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	25.97	38.5	PASS
		MCH	32. 11	25.96	38.5	PASS
		HCH	32. 3	26.15	38.5	PASS
	GSM/TM2	LCH	26. 55	20.4	38.5	PASS
		MCH	26. 54	20.39	38.5	PASS
		HCH	26. 53	20.38	38.5	PASS

Test Band	Test Mode	Test Channel	Conducted Power [dBm]	EIRP [dBm]	Limit [dBm]	Verdict
GSM1900	GSM/TM1	LCH	29. 68	26.18	33	PASS
		MCH	29. 55	26.05	33	PASS
		HCH	29. 71	26.21	33	PASS
	GSM/TM2	LCH	25. 52	22.02	33	PASS
		MCH	25. 58	22.08	33	PASS

Test Band	Test Mode	Test Channel	Conducted Power [dBm]	EIRP [dBm]	Limit [dBm]	Verdict
		HCH	25.54	22.04	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,

ERP [dBm] = SGP [dBm] - Cable Loss [dB] + Gain [dBd]

EIRP [dBm] = SGP [dBm] - Cable Loss [dB] + 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	0.21	13	PASS
		MCH	0.2	13	PASS
		HCH	0.2	13	PASS
	GSM/TM2	LCH	3.17	13	PASS
		MCH	3.14	13	PASS
		HCH	3.18	13	PASS

3Appendix_C: Modulation Characteristics

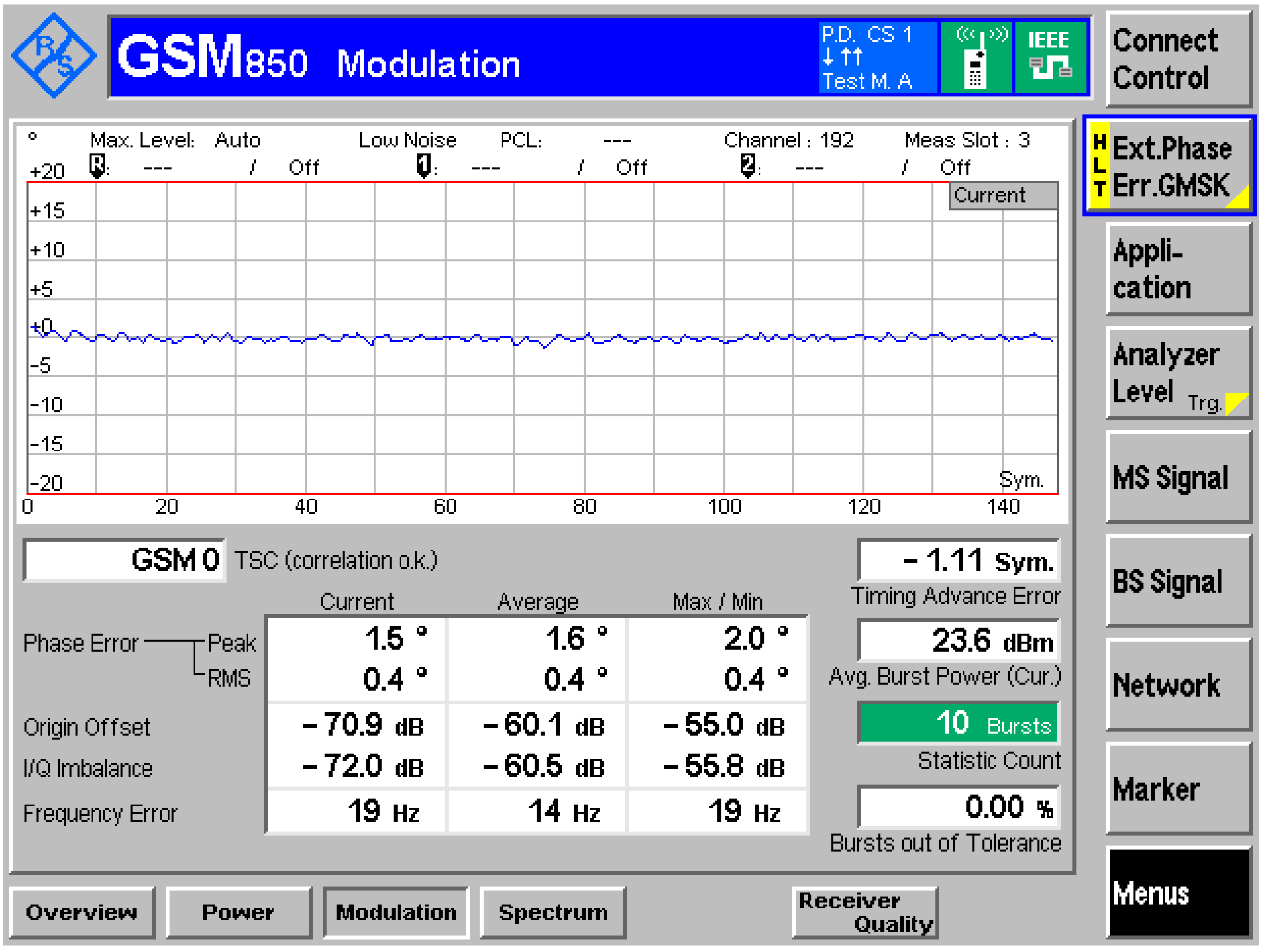
Part I - Test Plots

3.1 For GSM

3.1.1 Test Band = GSM850

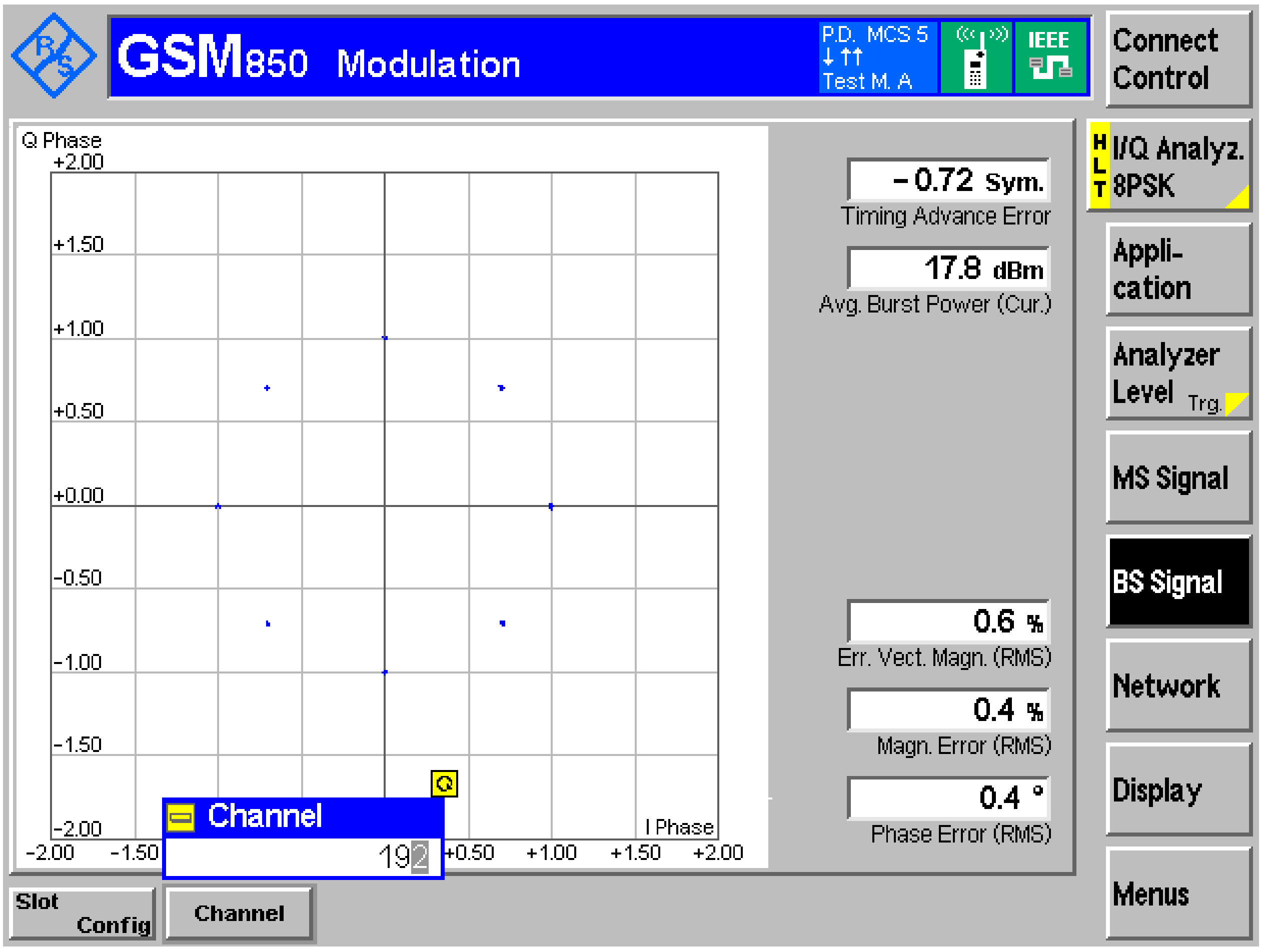
3.1.1.1 Test Mode = GSM/TM1

3.1.1.1.1 Test Channel = MCH



3.1.1.2 Test Mode = GSM/TM2

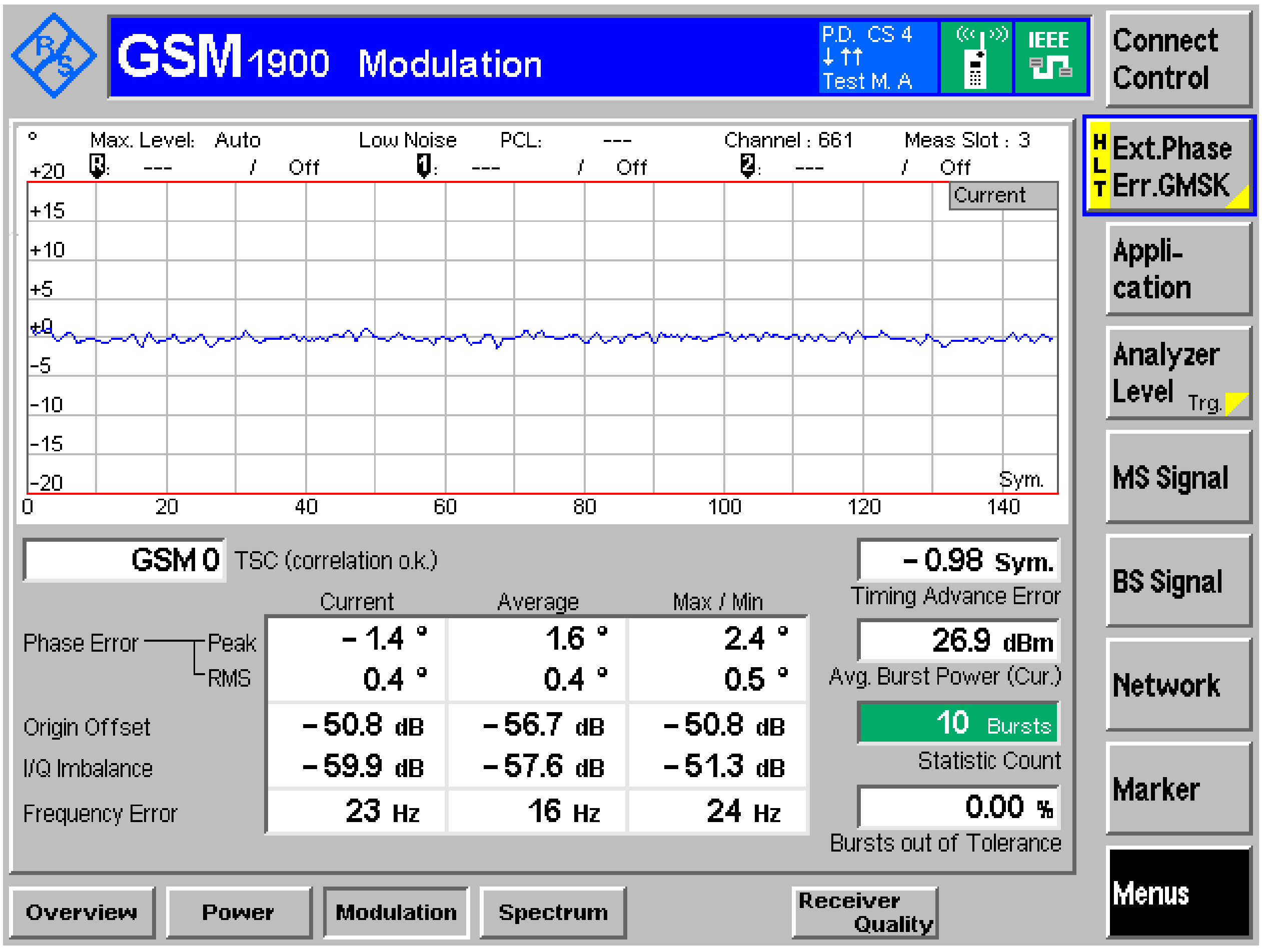
3.1.1.2.1 Test Channel = MCH



3.1.2 Test Band = GSM1900

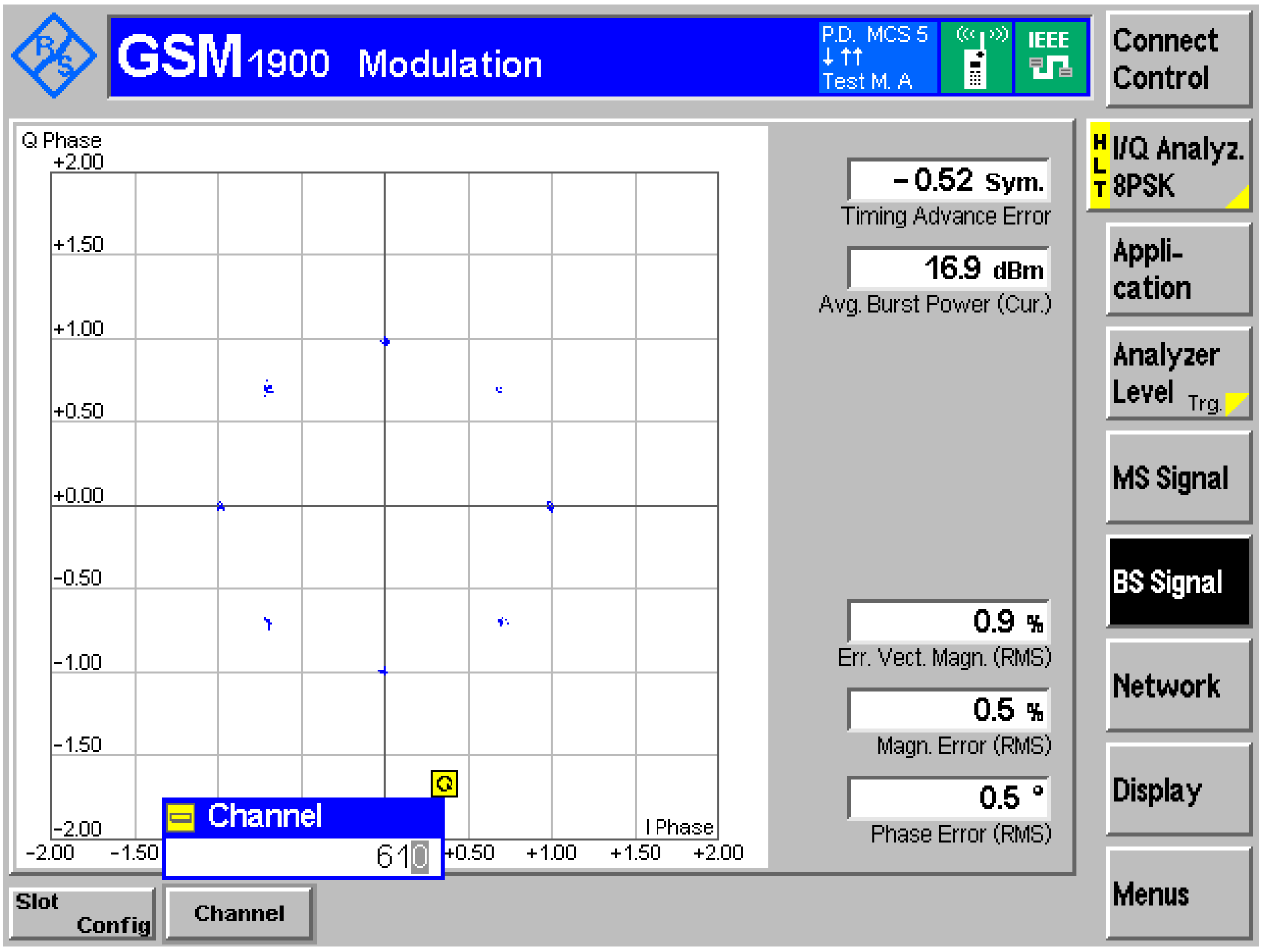
3.1.2.1 Test Mode = GSM/TM1

3.1.2.1.1 Test Channel = MCH



3.1.2.2 Test Mode = GSM/TM2

3.1.2.2.1 Test Channel = MCH



4Appendix_D: Bandwidth

Part I - Test Results

Test Band	Test Mode	Test Channel	Occupied Bandwidth [kHz]	Emission Bandwidth [kHz]	Verdict
GSM850	GSM/TM1	LCH	244.68	311.28	Pass
		MCH	243.90	312.47	Pass
		HCH	244.05	310.64	Pass
	GSM/TM2	LCH	244.00	321.58	Pass
		MCH	245.99	307.14	Pass
		HCH	234.07	299.23	Pass
GSM1900	GSM/TM1	LCH	244.59	320.60	Pass
		MCH	245.40	313.86	Pass
		HCH	247.42	312.99	Pass
	GSM/TM2	LCH	244.13	306.15	Pass
		MCH	242.32	305.61	Pass
		HCH	243.00	307.40	Pass

