



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	33.27	28.53	38.5	PASS
		MCH	32.95	28.35	38.5	PASS
		HCH	32.75	28.15	38.5	PASS
	GSM/TM2	LCH	26.17	21.48	38.5	PASS
		MCH	26.11	21.60	38.5	PASS
		HCH	26.06	21.36	38.5	PASS
WCDMA850	UMTS/TM1	LCH	23.56	18.96	38.5	PASS
		MCH	23.47	18.69	38.5	PASS
		HCH	23.36	18.61	38.5	PASS

Test Band	Test Mode	Test Channel	Conducted Power [dBm]	EIRP [dBm]	Limit [dBm]	Verdict
GSM1900	GSM/TM1	LCH	29.9	30.28	33	PASS
		MCH	29.91	30.31	33	PASS
		HCH	30.6	31.20	33	PASS
	GSM/TM2	LCH	24.62	25.03	33	PASS
		MCH	24.53	25.02	33	PASS
		HCH	24.57	24.98	33	PASS
WCDMA1900	UMTS/TM1	LCH	23.10	23.75	33	PASS
		MCH	23.07	23.60	33	PASS
		HCH	23.81	24.25	33	PASS
WCDMA1700	UMTS/TM1	LCH	23.37	23.91	33	PASS
		MCH	23.21	23.68	33	PASS
		HCH	23.13	23.73	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	0.25	13	PASS
		MCH	0.23	13	PASS
		HCH	0.23	13	PASS
	GSM/TM2	LCH	3.66	13	PASS
		MCH	3.69	13	PASS
		HCH	3.58	13	PASS
WCDMA1900	UMTS/TM1	LCH	3.33	13	PASS
		MCH	3.45	13	PASS
		HCH	3.29	13	PASS
WCDMA1700	UMTS/TM1	LCH	3.61	13	PASS
		MCH	3.68	13	PASS
		HCH	3.68	13	PASS

3Appendix_C: Modulation Characteristics

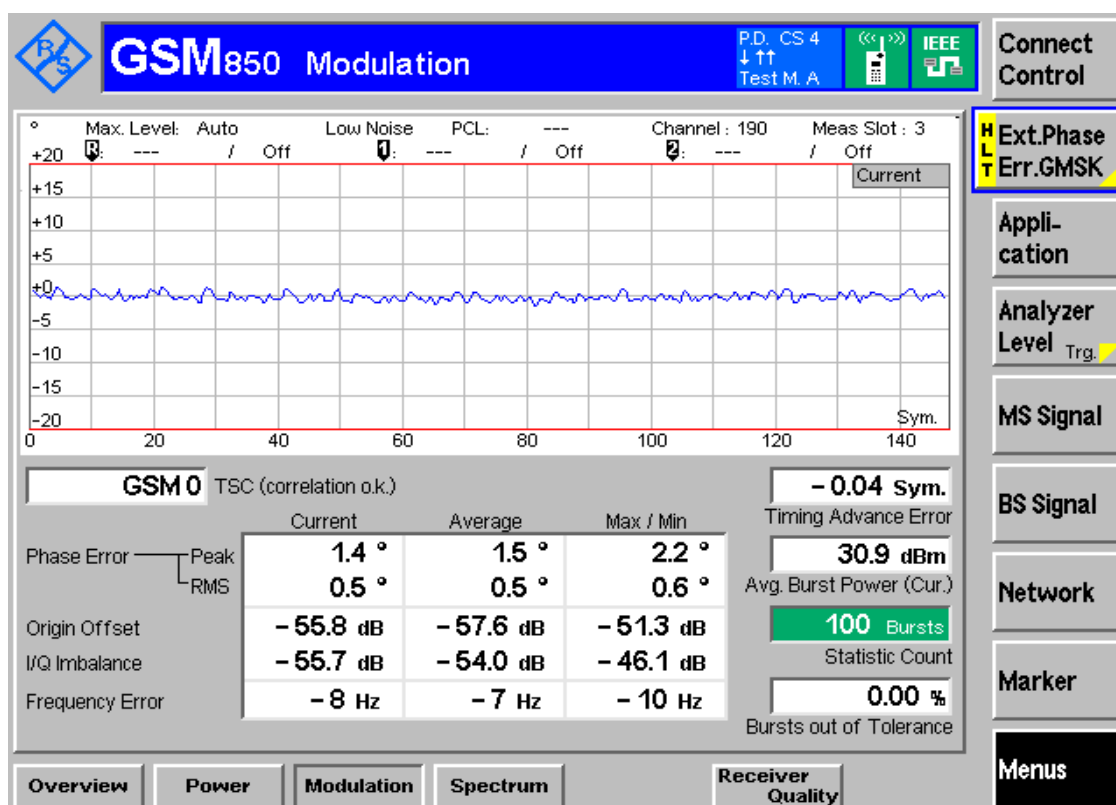
Part I - Test Plots

3.1 For GSM

3.1.1 Test Band = GSM850

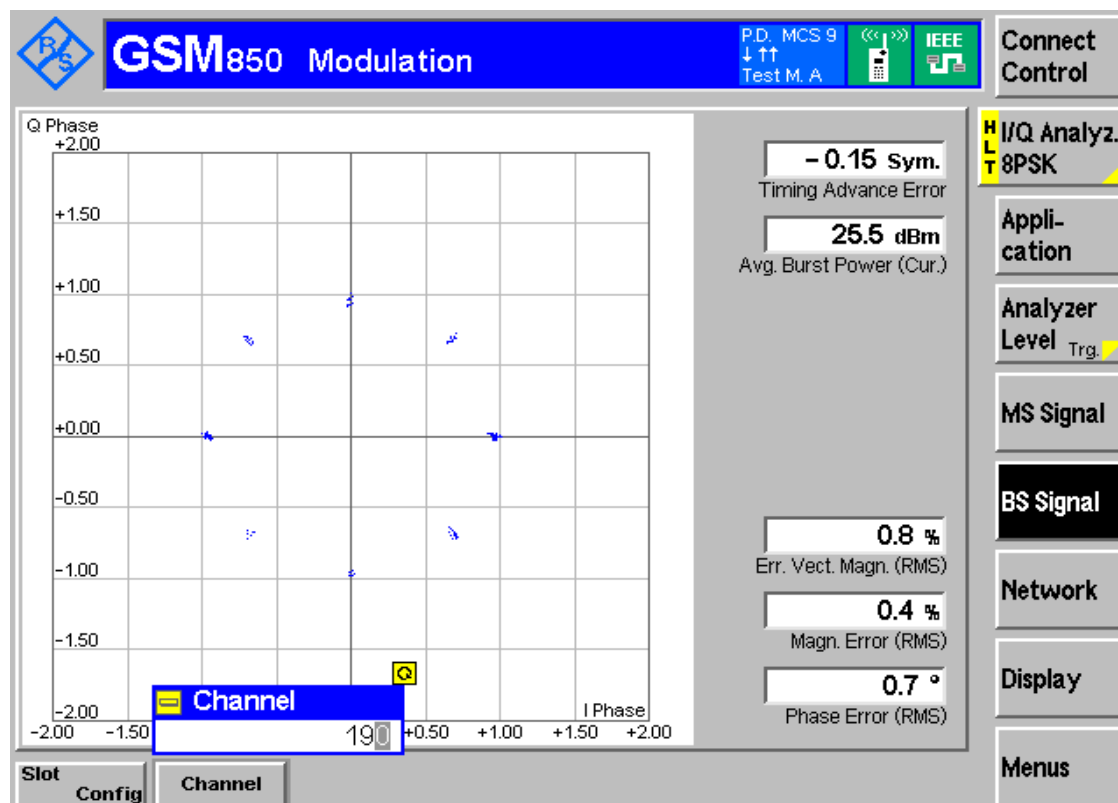
3.1.1.1 Test Mode = GSM/TM1

3.1.1.1.1 Test Channel = MCH



3.1.1.2 Test Mode = GSM/TM2

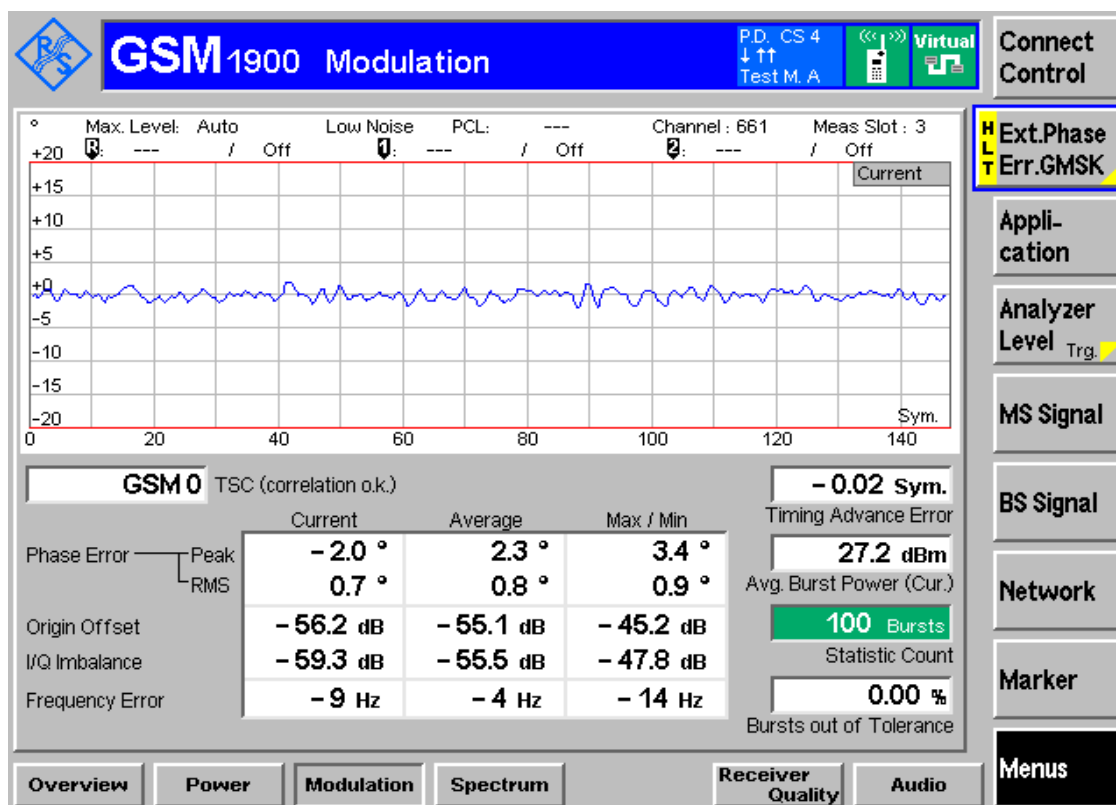
3.1.1.2.1 Test Channel = MCH



3.1.2 Test Band = GSM1900

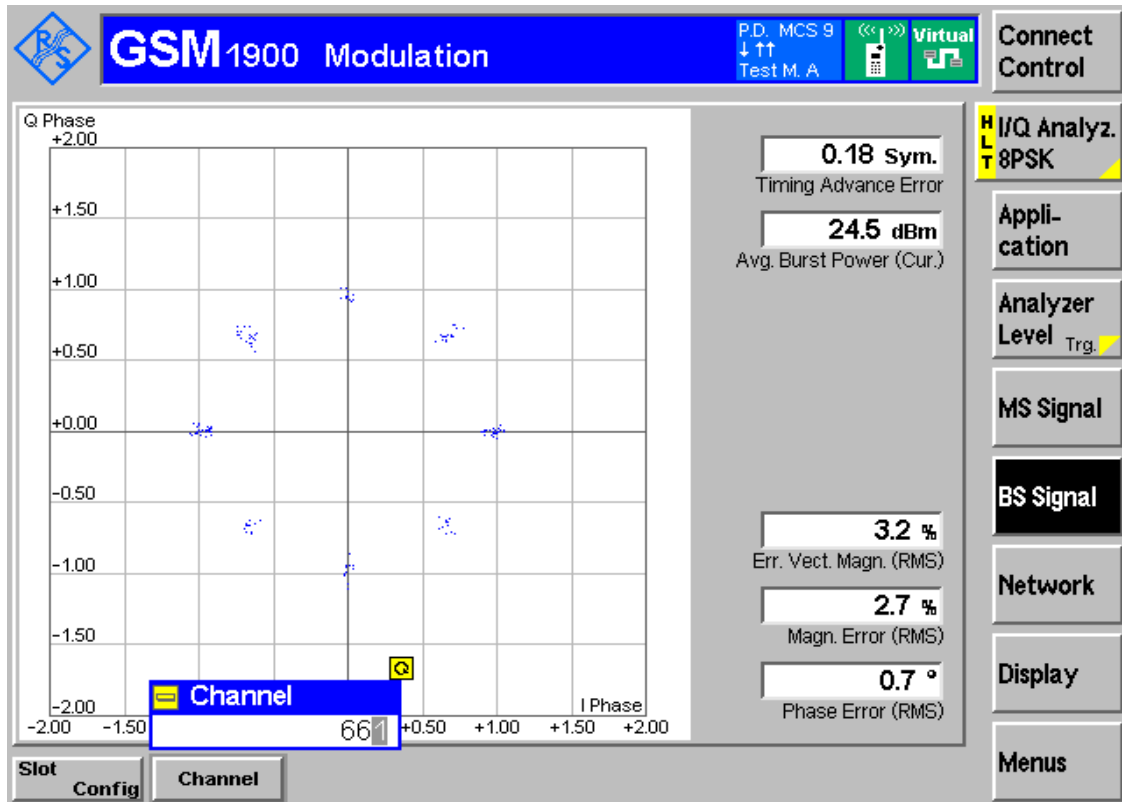
3.1.2.1 Test Mode = GSM/TM1

3.1.2.1.1 Test Channel = MCH



3.1.2.2 Test Mode = GSM/TM2

3.1.2.2.1 Test Channel = MCH

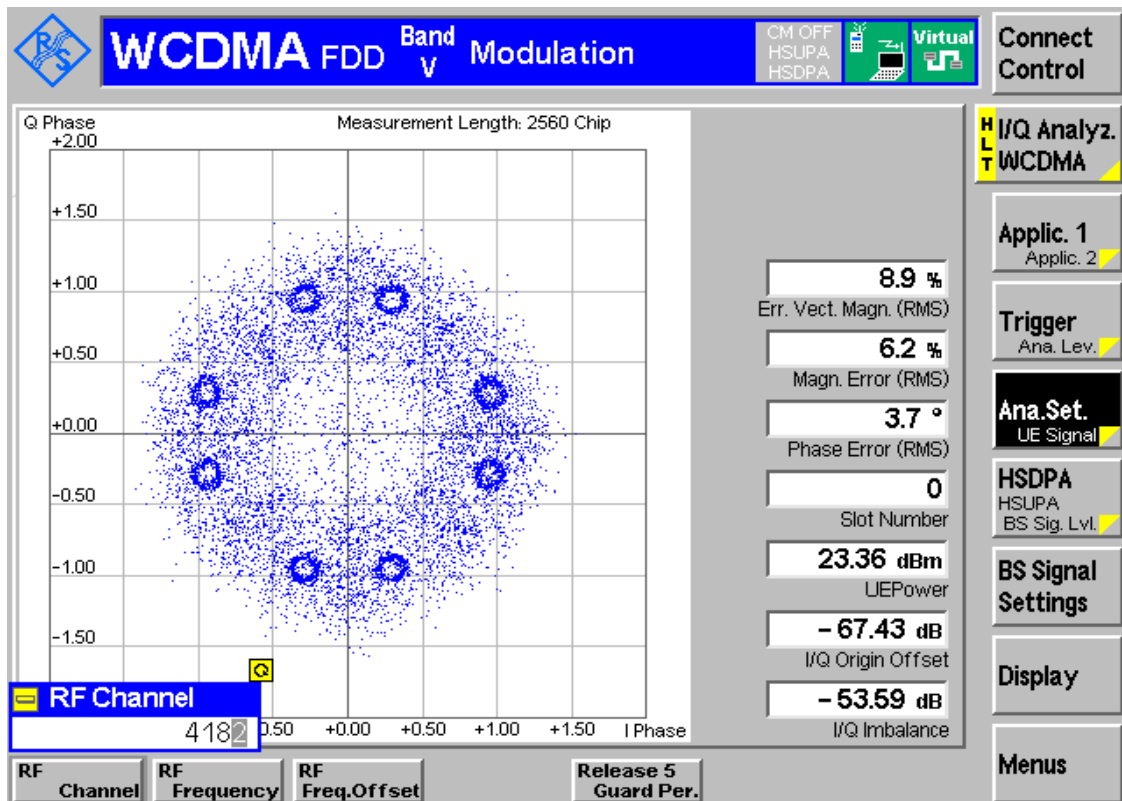


3.2 For UMTS

3.2.1 Test Band = WCDMA850

3.2.1.1 Test Mode = UMTS/TM1

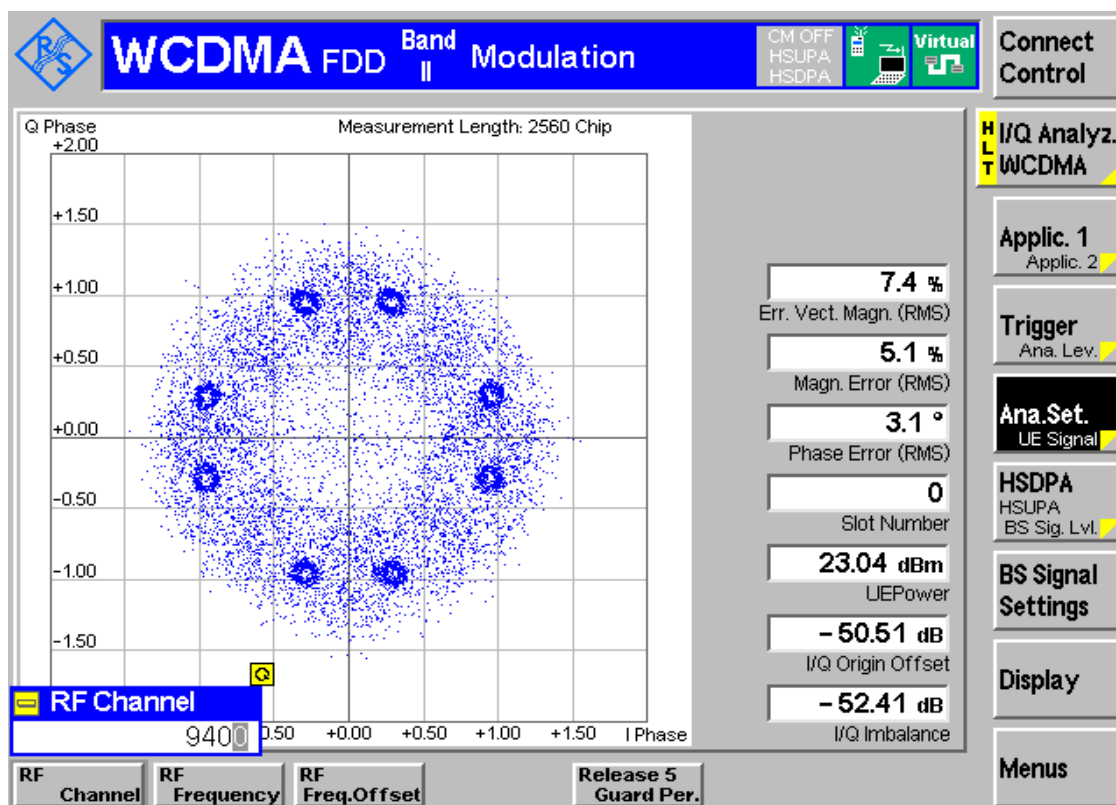
3.2.1.1.1 Test Channel = MCH



3.2.2 Test Band = WCDMA1900

3.2.2.1 Test Mode = UMTS/TM1

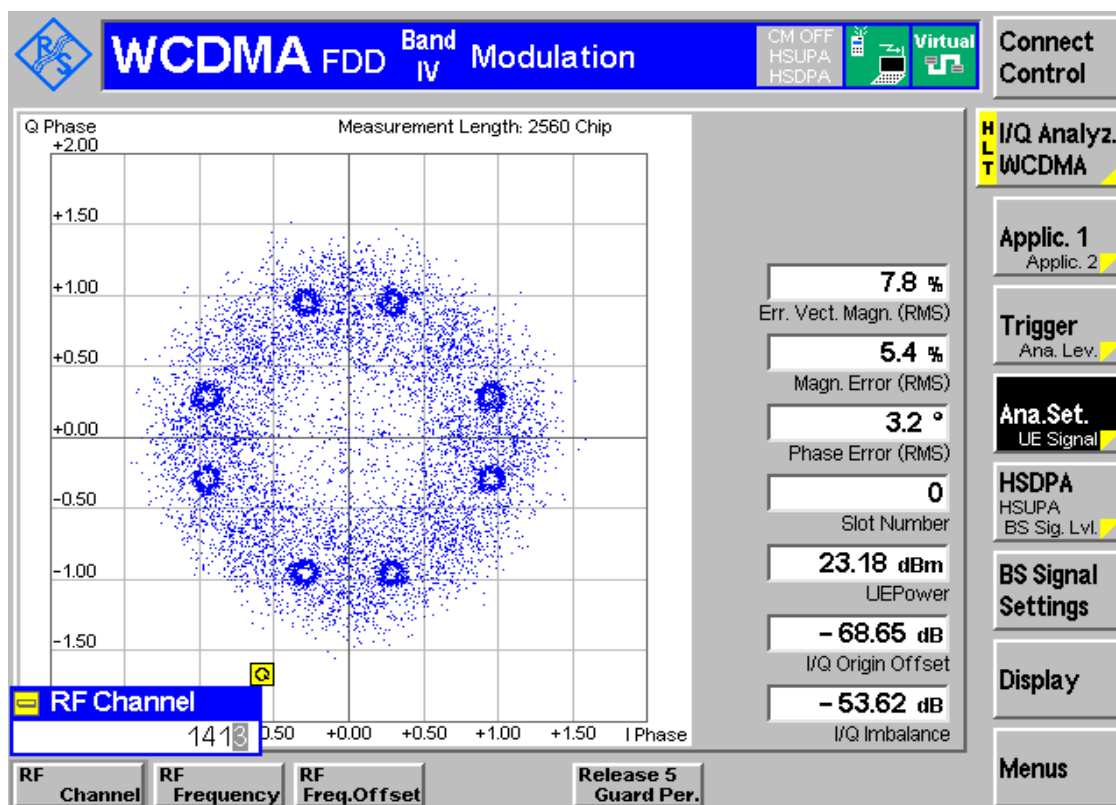
3.2.2.1.1 Test Channel = MCH



3.2.3 Test Band = WCDMA1700

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	244.87	310.82	Pass
		MCH	243.93	316.50	Pass
		HCH	244.52	322.50	Pass
	GSM/TM2	LCH	231.24	299.90	Pass
		MCH	238.25	309.63	Pass
		HCH	236.30	284.44	Pass
GSM1900	GSM/TM1	LCH	245.30	314.73	Pass
		MCH	245.59	315.19	Pass
		HCH	246.24	320.64	Pass
	GSM/TM2	LCH	237.13	309.79	Pass
		MCH	240.16	311.03	Pass
		HCH	240.83	308.71	Pass
Test Band	Test Mode	Test Channel	Occupied Bandwidth [MHz]	Emission Bandwidth [MHz]	Verdict
WCDMA850	UMTS/TM1	LCH	4.14	4.65	Pass
		MCH	4.14	4.67	Pass
		HCH	4.14	4.67	Pass
WCDMA1900	UMTS/TM1	LCH	4.16	4.67	Pass
		MCH	4.15	4.66	Pass
		HCH	4.16	4.70	Pass
WCDMA1700	UMTS/TM1	LCH	4.15	4.66	Pass
		MCH	4.14	4.66	Pass
		HCH	4.14	4.67	Pass

