



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	32.12	28.77	38.5	PASS
		MCH	32.21	28.86	38.5	PASS
		HCH	32.13	28.78	38.5	PASS
	GSM/TM2	LCH	25.96	22.61	38.5	PASS
		MCH	25.63	22.28	38.5	PASS
		HCH	25.6	22.25	38.5	PASS
WCDMA850	UMTS/TM1	LCH	22.61	19.26	38.5	PASS
		MCH	22.59	19.24	38.5	PASS
		HCH	22.7	19.35	38.5	PASS

Test Band	Test Mode	Test Channel	Conducted Power [dBm]	EIRP [dBm]	Limit [dBm]	Verdict
GSM1900	GSM/TM1	LCH	29.38	30.88	33	PASS
		MCH	29.41	30.91	33	PASS

Test Band	Test Mode	Test Channel	Conducted Power [dBm]	EIRP [dBm]	Limit [dBm]	Verdict
	GSM/TM2	HCH	29.42	30.92	33	PASS
		LCH	25.1	26.6	33	PASS
		MCH	24.79	26.29	33	PASS
		HCH	24.8	26.3	33	PASS
WCDMA1900	UMTS/TM1	LCH	22.1	23.6	33	PASS
		MCH	22.24	23.74	33	PASS
		HCH	21.97	23.47	33	PASS
WCDMA1700	UMTS/TM1	LCH	22.02	23.62	30	PASS
		MCH	22.28	23.88	30	PASS
		HCH	22.13	23.73	30	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	0.16	13	PASS
		MCH	0.17	13	PASS
		HCH	0.15	13	PASS
	GSM/TM2	LCH	3.03	13	PASS
		MCH	3.05	13	PASS
		HCH	2.91	13	PASS
GSM1900	GSM/TM1	LCH	0.14	13	PASS
		MCH	0.18	13	PASS
		HCH	0.16	13	PASS
	GSM/TM2	LCH	3.06	13	PASS
		MCH	3.05	13	PASS
		HCH	3.18	13	PASS
Test Band	Test Mode	Test Channel	Measured[dB]	Limit [dB]	Verdict
WCDMA1900	UMTS/TM1	LCH	2.8	13	PASS
		MCH	3.14	13	PASS
		HCH	3.06	13	PASS
WCDMA1700	UMTS/TM1	LCH	2.24	13	PASS
		MCH	2.71	13	PASS
		HCH	2.38	13	PASS
WCDMA850	UMTS/TM1	LCH	2.79	13	PASS
		MCH	2.58	13	PASS
		HCH	2.94	13	PASS

3Appendix_C: Modulation Characteristics

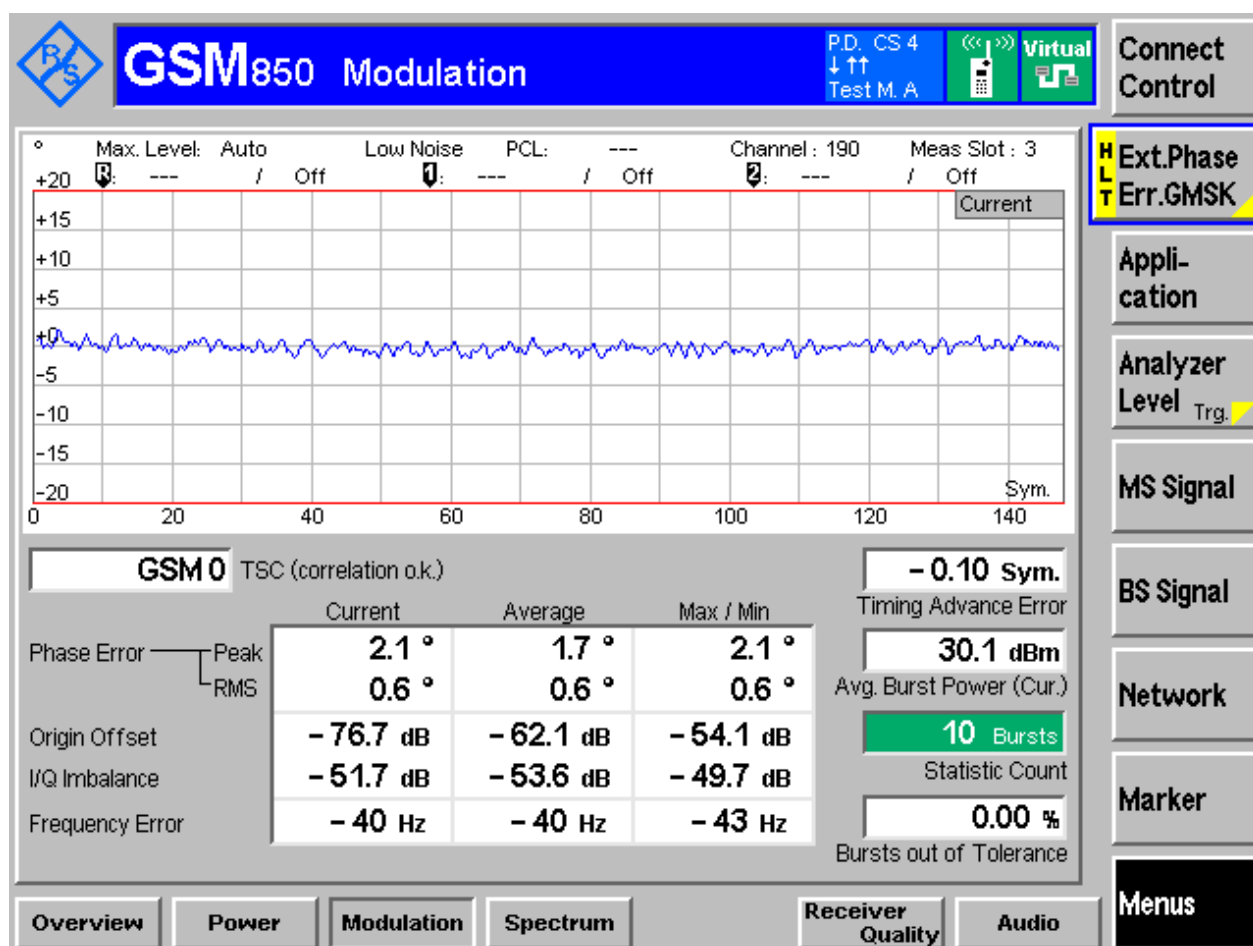
Part I - Test Plots

3.1 For GSM

3.1.1 Test Band = GSM850

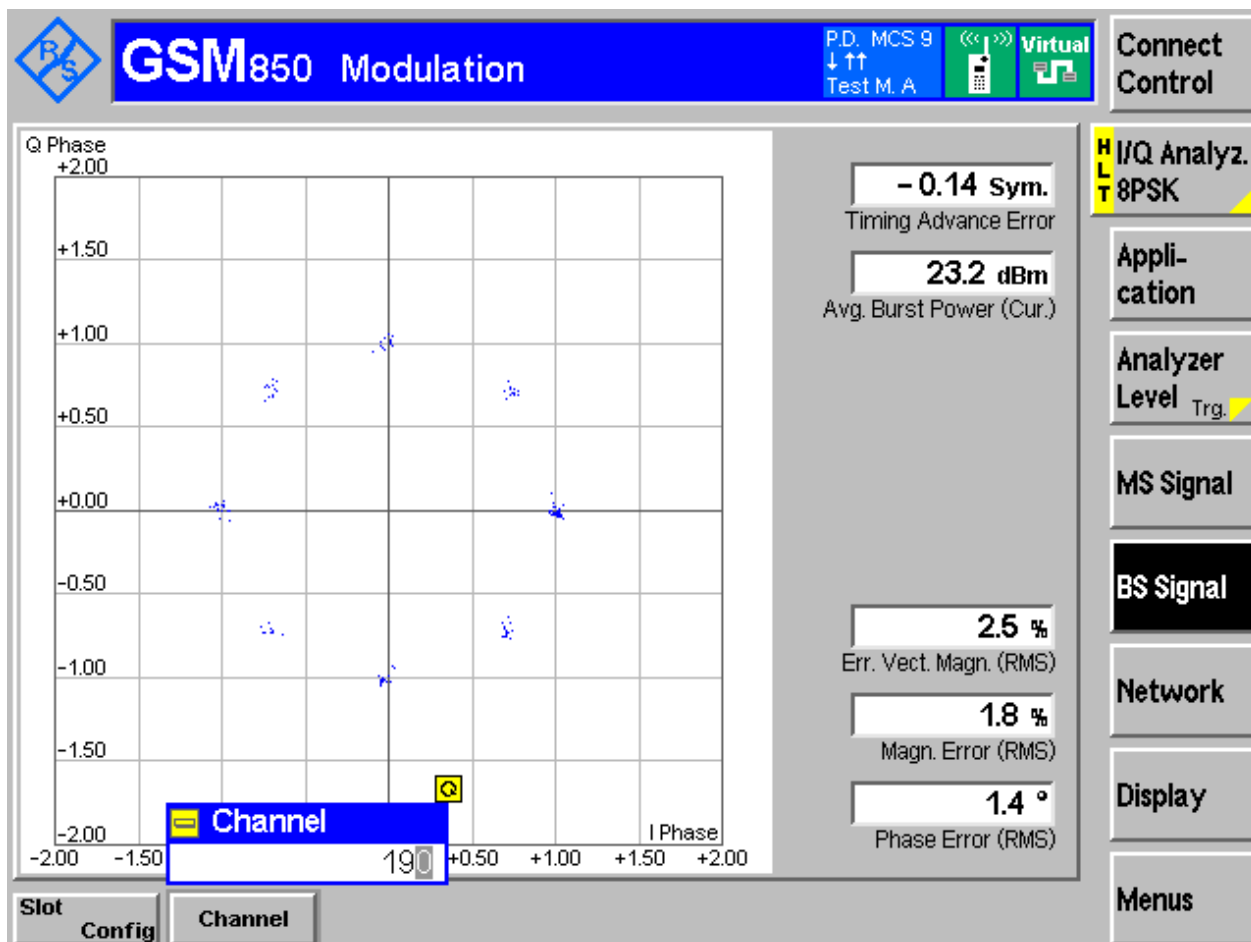
3.1.1.1 Test Mode = GSM/TM1

3.1.1.1.1 Test Channel = MCH



3.1.1.2 Test Mode = GSM/TM2

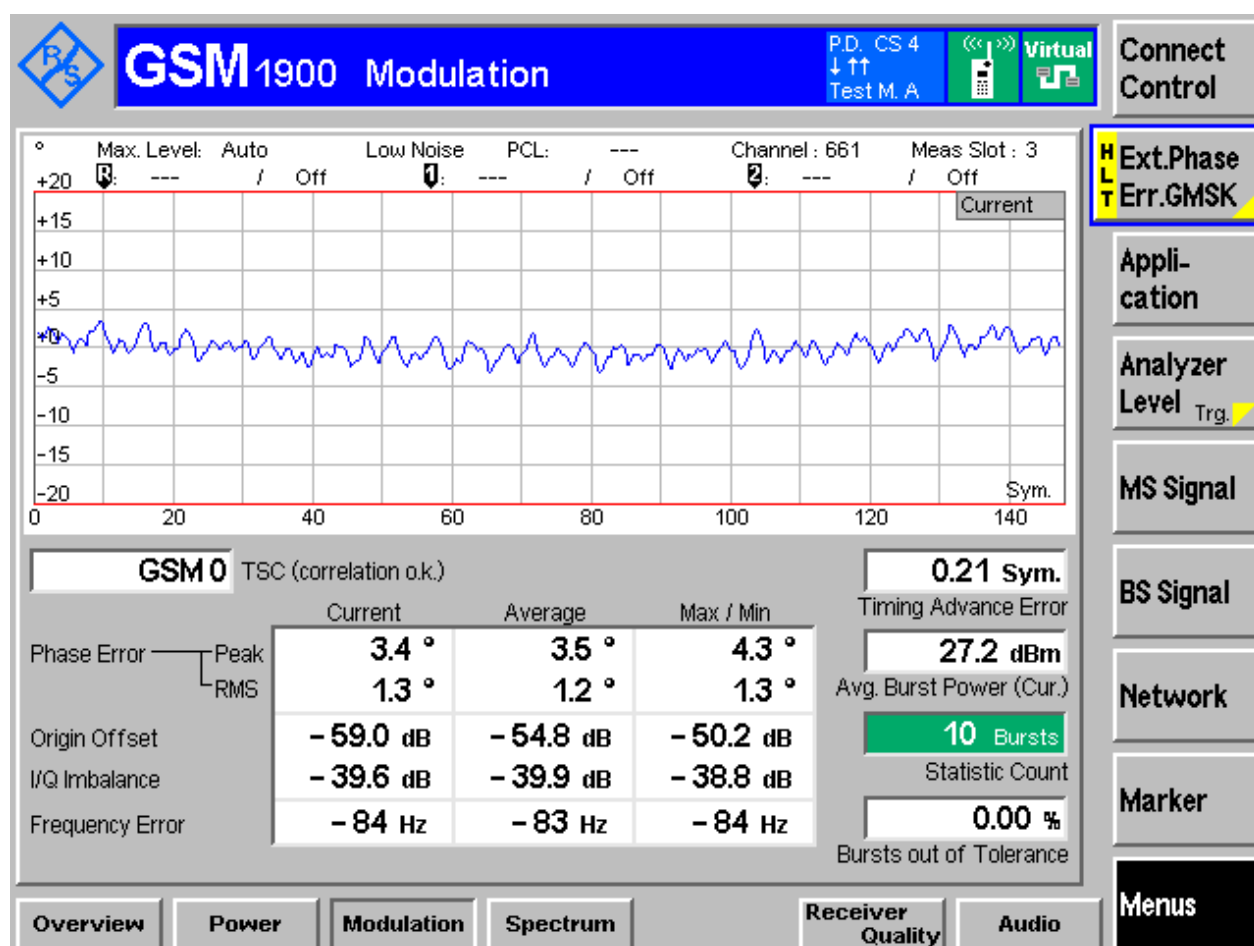
3.1.1.2.1 Test Channel = MCH



3.1.2 Test Band = GSM1900

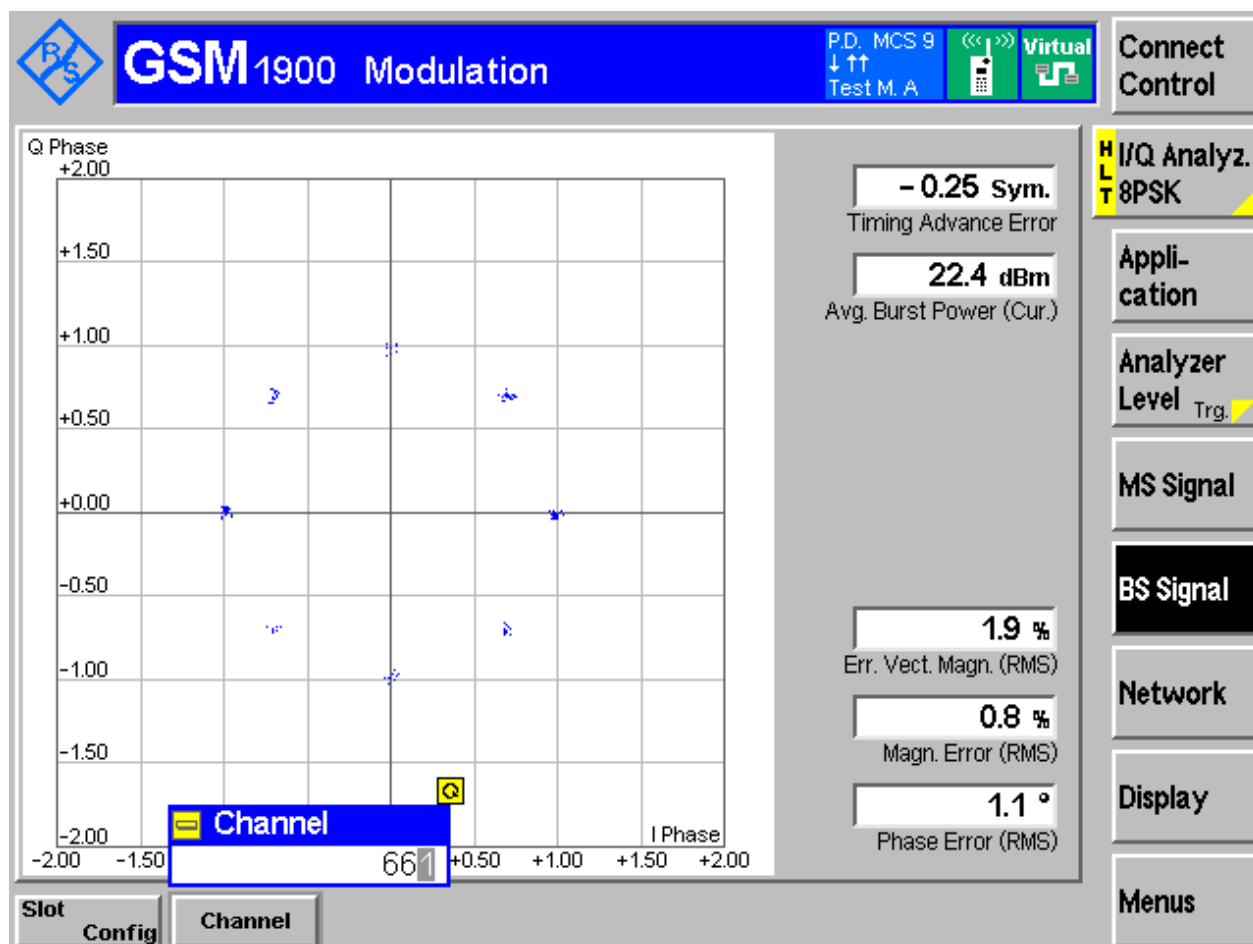
3.1.2.1 Test Mode = GSM/TM1

3.1.2.1.1 Test Channel = MCH



3.1.2.2 Test Mode = GSM/TM2

3.1.2.2.1 Test Channel = MCH

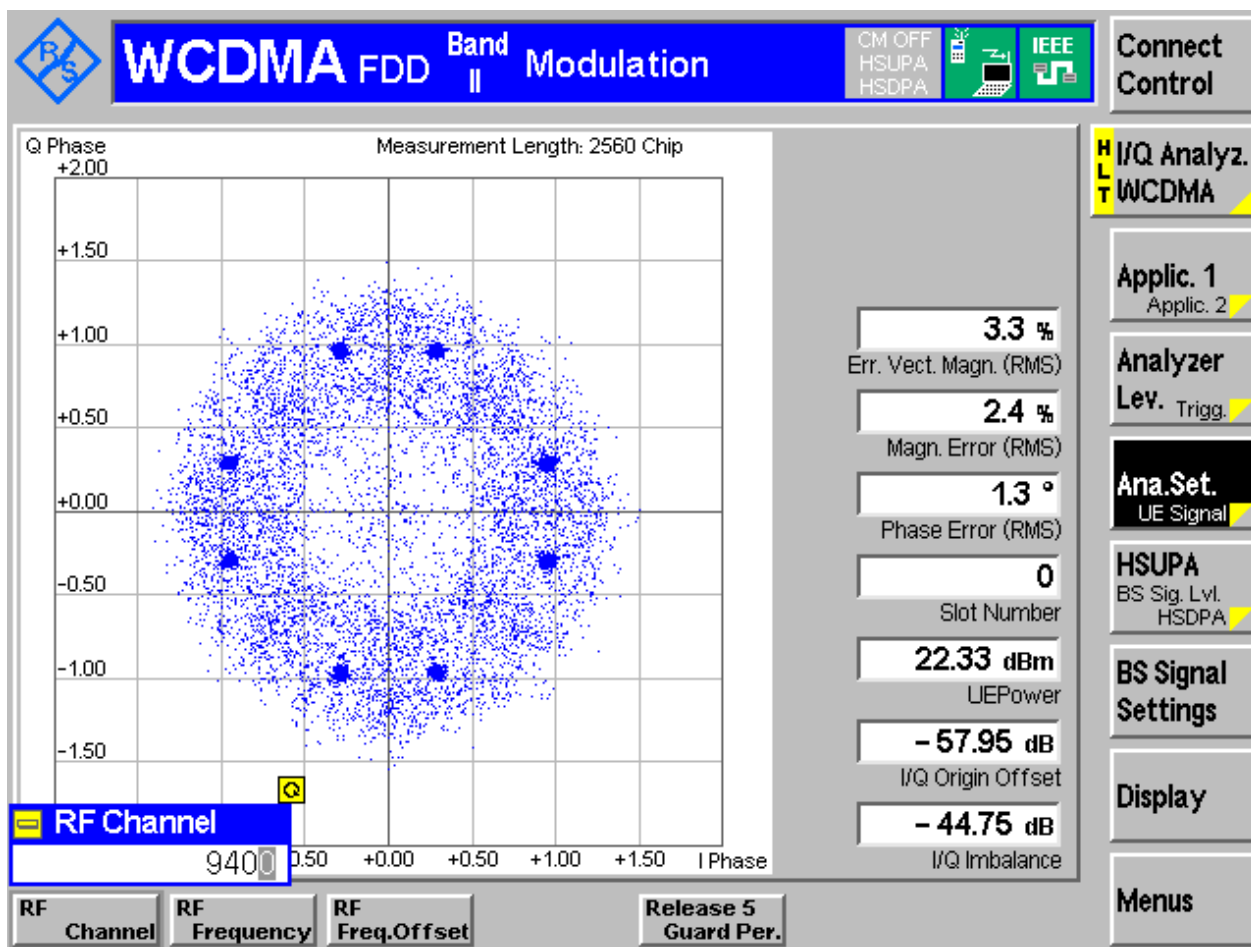


3.2 For UMTS

3.2.1 Test Band = WCDMA1900

3.2.1.1 Test Mode = UMTS/TM1

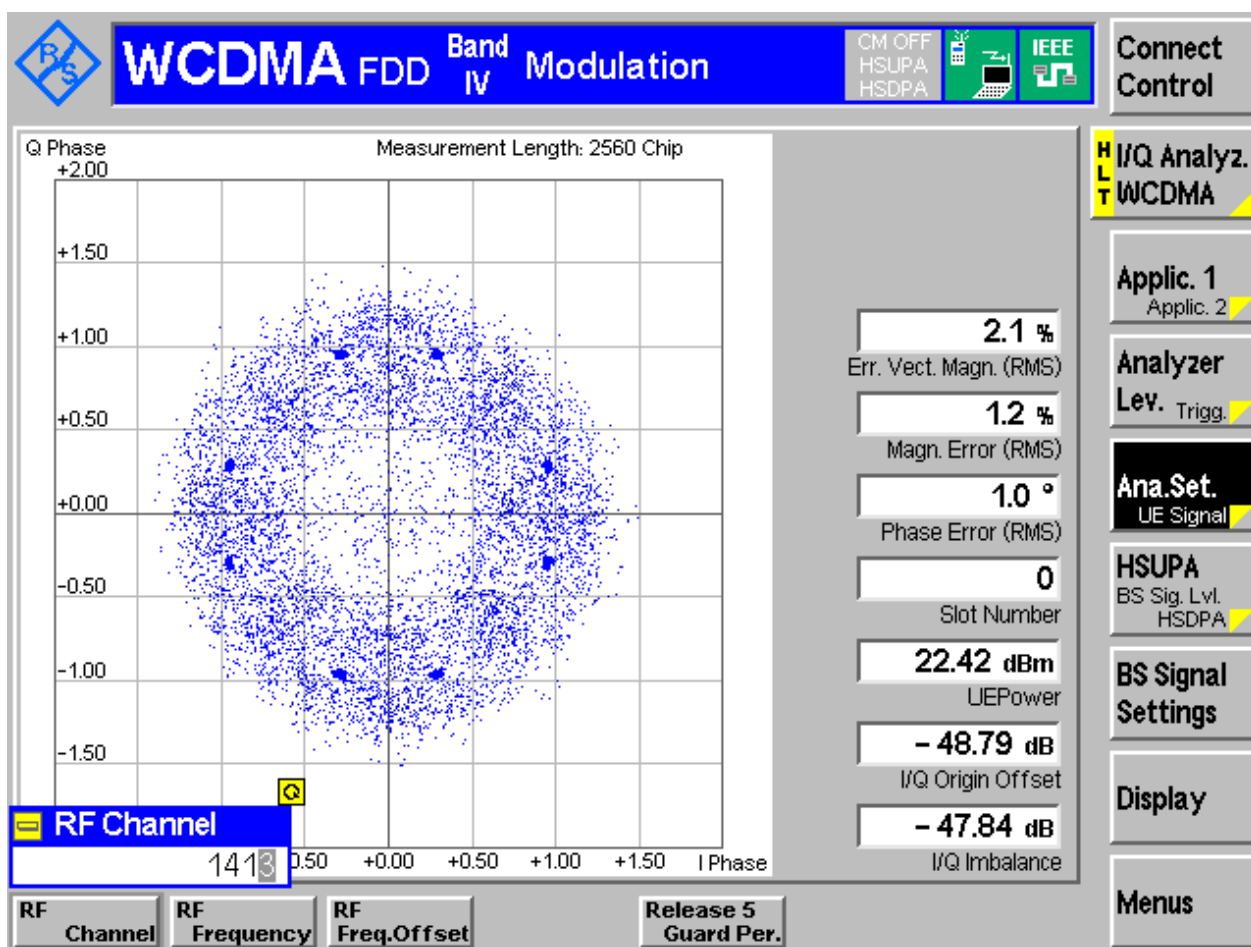
3.2.1.1.1 Test Channel = MCH



3.2.2 Test Band = WCDMA1700

3.2.2.1 Test Mode = UMTS/TM1

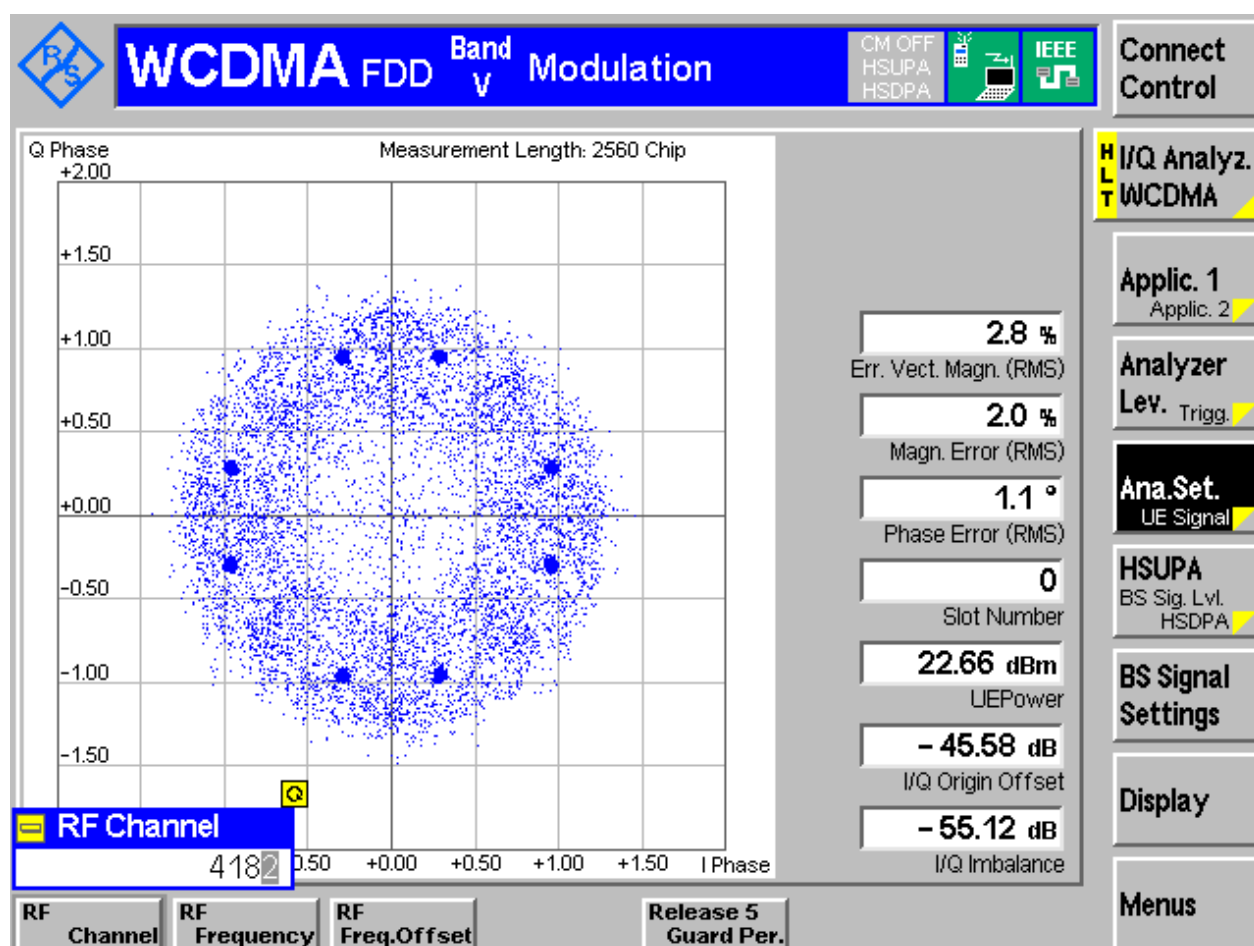
3.2.2.1.1 Test Channel = MCH



3.2.3 Test Band = WCDMA850

3.2.3.1 Test Mode = UMTS/TM1

3.2.3.1.1 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	242.63	314.92	Pass
		MCH	242.61	315.68	Pass
		HCH	243.18	313.14	Pass
	GSM/TM2	LCH	245.65	322.33	Pass
		MCH	247.97	312.13	Pass
		HCH	245.94	315.70	Pass
GSM1900	GSM/TM1	LCH	242.52	313.48	Pass
		MCH	242.45	310.00	Pass
		HCH	242.03	311.42	Pass
	GSM/TM2	LCH	247.69	315.35	Pass
		MCH	244.63	316.20	Pass
		HCH	243.51	313.23	Pass
Test Band	Test Mode	Test Channel	Occupied Bandwidth [MHz]	Emission Bandwidth [MHz]	Verdict
WCDMA1900	UMTS/TM1	LCH	4.17	4.72	Pass
		MCH	4.16	4.71	Pass
		HCH	4.15	4.70	Pass
WCDMA1700	UMTS/TM1	LCH	4.17	4.74	Pass
		MCH	4.15	4.71	Pass
		HCH	4.16	4.72	Pass
WCDMA850	UMTS/TM1	LCH	4.16	4.72	Pass
		MCH	4.16	4.74	Pass
		HCH	4.15	4.71	Pass

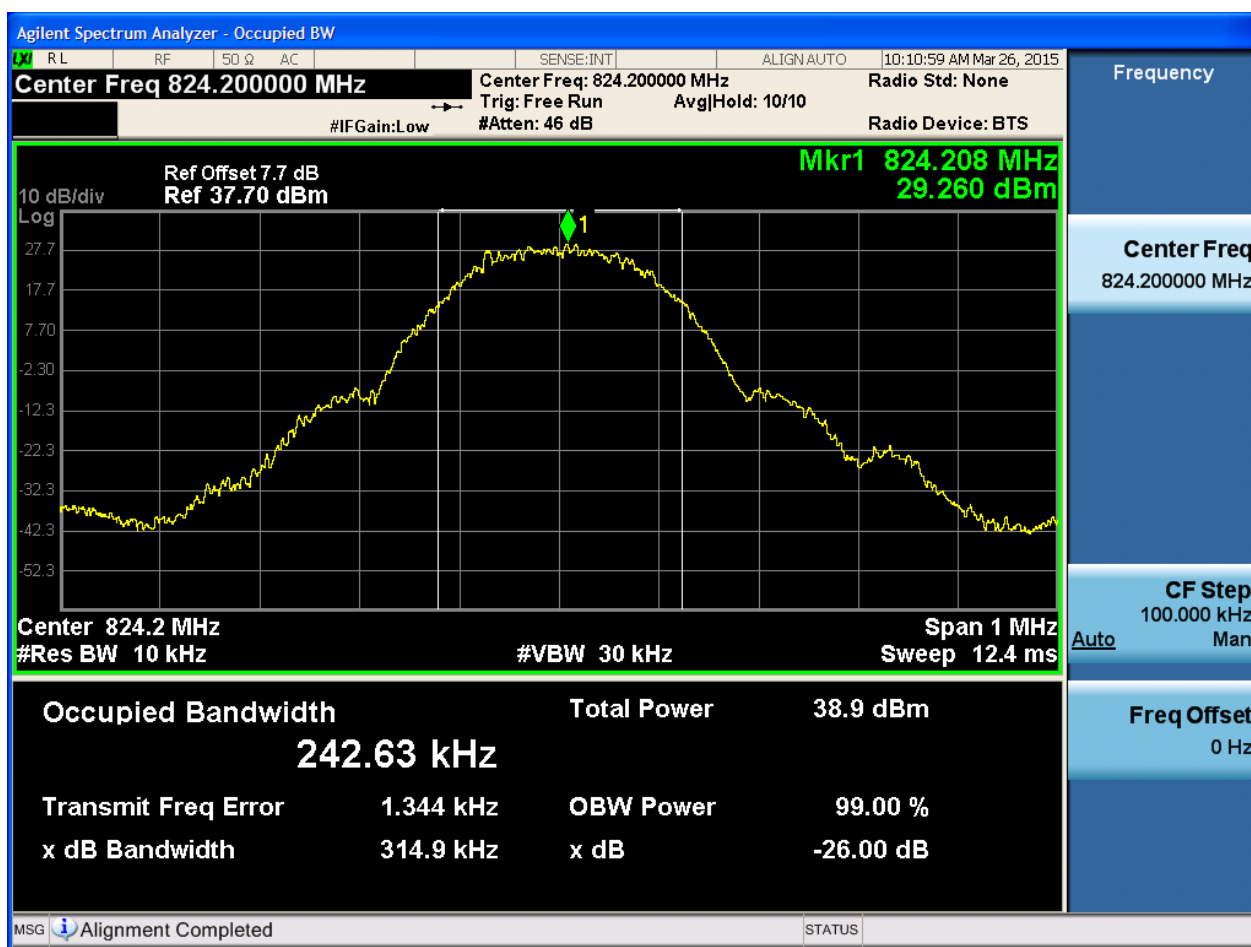
Part II - Test Plots

4.1 For GSM

4.1.1 Test Band = GSM850

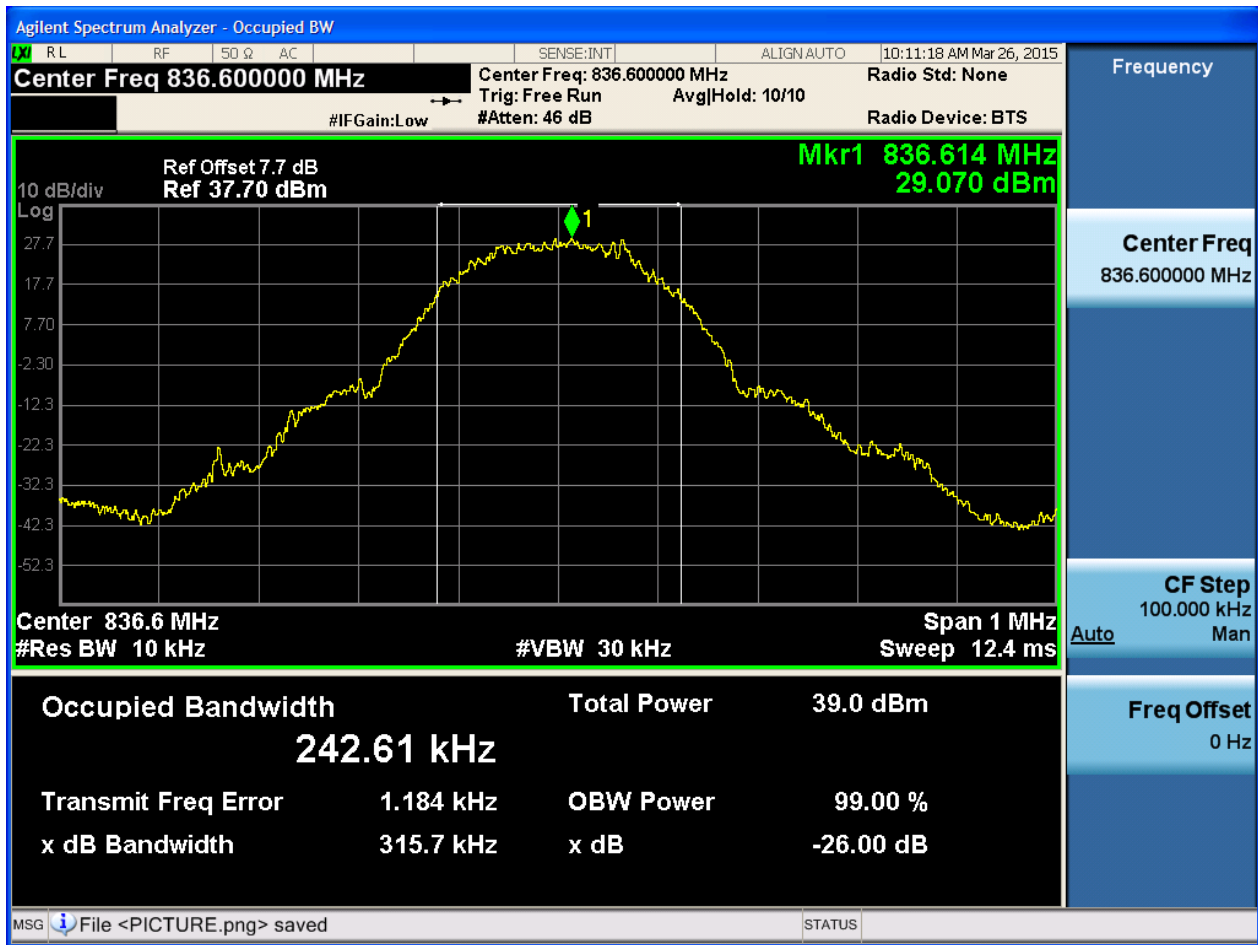
4.1.1.1 Test Mode = GSM/TM1

4.1.1.1.1 Test Channel = LCH





4.1.1.1.2 Test Channel = MCH





Agilent Spectrum Analyzer - Occupied BW

RL RF 50 Ω AC SENSE:INT ALIGN: AUTO 10:11:38 AM Mar 26, 2015

Center Freq 848.800000 MHz Center Freq: 848.800000 MHz Radio Std: None
Trig: Free Run Avg/Hold: 10/10
#IFGain: Low #Atten: 46 dB Radio Device: BTS

