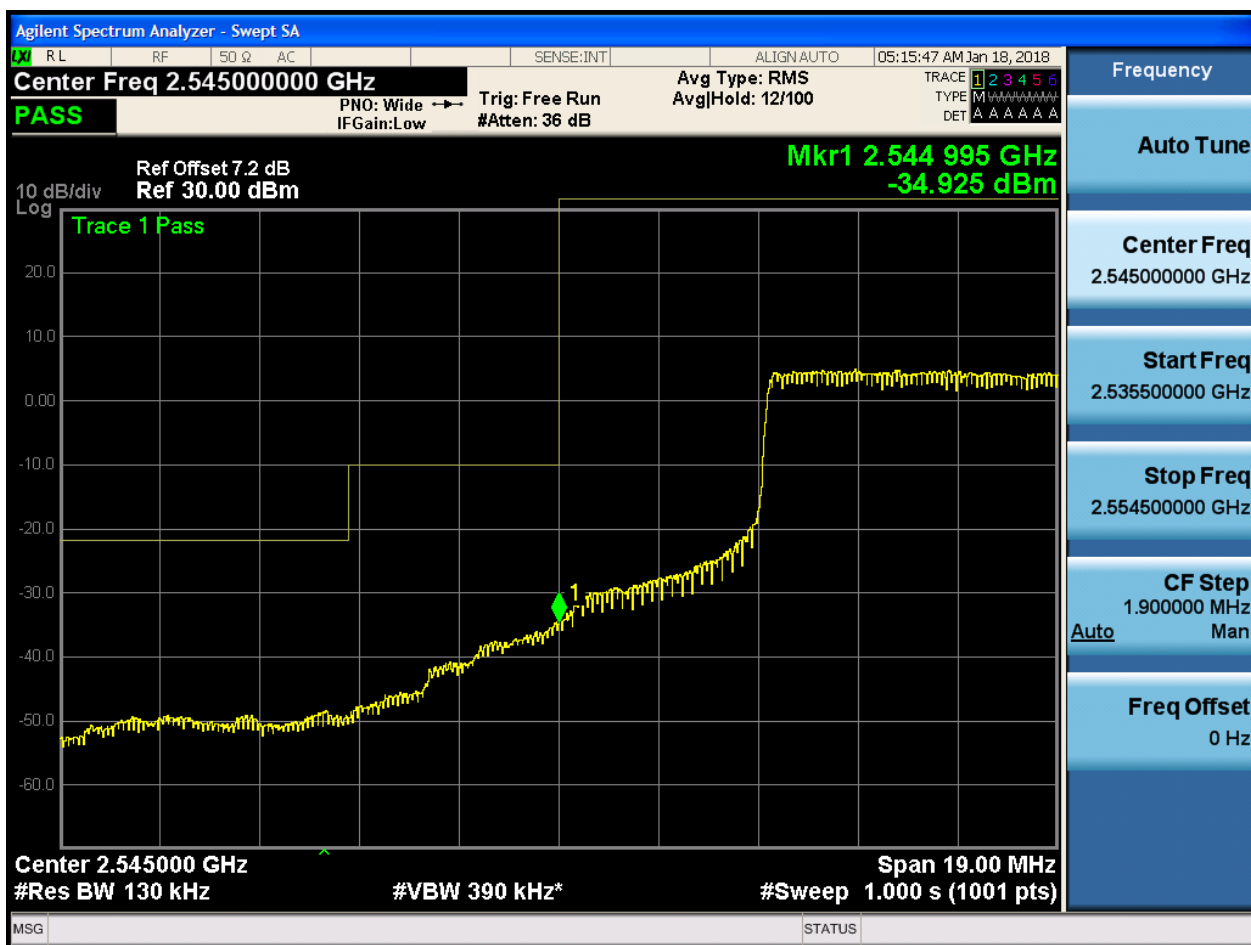




5.1.1.1.3.1.3 Test RB = RB36#18





Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω AC SENSE:INT ALIGN AUTO 05:16:06 AM Jan 18, 2018

Center Freq 2.545000000 GHz Avg Type: RMS
PASS PNO: Wide Trig: Free Run AvgHold: 12/100
IFGain:Low #Atten: 36 dB

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 7.2 dB
Ref 30.00 dBm

Mkr1 2.544 995 GHz
-28.903 dBm

10 dB/div
Log

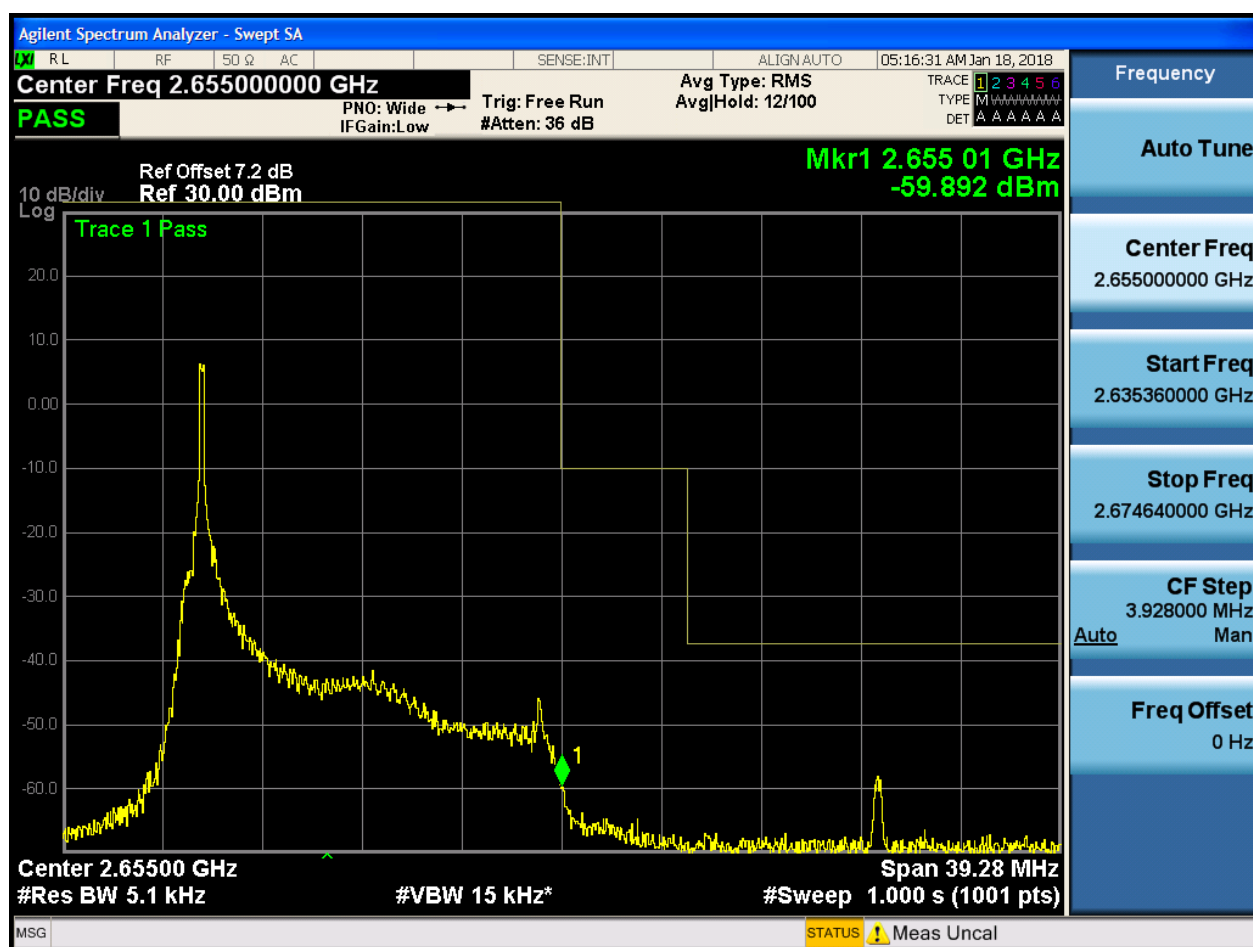
Trace 1 Pass

Center 2.545000 GHz
#Res BW 270 kHz #VBW 820 kHz* Span 19.00 MHz
#Sweep 1.000 s (1001 pts)

MSG STATUS

5.1.1.1.3.2 Test Channel = HCH

5.1.1.1.3.2.1 Test RB = RB1#0





5.1.1.1.3.2.2 Test RB = RB1#74





5.1.1.1.3.2.3 Test RB = RB36#18





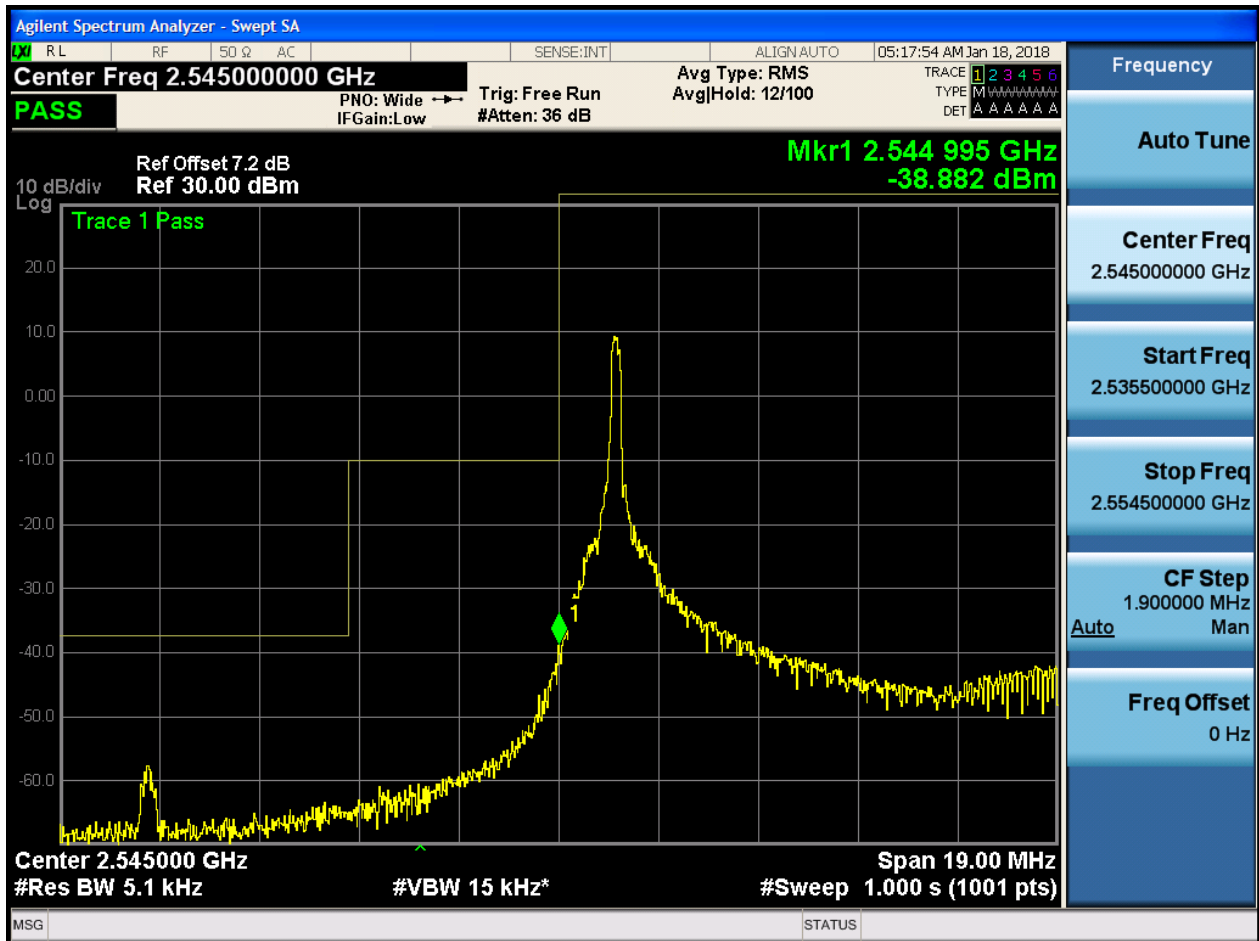
5.1.1.1.3.2.4 Test RB = RB75#0



5.1.1.1.4 Test Bandwidth = 20

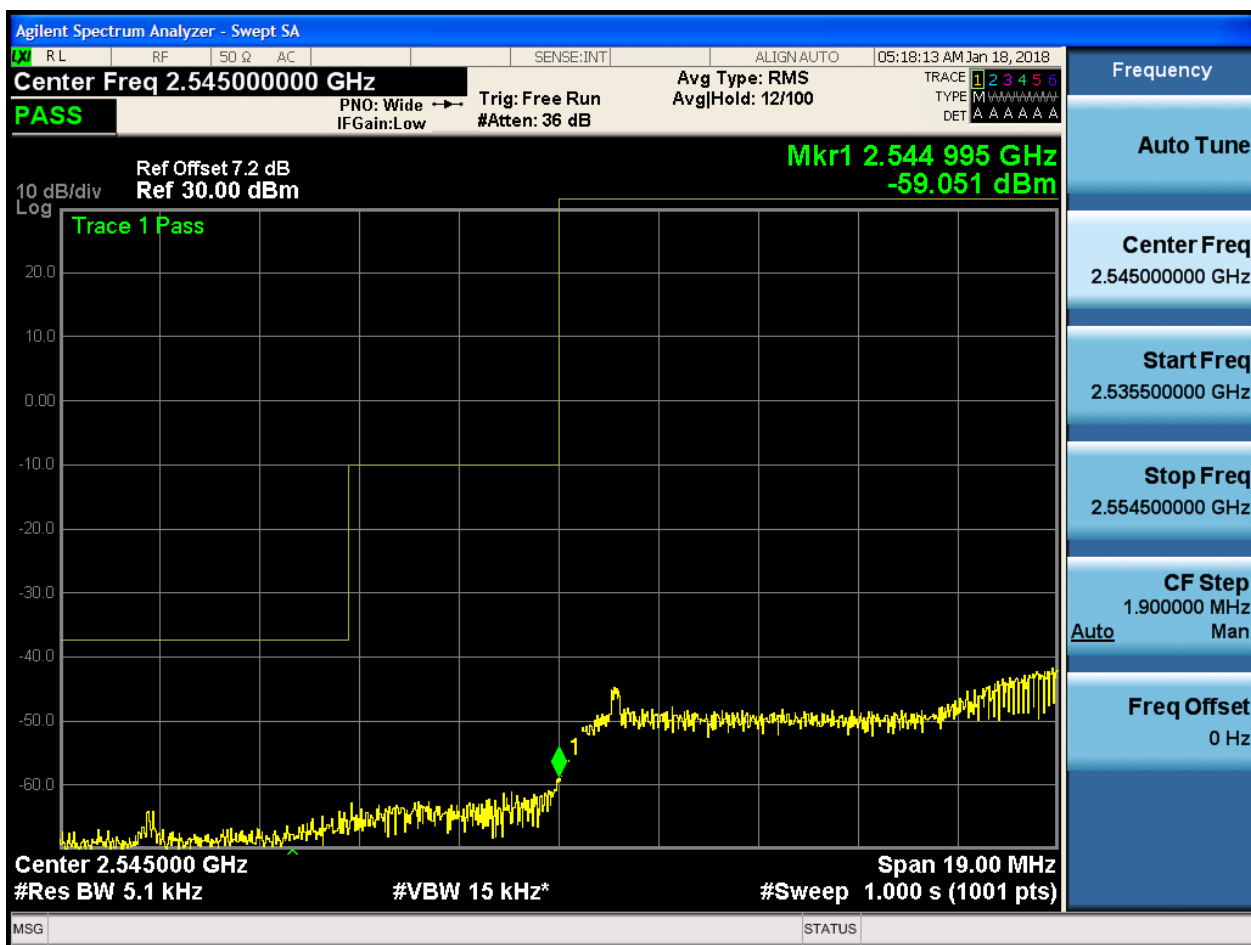
5.1.1.1.4.1 Test Channel = LCH

5.1.1.1.4.1.1 Test RB = RB1#0





5.1.1.1.4.1.2 Test RB = RB1#99





Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω AC SENSE:INT ALIGN AUTO 05:18:32 AM Jan 18, 2018

Center Freq 2.545000000 GHz Avg Type: RMS
PASS PNO: Wide Trig: Free Run
IFGain:Low #Atten: 36 dB

Ref Offset 7.2 dB
Ref 30.00 dBm

Mkr1 2.544 995 GHz
-35.240 dBm

10 dB/div
Log

Trace 1 Pass

Center 2.545000 GHz Span 19.00 MHz
#Res BW 180 kHz #VBW 560 kHz* #Sweep 1.000 s (1001 pts)

