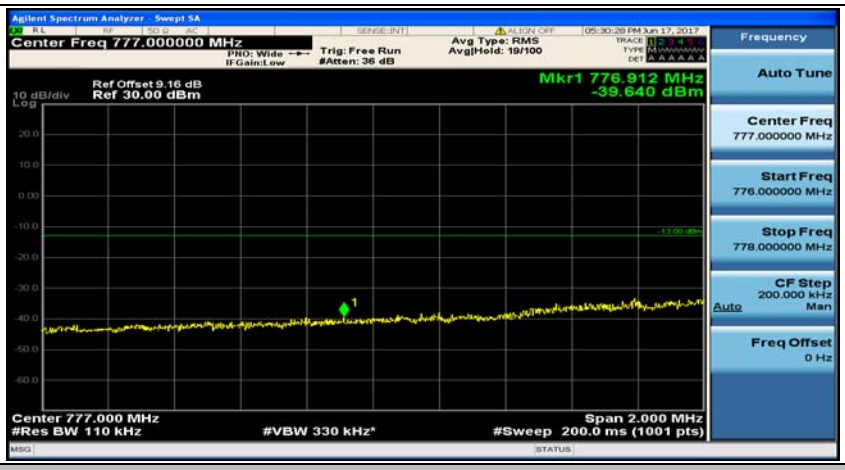
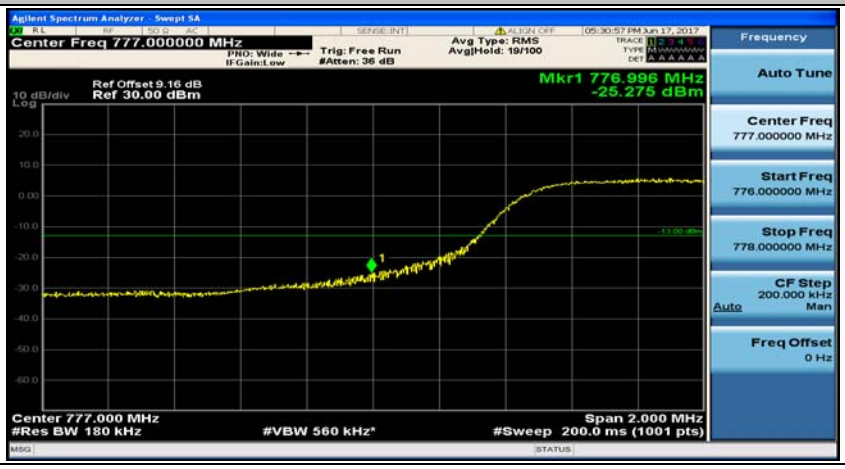
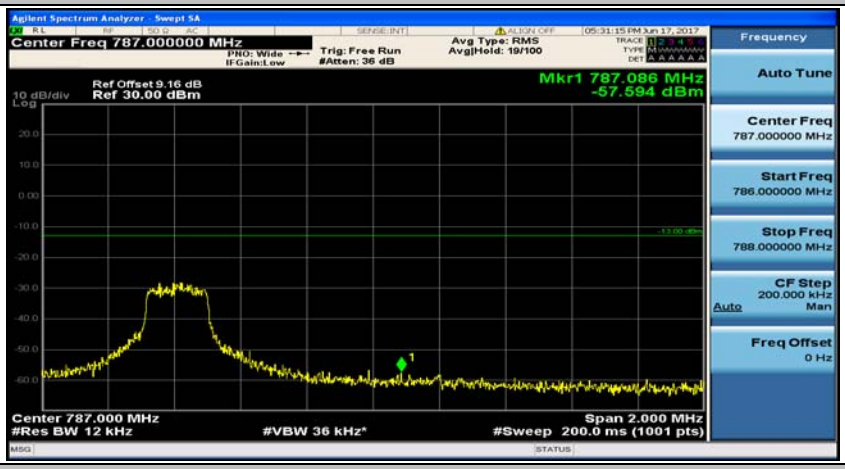


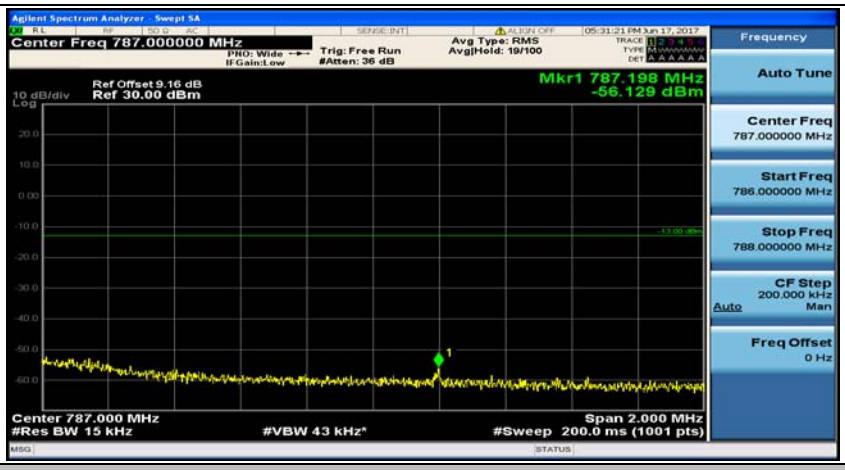
Channel Bandwidth: 10 MHz_LCH_QPSK_50RB#0



Channel Bandwidth: 10 MHz_HCH_QPSK_1RB#0



Channel Bandwidth: 10 MHz_HCH_QPSK_1RB#24



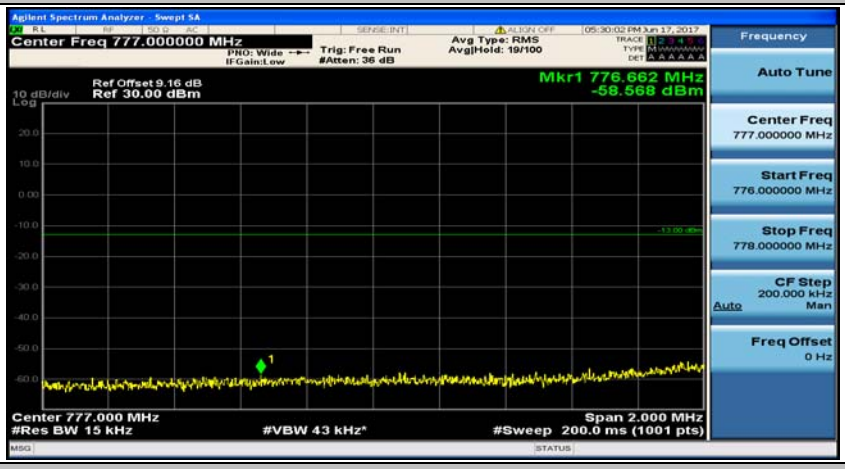
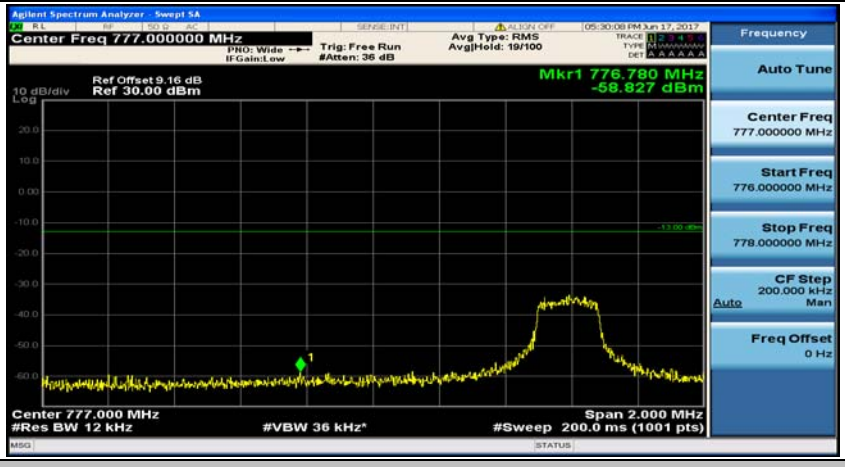
Channel Bandwidth: 10 MHz_HCH_QPSK_1RB#49

Channel Bandwidth: 10 MHz_HCH_QPSK_25RB#0

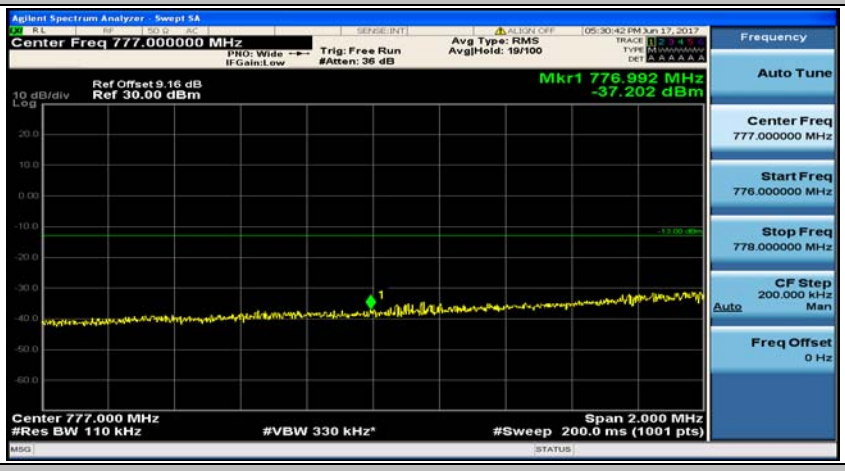
Channel Bandwidth: 10 MHz_HCH_QPSK_25RB#12

Channel Bandwidth: 10 MHz_HCH_QPSK_25RB#25

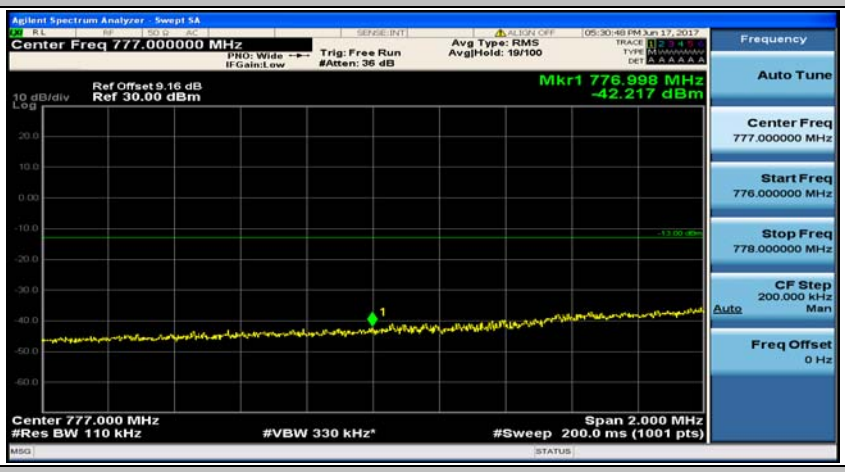
Channel Bandwidth: 10 MHz_HCH_QPSK_50RB#0

Channel Bandwidth: 10 MHz_LCH_16QAM_1RB#0
Channel Bandwidth: 10 MHz_LCH_16QAM_1RB#24

Channel Bandwidth: 10 MHz_LCH_16QAM_1RB#49

Channel Bandwidth: 10 MHz_LCH_16QAM_25RB#0

Channel Bandwidth: 10 MHz_LCH_16QAM_25RB#12

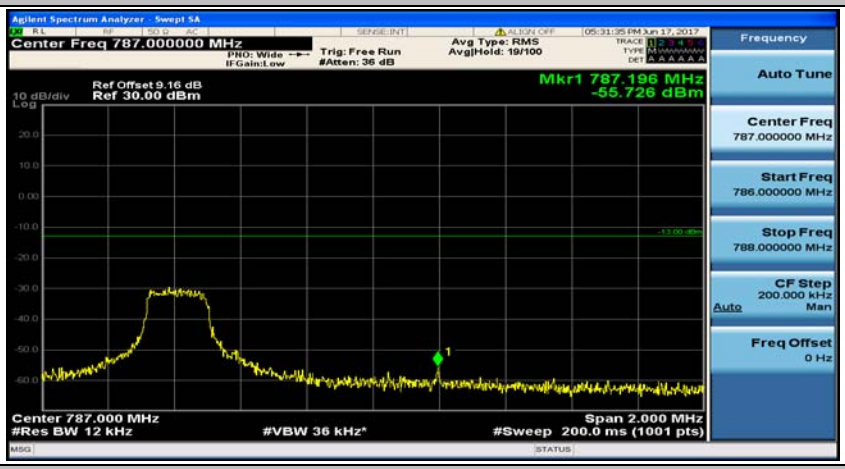


Channel Bandwidth: 10 MHz_LCH_16QAM_25RB#25

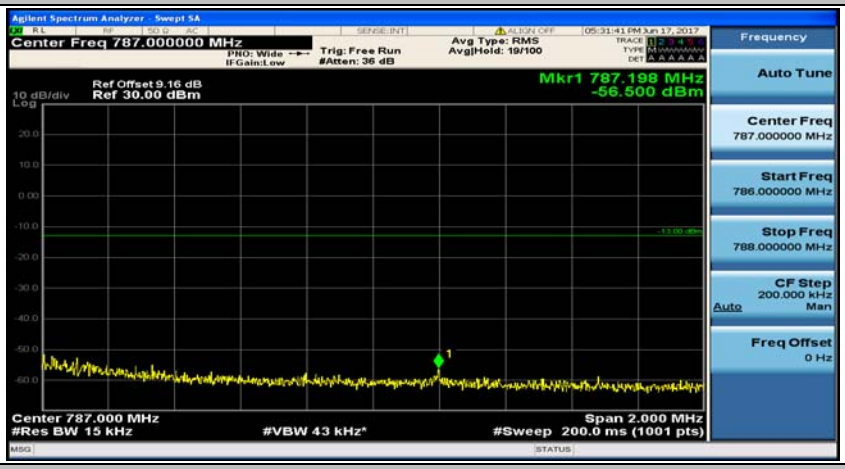


Channel Bandwidth: 10 MHz_LCH_16QAM_50RB#0

Channel Bandwidth: 10 MHz_HCH_16QAM_1RB#0

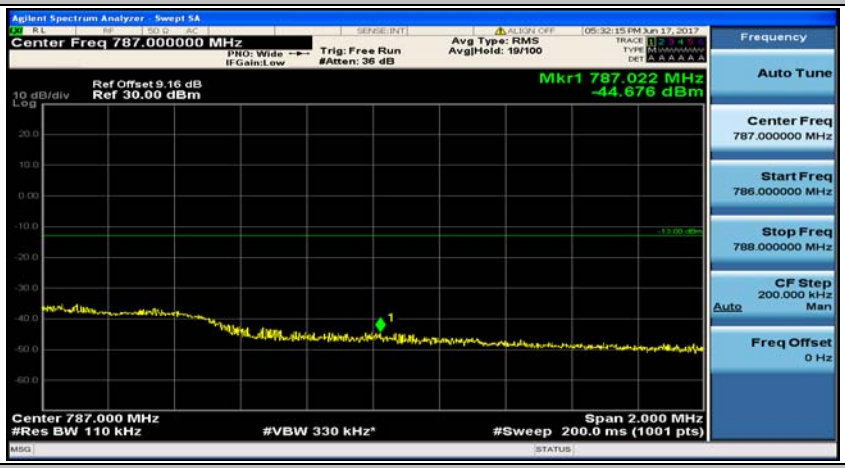


Channel Bandwidth: 10 MHz_HCH_16QAM_1RB#24

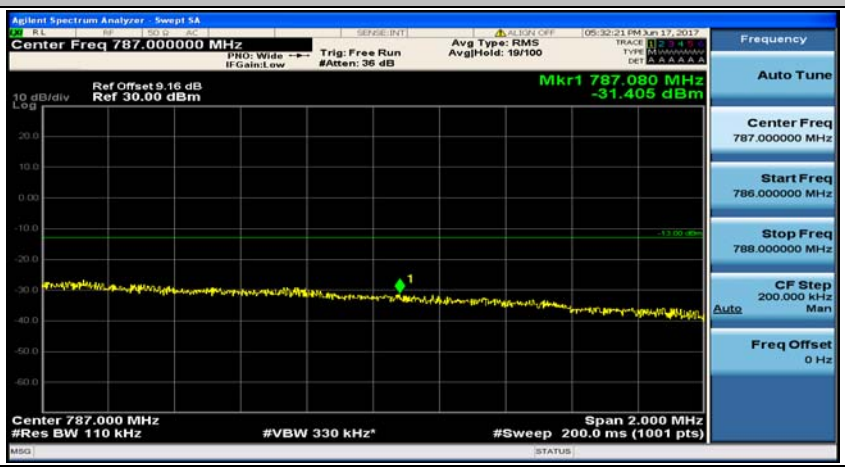


Channel Bandwidth: 10 MHz_HCH_16QAM_1RB#49

Channel Bandwidth: 10 MHz_HCH_16QAM_25RB#0



Channel Bandwidth: 10 MHz_HCH_16QAM_25RB#12



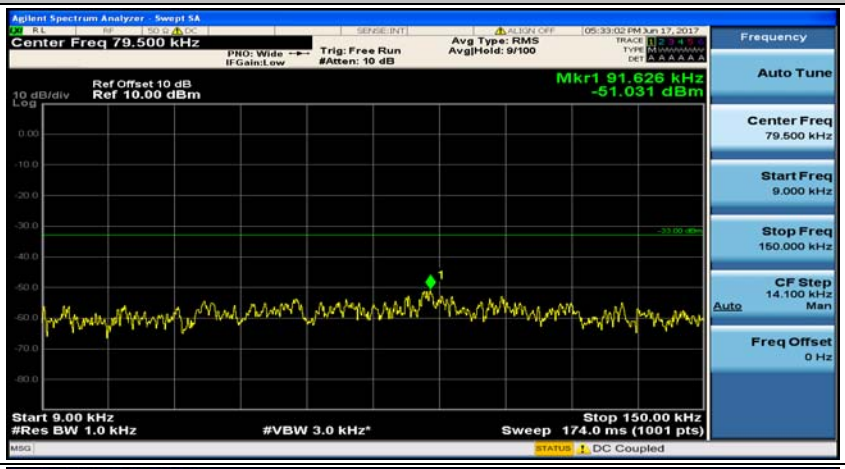
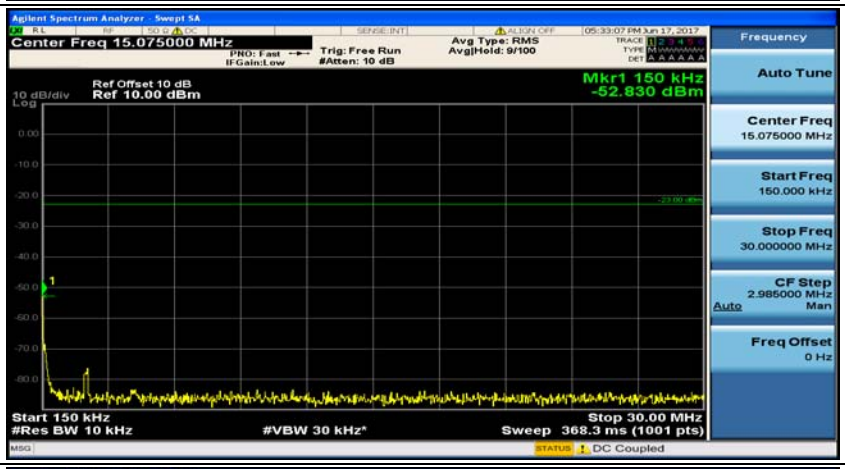
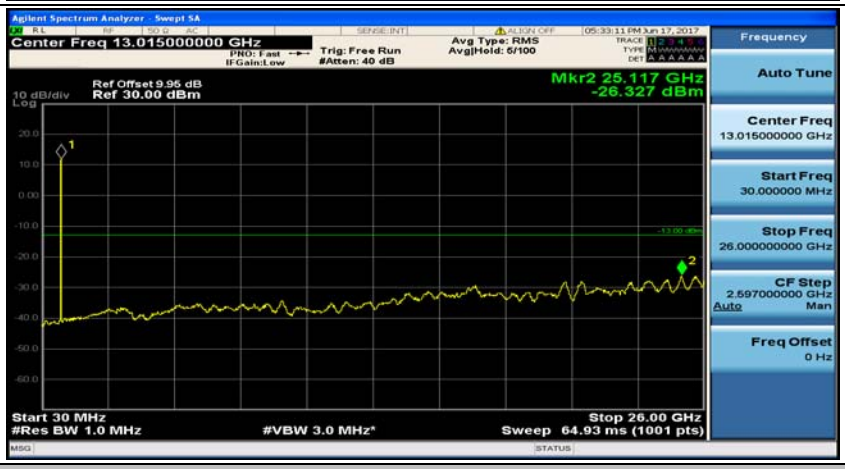
Channel Bandwidth: 10 MHz_HCH_16QAM_25RB#25

