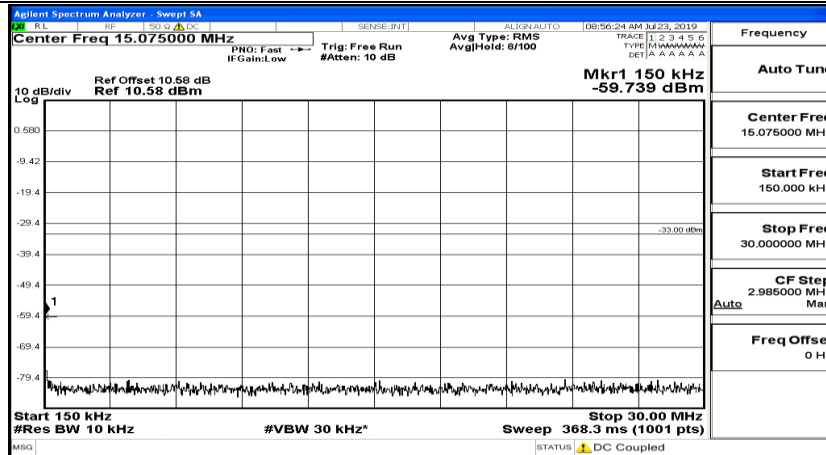
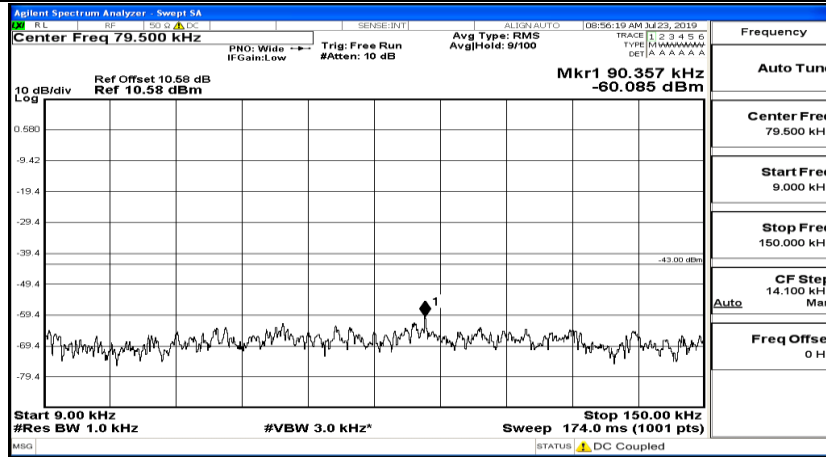
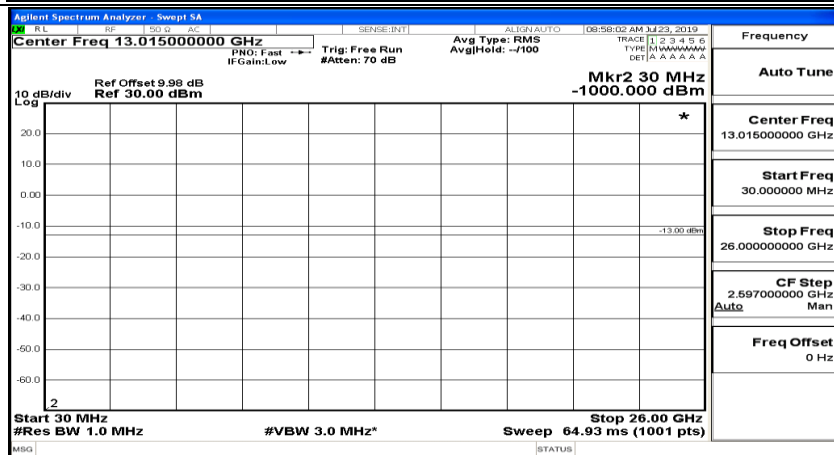
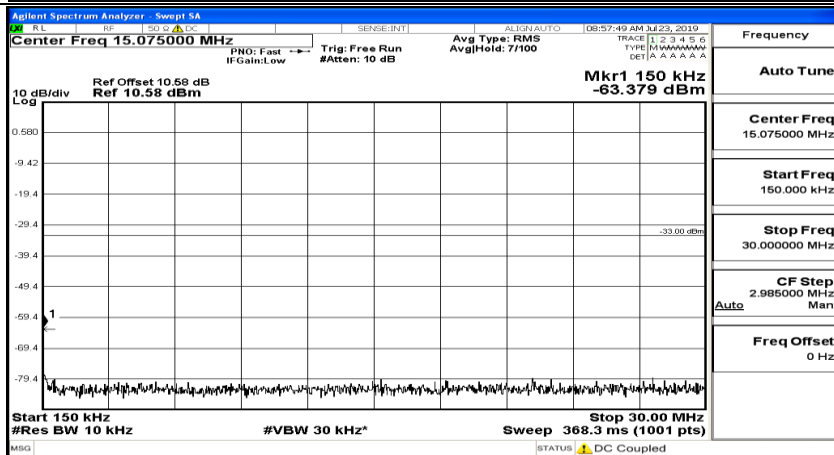
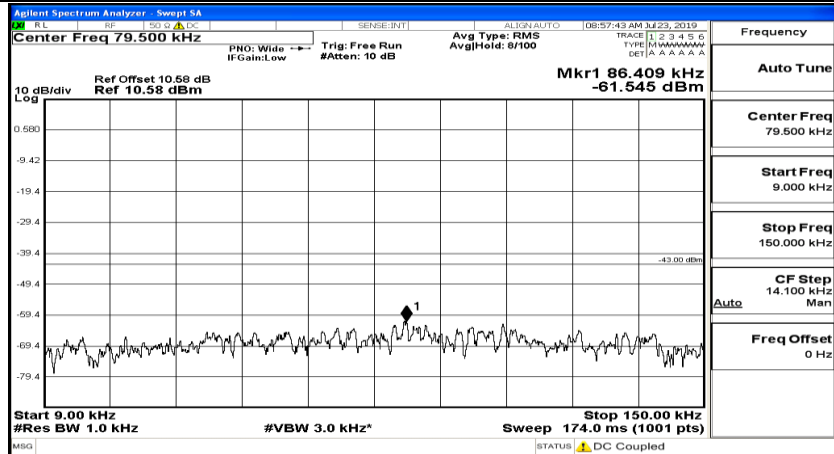


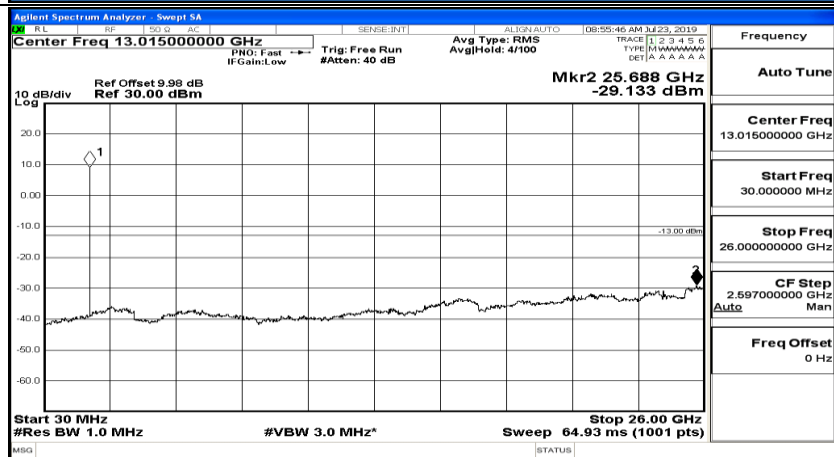
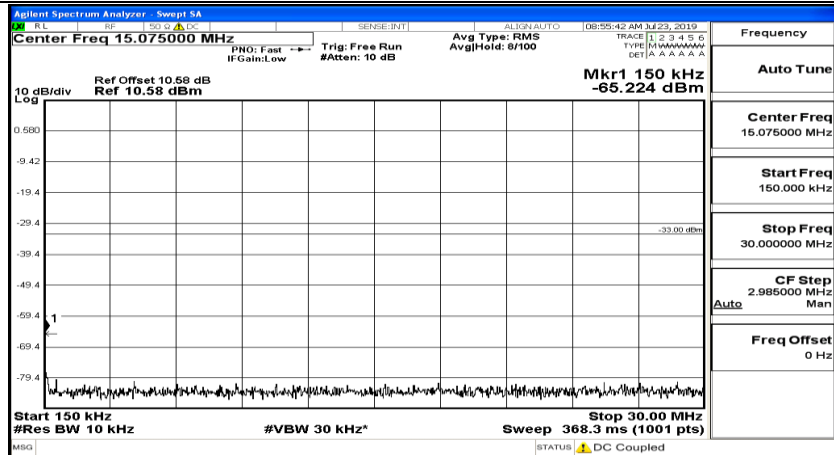
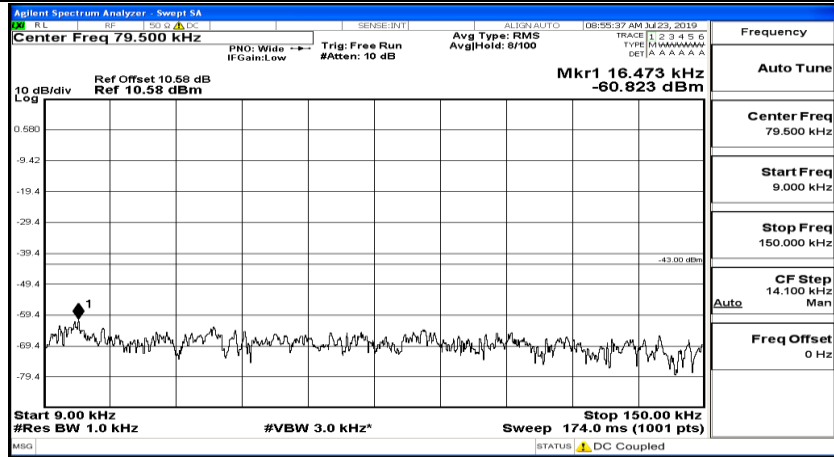
CSE Test Graph(s) (Channel Bandwidth: 3 MHz)_MCH_QPSK



