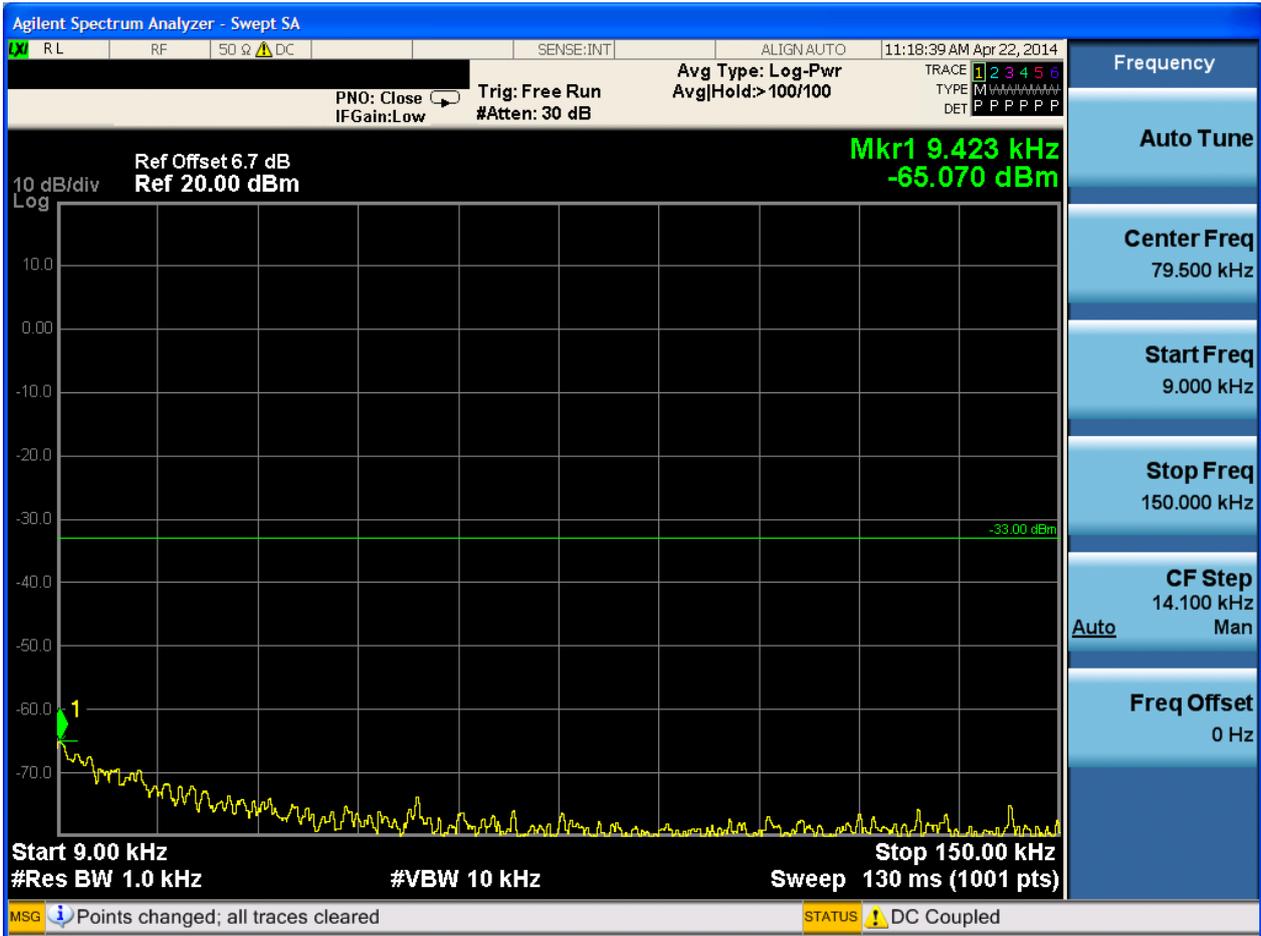


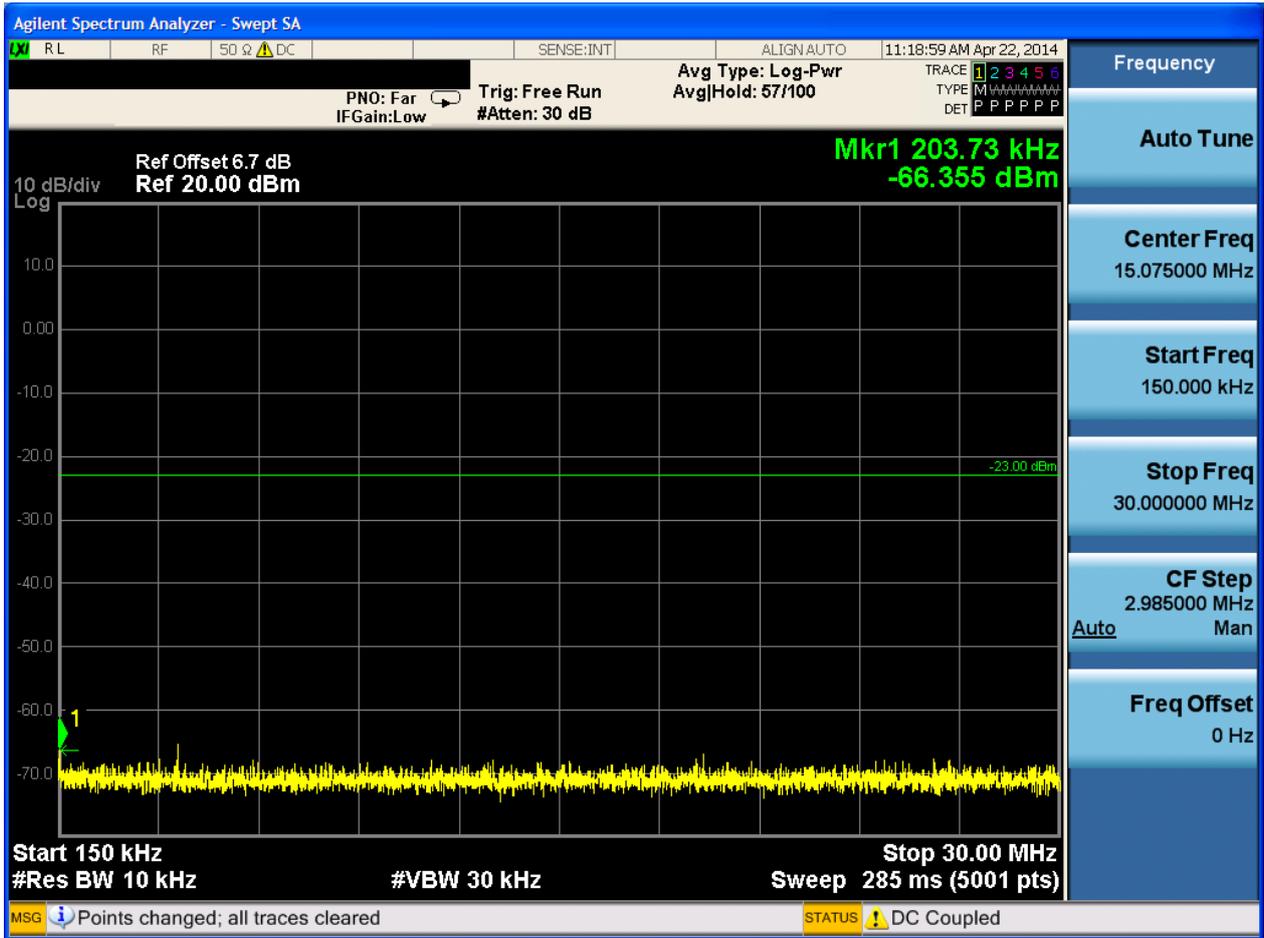


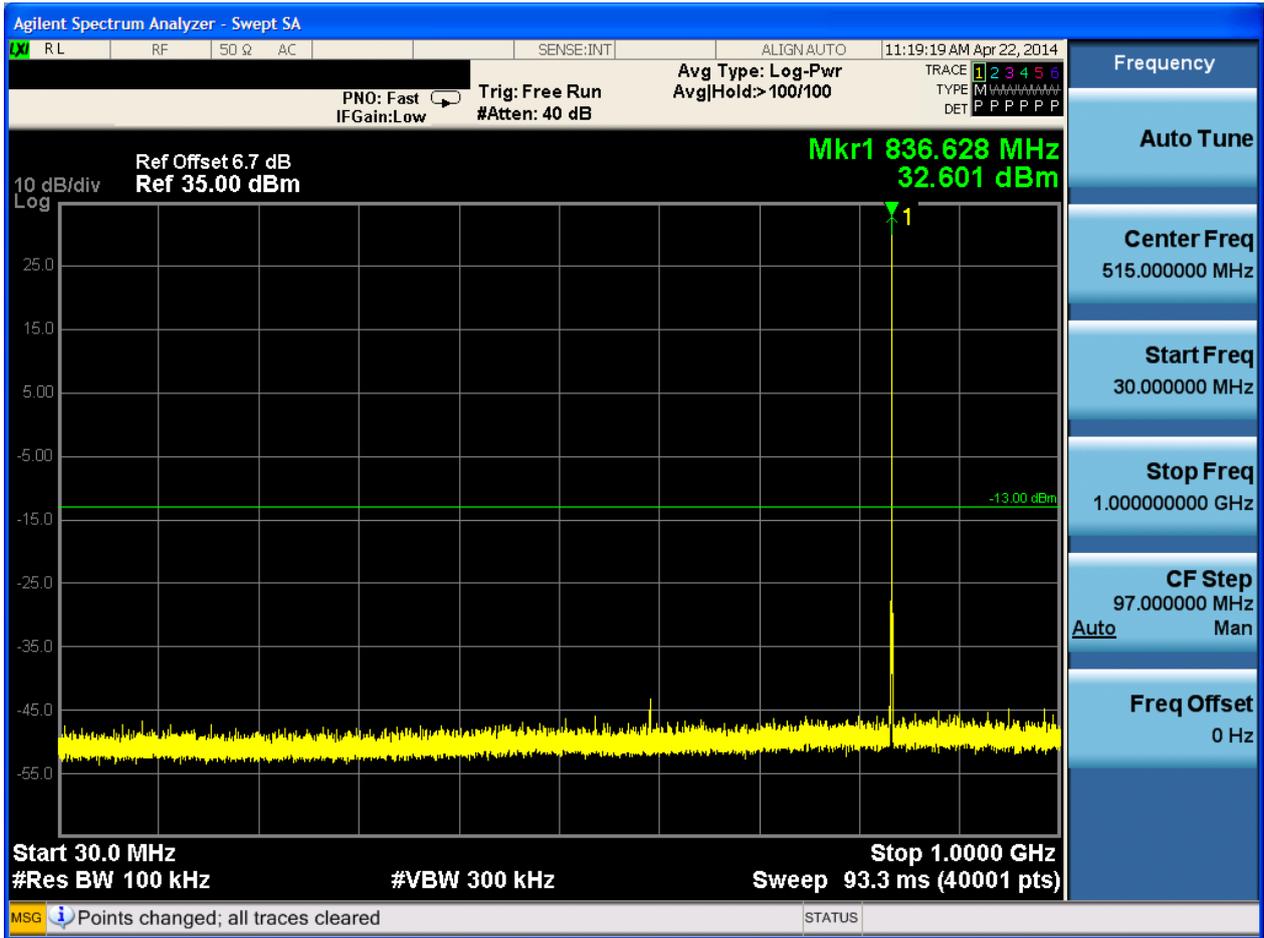


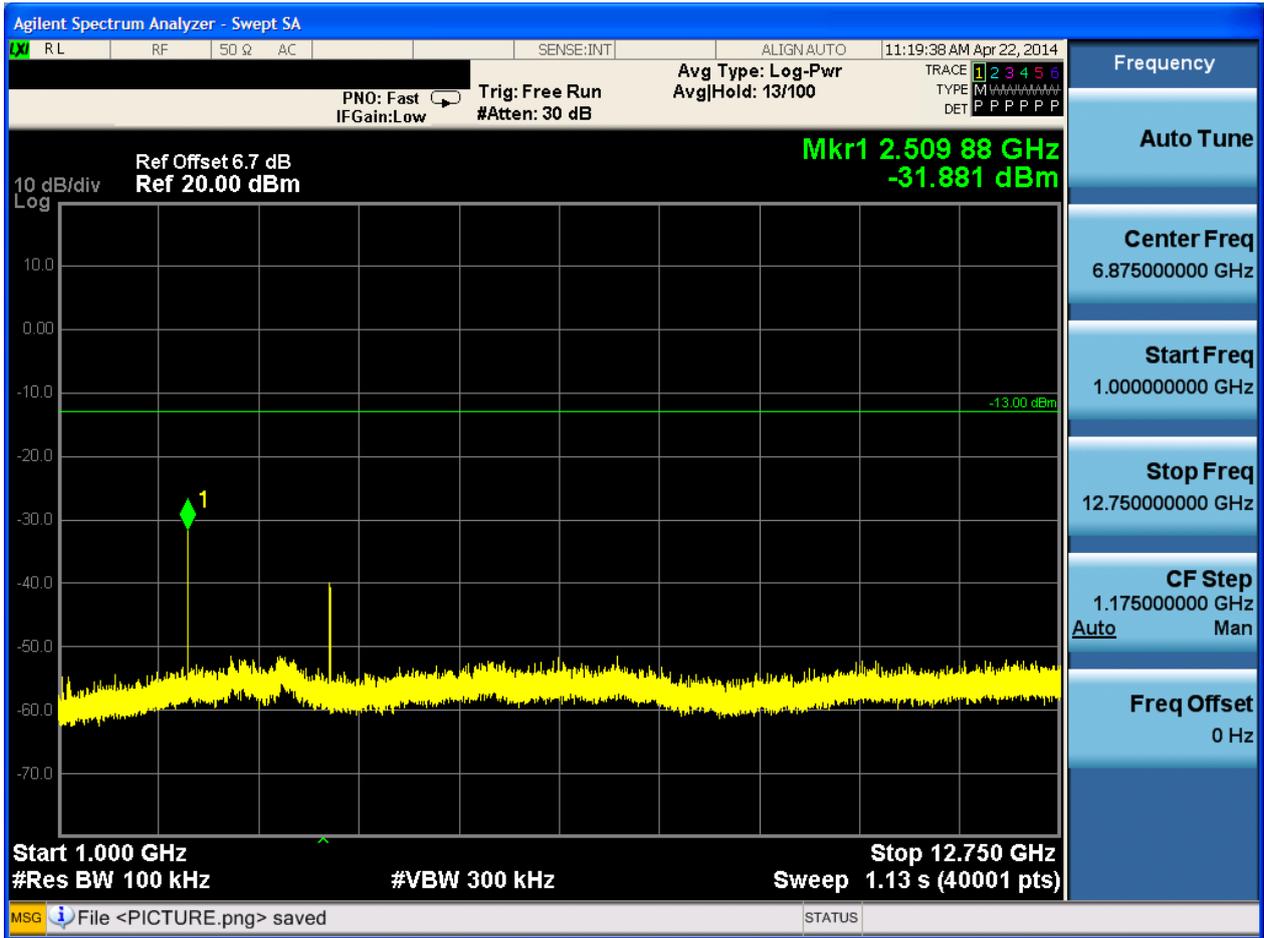


