



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/EIRP [dBm]	Limit [dBm]	Verdict
GSM850	GSM/TM1	LCH	31.56	30.41	38.5	PASS
		MCH	31.74	30.59	38.5	PASS
		HCH	31.75	30.6	38.5	PASS
	GSM/TM2	LCH	25.68	24.53	38.5	PASS
		MCH	25.71	24.56	38.5	PASS
		HCH	25.58	24.43	38.5	PASS
GSM1900	GSM/TM1	LCH	29.83	30.83	33	PASS
		MCH	29.58	30.58	33	PASS
		HCH	30.3	31.3	33	PASS
	GSM/TM2	LCH	26.85	27.85	33	PASS
		MCH	26.8	27.8	33	PASS
		HCH	26.76	27.76	33	PASS

Test Band	Test Mode	Test Channel	Measured[dBm]	ERP [dBm]	Limit [dBm]	Verdict
WCDMA850	UMTS/TM1	LCH	23.17	22.02	38.5	PASS
		MCH	23.19	22.04	38.5	PASS
		HCH	23.22	22.07	38.5	PASS
WCDMA1900	UMTS/TM1	LCH	23.51	24.51	33	PASS
		MCH	23.29	24.29	33	PASS
		HCH	23.52	24.52	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:

SET Span=1.5*OBW

SET RBW=1%of the OBW,not to exceed 1MHz

SET VBW>= 3*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
GSM1900	GSM/TM1	LCH	0.22	13	PASS
		MCH	0.22	13	PASS
		HCH	0.23	13	PASS
	GSM/TM2	LCH	2.62	13	PASS
		MCH	2.82	13	PASS
		HCH	2.73	13	PASS
Test Band	Test Mode	Test Channel	Measured[dB]	Limit [dB]	Verdict
WCDMA1900	UMTS/TM1	LCH	2.85	13	PASS
		MCH	2.96	13	PASS
		HCH	2.51	13	PASS

3Appendix_C: Modulation Characteristics

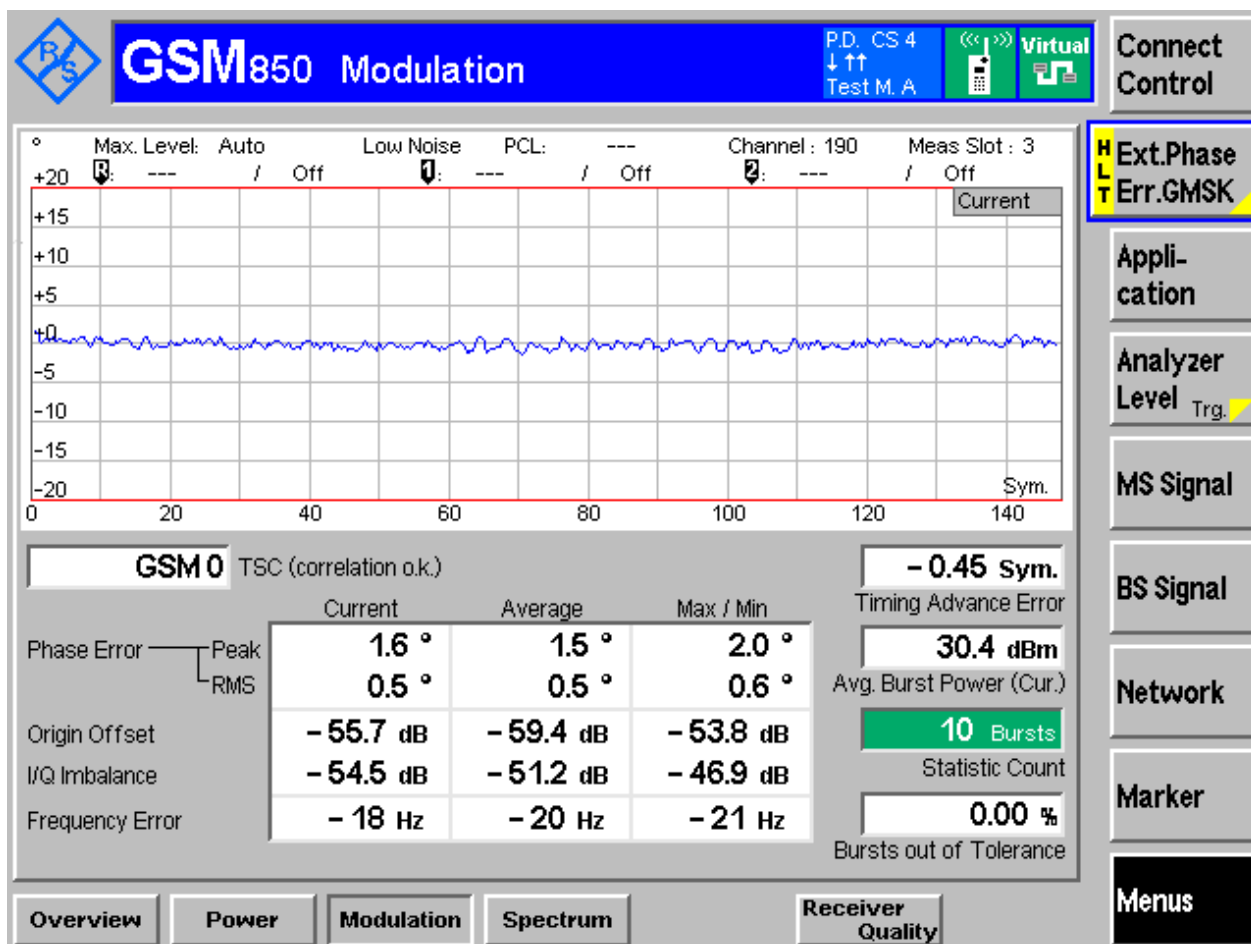
Part I - Test Plots

3.1 For GSM

3.1.1 Test Band = GSM850

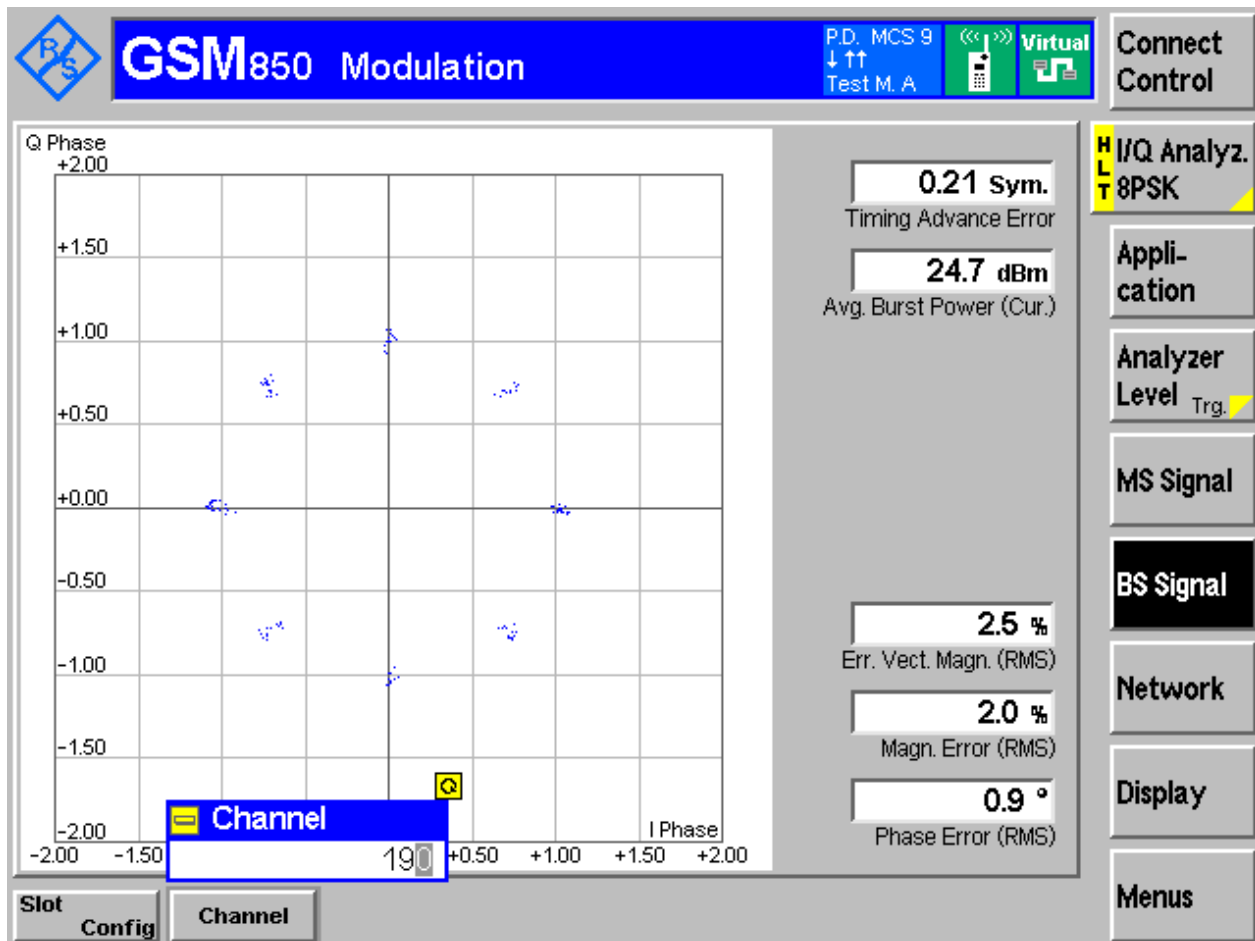
3.1.1.1 Test Mode = GSM/TM1

3.1.1.1.1 Test Channel = MCH



3.1.1.2 Test Mode = GSM/TM2

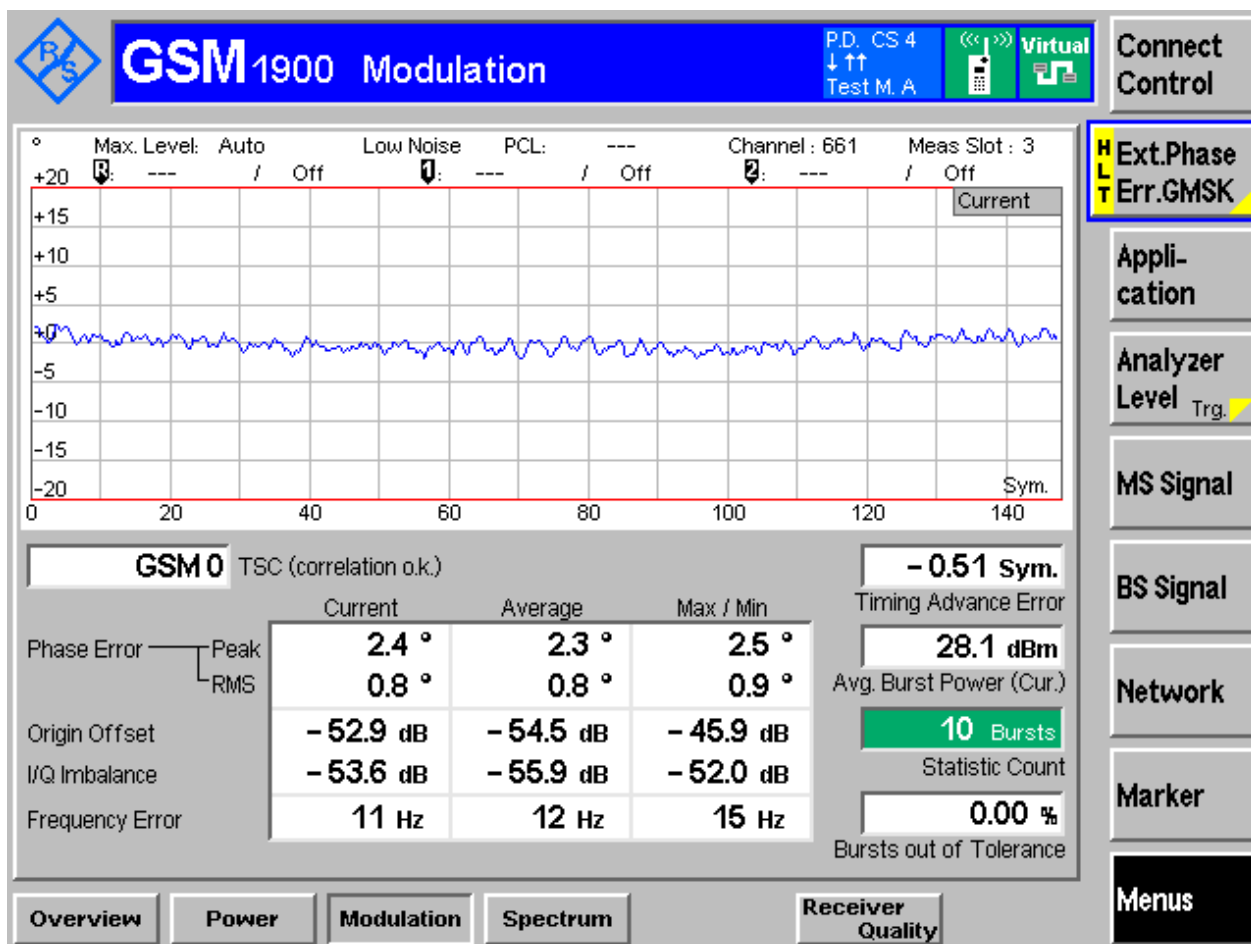
3.1.1.2.1 Test Channel = MCH



3.1.2 Test Band = GSM1900

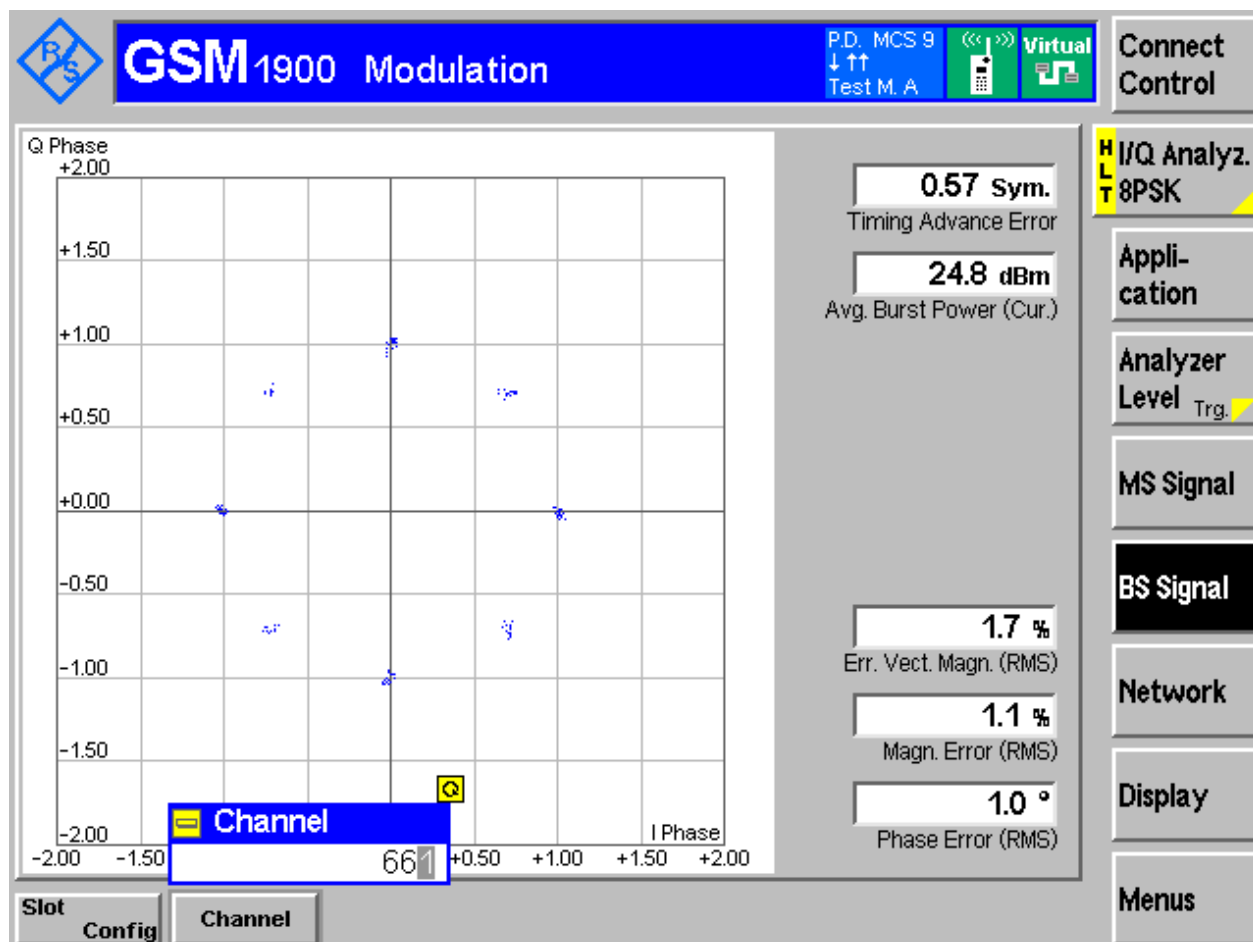
3.1.2.1 Test Mode = GSM/TM1

3.1.2.1.1 Test Channel = MCH



3.1.2.2 Test Mode = GSM/TM2

3.1.2.2.1 Test Channel = MCH

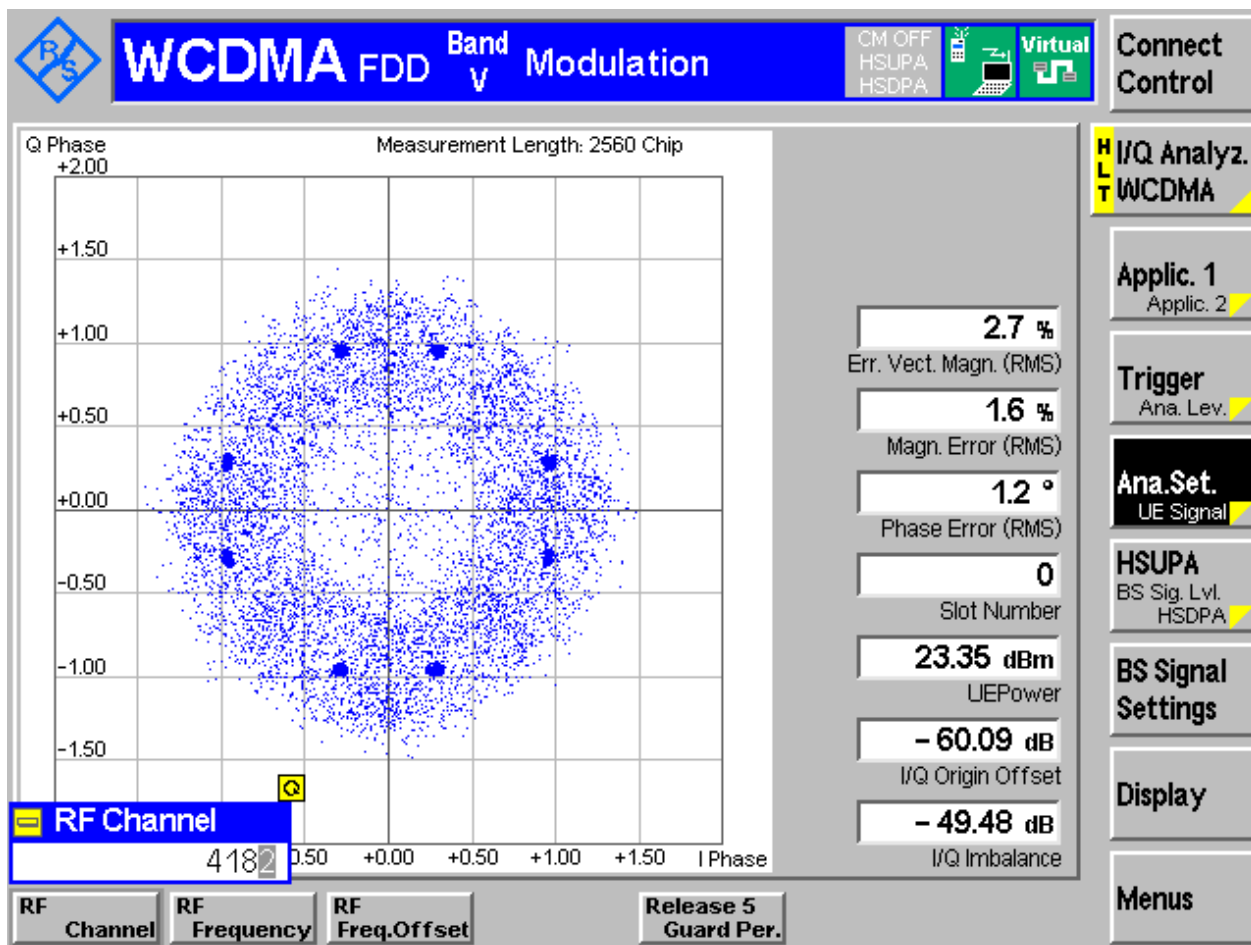


3.2 For UMTS

3.2.1 Test Band = WCDMA850

3.2.1.1 Test Mode = UMTS/TM1

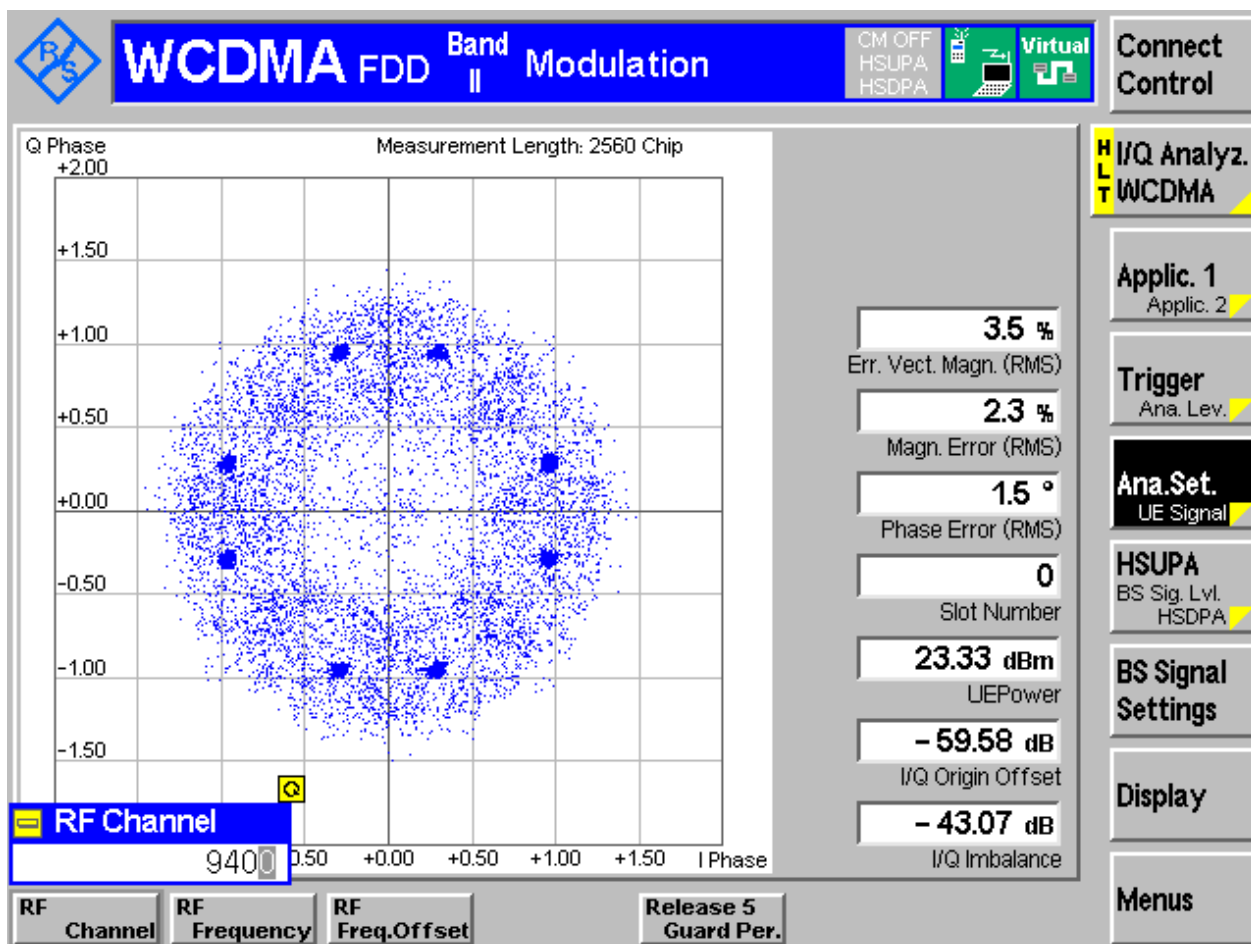
3.2.1.1.1 Test Channel = MCH



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	240.06	312.81	Pass
		MCH	242.65	315.25	Pass
		HCH	241.95	319.50	Pass
	GSM/TM2	LCH	247.58	321.41	Pass
		MCH	243.64	311.10	Pass
		HCH	245.62	317.82	Pass
GSM1900	GSM/TM1	LCH	242.92	315.33	Pass
		MCH	241.59	311.11	Pass
		HCH	240.48	314.16	Pass
	GSM/TM2	LCH	255.75	325.97	Pass
		MCH	248.46	318.33	Pass
		HCH	252.06	319.50	Pass
Test Band	Test Mode	Test Channel	Occupied Bandwidth [MHz]	Emission Bandwidth [MHz]	Verdict
WCDMA850	UMTS/TM1	LCH	4.16	4.73	Pass
		MCH	4.17	4.73	Pass
		HCH	4.16	4.73	Pass
WCDMA1900	UMTS/TM1	LCH	4.17	4.73	Pass
		MCH	4.14	4.70	Pass
		HCH	4.16	4.73	Pass



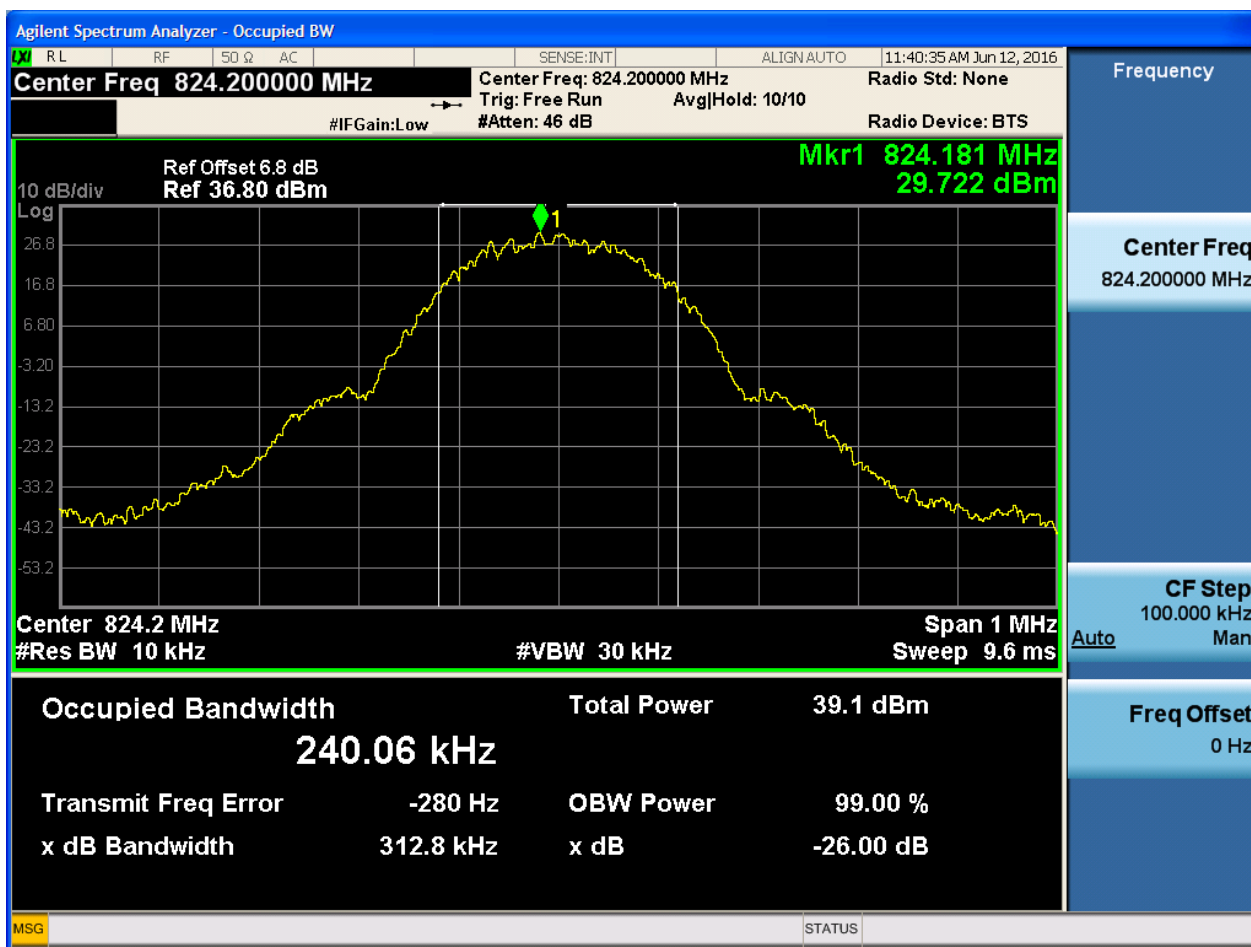
Part II - Test Plots

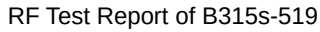
4.1 For GSM

4.1.1 Test Band = GSM850

4.1.1.1 Test Mode = GSM/TM1

4.1.1.1.1 Test Channel = LCH





Agilent Spectrum Analyzer - Occupied BW

RL RF 50 Ω AC SENSE:INT ALIGN: AUTO 11:40:55 AM Jun 12, 2016

Center Freq 836.600000 MHz Center Freq: 836.600000 MHz Radio Std: None
Trig: Free Run Avg/Hold: 10/10
#IFGain: Low #Atten: 46 dB Radio Device: BTS