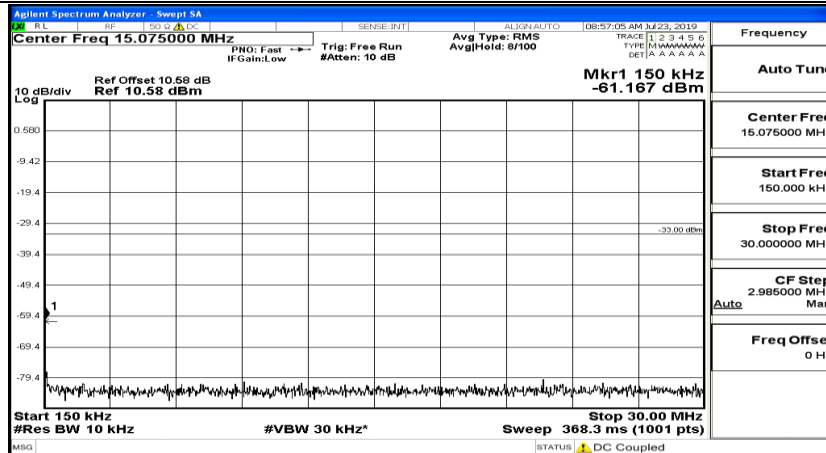
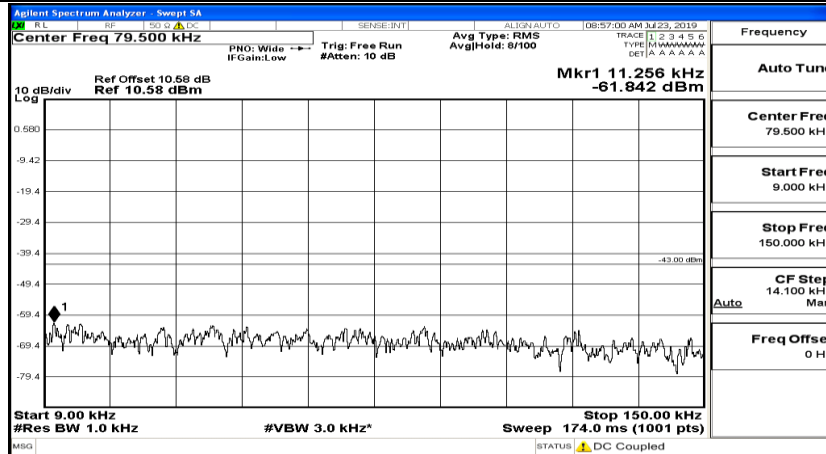
CSE Test Graph(s) (Channel Bandwidth: 3 MHz)_HCH_QPSK



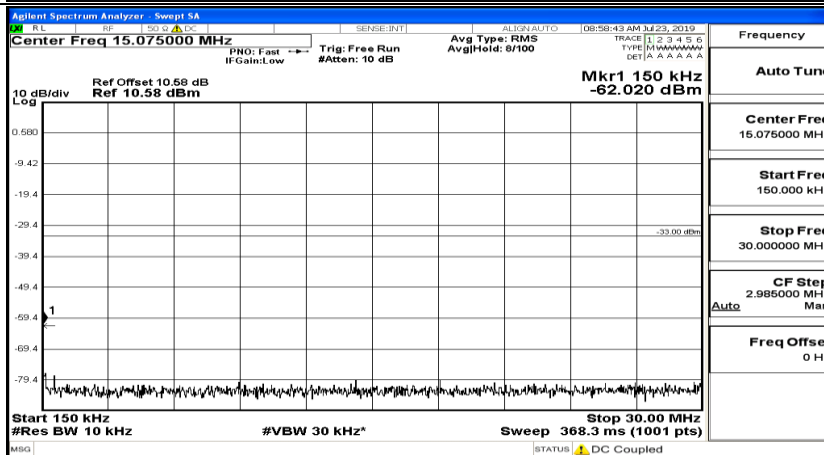
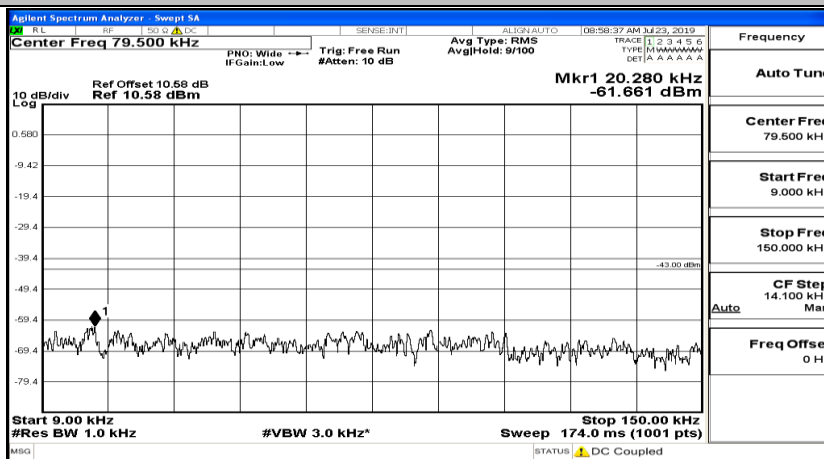
CSE Test Graph(s) (Channel Bandwidth: 3 MHz)_LCH_16QAM



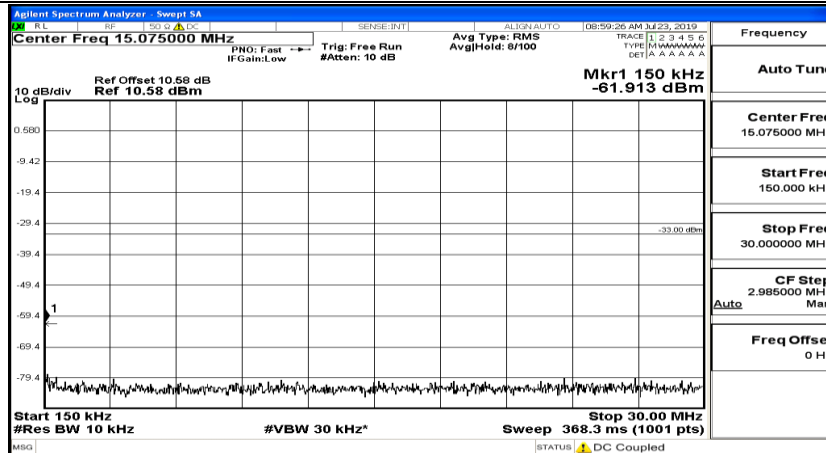
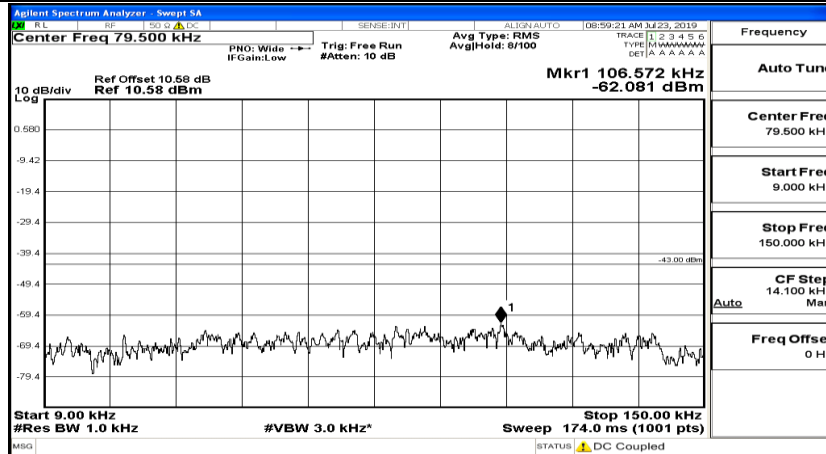
CSE Test Graph(s) (Channel Bandwidth: 3 MHz)_MCH_16QAM



CSE Test Graph(s) (Channel Bandwidth: 3 MHz)_HCH_16QAM



CSE Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_QPSK



Agilent Spectrum Analyzer: Sweep SA

RL 50.0 A 10.0 50.0 Hz 10.0 dB 50.0 Hz 10.0 dB 50.0 Hz 10.0 dB 50.0 Hz 10.0 dB

Center Freq 79.500 kHz

PHO: Wide → Trg: Free Run #Atten: 10 dB

Avg Type: RMS AvgHold: 9/100

09:00:19 AM 3/23, 2019

TRACE 1 2 3 4 5 6
TYPE 1 2 3 4 5 6
DET A A A A A A

Mkr1 91.626 kHz
-61.818 dBm

10 dB/Div
Log

Ref Offset 10.56 dB
Ref 10.58 dBm

0.580
-9.42
-19.4
-29.4
-39.4
-49.4
-59.4
-69.4
-79.4

-45.00 dBm

Start 9.00 kHz
#Res BW 1.0 kHz

#VBW 3.0 kHz*

Sweep 174.0 ms (1001 pts)

Stop 150.00 kHz

MSO STATUS DC Coupled

Frequency

Auto Tune

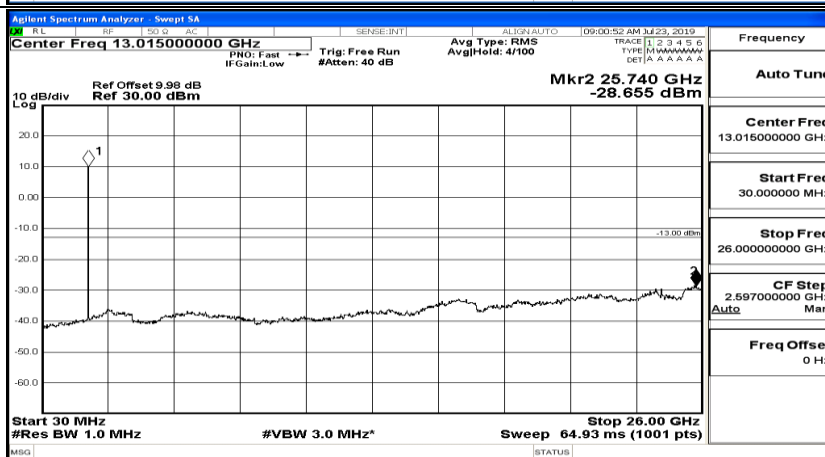
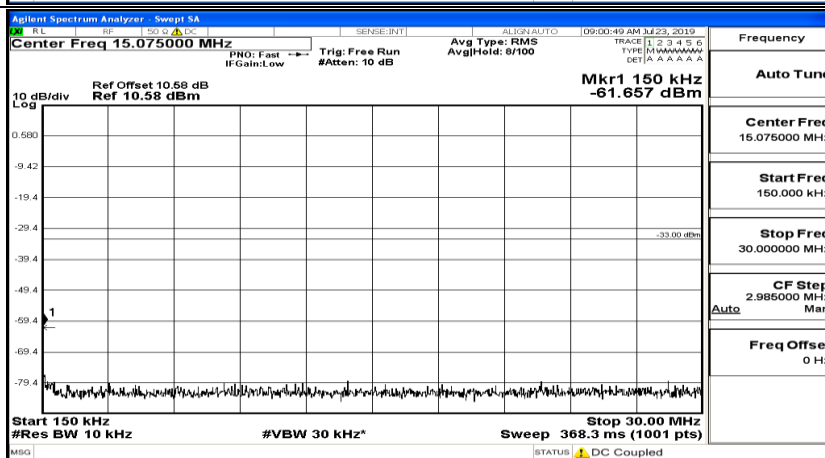
Center Freq
79.500 kHz