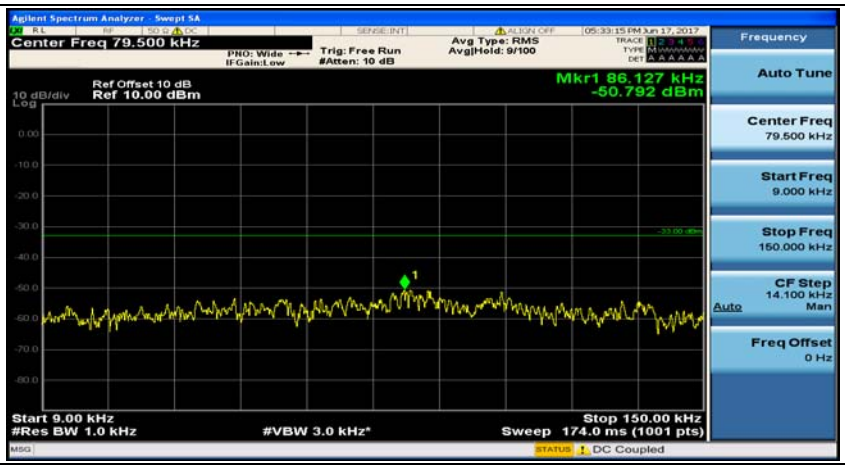
Channel Bandwidth: 10 MHz_HCH_16QAM_50RB#0

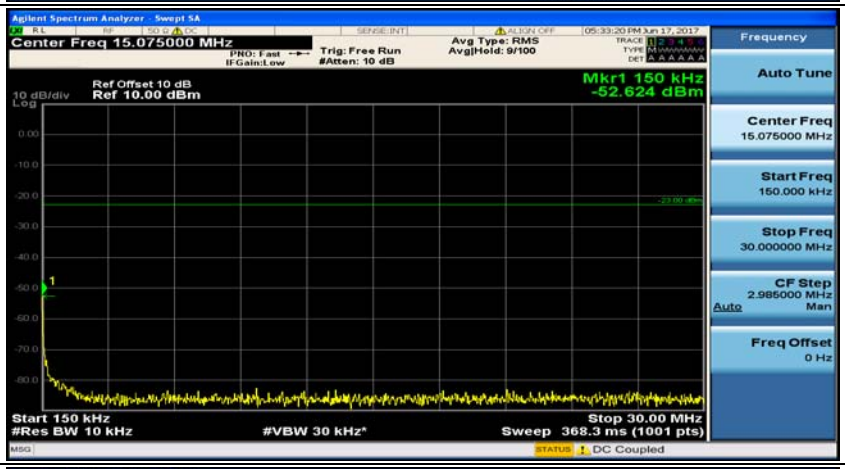
Appendix E: Conducted Spurious Emission

Test Graphs

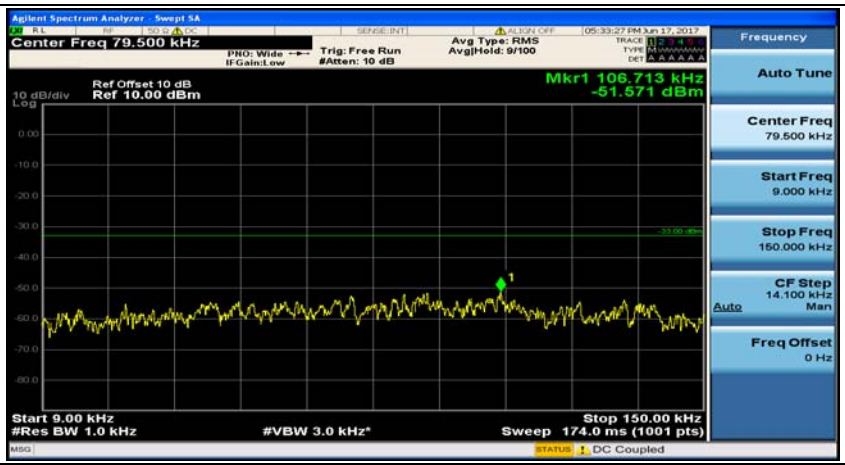
Channel Bandwidth: 5 MHz

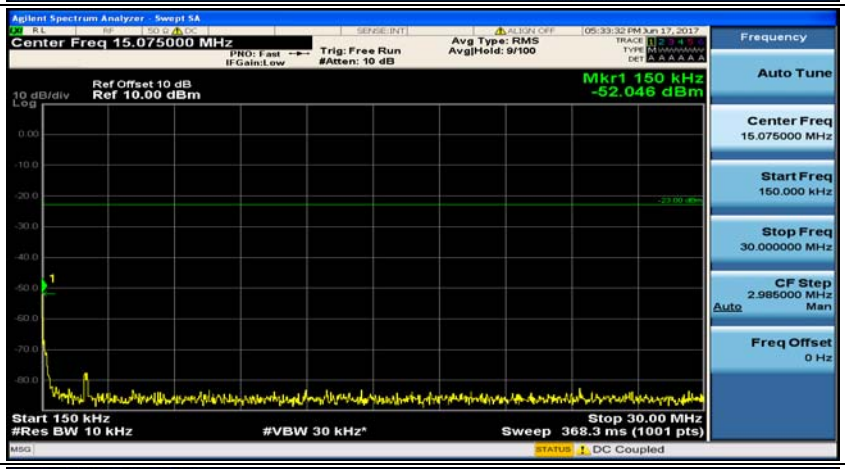
(Channel Bandwidth: 5 MHz)_LCH_QPSK_1RB#0



(Channel Bandwidth: 5 MHz)_LCH_QPSK_1RB#12

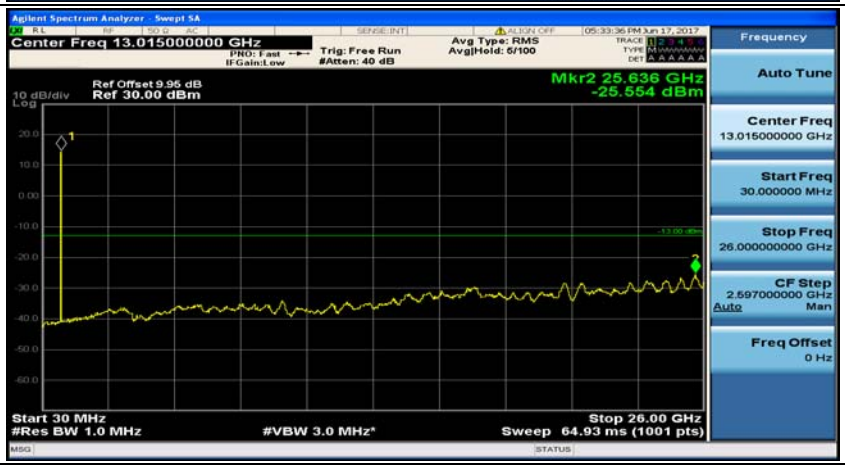


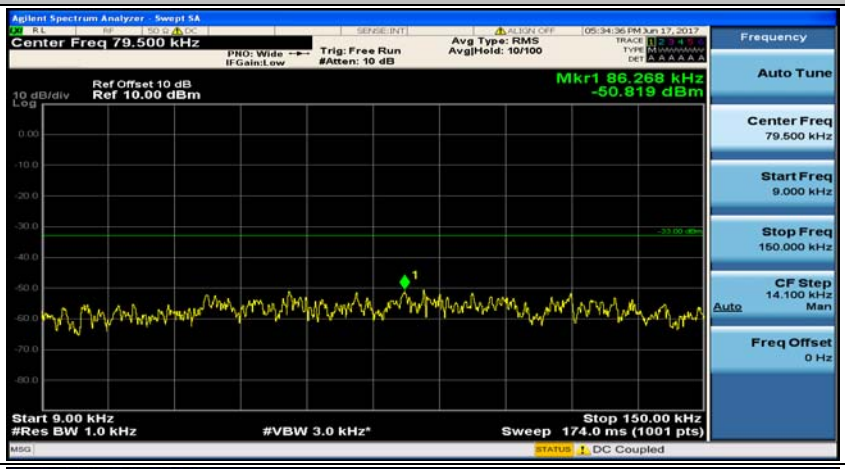
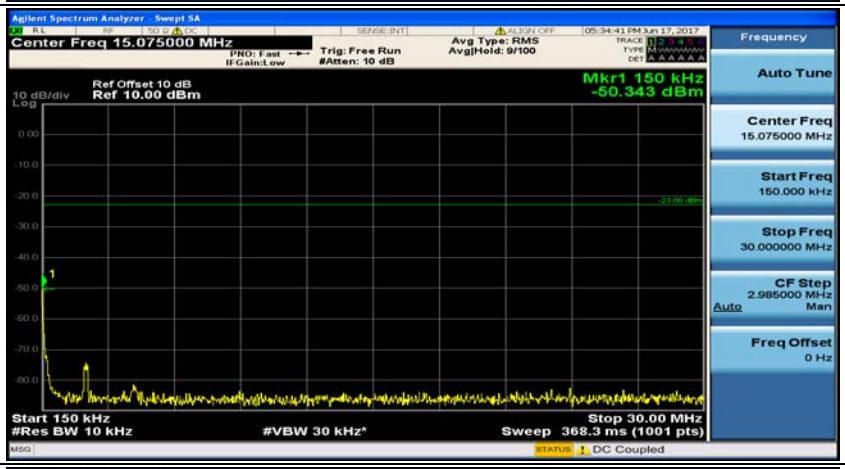
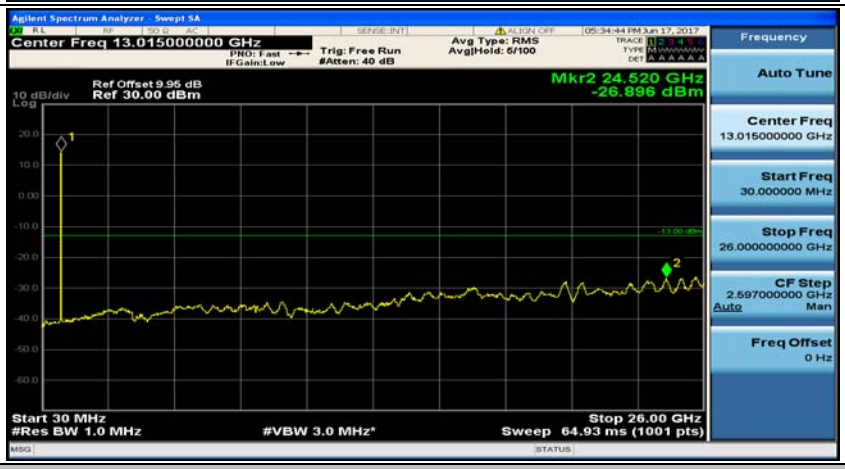


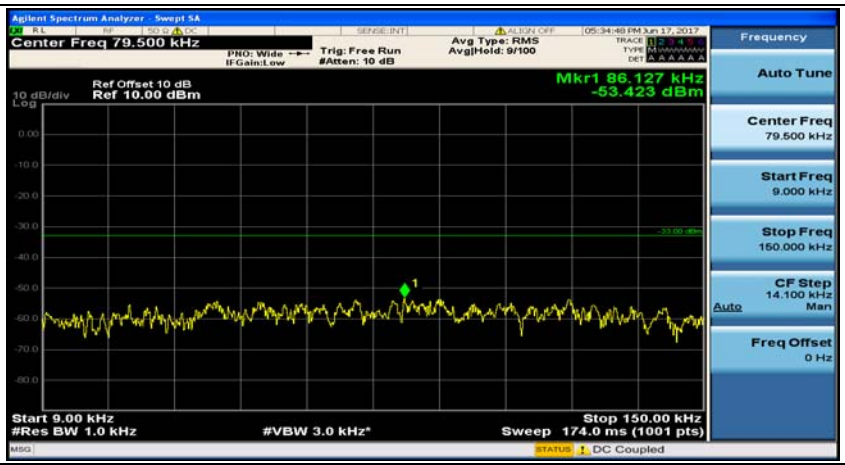
(Channel Bandwidth: 5 MHz)_LCH_QPSK_1RB#24

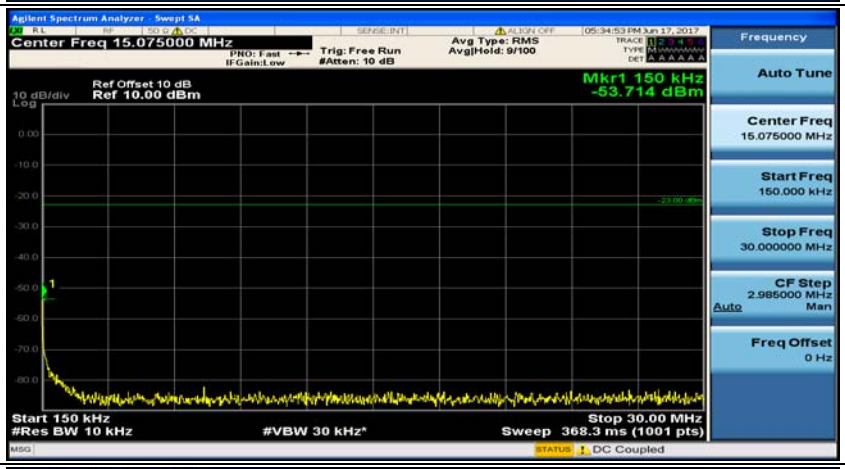

Agilent Spectrum Analyzer - Swept SA
Center Freq 79.500 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 9/100
05:33:27 PM Jun 17, 2017
Frequency
Auto Tune
Mkr1 106.713 kHz
-51.571 dBm
Ref Offset 10 dB
10 dB/div
Log
Ref 10.00 dBm
Center Freq
79.500 kHz
Start Freq
9.000 kHz
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 174.0 ms (1001 pts)
DC Coupled


Agilent Spectrum Analyzer - Swept SA
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 9/100
05:33:32 PM Jun 17, 2017
Frequency
Auto Tune
Mkr1 150 kHz
-52.046 dBm
Ref Offset 10 dB
10 dB/div
Log
Ref 10.00 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 368.3 ms (1001 pts)
DC Coupled

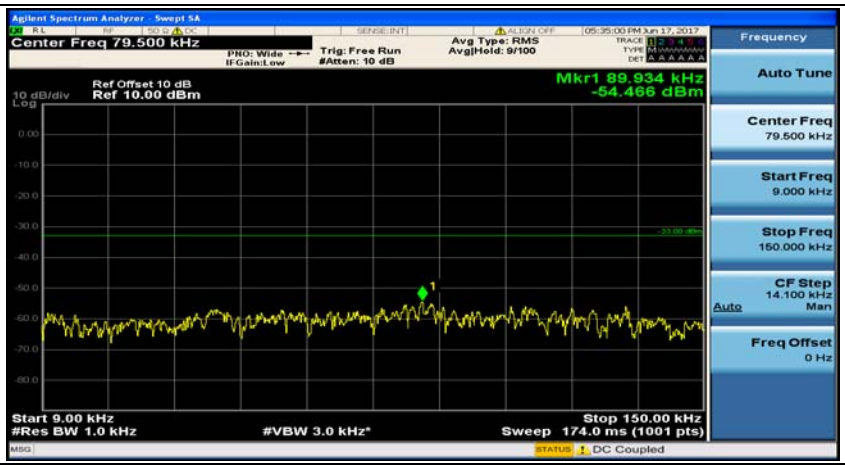

Agilent Spectrum Analyzer - Swept SA
Center Freq 13.015000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: RMS
Avg|Hold: 5/100
05:33:36 PM Jun 17, 2017
Frequency
Auto Tune
Mkr2 25.636 GHz
-25.554 dBm
Ref Offset 9.95 dB
10 dB/div
Log
Ref 30.00 dBm
Center Freq
13.015000000 GHz
Start 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 64.93 ms (1001 pts)

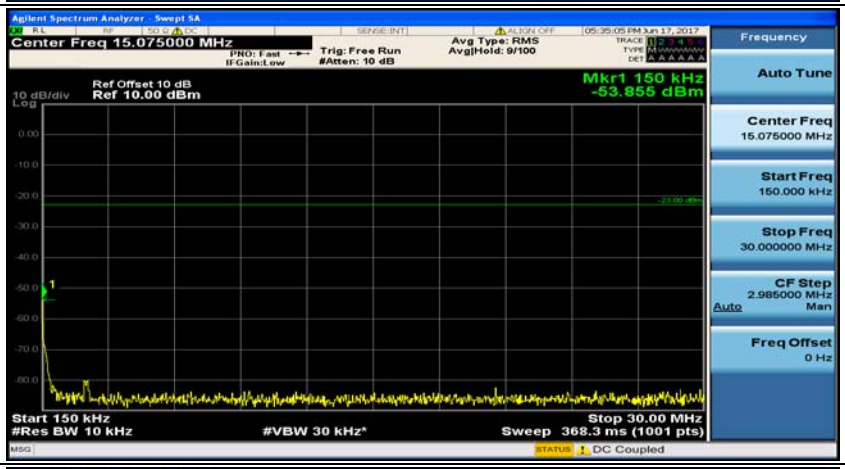
(Channel Bandwidth: 5 MHz)_MCH_QPSK_1RB#0



(Channel Bandwidth: 5 MHz)_MCH_QPSK_1RB#12

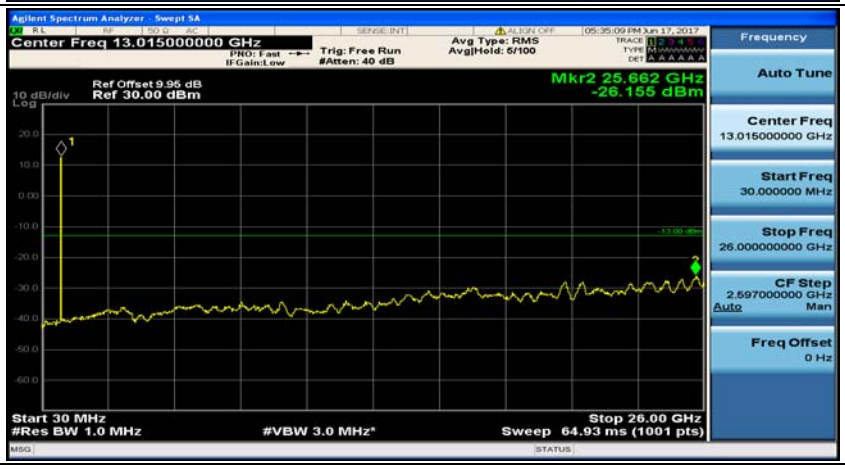


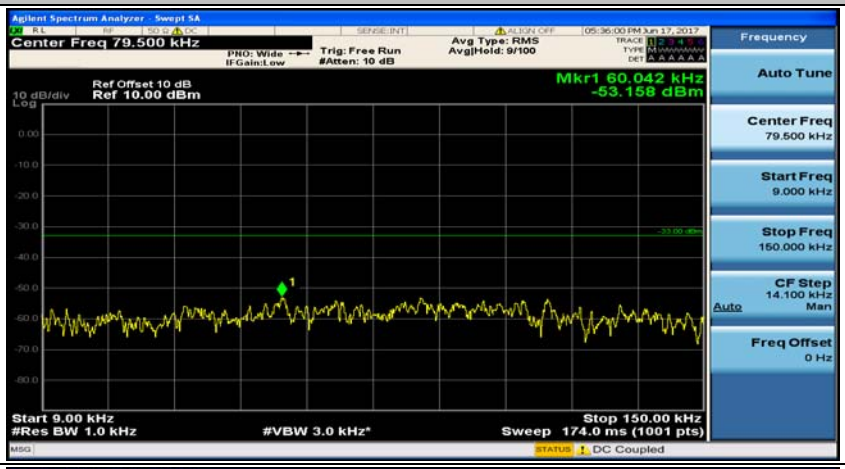
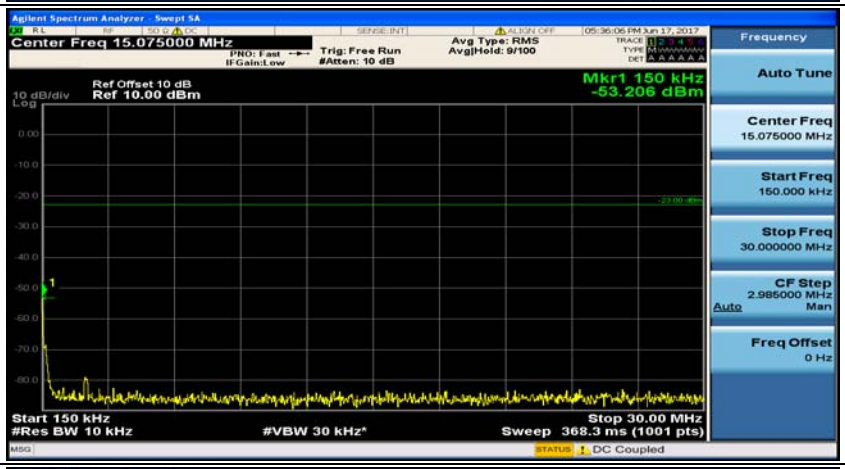
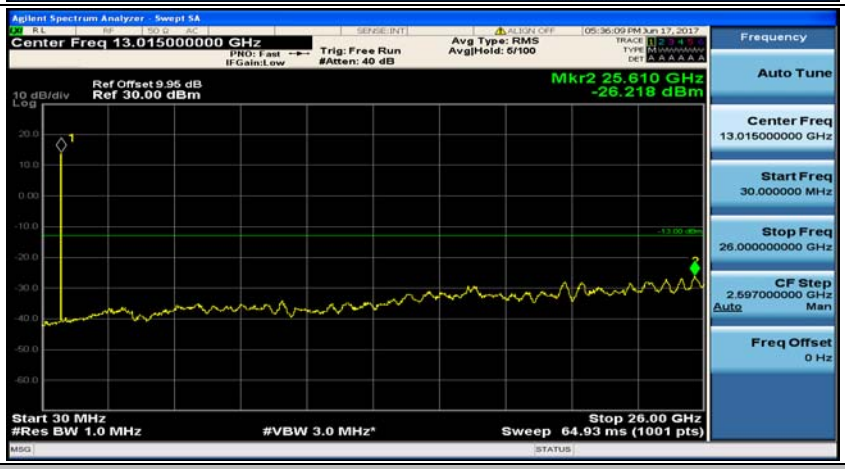


