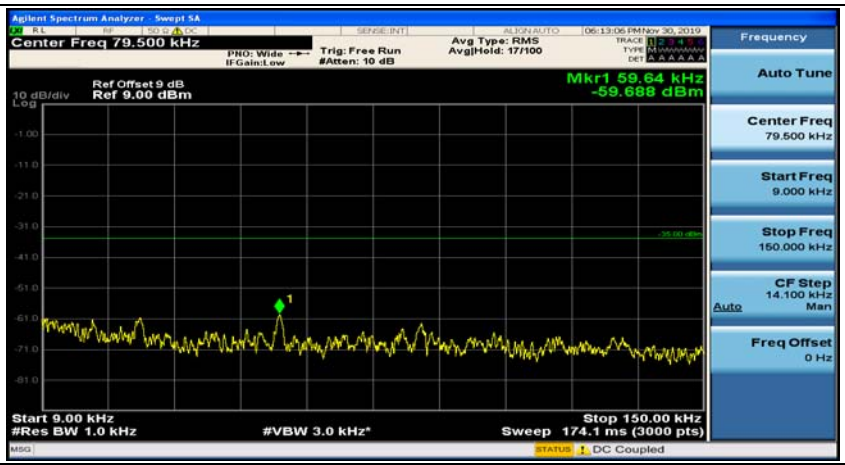
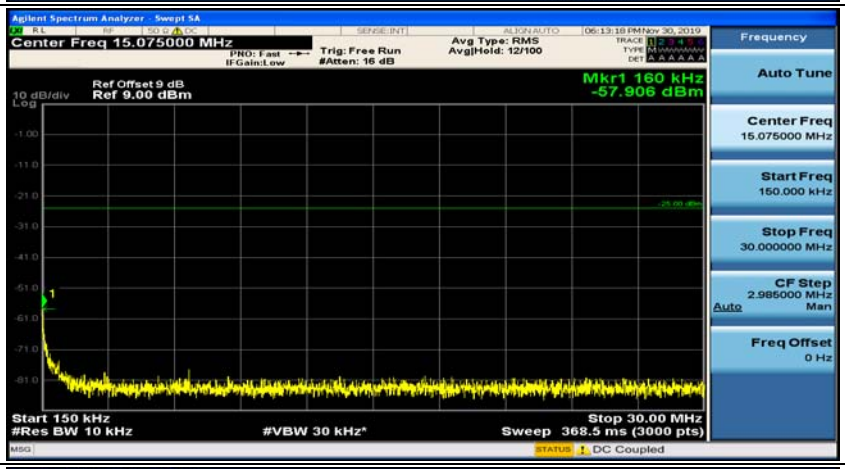
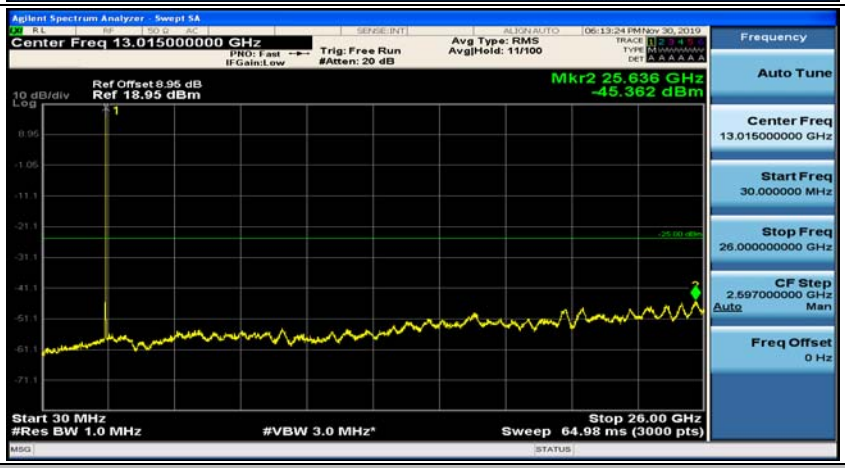
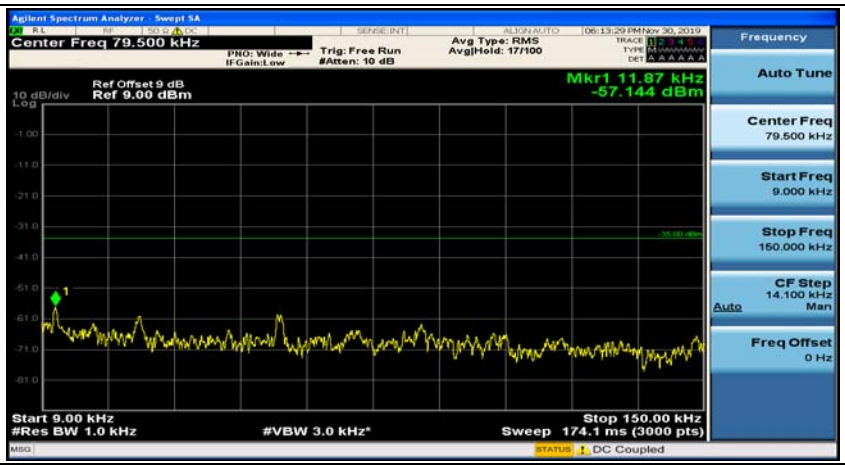
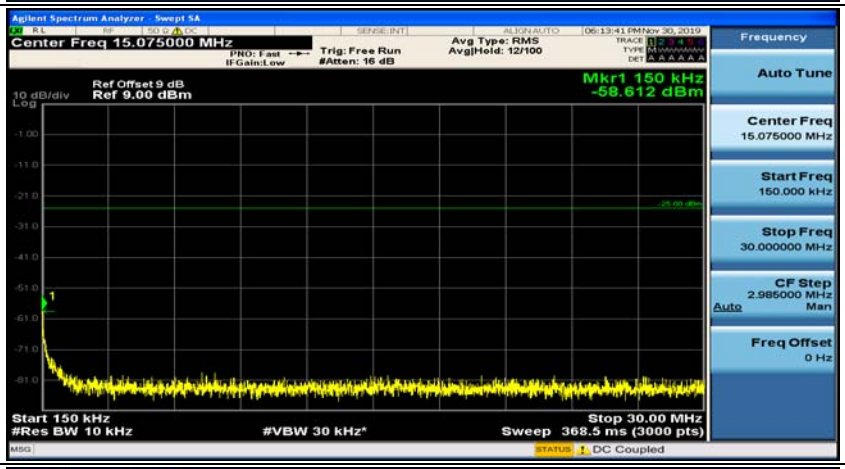


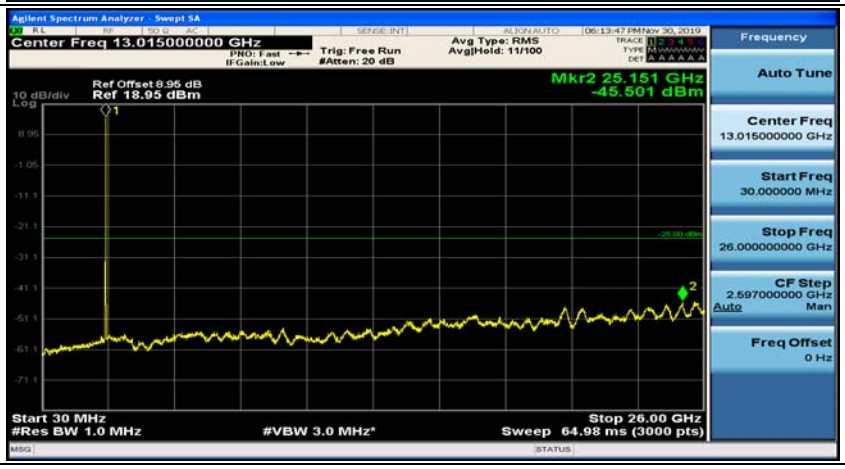



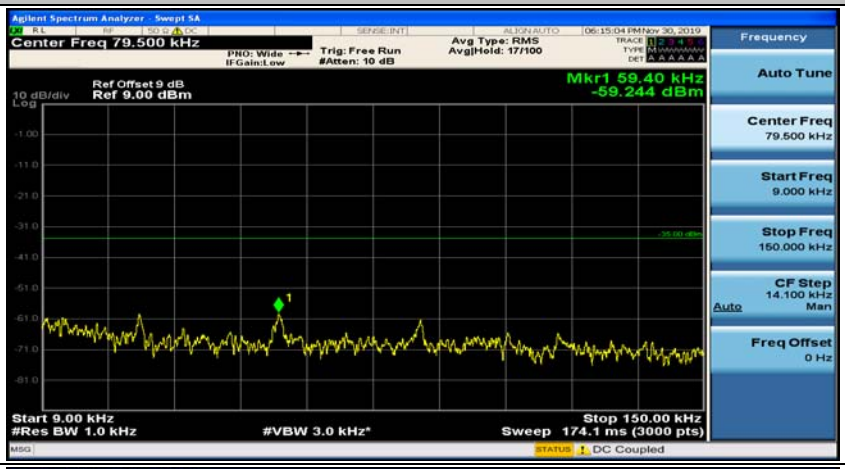
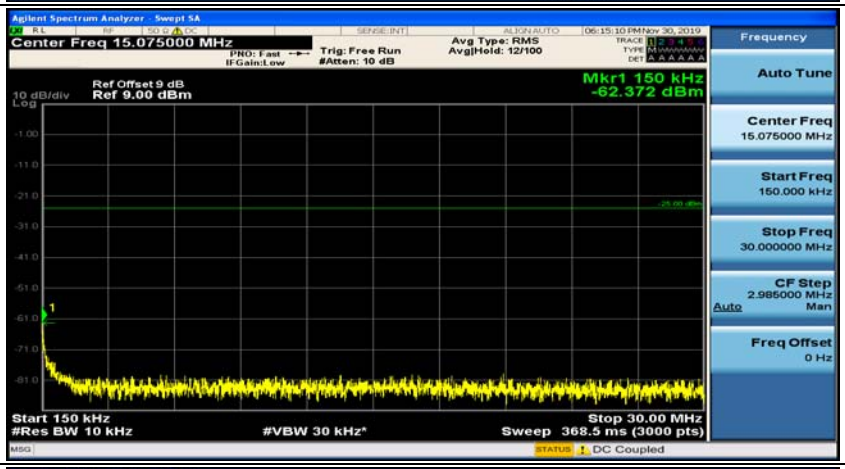
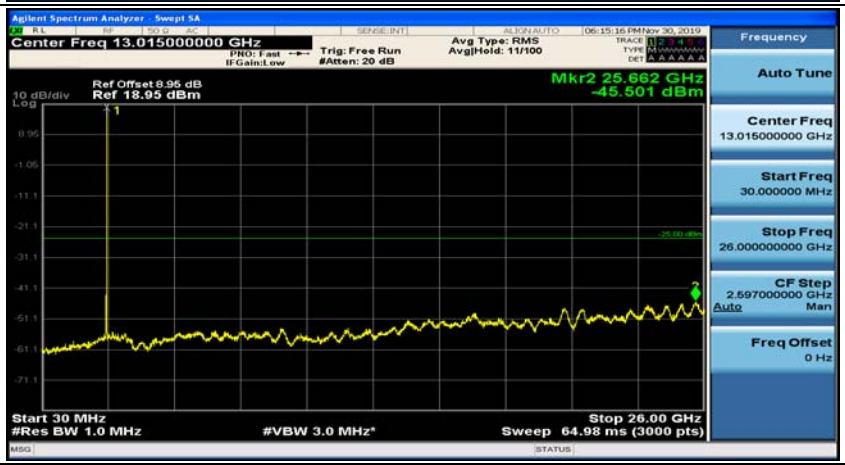



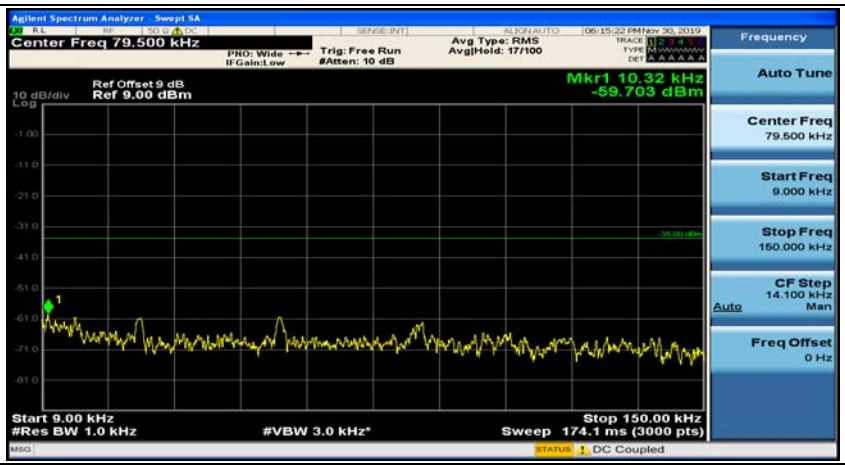

Channel Bandwidth: 10 MHz_MCH_16QAM_1RB#49

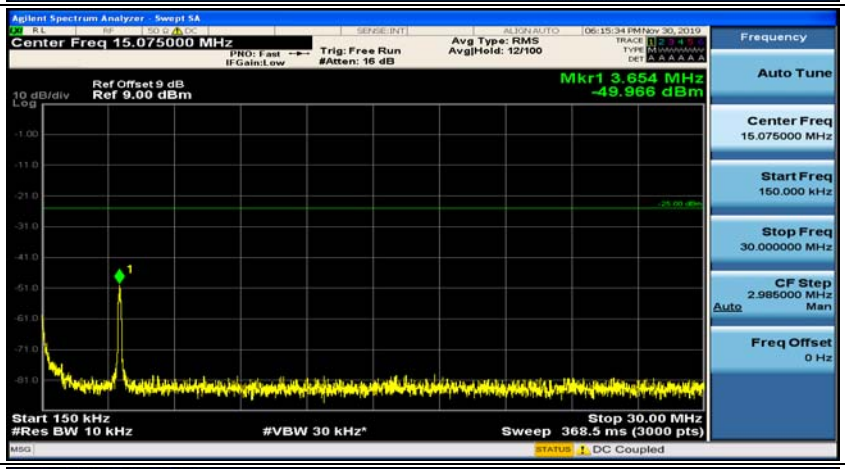

Agilent Spectrum Analyzer - Swept SA
Center Freq 79.500 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 17/100
06:13:29 PM Nov 30, 2019
Ref Offset 9 dB
10 dB/div
Log
Ref 9.00 dBm
Mkr1 11.87 kHz
-57.144 dBm
Start 9.00 kHz
#Res BW 1.0 kHz
#VBW 3.0 kHz*
Stop 150.00 kHz
Sweep 174.1 ms (3000 pts)
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

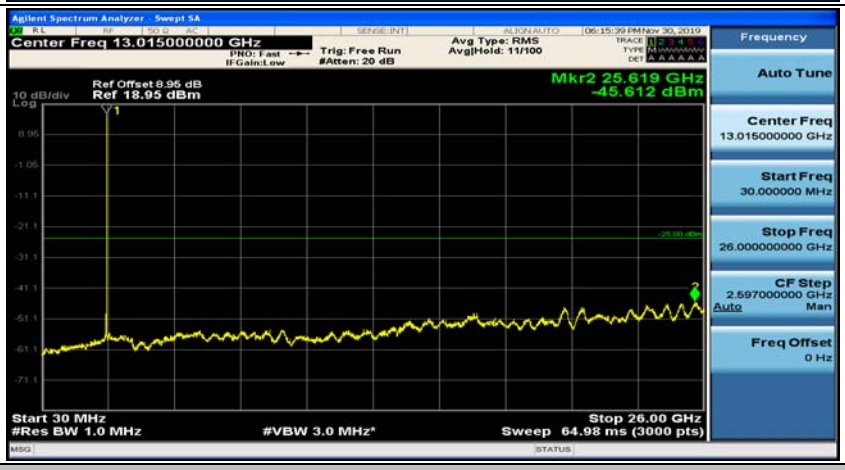

Agilent Spectrum Analyzer - Swept SA
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 16 dB
Avg Type: RMS
Avg|Hold: 12/100
06:13:41 PM Nov 30, 2019
Ref Offset 9 dB
10 dB/div
Log
Ref 9.00 dBm
Mkr1 150 kHz
-58.612 dBm
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz*
Stop 30.00 MHz
Sweep 368.5 ms (3000 pts)
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 13.015000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 11/100
06:13:47 PM Nov 30, 2019
Ref Offset 8.95 dB
10 dB/div
Log
Ref 18.95 dBm
Mkr2 25.151 GHz
-45.501 dBm
Start 30 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 26.00 GHz
Sweep 64.98 ms (3000 pts)
Frequency
Auto Tune
Center Freq
13.015000000 GHz
Start Freq
30.000000 MHz
Stop Freq
26.000000000 GHz
CF Step
2.597000000 GHz
Auto
Man
Freq Offset
0 Hz

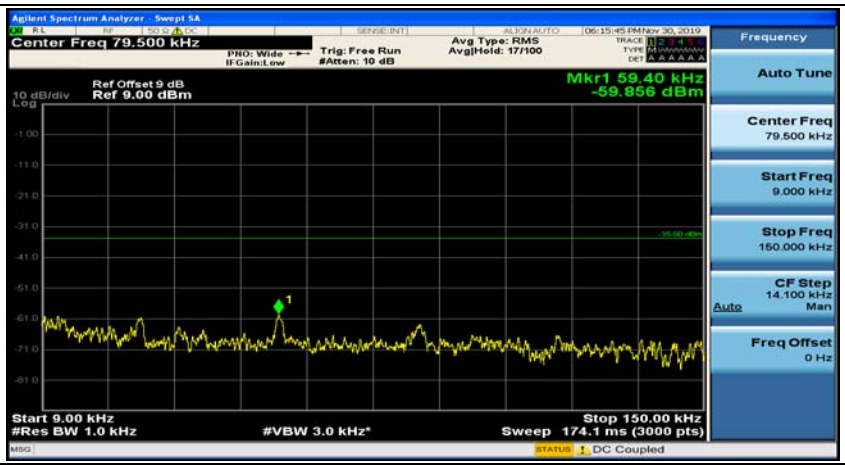
| Channel Bandwidth: 10 MHz_HCH_16QAM_1RB#0 |
|---|
|  |
|  |
|  |
| Channel Bandwidth: 10 MHz_HCH_16QAM_1RB#24 |

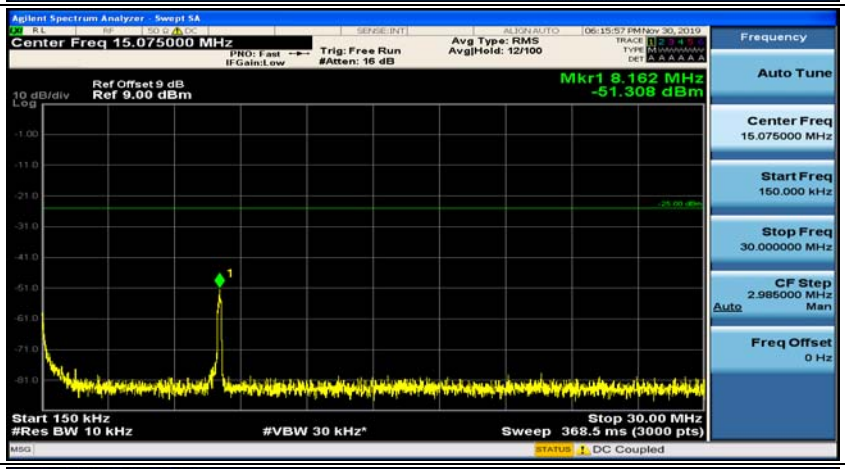


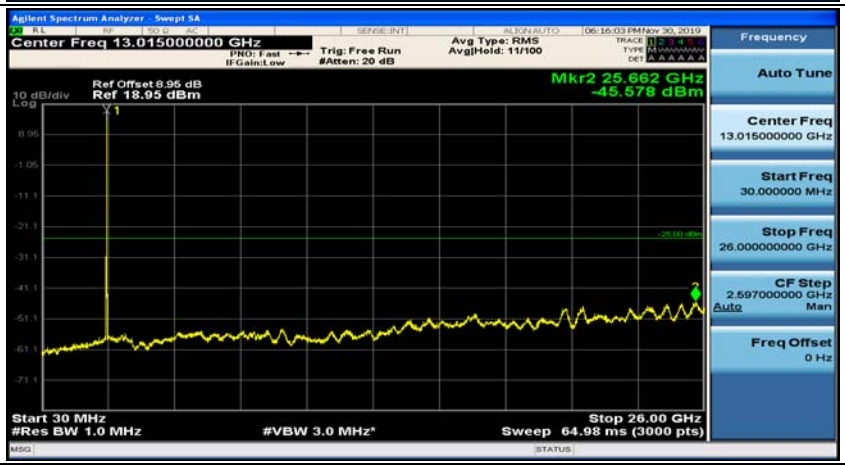



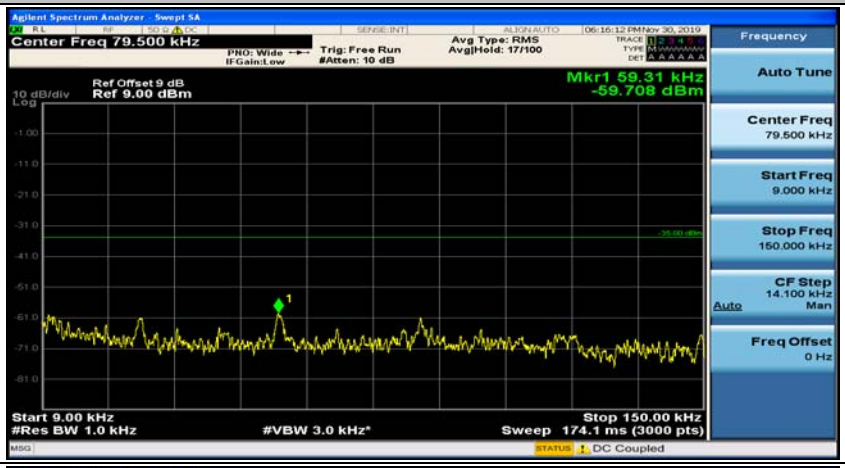
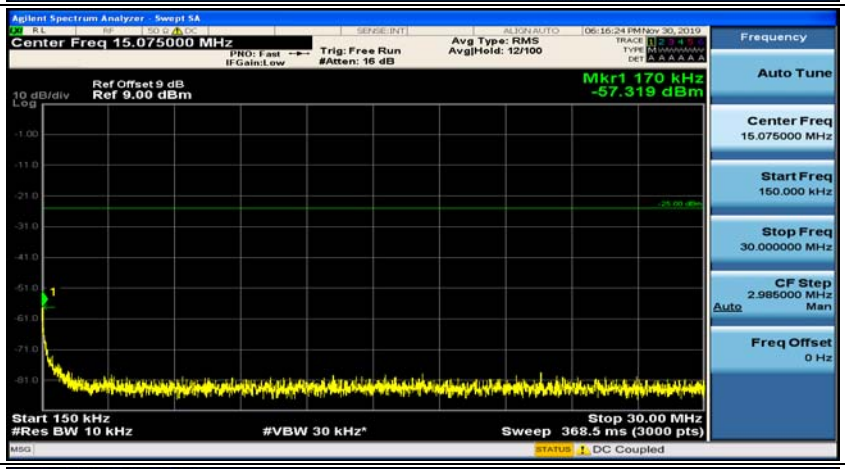
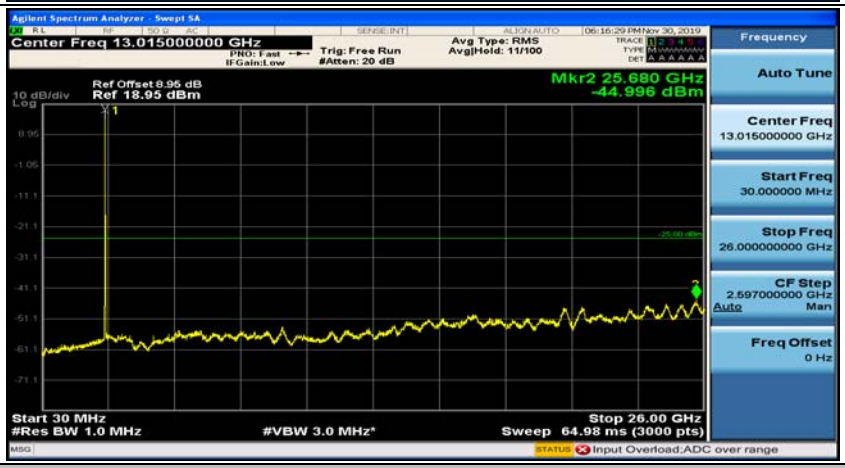

Channel Bandwidth: 10 MHz_HCH_16QAM_1RB#49

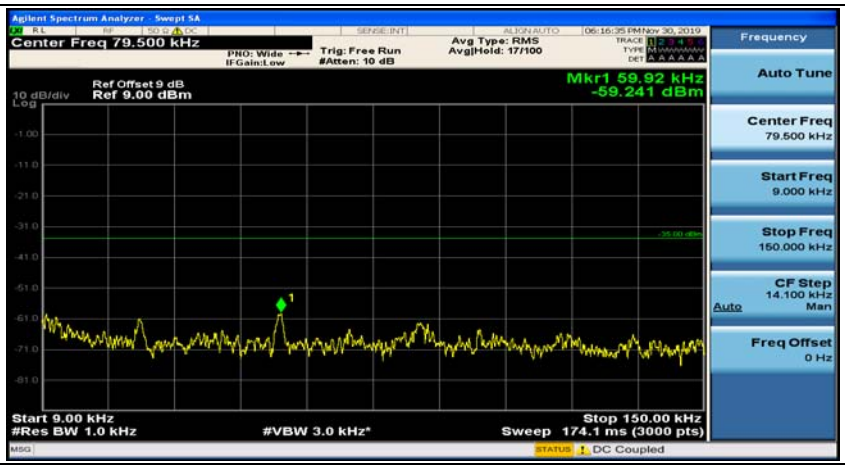

Agilent Spectrum Analyzer - Swept SA
Center Freq 79.500 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 17/100
06:15:45 PM Nov 30, 2019
Ref Offset 9 dB
10 dB/div
Log
Ref 9.00 dBm
Mkr1 59.40 kHz
-59.856 dBm
Start 9.00 kHz
#Res BW 1.0 kHz
#VBW 3.0 kHz*
Stop 150.00 kHz
Sweep 174.1 ms (3000 pts)
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

