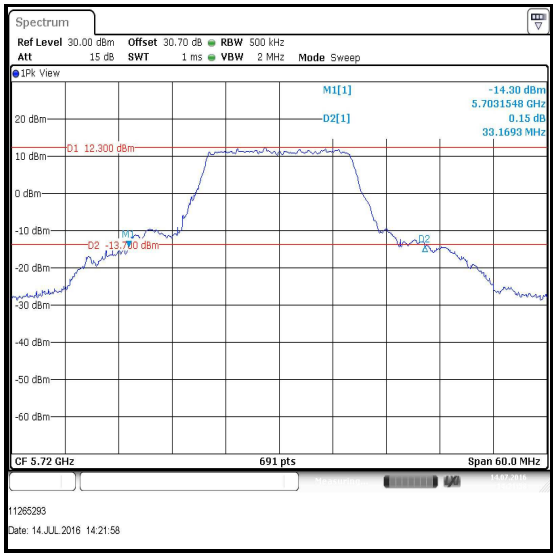
## Transmitter 26 dB Emission Bandwidth (continued)

## Results: 802.11a / 20 MHz / Channels that straddle the U-NII-2C and U-NII-3 bands at 5725 MHz

| Channel | Frequency (MHz) | Modulation scheme | Data Rate Mbps | 26 dB Emission Bandwidth (MHz) |
|---|---|---|---|---|
| Single | 5720 | BPSK | 6 | 33.169 |

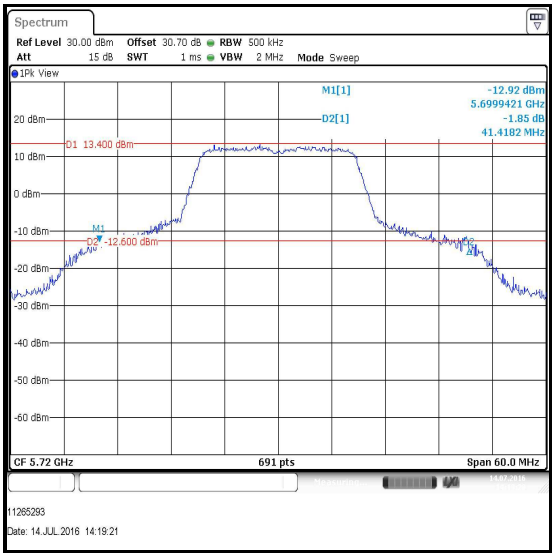



**Single Channel**

## Transmitter 26 dB Emission Bandwidth (continued)

## Results: 802.11n / 20 MHz / SISO / Channels that straddle the U-NII-2C and U-NII-3 bands at 5725 MHz

| Channel | Frequency (MHz) | Modulation scheme | Data Rate Mbps / MCS | 26 dB Emission Bandwidth (MHz) |
|---|---|---|---|---|
| Single | 5720 | BPSK | 6.5 / 0 | 41.418 |

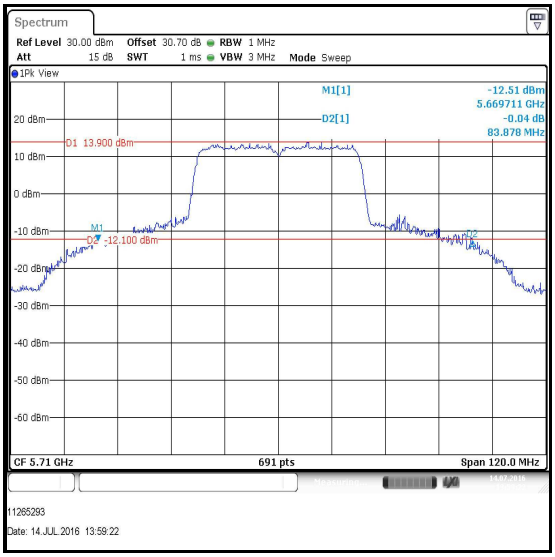



**Single Channel**

## Transmitter 26 dB Emission Bandwidth (continued)

## Results: 802.11n / 40 MHz / SISO / Channels that straddle the U-NII-2C and U-NII-3 bands at 5725 MHz

| Channel | Frequency (MHz) | Modulation scheme | Data Rate Mbps / MCS | 26 dB Emission Bandwidth (MHz) |
|---|---|---|---|---|
| Single | 5710 | BPSK | 13.5 / 0 | 83.878 |

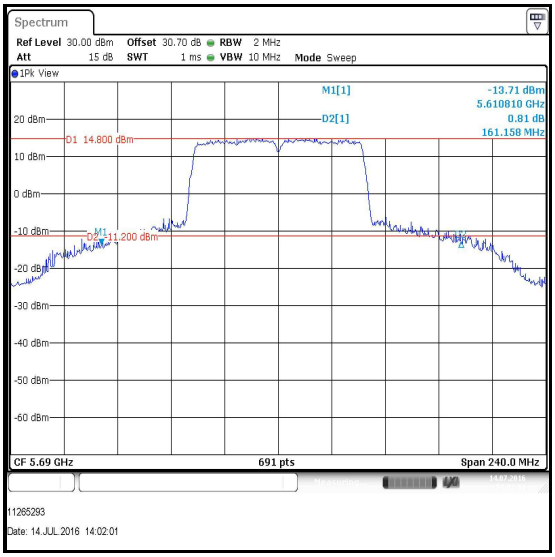



**Single Channel**

## Transmitter 26 dB Emission Bandwidth (continued)

## Results: 802.11ac / 80 MHz / SISO / Channels that straddle the U-NII-2C and U-NII-3 bands at 5725 MHz

| Channel | Frequency (MHz) | Modulation scheme | Data Rate Mbps / MCS | 26 dB Emission Bandwidth (MHz) |
|---|---|---|---|---|
| Single | 5690 | BPSK | 29.3 / 0 | 161.158 |

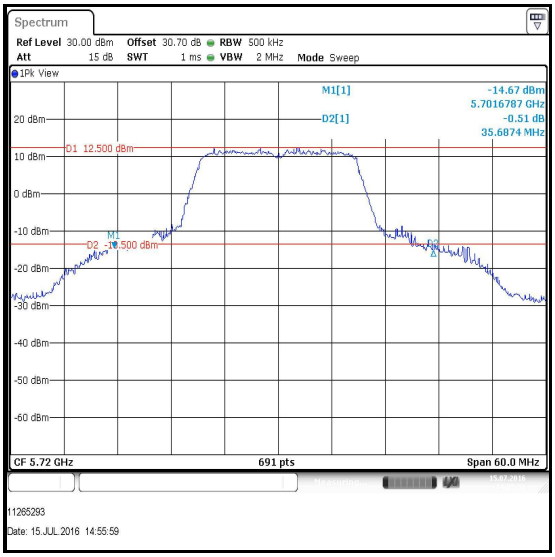



**Single Channel**

## Transmitter 26 dB Emission Bandwidth (continued)

## Results: 802.11n / 20 MHz / MIMO / Channels that straddle the U-NII-2C and U-NII-3 bands at 5725 MHz / Port 1

| Channel | Frequency (MHz) | Modulation scheme | Data Rate Mbps / MCS | 26 dB Emission Bandwidth (MHz) |
|---|---|---|---|---|
| Single | 5720 | BPSK | 6.5 / 0 | 35.687 |

