



Appendix for test report

1Appendix_A: Effective (Isotropic) Radiated Power Output Data

Part I - Test Results

Test Band	Test Mode	Test Channel	Conducted Power [dBm]	ERP [dBm]	Limit [dBm]	Verdict
GSM850	GSM/TM1	LCH	32.62	32.97	38.5	PASS
		MCH	32.76	33.11	38.5	PASS
		HCH	32.84	33.19	38.5	PASS
	GSM/TM2	LCH	27.11	27.46	38.5	PASS
		MCH	26.98	27.33	38.5	PASS
		HCH	26.99	27.34	38.5	PASS
WCDMA850	UMTS/TM1	LCH	23.76	24.11	38.5	PASS
		MCH	23.8	24.15	38.5	PASS
		HCH	23.62	23.97	38.5	PASS

Test Band	Test Mode	Test Channel	Conducted Power [dBm]	EIRP [dBm]	Limit [dBm]	Verdict
GSM1900	GSM/TM1	LCH	29.61	32.11	33	PASS
		MCH	29.57	32.07	33	PASS

Test Band	Test Mode	Test Channel	Conducted Power [dBm]	EIRP [dBm]	Limit [dBm]	Verdict
	GSM/TM2	HCH	29.56	32.06	33	PASS
		LCH	25.98	28.48	33	PASS
		MCH	25.96	28.46	33	PASS
		HCH	26	28.5	33	PASS
WCDMA1900	UMTS/TM1	LCH	23.61	26.11	33	PASS
		MCH	23.57	26.07	33	PASS
		HCH	23.66	26.16	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
GSM1900	GSM/TM1	LCH	0.12	13	PASS
		MCH	0.12	13	PASS
		HCH	0.12	13	PASS
	GSM/TM2	LCH	2.8	13	PASS
		MCH	2.71	13	PASS
		HCH	2.58	13	PASS
Test Band	Test Mode	Test Channel	Measured[dB]	Limit [dB]	Verdict
WCDMA1900	UMTS/TM1	LCH	2.98	13	PASS
		MCH	2.99	13	PASS
		HCH	2.95	13	PASS

3Appendix_C: Modulation Characteristics

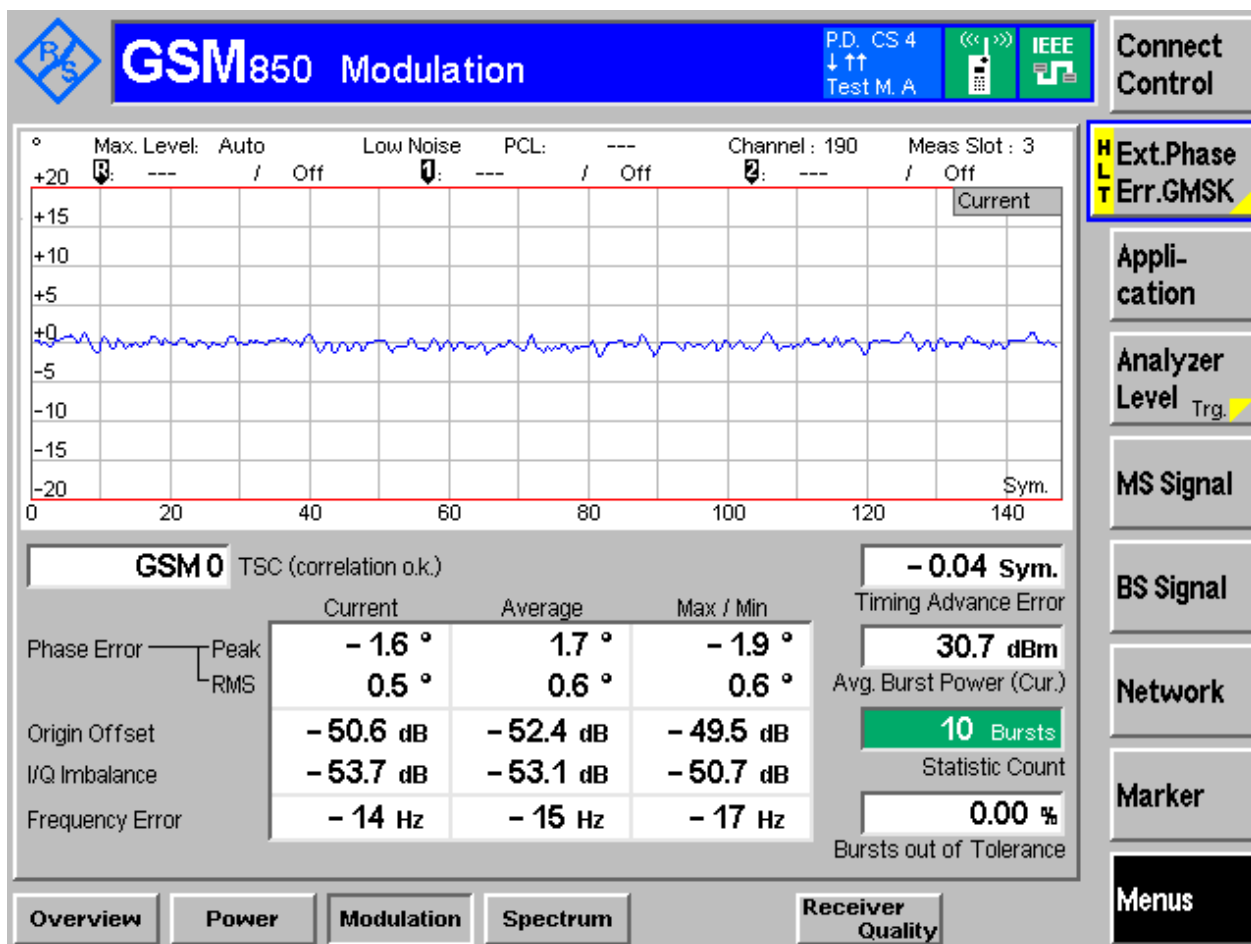
Part I - Test Plots

3.1 For GSM

3.1.1 Test Band = GSM850

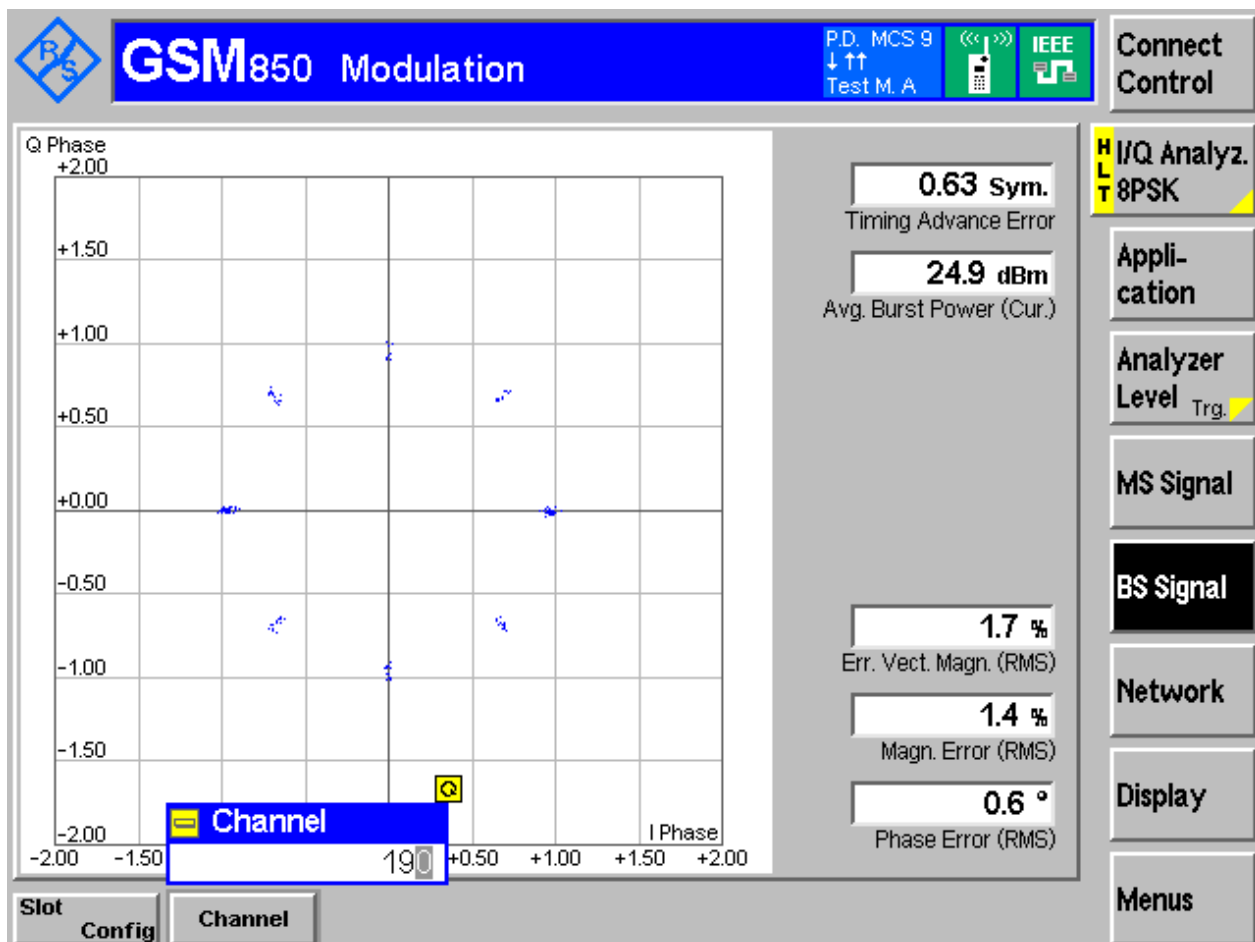
3.1.1.1 Test Mode = GSM/TM1

3.1.1.1.1 Test Channel = MCH



3.1.1.2 Test Mode = GSM/TM2

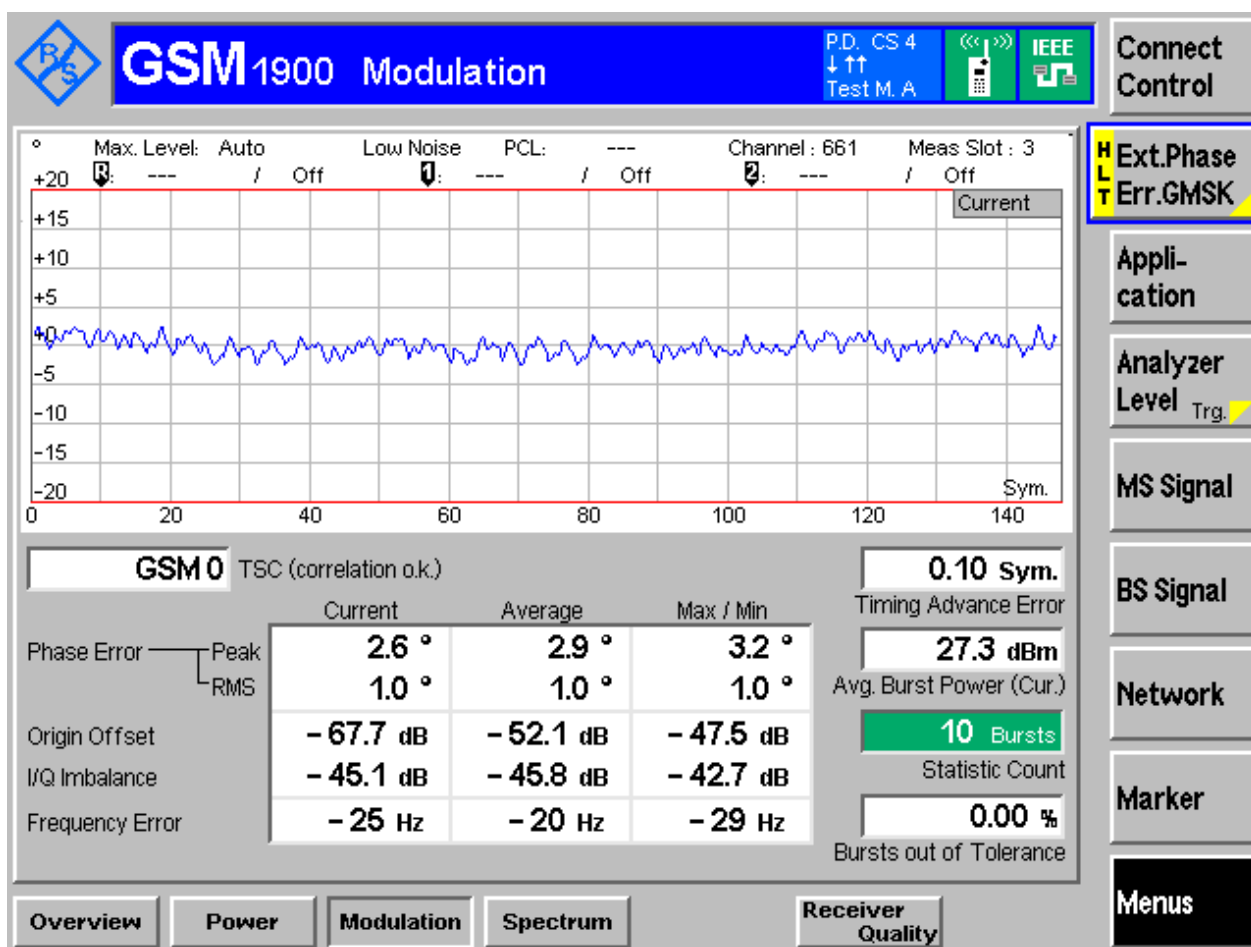
3.1.1.2.1 Test Channel = MCH



3.1.2 Test Band = GSM1900

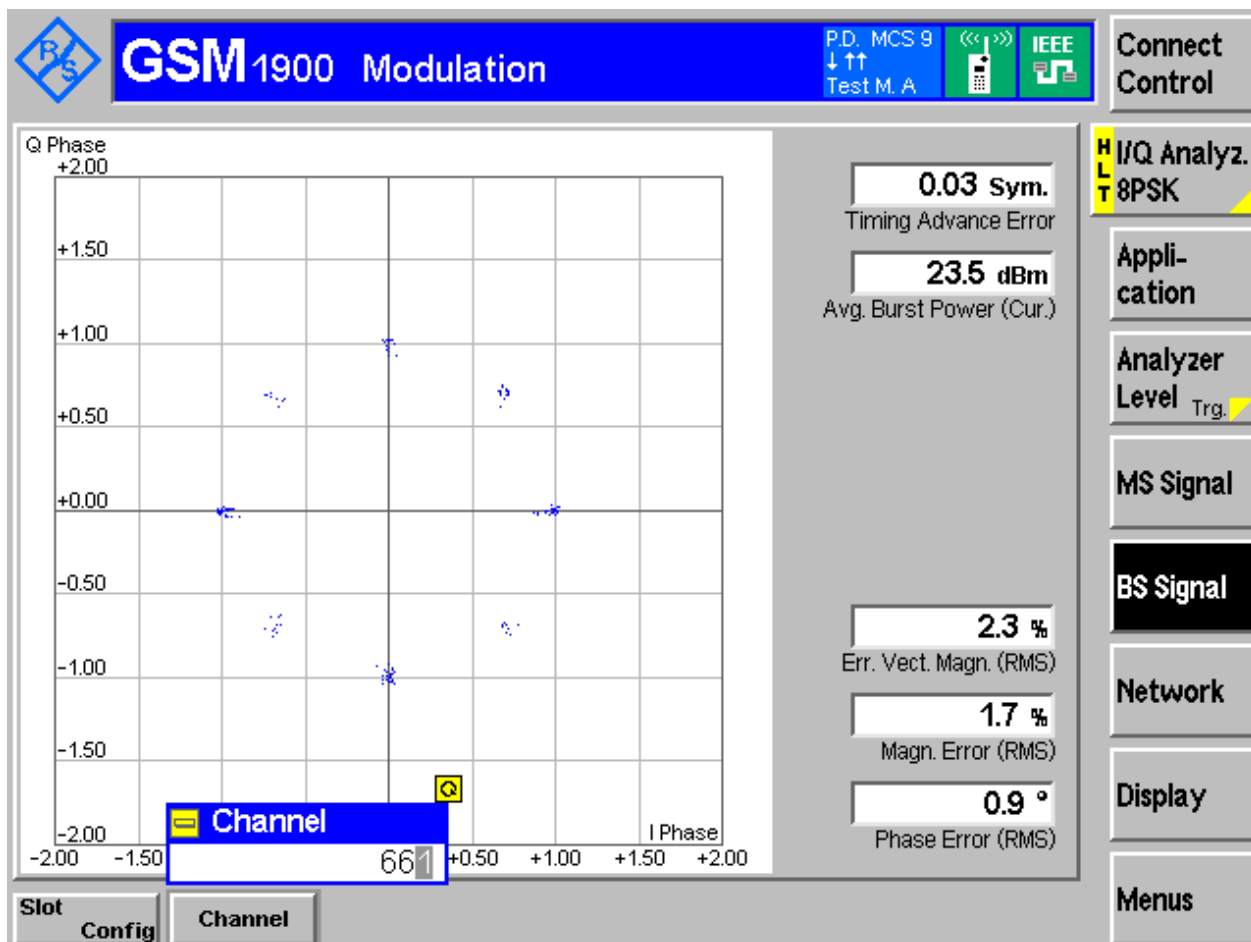
3.1.2.1 Test Mode = GSM/TM1

3.1.2.1.1 Test Channel = MCH



3.1.2.2 Test Mode = GSM/TM2

3.1.2.2.1 Test Channel = MCH

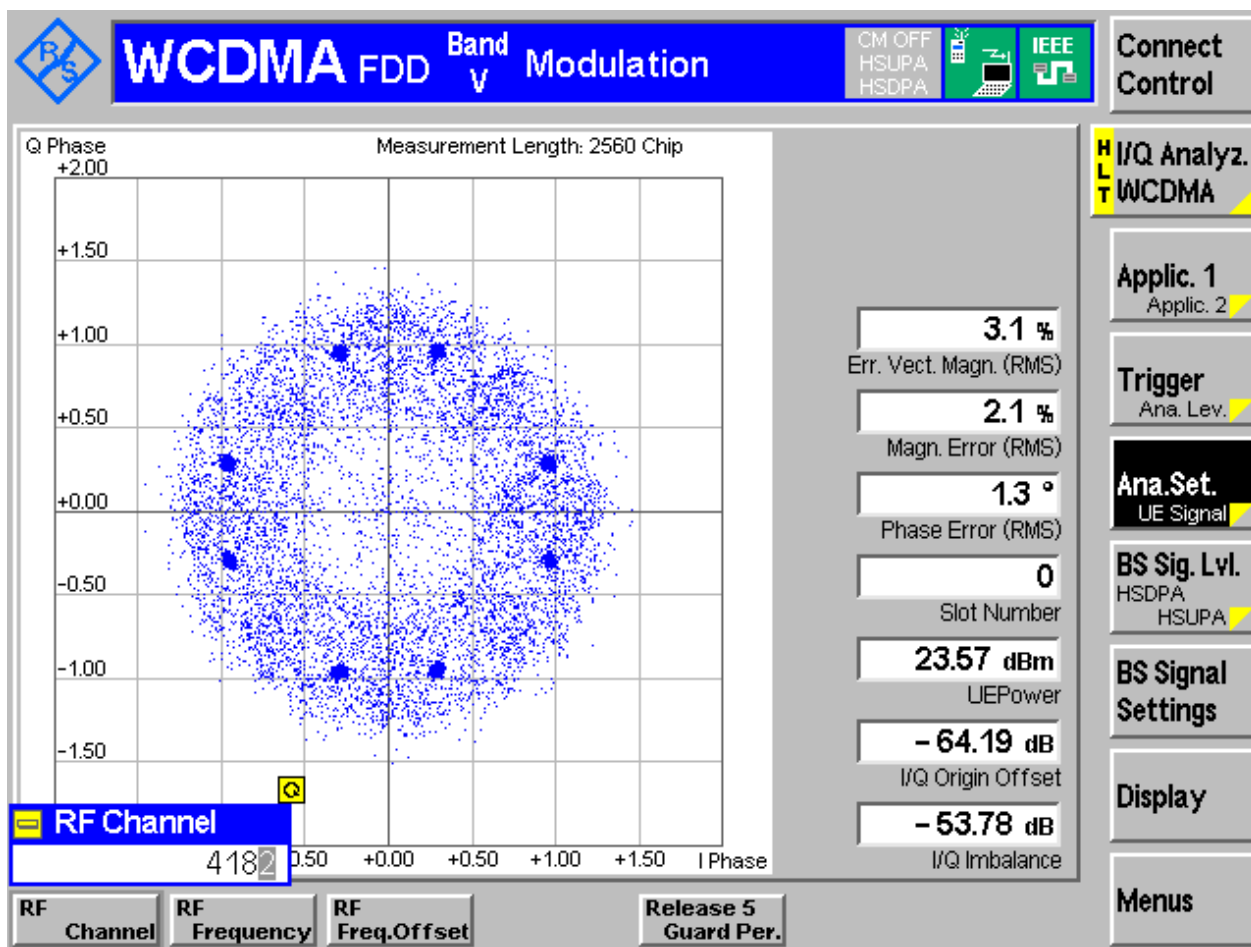


3.2 For UMTS

3.2.1 Test Band = WCDMA850

3.2.1.1 Test Mode = UMTS/TM1

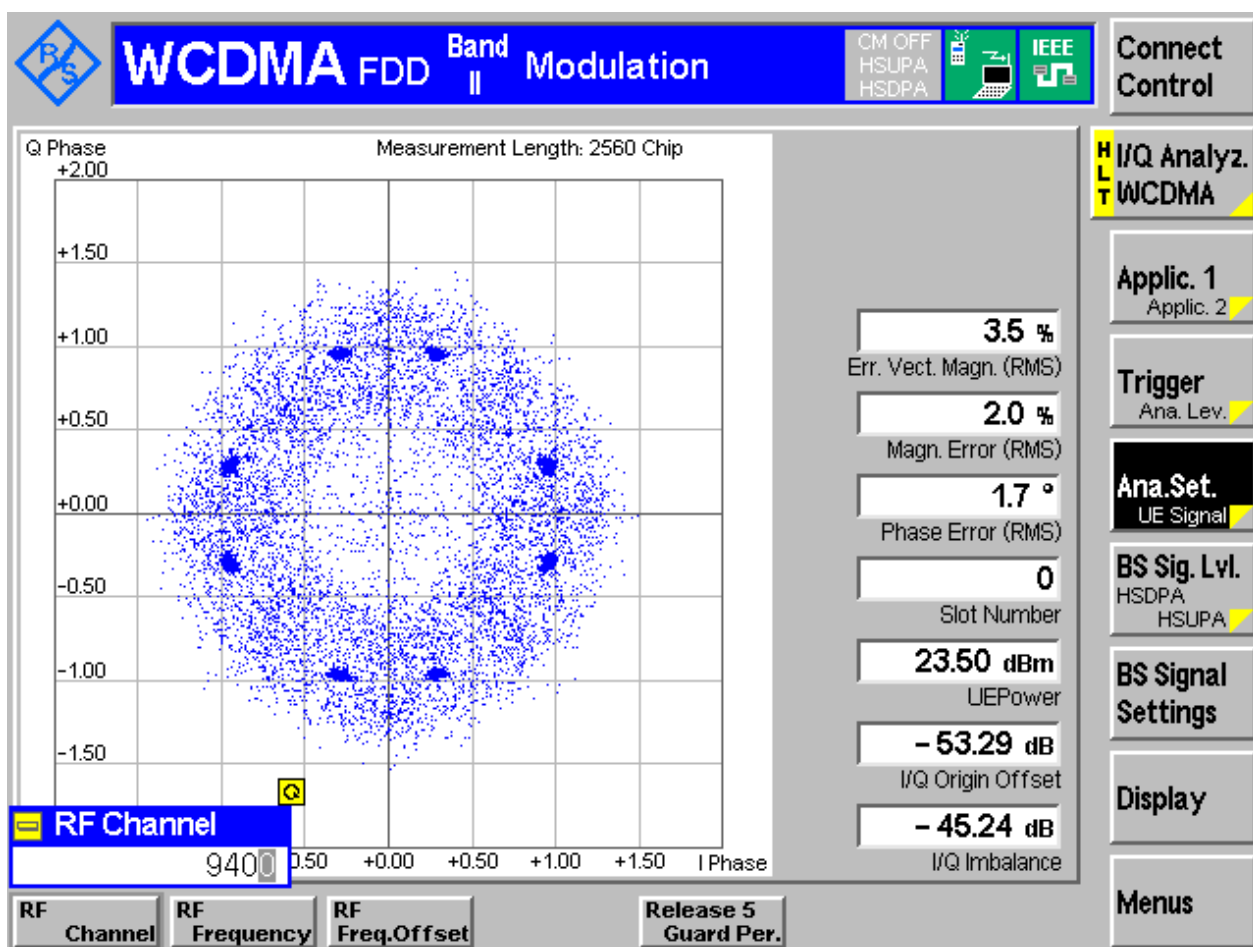
3.2.1.1.1 Test Channel = MCH



3.2.2 Test Band = WCDMA1900

3.2.2.1 Test Mode = UMTS/TM1

3.2.2.1.1 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	243.30	316.85	Pass
		MCH	244.66	310.64	Pass
		HCH	242.33	320.28	Pass
	GSM/TM2	LCH	242.56	303.09	Pass
		MCH	237.60	293.06	Pass
		HCH	240.04	299.51	Pass
GSM1900	GSM/TM1	LCH	240.44	306.50	Pass
		MCH	241.67	308.65	Pass
		HCH	244.02	313.64	Pass
	GSM/TM2	LCH	249.03	315.73	Pass
		MCH	249.67	319.52	Pass
		HCH	249.99	310.86	Pass
Test Band	Test Mode	Test Channel	Occupied Bandwidth [MHz]	Emission Bandwidth [MHz]	Verdict
WCDMA850	UMTS/TM1	LCH	4.17	4.75	Pass
		MCH	4.18	4.75	Pass
		HCH	4.16	4.74	Pass
WCDMA1900	UMTS/TM1	LCH	4.16	4.72	Pass
		MCH	4.15	4.72	Pass
		HCH	4.16	4.72	Pass



