

Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω AC SENSE:INT ALIGN AUTO 03:03:42 PM May 14, 2018

Center Freq 1.710000000 GHz Avg Type: RMS
PNO: Wide IFGain:Low Trig: Free Run AvgHold: 9/100
#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 7.6 dB
Ref 30.00 dBm

Mkr1 1.710 000 GHz
-34.887 dBm

10 dB/div
Log

-13.00 dBm

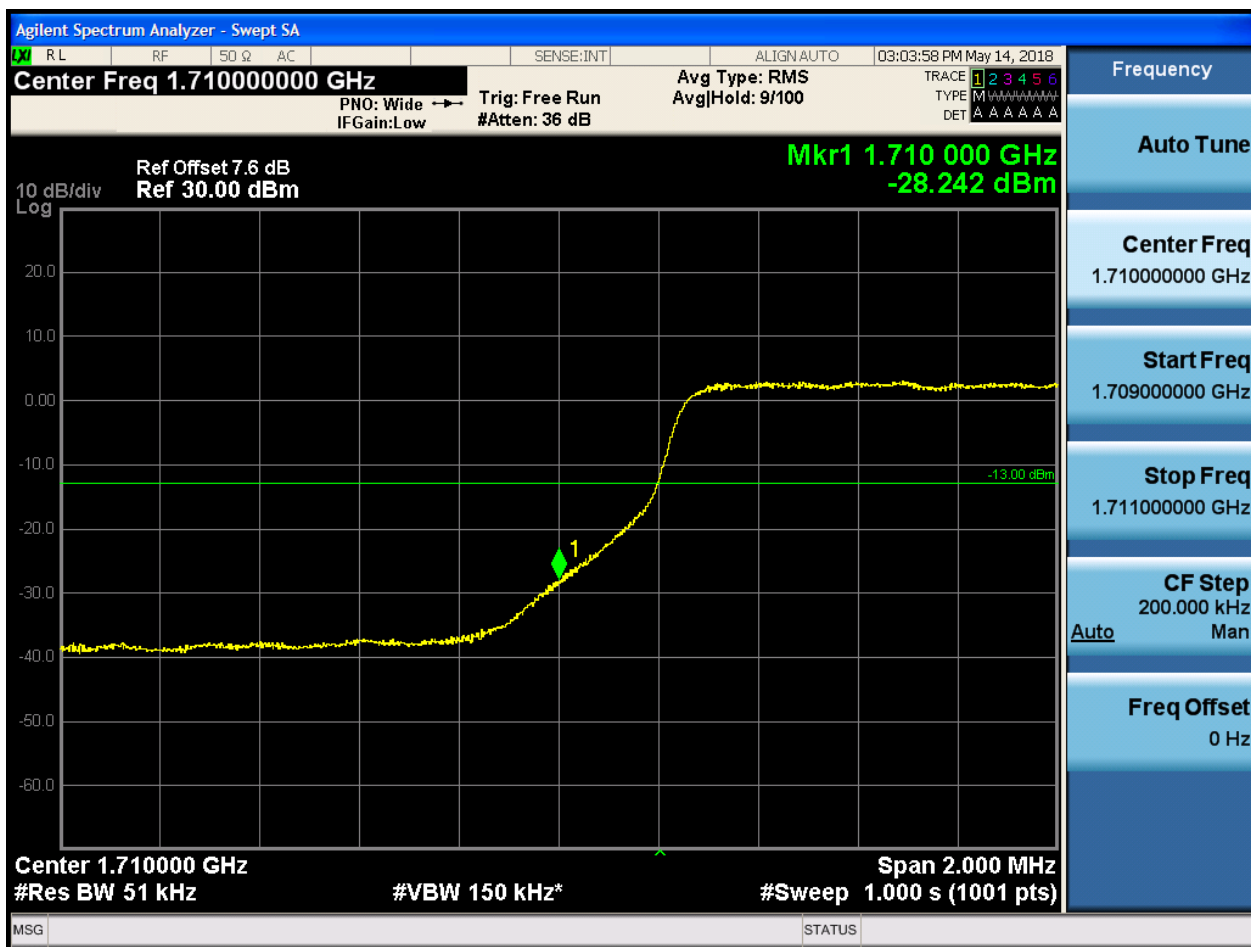
Center 1.710000 GHz
#Res BW 51 kHz
#VBW 150 kHz*
Span 2.000 MHz
#Sweep 1.000 s (1001 pts)

MSG STATUS

Frequency
Auto Tune
Center Freq 1.710000000 GHz
Start Freq 1.709000000 GHz
Stop Freq 1.711000000 GHz
CF Step 200.000 kHz Auto Man
Freq Offset 0 Hz

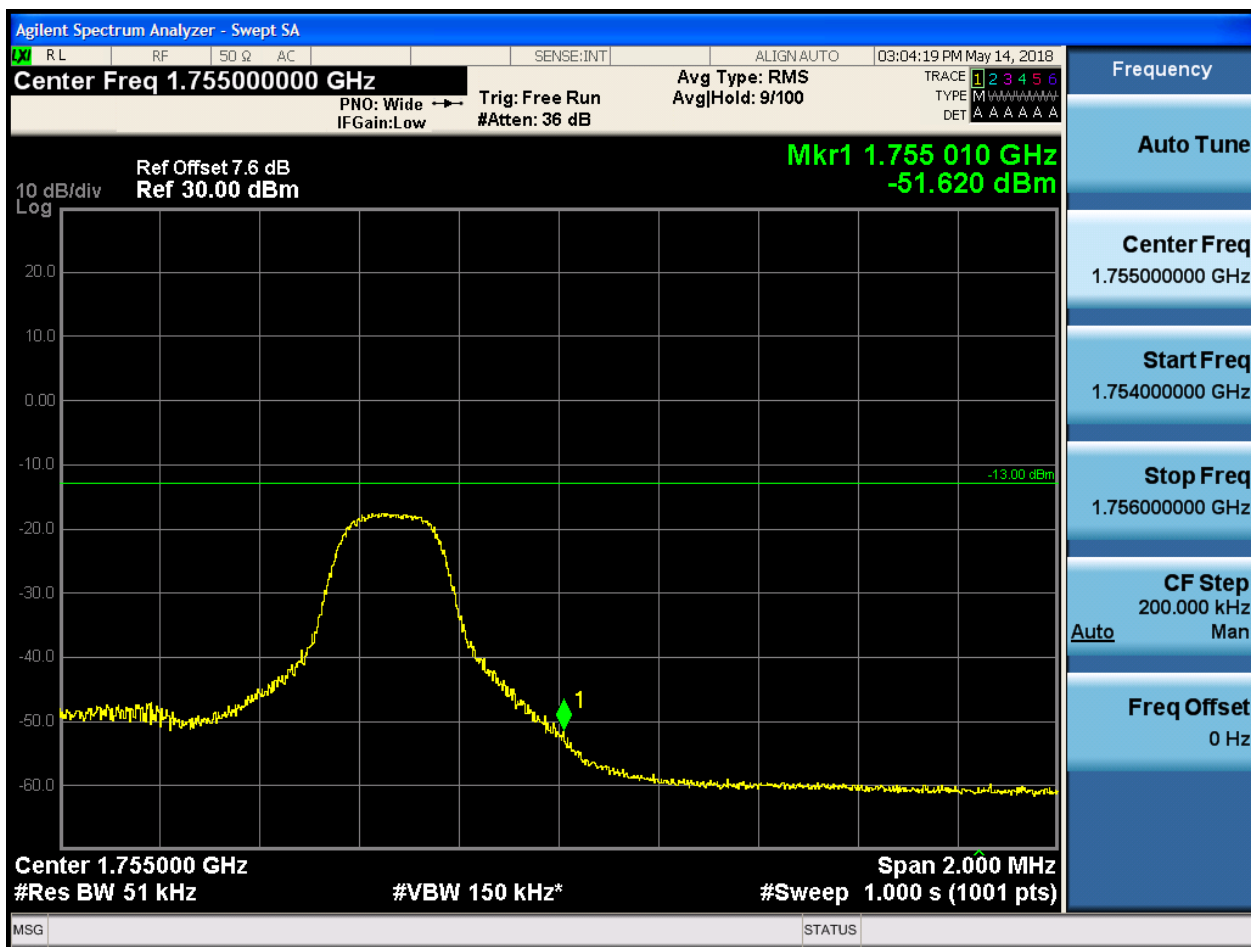


5.1.1.2.3.1.4 Test RB = RB25#0



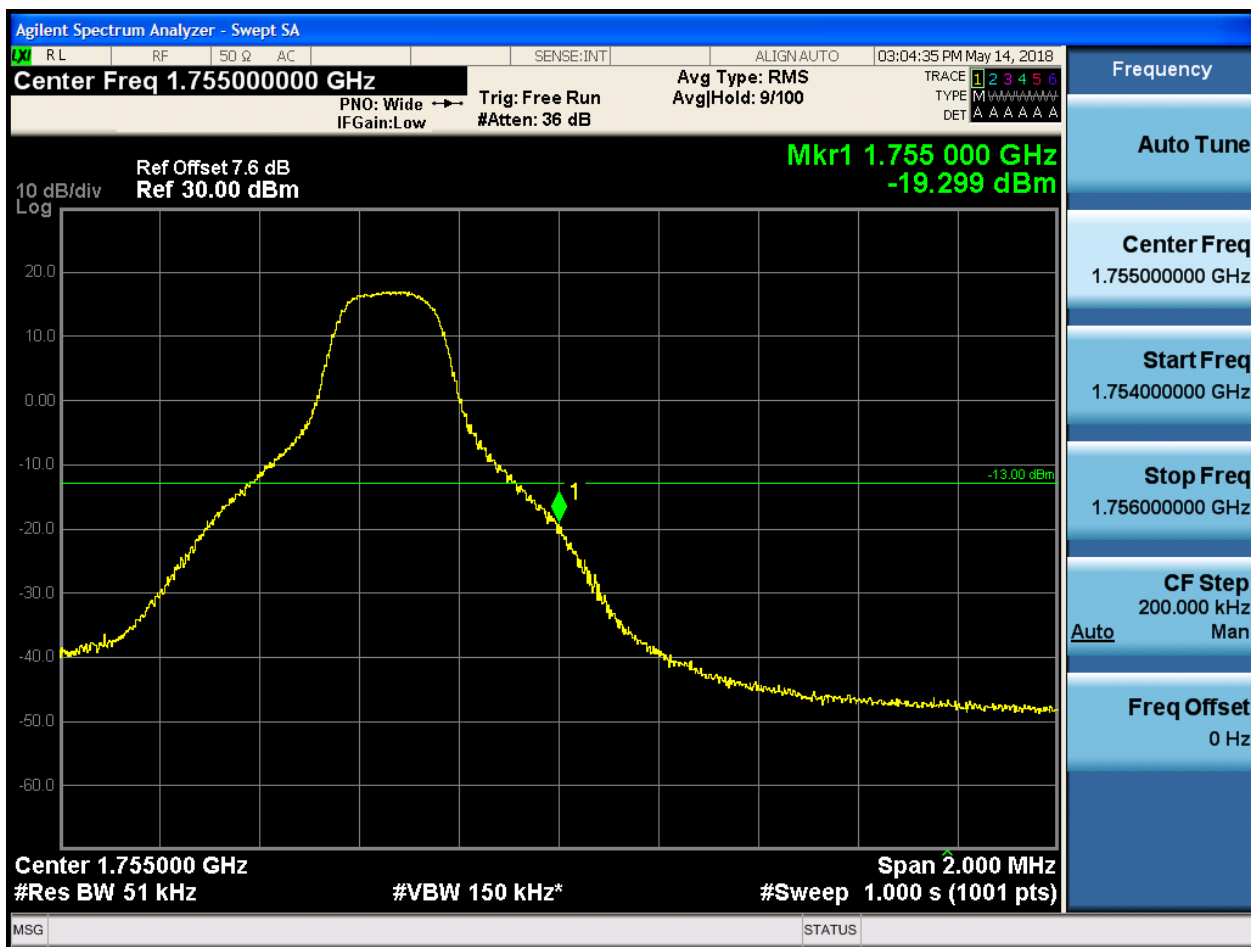
5.1.1.2.3.2 Test Channel = HCH

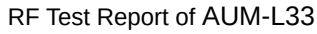
5.1.1.2.3.2.1 Test RB = RB1#0





5.1.1.2.3.2.2 Test RB = RB1#24





Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω AC SENSE:INT ALIGN AUTO 03:04:51 PM May 14, 2018

Center Freq 1.755000000 GHz Avg Type: RMS
PNO: Wide IFGain:Low Trig: Free Run AvgHold: 10/100
#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 7.6 dB
Ref 30.00 dBm

Mkr1 1.755 010 GHz
-33.266 dBm

10 dB/div
Log

Center 1.755000 GHz
#Res BW 51 kHz
#VBW 150 kHz*
Span 2.000 MHz
#Sweep 1.000 s (1001 pts)

MSG STATUS

Frequency

Auto Tune

Center Freq
1.755000000 GHz

Start Freq
1.754000000 GHz

Stop Freq
1.756000000 GHz

CF Step
200.000 kHz
Auto Man

Freq Offset
0 Hz



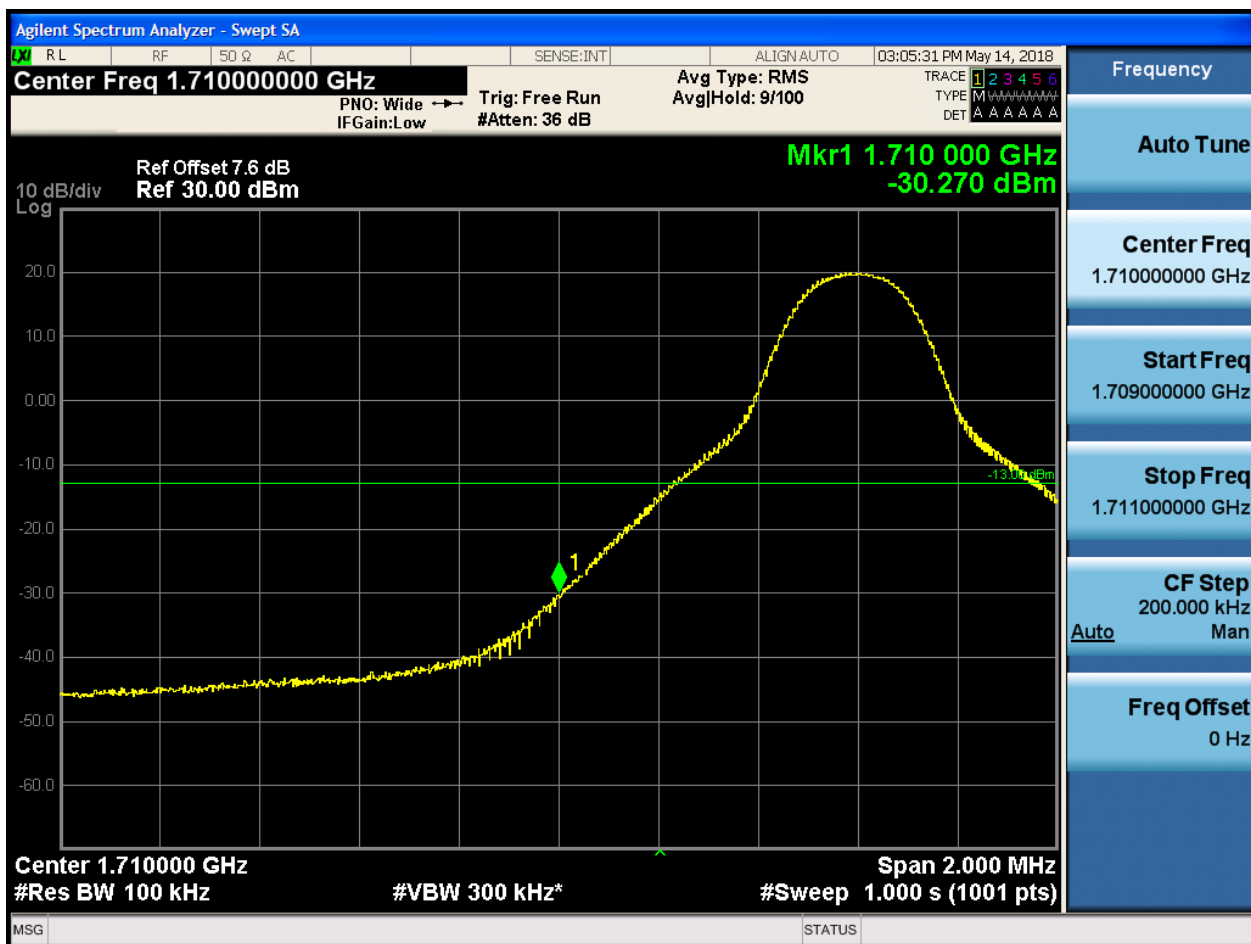
5.1.1.2.3.2.4 Test RB = RB25#0

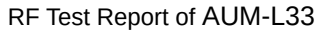


5.1.1.2.4 Test Bandwidth = 10

5.1.1.2.4.1 Test Channel = LCH

5.1.1.2.4.1.1 Test RB = RB1#0





Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω AC SENSE:INT ALIGN AUTO 03:05:47 PM May 14, 2018

Center Freq 1.710000000 GHz Avg Type: RMS
PNO: Wide IFGain:Low Trig: Free Run AvgHold: 9/100
#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 7.6 dB
Ref 30.00 dBm

Mkr1 1.710 000 GHz
-50.504 dBm

10 dB/div
Log

-13.00 dBm

Center 1.710000 GHz
#Res BW 100 kHz
#VBW 300 kHz*
Span 2.000 MHz
#Sweep 1.000 s (1001 pts)

MSG STATUS

Frequency

Auto Tune

Center Freq
1.710000000 GHz

Start Freq
1.709000000 GHz

Stop Freq
1.711000000 GHz

CF Step
200.000 kHz
Auto Man

Freq Offset
0 Hz



5.1.1.2.4.1.3 Test RB = RB25#13





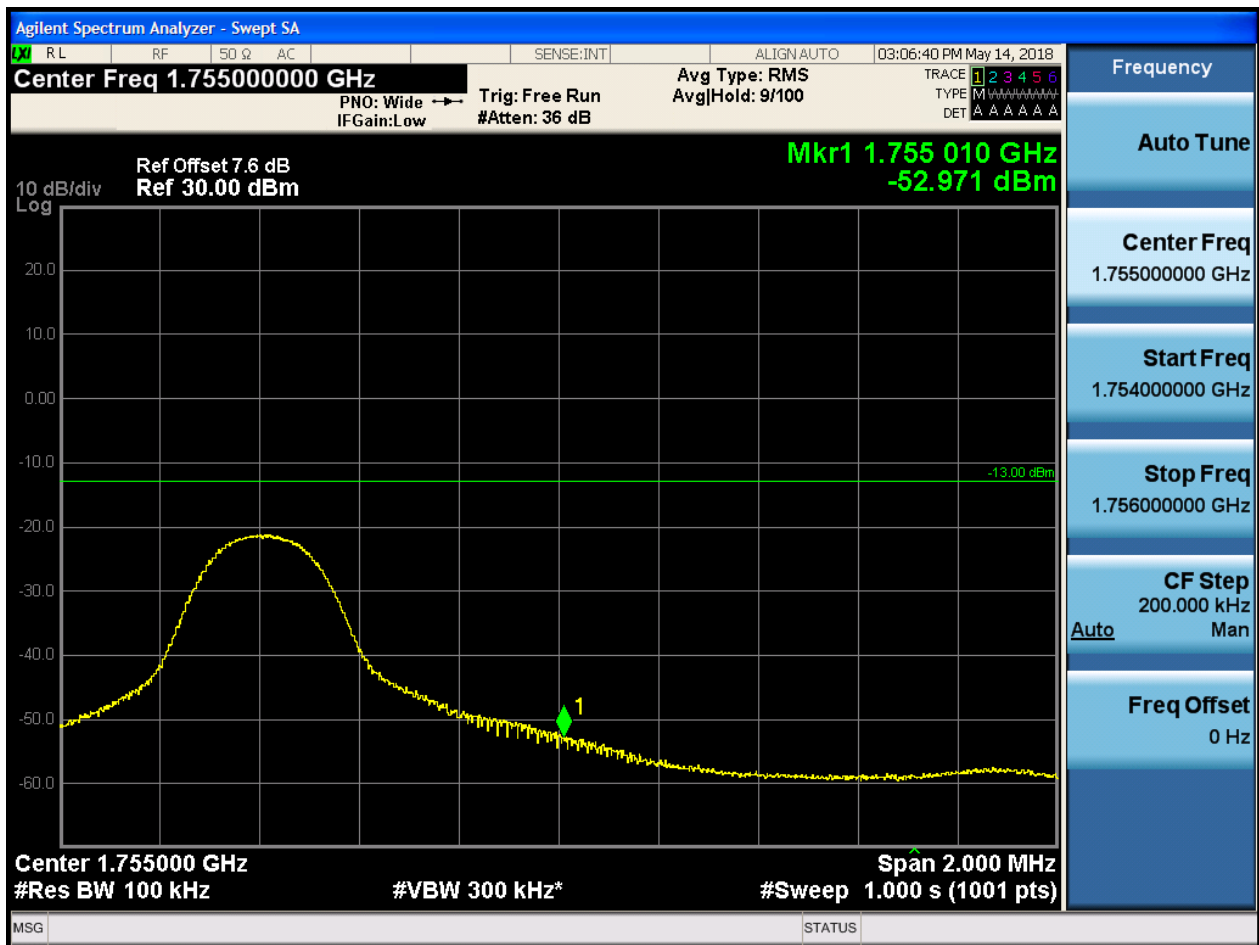
5.1.1.2.4.1.4 Test RB = RB50#0

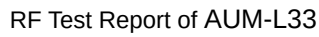




5.1.1.2.4.2 Test Channel = HCH

5.1.1.2.4.2.1 Test RB = RB1#0





Agilent Spectrum Analyzer - Swept SA

Center Freq 1.755000000 GHz

Ref Offset 7.6 dB
Ref 30.00 dBm

10 dB/div
Log

Mkr1 1.755 000 GHz
-29.612 dBm

Center 1.755000 GHz
#Res BW 100 kHz
#VBW 300 kHz*
Span 2.000 MHz
#Sweep 1.000 s (1001 pts)