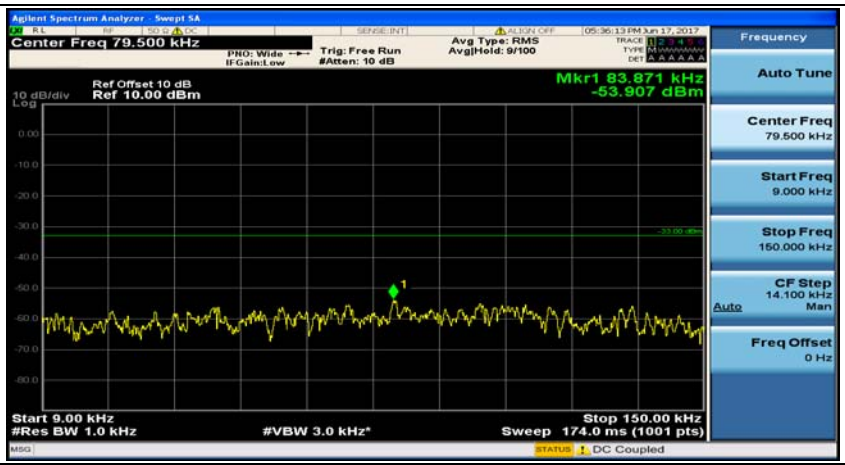
(Channel Bandwidth: 5 MHz)_MCH_QPSK_1RB#24

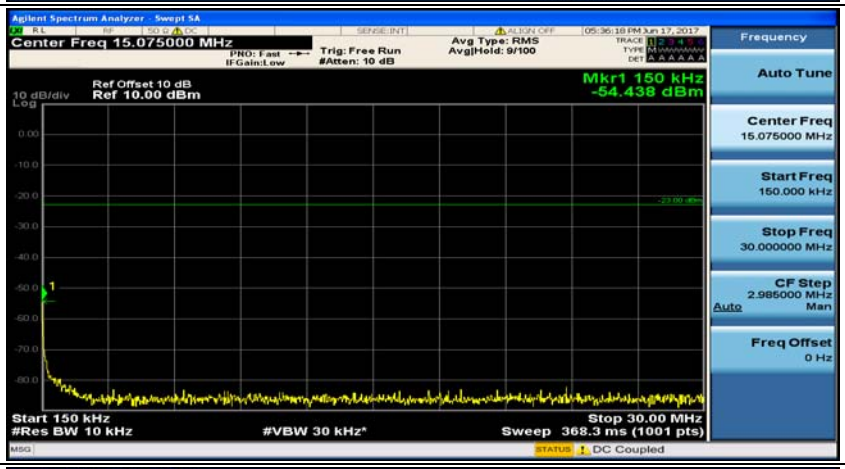

Agilent Spectrum Analyzer - Swept SA
Center Freq 79.500 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 9/100
05:35:00 PM Jun 17, 2017
Ref Offset 10 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 89.934 kHz
-54.466 dBm
Start 9.00 kHz
#Res BW 1.0 kHz
#VBW 3.0 kHz*
Stop 150.00 kHz
Sweep 174.0 ms (1001 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

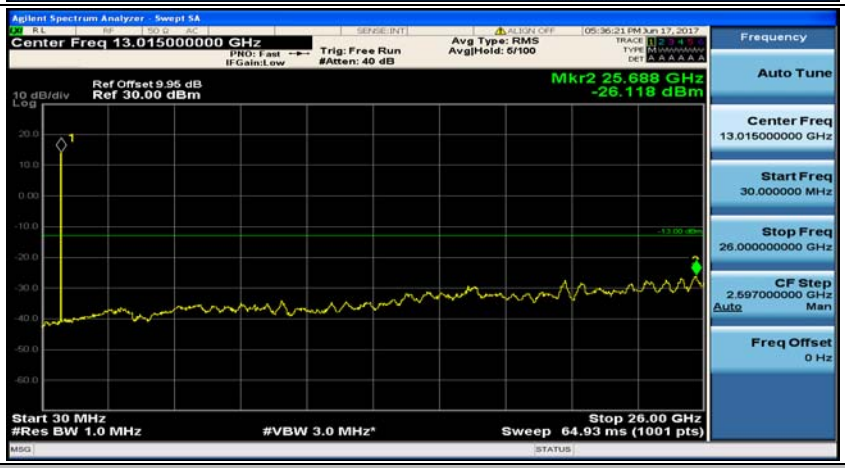

Agilent Spectrum Analyzer - Swept SA
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 9/100
05:35:05 PM Jun 17, 2017
Ref Offset 10 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 150 kHz
-53.855 dBm
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz*
Stop 30.00 MHz
Sweep 368.3 ms (1001 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: 40 dB
Avg Type: RMS
Avg|Hold: 5/100
05:35:09 PM Jun 17, 2017
Ref Offset 9.95 dB
10 dB/div
Log
Ref 30.00 dBm
Mkr2 25.662 GHz
-26.155 dBm
Start 30 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 26.00 GHz
Sweep 64.93 ms (1001 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

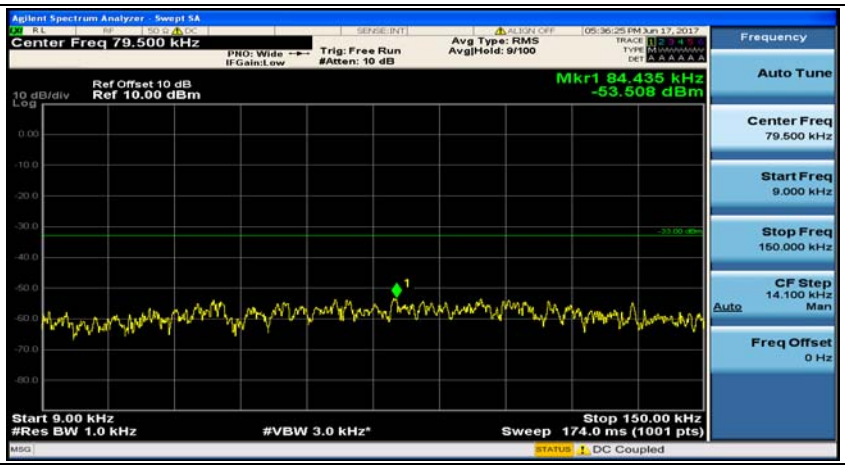
(Channel Bandwidth: 5 MHz)_HCH_QPSK_1RB#0



(Channel Bandwidth: 5 MHz)_HCH_QPSK_1RB#12

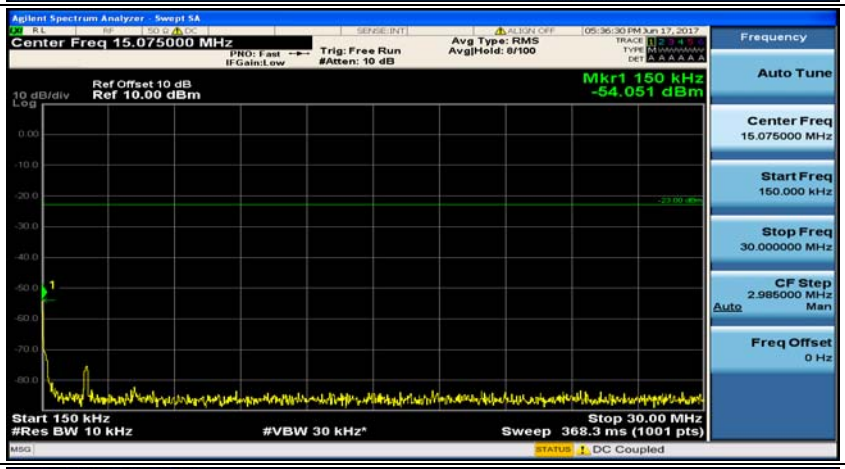


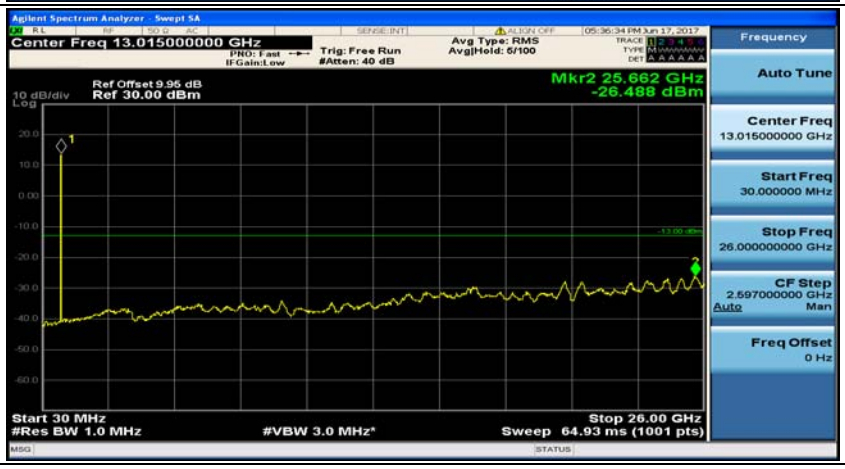


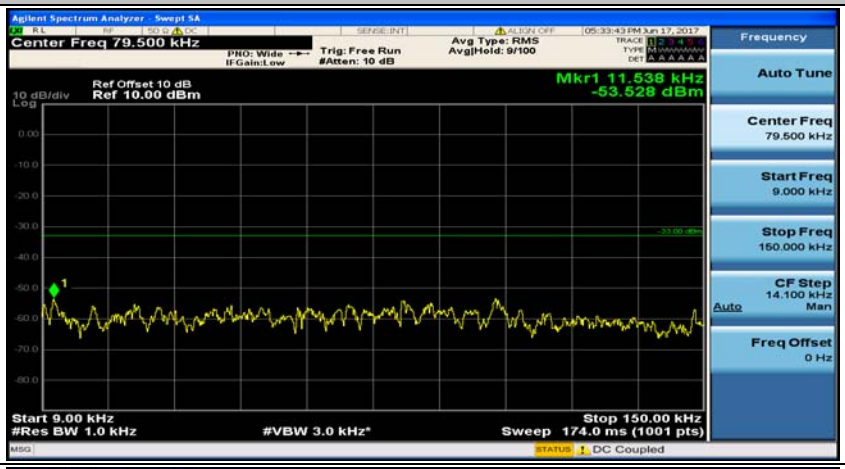
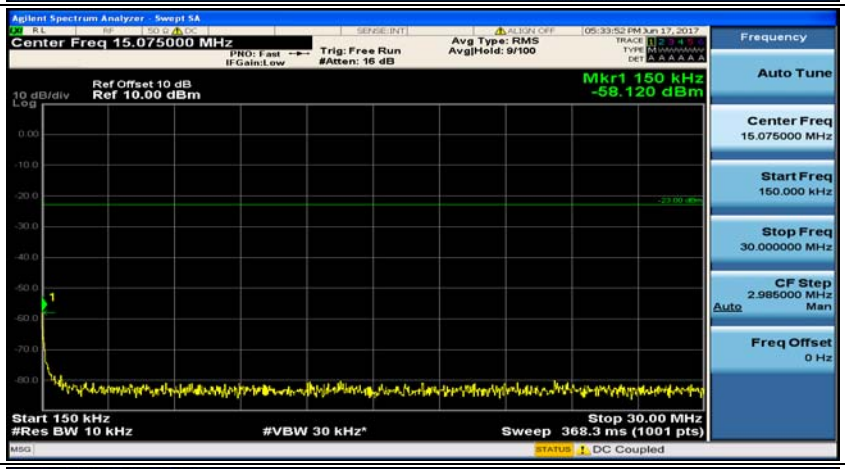
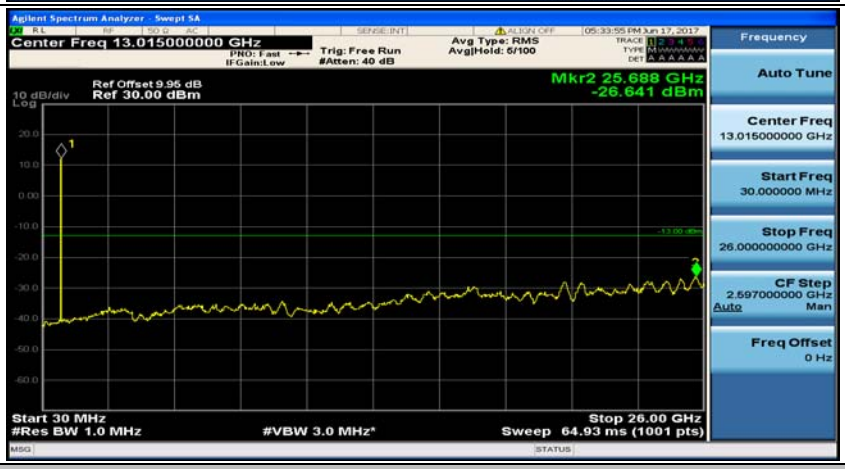


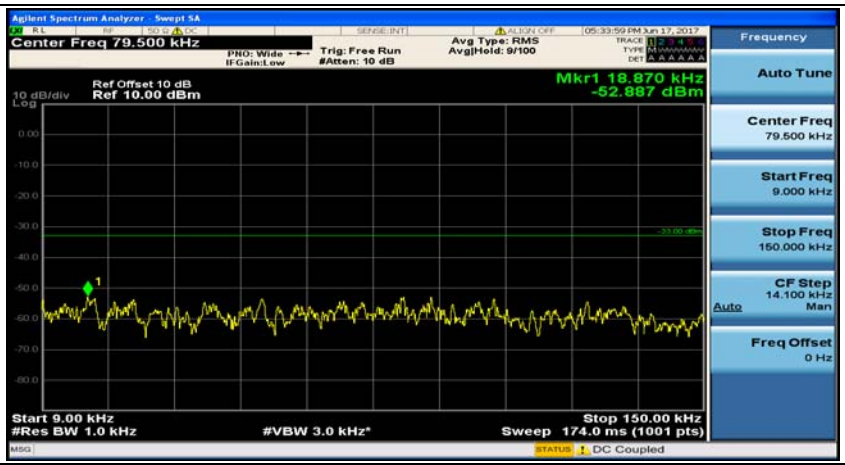
(Channel Bandwidth: 5 MHz)_HCH_QPSK_1RB#24

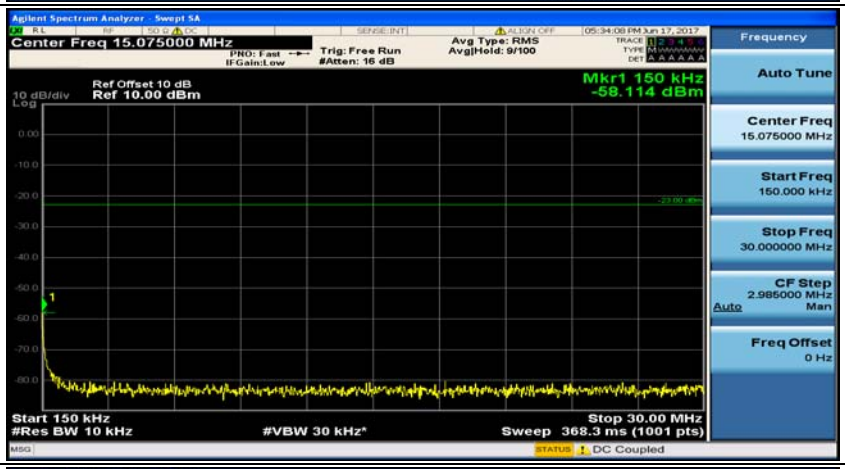

Agilent Spectrum Analyzer - Swept SA
Center Freq 79.500 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 9/100
05:36:25 PM Jun 17, 2017
Frequency
Auto Tune
Mkr1 84.435 kHz
-53.508 dBm
Ref Offset 10 dB
10 dB/div
Ref 10.00 dBm
Log
Center Freq
79.500 kHz
Start Freq
9.000 kHz
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 174.0 ms (1001 pts)
DC Coupled

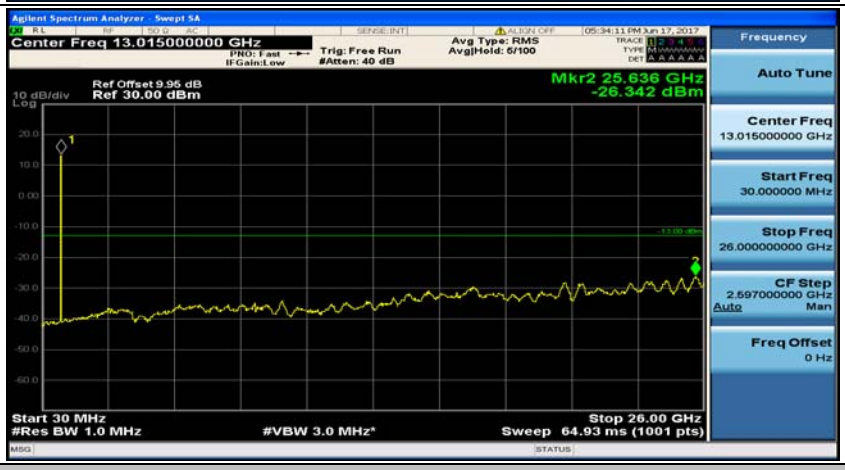

Agilent Spectrum Analyzer - Swept SA
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 6/100
05:36:30 PM Jun 17, 2017
Frequency
Auto Tune
Mkr1 150 kHz
-54.051 dBm
Ref Offset 10 dB
10 dB/div
Ref 10.00 dBm
Log
Center Freq
15.075000 MHz
Start Freq
150.000 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 368.3 ms (1001 pts)
DC Coupled


Agilent Spectrum Analyzer - Swept SA
Center Freq 13.015000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: RMS
Avg|Hold: 5/100
05:36:34 PM Jun 17, 2017
Frequency
Auto Tune
Mkr2 25.662 GHz
-26.488 dBm
Ref Offset 9.95 dB
10 dB/div
Ref 30.00 dBm
Log
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 64.93 ms (1001 pts)

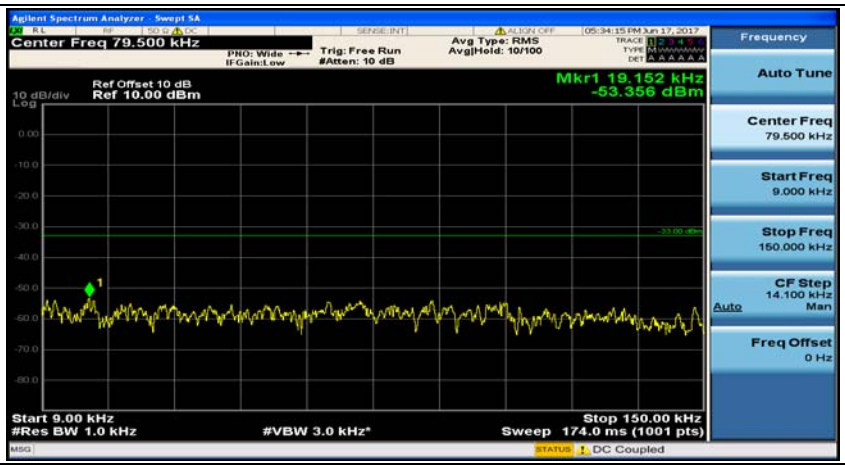
(Channel Bandwidth: 5 MHz)_LCH_16QAM_1RB#0



