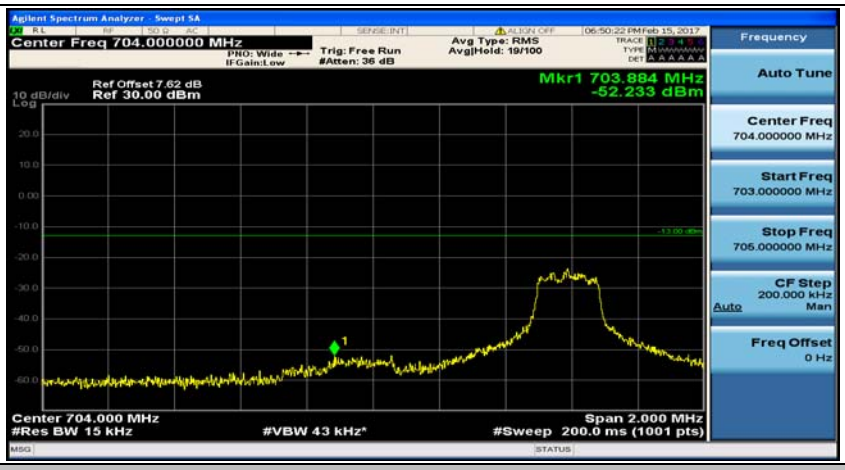
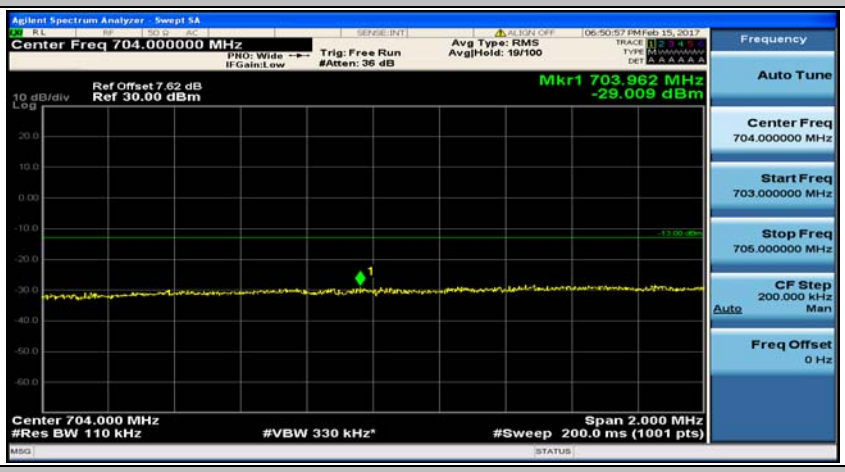
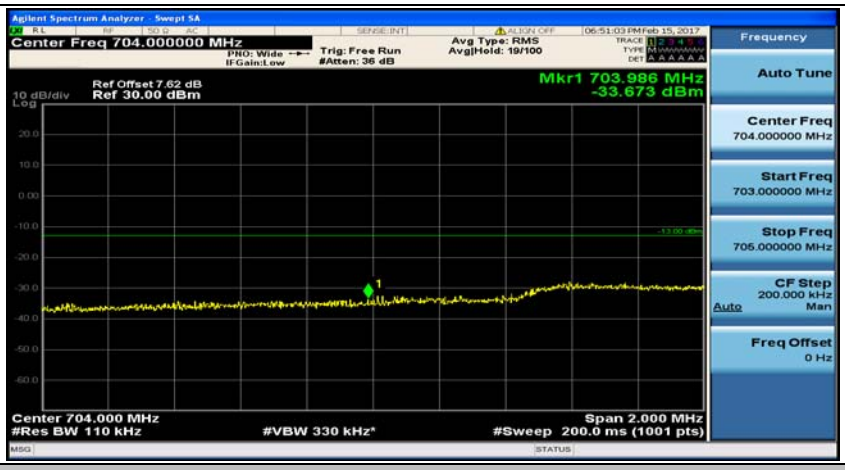


Channel Bandwidth: 10 MHz_LCH_QPSK_25RB#0

Channel Bandwidth: 10 MHz_LCH_QPSK_25RB#12

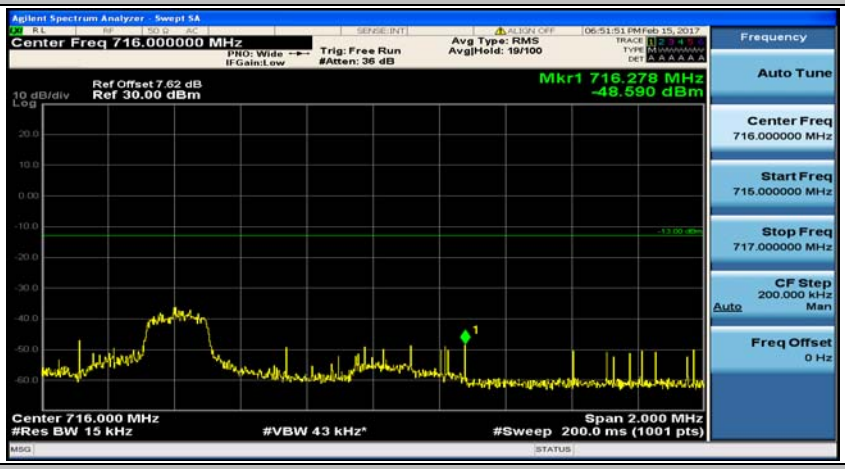


Channel Bandwidth: 10 MHz_LCH_QPSK_25RB#25

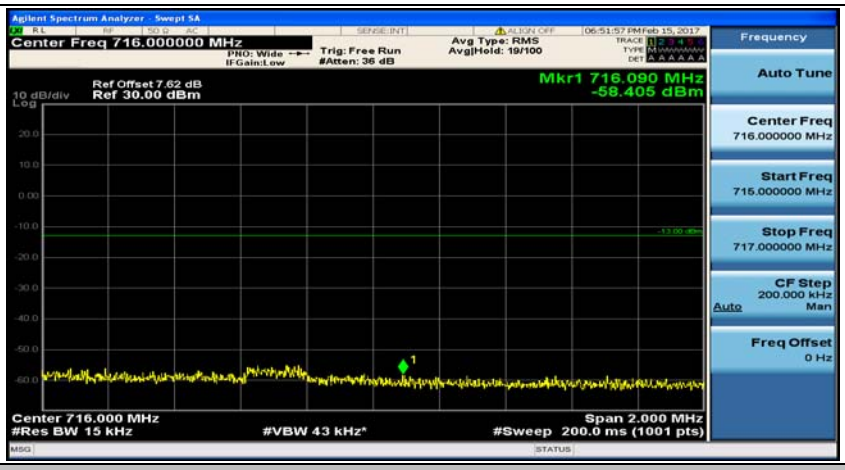


Channel Bandwidth: 10 MHz_LCH_QPSK_50RB#0

Channel Bandwidth: 10 MHz_HCH_QPSK_1RB#0

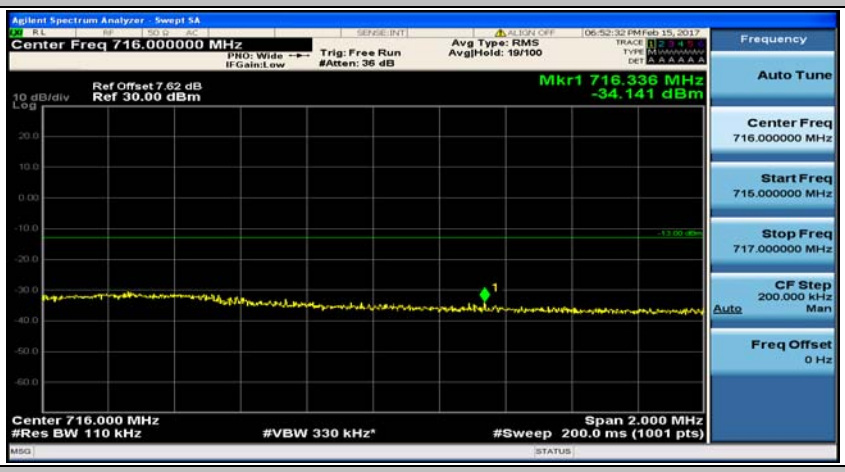


Channel Bandwidth: 10 MHz_HCH_QPSK_1RB#24

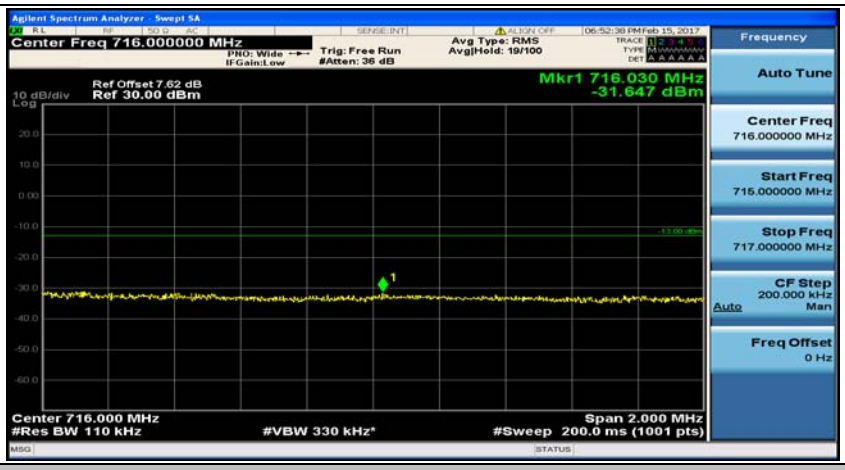


Channel Bandwidth: 10 MHz_HCH_QPSK_1RB#49

Channel Bandwidth: 10 MHz_HCH_QPSK_25RB#0

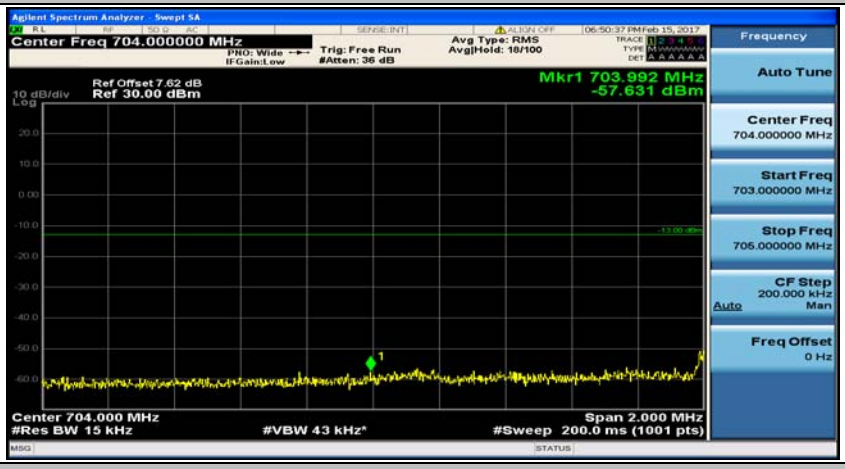
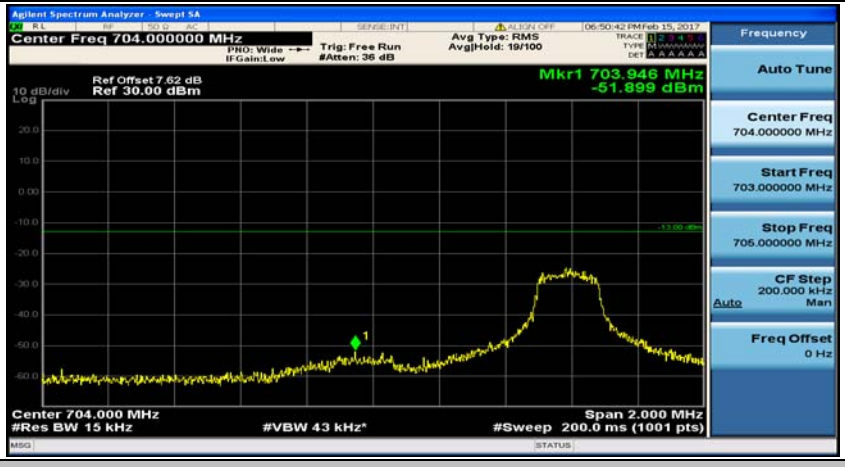


Channel Bandwidth: 10 MHz_HCH_QPSK_25RB#12

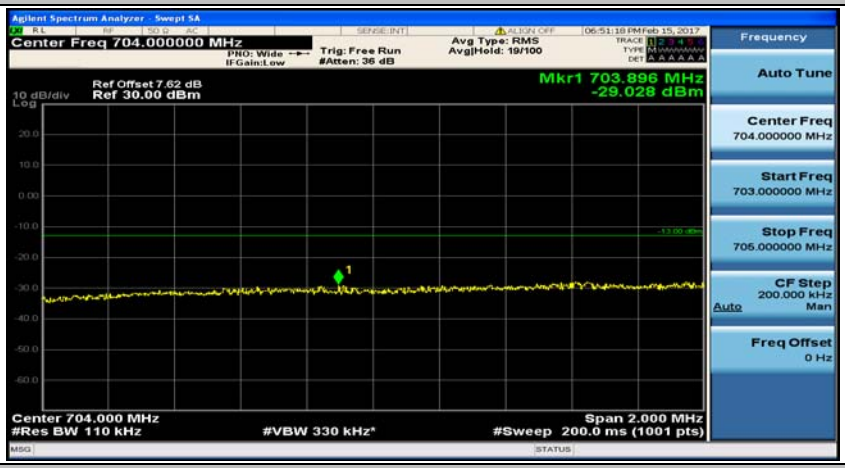


Channel Bandwidth: 10 MHz_HCH_QPSK_25RB#25

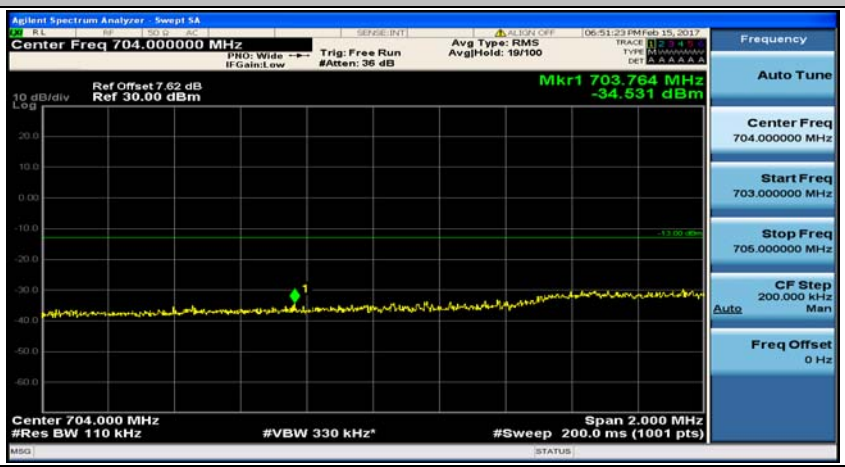
Channel Bandwidth: 10 MHz_HCH_QPSK_50RB#0

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

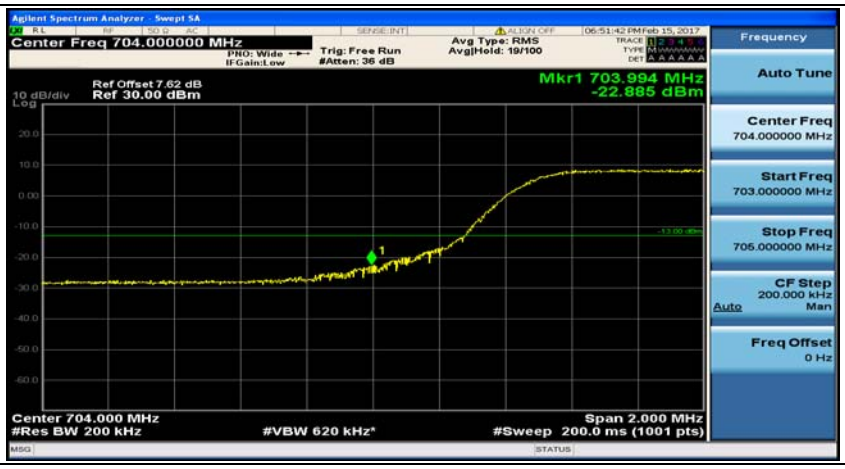
Channel Bandwidth: 10 MHz_LCH_16QAM_25RB#12



Channel Bandwidth: 10 MHz_LCH_16QAM_25RB#25

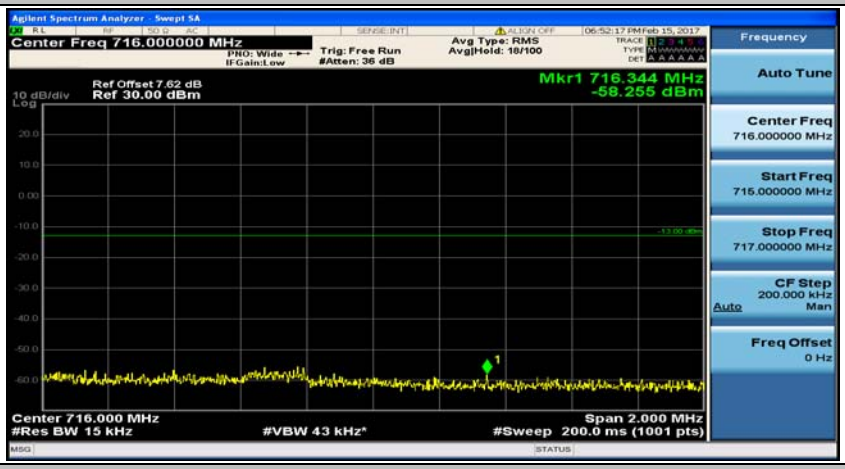


Channel Bandwidth: 10 MHz_LCH_16QAM_50RB#0



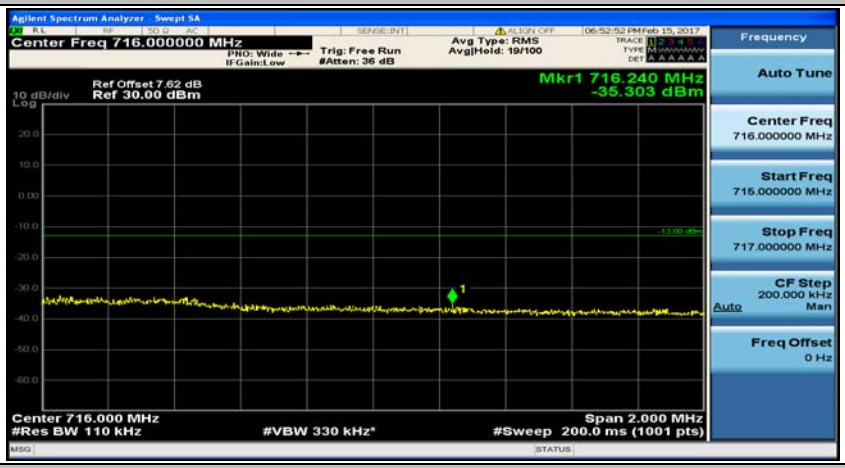
Channel Bandwidth: 10 MHz_HCH_16QAM_1RB#0

Channel Bandwidth: 10 MHz_HCH_16QAM_1RB#24

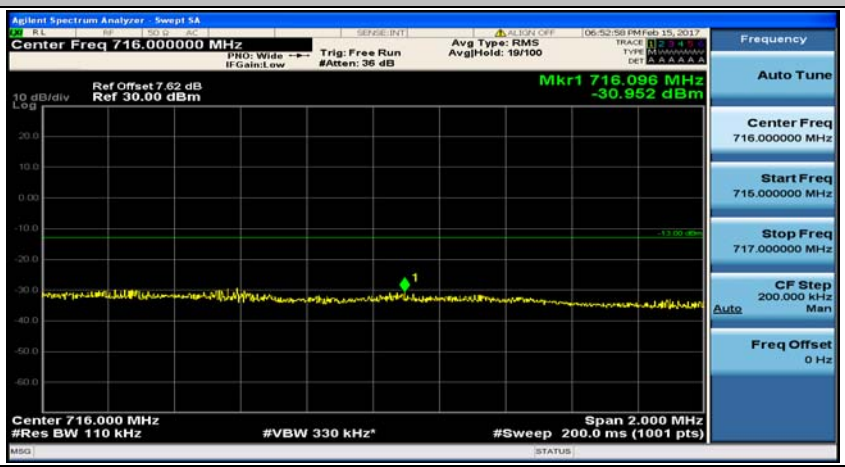


Channel Bandwidth: 10 MHz_HCH_16QAM_1RB#49

Channel Bandwidth: 10 MHz_HCH_16QAM_25RB#0



Channel Bandwidth: 10 MHz_HCH_16QAM_25RB#12



Channel Bandwidth: 10 MHz_HCH_16QAM_25RB#25

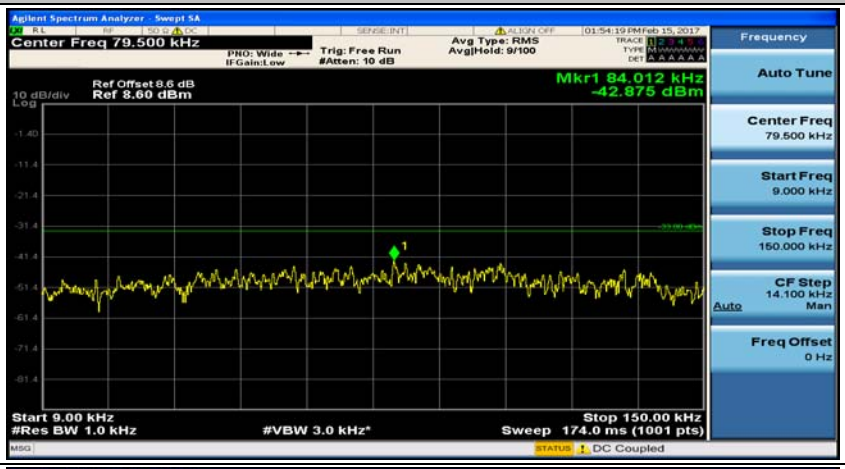
Channel Bandwidth: 10 MHz_HCH_16QAM_50RB#0

