



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	32.51	27.76	38.5	PASS
		MCH	32.7	27.95	38.5	PASS
		HCH	32.8	28.05	38.5	PASS
	GSM/TM2	LCH	26.25	21.5	38.5	PASS
		MCH	26.27	21.52	38.5	PASS
		HCH	26.27	21.52	38.5	PASS
GSM1900	GSM/TM1	LCH	29.87	28.67	33	PASS
		MCH	29.68	28.48	33	PASS
		HCH	29.73	28.53	33	PASS
	GSM/TM2	LCH	25.22	24.02	33	PASS
		MCH	25.2	24	33	PASS
		HCH	25.4	24.2	33	PASS

Test Band	Test Mode	Test Channel	Measured[dBm]	ERP [dBm]	Limit [dBm]	Verdict
WCDMA850	UMTS/TM1	LCH	24.51	19.76	38.5	PASS
		MCH	24.56	19.81	38.5	PASS
		HCH	24.55	19.8	38.5	PASS
WCDMA1900	UMTS/TM1	LCH	24.60	23.4	33	PASS
		MCH	24.68	23.48	33	PASS
		HCH	24.54	23.34	33	PASS
WCDMA1700	UMTS/TM1	LCH	24.86	23.46	30	PASS
		MCH	24.70	23.3	30	PASS
		HCH	24.61	23.21	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:

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

$$\text{SET RBW} = 1\% \text{ of the OBW, not to exceed 1MHz}$$

$$\text{SET VBW} \geq 3 \times \text{RBW}$$

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
GSM1900	GSM/TM1	LCH	0.26	13	PASS
		MCH	0.26	13	PASS
		HCH	0.26	13	PASS
	GSM/TM2	LCH	2.79	13	PASS
		MCH	2.88	13	PASS
		HCH	2.93	13	PASS
WCDMA1900	UMTS/TM1	LCH	3.26	13	PASS
		MCH	3.31	13	PASS
		HCH	3.28	13	PASS
WCDMA1700	UMTS/TM1	LCH	3.1	13	PASS
		MCH	3.17	13	PASS
		HCH	2.82	13	PASS

3Appendix_C: Modulation Characteristics

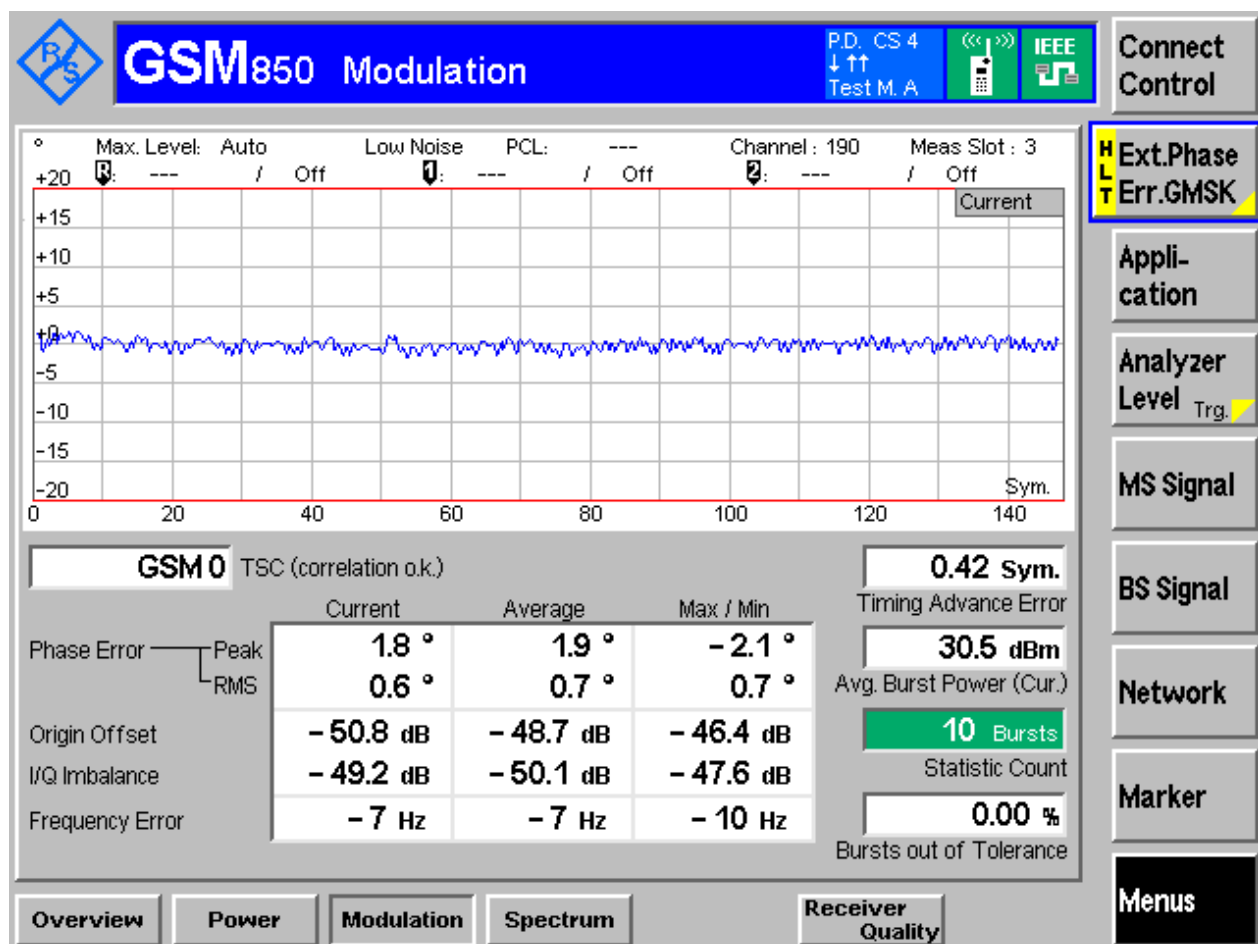
Part I - Test Plots

3.1 For GSM

3.1.1 Test Band = GSM850

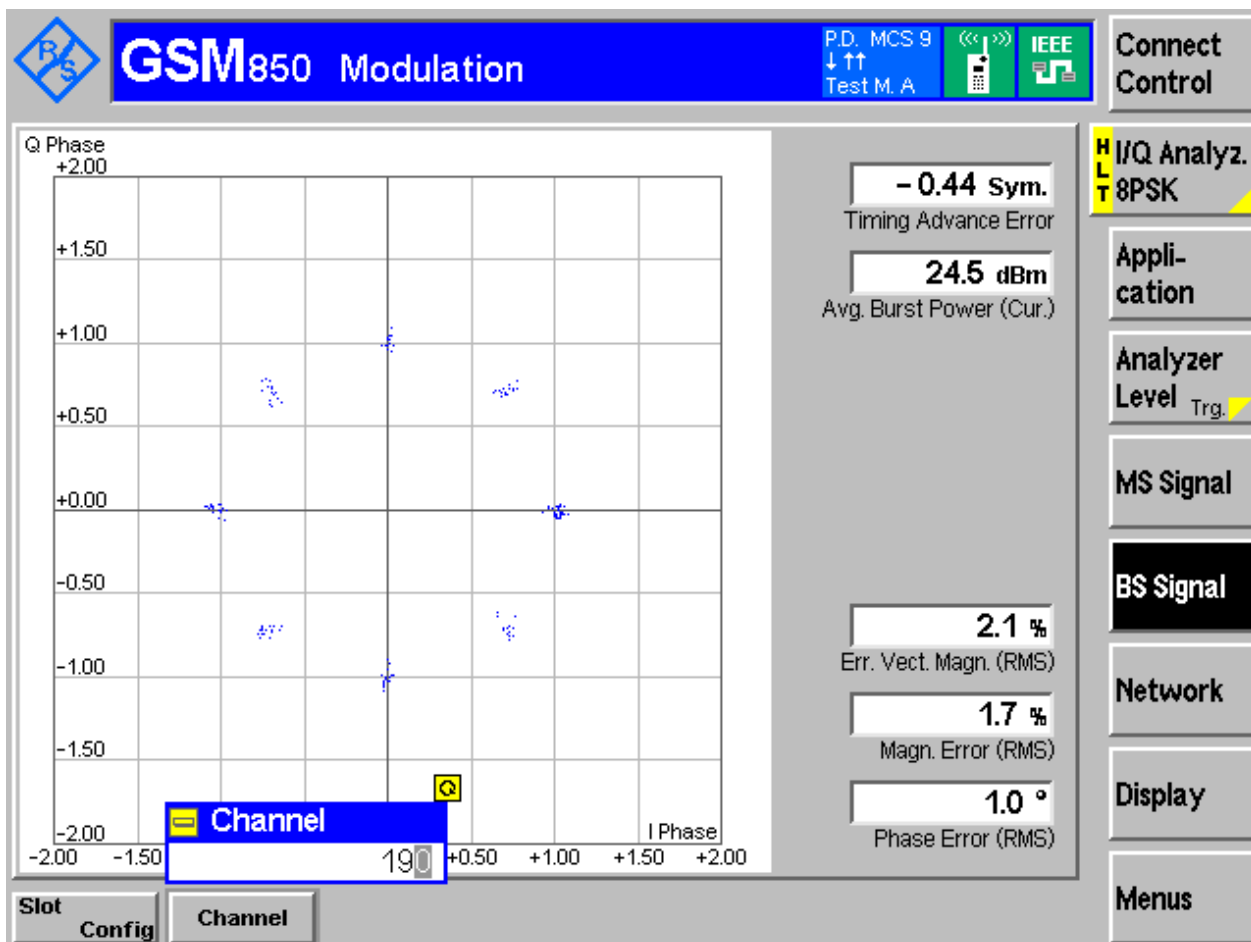
3.1.1.1 Test Mode = GSM/TM1

3.1.1.1.1 Test Channel = MCH



3.1.1.2 Test Mode = GSM/TM2

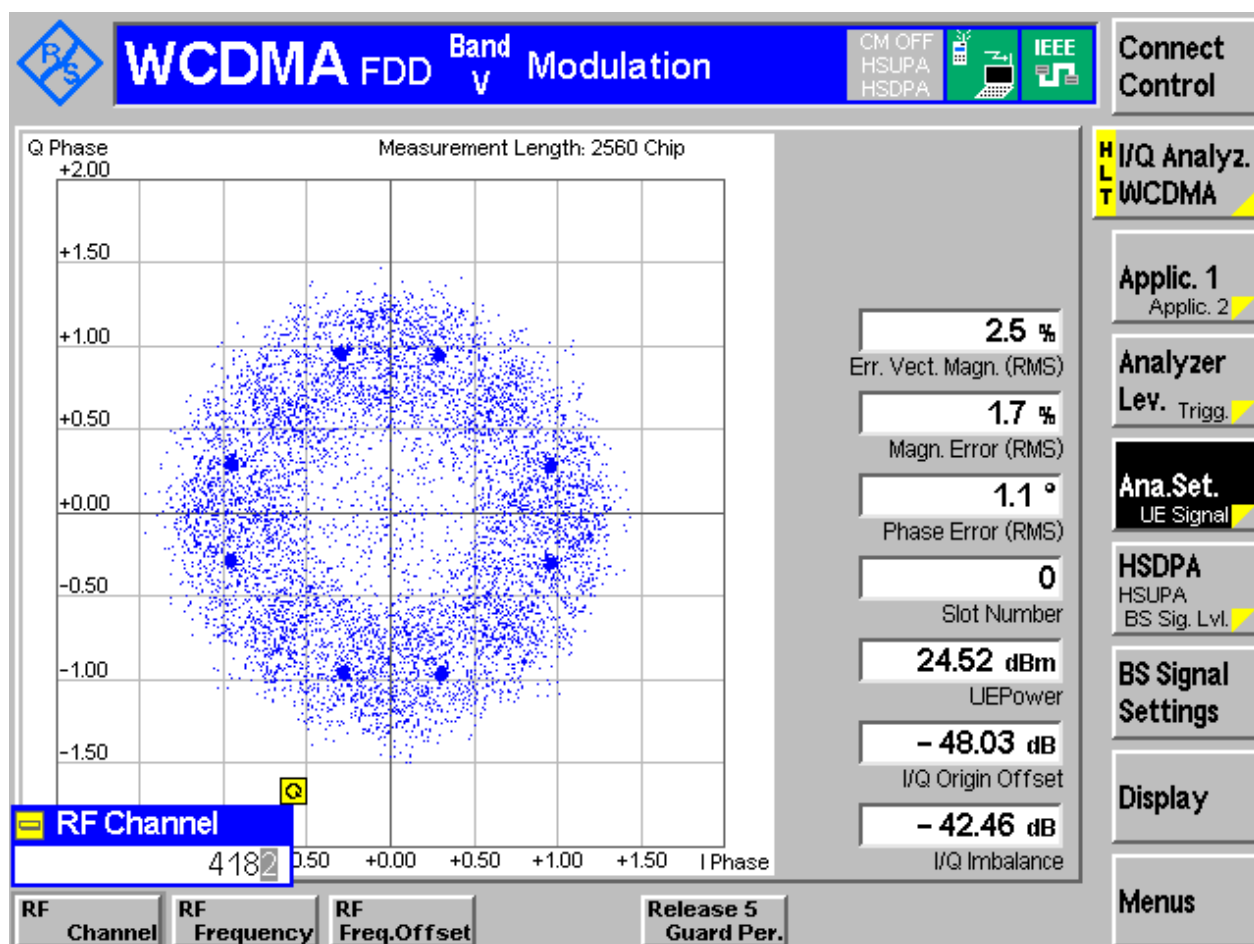
3.1.1.2.1 Test Channel = MCH



3.1.2 Test Band = WCDMA850

3.1.2.1 Test Mode = UMTS/TM1

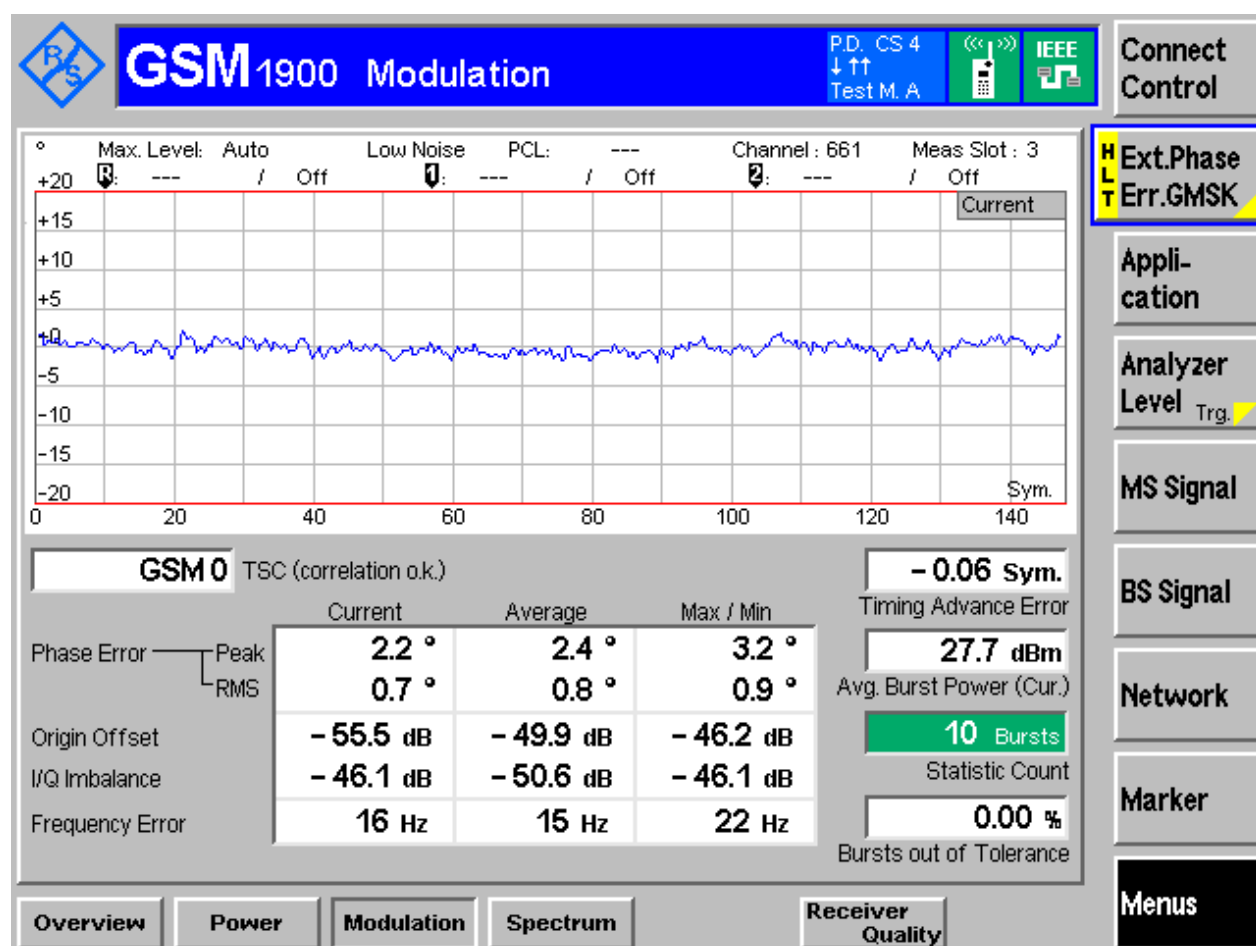
3.1.2.1.1 Test Channel = MCH



3.1.3 Test Band = GSM1900

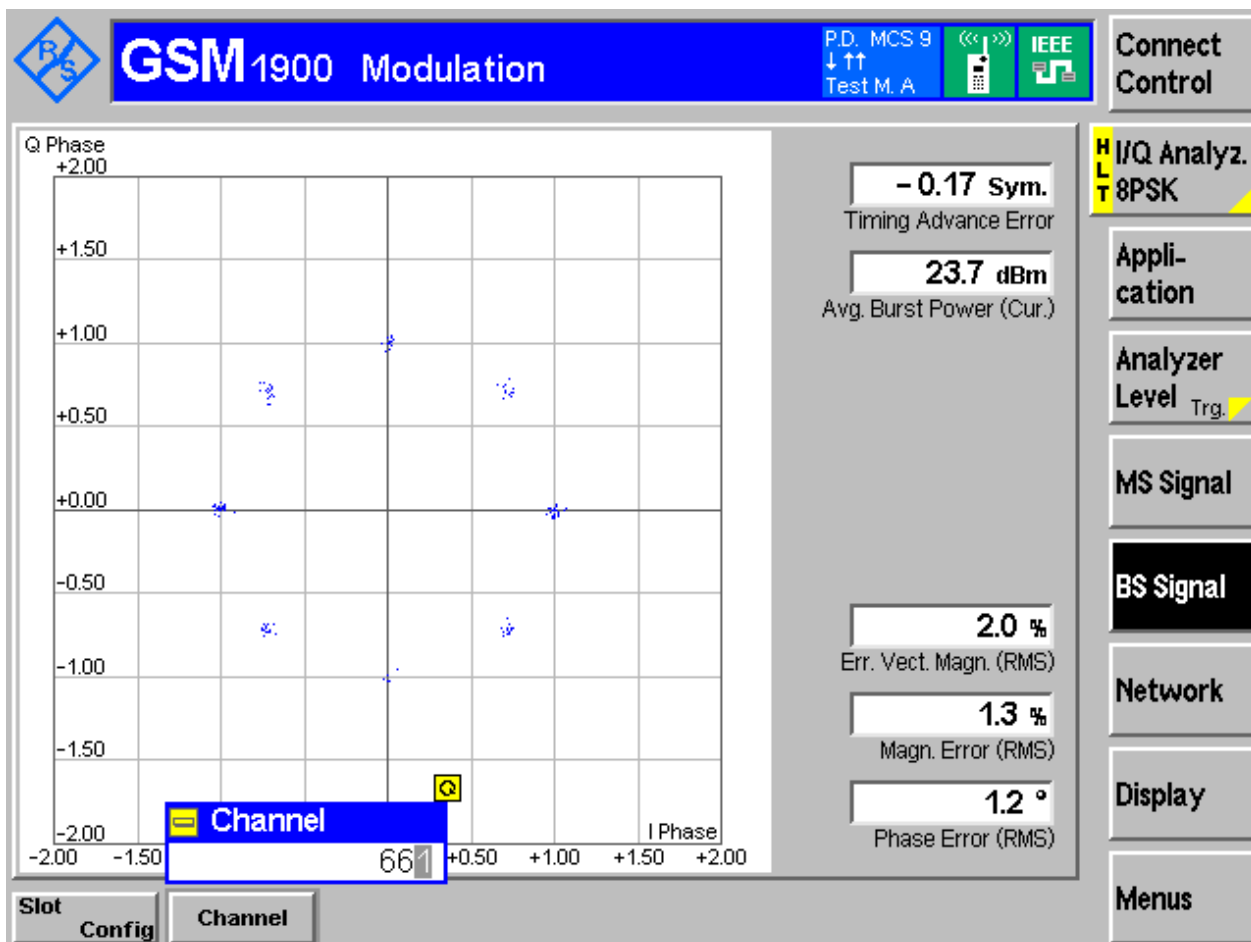
3.1.3.1 Test Mode = GSM/TM1

3.1.3.1.1 Test Channel = MCH



3.1.3.2 Test Mode = GSM/TM2

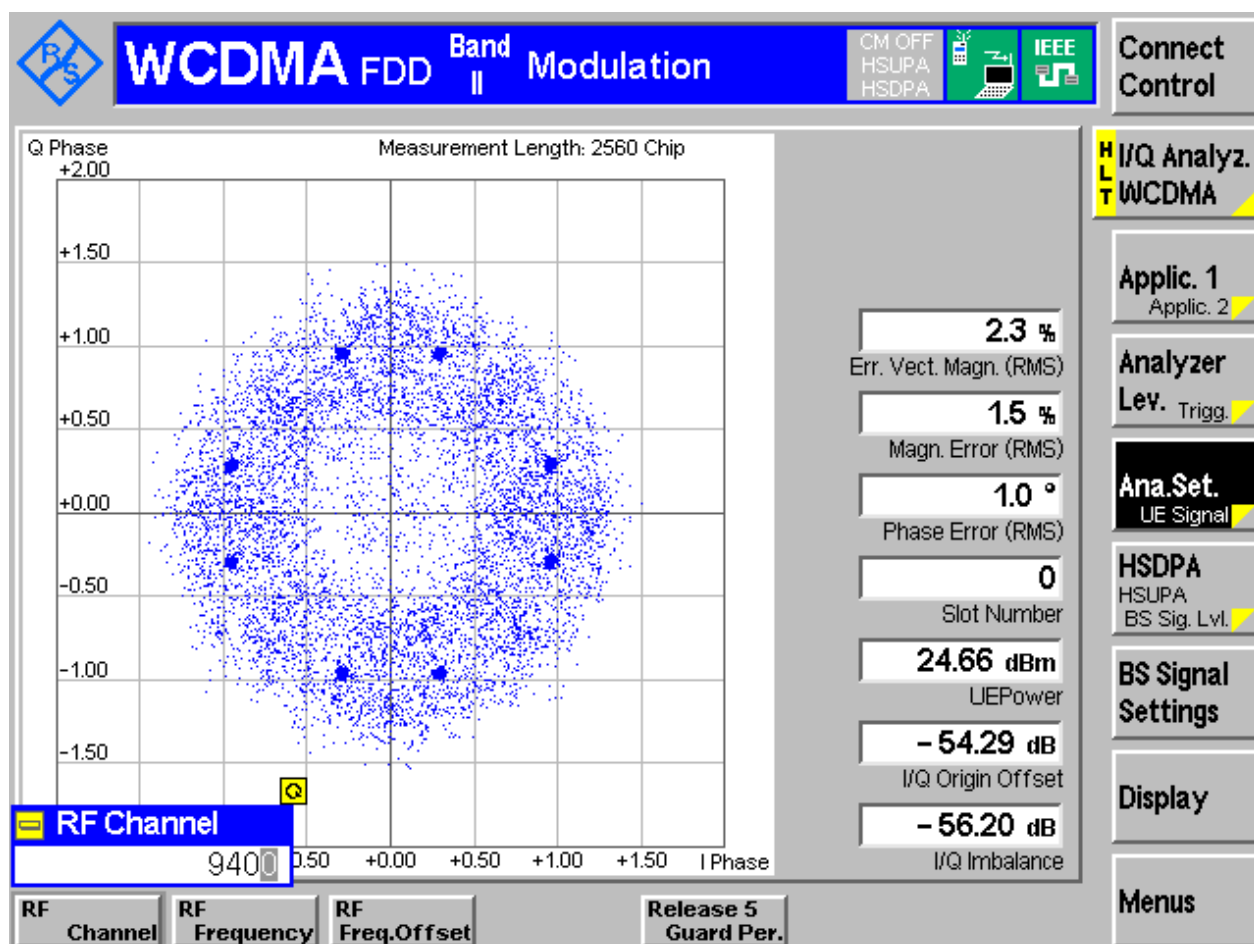
3.1.3.2.1 Test Channel = MCH



3.1.4 Test Band = WCDMA1900

3.1.4.1 Test Mode = UMTS/TM1

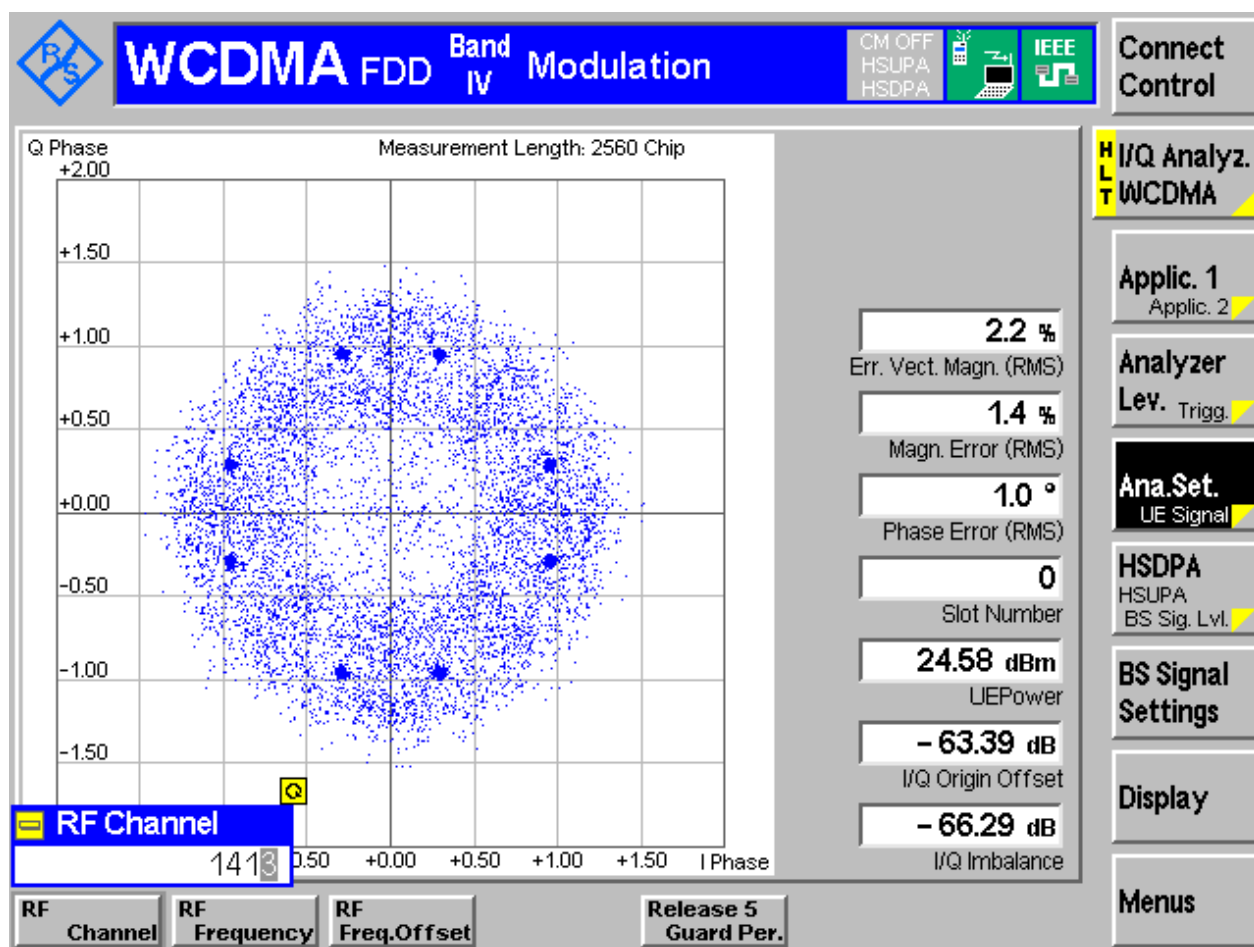
3.1.4.1.1 Test Channel = MCH



3.1.5 Test Band = WCDMA1700

3.1.5.1 Test Mode = UMTS/TM1

3.1.5.1.1 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	242.92	313.54	Pass
		MCH	242.17	315.78	Pass
		HCH	244.25	314.14	Pass
	GSM/TM2	LCH	251.36	319.87	Pass
		MCH	252.71	322.82	Pass
		HCH	251.52	328.74	Pass
WCDMA850	UMTS/TM1	LCH	4.16	4.73	Pass
		MCH	4.16	4.73	Pass
		HCH	4.15	4.72	Pass
GSM1900	GSM/TM1	LCH	243.95	311.33	Pass
		MCH	243.41	317.37	Pass
		HCH	243.48	312.90	Pass
	GSM/TM2	LCH	254.06	330.41	Pass
		MCH	250.54	320.15	Pass
		HCH	251.46	320.16	Pass
WCDMA1900	UMTS/TM1	LCH	4.14	4.71	Pass
		MCH	4.14	4.70	Pass
		HCH	4.14	4.69	Pass
WCDMA1700	UMTS/TM1	LCH	4.15	4.71	Pass
		MCH	4.15	4.73	Pass
		HCH	4.15	4.71	Pass