(Channel Bandwidth: 5 MHz)_LCH_16QAM_1RB#12

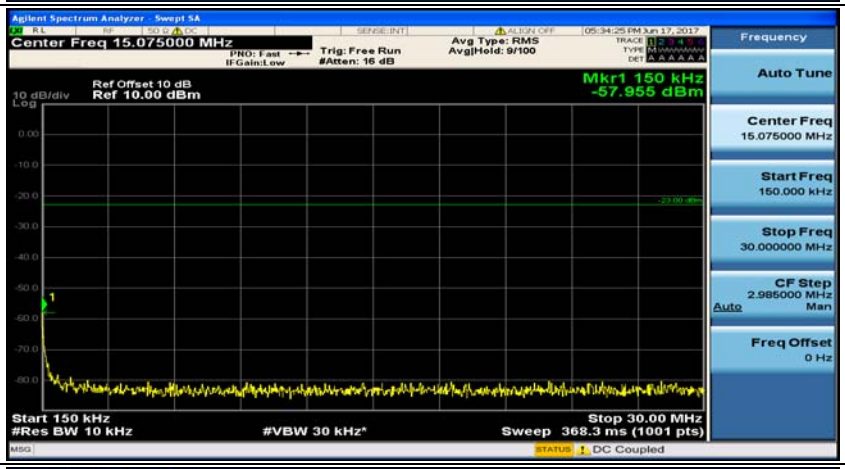


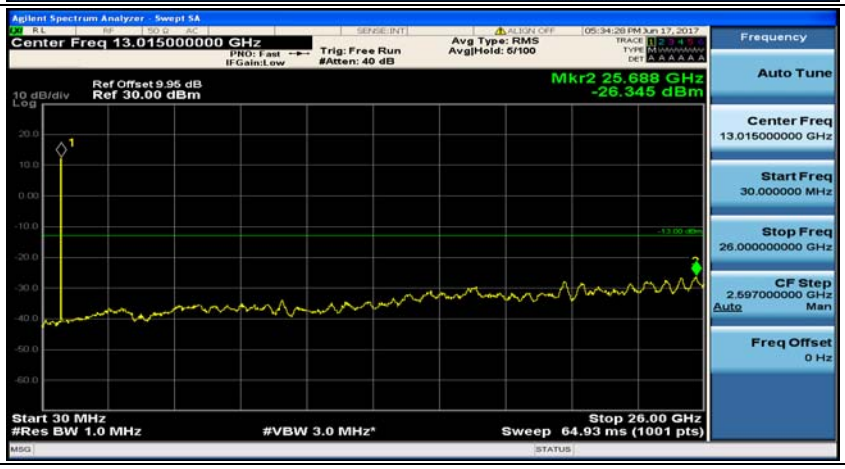


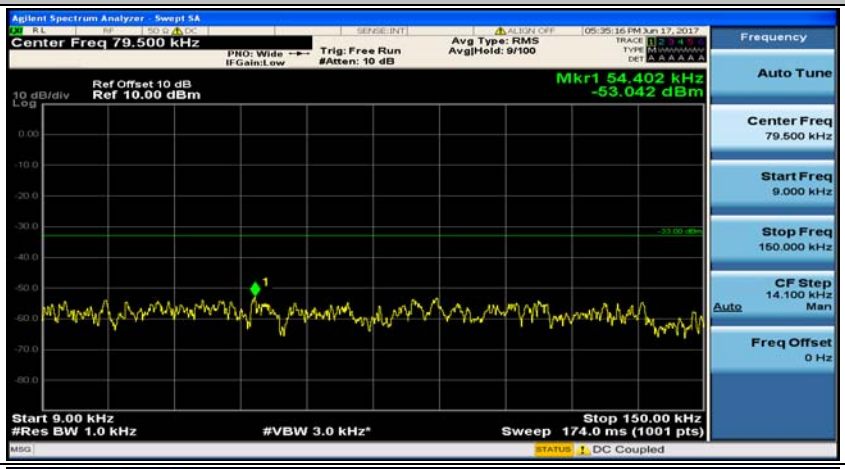
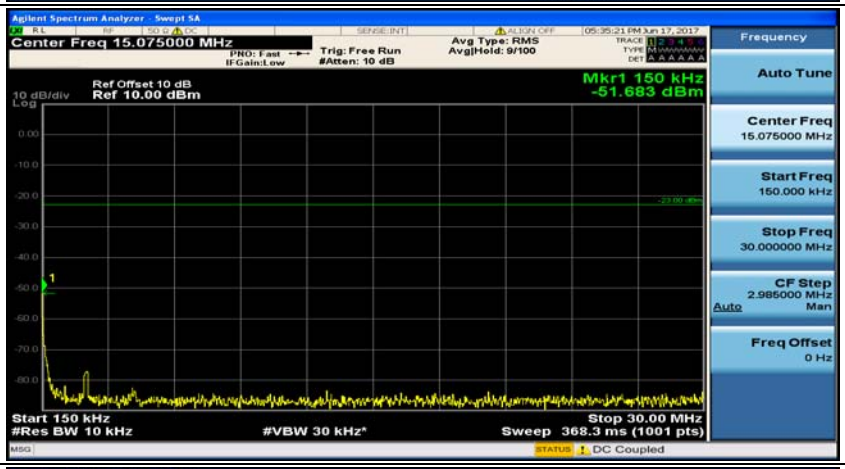
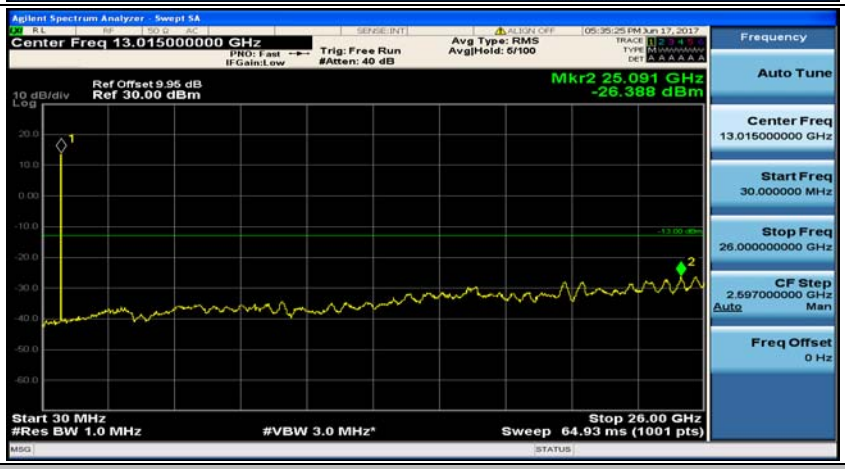


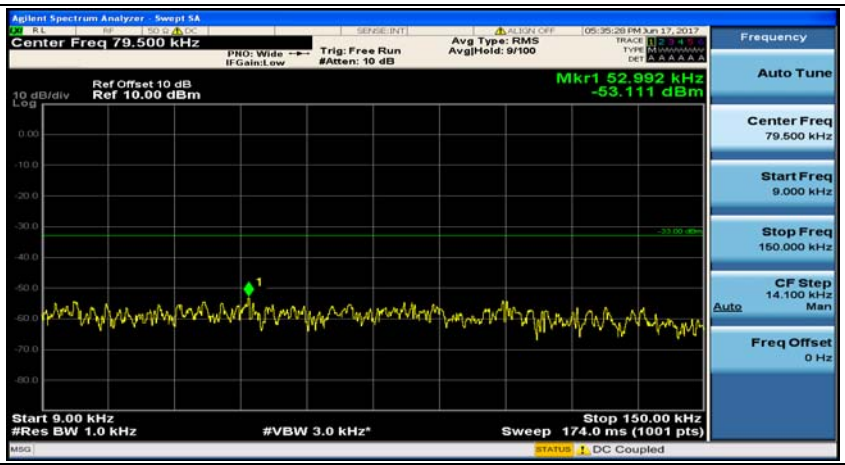
(Channel Bandwidth: 5 MHz)_LCH_16QAM_1RB#24

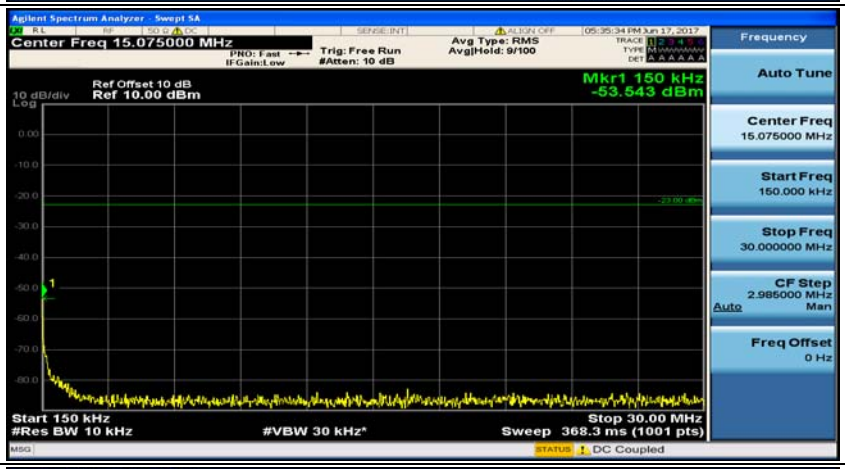

Agilent Spectrum Analyzer - Swept SA
Center Freq 79.500 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 10/100
05:34:15 PM Jun 17, 2017
Frequency
Ref Offset 10 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 19.152 kHz
-53.356 dBm
Auto Tune
Center Freq
79.500 kHz
Start Freq
9.000 kHz
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 174.0 ms (1001 pts)
DC Coupled

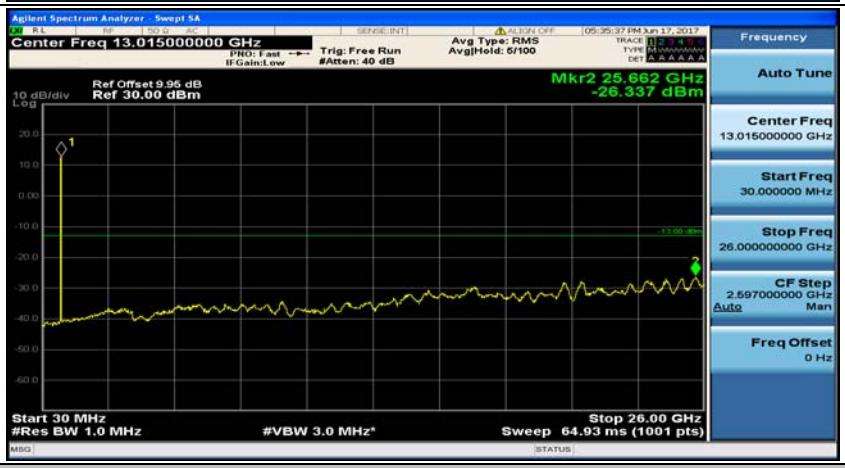

Agilent Spectrum Analyzer - Swept SA
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 16 dB
Avg Type: RMS
Avg|Hold: 9/100
05:34:25 PM Jun 17, 2017
Frequency
Ref Offset 10 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 150 kHz
-57.955 dBm
Auto Tune
Center Freq
15.075000 MHz
Start Freq
150.000 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 368.3 ms (1001 pts)
DC Coupled


Agilent Spectrum Analyzer - Swept SA
Center Freq 13.015000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: RMS
Avg|Hold: 5/100
05:34:28 PM Jun 17, 2017
Frequency
Ref Offset 9.95 dB
10 dB/div
Log
Ref 30.00 dBm
Mkr2 25.688 GHz
-26.345 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 64.93 ms (1001 pts)

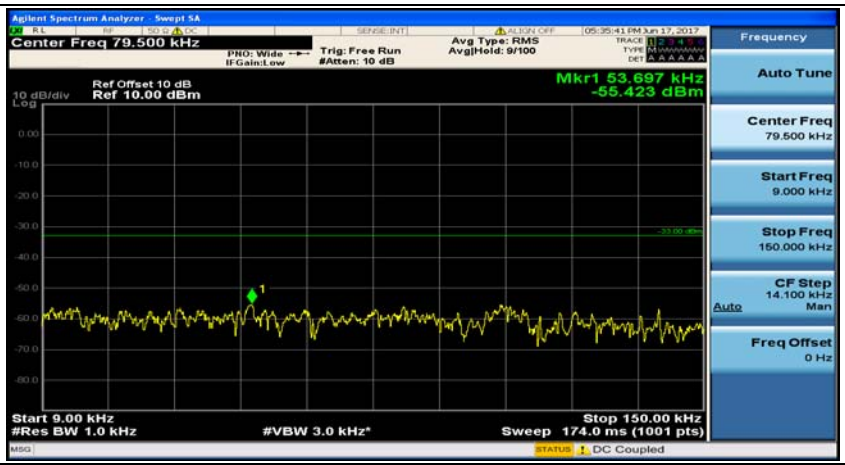
(Channel Bandwidth: 5 MHz)_MCH_16QAM_1RB#0



(Channel Bandwidth: 5 MHz)_MCH_16QAM_1RB#12

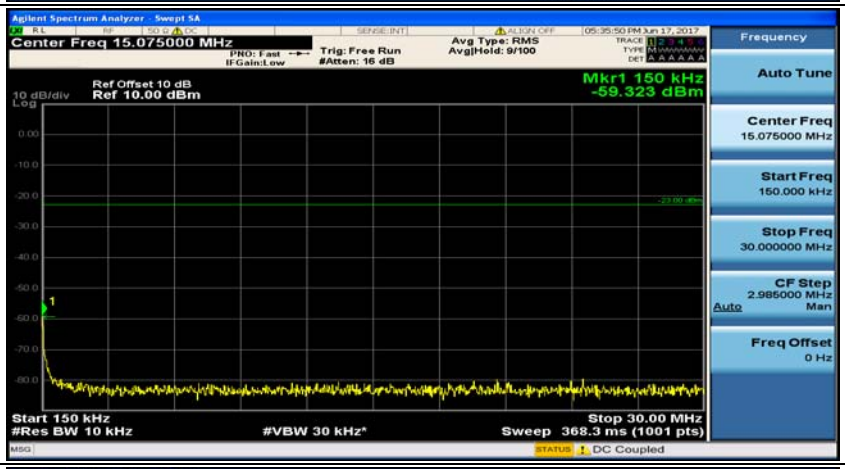


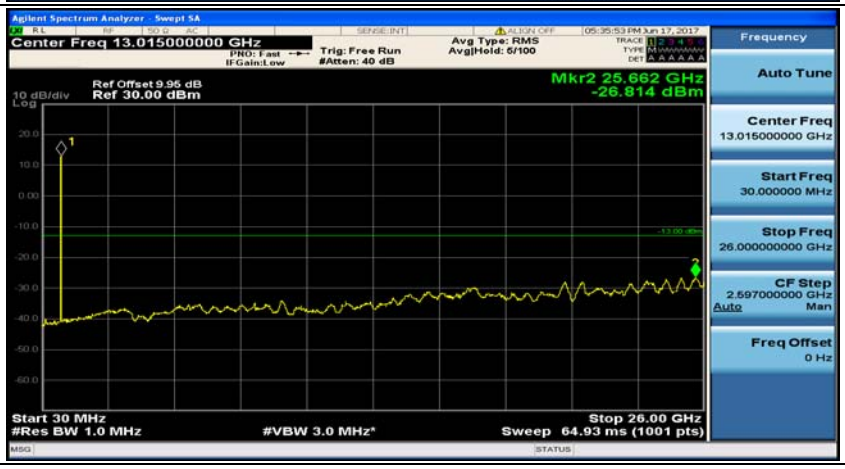




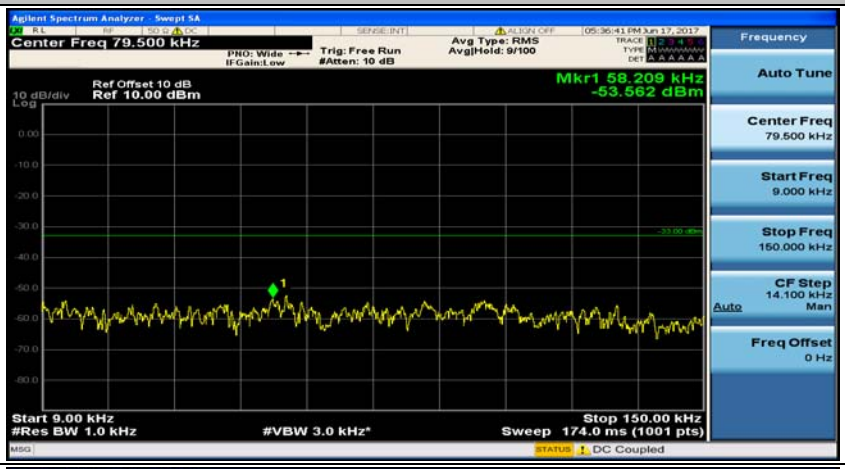
(Channel Bandwidth: 5 MHz)_MCH_16QAM_1RB#24

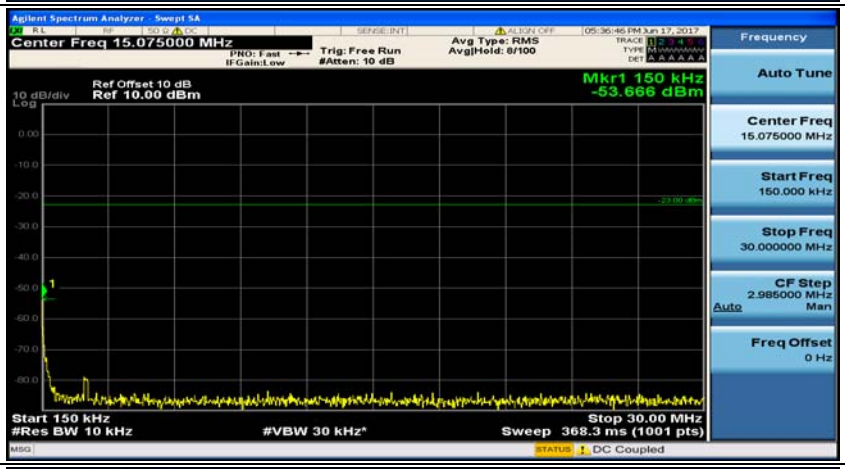

Agilent Spectrum Analyzer - Swept SA
Center Freq 79.500 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 9/100
05:35:41 PM Jun 17, 2017
Ref Offset 10 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 53.697 kHz
-55.423 dBm
Start 9.00 kHz
#Res BW 1.0 kHz
#VBW 3.0 kHz*
Stop 150.00 kHz
Sweep 174.0 ms (1001 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

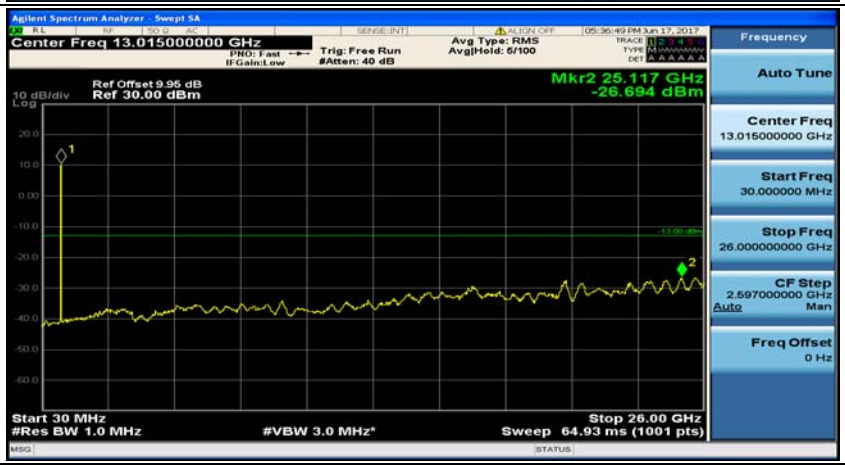

Agilent Spectrum Analyzer - Swept SA
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 16 dB
Avg Type: RMS
Avg|Hold: 9/100
05:35:50 PM Jun 17, 2017
Ref Offset 10 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 150 kHz
-59.323 dBm
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz*
Stop 30.00 MHz
Sweep 368.3 ms (1001 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: 40 dB
Avg Type: RMS
Avg|Hold: 5/100
05:35:53 PM Jun 17, 2017
Ref Offset 9.95 dB
10 dB/div
Log
Ref 30.00 dBm
Mkr2 25.662 GHz
-26.814 dBm
Start 30 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 26.00 GHz
Sweep 64.93 ms (1001 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

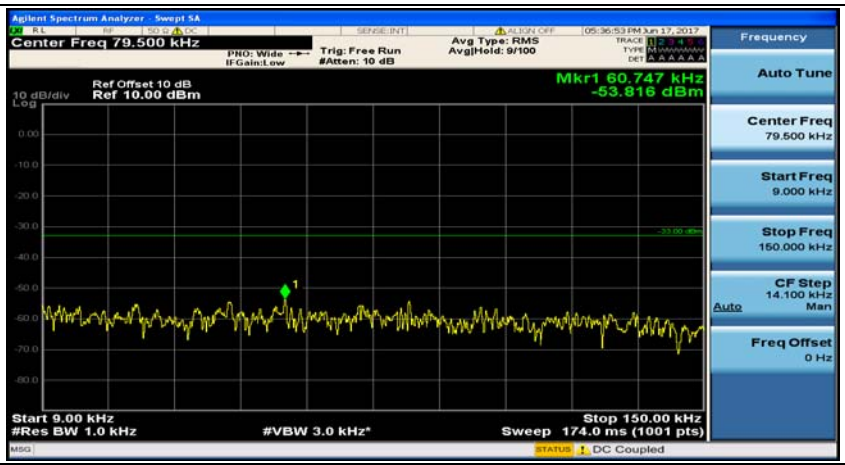
(Channel Bandwidth: 5 MHz)_HCH_16QAM_1RB#0

