

Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω AC SENSE:INT ALIGN AUTO 09:57:21 AM Oct 17, 2017

Center Freq 1.850000000 GHz Avg Type: RMS
PNO: Wide IFGain:Low Trig: Free Run AvgHold: 7100
#Atten: 36 dB

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

Ref Offset 7.1 dB
Ref 30.00 dBm

Mkr1 1.849 710 GHz
-41.374 dBm

10 dB/div
Log

-13.00 dBm

Center 1.850000 GHz Span 2.000 MHz
#Res BW 200 kHz #VBW 620 kHz* #Sweep 1.000 s (1001 pts)

MSG STATUS

Frequency
Auto Tune
Center Freq 1.850000000 GHz
Start Freq 1.849000000 GHz
Stop Freq 1.851000000 GHz
CF Step 200.000 kHz Auto Man
Freq Offset 0 Hz

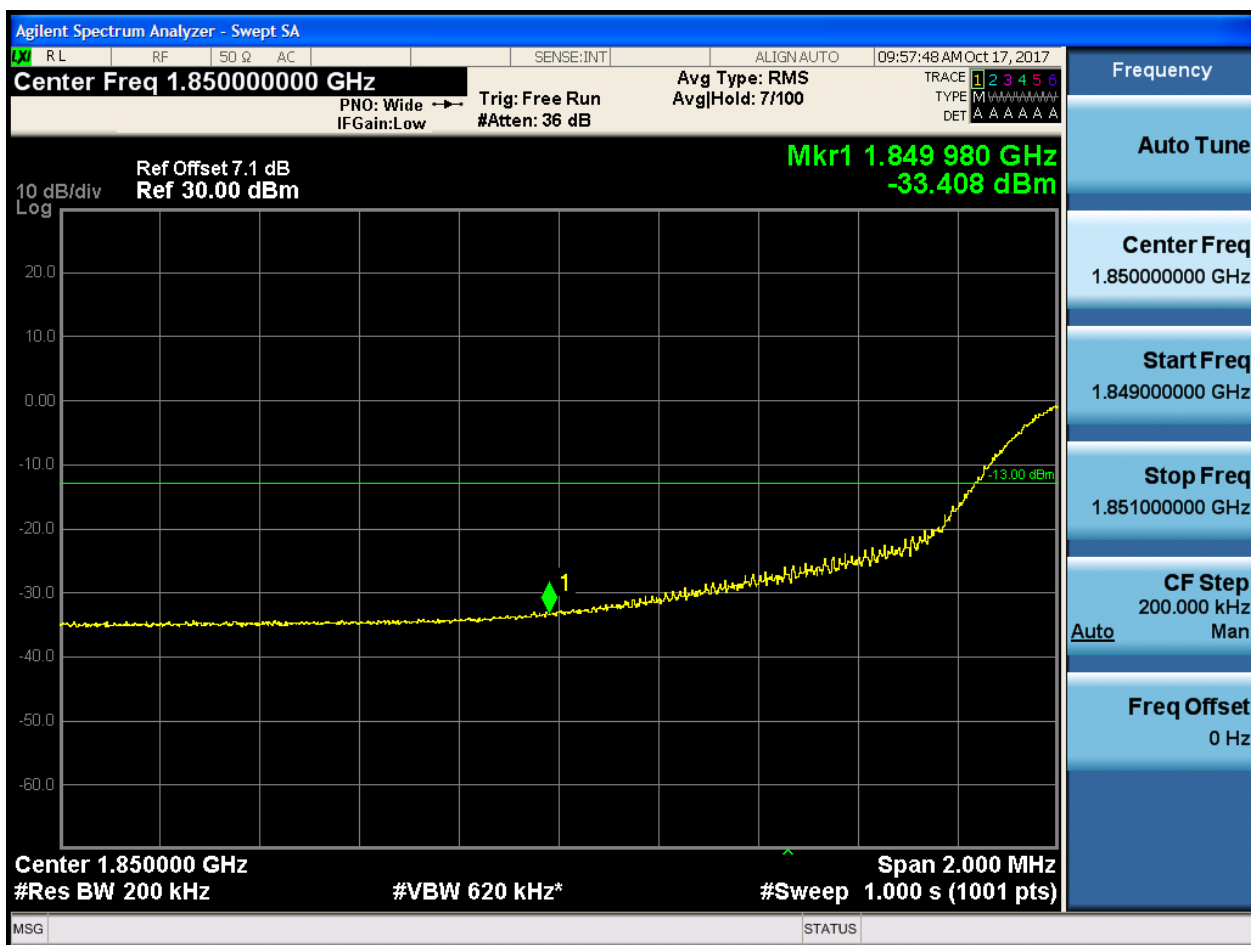


5.1.1.1.6.1.3 Test RB = RB50#25





5.1.1.1.6.1.4 Test RB = RB100#0



5.1.1.1.6.2 Test Channel = HCH

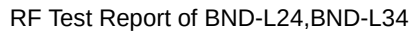
5.1.1.1.6.2.1 Test RB = RB1#0





5.1.1.1.6.2.2 Test RB = RB1#99





Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω AC SENSE:INT ALIGN AUTO 09:58:35 AM Oct 17, 2017

Center Freq 1.91000000 GHz Avg Type: RMS
PNO: Wide IFGain:Low Trig: Free Run AvgHold: 7100
#Atten: 36 dB

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

Ref Offset 7.1 dB
Ref 30.00 dBm

Mkr1 1.910 160 GHz
-32.691 dBm

10 dB/div
Log

Center 1.910000 GHz
#Res BW 200 kHz
#VBW 620 kHz*
Span 2.000 MHz
#Sweep 1.000 s (1001 pts)

MSG STATUS

Frequency

Auto Tune

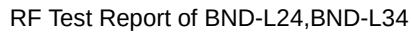
Center Freq
1.910000000 GHz

Start Freq
1.909000000 GHz

Stop Freq
1.911000000 GHz

CF Step
200.000 kHz
Auto Man

Freq Offset
0 Hz



Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω AC SENSE:INT ALIGN AUTO 09:58:48 AM Oct 17, 2017

Center Freq 1.91000000 GHz Avg Type: RMS
 PNO: Wide IFGain:Low Trig: Free Run
 #Atten: 36 dB AvgHold: 7/100

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

Ref Offset 7.1 dB
 Ref 30.00 dBm

Mkr1 1.910 030 GHz
 -32.117 dBm

10 dB/div
 Log

-13.00 dBm

1

Center 1.910000 GHz Span 2.000 MHz
 #Res BW 200 kHz #VBW 620 kHz* #Sweep 1.000 s (1001 pts)

MSG STATUS

Frequency

Auto Tune

Center Freq
 1.91000000 GHz

Start Freq
 1.909000000 GHz

Stop Freq
 1.911000000 GHz

CF Step
 200.000 kHz
 Auto Man

Freq Offset
 0 Hz

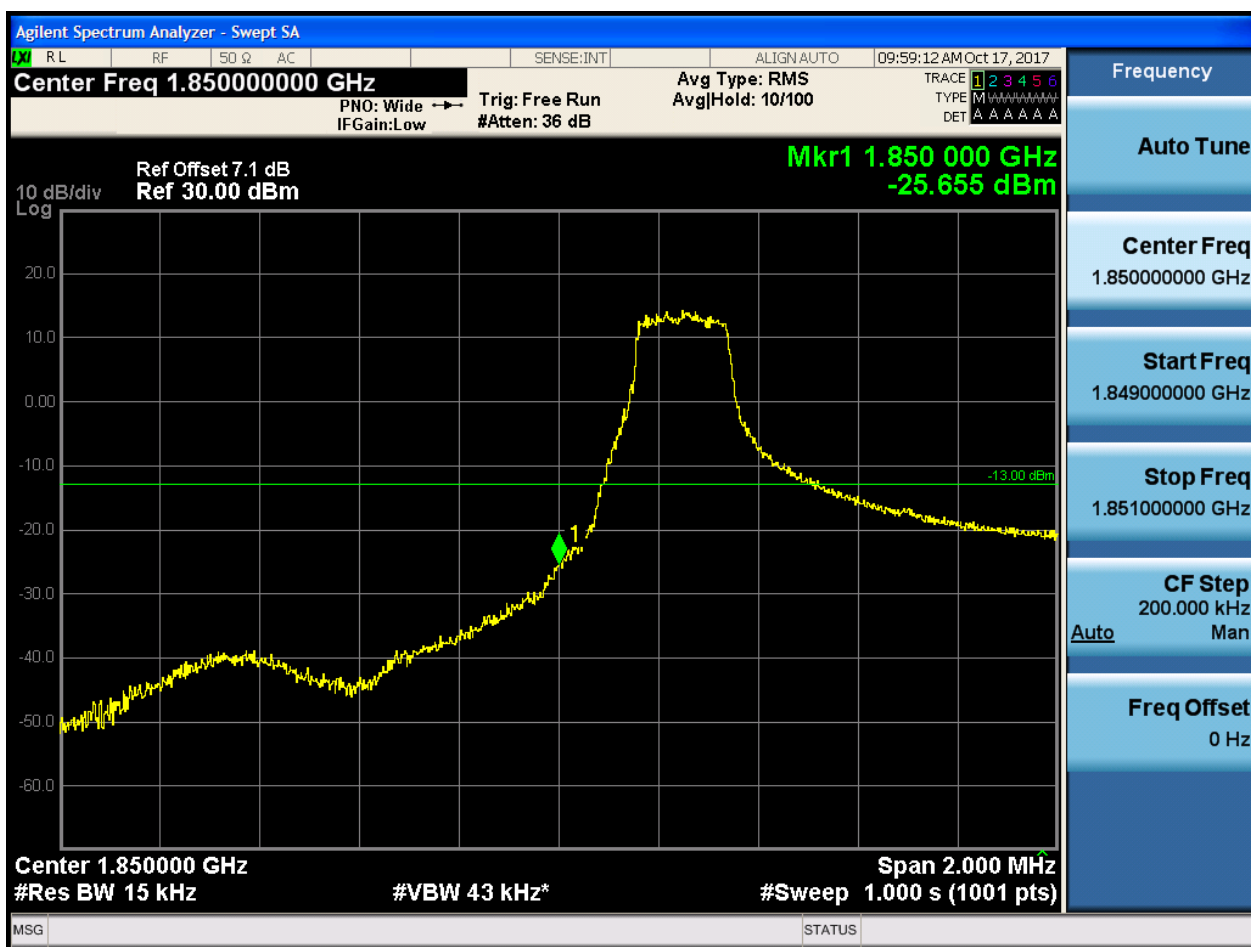


5.1.1.2 Test Mode = LTE/TM2

5.1.1.2.1 Test Bandwidth = 1.4

5.1.1.2.1.1 Test Channel = LCH

5.1.1.2.1.1.1 Test RB = RB1#0



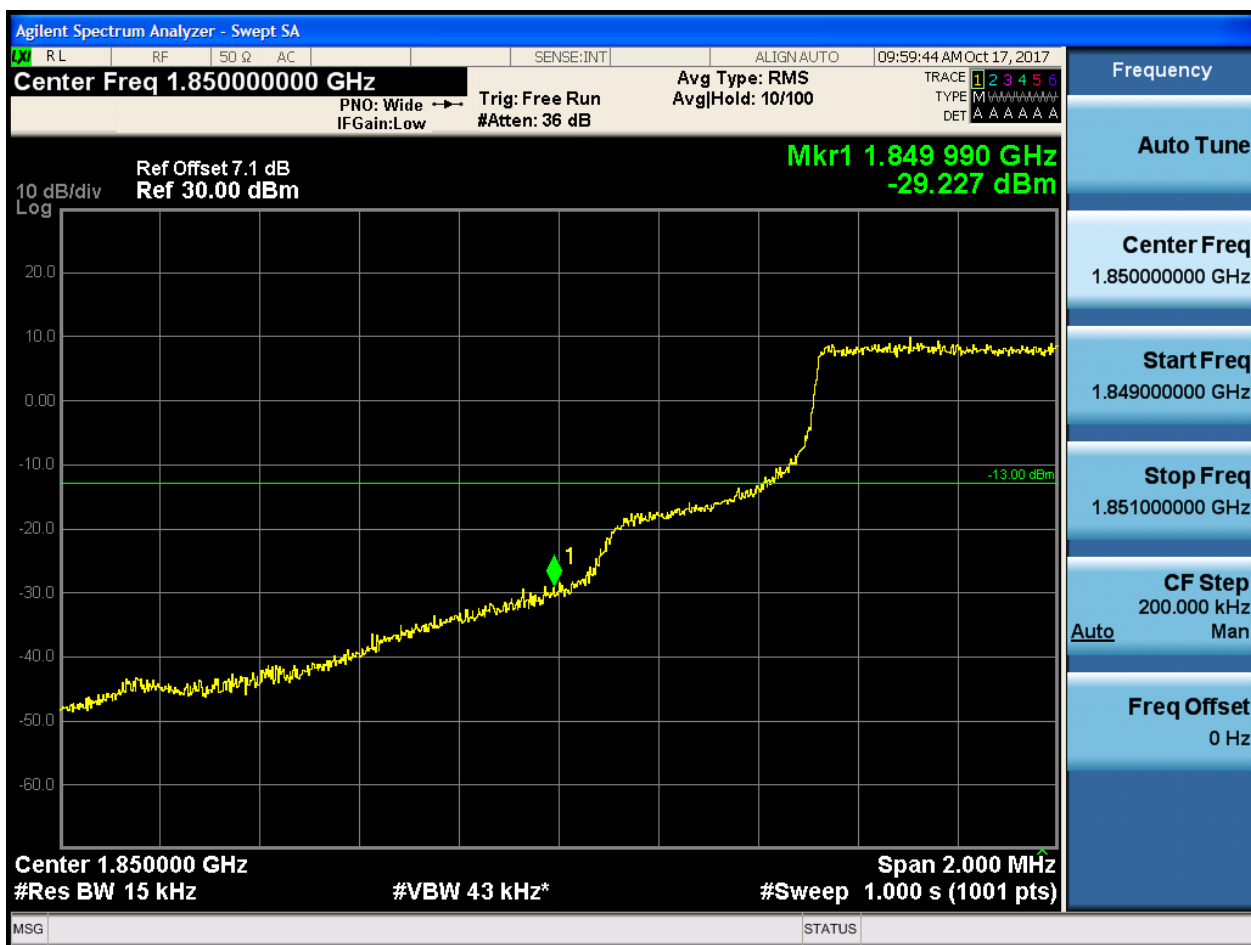


5.1.1.2.1.1.2 Test RB = RB1#5



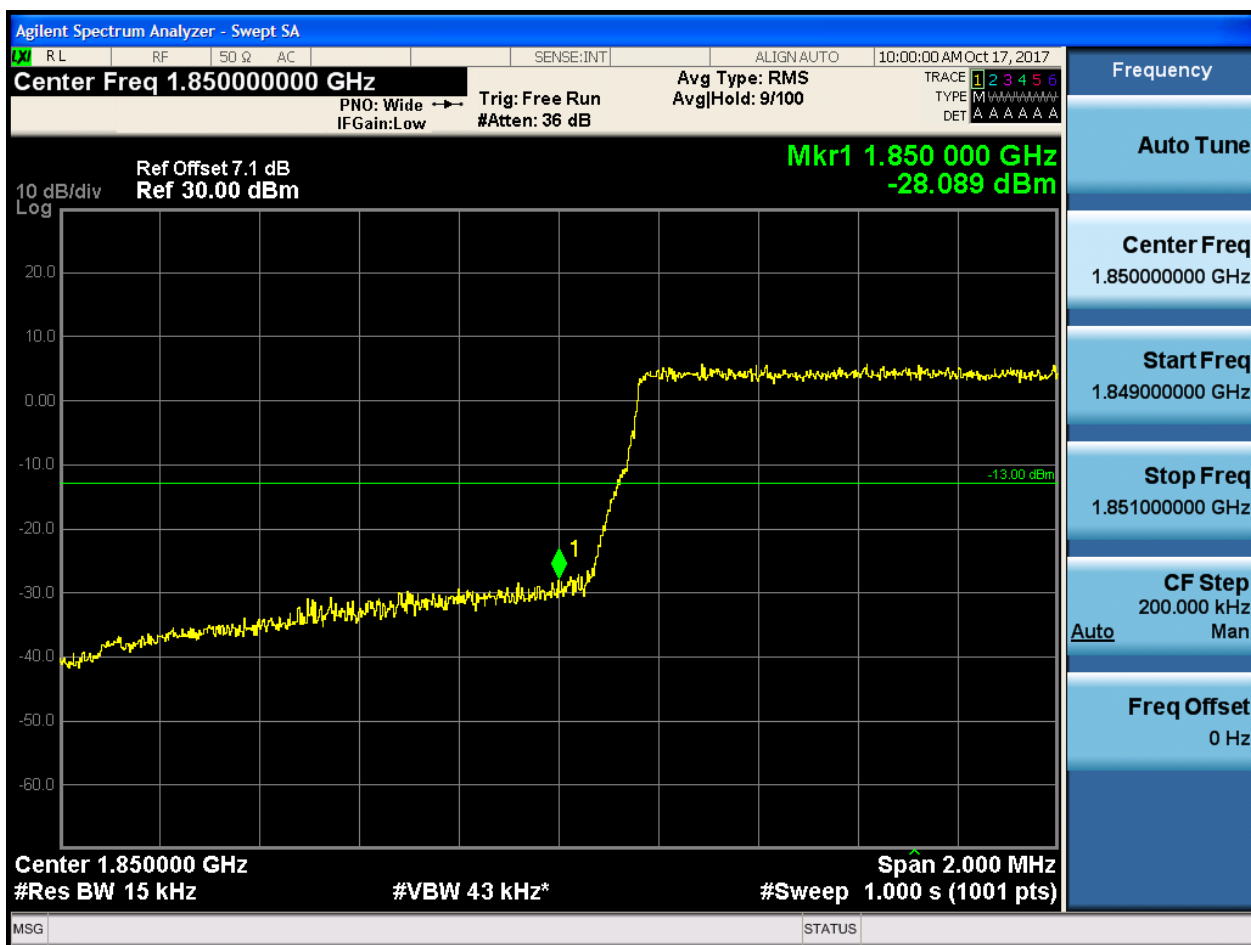


5.1.1.2.1.1.3 Test RB = RB3#2





5.1.1.2.1.1.4 Test RB = RB6#0



5.1.1.2.1.2 Test Channel = HCH

5.1.1.2.1.2.1 Test RB = RB1#0





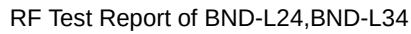
5.1.1.2.1.2.2 Test RB = RB1#5





5.1.1.2.1.2.3 Test RB = RB3#2





Agilent Spectrum Analyzer - Swept SA

Center Freq 1.91000000 GHz

Ref Offset 7.1 dB
Ref 30.00 dBm

10 dB/div
Log

Mkr1 1.910 010 GHz
-26.288 dBm

Center 1.910000 GHz
#Res BW 15 kHz
#VBW 43 kHz*

Span 2.000 MHz
#Sweep 1.000 s (1001 pts)

Auto Tune

Center Freq
1.91000000 GHz

Start Freq
1.909000000 GHz

Stop Freq
1.911000000 GHz

CF Step
200.000 kHz
Auto

Freq Offset
0 Hz

Trig: Free Run
#Atten: 36 dB

Avg Type: RMS
Avg/Hold: 9/100

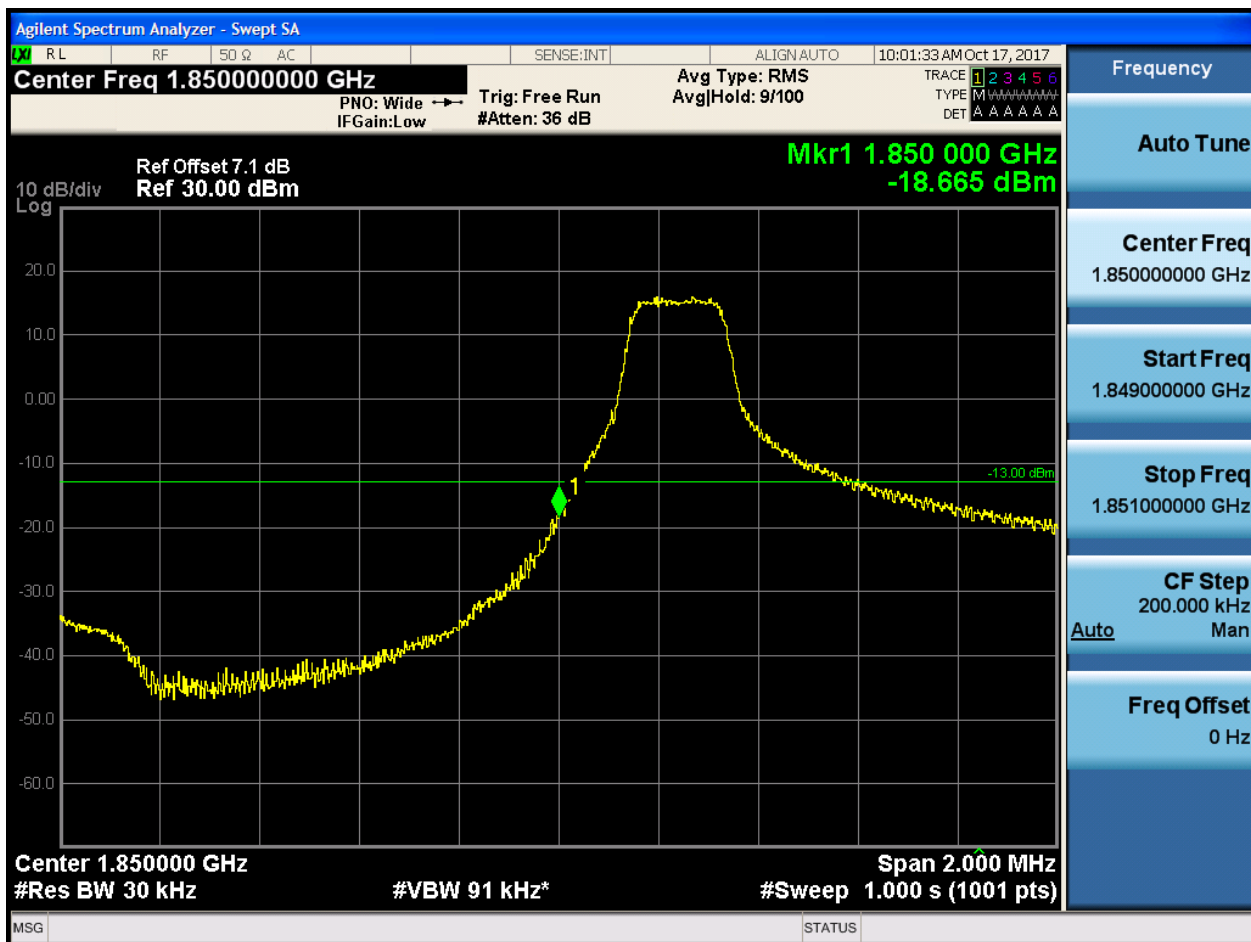
TRACE 1 2 3 4 5 6
TYPE M W W W W W W W W W
DET A A A A A A