6.1.1.1.2 Test Channel = MCH



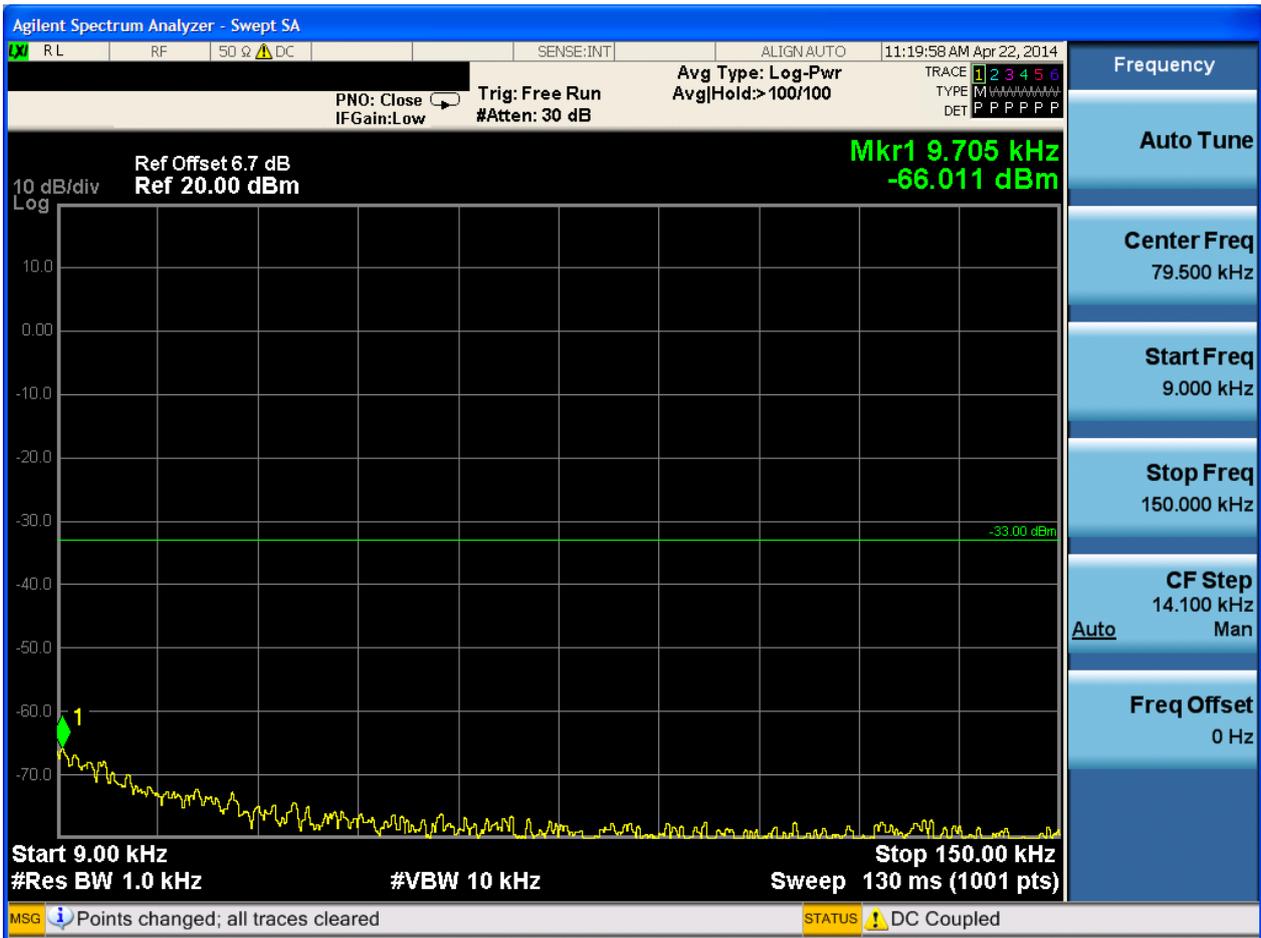


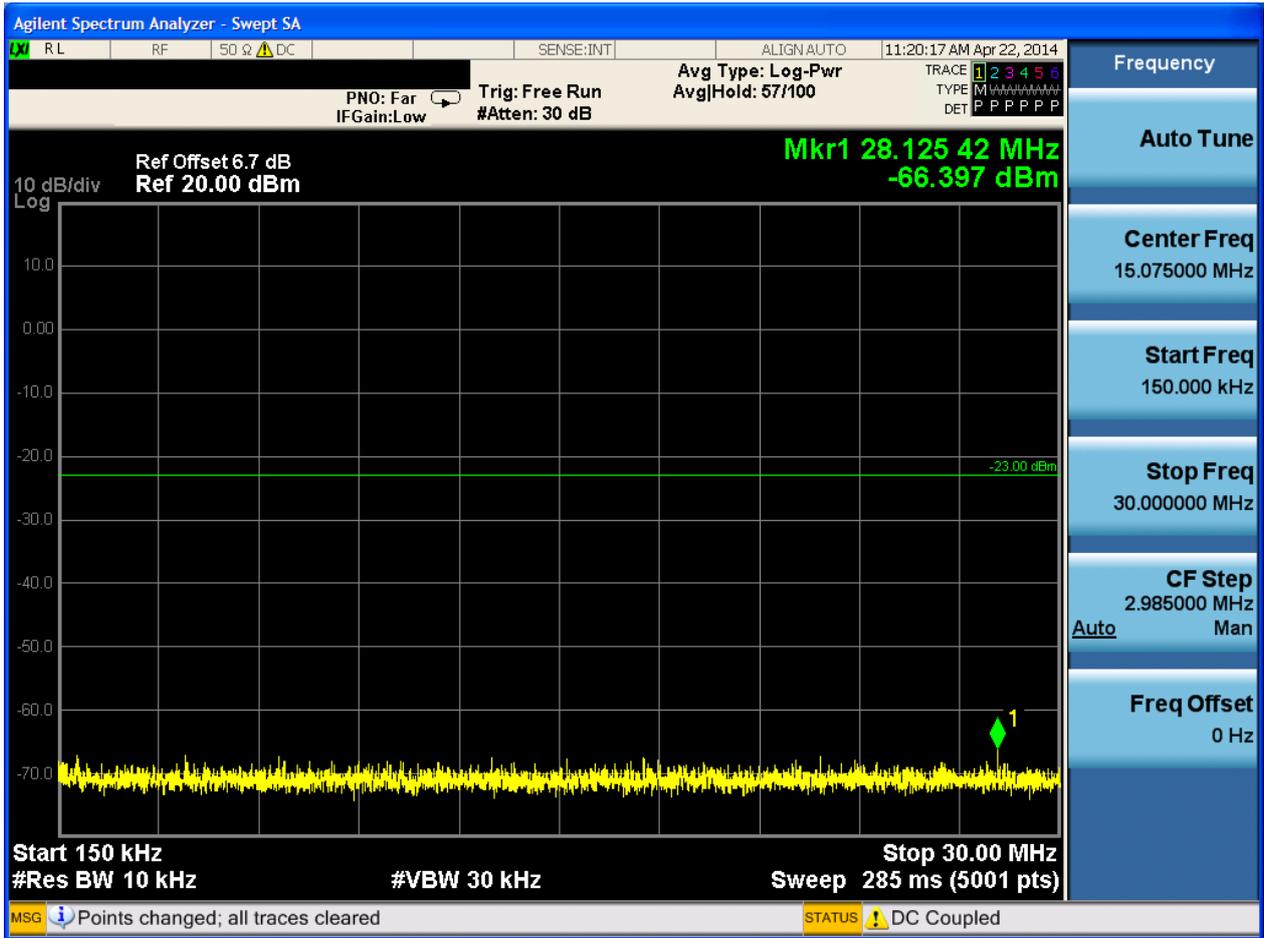


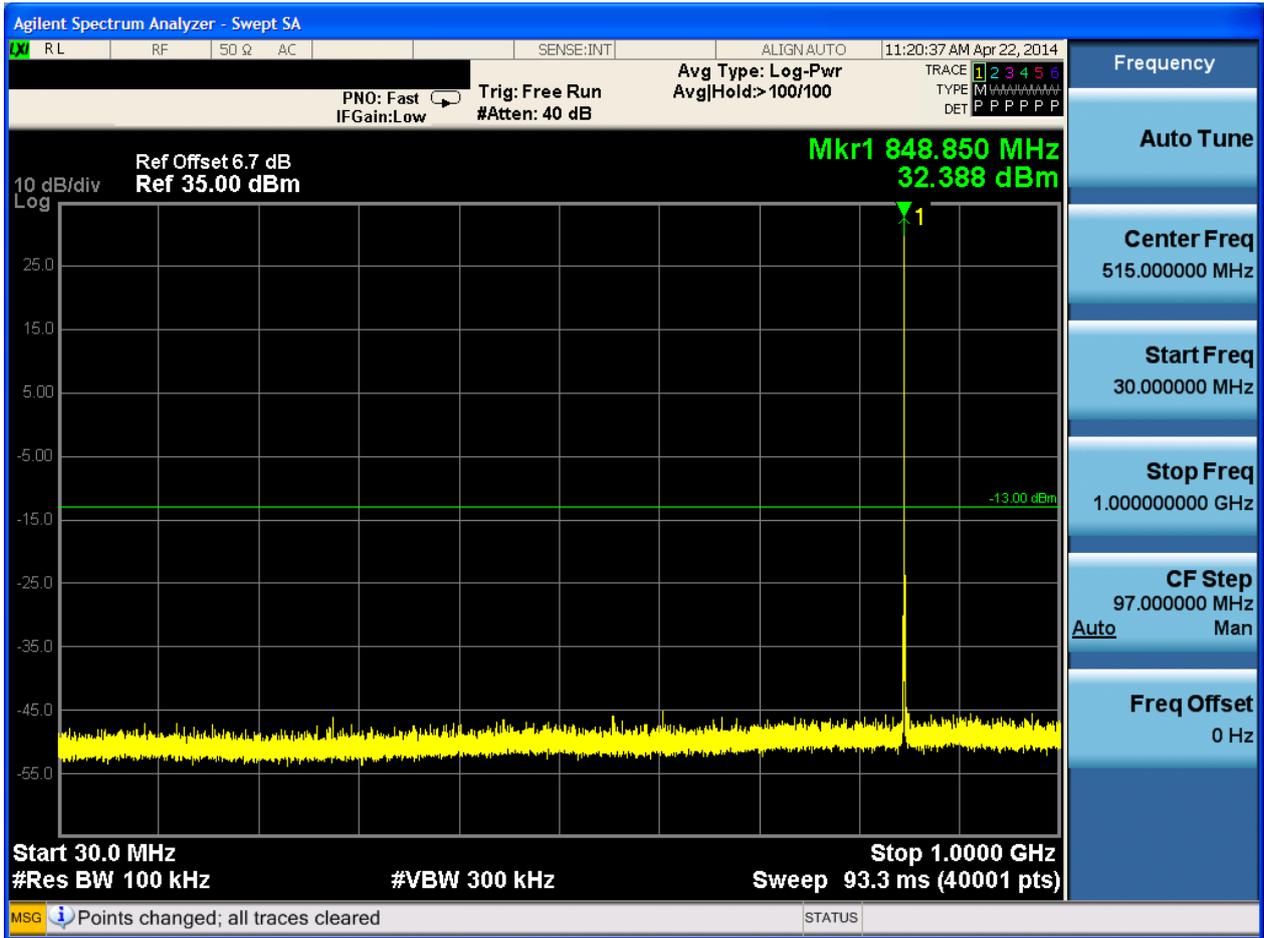