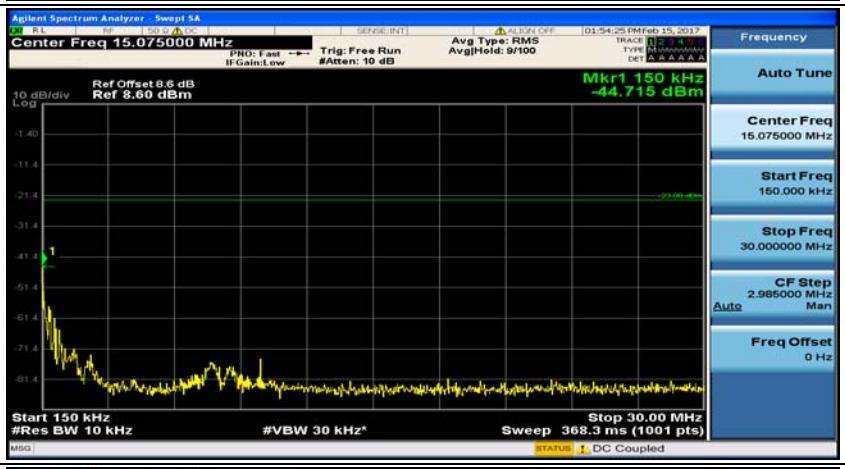
Appendix E: Conducted Spurious Emission

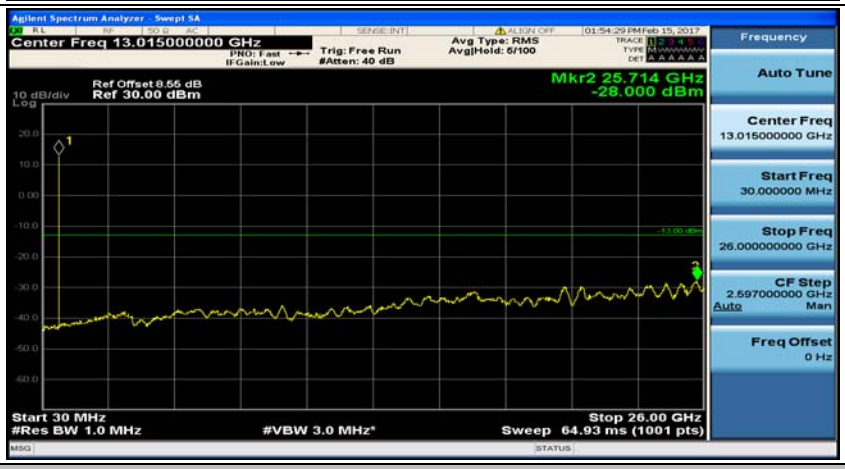
Test Graphs

Channel Bandwidth: 5 MHz

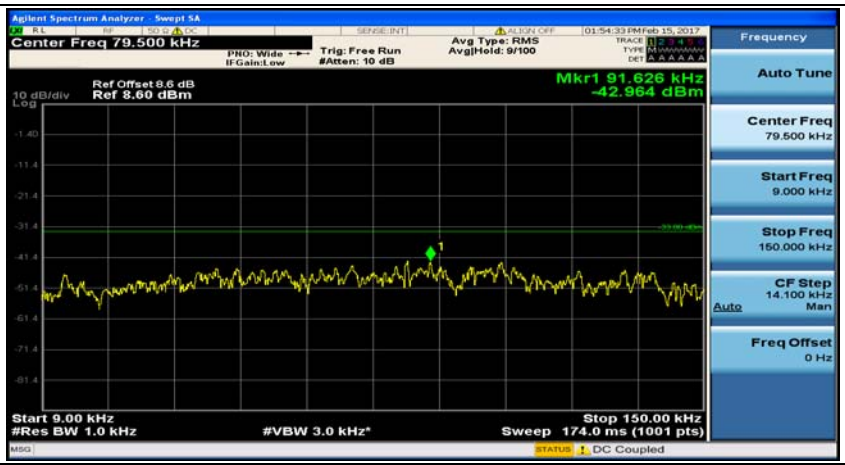
(Channel Bandwidth: 5 MHz)_LCH_QPSK_1RB#0

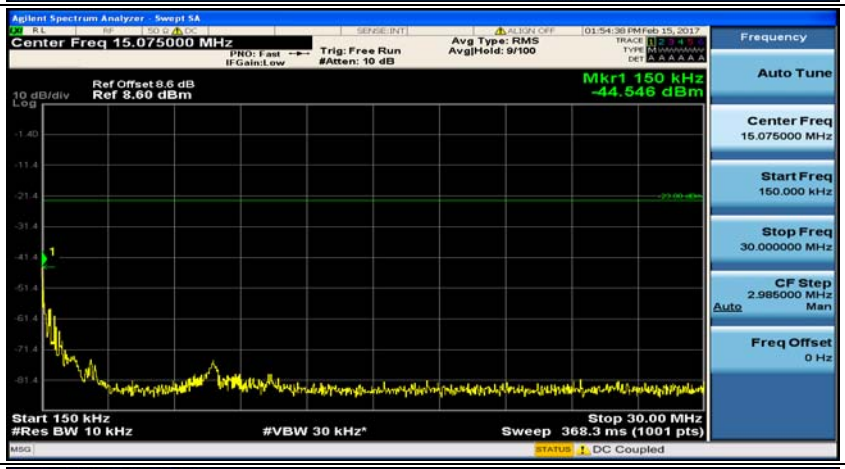




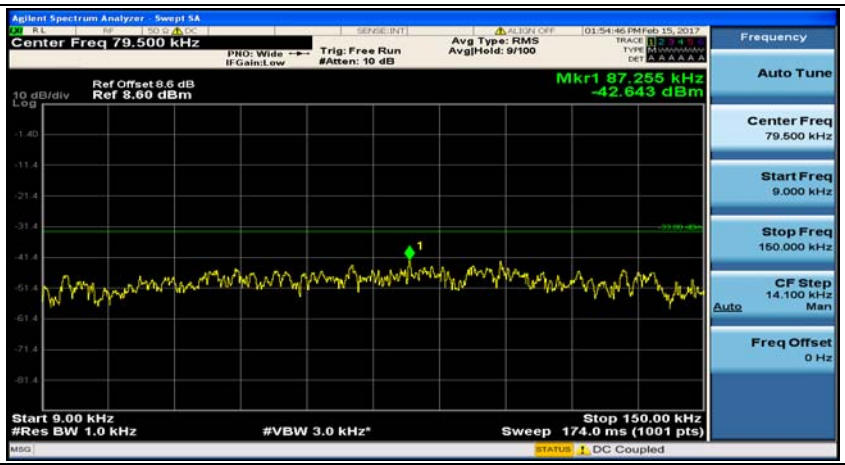


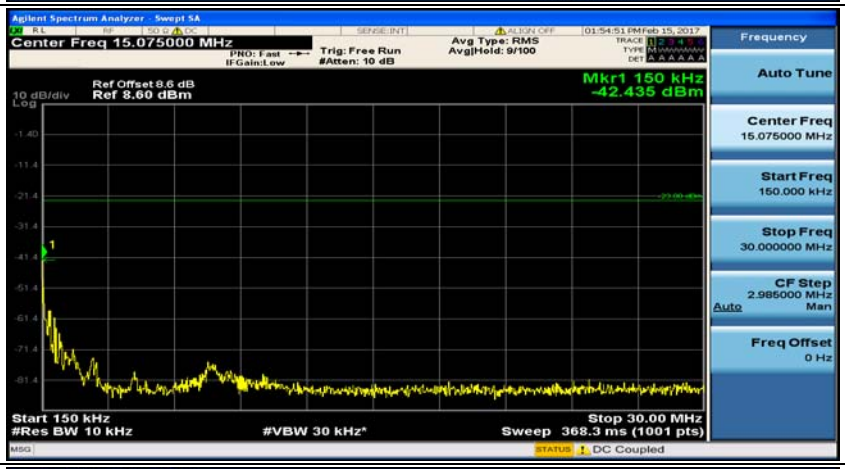
(Channel Bandwidth: 5 MHz)_LCH_QPSK_1RB#12

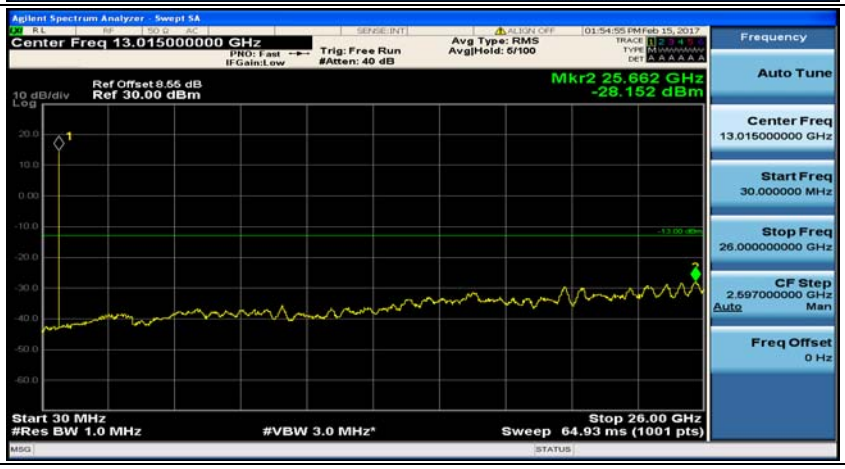


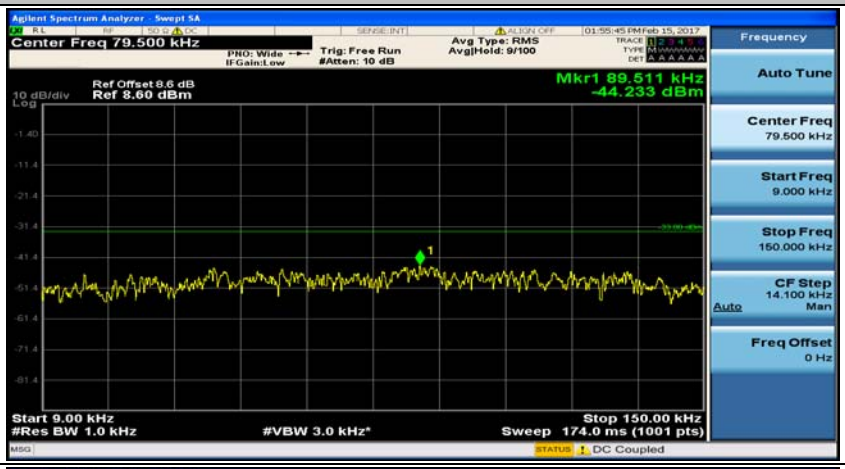
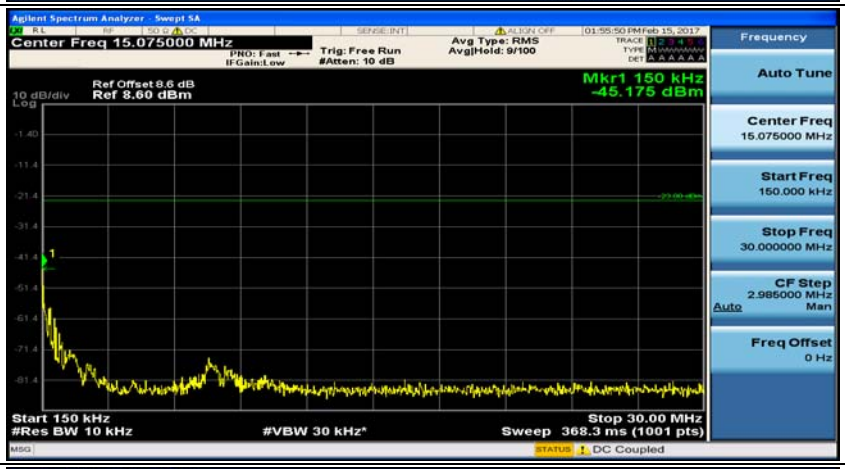
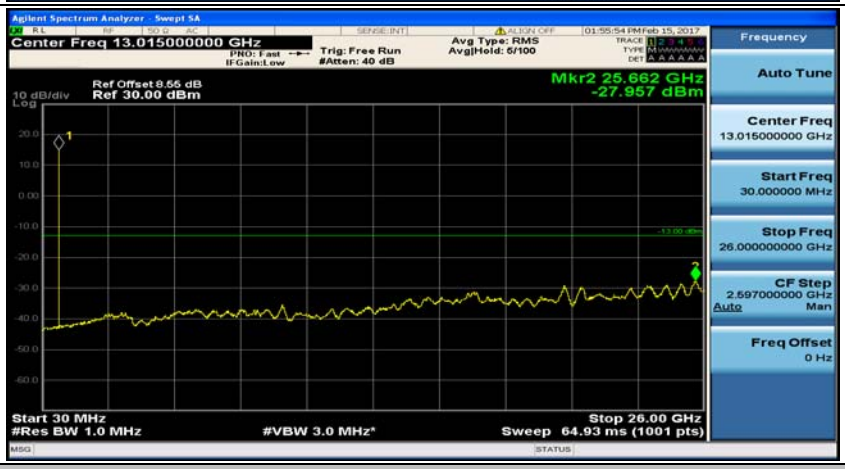


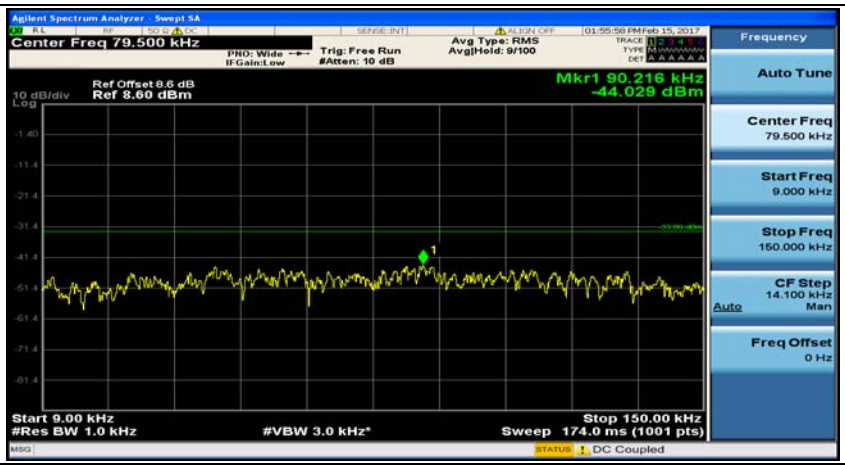
(Channel Bandwidth: 5 MHz)_LCH_QPSK_1RB#24

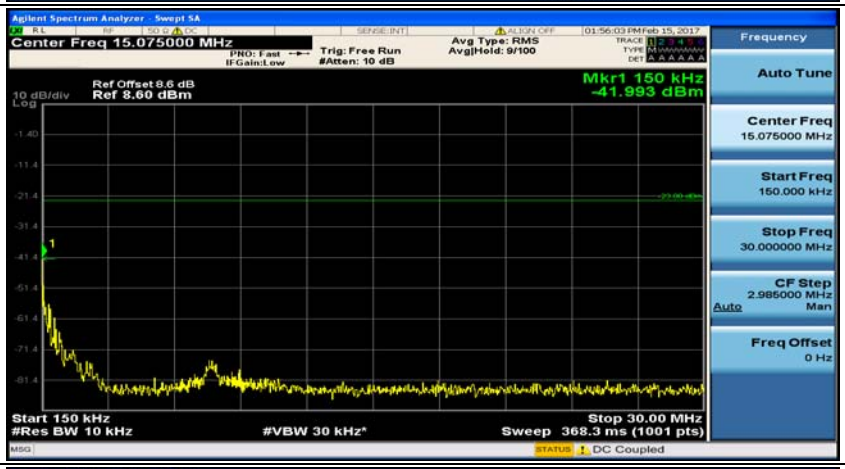

Agilent Spectrum Analyzer - Swept SA
Center Freq 79.500 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 9/100
01:54:46 PM Feb 15, 2017
Ref Offset 8.6 dB
10 dB/div
Log
Ref 8.60 dBm
Mkr1 87.255 kHz
-42.643 dBm
Start 9.00 kHz
#Res BW 1.0 kHz
#VBW 3.0 kHz*
Stop 150.00 kHz
Sweep 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
01:54:51 PM Feb 15, 2017
Ref Offset 8.6 dB
10 dB/div
Log
Ref 8.60 dBm
Mkr1 150 kHz
-42.435 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

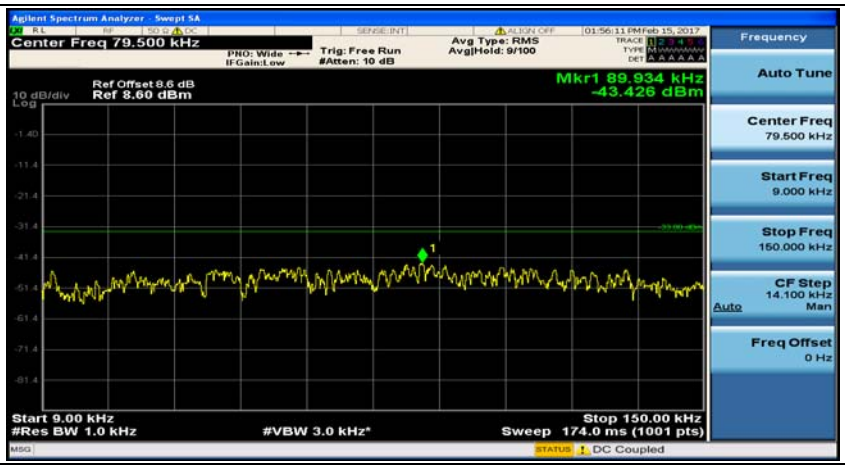

Agilent Spectrum Analyzer - Swept SA
Center Freq 13.015000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: RMS
Avg|Hold: 5/100
01:54:55 PM Feb 15, 2017
Ref Offset 8.55 dB
10 dB/div
Log
Ref 30.00 dBm
Mkr2 25.662 GHz
-28.152 dBm
Start 30 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 26.00 GHz
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

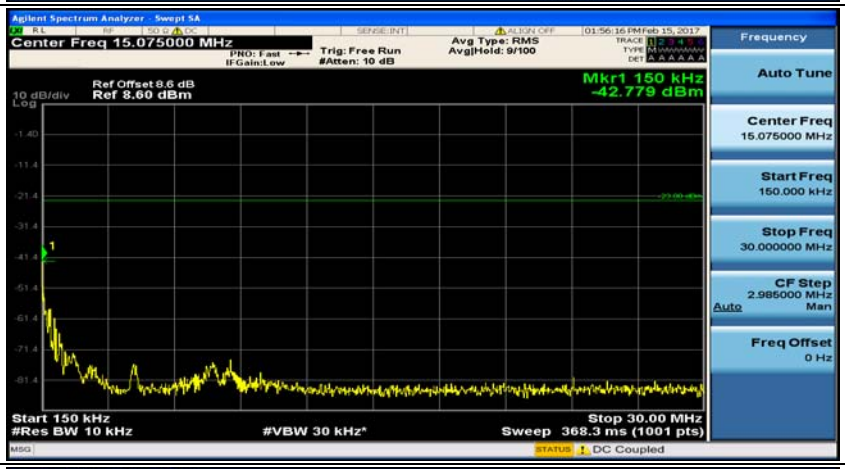
(Channel Bandwidth: 5 MHz)_MCH_QPSK_1RB#0



(Channel Bandwidth: 5 MHz)_MCH_QPSK_1RB#12

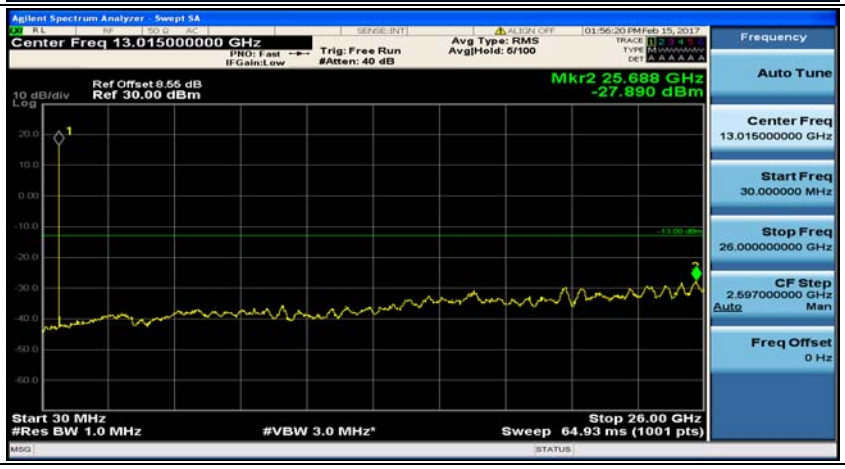


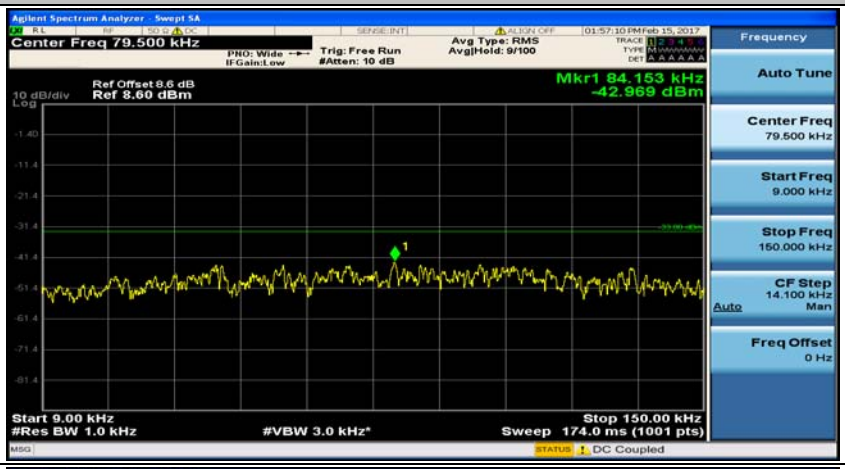
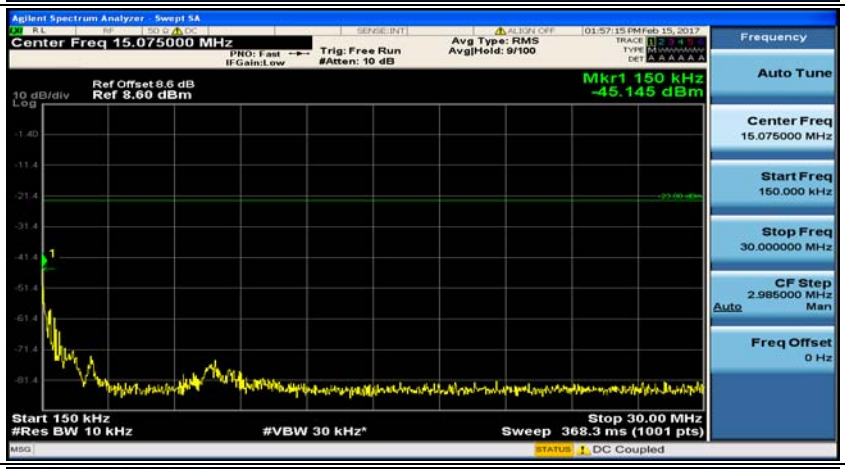
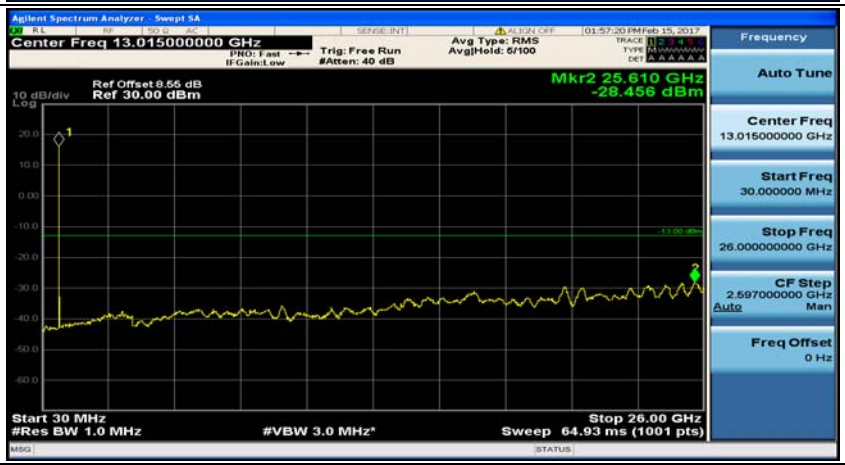