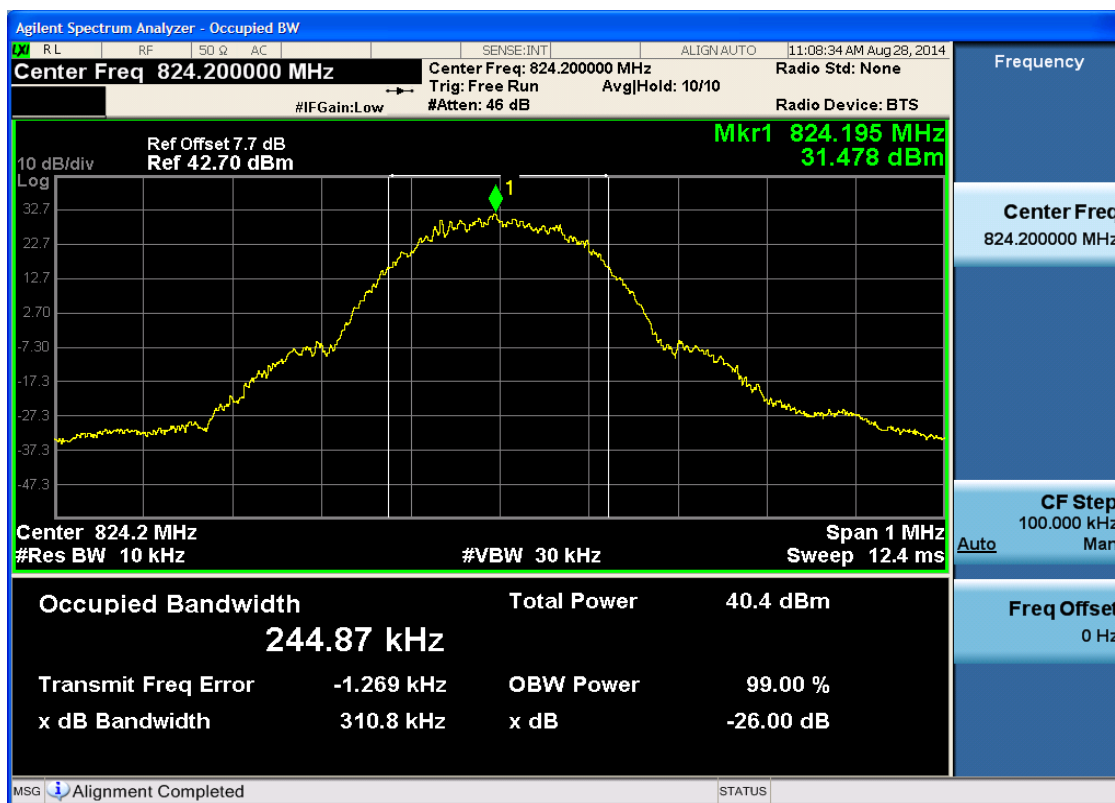
Part II - Test Plots

4.1 For GSM

4.1.1 Test Band = GSM850

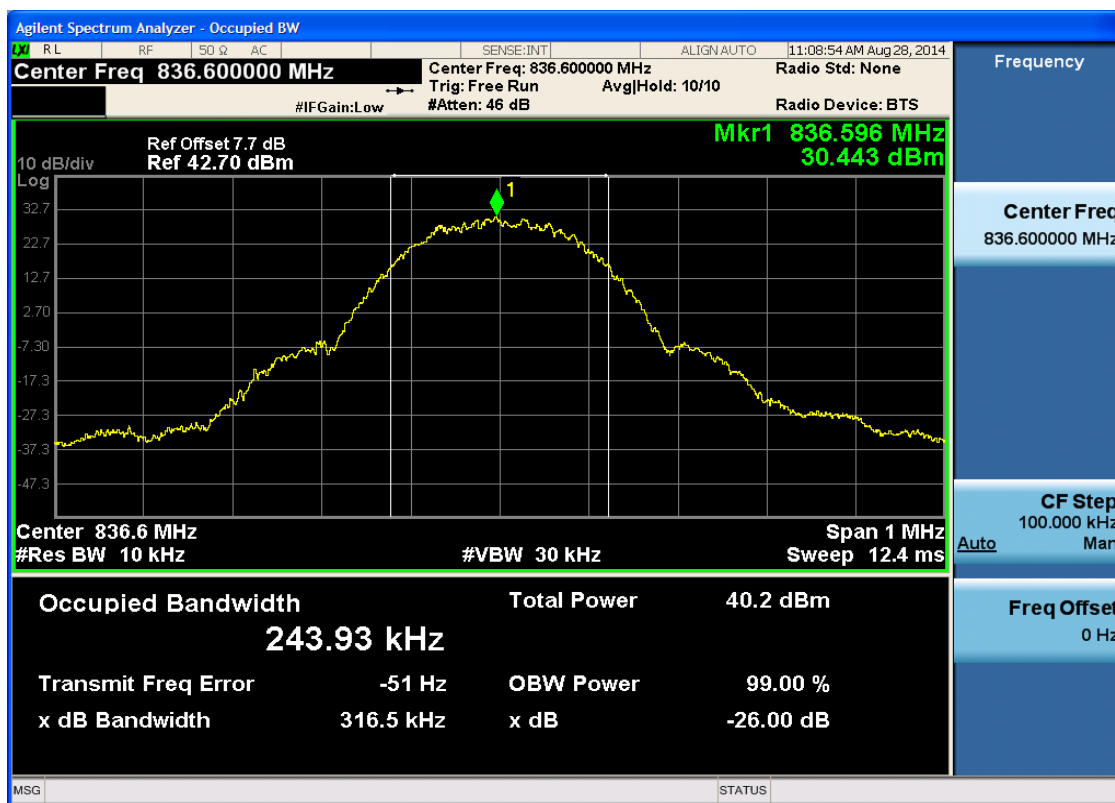
4.1.1.1 Test Mode = GSM/TM1

4.1.1.1.1 Test Channel = LCH

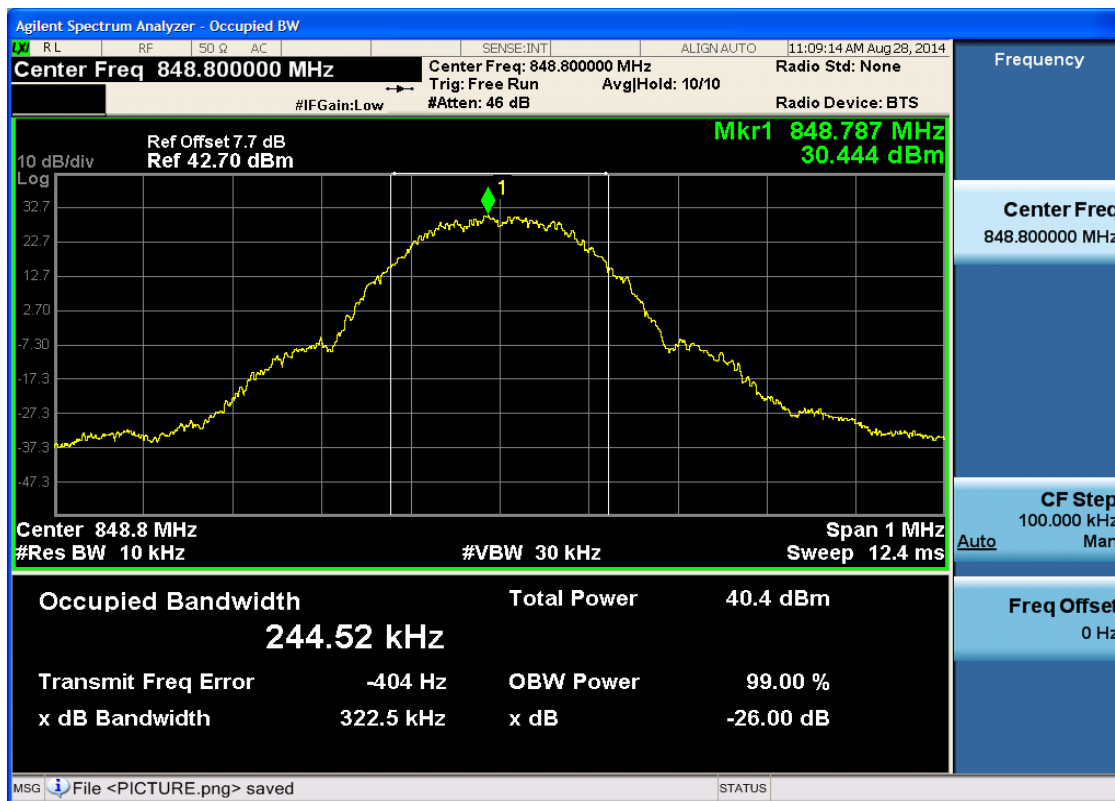




4.1.1.1.2 Test Channel = MCH



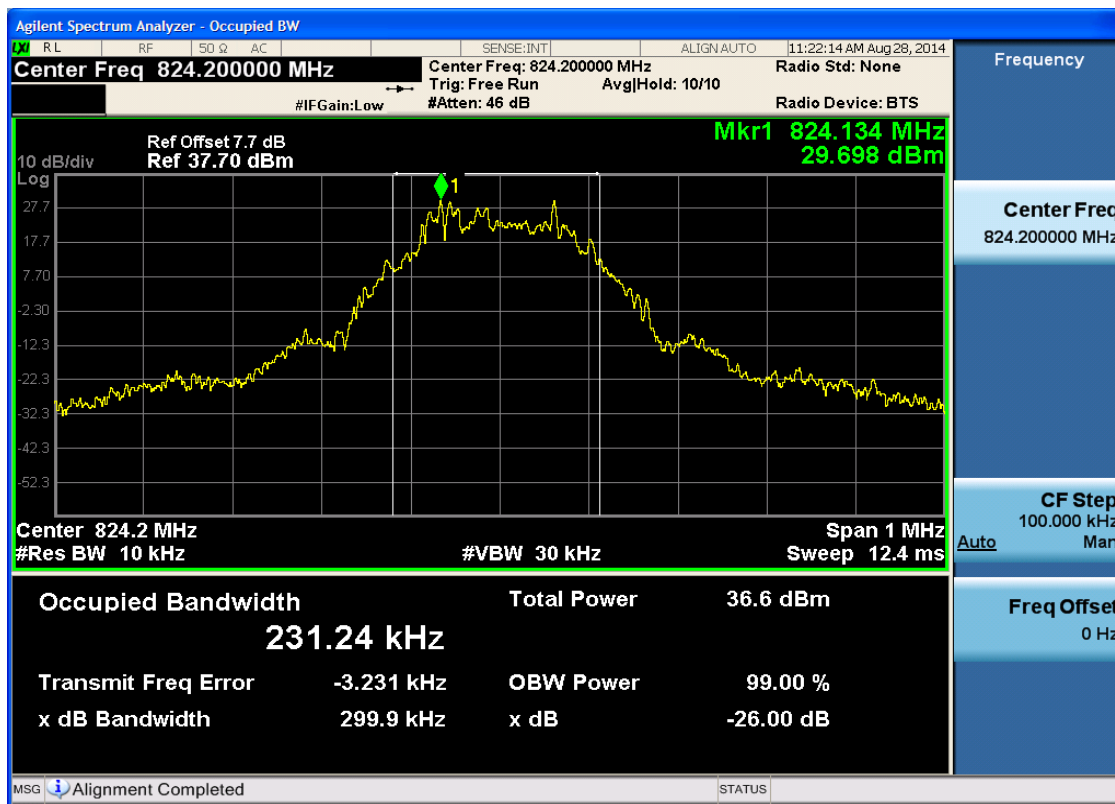
4.1.1.1.3 Test Channel = HCH





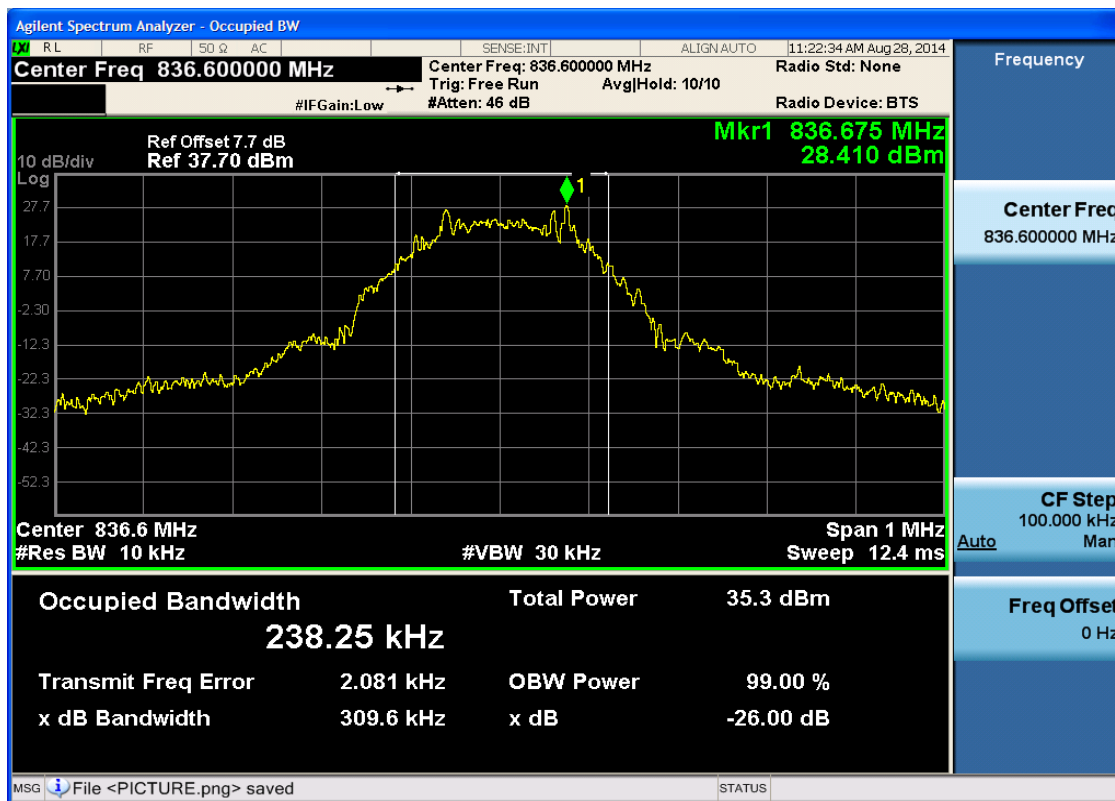
4.1.1.2 Test Mode = GSM/TM2

4.1.1.2.1 Test Channel = LCH



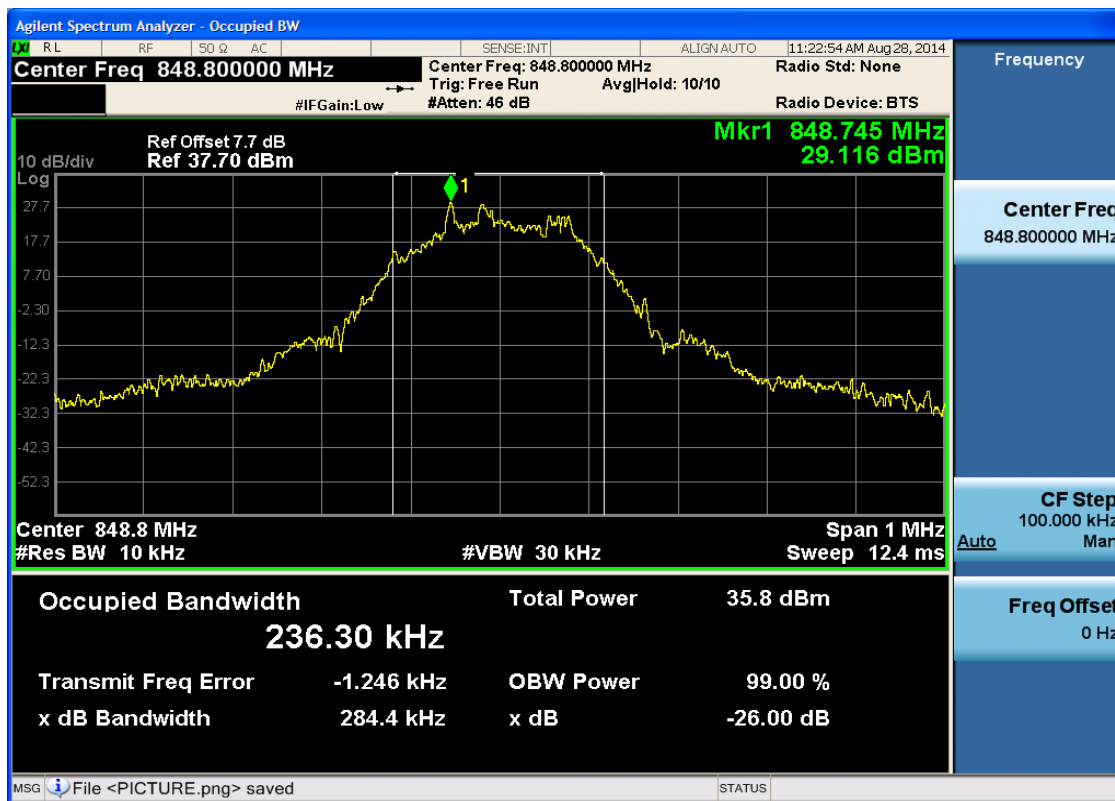


4.1.1.2.2 Test Channel = MCH





4.1.1.2.3 Test Channel = HCH

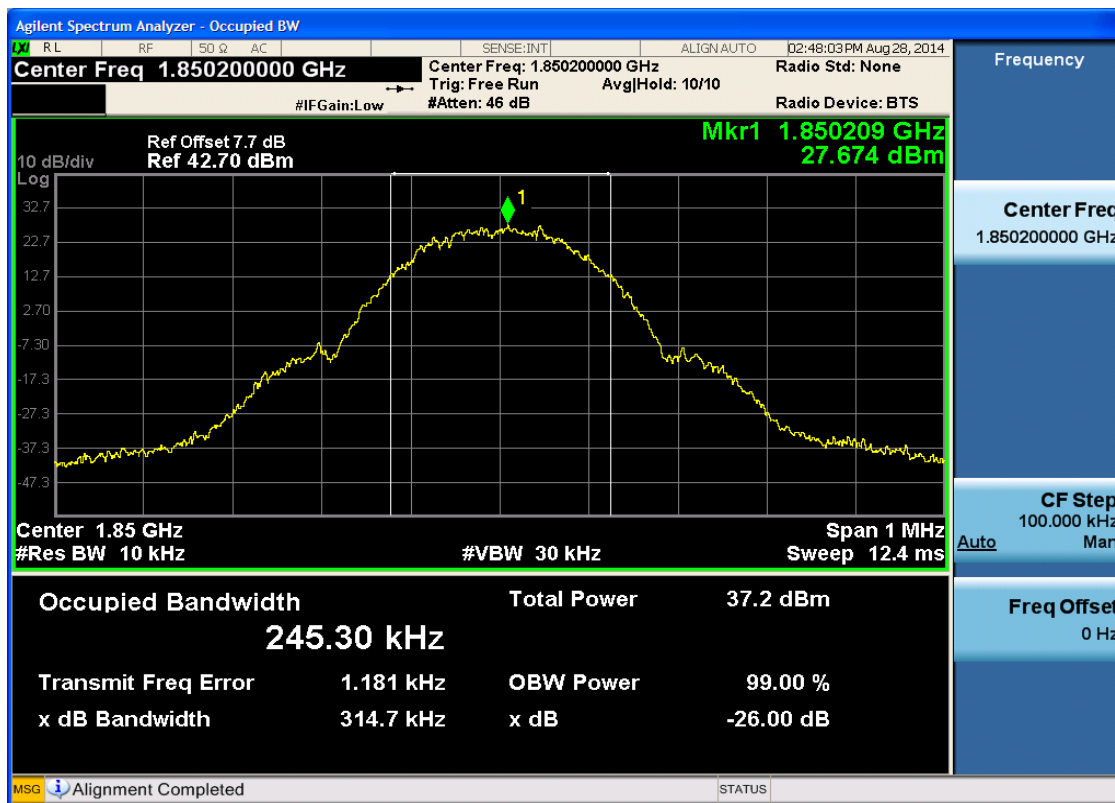




4.1.2 Test Band = GSM1900

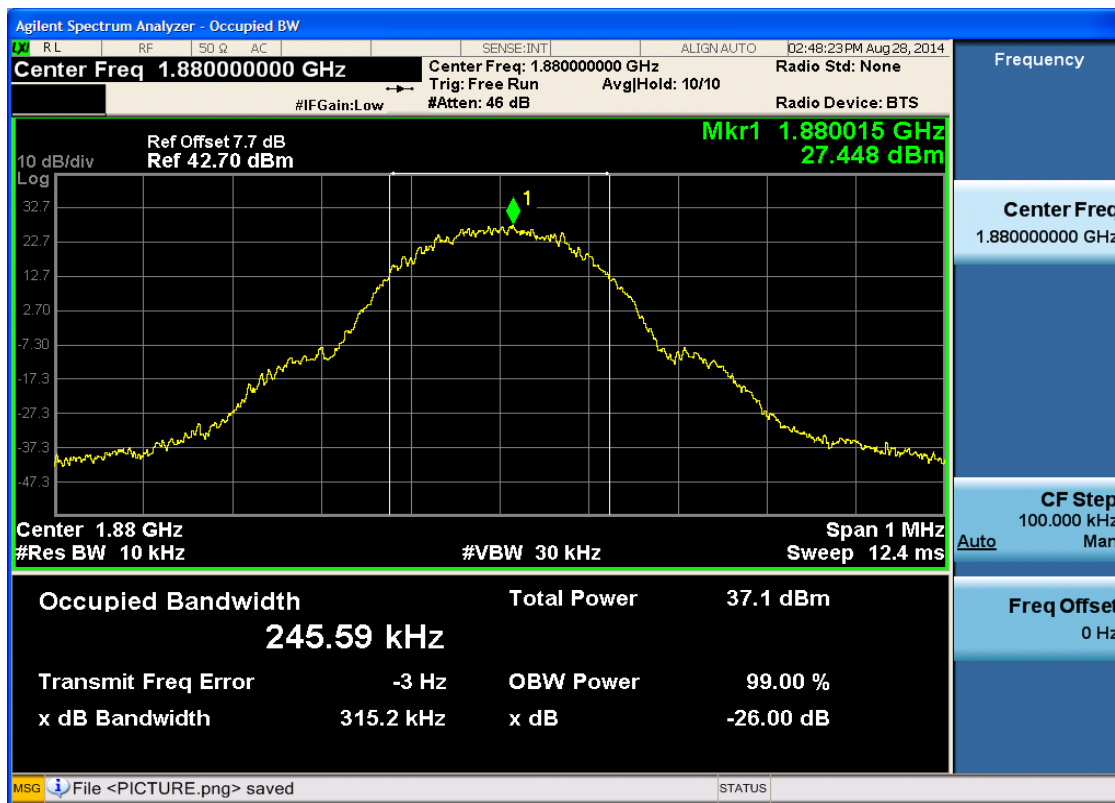
4.1.2.1 Test Mode = GSM/TM1

4.1.2.1.1 Test Channel = LCH



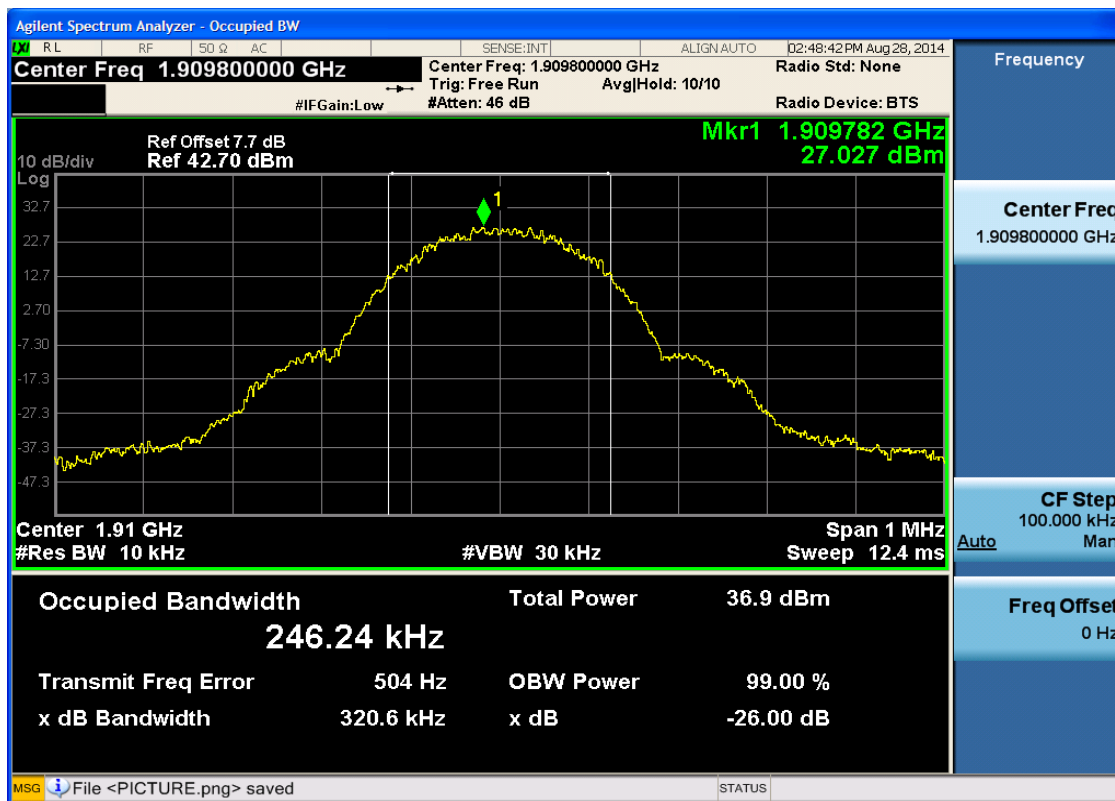


4.1.2.1.2 Test Channel = MCH





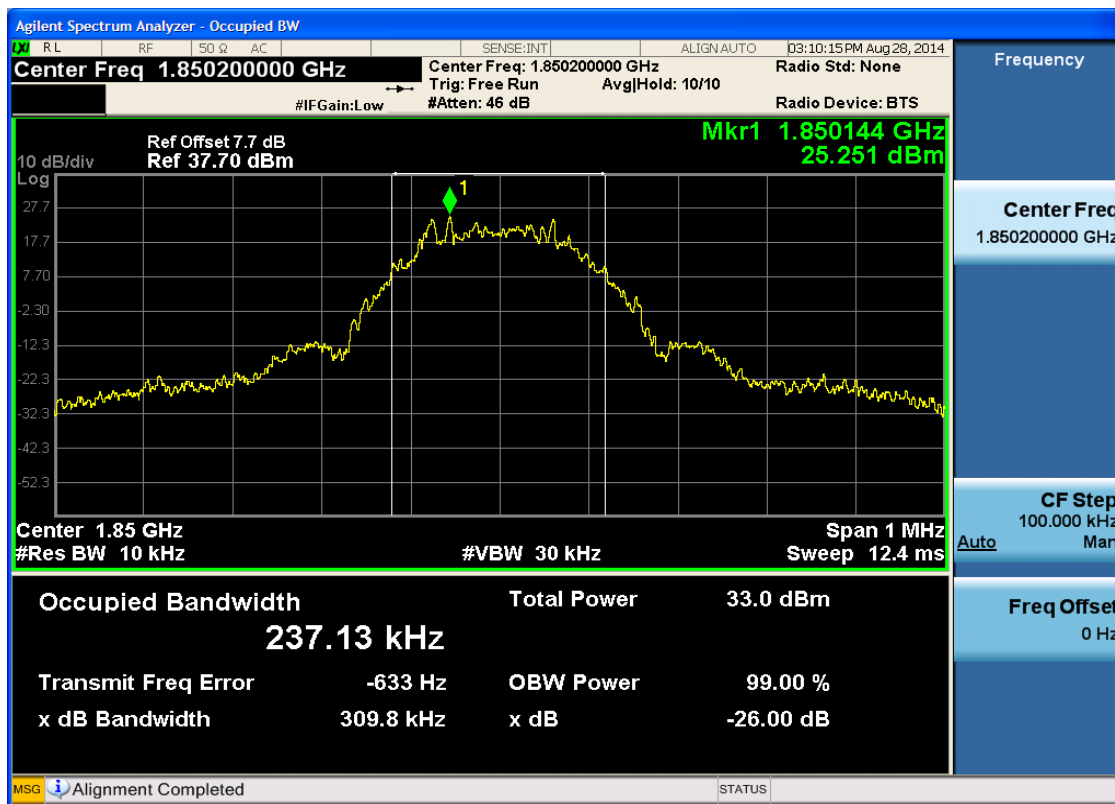
4.1.2.1.3 Test Channel = HCH





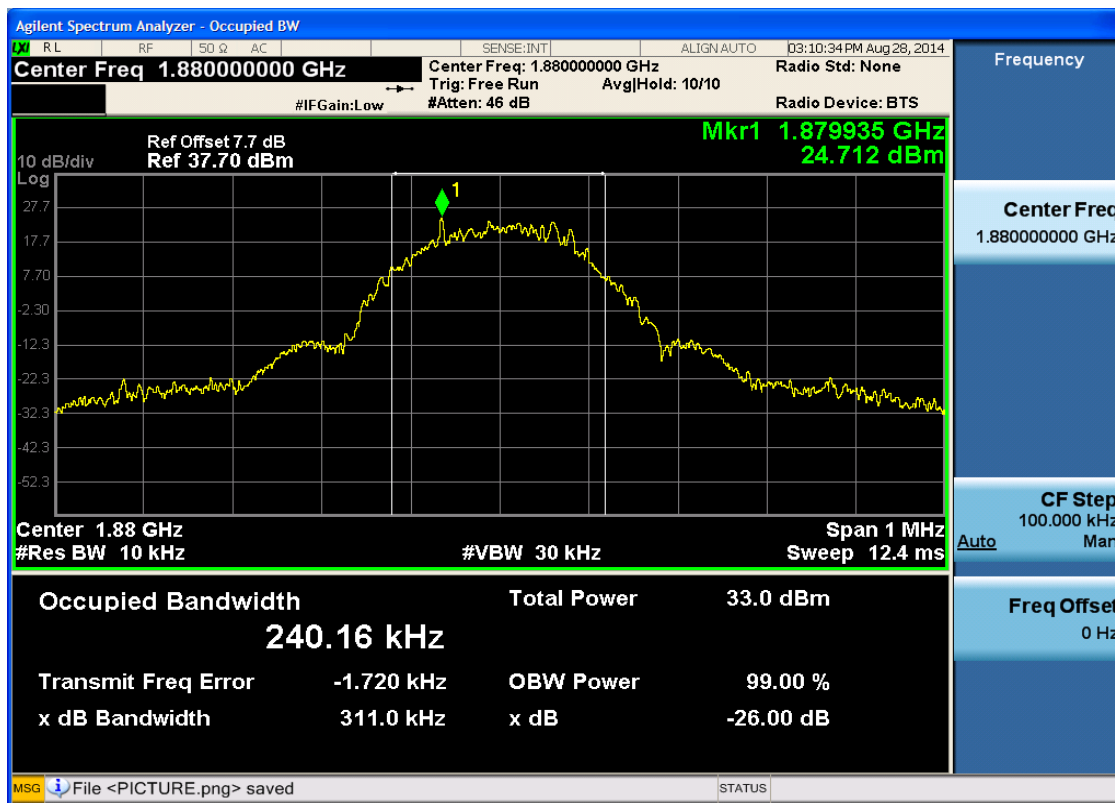
4.1.2.2 Test Mode = GSM/TM2

4.1.2.2.1 Test Channel = LCH



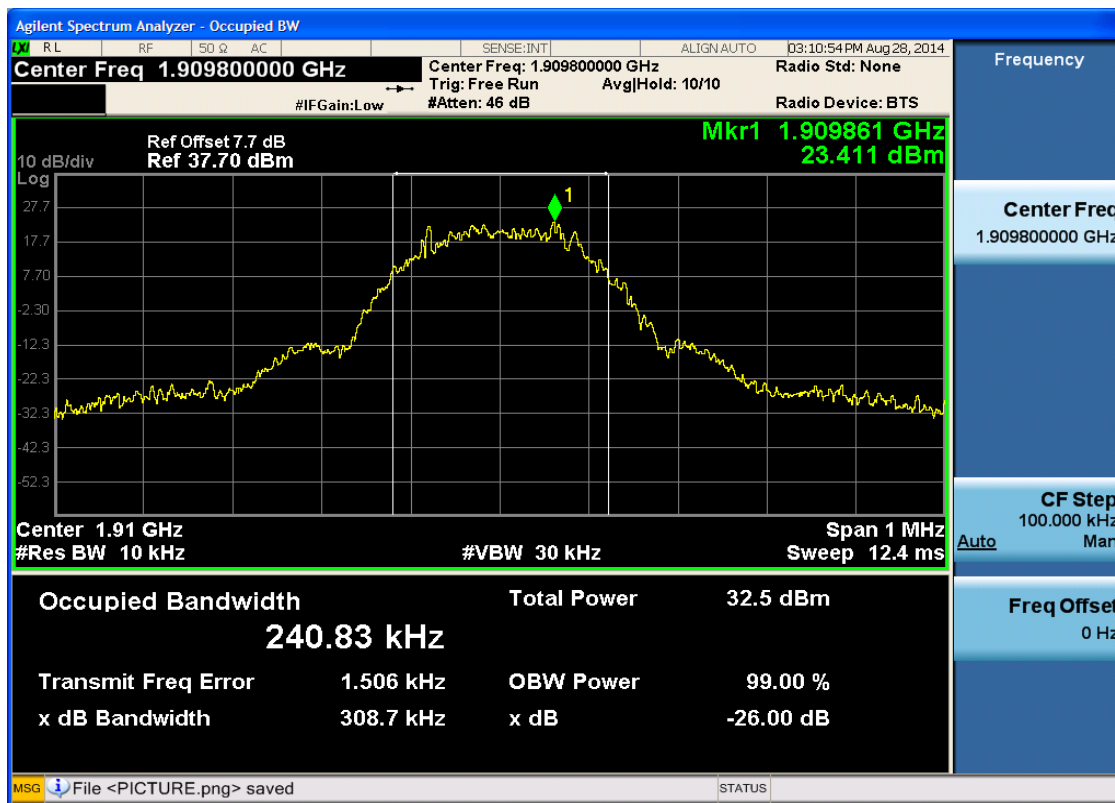