Ref Offset 7.7 dB
Ref 37.70 dBm

Mkr1 848.795 MHz
29.878 dBm

10 dB/div
Log

Center 848.8 MHz Span 1 MHz
#Res BW 10 kHz #VBW 30 kHz Sweep 12.4 ms

Occupied Bandwidth
243.18 kHz

Total Power
38.8 dBm

Transmit Freq Error 786 Hz
OBW Power 99.00 %
x dB Bandwidth 313.1 kHz x dB -26.00 dB

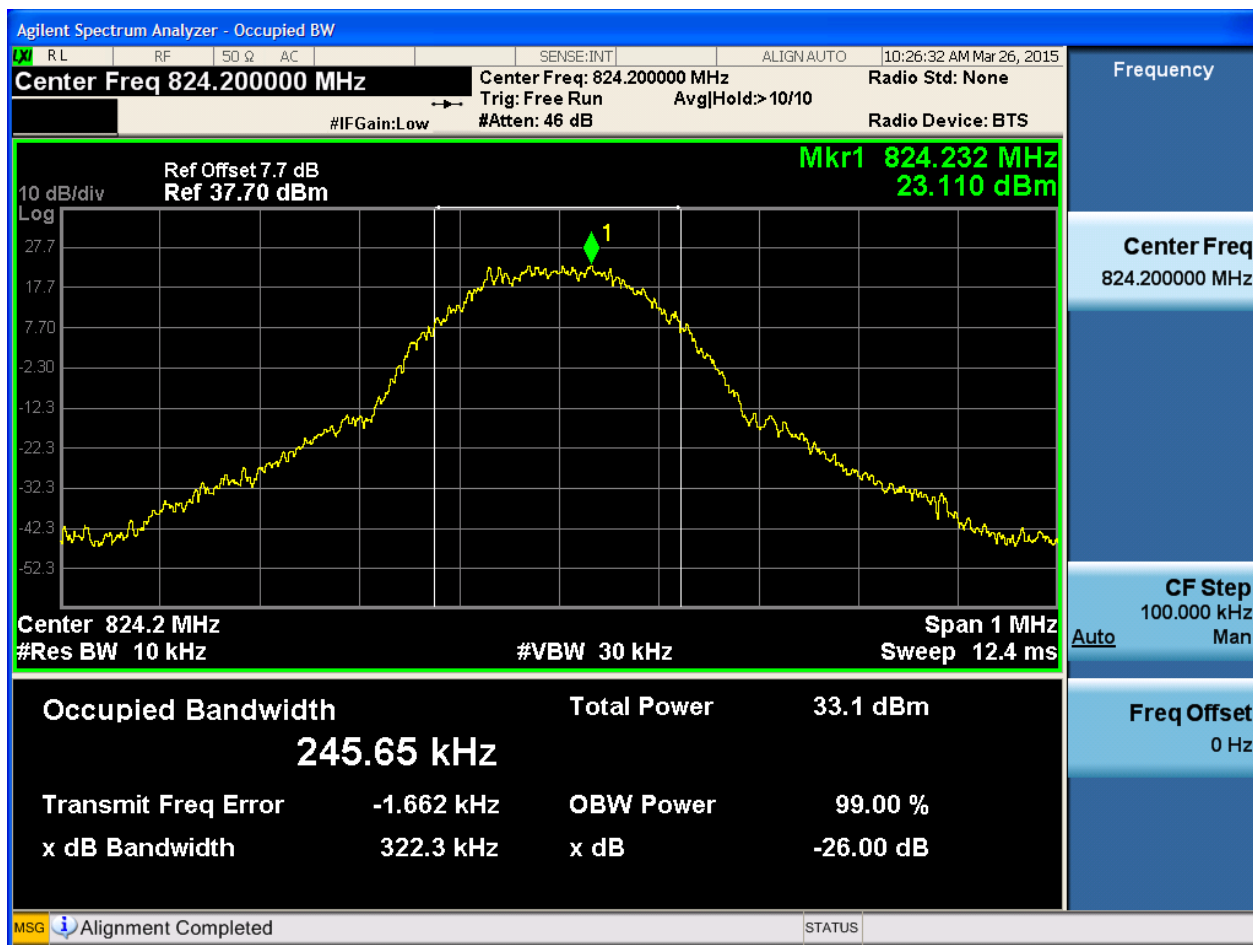
MSG File <PICTURE.png> saved STATUS

Frequency
Center Freq
848.800000 MHz
CF Step
100.000 kHz
Man
Auto
Freq Offset
0 Hz