MSG STATUS

Frequency

Auto Tune

Center Freq
2.545000000 GHz

Start Freq
2.535500000 GHz

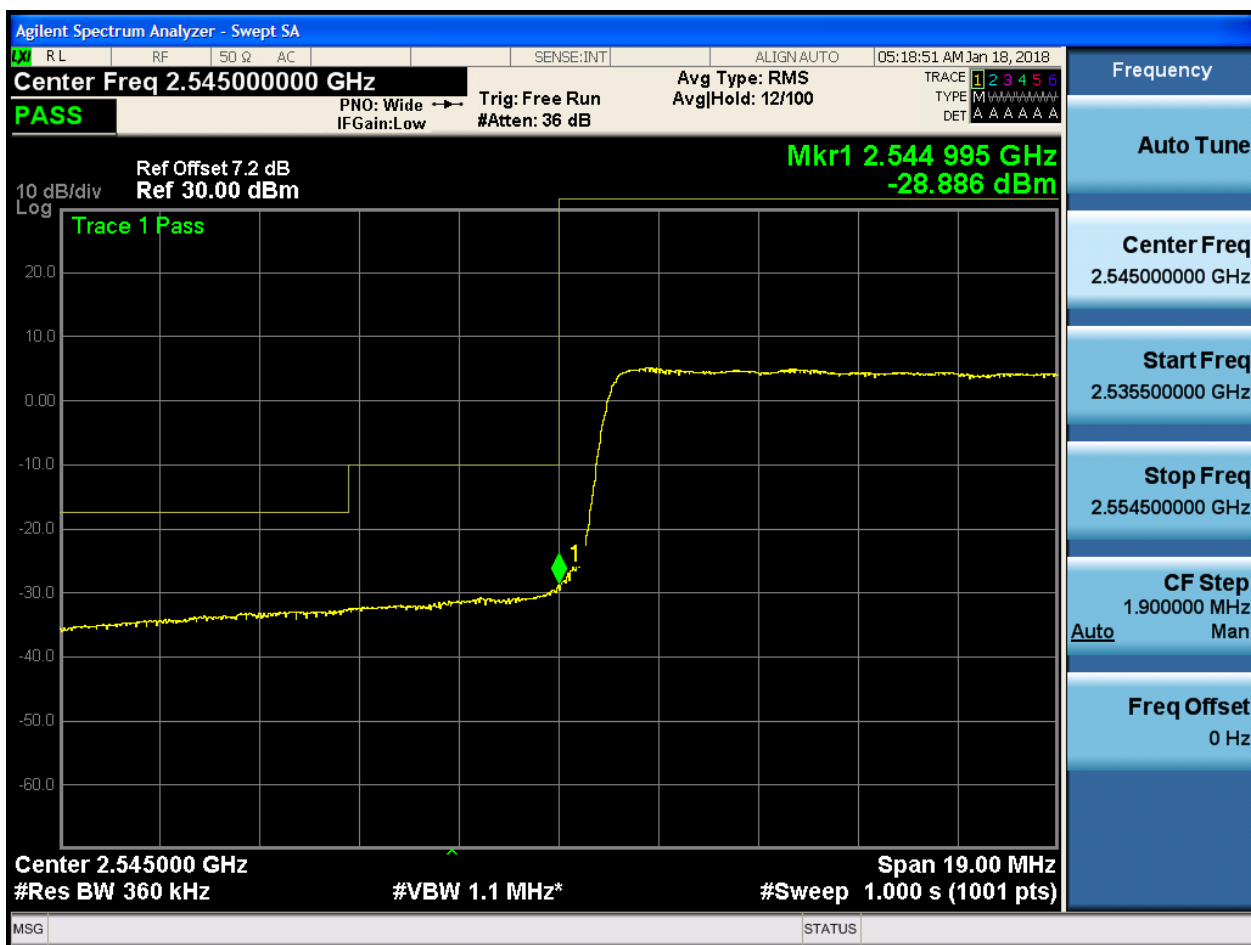
Stop Freq
2.554500000 GHz

CF Step
1.900000 MHz
Auto Man

Freq Offset
0 Hz



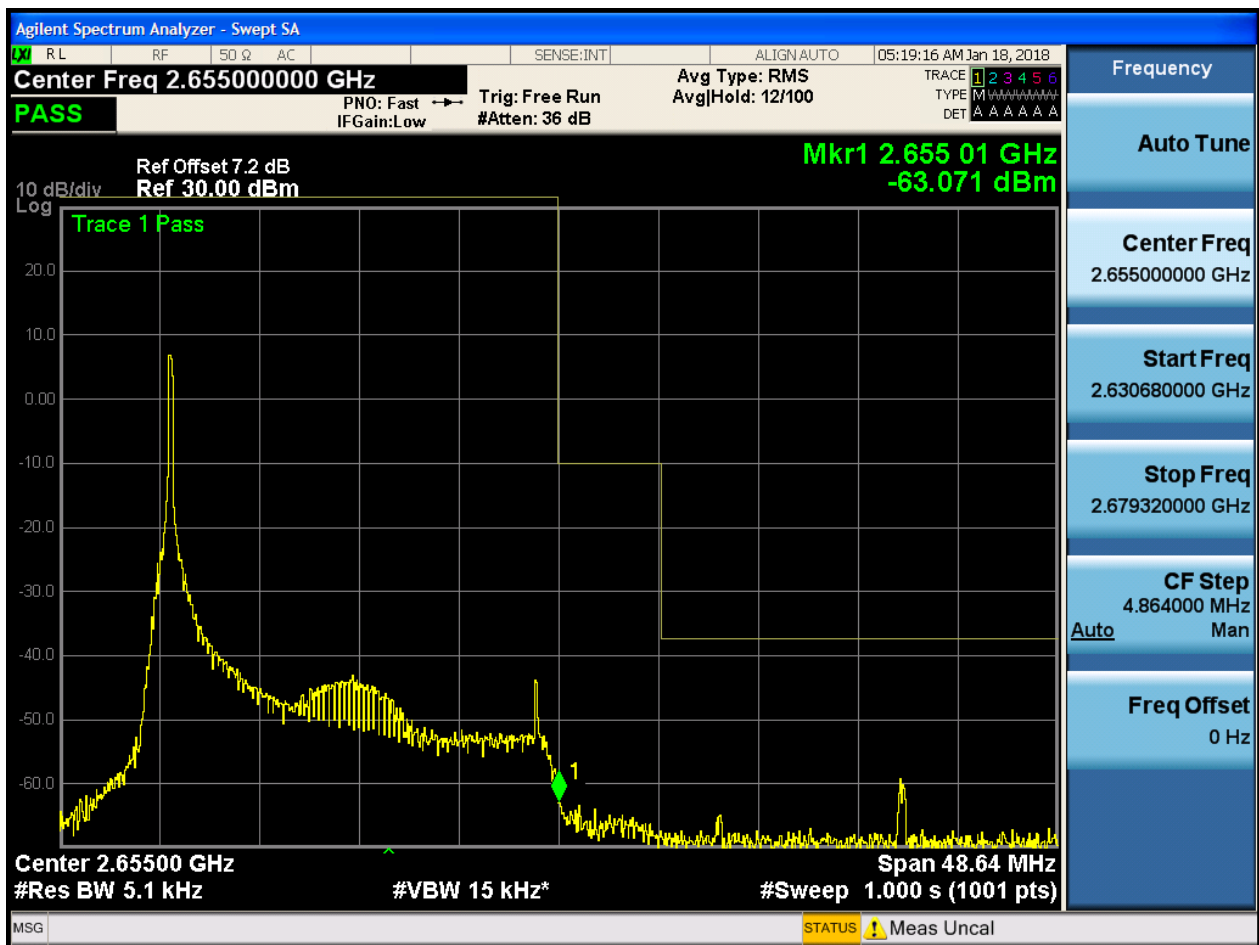
5.1.1.1.4.1.4 Test RB = RB100#0





5.1.1.1.4.2 Test Channel = HCH

5.1.1.1.4.2.1 Test RB = RB1#0





Agilent Spectrum Analyzer - Swept SA

Center Freq 2.65500000 GHz

PASS PNO: Fast IFGain:Low Trig: Free Run #Atten: 36 dB Avg Type: RMS AvgHold: 12/100

Ref Offset 7.2 dB Ref 30.00 dBm

Mkr1 2.655 01 GHz -42.129 dBm

The figure displays a spectrum analyzer screen with a yellow trace showing a signal peak at 2.655 GHz. The y-axis is labeled 'Log' and ranges from -60.0 to 20.0 dB/div. The x-axis shows frequency components. A marker 'Mkr1' is placed at the peak, indicating a power level of -42.129 dBm. The interface includes various control panels on the right for Frequency, Auto Tune, Center Freq, Start Freq, Stop Freq, CF Step, and Freq Offset.

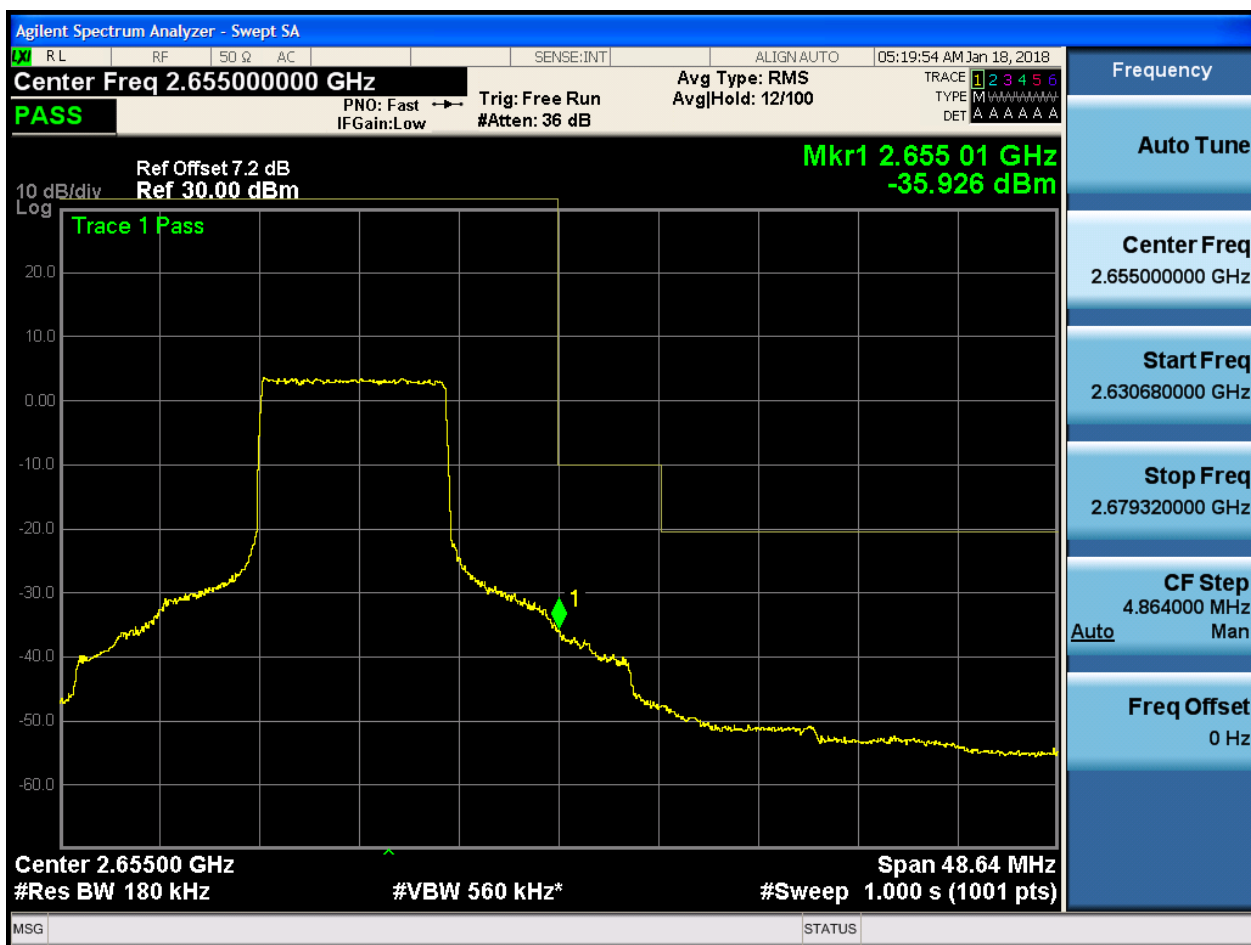
Frequency
Auto Tune
Center Freq 2.65500000 GHz
Start Freq 2.630680000 GHz
Stop Freq 2.679320000 GHz
CF Step 4.864000 MHz <u>Auto</u> Man
Freq Offset 0 Hz

Center 2.65500 GHz Span 48.64 MHz
#Res BW 5.1 kHz #VBW 15 kHz* #Sweep 1.000 s (1001 pts)

MSG STATUS Meas Uncal



5.1.1.1.4.2.3 Test RB = RB50#25





Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω AC SENSE:INT ALIGN AUTO 05:20:12 AM Jan 18, 2018

Center Freq 2.655000000 GHz Avg Type: RMS
PASS PNO: Fast IFGain:Low Trig: Free Run AvgHold: 12/100
#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 7.2 dB
Ref 30.00 dBm

Mkr1 2.655 01 GHz
-29.889 dBm

10 dB/div
Log

Trace 1 Pass

Center 2.65500 GHz
#Res BW 360 kHz
#VBW 1.1 MHz*
Span 48.64 MHz
#Sweep 1.000 s (1001 pts)

MSG STATUS

Frequency
Auto Tune
Center Freq 2.655000000 GHz
Start Freq 2.630680000 GHz
Stop Freq 2.679320000 GHz
CF Step 4.864000 MHz Auto Man
Freq Offset 0 Hz

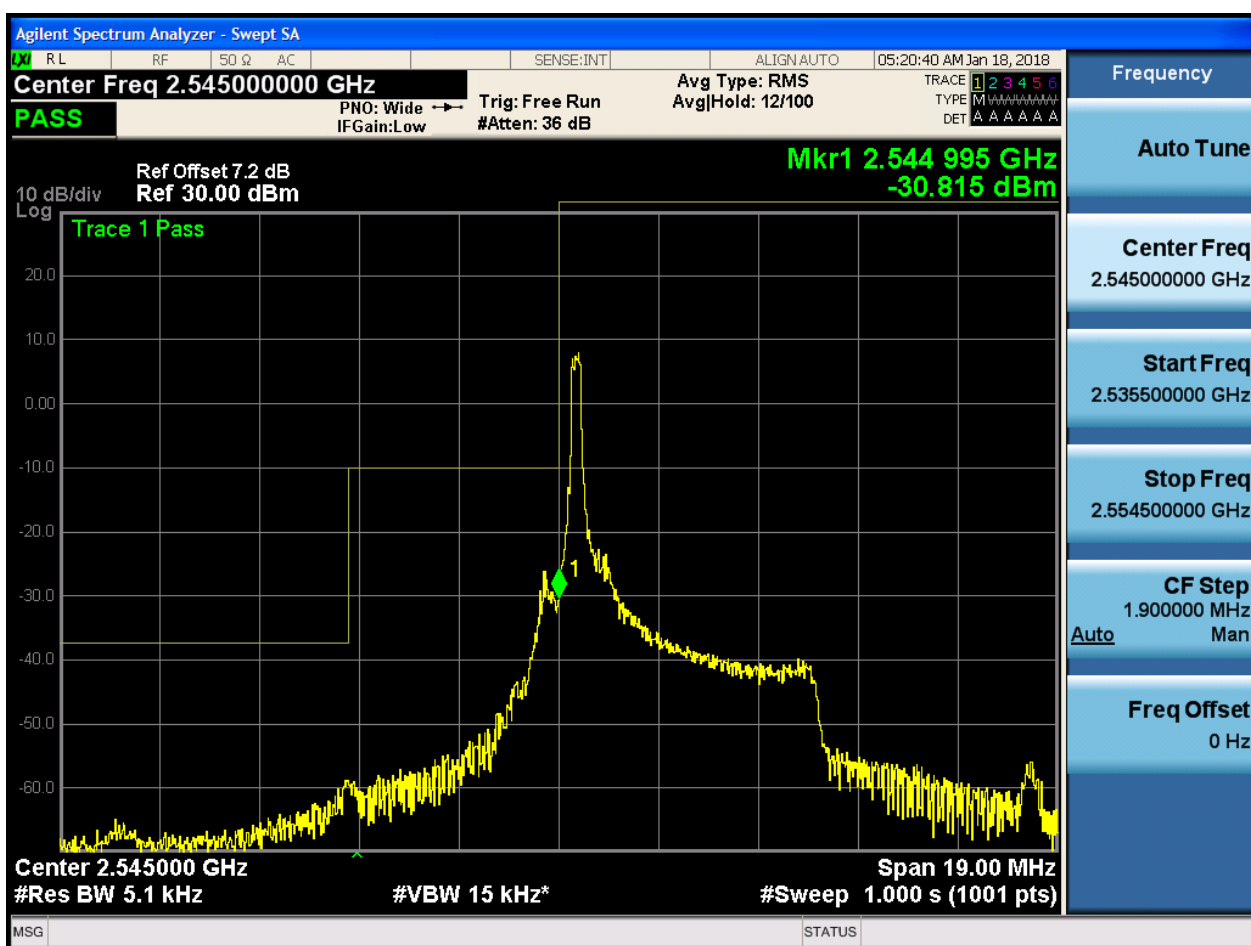


5.1.1.2 Test Mode = LTE/TM2

5.1.1.2.1 Test Bandwidth = 5

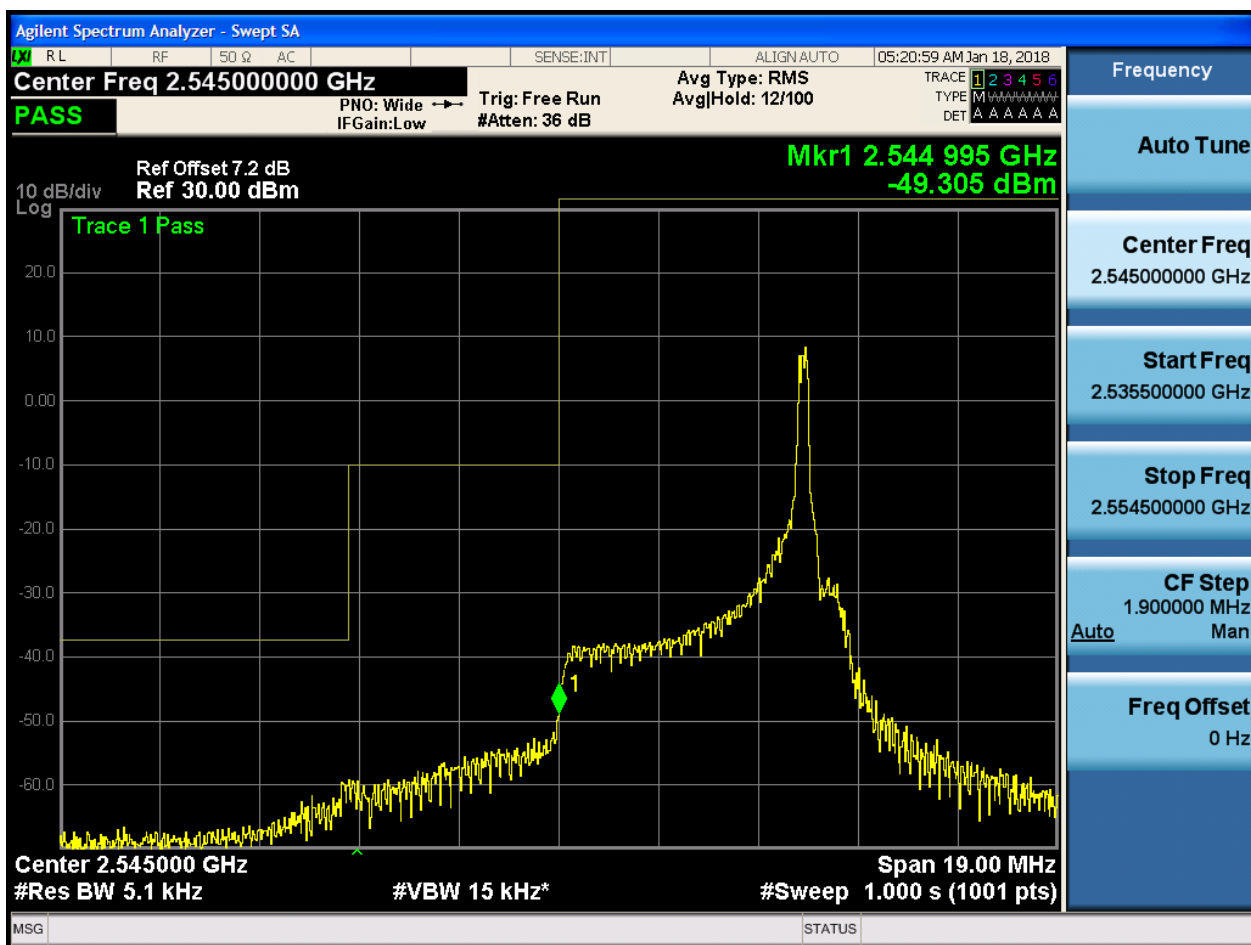
5.1.1.2.1.1 Test Channel = LCH

5.1.1.2.1.1.1 Test RB = RB1#0



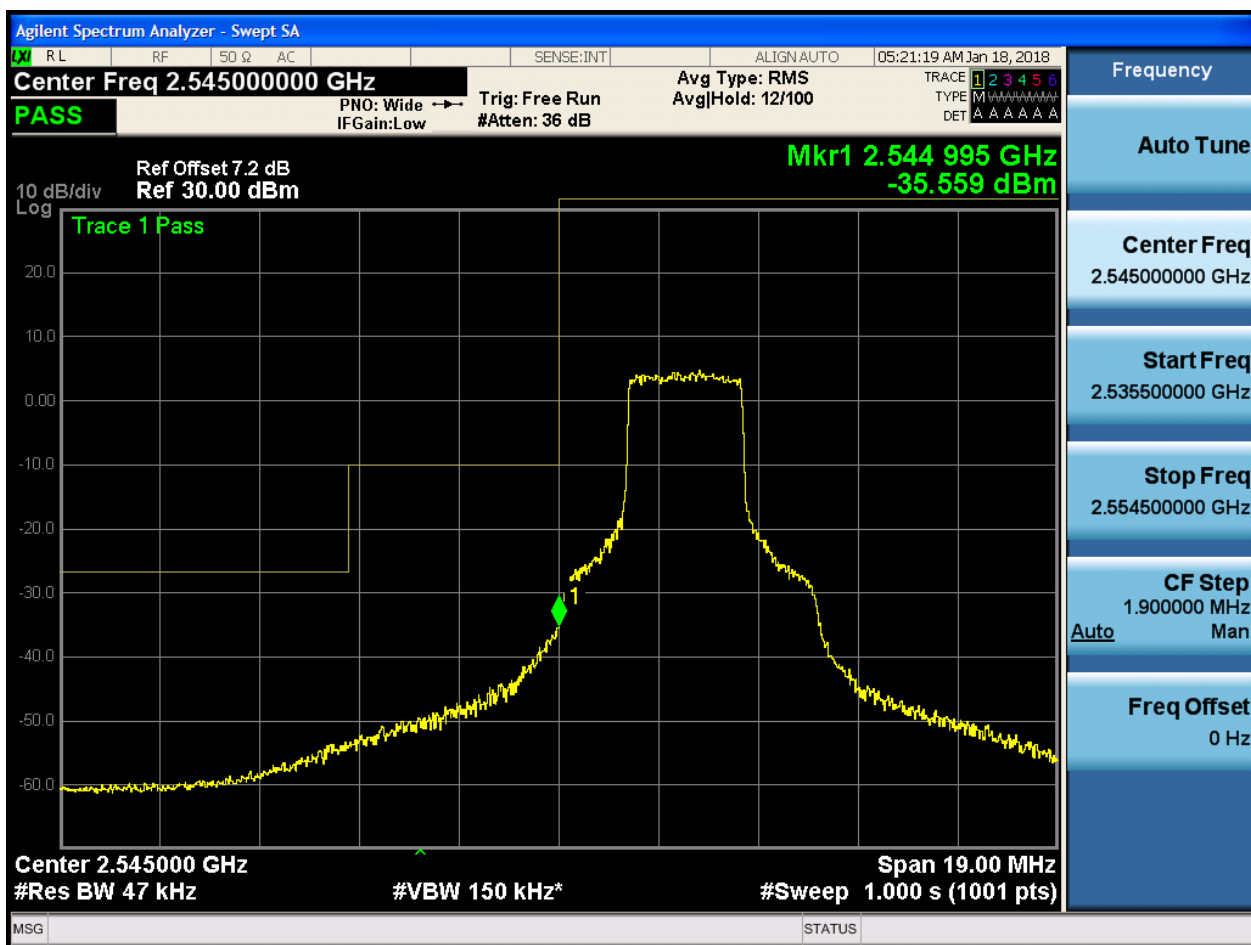


5.1.1.2.1.1.2 Test RB = RB1#24





5.1.1.2.1.1.3 Test RB = RB12#6





Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω AC SENSE:INT ALIGN AUTO 05:21:37 AM Jan 18, 2018