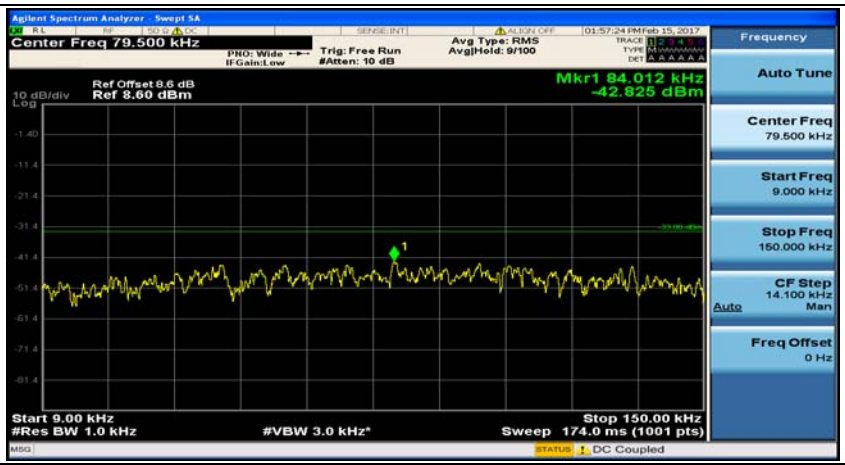
(Channel Bandwidth: 5 MHz)_MCH_QPSK_1RB#24

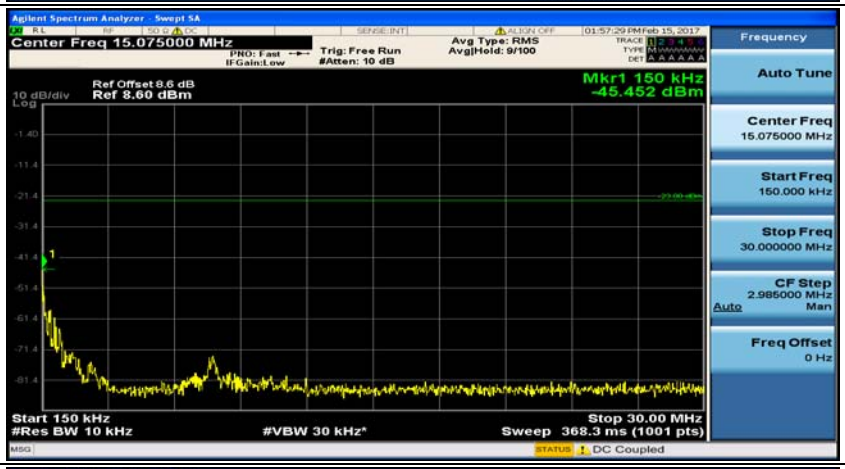

Agilent Spectrum Analyzer - Swept SA
Center Freq 79.500 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 9/100
01:56:11 PM Feb 15, 2017
Ref Offset 8.6 dB
10 dB/div
Log
Ref 8.60 dBm
Mkr1 89.934 kHz
-43.426 dBm
Start 9.00 kHz
#Res BW 1.0 kHz
#VBW 3.0 kHz*
Stop 150.00 kHz
Sweep 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
01:56:16 PM Feb 15, 2017
Ref Offset 8.6 dB
10 dB/div
Log
Ref 8.60 dBm
Mkr1 150 kHz
-42.779 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

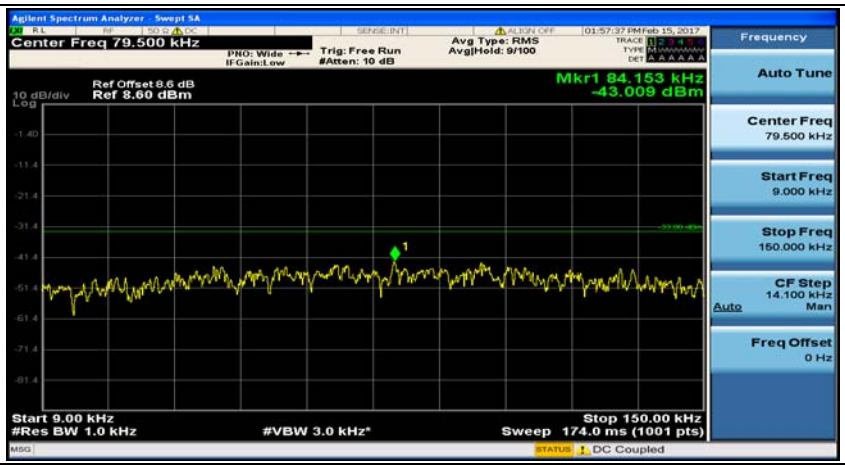

Agilent Spectrum Analyzer - Swept SA
Center Freq 13.015000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: RMS
Avg|Hold: 5/100
01:56:20 PM Feb 15, 2017
Ref Offset 8.55 dB
10 dB/div
Log
Ref 30.00 dBm
Mkr2 25.688 GHz
-27.890 dBm
Start 30 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 26.00 GHz
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

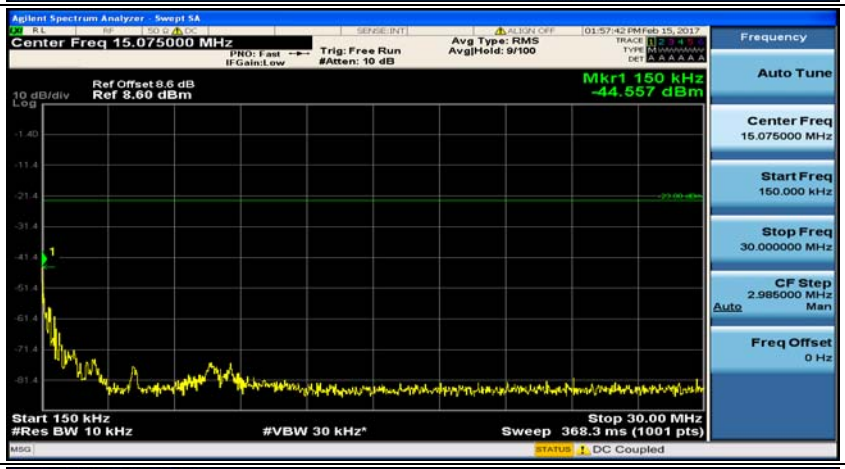
(Channel Bandwidth: 5 MHz)_HCH_QPSK_1RB#0



(Channel Bandwidth: 5 MHz)_HCH_QPSK_1RB#12

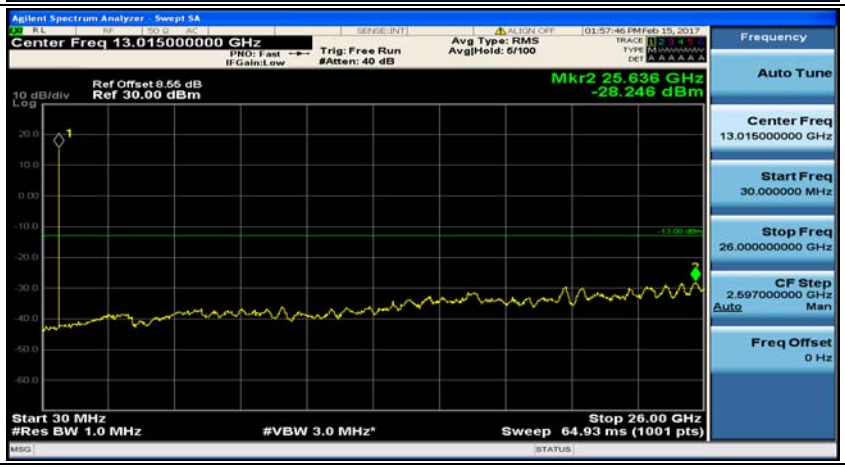


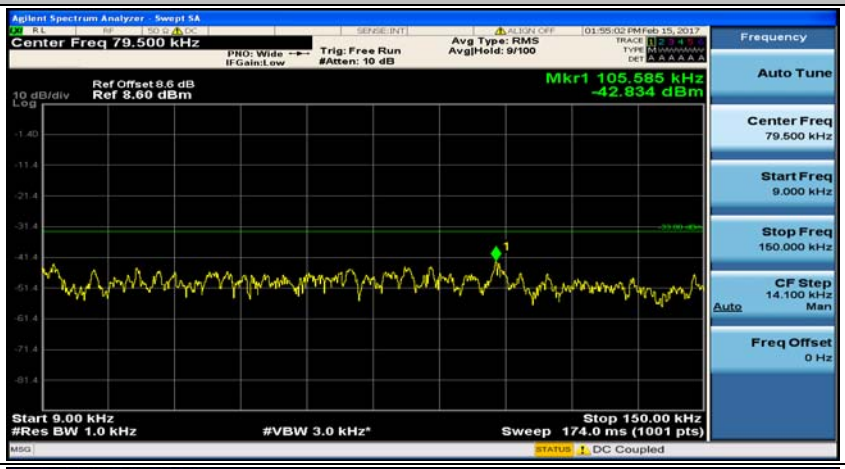
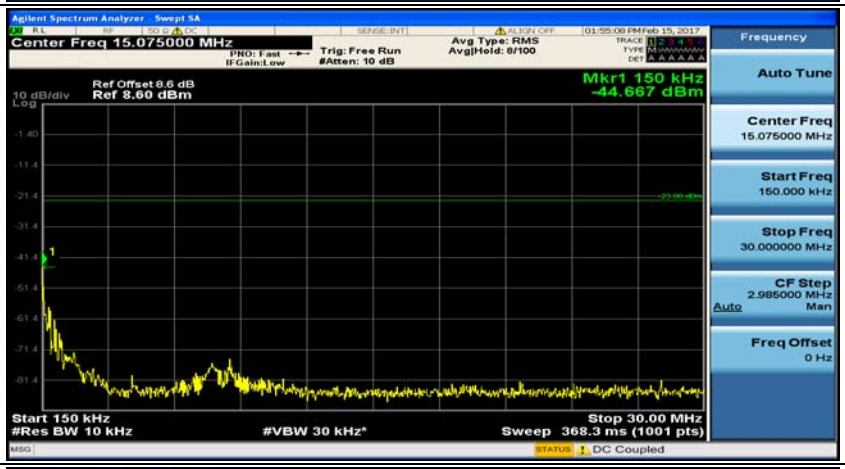
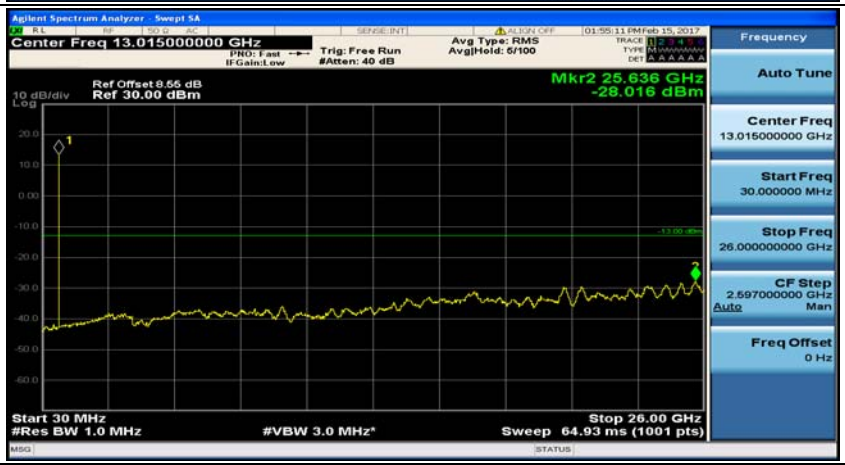


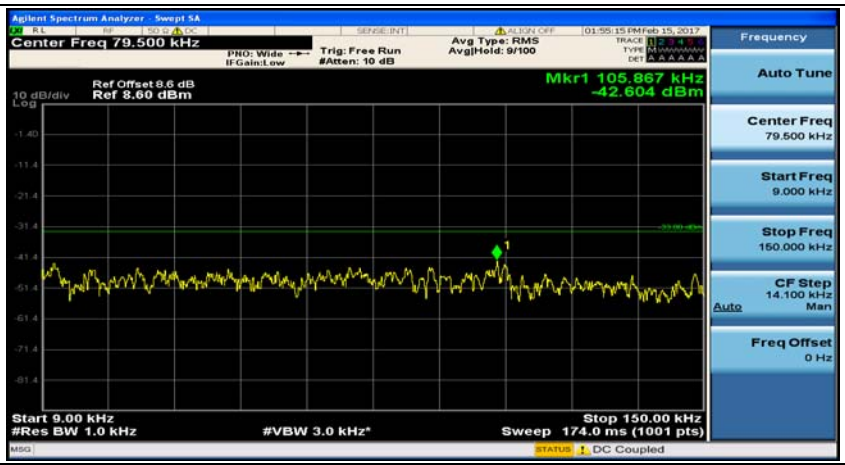
(Channel Bandwidth: 5 MHz)_HCH_QPSK_1RB#24

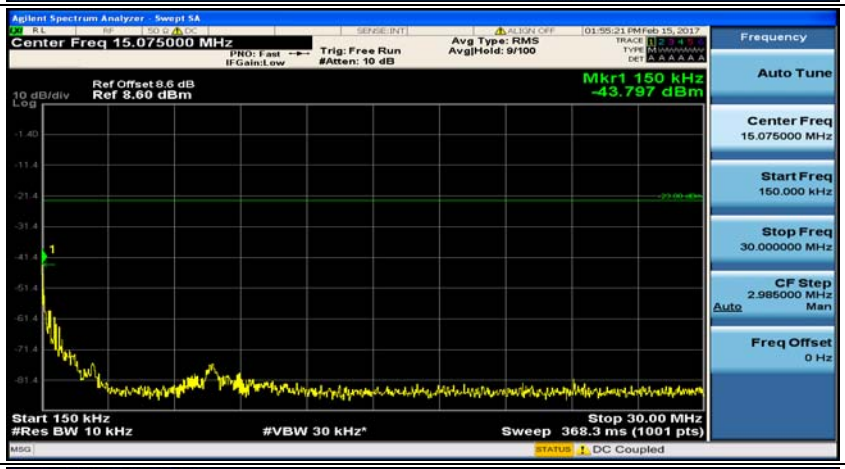

Agilent Spectrum Analyzer - Swept SA
Center Freq 79.500 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 9/100
01:57:37 PM Feb 15, 2017
Ref Offset 8.6 dB
10 dB/div
Log
Ref 8.60 dBm
Mkr1 84.153 kHz
-43.009 dBm
Start 9.00 kHz
#Res BW 1.0 kHz
#VBW 3.0 kHz*
Stop 150.00 kHz
Sweep 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

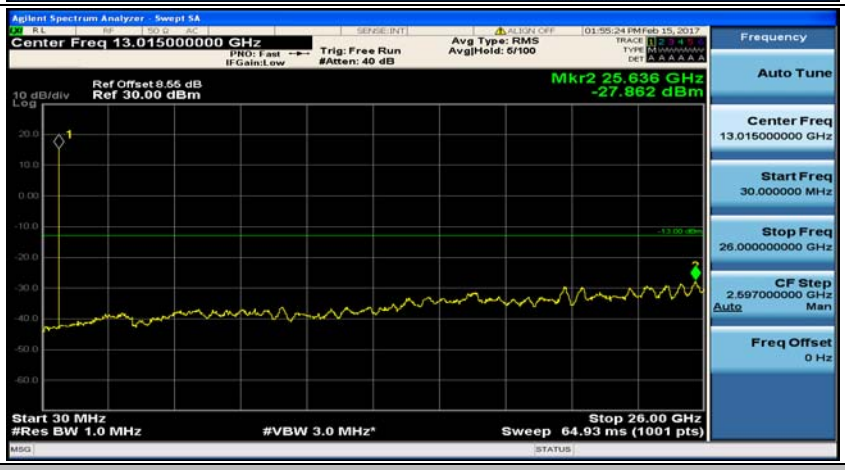

Agilent Spectrum Analyzer - Swept SA
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 9/100
01:57:42 PM Feb 15, 2017
Ref Offset 8.6 dB
10 dB/div
Log
Ref 8.60 dBm
Mkr1 150 kHz
-44.557 dBm
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz*
Stop 30.00 MHz
Sweep 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
01:57:46 PM Feb 15, 2017
Ref Offset 8.55 dB
10 dB/div
Log
Ref 30.00 dBm
Mkr2 25.636 GHz
-28.246 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

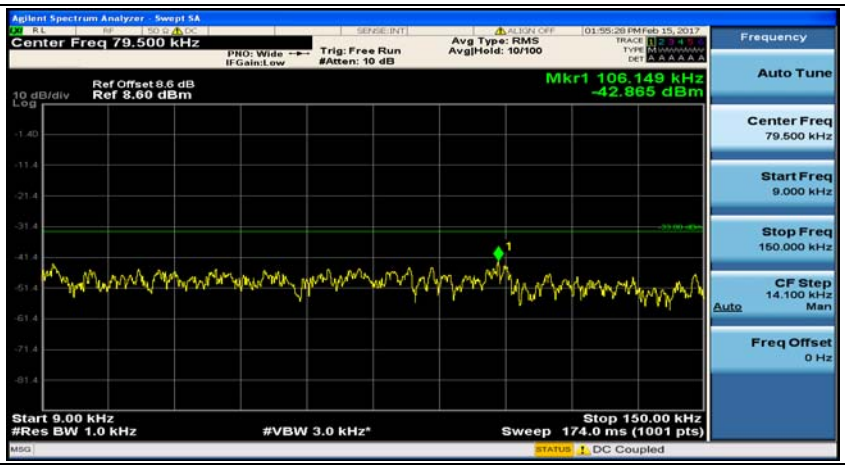
(Channel Bandwidth: 5 MHz)_LCH_16QAM_1RB#0