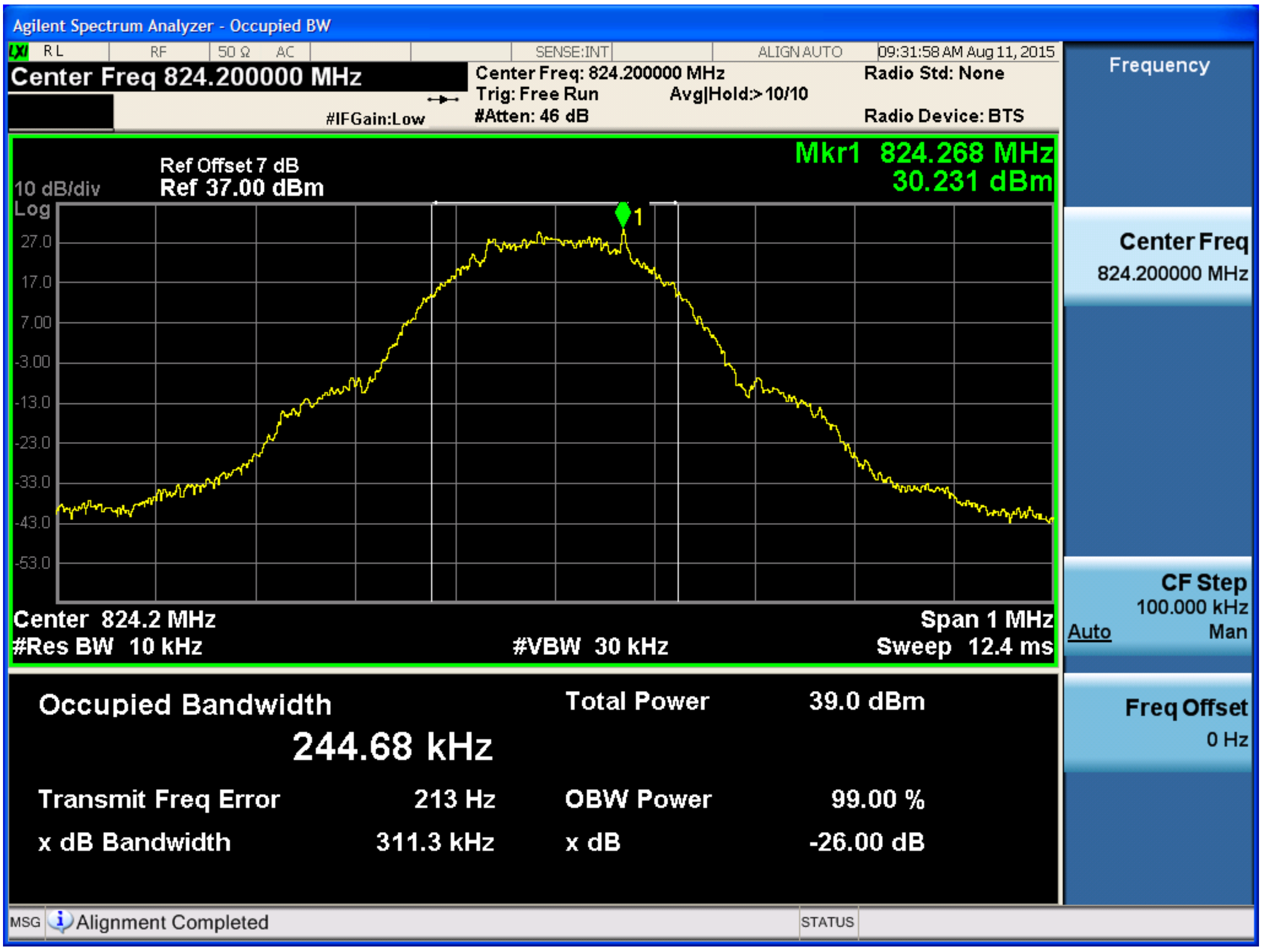
Part II - Test Plots

4.1 For GSM

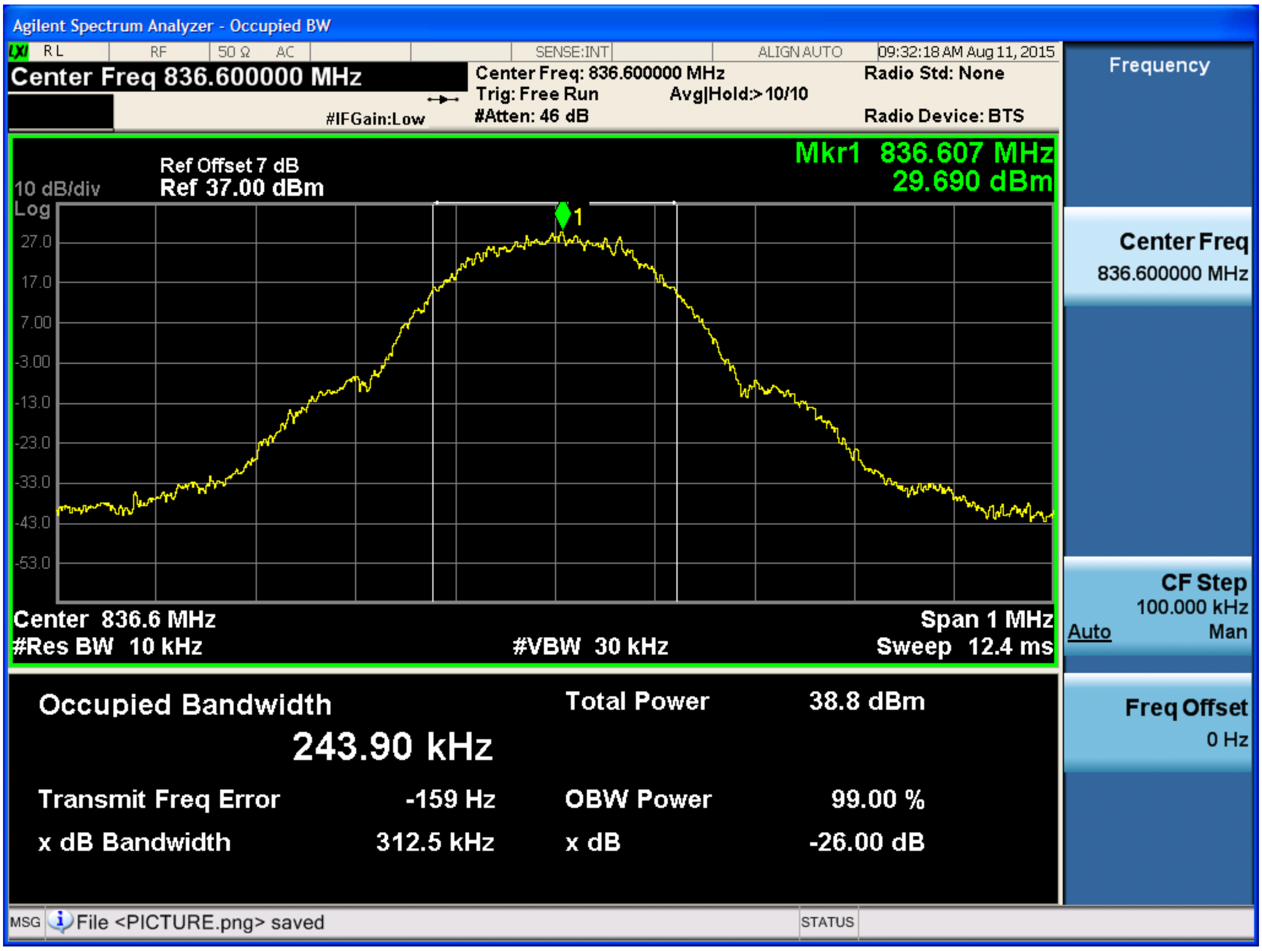
4.1.1 Test Band = GSM850

4.1.1.1 Test Mode = GSM/TM1

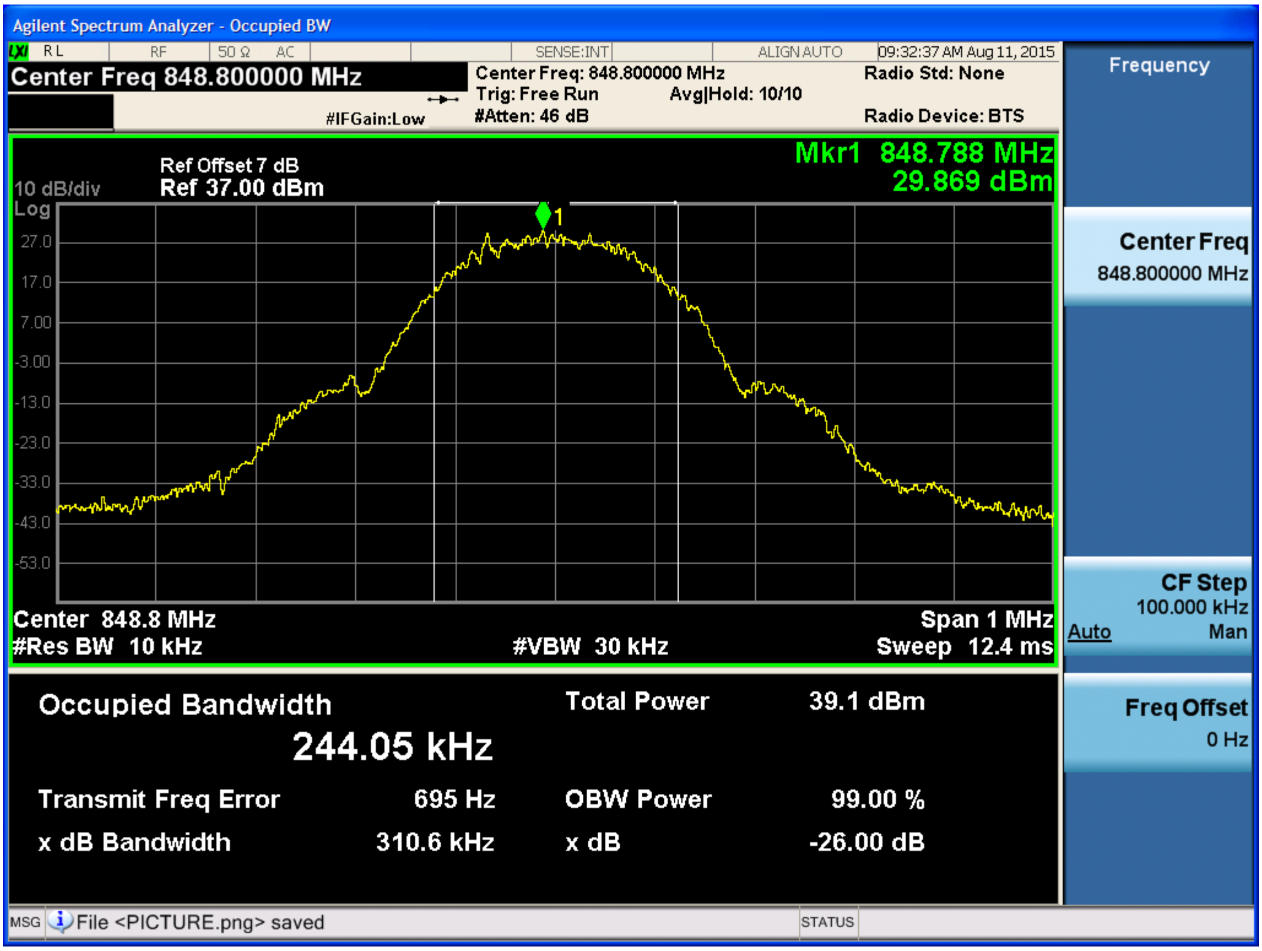
4.1.1.1.1 Test Channel = LCH



4.1.1.1.2 Test Channel = MCH

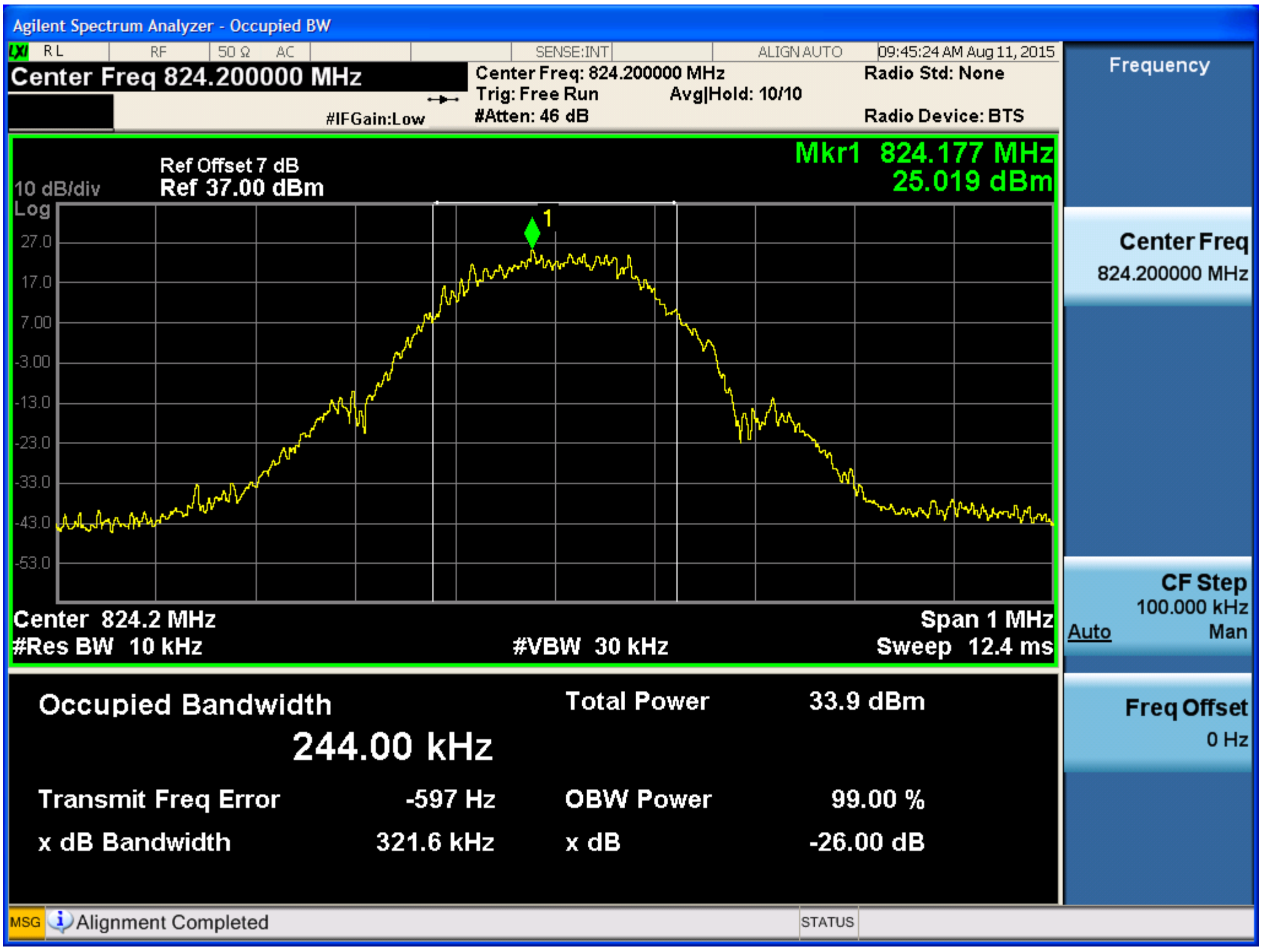


4.1.1.1.3 Test Channel = HCH

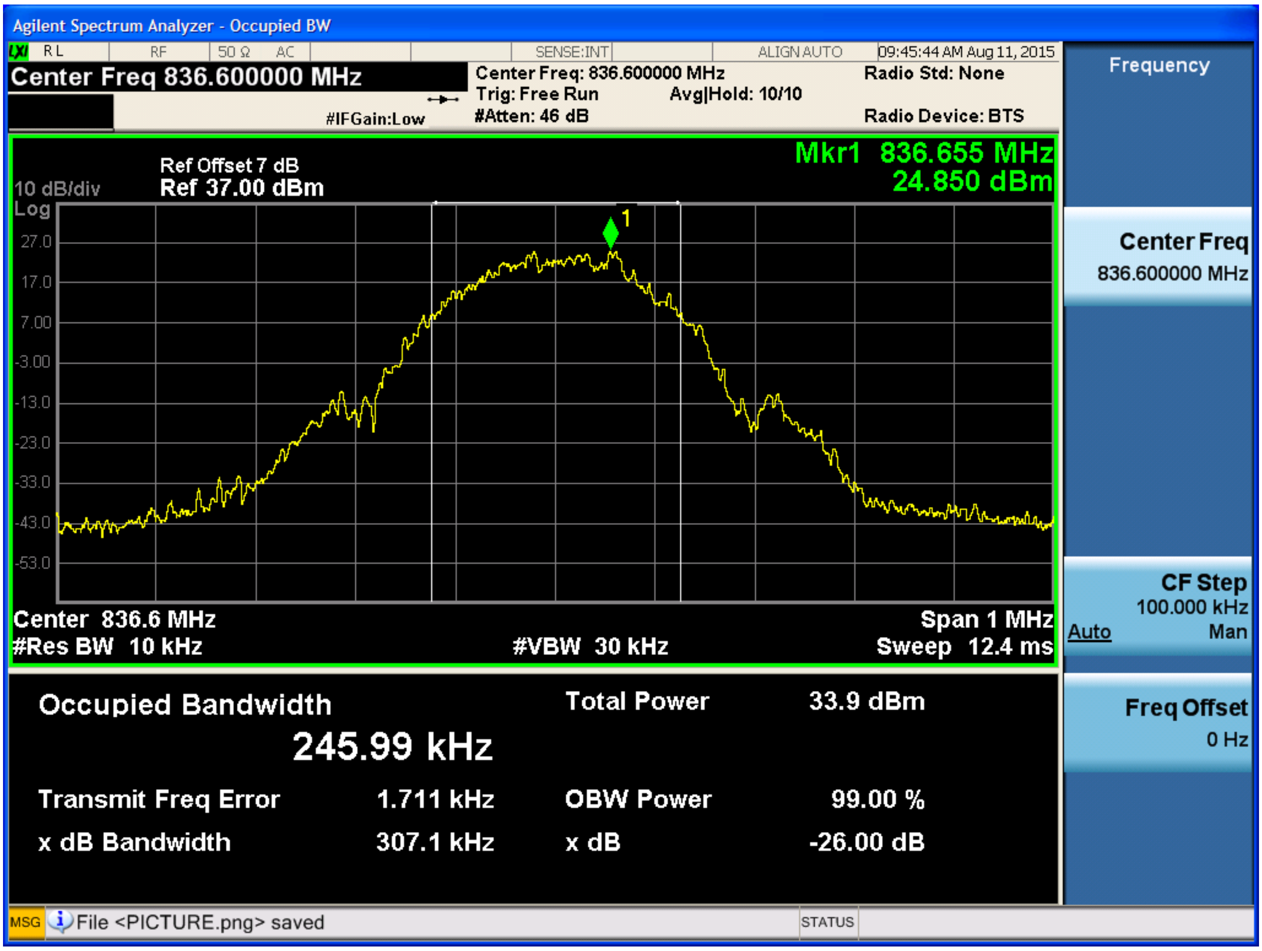


4.1.1.2 Test Mode = GSM/TM2

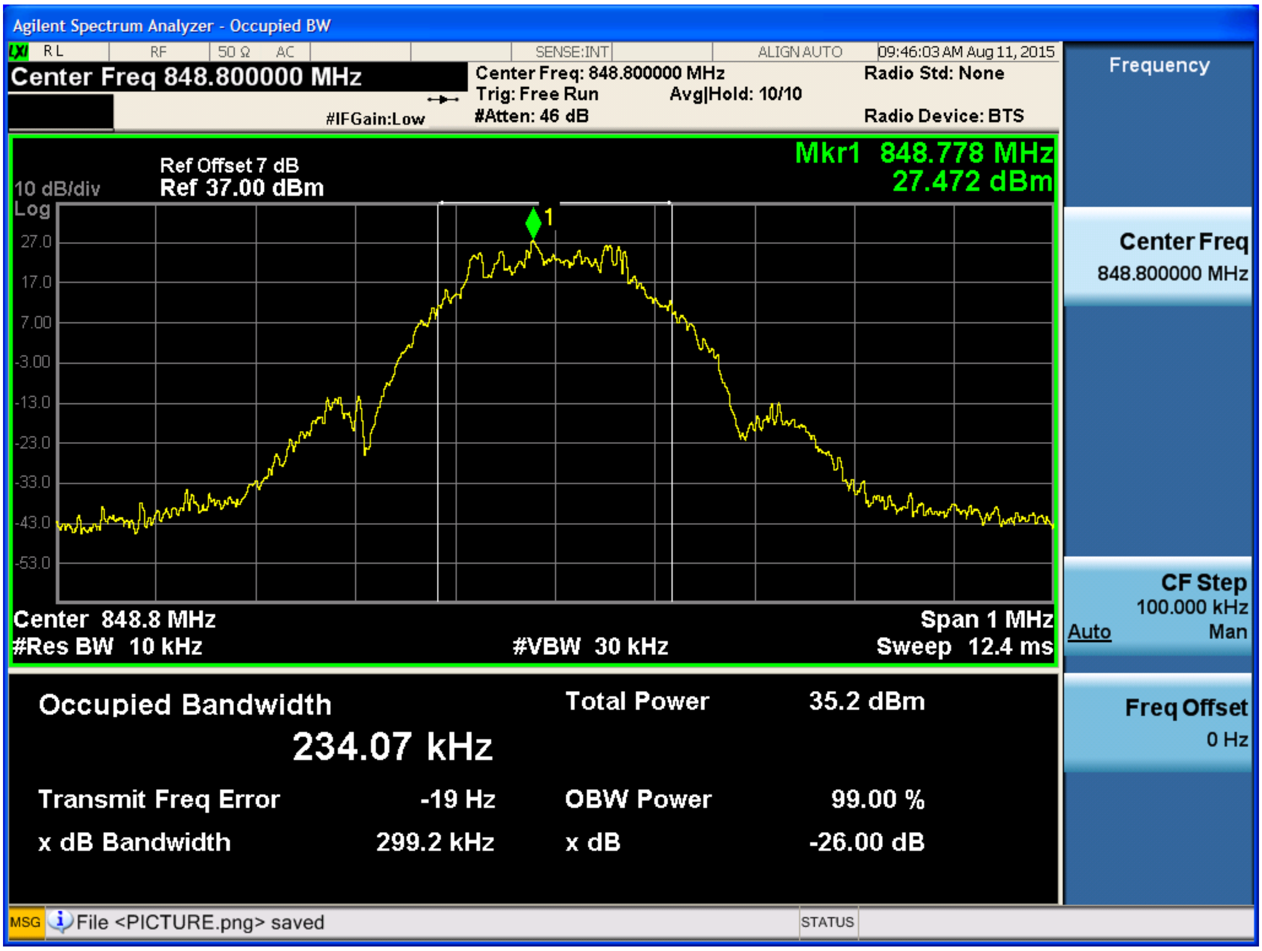
4.1.1.2.1 Test Channel = LCH



4.1.1.2.2 Test Channel = MCH



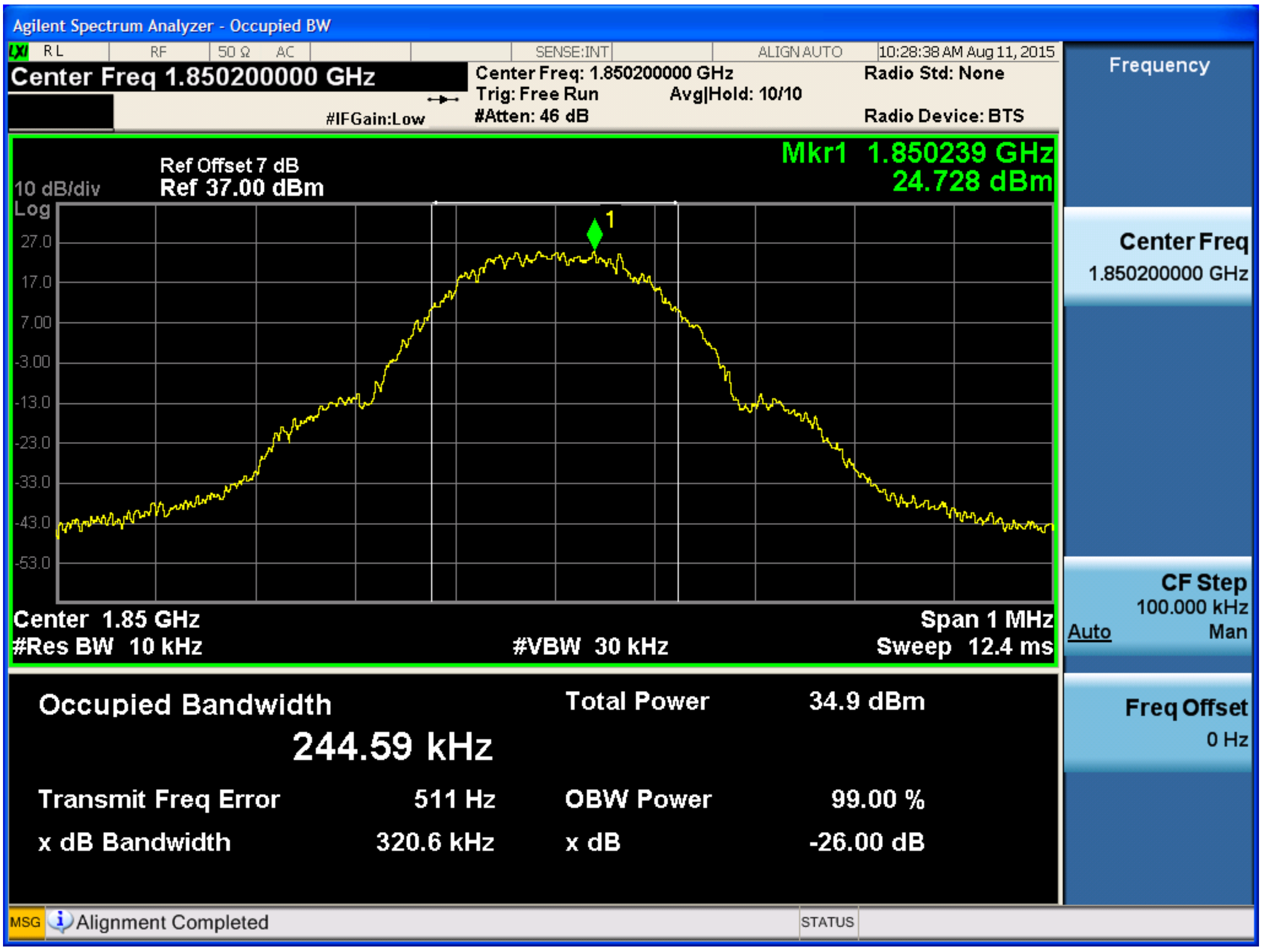
4.1.1.2.3 Test Channel = HCH



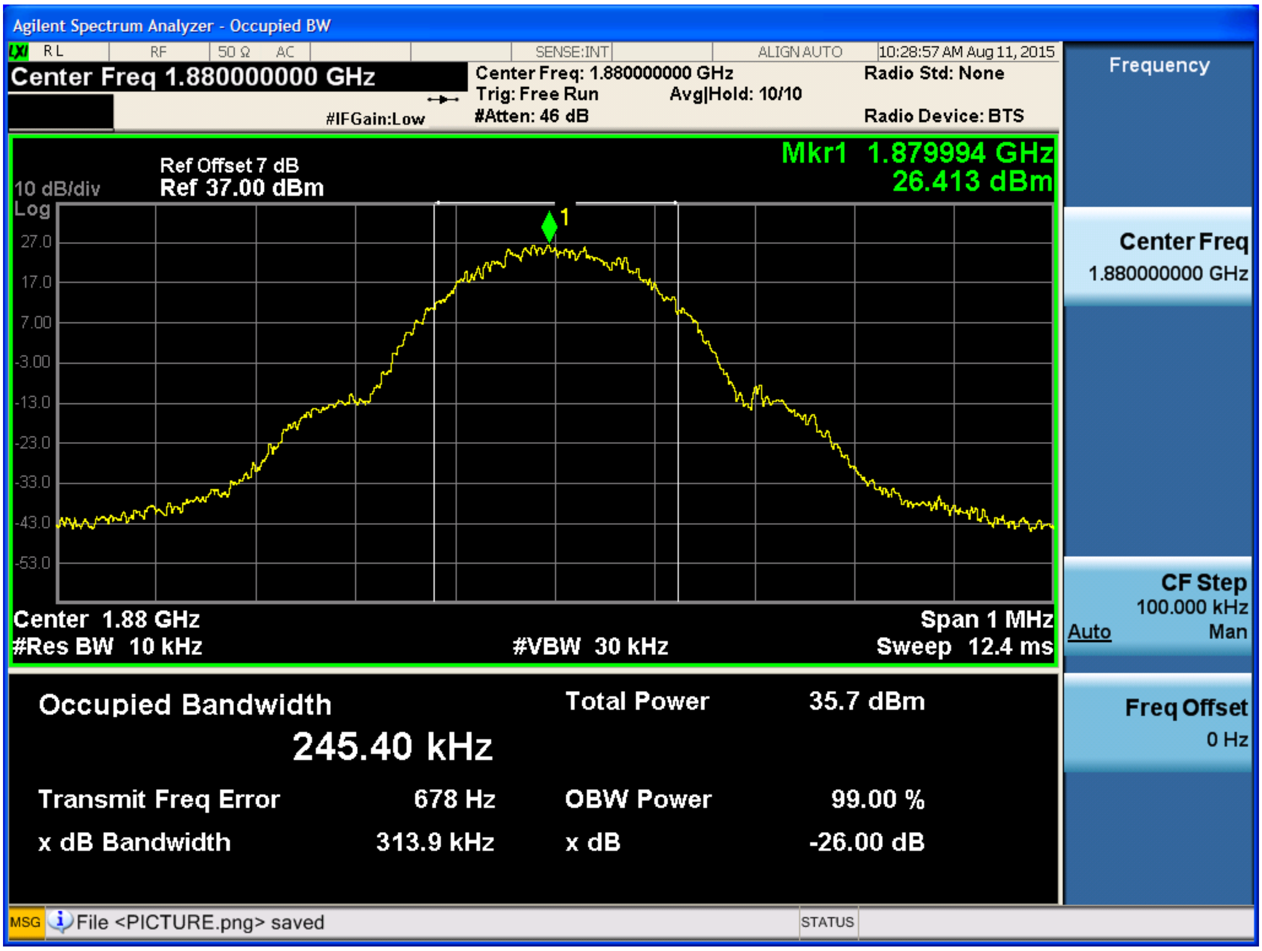
4.1.2 Test Band = GSM1900

4.1.2.1 Test Mode = GSM/TM1

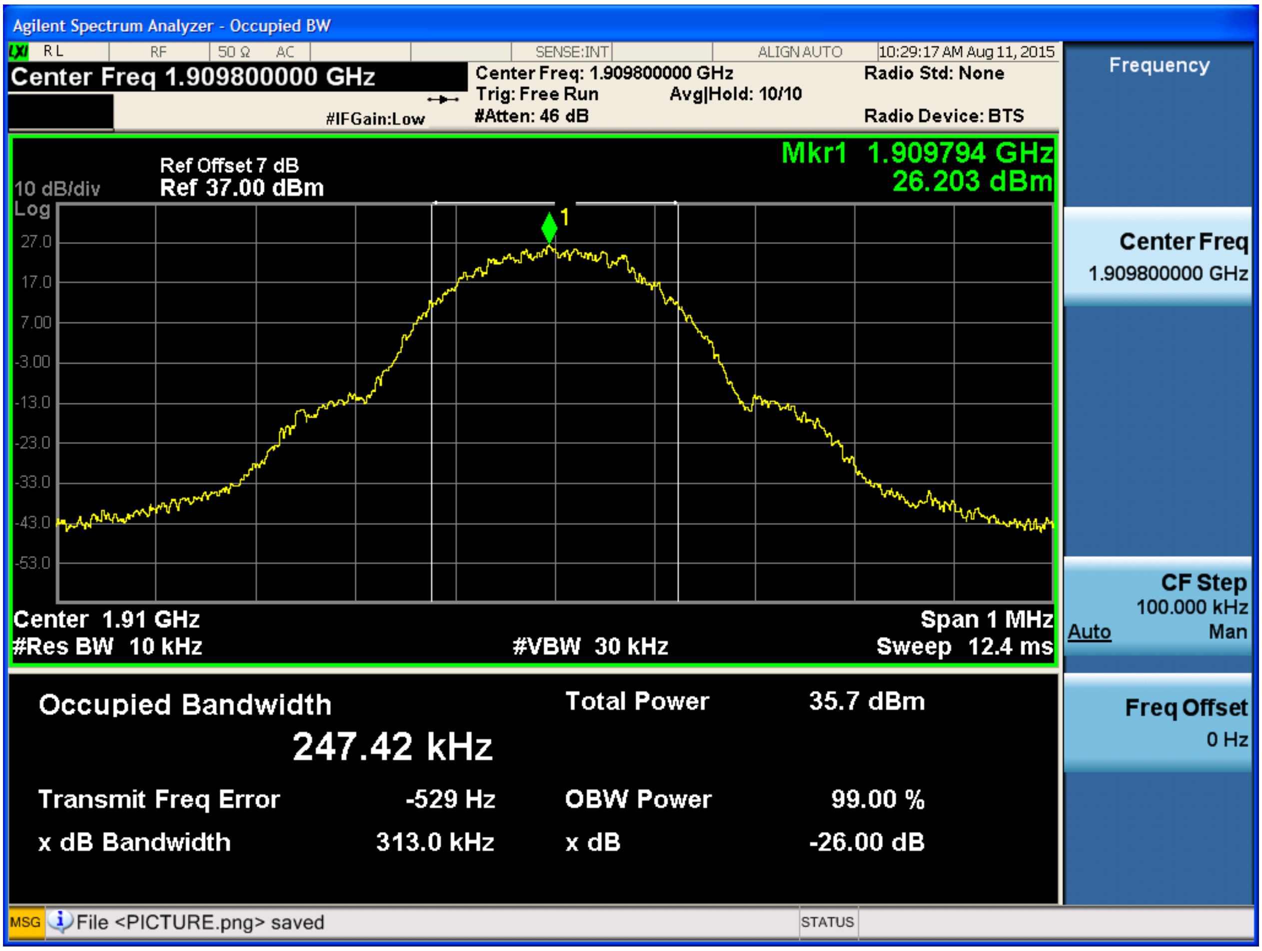
4.1.2.1.1 Test Channel = LCH



4.1.2.1.2 Test Channel = MCH

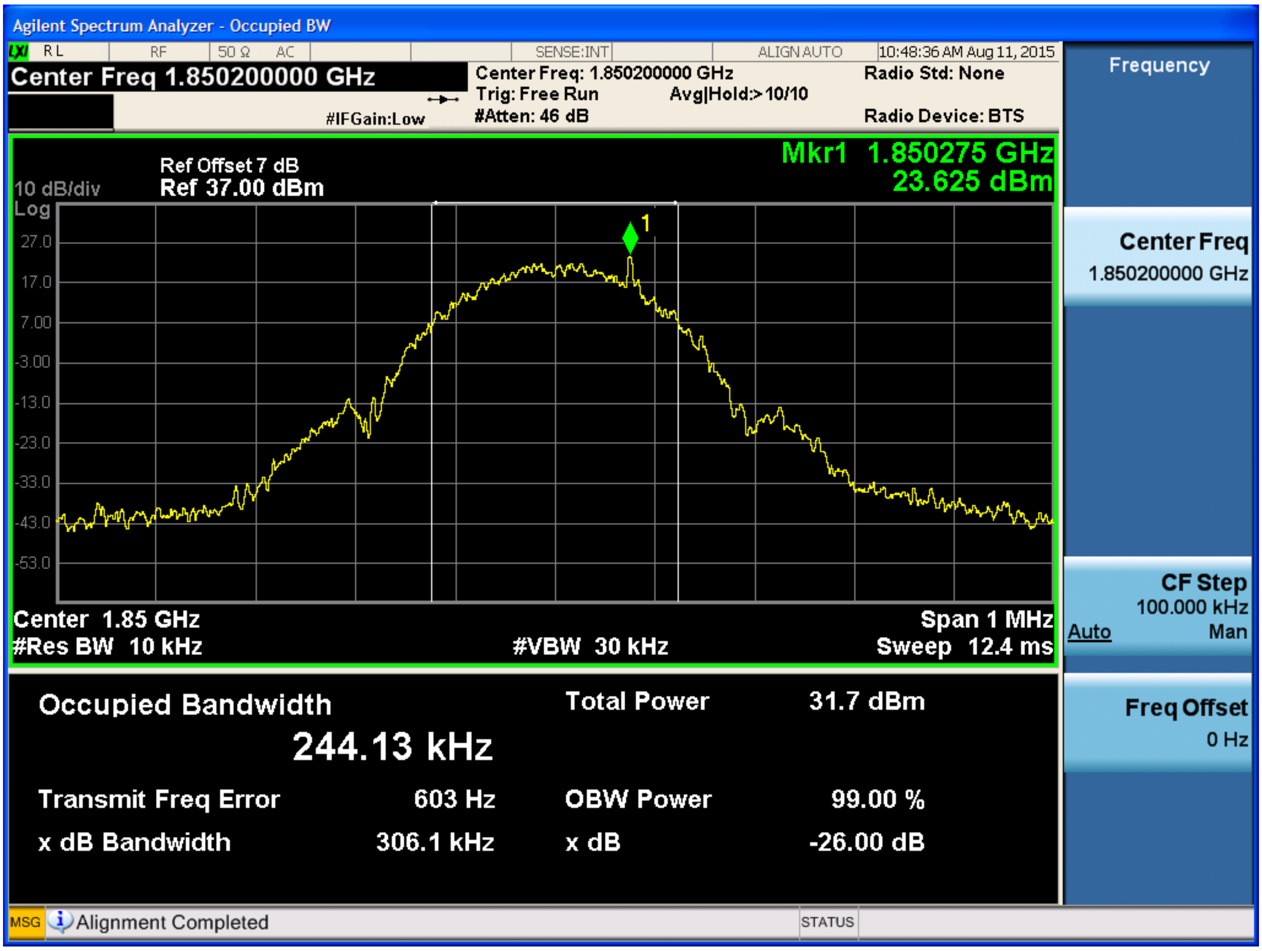


4.1.2.1.3 Test Channel = HCH

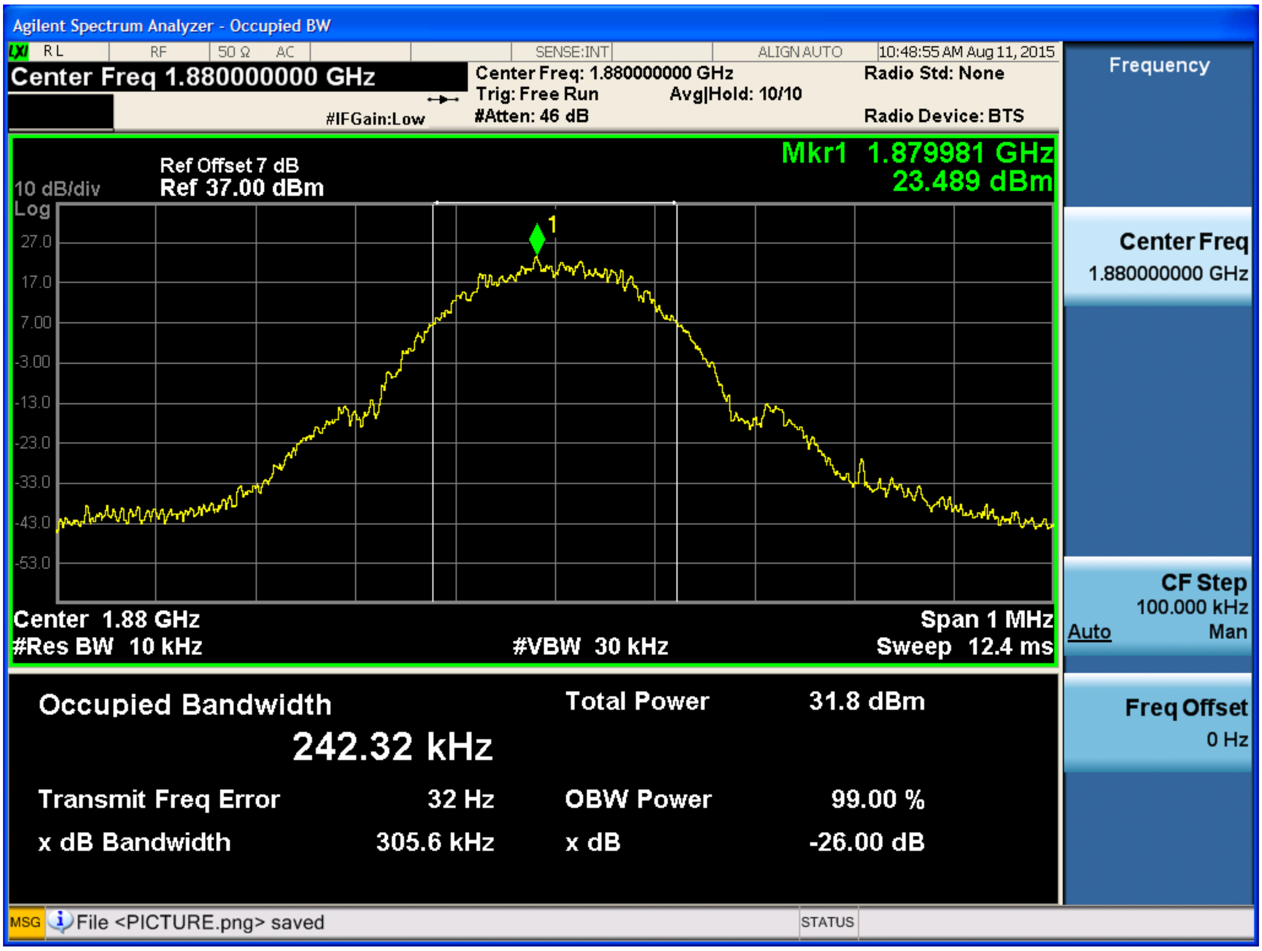


4.1.2.2 Test Mode = GSM/TM2

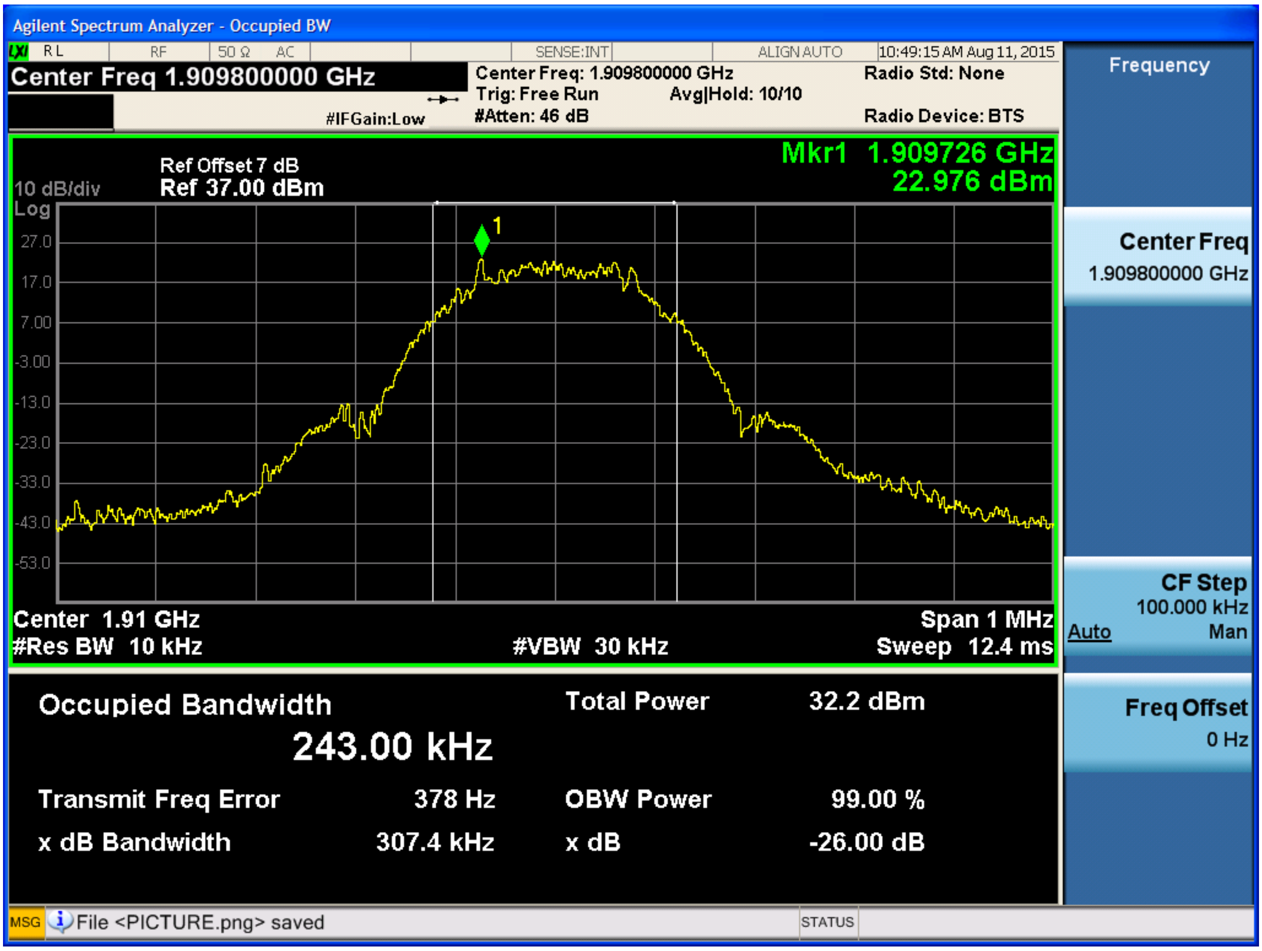
4.1.2.2.1 Test Channel = LCH



4.1.2.2.2 Test Channel = MCH



4.1.2.2.3 Test Channel = HCH



5Appendix_E: Band Edges Compliance

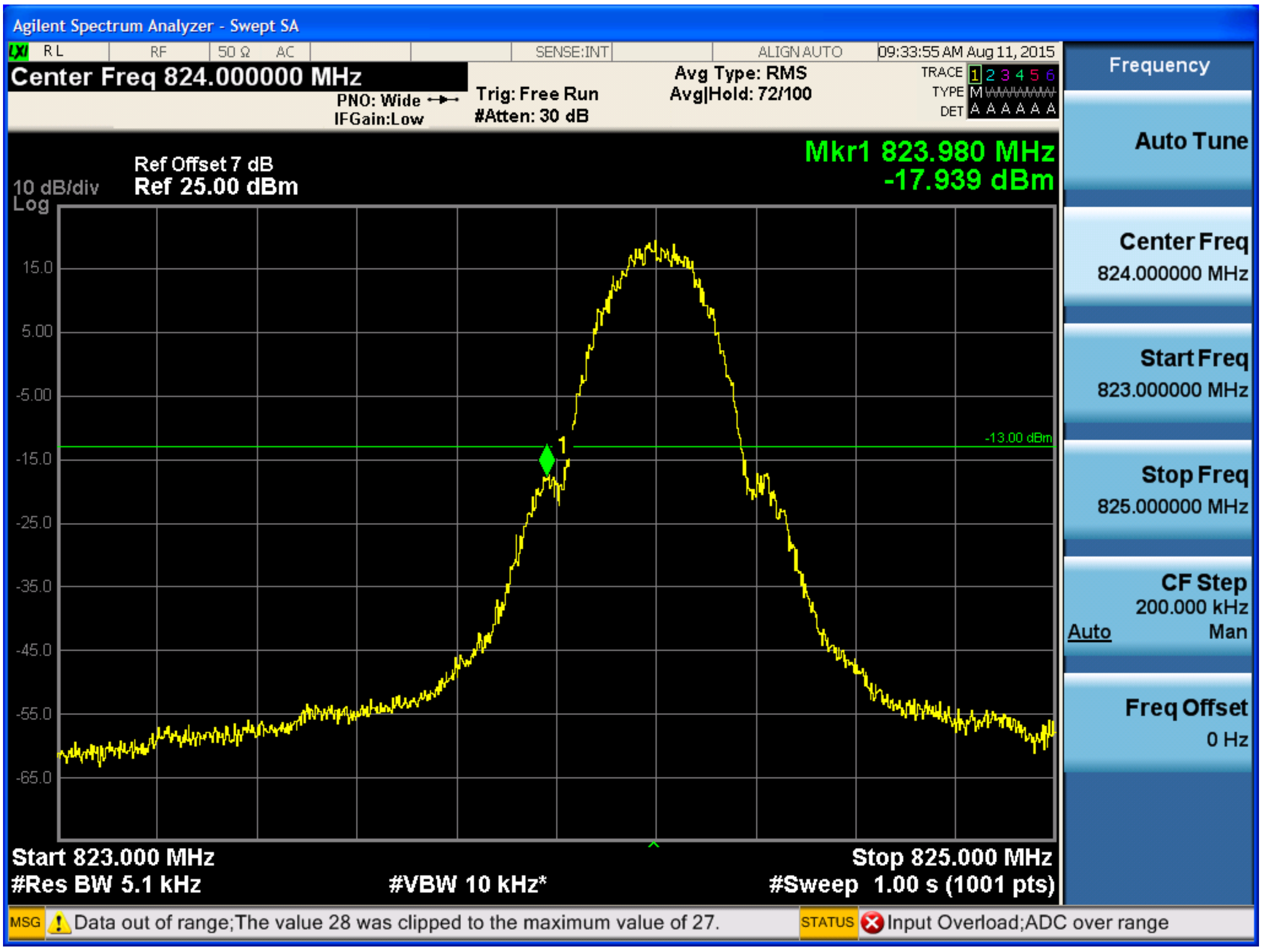
Part I - Test Plots

5.1 For GSM

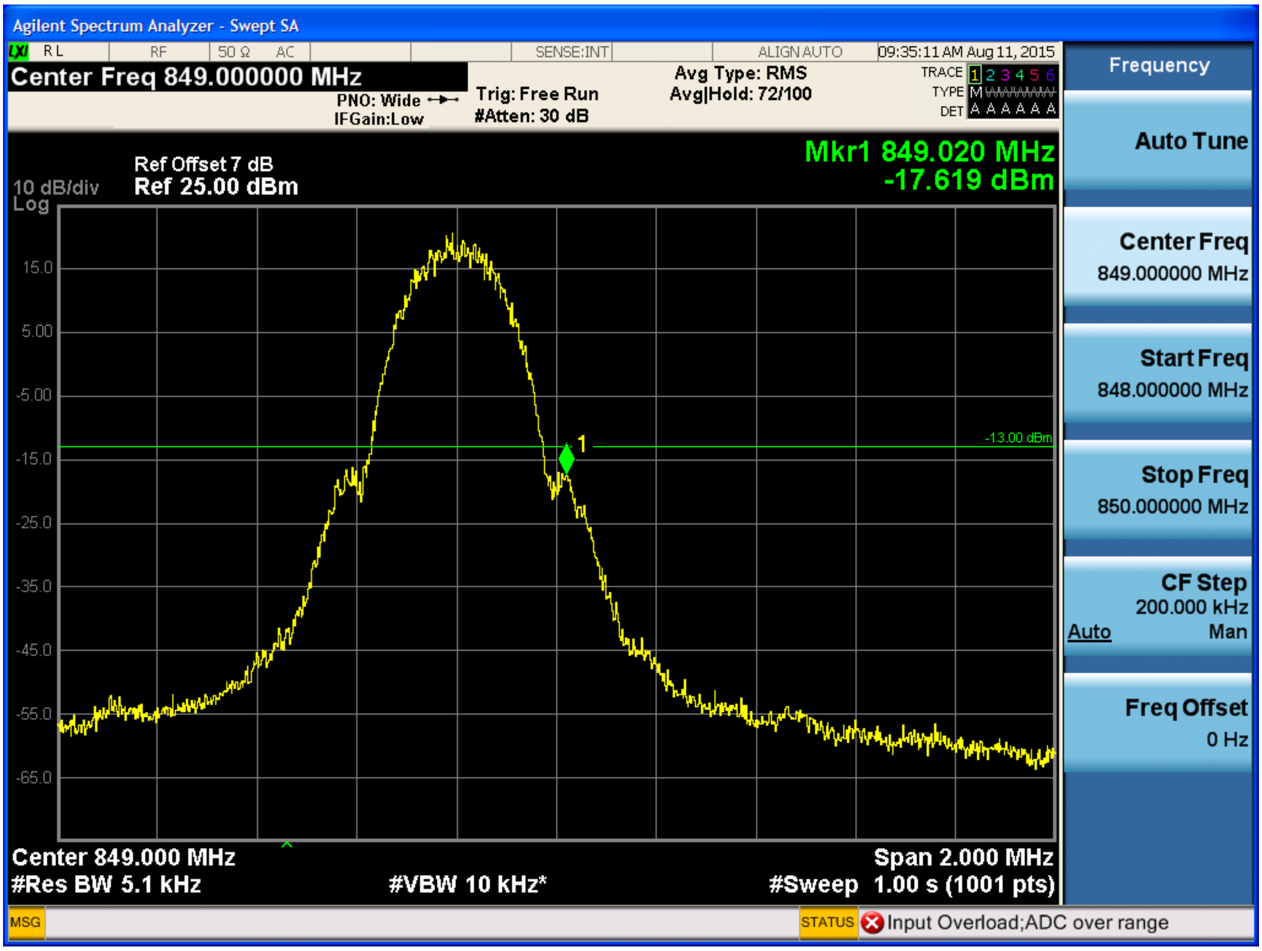
5.1.1 Test Band = GSM850

5.1.1.1 Test Mode = GSM/TM1

5.1.1.1.1 Test Channel = LCH

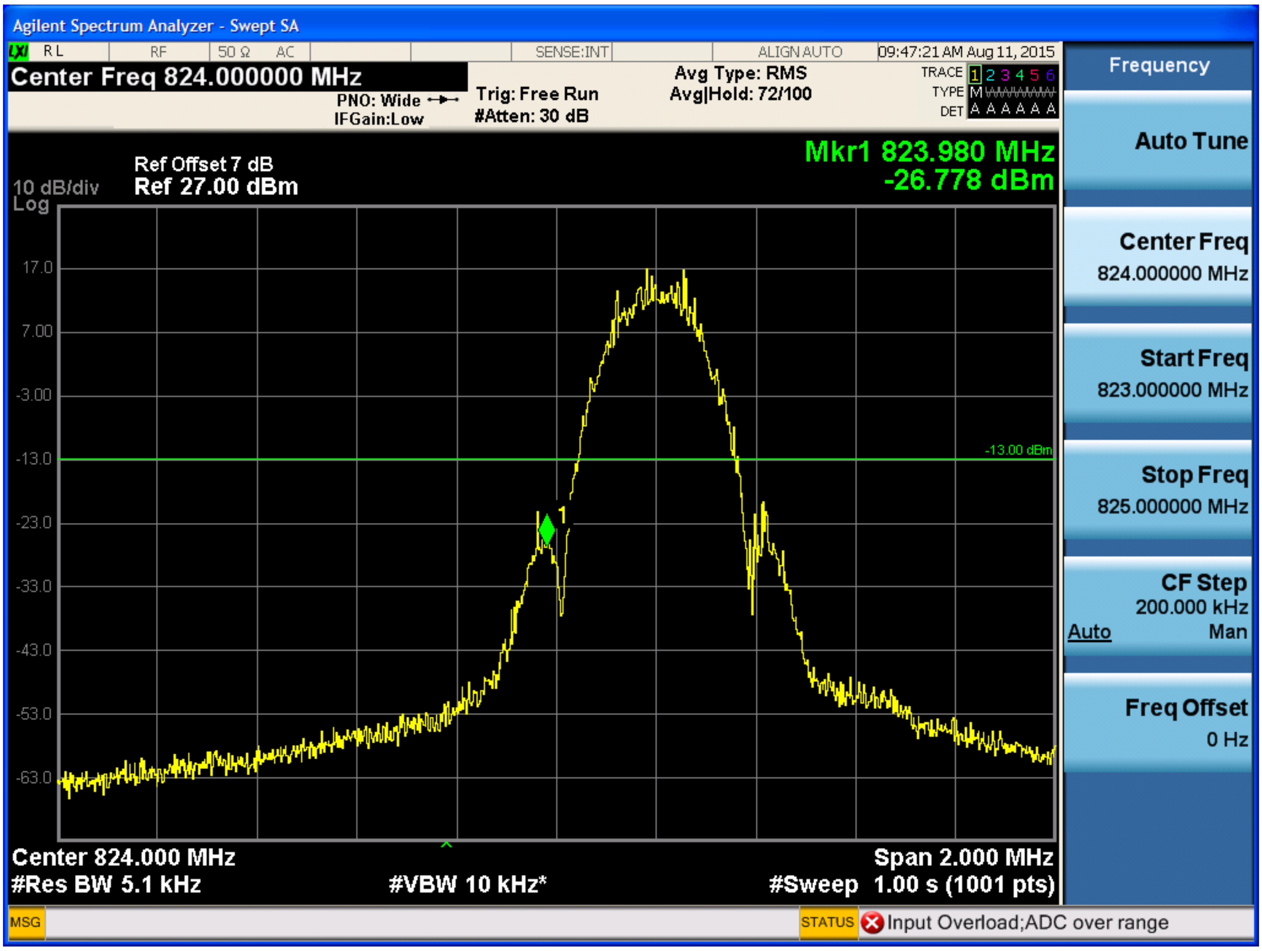