4.1.2.2.2 Test Channel = MCH





4.1.2.2.3 Test Channel = HCH

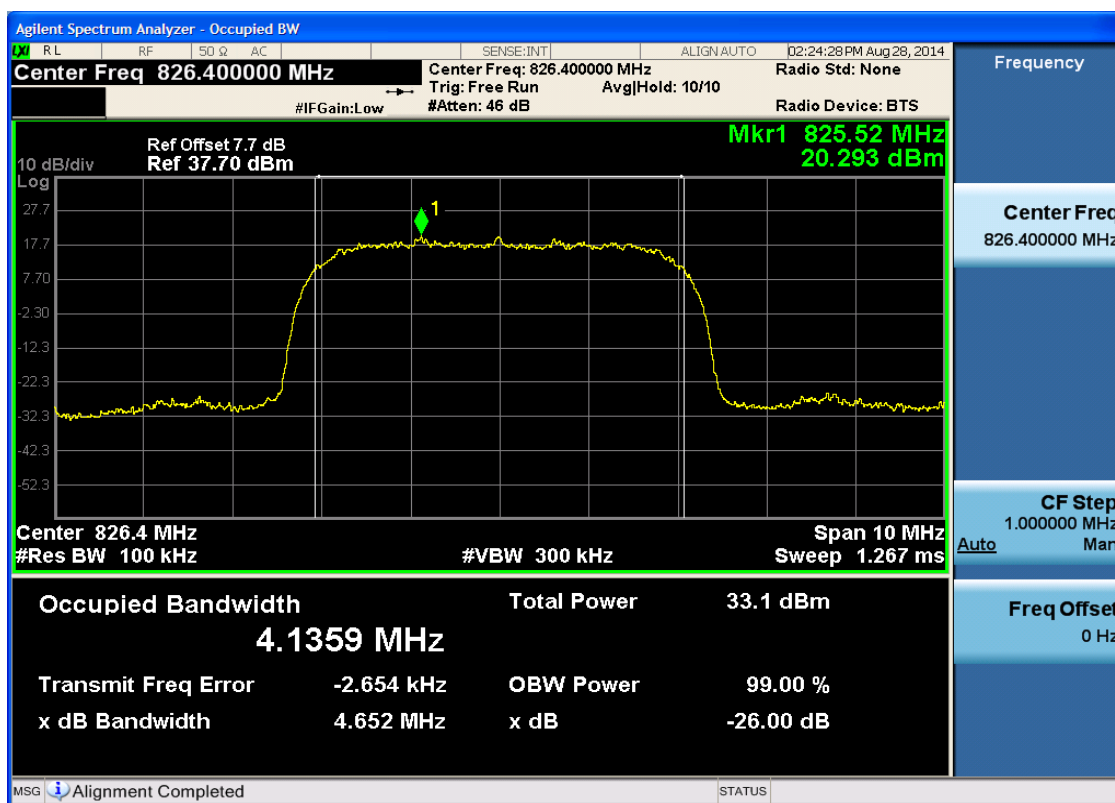


4.2 For UMTS

4.2.1 Test Band = WCDMA850

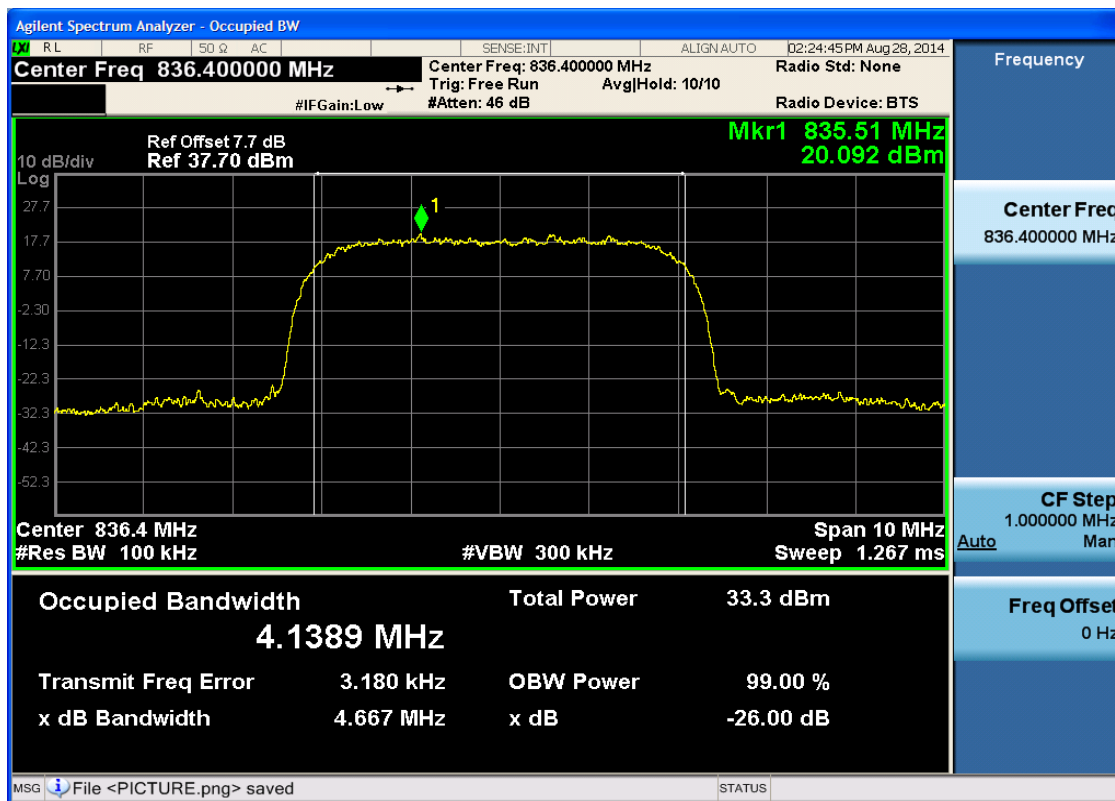
4.2.1.1 Test Mode = UMTS/TM1

4.2.1.1.1 Test Channel = LCH



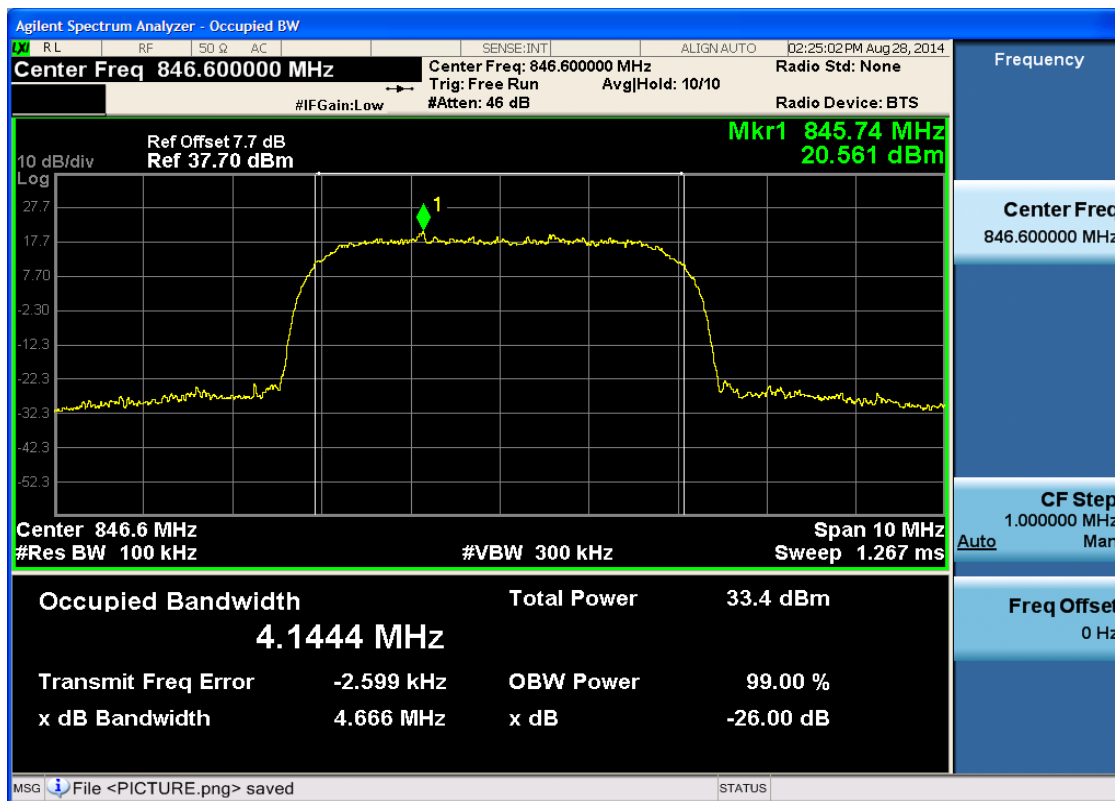


4.2.1.1.2 Test Channel = MCH





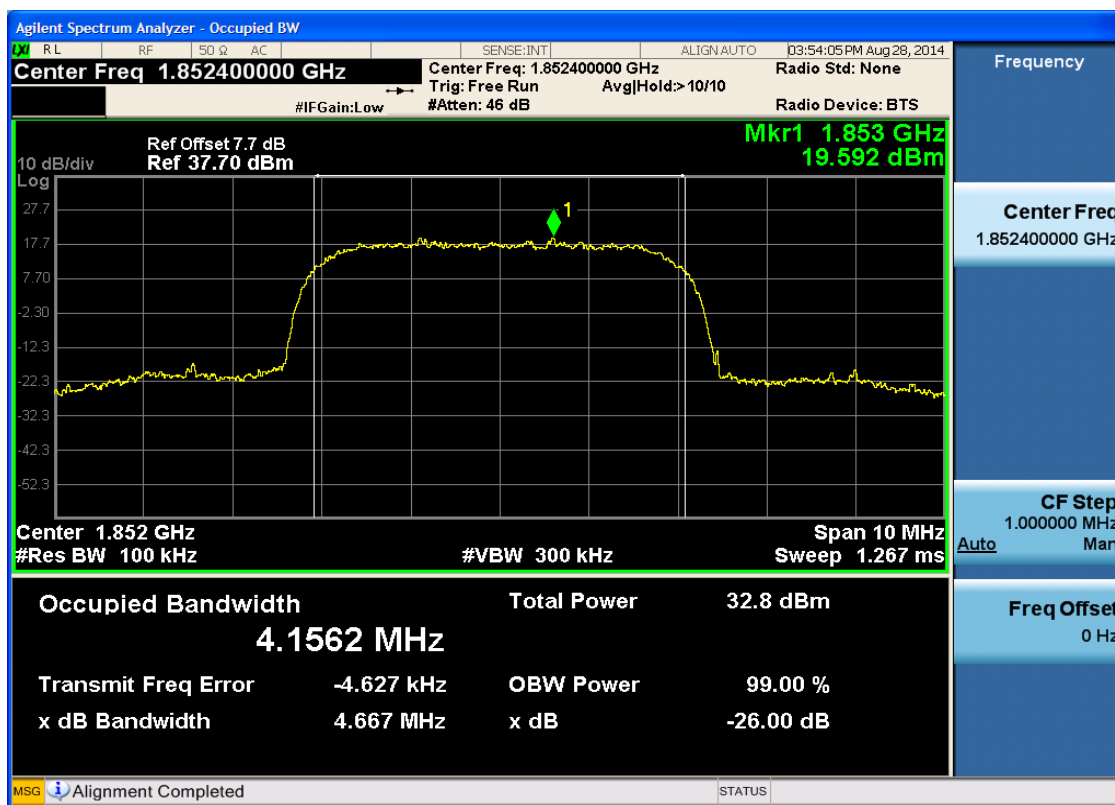
4.2.1.1.3 Test Channel = HCH



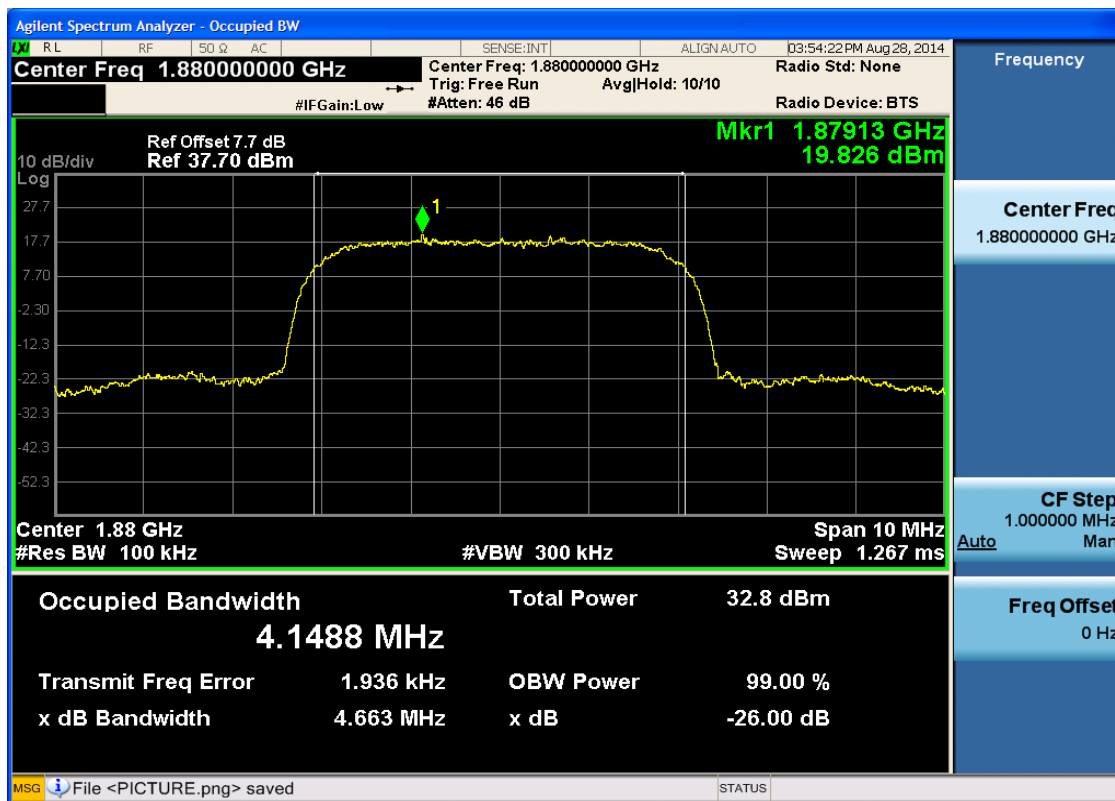
4.2.2 Test Band = WCDMA1900

4.2.2.1 Test Mode = UMTS/TM1

4.2.2.1.1 Test Channel = LCH

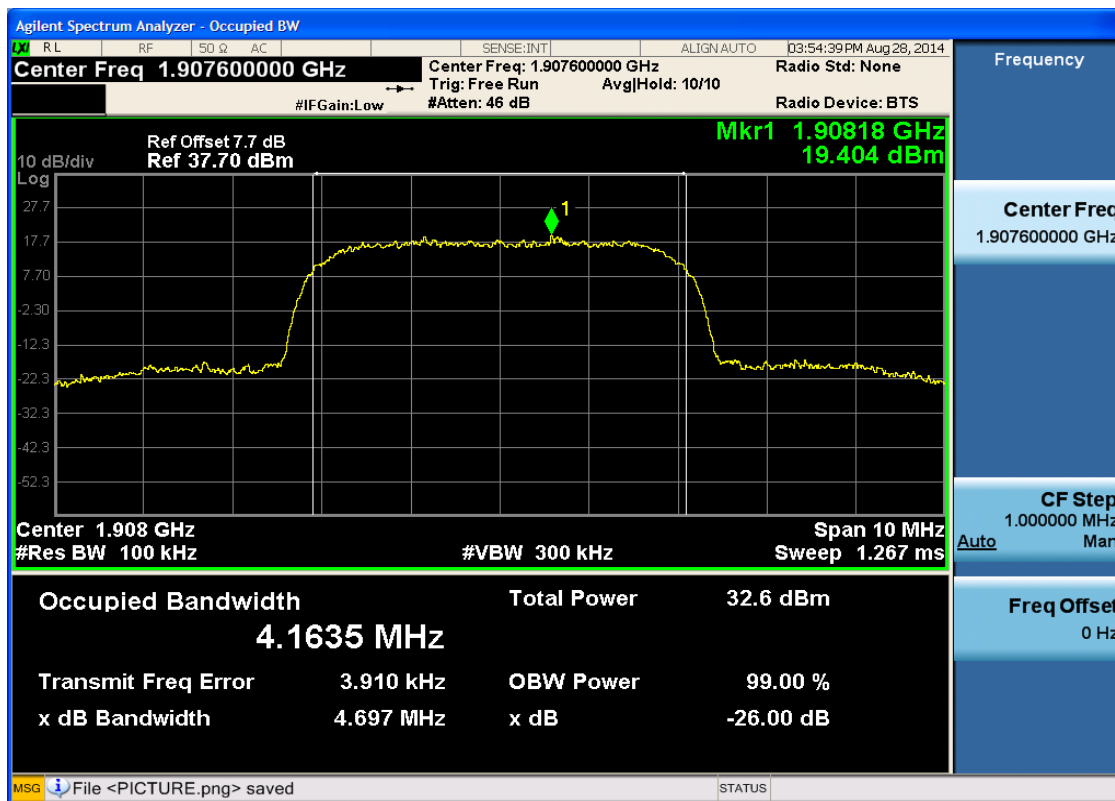


4.2.2.1.2 Test Channel = MCH





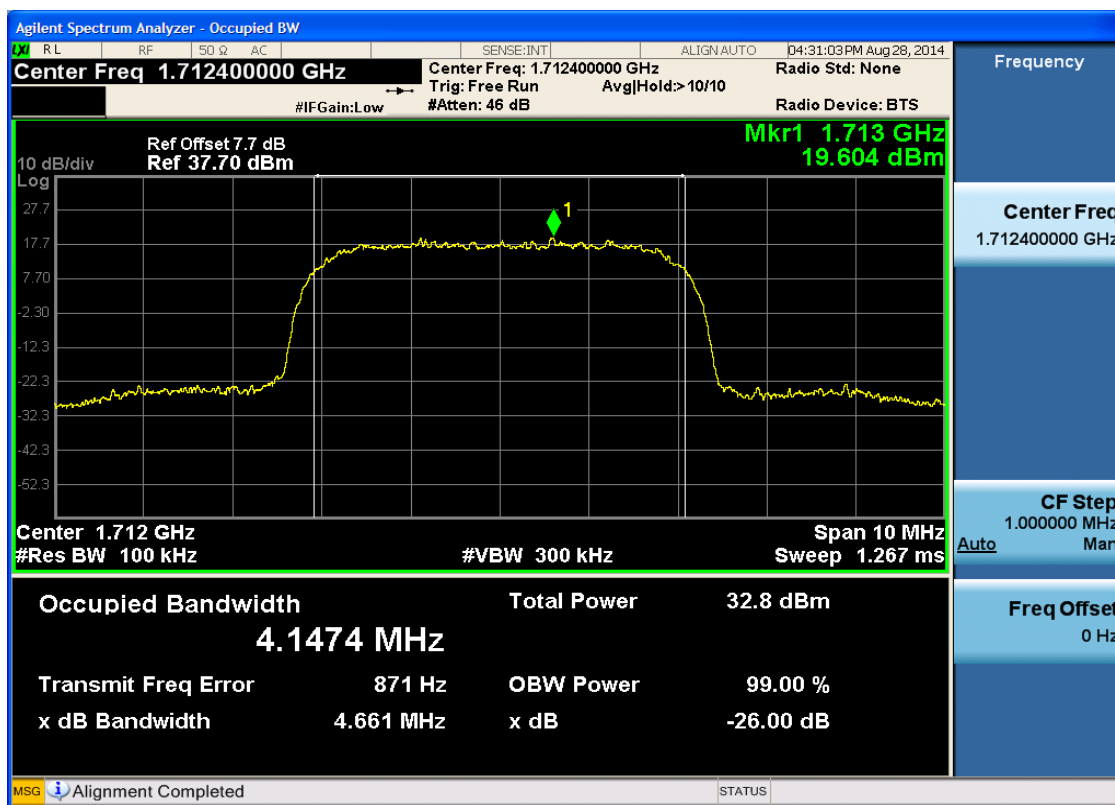
4.2.2.1.3 Test Channel = HCH



4.2.3 Test Band = WCDMA1700

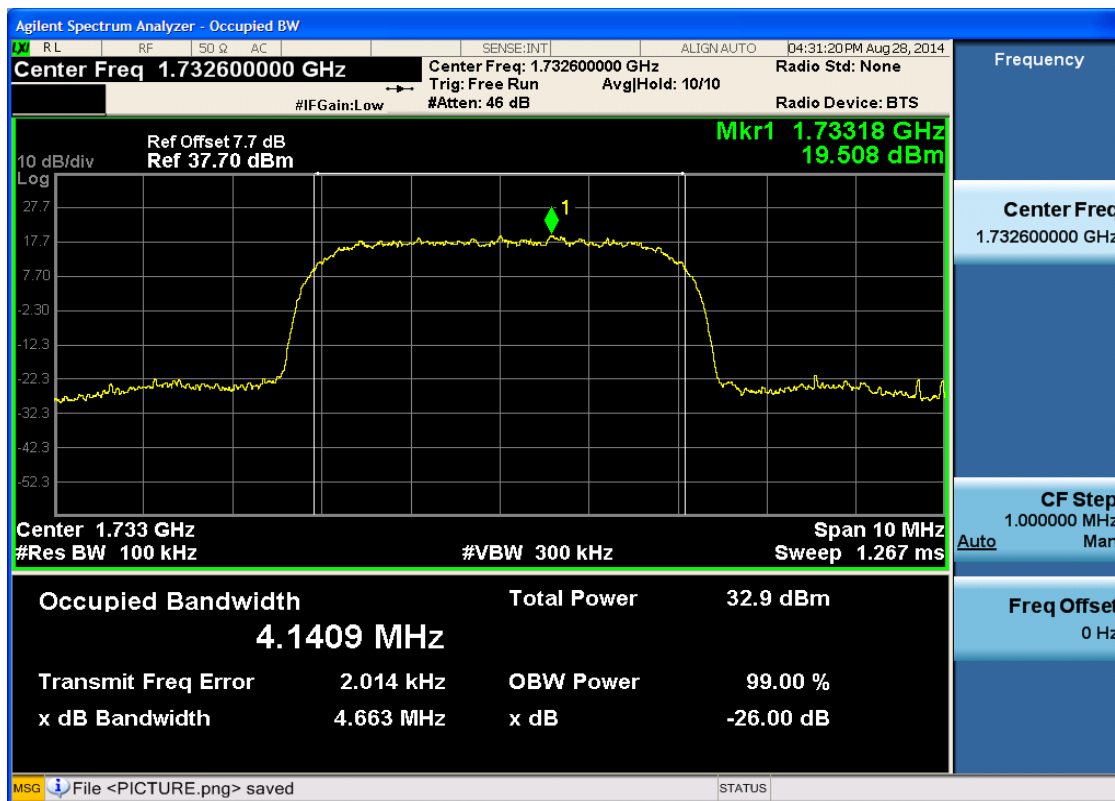
4.2.3.1 Test Mode = UMTS/TM1

4.2.3.1.1 Test Channel = LCH



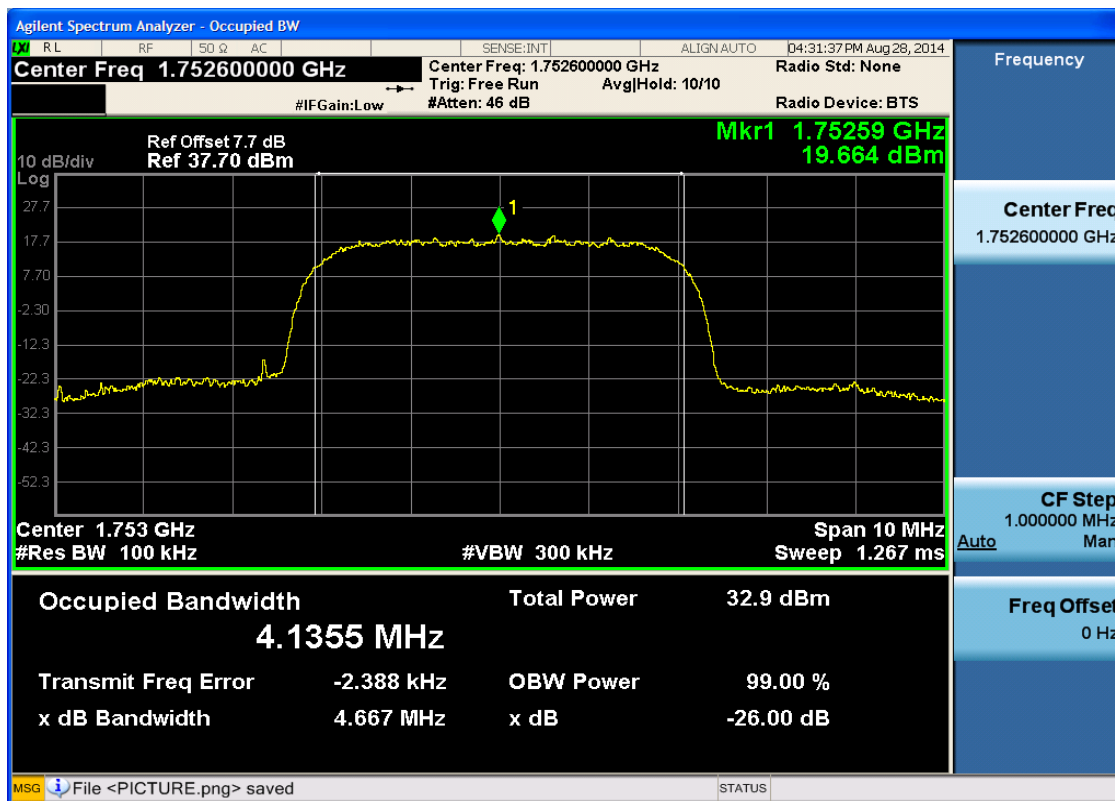


4.2.3.1.2 Test Channel = MCH





4.2.3.1.3 Test Channel = HCH



5Appendix_E: Band Edges Compliance

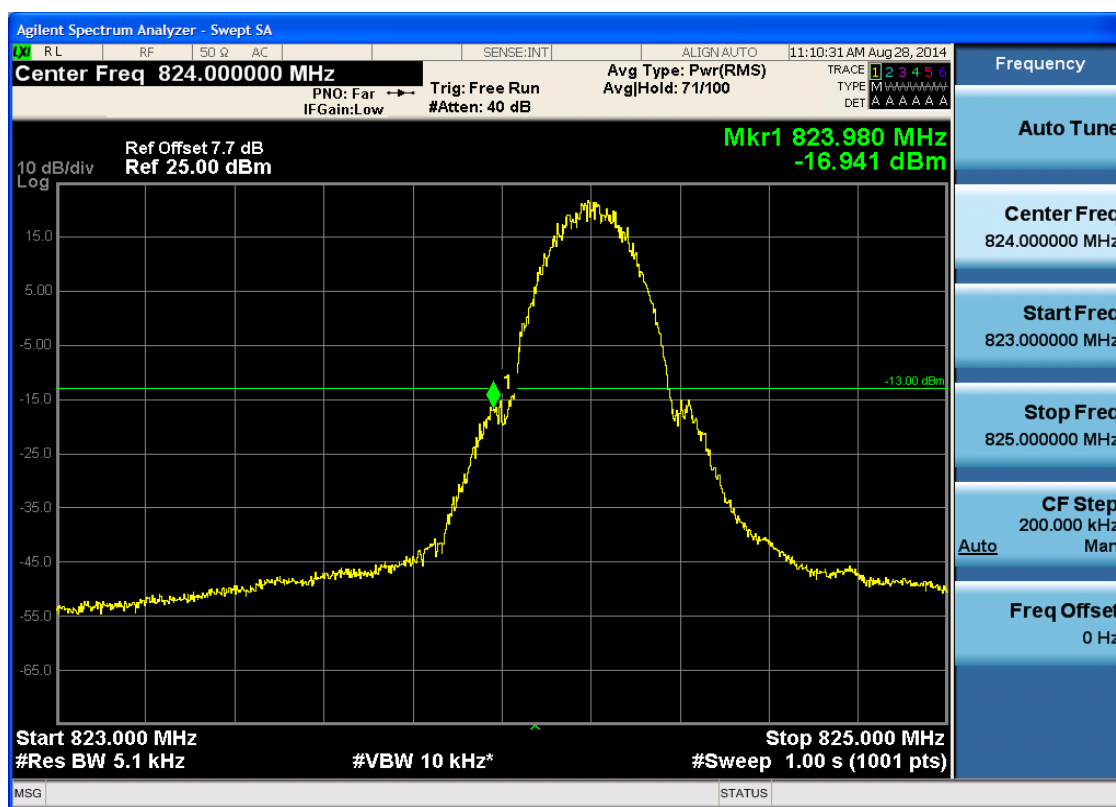
Part I - Test Plots

5.1 For GSM

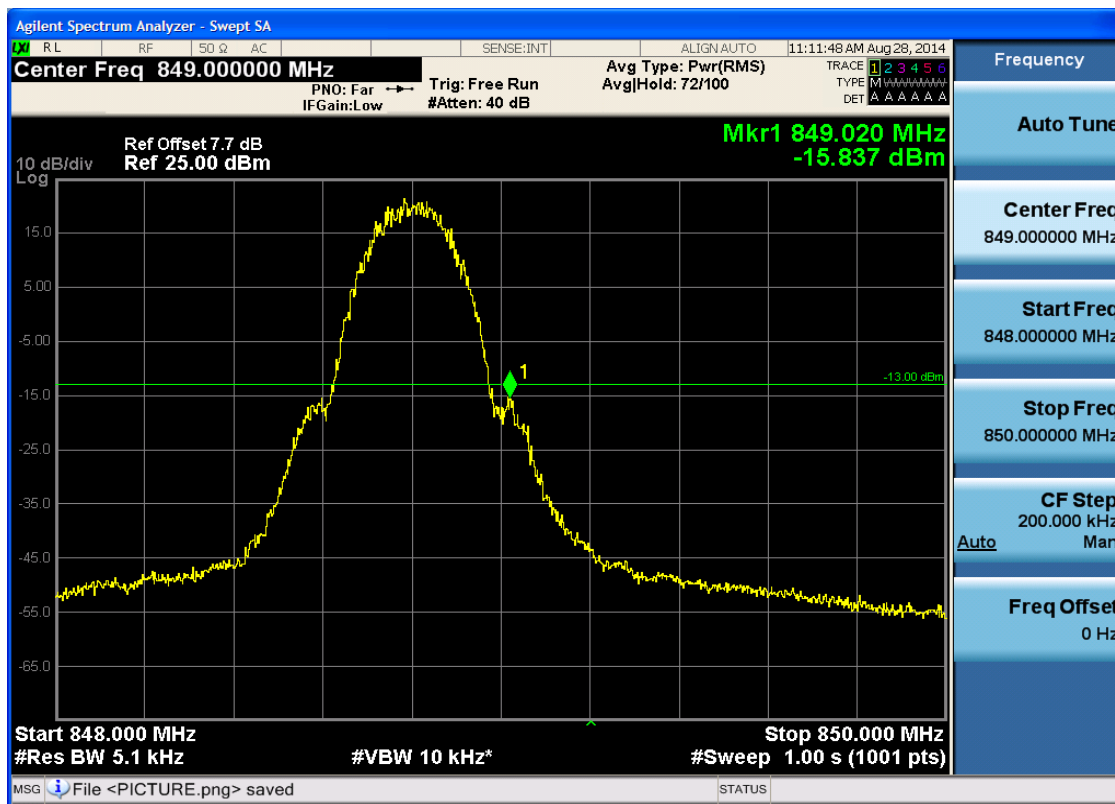