Center Freq 2.545000000 GHz Avg Type: RMS Trg: Free Run
#Res BW 91 kHz IFGain:Low #Atten: 36 dB

PASS

Ref Offset 7.2 dB Ref 30.00 dBm

Mkr1 2.544 995 GHz -26.202 dBm

10 dB/div Log

Trace 1 Pass

Center 2.545000 GHz Span 19.00 MHz
#Res BW 91 kHz #VBW 270 kHz* #Sweep 1.000 s (1001 pts)

MSG STATUS

Frequency

Auto Tune

Center Freq
2.545000000 GHz

Start Freq
2.535500000 GHz

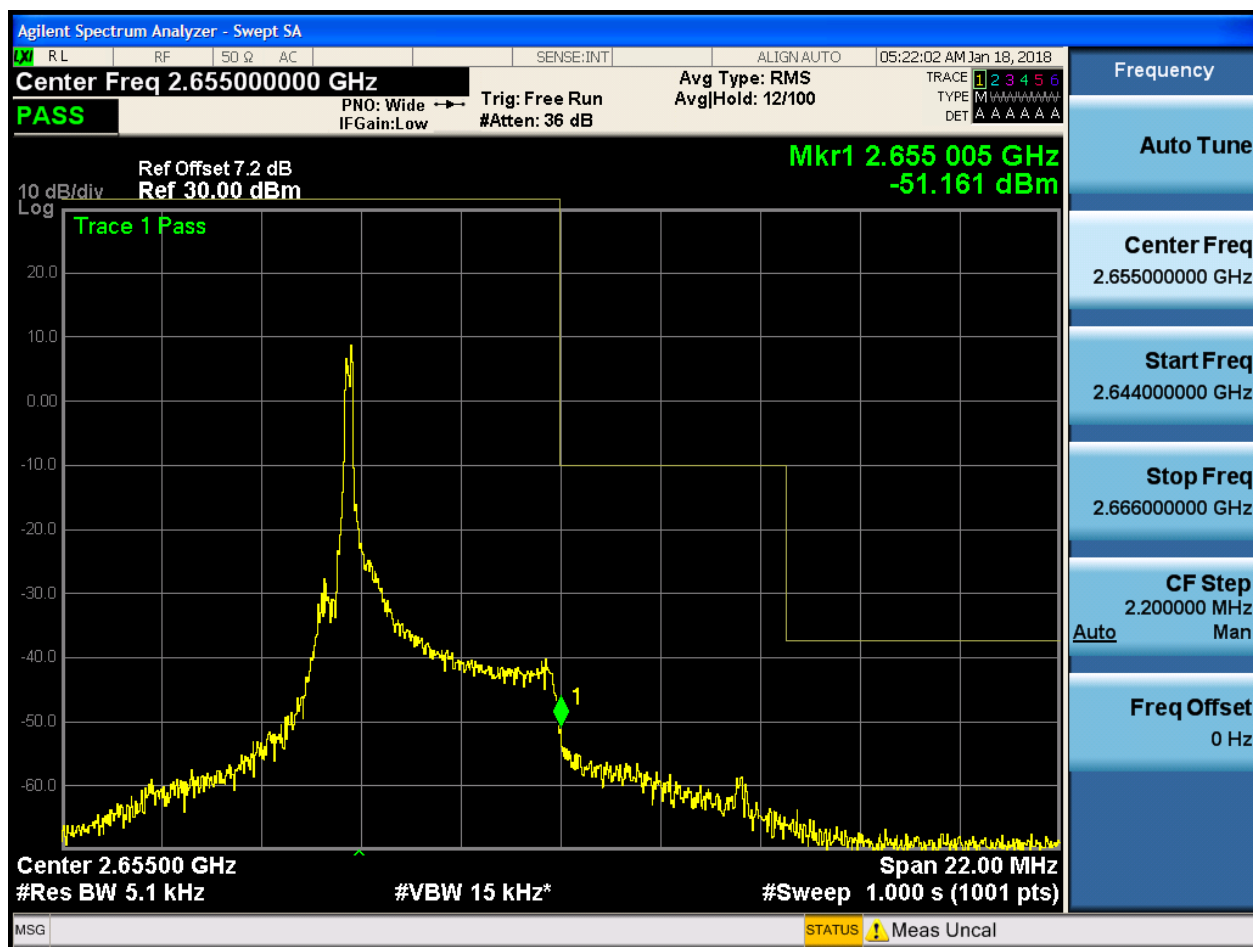
Stop Freq
2.554500000 GHz

CF Step
1.900000 MHz
Auto Man

Freq Offset
0 Hz

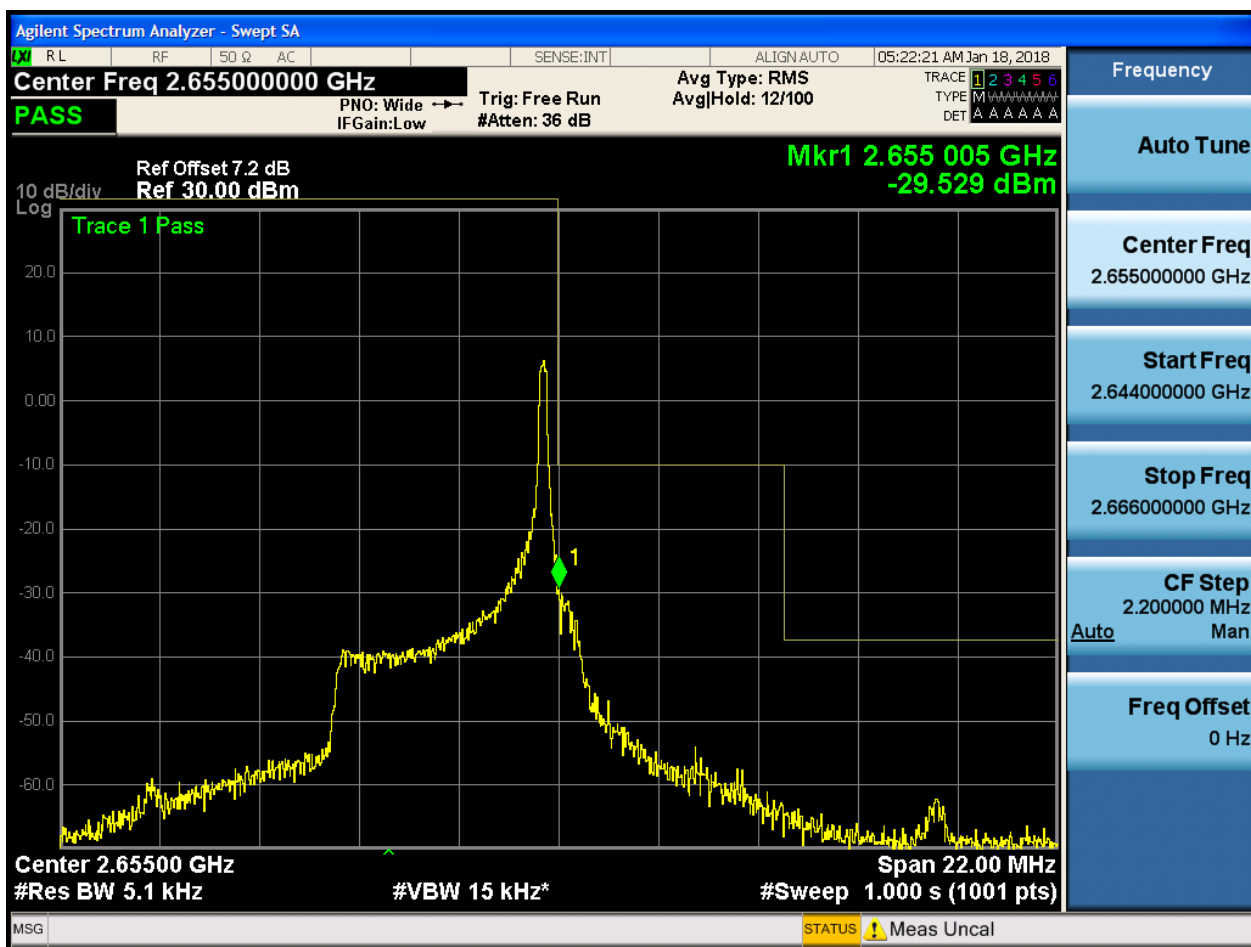
5.1.1.2.1.2 Test Channel = HCH

5.1.1.2.1.2.1 Test RB = RB1#0



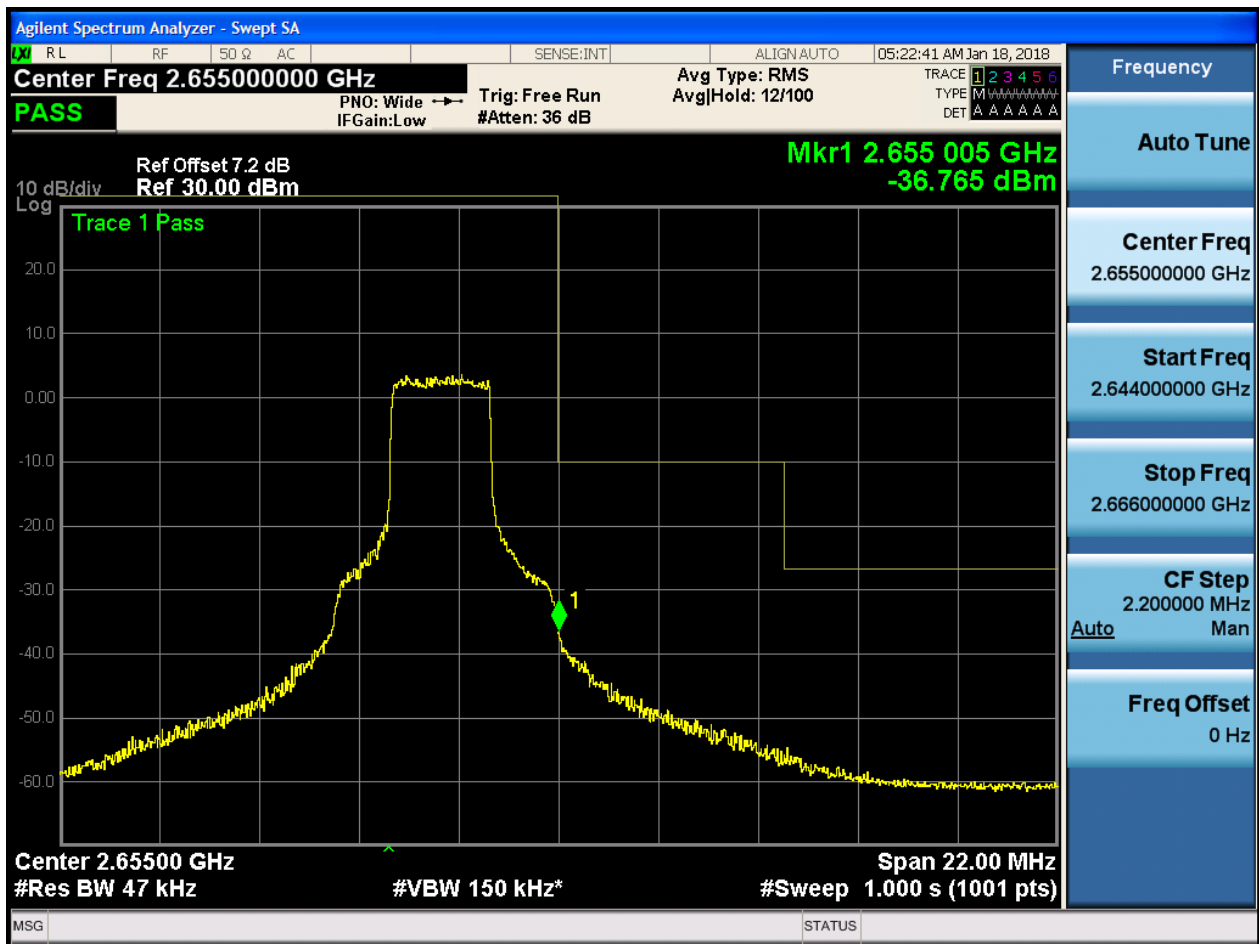


5.1.1.2.1.2.2 Test RB = RB1#24





5.1.1.2.1.2.3 Test RB = RB12#6





Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω AC SENSE:INT ALIGN AUTO 05:22:59 AM Jan 18, 2018

Center Freq 2.65500000 GHz Avg Type: RMS Trg: Free Run
PNO: Wide IFGain:Low #Atten: 36 dB

PASS

Ref Offset 7.2 dB Mkr1 2.655 005 GHz
Ref 30.00 dBm -27.036 dBm

10 dB/div Log

Trace 1 Pass

Center 2.65500 GHz Span 22.00 MHz
#Res BW 91 kHz #VBW 270 kHz* #Sweep 1.000 s (1001 pts)