Auto Tune

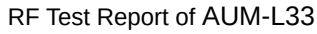
Center Freq
1.755000000 GHz

Start Freq
1.754000000 GHz

Stop Freq
1.756000000 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 03:07:12 PM May 14, 2018

Center Freq 1.755000000 GHz Avg Type: RMS
PNO: Wide Trig: Free Run AvgHold: 9/100
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 7.6 dB
Ref 30.00 dBm

Mkr1 1.755 000 GHz
-33.152 dBm

10 dB/div
Log

Center 1.755000 GHz
#Res BW 100 kHz #VBW 300 kHz* Span 2.000 MHz
#Sweep 1.000 s (1001 pts)

MSG STATUS

Frequency

Auto Tune

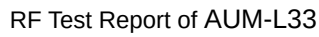
Center Freq
1.755000000 GHz

Start Freq
1.754000000 GHz

Stop Freq
1.756000000 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 03:07:28 PM May 14, 2018

Center Freq 1.755000000 GHz Avg Type: RMS
PNO: Wide IFGain:Low Trig: Free Run AvgHold: 9/100
#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

Frequency

Auto Tune

Center Freq
1.755000000 GHz

Start Freq
1.754000000 GHz

Stop Freq
1.756000000 GHz

CF Step
200.000 kHz
Auto Man

Freq Offset
0 Hz

10 dB/div
Log

Ref Offset 7.6 dB
Ref 30.00 dBm

Mkr1 1.755 000 GHz
-31.252 dBm

-13.00 dBm

Center 1.755000 GHz
#Res BW 100 kHz

#VBW 300 kHz*

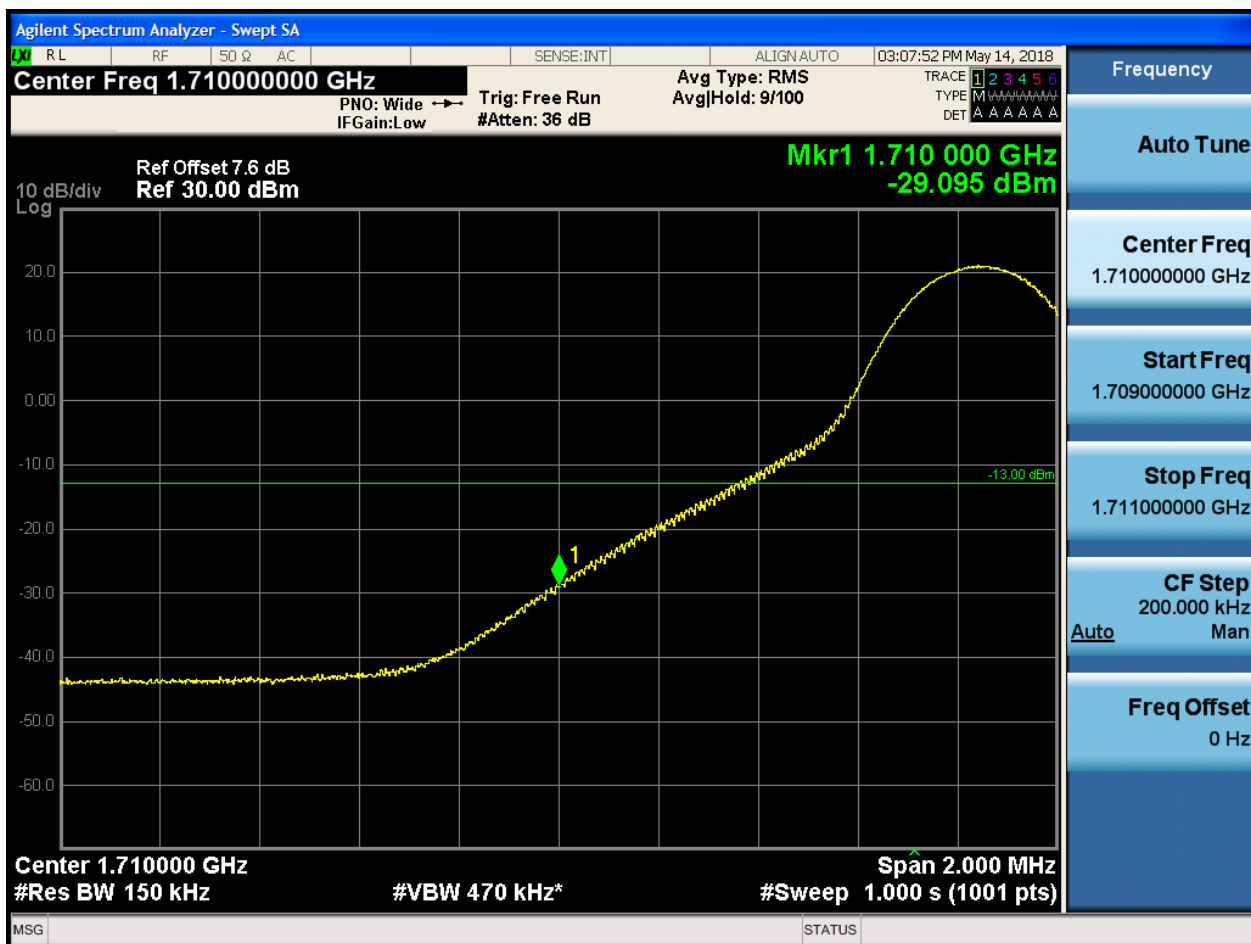
Span 2.000 MHz
#Sweep 1.000 s (1001 pts)

MSG STATUS

5.1.1.2.5 Test Bandwidth = 15

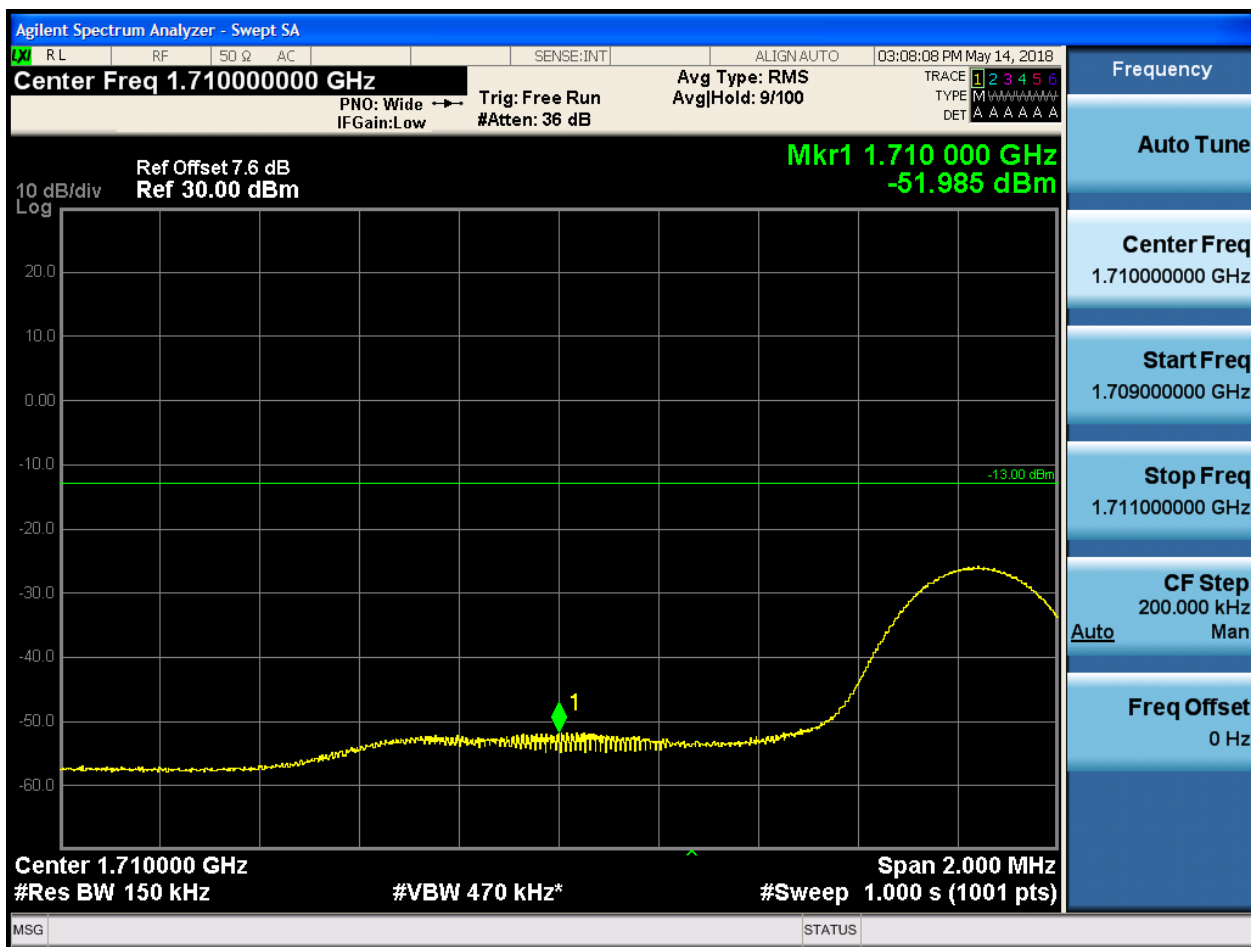
5.1.1.2.5.1 Test Channel = LCH

5.1.1.2.5.1.1 Test RB = RB1#0





5.1.1.2.5.1.2 Test RB = RB1#74



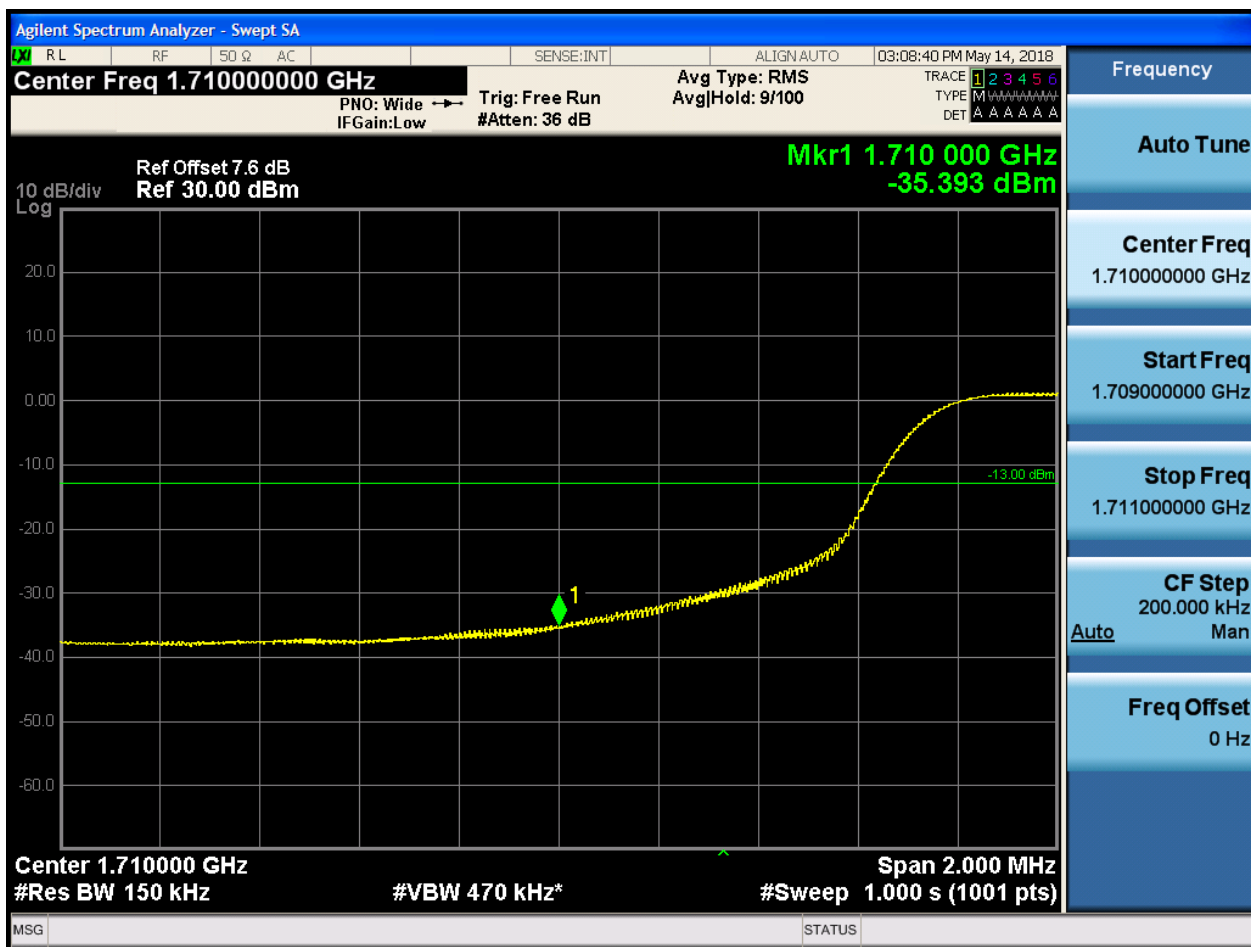


5.1.1.2.5.1.3 Test RB = RB38#19



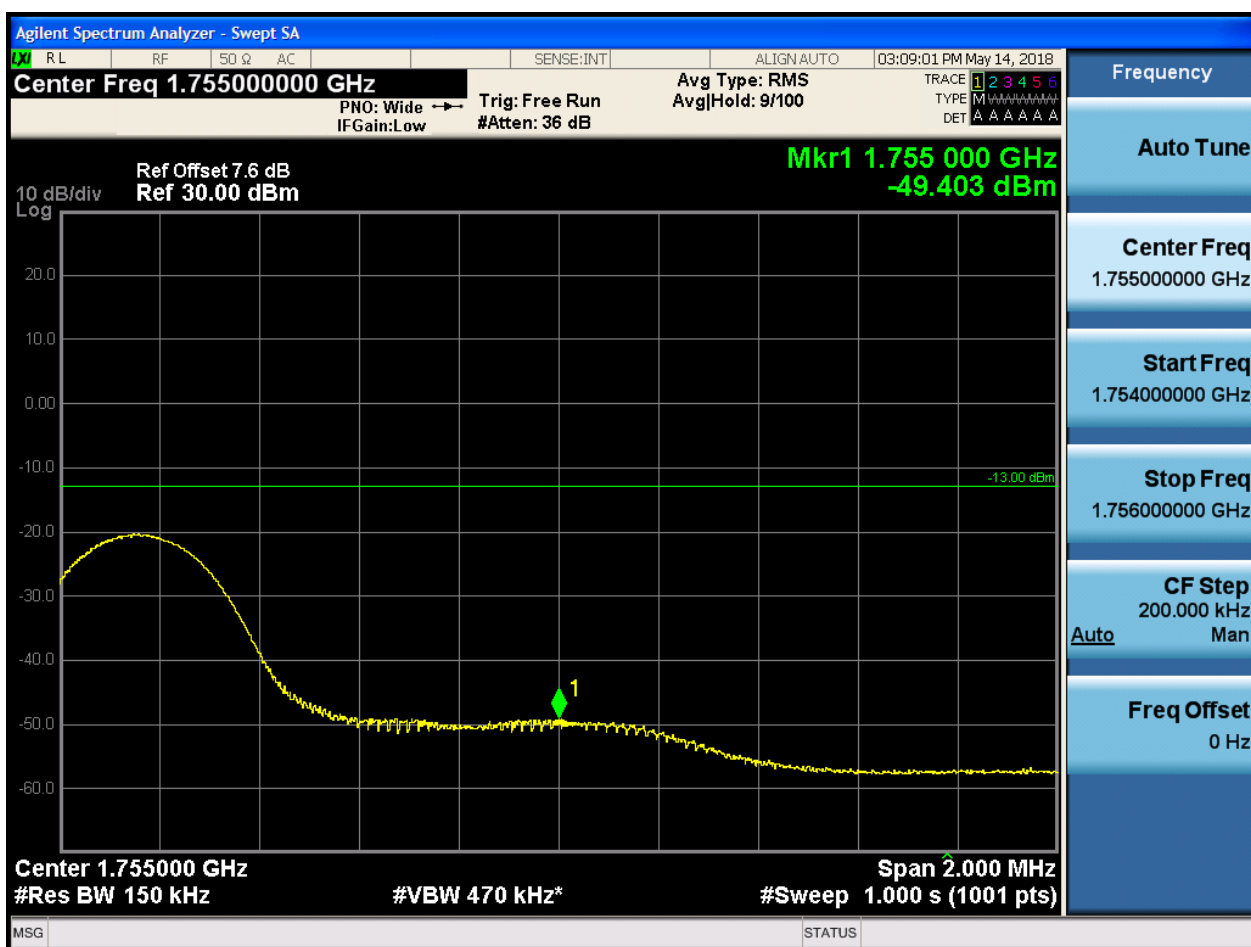


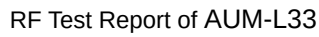
5.1.1.2.5.1.4 Test RB = RB75#0



5.1.1.2.5.2 Test Channel = HCH

5.1.1.2.5.2.1 Test RB = RB1#0





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RL RF 50 Ω AC SENSE:INT ALIGN AUTO 03:09:18 PM May 14, 2018

Center Freq 1.755000000 GHz Avg Type: RMS
PNO: Wide → Trig: Free Run AvgHold: 9/100
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

Frequency

Auto Tune

Center Freq
1.755000000 GHz

Start Freq
1.754000000 GHz

Stop Freq
1.756000000 GHz

CF Step
200.000 kHz
Auto Man

Freq Offset
0 Hz

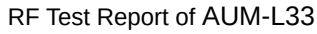
10 dB/div
Log

Ref Offset 7.6 dB
Ref 30.00 dBm

Mkr1 1.755 010 GHz
-28.519 dBm

Center 1.755000 GHz
#Res BW 150 kHz
#VBW 470 kHz*
Span 2.000 MHz
#Sweep 1.000 s (1001 pts)

MSG STATUS



Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω AC SENSE:INT ALIGN AUTO 03:09:34 PM May 14, 2018

Center Freq 1.755000000 GHz Avg Type: RMS
PNO: Wide IFGain:Low Trig: Free Run AvgHold: 9/100
#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 7.6 dB
Ref 30.00 dBm

Mkr1 1.755 010 GHz
-34.497 dBm

10 dB/div
Log

Center 1.755000 GHz
#Res BW 150 kHz
#VBW 470 kHz*
Span 2.000 MHz
#Sweep 1.000 s (1001 pts)

MSG STATUS

Frequency

Auto Tune

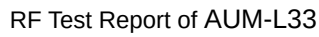
Center Freq
1.755000000 GHz

Start Freq
1.754000000 GHz

Stop Freq
1.756000000 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 03:09:50 PM May 14, 2018

Center Freq 1.755000000 GHz Avg Type: RMS
PNO: Wide IFGain:Low Trig: Free Run AvgHold: 9/100
#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 7.6 dB
Ref 30.00 dBm

Mkr1 1.755 010 GHz
-31.846 dBm

10 dB/div
Log

-13.00 dBm

Center 1.755000 GHz
#Res BW 150 kHz
#VBW 470 kHz*
Span 2.000 MHz
#Sweep 1.000 s (1001 pts)