5.1.1 Test Band = GSM850

5.1.1.1 Test Mode = GSM/TM1

5.1.1.1.1 Test Channel = LCH

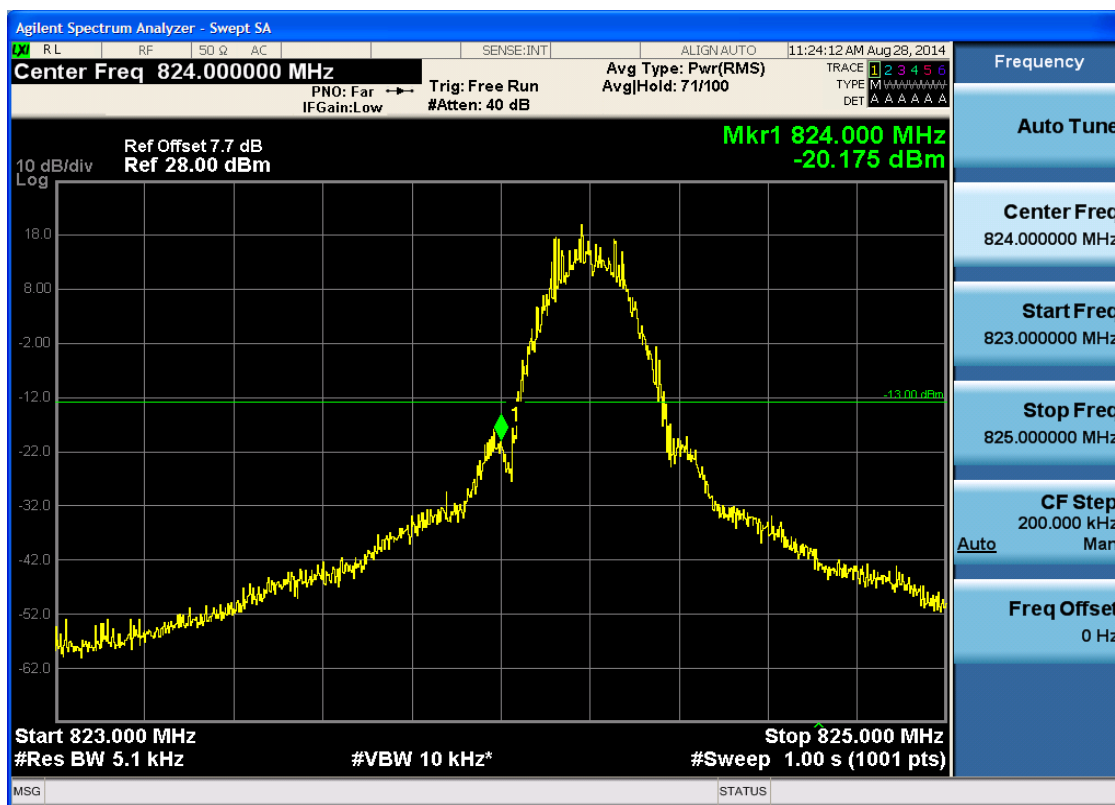


5.1.1.1.2 Test Channel = HCH

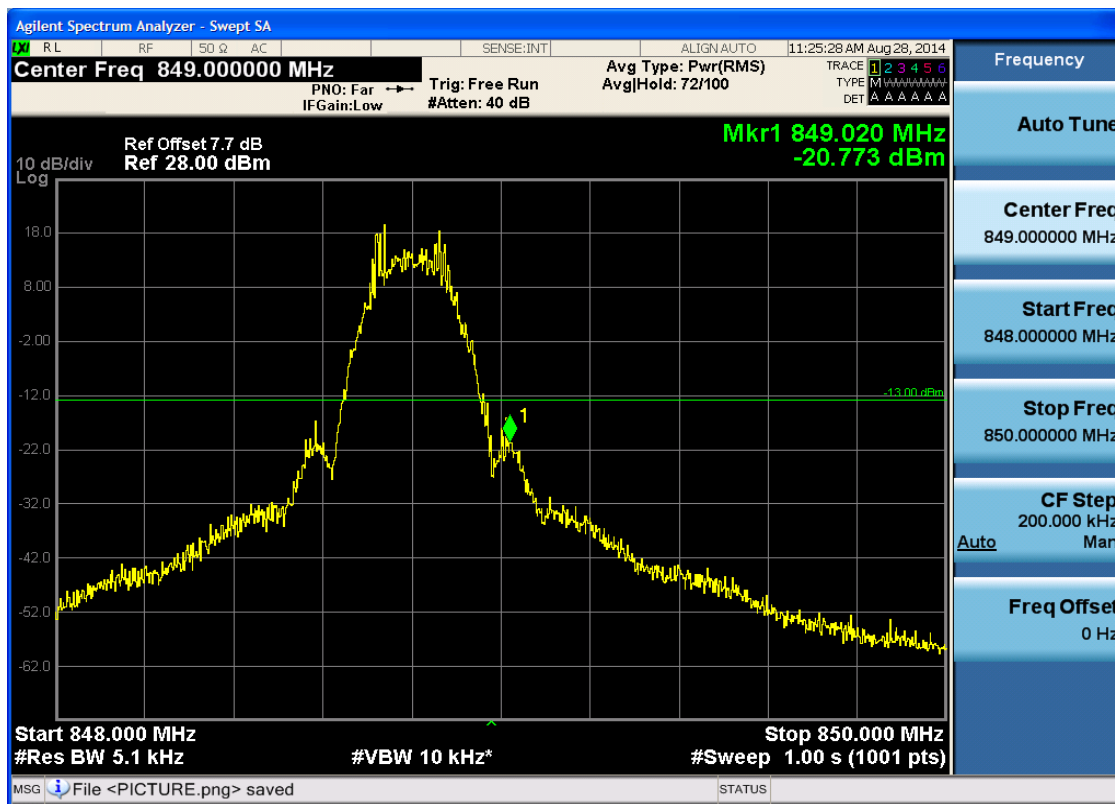


5.1.1.2 Test Mode = GSM/TM2

5.1.1.2.1 Test Channel = LCH



5.1.1.2.2 Test Channel = HCH

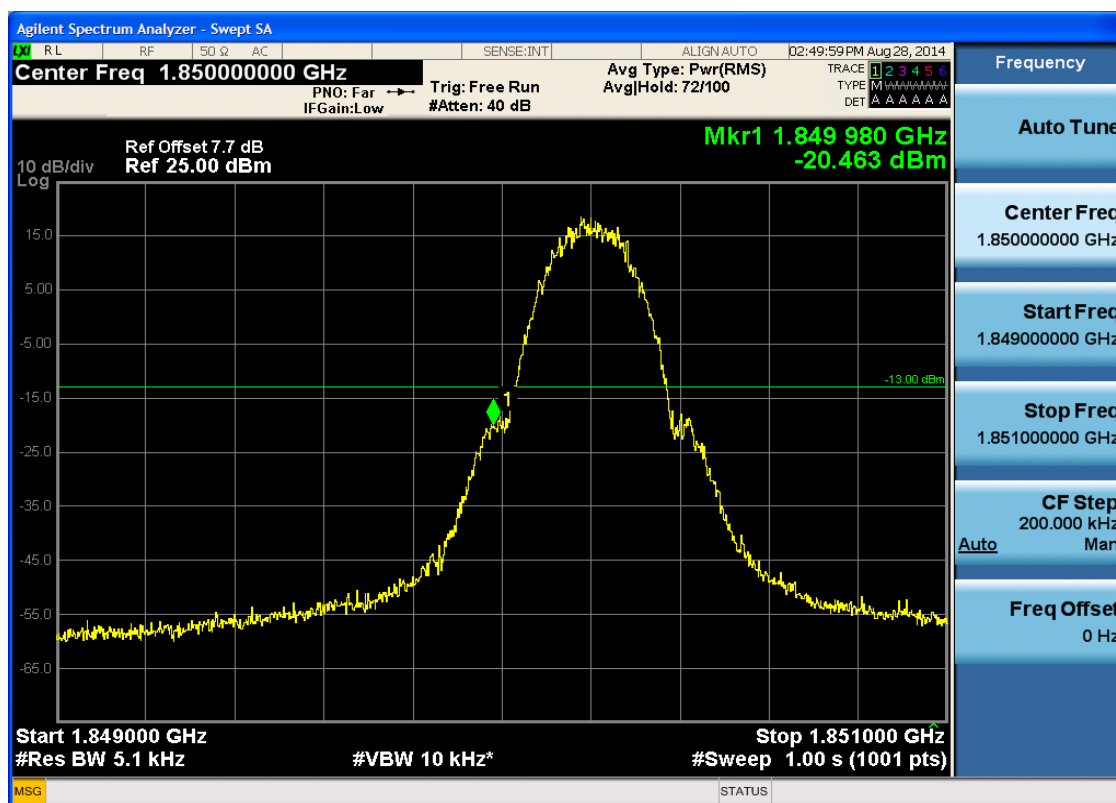




5.1.2 Test Band = GSM1900

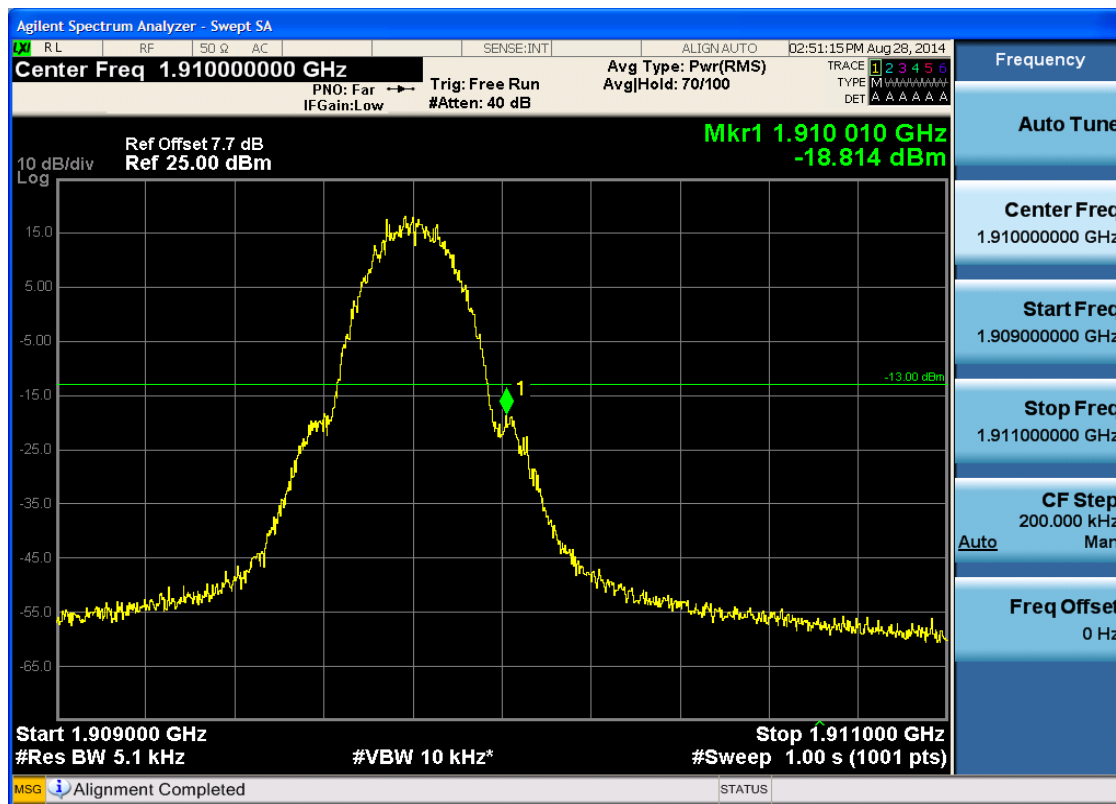
5.1.2.1 Test Mode = GSM/TM1

5.1.2.1.1 Test Channel = LCH



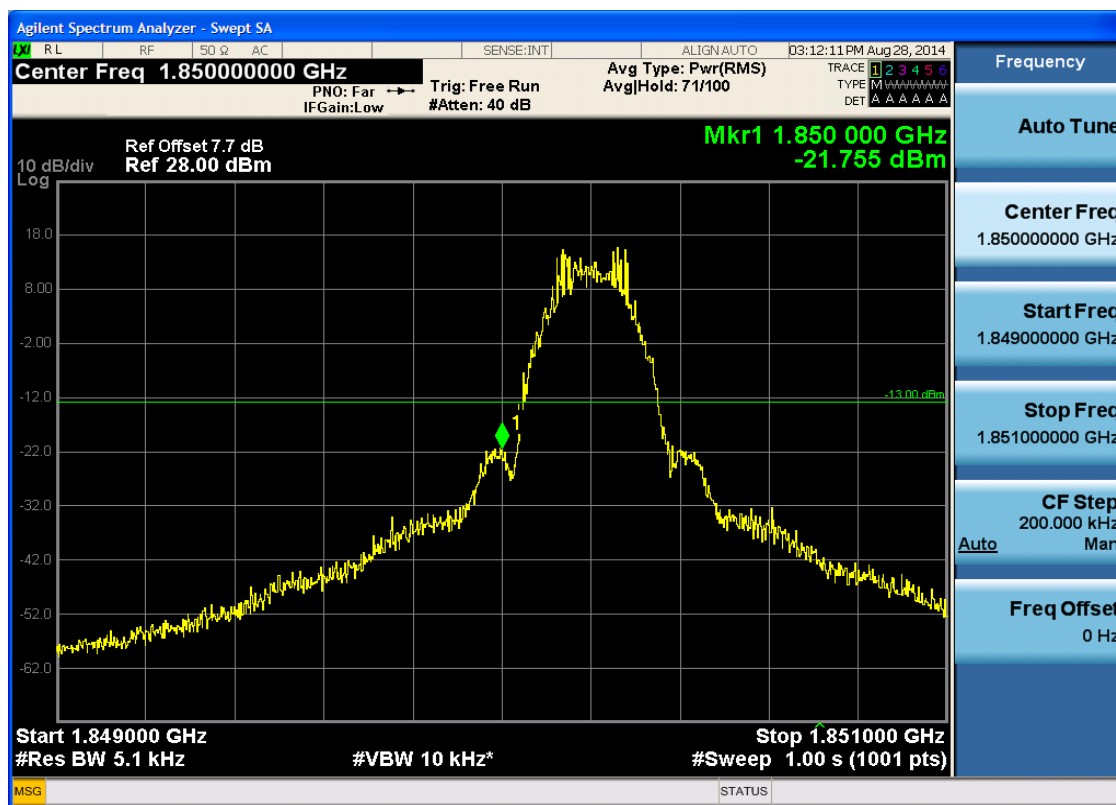


5.1.2.1.2 Test Channel = HCH

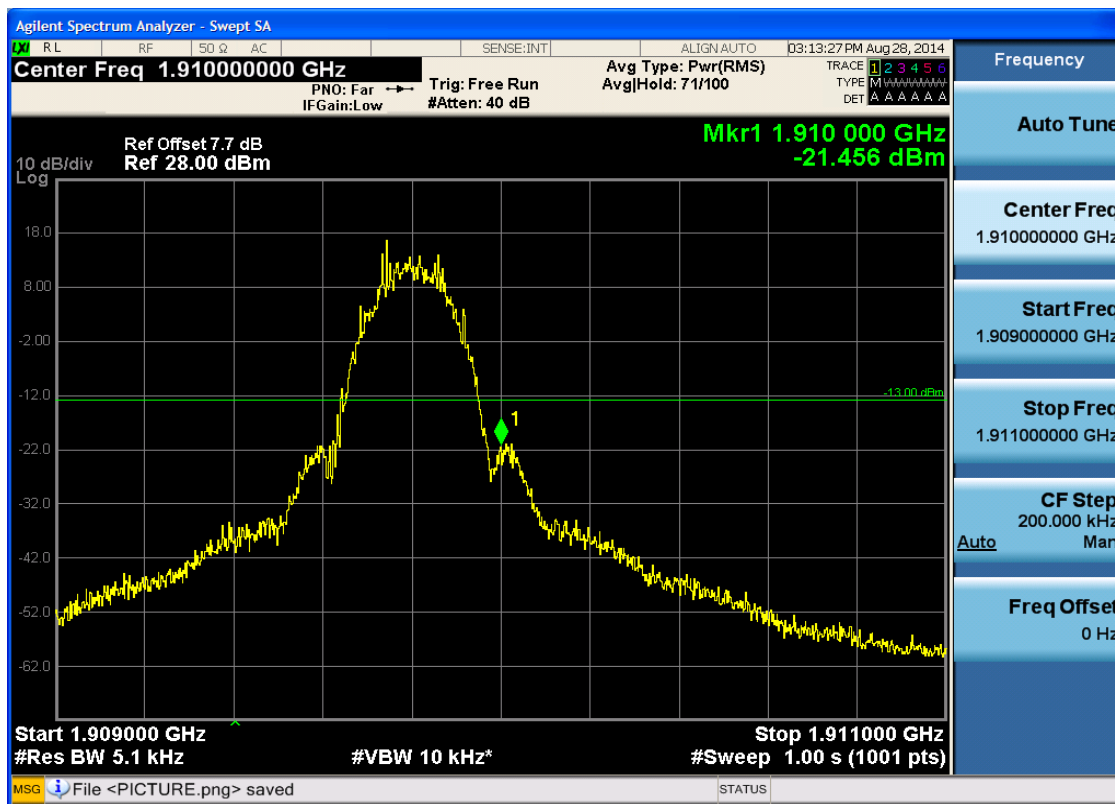


5.1.2.2 Test Mode = GSM/TM2

5.1.2.2.1 Test Channel = LCH



5.1.2.2.2 Test Channel = HCH

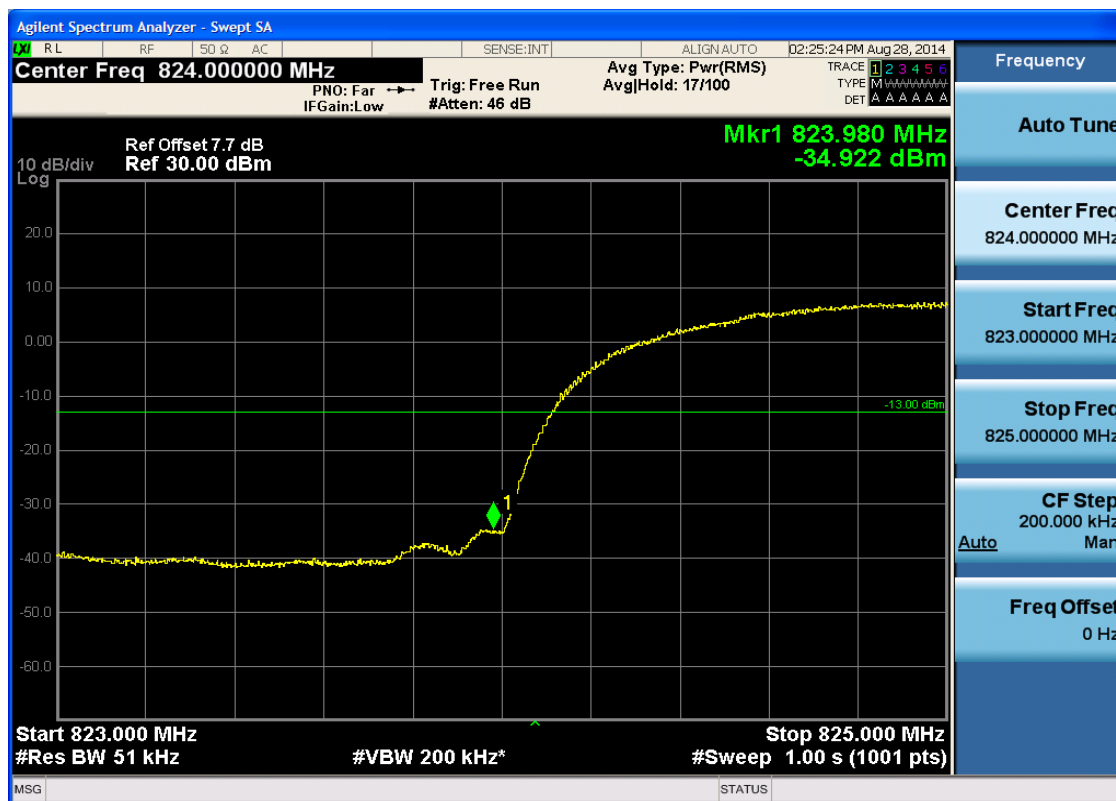


5.2 For UMTS

5.2.1 Test Band = 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

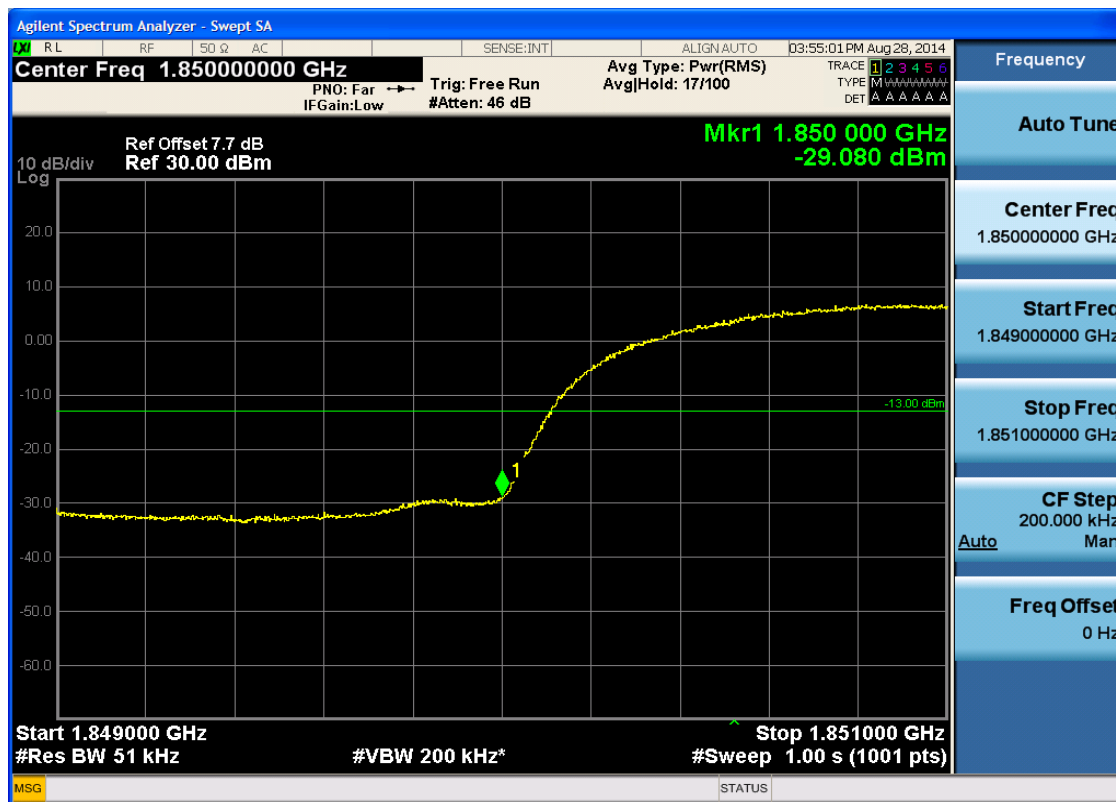




5.2.2 Test Band = WCDMA1900

5.2.2.1 Test Mode = UMTS/TM1

5.2.2.1.1 Test Channel = LCH



5.2.2.1.2 Test Channel = HCH





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.