MSG STATUS

5.1.1.2.2 Test Bandwidth = 3

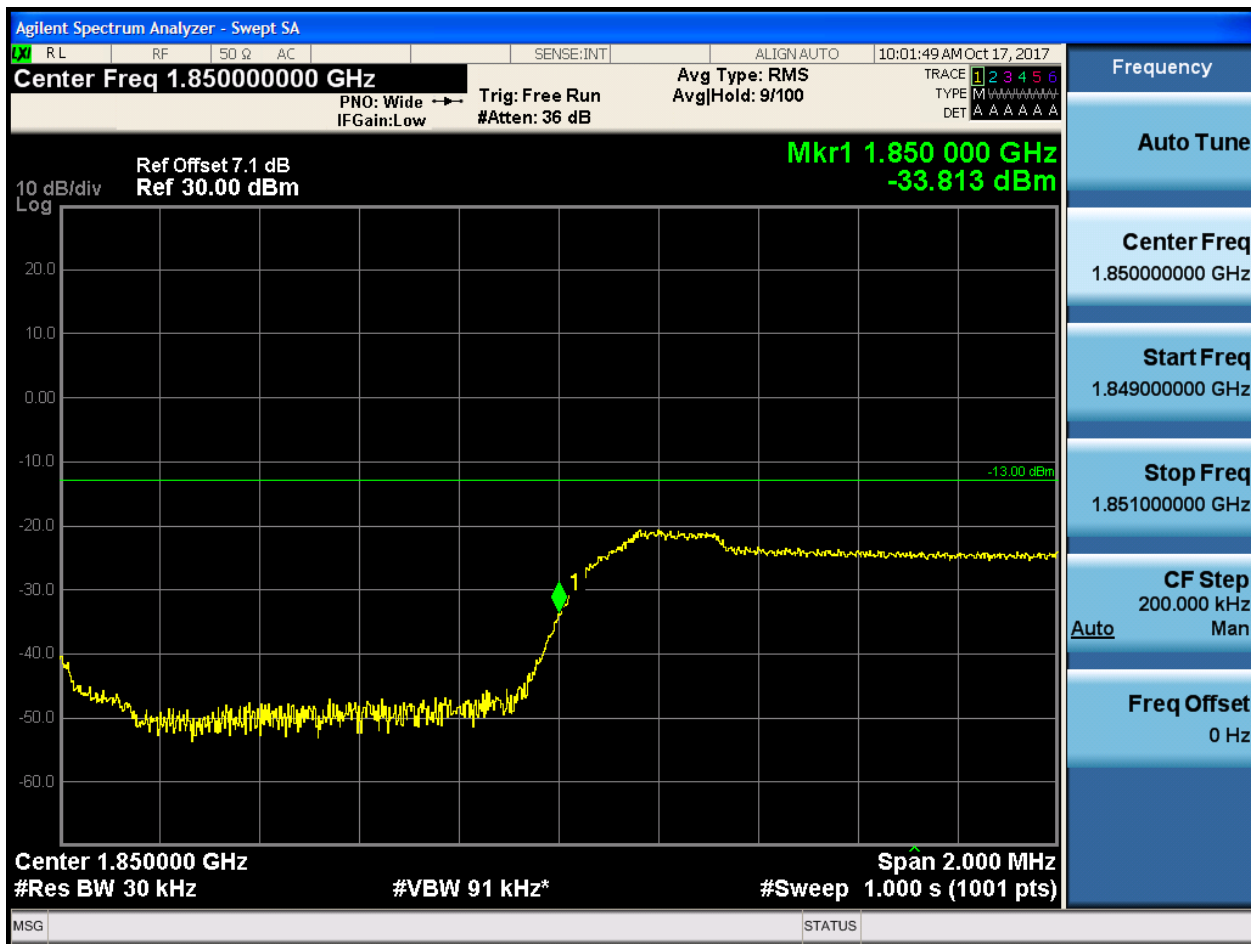
5.1.1.2.2.1 Test Channel = LCH

5.1.1.2.2.1.1 Test RB = RB1#0



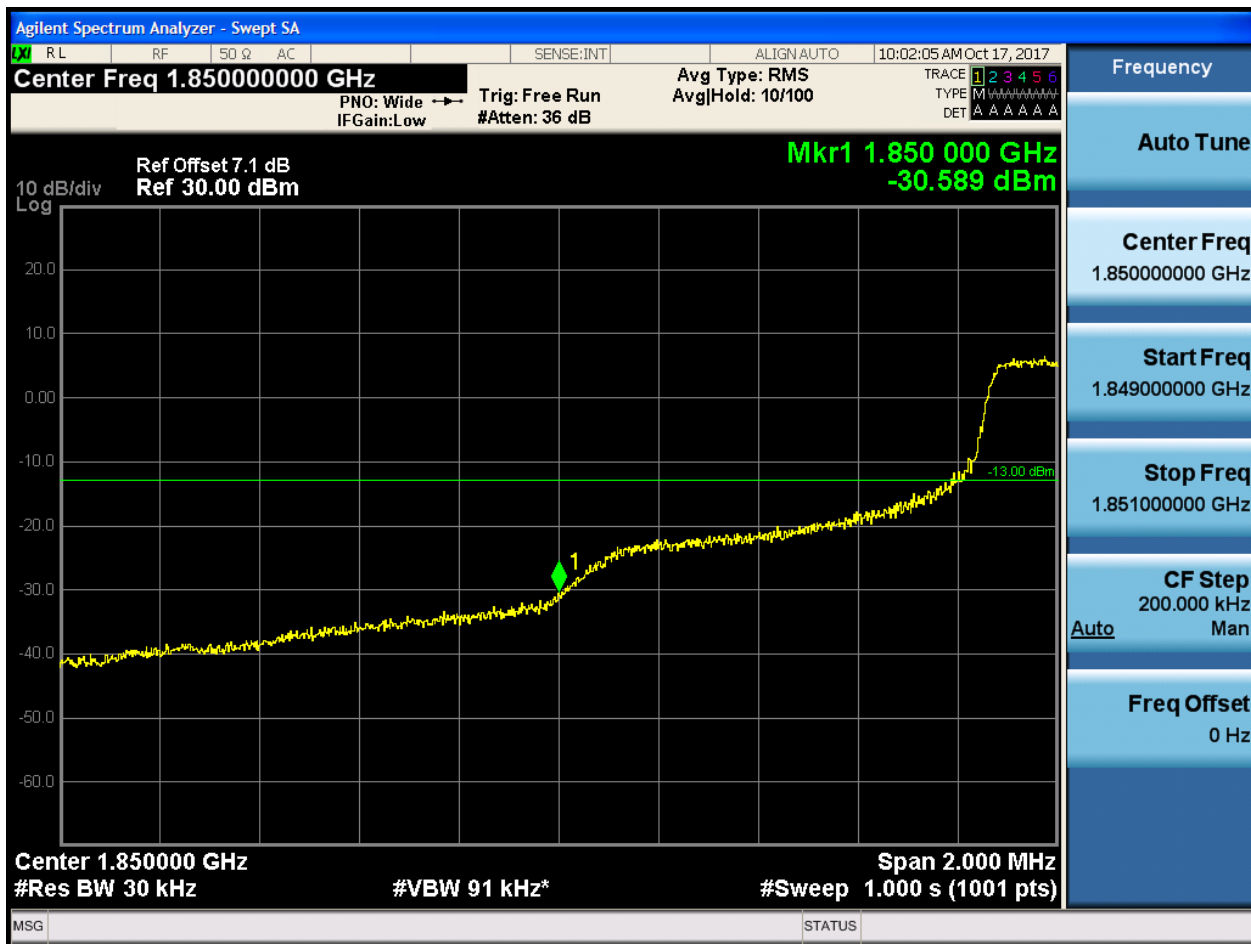


5.1.1.2.2.1.2 Test RB = RB1#14



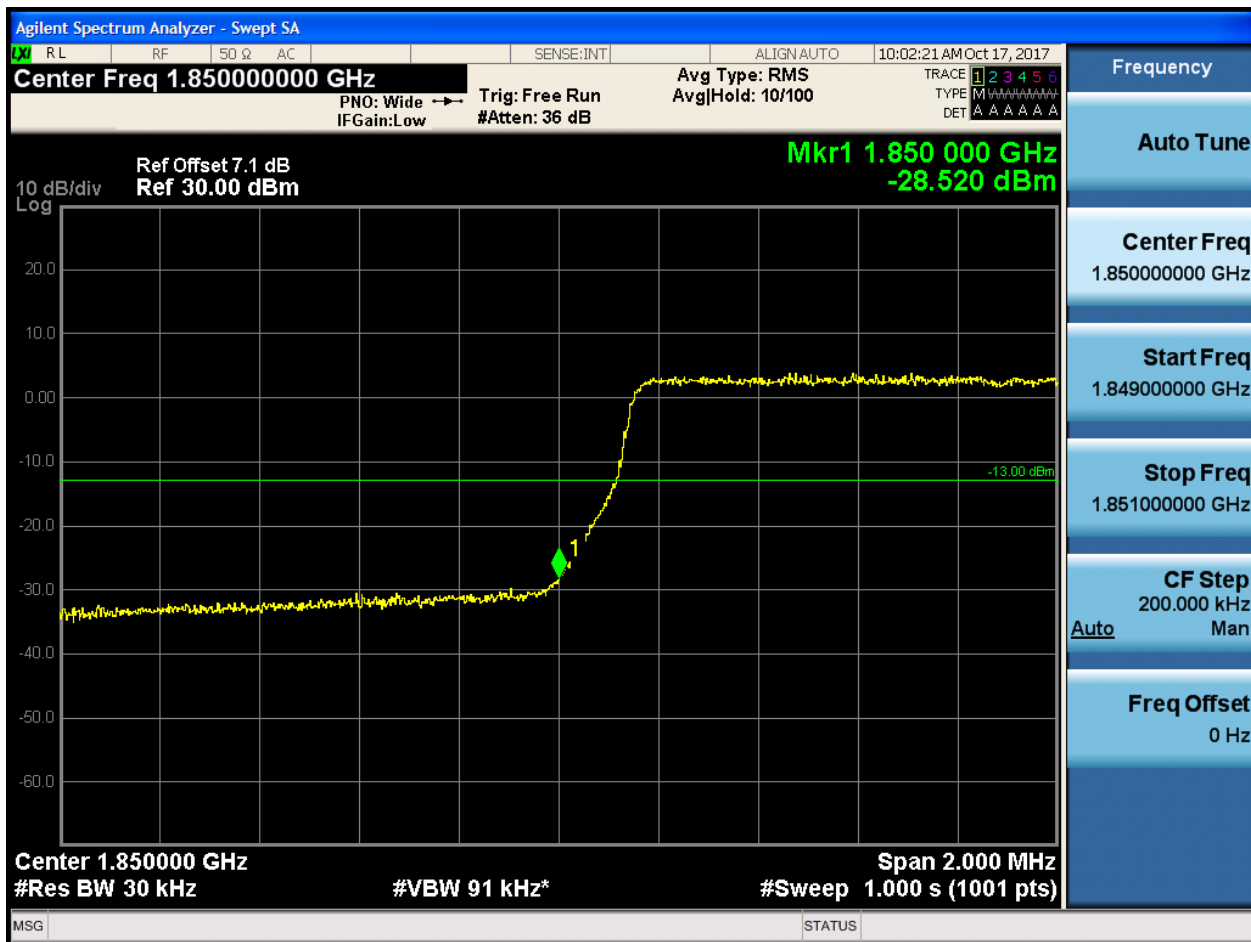


5.1.1.2.2.1.3 Test RB = RB8#4





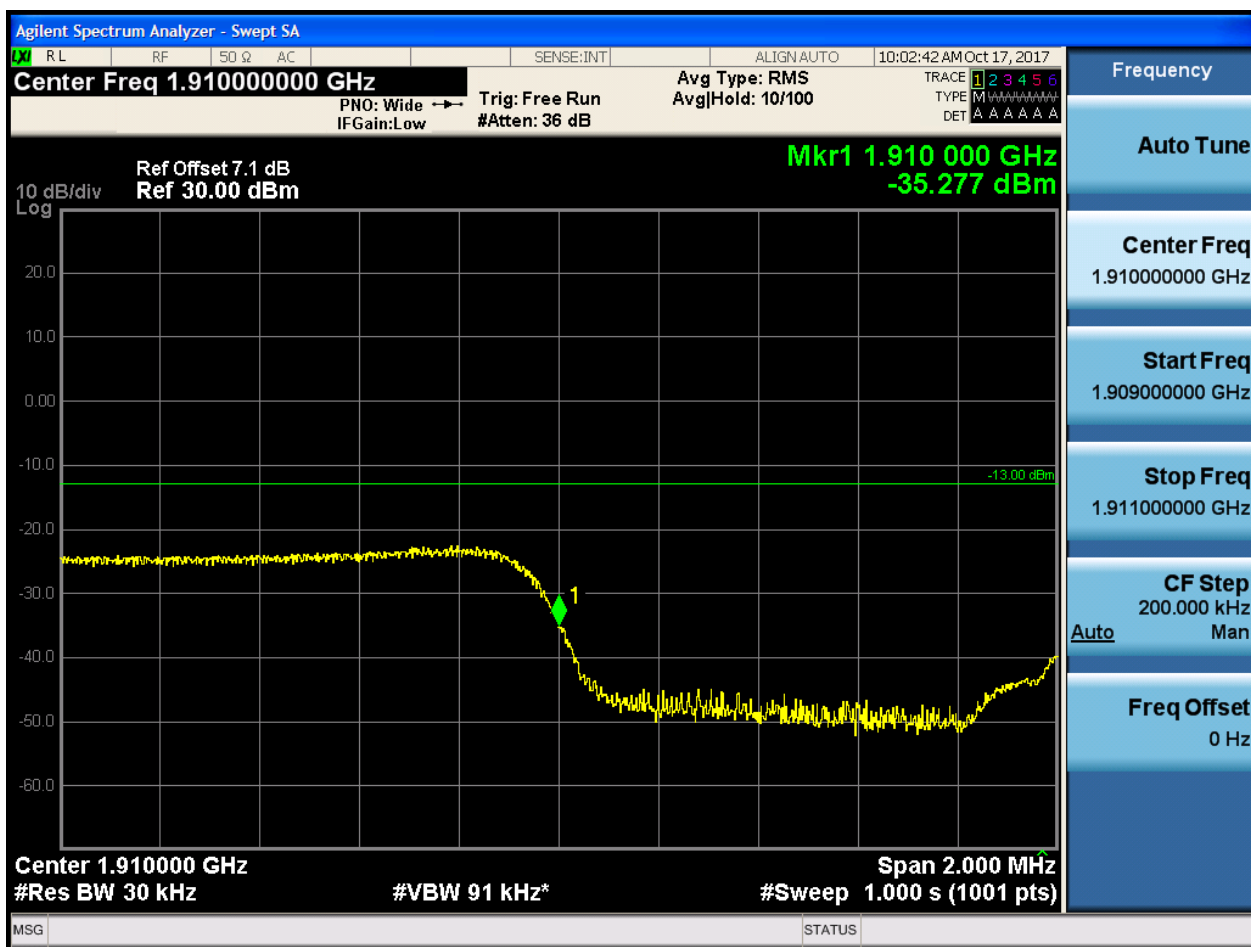
5.1.1.2.2.1.4 Test RB = RB15#0





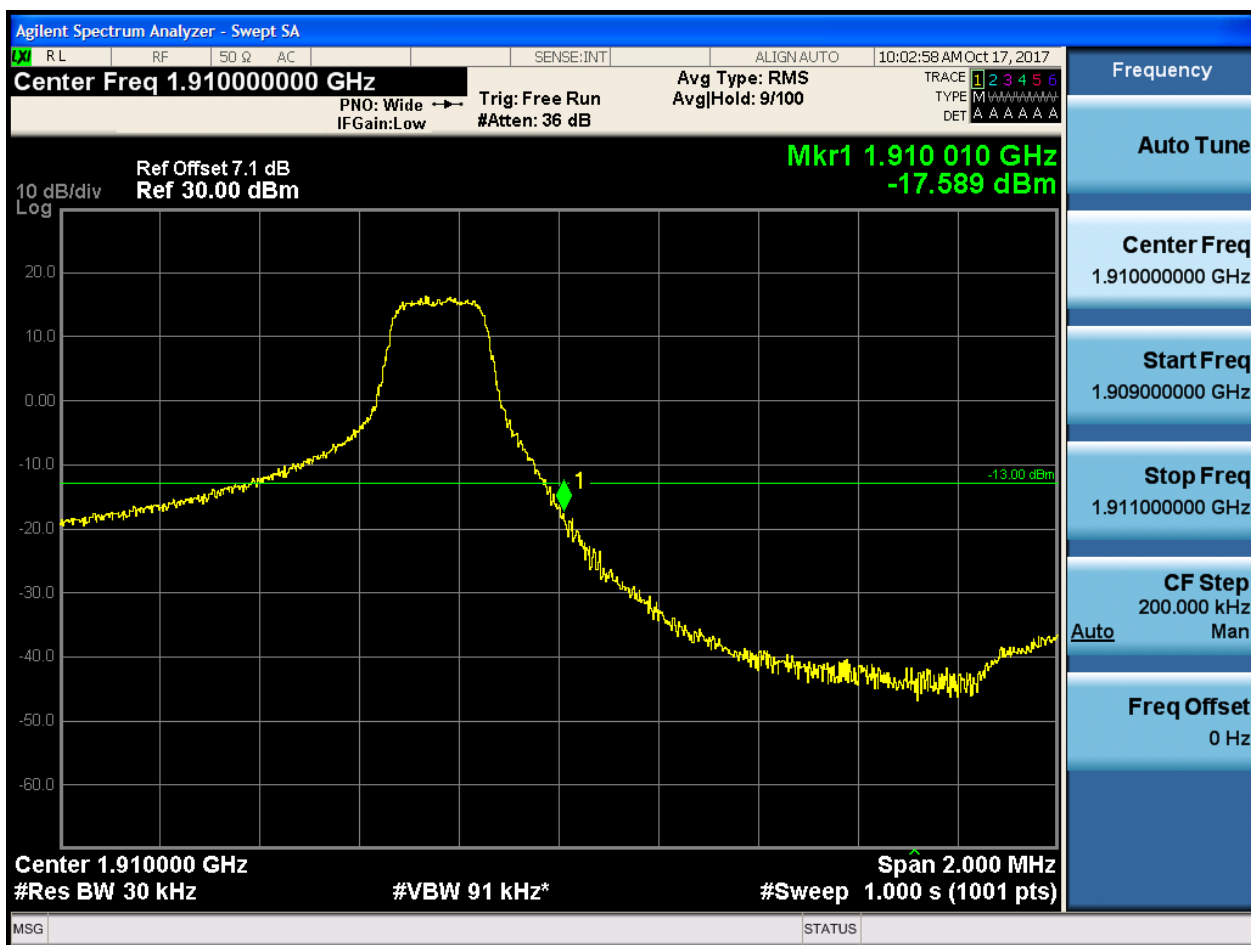
5.1.1.2.2.2 Test Channel = HCH

5.1.1.2.2.2.1 Test RB = RB1#0



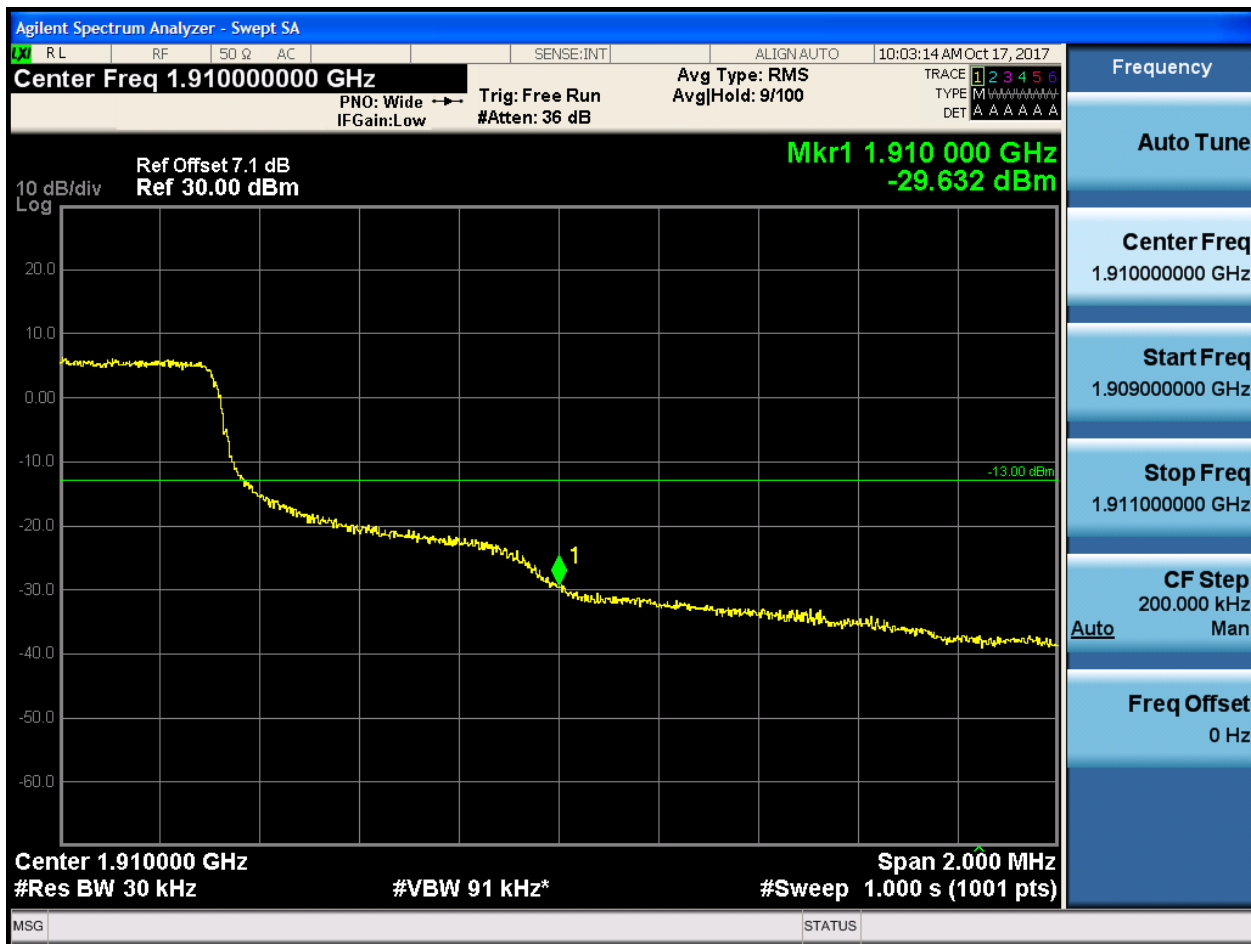


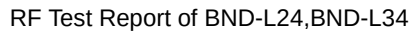
5.1.1.2.2.2 Test RB = RB1#14





5.1.1.2.2.3 Test RB = RB8#4





Agilent Spectrum Analyzer - Swept SA

Center Freq 1.910000000 GHz

Ref Offset 7.1 dB
Ref 30.00 dBm

10 dB/div
Log

Mkr1 1.910 000 GHz
-27.465 dBm

Center 1.910000 GHz
#Res BW 30 kHz
#VBW 91 kHz*

Span 2.000 MHz
#Sweep 1.000 s (1001 pts)