Frequency

Auto Tune

Center Freq
1.755000000 GHz

Start Freq
1.754000000 GHz

Stop Freq
1.756000000 GHz

CF Step
200.000 kHz
Auto Man

Freq Offset
0 Hz

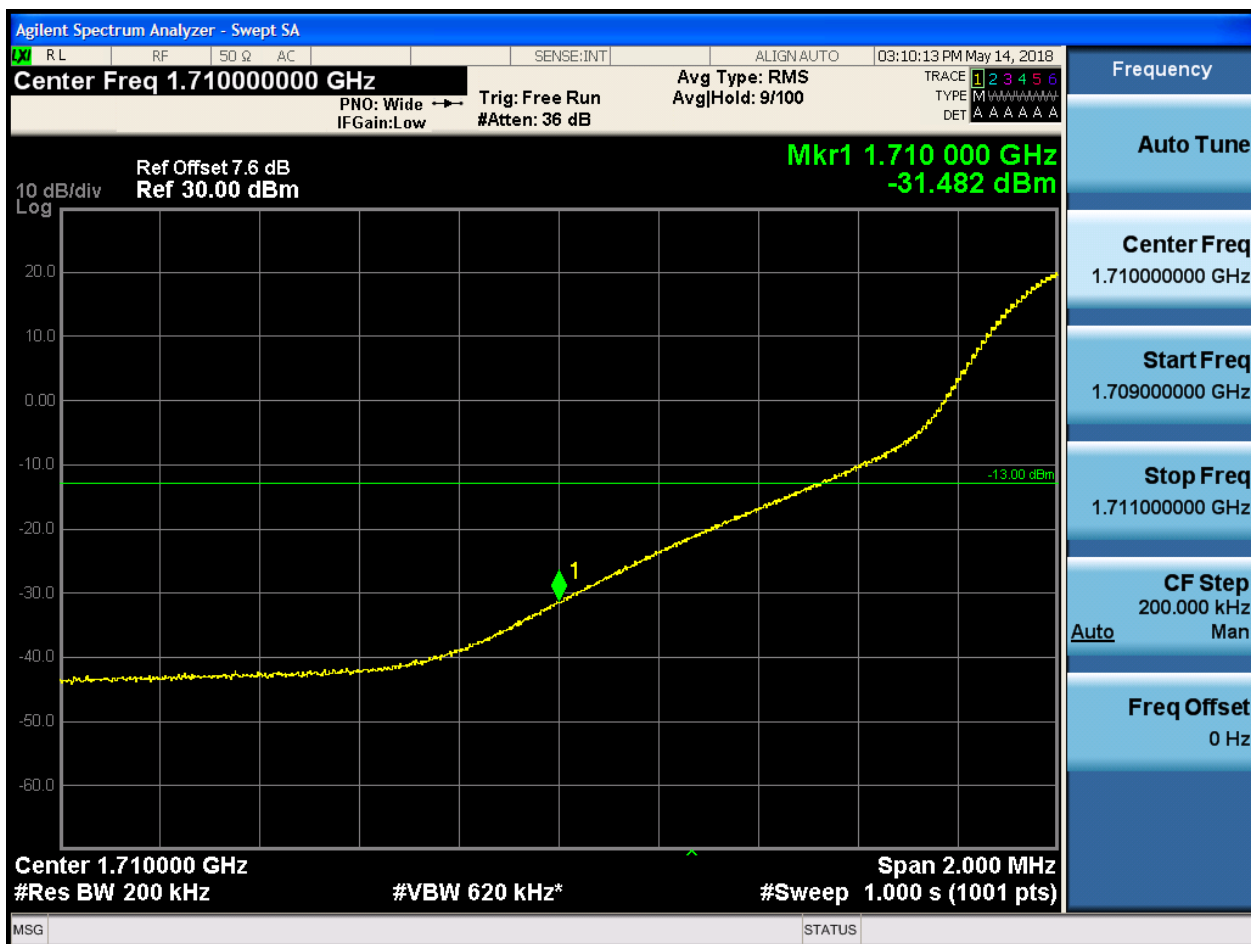
MSG STATUS



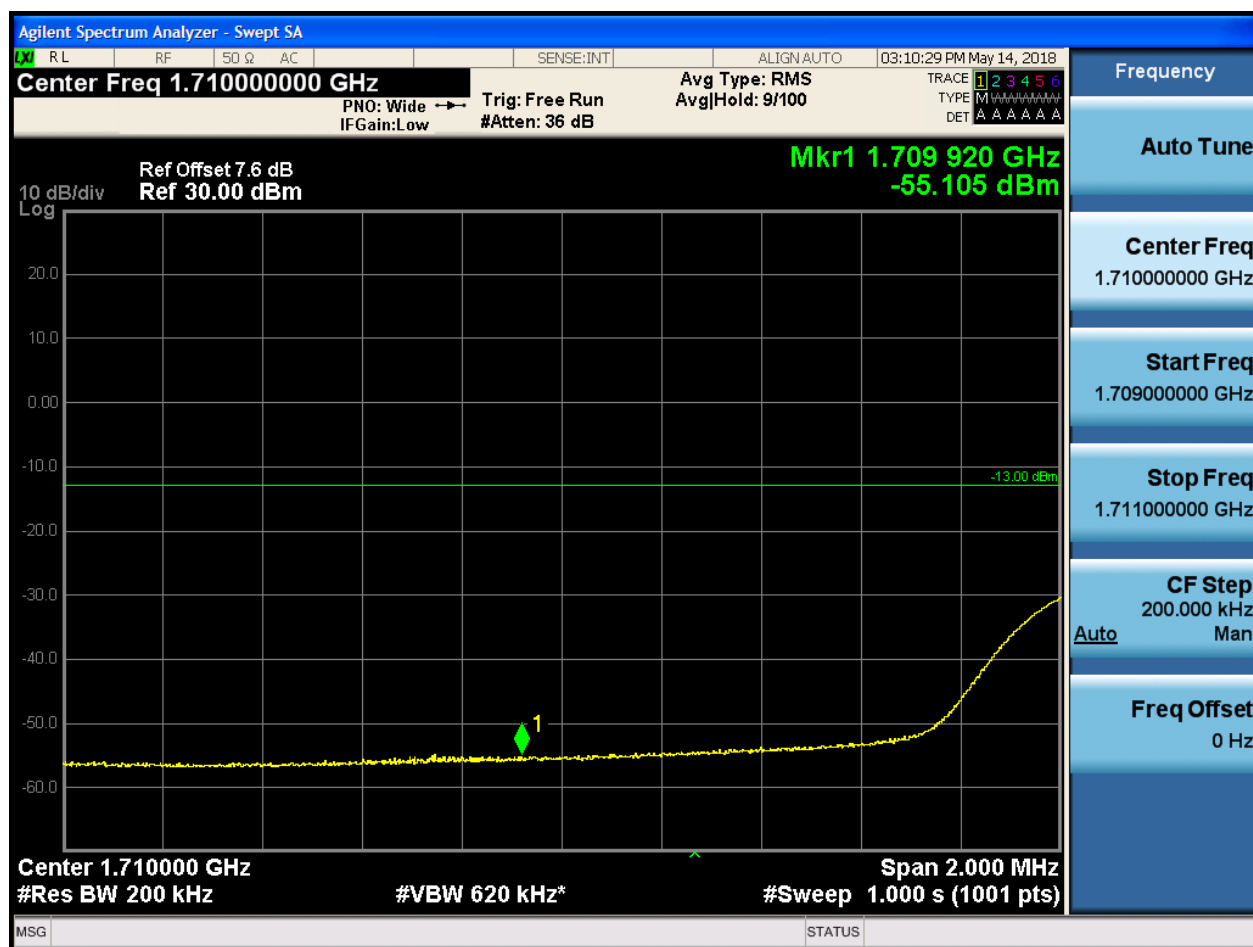
5.1.1.2.6 Test Bandwidth = 20

5.1.1.2.6.1 Test Channel = LCH

5.1.1.2.6.1.1 Test RB = RB1#0

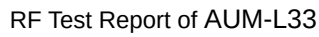


5.1.1.2.6.1.2 Test RB = RB1#99



5.1.1.2.6.1.3 Test RB = RB50#25





Agilent Spectrum Analyzer - Swept SA

Center Freq 1.710000000 GHz

Ref Offset 7.6 dB
Ref 30.00 dBm

10 dB/div
Log

Mkr1 1.710 000 GHz
-35.418 dBm

Center 1.710000 GHz
#Res BW 200 kHz
#VBW 620 kHz*

Span 2.000 MHz
#Sweep 1.000 s (1001 pts)

Auto Tune

Center Freq
1.710000000 GHz

Start Freq
1.709000000 GHz

Stop Freq
1.711000000 GHz

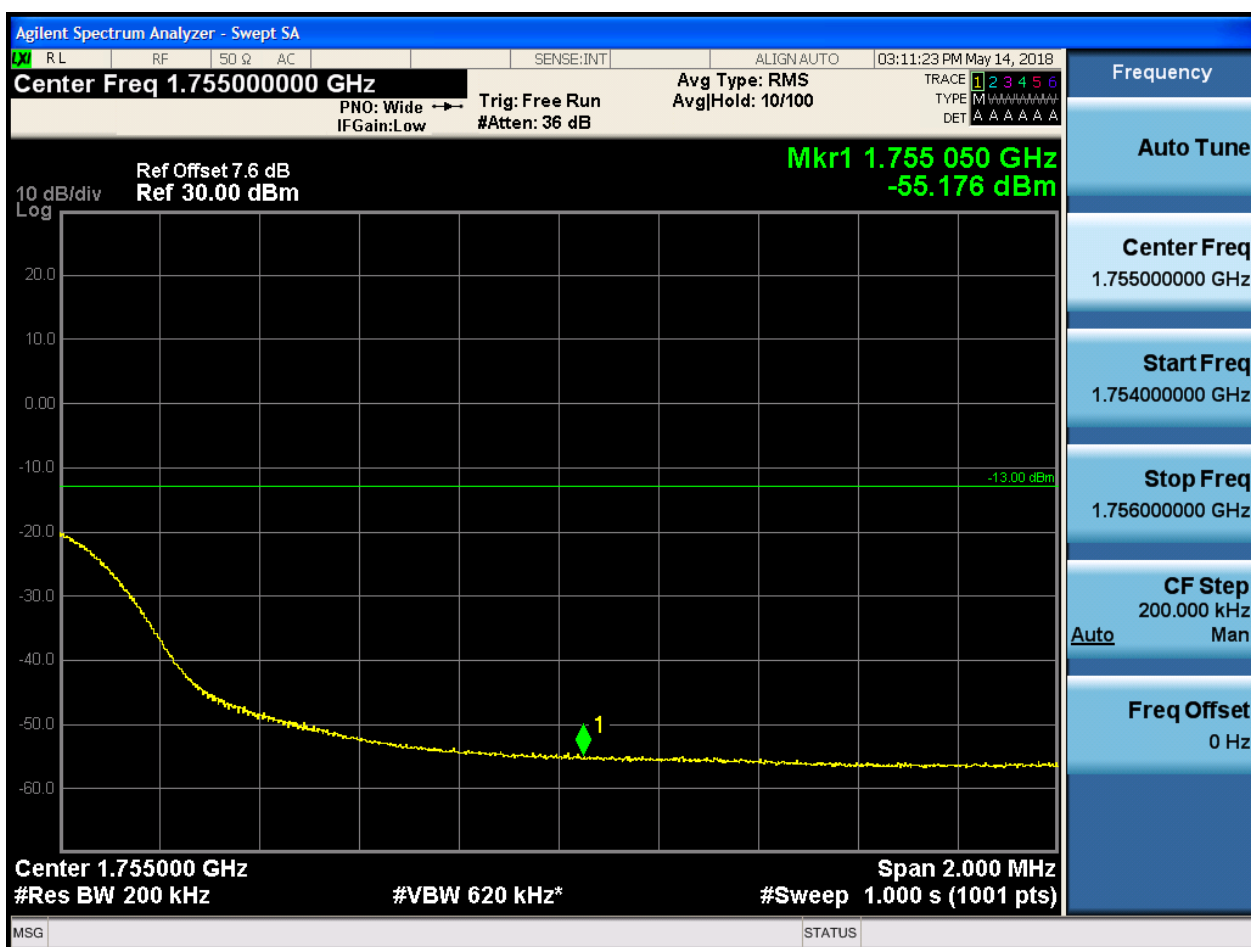
CF Step
200.000 kHz
Auto Man

Freq Offset
0 Hz



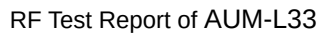
5.1.1.2.6.2 Test Channel = HCH

5.1.1.2.6.2.1 Test RB = RB1#0



5.1.1.2.6.2.2 Test RB = RB1#99





Agilent Spectrum Analyzer - Swept SA

RL RF 50 Ω AC SENSE:INT ALIGN AUTO 03:11:56 PM May 14, 2018

Center Freq 1.755000000 GHz Avg Type: RMS
PNO: Wide IFGain:Low Trig: Free Run AvgHold: 10/100
#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 7.6 dB
Ref 30.00 dBm

Mkr1 1.755 010 GHz
-33.947 dBm

10 dB/div
Log

The spectrum analyzer display shows a signal at 1.755 GHz with a level of -33.947 dBm. The display includes a grid, a yellow trace, and various measurement parameters. The signal is centered at 1.755 GHz, and the span is 2.000 MHz. The resolution bandwidth (RBW) is 200 kHz, and the video bandwidth (VBW) is 620 kHz. The sweep time is 1.000 s (1001 pts). The reference level is 30.00 dBm, and the reference offset is 7.6 dB. The signal level is -33.947 dBm, which is 13.00 dBm below the reference level. The display also shows the center frequency, start frequency, stop frequency, CF step, and frequency offset.

Center 1.755000 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
1.755000000 GHz

Start Freq
1.754000000 GHz

Stop Freq
1.756000000 GHz

CF Step
200.000 kHz
Auto Man

Freq Offset
0 Hz



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

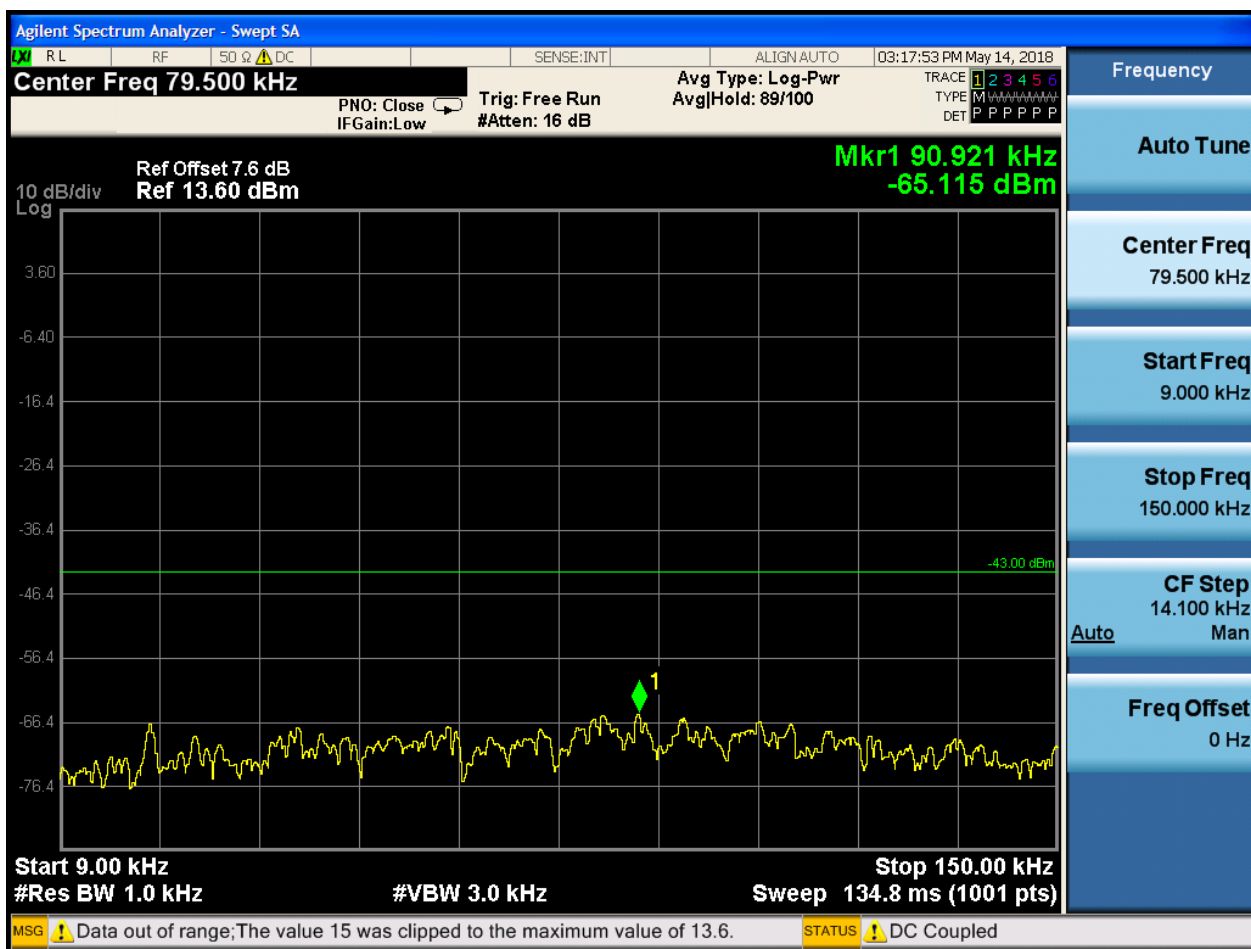
6.1.1 Test Band = BAND4

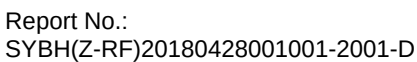
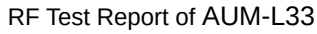
6.1.1.1 Test Mode = LTE/TM1

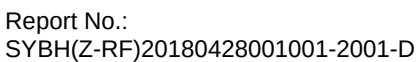
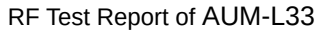
6.1.1.1.1 Test Bandwidth = 1.4

6.1.1.1.1.1 Test Channel = LCH

6.1.1.1.1.1.1 Test RB = RB1#0

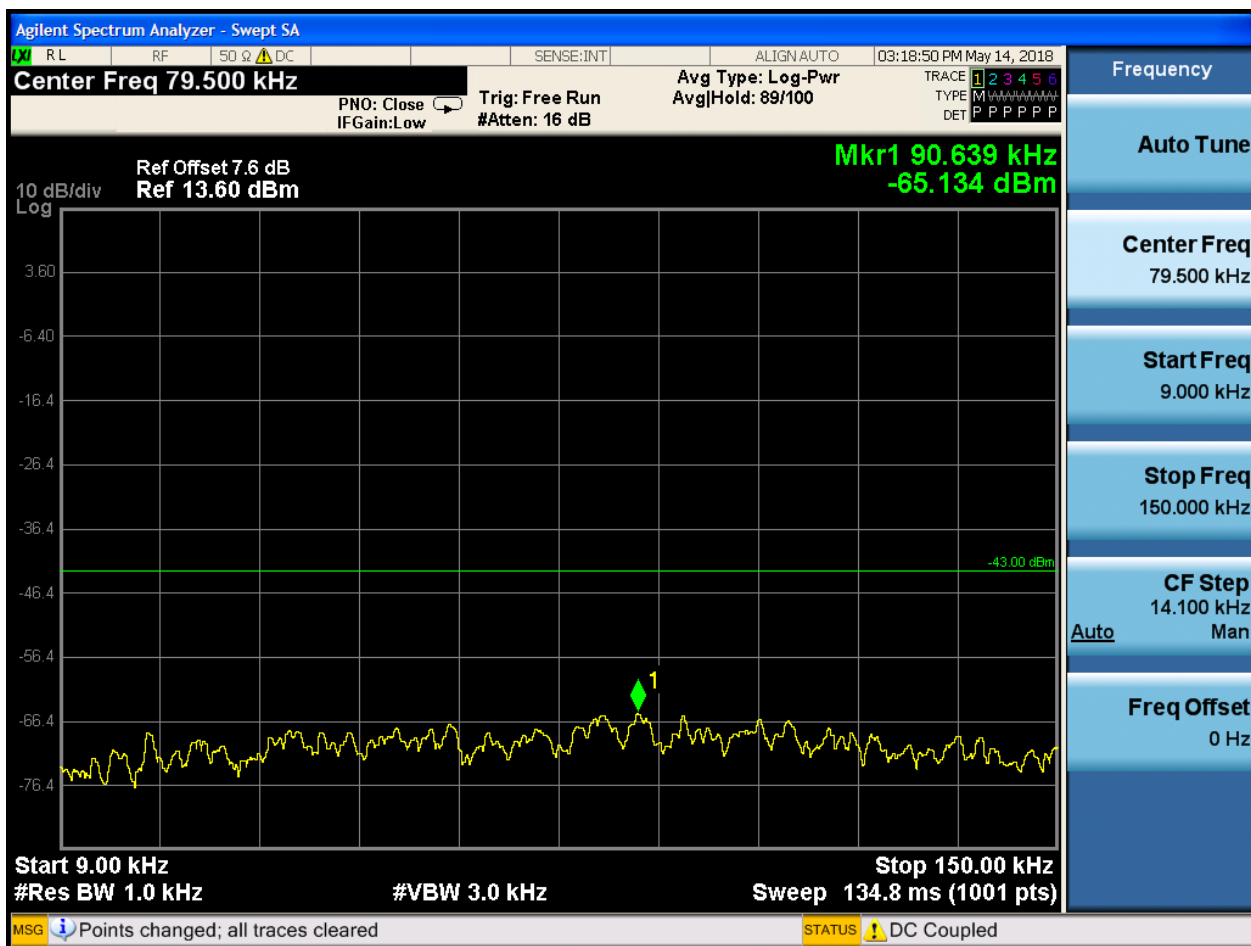


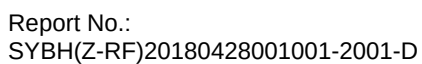
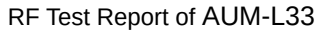