MSG STATUS

Frequency

Auto Tune

Center Freq
2.65500000 GHz

Start Freq
2.64400000 GHz

Stop Freq
2.66600000 GHz

CF Step
2.200000 MHz
Auto Man

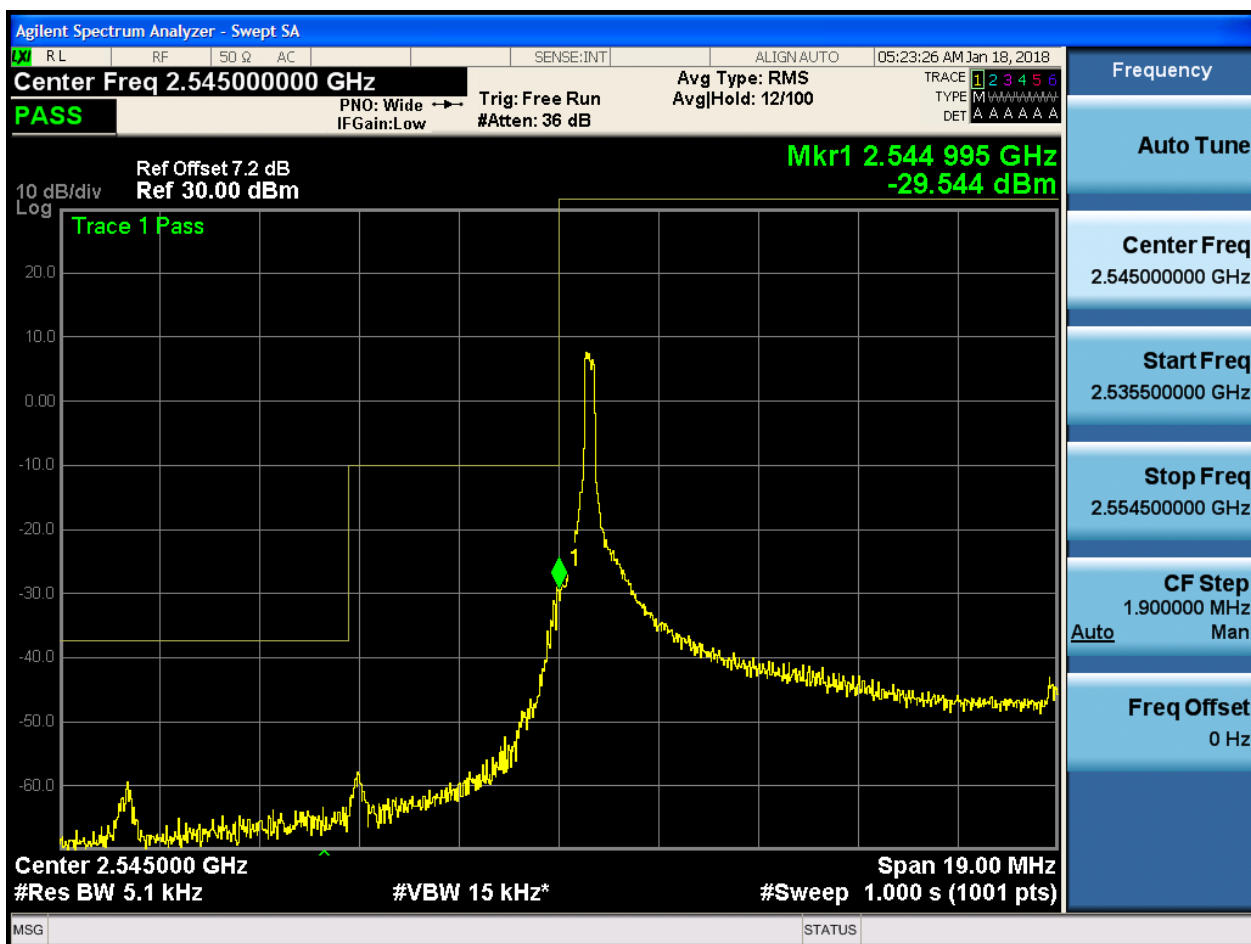
Freq Offset
0 Hz



5.1.1.2.2 Test Bandwidth = 10

5.1.1.2.2.1 Test Channel = LCH

5.1.1.2.2.1.1 Test RB = RB1#0



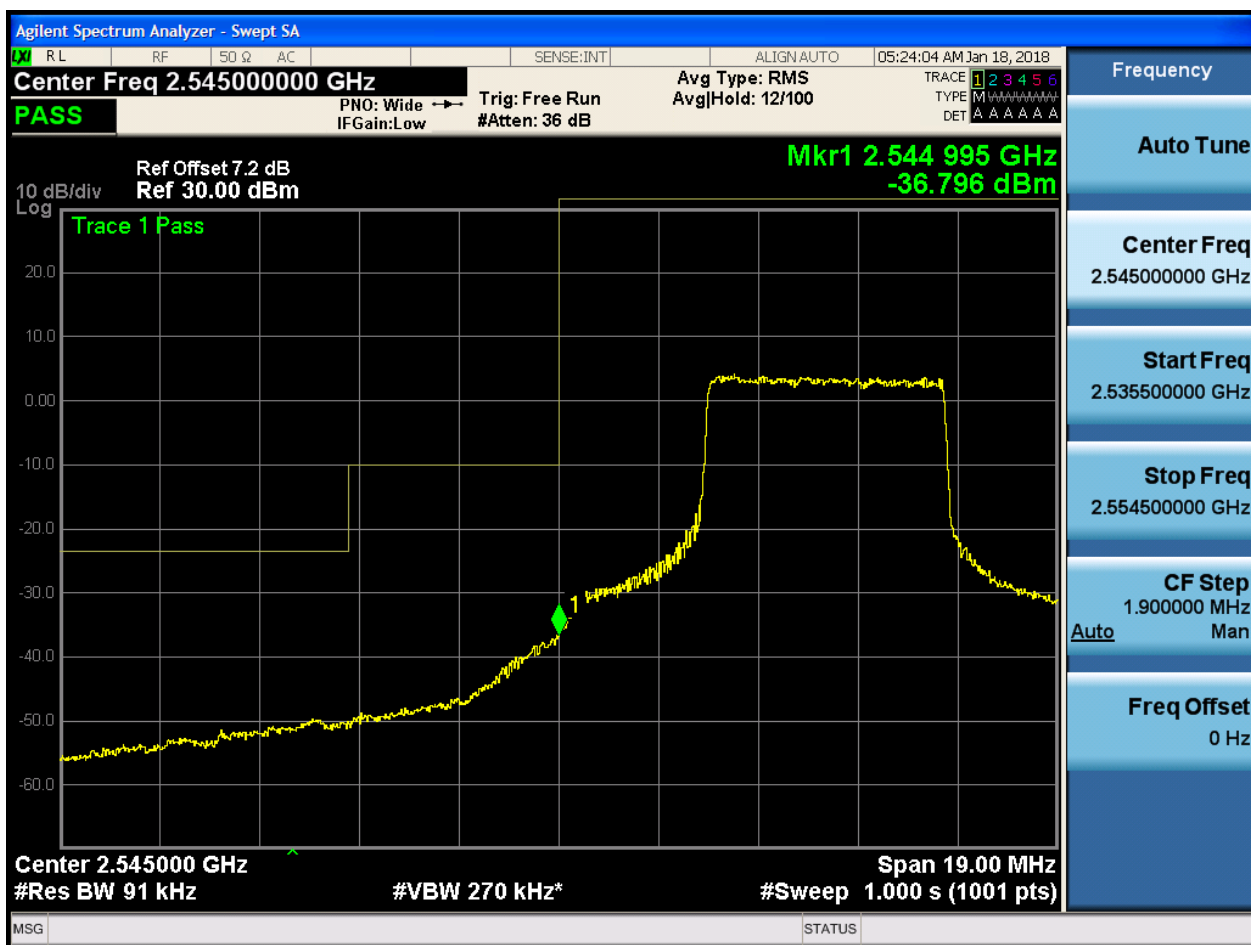


5.1.1.2.2.1.2 Test RB = RB1#49





5.1.1.2.2.1.3 Test RB = RB25#13





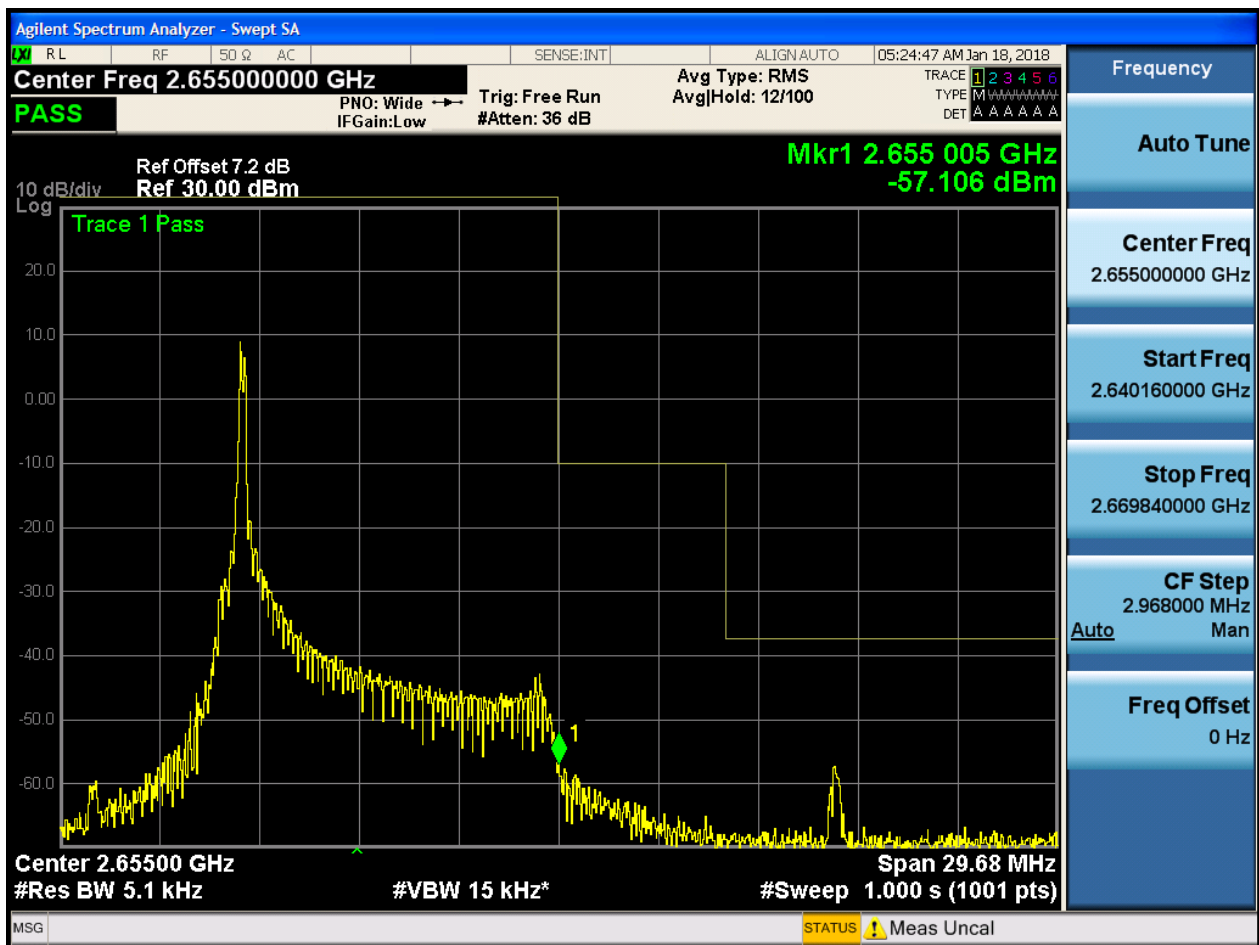
5.1.1.2.2.1.4 Test RB = RB50#0





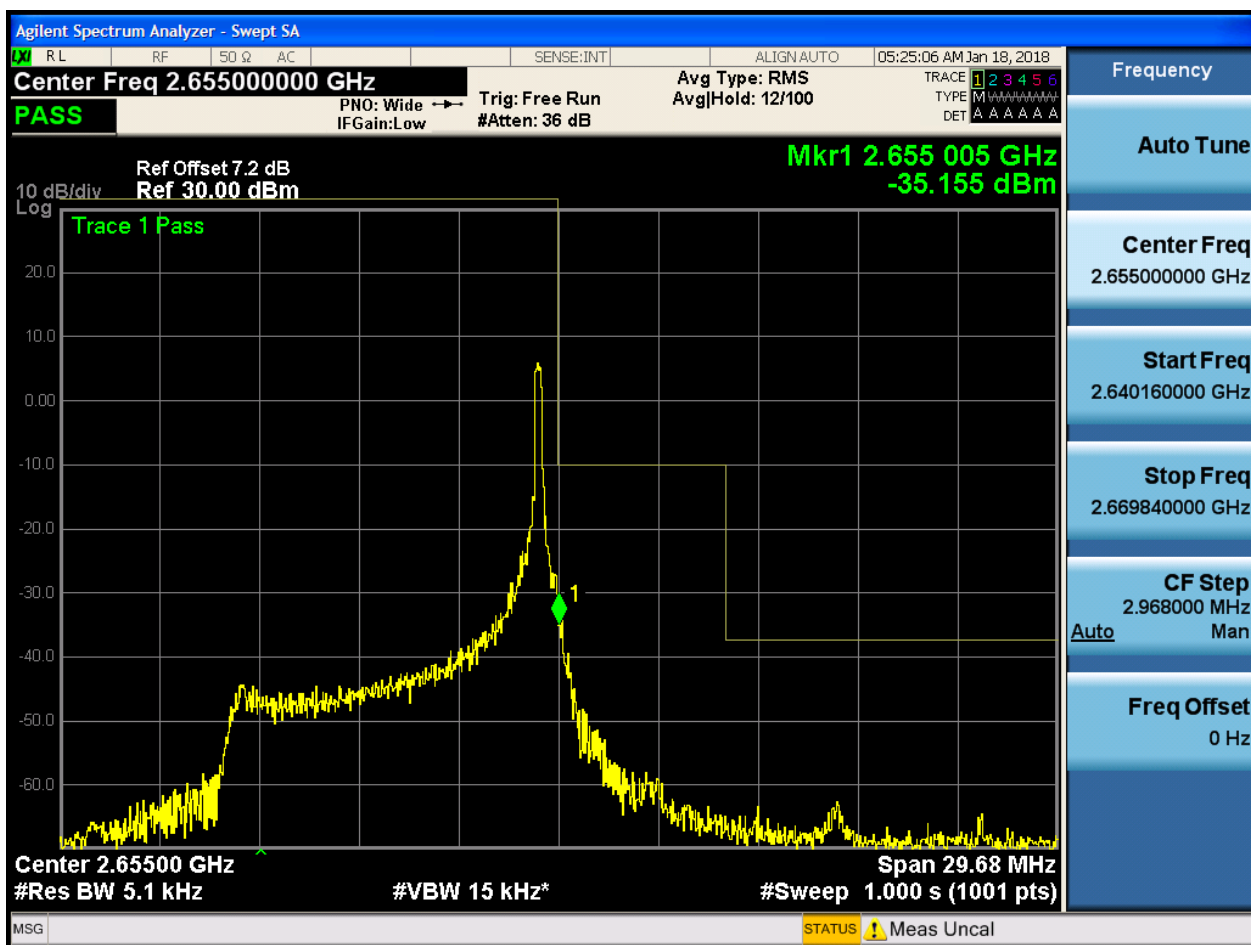
5.1.1.2.2.2 Test Channel = HCH

5.1.1.2.2.2.1 Test RB = RB1#0



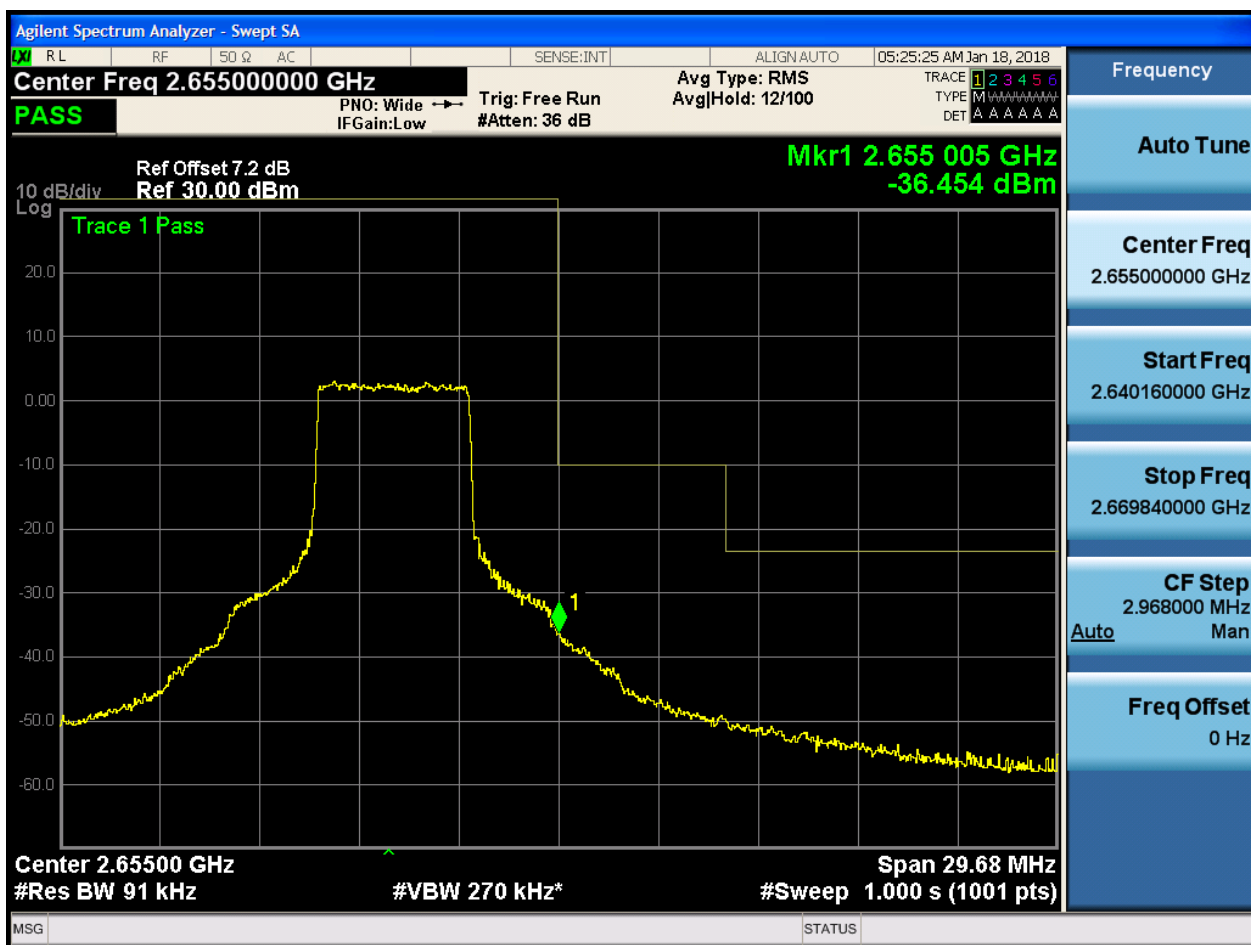


5.1.1.2.2.2 Test RB = RB1#49





5.1.1.2.2.3 Test RB = RB25#13





Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω AC SENSE:INT ALIGN:AUTO 05:25:43 AM Jan 18, 2018

Center Freq 2.65500000 GHz Avg Type: RMS
PASS PNO: Wide → Trig: Free Run AvgHold: 12/100
IFGain:Low #Atten: 36 dB TRACE 1 2 3 4 5 6
TYPE MAAAAAA
DET A A A A A A

Ref Offset 7.2 dB
Ref 30.00 dBm

Mkr1 2.655 005 GHz
-28.696 dBm

The figure shows a spectrum analyzer screen with a yellow trace labeled "Trace 1 Pass". The y-axis is logarithmic power from -60.0 to 20.0 dB/div. The x-axis is frequency. A sharp peak is visible at approximately 2.655 GHz, marked with a green dot and the number "1". The baseline noise floor is around -40 dBm.

Frequency
Auto Tune
Center Freq 2.65500000 GHz
Start Freq 2.640160000 GHz
Stop Freq 2.669840000 GHz
CF Step 2.968000 MHz <u>Auto</u> Man
Freq Offset 0 Hz

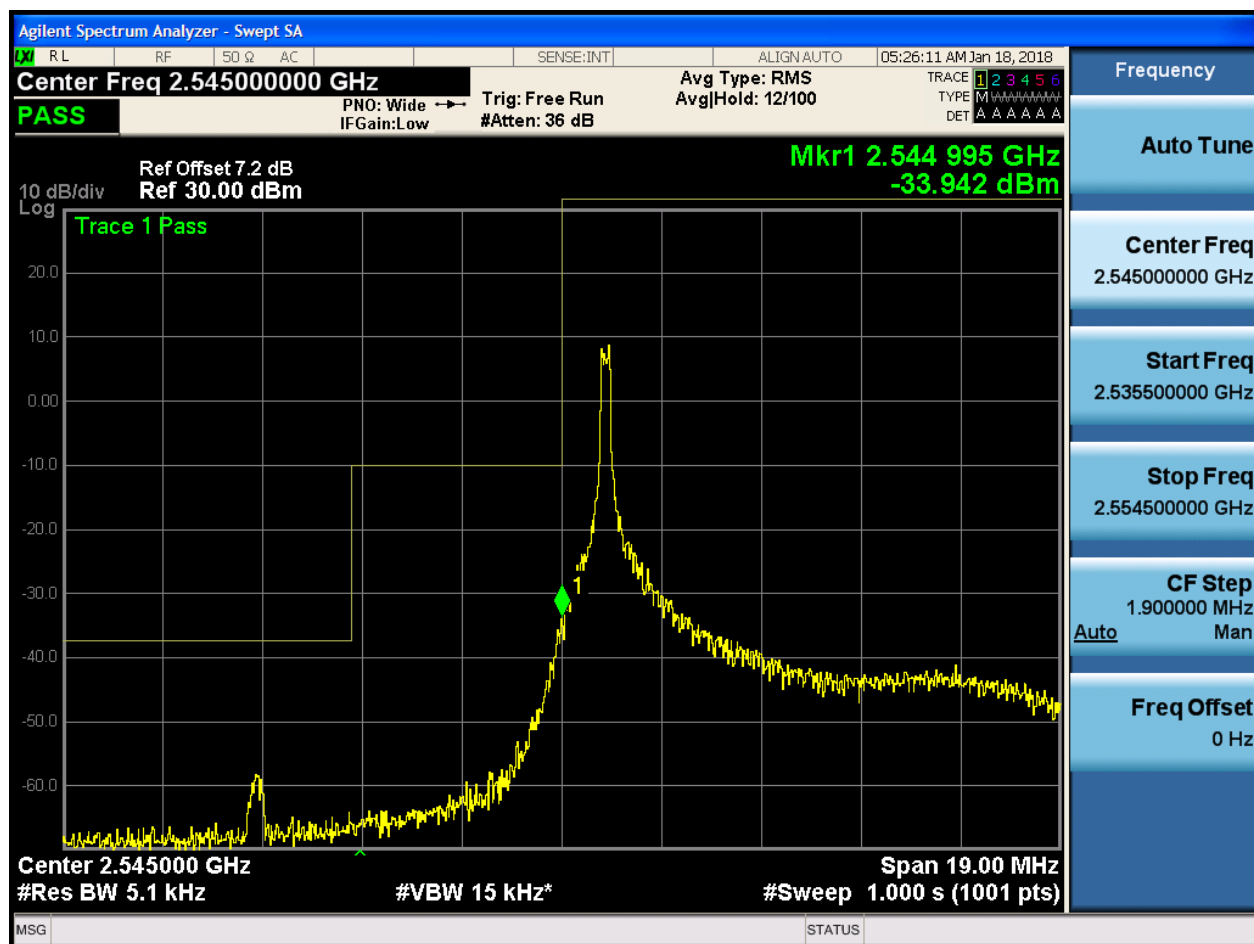
Center 2.65500 GHz Span 29.68 MHz
#Res BW 180 kHz #VBW 560 kHz*
#Sweep 1.000 s (1001 pts)