Auto Tune

Center Freq
1.910000000 GHz

Start Freq
1.909000000 GHz

Stop Freq
1.911000000 GHz

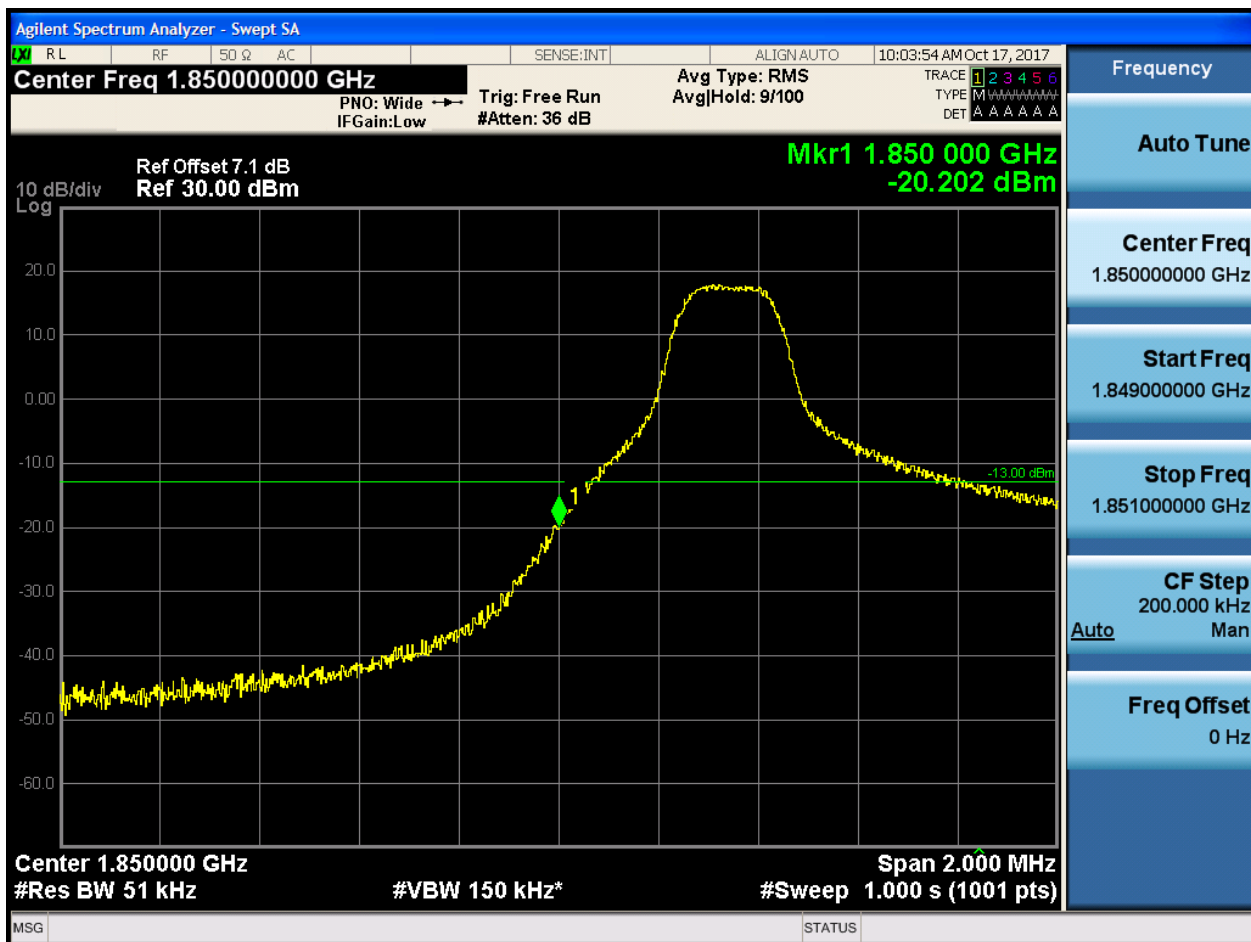
CF Step
200.000 kHz
Auto Man

Freq Offset
0 Hz

5.1.1.2.3 Test Bandwidth = 5

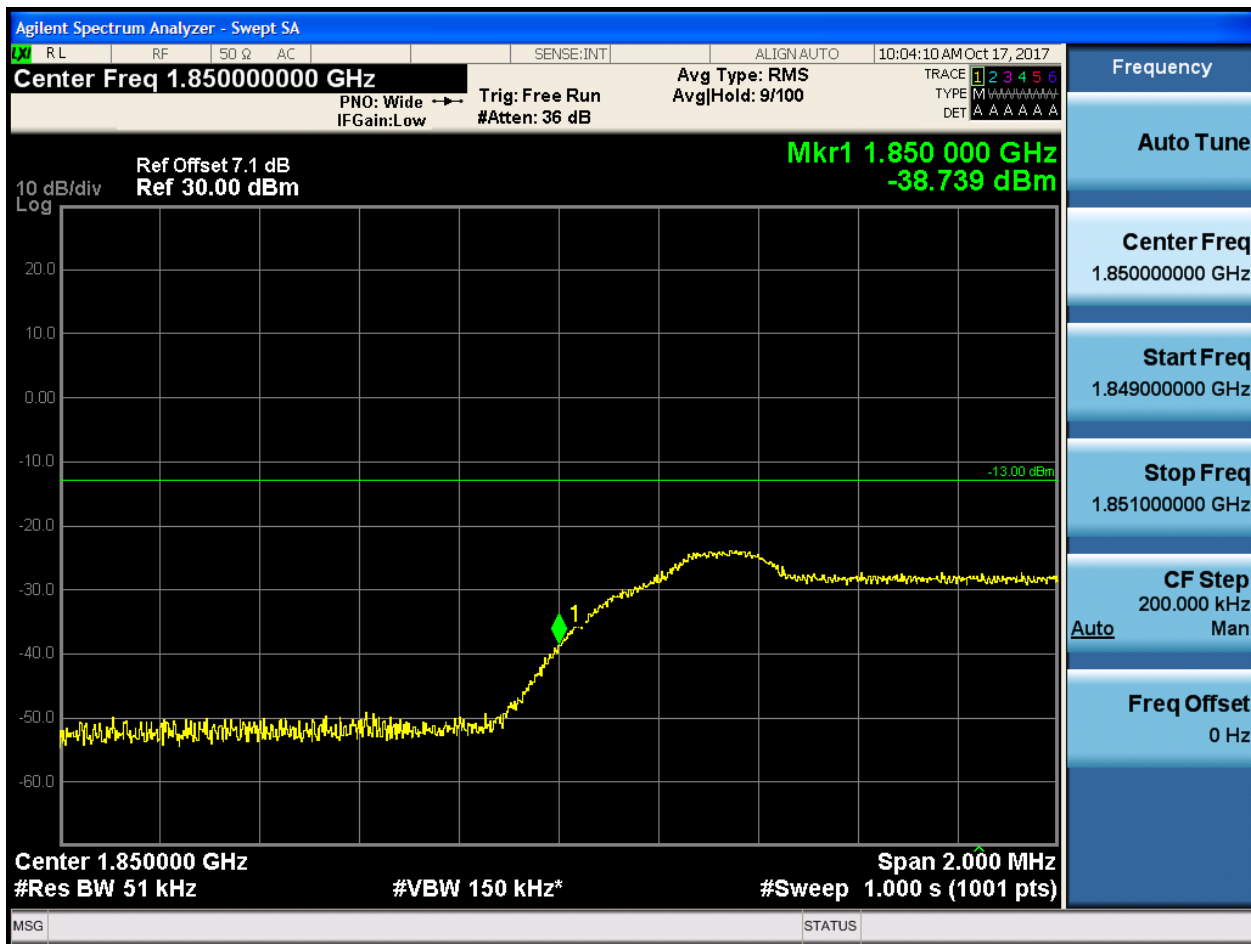
5.1.1.2.3.1 Test Channel = LCH

5.1.1.2.3.1.1 Test RB = RB1#0





5.1.1.2.3.1.2 Test RB = RB1#24



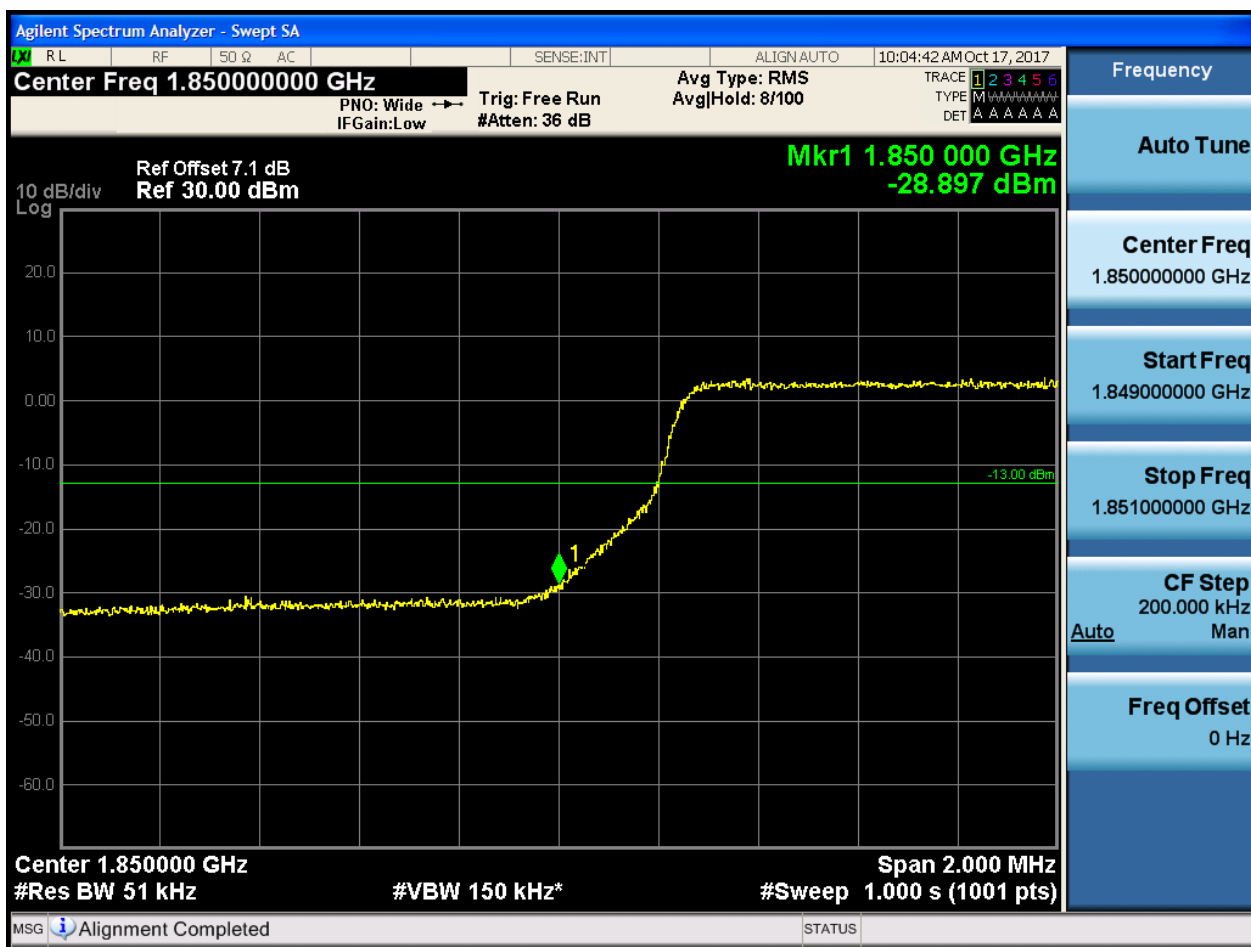


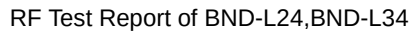
5.1.1.2.3.1.3 Test RB = RB12#6



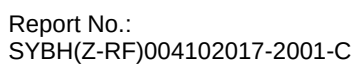


5.1.1.2.3.1.4 Test RB = RB25#0



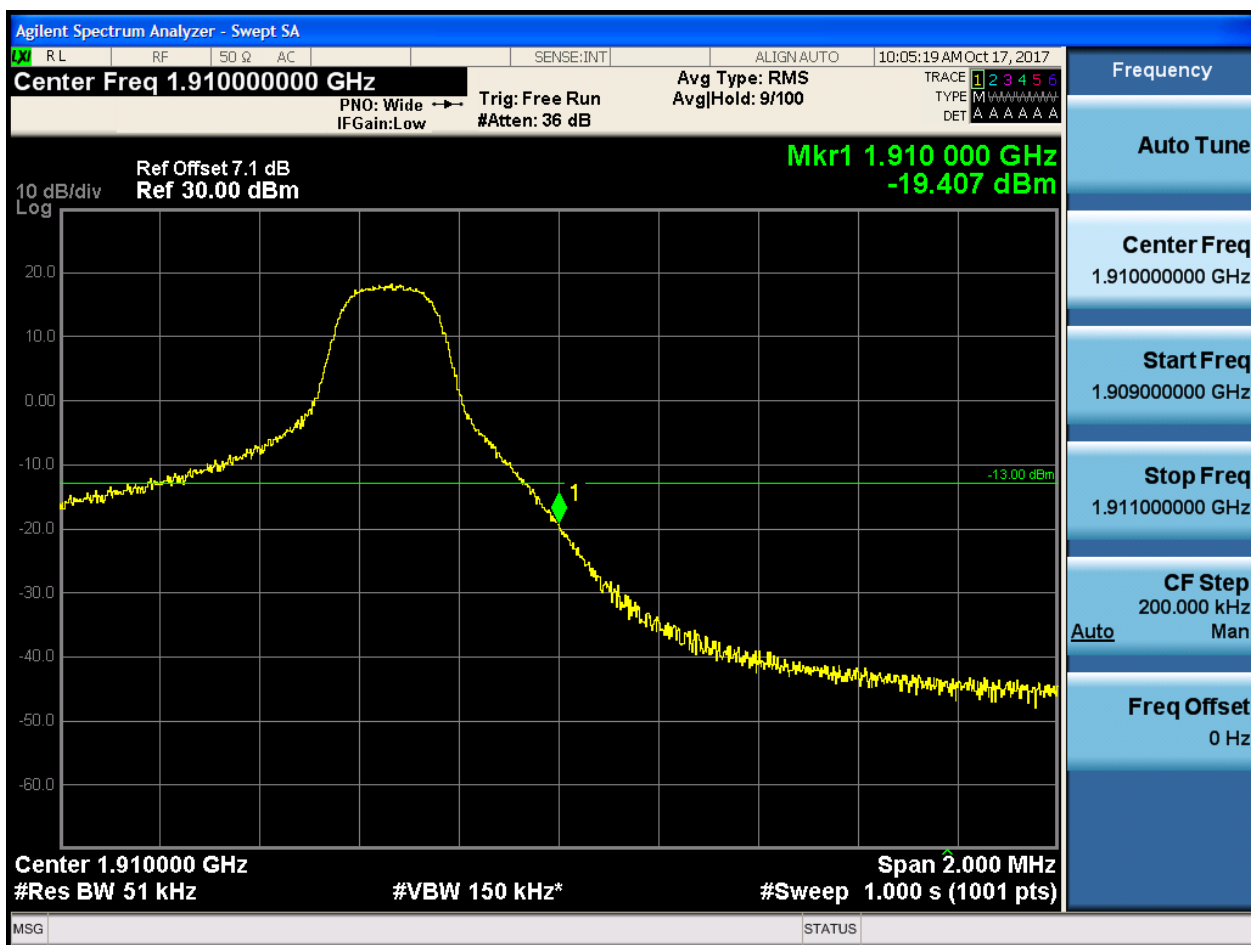


5.1.1.2.3.2.1 Test RB = RB1#0





5.1.1.2.3.2.2 Test RB = RB1#24





5.1.1.2.3.2.3 Test RB = RB12#6





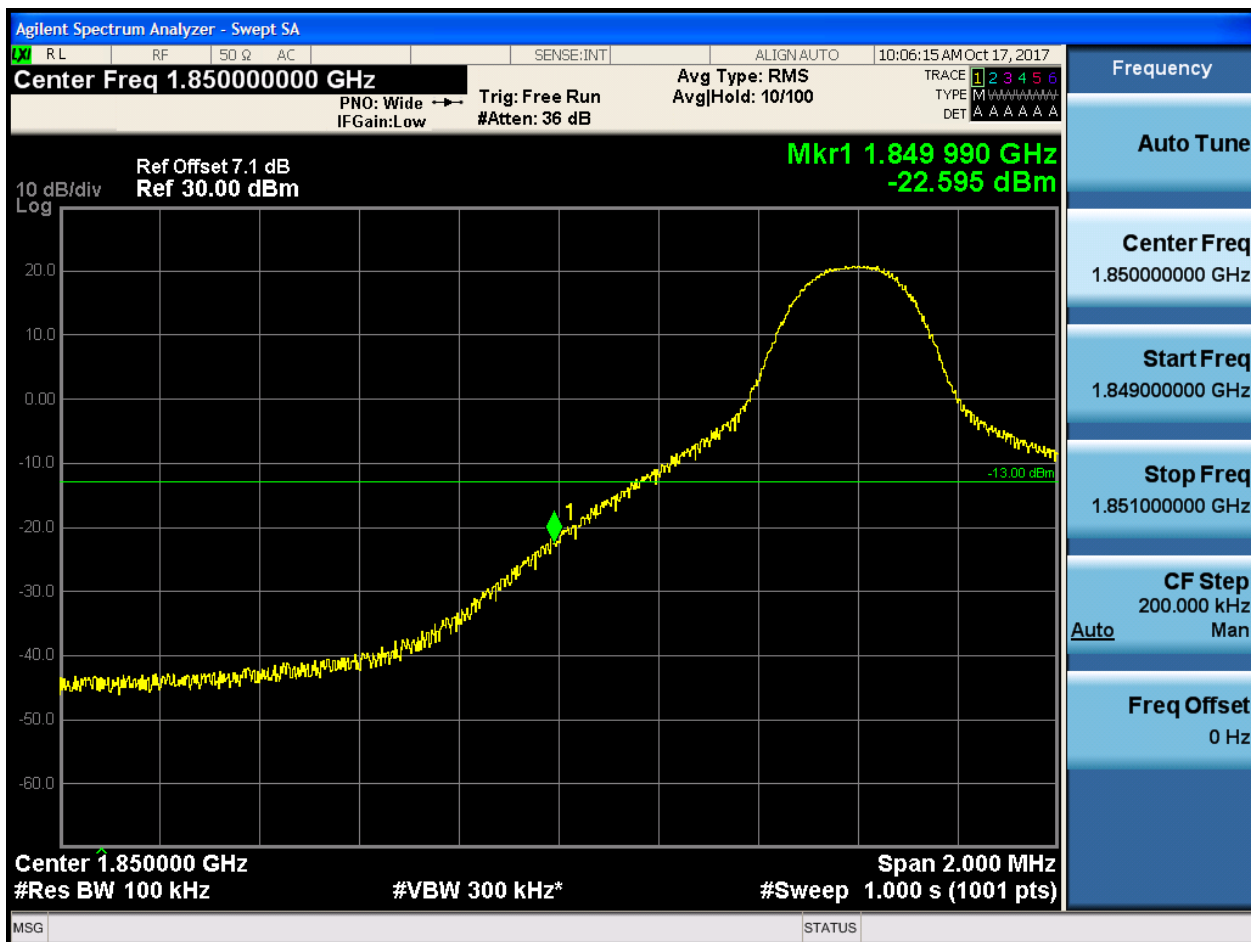
5.1.1.2.3.2.4 Test RB = RB25#0



5.1.1.2.4 Test Bandwidth = 10

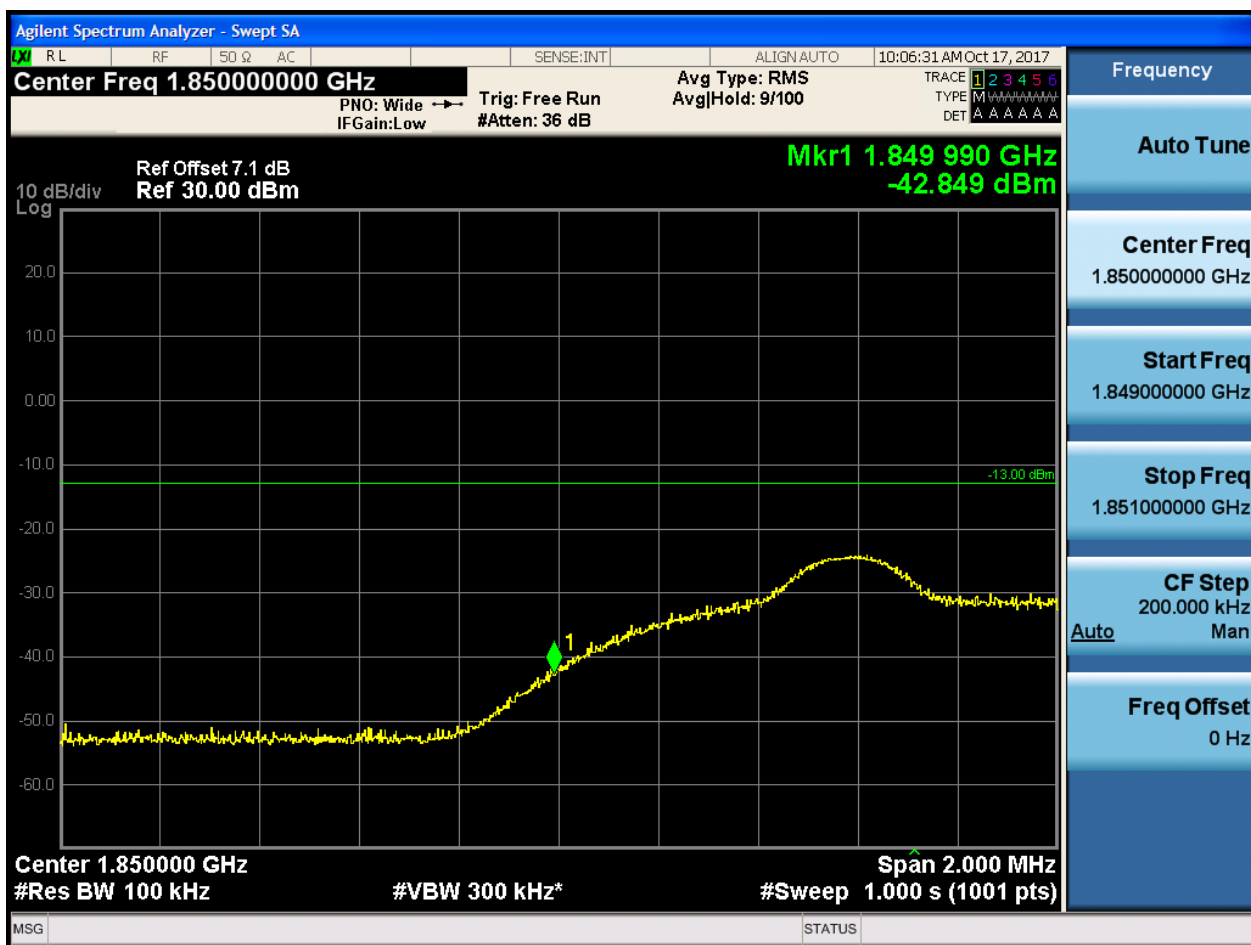
5.1.1.2.4.1 Test Channel = LCH

5.1.1.2.4.1.1 Test RB = RB1#0



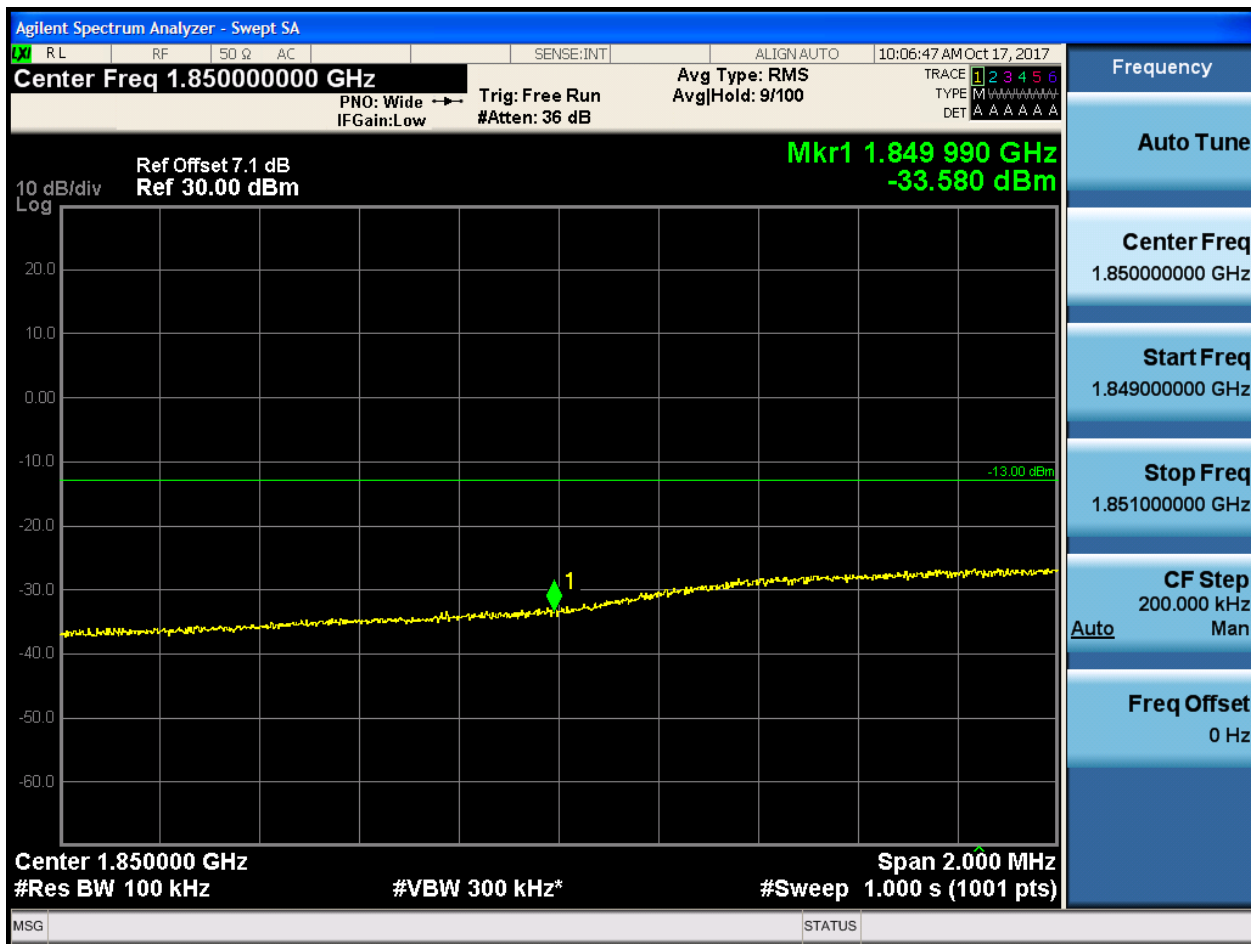


5.1.1.2.4.1.2 Test RB = RB1#49





5.1.1.2.4.1.3 Test RB = RB25#13



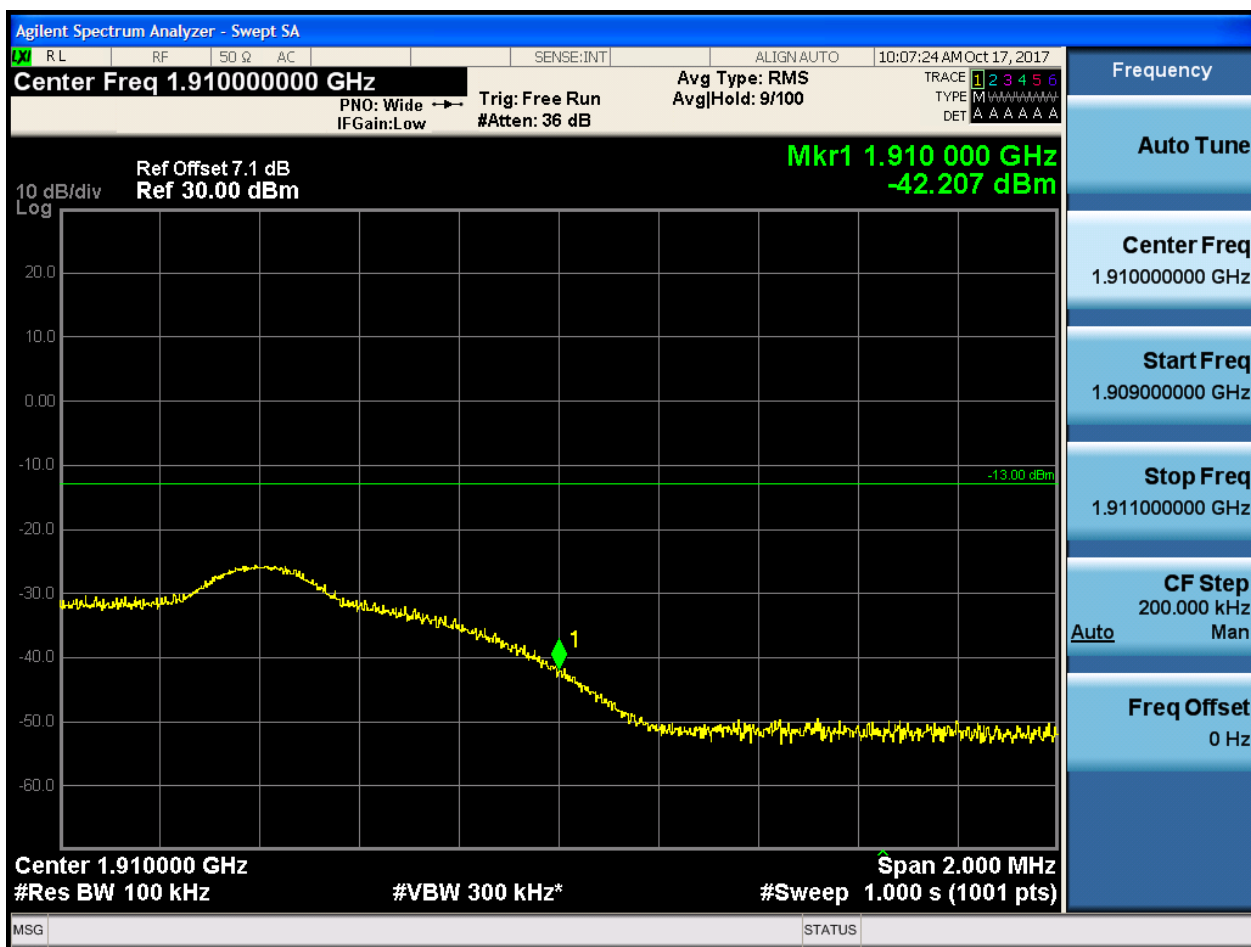


5.1.1.2.4.1.4 Test RB = RB50#0



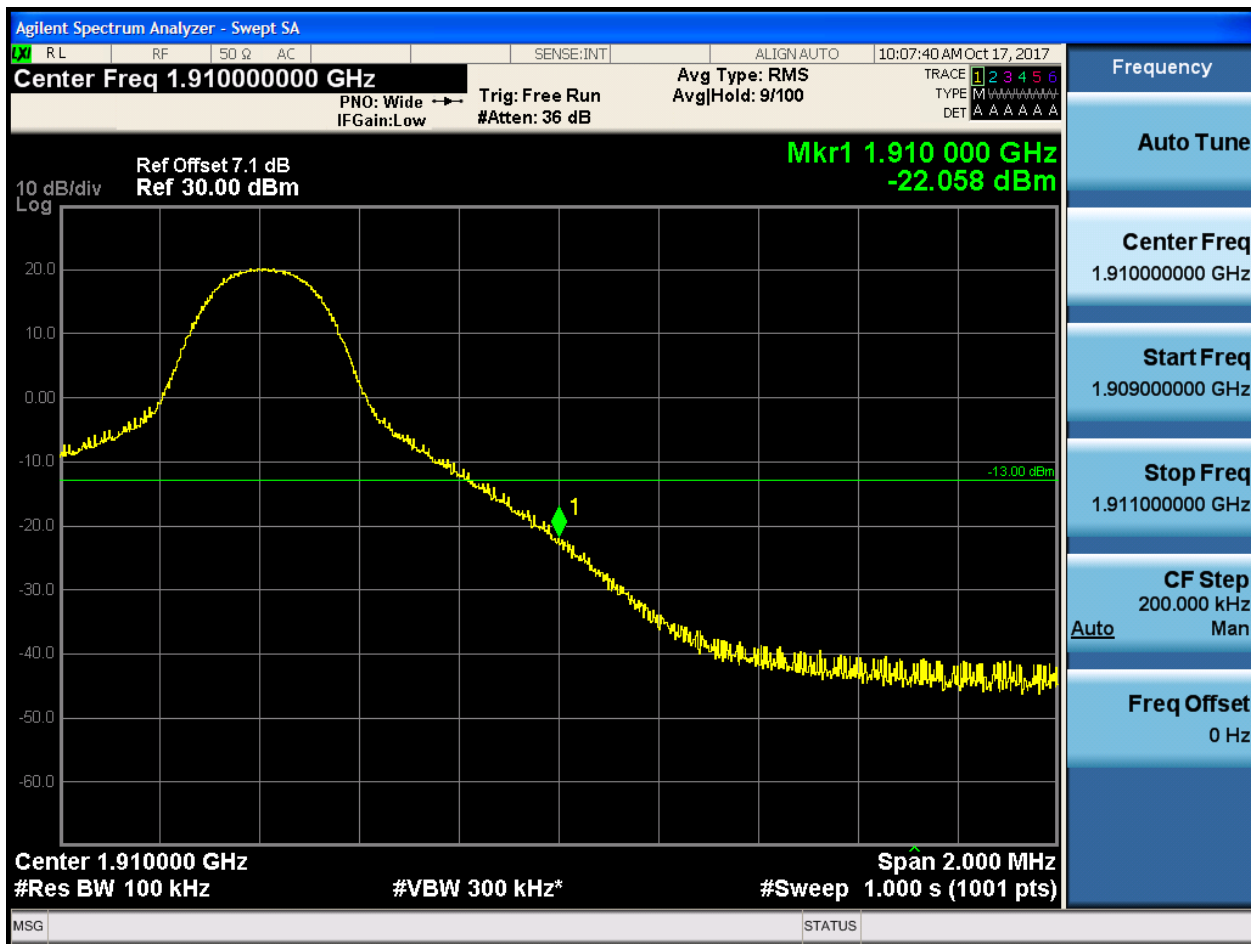
5.1.1.2.4.2 Test Channel = HCH

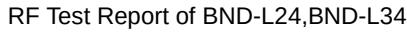
5.1.1.2.4.2.1 Test RB = RB1#0





5.1.1.2.4.2.2 Test RB = RB1#49





Agilent Spectrum Analyzer - Swept SA

Center Freq 1.910000000 GHz

Ref Offset 7.1 dB
Ref 30.00 dBm

10 dB/div
Log

Mkr1 1.910 000 GHz
-32.131 dBm

Center 1.910000 GHz
#Res BW 100 kHz
#VBW 300 kHz*

Span 2.000 MHz
#Sweep 1.000 s (1001 pts)