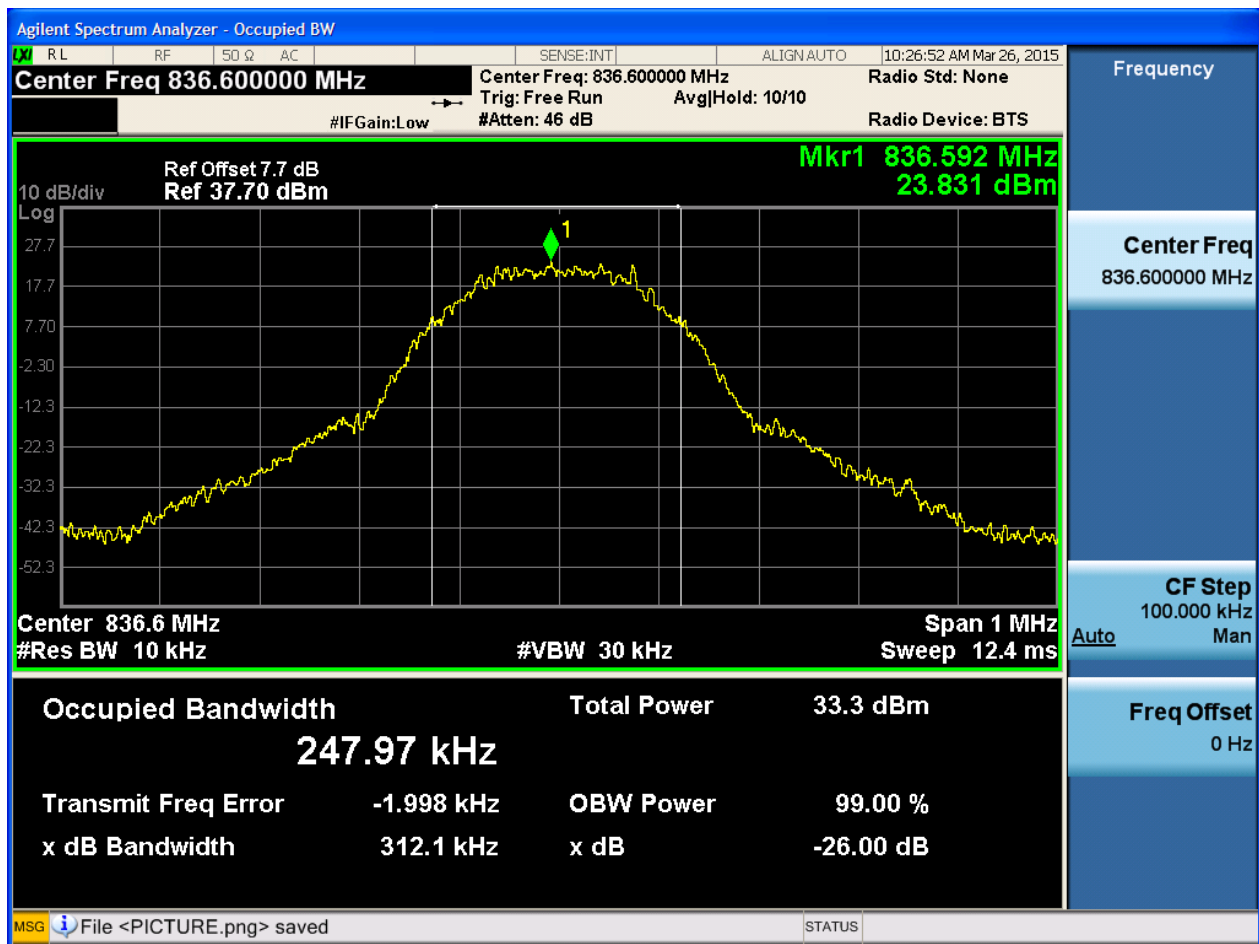
4.1.1.2 Test Mode = GSM/TM2

4.1.1.2.1 Test Channel = LCH



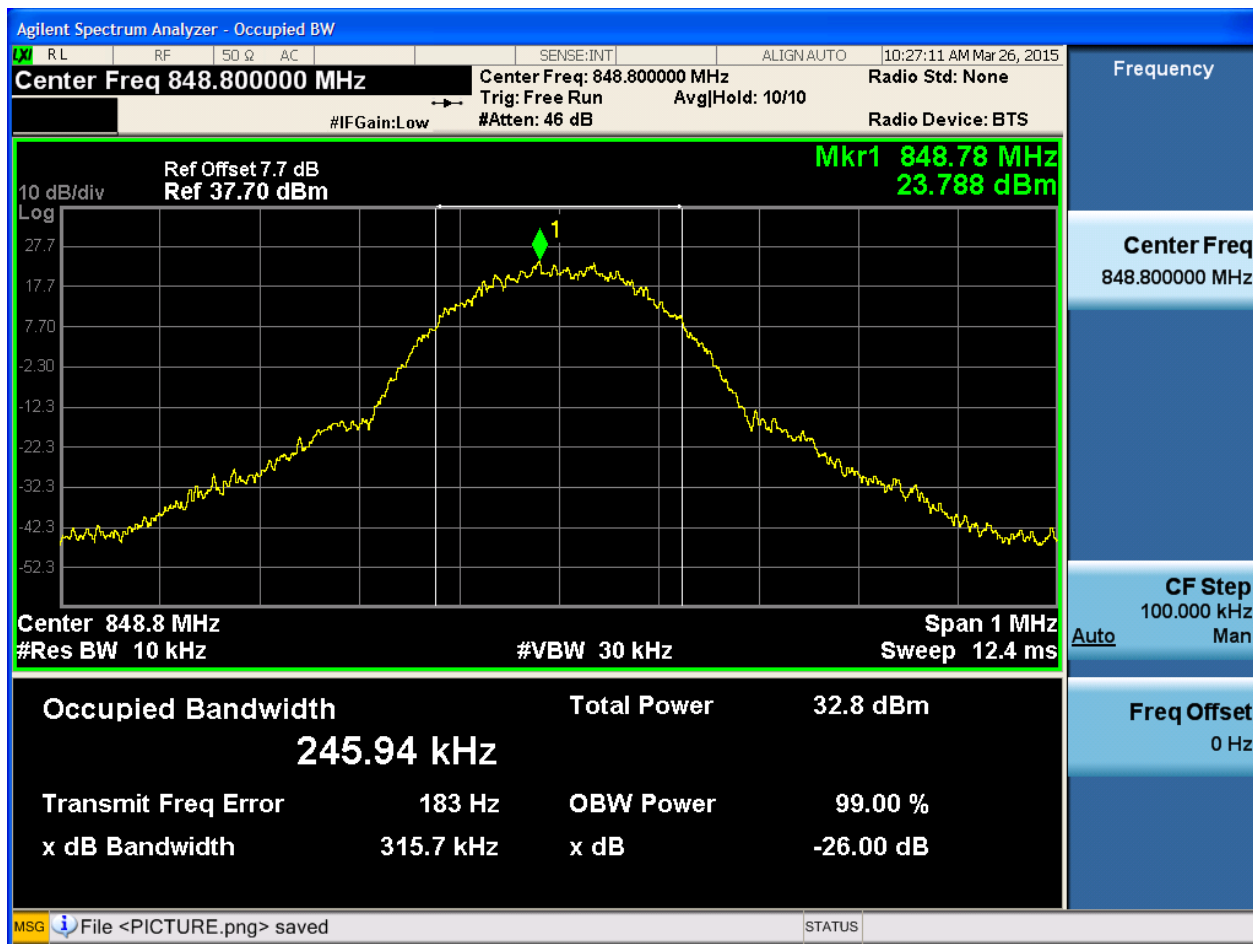


4.1.1.2.2 Test Channel = MCH





4.1.1.2.3 Test Channel = HCH

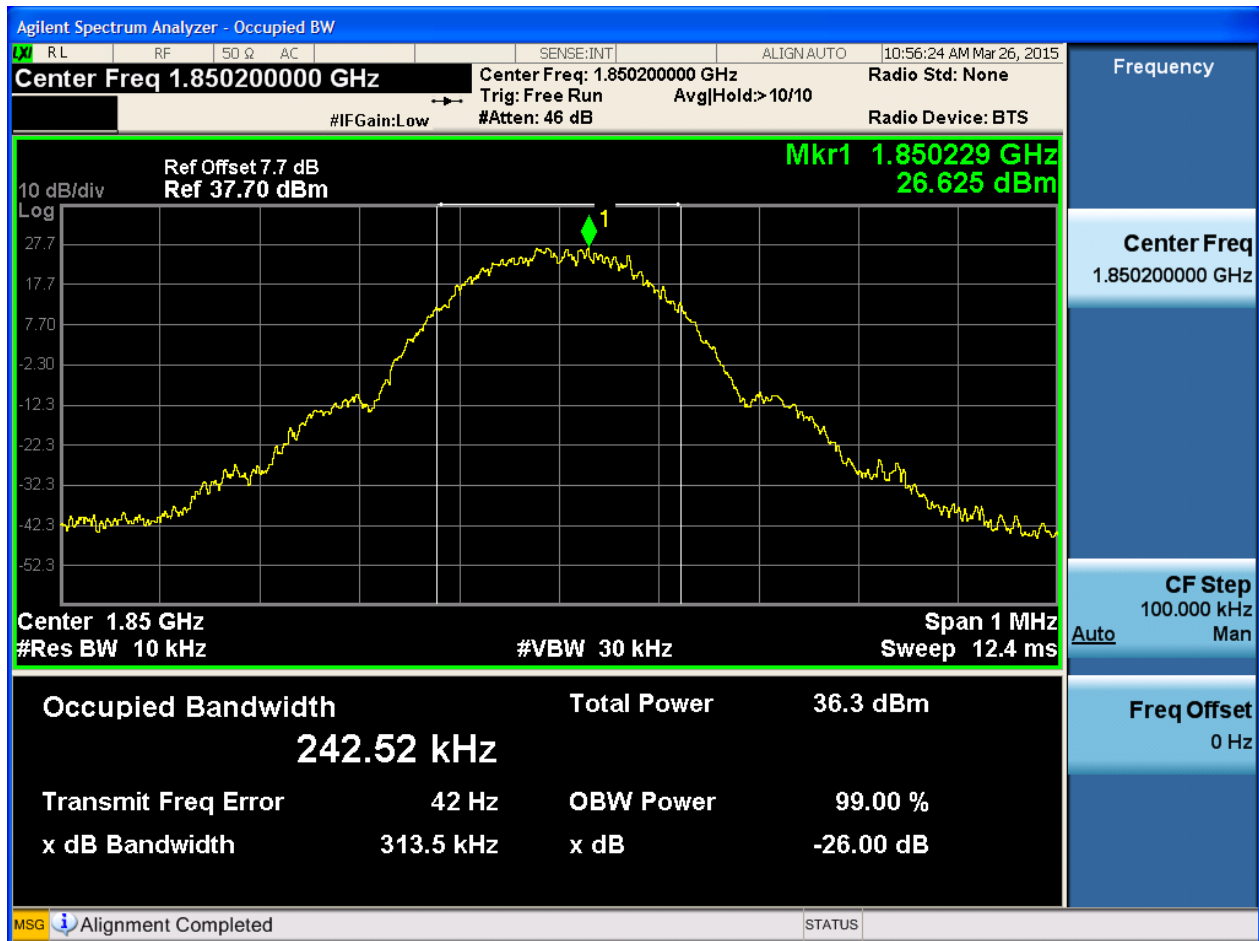




4.1.2 Test Band = GSM1900

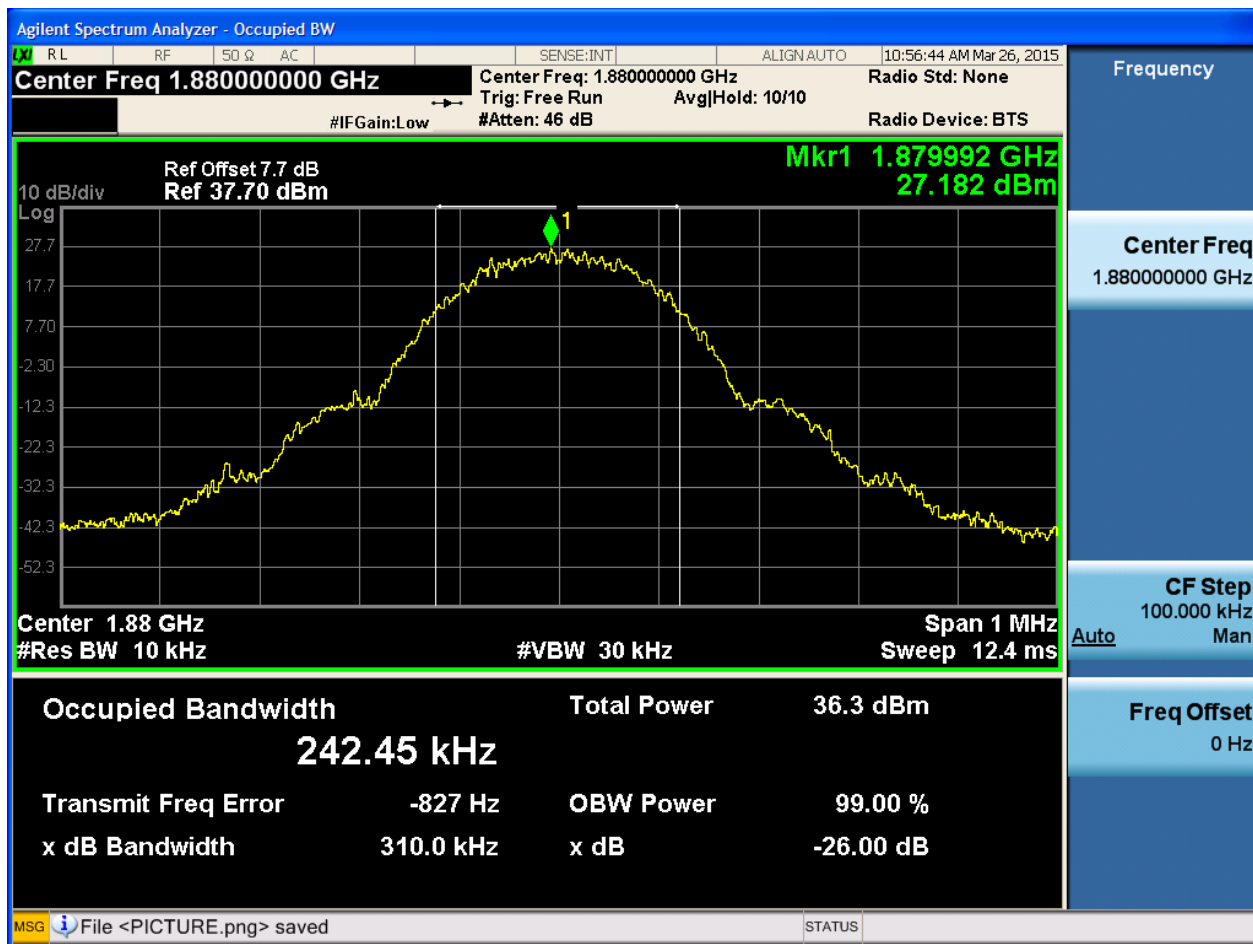
4.1.2.1 Test Mode = GSM/TM1

4.1.2.1.1 Test Channel = LCH



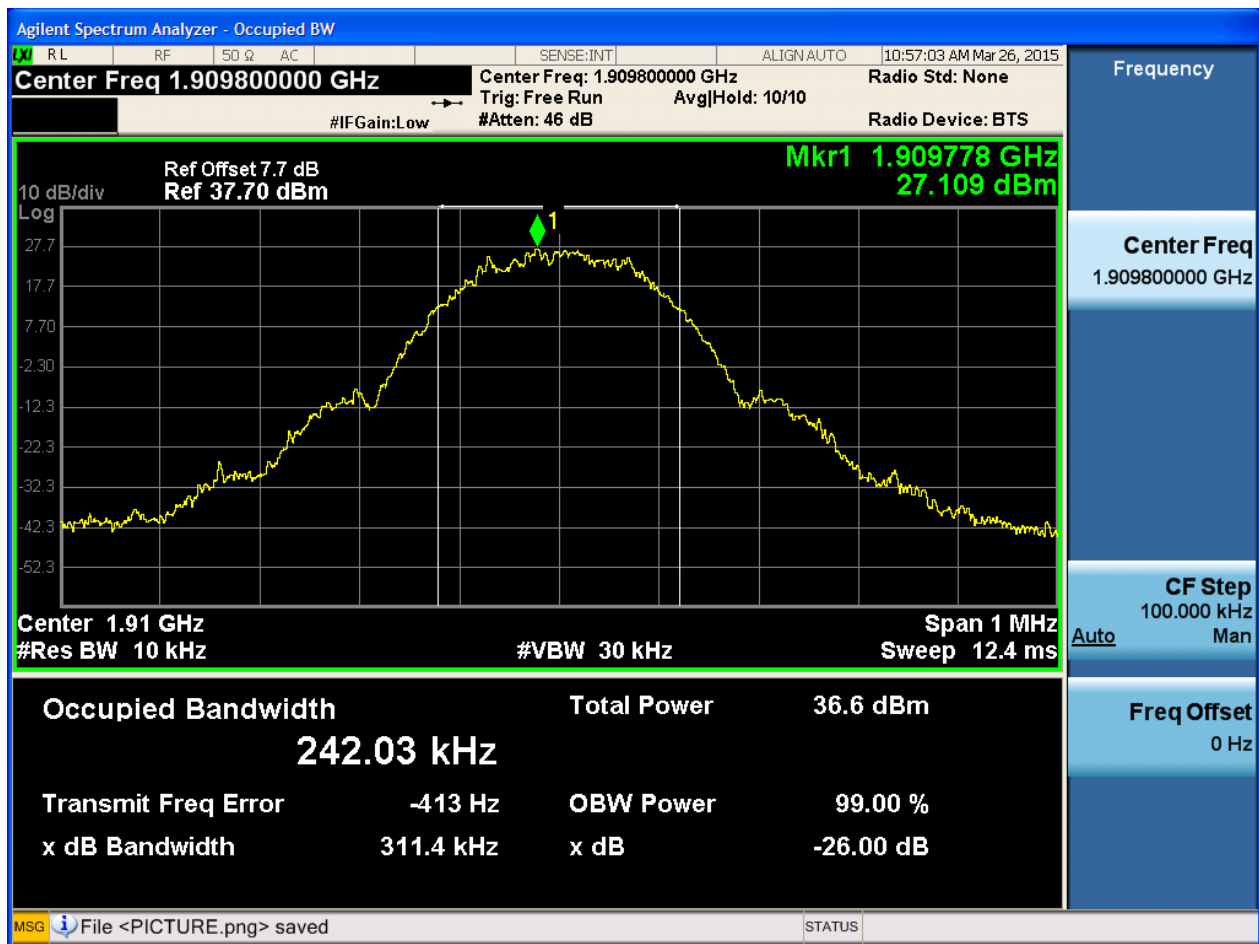


4.1.2.1.2 Test Channel = MCH





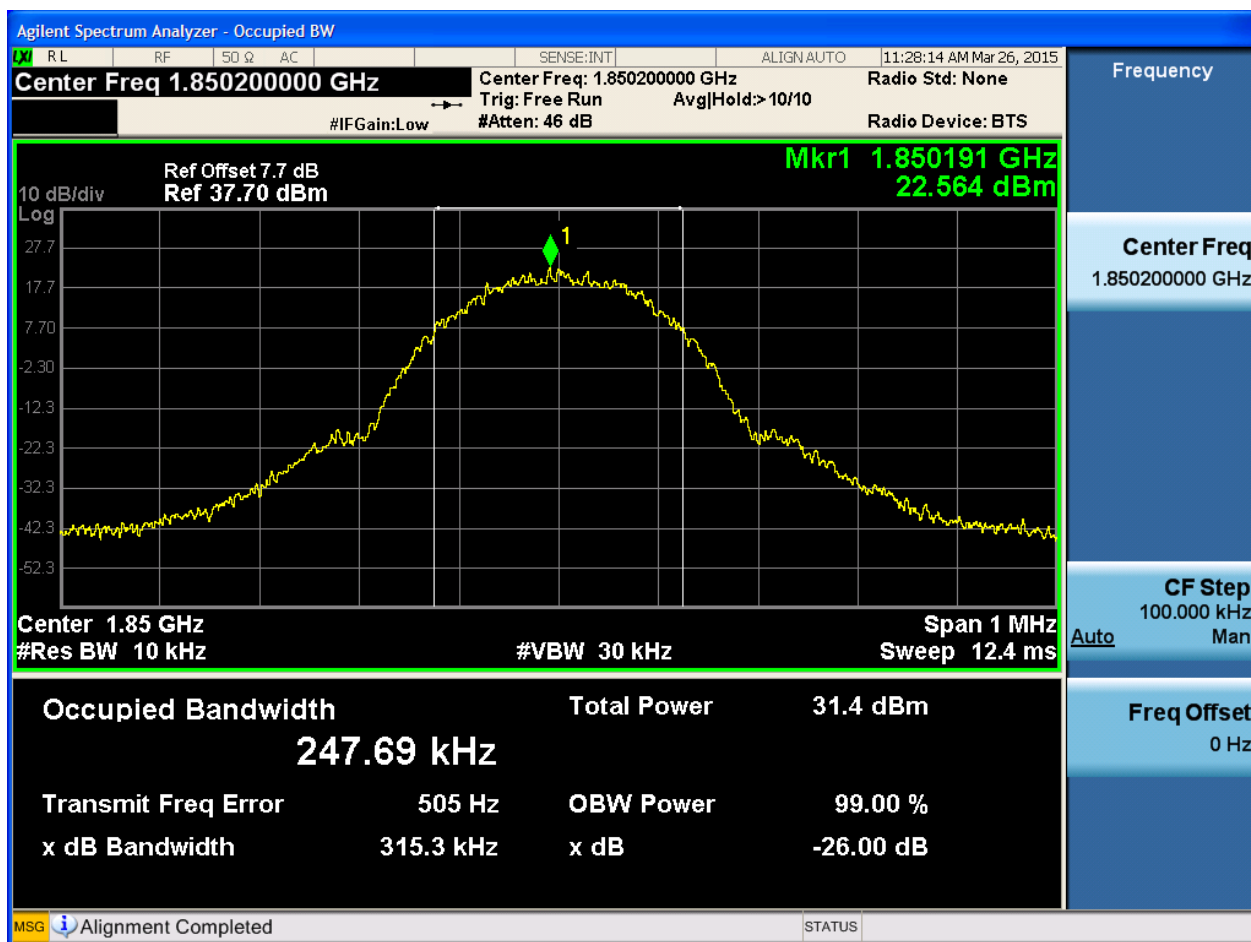
4.1.2.1.3 Test Channel = HCH





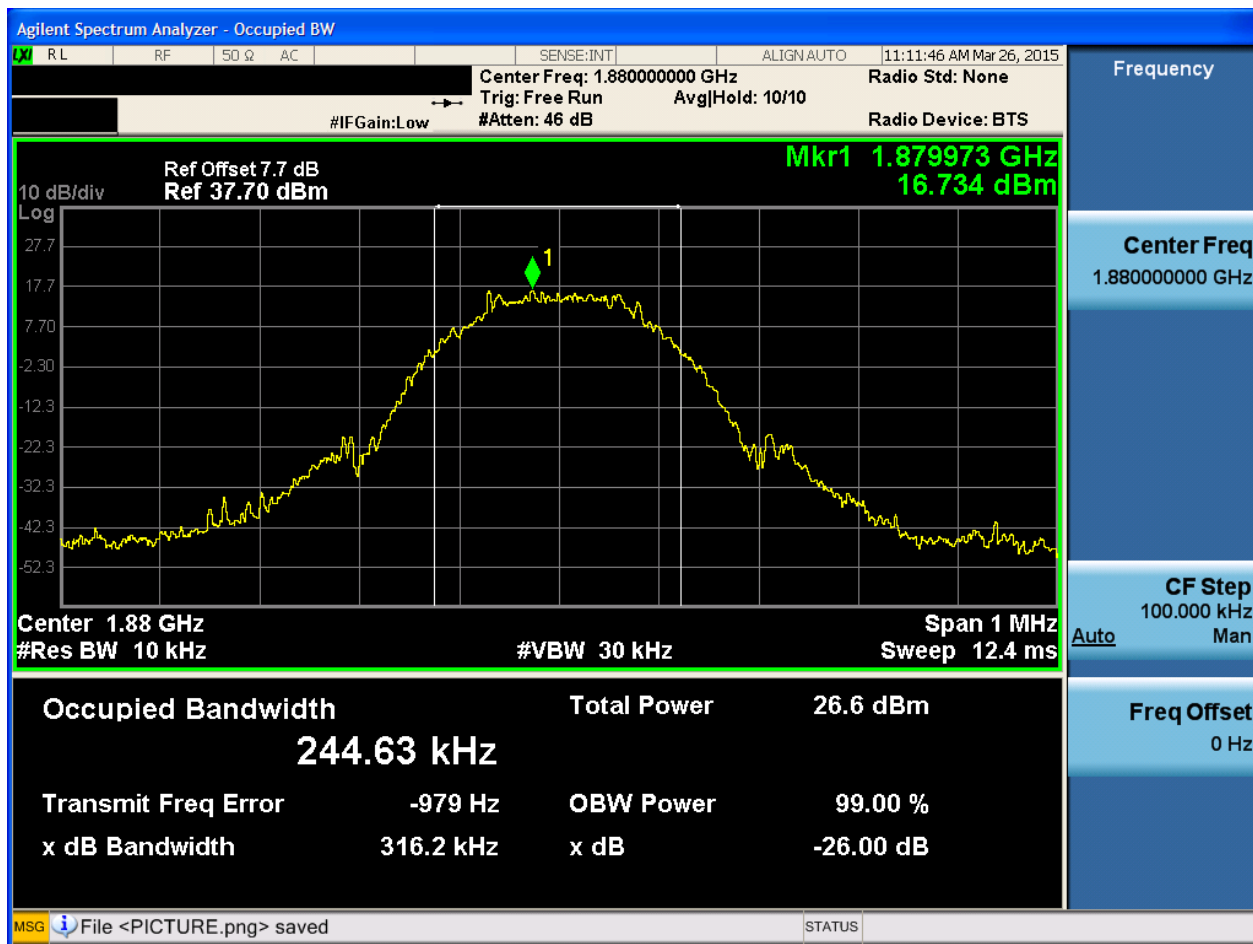
4.1.2.2 Test Mode = GSM/TM2

4.1.2.2.1 Test Channel = LCH



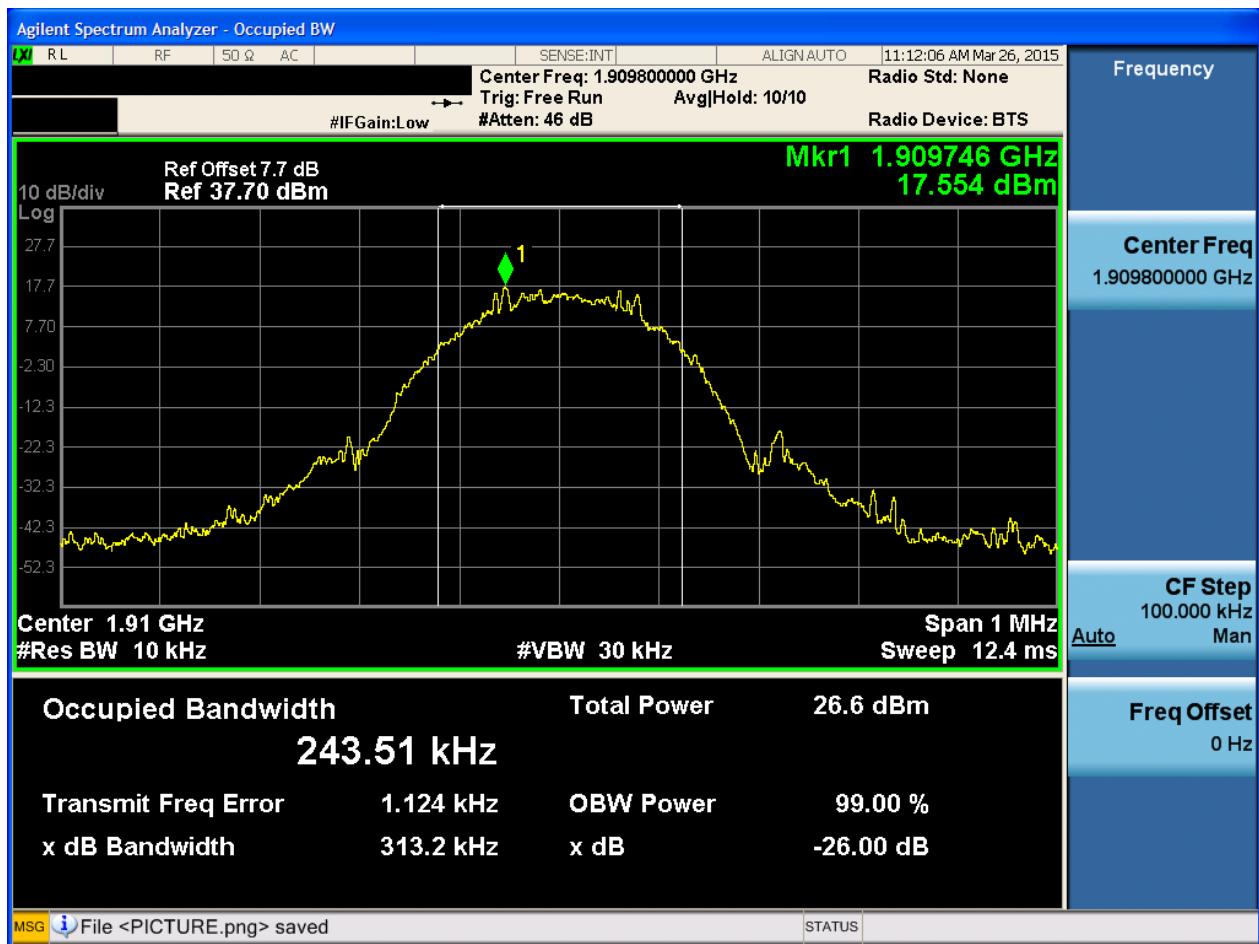


4.1.2.2.2 Test Channel = MCH





4.1.2.2.3 Test Channel = HCH



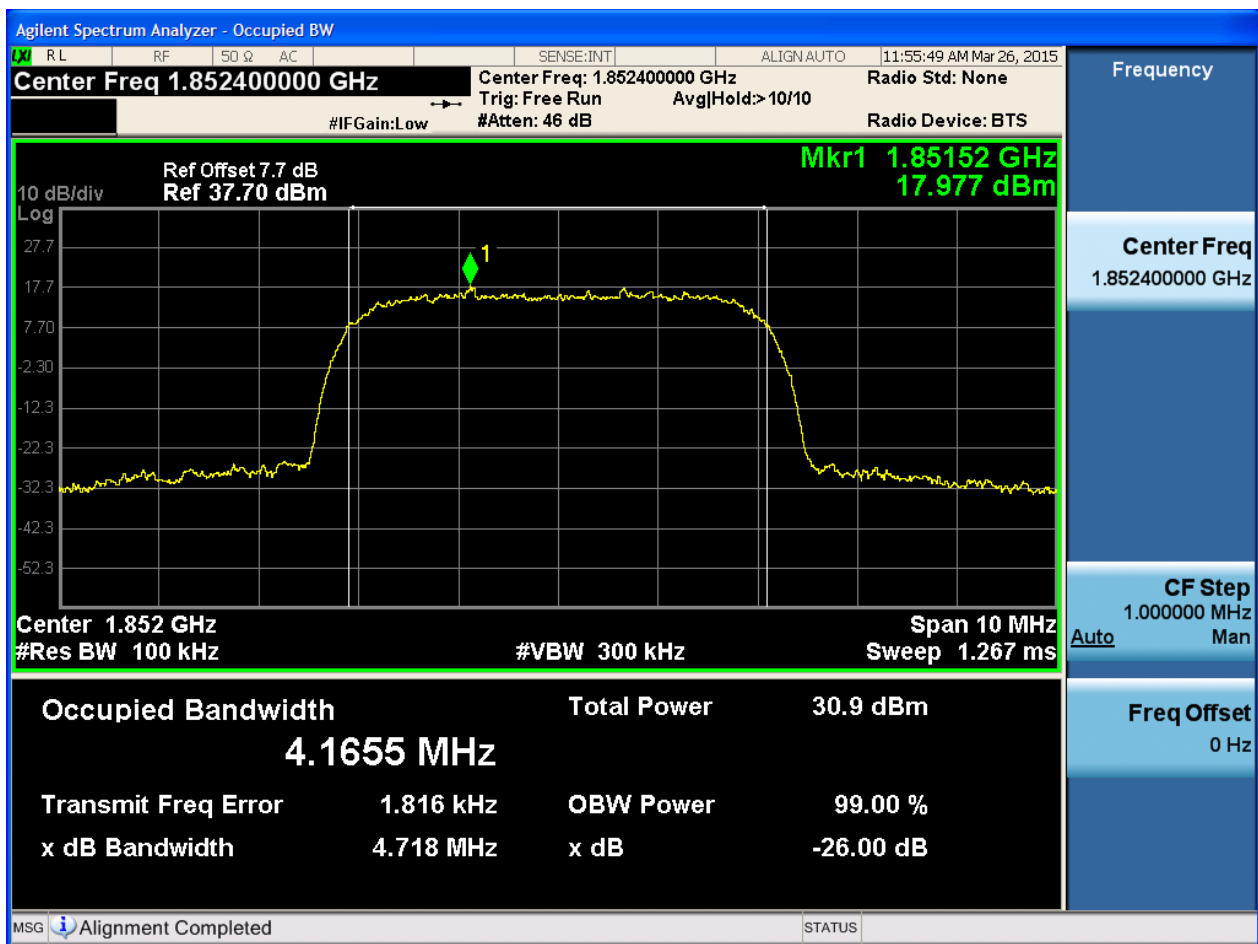


4.2 For UMTS

4.2.1 Test Band = WCDMA1900

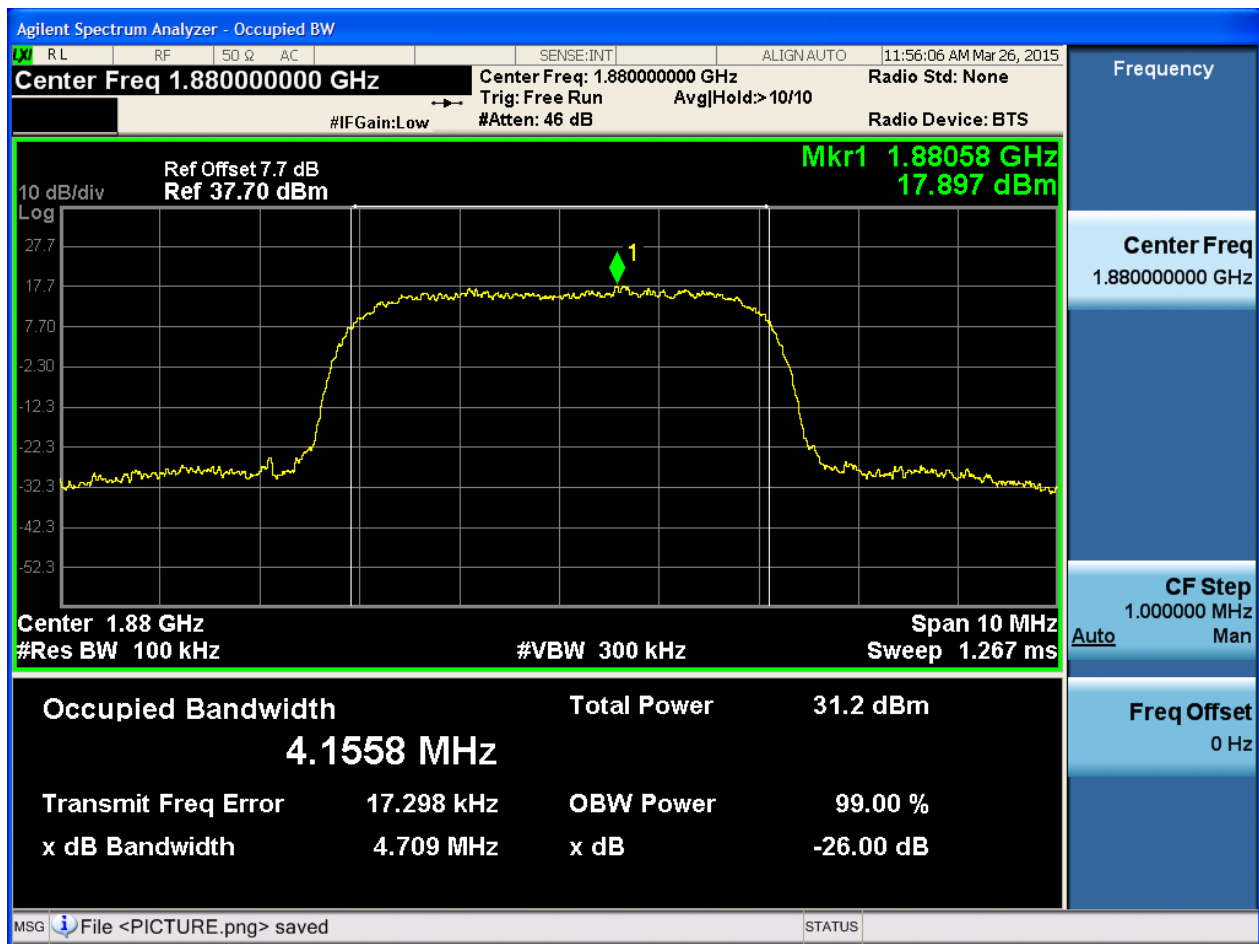
4.2.1.1 Test Mode = UMTS/TM1

4.2.1.1.1 Test Channel = LCH



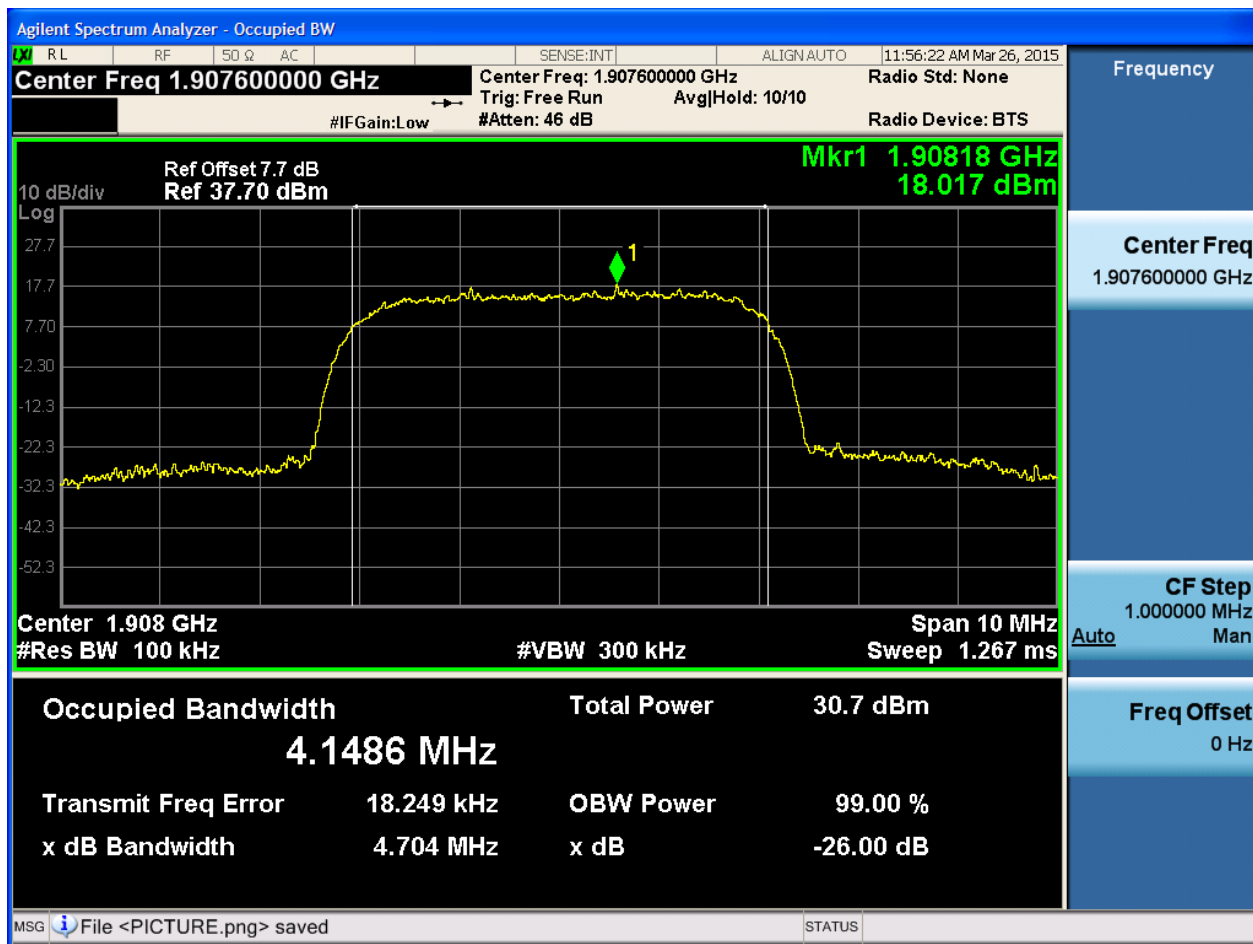


4.2.1.1.2 Test Channel = MCH





4.2.1.1.3 Test Channel = HCH

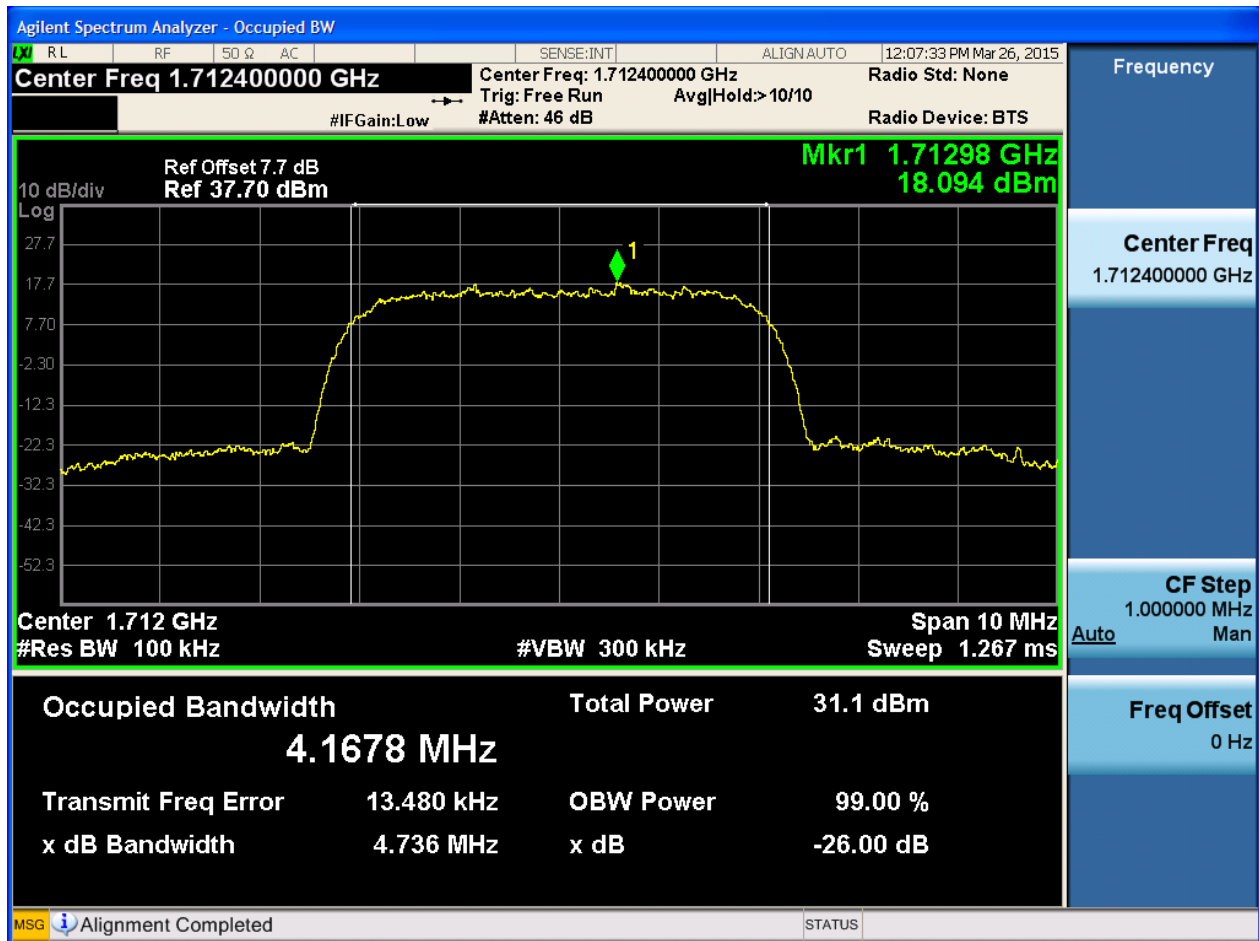




4.2.2 Test Band = WCDMA1700

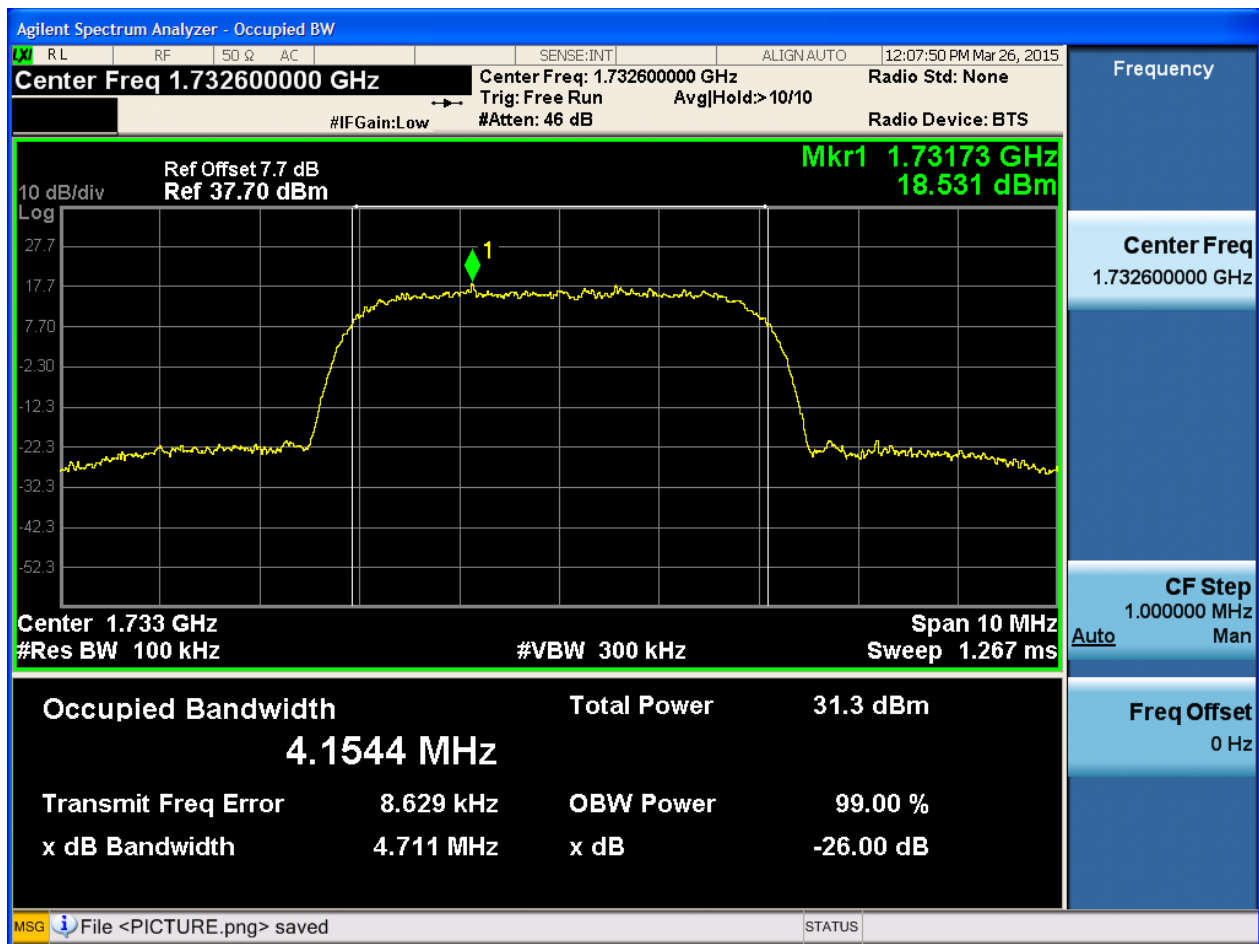
4.2.2.1 Test Mode = UMTS/TM1

4.2.2.1.1 Test Channel = LCH



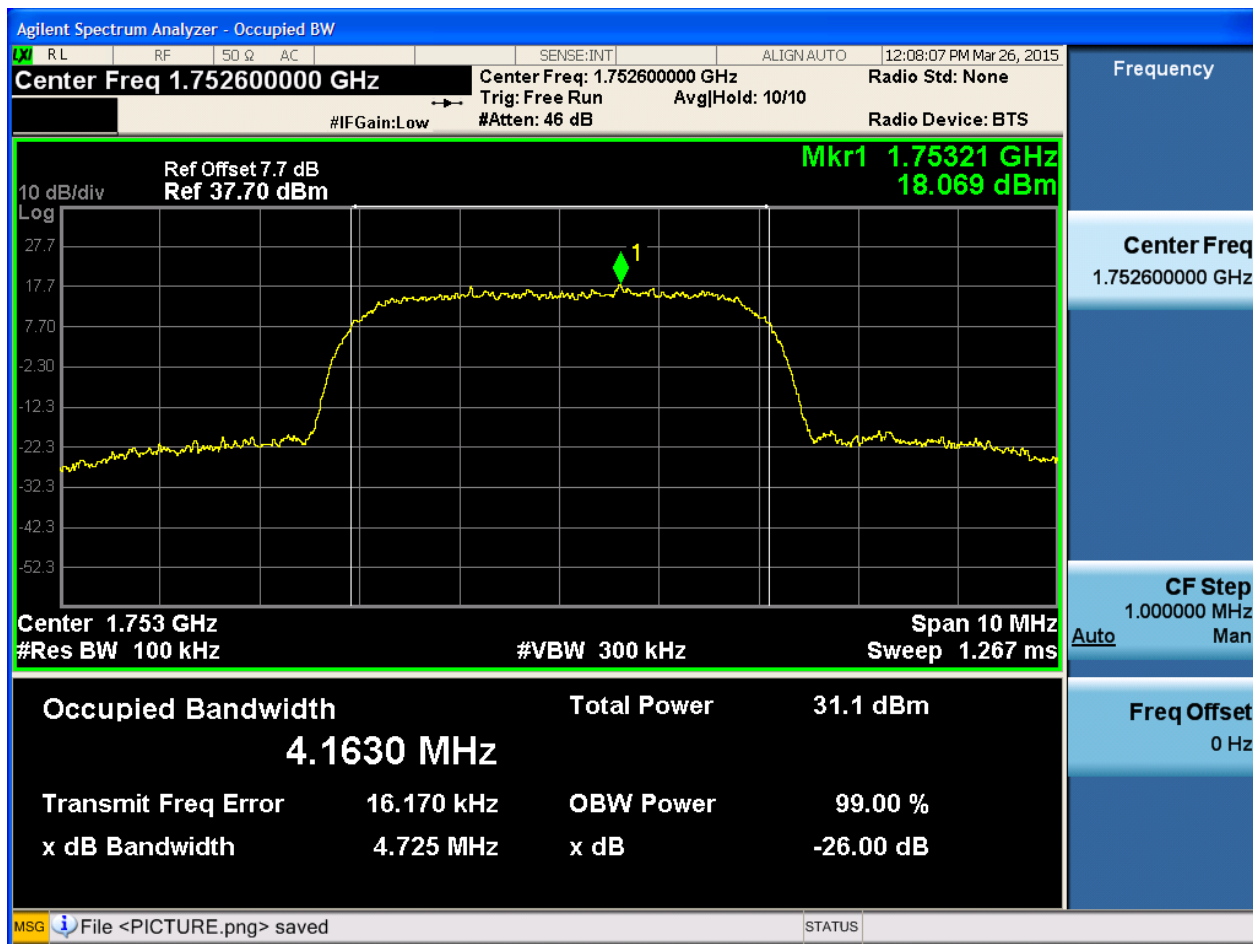


4.2.2.1.2 Test Channel = MCH





4.2.2.1.3 Test Channel = HCH

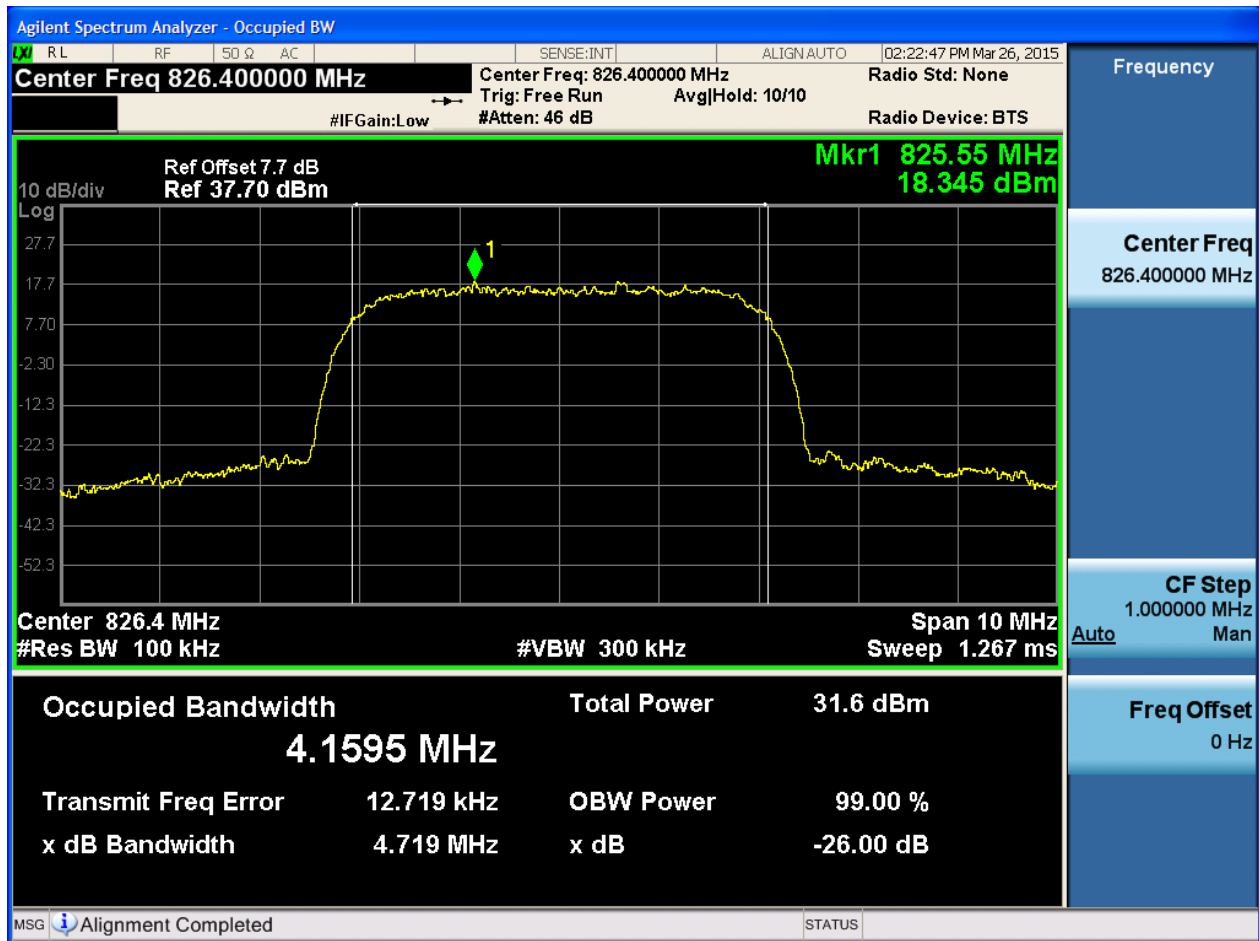




4.2.3 Test Band = WCDMA850

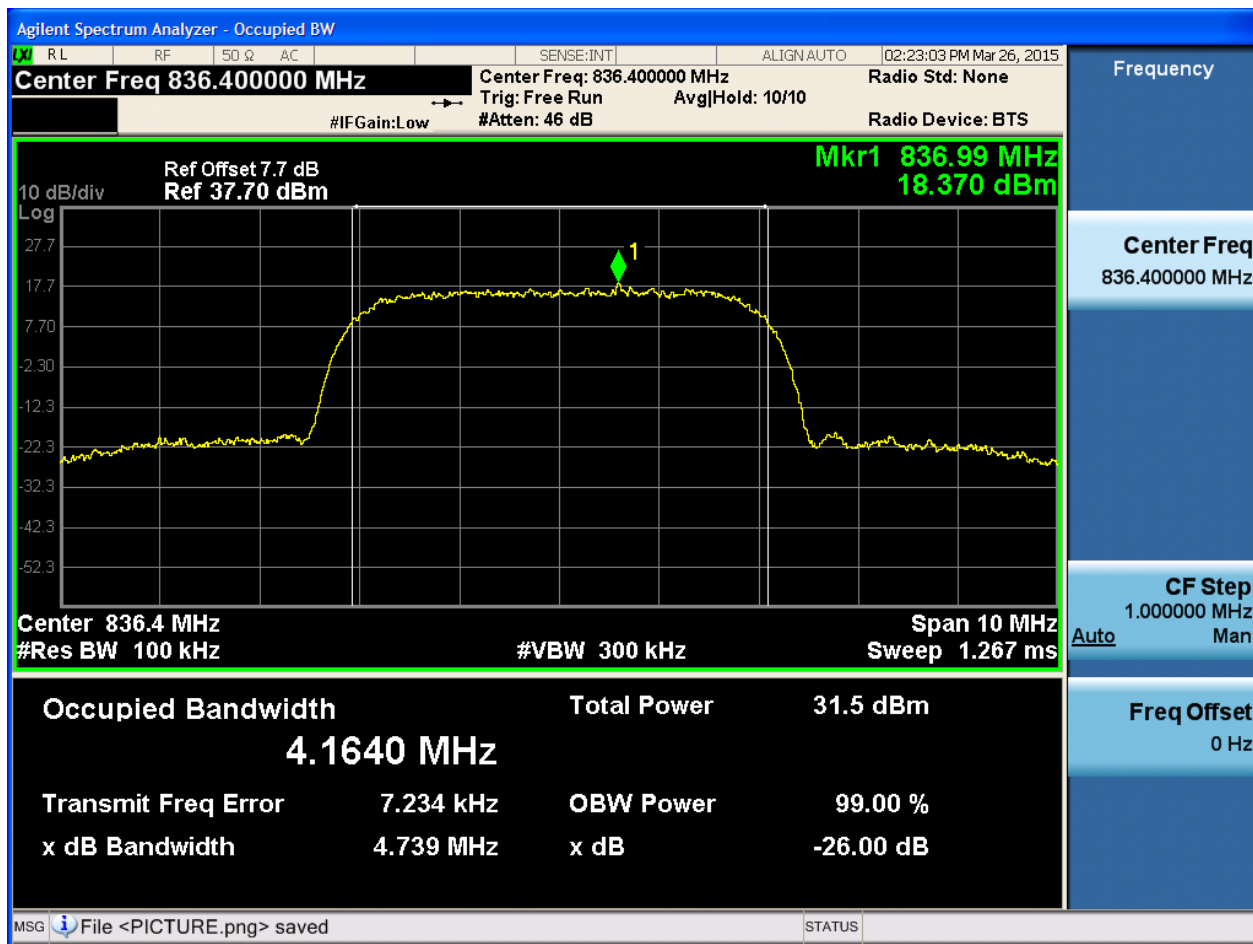