5.1.1.1.2 Test Channel = HCH

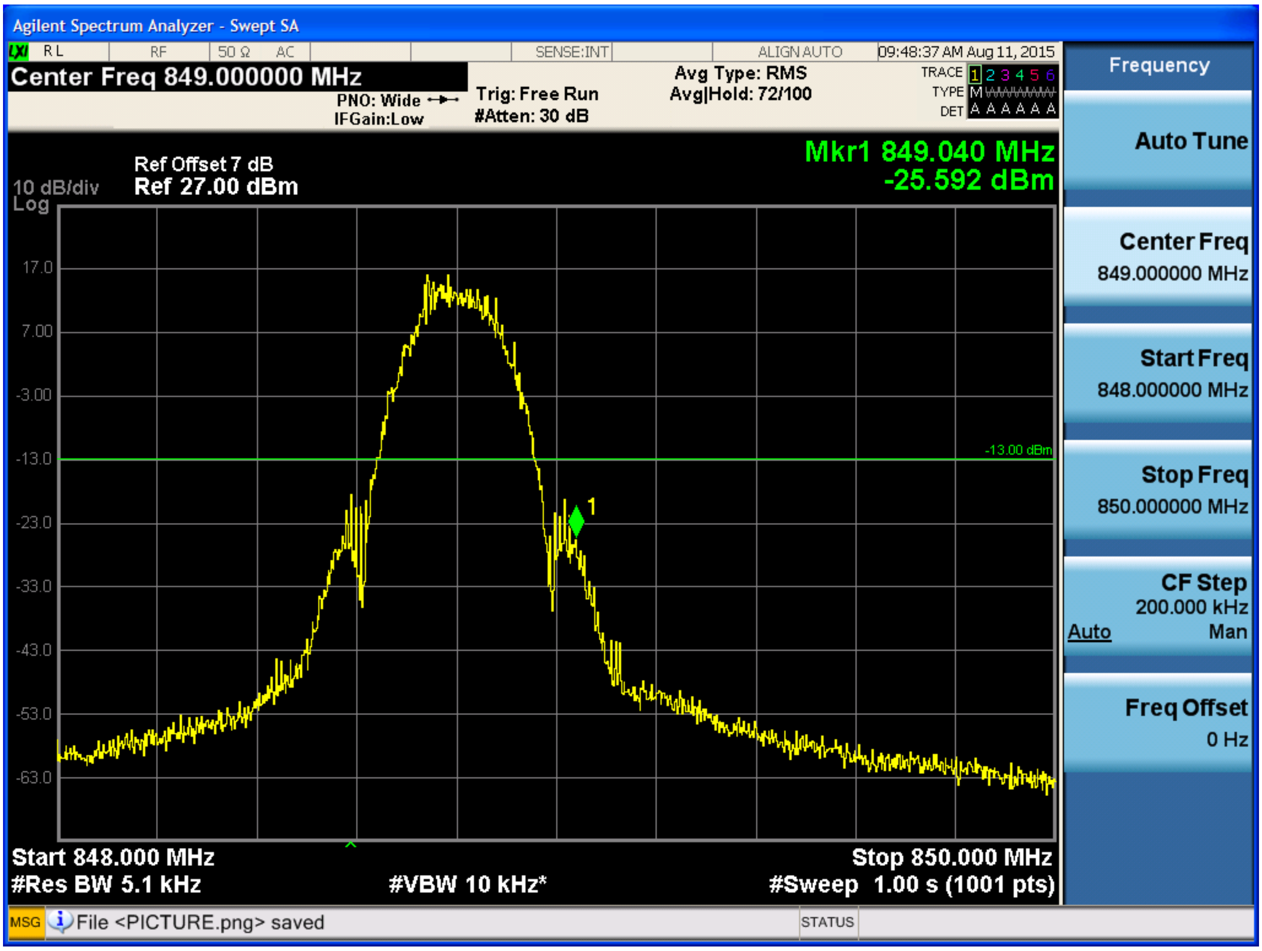


5.1.1.2 Test Mode = GSM/TM2

5.1.1.2.1 Test Channel = LCH



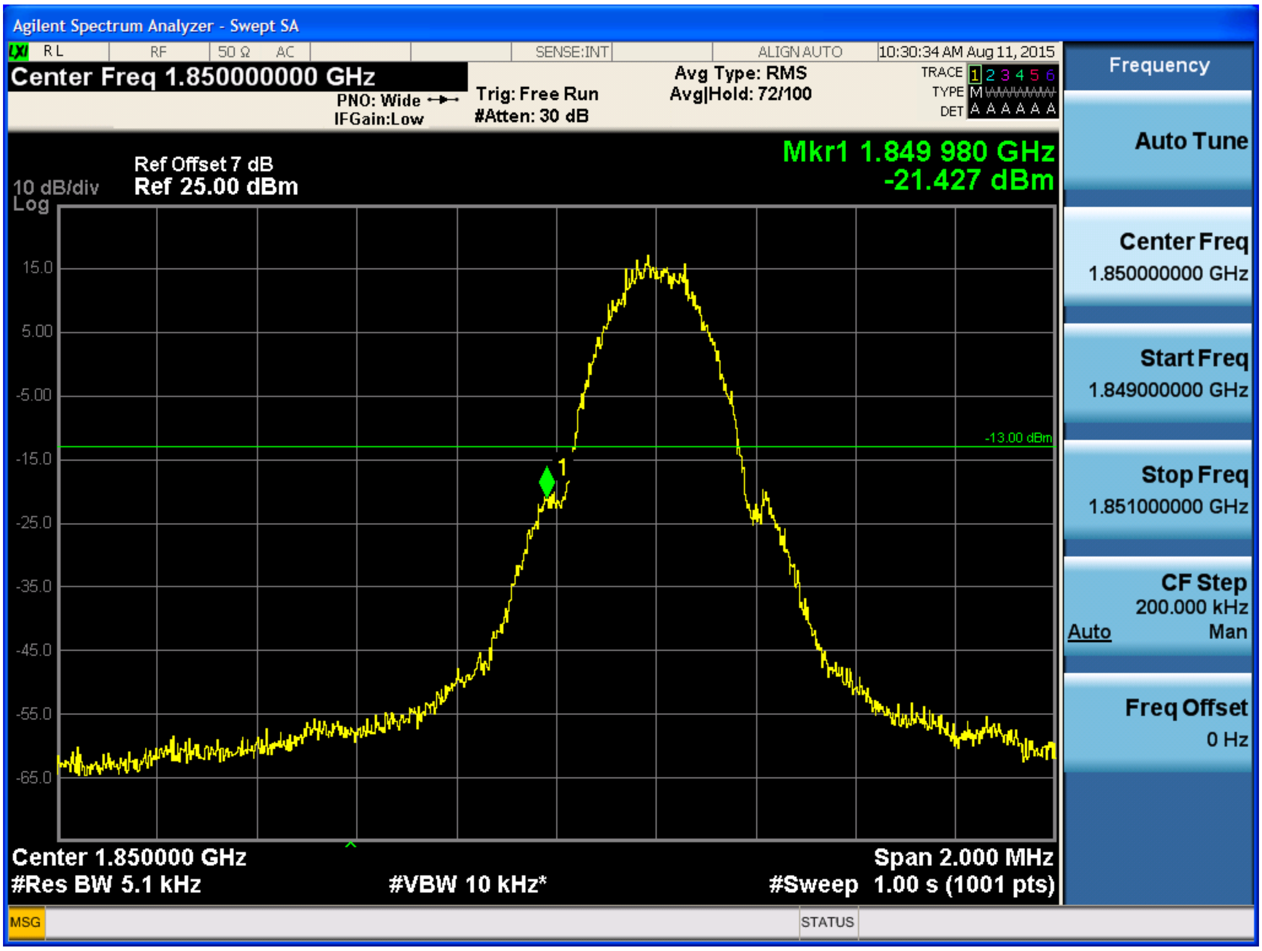
5.1.1.2.2 Test Channel = HCH



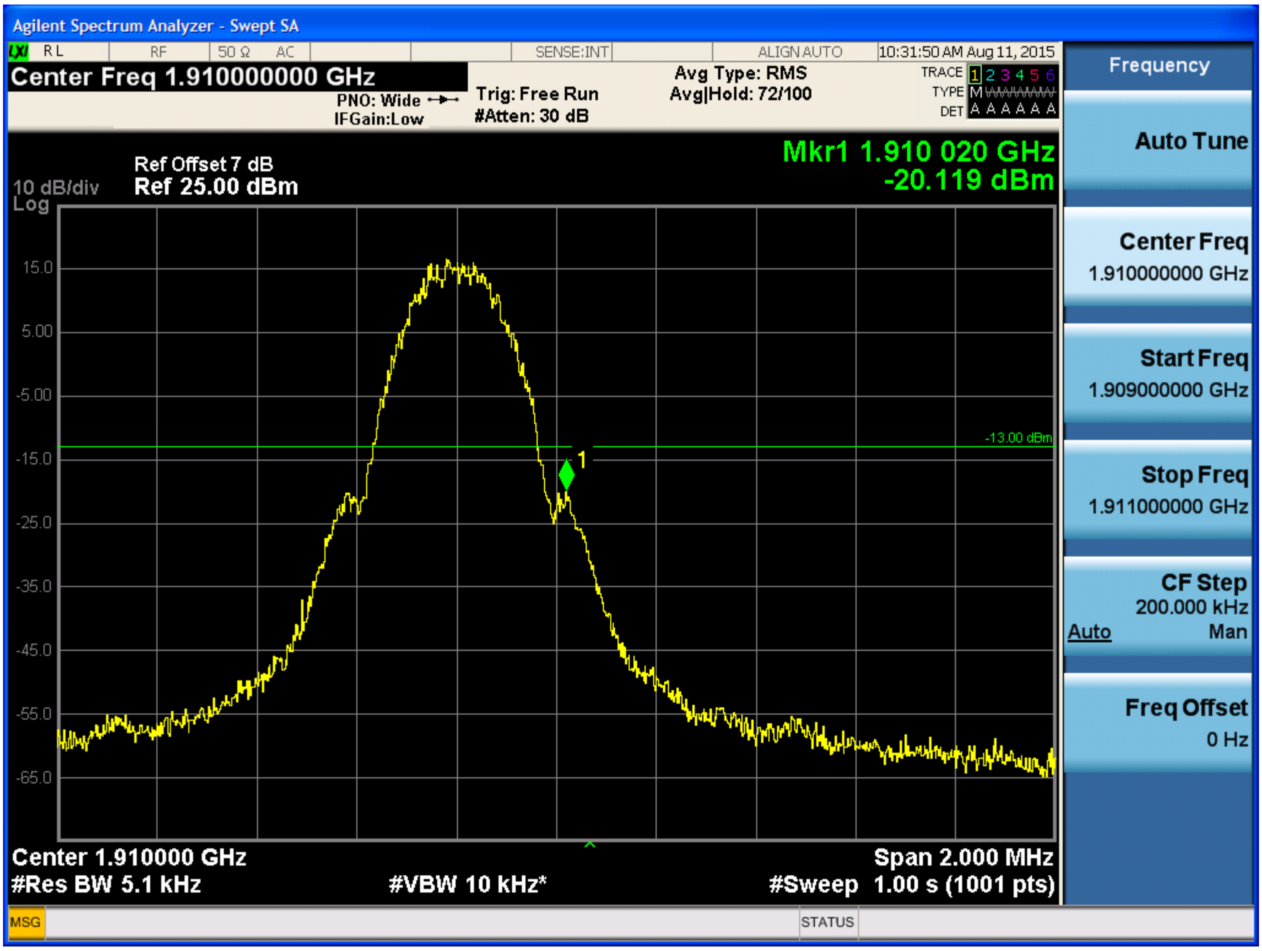
5.1.2 Test Band = GSM1900

5.1.2.1 Test Mode = GSM/TM1

5.1.2.1.1 Test Channel = LCH

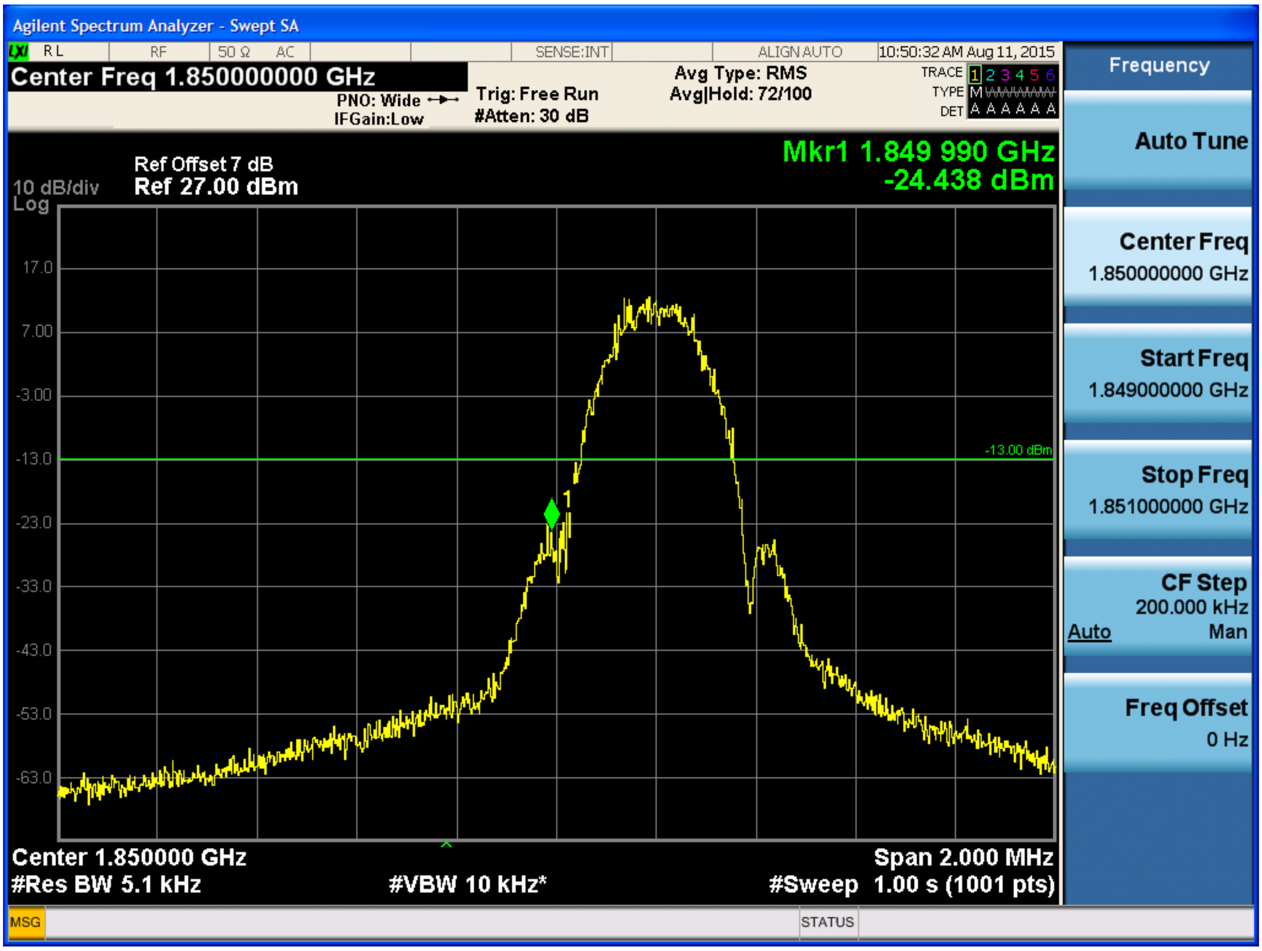


5.1.2.1.2 Test Channel = HCH

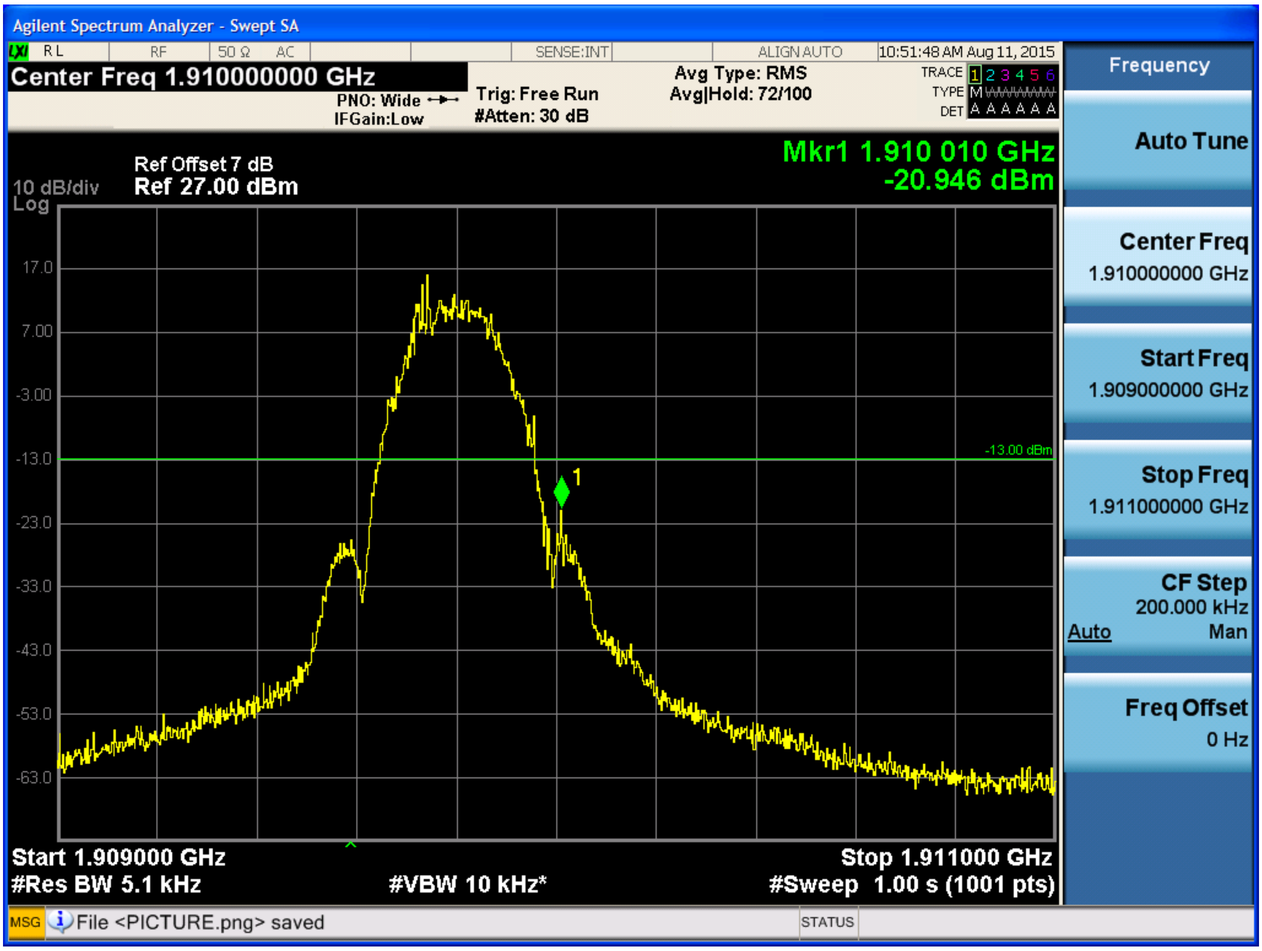


5.1.2.2 Test Mode = GSM/TM2

5.1.2.2.1 Test Channel = LCH



5.1.2.2.2 Test Channel = HCH



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.

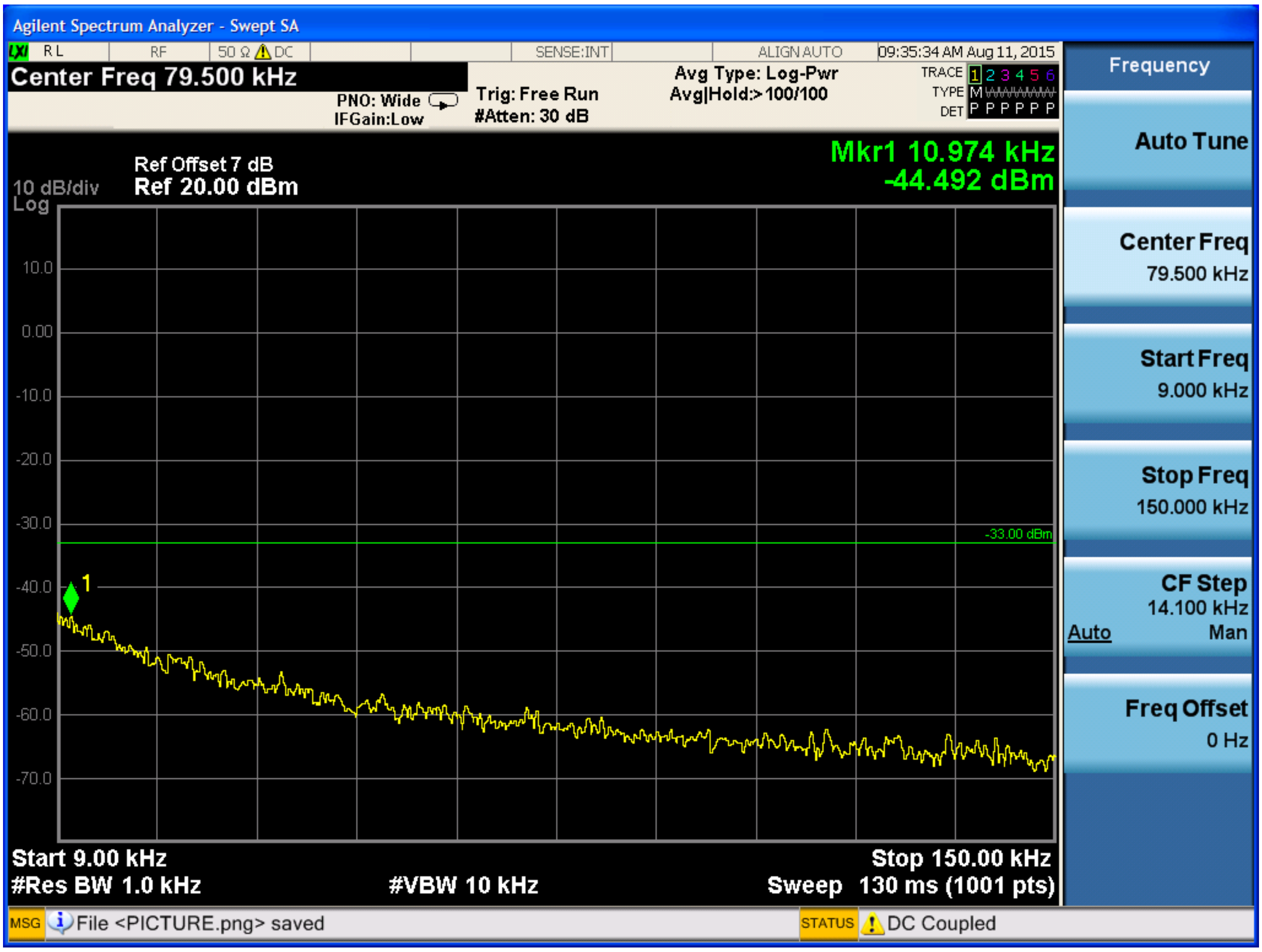
Part I - Test Plots

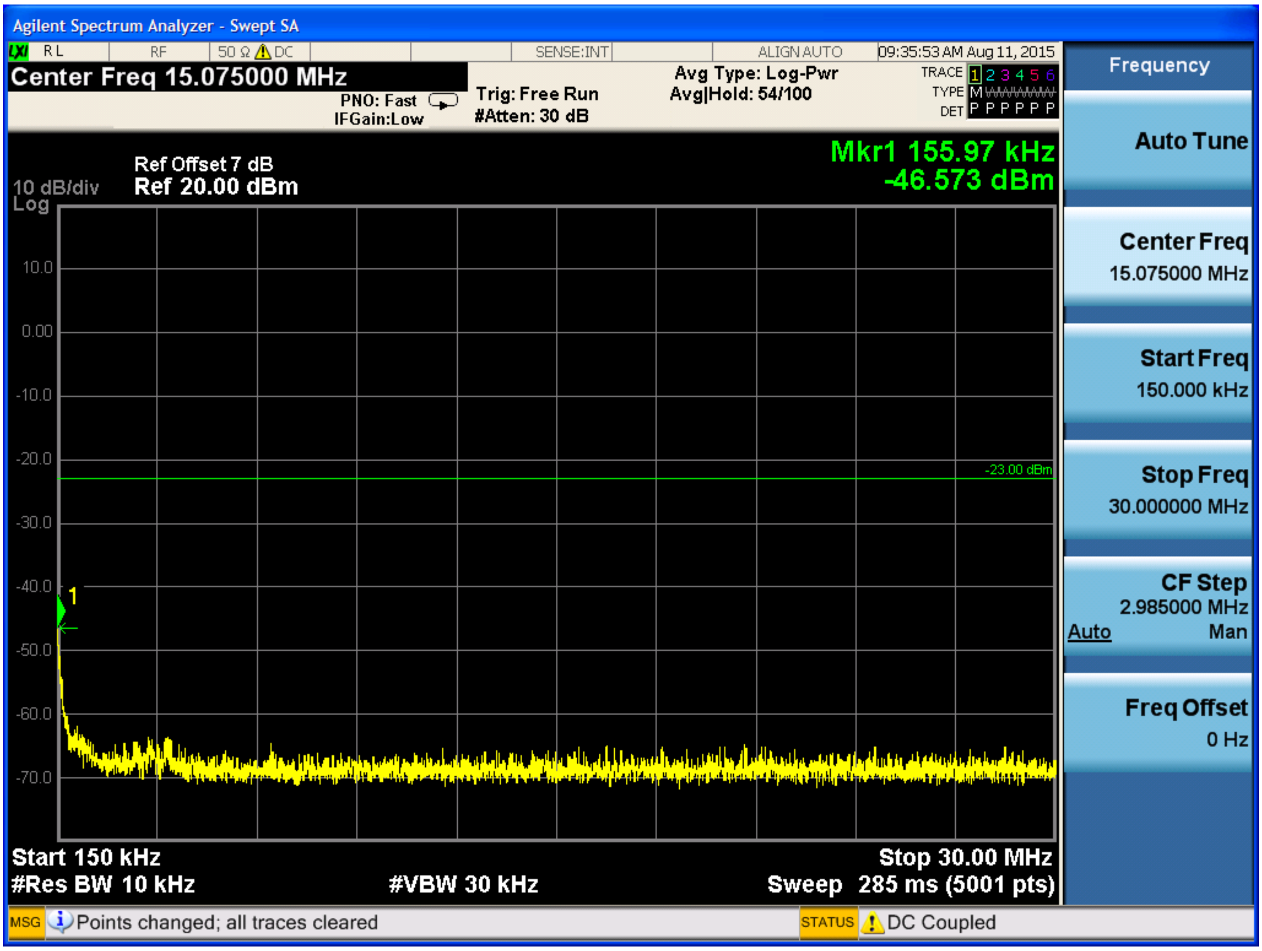
6.1 For GSM

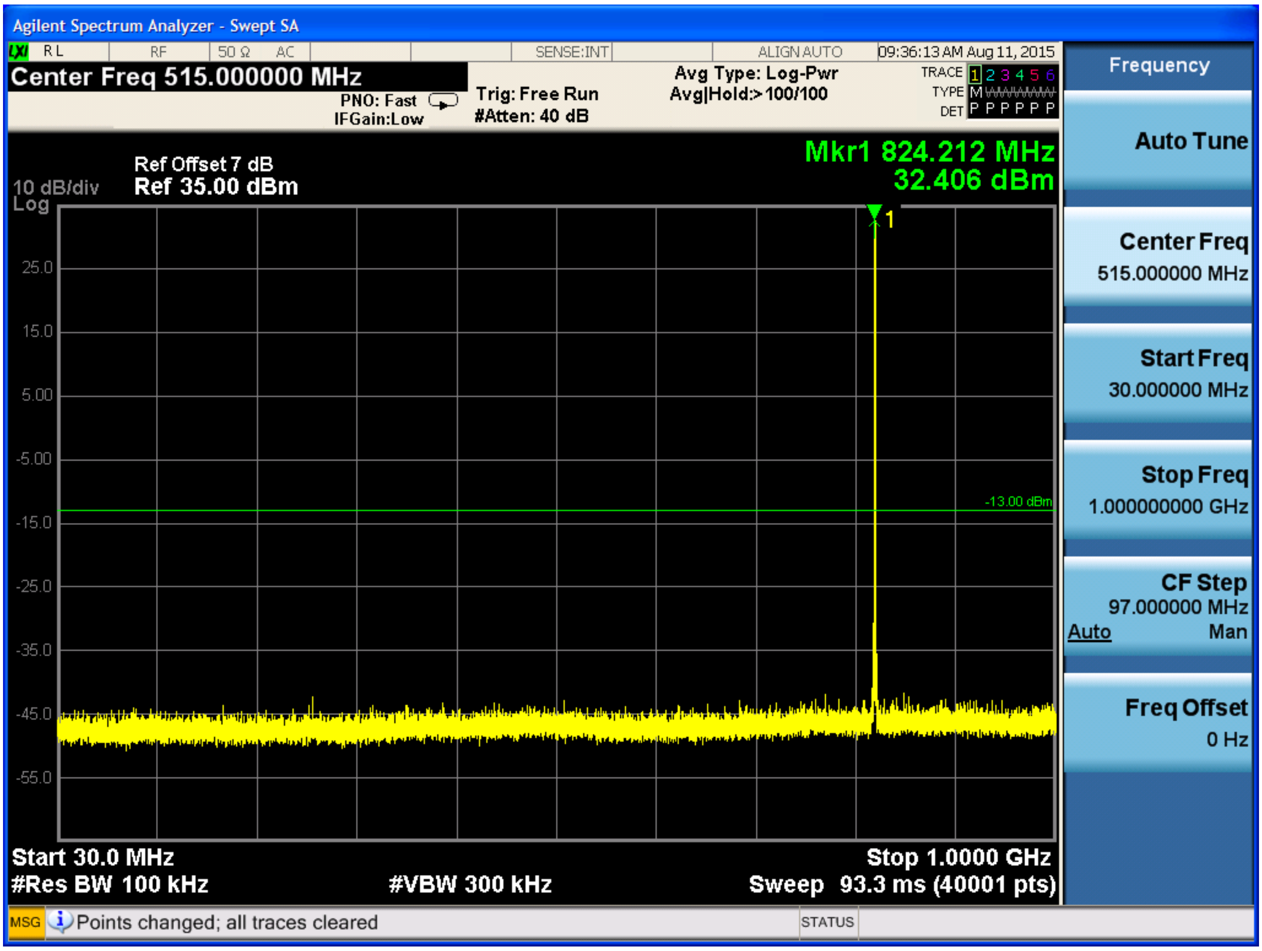
6.1.1 Test Band = GSM850

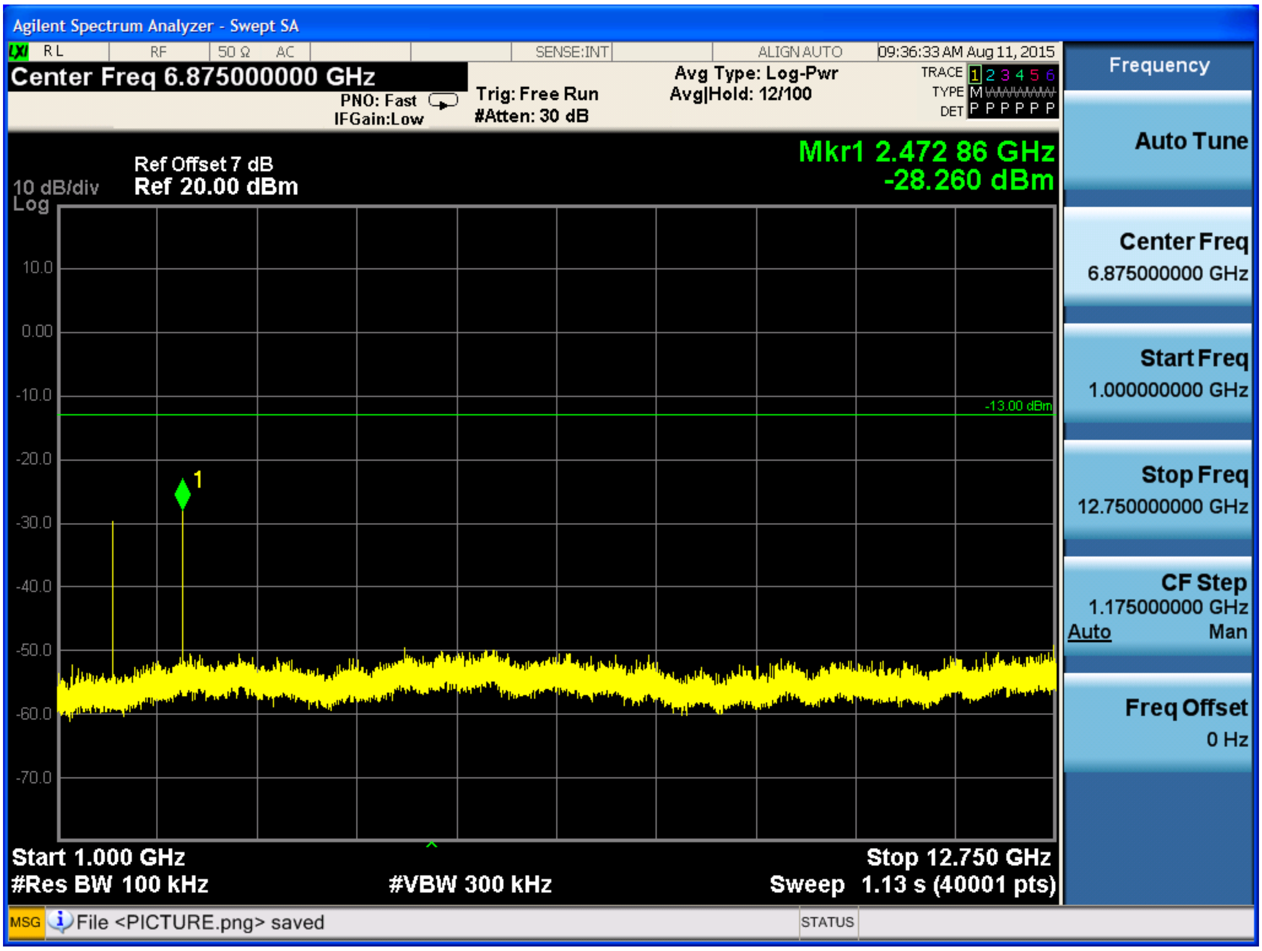
6.1.1.1 Test Mode = GSM/TM1

6.1.1.1.1 Test Channel = LCH

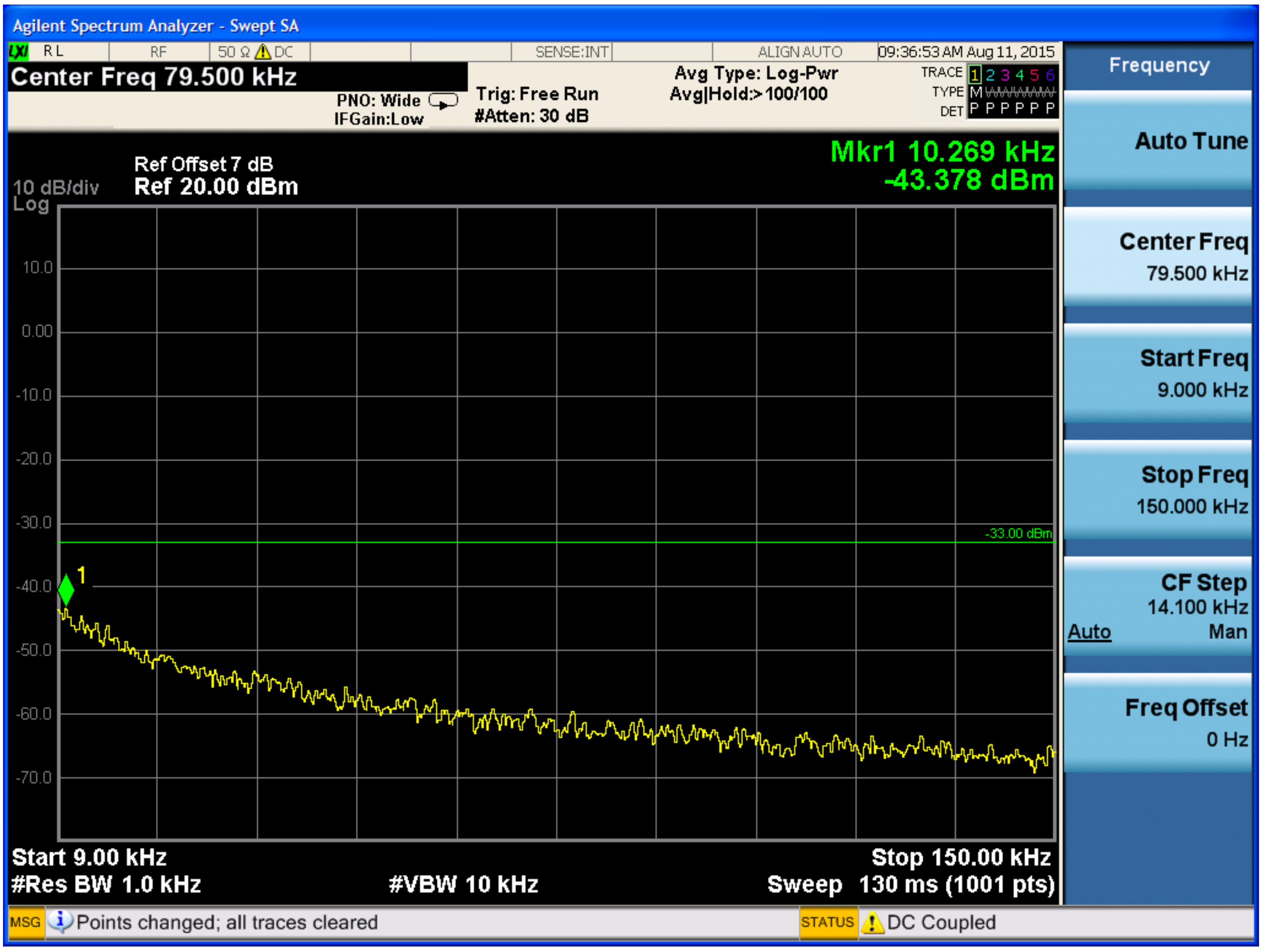

Agilent Spectrum Analyzer - Swept SA
Center Freq 79.500 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
SENSE:INT
ALIGN AUTO
09:35:34 AM Aug 11, 2015
Ref Offset 7 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 10.974 kHz
-44.492 dBm
-33.00 dBm
Start 9.00 kHz
#Res BW 1.0 kHz
#VBW 10 kHz
Stop 150.00 kHz
Sweep 130 ms (1001 pts)
File <PICTURE.png> saved
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
Man
Freq Offset
0 Hz