Frequency

Auto Tune

Center Freq
1.910000000 GHz

Start Freq
1.909000000 GHz

Stop Freq
1.911000000 GHz

CF Step
200.000 kHz
Auto

Freq Offset
0 Hz



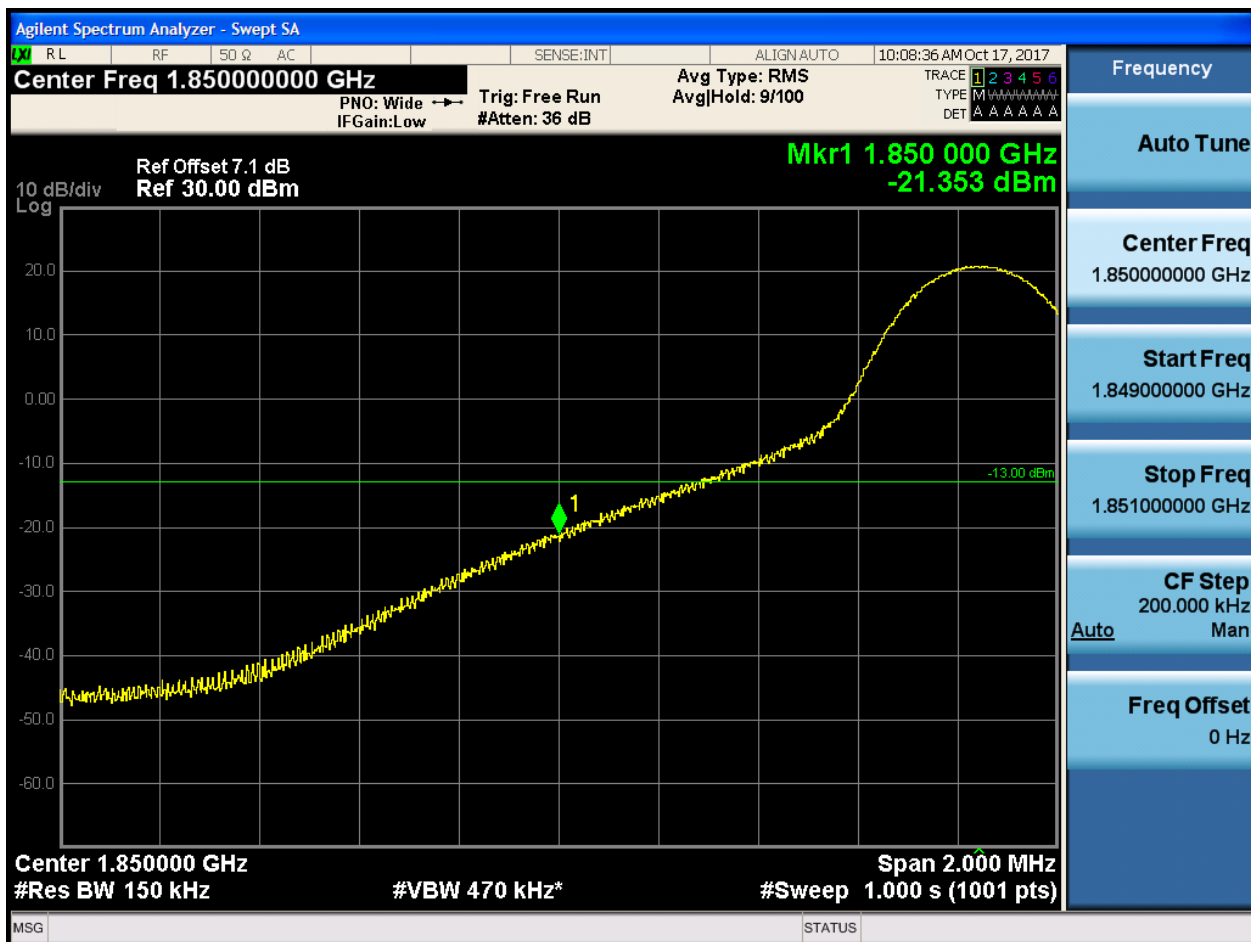
5.1.1.2.4.2.4 Test RB = RB50#0



5.1.1.2.5 Test Bandwidth = 15

5.1.1.2.5.1 Test Channel = LCH

5.1.1.2.5.1.1 Test RB = RB1#0





5.1.1.2.5.1.2 Test RB = RB1#74





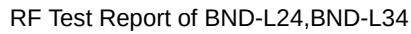
5.1.1.2.5.1.3 Test RB = RB38#19





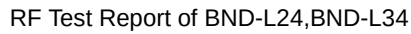
5.1.1.2.5.1.4 Test RB = RB75#0





5.1.1.2.5.2.1 Test RB = RB1#0





Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω AC SENSE:INT ALIGN AUTO 10:10:01 AM Oct 17, 2017

Center Freq 1.910000000 GHz Avg Type: RMS
PNO: Wide Trg: Free Run
IFGain:Low #Atten: 36 dB AvgHold: 9/100

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

Ref Offset 7.1 dB
Ref 30.00 dBm

Mkr1 1.910 000 GHz
-21.786 dBm

10 dB/div
Log

The plot shows a signal spectrum on a logarithmic scale. The y-axis is labeled '10 dB/div Log' and ranges from -60.0 to 20.0 dBm. The x-axis represents frequency. A yellow trace shows a signal that starts at approximately 15 dBm at 1.909 GHz, drops sharply to about -10 dBm at 1.910 GHz, and then continues to decrease with a noise floor around -50 dBm at 1.911 GHz. A green horizontal line is drawn at -13.00 dBm. A yellow marker labeled '1' is placed on the signal trace at 1.910 GHz, indicating a power level of -21.786 dBm.

Center 1.910000 GHz
#Res BW 150 kHz
#VBW 470 kHz*
Span 2.000 MHz
#Sweep 1.000 s (1001 pts)