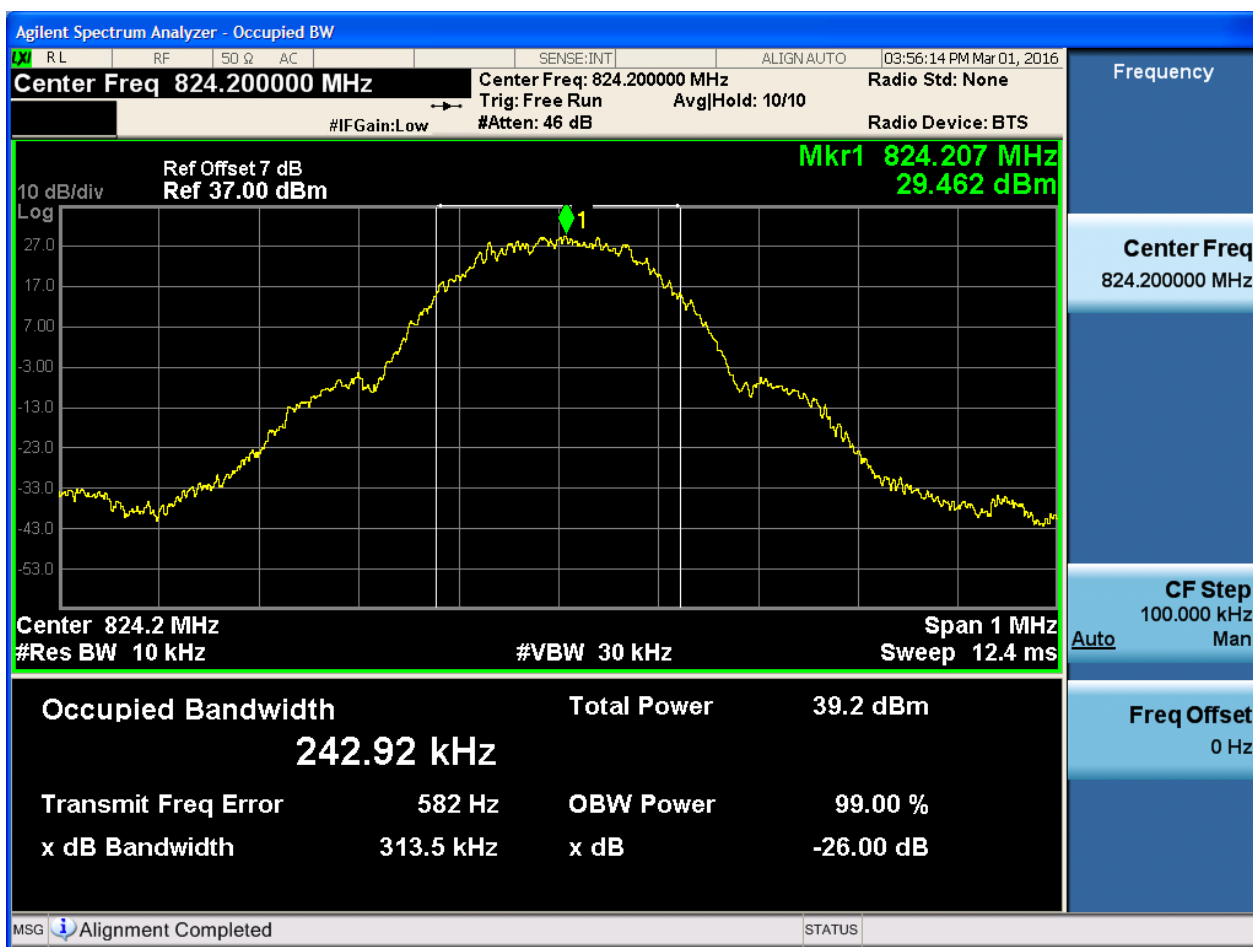
Part II - Test Plots

4.1 For GSM

4.1.1 Test Band = GSM850

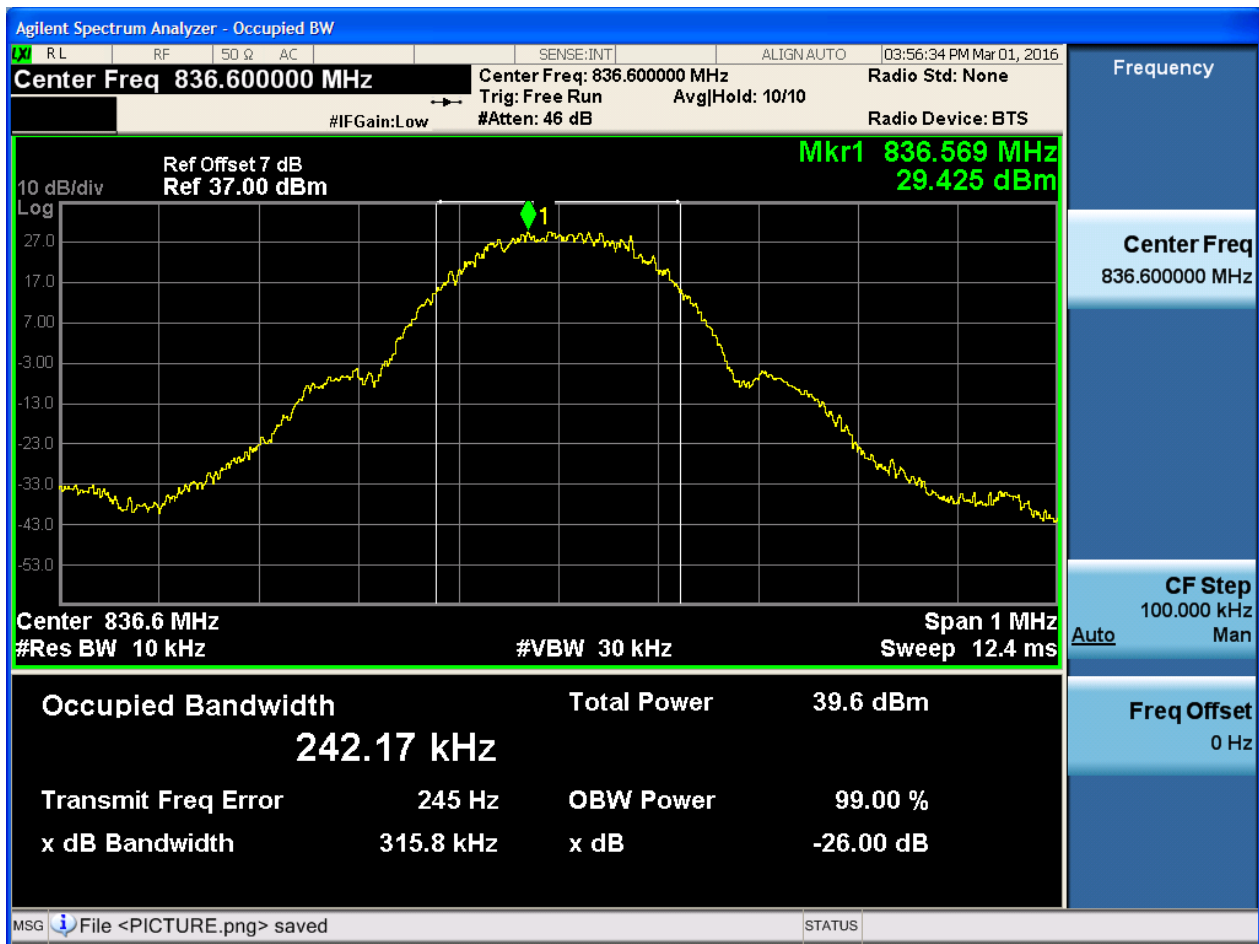
4.1.1.1 Test Mode = GSM/TM1

4.1.1.1.1 Test Channel = LCH



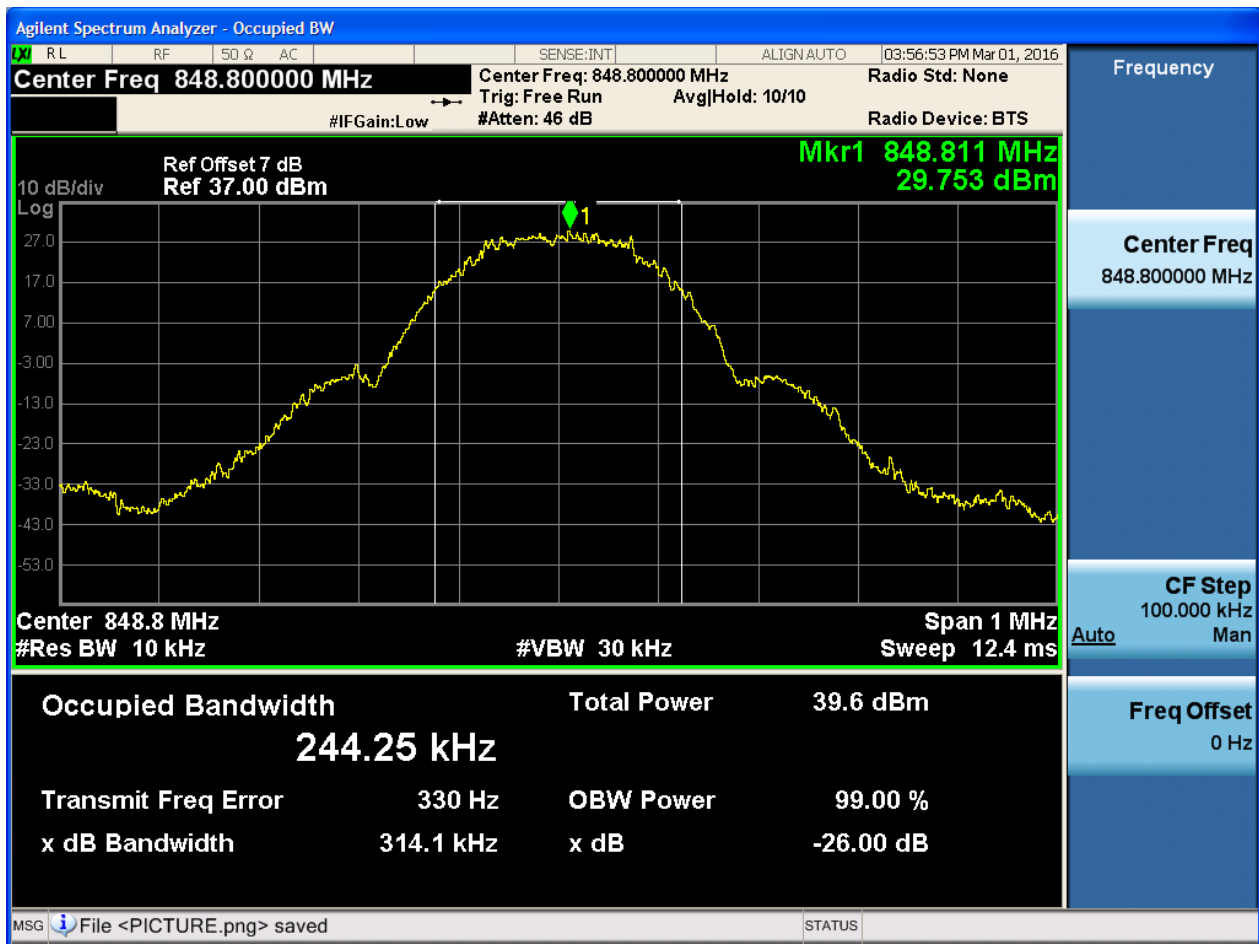


4.1.1.1.2 Test Channel = MCH





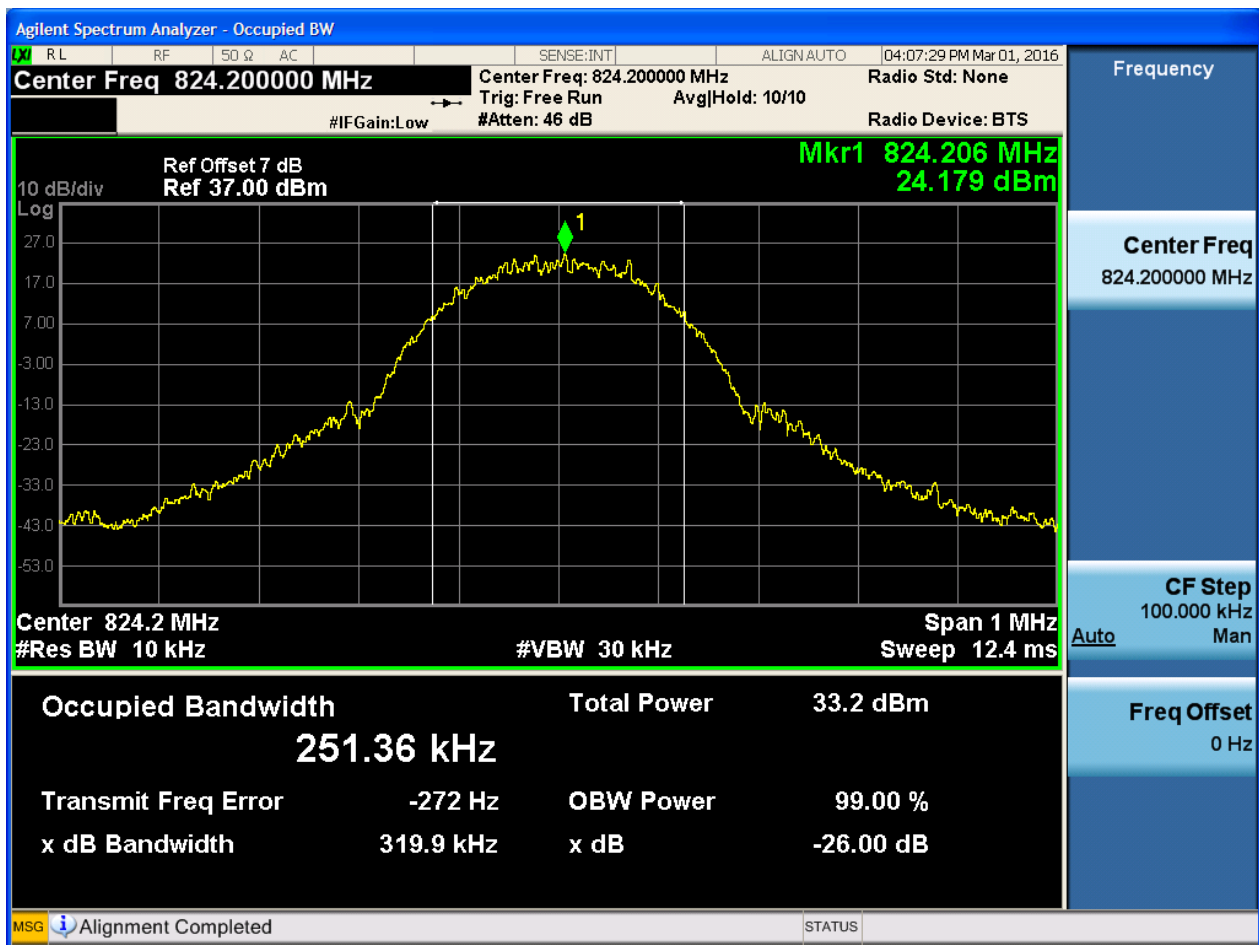
4.1.1.1.3 Test Channel = HCH





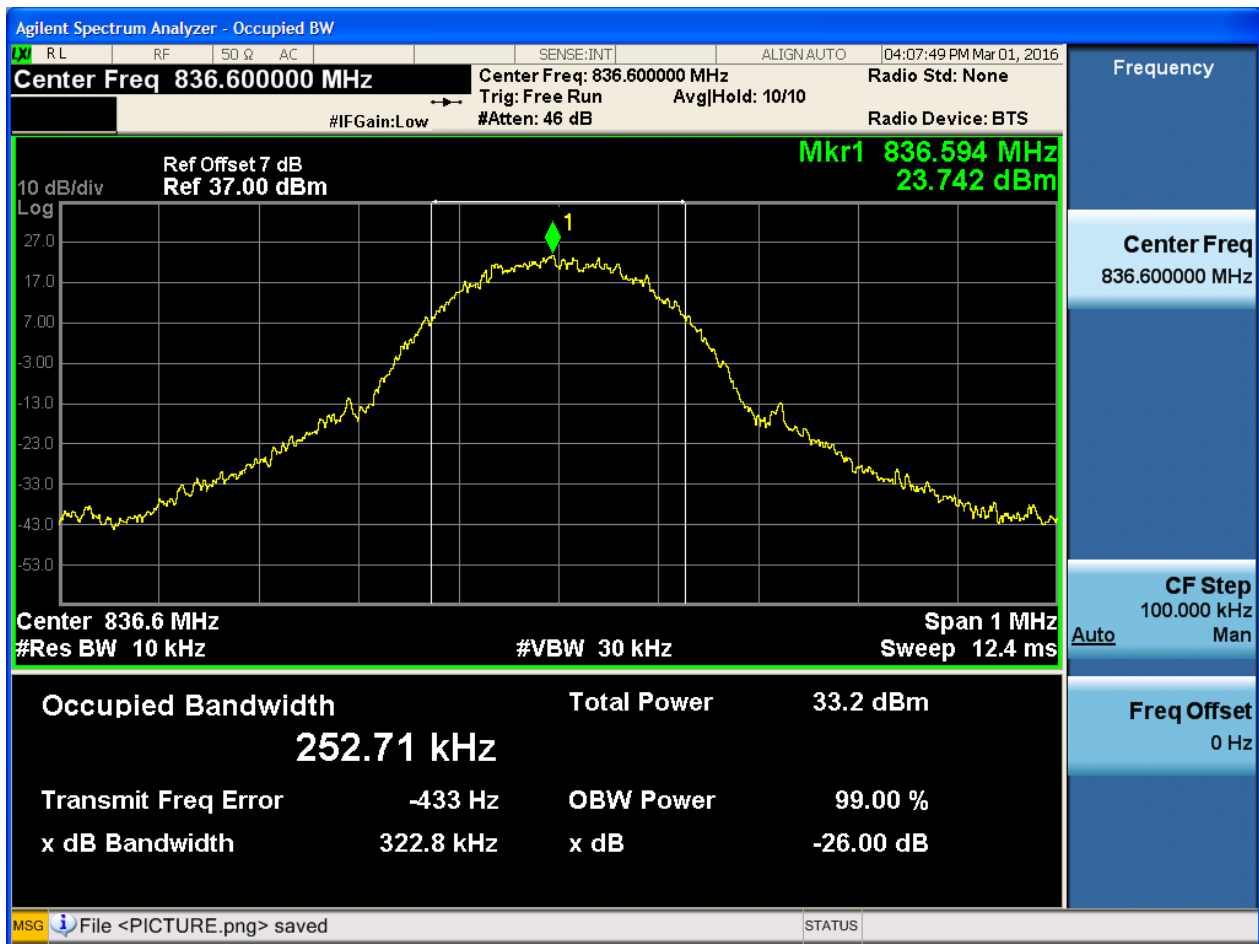
4.1.1.2 Test Mode = GSM/TM2

4.1.1.2.1 Test Channel = LCH



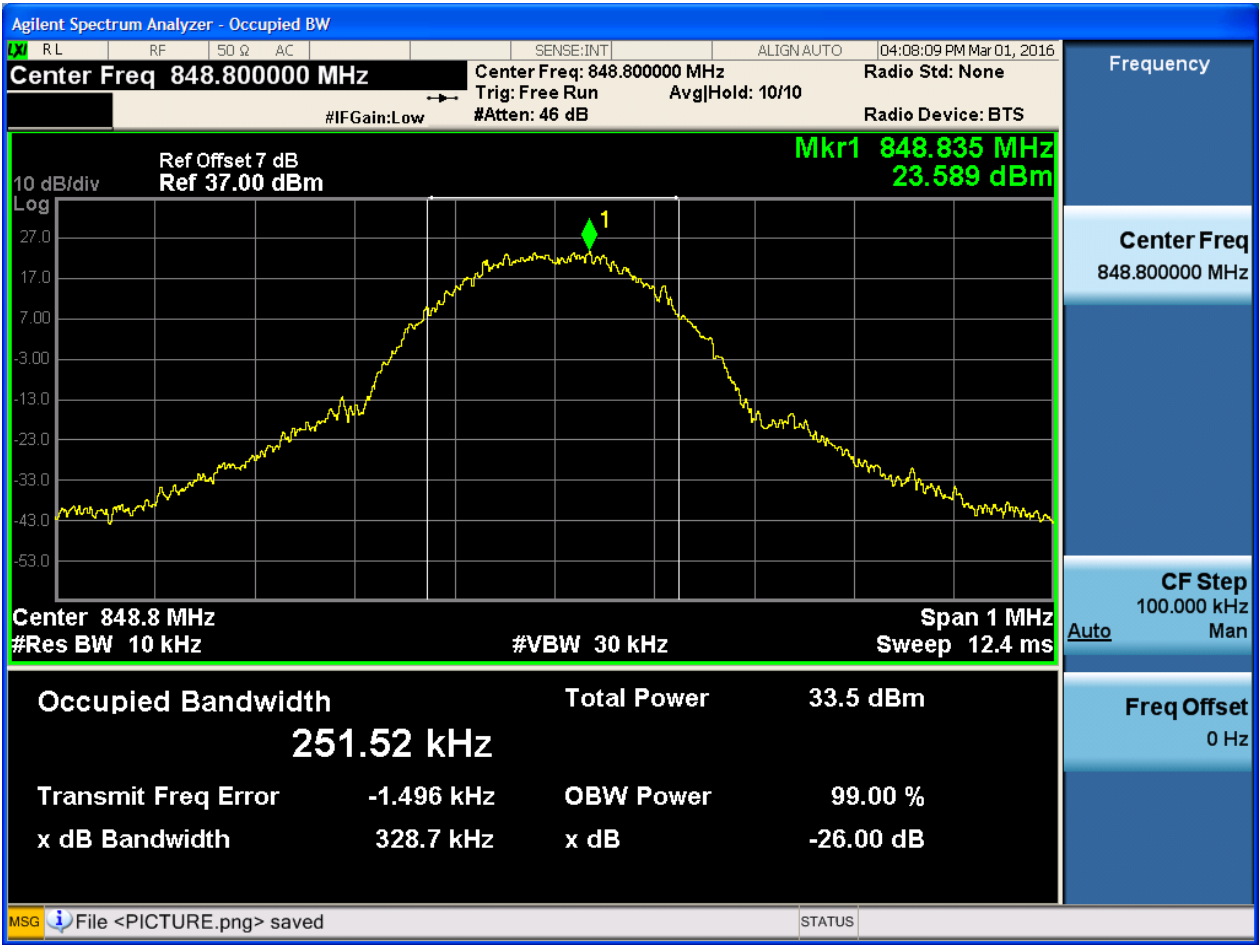


4.1.1.2.2 Test Channel = MCH





4.1.1.2.3 Test Channel = HCH

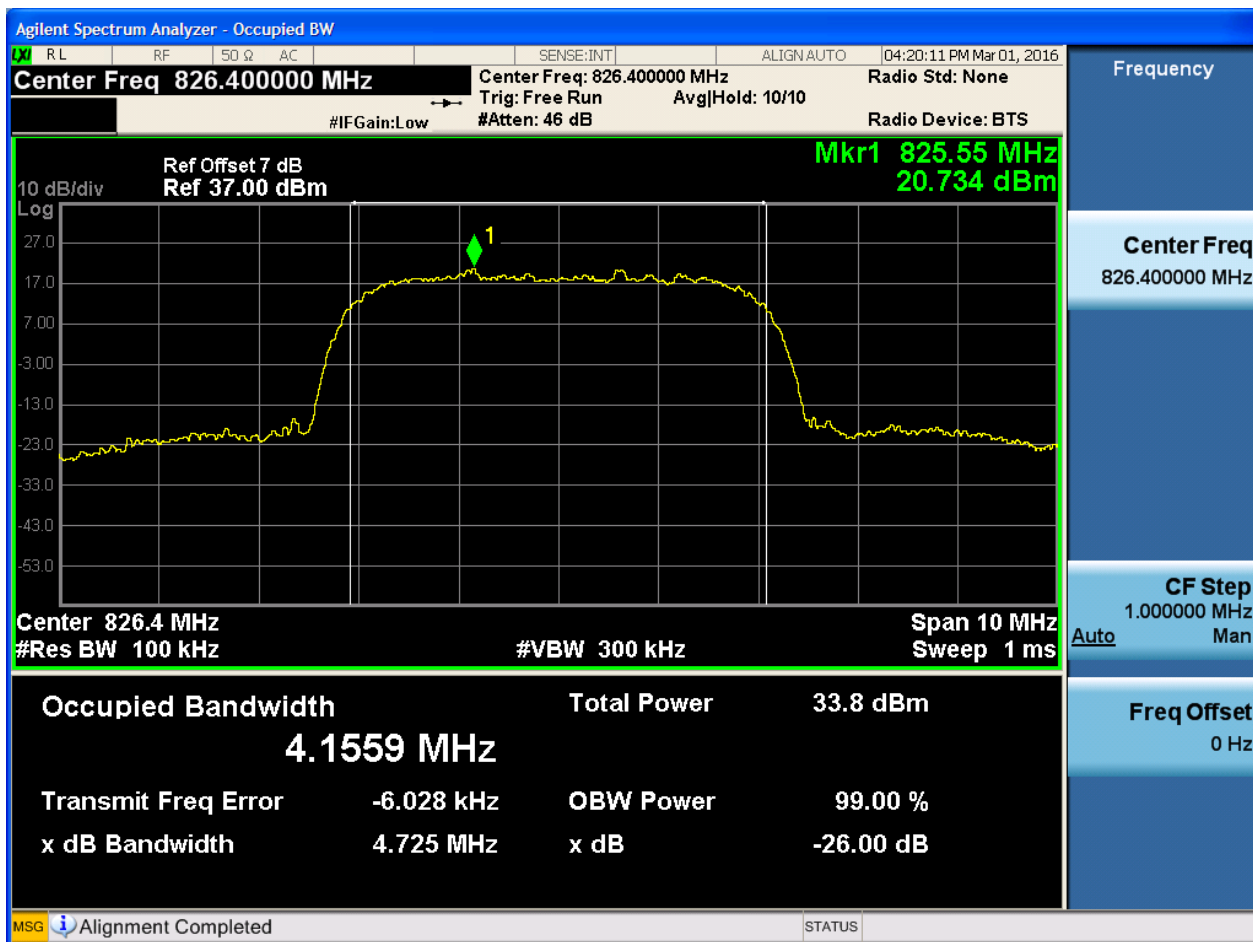




4.1.2 Test Band = WCDMA850

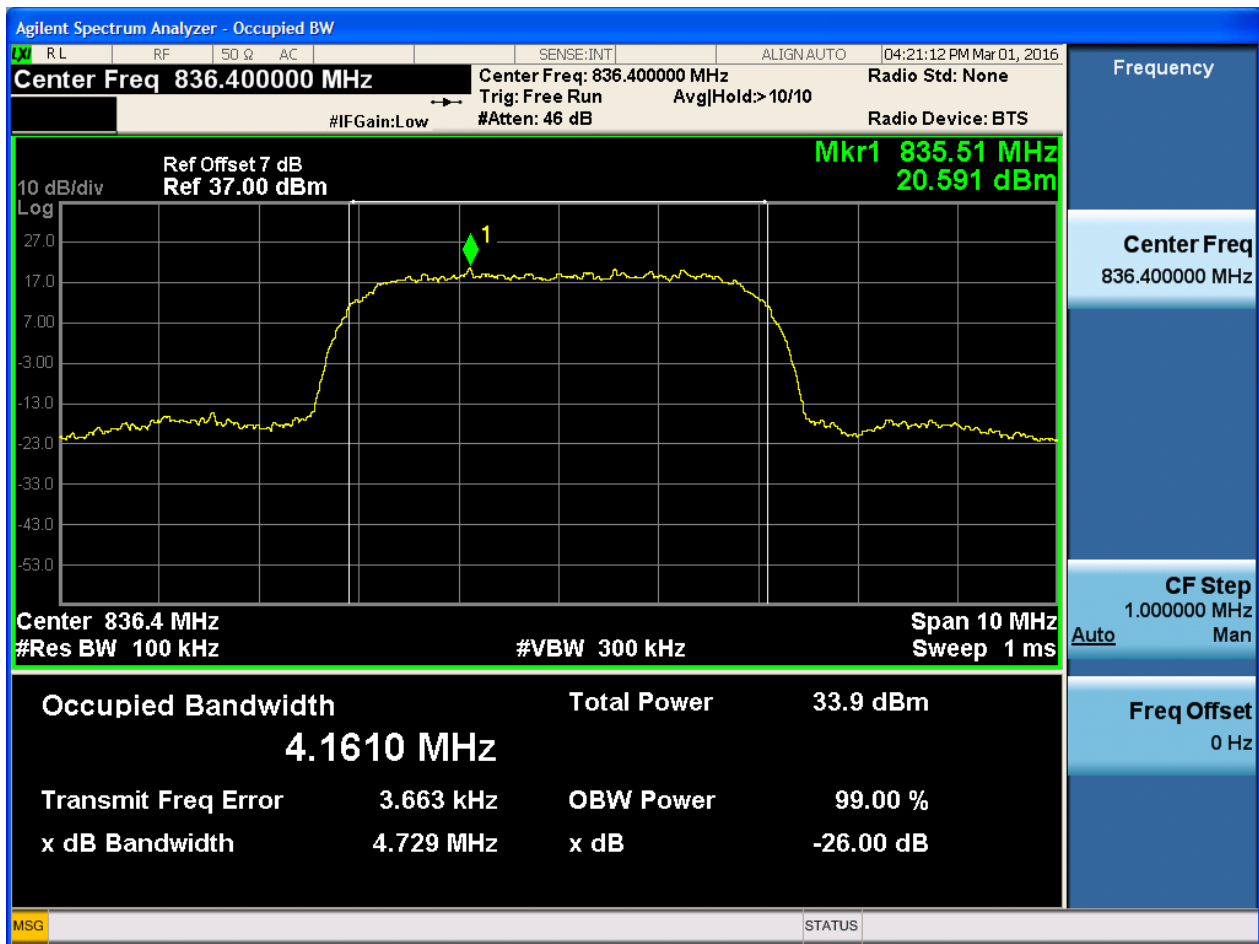
4.1.2.1 Test Mode = UMTS/TM1

4.1.2.1.1 Test Channel = LCH



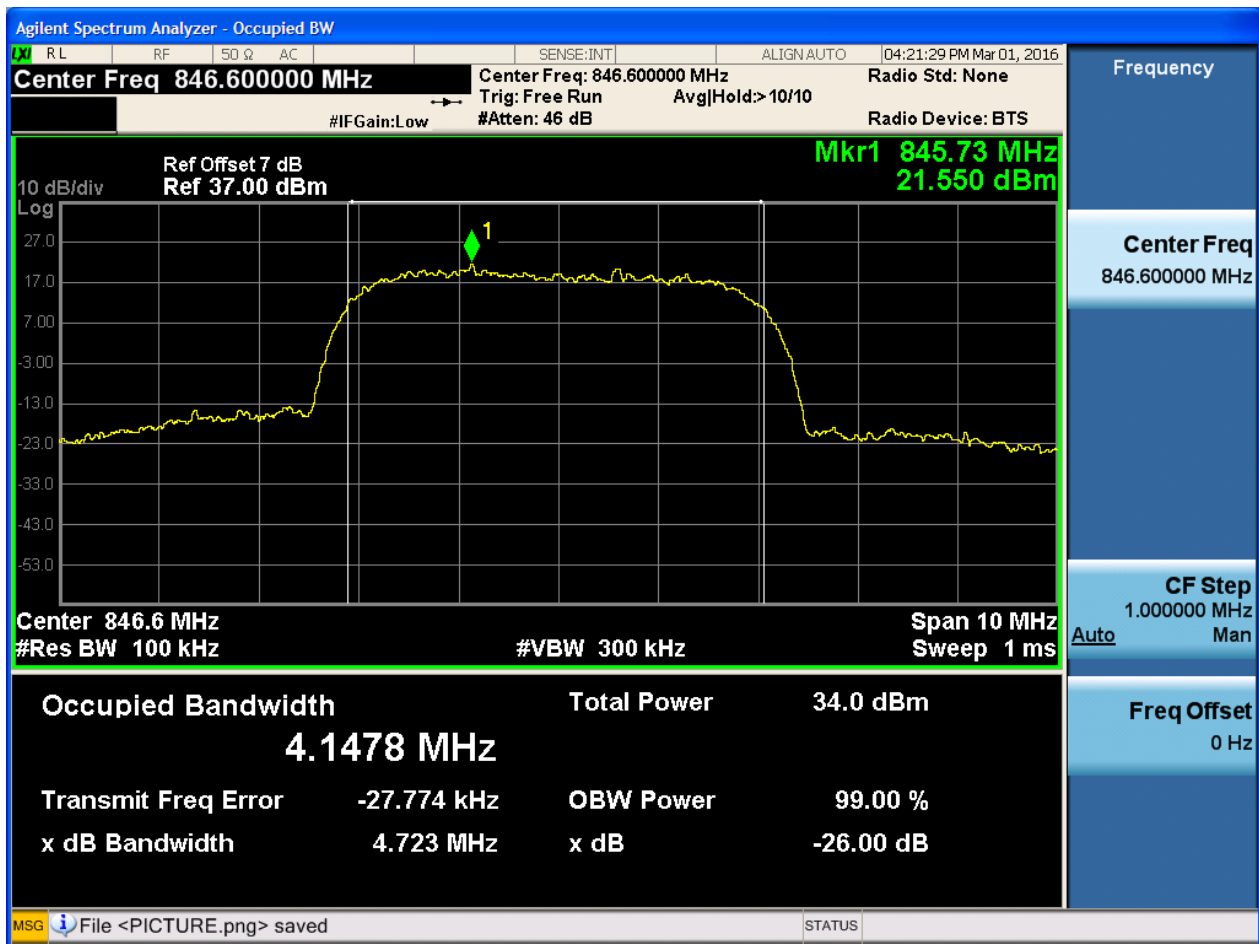


4.1.2.1.2 Test Channel = MCH





4.1.2.1.3 Test Channel = HCH