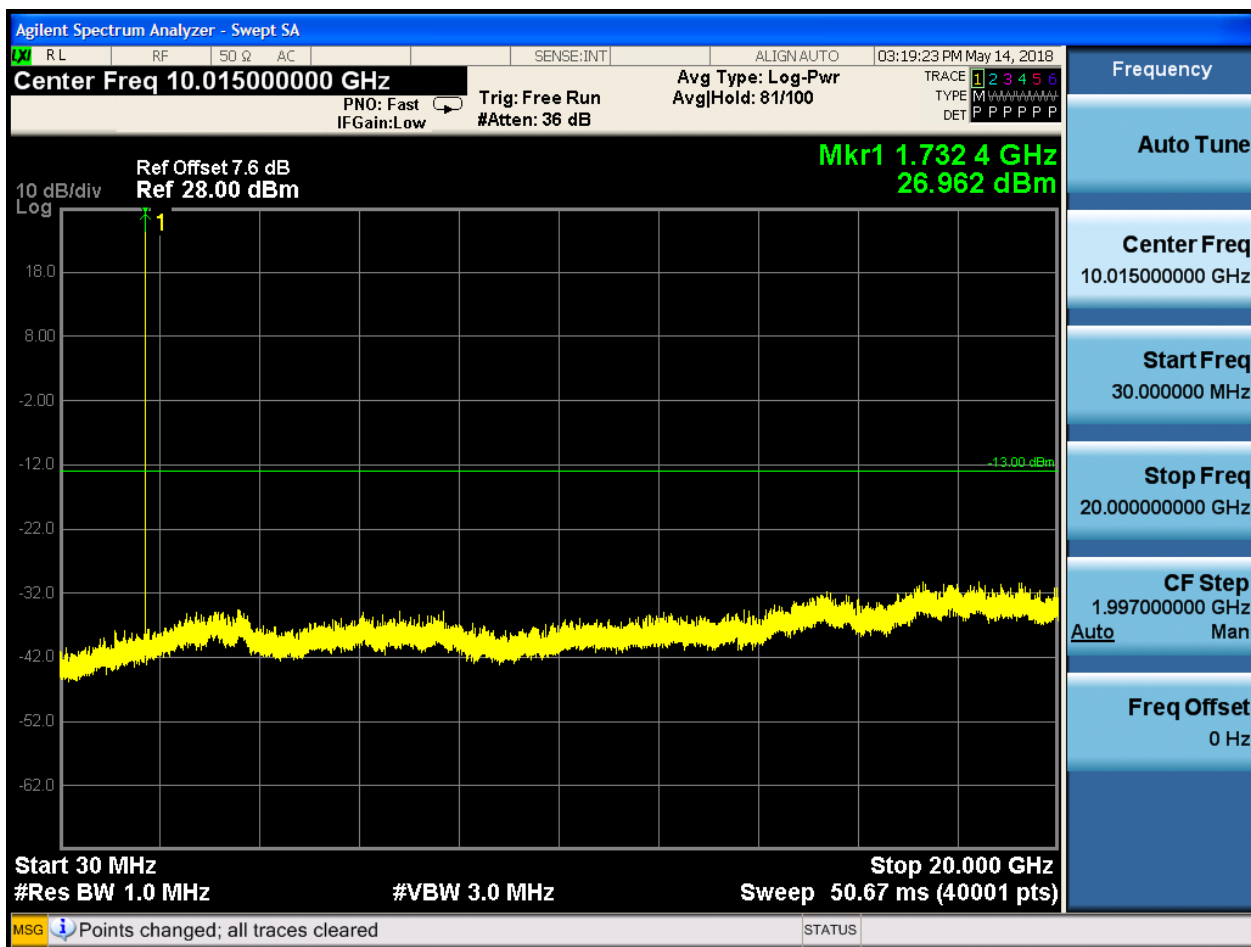


6.1.1.1.1.2 Test Channel = MCH

6.1.1.1.1.2.1 Test RB = RB1#0

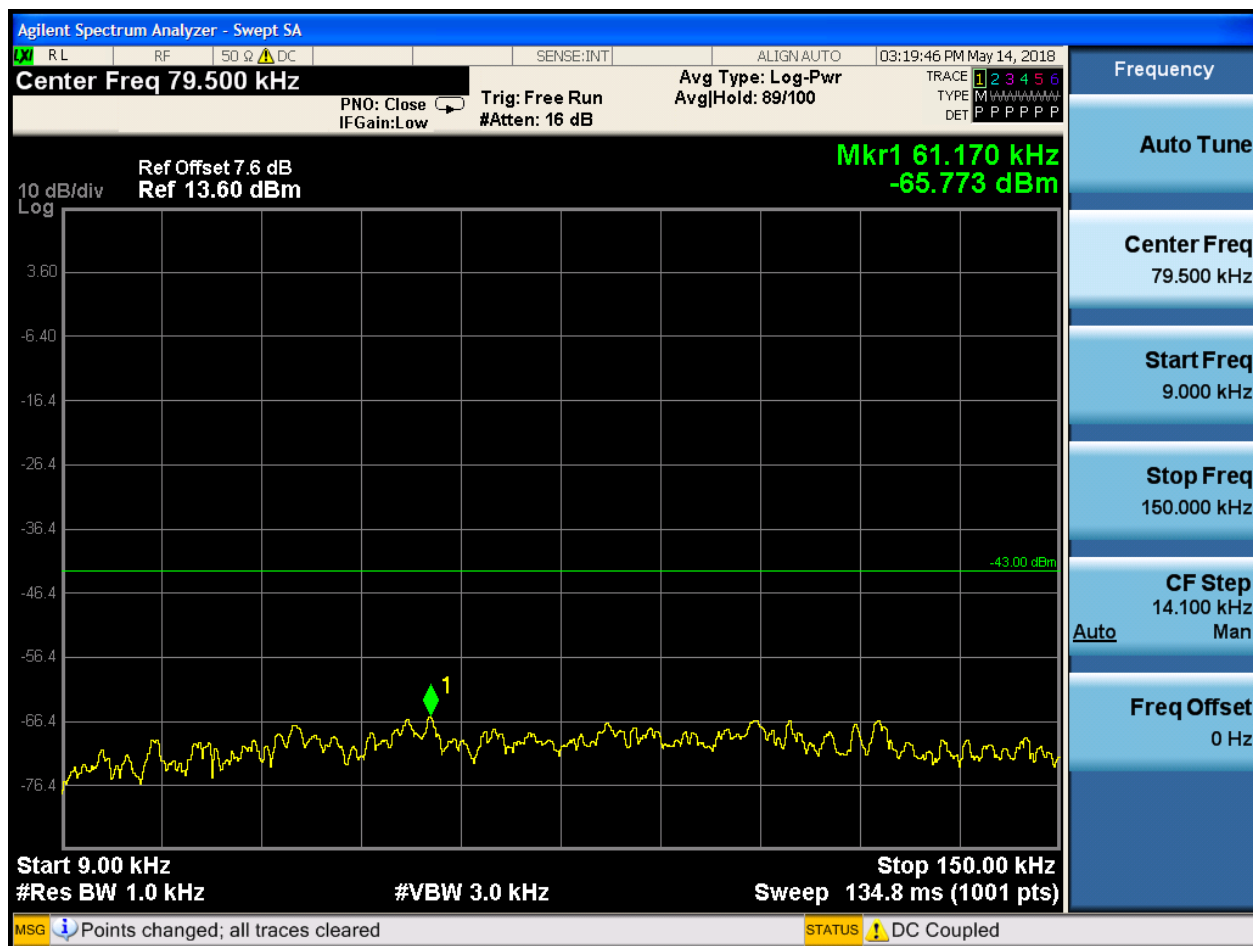


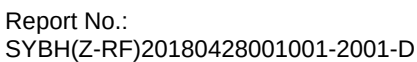
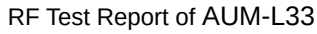




6.1.1.1.1.3 Test Channel = HCH

6.1.1.1.1.3.1 Test RB = RB1#0



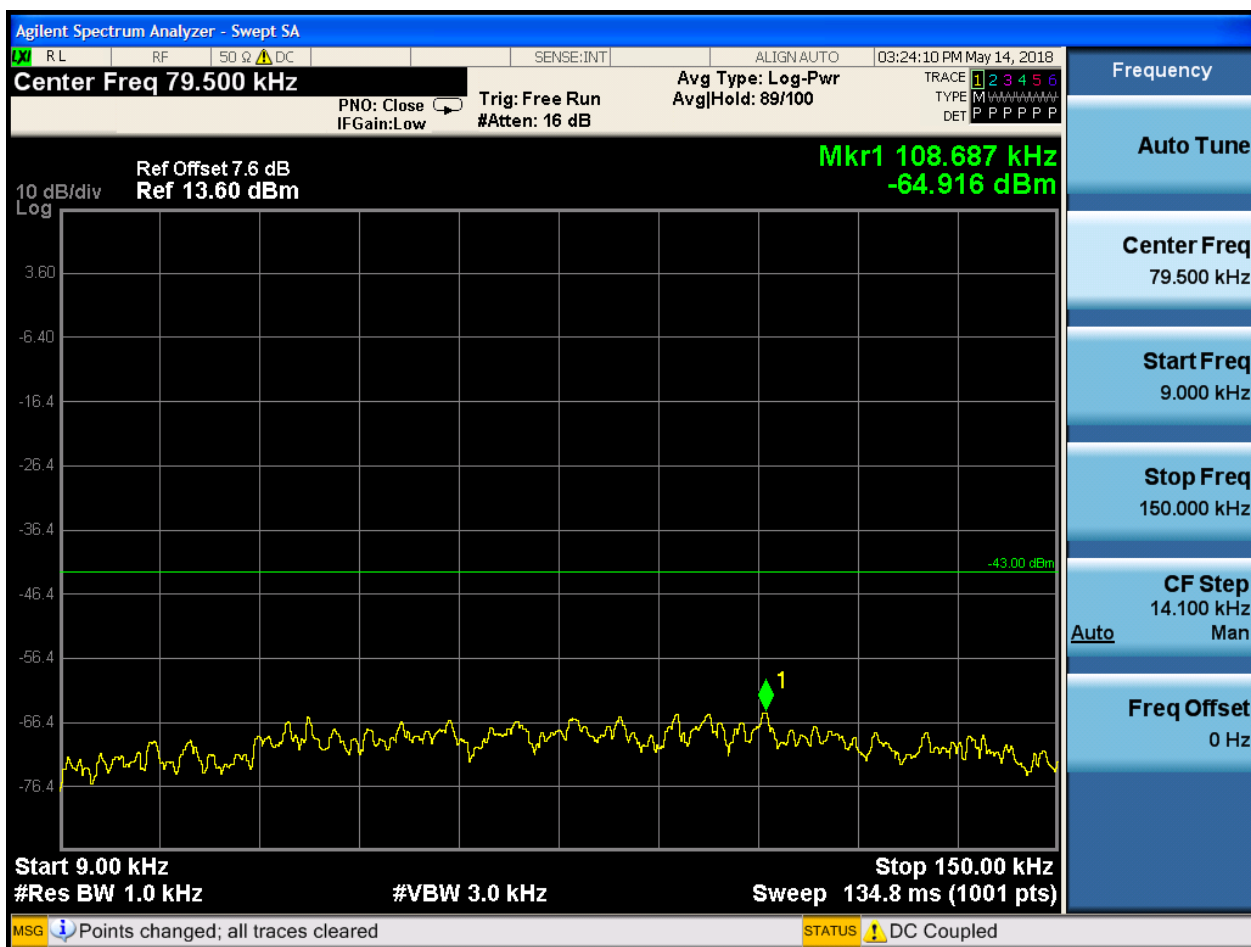


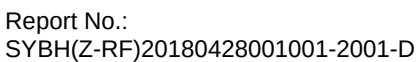
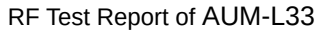


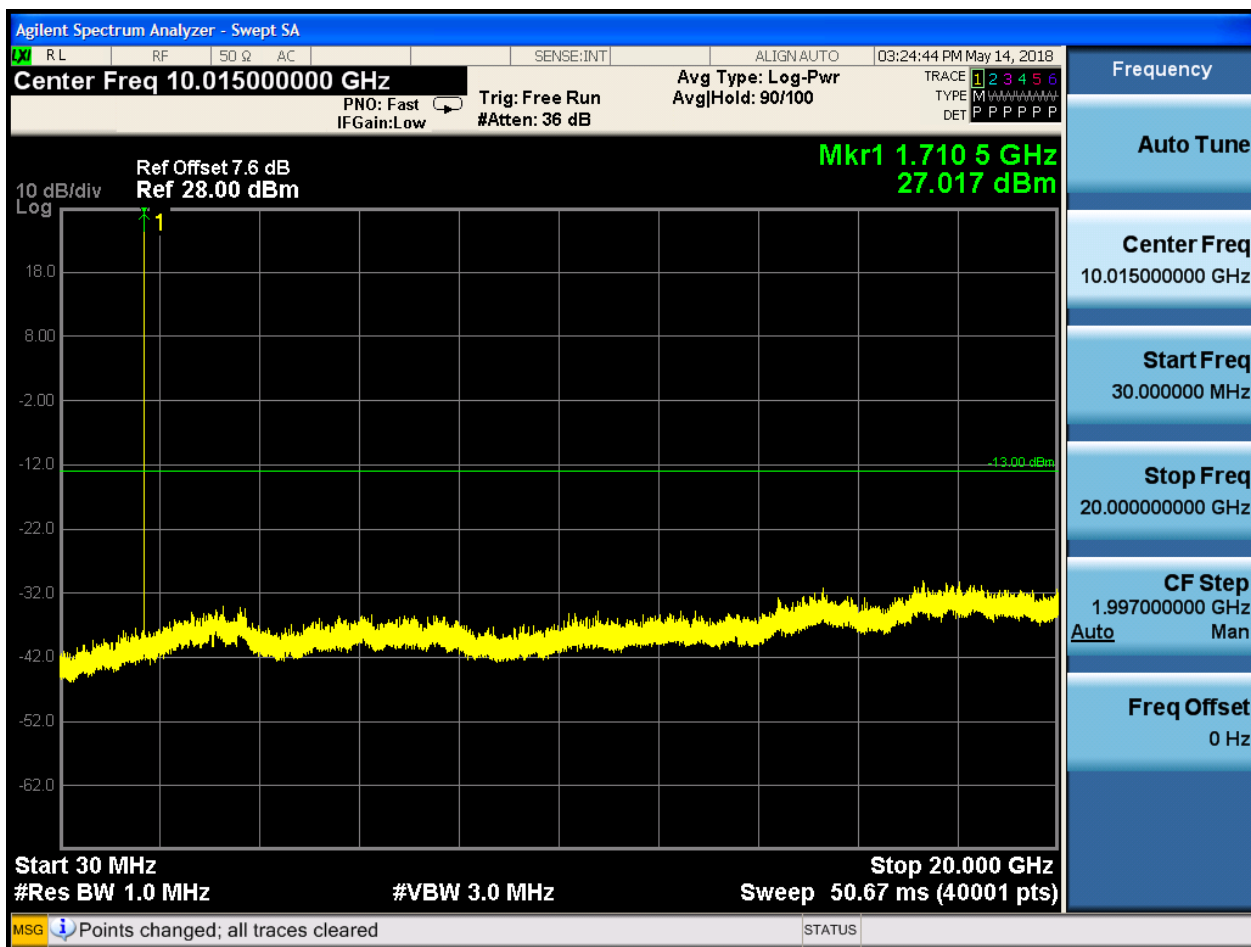
6.1.1.1.2 Test Bandwidth = 3

6.1.1.1.2.1 Test Channel = LCH

6.1.1.1.2.1.1 Test RB = RB1#0

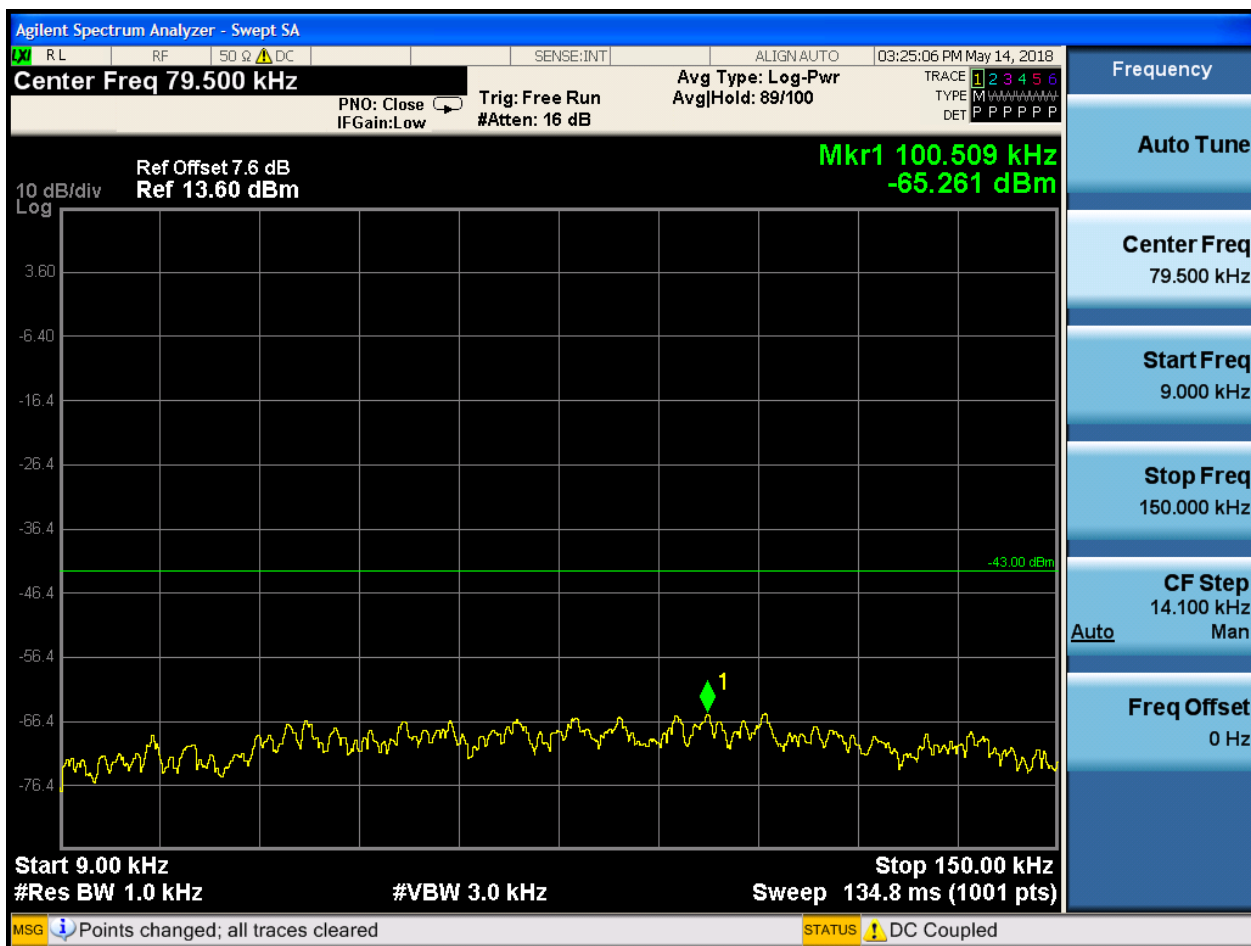


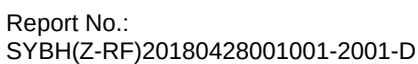
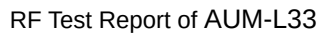


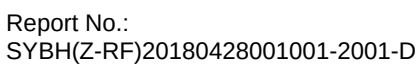
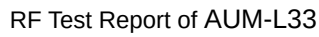


6.1.1.1.2.2 Test Channel = MCH

6.1.1.1.2.2.1 Test RB = RB1#0

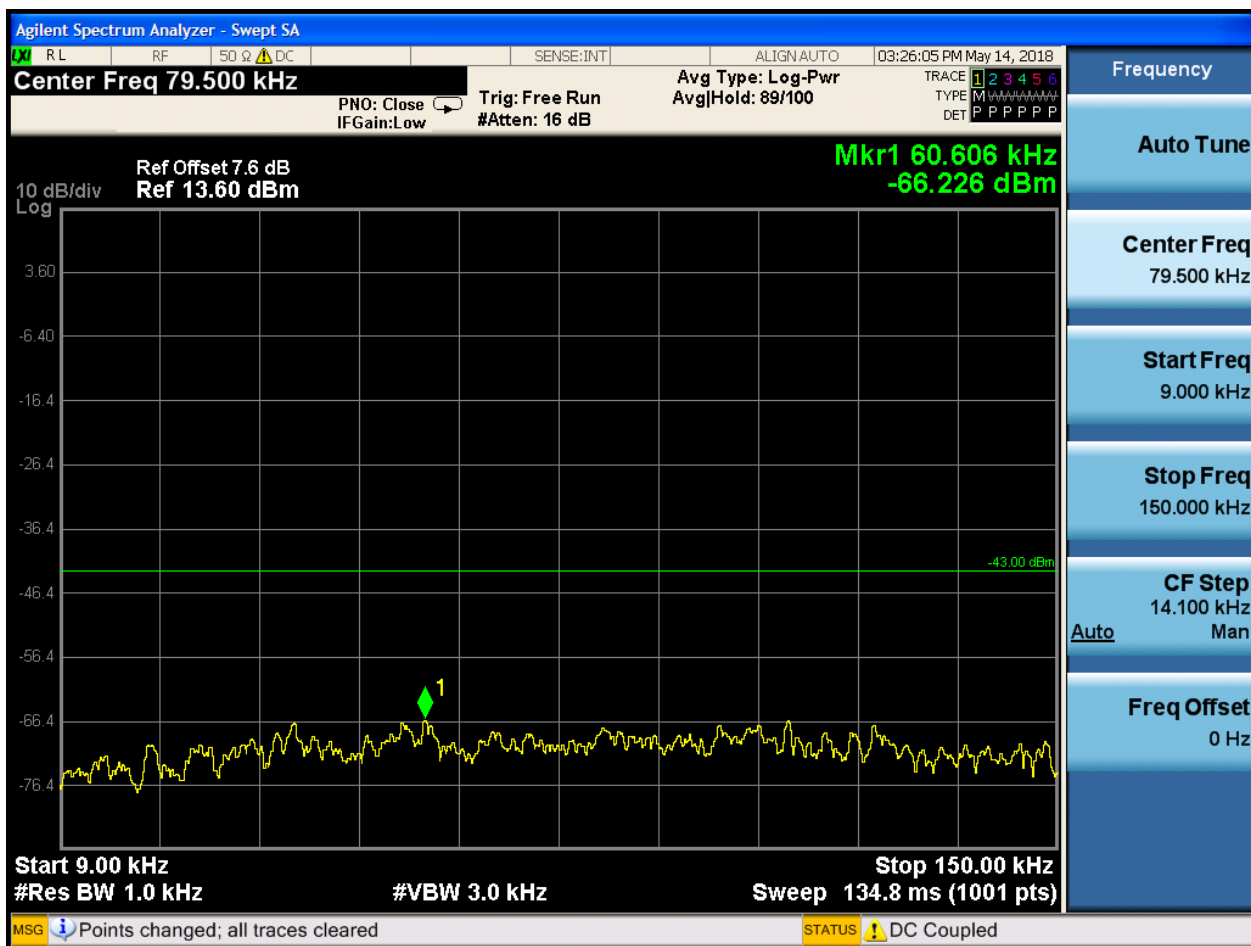


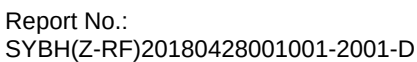
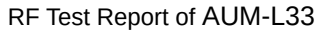