MSG STATUS

Frequency

Auto Tune

Center Freq
1.910000000 GHz

Start Freq
1.909000000 GHz

Stop Freq
1.911000000 GHz

CF Step
200.000 kHz
Auto Man

Freq Offset
0 Hz



5.1.1.2.5.2.3 Test RB = RB38#19





5.1.1.2.5.2.4 Test RB = RB75#0

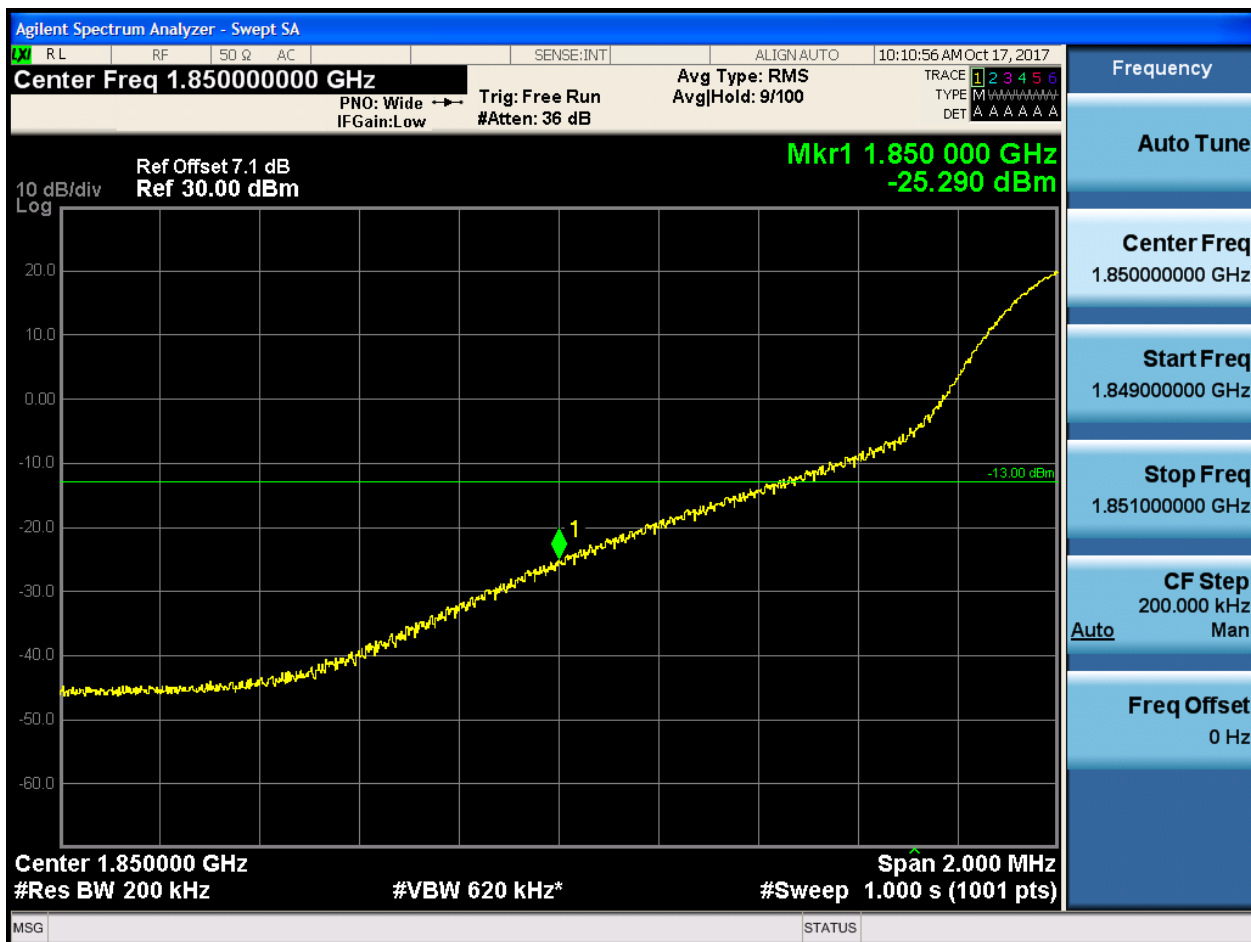




5.1.1.2.6 Test Bandwidth = 20

5.1.1.2.6.1 Test Channel = LCH

5.1.1.2.6.1.1 Test RB = RB1#0





5.1.1.2.6.1.2 Test RB = RB1#99



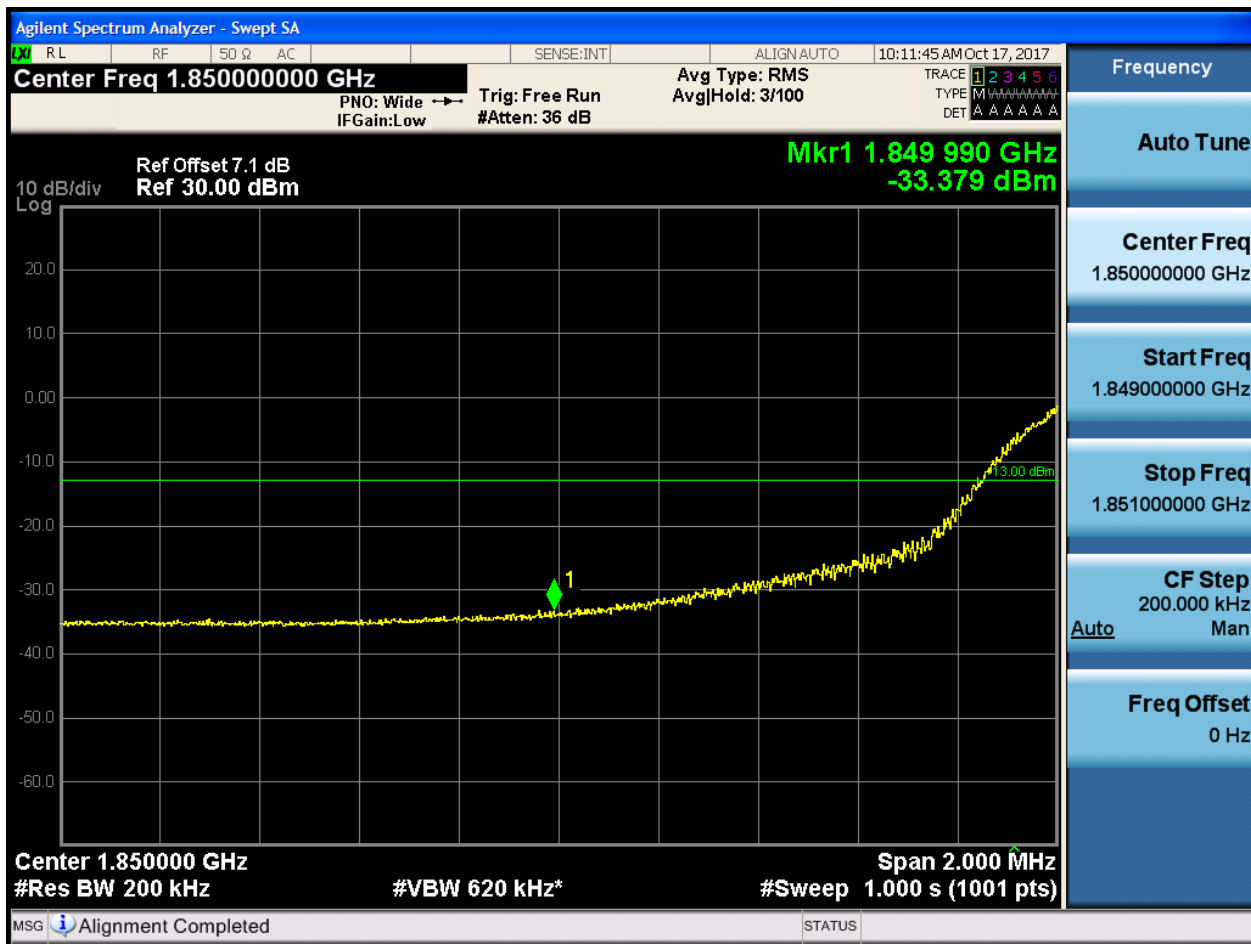


5.1.1.2.6.1.3 Test RB = RB50#25





5.1.1.2.6.1.4 Test RB = RB100#0





5.1.1.2.6.2 Test Channel = HCH

5.1.1.2.6.2.1 Test RB = RB1#0





5.1.1.2.6.2.2 Test RB = RB1#99





5.1.1.2.6.2.3 Test RB = RB50#25





5.1.1.2.6.2.4 Test RB = RB100#0



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 LTE

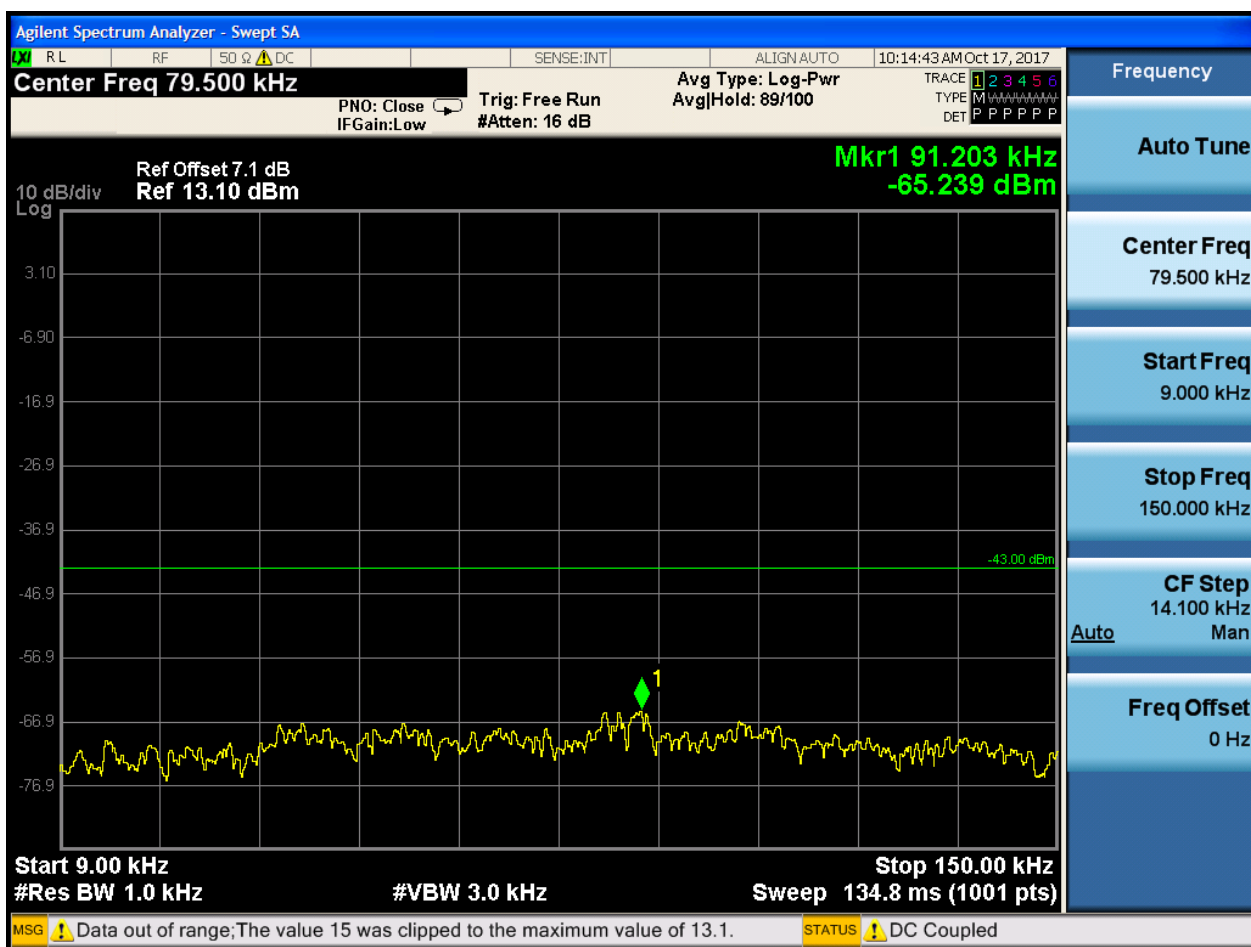
6.1.1 Test Band = BAND2

6.1.1.1 Test Mode = LTE/TM1

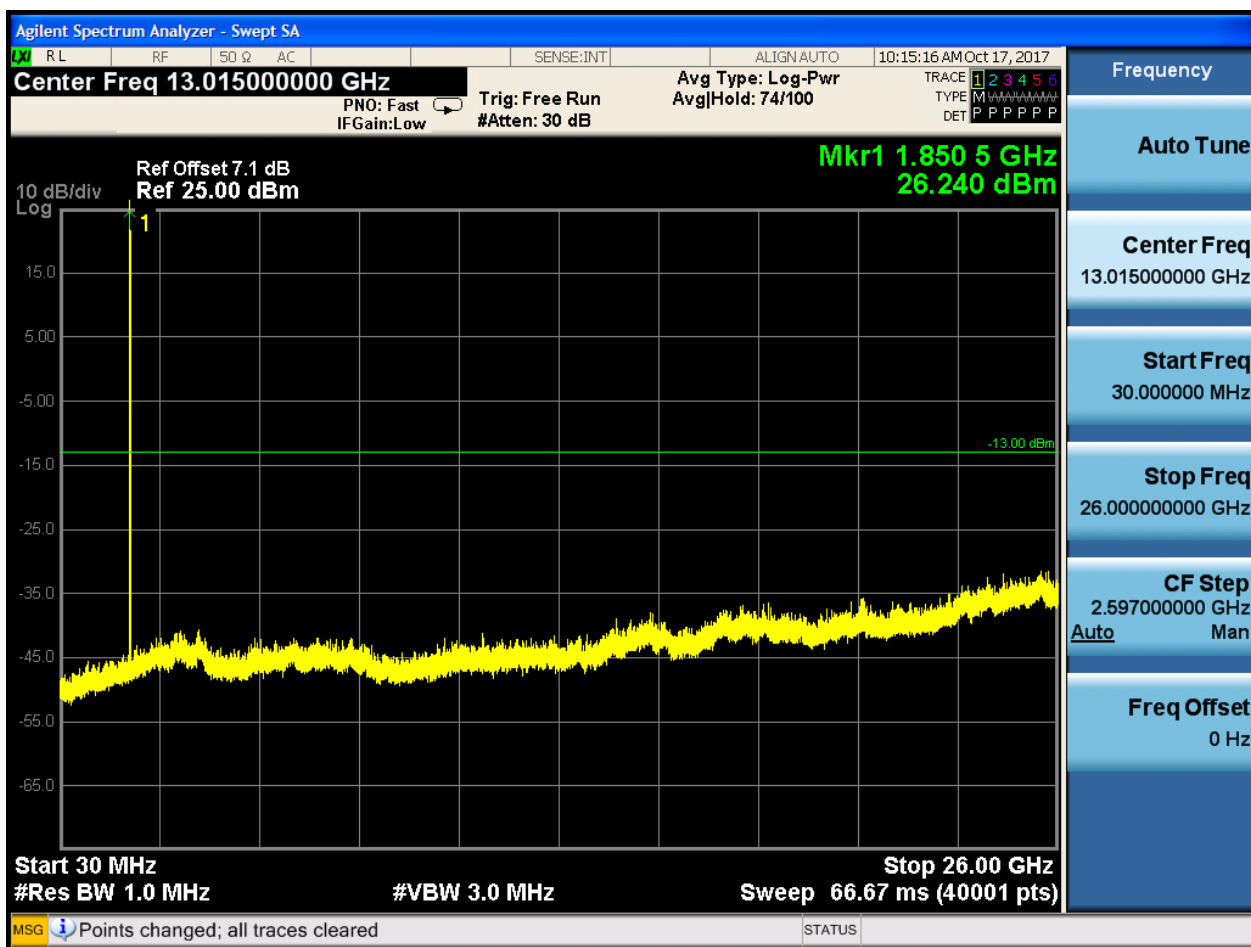
6.1.1.1.1 Test Bandwidth = 1.4

6.1.1.1.1.1 Test Channel = LCH

6.1.1.1.1.1.1 Test RB = RB1#0



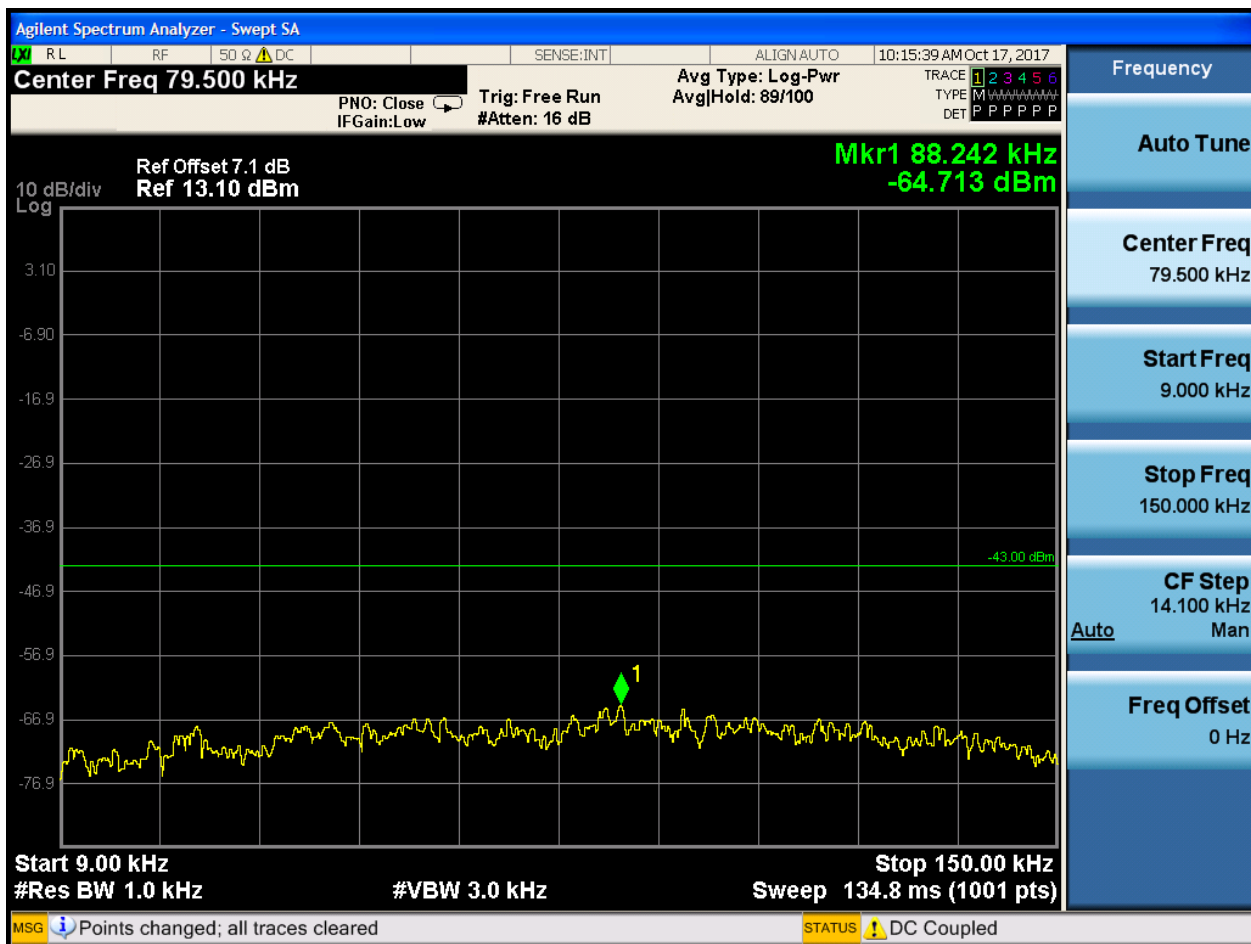


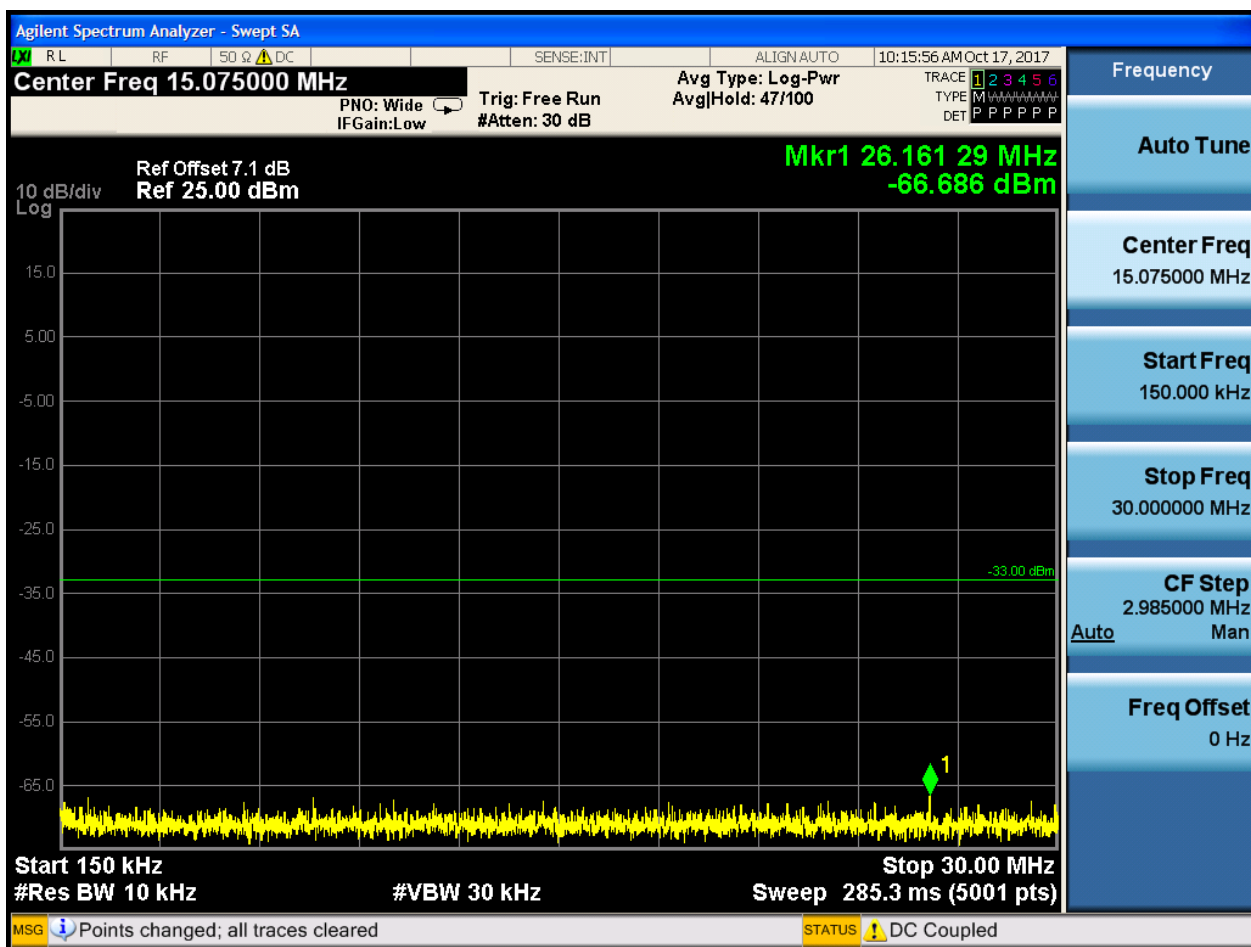


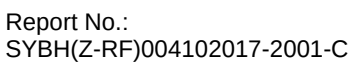
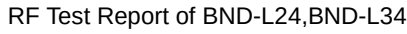