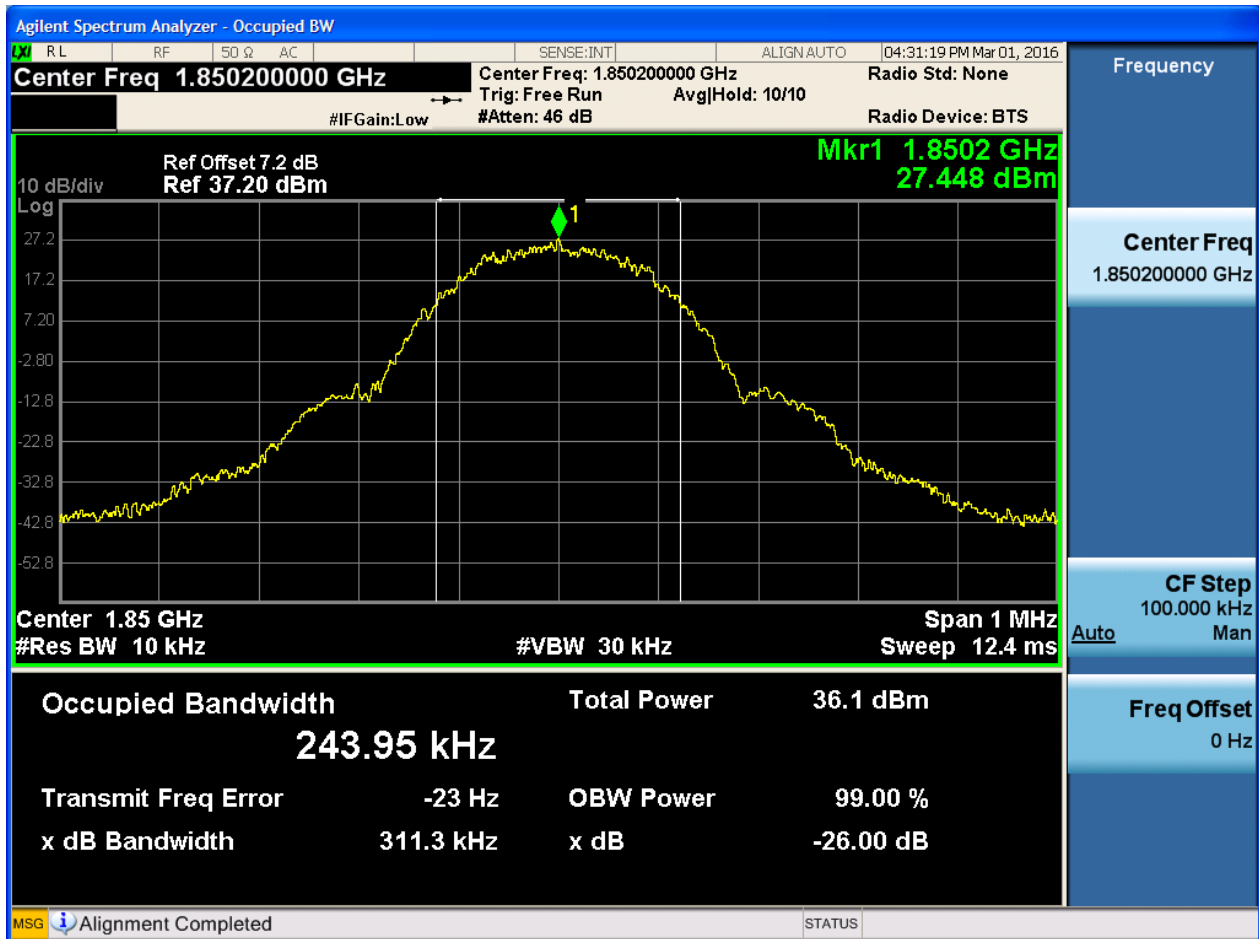




4.1.3 Test Band = GSM1900

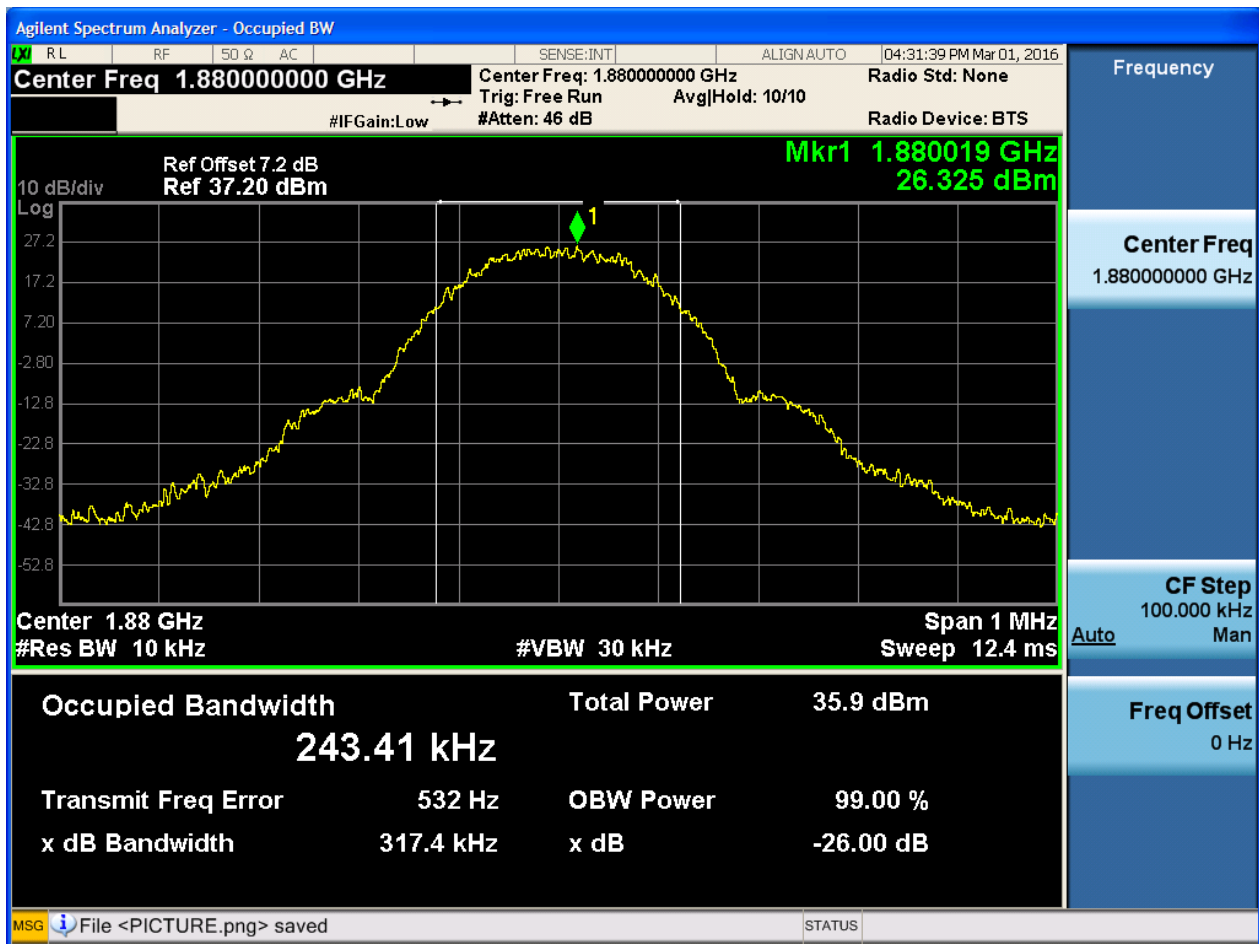
4.1.3.1 Test Mode = GSM/TM1

4.1.3.1.1 Test Channel = LCH



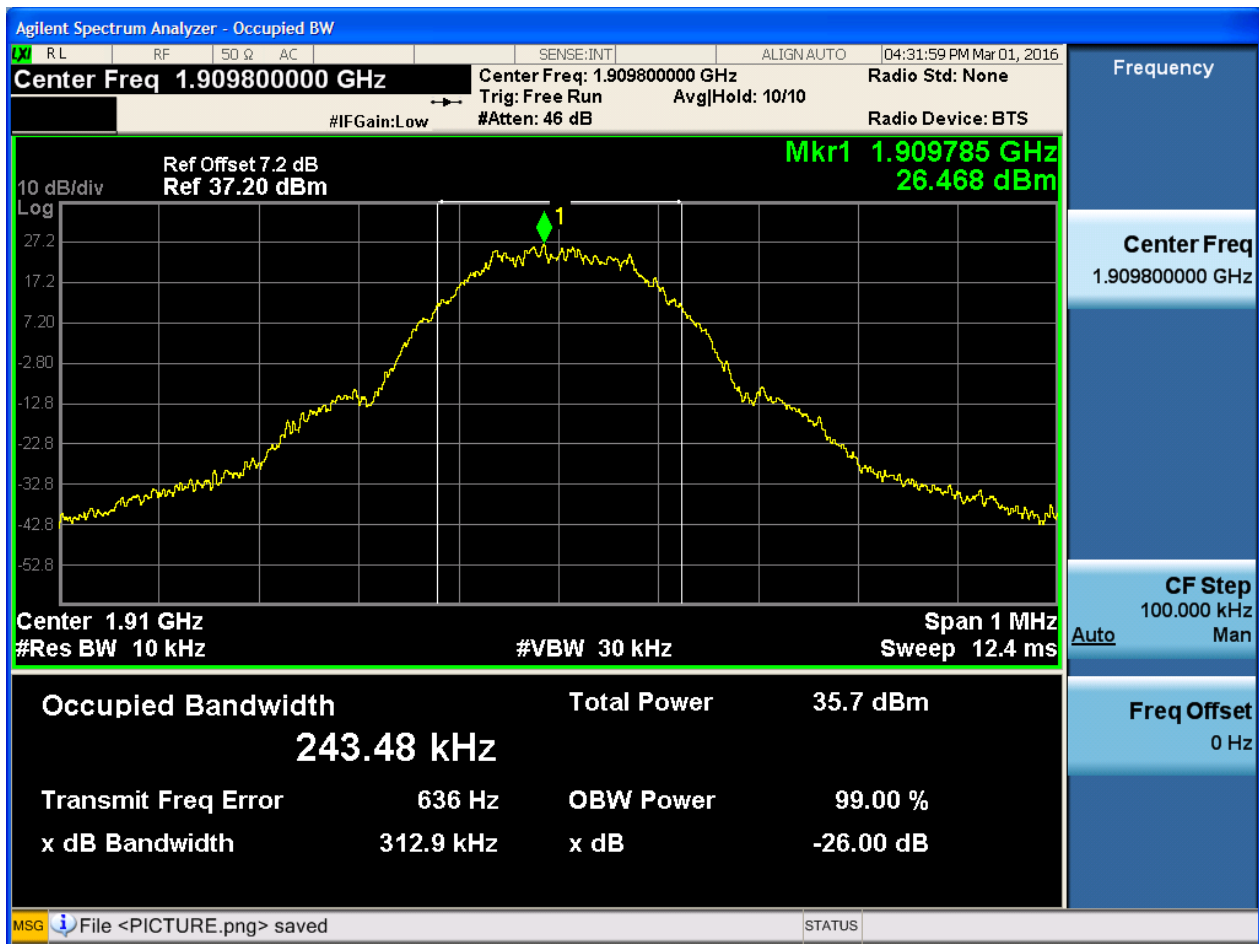


4.1.3.1.2 Test Channel = MCH





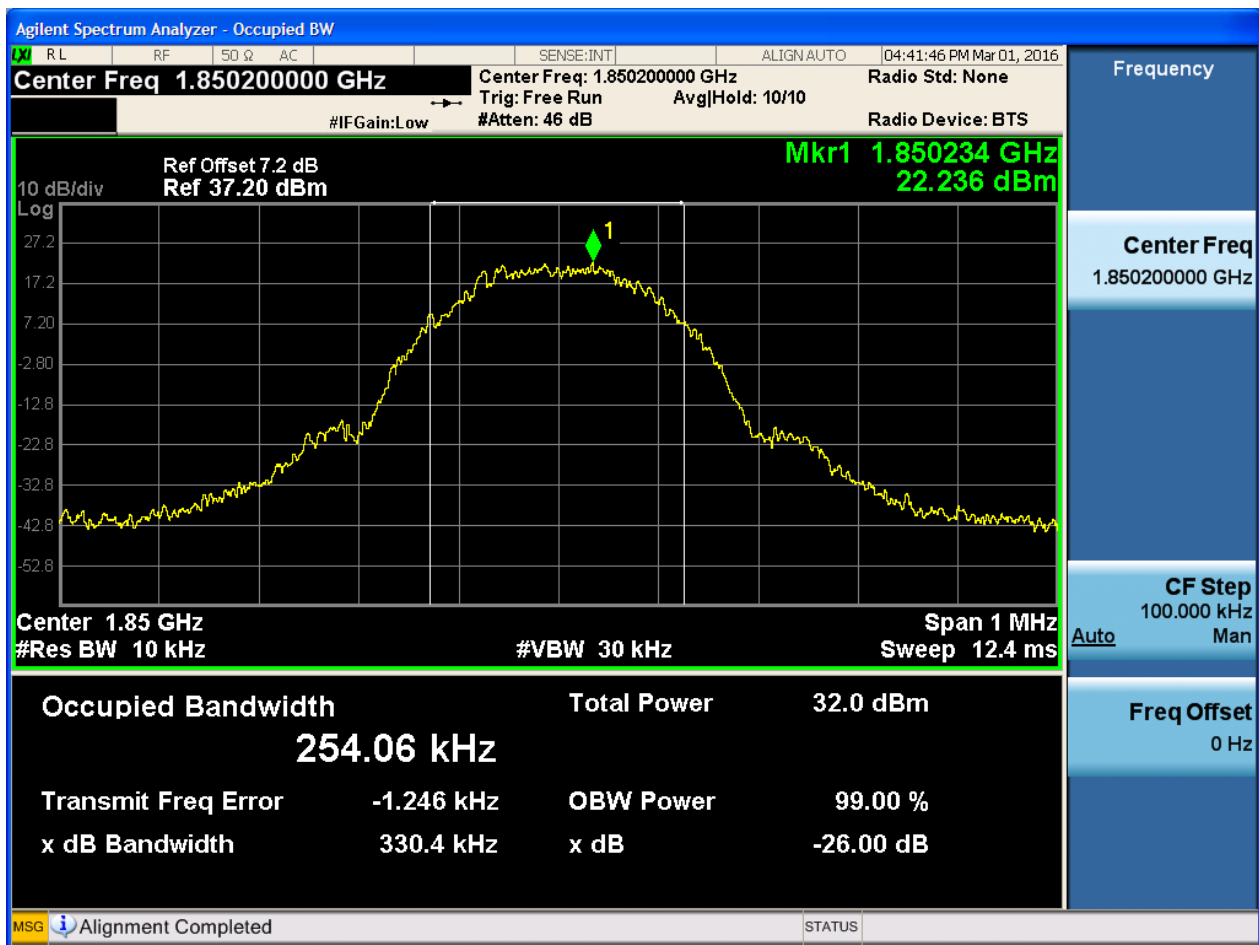
4.1.3.1.3 Test Channel = HCH





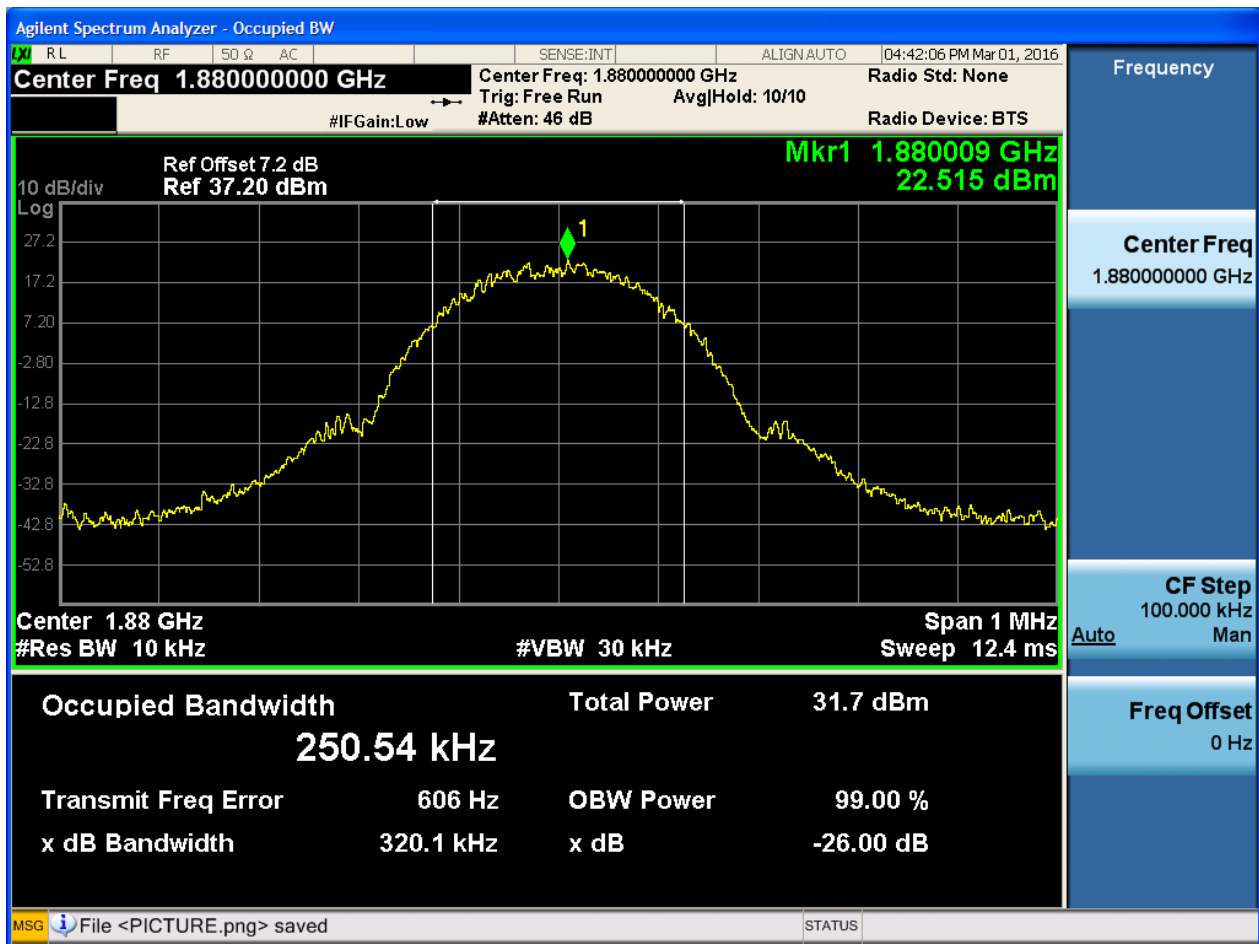
4.1.3.2 Test Mode = GSM/TM2

4.1.3.2.1 Test Channel = LCH



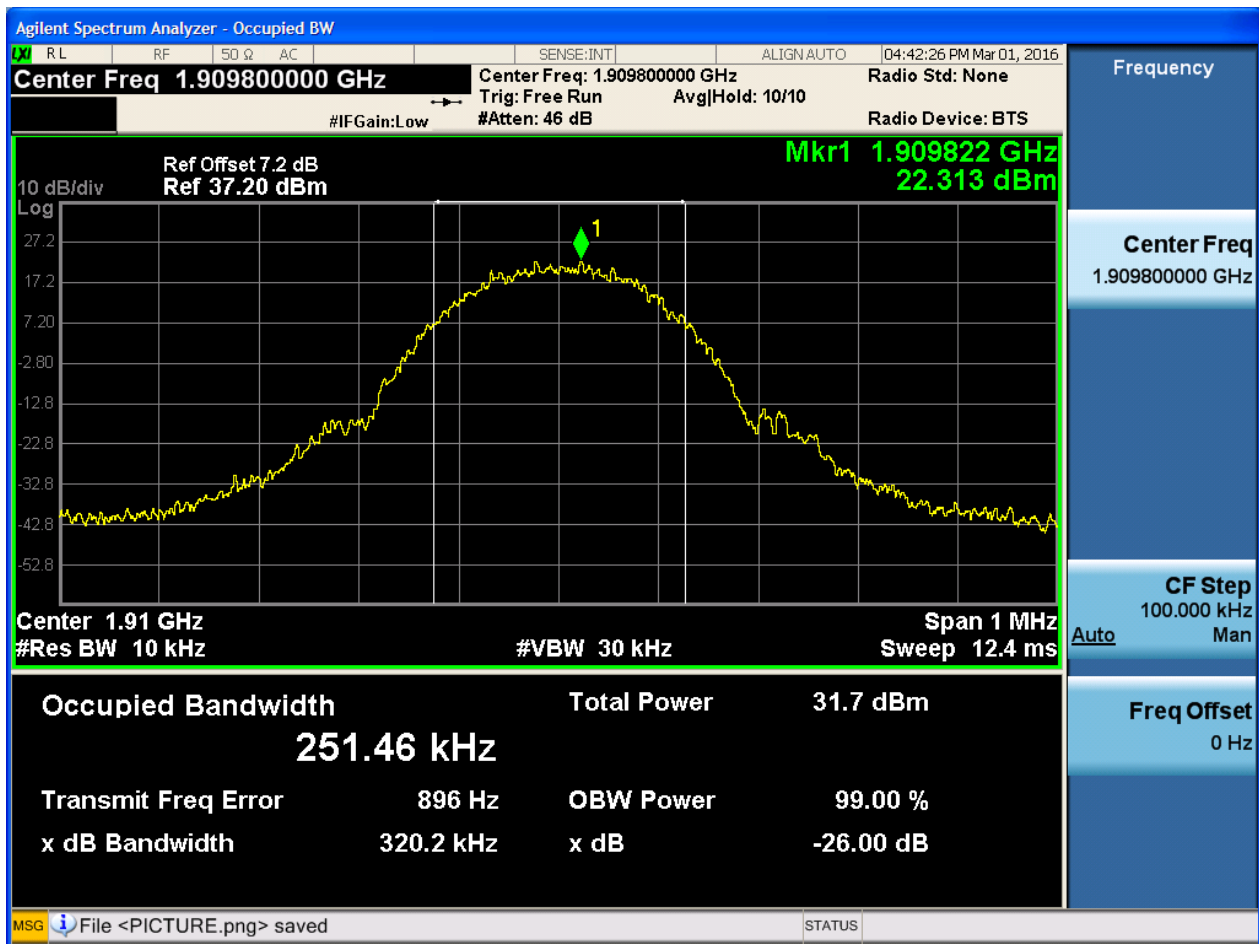


4.1.3.2.2 Test Channel = MCH





4.1.3.2.3 Test Channel = HCH

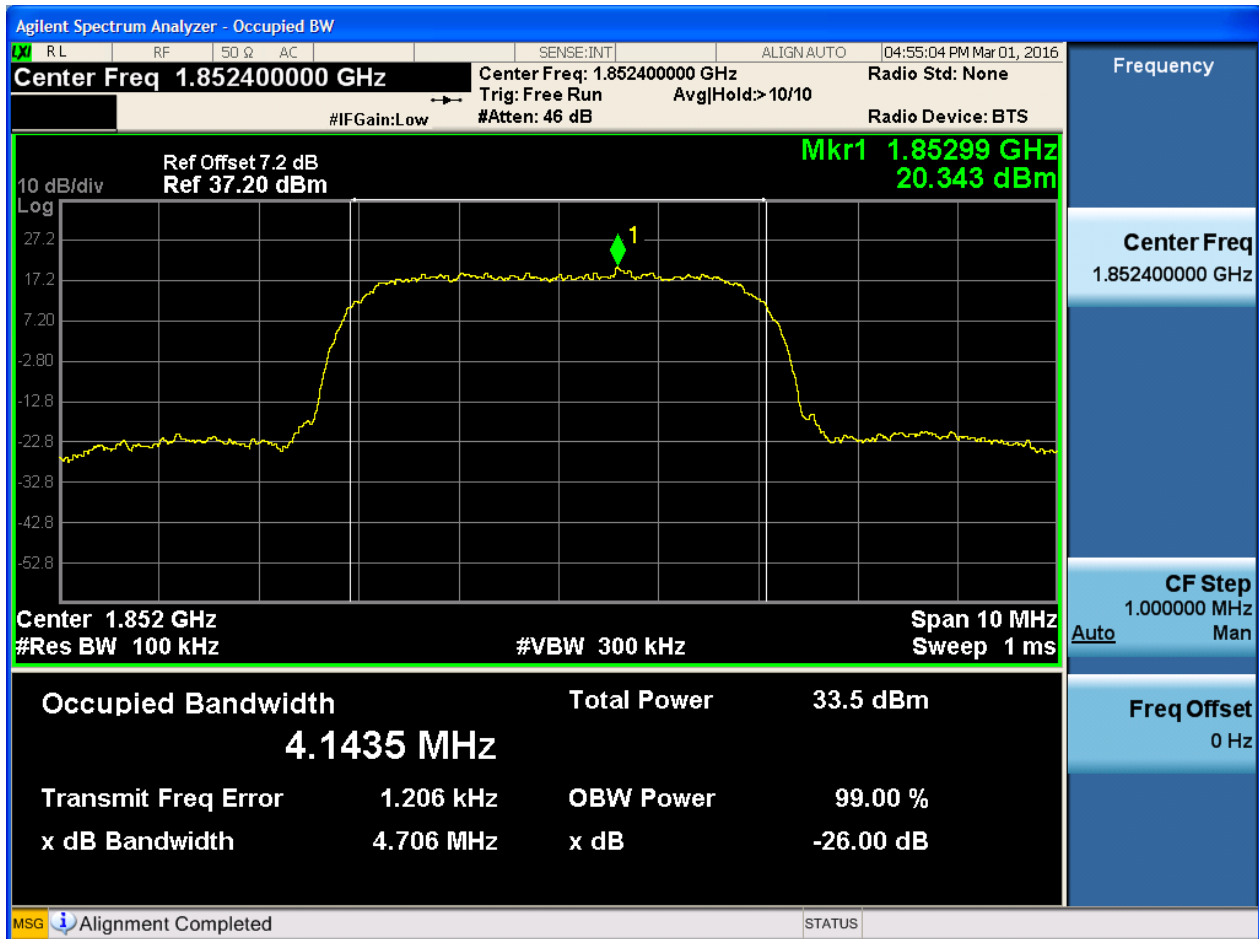




4.1.4 Test Band = WCDMA1900

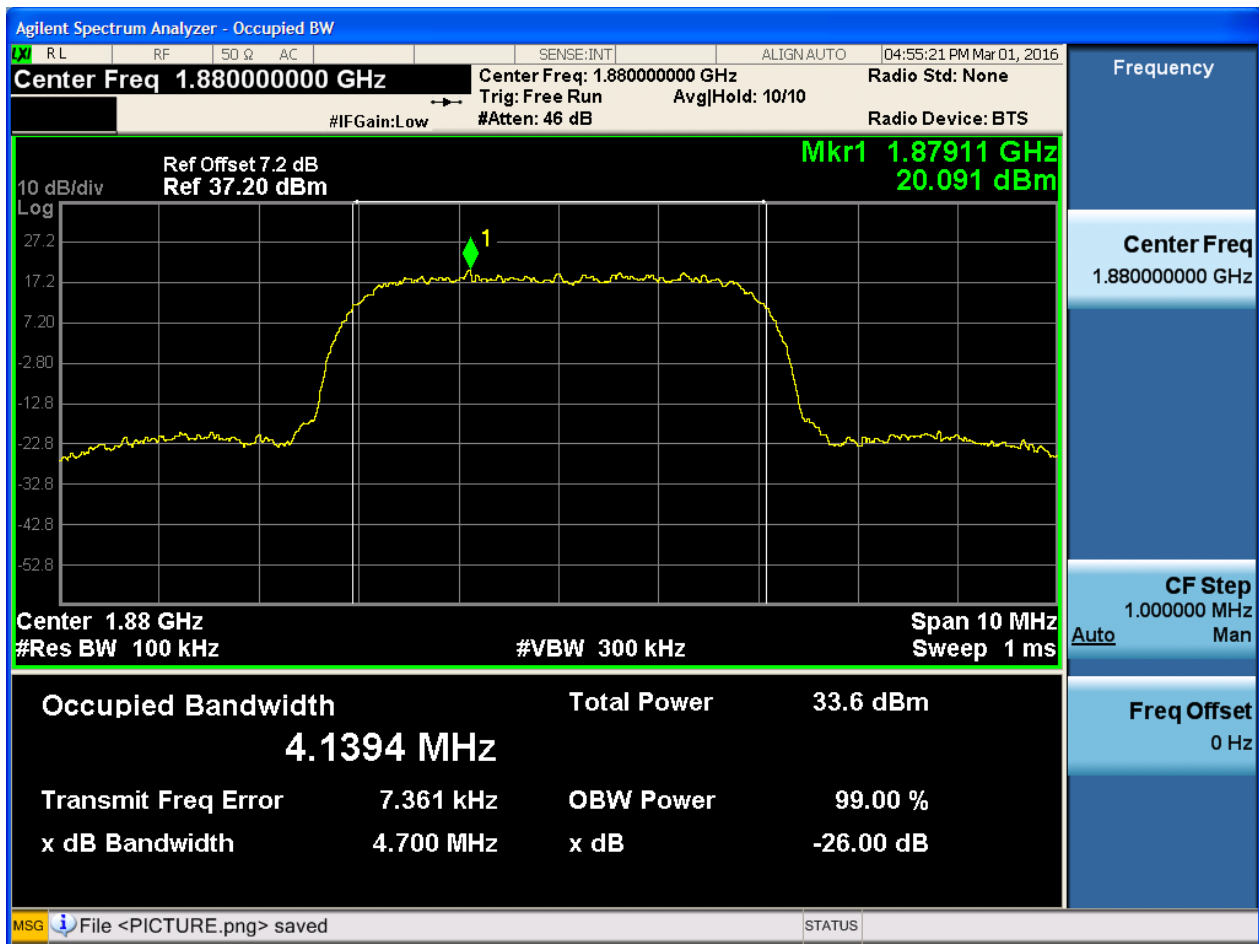
4.1.4.1 Test Mode = UMTS/TM1

4.1.4.1.1 Test Channel = LCH



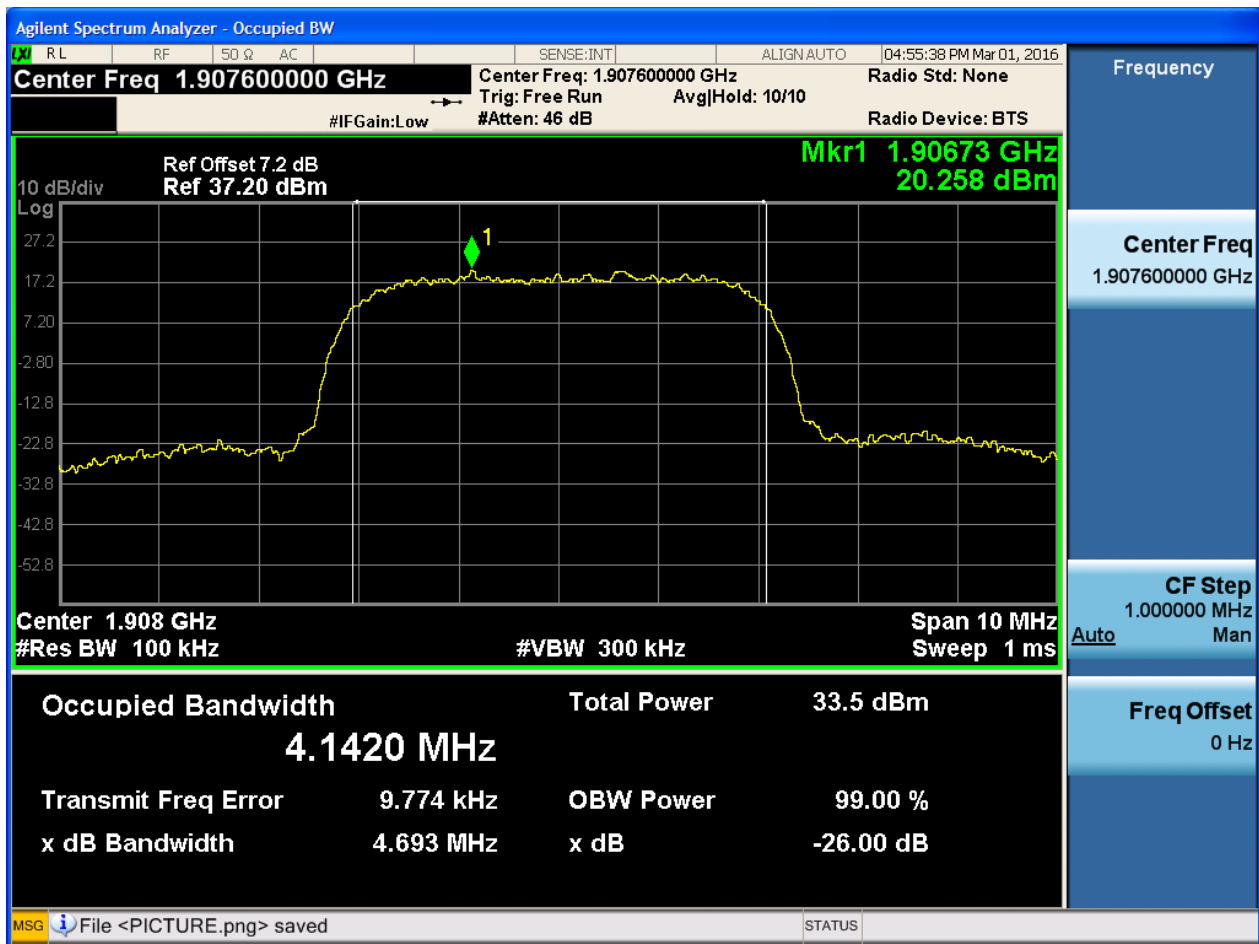


4.1.4.1.2 Test Channel = MCH





4.1.4.1.3 Test Channel = HCH

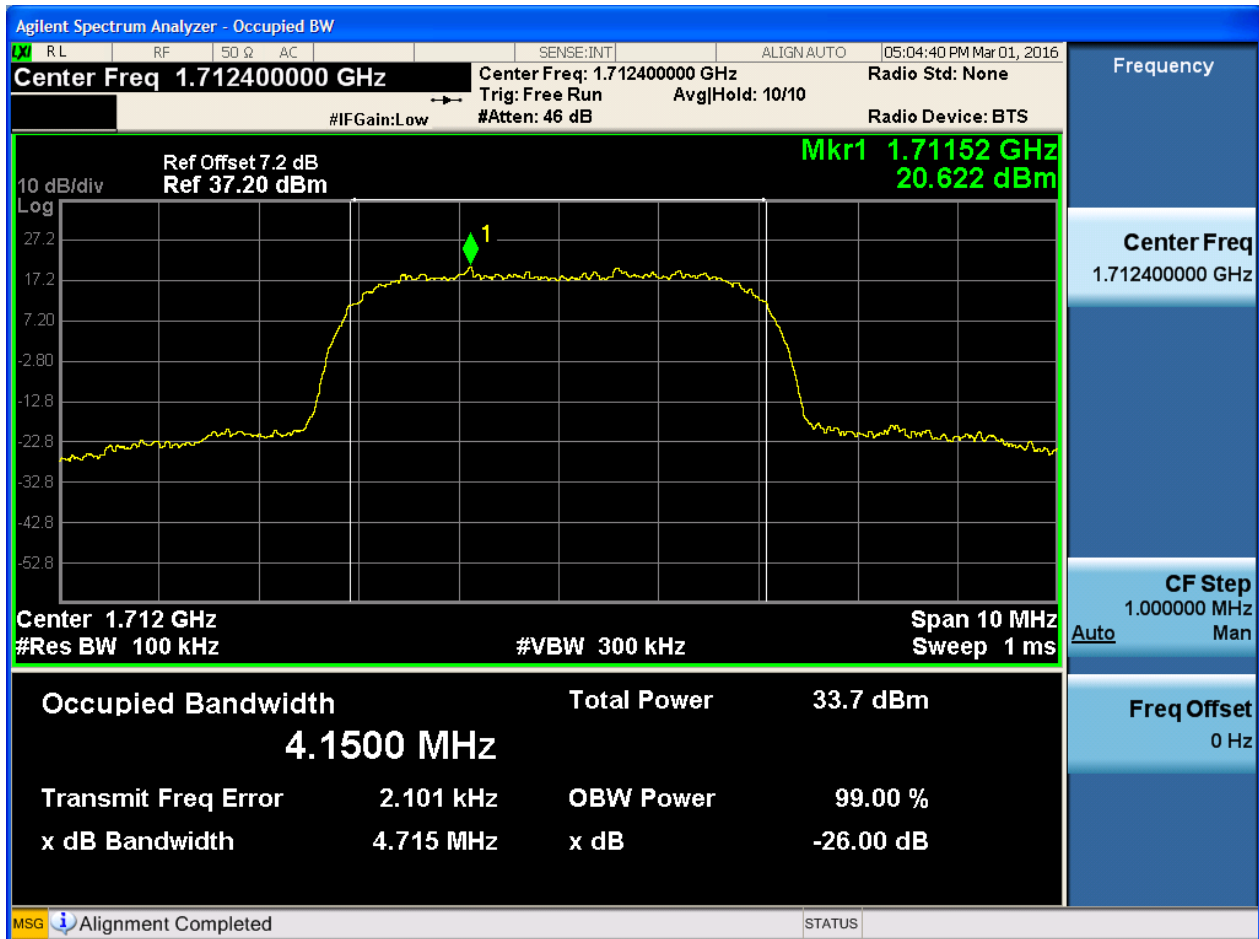




4.1.5 Test Band = WCDMA1700