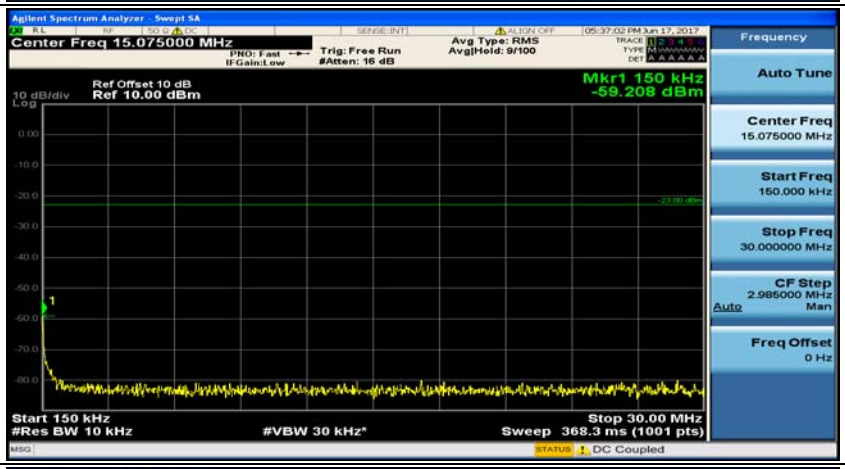


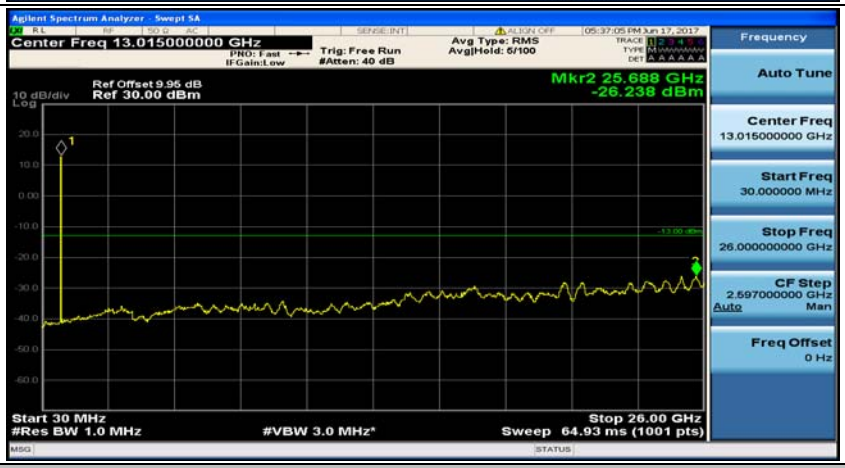




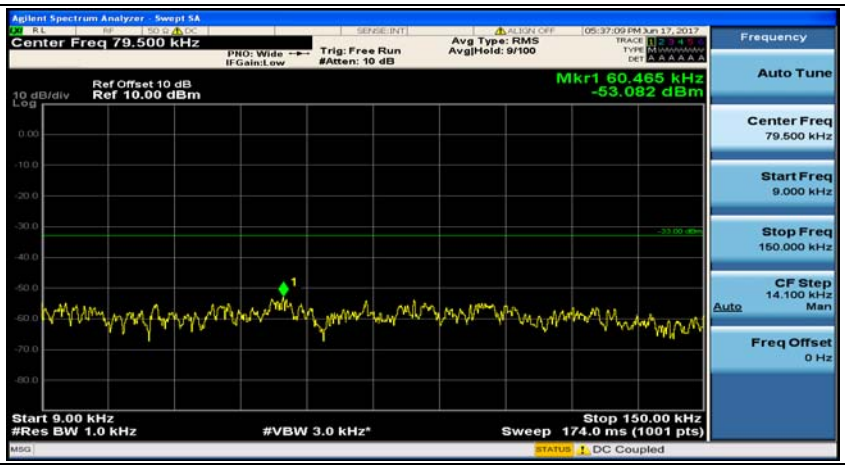
(Channel Bandwidth: 5 MHz)_HCH_16QAM_1RB#12

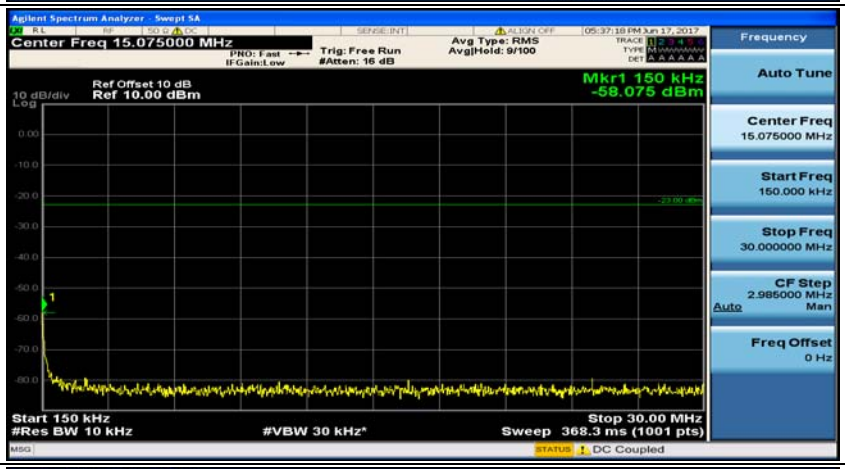


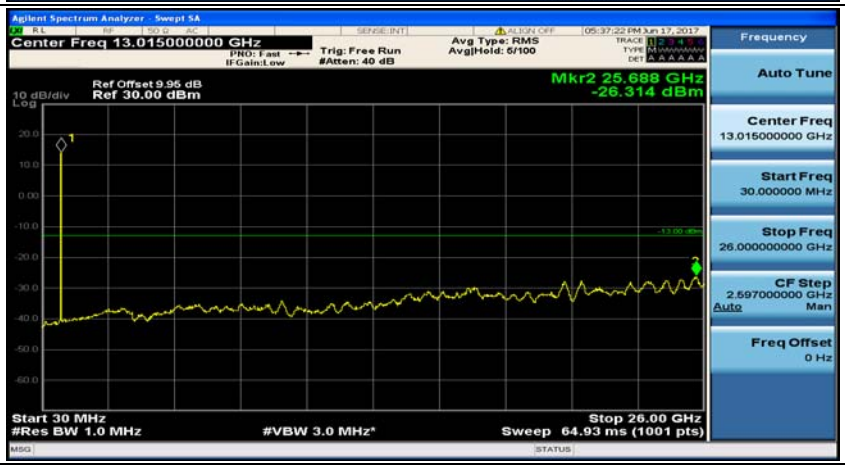




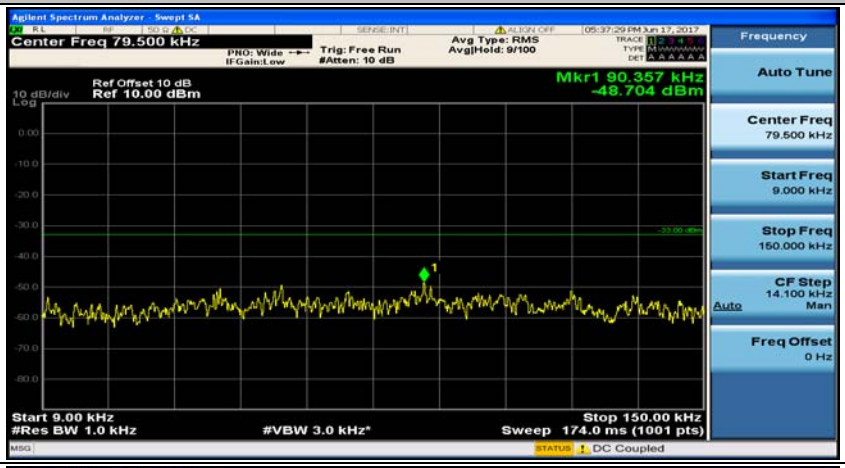
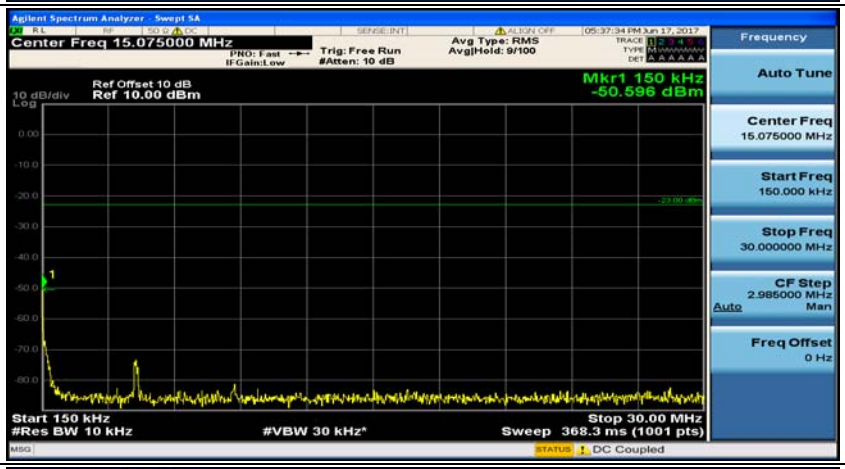
(Channel Bandwidth: 5 MHz)_HCH_16QAM_1RB#24

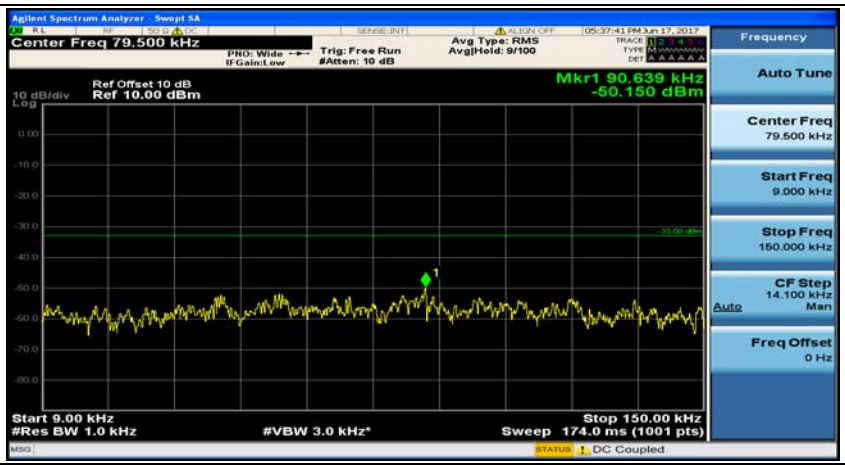

Agilent Spectrum Analyzer - Swept SA
Center Freq 79.500 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 9/100
05:37:09 PM Jun 17, 2017
Ref Offset 10 dB
10 dB/div
Ref 10.00 dBm
Mkr1 60.465 kHz
-53.082 dBm
Start 9.00 kHz
#Res BW 1.0 kHz
#VBW 3.0 kHz*
Stop 150.00 kHz
Sweep 174.0 ms (1001 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

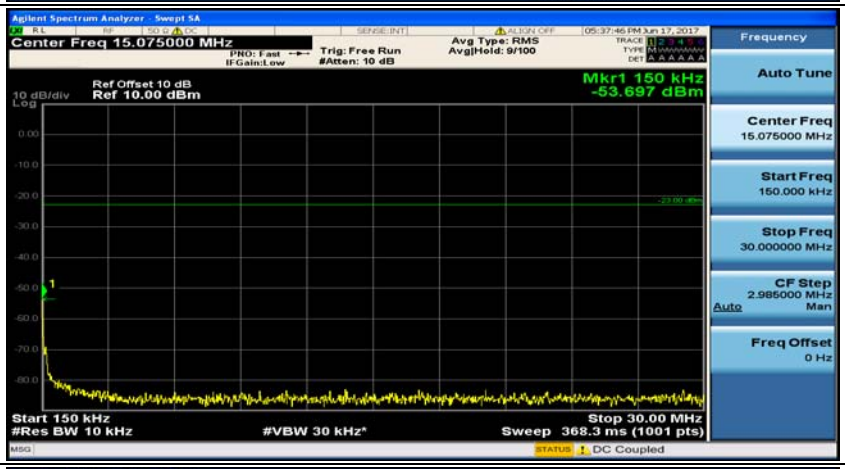

Agilent Spectrum Analyzer - Swept SA
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 16 dB
Avg Type: RMS
Avg|Hold: 9/100
05:37:18 PM Jun 17, 2017
Ref Offset 10 dB
10 dB/div
Ref 10.00 dBm
Mkr1 150 kHz
-58.075 dBm
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz*
Stop 30.00 MHz
Sweep 368.3 ms (1001 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: 40 dB
Avg Type: RMS
Avg|Hold: 5/100
05:37:22 PM Jun 17, 2017
Ref Offset 9.95 dB
10 dB/div
Ref 30.00 dBm
Mkr2 25.688 GHz
-26.314 dBm
Start 30 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 26.00 GHz
Sweep 64.93 ms (1001 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

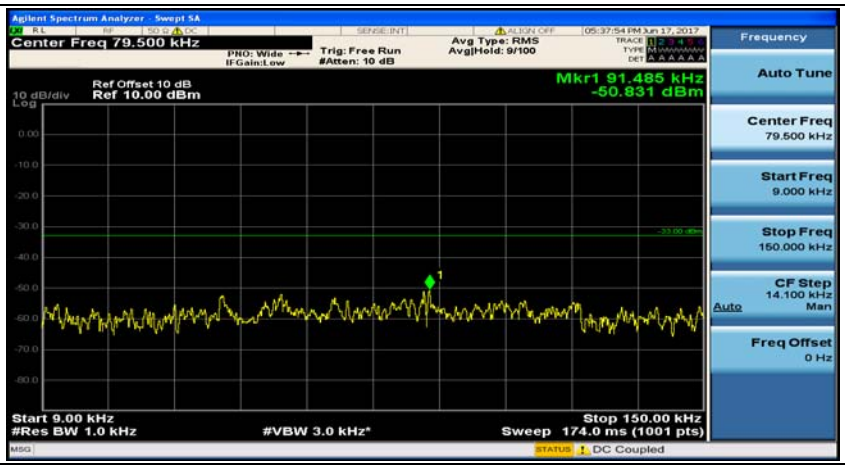
Channel Bandwidth: 10 MHz

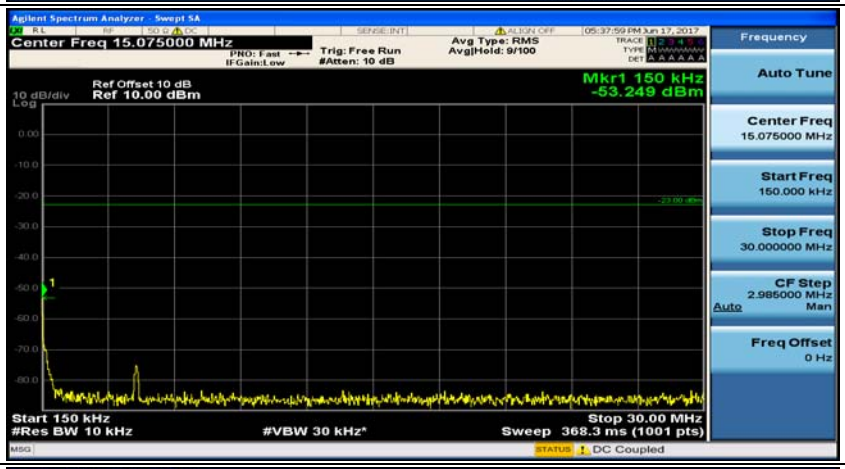
Channel Bandwidth: 10 MHz_LCH_QPSK_1RB#0


Channel Bandwidth: 10 MHz_LCH_QPSK_1RB#24

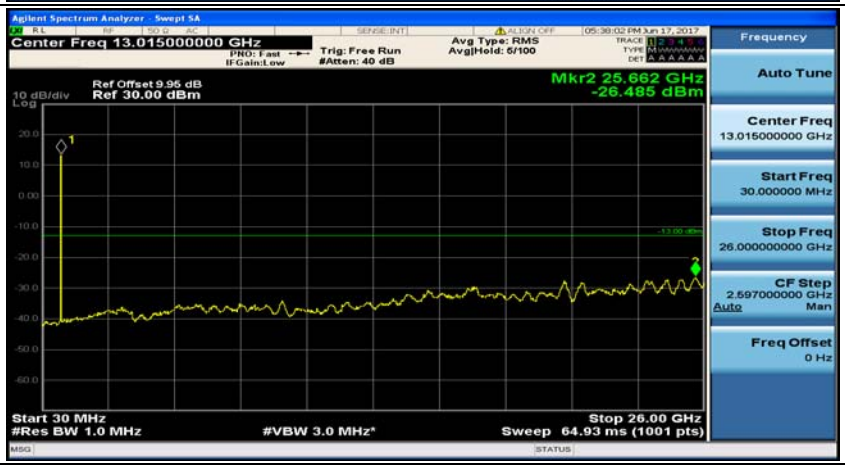


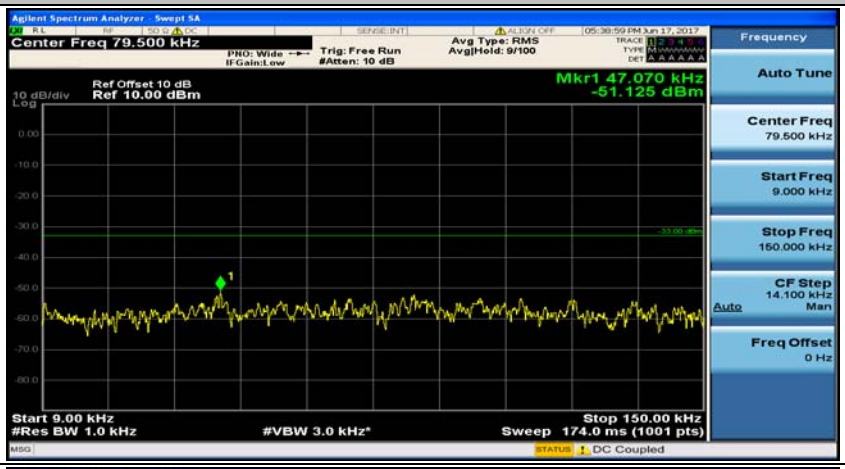
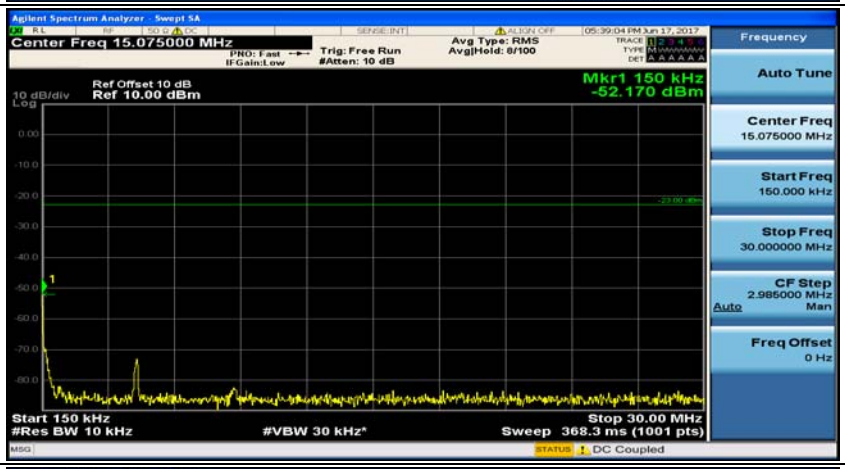
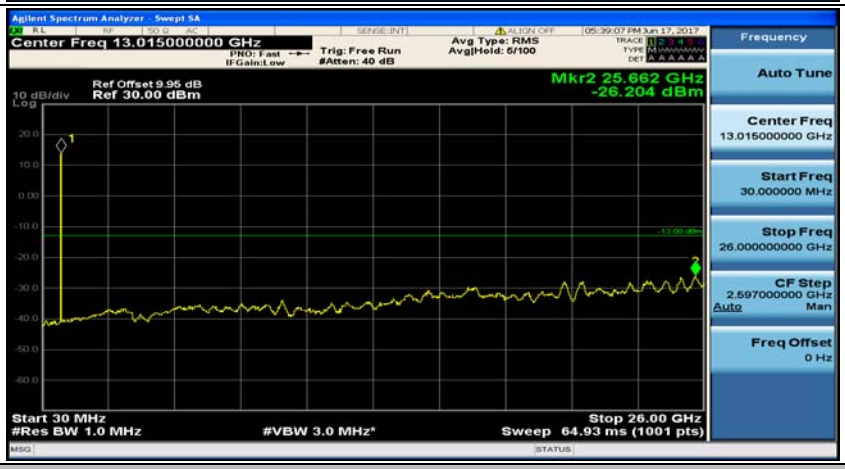


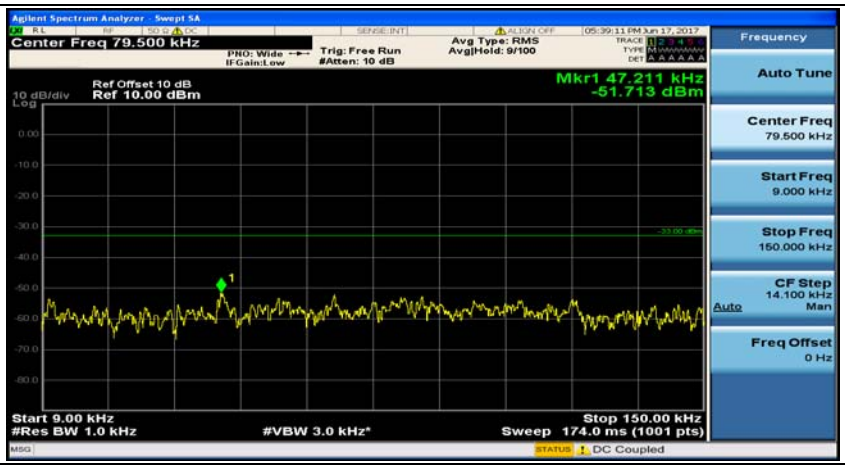
Channel Bandwidth: 10 MHz_LCH_QPSK_1RB#49

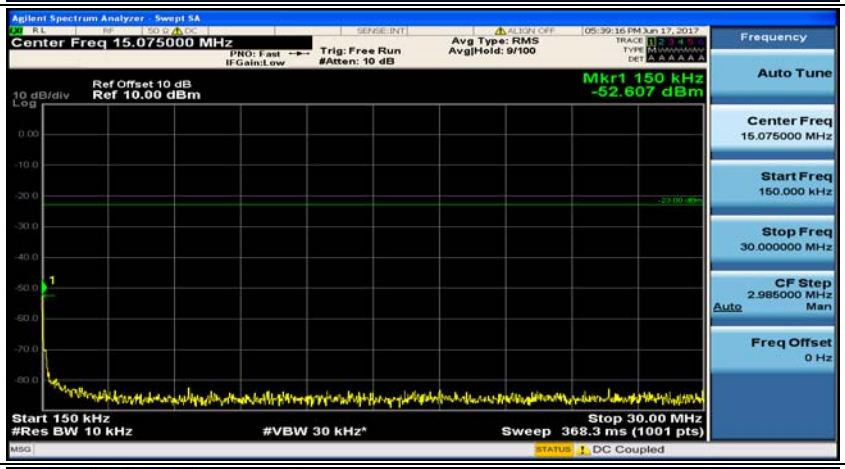

Agilent Spectrum Analyzer - Swept SA
Center Freq 79.500 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 9/100
05:37:54 PM Jun 17, 2017
Ref Offset 10 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 91.485 kHz
-50.831 dBm
Start 9.00 kHz
#Res BW 1.0 kHz
#VBW 3.0 kHz*
Stop 150.00 kHz
Sweep 174.0 ms (1001 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