6.1.1.1.1.2 Test Channel = MCH

6.1.1.1.1.2.1 Test RB = RB1#0



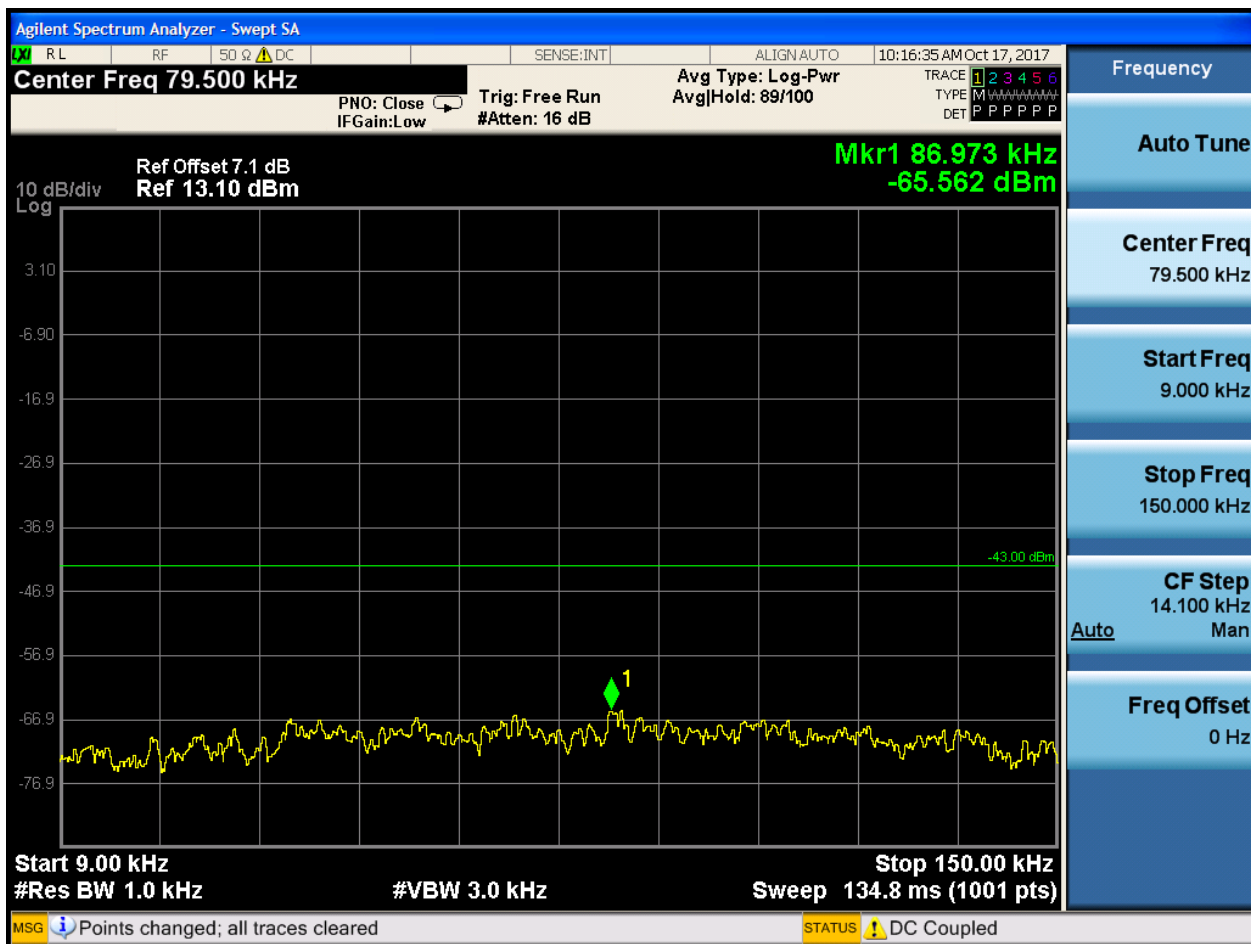


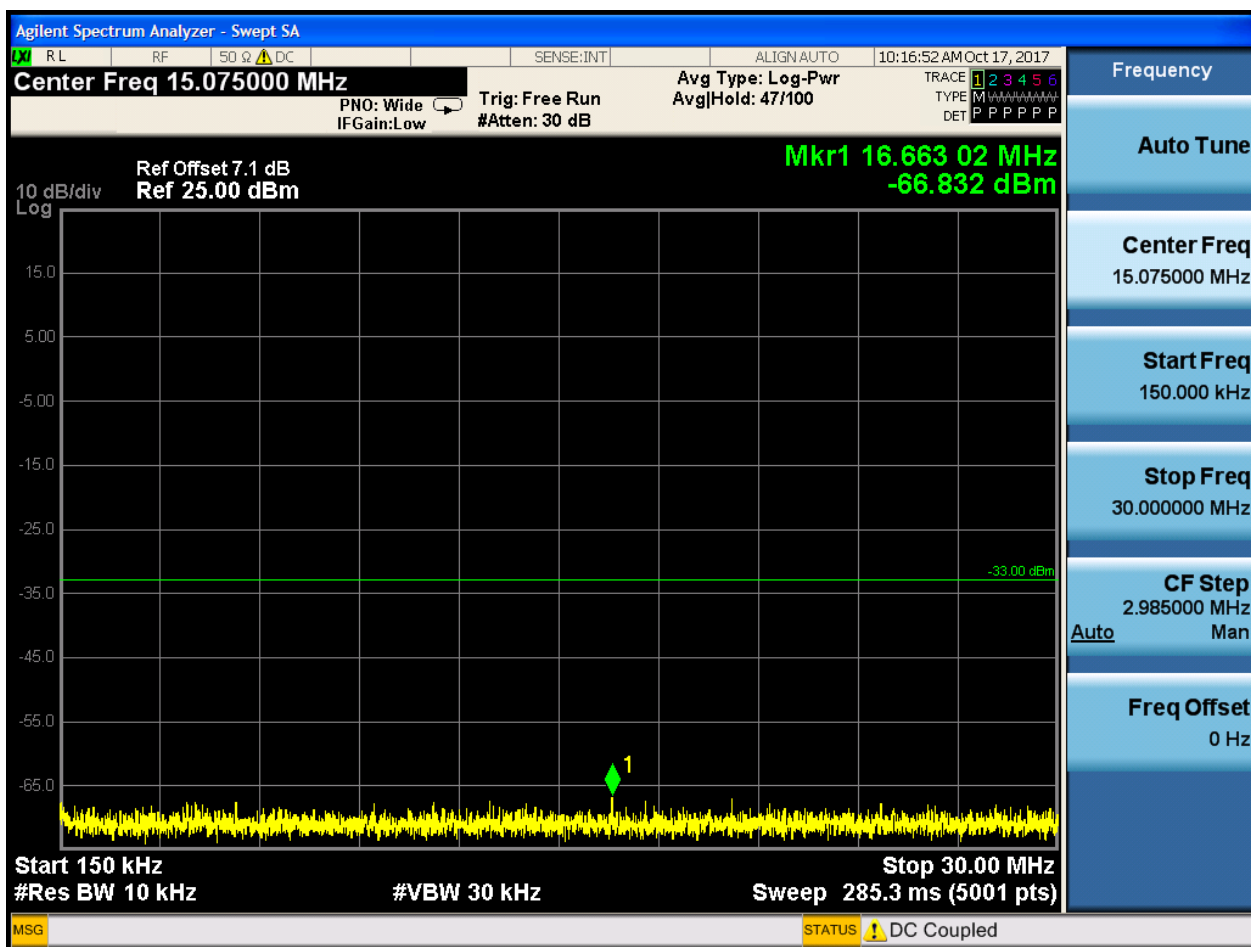


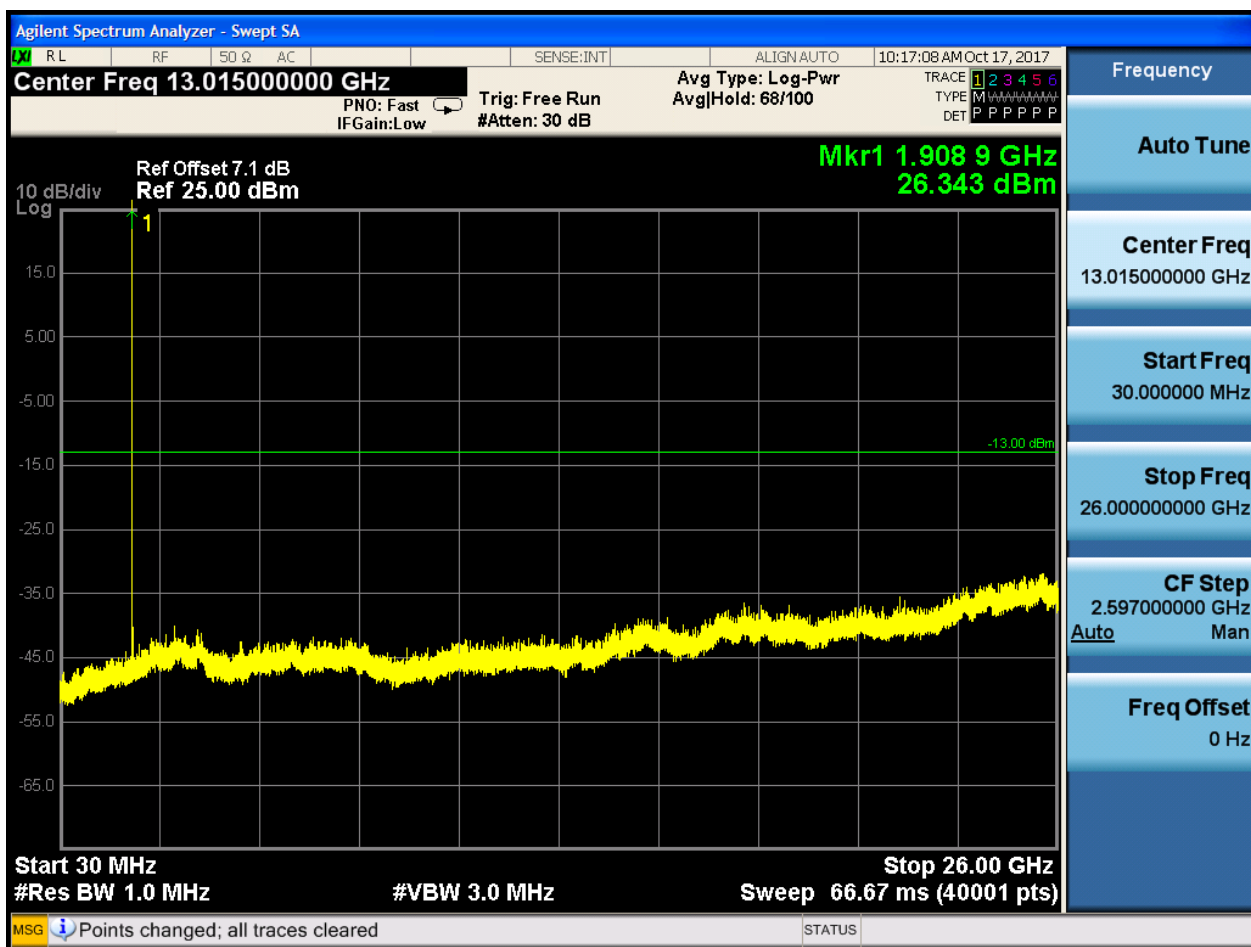


6.1.1.1.1.3 Test Channel = HCH

6.1.1.1.1.3.1 Test RB = RB1#0



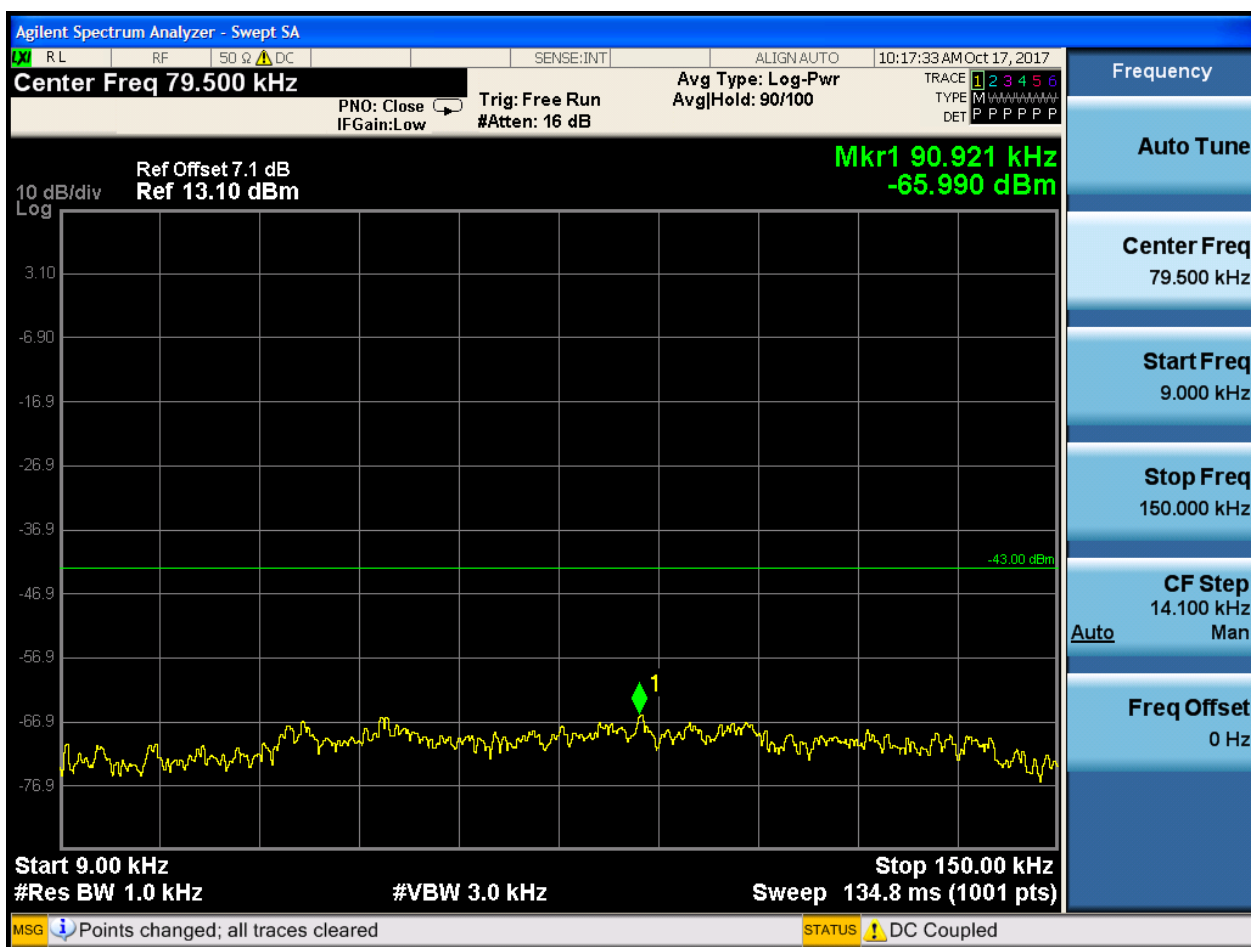


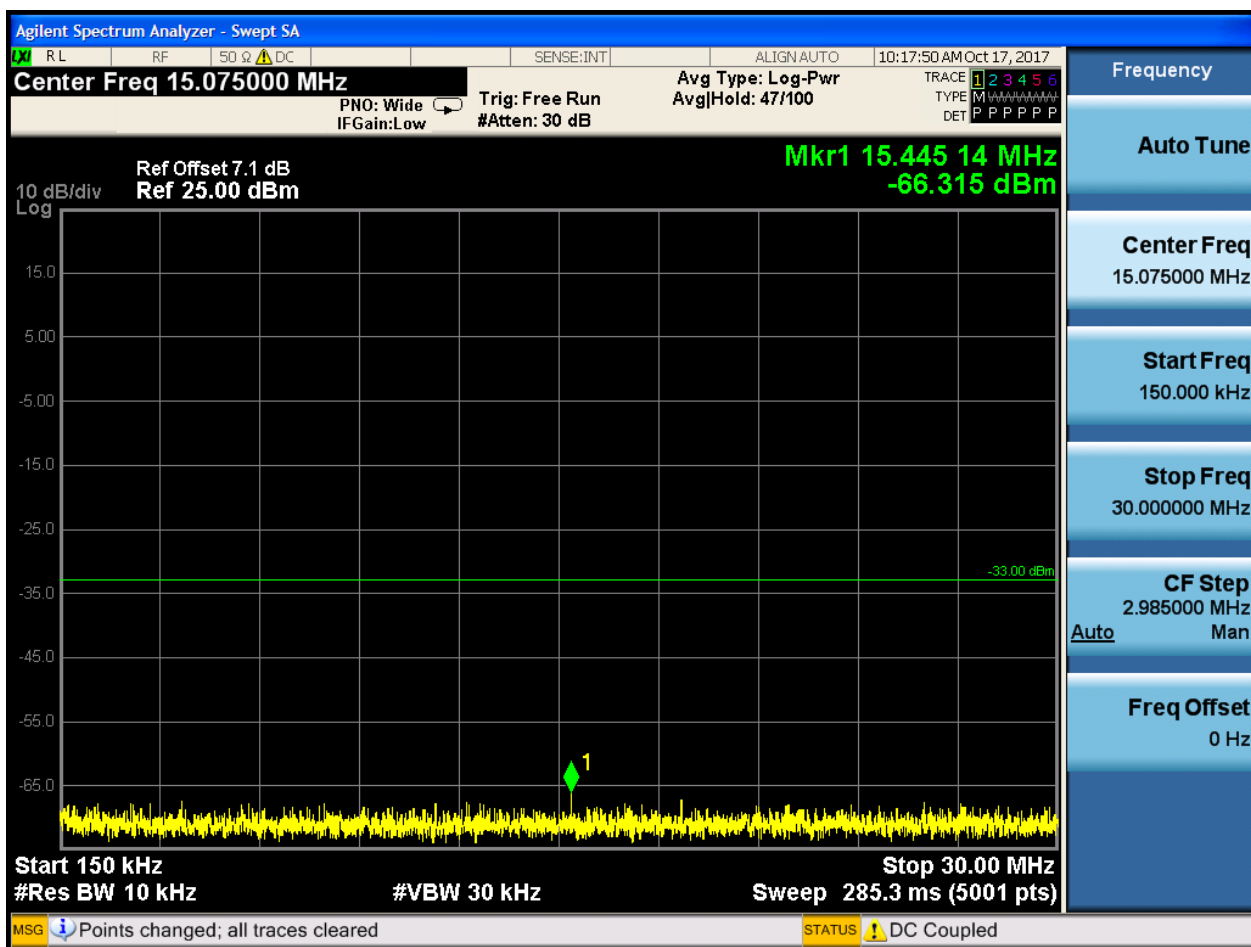


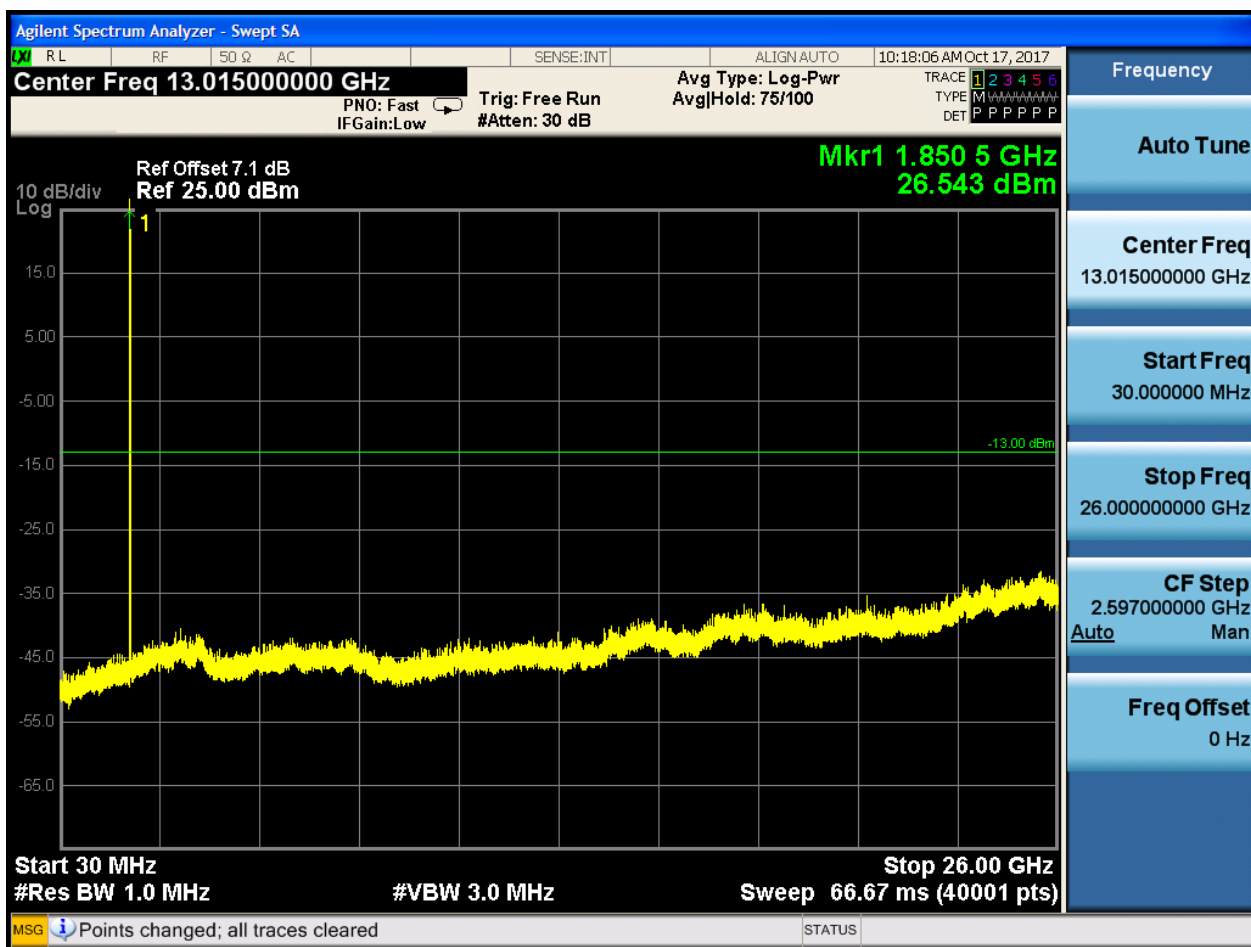
6.1.1.1.2 Test Bandwidth = 3

6.1.1.1.2.1 Test Channel = LCH

6.1.1.1.2.1.1 Test RB = RB1#0



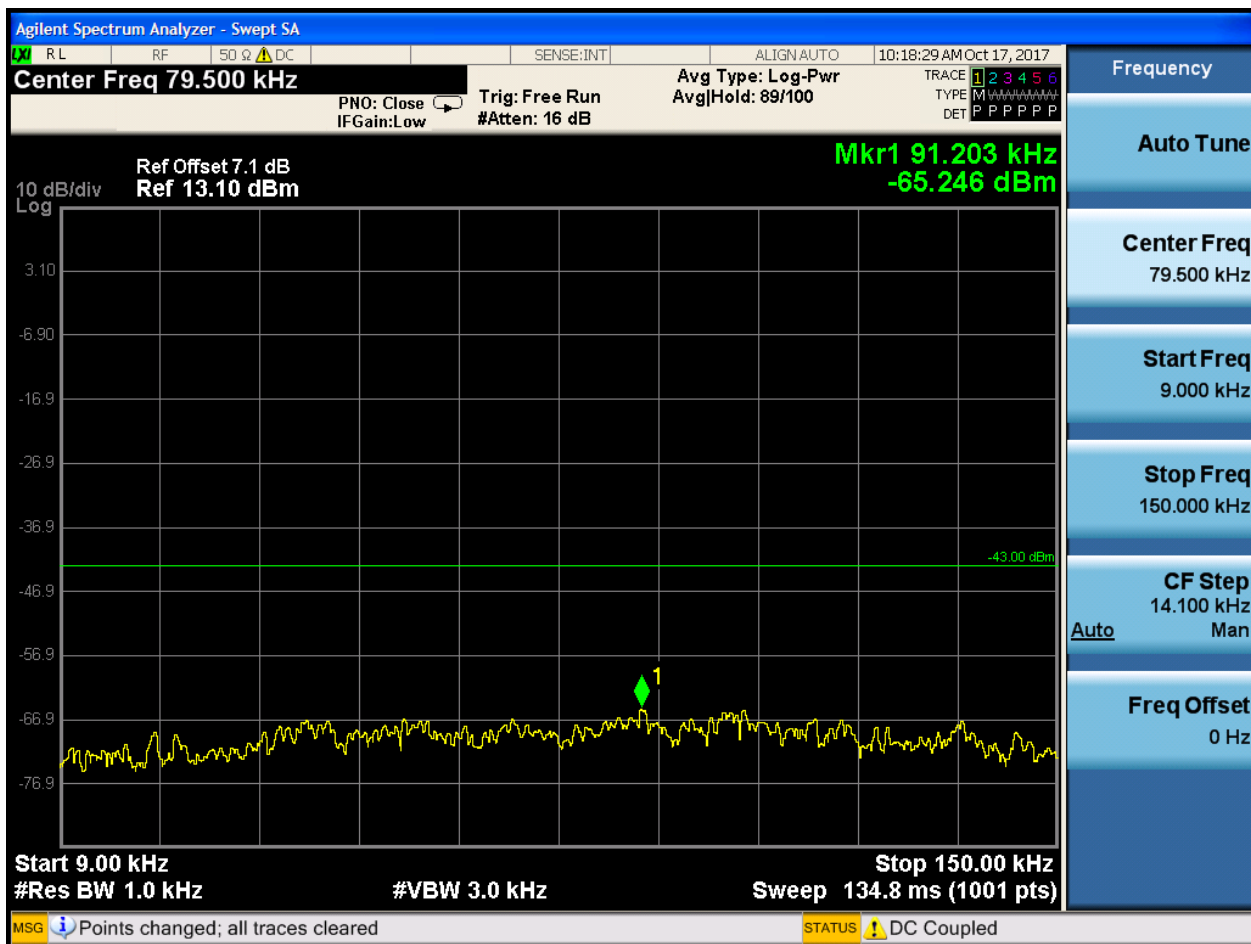


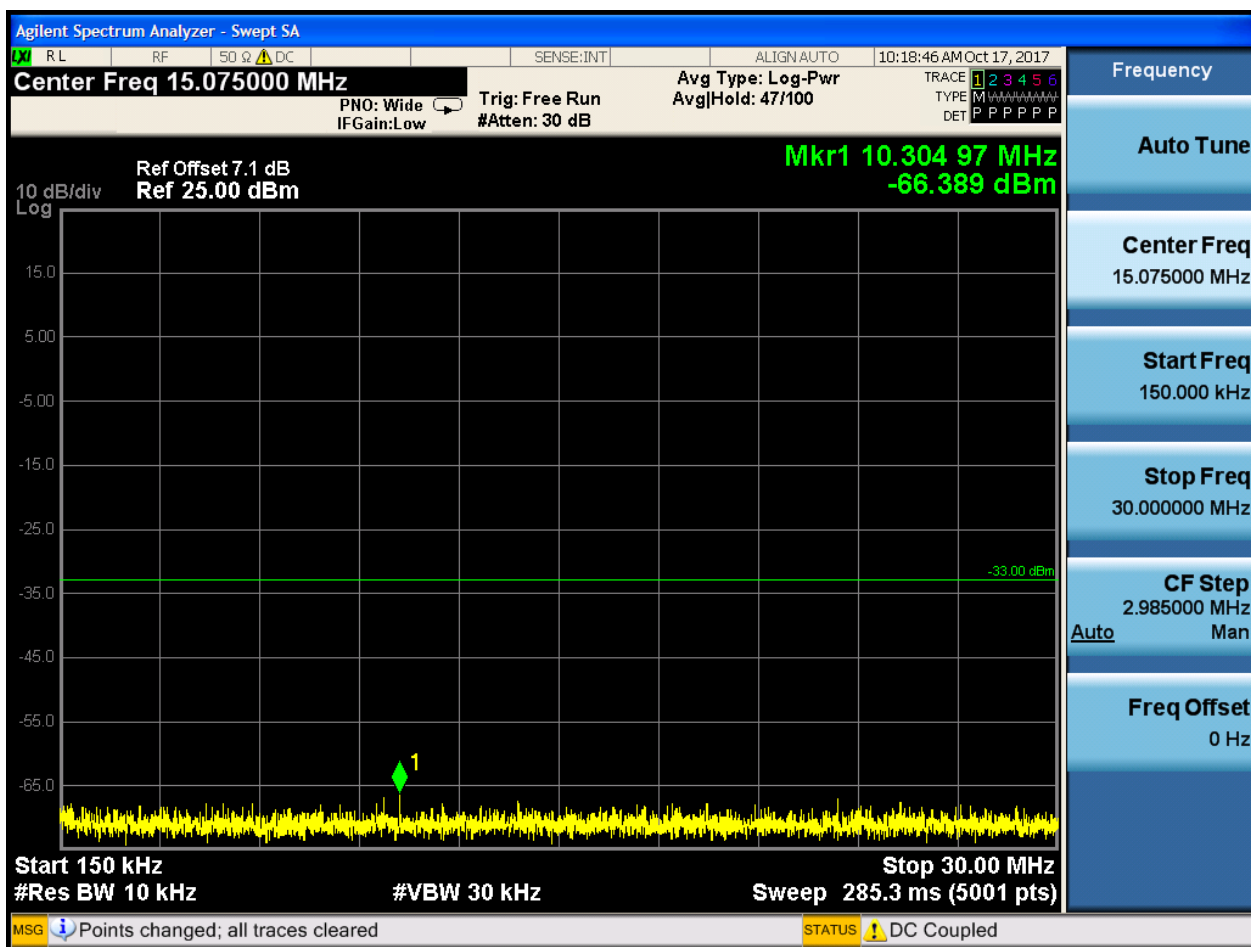


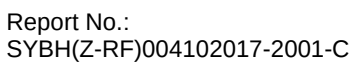
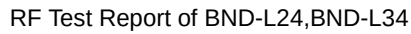


6.1.1.1.2.2 Test Channel = MCH

6.1.1.1.2.2.1 Test RB = RB1#0



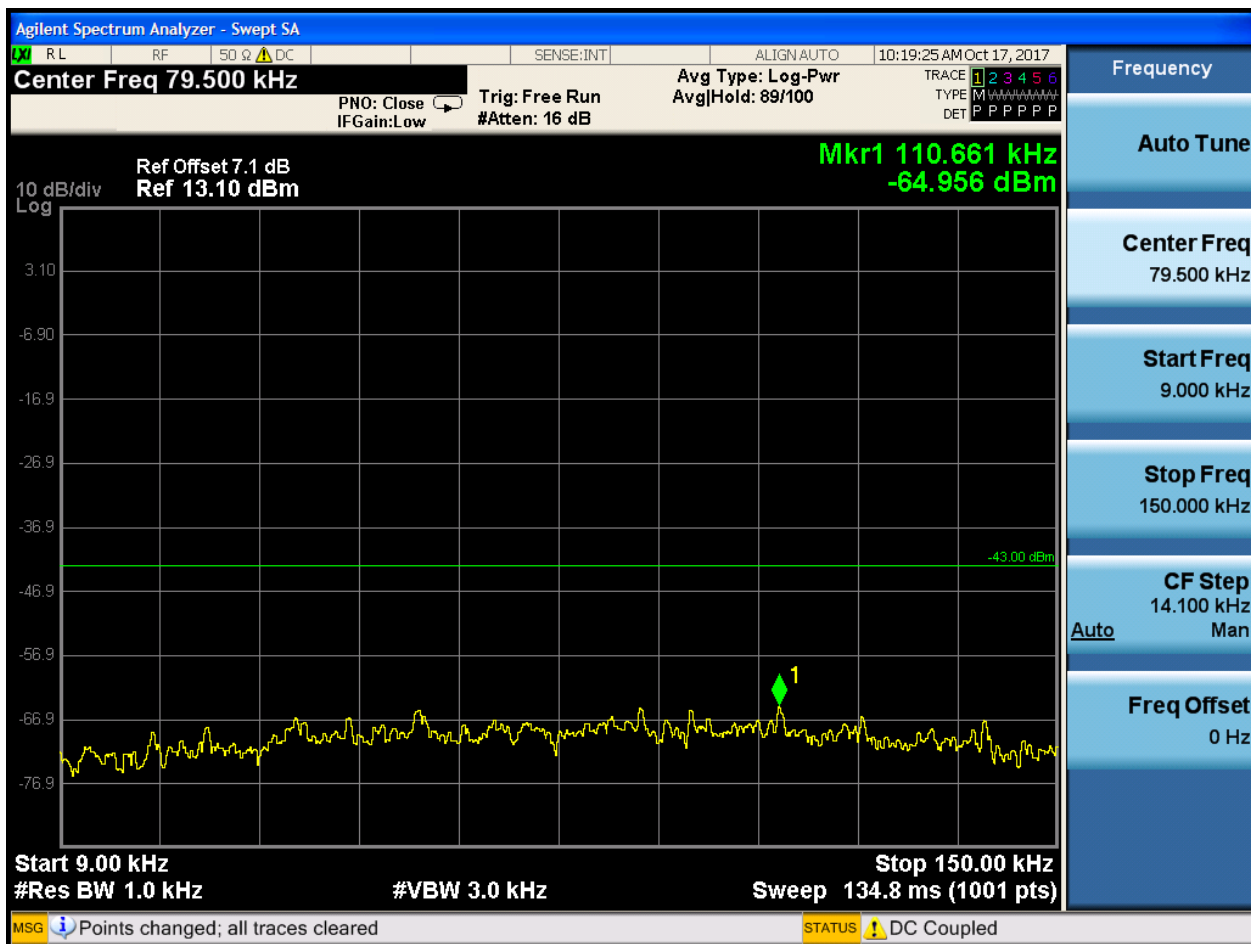


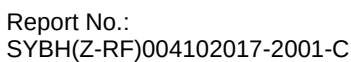
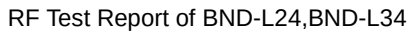


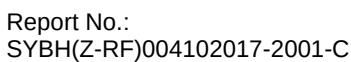
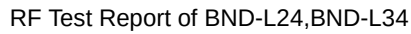


6.1.1.1.2.3 Test Channel = HCH

6.1.1.1.2.3.1 Test RB = RB1#0



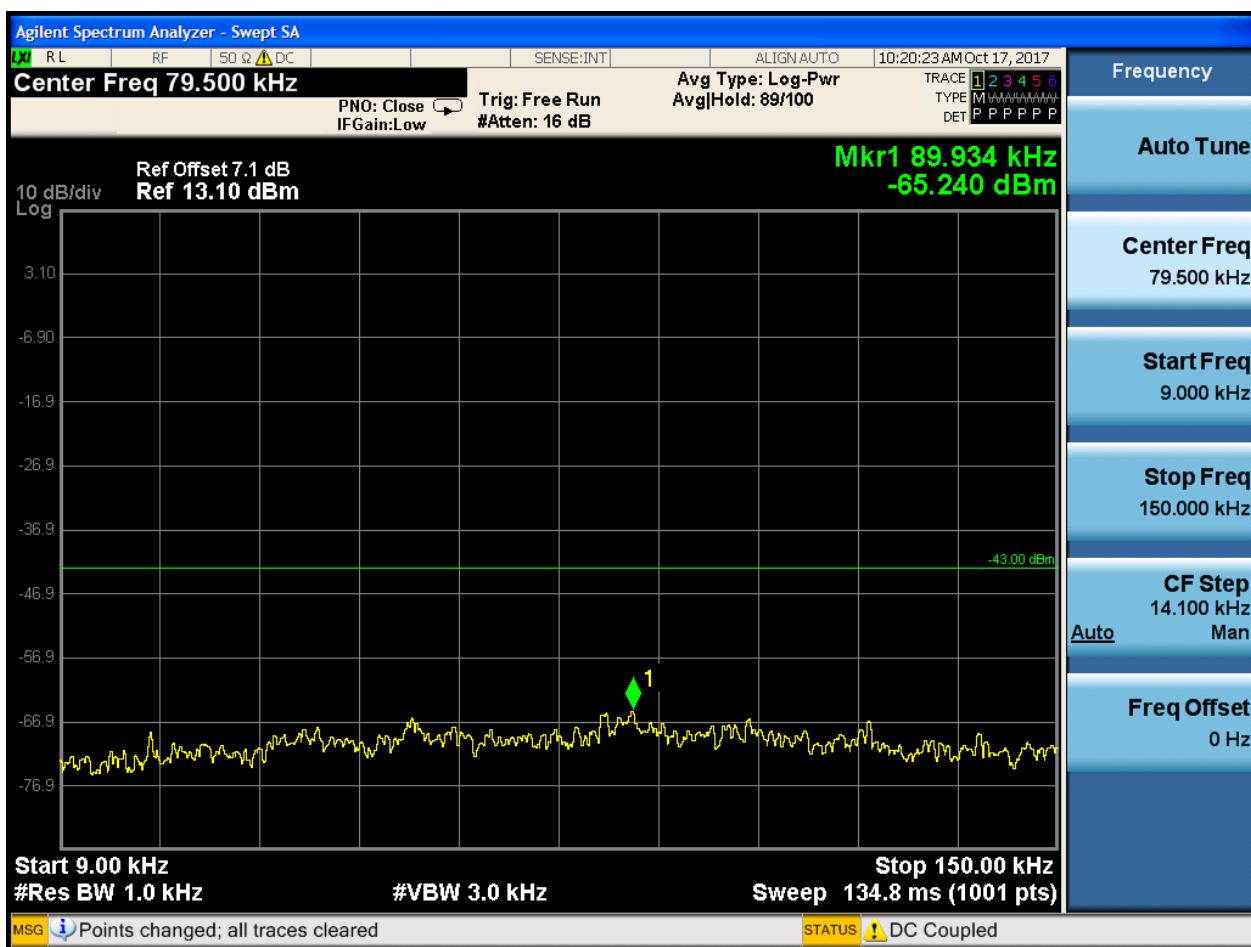


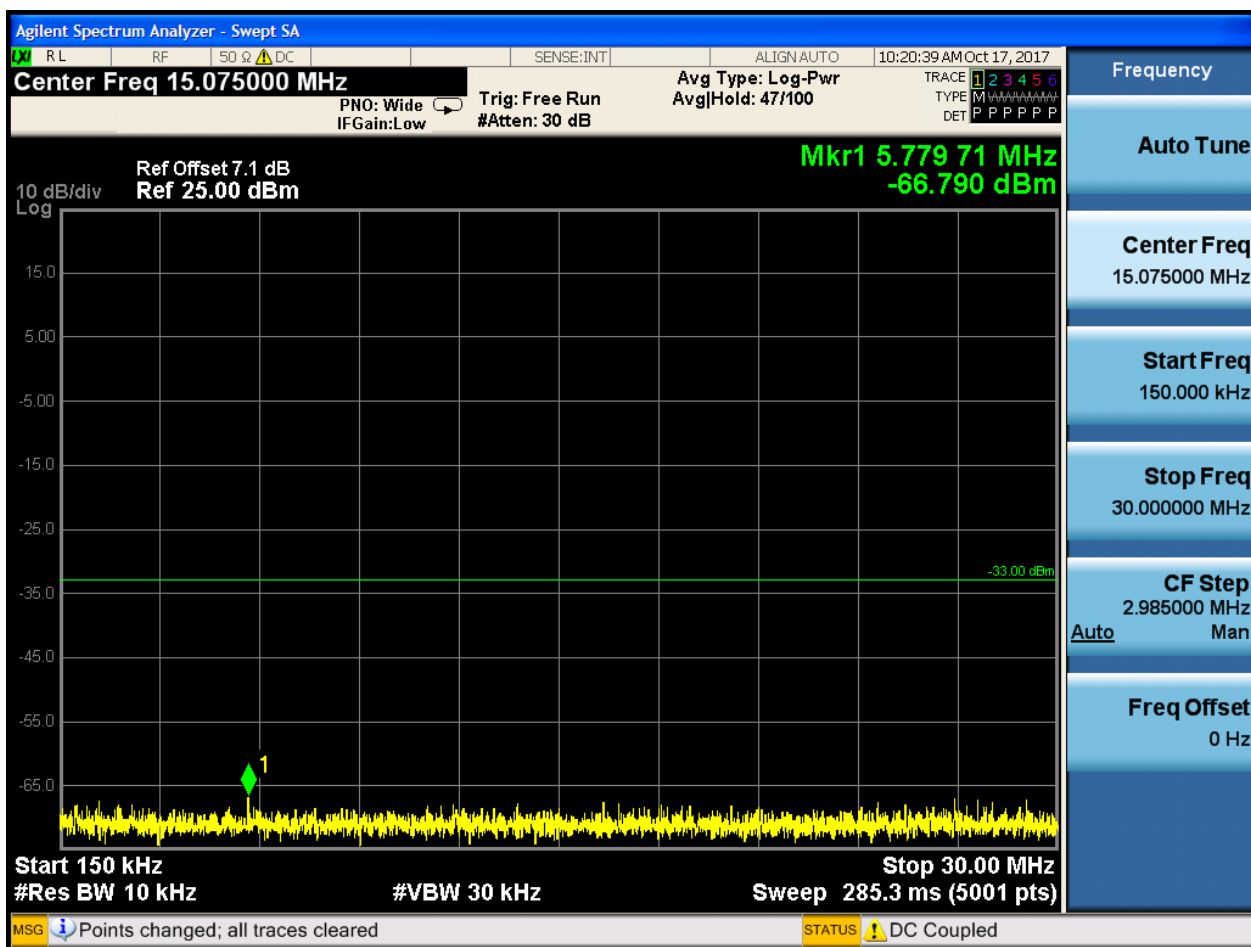


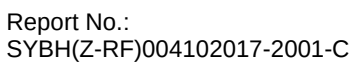
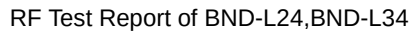
6.1.1.1.3 Test Bandwidth = 5