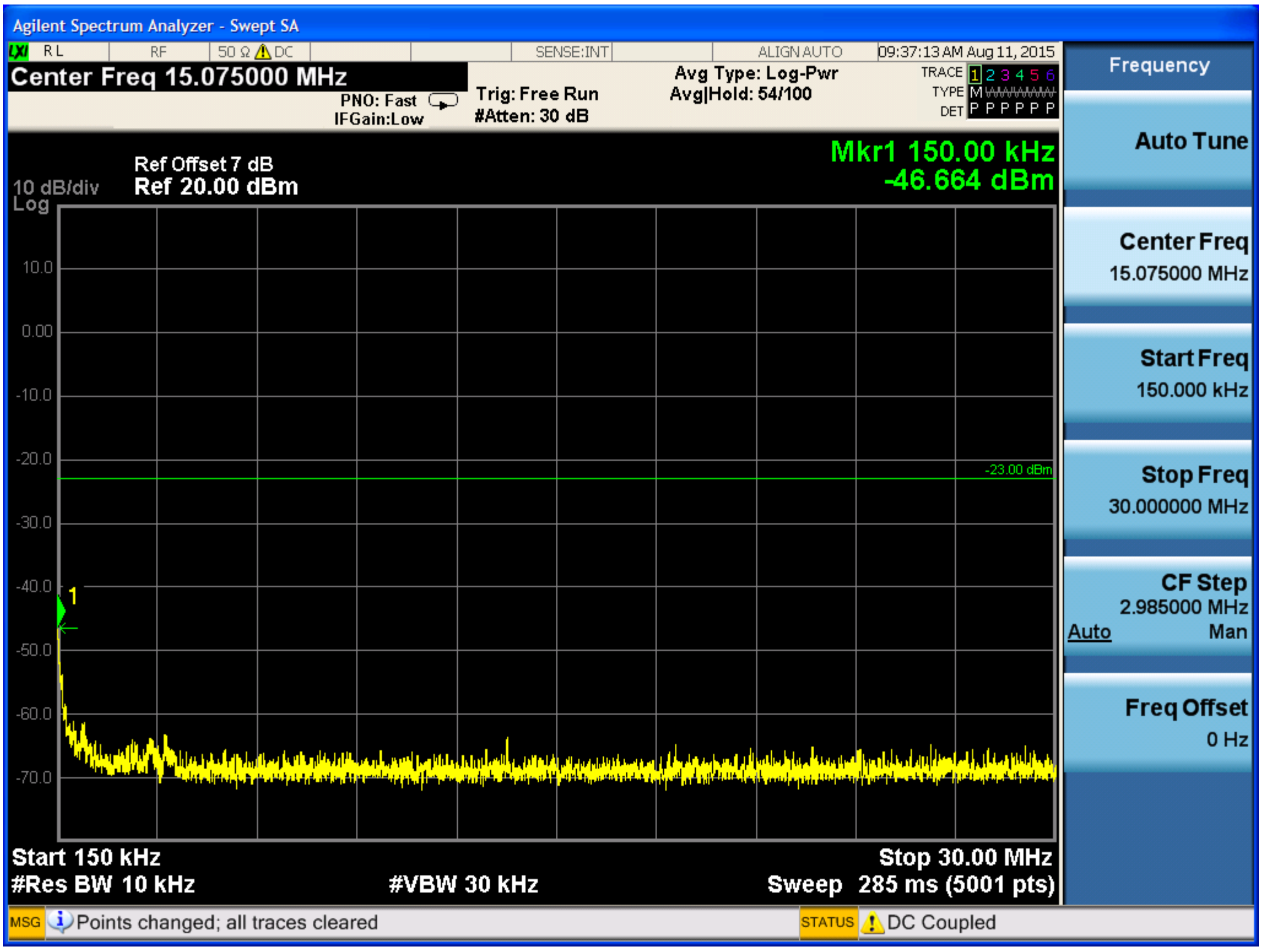

Agilent Spectrum Analyzer - Swept SA
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 54/100
09:35:53 AM Aug 11, 2015
Ref Offset 7 dB
10 dB/div Ref 20.00 dBm
Log
Mkr1 155.97 kHz
-46.573 dBm
-23.00 dBm
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz
Stop 30.00 MHz
Sweep 285 ms (5001 pts)
Frequency
Auto Tune
Center Freq 15.075000 MHz
Start Freq 150.000 kHz
Stop Freq 30.000000 MHz
CF Step 2.985000 MHz
Auto Man
Freq Offset 0 Hz
Points changed; all traces cleared
DC Coupled

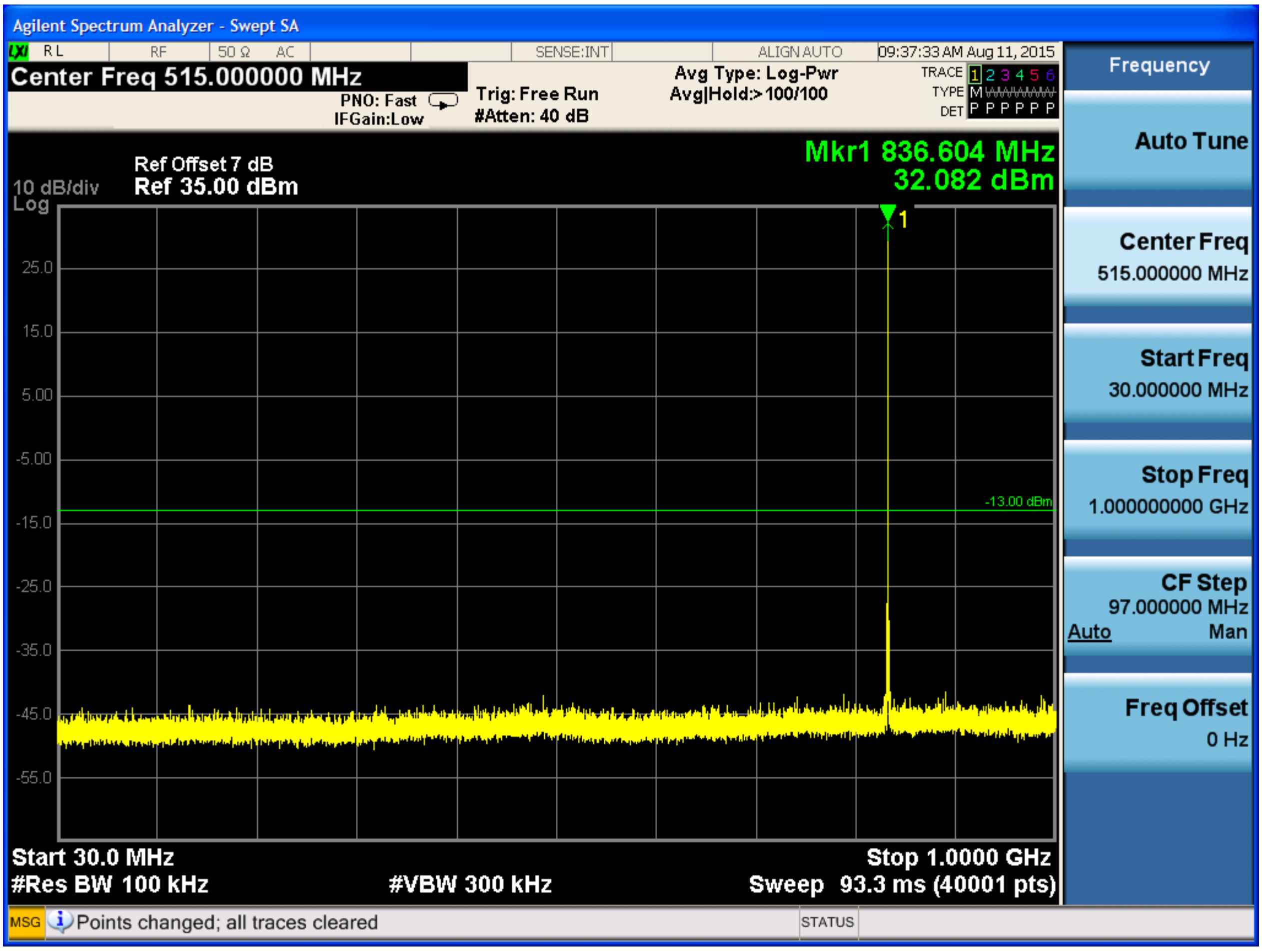

Agilent Spectrum Analyzer - Swept SA
RL RF 50 Ω AC SENSE:INT ALIGN AUTO 09:36:13 AM Aug 11, 2015
Center Freq 515.000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
TRACE 1 2 3 4 5 6
TYPE M
DET P P P P P P
Frequency
Ref Offset 7 dB
10 dB/div Ref 35.00 dBm
Log
Mkr1 824.212 MHz
32.406 dBm
25.0
15.0
5.00
-5.00
-15.0
-25.0
-35.0
-45.0
-55.0
-13.00 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 93.3 ms (40001 pts)
Auto Tune
Center Freq
515.000000 MHz
Start Freq
30.000000 MHz
Stop Freq
1.000000000 GHz
CF Step
97.000000 MHz
Auto Man
Freq Offset
0 Hz
MSG Points changed; all traces cleared
STATUS

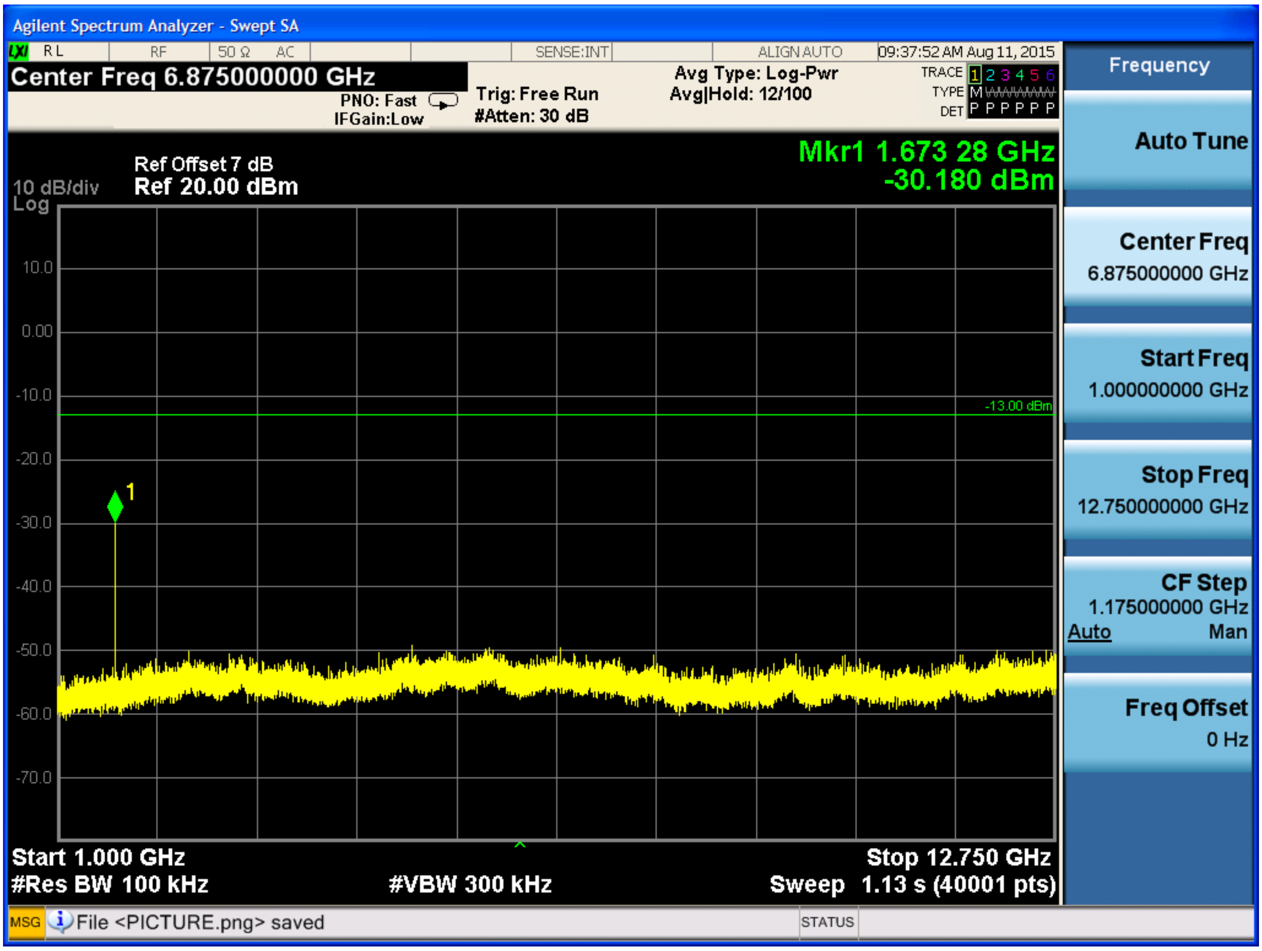

Agilent Spectrum Analyzer - Swept SA
Center Freq 6.875000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 12/100
09:36:33 AM Aug 11, 2015
Ref Offset 7 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 2.472 86 GHz
-28.260 dBm
-13.00 dBm
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 12.750 GHz
Sweep 1.13 s (40001 pts)
Frequency
Auto Tune
Center Freq
6.875000000 GHz
Start Freq
1.000000000 GHz
Stop Freq
12.750000000 GHz
CF Step
1.175000000 GHz
Auto
Man
Freq Offset
0 Hz
File <PICTURE.png> saved
STATUS

6.1.1.1.2 Test Channel = MCH

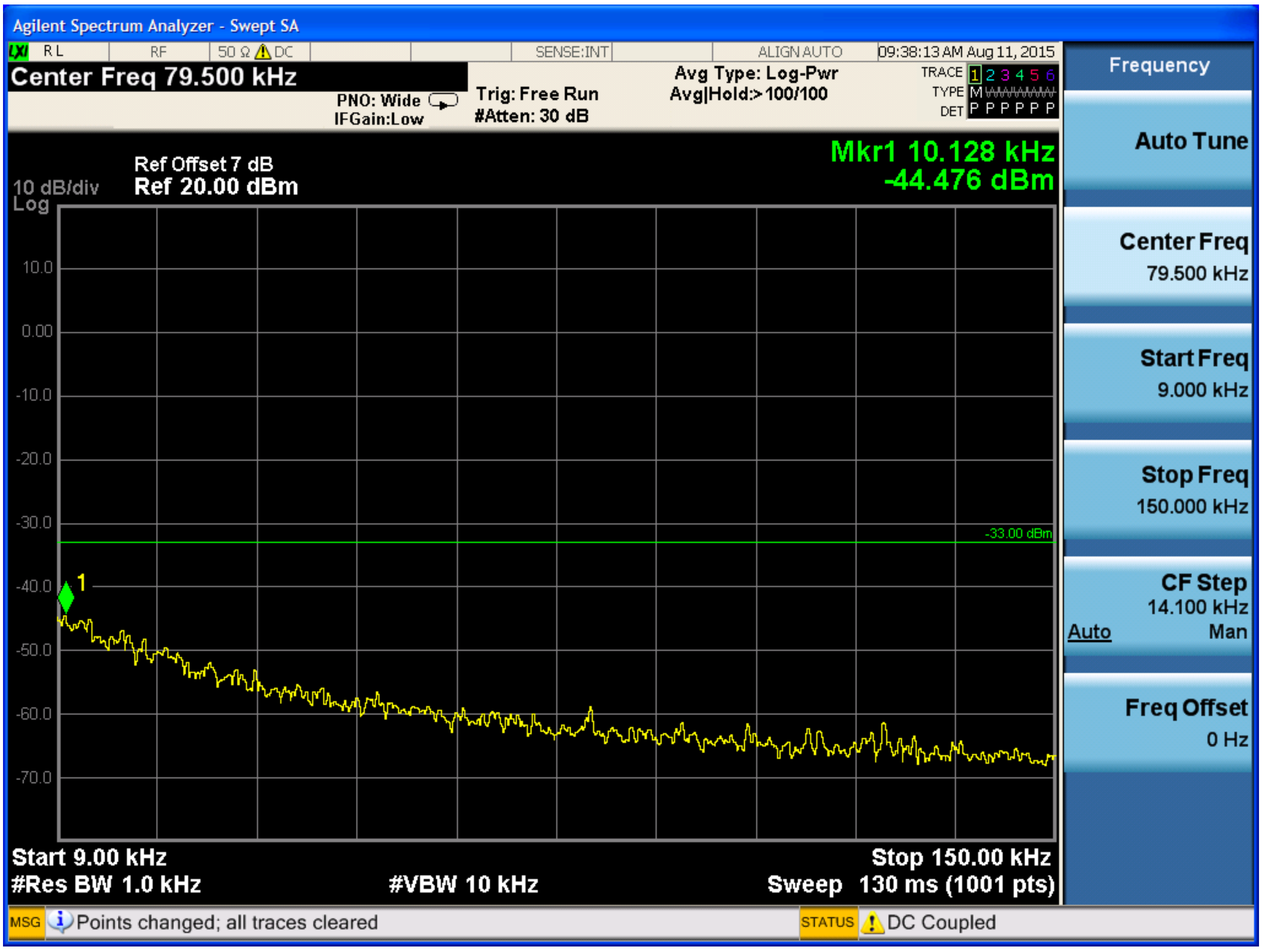


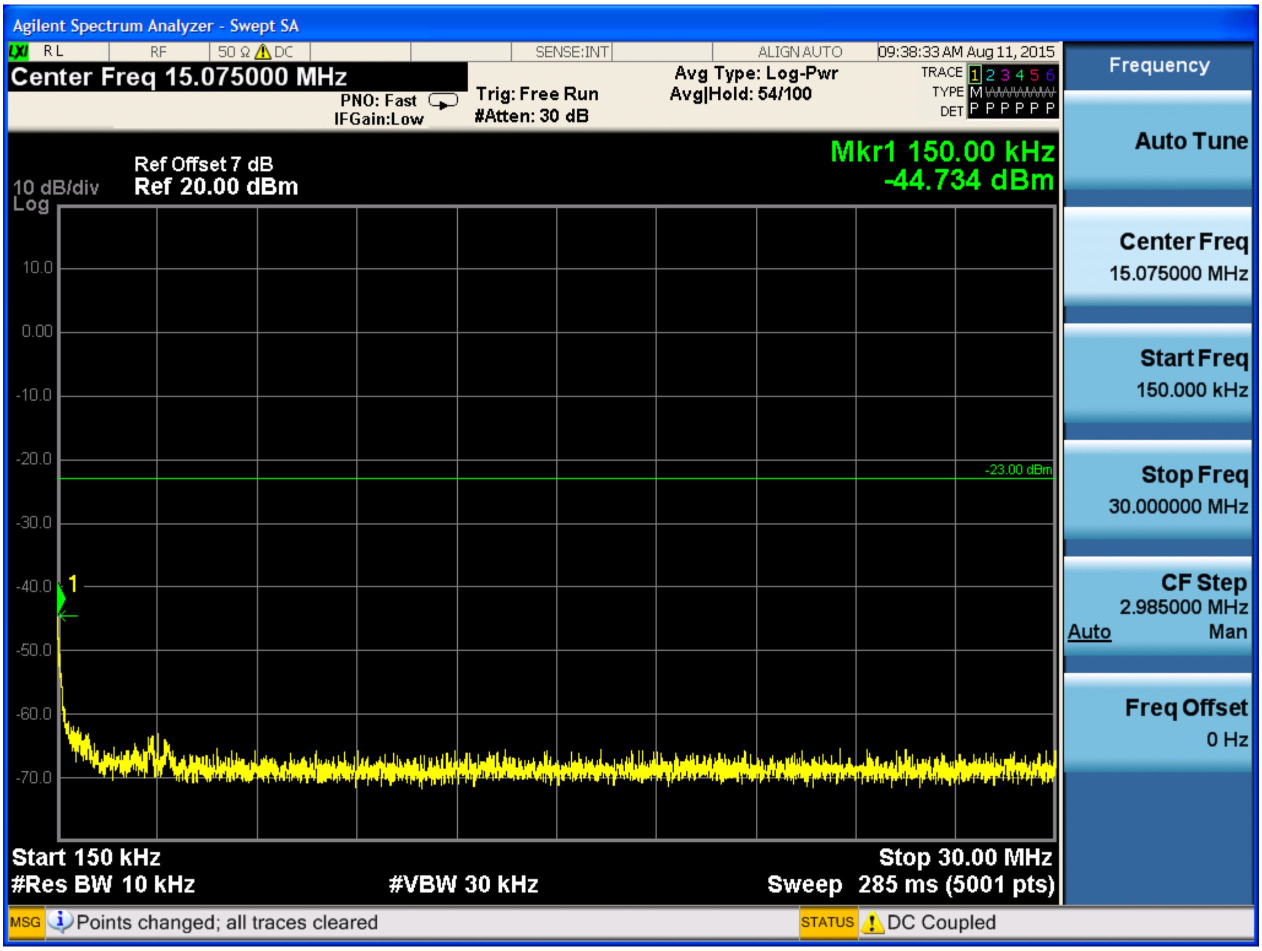

Agilent Spectrum Analyzer - Swept SA
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 54/100
09:37:13 AM Aug 11, 2015
Ref Offset 7 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 150.00 kHz
-46.664 dBm
-23.00 dBm
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz
Stop 30.00 MHz
Sweep 285 ms (5001 pts)
Points changed; all traces cleared
DC Coupled
Frequency
Auto Tune
Center Freq
15.075000 MHz
Start Freq
150.000 kHz
Stop Freq
30.000000 MHz
CF Step
2.985000 MHz
Auto
Man
Freq Offset
0 Hz

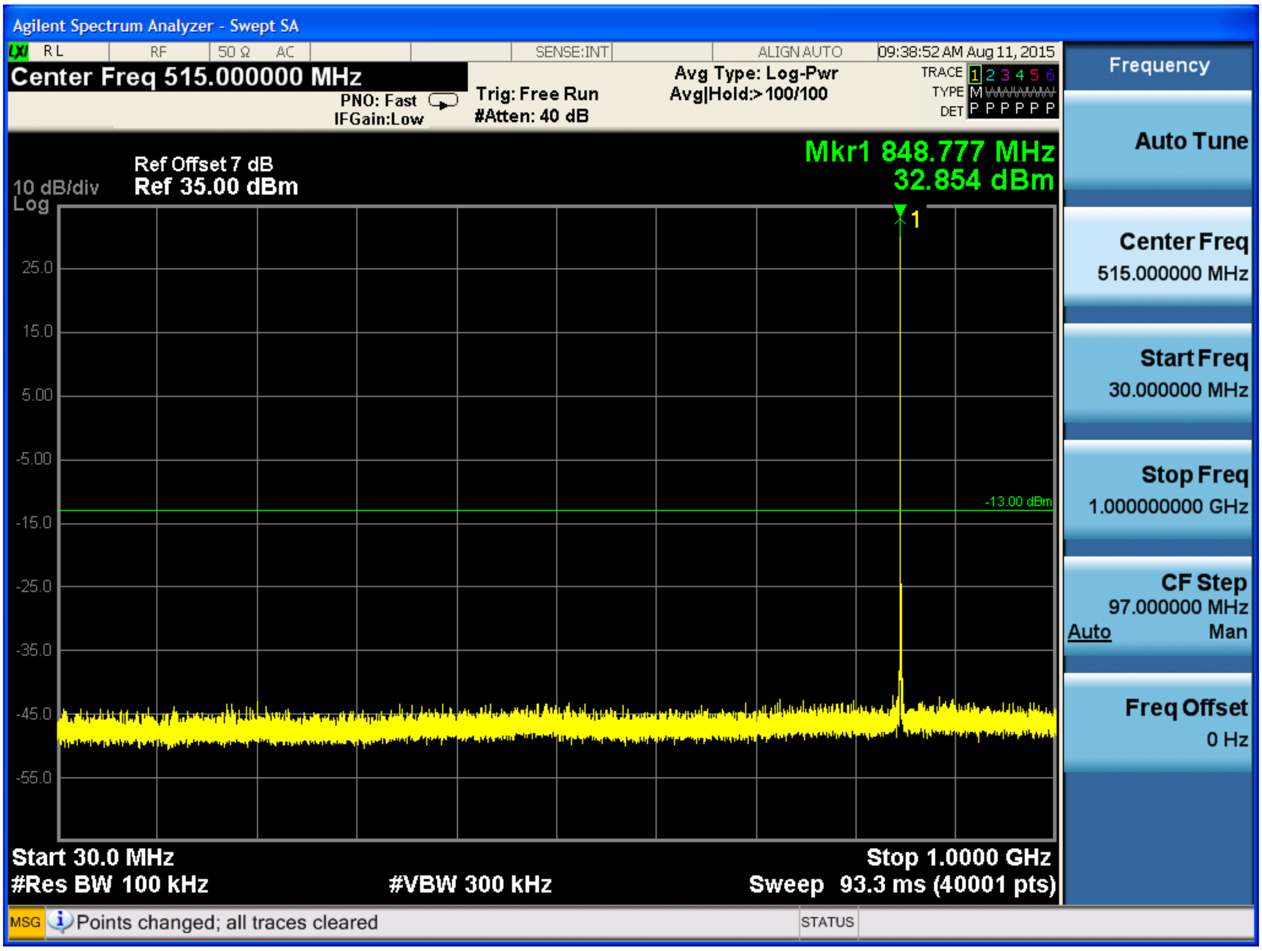

Agilent Spectrum Analyzer - Swept SA
RL RF 50 Ω AC SENSE:INT ALIGN AUTO 09:37:33 AM Aug 11, 2015
Center Freq 515.000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
TRACE 1 2 3 4 5 6
TYPE M
DET P P P P P P
Frequency
Ref Offset 7 dB
10 dB/div Ref 35.00 dBm
Log
Mkr1 836.604 MHz
32.082 dBm
25.0
15.0
5.00
-5.00
-15.0
-25.0
-35.0
-45.0
-55.0
-13.00 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 93.3 ms (40001 pts)
Auto Tune
Center Freq
515.000000 MHz
Start Freq
30.000000 MHz
Stop Freq
1.000000000 GHz
CF Step
97.000000 MHz
Auto Man
Freq Offset
0 Hz
MSG
Points changed; all traces cleared
STATUS

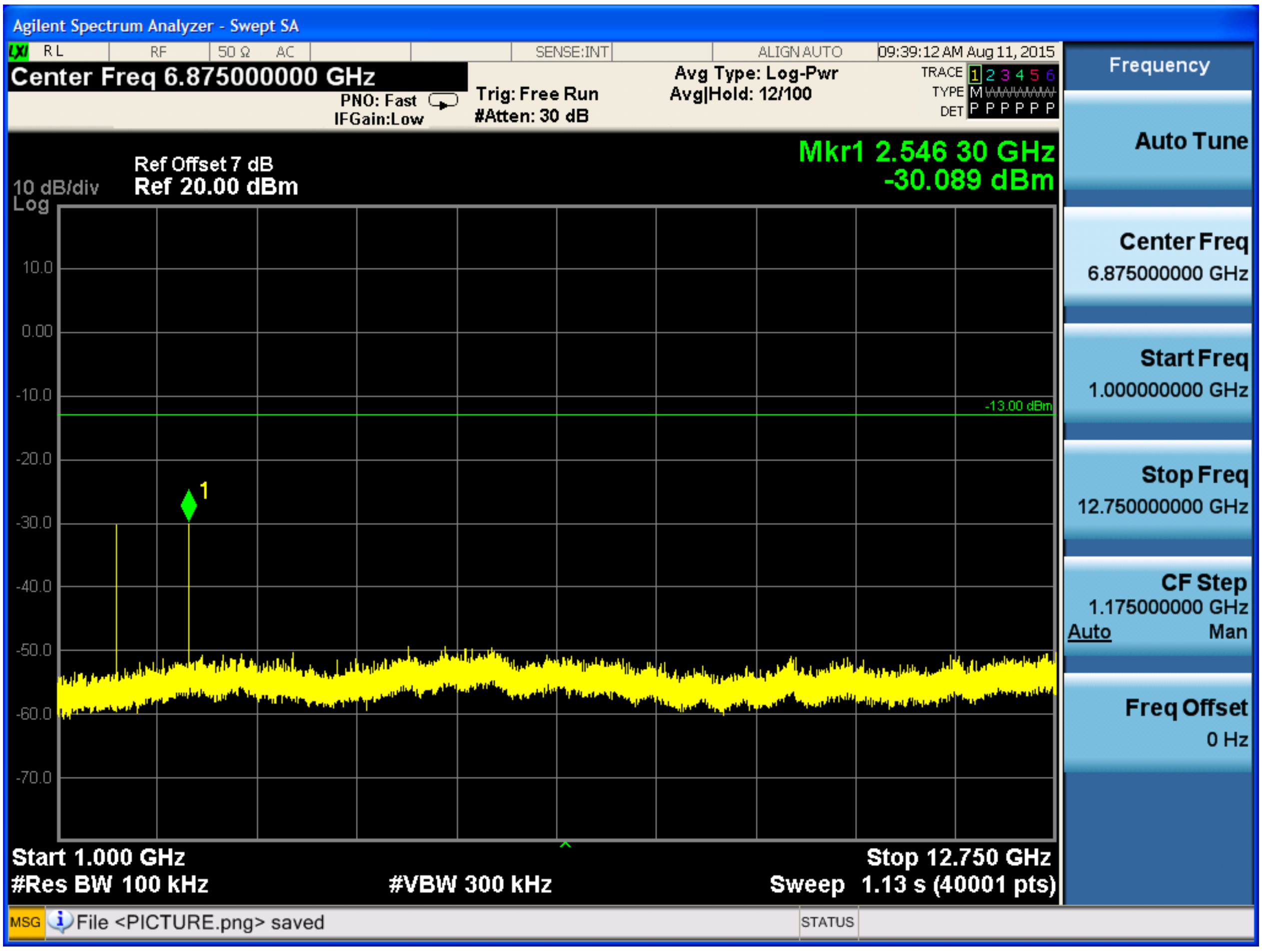

Agilent Spectrum Analyzer - Swept SA
Center Freq 6.875000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 12/100
09:37:52 AM Aug 11, 2015
Ref Offset 7 dB
Ref 20.00 dBm
10 dB/div
Log
Mkr1 1.673 28 GHz
-30.180 dBm
-13.00 dBm
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 12.750 GHz
Sweep 1.13 s (40001 pts)
Frequency
Auto Tune
Center Freq
6.875000000 GHz
Start Freq
1.000000000 GHz
Stop Freq
12.750000000 GHz
CF Step
1.175000000 GHz
Auto
Man
Freq Offset
0 Hz
File <PICTURE.png> saved

6.1.1.1.3 Test Channel = HCH



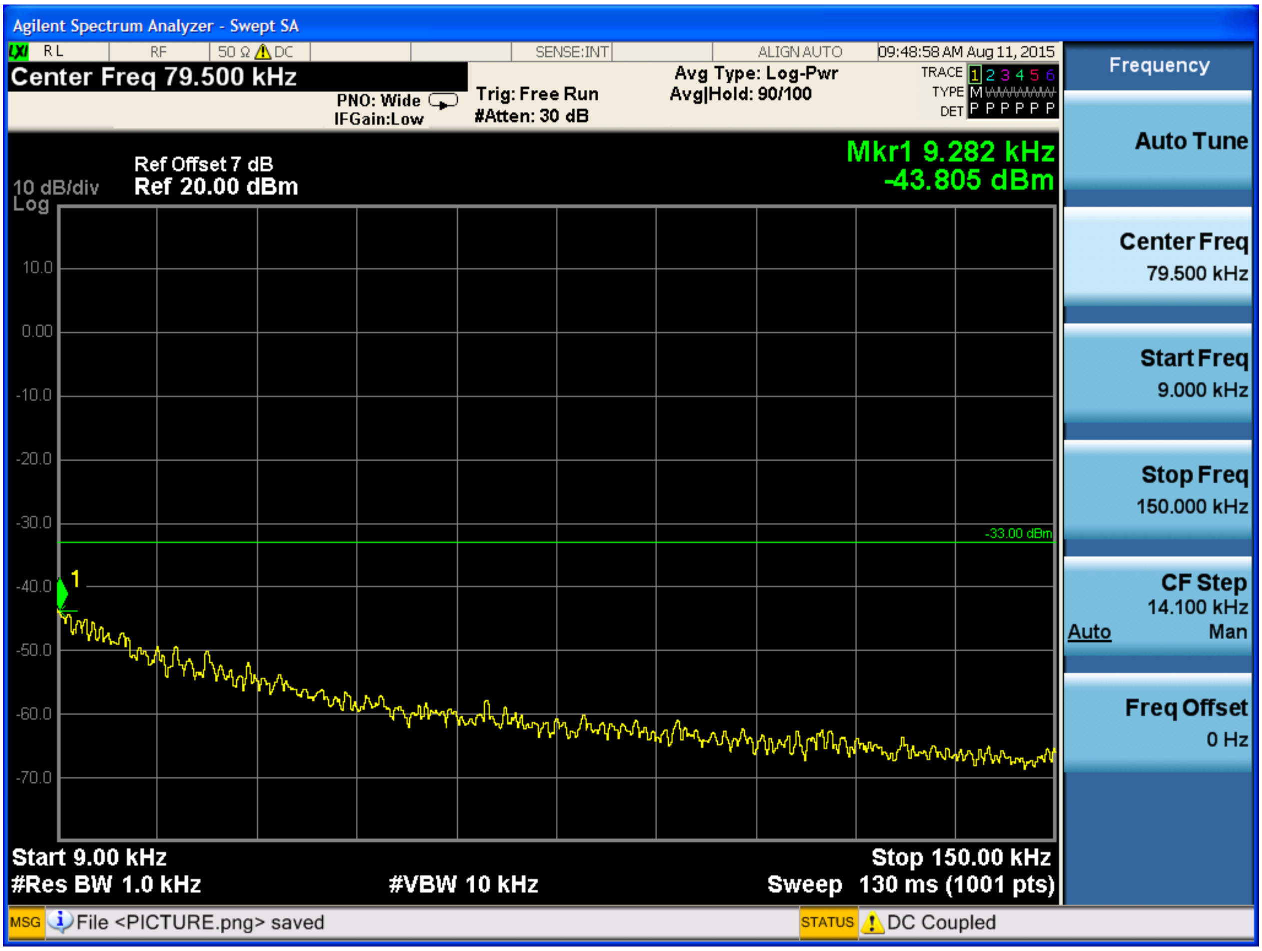

Agilent Spectrum Analyzer - Swept SA
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 54/100
09:38:33 AM Aug 11, 2015
Ref Offset 7 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 150.00 kHz
-44.734 dBm
-23.00 dBm
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz
Stop 30.00 MHz
Sweep 285 ms (5001 pts)
Points changed; all traces cleared
DC Coupled
Frequency
Auto Tune
Center Freq
15.075000 MHz
Start Freq
150.000 kHz
Stop Freq
30.000000 MHz
CF Step
2.985000 MHz
Auto
Man
Freq Offset
0 Hz