4.2.3.1 Test Mode = UMTS/TM1

4.2.3.1.1 Test Channel = LCH



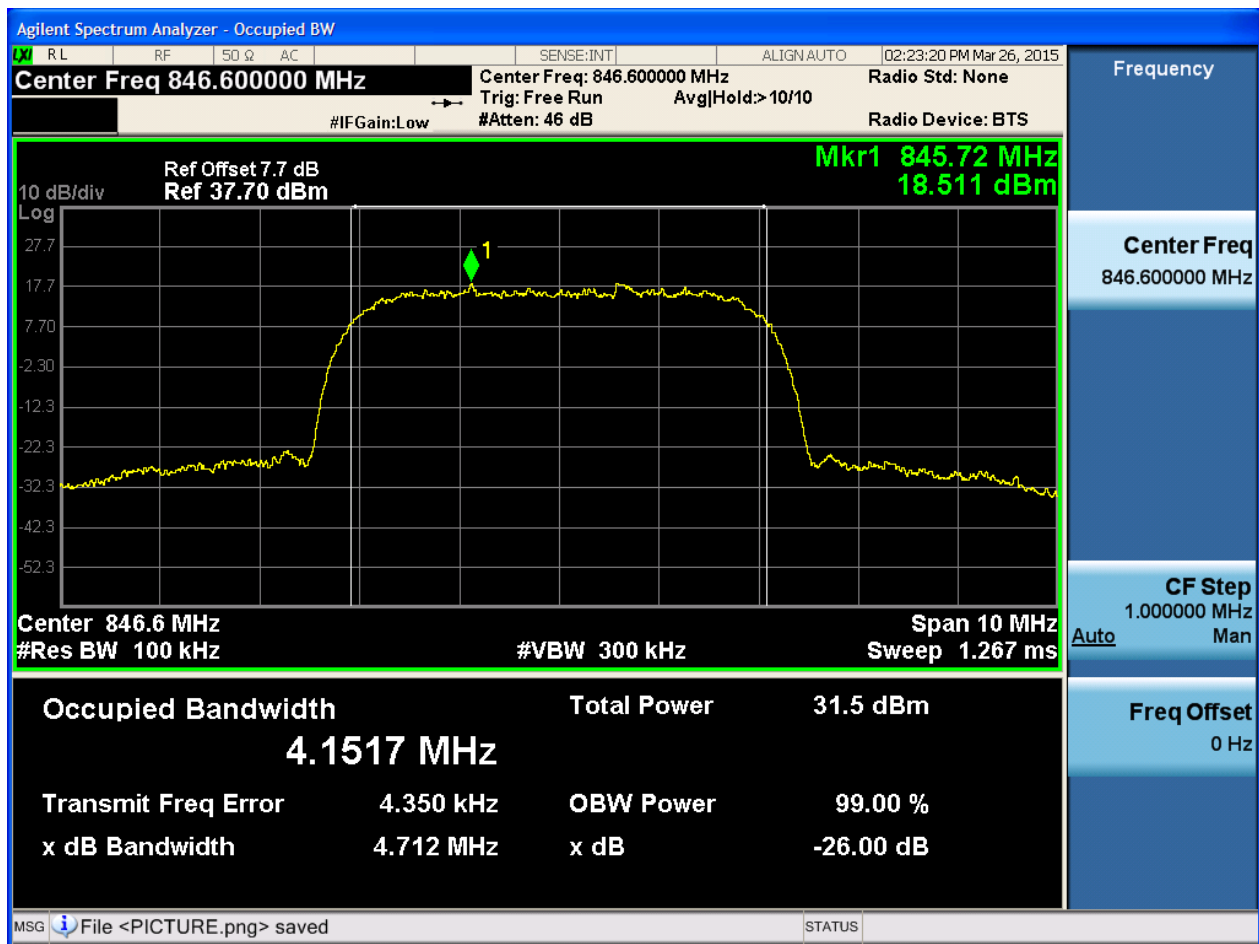


4.2.3.1.2 Test Channel = MCH





4.2.3.1.3 Test Channel = HCH



5Appendix_E: Band Edges Compliance

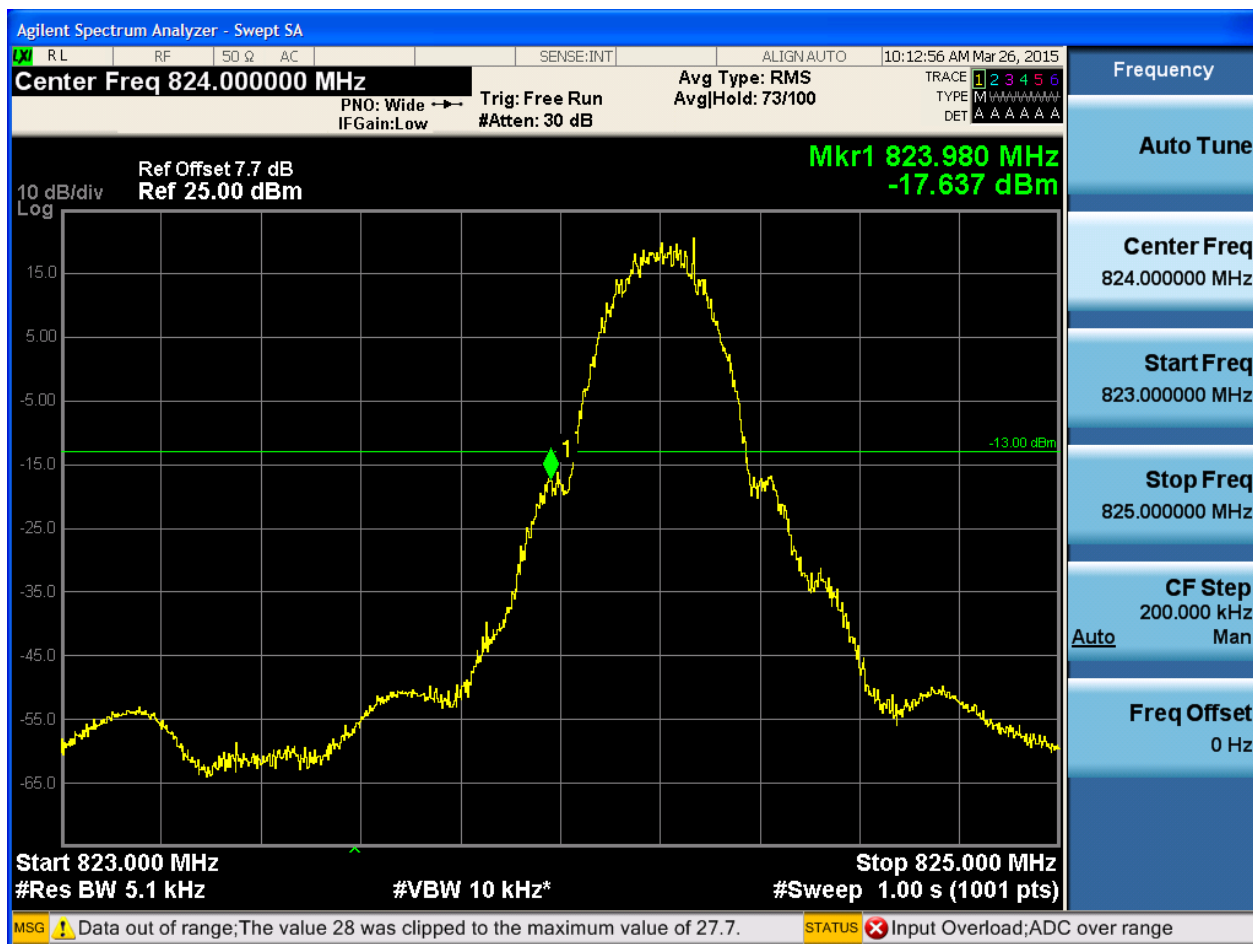
Part I - Test Plots

5.1 For GSM

5.1.1 Test Band = GSM850

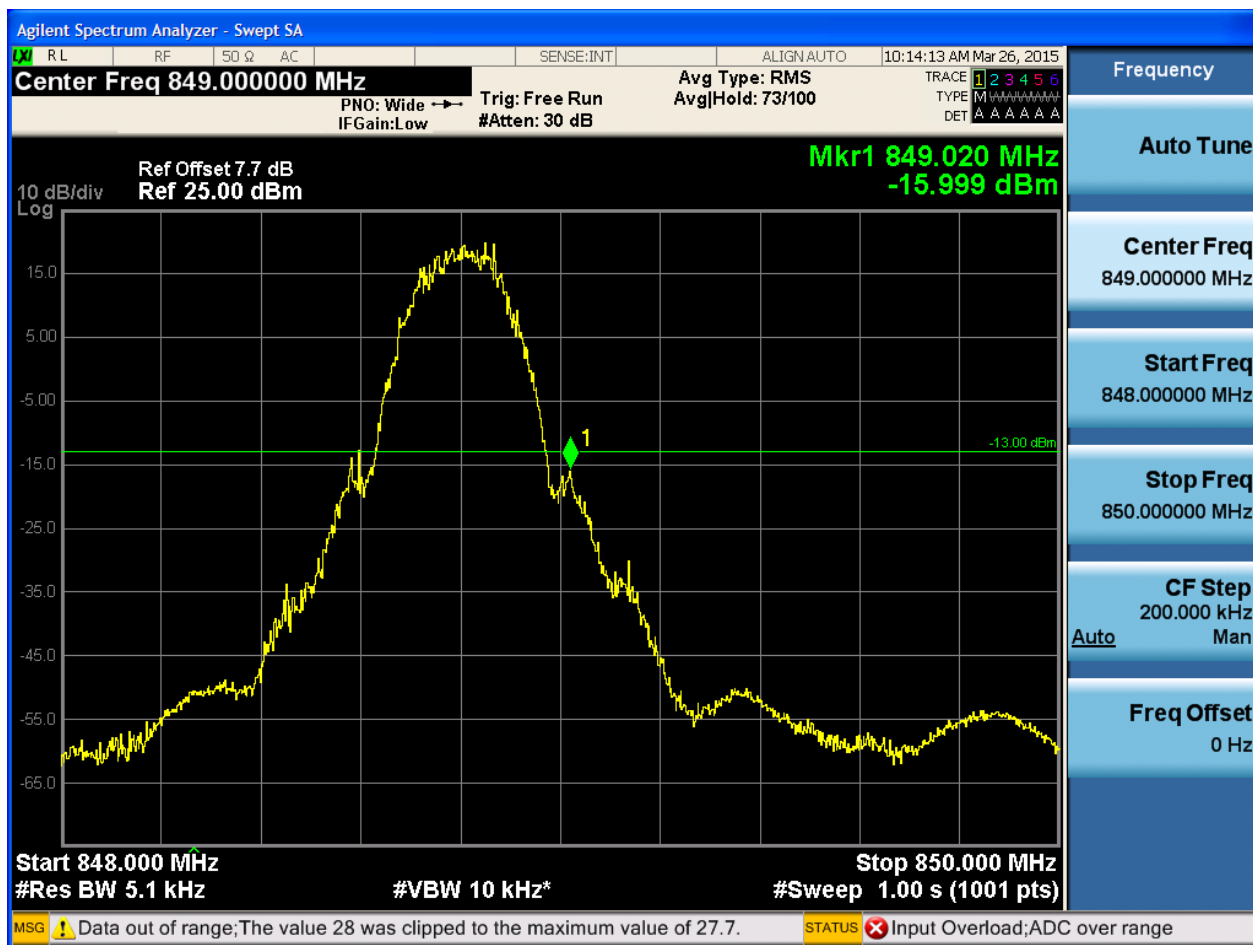
5.1.1.1 Test Mode = GSM/TM1

5.1.1.1.1 Test Channel = LCH



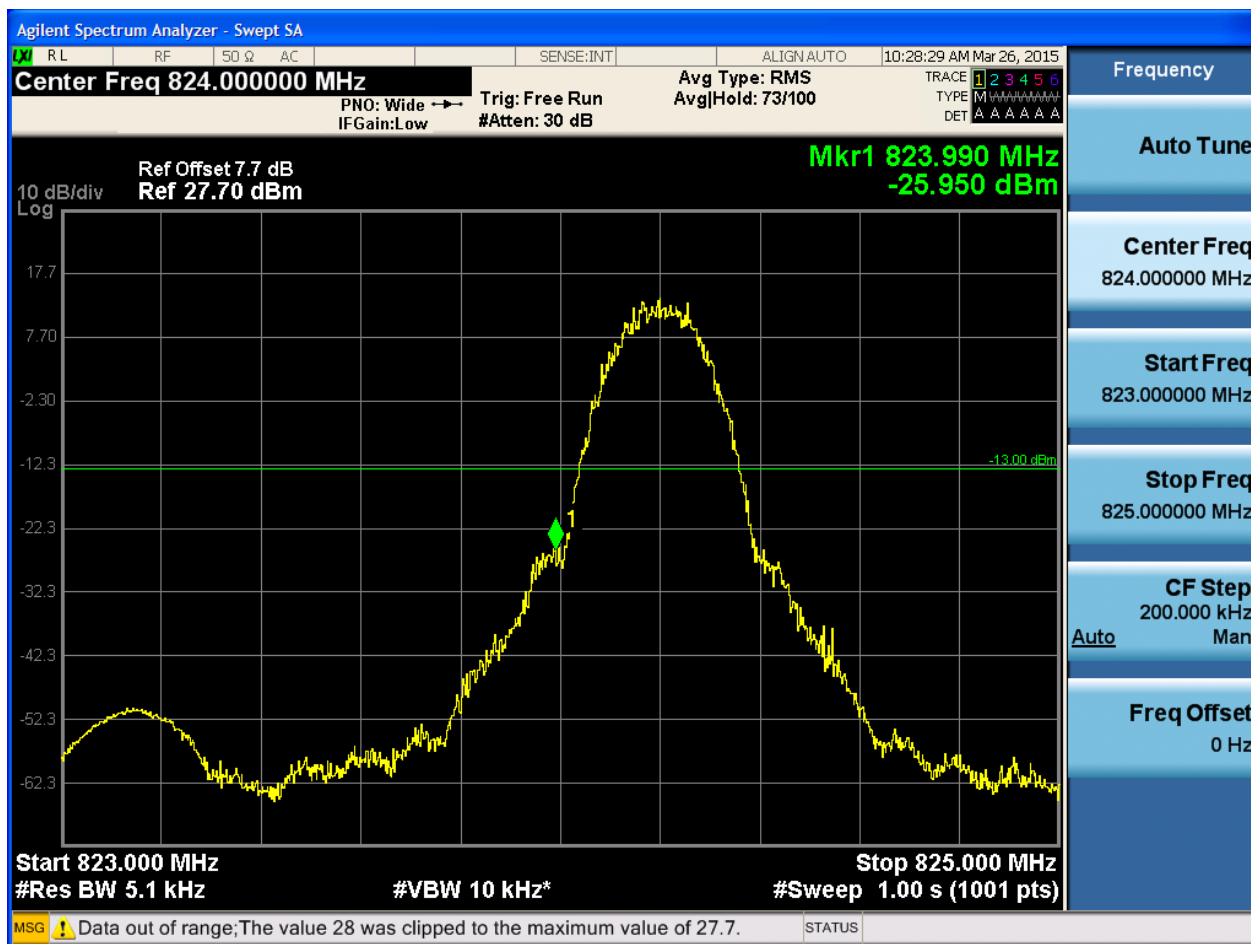


5.1.1.1.2 Test Channel = HCH



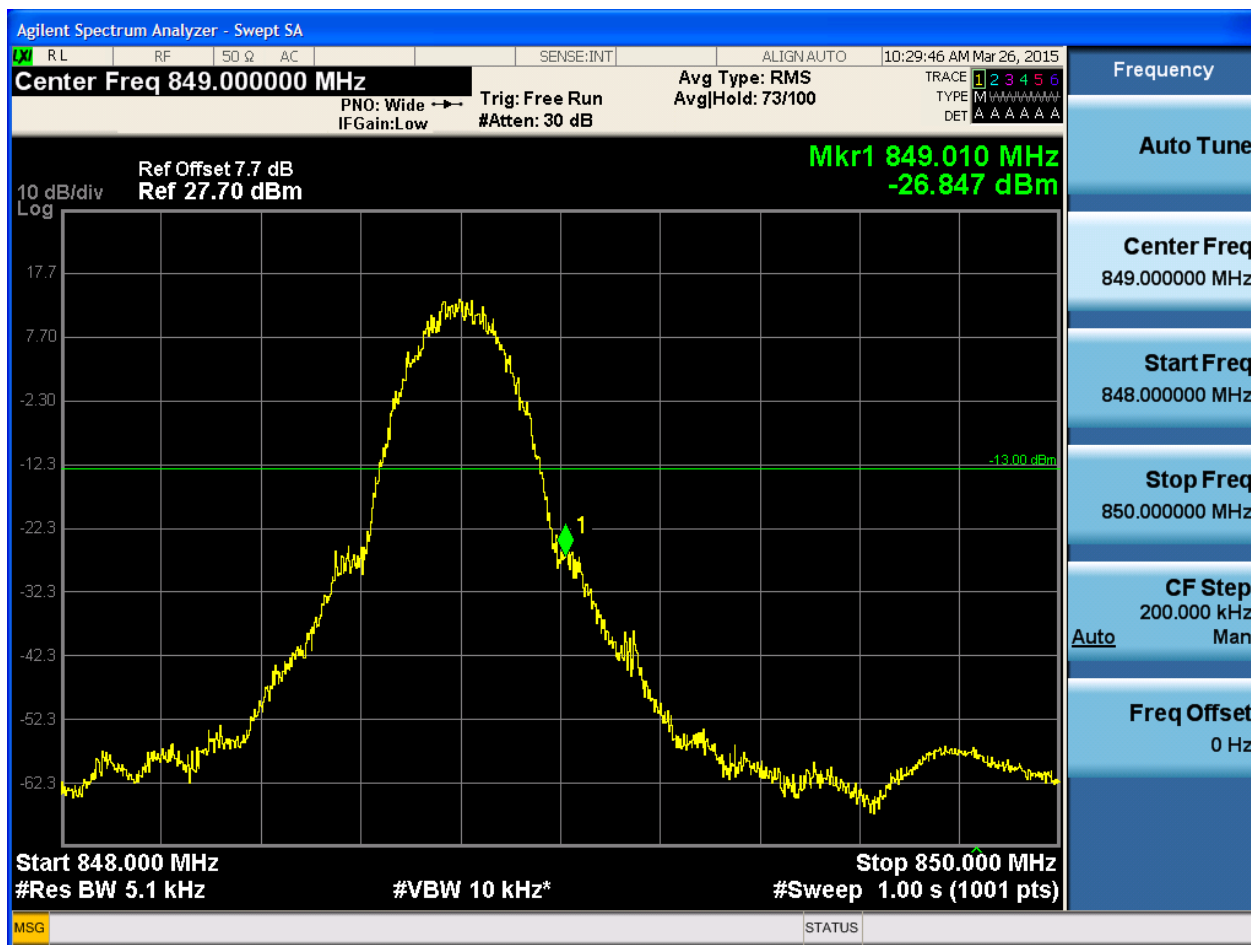
5.1.1.2 Test Mode = GSM/TM2

5.1.1.2.1 Test Channel = LCH





5.1.1.2.2 Test Channel = HCH

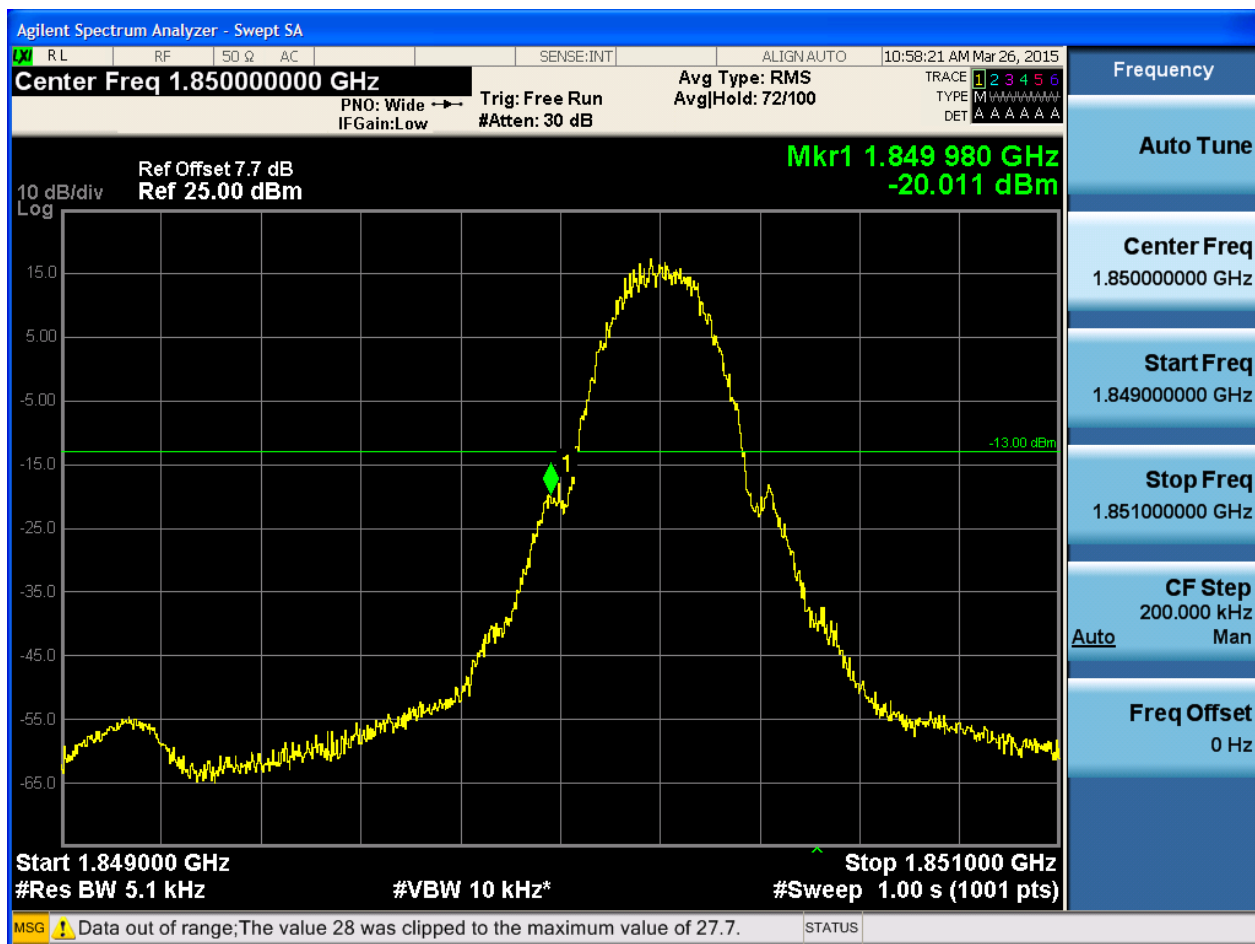




5.1.2 Test Band = GSM1900

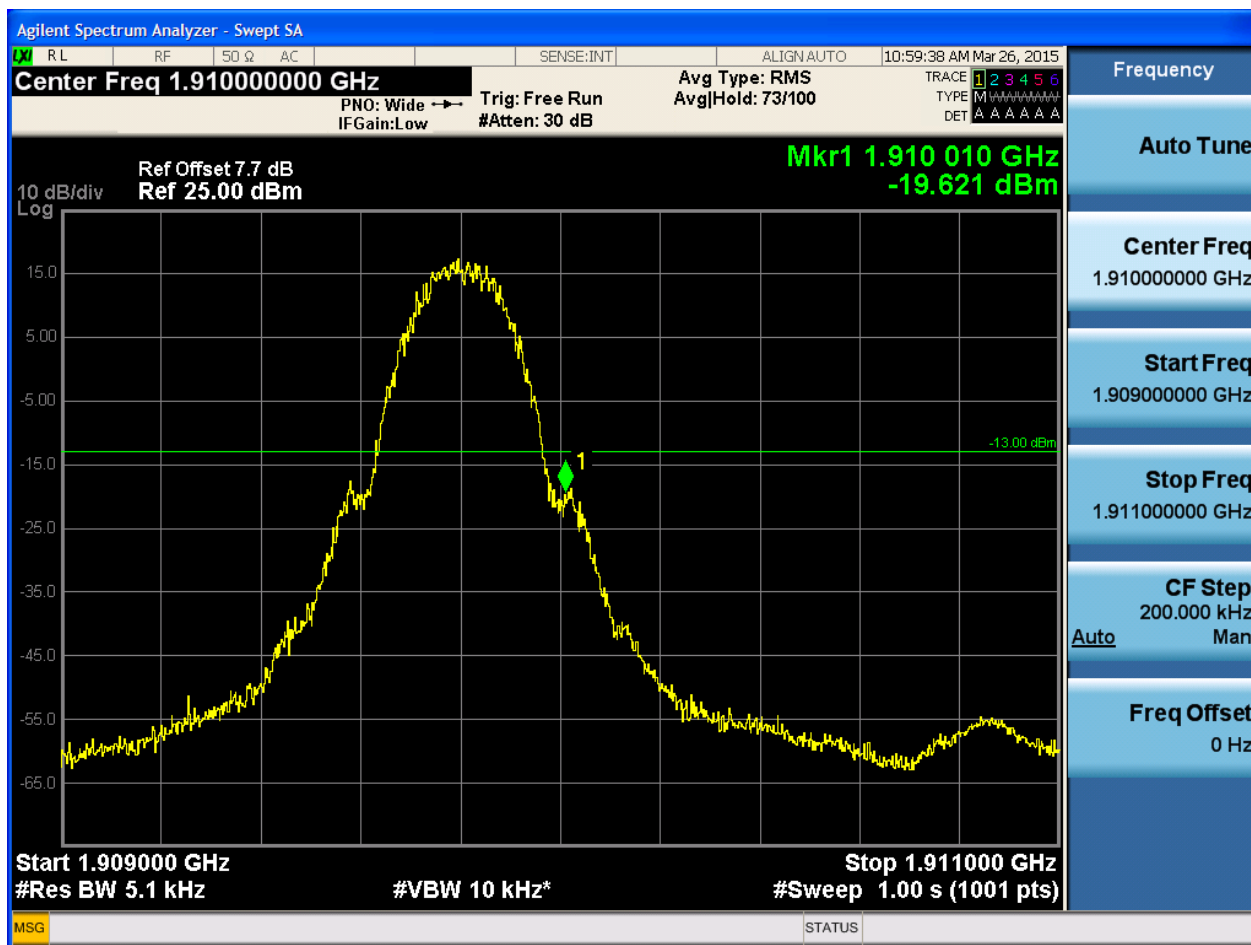
5.1.2.1 Test Mode = GSM/TM1

5.1.2.1.1 Test Channel = LCH





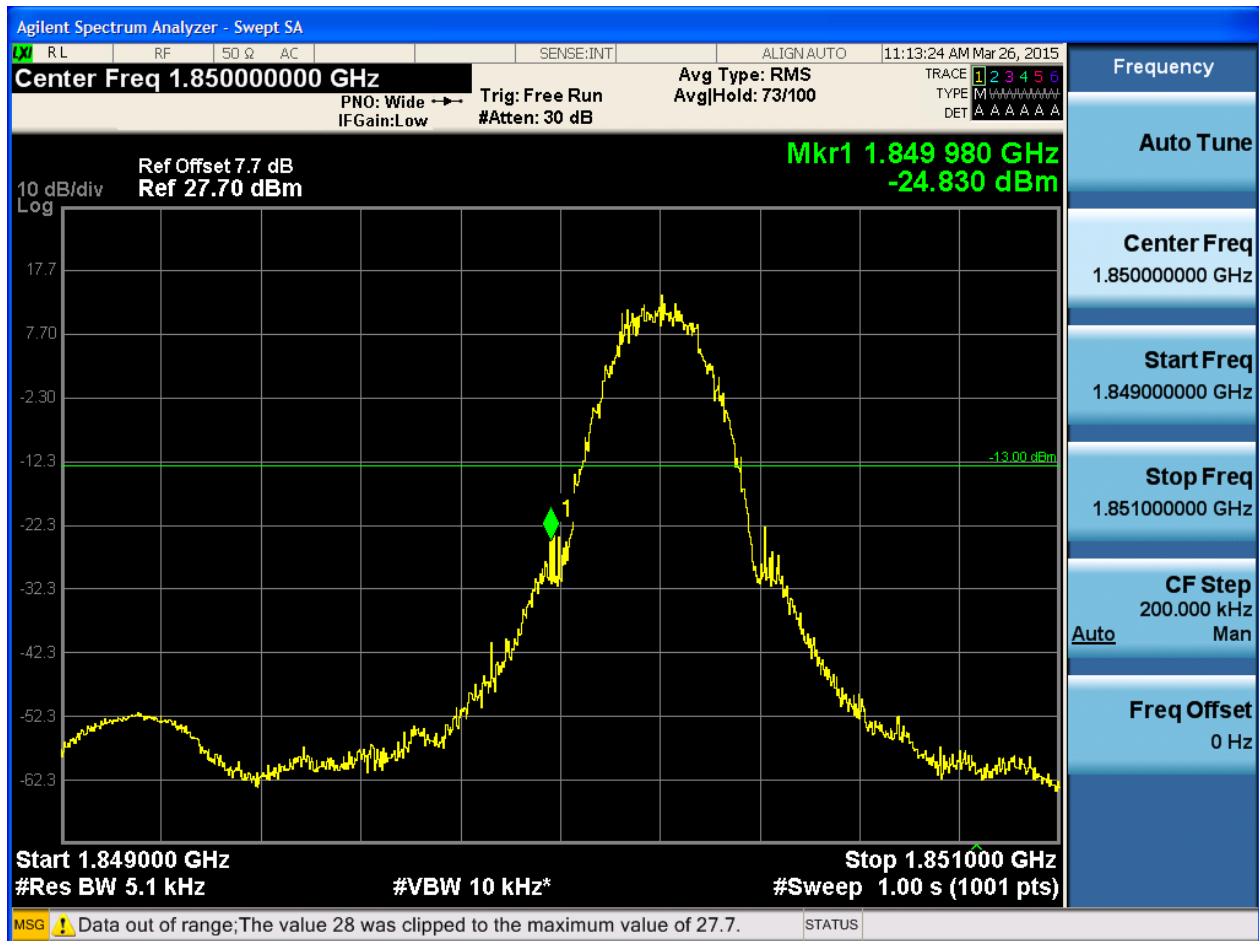
5.1.2.1.2 Test Channel = HCH



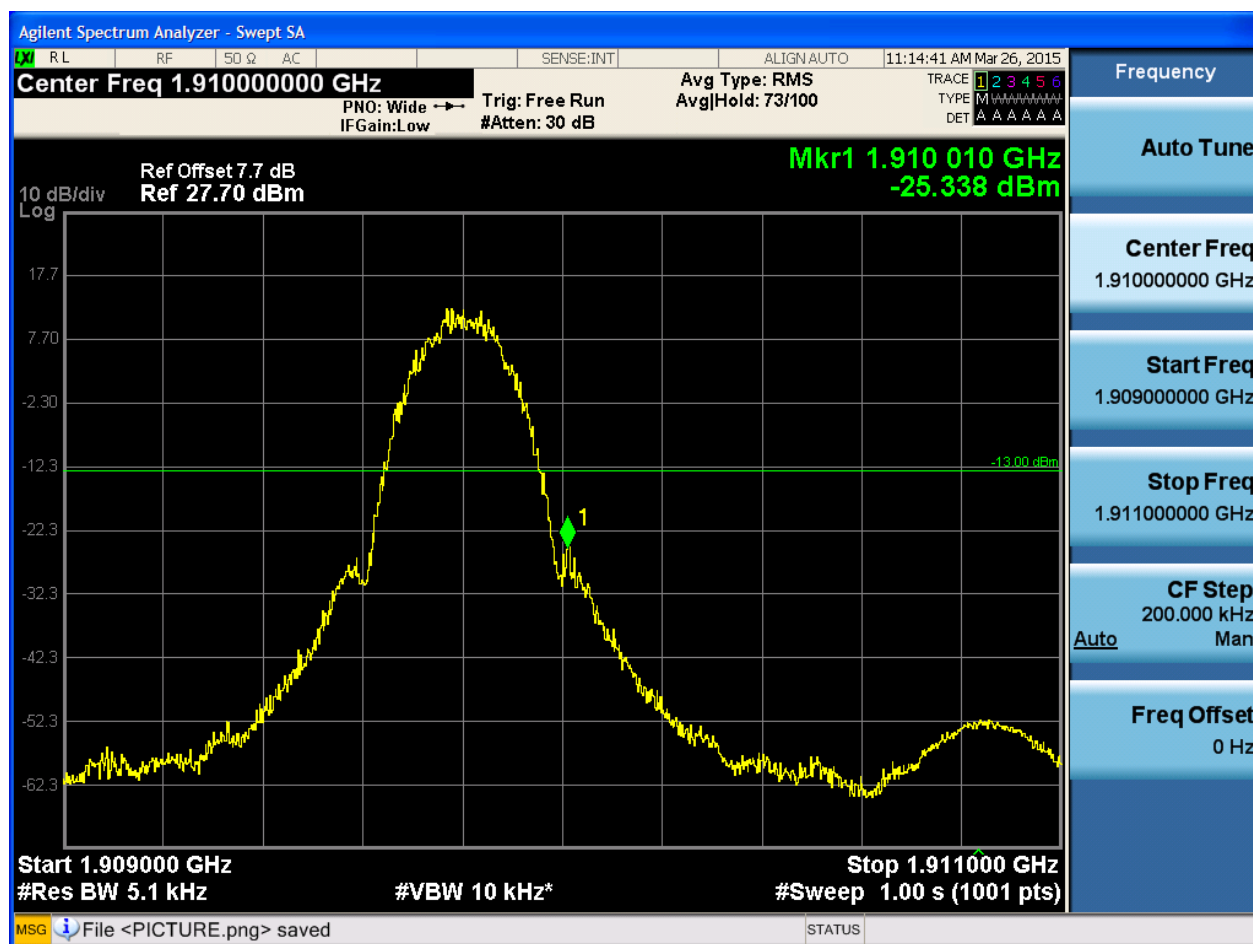


5.1.2.2 Test Mode = GSM/TM2

5.1.2.2.1 Test Channel = LCH



5.1.2.2.2 Test Channel = HCH



5.2 For UMTS

5.2.1 Test Band = WCDMA1900

5.2.1.1 Test Mode = UMTS/TM1

5.2.1.1.1 Test Channel = LCH



5.2.1.1.2 Test Channel = HCH

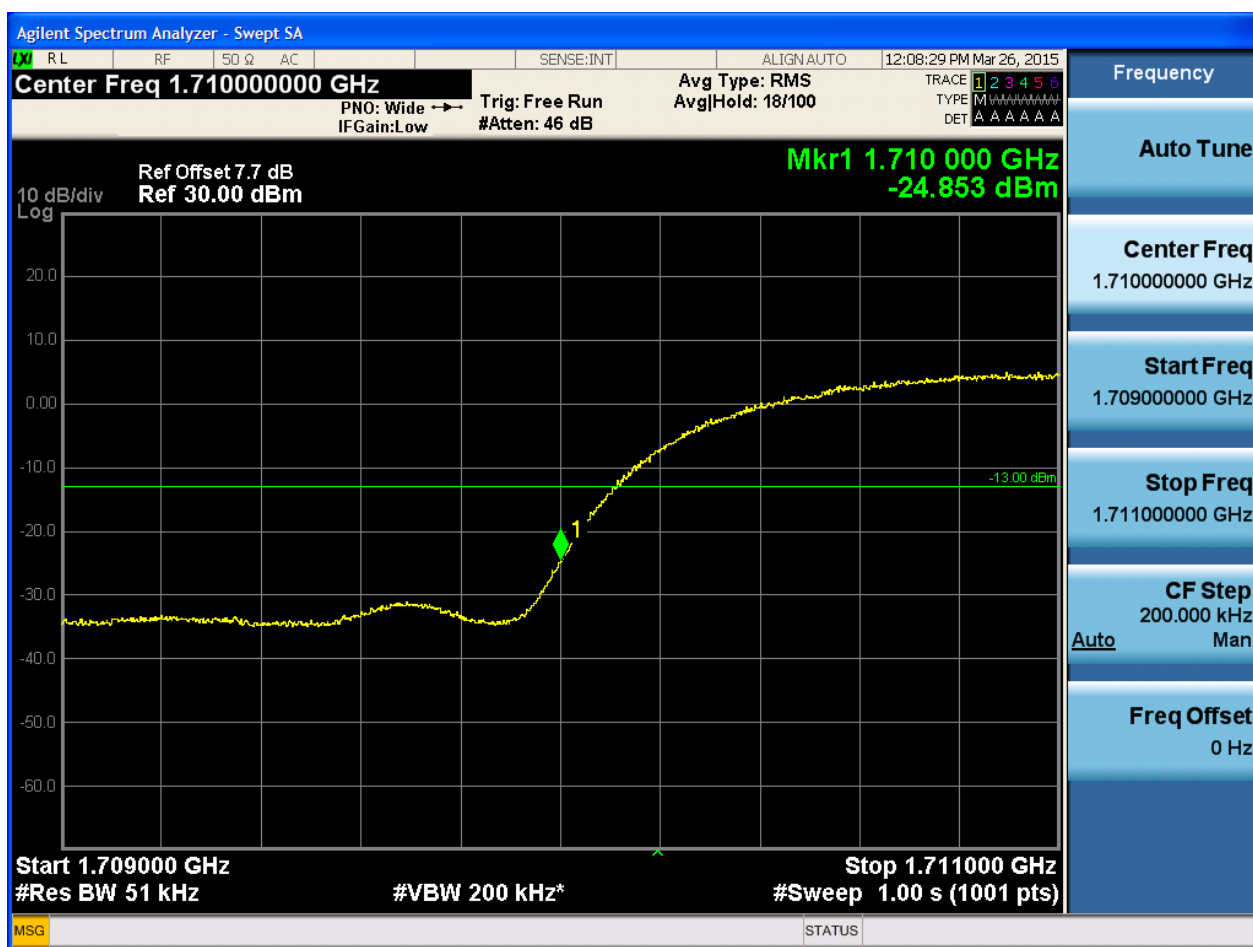




5.2.2 Test Band = WCDMA1700

5.2.2.1 Test Mode = UMTS/TM1

5.2.2.1.1 Test Channel = LCH





5.2.2.1.2 Test Channel = HCH





5.2.3 Test Band = WCDMA850

5.2.3.1 Test Mode = UMTS/TM1

5.2.3.1.1 Test Channel = LCH





5.2.3.1.2 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.