Start Freq
9.000 kHz

Stop Freq
150.000 kHz

CF Step
14.100 kHz
Mar

Freq Offset
0 Hz



Agilent Spectrum Analyzer - Screenshot

Center Freq 79.500 kHz

Ref Offset 10.58 dB

Ref 10.58 dBm

Mkr1 86.691 kHz

-62.684 dBm

Start 9.00 kHz

Stop 150.00 kHz

Res BW 1.0 kHz

#VBW 3.0 kHz

Sweep 174.0 ms (1001 pts)

Frequency

Auto Tune

Center Freq 79.500 kHz

Start Freq 9.000 kHz

Stop Freq 150.000 kHz

CF Step 14.100 kHz

Auto

Freq Offset 0 Hz

10 dB/div

Log

0.500

-9.42

-19.4

-29.4

-39.4

-49.4

-59.4

-69.4

-79.4

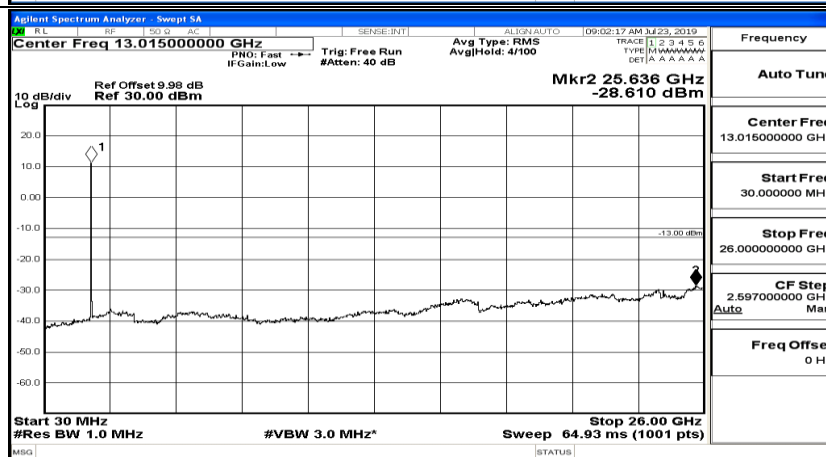
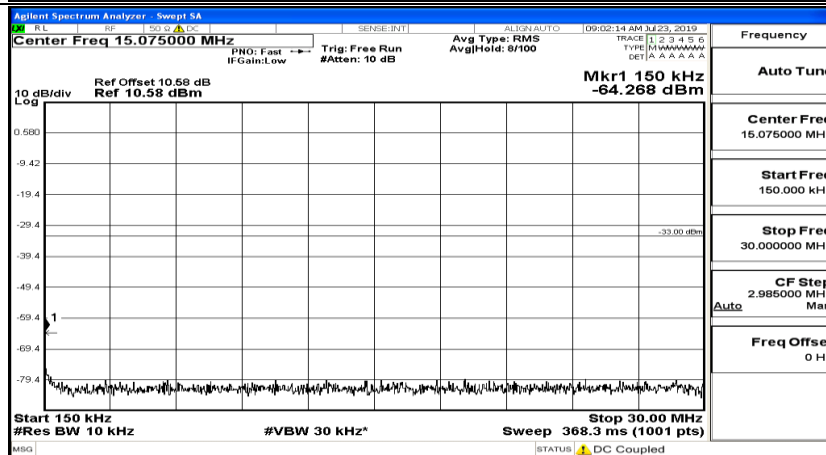
-43.00 dBm

1

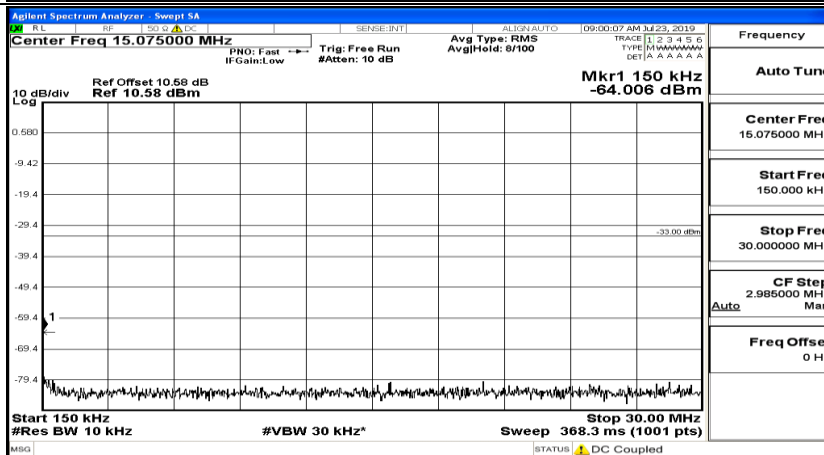
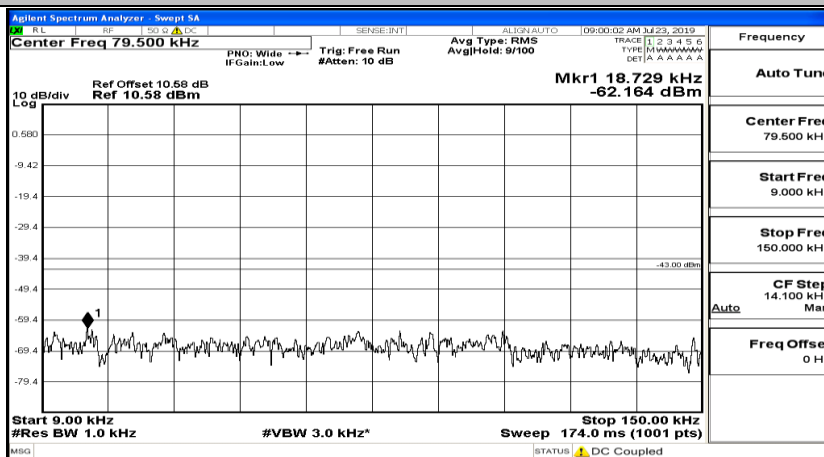
MSG

STATUS

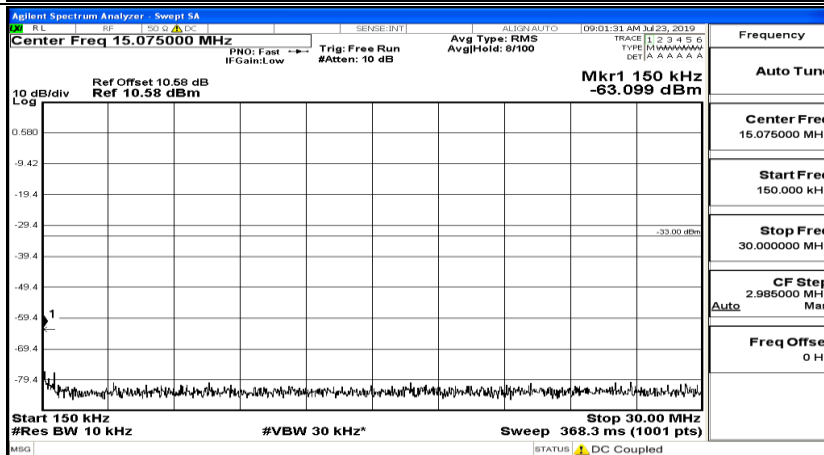
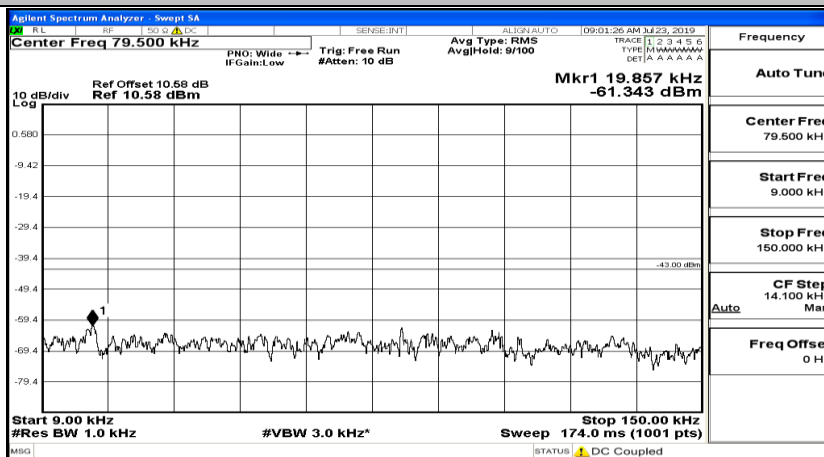
DC Coupled



CSE Test Graph(s) (Channel Bandwidth: 5 MHz)_LCH_16QAM



CSE Test Graph(s) (Channel Bandwidth: 5 MHz)_MCH_16QAM



Agilent Spectrum Analyzer - Sweep SA

RL 100.0 A 1.0c 50FSB:INT ALCA: AUTO 09:02:50 AM 3/23, 2019

Center Freq 79.500 kHz

PHO: Wide → IF Gain: Low Trig: Free Run #Atten: 10 dB Avg Type: RMS AvgHold: 8/100

TRACE 1 2 3 4 5 6
TYPE: NORMAL
DET: A A A A A A

Mkr1 53.274 kHz
-61.965 dBm

10 dB/Div
Log

Ref Offset 10.58 dB
Ref 10.58 dBm

Start 9.00 kHz
#Res BW 1.0 kHz

#VBW 3.0 kHz* Sweep 150.00 kHz
174.0 ms (1001 pts)