(Channel Bandwidth: 5 MHz)_LCH_16QAM_1RB#12

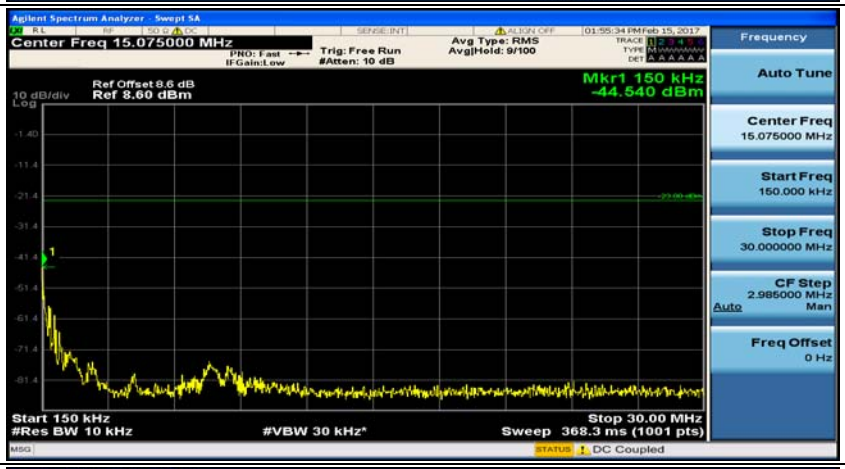


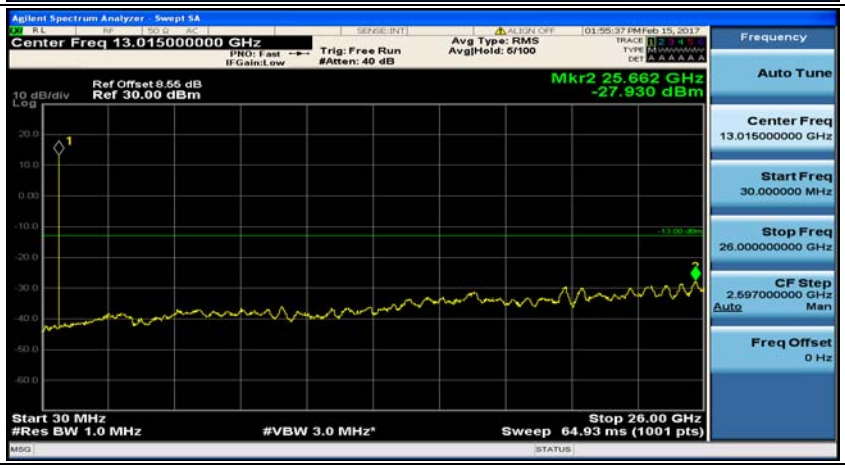


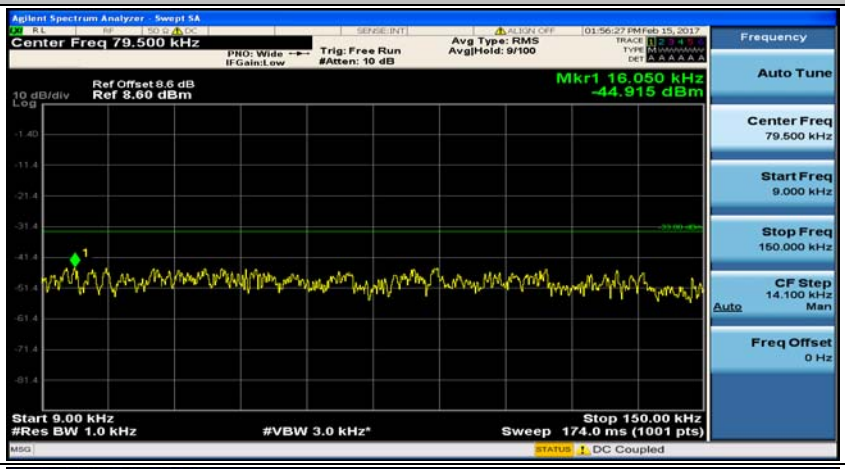
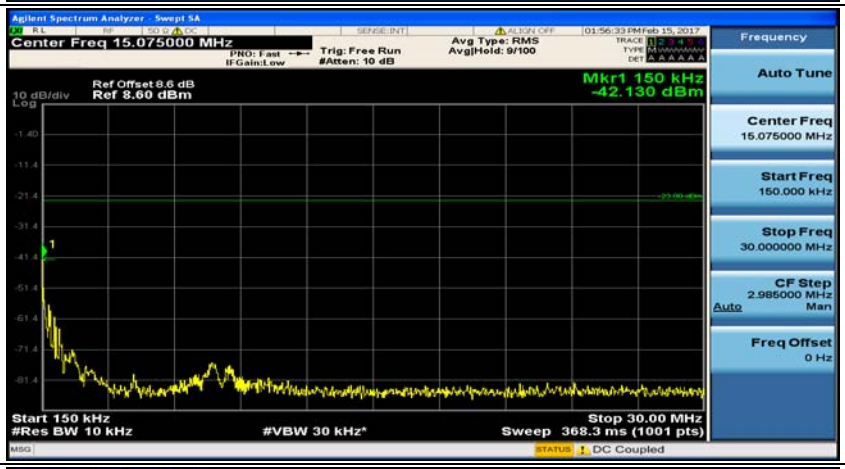


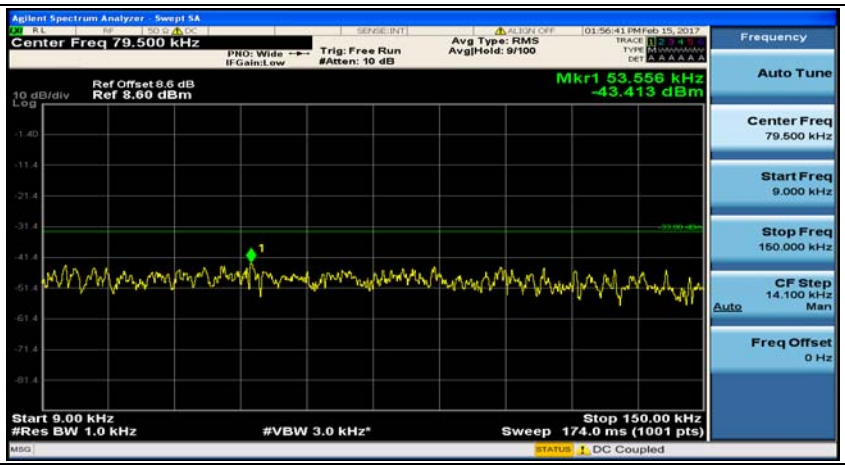
(Channel Bandwidth: 5 MHz)_LCH_16QAM_1RB#24

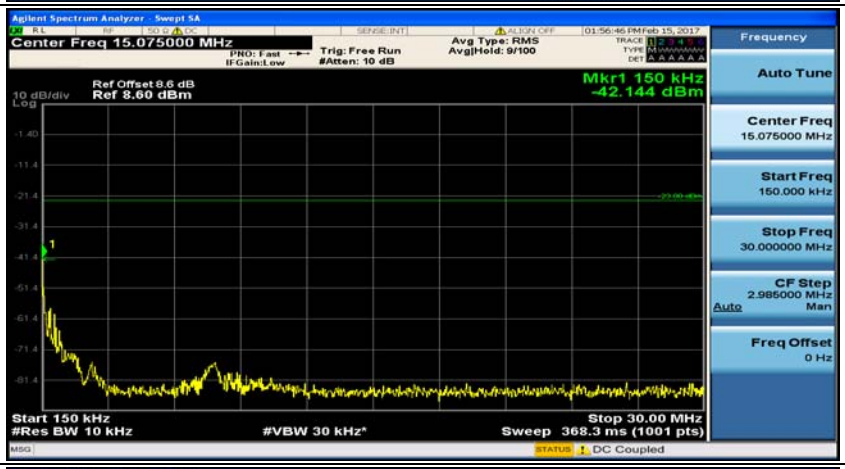

Agilent Spectrum Analyzer - Swept SA
Center Freq 79.500 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 10/100
01:55:28 PM Feb 15, 2017
Ref Offset 8.6 dB
10 dB/div
Log
Ref 8.60 dBm
Mkr1 106.149 kHz
-42.865 dBm
Start 9.00 kHz
#Res BW 1.0 kHz
#VBW 3.0 kHz*
Stop 150.00 kHz
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
01:55:34 PM Feb 15, 2017
Ref Offset 8.6 dB
10 dB/div
Log
Ref 8.60 dBm
Mkr1 150 kHz
-44.540 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

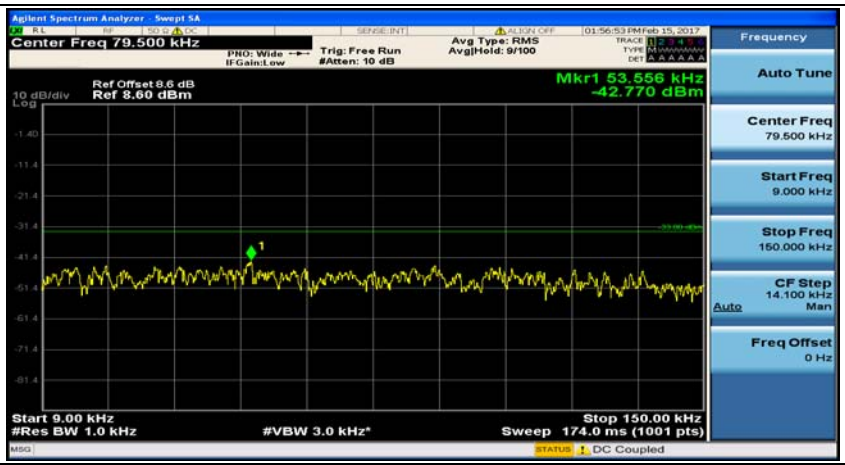

Agilent Spectrum Analyzer - Swept SA
Center Freq 13.015000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: RMS
Avg|Hold: 5/100
01:55:37 PM Feb 15, 2017
Ref Offset 8.55 dB
10 dB/div
Log
Ref 30.00 dBm
Mkr2 25.662 GHz
-27.930 dBm
Start 30 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 26.00 GHz
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

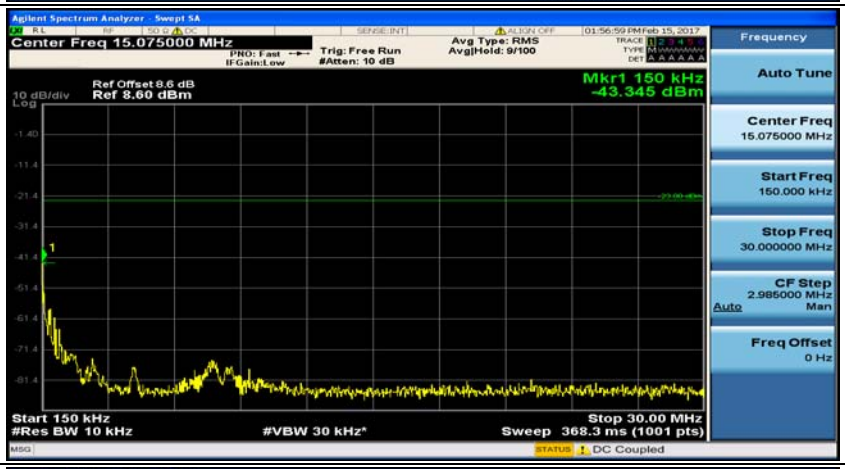
(Channel Bandwidth: 5 MHz)_MCH_16QAM_1RB#0


(Channel Bandwidth: 5 MHz)_MCH_16QAM_1RB#12

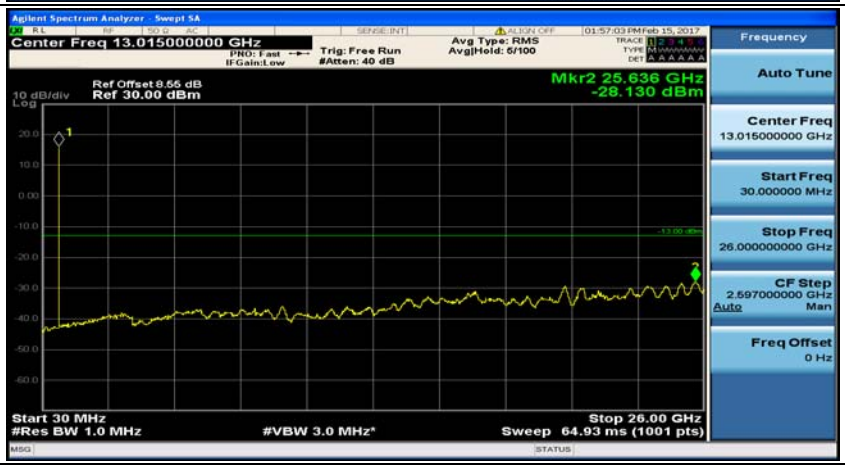


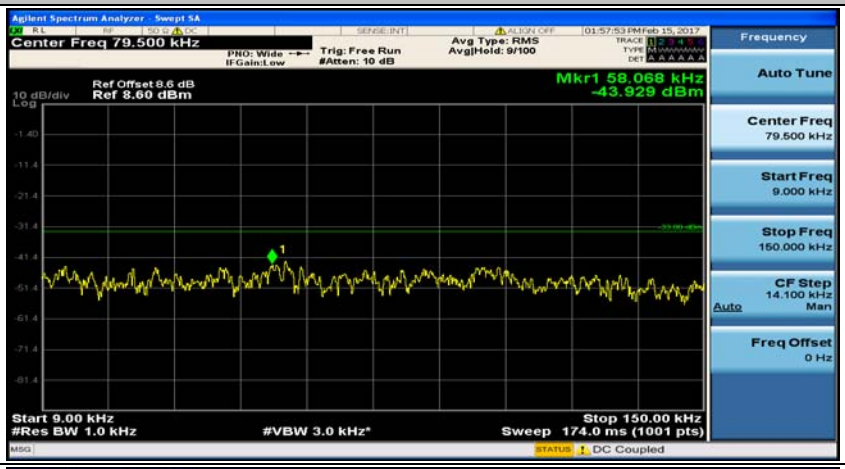
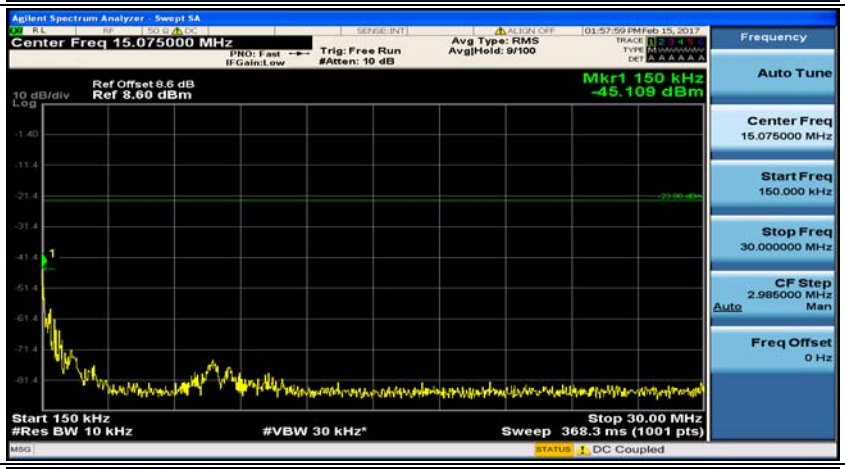
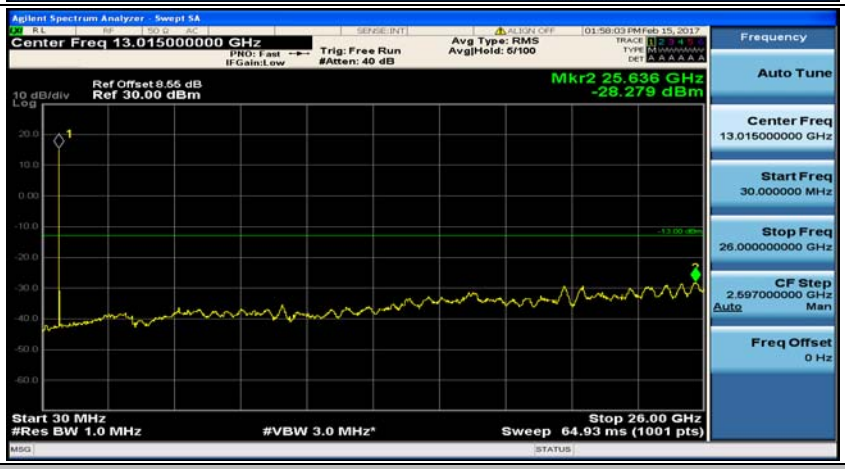


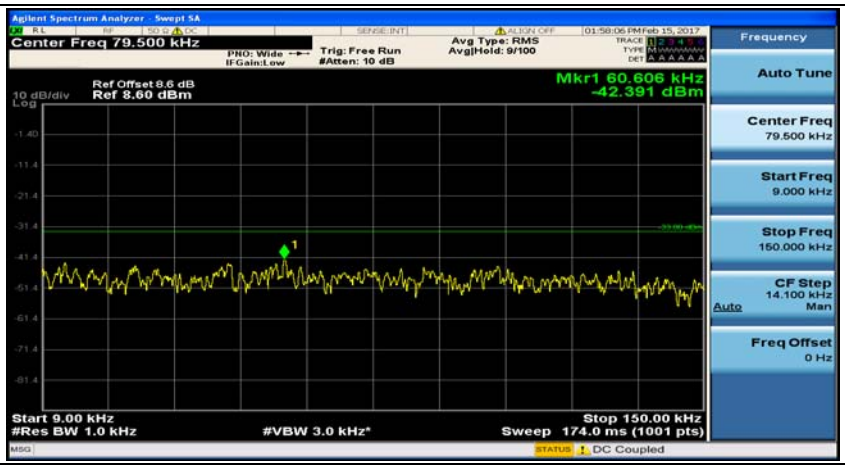
(Channel Bandwidth: 5 MHz)_MCH_16QAM_1RB#24

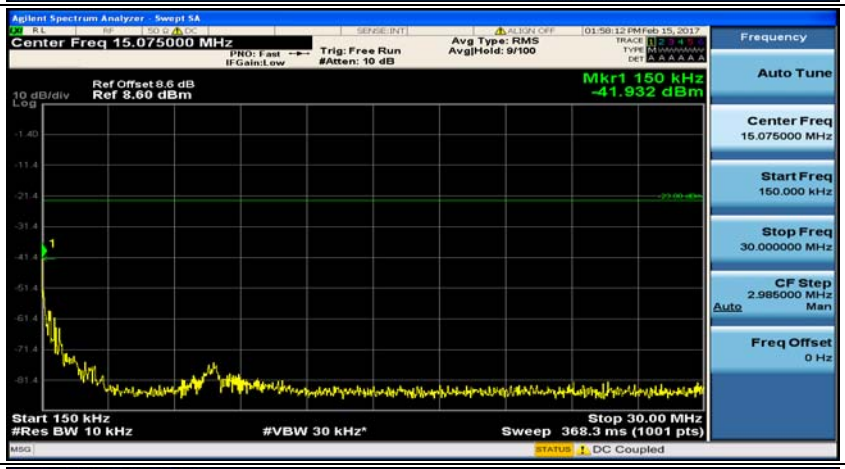

Agilent Spectrum Analyzer - Swept SA
Center Freq 79.500 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 9/100
01:56:53 PM Feb 15, 2017
Ref Offset 8.6 dB
10 dB/div
Log
Ref 8.60 dBm
Mkr1 53.556 kHz
-42.770 dBm
Start 9.00 kHz
#Res BW 1.0 kHz
#VBW 3.0 kHz*
Stop 150.00 kHz
Sweep 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

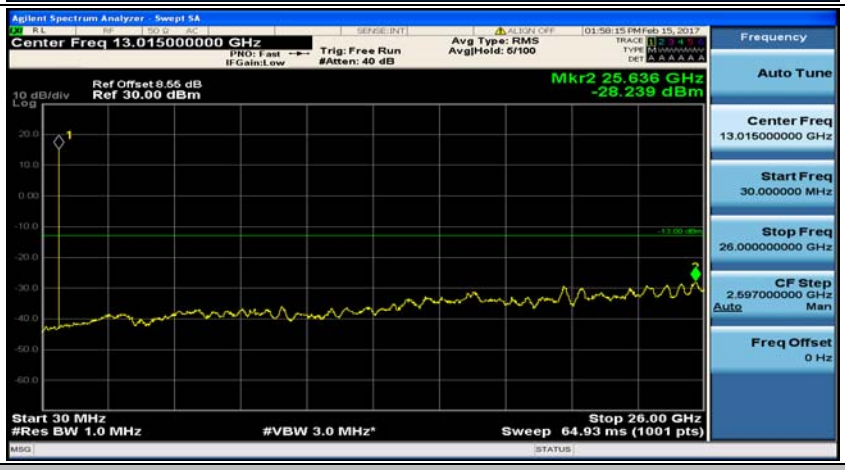

Agilent Spectrum Analyzer - Swept SA
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 9/100
01:56:59 PM Feb 15, 2017
Ref Offset 8.6 dB
10 dB/div
Log
Ref 8.60 dBm
Mkr1 150 kHz
-43.345 dBm
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz*
Stop 30.00 MHz
Sweep 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
01:57:03 PM Feb 15, 2017
Ref Offset 8.55 dB
10 dB/div
Log
Ref 30.00 dBm
Mkr2 25.636 GHz
-28.130 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

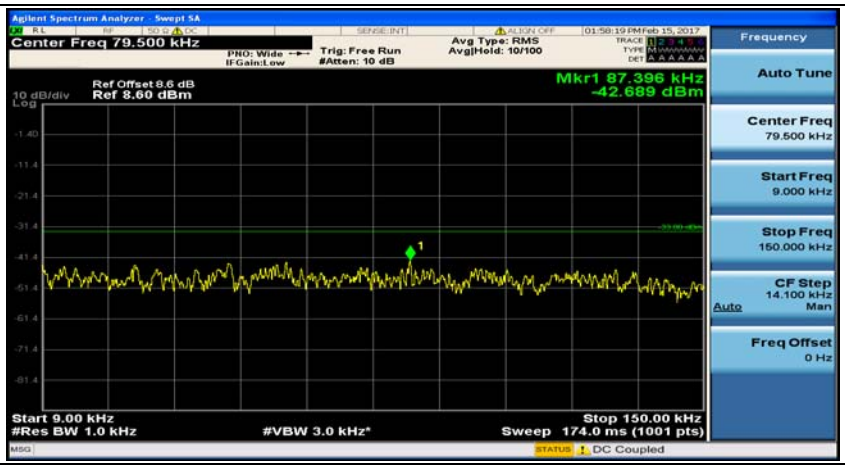
(Channel Bandwidth: 5 MHz)_HCH_16QAM_1RB#0