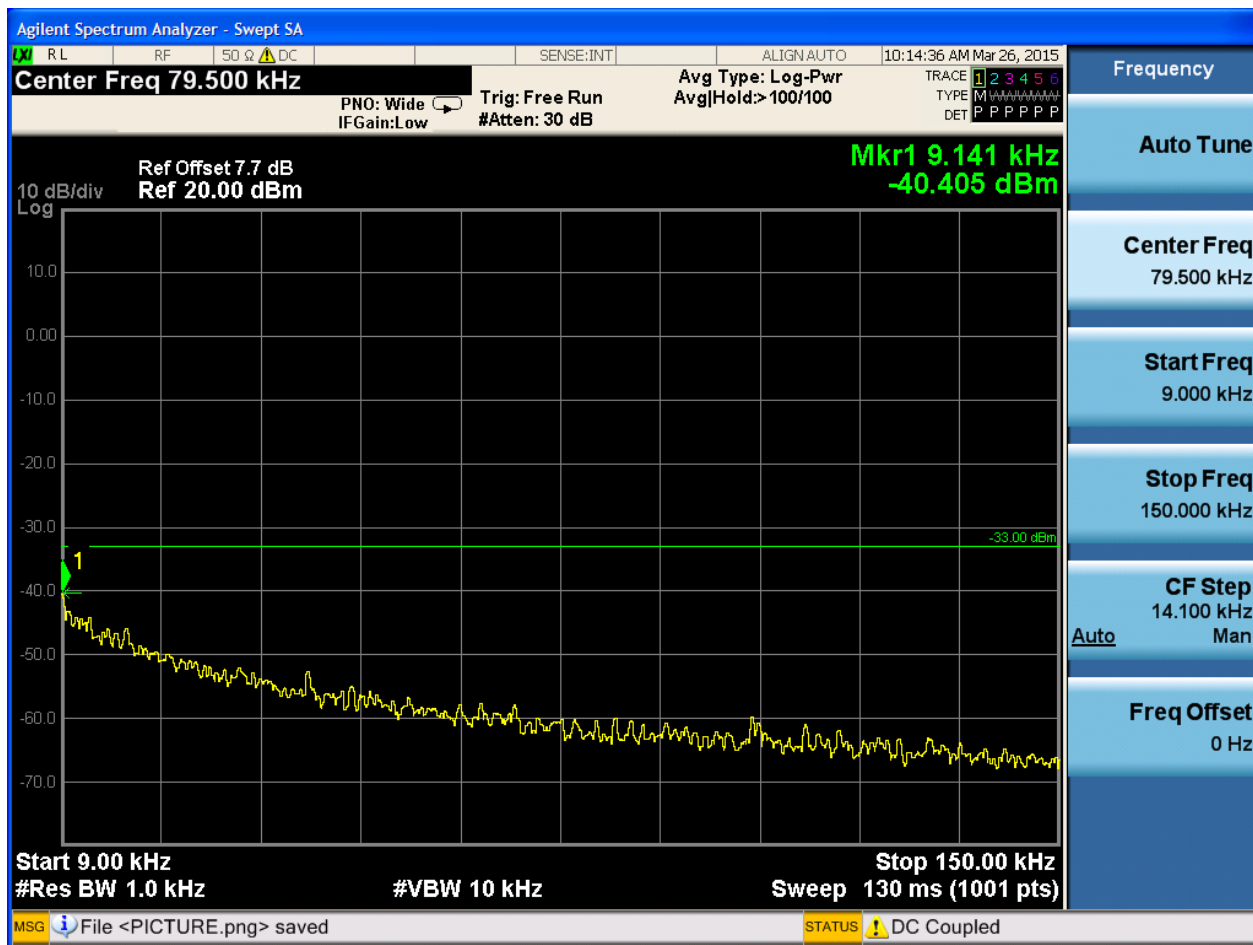
Part I - Test Plots

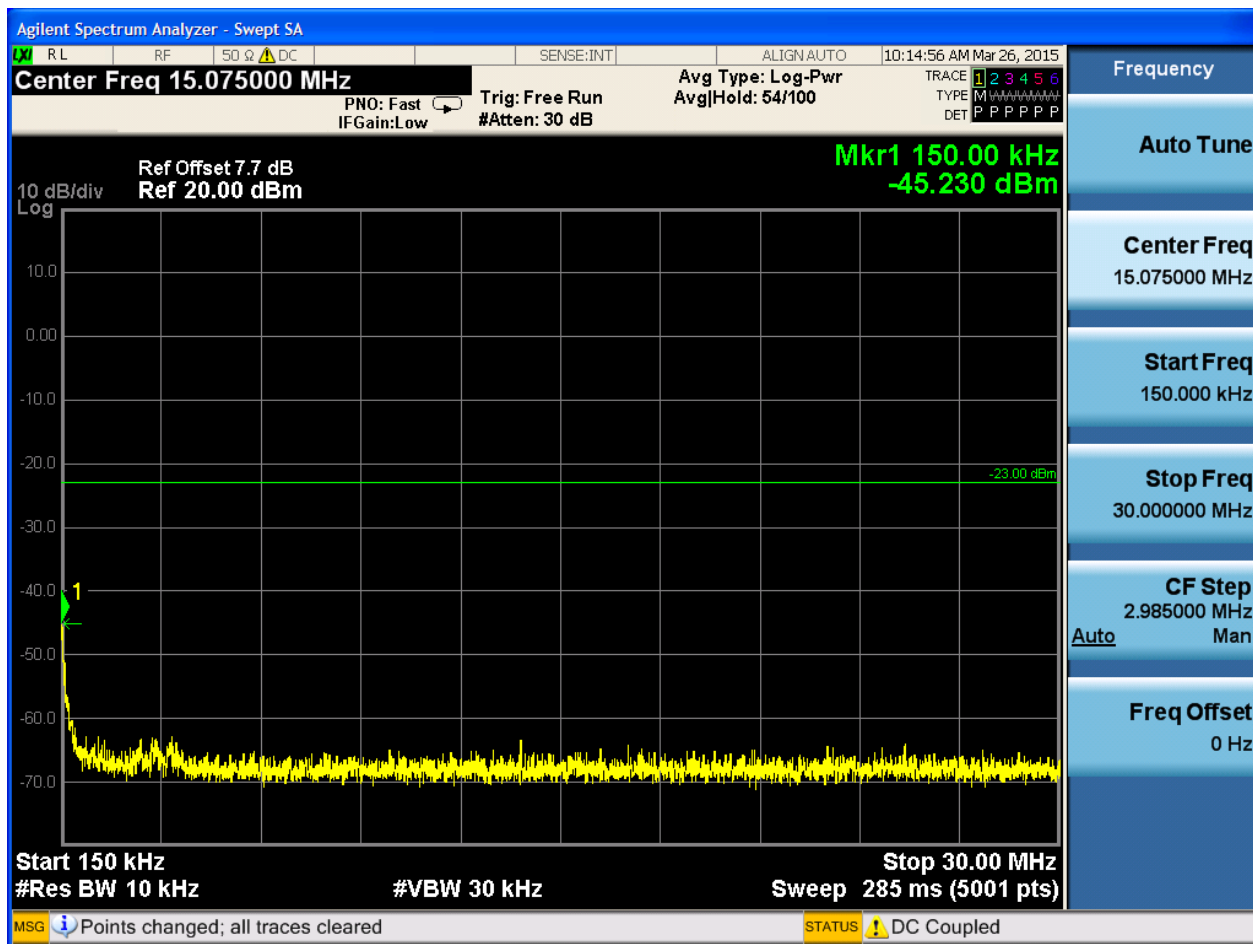
6.1 For GSM

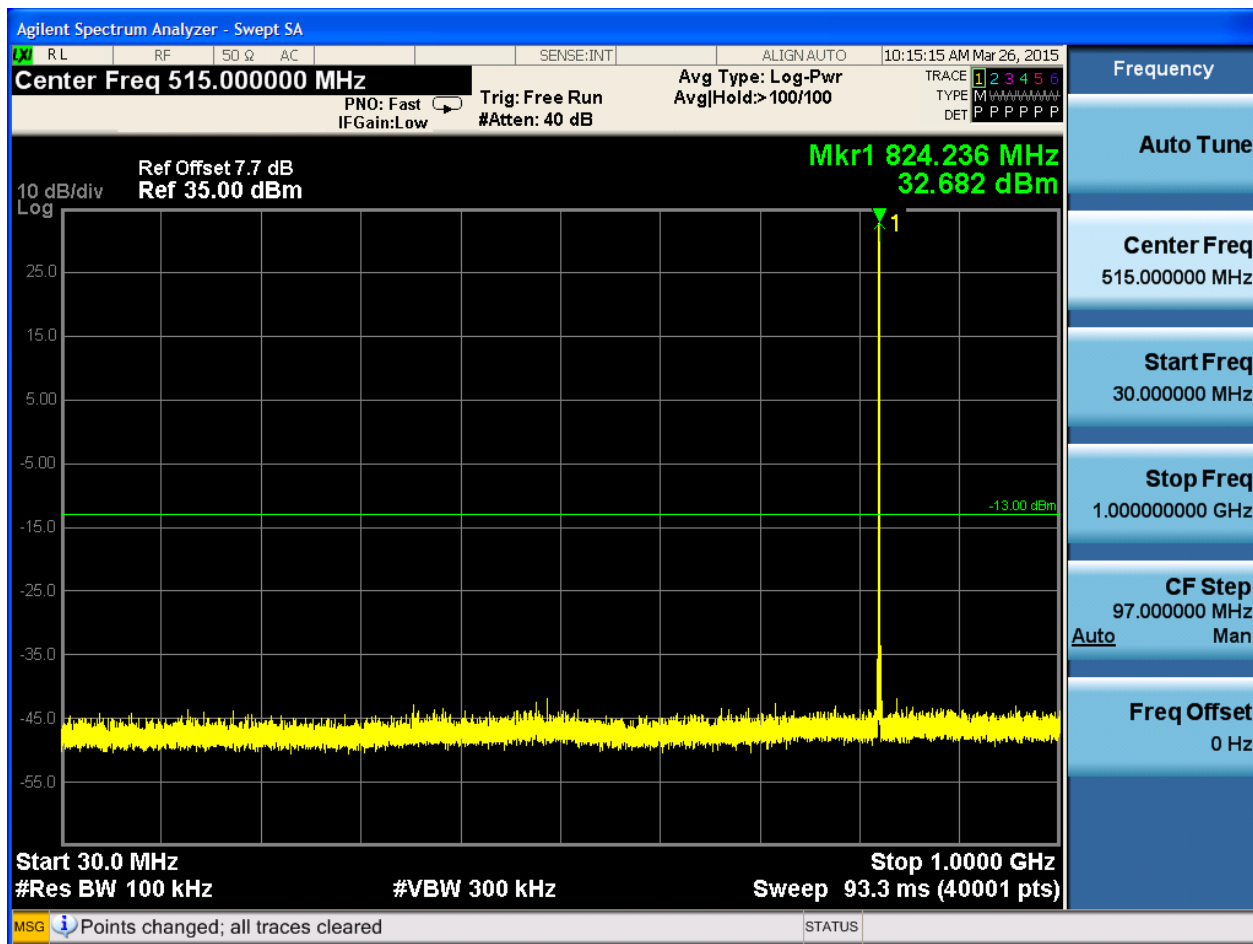
6.1.1 Test Band = GSM850

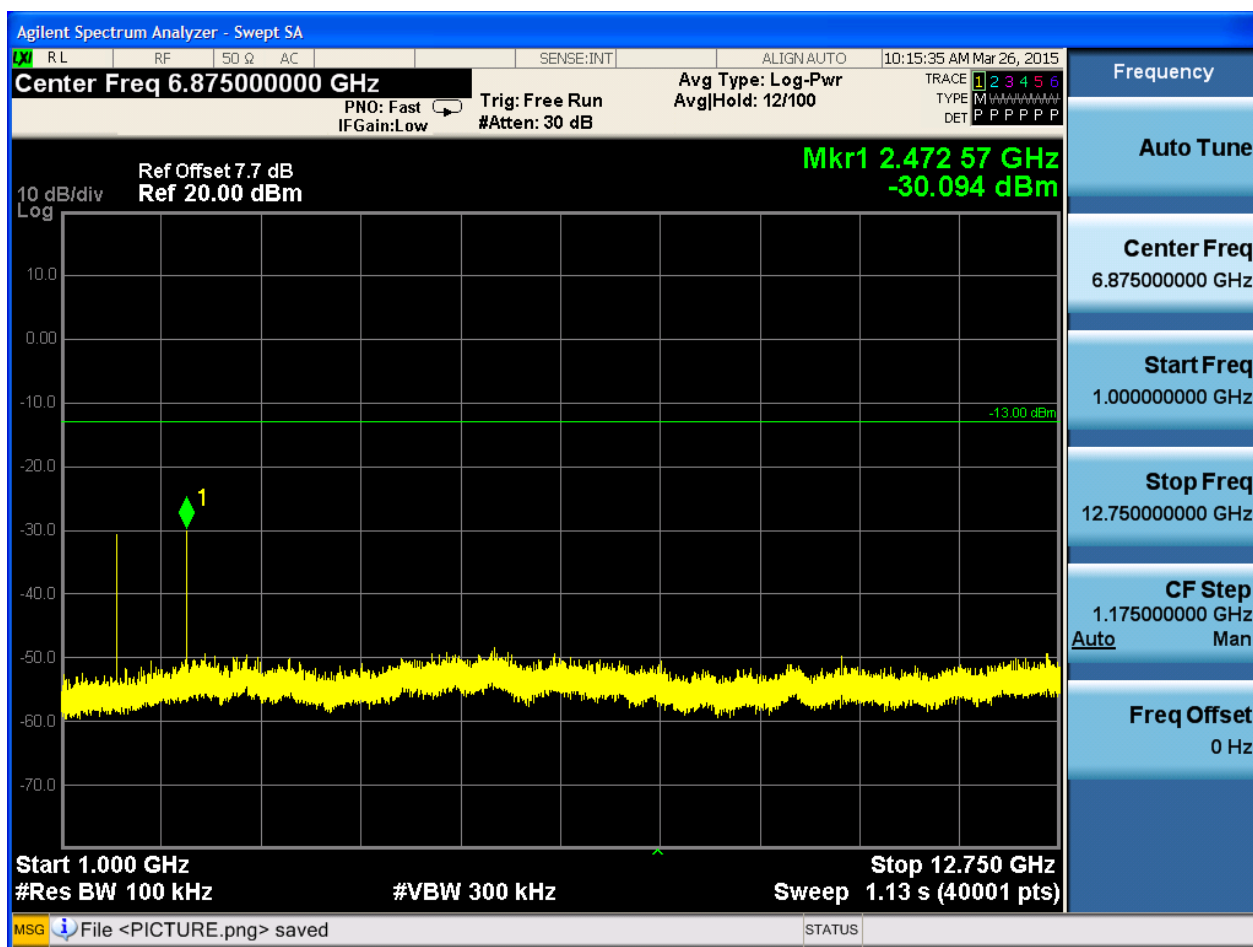
6.1.1.1 Test Mode = GSM/TM1

6.1.1.1.1 Test Channel = LCH





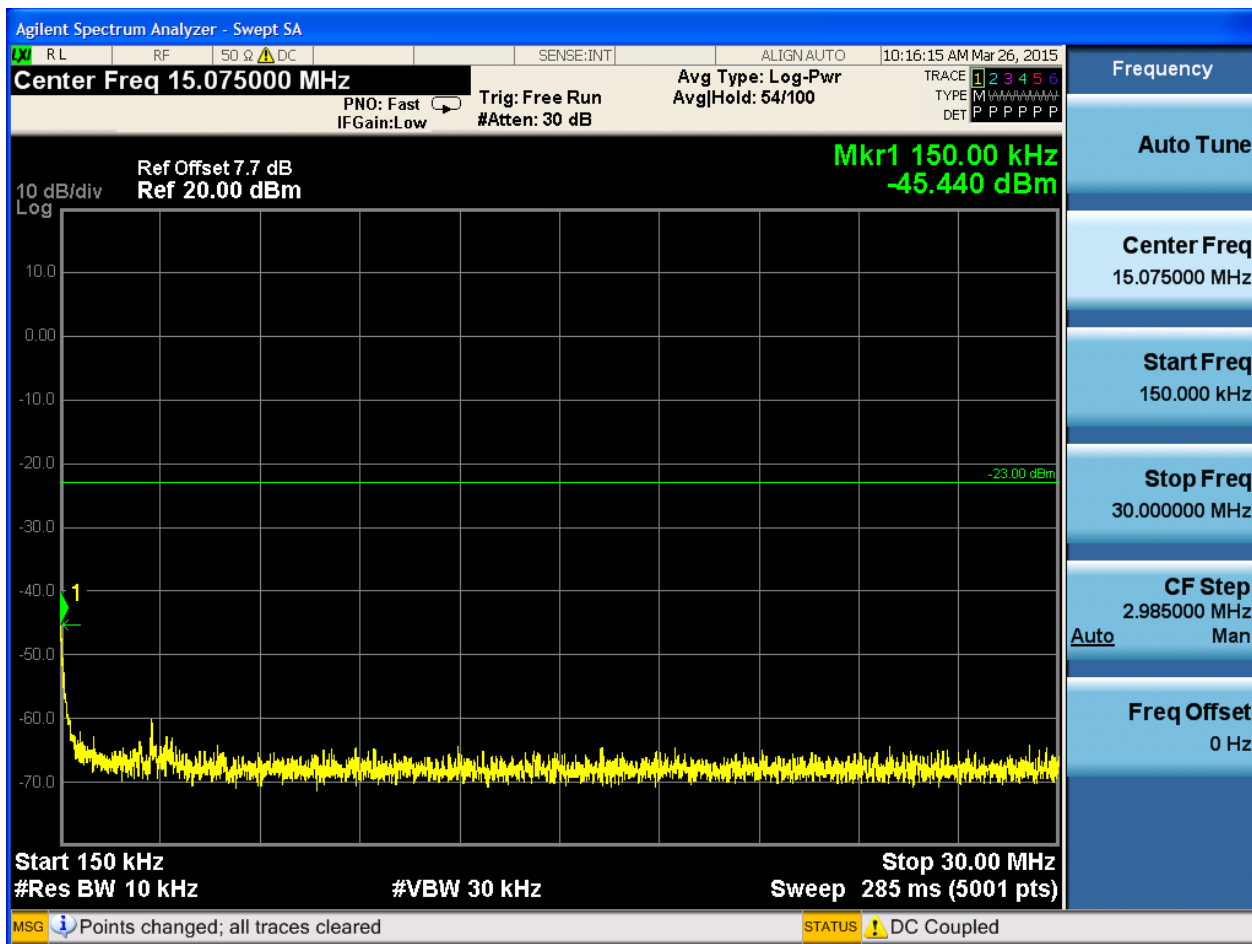


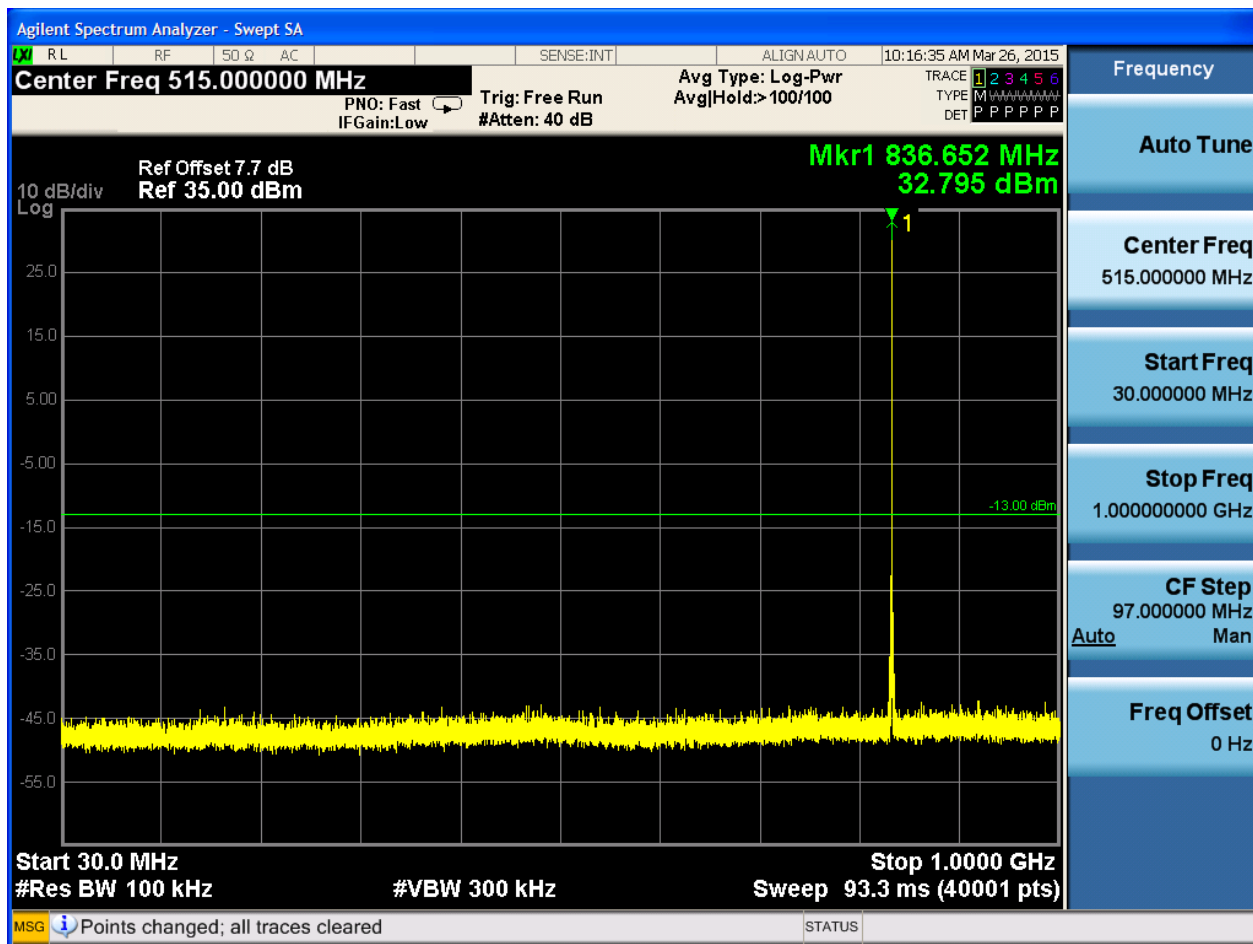


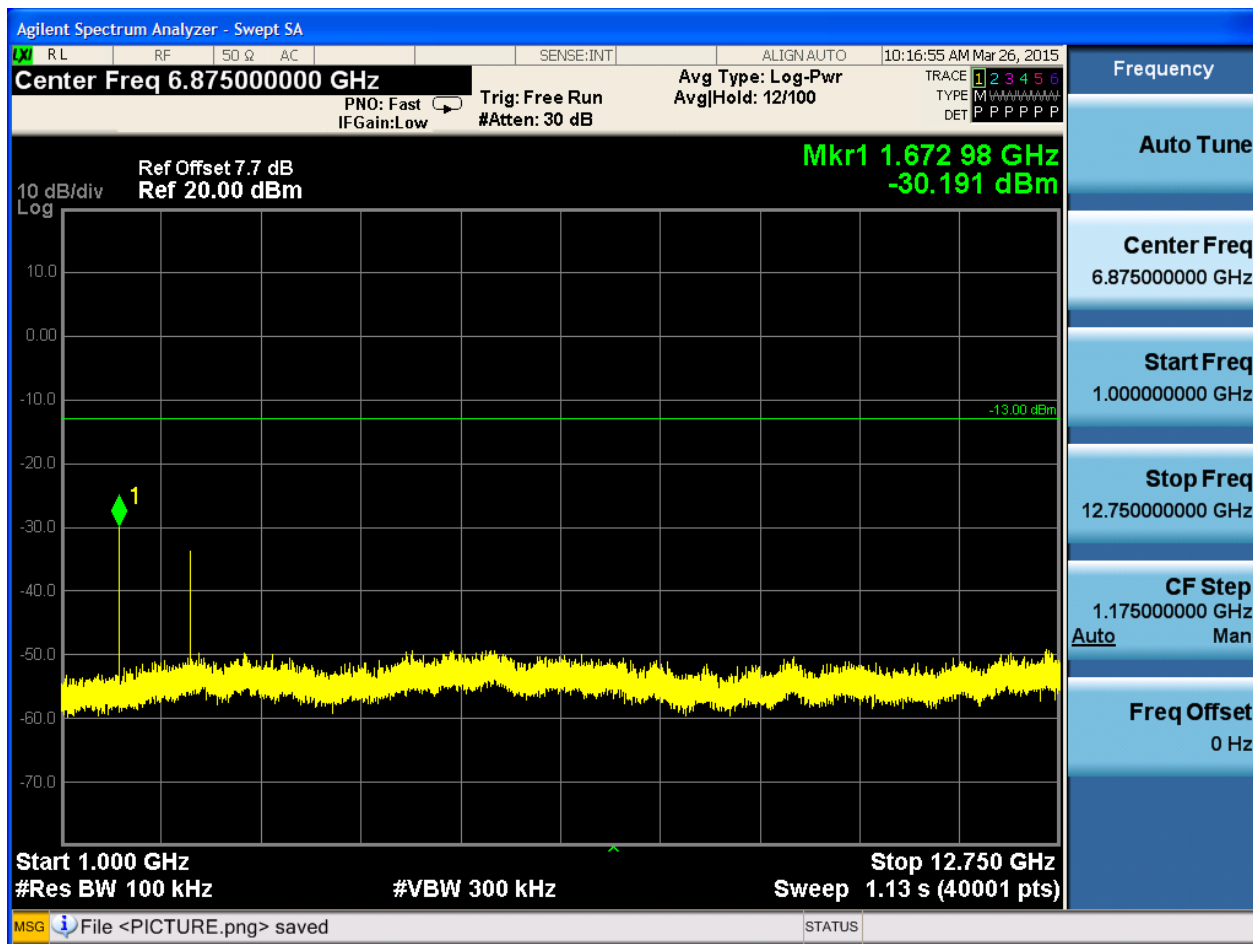


6.1.1.1.2 Test Channel = MCH



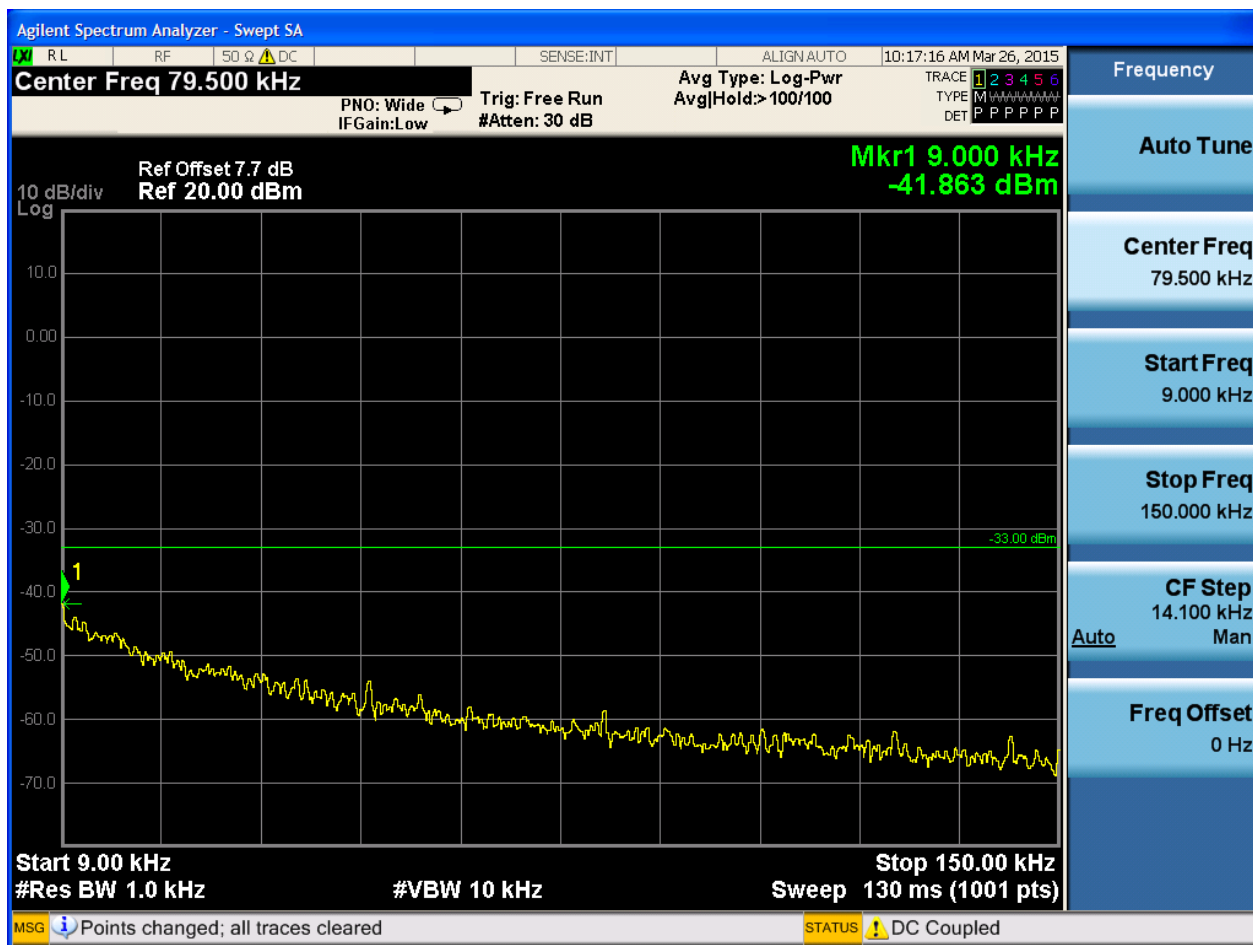


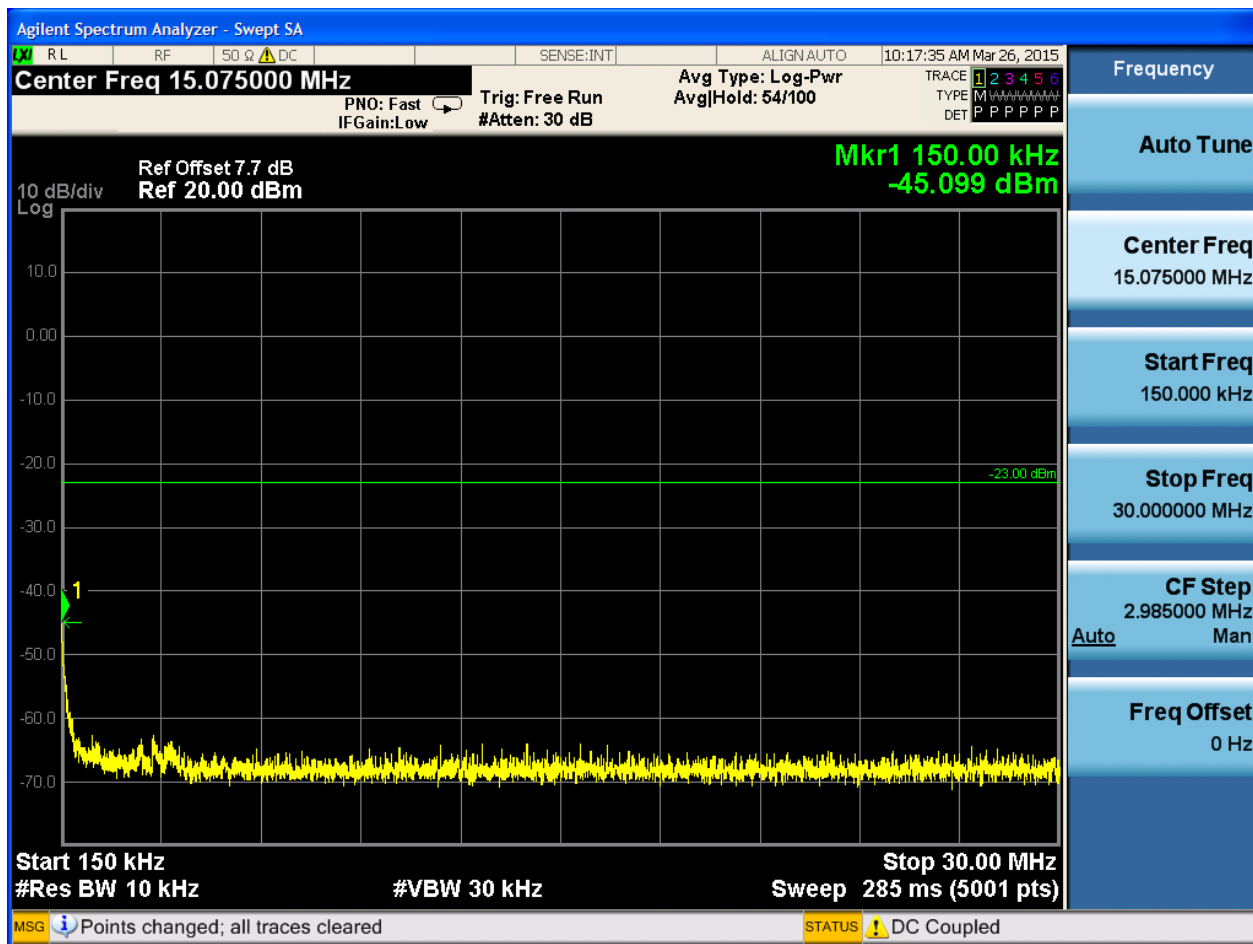


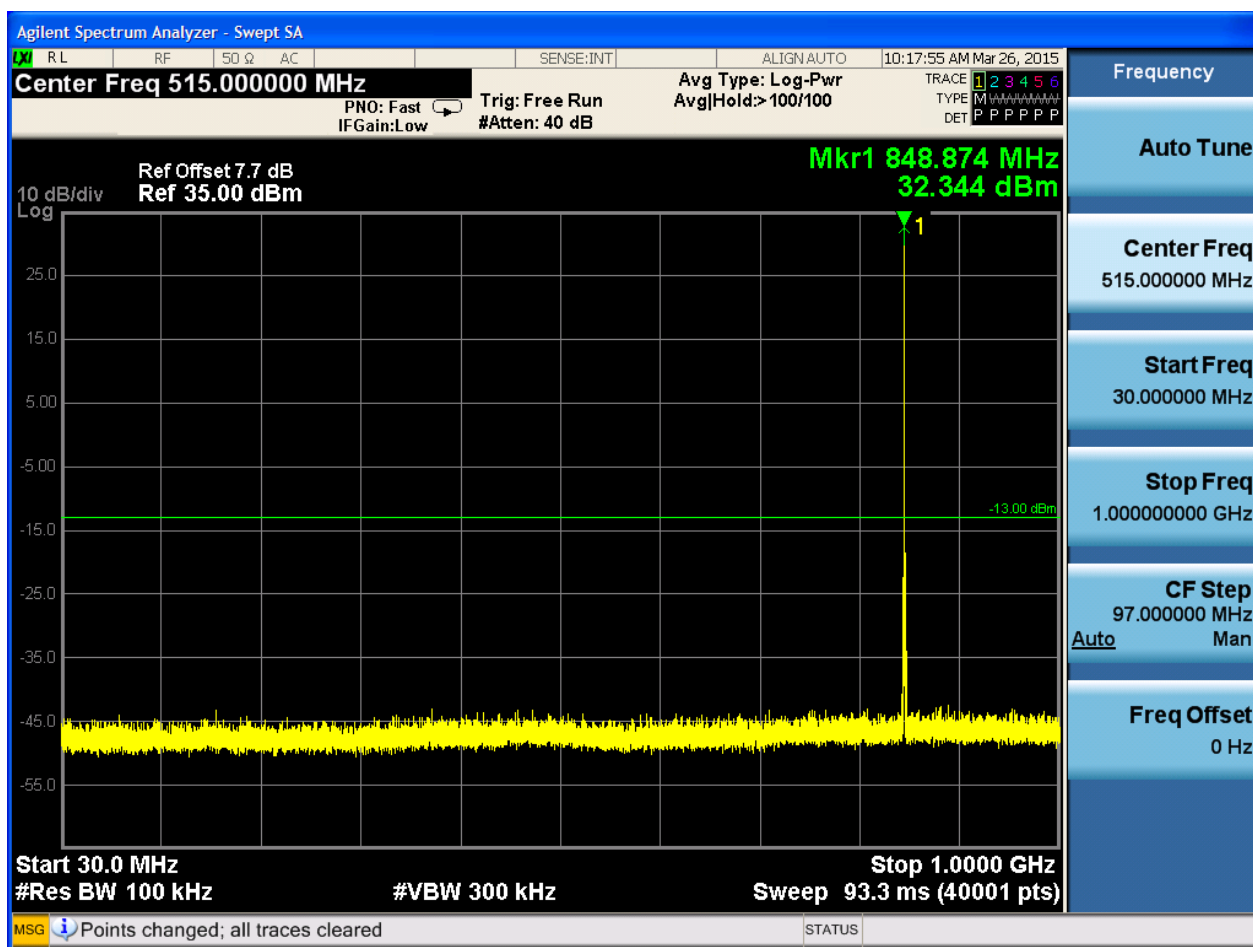