Stop 150.00 kHz
-45.00 dBm

Frequency

Auto Tune

Center Freq
79.500 kHz

Start Freq
9.000 kHz

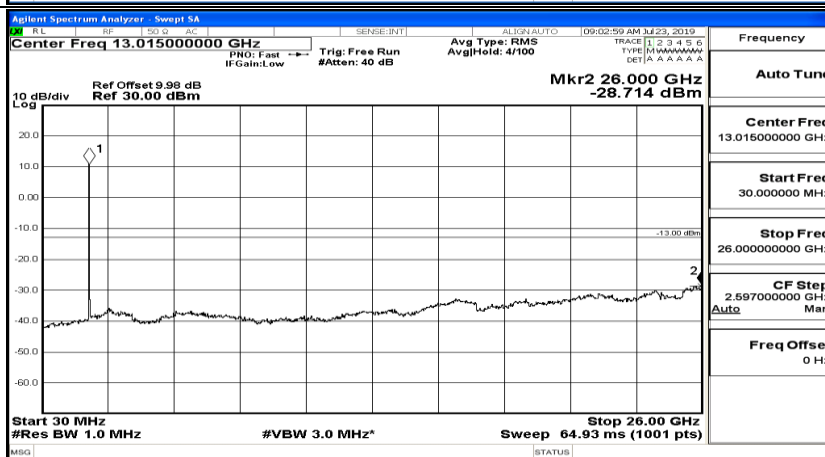
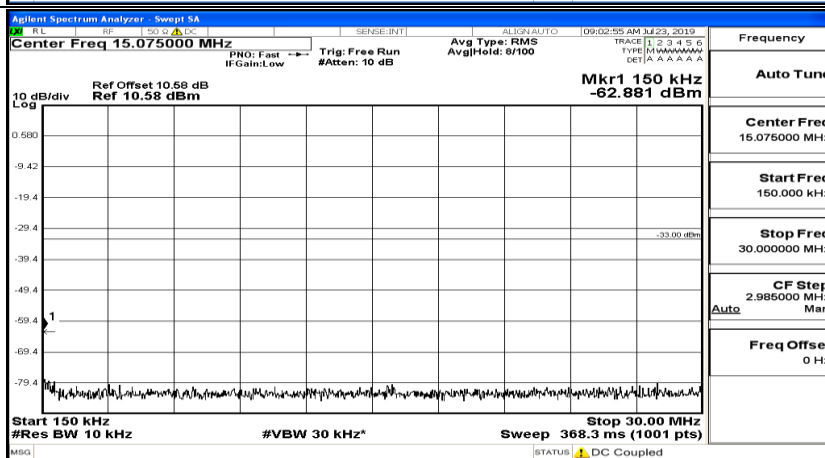
Stop Freq
150.000 kHz

CF Step
14.100 kHz
Mar

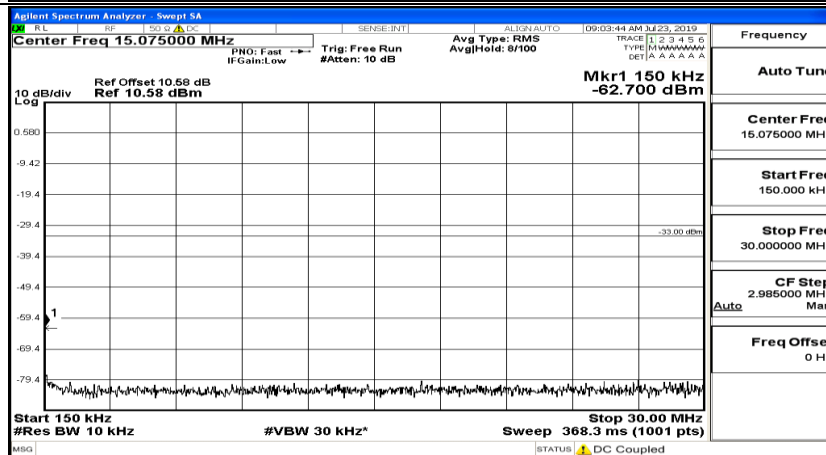
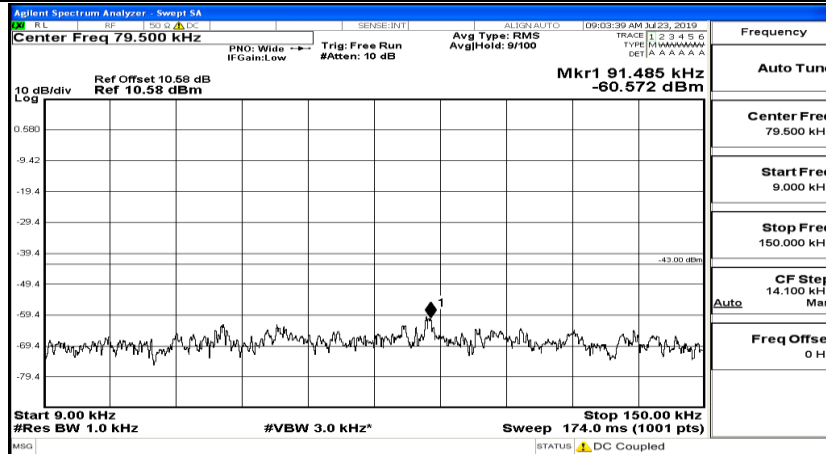
Auto

Freq Offset
0 Hz

STATUS DC Coupled



CSE Test Graph(s) (Channel Bandwidth: 10 MHz)_LCH_QPSK



CSE Test Graph(s) (Channel Bandwidth: 10 MHz)_MCH_QPSK

Graph 1 (Top): Center Freq 79.500 kHz. The plot shows a noisy baseline with a small peak at 9.0 kHz. Settings: Ref Offset 10.58 dB, Ref 10.58 dBm, Mkr1 90.921 kHz -59.382 dBm. Start 9.00 kHz, Stop 150.00 kHz, Res BW 1.0 kHz, #VBW 3.0 kHz. Sweep 174.0 ms (1001 pts).

Graph 2 (Middle): Center Freq 15.075000 MHz. The plot shows a noisy baseline with a small peak at 150 kHz. Settings: Ref Offset 10.58 dB, Ref 10.58 dBm, Mkr1 150 kHz -60.844 dBm. Start 150 kHz, Stop 30.00 MHz, Res BW 10 kHz, #VBW 30 kHz. Sweep 368.3 ms (1001 pts).

Graph 3 (Bottom): Center Freq 13.015000000 GHz. The plot shows a sharp peak at 26.000 GHz. Settings: Ref Offset 9.98 dB, Ref 30.00 dBm, Mkr2 26.000 GHz -28.886 dBm. Start 30 MHz, Stop 26.00 GHz, Res BW 1.0 MHz, #VBW 3.0 MHz. Sweep 64.93 ms (1001 pts).

Agilent Spectrum Analyzer - Sweep SA

RL	P1	500.0 A Lo	SOURCE:INT	ALENA AUTO	09:06:26 AM 3/23, 2019
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Center Freq 79.500 kHz

PHO: Wide → Trig: Free Run
IF Gain: Low #Atten: 10 dB

Avg Type: RMS AvgHold: 9/100

TRACE [2 3 4 5 6]
TYPE [NORMAL]
DETA [A A A A A]

Mkr1 86.268 kHz
-61.706 dBm

10 dB/Div Log

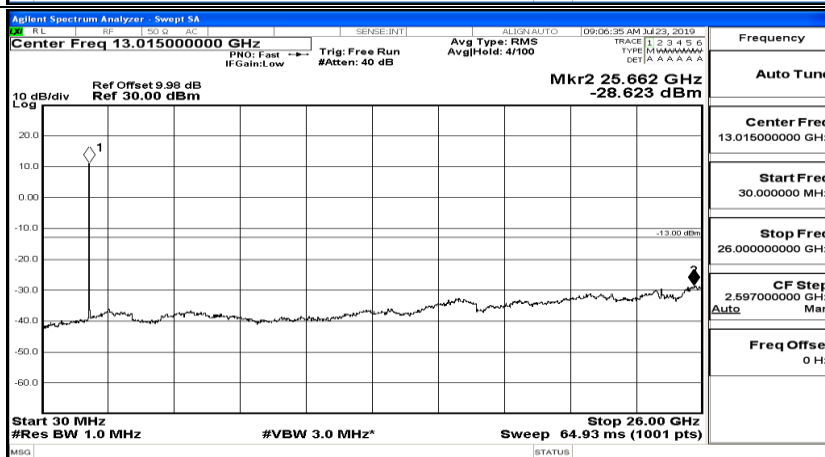
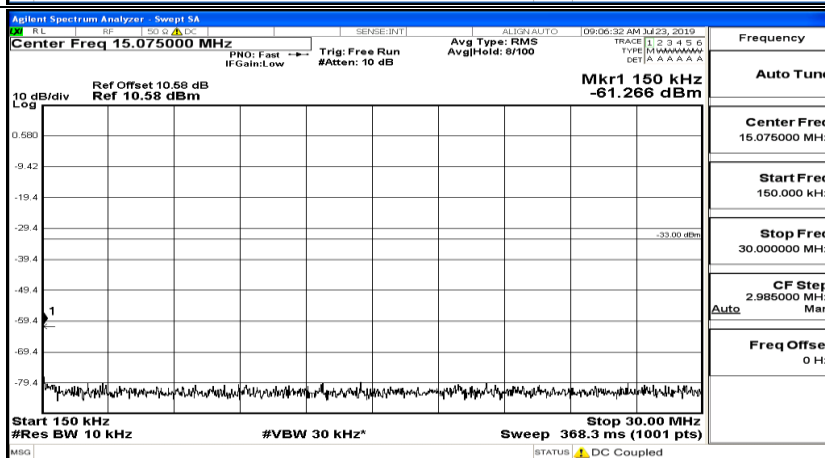
Ref Offset 10.56 dB
Ref 10.58 dBm

Start 9.00 kHz #Res BW 1.0 kHz #VBW 3.0 kHz* Stop 150.00 kHz Sweep 174.0 ms (1001 pts)

