

# MAXIMUM POWER SPECTRAL DENSITY - 5.8 GHz BAND



XMH 2022.02.07.0

Testing was performed using the mode(s) of operation and configuration(s) noted within the report. The individuals and/or the organization requesting the test provided the modes, configurations and settings used to complete the evaluation. The actual test parameters are specified in the test data, this includes items such as investigated frequency range (scanned) and test levels. The testing methods and performance specifications, as well as the test site used for the evaluation are indicated in the test data.

## TEST EQUIPMENT

| Description                  | Manufacturer       | Model                 | ID  | Last Cal.  | Cal. Due   |
|------------------------------|--------------------|-----------------------|-----|------------|------------|
| Generator - Signal           | Keysight           | N5182B                | TFU | 2020-11-20 | 2022-11-20 |
| Cable                        | Micro-Coax         | UFD150A-1-0720-200200 | EVK | 2021-03-14 | 2022-03-14 |
| Attenuator                   | S.M. Electronics   | SA26B-20              | AUY | 2021-03-14 | 2022-03-14 |
| Block - DC                   | Fairview Microwave | SD3379                | AMW | 2021-03-14 | 2022-03-14 |
| Analyzer - Spectrum Analyzer | Keysight           | N9010A                | AFO | 2021-07-06 | 2022-07-06 |

## TEST DESCRIPTION

The measurement was made using a direct connection between the RF output of the EUT and a spectrum analyzer.

The transmit frequency was set to the required channels in each band. The transmit power was set to its default maximum. The radio was operated in the modes as shown in the following data sheets.

Prior to measuring maximum power spectral density, the emission bandwidth (B) was measured. The method of measuring the emission bandwidth and the associated data are found elsewhere in this test report

The maximum power spectral density was measured using ANSI C63.10:2013, Clause 12.3.2.3, Method SA-2 (RMS detection and trace averaging across the on and off times of the EUT transmission and use of a duty cycle correction factor), consistent with the method used for maximum conducted output power.

The spectrum analyzer settings were set to:

- Span set to encompass the entire 99% OBW of the signal
- RBW = 510 kHz
- VBW = 1.5 MHz
- RMS Detector
- Trace average 100 traces in power averaging mode

The marker peak search function of the analyzer as used to determine to be the highest level found across the emission in any 510 kHz band after 100 sweeps of power averaging (not video averaging).

A duty cycle correction factor was added to the measurement using the results of the formula of  $10 \cdot \log(1/D)$  where D is the duty cycle.

The result is the peak power spectral density (PPSD).

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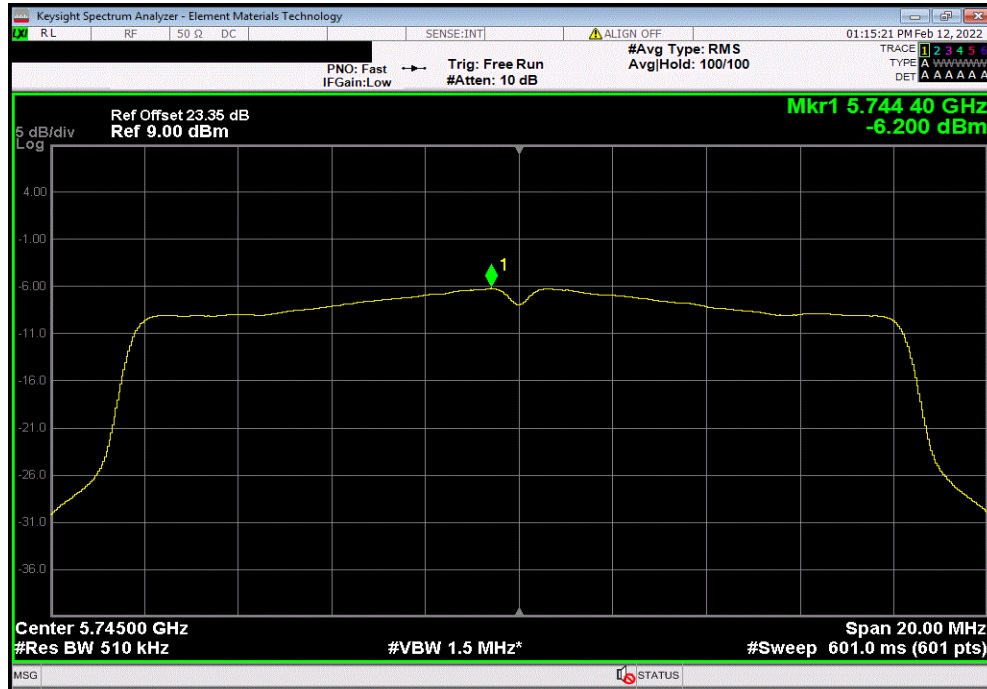
|                                                                                     |                |                                                                                             |                             |                         |                         |         |
|-------------------------------------------------------------------------------------|----------------|---------------------------------------------------------------------------------------------|-----------------------------|-------------------------|-------------------------|---------|
| EUT: 43.0536.00                                                                     |                |                                                                                             | Work Order: A-DE0170        |                         |                         |         |
| Serial Number: SN001 00001                                                          |                |                                                                                             | Date: 15-Feb-22             |                         |                         |         |
| Customer: A-dec, Inc.                                                               |                |                                                                                             | Temperature: 19 °C          |                         |                         |         |
| Attendees: None                                                                     |                |                                                                                             | Humidity: 29.9% RH          |                         |                         |         |
| Project: None                                                                       |                |                                                                                             | Barometric Pres.: 1033 mbar |                         |                         |         |
| Tested by: Jeff Alcoke                                                              |                | Power: 3.3 VDC via 110VAC/60Hz                                                              | Job Site: EV06              |                         |                         |         |
| TEST SPECIFICATIONS                                                                 |                | Test Method                                                                                 |                             |                         |                         |         |
| FCC 15.407:2022                                                                     |                | ANSI C63.10:2013                                                                            |                             |                         |                         |         |
| COMMENTS                                                                            |                |                                                                                             |                             |                         |                         |         |
| Reference level offset includes: DC Block, 20 dB attenuator, and measurement cable. |                |                                                                                             |                             |                         |                         |         |
| DEVIATIONS FROM TEST STANDARD                                                       |                |                                                                                             |                             |                         |                         |         |
| None                                                                                |                |                                                                                             |                             |                         |                         |         |
| Configuration #                                                                     | 3              | Signature  |                             |                         |                         |         |
|                                                                                     |                | Power<br>(dBm/Ref BW)                                                                       | Duty Cycle<br>Factor (dB)   | Density<br>(dBm/Ref BW) | Limit<br>≤ (dBm/Ref BW) | Results |
| 5725 - 5785 MHz Band                                                                |                |                                                                                             |                             |                         |                         |         |
| 802.11(a) No HT                                                                     |                |                                                                                             |                             |                         |                         |         |
| Low Channel, Ch 149 - 5745 MHz                                                      |                |                                                                                             |                             |                         |                         |         |
|                                                                                     | 6 Mbps         | -6.2                                                                                        | 0.1                         | -6.1                    | 30                      | Pass    |
|                                                                                     | 36 Mbps        | -6.715                                                                                      | 0.3                         | -6.4                    | 30                      | Pass    |
|                                                                                     | 54 Mbps        | -6.265                                                                                      | 0.5                         | -5.8                    | 30                      | Pass    |
| Mid Channel, Ch 157 - 5785 MHz                                                      |                |                                                                                             |                             |                         |                         |         |
|                                                                                     | 6 Mbps         | -6.355                                                                                      | 0.1                         | -6.3                    | 30                      | Pass    |
|                                                                                     | 36 Mbps        | -6.571                                                                                      | 0.3                         | -6.3                    | 30                      | Pass    |
|                                                                                     | 54 Mbps        | -6.432                                                                                      | 0.5                         | -5.9                    | 30                      | Pass    |
| High Channel, Ch 165 - 5825 MHz                                                     |                |                                                                                             |                             |                         |                         |         |
|                                                                                     | 6 Mbps         | -6.233                                                                                      | 0.1                         | -6.1                    | 30                      | Pass    |
|                                                                                     | 36 Mbps        | -6.409                                                                                      | 0.3                         | -6.1                    | 30                      | Pass    |
|                                                                                     | 54 Mbps        | -6.296                                                                                      | 0.5                         | -5.8                    | 30                      | Pass    |
| 802.11(n/ac) VHT20                                                                  |                |                                                                                             |                             |                         |                         |         |
| Low Channel, Ch 149 - 5745 MHz                                                      |                |                                                                                             |                             |                         |                         |         |
|                                                                                     | MCS0           | -6.738                                                                                      | 0.1                         | -6.6                    | 30                      | Pass    |
|                                                                                     | MCS7           | -7.317                                                                                      | 0.5                         | -6.8                    | 30                      | Pass    |
|                                                                                     | MCS8 (256-QAM) | -7.291                                                                                      | 0.5                         | -6.8                    | 30                      | Pass    |
| Mid Channel, Ch 157 - 5785 MHz                                                      |                |                                                                                             |                             |                         |                         |         |
|                                                                                     | MCS0           | -6.783                                                                                      | 0.1                         | -6.7                    | 30                      | Pass    |
|                                                                                     | MCS7           | -7.377                                                                                      | 0.5                         | -6.9                    | 30                      | Pass    |
|                                                                                     | MCS8 (256-QAM) | -7.387                                                                                      | 0.5                         | -6.9                    | 30                      | Pass    |
| High Channel, Ch 165 - 5825 MHz                                                     |                |                                                                                             |                             |                         |                         |         |
|                                                                                     | MCS0           | -6.696                                                                                      | 0.1                         | -6.6                    | 30                      | Pass    |
|                                                                                     | MCS7           | -6.94                                                                                       | 0.5                         | -6.4                    | 30                      | Pass    |
|                                                                                     | MCS8 (256-QAM) | -6.99                                                                                       | 0.5                         | -6.5                    | 30                      | Pass    |
| 802.11(n/ac) VHT40                                                                  |                |                                                                                             |                             |                         |                         |         |
| Low Channel, Ch 149/153 - 5755 MHz                                                  |                |                                                                                             |                             |                         |                         |         |
|                                                                                     | MCS0           | -10.056                                                                                     | 0.1                         | -10                     | 30                      | Pass    |
|                                                                                     | MCS7           | -11.321                                                                                     | 0.7                         | -10.6                   | 30                      | Pass    |
|                                                                                     | MCS9 (256-QAM) | -10.027                                                                                     | 0.8                         | -9.2                    | 30                      | Pass    |
| High Channel, Ch 157/161 - 5795 MHz                                                 |                |                                                                                             |                             |                         |                         |         |
|                                                                                     | MCS0           | -10.841                                                                                     | 0.1                         | -10.7                   | 30                      | Pass    |
|                                                                                     | MCS7           | -11.291                                                                                     | 0.7                         | -10.6                   | 30                      | Pass    |
|                                                                                     | MCS9 (256-QAM) | -10.091                                                                                     | 0.8                         | -9.3                    | 30                      | Pass    |
| 802.11(n/ac) VHT80                                                                  |                |                                                                                             |                             |                         |                         |         |
| Low Channel, Ch 149-161 - 5775 MHz                                                  |                |                                                                                             |                             |                         |                         |         |
|                                                                                     | MCS0           | -14.849                                                                                     | 0.2                         | -14.6                   | 30                      | Pass    |
|                                                                                     | MCS9 (256-QAM) | -14.911                                                                                     | 1.1                         | -13.9                   | 30                      | Pass    |

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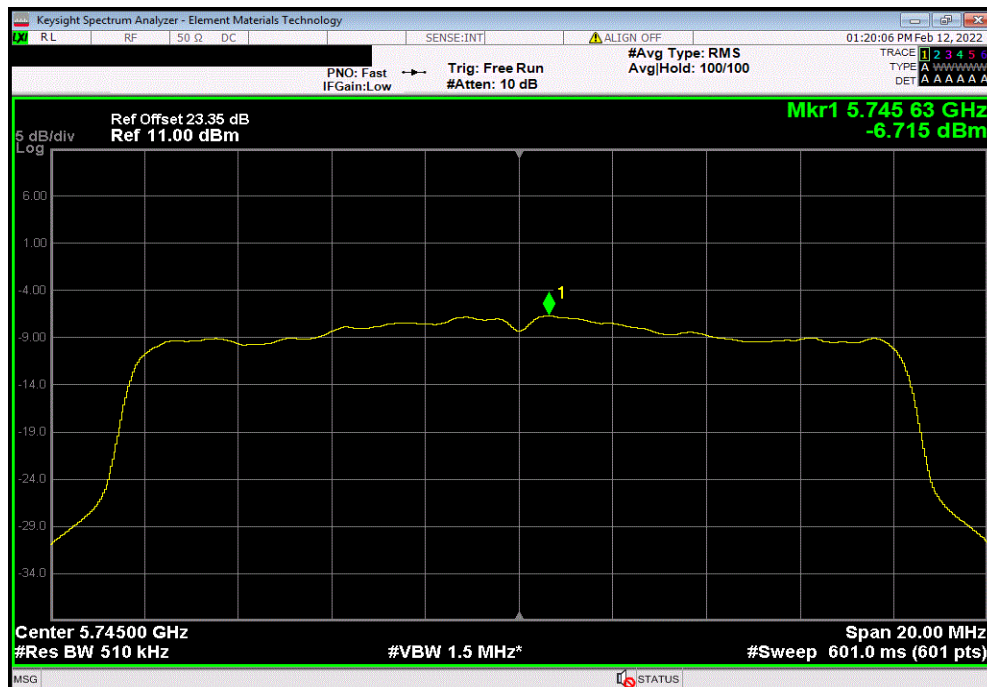


TbTx 2021.03.19.1 XMR 2022.02.07.0

| 5725 - 5785 MHz Band, 802.11(a) No HT, Low Channel, Ch 149 - 5745 MHz, 6 Mbps |                           |                         |                         |         |  |  |
|-------------------------------------------------------------------------------|---------------------------|-------------------------|-------------------------|---------|--|--|
| Power<br>(dBm/Ref BW)                                                         | Duty Cycle<br>Factor (dB) | Density<br>(dBm/Ref BW) | Limit<br>≤ (dBm/Ref BW) | Results |  |  |
| -6.2                                                                          | 0.1                       | -6.1                    | 30                      | Pass    |  |  |

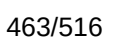
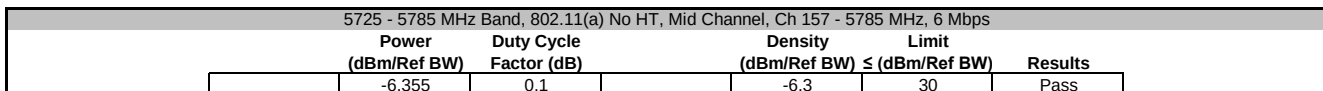


| 5725 - 5785 MHz Band, 802.11(a) No HT, Low Channel, Ch 149 - 5745 MHz, 36 Mbps |                           |                         |                         |         |  |  |
|--------------------------------------------------------------------------------|---------------------------|-------------------------|-------------------------|---------|--|--|
| Power<br>(dBm/Ref BW)                                                          | Duty Cycle<br>Factor (dB) | Density<br>(dBm/Ref BW) | Limit<br>≤ (dBm/Ref BW) | Results |  |  |
| -6.715                                                                         | 0.3                       | -6.4                    | 30                      | Pass    |  |  |





| 5725 - 5785 MHz Band, 802.11(a) No HT, Low Channel, Ch 149 - 5745 MHz, 54 Mbps |                           |  |                                        |       |         |  |
|--------------------------------------------------------------------------------|---------------------------|--|----------------------------------------|-------|---------|--|
| Power<br>(dBm/Ref BW)                                                          | Duty Cycle<br>Factor (dB) |  | Density<br>(dBm/Ref BW) ≤ (dBm/Ref BW) | Limit | Results |  |
| -6.265                                                                         | 0.5                       |  | -5.8                                   | 30    | Pass    |  |

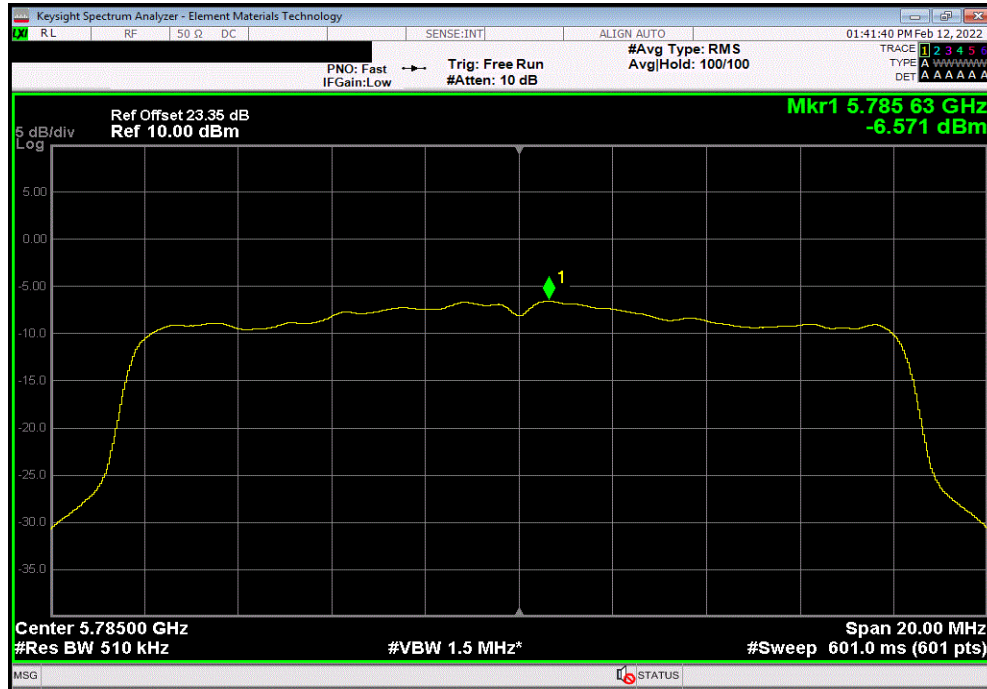


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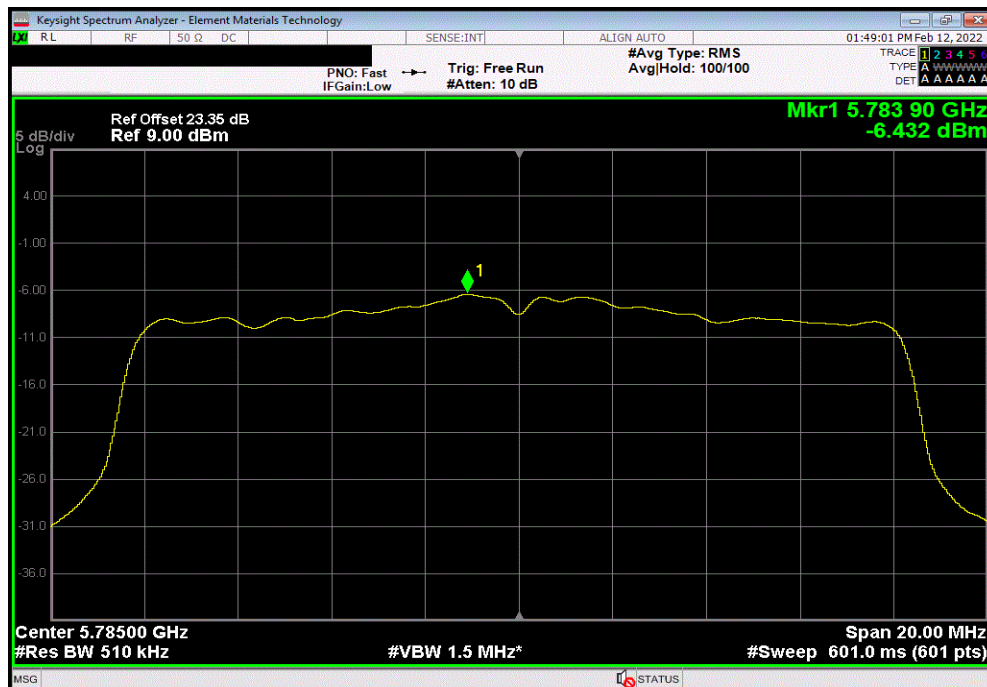


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| 5725 - 5785 MHz Band, 802.11(a) No HT, Mid Channel, Ch 157 - 5785 MHz, 36 Mbps |                           |                         |                         |         |  |  |
|--------------------------------------------------------------------------------|---------------------------|-------------------------|-------------------------|---------|--|--|
| Power<br>(dBm/Ref BW)                                                          | Duty Cycle<br>Factor (dB) | Density<br>(dBm/Ref BW) | Limit<br>≤ (dBm/Ref BW) | Results |  |  |
| -6.571                                                                         | 0.3                       | -6.3                    | 30                      | Pass    |  |  |

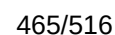


| 5725 - 5785 MHz Band, 802.11(a) No HT, Mid Channel, Ch 157 - 5785 MHz, 54 Mbps |                           |                         |                         |         |  |  |
|--------------------------------------------------------------------------------|---------------------------|-------------------------|-------------------------|---------|--|--|
| Power<br>(dBm/Ref BW)                                                          | Duty Cycle<br>Factor (dB) | Density<br>(dBm/Ref BW) | Limit<br>≤ (dBm/Ref BW) | Results |  |  |
| -6.432                                                                         | 0.5                       | -5.9                    | 30                      | Pass    |  |  |





## Results



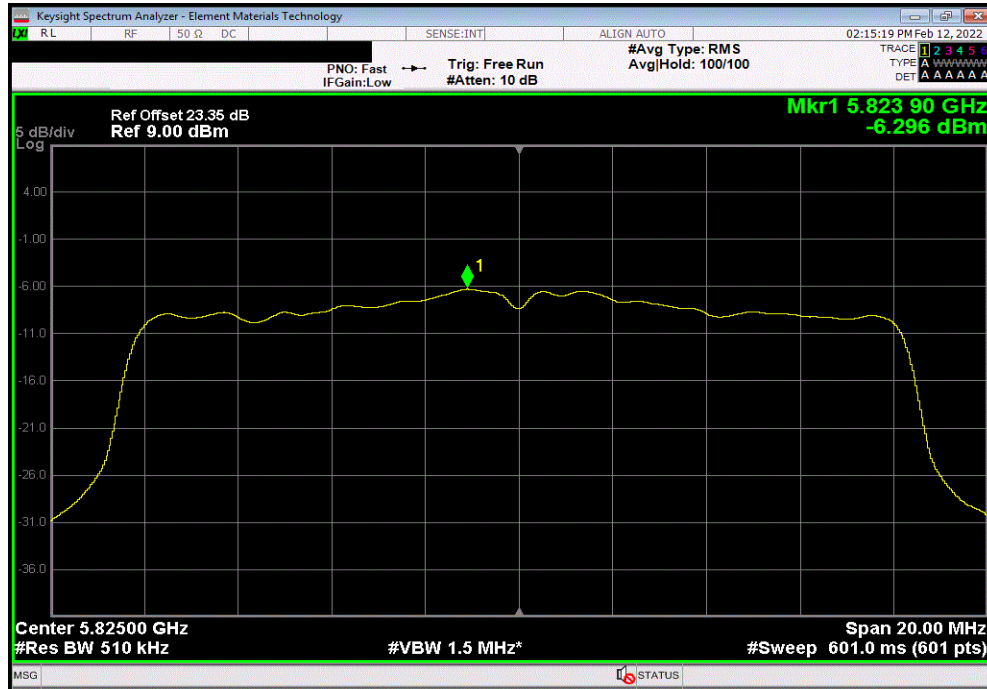


# MAXIMUM POWER SPECTRAL DENSITY - 5.8 GHz BAND

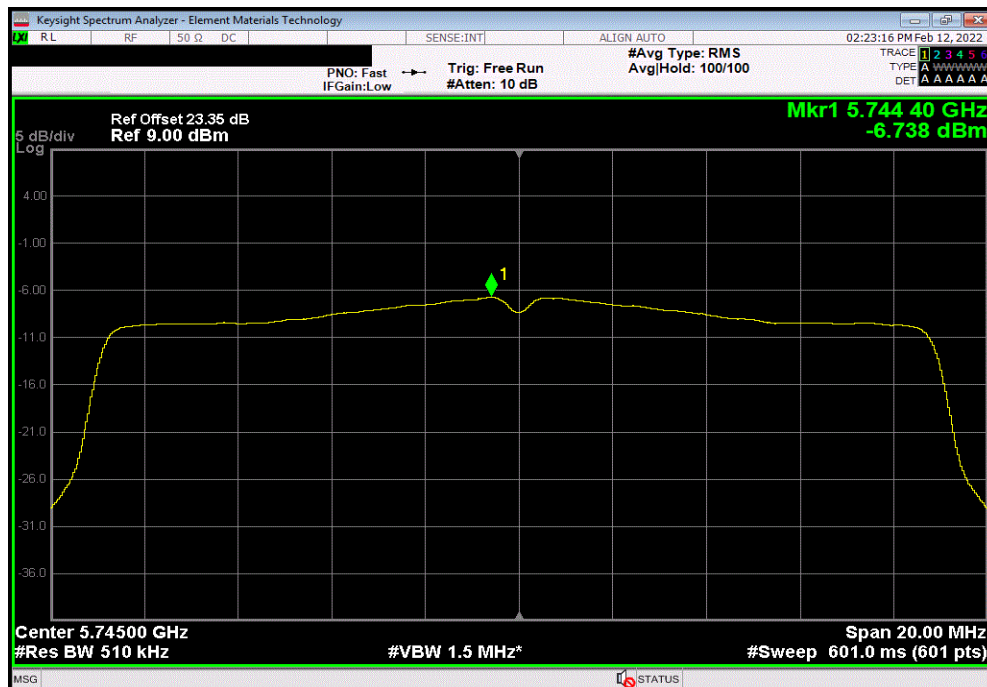


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| 5725 - 5785 MHz Band, 802.11(a) No HT, High Channel, Ch 165 - 5825 MHz, 54 Mbps |                           |                         |                         |         |  |  |
|---------------------------------------------------------------------------------|---------------------------|-------------------------|-------------------------|---------|--|--|
| Power<br>(dBm/Ref BW)                                                           | Duty Cycle<br>Factor (dB) | Density<br>(dBm/Ref BW) | Limit<br>≤ (dBm/Ref BW) | Results |  |  |
| -6.296                                                                          | 0.5                       | -5.8                    | 30                      | Pass    |  |  |



| 5725 - 5785 MHz Band, 802.11(n/ac) VHT20, Low Channel, Ch 149 - 5745 MHz, MCS0 |                           |                         |                         |         |  |  |
|--------------------------------------------------------------------------------|---------------------------|-------------------------|-------------------------|---------|--|--|
| Power<br>(dBm/Ref BW)                                                          | Duty Cycle<br>Factor (dB) | Density<br>(dBm/Ref BW) | Limit<br>≤ (dBm/Ref BW) | Results |  |  |
| -6.738                                                                         | 0.1                       | -6.6                    | 30                      | Pass    |  |  |