MSG STATUS

5.1.1.2.3 Test Bandwidth = 15

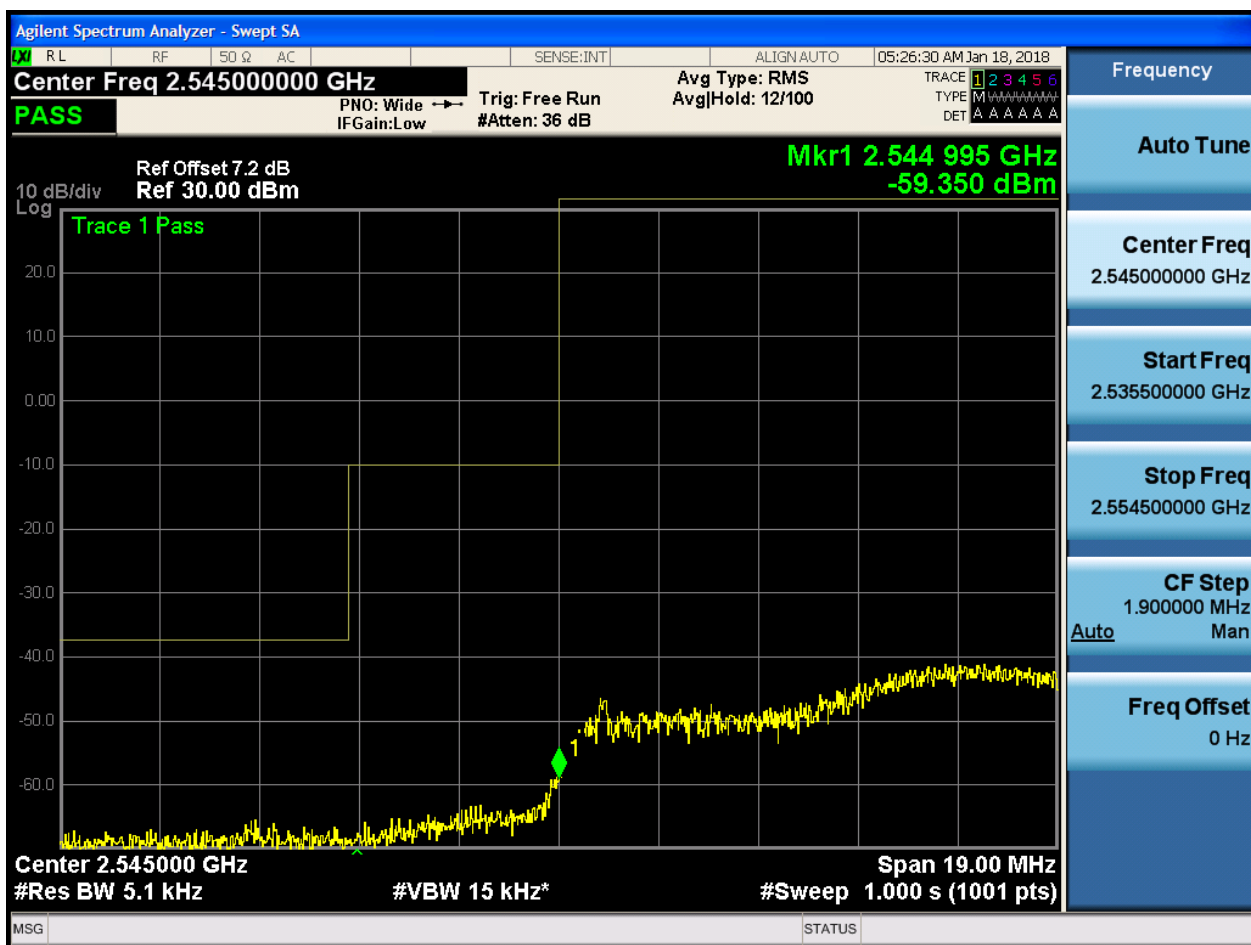
5.1.1.2.3.1 Test Channel = LCH

5.1.1.2.3.1.1 Test RB = RB1#0



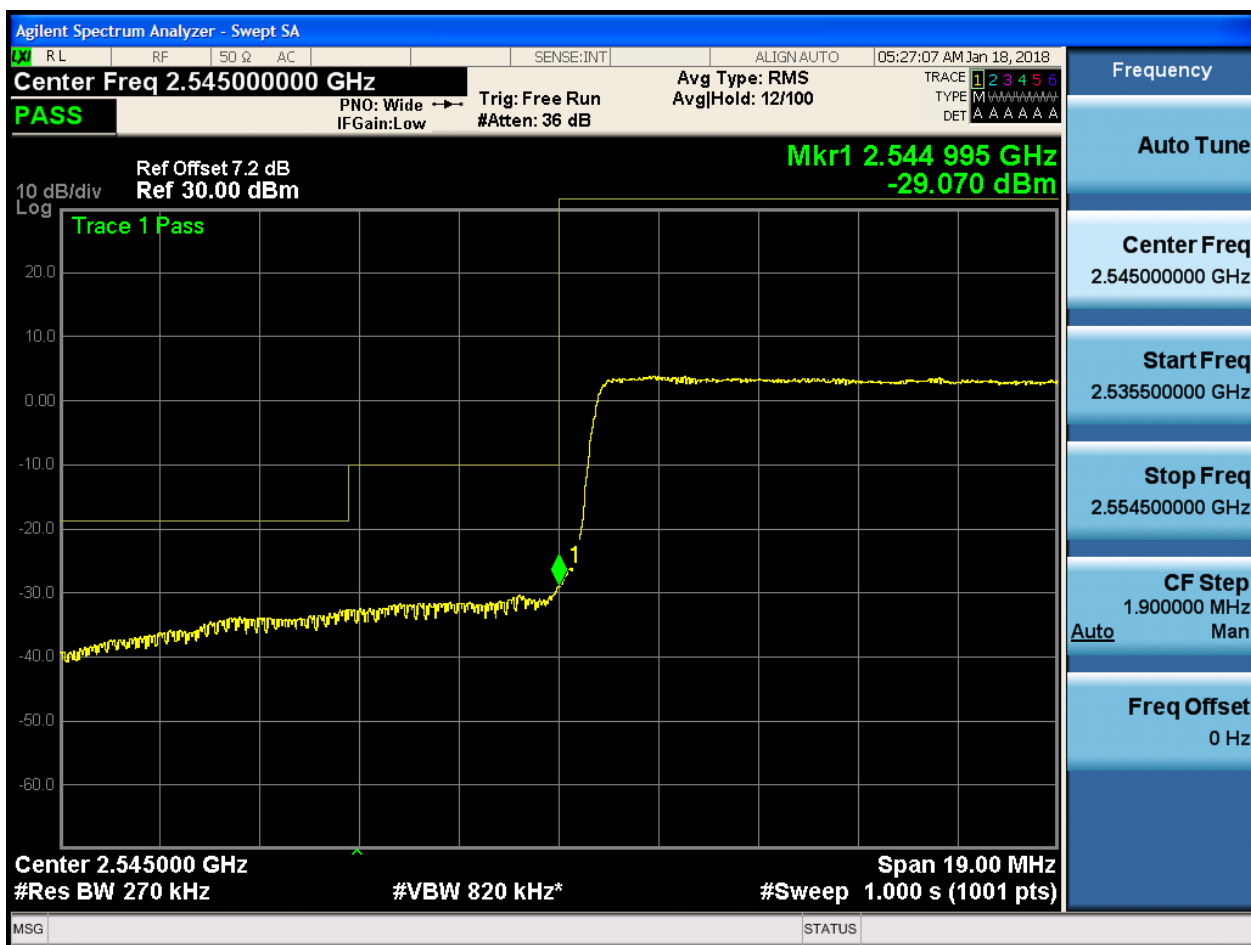


5.1.1.2.3.1.2 Test RB = RB1#74



[illegible]