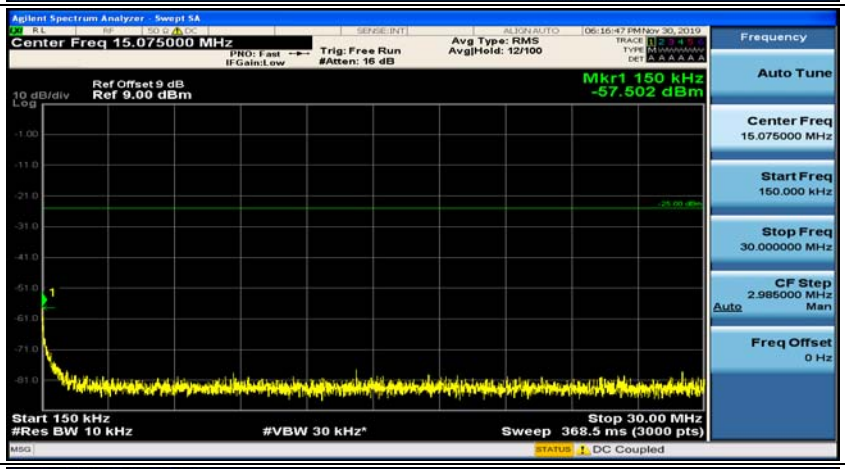

Agilent Spectrum Analyzer - Swept SA
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 16 dB
Avg Type: RMS
Avg|Hold: 12/100
06:15:57 PM Nov 30, 2019
Ref Offset 9 dB
10 dB/div
Log
Ref 9.00 dBm
Mkr1 8.162 MHz
-51.308 dBm
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz*
Stop 30.00 MHz
Sweep 368.5 ms (3000 pts)
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

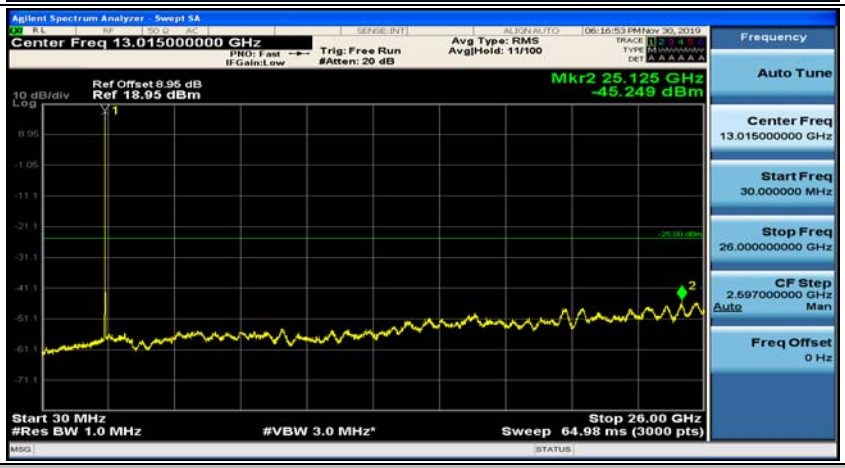

Agilent Spectrum Analyzer - Swept SA
Center Freq 13.015000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 11/100
06:16:03 PM Nov 30, 2019
Ref Offset 8.95 dB
10 dB/div
Log
Ref 18.95 dBm
Mkr2 25.662 GHz
-45.578 dBm
Start 30 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 26.00 GHz
Sweep 64.98 ms (3000 pts)
Frequency
Auto Tune
Center Freq
13.015000000 GHz
Start Freq
30.000000 MHz
Stop Freq
26.000000000 GHz
CF Step
2.597000000 GHz
Auto
Man
Freq Offset
0 Hz

## Channel Bandwidth: 15 MHz

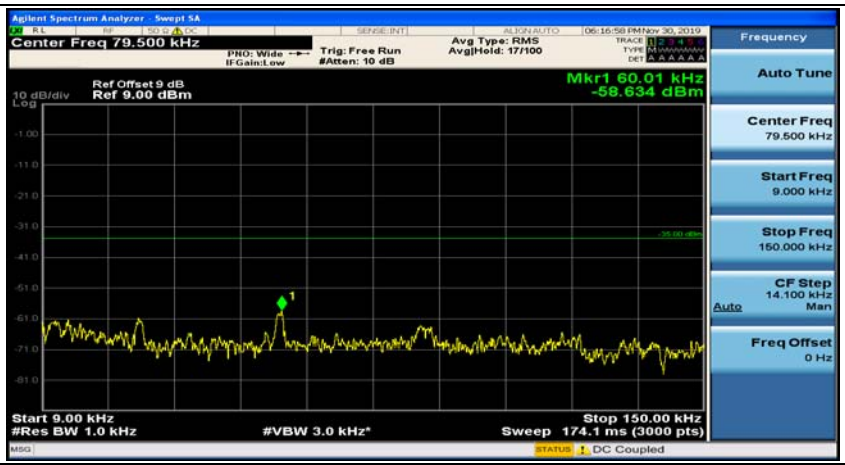
| (Channel Bandwidth:15 MHz)_LCH_QPSK_1RB#0 |
| --- |
|  |
|  |
|  |
| (Channel Bandwidth:15 MHz)_LCH_QPSK_1RB#37 |

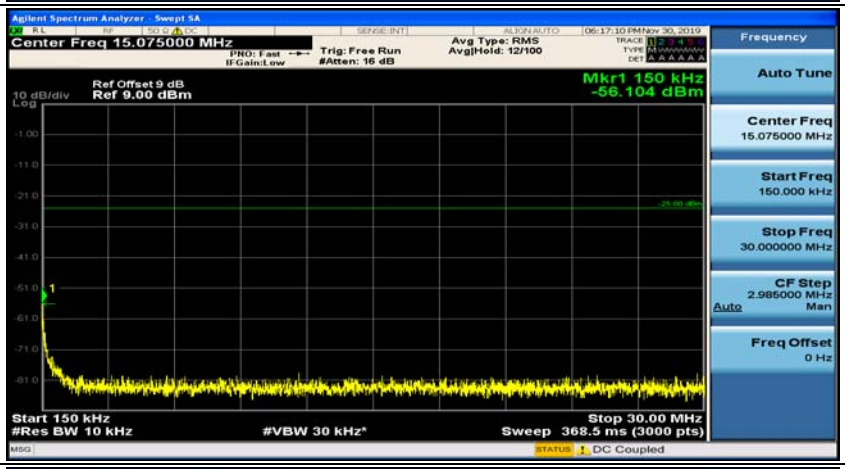


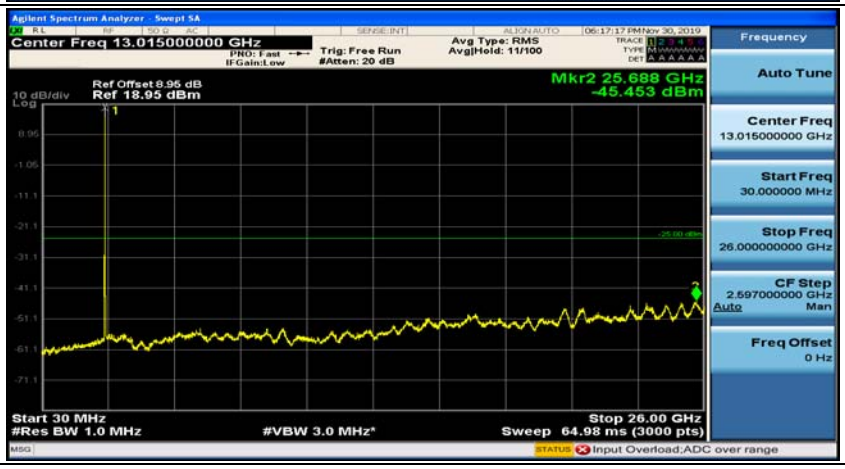



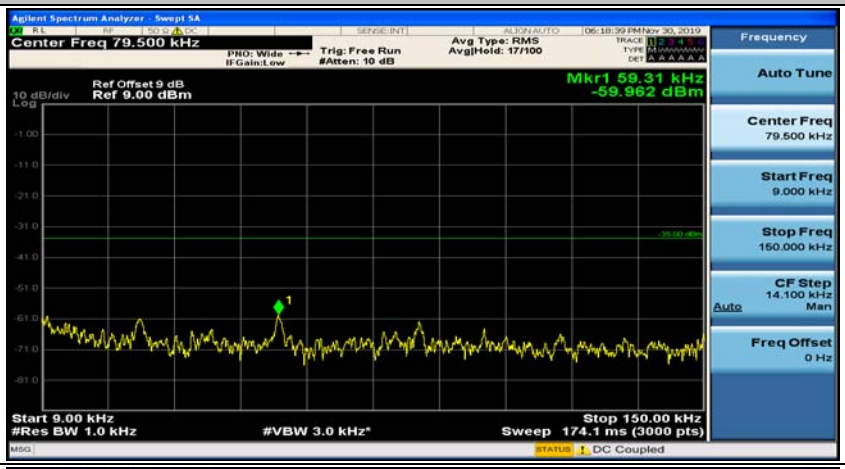
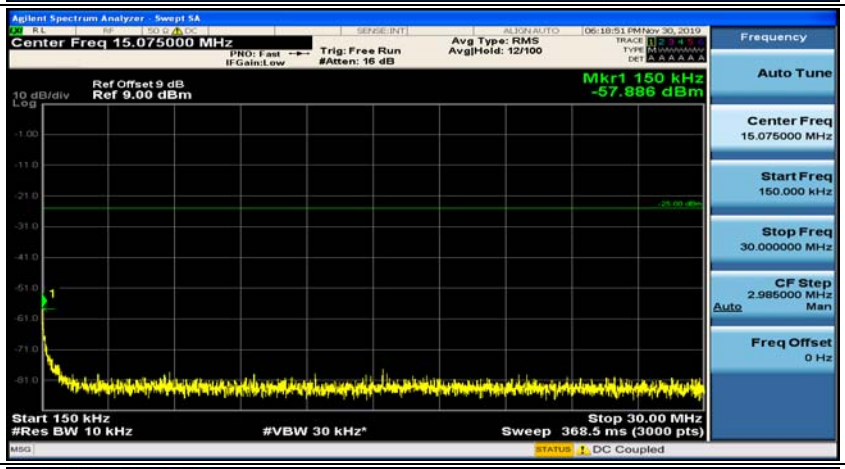
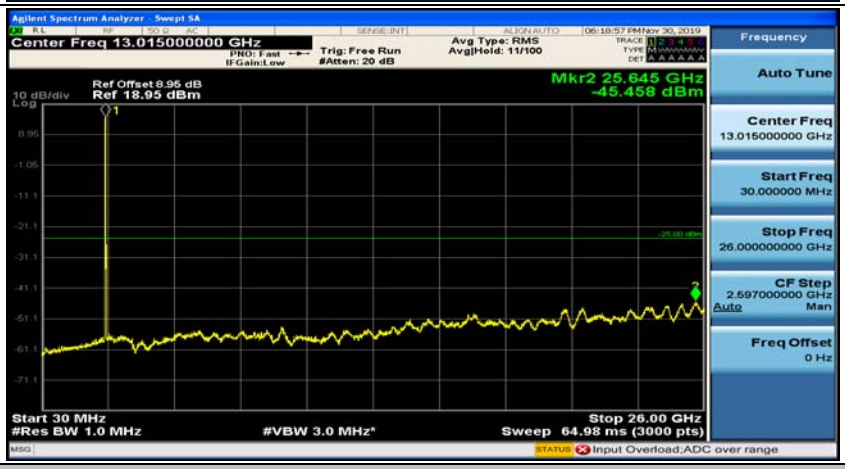



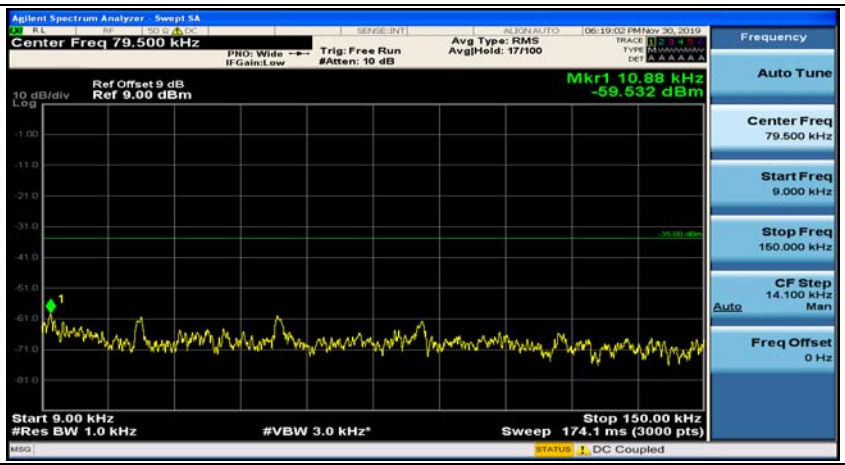

(Channel Bandwidth:15 MHz)_LCH_QPSK_1RB#74

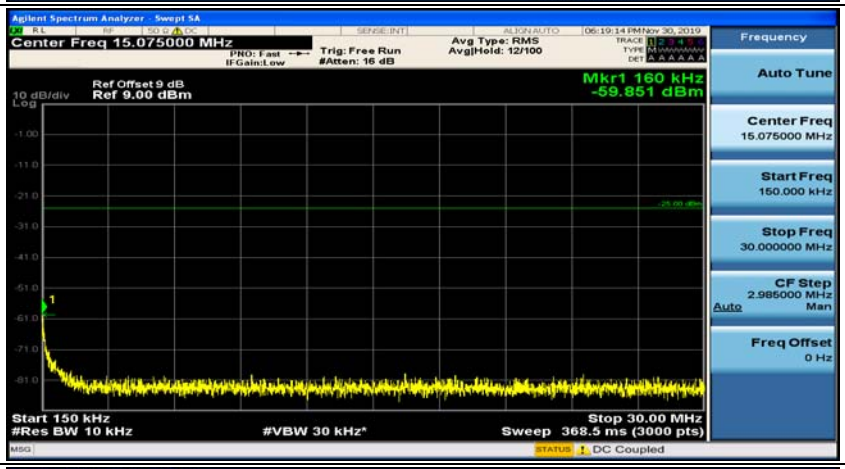

Agilent Spectrum Analyzer - Swept SA
Center Freq 79.500 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 17/100
06:16:58 PM Nov 30, 2019
Ref Offset 9 dB
10 dB/div
Log
Ref 9.00 dBm
Mkr1 60.01 kHz
-58.634 dBm
Start 9.00 kHz
#Res BW 1.0 kHz
#VBW 3.0 kHz*
Stop 150.00 kHz
Sweep 174.1 ms (3000 pts)
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

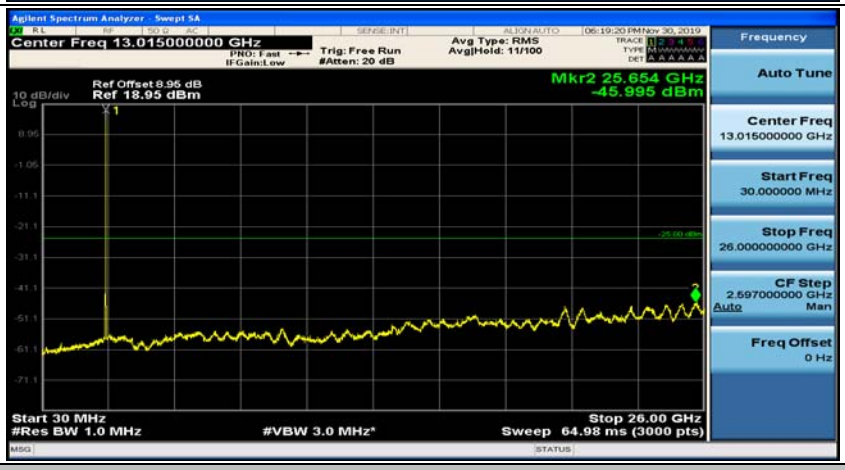

Agilent Spectrum Analyzer - Swept SA
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 16 dB
Avg Type: RMS
Avg|Hold: 12/100
06:17:10 PM Nov 30, 2019
Ref Offset 9 dB
10 dB/div
Log
Ref 9.00 dBm
Mkr1 150 kHz
-56.104 dBm
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz*
Stop 30.00 MHz
Sweep 368.5 ms (3000 pts)
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 13.015000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 11/100
06:17:17 PM Nov 30, 2019
Ref Offset 8.95 dB
10 dB/div
Log
Ref 18.95 dBm
Mkr2 25.688 GHz
-45.453 dBm
Start 30 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 26.00 GHz
Sweep 64.98 ms (3000 pts)
Input Overload;ADC over range
Frequency
Auto Tune
Center Freq
13.015000000 GHz
Start Freq
30.000000 MHz
Stop Freq
26.000000000 GHz
CF Step
2.597000000 GHz
Auto
Man
Freq Offset
0 Hz

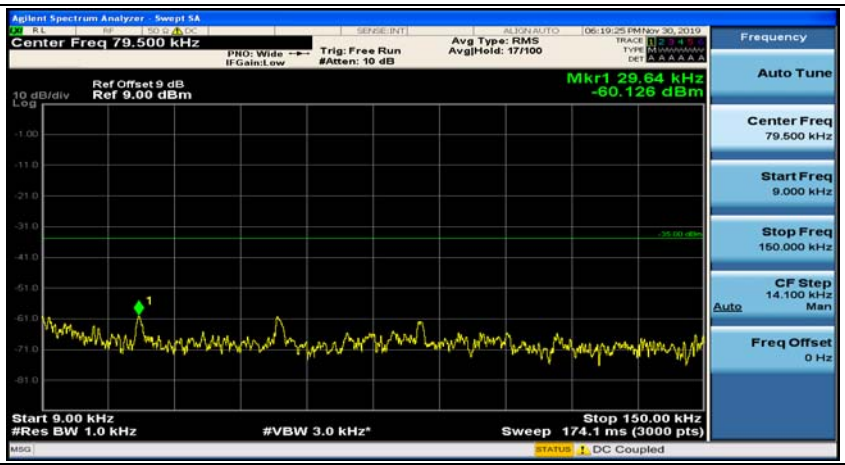
| (Channel Bandwidth:15 MHz)_MCH_QPSK_1RB#0 |
| --- |
|  |
|  |
|  |
| (Channel Bandwidth:15 MHz)_MCH_QPSK_1RB#37 |

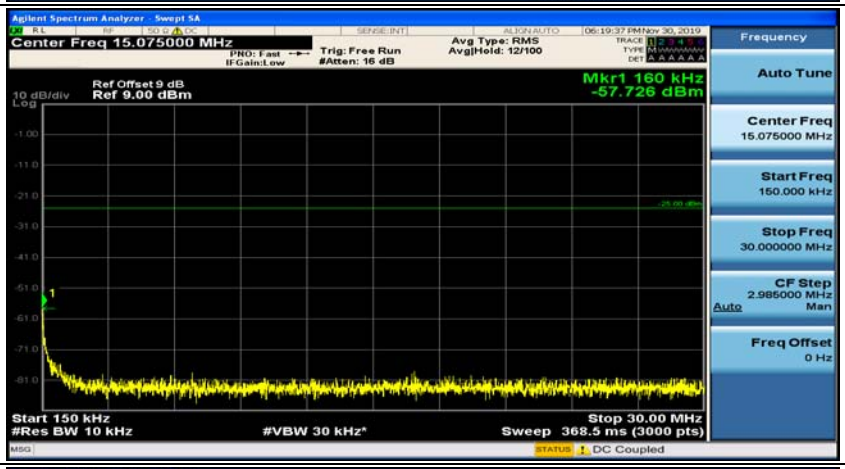


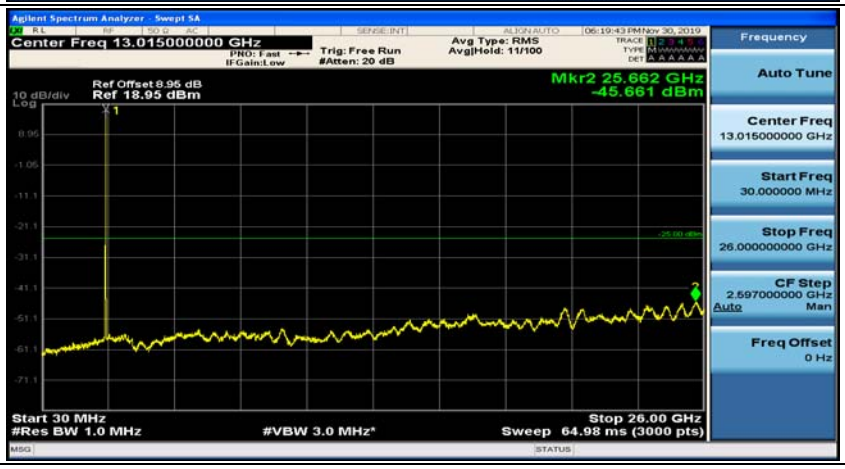



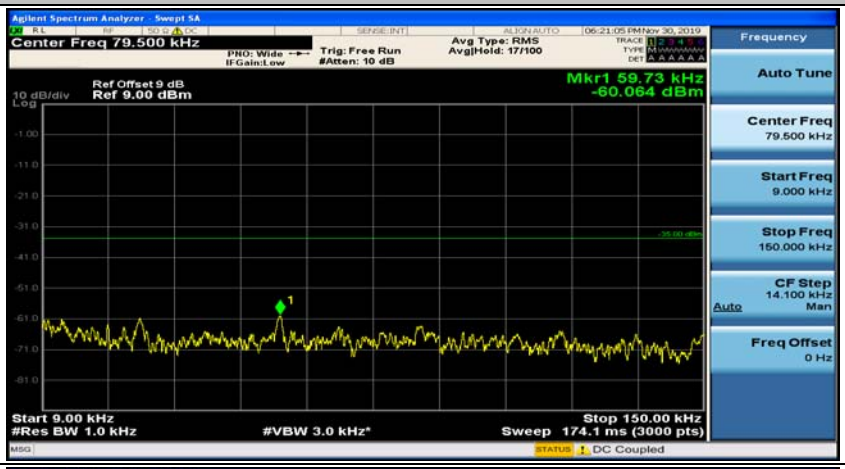
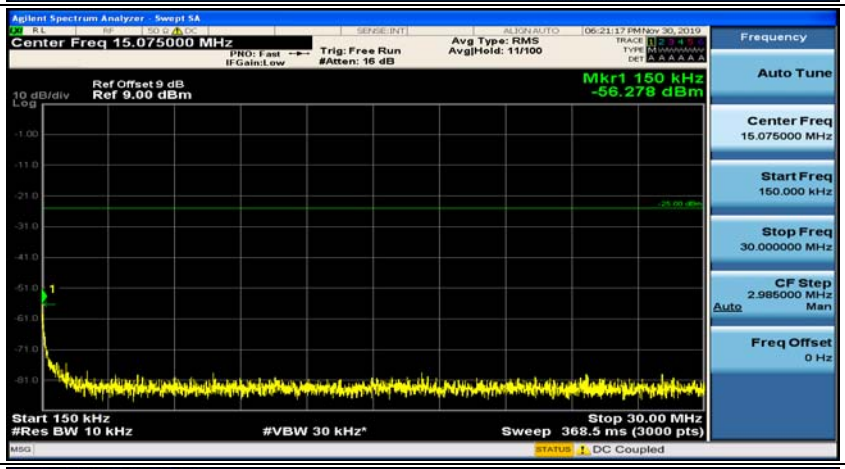
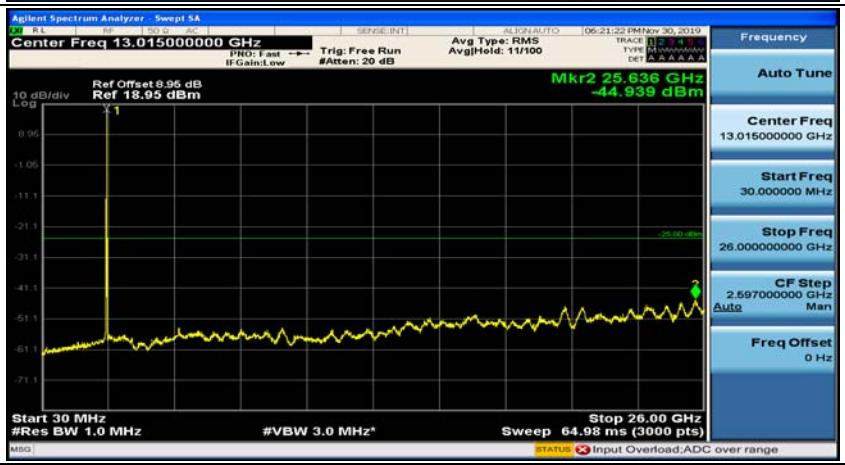