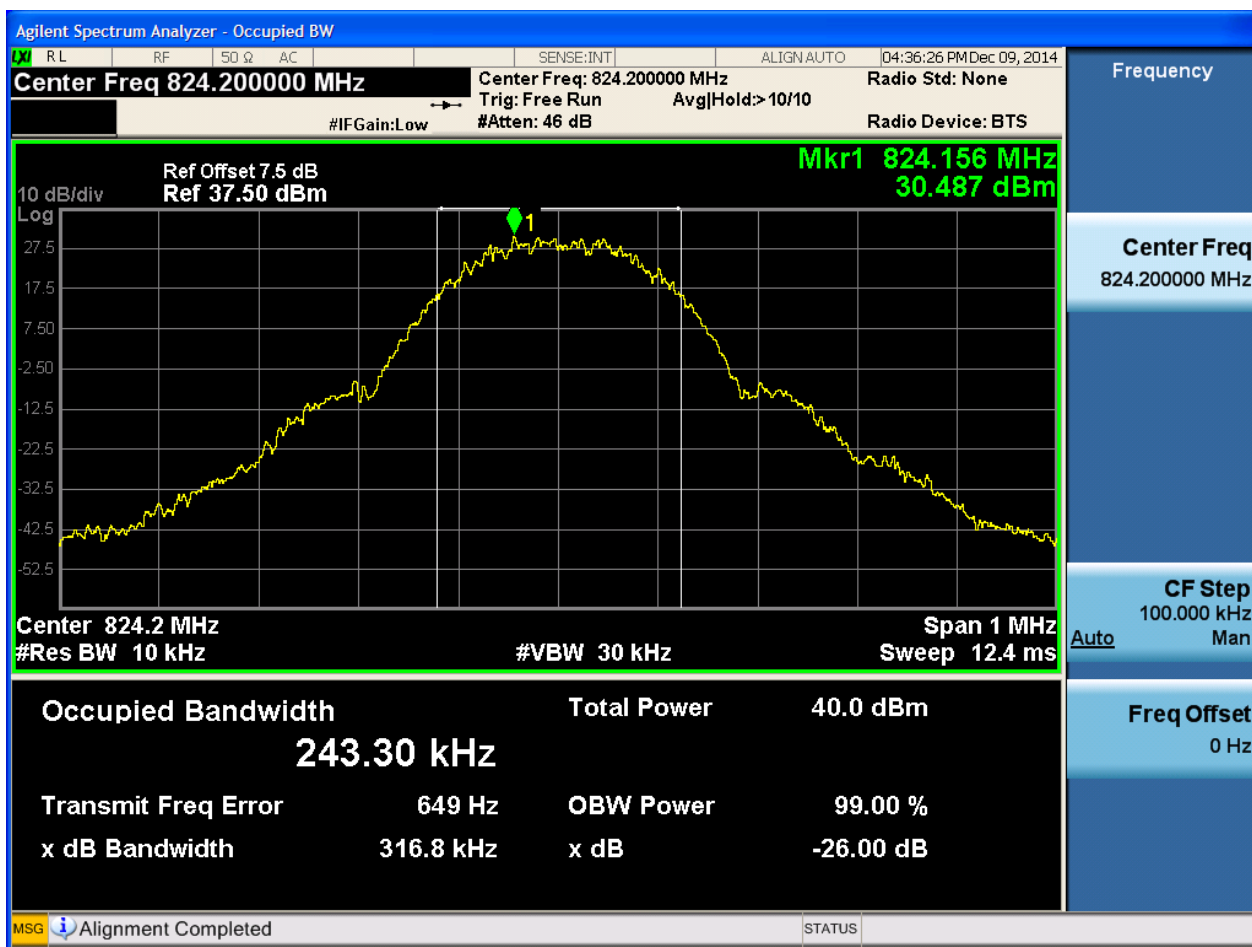
Part II - Test Plots

4.1 For GSM

4.1.1 Test Band = GSM850

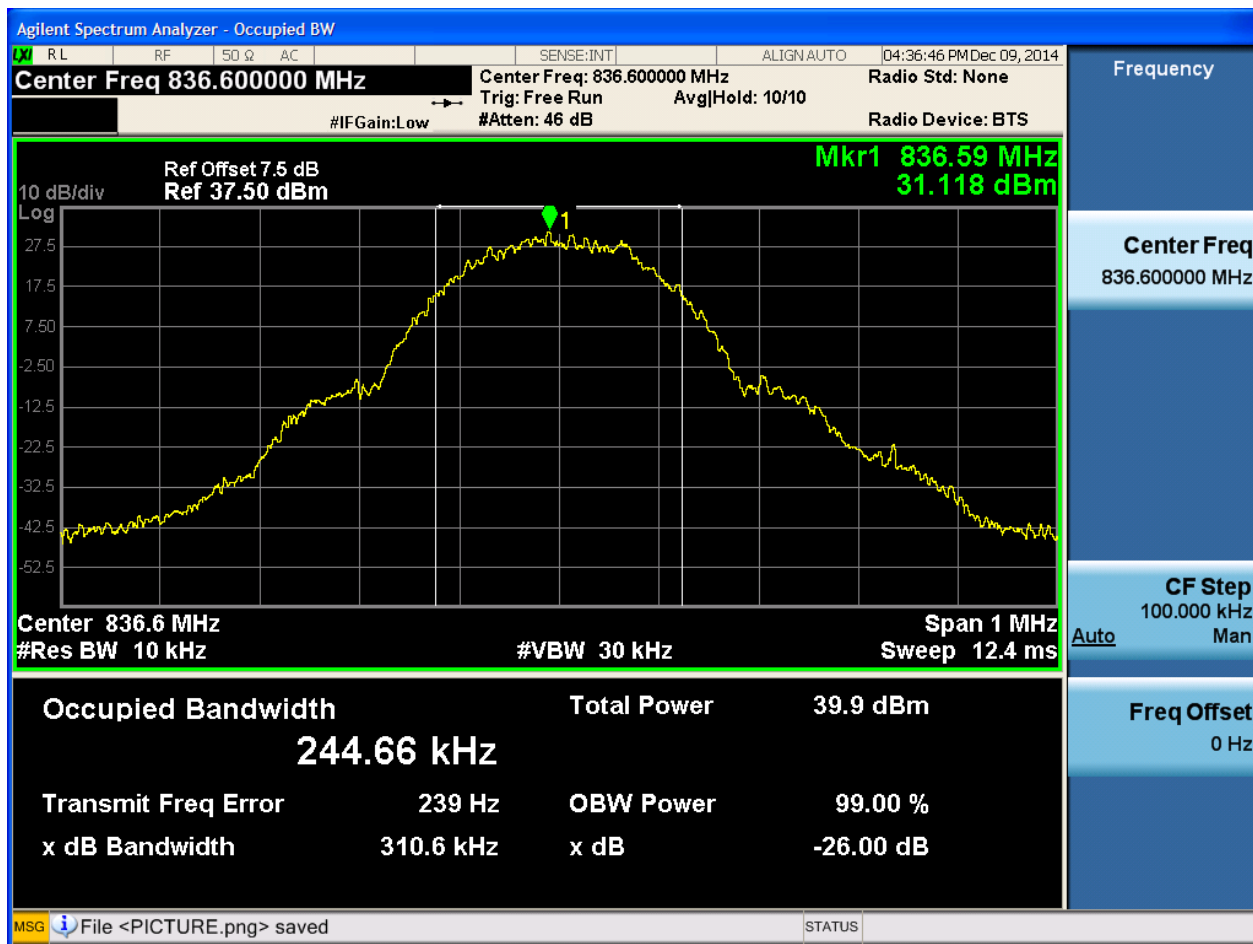
4.1.1.1 Test Mode = GSM/TM1

4.1.1.1.1 Test Channel = LCH



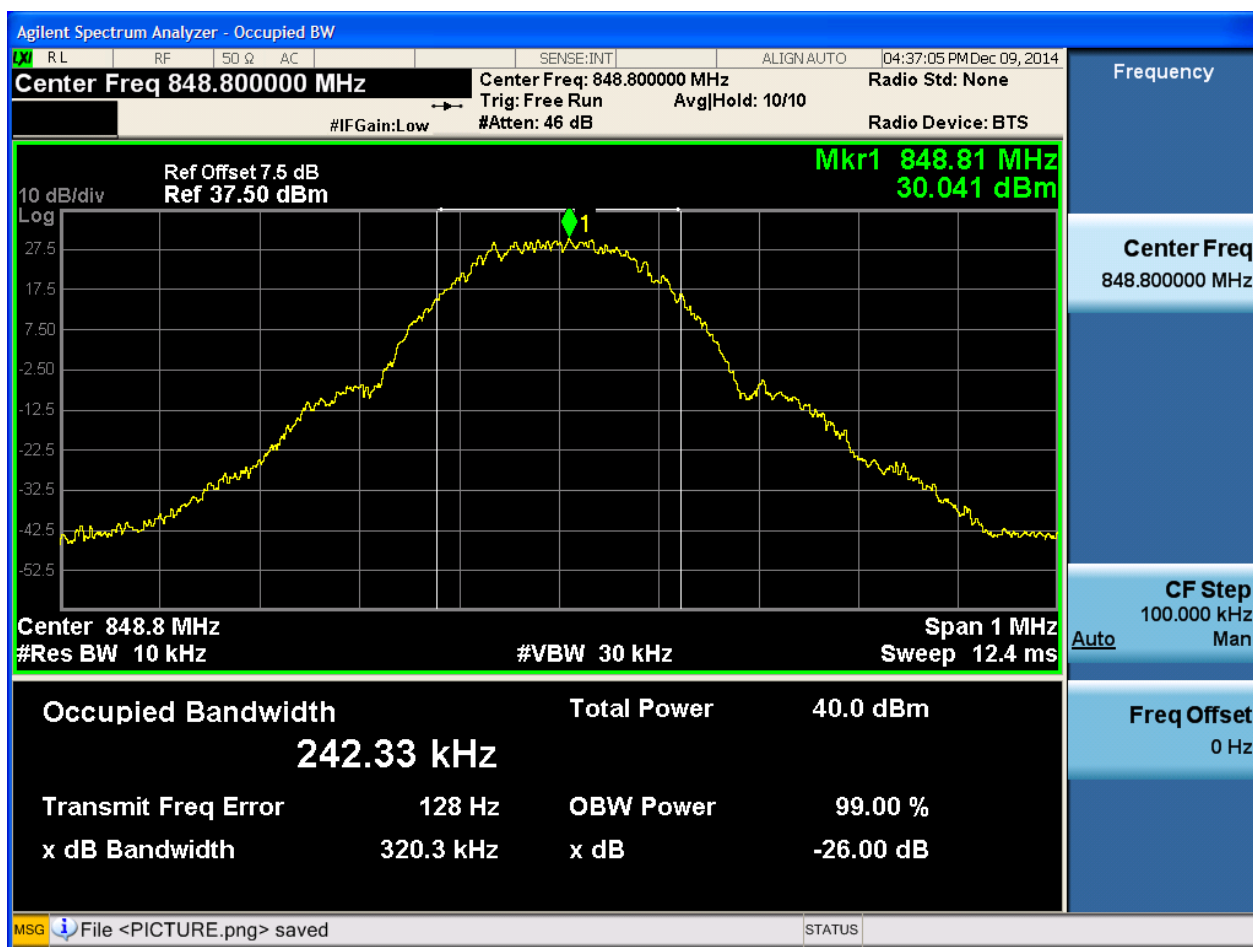


4.1.1.1.2 Test Channel = MCH





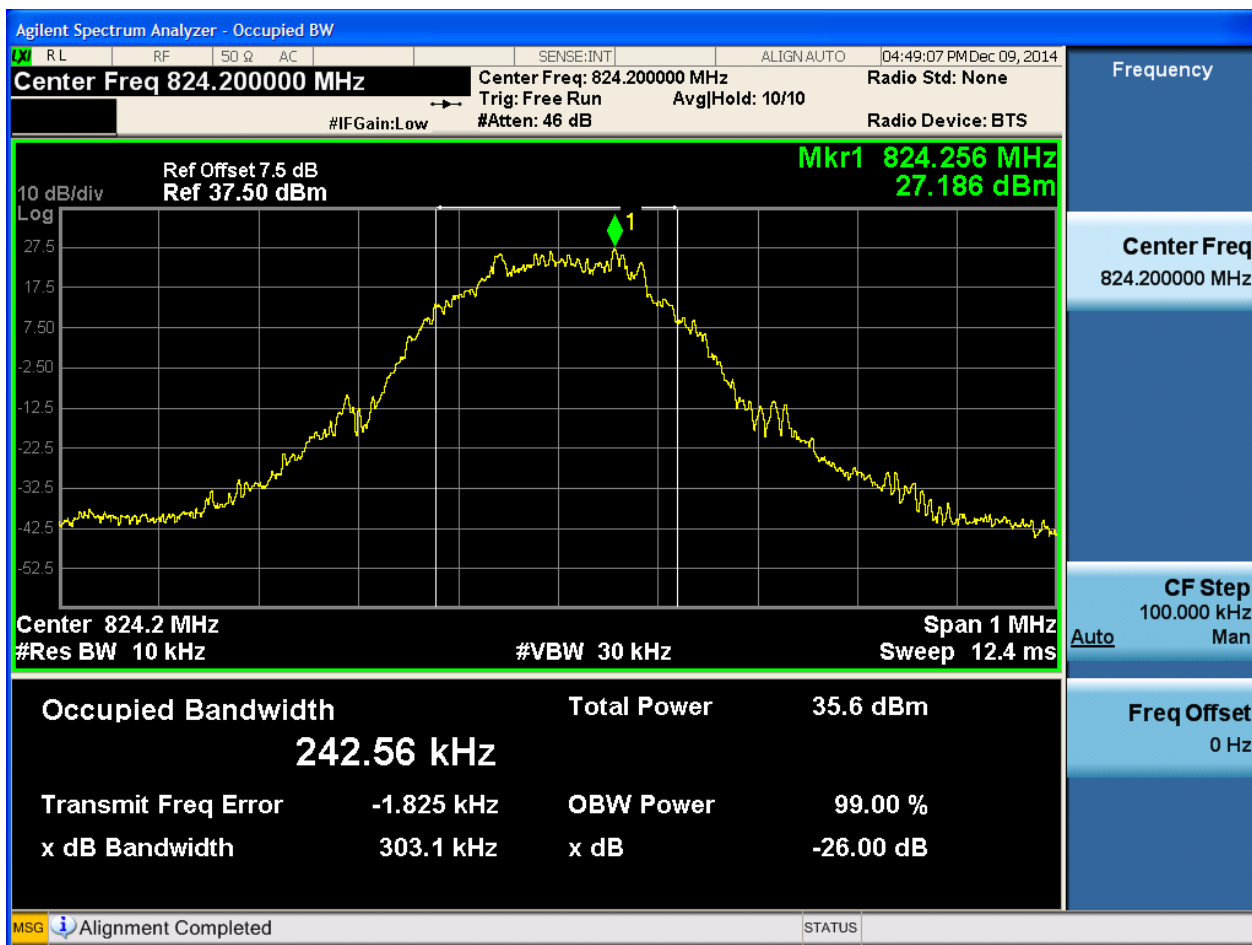
4.1.1.1.3 Test Channel = HCH





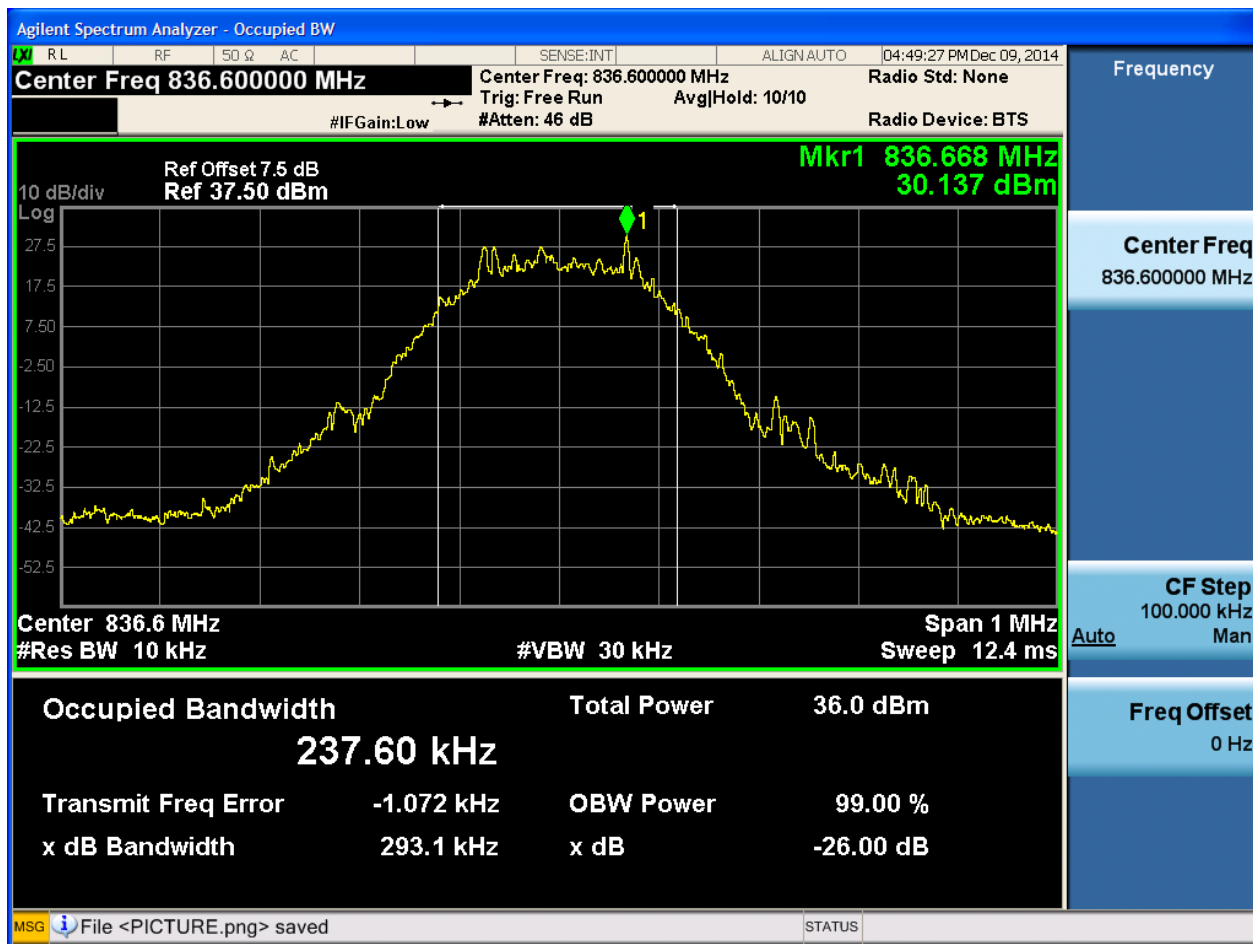
4.1.1.2 Test Mode = GSM/TM2

4.1.1.2.1 Test Channel = LCH



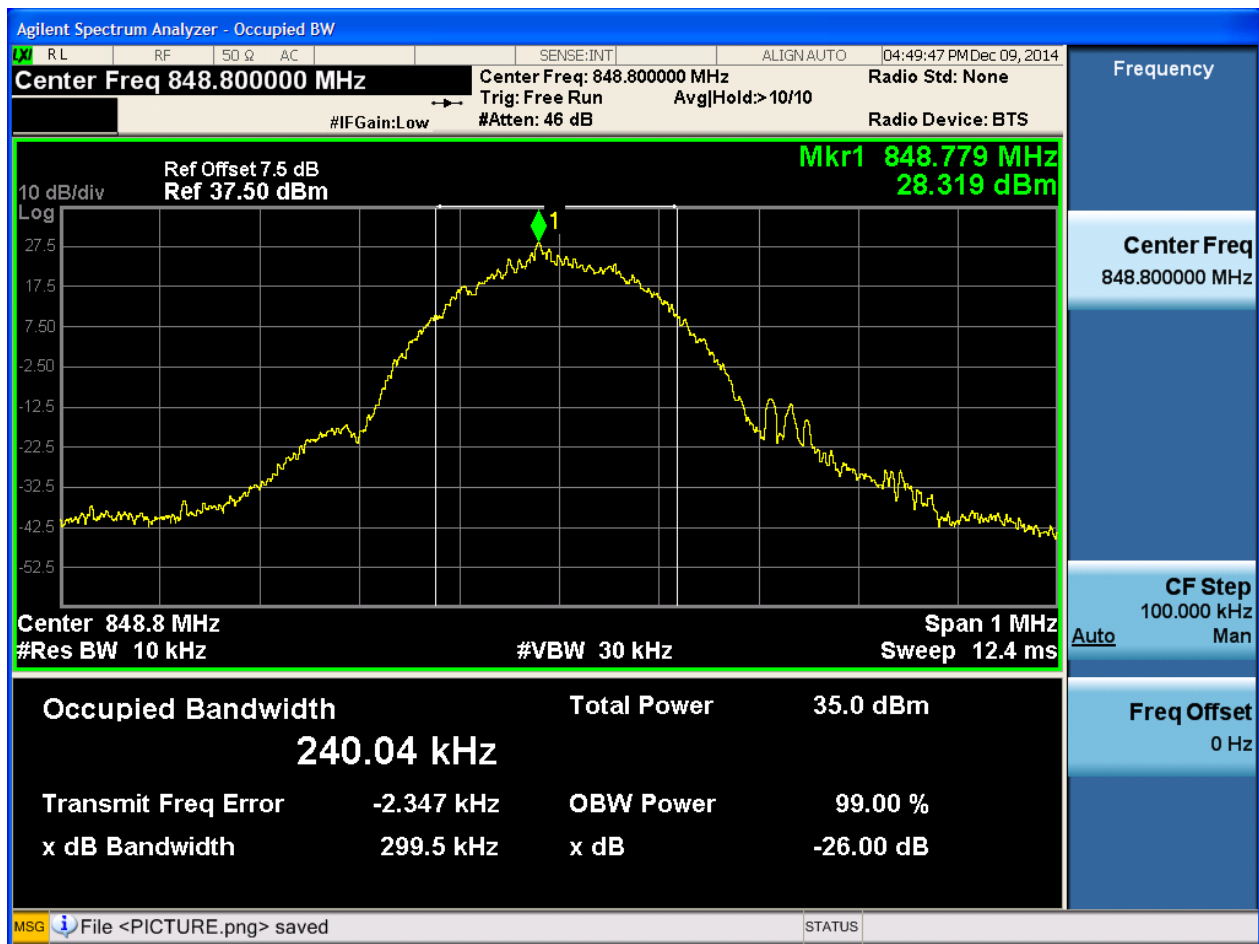


4.1.1.2.2 Test Channel = MCH





4.1.1.2.3 Test Channel = HCH

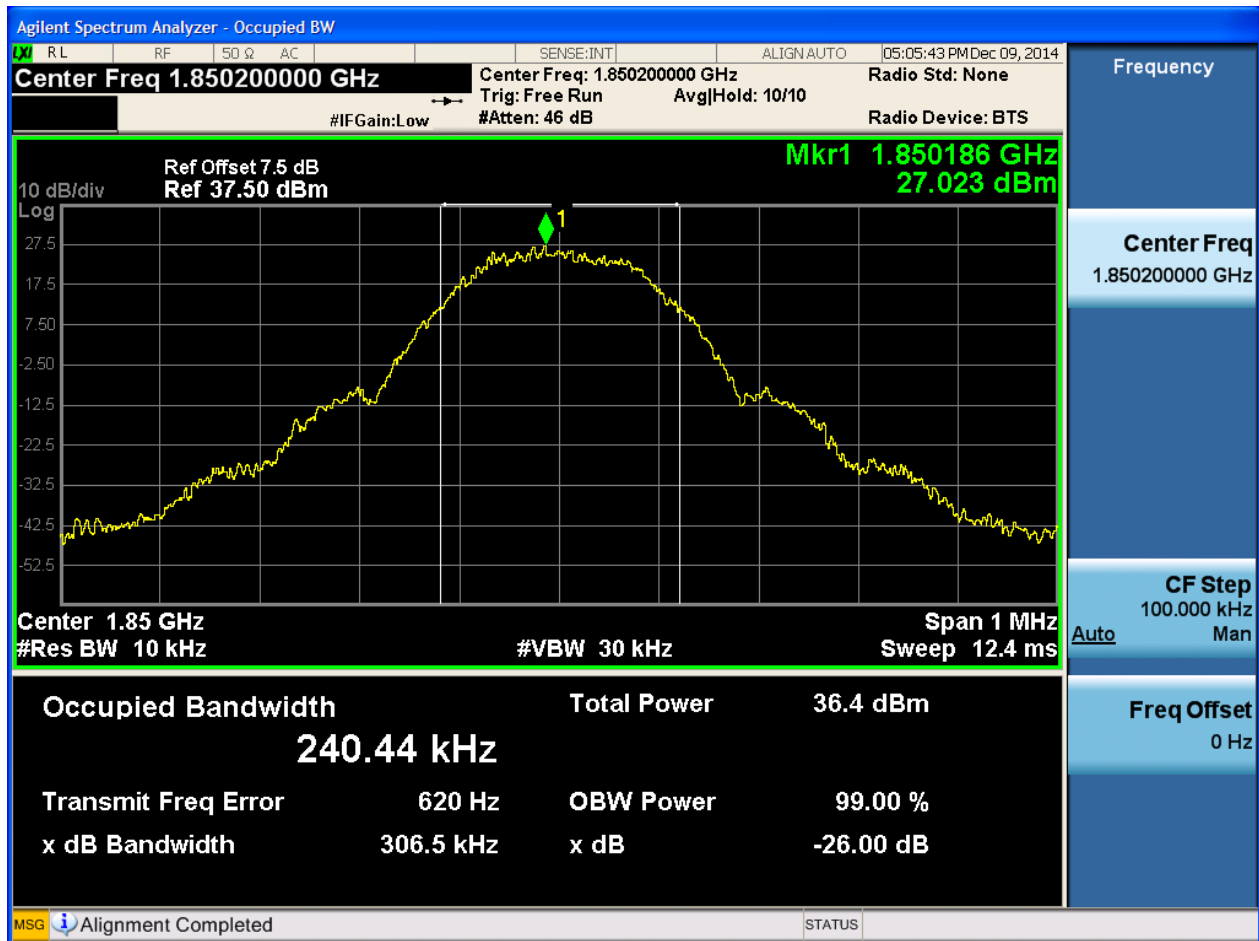




4.1.2 Test Band = GSM1900

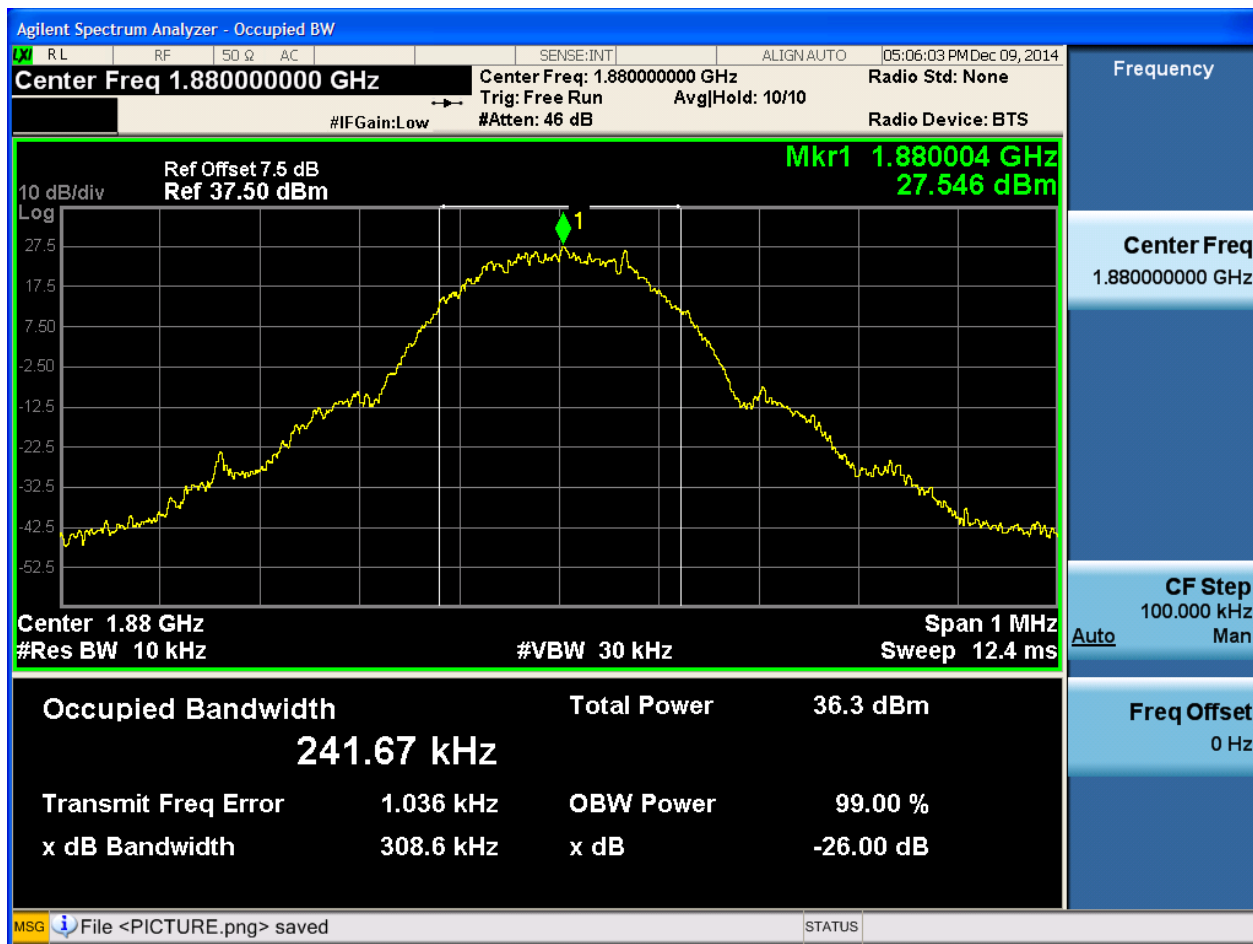
4.1.2.1 Test Mode = GSM/TM1

4.1.2.1.1 Test Channel = LCH



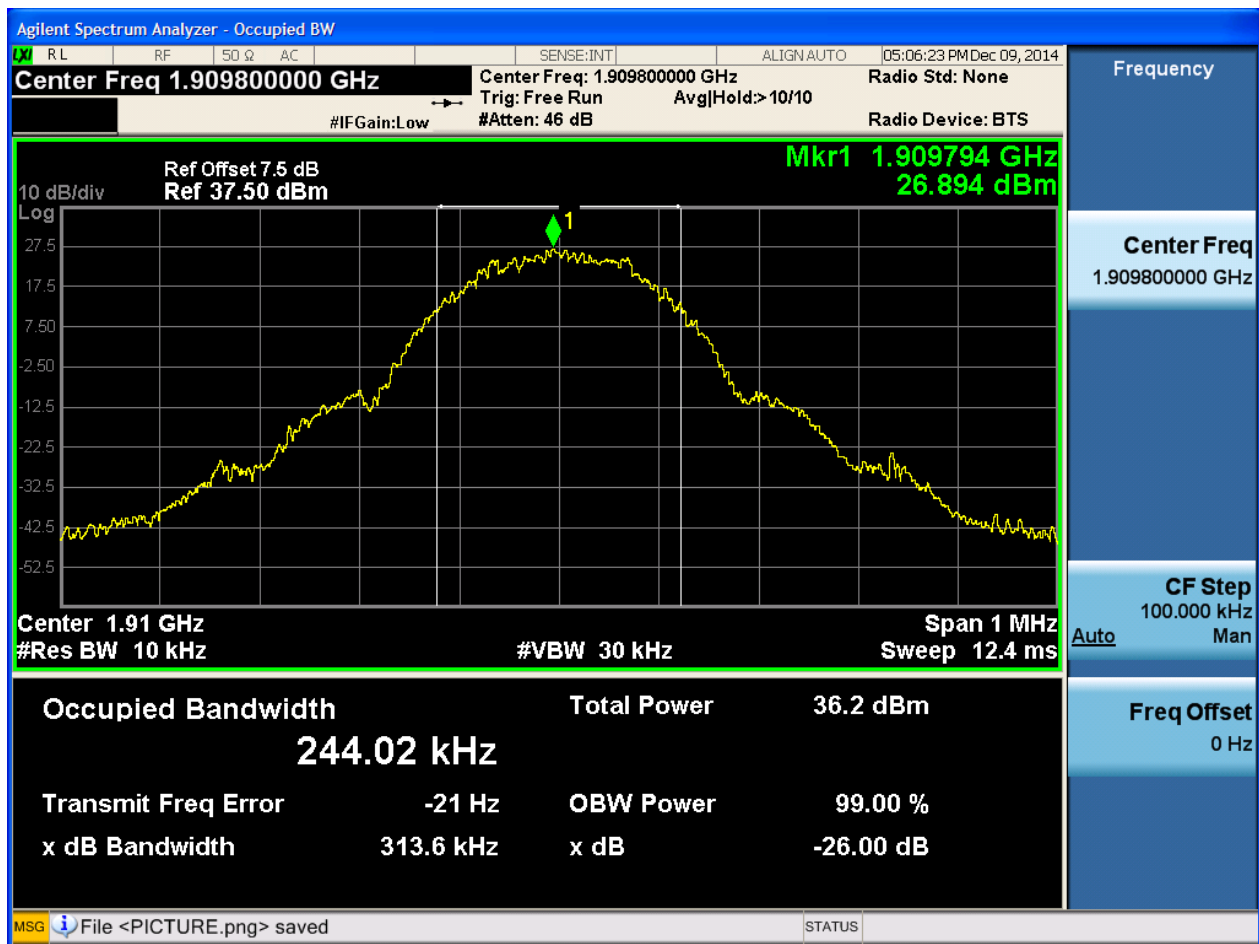


4.1.2.1.2 Test Channel = MCH





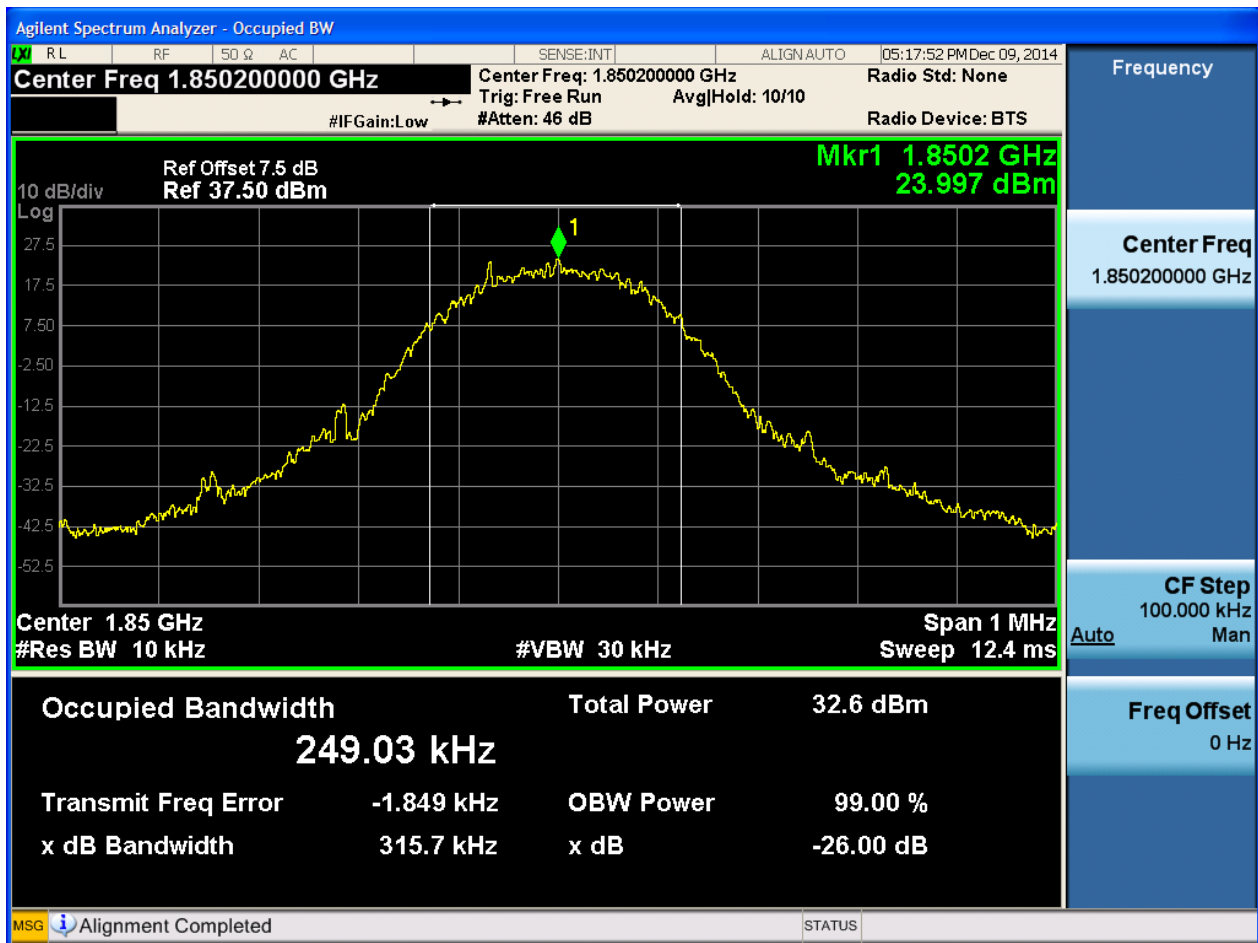
4.1.2.1.3 Test Channel = HCH





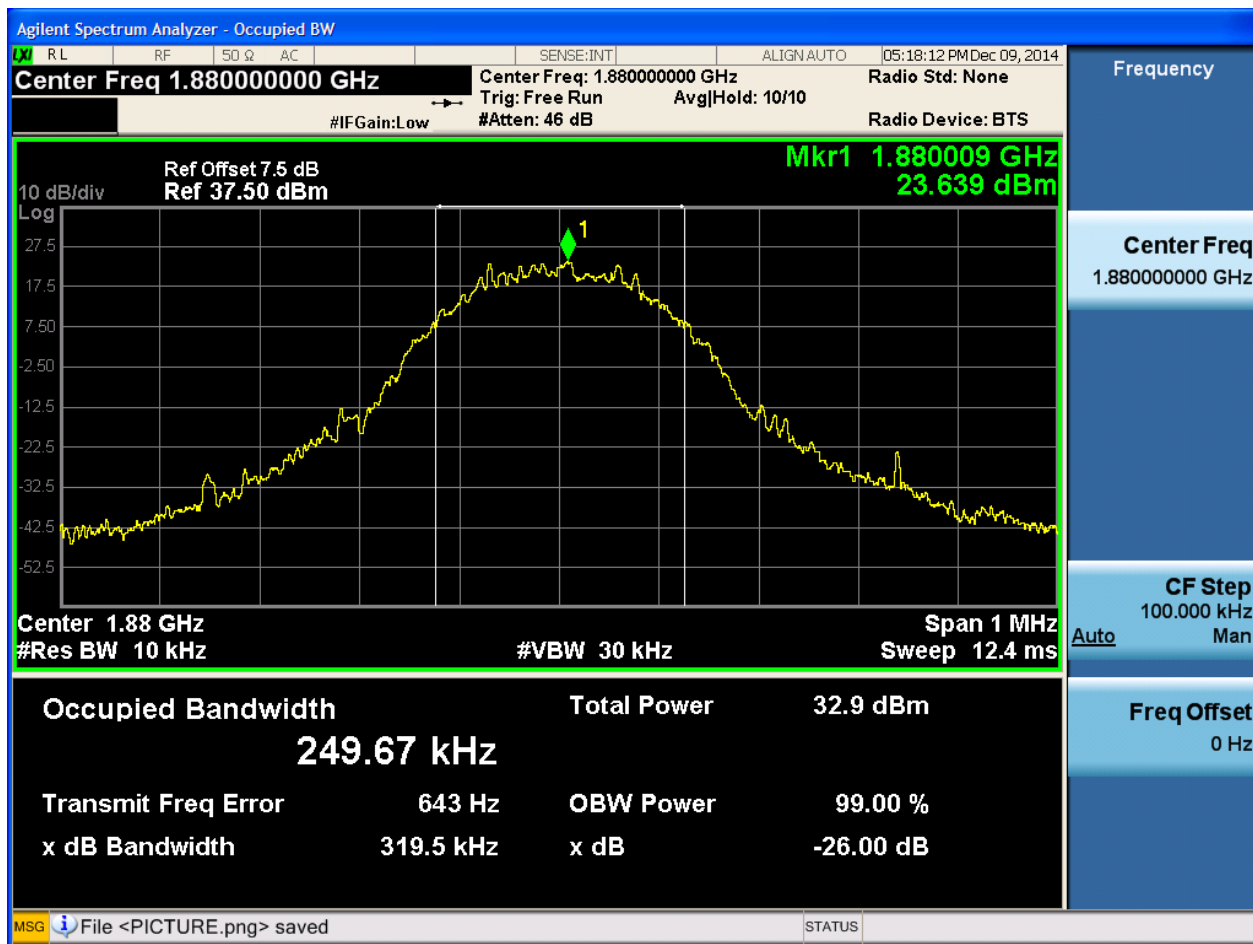
4.1.2.2 Test Mode = GSM/TM2

4.1.2.2.1 Test Channel = LCH



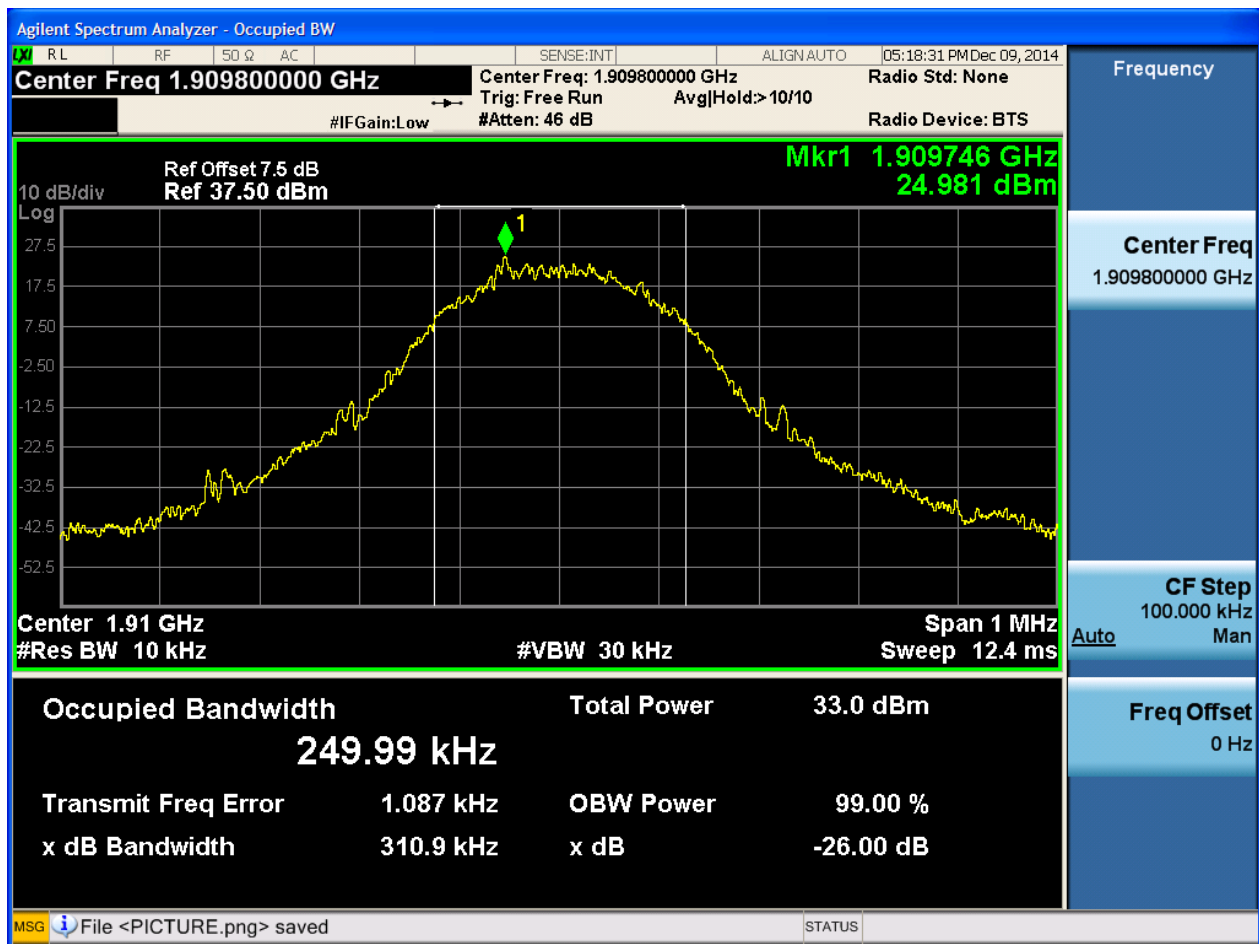


4.1.2.2.2 Test Channel = MCH





4.1.2.2.3 Test Channel = HCH



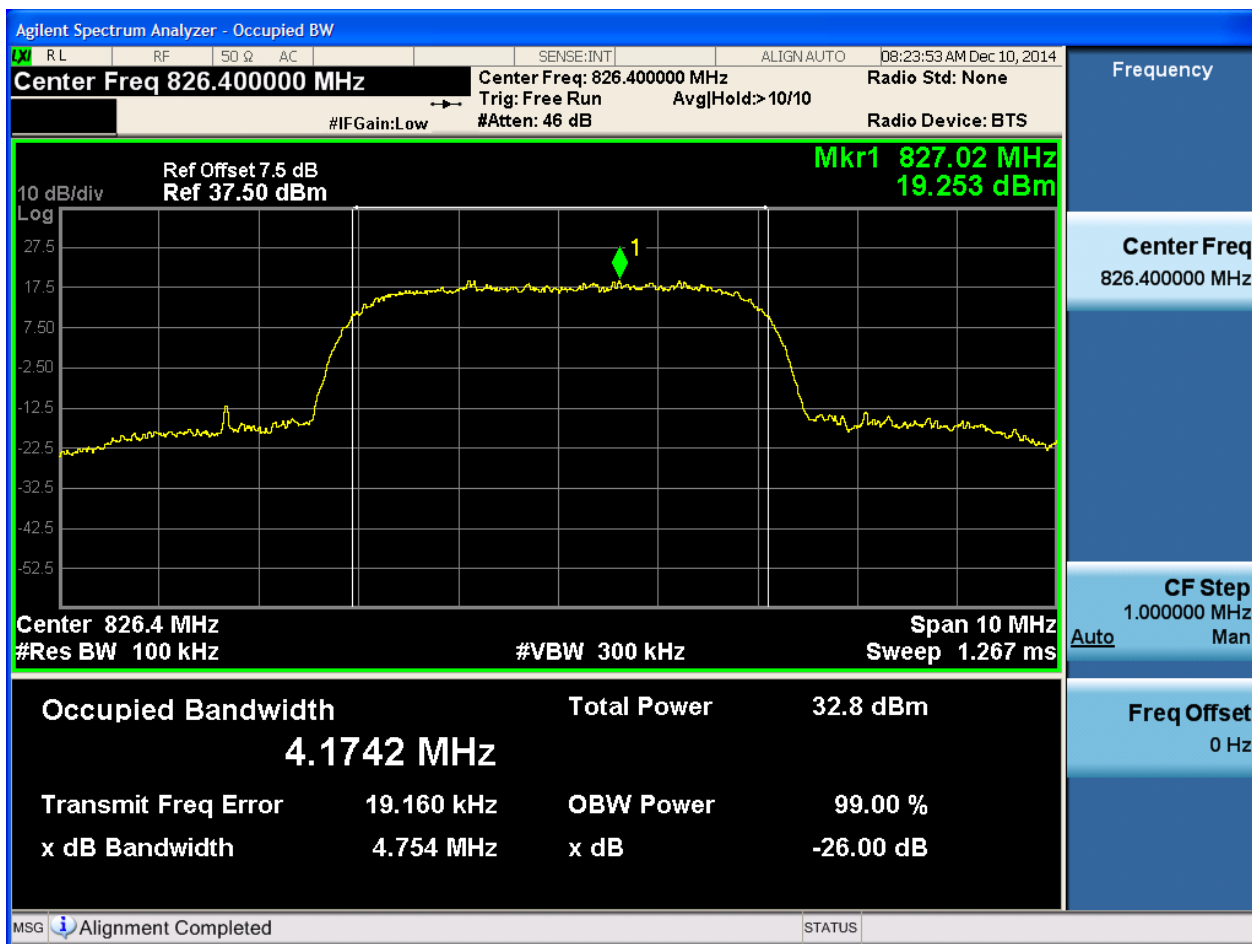