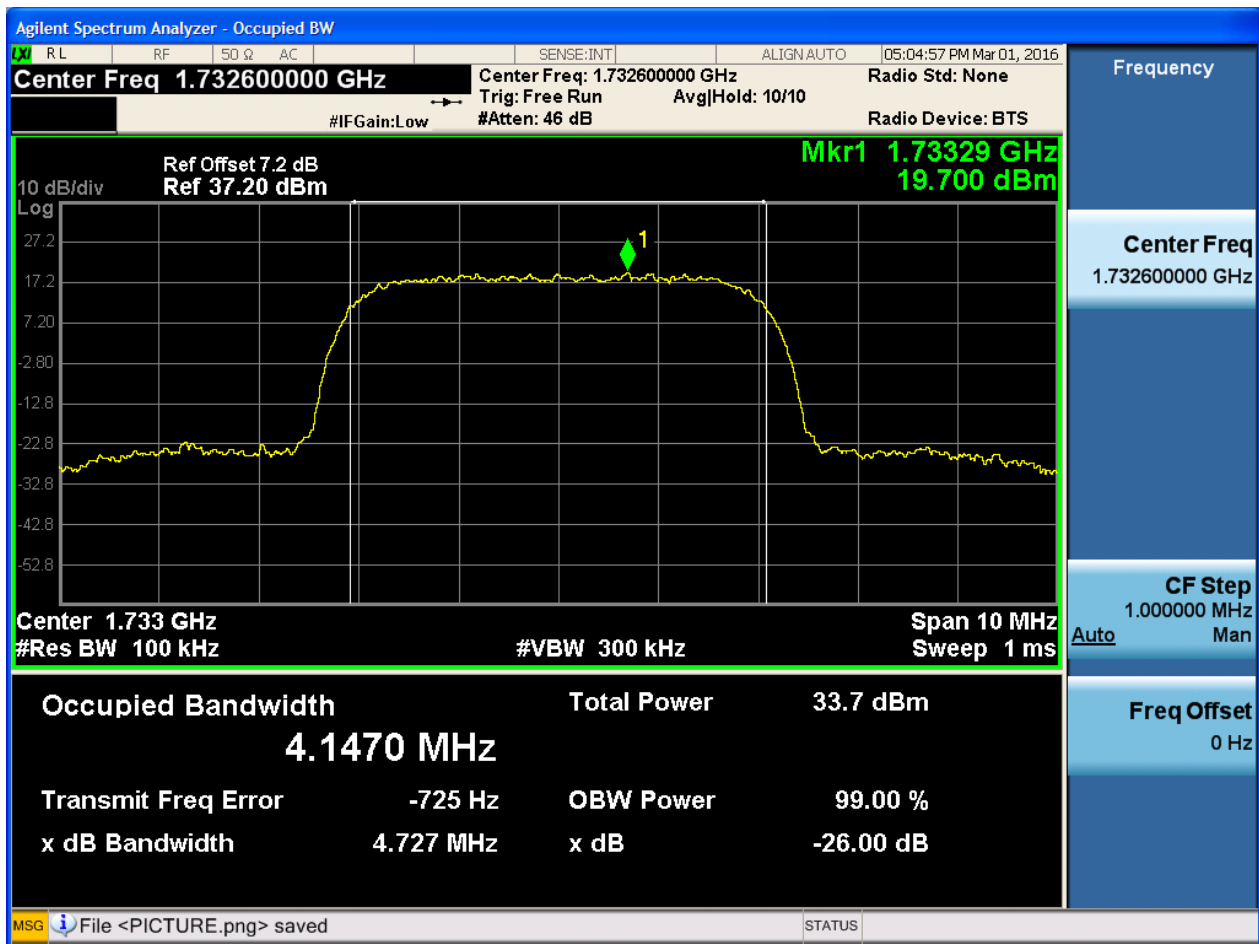
4.1.5.1 Test Mode = UMTS/TM1

4.1.5.1.1 Test Channel = LCH



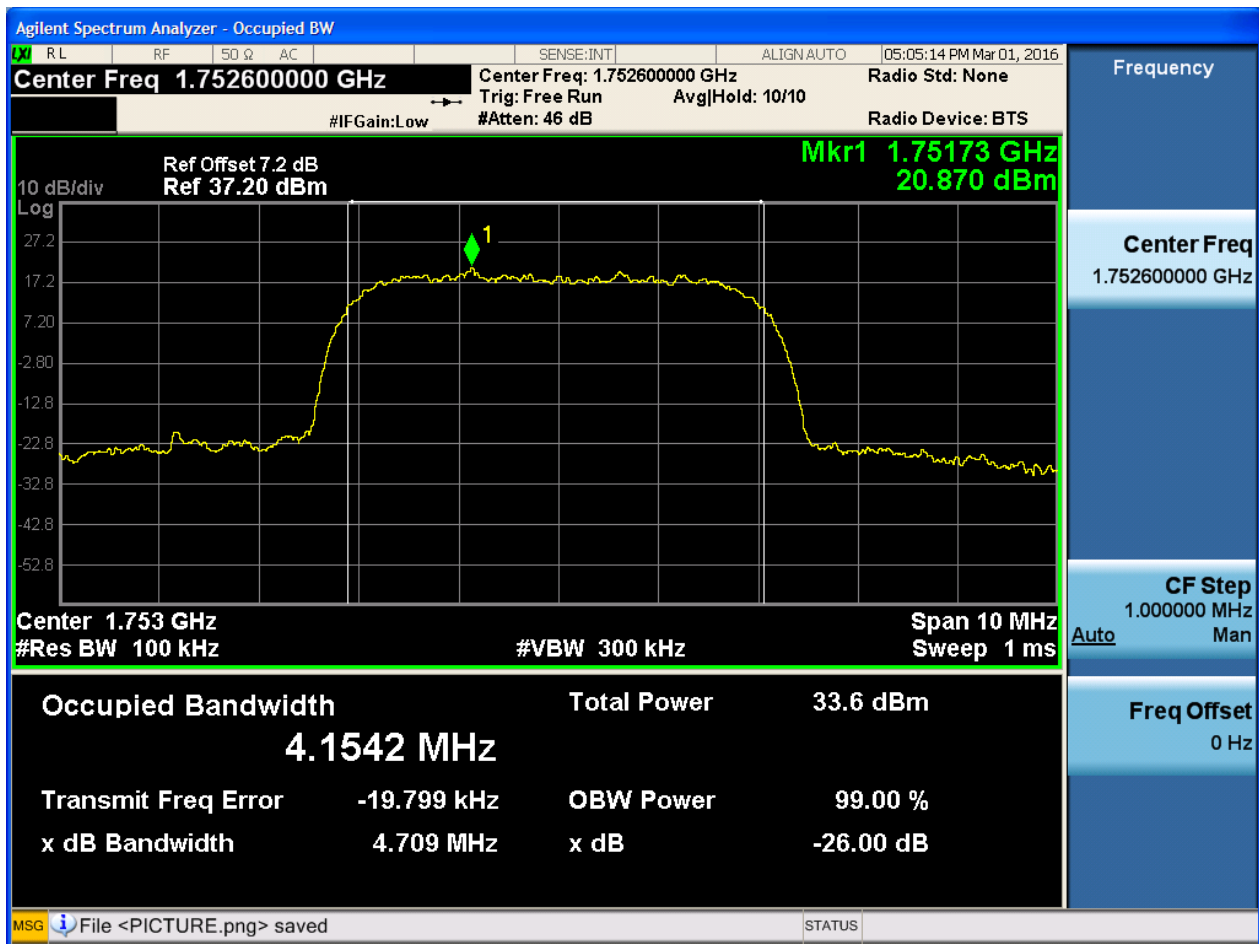


4.1.5.1.2 Test Channel = MCH





4.1.5.1.3 Test Channel = HCH





5Appendix_E: Band Edges Compliance

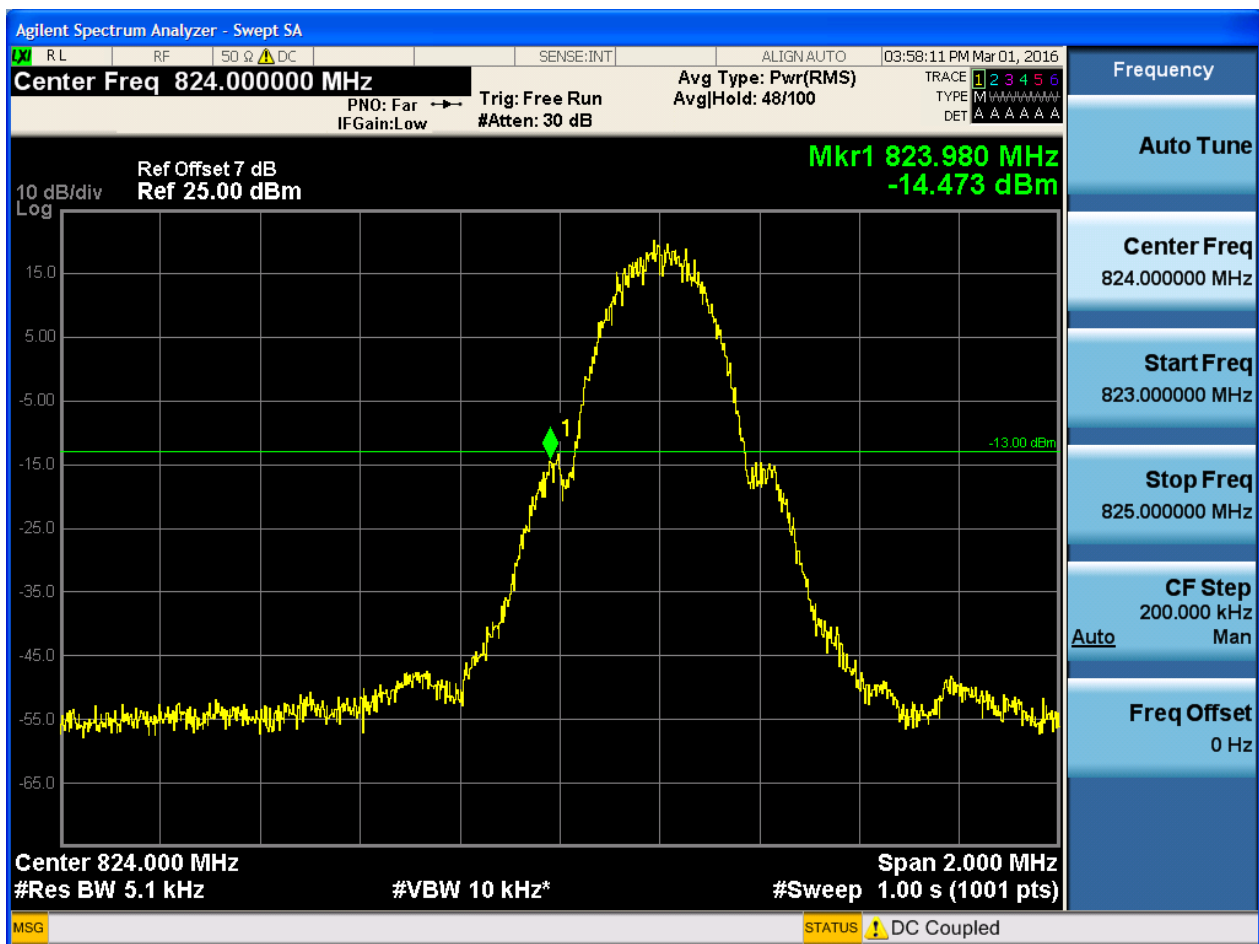
Part I - Test Plots

5.1 For GSM

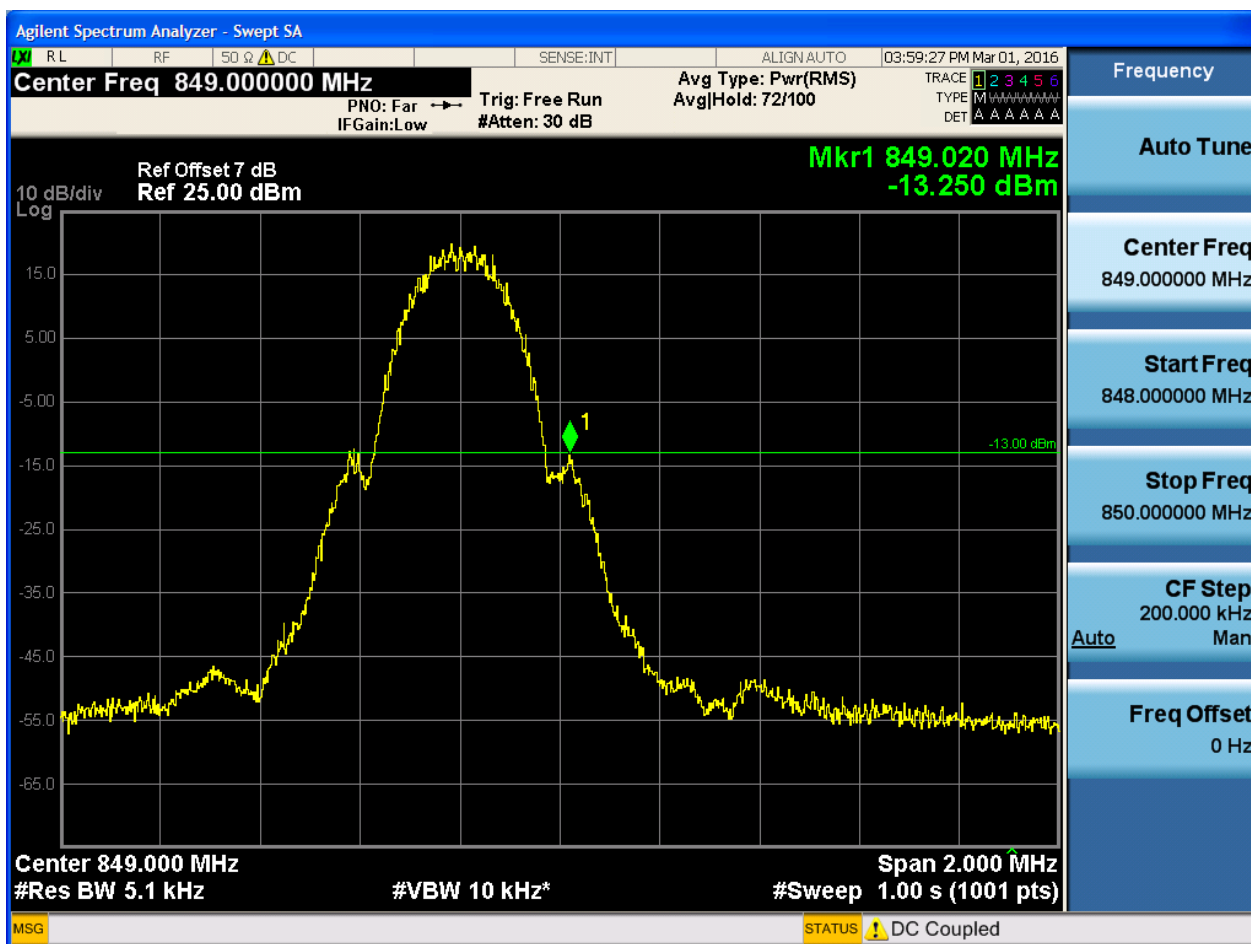
5.1.1 Test Band = GSM850

5.1.1.1 Test Mode = GSM/TM1

5.1.1.1.1 Test Channel = LCH

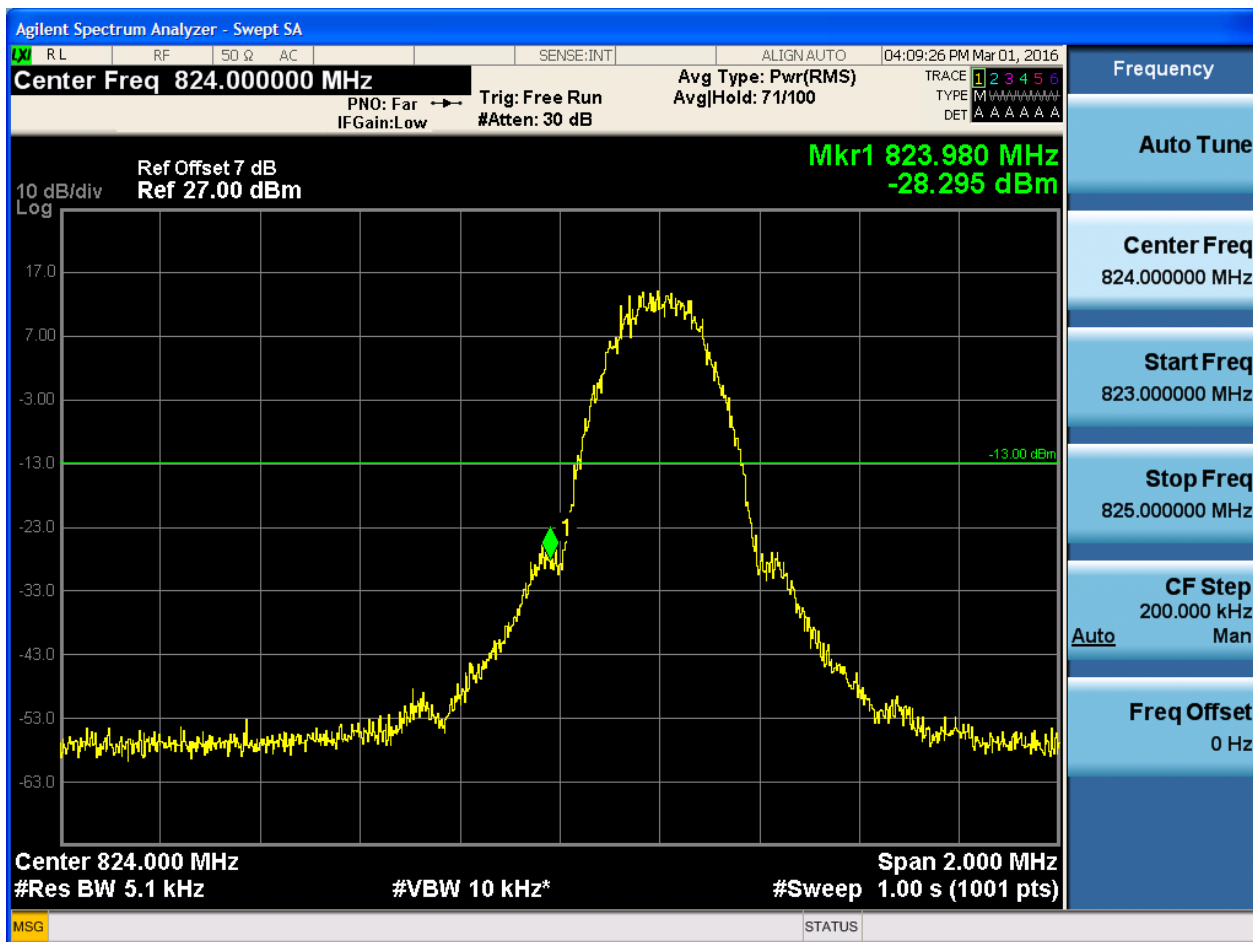


5.1.1.1.2 Test Channel = HCH

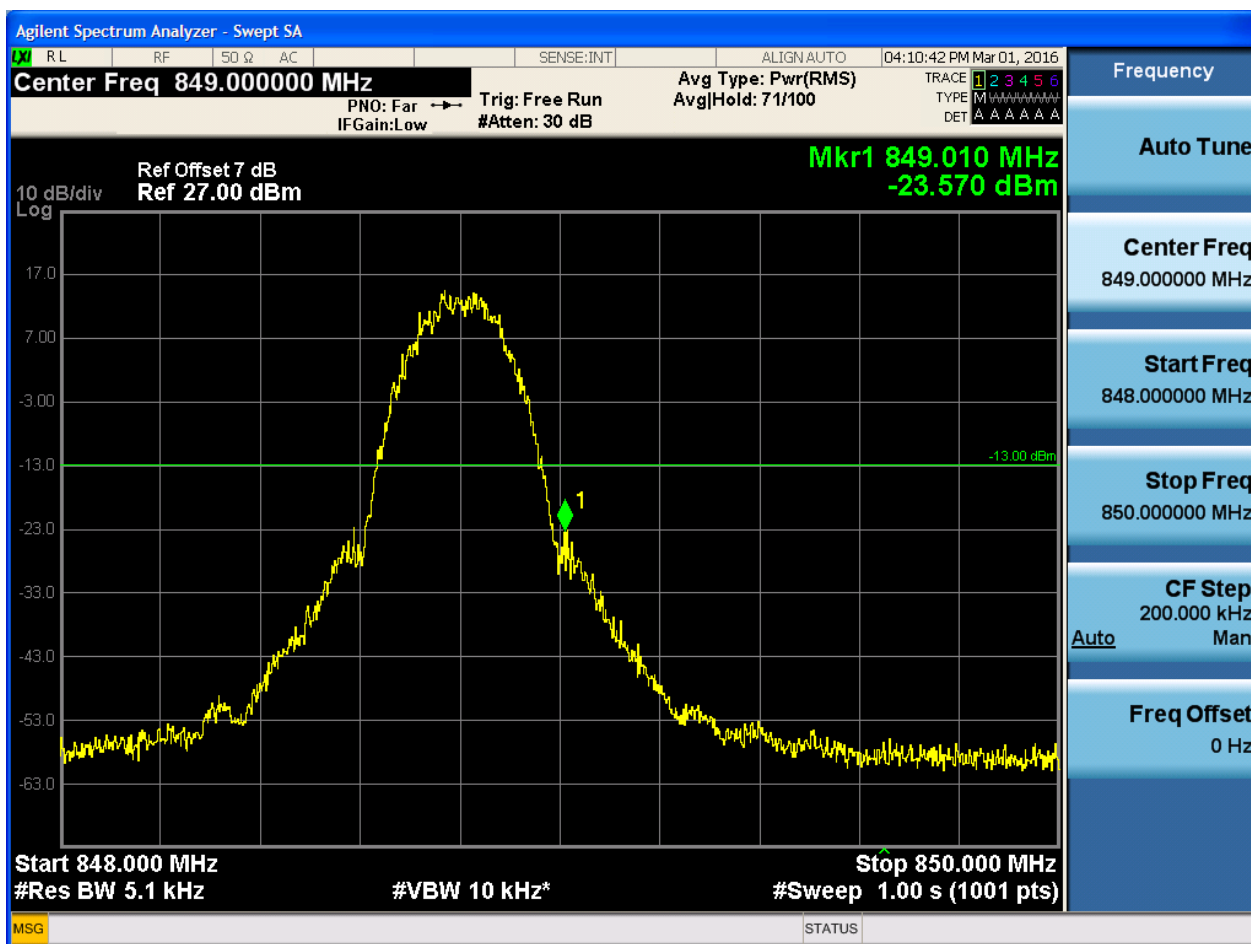


5.1.1.2 Test Mode = GSM/TM2

5.1.1.2.1 Test Channel = LCH



5.1.1.2.2 Test Channel = HCH

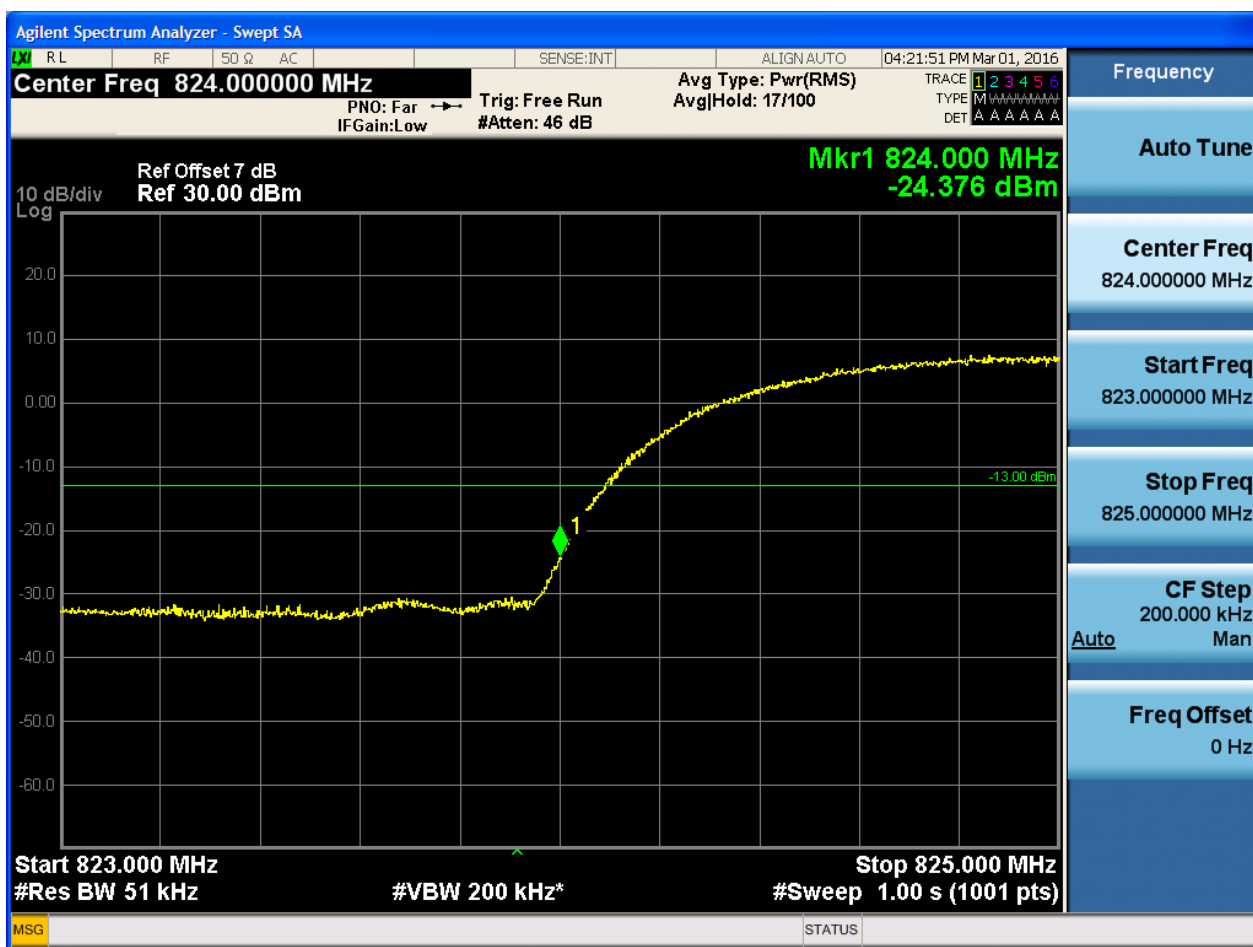




5.1.2 Test Band = WCDMA850

5.1.2.1 Test Mode = UMTS/TM1

5.1.2.1.1 Test Channel = LCH



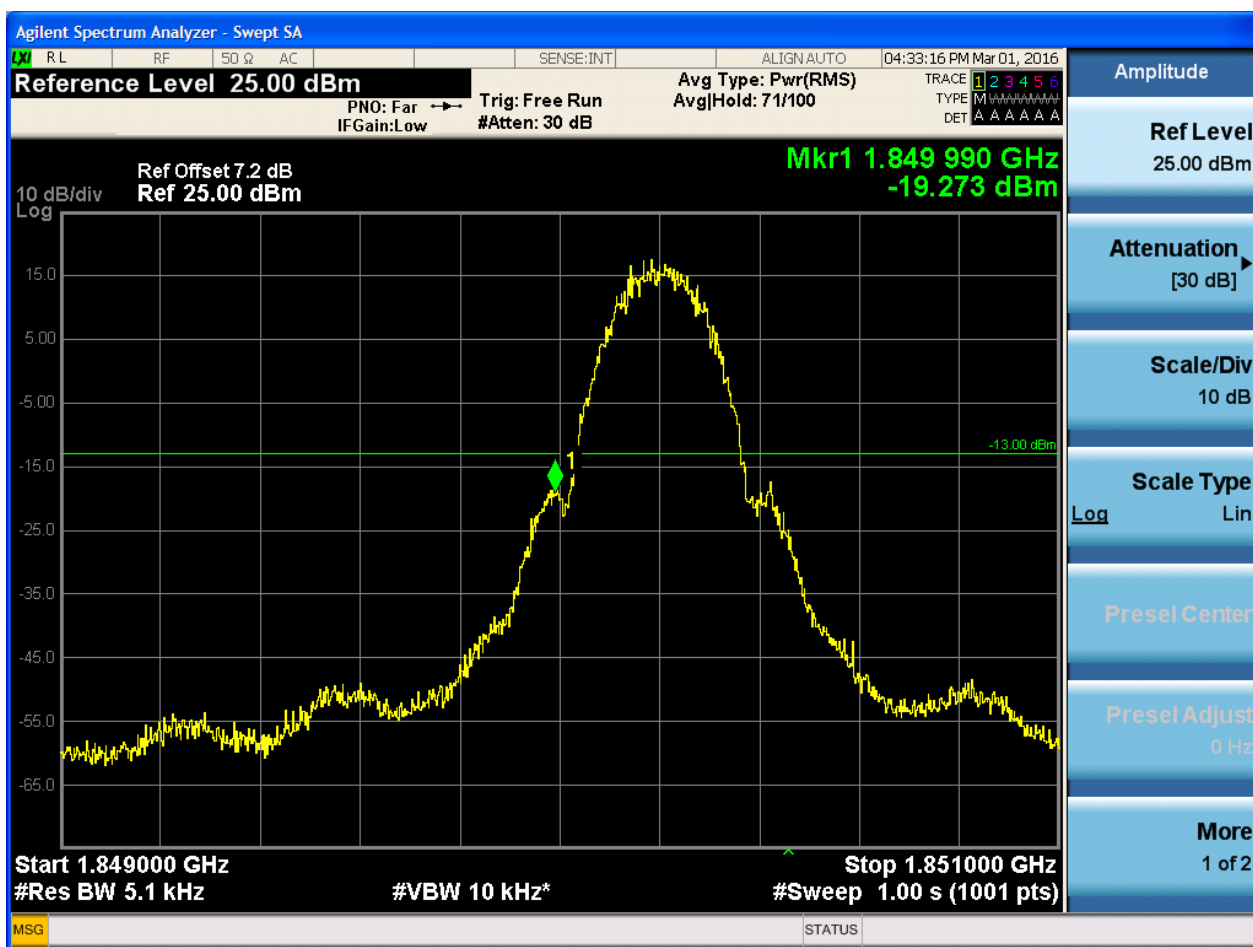
5.1.2.1.2 Test Channel = HCH