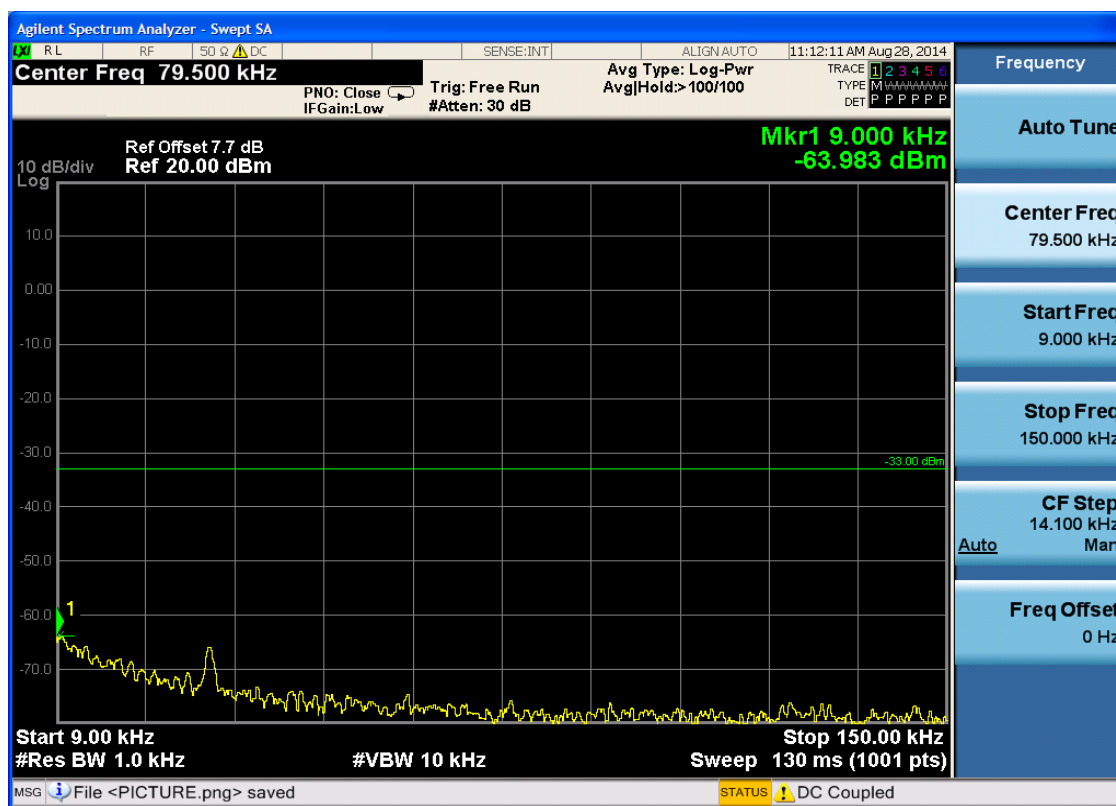
Part I - Test Plots

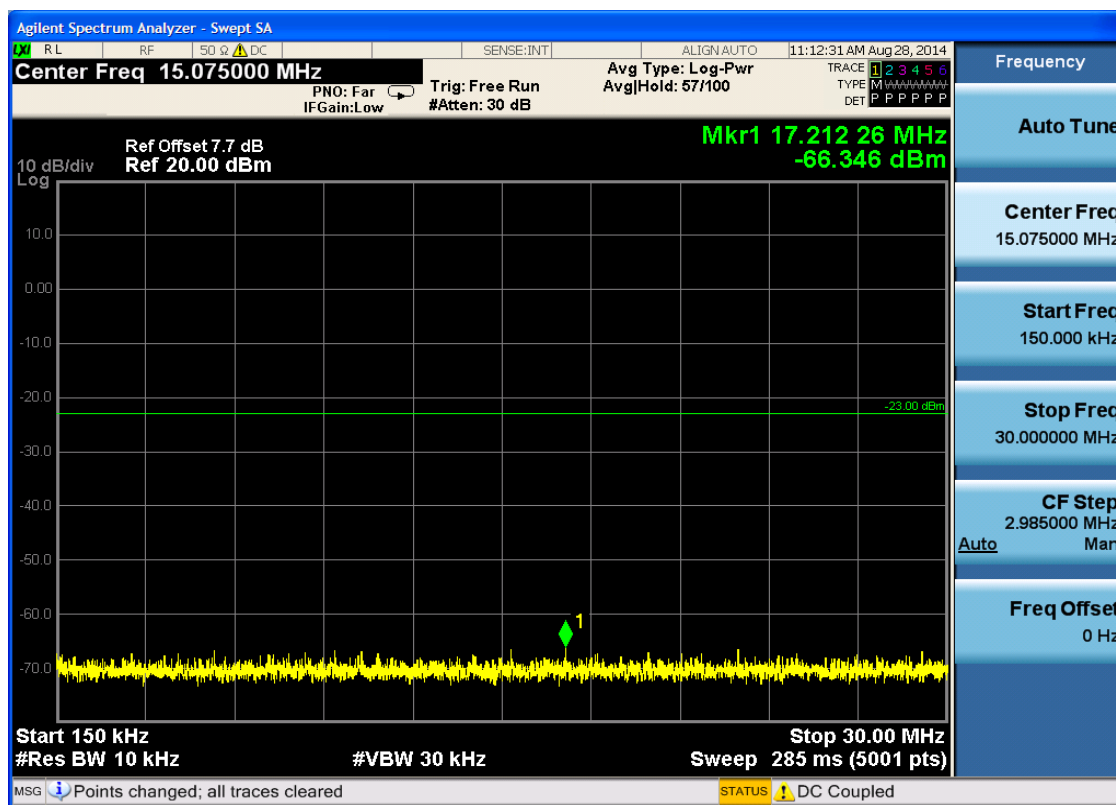
6.1 For GSM

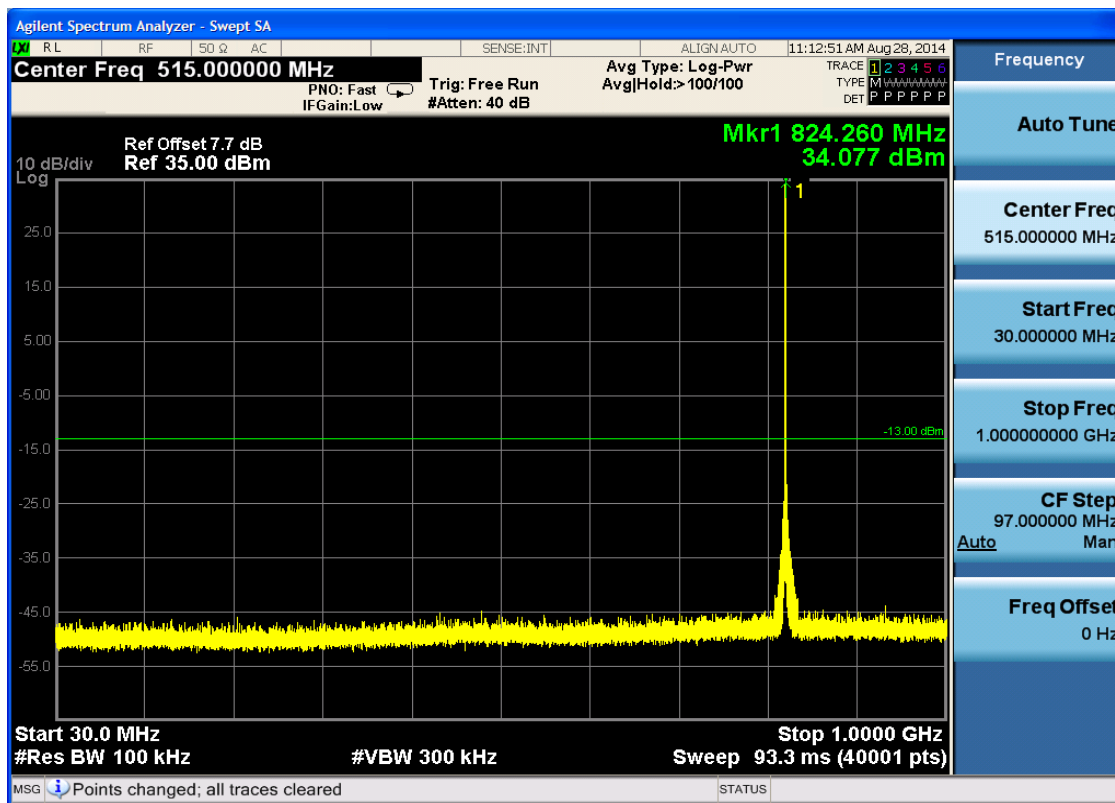
6.1.1 Test Band = GSM850

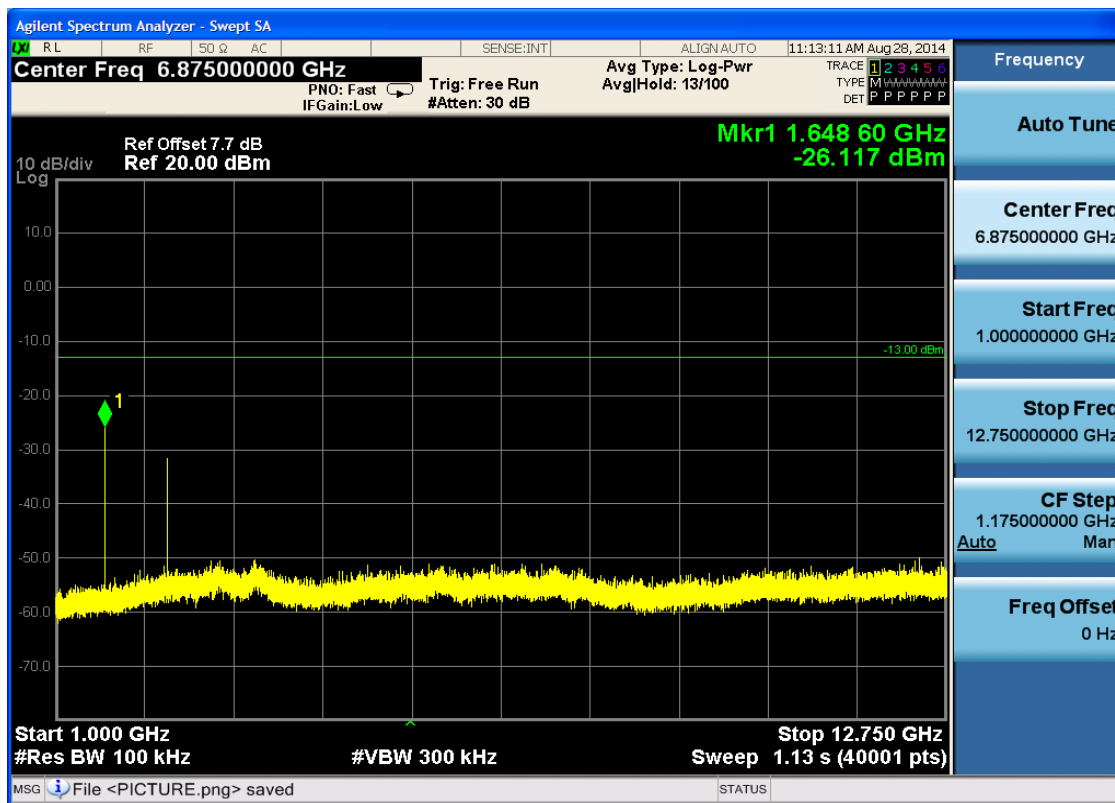
6.1.1.1 Test Mode = GSM/TM1

6.1.1.1.1 Test Channel = LCH



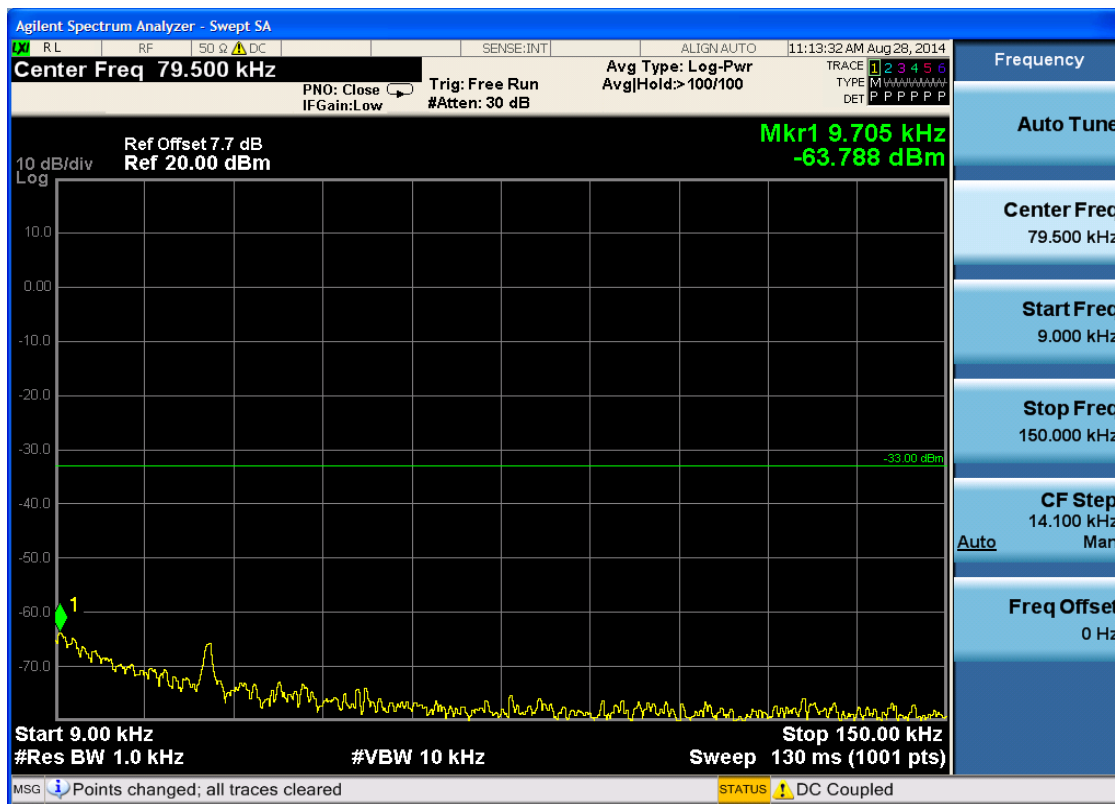


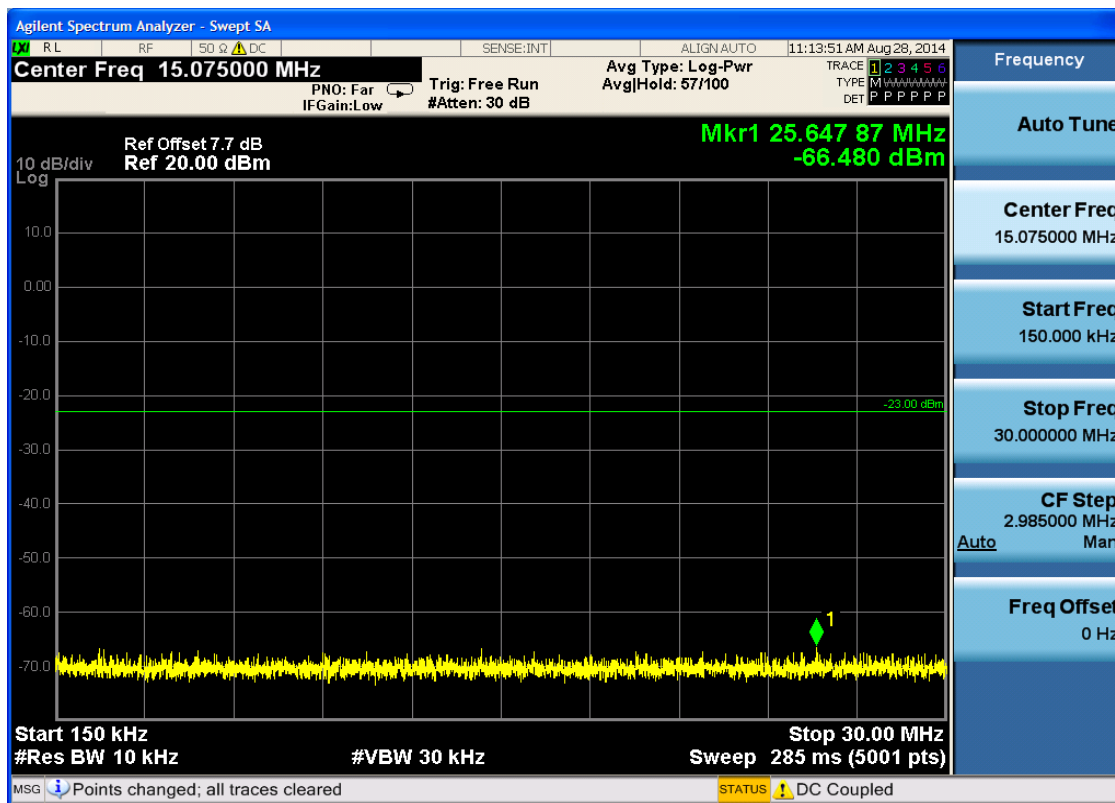


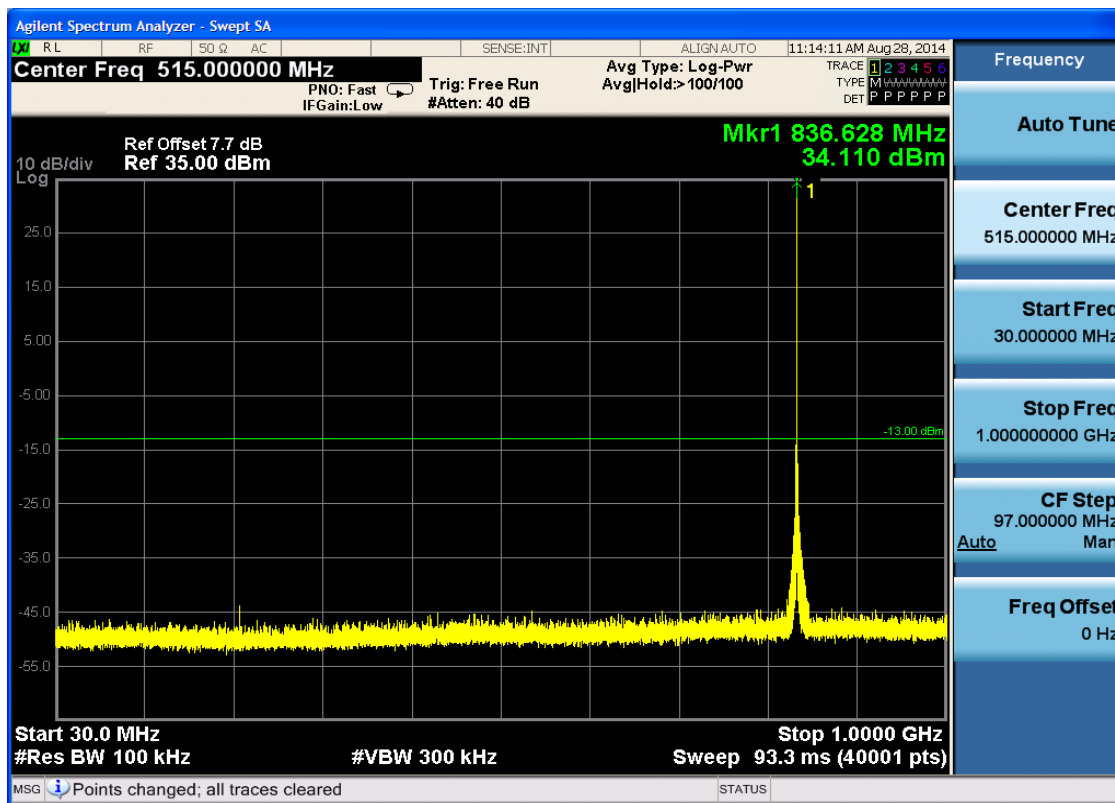


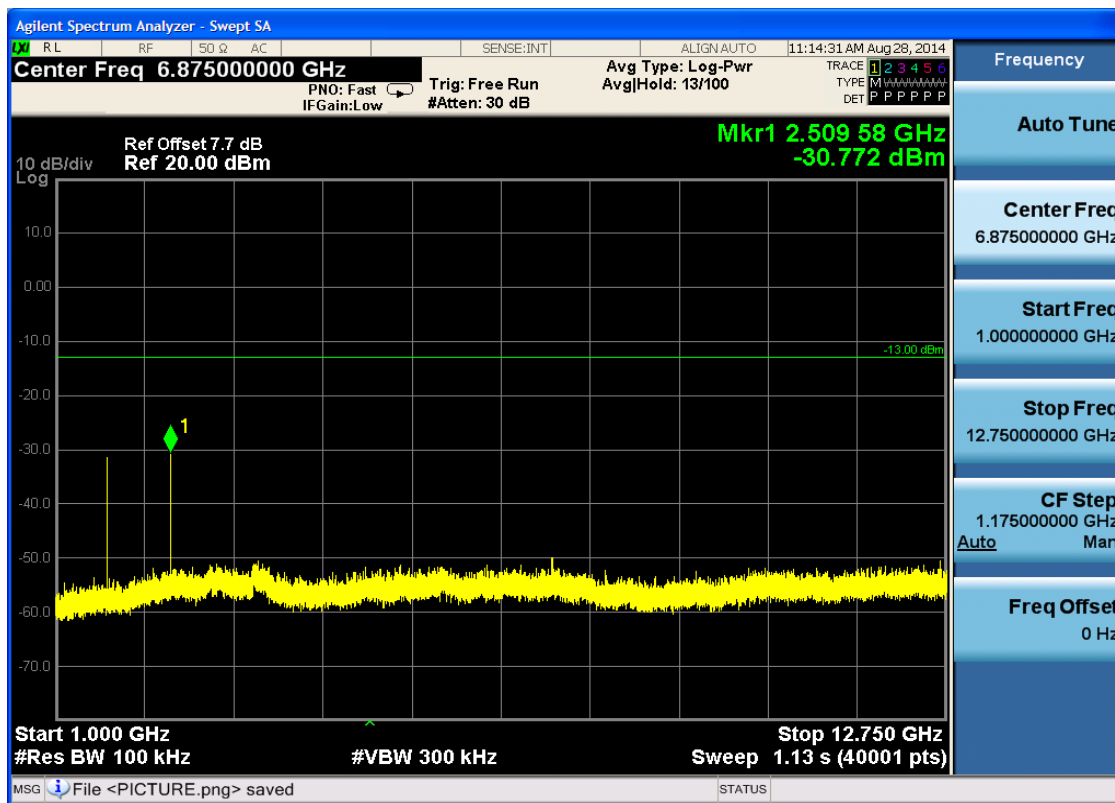


6.1.1.1.2 Test Channel = MCH

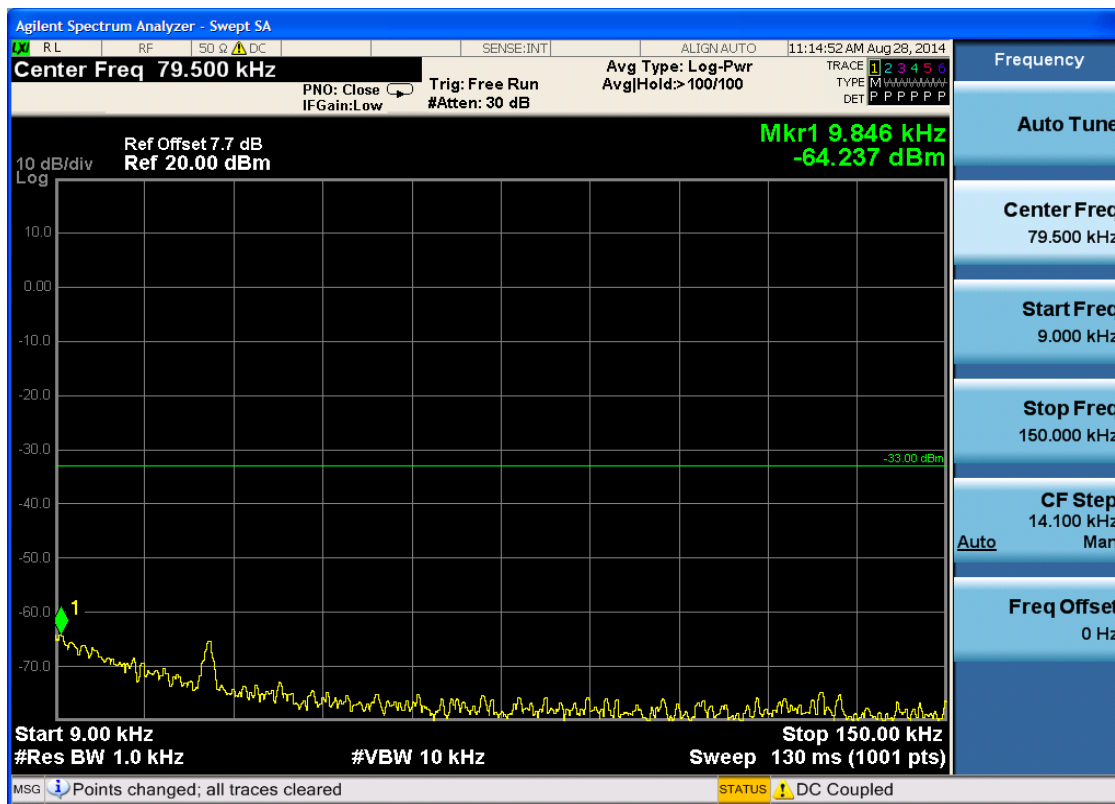


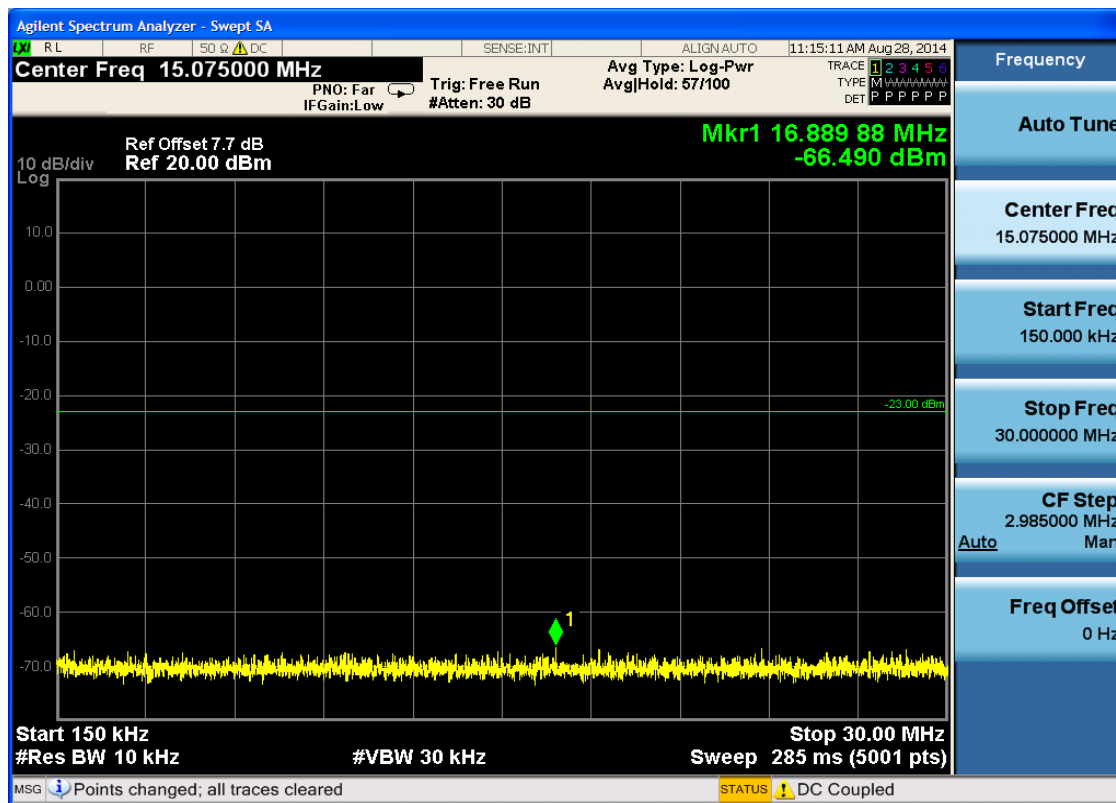


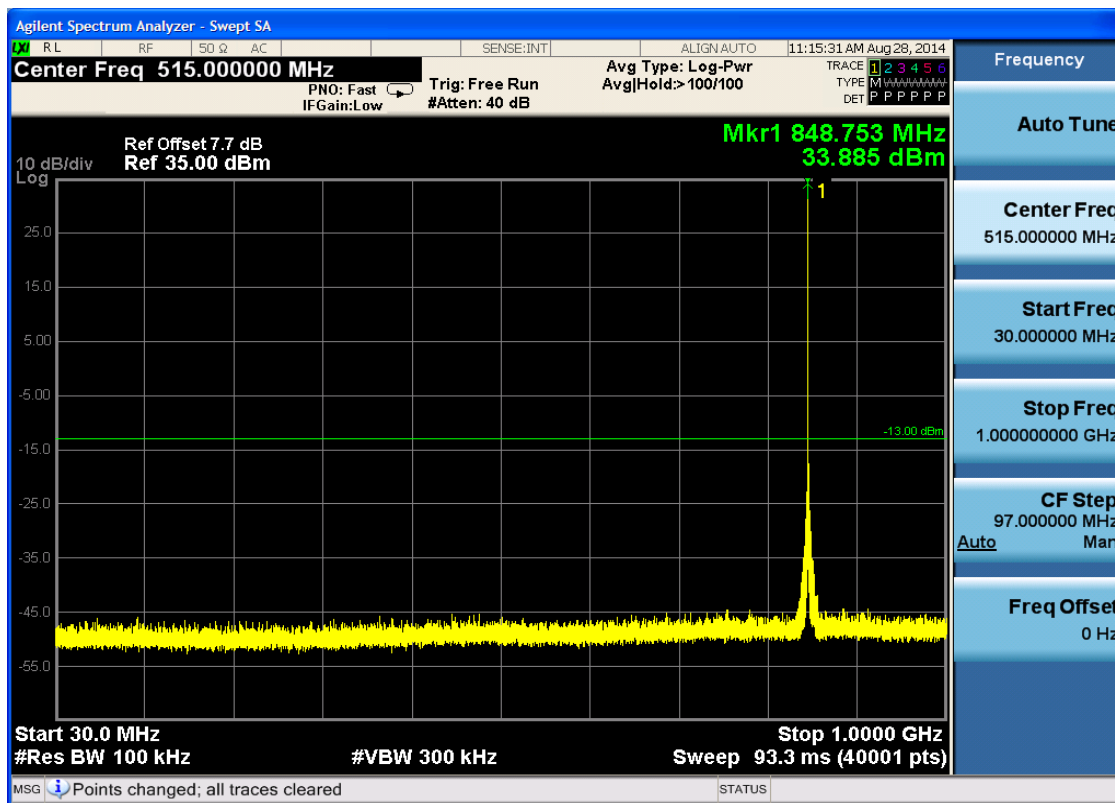


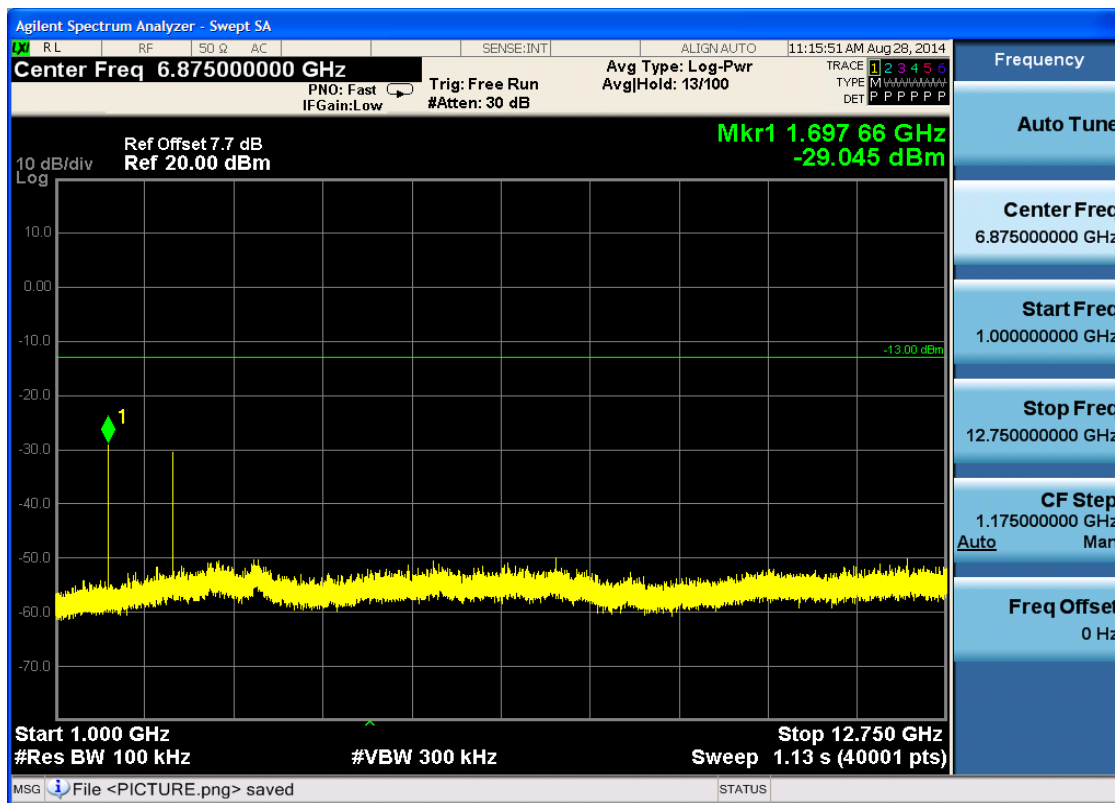


6.1.1.1.3 Test Channel = HCH



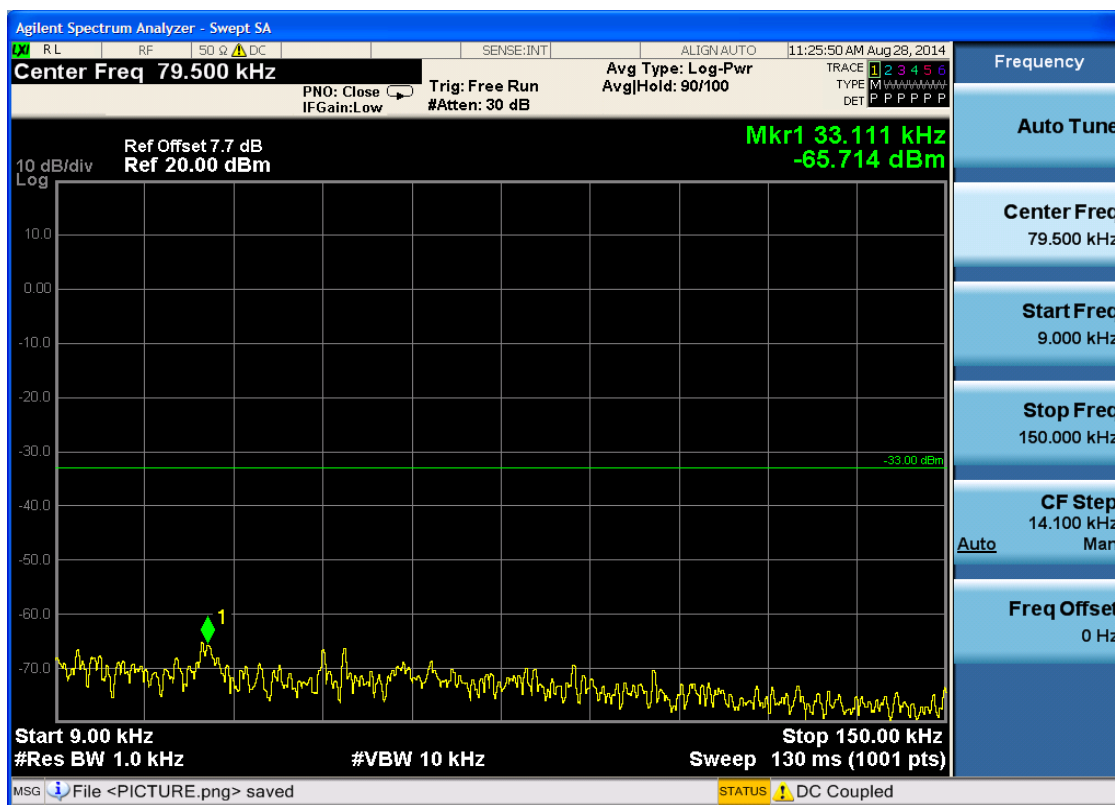