4.2 For UMTS

4.2.1 Test Band = WCDMA850

4.2.1.1 Test Mode = UMTS/TM1

4.2.1.1.1 Test Channel = LCH





Agilent Spectrum Analyzer - Occupied BW

Center Freq 836.400000 MHz

Center Freq: 836.400000 MHz
Trig: Free Run
#IFGain: Low
#Atten: 46 dB

Radio Std: None
Avg|Hold: 10/10
Radio Device: BTS

Frequency

Center Freq
836.400000 MHz

CF Step
1.000000 MHz
Man

Auto

Freq Offset
0 Hz

10 dB/div
Log
Ref Offset 7.5 dB
Ref 37.50 dBm

Mkr1 837.62 MHz
19.388 dBm

Center 836.4 MHz
#Res BW 100 kHz

#VBW 300 kHz

Span 10 MHz
Sweep 1.267 ms

Occupied Bandwidth
4.1826 MHz

Total Power
32.9 dBm

Transmit Freq Error
7.148 kHz

OBW Power
99.00 %

x dB Bandwidth
4.749 MHz

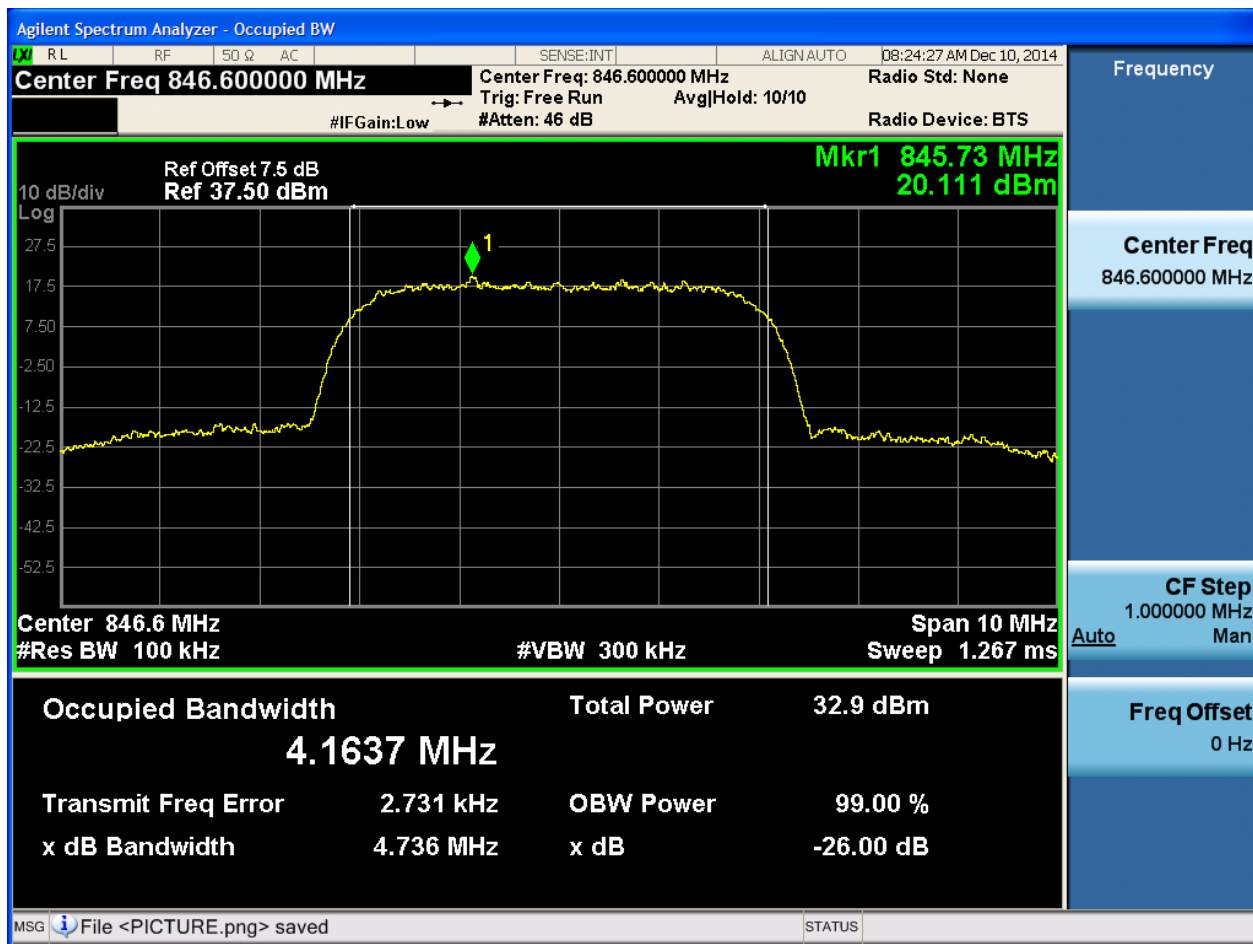
x dB
-26.00 dB

MSG File <PICTURE.png> saved

STATUS



4.2.1.1.3 Test Channel = HCH

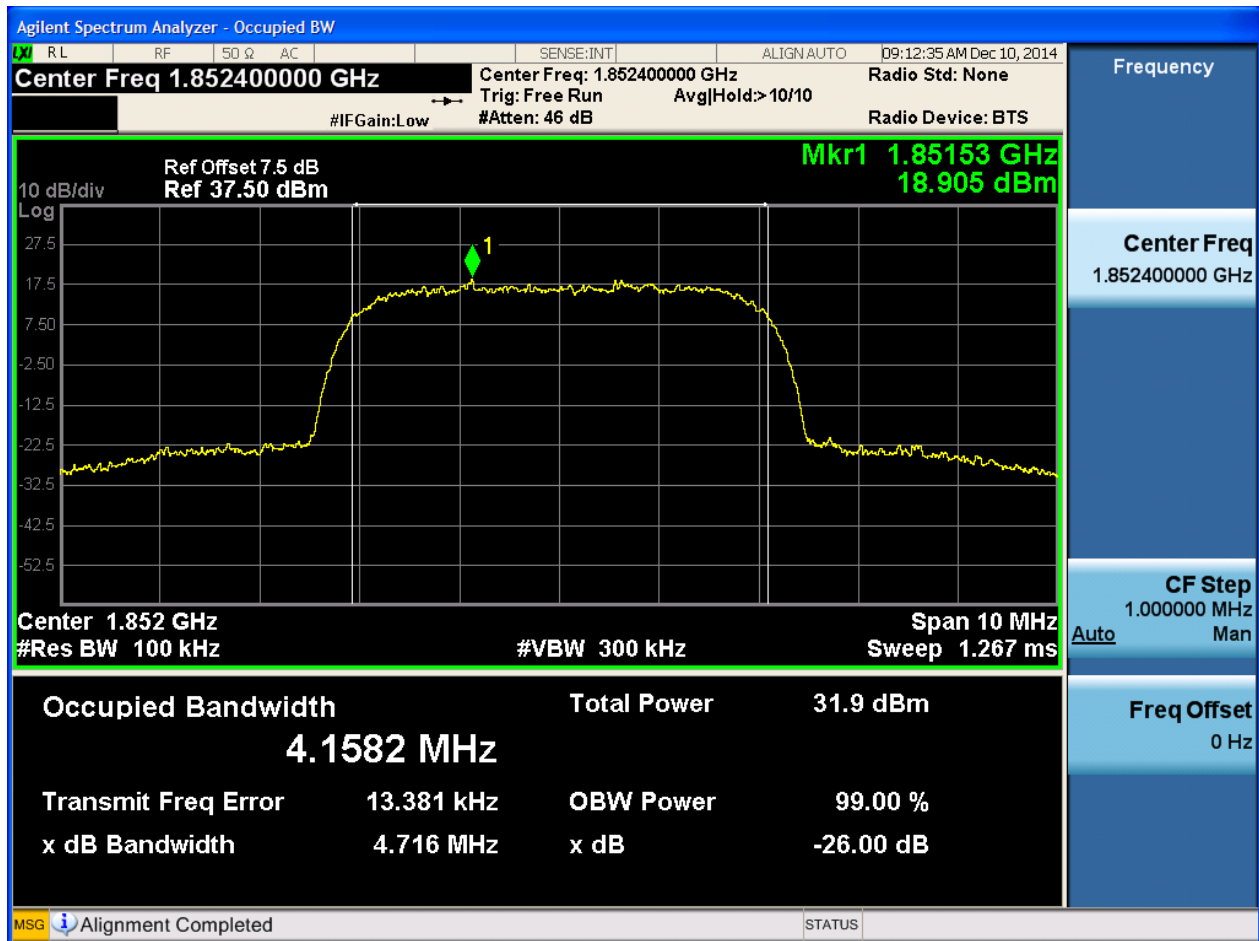




4.2.2 Test Band = WCDMA1900

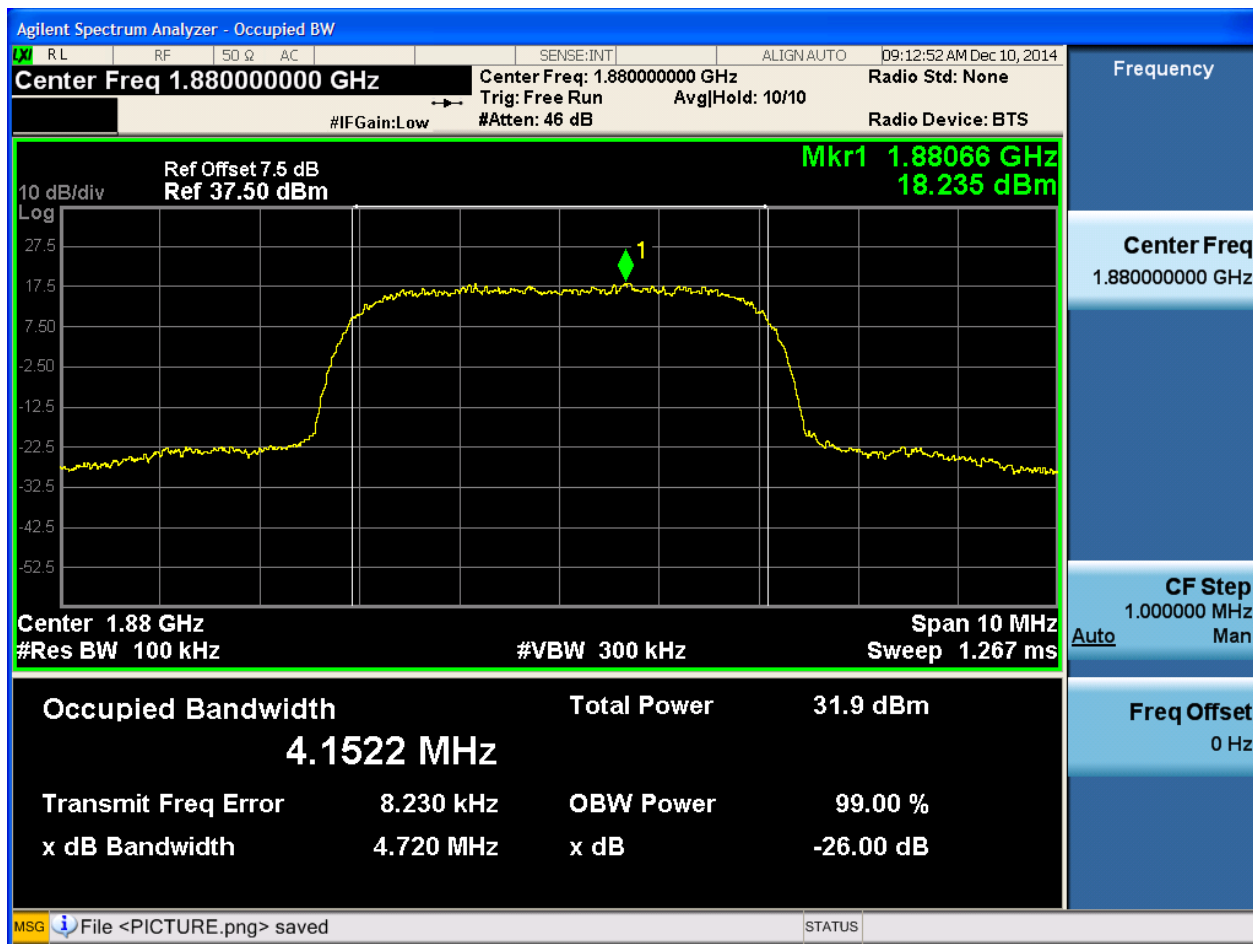
4.2.2.1 Test Mode = UMTS/TM1

4.2.2.1.1 Test Channel = LCH



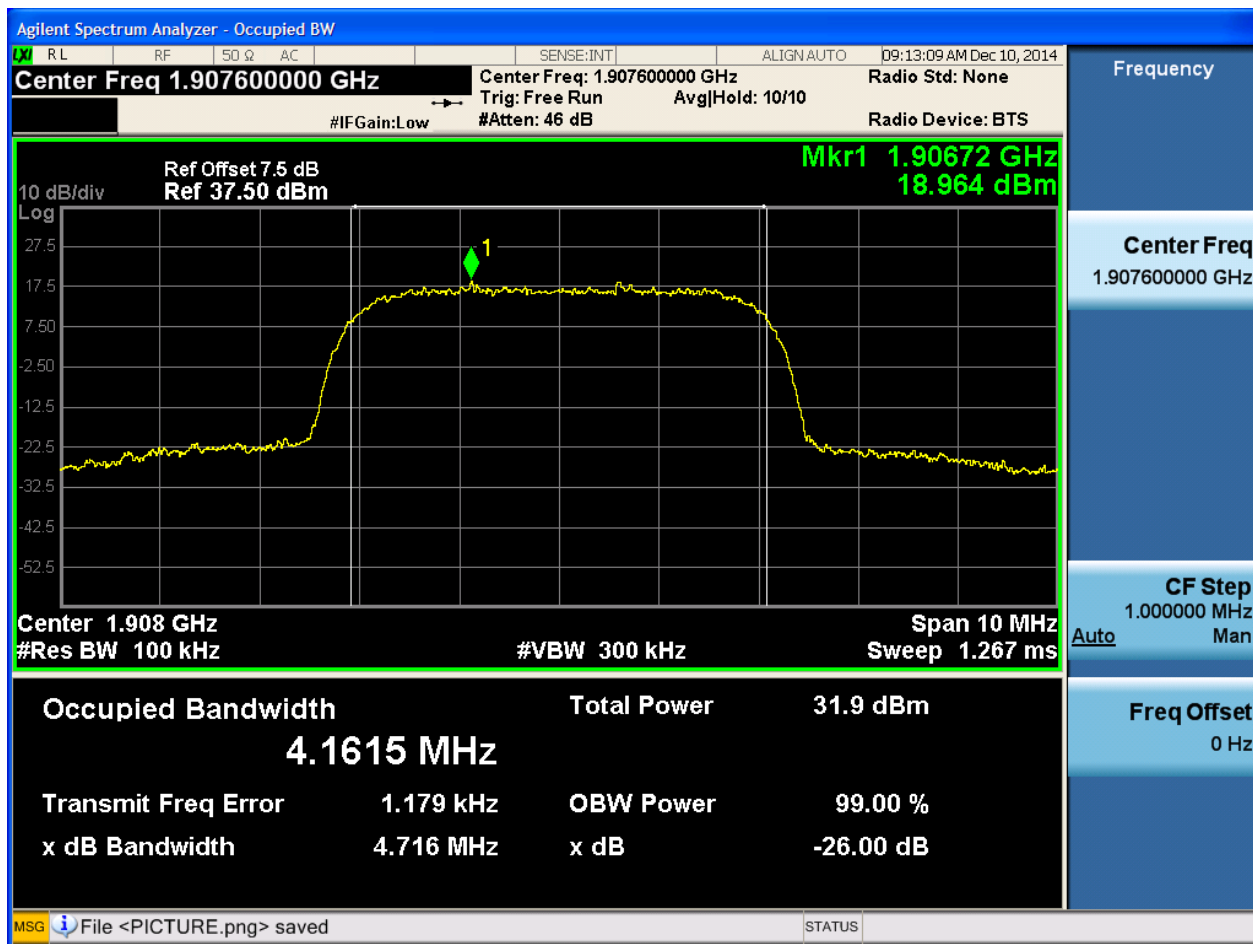


4.2.2.1.2 Test Channel = MCH





4.2.2.1.3 Test Channel = HCH



5Appendix_E: Band Edges Compliance