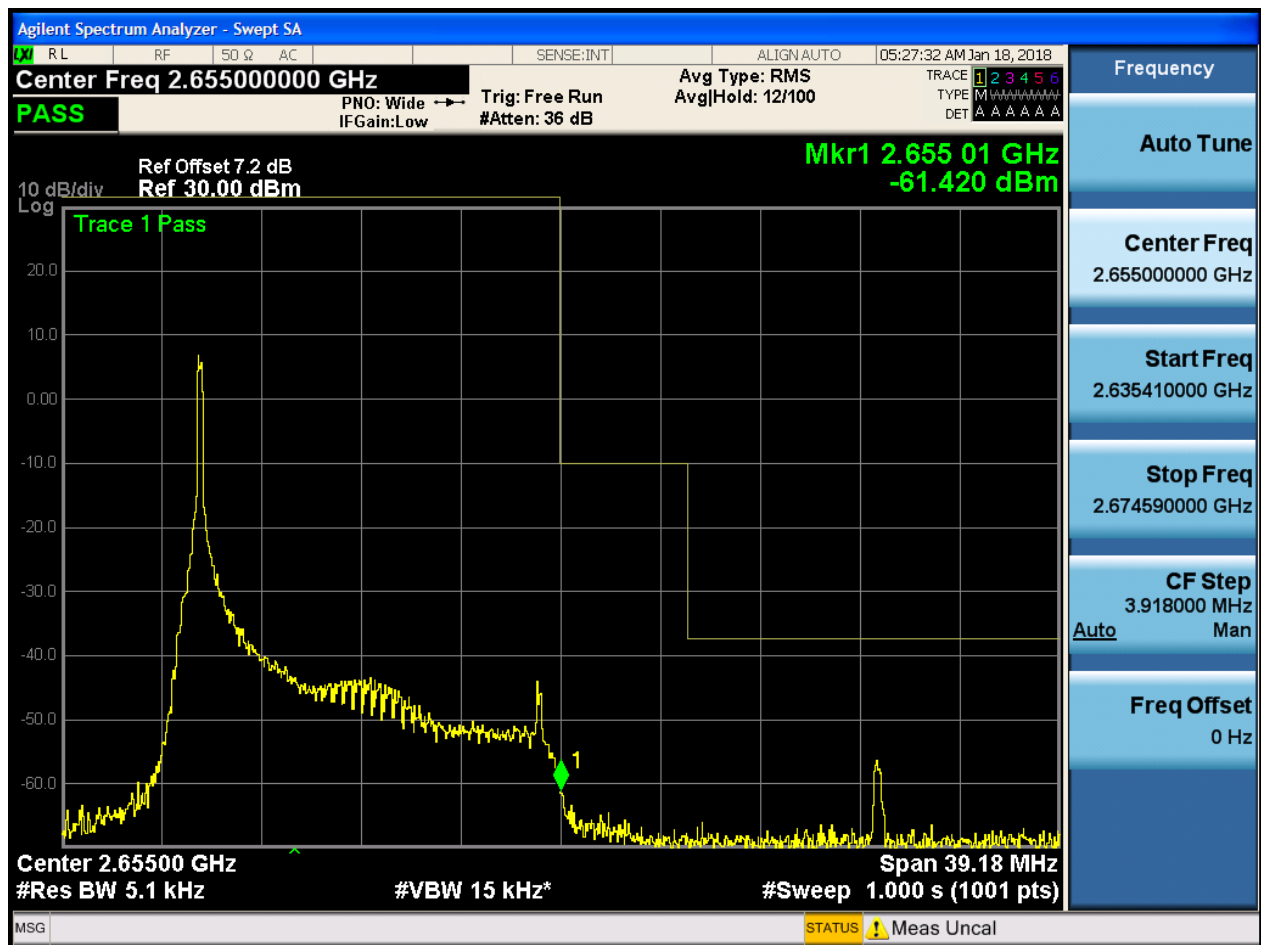
5.1.1.2.3.1.4 Test RB = RB75#0





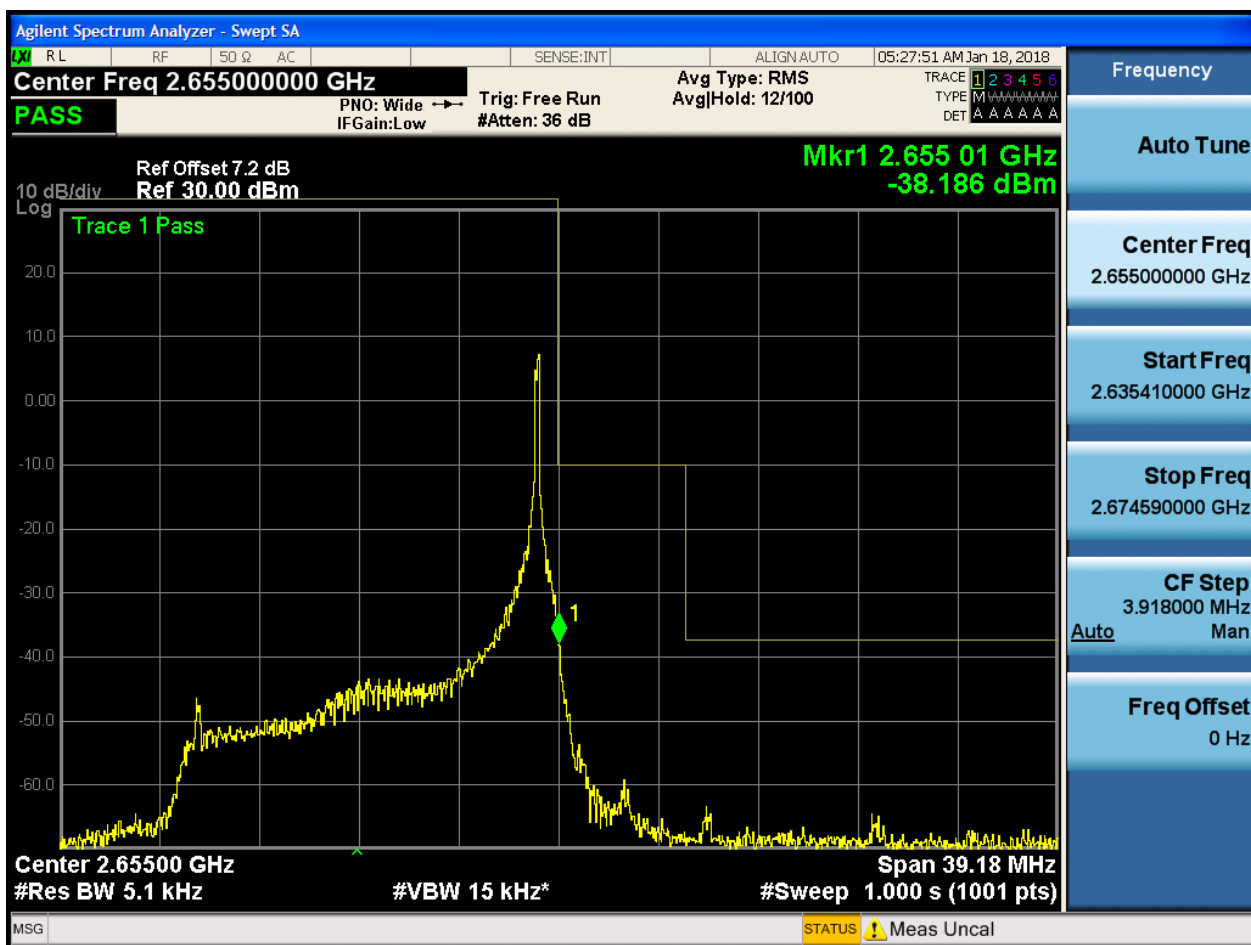
5.1.1.2.3.2 Test Channel = HCH

5.1.1.2.3.2.1 Test RB = RB1#0



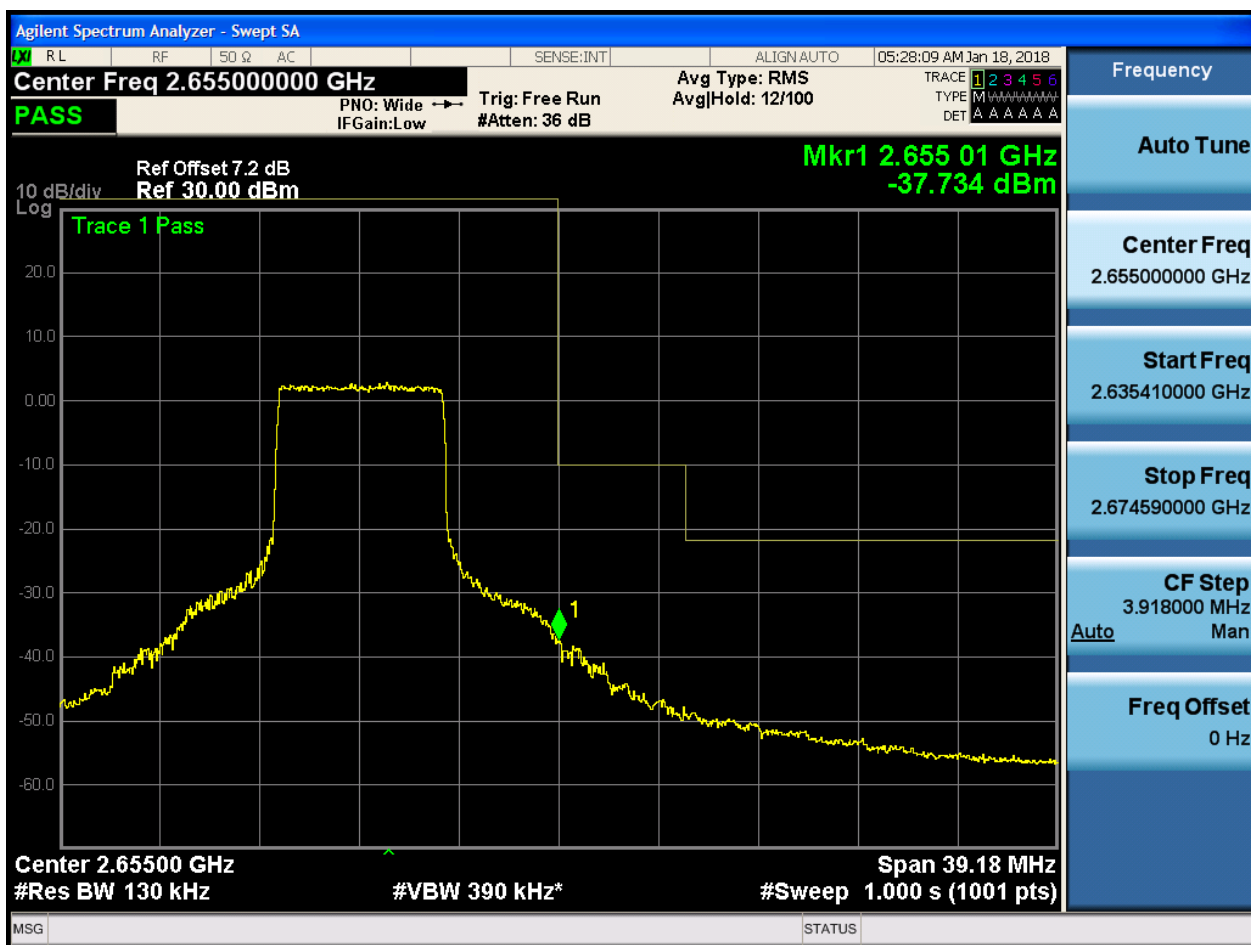


5.1.1.2.3.2.2 Test RB = RB1#74





5.1.1.2.3.2.3 Test RB = RB36#18





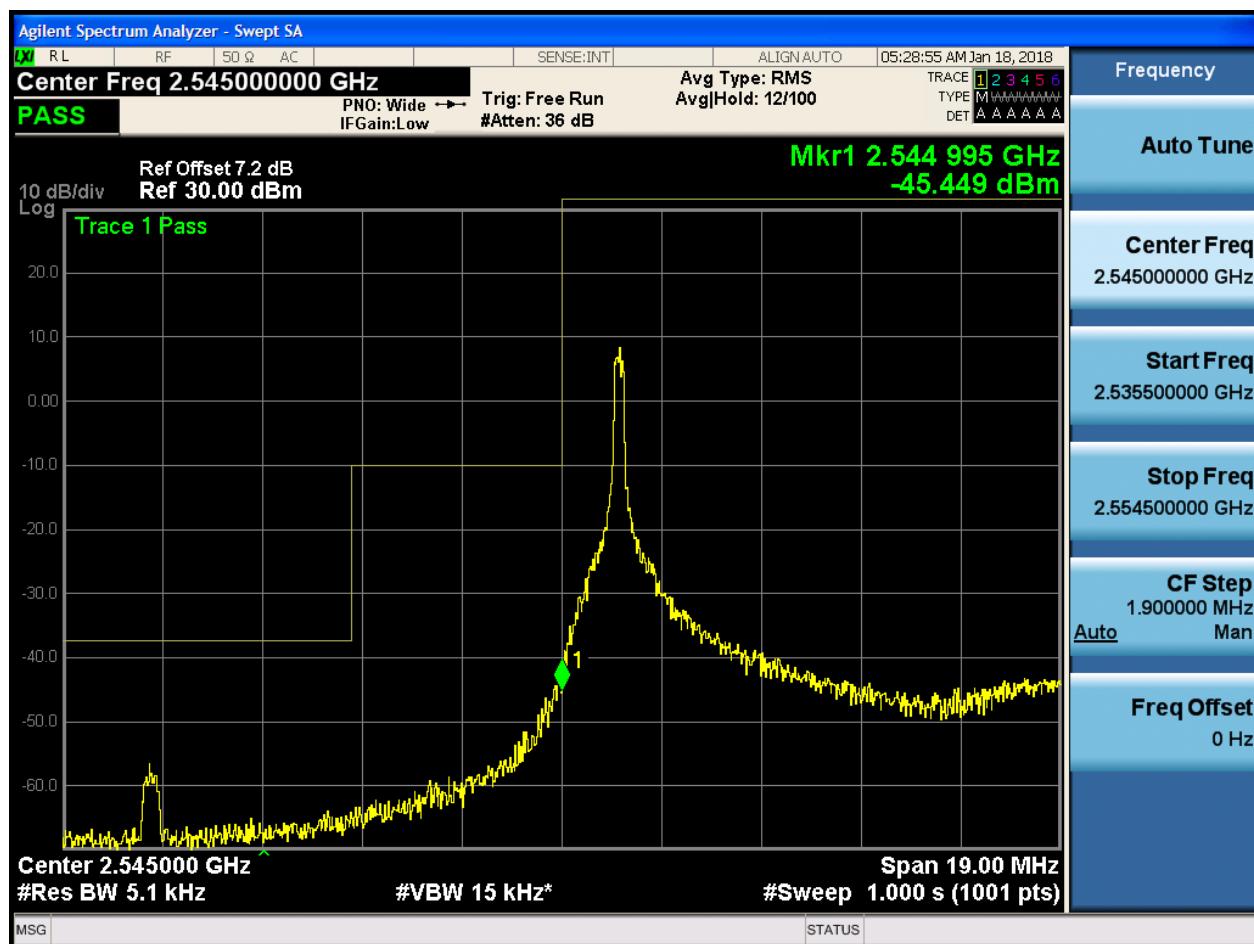
5.1.1.2.3.2.4 Test RB = RB75#0



5.1.1.2.4 Test Bandwidth = 20

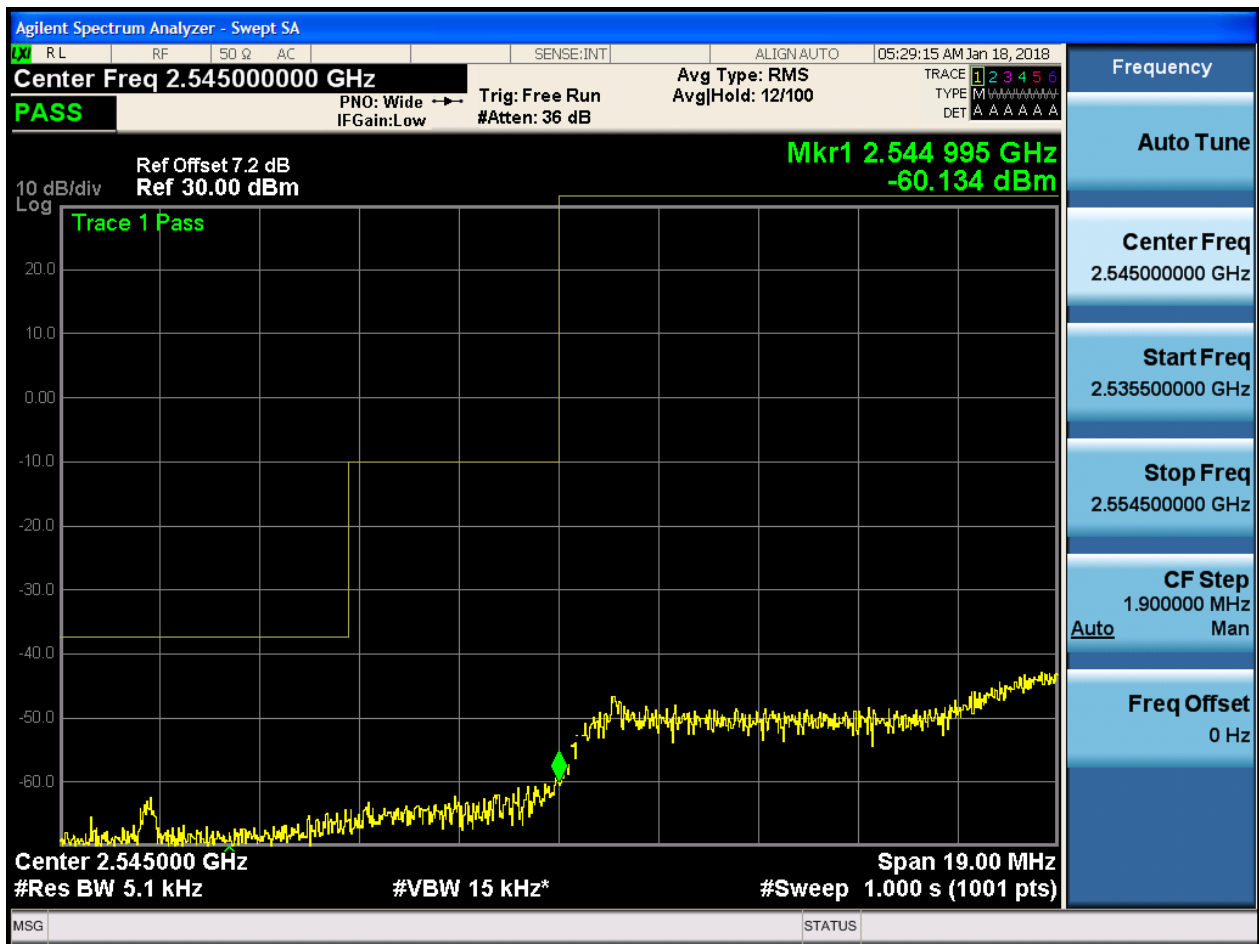
5.1.1.2.4.1 Test Channel = LCH

5.1.1.2.4.1.1 Test RB = RB1#0



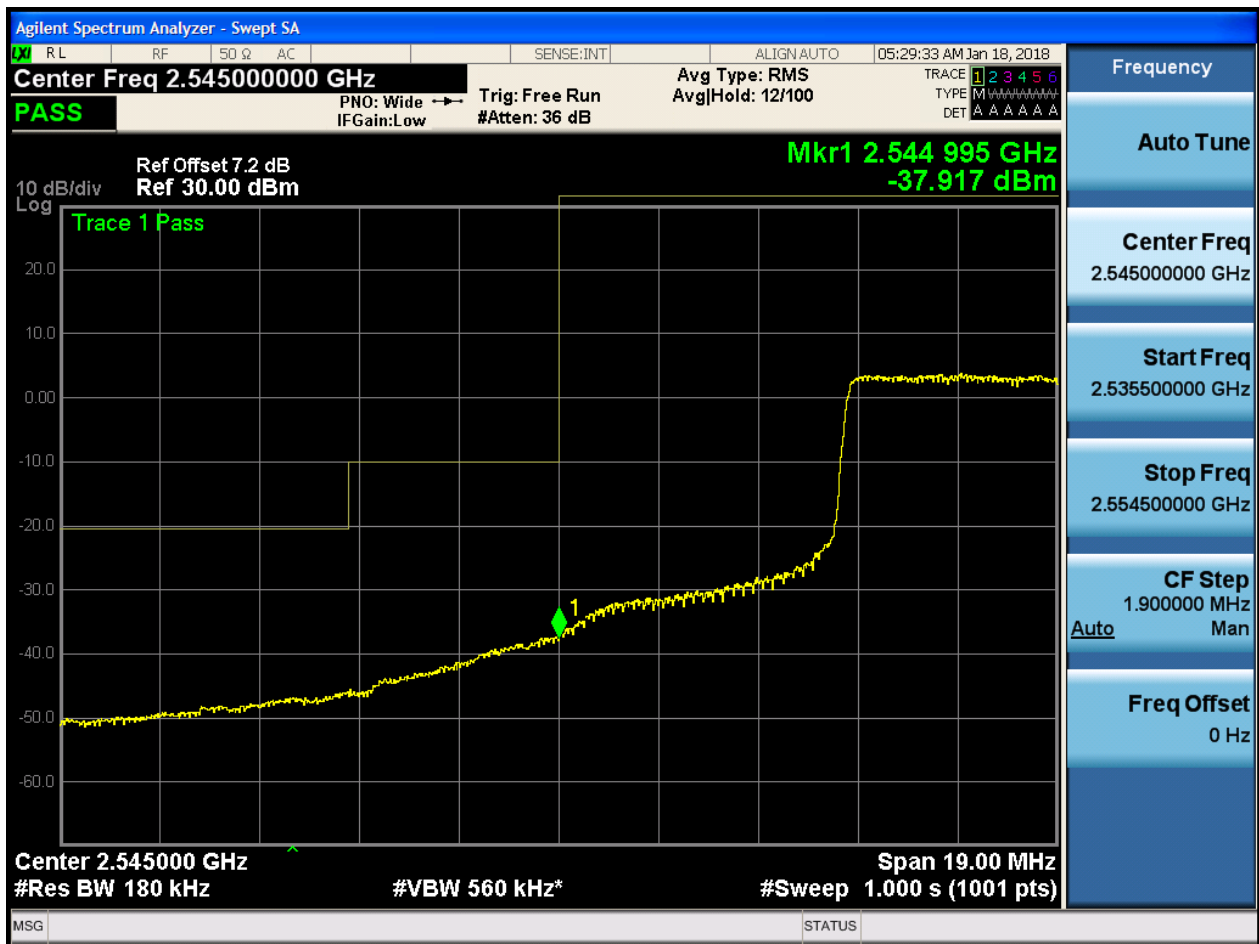


5.1.1.2.4.1.2 Test RB = RB1#99



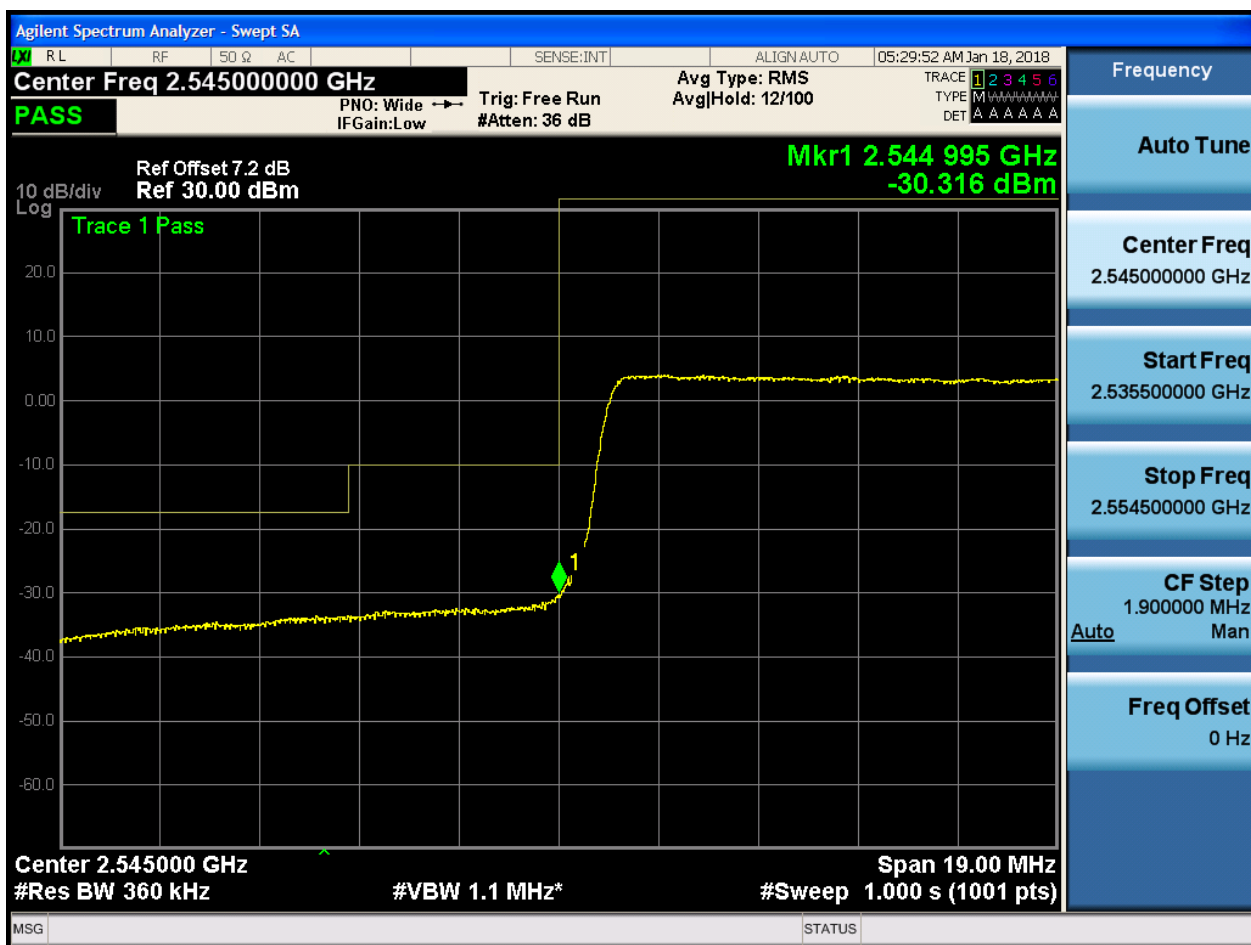


5.1.1.2.4.1.3 Test RB = RB50#25





5.1.1.2.4.1.4 Test RB = RB100#0





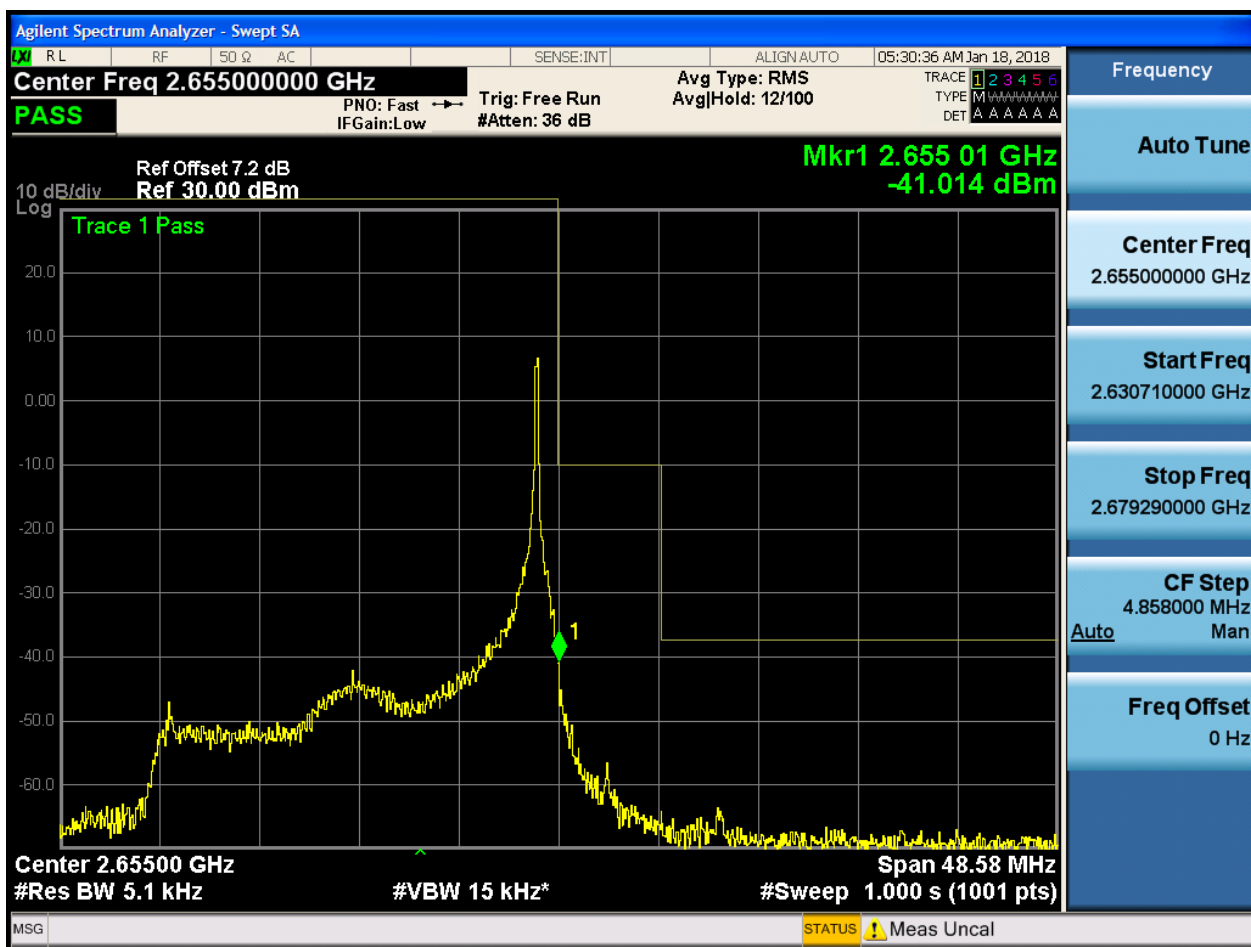
5.1.1.2.4.2 Test Channel = HCH

5.1.1.2.4.2.1 Test RB = RB1#0





5.1.1.2.4.2.2 Test RB = RB1#99





Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω AC SENSE:INT ALIGN AUTO 05:30:55 AM Jan 18, 2018

Center Freq 2.65500000 GHz Avg Type: RMS
#Res BW 180 kHz PNO: Fast Trig: Free Run AvgHold: 12/100
IFGain:Low #Atten: 36 dB

PASS

Ref Offset 7.2 dB
Ref 30.00 dBm

10 dB/div
Log

Trace 1 Pass

Mkr1 2.655 01 GHz
-38.990 dBm

Center Freq
2.65500000 GHz

Start Freq
2.630710000 GHz

Stop Freq
2.679290000 GHz

CF Step
4.858000 MHz
Auto Man

Freq Offset
0 Hz

Center 2.65500 GHz
#Res BW 180 kHz
#VBW 560 kHz*
Span 48.58 MHz
#Sweep 1.000 s (1001 pts)

MSG STATUS



Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω AC SENSE:INT ALIGN AUTO 05:31:13 AM Jan 18, 2018

Center Freq 2.65500000 GHz Avg Type: RMS
#Res BW 360 kHz #VBW 1.1 MHz* #Sweep 1.000 s (1001 pts)

PASS PNO: Fast IFGain:Low Trig: Free Run #Atten: 36 dB

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 7.2 dB
Ref 30.00 dBm

Mkr1 2.655 01 GHz
-30.390 dBm

10 dB/div
Log

Trace 1 Pass

The spectrum analyzer trace shows a signal at 2.655 GHz with a power level of approximately 0 dBm. The signal is sharp and well-defined. At 2.679 GHz, there is a sharp drop in power, indicated by a green arrow labeled '1'. The power level drops to approximately -30 dBm. The trace is labeled 'Trace 1 Pass'.