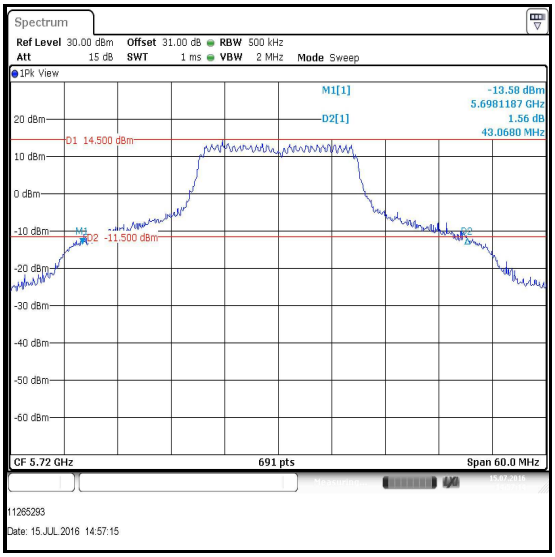



**Single Channel**

## Transmitter 26 dB Emission Bandwidth (continued)

## Results: 802.11n / 20 MHz / MIMO / Channels that straddle the U-NII-2C and U-NII-3 bands at 5725 MHz / Port 2

| Channel | Frequency (MHz) | Modulation scheme | Data Rate Mbps / MCS | 26 dB Emission Bandwidth (MHz) |
|---|---|---|---|---|
| Single | 5720 | BPSK | 6.5 / 0 | 43.068 |

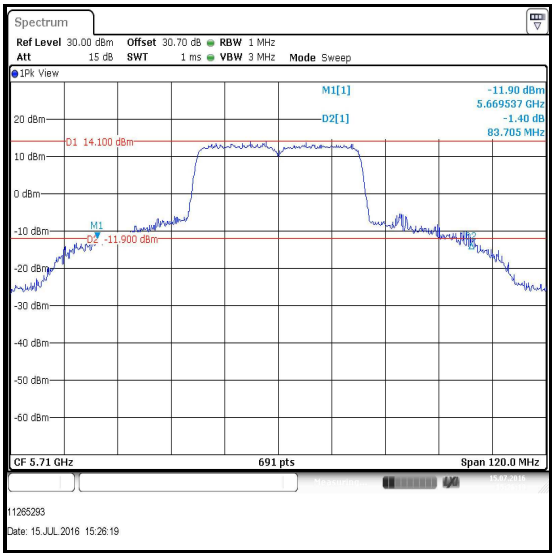



**Single Channel**

## Transmitter 26 dB Emission Bandwidth (continued)

## Results: 802.11n / 40 MHz / MIMO / Channels that straddle the U-NII-2C and U-NII-3 bands at 5725 MHz / Port 1

| Channel | Frequency (MHz) | Modulation scheme | Data Rate Mbps / MCS | 26 dB Emission Bandwidth (MHz) |
|---|---|---|---|---|
| Single | 5710 | BPSK | 13.5 / 0 | 83.705 |

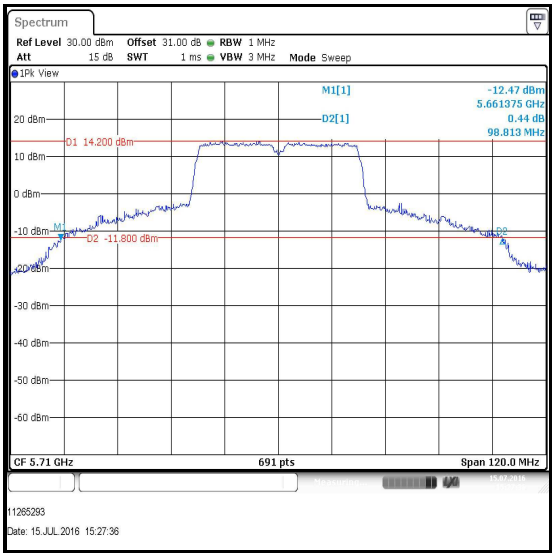



**Single Channel**

## Transmitter 26 dB Emission Bandwidth (continued)

## Results: 802.11n / 40 MHz / MIMO / Channels that straddle the U-NII-2C and U-NII-3 bands at 5725 MHz / Port 2

| Channel | Frequency (MHz) | Modulation scheme | Data Rate Mbps / MCS | 26 dB Emission Bandwidth (MHz) |
|---|---|---|---|---|
| Single | 5710 | BPSK | 13.5 / 0 | 98.813 |

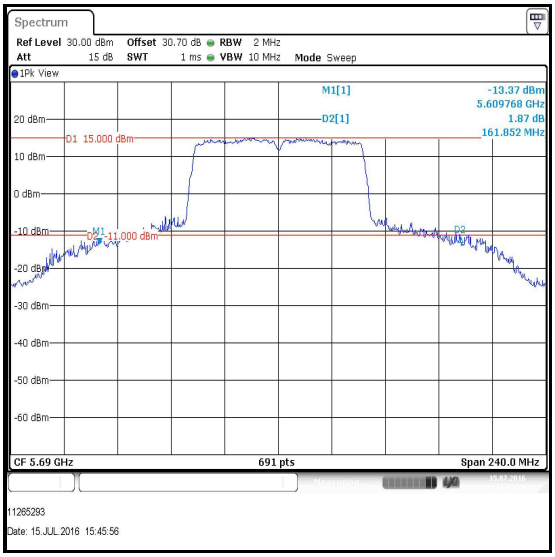



**Single Channel**

## Transmitter 26 dB Emission Bandwidth (continued)

## Results: 802.11ac / 80 MHz / MIMO / Channels that straddle the U-NII-2C and U-NII-3 bands at 5725 MHz / Port 1

| Channel | Frequency (MHz) | Modulation scheme | Data Rate Mbps / MCS | 26 dB Emission Bandwidth (MHz) |
|---|---|---|---|---|
| Single | 5690 | BPSK | 29.3 / 0 | 161.852 |

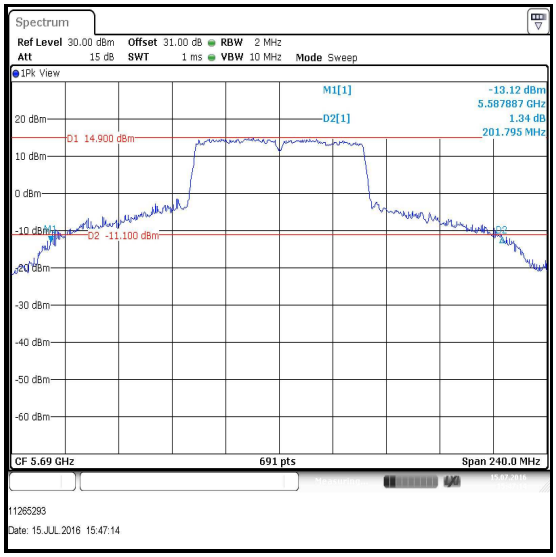



**Single Channel**

## Transmitter 26 dB Emission Bandwidth (continued)

## Results: 802.11ac / 80 MHz / MIMO / Channels that straddle the U-NII-2C and U-NII-3 bands at 5725 MHz / Port 2

| Channel | Frequency (MHz) | Modulation scheme | Data Rate Mbps / MCS | 26 dB Emission Bandwidth (MHz) |
|---|---|---|---|---|
| Single | 5690 | BPSK | 29.3 / 0 | 201.795 |

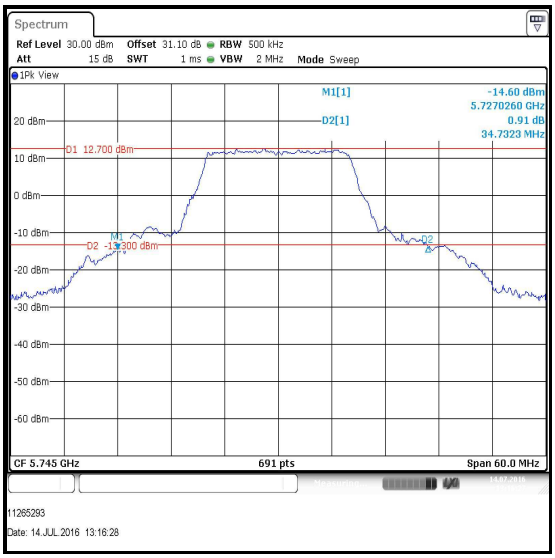



**Single Channel**

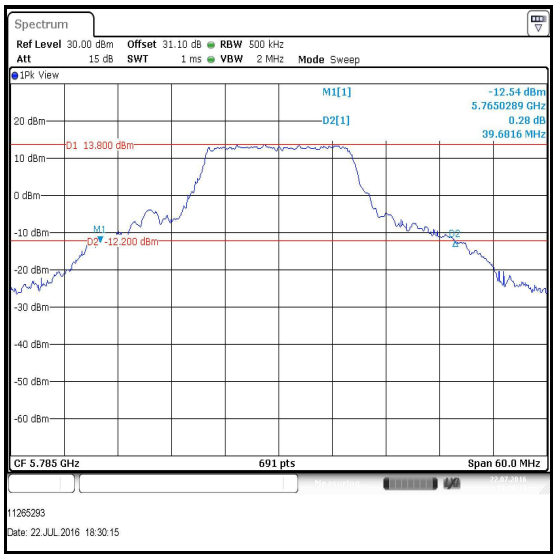
## Transmitter 26 dB Emission Bandwidth (continued)