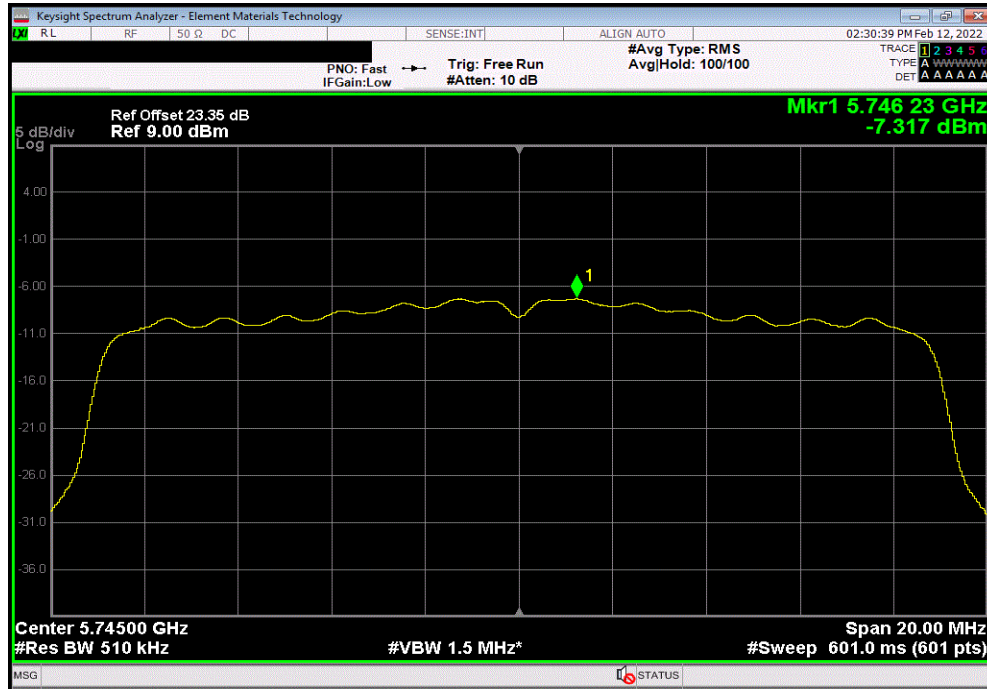


# MAXIMUM POWER SPECTRAL DENSITY - 5.8 GHz BAND

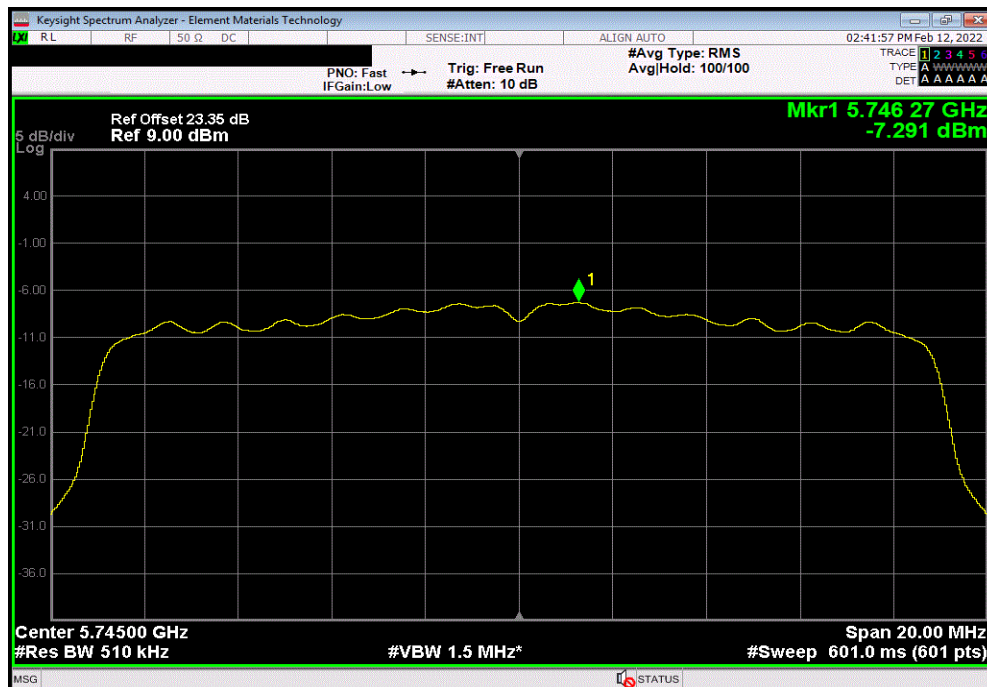


TbTx 2021.03.19.1 XM8 2022.02.07.0

| 5725 - 5785 MHz Band, 802.11(n/ac) VHT20, Low Channel, Ch 149 - 5745 MHz, MCS7 |                           |                         |                         |         |  |  |
|--------------------------------------------------------------------------------|---------------------------|-------------------------|-------------------------|---------|--|--|
| Power<br>(dBm/Ref BW)                                                          | Duty Cycle<br>Factor (dB) | Density<br>(dBm/Ref BW) | Limit<br>≤ (dBm/Ref BW) | Results |  |  |
| -7.317                                                                         | 0.5                       | -6.8                    | 30                      | Pass    |  |  |



| 5725 - 5785 MHz Band, 802.11(n/ac) VHT20, Low Channel, Ch 149 - 5745 MHz, MCS8 (256-QAM) |                           |                         |                         |         |  |  |
|------------------------------------------------------------------------------------------|---------------------------|-------------------------|-------------------------|---------|--|--|
| Power<br>(dBm/Ref BW)                                                                    | Duty Cycle<br>Factor (dB) | Density<br>(dBm/Ref BW) | Limit<br>≤ (dBm/Ref BW) | Results |  |  |
| -7.291                                                                                   | 0.5                       | -6.8                    | 30                      | Pass    |  |  |



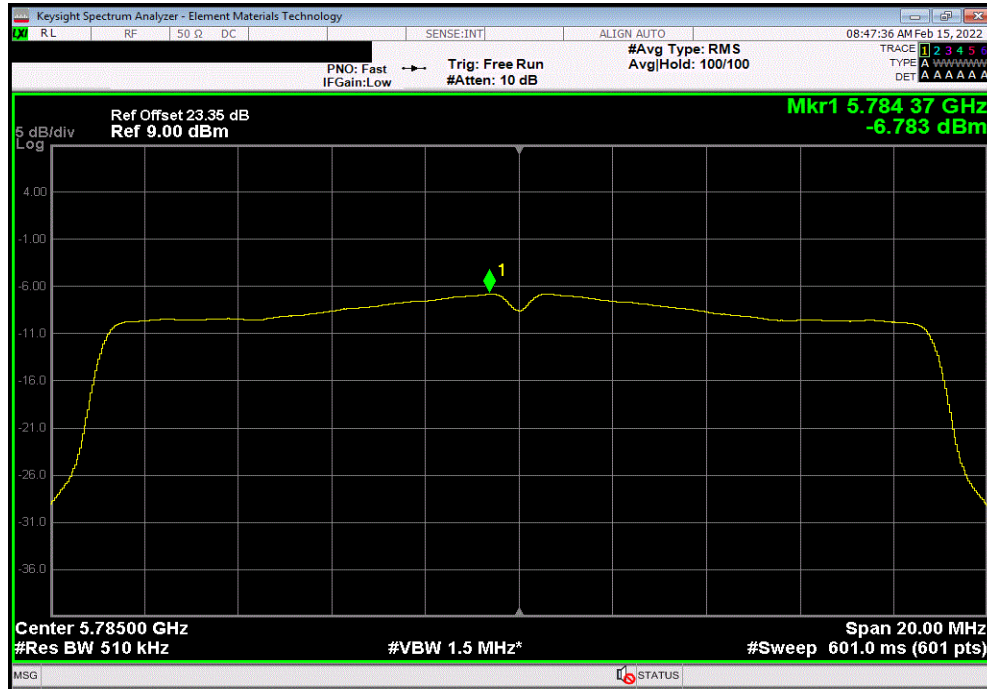


# MAXIMUM POWER SPECTRAL DENSITY - 5.8 GHz BAND

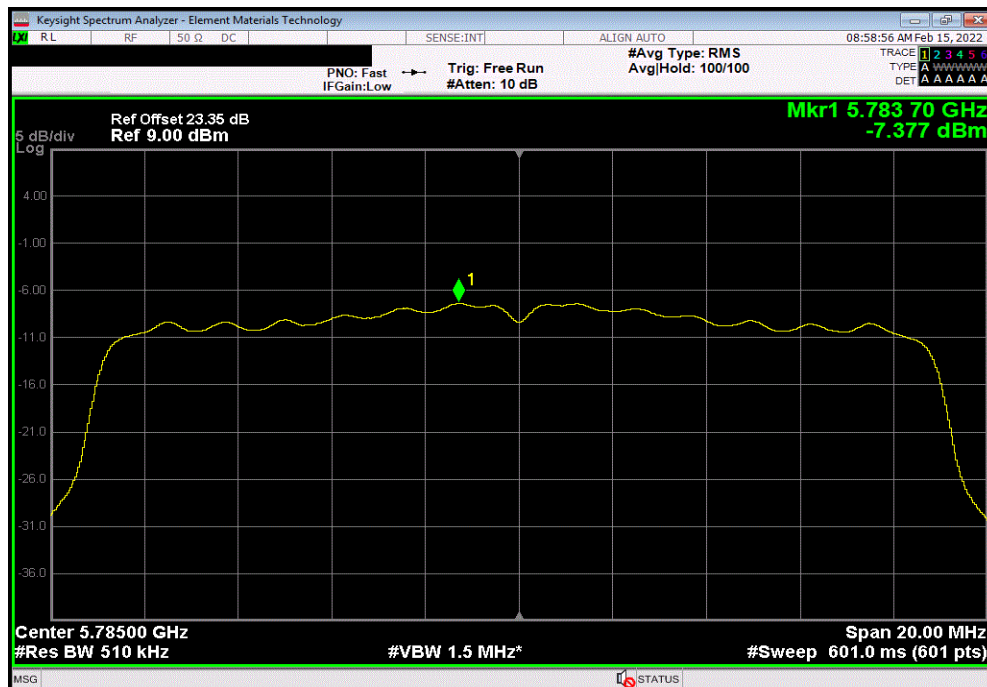


TMTx 2021.03.10.1 XMR 2022.02.07.0

| 5725 - 5785 MHz Band, 802.11(n/ac) VHT20, Mid Channel, Ch 157 - 5785 MHz, MCS0 |                           |                         |                         |         |  |  |
|--------------------------------------------------------------------------------|---------------------------|-------------------------|-------------------------|---------|--|--|
| Power<br>(dBm/Ref BW)                                                          | Duty Cycle<br>Factor (dB) | Density<br>(dBm/Ref BW) | Limit<br>≤ (dBm/Ref BW) | Results |  |  |
| -6.783                                                                         | 0.1                       | -6.7                    | 30                      | Pass    |  |  |



| 5725 - 5785 MHz Band, 802.11(n/ac) VHT20, Mid Channel, Ch 157 - 5785 MHz, MCS7 |                           |                         |                         |         |  |  |
|--------------------------------------------------------------------------------|---------------------------|-------------------------|-------------------------|---------|--|--|
| Power<br>(dBm/Ref BW)                                                          | Duty Cycle<br>Factor (dB) | Density<br>(dBm/Ref BW) | Limit<br>≤ (dBm/Ref BW) | Results |  |  |
| -7.377                                                                         | 0.5                       | -6.9                    | 30                      | Pass    |  |  |

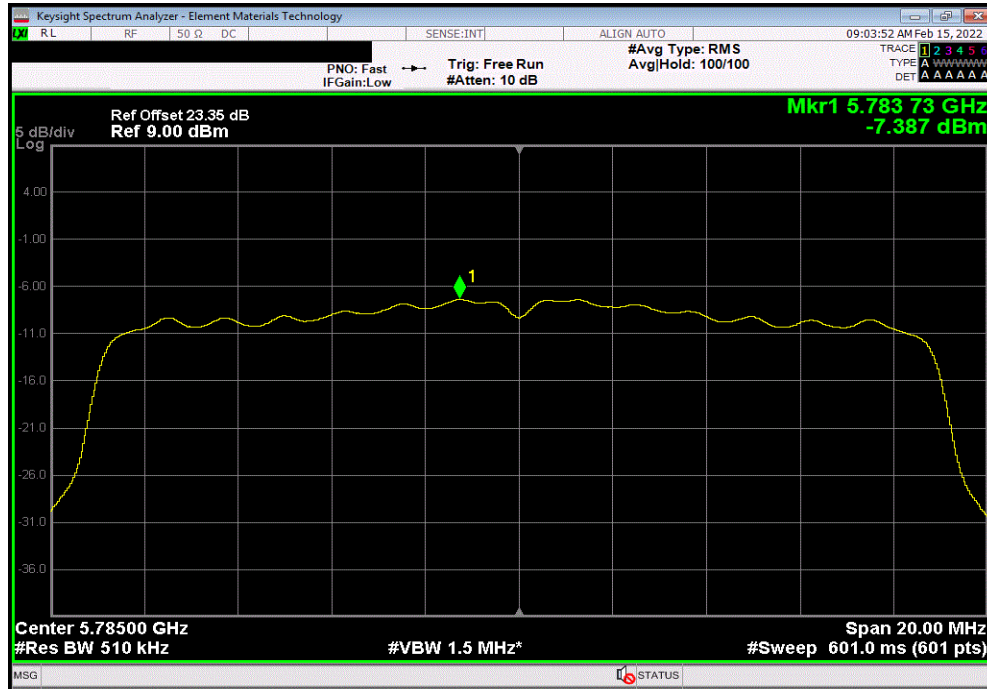


# MAXIMUM POWER SPECTRAL DENSITY - 5.8 GHz BAND

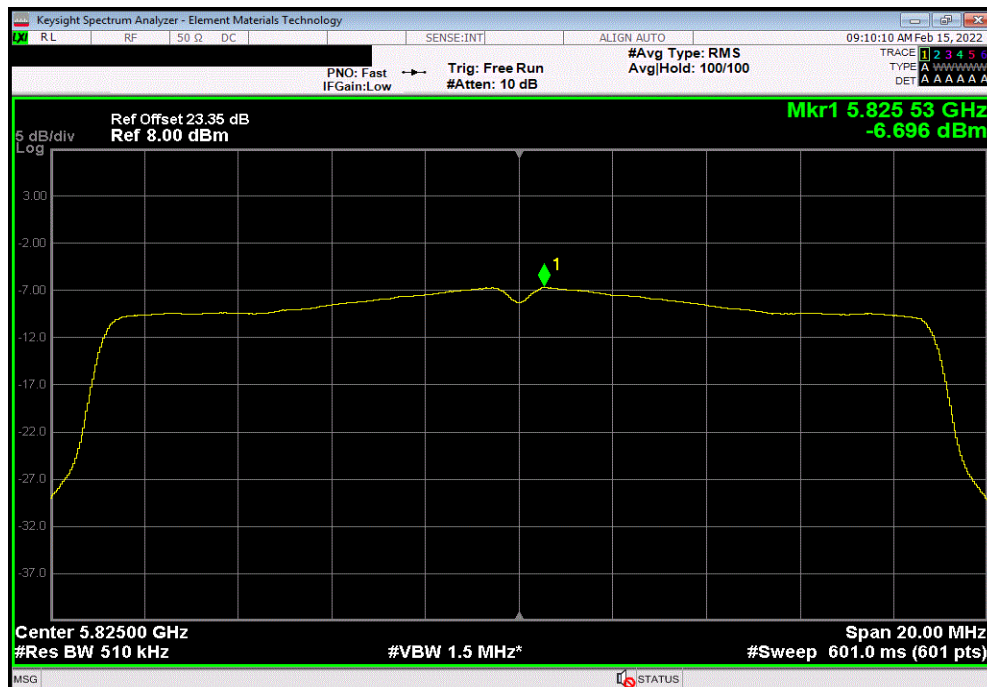


TMTx 2021.03.19.1 XMR 2022.02.07.0

| 5725 - 5785 MHz Band, 802.11(n/ac) VHT20, Mid Channel, Ch 157 - 5785 MHz, MCS8 (256-QAM) |                           |                         |                         |         |  |  |
|------------------------------------------------------------------------------------------|---------------------------|-------------------------|-------------------------|---------|--|--|
| Power<br>(dBm/Ref BW)                                                                    | Duty Cycle<br>Factor (dB) | Density<br>(dBm/Ref BW) | Limit<br>≤ (dBm/Ref BW) | Results |  |  |
| -7.387                                                                                   | 0.5                       | -6.9                    | 30                      | Pass    |  |  |



| 5725 - 5785 MHz Band, 802.11(n/ac) VHT20, High Channel, Ch 165 - 5825 MHz, MCS0 |                           |                         |                         |         |  |  |
|---------------------------------------------------------------------------------|---------------------------|-------------------------|-------------------------|---------|--|--|
| Power<br>(dBm/Ref BW)                                                           | Duty Cycle<br>Factor (dB) | Density<br>(dBm/Ref BW) | Limit<br>≤ (dBm/Ref BW) | Results |  |  |
| -6.696                                                                          | 0.1                       | -6.6                    | 30                      | Pass    |  |  |

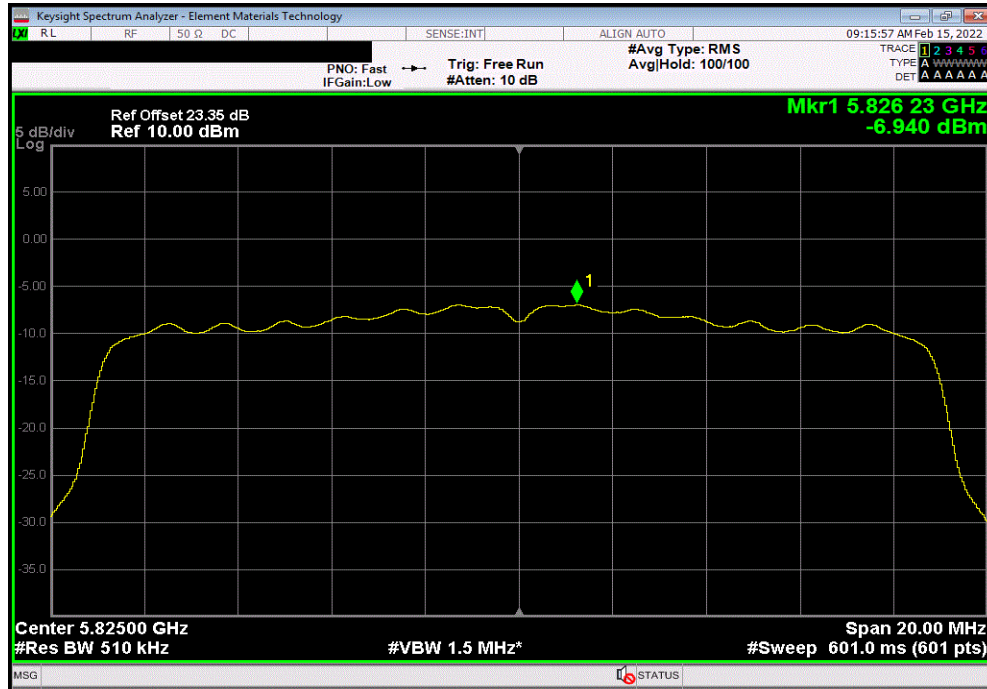


# MAXIMUM POWER SPECTRAL DENSITY - 5.8 GHz BAND

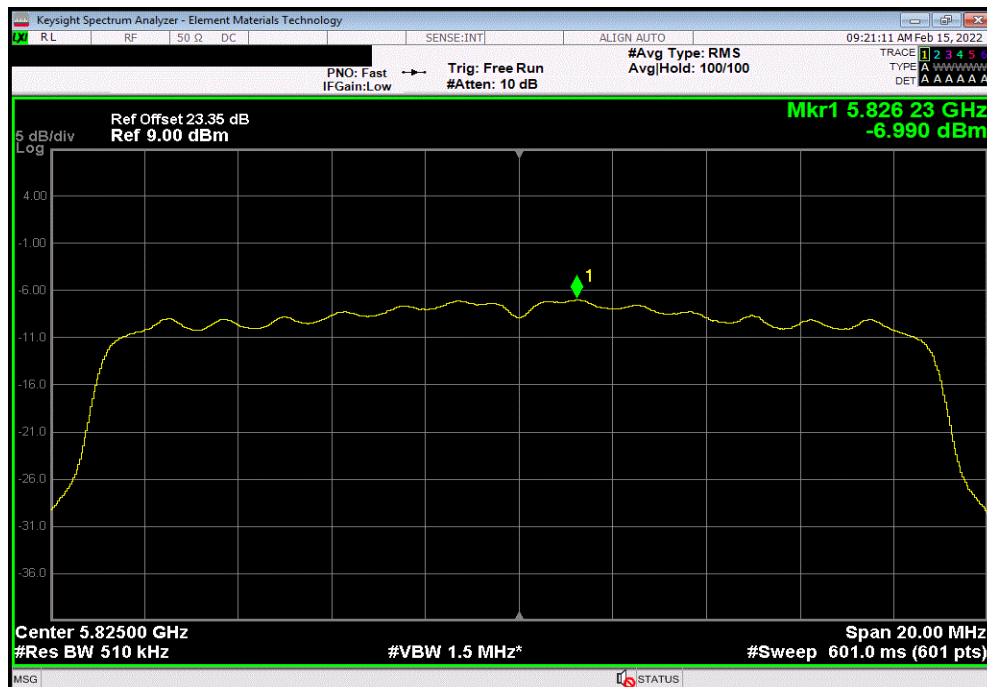


TMTx 2021.03.19.1 XMR 2022.02.07.0

| 5725 - 5785 MHz Band, 802.11(n/ac) VHT20, High Channel, Ch 165 - 5825 MHz, MCS7 |                           |                         |                         |         |  |  |
|---------------------------------------------------------------------------------|---------------------------|-------------------------|-------------------------|---------|--|--|
| Power<br>(dBm/Ref BW)                                                           | Duty Cycle<br>Factor (dB) | Density<br>(dBm/Ref BW) | Limit<br>≤ (dBm/Ref BW) | Results |  |  |
| -6.94                                                                           | 0.5                       | -6.4                    | 30                      | Pass    |  |  |



| 5725 - 5785 MHz Band, 802.11(n/ac) VHT20, High Channel, Ch 165 - 5825 MHz, MCS8 (256-QAM) |                           |                         |                         |         |  |  |
|-------------------------------------------------------------------------------------------|---------------------------|-------------------------|-------------------------|---------|--|--|
| Power<br>(dBm/Ref BW)                                                                     | Duty Cycle<br>Factor (dB) | Density<br>(dBm/Ref BW) | Limit<br>≤ (dBm/Ref BW) | Results |  |  |
| -6.99                                                                                     | 0.5                       | -6.5                    | 30                      | Pass    |  |  |

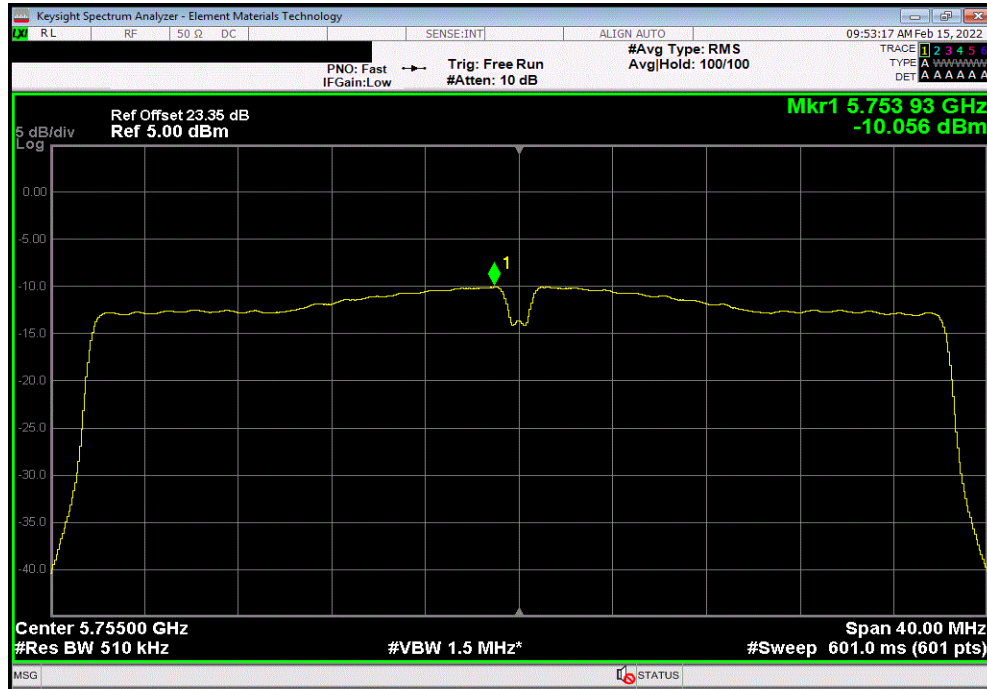


# MAXIMUM POWER SPECTRAL DENSITY - 5.8 GHz BAND

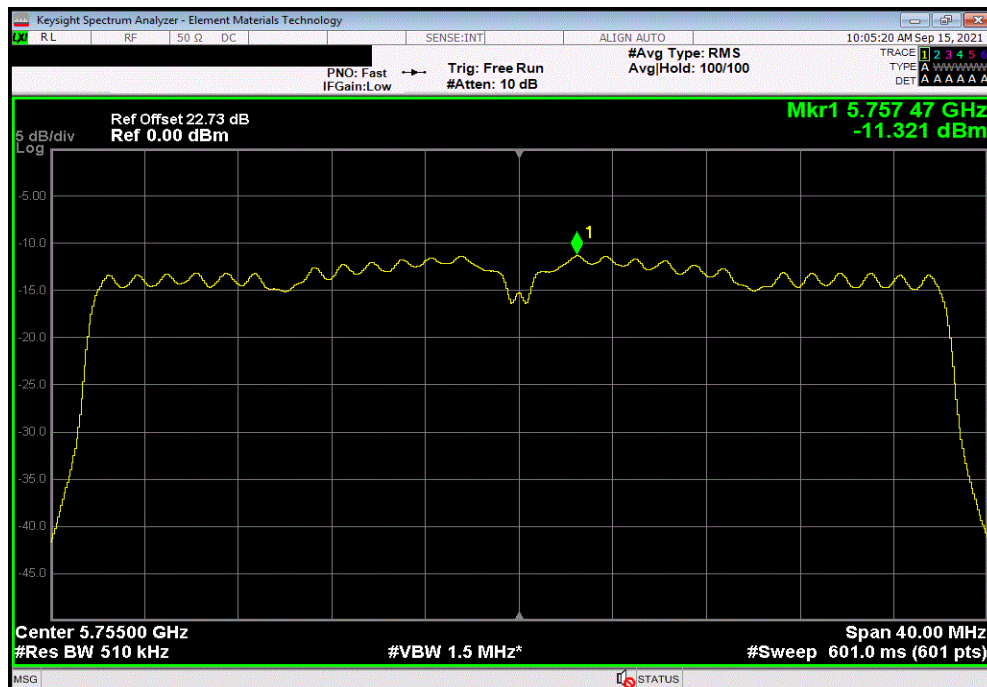


TMTx 2021.03.19.1 XMR 2022.02.07.0

| 5725 - 5785 MHz Band, 802.11(n/ac) VHT40, Low Channel, Ch 149/153 - 5755 MHz, MCS0 |                           |                         |                         |         |  |  |
|------------------------------------------------------------------------------------|---------------------------|-------------------------|-------------------------|---------|--|--|
| Power<br>(dBm/Ref BW)                                                              | Duty Cycle<br>Factor (dB) | Density<br>(dBm/Ref BW) | Limit<br>≤ (dBm/Ref BW) | Results |  |  |
| -10.056                                                                            | 0.1                       | -10                     | 30                      | Pass    |  |  |



| 5725 - 5785 MHz Band, 802.11(n/ac) VHT40, Low Channel, Ch 149/153 - 5755 MHz, MCS7 |                           |                         |                         |         |  |  |
|------------------------------------------------------------------------------------|---------------------------|-------------------------|-------------------------|---------|--|--|
| Power<br>(dBm/Ref BW)                                                              | Duty Cycle<br>Factor (dB) | Density<br>(dBm/Ref BW) | Limit<br>≤ (dBm/Ref BW) | Results |  |  |
| -11.321                                                                            | 0.7                       | -10.6                   | 30                      | Pass    |  |  |