Center 2.65500 GHz
Span 48.58 MHz

MSG STATUS

Frequency
Auto Tune
Center Freq 2.65500000 GHz
Start Freq 2.630710000 GHz
Stop Freq 2.679290000 GHz
CF Step 4.858000 MHz Auto Man
Freq Offset 0 Hz

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

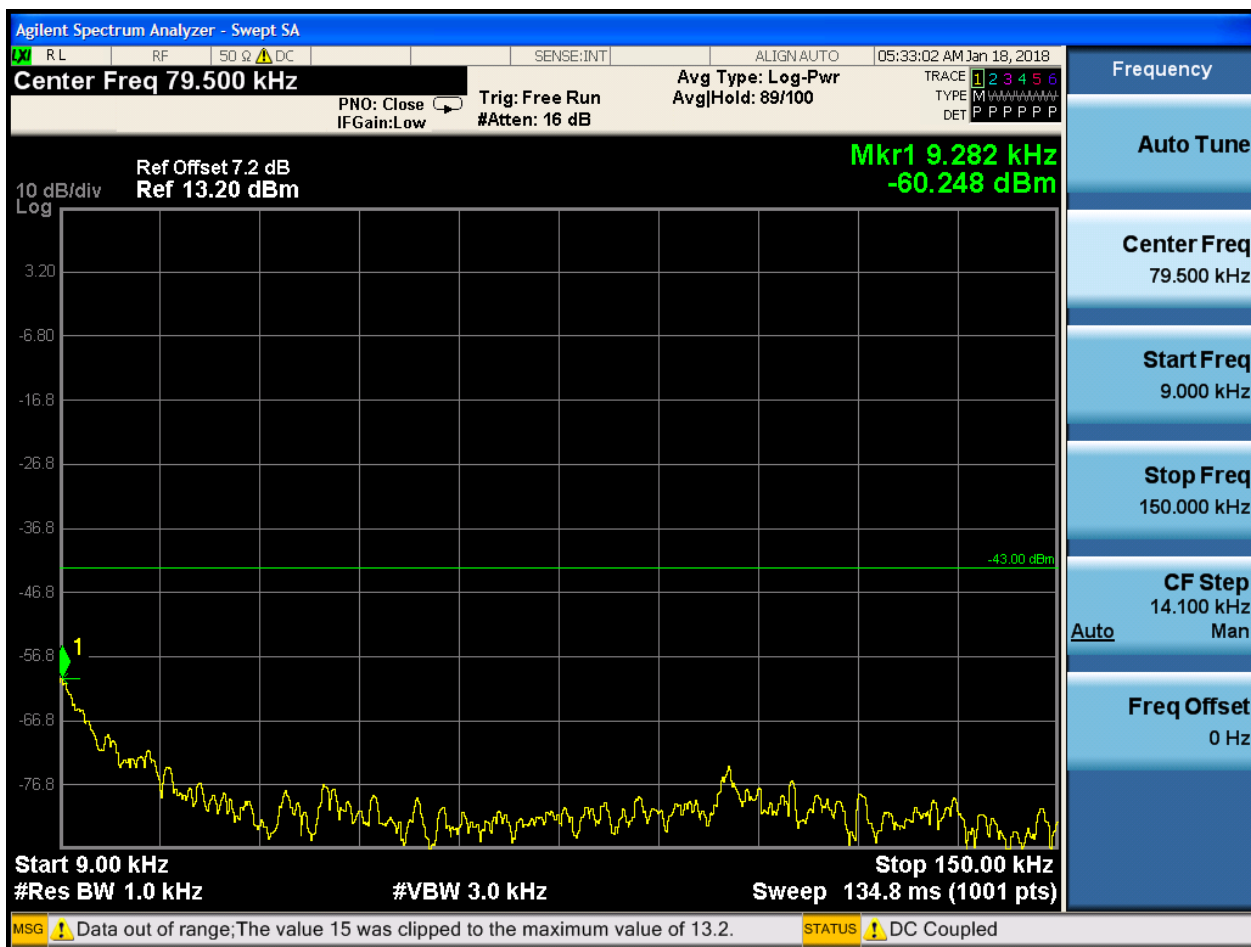
6.1.1 Test Band = BAND41

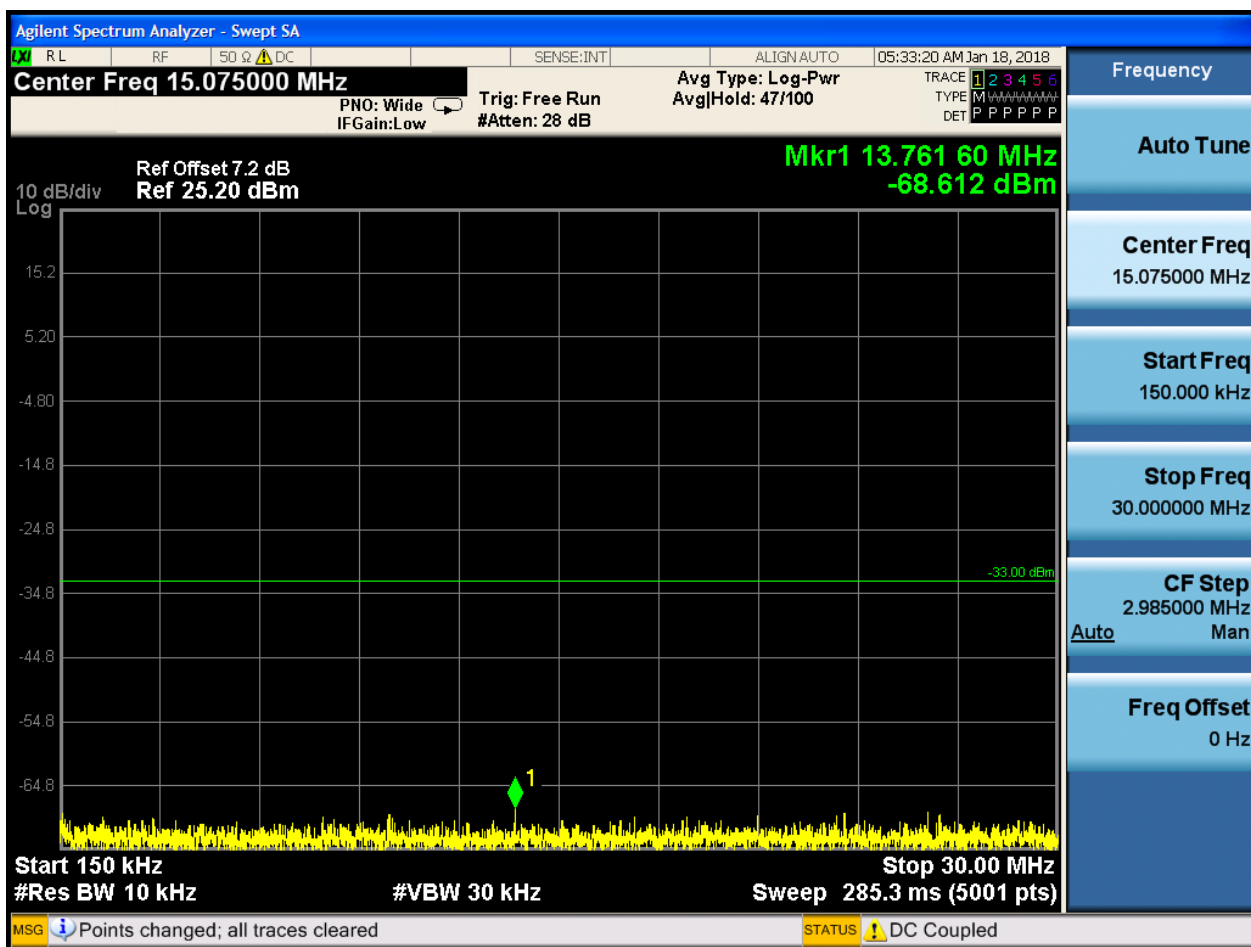
6.1.1.1 Test Mode = LTE/TM1

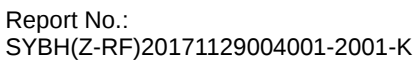
6.1.1.1.1 Test Bandwidth = 5

6.1.1.1.1.1 Test Channel = LCH

6.1.1.1.1.1.1 Test RB = RB1#0

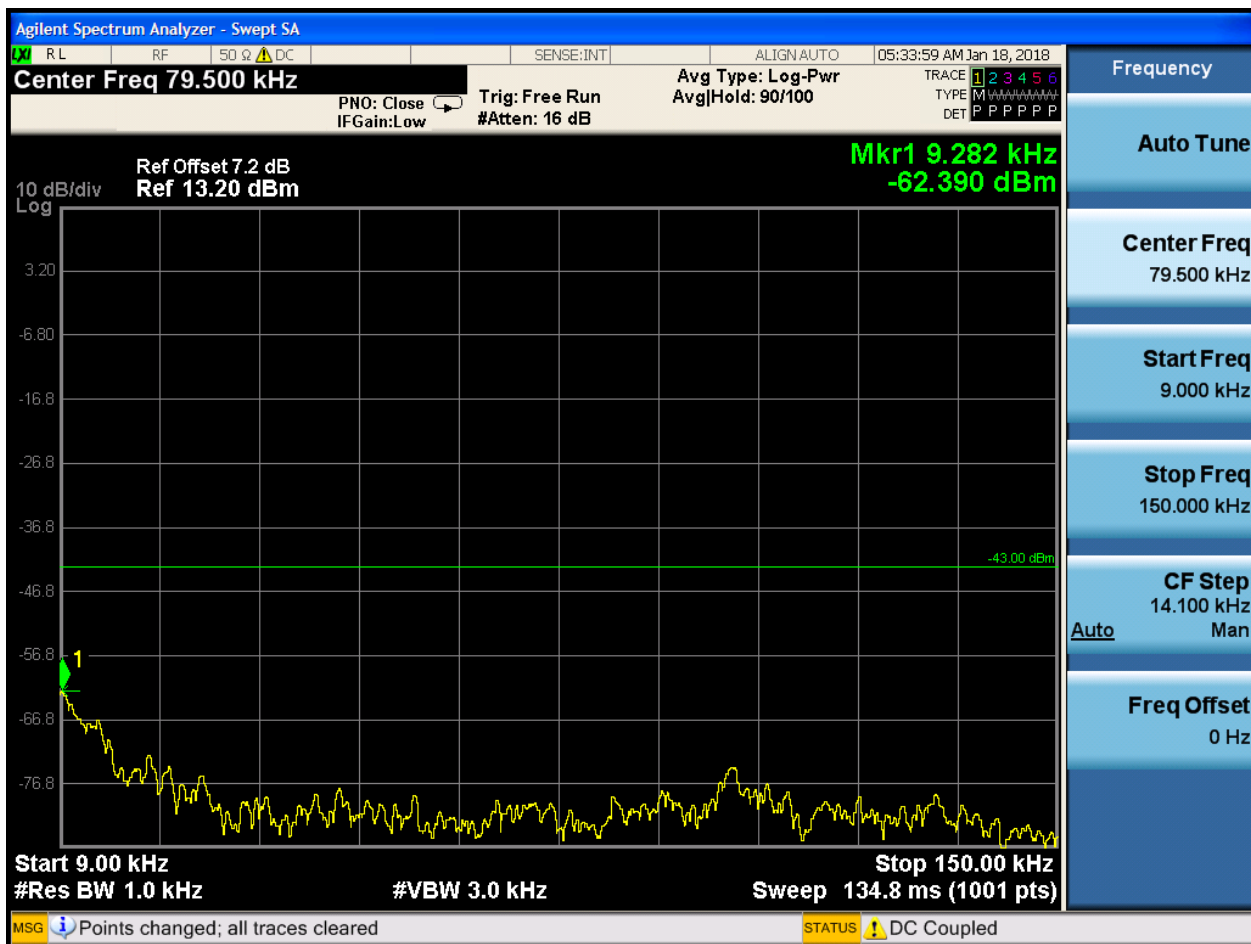


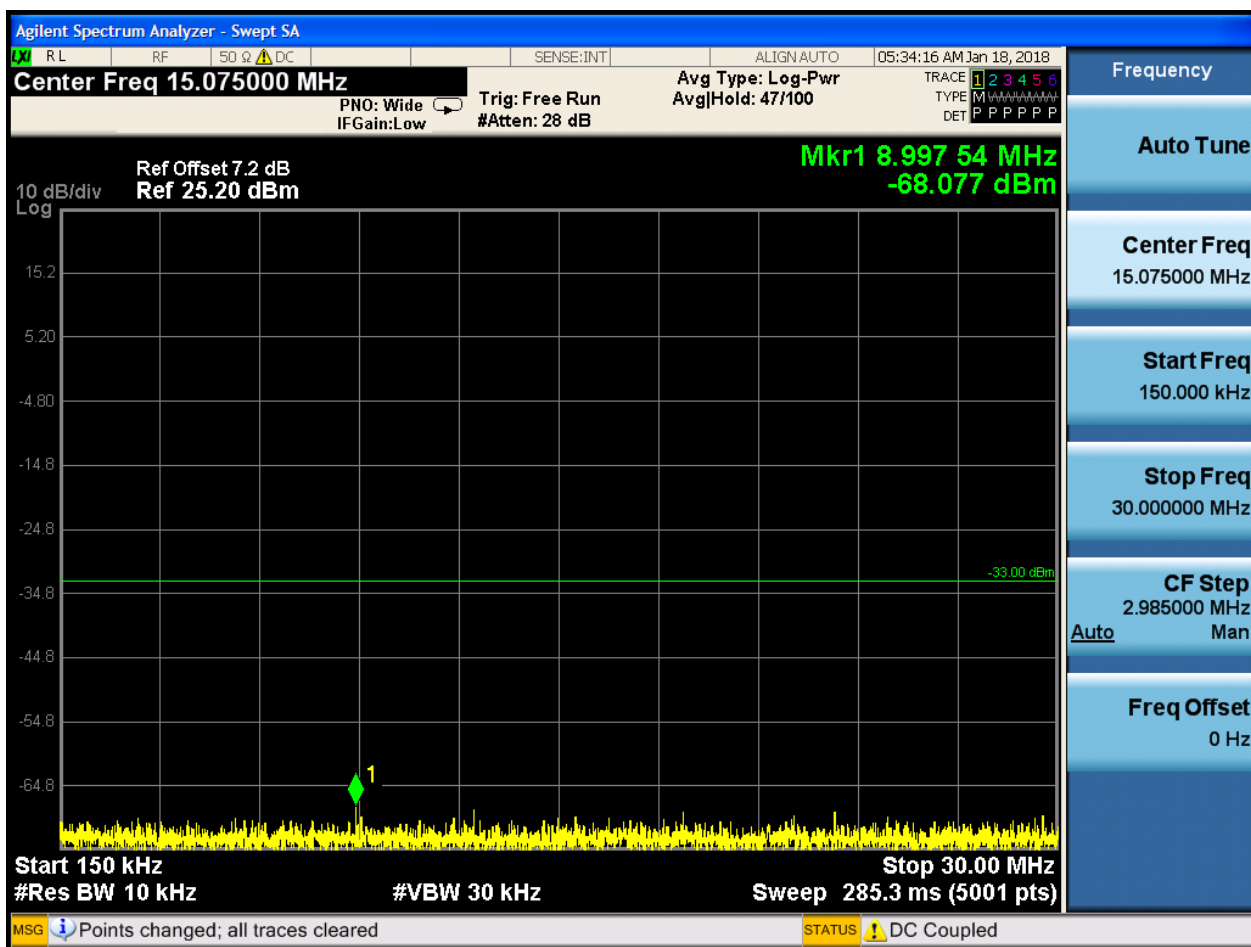


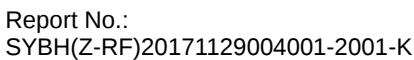


6.1.1.1.1.2 Test Channel = MCH

6.1.1.1.1.2.1 Test RB = RB1#0

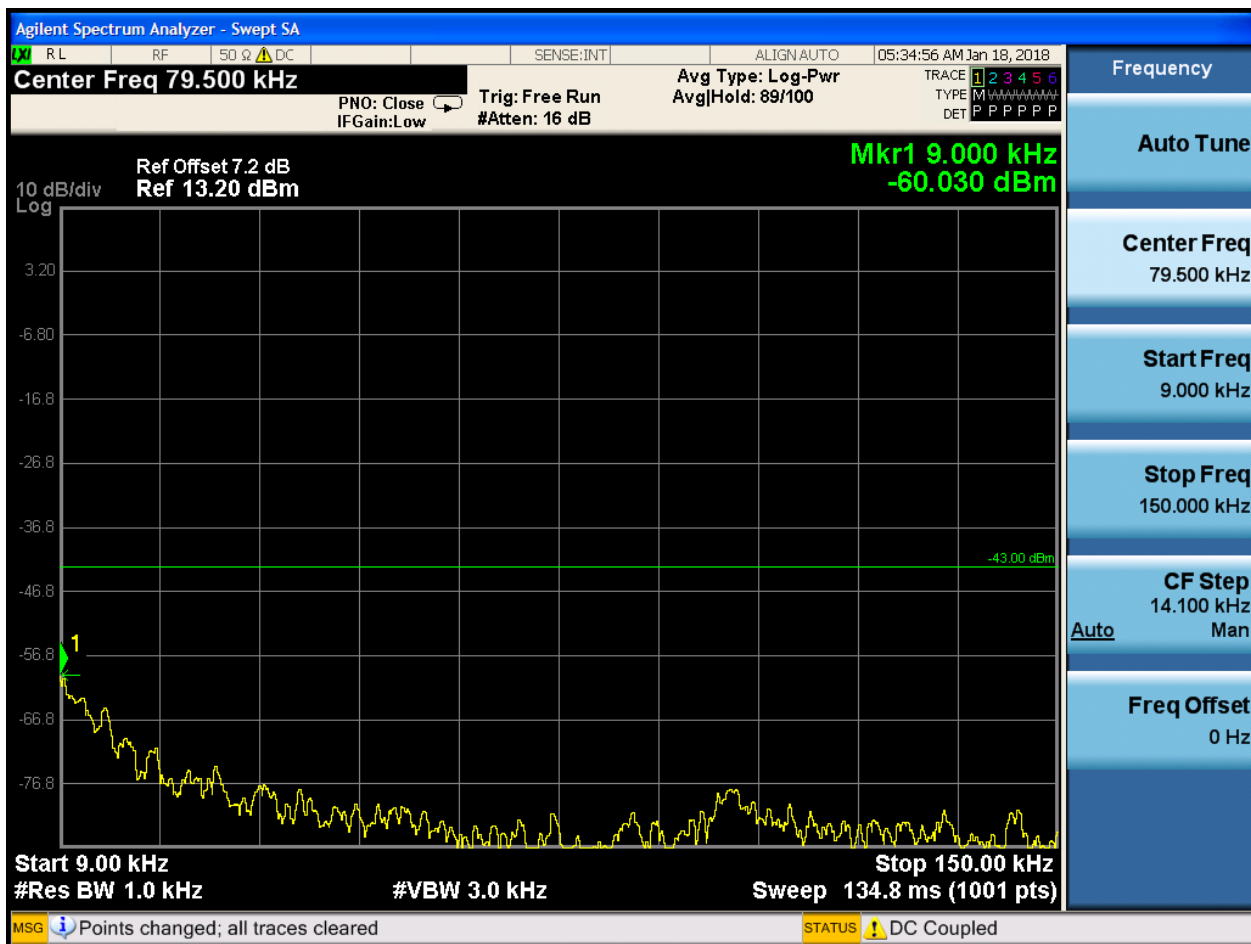