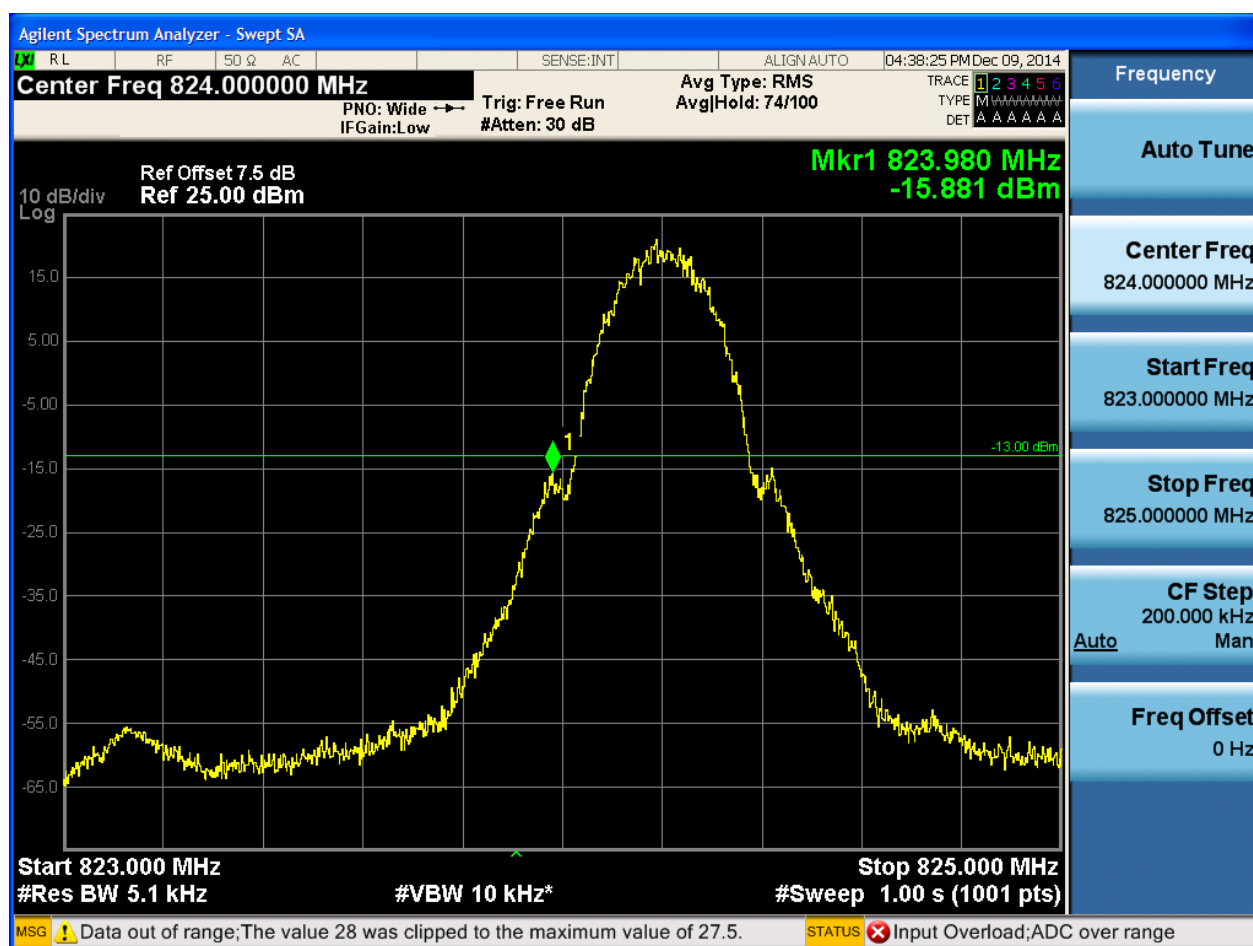
Part I - Test Plots

5.1 For GSM

5.1.1 Test Band = GSM850

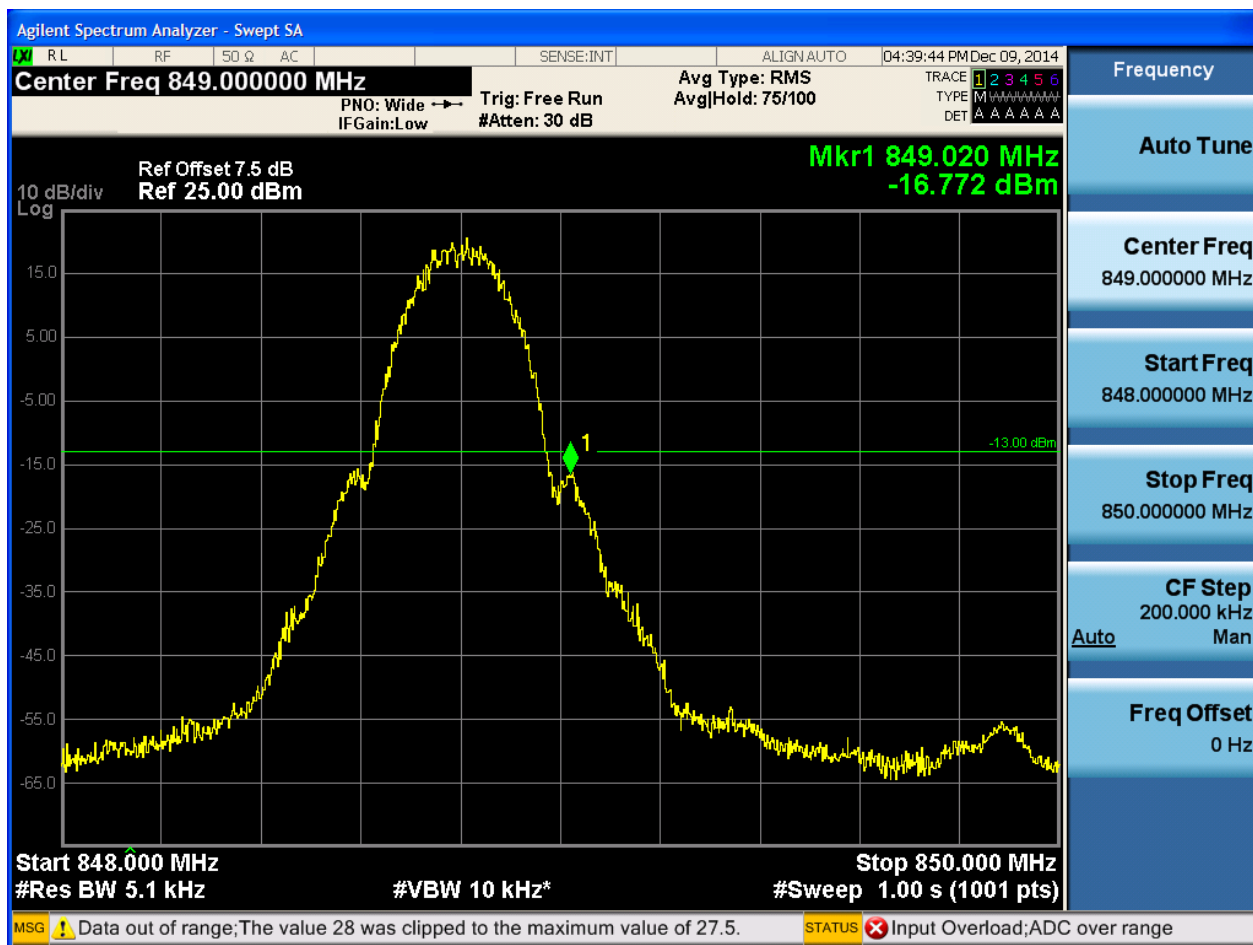
5.1.1.1 Test Mode = GSM/TM1

5.1.1.1.1 Test Channel = LCH





5.1.1.1.2 Test Channel = HCH





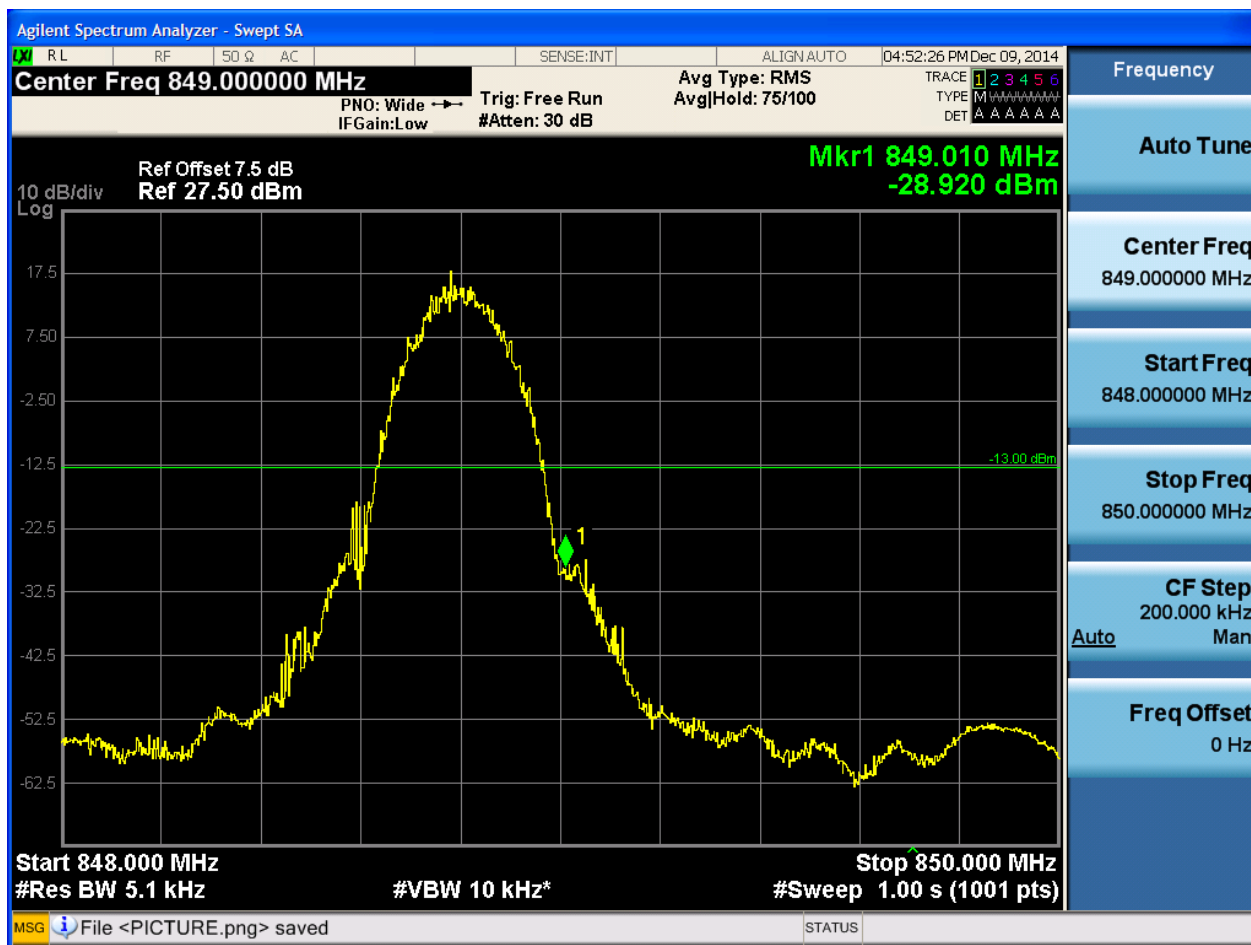
5.1.1.2 Test Mode = GSM/TM2

5.1.1.2.1 Test Channel = LCH





5.1.1.2.2 Test Channel = HCH

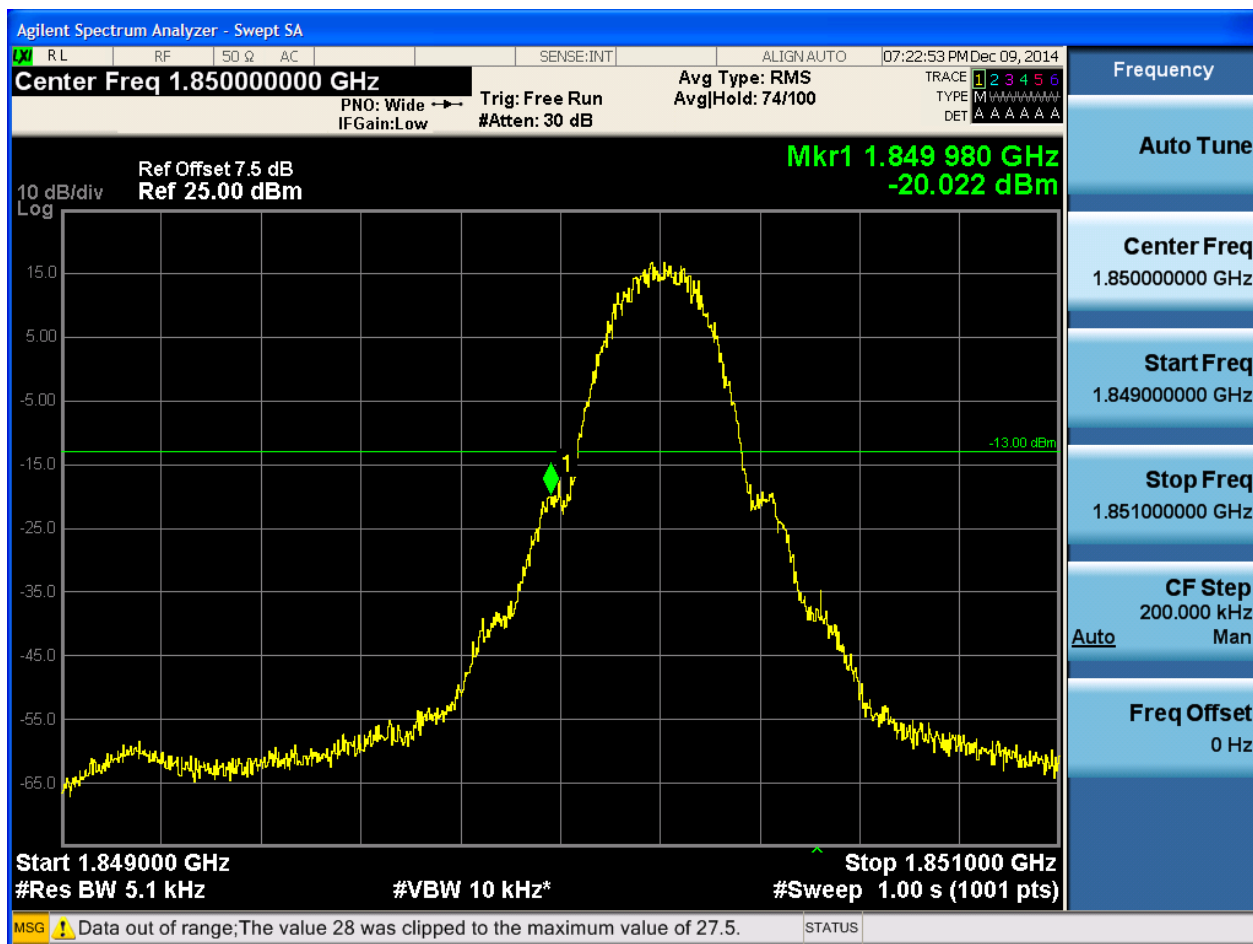




5.1.2 Test Band = GSM1900

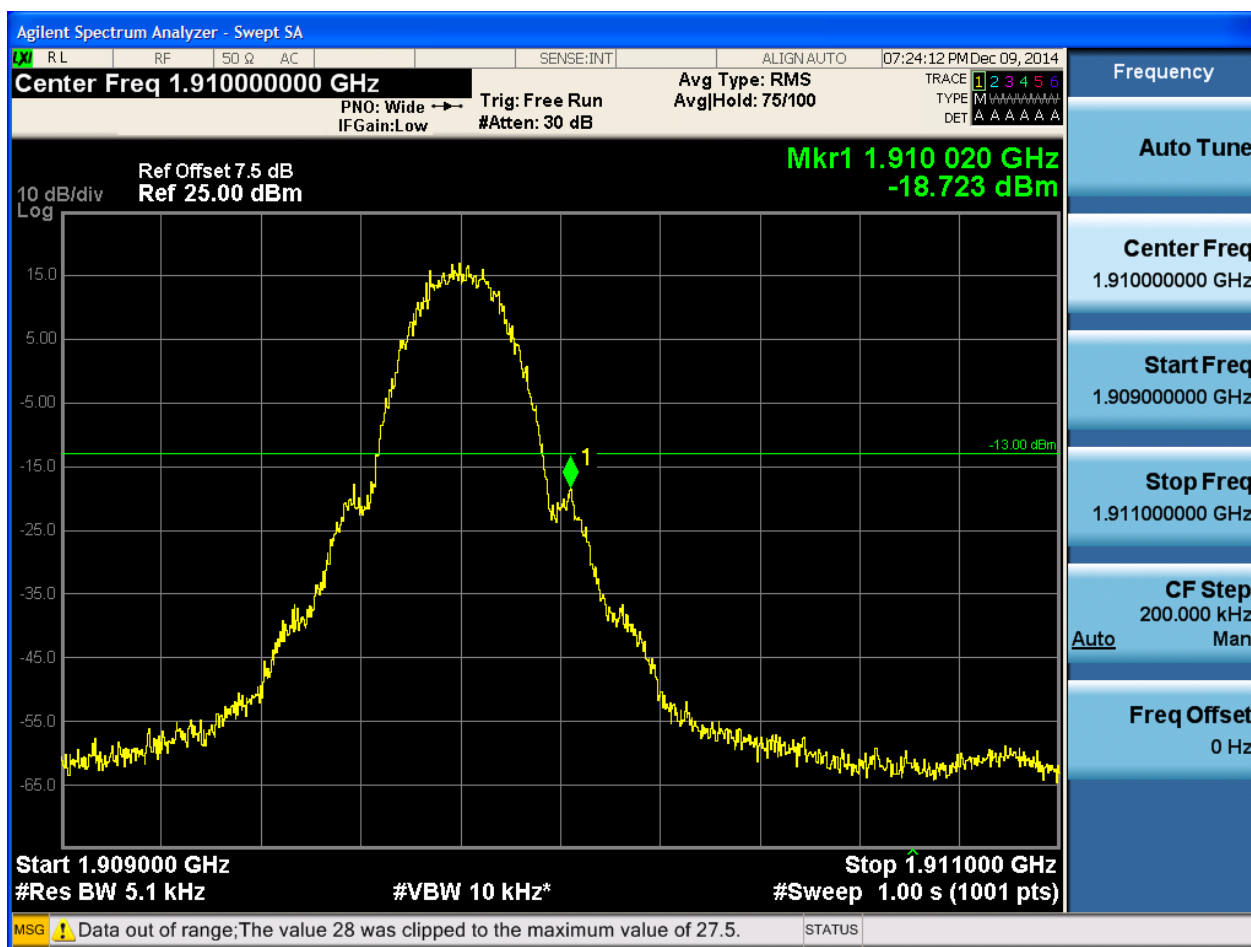
5.1.2.1 Test Mode = GSM/TM1

5.1.2.1.1 Test Channel = LCH





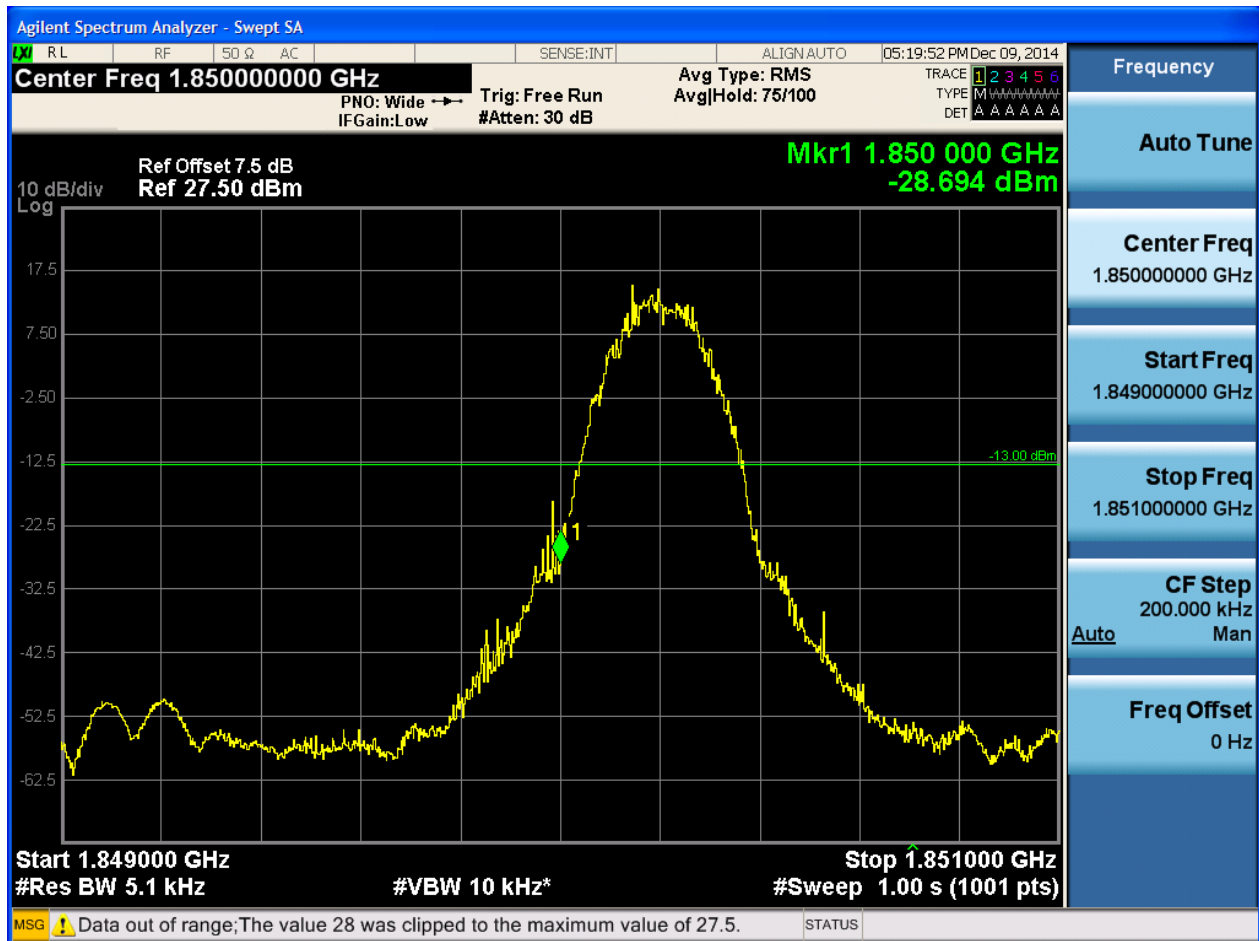
5.1.2.1.2 Test Channel = HCH





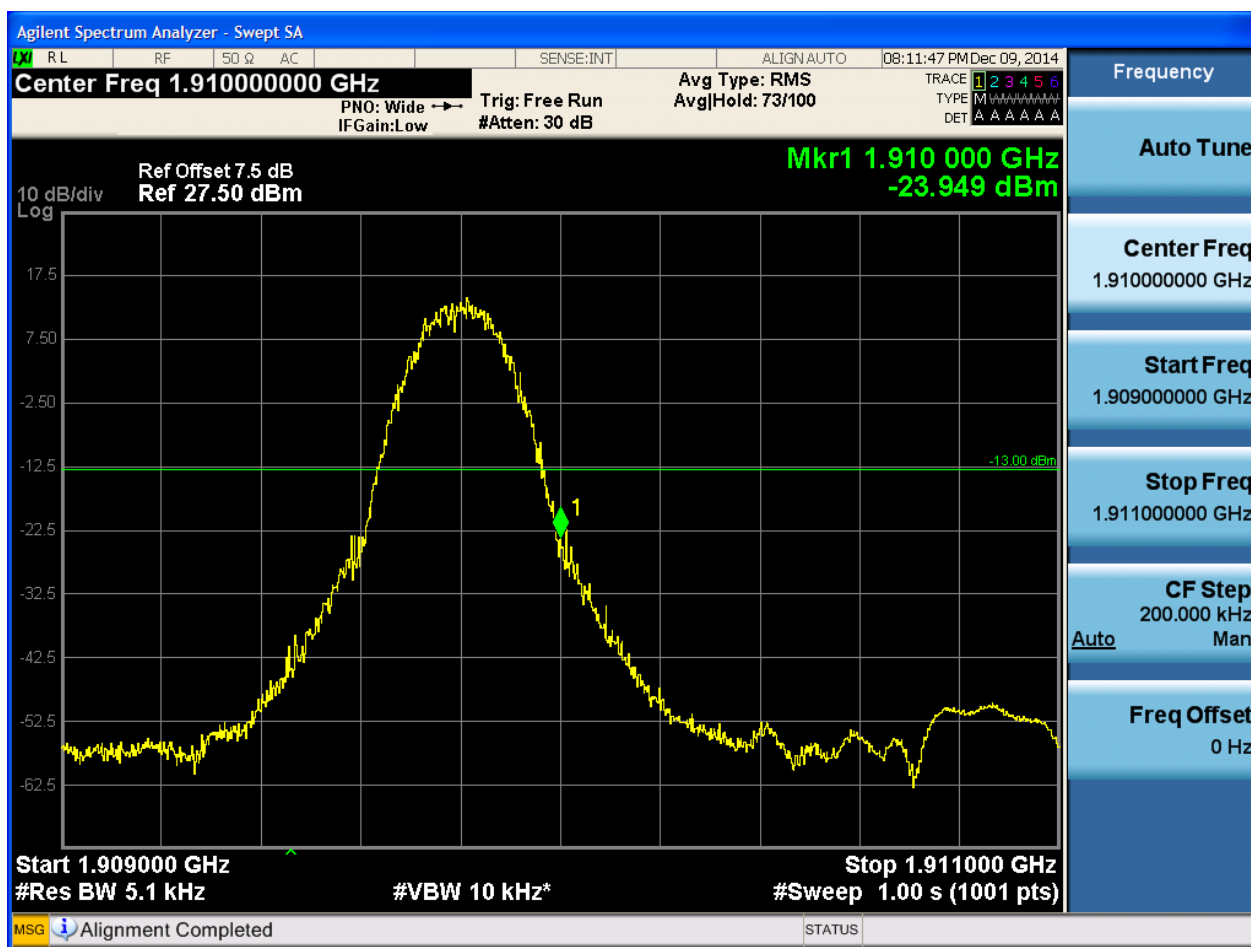
5.1.2.2 Test Mode = GSM/TM2

5.1.2.2.1 Test Channel = LCH





5.1.2.2.2 Test Channel = HCH



5.1.3.2 Test Mode =

5.2 For UMTS

5.2.1 Test Band = WCDMA850

5.2.1.1 Test Mode = UMTS/TM1

5.2.1.1.1 Test Channel = LCH





5.2.1.1.2 Test Channel = HCH

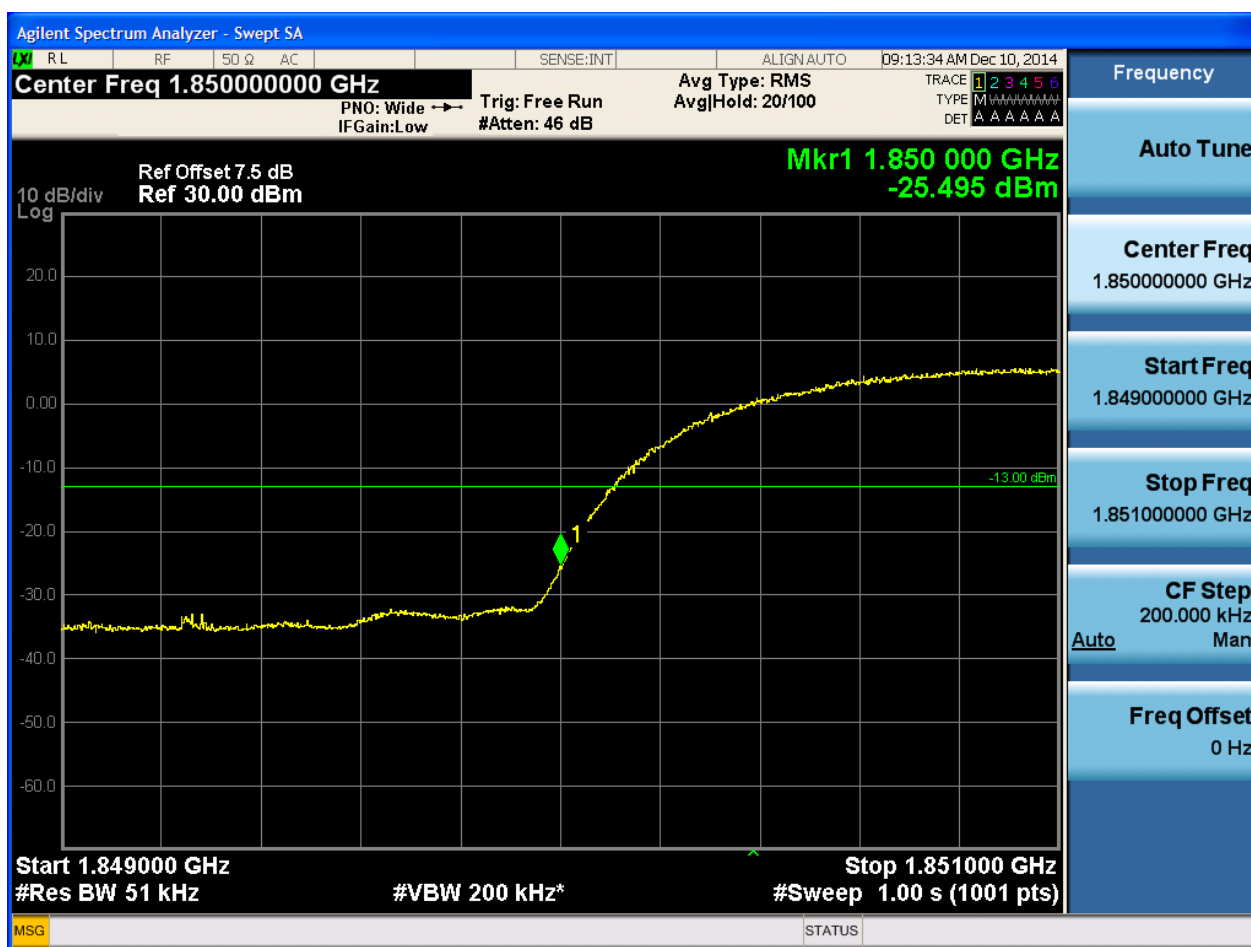




5.2.2 Test Band = WCDMA1900

5.2.2.1 Test Mode = UMTS/TM1

5.2.2.1.1 Test Channel = LCH





5.2.2.1.2 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.