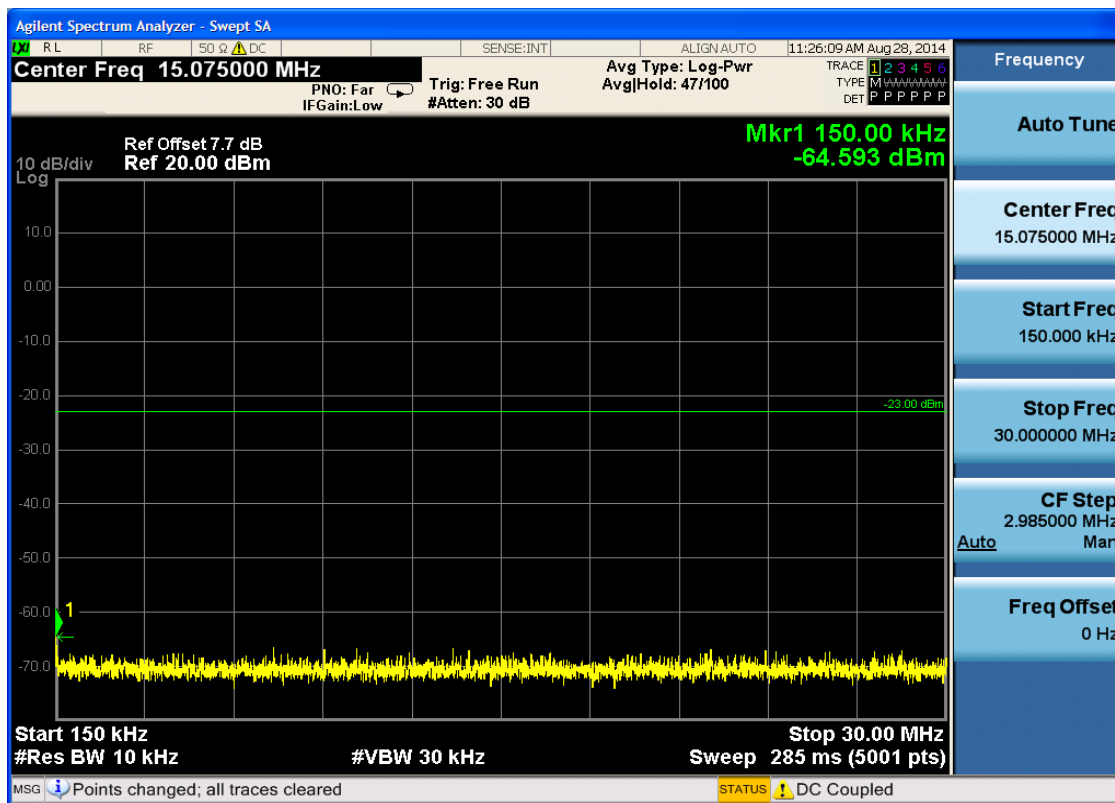


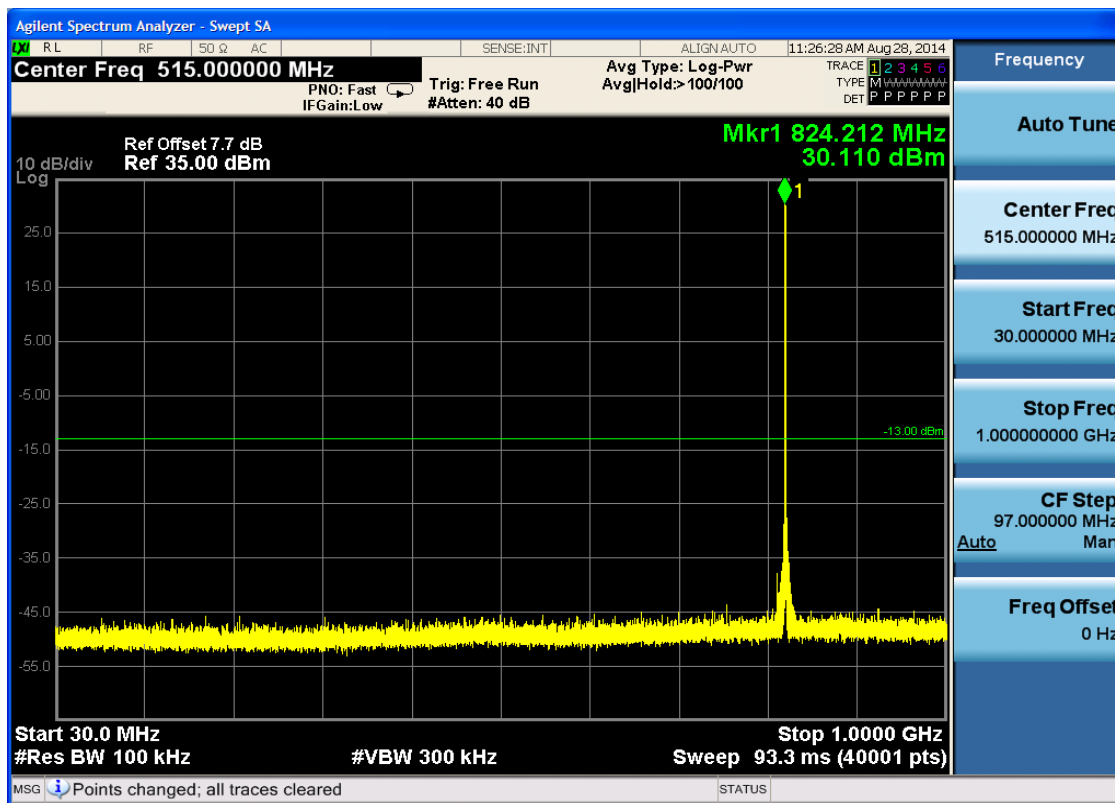


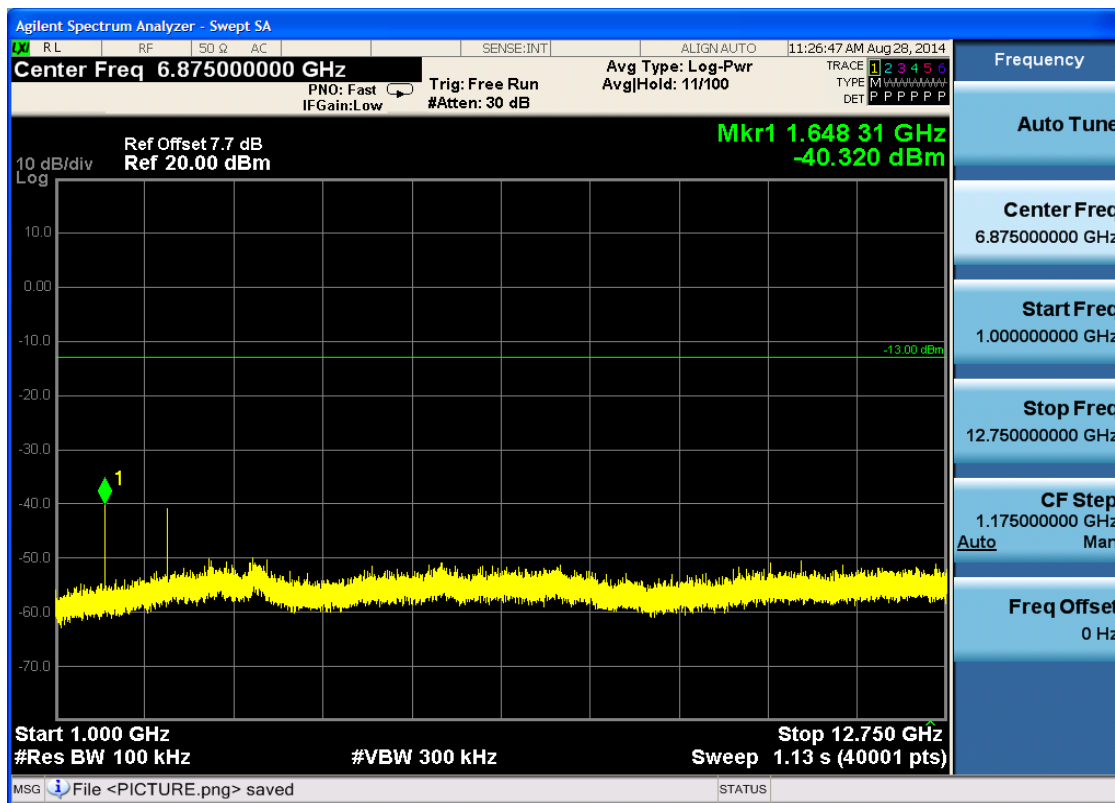
6.1.1.2 Test Mode = GSM/TM2

6.1.1.2.1 Test Channel = LCH



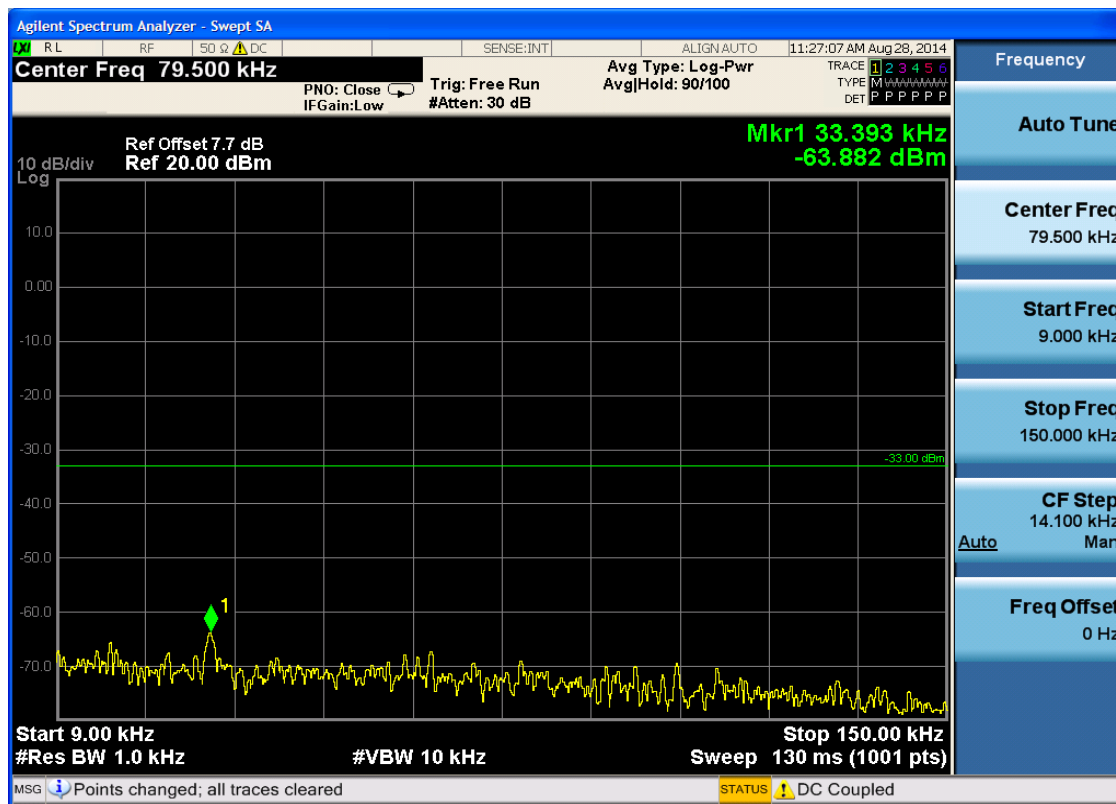


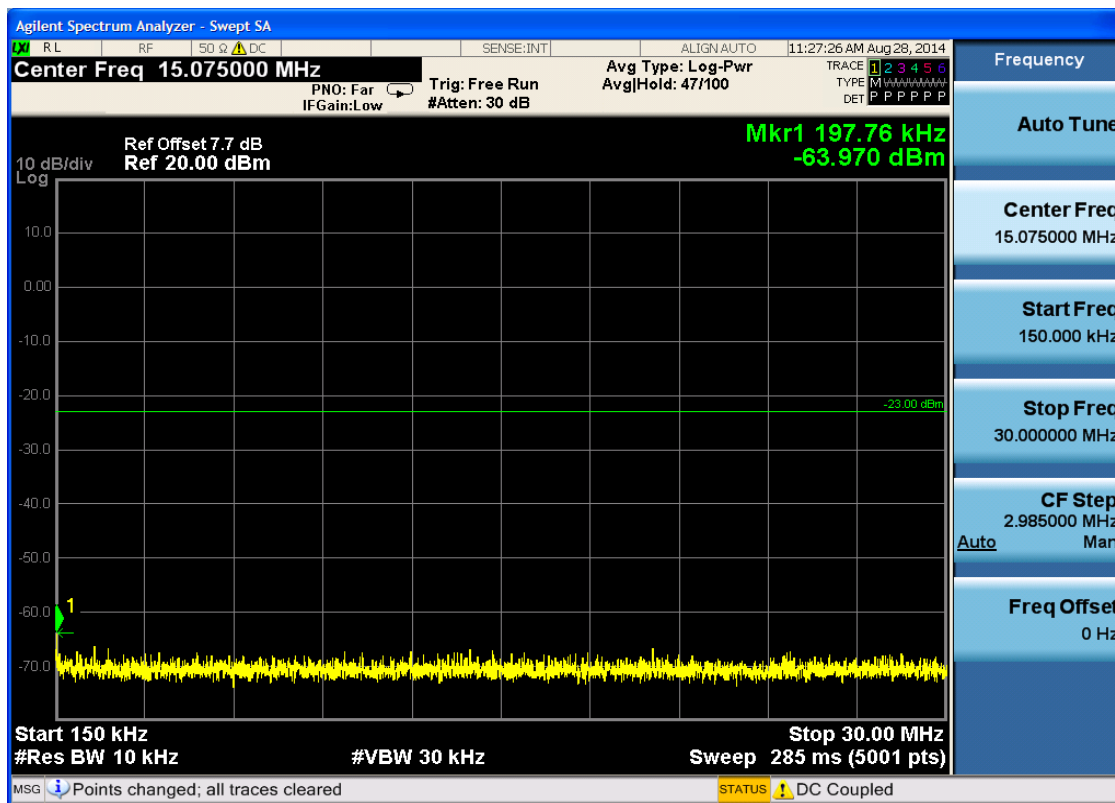


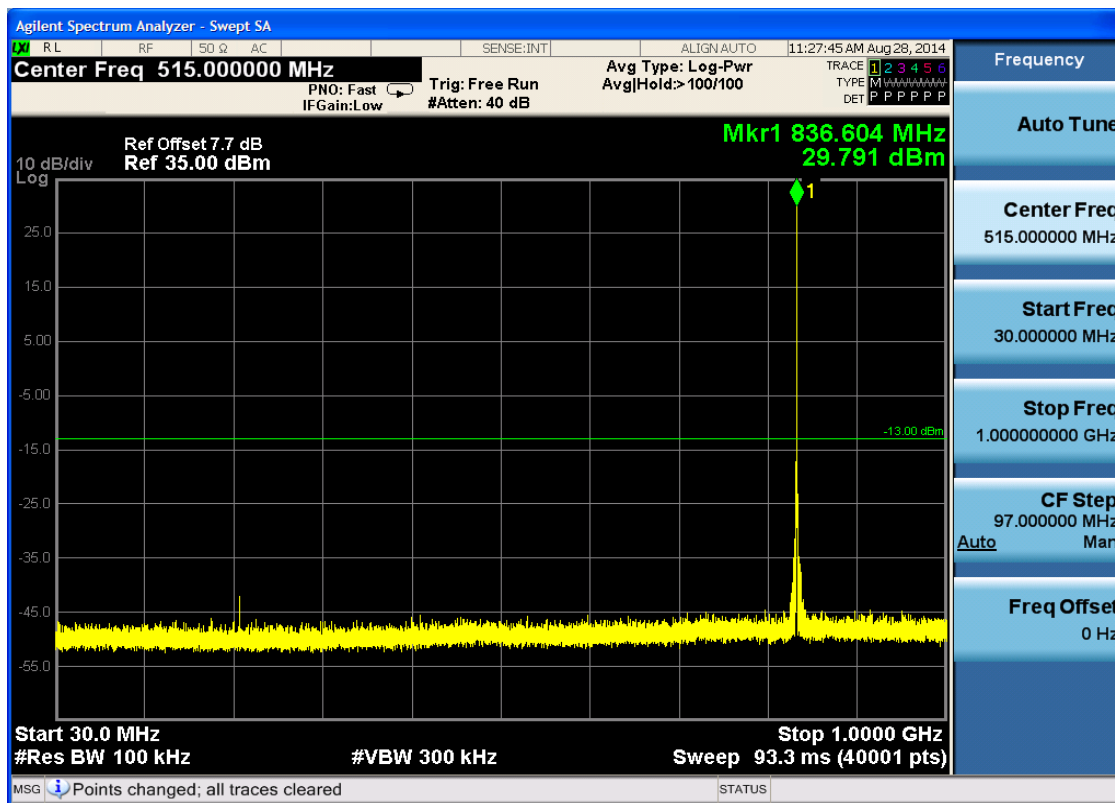


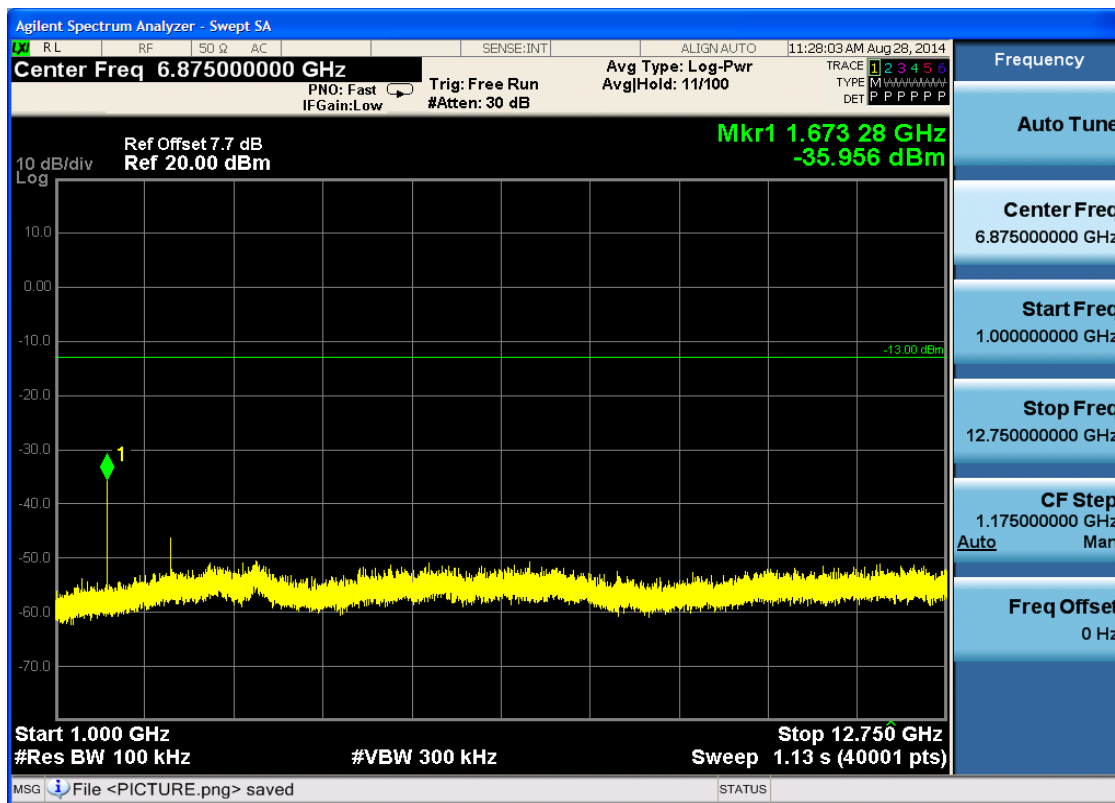


6.1.1.2.2 Test Channel = MCH

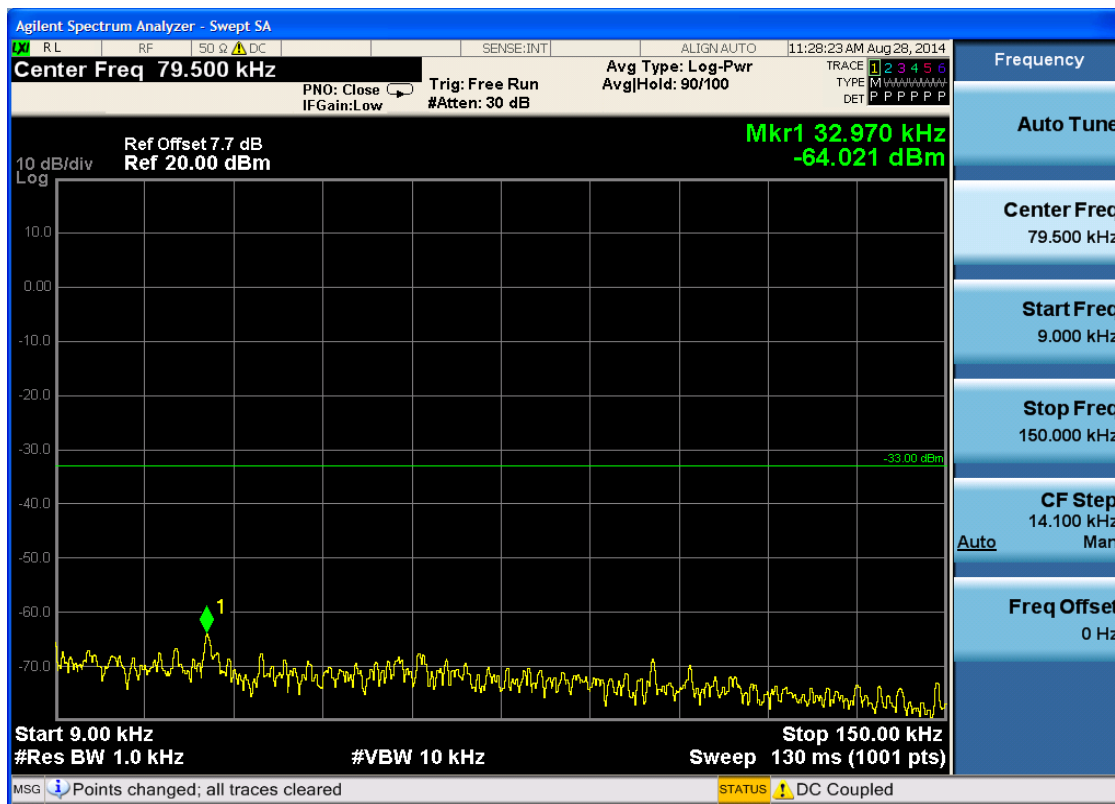


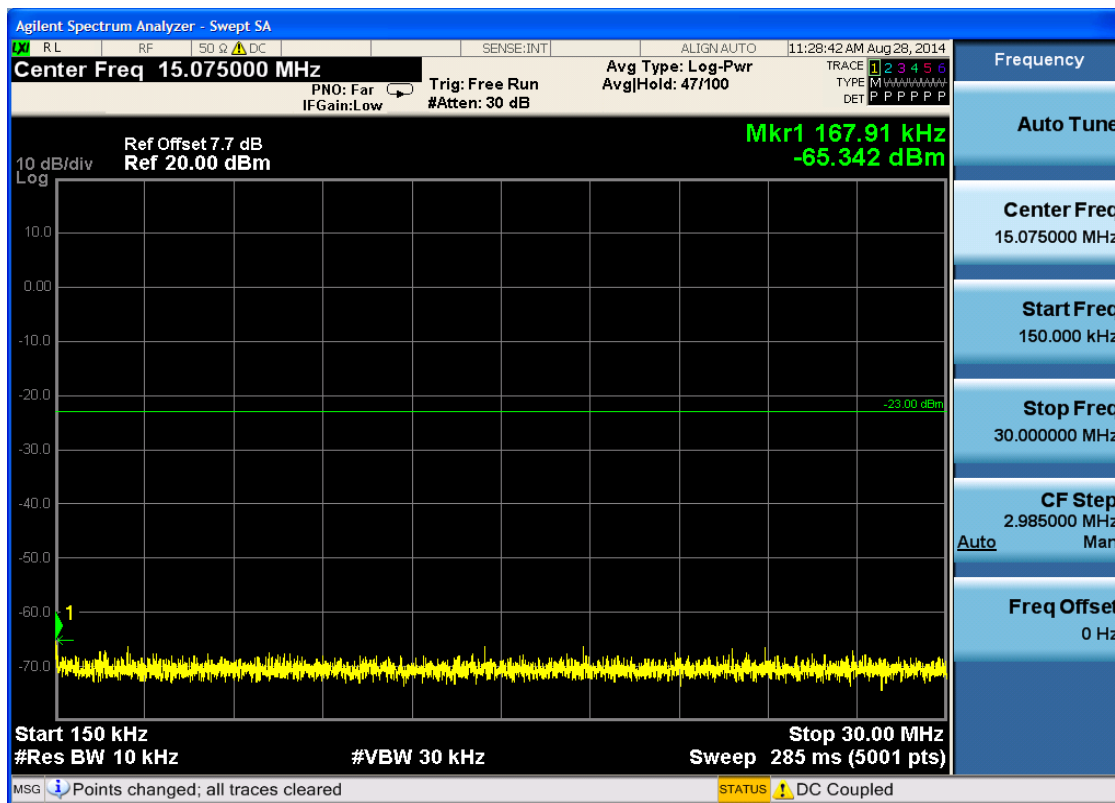


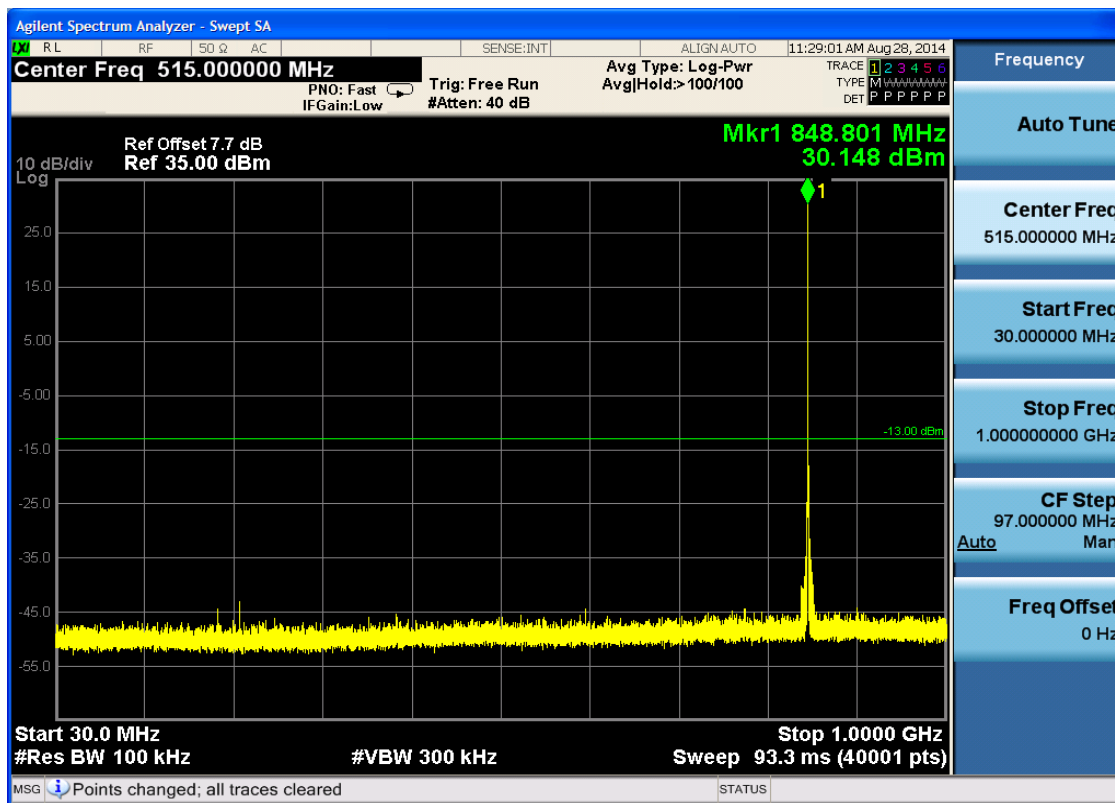


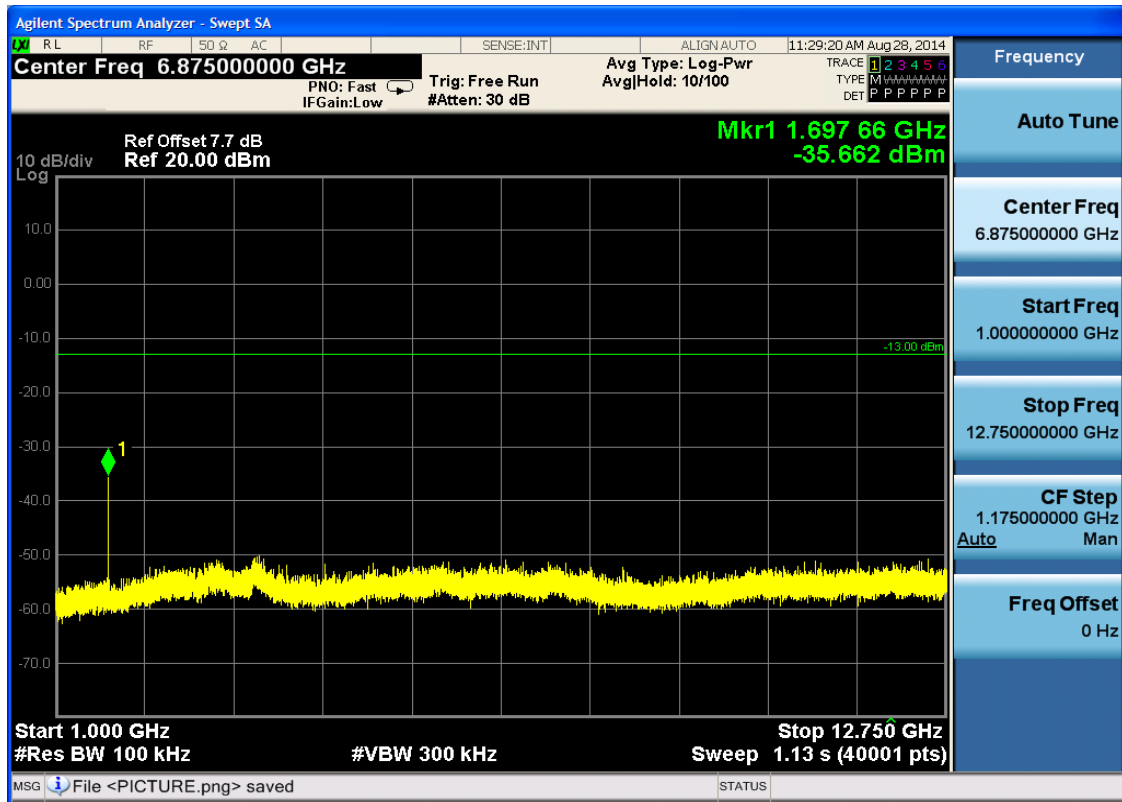


6.1.1.2.3 Test Channel = HCH







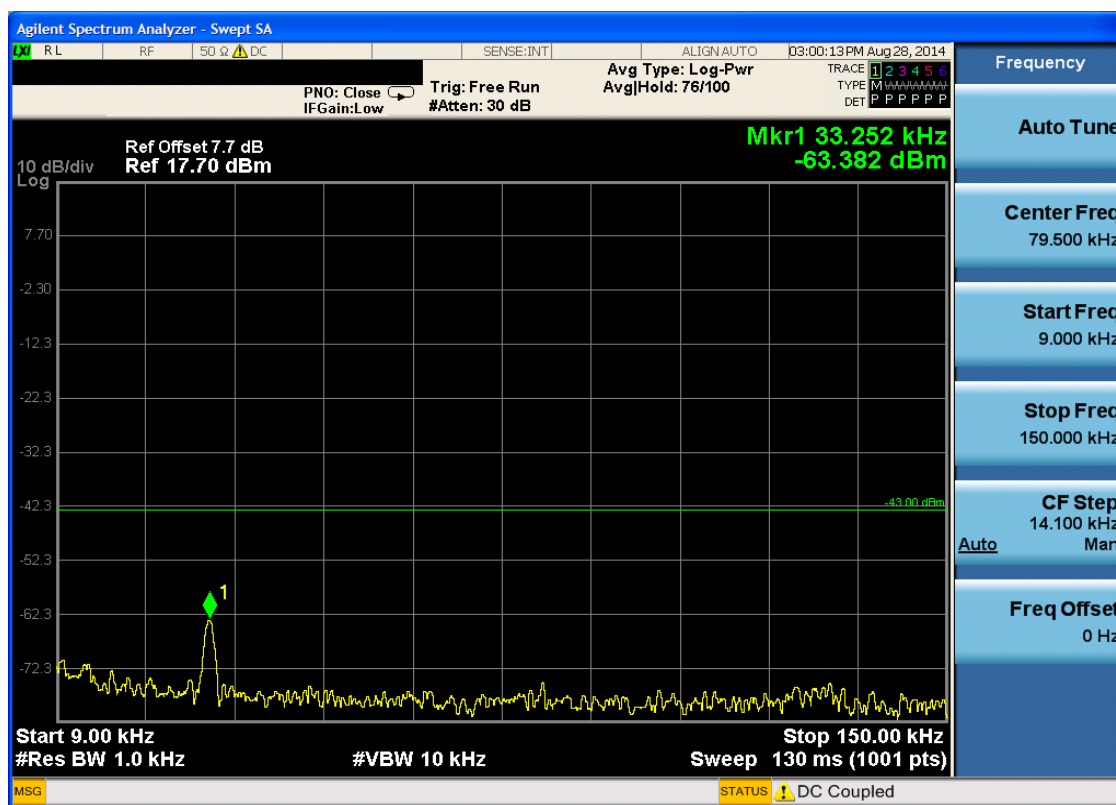


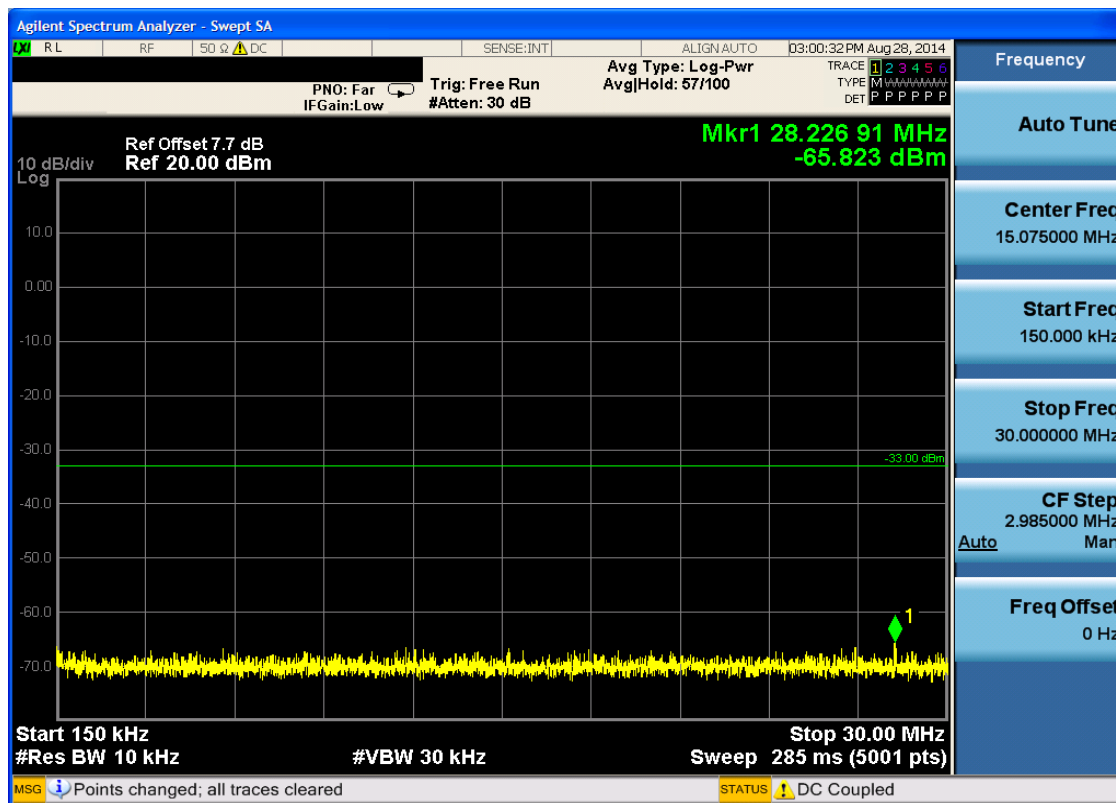


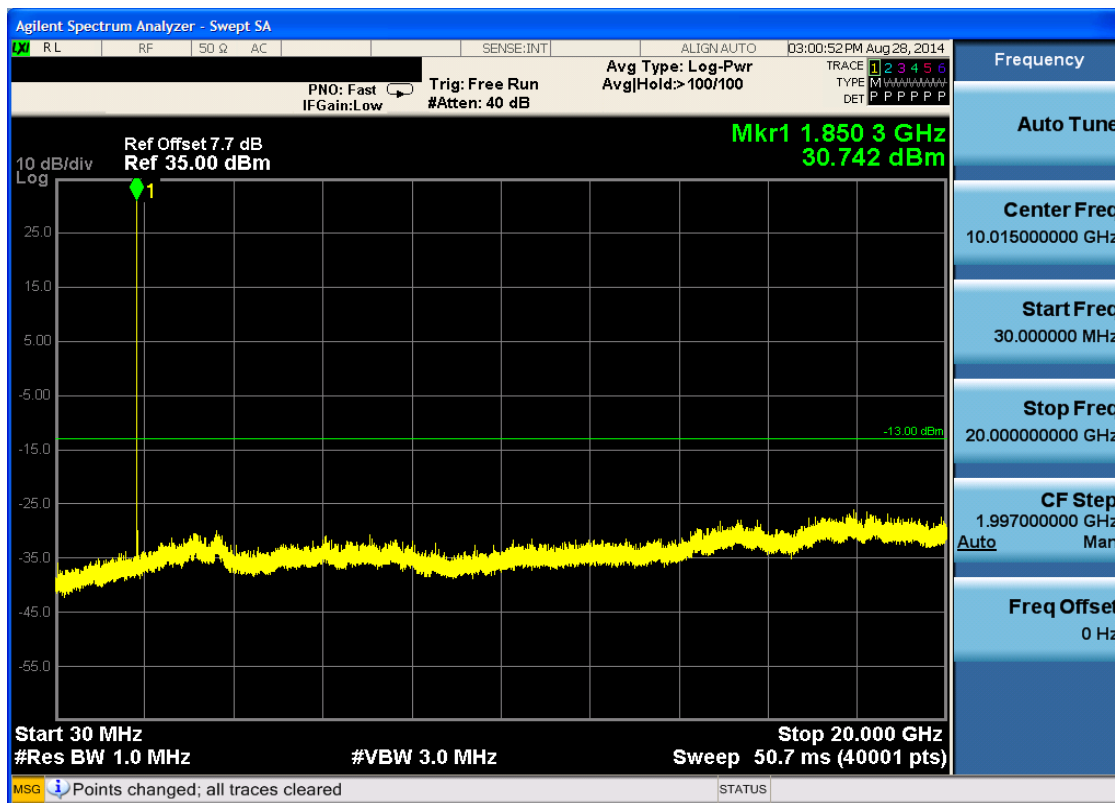
6.1.3 Test Band = GSM1900