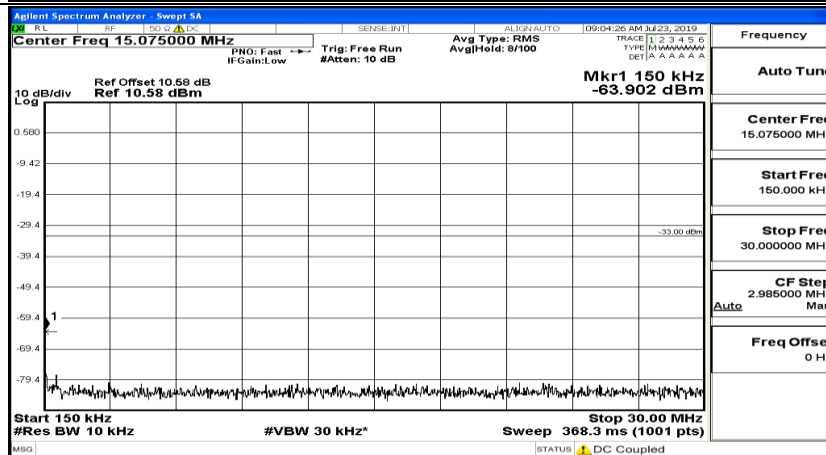
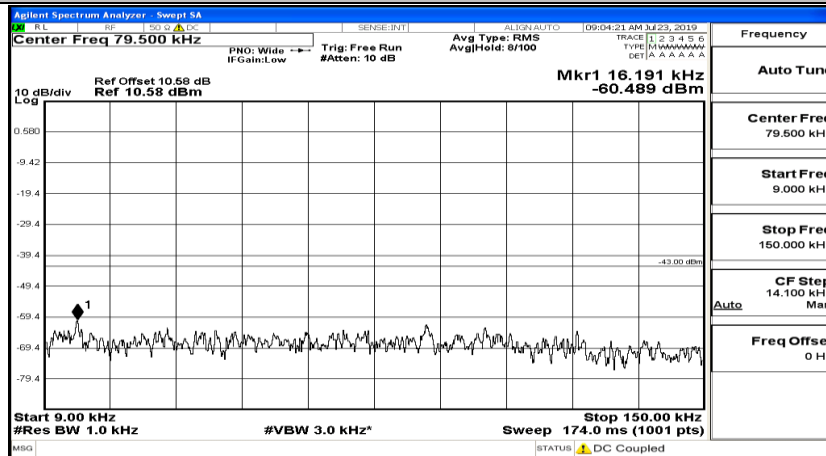
MSO STATUS DC Coupled

Frequency

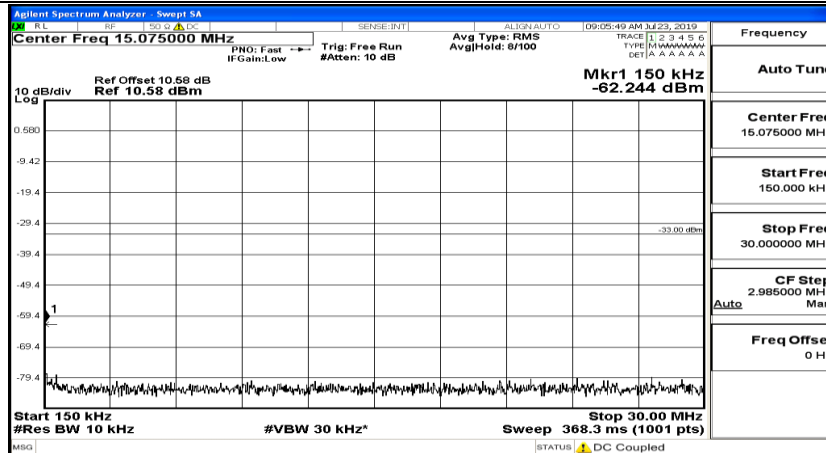
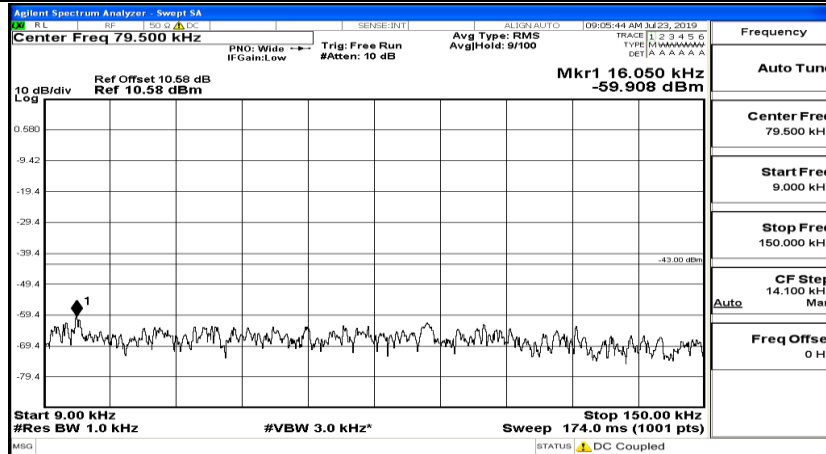
- Auto Tune
- Center Freq 79.500 kHz
- Start Freq 9.000 kHz
- Stop Freq 150.000 kHz
- CF Step 14.100 kHz Mar
- Freq Offset 0 Hz



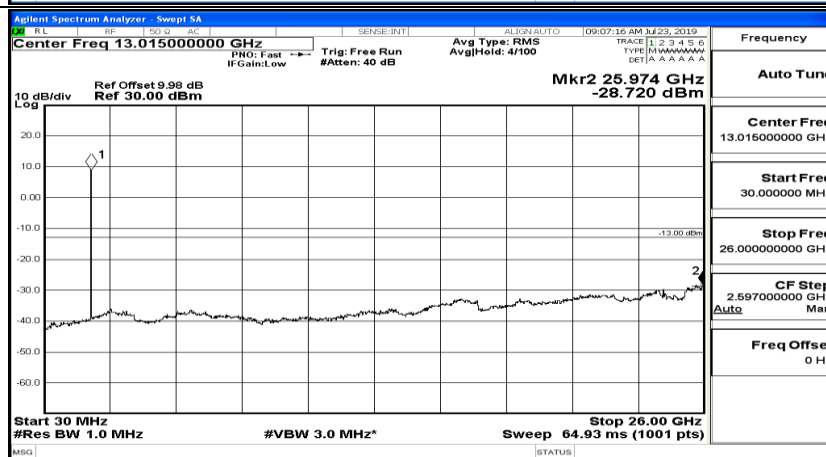
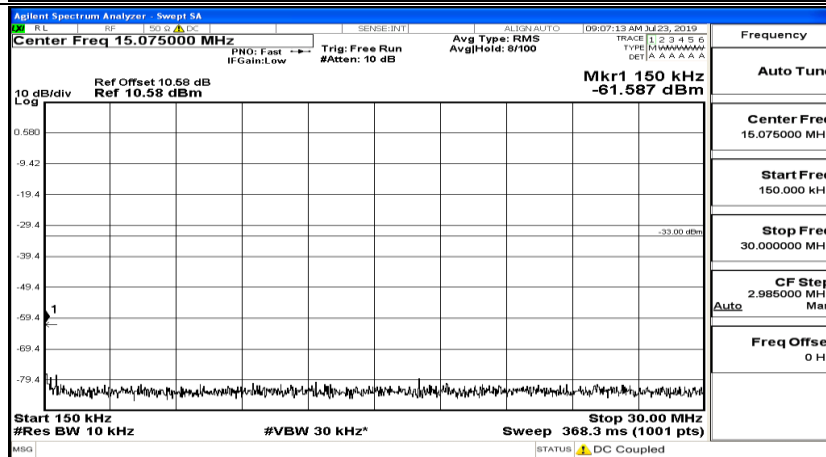
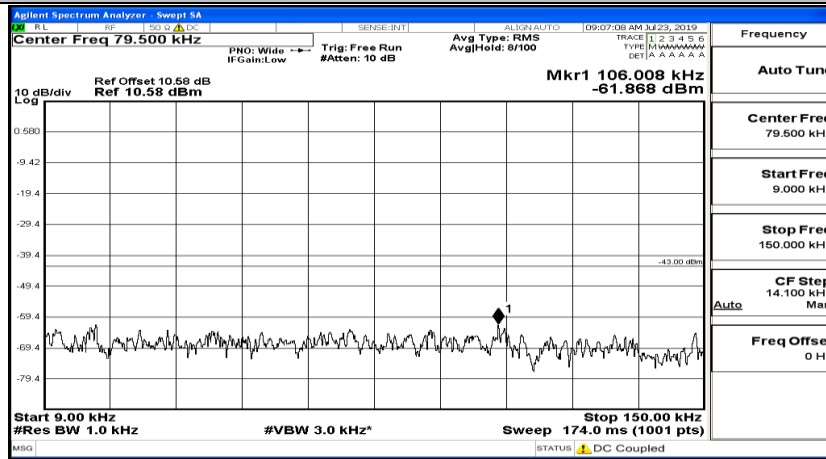
CSE Test Graph(s) (Channel Bandwidth: 10 MHz)_LCH_16QAM



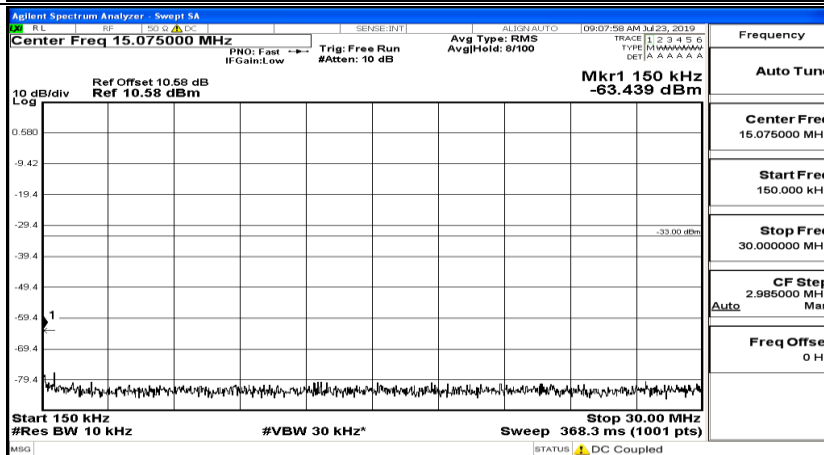
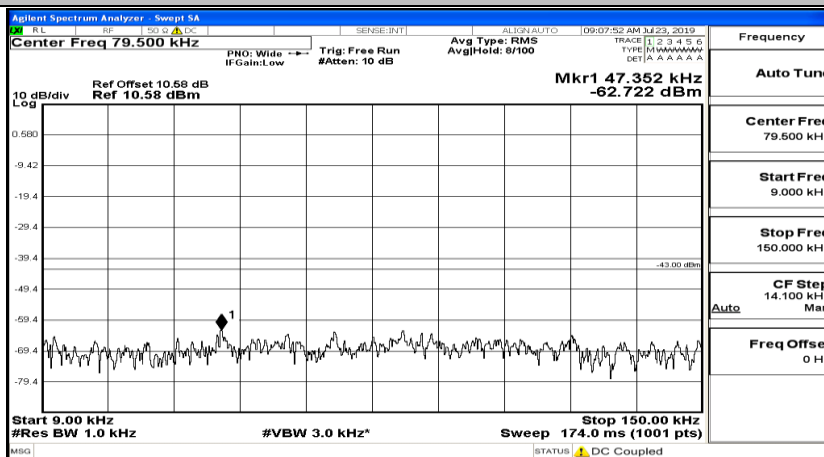
CSE Test Graph(s) (Channel Bandwidth: 10 MHz)_MCH_16QAM