10 dB/div Ref Offset 6.8 dB Mkr1 836.608 MHz
Log Ref 36.80 dBm 29.668 dBm

Center 836.6 MHz Span 1 MHz
#Res BW 10 kHz #VBW 30 kHz Sweep 9.6 ms

Occupied Bandwidth		Total Power	
242.65 kHz		39.4 dBm	

Transmit Freq Error		OBW Power	
-212 Hz		99.00 %	

x dB Bandwidth		x dB	
315.3 kHz		-26.00 dB	

MSG File <PICTURE.png> saved STATUS

Frequency

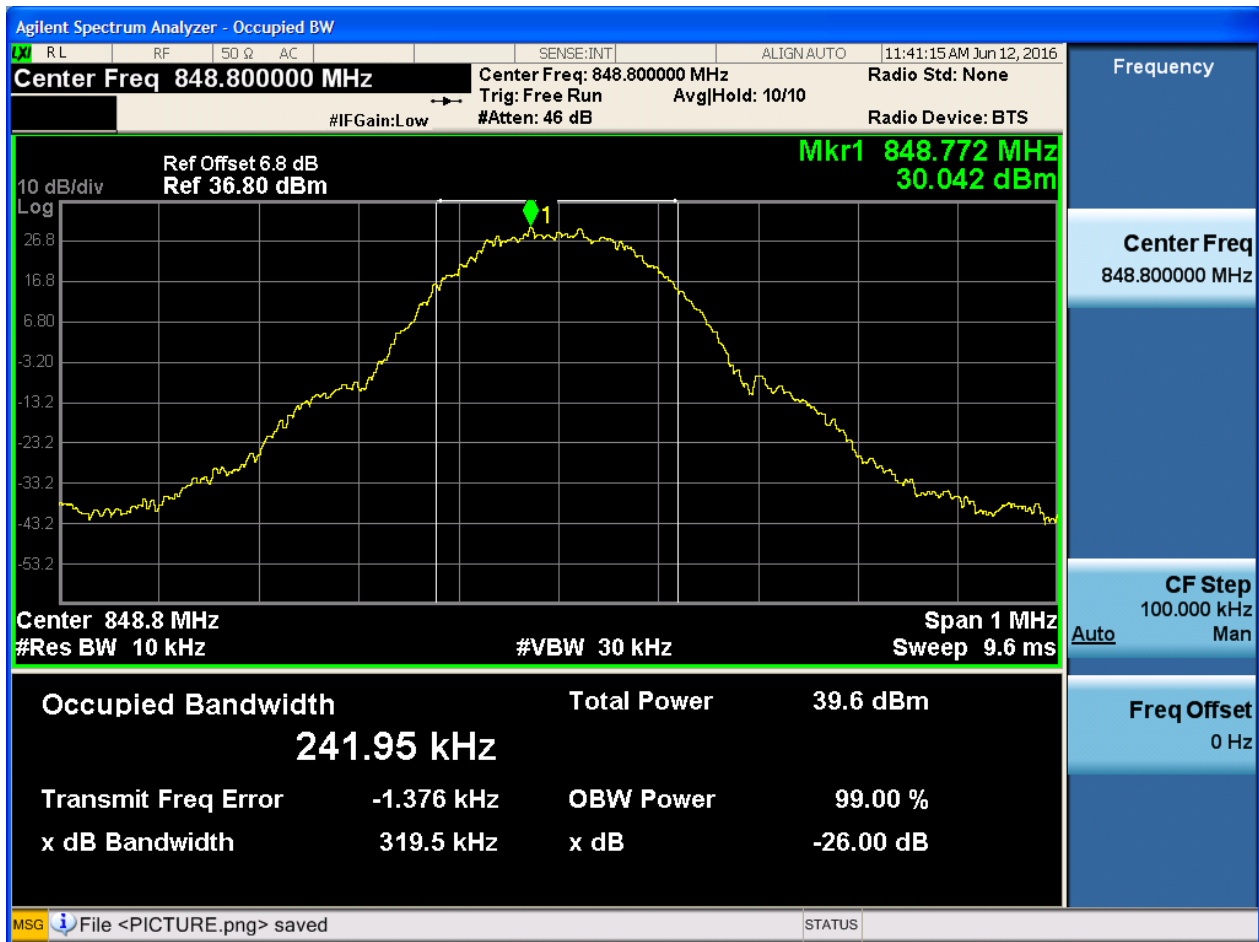
Center Freq
836.600000 MHz

CF Step
100.000 kHz
Man

Freq Offset
0 Hz



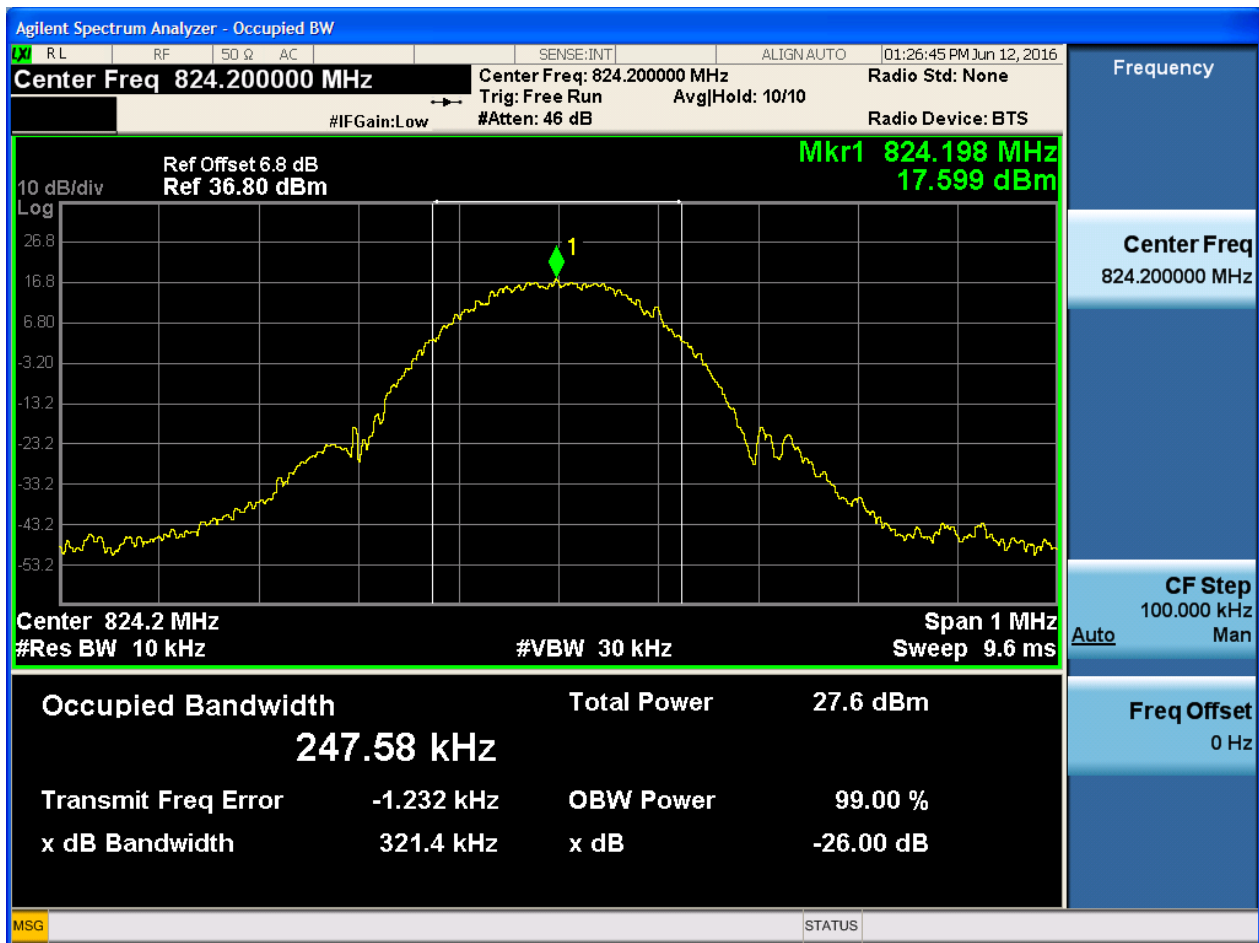
4.1.1.1.3 Test Channel = HCH





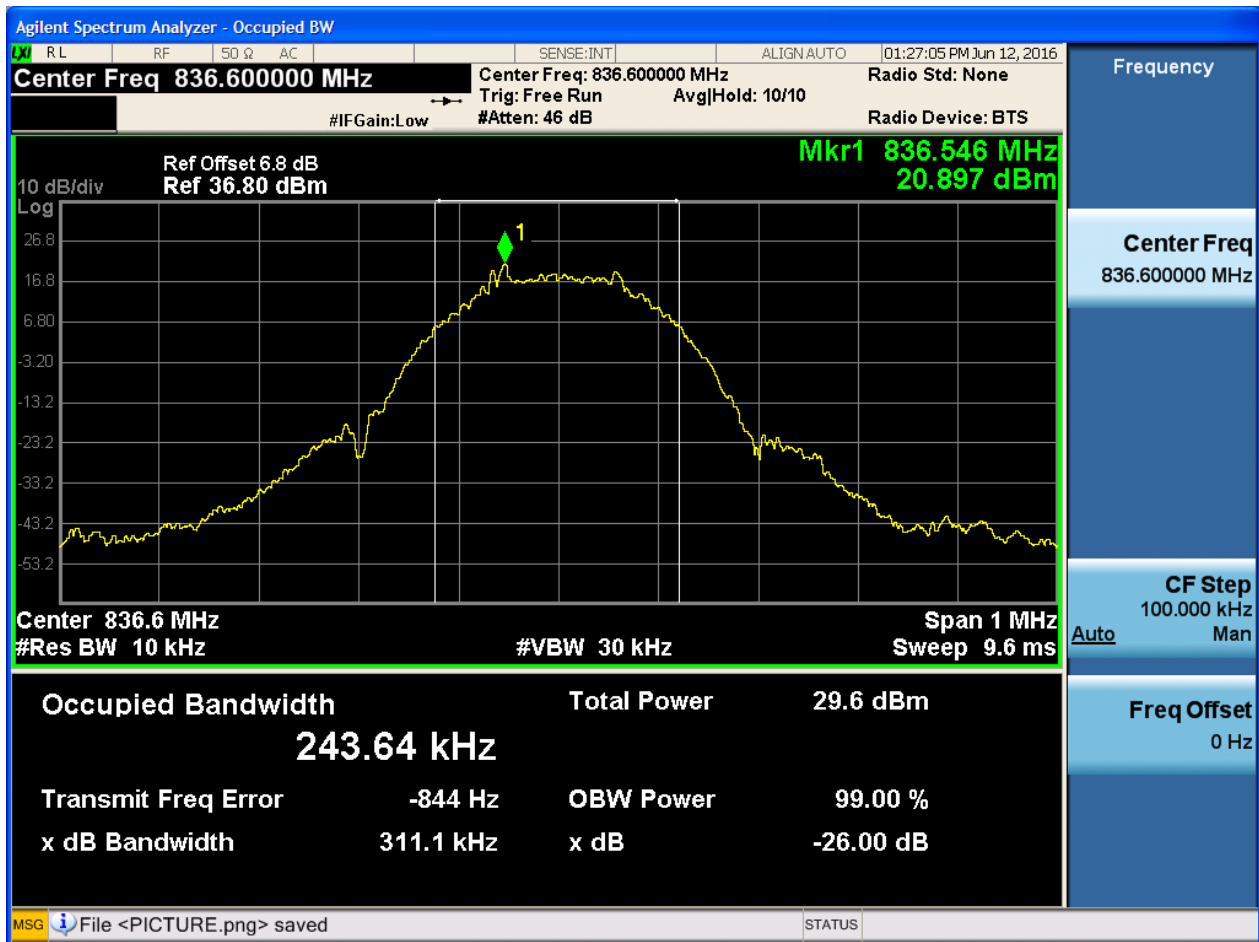
4.1.1.2 Test Mode = GSM/TM2

4.1.1.2.1 Test Channel = LCH



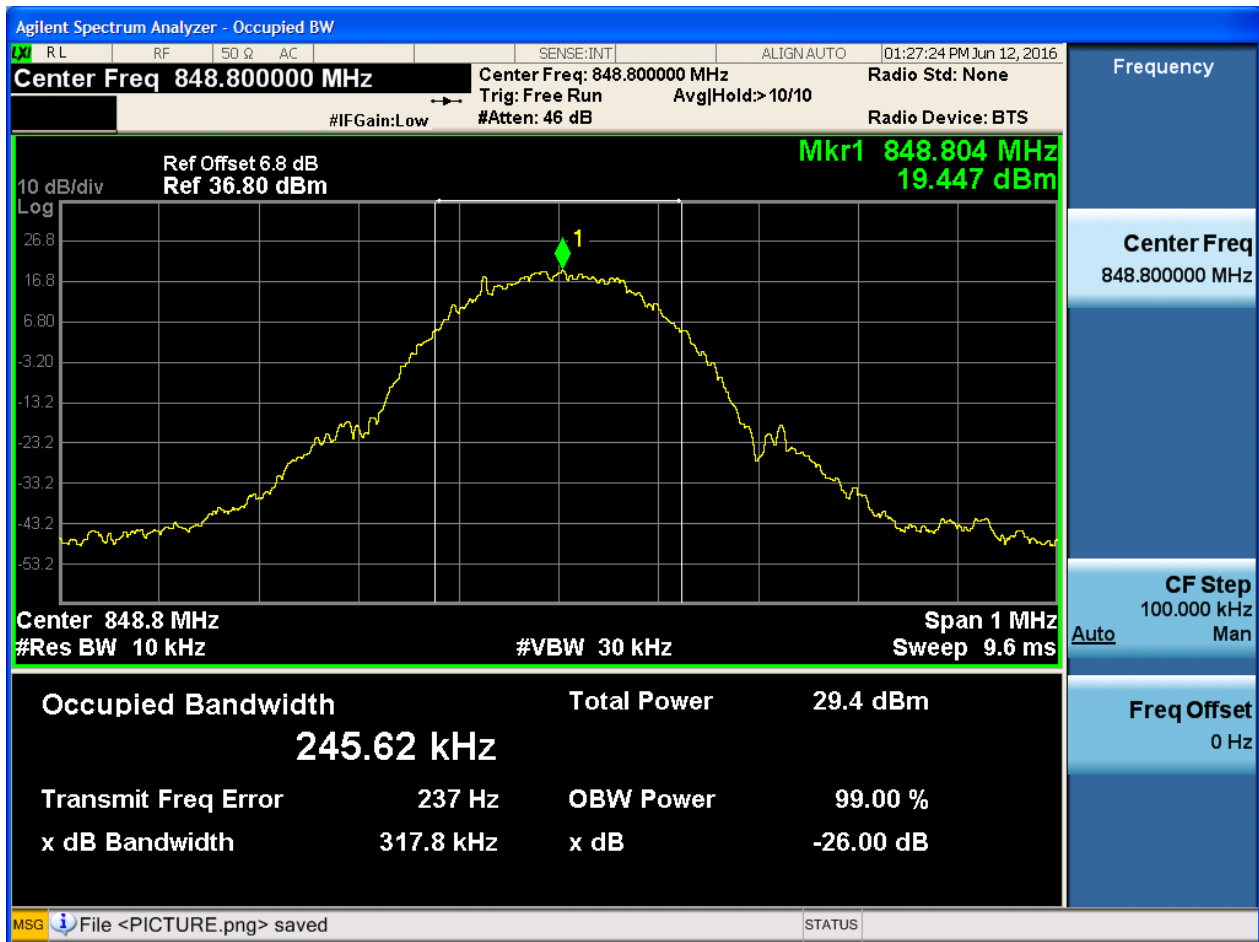


4.1.1.2.2 Test Channel = MCH





4.1.1.2.3 Test Channel = HCH

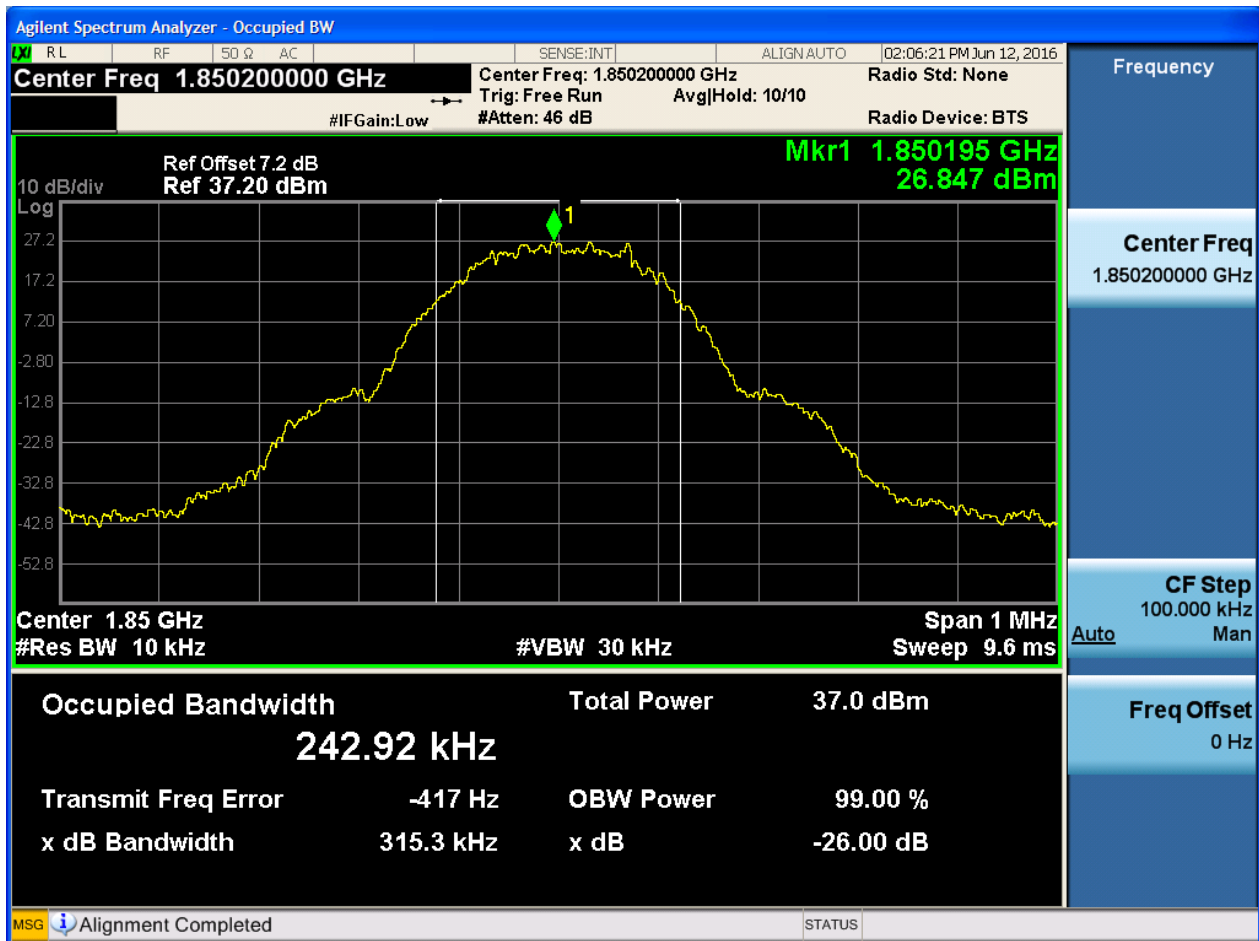




4.1.2 Test Band = GSM1900

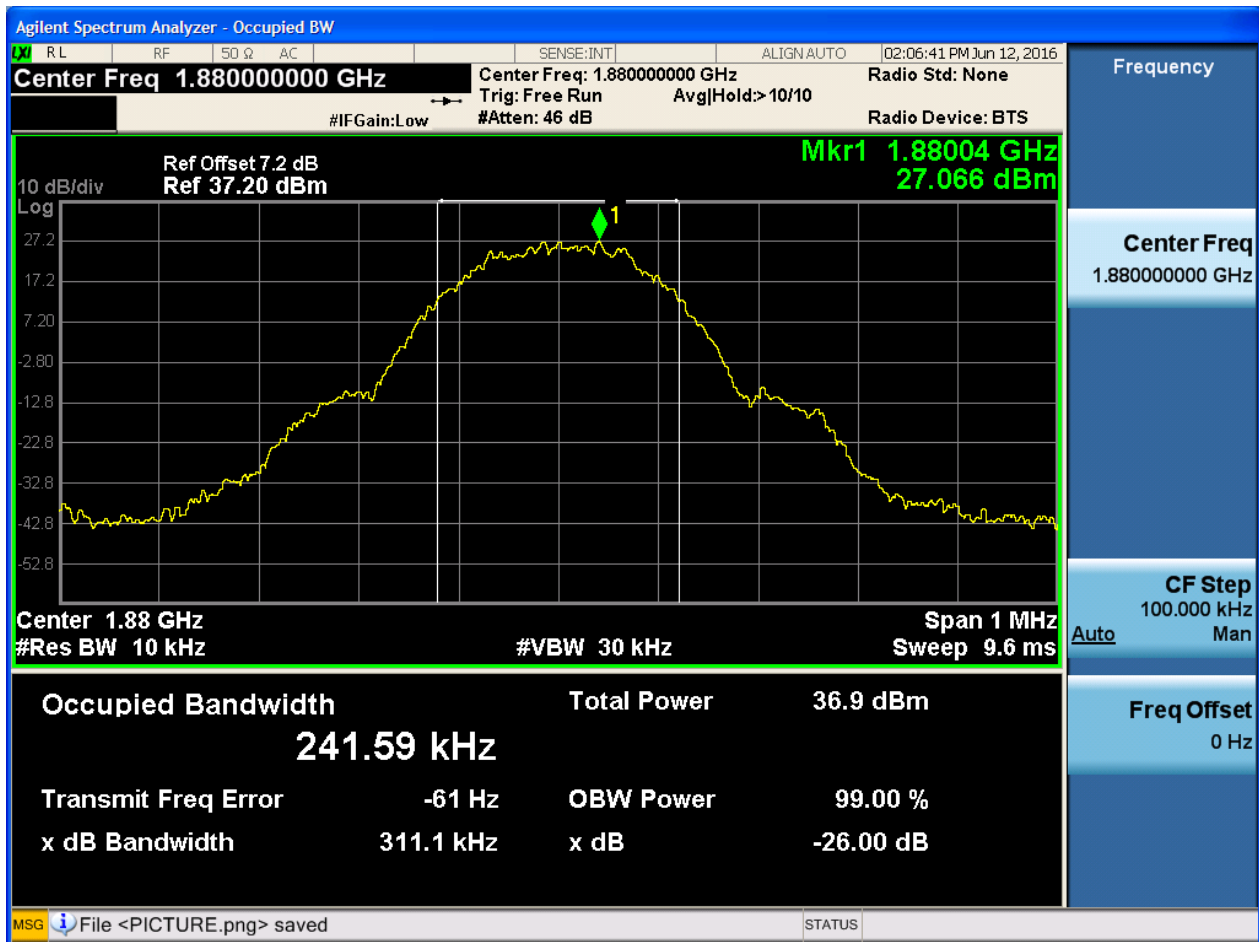