## Results: 802.11a / 20 MHz / 5.725-5.85 GHz band

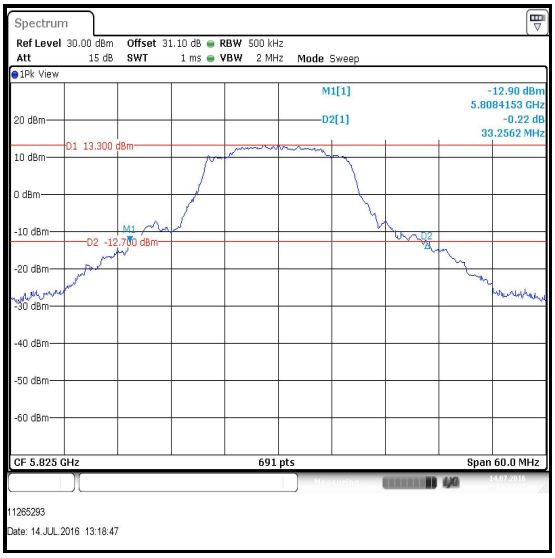
| Channel | Frequency (MHz) | Modulation scheme | Data Rate Mbps | 26 dB Emission Bandwidth (MHz) |
|---|---|---|---|---|
| Bottom | 5745 | BPSK | 6 | 34.732 |
| Middle | 5785 | BPSK | 6 | 39.682 |
| Top | 5825 | BPSK | 6 | 33.256 |




**Bottom Channel**




**Middle Channel**

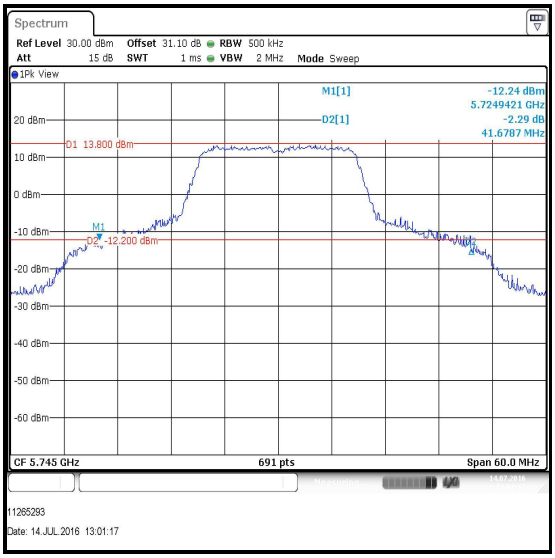



**Top Channel**

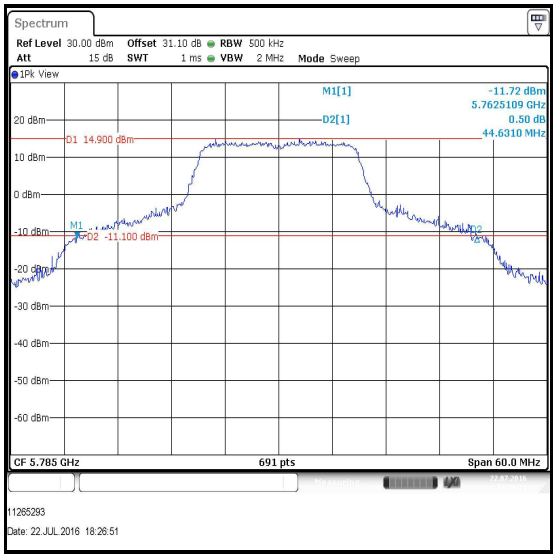
## Transmitter 26 dB Emission Bandwidth (continued)

## Results: 802.11n / 20 MHz / SISO / 5.725-5.85 GHz band

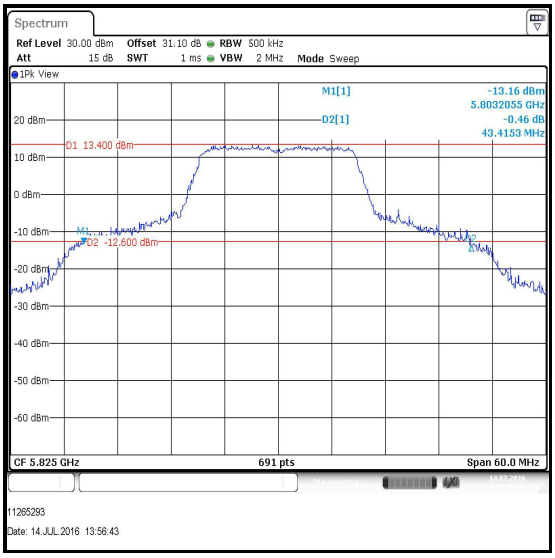
| Channel | Frequency (MHz) | Modulation scheme | Data Rate Mbps / MCS | 26 dB Emission Bandwidth (MHz) |
|---|---|---|---|---|
| Bottom | 5745 | BPSK | 6.5 / 0 | 41.679 |
| Middle | 5785 | BPSK | 6.5 / 0 | 44.631 |
| Top | 5825 | BPSK | 6.5 / 0 | 43.415 |




**Bottom Channel**




**Middle Channel**

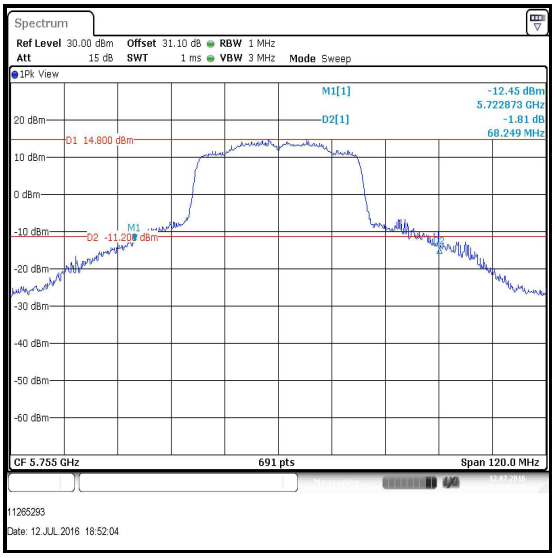



**Top Channel**

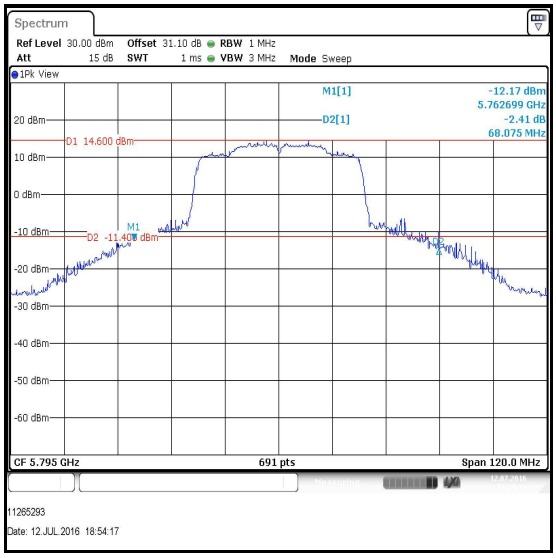
## Transmitter 26 dB Emission Bandwidth (continued)