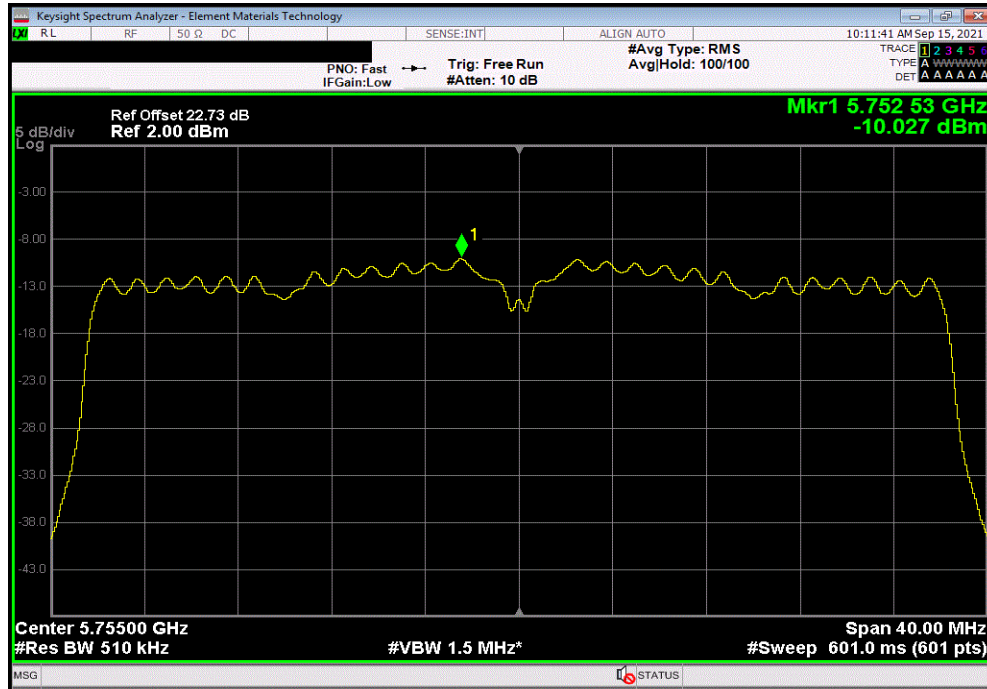


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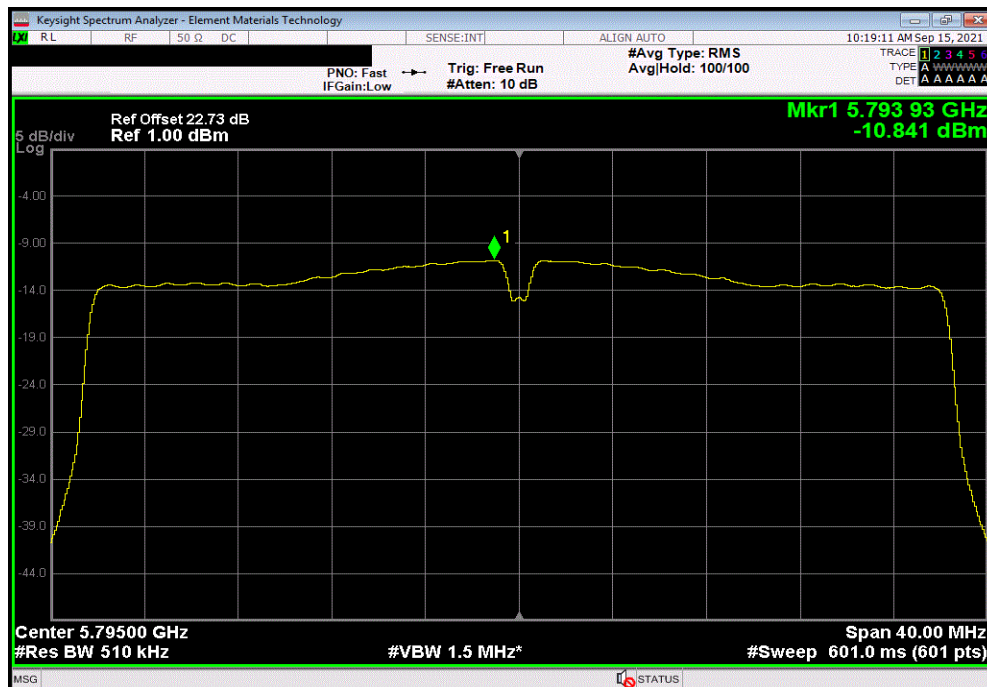


TbTtx 2021.03.19.1 XMt 2022.02.07.0

| 5725 - 5785 MHz Band, 802.11(n/ac) VHT40, Low Channel, Ch 149/153 - 5755 MHz, MCS9 (256-QAM) |                           |                         |                         |         |  |  |
|----------------------------------------------------------------------------------------------|---------------------------|-------------------------|-------------------------|---------|--|--|
| Power<br>(dBm/Ref BW)                                                                        | Duty Cycle<br>Factor (dB) | Density<br>(dBm/Ref BW) | Limit<br>≤ (dBm/Ref BW) | Results |  |  |
| -10.027                                                                                      | 0.8                       | -9.2                    | 30                      | Pass    |  |  |



| 5725 - 5785 MHz Band, 802.11(n/ac) VHT40, High Channel, Ch 157/161 - 5795 MHz, MCS0 |                           |                         |                         |         |  |  |
|-------------------------------------------------------------------------------------|---------------------------|-------------------------|-------------------------|---------|--|--|
| Power<br>(dBm/Ref BW)                                                               | Duty Cycle<br>Factor (dB) | Density<br>(dBm/Ref BW) | Limit<br>≤ (dBm/Ref BW) | Results |  |  |
| -10.841                                                                             | 0.1                       | -10.7                   | 30                      | Pass    |  |  |



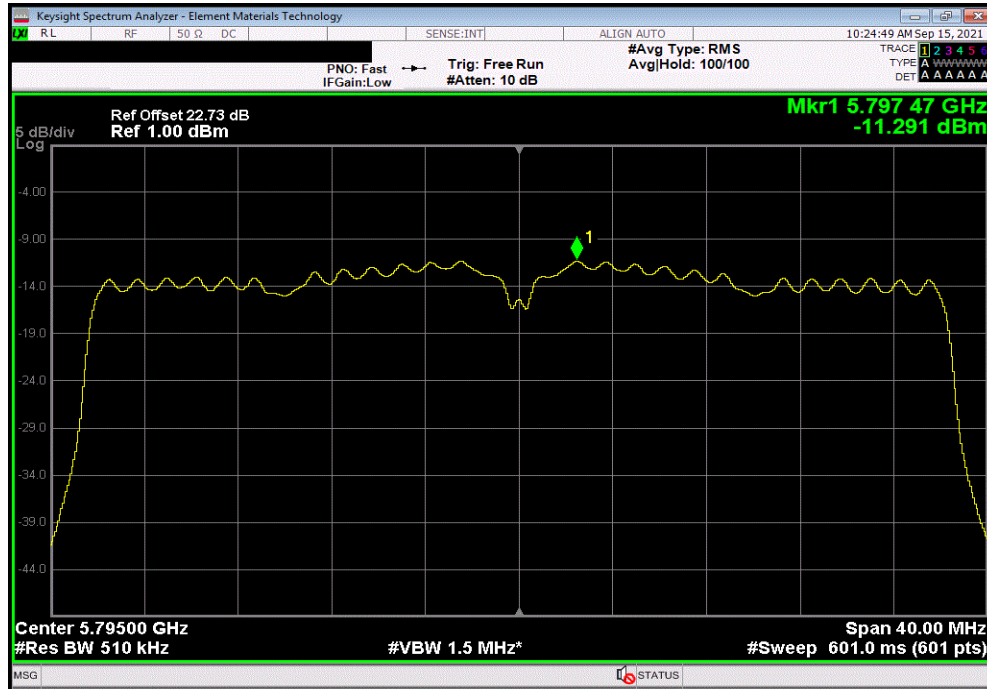


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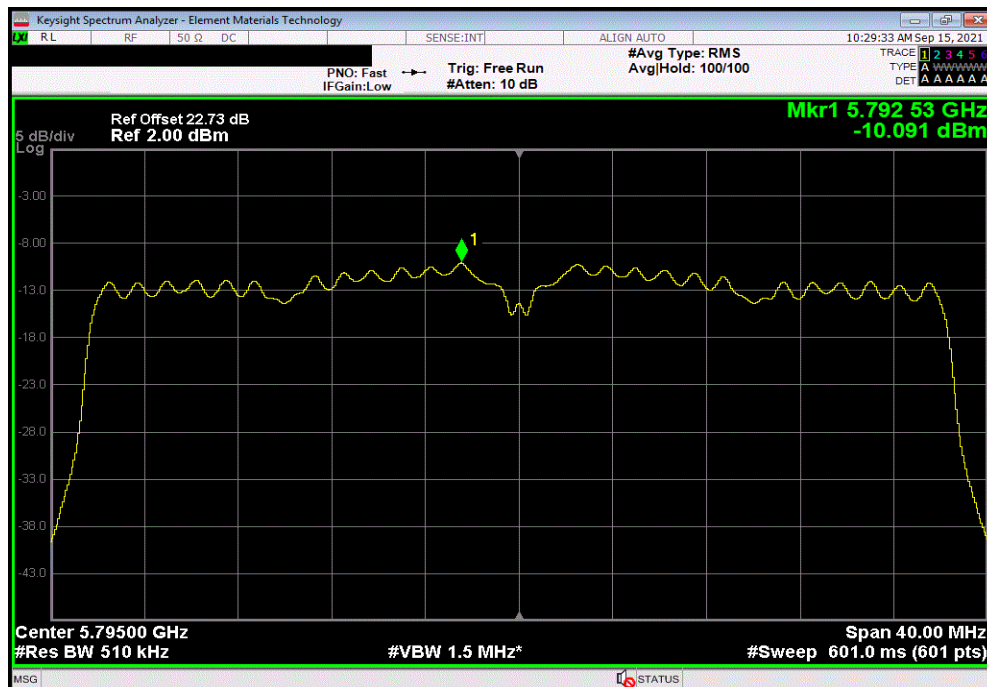


TbTtx 2021.03.19.1 XMt 2022.02.07.0

| 5725 - 5785 MHz Band, 802.11(n/ac) VHT40, High Channel, Ch 157/161 - 5795 MHz, MCS7 |                           |                         |                         |         |  |  |
|-------------------------------------------------------------------------------------|---------------------------|-------------------------|-------------------------|---------|--|--|
| Power<br>(dBm/Ref BW)                                                               | Duty Cycle<br>Factor (dB) | Density<br>(dBm/Ref BW) | Limit<br>≤ (dBm/Ref BW) | Results |  |  |
| -11.291                                                                             | 0.7                       | -10.6                   | 30                      | Pass    |  |  |



| 5725 - 5785 MHz Band, 802.11(n/ac) VHT40, High Channel, Ch 157/161 - 5795 MHz, MCS9 (256-QAM) |                           |                         |                         |         |  |  |
|-----------------------------------------------------------------------------------------------|---------------------------|-------------------------|-------------------------|---------|--|--|
| Power<br>(dBm/Ref BW)                                                                         | Duty Cycle<br>Factor (dB) | Density<br>(dBm/Ref BW) | Limit<br>≤ (dBm/Ref BW) | Results |  |  |
| -10.091                                                                                       | 0.8                       | -9.3                    | 30                      | Pass    |  |  |



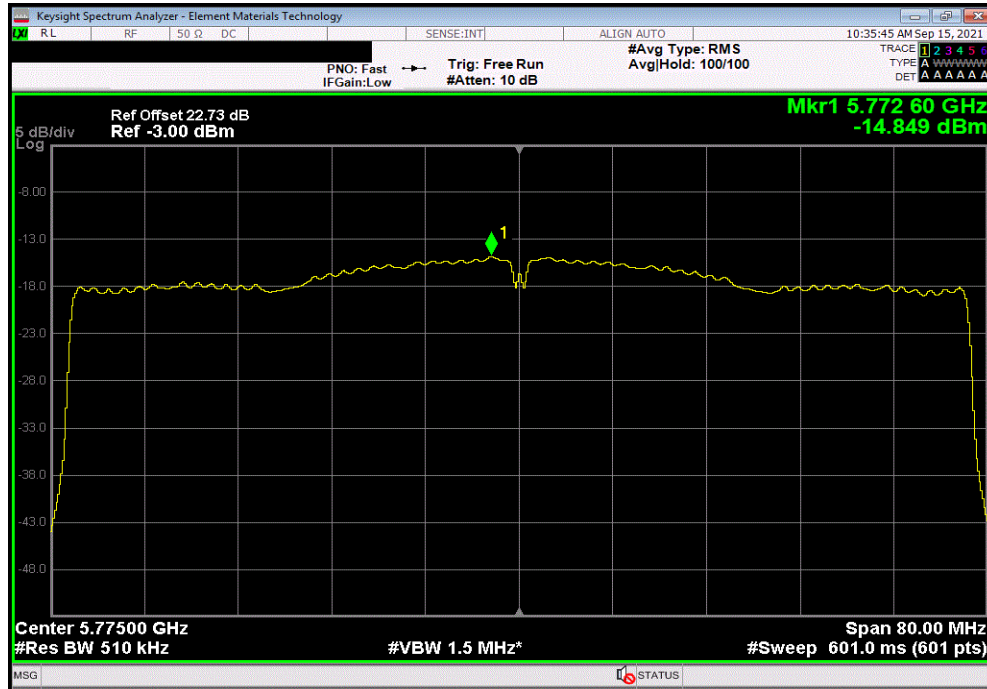


# MAXIMUM POWER SPECTRAL DENSITY - 5.8 GHz BAND

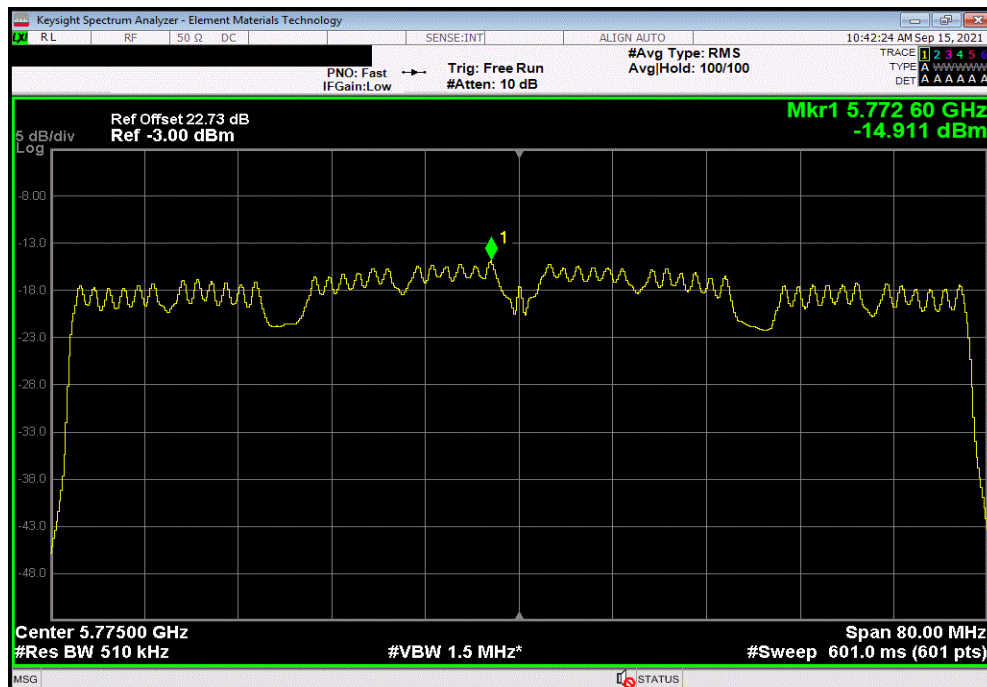


TbTx 2021.03.19.1 XMt 2022.02.07.0

| 5725 - 5785 MHz Band, 802.11(n/ac) VHT80, Low Channel, Ch 149-161 - 5775 MHz, MCS0 |                           |                         |                         |         |  |  |
|------------------------------------------------------------------------------------|---------------------------|-------------------------|-------------------------|---------|--|--|
| Power<br>(dBm/Ref BW)                                                              | Duty Cycle<br>Factor (dB) | Density<br>(dBm/Ref BW) | Limit<br>≤ (dBm/Ref BW) | Results |  |  |
| -14.849                                                                            | 0.2                       | -14.6                   | 30                      | Pass    |  |  |



| 5725 - 5785 MHz Band, 802.11(n/ac) VHT80, Low Channel, Ch 149-161 - 5775 MHz, MCS9 (256-QAM) |                           |                         |                         |         |  |  |
|----------------------------------------------------------------------------------------------|---------------------------|-------------------------|-------------------------|---------|--|--|
| Power<br>(dBm/Ref BW)                                                                        | Duty Cycle<br>Factor (dB) | Density<br>(dBm/Ref BW) | Limit<br>≤ (dBm/Ref BW) | Results |  |  |
| -14.911                                                                                      | 1.1                       | -13.9                   | 30                      | Pass    |  |  |



# SPURIOUS RADIATED EMISSIONS – 5.2 GHz BAND

## TEST DESCRIPTION

The highest gain antenna of each type to be used with the EUT was tested. The EUT was configured for the required transmit frequencies in each operational band and the modes as showed in the data sheets.

For each configuration, the spectrum was scanned throughout the specified range as part of the exploratory investigation of the emissions. These “pre-scans” are not included in the report. Final measurements on individual emissions were then made and included in this test report.

The individual emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and EUT antenna in three orthogonal axis if required, and adjusting the measurement antenna height and polarization (per ANSI C63.10). A preamp and high pass filter (and notch filter) were used for this test in order to provide sufficient measurement sensitivity.

Measurements were made with the required detectors and annotated on the data for each individual point using the following annotation:

QP = Quasi-Peak Detector  
PK = Peak Detector  
AV = RMS Detector

Measurements were made to satisfy the specific requirements of the test specification for out of band emissions as well as the restricted band requirements.

If there are no detectable emissions above the noise floor, the data included may show noise floor measurements for reference only.

Measurements at the edges of the allowable band may be measured using the Marker Delta or Integration method as outlined in FCC KDB 789033 (d)(i) or (d)(ii) respectfully.

## TEST EQUIPMENT

| Description                  | Manufacturer    | Model                     | ID  | Last Cal.  | Cal. Due   |
|------------------------------|-----------------|---------------------------|-----|------------|------------|
| Analyzer - Spectrum Analyzer | Agilent         | N9010A                    | AFI | 2020-12-08 | 2021-12-08 |
| Antenna - Biconilog          | Teseq           | CBL 6141B                 | AXR | 2020-10-13 | 2022-10-13 |
| Antenna - Double Ridge       | EMCO            | 3115                      | AHC | 2020-07-01 | 2022-07-01 |
| Antenna - Standard Gain      | ETS Lindgren    | 3160-07                   | AHU | NCR        | NCR        |
| Antenna - Standard Gain      | ETS Lindgren    | 3160-08                   | AHV | NCR        | NCR        |
| Antenna - Standard Gain      | ETS Lindgren    | 3160-09                   | AIV | NCR        | NCR        |
| Antenna - Standard Gain      | ETS Lindgren    | 3160-10                   | AIW | NCR        | NCR        |
| Amplifier - Pre-Amplifier    | Miteq           | AM-1616-1000              | AOL | 2020-11-17 | 2021-11-17 |
| Amplifier - Pre-Amplifier    | Miteq           | AMF-3D-00100800-32-13P    | PAG | 2020-11-17 | 2021-11-17 |
| Amplifier - Pre-Amplifier    | L-3 Narda-MITEQ | AMF-6F-08001200-30-10P    | PAO | 2020-11-18 | 2021-11-18 |
| Amplifier - Pre-Amplifier    | Miteq           | AMF-6F-12001800-30-10P    | AVD | 2020-11-18 | 2021-11-18 |
| Amplifier - Pre-Amplifier    | Miteq           | AMF-6F-18002650-25-10P    | AVU | 2021-07-16 | 2022-07-16 |
| Amplifier - Pre-Amplifier    | Miteq           | JSW45-26004000-40-5P      | PAE | 2021-04-25 | 2022-04-25 |
| Cable                        | N/A             | Bilog Cables              | EVA | 2020-11-17 | 2021-11-17 |
| Cable                        | N/A             | Double Ridge Horn Cables  | EVB | 2020-11-17 | 2021-11-17 |
| Cable                        | None            | Standard Gain Horns Cable | EVF | 2020-11-18 | 2021-11-18 |
| Cable                        | ESM Cable Corp. | TTBJ141-KMKM-72           | EVY | 2021-07-16 | 2022-07-16 |
| Cable                        | ESM Cable Corp. | KNKN-72 SMA Cable         | EVZ | 2021-04-25 | 2022-04-25 |

# SPURIOUS RADIATED EMISSIONS – 5.2 GHz BAND

| Description              | Manufacturer  | Model                 | ID  | Last Cal.  | Cal. Due   |
|--------------------------|---------------|-----------------------|-----|------------|------------|
| Cable                    | Micro-Coax    | UFD150A-1-0720-200200 | EVK | 2021-03-14 | 2022-03-14 |
| Antenna - Double Ridge   | ETS Lindgren  | 3115                  | AIZ | 2020-02-25 | 2022-02-25 |
| Filter - Band Pass/Notch | Micro-Tronics | BRC50703              | HHJ | 2020-11-09 | 2021-11-09 |
| Filter - Low Pass        | Micro-Tronics | LPM50004              | LFD | 2021-02-15 | 2022-02-15 |

## MEASUREMENT UNCERTAINTY

| Description  |        |         |
|--------------|--------|---------|
| Expanded k=2 | 5.2 dB | -5.2 dB |

## FREQUENCY RANGE INVESTIGATED

|                  |
|------------------|
| 30 MHz TO 40 GHz |
|------------------|

## POWER INVESTIGATED

|                         |
|-------------------------|
| 3.3 VDC via 110VAC/60Hz |
|-------------------------|

## CONFIGURATIONS INVESTIGATED

|            |
|------------|
| A-DE0162-2 |
|------------|

## MODES INVESTIGATED

|                                                                                                   |
|---------------------------------------------------------------------------------------------------|
| 802.11ac,an Tx, Ch 36 = 5180 MHz, Ch 36/40 = 5190 MHz and Ch 36-48 = 5210 MHz                     |
| 802.11ac,an Tx, Ch 36 = 5180 MHz, Ch 48 = 5240 MHz, Ch 36/40 = 5190 MHz, Ch 36-48 = 5210 MHz      |
| 802.11ac,an Tx, Ch 36 = 5180 MHz, Ch 48 = 5240 MHz, Ch 44/48 = 5230 MHz, and Ch. 36-48 = 5210 MHz |

# SPURIOUS RADIATED EMISSIONS – 5.2 GHz BAND



|                   |                         |                    |            |
|-------------------|-------------------------|--------------------|------------|
| EUT:              | 43.0536.00              | Work Order:        | A-DE0162   |
| Serial Number:    | SN001 00004             | Date:              | 2021-07-26 |
| Customer:         | A-dec, Inc.             | Temperature:       | 23.3°C     |
| Attendees:        | Zach Lyda               | Relative Humidity: | 44.6%      |
| Customer Project: | None                    | Bar. Pressure:     | 1019 mb    |
| Tested By:        | Jeff Alcock             | Job Site:          | EV01       |
| Power:            | 3.3 VDC via 110VAC/60Hz | Configuration:     | A-DE0162-2 |

## TEST SPECIFICATIONS

|                 |                  |
|-----------------|------------------|
| Specification:  | Method:          |
| FCC 15.407:2021 | ANSI C63.10:2013 |

## TEST PARAMETERS

|        |    |                    |   |                     |           |
|--------|----|--------------------|---|---------------------|-----------|
| Run #: | 77 | Test Distance (m): | 3 | Ant. Height(s) (m): | 1 to 4(m) |
|--------|----|--------------------|---|---------------------|-----------|

## COMMENTS

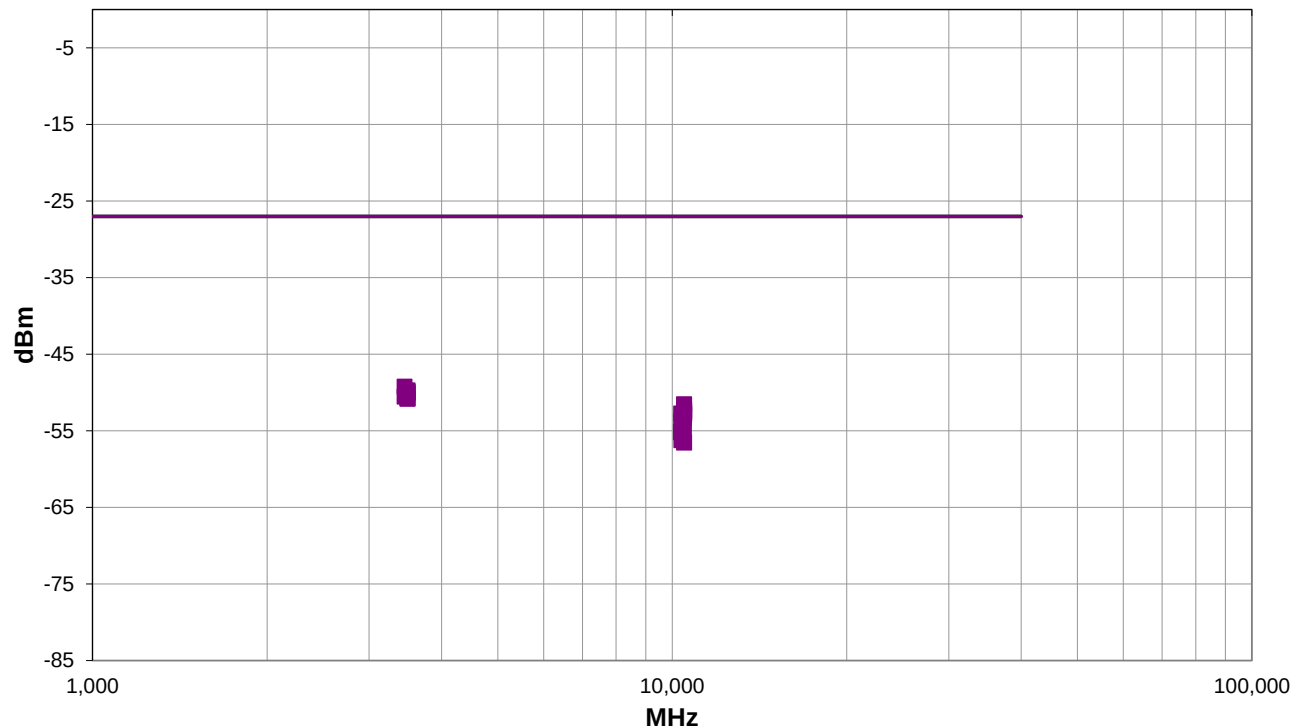
Please reference data comments below for channel, data rate, and EUT orientation.