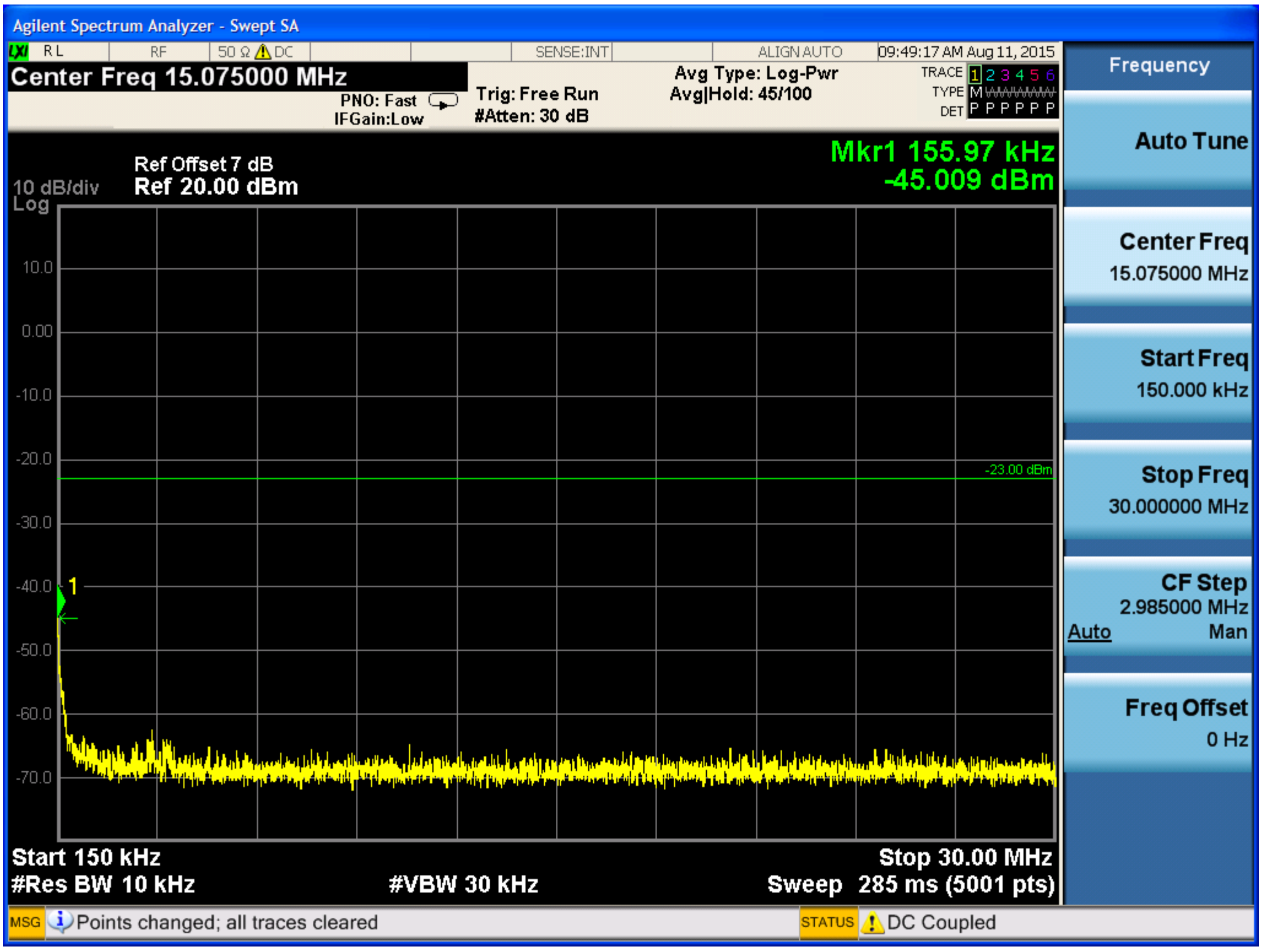

Agilent Spectrum Analyzer - Swept SA
Center Freq 515.000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
SENSE:INT
ALIGN AUTO
09:38:52 AM Aug 11, 2015
Ref Offset 7 dB
10 dB/div
Log
Ref 35.00 dBm
Mkr1 848.777 MHz
32.854 dBm
-13.00 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 93.3 ms (40001 pts)
Points changed; all traces cleared
Frequency
Auto Tune
Center Freq
515.000000 MHz
Start Freq
30.000000 MHz
Stop Freq
1.000000000 GHz
CF Step
97.000000 MHz
Auto
Man
Freq Offset
0 Hz

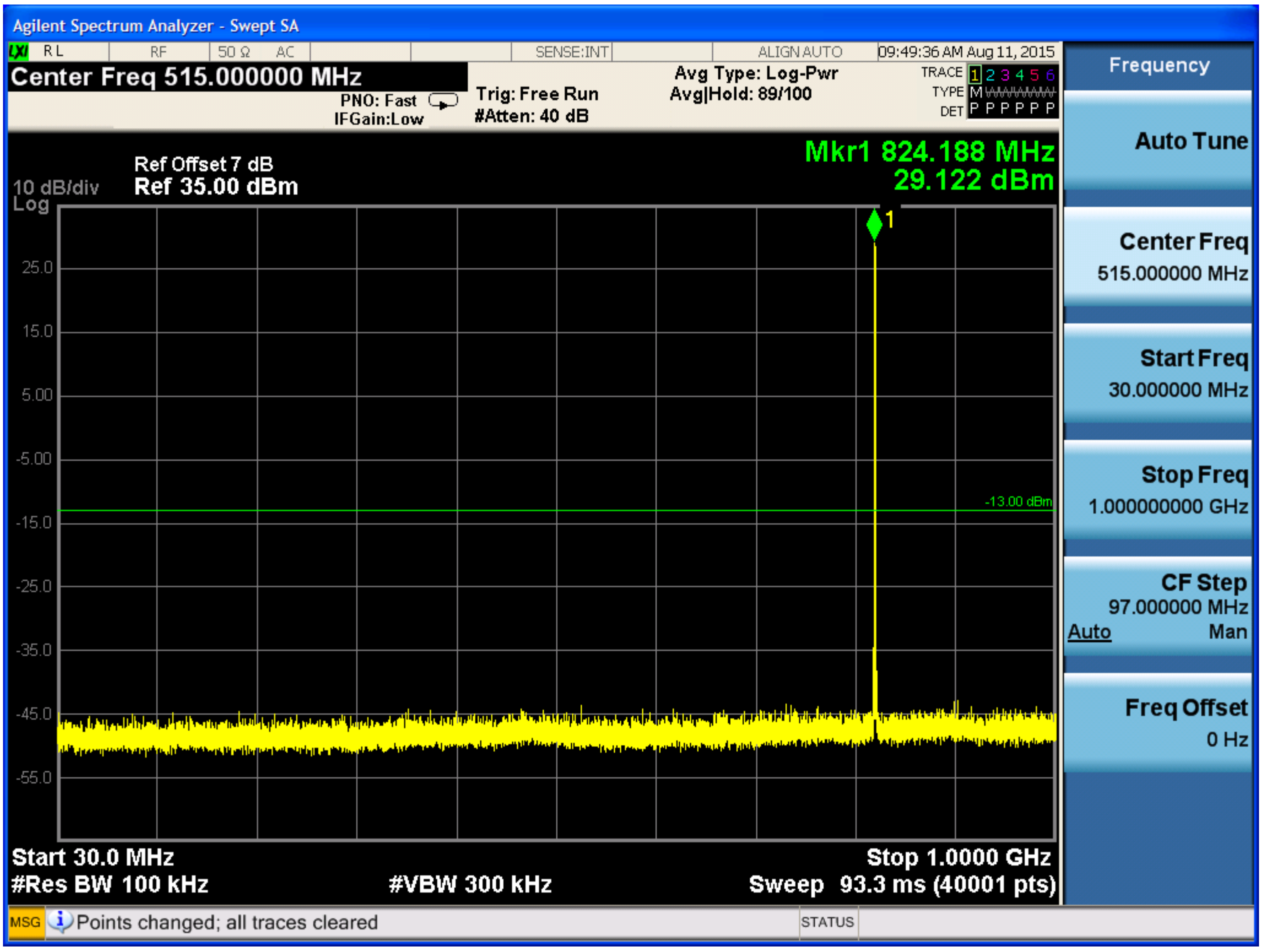

Agilent Spectrum Analyzer - Swept SA
RL
RF
50 Ω
AC
SENSE:INT
ALIGN AUTO
09:39:12 AM Aug 11, 2015
Center Freq 6.875000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 12/100
TRACE 1 2 3 4 5 6
TYPE M
DET P P P P P P
Frequency
Ref Offset 7 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 2.546 30 GHz
-30.089 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-13.00 dBm
1
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 12.750 GHz
Sweep 1.13 s (40001 pts)
Auto Tune
Center Freq
6.875000000 GHz
Start Freq
1.000000000 GHz
Stop Freq
12.750000000 GHz
CF Step
1.175000000 GHz
Auto
Man
Freq Offset
0 Hz
MSG
File <PICTURE.png> saved
STATUS

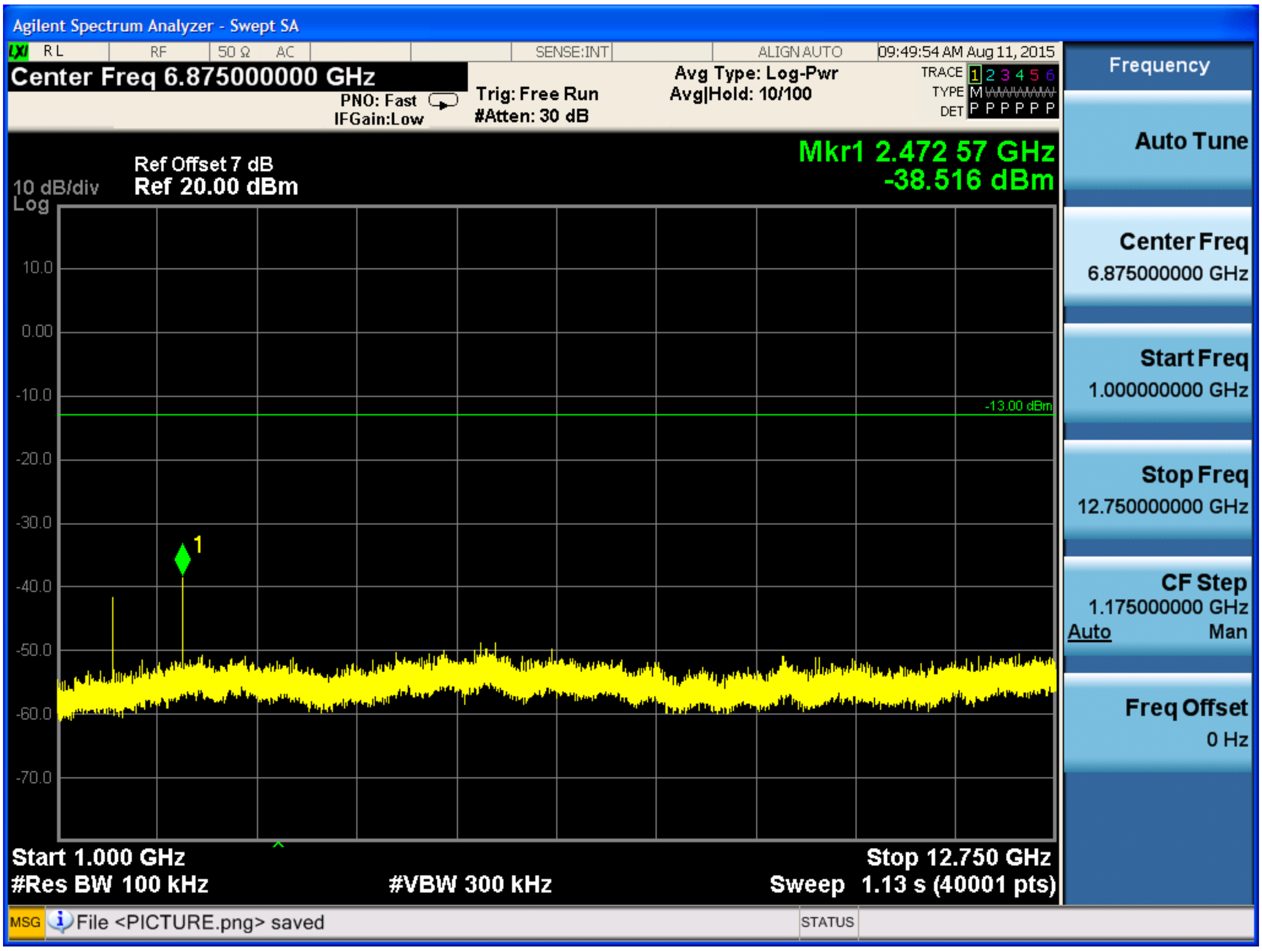
6.1.1.2 Test Mode = GSM/TM2

6.1.1.2.1 Test Channel = LCH

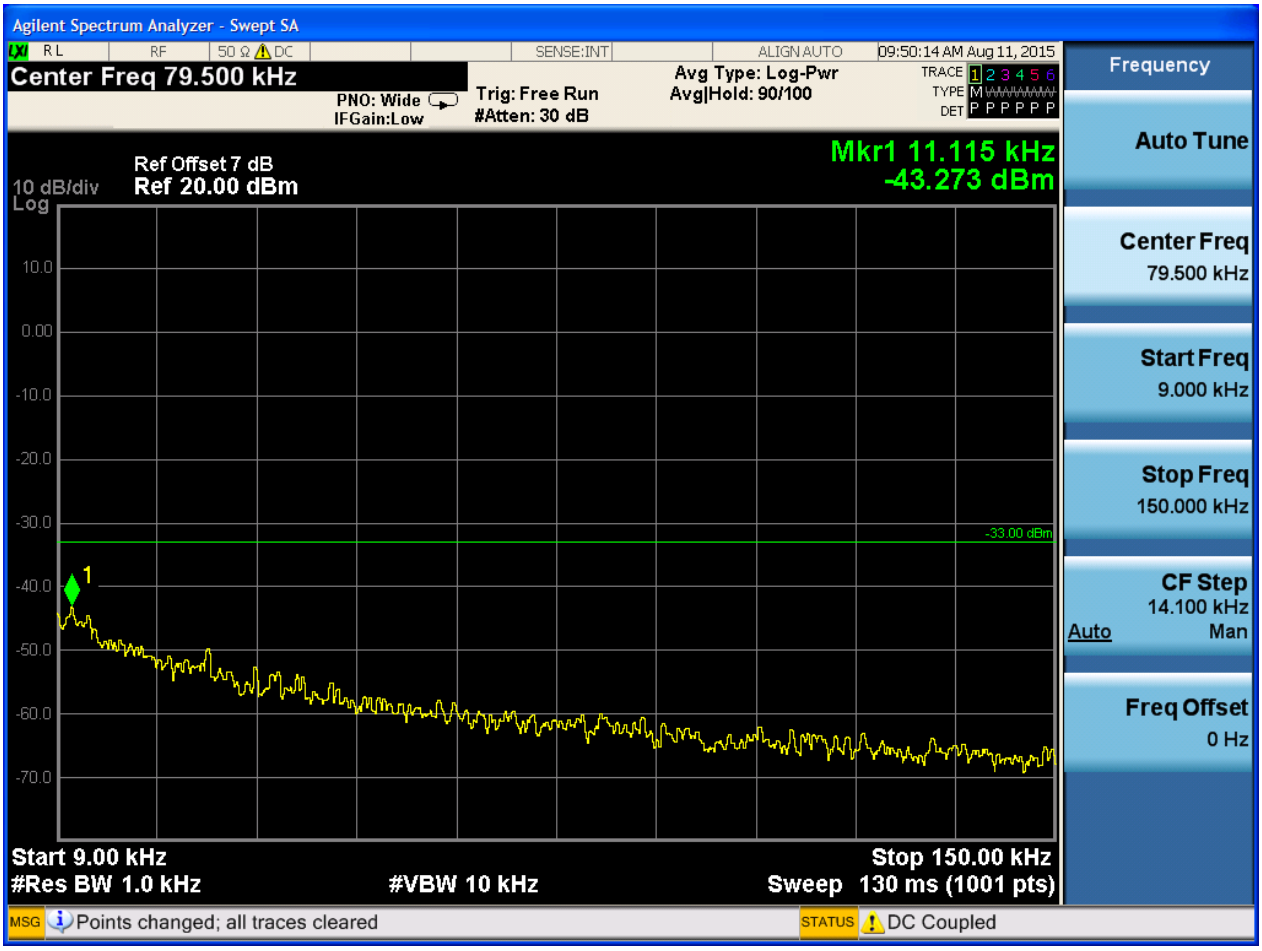


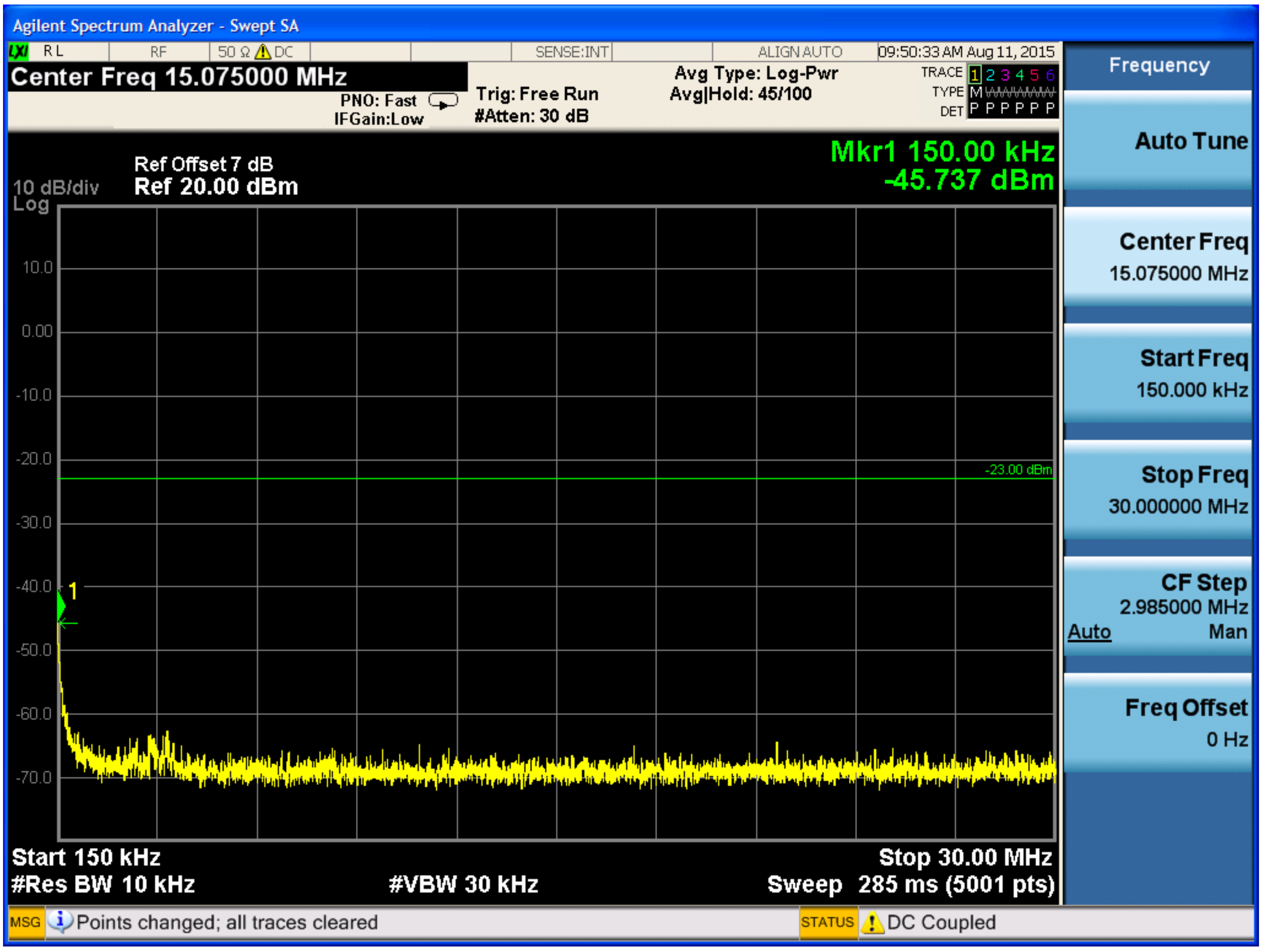

Agilent Spectrum Analyzer - Swept SA
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 45/100
09:49:17 AM Aug 11, 2015
Ref Offset 7 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 155.97 kHz
-45.009 dBm
-23.00 dBm
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz
Stop 30.00 MHz
Sweep 285 ms (5001 pts)
Frequency
Auto Tune
Center Freq
15.075000 MHz
Start Freq
150.000 kHz
Stop Freq
30.000000 MHz
CF Step
2.985000 MHz
Auto
Man
Freq Offset
0 Hz
Points changed; all traces cleared
DC Coupled

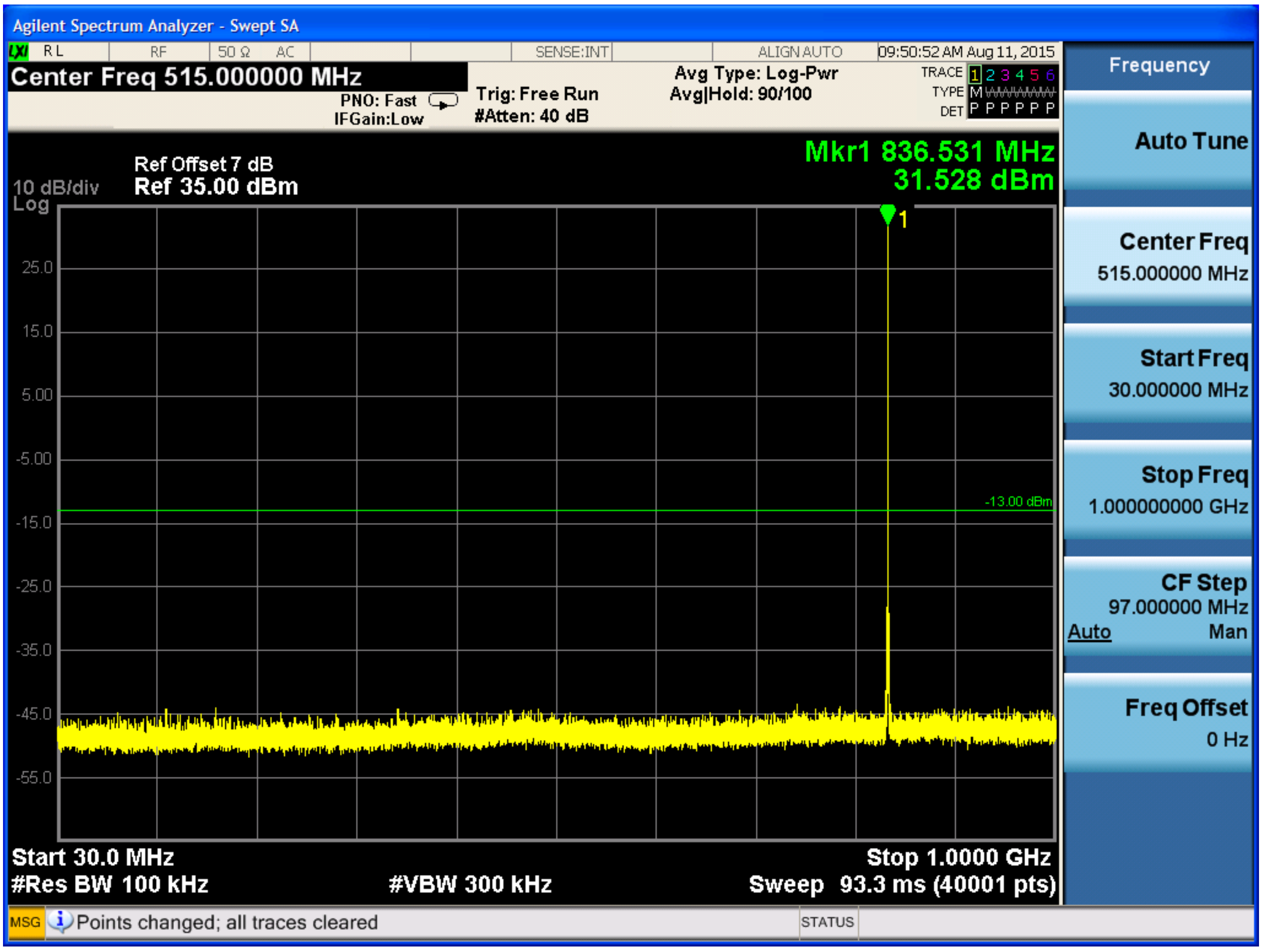

Agilent Spectrum Analyzer - Swept SA
RL RF 50 Ω AC SENSE:INT ALIGN AUTO 09:49:36 AM Aug 11, 2015
Center Freq 515.000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: Log-Pwr
Avg|Hold: 89/100
TRACE 1 2 3 4 5 6
TYPE M
DET P P P P P P
Frequency
Ref Offset 7 dB
10 dB/div Ref 35.00 dBm
Log
Mkr1 824.188 MHz
29.122 dBm
25.0
15.0
5.00
-5.00
-15.0
-25.0
-35.0
-45.0
-55.0
-13.00 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 93.3 ms (40001 pts)
Auto Tune
Center Freq
515.000000 MHz
Start Freq
30.000000 MHz
Stop Freq
1.000000000 GHz
CF Step
97.000000 MHz
Auto Man
Freq Offset
0 Hz
MSG Points changed; all traces cleared
STATUS

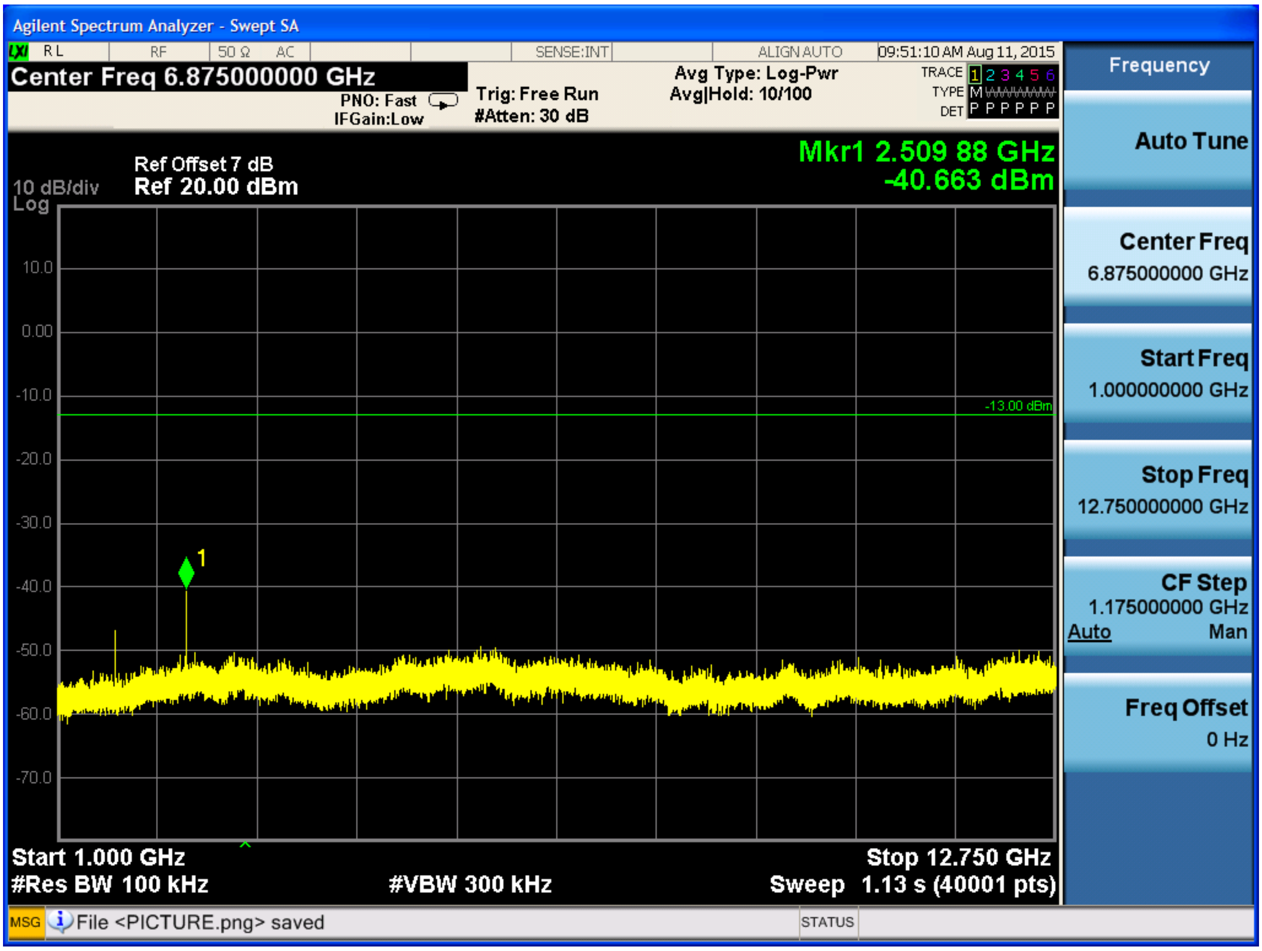

Agilent Spectrum Analyzer - Swept SA
Center Freq 6.875000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 10/100
09:49:54 AM Aug 11, 2015
Ref Offset 7 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 2.472 57 GHz
-38.516 dBm
-13.00 dBm
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 12.750 GHz
Sweep 1.13 s (40001 pts)
File <PICTURE.png> saved
Frequency
Auto Tune
Center Freq
6.875000000 GHz
Start Freq
1.000000000 GHz
Stop Freq
12.750000000 GHz
CF Step
1.175000000 GHz
Auto
Man
Freq Offset
0 Hz

6.1.1.2.2 Test Channel = MCH

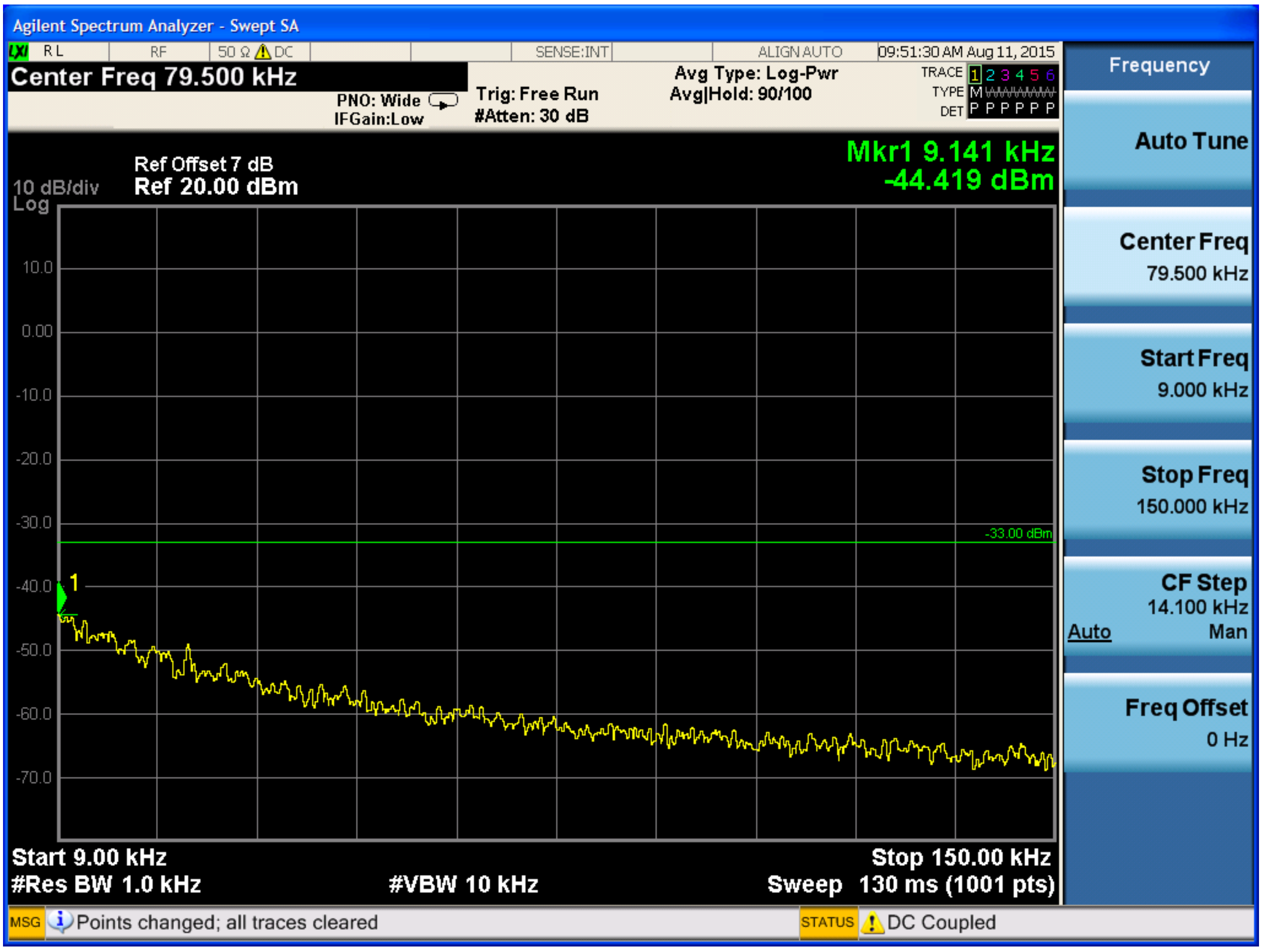


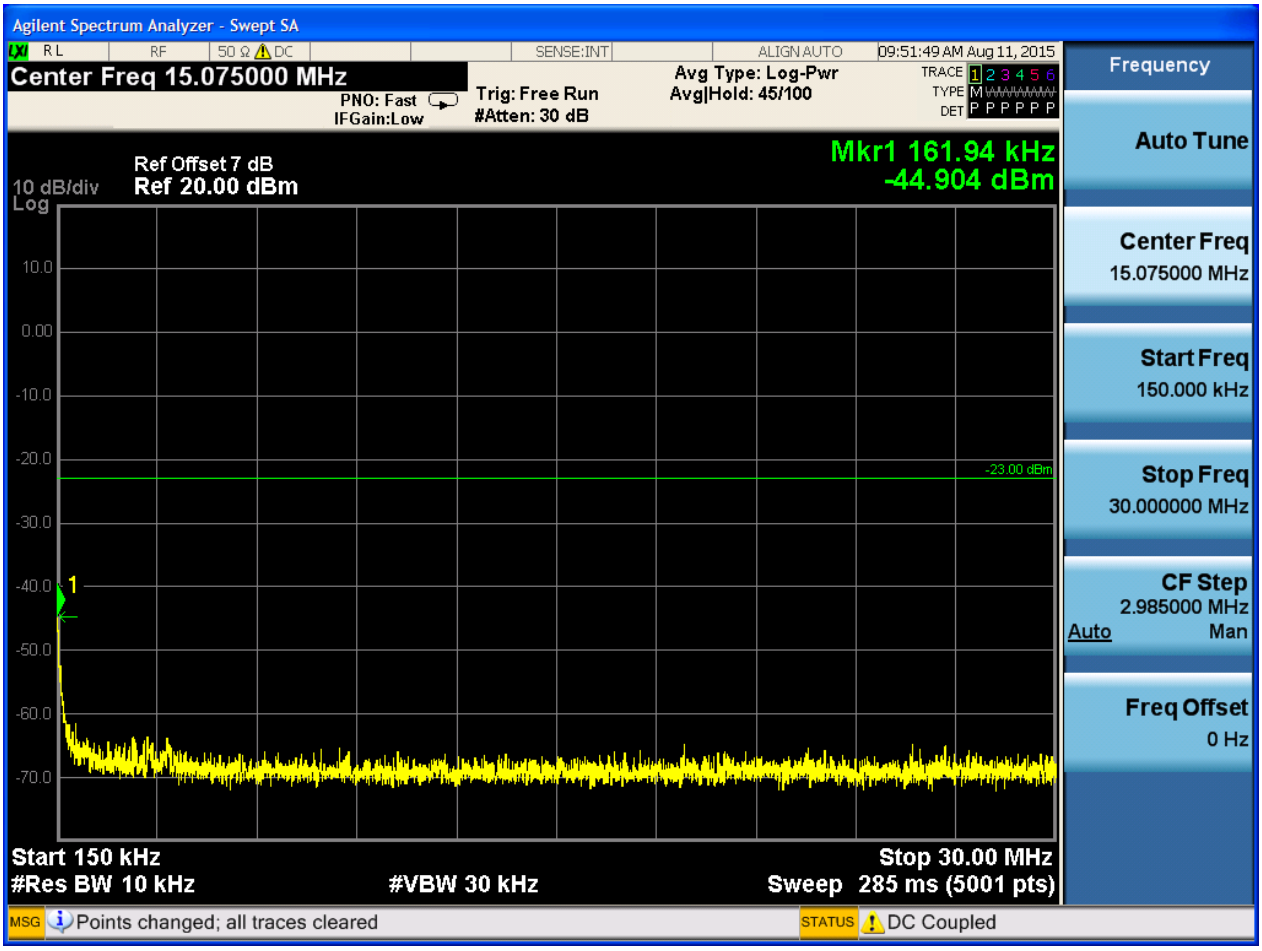

Agilent Spectrum Analyzer - Swept SA
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 45/100
09:50:33 AM Aug 11, 2015
Ref Offset 7 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 150.00 kHz
-45.737 dBm
-23.00 dBm
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz
Stop 30.00 MHz
Sweep 285 ms (5001 pts)
Points changed; all traces cleared
DC Coupled
Frequency
Auto Tune
Center Freq
15.075000 MHz
Start Freq
150.000 kHz
Stop Freq
30.000000 MHz
CF Step
2.985000 MHz
Auto
Man
Freq Offset
0 Hz