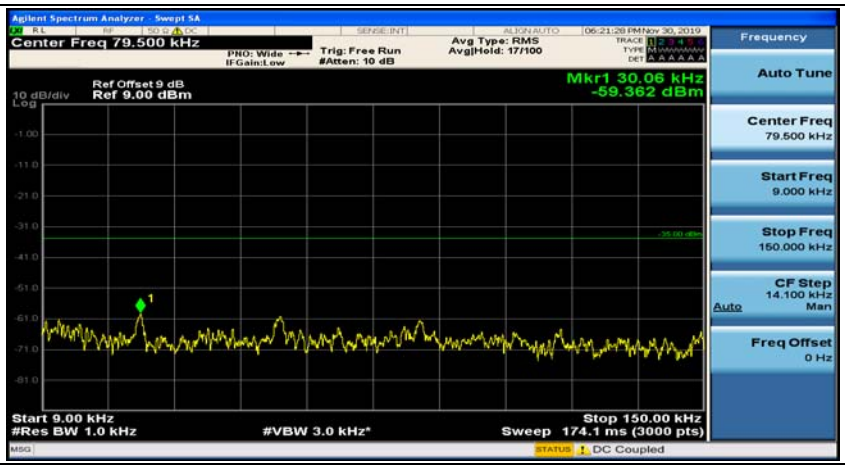

(Channel Bandwidth:15 MHz)_MCH_QPSK_1RB#74

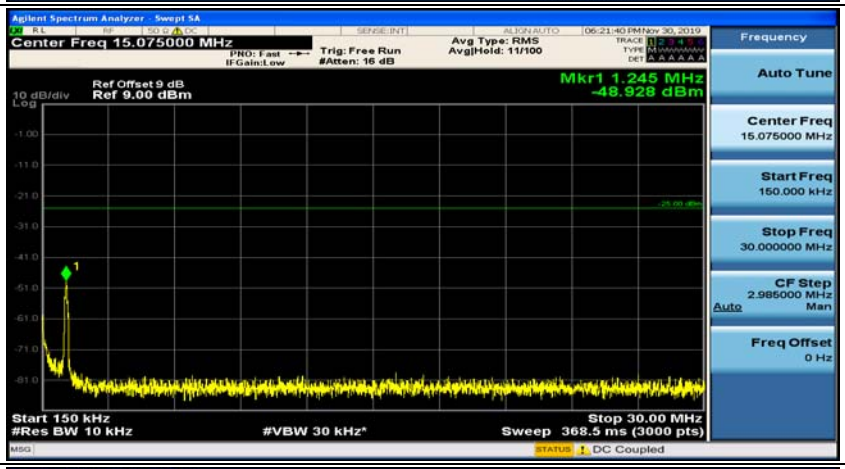

Agilent Spectrum Analyzer - Swept SA
Center Freq 79.500 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 17/100
06:19:25 PM Nov 30, 2019
Frequency
Auto Tune
Mkr1 29.64 kHz
-60.126 dBm
Ref Offset 9 dB
10 dB/div
Log
Ref 9.00 dBm
Center Freq
79.500 kHz
Start Freq
9.000 kHz
Stop Freq
150.000 kHz
CF Step
14.100 kHz
Auto
Man
Freq Offset
0 Hz
Start 9.00 kHz
#Res BW 1.0 kHz
#VBW 3.0 kHz*
Stop 150.00 kHz
Sweep 174.1 ms (3000 pts)
DC Coupled

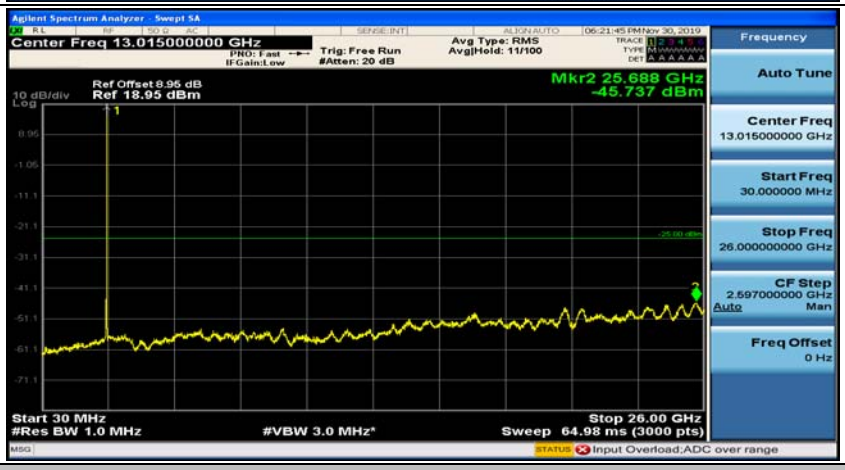

Agilent Spectrum Analyzer - Swept SA
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 16 dB
Avg Type: RMS
Avg|Hold: 12/100
06:19:37 PM Nov 30, 2019
Frequency
Auto Tune
Mkr1 160 kHz
-57.726 dBm
Ref Offset 9 dB
10 dB/div
Log
Ref 9.00 dBm
Center Freq
15.075000 MHz
Start Freq
150.000 kHz
Stop Freq
30.000000 MHz
CF Step
2.985000 MHz
Auto
Man
Freq Offset
0 Hz
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz*
Stop 30.00 MHz
Sweep 368.5 ms (3000 pts)
DC Coupled


Agilent Spectrum Analyzer - Swept SA
Center Freq 13.015000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 11/100
06:19:43 PM Nov 30, 2019
Frequency
Auto Tune
Mkr2 25.662 GHz
-45.661 dBm
Ref Offset 8.95 dB
10 dB/div
Log
Ref 18.95 dBm
Center Freq
13.015000000 GHz
Start Freq
30.000000 MHz
Stop Freq
26.000000000 GHz
CF Step
2.597000000 GHz
Auto
Man
Freq Offset
0 Hz
Start 30 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 26.00 GHz
Sweep 64.98 ms (3000 pts)

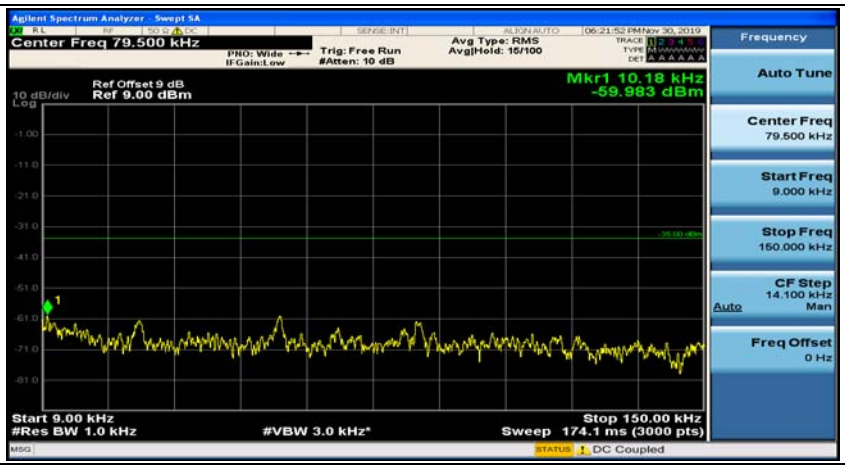
| (Channel Bandwidth:15 MHz)_HCH_QPSK_1RB#0 |
| --- |
|  |
|  |
|  |
| (Channel Bandwidth:15 MHz)_HCH_QPSK_1RB#37 |

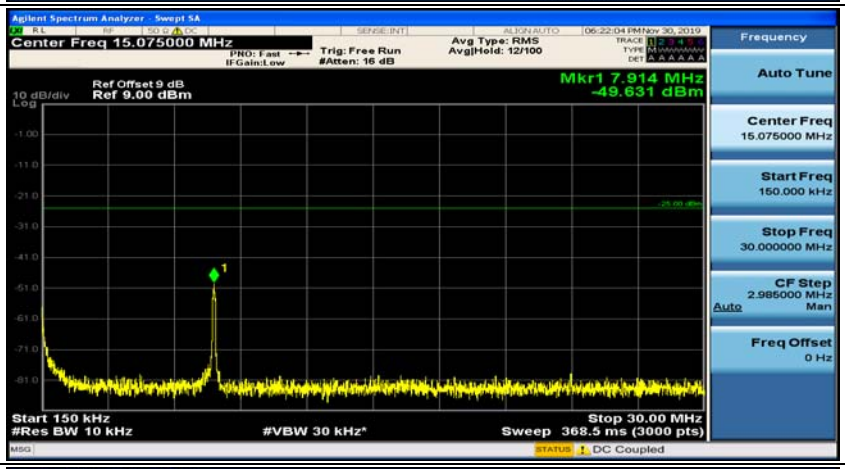


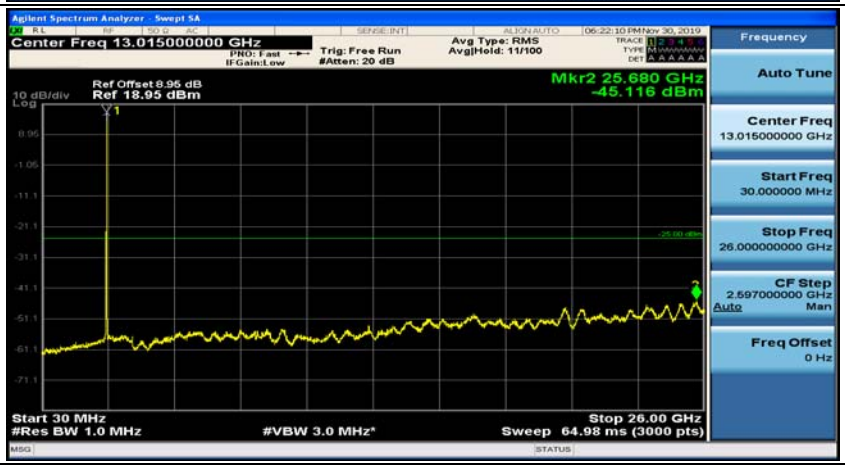



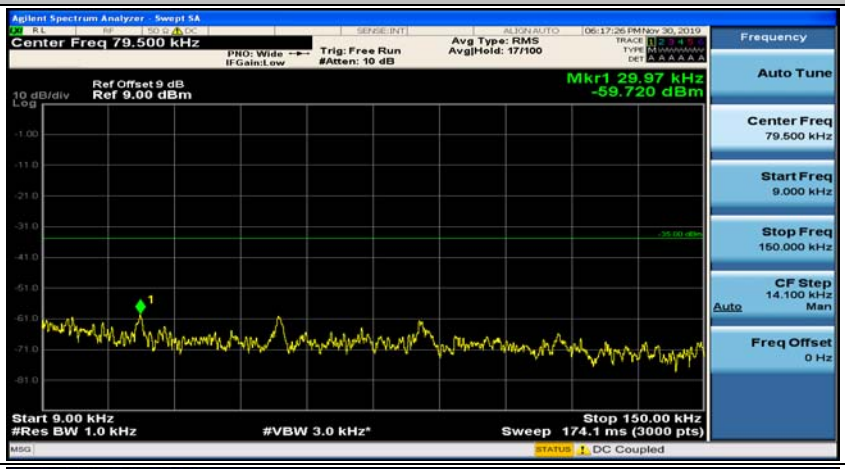
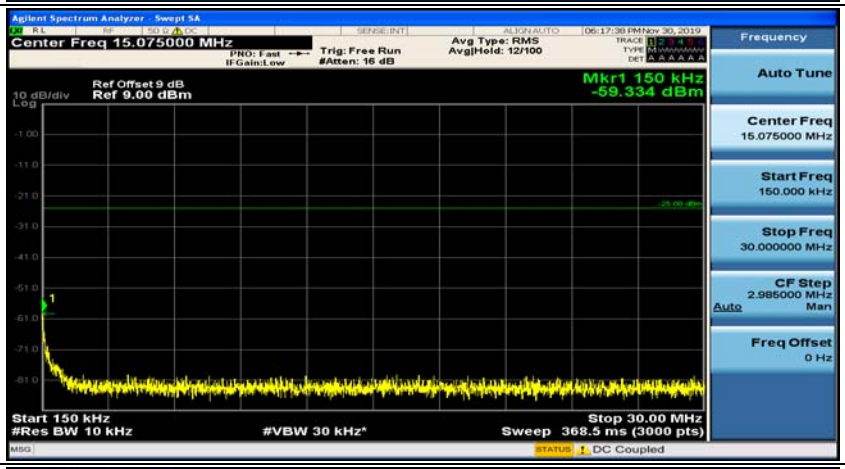
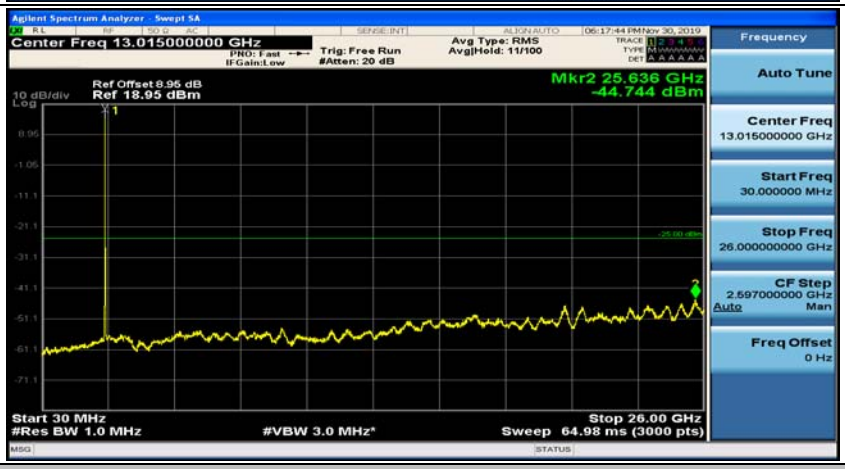



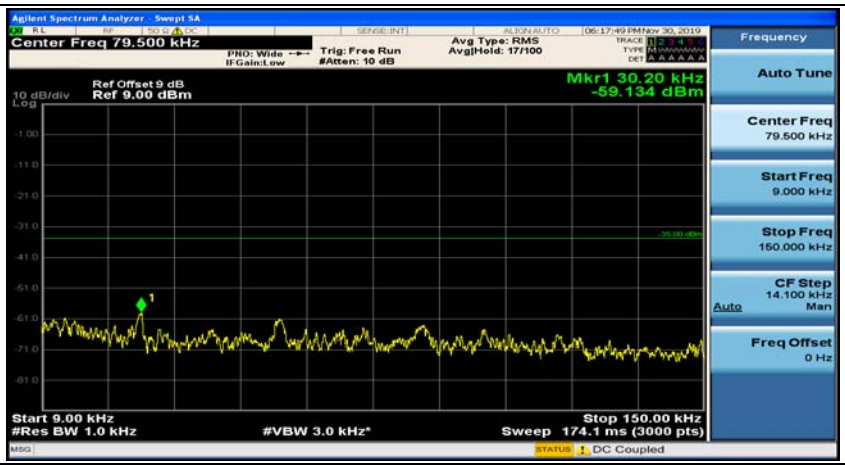

(Channel Bandwidth:15 MHz)_HCH_QPSK_1RB#74

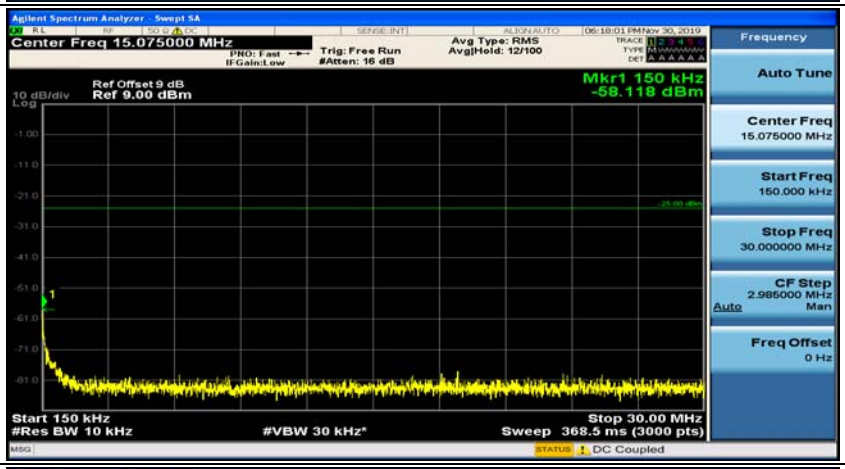

Agilent Spectrum Analyzer - Swept SA
Center Freq 79.500 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 16/100
06:21:52 PM Nov 30, 2019
Mkr1 10.18 kHz
-59.983 dBm
Ref Offset 9 dB
10 dB/div
Log
Ref 9.00 dBm
Start 9.00 kHz
#Res BW 1.0 kHz
#VBW 3.0 kHz*
Stop 150.00 kHz
Sweep 174.1 ms (3000 pts)
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

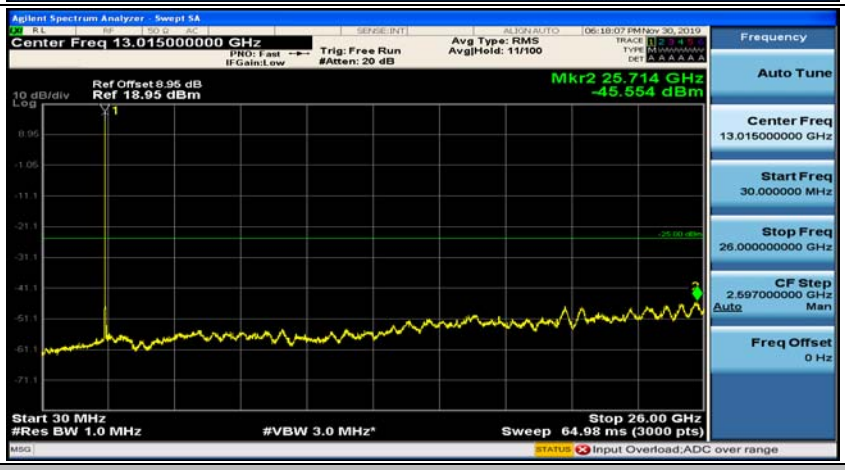

Agilent Spectrum Analyzer - Swept SA
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 16 dB
Avg Type: RMS
Avg|Hold: 12/100
06:22:04 PM Nov 30, 2019
Mkr1 7.914 MHz
-49.631 dBm
Ref Offset 9 dB
10 dB/div
Log
Ref 9.00 dBm
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz*
Stop 30.00 MHz
Sweep 368.5 ms (3000 pts)
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 13.015000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 11/100
06:22:10 PM Nov 30, 2019
Mkr2 25.680 GHz
-45.116 dBm
Ref Offset 8.95 dB
10 dB/div
Log
Ref 18.95 dBm
Start 30 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 26.00 GHz
Sweep 64.98 ms (3000 pts)
Frequency
Auto Tune
Center Freq
13.015000000 GHz
Start Freq
30.000000 MHz
Stop Freq
26.000000000 GHz
CF Step
2.597000000 GHz
Auto
Man
Freq Offset
0 Hz

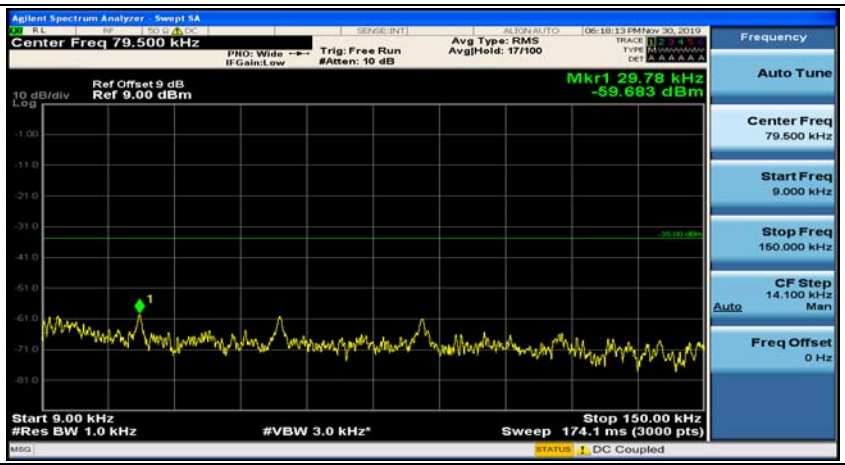
| (Channel Bandwidth:15 MHz)_LCH_16QAM_1RB#0 |
| --- |
|  |
|  |
|  |
| (Channel Bandwidth:15 MHz)_LCH_16QAM_1RB#37 |

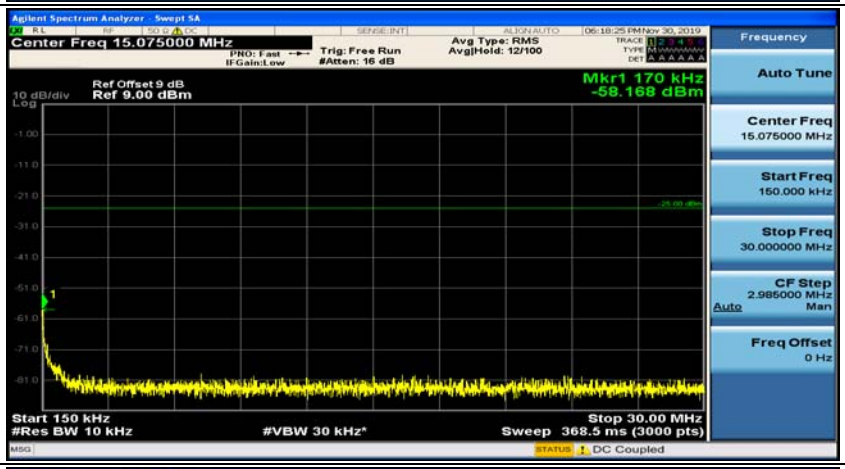


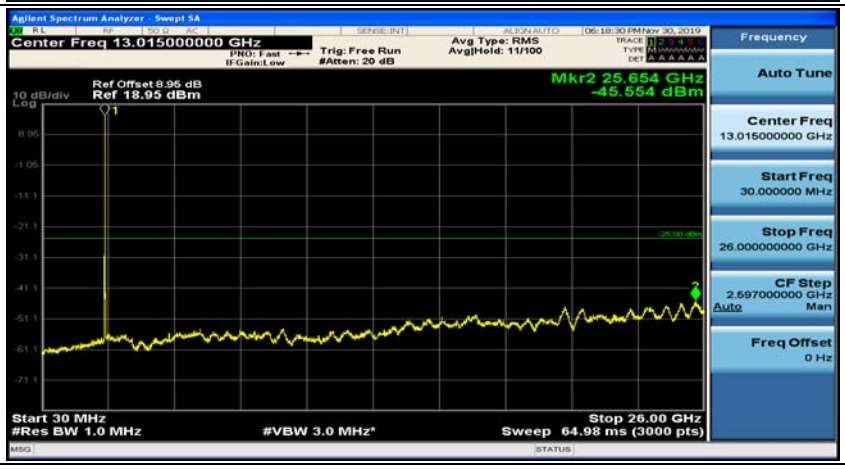



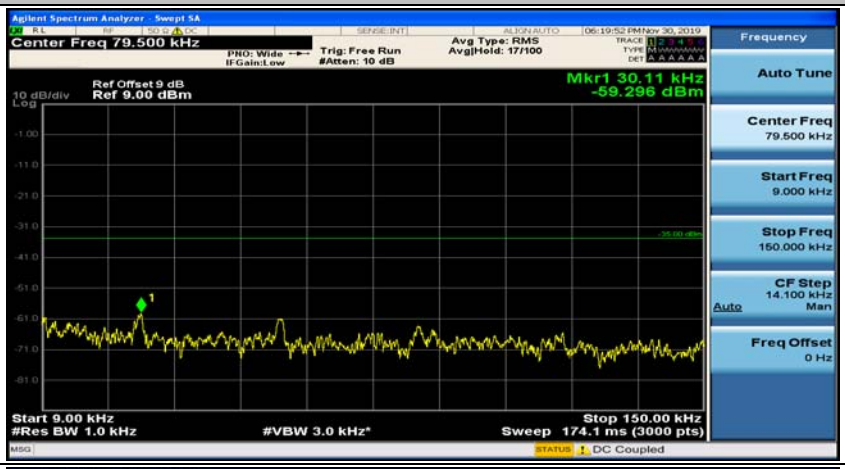
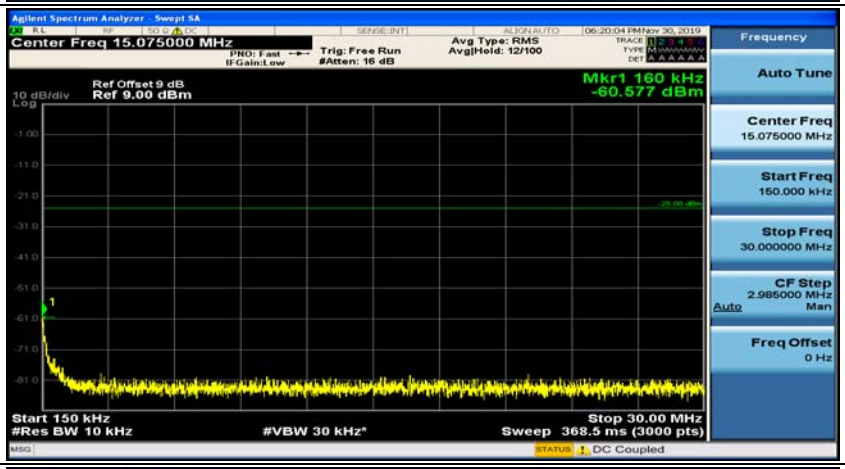
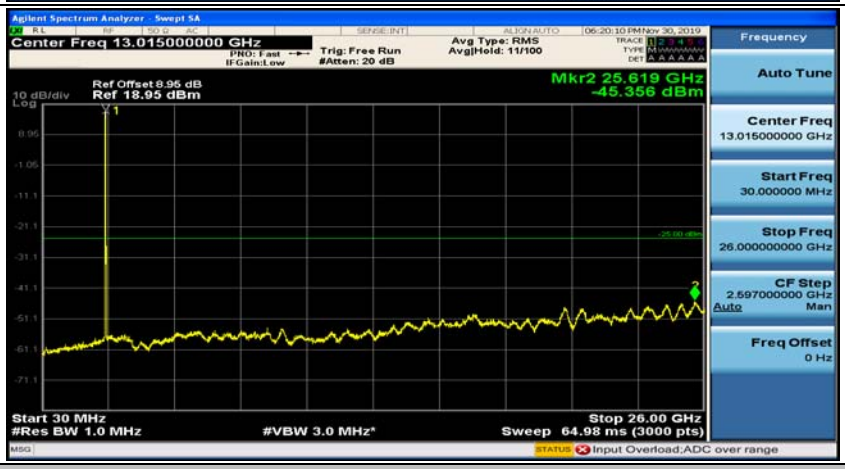