(Channel Bandwidth: 5 MHz)_HCH_16QAM_1RB#12

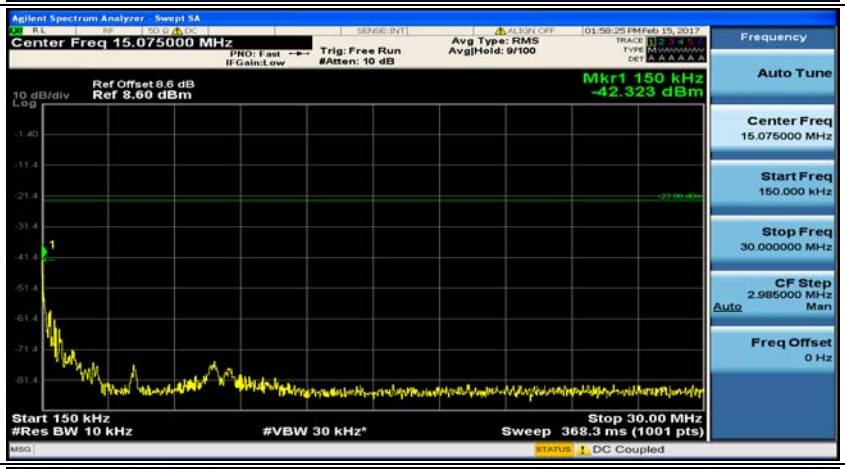


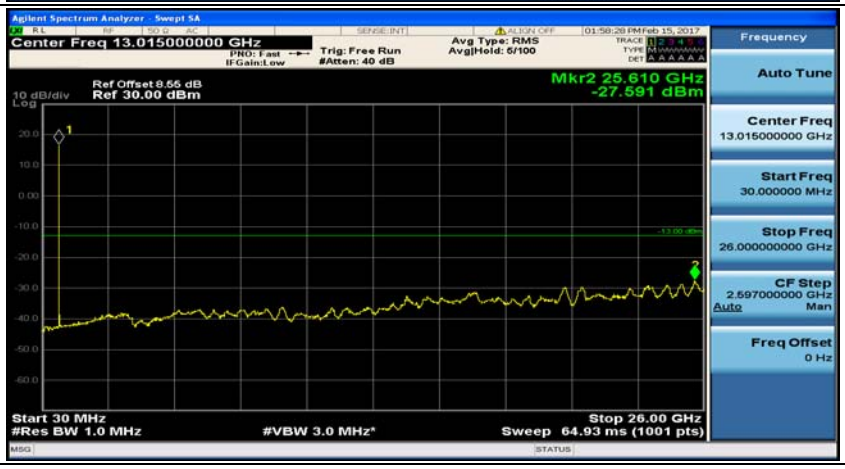




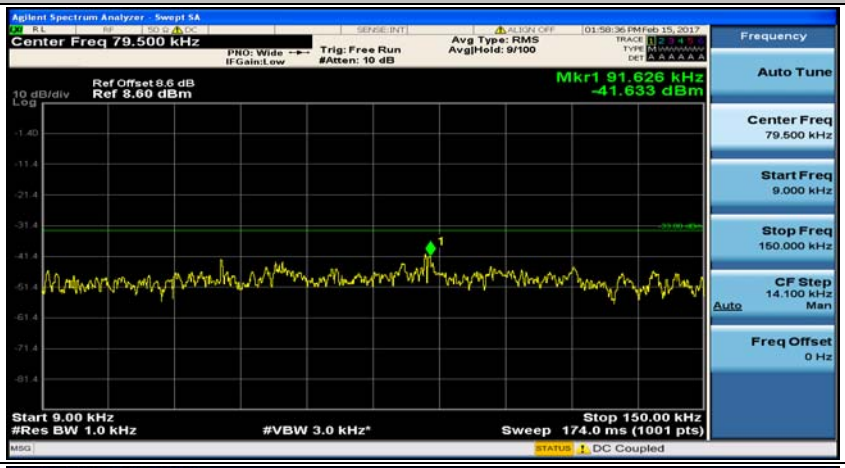
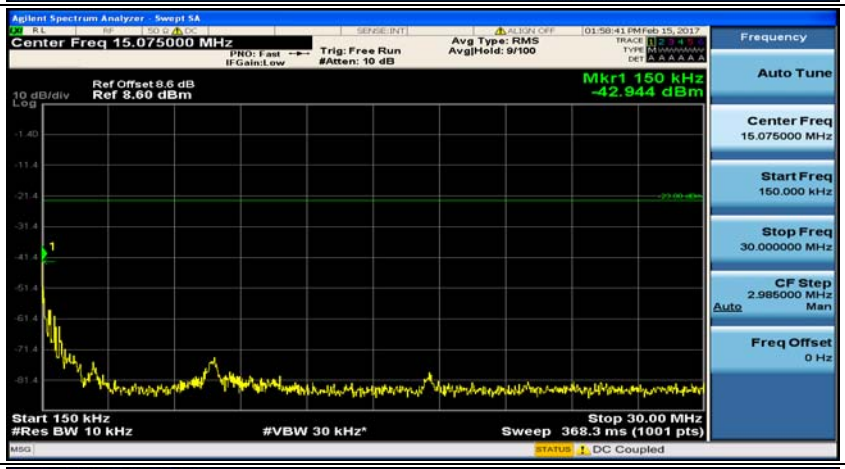
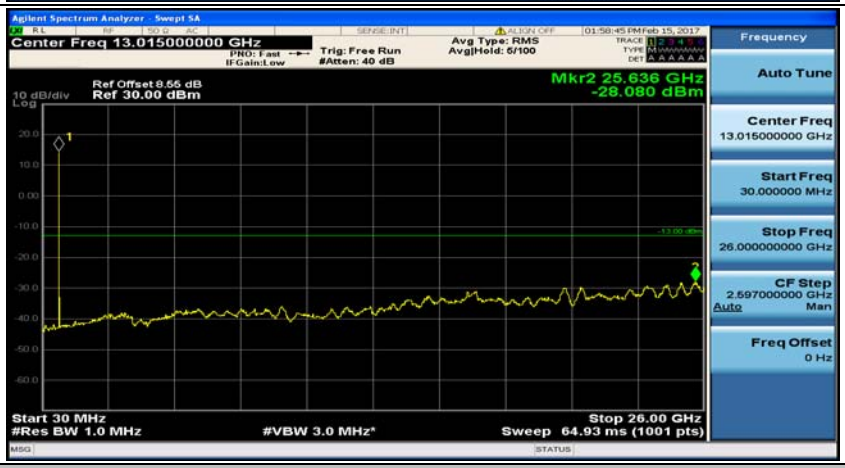
(Channel Bandwidth: 5 MHz)_HCH_16QAM_1RB#24

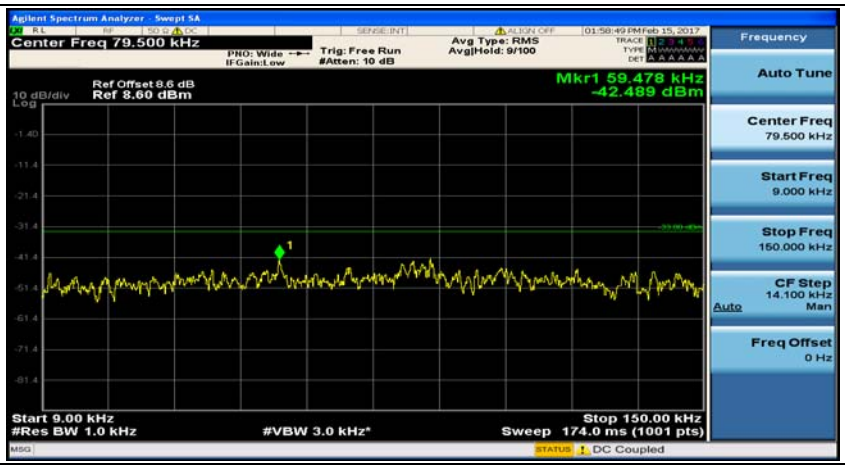

Agilent Spectrum Analyzer - Swept SA
Center Freq 79.500 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 10/100
01:58:19 PM Feb 15, 2017
Ref Offset 8.6 dB
10 dB/div
Ref 8.60 dBm
Log
Mkr1 87.396 kHz
-42.689 dBm
Start 9.00 kHz
#Res BW 1.0 kHz
#VBW 3.0 kHz*
Stop 150.00 kHz
Sweep 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

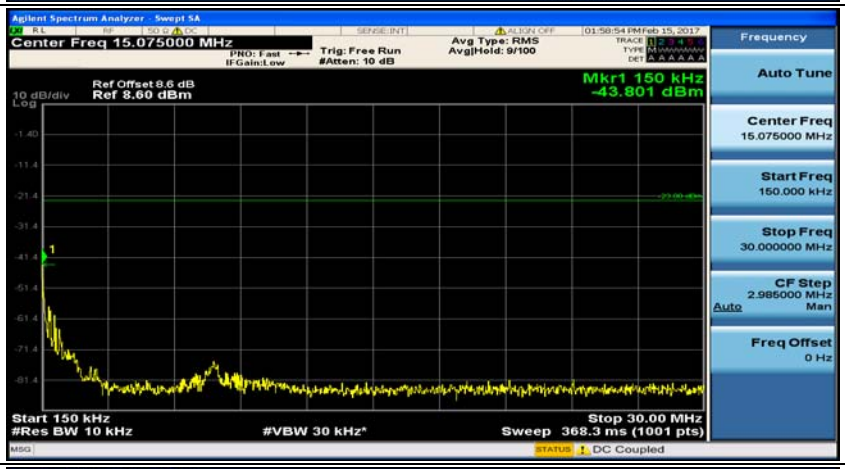

Agilent Spectrum Analyzer - Swept SA
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 9/100
01:58:25 PM Feb 15, 2017
Ref Offset 8.6 dB
10 dB/div
Ref 8.60 dBm
Log
Mkr1 150 kHz
-42.323 dBm
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz*
Stop 30.00 MHz
Sweep 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

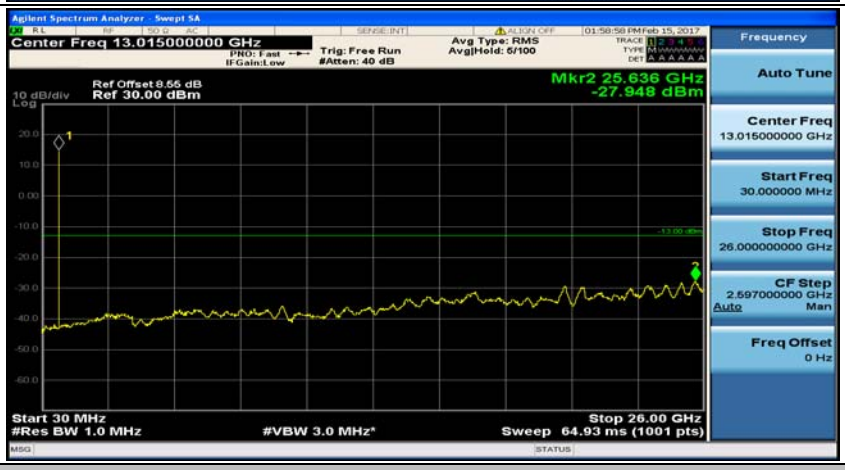

Agilent Spectrum Analyzer - Swept SA
Center Freq 13.015000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 40 dB
Avg Type: RMS
Avg|Hold: 5/100
01:58:28 PM Feb 15, 2017
Ref Offset 8.55 dB
10 dB/div
Ref 30.00 dBm
Log
Mkr2 25.610 GHz
-27.591 dBm
Start 30 MHz
#Res BW 1.0 MHz
#VBW 3.0 MHz*
Stop 26.00 GHz
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

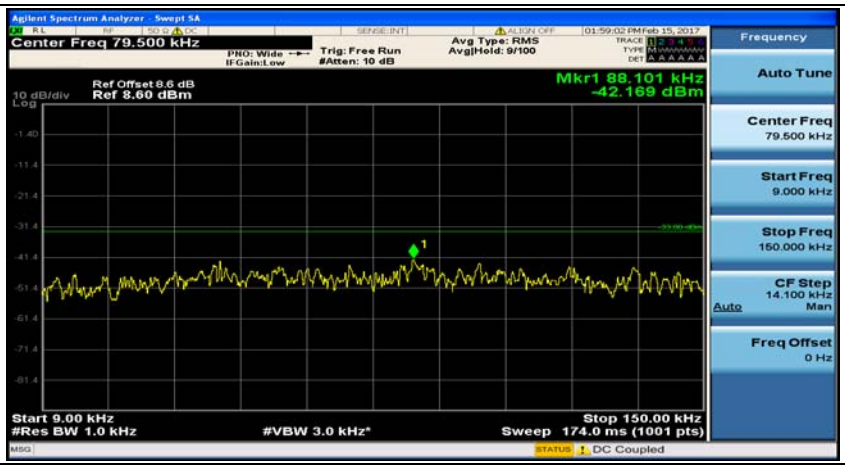
Channel Bandwidth: 10 MHz_LCH_QPSK_1RB#0



Channel Bandwidth: 10 MHz_LCH_QPSK_1RB#24

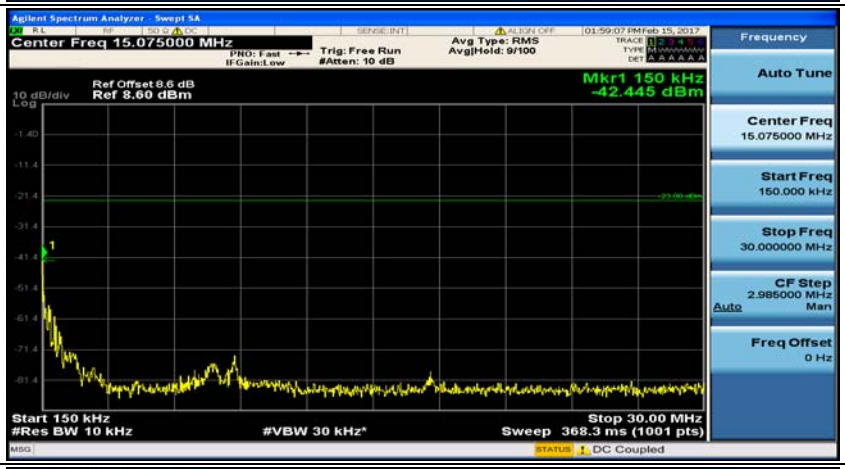


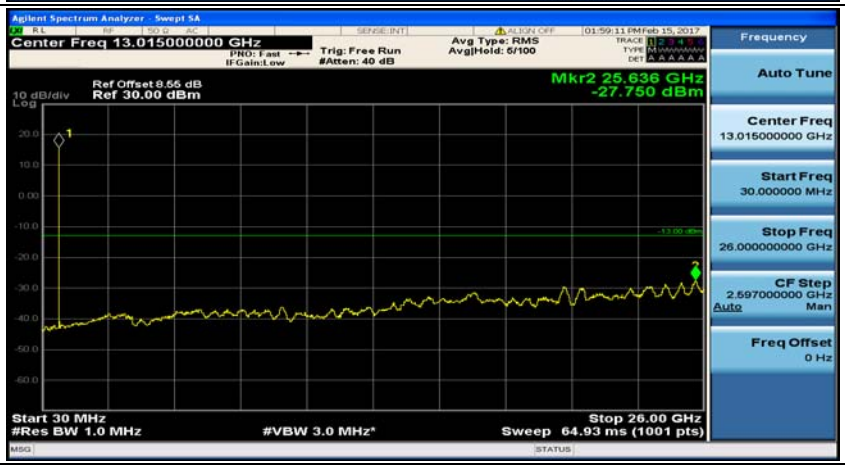


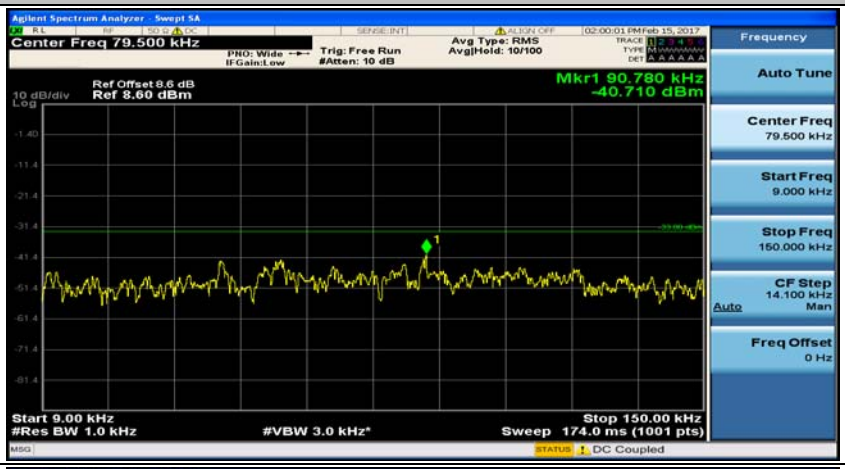
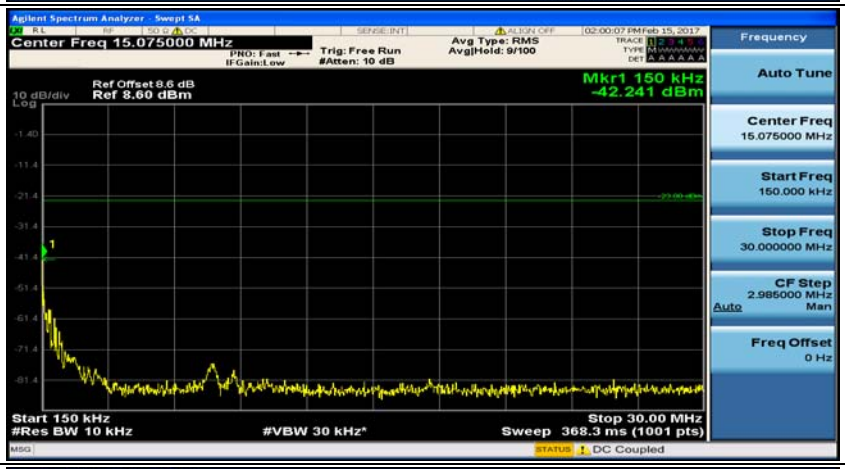
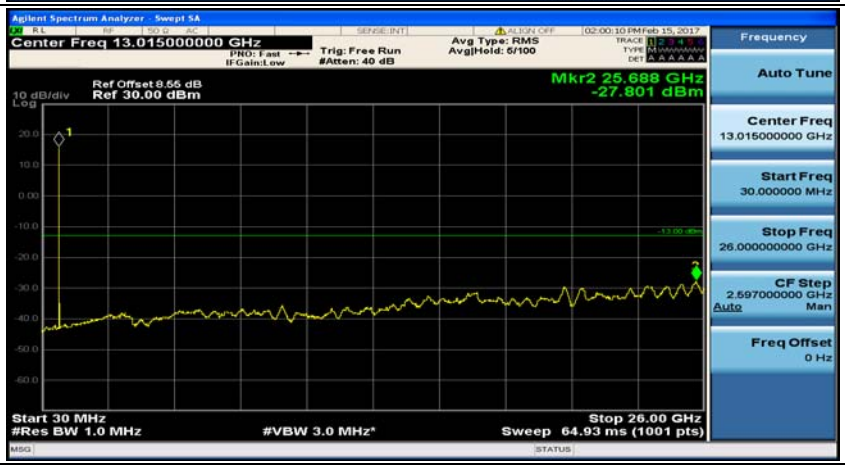


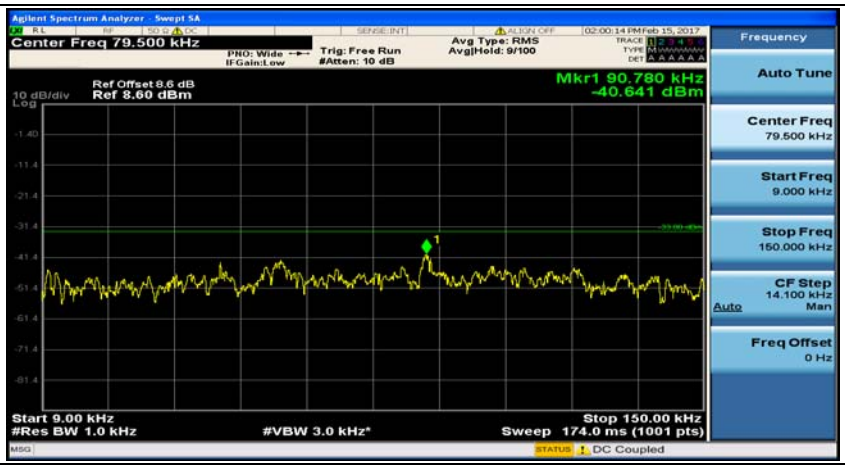
Channel Bandwidth: 10 MHz_LCH_QPSK_1RB#49

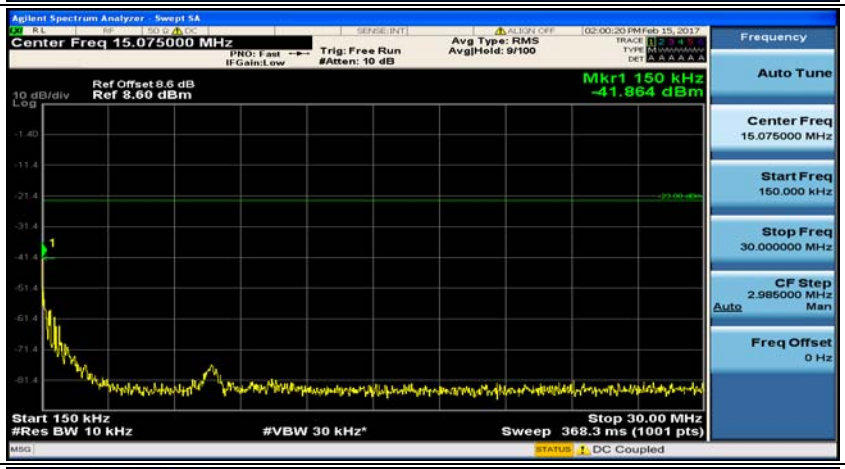

Agilent Spectrum Analyzer - Swept SA
Center Freq 79.500 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 9/100
01:59:02 PM Feb 15, 2017
Frequency
Auto Tune
Mkr1 88.101 kHz
-42.169 dBm
Ref Offset 8.6 dB
10 dB/div
Log
Ref 8.60 dBm
Center Freq
79.500 kHz
Start Freq
9.000 kHz
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