CSE Test Graph(s) (Channel Bandwidth: 10 MHz)_HCH_16QAM



CSE Test Graph(s) (Channel Bandwidth:15 MHz)_LCH_QPSK



Agilent Spectrum Analyzer - Sweep SA

09/09/15 AM 14:23, 2019

ALCEN AUTO

Center Freq 79.500 kHz

Ref Offset 10.58 dB

Ref 10.58 dBm

Mkr1 47.634 kHz

-61.683 dBm

Start 9.00 kHz

Stop 150.00 kHz

Sweep 174.0 ms (1001 pts)

#Res BW 1.0 kHz

#VBW 3.0 kHz*

10 dB/Div

Log

0.580

-9.42

-19.4

-29.4

-39.4

-49.4

-59.4

-69.4

-79.4

Frequency

Auto Tune

Center Freq 79.500 kHz

Start Freq 9.000 kHz

Stop Freq 150.000 kHz

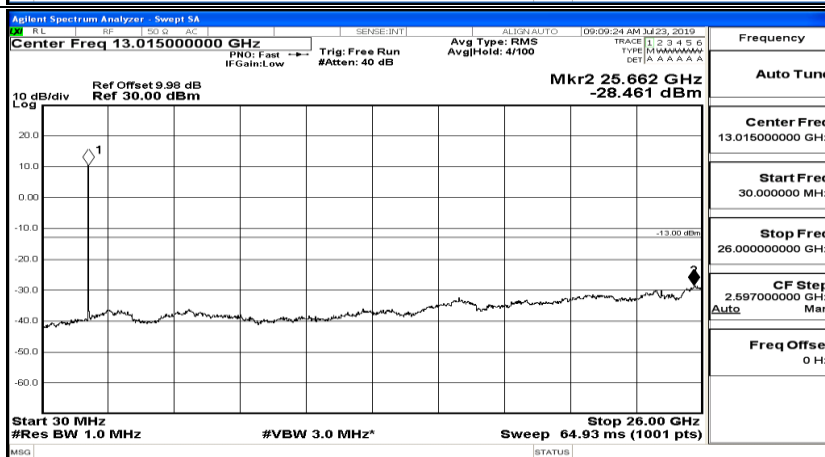
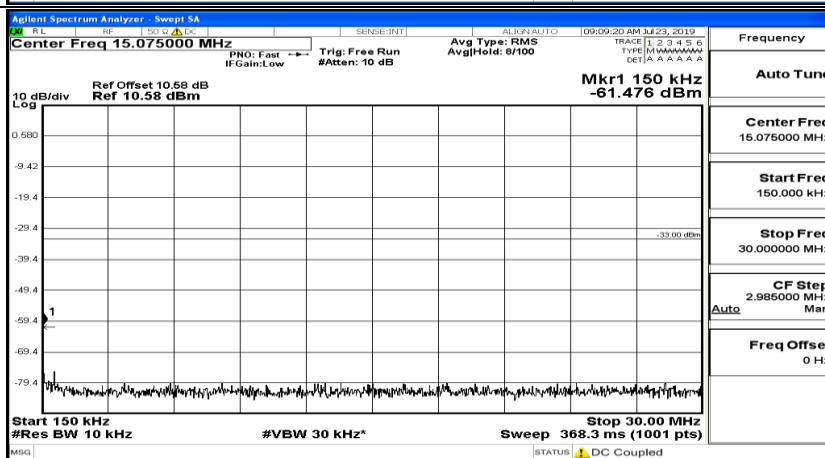
CF Step 14.100 kHz

Auto

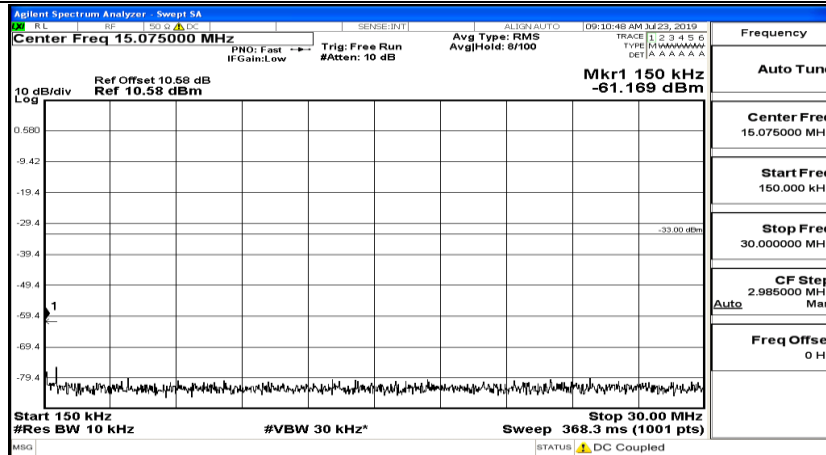
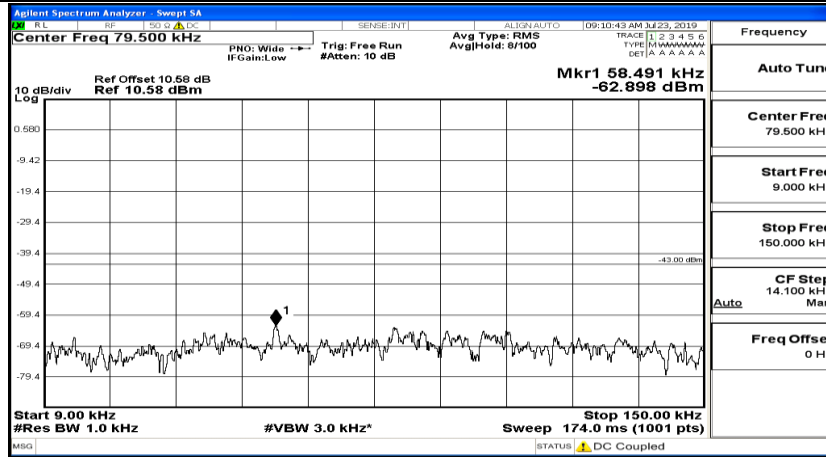
Freq Offset 0 Hz

STATUS

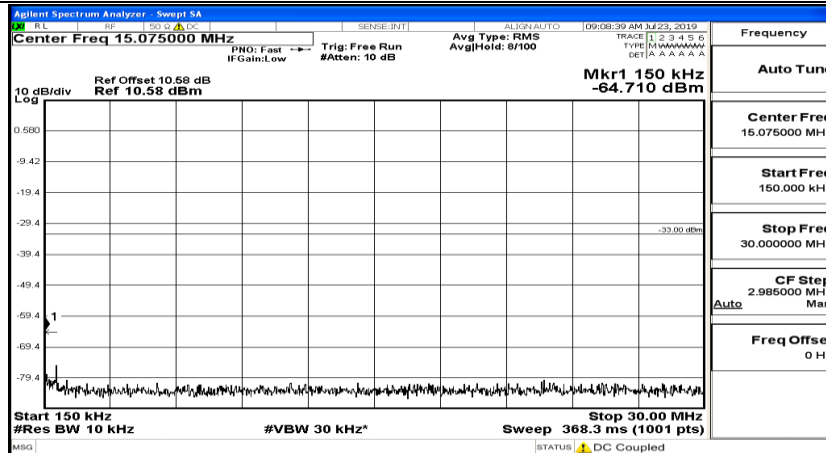
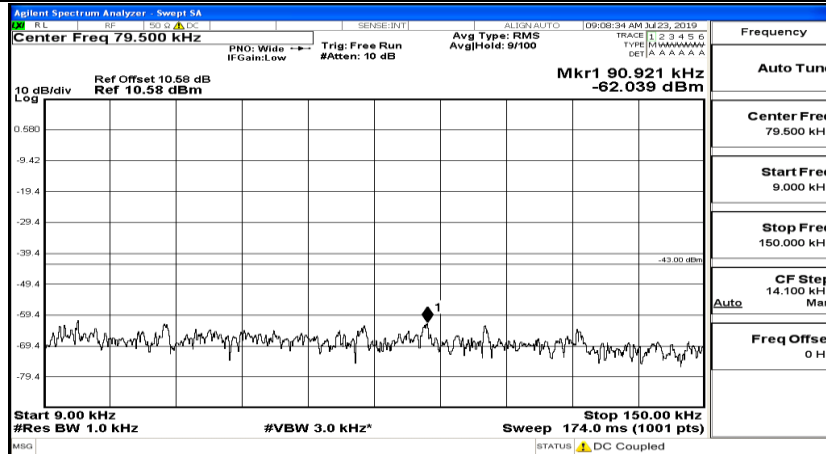
DC Coupled