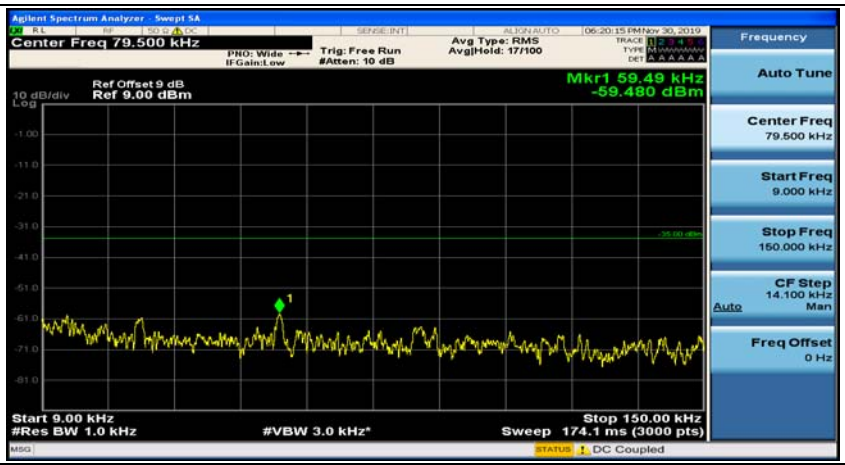

(Channel Bandwidth:15 MHz)_LCH_16QAM_1RB#74

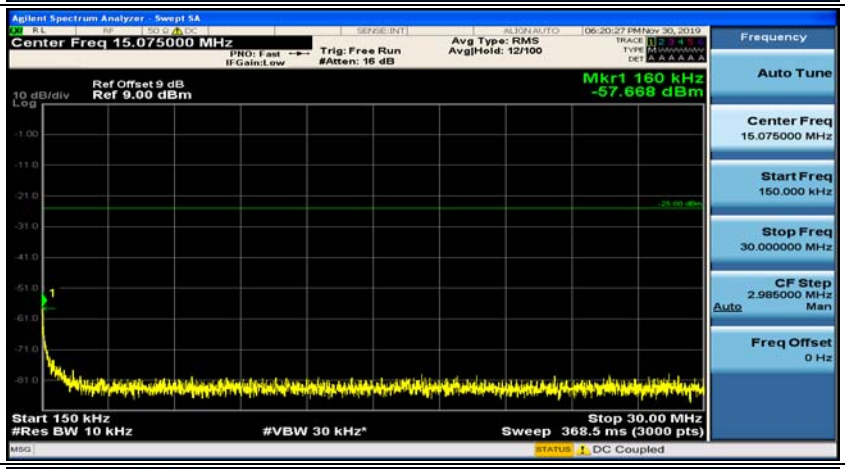

Agilent Spectrum Analyzer - Swept SA
Center Freq 79.500 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 17/100
06:18:13 PM Nov 30, 2019
Ref Offset 9 dB
10 dB/div
Log
Ref 9.00 dBm
Mkr1 29.78 kHz
-59.683 dBm
Start 9.00 kHz
#Res BW 1.0 kHz
#VBW 3.0 kHz*
Stop 150.00 kHz
Sweep 174.1 ms (3000 pts)
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

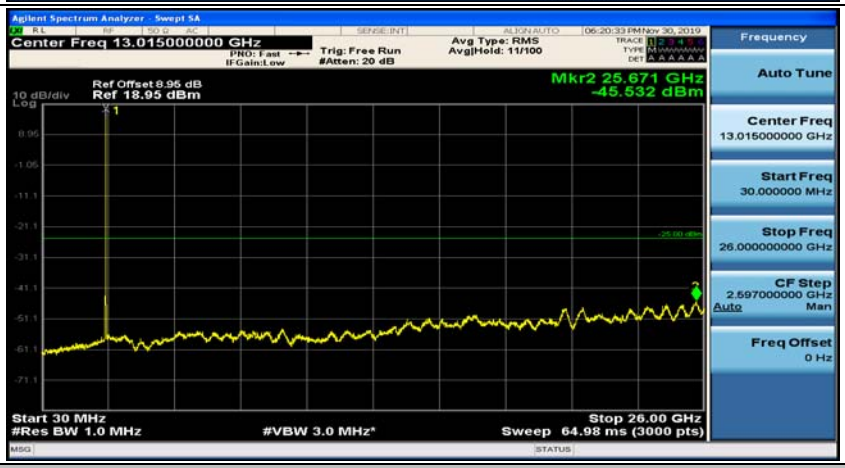

Agilent Spectrum Analyzer - Swept SA
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 16 dB
Avg Type: RMS
Avg|Hold: 12/100
06:18:25 PM Nov 30, 2019
Ref Offset 9 dB
10 dB/div
Log
Ref 9.00 dBm
Mkr1 170 kHz
-58.168 dBm
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz*
Stop 30.00 MHz
Sweep 368.5 ms (3000 pts)
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 13.015000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 11/100
06:18:30 PM Nov 30, 2019
Ref Offset 8.95 dB
10 dB/div
Log
Ref 18.95 dBm
Mkr2 25.654 GHz
-45.554 dBm
Start 30 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 26.00 GHz
Sweep 64.98 ms (3000 pts)
Frequency
Auto Tune
Center Freq
13.015000000 GHz
Start Freq
30.000000 MHz
Stop Freq
26.000000000 GHz
CF Step
2.597000000 GHz
Auto
Man
Freq Offset
0 Hz

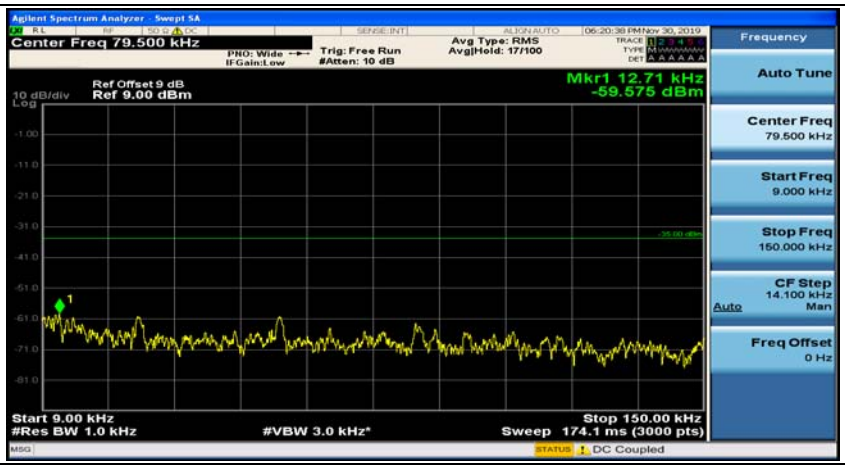
| (Channel Bandwidth:15 MHz)_MCH_16QAM_1RB#0 |
| --- |
|  |
|  |
|  |
| (Channel Bandwidth:15 MHz)_MCH_16QAM_1RB#37 |

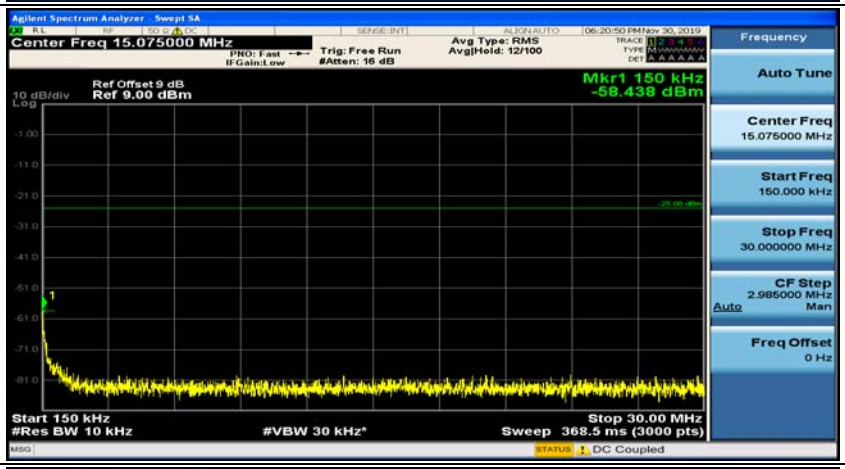


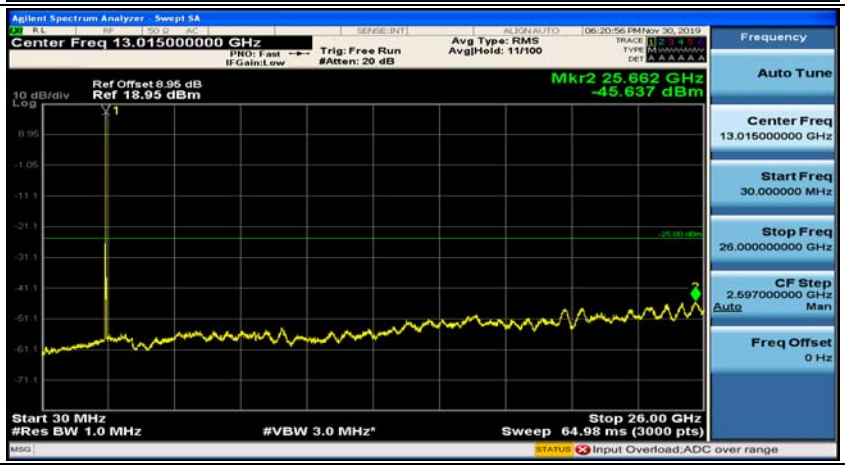



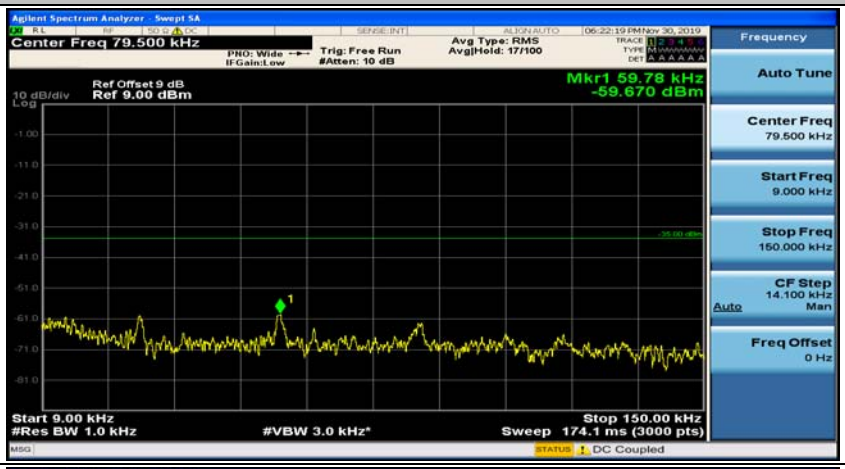
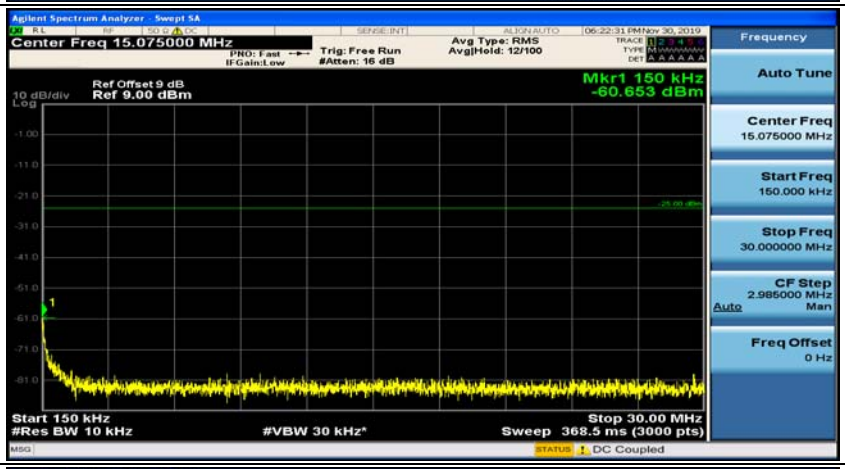
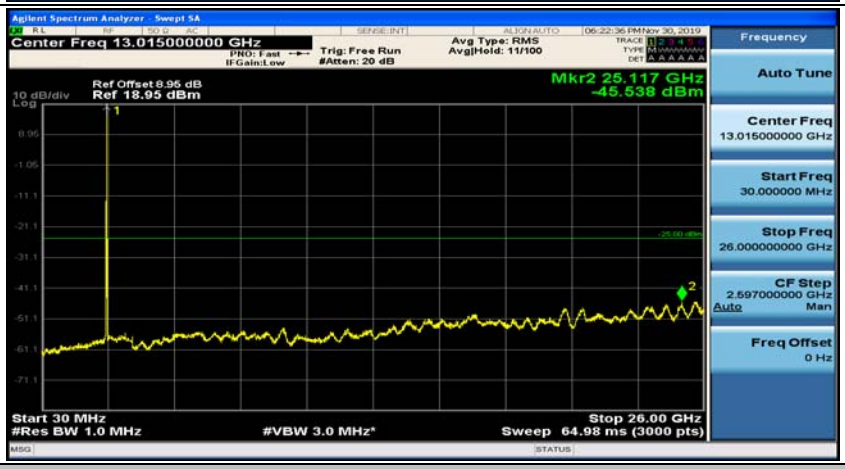



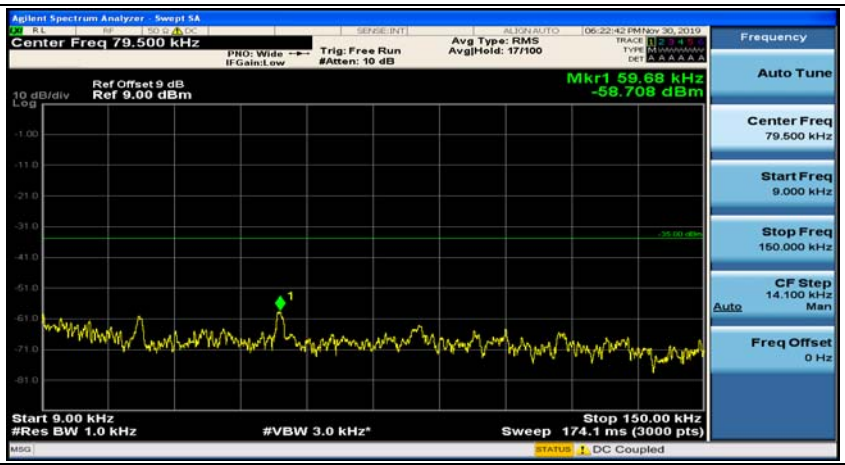

(Channel Bandwidth:15 MHz)_MCH_16QAM_1RB#74

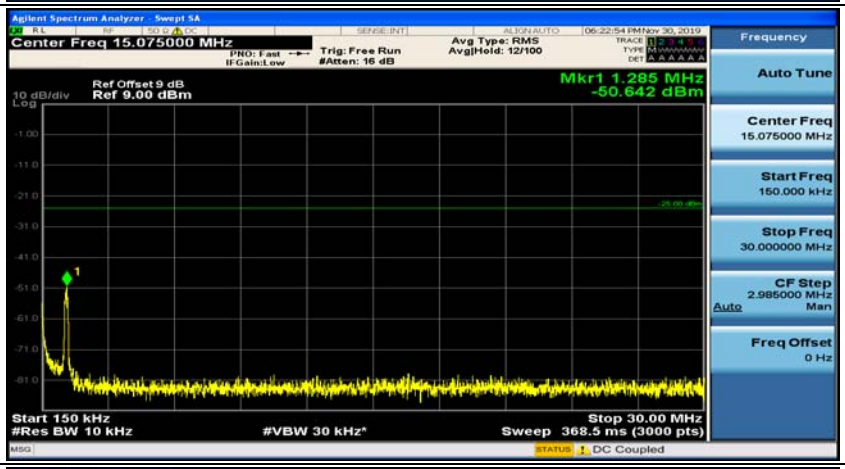

Agilent Spectrum Analyzer - Swept SA
Center Freq 79.500 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 17/100
06:20:38 PM Nov 30, 2019
Ref Offset 9 dB
10 dB/div
Log
Ref 9.00 dBm
Mkr1 12.71 kHz
-59.575 dBm
Start 9.00 kHz
#Res BW 1.0 kHz
#VBW 3.0 kHz*
Stop 150.00 kHz
Sweep 174.1 ms (3000 pts)
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

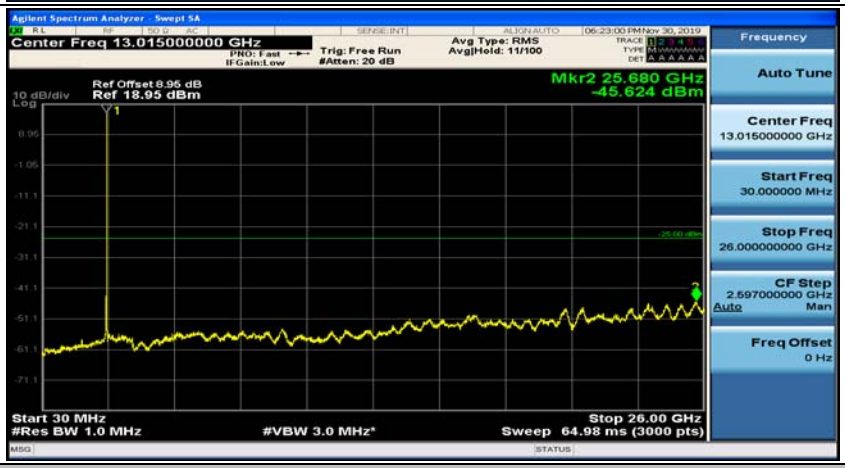

Agilent Spectrum Analyzer - Swept SA
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 16 dB
Avg Type: RMS
Avg|Hold: 12/100
06:20:50 PM Nov 30, 2019
Ref Offset 9 dB
10 dB/div
Log
Ref 9.00 dBm
Mkr1 150 kHz
-58.438 dBm
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz*
Stop 30.00 MHz
Sweep 368.5 ms (3000 pts)
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 13.015000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 11/100
06:20:56 PM Nov 30, 2019
Ref Offset 8.95 dB
10 dB/div
Log
Ref 18.95 dBm
Mkr2 25.662 GHz
-45.637 dBm
Start 30 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 26.00 GHz
Sweep 64.98 ms (3000 pts)
Input Overload;ADC over range
Frequency
Auto Tune
Center Freq
13.015000000 GHz
Start Freq
30.000000 MHz
Stop Freq
26.000000000 GHz
CF Step
2.597000000 GHz
Auto
Man
Freq Offset
0 Hz

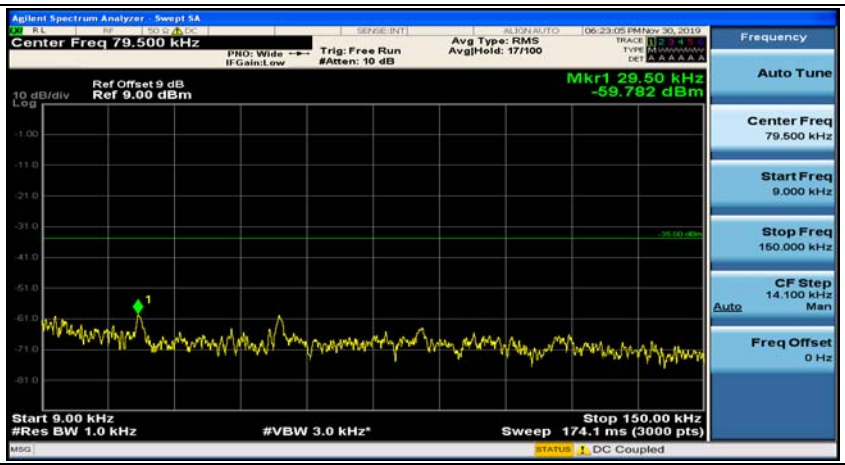
| (Channel Bandwidth:15 MHz)_HCH_16QAM_1RB#0 |
| --- |
|  |
|  |
|  |
| (Channel Bandwidth:15 MHz)_HCH_16QAM_1RB#37 |

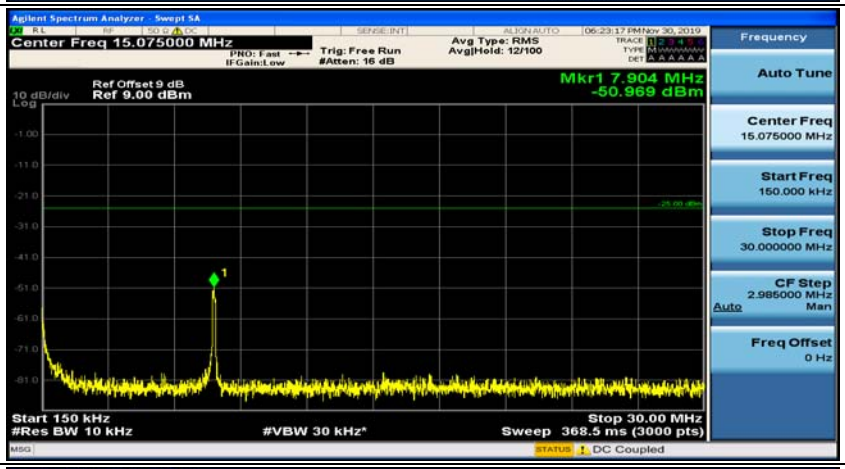


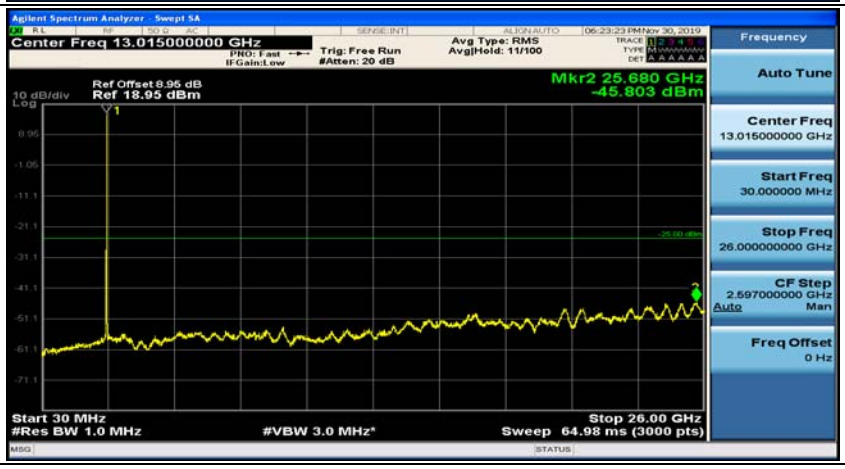



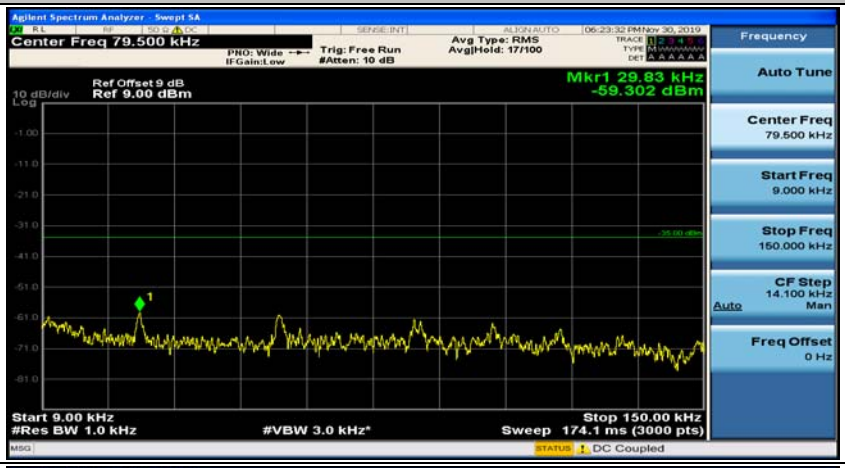
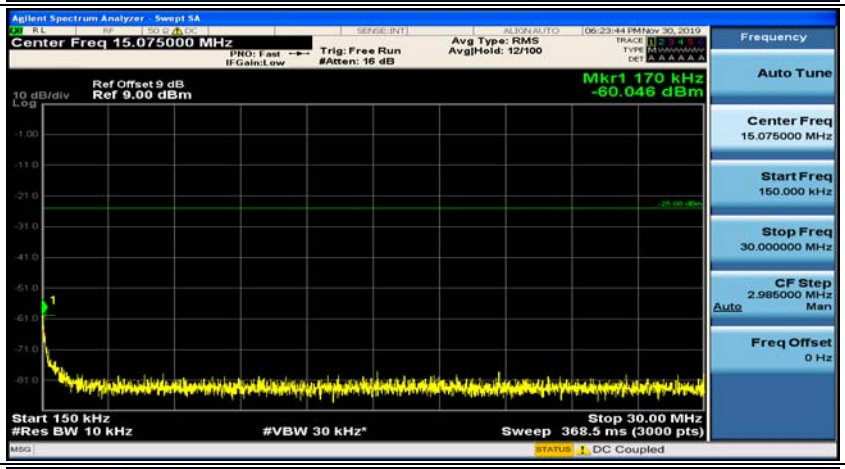
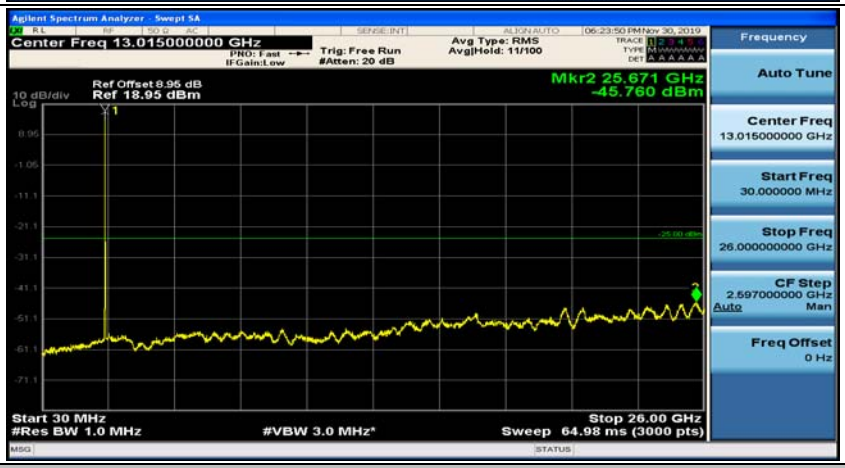