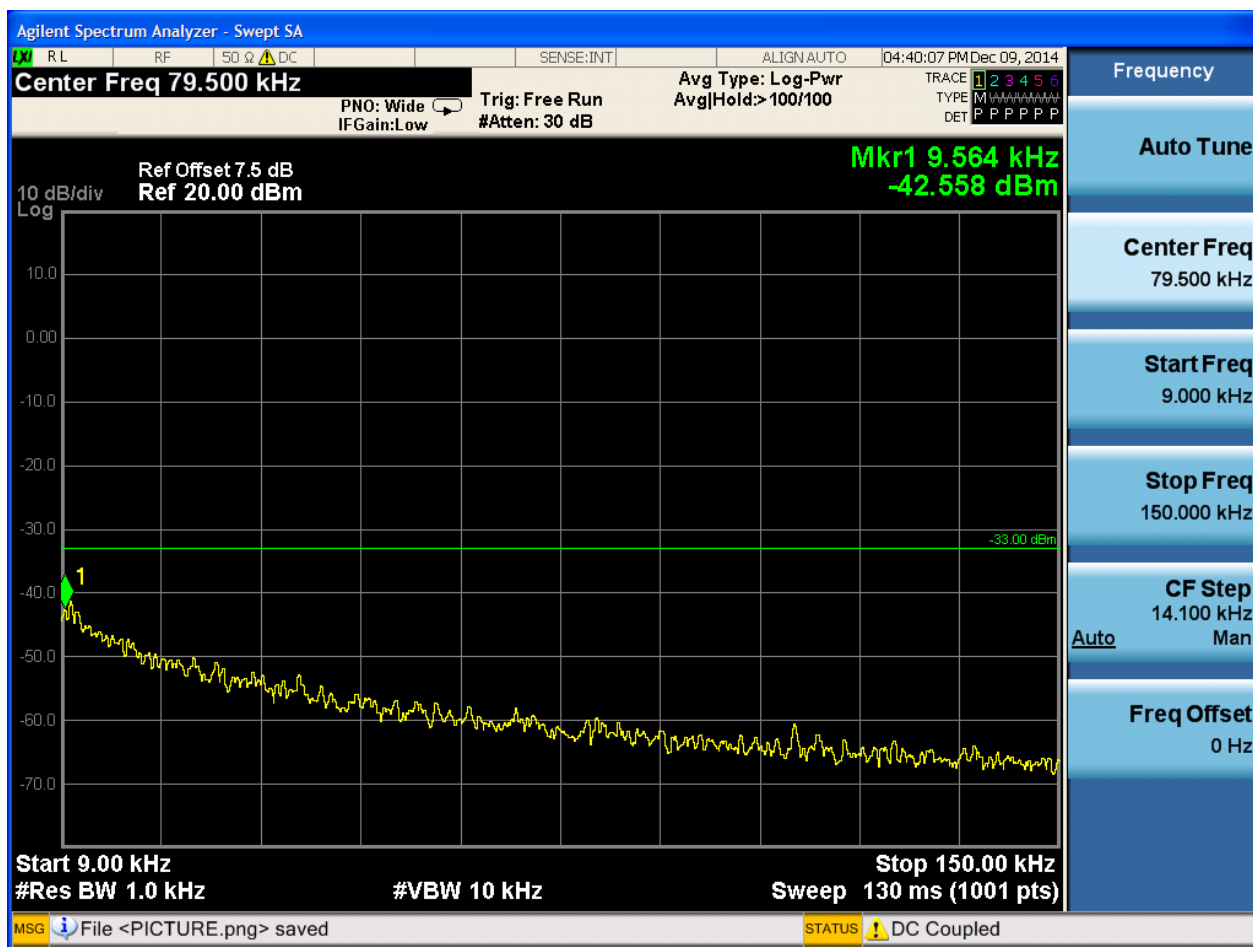
Part I - Test Plots

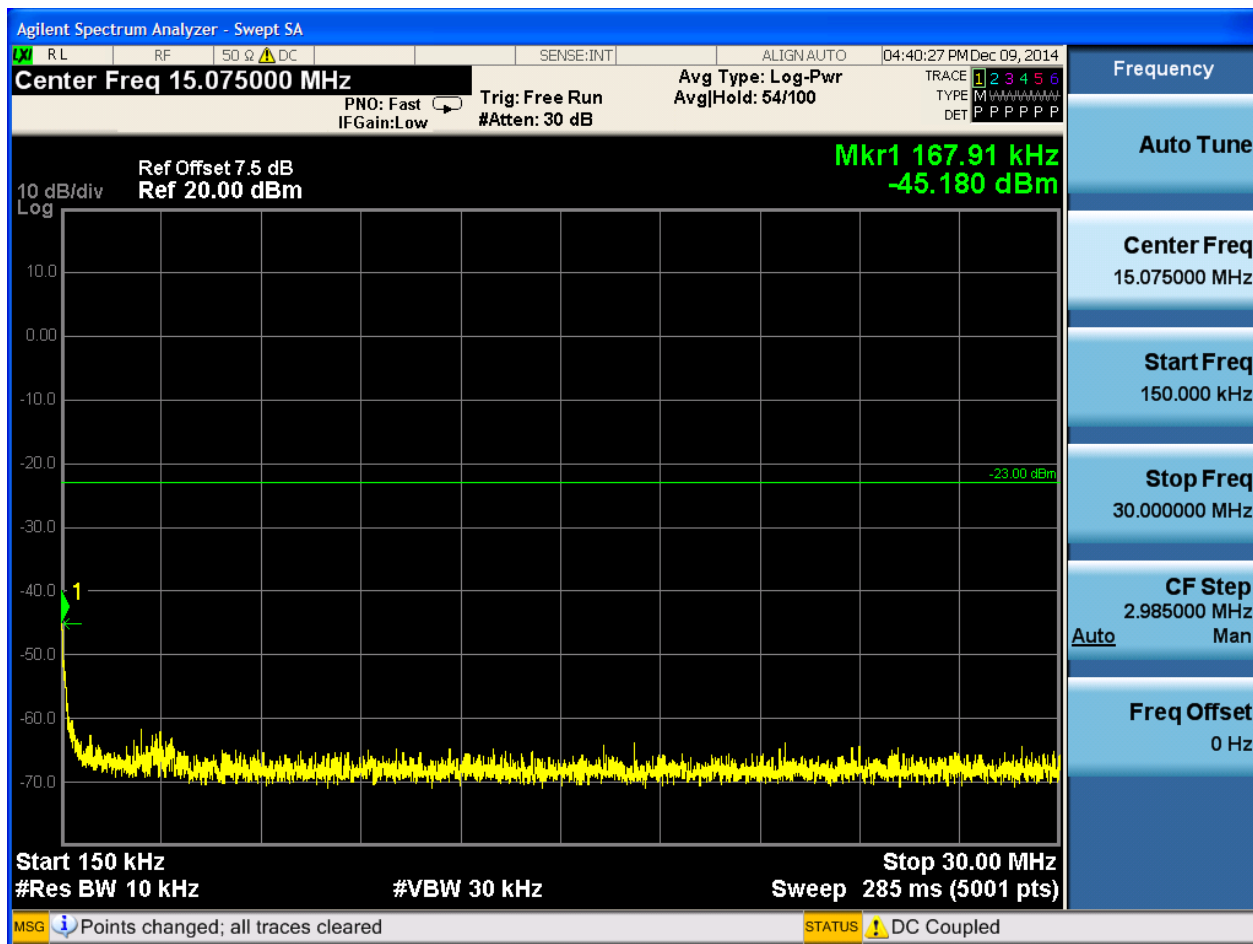
6.1 For GSM

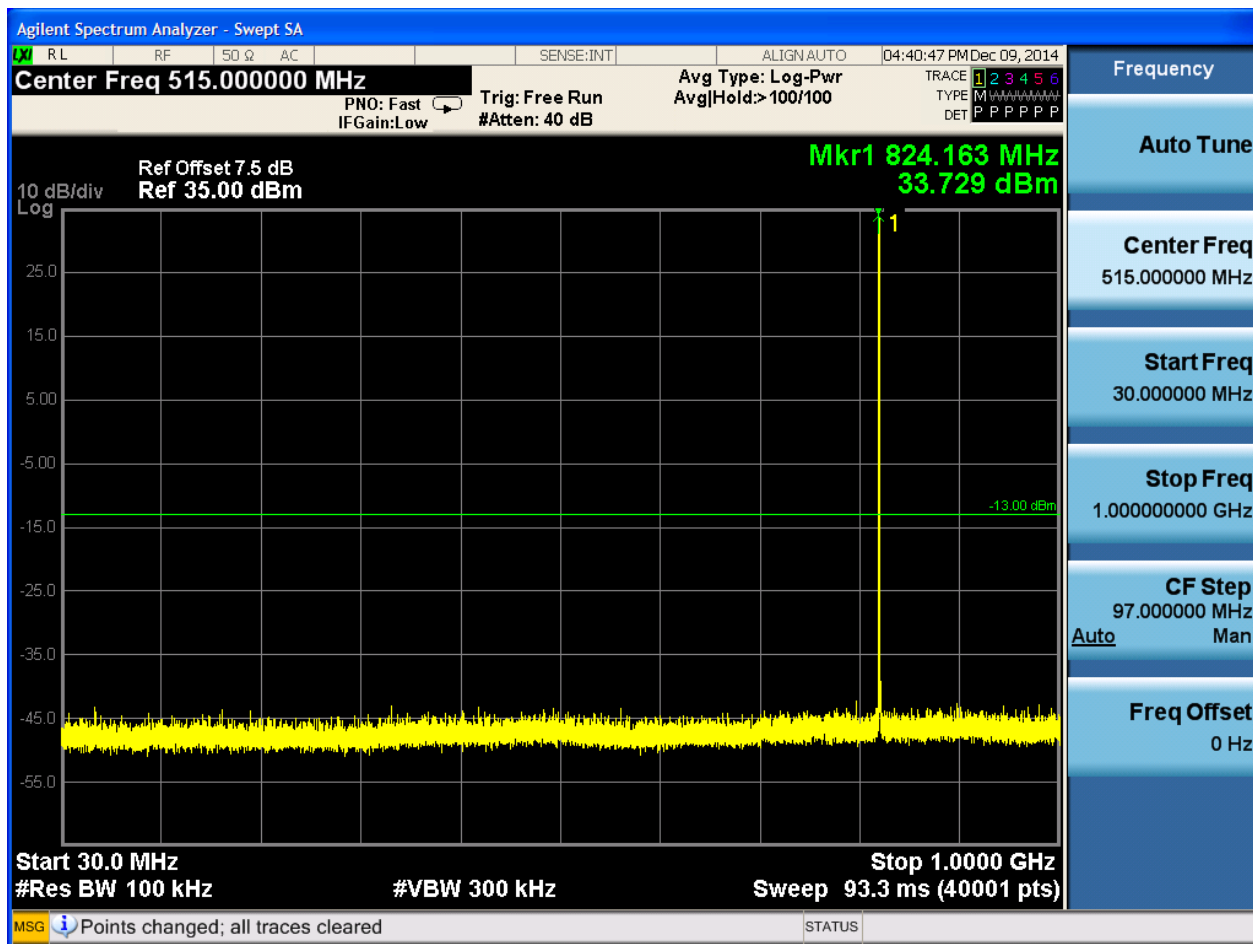
6.1.1 Test Band = GSM850

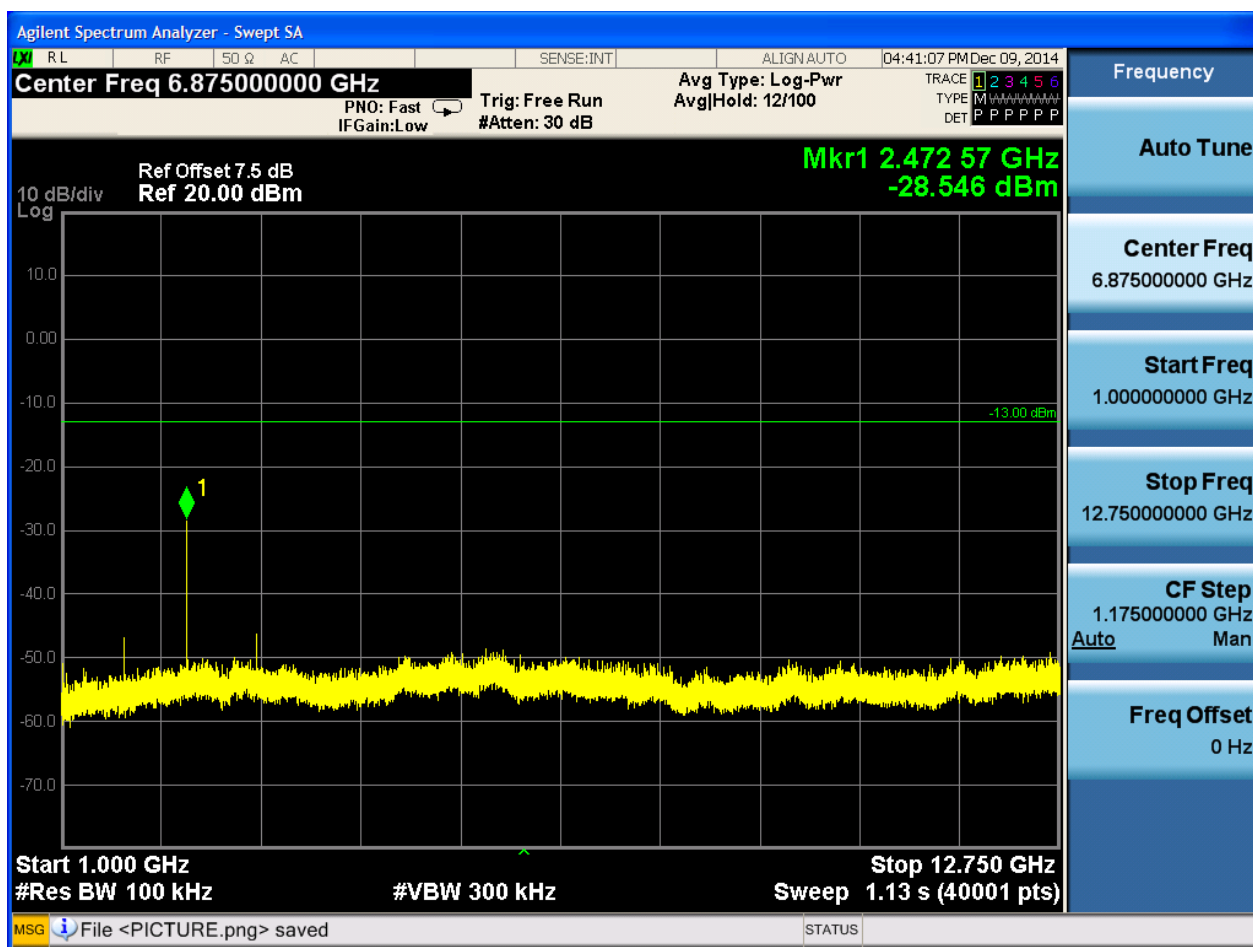
6.1.1.1 Test Mode = GSM/TM1

6.1.1.1.1 Test Channel = LCH



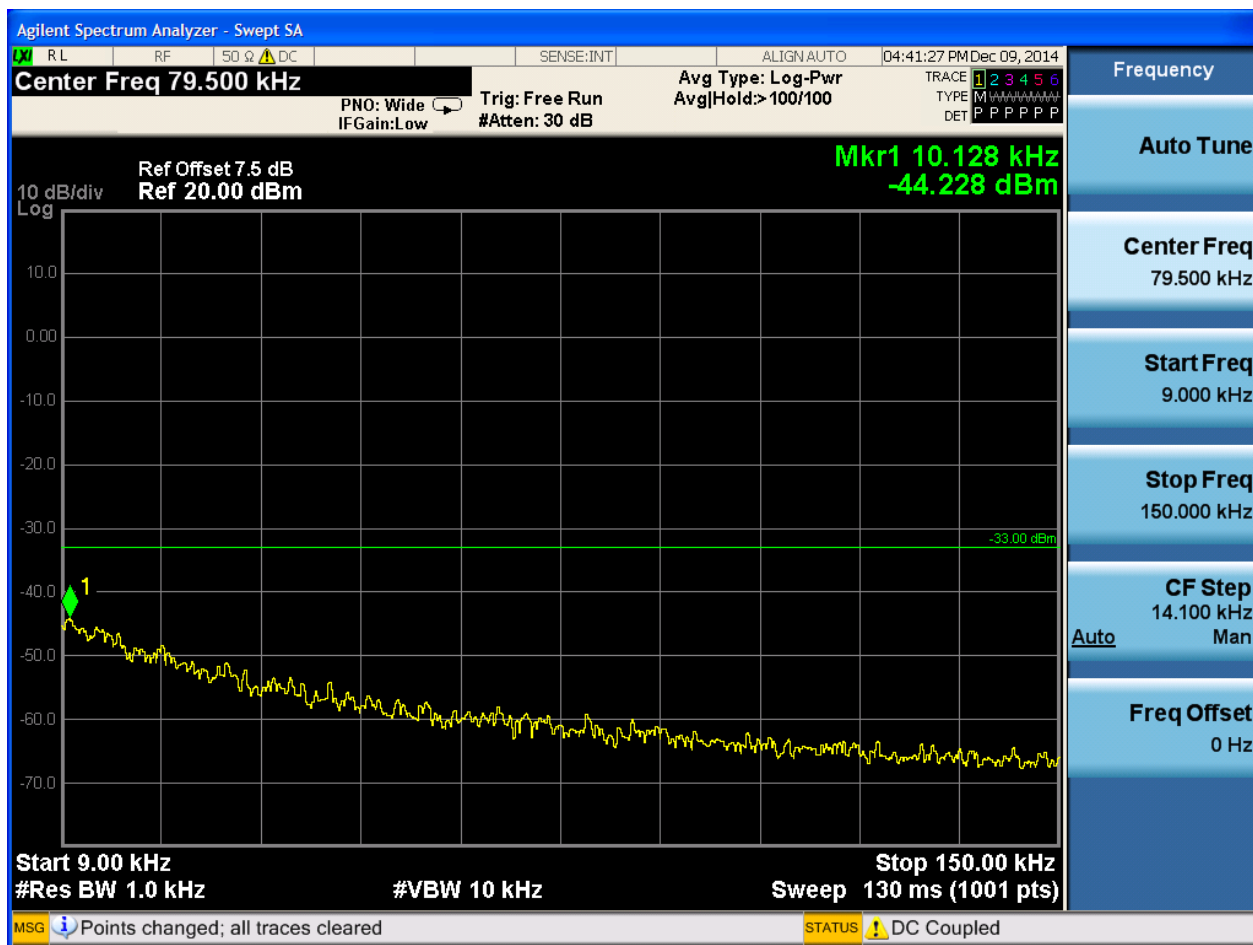


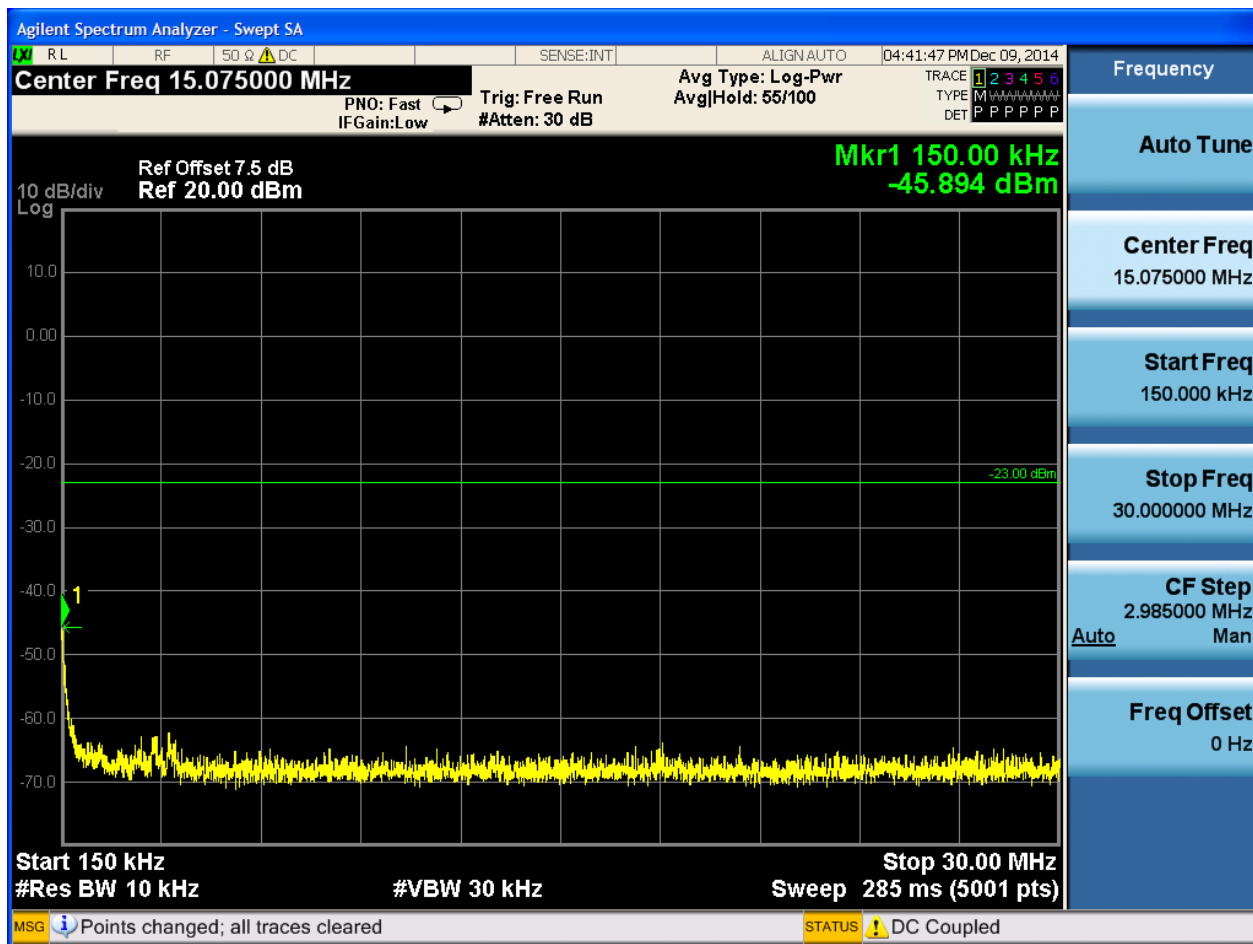


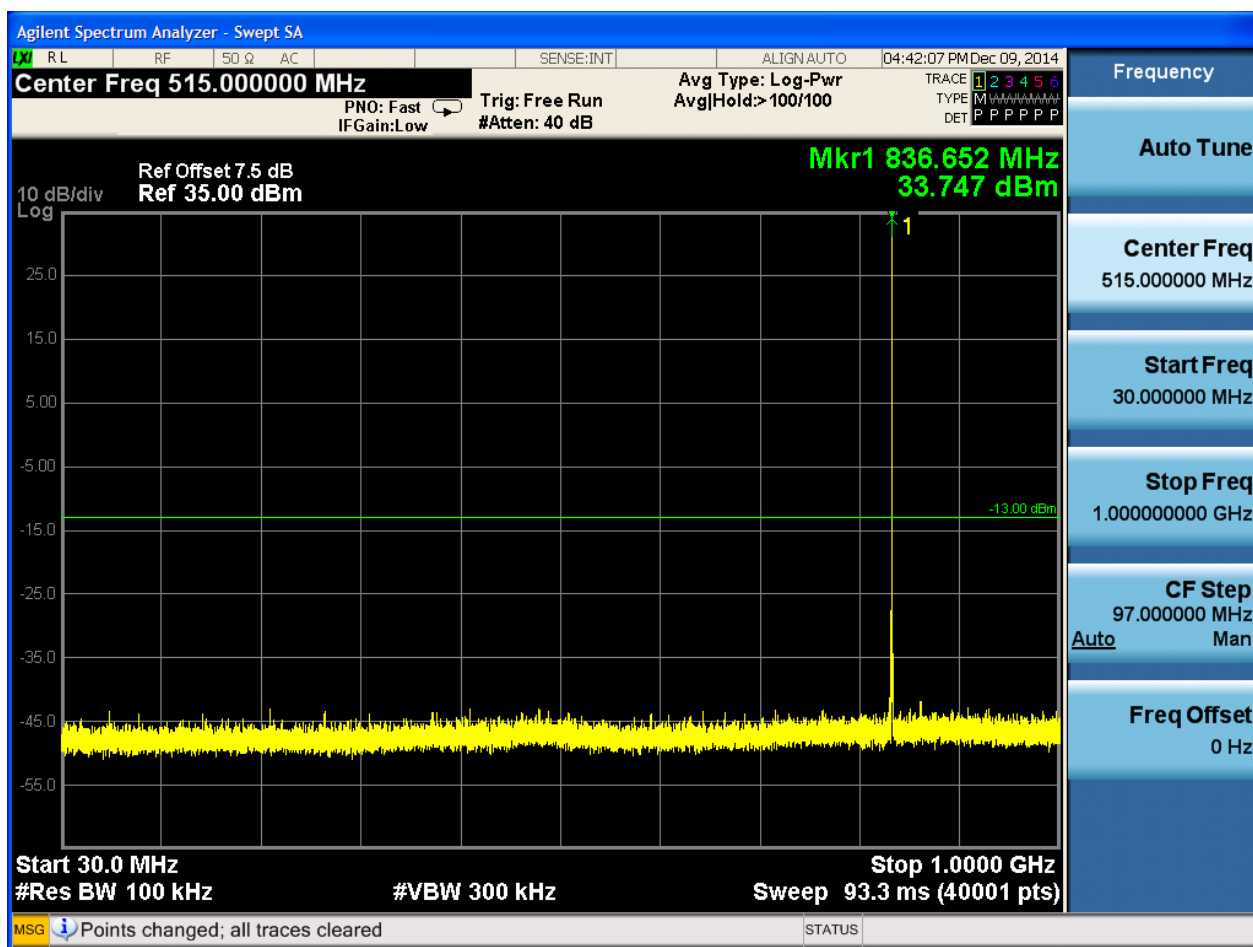


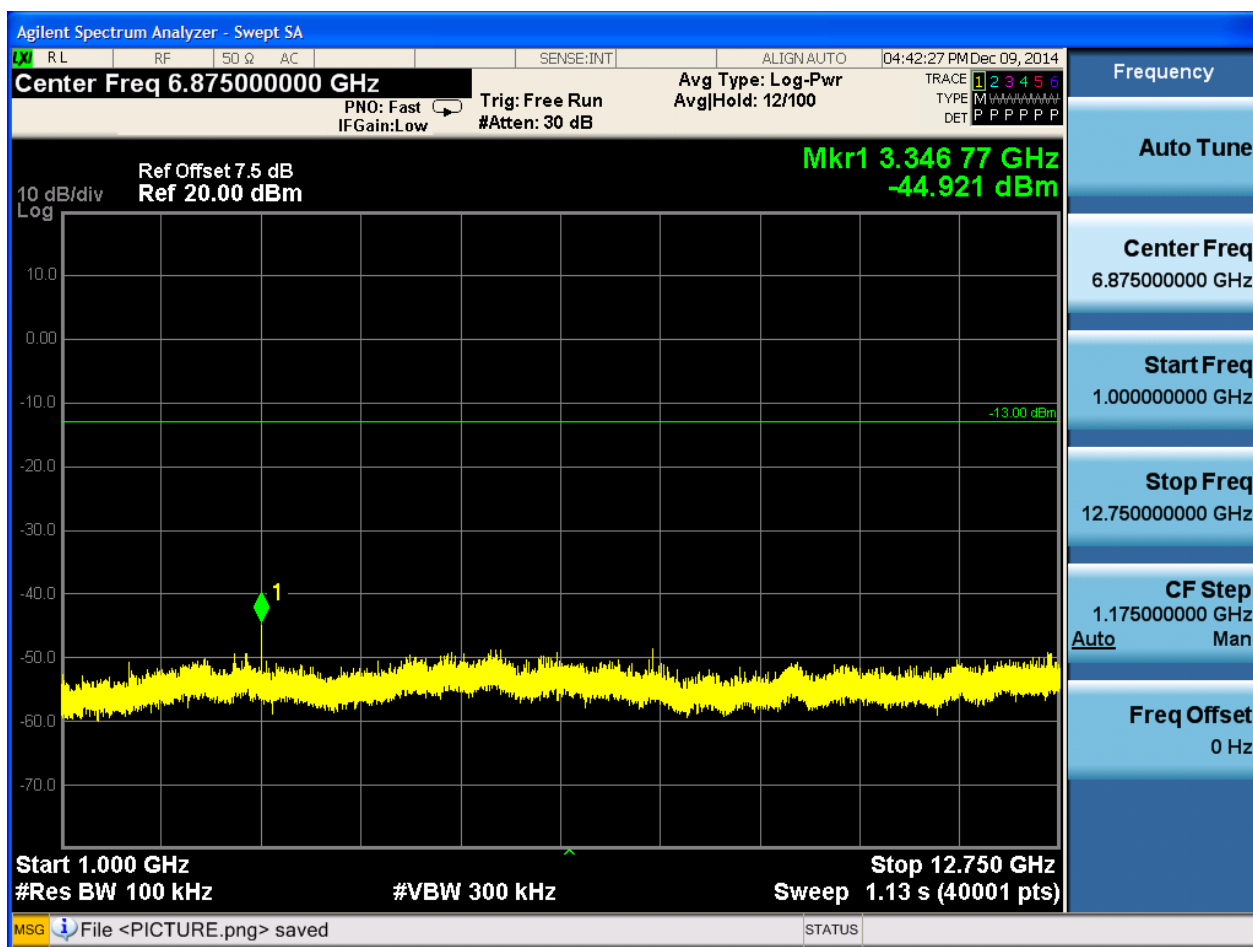


6.1.1.1.2 Test Channel = MCH



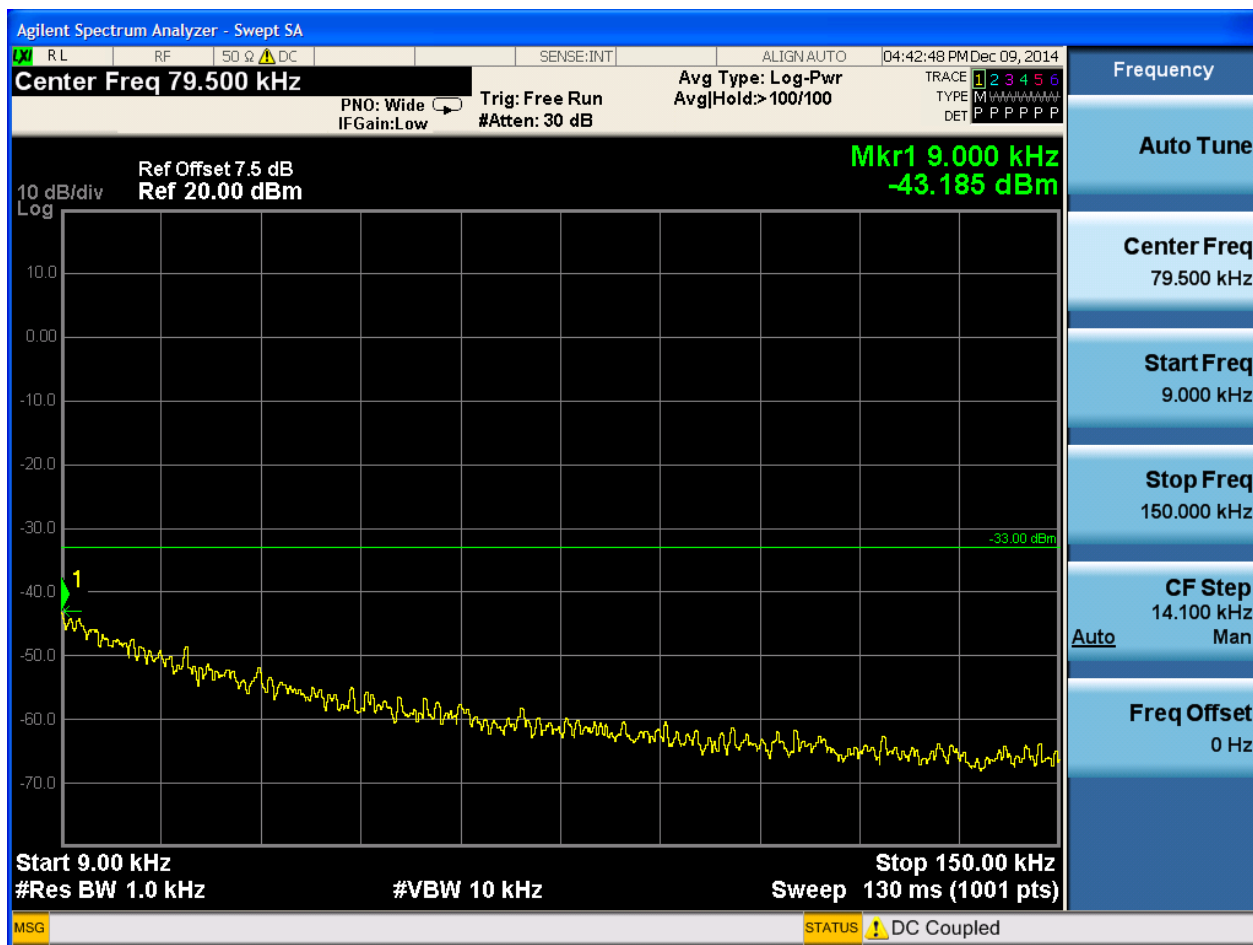


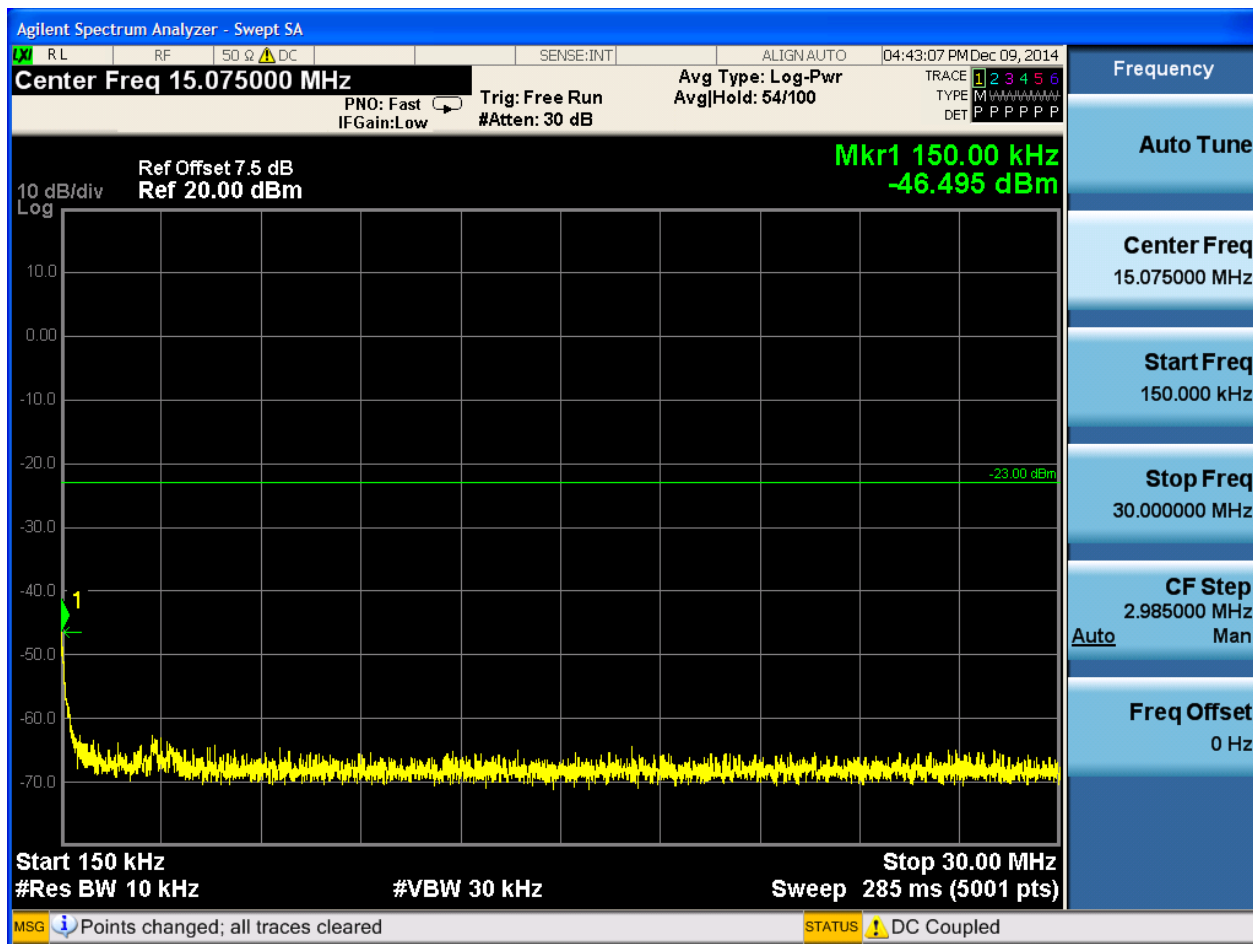


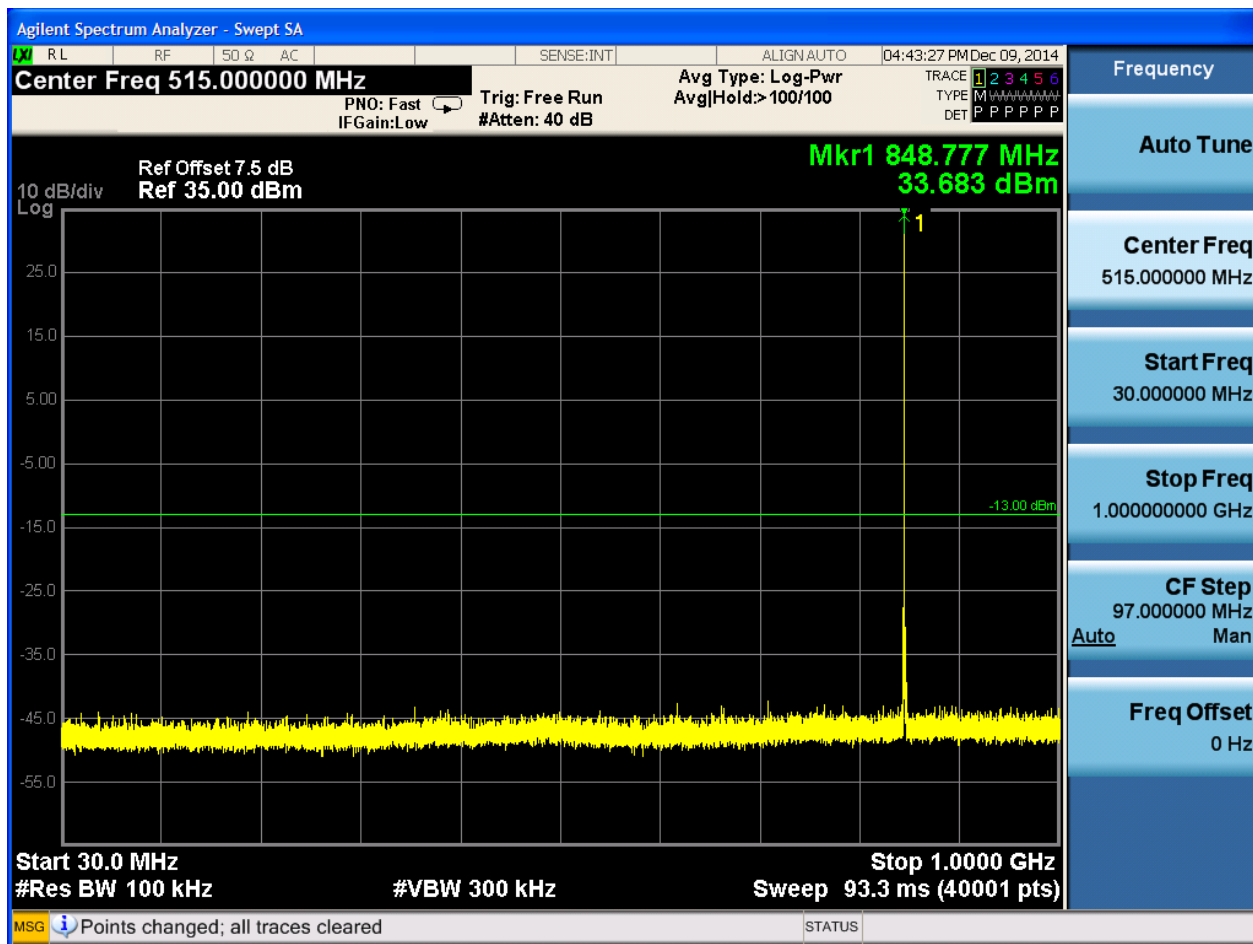


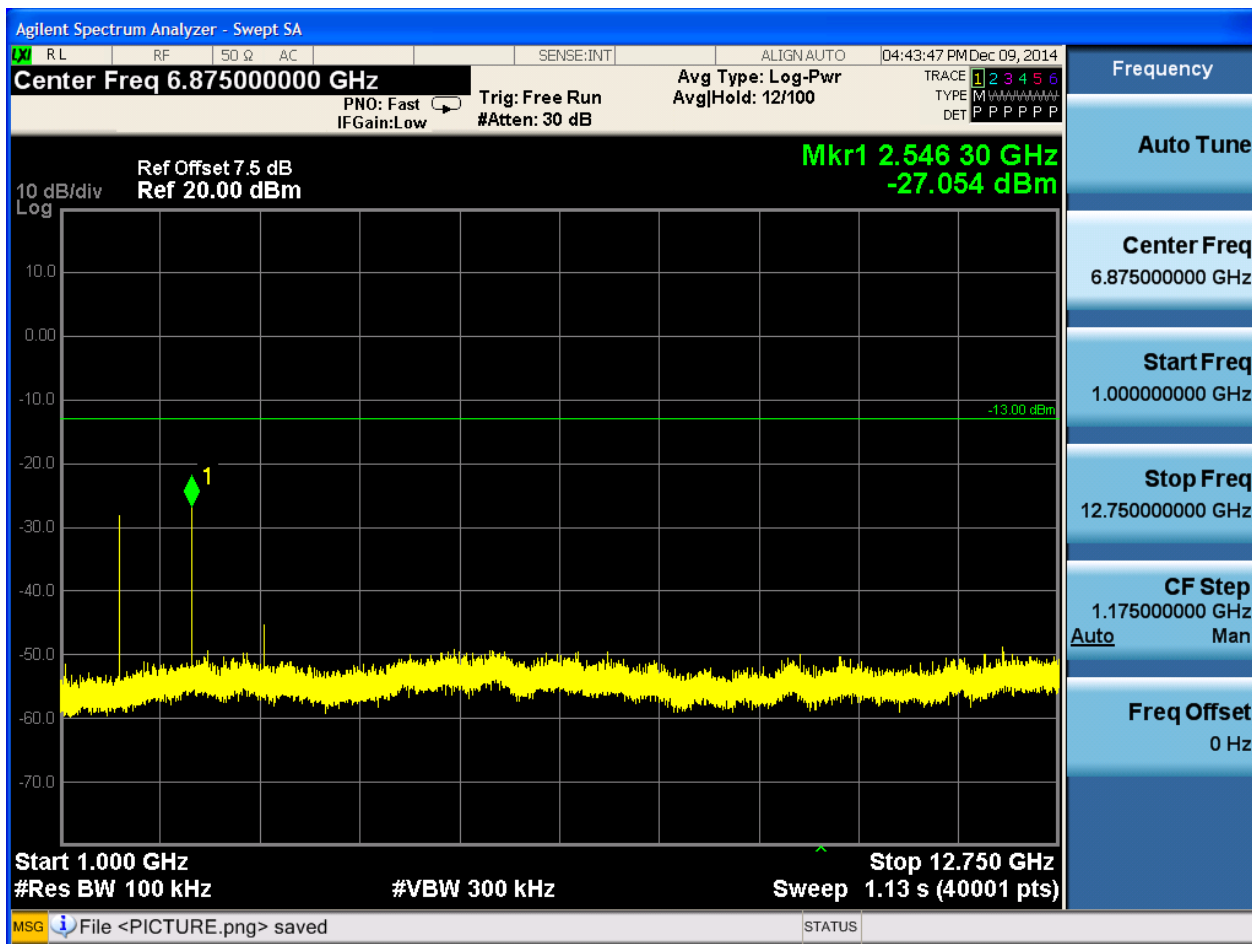


6.1.1.1.3 Test Channel = HCH





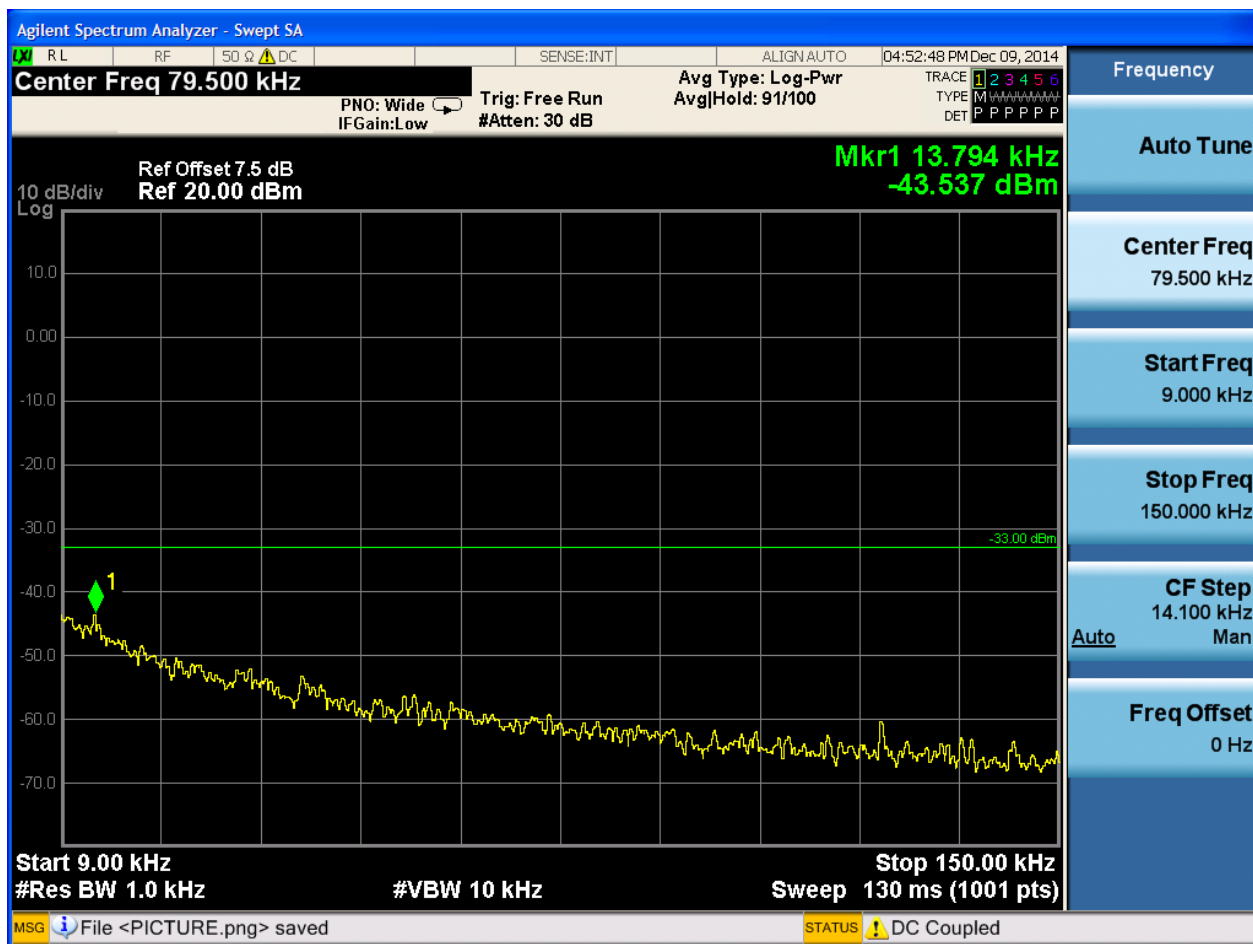