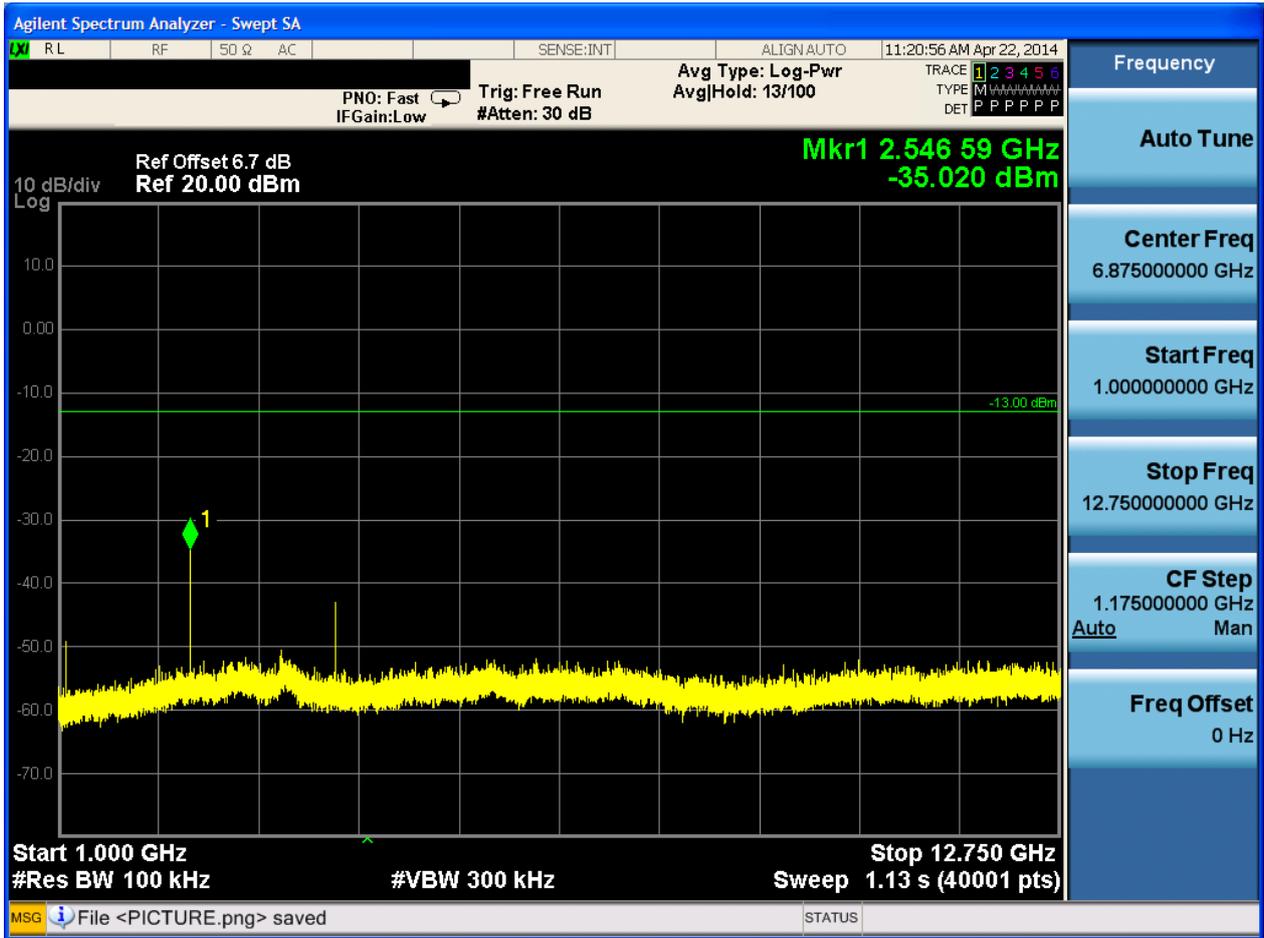


6.1.1.1.3 Test Channel = HCH







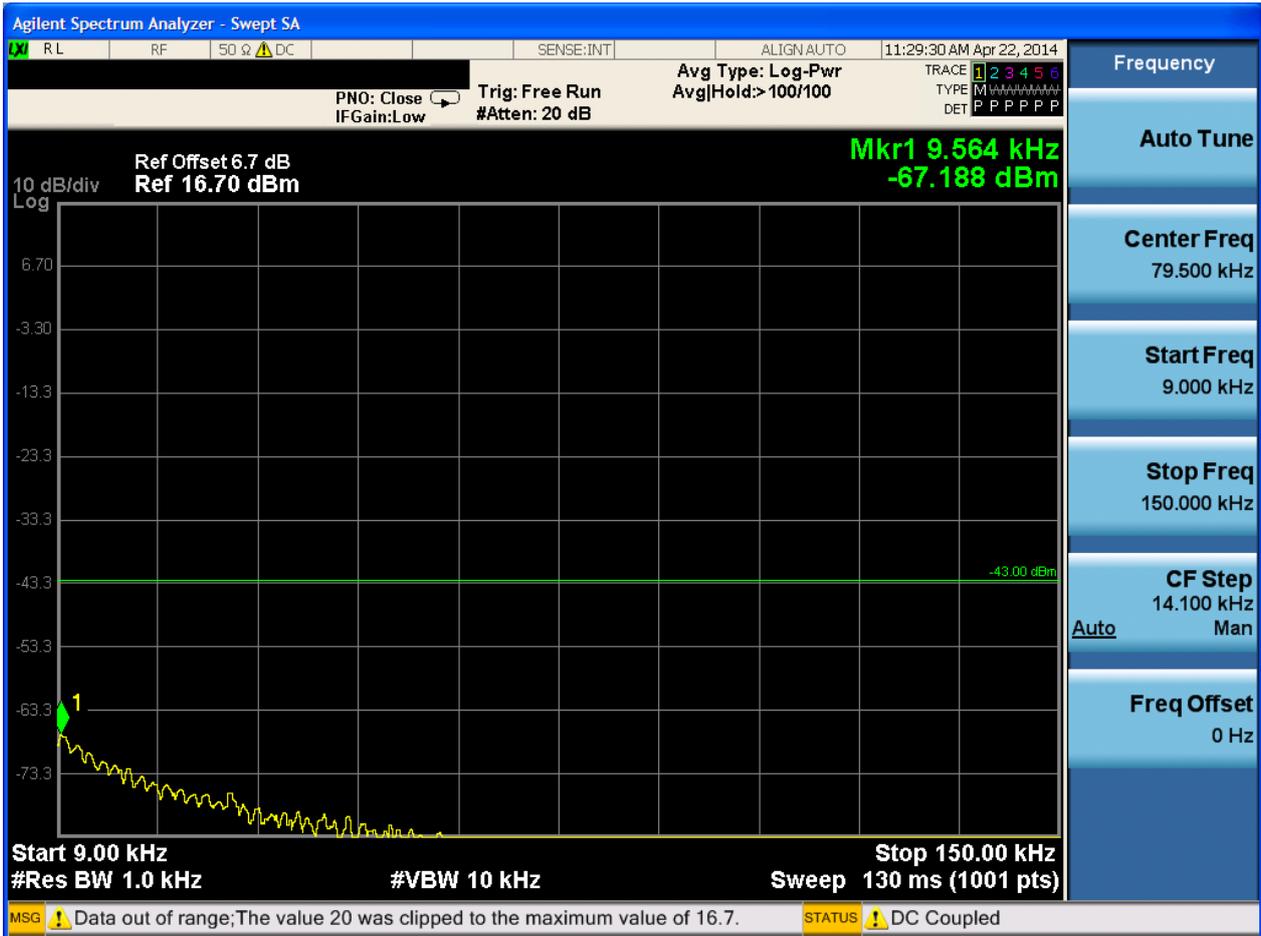


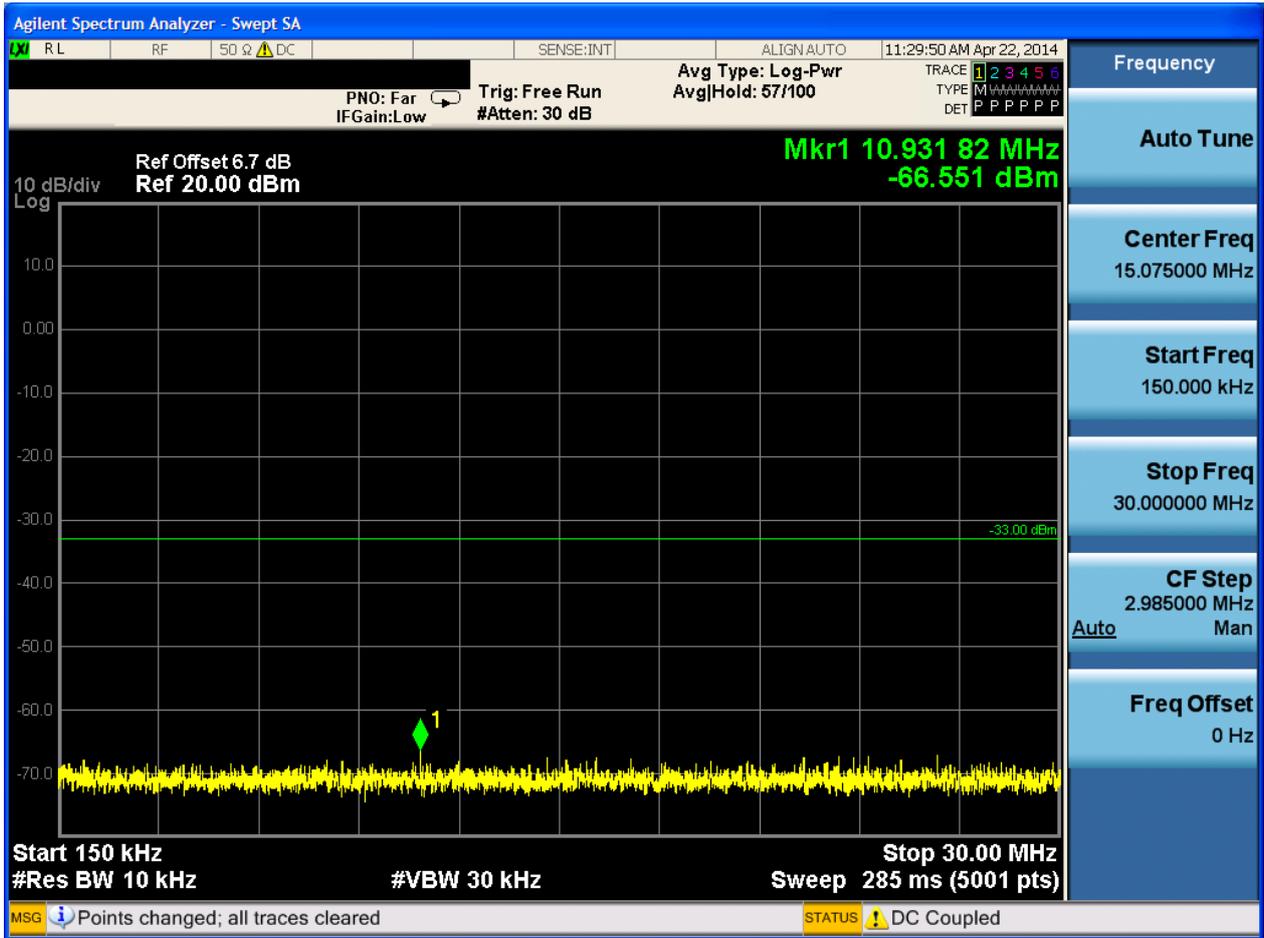