(Channel Bandwidth:15 MHz)_HCH_16QAM_1RB#74

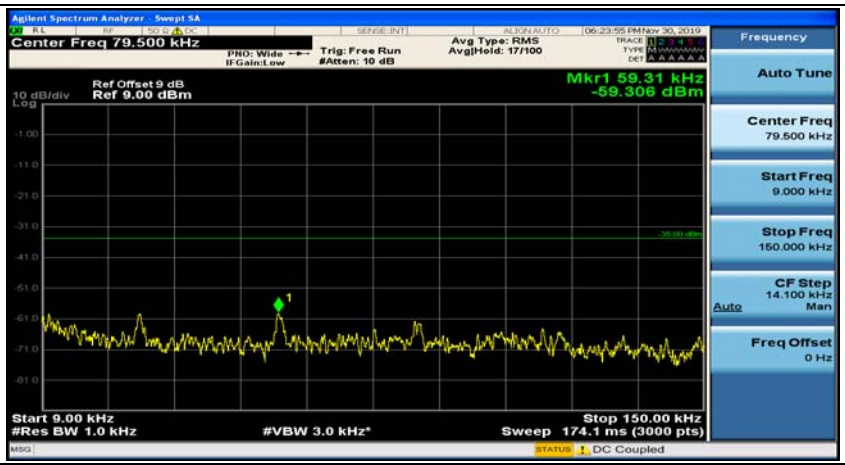

Agilent Spectrum Analyzer - Swept SA
Center Freq 79.500 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 17/100
06:23:05 PM Nov 30, 2019
Frequency
Auto Tune
Mkr1 29.50 kHz
-59.782 dBm
Ref Offset 9 dB
10 dB/div
Log
Ref 9.00 dBm
Center Freq
79.500 kHz
Start Freq
9.000 kHz
Stop Freq
150.000 kHz
CF Step
14.100 kHz
Auto
Man
Freq Offset
0 Hz
Start 9.00 kHz
#Res BW 1.0 kHz
#VBW 3.0 kHz*
Stop 150.00 kHz
Sweep 174.1 ms (3000 pts)
DC Coupled

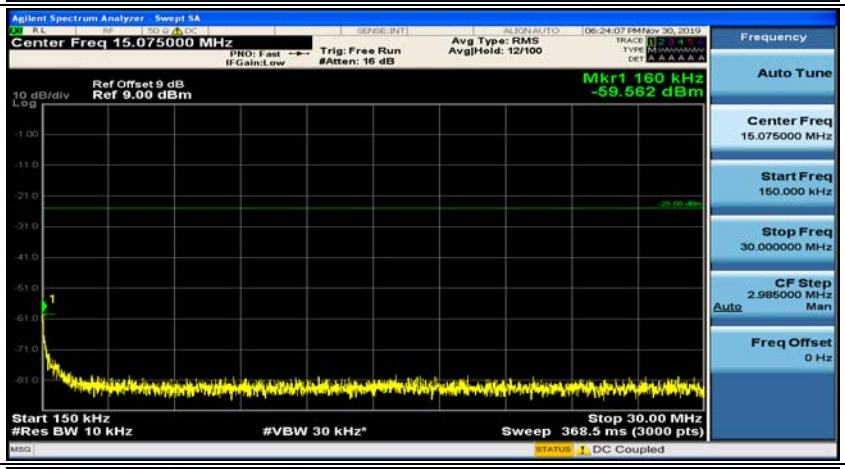

Agilent Spectrum Analyzer - Swept SA
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 16 dB
Avg Type: RMS
Avg|Hold: 12/100
06:23:17 PM Nov 30, 2019
Frequency
Auto Tune
Mkr1 7.904 MHz
-50.969 dBm
Ref Offset 9 dB
10 dB/div
Log
Ref 9.00 dBm
Center Freq
15.075000 MHz
Start Freq
150.000 kHz
Stop Freq
30.000000 MHz
CF Step
2.985000 MHz
Auto
Man
Freq Offset
0 Hz
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz*
Stop 30.00 MHz
Sweep 368.5 ms (3000 pts)
DC Coupled

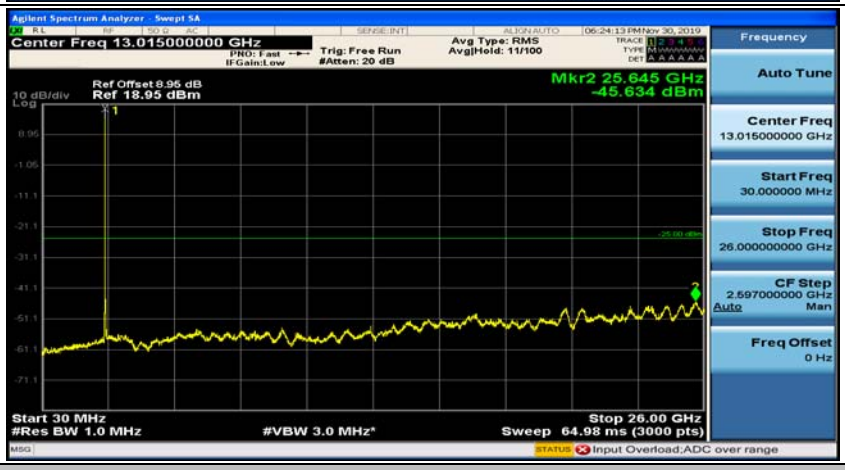

Agilent Spectrum Analyzer - Swept SA
Center Freq 13.015000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 11/100
06:23:23 PM Nov 30, 2019
Frequency
Auto Tune
Mkr2 25.680 GHz
-45.803 dBm
Ref Offset 8.95 dB
10 dB/div
Log
Ref 18.95 dBm
Center Freq
13.015000000 GHz
Start Freq
30.000000 MHz
Stop Freq
26.000000000 GHz
CF Step
2.597000000 GHz
Auto
Man
Freq Offset
0 Hz
Start 30 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 26.00 GHz
Sweep 64.98 ms (3000 pts)

## Channel Bandwidth: 20 MHz

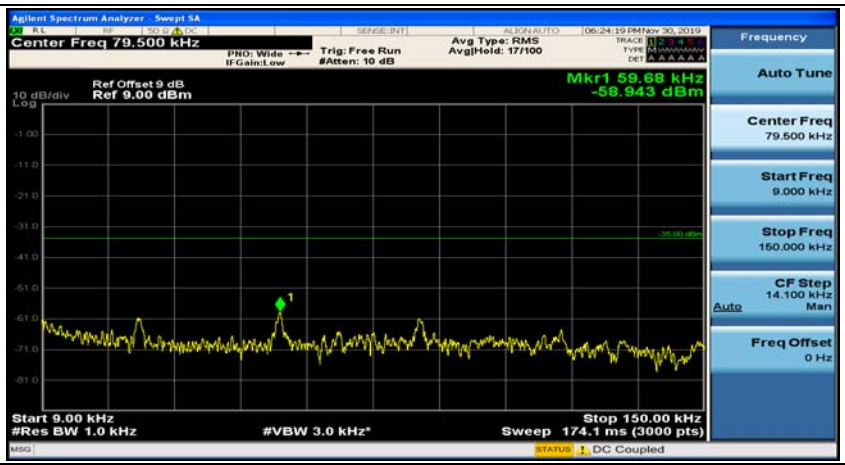
| (Channel Bandwidth:20 MHz)_LCH_QPSK_1RB#0 |
| --- |
|  |
|  |
|  |
| (Channel Bandwidth:20 MHz)_LCH_QPSK_1RB#49 |

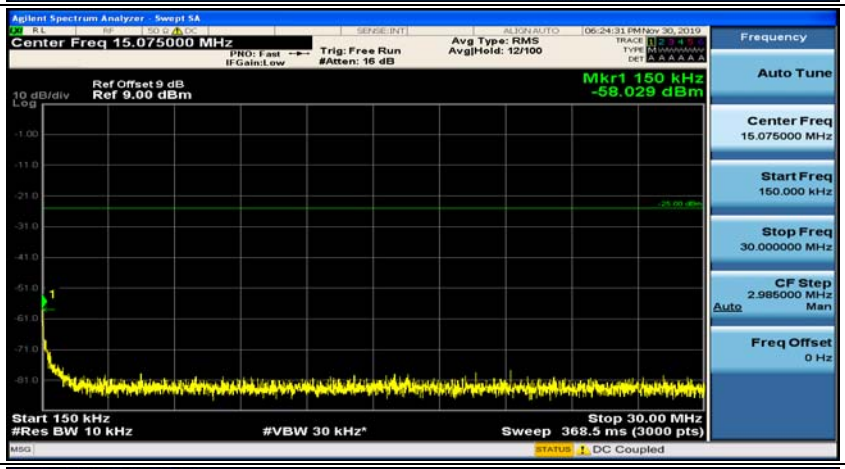


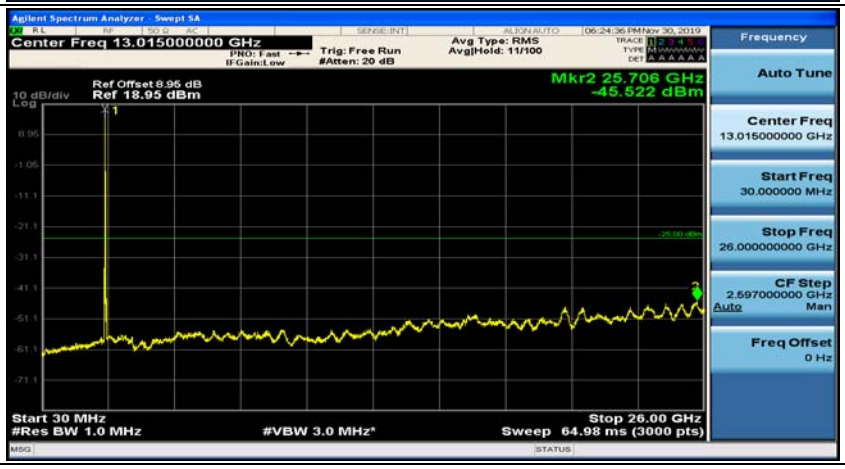



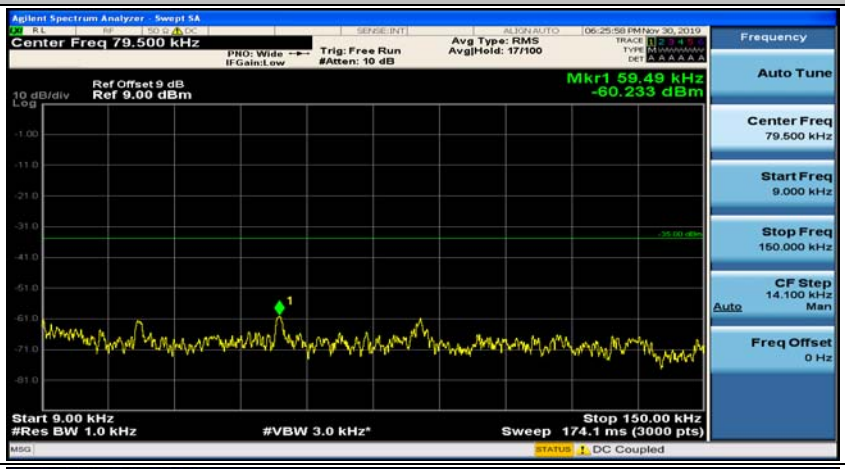
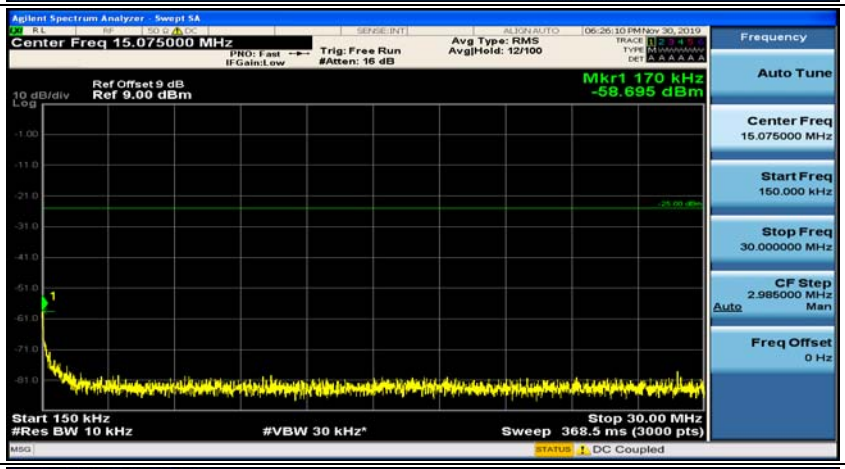
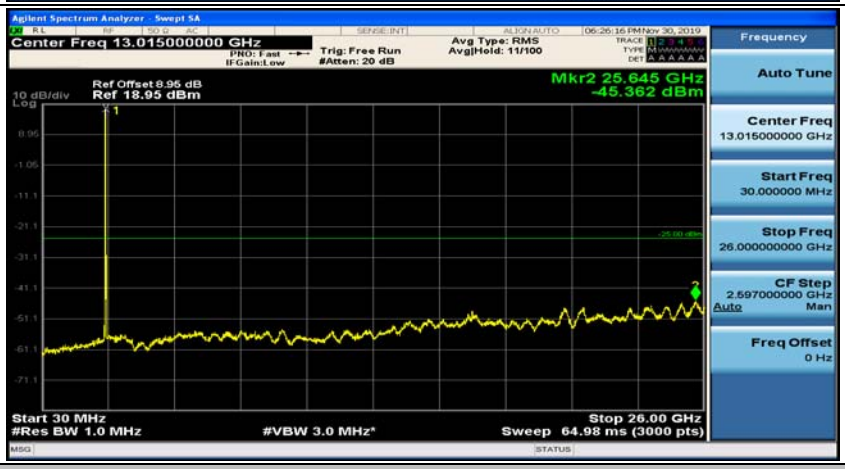



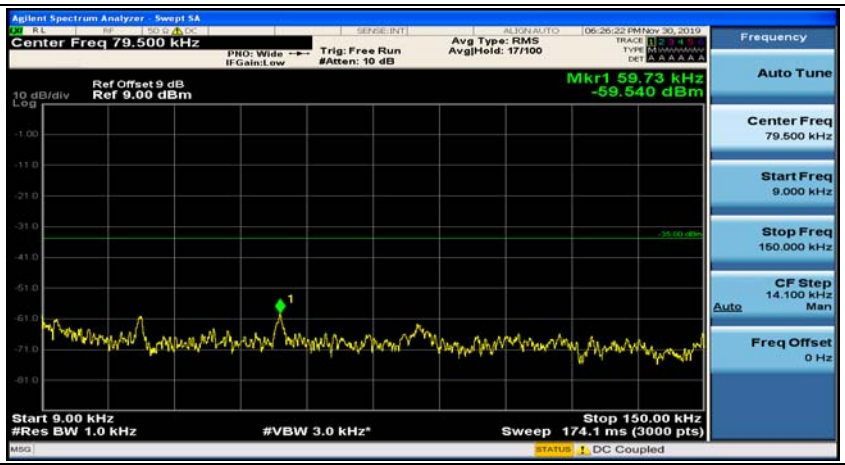

(Channel Bandwidth:20 MHz)_LCH_QPSK_1RB#99

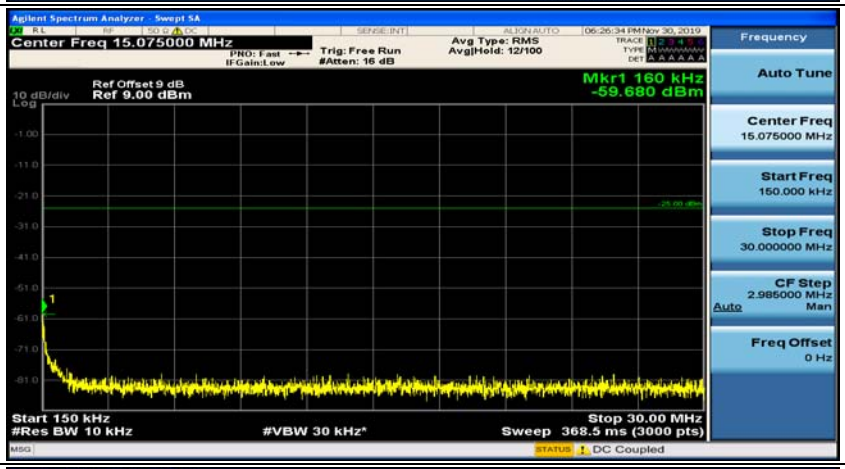

Agilent Spectrum Analyzer - Swept SA
Center Freq 79.500 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 17/100
06:24:19 PM Nov 30, 2019
Ref Offset 9 dB
10 dB/div
Log
Ref 9.00 dBm
Mkr1 59.68 kHz
-58.943 dBm
Start 9.00 kHz
#Res BW 1.0 kHz
#VBW 3.0 kHz*
Stop 150.00 kHz
Sweep 174.1 ms (3000 pts)
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

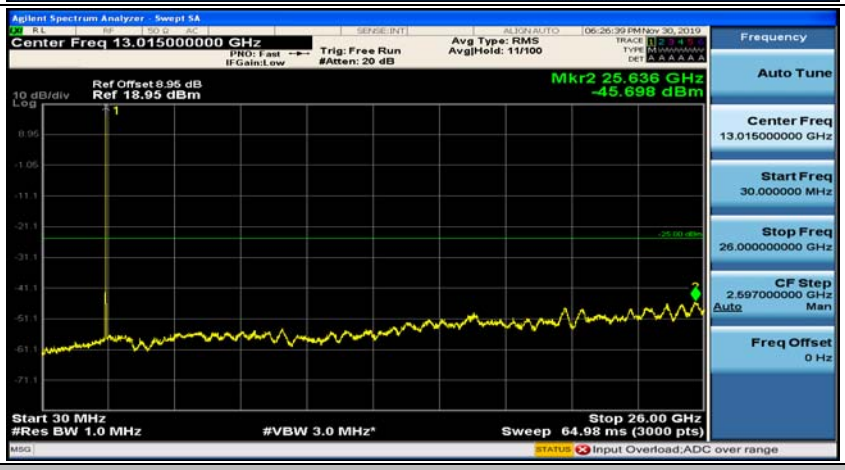

Agilent Spectrum Analyzer - Swept SA
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 16 dB
Avg Type: RMS
Avg|Hold: 12/100
06:24:31 PM Nov 30, 2019
Ref Offset 9 dB
10 dB/div
Log
Ref 9.00 dBm
Mkr1 150 kHz
-58.029 dBm
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz*
Stop 30.00 MHz
Sweep 368.5 ms (3000 pts)
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 13.015000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 11/100
06:24:36 PM Nov 30, 2019
Ref Offset 8.95 dB
10 dB/div
Log
Ref 18.95 dBm
Mkr2 25.706 GHz
-45.522 dBm
Start 30 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 26.00 GHz
Sweep 64.98 ms (3000 pts)
Frequency
Auto Tune
Center Freq
13.015000000 GHz
Start Freq
30.000000 MHz
Stop Freq
26.000000000 GHz
CF Step
2.597000000 GHz
Auto
Man
Freq Offset
0 Hz

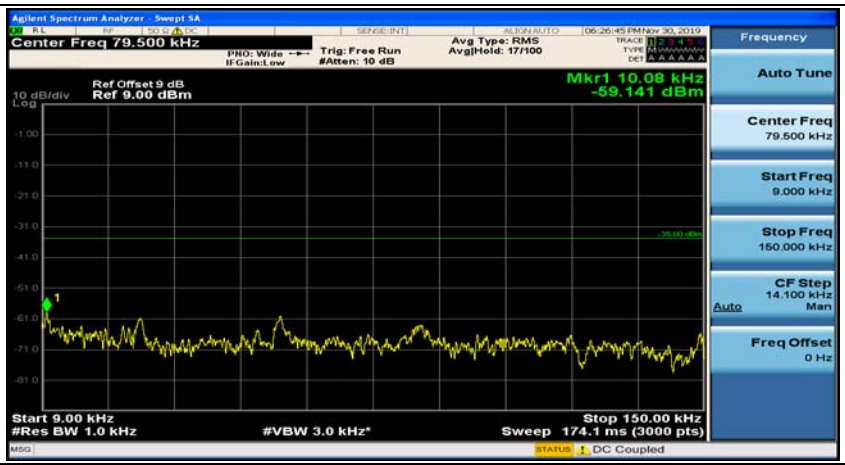
| (Channel Bandwidth:20 MHz)_MCH_QPSK_1RB#0 |
| --- |
|  |
|  |
|  |
| (Channel Bandwidth:20 MHz)_MCH_QPSK_1RB#49 |

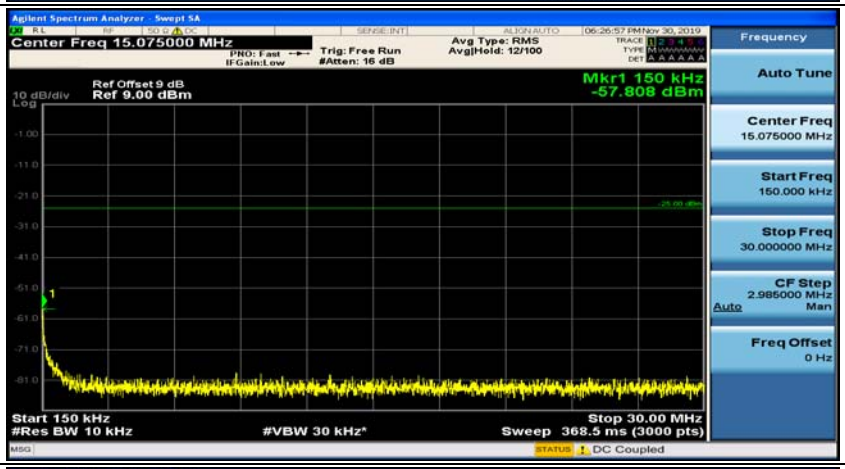


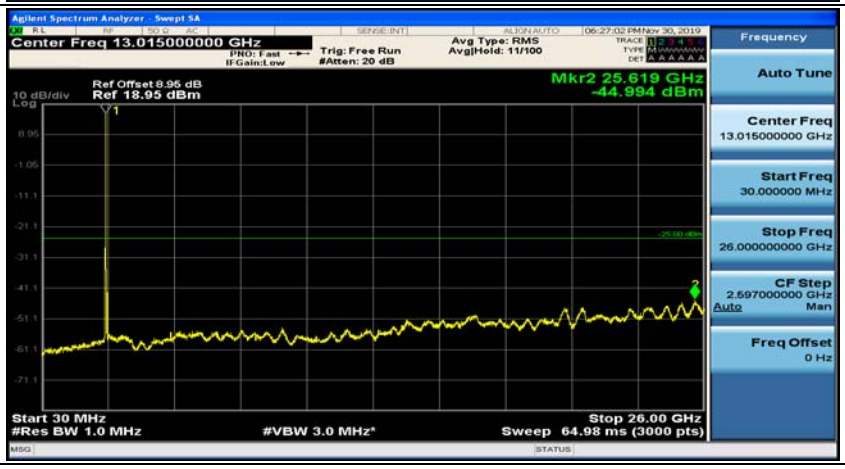



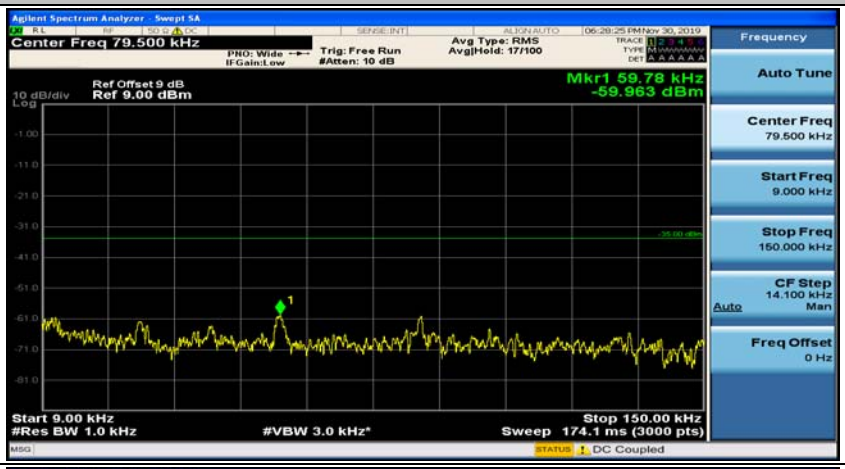
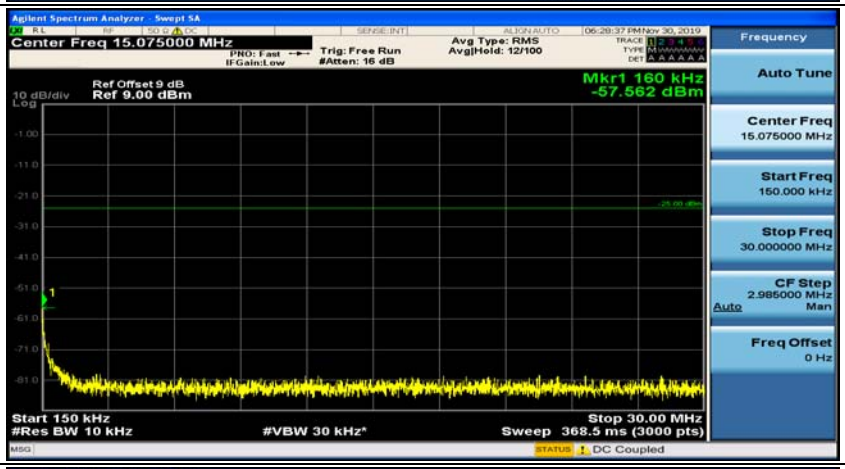
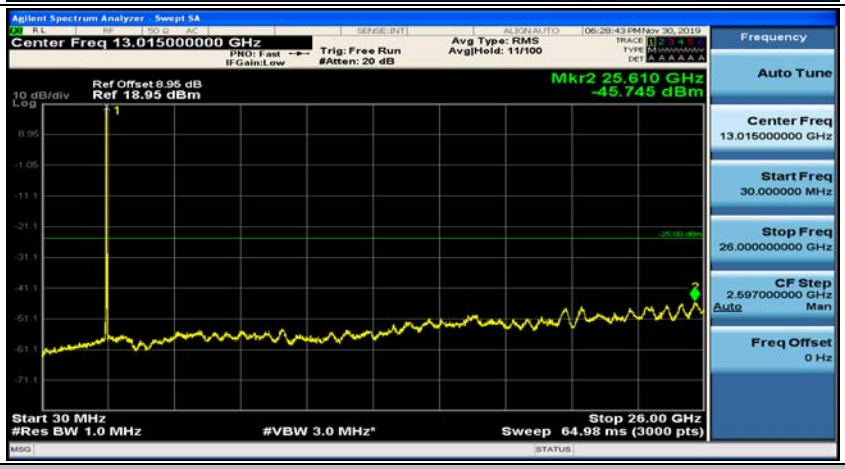