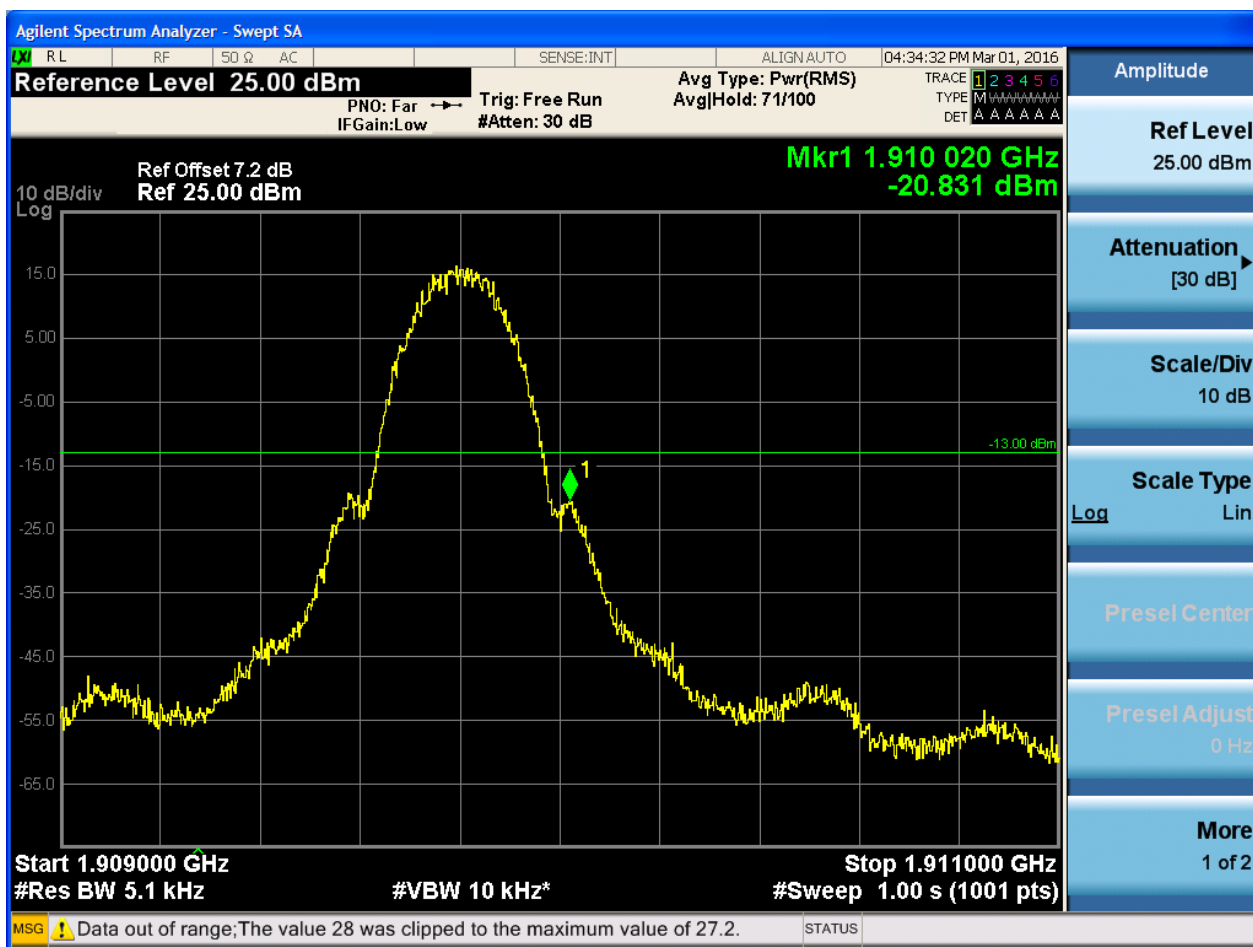
5.1.3 Test Band = GSM1900

5.1.3.1 Test Mode = GSM/TM1

5.1.3.1.1 Test Channel = LCH

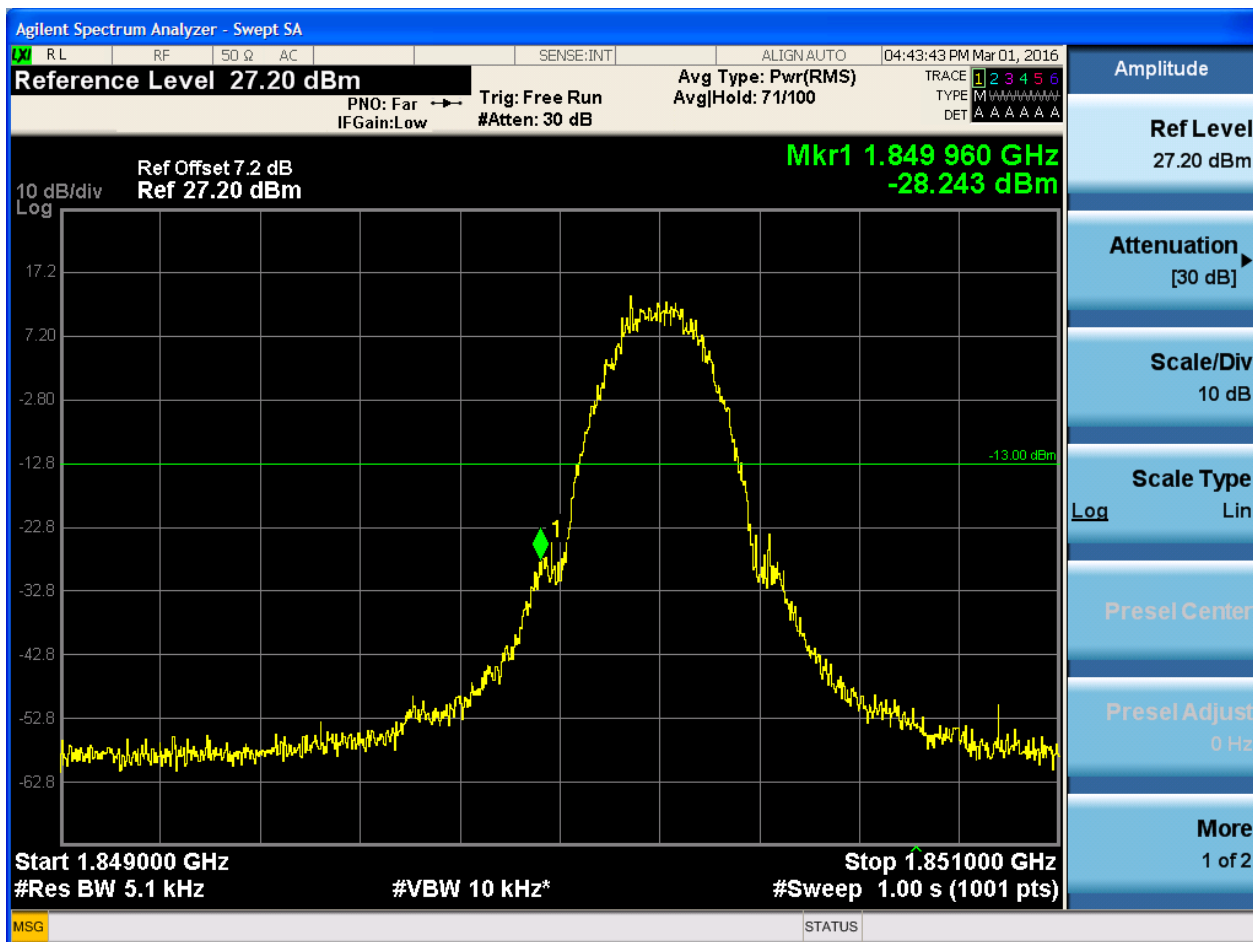


5.1.3.1.2 Test Channel = HCH

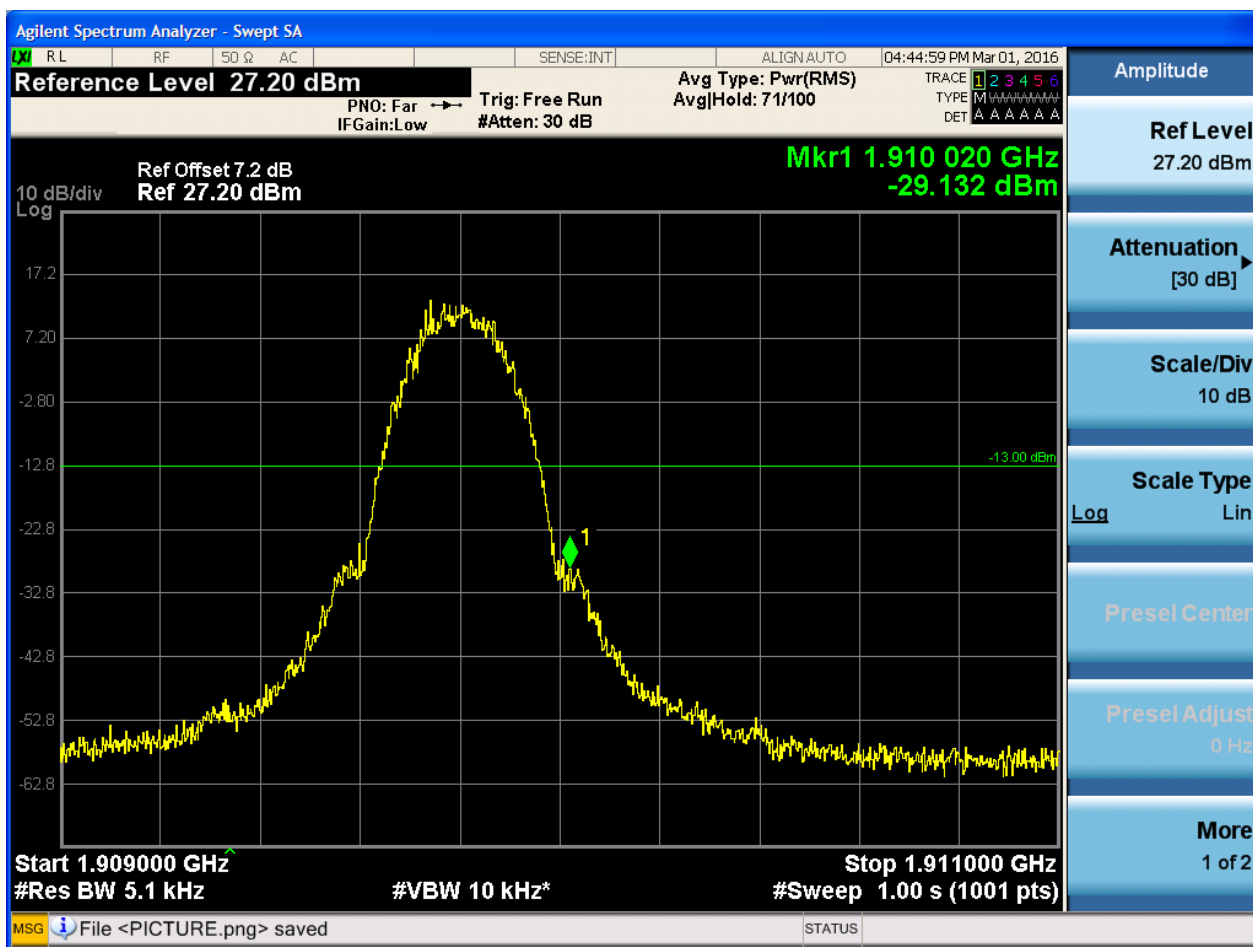


5.1.3.2 Test Mode = GSM/TM2

5.1.3.2.1 Test Channel = LCH



5.1.3.2.2 Test Channel = HCH





5.1.4 Test Band = WCDMA1900

5.1.4.1 Test Mode = UMTS/TM1

5.1.4.1.1 Test Channel = LCH



5.1.4.1.2 Test Channel = HCH

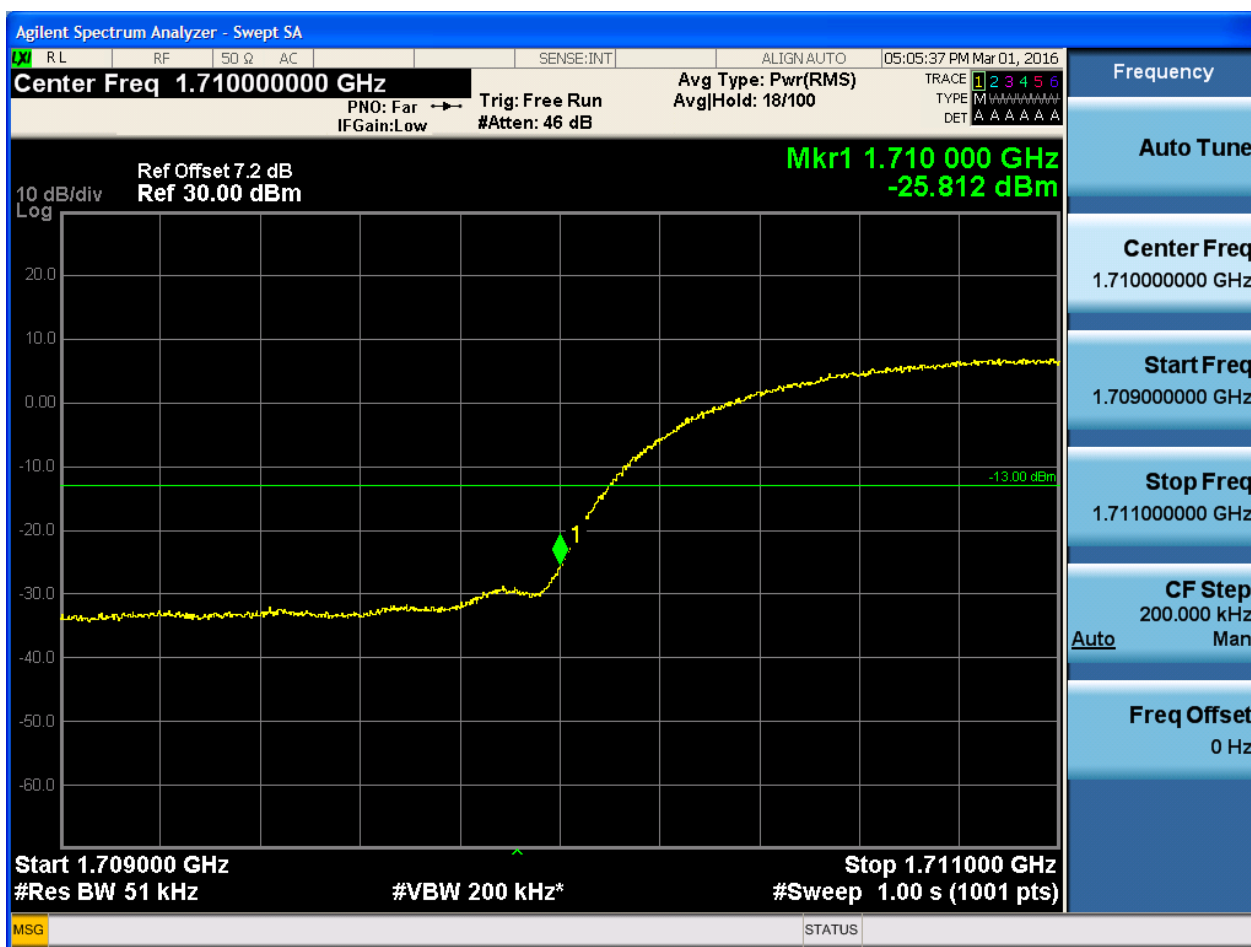




5.1.5 Test Band = WCDMA1700

5.1.5.1 Test Mode = UMTS/TM1

5.1.5.1.1 Test Channel = LCH



5.1.5.1.2 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.

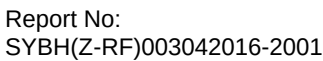
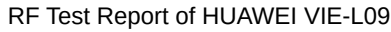
Part I - Test Plots

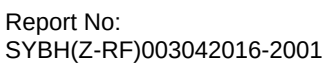
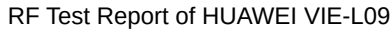
6.1 For GSM