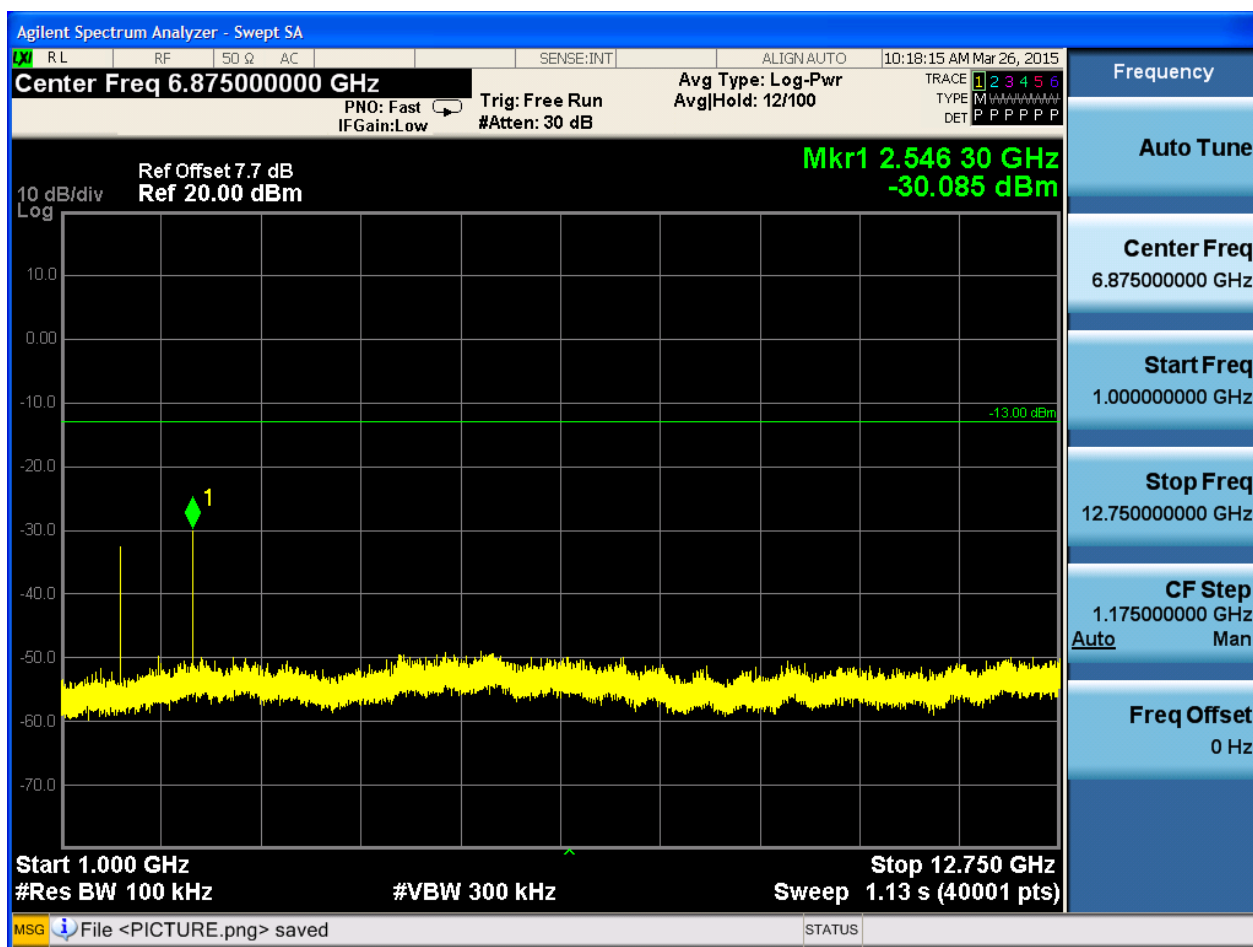


6.1.1.1.3 Test Channel = HCH





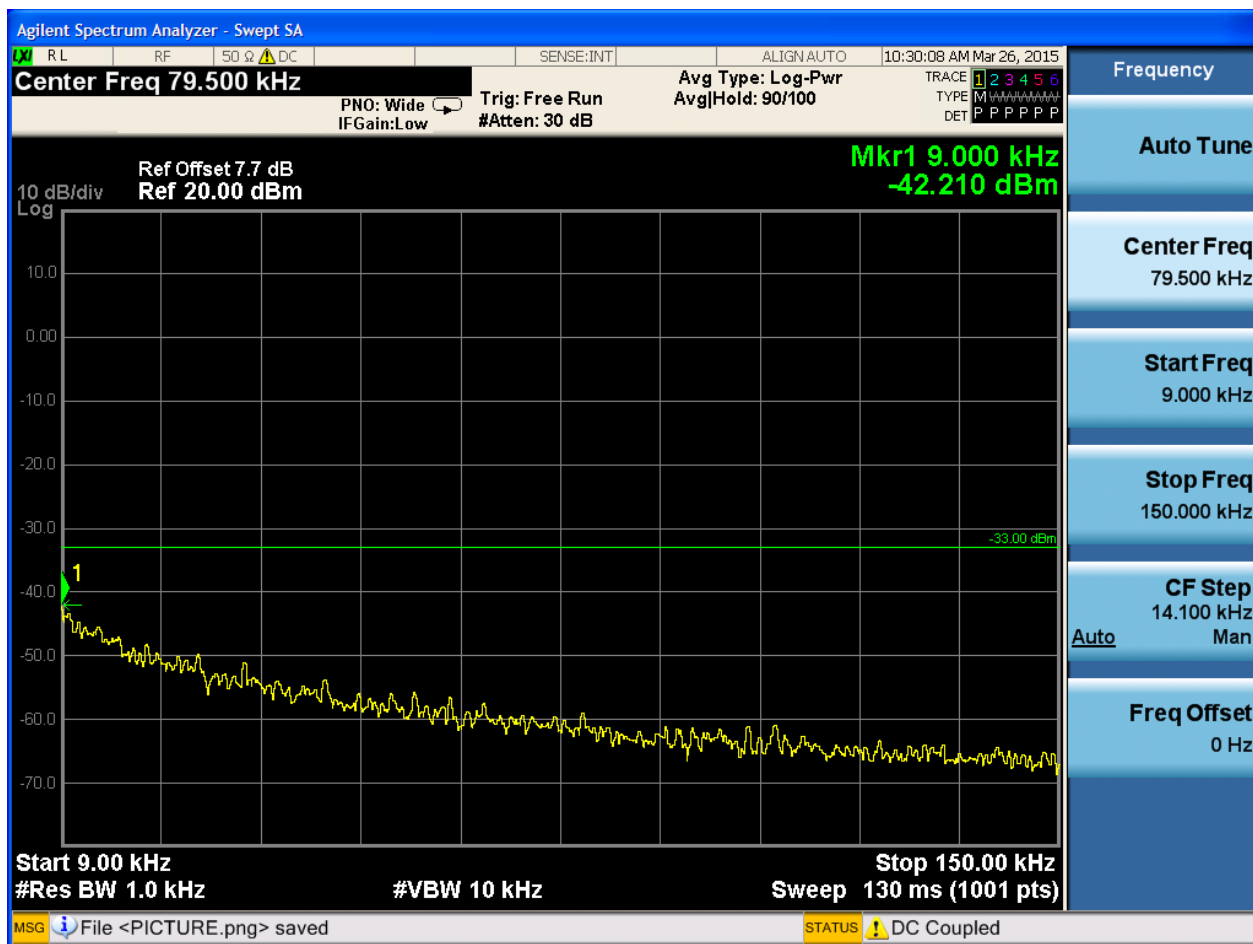


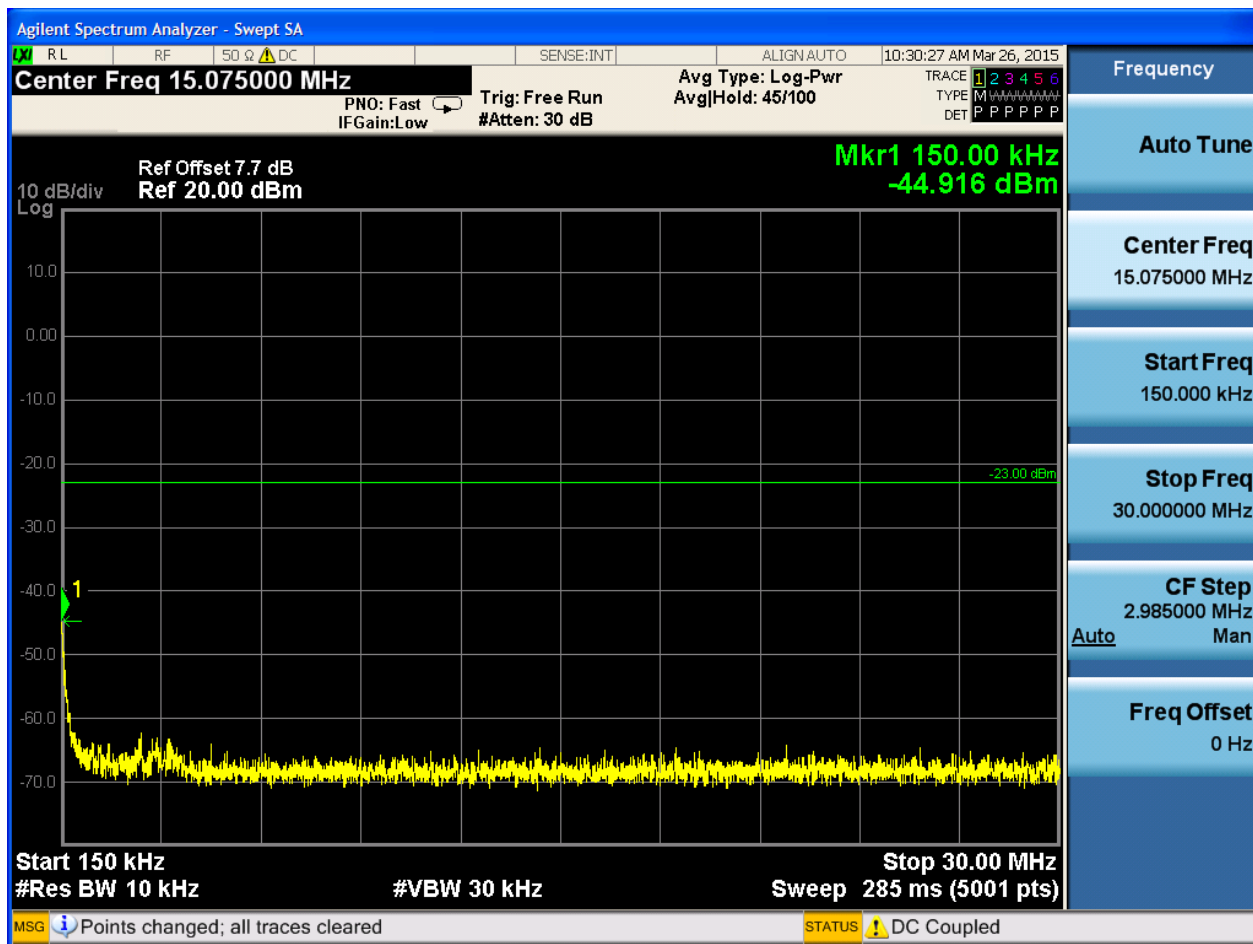


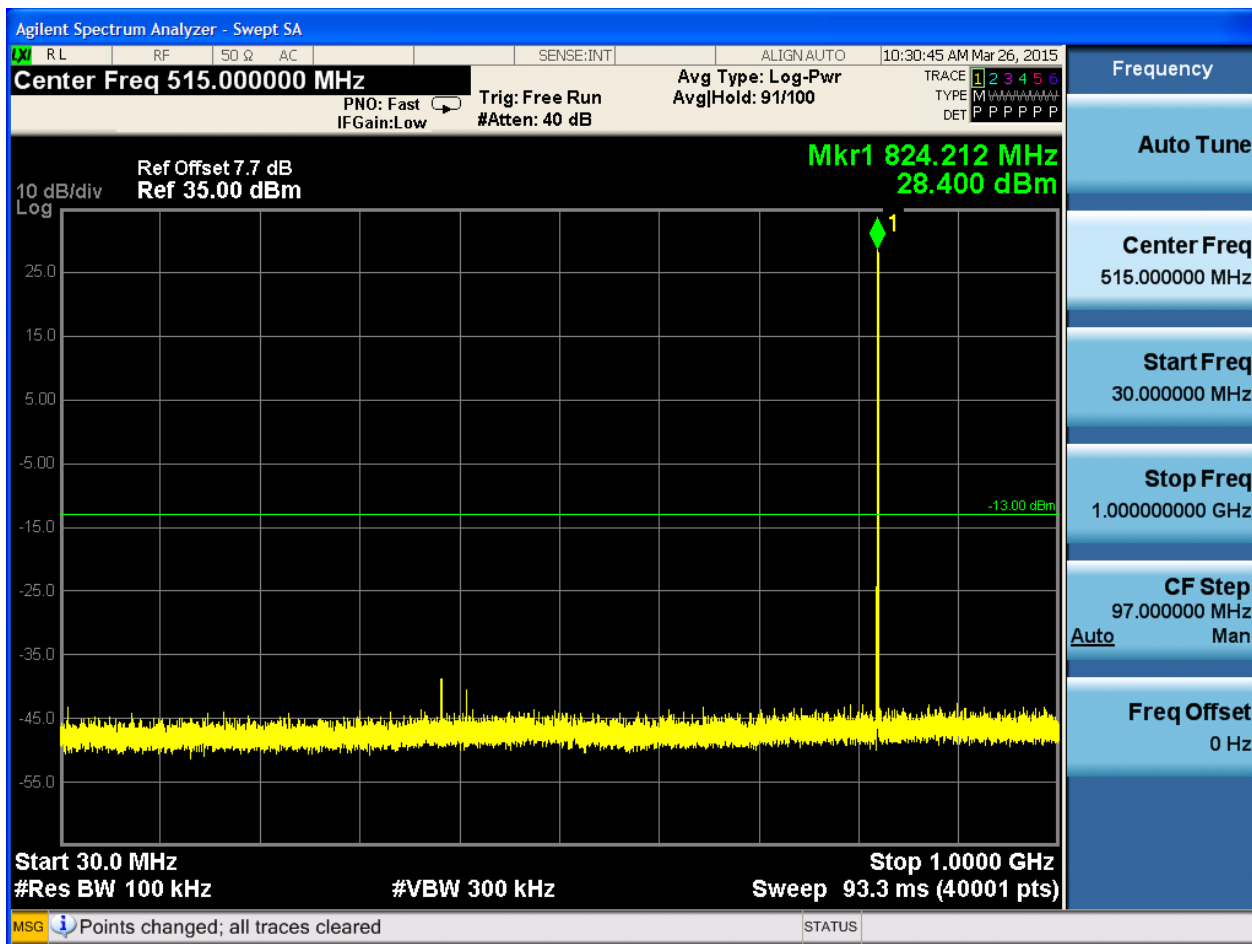


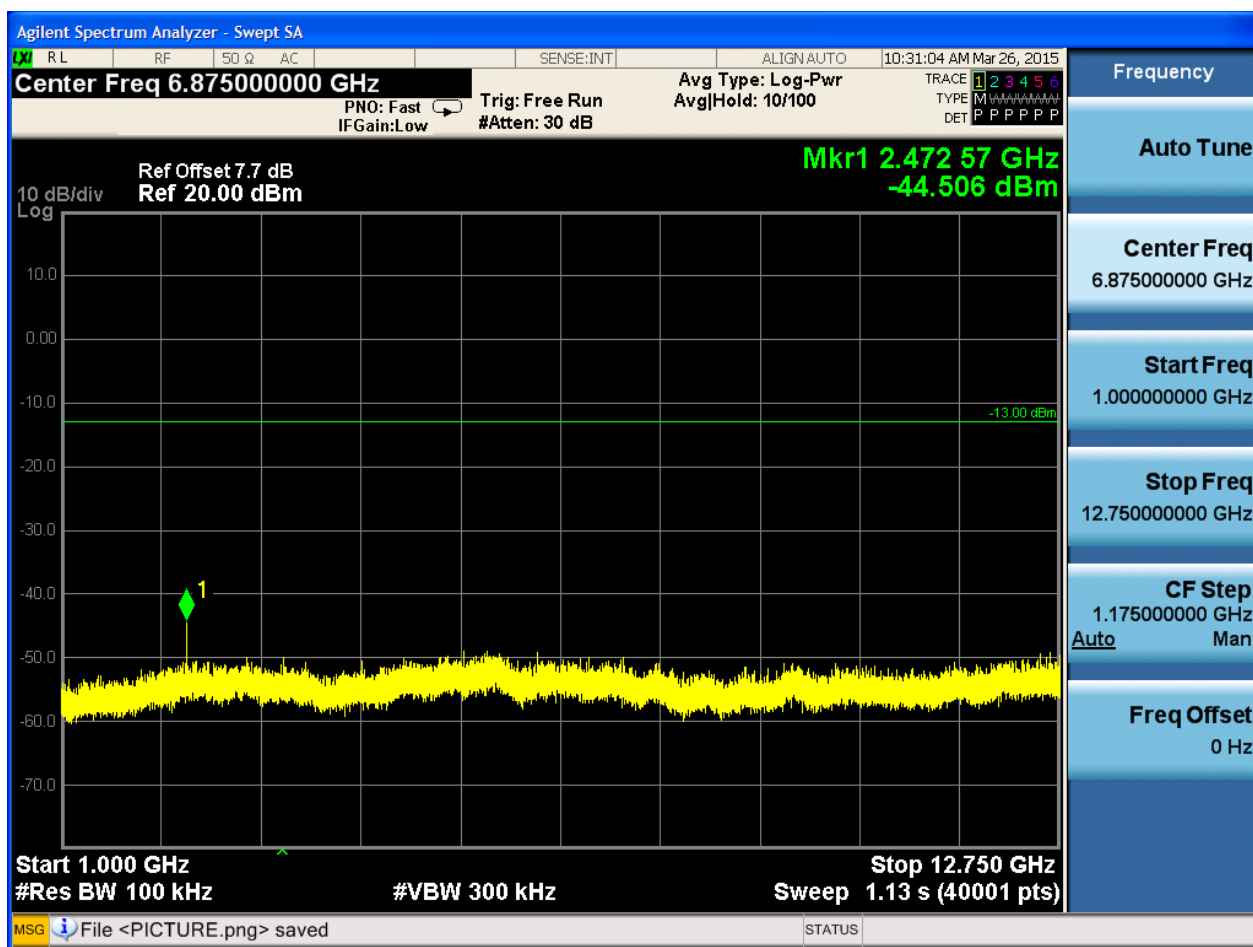
6.1.1.2 Test Mode = GSM/TM2

6.1.1.2.1 Test Channel = LCH



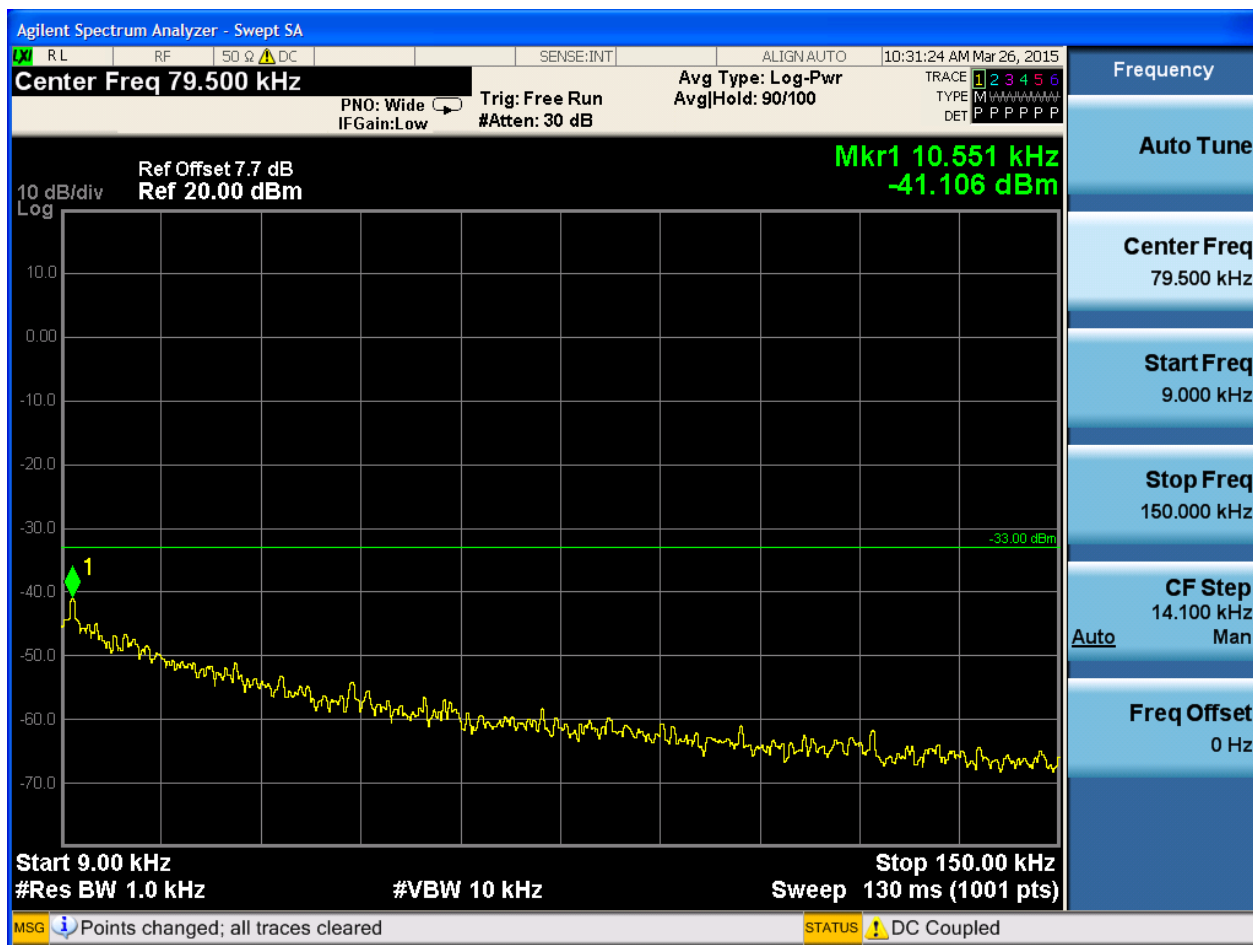


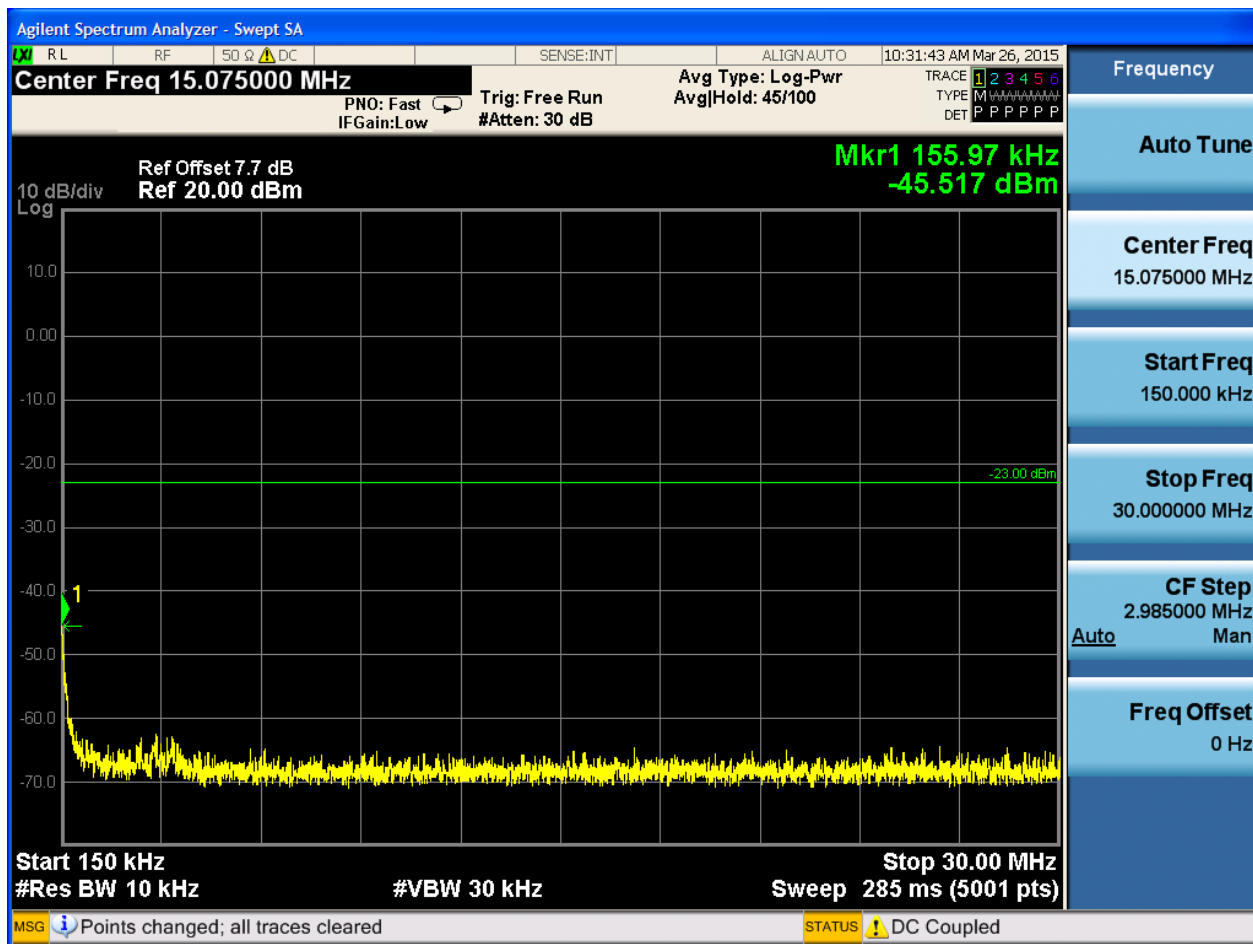


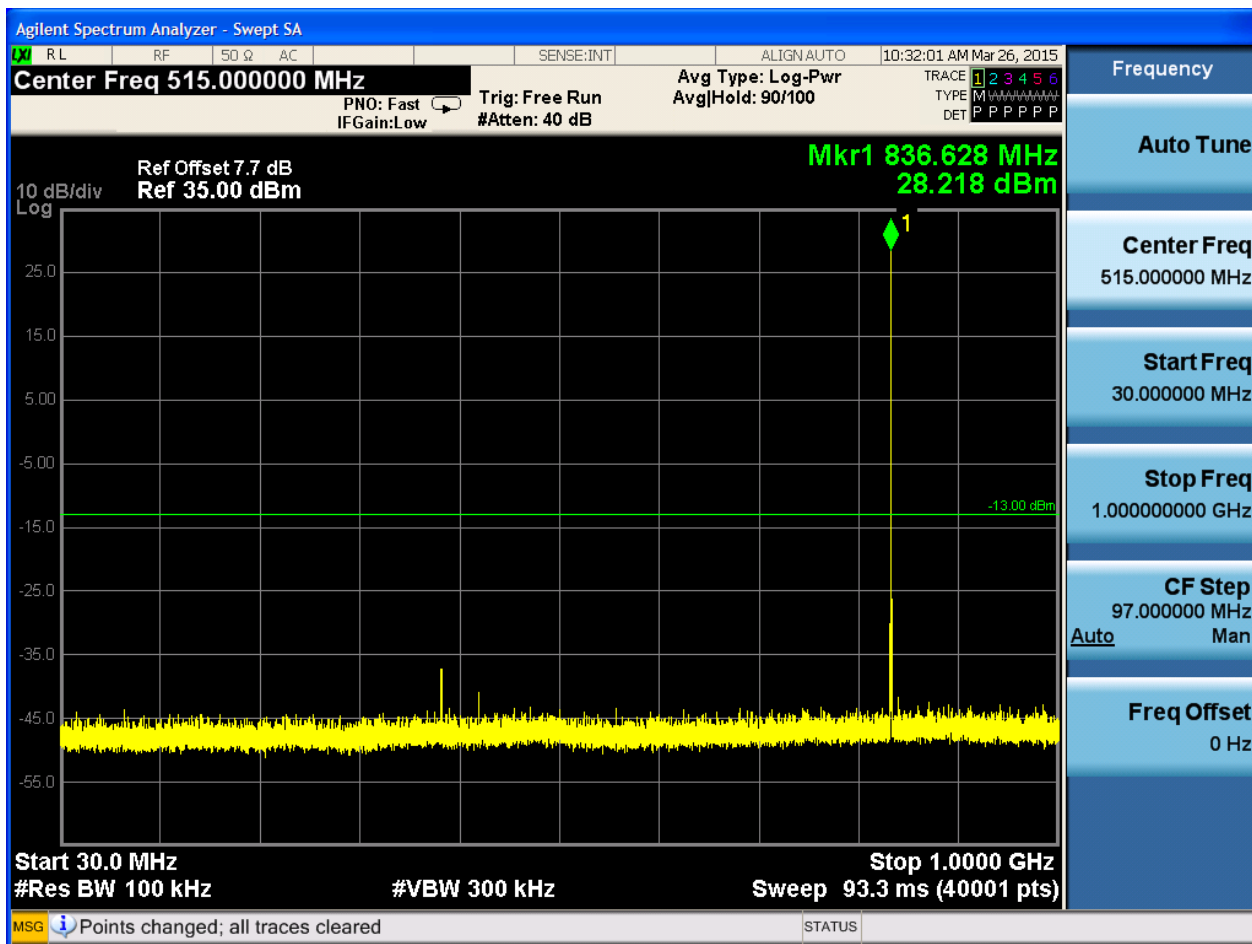


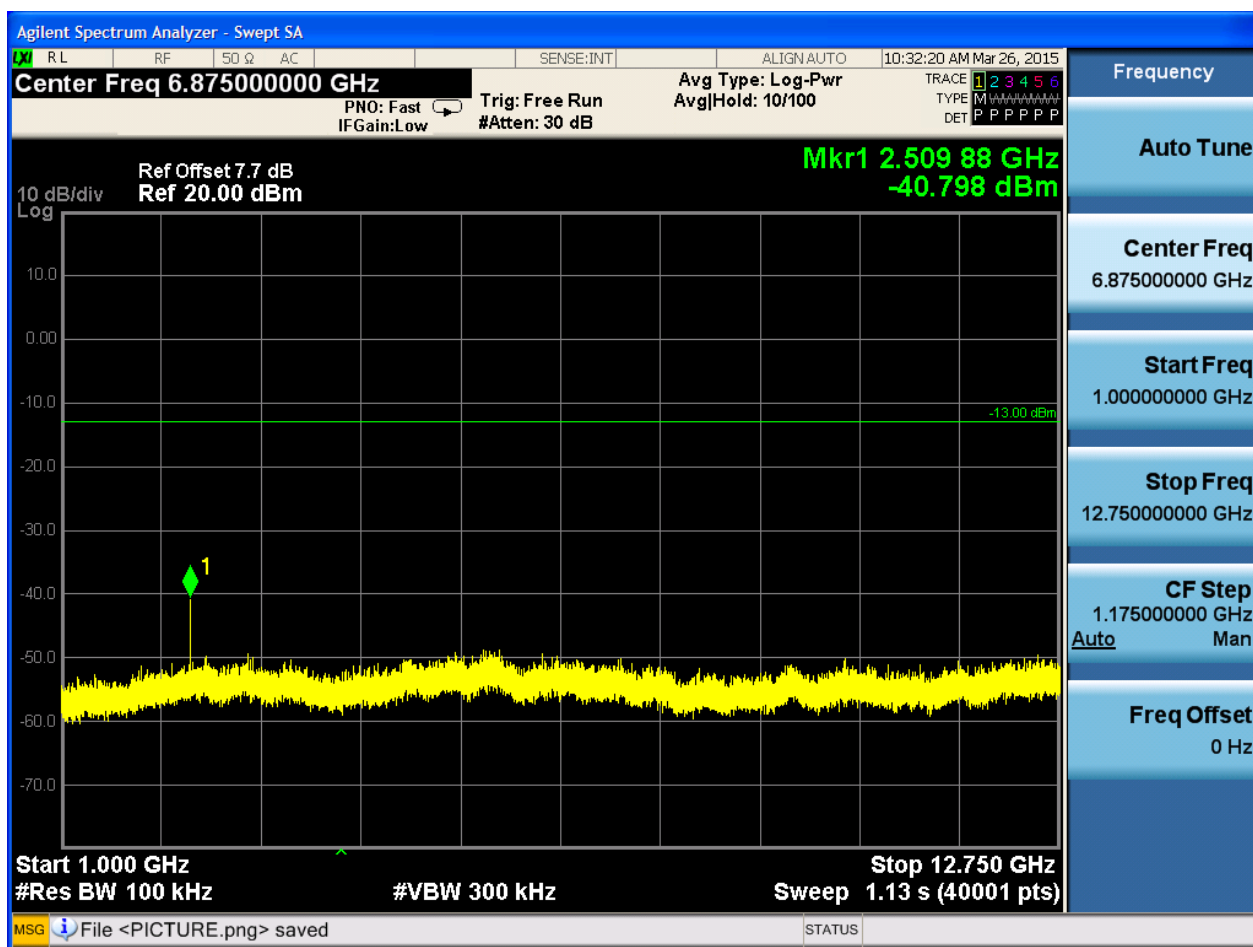


6.1.1.2.2 Test Channel = MCH



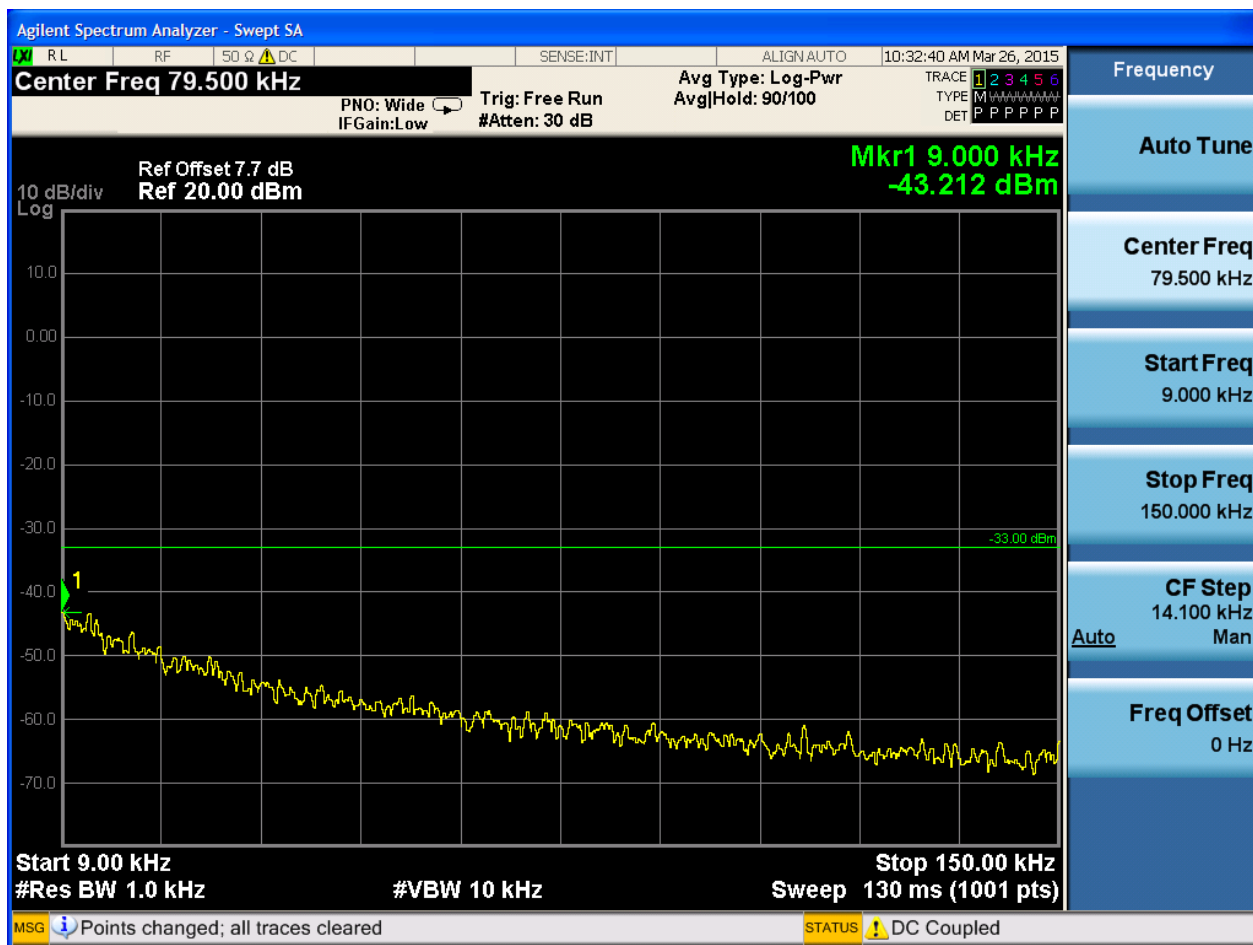


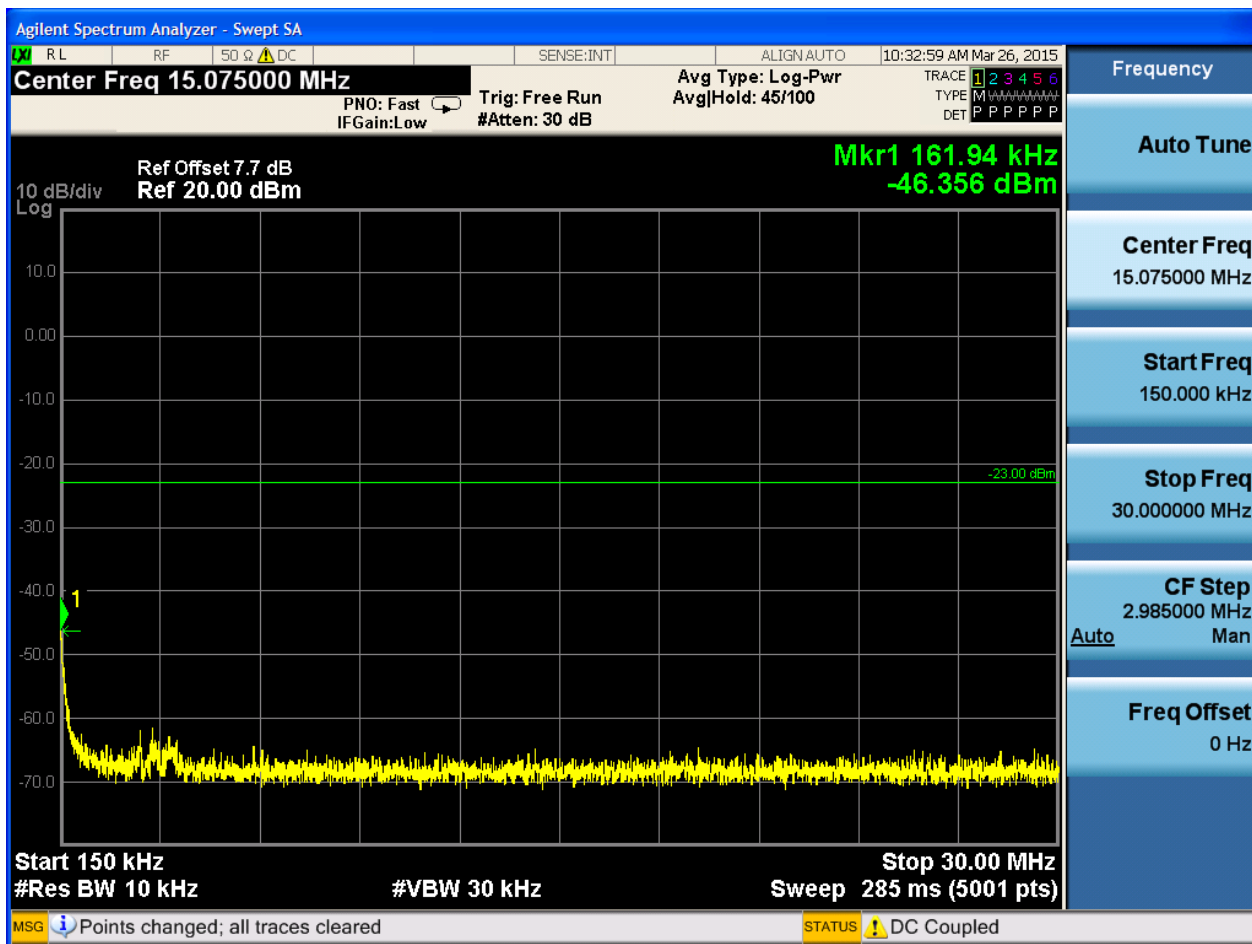