Agilent Spectrum Analyzer - Swept SA
RL RF 50 Ω AC SENSE:INT ALIGN AUTO 09:50:52 AM Aug 11, 2015
Center Freq 515.000000 MHz
PNO: Fast IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: Log-Pwr
Avg|Hold: 90/100
TRACE 1 2 3 4 5 6
TYPE M
DET P P P P P P
Ref Offset 7 dB
10 dB/div Log
Ref 35.00 dBm
Mkr1 836.531 MHz
31.528 dBm
25.0
15.0
5.00
-5.00
-15.0
-25.0
-35.0
-45.0
-55.0
-13.00 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 93.3 ms (40001 pts)
MSG Points changed; all traces cleared
STATUS
Frequency
Auto Tune
Center Freq
515.000000 MHz
Start Freq
30.000000 MHz
Stop Freq
1.000000000 GHz
CF Step
97.000000 MHz
Auto
Man
Freq Offset
0 Hz

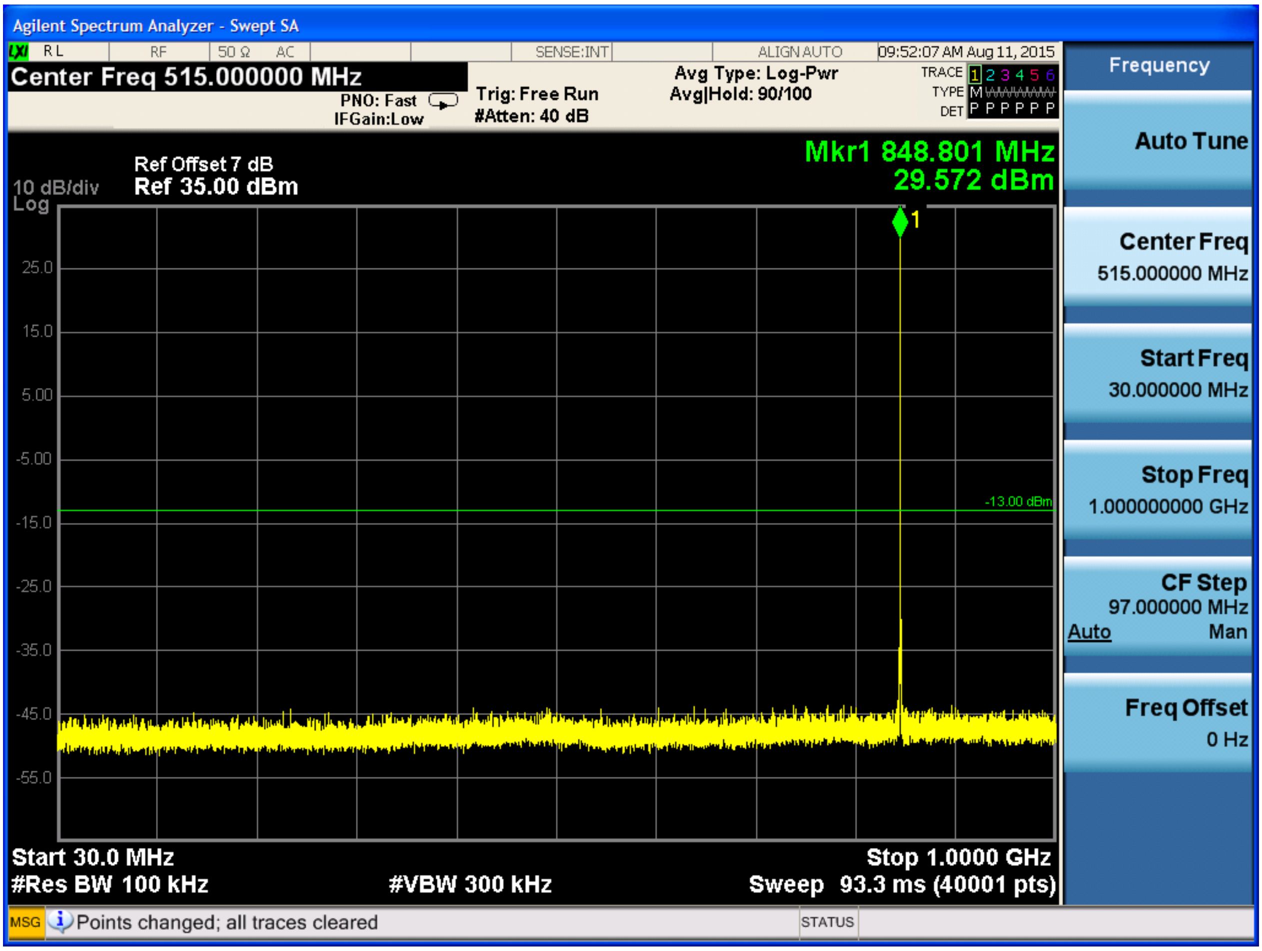

Agilent Spectrum Analyzer - Swept SA
Center Freq 6.875000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 10/100
09:51:10 AM Aug 11, 2015
Ref Offset 7 dB
10 dB/div Ref 20.00 dBm
Log
Mkr1 2.509 88 GHz
-40.663 dBm
-13.00 dBm
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 12.750 GHz
Sweep 1.13 s (40001 pts)
Frequency
Auto Tune
Center Freq
6.875000000 GHz
Start Freq
1.000000000 GHz
Stop Freq
12.750000000 GHz
CF Step
1.175000000 GHz
Auto Man
Freq Offset
0 Hz
File <PICTURE.png> saved
STATUS

6.1.1.2.3 Test Channel = HCH

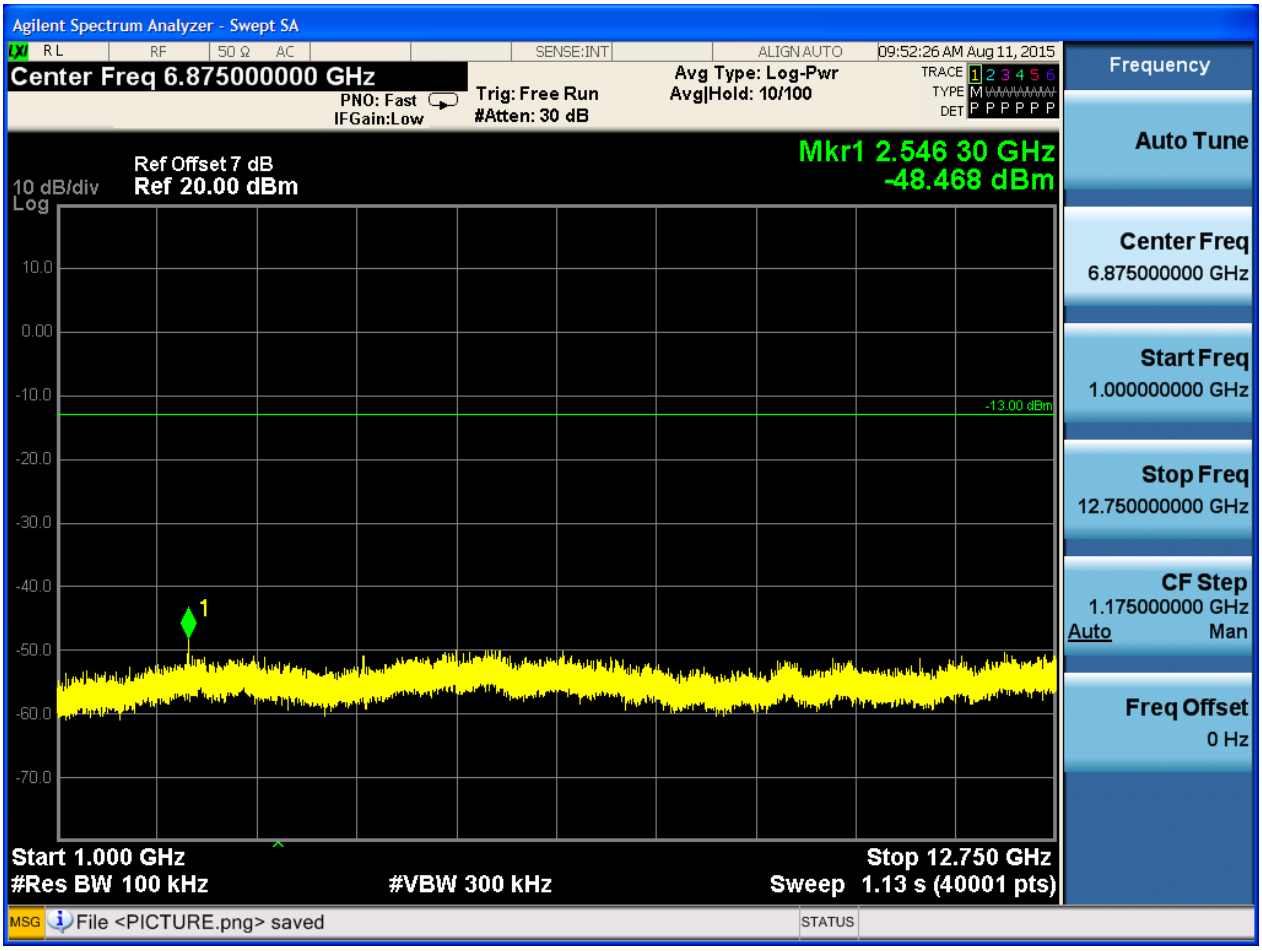




Huawei Proprietary and Confidential



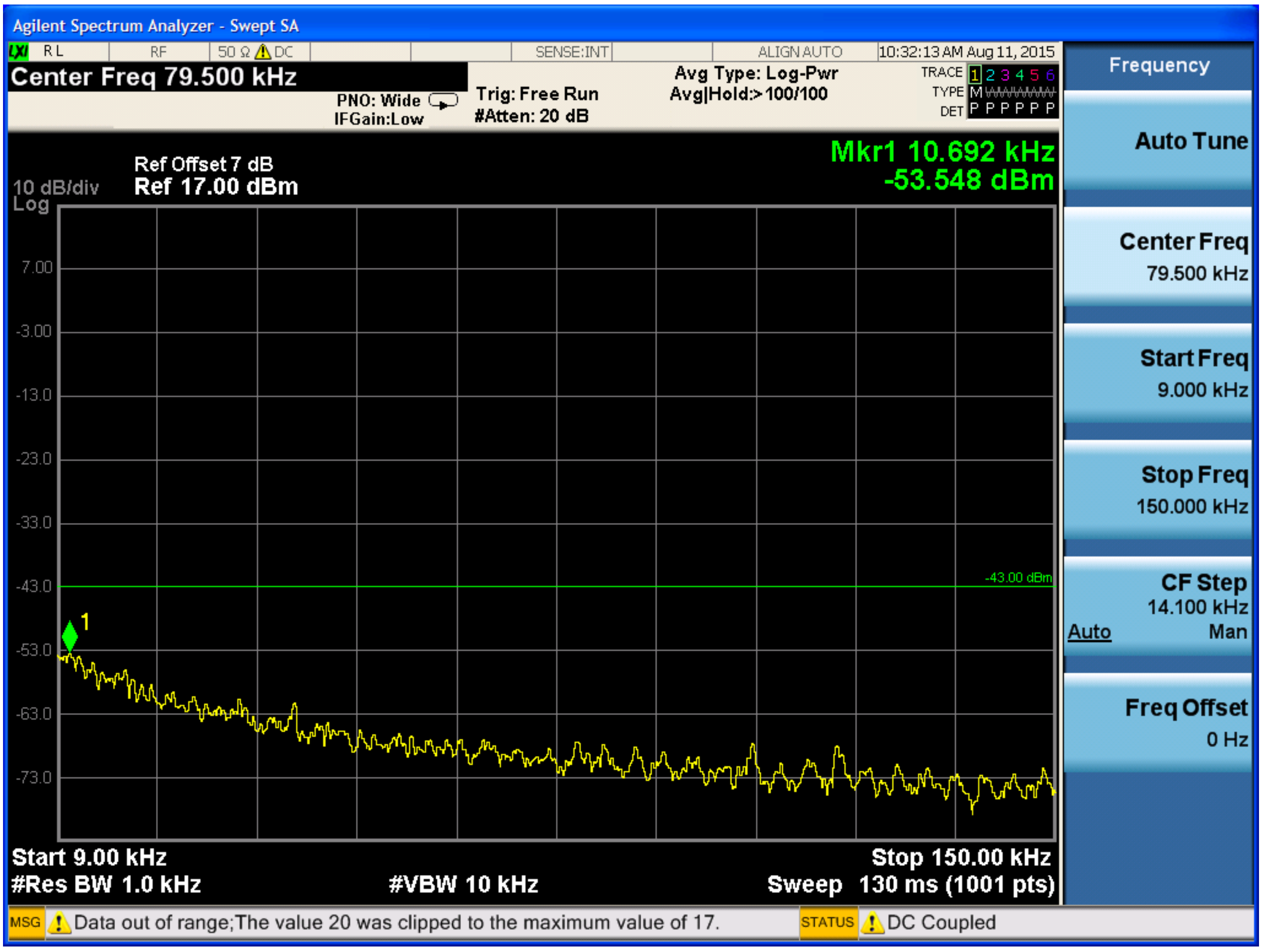
Agilent Spectrum Analyzer - Swept SA
Center Freq 515.000000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: Log-Pwr
Avg|Hold: 90/100
09:52:07 AM Aug 11, 2015
Ref Offset 7 dB
10 dB/div Ref 35.00 dBm
Log
Mkr1 848.801 MHz
29.572 dBm
-13.00 dBm
Start 30.0 MHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 1.0000 GHz
Sweep 93.3 ms (40001 pts)
Points changed; all traces cleared
Frequency
Auto Tune
Center Freq
515.000000 MHz
Start Freq
30.000000 MHz
Stop Freq
1.000000000 GHz
CF Step
97.000000 MHz
Auto Man
Freq Offset
0 Hz

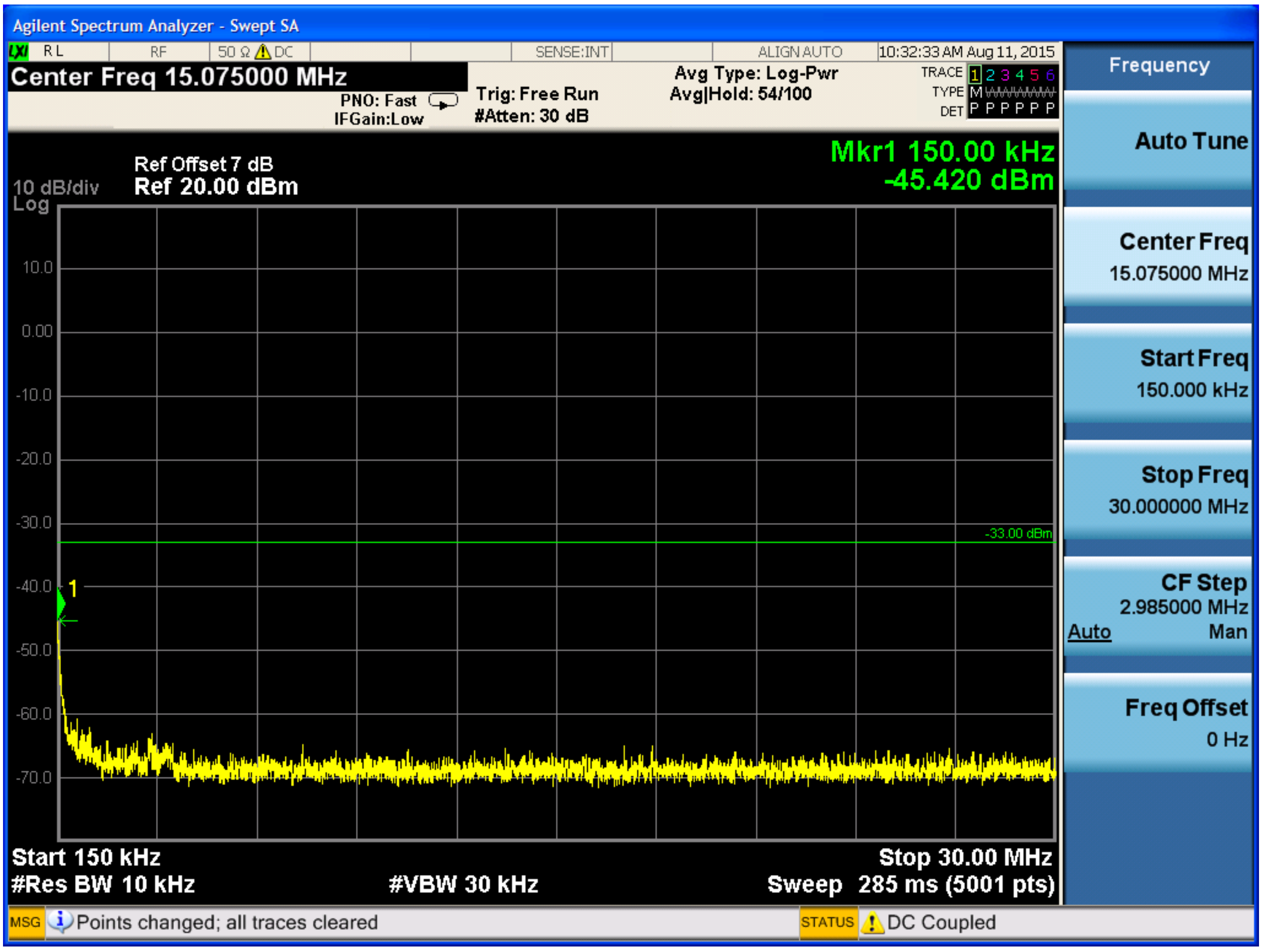

Agilent Spectrum Analyzer - Swept SA
RL
RF
50 Ω AC
SENSE:INT
ALIGN AUTO
09:52:26 AM Aug 11, 2015
Center Freq 6.875000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 10/100
TRACE 1 2 3 4 5 6
TYPE M
DET P P P P P P
Frequency
Ref Offset 7 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 2.546 30 GHz
-48.468 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-13.00 dBm
1
Start 1.000 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 12.750 GHz
Sweep 1.13 s (40001 pts)
Auto Tune
Center Freq
6.875000000 GHz
Start Freq
1.000000000 GHz
Stop Freq
12.750000000 GHz
CF Step
1.175000000 GHz
Auto
Man
Freq Offset
0 Hz
MSG
File <PICTURE.png> saved
STATUS

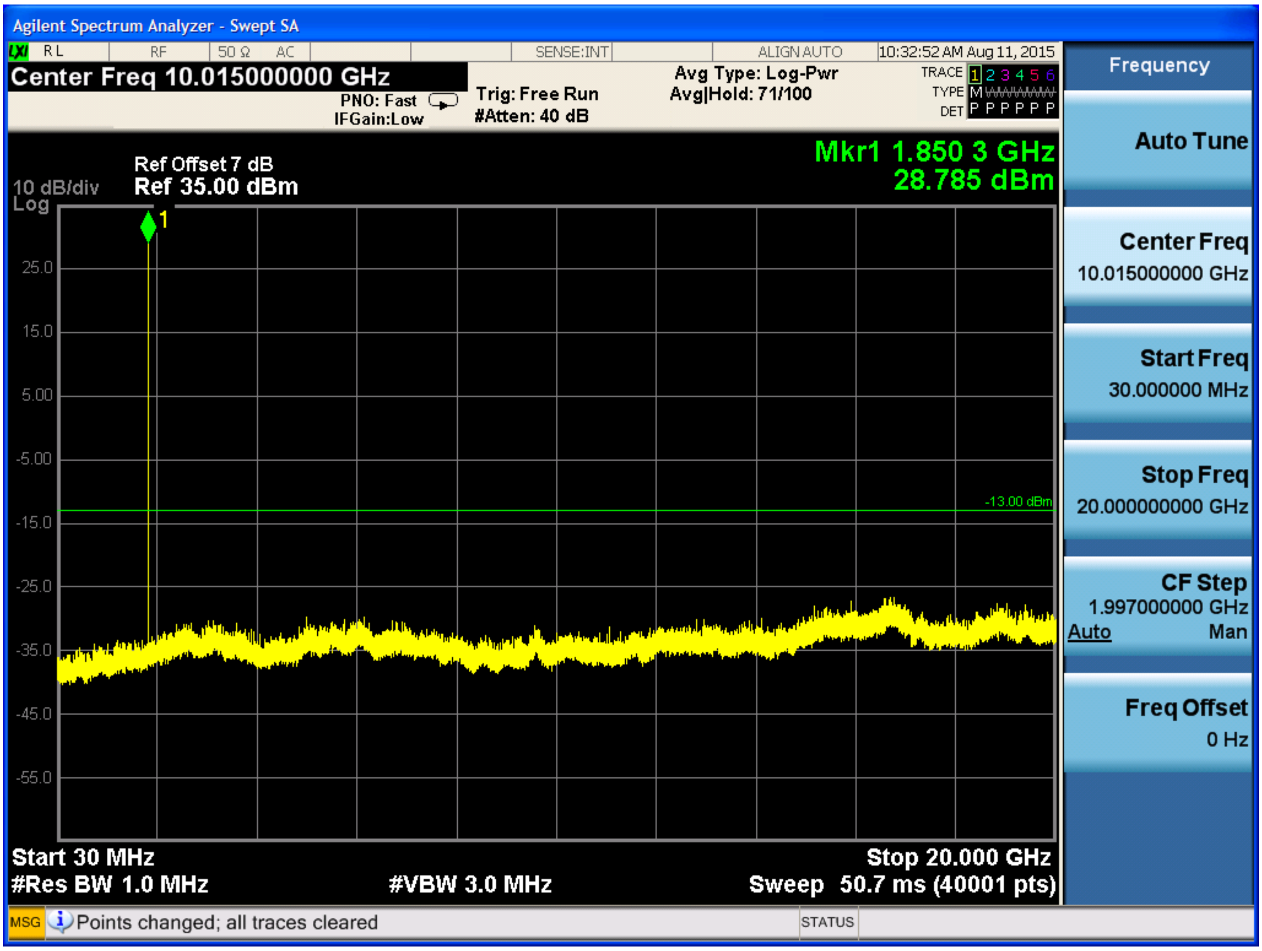
6.1.2 Test Band = GSM1900

6.1.2.1 Test Mode = GSM/TM1

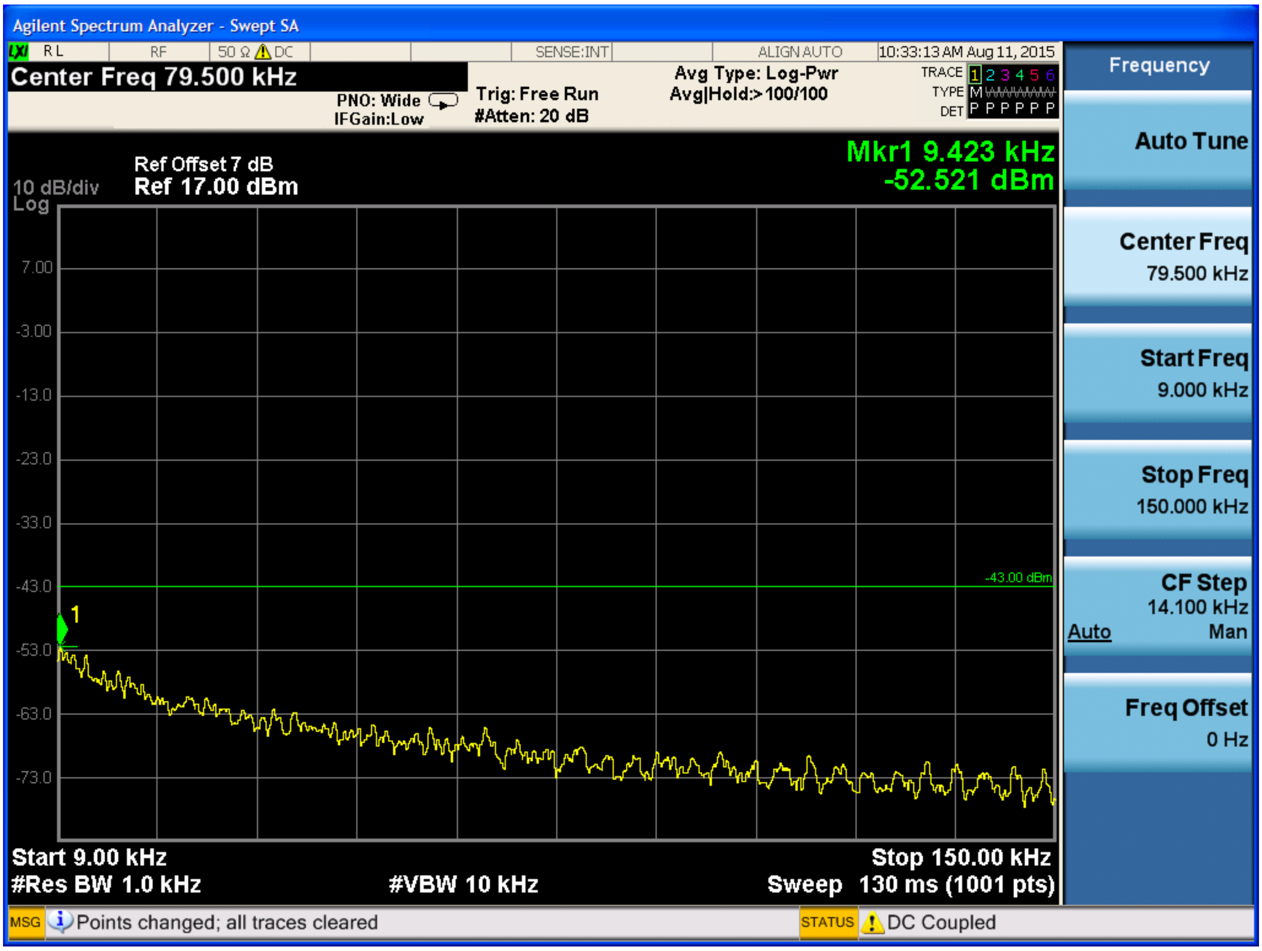
6.1.2.1.1 Test Channel = LCH

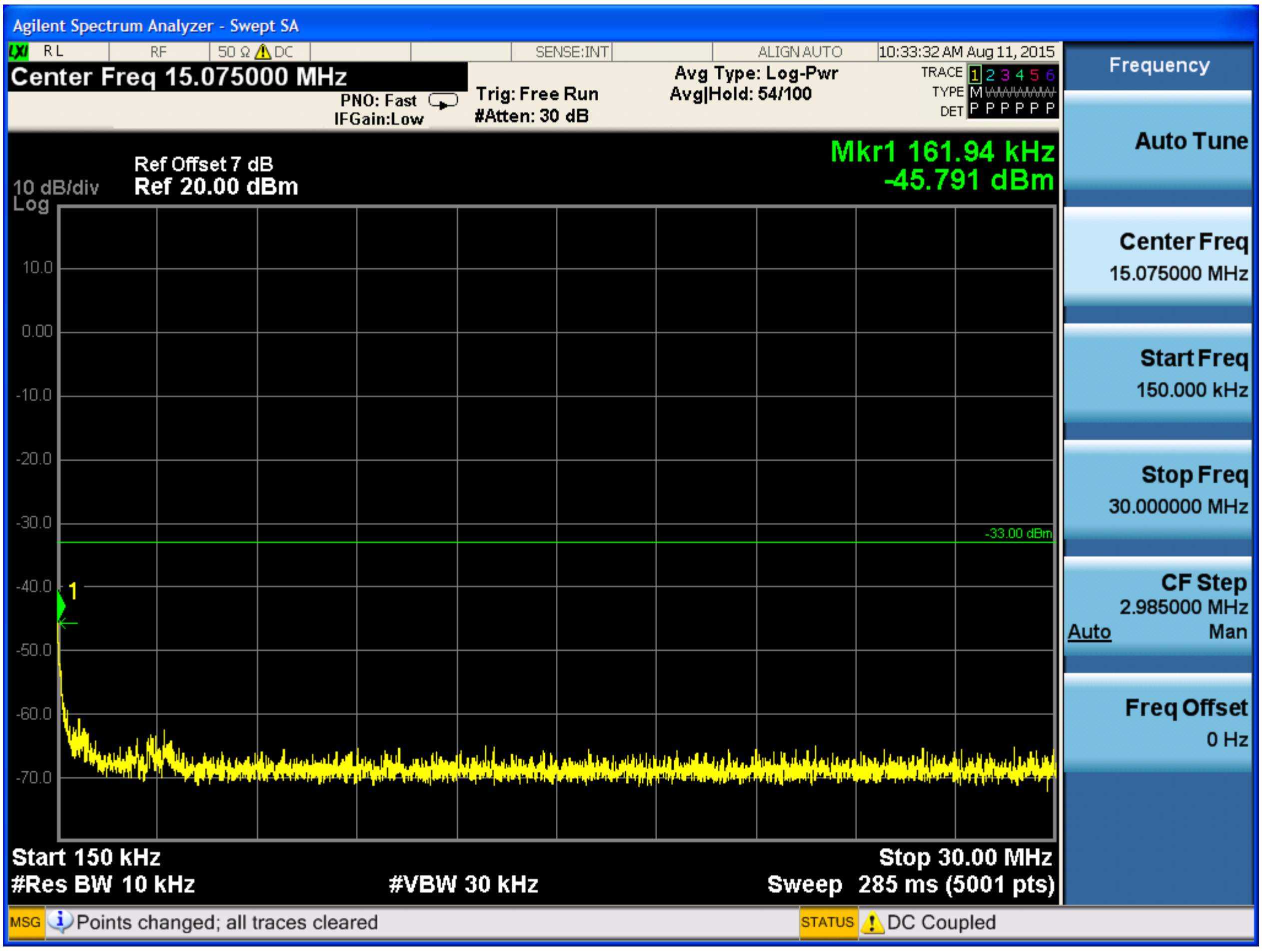


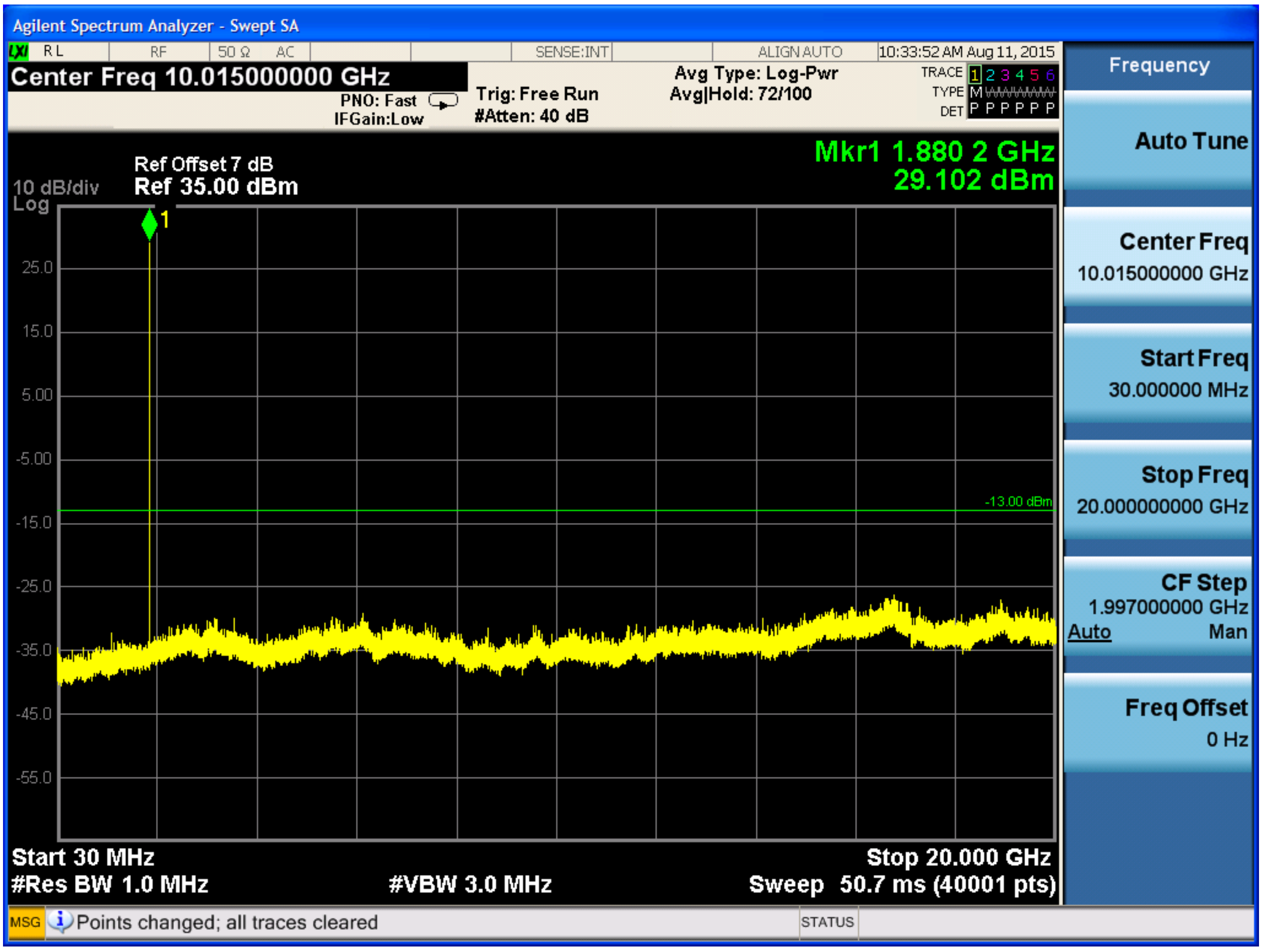

Agilent Spectrum Analyzer - Swept SA
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 54/100
10:32:33 AM Aug 11, 2015
Ref Offset 7 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 150.00 kHz
-45.420 dBm
-33.00 dBm
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz
Stop 30.00 MHz
Sweep 285 ms (5001 pts)
Frequency
Auto Tune
Center Freq
15.075000 MHz
Start Freq
150.000 kHz
Stop Freq
30.000000 MHz
CF Step
2.985000 MHz
Auto
Man
Freq Offset
0 Hz
Points changed; all traces cleared
DC Coupled


Agilent Spectrum Analyzer - Swept SA
Center Freq 10.015000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: Log-Pwr
Avg|Hold: 71/100
10:32:52 AM Aug 11, 2015
Ref Offset 7 dB
Ref 35.00 dBm
10 dB/div
Log
Mkr1 1.850 3 GHz
28.785 dBm
-13.00 dBm
Start 30 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 20.000 GHz
Sweep 50.7 ms (40001 pts)
Points changed; all traces cleared
Frequency
Auto Tune
Center Freq
10.015000000 GHz
Start Freq
30.000000 MHz
Stop Freq
20.000000000 GHz
CF Step
1.997000000 GHz
Auto
Man
Freq Offset
0 Hz