## Results: 802.11n / 40 MHz / SISO / 5.725-5.85 GHz band

| Channel | Frequency (MHz) | Modulation scheme | Data Rate Mbps / MCS | 26 dB Emission Bandwidth (MHz) |
|---|---|---|---|---|
| Bottom | 5755 | BPSK | 13.5 / 0 | 68.249 |
| Top | 5795 | BPSK | 13.5 / 0 | 68.075 |




**Bottom Channel**

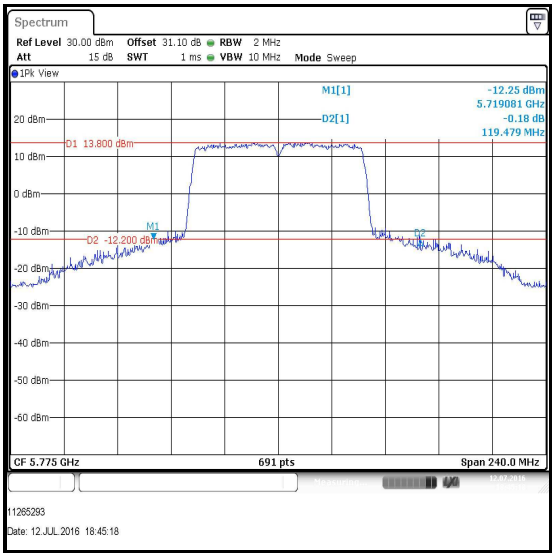



**Top Channel**

## Transmitter 26 dB Emission Bandwidth (continued)

## Results: 802.11ac / 80 MHz / SISO / 5.725-5.85 GHz band

| Channel | Frequency (MHz) | Modulation scheme | Data Rate Mbps / MCS | 26 dB Emission Bandwidth (MHz) |
|---|---|---|---|---|
| Single | 5775 | BPSK | 29.3 / 0 | 119.479 |

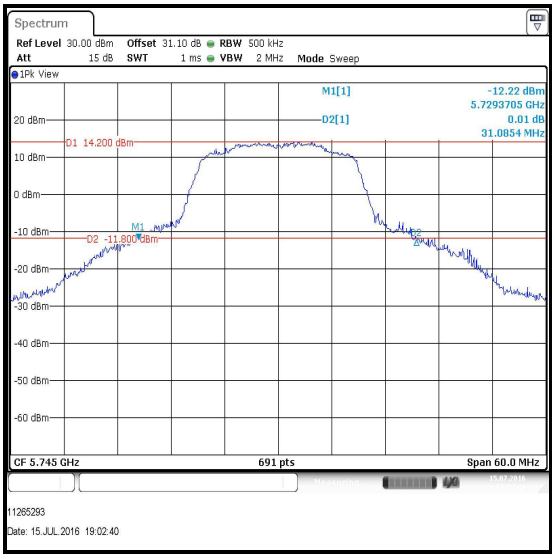



**Single Channel**

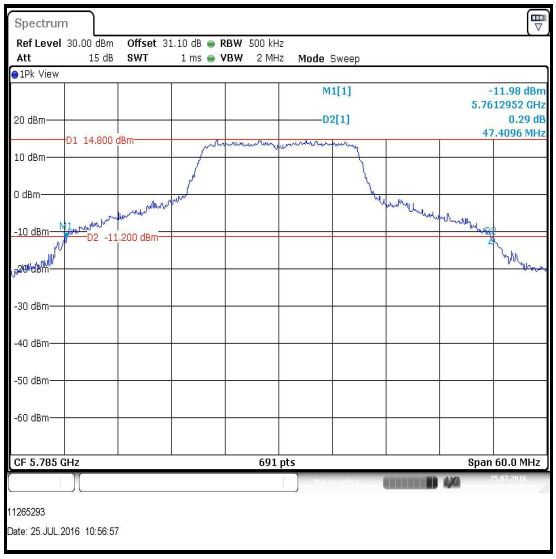
## Transmitter 26 dB Emission Bandwidth (continued)

## Results: 802.11n / 20 MHz / MIMO / 5.725-5.85 GHz band / Port 1

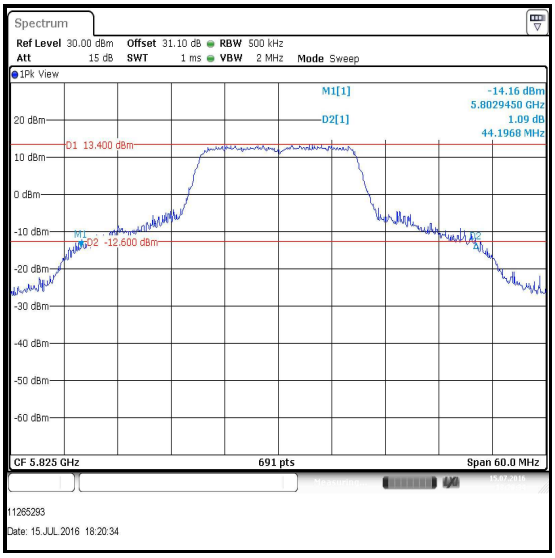
| Channel | Frequency (MHz) | Modulation scheme | Data Rate Mbps / MCS | 26 dB Emission Bandwidth (MHz) |
|---|---|---|---|---|
| Bottom | 5745 | BPSK | 6.5 / 0 | 31.085 |
| Middle | 5785 | BPSK | 6.5 / 0 | 47.410 |
| Top | 5825 | BPSK | 6.5 / 0 | 44.197 |




**Bottom Channel**




**Middle Channel**

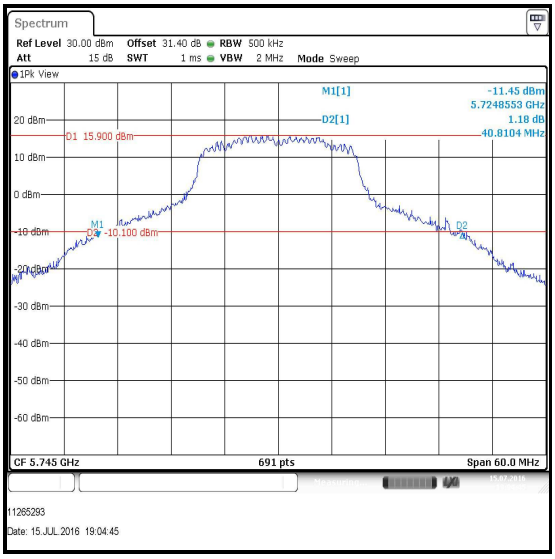



**Top Channel**

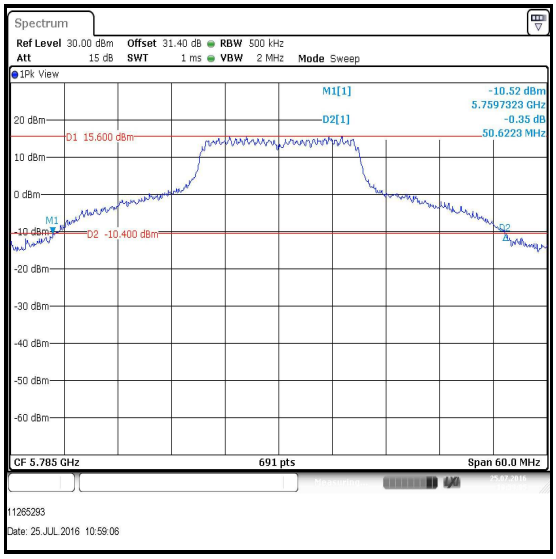
## Transmitter 26 dB Emission Bandwidth (continued)