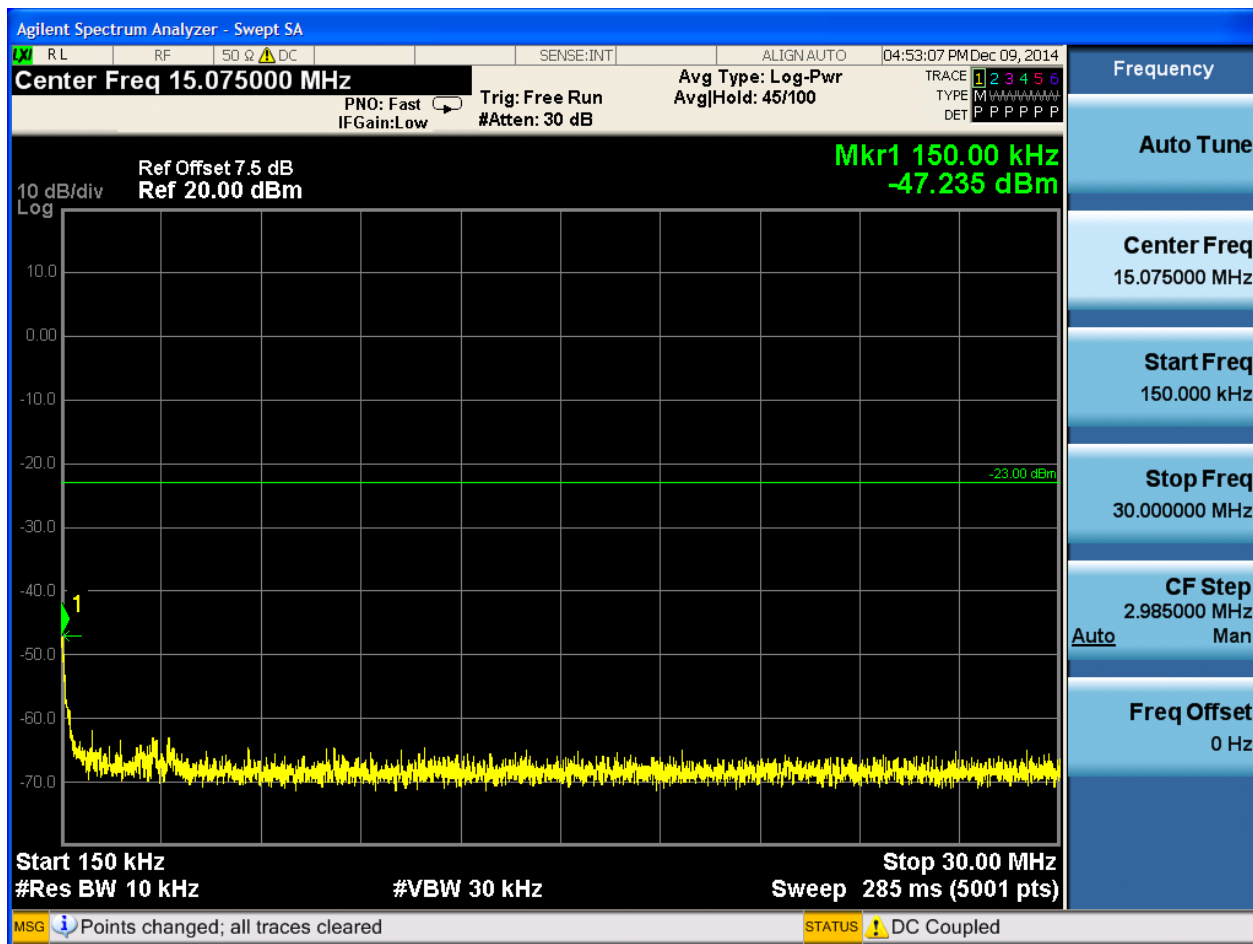


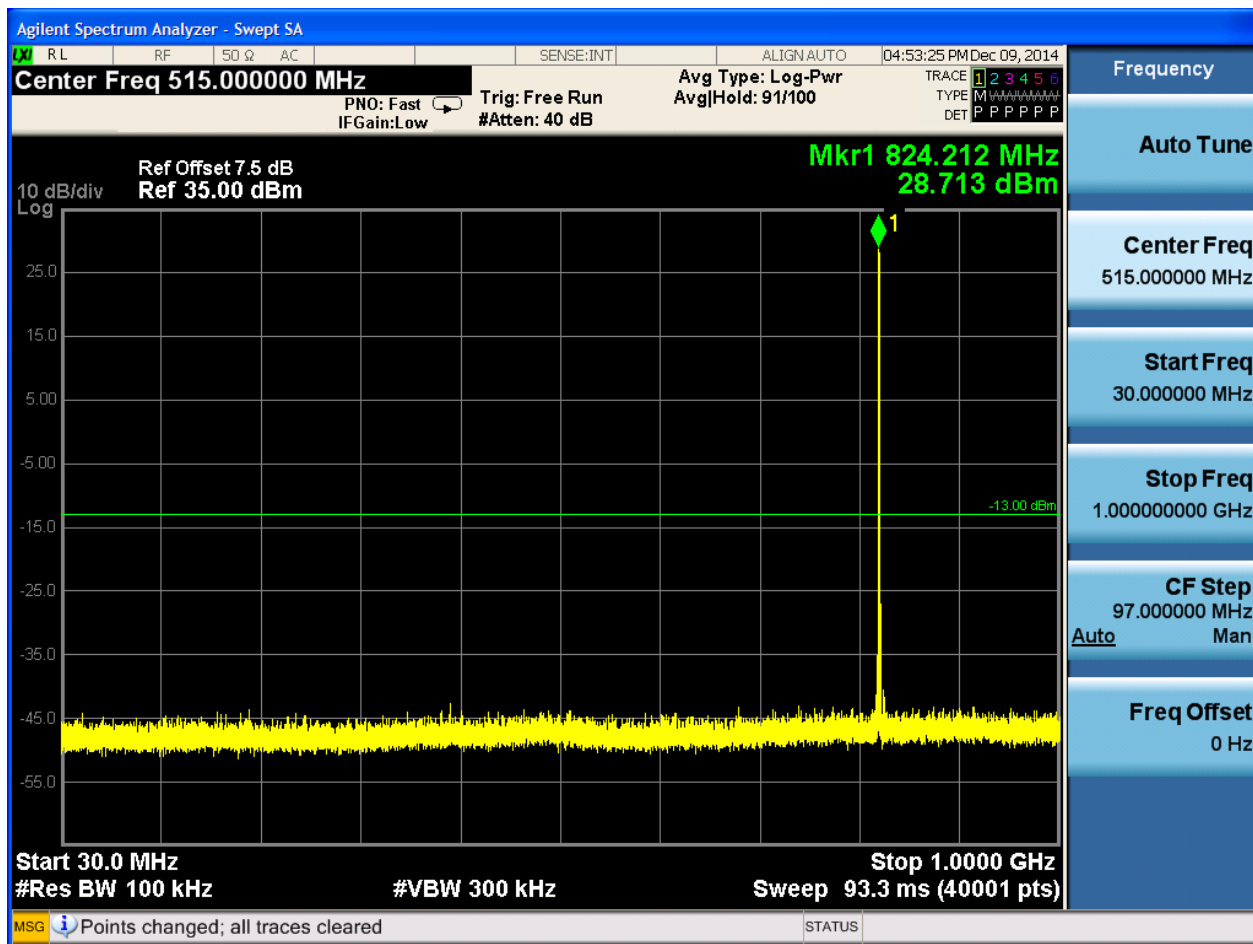


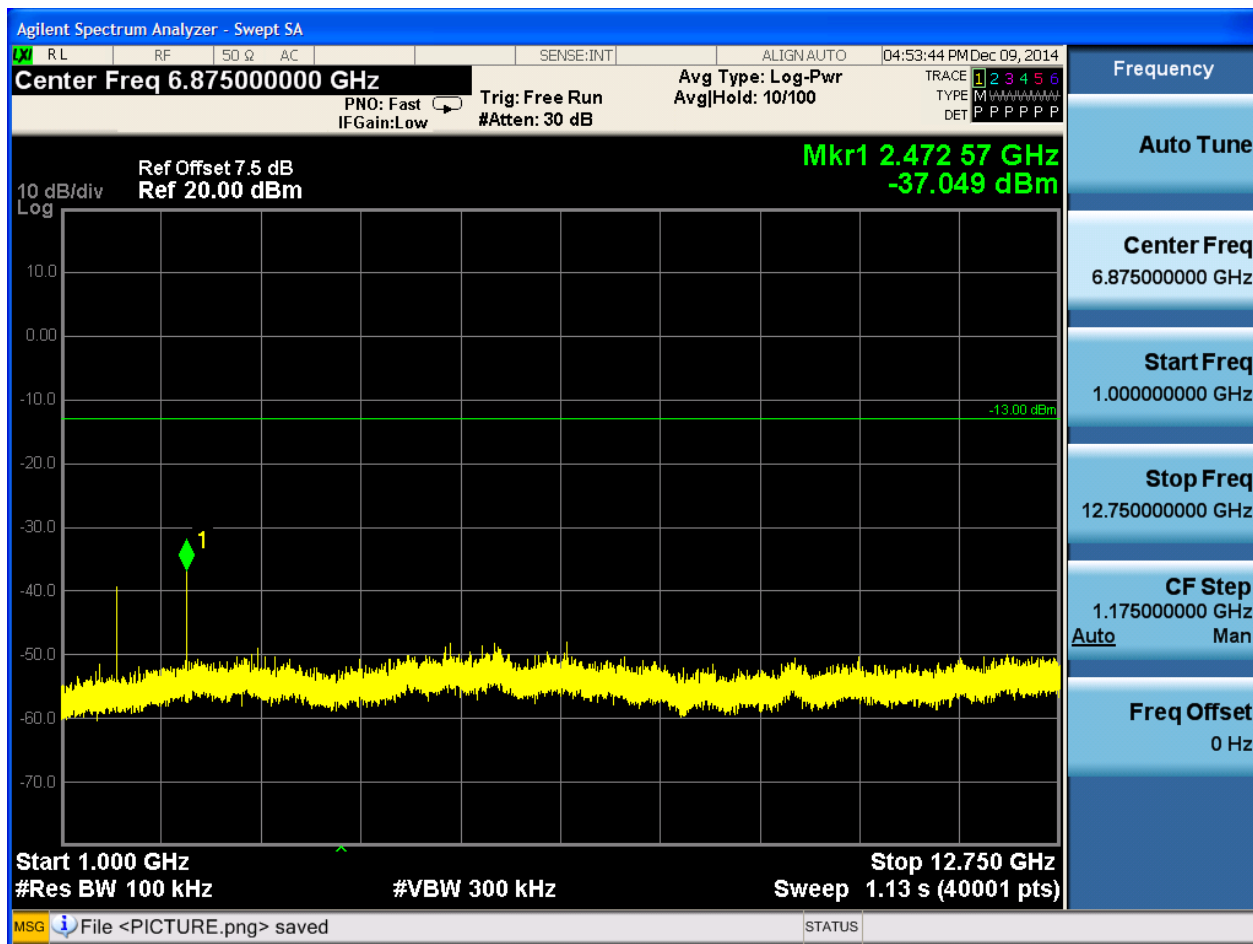
6.1.1.2 Test Mode = GSM/TM2

6.1.1.2.1 Test Channel = LCH



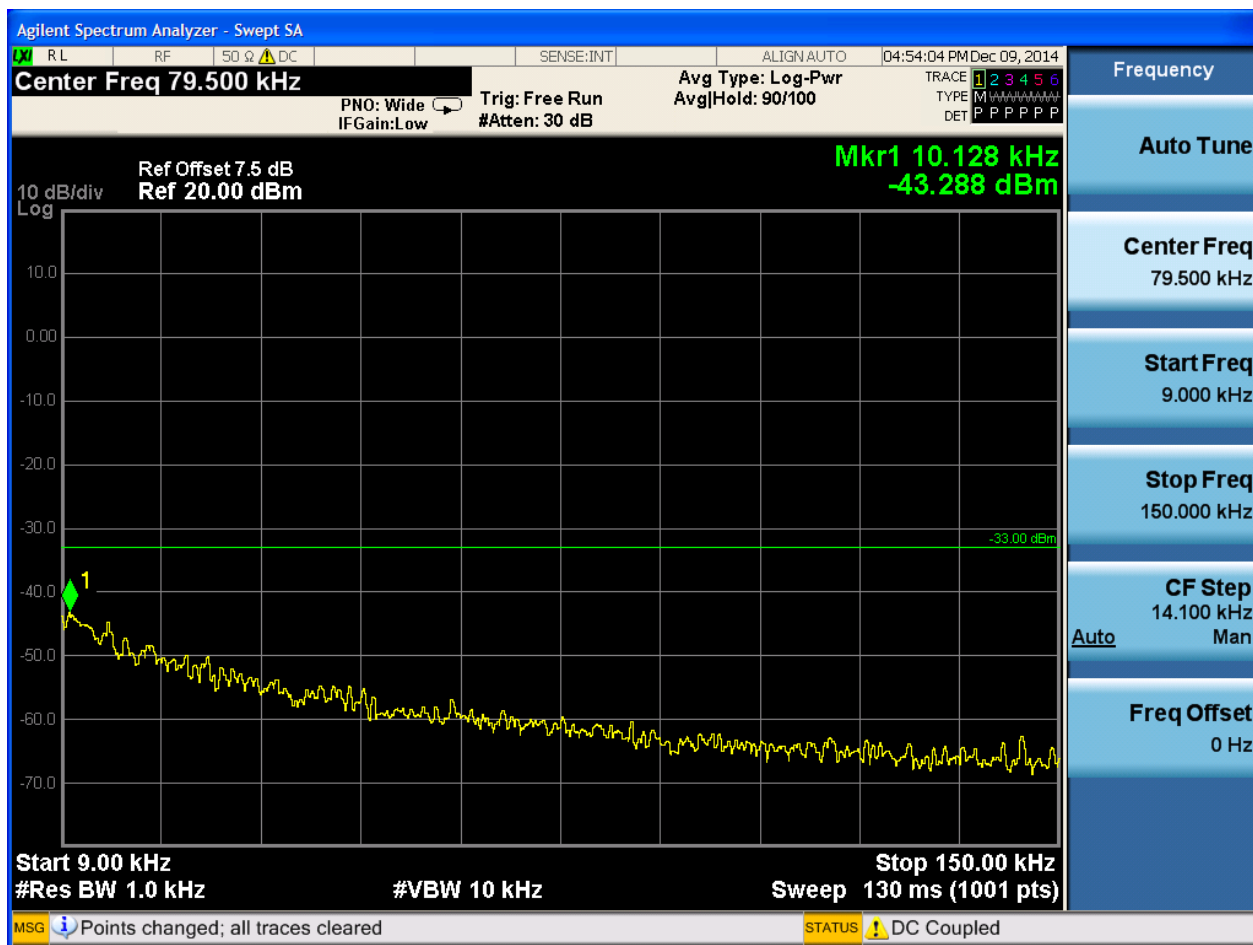


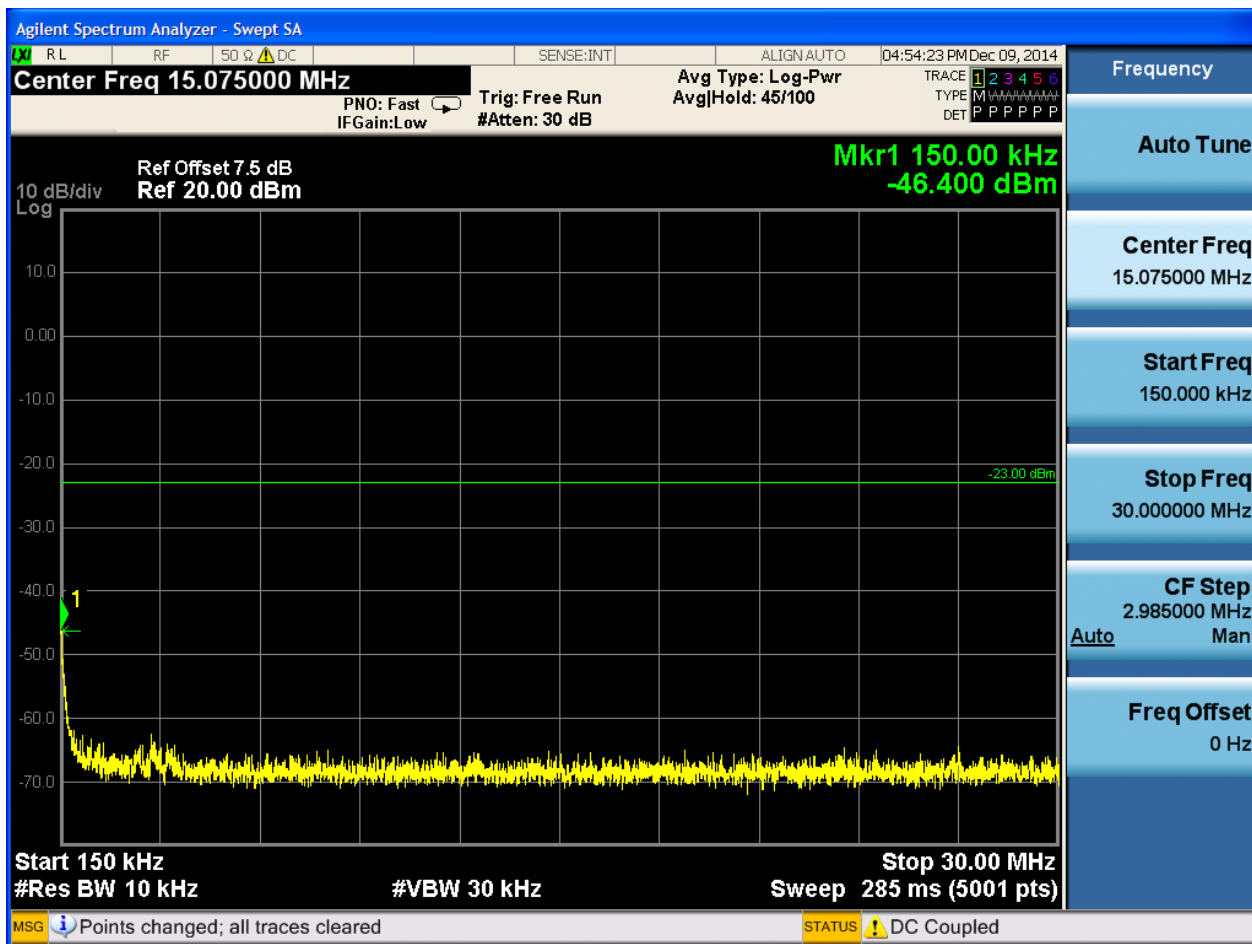


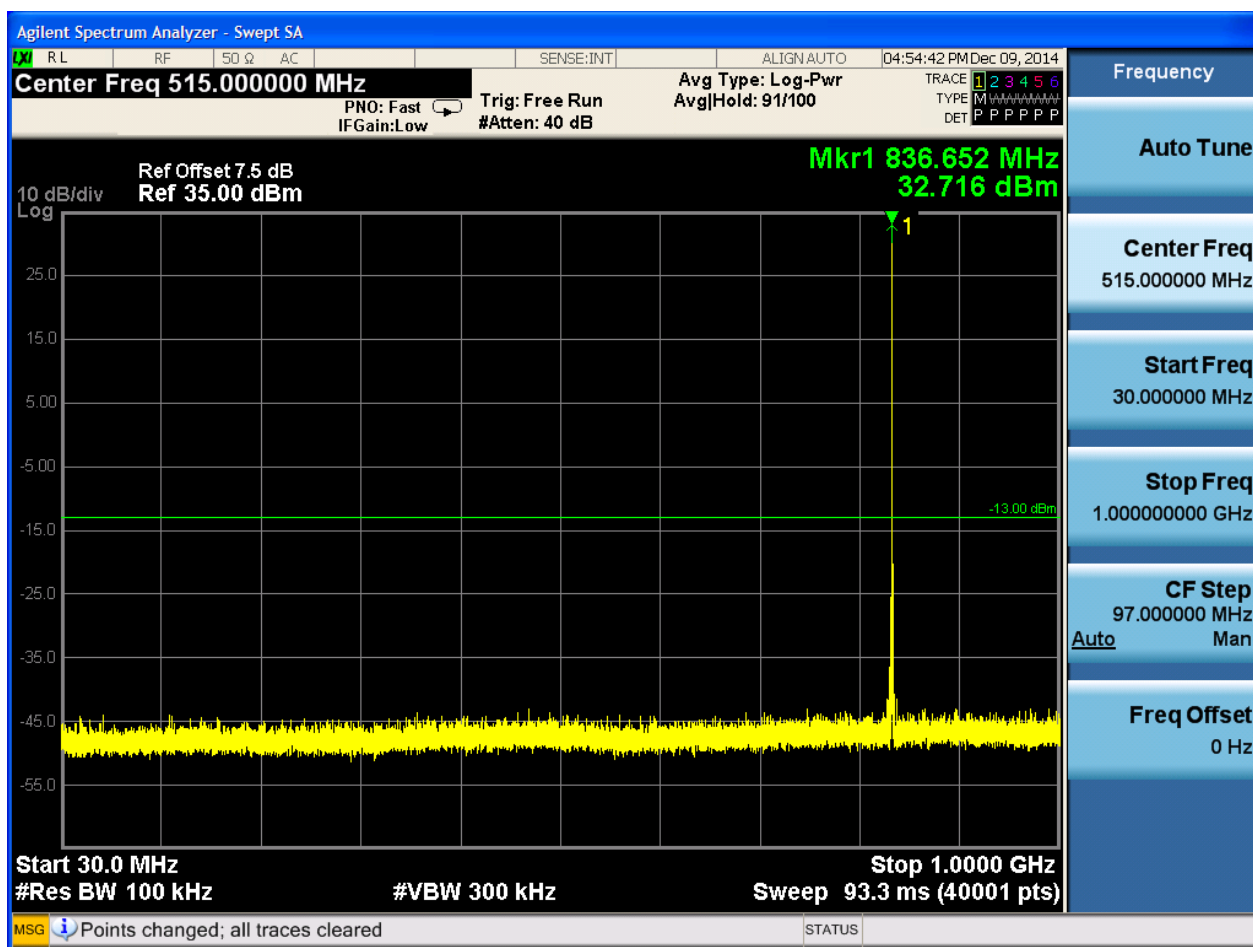


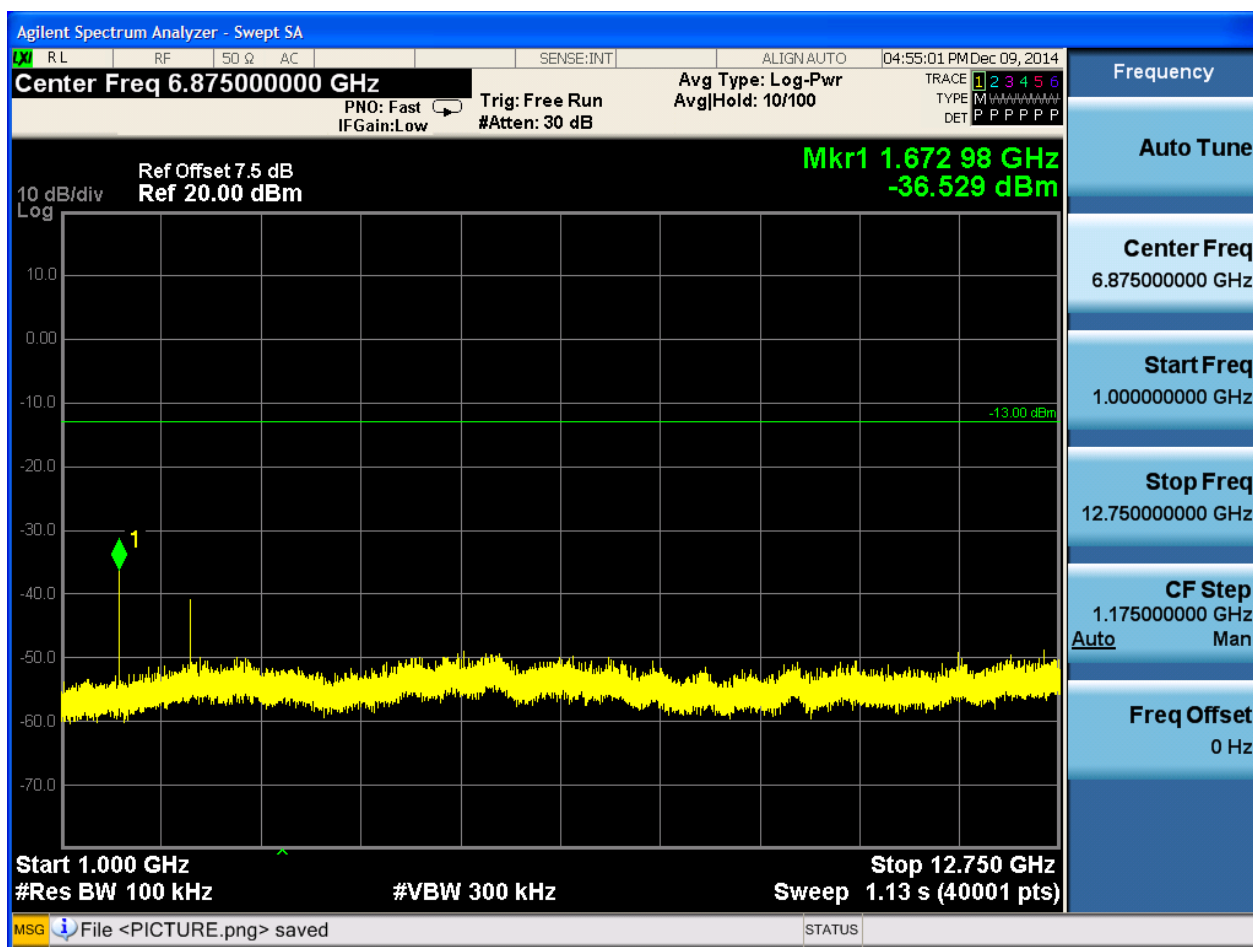


6.1.1.2.2 Test Channel = MCH



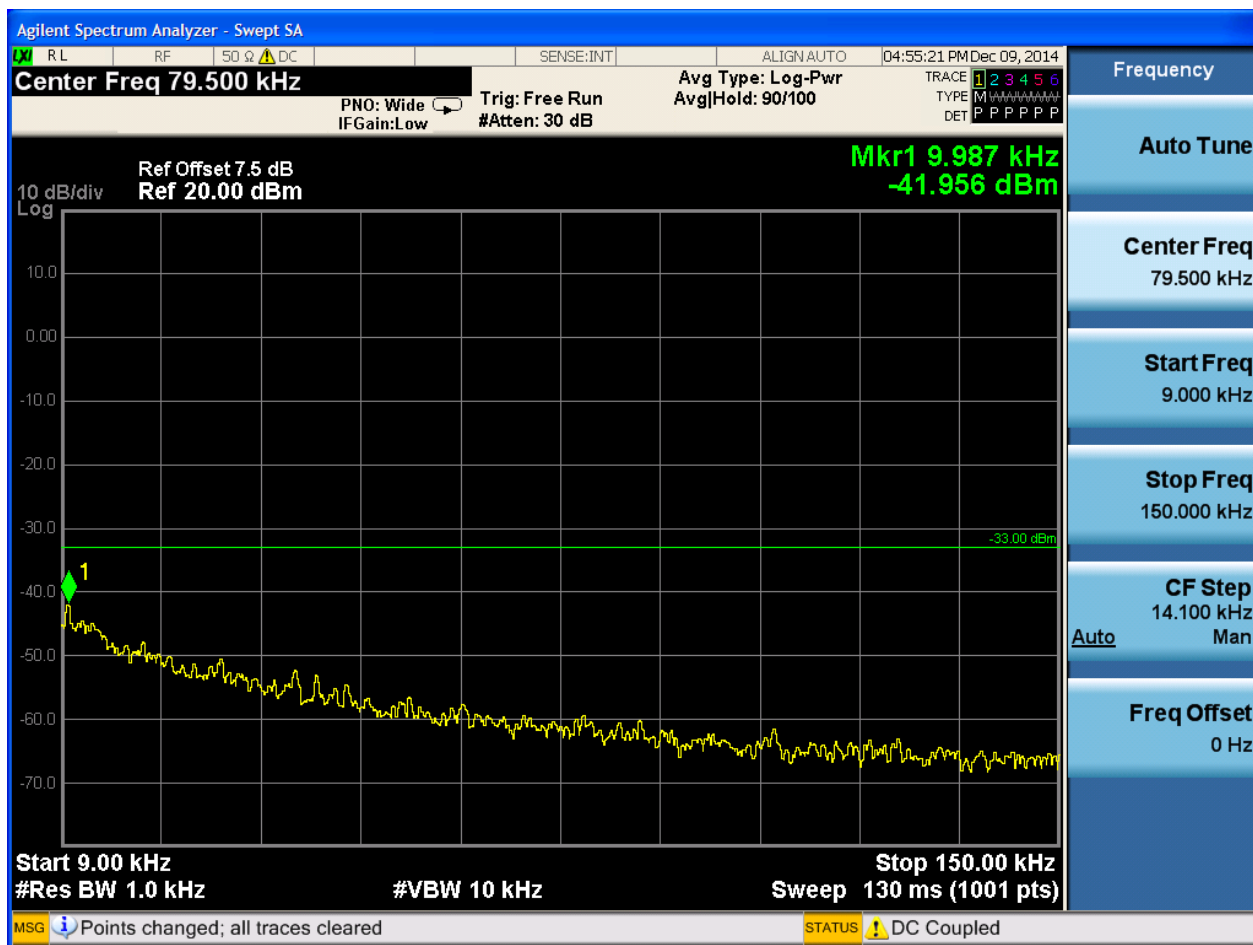


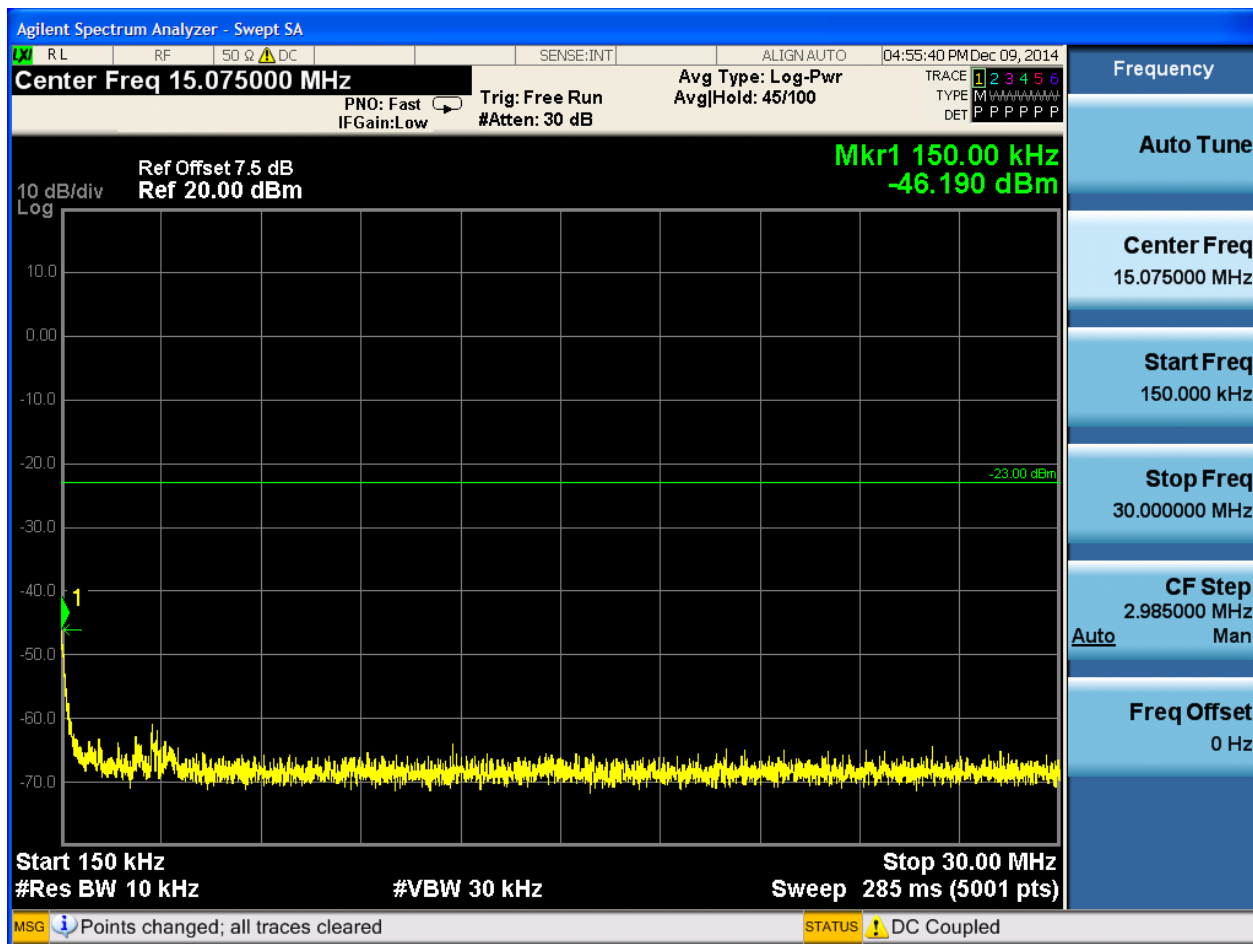


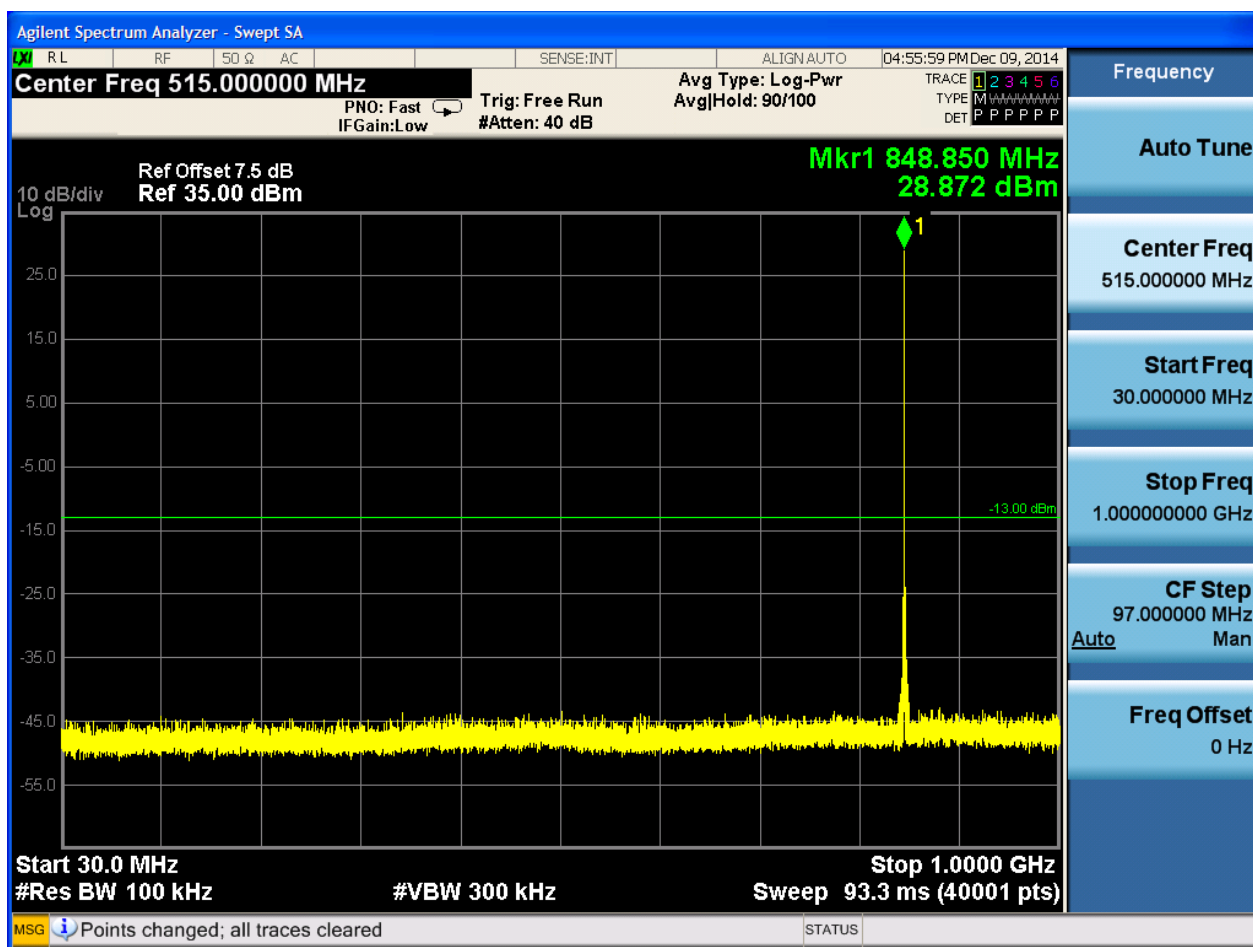


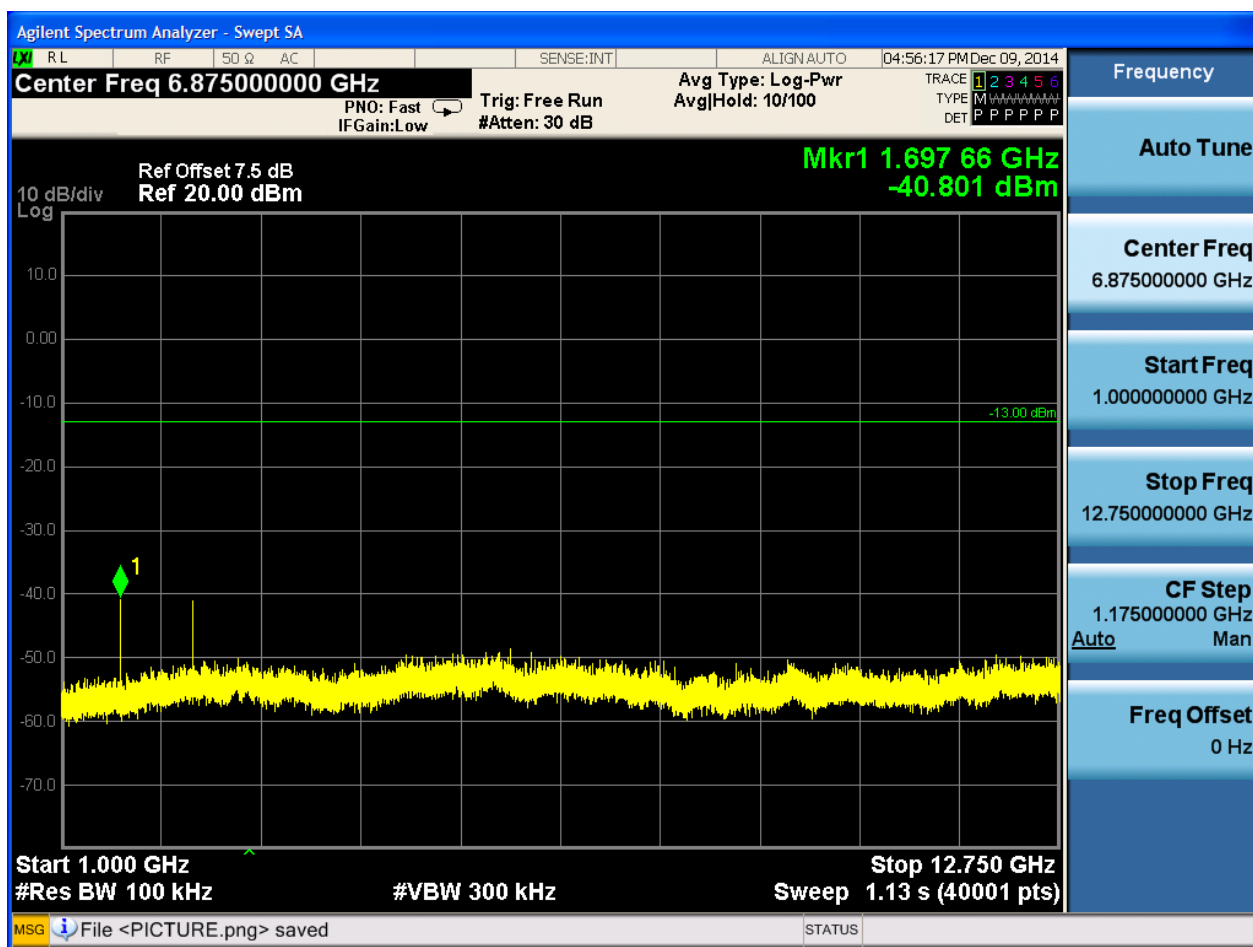


6.1.1.2.3 Test Channel = HCH







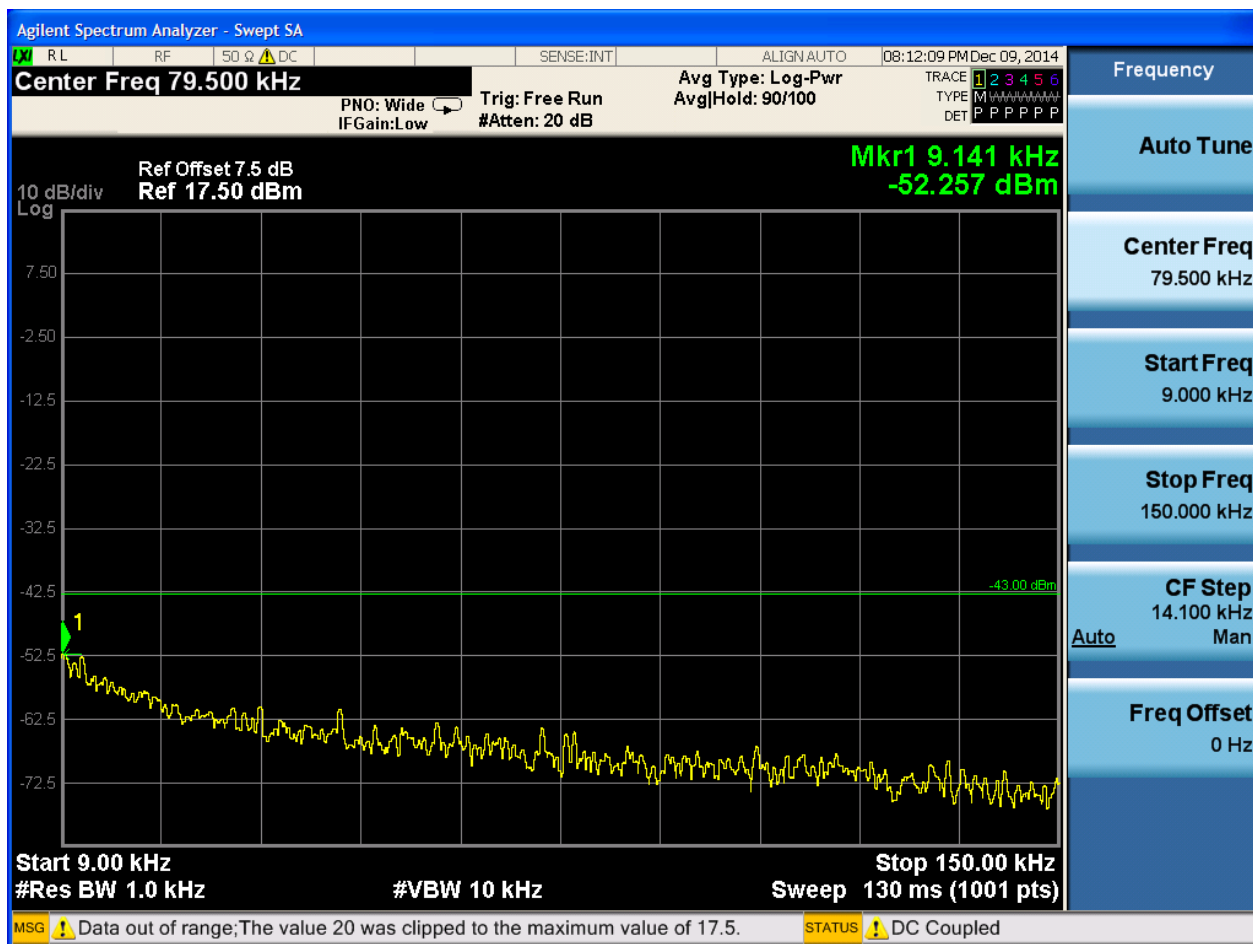


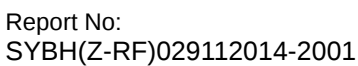
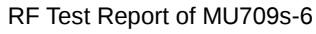