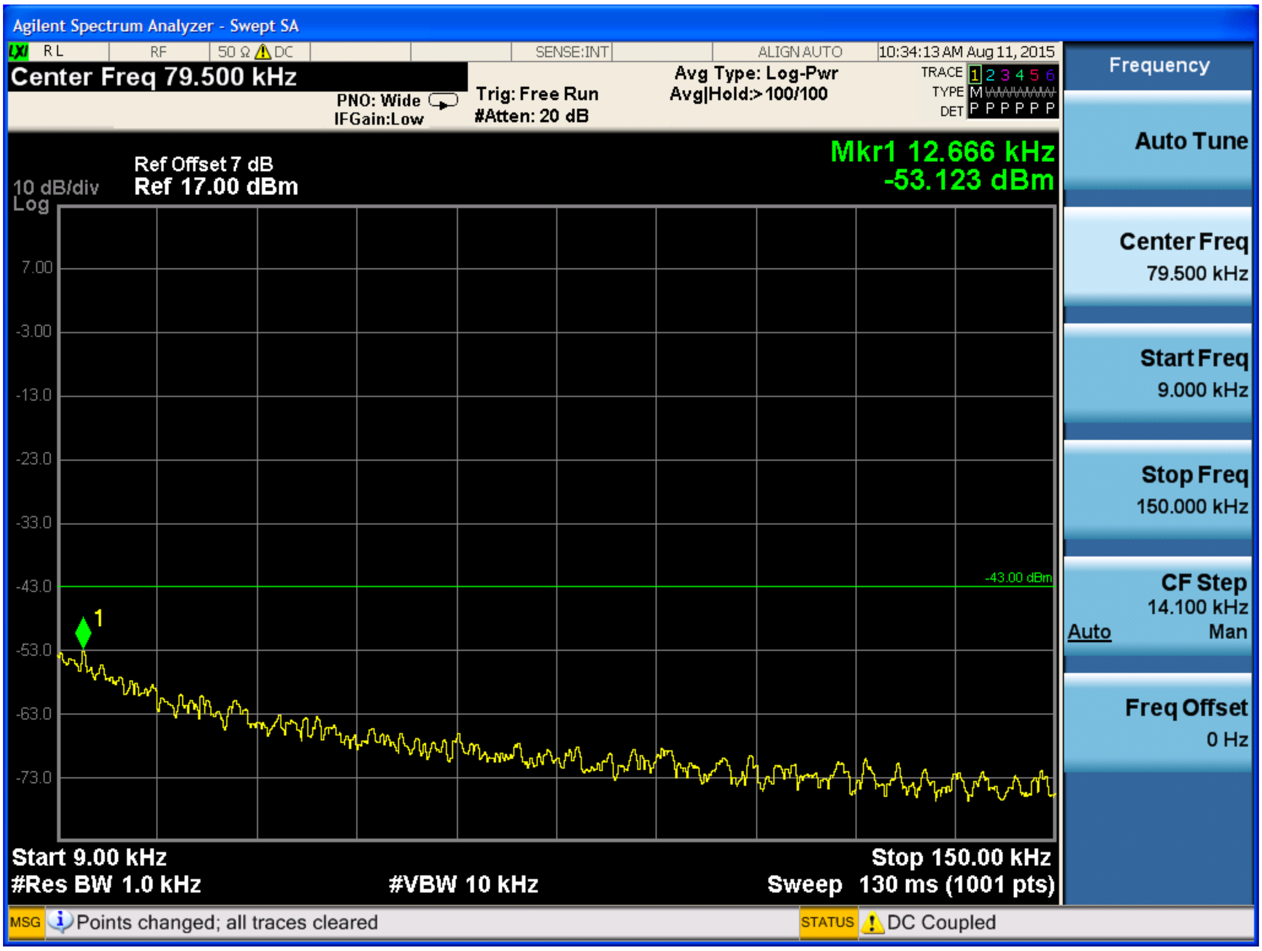
6.1.2.1.2 Test Channel = MCH

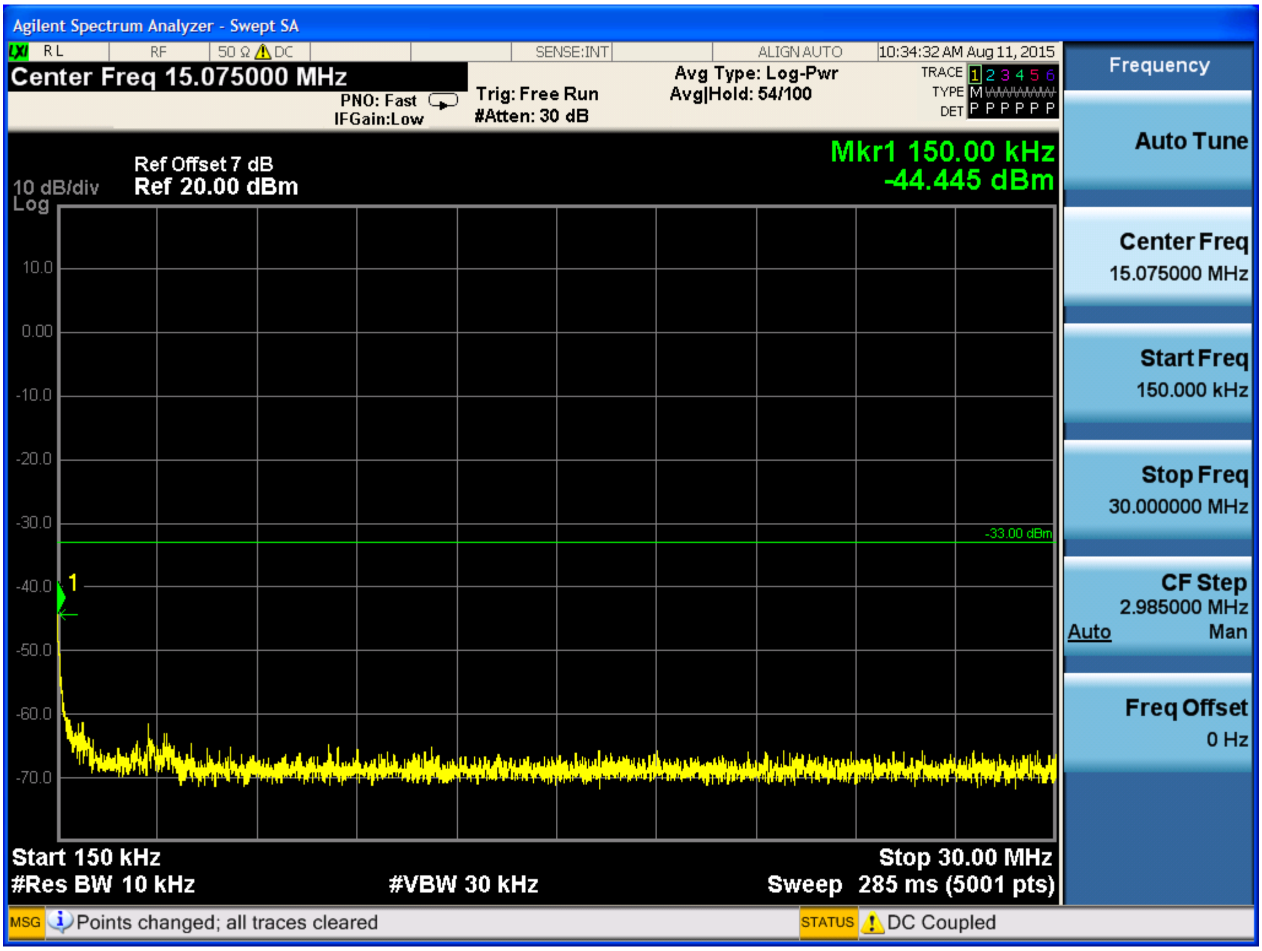


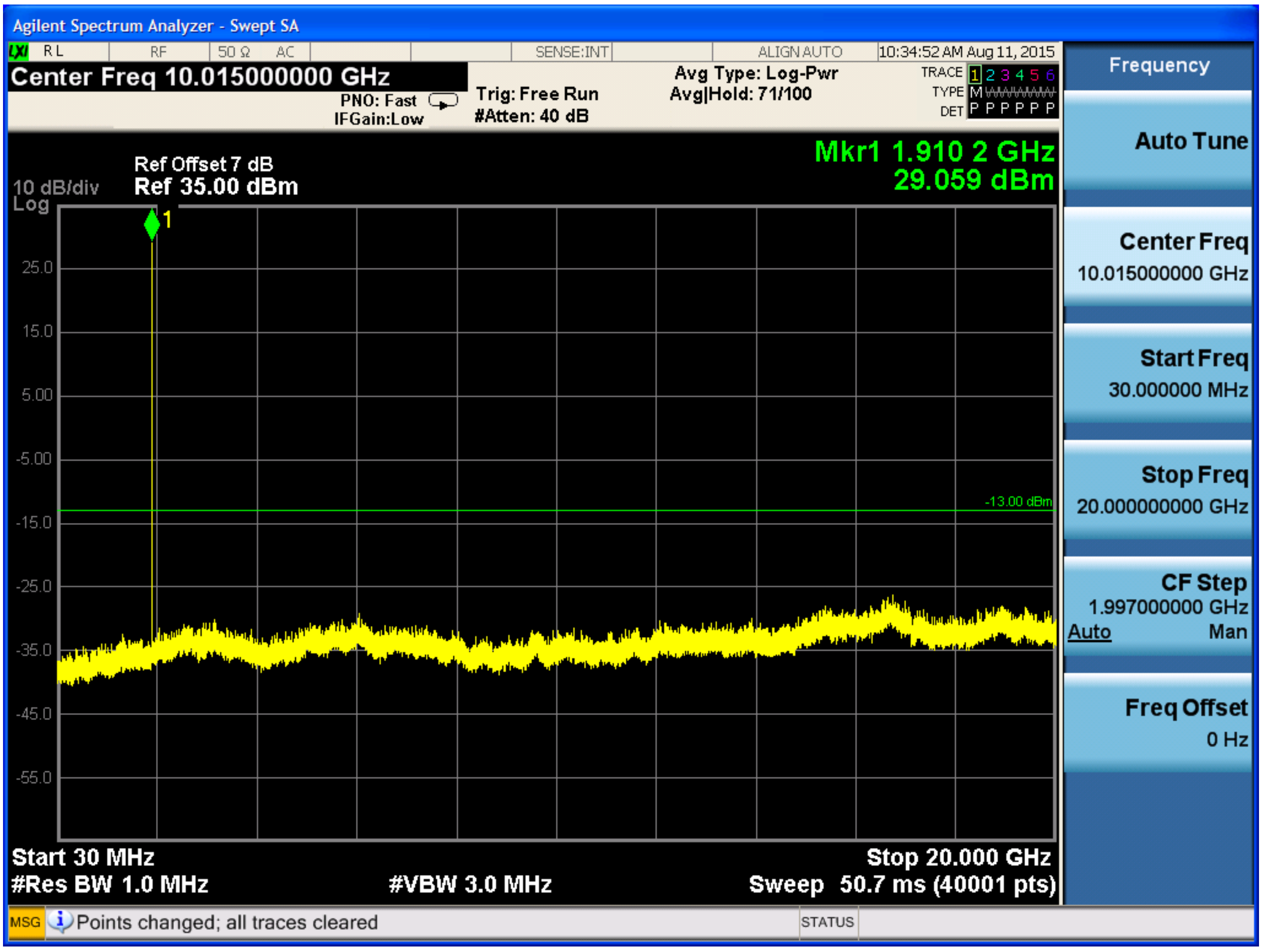

Agilent Spectrum Analyzer - Swept SA
R L
RF
50 Ω DC
SENSE:INT
ALIGN AUTO
10:33:32 AM Aug 11, 2015
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 54/100
TRACE 1 2 3 4 5 6
TYPE M
DET P P P P P P
Frequency
Ref Offset 7 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 161.94 kHz
-45.791 dBm
10.0
0.00
-10.0
-20.0
-30.0
-33.00 dBm
-40.0
-50.0
-60.0
-70.0
1
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz
Stop 30.00 MHz
Sweep 285 ms (5001 pts)
Auto Tune
Center Freq
15.075000 MHz
Start Freq
150.000 kHz
Stop Freq
30.000000 MHz
CF Step
2.985000 MHz
Auto
Man
Freq Offset
0 Hz
MSG
Points changed; all traces cleared
STATUS
DC Coupled


Agilent Spectrum Analyzer - Swept SA
Center Freq 10.015000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: Log-Pwr
Avg|Hold: 72/100
10:33:52 AM Aug 11, 2015
Ref Offset 7 dB
10 dB/div
Log
Ref 35.00 dBm
Mkr1 1.880 2 GHz
29.102 dBm
-13.00 dBm
Start 30 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 20.000 GHz
Sweep 50.7 ms (40001 pts)
Points changed; all traces cleared
Frequency
Auto Tune
Center Freq
10.015000000 GHz
Start Freq
30.000000 MHz
Stop Freq
20.000000000 GHz
CF Step
1.997000000 GHz
Auto
Man
Freq Offset
0 Hz

6.1.2.1.3 Test Channel = HCH

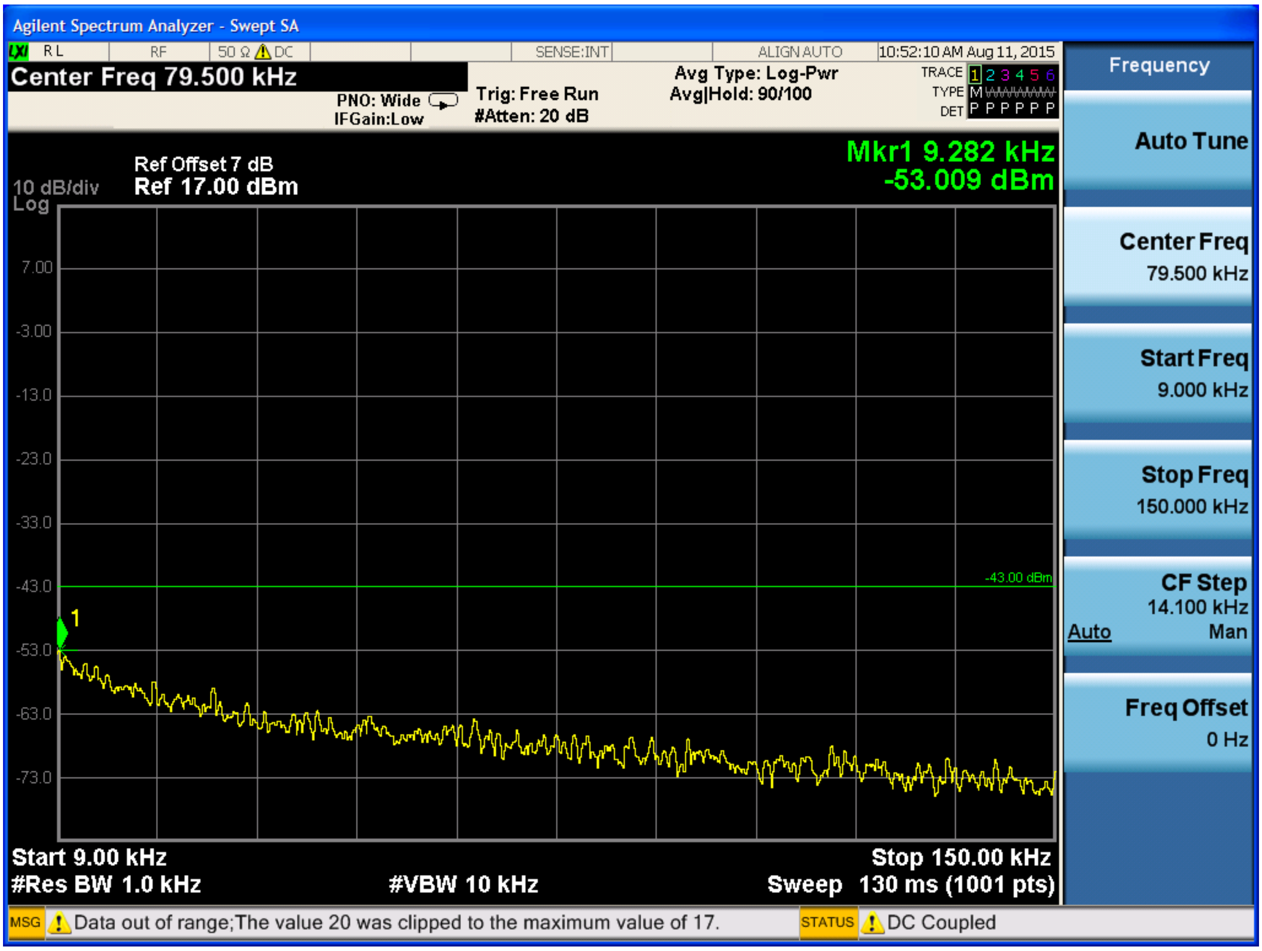


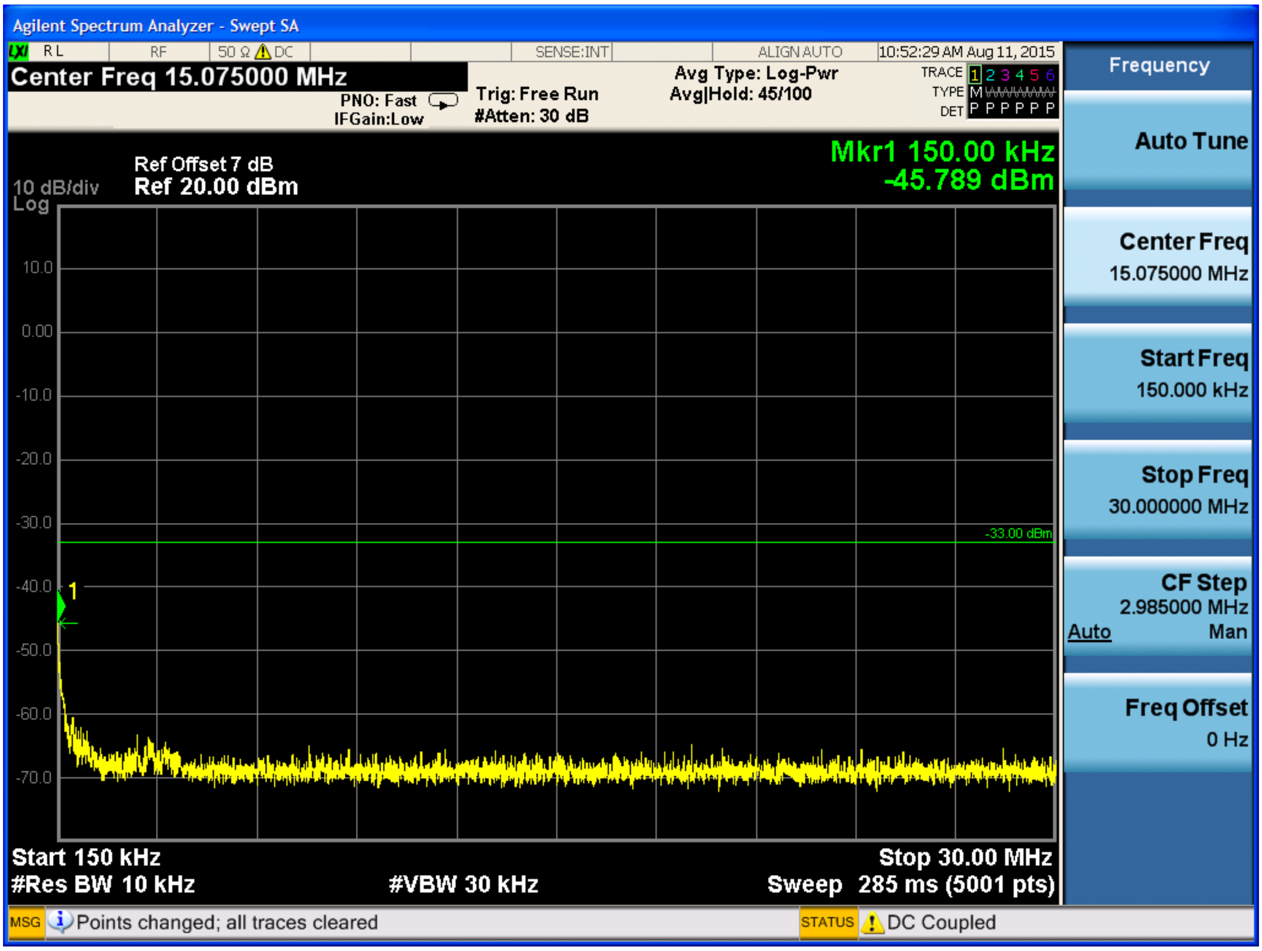

Agilent Spectrum Analyzer - Swept SA
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 54/100
10:34:32 AM Aug 11, 2015
Ref Offset 7 dB
10 dB/div Ref 20.00 dBm
Log
Mkr1 150.00 kHz
-44.445 dBm
-33.00 dBm
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz
Stop 30.00 MHz
Sweep 285 ms (5001 pts)
Points changed; all traces cleared
DC Coupled
Frequency
Auto Tune
Center Freq
15.075000 MHz
Start Freq
150.000 kHz
Stop Freq
30.000000 MHz
CF Step
2.985000 MHz
Auto Man
Freq Offset
0 Hz

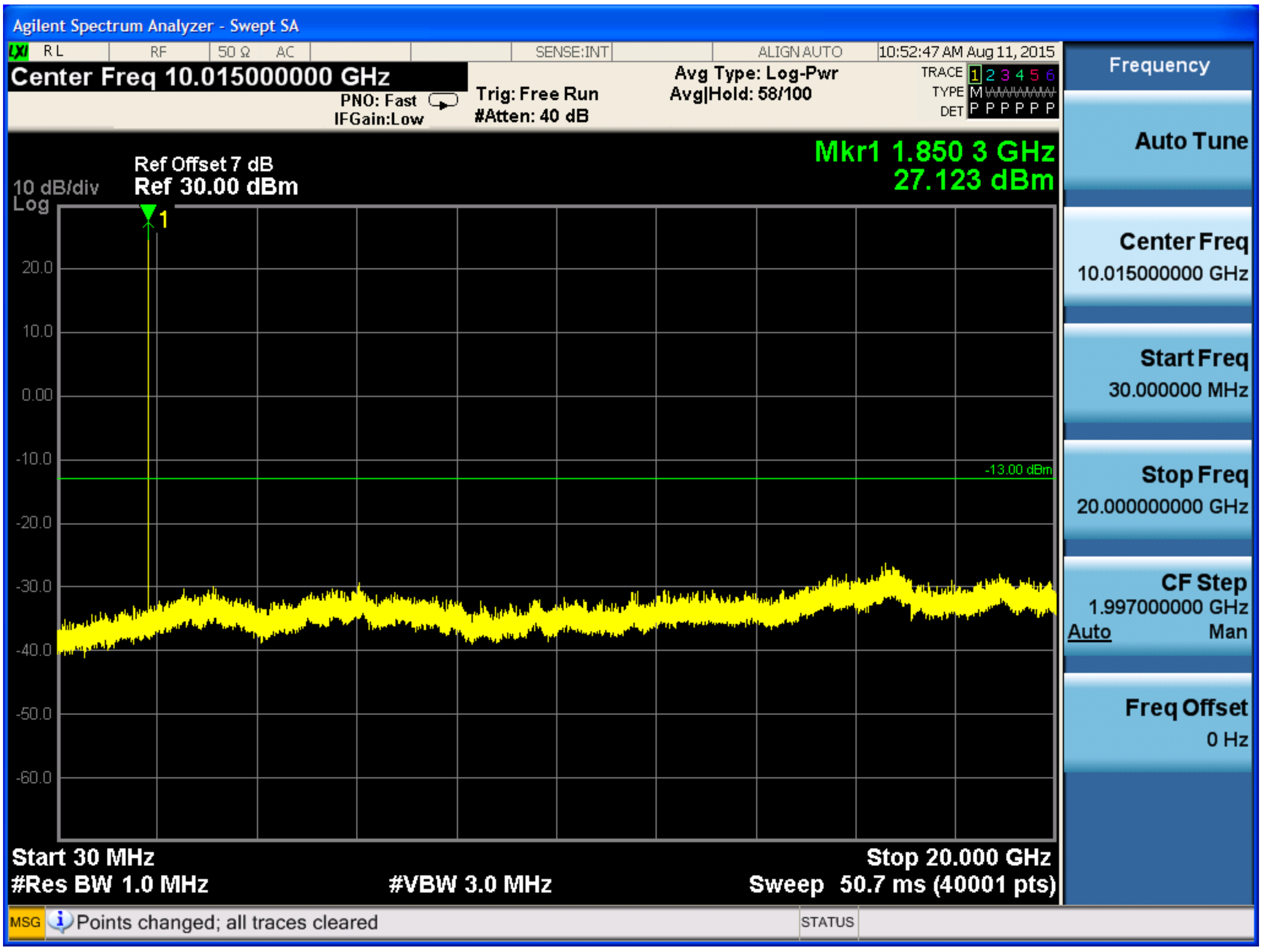

Agilent Spectrum Analyzer - Swept SA
Center Freq 10.015000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: Log-Pwr
Avg|Hold: 71/100
10:34:52 AM Aug 11, 2015
Ref Offset 7 dB
10 dB/div Ref 35.00 dBm
Log
Mkr1 1.910 2 GHz
29.059 dBm
-13.00 dBm
Start 30 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 20.000 GHz
Sweep 50.7 ms (40001 pts)
Points changed; all traces cleared
Frequency
Auto Tune
Center Freq
10.015000000 GHz
Start Freq
30.000000 MHz
Stop Freq
20.000000000 GHz
CF Step
1.997000000 GHz
Auto Man
Freq Offset
0 Hz

6.1.2.2 Test Mode = GSM/TM2

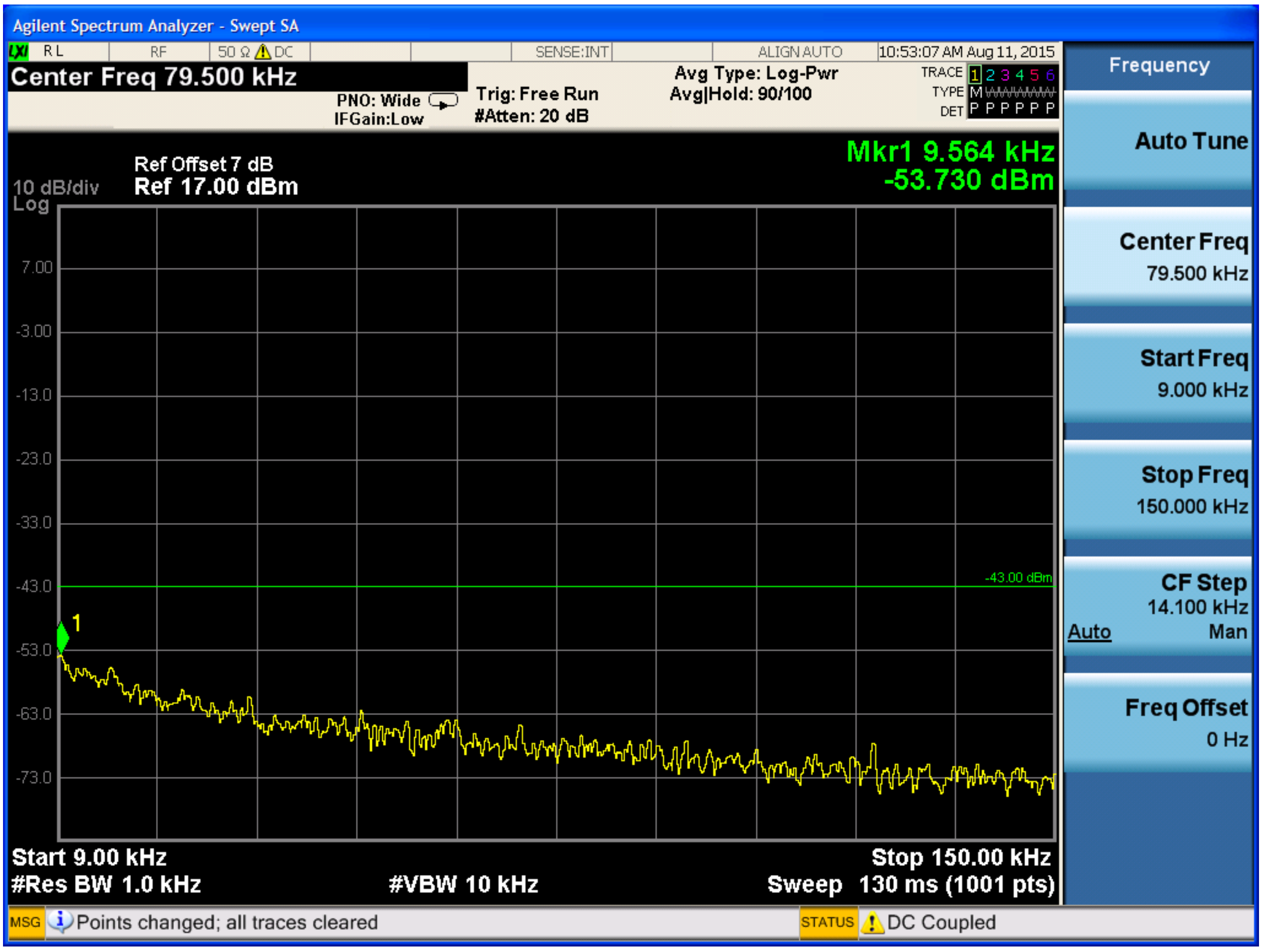
6.1.2.2.1 Test Channel = LCH

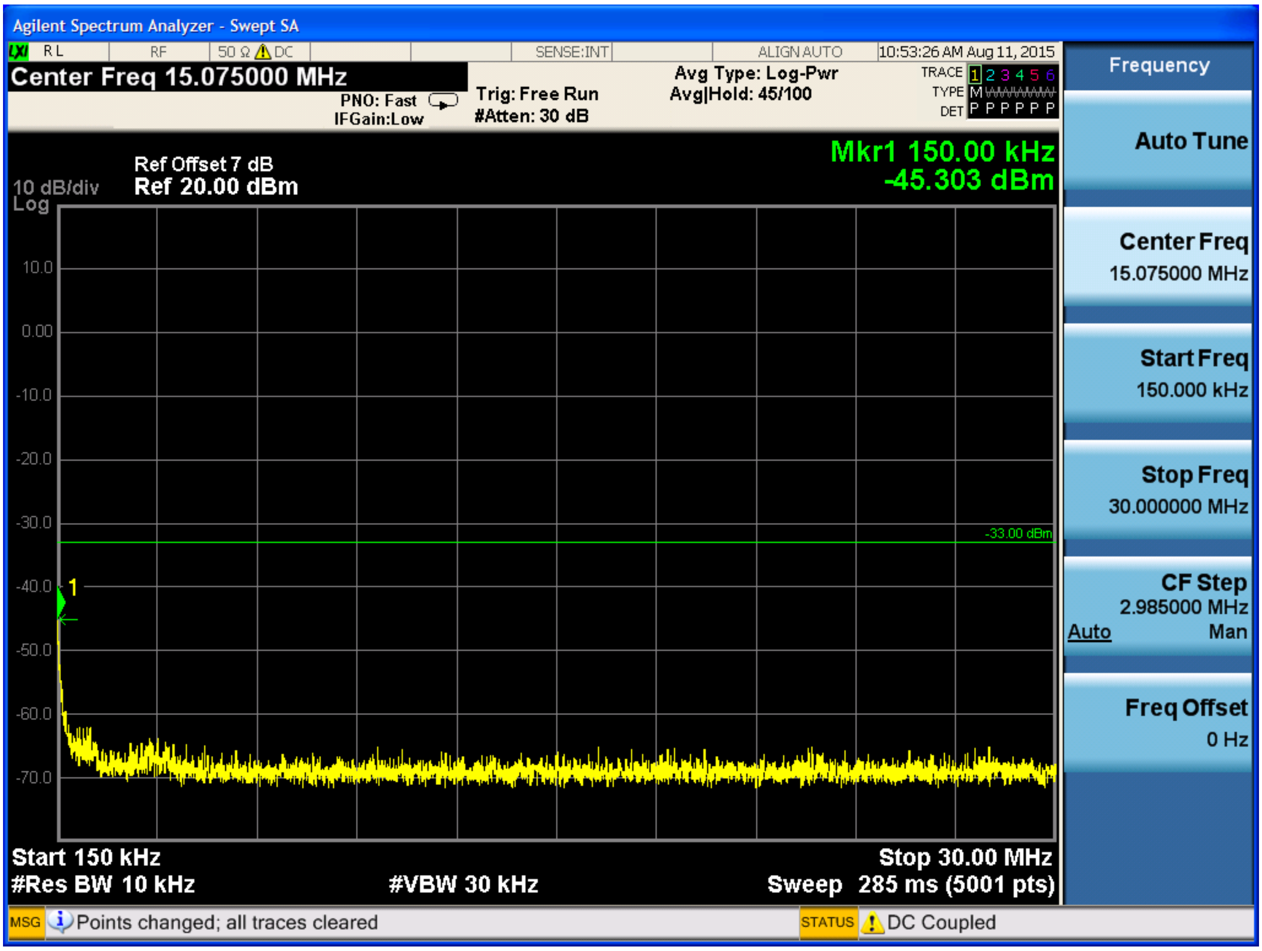


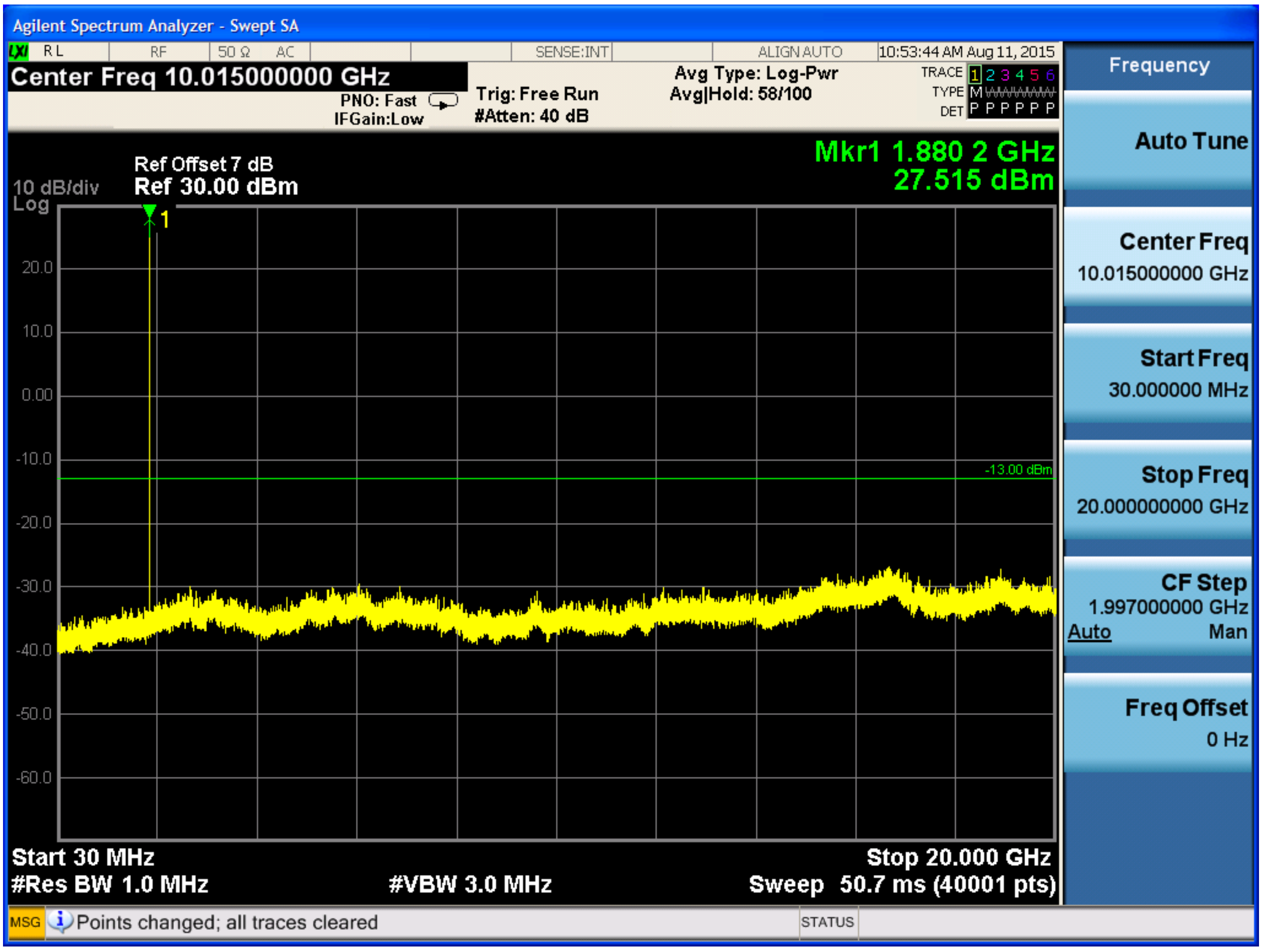

Agilent Spectrum Analyzer - Swept SA
RL
RF
50 Ω DC
SENSE:INT
ALIGN AUTO
10:52:29 AM Aug 11, 2015
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 45/100
TRACE 1 2 3 4 5 6
TYPE M
DET P P P P P P
Frequency
Ref Offset 7 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 150.00 kHz
-45.789 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-33.00 dBm
1
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz
Stop 30.00 MHz
Sweep 285 ms (5001 pts)
Auto Tune
Center Freq
15.075000 MHz
Start Freq
150.000 kHz
Stop Freq
30.000000 MHz
CF Step
2.985000 MHz
Auto
Man
Freq Offset
0 Hz
MSG
Points changed; all traces cleared
STATUS
DC Coupled


Agilent Spectrum Analyzer - Swept SA
RL RF 50 Ω AC SENSE:INT ALIGN AUTO
10:52:47 AM Aug 11, 2015
Center Freq 10.015000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: Log-Pwr
Avg|Hold: 58/100
TRACE 1 2 3 4 5 6
TYPE M
DET P P P P P P
Frequency
Ref Offset 7 dB
10 dB/div Ref 30.00 dBm
Log
Mkr1 1.850 3 GHz
27.123 dBm
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-13.00 dBm
Start 30 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 20.000 GHz
Sweep 50.7 ms (40001 pts)
Auto Tune
Center Freq
10.015000000 GHz
Start Freq
30.000000 MHz
Stop Freq
20.000000000 GHz
CF Step
1.997000000 GHz
Auto Man
Freq Offset
0 Hz
MSG Points changed; all traces cleared
STATUS