## EUT OPERATING MODES

802.11ac,an Tx, Ch 36 = 5180 MHz, Ch 48 = 5240 MHz, Ch 44/48 = 5230 MHz, and Ch. 36-48 = 5210 MHz

## DEVIATIONS FROM TEST STANDARD

None



Run #: 77

■ PK ◆ AV ● QP

# SPURIOUS RADIATED EMISSIONS – 5.2 GHz BAND

## RESULTS - Run #77

| Freq (MHz) | Antenna Height (meters) | Azimuth (degrees) | Polarity/Transducer Type | Detector | EIRP (Watts) | EIRP (dBm) | Spec. Limit (dBm) | Compared to Spec. (dB) | Comments                                     |
|------------|-------------------------|-------------------|--------------------------|----------|--------------|------------|-------------------|------------------------|----------------------------------------------|
| 3453.407   | 1.5                     | 161.0             | Horz                     | PK       | 11.9E-9      | -49.2      | -27.0             | -22.2                  | Ch. 36, 20 MHz BW, 6 Mbps, EUT Vert          |
| 3493.350   | 1.5                     | 229.0             | Horz                     | PK       | 10.6E-9      | -49.7      | -27.0             | -22.7                  | Ch. 48, 20 MHz BW, 6 Mbps, EUT Vert          |
| 3493.008   | 2.69                    | 86.0              | Vert                     | PK       | 10.2E-9      | -49.9      | -27.0             | -22.9                  | Ch. 48, 20 MHz BW, 6 Mbps, EUT Horz          |
| 3493.267   | 2.55                    | 126.0             | Horz                     | PK       | 10.2E-9      | -49.9      | -27.0             | -22.9                  | Ch. 48, 20 MHz BW, 6 Mbps, EUT on Side       |
| 3493.583   | 3.07                    | 174.0             | Vert                     | PK       | 9.7E-9       | -50.1      | -27.0             | -23.1                  | Ch. 48, 20 MHz BW, 6 Mbps, EUT on Side       |
| 3453.398   | 2.63                    | 89.0              | Vert                     | PK       | 8.9E-9       | -50.5      | -27.0             | -23.5                  | Ch. 36, 20 MHz BW, 6 Mbps, EUT Horz          |
| 3493.383   | 3.93                    | 181.0             | Vert                     | PK       | 8.5E-9       | -50.7      | -27.0             | -23.7                  | Ch. 48, 20 MHz BW, 6 Mbps, EUT Vert          |
| 3493.392   | 1.1                     | 97.0              | Horz                     | PK       | 8.3E-9       | -50.8      | -27.0             | -23.8                  | Ch. 48, 20 MHz BW, 6 Mbps, EUT Horz          |
| 10479.580  | 2.5                     | 0.0               | Vert                     | PK       | 7.0E-9       | -51.5      | -27.0             | -24.5                  | Ch. 48, 20 MHz BW, 6 Mbps, EUT Horz          |
| 10479.170  | 1.0                     | 143.0             | Horz                     | PK       | 6.0E-9       | -52.2      | -27.0             | -25.2                  | Ch. 48, 20 MHz BW, 6 Mbps, EUT Vert          |
| 10483.750  | 2.63                    | 0.0               | Vert                     | PK       | 5.6E-9       | -52.5      | -27.0             | -25.5                  | Ch. 48, 20 MHz BW, 36 Mbps, EUT Horz         |
| 10362.290  | 1.0                     | 145.0             | Horz                     | PK       | 5.3E-9       | -52.7      | -27.0             | -25.7                  | Ch. 36, 20 MHz BW, 6 Mbps, EUT Vert          |
| 10480.170  | 2.63                    | 0.0               | Vert                     | PK       | 5.3E-9       | -52.7      | -27.0             | -25.7                  | Ch. 48, 20 MHz BW, 54 Mbps, EUT Horz         |
| 10480.500  | 2.63                    | 0.0               | Vert                     | PK       | 5.1E-9       | -52.9      | -27.0             | -25.9                  | Ch. 48, 20 MHz BW, MCS0, EUT Horz            |
| 10476.750  | 2.63                    | 0.0               | Vert                     | PK       | 4.8E-9       | -53.2      | -27.0             | -26.2                  | Ch. 48, 20 MHz BW, MCS7, EUT Horz            |
| 10362.630  | 3.06                    | 0.0               | Vert                     | PK       | 4.2E-9       | -53.7      | -27.0             | -26.7                  | Ch. 36, 20 MHz BW, 6 Mbps, EUT Horz          |
| 10474.710  | 2.63                    | 0.0               | Vert                     | PK       | 3.4E-9       | -54.7      | -27.0             | -27.7                  | Ch. 48, 20 MHz BW, MCS8, EUT Horz            |
| 10352.250  | 1.0                     | 182.0             | Vert                     | PK       | 3.1E-9       | -55.1      | -27.0             | -28.1                  | Ch. 44/48, 40 MHz BW, MCS7, EUT Horz         |
| 10360.540  | 1.0                     | 182.0             | Vert                     | PK       | 3.0E-9       | -55.2      | -27.0             | -28.2                  | Ch. 44/48, 40 MHz BW, MCS8 (256-Q), EUT Horz |
| 10428.270  | 1.0                     | 182.0             | Vert                     | PK       | 2.6E-9       | -55.9      | -27.0             | -28.9                  | Ch. 36-48, 80 MHz BW, MCS0, EUT Horz         |
| 10371.750  | 1.0                     | 182.0             | Vert                     | PK       | 2.4E-9       | -56.2      | -27.0             | -29.2                  | Ch. 44/48, 40 MHz BW, MCS9 (256-Q), EUT Horz |
| 10482.530  | 1.0                     | 182.0             | Vert                     | PK       | 2.2E-9       | -56.5      | -27.0             | -29.5                  | Ch. 36-48, 80 MHz BW, MCS9 (256-Q), EUT Horz |

## CONCLUSION

Pass



Tested By

# SPURIOUS RADIATED EMISSIONS – 5.2 GHz BAND



|                   |                         |                    |            |
|-------------------|-------------------------|--------------------|------------|
| EUT:              | 43.0536.00              | Work Order:        | A-DE0162   |
| Serial Number:    | SN001 00004             | Date:              | 2021-07-26 |
| Customer:         | A-dec, Inc.             | Temperature:       | 23.3°C     |
| Attendees:        | Zach Lyda               | Relative Humidity: | 44.6%      |
| Customer Project: | None                    | Bar. Pressure:     | 1019 mb    |
| Tested By:        | Jeff Alcock             | Job Site:          | EV01       |
| Power:            | 3.3 VDC via 110VAC/60Hz | Configuration:     | A-DE0162-2 |

## TEST SPECIFICATIONS

|                 |                  |
|-----------------|------------------|
| Specification:  | Method:          |
| FCC 15.407:2021 | ANSI C63.10:2013 |

## TEST PARAMETERS

|        |    |                    |   |                     |           |
|--------|----|--------------------|---|---------------------|-----------|
| Run #: | 79 | Test Distance (m): | 3 | Ant. Height(s) (m): | 1 to 4(m) |
|--------|----|--------------------|---|---------------------|-----------|

## COMMENTS

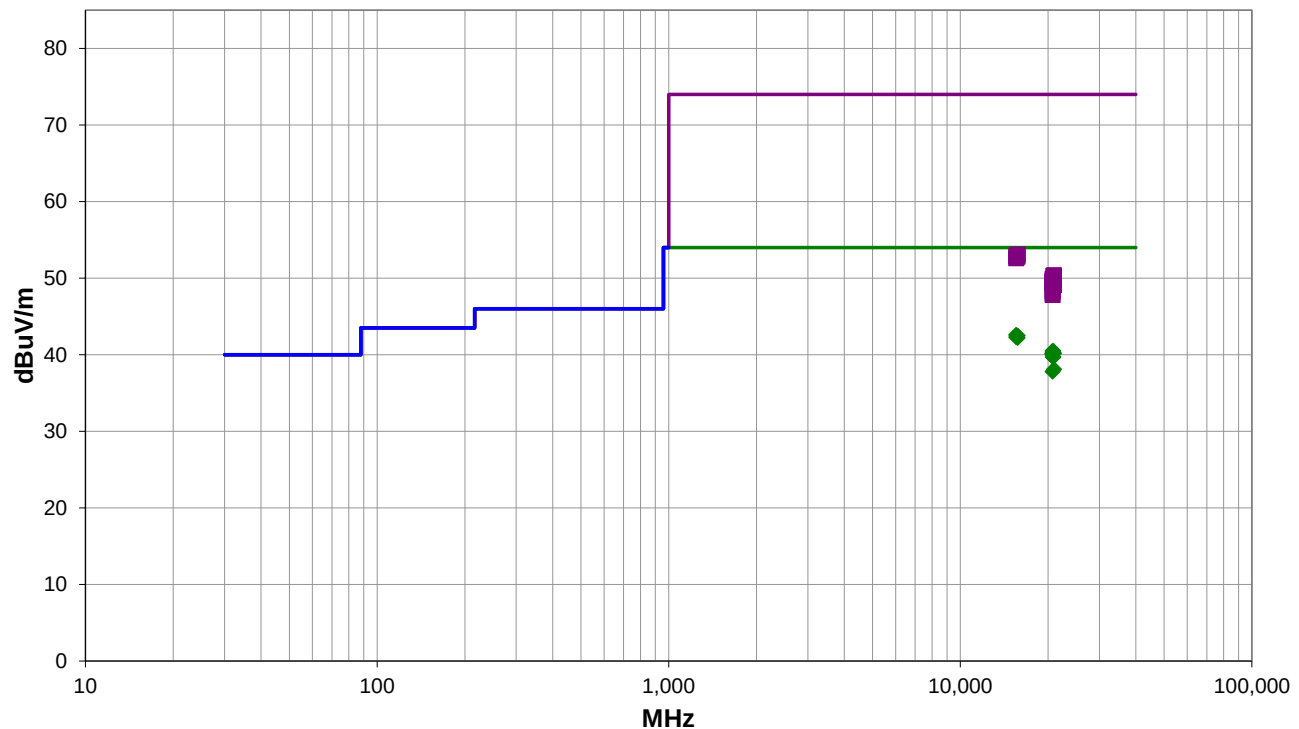
Please reference data comments below for channel, data rate, and EUT orientation. Measurements on the 3rd harmonic (~15GHz region) are noise floor; no DCCF was applied to the average values.

## EUT OPERATING MODES

802.11ac,an Tx, Ch 36 = 5180 MHz, Ch 48 = 5240 MHz, Ch 36/40 = 5190 MHz, Ch 36-48 = 5210 MHz

## DEVIATIONS FROM TEST STANDARD

None



Run #: 79

■ PK ◆ AV ● QP



# SPURIOUS RADIATED EMISSIONS – 5.2 GHz BAND

## RESULTS - Run #79

| Freq (MHz) | Amplitude (dBuV) | Factor (dB/m) | Antenna Height (meters) | Azimuth (degrees) | Duty Cycle Correction Factor | External Attenuation (dB) | Polarity Transducer | Detector | Distance Adjustment (dB) | Adjusted (dBuV/m) | Spec. Limit (dBuV/m) | Compared to Spec. (dB) | Comments                                     |
|------------|------------------|---------------|-------------------------|-------------------|------------------------------|---------------------------|---------------------|----------|--------------------------|-------------------|----------------------|------------------------|----------------------------------------------|
| 15539.630  | 25.5             | 17.1          | 1.5                     | 175.0             | 0.0                          | 0.0                       | Horz                | AV       | 0.0                      | 42.6              | 54.0                 | -11.4                  | Ch. 36, 20 MHz BW, 6 Mbps, EUT Vert          |
| 15729.670  | 25.4             | 17.1          | 2.1                     | 191.0             | 0.0                          | 0.0                       | Vert                | AV       | 0.0                      | 42.5              | 54.0                 | -11.5                  | Ch. 48, 20 MHz BW, 6 Mbps, EUT Horz          |
| 15545.420  | 25.2             | 17.1          | 3.2                     | 0.0               | 0.0                          | 0.0                       | Vert                | AV       | 0.0                      | 42.3              | 54.0                 | -11.7                  | Ch. 36, 20 MHz BW, 6 Mbps, EUT Horz          |
| 15715.830  | 25.2             | 17.0          | 3.3                     | 77.0              | 0.0                          | 0.0                       | Horz                | AV       | 0.0                      | 42.2              | 54.0                 | -11.8                  | Ch. 48, 20 MHz BW, 6 Mbps, EUT Vert          |
| 20720.040  | 34.5             | 5.9           | 1.6                     | 207.0             | 0.1                          | 0.0                       | Horz                | AV       | 0.0                      | 40.5              | 54.0                 | -13.5                  | Ch. 36, 20 MHz BW, 6 Mbps, EUT Vert          |
| 20839.990  | 33.3             | 6.1           | 1.6                     | 211.0             | 1.1                          | 0.0                       | Horz                | AV       | 0.0                      | 40.5              | 54.0                 | -13.5                  | Ch. 36-48, 80 MHz BW, MCS9 (256-Q), EUT Vert |
| 20960.040  | 34.1             | 6.0           | 1.6                     | 205.0             | 0.1                          | 0.0                       | Horz                | AV       | 0.0                      | 40.2              | 54.0                 | -13.8                  | Ch. 48, 20 MHz BW, 6 Mbps, EUT Vert          |
| 20719.960  | 34.0             | 5.9           | 1.6                     | 211.0             | 0.3                          | 0.0                       | Horz                | AV       | 0.0                      | 40.2              | 54.0                 | -13.8                  | Ch. 36, 20 MHz BW, 36 Mbps, EUT Vert         |
| 20719.880  | 33.8             | 5.9           | 1.6                     | 211.0             | 0.5                          | 0.0                       | Horz                | AV       | 0.0                      | 40.2              | 54.0                 | -13.8                  | Ch. 36, 20 MHz BW, 54 Mbps, EUT Vert         |
| 20719.920  | 33.8             | 5.9           | 1.6                     | 211.0             | 0.5                          | 0.0                       | Horz                | AV       | 0.0                      | 40.2              | 54.0                 | -13.8                  | Ch. 36, 20 MHz BW, MCS7, EUT Vert            |
| 20759.880  | 33.4             | 6.0           | 1.6                     | 211.0             | 0.8                          | 0.0                       | Horz                | AV       | 0.0                      | 40.2              | 54.0                 | -13.8                  | Ch. 36/40, 40 MHz BW, MCS9 (256-Q), EUT Vert |
| 20719.960  | 33.7             | 5.9           | 1.6                     | 211.0             | 0.5                          | 0.0                       | Horz                | AV       | 0.0                      | 40.1              | 54.0                 | -13.9                  | Ch. 36, 20 MHz BW, MCS8 (256-Q), EUT Vert    |
| 20759.980  | 33.4             | 6.0           | 1.6                     | 211.0             | 0.7                          | 0.0                       | Horz                | AV       | 0.0                      | 40.1              | 54.0                 | -13.9                  | Ch. 36/40, 40 MHz BW, MCS7, EUT Vert         |
| 20720.070  | 34.0             | 5.9           | 1.6                     | 211.0             | 0.1                          | 0.0                       | Horz                | AV       | 0.0                      | 40.0              | 54.0                 | -14.0                  | Ch. 36, 20 MHz BW, MCS0, EUT Vert            |
| 20759.900  | 33.6             | 6.0           | 1.6                     | 211.0             | 0.1                          | 0.0                       | Horz                | AV       | 0.0                      | 39.7              | 54.0                 | -14.3                  | Ch. 36/40, 40 MHz BW, MCS0, EUT Vert         |
| 20840.000  | 33.4             | 6.1           | 1.6                     | 211.0             | 0.2                          | 0.0                       | Horz                | AV       | 0.0                      | 39.7              | 54.0                 | -14.3                  | Ch. 36-48, 80 MHz BW, MCS0, EUT Vert         |
| 20959.730  | 32.0             | 6.0           | 1.3                     | 360.0             | 0.1                          | 0.0                       | Vert                | AV       | 0.0                      | 38.1              | 54.0                 | -15.9                  | Ch. 48, 20 MHz BW, 6 Mbps, EUT Horz          |
| 20720.000  | 31.8             | 5.9           | 1.3                     | 0.0               | 0.1                          | 0.0                       | Vert                | AV       | 0.0                      | 37.8              | 54.0                 | -16.2                  | Ch. 36, 20 MHz BW, 6 Mbps, EUT Horz          |
| 15729.540  | 36.0             | 17.1          | 3.3                     | 77.0              | 0.0                          | 0.0                       | Horz                | PK       | 0.0                      | 53.1              | 74.0                 | -20.9                  | Ch. 48, 20 MHz BW, 6 Mbps, EUT Vert          |
| 15538.210  | 35.8             | 17.1          | 3.2                     | 0.0               | 0.0                          | 0.0                       | Vert                | PK       | 0.0                      | 52.9              | 74.0                 | -21.1                  | Ch. 36, 20 MHz BW, 6 Mbps, EUT Horz          |
| 15722.580  | 35.8             | 17.0          | 2.1                     | 191.0             | 0.0                          | 0.0                       | Vert                | PK       | 0.0                      | 52.8              | 74.0                 | -21.2                  | Ch. 48, 20 MHz BW, 6 Mbps, EUT Horz          |
| 15551.540  | 35.5             | 17.1          | 1.5                     | 175.0             | 0.0                          | 0.0                       | Horz                | PK       | 0.0                      | 52.6              | 74.0                 | -21.4                  | Ch. 36, 20 MHz BW, 6 Mbps, EUT Vert          |
| 20959.920  | 44.4             | 6.0           | 1.6                     | 205.0             | 0.0                          | 0.0                       | Horz                | PK       | 0.0                      | 50.4              | 74.0                 | -23.6                  | Ch. 48, 20 MHz BW, 6 Mbps, EUT Vert          |
| 20840.100  | 44.2             | 6.1           | 1.6                     | 211.0             | 0.0                          | 0.0                       | Horz                | PK       | 0.0                      | 50.3              | 74.0                 | -23.7                  | Ch. 36-48, 80 MHz BW, MCS0, EUT Vert         |
| 20719.920  | 44.0             | 5.9           | 1.6                     | 211.0             | 0.0                          | 0.0                       | Horz                | PK       | 0.0                      | 49.9              | 74.0                 | -24.1                  | Ch. 36, 20 MHz BW, MCS8 (256-Q), EUT Vert    |
| 20839.830  | 43.8             | 6.1           | 1.6                     | 211.0             | 0.0                          | 0.0                       | Horz                | PK       | 0.0                      | 49.9              | 74.0                 | -24.1                  | Ch. 36-48, 80 MHz BW, MCS9 (256-Q), EUT Vert |
| 20760.210  | 43.8             | 6.0           | 1.6                     | 211.0             | 0.0                          | 0.0                       | Horz                | PK       | 0.0                      | 49.8              | 74.0                 | -24.2                  | Ch. 36/40, 40 MHz BW, MCS7, EUT Vert         |
| 20720.800  | 43.7             | 5.9           | 1.6                     | 211.0             | 0.0                          | 0.0                       | Horz                | PK       | 0.0                      | 49.6              | 74.0                 | -24.4                  | Ch. 36, 20 MHz BW, 54 Mbps, EUT Vert         |
| 20719.980  | 43.7             | 5.9           | 1.6                     | 211.0             | 0.0                          | 0.0                       | Horz                | PK       | 0.0                      | 49.6              | 74.0                 | -24.4                  | Ch. 36, 20 MHz BW, MCS7, EUT Vert            |
| 20719.720  | 43.4             | 5.9           | 1.6                     | 211.0             | 0.0                          | 0.0                       | Horz                | PK       | 0.0                      | 49.3              | 74.0                 | -24.7                  | Ch. 36, 20 MHz BW, MCS0, EUT Vert            |
| 20760.000  | 43.3             | 6.0           | 1.6                     | 211.0             | 0.0                          | 0.0                       | Horz                | PK       | 0.0                      | 49.3              | 74.0                 | -24.7                  | Ch. 36/40, 40 MHz BW, MCS0, EUT Vert         |
| 20759.970  | 43.3             | 6.0           | 1.6                     | 211.0             | 0.0                          | 0.0                       | Horz                | PK       | 0.0                      | 49.3              | 74.0                 | -24.7                  | Ch. 36/40, 40 MHz BW, MCS9 (256-Q), EUT Vert |
| 20960.370  | 43.1             | 6.0           | 1.3                     | 360.0             | 0.0                          | 0.0                       | Vert                | PK       | 0.0                      | 49.1              | 74.0                 | -24.9                  | Ch. 48, 20 MHz BW, 6 Mbps, EUT Horz          |
| 20719.750  | 42.4             | 5.9           | 1.6                     | 207.0             | 0.0                          | 0.0                       | Horz                | PK       | 0.0                      | 48.3              | 74.0                 | -25.7                  | Ch. 36, 20 MHz BW, 6 Mbps, EUT Vert          |
| 20719.710  | 42.3             | 5.9           | 1.6                     | 211.0             | 0.0                          | 0.0                       | Horz                | PK       | 0.0                      | 48.2              | 74.0                 | -25.8                  | Ch. 36, 20 MHz BW, 36 Mbps, EUT Vert         |
| 20723.290  | 41.9             | 5.9           | 1.3                     | 0.0               | 0.0                          | 0.0                       | Vert                | PK       | 0.0                      | 47.8              | 74.0                 | -26.2                  | Ch. 36, 20 MHz BW, 6 Mbps, EUT Horz          |

# SPURIOUS RADIATED EMISSIONS – 5.2 GHz BAND

## CONCLUSION

Pass



Tested By

# SPURIOUS RADIATED EMISSIONS – 5.2 GHz BAND

|                   |                         |                    |            |
|-------------------|-------------------------|--------------------|------------|
| EUT:              | 43.0536.00              | Work Order:        | A-DE0162   |
| Serial Number:    | SN001 00004             | Date:              | 2021-07-26 |
| Customer:         | A-dec, Inc.             | Temperature:       | 23.3°C     |
| Attendees:        | Zach Lyda               | Relative Humidity: | 44.6%      |
| Customer Project: | None                    | Bar. Pressure:     | 1019 mb    |
| Tested By:        | Jeff Alcock             | Job Site:          | EV01       |
| Power:            | 3.3 VDC via 110VAC/60Hz | Configuration:     | A-DE0162-2 |

## TEST SPECIFICATIONS

|                 |                  |
|-----------------|------------------|
| Specification:  | Method:          |
| FCC 15.407:2021 | ANSI C63.10:2013 |

## TEST PARAMETERS

|        |    |                    |   |                     |           |
|--------|----|--------------------|---|---------------------|-----------|
| Run #: | 86 | Test Distance (m): | 1 | Ant. Height(s) (m): | 1 to 4(m) |
|--------|----|--------------------|---|---------------------|-----------|

## COMMENTS

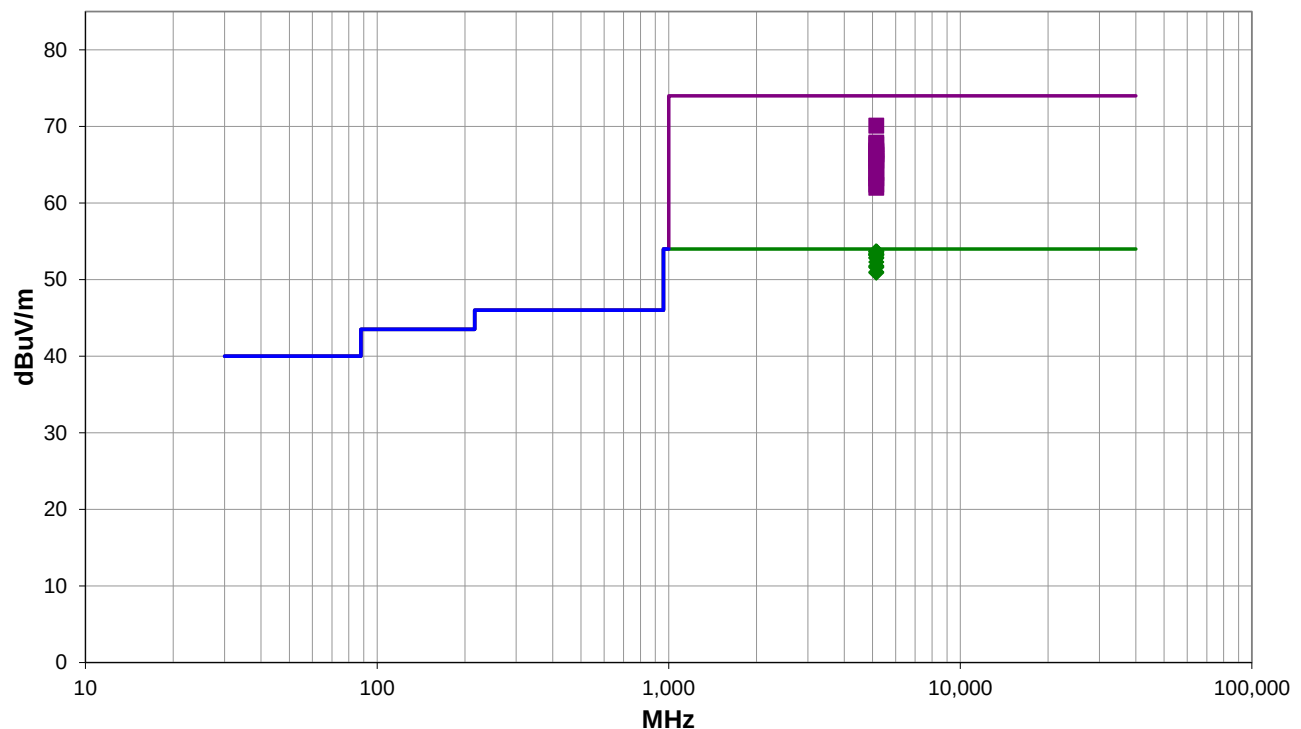
Please reference data comments below for channel, bandwidth, data rate, and EUT orientation.