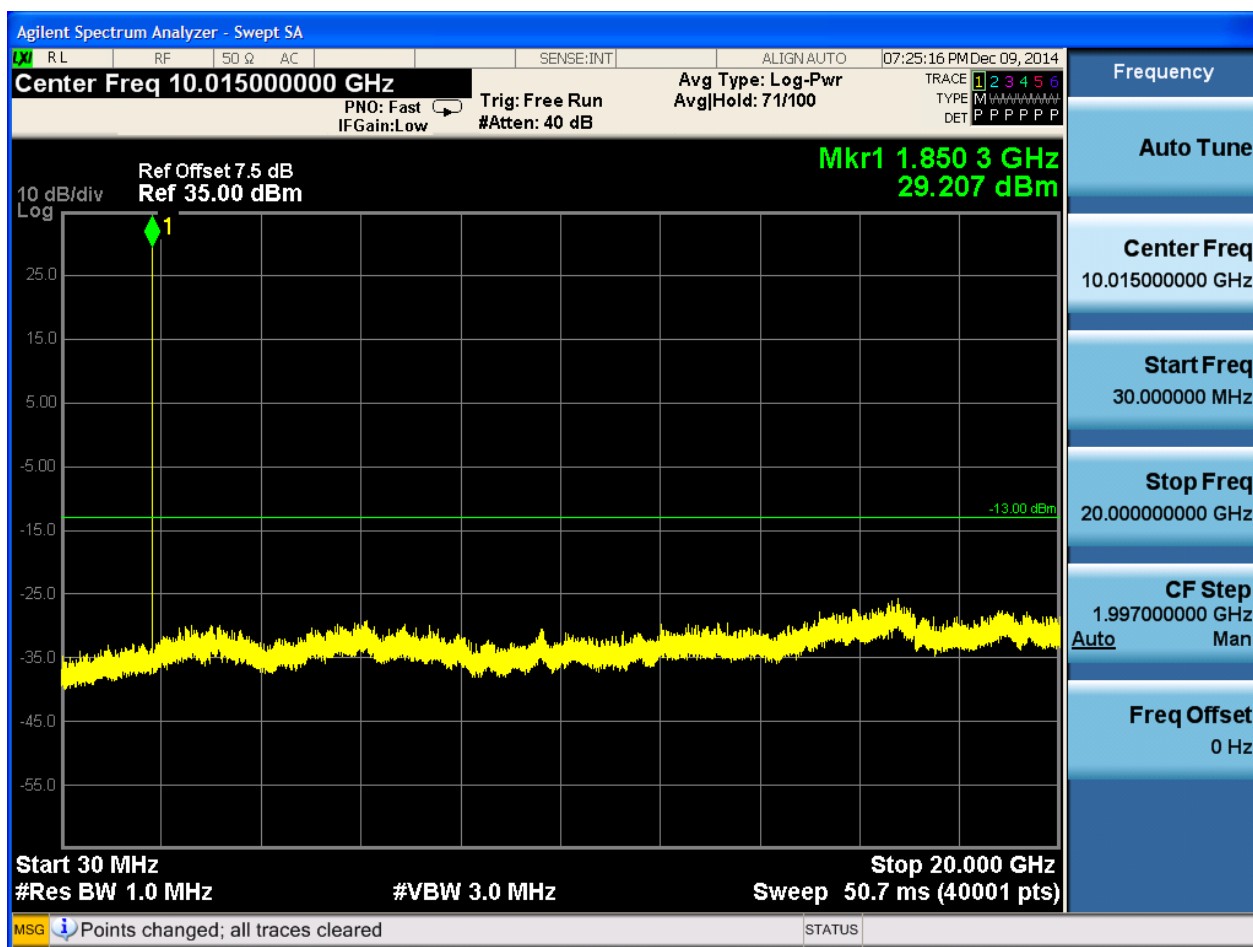
6.1.2 Test Band = GSM1900

6.1.2.1 Test Mode = GSM/TM1

6.1.2.1.1 Test Channel = LCH

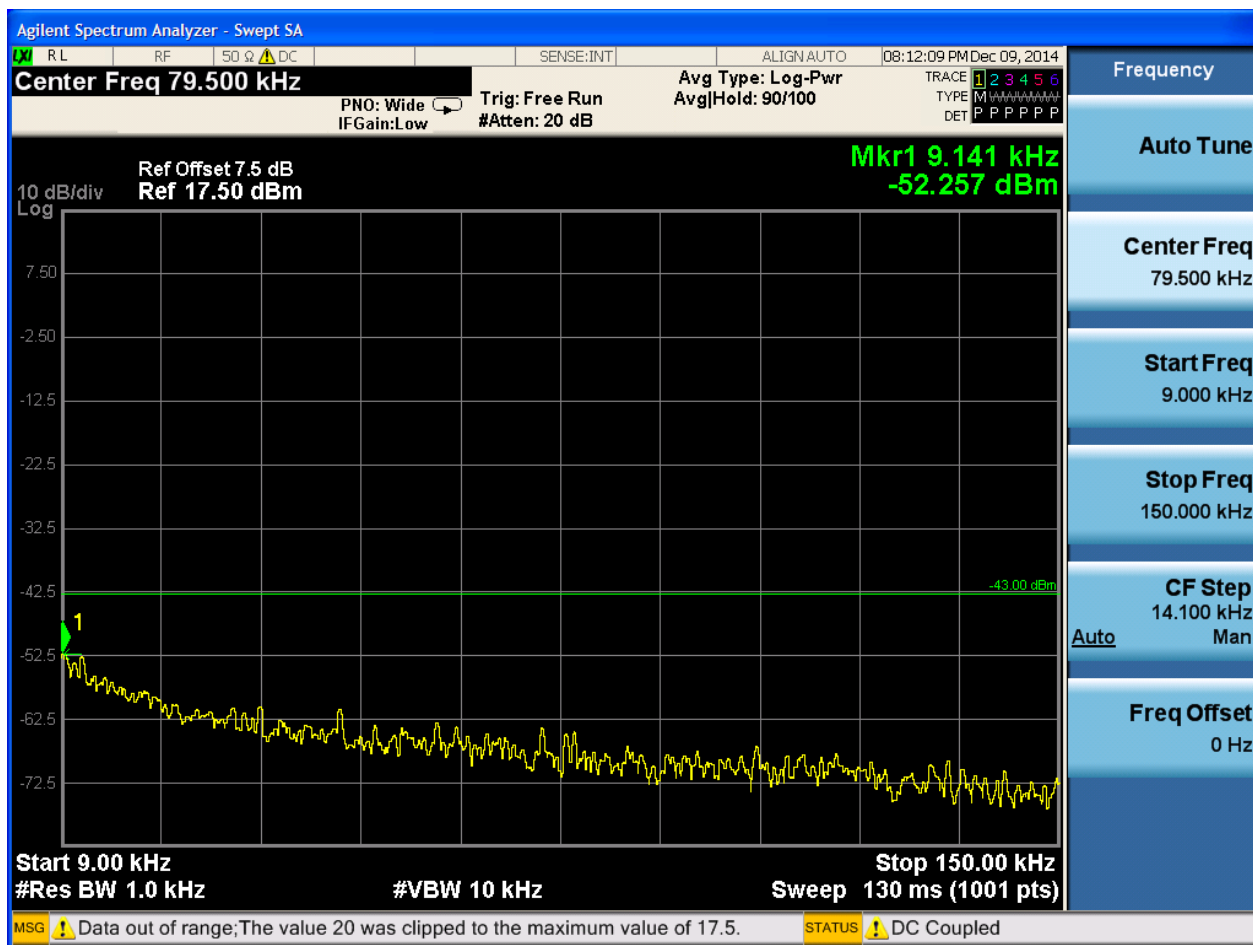


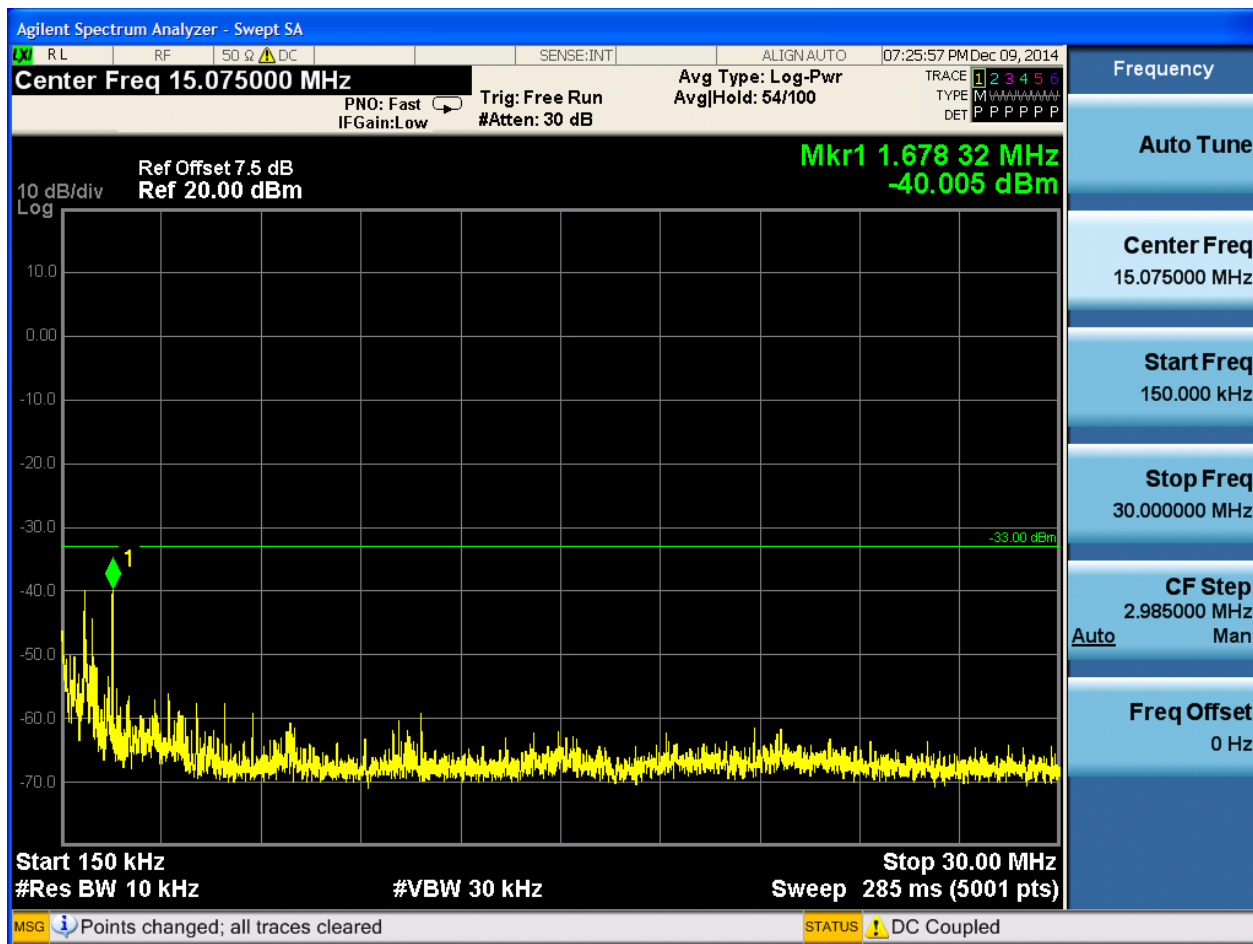


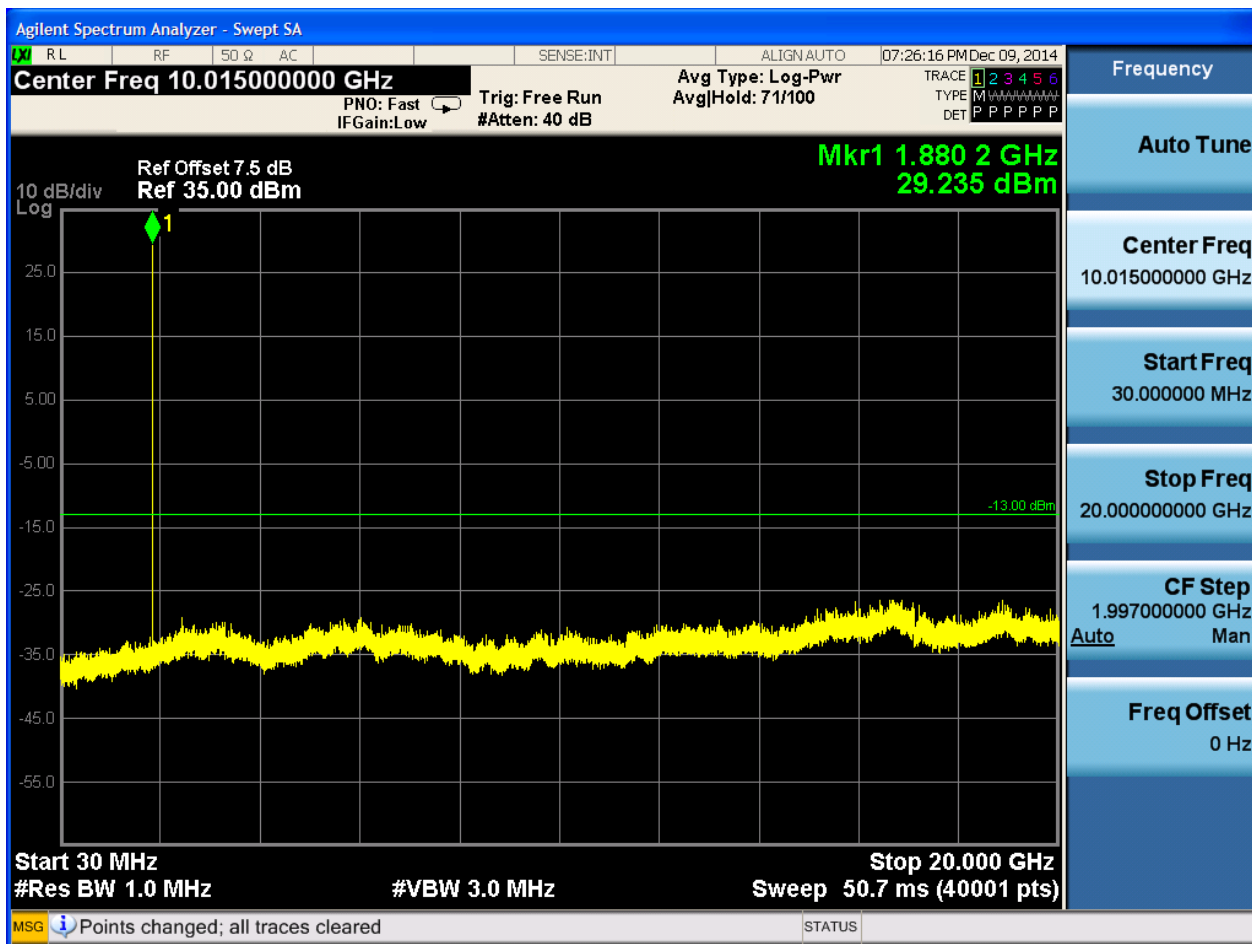




6.1.2.1.2 Test Channel = MCH

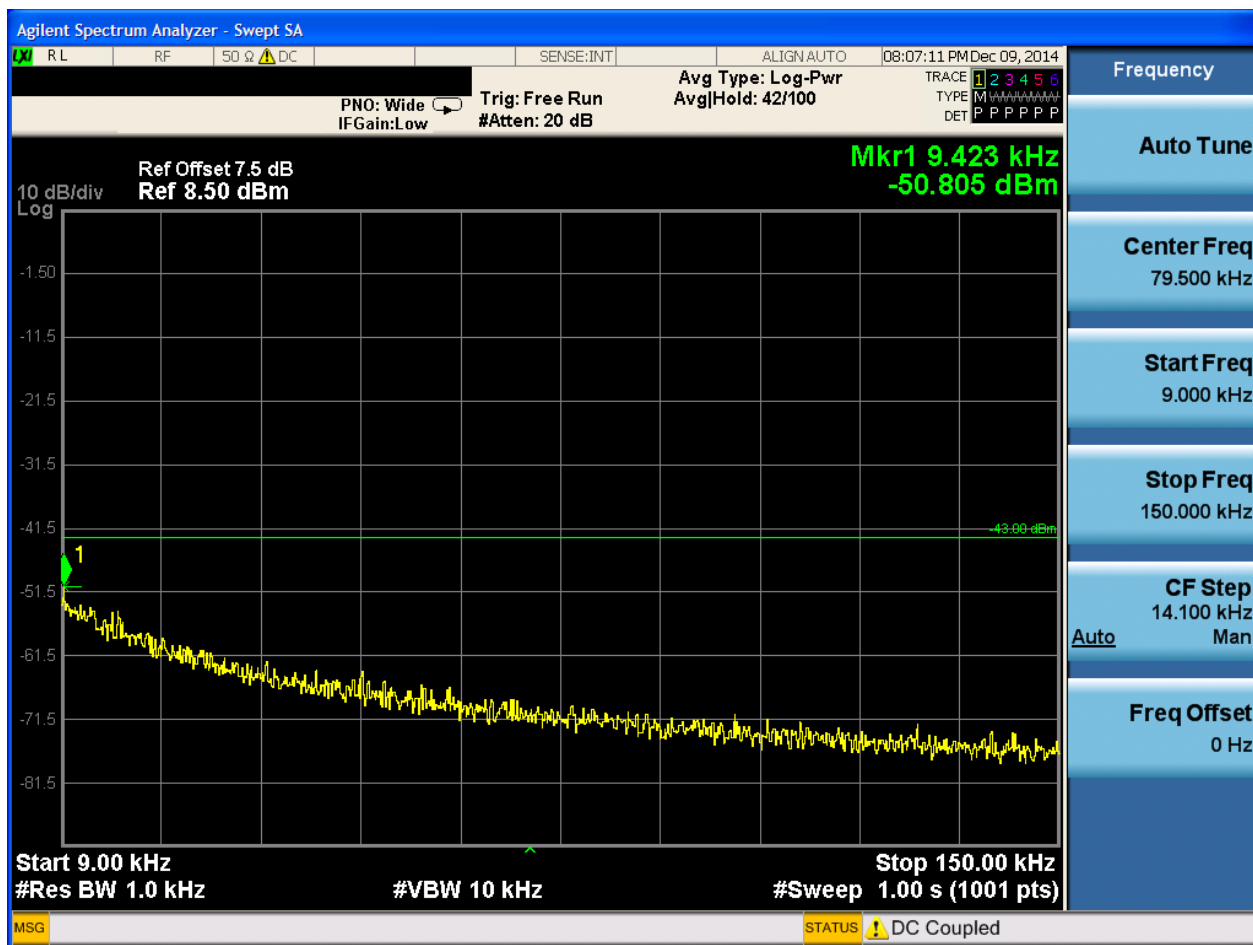


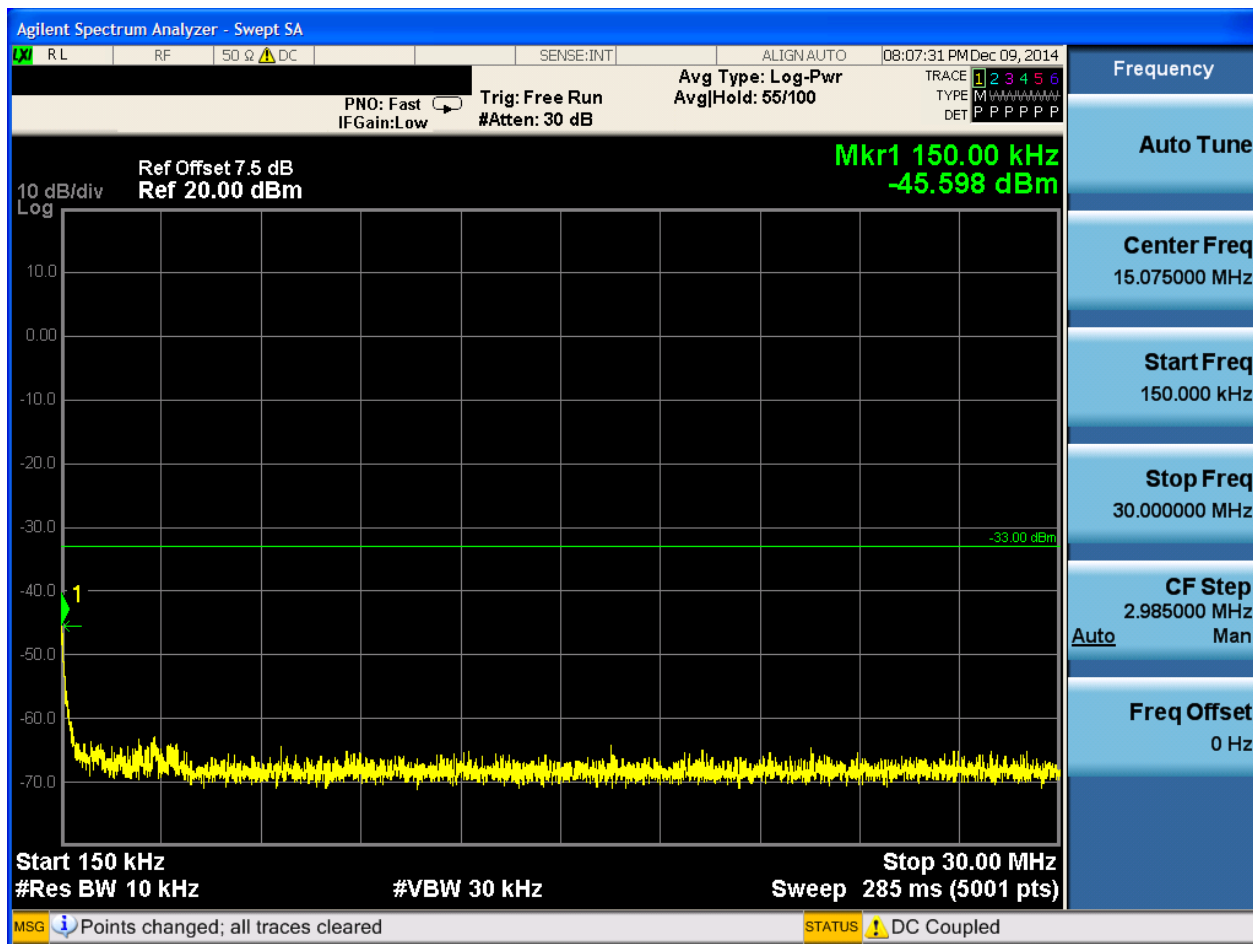


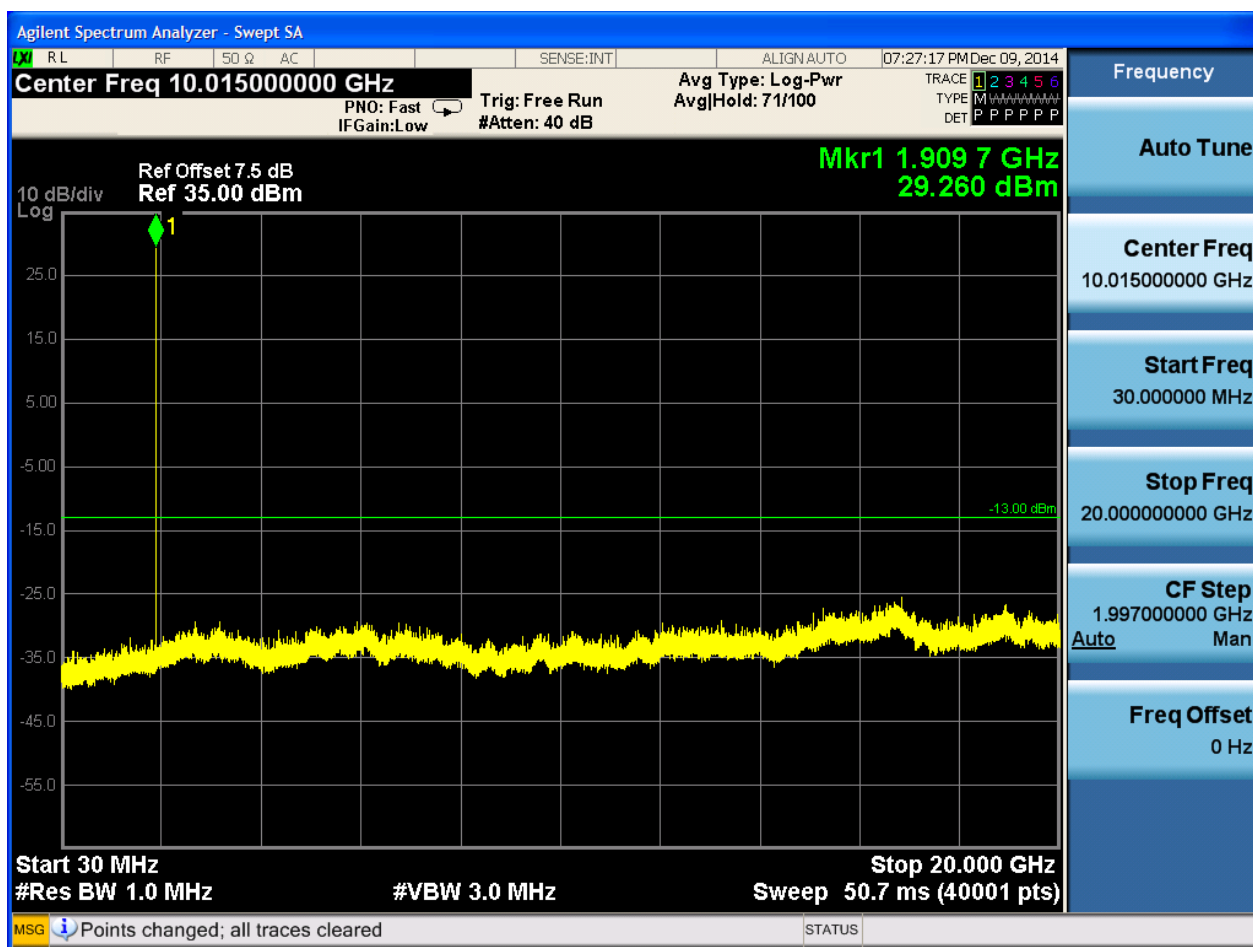




6.1.2.1.3 Test Channel = HCH



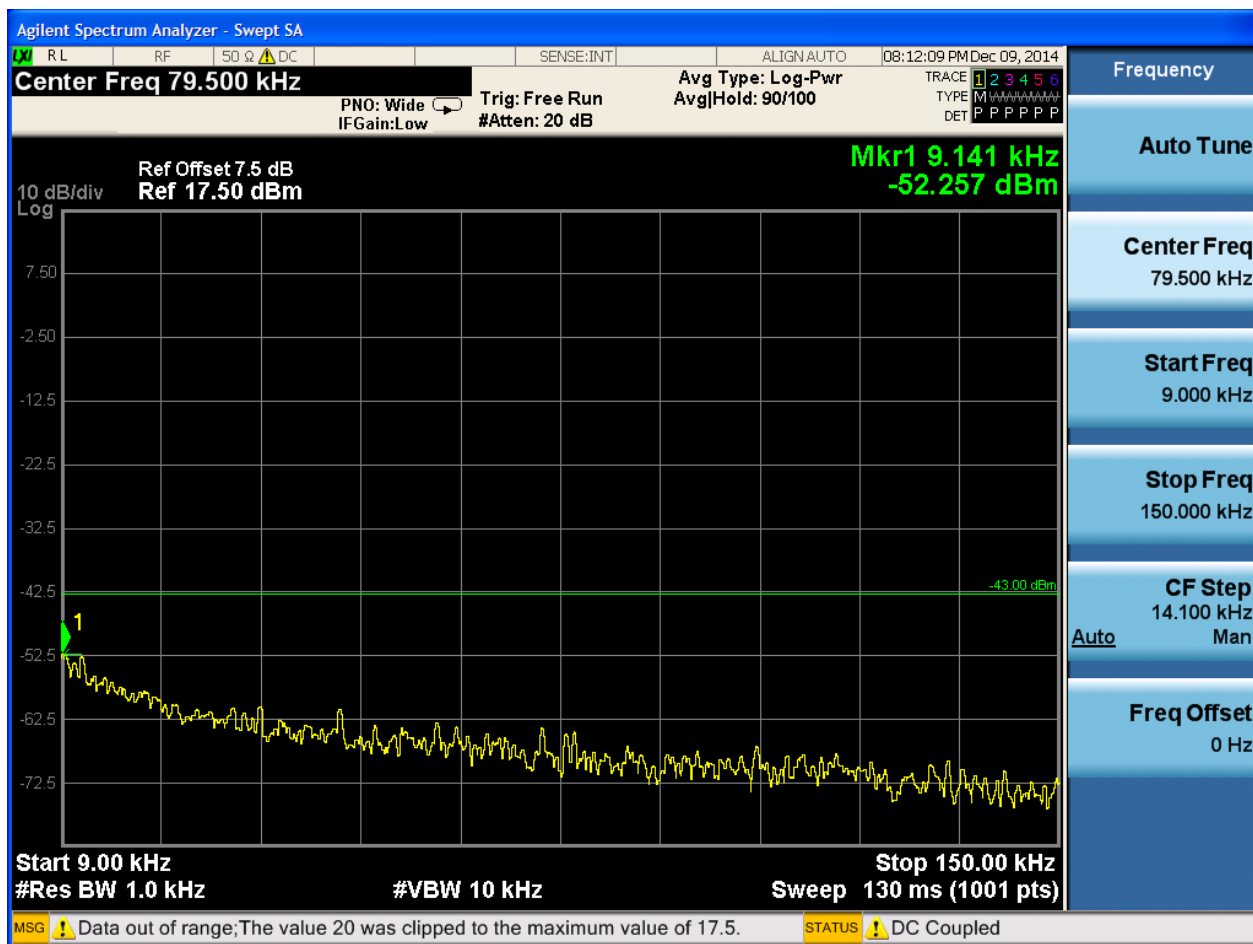


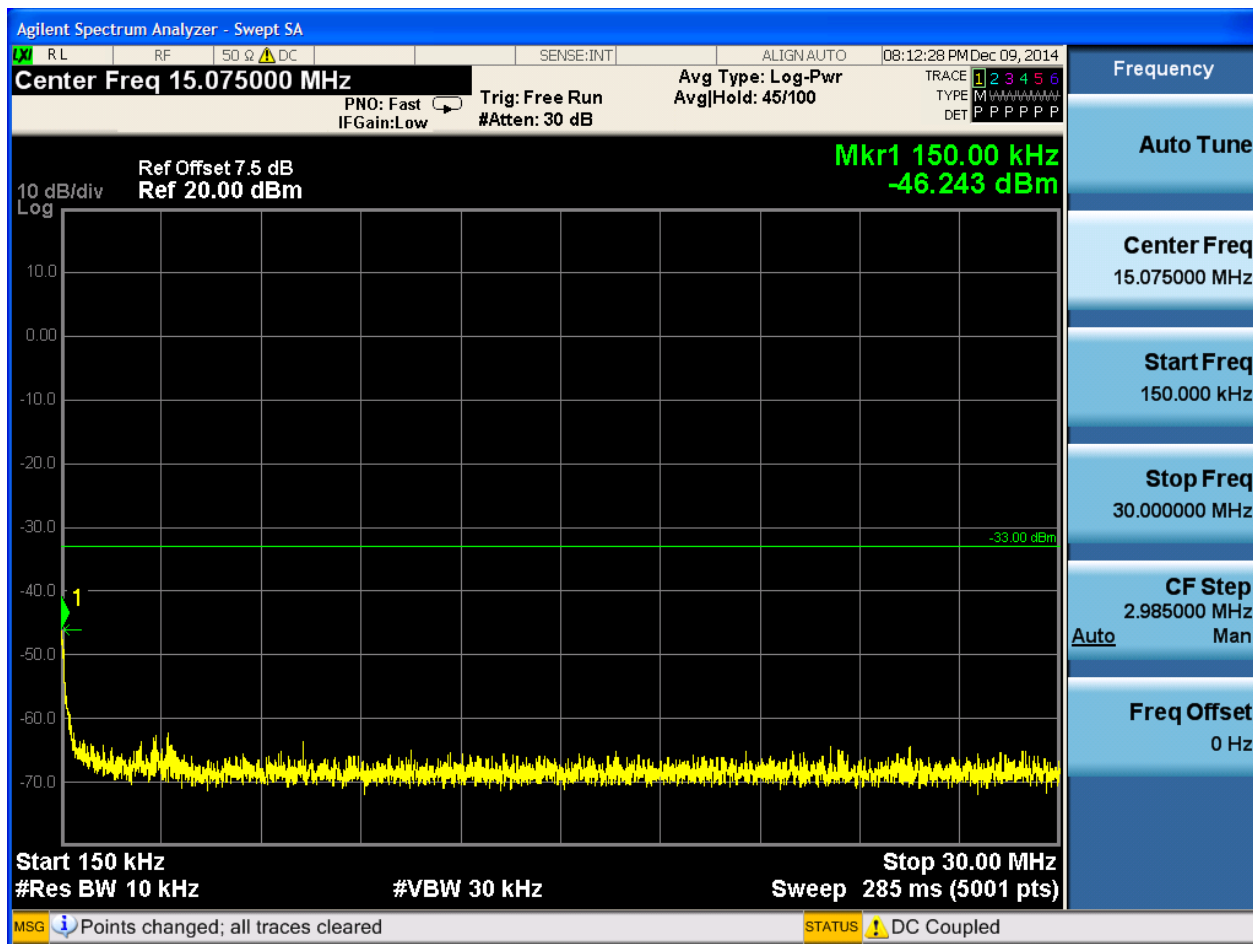


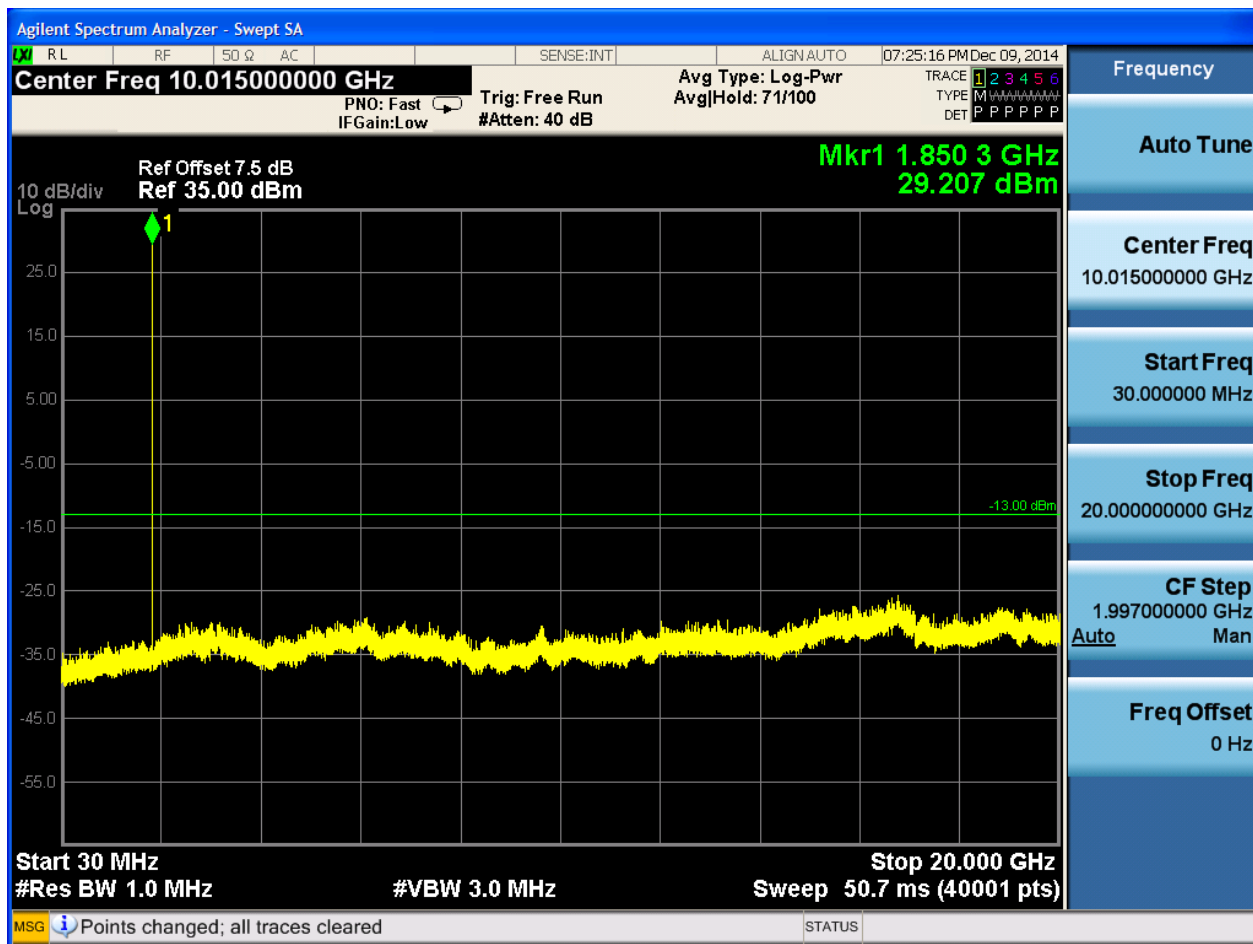


6.1.2.2 Test Mode = GSM/TM2

6.1.2.2.1 Test Channel = LCH

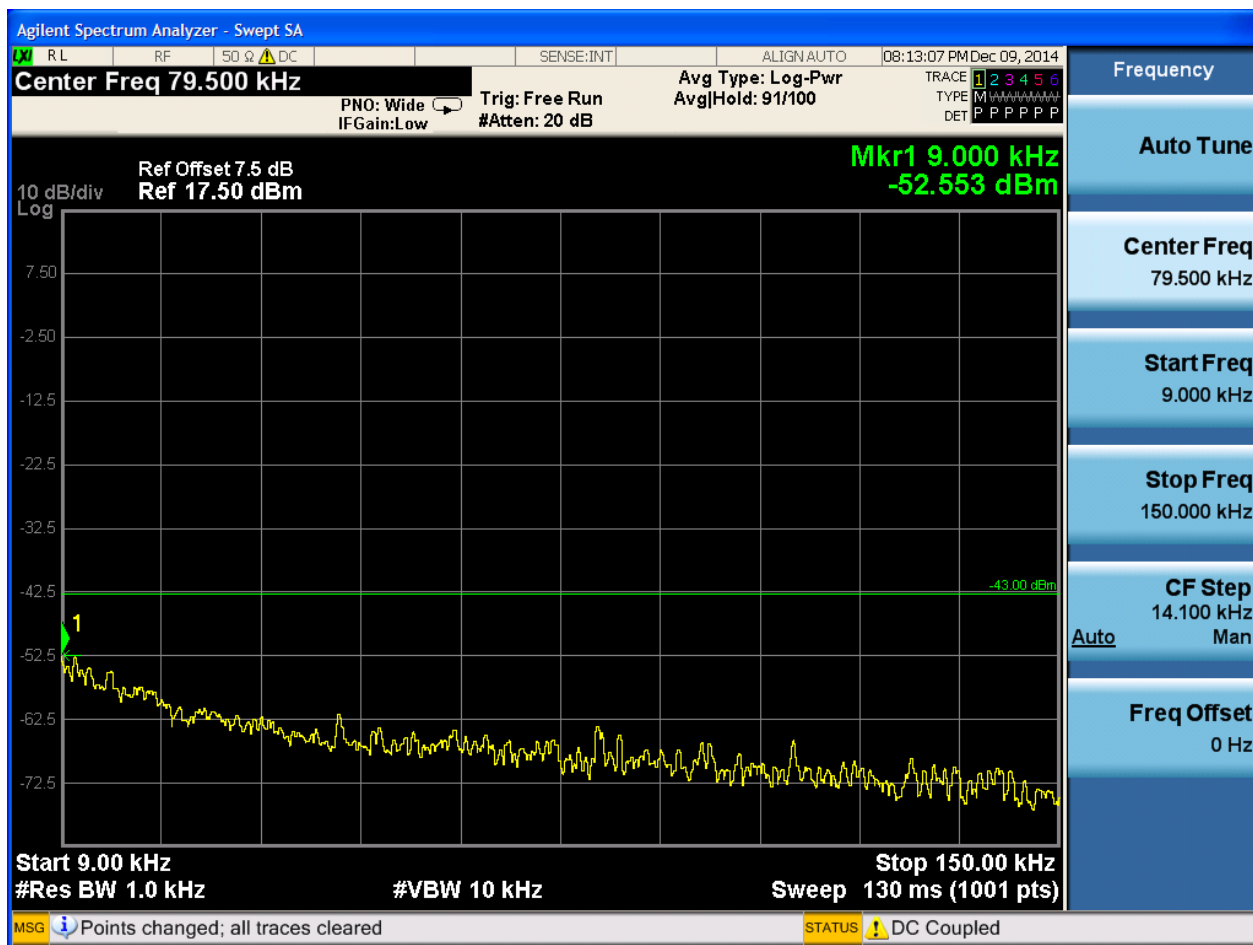


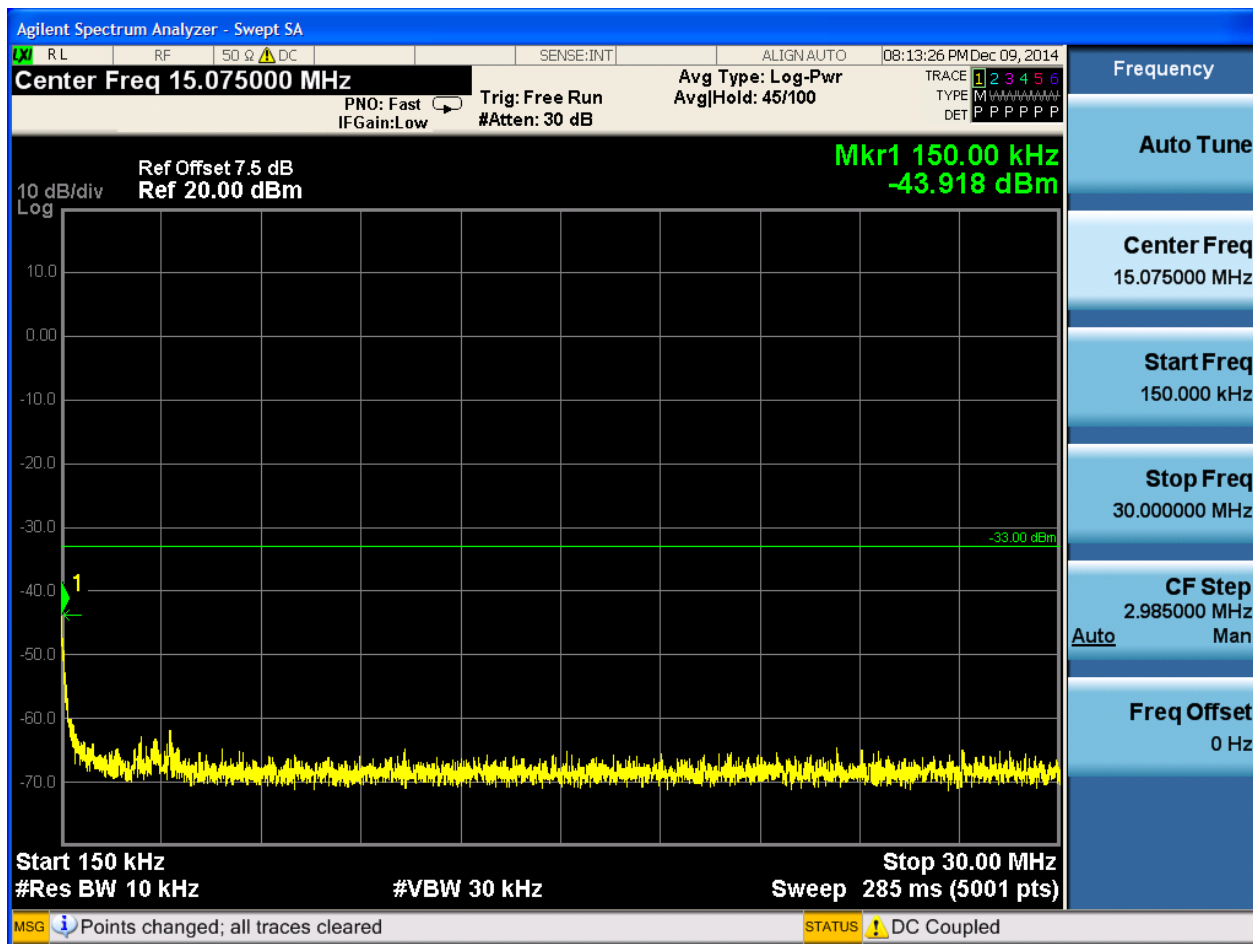