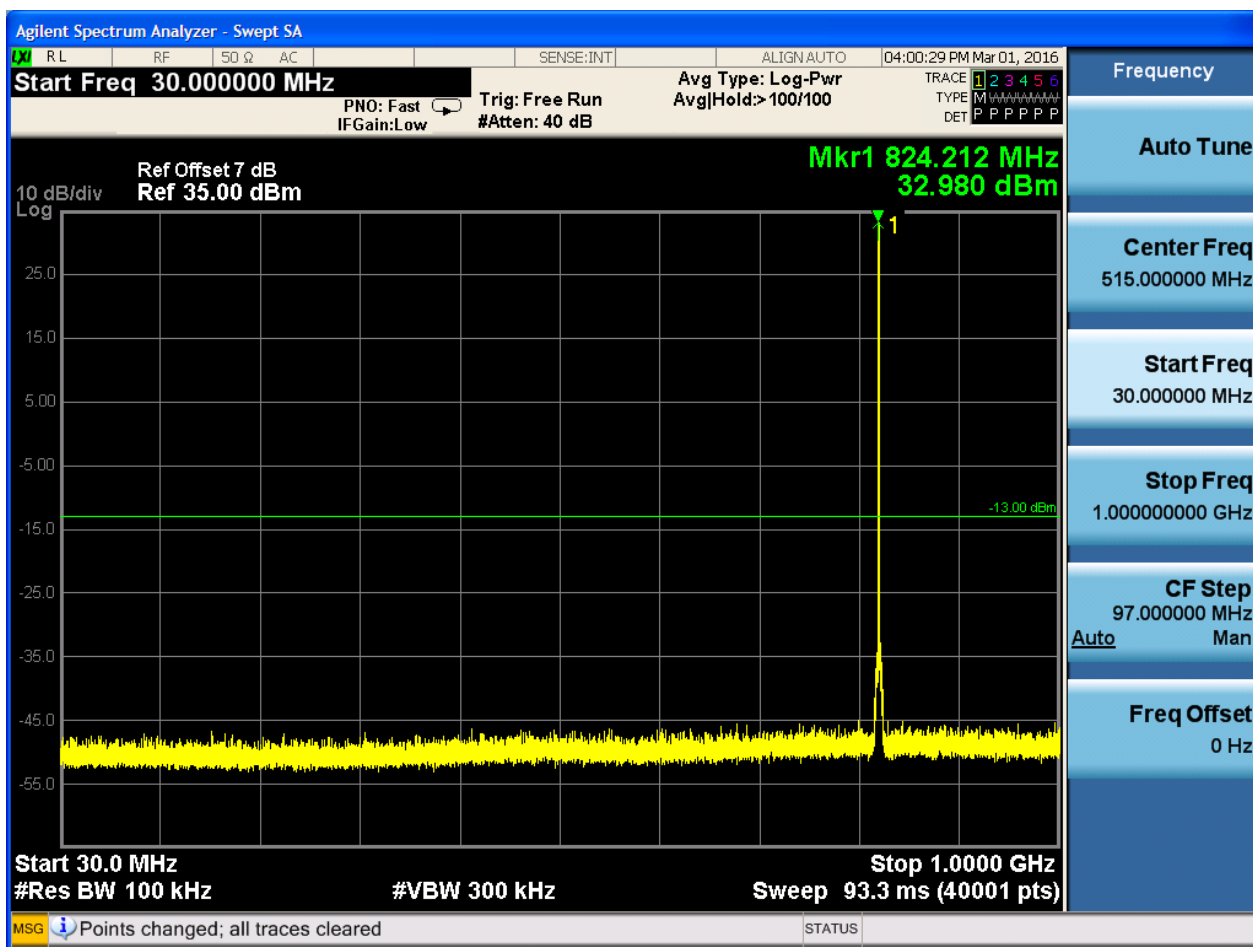
6.1.1 Test Band = GSM850

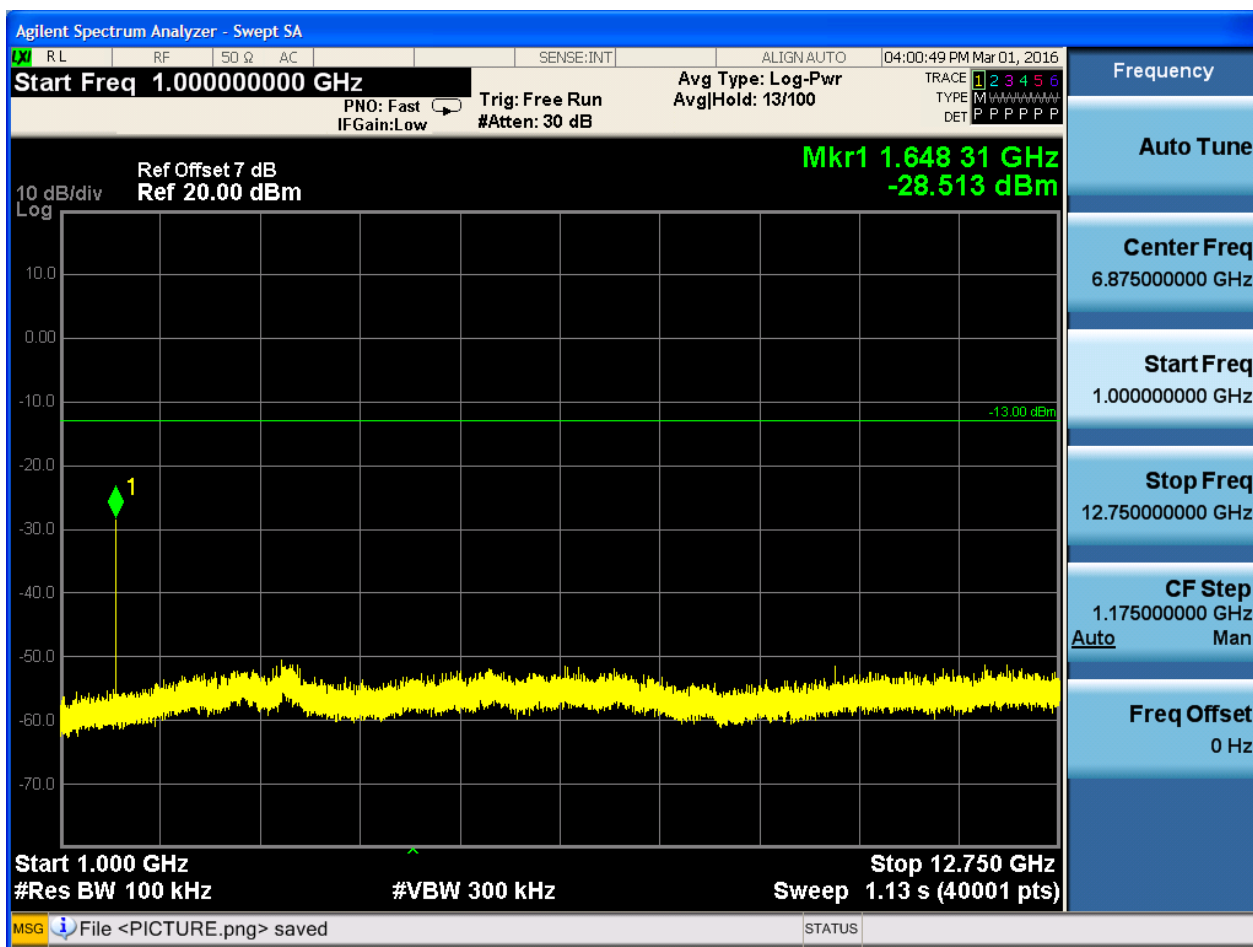
6.1.1.1 Test Mode = GSM/TM1

6.1.1.1.1 Test Channel = LCH

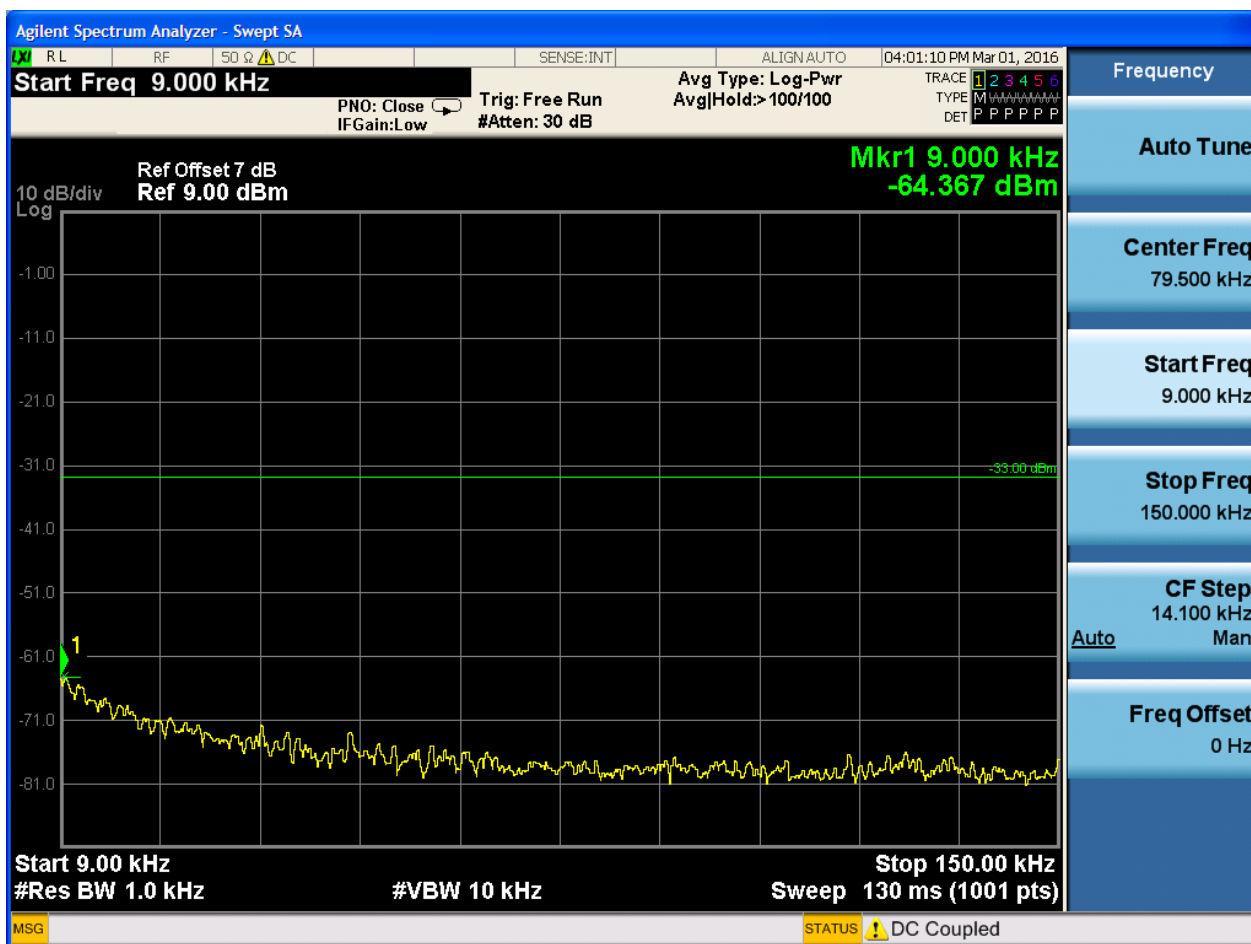


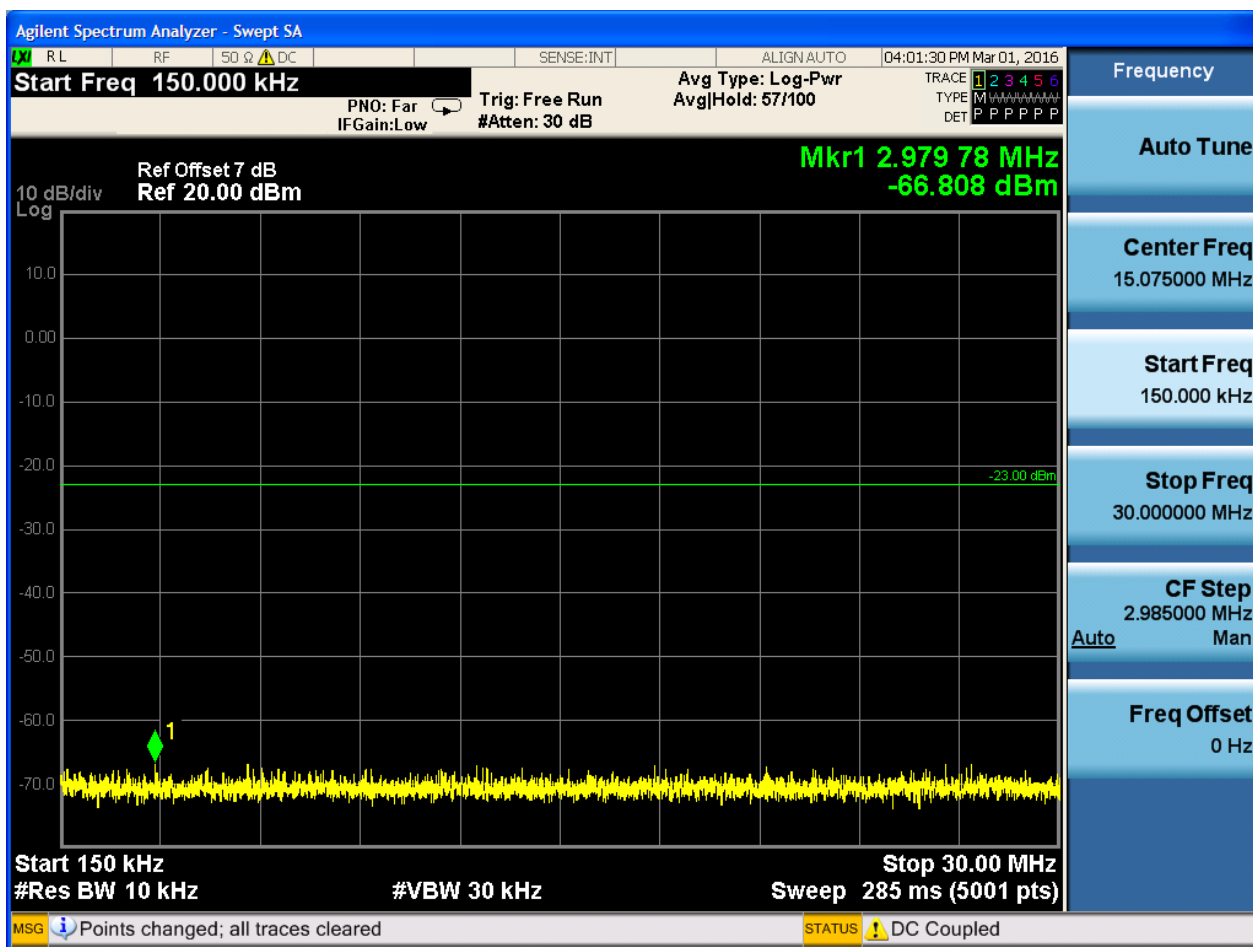


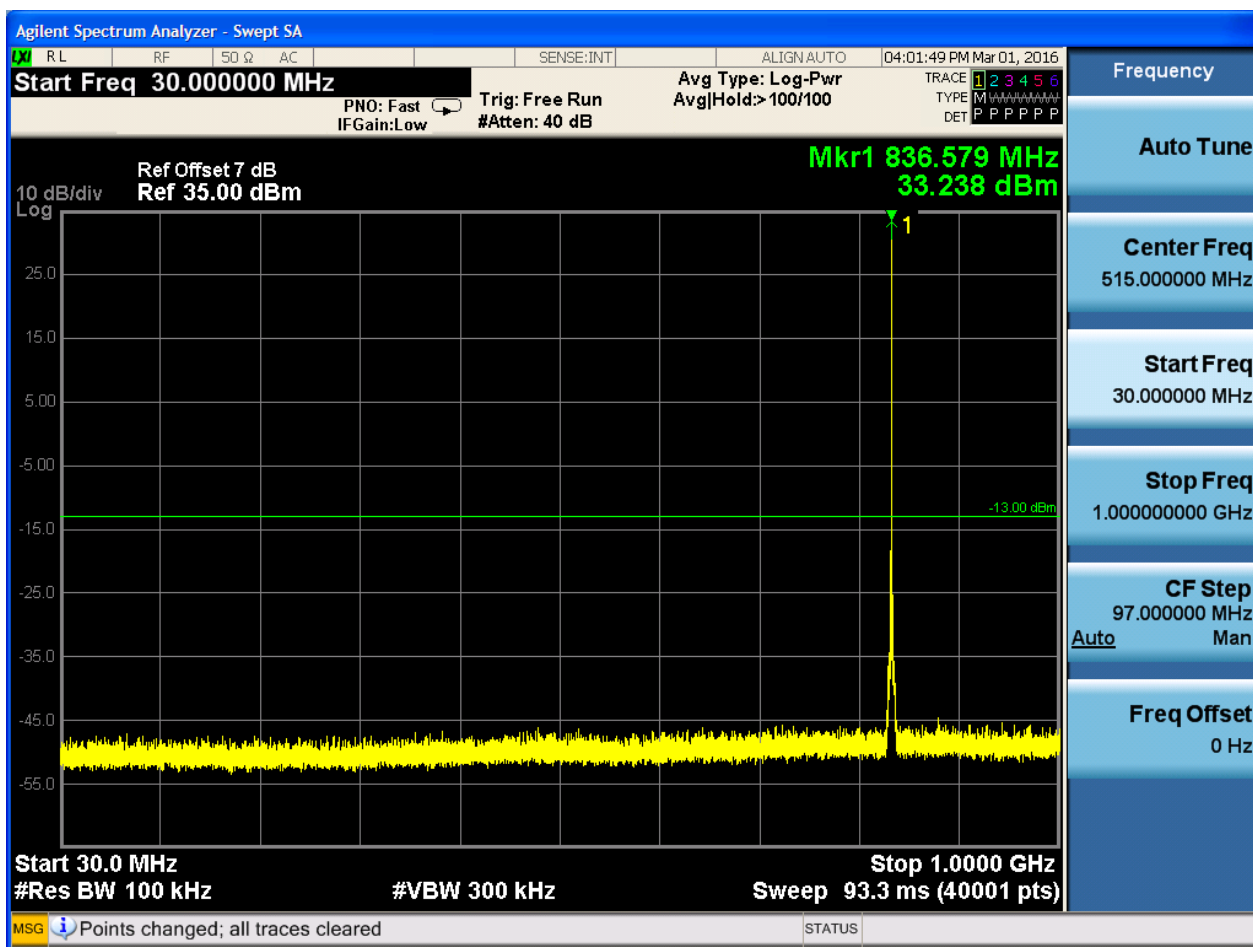


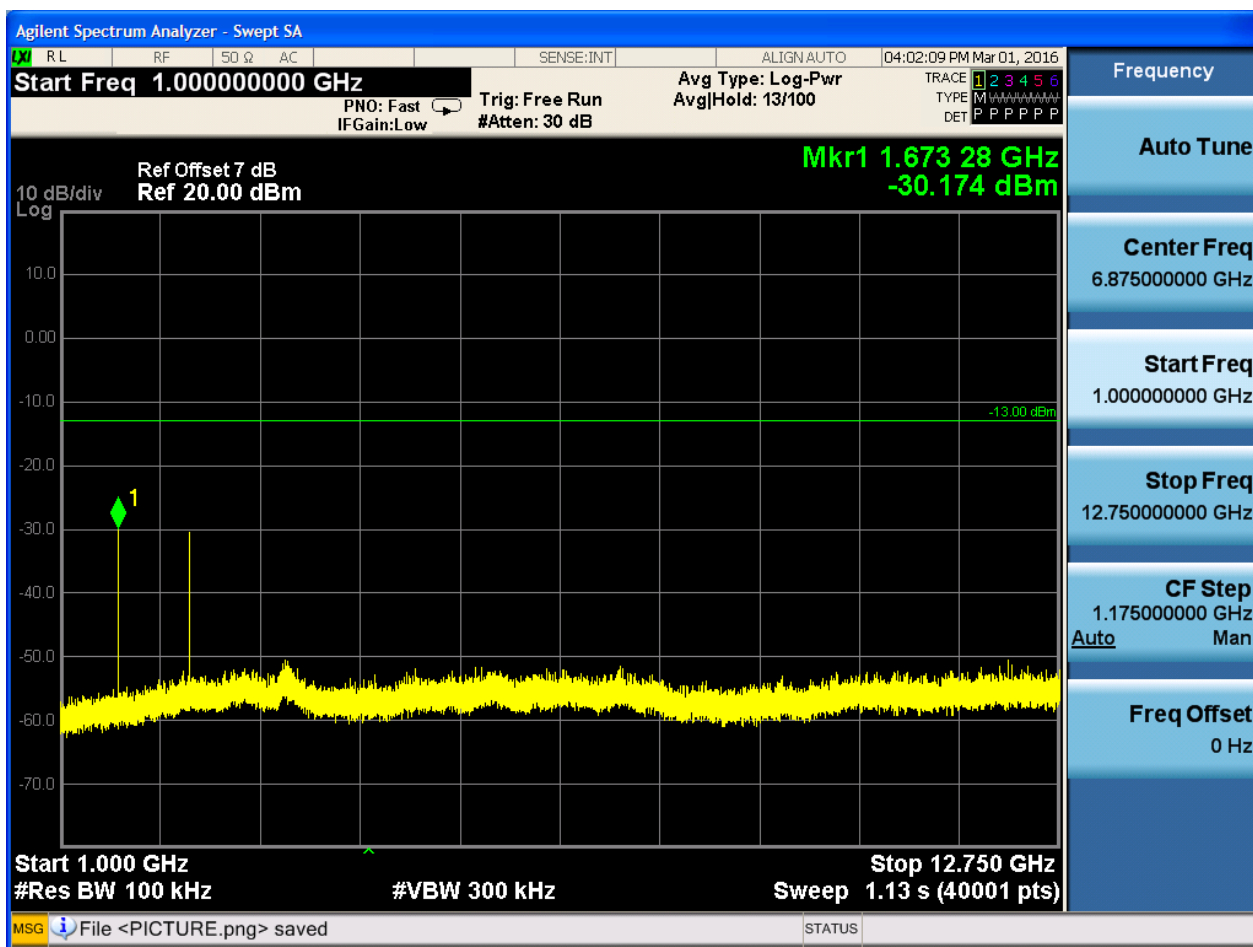


6.1.1.1.2 Test Channel = MCH

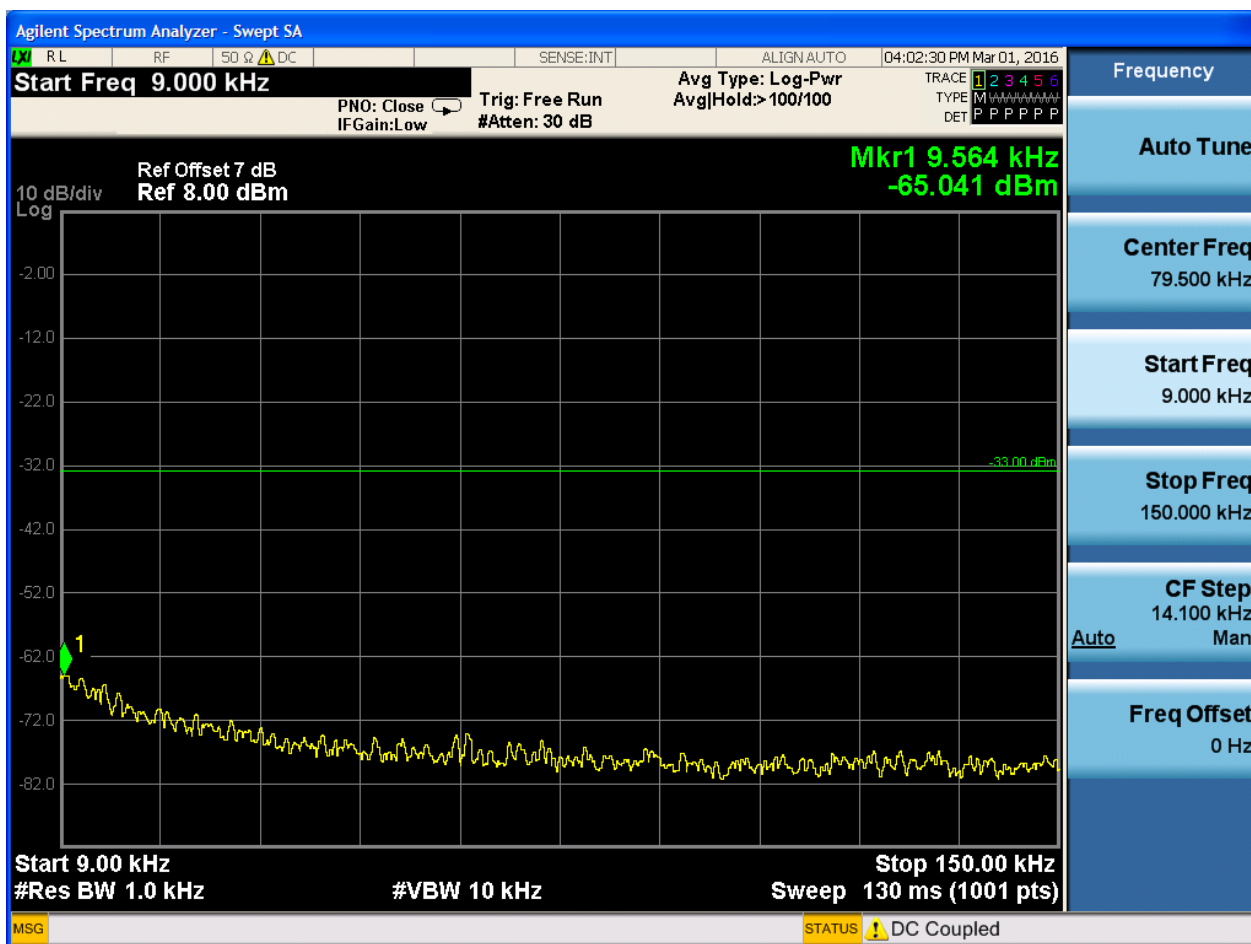


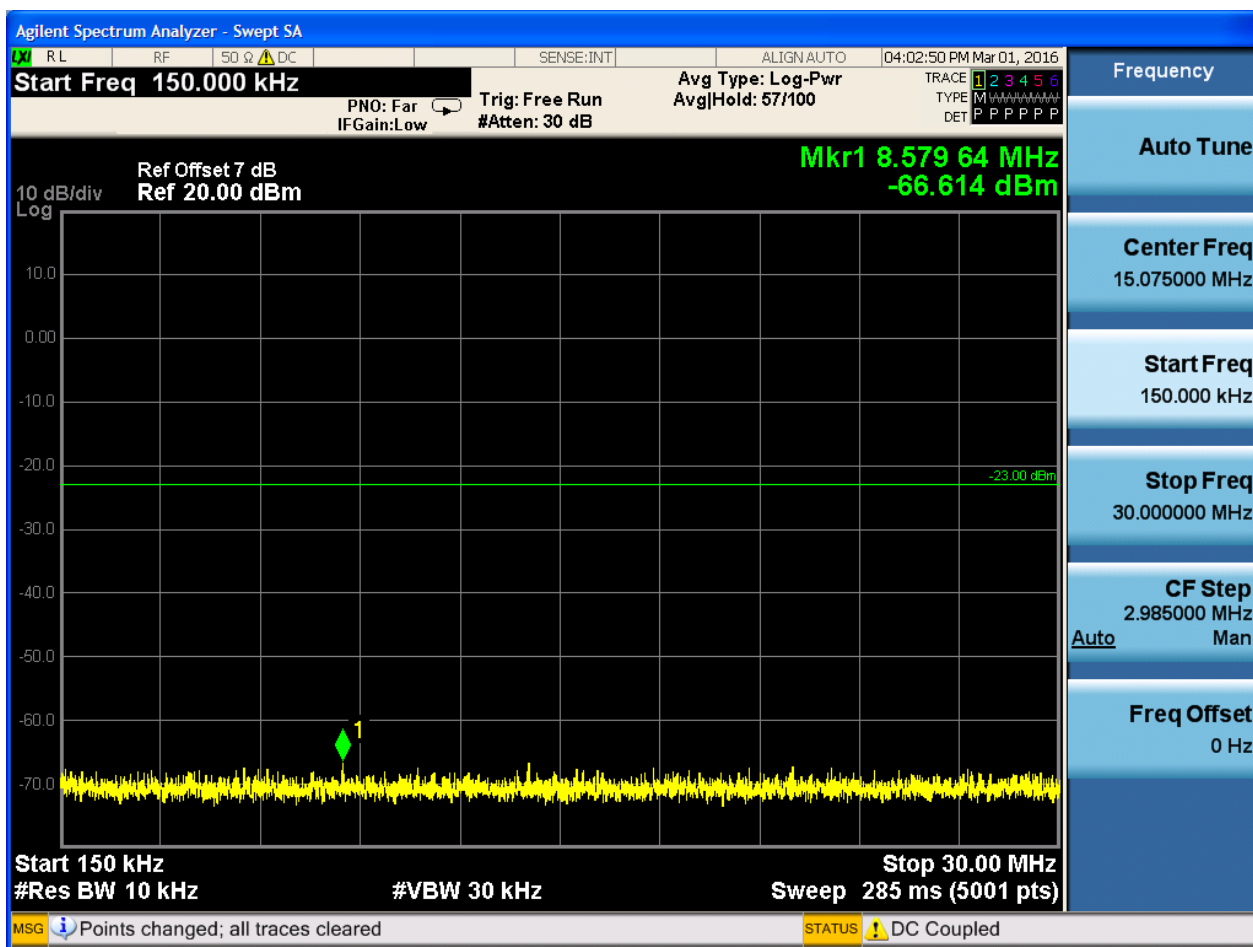


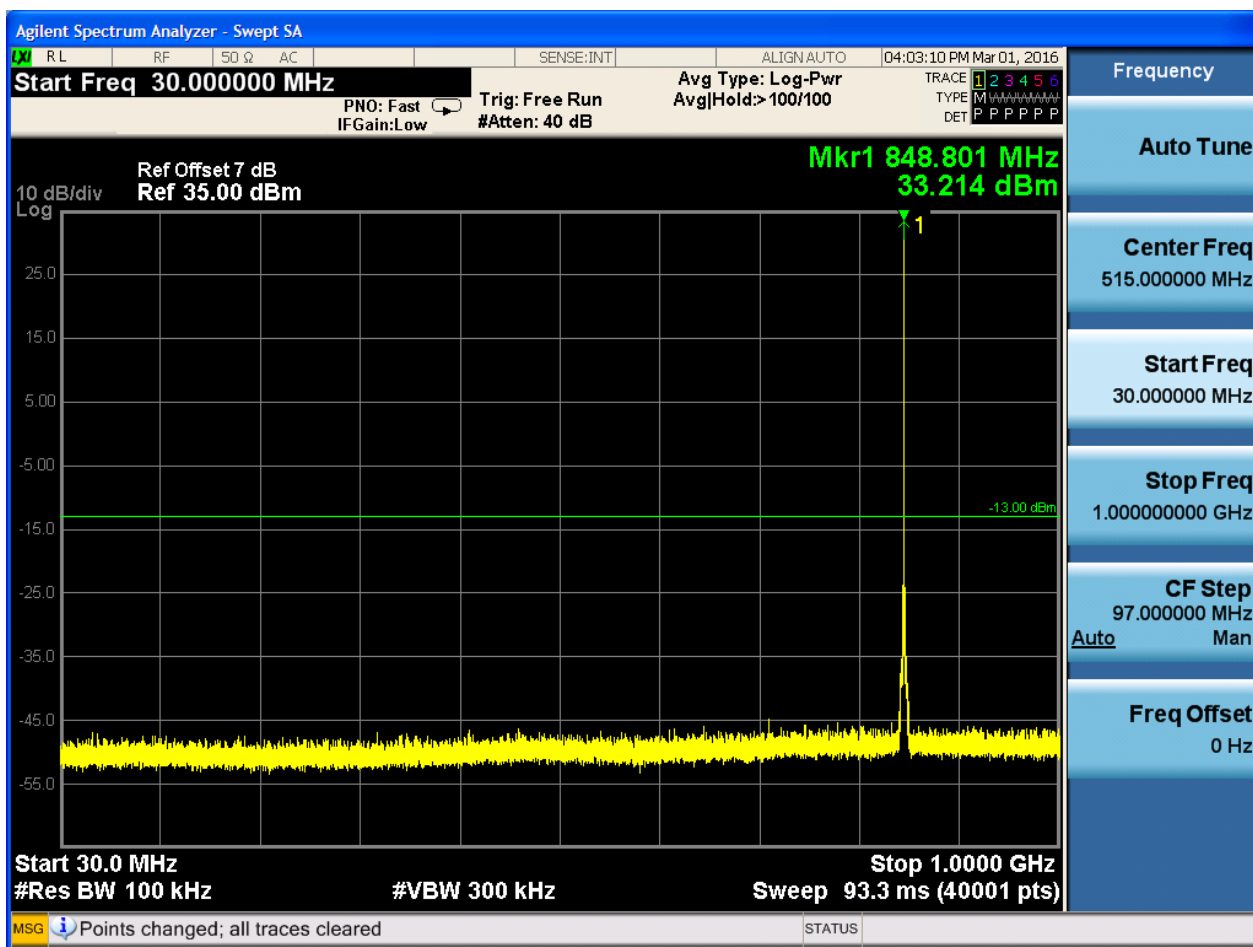