4.1.2.1 Test Mode = GSM/TM1

4.1.2.1.1 Test Channel = LCH



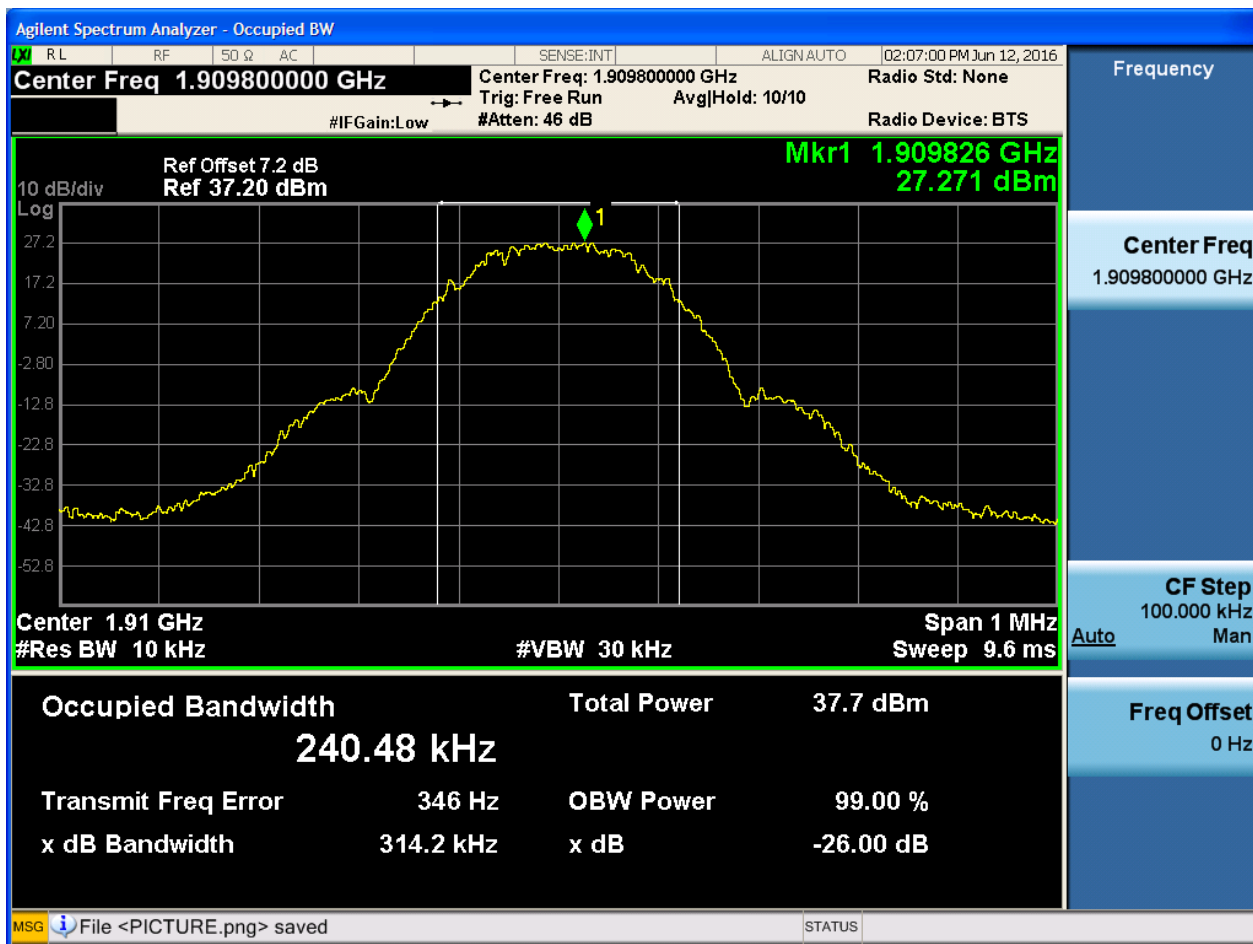


4.1.2.1.2 Test Channel = MCH





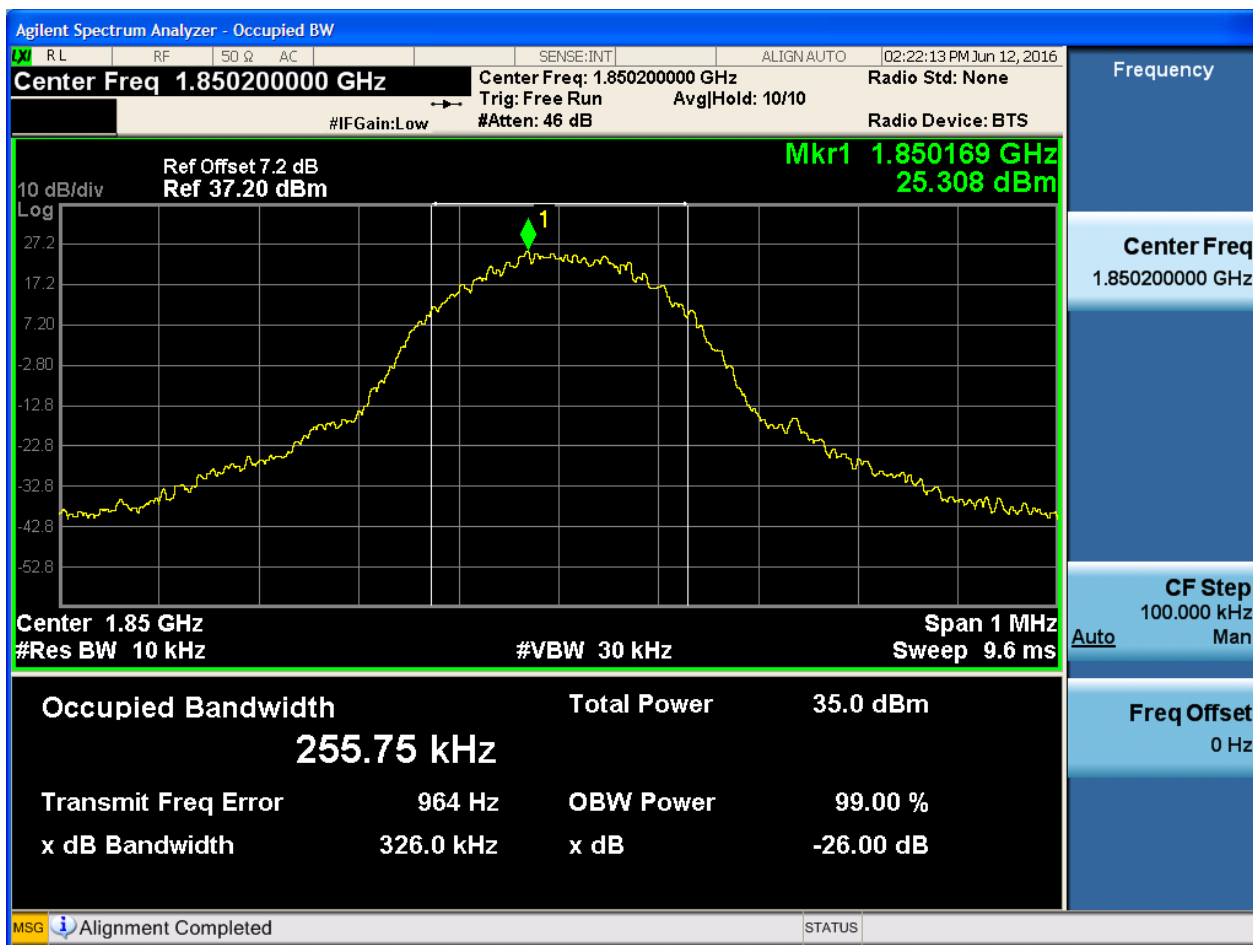
4.1.2.1.3 Test Channel = HCH





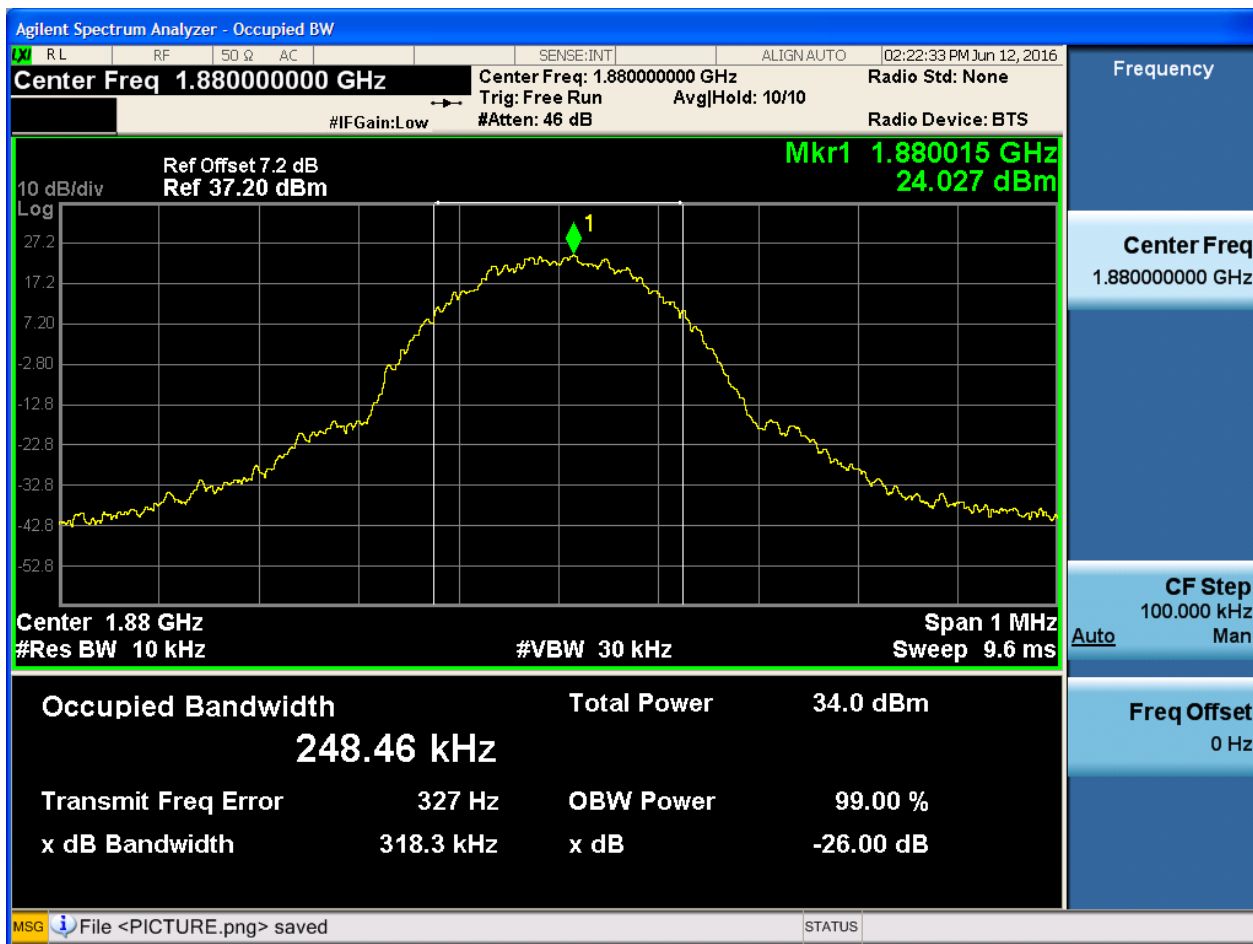
4.1.2.2 Test Mode = GSM/TM2

4.1.2.2.1 Test Channel = LCH



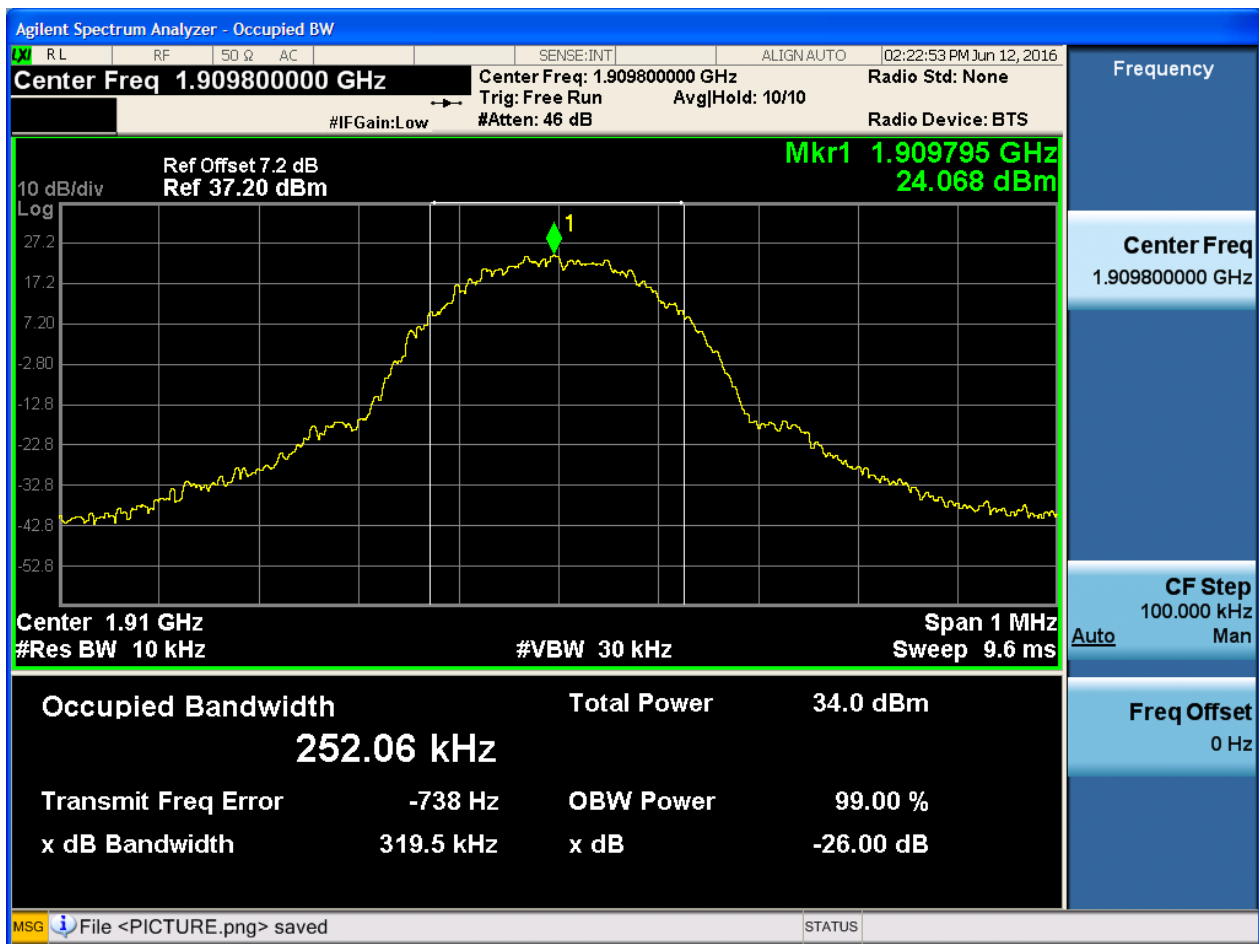


4.1.2.2.2 Test Channel = MCH





4.1.2.2.3 Test Channel = HCH



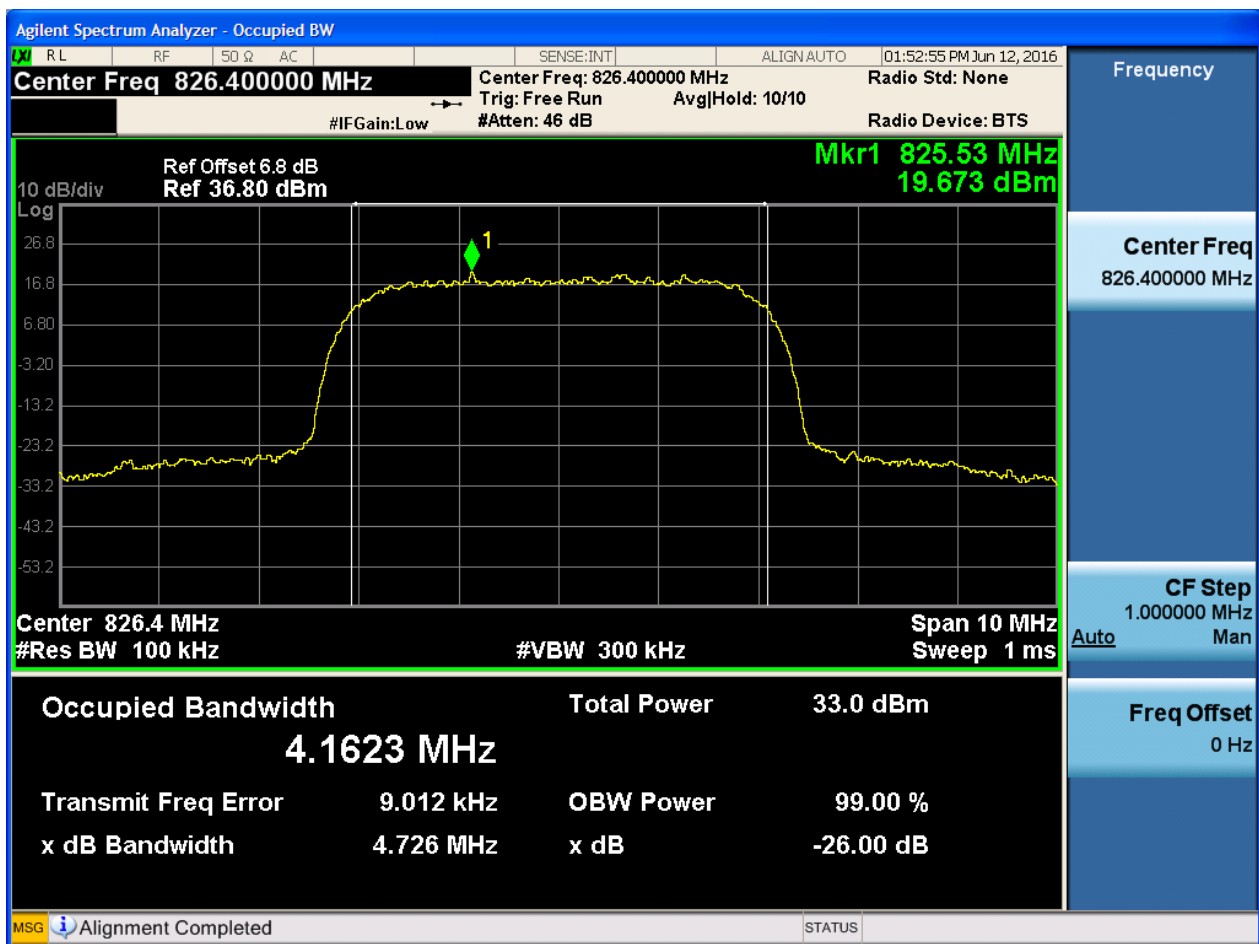


4.2 For UMTS

4.2.1 Test Band = WCDMA850

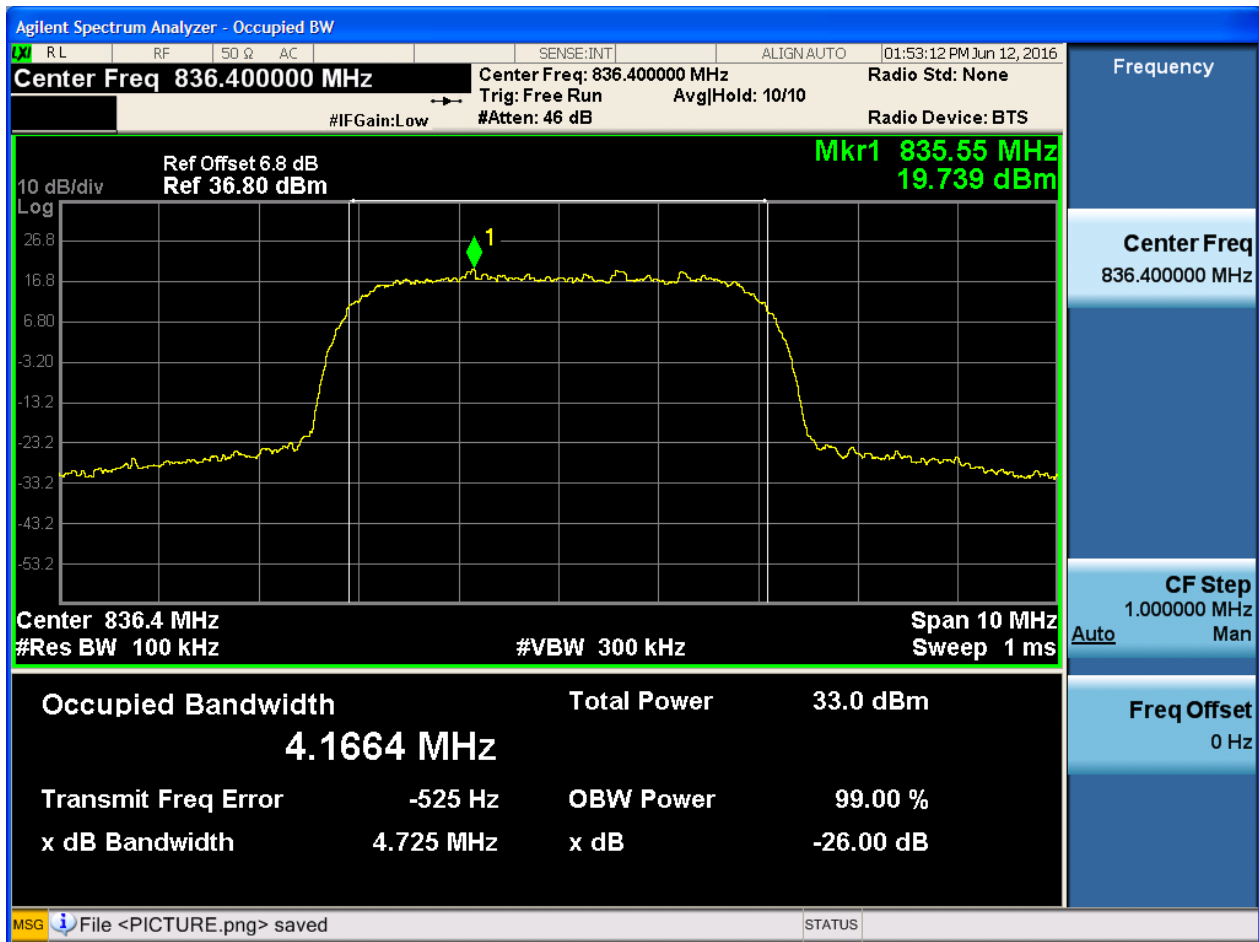
4.2.1.1 Test Mode = UMTS/TM1

4.2.1.1.1 Test Channel = LCH



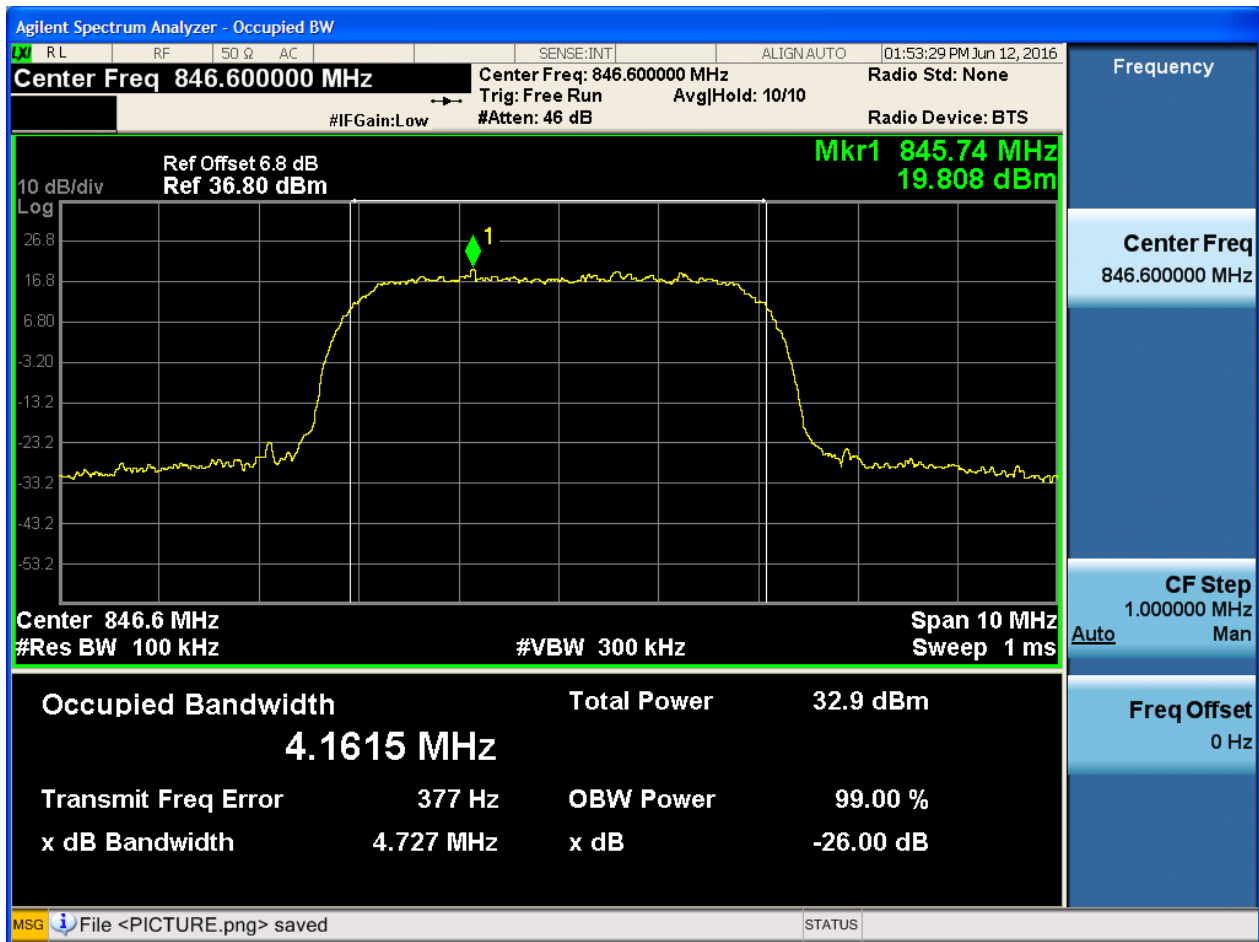


4.2.1.1.2 Test Channel = MCH





4.2.1.1.3 Test Channel = HCH

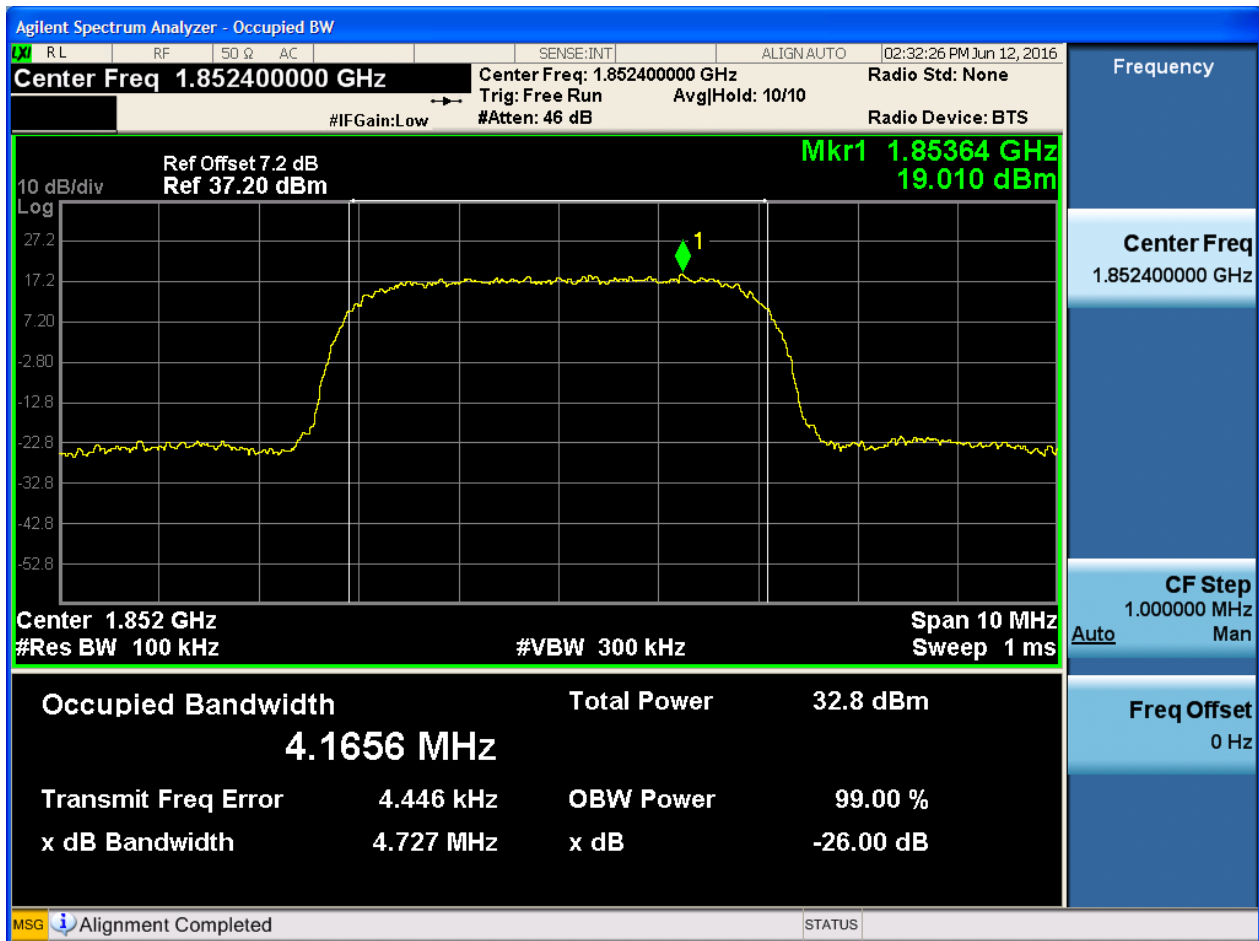




4.2.2 Test Band = WCDMA1900

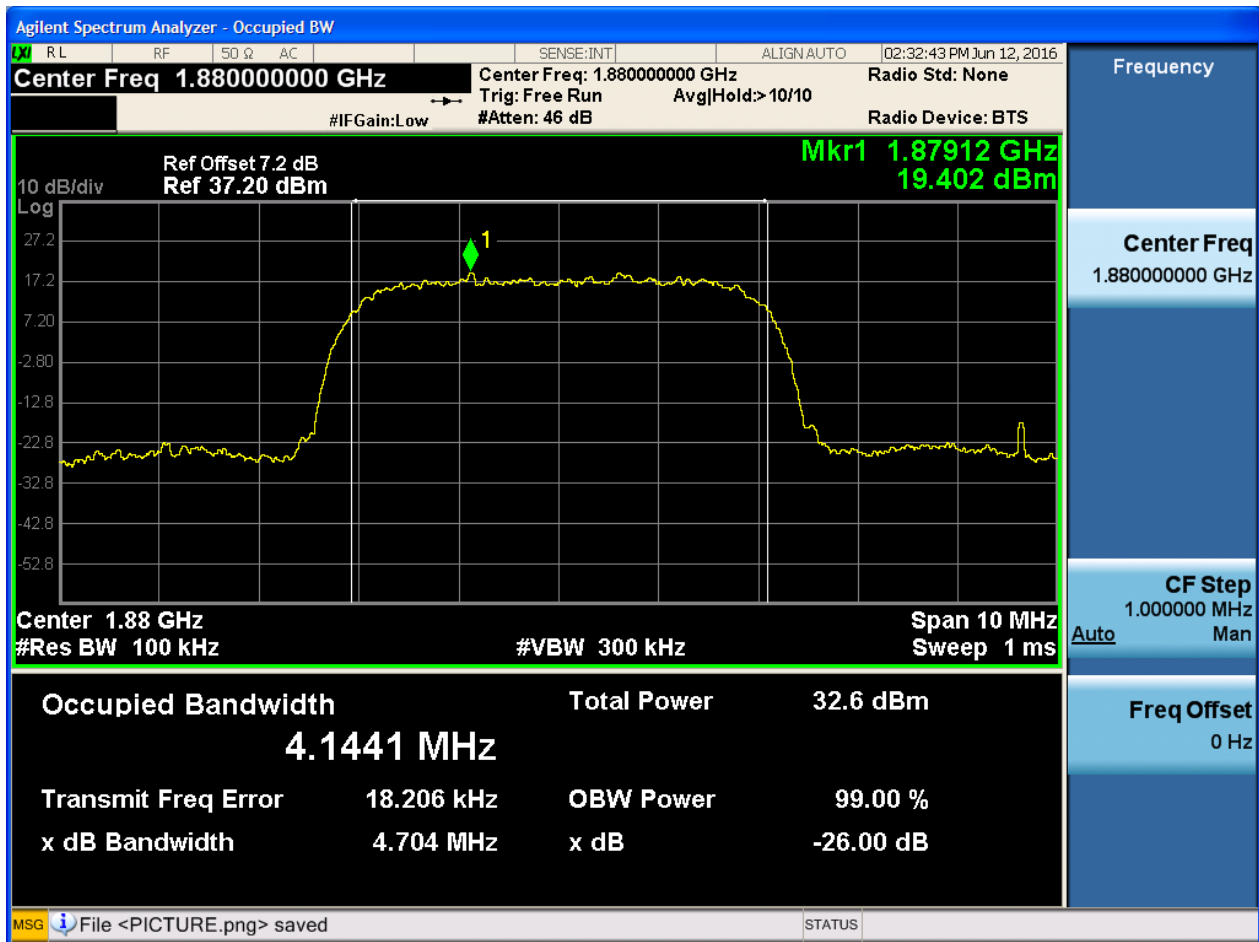
4.2.2.1 Test Mode = UMTS/TM1