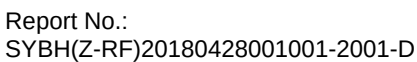
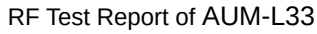


6.1.1.1.2.3 Test Channel = HCH

6.1.1.1.2.3.1 Test RB = RB1#0



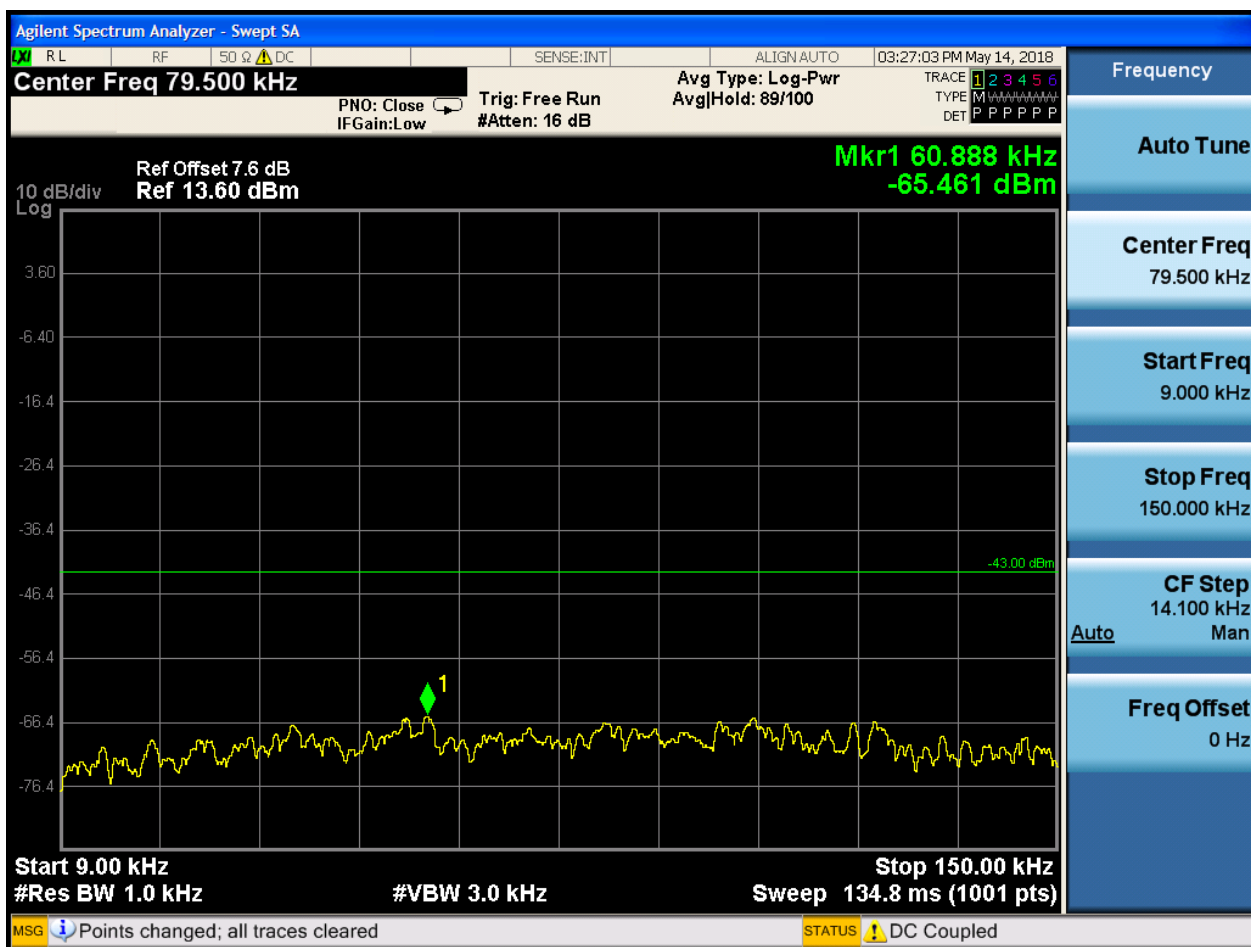


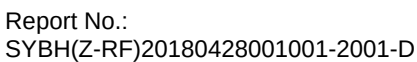
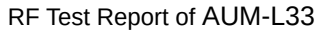


6.1.1.1.3 Test Bandwidth = 5

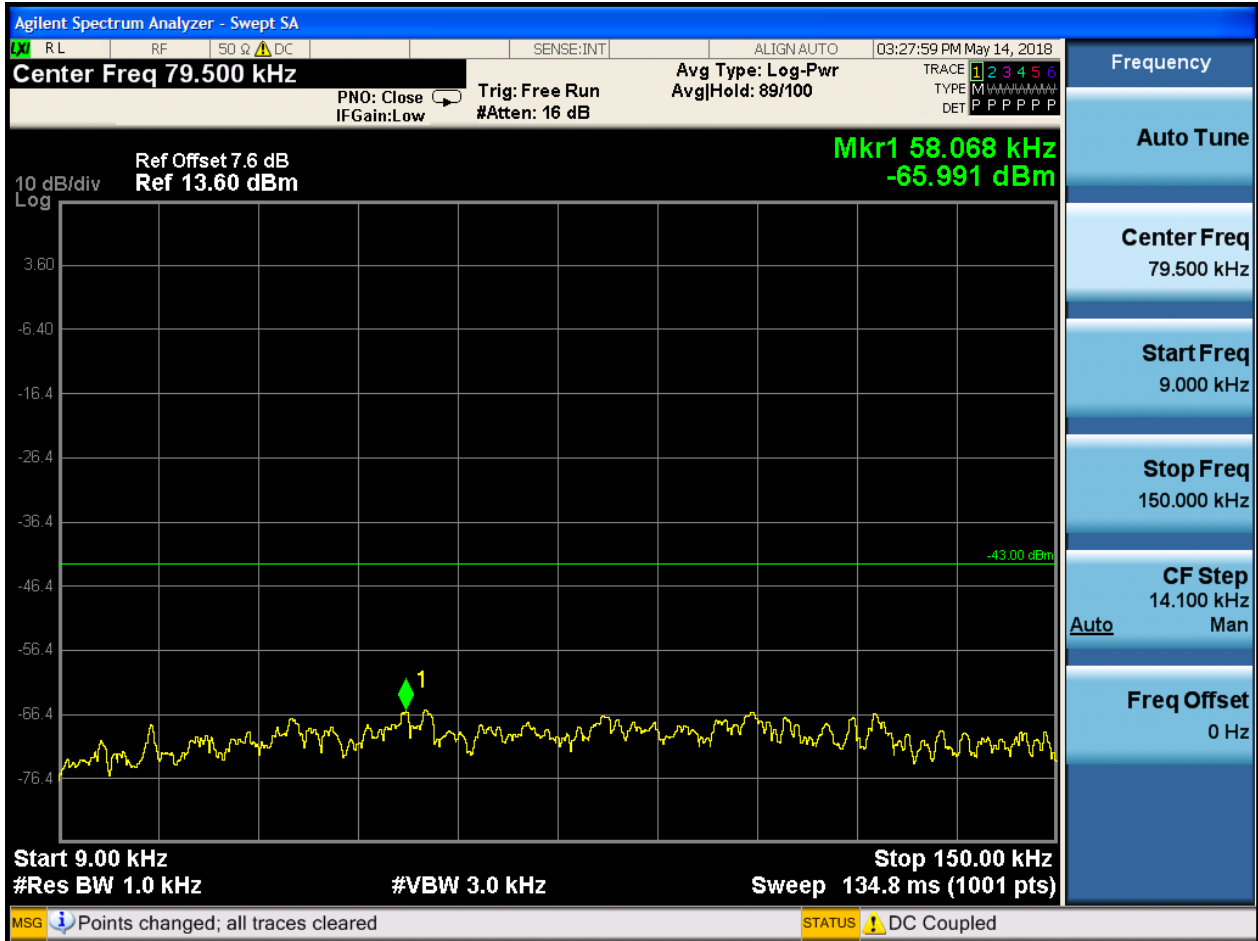
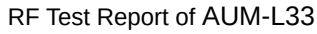
6.1.1.1.3.1 Test Channel = LCH

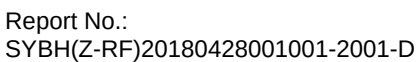
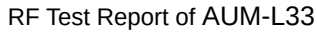
6.1.1.1.3.1.1 Test RB = RB1#0

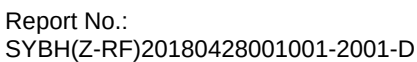
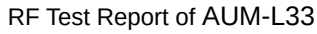






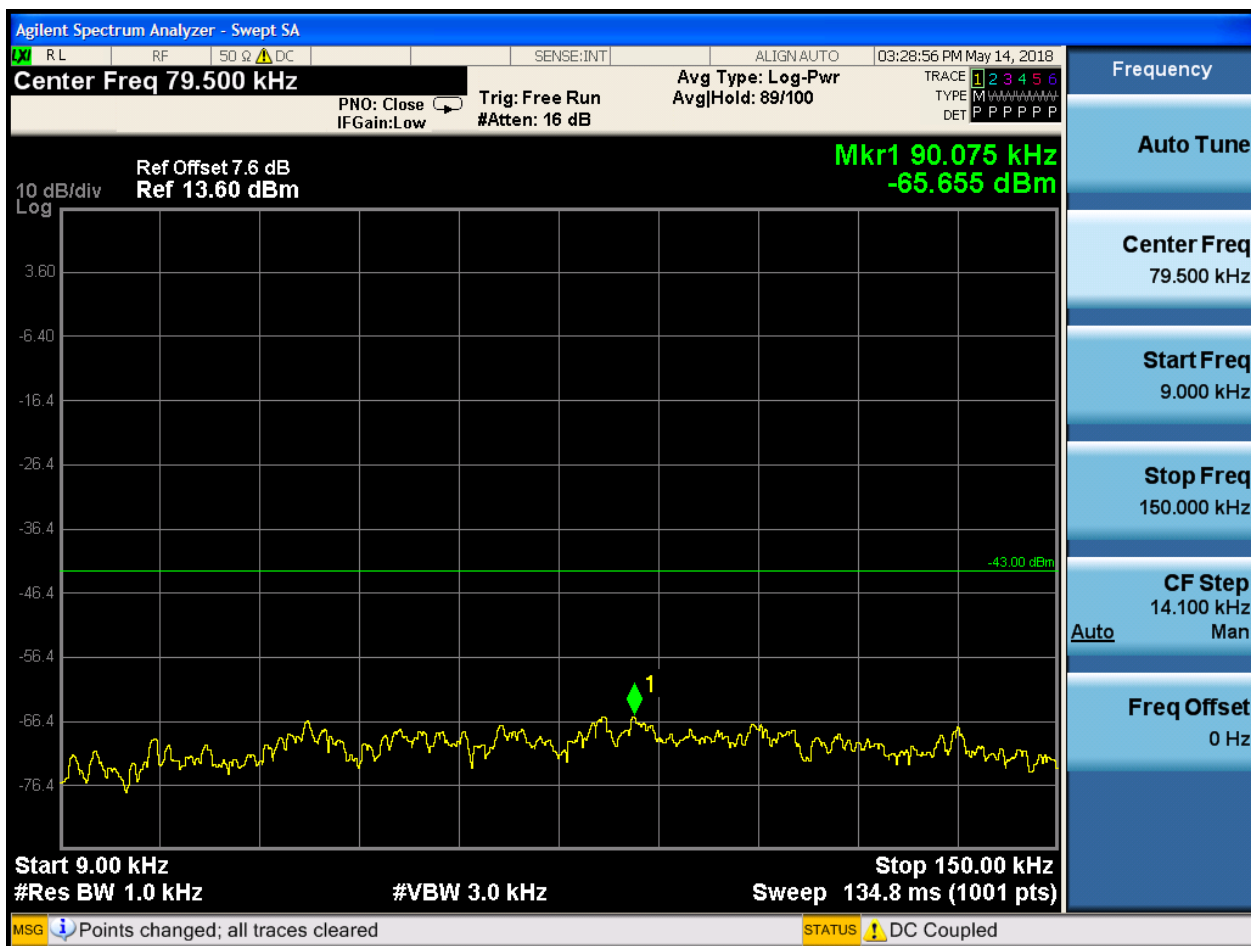


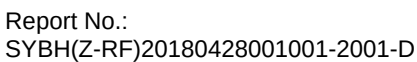
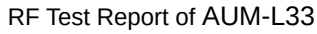


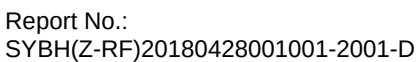
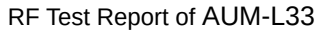


6.1.1.1.3.3 Test Channel = HCH

6.1.1.1.3.3.1 Test RB = RB1#0



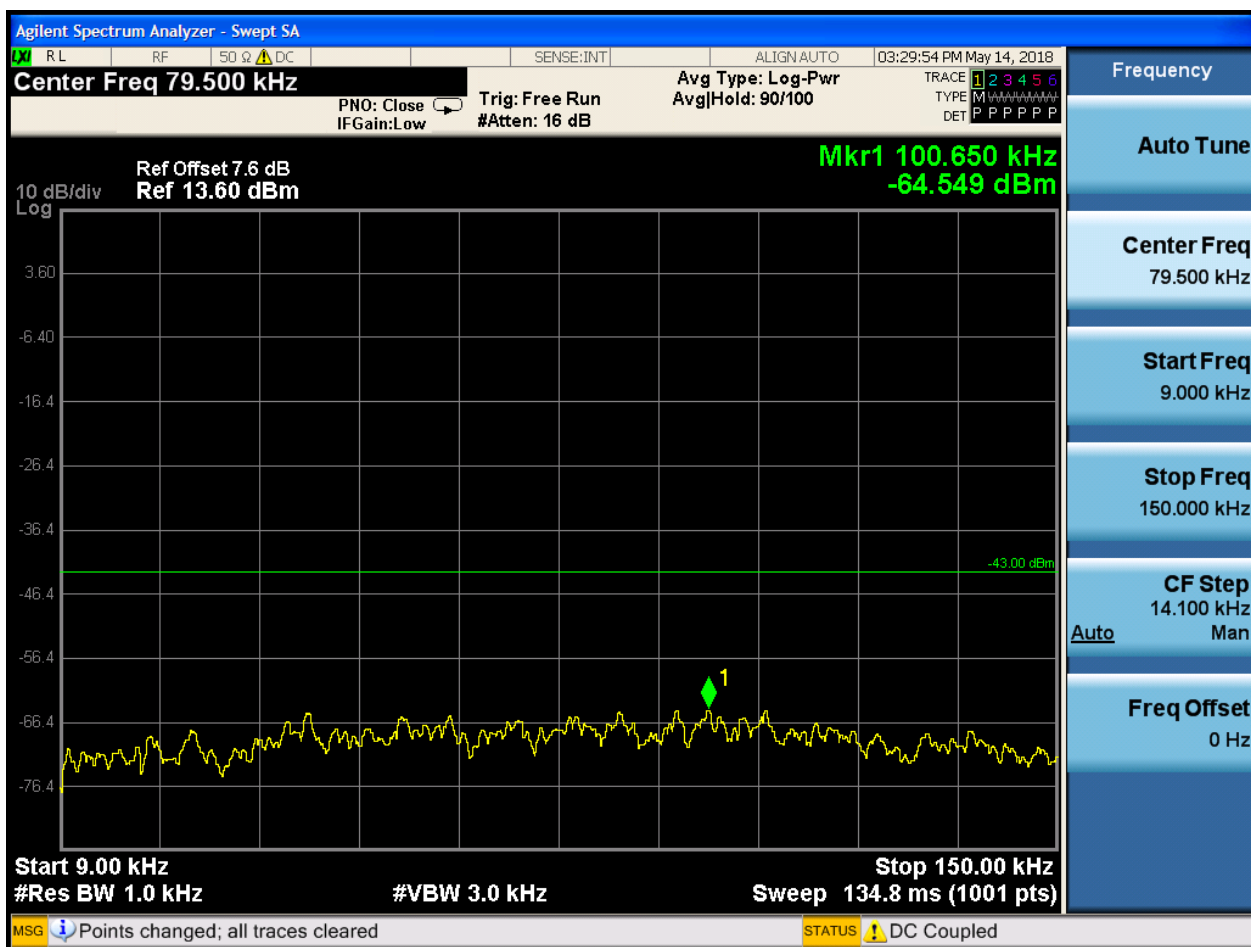


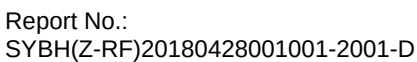
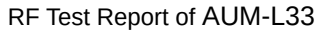


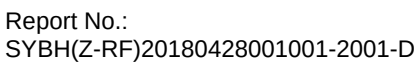
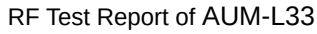
6.1.1.1.4 Test Bandwidth = 10

6.1.1.1.4.1 Test Channel = LCH

6.1.1.1.4.1.1 Test RB = RB1#0

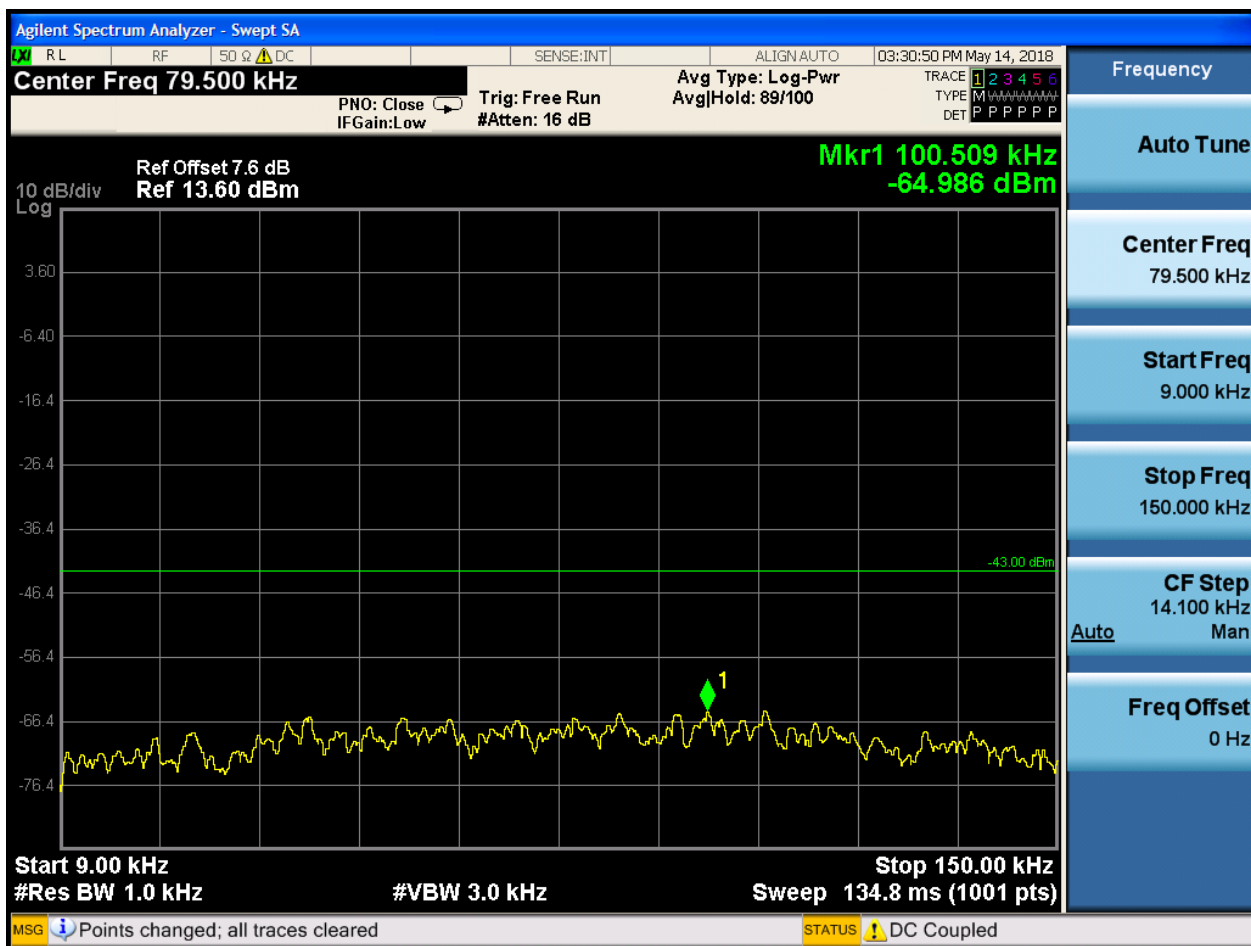


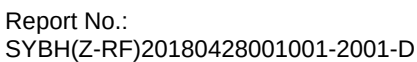
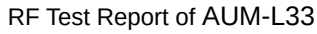


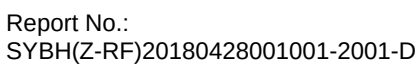
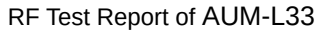