## Results: 802.11n / 20 MHz / MIMO / 5.725-5.85 GHz band / Port 2

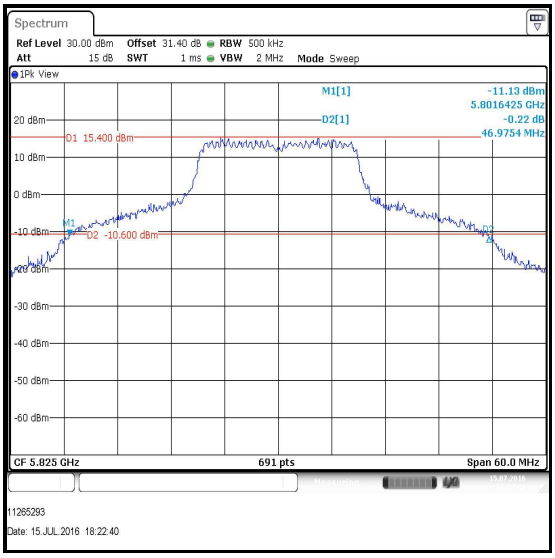
| Channel | Frequency (MHz) | Modulation scheme | Data Rate Mbps / MCS | 26 dB Emission Bandwidth (MHz) |
|---|---|---|---|---|
| Bottom | 5745 | BPSK | 6.5 / 0 | 40.810 |
| Middle | 5785 | BPSK | 6.5 / 0 | 50.622 |
| Top | 5825 | BPSK | 6.5 / 0 | 46.975 |




**Bottom Channel**




**Middle Channel**

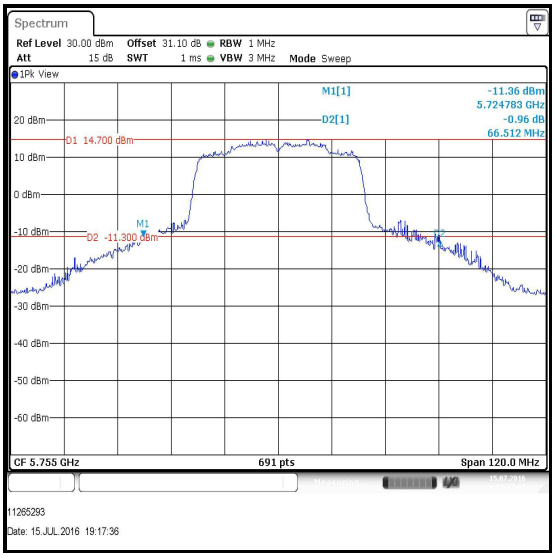



**Top Channel**

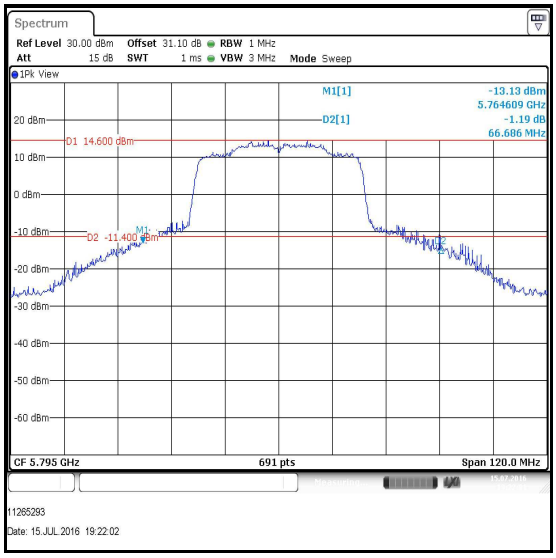
## Transmitter 26 dB Emission Bandwidth (continued)

## Results: 802.11n / 40 MHz / MIMO / 5.725-5.85 GHz band / Port 1

| Channel | Frequency (MHz) | Modulation scheme | Data Rate Mbps / MCS | 26 dB Emission Bandwidth (MHz) |
|---|---|---|---|---|
| Bottom | 5755 | BPSK | 13.5 / 0 | 66.512 |
| Top | 5795 | BPSK | 13.5 / 0 | 66.686 |




**Bottom Channel**

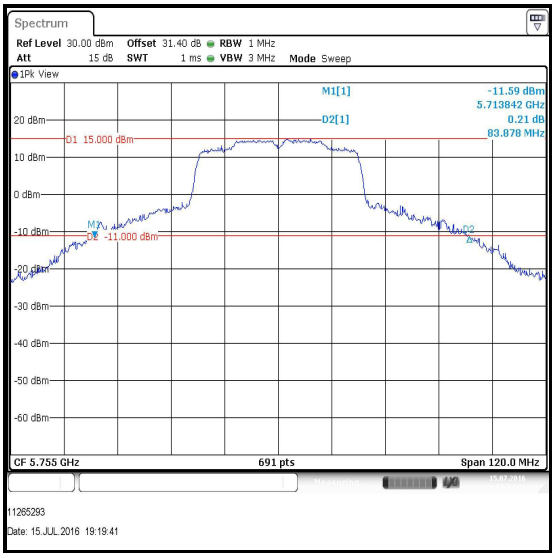



**Top Channel**

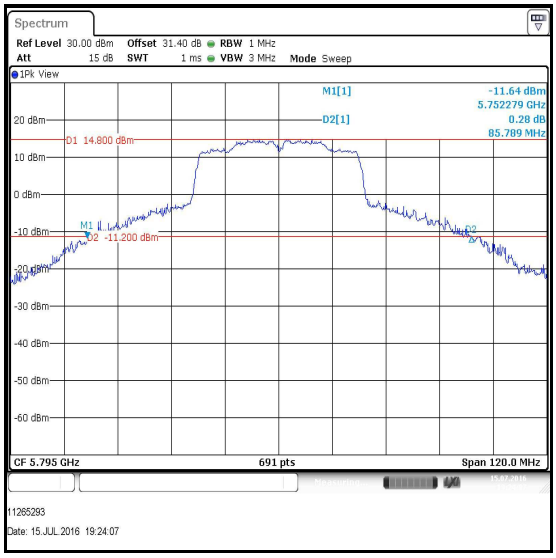
## Transmitter 26 dB Emission Bandwidth (continued)

## Results: 802.11n / 40 MHz / MIMO / 5.725-5.85 GHz band / Port 2

| Channel | Frequency (MHz) | Modulation scheme | Data Rate Mbps / MCS | 26 dB Emission Bandwidth (MHz) |
|---|---|---|---|---|
| Bottom | 5755 | BPSK | 13.5 / 0 | 83.878 |
| Top | 5795 | BPSK | 13.5 / 0 | 85.789 |




**Bottom Channel**

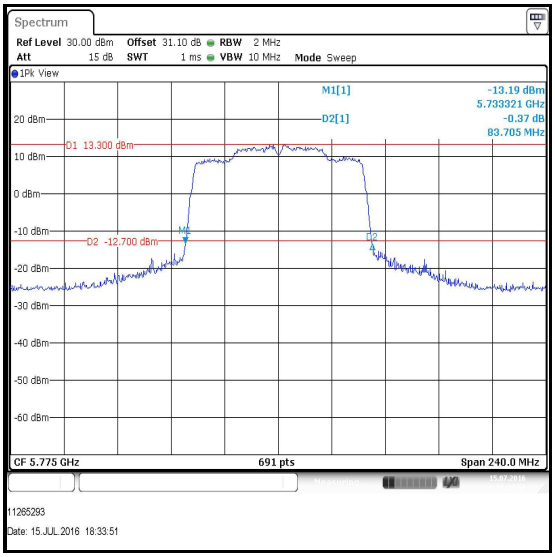



**Top Channel**

## Transmitter 26 dB Emission Bandwidth (continued)

## Results: 802.11ac / 80 MHz / MIMO / 5.725-5.85 GHz band / Port 1

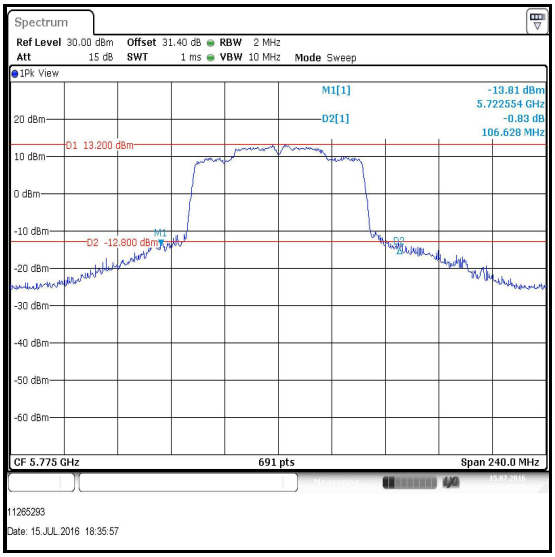
| Channel | Frequency (MHz) | Modulation scheme | Data Rate Mbps / MCS | 26 dB Emission Bandwidth (MHz) |
|---|---|---|---|---|
| Single | 5775 | BPSK | 29.3 / 0x1 | 83.705 |