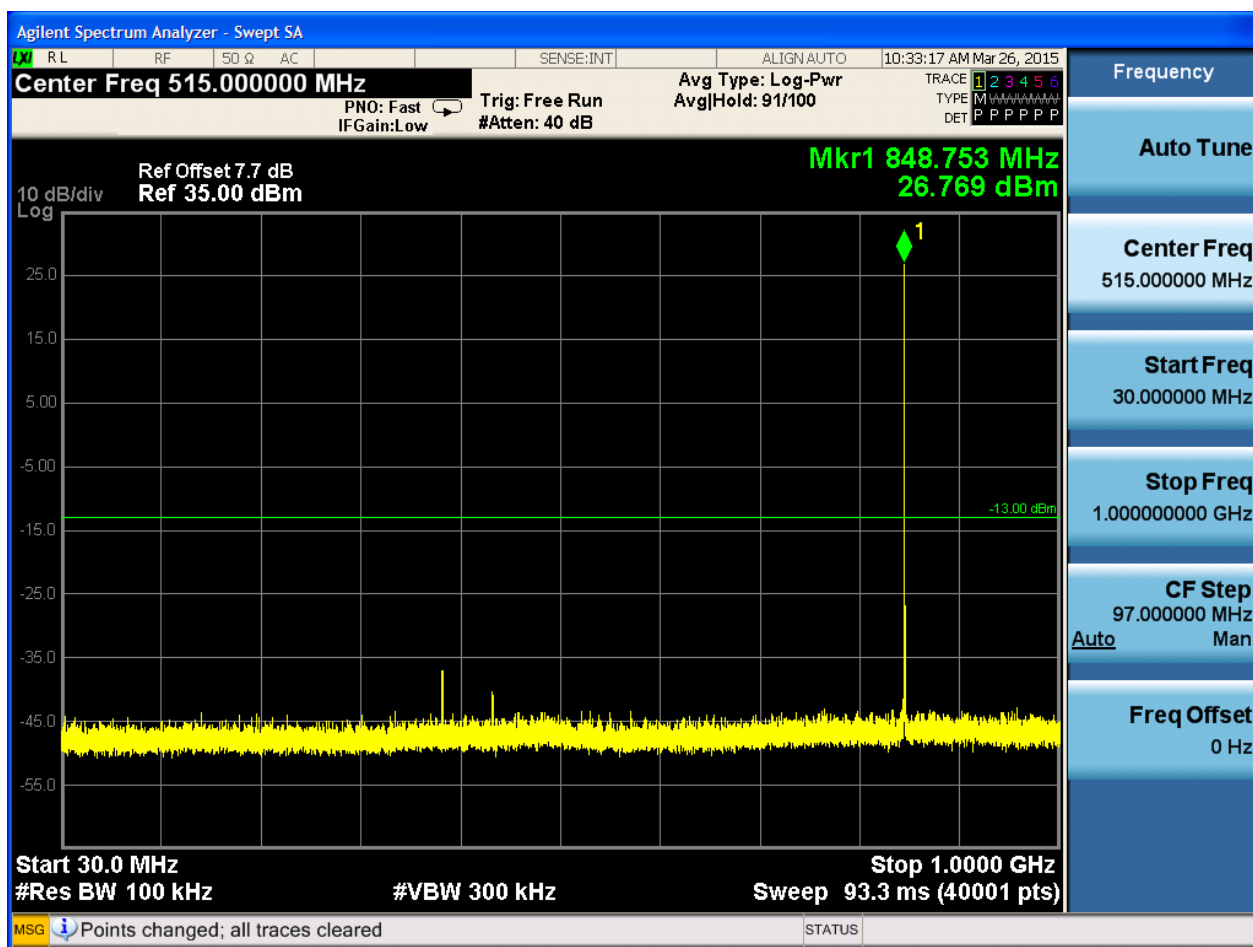


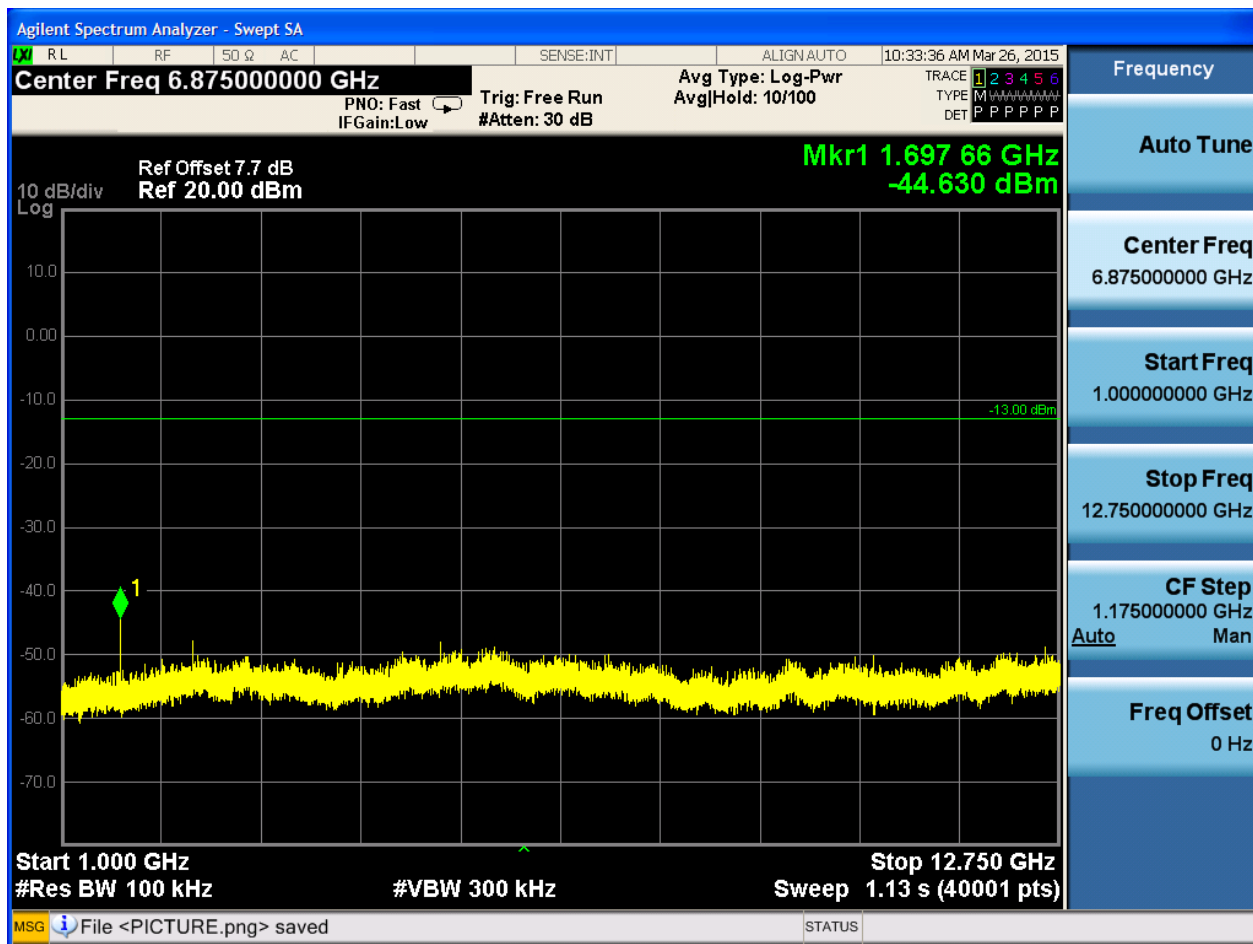


6.1.1.2.3 Test Channel = HCH







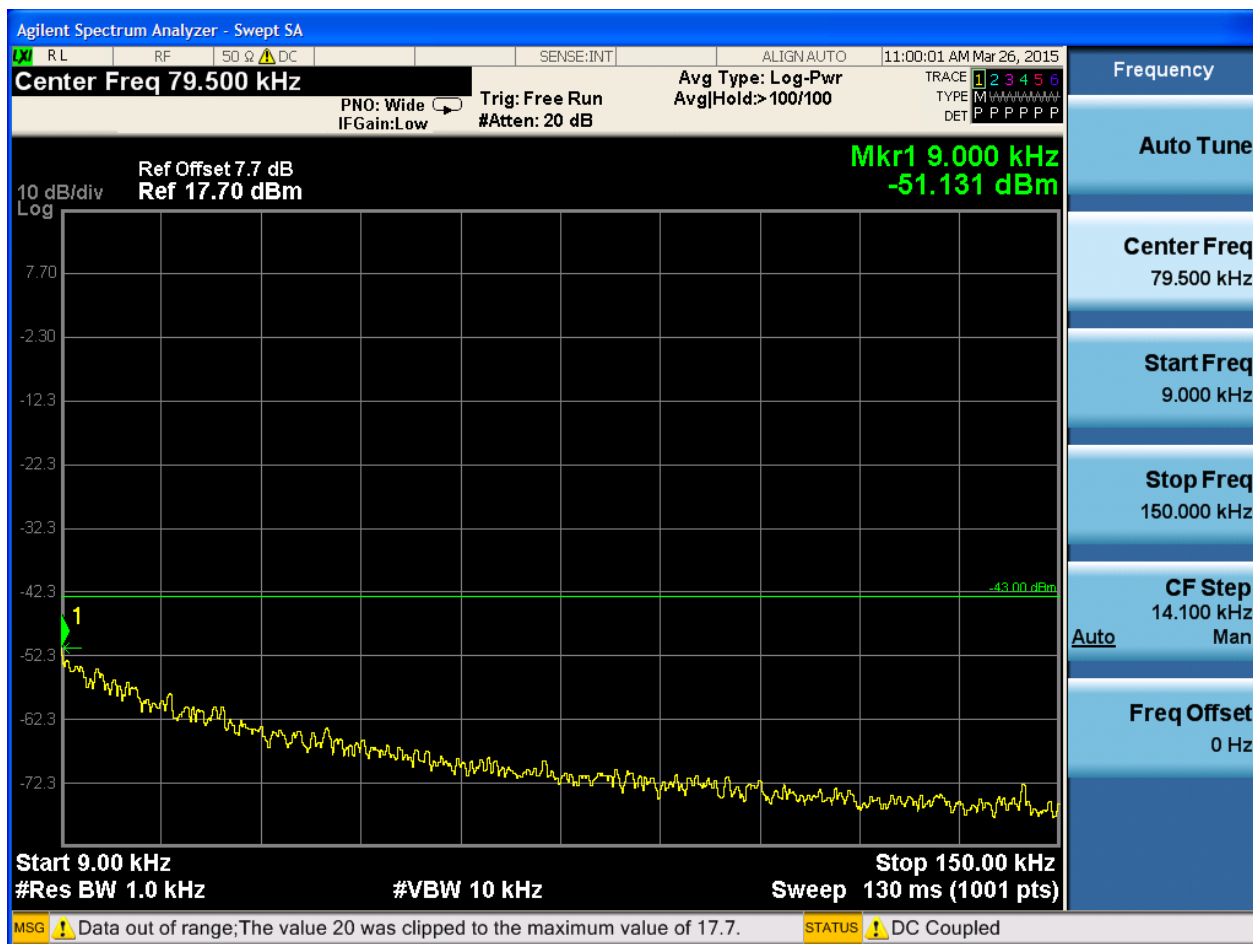


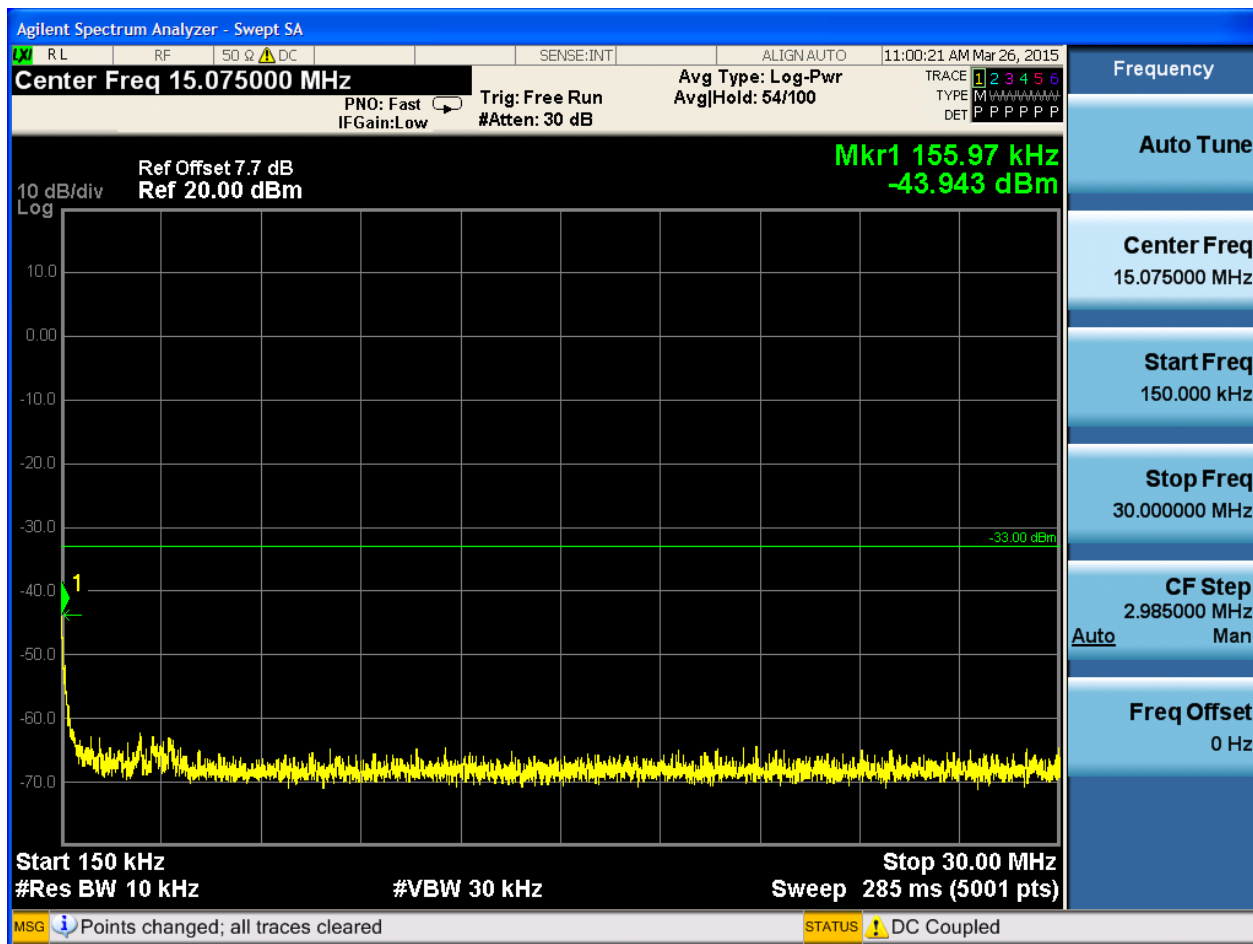


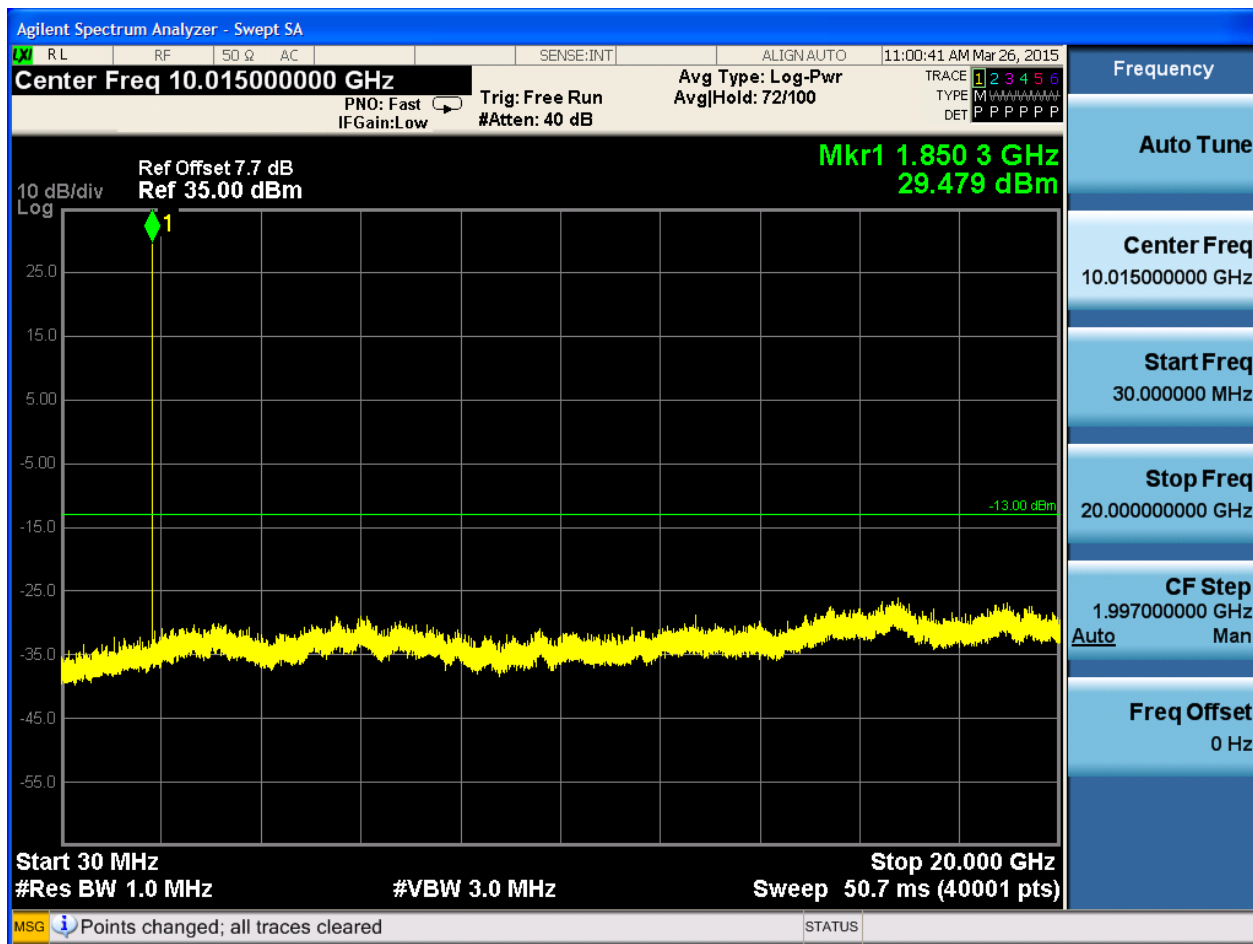
6.1.2 Test Band = GSM1900

6.1.2.1 Test Mode = GSM/TM1

6.1.2.1.1 Test Channel = LCH

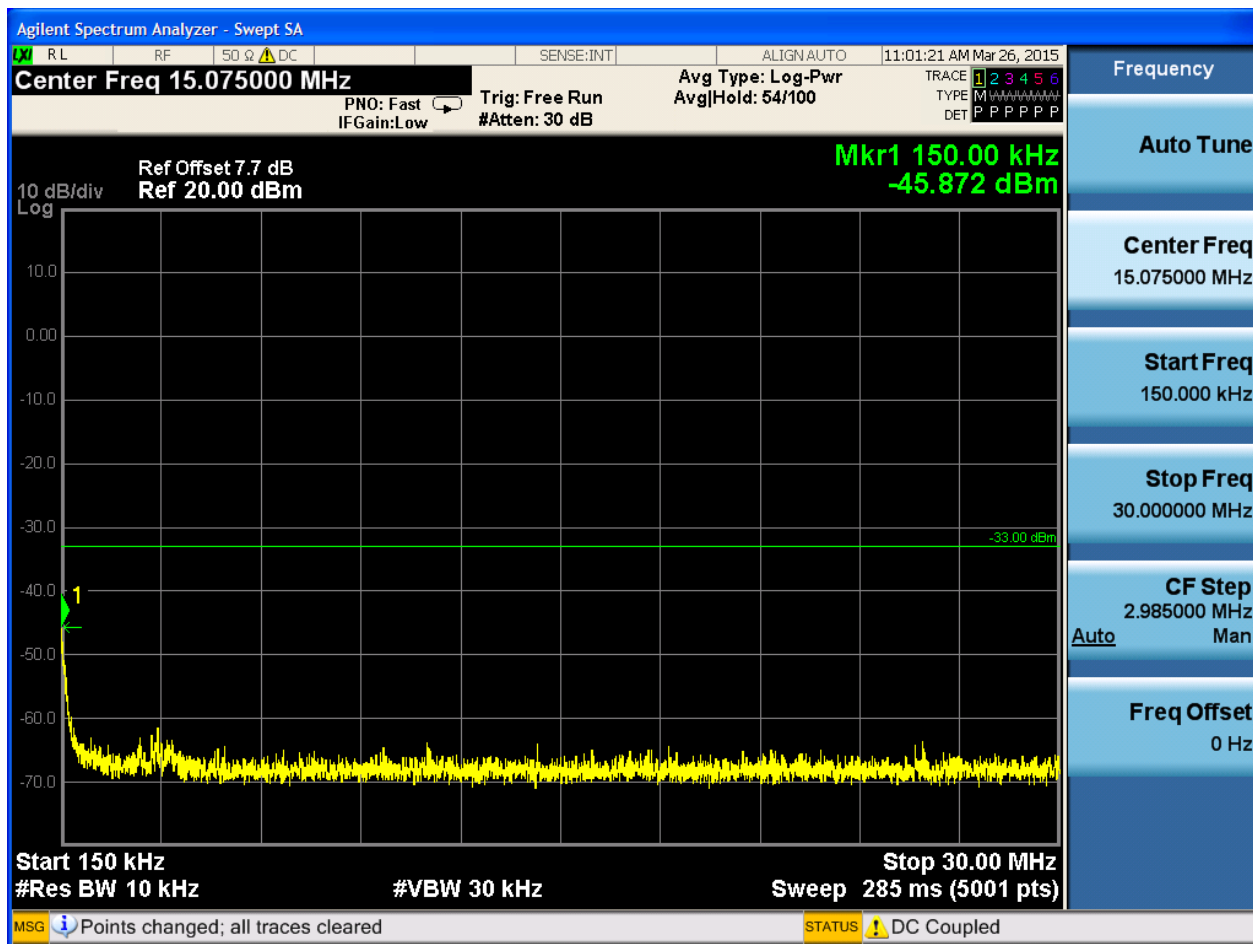


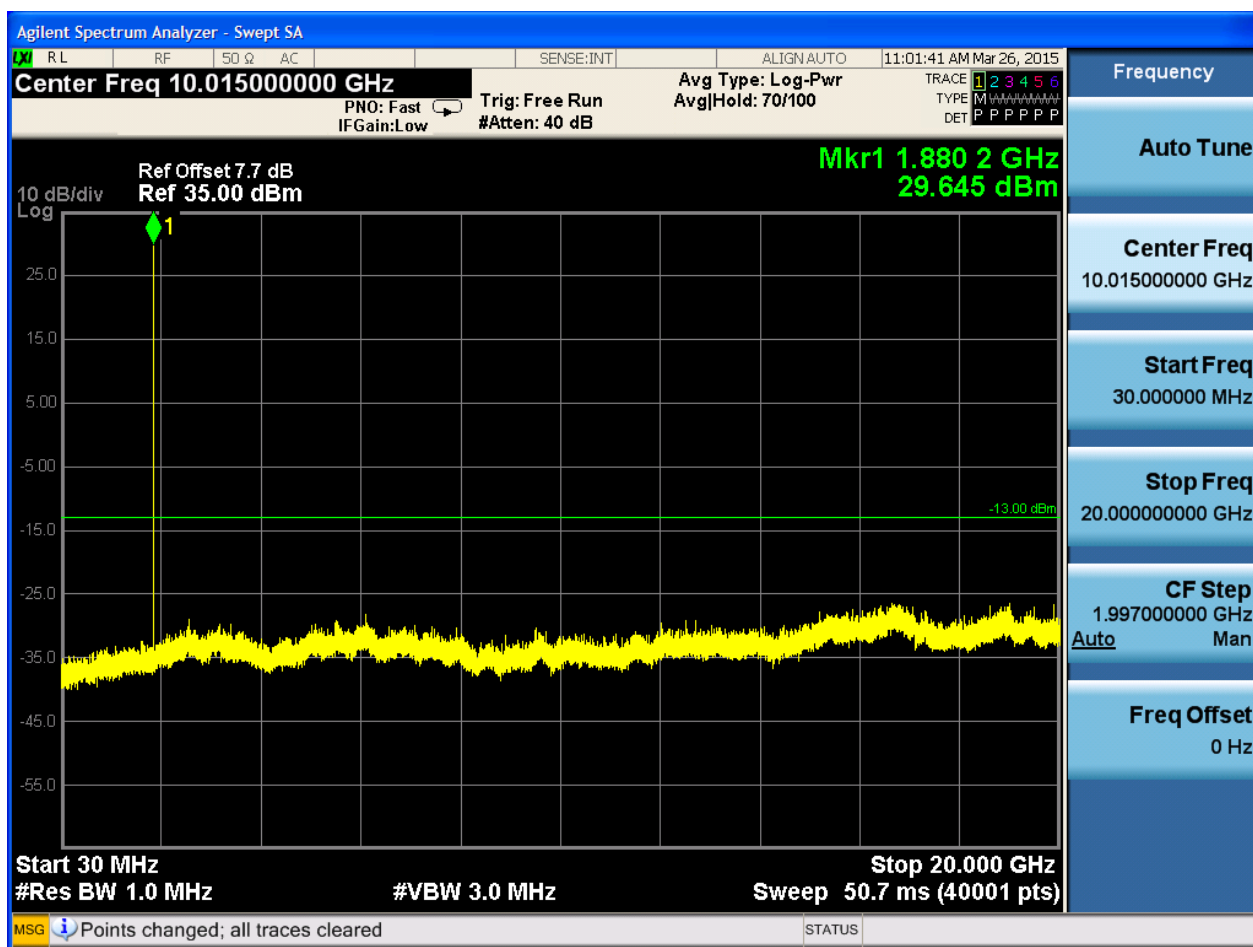




6.1.2.1.2 Test Channel = MCH

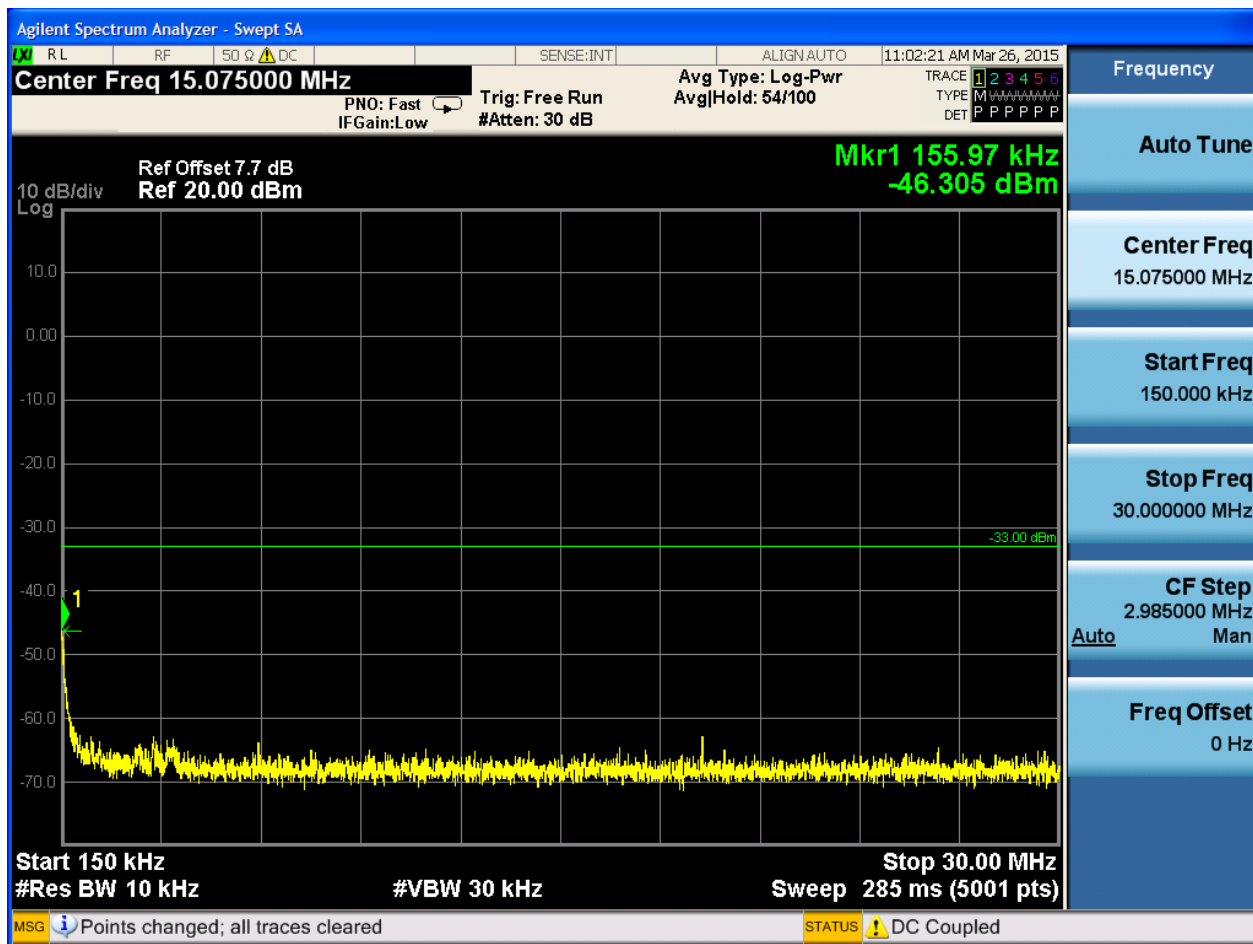


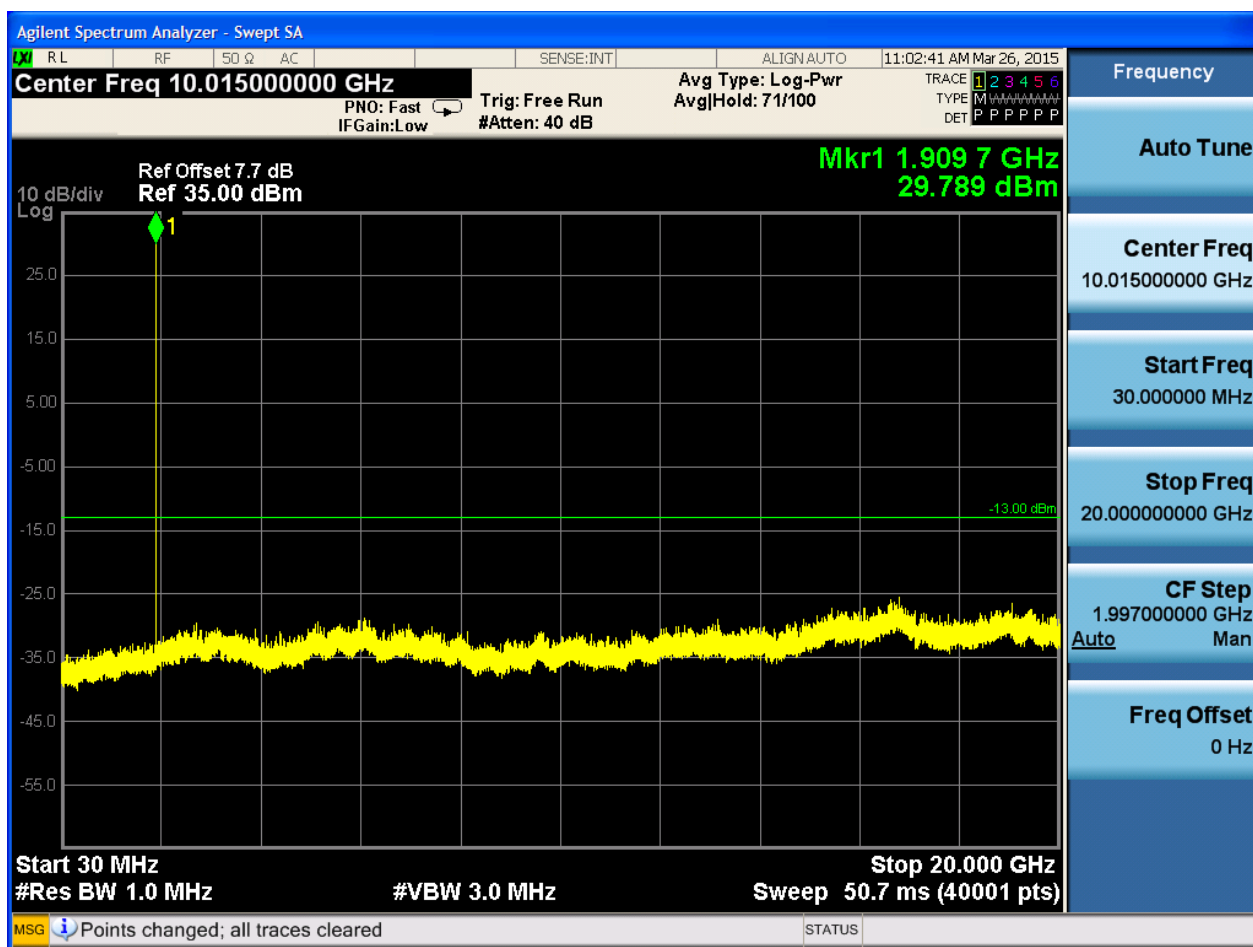




6.1.2.1.3 Test Channel = HCH



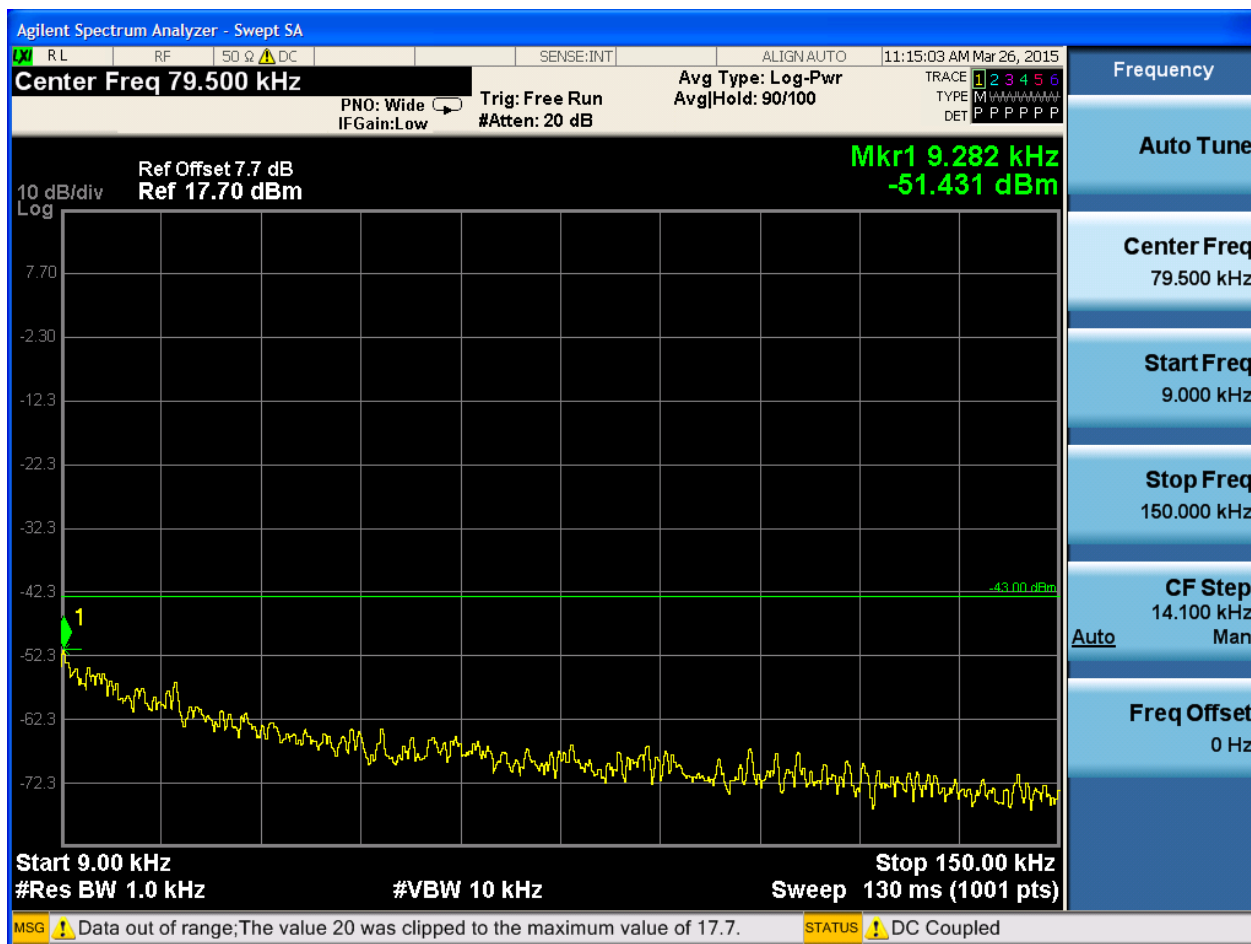