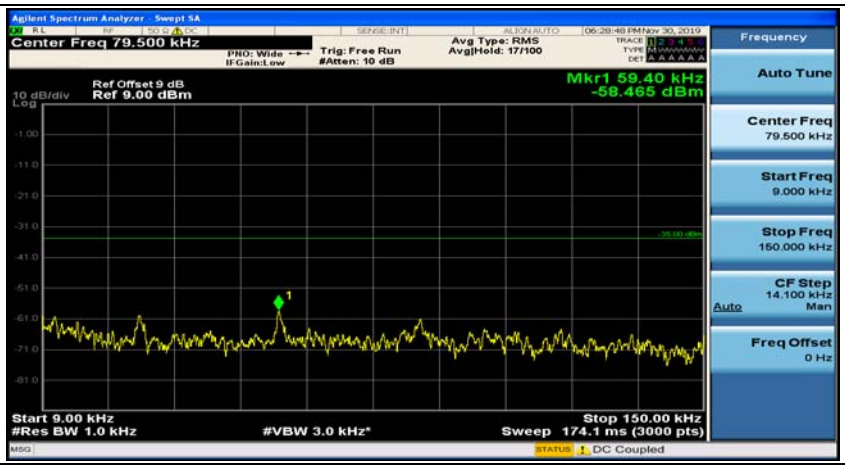

(Channel Bandwidth:20 MHz)_MCH_QPSK_1RB#99

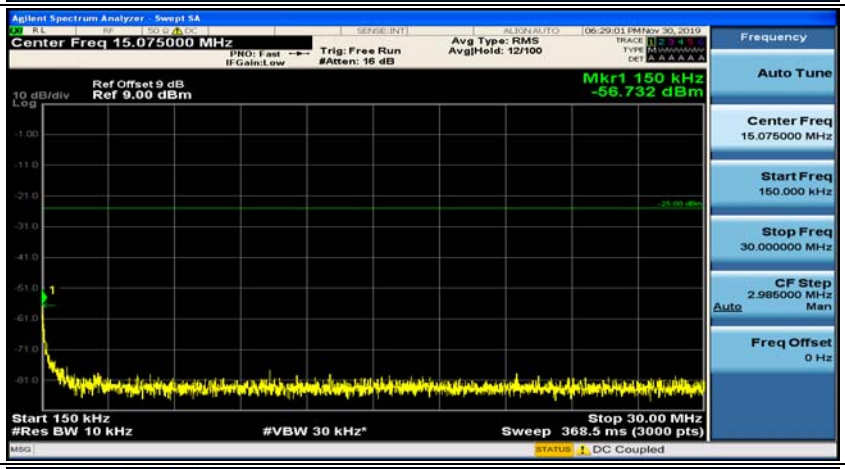

Agilent Spectrum Analyzer - Swept SA
Center Freq 79.500 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 17/100
06:26:45 PM Nov 30, 2019
Ref Offset 9 dB
10 dB/div
Log
Ref 9.00 dBm
Mkr1 10.08 kHz
-59.141 dBm
Start 9.00 kHz
#Res BW 1.0 kHz
#VBW 3.0 kHz*
Stop 150.00 kHz
Sweep 174.1 ms (3000 pts)
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

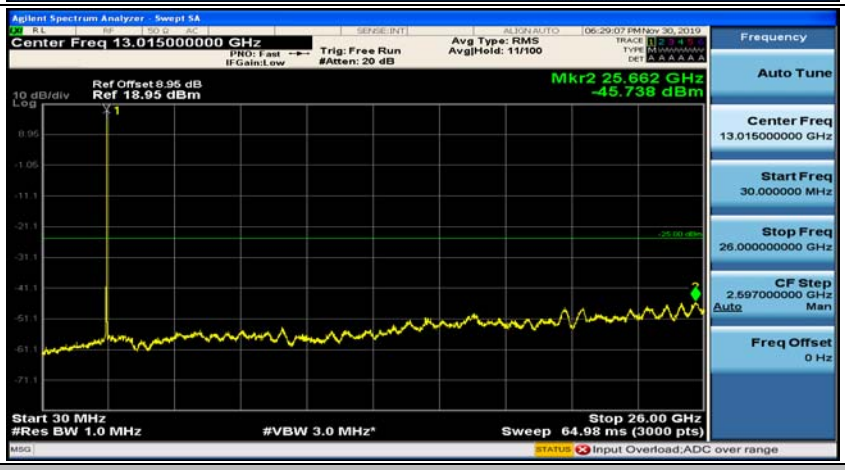

Agilent Spectrum Analyzer - Swept SA
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 16 dB
Avg Type: RMS
Avg|Hold: 12/100
06:26:57 PM Nov 30, 2019
Ref Offset 9 dB
10 dB/div
Log
Ref 9.00 dBm
Mkr1 150 kHz
-57.808 dBm
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz*
Stop 30.00 MHz
Sweep 368.5 ms (3000 pts)
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 13.015000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 11/100
06:27:02 PM Nov 30, 2019
Ref Offset 8.95 dB
10 dB/div
Log
Ref 18.95 dBm
Mkr2 25.619 GHz
-44.994 dBm
Start 30 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 26.00 GHz
Sweep 64.98 ms (3000 pts)
Frequency
Auto Tune
Center Freq
13.015000000 GHz
Start Freq
30.000000 MHz
Stop Freq
26.000000000 GHz
CF Step
2.597000000 GHz
Auto
Man
Freq Offset
0 Hz

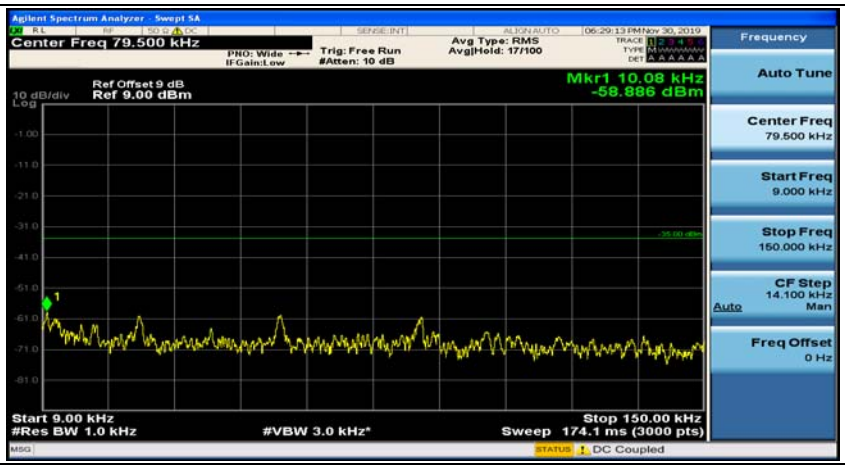
| (Channel Bandwidth:20 MHz)_HCH_QPSK_1RB#0 |
| --- |
|  |
|  |
|  |
| (Channel Bandwidth:20 MHz)_HCH_QPSK_1RB#49 |

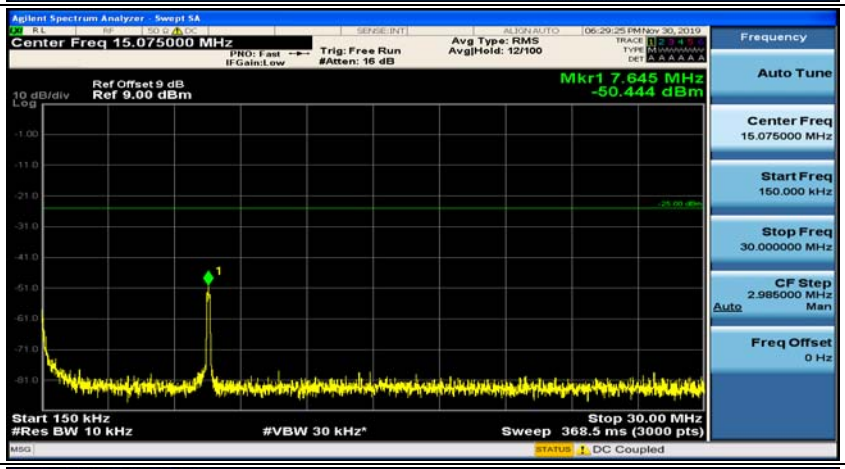


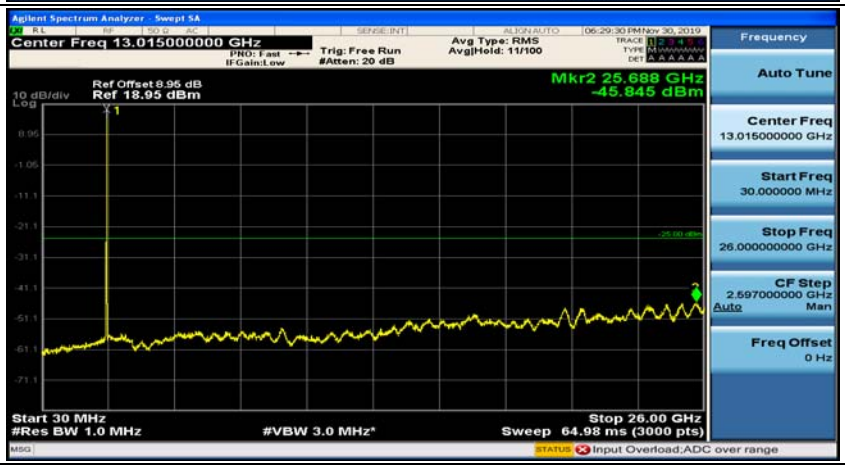



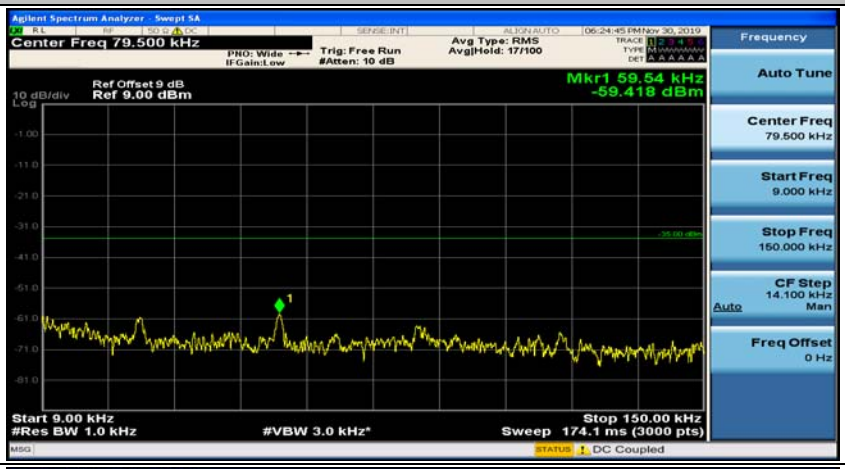
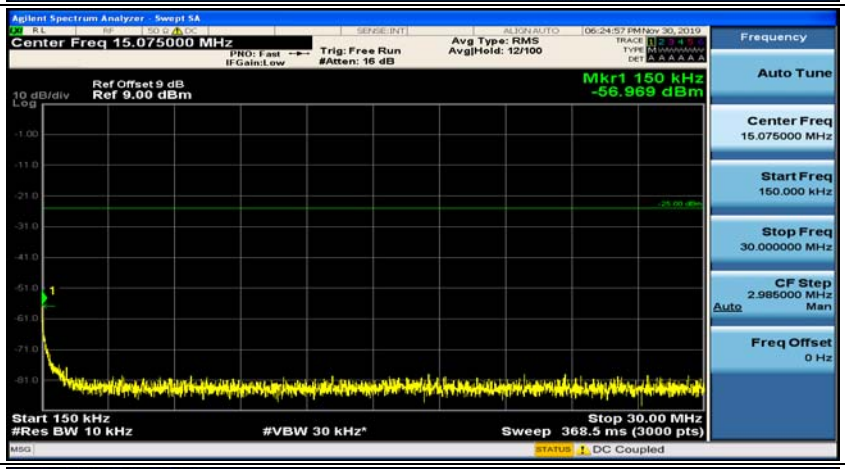
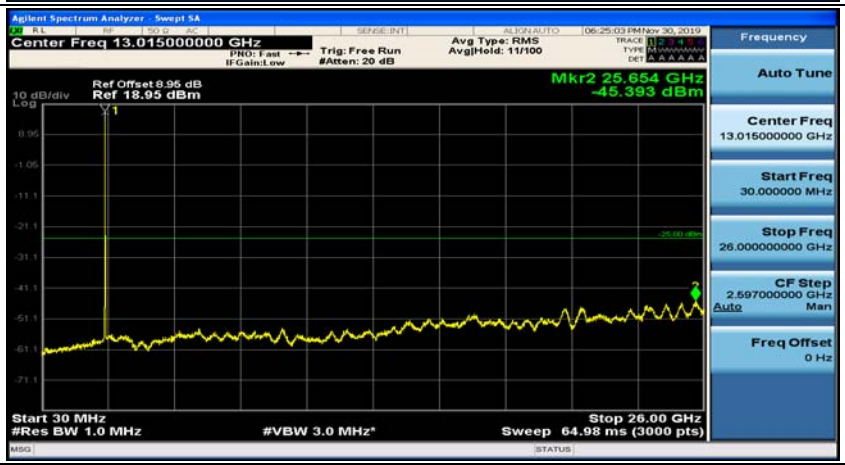



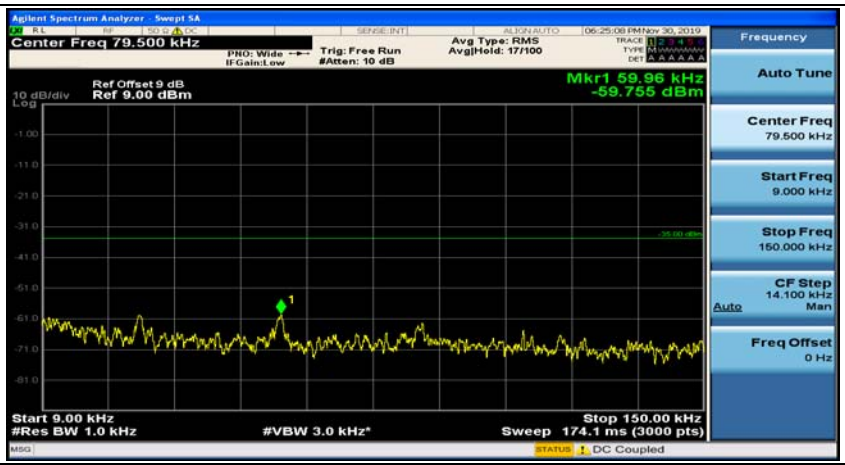

(Channel Bandwidth:20 MHz)_HCH_QPSK_1RB#99

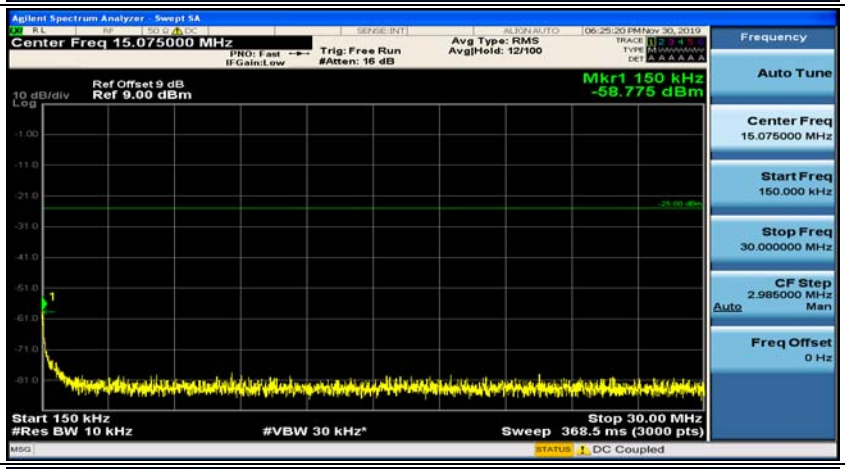

Agilent Spectrum Analyzer - Swept SA
Center Freq 79.500 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 17/100
06:29:13 PM Nov 30, 2019
Frequency
Mkr1 10.08 kHz
-58.886 dBm
Ref Offset 9 dB
10 dB/div
Log
Ref 9.00 dBm
Auto Tune
Center Freq
79.500 kHz
Start Freq
9.000 kHz
Stop Freq
150.000 kHz
CF Step
14.100 kHz
Auto
Man
Freq Offset
0 Hz
Start 9.00 kHz
#Res BW 1.0 kHz
#VBW 3.0 kHz*
Stop 150.00 kHz
Sweep 174.1 ms (3000 pts)
DC Coupled


Agilent Spectrum Analyzer - Swept SA
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 16 dB
Avg Type: RMS
Avg|Hold: 12/100
06:29:25 PM Nov 30, 2019
Frequency
Mkr1 7.645 MHz
-50.444 dBm
Ref Offset 9 dB
10 dB/div
Log
Ref 9.00 dBm
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
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz*
Stop 30.00 MHz
Sweep 368.5 ms (3000 pts)
DC Coupled

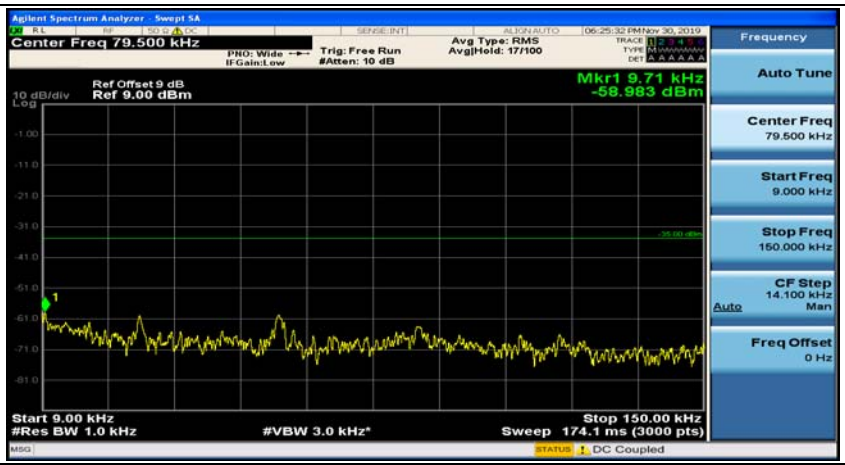

Agilent Spectrum Analyzer - Swept SA
Center Freq 13.015000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 11/100
06:29:30 PM Nov 30, 2019
Frequency
Mkr2 25.688 GHz
-45.845 dBm
Ref Offset 8.95 dB
10 dB/div
Log
Ref 18.95 dBm
Auto Tune
Center Freq
13.015000000 GHz
Start Freq
30.000000 MHz
Stop Freq
26.000000000 GHz
CF Step
2.597000000 GHz
Auto
Man
Freq Offset
0 Hz
Start 30 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 26.00 GHz
Sweep 64.98 ms (3000 pts)
Input Overload;ADC over range

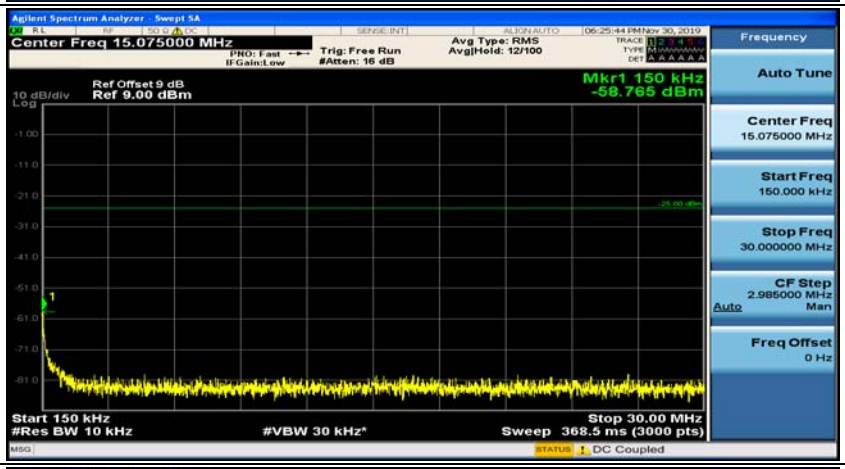
| (Channel Bandwidth:20 MHz)_LCH_16QAM_1RB#0 |
| --- |
|  |
|  |
|  |
| (Channel Bandwidth:20 MHz)_LCH_16QAM_1RB#49 |