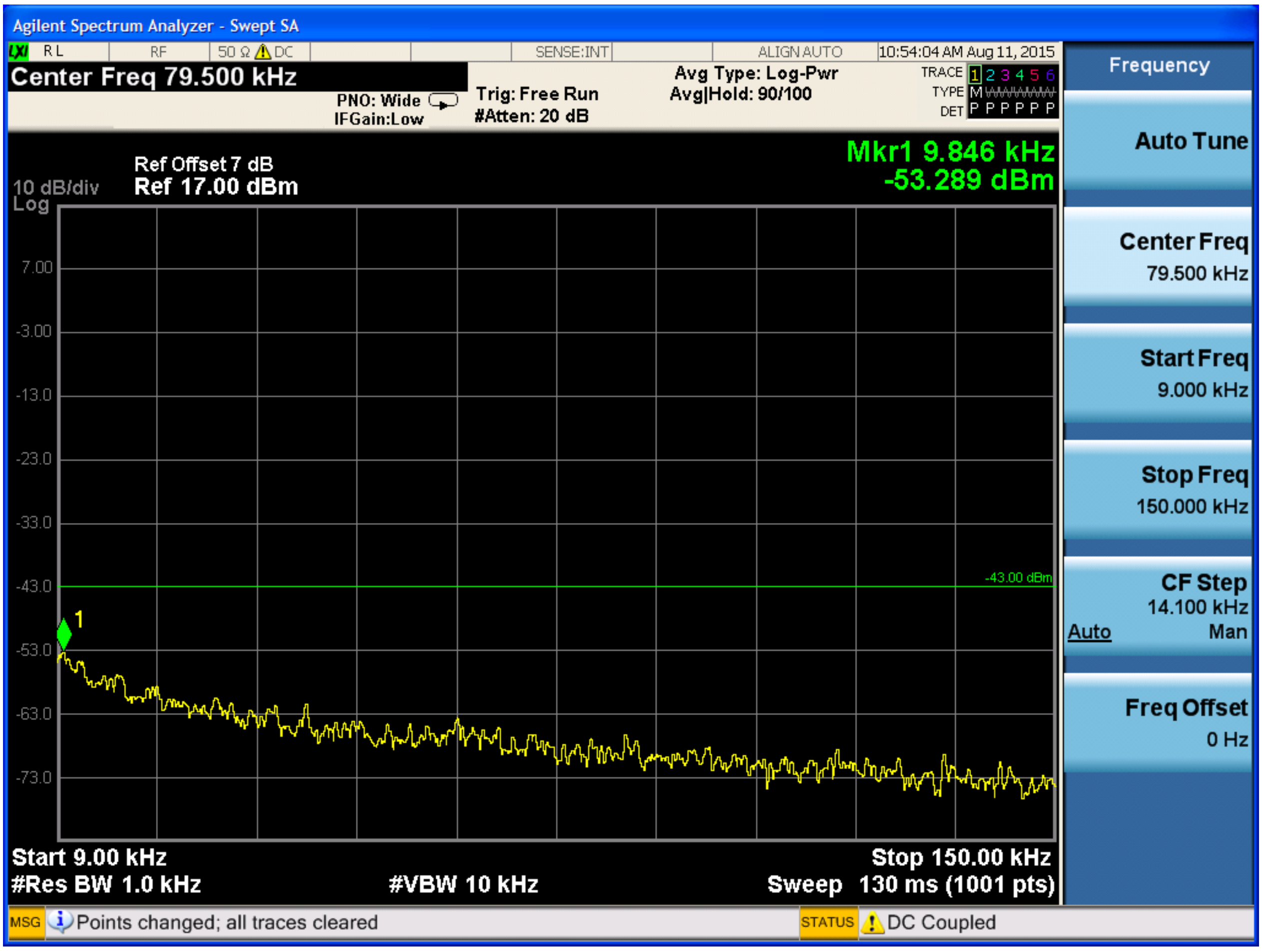
6.1.2.2.2 Test Channel = MCH

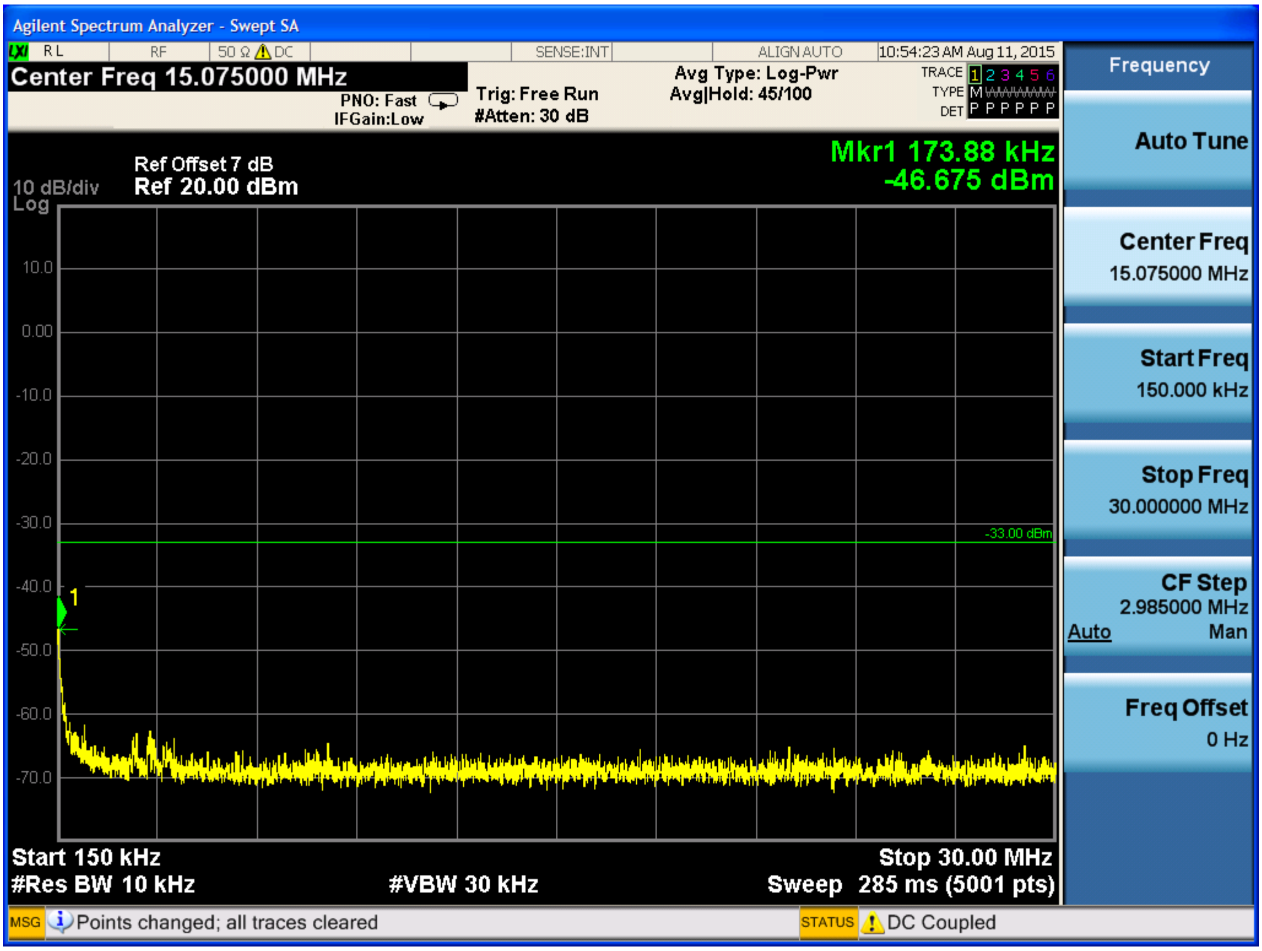


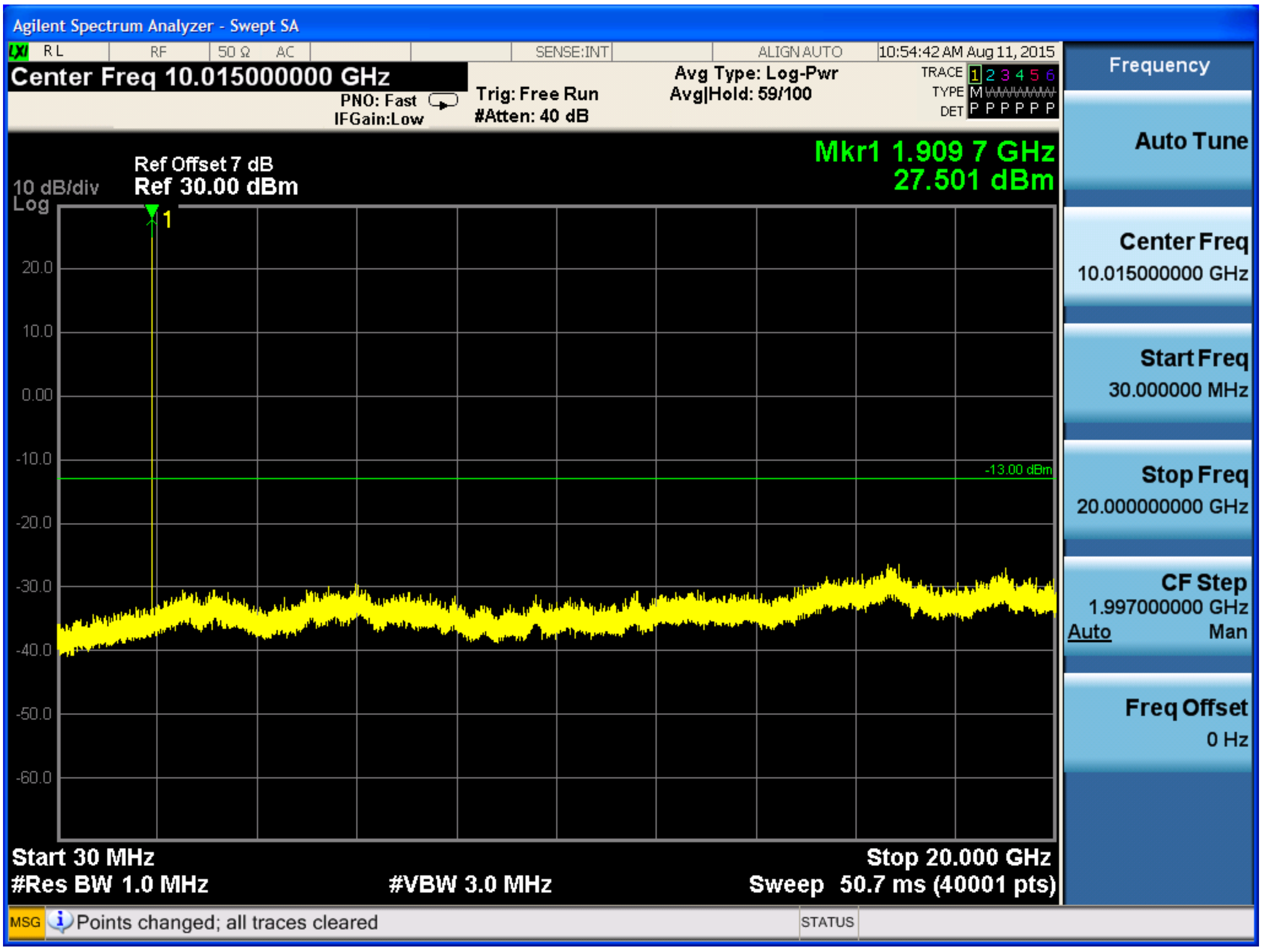

Agilent Spectrum Analyzer - Swept SA
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 45/100
10:53:26 AM Aug 11, 2015
Ref Offset 7 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 150.00 kHz
-45.303 dBm
-33.00 dBm
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz
Stop 30.00 MHz
Sweep 285 ms (5001 pts)
Points changed; all traces cleared
DC Coupled
Frequency
Auto Tune
Center Freq
15.075000 MHz
Start Freq
150.000 kHz
Stop Freq
30.000000 MHz
CF Step
2.985000 MHz
Auto
Man
Freq Offset
0 Hz


Agilent Spectrum Analyzer - Swept SA
Center Freq 10.015000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: Log-Pwr
Avg|Hold: 58/100
10:53:44 AM Aug 11, 2015
Ref Offset 7 dB
10 dB/div Ref 30.00 dBm
Log
Mkr1 1.880 2 GHz
27.515 dBm
-13.00 dBm
Start 30 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 20.000 GHz
Sweep 50.7 ms (40001 pts)
Points changed; all traces cleared
Frequency
Auto Tune
Center Freq 10.015000000 GHz
Start Freq 30.000000 MHz
Stop Freq 20.000000000 GHz
CF Step 1.997000000 GHz
Auto Man
Freq Offset 0 Hz

6.1.2.2.3 Test Channel = HCH




Agilent Spectrum Analyzer - Swept SA
RL
RF
50 Ω DC
SENSE:INT
ALIGN AUTO
10:54:23 AM Aug 11, 2015
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 30 dB
Avg Type: Log-Pwr
Avg|Hold: 45/100
TRACE 1 2 3 4 5 6
TYPE M
DET P P P P P P
Ref Offset 7 dB
10 dB/div
Log
Ref 20.00 dBm
Mkr1 173.88 kHz
-46.675 dBm
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-70.0
-33.00 dBm
1
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz
Stop 30.00 MHz
Sweep 285 ms (5001 pts)
Frequency
Auto Tune
Center Freq
15.075000 MHz
Start Freq
150.000 kHz
Stop Freq
30.000000 MHz
CF Step
2.985000 MHz
Auto
Man
Freq Offset
0 Hz
MSG
Points changed; all traces cleared
STATUS
DC Coupled


Agilent Spectrum Analyzer - Swept SA
R L
RF
50 Ω
AC
SENSE:INT
ALIGN AUTO
10:54:42 AM Aug 11, 2015
Center Freq 10.015000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: Log-Pwr
Avg|Hold: 59/100
TRACE 1 2 3 4 5 6
TYPE M
DET P P P P P P
Frequency
Ref Offset 7 dB
10 dB/div
Log
Ref 30.00 dBm
Mkr1 1.909 7 GHz
27.501 dBm
20.0
10.0
0.00
-10.0
-20.0
-30.0
-40.0
-50.0
-60.0
-13.00 dBm
Start 30 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz
Stop 20.000 GHz
Sweep 50.7 ms (40001 pts)
Auto Tune
Center Freq
10.015000000 GHz
Start Freq
30.000000 MHz
Stop Freq
20.000000000 GHz
CF Step
1.997000000 GHz
Auto
Man
Freq Offset
0 Hz
MSG
Points changed; all traces cleared
STATUS

7Appendix_G: Field Strength of Spurious Radiation

Note:

9kHz~150kHz, VBW = 200Hz, VBW = 600 Hz, Detector: PK

150kHz~30MHz, VBW = 9kHz, VBW = 30k Hz, Detector: PK

30MHz~1GHz, RBW = 100 kHz, VBW = 300 kHz. Detector: PK

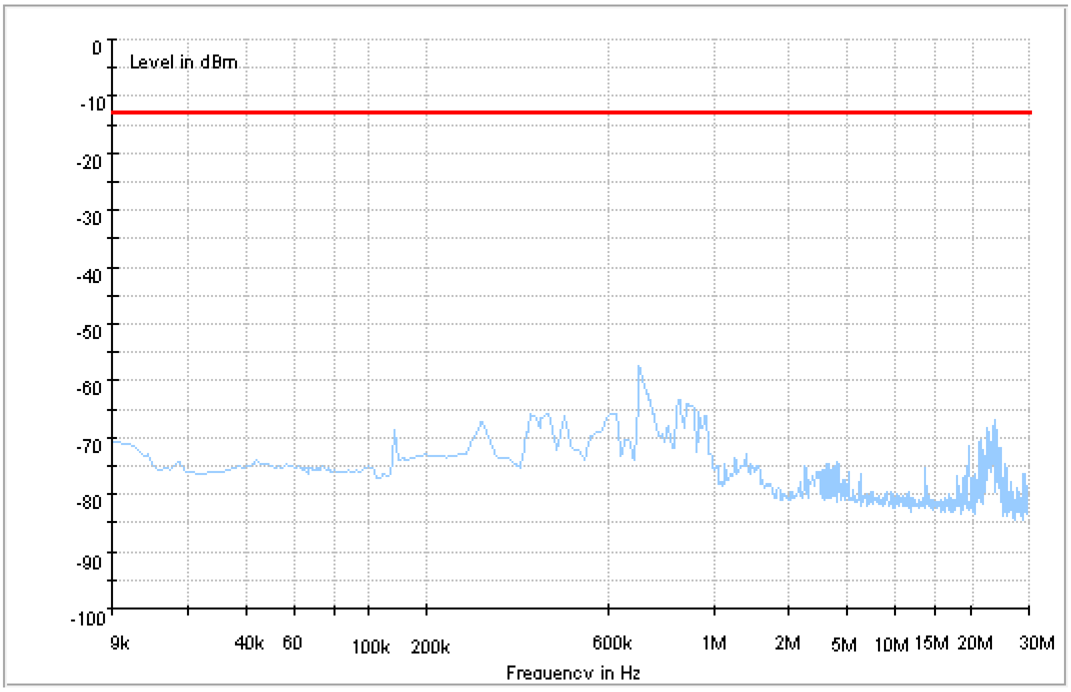
Above 1GHz, RBW = 1 MHz, VBW = 3 MHz. Detector: PK

Part I - Test Plots

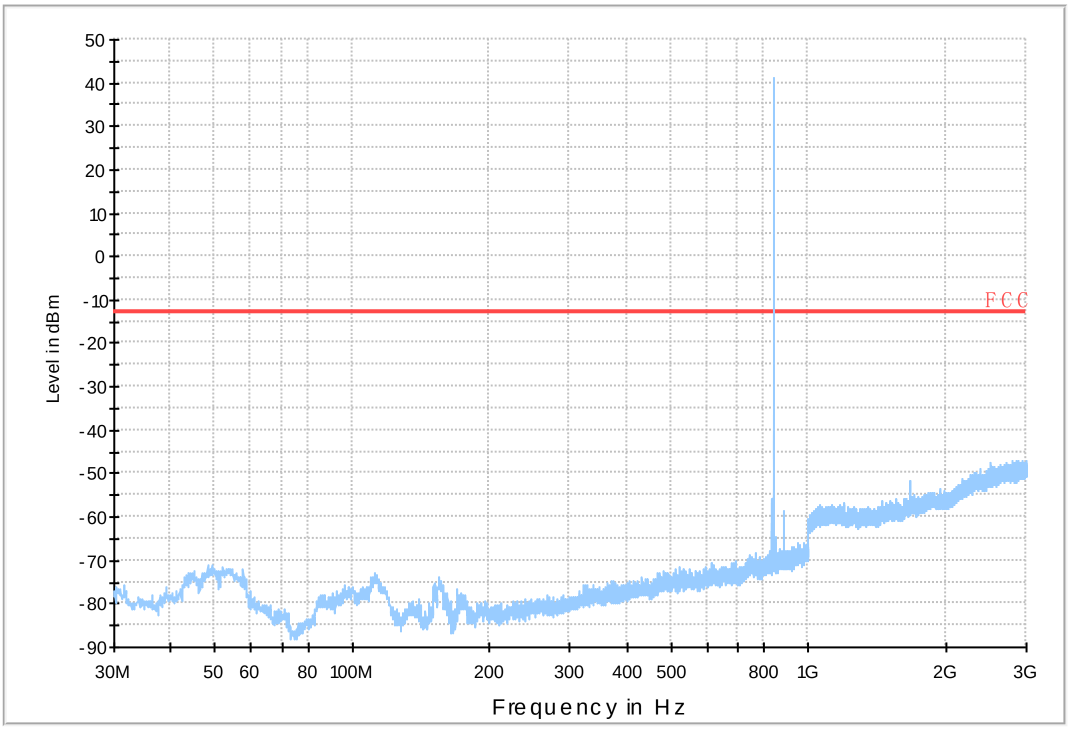
7.1 For GSM

7.1.1 Test Band = GSM850

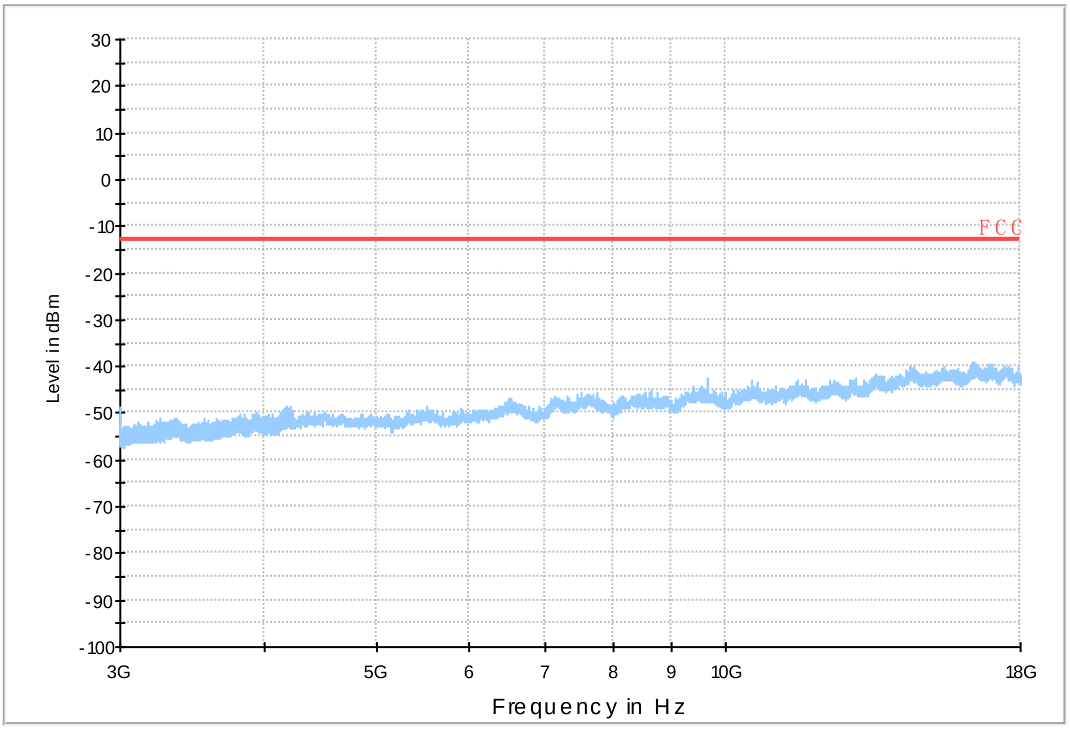
7.1.1.1 Test Mode = GSM/TM1



Copy of FCC PART22 GSM850_L

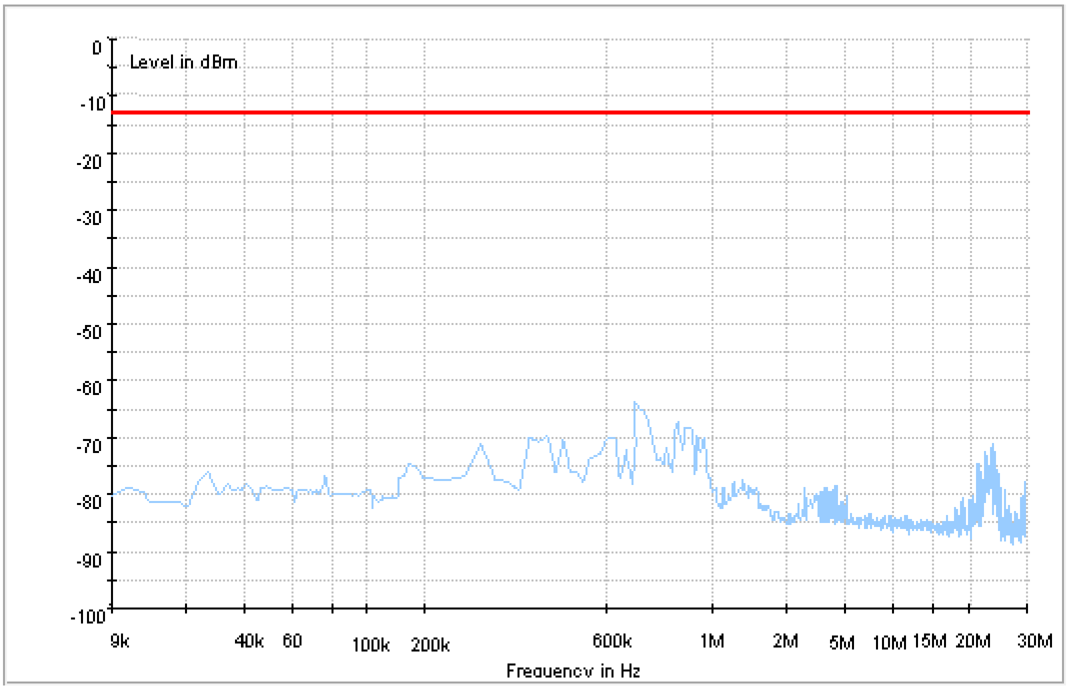


Copy of FCC PART22 GSM850_H

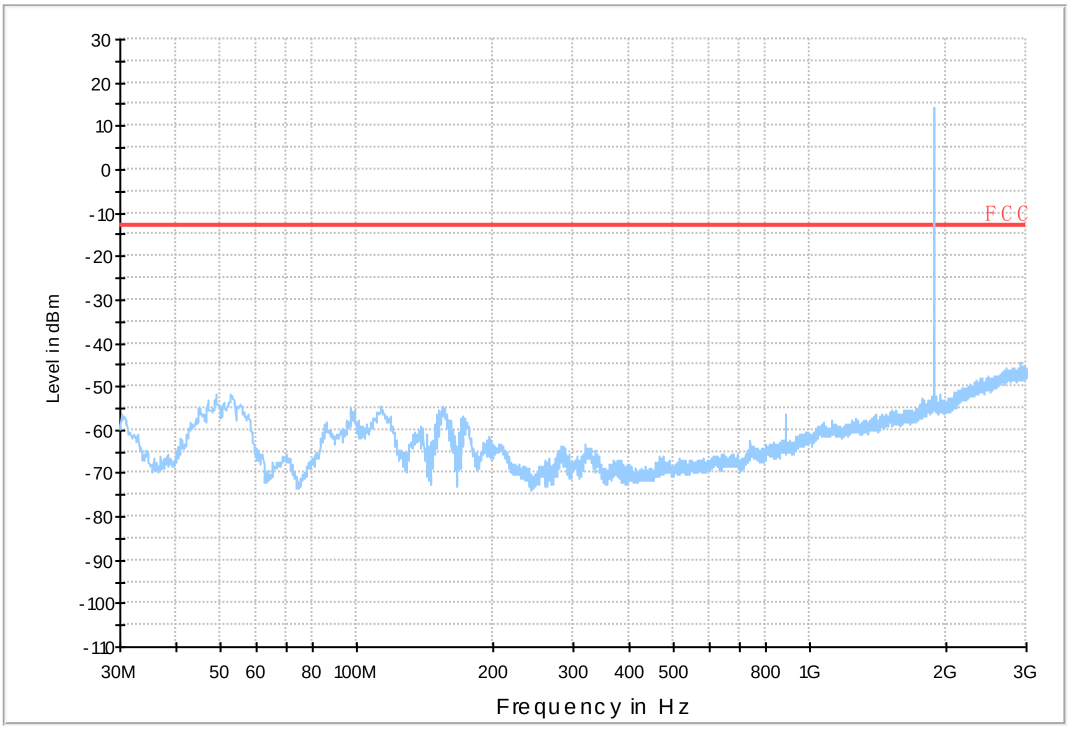


7.1.2 Test Band = GSM1900

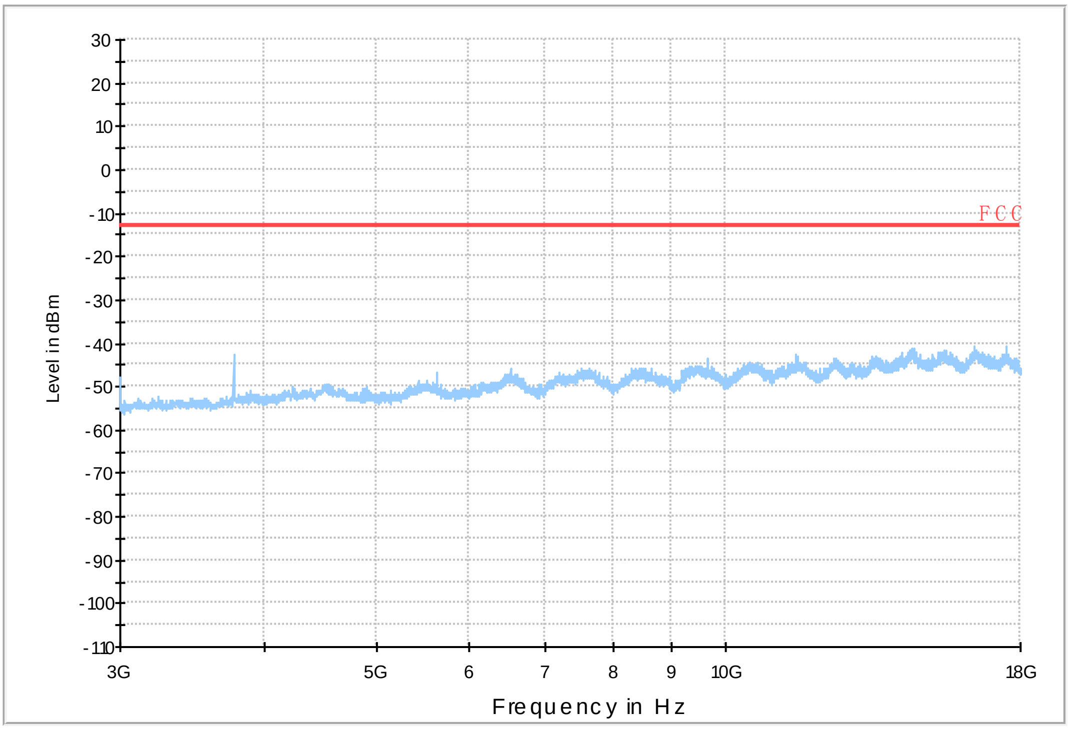
7.1.2.1 Test Mode = GSM/TM1

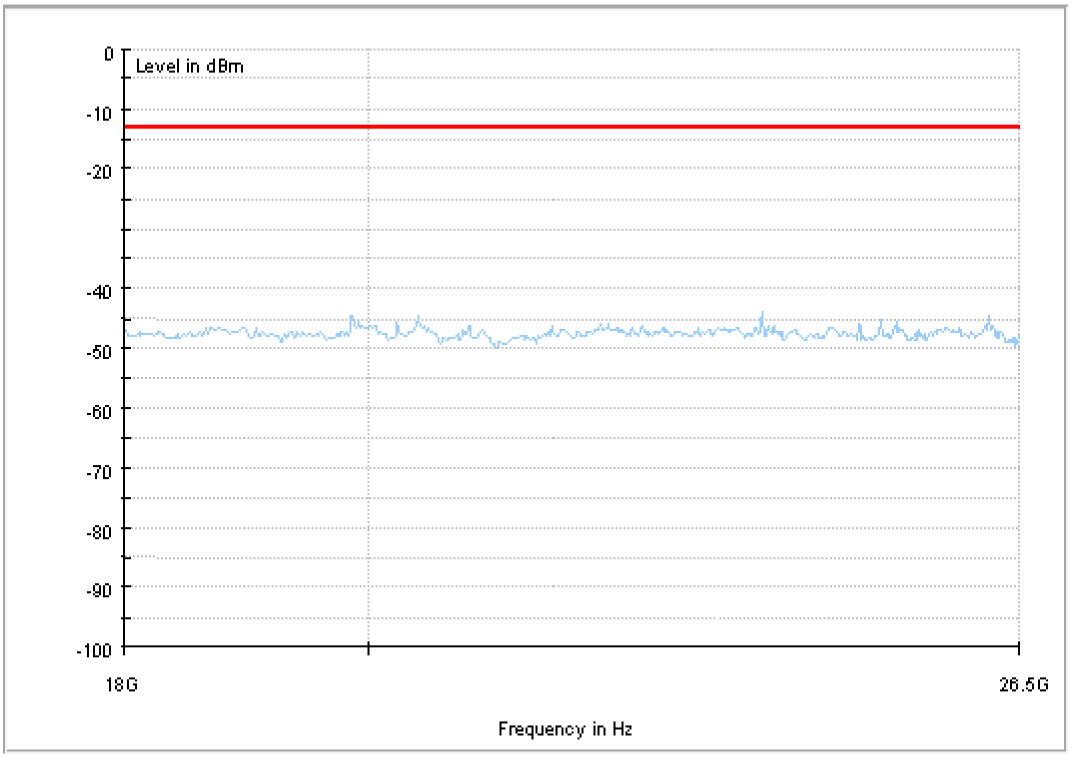


Copy of FCC PART24 GSM1900_L



Copy of FCC PART24 GSM1900_H





8Appendix_H: Frequency Stability

8.1 For GSM

8.1.1Frequency Error vs. Voltage:

Test Band	Test Mode	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
GSM850	GSM/TM1	LCH	TN	VL	9.04	0.01097	PASS
				VN	6.52	0.00791	PASS
				VH	10.53	0.01278	PASS
		MCH	TN	VL	11.95	0.01428	PASS
				VN	11.11	0.01328	PASS
				VH	11.82	0.01413	PASS
		HCH	TN	VL	9.36	0.01103	PASS
				VN	12.79	0.01507	PASS
				VH	9.56	0.01126	PASS
	GSM/TM2	LCH	TN	VL	15.56	0.01888	PASS
				VN	10.72	0.01301	PASS
				VH	12.66	0.01536	PASS
		MCH	TN	VL	13.11	0.01567	PASS
				VN	12.3	0.0147	PASS
				VH	9.52	0.01138	PASS
		HCH	TN	VL	6.65	0.00783	PASS
				VN	10.11	0.01191	PASS
				VH	9.33	0.01099	PASS
GSM1900	GSM/TM1	LCH	TN	VL	28.86	0.0156	PASS
				VN	33.38	0.01804	PASS
				VH	25.89	0.01399	PASS
		MCH	TN	VL	-3.75	-0.00199	PASS
				VN	16.79	0.00893	PASS
				VH	-7.81	-0.00415	PASS
		HCH	TN	VL	4.26	0.00223	PASS
				VN	-0.71	-0.00037	PASS
				VH	3.75	0.00196	PASS
	GSM/TM2	LCH	TN	VL	29.25	0.01581	PASS
				VN	30.12	0.01628	PASS
				VH	25.96	0.01403	PASS
		MCH	TN	VL	1.9	0.00101	PASS
				VN	1.81	0.00096	PASS

Test Band	Test Mode	Test Channel	Test Temp.	Test Volt.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				VH	5.23	0.00278	PASS
		HCH	TN	VL	13.04	0.00683	PASS
				VN	6.94	0.00363	PASS
				VH	5.84	0.00306	PASS

8.1.2Frequency Error vs. Temperature:

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
GSM850	GSM/TM1	LCH	VN	-30	8.01	0.00972	PASS
				-20	6.65	0.00807	PASS
				-10	7.81	0.00948	PASS
				0	5.81	0.00705	PASS
				10	8.27	0.01003	PASS
				20	6.2	0.00752	PASS
				30	4.39	0.00533	PASS
				40	7.43	0.00901	PASS
				50	6.33	0.00768	PASS
		MCH	VN	-30	8.2	0.0098	PASS
				-20	8.98	0.01073	PASS
				-10	8.91	0.01065	PASS
				0	8.98	0.01073	PASS
				10	10.59	0.01266	PASS
				20	9.17	0.01096	PASS
				30	11.3	0.01351	PASS
				40	8.46	0.01011	PASS
				50	7.68	0.00918	PASS
		HCH	VN	-30	9.23	0.01087	PASS
				-20	7.55	0.00889	PASS
				-10	11.56	0.01362	PASS
				0	10.78	0.0127	PASS
				10	12.85	0.01514	PASS
				20	11.88	0.014	PASS
				30	149.03	0.17558	PASS
				40	10.07	0.01186	PASS
				50	11.17	0.01316	PASS
	GSM/TM2	LCH	VN	-30	14.21	0.01724	PASS
				-20	11.46	0.0139	PASS
				-10	11.36	0.01378	PASS
				0	12.04	0.01461	PASS

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				10	14.01	0.017	PASS
				20	13.88	0.01684	PASS
				30	11.85	0.01438	PASS
				40	12.04	0.01461	PASS
				50	10.78	0.01308	PASS
		MCH	VN	-30	10.94	0.01308	PASS
				-20	11.59	0.01385	PASS
				-10	12.85	0.01536	PASS
				0	11.53	0.01378	PASS
				10	11.56	0.01382	PASS
				20	12.88	0.0154	PASS
				30	10.56	0.01262	PASS
				40	12.85	0.01536	PASS
				50	12.85	0.01536	PASS
		HCH	VN	-30	9.4	0.01107	PASS
				-20	6.49	0.00765	PASS
				-10	8.07	0.00951	PASS
				0	8.81	0.01038	PASS
				10	7.3	0.0086	PASS
				20	8.07	0.00951	PASS
				30	10.04	0.01183	PASS
				40	9.72	0.01145	PASS
				50	8.56	0.01008	PASS
GSM1900	GSM/TM1	LCH	VN	-30	2.58	0.00139	PASS
				-20	1.81	0.00098	PASS
				-10	7.1	0.00384	PASS
				0	9.49	0.00513	PASS
				10	26.15	0.01413	PASS
				20	28.15	0.01521	PASS
				30	3.23	0.00175	PASS
				40	29.44	0.01591	PASS
				50	5.55	0.003	PASS
		MCH	VN	-30	24.15	0.01285	PASS
				-20	5.88	0.00313	PASS
				-10	2.45	0.0013	PASS
				0	-1.23	-0.00065	PASS
				10	-0.52	-0.00028	PASS
				20	-1.55	-0.00082	PASS
				30	2.39	0.00127	PASS
				40	-4.58	-0.00244	PASS

Test Band	Test Mode	Test Channel	Test Volt.	Test Temp.	Freq. Error [Hz]	Freq. vs. rated [ppm]	Verdict
				50	-9.1	-0.00484	PASS
		HCH	VN	-30	3.1	0.00162	PASS
				-20	4.13	0.00216	PASS
				-10	2.26	0.00118	PASS
				0	-2.32	-0.00121	PASS
				10	0.13	0.00007	PASS
				20	-1.36	-0.00071	PASS
				30	3.29	0.00172	PASS
				40	-5.88	-0.00308	PASS
				50	5.29	0.00277	PASS
	GSM/TM2	LCH	VN	-30	6.49	0.00351	PASS
				-20	24.96	0.01349	PASS
				-10	27.22	0.01471	PASS
				0	22.31	0.01206	PASS
				10	27.41	0.01481	PASS
				20	25.22	0.01363	PASS
				30	0.9	0.00049	PASS
				40	5.2	0.00281	PASS
				50	24.02	0.01298	PASS
		MCH	VN	-30	24.83	0.01321	PASS
				-20	0.74	0.00039	PASS
				-10	24.96	0.01328	PASS
				0	18.5	0.00984	PASS
				10	17.4	0.00926	PASS
				20	-1.23	-0.00065	PASS
				30	21.21	0.01128	PASS
				40	3	0.0016	PASS
				50	1.9	0.00101	PASS
		HCH	VN	-30	9.59	0.00502	PASS
				-20	11.49	0.00602	PASS
				-10	11.95	0.00626	PASS
				0	10.36	0.00542	PASS
				10	10.04	0.00526	PASS
				20	10.01	0.00524	PASS
				30	6.52	0.00341	PASS
				40	6.59	0.00345	PASS
				50	9.49	0.00497	PASS

END