6.1.1.1.3.1 Test Channel = LCH

6.1.1.1.3.1.1 Test RB = RB1#0



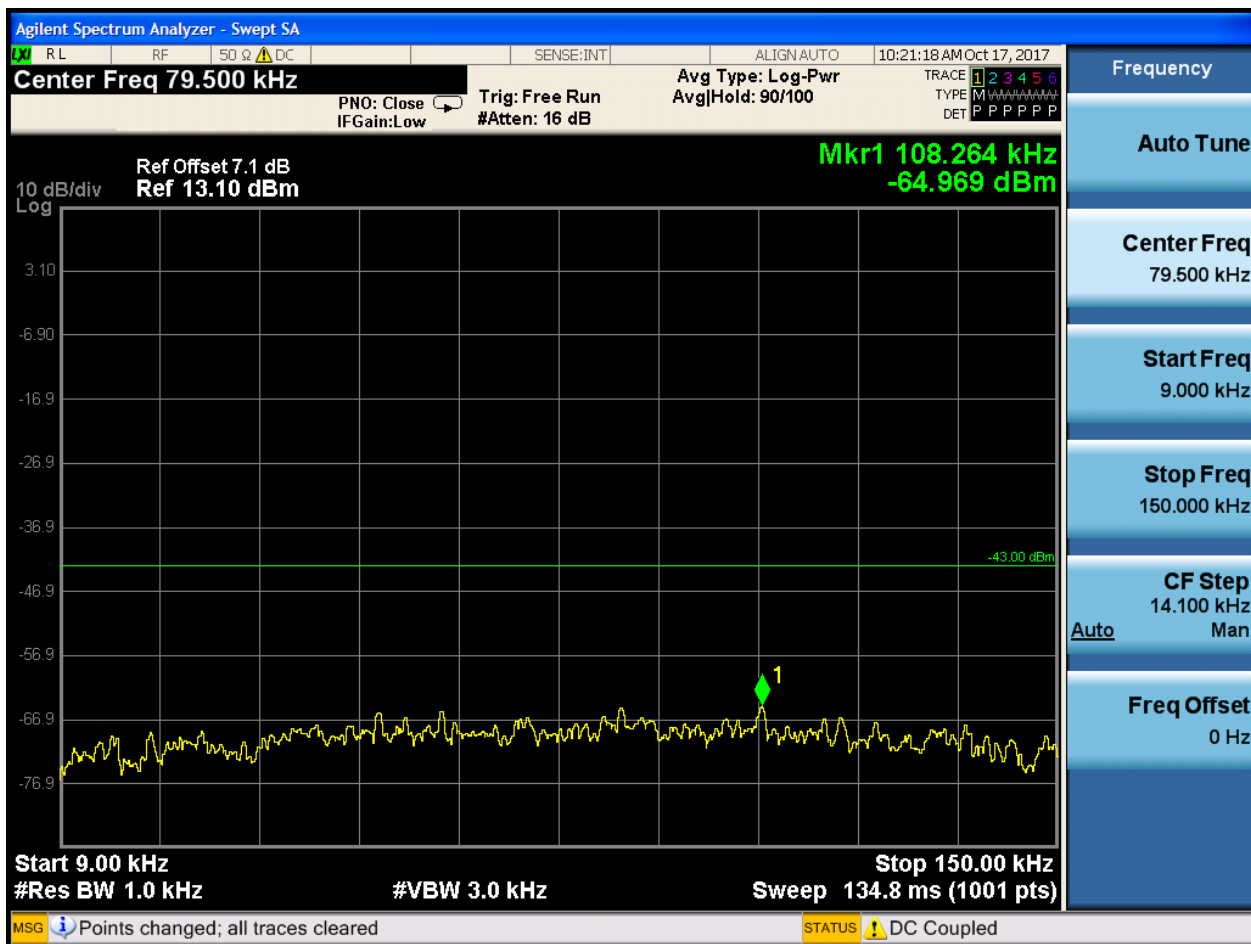


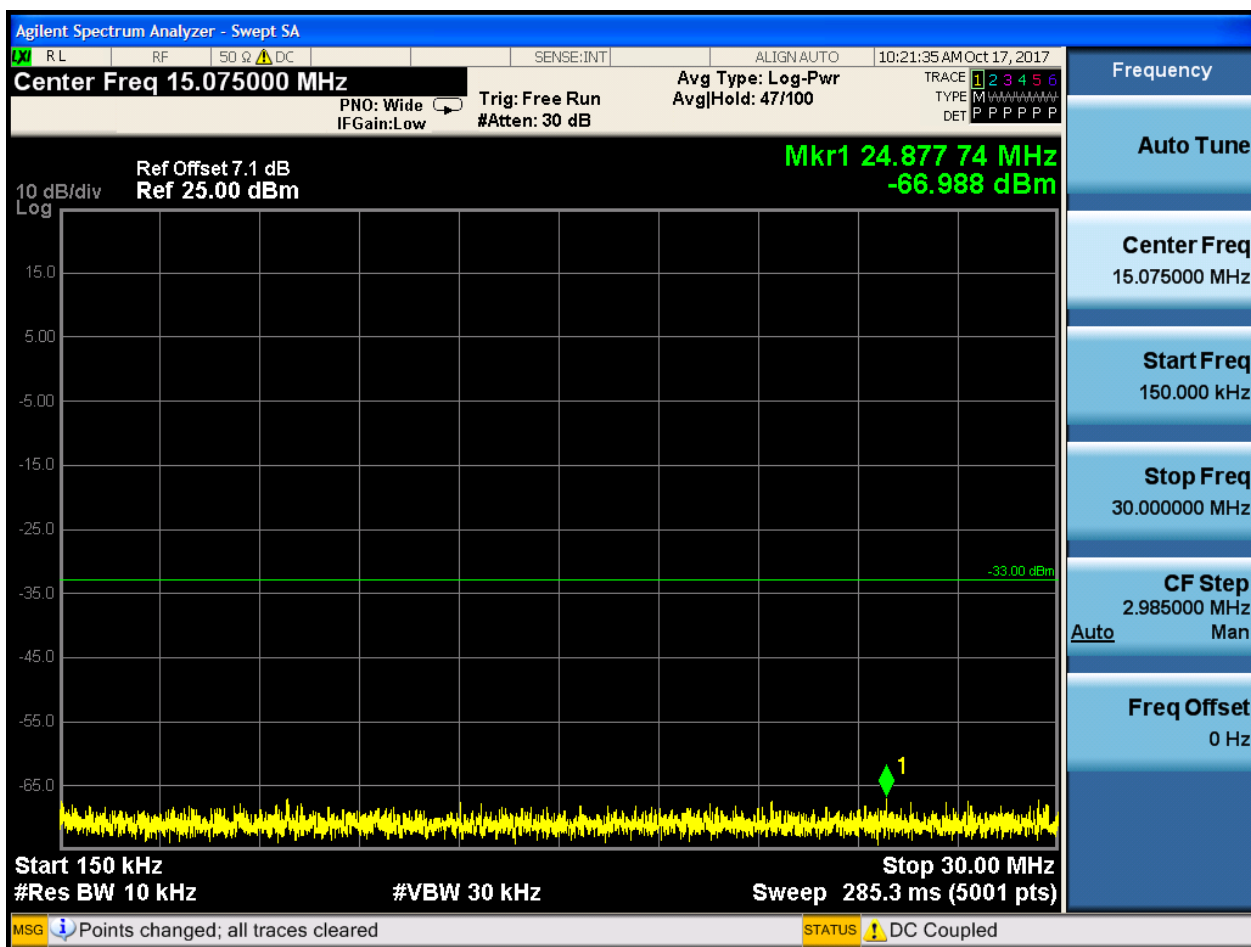




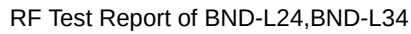
6.1.1.1.3.2 Test Channel = MCH

6.1.1.1.3.2.1 Test RB = RB1#0

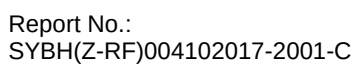


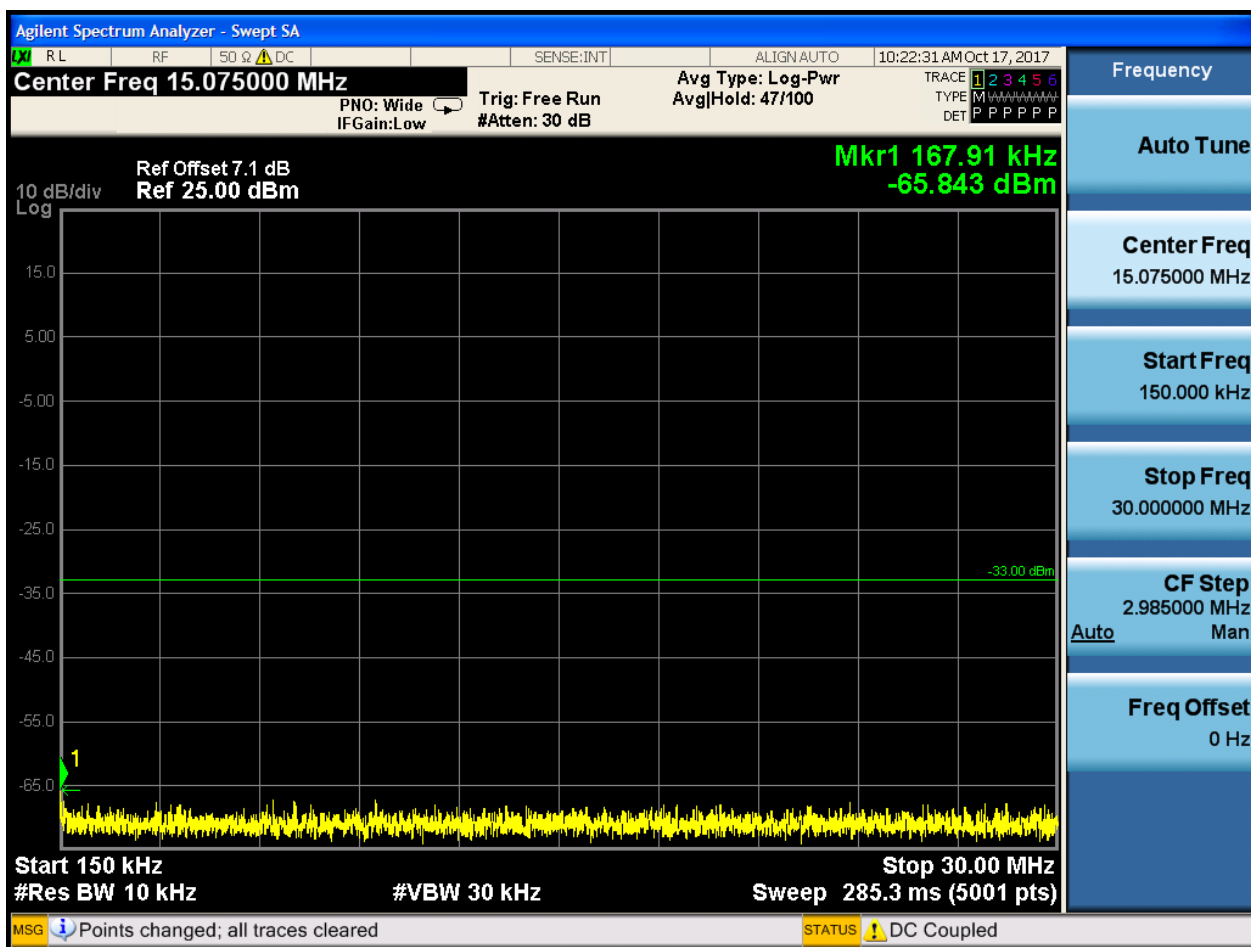


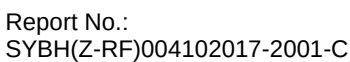
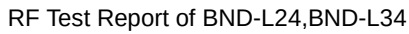




6.1.1.1.3.3.1 Test RB = RB1#0



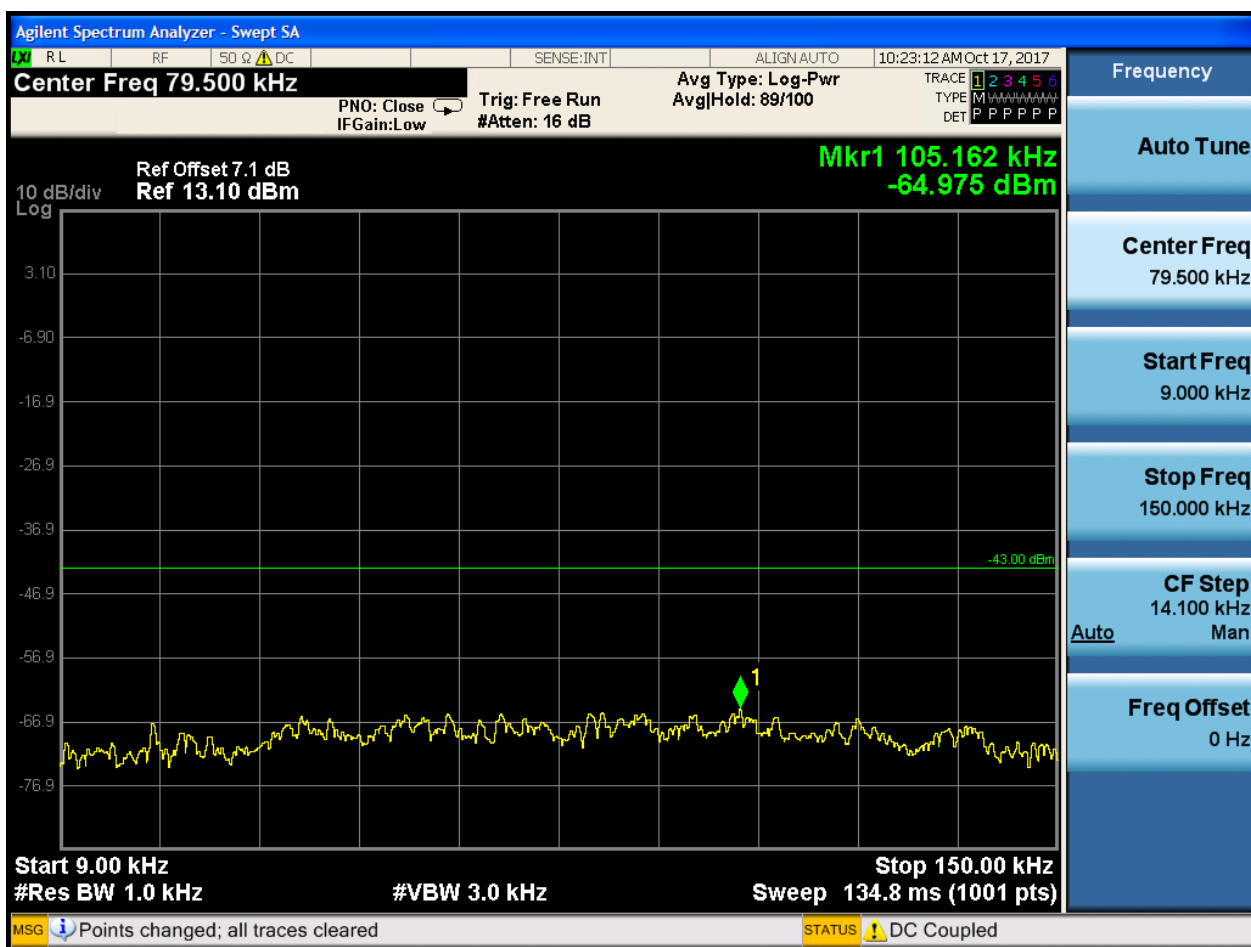




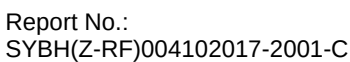
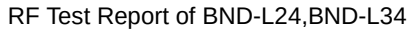
6.1.1.1.4 Test Bandwidth = 10