**Single Channel**

## Results: 802.11ac / 80 MHz / MIMO / 5.725-5.85 GHz band / Port 2

| Channel | Frequency (MHz) | Modulation scheme | Data Rate Mbps / MCS | 26 dB Emission Bandwidth (MHz) |
|---|---|---|---|---|
| Single | 5775 | BPSK | 29.3 / 0x1 | 106.628 |




**Single Channel**

## Transmitter 26 dB Emission Bandwidth (continued)

## Test Equipment Used:

| Asset No. | Instrument | Manufacturer | Type No. | Serial No. | Date Calibration Due | Cal. Interval (Months) |
|---|---|---|---|---|---|---|
| M1659 | Thermohygrometer | JM Handelspunkt | 30.5015.13 | None stated | 02 Apr 2017 | 12 |
| M1835 | Signal Analyser | Rohde & Schwarz | FSV30 | 103050 | 27 Feb 2017 | 12 |
| M1867 | Attenuator | Huber + Suhner AG | 6820.17.B | 07101 | Calibrated before use | - |
| A2847 | Attenuator | Radiall | R411.820.121 | 24671450 | Calibrated before use | - |
| A2345 | Attenuator | Macom | 2082-6043-20 | None stated | Calibrated before use | - |
| A2952 | RF Switch | Pickering Interfaces | 64-102-002 & 40-881-001 | XZ361012 & X361507 | Calibrated before use | - |
| M1252 | Signal Generator | Hewlett Packard | 83640A | 3119A00489 | 26 Oct 2017 | 24 |

## 5.2.2. Transmitter Minimum 6 dB Bandwidth

### Test Summary:

| | | | |
|---|---|---|---|
| **Test Engineer:** | Georgios Vrezas | **Test Dates:** | 12 July 2016 to 25 July 2016 |
| **Test Sample Serial Number:** | C39RW006HFML | | |

| | |
|---|---|
| **FCC Reference:** | Part 15.407(e) |
| **Test Method Used:** | KDB 789033 D02 Section II.C.2. |

### Environmental Conditions:

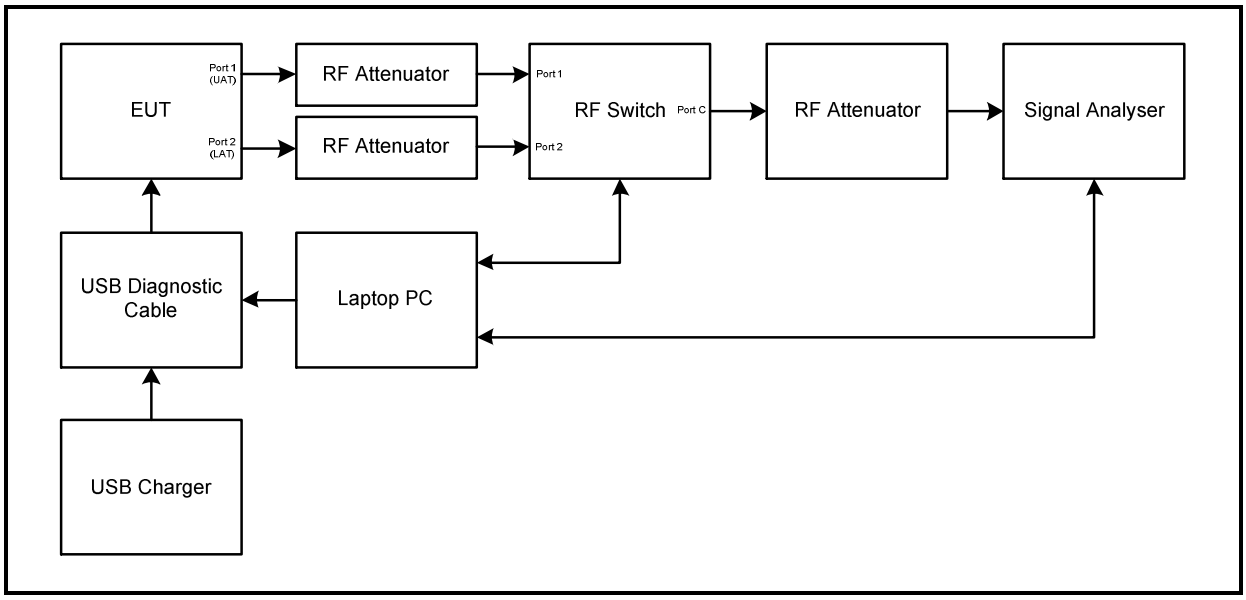
| | |
|---|---|
| **Temperature (°C):** | 24 to 25 |
| **Relative Humidity (%):** | 40 to 43 |

### Note(s):

1. The customer declared the following data rates to be used for all measurements as:
    - 802.11a – BPSK / 6 Mbps / Port 1
    - 802.11n HT20 SISO – BPSK / 6.5 Mbps / MCS0 / Port 1
    - 802.11n HT40 SISO – BPSK / 13.5 Mbps / MCS0 / Port 1
    - 802.11ac VHT80 SISO – BPSK / 29.3 Mbps / MCS0 / Port 1
    - 802.11n HT20 MIMO – BPSK / 6.5 Mbps / MCS0
    - 802.11n HT40 MIMO – BPSK / 13.5 Mbps / MCS0
    - 802.11ac VHT80 MIMO – BPSK / 29.3 Mbps / MCS0x1
2. Final measurements were performed using the above configurations on the relevant channels.
3. For channels that straddle the U-NII-2C and U-NII-3 bands at 5725 MHz, measurements were made on the portion of the emission bandwidth that is contained within the U-NII-3 band.
4. The signal analyser was connected to the RF port on the EUT using an RF switch, suitable attenuation and RF cables. An RF level offset was entered on the signal analyser to compensate for the loss of the switch, attenuators and RF cables.

## Transmitter Minimum 6 dB Bandwidth (continued)

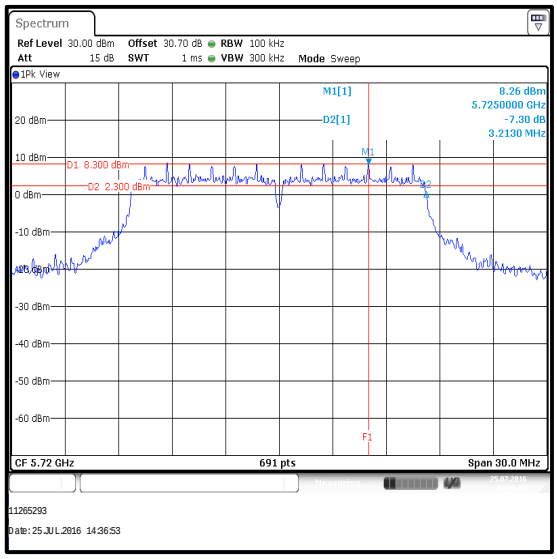
## Test setup:



## Transmitter Minimum 6 dB Bandwidth (Channels that straddle the U-NII-2C and U-NII-3 bands at 5725 MHz) (continued)

### Results: 802.11a / 20 MHz / BPSK / 6 Mbps

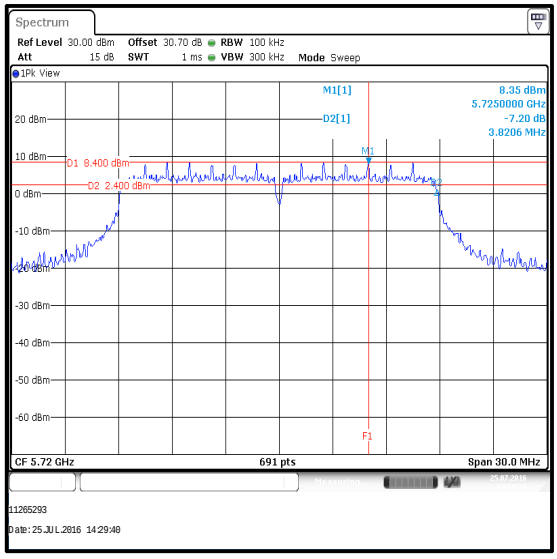
| Channel | 6 dB Bandwidth (kHz) | Limit (kHz) | Margin (kHz) | Result |
|---|---|---|---|---|
| Single | 3213 | ≥500 | 2713 | Complied |




**Single Channel**

### Results: 802.11n / 20 MHz / SISO / BPSK / MCS0

| Channel | 6 dB Bandwidth (kHz) | Limit (kHz) | Margin (kHz) | Result |
|---|---|---|---|---|
| Single | 3821 | ≥500 | 3321 | Complied |

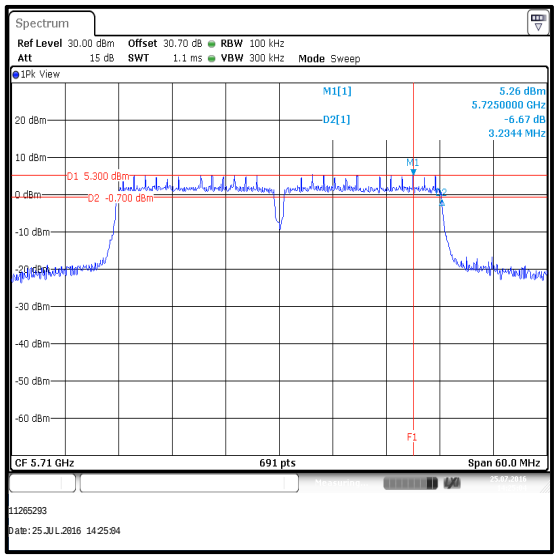



**Single Channel**

## Transmitter Minimum 6 dB Bandwidth (Channels that straddle the U-NII-2C and U-NII-3 bands at 5725 MHz) (continued)

### Results: 802.11n / 40 MHz / SISO / BPSK / MCS0

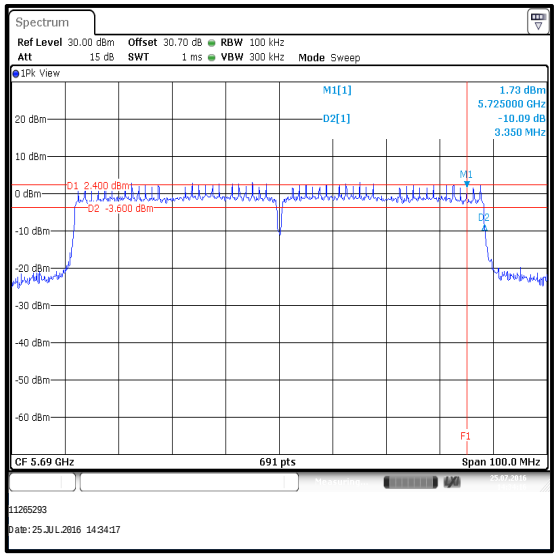
| Channel | 6 dB Bandwidth (kHz) | Limit (kHz) | Margin (kHz) | Result |
|---|---|---|---|---|
| Single | 3234 | ≥500 | 2734 | Complied |




**Single Channel**

### Results: 802.11n / 80 MHz / SISO / BPSK / MCS0

| Channel | 6 dB Bandwidth (kHz) | Limit (kHz) | Margin (kHz) | Result |
|---|---|---|---|---|
| Single | 3350 | ≥500 | 2850 | Complied |

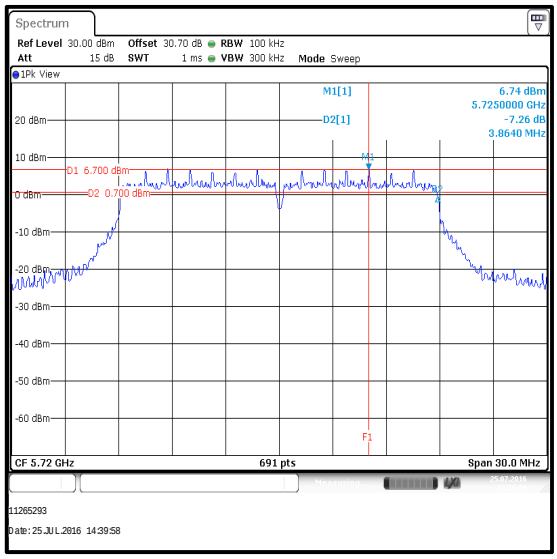



**Single Channel**

## Transmitter Minimum 6 dB Bandwidth (Channels that straddle the U-NII-2C and U-NII-3 bands at 5725 MHz) (continued)

## Results: 802.11n / 20 MHz / MIMO / BPSK / MCS0 / Port 1

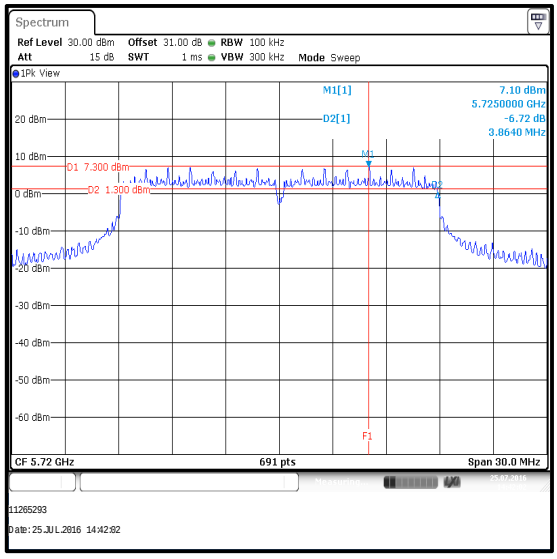
| Channel | 6 dB Bandwidth (kHz) | Limit (kHz) | Margin (kHz) | Result |
|---|---|---|---|---|
| Single | 3864 | ≥500 | 3564 | Complied |




**Single Channel**

## Results: 802.11n / 20 MHz / MIMO / BPSK / MCS0 / Port 2

| Channel | 6 dB Bandwidth (kHz) | Limit (kHz) | Margin (kHz) | Result |
|---|---|---|---|---|
| Single | 3864 | ≥500 | 3564 | Complied |