## EUT OPERATING MODES

802.11ac,an Tx, Ch 36 = 5180 MHz, Ch 36/40 = 5190 MHz and Ch 36-48 = 5210 MHz

## DEVIATIONS FROM TEST STANDARD

None



Run #: 86

■ PK ◆ AV ● QP

# SPURIOUS RADIATED EMISSIONS – 5.2 GHz BAND

## RESULTS - Run #86

| Freq (MHz) | Amplitude (dBuV) | Factor (dB/m) | Antenna Height (meters) | Azimuth (degrees) | Duty Cycle Correction Factor | External Attenuation (dB) | Polarity Transducer | Detector | Distance Adjustment (dB) | Adjusted (dBuV/m) | Spec. Limit (dBuV/m) | Compared to Spec. (dB) | Comments                                                            |
|------------|------------------|---------------|-------------------------|-------------------|------------------------------|---------------------------|---------------------|----------|--------------------------|-------------------|----------------------|------------------------|---------------------------------------------------------------------|
| 5149.990   | 27.1             | 35.4          | 1.8                     | 360.0             | 0.7                          | 0.0                       | Vert                | AV       | -9.5                     | 53.7              | 54.0                 | -0.3                   | Ch. 36/40, 40 MHz BW, MCS7, EUT Vert                                |
| 5149.500   | 27.0             | 35.4          | 1.8                     | 360.0             | 0.8                          | 0.0                       | Vert                | AV       | -9.5                     | 53.7              | 54.0                 | -0.3                   | Integration Method:<br>Ch. 36/40, 40 MHz BW, MCS9 (256-Q), EUT Vert |
| 5149.943   | 27.6             | 35.4          | 1.8                     | 360.0             | 0.1                          | 0.0                       | Vert                | AV       | -9.5                     | 53.6              | 54.0                 | -0.4                   | Ch. 36, 20 MHz BW, MCS0, EUT Vert                                   |
| 5149.500   | 27.3             | 35.4          | 1.8                     | 360.0             | 0.2                          | 0.0                       | Vert                | AV       | -9.5                     | 53.4              | 54.0                 | -0.6                   | Integration Method:<br>Ch. 36-48, 80 MHz BW, MCS0, EUT Vert         |
| 5149.973   | 26.9             | 35.4          | 1.8                     | 360.0             | 0.5                          | 0.0                       | Vert                | AV       | -9.5                     | 53.3              | 54.0                 | -0.7                   | Ch. 36, 20 MHz BW, MCS7, EUT Vert                                   |
| 5149.500   | 26.3             | 35.4          | 1.8                     | 360.0             | 1.1                          | 0.0                       | Vert                | AV       | -9.5                     | 53.3              | 54.0                 | -0.7                   | Integration Method:<br>Ch. 36-48, 80 MHz BW, MCS9 (256-Q), EUT Vert |
| 5149.500   | 27.2             | 35.4          | 1.8                     | 360.0             | 0.1                          | 0.0                       | Vert                | AV       | -9.5                     | 53.2              | 54.0                 | -0.8                   | Integration Method:<br>Ch. 36/40, 40 MHz BW, MCS0, EUT Vert         |
| 5149.897   | 26.8             | 35.4          | 1.8                     | 360.0             | 0.5                          | 0.0                       | Vert                | AV       | -9.5                     | 53.2              | 54.0                 | -0.8                   | Ch. 36, 20 MHz BW, 54 Mbps, EUT Vert                                |
| 5149.930   | 26.9             | 35.4          | 1.7                     | 360.0             | 0.1                          | 0.0                       | Vert                | AV       | -9.5                     | 52.9              | 54.0                 | -1.1                   | Ch. 36, 20 MHz BW, 6 Mbps, EUT Vert                                 |
| 5149.947   | 26.6             | 35.4          | 1.8                     | 360.0             | 0.3                          | 0.0                       | Vert                | AV       | -9.5                     | 52.8              | 54.0                 | -1.2                   | Ch. 36, 20 MHz BW, 36 Mbps, EUT Vert                                |
| 5149.883   | 26.3             | 35.4          | 1.8                     | 360.0             | 0.1                          | 0.0                       | Horz                | AV       | -9.5                     | 52.3              | 54.0                 | -1.7                   | Ch. 36, 20 MHz BW, 6 Mbps, EUT on Side                              |
| 5149.857   | 25.4             | 35.4          | 1.8                     | 360.0             | 0.5                          | 0.0                       | Vert                | AV       | -9.5                     | 51.8              | 54.0                 | -2.2                   | Ch. 36, 20 MHz BW, MCS8 (256-Q), EUT Vert                           |
| 5149.797   | 25.7             | 35.4          | 1.6                     | 360.0             | 0.1                          | 0.0                       | Horz                | AV       | -9.5                     | 51.7              | 54.0                 | -2.3                   | Ch. 36, 20 MHz BW, 6 Mbps, EUT Vert                                 |
| 5149.973   | 25.6             | 35.4          | 1.8                     | 360.0             | 0.1                          | 0.0                       | Vert                | AV       | -9.5                     | 51.6              | 54.0                 | -2.4                   | Ch. 36, 20 MHz BW, 6 Mbps, EUT on Side                              |
| 5149.973   | 25.0             | 35.4          | 1.7                     | 360.0             | 0.1                          | 0.0                       | Vert                | AV       | -9.5                     | 51.0              | 54.0                 | -3.0                   | Ch. 36, 20 MHz BW, 6 Mbps, EUT Horz                                 |
| 5149.697   | 24.9             | 35.4          | 1.5                     | 360.0             | 0.1                          | 0.0                       | Horz                | AV       | -9.5                     | 50.9              | 54.0                 | -3.1                   | Ch. 36, 20 MHz BW, 6 Mbps, EUT Horz                                 |
| 5149.080   | 44.2             | 35.4          | 1.8                     | 360.0             | 0.0                          | 0.0                       | Vert                | PK       | -9.5                     | 70.1              | 74.0                 | -3.9                   | Ch. 36, 20 MHz BW, MCS0, EUT Vert                                   |
| 5149.423   | 42.0             | 35.4          | 1.8                     | 360.0             | 0.0                          | 0.0                       | Vert                | PK       | -9.5                     | 67.9              | 74.0                 | -6.1                   | Ch. 36/40, 40 MHz BW, MCS9 (256-Q), EUT Vert                        |
| 5148.340   | 41.8             | 35.4          | 1.8                     | 360.0             | 0.0                          | 0.0                       | Vert                | PK       | -9.5                     | 67.7              | 74.0                 | -6.3                   | Ch. 36/40, 40 MHz BW, MCS0, EUT Vert                                |
| 5149.987   | 41.0             | 35.4          | 1.8                     | 360.0             | 0.0                          | 0.0                       | Vert                | PK       | -9.5                     | 66.9              | 74.0                 | -7.1                   | Ch. 36, 20 MHz BW, MCS7, EUT Vert                                   |
| 5148.280   | 40.8             | 35.4          | 1.8                     | 360.0             | 0.0                          | 0.0                       | Vert                | PK       | -9.5                     | 66.7              | 74.0                 | -7.3                   | Ch. 36, 20 MHz BW, 54 Mbps, EUT Vert                                |
| 5149.537   | 40.5             | 35.4          | 1.8                     | 360.0             | 0.0                          | 0.0                       | Vert                | PK       | -9.5                     | 66.4              | 74.0                 | -7.6                   | Ch. 36/40, 40 MHz BW, MCS7, EUT Vert                                |
| 5148.903   | 40.4             | 35.4          | 1.8                     | 360.0             | 0.0                          | 0.0                       | Vert                | PK       | -9.5                     | 66.3              | 74.0                 | -7.7                   | Ch. 36, 20 MHz BW, 36 Mbps, EUT Vert                                |
| 5149.057   | 40.0             | 35.4          | 1.7                     | 360.0             | 0.0                          | 0.0                       | Vert                | PK       | -9.5                     | 65.9              | 74.0                 | -8.1                   | Ch. 36, 20 MHz BW, 6 Mbps, EUT Vert                                 |
| 5149.880   | 40.0             | 35.4          | 1.8                     | 360.0             | 0.0                          | 0.0                       | Vert                | PK       | -9.5                     | 65.9              | 74.0                 | -8.1                   | Ch. 36-48, 80 MHz BW, MCS0, EUT Vert                                |
| 5149.960   | 39.6             | 35.4          | 1.8                     | 360.0             | 0.0                          | 0.0                       | Horz                | PK       | -9.5                     | 65.5              | 74.0                 | -8.5                   | Ch. 36, 20 MHz BW, 6 Mbps, EUT on Side                              |
| 5149.210   | 39.3             | 35.4          | 1.8                     | 360.0             | 0.0                          | 0.0                       | Vert                | PK       | -9.5                     | 65.2              | 74.0                 | -8.8                   | Ch. 36-48, 80 MHz BW, MCS9 (256-Q), EUT Vert                        |
| 5149.773   | 38.1             | 35.4          | 1.6                     | 360.0             | 0.0                          | 0.0                       | Horz                | PK       | -9.5                     | 64.0              | 74.0                 | -10.0                  | Ch. 36, 20 MHz BW, 6 Mbps, EUT Vert                                 |
| 5149.953   | 38.0             | 35.4          | 1.8                     | 360.0             | 0.0                          | 0.0                       | Vert                | PK       | -9.5                     | 63.9              | 74.0                 | -10.1                  | Ch. 36, 20 MHz BW, 6 Mbps, EUT on Side                              |
| 5149.080   | 37.3             | 35.4          | 1.8                     | 360.0             | 0.0                          | 0.0                       | Vert                | PK       | -9.5                     | 63.2              | 74.0                 | -10.8                  | Ch. 36, 20 MHz BW, MCS8 (256-Q), EUT Vert                           |
| 5149.363   | 36.5             | 35.4          | 1.5                     | 360.0             | 0.0                          | 0.0                       | Horz                | PK       | -9.5                     | 62.4              | 74.0                 | -11.6                  | Ch. 36, 20 MHz BW, 6 Mbps, EUT Horz                                 |
| 5148.073   | 36.1             | 35.4          | 1.7                     | 360.0             | 0.0                          | 0.0                       | Vert                | PK       | -9.5                     | 62.0              | 74.0                 | -12.0                  | Ch. 36, 20 MHz BW, 6 Mbps, EUT Horz                                 |

# SPURIOUS RADIATED EMISSIONS – 5.2 GHz BAND

## CONCLUSION

Pass



Tested By

# SPURIOUS RADIATED EMISSIONS – 5.3GHz, 5.6GHz, 5.8GHz BANDS



## TEST DESCRIPTION

The highest gain antenna of each type to be used with the EUT was tested. The EUT was configured for the required transmit frequencies in each operational band and the modes as showed in the data sheets.

For each configuration, the spectrum was scanned throughout the specified range as part of the exploratory investigation of the emissions. These “pre-scans” are not included in the report. Final measurements on individual emissions were then made and included in this test report.

The individual emissions from the EUT were maximized by rotating the EUT on a turntable, adjusting the position of the EUT and EUT antenna in three orthogonal axis if required, and adjusting the measurement antenna height and polarization (per ANSI C63.10). A preamp and high pass filter (and notch filter) were used for this test in order to provide sufficient measurement sensitivity.

Measurements were made with the required detectors and annotated on the data for each individual point using the following annotation:

QP = Quasi-Peak Detector  
PK = Peak Detector  
AV = RMS Detector

Measurements were made to satisfy the specific requirements of the test specification for out of band emissions as well as the restricted band requirements.

If there are no detectable emissions above the noise floor, the data included may show noise floor measurements for reference only.

Measurements at the edges of the allowable band may be measured using the Marker Delta or Integration method as outlined in FCC KDB 789033 (d)(i) or (d)(ii) respectfully.

## TEST EQUIPMENT: 9-1-2021 – 11-3-2021

| Description                  | Manufacturer    | Model                     | ID  | Last Cal.  | Cal. Due   |
|------------------------------|-----------------|---------------------------|-----|------------|------------|
| Analyzer - Spectrum Analyzer | Agilent         | N9010A                    | AFI | 2020-12-08 | 2021-12-08 |
| Antenna - Biconilog          | Teseq           | CBL 6141B                 | AXR | 2020-10-13 | 2022-10-13 |
| Antenna - Double Ridge       | EMCO            | 3115                      | AHC | 2020-07-01 | 2022-07-01 |
| Antenna - Standard Gain      | ETS Lindgren    | 3160-07                   | AHU | NCR        | NCR        |
| Antenna - Standard Gain      | ETS Lindgren    | 3160-08                   | AHV | NCR        | NCR        |
| Antenna - Standard Gain      | ETS Lindgren    | 3160-09                   | AIV | NCR        | NCR        |
| Antenna - Standard Gain      | ETS Lindgren    | 3160-10                   | AIW | NCR        | NCR        |
| Amplifier - Pre-Amplifier    | Miteq           | AM-1616-1000              | AOL | 2020-11-17 | 2021-11-17 |
| Amplifier - Pre-Amplifier    | Miteq           | AMF-3D-00100800-32-13P    | PAG | 2020-11-17 | 2021-11-17 |
| Amplifier - Pre-Amplifier    | L-3 Narda-MITEQ | AMF-6F-08001200-30-10P    | PAO | 2020-11-18 | 2021-11-18 |
| Amplifier - Pre-Amplifier    | Miteq           | AMF-6F-12001800-30-10P    | AVD | 2020-11-18 | 2021-11-18 |
| Amplifier - Pre-Amplifier    | Miteq           | AMF-6F-18002650-25-10P    | AVU | 2021-07-16 | 2022-07-16 |
| Amplifier - Pre-Amplifier    | Miteq           | JSW45-26004000-40-5P      | PAE | 2021-04-25 | 2022-04-25 |
| Cable                        | N/A             | Bilog Cables              | EVA | 2020-11-17 | 2021-11-17 |
| Cable                        | N/A             | Double Ridge Horn Cables  | EVB | 2020-11-17 | 2021-11-17 |
| Cable                        | None            | Standard Gain Horns Cable | EVF | 2020-11-18 | 2021-11-18 |
| Cable                        | ESM Cable Corp. | TTBJ141-KMKM-72           | EVY | 2021-07-16 | 2022-07-16 |
| Cable                        | ESM Cable Corp. | KNKN-72 SMA Cable         | EVZ | 2021-04-25 | 2022-04-25 |
| Filter - Low Pass            | Micro-Tronics   | LPM50004                  | LFD | 2021-02-15 | 2022-02-15 |
| Filter - Band Pass/Notch     | Micro-Tronics   | BRC50704                  | HGI | 2020-11-09 | 2021-11-09 |
| Filter - Band Pass/Notch     | Micro-Tronics   | BRC50705                  | HGJ | 2020-11-09 | 2021-11-09 |
| Antenna - Double Ridge       | ETS Lindgren    | 3115                      | AIZ | 2020-02-25 | 2022-02-25 |



# SPURIOUS RADIATED EMISSIONS – 5.3GHz, 5.6GHz, 5.8GHz BANDS



| Description | Manufacturer | Model                 | ID  | Last Cal.  | Cal. Due   |
|-------------|--------------|-----------------------|-----|------------|------------|
| Cable       | Micro-Coax   | UFD150A-1-0720-200200 | EVI | 2020-12-01 | 2021-12-01 |

## TEST EQUIPMENT: 02-13-2022

| Description                  | Manufacturer    | Model                     | ID  | Last Cal.  | Cal. Due   |
|------------------------------|-----------------|---------------------------|-----|------------|------------|
| Analyzer - Spectrum Analyzer | Agilent         | N9010A                    | AFI | 2021-12-09 | 2022-12-09 |
| Antenna - Standard Gain      | ETS Lindgren    | 3160-07                   | AHU | NCR        | NCR        |
| Amplifier - Pre-Amplifier    | L-3 Narda-MITEQ | AMF-6F-08001200-30-10P    | PAO | 2021-11-17 | 2022-11-17 |
| Cable                        | None            | Standard Gain Horn Cables | EVF | 2021-11-17 | 2022-11-17 |
| Antenna - Standard Gain      | ETS Lindgren    | 3160-08                   | AHV | NCR        | NCR        |
| Amplifier - Pre-Amplifier    | Miteq           | AMF-6F-12001800-30-10P    | AVD | 2021-11-17 | 2022-11-17 |
| Antenna - Double Ridge       | ETS Lindgren    | 3115                      | AIZ | 2020-02-25 | 2022-02-25 |
| Cable                        | Micro-Coax      | UFD150A-1-0720-200200     | EVI | 2021-12-05 | 2022-12-05 |

## MEASUREMENT UNCERTAINTY

| Description  |        |         |
|--------------|--------|---------|
| Expanded k=2 | 5.2 dB | -5.2 dB |

## FREQUENCY RANGE INVESTIGATED

30 MHz TO 40000 MHz

## POWER INVESTIGATED

3.3 VDC via 110VAC/60Hz

## CONFIGURATIONS INVESTIGATED

A-DE0170-1

## MODES INVESTIGATED

Tx - 802.11ac/an, Ch 52 = 5260 MHz, Ch 64 = 5320 MHz, Ch 60/64 = 5310 MHz, Ch 52-64 = 5290 MHz, Ch 100 = 5500 MHz, Ch 100/104 = 5510 MHz, Ch 100 - 112 = 5530 MHz, Ch 116 = 5580 MHz, Ch 140 = 5700 MHz, Ch 140/144 = 5710 MHz, Ch 132-144 = 5690 MHz, Ch 149 = 5745 MHz, Ch 157 = 5785 MHz, Ch 165 = 5825 MHz, Ch 157/161 = 5795 MHz, Ch 149-161 = 5775 MHz.

Tx - 802.11ac/an, Ch 149 = 5745 MHz, 36 Mbps

Tx - 802.11ac/an, Ch 165 = 5825 MHz, 36 Mbps

Tx - 802.11ac/an, Ch 149/153 = 5755 MHz, MCS9 (256-QAM)

Tx - 802.11ac/an, Ch. 157/161 = 5795 MHz, MCS9 (256-QAM)

Tx - 802.11ac/an, Ch. 149-161 = 5775 MHz, MCS9 (256-QAM)

# SPURIOUS RADIATED EMISSIONS – 5.3GHz, 5.6GHz, 5.8GHz BANDS

|                   |                         |                    |            |
|-------------------|-------------------------|--------------------|------------|
| EUT:              | 43.0536.00              | Work Order:        | A-DE0170   |
| Serial Number:    | SN001 00004             | Date:              | 2021-09-01 |
| Customer:         | A-dec, Inc.             | Temperature:       | 22.1°C     |
| Attendees:        | Michael Yukorski        | Relative Humidity: | 39.9%      |
| Customer Project: | None                    | Bar. Pressure:     | 1019 mb    |
| Tested By:        | Jeff Alcock             | Job Site:          | EV01       |
| Power:            | 3.3 VDC via 110VAC/60Hz | Configuration:     | A-DE0170-1 |

## TEST SPECIFICATIONS

|                 |                  |
|-----------------|------------------|
| Specification:  | Method:          |
| FCC 15.407:2021 | ANSI C63.10:2013 |

## TEST PARAMETERS

|        |    |                    |   |                     |           |
|--------|----|--------------------|---|---------------------|-----------|
| Run #: | 24 | Test Distance (m): | 3 | Ant. Height(s) (m): | 1 to 4(m) |
|--------|----|--------------------|---|---------------------|-----------|

## COMMENTS

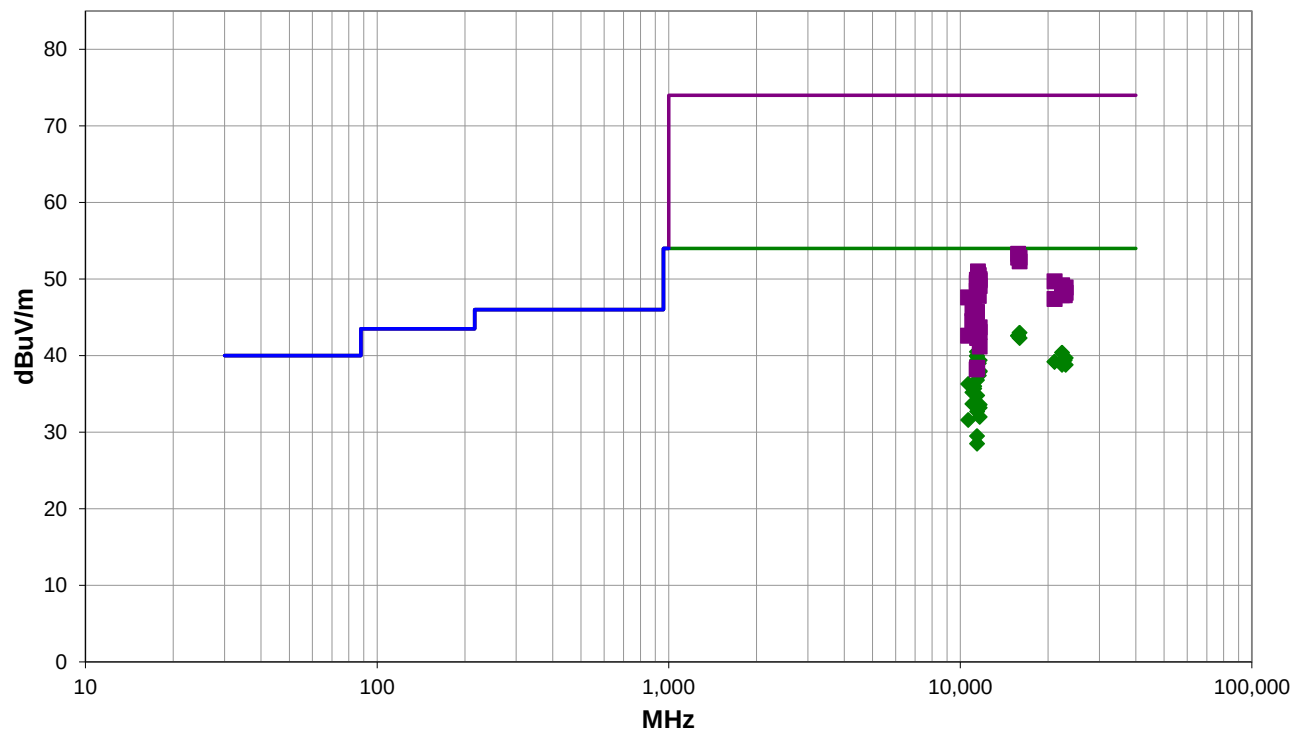
Please reference data comments below for Channel, data rate, and EUT orientation. Average measurements that do not have a duty cycle correction factor applied to them are noise floor and are not temporally associated with the fundamental.