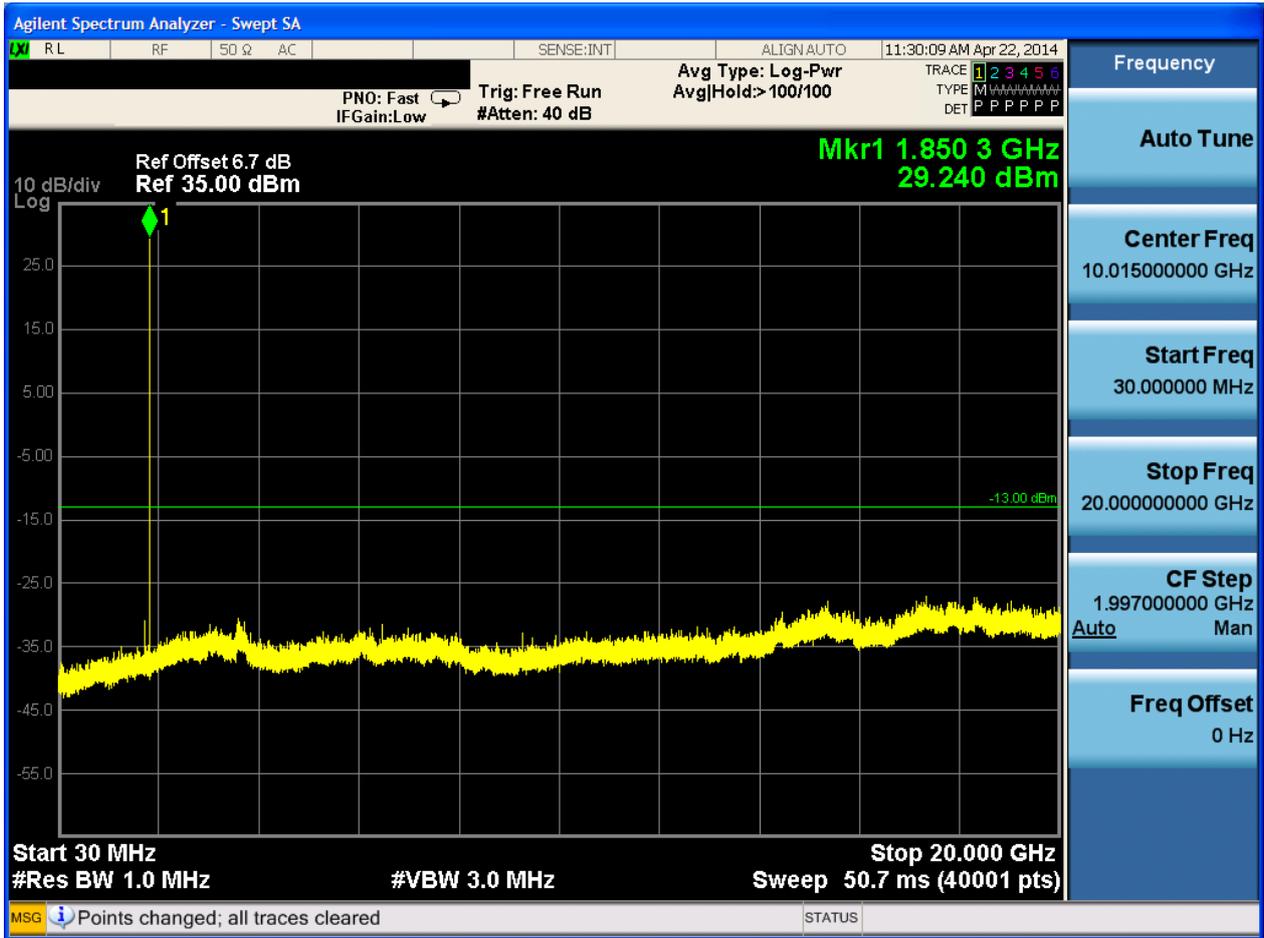
6.1.2 Test Band = GSM1900

6.1.2.1 Test Mode = GSM/TM1

6.1.2.1.1 Test Channel = LCH