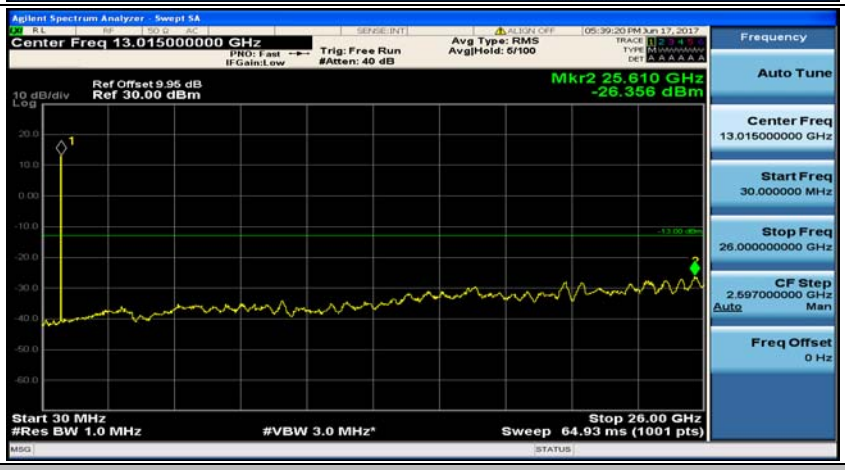

Agilent Spectrum Analyzer - Swept SA
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 9/100
05:37:59 PM Jun 17, 2017
Ref Offset 10 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 150 kHz
-53.249 dBm
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz*
Stop 30.00 MHz
Sweep 368.3 ms (1001 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: 40 dB
Avg Type: RMS
Avg|Hold: 5/100
05:38:02 PM Jun 17, 2017
Ref Offset 9.95 dB
10 dB/div
Log
Ref 30.00 dBm
Mkr2 25.662 GHz
-26.485 dBm
Start 30 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 26.00 GHz
Sweep 64.93 ms (1001 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

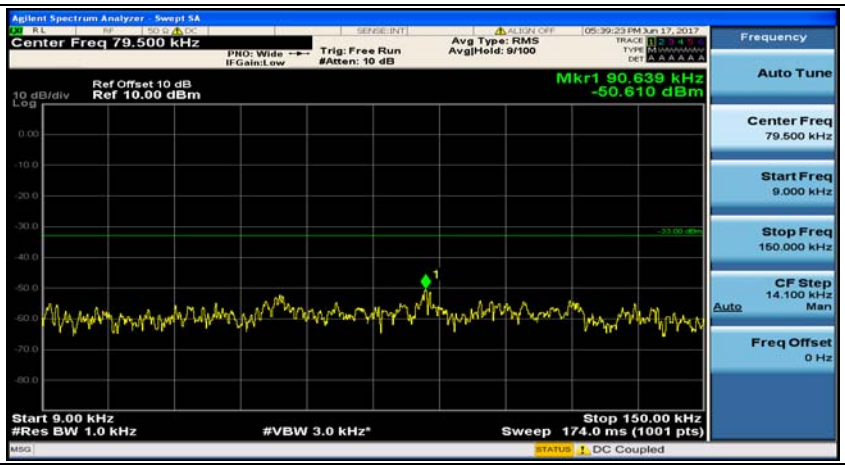
Channel Bandwidth: 10 MHz_MCH_QPSK_1RB#0



Channel Bandwidth: 10 MHz_MCH_QPSK_1RB#24

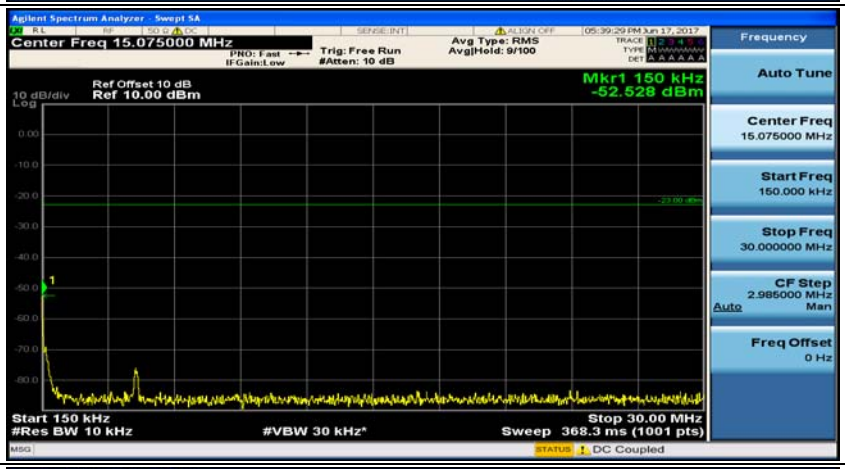


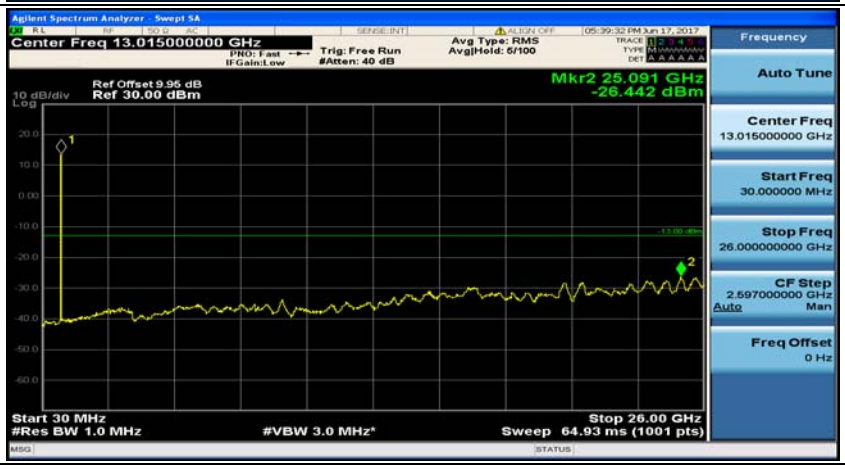


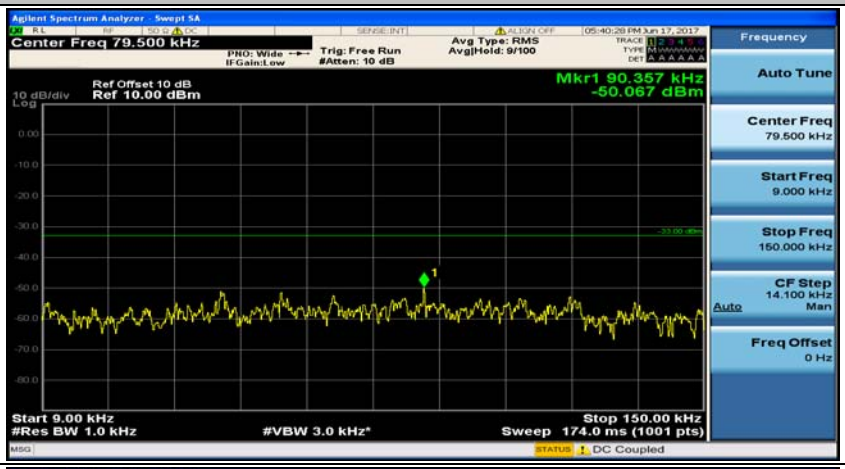
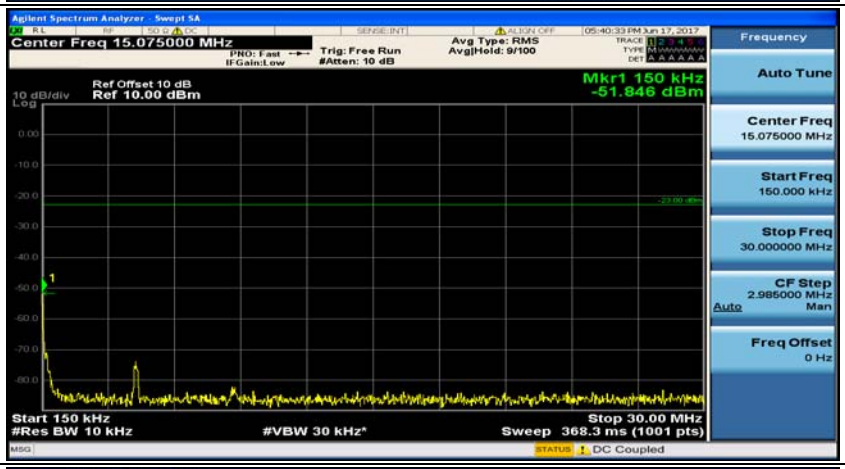
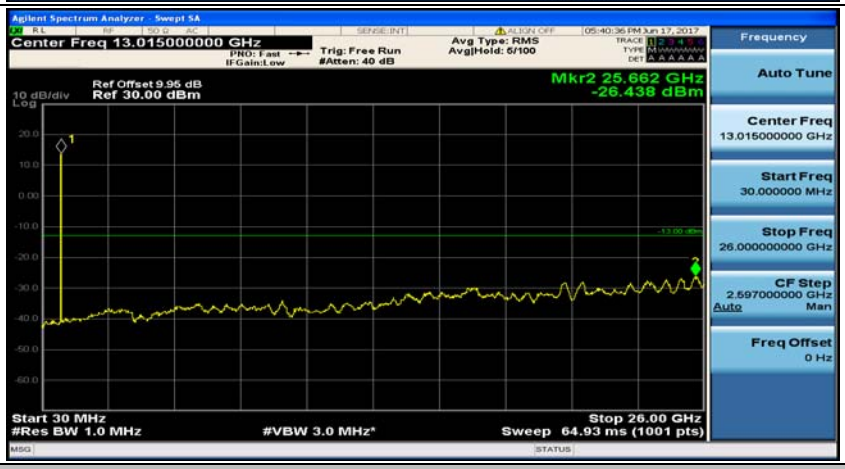


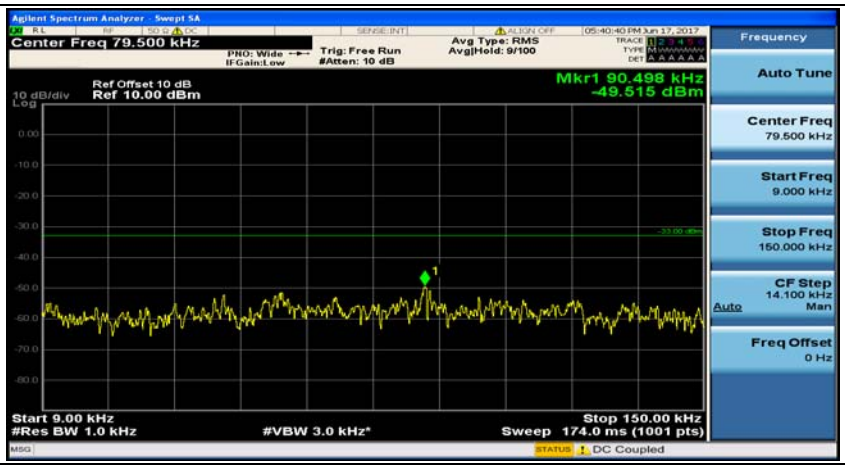
Channel Bandwidth: 10 MHz_MCH_QPSK_1RB#49

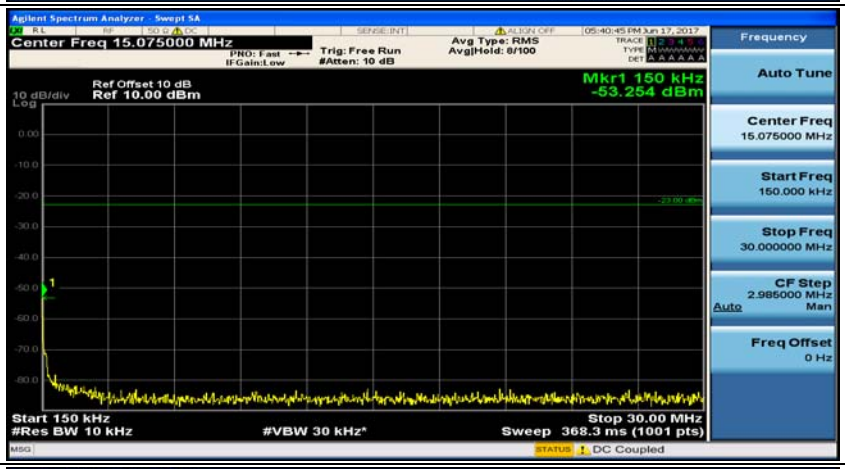

Agilent Spectrum Analyzer - Swept SA
Center Freq 79.500 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 9/100
05:39:23 PM Jun 17, 2017
Frequency
Ref Offset 10 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 90.639 kHz
-50.610 dBm
Auto Tune
Center Freq
79.500 kHz
Start Freq
9.000 kHz
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 174.0 ms (1001 pts)
DC Coupled


Agilent Spectrum Analyzer - Swept SA
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 9/100
05:39:29 PM Jun 17, 2017
Frequency
Ref Offset 10 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 150 kHz
-52.528 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 368.3 ms (1001 pts)
DC Coupled

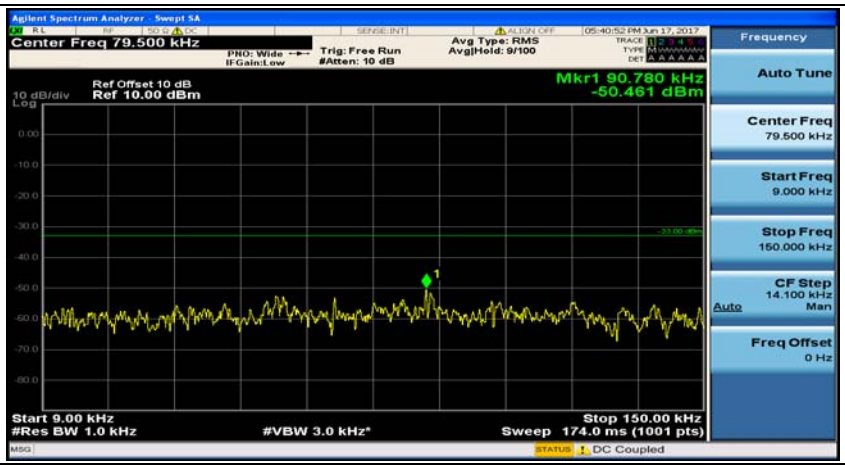

Agilent Spectrum Analyzer - Swept SA
Center Freq 13.015000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: RMS
Avg|Hold: 5/100
05:39:32 PM Jun 17, 2017
Frequency
Ref Offset 9.95 dB
10 dB/div
Log
Ref 30.00 dBm
Mkr2 25.091 GHz
-26.442 dBm
Auto Tune
Center Freq
13.015000000 GHz
Start 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 64.93 ms (1001 pts)

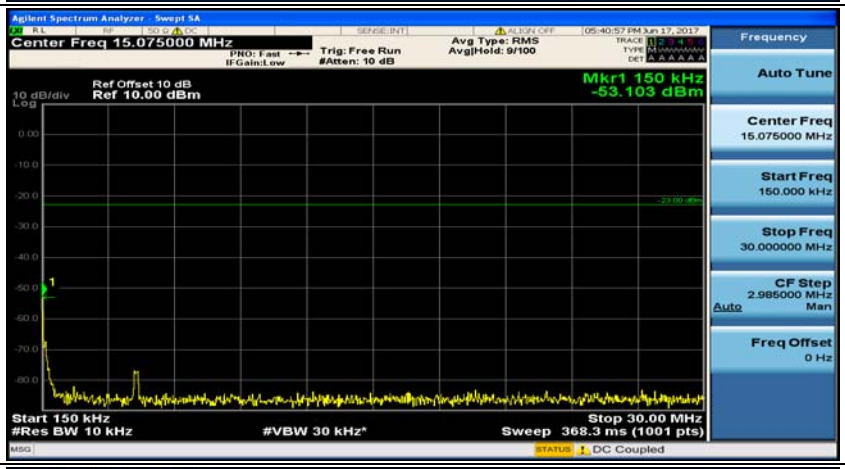
Channel Bandwidth: 10 MHz_HCH_QPSK_1RB#0



Channel Bandwidth: 10 MHz_HCH_QPSK_1RB#24

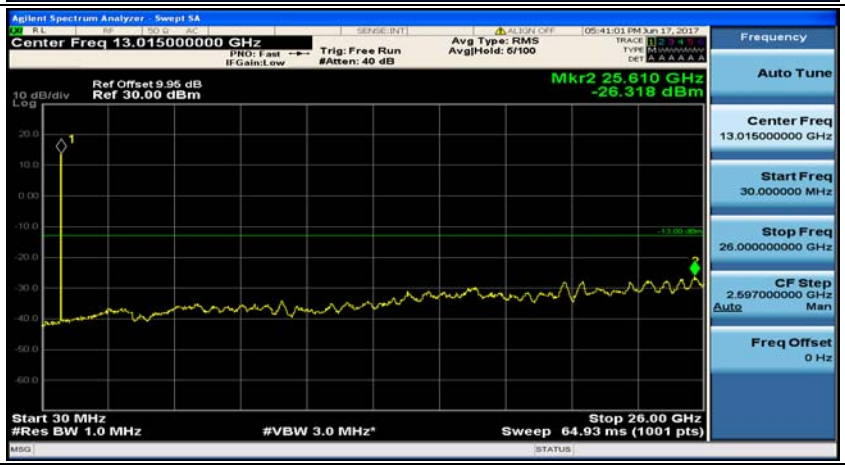


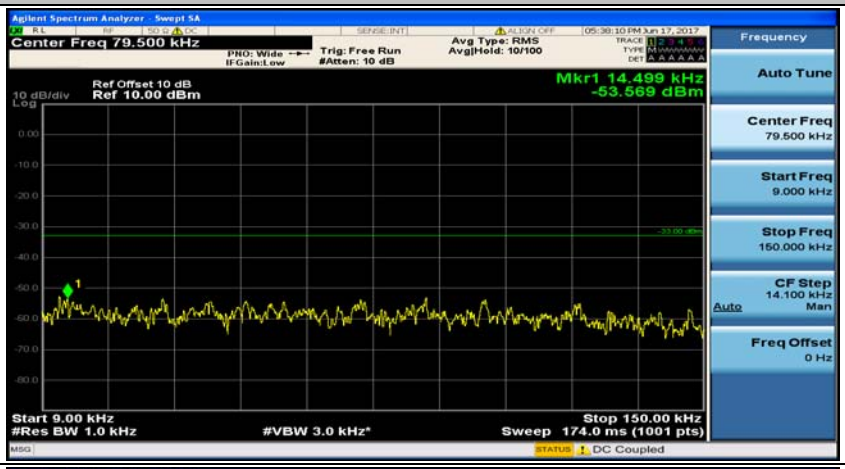
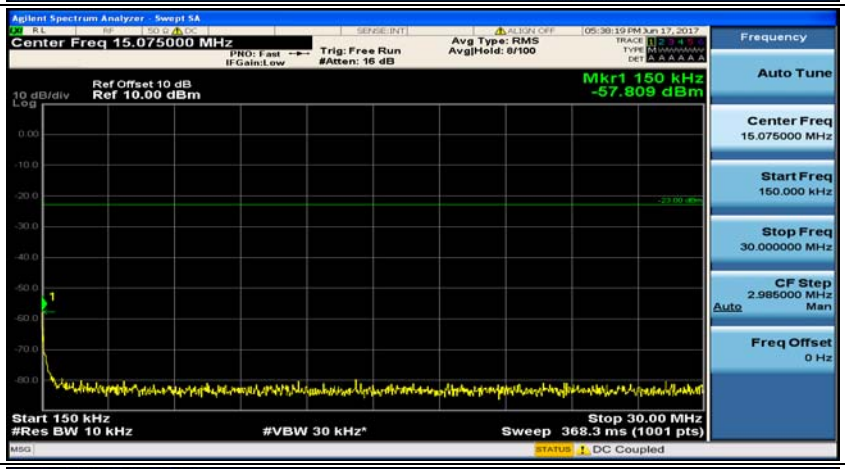
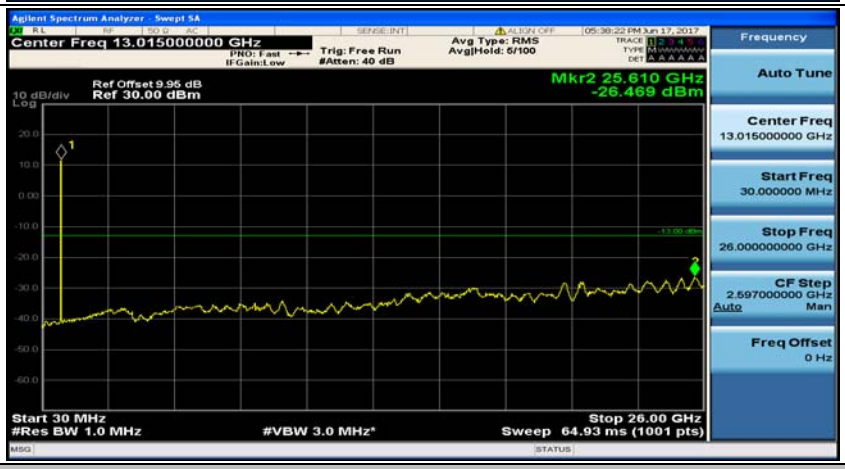