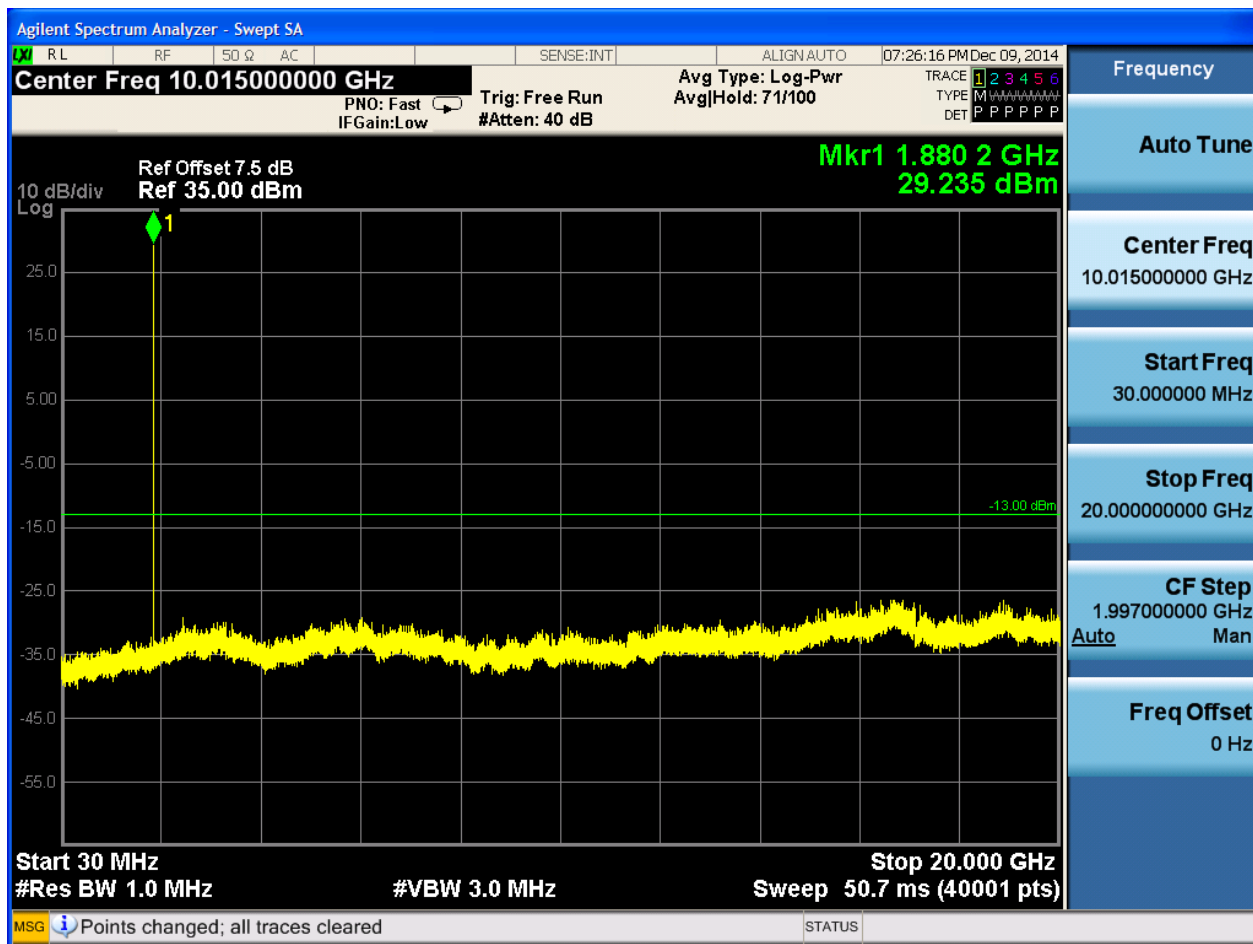




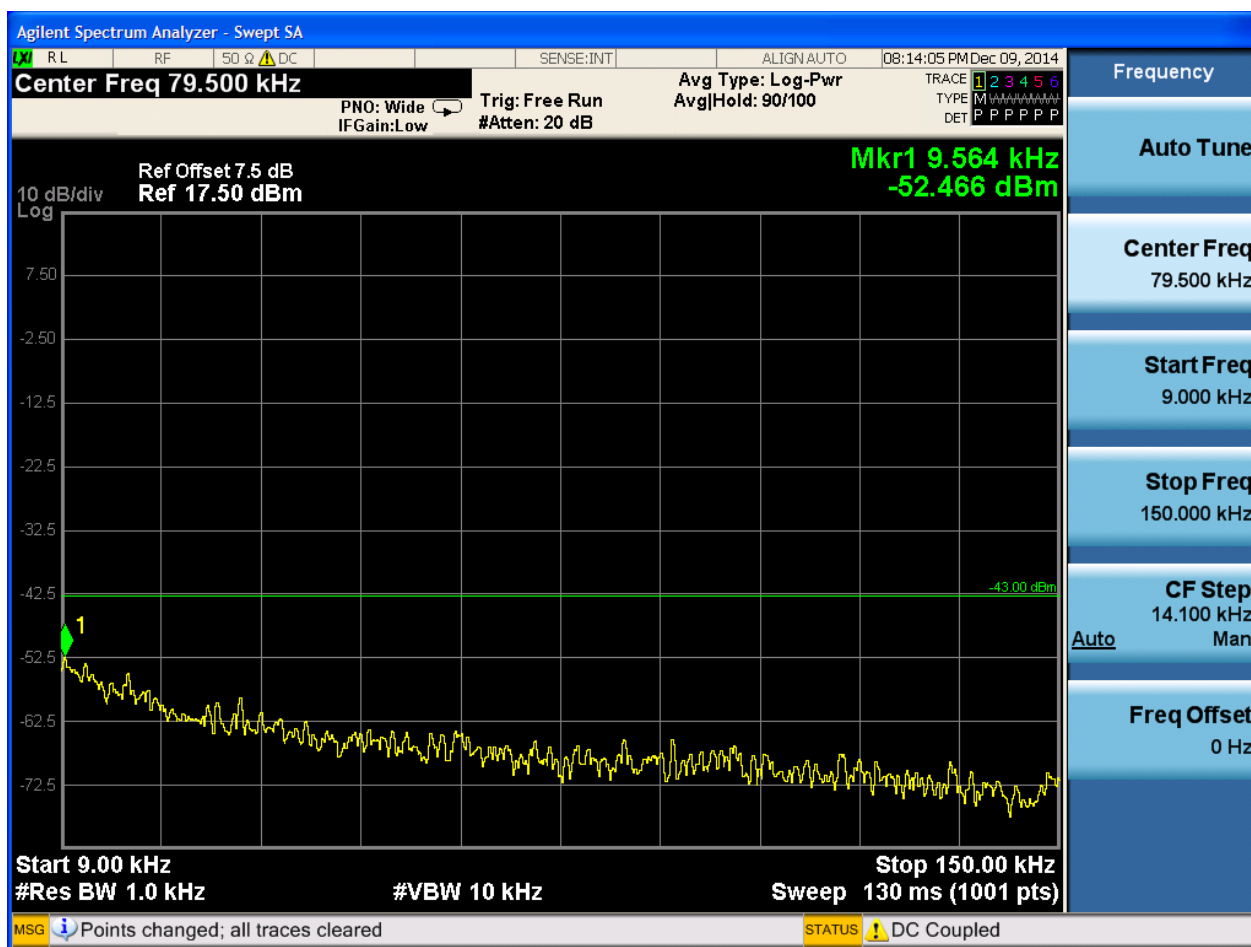
6.1.2.2.2 Test Channel = MCH

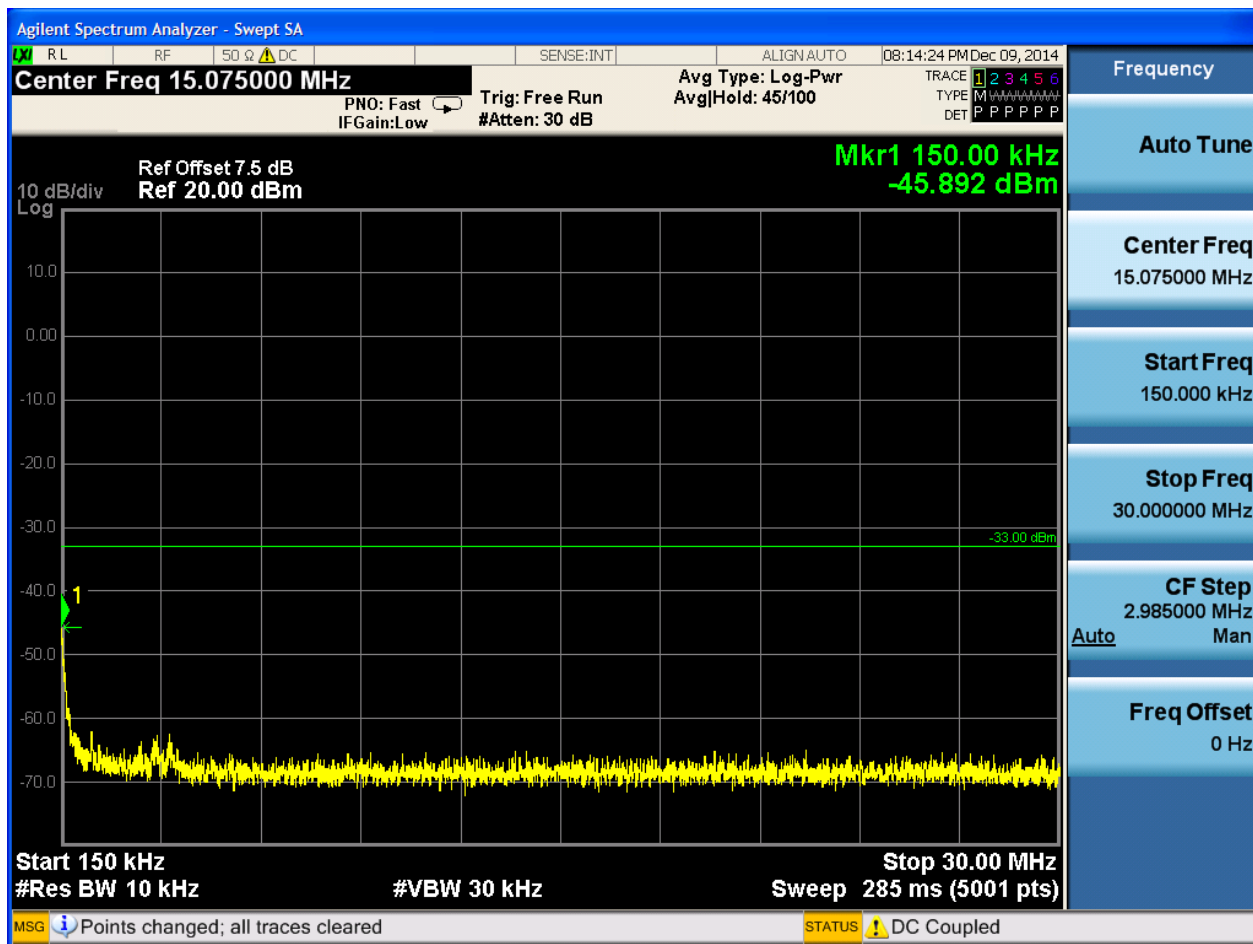


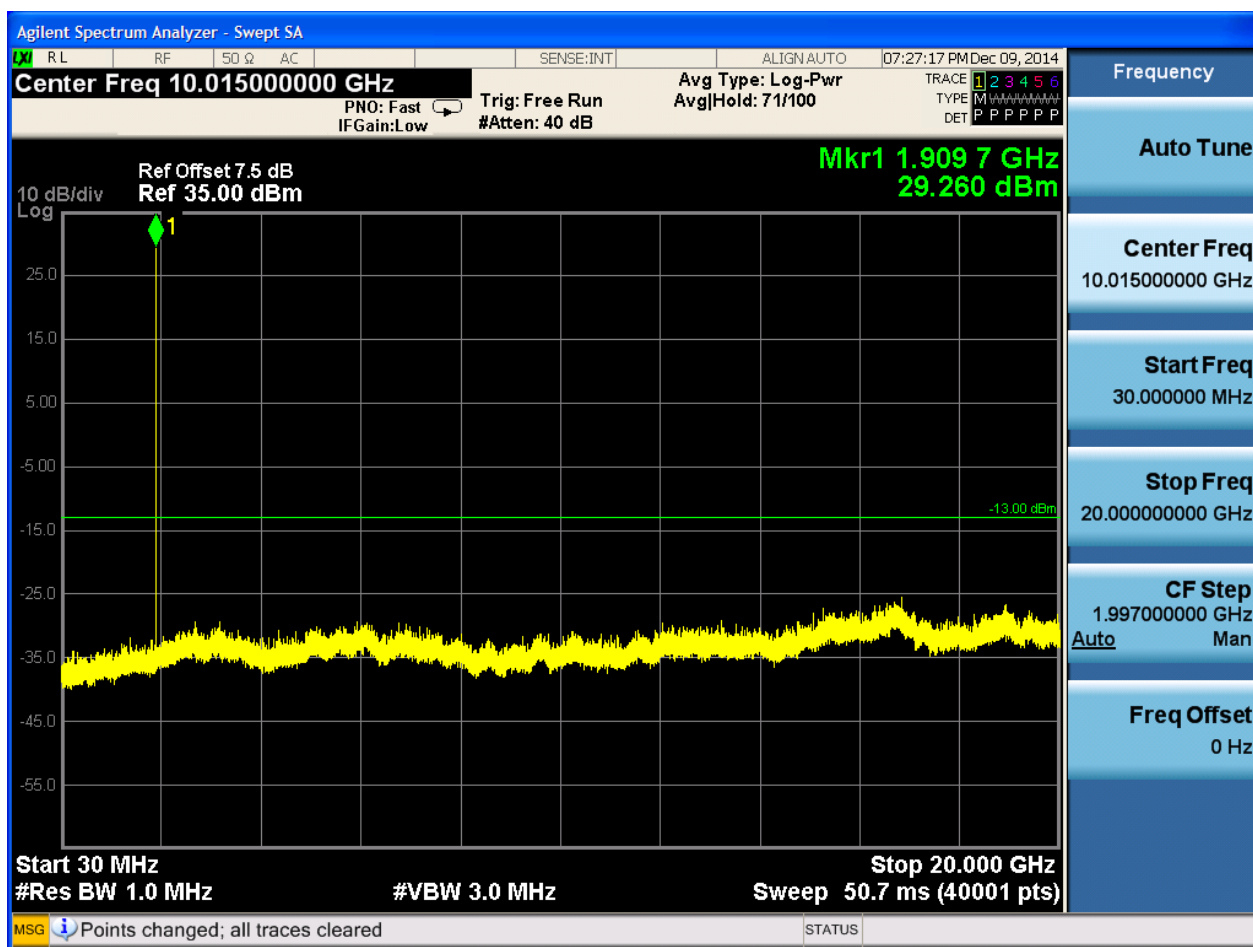




6.1.2.2.3 Test Channel = HCH







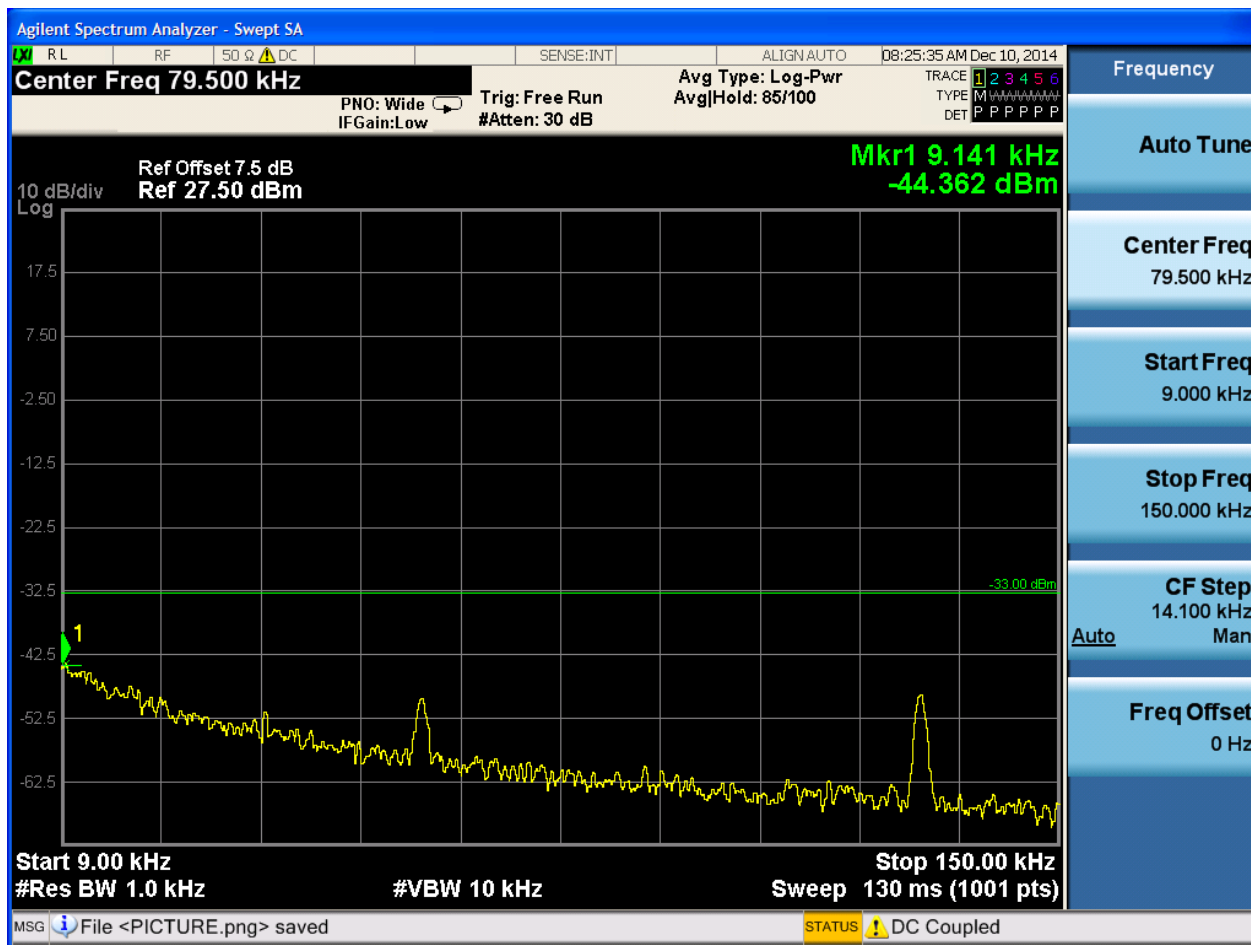


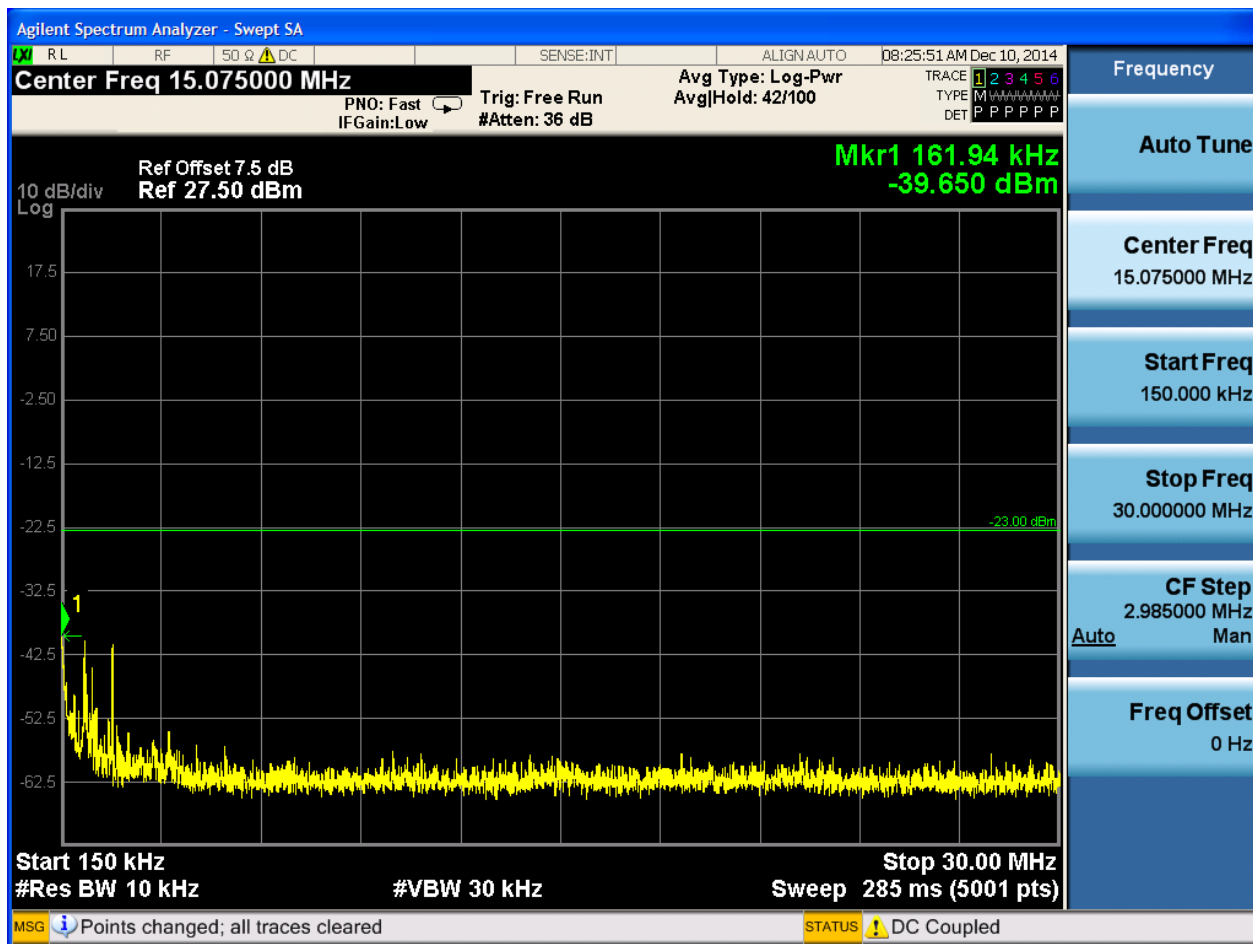
6.2 For UMTS

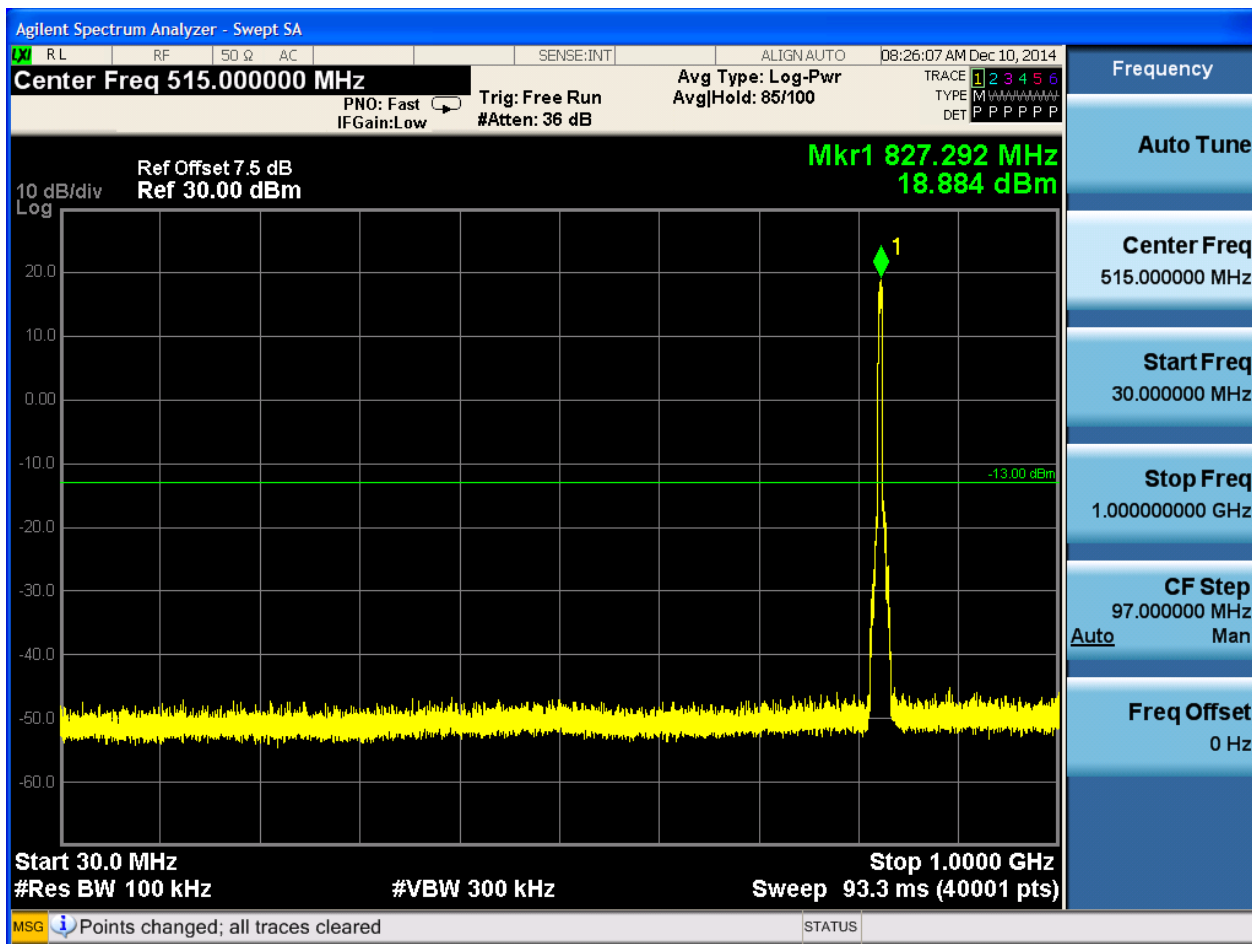
6.2.1 Test Band = WCDMA850

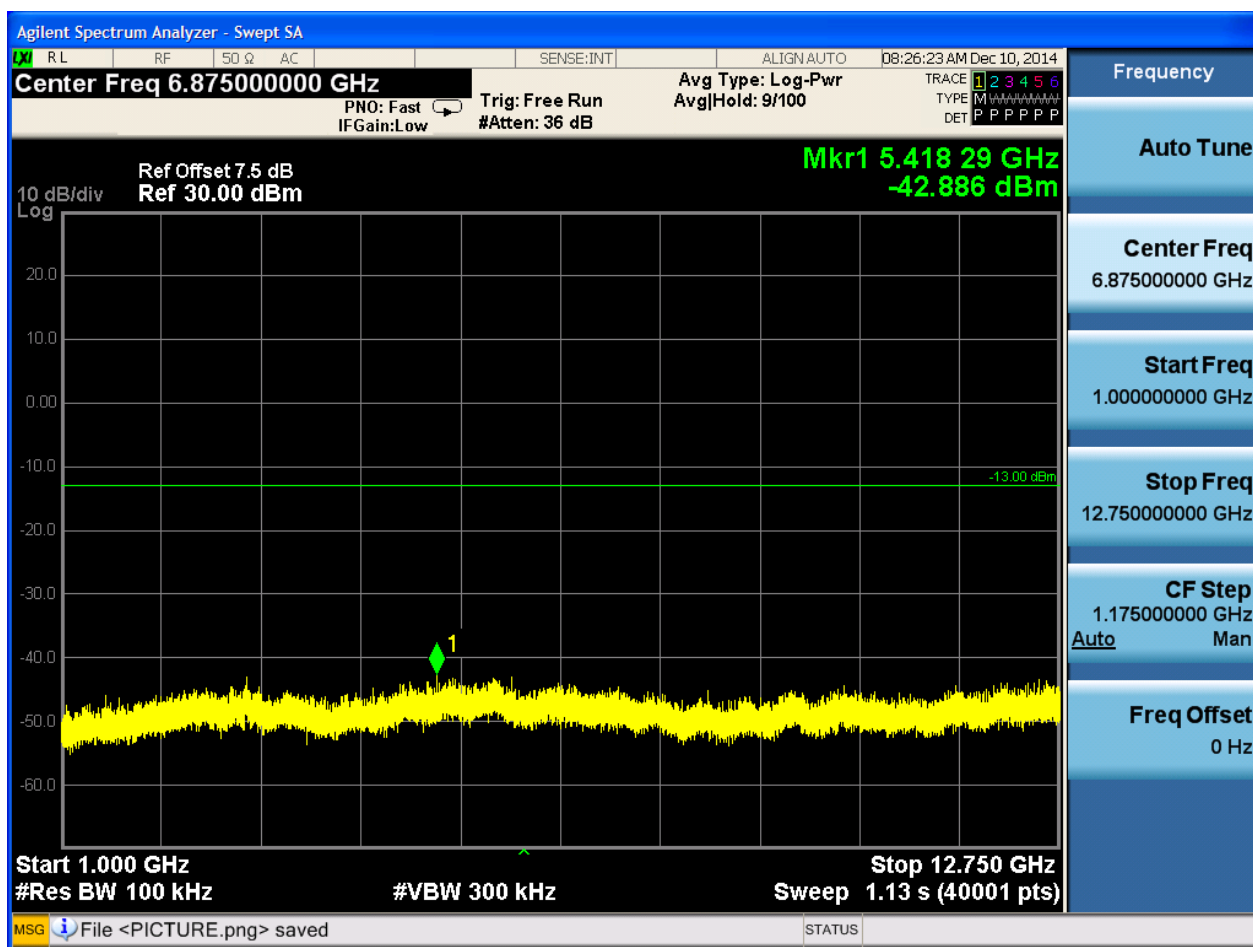
6.2.1.1 Test Mode = UMTS/TM1

6.2.1.1.1 Test Channel = LCH





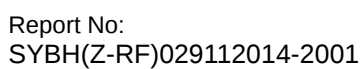


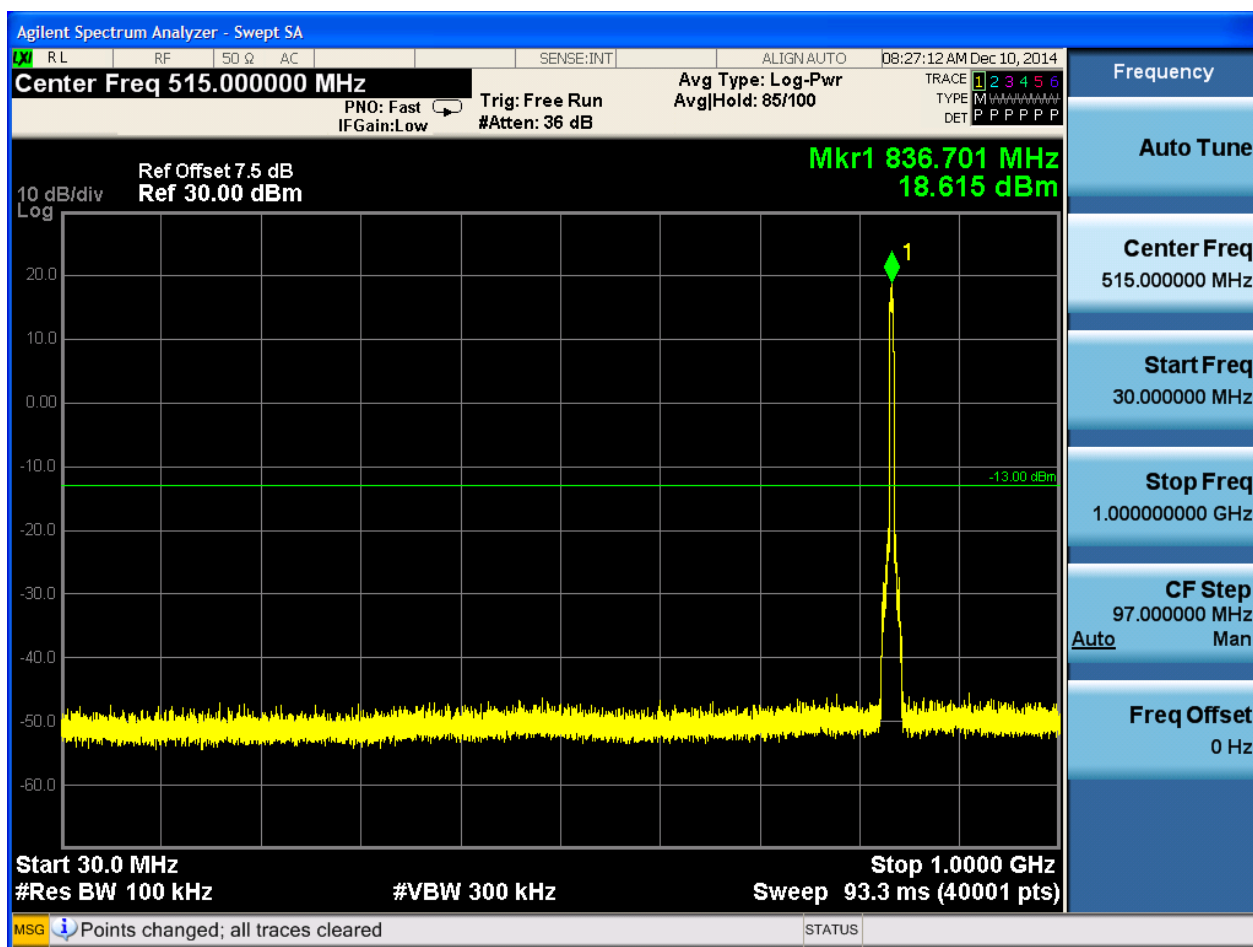


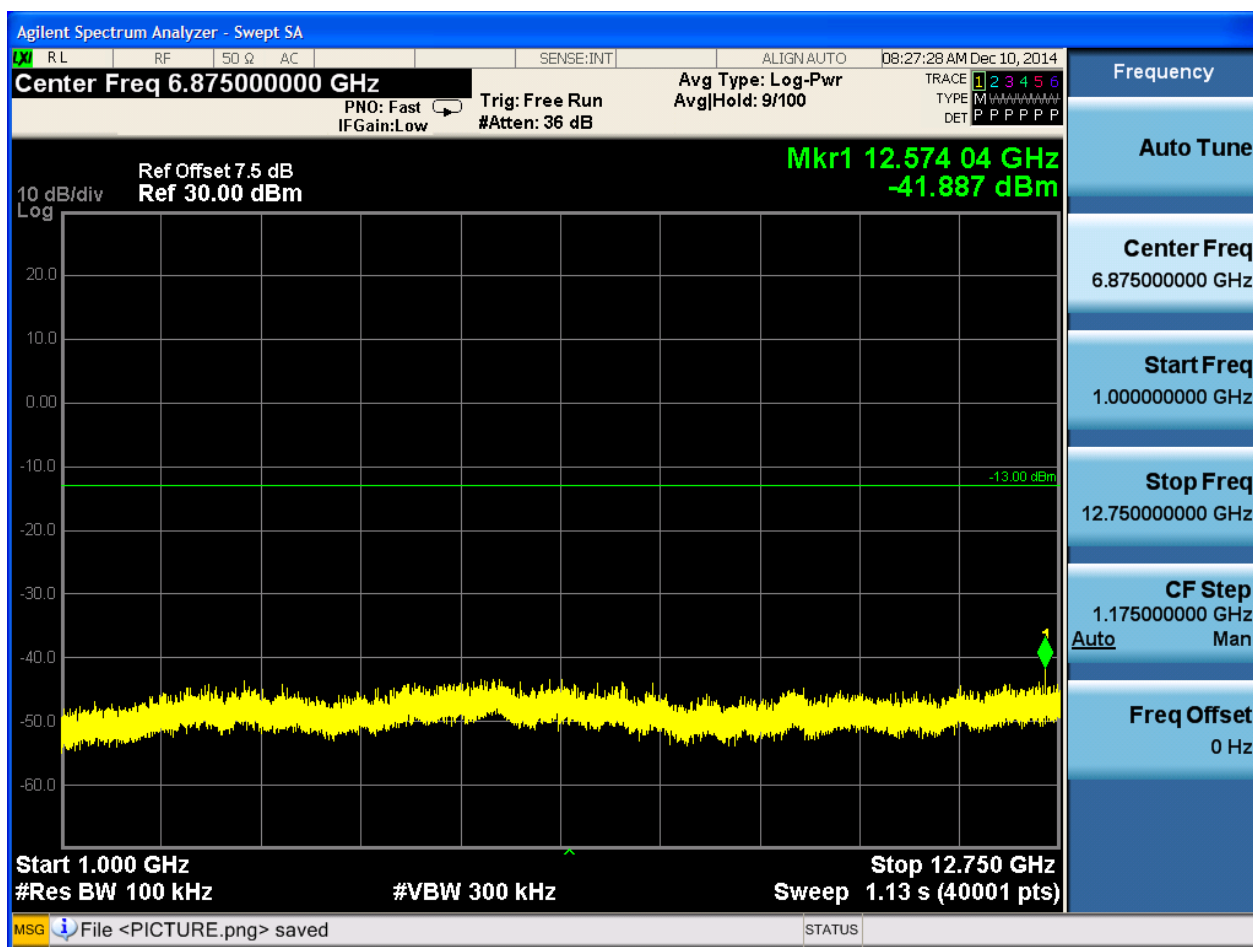


6.2.1.1.2 Test Channel = MCH









6.2.1.1.3 Test Channel = HCH