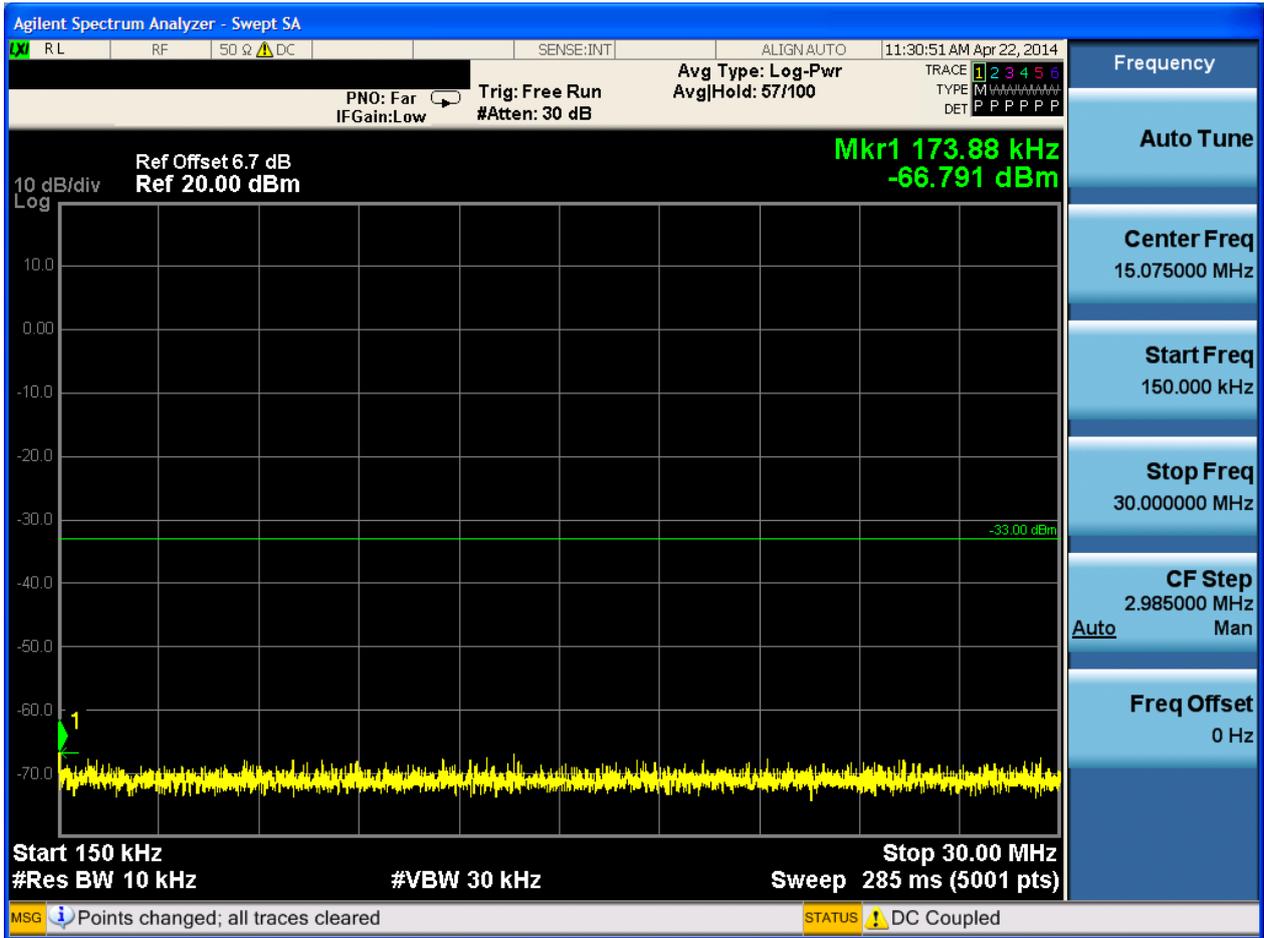


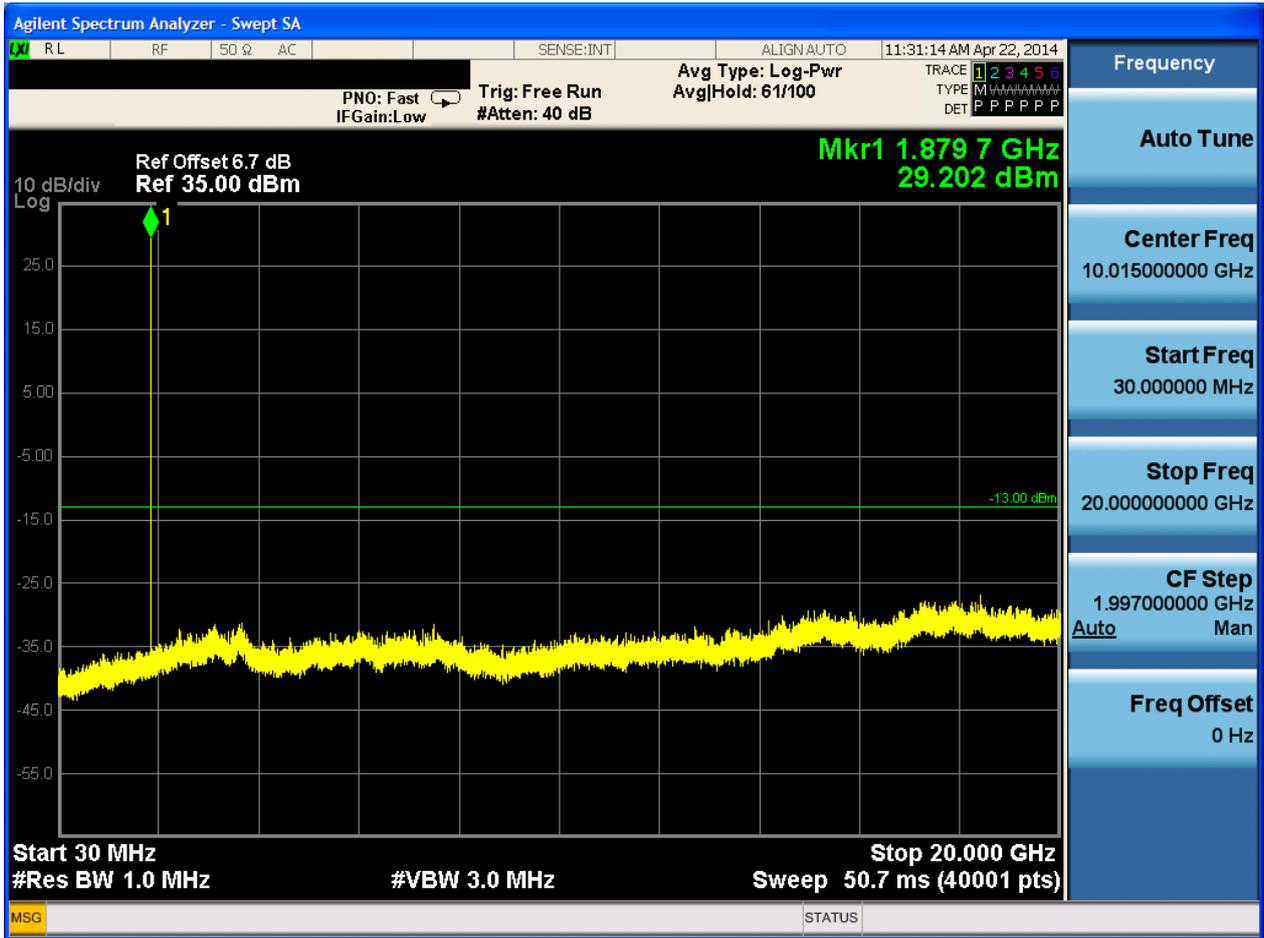




6.1.2.1.2 Test Channel = MCH

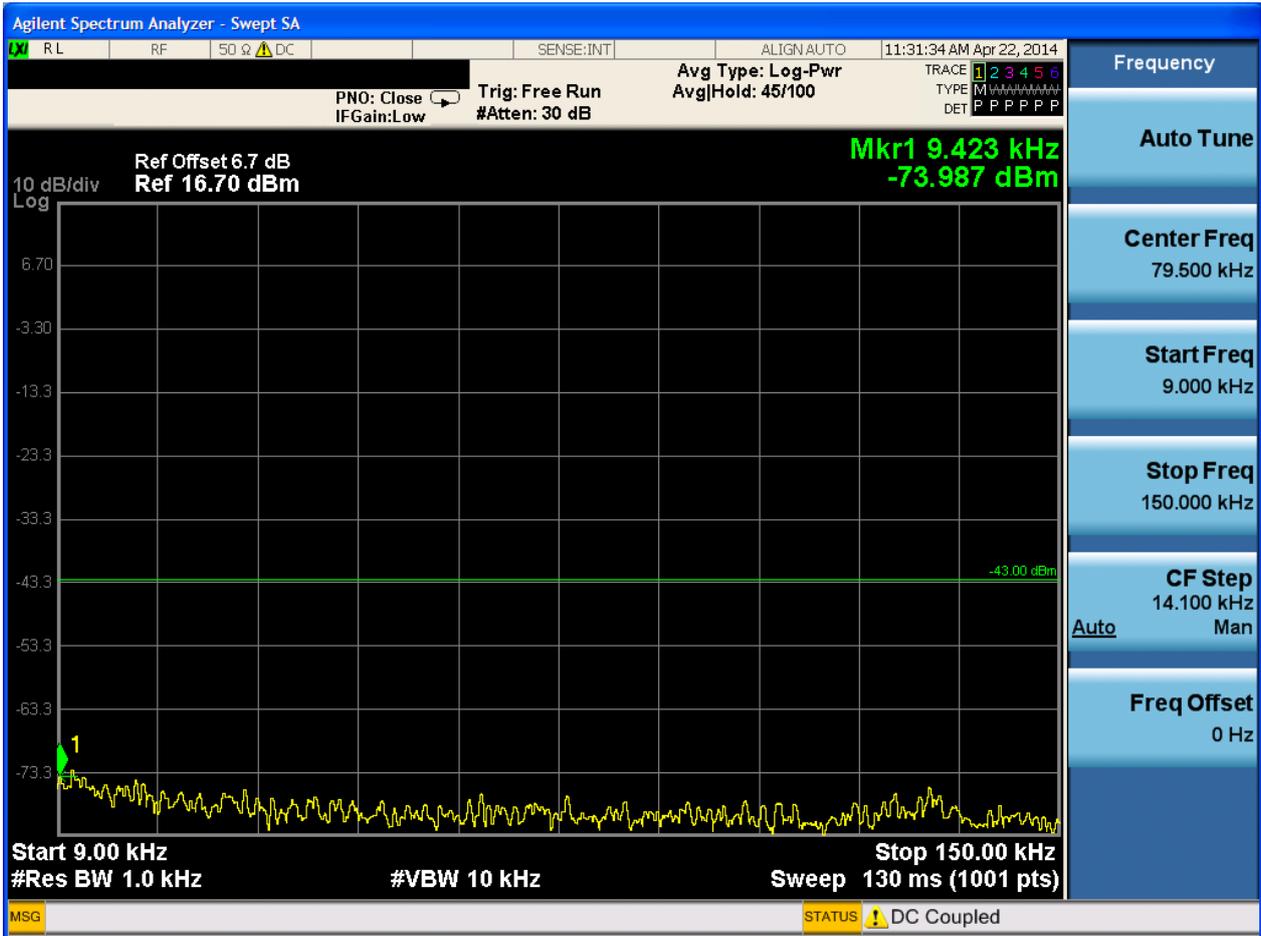