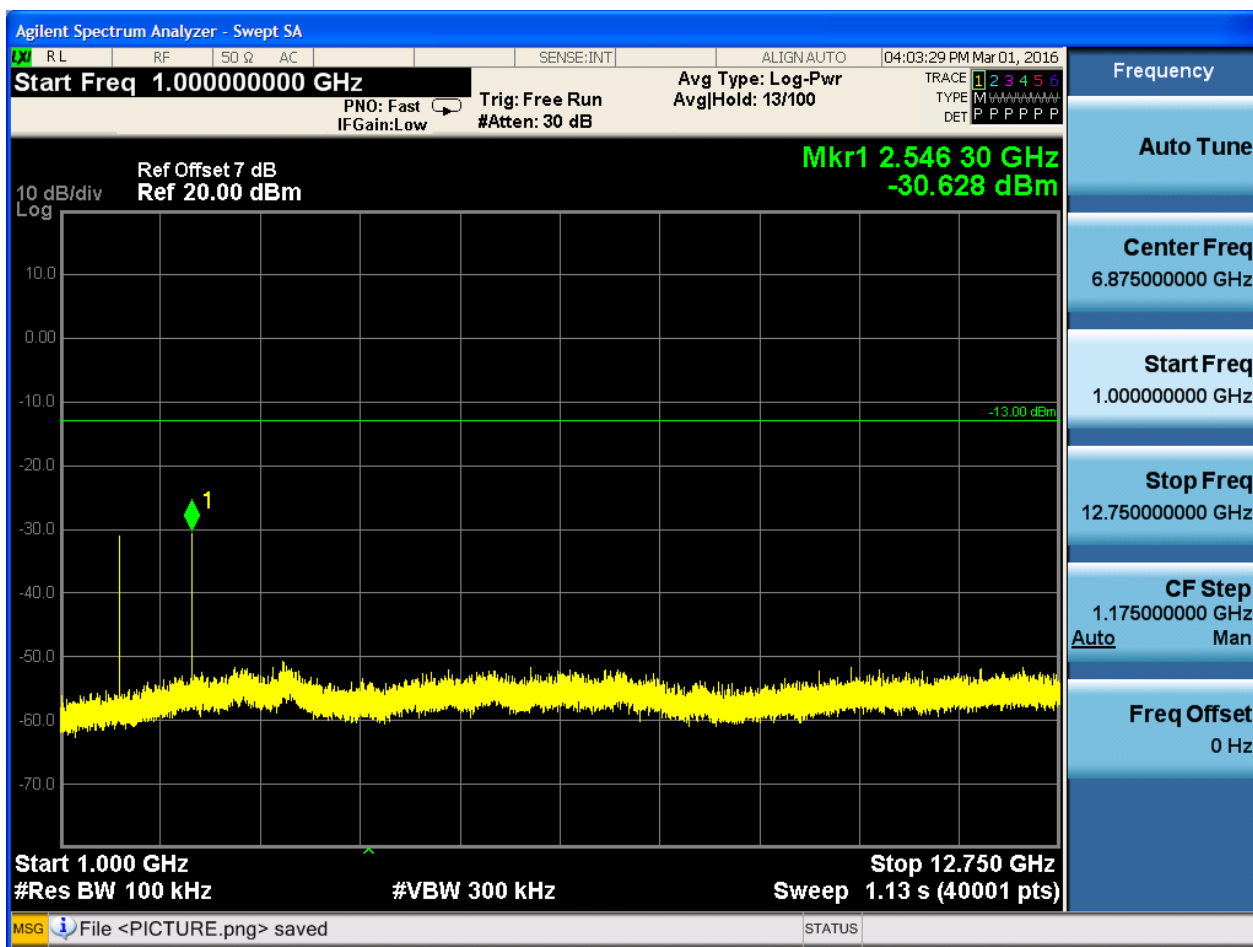


6.1.1.1.3 Test Channel = HCH





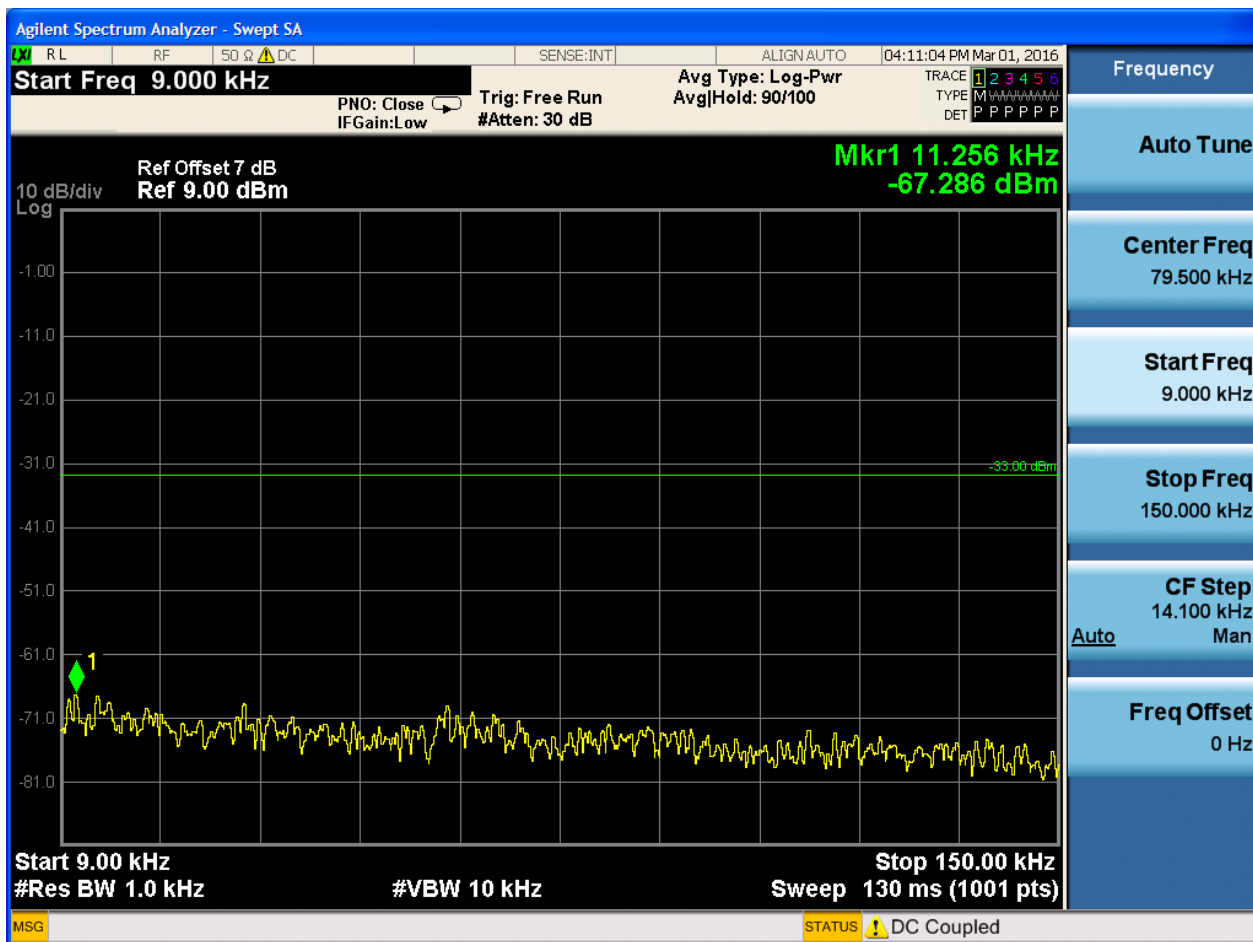


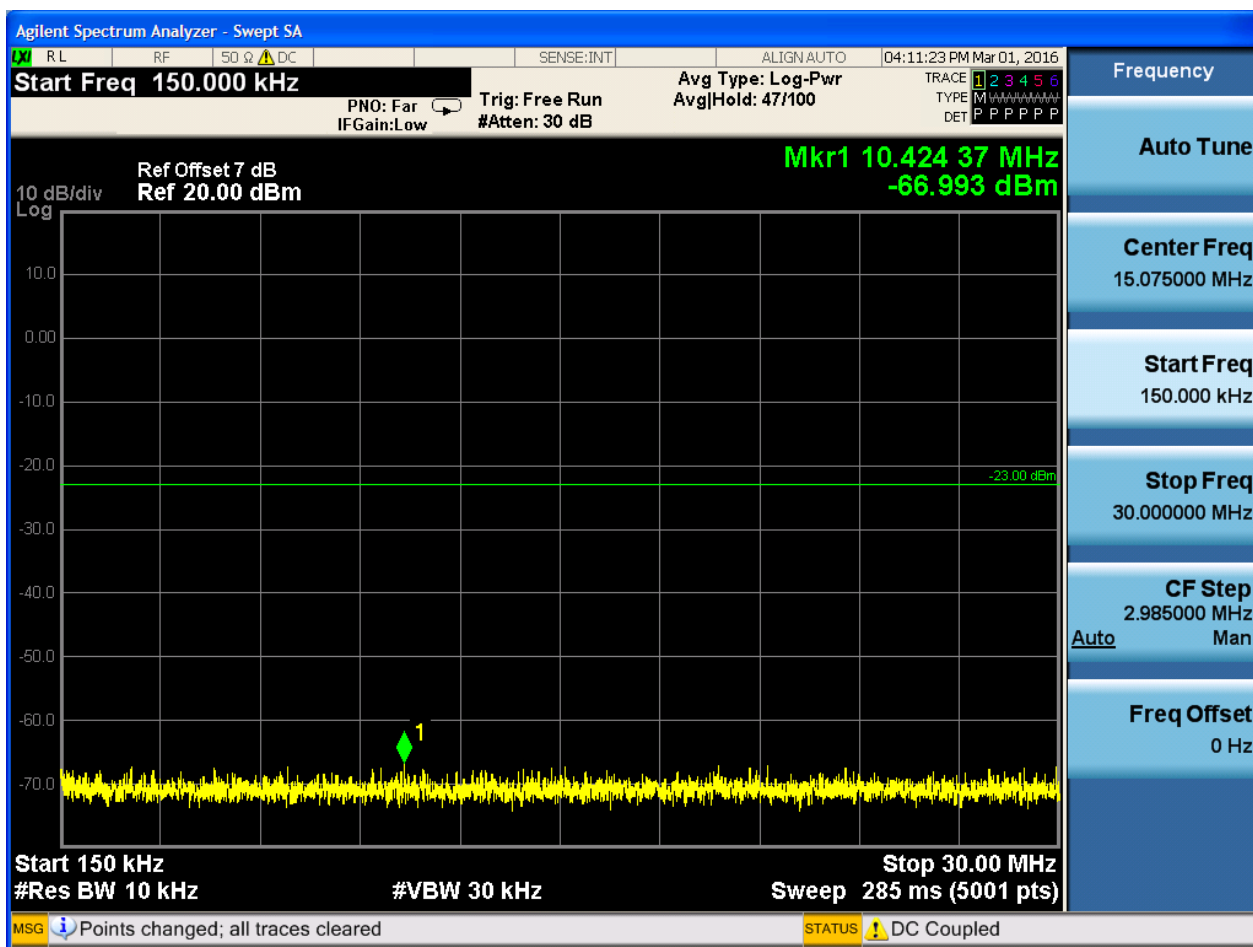


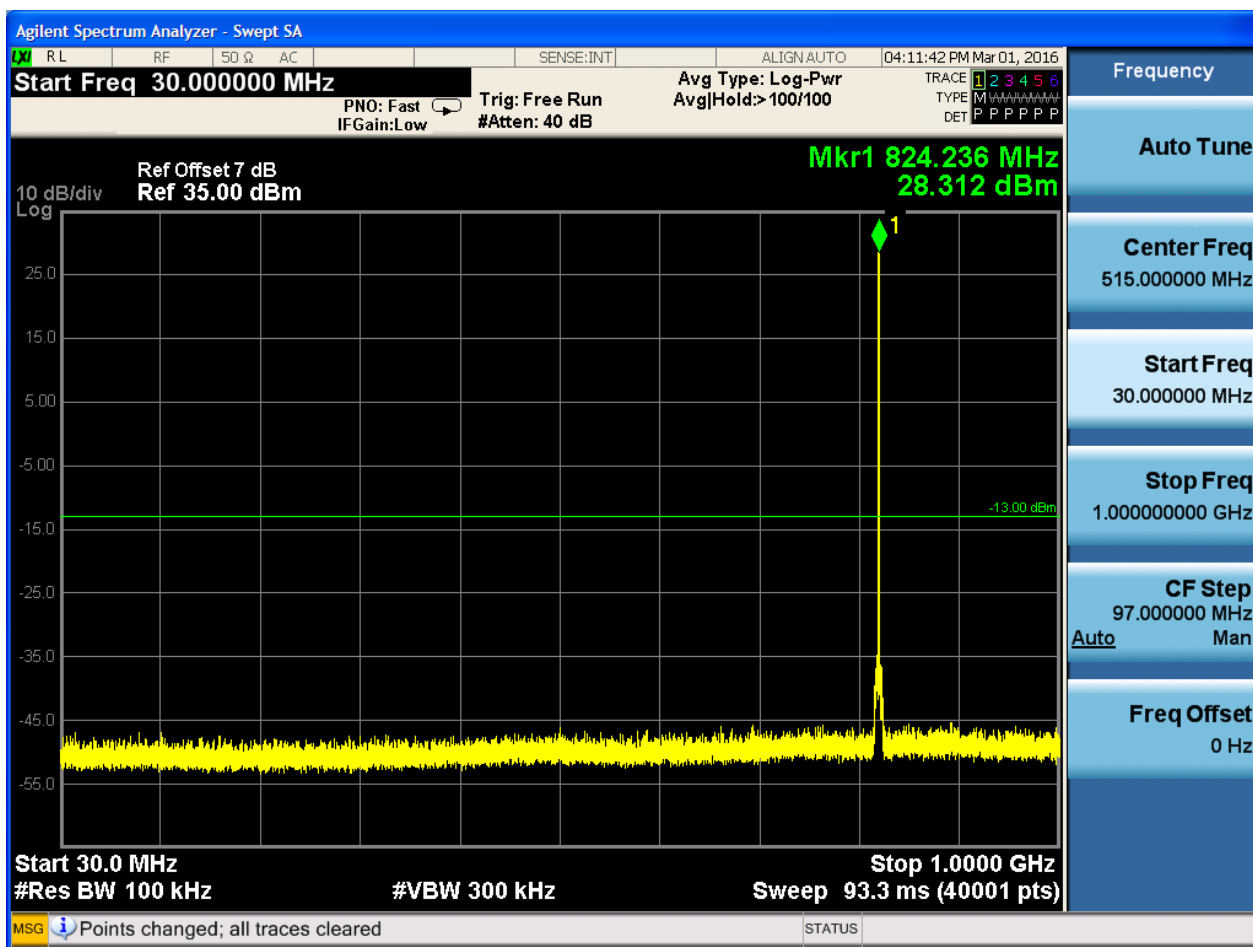


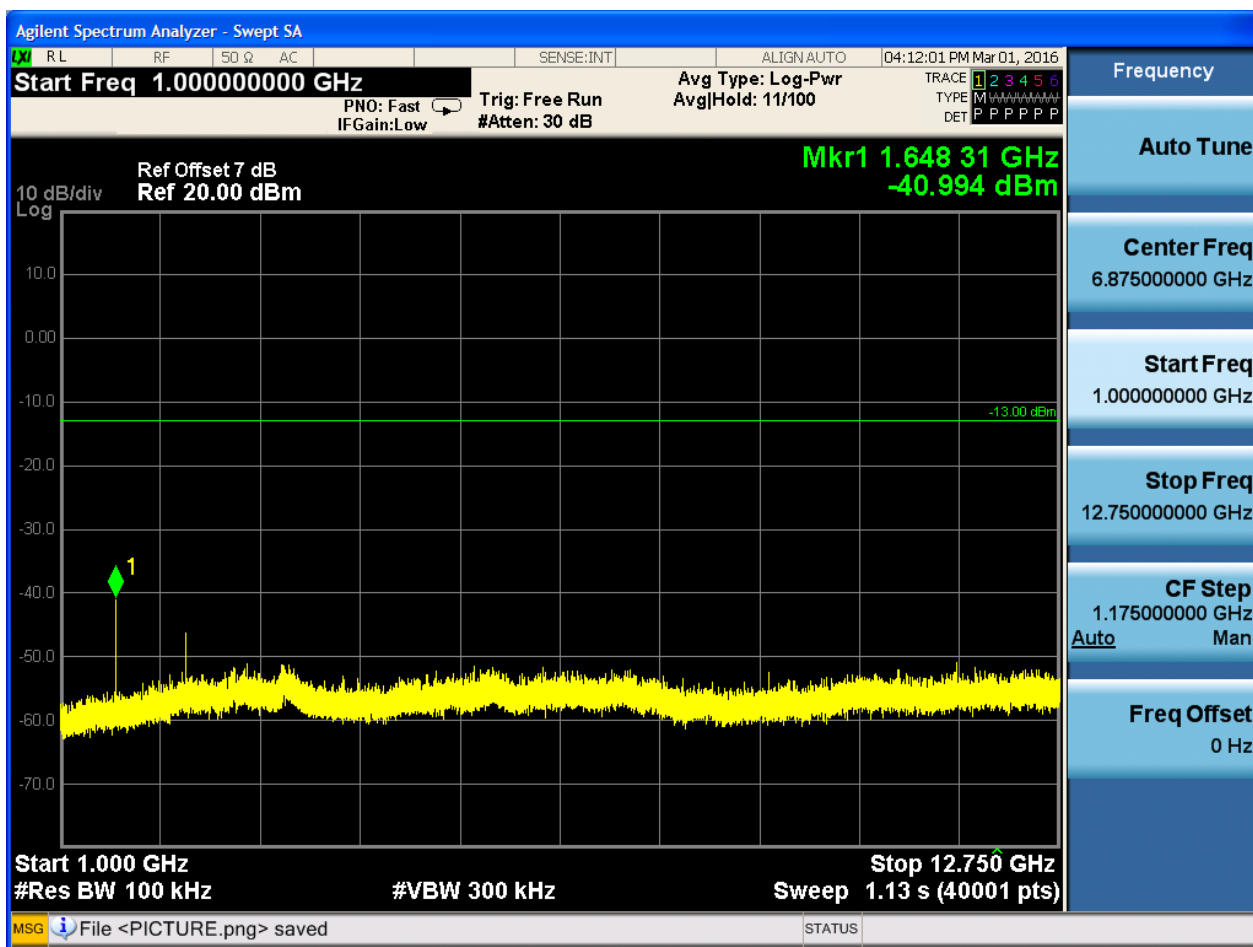
6.1.1.2 Test Mode = GSM/TM2

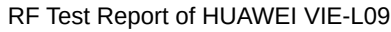
6.1.1.2.1 Test Channel = LCH











Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω DC SENSE:INT ALIGN: AUTO 04:12:21 PM Mar 01, 2016