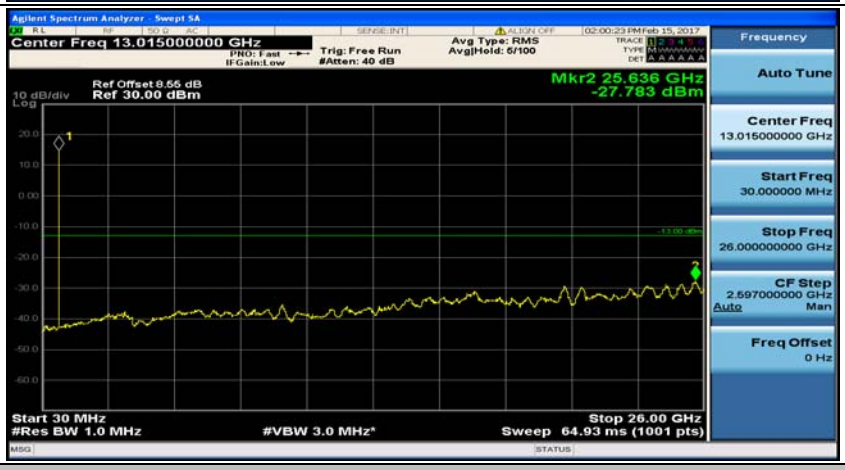

Agilent Spectrum Analyzer - Swept SA
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 9/100
01:59:07 PM Feb 15, 2017
Frequency
Auto Tune
Mkr1 150 kHz
-42.445 dBm
Ref Offset 8.6 dB
10 dB/div
Log
Ref 8.60 dBm
Center Freq
15.075000 MHz
Start Freq
150.000 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
01:59:11 PM Feb 15, 2017
Frequency
Auto Tune
Mkr2 25.636 GHz
-27.750 dBm
Ref Offset 8.55 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)

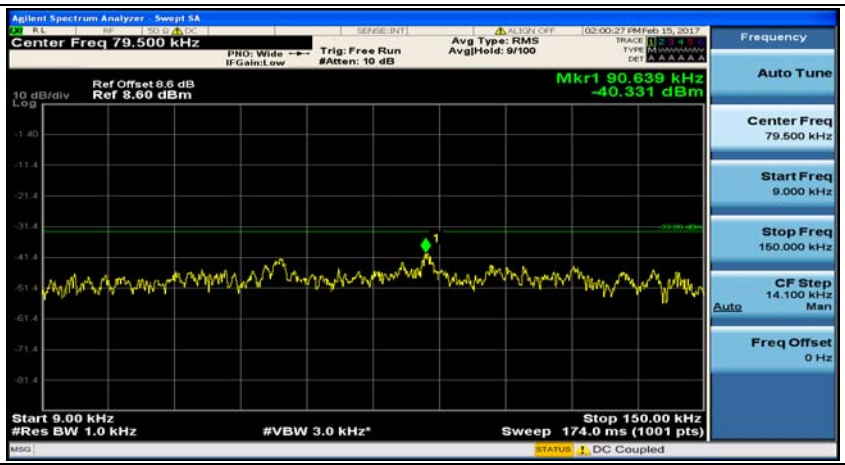
Channel Bandwidth: 10 MHz_MCH_QPSK_1RB#0



Channel Bandwidth: 10 MHz_MCH_QPSK_1RB#24

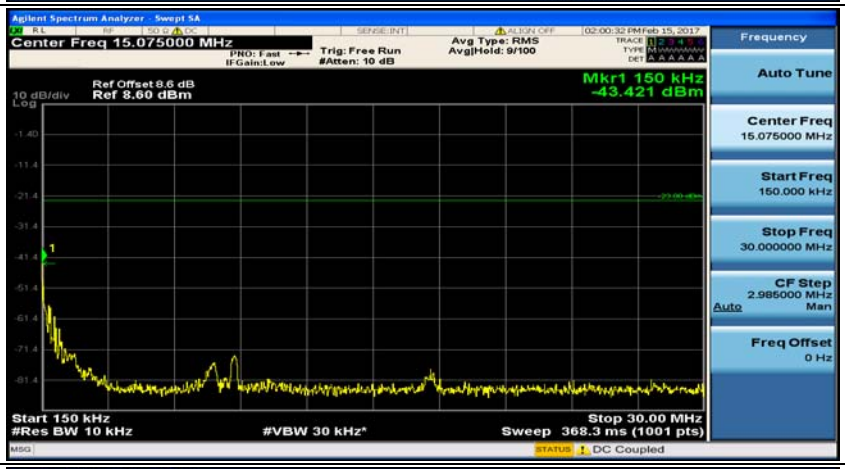


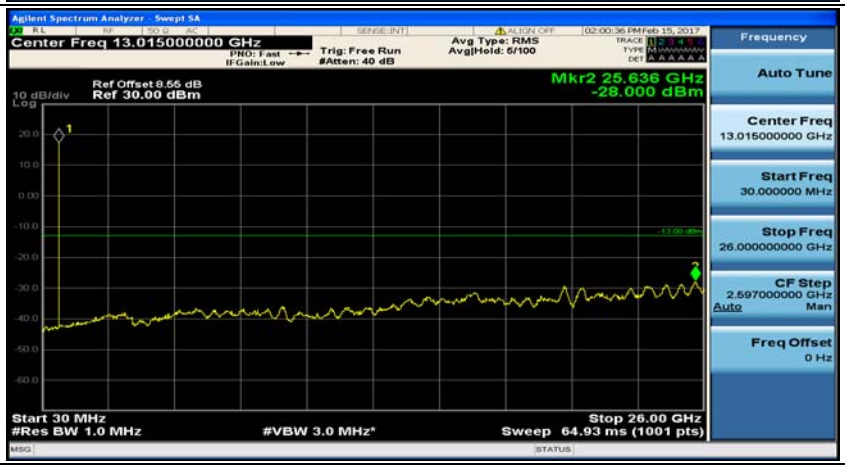


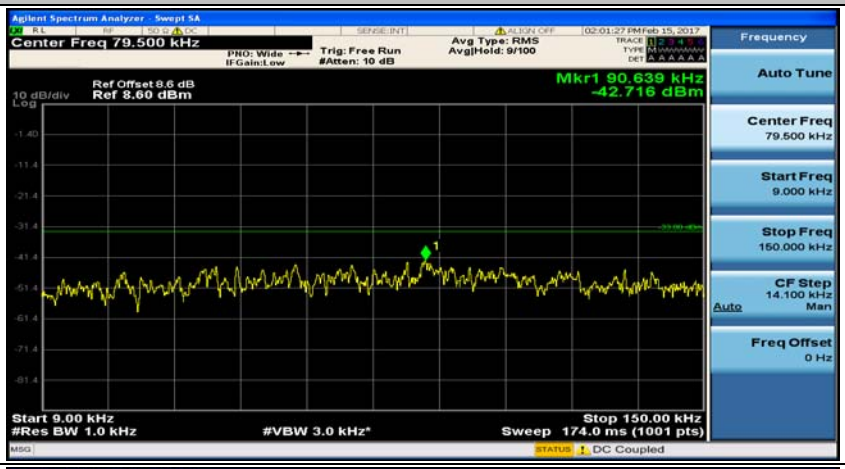
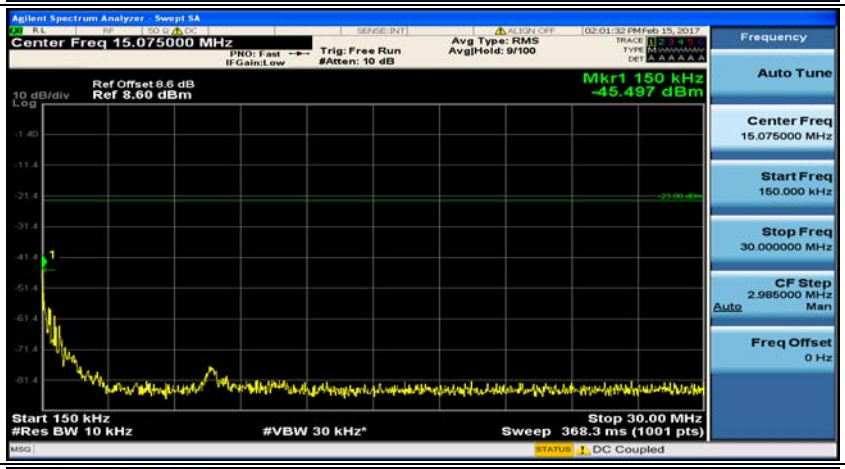
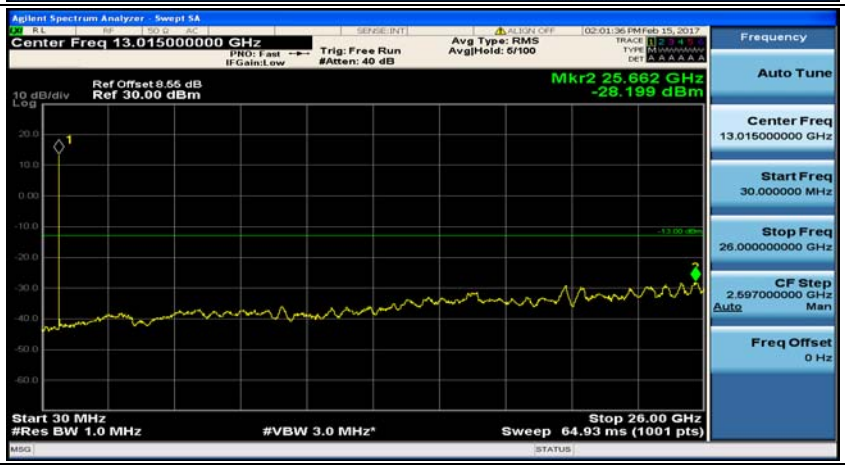


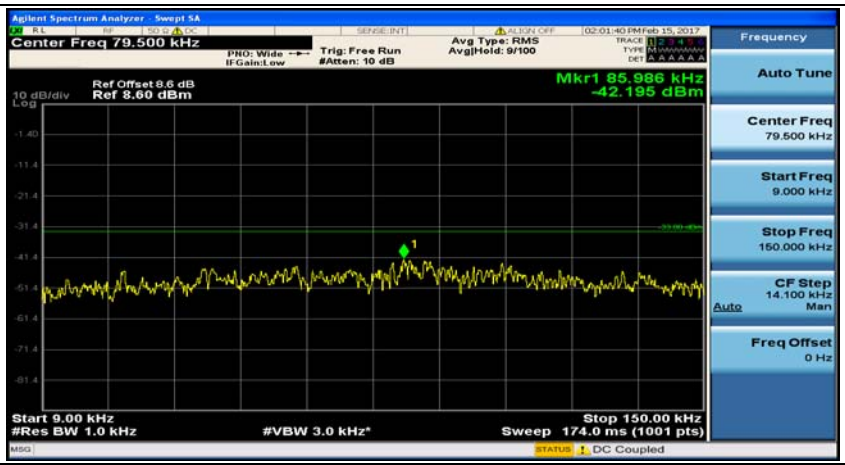
Channel Bandwidth: 10 MHz_MCH_QPSK_1RB#49

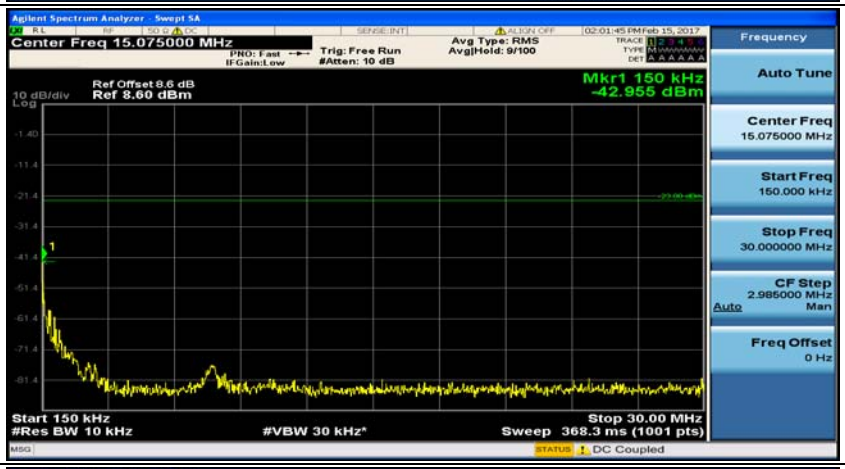

Agilent Spectrum Analyzer - Swept SA
Center Freq 79.500 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 9/100
02:00:27 PM Feb 15, 2017
Ref Offset 8.6 dB
10 dB/div
Log
Ref 8.60 dBm
Mkr1 90.639 kHz
-40.331 dBm
Start 9.00 kHz
#Res BW 1.0 kHz
#VBW 3.0 kHz*
Stop 150.00 kHz
Sweep 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

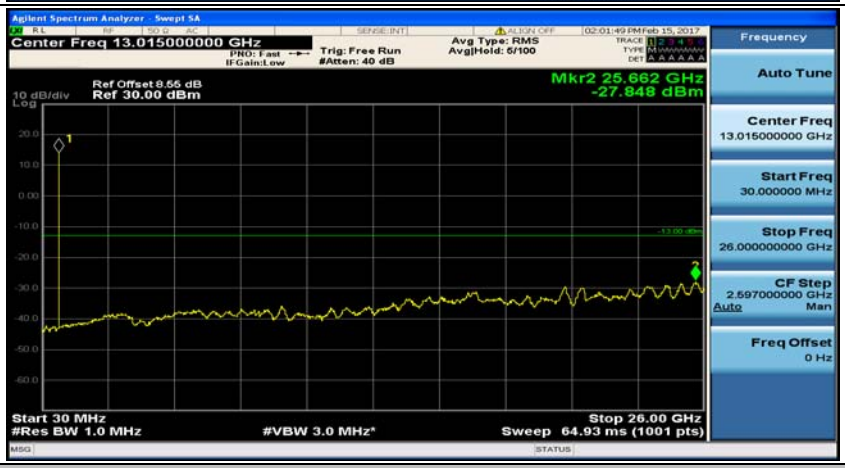

Agilent Spectrum Analyzer - Swept SA
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 9/100
02:00:32 PM Feb 15, 2017
Ref Offset 8.6 dB
10 dB/div
Log
Ref 8.60 dBm
Mkr1 150 kHz
-43.421 dBm
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz*
Stop 30.00 MHz
Sweep 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
02:00:36 PM Feb 15, 2017
Ref Offset 8.55 dB
10 dB/div
Log
Ref 30.00 dBm
Mkr2 25.636 GHz
-28.000 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

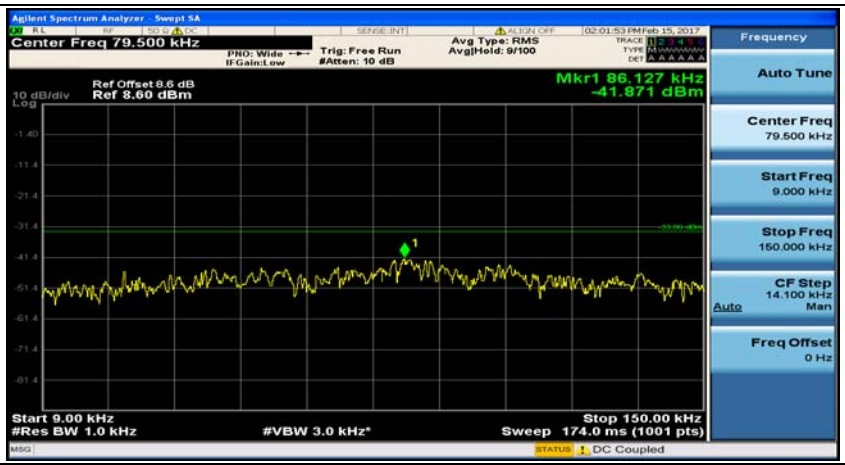
Channel Bandwidth: 10 MHz_HCH_QPSK_1RB#0



Channel Bandwidth: 10 MHz_HCH_QPSK_1RB#24

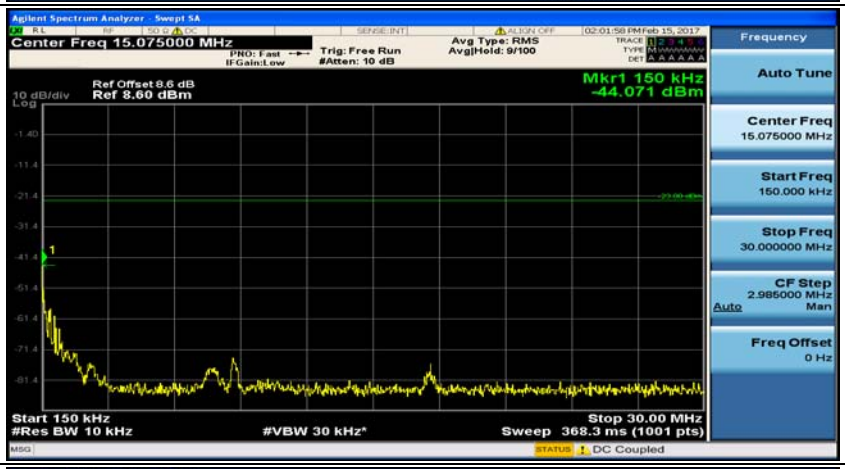


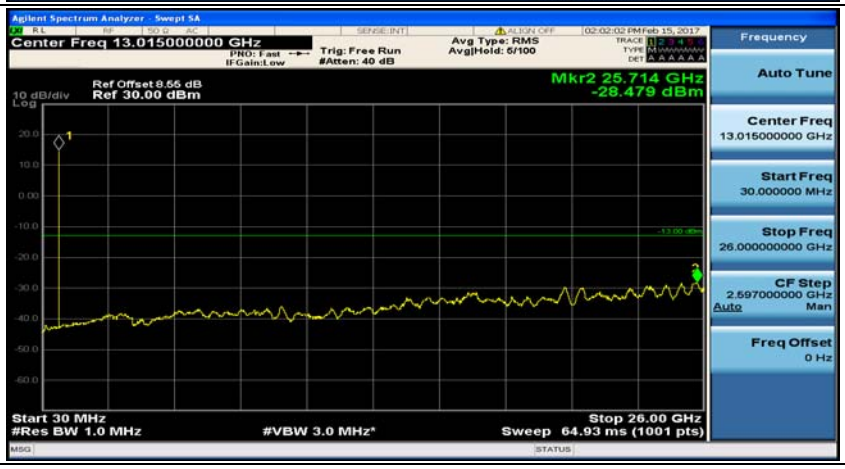


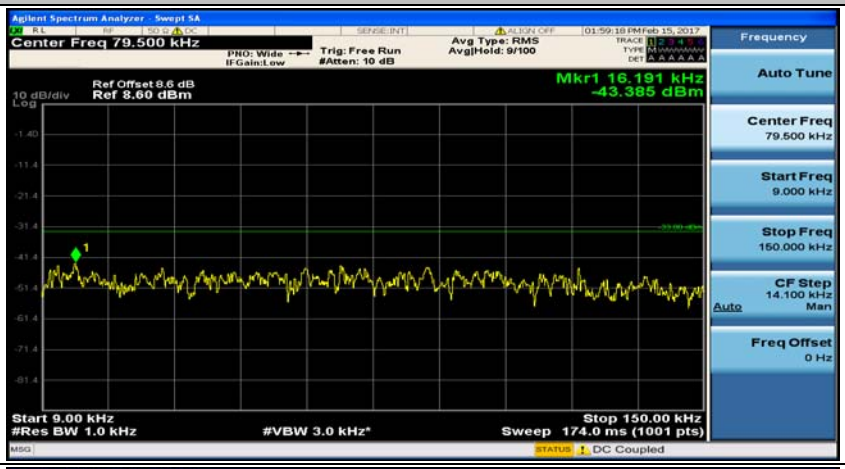
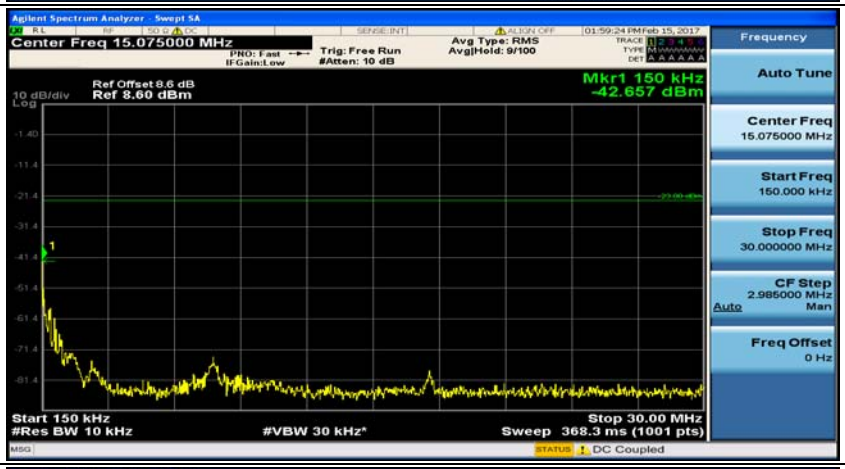
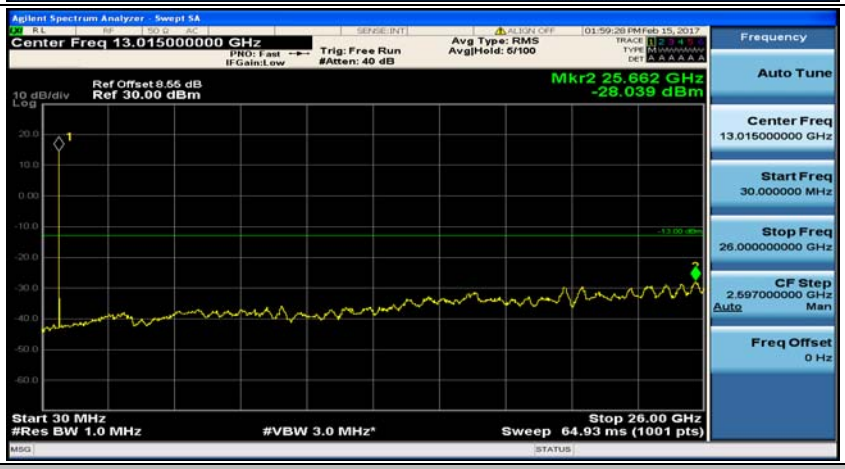