6.1.3.1 Test Mode = GSM/TM1

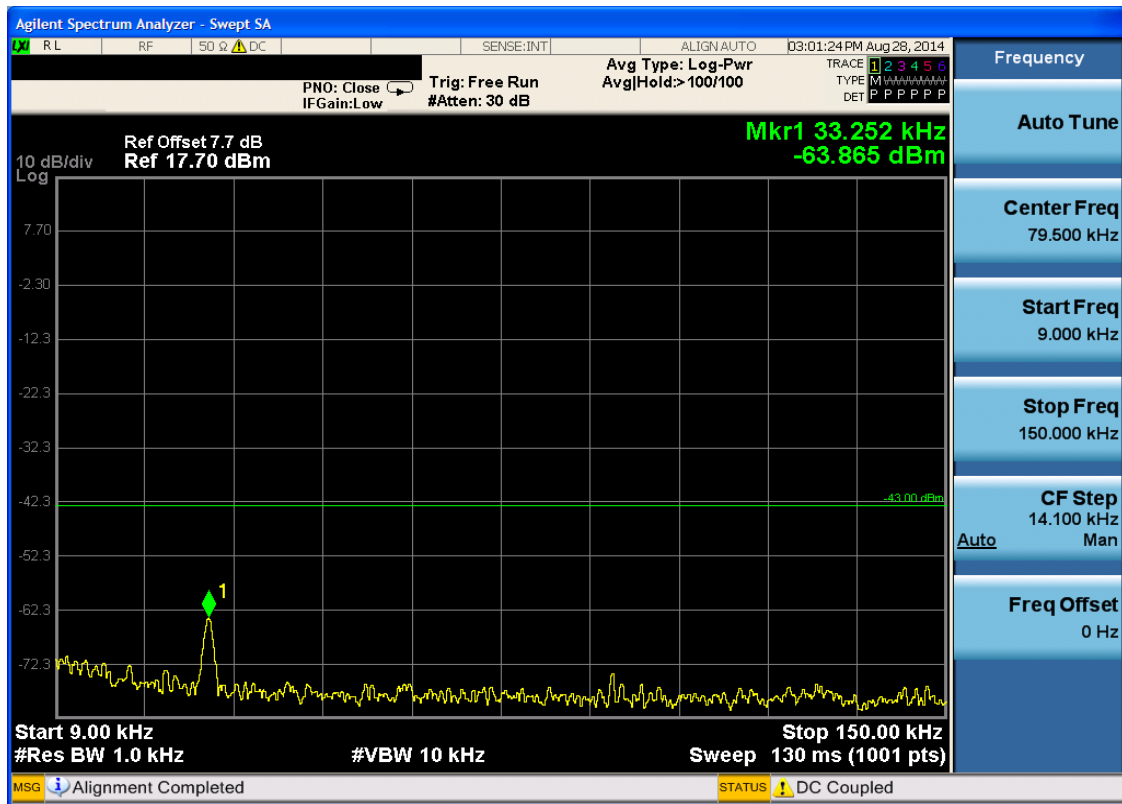
6.1.3.1.1 Test Channel = LCH

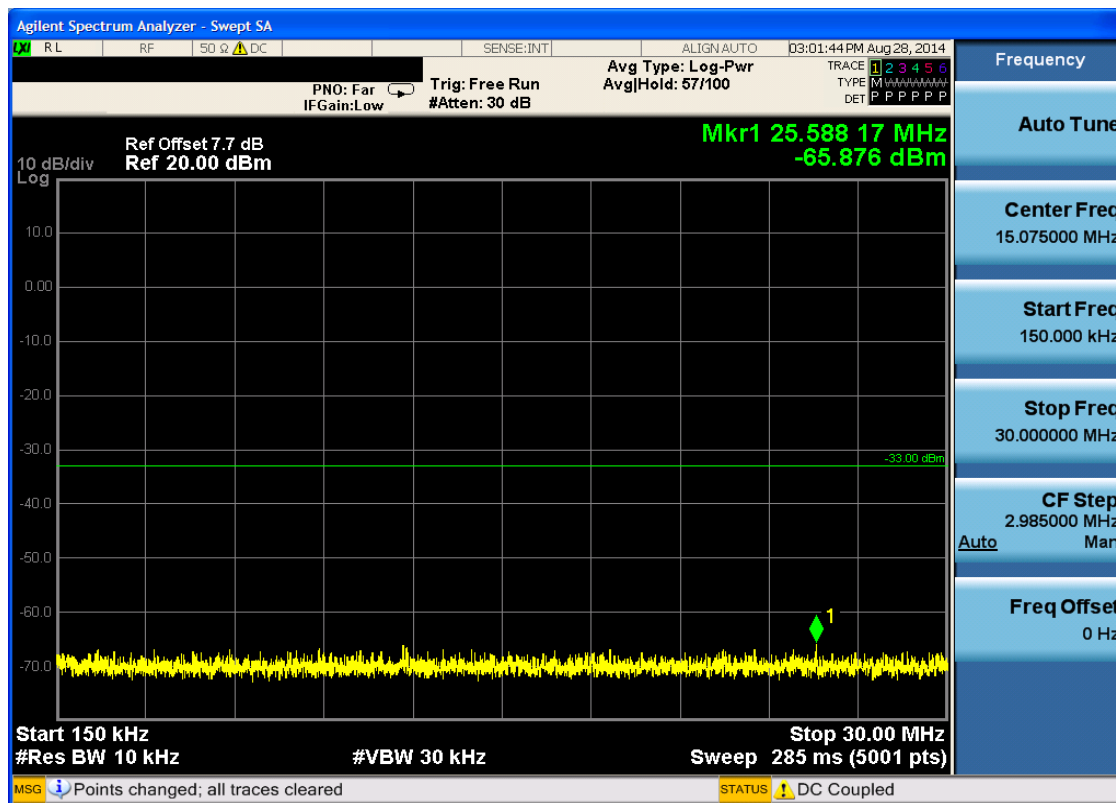


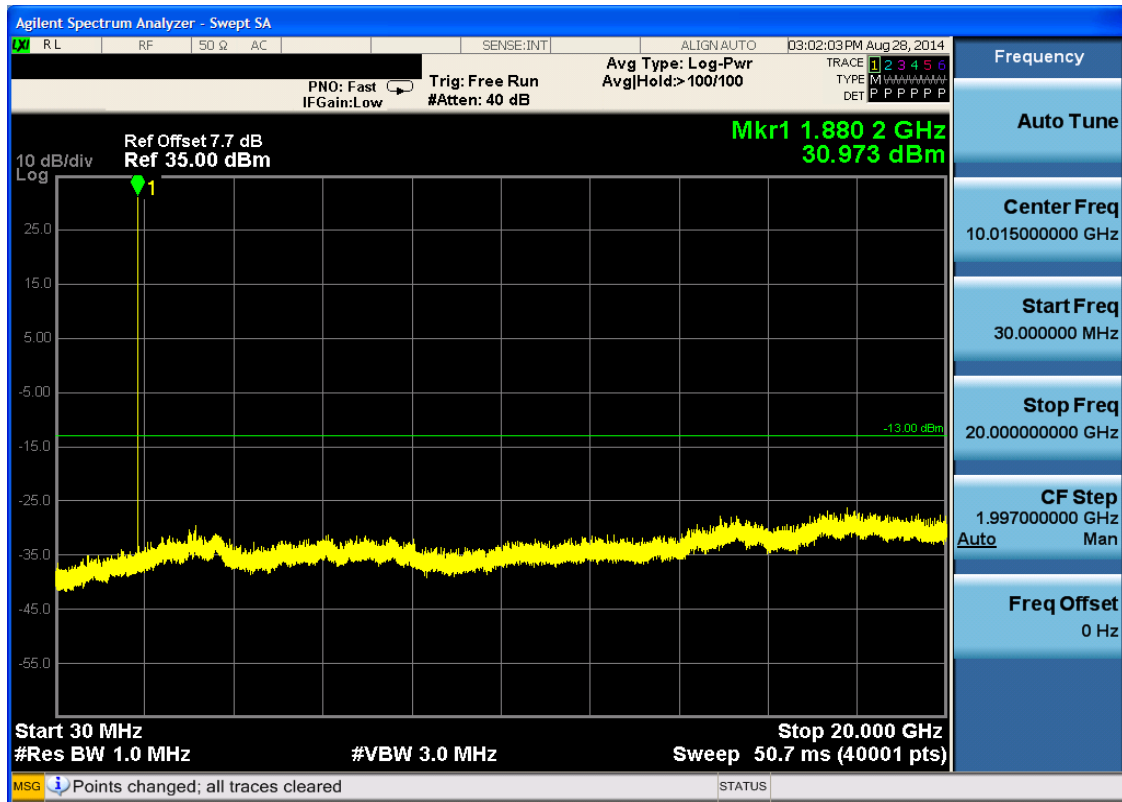




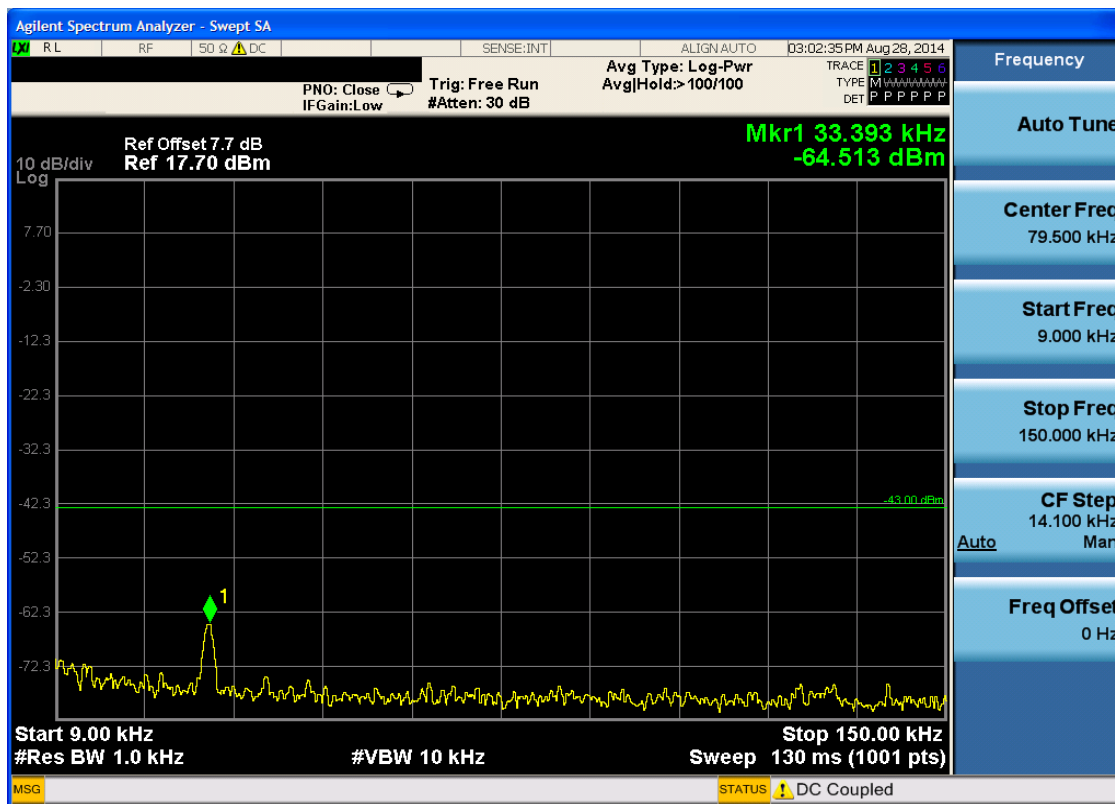
6.1.3.1.2 Test Channel = MCH

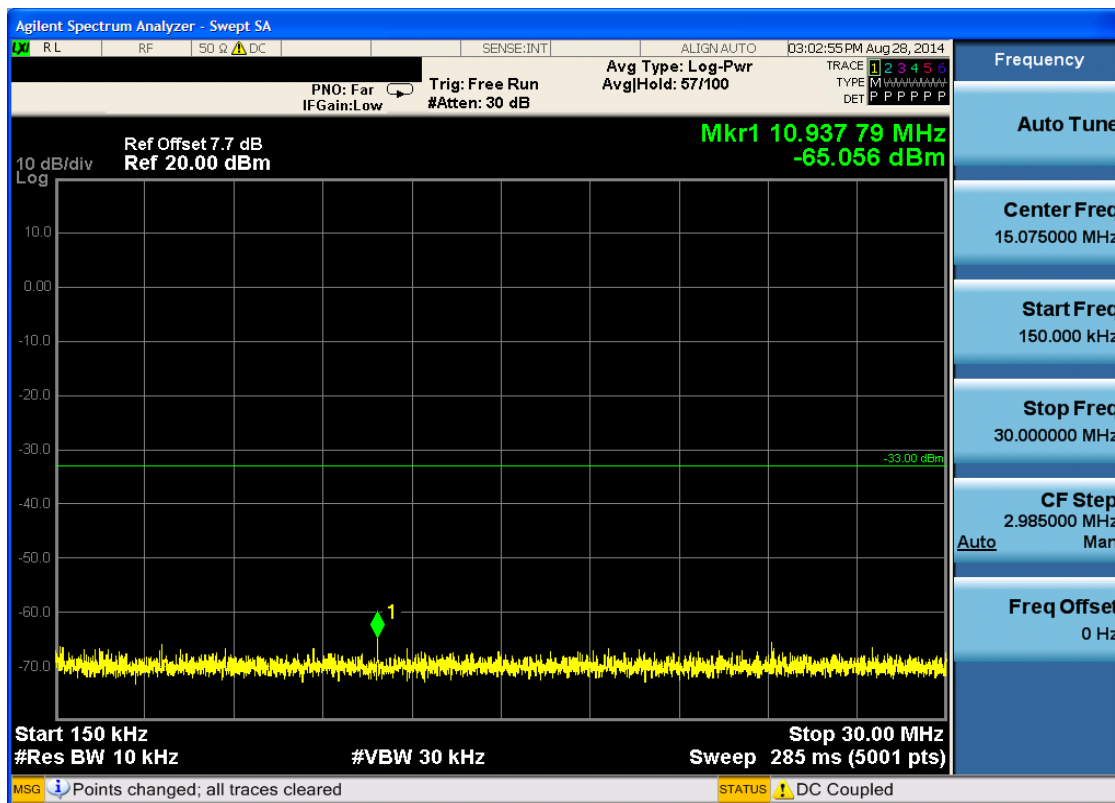


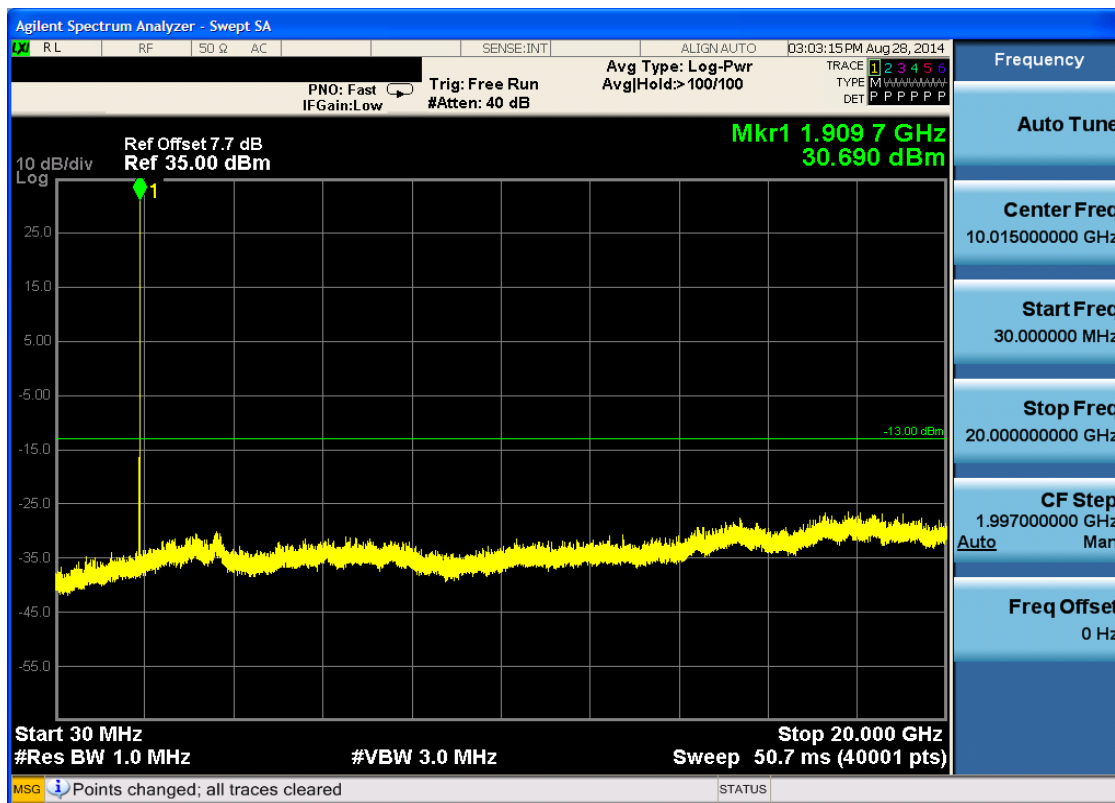




6.1.3.1.3 Test Channel = HCH



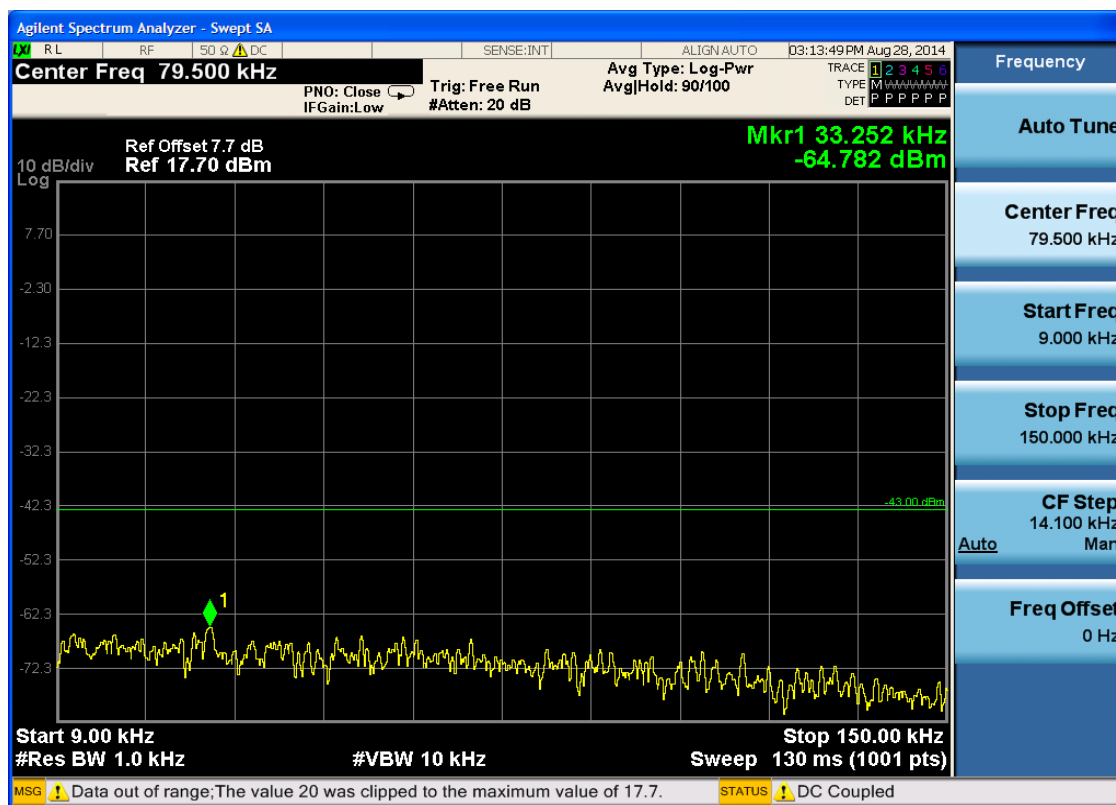


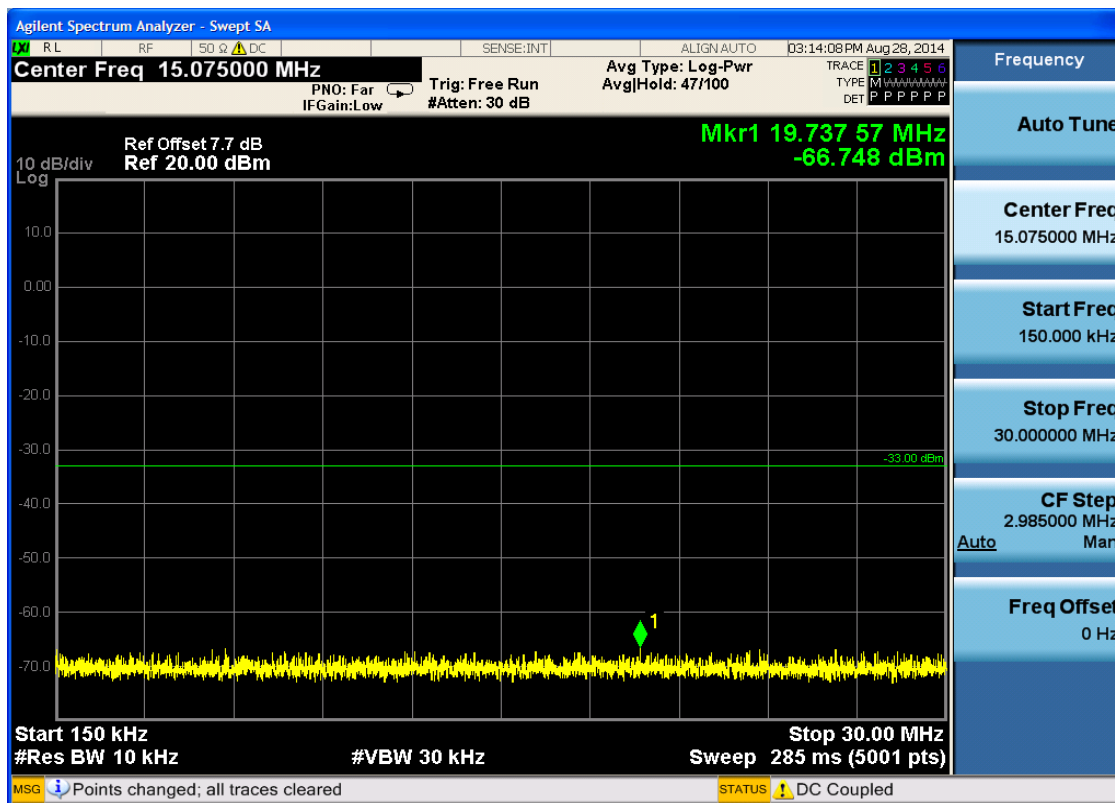




6.1.3.2 Test Mode = GSM/TM2

6.1.3.2.1 Test Channel = LCH

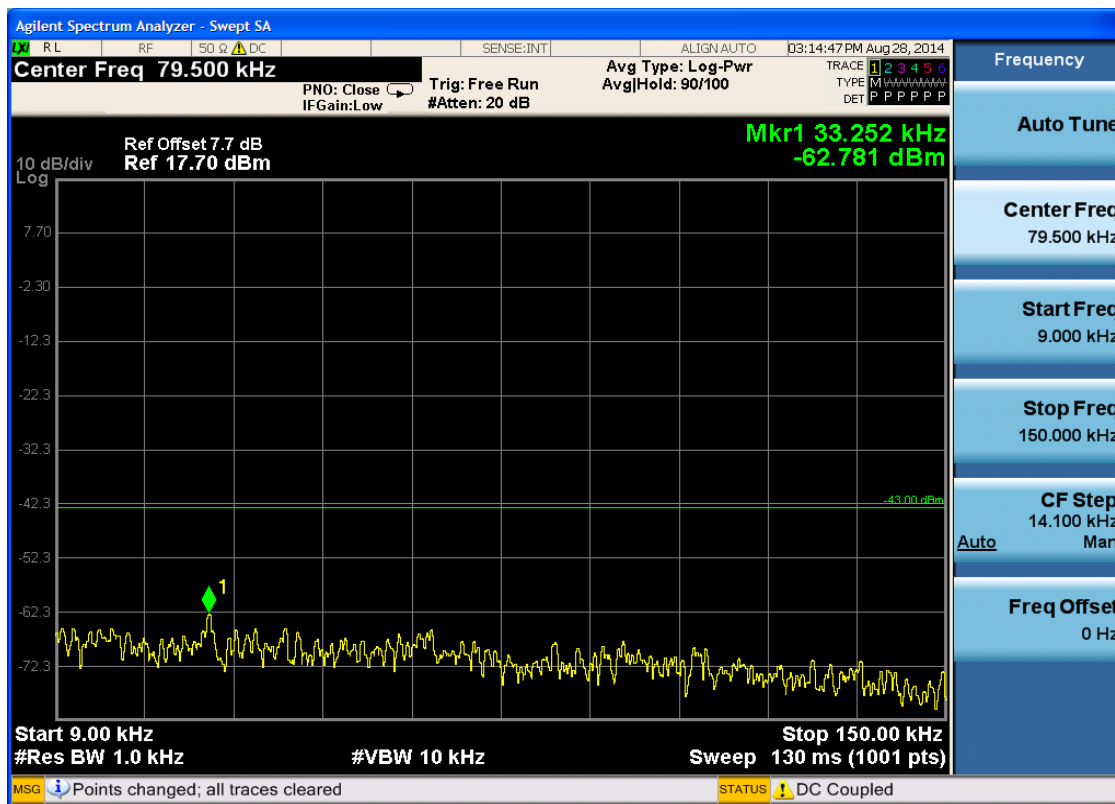


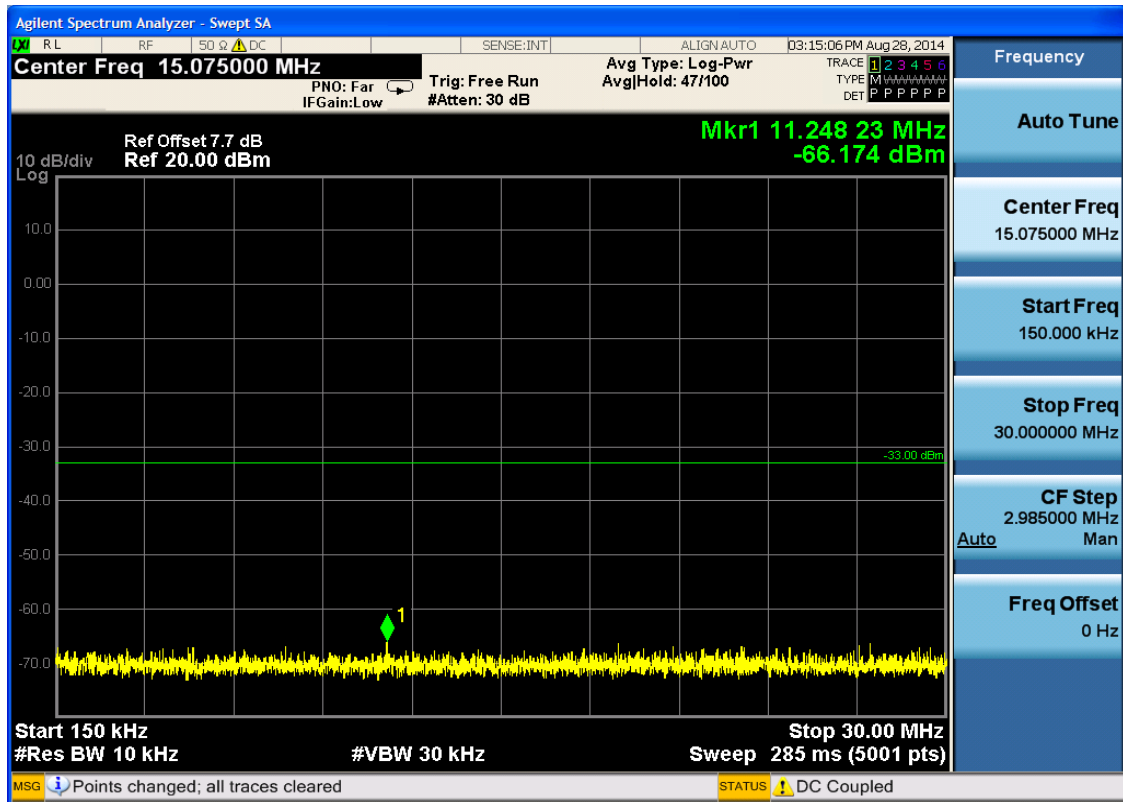


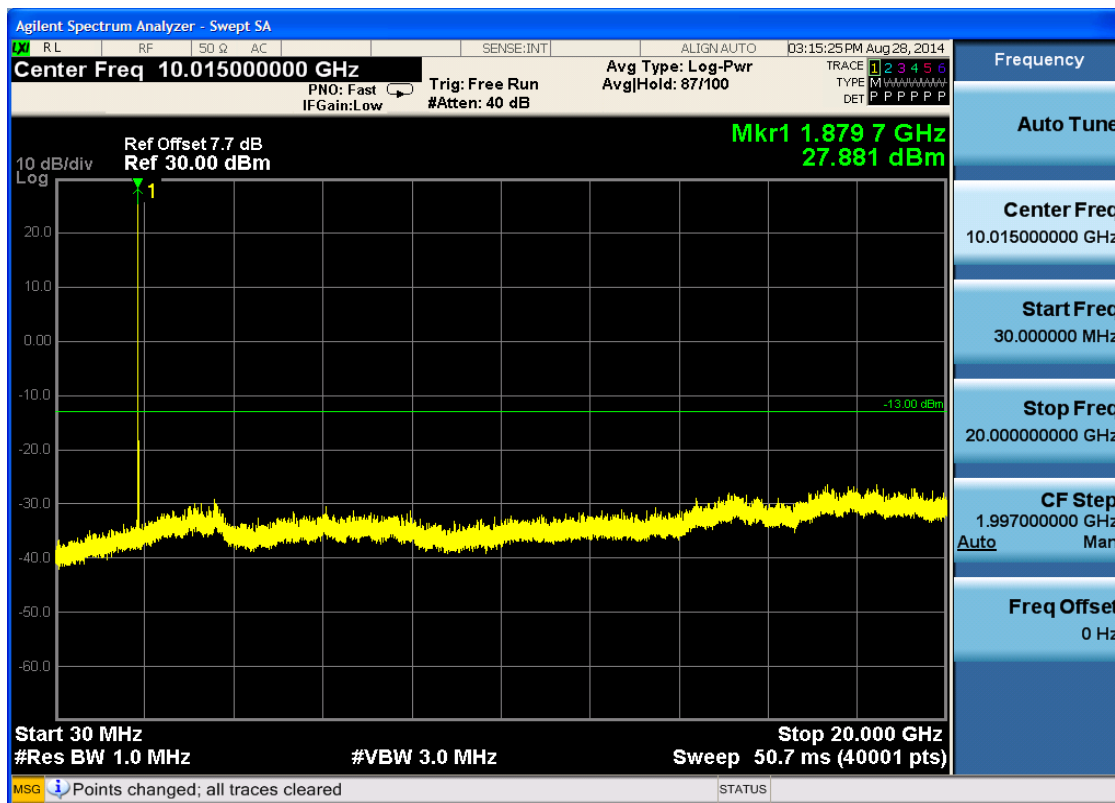




6.1.3.2.2 Test Channel = MCH









Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω DC SENSE:INT ALIGN AUTO 03:15:45 PM Aug 28, 2014