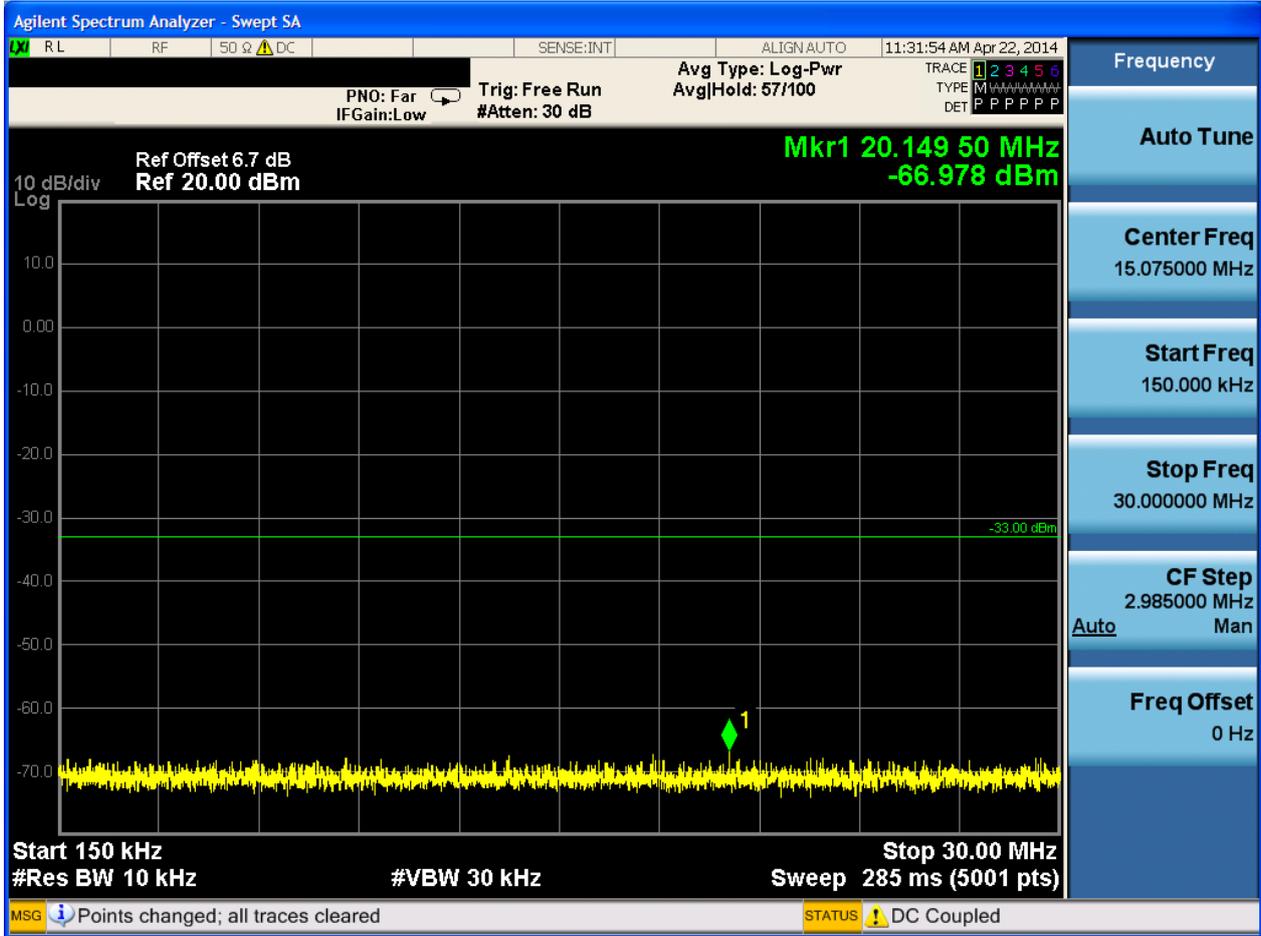


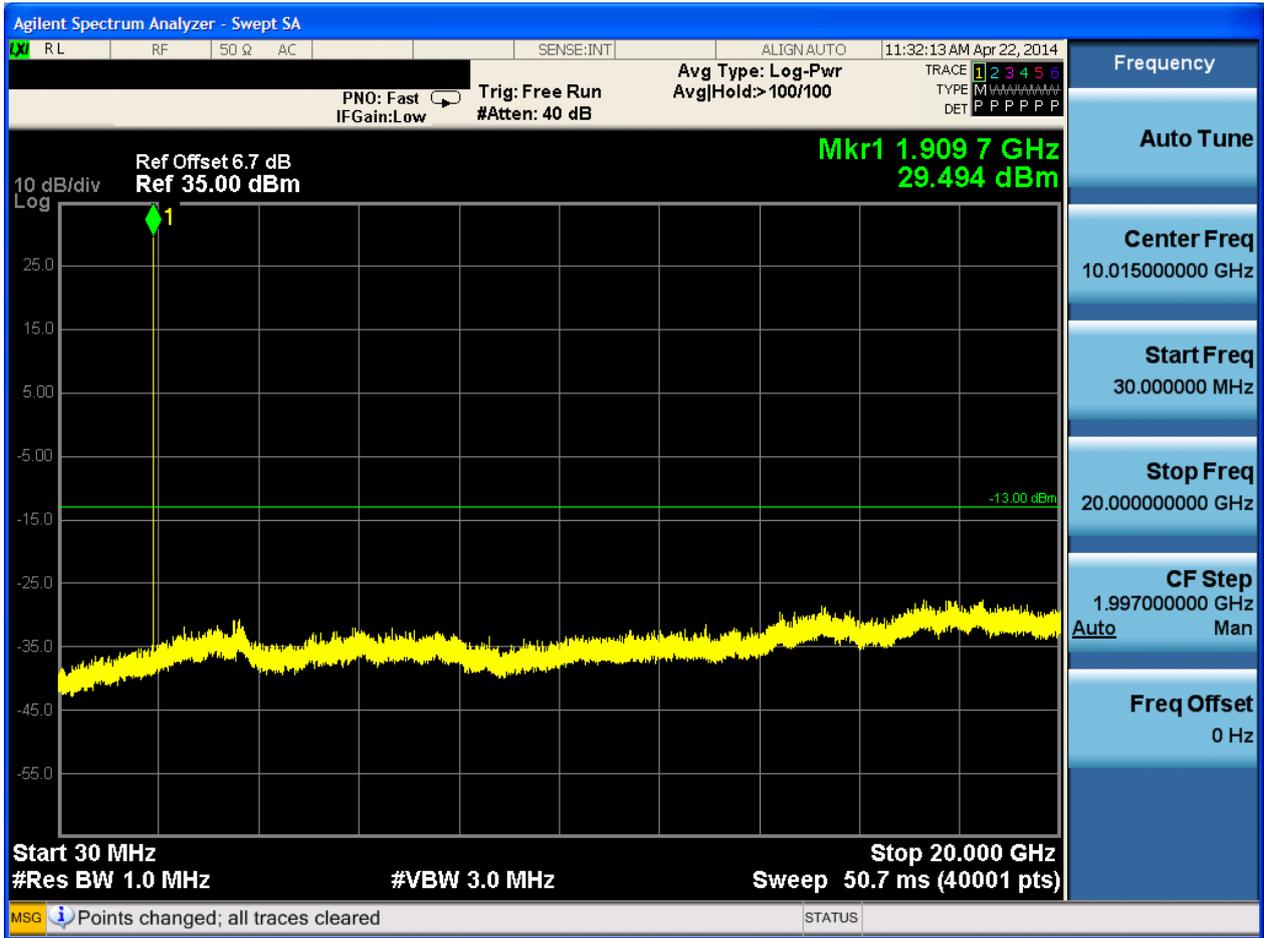




6.1.2.1.3 Test Channel = HCH







7Appendix_G: Field Strength of Spurious Radiation

Note:

9kHz~150kHz, VBW = 200Hz, VBW = 600 Hz, Detector: PK

150kHz~30MHz, VBW = 9kHz, VBW = 30k Hz, Detector: PK

30MHz~1GHz, RBW = 100 kHz, VBW = 300 kHz. Detector: PK

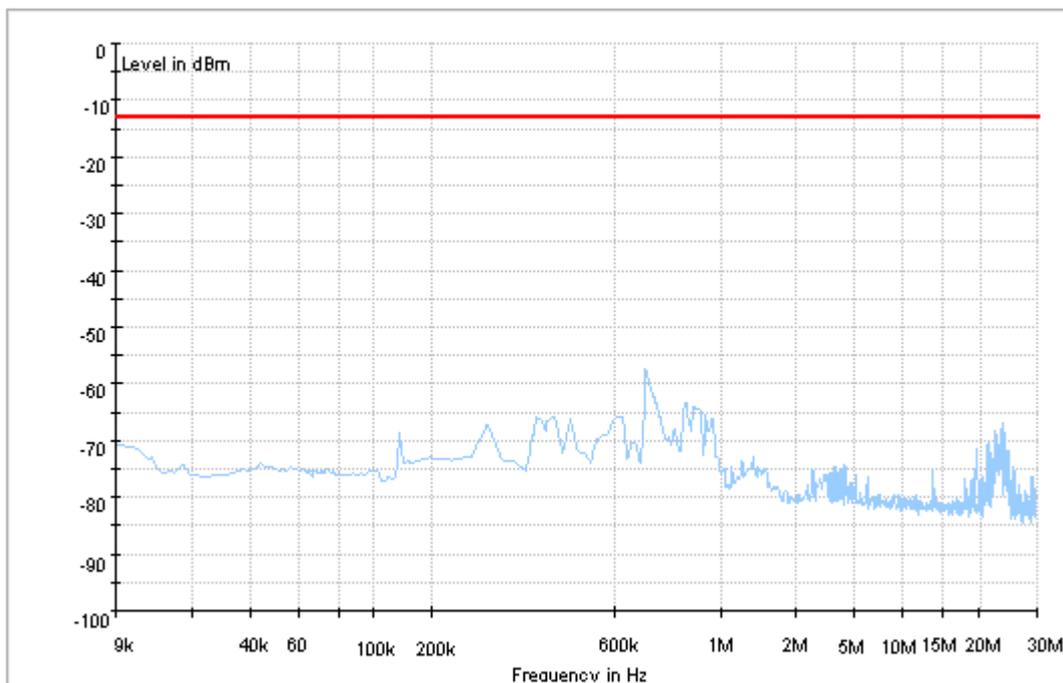
Above 1GHz, RBW = 1 MHz, VBW = 3 MHz. Detector: PK

Part I - Test Plots

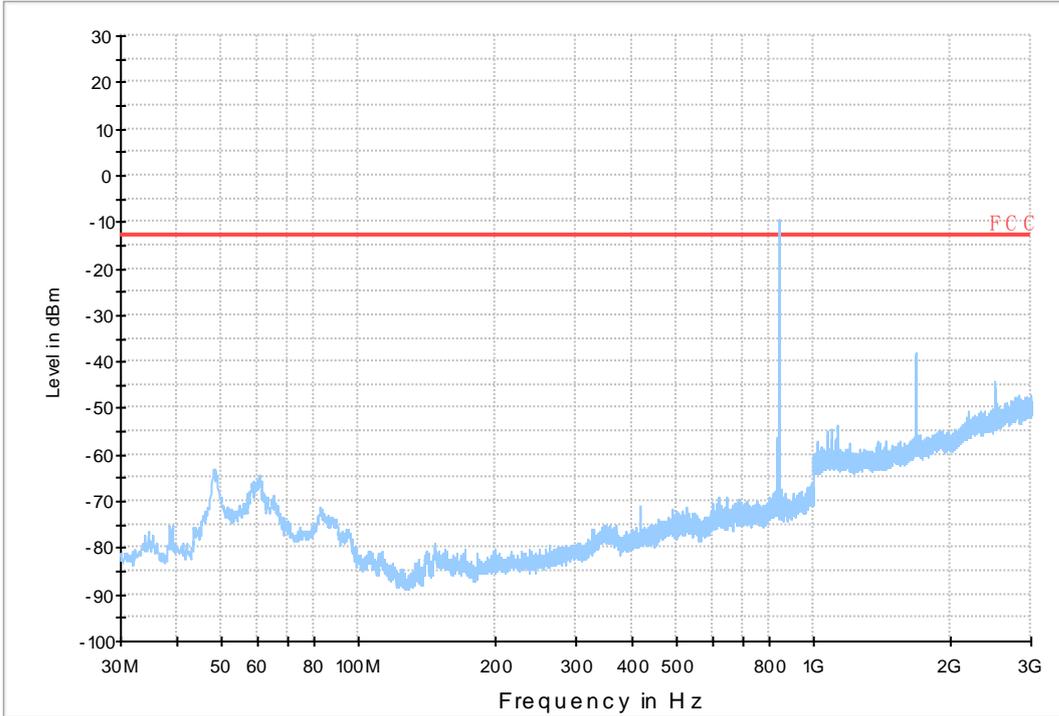
7.1 For GSM

7.1.1 Test Band = GSM850

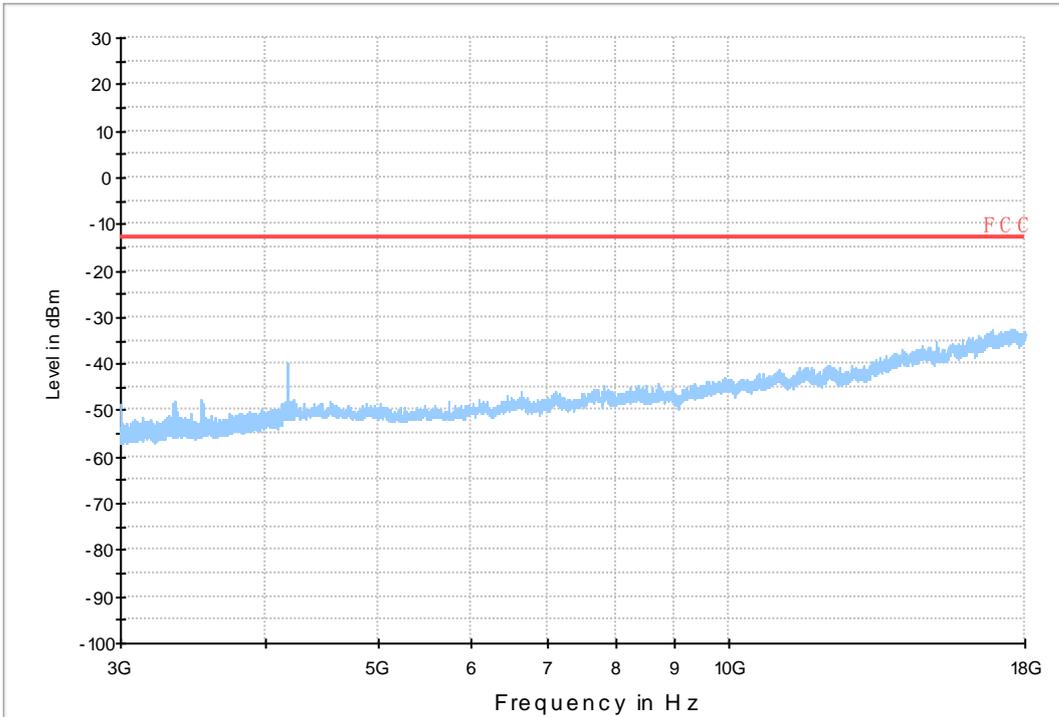
7.1.1.1 Test Mode = GSM/TM1



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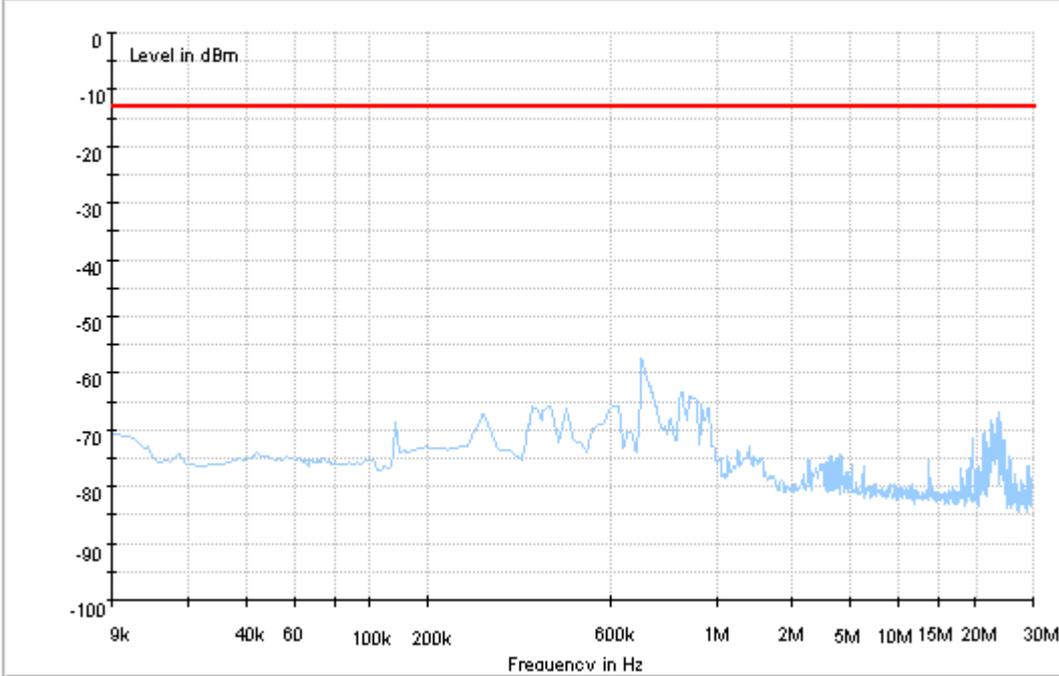