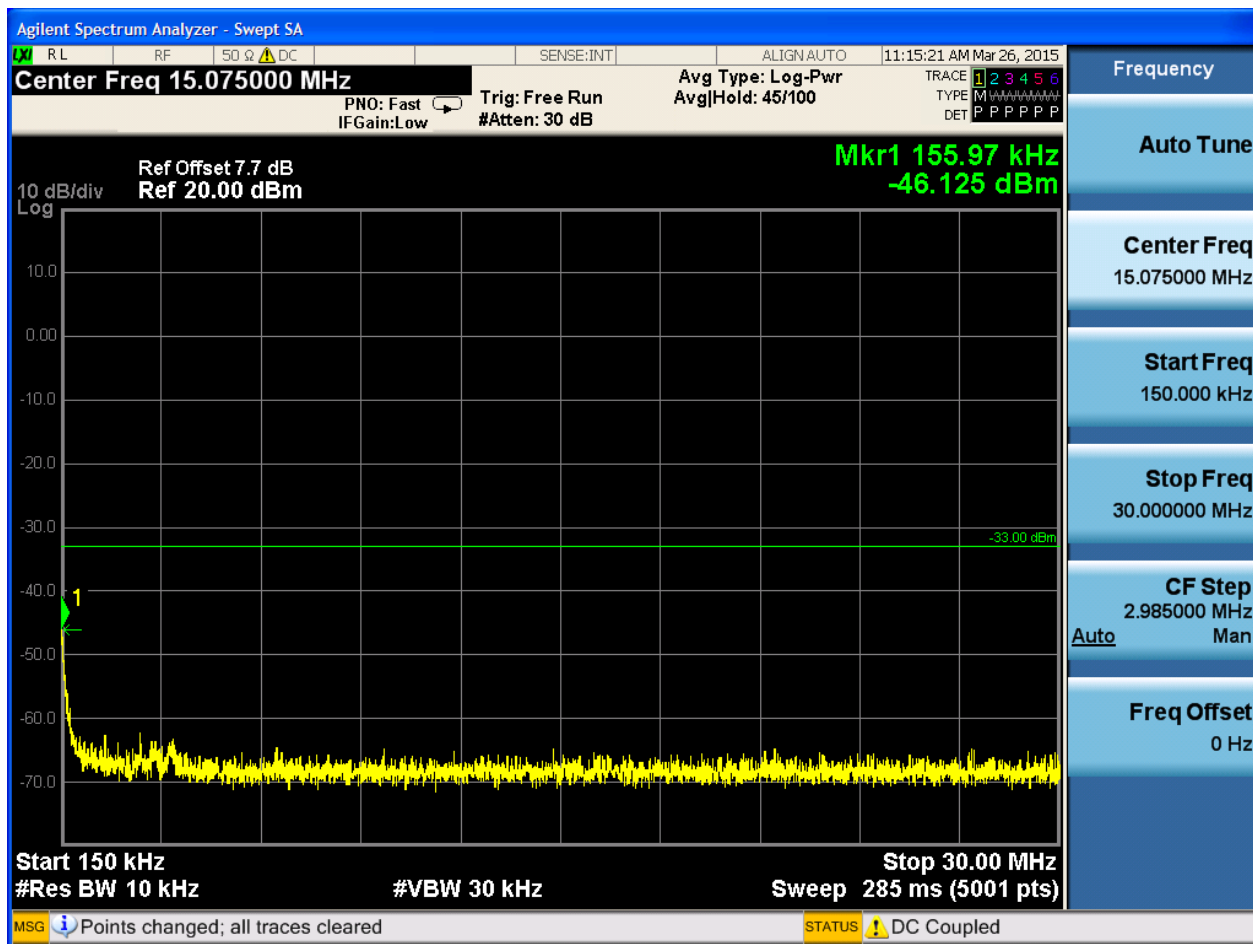


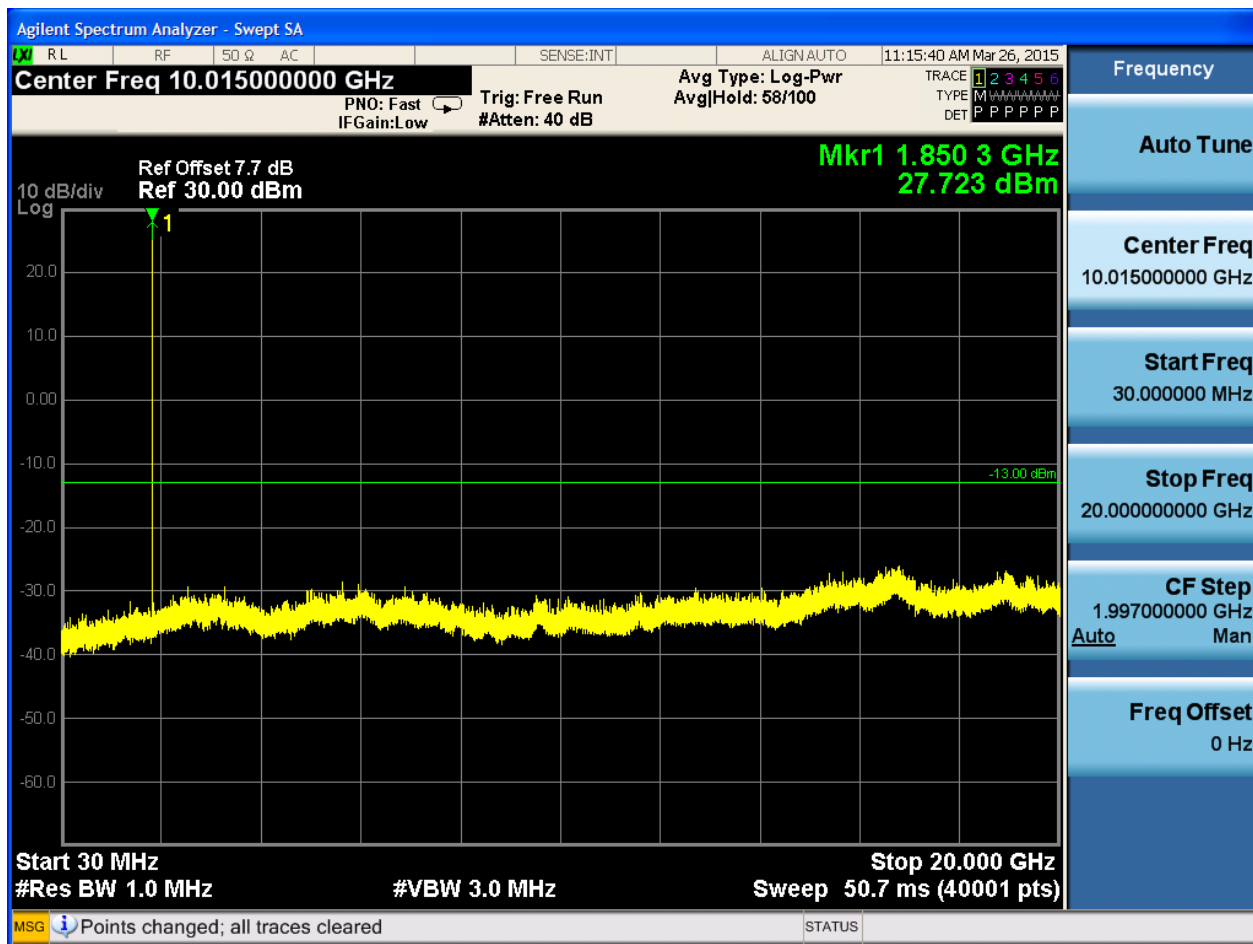


6.1.2.2 Test Mode = GSM/TM2

6.1.2.2.1 Test Channel = LCH

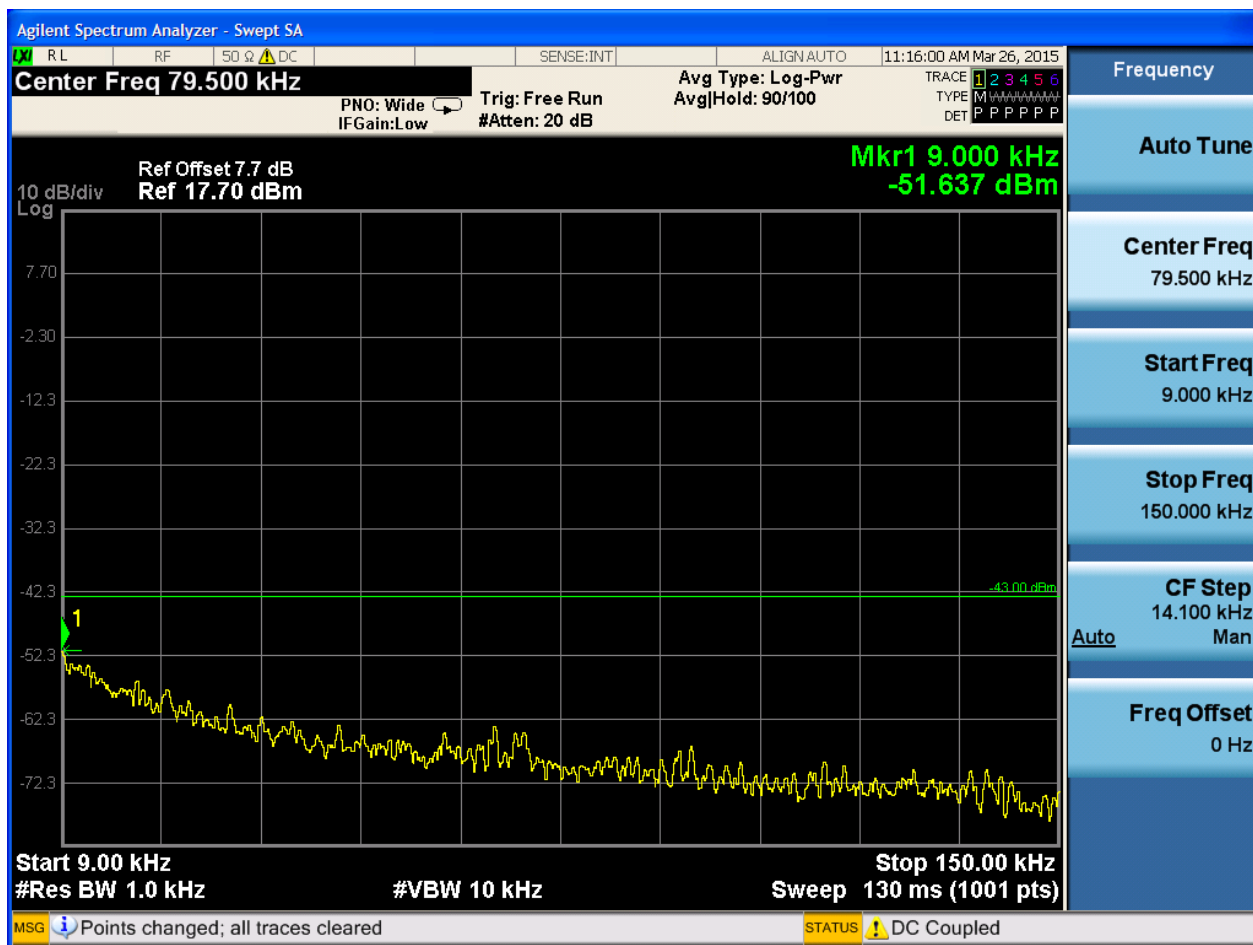


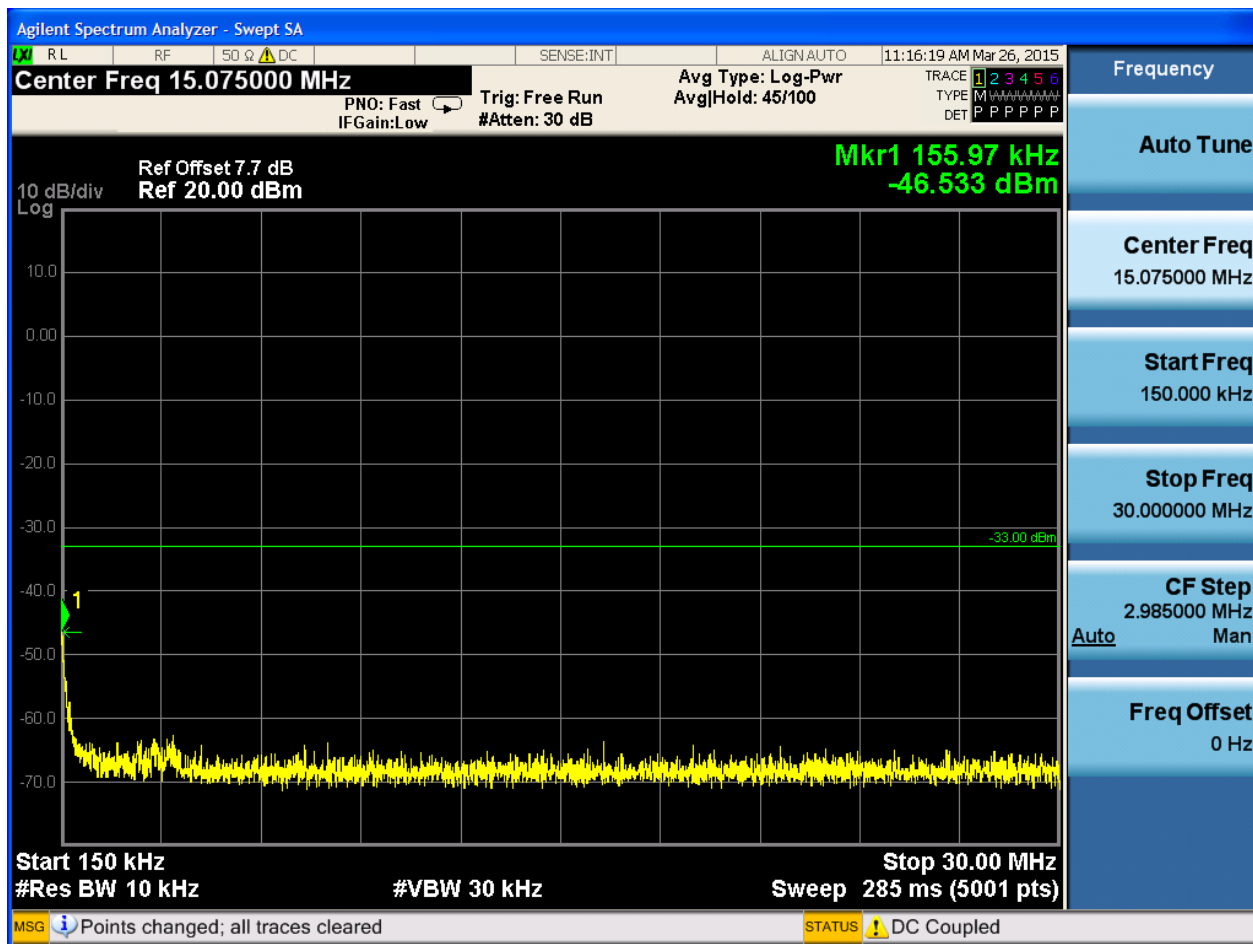


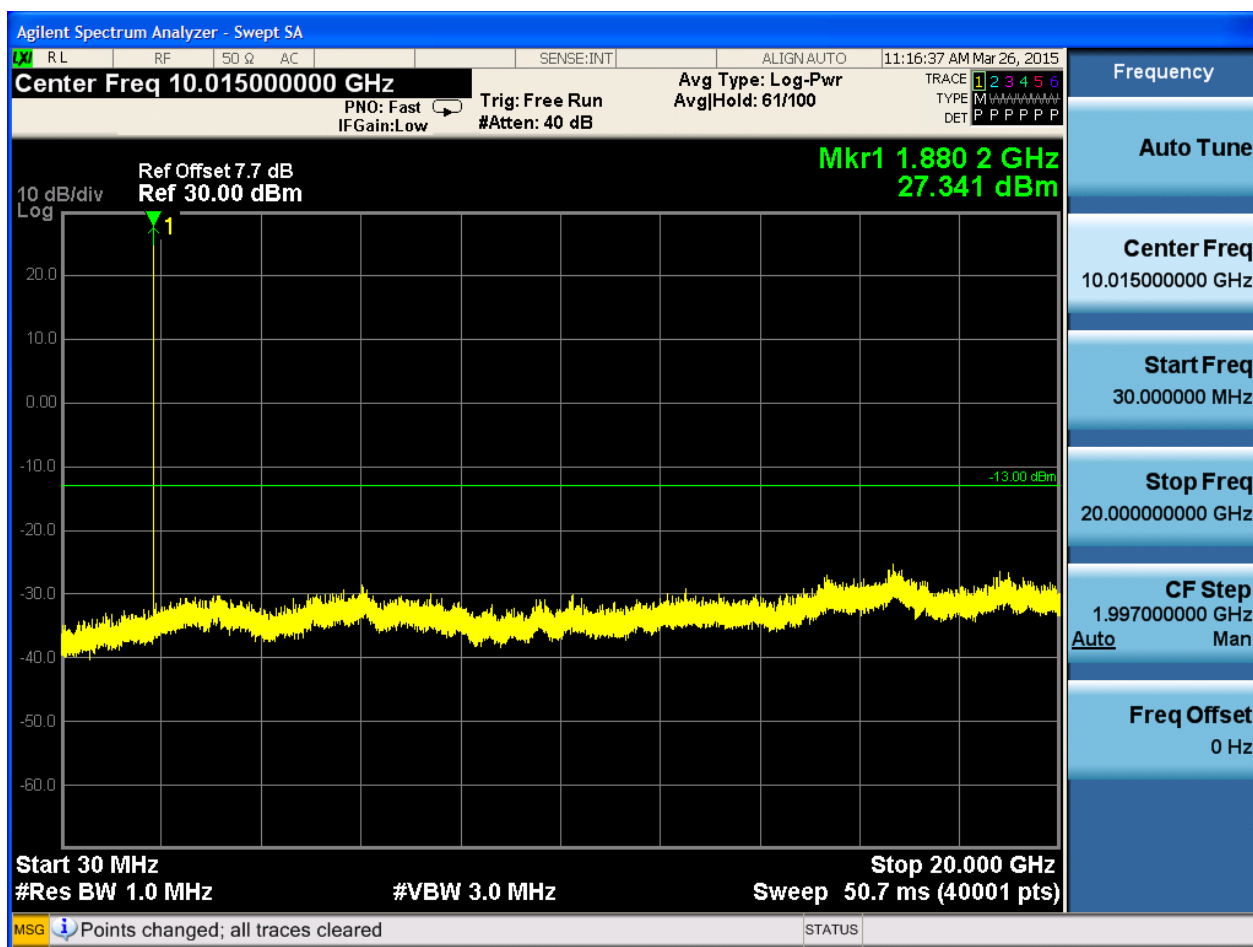




6.1.2.2.2 Test Channel = MCH

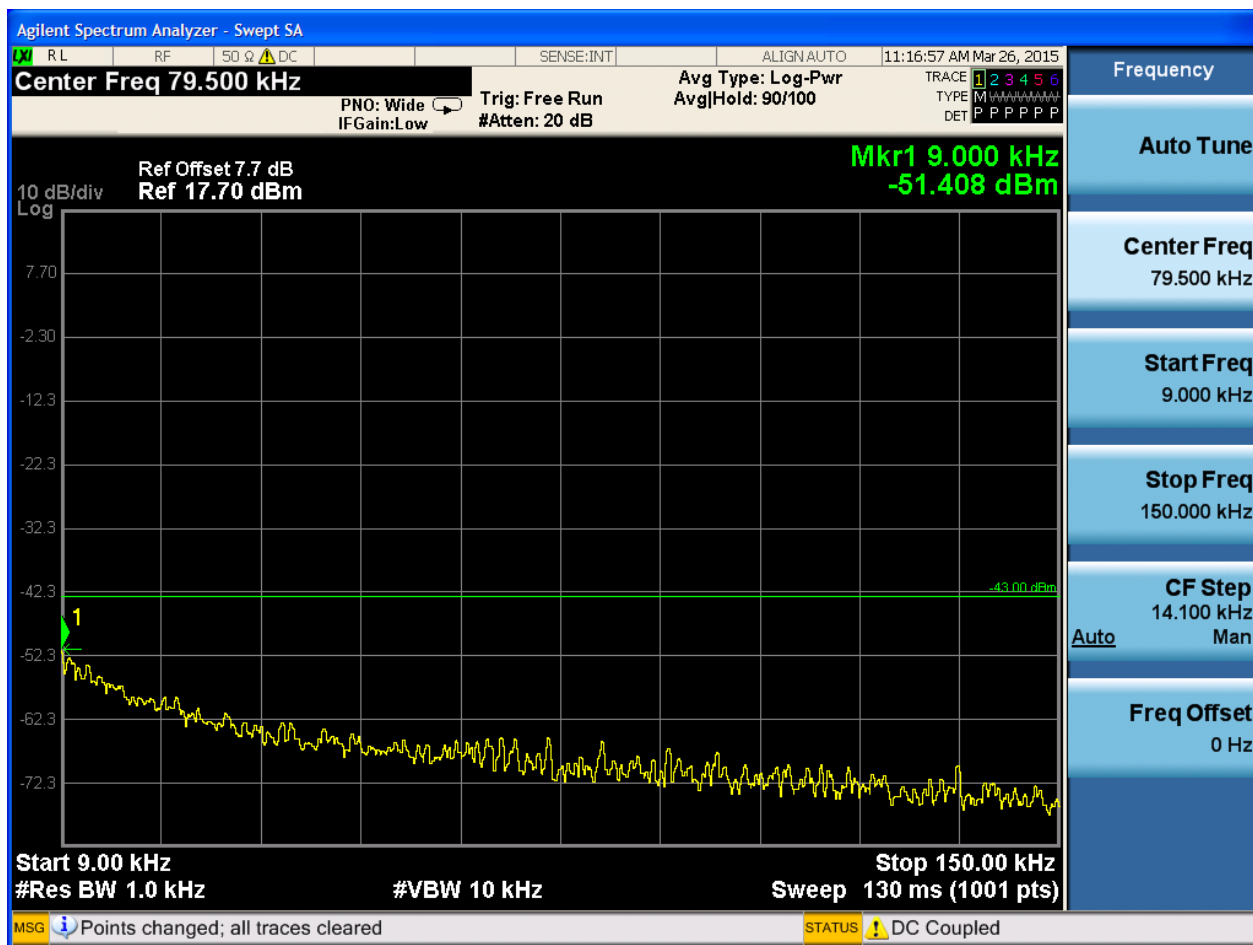


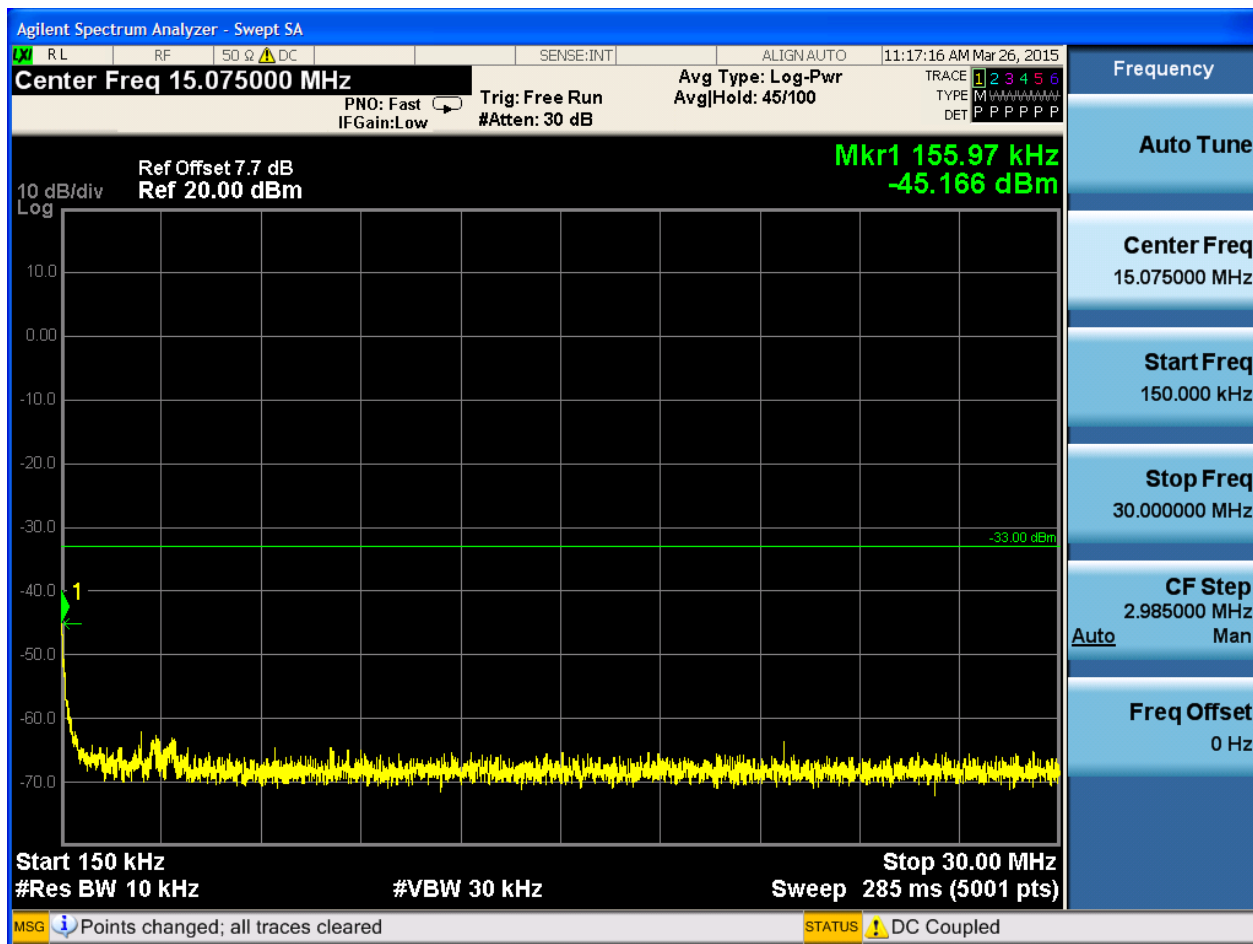


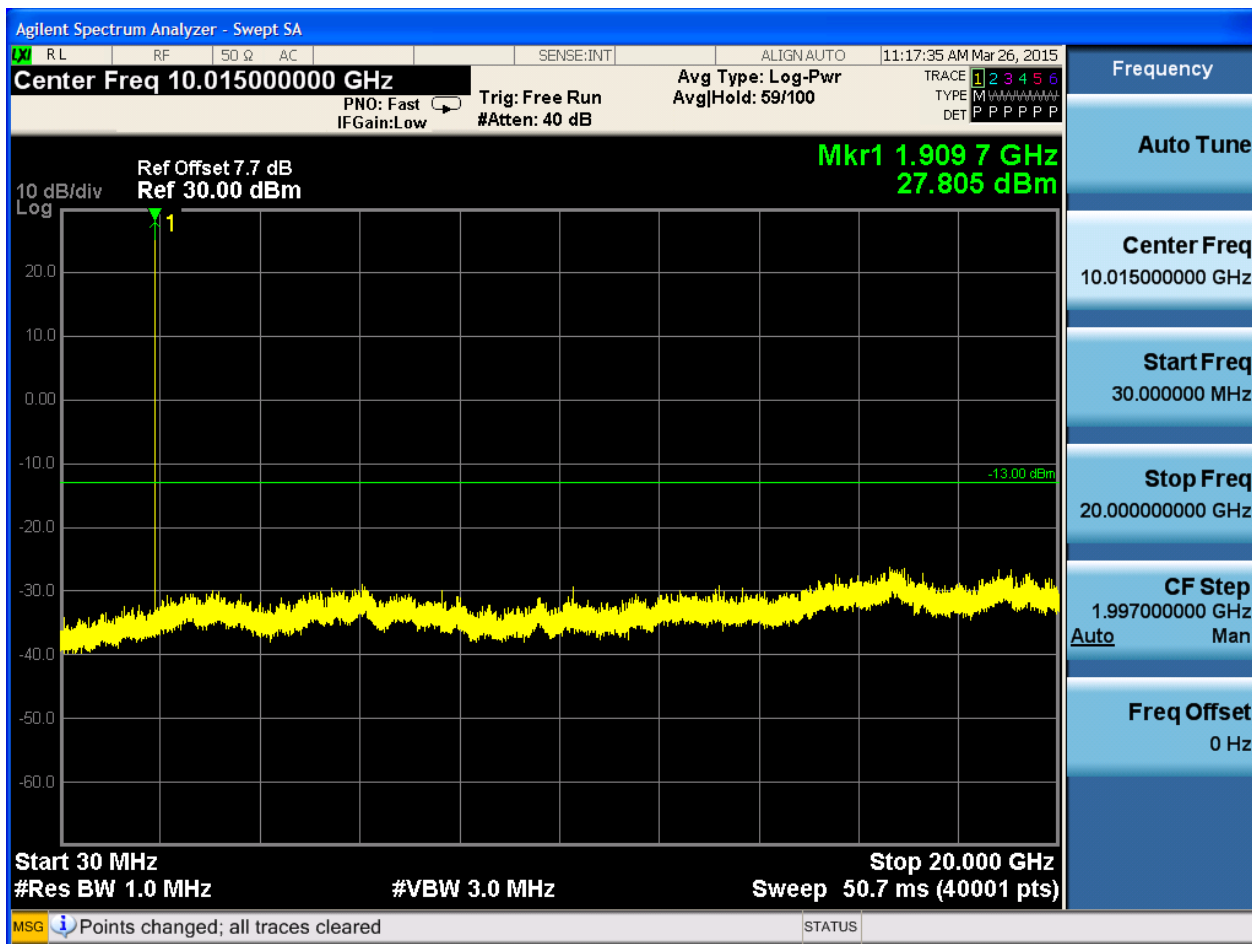




6.1.2.2.3 Test Channel = HCH









6.2 For UMTS

6.2.1 Test Band = WCDMA1900

6.2.1.1 Test Mode = UMTS/TM1

6.2.1.1.1 Test Channel = LCH