## EUT OPERATING MODES

Tx - 802.11ac/an, Ch 52 = 5260 MHz, Ch 64 = 5320 MHz, Ch 100 = 5500 MHz, Ch 116 = 5580 MHz, Ch 140 = 5700 MHz, Ch 149 = 5745 MHz, Ch 157 = 5785 MHz, Ch 165 = 5825 MHz, Ch 140/144 = 5710 MHz, Ch 132-144 = 5690 MHz

## DEVIATIONS FROM TEST STANDARD

None



Run #: 24

■ PK ◆ AV ● QP

# SPURIOUS RADIATED EMISSIONS – 5.3GHz, 5.6GHz, 5.8GHz BANDS

## RESULTS - Run #24

| Freq (MHz) | Amplitude (dBuV) | Factor (dB/m) | Antenna Height (meters) | Azimuth (degrees) | Duty Cycle | Correction Factor | External Attenuation (dB) | Polarity/Transducer | Detector | Distance Adjustment (dB) | Adjusted (dBuV/m) | Spec. Limit (dBuV/m) | Compared to Spec. (dB) | Comments                                 |
|------------|------------------|---------------|-------------------------|-------------------|------------|-------------------|---------------------------|---------------------|----------|--------------------------|-------------------|----------------------|------------------------|------------------------------------------|
| 15961.130  | 25.7             | 17.3          | 1.5                     | 360.0             | 0.0        | 0.0               | 0.0                       | Vert                | AV       | 0.0                      | 43.0              | 54.0                 | -11.0                  | Ch. 64, 6 Mbps, EUT on Side              |
| 15773.710  | 25.3             | 17.3          | 1.5                     | 5.0               | 0.0        | 0.0               | 0.0                       | Horz                | AV       | 0.0                      | 42.6              | 54.0                 | -11.4                  | Ch. 52, 6 Mbps, EUT on Side              |
| 15774.330  | 25.3             | 17.3          | 1.5                     | 62.0              | 0.0        | 0.0               | 0.0                       | Vert                | AV       | 0.0                      | 42.6              | 54.0                 | -11.4                  | Ch. 52, 6 Mbps, EUT on Side              |
| 15972.250  | 25.0             | 17.3          | 3.2                     | 1.0               | 0.0        | 0.0               | 0.0                       | Horz                | AV       | 0.0                      | 42.3              | 54.0                 | -11.7                  | Ch. 64, 6 Mbps, EUT on Side              |
| 11400.040  | 40.1             | -0.1          | 1.9                     | 319.0             | 0.5        | 0.0               | 0.0                       | Vert                | AV       | 0.0                      | 40.5              | 54.0                 | -13.5                  | Ch. 140, 54 Mbps, EUT on Side            |
| 22319.960  | 33.6             | 6.7           | 1.5                     | 320.0             | 0.1        | 0.0               | 0.0                       | Vert                | AV       | 0.0                      | 40.4              | 54.0                 | -13.6                  | Ch. 116, 6 Mbps, EUT on Side             |
| 11401.130  | 39.8             | -0.1          | 1.9                     | 319.0             | 0.3        | 0.0               | 0.0                       | Vert                | AV       | 0.0                      | 40.0              | 54.0                 | -14.0                  | Ch. 140, 36 Mbps, EUT on Side            |
| 11401.790  | 39.9             | -0.1          | 1.9                     | 326.0             | 0.1        | 0.0               | 0.0                       | Vert                | AV       | 0.0                      | 39.9              | 54.0                 | -14.1                  | Ch. 140, 6 Mbps, EUT on Side             |
| 22979.880  | 32.4             | 7.2           | 1.5                     | 315.0             | 0.1        | 0.0               | 0.0                       | Vert                | AV       | 0.0                      | 39.7              | 54.0                 | -14.3                  | Ch. 149, 6 Mbps, EUT on Side             |
| 22799.920  | 32.6             | 7.0           | 1.5                     | 319.0             | 0.1        | 0.0               | 0.0                       | Vert                | AV       | 0.0                      | 39.7              | 54.0                 | -14.3                  | Ch. 140, 6 Mbps, EUT on Side             |
| 11650.130  | 39.1             | 0.2           | 1.0                     | 28.0              | 0.1        | 0.0               | 0.0                       | Horz                | AV       | 0.0                      | 39.4              | 54.0                 | -14.6                  | Ch. 165, 6 Mbps, EUT on Side             |
| 22799.920  | 32.3             | 7.0           | 1.5                     | 303.0             | 0.1        | 0.0               | 0.0                       | Horz                | AV       | 0.0                      | 39.4              | 54.0                 | -14.6                  | Ch. 140, 6 Mbps, EUT on Side             |
| 11401.250  | 38.8             | -0.1          | 1.9                     | 319.0             | 0.7        | 0.0               | 0.0                       | Vert                | AV       | 0.0                      | 39.4              | 54.0                 | -14.6                  | Ch. 140, MCS7, EUT on Side               |
| 11490.000  | 39.8             | -0.6          | 1.9                     | 325.0             | 0.1        | 0.0               | 0.0                       | Vert                | AV       | 0.0                      | 39.3              | 54.0                 | -14.7                  | Ch. 149, 6 Mbps, EUT on Side             |
| 11490.130  | 39.8             | -0.7          | 1.0                     | 29.0              | 0.1        | 0.0               | 0.0                       | Horz                | AV       | 0.0                      | 39.2              | 54.0                 | -14.8                  | Ch. 149, 6 Mbps, EUT on Side             |
| 21040.040  | 33.2             | 5.9           | 1.5                     | 135.0             | 0.1        | 0.0               | 0.0                       | Horz                | AV       | 0.0                      | 39.2              | 54.0                 | -14.8                  | Ch. 52, 6 Mbps, EUT on Side              |
| 21040.040  | 33.2             | 5.9           | 1.5                     | 209.0             | 0.1        | 0.0               | 0.0                       | Vert                | AV       | 0.0                      | 39.2              | 54.0                 | -14.8                  | Ch. 52, 6 Mbps, EUT on Side              |
| 11400.250  | 39.2             | -0.1          | 1.9                     | 319.0             | 0.1        | 0.0               | 0.0                       | Vert                | AV       | 0.0                      | 39.2              | 54.0                 | -14.8                  | Ch. 140, MCS0, EUT on Side               |
| 11570.000  | 39.1             | -0.2          | 1.0                     | 32.0              | 0.1        | 0.0               | 0.0                       | Horz                | AV       | 0.0                      | 39.0              | 54.0                 | -15.0                  | Ch. 157, 6 Mbps, EUT on Side             |
| 11401.710  | 38.9             | -0.1          | 1.0                     | 30.0              | 0.1        | 0.0               | 0.0                       | Horz                | AV       | 0.0                      | 38.9              | 54.0                 | -15.1                  | Ch. 140, 6 Mbps, EUT on Side             |
| 22979.960  | 31.5             | 7.2           | 1.5                     | 315.0             | 0.1        | 0.0               | 0.0                       | Horz                | AV       | 0.0                      | 38.8              | 54.0                 | -15.2                  | Ch. 149, 6 Mbps, EUT on Side             |
| 22320.000  | 32.0             | 6.7           | 1.5                     | 303.0             | 0.1        | 0.0               | 0.0                       | Horz                | AV       | 0.0                      | 38.8              | 54.0                 | -15.2                  | Ch. 116, 6 Mbps, EUT on Side             |
| 11649.920  | 37.7             | 0.2           | 2.9                     | 0.0               | 0.1        | 0.0               | 0.0                       | Horz                | AV       | 0.0                      | 38.0              | 54.0                 | -16.0                  | Ch. 165, 6 Mbps, EUT Vert                |
| 11650.040  | 37.6             | 0.2           | 2.0                     | 27.0              | 0.1        | 0.0               | 0.0                       | Vert                | AV       | 0.0                      | 37.9              | 54.0                 | -16.1                  | Ch. 165, 6 Mbps, EUT on Side             |
| 11570.040  | 37.4             | -0.1          | 1.0                     | 27.0              | 0.1        | 0.0               | 0.0                       | Vert                | AV       | 0.0                      | 37.4              | 54.0                 | -16.6                  | Ch. 157, 6 Mbps, EUT on Side             |
| 11401.170  | 36.4             | -0.1          | 1.9                     | 319.0             | 0.5        | 0.0               | 0.0                       | Vert                | AV       | 0.0                      | 36.8              | 54.0                 | -17.2                  | Ch. 140, MCS8, EUT on Side               |
| 10641.830  | 36.5             | -0.3          | 1.9                     | 22.0              | 0.1        | 0.0               | 0.0                       | Horz                | AV       | 0.0                      | 36.3              | 54.0                 | -17.7                  | Ch. 64, 6 Mbps, EUT on Side              |
| 11159.880  | 36.6             | -0.7          | 2.0                     | 326.0             | 0.1        | 0.0               | 0.0                       | Vert                | AV       | 0.0                      | 36.0              | 54.0                 | -18.0                  | Ch. 116, 6 Mbps, EUT on Side             |
| 11160.040  | 36.3             | -0.7          | 1.0                     | 25.0              | 0.1        | 0.0               | 0.0                       | Horz                | AV       | 0.0                      | 35.7              | 54.0                 | -18.3                  | Ch. 116, 6 Mbps, EUT on Side             |
| 11000.210  | 35.3             | -0.2          | 2.0                     | 333.0             | 0.1        | 0.0               | 0.0                       | Vert                | AV       | 0.0                      | 35.2              | 54.0                 | -18.8                  | Ch. 100, 6 Mbps, EUT on Side             |
| 11421.210  | 33.9             | -0.2          | 2.0                     | 327.0             | 1.1        | 0.0               | 0.0                       | Vert                | AV       | 0.0                      | 34.8              | 54.0                 | -19.2                  | Ch. 140/144, MCS9 (256-QAM), EUT on Side |
| 10999.710  | 33.8             | -0.2          | 1.0                     | 11.0              | 0.1        | 0.0               | 0.0                       | Horz                | AV       | 0.0                      | 33.7              | 54.0                 | -20.3                  | Ch. 100, 6 Mbps, EUT on Side             |
| 11418.830  | 33.2             | -0.2          | 2.0                     | 327.0             | 0.7        | 0.0               | 0.0                       | Vert                | AV       | 0.0                      | 33.7              | 54.0                 | -20.3                  | Ch. 140/144, MCS7, EUT on Side           |
| 11649.670  | 33.3             | 0.2           | 2.1                     | 34.0              | 0.1        | 0.0               | 0.0                       | Vert                | AV       | 0.0                      | 33.6              | 54.0                 | -20.4                  | Ch. 165, 6 Mbps, EUT Vert                |
| 15778.130  | 35.9             | 17.4          | 1.5                     | 5.0               | 0.0        | 0.0               | 0.0                       | Horz                | PK       | 0.0                      | 53.3              | 74.0                 | -20.7                  | Ch. 52, 6 Mbps, EUT on Side              |
| 11649.830  | 32.9             | 0.2           | 3.2                     | 213.0             | 0.1        | 0.0               | 0.0                       | Horz                | AV       | 0.0                      | 33.2              | 54.0                 | -20.8                  | Ch. 165, 6 Mbps, EUT Horz                |
| 15950.830  | 35.5             | 17.3          | 1.5                     | 360.0             | 0.0        | 0.0               | 0.0                       | Vert                | PK       | 0.0                      | 52.8              | 74.0                 | -21.2                  | Ch. 64, 6 Mbps, EUT on Side              |
| 15776.880  | 35.4             | 17.4          | 1.5                     | 62.0              | 0.0        | 0.0               | 0.0                       | Vert                | PK       | 0.0                      | 52.8              | 74.0                 | -21.2                  | Ch. 52, 6 Mbps, EUT on Side              |
| 11420.080  | 32.8             | -0.2          | 2.0                     | 327.0             | 0.1        | 0.0               | 0.0                       | Vert                | AV       | 0.0                      | 32.7              | 54.0                 | -21.3                  | Ch. 140/144, MCS0, EUT on Side           |
| 15971.380  | 35.0             | 17.3          | 3.2                     | 1.0               | 0.0        | 0.0               | 0.0                       | Horz                | PK       | 0.0                      | 52.3              | 74.0                 | -21.7                  | Ch. 64, 6 Mbps, EUT on Side              |

# SPURIOUS RADIATED EMISSIONS – 5.3GHz, 5.6GHz, 5.8GHz BANDS

| Freq (MHz) | Amplitude (dBuV) | Factor (dB/m) | Antenna Height (meters) | Azimuth (degrees) | Duty Cycle Correction Factor | External Attenuation (dB) | Polarity/Transducer | Detector | Distance Adjustment (dB) | Adjusted (dBuV/m) | Spec. Limit (dBuV/m) | Compared to Spec. (dB) | Comments                                 |
|------------|------------------|---------------|-------------------------|-------------------|------------------------------|---------------------------|---------------------|----------|--------------------------|-------------------|----------------------|------------------------|------------------------------------------|
| 11650.000  | 31.7             | 0.2           | 2.8                     | 191.0             | 0.1                          | 0.0                       | Vert                | AV       | 0.0                      | 32.0              | 54.0                 | -22.0                  | Ch. 165, 6 Mbps, EUT Horz                |
| 10641.380  | 31.9             | -0.4          | 1.9                     | 360.0             | 0.1                          | 0.0                       | Vert                | AV       | 0.0                      | 31.6              | 54.0                 | -22.4                  | Ch. 64, 6 Mbps, EUT on Side              |
| 11488.790  | 51.6             | -0.6          | 1.0                     | 29.0              | 0.0                          | 0.0                       | Horz                | PK       | 0.0                      | 51.0              | 74.0                 | -23.0                  | Ch. 149, 6 Mbps, EUT on Side             |
| 11489.250  | 51.3             | -0.6          | 1.9                     | 325.0             | 0.0                          | 0.0                       | Vert                | PK       | 0.0                      | 50.7              | 74.0                 | -23.3                  | Ch. 149, 6 Mbps, EUT on Side             |
| 11568.920  | 50.7             | -0.2          | 1.0                     | 32.0              | 0.0                          | 0.0                       | Horz                | PK       | 0.0                      | 50.5              | 74.0                 | -23.5                  | Ch. 157, 6 Mbps, EUT on Side             |
| 11648.830  | 49.8             | 0.2           | 2.9                     | 0.0               | 0.0                          | 0.0                       | Horz                | PK       | 0.0                      | 50.0              | 74.0                 | -24.0                  | Ch. 165, 6 Mbps, EUT Vert                |
| 11405.630  | 50.0             | -0.1          | 1.9                     | 319.0             | 0.0                          | 0.0                       | Vert                | PK       | 0.0                      | 49.9              | 74.0                 | -24.1                  | Ch. 140, MCS0, EUT on Side               |
| 11648.710  | 49.6             | 0.2           | 1.0                     | 28.0              | 0.0                          | 0.0                       | Horz                | PK       | 0.0                      | 49.8              | 74.0                 | -24.2                  | Ch. 165, 6 Mbps, EUT on Side             |
| 21042.880  | 43.8             | 5.9           | 1.5                     | 209.0             | 0.0                          | 0.0                       | Vert                | PK       | 0.0                      | 49.7              | 74.0                 | -24.3                  | Ch. 52, 6 Mbps, EUT on Side              |
| 11401.670  | 49.7             | -0.1          | 1.9                     | 326.0             | 0.0                          | 0.0                       | Vert                | PK       | 0.0                      | 49.6              | 74.0                 | -24.4                  | Ch. 140, 6 Mbps, EUT on Side             |
| 11403.500  | 49.7             | -0.1          | 1.9                     | 319.0             | 0.0                          | 0.0                       | Vert                | PK       | 0.0                      | 49.6              | 74.0                 | -24.4                  | Ch. 140, 36 Mbps, EUT on Side            |
| 11408.800  | 28.5             | -0.1          | 3.1                     | 90.0              | 1.1                          | 0.0                       | Vert                | AV       | 0.0                      | 29.5              | 54.0                 | -24.5                  | Ch. 132-144, MCS9 (256-QAM), EUT on Side |
| 11401.670  | 49.5             | -0.1          | 1.9                     | 319.0             | 0.0                          | 0.0                       | Vert                | PK       | 0.0                      | 49.4              | 74.0                 | -24.6                  | Ch. 140, 54 Mbps, EUT on Side            |
| 22319.830  | 42.5             | 6.7           | 1.5                     | 324.0             | 0.0                          | 0.0                       | Vert                | PK       | 0.0                      | 49.2              | 74.0                 | -24.8                  | Ch. 116, 6 Mbps, EUT on Side             |
| 11649.330  | 48.9             | 0.2           | 2.0                     | 27.0              | 0.0                          | 0.0                       | Vert                | PK       | 0.0                      | 49.1              | 74.0                 | -24.9                  | Ch. 165, 6 Mbps, EUT on Side             |
| 22978.040  | 41.7             | 7.2           | 1.5                     | 315.0             | 0.0                          | 0.0                       | Horz                | PK       | 0.0                      | 48.9              | 74.0                 | -25.1                  | Ch. 149, 6 Mbps, EUT on Side             |
| 22799.830  | 41.7             | 7.0           | 1.5                     | 319.0             | 0.0                          | 0.0                       | Vert                | PK       | 0.0                      | 48.7              | 74.0                 | -25.3                  | Ch. 140, 6 Mbps, EUT on Side             |
| 11402.290  | 48.6             | -0.1          | 1.0                     | 30.0              | 0.0                          | 0.0                       | Horz                | PK       | 0.0                      | 48.5              | 74.0                 | -25.5                  | Ch. 140, 6 Mbps, EUT on Side             |
| 11400.630  | 48.6             | -0.1          | 1.9                     | 319.0             | 0.0                          | 0.0                       | Vert                | PK       | 0.0                      | 48.5              | 74.0                 | -25.5                  | Ch. 140, MCS7, EUT on Side               |
| 11411.330  | 28.5             | -0.2          | 3.1                     | 90.0              | 0.2                          | 0.0                       | Vert                | AV       | 0.0                      | 28.5              | 54.0                 | -25.5                  | Ch. 132-144, MCS0, EUT on Side           |
| 22972.540  | 41.0             | 7.2           | 1.5                     | 315.0             | 0.0                          | 0.0                       | Vert                | PK       | 0.0                      | 48.2              | 74.0                 | -25.8                  | Ch. 149, 6 Mbps, EUT on Side             |
| 22319.790  | 41.2             | 6.7           | 1.5                     | 304.0             | 0.0                          | 0.0                       | Horz                | PK       | 0.0                      | 47.9              | 74.0                 | -26.1                  | Ch. 116, 6 Mbps, EUT on Side             |
| 22793.420  | 40.9             | 7.0           | 1.5                     | 303.0             | 0.0                          | 0.0                       | Horz                | PK       | 0.0                      | 47.9              | 74.0                 | -26.1                  | Ch. 140, 6 Mbps, EUT on Side             |
| 11569.880  | 48.0             | -0.2          | 1.0                     | 27.0              | 0.0                          | 0.0                       | Vert                | PK       | 0.0                      | 47.8              | 74.0                 | -26.2                  | Ch. 157, 6 Mbps, EUT on Side             |
| 10638.750  | 48.0             | -0.4          | 1.9                     | 22.0              | 0.0                          | 0.0                       | Horz                | PK       | 0.0                      | 47.6              | 74.0                 | -26.4                  | Ch. 64, 6 Mbps, EUT on Side              |
| 21036.040  | 41.5             | 5.9           | 1.5                     | 135.0             | 0.0                          | 0.0                       | Horz                | PK       | 0.0                      | 47.4              | 74.0                 | -26.6                  | Ch. 52, 6 Mbps, EUT on Side              |
| 11159.380  | 47.5             | -0.7          | 2.0                     | 326.0             | 0.0                          | 0.0                       | Vert                | PK       | 0.0                      | 46.8              | 74.0                 | -27.2                  | Ch. 116, 6 Mbps, EUT on Side             |
| 11000.420  | 46.4             | -0.2          | 2.0                     | 333.0             | 0.0                          | 0.0                       | Vert                | PK       | 0.0                      | 46.2              | 74.0                 | -27.8                  | Ch. 100, 6 Mbps, EUT on Side             |
| 11401.790  | 45.8             | -0.1          | 1.9                     | 319.0             | 0.0                          | 0.0                       | Vert                | PK       | 0.0                      | 45.7              | 74.0                 | -28.3                  | Ch. 140, MCS8, EUT on Side               |
| 11162.580  | 46.0             | -0.8          | 1.0                     | 25.0              | 0.0                          | 0.0                       | Horz                | PK       | 0.0                      | 45.2              | 74.0                 | -28.8                  | Ch. 116, 6 Mbps, EUT on Side             |
| 10999.040  | 44.7             | -0.2          | 1.0                     | 11.0              | 0.0                          | 0.0                       | Horz                | PK       | 0.0                      | 44.5              | 74.0                 | -29.5                  | Ch. 100, 6 Mbps, EUT on Side             |
| 11646.080  | 43.5             | 0.2           | 3.2                     | 213.0             | 0.0                          | 0.0                       | Horz                | PK       | 0.0                      | 43.7              | 74.0                 | -30.3                  | Ch. 165, 6 Mbps, EUT Horz                |
| 11653.500  | 42.9             | 0.2           | 2.1                     | 34.0              | 0.0                          | 0.0                       | Vert                | PK       | 0.0                      | 43.1              | 74.0                 | -30.9                  | Ch. 165, 6 Mbps, EUT Vert                |
| 11411.330  | 42.9             | -0.2          | 2.0                     | 327.0             | 0.0                          | 0.0                       | Vert                | PK       | 0.0                      | 42.7              | 74.0                 | -31.3                  | Ch. 140/144, MCS7, EUT on Side           |
| 11421.710  | 42.9             | -0.2          | 2.0                     | 327.0             | 0.0                          | 0.0                       | Vert                | PK       | 0.0                      | 42.7              | 74.0                 | -31.3                  | Ch. 140/144, MCS9 (256-QAM), EUT on Side |
| 10639.500  | 43.0             | -0.4          | 1.9                     | 360.0             | 0.0                          | 0.0                       | Vert                | PK       | 0.0                      | 42.6              | 74.0                 | -31.4                  | Ch. 64, 6 Mbps, EUT on Side              |
| 11410.420  | 42.5             | -0.2          | 2.0                     | 327.0             | 0.0                          | 0.0                       | Vert                | PK       | 0.0                      | 42.3              | 74.0                 | -31.7                  | Ch. 140/144, MCS0, EUT on Side           |
| 11651.790  | 41.0             | 0.2           | 2.8                     | 191.0             | 0.0                          | 0.0                       | Vert                | PK       | 0.0                      | 41.2              | 74.0                 | -32.8                  | Ch. 165, 6 Mbps, EUT Horz                |
| 11418.000  | 38.6             | -0.2          | 3.1                     | 90.0              | 0.0                          | 0.0                       | Vert                | PK       | 0.0                      | 38.4              | 74.0                 | -35.6                  | Ch. 132-144, MCS9 (256-QAM), EUT on Side |
| 11375.600  | 38.3             | -0.1          | 3.1                     | 90.0              | 0.0                          | 0.0                       | Vert                | PK       | 0.0                      | 38.2              | 74.0                 | -35.8                  | Ch. 132-144, MCS0, EUT on Side           |

# SPURIOUS RADIATED EMISSIONS – 5.3GHz, 5.6GHz, 5.8GHz BANDS

## CONCLUSION

Pass



Tested By

# SPURIOUS RADIATED EMISSIONS – 5.3GHz, 5.6GHz, 5.8GHz BANDS

|                   |                         |                       |            |
|-------------------|-------------------------|-----------------------|------------|
| EUT:              | 43.0536.00              | Work Order:           | A-DE0170   |
| Serial Number:    | SN001 00004             | Date:                 | 2021-11-03 |
| Customer:         | A-dec, Inc.             | Temperature:          | 21.9°C     |
| Attendees:        | None                    | Relative Humidity:    | 43.3%      |
| Customer Project: | None                    | Bar. Pressure (PMSL): | 1018 mb    |
| Tested By:        | Jeff Alcock             | Job Site:             | EV01       |
| Power:            | 3.3 VDC via 110VAC/60Hz | Configuration:        | A-DE0170-1 |

## TEST SPECIFICATIONS

|                 |                  |
|-----------------|------------------|
| Specification:  | Method:          |
| FCC 15.407:2021 | ANSI C63.10:2013 |

## TEST PARAMETERS

|        |     |                    |   |                     |           |
|--------|-----|--------------------|---|---------------------|-----------|
| Run #: | 142 | Test Distance (m): | 3 | Ant. Height(s) (m): | 1 to 4(m) |
|--------|-----|--------------------|---|---------------------|-----------|

## COMMENTS

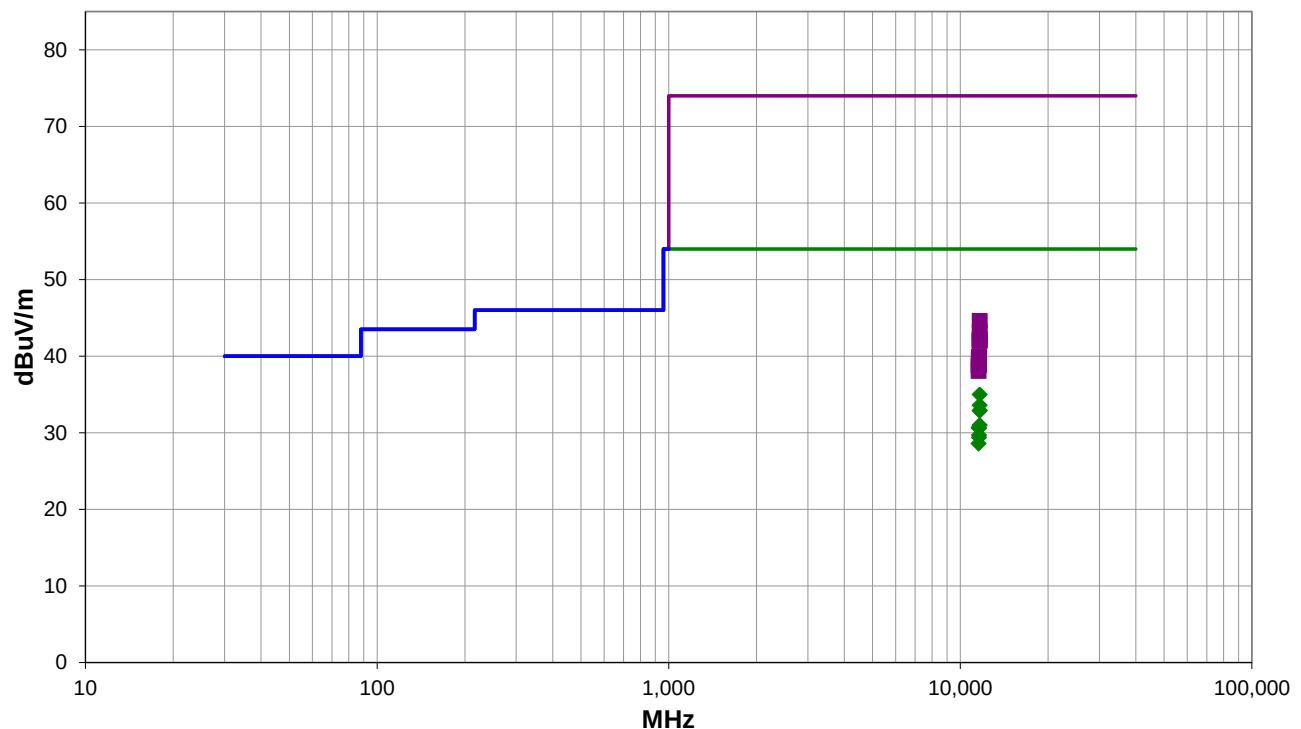
Please reference data comments below for Channel, data rate, and EUT orientation.