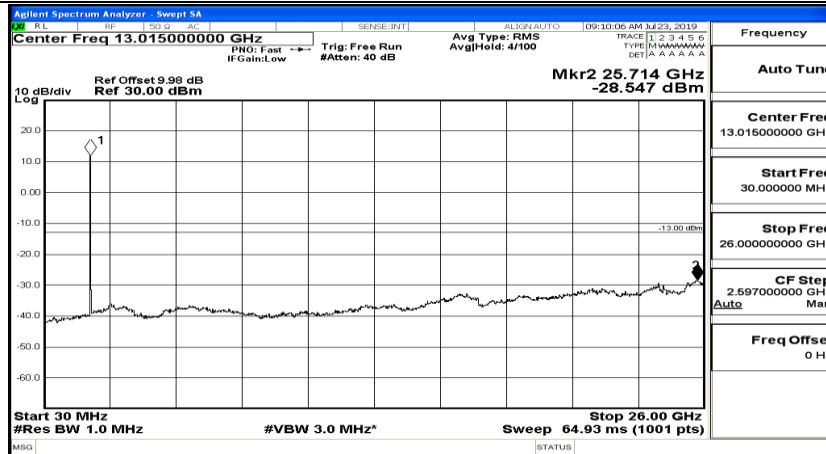
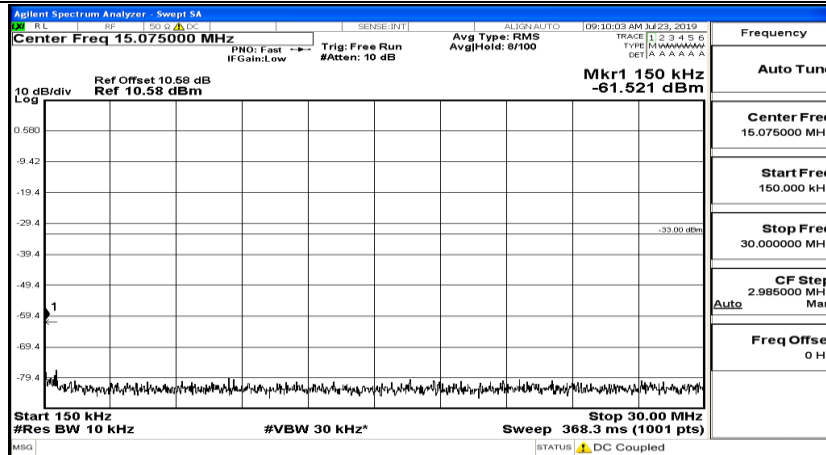
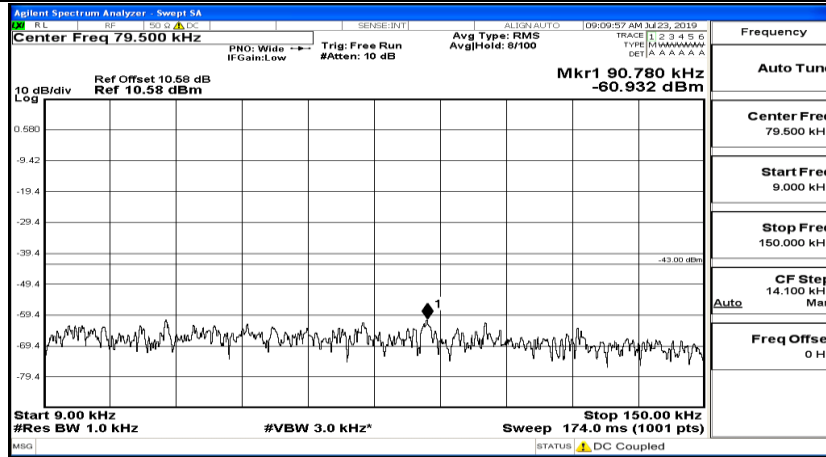
CSE Test Graph(s) (Channel Bandwidth:15 MHz)_HCH_QPSK



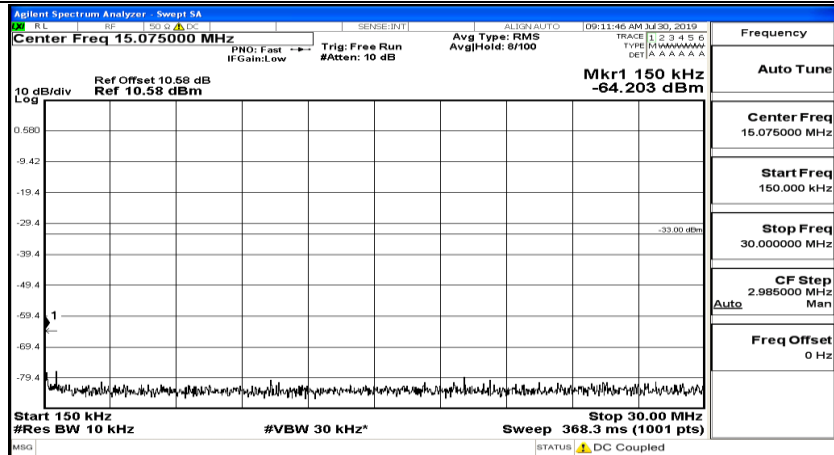
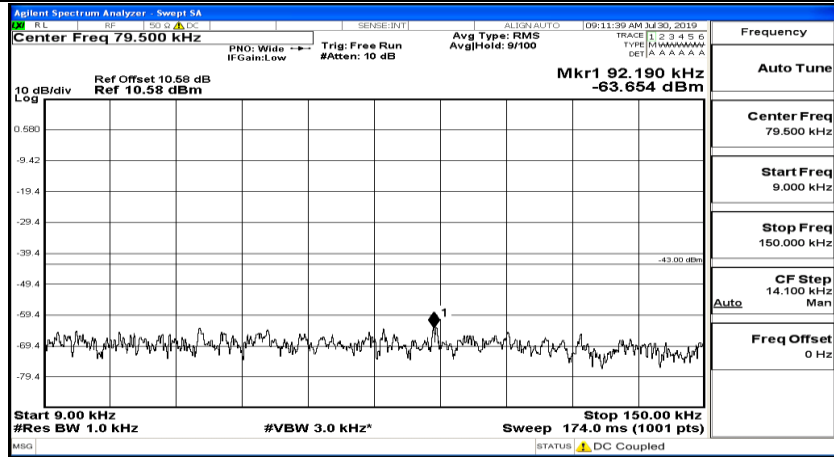
CSE Test Graph(s) (Channel Bandwidth:15 MHz)_LCH_16QAM



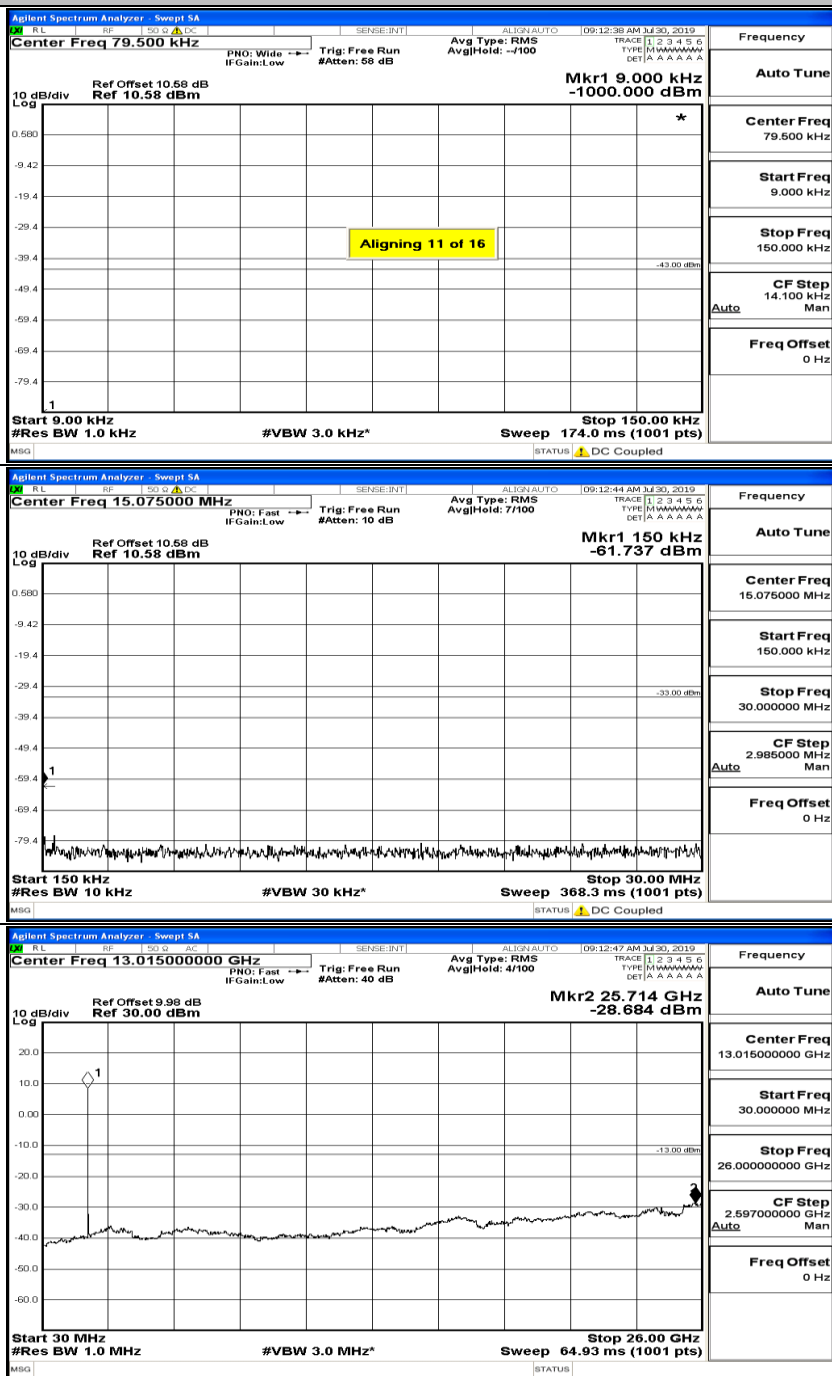
CSE Test Graph(s) (Channel Bandwidth:15 MHz)_MCH_16QAM



CSE Test Graph(s) (Channel Bandwidth:15 MHz)_HCH_16QAM



CSE Test Graph(s) (Channel Bandwidth:20 MHz)_LCH_QPSK



CSE Test Graph(s) (Channel Bandwidth:20 MHz)_MCH_QPSK

The figure displays three screenshots of an Agilent Spectrum Analyzer, each showing a different frequency sweep. The top screenshot is at 79.500 kHz, the middle at 15.075000 MHz, and the bottom at 13.015000000 GHz. Each screenshot includes a plot area with a peak marker, a table of settings on the right, and a status bar at the bottom.