4.2.2.1.1 Test Channel = LCH



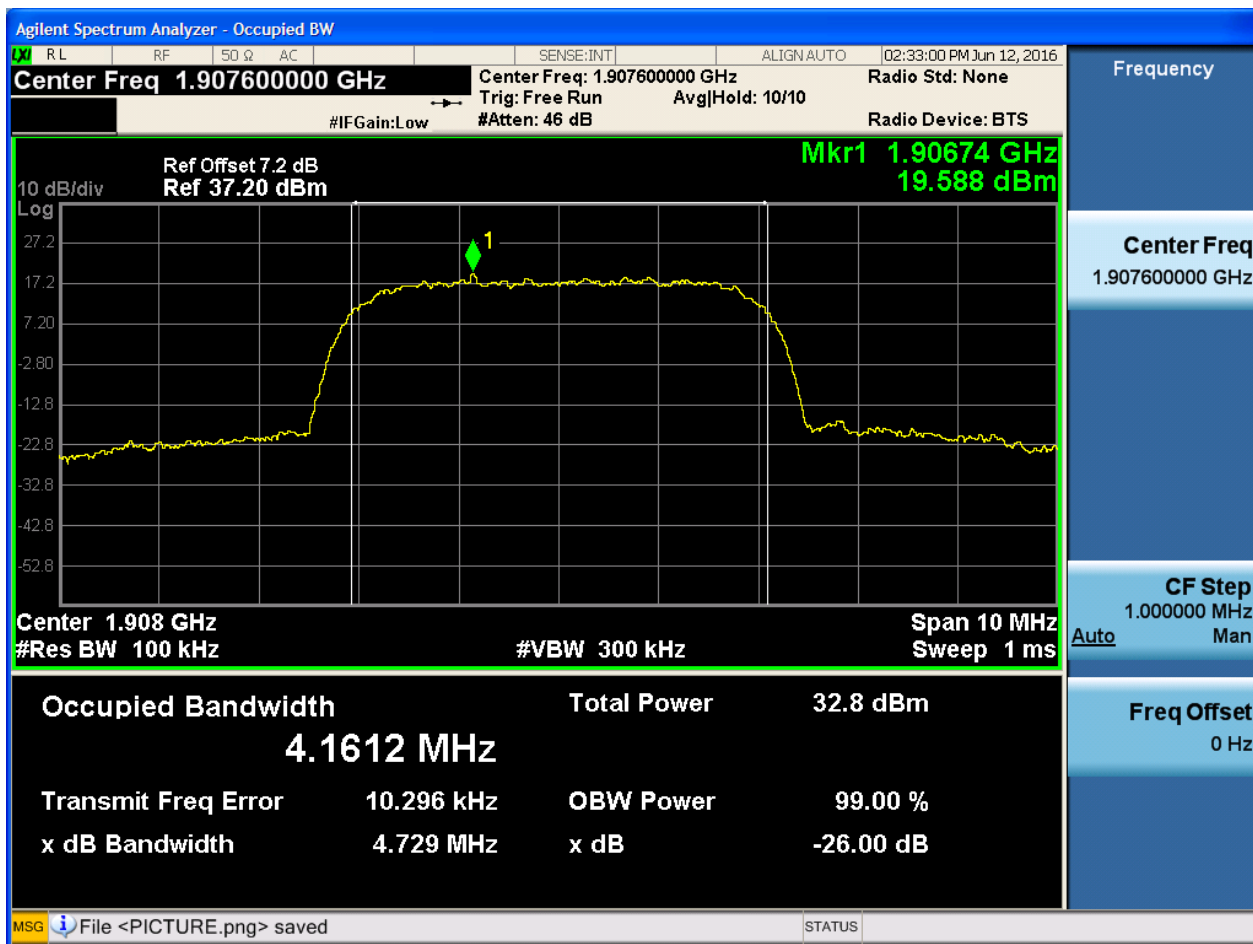


4.2.2.1.2 Test Channel = MCH





4.2.2.1.3 Test Channel = HCH





5Appendix_E: Band Edges Compliance

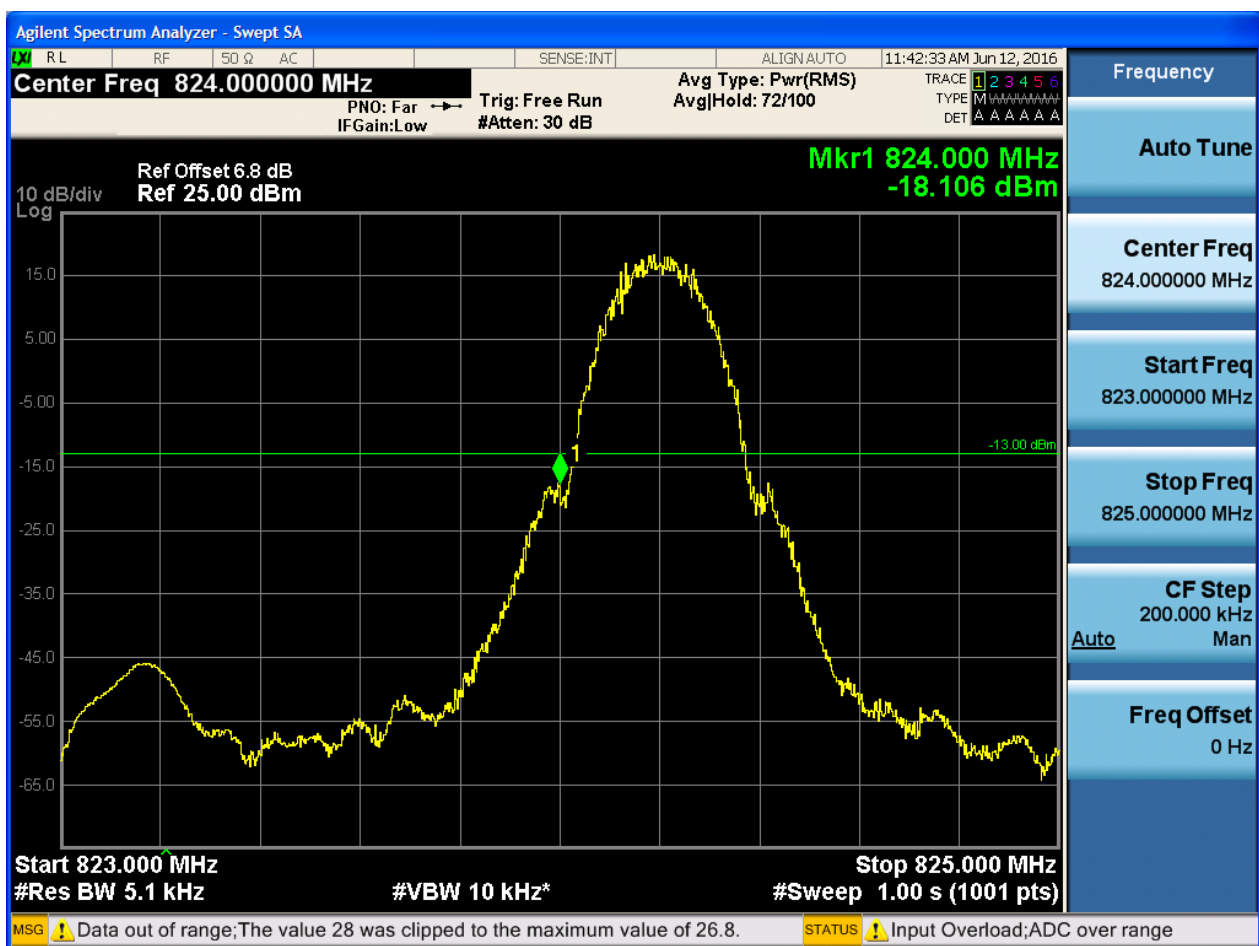
Part I - Test Plots

5.1 For GSM

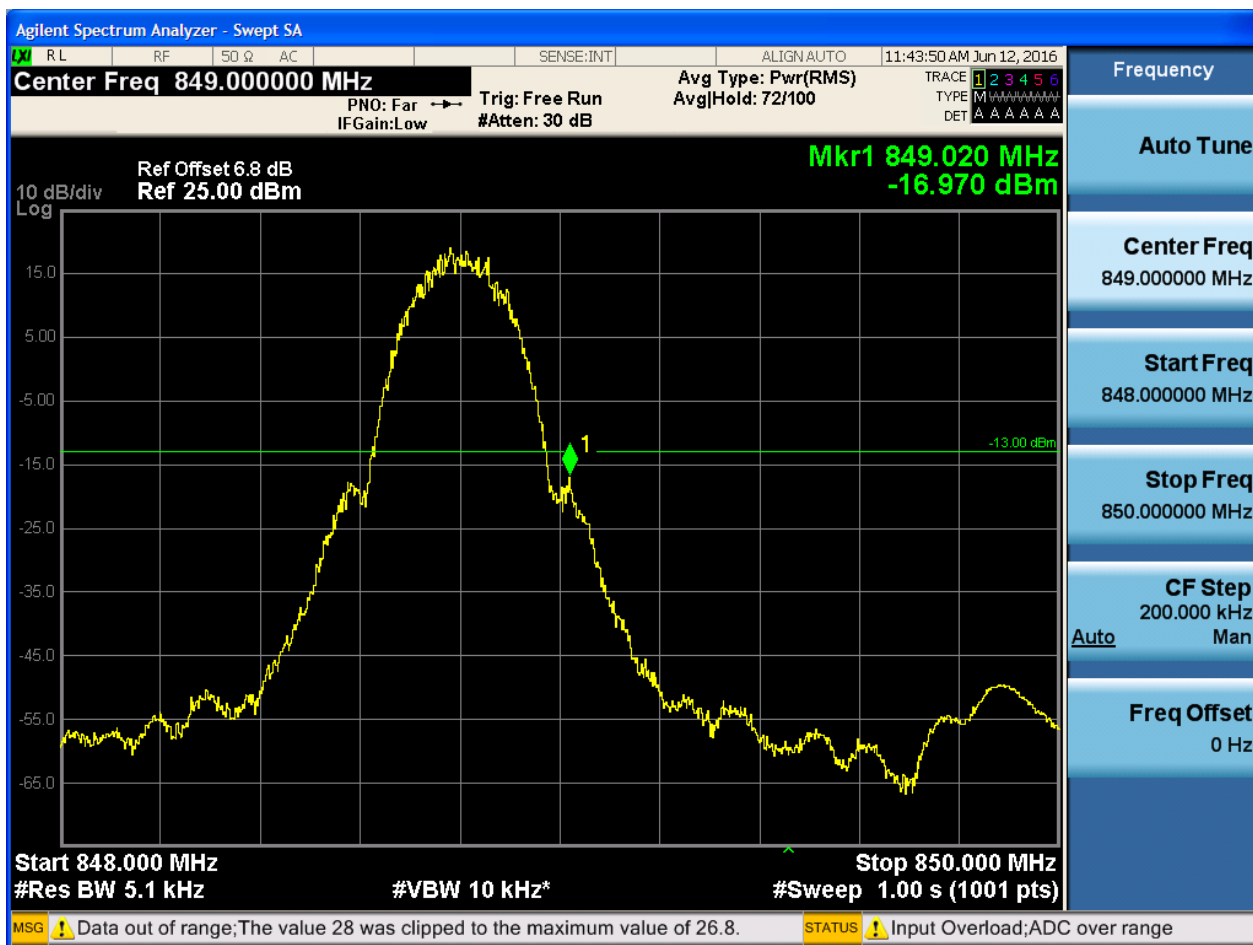
5.1.1 Test Band = GSM850

5.1.1.1 Test Mode = GSM/TM1

5.1.1.1.1 Test Channel = LCH

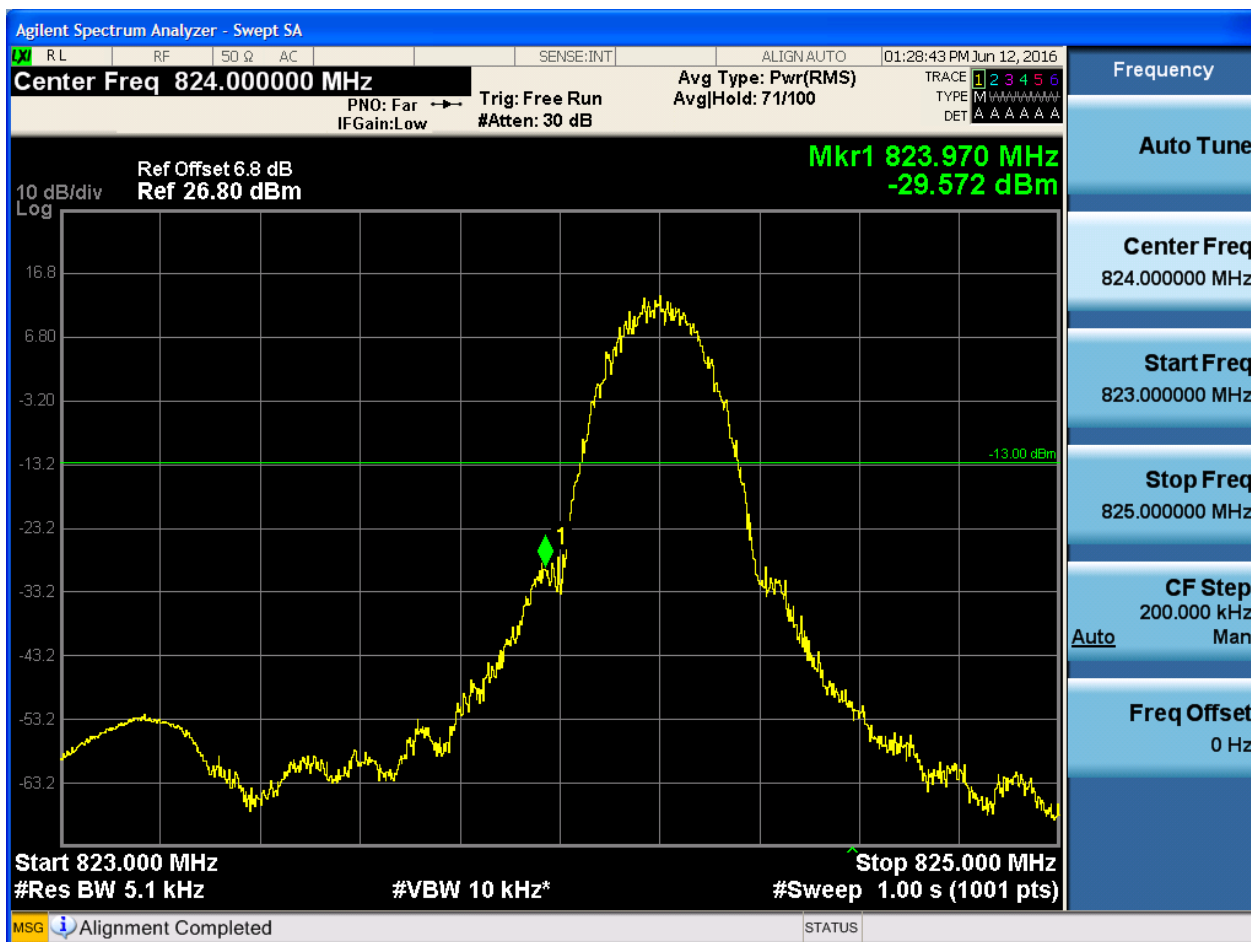


5.1.1.1.2 Test Channel = HCH

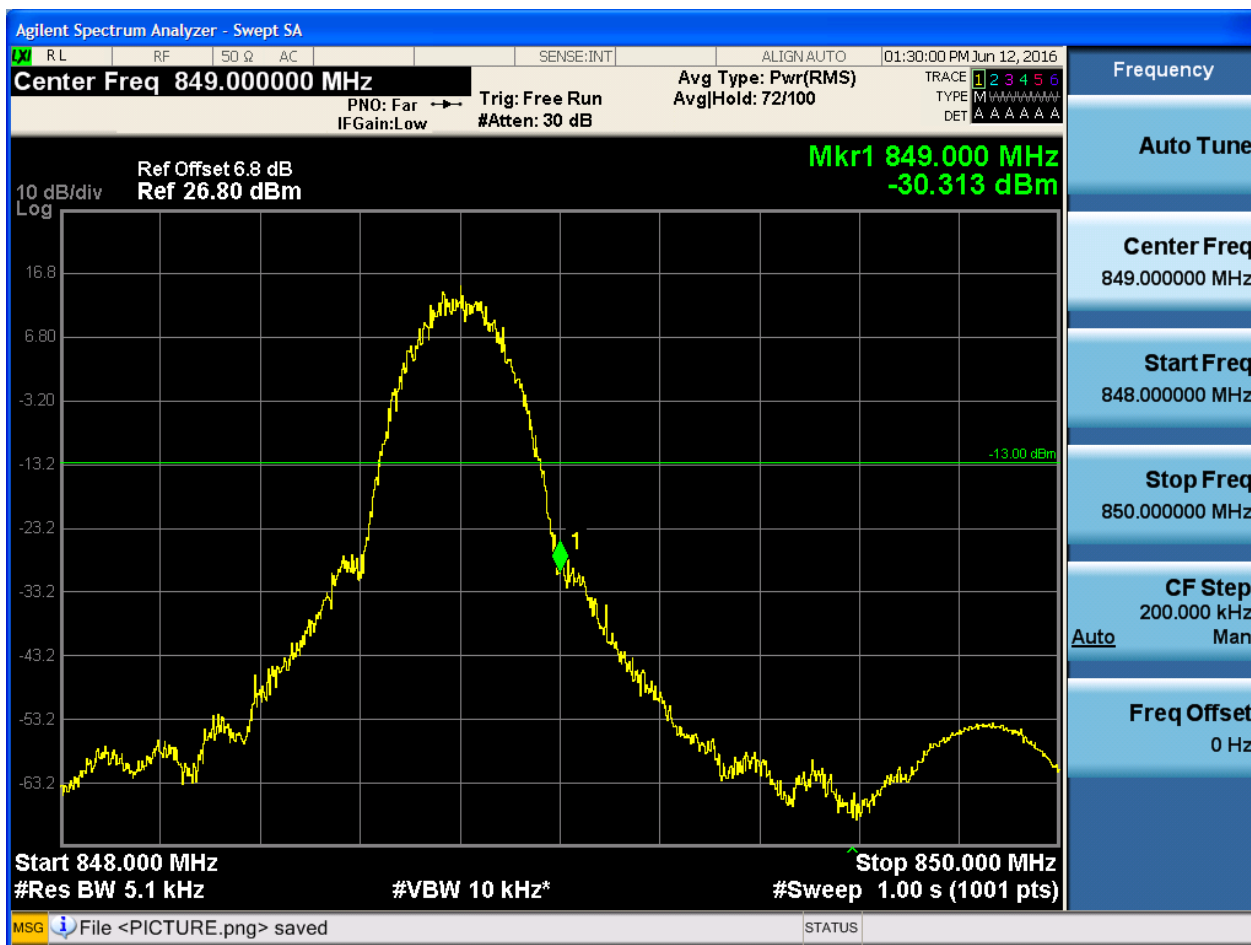


5.1.1.2 Test Mode = GSM/TM2

5.1.1.2.1 Test Channel = LCH



5.1.1.2.2 Test Channel = HCH

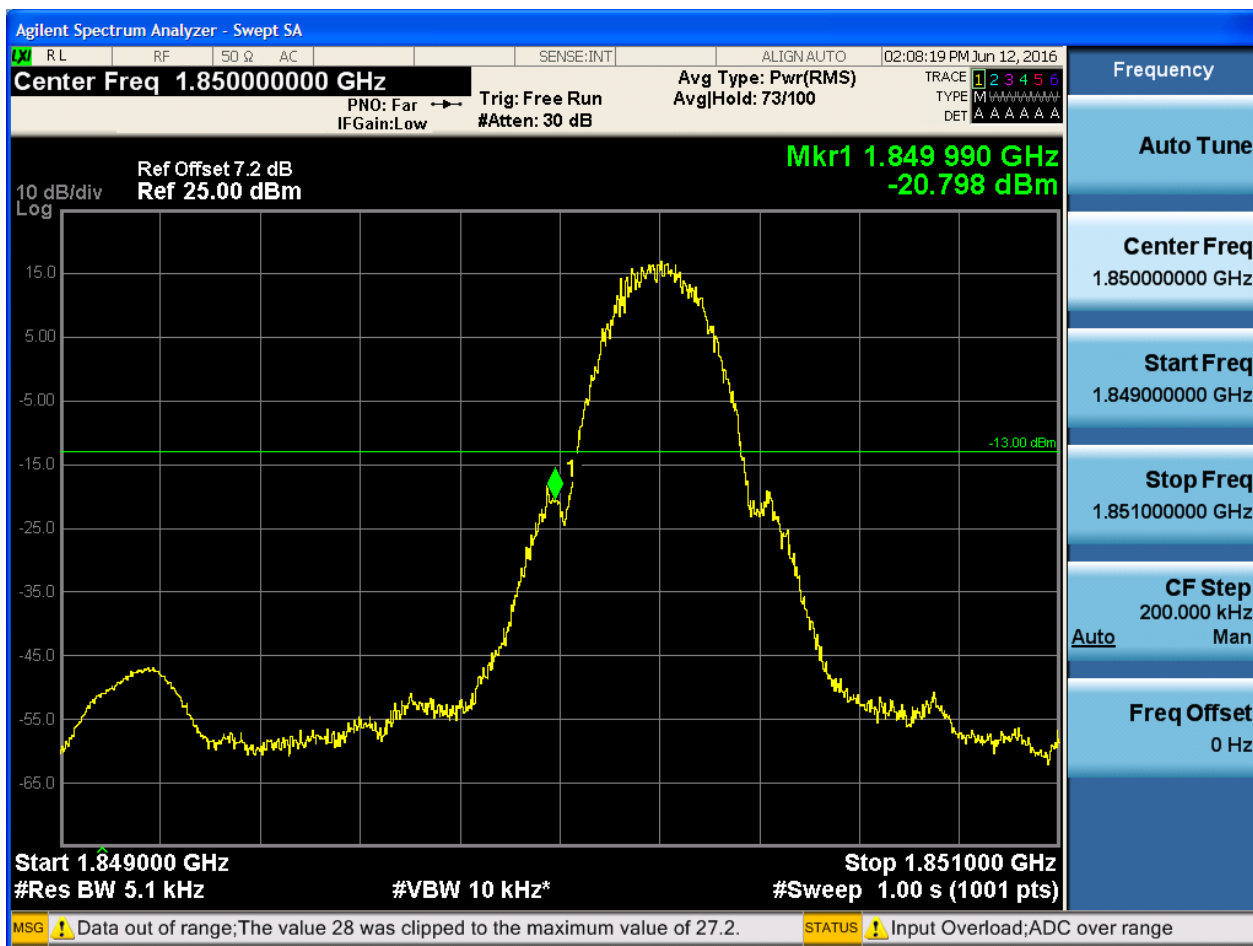




5.1.2 Test Band = GSM1900

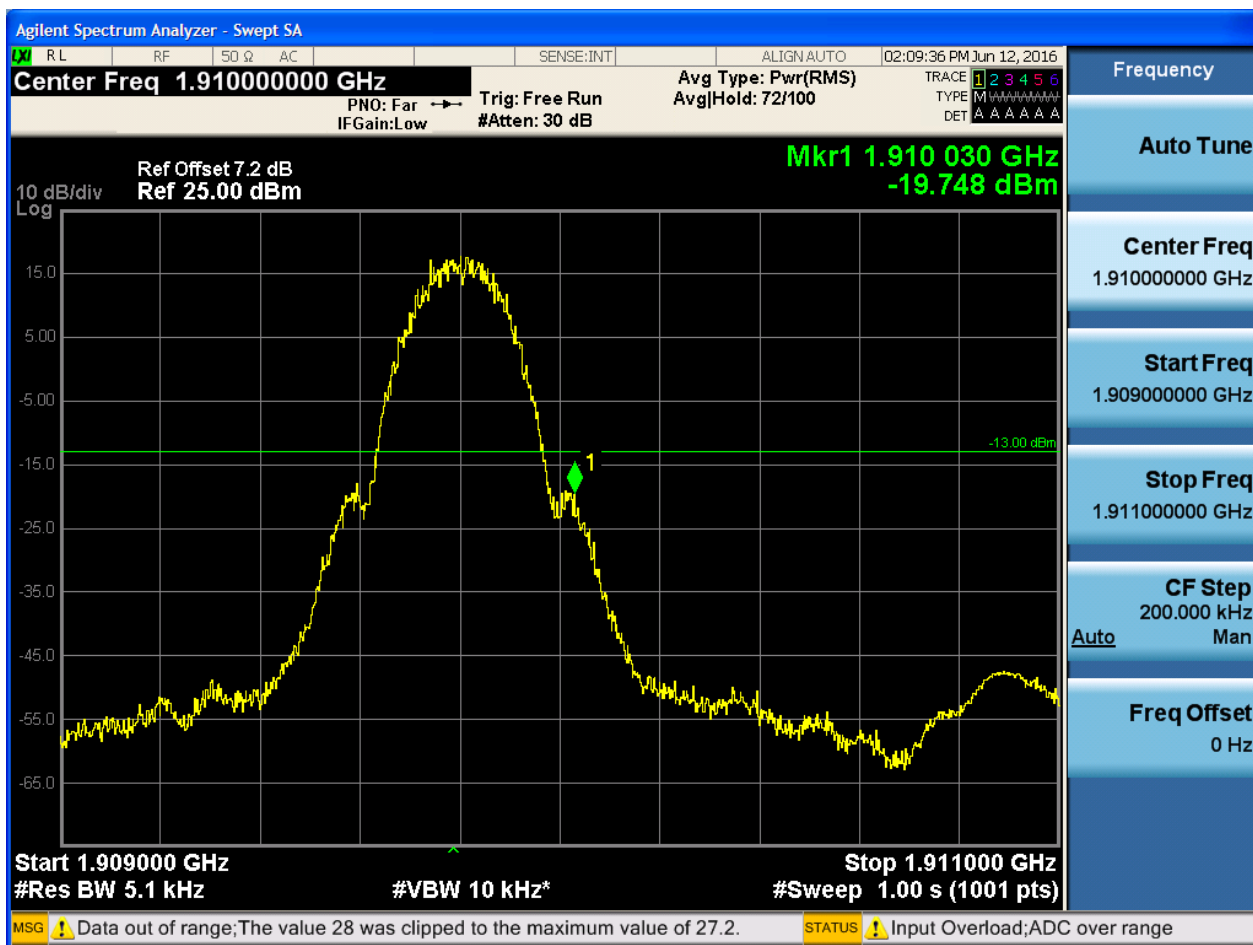
5.1.2.1 Test Mode = GSM/TM1

5.1.2.1.1 Test Channel = LCH



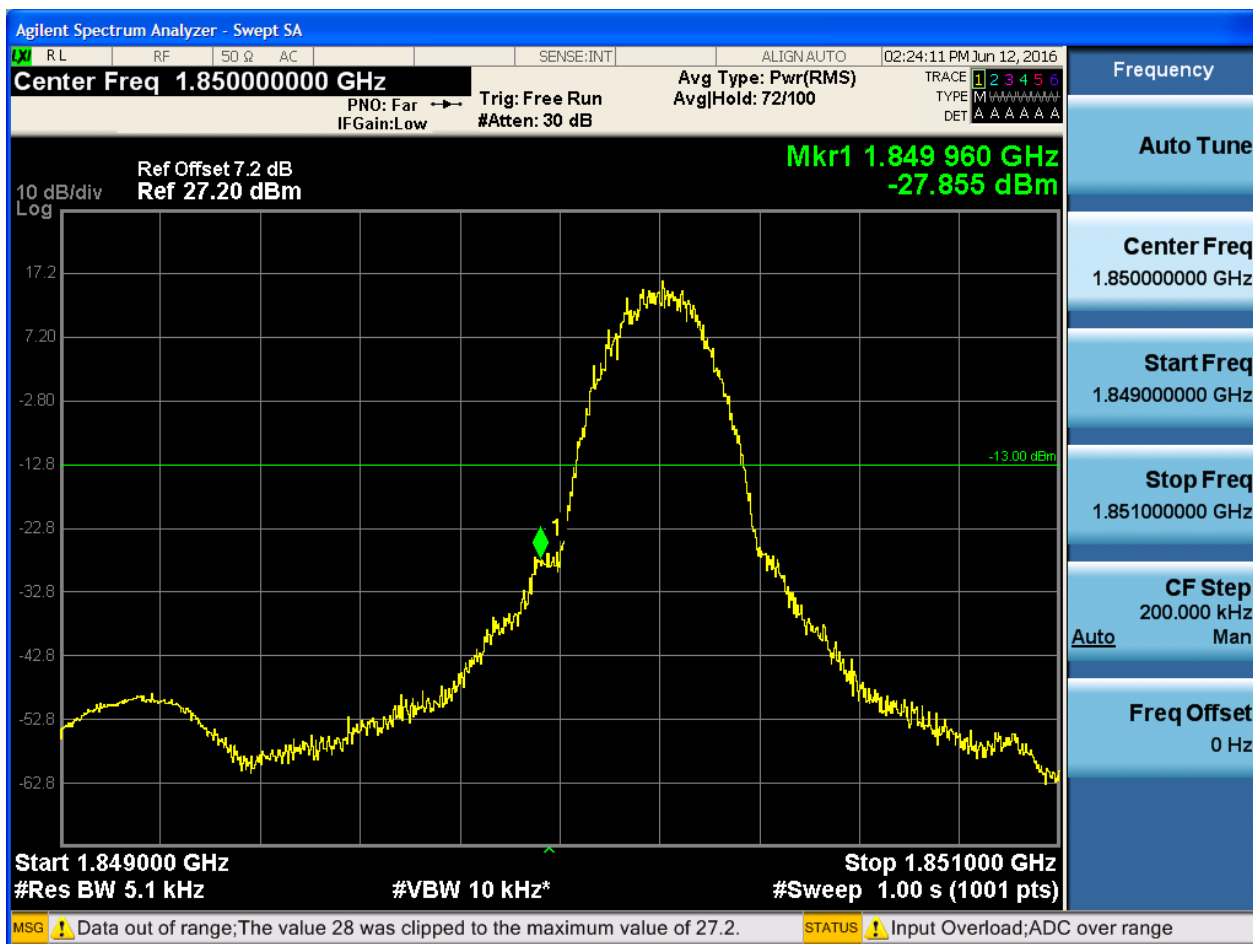


5.1.2.1.2 Test Channel = HCH