6.1.1.1.4.1 Test Channel = LCH

6.1.1.1.4.1.1 Test RB = RB1#0



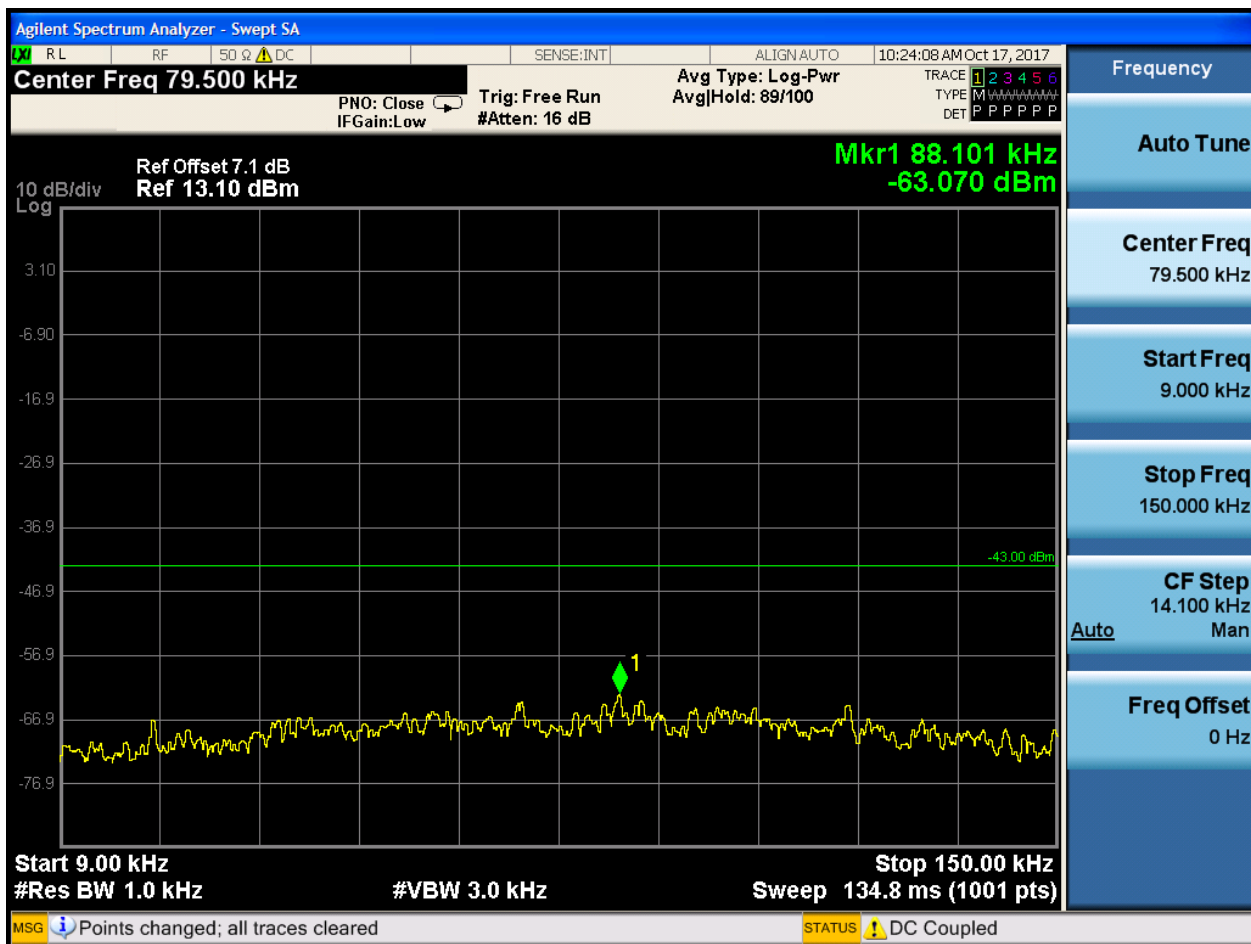




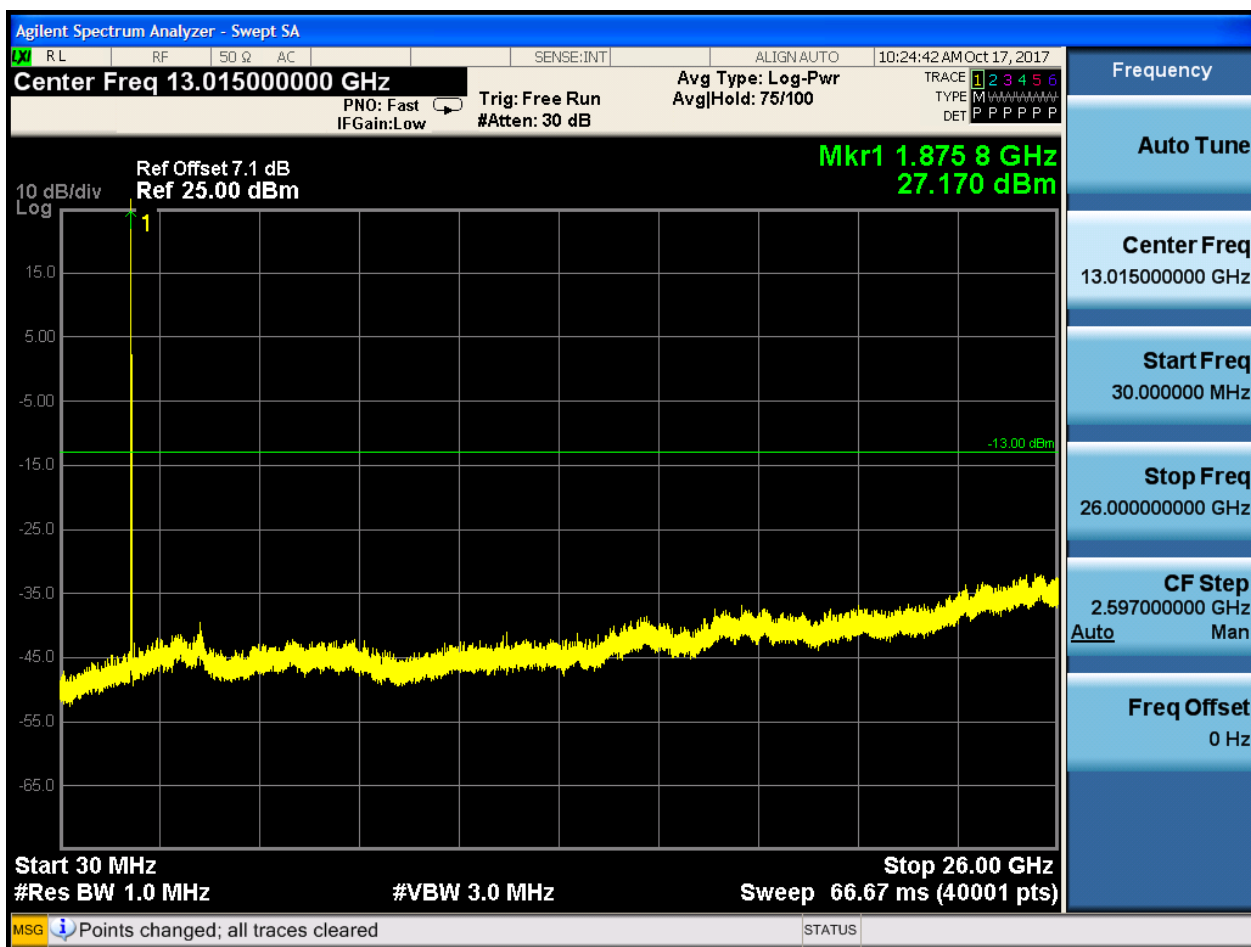


6.1.1.1.4.2 Test Channel = MCH

6.1.1.1.4.2.1 Test RB = RB1#0



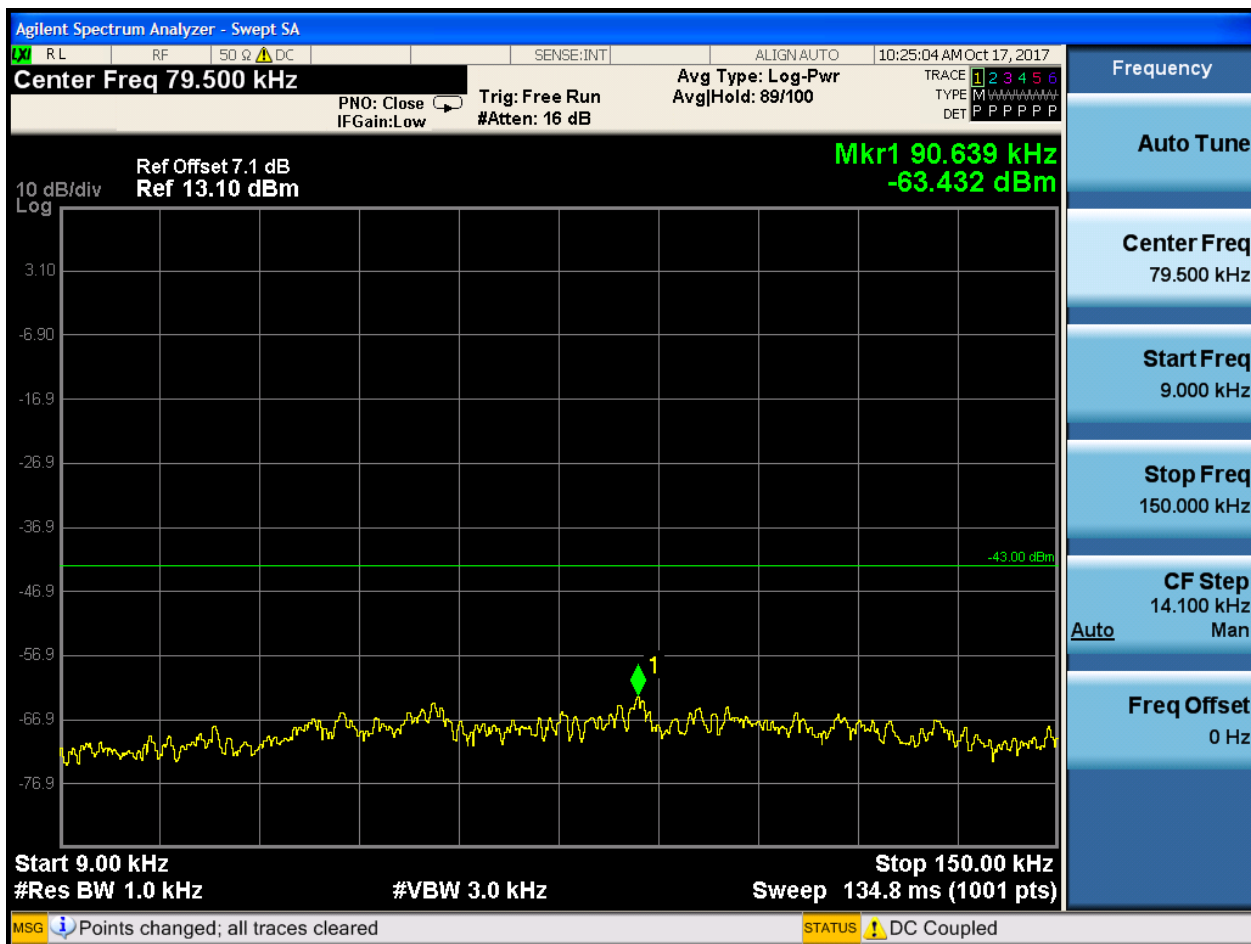




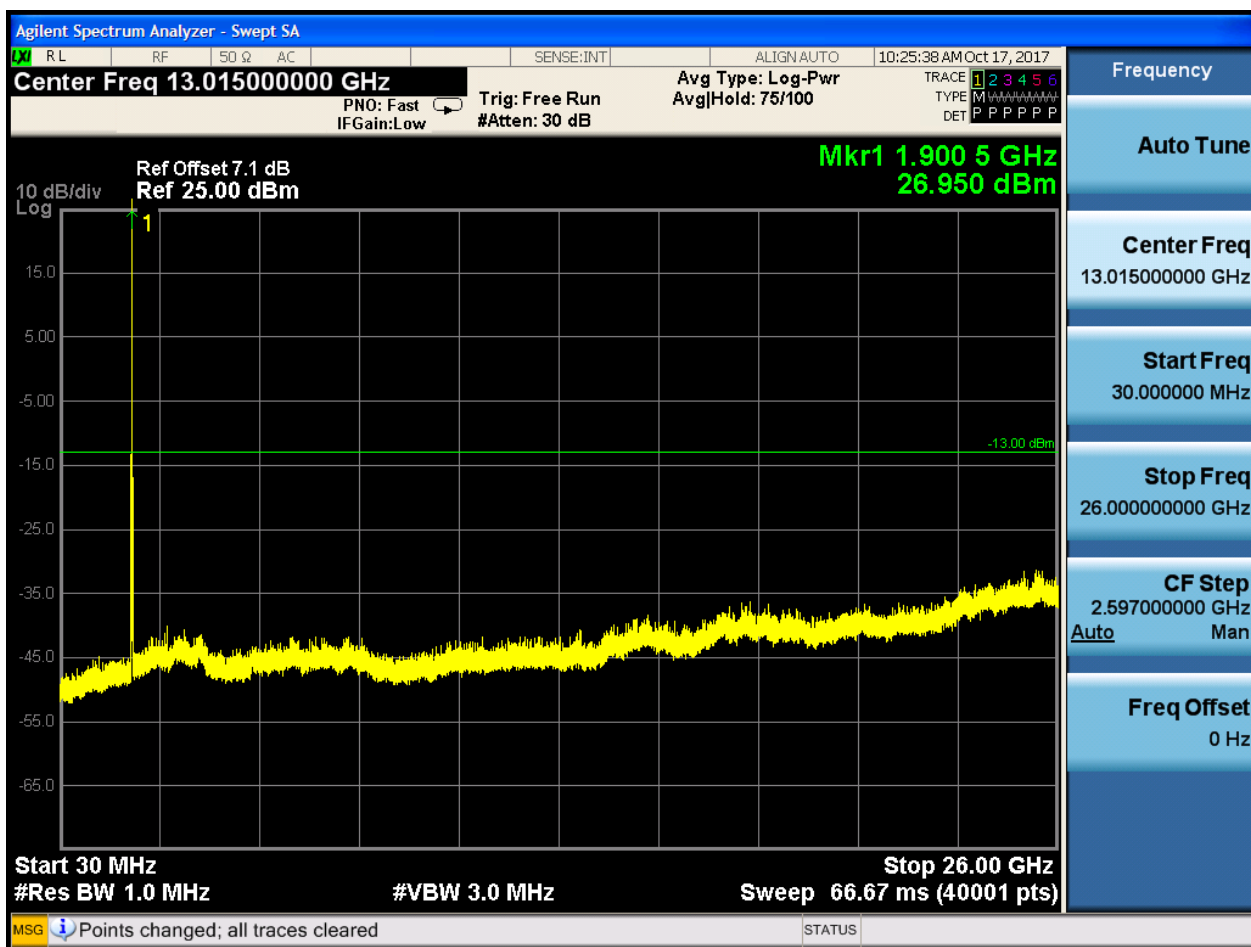


6.1.1.1.4.3 Test Channel = HCH

6.1.1.1.4.3.1 Test RB = RB1#0



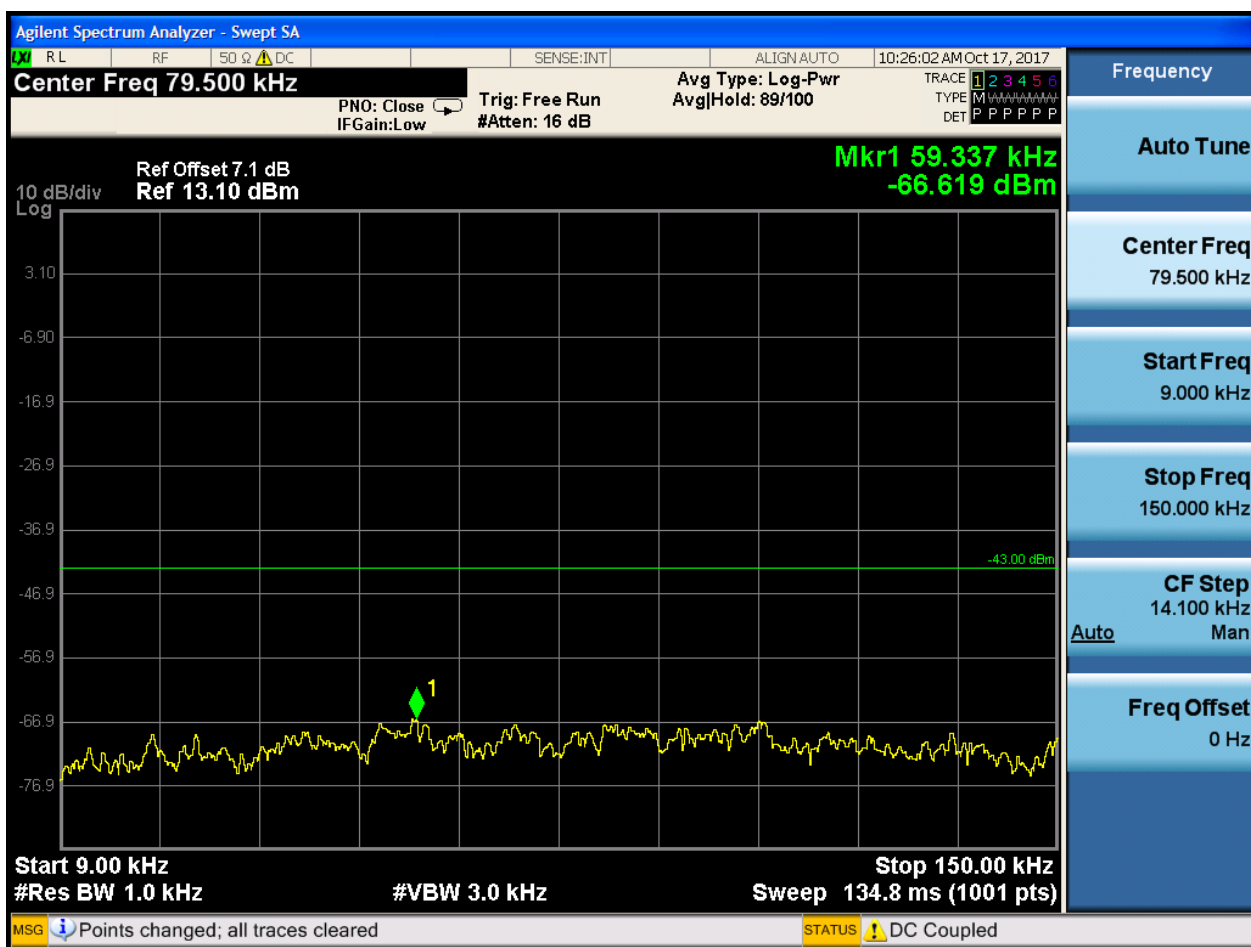


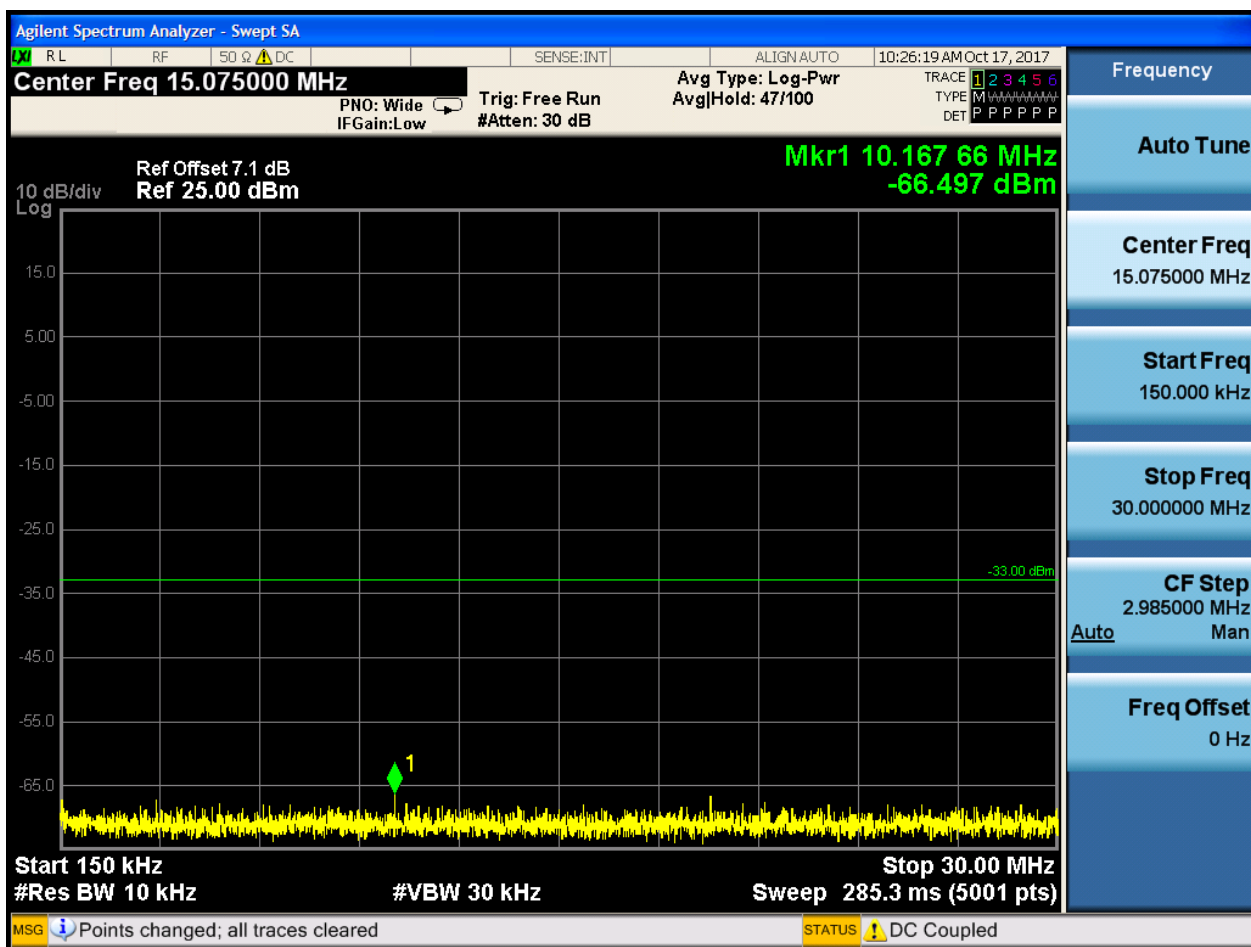


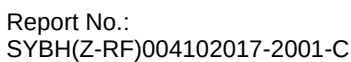
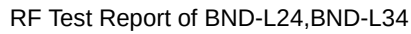
6.1.1.1.5 Test Bandwidth = 15

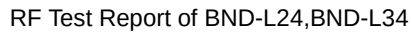
6.1.1.1.5.1 Test Channel = LCH

6.1.1.1.5.1.1 Test RB = RB1#0

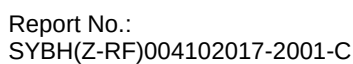


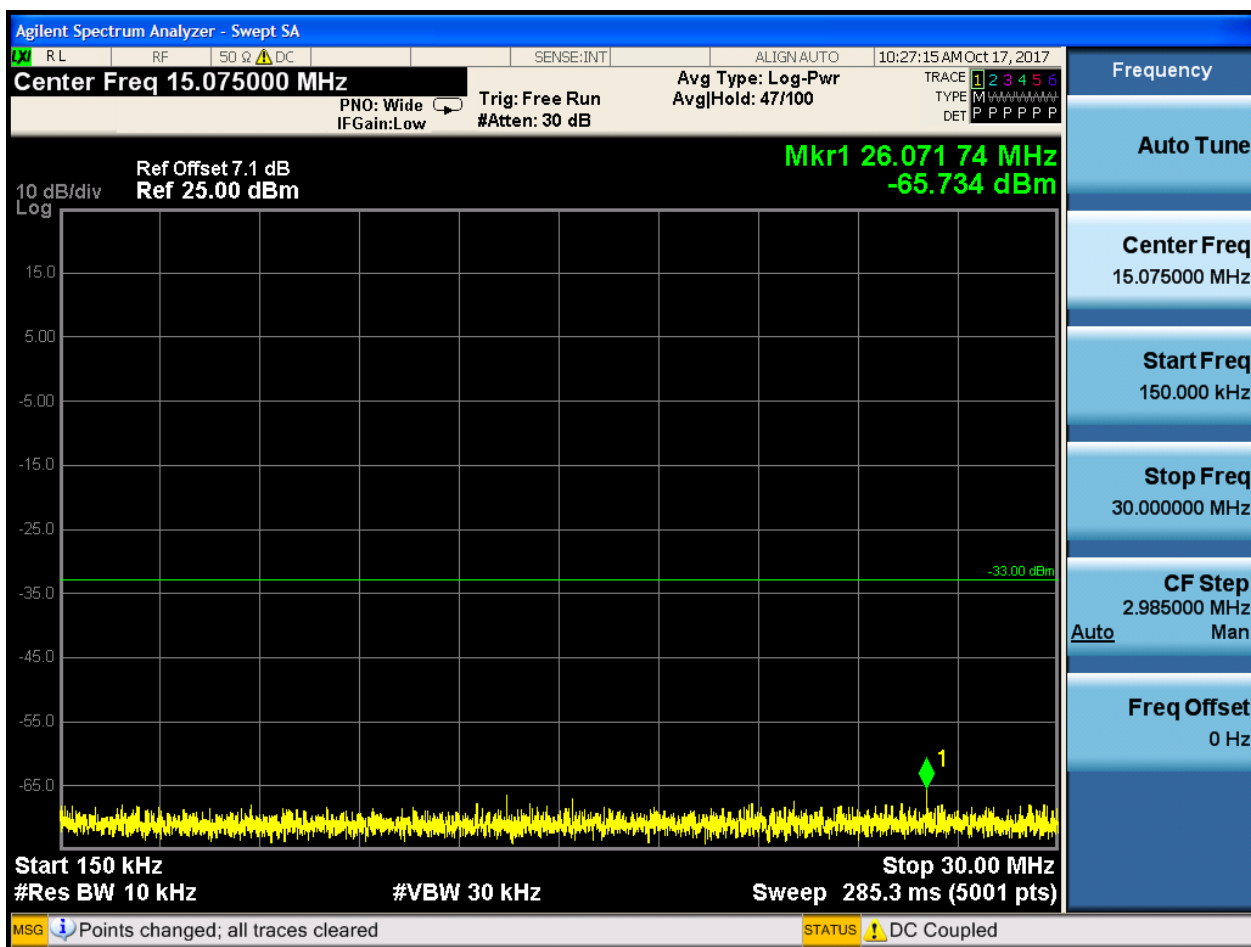


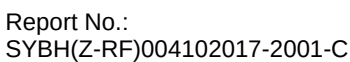
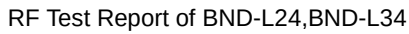




6.1.1.1.5.2.1 Test RB = RB1#0



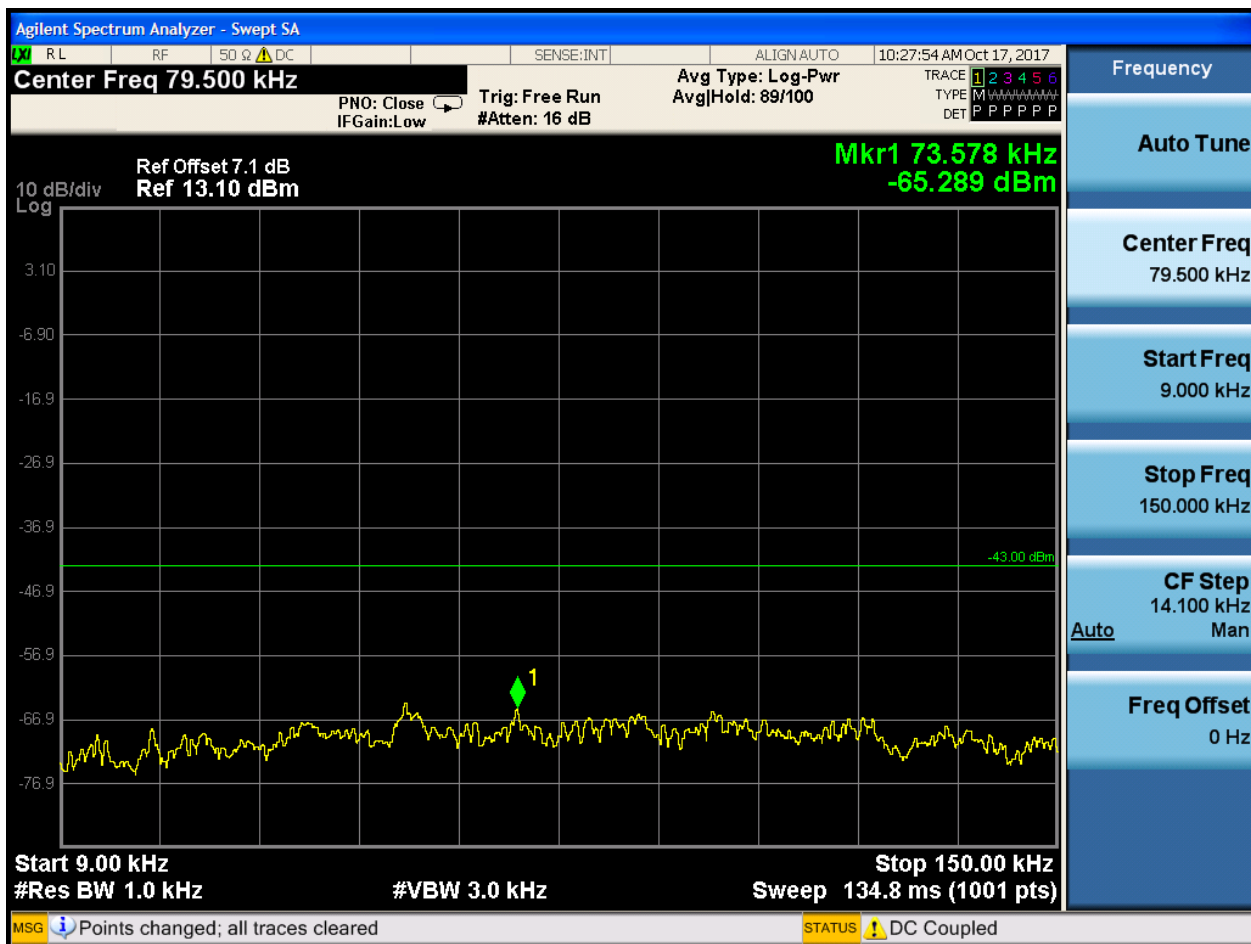




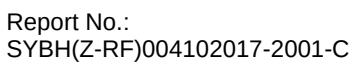
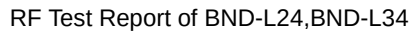


6.1.1.1.5.3 Test Channel = HCH

6.1.1.1.5.3.1 Test RB = RB1#0





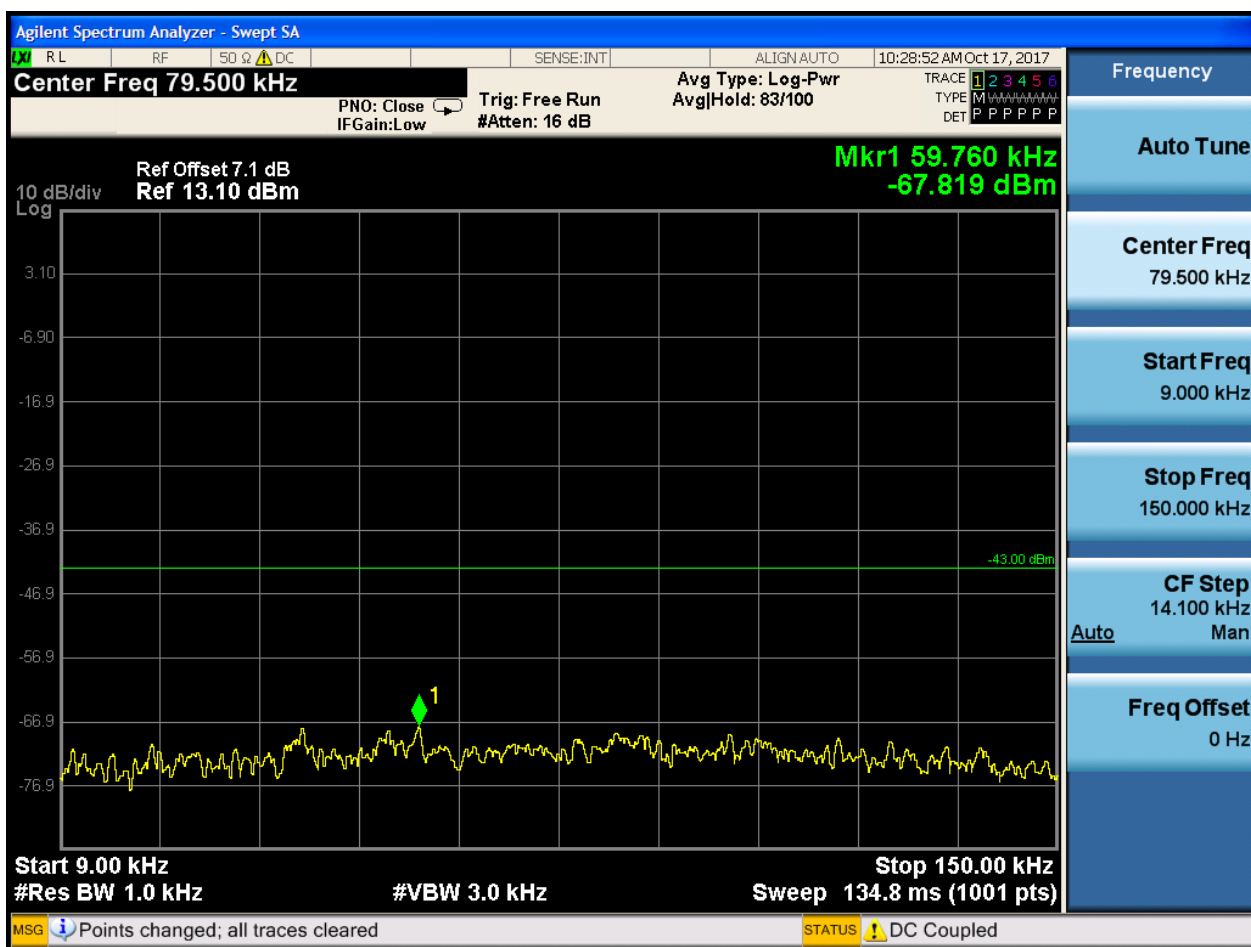


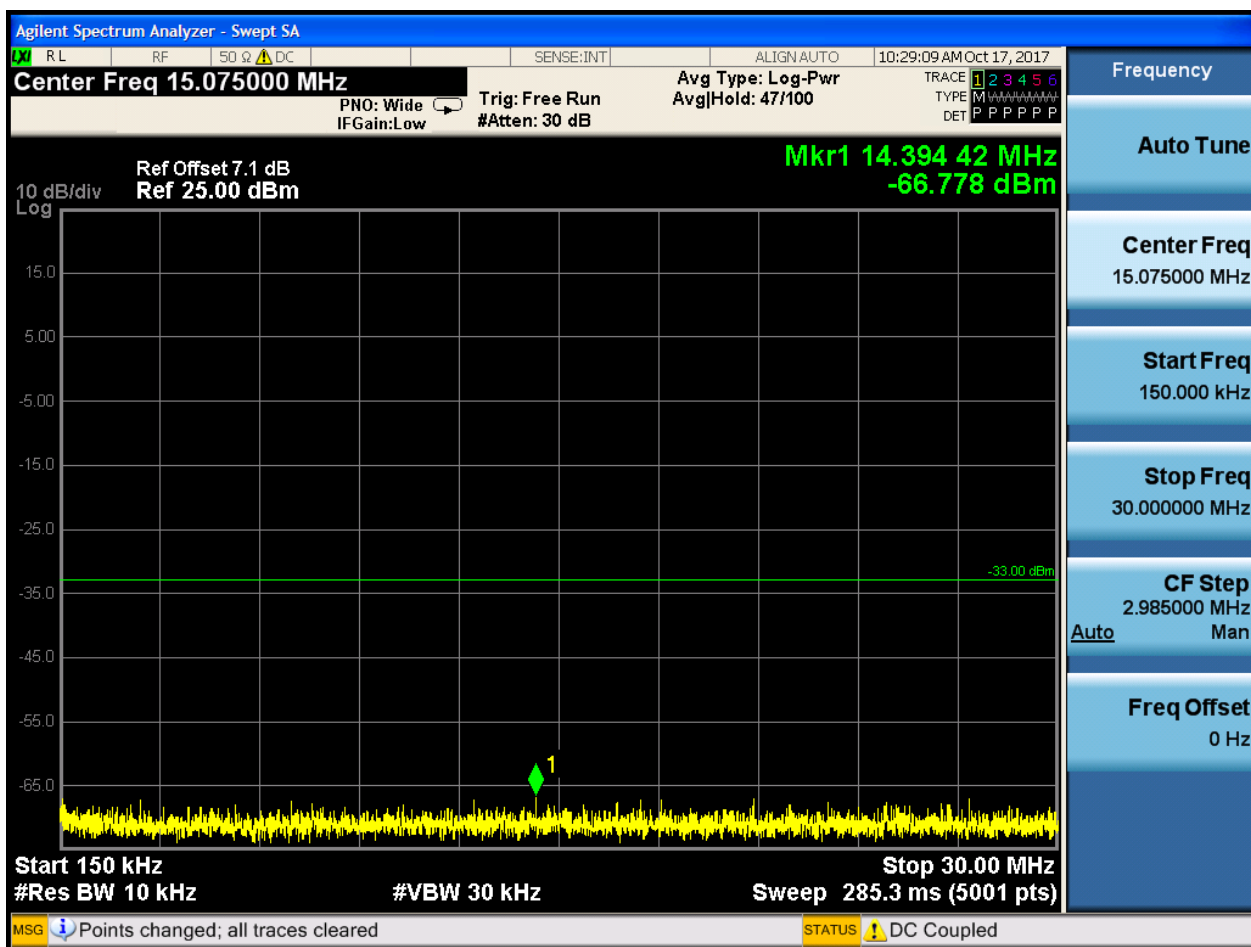


6.1.1.1.6 Test Bandwidth = 20

6.1.1.1.6.1 Test Channel = LCH

6.1.1.1.6.1.1 Test RB = RB1#0









6.1.1.1.6.2 Test Channel = MCH

6.1.1.1.6.2.1 Test RB = RB1#0