## EUT OPERATING MODES

Tx - 802.11ac/an, Ch. 165 = 5825 MHz, Ch. 157/161 = 5795 MHz, and Ch. 149-161 = 5775 MHz

## DEVIATIONS FROM TEST STANDARD

None



Run #: 142

■ PK ◆ AV ● QP

# SPURIOUS RADIATED EMISSIONS – 5.3GHz, 5.6GHz, 5.8GHz BANDS

## RESULTS - Run #142

| Freq (MHz) | Amplitude (dBuV) | Factor (dB/m) | Antenna Height (meters) | Azimuth (degrees) | Duty Cycle | Correction Factor | External Attenuation (dB) | Polarity/Transducer | Detector | Distance Adjustment (dB) | Adjusted (dBuV/m) | Spec. Limit (dBuV/m) | Compared to Spec. (dB) | Comments                                 |
|------------|------------------|---------------|-------------------------|-------------------|------------|-------------------|---------------------------|---------------------|----------|--------------------------|-------------------|----------------------|------------------------|------------------------------------------|
| 11651.130  | 34.5             | 0.2           | 1.0                     | 337.0             | 0.3        | 0.0               | 0.0                       | Horz                | AV       | 0.0                      | 35.0              | 54.0                 | -19.0                  | Ch. 165, 36 Mbps, EUT on Side            |
| 11650.080  | 32.9             | 0.2           | 3.0                     | 329.0             | 0.5        | 0.0               | 0.0                       | Horz                | AV       | 0.0                      | 33.6              | 54.0                 | -20.4                  | Ch. 165, 54 Mbps, EUT on Side            |
| 11649.920  | 32.6             | 0.2           | 3.0                     | 329.0             | 0.1        | 0.0               | 0.0                       | Horz                | AV       | 0.0                      | 32.9              | 54.0                 | -21.1                  | Ch. 165, MCS0, EUT on Side               |
| 11651.380  | 32.2             | 0.2           | 3.0                     | 329.0             | 0.5        | 0.0               | 0.0                       | Horz                | AV       | 0.0                      | 32.9              | 54.0                 | -21.1                  | Ch. 165, MCS7, EUT on Side               |
| 11651.330  | 30.2             | 0.2           | 3.0                     | 329.0             | 0.6        | 0.0               | 0.0                       | Horz                | AV       | 0.0                      | 31.0              | 54.0                 | -23.0                  | Ch. 165, MCS8 (256-QAM), EUT on Side     |
| 11558.800  | 29.8             | -0.2          | 1.5                     | 329.0             | 1.1        | 0.0               | 0.0                       | Horz                | AV       | 0.0                      | 30.7              | 54.0                 | -23.3                  | Ch. 149-161, MCS9 (256-QAM), EUT on Side |
| 11588.750  | 29.9             | -0.1          | 2.3                     | 338.0             | 0.8        | 0.0               | 0.0                       | Horz                | AV       | 0.0                      | 30.6              | 54.0                 | -23.4                  | Ch. 157/161, MCS9 (256-QAM), EUT on Side |
| 11589.960  | 29.1             | -0.1          | 2.3                     | 338.0             | 0.7        | 0.0               | 0.0                       | Horz                | AV       | 0.0                      | 29.7              | 54.0                 | -24.3                  | Ch. 157/161, MCS7, EUT on Side           |
| 11589.710  | 29.4             | -0.1          | 2.3                     | 338.0             | 0.1        | 0.0               | 0.0                       | Horz                | AV       | 0.0                      | 29.4              | 54.0                 | -24.6                  | Ch. 157/161, MCS0, EUT on Side           |
| 11549.960  | 28.8             | -0.4          | 1.5                     | 329.0             | 0.2        | 0.0               | 0.0                       | Horz                | AV       | 0.0                      | 28.6              | 54.0                 | -25.4                  | Ch. 149-161, MCS0, EUT on Side           |
| 11653.710  | 44.4             | 0.2           | 1.0                     | 337.0             | 0.0        | 0.0               | 0.0                       | Horz                | PK       | 0.0                      | 44.6              | 74.0                 | -29.4                  | Ch. 165, 36 Mbps, EUT on Side            |
| 11655.750  | 43.0             | 0.2           | 3.0                     | 329.0             | 0.0        | 0.0               | 0.0                       | Horz                | PK       | 0.0                      | 43.2              | 74.0                 | -30.8                  | Ch. 165, 54 Mbps, EUT on Side            |
| 11652.420  | 42.1             | 0.2           | 3.0                     | 329.0             | 0.0        | 0.0               | 0.0                       | Horz                | PK       | 0.0                      | 42.3              | 74.0                 | -31.7                  | Ch. 165, MCS0, EUT on Side               |
| 11650.000  | 41.9             | 0.2           | 3.0                     | 329.0             | 0.0        | 0.0               | 0.0                       | Horz                | PK       | 0.0                      | 42.1              | 74.0                 | -31.9                  | Ch. 165, MCS7, EUT on Side               |
| 11649.380  | 41.8             | 0.2           | 3.0                     | 329.0             | 0.0        | 0.0               | 0.0                       | Horz                | PK       | 0.0                      | 42.0              | 74.0                 | -32.0                  | Ch. 165, MCS8 (256-QAM), EUT on Side     |
| 11586.580  | 40.0             | -0.1          | 2.3                     | 338.0             | 0.0        | 0.0               | 0.0                       | Horz                | PK       | 0.0                      | 39.9              | 74.0                 | -34.1                  | Ch. 157/161, MCS9 (256-QAM), EUT on Side |
| 11586.250  | 39.6             | -0.1          | 2.3                     | 338.0             | 0.0        | 0.0               | 0.0                       | Horz                | PK       | 0.0                      | 39.5              | 74.0                 | -34.5                  | Ch. 157/161, MCS7, EUT on Side           |
| 11581.040  | 39.0             | -0.1          | 2.3                     | 338.0             | 0.0        | 0.0               | 0.0                       | Horz                | PK       | 0.0                      | 38.9              | 74.0                 | -35.1                  | Ch. 157/161, MCS0, EUT on Side           |
| 11549.450  | 39.2             | -0.4          | 1.5                     | 329.0             | 0.0        | 0.0               | 0.0                       | Horz                | PK       | 0.0                      | 38.8              | 74.0                 | -35.2                  | Ch. 149-161, MCS9 (256-QAM), EUT on Side |
| 11548.960  | 38.5             | -0.4          | 1.5                     | 329.0             | 0.0        | 0.0               | 0.0                       | Horz                | PK       | 0.0                      | 38.1              | 74.0                 | -35.9                  | Ch. 149-161, MCS0, EUT on Side           |

## CONCLUSION

Pass



Tested By



# SPURIOUS RADIATED EMISSIONS – 5.3GHz, 5.6GHz, 5.8GHz BANDS

|                   |                         |                    |            |
|-------------------|-------------------------|--------------------|------------|
| EUT:              | 43.0536.00              | Work Order:        | A-DE0170   |
| Serial Number:    | SN001 00004             | Date:              | 2021-09-01 |
| Customer:         | A-dec, Inc.             | Temperature:       | 22.3°C     |
| Attendees:        | Spencer Warneke         | Relative Humidity: | 46.7%      |
| Customer Project: | None                    | Bar. Pressure:     | 1017 mb    |
| Tested By:        | Jeff Alcock             | Job Site:          | EV01       |
| Power:            | 3.3 VDC via 110VAC/60Hz | Configuration:     | A-DE0170-1 |

## TEST SPECIFICATIONS

|                 |                  |
|-----------------|------------------|
| Specification:  | Method:          |
| FCC 15.407:2021 | ANSI C63.10:2013 |

## TEST PARAMETERS

|        |    |                    |   |                     |           |
|--------|----|--------------------|---|---------------------|-----------|
| Run #: | 34 | Test Distance (m): | 1 | Ant. Height(s) (m): | 1 to 4(m) |
|--------|----|--------------------|---|---------------------|-----------|

## COMMENTS

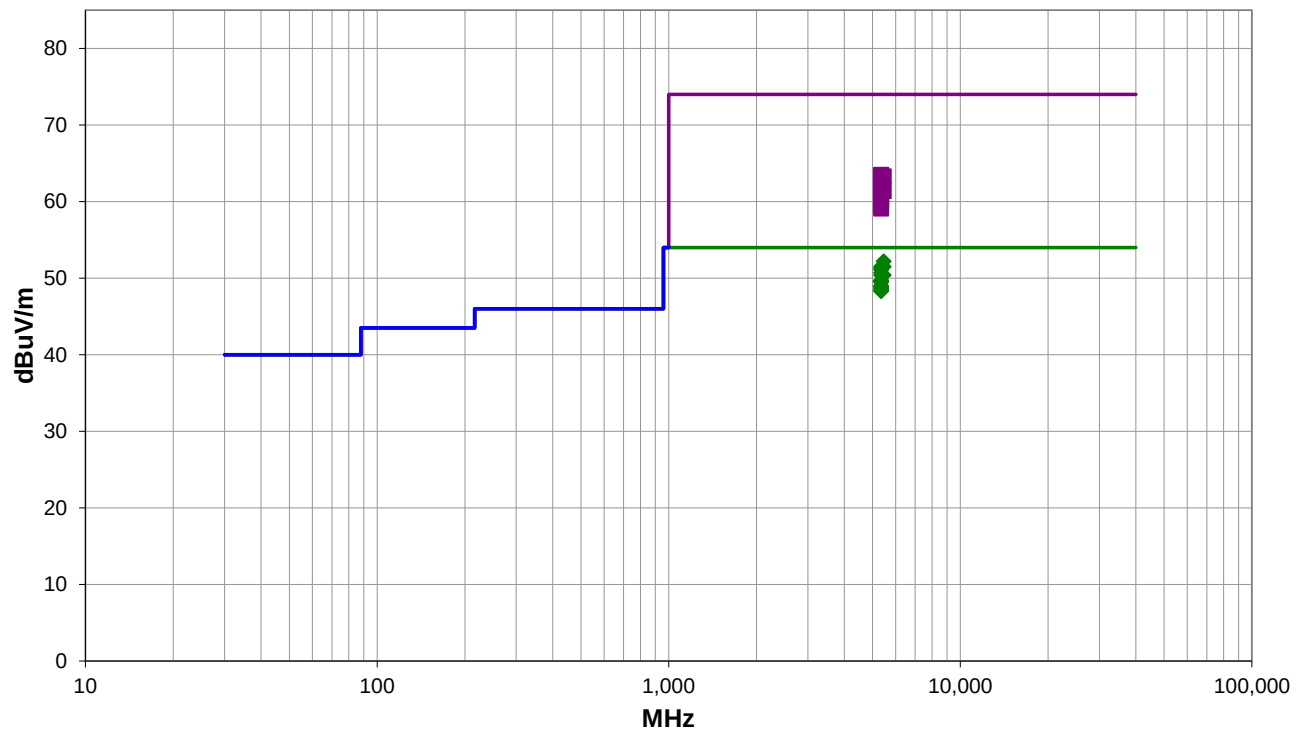
Band Edge - Please reference data comments below for channel, data rate, and EUT orientation.

## EUT OPERATING MODES

Tx - 802.11ac/an, Ch 64 = 5320 MHz, Ch 60/64 = 5310 MHz, Ch 52-64 = 5290 MHz, Ch 100 = 5500 MHz, Ch 100/104 = 5510 MHz, Ch 100 - 112 = 5530 MHz

## DEVIATIONS FROM TEST STANDARD

None



Run #: 34

■ PK ◆ AV ● QP

# SPURIOUS RADIATED EMISSIONS – 5.3GHz, 5.6GHz, 5.8GHz BANDS

## RESULTS - Run #34

| Freq (MHz) | Amplitude (dBuV) | Factor (dB/m) | Antenna Height (meters) | Azimuth (degrees) | Duty Cycle Correction Factor | External Attenuation (dB) | Polarity/Transducer Type | Detector | Distance Adjustment (dB) | Adjusted (dBuV/m) | Spec. Limit (dBuV/m) | Compared to Spec. (dB) | Comments                                                     |
|------------|------------------|---------------|-------------------------|-------------------|------------------------------|---------------------------|--------------------------|----------|--------------------------|-------------------|----------------------|------------------------|--------------------------------------------------------------|
| 5459.500   | 25.6             | 35.0          | 1.7                     | 172.0             | 1.1                          | 0.0                       | Vert                     | AV       | -9.5                     | 52.2              | 54.0                 | -1.8                   | Integration Method:<br>Ch. 100-112, MCS9 (256-QAM), EUT Vert |
| 5350.080   | 25.4             | 34.5          | 1.7                     | 187.0             | 1.1                          | 0.0                       | Vert                     | AV       | -9.5                     | 51.5              | 54.0                 | -2.5                   | Ch. 52-64, MCS9 (256-QAM), EUT Vert                          |
| 5458.813   | 25.2             | 35.0          | 1.7                     | 172.0             | 0.8                          | 0.0                       | Vert                     | AV       | -9.5                     | 51.5              | 54.0                 | -2.5                   | Ch. 100/104, MCS9 (256-QAM), EUT Vert                        |
| 5350.260   | 25.5             | 34.5          | 1.7                     | 187.0             | 0.8                          | 0.0                       | Vert                     | AV       | -9.5                     | 51.3              | 54.0                 | -2.7                   | Ch. 60/64, MCS9 (256-QAM), EUT Vert                          |
| 5350.040   | 25.9             | 34.5          | 1.7                     | 187.0             | 0.2                          | 0.0                       | Vert                     | AV       | -9.5                     | 51.1              | 54.0                 | -2.9                   | Ch. 52-64, MCS0, EUT Vert                                    |
| 5350.043   | 25.0             | 34.5          | 1.7                     | 187.0             | 0.7                          | 0.0                       | Vert                     | AV       | -9.5                     | 50.7              | 54.0                 | -3.3                   | Ch. 60/64, MCS7, EUT Vert                                    |
| 5350.110   | 25.3             | 34.5          | 1.7                     | 187.0             | 0.1                          | 0.0                       | Vert                     | AV       | -9.5                     | 50.4              | 54.0                 | -3.6                   | Ch. 60/64, MCS0, EUT Vert                                    |
| 5459.810   | 24.6             | 35.0          | 1.7                     | 172.0             | 0.3                          | 0.0                       | Vert                     | AV       | -9.5                     | 50.4              | 54.0                 | -3.6                   | Ch. 100, 36 Mbps, EUT Vert                                   |
| 5350.023   | 24.4             | 34.5          | 1.7                     | 187.0             | 0.3                          | 0.0                       | Vert                     | AV       | -9.5                     | 49.7              | 54.0                 | -4.3                   | Ch. 64, 36 Mbps, EUT Vert                                    |
| 5350.230   | 24.2             | 34.5          | 1.7                     | 187.0             | 0.5                          | 0.0                       | Vert                     | AV       | -9.5                     | 49.7              | 54.0                 | -4.3                   | Ch. 64, MCS7, EUT Vert                                       |
| 5350.027   | 24.1             | 34.5          | 1.7                     | 187.0             | 0.5                          | 0.0                       | Vert                     | AV       | -9.5                     | 49.6              | 54.0                 | -4.4                   | Ch. 64, 54 Mbps, EUT Vert                                    |
| 5350.987   | 24.4             | 34.5          | 1.7                     | 190.0             | 0.1                          | 0.0                       | Vert                     | AV       | -9.5                     | 49.5              | 54.0                 | -4.5                   | Ch. 64, 6 Mbps, EUT Vert                                     |
| 5350.087   | 24.4             | 34.5          | 1.7                     | 187.0             | 0.1                          | 0.0                       | Vert                     | AV       | -9.5                     | 49.5              | 54.0                 | -4.5                   | Ch. 64, MCS0, EUT Vert                                       |
| 5350.087   | 23.9             | 34.5          | 1.16                    | 185.0             | 0.1                          | 0.0                       | Horz                     | AV       | -9.5                     | 49.0              | 54.0                 | -5.0                   | Ch. 64, 6 Mbps, EUT on Side                                  |
| 5351.500   | 23.5             | 34.5          | 1.7                     | 187.0             | 0.5                          | 0.0                       | Vert                     | AV       | -9.5                     | 49.0              | 54.0                 | -5.0                   | Ch. 64, MCS8 (256-QAM), EUT Vert                             |
| 5351.213   | 23.7             | 34.5          | 1.55                    | 141.0             | 0.1                          | 0.0                       | Horz                     | AV       | -9.5                     | 48.8              | 54.0                 | -5.2                   | Ch. 64, 6 Mbps, EUT Vert                                     |
| 5350.227   | 23.5             | 34.5          | 1.53                    | 183.0             | 0.1                          | 0.0                       | Vert                     | AV       | -9.5                     | 48.6              | 54.0                 | -5.4                   | Ch. 64, 6 Mbps, EUT on Side                                  |
| 5351.003   | 23.3             | 34.5          | 1.53                    | 336.0             | 0.1                          | 0.0                       | Vert                     | AV       | -9.5                     | 48.4              | 54.0                 | -5.6                   | Ch. 64, 6 Mbps, EUT Horz                                     |
| 5350.330   | 23.2             | 34.5          | 1.5                     | 17.0              | 0.1                          | 0.0                       | Horz                     | AV       | -9.5                     | 48.3              | 54.0                 | -5.7                   | Ch. 64, 6 Mbps, EUT Horz                                     |
| 5351.713   | 38.5             | 34.5          | 1.7                     | 187.0             | 0.0                          | 0.0                       | Vert                     | PK       | -9.5                     | 63.5              | 74.0                 | -10.5                  | Ch. 60/64, MCS0, EUT Vert                                    |
| 5351.377   | 38.4             | 34.5          | 1.7                     | 187.0             | 0.0                          | 0.0                       | Vert                     | PK       | -9.5                     | 63.4              | 74.0                 | -10.6                  | Ch. 60/64, MCS7, EUT Vert                                    |
| 5351.593   | 38.3             | 34.5          | 1.7                     | 187.0             | 0.0                          | 0.0                       | Vert                     | PK       | -9.5                     | 63.3              | 74.0                 | -10.7                  | Ch. 60/64, MCS9 (256-QAM), EUT Vert                          |
| 5458.393   | 37.8             | 35.0          | 1.7                     | 172.0             | 0.0                          | 0.0                       | Vert                     | PK       | -9.5                     | 63.3              | 74.0                 | -10.7                  | Ch. 100/104, MCS9 (256-QAM), EUT Vert                        |
| 5350.393   | 37.3             | 34.5          | 1.7                     | 187.0             | 0.0                          | 0.0                       | Vert                     | PK       | -9.5                     | 62.3              | 74.0                 | -11.7                  | Ch. 52-64, MCS0, EUT Vert                                    |
| 5350.387   | 37.1             | 34.5          | 1.7                     | 190.0             | 0.0                          | 0.0                       | Vert                     | PK       | -9.5                     | 62.1              | 74.0                 | -11.9                  | Ch. 64, 6 Mbps, EUT Vert                                     |
| 5351.287   | 37.0             | 34.5          | 1.7                     | 187.0             | 0.0                          | 0.0                       | Vert                     | PK       | -9.5                     | 62.0              | 74.0                 | -12.0                  | Ch. 64, MCS7, EUT Vert                                       |
| 5351.153   | 37.0             | 34.5          | 1.7                     | 187.0             | 0.0                          | 0.0                       | Vert                     | PK       | -9.5                     | 62.0              | 74.0                 | -12.0                  | Ch. 52-64, MCS9 (256-QAM), EUT Vert                          |
| 5350.990   | 36.4             | 34.5          | 1.7                     | 187.0             | 0.0                          | 0.0                       | Vert                     | PK       | -9.5                     | 61.4              | 74.0                 | -12.6                  | Ch. 64, MCS0, EUT Vert                                       |
| 5459.977   | 35.9             | 35.0          | 1.7                     | 172.0             | 0.0                          | 0.0                       | Vert                     | PK       | -9.5                     | 61.4              | 74.0                 | -12.6                  | Ch. 100, 36 Mbps, EUT Vert                                   |
| 5350.453   | 35.9             | 34.5          | 1.7                     | 187.0             | 0.0                          | 0.0                       | Vert                     | PK       | -9.5                     | 60.9              | 74.0                 | -13.1                  | Ch. 64, 54 Mbps, EUT Vert                                    |
| 5350.097   | 35.7             | 34.5          | 1.7                     | 187.0             | 0.0                          | 0.0                       | Vert                     | PK       | -9.5                     | 60.7              | 74.0                 | -13.3                  | Ch. 64, 36 Mbps, EUT Vert                                    |
| 5350.517   | 35.3             | 34.5          | 1.7                     | 187.0             | 0.0                          | 0.0                       | Vert                     | PK       | -9.5                     | 60.3              | 74.0                 | -13.7                  | Ch. 64, MCS8 (256-QAM), EUT Vert                             |
| 5350.723   | 35.2             | 34.5          | 1.16                    | 185.0             | 0.0                          | 0.0                       | Horz                     | PK       | -9.5                     | 60.2              | 74.0                 | -13.8                  | Ch. 64, 6 Mbps, EUT on Side                                  |
| 5351.280   | 34.8             | 34.5          | 1.55                    | 141.0             | 0.0                          | 0.0                       | Horz                     | PK       | -9.5                     | 59.8              | 74.0                 | -14.2                  | Ch. 64, 6 Mbps, EUT Vert                                     |
| 5351.403   | 34.7             | 34.5          | 1.53                    | 336.0             | 0.0                          | 0.0                       | Vert                     | PK       | -9.5                     | 59.7              | 74.0                 | -14.3                  | Ch. 64, 6 Mbps, EUT Horz                                     |
| 5351.863   | 34.4             | 34.5          | 1.53                    | 183.0             | 0.0                          | 0.0                       | Vert                     | PK       | -9.5                     | 59.4              | 74.0                 | -14.6                  | Ch. 64, 6 Mbps, EUT on Side                                  |
| 5350.730   | 34.1             | 34.5          | 1.5                     | 17.0              | 0.0                          | 0.0                       | Horz                     | PK       | -9.5                     | 59.1              | 74.0                 | -14.9                  | Ch. 64, 6 Mbps, EUT Horz                                     |

# SPURIOUS RADIATED EMISSIONS – 5.3GHz, 5.6GHz, 5.8GHz BANDS

## CONCLUSION

Pass



Tested By

# SPURIOUS RADIATED EMISSIONS – 5.3GHz, 5.6GHz, 5.8GHz BANDS

|                   |                         |                    |            |
|-------------------|-------------------------|--------------------|------------|
| EUT:              | 43.0536.00              | Work Order:        | A-DE0170   |
| Serial Number:    | SN001 00004             | Date:              | 2021-09-01 |
| Customer:         | A-dec, Inc.             | Temperature:       | 22.1°C     |
| Attendees:        | Michael Yukorski        | Relative Humidity: | 39.9%      |
| Customer Project: | None                    | Bar. Pressure:     | 1019 mb    |
| Tested By:        | Jeff Alcock             | Job Site:          | EV01       |
| Power:            | 3.3 VDC via 110VAC/60Hz | Configuration:     | A-DE0170-1 |

## TEST SPECIFICATIONS

|                 |                  |
|-----------------|------------------|
| Specification:  | Method:          |
| FCC 15.407:2021 | ANSI C63.10:2013 |

## TEST PARAMETERS

|        |    |                    |   |                     |           |
|--------|----|--------------------|---|---------------------|-----------|
| Run #: | 25 | Test Distance (m): | 3 | Ant. Height(s) (m): | 1 to 4(m) |
|--------|----|--------------------|---|---------------------|-----------|

## COMMENTS

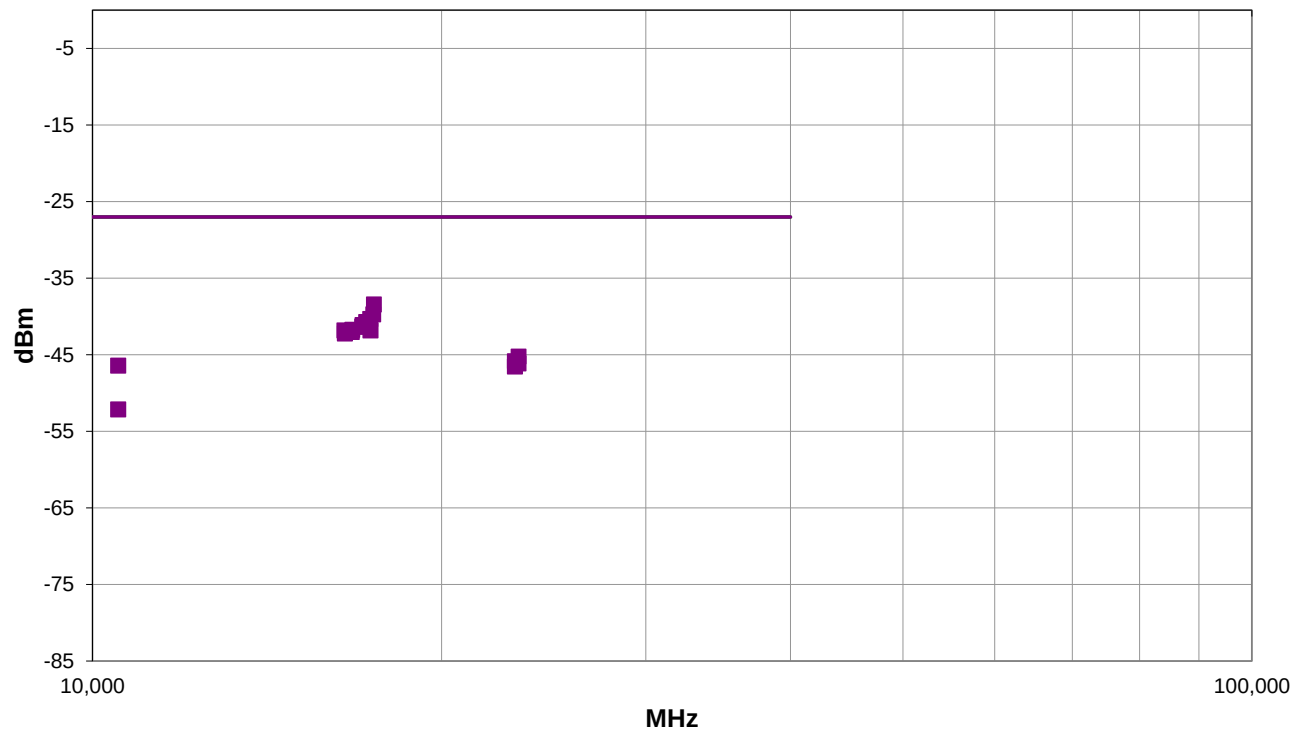
Please reference data comments below for channel, data rate, and EUT orientation.