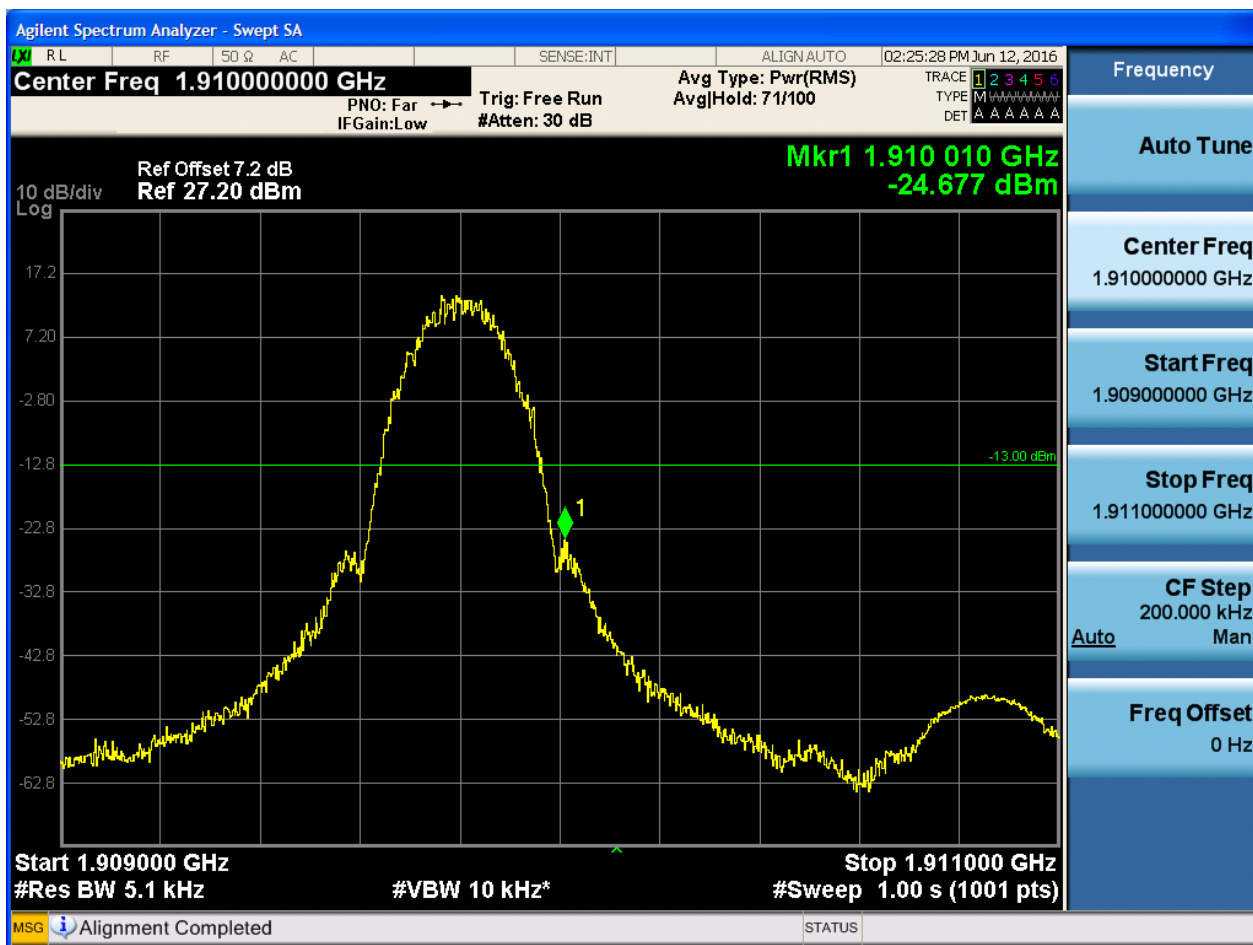
5.1.2.2 Test Mode = GSM/TM2

5.1.2.2.1 Test Channel = LCH





5.1.2.2.2 Test Channel = HCH

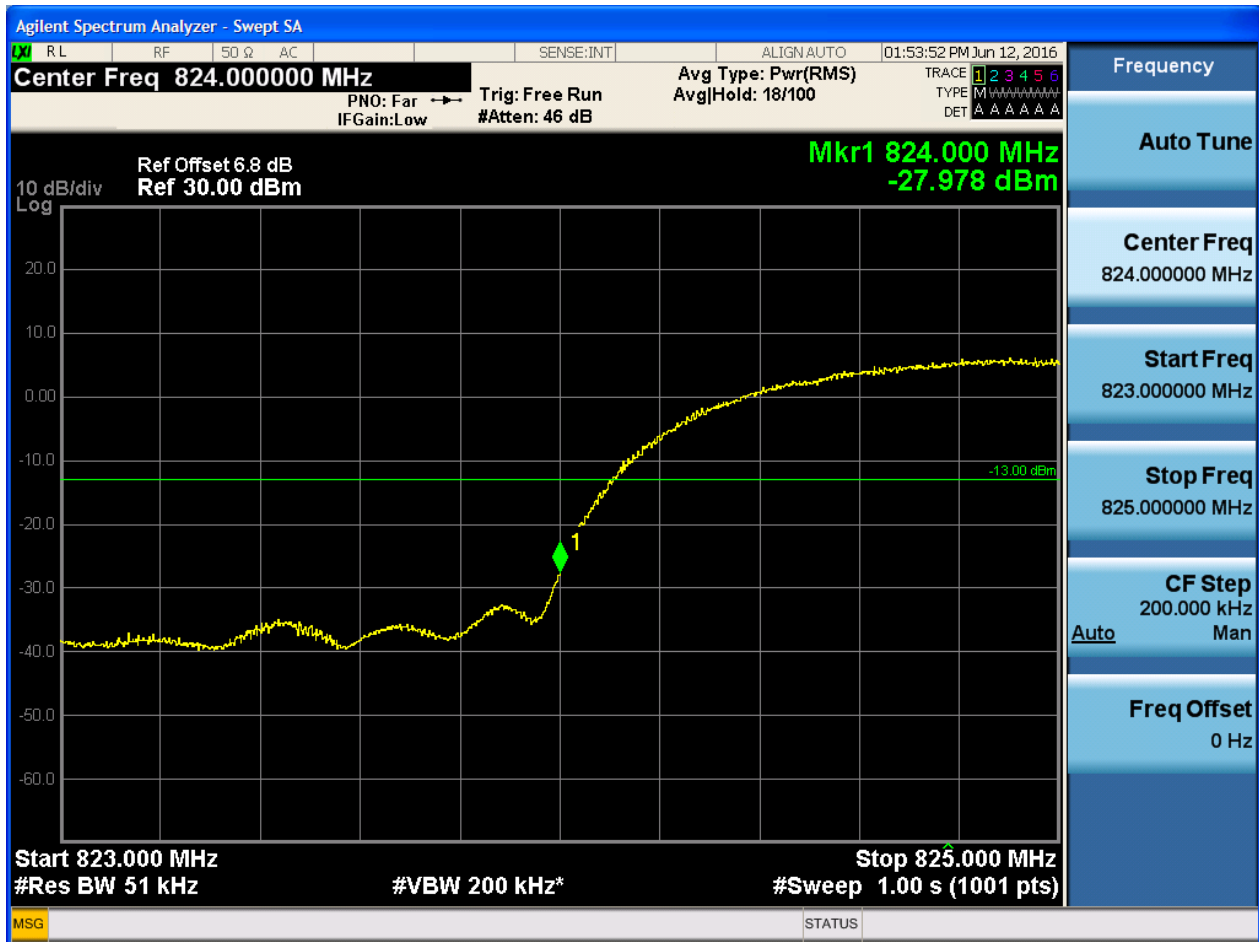


5.2 For UMTS

5.2.1 Test Band = WCDMA850

5.2.1.1 Test Mode = UMTS/TM1

5.2.1.1.1 Test Channel = LCH





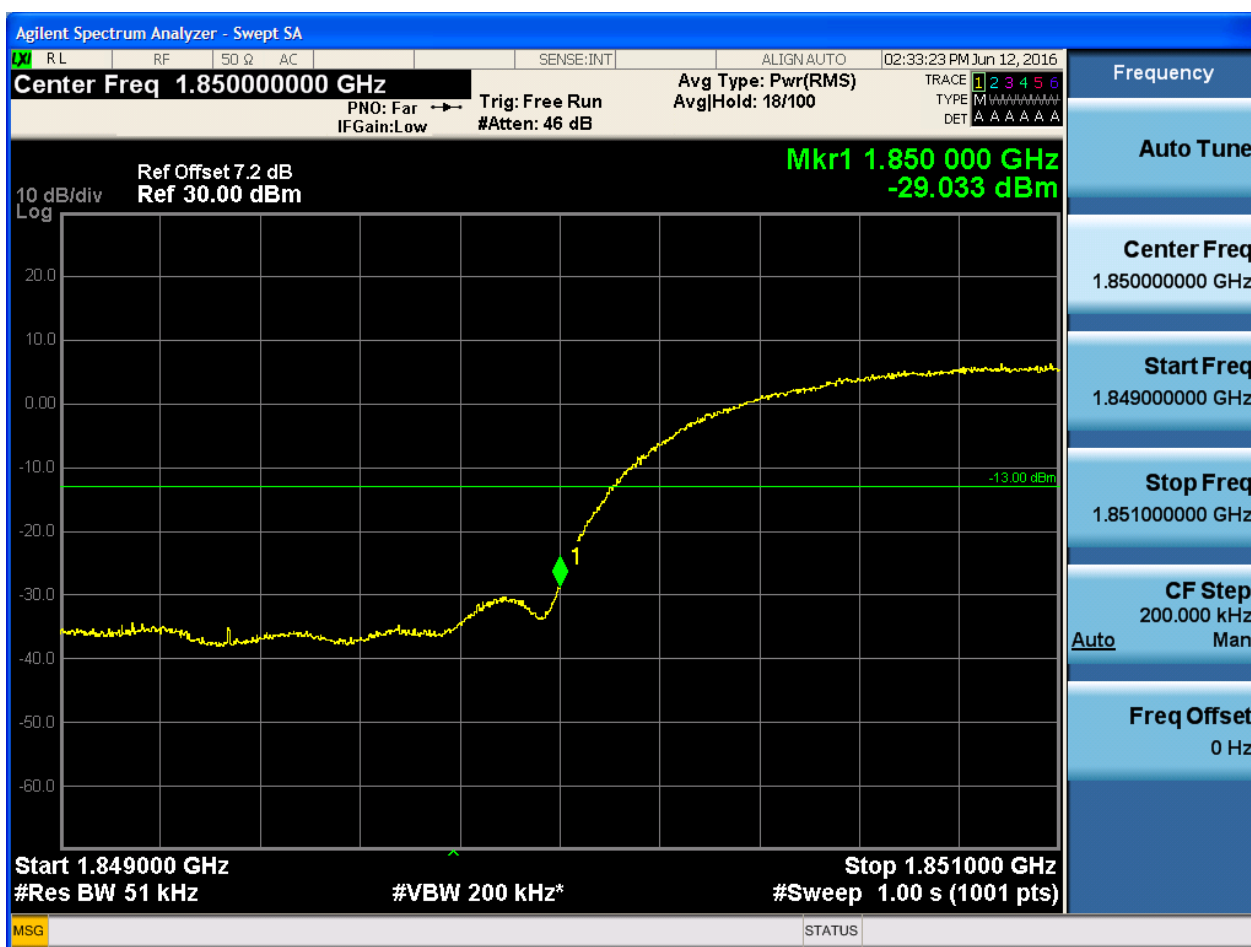
5.2.1.1.2 Test Channel = HCH



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.

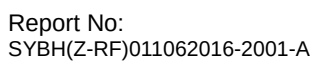
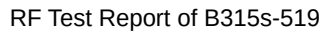
Part I - Test Plots

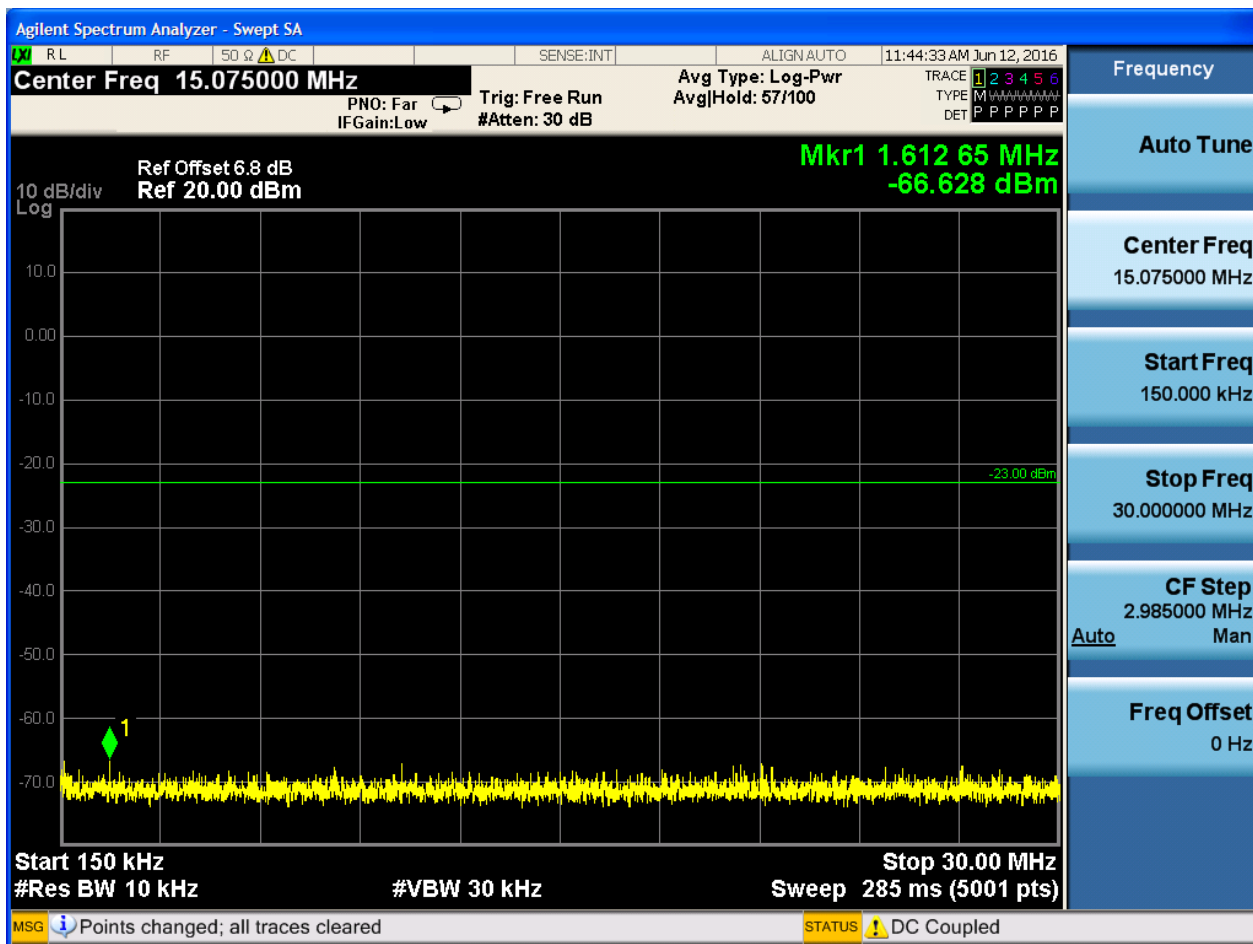
6.1 For GSM

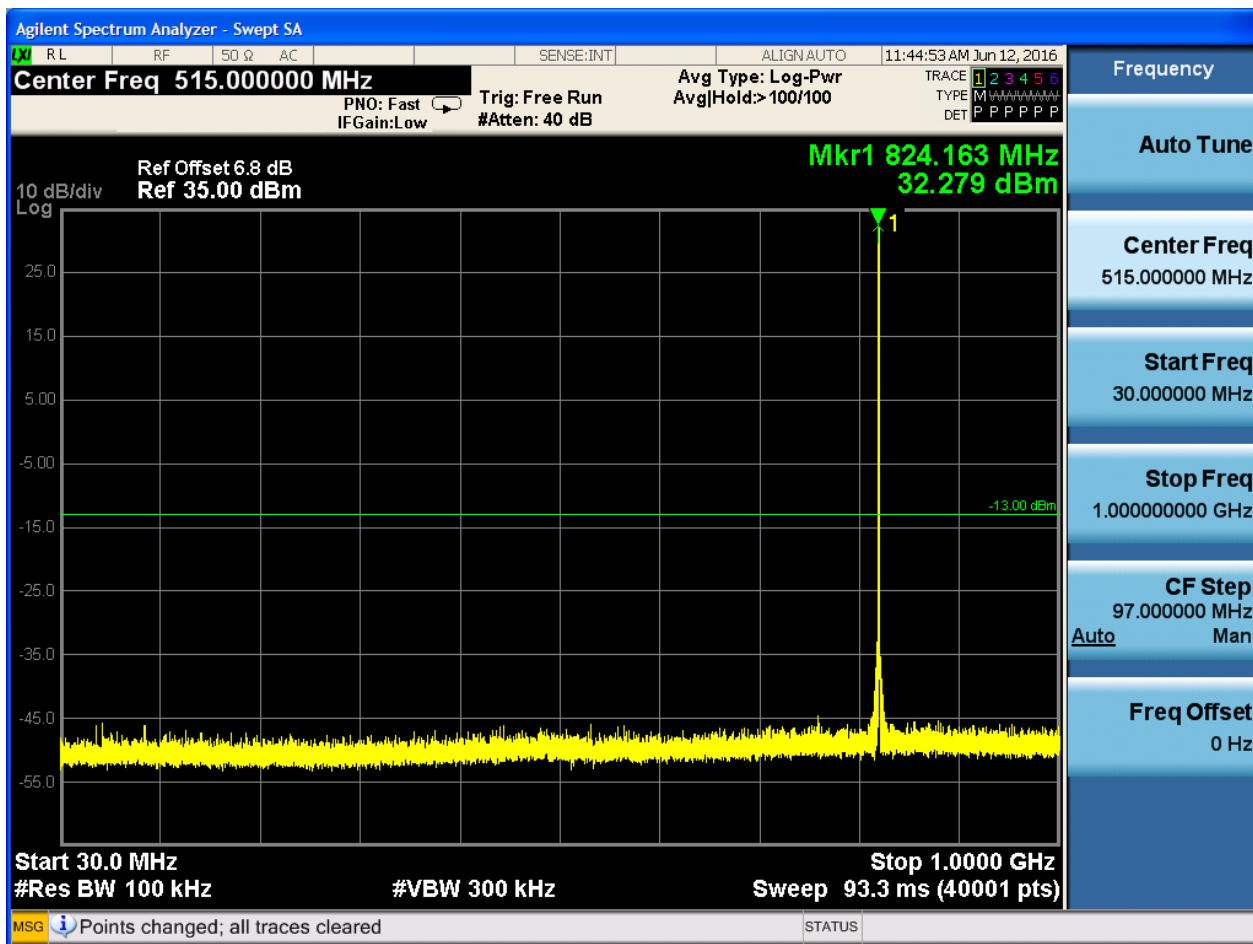
6.1.1 Test Band = GSM850

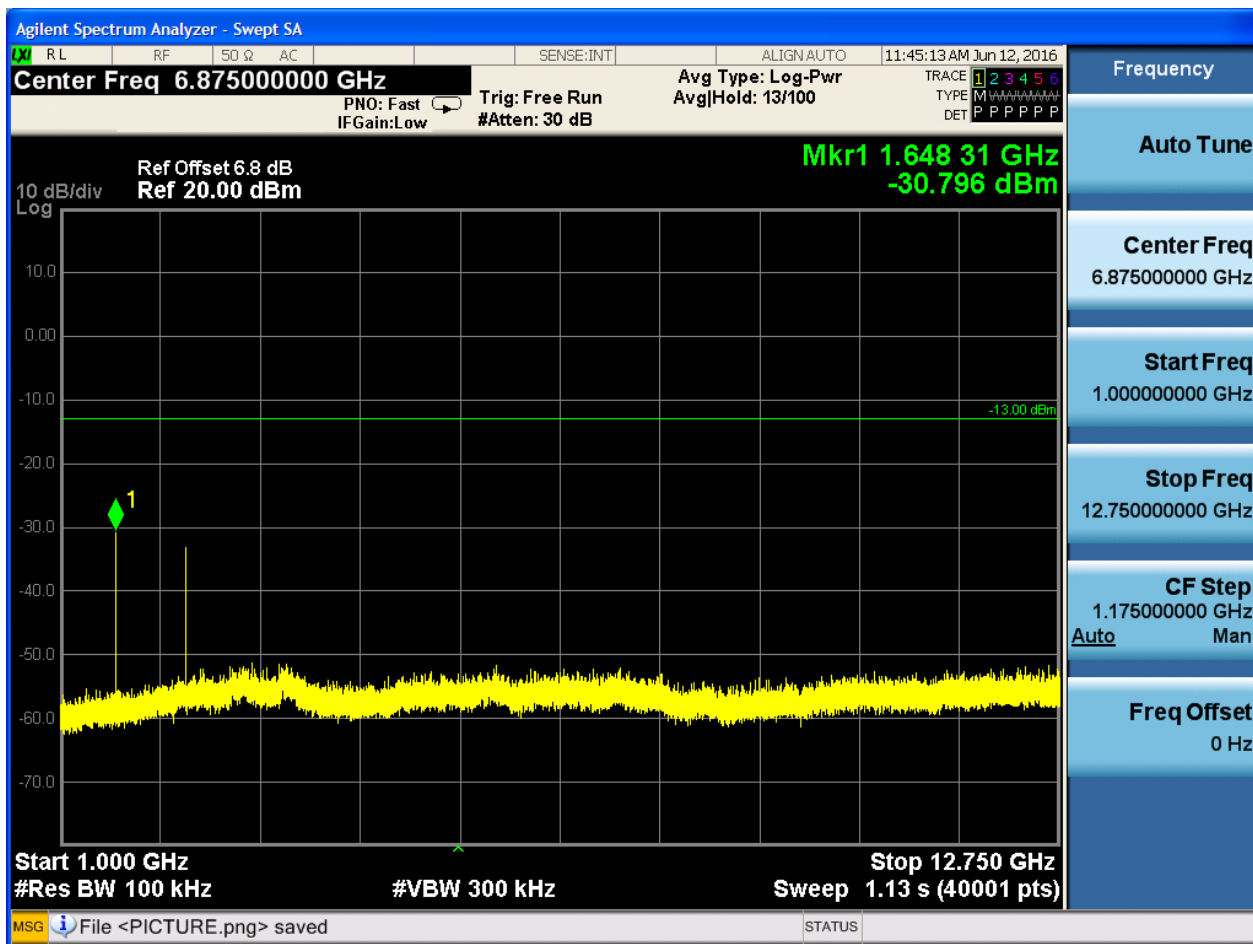
6.1.1.1 Test Mode = GSM/TM1

6.1.1.1.1 Test Channel = LCH

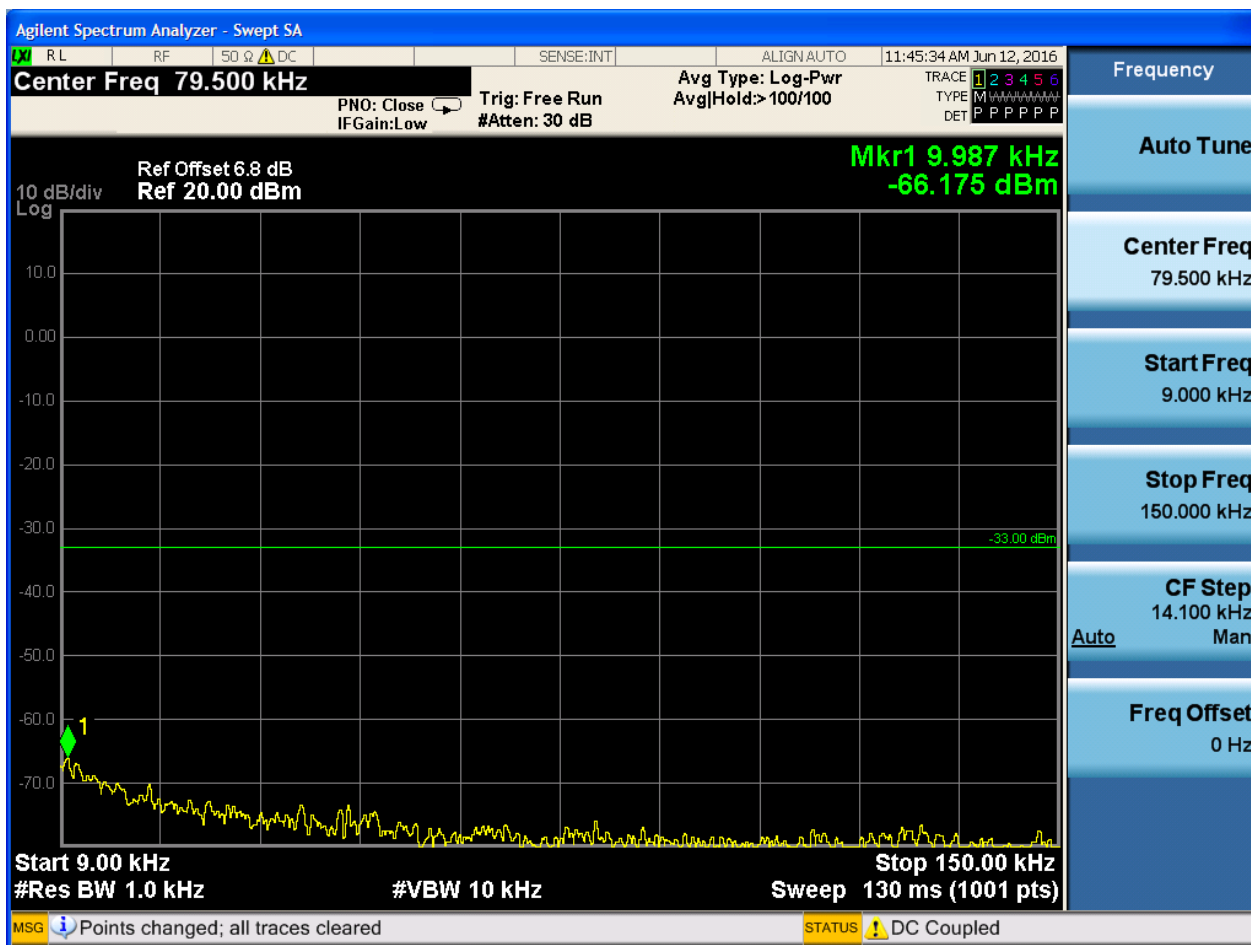


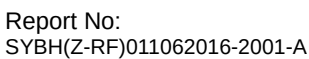
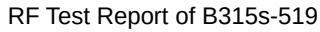