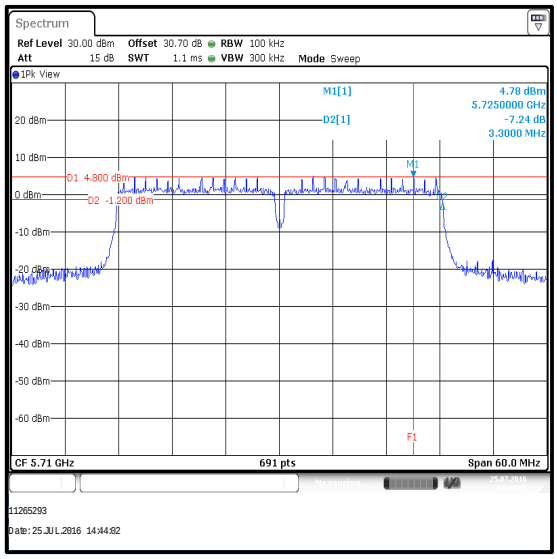



**Single Channel**

## Transmitter Minimum 6 dB Bandwidth (Channels that straddle the U-NII-2C and U-NII-3 bands at 5725 MHz) (continued)

## Results: 802.11n / 40 MHz / MIMO / BPSK / MCS0 / Port 1

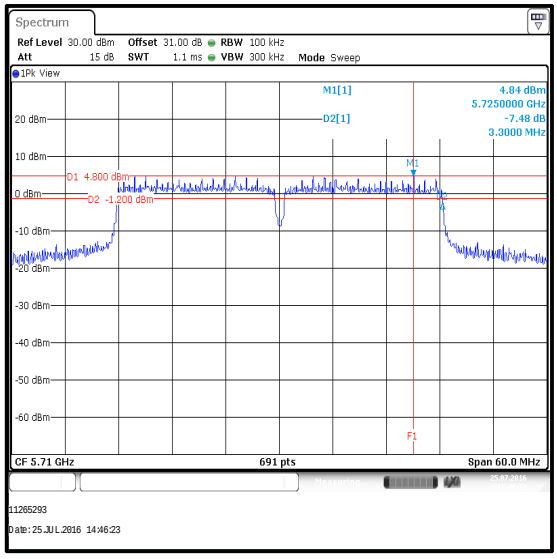
| Channel | 6 dB Bandwidth (kHz) | Limit (kHz) | Margin (kHz) | Result |
|---|---|---|---|---|
| Single | 3300 | ≥500 | 2800 | Complied |




**Single Channel**

## Results: 802.11n / 40 MHz / MIMO / BPSK / MCS0 / Port 2

| Channel | 6 dB Bandwidth (kHz) | Limit (kHz) | Margin (kHz) | Result |
|---|---|---|---|---|
| Single | 3300 | ≥500 | 2800 | Complied |

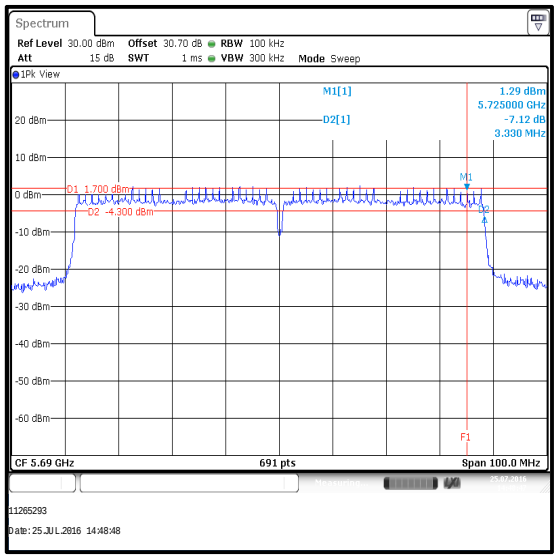



**Single Channel**

## Transmitter Minimum 6 dB Bandwidth (Channels that straddle the U-NII-2C and U-NII-3 bands at 5725 MHz) (continued)

### Results: 802.11ac / 80 MHz / MIMO / BPSK / MCS0x1 / Port 1

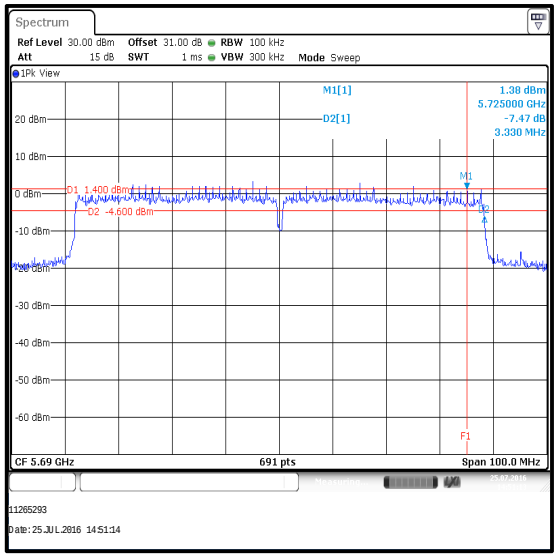
| Channel | 6 dB Bandwidth (kHz) | Limit (kHz) | Margin (kHz) | Result |
|---|---|---|---|---|
| Single | 3330 | ≥500 | 2830 | Complied |




**Single Channel**

### Results: 802.11ac / 80 MHz / MIMO / BPSK / MCS0x1 / Port 2

| Channel | 6 dB Bandwidth (kHz) | Limit (kHz) | Margin (kHz) | Result |
|---|---|---|---|---|
| Single | 3330 | ≥500 | 2830 | Complied |

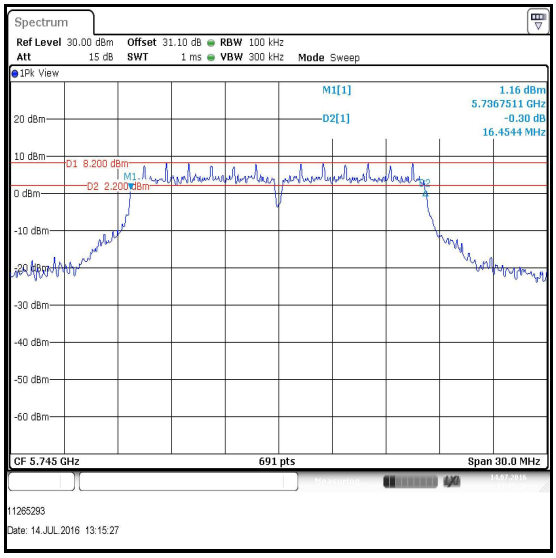



**Single Channel**

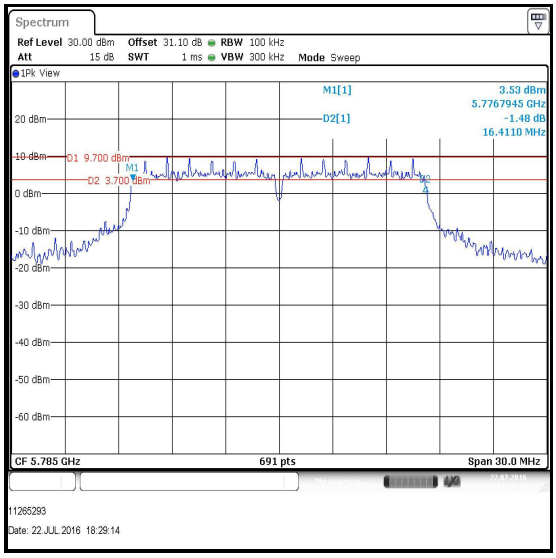
## Transmitter Minimum 6 dB Bandwidth (5.725-5.85 GHz band) (continued)

## Results: 802.11a / 20 MHz / BPSK / 6 Mbps

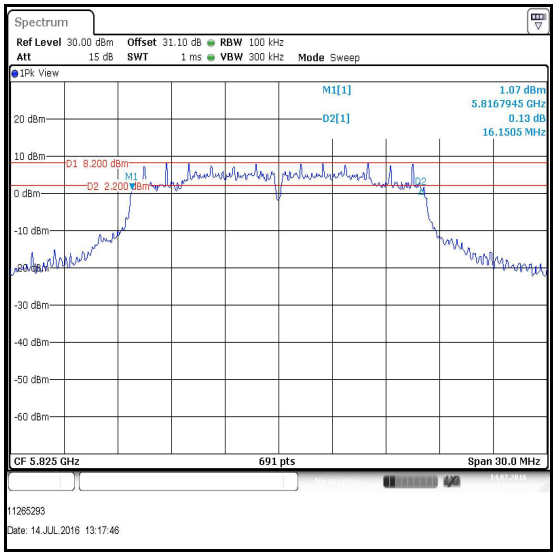
| Channel | 6 dB Bandwidth (kHz) | Limit (kHz) | Margin (kHz) | Result |
|---|---|---|---|---|
| Bottom | 16454 | ≥500 | 15954 | Complied |
| Middle | 16411 | ≥500 | 15911 | Complied |
| Top | 16151 | ≥500 | 15651 | Complied |




**Bottom Channel**




**Middle Channel**




**Top Channel**