6.1.1.1.4.2 Test Channel = MCH

6.1.1.1.4.2.1 Test RB = RB1#0

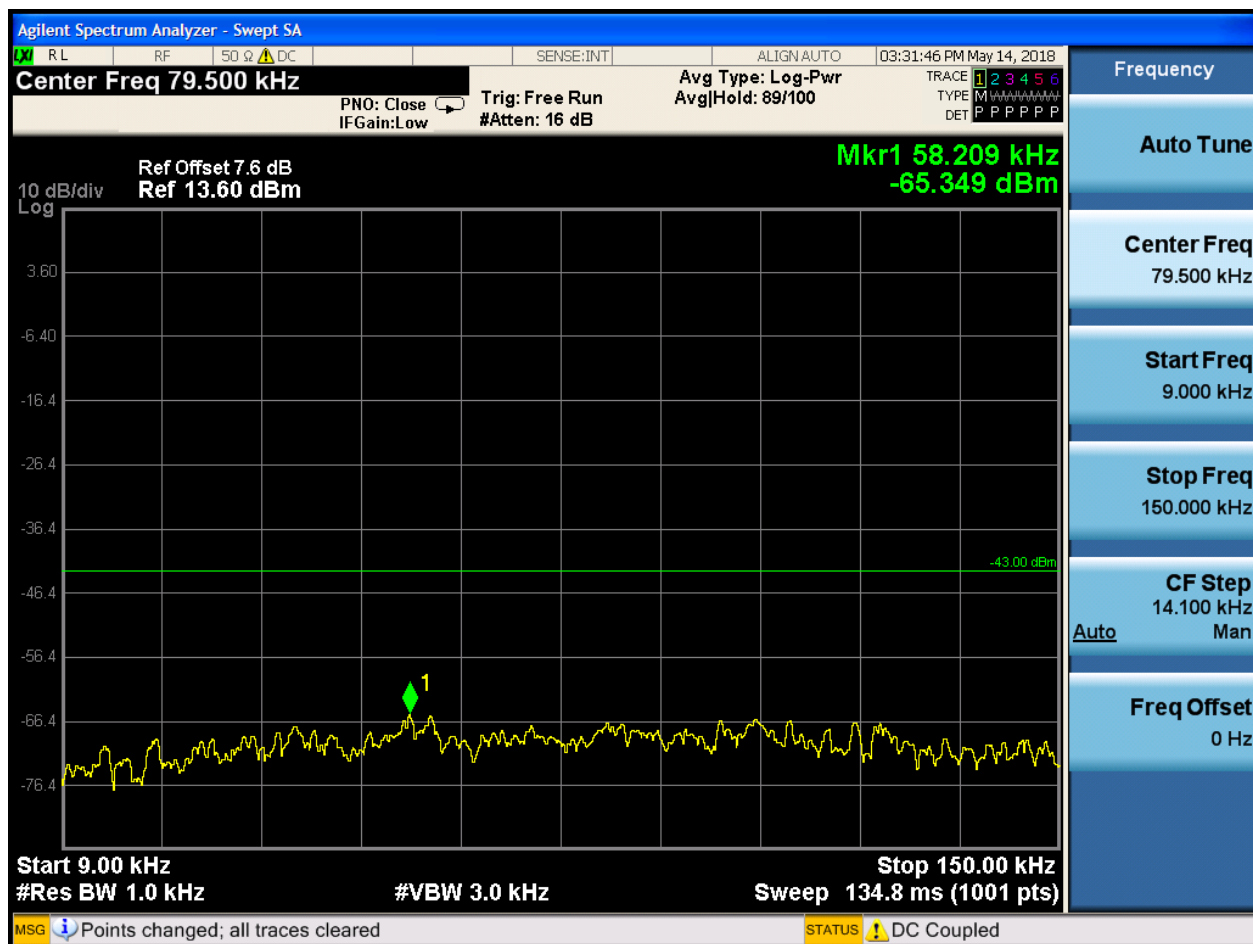


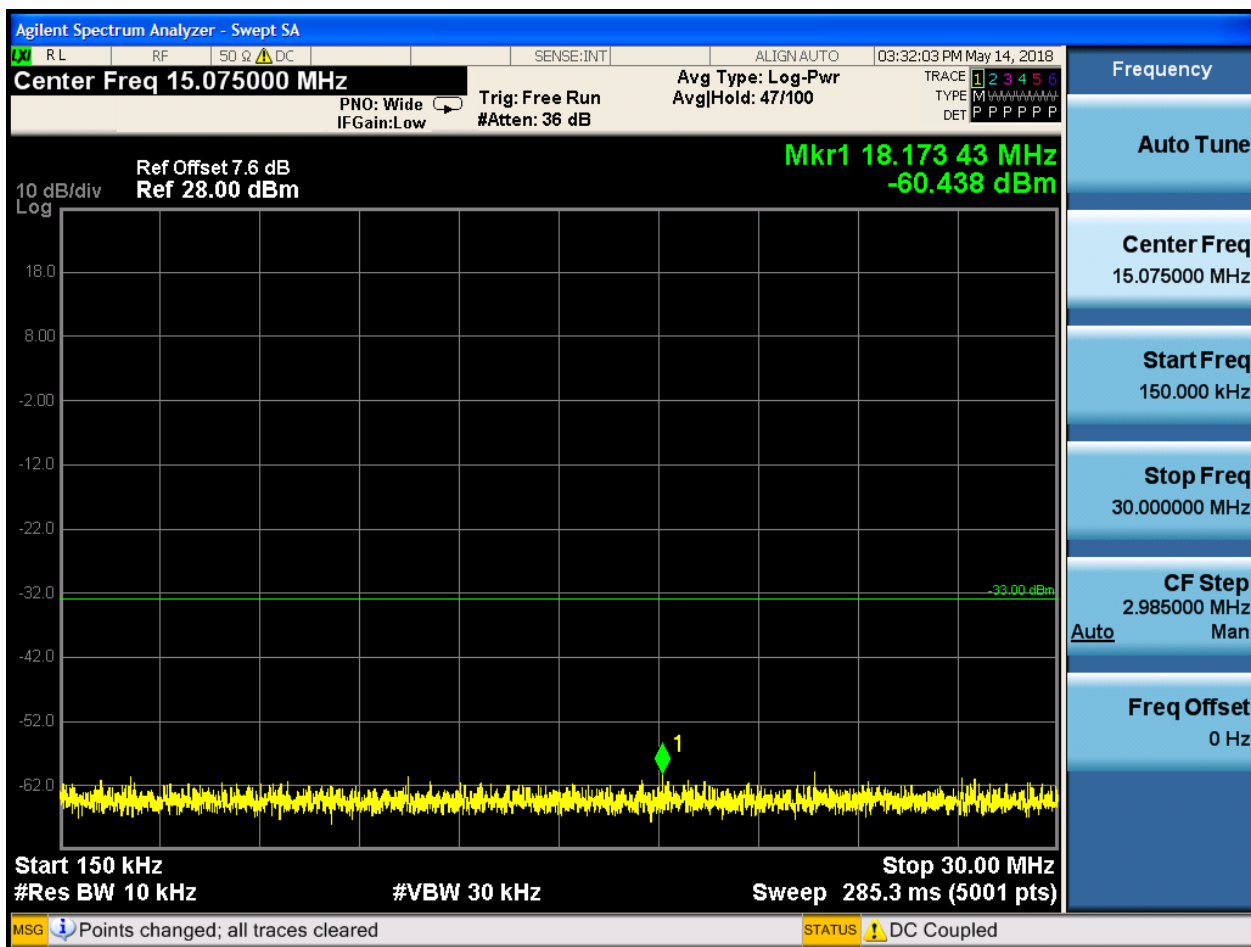


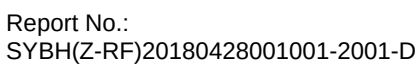
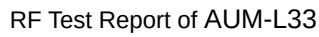


6.1.1.1.4.3 Test Channel = HCH

6.1.1.1.4.3.1 Test RB = RB1#0



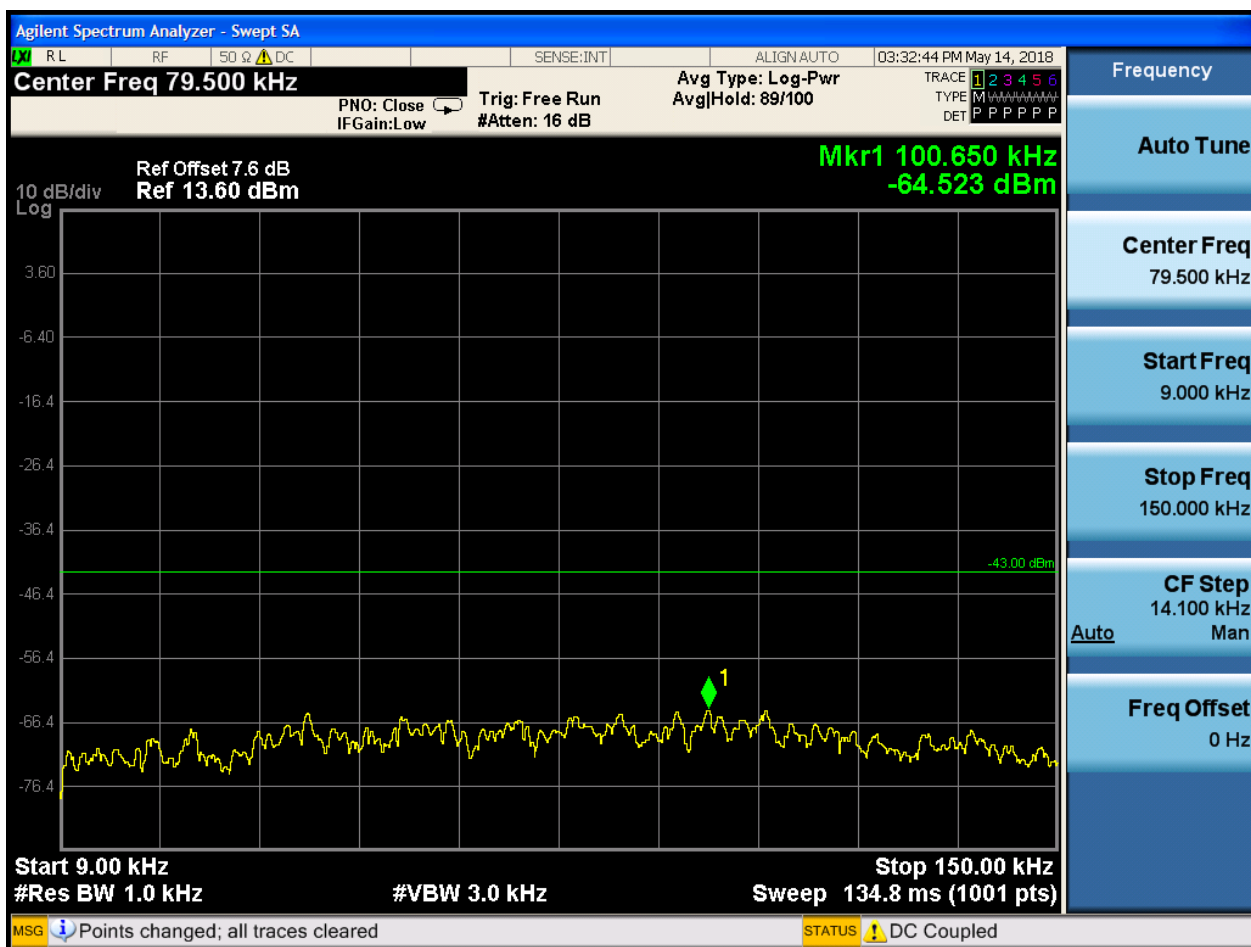


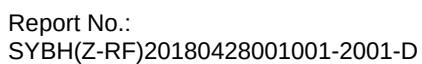
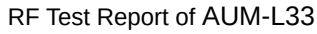


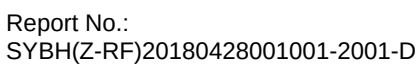
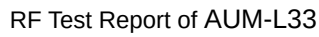
6.1.1.1.5 Test Bandwidth = 15

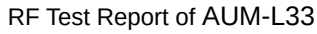
6.1.1.1.5.1 Test Channel = LCH

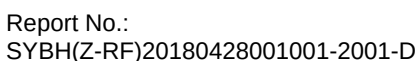
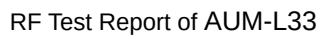
6.1.1.1.5.1.1 Test RB = RB1#0

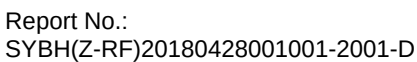
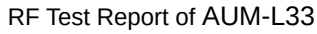


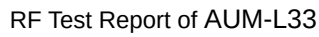




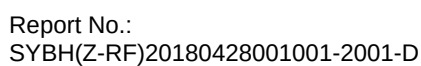


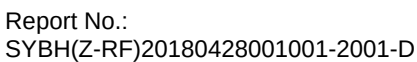
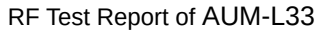


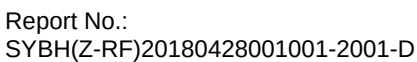
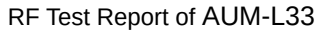




6.1.1.1.5.3.1 Test RB = RB1#0



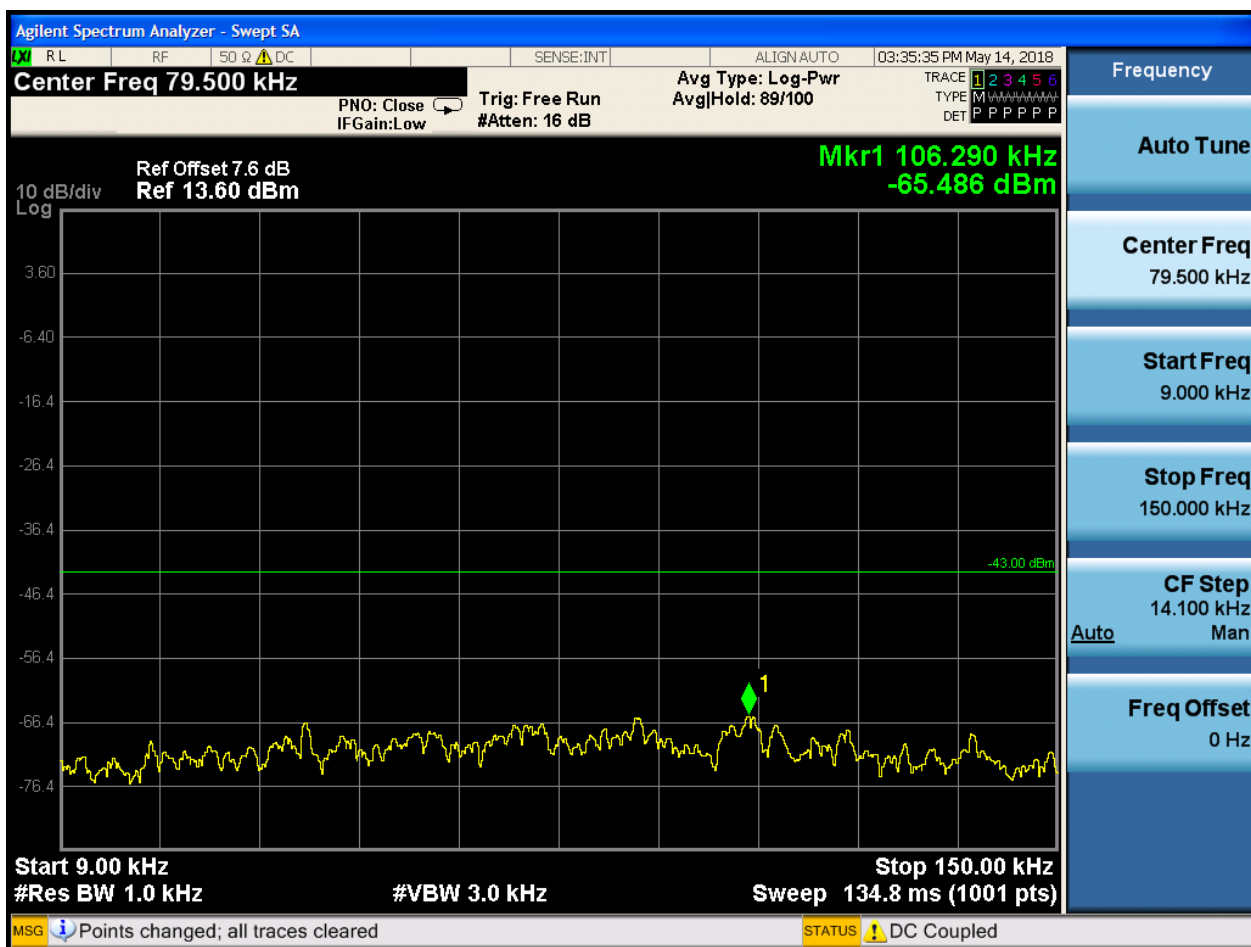


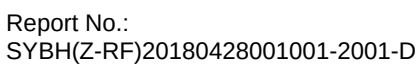
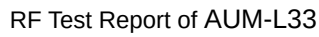


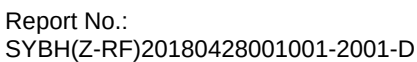
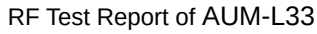
6.1.1.1.6 Test Bandwidth = 20

6.1.1.1.6.1 Test Channel = LCH

6.1.1.1.6.1.1 Test RB = RB1#0

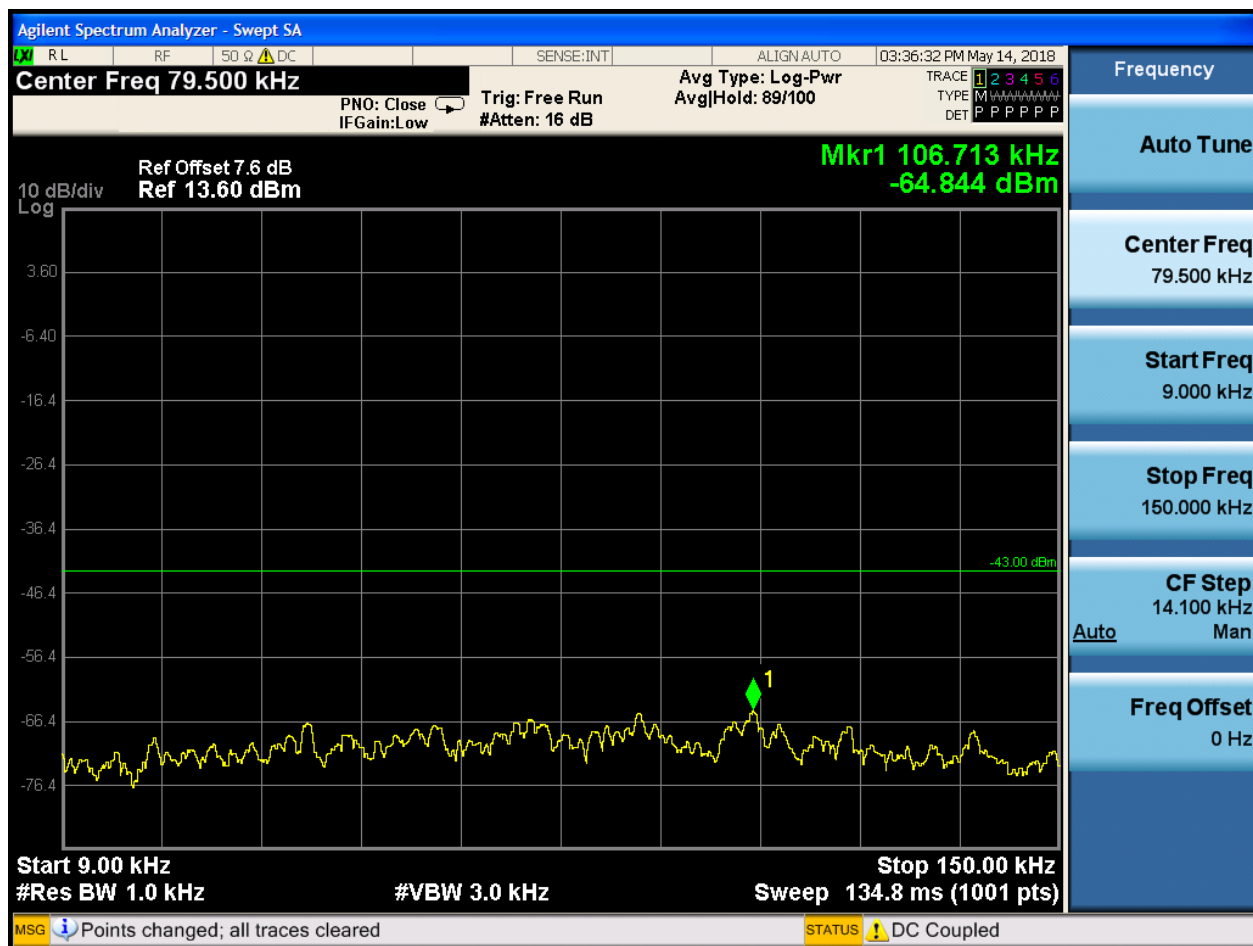


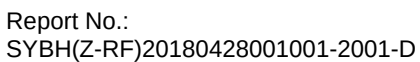
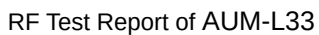


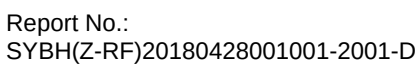
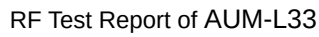