Start Freq 9.000 kHz Avg Type: Log-Pwr PNO: Close Trig: Free Run
IF Gain: Low #Atten: 30 dB

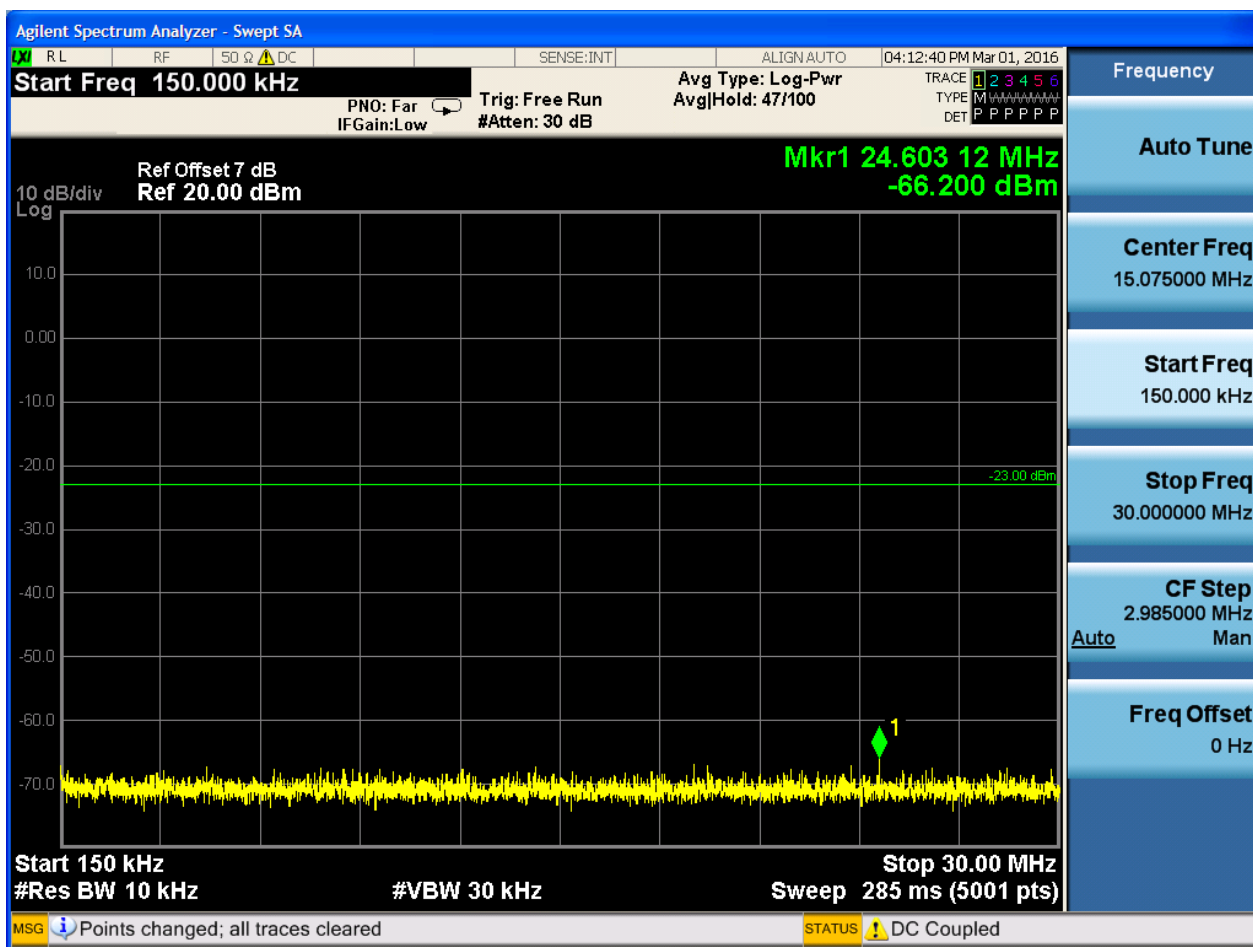
TRACE 1 2 3 4 5 6
TYPE M W W W W W W W
DET P P P P P P

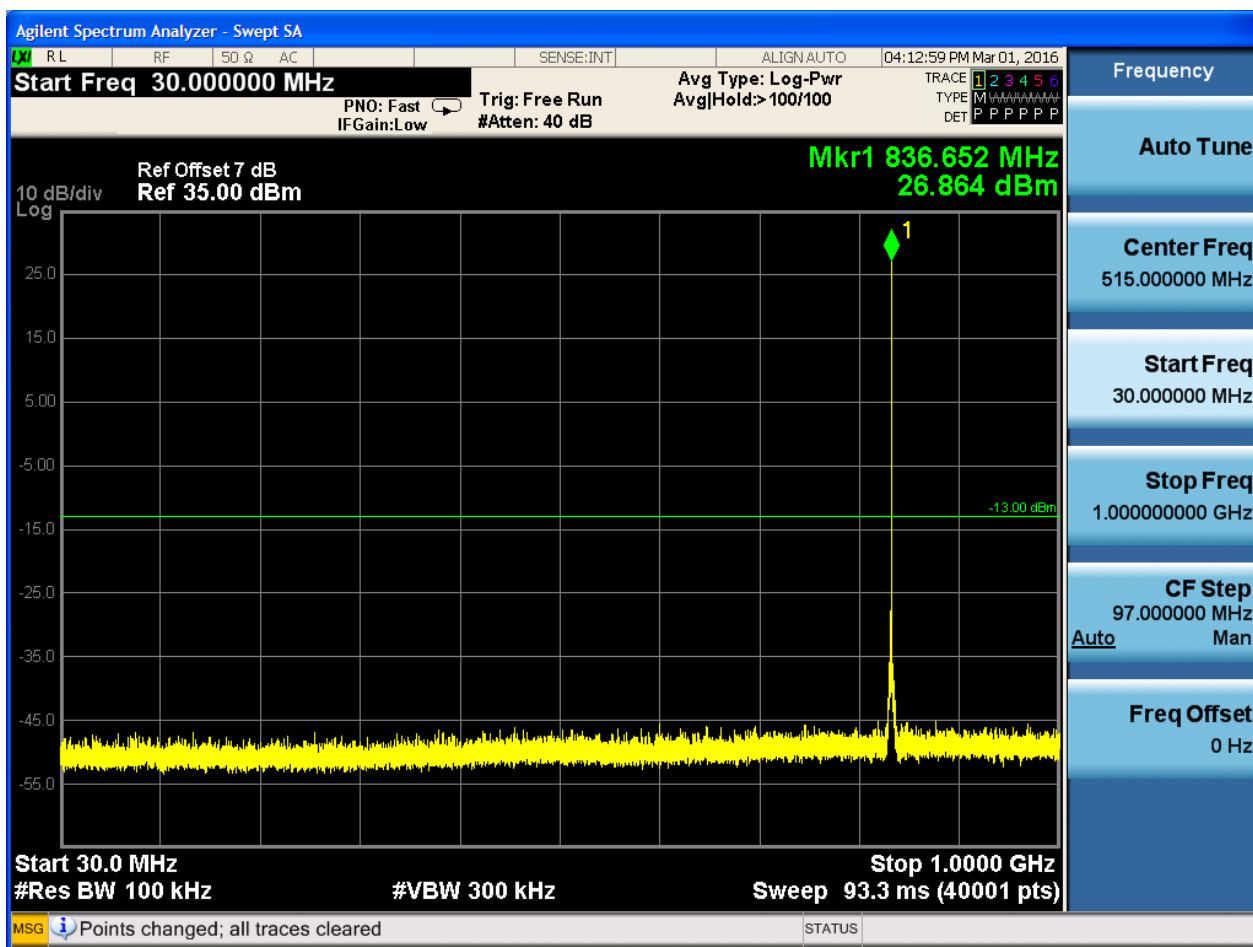
Ref Offset 7 dB Mkr1 37.341 kHz
Ref 6.00 dBm -67.641 dBm

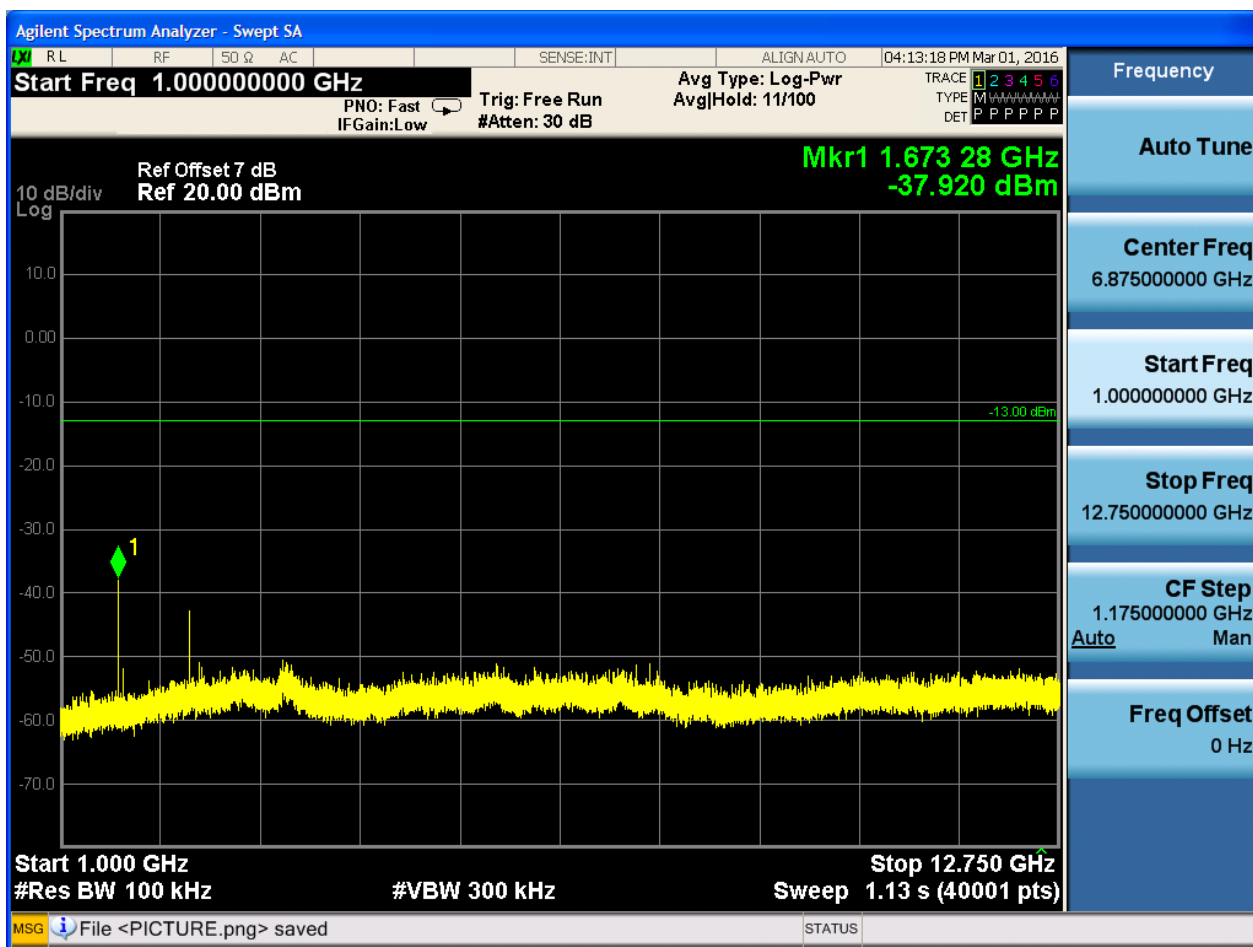
10 dB/div Log

Start 9.00 kHz Stop 150.00 kHz
#Res BW 1.0 kHz #VBW 10 kHz Sweep 130 ms (1001 pts)

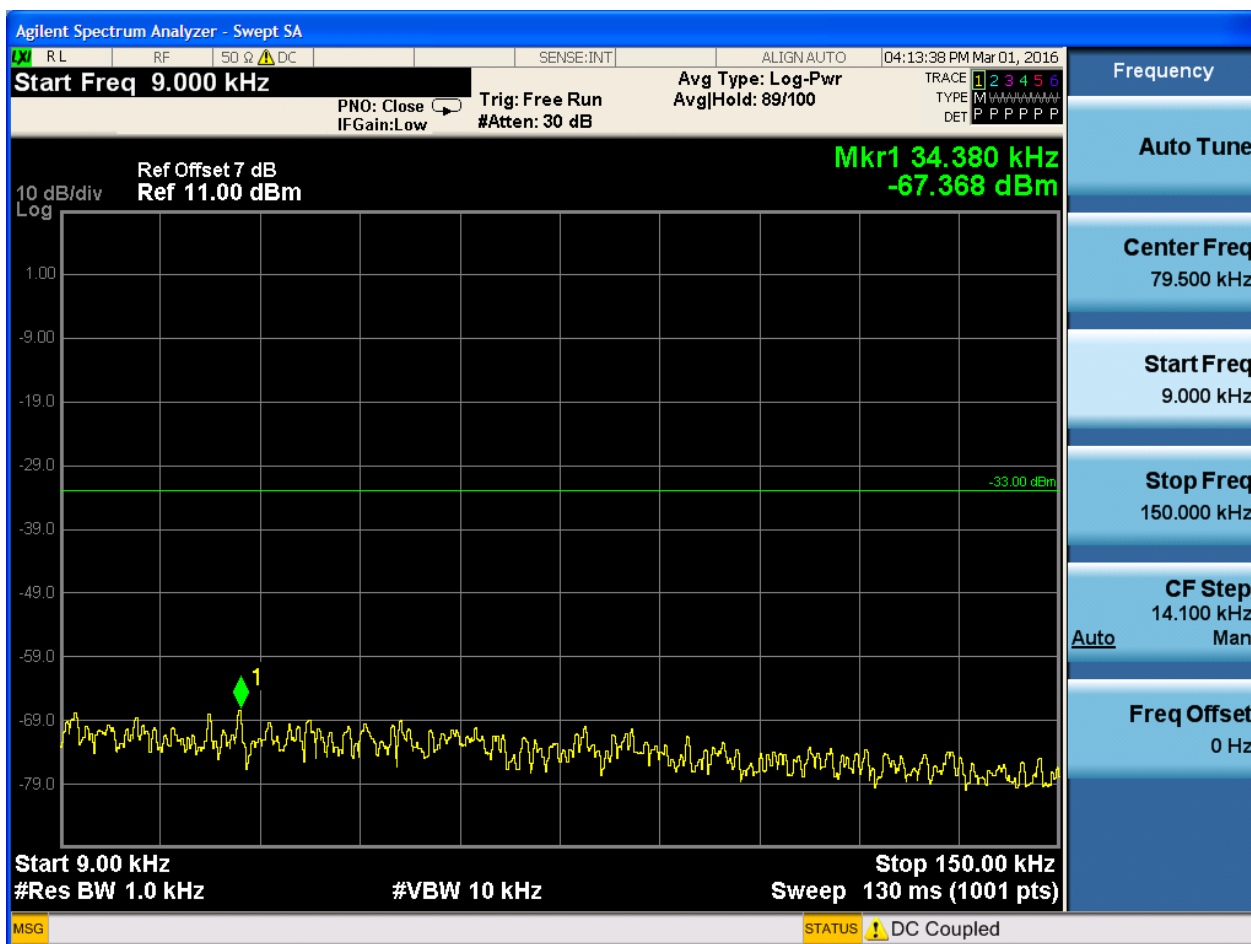
MSG STATUS DC Coupled

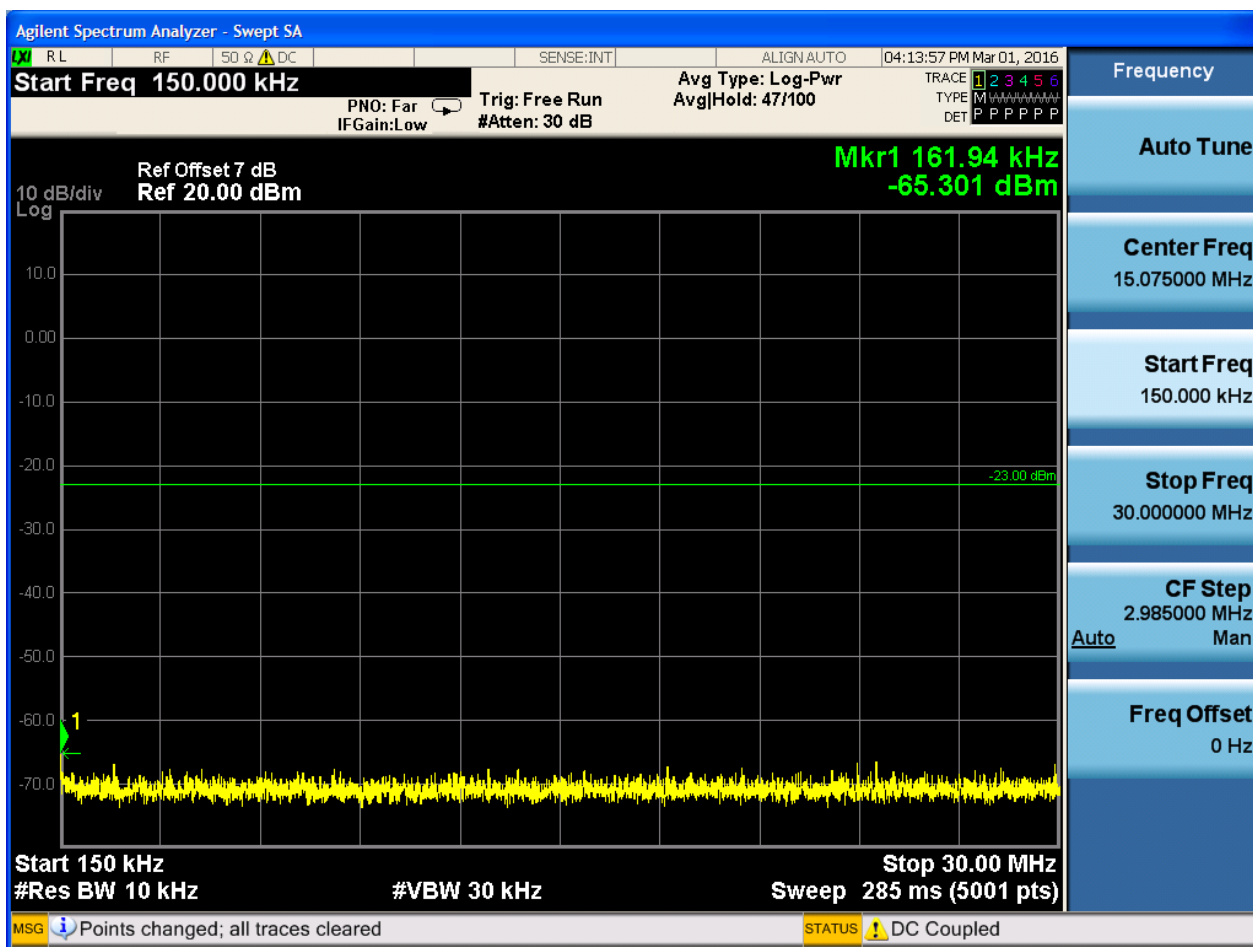


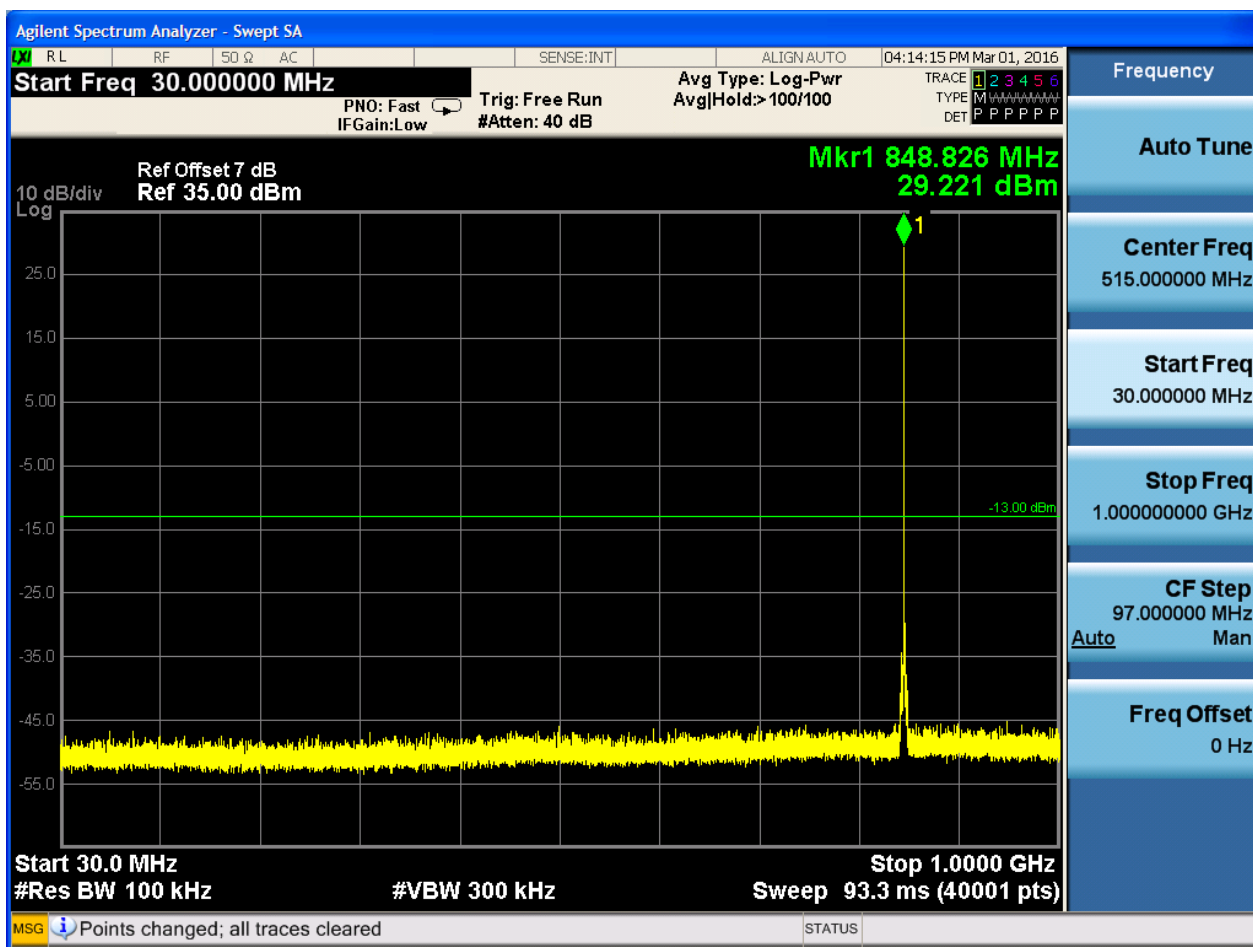


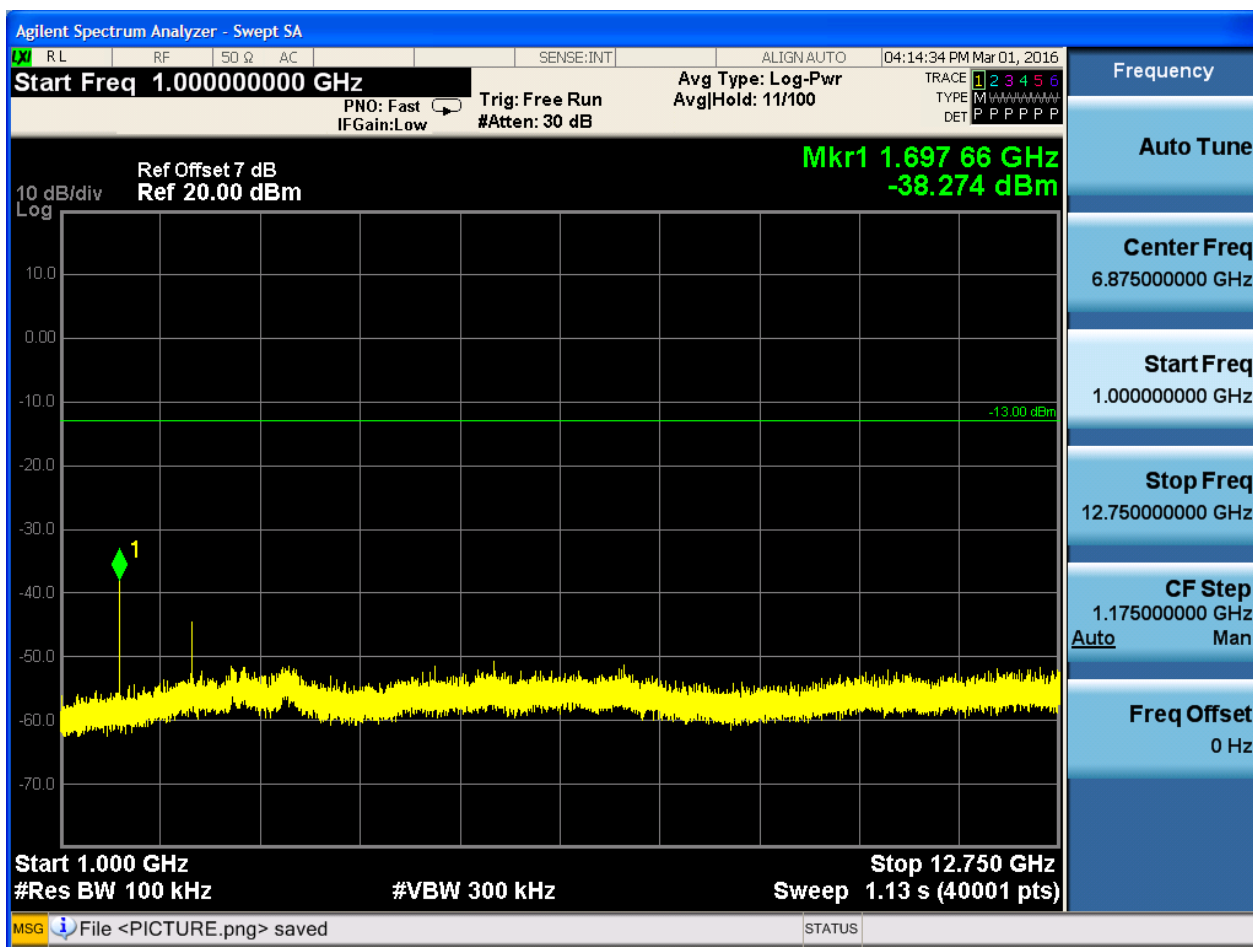


6.1.1.2.3 Test Channel = HCH











6.1.2 Test Band = WCDMA850

6.1.2.1 Test Mode = UMTS/TM1

6.1.2.1.1 Test Channel = LCH