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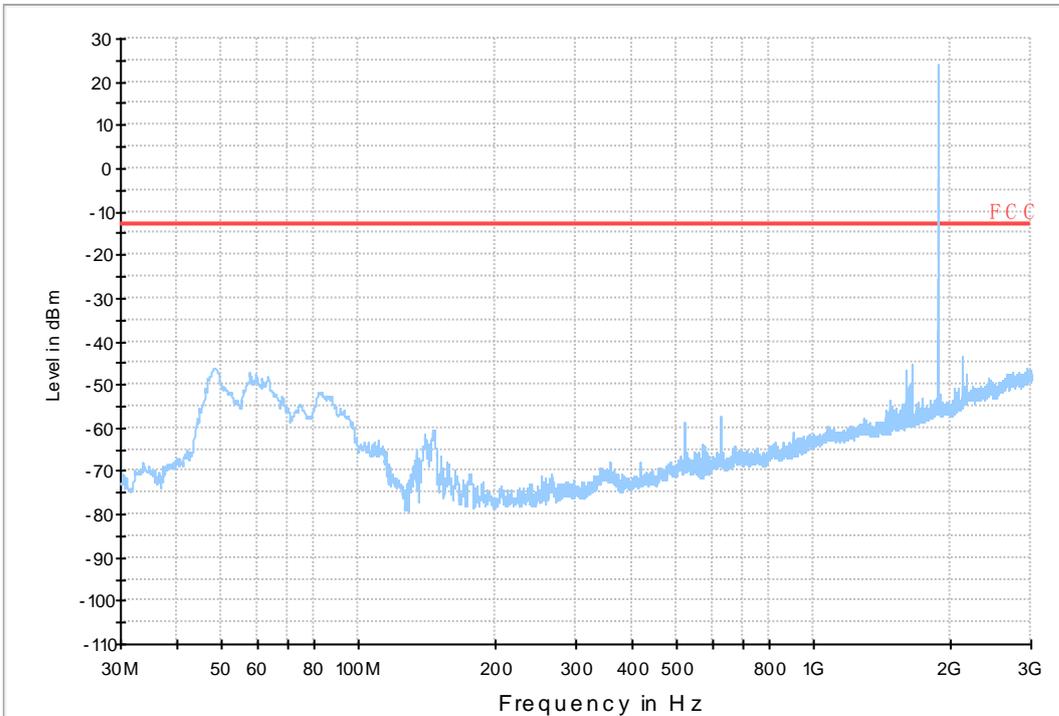


7.1.2 Test Band = GSM1900

7.1.2.1 Test Mode = GSM/TM1

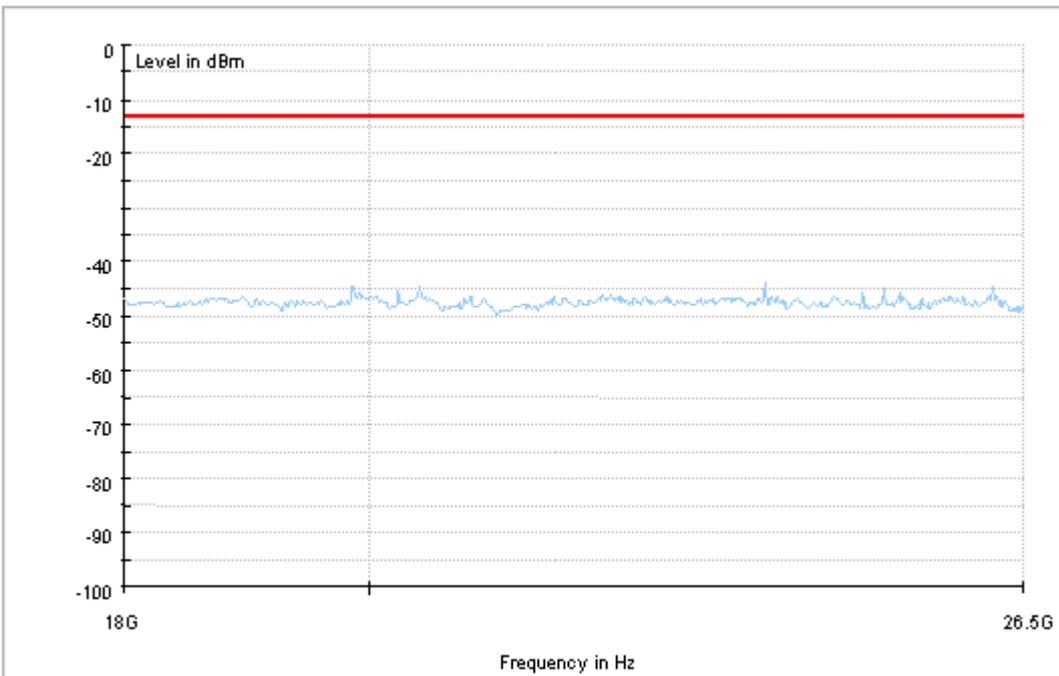
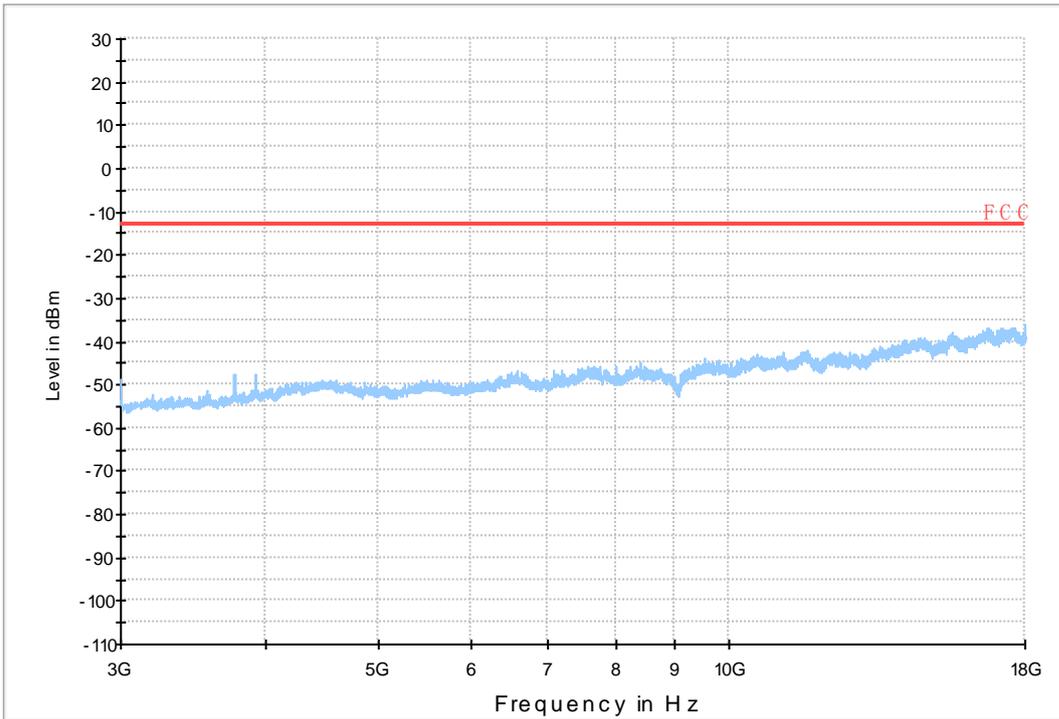


Copy of FCC PART24 GSM 1900_L





Copy of FCC PART 24 GSM1900_H



8Appendix_H: 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	-5.88	-0.00713	PASS
				VN	2.71	0.00329	PASS
				VH	4.46	0.00541	PASS
		MCH	TN	VL	-5.94	-0.0071	PASS
				VN	-7.94	-0.00949	PASS
				VH	-10.78	-0.01289	PASS
		HCH	TN	VL	-11.95	-0.01408	PASS
				VN	-4.91	-0.00578	PASS
				VH	-4.84	-0.0057	PASS
GSM1900	GSM/TM1	LCH	TN	VL	-15.17	-0.0082	PASS
				VN	-9.69	-0.00524	PASS
				VH	-14.14	-0.00764	PASS
		MCH	TN	VL	-37.84	-0.02013	PASS
				VN	-44.81	-0.02384	PASS
				VH	-38.48	-0.02047	PASS
		HCH	TN	VL	-30.61	-0.01603	PASS
				VN	-31.90	-0.0167	PASS
				VH	-26.67	-0.01396	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
GSM850	GSM/TM1	LCH	VN	-30	-8.14	-0.00988	PASS
				-20	-5.94	-0.00721	PASS
				-10	-8.65	-0.0105	PASS
				0	-7.23	-0.00877	PASS
				10	-6.78	-0.00823	PASS
				20	-4.58	-0.00556	PASS
				30	-6.97	-0.00846	PASS
				40	-8.46	-0.01026	PASS
				50	-6.01	-0.00729	PASS
		MCH	VN	-30	-10.27	-0.01228	PASS
				-20	-17.69	-0.02115	PASS



Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict				
				-10	-12.72	-0.0152	PASS				
				0	-13.50	-0.01614	PASS				
				10	-13.95	-0.01667	PASS				
				20	-15.50	-0.01853	PASS				
				30	-15.30	-0.01829	PASS				
				40	-13.88	-0.01659	PASS				
				50	-16.98	-0.0203	PASS				
		HCH	VN	-30	-8.59	-0.01012	PASS				
				-20	-7.81	-0.0092	PASS				
				-10	-5.17	-0.00609	PASS				
				0	-9.56	-0.01126	PASS				
				10	-4.65	-0.00548	PASS				
				20	-6.59	-0.00776	PASS				
				30	-6.13	-0.00722	PASS				
				40	-8.59	-0.01012	PASS				
				50	-7.36	-0.00867	PASS				
				GSM1900	GSM/TM1	LCH	VN	-30	-6.91	-0.00373	PASS
								-20	-6.13	-0.00331	PASS
-10	-8.65	-0.00468	PASS								
0	-7.81	-0.00422	PASS								
10	-5.42	-0.00293	PASS								
20	-16.01	-0.00865	PASS								
30	-8.65	-0.00468	PASS								
40	-4.91	-0.00265	PASS								
50	-13.24	-0.00716	PASS								
MCH	VN	-30	-32.61					-0.01735	PASS		
		-20	-36.87			-0.01961	PASS				
		-10	-37.90			-0.02016	PASS				
		0	-42.81			-0.02277	PASS				
		10	-32.93			-0.01752	PASS				
		20	-32.41			-0.01724	PASS				
		30	-34.42			-0.01831	PASS				
		40	-46.23			-0.02459	PASS				
		50	-36.94			-0.01965	PASS				
HCH	VN	-30	-26.54			-0.0139	PASS				
		-20	-33.38			-0.01748	PASS				
		-10	-24.54			-0.01285	PASS				
		0	-22.92			-0.012	PASS				
		10	-23.31			-0.01221	PASS				
		20	-26.67			-0.01396	PASS				



Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				30	-24.41	-0.01278	PASS
				40	-25.31	-0.01325	PASS
				50	-25.25	-0.01322	PASS

END