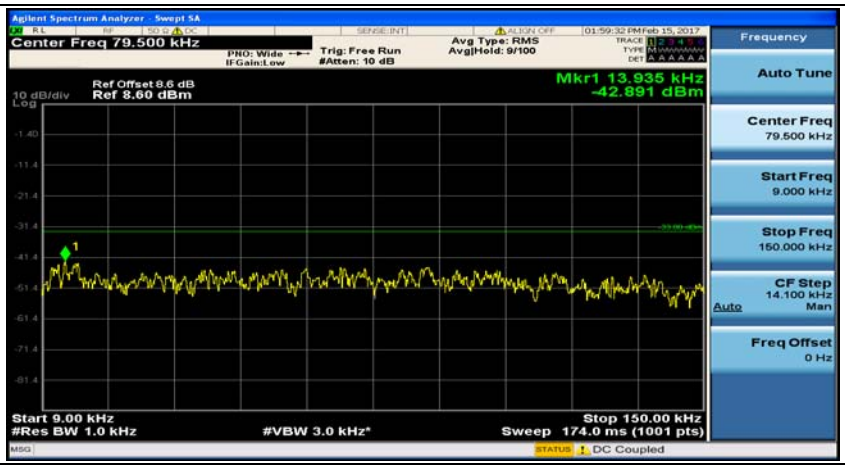
Channel Bandwidth: 10 MHz_HCH_QPSK_1RB#49

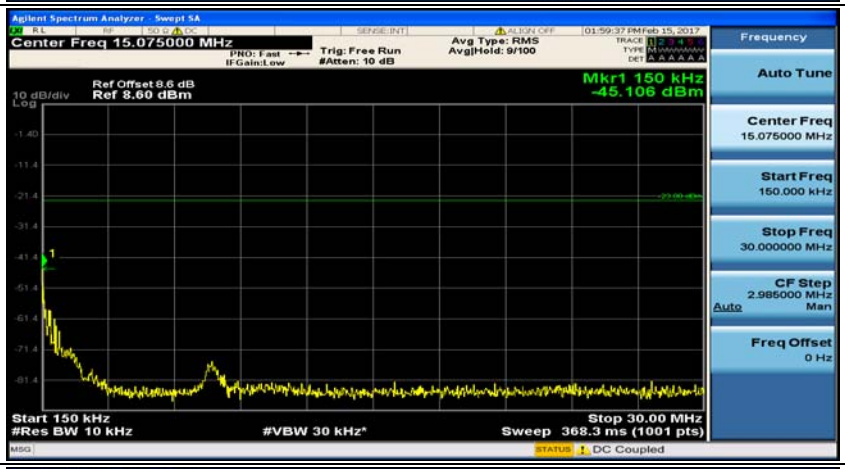

Agilent Spectrum Analyzer - Swept SA
Center Freq 79.500 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 9/100
02:01:53 PM Feb 15, 2017
Ref Offset 8.6 dB
10 dB/div
Log
Ref 8.60 dBm
Mkr1 86.127 kHz
-41.871 dBm
Start 9.00 kHz
#Res BW 1.0 kHz
#VBW 3.0 kHz*
Stop 150.00 kHz
Sweep 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

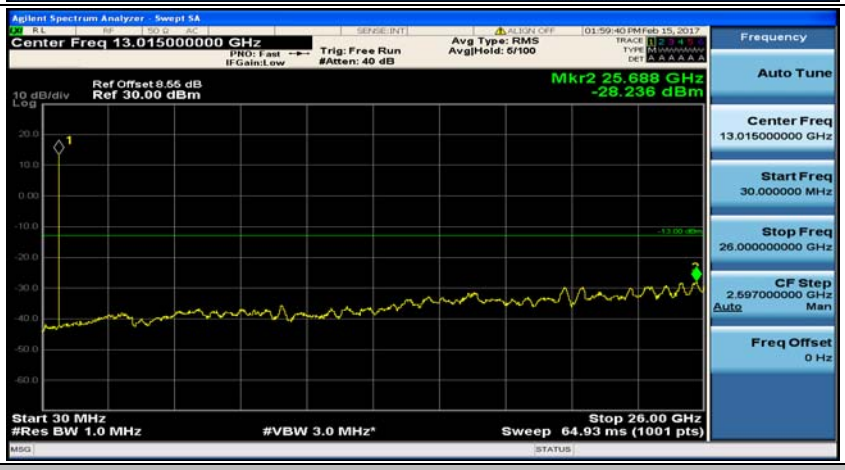

Agilent Spectrum Analyzer - Swept SA
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 9/100
02:01:58 PM Feb 15, 2017
Ref Offset 8.6 dB
10 dB/div
Log
Ref 8.60 dBm
Mkr1 150 kHz
-44.071 dBm
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz*
Stop 30.00 MHz
Sweep 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
02:02:02 PM Feb 15, 2017
Ref Offset 8.55 dB
10 dB/div
Log
Ref 30.00 dBm
Mkr2 25.714 GHz
-28.479 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

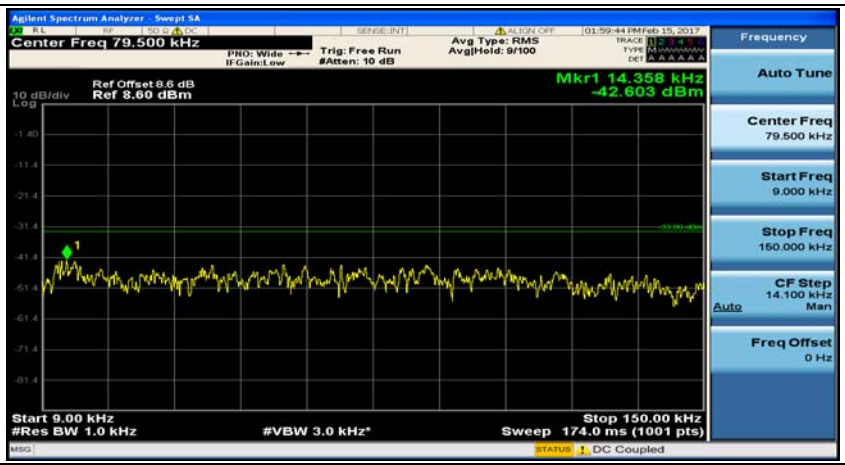
Channel Bandwidth: 10 MHz_LCH_16QAM_1RB#0



Channel Bandwidth: 10 MHz_LCH_16QAM_1RB#24

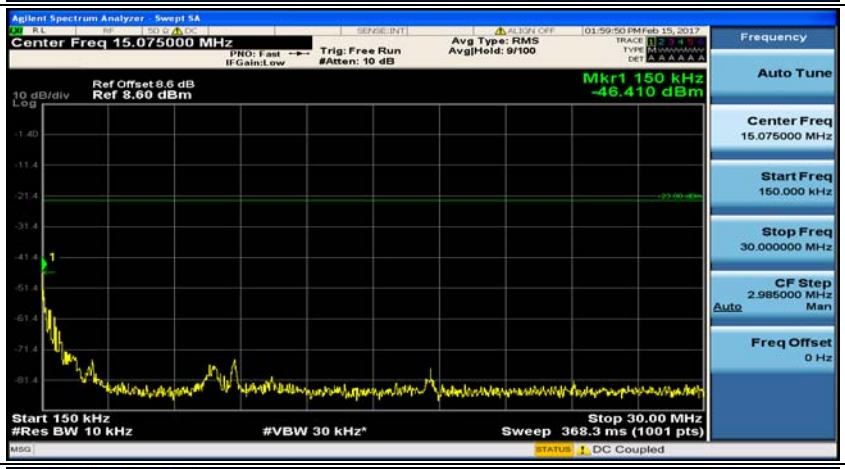


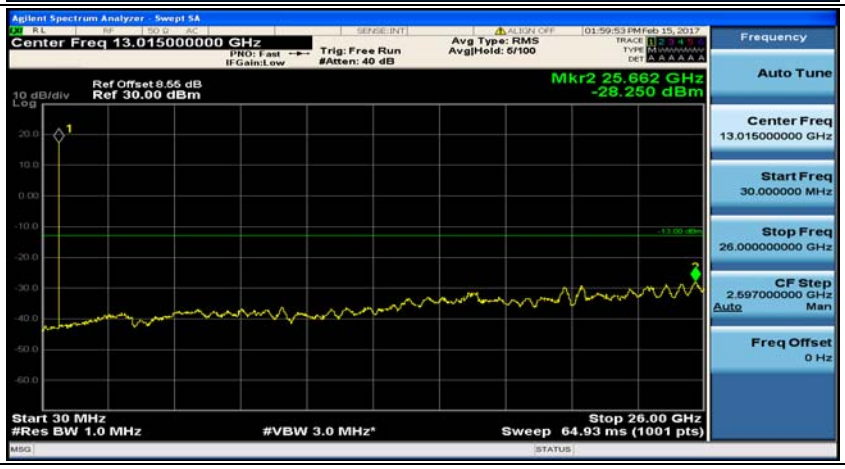


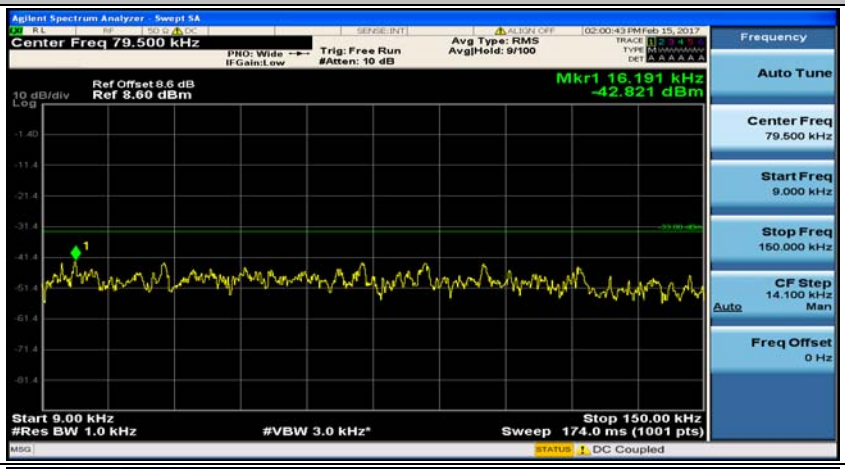
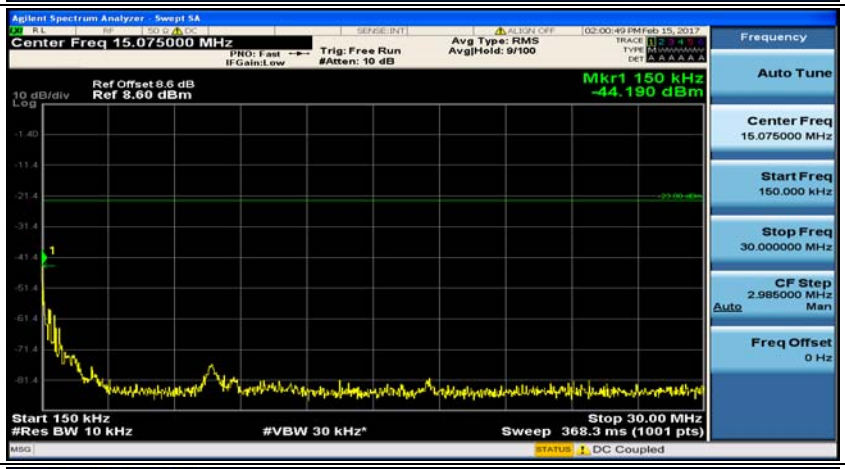
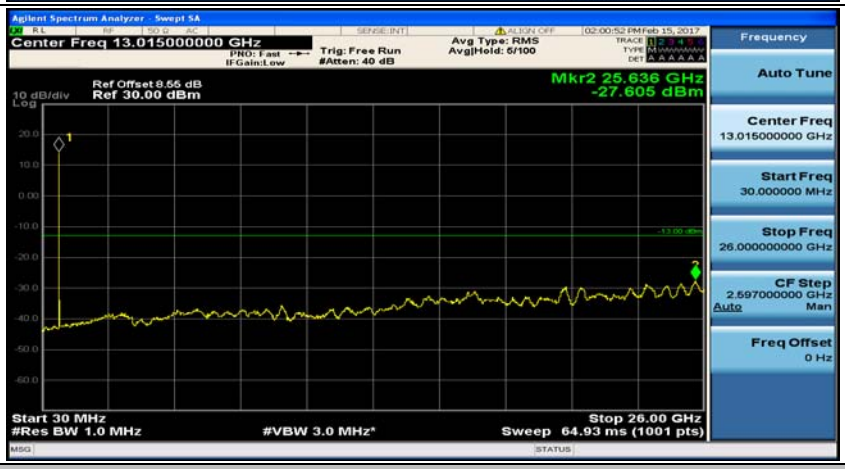


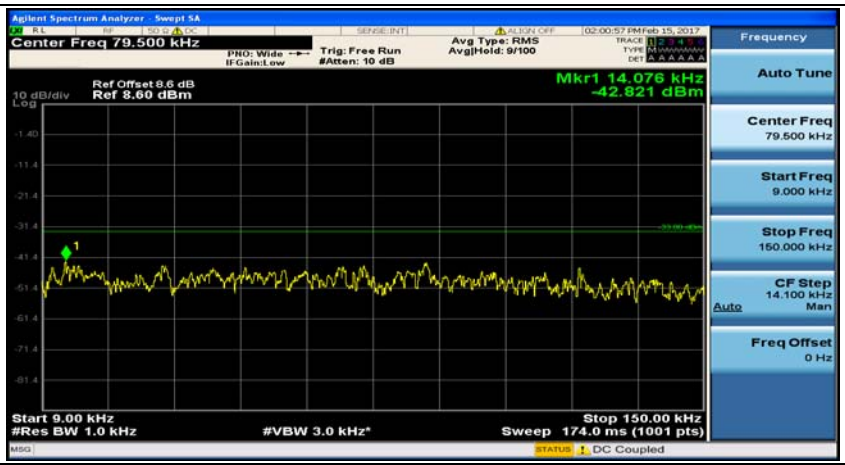
Channel Bandwidth: 10 MHz_LCH_16QAM_1RB#49

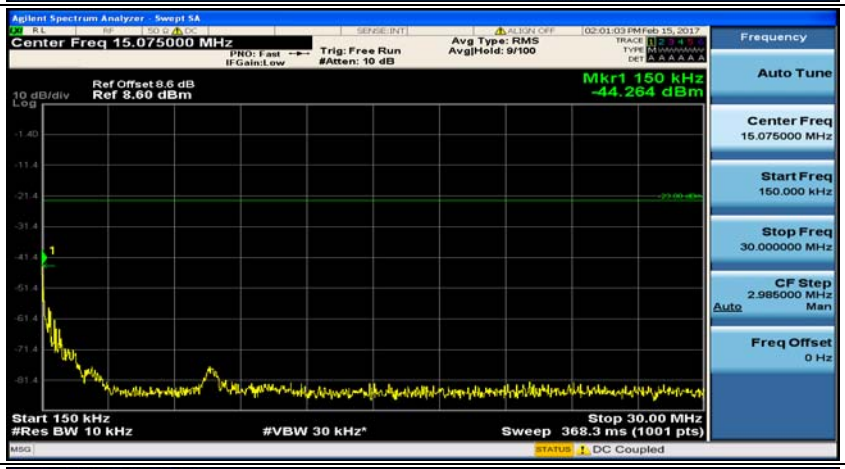

Agilent Spectrum Analyzer - Swept SA
Center Freq 79.500 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 9/100
01:59:44 PM Feb 15, 2017
Ref Offset 8.6 dB
10 dB/div
Log
Ref 8.60 dBm
Mkr1 14.358 kHz
-42.603 dBm
Start 9.00 kHz
#Res BW 1.0 kHz
#VBW 3.0 kHz*
Stop 150.00 kHz
Sweep 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

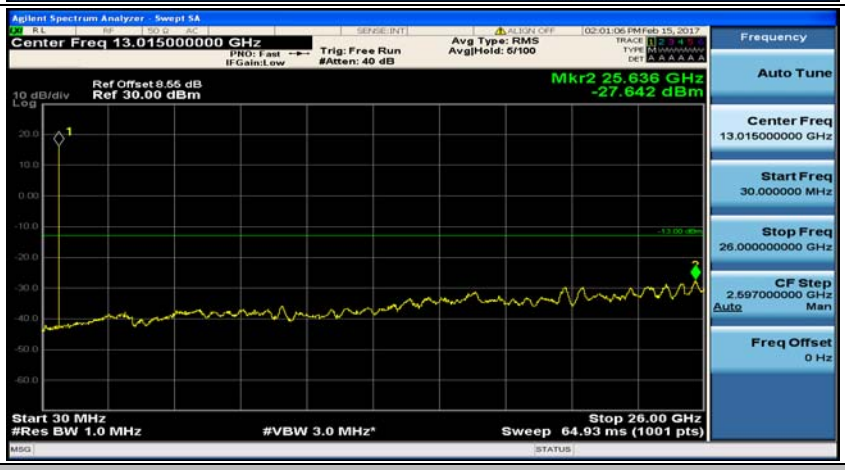

Agilent Spectrum Analyzer - Swept SA
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 9/100
01:59:50 PM Feb 15, 2017
Ref Offset 8.6 dB
10 dB/div
Log
Ref 8.60 dBm
Mkr1 150 kHz
-46.410 dBm
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz*
Stop 30.00 MHz
Sweep 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
01:59:53 PM Feb 15, 2017
Ref Offset 8.55 dB
10 dB/div
Log
Ref 30.00 dBm
Mkr2 25.662 GHz
-28.250 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

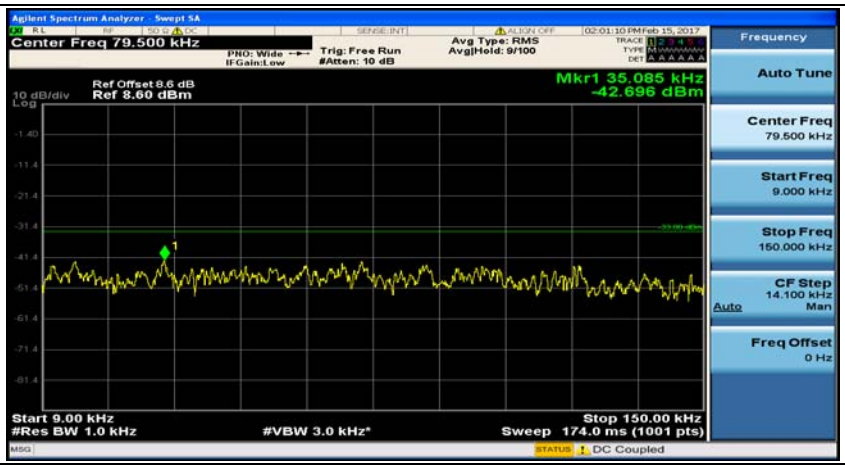
Channel Bandwidth: 10 MHz_MCH_16QAM_1RB#0



Channel Bandwidth: 10 MHz_MCH_16QAM_1RB#24

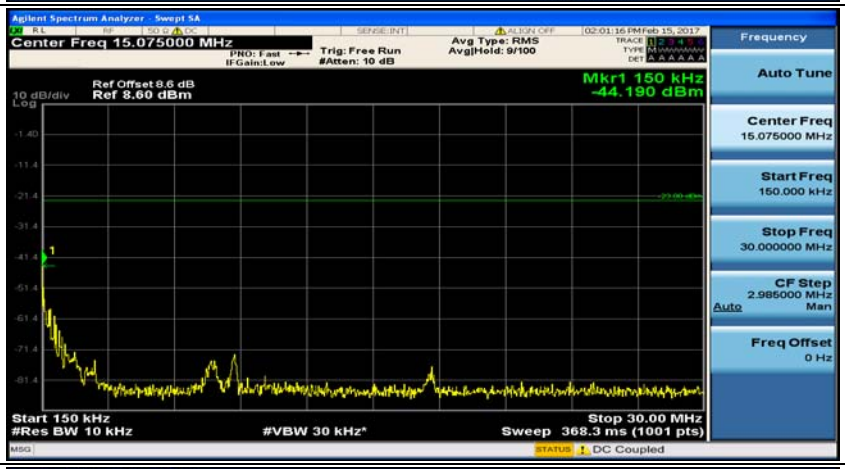


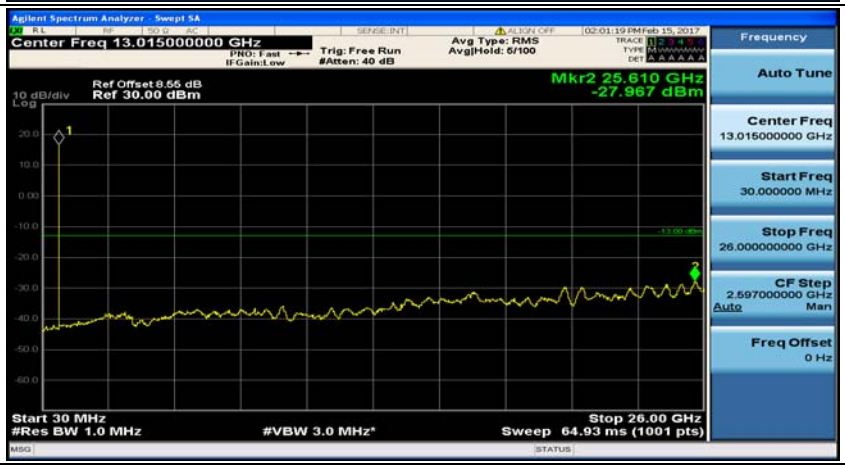


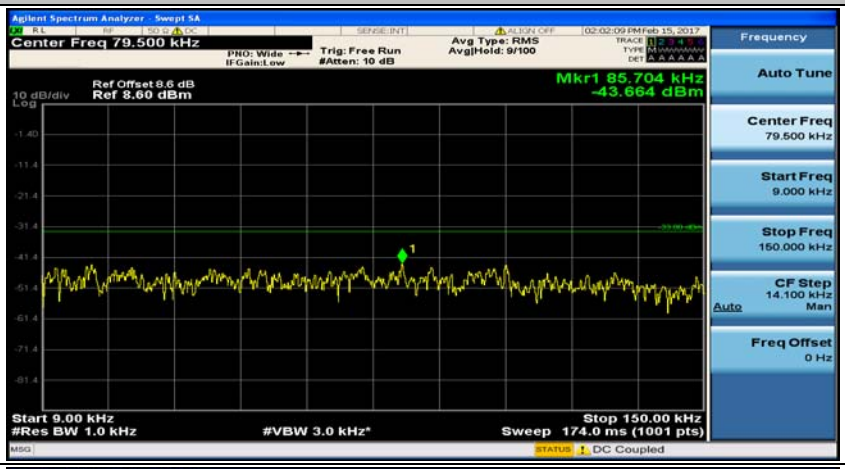
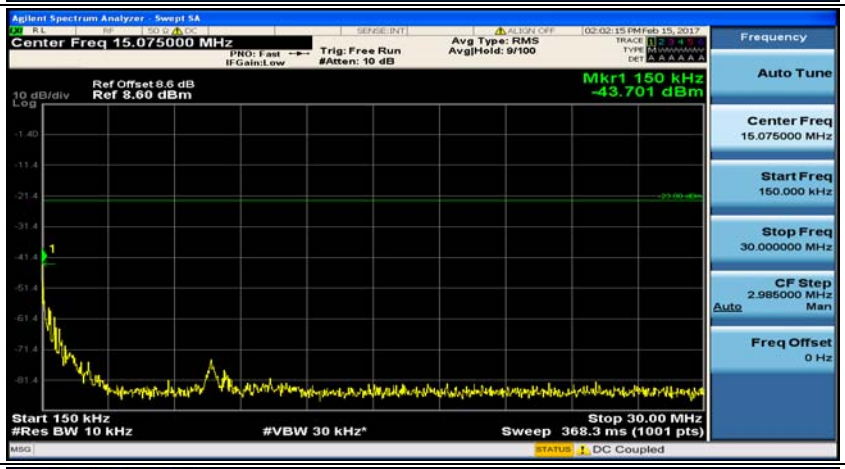
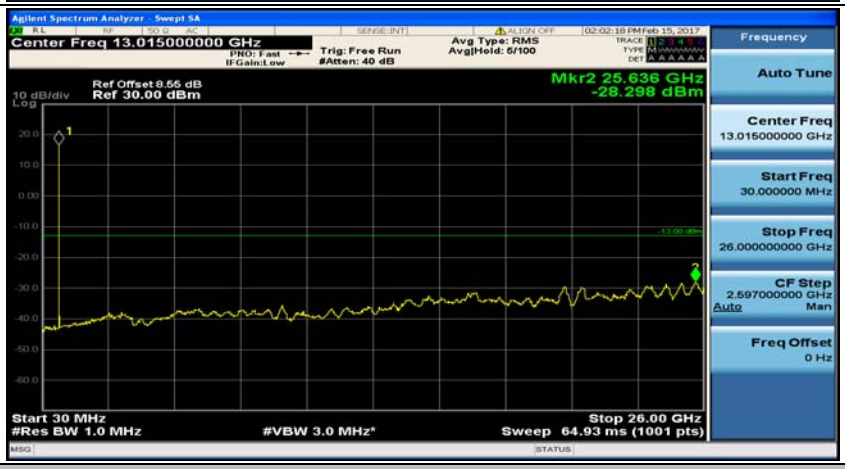