6.1.1.1.6.2 Test Channel = MCH

6.1.1.1.6.2.1 Test RB = RB1#0

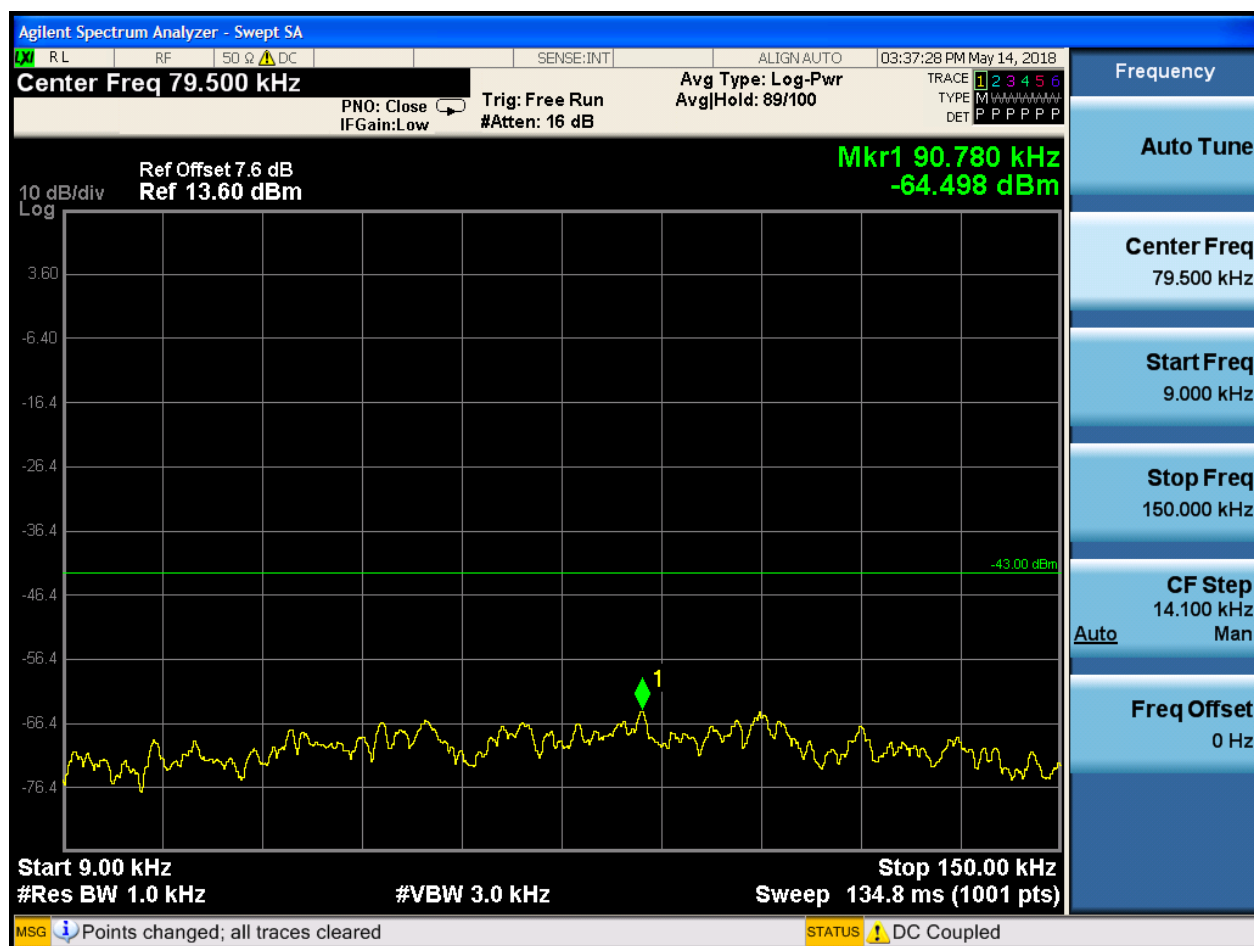


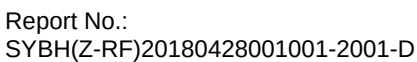
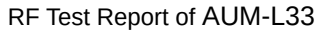


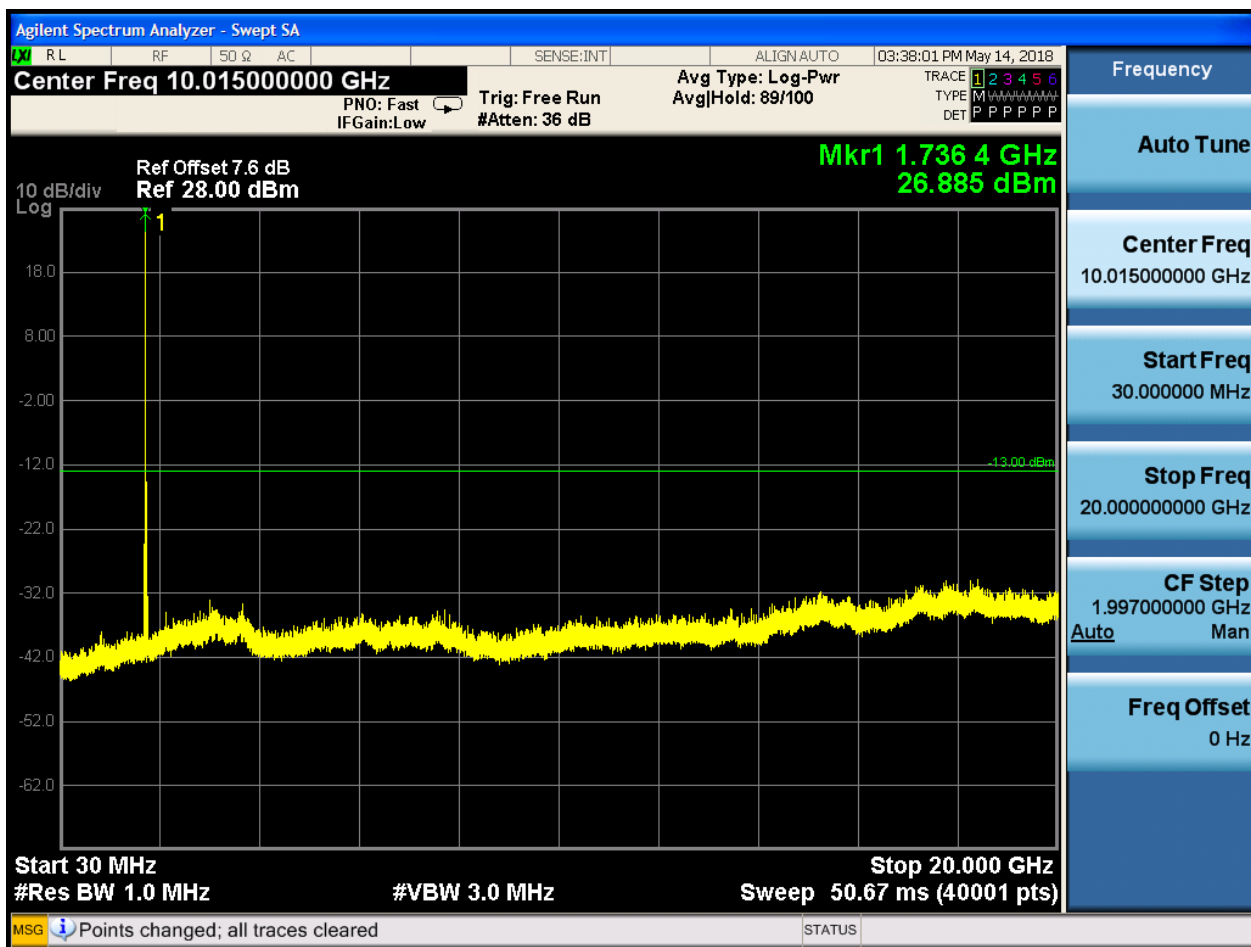


6.1.1.1.6.3 Test Channel = HCH

6.1.1.1.6.3.1 Test RB = RB1#0





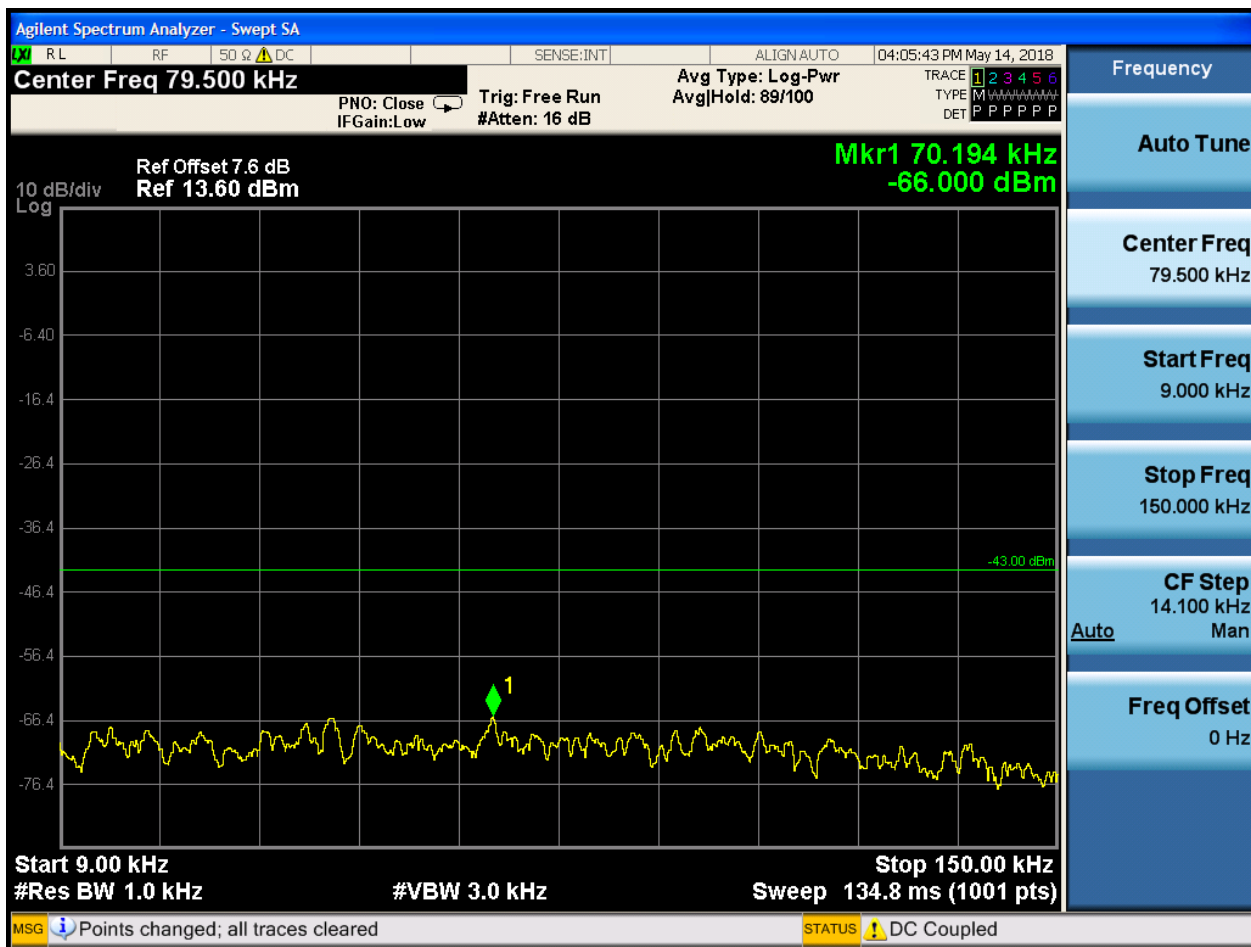


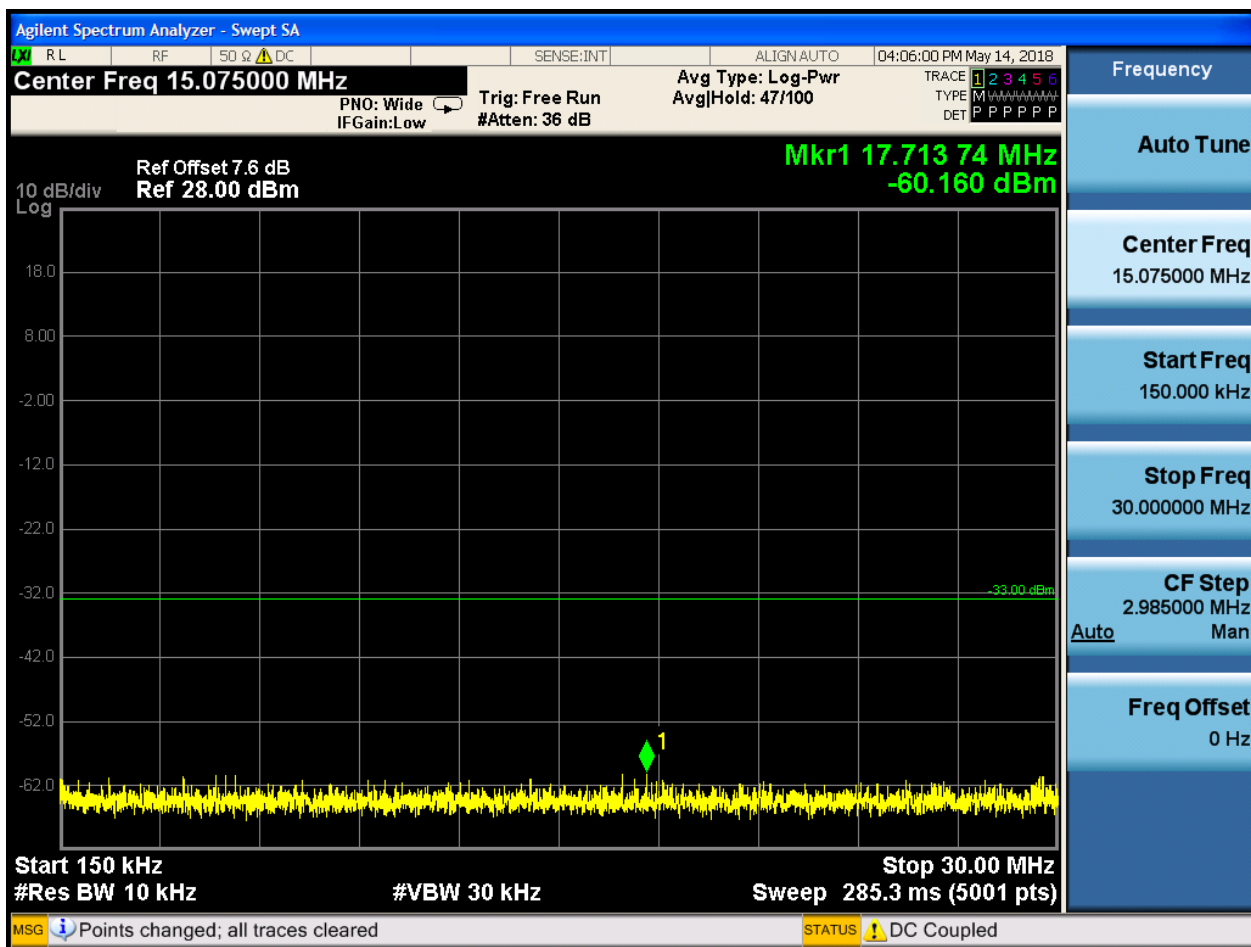
6.1.1.2 Test Mode = LTE/TM2

6.1.1.2.1 Test Bandwidth = 1.4

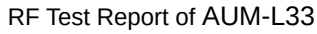
6.1.1.2.1.1 Test Channel = LCH

6.1.1.2.1.1.1 Test RB = RB1#0

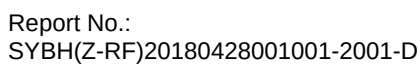


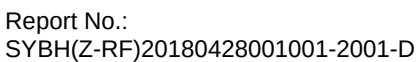
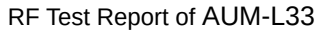


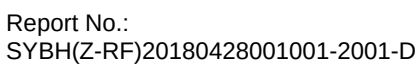
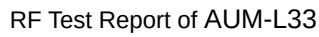


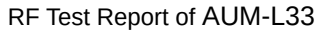


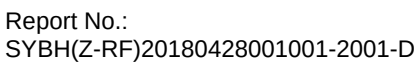
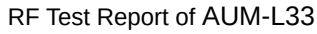
6.1.1.2.1.2.1 Test RB = RB1#0