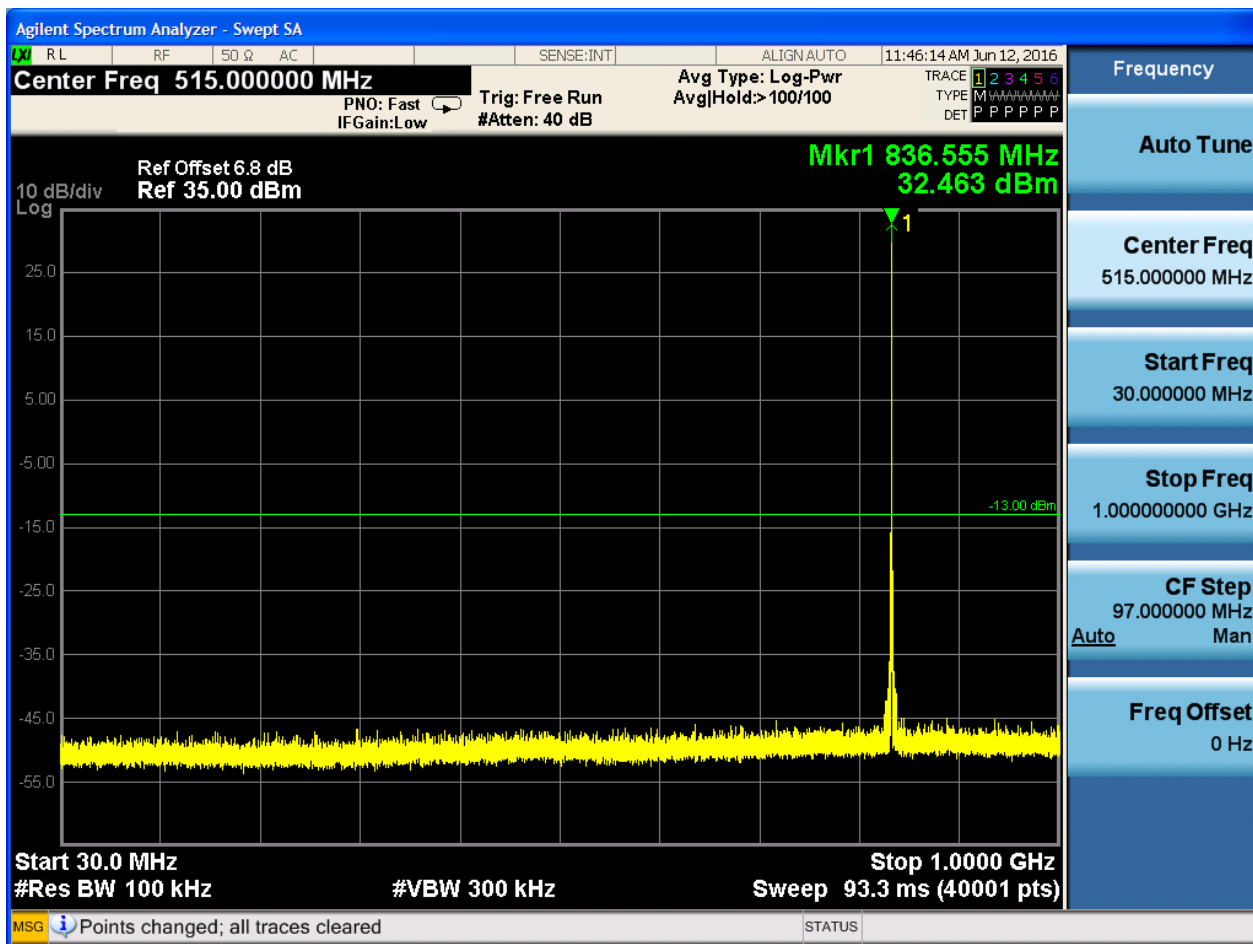


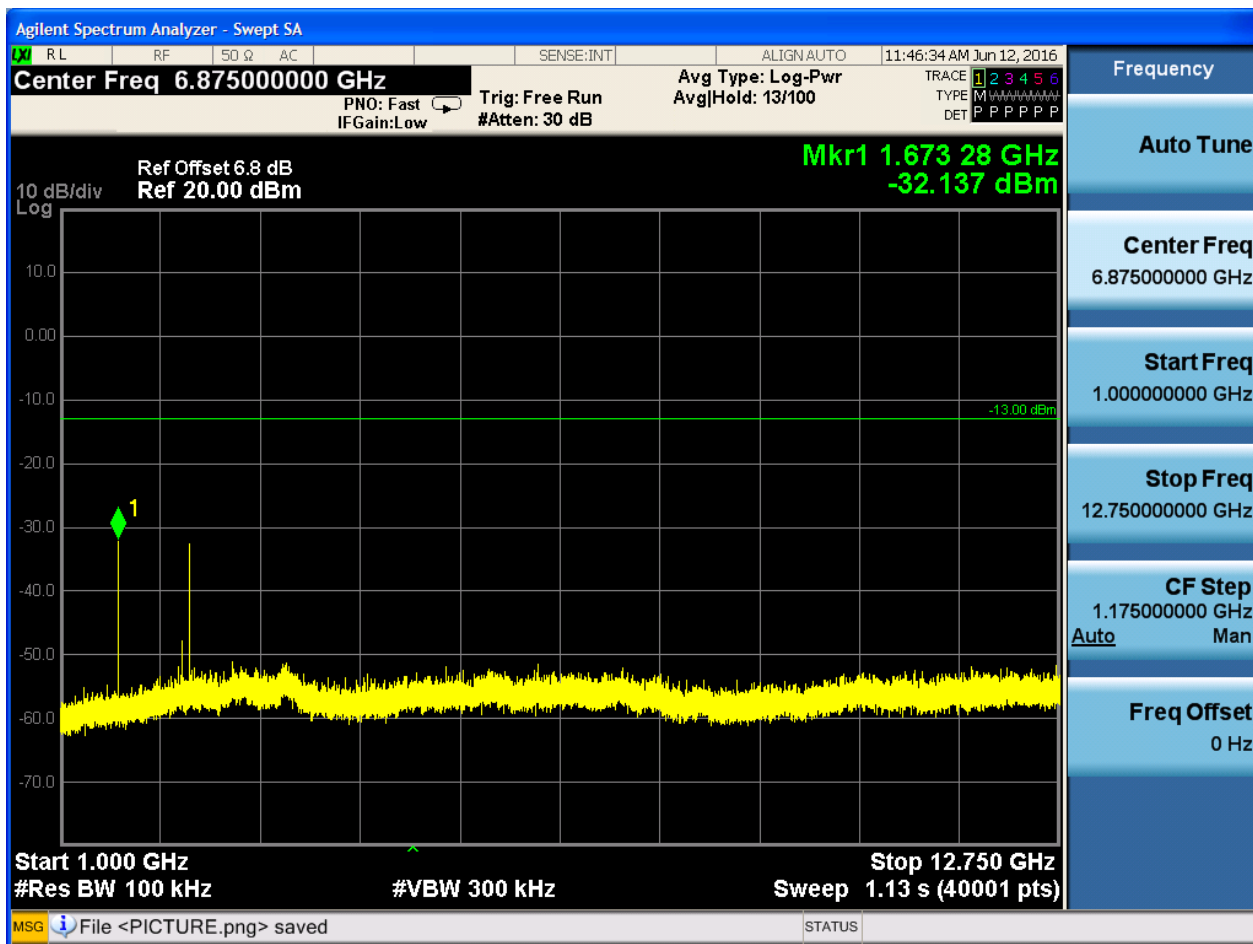


6.1.1.1.2 Test Channel = MCH



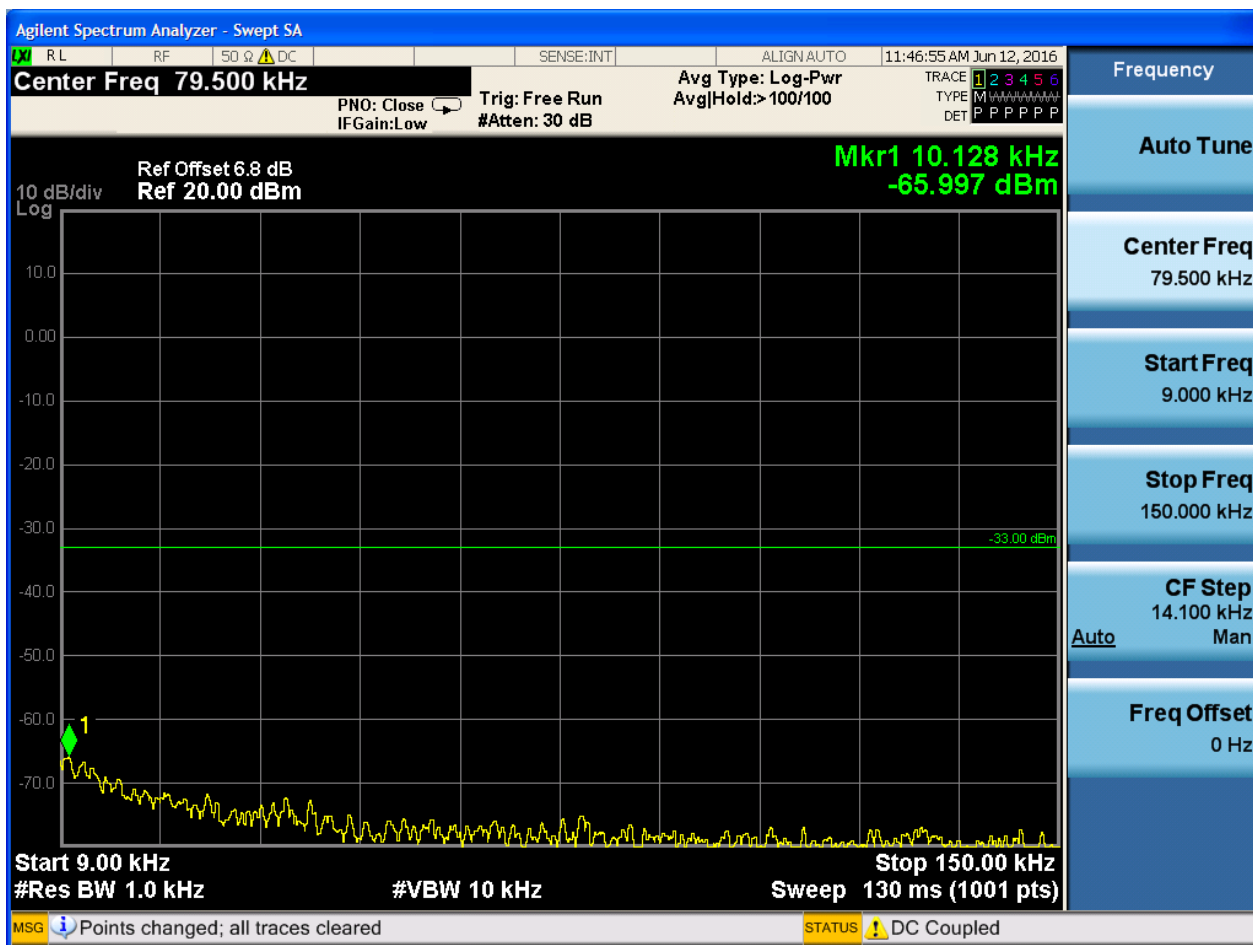


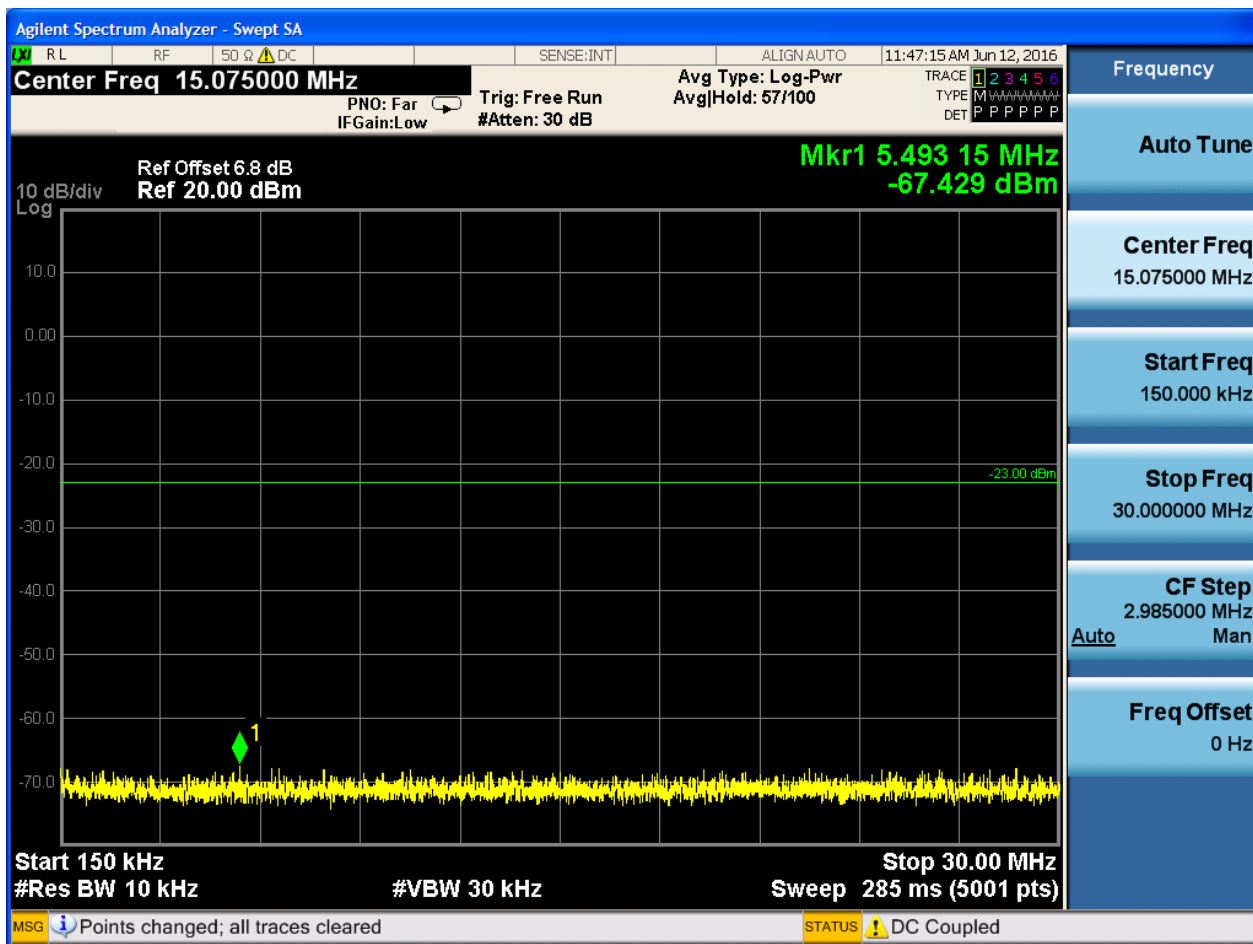


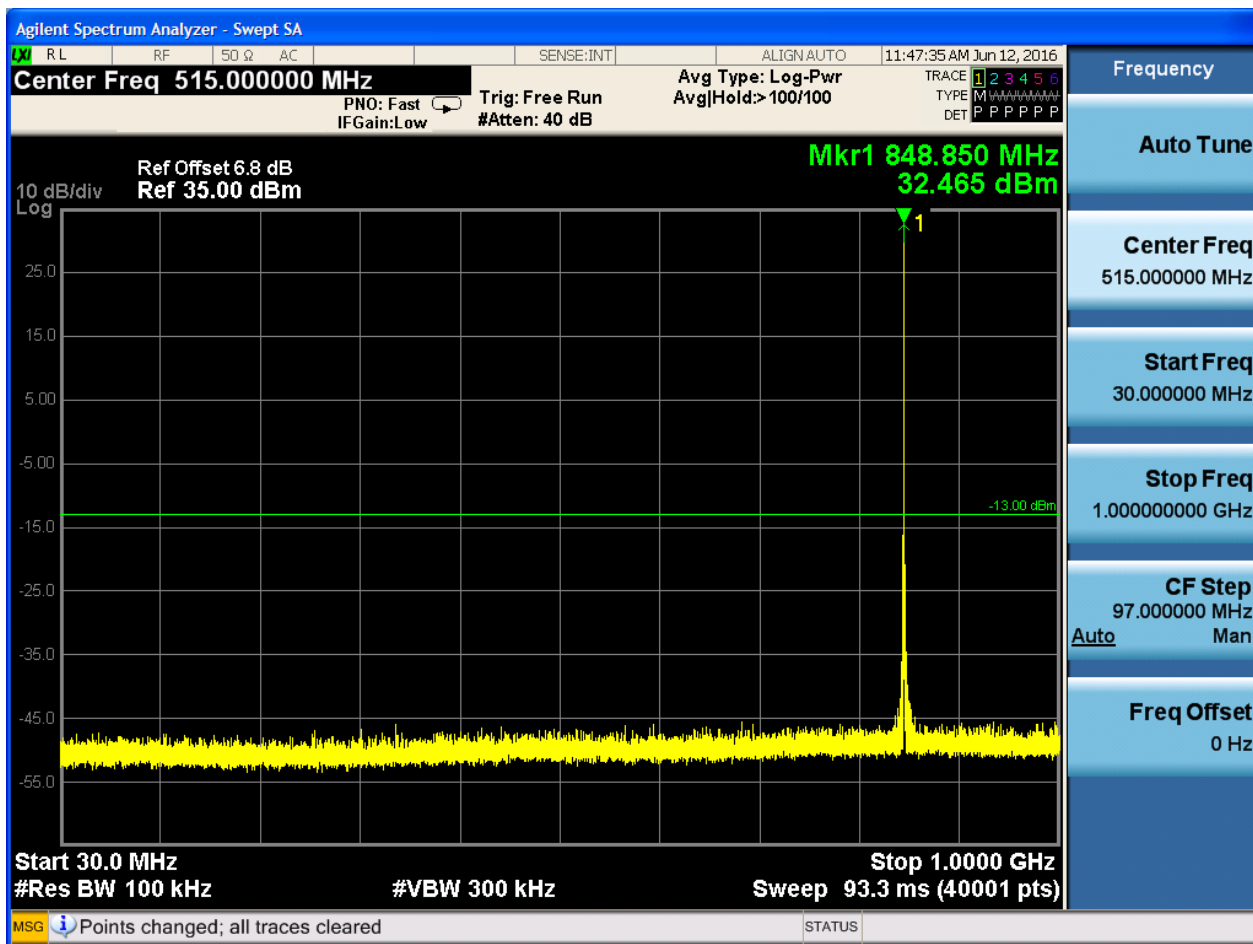


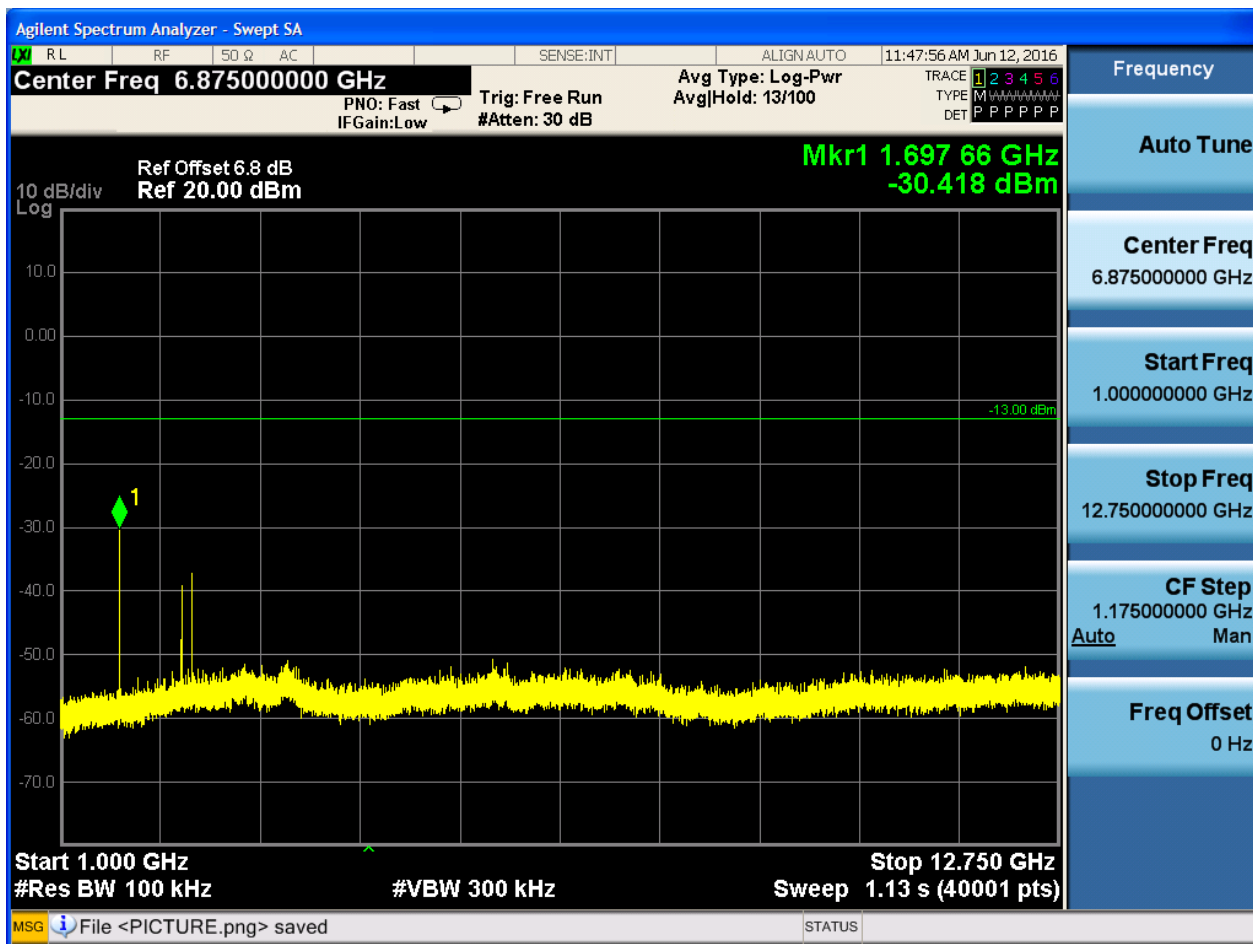


6.1.1.1.3 Test Channel = HCH





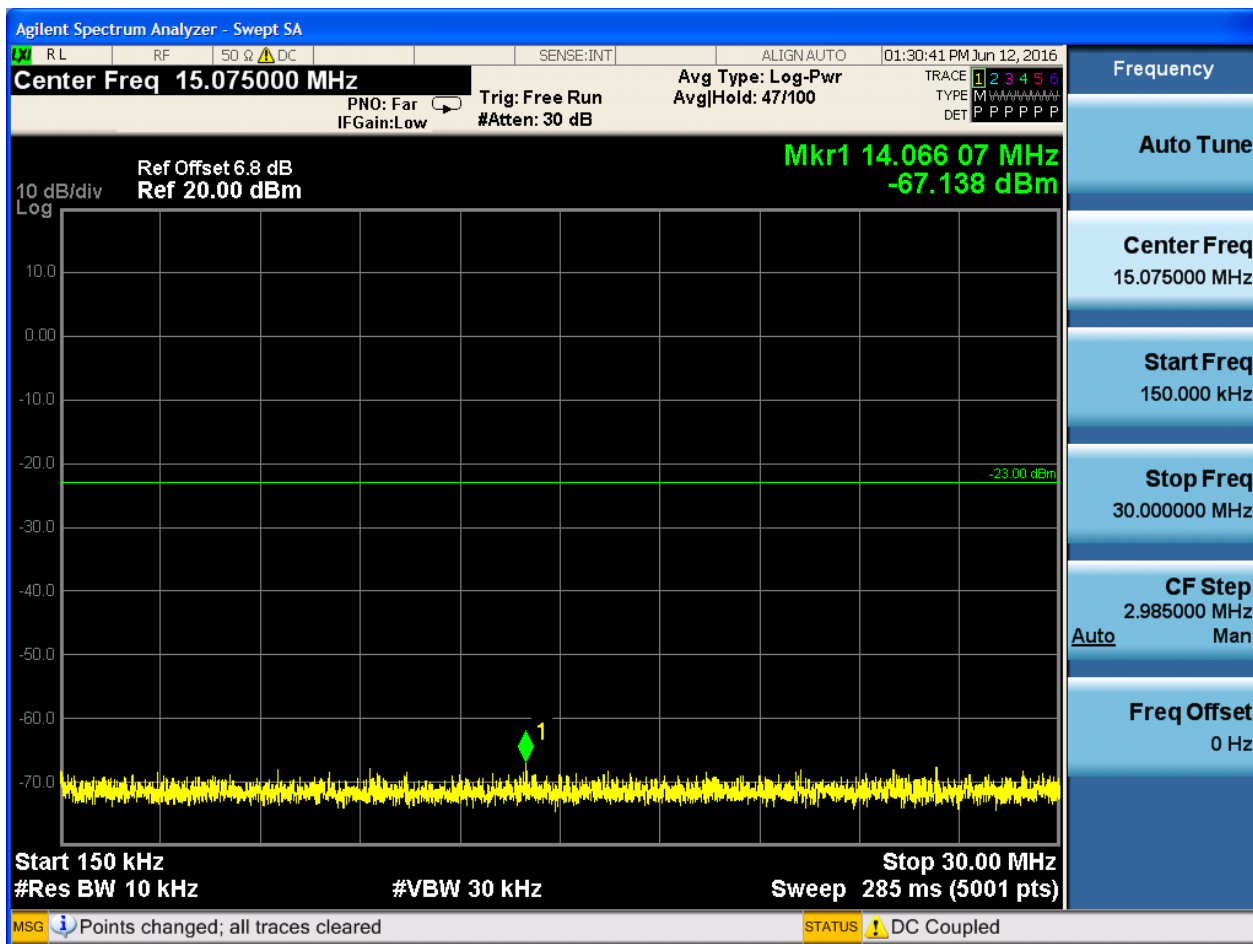


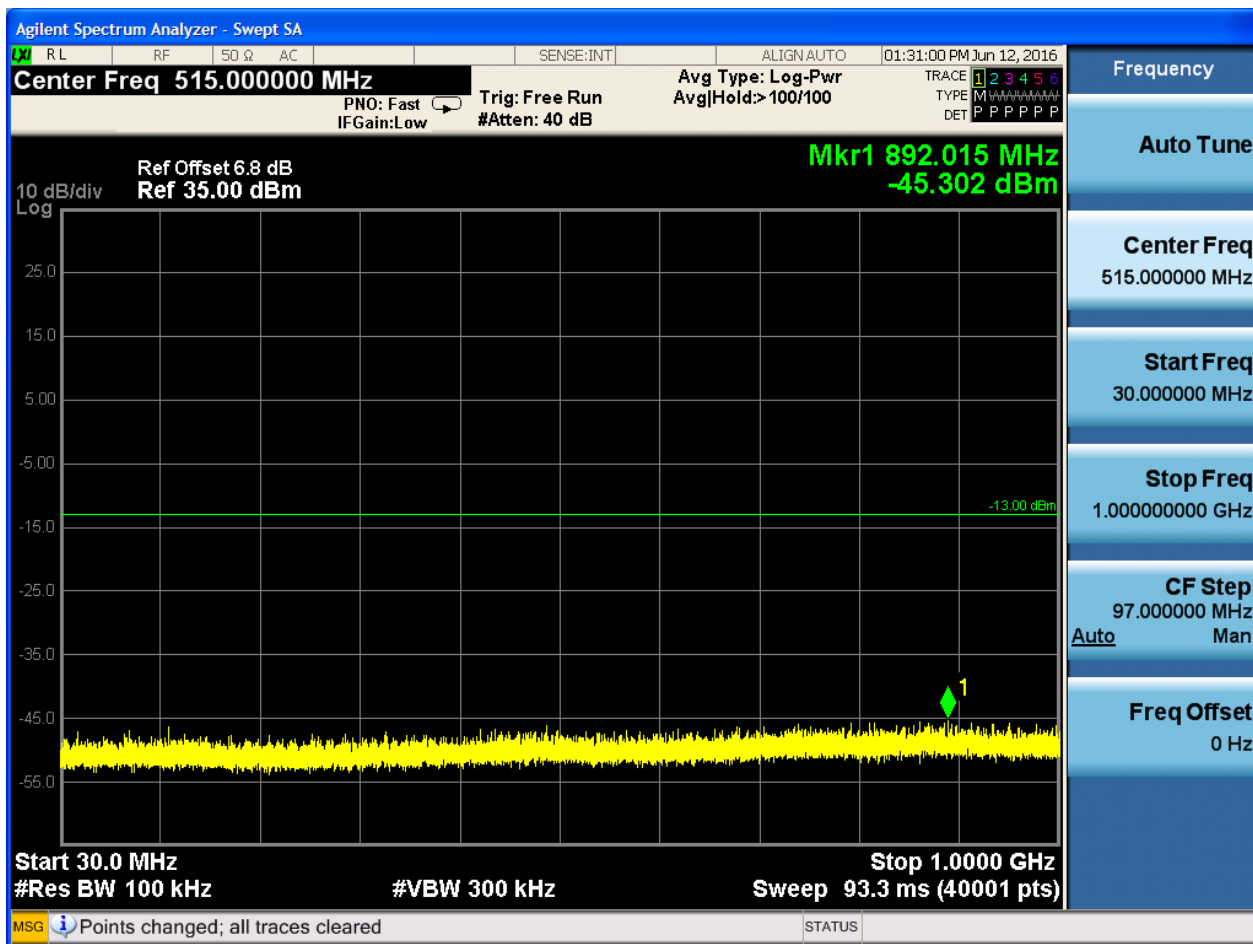


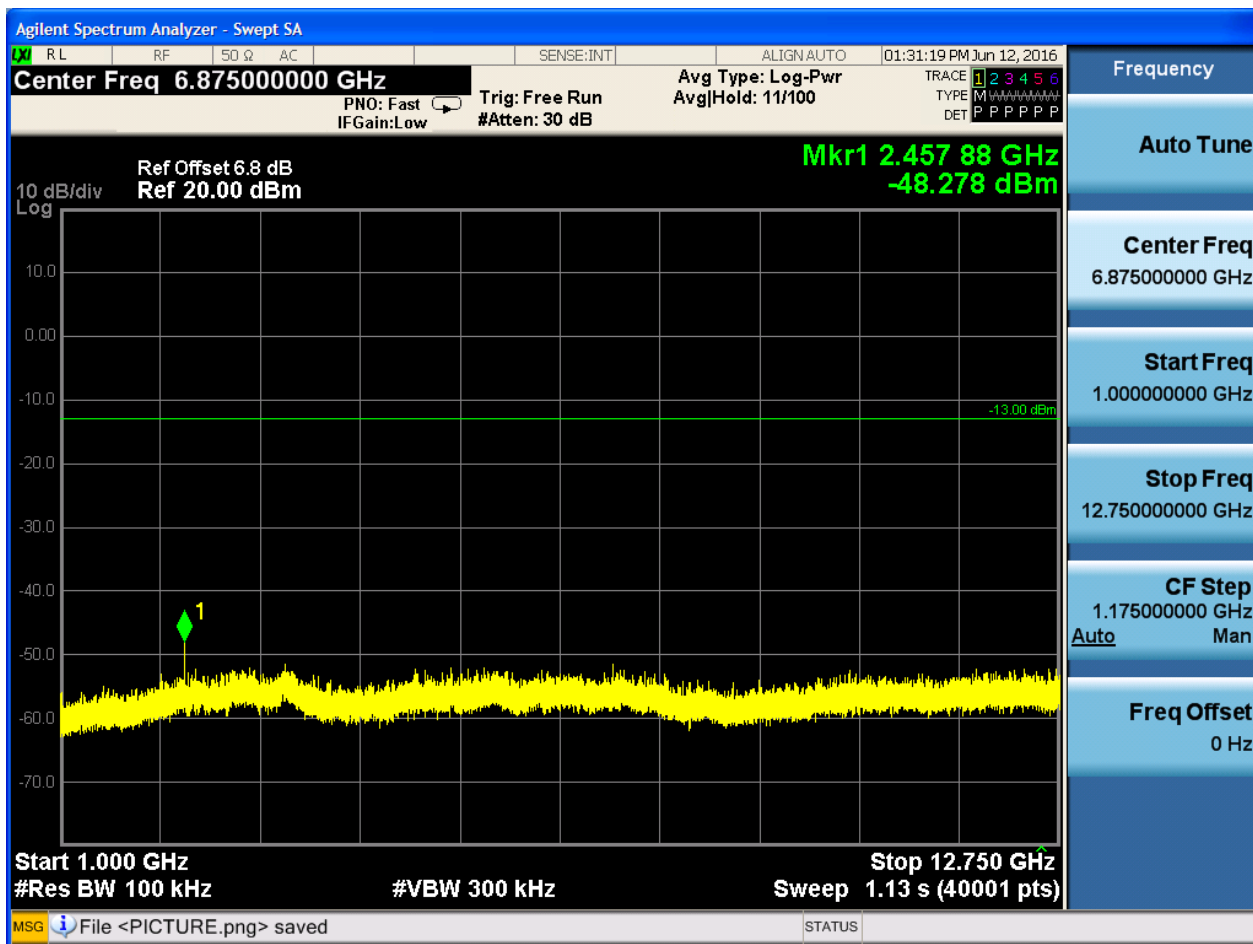
6.1.1.2 Test Mode = GSM/TM2

6.1.1.2.1 Test Channel = LCH