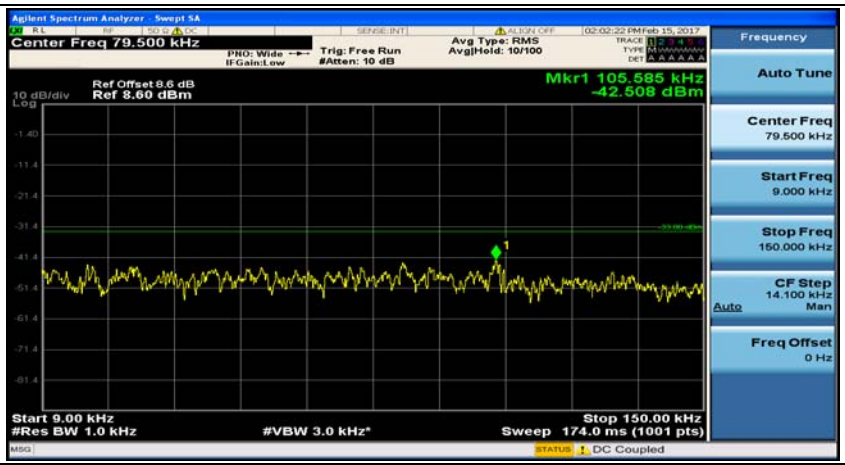
Channel Bandwidth: 10 MHz_MCH_16QAM_1RB#49

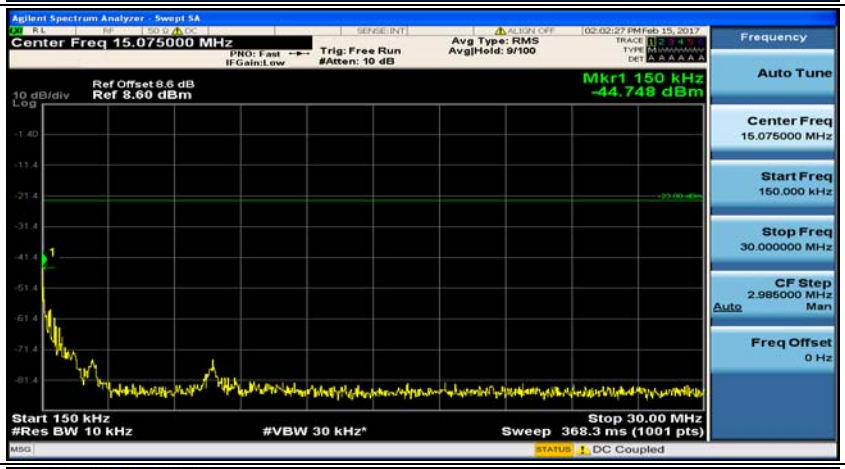

Agilent Spectrum Analyzer - Swept SA
Center Freq 79.500 kHz
PNO: Wide
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 9/100
02:01:10 PM Feb 15, 2017
Ref Offset 8.6 dB
10 dB/div
Log
Ref 8.60 dBm
Mkr1 35.085 kHz
-42.696 dBm
Start 9.00 kHz
#Res BW 1.0 kHz
#VBW 3.0 kHz*
Stop 150.00 kHz
Sweep 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

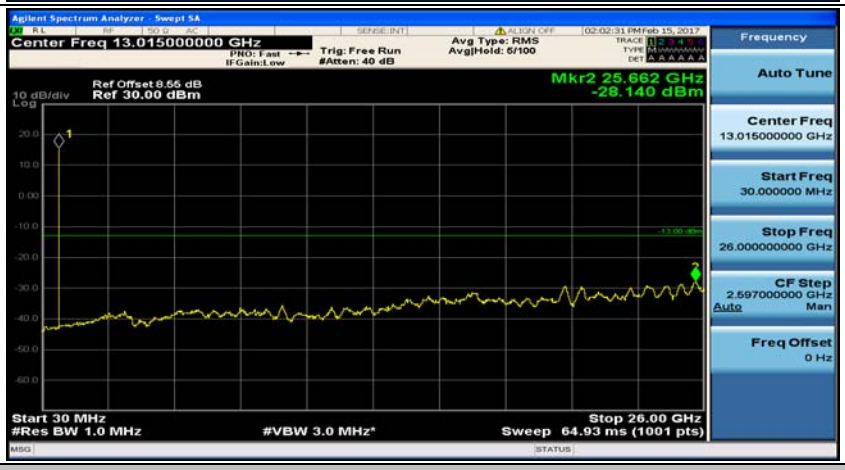

Agilent Spectrum Analyzer - Swept SA
Center Freq 15.075000 MHz
PNO: Fast
IFGain:Low
Trig: Free Run
#Atten: 10 dB
Avg Type: RMS
Avg|Hold: 9/100
02:01:16 PM Feb 15, 2017
Ref Offset 8.6 dB
10 dB/div
Log
Ref 8.60 dBm
Mkr1 150 kHz
-44.190 dBm
Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz*
Stop 30.00 MHz
Sweep 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
02:01:19 PM Feb 15, 2017
Ref Offset 8.55 dB
10 dB/div
Log
Ref 30.00 dBm
Mkr2 25.610 GHz
-27.967 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

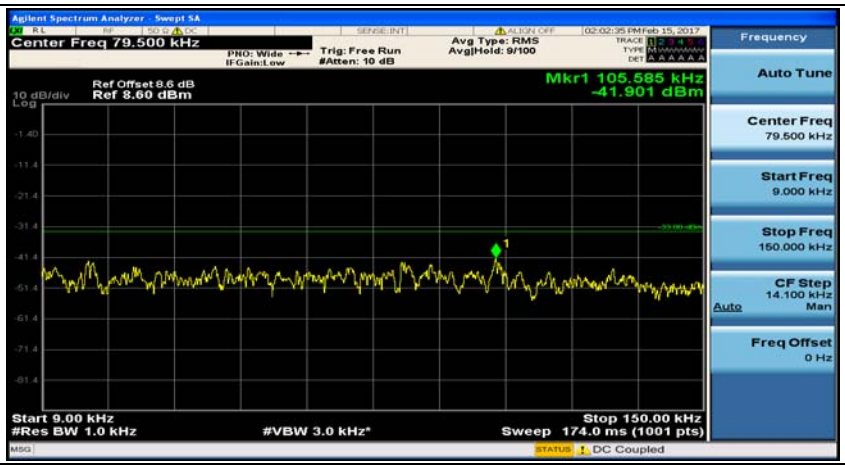
Channel Bandwidth: 10 MHz_HCH_16QAM_1RB#0



Channel Bandwidth: 10 MHz_HCH_16QAM_1RB#24

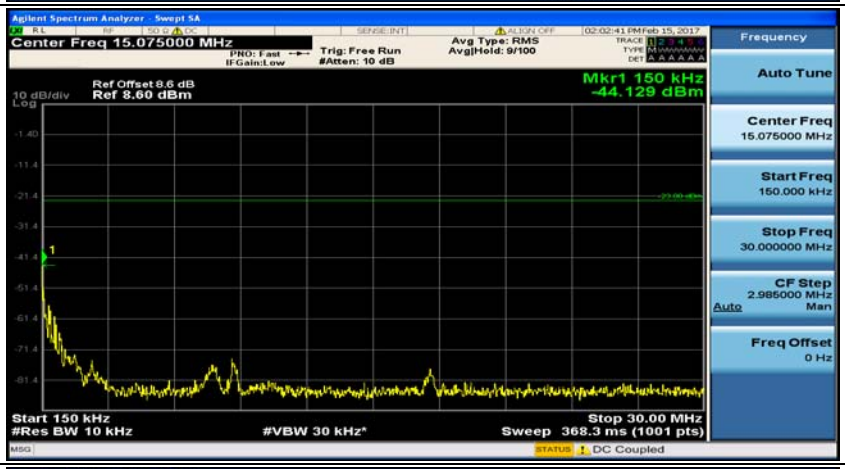


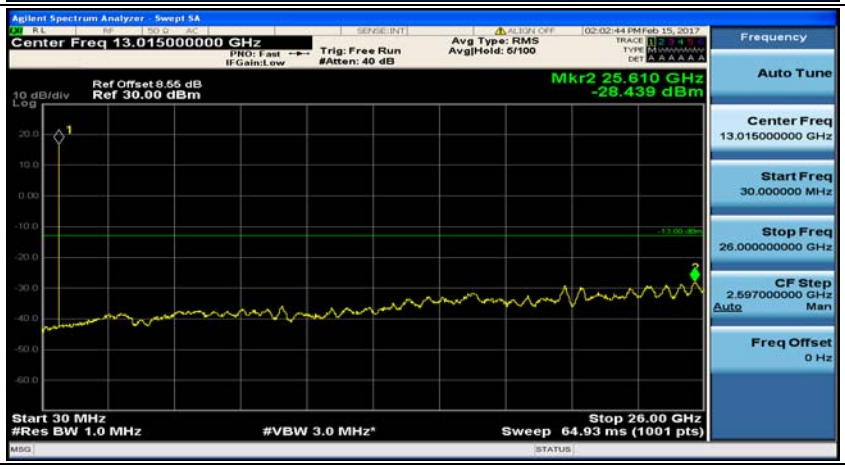




Channel Bandwidth: 10 MHz_HCH_16QAM_1RB#49


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
02:02:35 PM Feb 15, 2017
Ref Offset 8.6 dB
10 dB/div
Log
Ref 8.60 dBm
Mkr1 105.585 kHz
-41.901 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
02:02:41 PM Feb 15, 2017
Ref Offset 8.6 dB
10 dB/div
Log
Ref 8.60 dBm
Mkr1 150 kHz
-44.129 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
02:02:44 PM Feb 15, 2017
Ref Offset 8.55 dB
10 dB/div
Log
Ref 30.00 dBm
Mkr2 25.610 GHz
-28.439 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	0.71	0.001005	± 2.5	PASS
		VN	TN	0.28	0.000396	± 2.5	PASS
		VH	TN	0.2	0.000283	± 2.5	PASS
	MCH	VL	TN	-1.1	-0.001549	± 2.5	PASS
		VN	TN	2.54	0.003577	± 2.5	PASS
		VH	TN	-0.12	-0.000169	± 2.5	PASS
	HCH	VL	TN	-0.65	-0.000911	± 2.5	PASS
		VN	TN	1.59	0.002228	± 2.5	PASS
		VH	TN	1.5	0.002102	± 2.5	PASS
16QAM	LCH	VL	TN	2.42	0.003425	± 2.5	PASS
		VN	TN	2.4	0.003397	± 2.5	PASS
		VH	TN	1.26	0.001783	± 2.5	PASS
	MCH	VL	TN	4.37	0.006155	± 2.5	PASS
		VN	TN	-0.87	-0.001225	± 2.5	PASS
		VH	TN	0.63	0.000887	± 2.5	PASS
	HCH	VL	TN	-0.91	-0.001275	± 2.5	PASS
		VN	TN	0.68	0.000953	± 2.5	PASS
		VH	TN	-0.65	-0.000911	± 2.5	PASS
Temperature							
Modulation	Channel	Voltage [Vdc]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
QPSK	LCH	VN	-30	0.58	0.000821	± 2.5	PASS
		VN	-20	-0.48	-0.000679	± 2.5	PASS
		VN	-10	2.66	0.003765	± 2.5	PASS
		VN	0	0.14	0.000198	± 2.5	PASS
		VN	10	4.57	0.006469	± 2.5	PASS
		VN	20	-0.9	-0.001274	± 2.5	PASS
		VN	30	0.15	0.000212	± 2.5	PASS
		VN	40	4.24	0.006001	± 2.5	PASS
		VN	50	0.78	0.001104	± 2.5	PASS
	MCH	VN	-30	-1.7	-0.002394	± 2.5	PASS
		VN	-20	0.25	0.000352	± 2.5	PASS
		VN	-10	3.45	0.004859	± 2.5	PASS

		VN	0	4.15	0.005845	± 2.5	PASS
		VN	10	2.74	0.003859	± 2.5	PASS
		VN	20	2.67	0.003761	± 2.5	PASS
		VN	30	2.56	0.003606	± 2.5	PASS
		VN	40	-0.82	-0.001155	± 2.5	PASS
		VN	50	2.75	0.003873	± 2.5	PASS
	HCH	VN	-30	4.01	0.005620	± 2.5	PASS
		VN	-20	-0.36	-0.000505	± 2.5	PASS
		VN	-10	0.38	0.000533	± 2.5	PASS
		VN	0	2.44	0.003420	± 2.5	PASS
		VN	10	-0.98	-0.001374	± 2.5	PASS
		VN	20	3.99	0.005592	± 2.5	PASS
		VN	30	0.25	0.000350	± 2.5	PASS
		VN	40	3.86	0.005410	± 2.5	PASS
		VN	50	2.58	0.003616	± 2.5	PASS
16QAM	LCH	VN	-30	1.24	0.001755	± 2.5	PASS
		VN	-20	0.03	0.000042	± 2.5	PASS
		VN	-10	0.86	0.001217	± 2.5	PASS
		VN	0	2.25	0.003185	± 2.5	PASS
		VN	10	1.03	0.001458	± 2.5	PASS
		VN	20	0.31	0.000439	± 2.5	PASS
		VN	30	0.64	0.000906	± 2.5	PASS
		VN	40	0.24	0.000340	± 2.5	PASS
		VN	50	-0.39	-0.000552	± 2.5	PASS
	MCH	VN	-30	3.57	0.005004	± 2.5	PASS
		VN	-20	-0.95	-0.001331	± 2.5	PASS
		VN	-10	3.66	0.005130	± 2.5	PASS
		VN	0	2.59	0.003630	± 2.5	PASS
		VN	10	4.33	0.006069	± 2.5	PASS
		VN	20	0.77	0.001079	± 2.5	PASS
		VN	30	3.41	0.004779	± 2.5	PASS
		VN	40	0.91	0.001275	± 2.5	PASS
		VN	50	1.12	0.001570	± 2.5	PASS
	HCH	VN	-30	-0.09	-0.000126	± 2.5	PASS
		VN	-20	-1.99	-0.002789	± 2.5	PASS
		VN	-10	1.23	0.001724	± 2.5	PASS
		VN	0	0.86	0.001205	± 2.5	PASS
		VN	10	3.59	0.005032	± 2.5	PASS
		VN	20	3.45	0.004835	± 2.5	PASS
		VN	30	-0.17	-0.000238	± 2.5	PASS
		VN	40	-0.43	-0.000603	± 2.5	PASS

		VN	50	-1.22	-0.001710	± 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	3.96	0.005585	± 2.5	PASS
		VN	TN	-1.2	-0.001693	± 2.5	PASS
		VH	TN	4.55	0.006417	± 2.5	PASS
	MCH	VL	TN	0.14	0.000197	± 2.5	PASS
		VN	TN	0.25	0.000352	± 2.5	PASS
		VH	TN	4.1	0.005775	± 2.5	PASS
	HCH	VL	TN	-1.39	-0.001955	± 2.5	PASS
		VN	TN	0.23	0.000323	± 2.5	PASS
		VH	TN	-0.85	-0.001195	± 2.5	PASS
16QAM	LCH	VL	TN	-1.63	-0.002299	± 2.5	PASS
		VN	TN	3.32	0.004683	± 2.5	PASS
		VH	TN	-0.07	-0.000099	± 2.5	PASS
	MCH	VL	TN	0.56	0.000789	± 2.5	PASS
		VN	TN	1.12	0.001577	± 2.5	PASS
		VH	TN	2.97	0.004183	± 2.5	PASS
	HCH	VL	TN	0.97	0.001364	± 2.5	PASS
		VN	TN	2.77	0.003896	± 2.5	PASS
		VH	TN	2.01	0.002827	± 2.5	PASS
Temperature							
Modulation	Channel	Voltage [Vdc]	Temperature (℃)	Deviation (Hz)	Deviation (ppm)	Limit (ppm)	Verdict
16QAM	LCH	VN	-30	1.87	0.002638	± 2.5	PASS
		VN	-20	2.99	0.004217	± 2.5	PASS
		VN	-10	0.12	0.000169	± 2.5	PASS
		VN	0	4.13	0.005825	± 2.5	PASS
		VN	10	3.52	0.004965	± 2.5	PASS
		VN	20	3.62	0.005106	± 2.5	PASS
		VN	30	-1.5	-0.002116	± 2.5	PASS
		VN	40	-1.42	-0.002003	± 2.5	PASS
		VN	50	-0.45	-0.000635	± 2.5	PASS
	MCH	VN	-30	-1.79	-0.002521	± 2.5	PASS
		VN	-20	4.75	0.006690	± 2.5	PASS
		VN	-10	-0.12	-0.000169	± 2.5	PASS
		VN	0	4.71	0.006634	± 2.5	PASS

		VN	10	0.2	0.000282	± 2.5	PASS
		VN	20	-1.67	-0.002352	± 2.5	PASS
		VN	30	-0.18	-0.000254	± 2.5	PASS
		VN	40	1.23	0.001732	± 2.5	PASS
		VN	50	-0.55	-0.000775	± 2.5	PASS
	HCH	VN	-30	2.81	0.003952	± 2.5	PASS
		VN	-20	0.47	0.000661	± 2.5	PASS
		VN	-10	0.64	0.000900	± 2.5	PASS
		VN	0	0.42	0.000591	± 2.5	PASS
		VN	10	0.1	0.000141	± 2.5	PASS
		VN	20	2.61	0.003671	± 2.5	PASS
		VN	30	1.67	0.002349	± 2.5	PASS
		VN	40	1.65	0.002321	± 2.5	PASS
		VN	50	1.68	0.002363	± 2.5	PASS
	LCH	VN	-30	-1.11	-0.001563	± 2.5	PASS
		VN	-20	0.27	0.000380	± 2.5	PASS
		VN	-10	-1.48	-0.002085	± 2.5	PASS
		VN	0	3.46	0.004873	± 2.5	PASS
		VN	10	3.96	0.005577	± 2.5	PASS
		VN	20	0.85	0.001197	± 2.5	PASS
		VN	30	1.4	0.001972	± 2.5	PASS
		VN	40	0.16	0.000225	± 2.5	PASS
		VN	50	4.02	0.005662	± 2.5	PASS
QPSK	MCH	VN	-30	-1.13	-0.001589	± 2.5	PASS
		VN	-20	1.16	0.001632	± 2.5	PASS
		VN	-10	4.99	0.007018	± 2.5	PASS
		VN	0	0.34	0.000478	± 2.5	PASS
		VN	10	2.89	0.004065	± 2.5	PASS
		VN	20	-0.18	-0.000253	± 2.5	PASS
		VN	30	-1.16	-0.001632	± 2.5	PASS
		VN	40	4.71	0.006624	± 2.5	PASS
		VN	50	1.84	0.002588	± 2.5	PASS
	HCH	VN	-30	4.69	0.006596	± 2.5	PASS
		VN	-20	-0.35	-0.000492	± 2.5	PASS
		VN	-10	4.73	0.006653	± 2.5	PASS
		VN	0	-0.28	-0.000394	± 2.5	PASS
		VN	10	2.06	0.002897	± 2.5	PASS
		VN	20	1.61	0.002264	± 2.5	PASS
		VN	30	-1.74	-0.002447	± 2.5	PASS
		VN	40	3.24	0.004557	± 2.5	PASS
		VN	50	0.09	0.000127	± 2.5	PASS