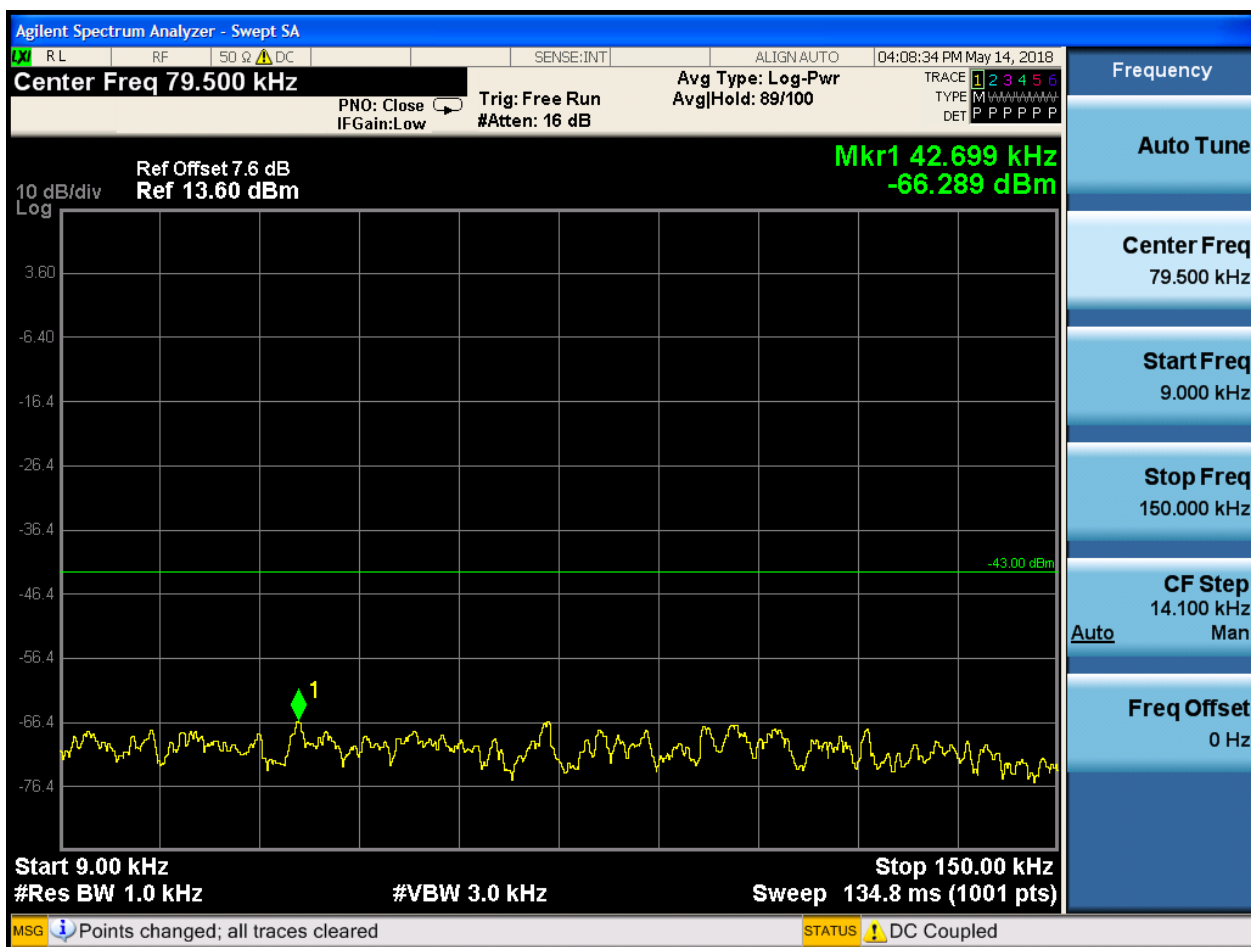


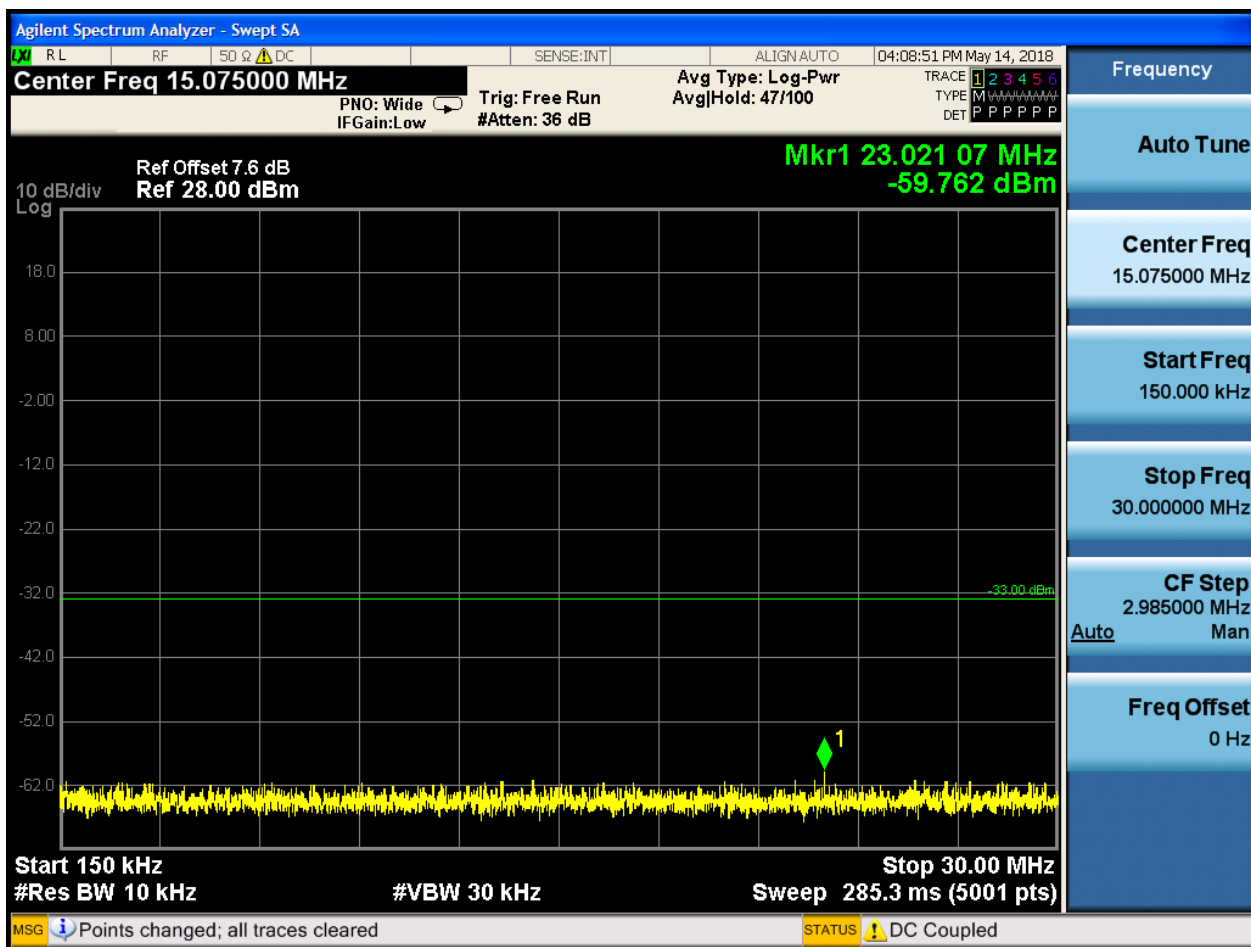


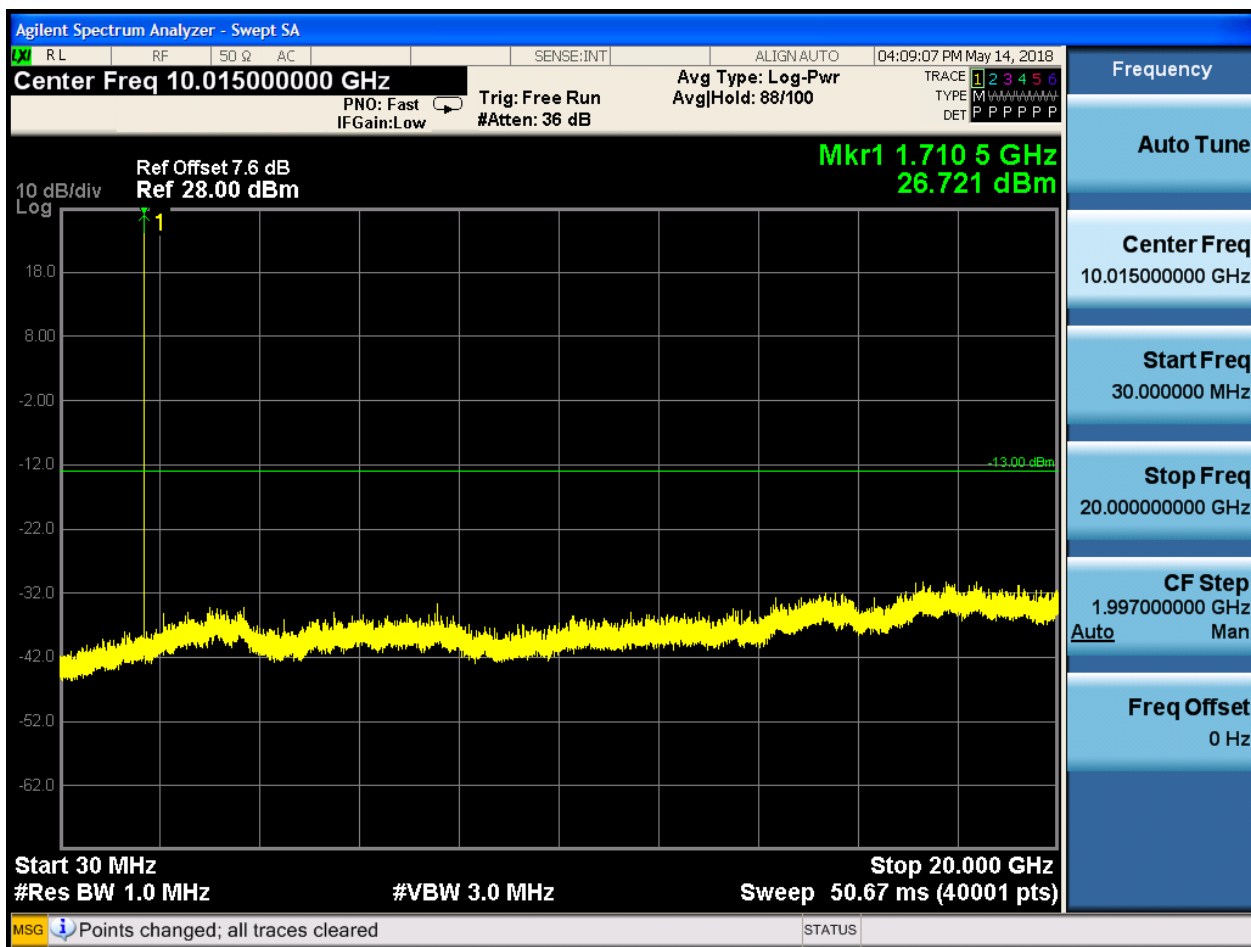
6.1.1.2.2 Test Bandwidth = 3

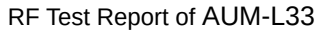
6.1.1.2.2.1 Test Channel = LCH

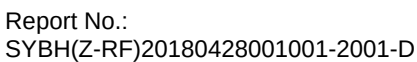
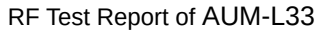
6.1.1.2.2.1.1 Test RB = RB1#0

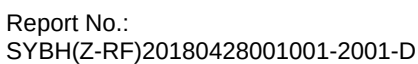
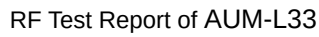






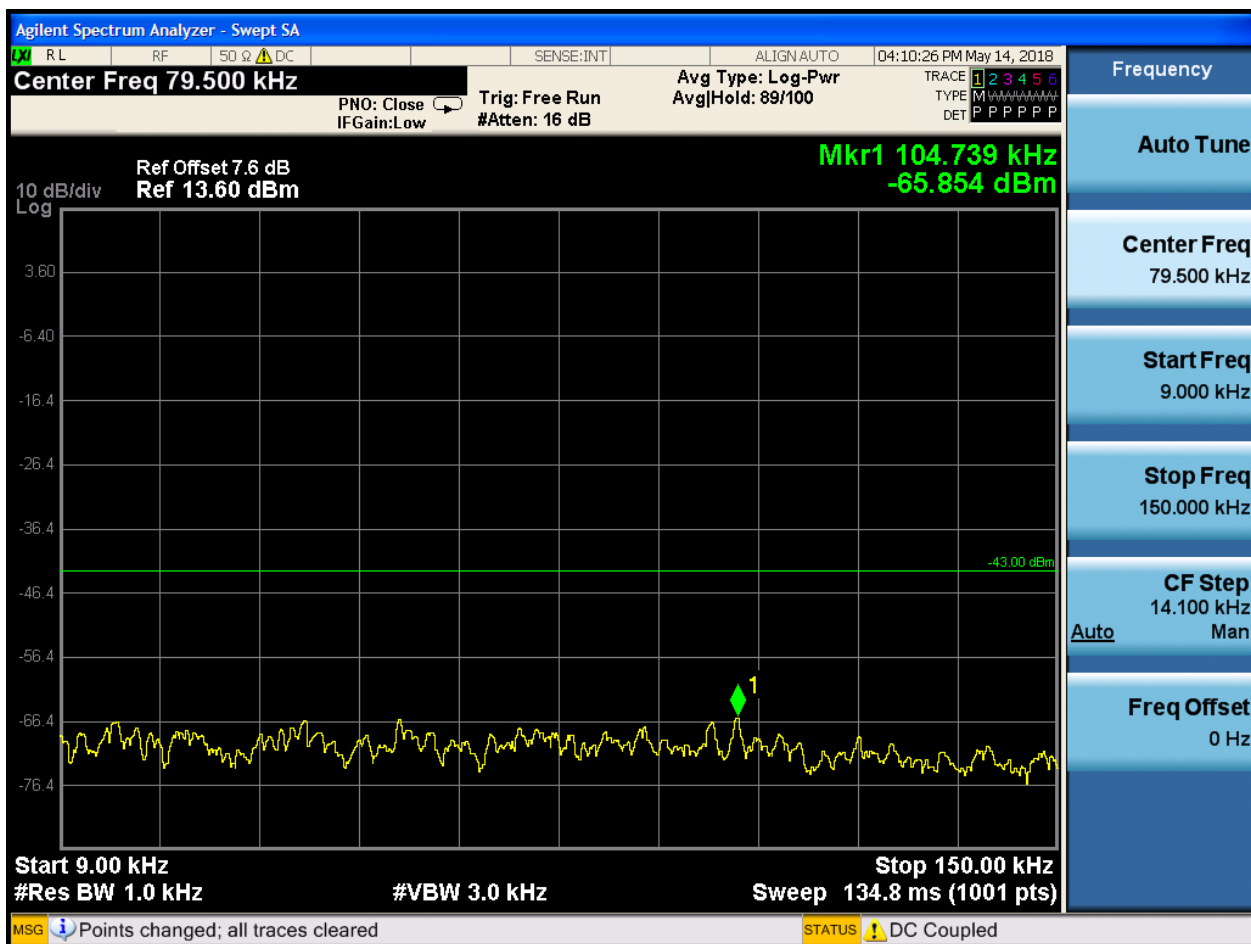


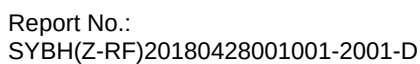
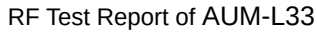


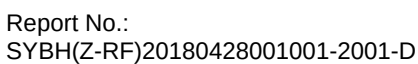
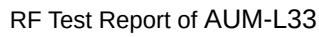


6.1.1.2.2.3 Test Channel = HCH

6.1.1.2.2.3.1 Test RB = RB1#0



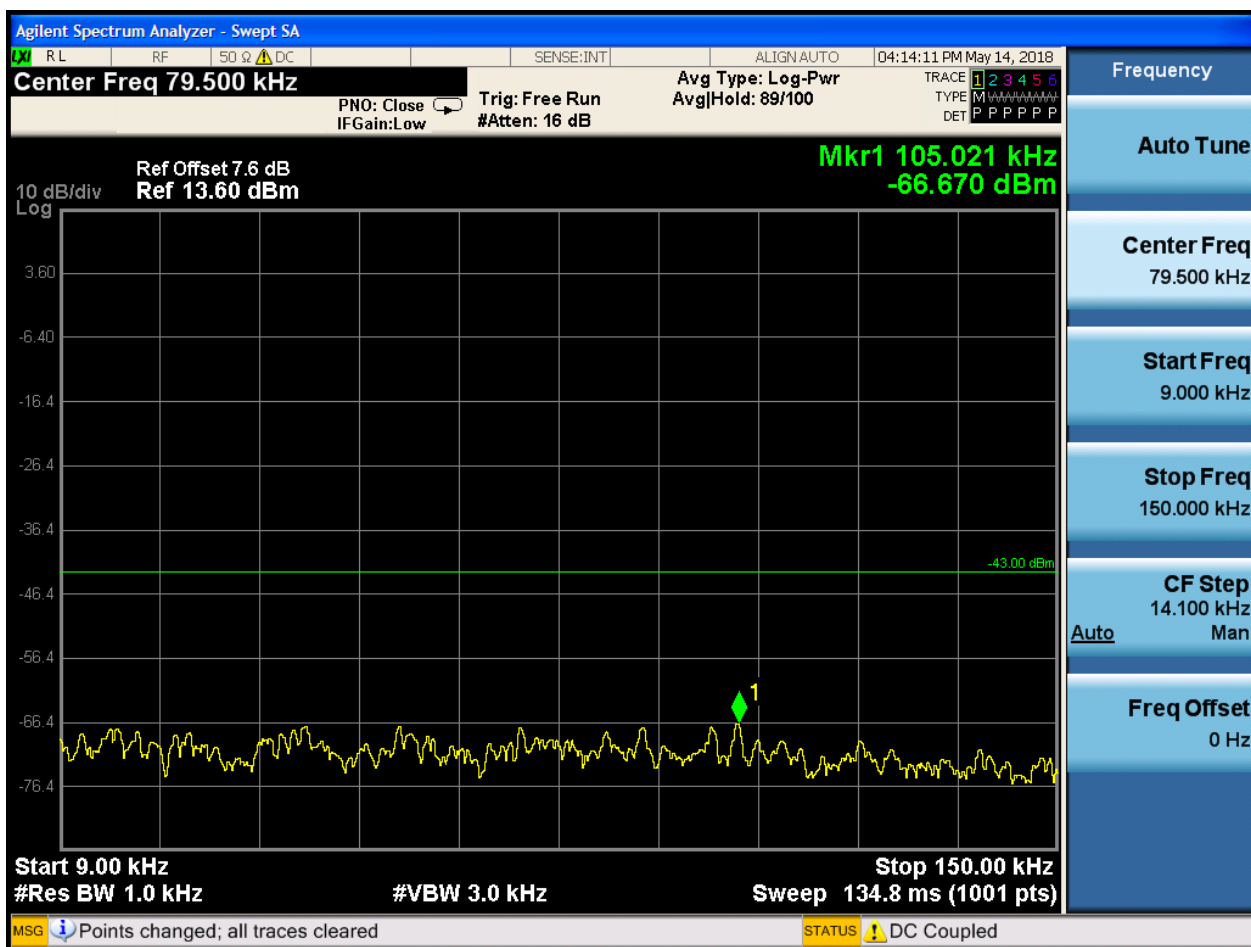


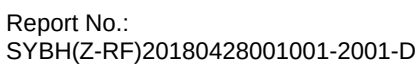
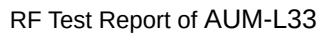


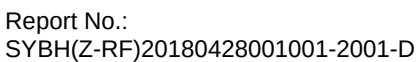
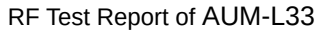
6.1.1.2.3 Test Bandwidth = 5

6.1.1.2.3.1 Test Channel = LCH

6.1.1.2.3.1.1 Test RB = RB1#0

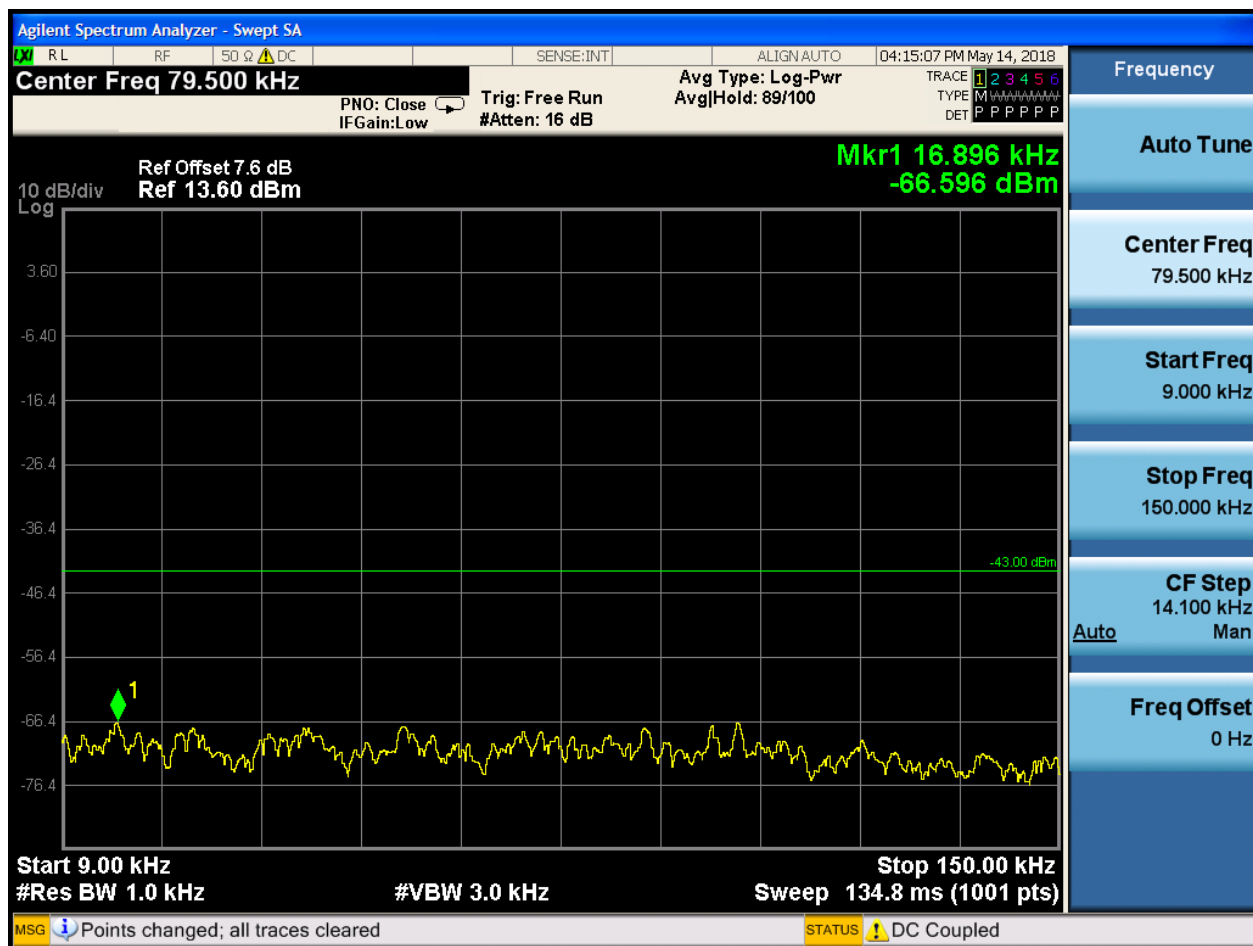


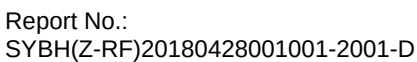
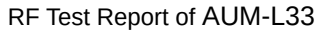


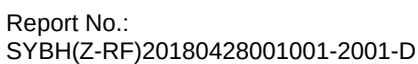
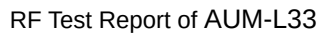


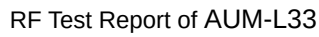
6.1.1.2.3.2 Test Channel = MCH

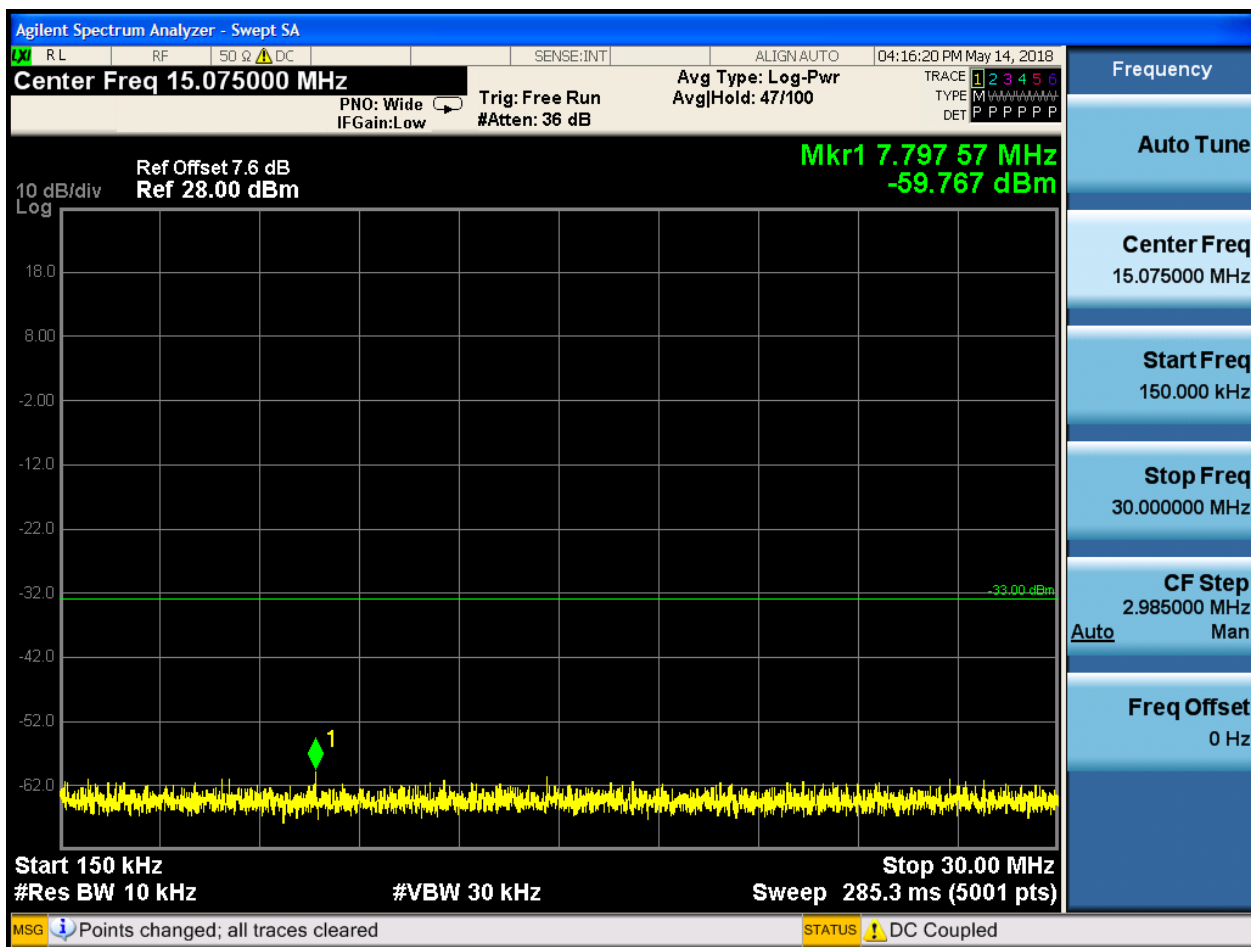
6.1.1.2.3.2.1 Test RB = RB1#0

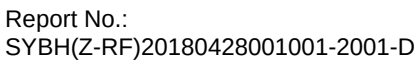
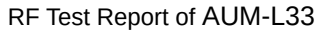












6.1.1.2.4 Test Bandwidth = 10

6.1.1.2.4.1 Test Channel = LCH

6.1.1.2.4.1.1 Test RB = RB1#0