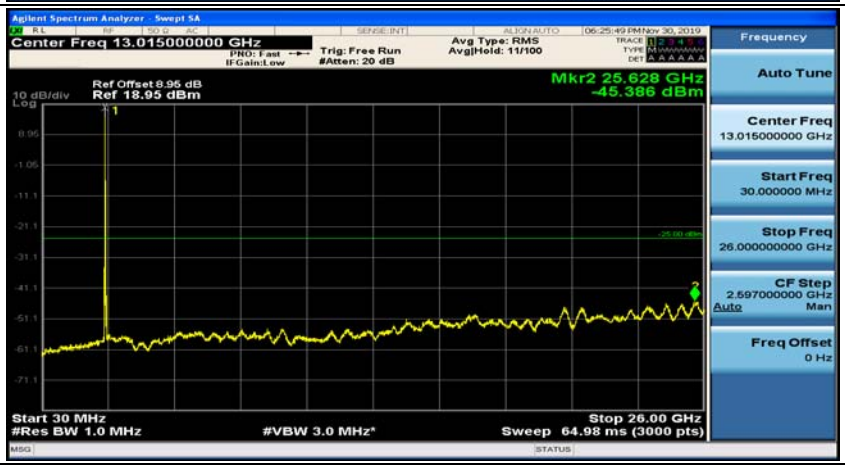


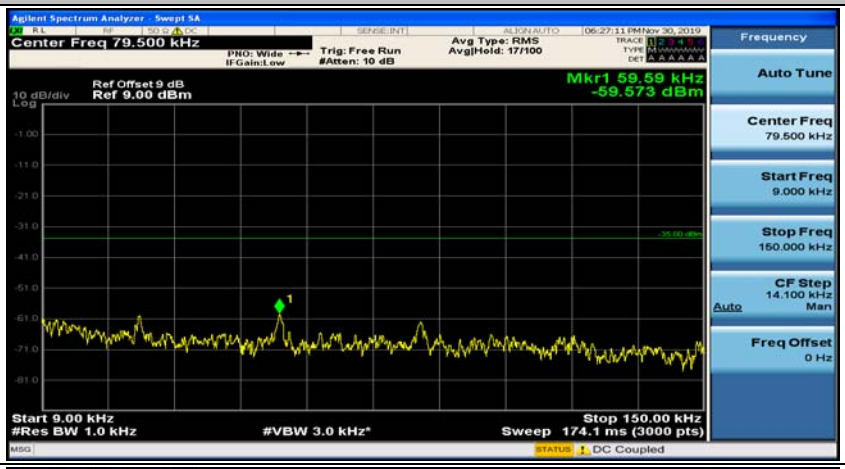
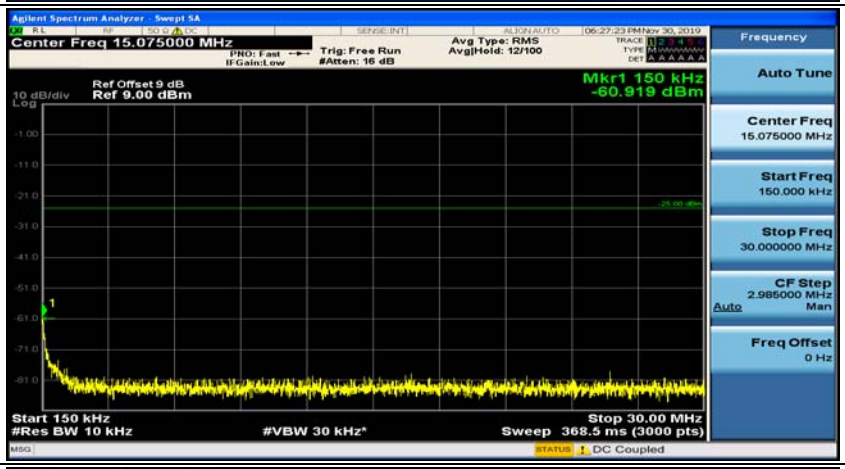
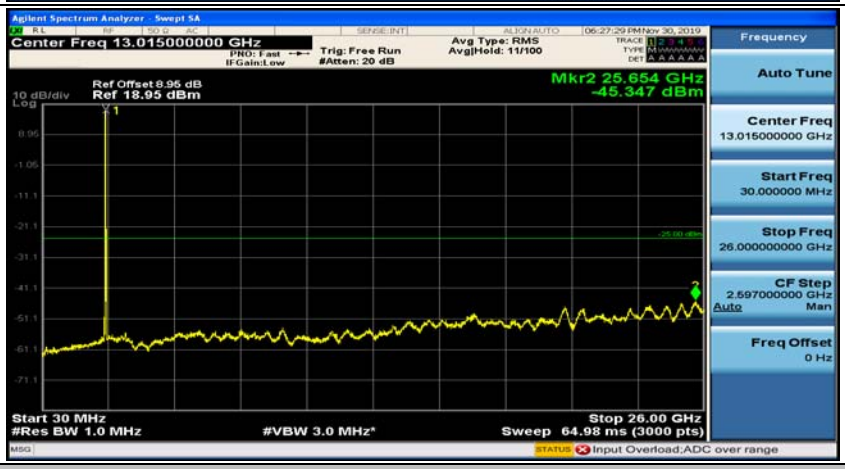



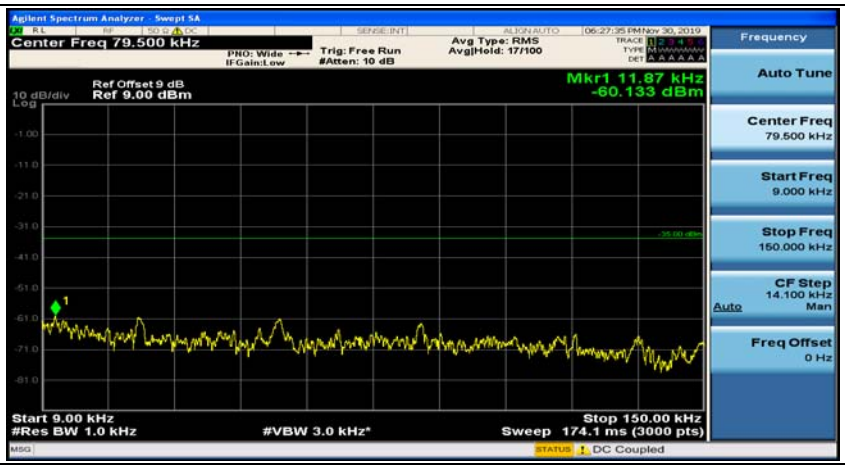
(Channel Bandwidth:20 MHz)_LCH_16QAM_1RB#99

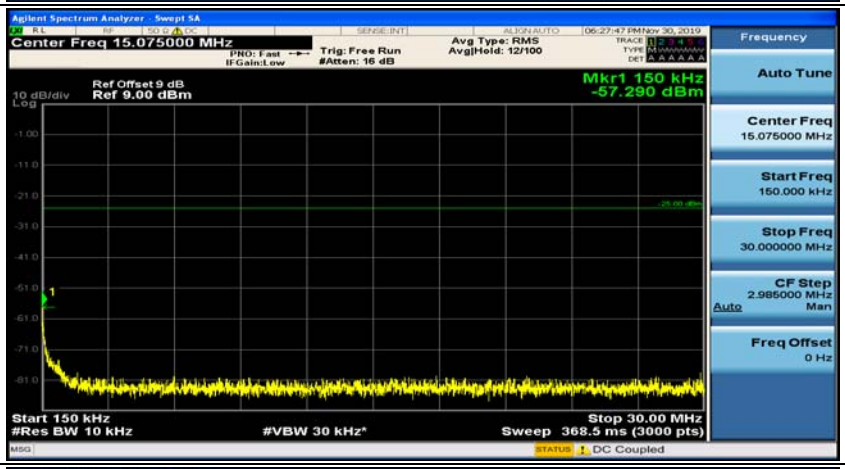

Agilent Spectrum Analyzer - Swept SA
Center Freq 79.500 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 17/100
06:25:32 PM Nov 30, 2019
Frequency
Auto Tune
Mkr1 9.71 kHz
-58.983 dBm
Ref Offset 9 dB
10 dB/div
Log
Ref 9.00 dBm
Center Freq
79.500 kHz
Start Freq
9.000 kHz
Stop Freq
150.000 kHz
CF Step
14.100 kHz
Auto
Man
Freq Offset
0 Hz
Start 9.00 kHz
#Res BW 1.0 kHz
#VBW 3.0 kHz*
Stop 150.00 kHz
Sweep 174.1 ms (3000 pts)
DC Coupled

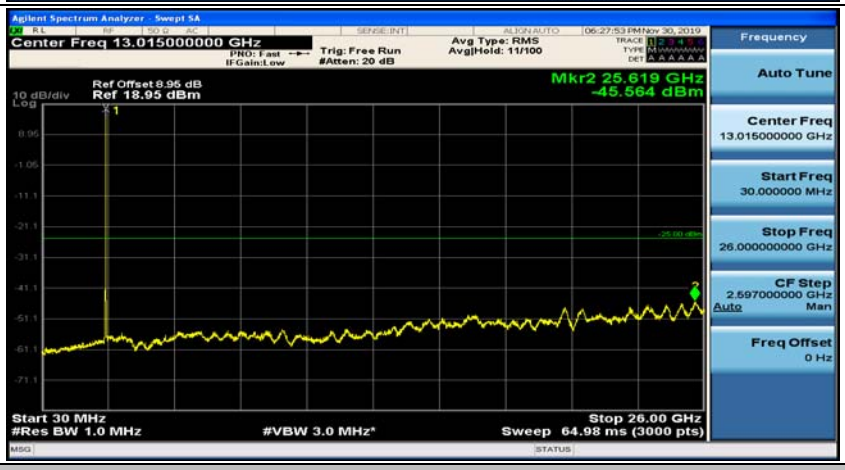

Agilent Spectrum Analyzer - Swept SA
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 16 dB
Avg Type: RMS
Avg|Hold: 12/100
06:25:44 PM Nov 30, 2019
Frequency
Auto Tune
Mkr1 150 kHz
-58.765 dBm
Ref Offset 9 dB
10 dB/div
Log
Ref 9.00 dBm
Center Freq
15.075000 MHz
Start Freq
150.000 kHz
Stop Freq
30.000000 MHz
CF Step
2.985000 MHz
Auto
Man
Freq Offset
0 Hz
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz*
Stop 30.00 MHz
Sweep 368.5 ms (3000 pts)
DC Coupled


Agilent Spectrum Analyzer - Swept SA
Center Freq 13.015000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 11/100
06:25:49 PM Nov 30, 2019
Frequency
Auto Tune
Mkr2 25.628 GHz
-45.386 dBm
Ref Offset 8.95 dB
10 dB/div
Log
Ref 18.95 dBm
Center Freq
13.015000000 GHz
Start Freq
30.000000 MHz
Stop Freq
26.000000000 GHz
CF Step
2.597000000 GHz
Auto
Man
Freq Offset
0 Hz
Start 30 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 26.00 GHz
Sweep 64.98 ms (3000 pts)

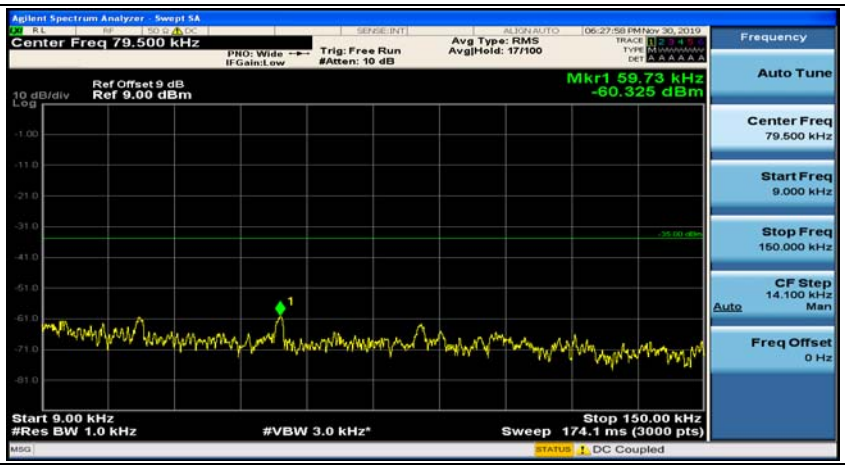
| (Channel Bandwidth:20 MHz)_MCH_16QAM_1RB#0 |
| --- |
|  |
|  |
|  |
| (Channel Bandwidth:20 MHz)_MCH_16QAM_1RB#49 |

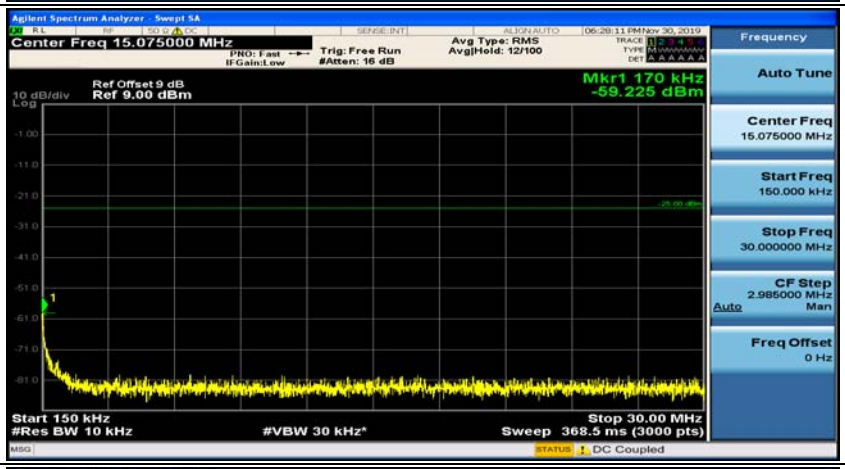


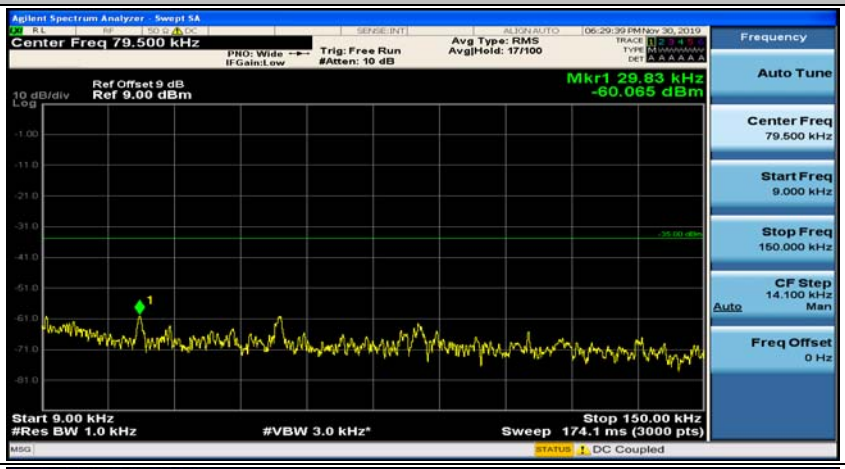
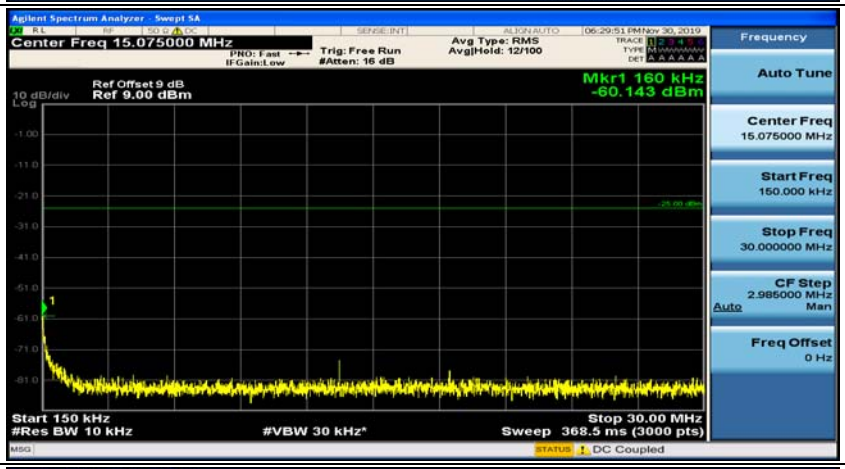



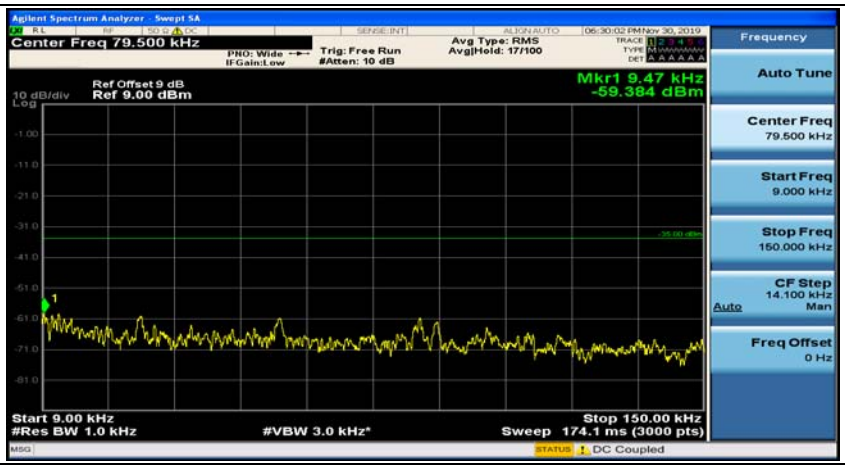

(Channel Bandwidth:20 MHz)_MCH_16QAM_1RB#99

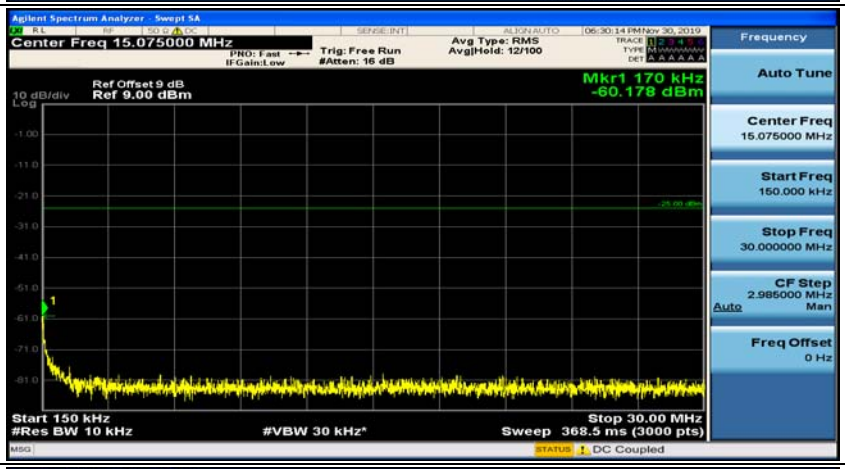

Agilent Spectrum Analyzer - Swept SA
Center Freq 79.500 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 17/100
06:27:58 PM Nov 30, 2019
Ref Offset 9 dB
10 dB/div
Log
Ref 9.00 dBm
Mkr1 59.73 kHz
-60.325 dBm
Start 9.00 kHz
#Res BW 1.0 kHz
#VBW 3.0 kHz*
Stop 150.00 kHz
Sweep 174.1 ms (3000 pts)
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: 16 dB
Avg Type: RMS
Avg|Hold: 12/100
06:28:11 PM Nov 30, 2019
Ref Offset 9 dB
10 dB/div
Log
Ref 9.00 dBm
Mkr1 170 kHz
-59.225 dBm
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz*
Stop 30.00 MHz
Sweep 368.5 ms (3000 pts)
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

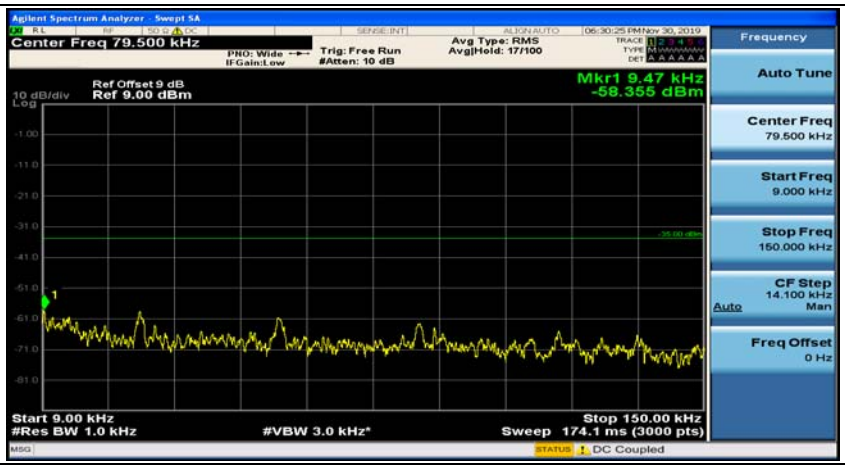
Agilent Spectrum Analyzer - Swept SA
Center Freq 13.015000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 11/100
06:28:16 PM Nov 30, 2019
Ref Offset 8.95 dB
10 dB/div
Log
Ref 18.95 dBm
Mkr2 25.117 GHz
-45.817 dBm
Start 30 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 26.00 GHz
Sweep 64.98 ms (3000 pts)
Frequency
Auto Tune
Center Freq
13.015000000 GHz
Start Freq
30.000000 MHz
Stop Freq
26.000000000 GHz
CF Step
2.597000000 GHz
Auto
Man
Freq Offset
0 Hz

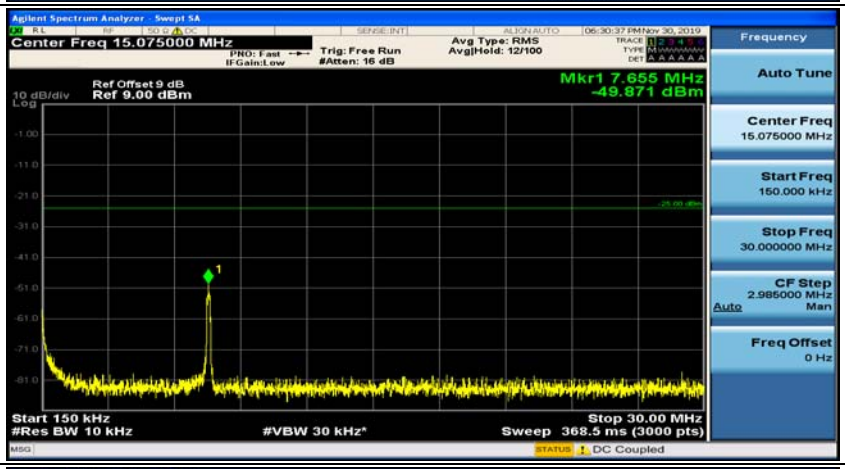
| (Channel Bandwidth:20 MHz)_HCH_16QAM_1RB#0 |
| --- |
|  |
|  |
| |
| (Channel Bandwidth:20 MHz)_HCH_16QAM_1RB#49 |

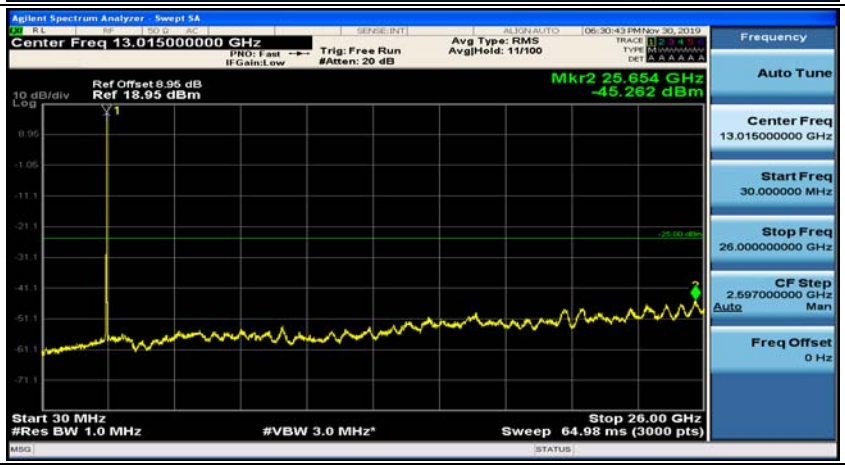


(Channel Bandwidth:20 MHz)_HCH_16QAM_1RB#99


Agilent Spectrum Analyzer - Swept SA
Center Freq 79.500 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 17/100
06:30:25 PM Nov 30, 2019
Frequency
Auto Tune
Mkr1 9.47 kHz
-58.355 dBm
Ref Offset 9 dB
10 dB/div
Log
Ref 9.00 dBm
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
Start 9.00 kHz
#Res BW 1.0 kHz
#VBW 3.0 kHz*
Stop 150.00 kHz
Sweep 174.1 ms (3000 pts)
DC Coupled


Agilent Spectrum Analyzer - Swept SA
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 16 dB
Avg Type: RMS
Avg|Hold: 12/100
06:30:37 PM Nov 30, 2019
Frequency
Auto Tune
Mkr1 7.655 MHz
-49.871 dBm
Ref Offset 9 dB
10 dB/div
Log
Ref 9.00 dBm
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
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz*
Stop 30.00 MHz
Sweep 368.5 ms (3000 pts)
DC Coupled


Agilent Spectrum Analyzer - Swept SA
Center Freq 13.015000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 20 dB
Avg Type: RMS
Avg|Hold: 11/100
06:30:43 PM Nov 30, 2019
Frequency
Auto Tune
Mkr2 25.654 GHz
-45.262 dBm
Ref Offset 8.95 dB
10 dB/div
Log
Ref 18.95 dBm
Center Freq
13.015000000 GHz
Start Freq
30.000000 MHz
Stop Freq
26.000000000 GHz
CF Step
2.597000000 GHz
Auto
Man
Freq Offset
0 Hz
Start 30 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 26.00 GHz
Sweep 64.98 ms (3000 pts)