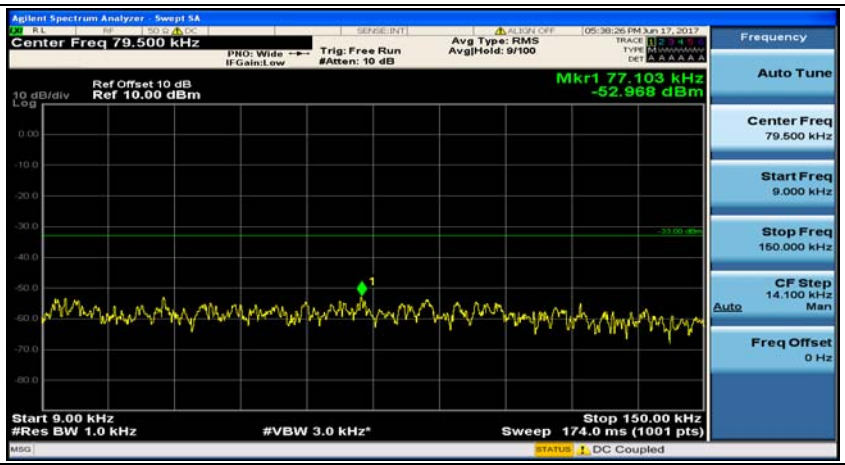
Channel Bandwidth: 10 MHz_HCH_QPSK_1RB#49

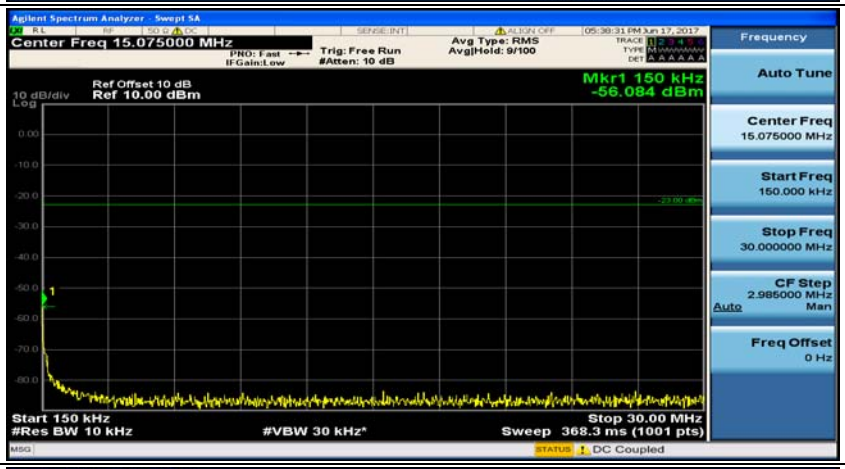

Agilent Spectrum Analyzer - Swept SA
Center Freq 79.500 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 9/100
05:40:52 PM Jun 17, 2017
Frequency
Auto Tune
Mkr1 90.780 kHz
-50.461 dBm
Ref Offset 10 dB
10 dB/div
Ref 10.00 dBm
Log
Center Freq
79.500 kHz
Start Freq
9.000 kHz
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 174.0 ms (1001 pts)
DC Coupled


Agilent Spectrum Analyzer - Swept SA
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 9/100
05:40:57 PM Jun 17, 2017
Frequency
Auto Tune
Mkr1 150 kHz
-53.103 dBm
Ref Offset 10 dB
10 dB/div
Ref 10.00 dBm
Log
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 368.3 ms (1001 pts)
DC Coupled

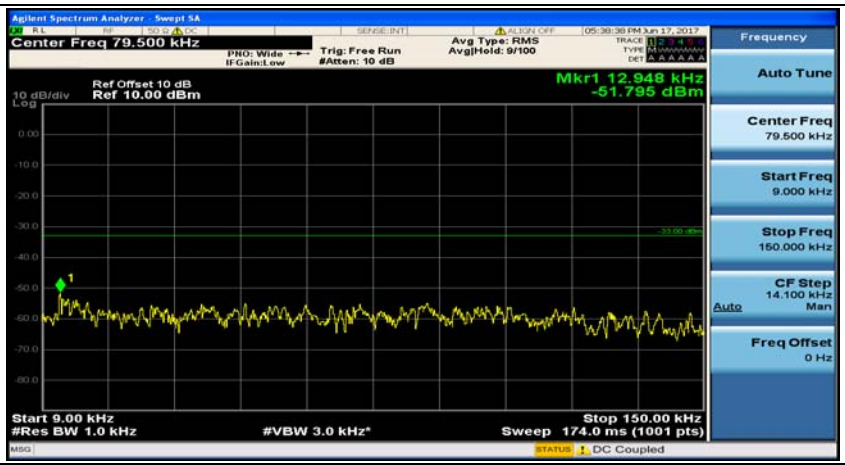

Agilent Spectrum Analyzer - Swept SA
Center Freq 13.015000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: RMS
Avg|Hold: 5/100
05:41:01 PM Jun 17, 2017
Frequency
Auto Tune
Mkr2 25.610 GHz
-26.318 dBm
Ref Offset 9.95 dB
10 dB/div
Ref 30.00 dBm
Log
Center Freq
13.015000000 GHz
Start 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 64.93 ms (1001 pts)

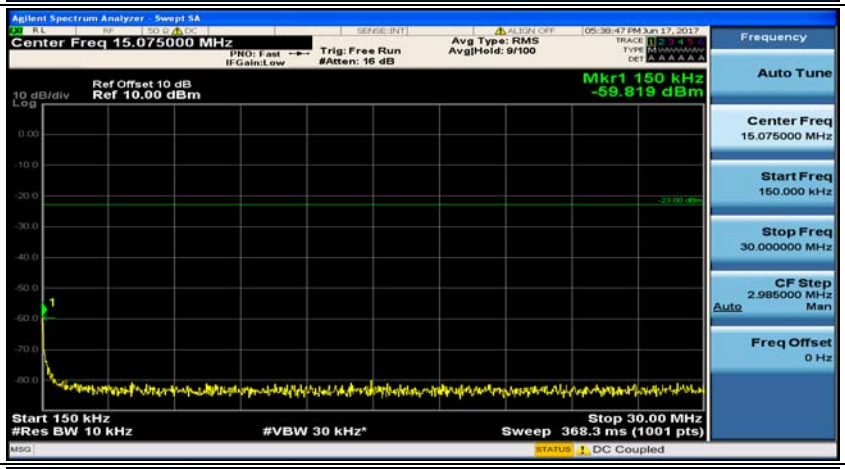
Channel Bandwidth: 10 MHz_LCH_16QAM_1RB#0



Channel Bandwidth: 10 MHz_LCH_16QAM_1RB#24

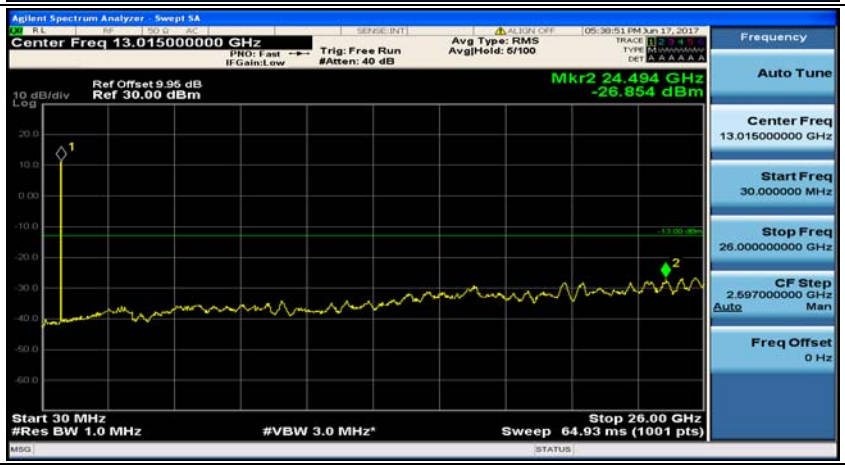


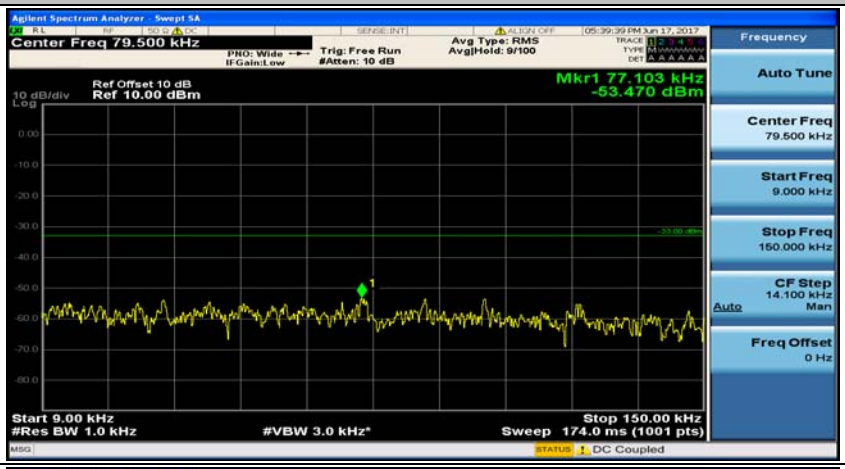
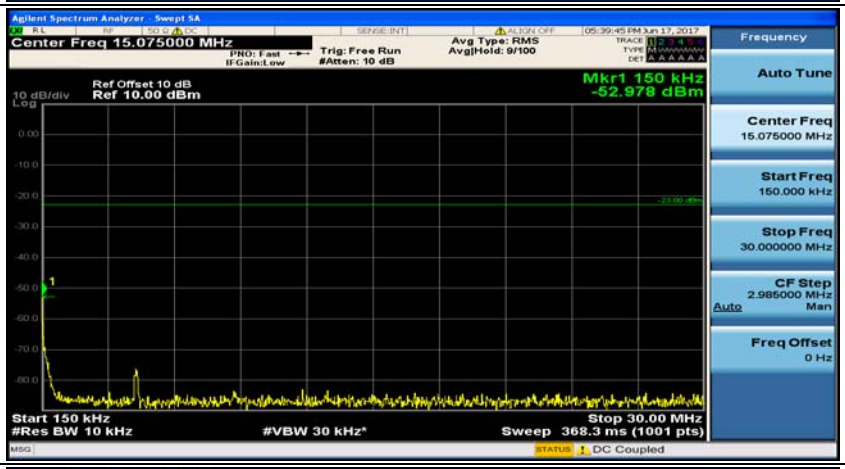
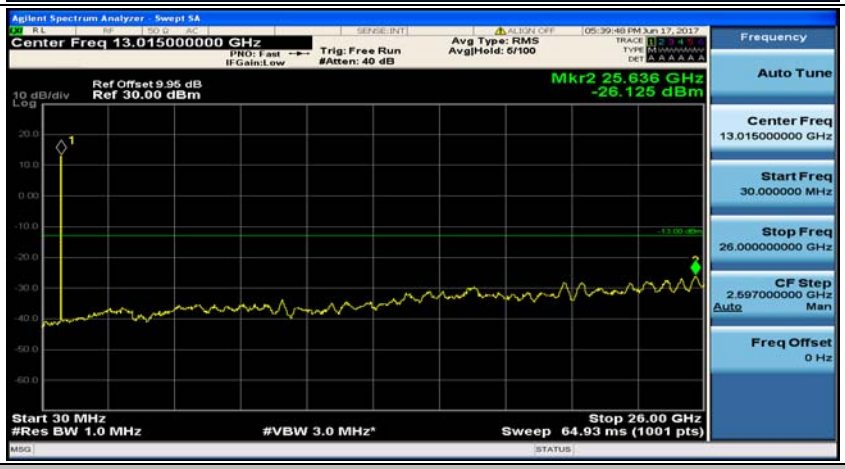


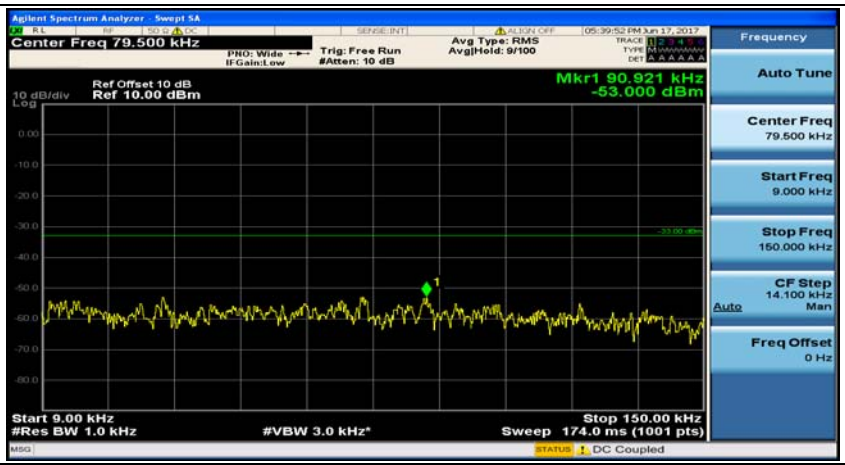
Channel Bandwidth: 10 MHz_LCH_16QAM_1RB#49

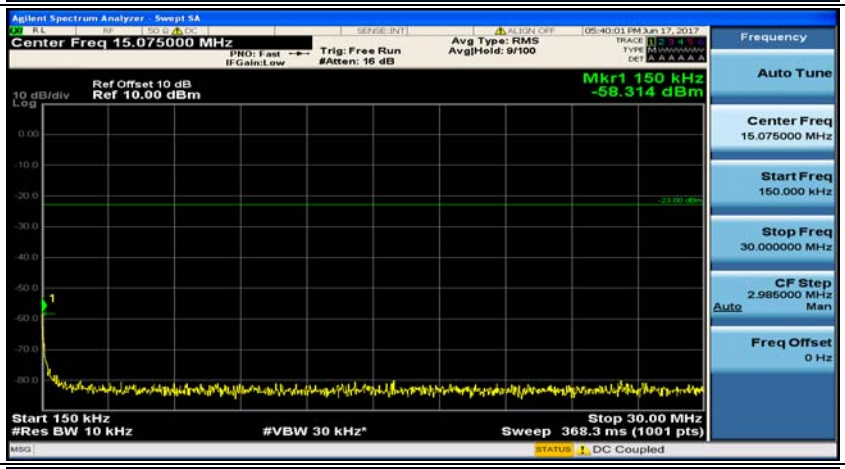

Agilent Spectrum Analyzer - Swept SA
Center Freq 79.500 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 9/100
05:38:38 PM Jun 17, 2017
Frequency
Auto Tune
Mkr1 12.948 kHz
-51.795 dBm
Ref Offset 10 dB
10 dB/div
Log
Ref 10.00 dBm
Center Freq
79.500 kHz
Start Freq
9.000 kHz
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 174.0 ms (1001 pts)
DC Coupled

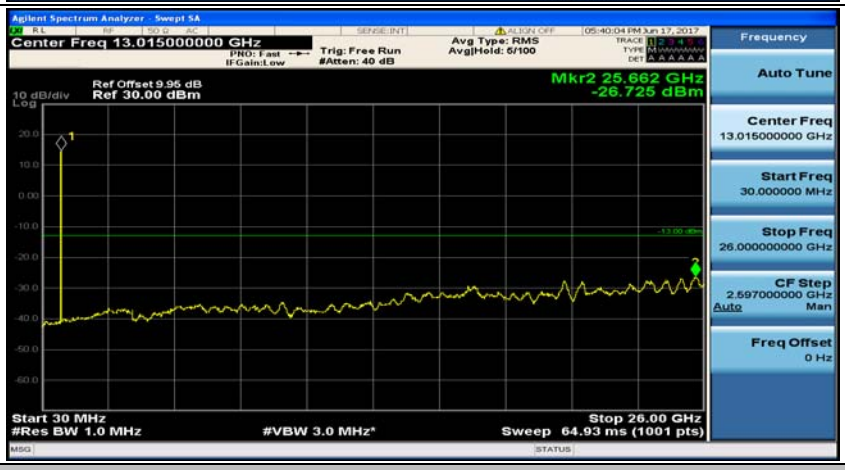

Agilent Spectrum Analyzer - Swept SA
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 16 dB
Avg Type: RMS
Avg|Hold: 9/100
05:38:47 PM Jun 17, 2017
Frequency
Auto Tune
Mkr1 150 kHz
-59.819 dBm
Ref Offset 10 dB
10 dB/div
Log
Ref 10.00 dBm
Center Freq
15.075000 MHz
Start Freq
150.000 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 368.3 ms (1001 pts)
DC Coupled


Agilent Spectrum Analyzer - Swept SA
Center Freq 13.015000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: RMS
Avg|Hold: 5/100
05:38:51 PM Jun 17, 2017
Frequency
Auto Tune
Mkr2 24.494 GHz
-26.854 dBm
Ref Offset 9.95 dB
10 dB/div
Log
Ref 30.00 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 64.93 ms (1001 pts)

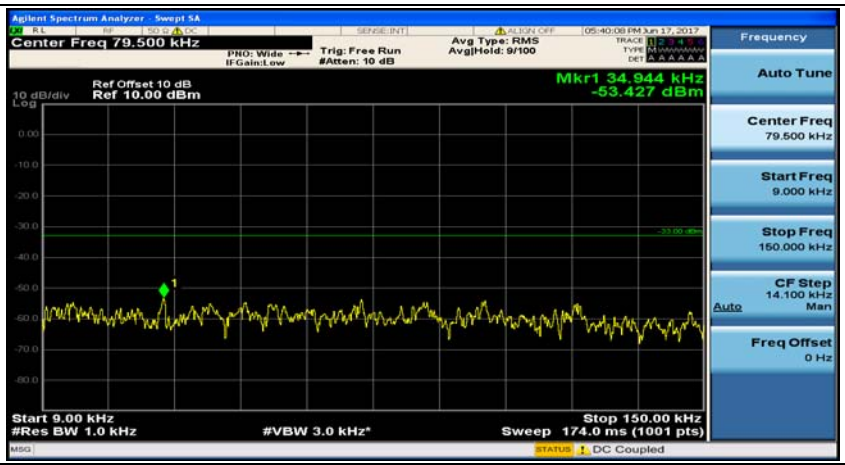
Channel Bandwidth: 10 MHz_MCH_16QAM_1RB#0