Center Freq 79.500 kHz PNO: Close Trig: Free Run Avg Type: Log-Pwr Avg|Hold: 90/100

IFGain:Low #Atten: 20 dB TRACE 1 2 3 4 5 6 TYPE M P P P P P P DET P P P P P P

Ref Offset 7.7 dB Mkr1 32.688 kHz
Ref 17.70 dB -64.321 dBm

10 dB/div Log

7.70
-2.30
-12.3
-22.3
-32.3
-42.3
-52.3
-62.3
-72.3

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

MSG Points changed; all traces cleared STATUS DC Coupled

Frequency

Auto Tune

Center Freq 79.500 kHz

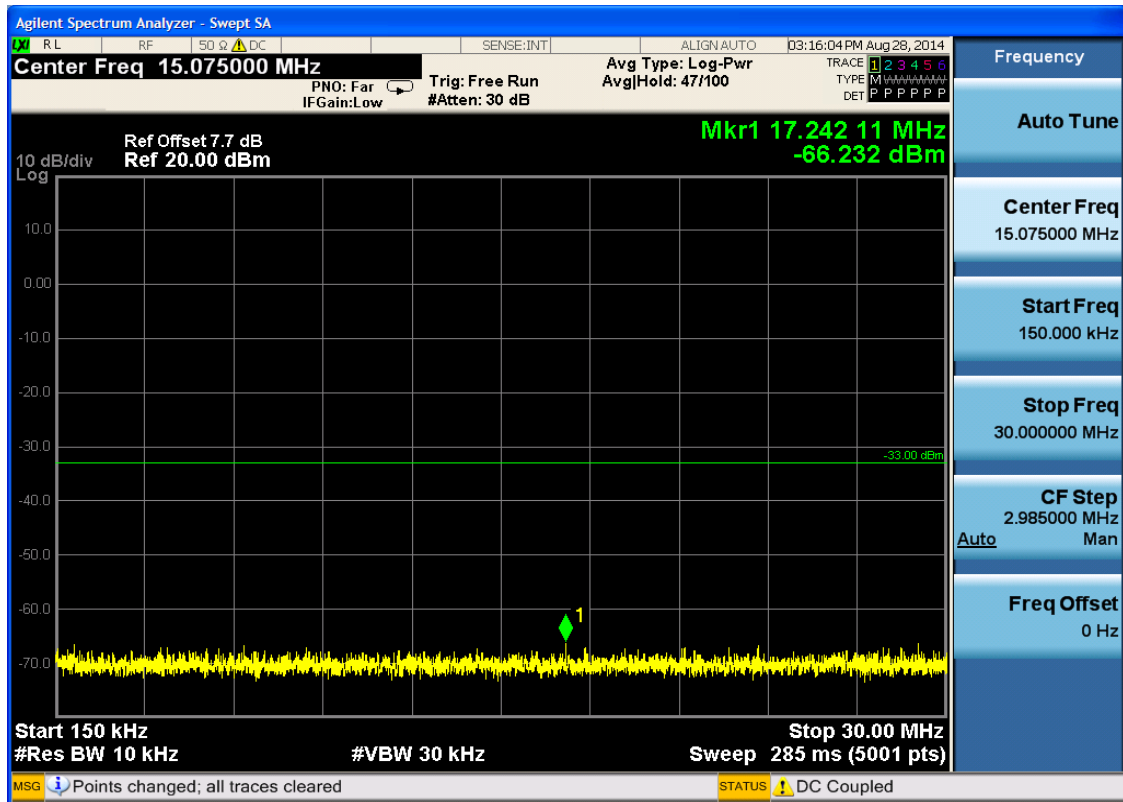
Start Freq 9.000 kHz

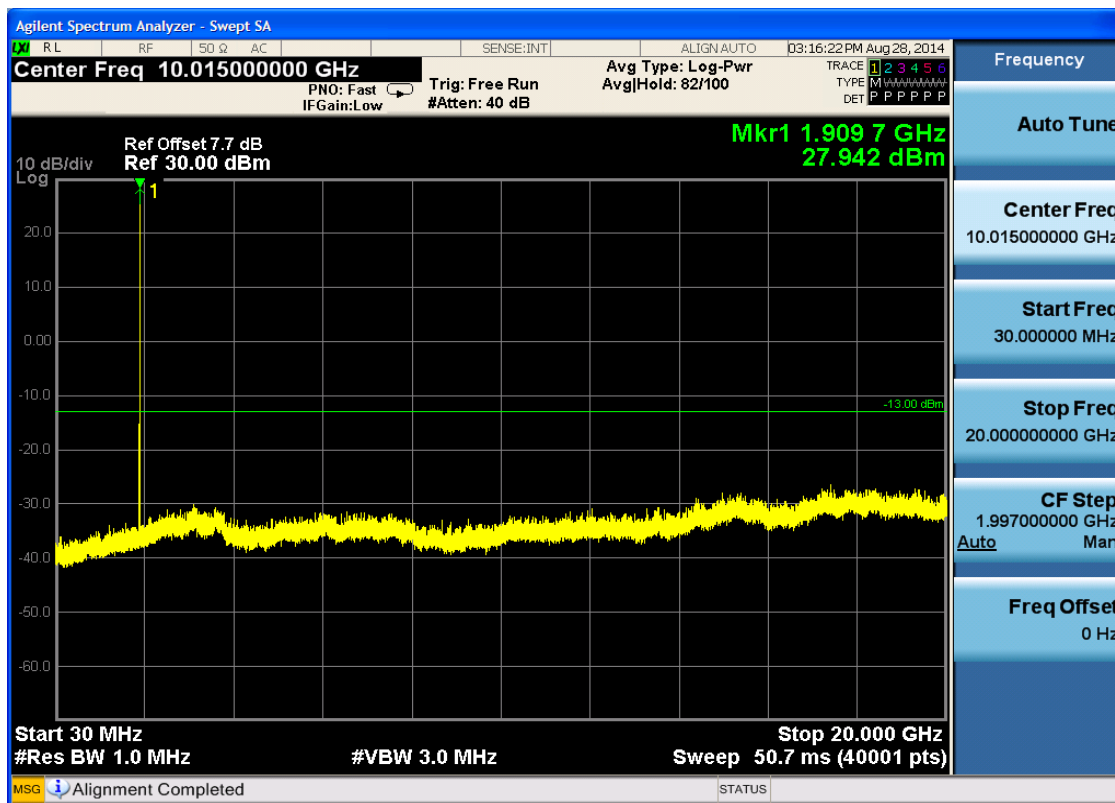
Stop Freq 150.000 kHz

CF Step 14.100 kHz

Auto

Freq Offset 0 Hz





6.2.2 Test Band = WCDMA850

6.2.2.1 Test Mode = UMTS/TM1

6.2.2.1.1 Test Channel = LCH