Top Screenshot: 79.500 kHz

- Center Freq:** 79.500 kHz
- Ref Offset:** 10.58 dB
- Ref:** 10.58 dBm
- Mkr1:** 79.641 kHz, -61.963 dBm
- Start Freq:** 9.00 kHz
- Stop Freq:** 150.00 kHz
- #Res BW:** 1.0 kHz
- #VBW:** 3.0 kHz
- Sweep:** 174.0 ms (1001 pts)
- Settings:** PNO: Wide, IF Gain: Low, Trig: Free Run, #Atten: 10 dB, Avg Type: RMS, Avg Hold: 8/100, Trace: 1, 2, 3, 4, 5, 6, Type: [HAWAIIAN], Det: [A A A A A A]
- Status:** DC Coupled

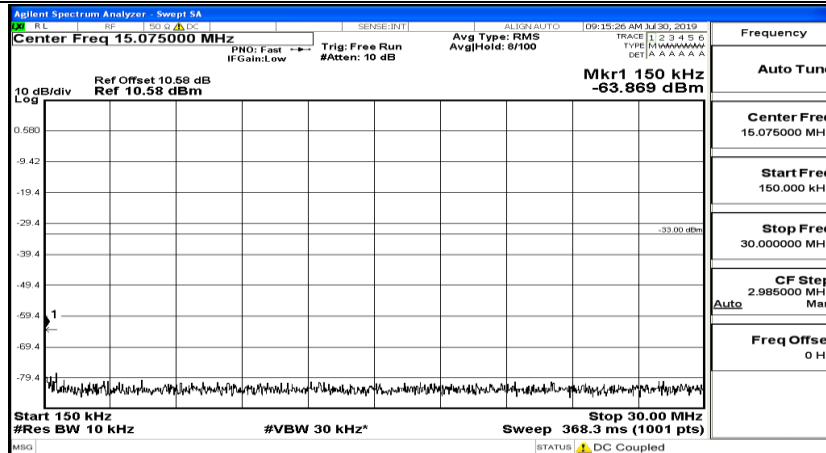
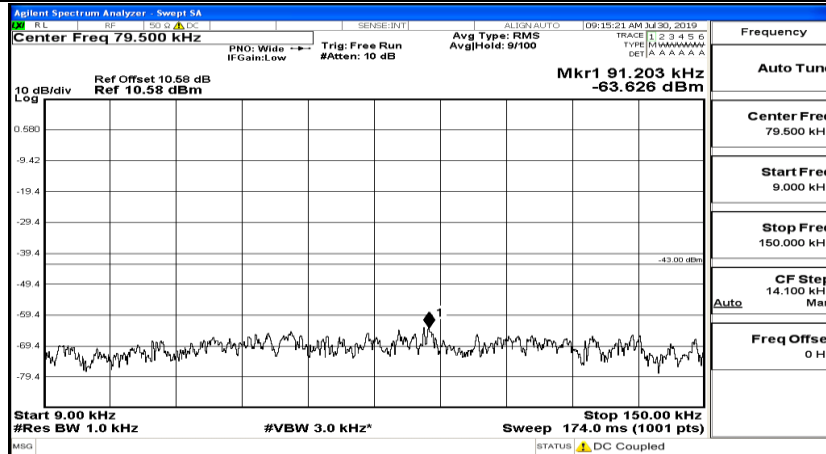
Middle Screenshot: 15.075000 MHz

- Center Freq:** 15.075000 MHz
- Ref Offset:** 10.58 dB
- Ref:** 10.58 dBm
- Mkr1:** 150 kHz, -61.055 dBm
- Start Freq:** 150 kHz
- Stop Freq:** 30.00 MHz
- #Res BW:** 10 kHz
- #VBW:** 30 kHz
- Sweep:** 368.3 ms (1001 pts)
- Settings:** PNO: Fast, IF Gain: Low, Trig: Free Run, #Atten: 10 dB, Avg Type: RMS, Avg Hold: 8/100, Trace: 1, 2, 3, 4, 5, 6, Type: [HAWAIIAN], Det: [A A A A A A]
- Status:** DC Coupled

Bottom Screenshot: 13.015000000 GHz

- Center Freq:** 13.015000000 GHz
- Ref Offset:** 9.98 dB
- Ref:** 30.00 dBm
- Mkr2:** 25.688 GHz, -28.547 dBm
- Start Freq:** 30 MHz
- Stop Freq:** 26.00 GHz
- #Res BW:** 1.0 MHz
- #VBW:** 3.0 MHz
- Sweep:** 64.93 ms (1001 pts)
- Settings:** PNO: Fast, IF Gain: Low, Trig: Free Run, #Atten: 40 dB, Avg Type: RMS, Avg Hold: 4/100, Trace: 1, 2, 3, 4, 5, 6, Type: [HAWAIIAN], Det: [A A A A A A]
- Status:** DC Coupled

CSE Test Graph(s) (Channel Bandwidth:20 MHz)_HCH_QPSK



CSE Test Graph(s) (Channel Bandwidth: 20 MHz)_LCH_16QAM

The figure consists of three vertically stacked Agilent Spectrum Analyzer screenshots, each displaying a frequency spectrum plot and associated measurement parameters.

Screenshot 1 (Top)

- Title:** Apilent Spectrum Analyzer - Sweep SA
- Center Freq:** 79.500 kHz
- Mkr1:** 14.076 kHz, -62.650 dBm
- Ref Offset:** 10.58 dB, Ref: 10.58 dBm
- Start:** 9.00 kHz, #Res BW: 1.0 kHz, #VBW: 3.0 kHz*
- Stop:** 150.00 kHz, Sweep: 174.0 ms (1001 pts)
- Frequency Range:** 0 Hz to 150.00 kHz
- Y-axis:** Log scale, 10 dB/div
- Traces:** Multiple traces labeled 1 through 6 are visible.

Screenshot 2 (Middle)

- Title:** Apilent Spectrum Analyzer - Sweep SA
- Center Freq:** 15.075000 MHz
- Mkr1:** 150 kHz, -63.922 dBm
- Ref Offset:** 10.58 dB, Ref: 10.58 dBm
- Start:** 150 kHz, #Res BW: 10 kHz, #VBW: 30 kHz*
- Stop:** 30.00 MHz, Sweep: 368.3 ms (1001 pts)
- Frequency Range:** 0 Hz to 30.00 MHz
- Y-axis:** Log scale, 10 dB/div
- Traces:** Multiple traces labeled 1 through 6 are visible.

Screenshot 3 (Bottom)

- Title:** Apilent Spectrum Analyzer - Sweep SA
- Center Freq:** 13.015000000 GHz
- Mkr1:** 25.714 GHz, -28.325 dBm
- Ref Offset:** 9.98 dB, Ref: 30.00 dBm
- Start:** 30 MHz, #Res BW: 1.0 MHz, #VBW: 3.0 MHz*
- Stop:** 26.00 GHz, Sweep: 64.93 ms (1001 pts)
- Frequency Range:** 0 Hz to 26.00 GHz
- Y-axis:** Log scale, 10 dB/div
- Traces:** Multiple traces labeled 1 through 6 are visible.

CSE Test Graph(s) (Channel Bandwidth:20 MHz)_MCH_16QAM

Agilent Spectrum Analyzer - Sweep SA

Center Freq 79.500 kHz

Ref Offset 10.58 dB
Ref 10.58 dBm

Mkr1 18.024 kHz
-61.544 dBm

Start 9.00 kHz
#Res BW 1.0 kHz
#VBW 3.0 kHz*

Stop 150.00 kHz
Sweep 174.0 ms (1001 pts)

Frequency

Auto Tune

Center Freq 79.500 kHz

Start Freq 9.000 kHz

Stop Freq 150.000 kHz

CF Step 14.100 kHz
Man

Freq Offset 0 Hz

10 dB/div Log

0.580

-9.42

-19.4

-29.4

-39.4

-49.4

-59.4

-69.4

-79.4

1

Msg

STATUS DC Coupled

Agilent Spectrum Analyzer - Sweep SA

Center Freq 15.075000 MHz

Ref Offset 10.58 dB
Ref 10.58 dBm

Mkr1 150 kHz
-62.015 dBm

Start 150 kHz
#Res BW 10 kHz
#VBW 30 kHz*

Stop 30.00 MHz
Sweep 368.3 ms (1001 pts)

Frequency

Auto Tune

Center Freq 15.075000 MHz

Start Freq 150.000 kHz

Stop Freq 30.000000 MHz

CF Step 2.985000 MHz
Man

Freq Offset 0 Hz

10 dB/div Log

0.580

-9.42

-19.4

-29.4

-39.4

-49.4

-59.4

-69.4

-79.4

1

Msg

STATUS DC Coupled

Agilent Spectrum Analyzer - Sweep SA

Center Freq 13.015000000 GHz

Ref Offset 9.98 dB
Ref 30.00 dBm

Mkr2 25.636 GHz
-28.409 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
Man

Freq Offset 0 Hz

10 dB/div Log

20.0

10.0

0.00

-10.0

-20.0

-30.0

-40.0

-50.0

-60.0

1

Msg

STATUS

CSE Test Graph(s) (CSE Bandwidth:20 MHz)_CH_16QAM

The figure consists of three vertically stacked Agilent Spectrum Analyzer screenshots, each showing a frequency sweep with a marker peak.

Top Graph: 79.500 kHz

- Center Freq: 79.500 kHz
- Ref Offset: 10.58 dB, Ref: 10.58 dBm
- Mkr1: 71.745 kHz, -64.596 dBm
- Start: 9.000 kHz, Stop: 150.000 kHz
- #Res BW: 1.0 kHz, #VBW: 3.0 kHz
- Sweep: 174.0 ms (1001 pts)
- Status: DC Coupled

Middle Graph: 15.075000 MHz

- Center Freq: 15.075000 MHz
- Ref Offset: 10.58 dB, Ref: 10.58 dBm
- Mkr1: 150 kHz, -64.486 dBm
- Start: 150 kHz, Stop: 30.000 MHz
- #Res BW: 10 kHz, #VBW: 30 kHz
- Sweep: 368.3 ms (1001 pts)
- Status: DC Coupled

Bottom Graph: 13.015000000 GHz

- Center Freq: 13.015000000 GHz
- Ref Offset: 9.98 dB, Ref: 30.00 dBm
- Mkr2: 25.766 GHz, -28.718 dBm
- Start: 30 MHz, Stop: 26.00 GHz
- #Res BW: 1.0 MHz, #VBW: 3.0 MHz
- Sweep: 64.93 ms (1001 pts)
- Status: DC Coupled