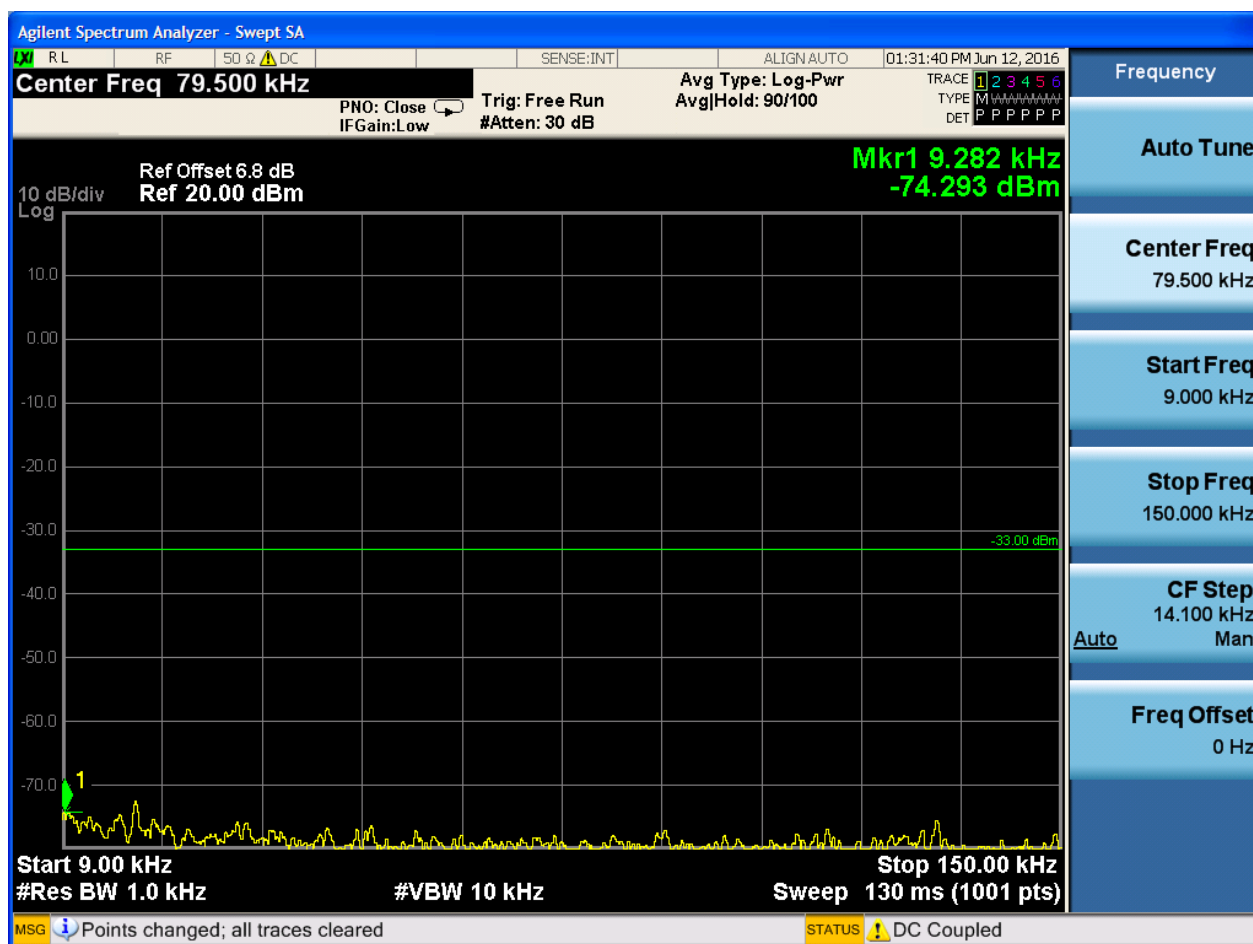


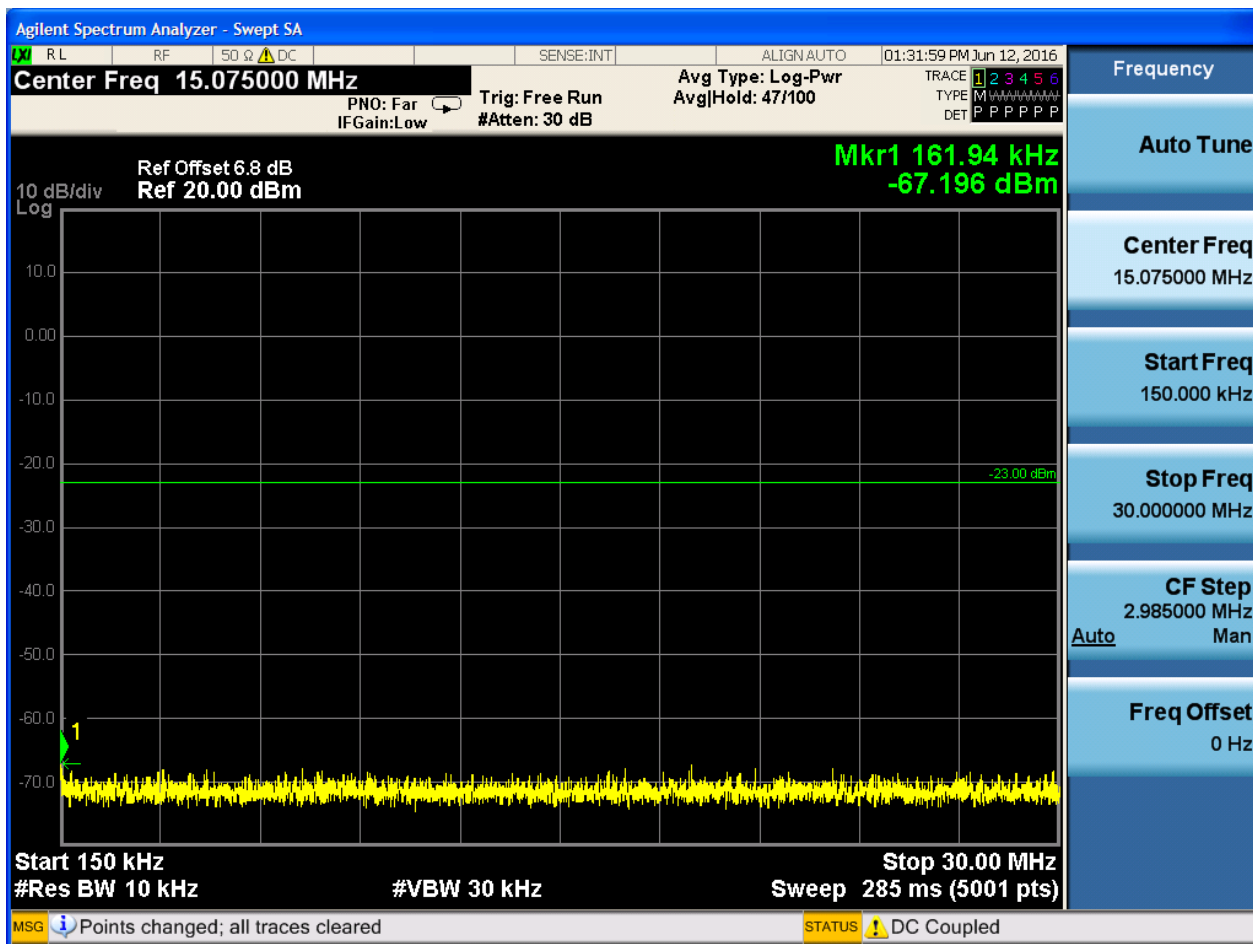


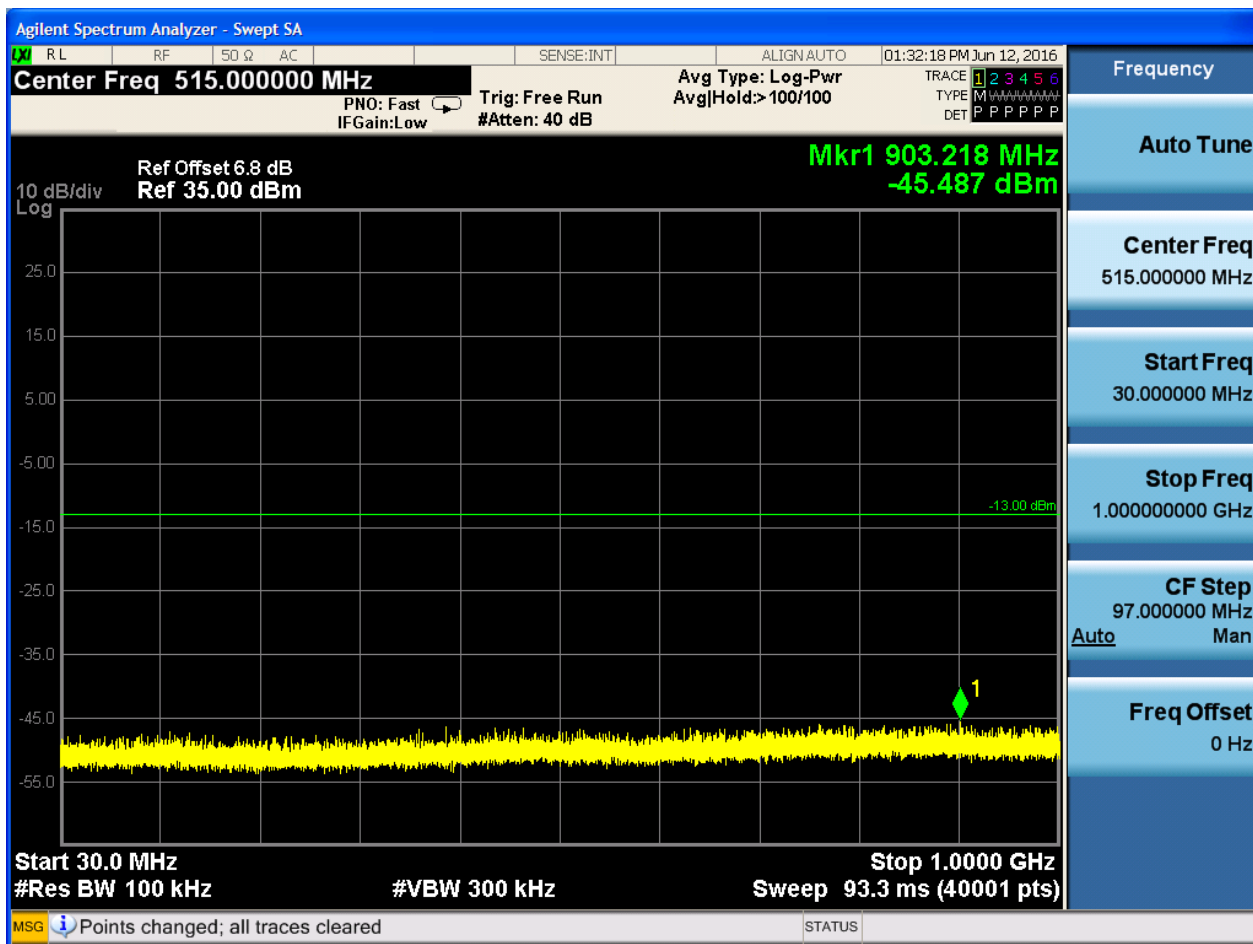


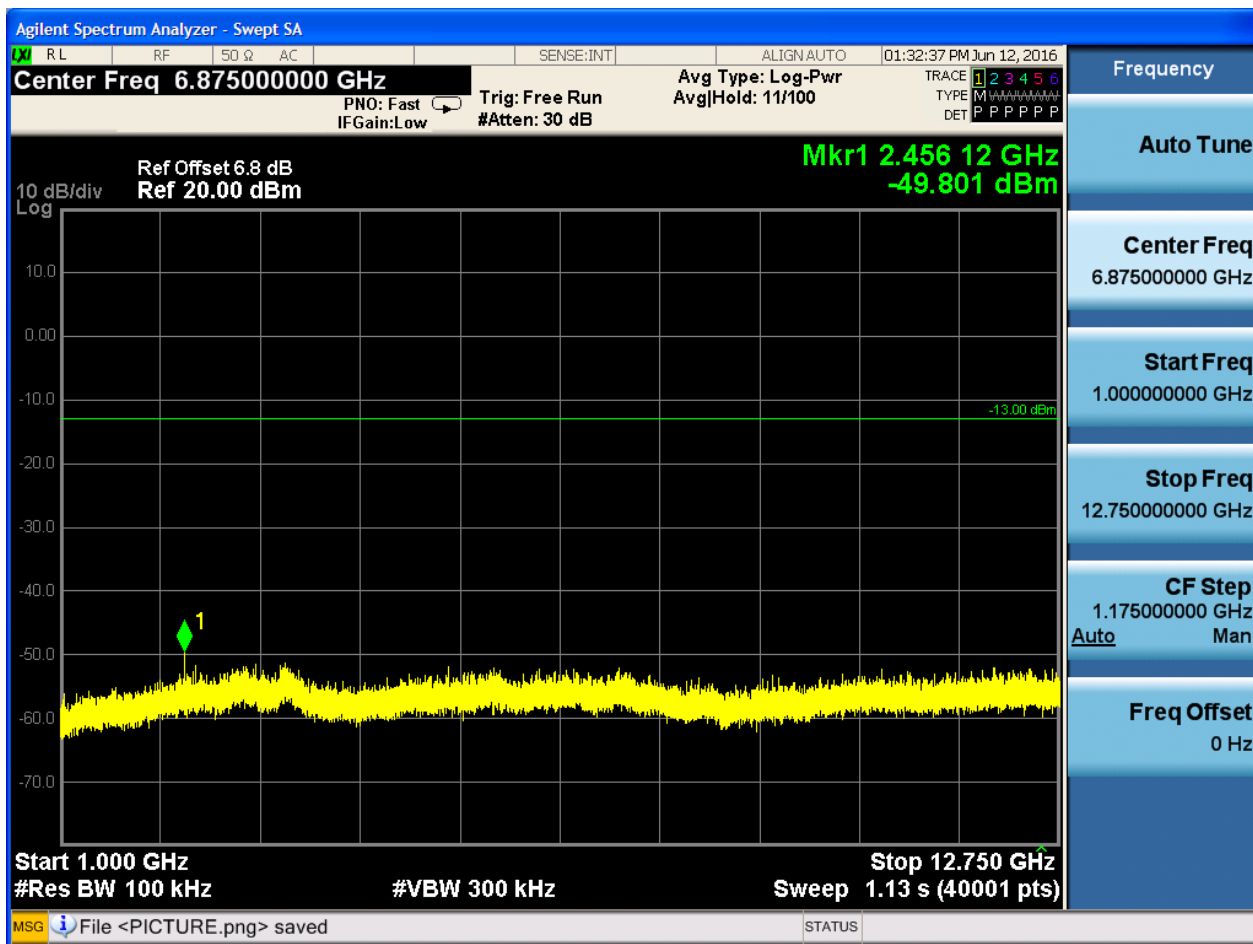


6.1.1.2.2 Test Channel = MCH



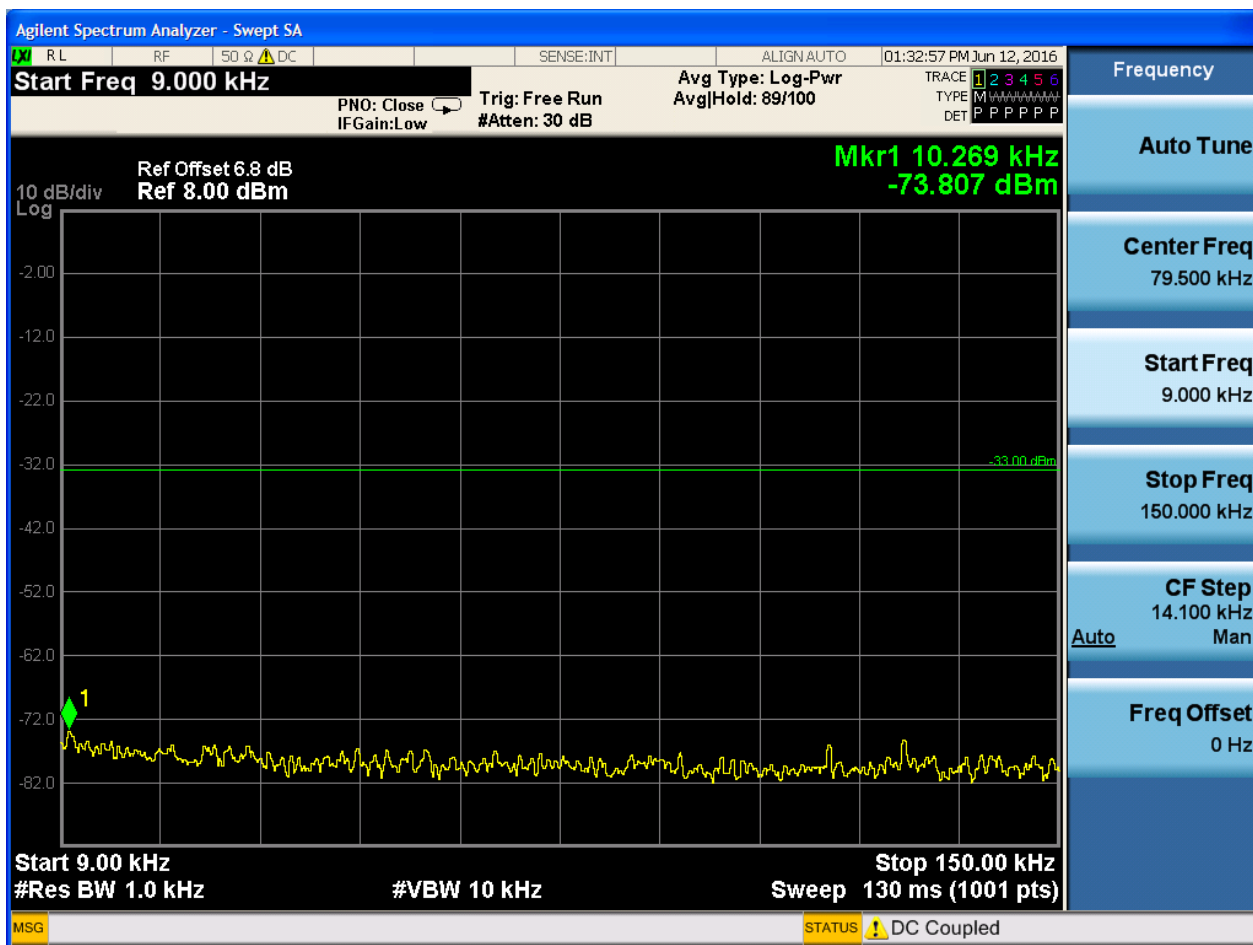


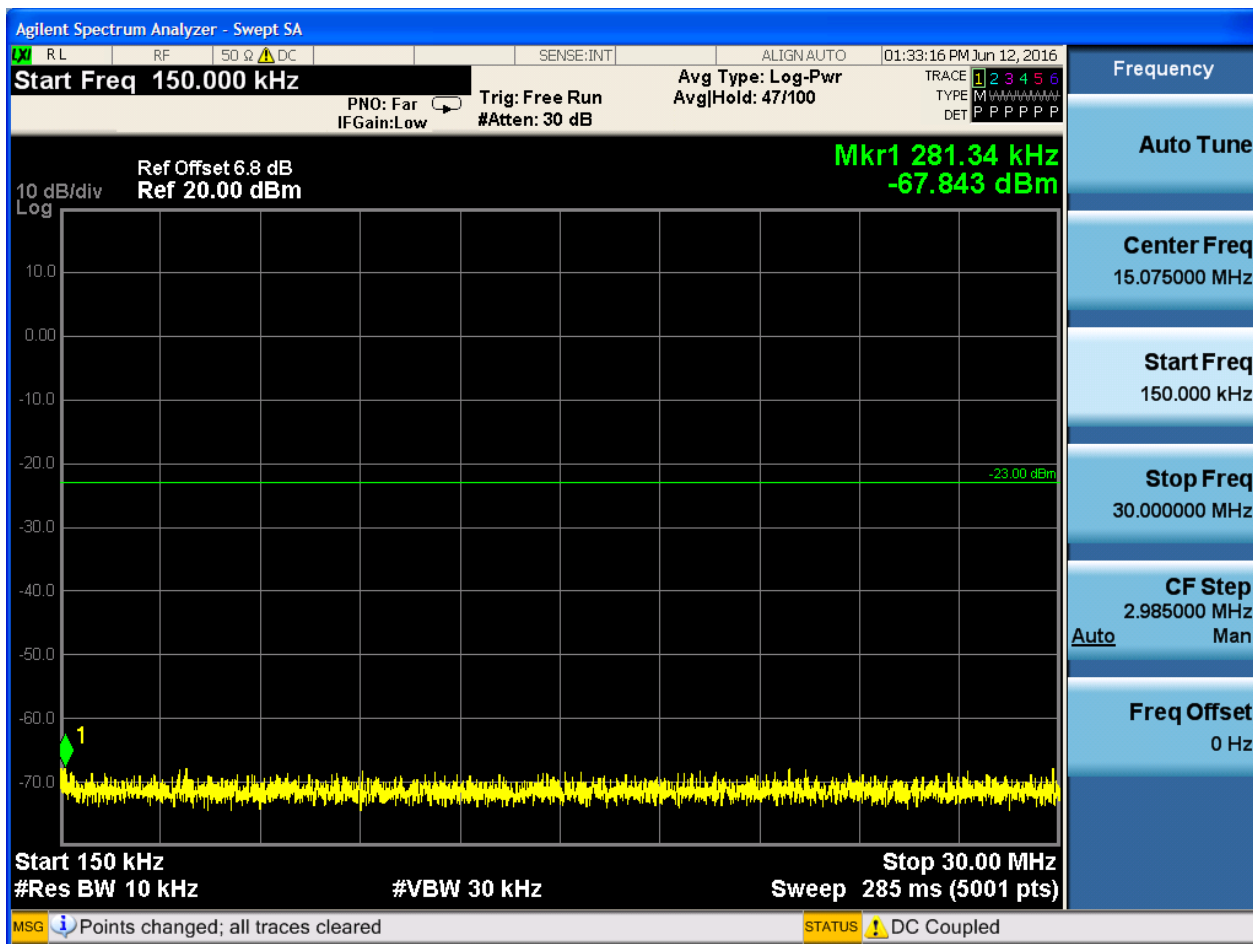


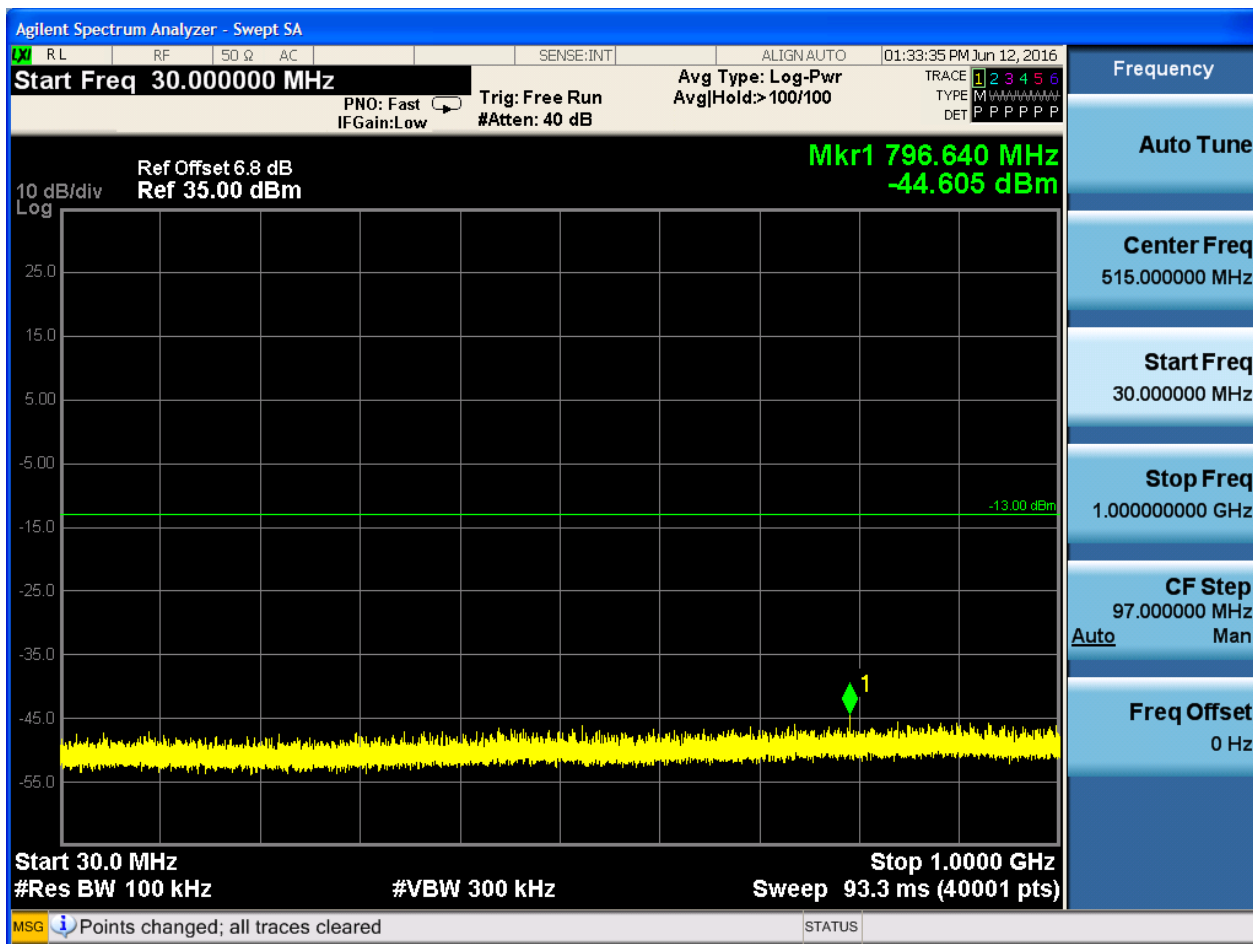


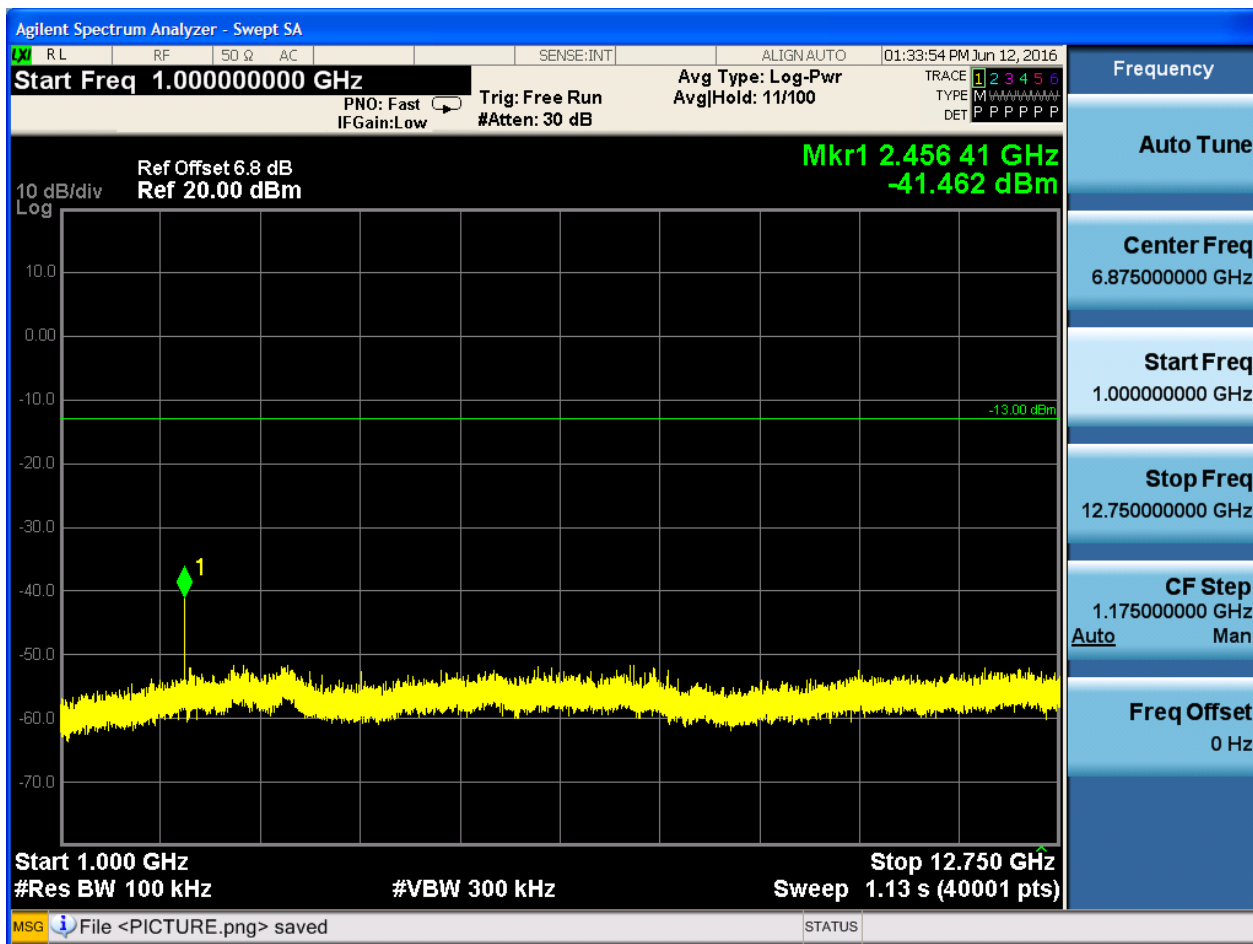


6.1.1.2.3 Test Channel = HCH





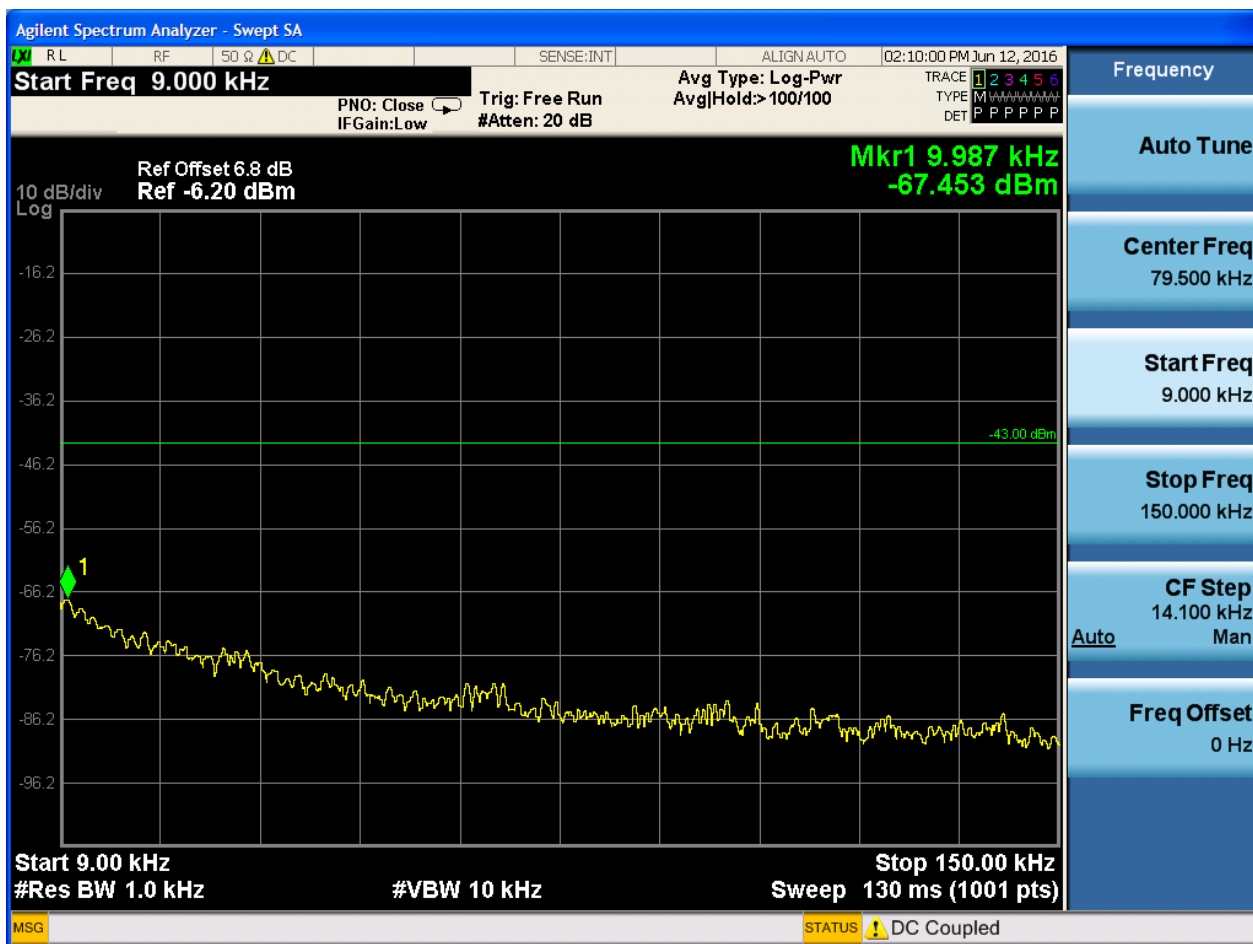


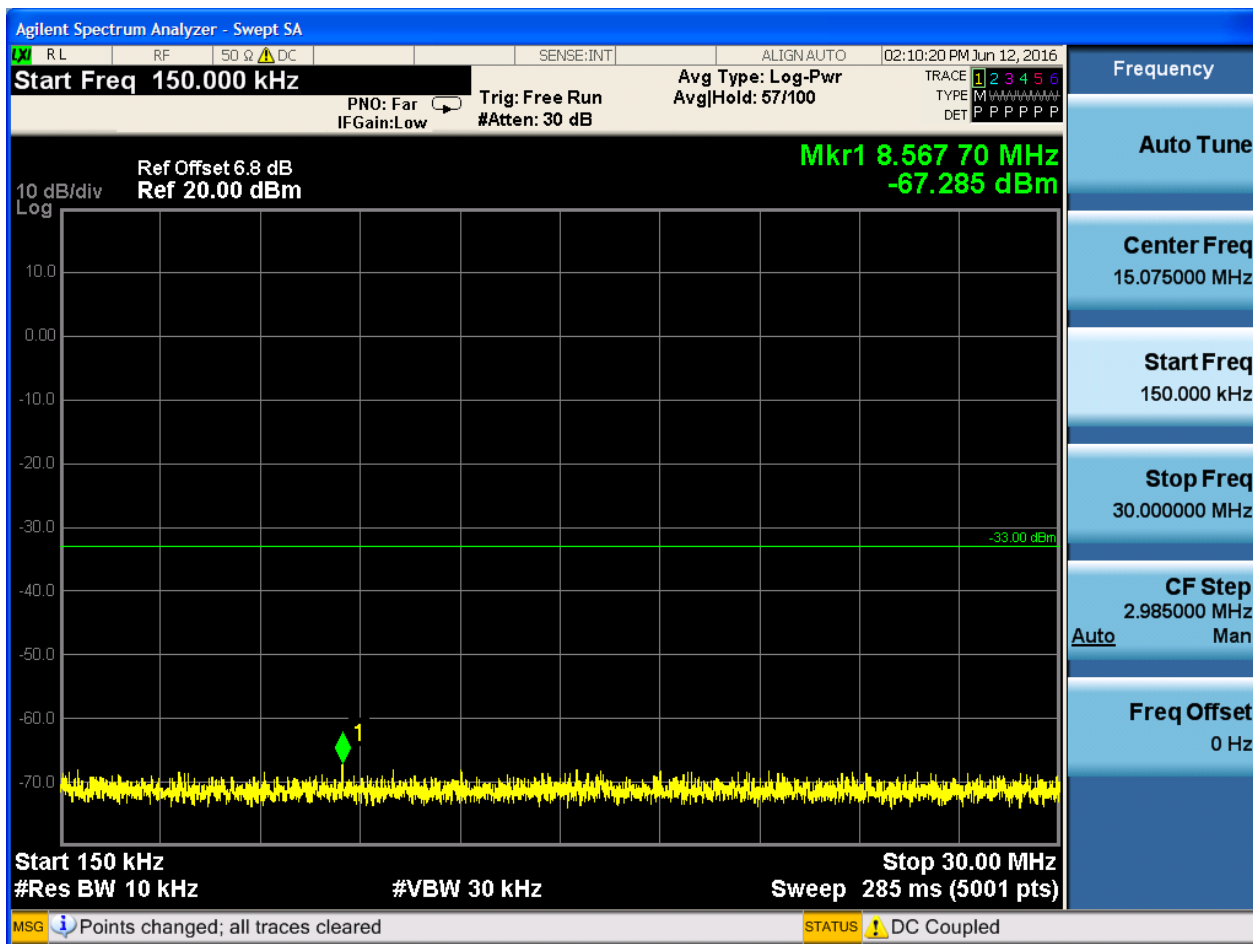