# Appendix F: Frequency Stability

## Test Result

## Channel Bandwidth: 5 MHz

| Channel Bandwidth: 5 MHz | | | | | | | |
|---|---|---|---|---|---|---|---|
| Voltage | | | | | | | |
| Modulation | Channel | Voltage [Vdc] | Temperature (℃) | Deviation (Hz) | Deviation (ppm) | Limit (ppm) | Verdict |
| QPSK | LCH | VL | TN | 1.21 | 0.000484 | ± 2.5 | PASS |
| | | VN | TN | 0.17 | 0.000068 | ± 2.5 | PASS |
| | | VH | TN | 3.16 | 0.001263 | ± 2.5 | PASS |
| | MCH | VL | TN | -0.04 | -0.000016 | ± 2.5 | PASS |
| | | VN | TN | 4.86 | 0.001917 | ± 2.5 | PASS |
| | | VH | TN | -0.61 | -0.000241 | ± 2.5 | PASS |
| | HCH | VL | TN | -0.36 | -0.000140 | ± 2.5 | PASS |
| | | VN | TN | 2.76 | 0.001075 | ± 2.5 | PASS |
| | | VH | TN | 0.94 | 0.000366 | ± 2.5 | PASS |
| 16QAM | LCH | VL | TN | 3.06 | 0.001223 | ± 2.5 | PASS |
| | | VN | TN | 3.58 | 0.001431 | ± 2.5 | PASS |
| | | VH | TN | 2.41 | 0.000963 | ± 2.5 | PASS |
| | MCH | VL | TN | 3.96 | 0.001562 | ± 2.5 | PASS |
| | | VN | TN | -1.03 | -0.000406 | ± 2.5 | PASS |
| | | VH | TN | 0.73 | 0.000288 | ± 2.5 | PASS |
| | HCH | VL | TN | 2.98 | 0.001161 | ± 2.5 | PASS |
| | | VN | TN | 4.94 | 0.001924 | ± 2.5 | PASS |
| | | VH | TN | 4.06 | 0.001581 | ± 2.5 | PASS |
| Temperature | | | | | | | |
| Modulation | Channel | Voltage [Vdc] | Temperature (℃) | Deviation (Hz) | Deviation (ppm) | Limit (ppm) | Verdict |
| QPSK | LCH | VN | -30 | 3.89 | 0.001554 | ± 2.5 | PASS |
| | | VN | -20 | 4.74 | 0.001894 | ± 2.5 | PASS |
| | | VN | -10 | -1.8 | -0.000719 | ± 2.5 | PASS |
| | | VN | 0 | -0.75 | -0.000300 | ± 2.5 | PASS |
| | | VN | 10 | -1.78 | -0.000711 | ± 2.5 | PASS |
| | | VN | 20 | 2.57 | 0.001027 | ± 2.5 | PASS |
| | | VN | 30 | 3.74 | 0.001495 | ± 2.5 | PASS |
| | | VN | 40 | -0.91 | -0.000364 | ± 2.5 | PASS |
| | | VN | 50 | -0.44 | -0.000176 | ± 2.5 | PASS |
| | MCH | VN | -30 | 4.56 | 0.001799 | ± 2.5 | PASS |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | VN | -20 | -0.71 | -0.000280 | ± 2.5 | PASS |
| | | VN | -10 | 1.14 | 0.000450 | ± 2.5 | PASS |
| | | VN | 0 | 2.18 | 0.000860 | ± 2.5 | PASS |
| | | VN | 10 | 4.44 | 0.001751 | ± 2.5 | PASS |
| | | VN | 20 | 0.17 | 0.000067 | ± 2.5 | PASS |
| | | VN | 30 | -0.46 | -0.000181 | ± 2.5 | PASS |
| | | VN | 40 | -1.65 | -0.000651 | ± 2.5 | PASS |
| | | VN | 50 | 0.71 | 0.000280 | ± 2.5 | PASS |
| | HCH | VN | -30 | 2.22 | 0.000865 | ± 2.5 | PASS |
| | | VN | -20 | 0.15 | 0.000058 | ± 2.5 | PASS |
| | | VN | -10 | 0.66 | 0.000257 | ± 2.5 | PASS |
| | | VN | 0 | 0.31 | 0.000121 | ± 2.5 | PASS |
| | | VN | 10 | 4.47 | 0.001741 | ± 2.5 | PASS |
| | | VN | 20 | 3.45 | 0.001344 | ± 2.5 | PASS |
| | | VN | 30 | 1.16 | 0.000452 | ± 2.5 | PASS |
| | | VN | 40 | -0.28 | -0.000109 | ± 2.5 | PASS |
| | | VN | 50 | 3.01 | 0.001172 | ± 2.5 | PASS |
| 16QAM | LCH | VN | -30 | 0.67 | 0.000268 | ± 2.5 | PASS |
| | | VN | -20 | 1.54 | 0.000615 | ± 2.5 | PASS |
| | | VN | -10 | -0.44 | -0.000176 | ± 2.5 | PASS |
| | | VN | 0 | -0.09 | -0.000036 | ± 2.5 | PASS |
| | | VN | 10 | 4.03 | 0.001610 | ± 2.5 | PASS |
| | | VN | 20 | -0.66 | -0.000264 | ± 2.5 | PASS |
| | | VN | 30 | -1.49 | -0.000595 | ± 2.5 | PASS |
| | | VN | 40 | 0.2 | 0.000080 | ± 2.5 | PASS |
| | | VN | 50 | 1.13 | 0.000452 | ± 2.5 | PASS |
| | MCH | VN | -30 | 0.75 | 0.000296 | ± 2.5 | PASS |
| | | VN | -20 | 2.95 | 0.001164 | ± 2.5 | PASS |
| | | VN | -10 | 3.85 | 0.001519 | ± 2.5 | PASS |
| | | VN | 0 | 4.11 | 0.001621 | ± 2.5 | PASS |
| | | VN | 10 | 2.94 | 0.001160 | ± 2.5 | PASS |
| | | VN | 20 | 0.46 | 0.000181 | ± 2.5 | PASS |
| | | VN | 30 | 4.81 | 0.001897 | ± 2.5 | PASS |
| | | VN | 40 | 1.52 | 0.000600 | ± 2.5 | PASS |
| | | VN | 50 | 0.75 | 0.000296 | ± 2.5 | PASS |
| | HCH | VN | -30 | 1.93 | 0.000752 | ± 2.5 | PASS |
| | | VN | -20 | -0.85 | -0.000331 | ± 2.5 | PASS |
| | | VN | -10 | 4.02 | 0.001566 | ± 2.5 | PASS |
| | | VN | 0 | 1.92 | 0.000748 | ± 2.5 | PASS |
| | | VN | 10 | -1.72 | -0.000670 | ± 2.5 | PASS |
| | | VN | 20 | 0.15 | 0.000058 | ± 2.5 | PASS |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | VN | 30 | -1.68 | -0.000654 | ± 2.5 | PASS |
| | | VN | 40 | 3.84 | 0.001496 | ± 2.5 | PASS |
| | | VN | 50 | 2.97 | 0.001157 | ± 2.5 | PASS |

## Channel Bandwidth: 10 MHz

| Channel Bandwidth: 10 MHz | | | | | | | |
|---|---|---|---|---|---|---|---|
| Voltage | | | | | | | |
| Modulation | Channel | Voltage [Vdc] | Temperature (℃) | Deviation (Hz) | Deviation (ppm) | Limit (ppm) | Verdict |
| QPSK | LCH | VL | TN | -0.3 | -0.000120 | ± 2.5 | PASS |
| | | VN | TN | -1.67 | -0.000667 | ± 2.5 | PASS |
| | | VH | TN | -1.65 | -0.000659 | ± 2.5 | PASS |
| | MCH | VL | TN | 0.71 | 0.000280 | ± 2.5 | PASS |
| | | VN | TN | -1.89 | -0.000746 | ± 2.5 | PASS |
| | | VH | TN | -0.27 | -0.000107 | ± 2.5 | PASS |
| | HCH | VL | TN | -0.85 | -0.000331 | ± 2.5 | PASS |
| | | VN | TN | 2.55 | 0.000994 | ± 2.5 | PASS |
| | | VH | TN | -0.09 | -0.000035 | ± 2.5 | PASS |
| 16QAM | LCH | VL | TN | 4.17 | 0.001665 | ± 2.5 | PASS |
| | | VN | TN | 0.34 | 0.000136 | ± 2.5 | PASS |
| | | VH | TN | -0.71 | -0.000283 | ± 2.5 | PASS |
| | MCH | VL | TN | 4.43 | 0.001748 | ± 2.5 | PASS |
| | | VN | TN | -0.72 | -0.000284 | ± 2.5 | PASS |
| | | VH | TN | 3 | 0.001183 | ± 2.5 | PASS |
| | HCH | VL | TN | 0.21 | 0.000082 | ± 2.5 | PASS |
| | | VN | TN | 3.5 | 0.001365 | ± 2.5 | PASS |
| | | VH | TN | -1.66 | -0.000647 | ± 2.5 | PASS |
| Temperature | | | | | | | |
| Modulation | Channel | Voltage [Vdc] | Temperature (℃) | Deviation (Hz) | Deviation (ppm) | Limit (ppm) | Verdict |
| QPSK | LCH | VN | -30 | 2.71 | 0.001082 | ± 2.5 | PASS |
| | | VN | -20 | -0.1 | -0.000040 | ± 2.5 | PASS |
| | | VN | -10 | 0.92 | 0.000367 | ± 2.5 | PASS |
| | | VN | 0 | 0.7 | 0.000279 | ± 2.5 | PASS |
| | | VN | 10 | 1.42 | 0.000567 | ± 2.5 | PASS |
| | | VN | 20 | 2.94 | 0.001174 | ± 2.5 | PASS |
| | | VN | 30 | -1.63 | -0.000651 | ± 2.5 | PASS |
| | | VN | 40 | -1.03 | -0.000411 | ± 2.5 | PASS |
| | | VN | 50 | -1.43 | -0.000571 | ± 2.5 | PASS |
| | MCH | VN | -30 | -0.46 | -0.000181 | ± 2.5 | PASS |
| | | VN | -20 | 3.3 | 0.001302 | ± 2.5 | PASS |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | VN | -10 | 4.03 | 0.001590 | ± 2.5 | PASS |
| | | VN | 0 | 1.05 | 0.000414 | ± 2.5 | PASS |
| | | VN | 10 | 3.29 | 0.001298 | ± 2.5 | PASS |
| | | VN | 20 | -1.78 | -0.000702 | ± 2.5 | PASS |
| | | VN | 30 | 0.34 | 0.000134 | ± 2.5 | PASS |
| | | VN | 40 | 3.13 | 0.001235 | ± 2.5 | PASS |
| | | VN | 50 | -0.19 | -0.000075 | ± 2.5 | PASS |
| | HCH | VN | -30 | 0.27 | 0.000105 | ± 2.5 | PASS |
| | | VN | -20 | 1.74 | 0.000678 | ± 2.5 | PASS |
| | | VN | -10 | 4.65 | 0.001813 | ± 2.5 | PASS |
| | | VN | 0 | 1.17 | 0.000456 | ± 2.5 | PASS |
| | | VN | 10 | 1.83 | 0.000713 | ± 2.5 | PASS |
| | | VN | 20 | -1.66 | -0.000647 | ± 2.5 | PASS |
| | | VN | 30 | -0.6 | -0.000234 | ± 2.5 | PASS |
| | | VN | 40 | 3.51 | 0.001368 | ± 2.5 | PASS |
| | | VN | 50 | 4.95 | 0.001930 | ± 2.5 | PASS |
| QPSK | LCH | VN | -30 | 4.07 | 0.001625 | ± 2.5 | PASS |
| | | VN | -20 | -0.11 | -0.000044 | ± 2.5 | PASS |
| | | VN | -10 | 1.76 | 0.000703 | ± 2.5 | PASS |
| | | VN | 0 | 3.43 | 0.001369 | ± 2.5 | PASS |
| | | VN | 10 | 3.25 | 0.001297 | ± 2.5 | PASS |
| | | VN | 20 | 4.32 | 0.001725 | ± 2.5 | PASS |
| | | VN | 30 | 4.2 | 0.001677 | ± 2.5 | PASS |
| | | VN | 40 | 2.91 | 0.001162 | ± 2.5 | PASS |
| | | VN | 50 | 0.83 | 0.000331 | ± 2.5 | PASS |
| | MCH | VN | -30 | 2.87 | 0.001132 | ± 2.5 | PASS |
| | | VN | -20 | 4.43 | 0.001748 | ± 2.5 | PASS |
| | | VN | -10 | -1.16 | -0.000458 | ± 2.5 | PASS |
| | | VN | 0 | 2.14 | 0.000844 | ± 2.5 | PASS |
| | | VN | 10 | 2.7 | 0.001065 | ± 2.5 | PASS |
| | | VN | 20 | 0.44 | 0.000174 | ± 2.5 | PASS |
| | | VN | 30 | 1.14 | 0.000450 | ± 2.5 | PASS |
| | | VN | 40 | 4.12 | 0.001625 | ± 2.5 | PASS |
| | | VN | 50 | 2.5 | 0.000986 | ± 2.5 | PASS |
| | HCH | VN | -30 | -1.24 | -0.000483 | ± 2.5 | PASS |
| | | VN | -20 | 4.15 | 0.001618 | ± 2.5 | PASS |
| | | VN | -10 | 1.49 | 0.000581 | ± 2.5 | PASS |
| | | VN | 0 | 4.92 | 0.001918 | ± 2.5 | PASS |
| | | VN | 10 | 1.02 | 0.000398 | ± 2.5 | PASS |
| | | VN | 20 | -0.58 | -0.000226 | ± 2.5 | PASS |
| | | VN | 30 | 0.01 | 0.000004 | ± 2.5 | PASS |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | VN | 40 | 2.72 | 0.001060 | ± 2.5 | PASS |
| | | VN | 50 | 1.66 | 0.000647 | ± 2.5 | PASS |

## Channel Bandwidth: 15 MHz

| Channel Bandwidth: 15 MHz | | | | | | | |
|---|---|---|---|---|---|---|---|
| Voltage | | | | | | | |
| Modulation | Channel | Voltage [Vdc] | Temperature (℃) | Deviation (Hz) | Deviation (ppm) | Limit (ppm) | Verdict |
| QPSK | LCH | VL | TN | -1.77 | -0.000706 | ± 2.5 | PASS |
| | | VN | TN | 4.4 | 0.001755 | ± 2.5 | PASS |
| | | VH | TN | 4.3 | 0.001715 | ± 2.5 | PASS |
| | MCH | VL | TN | 2.76 | 0.001089 | ± 2.5 | PASS |
| | | VN | TN | 3.07 | 0.001211 | ± 2.5 | PASS |
| | | VH | TN | 0.57 | 0.000225 | ± 2.5 | PASS |
| | HCH | VL | TN | 0.09 | 0.000035 | ± 2.5 | PASS |
| | | VN | TN | 2.81 | 0.001097 | ± 2.5 | PASS |
| | | VH | TN | 3.59 | 0.001401 | ± 2.5 | PASS |
| 16QAM | LCH | VL | TN | 4.37 | 0.001743 | ± 2.5 | PASS |
| | | VN | TN | 2.39 | 0.000953 | ± 2.5 | PASS |
| | | VH | TN | 2.51 | 0.001001 | ± 2.5 | PASS |
| | MCH | VL | TN | 1.19 | 0.000469 | ± 2.5 | PASS |
| | | VN | TN | -0.95 | -0.000375 | ± 2.5 | PASS |
| | | VH | TN | 2.76 | 0.001089 | ± 2.5 | PASS |
| | HCH | VL | TN | 1.81 | 0.000706 | ± 2.5 | PASS |
| | | VN | TN | 2.72 | 0.001061 | ± 2.5 | PASS |
| | | VH | TN | 3.55 | 0.001385 | ± 2.5 | PASS |
| Temperature | | | | | | | |
| Modulation | Channel | Voltage [Vdc] | Temperature (℃) | Deviation (Hz) | Deviation (ppm) | Limit (ppm) | Verdict |
| QPSK | LCH | VN | -30 | -1.96 | -0.000782 | ± 2.5 | PASS |
| | | VN | -20 | 3.91 | 0.001559 | ± 2.5 | PASS |
| | | VN | -10 | 3.01 | 0.001200 | ± 2.5 | PASS |
| | | VN | 0 | 2.58 | 0.001029 | ± 2.5 | PASS |
| | | VN | 10 | 3.27 | 0.001304 | ± 2.5 | PASS |
| | | VN | 20 | -0.07 | -0.000028 | ± 2.5 | PASS |
| | | VN | 30 | 3.71 | 0.001480 | ± 2.5 | PASS |
| | | VN | 40 | 4.64 | 0.001850 | ± 2.5 | PASS |
| | | VN | 50 | -1.66 | -0.000662 | ± 2.5 | PASS |
| | MCH | VN | -30 | 3.9 | 0.001538 | ± 2.5 | PASS |
| | | VN | -20 | 1.1 | 0.000434 | ± 2.5 | PASS |
| | | VN | -10 | 2.77 | 0.001093 | ± 2.5 | PASS |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | VN | 0 | -0.62 | -0.000245 | ± 2.5 | PASS |
| | | VN | 10 | 2.39 | 0.000943 | ± 2.5 | PASS |
| | | VN | 20 | 0.2 | 0.000079 | ± 2.5 | PASS |
| | | VN | 30 | -0.77 | -0.000304 | ± 2.5 | PASS |
| | | VN | 40 | 4.14 | 0.001633 | ± 2.5 | PASS |
| | | VN | 50 | 2.18 | 0.000860 | ± 2.5 | PASS |
| | HCH | VN | -30 | -0.68 | -0.000265 | ± 2.5 | PASS |
| | | VN | -20 | 2.71 | 0.001058 | ± 2.5 | PASS |
| | | VN | -10 | 4.23 | 0.001651 | ± 2.5 | PASS |
| | | VN | 0 | 1.31 | 0.000511 | ± 2.5 | PASS |
| | | VN | 10 | 0.16 | 0.000062 | ± 2.5 | PASS |
| | | VN | 20 | 0.21 | 0.000082 | ± 2.5 | PASS |
| | | VN | 30 | -1.36 | -0.000531 | ± 2.5 | PASS |
| | | VN | 40 | 2.05 | 0.000800 | ± 2.5 | PASS |
| | | VN | 50 | 2.16 | 0.000843 | ± 2.5 | PASS |
| 16QAM | LCH | VN | -30 | 4 | 0.001595 | ± 2.5 | PASS |
| | | VN | -20 | 0.02 | 0.000008 | ± 2.5 | PASS |
| | | VN | -10 | 0.29 | 0.000116 | ± 2.5 | PASS |
| | | VN | 0 | 2.08 | 0.000830 | ± 2.5 | PASS |
| | | VN | 10 | -0.67 | -0.000267 | ± 2.5 | PASS |
| | | VN | 20 | -0.18 | -0.000072 | ± 2.5 | PASS |
| | | VN | 30 | 4.25 | 0.001695 | ± 2.5 | PASS |
| | | VN | 40 | 3.48 | 0.001388 | ± 2.5 | PASS |
| | | VN | 50 | 1.65 | 0.000658 | ± 2.5 | PASS |
| | MCH | VN | -30 | 3.92 | 0.001546 | ± 2.5 | PASS |
| | | VN | -20 | 1.79 | 0.000706 | ± 2.5 | PASS |
| | | VN | -10 | -1.33 | -0.000525 | ± 2.5 | PASS |
| | | VN | 0 | -0.93 | -0.000367 | ± 2.5 | PASS |
| | | VN | 10 | 2.8 | 0.001105 | ± 2.5 | PASS |
| | | VN | 20 | 1.09 | 0.000430 | ± 2.5 | PASS |
| | | VN | 30 | 1.21 | 0.000477 | ± 2.5 | PASS |
| | | VN | 40 | 1.27 | 0.000501 | ± 2.5 | PASS |
| | | VN | 50 | -0.45 | -0.000178 | ± 2.5 | PASS |
| | HCH | VN | -30 | 4.08 | 0.001592 | ± 2.5 | PASS |
| | | VN | -20 | 4.04 | 0.001577 | ± 2.5 | PASS |
| | | VN | -10 | 4.18 | 0.001631 | ± 2.5 | PASS |
| | | VN | 0 | 3.49 | 0.001362 | ± 2.5 | PASS |
| | | VN | 10 | 0.81 | 0.000316 | ± 2.5 | PASS |
| | | VN | 20 | 1.15 | 0.000449 | ± 2.5 | PASS |
| | | VN | 30 | 3.84 | 0.001499 | ± 2.5 | PASS |
| | | VN | 40 | 0.18 | 0.000070 | ± 2.5 | PASS |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | VN | 50 | 3.69 | 0.001440 | ± 2.5 | PASS |

## Channel Bandwidth: 20 MHz

| Channel Bandwidth: 20 MHz | | | | | | | |
|---|---|---|---|---|---|---|---|
| Voltage | | | | | | | |
| Modulation | Channel | Voltage [Vdc] | Temperature (℃) | Deviation (Hz) | Deviation (ppm) | Limit (ppm) | Verdict |
| QPSK | LCH | VL | TN | -1.02 | -0.000406 | ± 2.5 | PASS |
| | | VN | TN | 3.1 | 0.001235 | ± 2.5 | PASS |
| | | VH | TN | 3.55 | 0.001414 | ± 2.5 | PASS |
| | MCH | VL | TN | 4.72 | 0.001862 | ± 2.5 | PASS |
| | | VN | TN | 3.51 | 0.001385 | ± 2.5 | PASS |
| | | VH | TN | -0.76 | -0.000300 | ± 2.5 | PASS |
| | HCH | VL | TN | -1.41 | -0.000551 | ± 2.5 | PASS |
| | | VN | TN | 3.73 | 0.001457 | ± 2.5 | PASS |
| | | VH | TN | 3.23 | 0.001262 | ± 2.5 | PASS |
| 16QAM | LCH | VL | TN | 2.54 | 0.001012 | ± 2.5 | PASS |
| | | VN | TN | 1.24 | 0.000494 | ± 2.5 | PASS |
| | | VH | TN | -1.01 | -0.000402 | ± 2.5 | PASS |
| | MCH | VL | TN | 3.33 | 0.001314 | ± 2.5 | PASS |
| | | VN | TN | -0.76 | -0.000300 | ± 2.5 | PASS |
| | | VH | TN | 3.38 | 0.001333 | ± 2.5 | PASS |
| | HCH | VL | TN | 2.12 | 0.000828 | ± 2.5 | PASS |
| | | VN | TN | 2.35 | 0.000918 | ± 2.5 | PASS |
| | | VH | TN | -0.18 | -0.000070 | ± 2.5 | PASS |
| Temperature | | | | | | | |
| Modulation | Channel | Voltage [Vdc] | Temperature (℃) | Deviation (Hz) | Deviation (ppm) | Limit (ppm) | Verdict |
| QPSK | LCH | VN | -30 | 2.29 | 0.000912 | ± 2.5 | PASS |
| | | VN | -20 | 0.83 | 0.000331 | ± 2.5 | PASS |
| | | VN | -10 | 1.88 | 0.000749 | ± 2.5 | PASS |
| | | VN | 0 | -1.85 | -0.000737 | ± 2.5 | PASS |
| | | VN | 10 | 2.11 | 0.000841 | ± 2.5 | PASS |
| | | VN | 20 | 1.39 | 0.000554 | ± 2.5 | PASS |
| | | VN | 30 | -1.63 | -0.000649 | ± 2.5 | PASS |
| | | VN | 40 | 0.09 | 0.000036 | ± 2.5 | PASS |
| | | VN | 50 | -0.76 | -0.000303 | ± 2.5 | PASS |
| | MCH | VN | -30 | -0.69 | -0.000272 | ± 2.5 | PASS |
| | | VN | -20 | 4.81 | 0.001897 | ± 2.5 | PASS |
| | | VN | -10 | 3.29 | 0.001298 | ± 2.5 | PASS |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | VN | 0 | -1.22 | -0.000481 | ± 2.5 | PASS |
| | | VN | 10 | 1.17 | 0.000462 | ± 2.5 | PASS |
| | | VN | 20 | -1.88 | -0.000742 | ± 2.5 | PASS |
| | | VN | 30 | 0.82 | 0.000323 | ± 2.5 | PASS |
| | | VN | 40 | 2.31 | 0.000911 | ± 2.5 | PASS |
| | | VN | 50 | 0.01 | 0.000004 | ± 2.5 | PASS |
| | HCH | VN | -30 | 4.57 | 0.001785 | ± 2.5 | PASS |
| | | VN | -20 | -1.15 | -0.000449 | ± 2.5 | PASS |
| | | VN | -10 | 0.46 | 0.000180 | ± 2.5 | PASS |
| | | VN | 0 | 0.43 | 0.000168 | ± 2.5 | PASS |
| | | VN | 10 | 0.46 | 0.000180 | ± 2.5 | PASS |
| | | VN | 20 | -1.2 | -0.000469 | ± 2.5 | PASS |
| | | VN | 30 | -0.48 | -0.000188 | ± 2.5 | PASS |
| | | VN | 40 | 0.05 | 0.000020 | ± 2.5 | PASS |
| | | VN | 50 | -1.71 | -0.000668 | ± 2.5 | PASS |
| 16QAM | LCH | VN | -30 | 4.77 | 0.001900 | ± 2.5 | PASS |
| | | VN | -20 | -1.13 | -0.000450 | ± 2.5 | PASS |
| | | VN | -10 | -1.5 | -0.000598 | ± 2.5 | PASS |
| | | VN | 0 | 4.42 | 0.001761 | ± 2.5 | PASS |
| | | VN | 10 | 4.74 | 0.001888 | ± 2.5 | PASS |
| | | VN | 20 | 4.12 | 0.001641 | ± 2.5 | PASS |
| | | VN | 30 | 0.84 | 0.000335 | ± 2.5 | PASS |
| | | VN | 40 | 0.87 | 0.000347 | ± 2.5 | PASS |
| | | VN | 50 | -0.74 | -0.000295 | ± 2.5 | PASS |
| | MCH | VN | -30 | 2.74 | 0.001081 | ± 2.5 | PASS |
| | | VN | -20 | 3.49 | 0.001377 | ± 2.5 | PASS |
| | | VN | -10 | -0.25 | -0.000099 | ± 2.5 | PASS |
| | | VN | 0 | 3.44 | 0.001357 | ± 2.5 | PASS |
| | | VN | 10 | -0.71 | -0.000280 | ± 2.5 | PASS |
| | | VN | 20 | 2.53 | 0.000998 | ± 2.5 | PASS |
| | | VN | 30 | -1.91 | -0.000753 | ± 2.5 | PASS |
| | | VN | 40 | -1.06 | -0.000418 | ± 2.5 | PASS |
| | | VN | 50 | -1.21 | -0.000477 | ± 2.5 | PASS |
| | HCH | VN | -30 | 1.16 | 0.000453 | ± 2.5 | PASS |
| | | VN | -20 | 2.42 | 0.000945 | ± 2.5 | PASS |
| | | VN | -10 | 3.66 | 0.001430 | ± 2.5 | PASS |
| | | VN | 0 | 1.89 | 0.000738 | ± 2.5 | PASS |
| | | VN | 10 | 2.81 | 0.001098 | ± 2.5 | PASS |
| | | VN | 20 | 0.24 | 0.000094 | ± 2.5 | PASS |
| | | VN | 30 | 4.5 | 0.001758 | ± 2.5 | PASS |
| | | VN | 40 | 4.61 | 0.001801 | ± 2.5 | PASS |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | VN | 50 | 3.23 | 0.001262 | ± 2.5 | PASS |