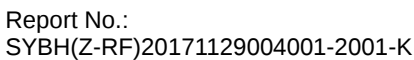


6.1.1.1.1.3 Test Channel = HCH

6.1.1.1.1.3.1 Test RB = RB1#0



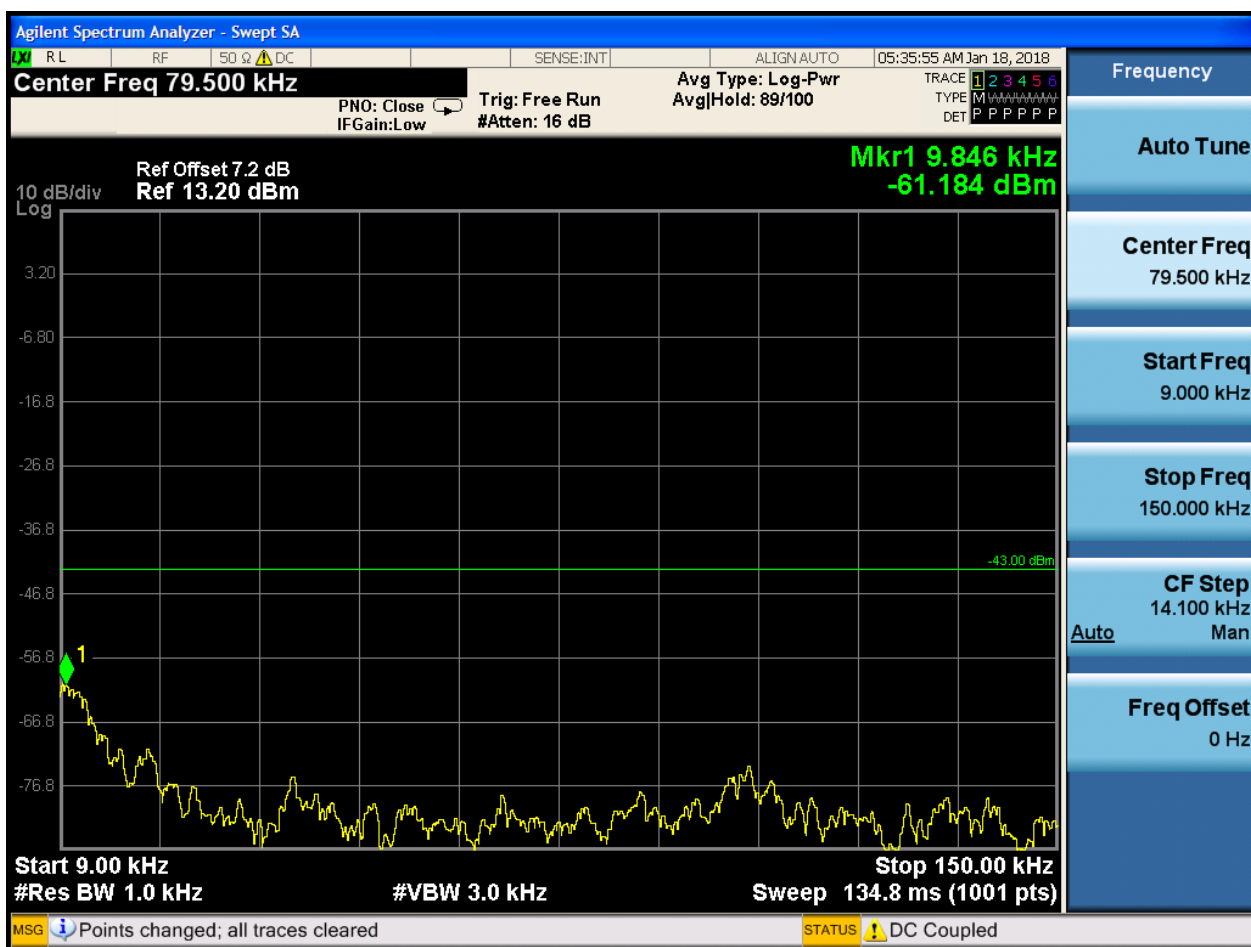


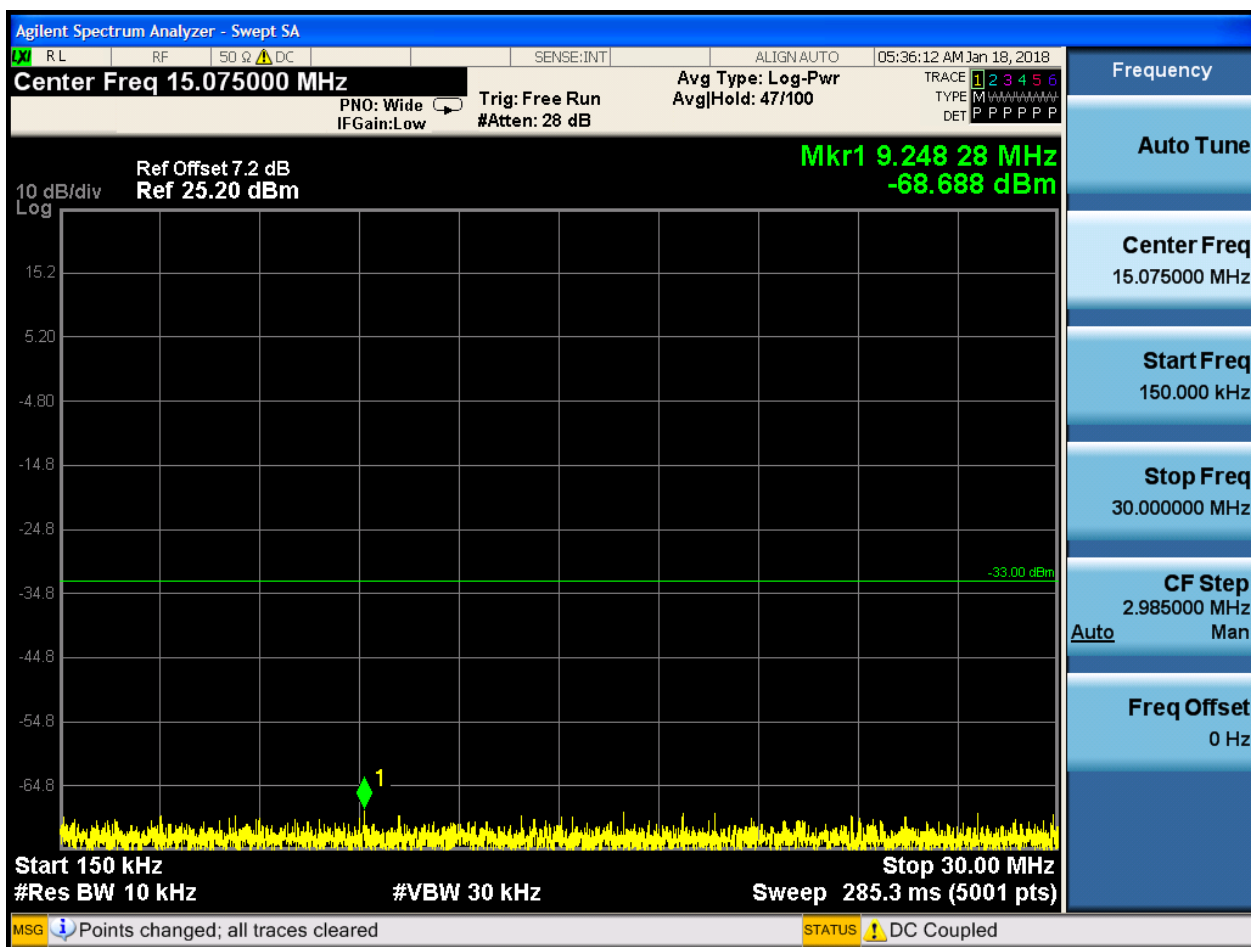


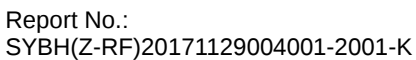
6.1.1.1.2 Test Bandwidth = 10

6.1.1.1.2.1 Test Channel = LCH

6.1.1.1.2.1.1 Test RB = RB1#0

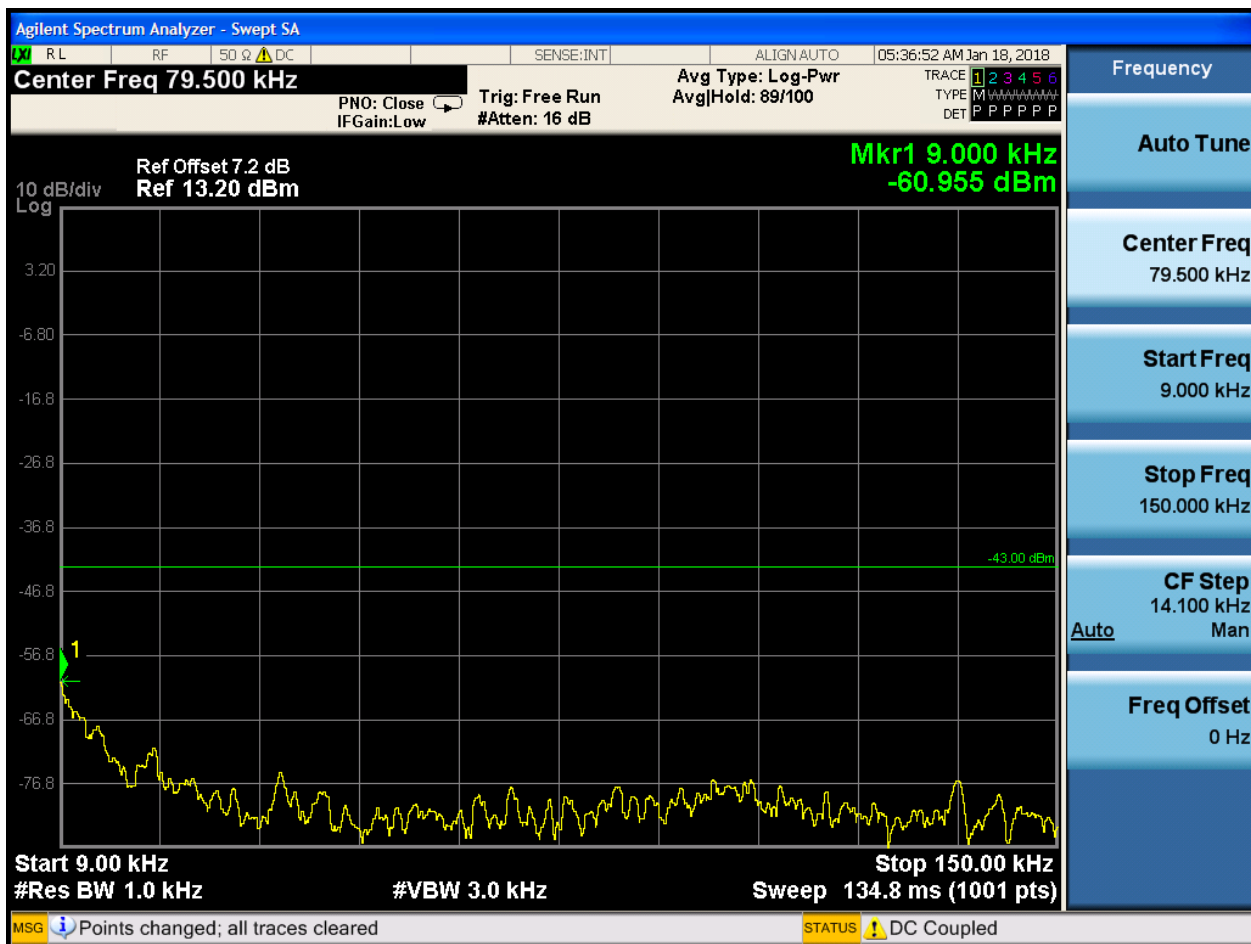


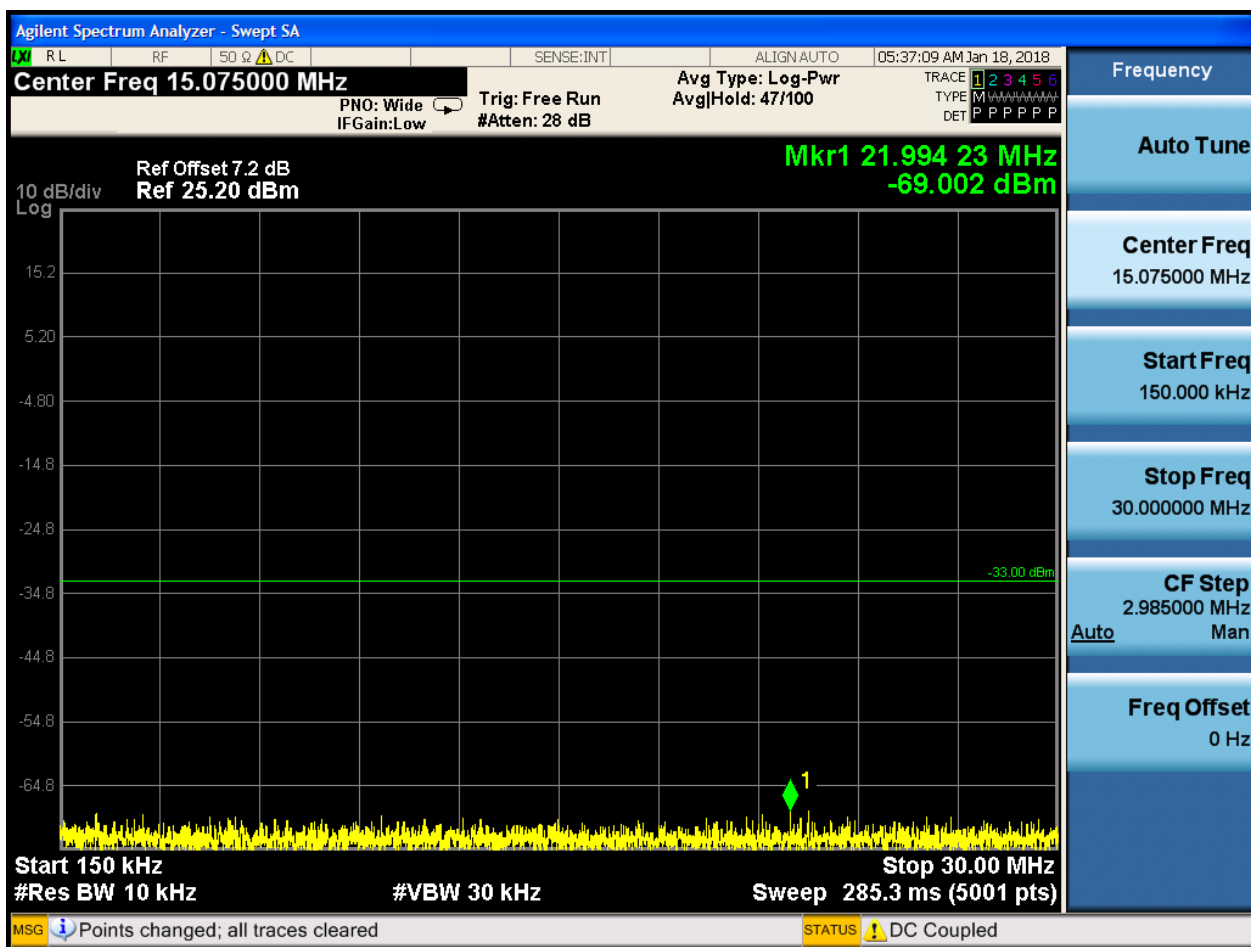


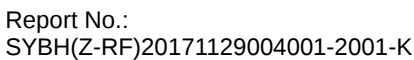


6.1.1.1.2.2 Test Channel = MCH

6.1.1.1.2.2.1 Test RB = RB1#0



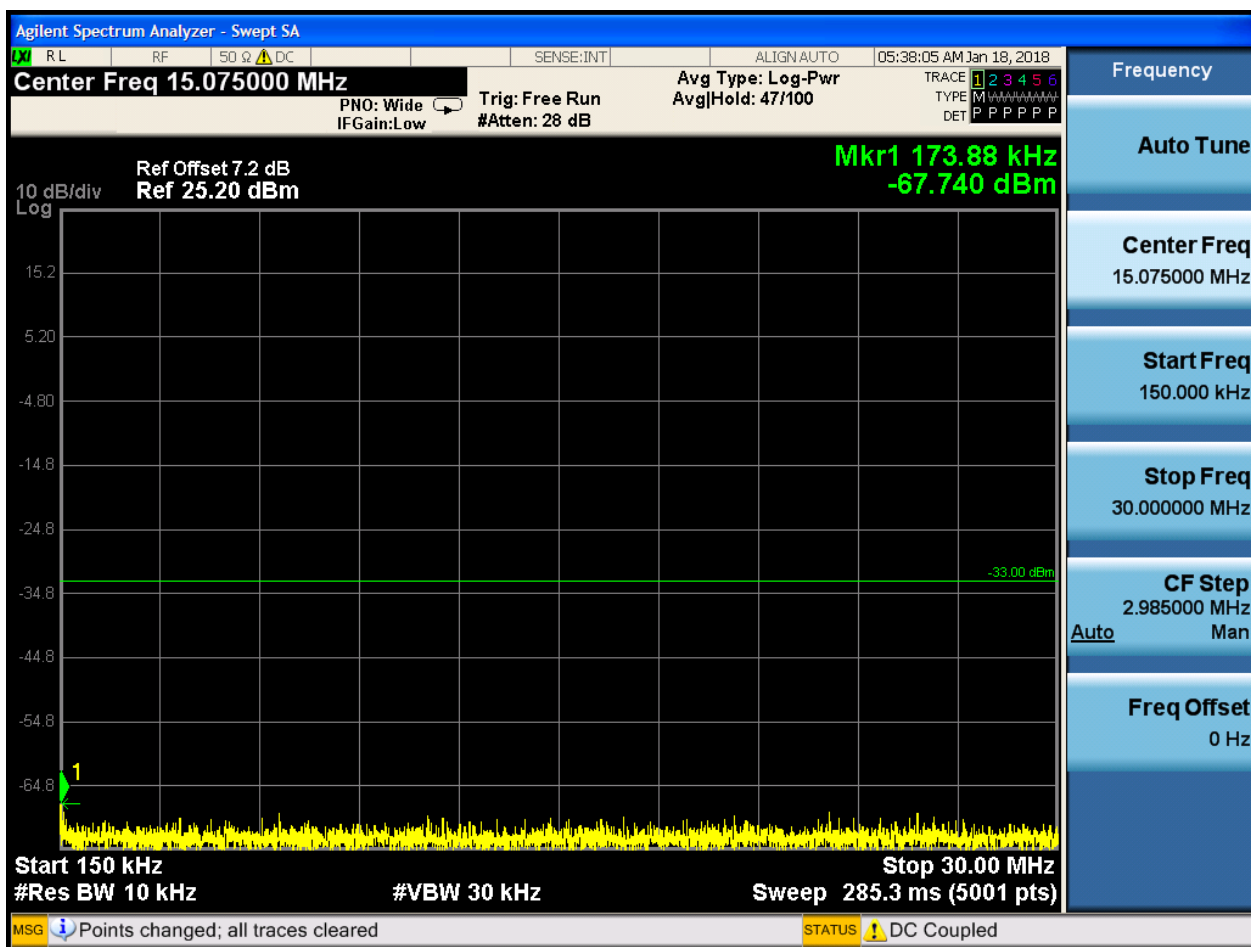


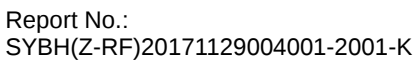


6.1.1.1.2.3 Test Channel = HCH

6.1.1.1.2.3.1 Test RB = RB1#0







6.1.1.1.3 Test Bandwidth = 15

6.1.1.1.3.1 Test Channel = LCH

6.1.1.1.3.1.1 Test RB = RB1#0