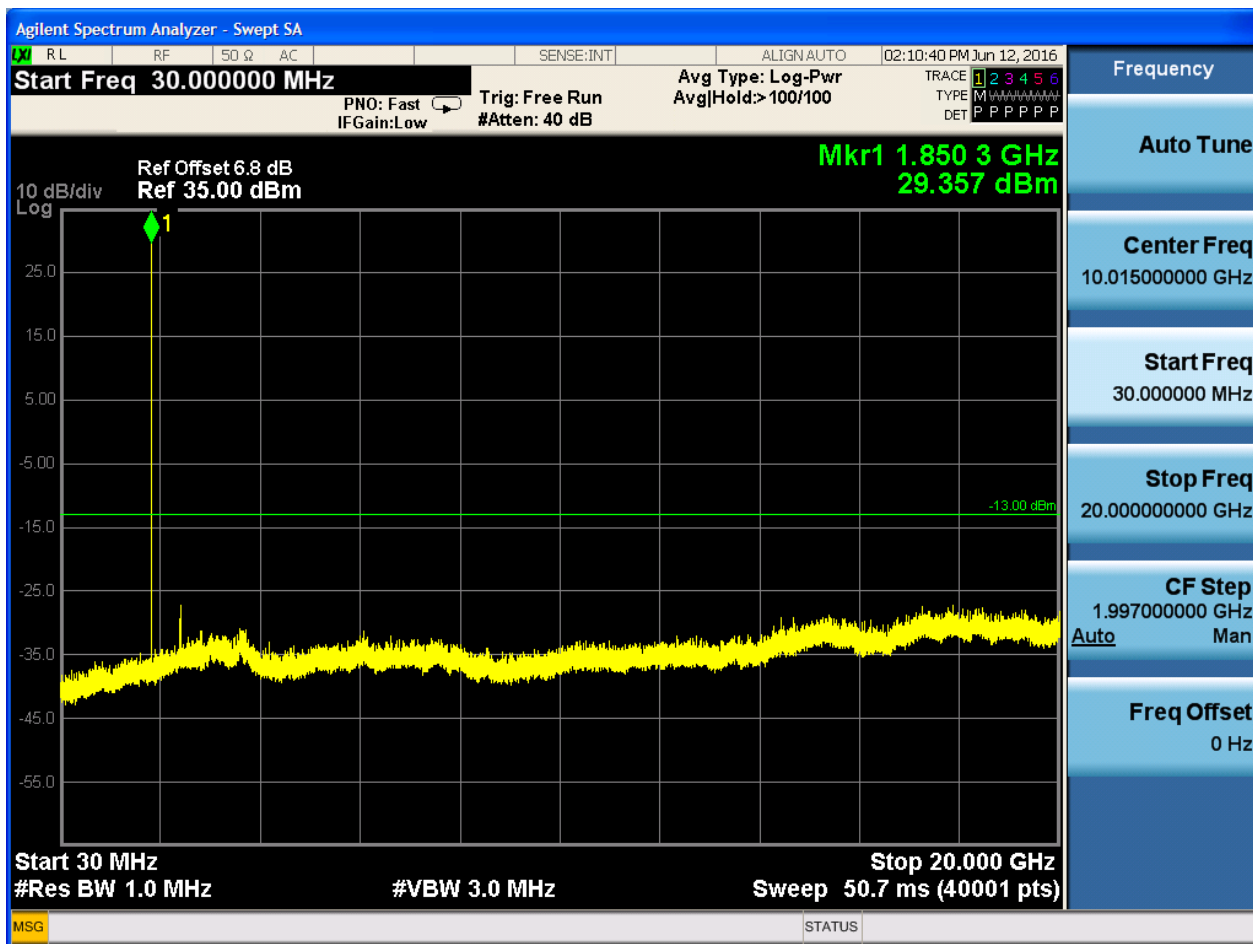
6.1.2 Test Band = GSM1900

6.1.2.1 Test Mode = GSM/TM1

6.1.2.1.1 Test Channel = LCH

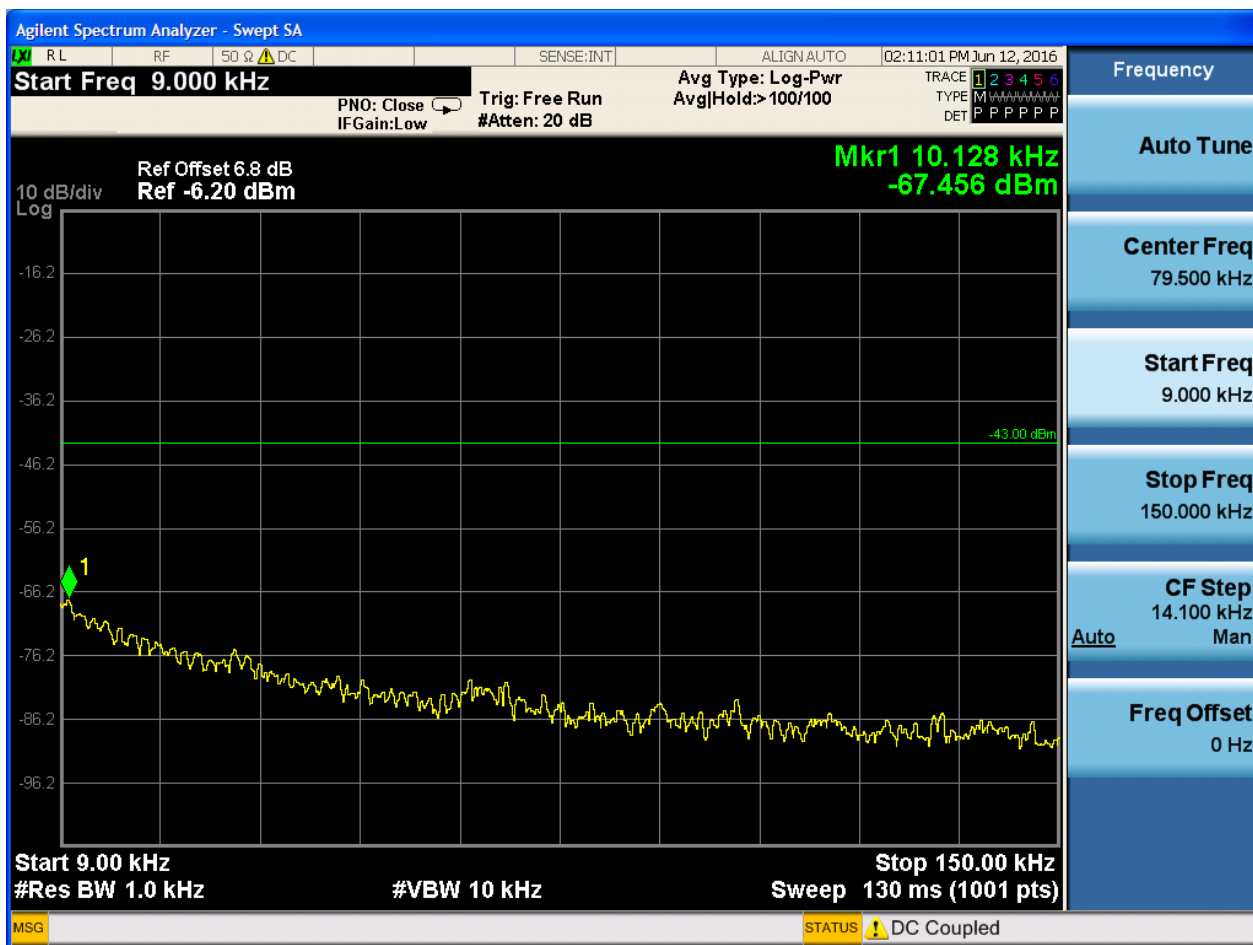


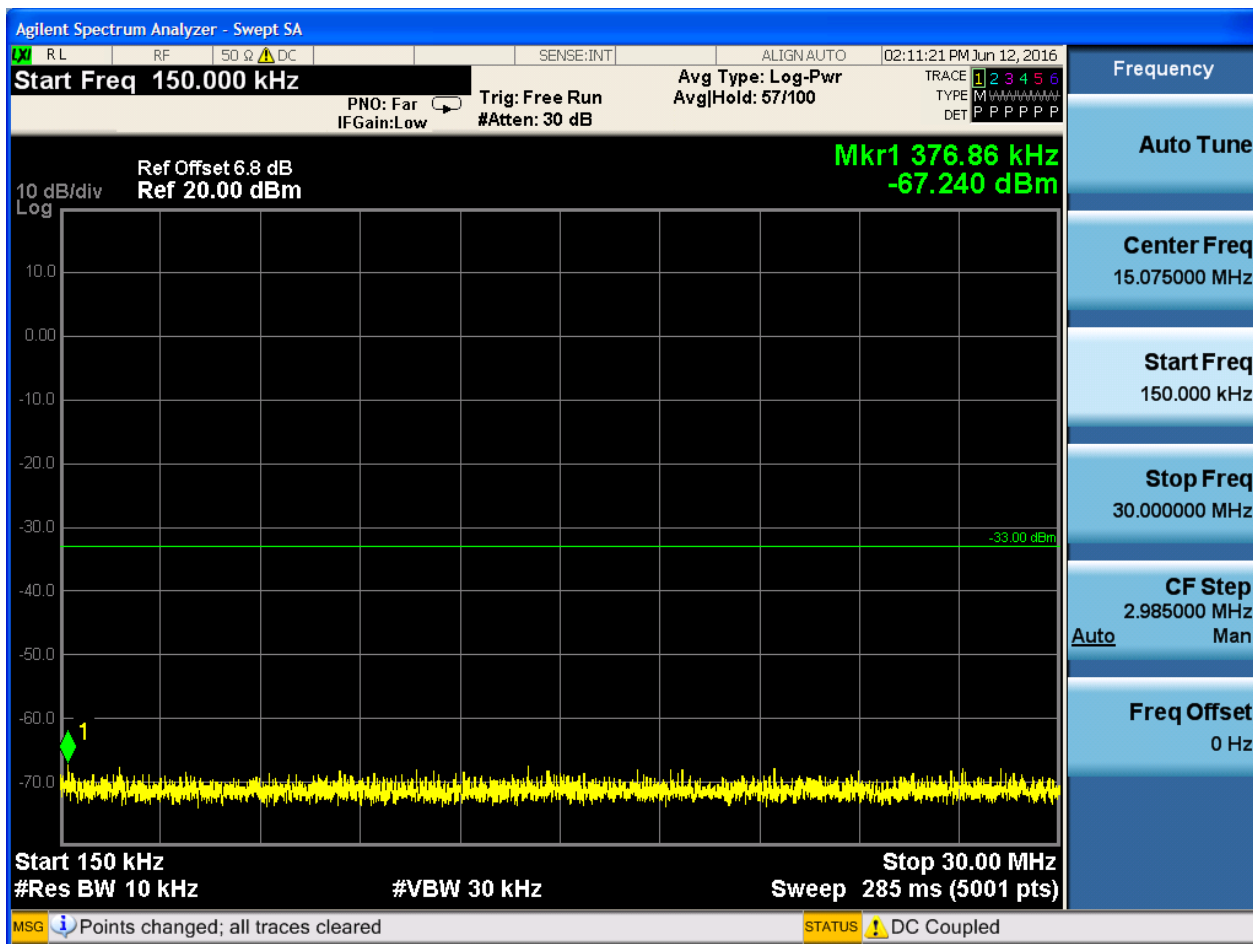


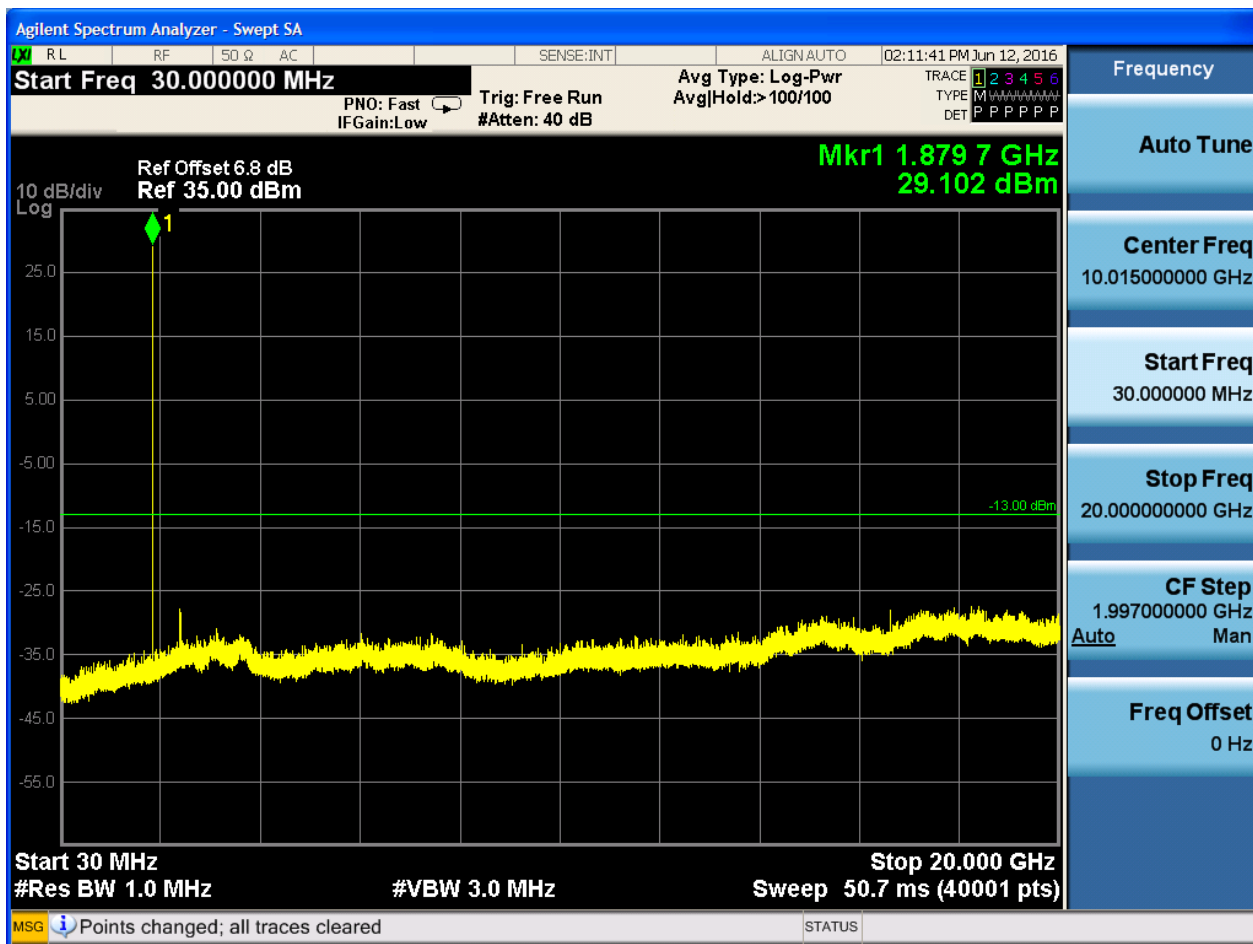




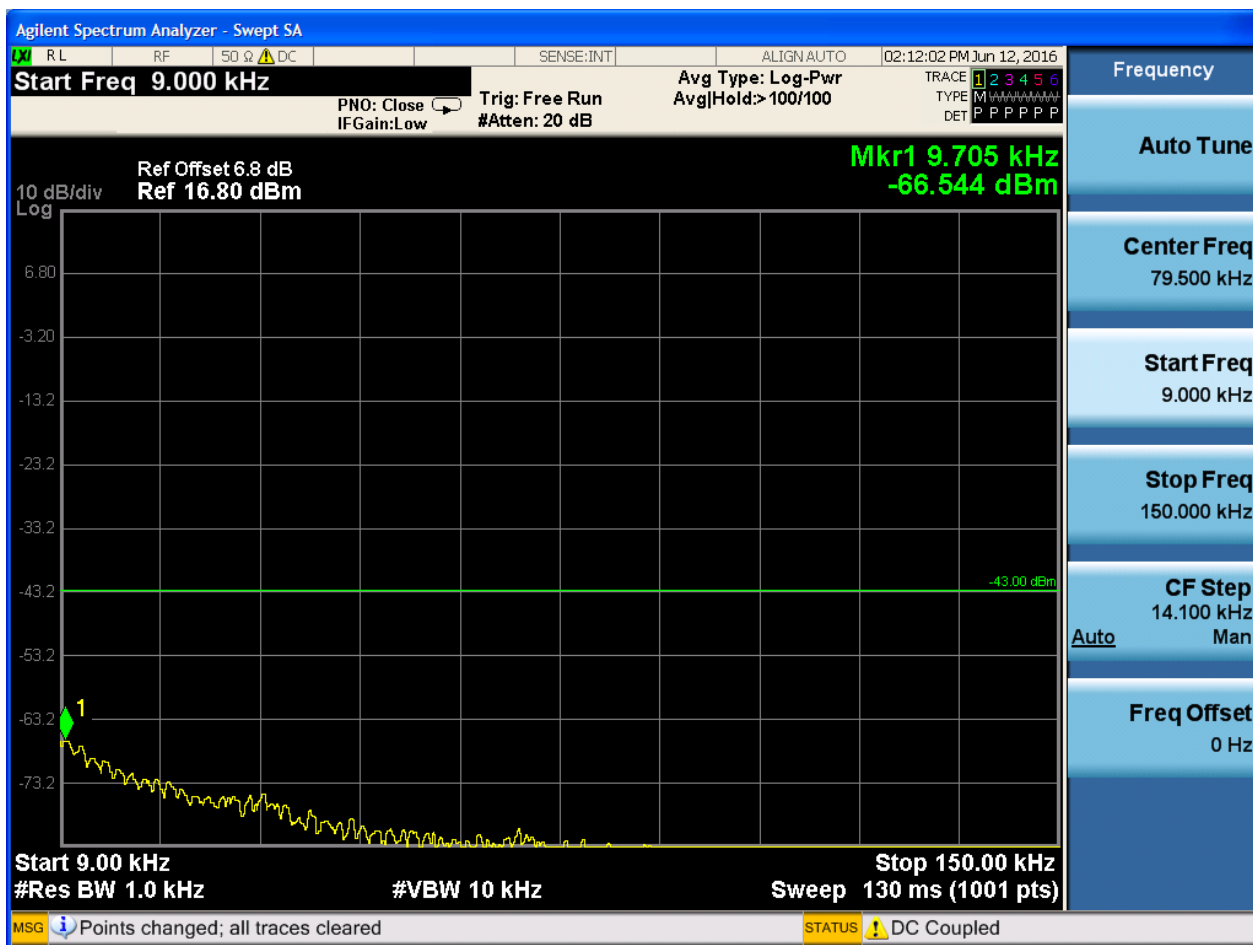
6.1.2.1.2 Test Channel = MCH

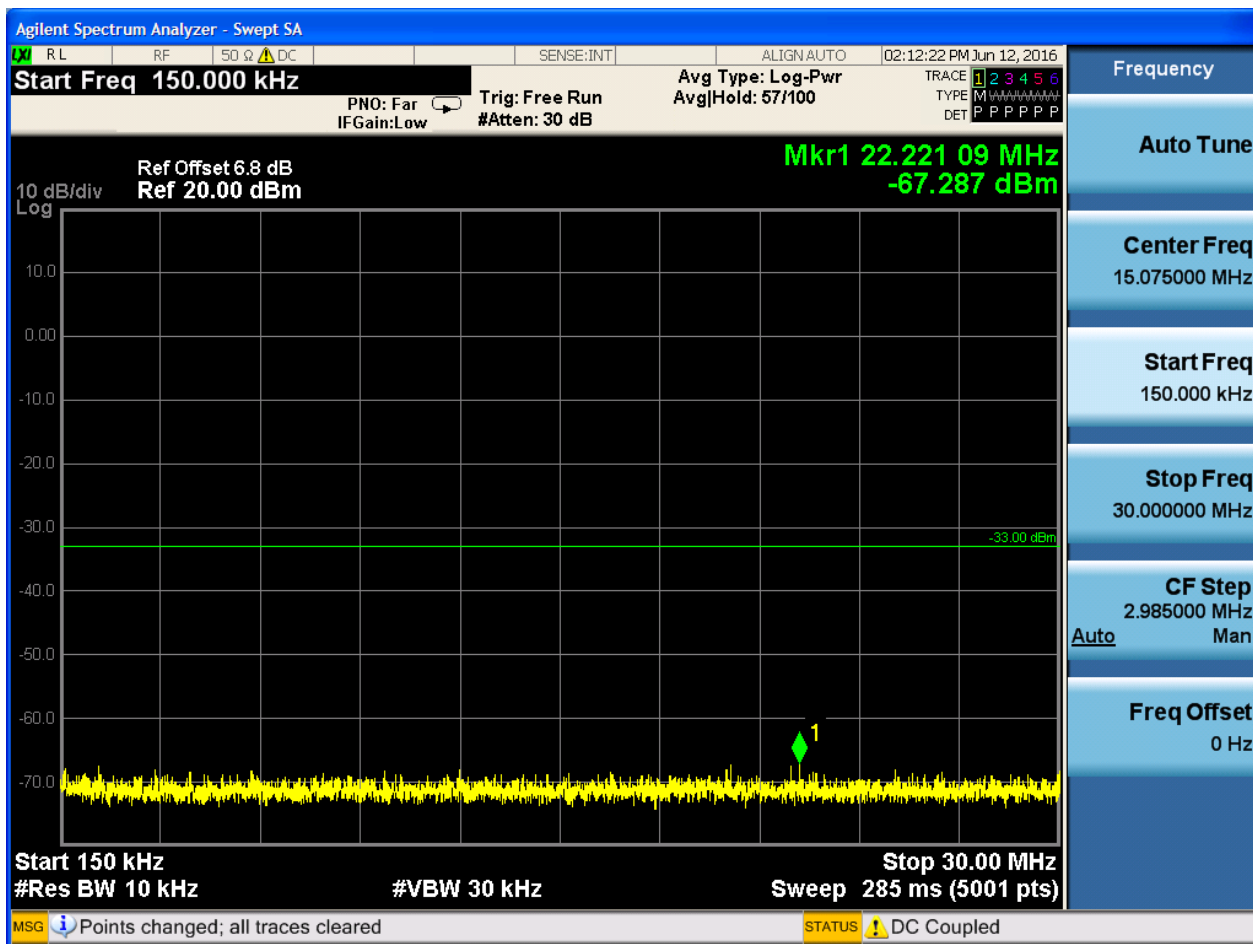


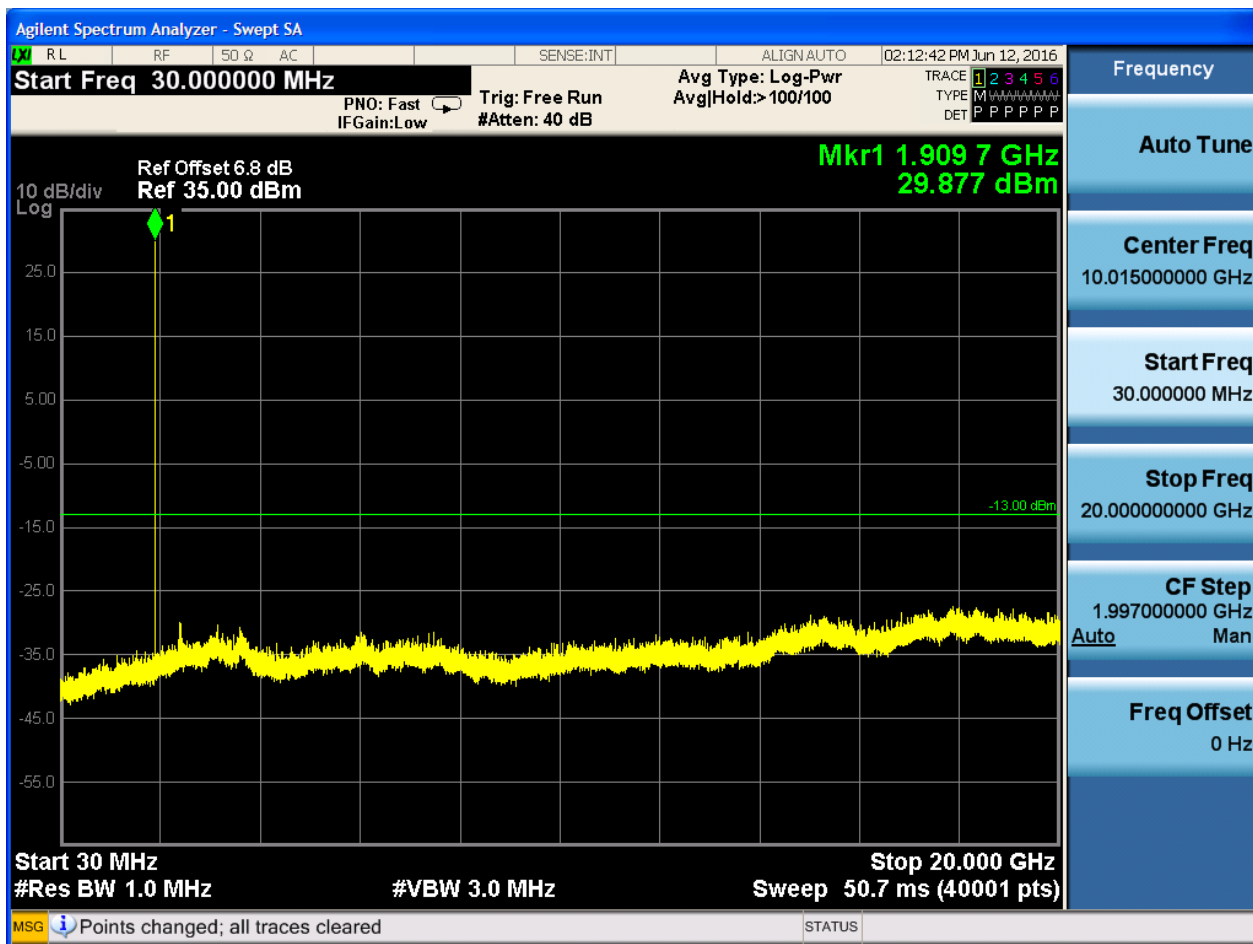




6.1.2.1.3 Test Channel = HCH









6.1.2.2 Test Mode = GSM/TM2

6.1.2.2.1 Test Channel = LCH