Channel Bandwidth: 10 MHz_MCH_16QAM_1RB#24

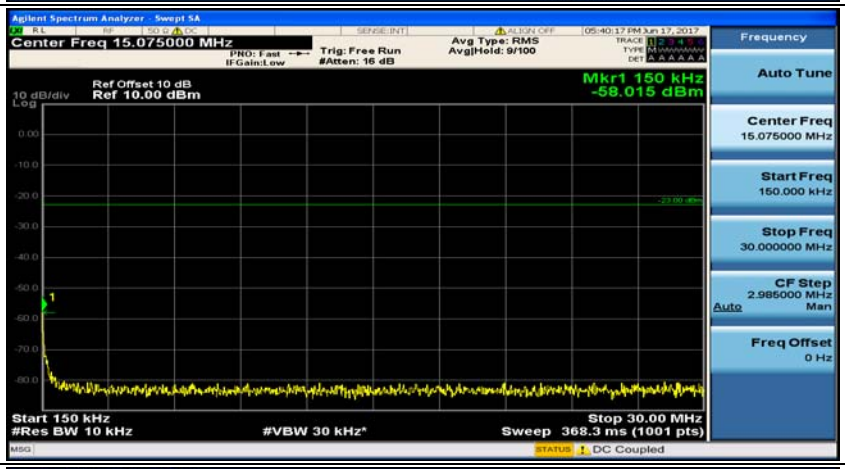


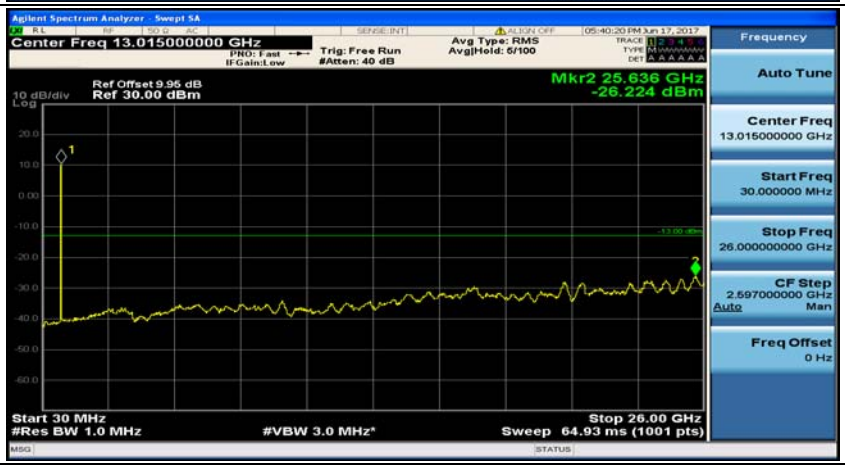


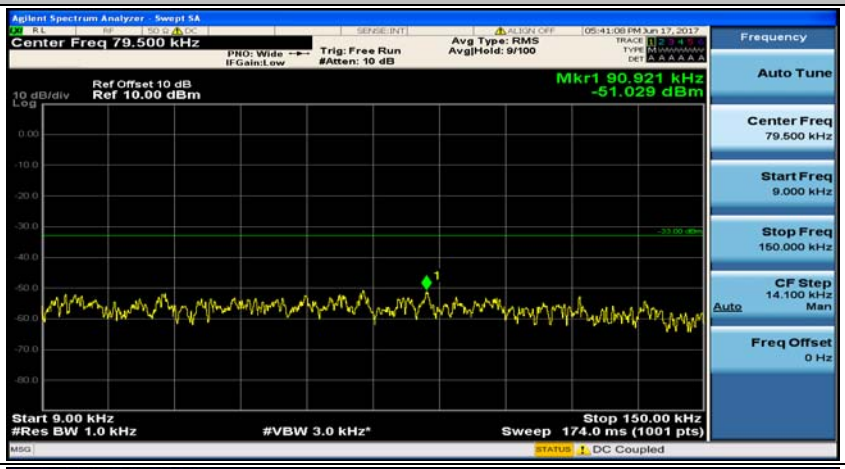
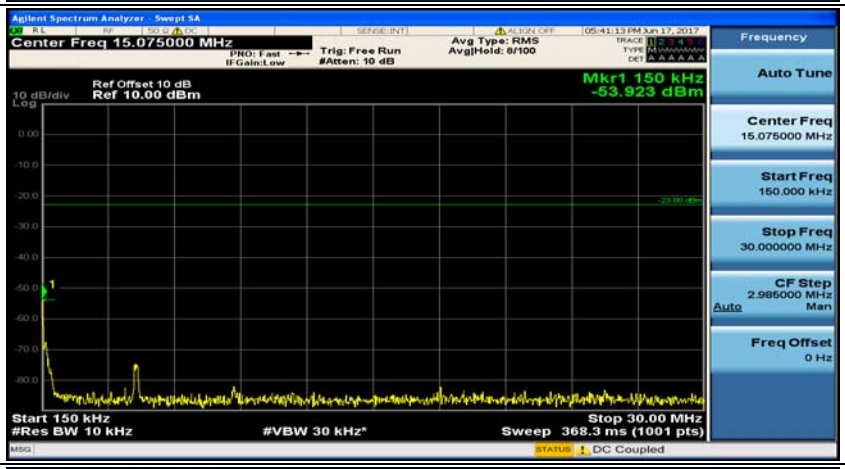
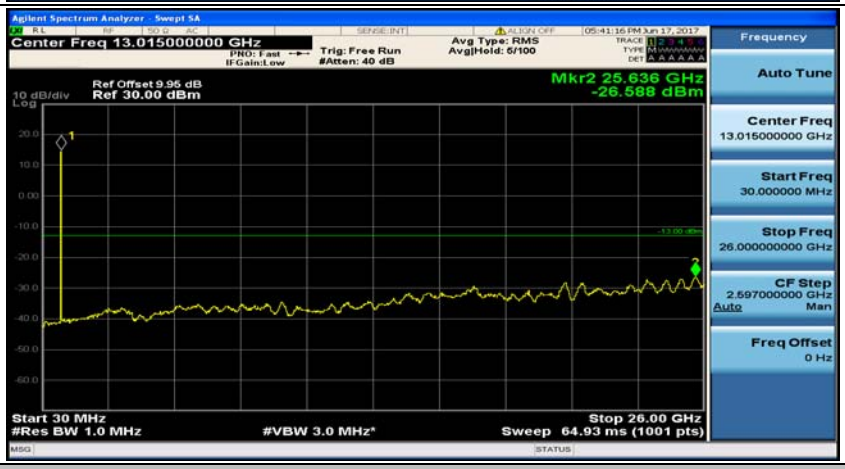


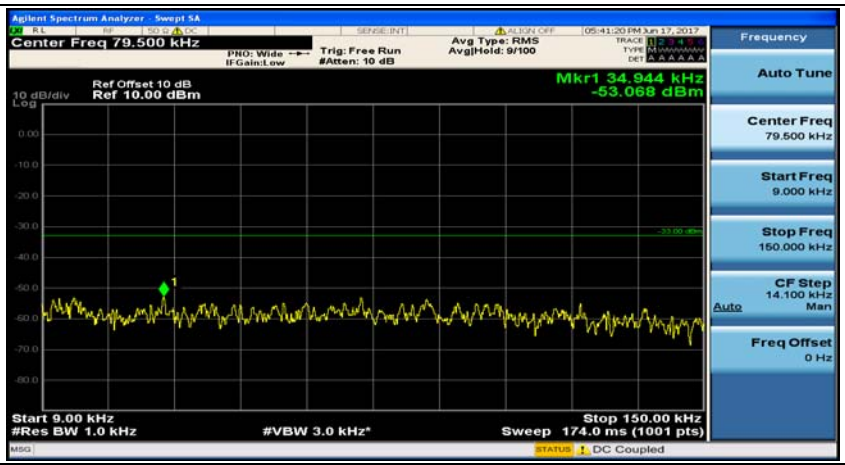
Channel Bandwidth: 10 MHz_MCH_16QAM_1RB#49

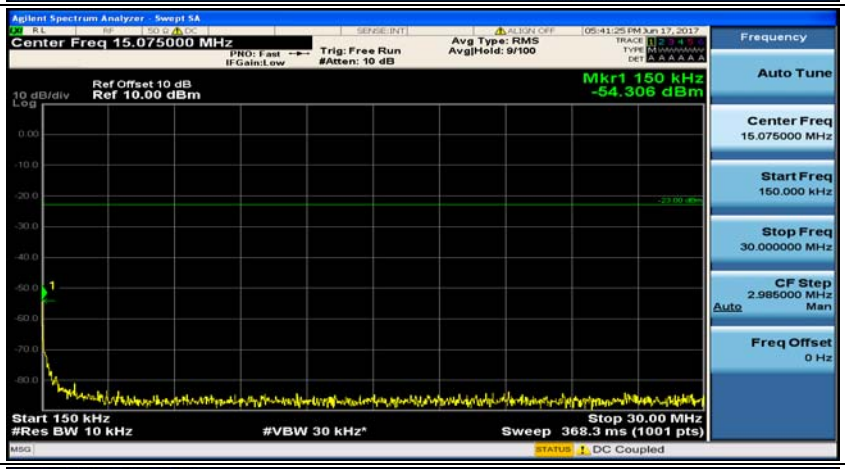

Agilent Spectrum Analyzer - Swept SA
Center Freq 79.500 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 9/100
05:40:08 PM Jun 17, 2017
Ref Offset 10 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 34.944 kHz
-53.427 dBm
Start 9.00 kHz
#Res BW 1.0 kHz
#VBW 3.0 kHz*
Stop 150.00 kHz
Sweep 174.0 ms (1001 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: 9/100
05:40:17 PM Jun 17, 2017
Ref Offset 10 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 150 kHz
-58.015 dBm
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz*
Stop 30.00 MHz
Sweep 368.3 ms (1001 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

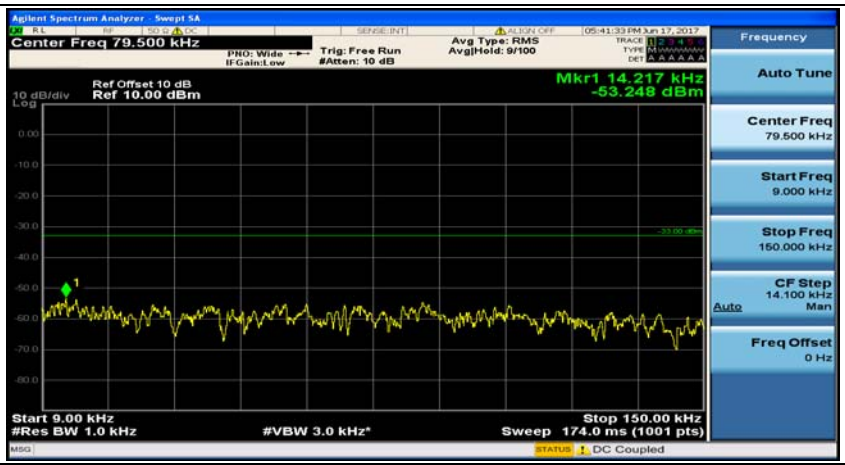

Agilent Spectrum Analyzer - Swept SA
Center Freq 13.015000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: RMS
Avg|Hold: 5/100
05:40:20 PM Jun 17, 2017
Ref Offset 9.95 dB
10 dB/div
Log
Ref 30.00 dBm
Mkr2 25.636 GHz
-26.224 dBm
Start 30 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 26.00 GHz
Sweep 64.93 ms (1001 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

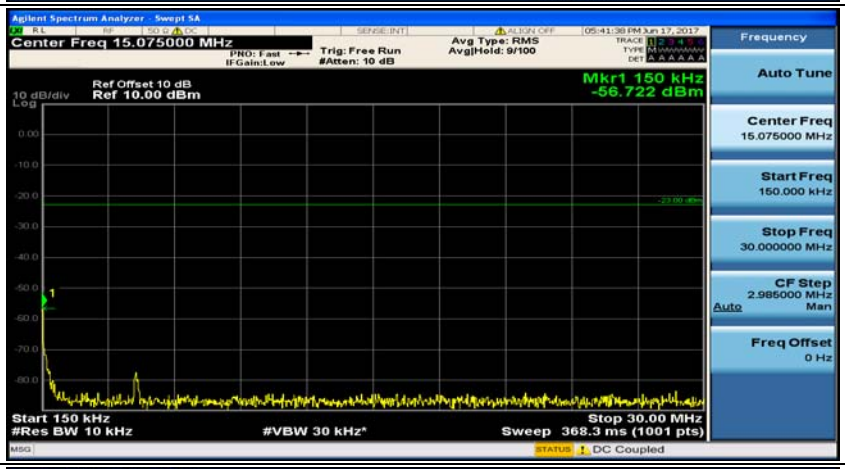
Channel Bandwidth: 10 MHz_HCH_16QAM_1RB#0



Channel Bandwidth: 10 MHz_HCH_16QAM_1RB#24

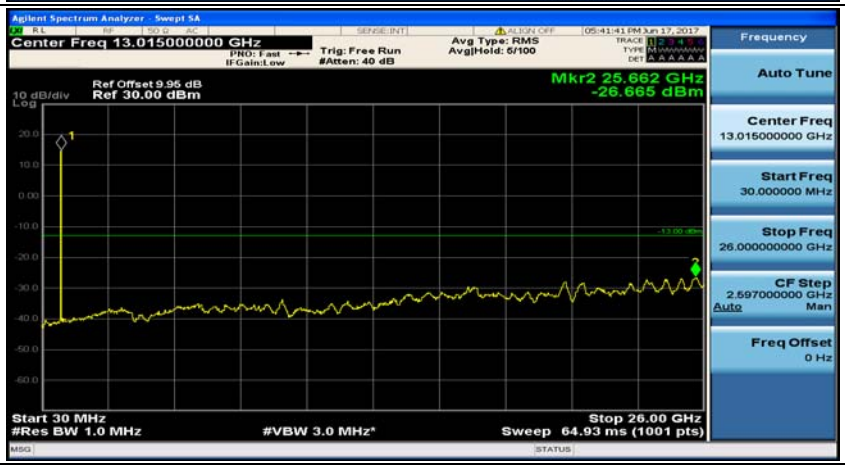




Channel Bandwidth: 10 MHz_HCH_16QAM_1RB#49


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: 9/100
05:41:33 PM Jun 17, 2017
Ref Offset 10 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 14.217 kHz
-53.248 dBm
Start 9.00 kHz
#Res BW 1.0 kHz
#VBW 3.0 kHz*
Stop 150.00 kHz
Sweep 174.0 ms (1001 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: 10 dB
Avg Type: RMS
Avg|Hold: 9/100
05:41:38 PM Jun 17, 2017
Ref Offset 10 dB
10 dB/div
Log
Ref 10.00 dBm
Mkr1 150 kHz
-56.722 dBm
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz*
Stop 30.00 MHz
Sweep 368.3 ms (1001 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: 40 dB
Avg Type: RMS
Avg|Hold: 5/100
05:41:41 PM Jun 17, 2017
Ref Offset 9.95 dB
10 dB/div
Log
Ref 30.00 dBm
Mkr2 25.662 GHz
-26.665 dBm
Start 30 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 26.00 GHz
Sweep 64.93 ms (1001 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

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	-1.77	-0.002271	± 2.5	PASS
		VN	TN	3.93	0.005042	± 2.5	PASS
		VH	TN	4.72	0.006055	± 2.5	PASS
	MCH	VL	TN	3.36	0.004297	± 2.5	PASS
		VN	TN	3.82	0.004885	± 2.5	PASS
		VH	TN	4.32	0.005524	± 2.5	PASS
	HCH	VL	TN	2.16	0.002753	± 2.5	PASS
		VN	TN	4.12	0.005252	± 2.5	PASS
		VH	TN	3.2	0.004079	± 2.5	PASS
16QAM	LCH	VL	TN	3.33	0.004272	± 2.5	PASS
		VN	TN	2.26	0.002899	± 2.5	PASS
		VH	TN	-1.4	-0.001796	± 2.5	PASS
	MCH	VL	TN	-1.28	-0.001637	± 2.5	PASS
		VN	TN	2.14	0.002737	± 2.5	PASS
		VH	TN	4.81	0.006151	± 2.5	PASS
	HCH	VL	TN	4.54	0.005787	± 2.5	PASS
		VN	TN	3.06	0.003901	± 2.5	PASS
		VH	TN	-1.61	-0.002052	± 2.5	PASS
Temperature							
Modulation	Channel	Voltage [Vdc]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	LCH	VN	-30	4.65	0.005965	± 2.5	PASS
		VN	-20	-0.16	-0.000205	± 2.5	PASS
		VN	-10	4.7	0.006030	± 2.5	PASS
		VN	0	-1.54	-0.001976	± 2.5	PASS
		VN	10	0.12	0.000154	± 2.5	PASS
		VN	20	2.97	0.003810	± 2.5	PASS
		VN	30	0.39	0.000500	± 2.5	PASS
		VN	40	0.55	0.000706	± 2.5	PASS
		VN	50	4.8	0.006158	± 2.5	PASS
	MCH	VN	-30	-0.01	-0.000013	± 2.5	PASS
		VN	-20	2.76	0.003529	± 2.5	PASS

		VN	-10	3.46	0.004425	± 2.5	PASS
		VN	0	3.93	0.005026	± 2.5	PASS
		VN	10	-0.76	-0.000972	± 2.5	PASS
		VN	20	-1.64	-0.002097	± 2.5	PASS
		VN	30	-0.28	-0.000358	± 2.5	PASS
		VN	40	3.94	0.005038	± 2.5	PASS
		VN	50	4	0.005115	± 2.5	PASS
	HCH	VN	-30	1.02	0.001300	± 2.5	PASS
		VN	-20	0.69	0.000880	± 2.5	PASS
		VN	-10	-1.71	-0.002180	± 2.5	PASS
		VN	0	-0.33	-0.000421	± 2.5	PASS
		VN	10	4.99	0.006361	± 2.5	PASS
		VN	20	4.97	0.006335	± 2.5	PASS
		VN	30	-0.56	-0.000714	± 2.5	PASS
		VN	40	4.05	0.005163	± 2.5	PASS
		VN	50	-0.11	-0.000140	± 2.5	PASS
16QAM	LCH	VN	-30	1.2	0.001539	± 2.5	PASS
		VN	-20	2.87	0.003682	± 2.5	PASS
		VN	-10	2.06	0.002643	± 2.5	PASS
		VN	0	4.92	0.006312	± 2.5	PASS
		VN	10	3.65	0.004682	± 2.5	PASS
		VN	20	1.75	0.002245	± 2.5	PASS
		VN	30	3.3	0.004233	± 2.5	PASS
		VN	40	0.37	0.000475	± 2.5	PASS
		VN	50	3.59	0.004606	± 2.5	PASS
	MCH	VN	-30	2.48	0.003161	± 2.5	PASS
		VN	-20	-1.68	-0.002141	± 2.5	PASS
		VN	-10	1.21	0.001542	± 2.5	PASS
		VN	0	4.39	0.005596	± 2.5	PASS
		VN	10	-0.2	-0.000255	± 2.5	PASS
		VN	20	1.55	0.001976	± 2.5	PASS
		VN	30	-1.06	-0.001351	± 2.5	PASS
		VN	40	4.8	0.006119	± 2.5	PASS
		VN	50	1.68	0.002141	± 2.5	PASS
	HCH	VN	-30	2.95	0.003760	± 2.5	PASS
		VN	-20	3.84	0.004895	± 2.5	PASS
		VN	-10	1.09	0.001389	± 2.5	PASS
		VN	0	3.78	0.004818	± 2.5	PASS
		VN	10	3.06	0.003901	± 2.5	PASS
		VN	20	2.1	0.002677	± 2.5	PASS
		VN	30	-0.02	-0.000025	± 2.5	PASS

		VN	40	-0.7	-0.000892	± 2.5	PASS
		VN	50	4.96	0.006322	± 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	-1.28	-0.001637	± 2.5	PASS
		VN	TN	-0.85	-0.001087	± 2.5	PASS
		VH	TN	0.03	0.000038	± 2.5	PASS
	MCH	VL	TN	0.44	0.000563	± 2.5	PASS
		VN	TN	-1.14	-0.001458	± 2.5	PASS
		VH	TN	0.71	0.000908	± 2.5	PASS
	HCH	VL	TN	3.44	0.004399	± 2.5	PASS
		VN	TN	3.63	0.004642	± 2.5	PASS
		VH	TN	2.18	0.002788	± 2.5	PASS
16QAM	LCH	VL	TN	2.54	0.003248	± 2.5	PASS
		VN	TN	-0.55	-0.000703	± 2.5	PASS
		VH	TN	1.58	0.002020	± 2.5	PASS
	MCH	VL	TN	4.9	0.006266	± 2.5	PASS
		VN	TN	-0.12	-0.000153	± 2.5	PASS
		VH	TN	-0.4	-0.000512	± 2.5	PASS
	HCH	VL	TN	4.99	0.006381	± 2.5	PASS
		VN	TN	2.3	0.002941	± 2.5	PASS
		VH	TN	4.06	0.005192	± 2.5	PASS
Temperature							
Modulation	Channel	Voltage [Vdc]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	LCH	VN	-30	2.53	0.003235	± 2.5	PASS
		VN	-20	0.66	0.000844	± 2.5	PASS
		VN	-10	1.84	0.002353	± 2.5	PASS
		VN	0	-0.89	-0.001138	± 2.5	PASS
		VN	10	1.9	0.002430	± 2.5	PASS
		VN	20	0	0.000000	± 2.5	PASS
		VN	30	3.97	0.005077	± 2.5	PASS
		VN	40	-1.28	-0.001637	± 2.5	PASS
		VN	50	-1.39	-0.001777	± 2.5	PASS
	MCH	VN	-30	3.38	0.004322	± 2.5	PASS
		VN	-20	1.73	0.002212	± 2.5	PASS
		VN	-10	-1.77	-0.002263	± 2.5	PASS

		VN	0	3.21	0.004105	± 2.5	PASS
		VN	10	-0.8	-0.001023	± 2.5	PASS
		VN	20	4.29	0.005486	± 2.5	PASS
		VN	30	2.63	0.003363	± 2.5	PASS
		VN	40	1.58	0.002020	± 2.5	PASS
		VN	50	2.7	0.003453	± 2.5	PASS
	HCH	VN	-30	1.41	0.001803	± 2.5	PASS
		VN	-20	-0.17	-0.000217	± 2.5	PASS
		VN	-10	0.71	0.000908	± 2.5	PASS
		VN	0	2.01	0.002570	± 2.5	PASS
		VN	10	-0.69	-0.000882	± 2.5	PASS
		VN	20	1.74	0.002225	± 2.5	PASS
		VN	30	4.4	0.005627	± 2.5	PASS
		VN	40	3.35	0.004284	± 2.5	PASS
		VN	50	-0.07	-0.000090	± 2.5	PASS
16QAM	LCH	VN	-30	-1.69	-0.002161	± 2.5	PASS
		VN	-20	2.03	0.002596	± 2.5	PASS
		VN	-10	3.71	0.004744	± 2.5	PASS
		VN	0	0.43	0.000550	± 2.5	PASS
		VN	10	1.31	0.001675	± 2.5	PASS
		VN	20	3.87	0.004949	± 2.5	PASS
		VN	30	0.97	0.001240	± 2.5	PASS
		VN	40	-1.35	-0.001726	± 2.5	PASS
		VN	50	4.58	0.005857	± 2.5	PASS
	MCH	VN	-30	1.23	0.001573	± 2.5	PASS
		VN	-20	1.03	0.001317	± 2.5	PASS
		VN	-10	1.09	0.001394	± 2.5	PASS
		VN	0	0.74	0.000946	± 2.5	PASS
		VN	10	-1	-0.001279	± 2.5	PASS
		VN	20	2.76	0.003529	± 2.5	PASS
		VN	30	2.81	0.003593	± 2.5	PASS
		VN	40	3.05	0.003900	± 2.5	PASS
		VN	50	2.05	0.002621	± 2.5	PASS
	HCH	VN	-30	-0.16	-0.000205	± 2.5	PASS
		VN	-20	4.28	0.005473	± 2.5	PASS
		VN	-10	-0.31	-0.000396	± 2.5	PASS
		VN	0	0.89	0.001138	± 2.5	PASS
		VN	10	2.39	0.003056	± 2.5	PASS
		VN	20	-0.46	-0.000588	± 2.5	PASS
		VN	30	1.15	0.001471	± 2.5	PASS
		VN	40	-0.78	-0.000997	± 2.5	PASS

		VN	50	-1.07	-0.001368	± 2.5	PASS