## EUT OPERATING MODES

Tx - 802.11ac/an, Ch 52 = 5260 MHz, Ch 64 = 5320 MHz, Ch 100 = 5500 MHz, Ch 116 = 5580 MHz, Ch 140 = 5700 MHz, Ch 149 = 5745 MHz, Ch 157 = 5785 MHz, Ch 165 = 5825 MHz

## DEVIATIONS FROM TEST STANDARD

None



Run #: 25

■ PK    ◆ AV    ● QP

# SPURIOUS RADIATED EMISSIONS – 5.3GHz, 5.6GHz, 5.8GHz BANDS

## RESULTS - Run #25

| Freq (MHz) | Antenna Height (meters) | Azimuth (degrees) | Polarity/Transducer Type | Detector | EIRP (Watts) | EIRP (dBm) | Spec. Limit (dBm) | Compared to Spec. (dB) | Comments                     |
|------------|-------------------------|-------------------|--------------------------|----------|--------------|------------|-------------------|------------------------|------------------------------|
| 17484.380  | 1.5                     | 200.0             | Vert                     | PK       | 143.6E-9     | -38.4      | -27.0             | -11.4                  | Ch. 165, 6 Mbps, EUT on Side |
| 17462.540  | 1.74                    | 140.0             | Horz                     | PK       | 106.4E-9     | -39.7      | -27.0             | -12.7                  | Ch. 165, 6 Mbps, EUT on Side |
| 17361.580  | 1.5                     | 0.0               | Horz                     | PK       | 92.7E-9      | -40.3      | -27.0             | -13.3                  | Ch. 157, 6 Mbps, EUT on Side |
| 16749.380  | 1.5                     | 344.0             | Horz                     | PK       | 67.2E-9      | -41.7      | -27.0             | -14.7                  | Ch. 116, 6 Mbps, EUT on Side |
| 17366.670  | 1.54                    | 284.0             | Vert                     | PK       | 65.6E-9      | -41.8      | -27.0             | -14.8                  | Ch. 157, 6 Mbps, EUT on Side |
| 16493.420  | 1.5                     | 38.0              | Vert                     | PK       | 65.6E-9      | -41.8      | -27.0             | -14.8                  | Ch. 100, 6 Mbps, EUT on Side |
| 16733.580  | 1.5                     | 259.0             | Vert                     | PK       | 62.7E-9      | -42.0      | -27.0             | -15.0                  | Ch. 116, 6 Mbps, EUT on Side |
| 16508.080  | 1.01                    | 217.0             | Horz                     | PK       | 59.9E-9      | -42.2      | -27.0             | -15.2                  | Ch. 100, 6 Mbps, EUT on Side |
| 10522.750  | 1.93                    | 18.0              | Horz                     | PK       | 22.8E-9      | -46.4      | -27.0             | -19.4                  | Ch. 52, 6 Mbps, EUT on Side  |
| 10523.290  | 2.98                    | 1.0               | Vert                     | PK       | 6.1E-9       | -52.1      | -27.0             | -25.1                  | Ch. 52, 6 Mbps, EUT on Side  |
| 17102.790  | 1.5                     | 344.0             | Vert                     | PK       | 77.1E-9      | -41.1      | -27.0             | -14.1                  | Ch. 140, 6 Mbps, EUT on Side |
| 17095.460  | 2.89                    | 311.0             | Horz                     | PK       | 73.6E-9      | -41.3      | -27.0             | -14.3                  | Ch. 140, 6 Mbps, EUT on Side |
| 23136.920  | 1.5                     | 302.0             | Horz                     | PK       | 26.1E-9      | -45.8      | -27.0             | -18.8                  | Ch. 157, 6 Mbps, EUT on Side |
| 23139.420  | 1.5                     | 320.0             | Vert                     | PK       | 22.2E-9      | -46.5      | -27.0             | -19.5                  | Ch. 157, 6 Mbps, EUT on Side |
| 23306.670  | 1.5                     | 312.0             | Horz                     | PK       | 30.0E-9      | -45.2      | -27.0             | -18.2                  | Ch. 165, 6 Mbps, EUT on Side |
| 23303.580  | 1.5                     | 324.0             | Vert                     | PK       | 24.4E-9      | -46.1      | -27.0             | -19.1                  | Ch. 165, 6 Mbps, EUT on Side |
| 17233.830  | 1.59                    | 360.0             | Horz                     | PK       | 84.6E-9      | -40.7      | -27.0             | -13.7                  | Ch. 149, 6 Mbps, EUT on Side |
| 17222.830  | 1.5                     | 104.0             | Vert                     | PK       | 84.6E-9      | -40.7      | -27.0             | -13.7                  | Ch. 149, 6 Mbps, EUT on Side |
| 17102.790  | 1.5                     | 344.0             | Vert                     | PK       | 77.1E-9      | -41.1      | -27.0             | -14.1                  | Ch. 140, 6 Mbps, EUT on Side |
| 17095.460  | 2.89                    | 311.0             | Horz                     | PK       | 73.6E-9      | -41.3      | -27.0             | -14.3                  | Ch. 140, 6 Mbps, EUT on Side |

## CONCLUSION

Pass



Tested By

# SPURIOUS RADIATED EMISSIONS – 5.3GHz, 5.6GHz, 5.8GHz BANDS



|                   |                         |                    |            |
|-------------------|-------------------------|--------------------|------------|
| EUT:              | 43.0536.00              | Work Order:        | A-DE0170   |
| Serial Number:    | SN001 00004             | Date:              | 2021-09-01 |
| Customer:         | A-dec, Inc.             | Temperature:       | 22.3°C     |
| Attendees:        | Spencer Warneke         | Relative Humidity: | 46.7%      |
| Customer Project: | None                    | Bar. Pressure:     | 1017 mb    |
| Tested By:        | Jeff Alcock             | Job Site:          | EV01       |
| Power:            | 3.3 VDC via 110VAC/60Hz | Configuration:     | A-DE0170-1 |

## TEST SPECIFICATIONS

|                 |                  |
|-----------------|------------------|
| Specification:  | Method:          |
| FCC 15.407:2021 | ANSI C63.10:2013 |

## TEST PARAMETERS

|        |    |                    |   |                     |          |
|--------|----|--------------------|---|---------------------|----------|
| Run #: | 35 | Test Distance (m): | 1 | Ant. Height(s) (m): | 1.25 (m) |
|--------|----|--------------------|---|---------------------|----------|

## COMMENTS

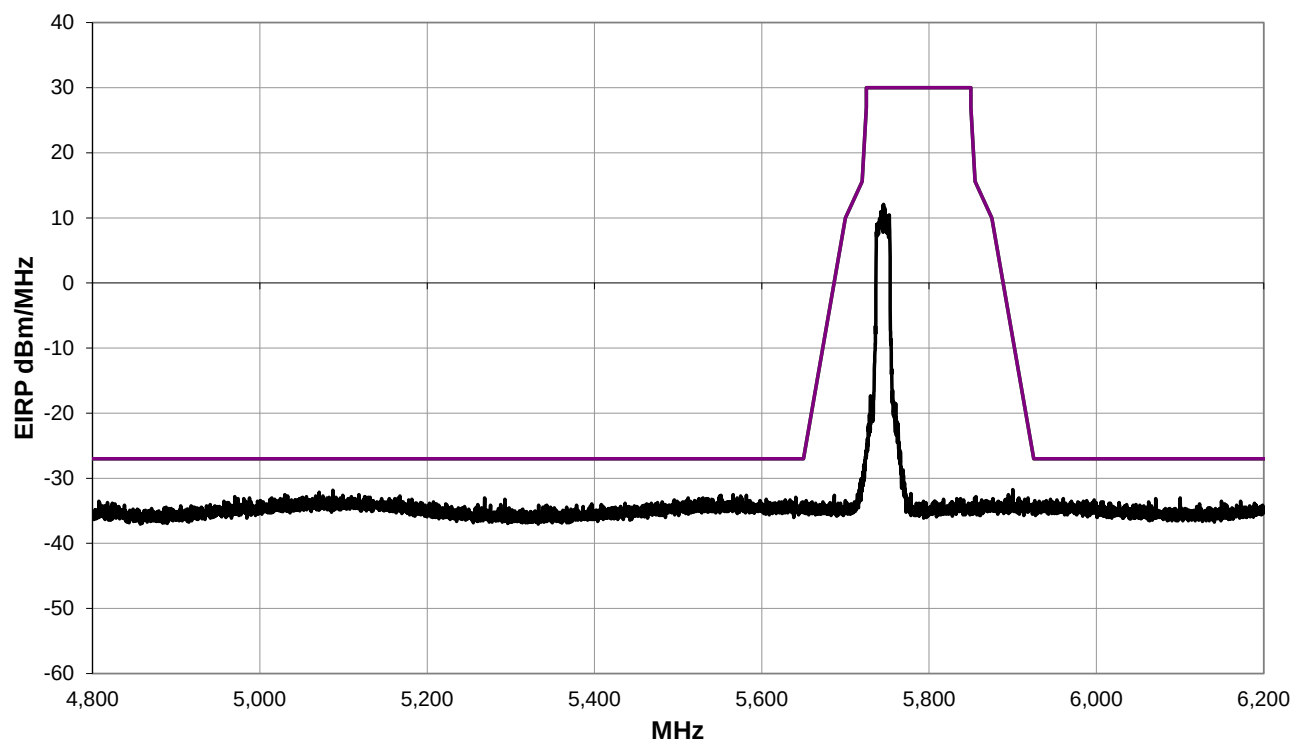
None

## EUT OPERATING MODES

Tx - 802.11ac/an, Ch 149 = 5745 MHz, 36 Mbps

## DEVIATIONS FROM TEST STANDARD

None



Run #: 35

■ PK ◆ AV ● QP

# SPURIOUS RADIATED EMISSIONS – 5.3GHz, 5.6GHz, 5.8GHz BANDS

## RESULTS - Run #35

All emissions were below the limit (see graph above).

## CONCLUSION

Pass



Tested By

# SPURIOUS RADIATED EMISSIONS – 5.3GHz, 5.6GHz, 5.8GHz BANDS



|                   |                         |                    |            |
|-------------------|-------------------------|--------------------|------------|
| EUT:              | 43.0536.00              | Work Order:        | A-DE0170   |
| Serial Number:    | SN001 00004             | Date:              | 2021-09-01 |
| Customer:         | A-dec, Inc.             | Temperature:       | 22.3°C     |
| Attendees:        | Spencer Warneke         | Relative Humidity: | 46.7%      |
| Customer Project: | None                    | Bar. Pressure:     | 1017 mb    |
| Tested By:        | Jeff Alcock             | Job Site:          | EV01       |
| Power:            | 3.3 VDC via 110VAC/60Hz | Configuration:     | A-DE0170-1 |

## TEST SPECIFICATIONS

|                 |                  |
|-----------------|------------------|
| Specification:  | Method:          |
| FCC 15.407:2021 | ANSI C63.10:2013 |

## TEST PARAMETERS

|        |    |                    |   |                     |          |
|--------|----|--------------------|---|---------------------|----------|
| Run #: | 36 | Test Distance (m): | 1 | Ant. Height(s) (m): | 1.25 (m) |
|--------|----|--------------------|---|---------------------|----------|

## COMMENTS

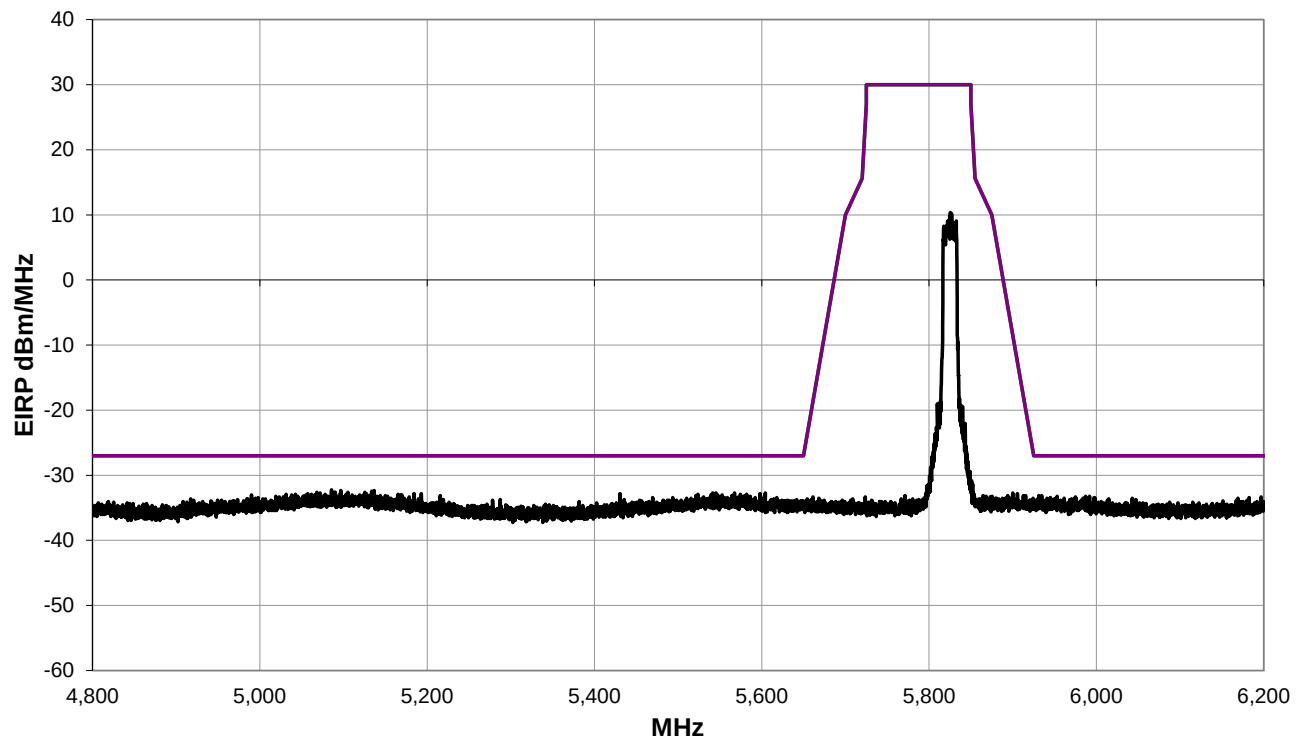
None

## EUT OPERATING MODES

Tx - 802.11ac/an, Ch 165 = 5825 MHz, 36 Mbps

## DEVIATIONS FROM TEST STANDARD

None



Run #: 36

■ PK ◆ AV ● QP



# SPURIOUS RADIATED EMISSIONS – 5.3GHz, 5.6GHz, 5.8GHz BANDS

## RESULTS - Run #36

All emissions were below the limit (see graph above).

## CONCLUSION

Pass



Tested By

# SPURIOUS RADIATED EMISSIONS – 5.3GHz, 5.6GHz, 5.8GHz BANDS



|                   |                         |                    |            |
|-------------------|-------------------------|--------------------|------------|
| EUT:              | 43.0536.00              | Work Order:        | A-DE0170   |
| Serial Number:    | SN001 00004             | Date:              | 2021-09-01 |
| Customer:         | A-dec, Inc.             | Temperature:       | 22.3°C     |
| Attendees:        | Spencer Warneke         | Relative Humidity: | 46.7%      |
| Customer Project: | None                    | Bar. Pressure:     | 1017 mb    |
| Tested By:        | Jeff Alcock             | Job Site:          | EV01       |
| Power:            | 3.3 VDC via 110VAC/60Hz | Configuration:     | A-DE0170-1 |

## TEST SPECIFICATIONS

|                 |                  |
|-----------------|------------------|
| Specification:  | Method:          |
| FCC 15.407:2021 | ANSI C63.10:2013 |

## TEST PARAMETERS

|        |    |                    |   |                     |          |
|--------|----|--------------------|---|---------------------|----------|
| Run #: | 37 | Test Distance (m): | 1 | Ant. Height(s) (m): | 1.25 (m) |
|--------|----|--------------------|---|---------------------|----------|

## COMMENTS

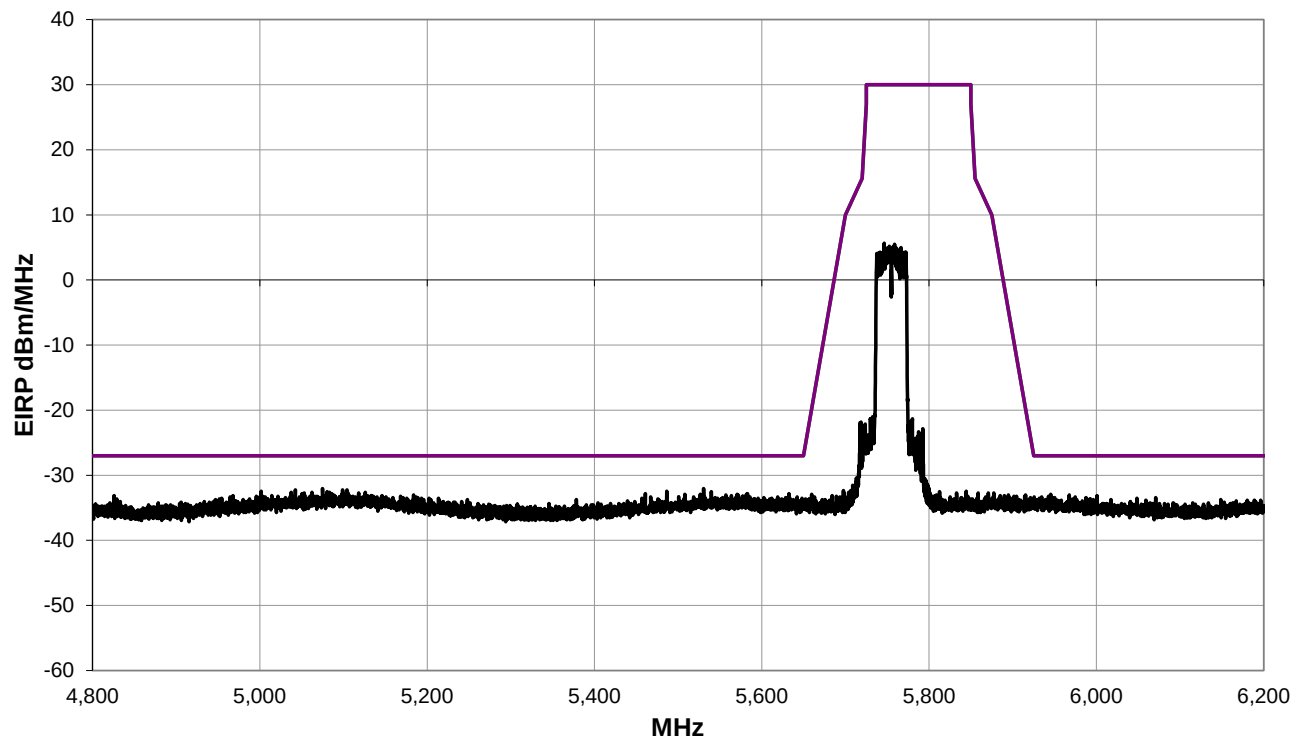
None

## EUT OPERATING MODES

Tx - 802.11ac/an, Ch 149/153 = 5755 MHz, MCS9 (256-QAM)

## DEVIATIONS FROM TEST STANDARD

None



Run #: 37

■ PK ◆ AV ● QP

# SPURIOUS RADIATED EMISSIONS – 5.3GHz, 5.6GHz, 5.8GHz BANDS

## RESULTS - Run #37

All emissions were below the limit (see graph above).

## CONCLUSION

Pass



Tested By

# SPURIOUS RADIATED EMISSIONS – 5.3GHz, 5.6GHz, 5.8GHz BANDS

|                   |                         |                    |            |
|-------------------|-------------------------|--------------------|------------|
| EUT:              | 43.0536.00              | Work Order:        | A-DE0170   |
| Serial Number:    | SN001 00004             | Date:              | 2021-09-01 |
| Customer:         | A-dec, Inc.             | Temperature:       | 22.3°C     |
| Attendees:        | Spencer Warneke         | Relative Humidity: | 46.7%      |
| Customer Project: | None                    | Bar. Pressure:     | 1017 mb    |
| Tested By:        | Jeff Alcock             | Job Site:          | EV01       |
| Power:            | 3.3 VDC via 110VAC/60Hz | Configuration:     | A-DE0170-1 |

## TEST SPECIFICATIONS

|                 |                  |
|-----------------|------------------|
| Specification:  | Method:          |
| FCC 15.407:2021 | ANSI C63.10:2013 |

## TEST PARAMETERS

|        |    |                    |   |                     |          |
|--------|----|--------------------|---|---------------------|----------|
| Run #: | 38 | Test Distance (m): | 1 | Ant. Height(s) (m): | 1.25 (m) |
|--------|----|--------------------|---|---------------------|----------|

## COMMENTS

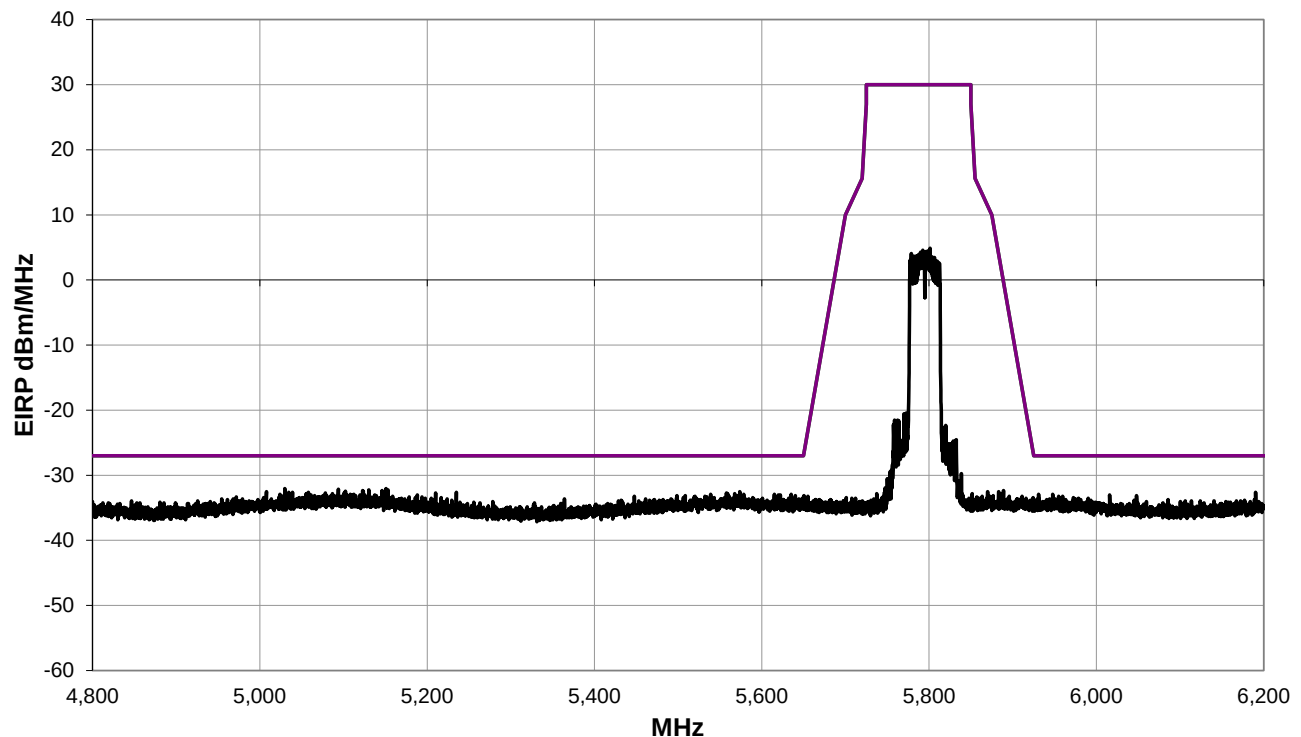
None

## EUT OPERATING MODES

Tx - 802.11ac/an, Ch. 157/161 = 5795 MHz, MCS9 (256-QAM)

## DEVIATIONS FROM TEST STANDARD

None



Run #: 38

■ PK ◆ AV ● QP

# SPURIOUS RADIATED EMISSIONS – 5.3GHz, 5.6GHz, 5.8GHz BANDS

## RESULTS - Run #38

All emissions were below the limit (see graph above).

## CONCLUSION

Pass



Tested By

# SPURIOUS RADIATED EMISSIONS – 5.3GHz, 5.6GHz, 5.8GHz BANDS



|                   |                         |                    |            |
|-------------------|-------------------------|--------------------|------------|
| EUT:              | 43.0536.00              | Work Order:        | A-DE0170   |
| Serial Number:    | SN001 00004             | Date:              | 2021-09-01 |
| Customer:         | A-dec, Inc.             | Temperature:       | 22.3°C     |
| Attendees:        | Spencer Warneke         | Relative Humidity: | 46.7%      |
| Customer Project: | None                    | Bar. Pressure:     | 1017 mb    |
| Tested By:        | Jeff Alcock             | Job Site:          | EV01       |
| Power:            | 3.3 VDC via 110VAC/60Hz | Configuration:     | A-DE0170-1 |

## TEST SPECIFICATIONS

|                 |                  |
|-----------------|------------------|
| Specification:  | Method:          |
| FCC 15.407:2021 | ANSI C63.10:2013 |

## TEST PARAMETERS

|        |    |                    |   |                     |          |
|--------|----|--------------------|---|---------------------|----------|
| Run #: | 39 | Test Distance (m): | 1 | Ant. Height(s) (m): | 1.25 (m) |
|--------|----|--------------------|---|---------------------|----------|

## COMMENTS

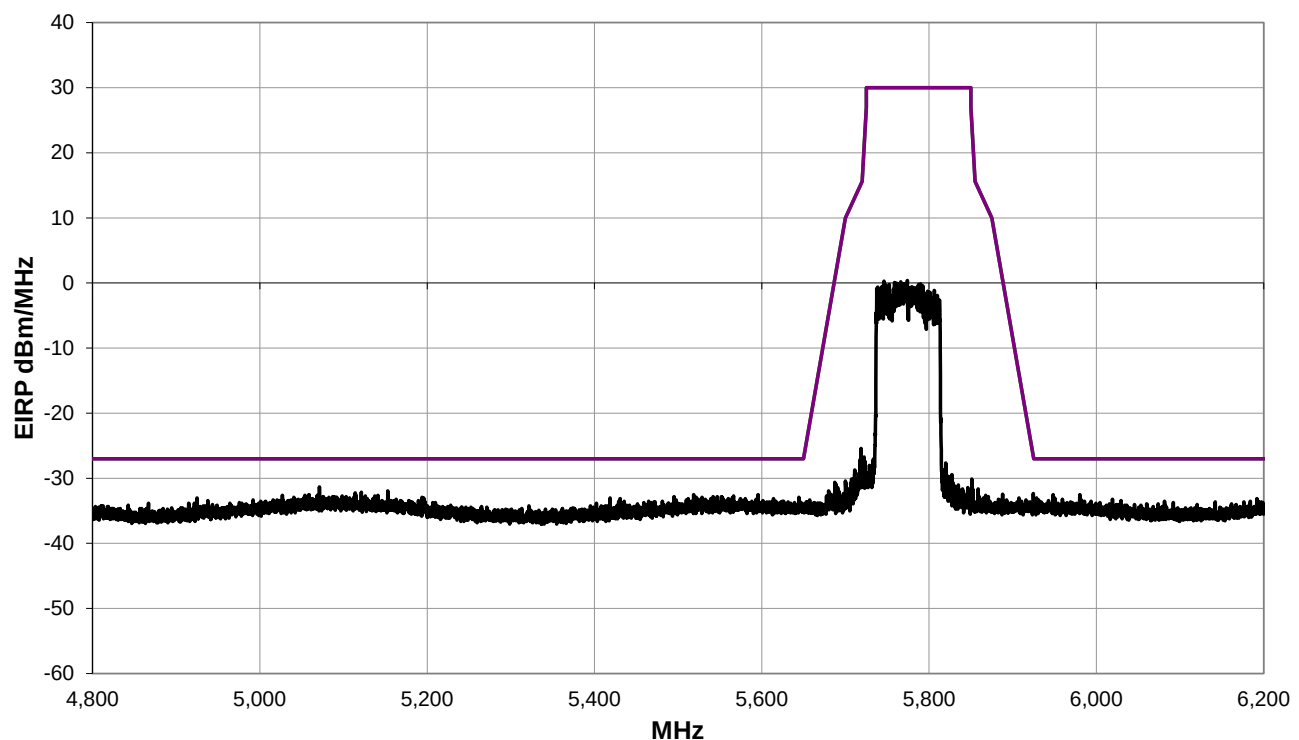
None

## EUT OPERATING MODES

Tx - 802.11ac/an, Ch. 149-161 = 5775 MHz, MCS9 (256-QAM)

## DEVIATIONS FROM TEST STANDARD

None



Run #: 39

■ PK ◆ AV ● QP

# SPURIOUS RADIATED EMISSIONS – 5.3GHz, 5.6GHz, 5.8GHz BANDS

## RESULTS - Run #39

All emissions were below the limit (see graph above).

## CONCLUSION

Pass



Tested By

# SPURIOUS RADIATED EMISSIONS – 5.3GHz, 5.6GHz, 5.8GHz BANDS



|                   |                         |                       |            |
|-------------------|-------------------------|-----------------------|------------|
| EUT:              | 43.0536.00              | Work Order:           | A-DE0170   |
| Serial Number:    | SN001 00004             | Date:                 | 2022-02-13 |
| Customer:         | A-dec, Inc.             | Temperature:          | 19.4°C     |
| Attendees:        | None                    | Relative Humidity:    | 34.7%      |
| Customer Project: | None                    | Bar. Pressure (PMSL): | 1027 mb    |
| Tested By:        | Jeff Alcock             | Job Site:             | EV01       |
| Power:            | 3.3 VDC via 110VAC/60Hz | Configuration:        | A-DE0170-2 |

## TEST SPECIFICATIONS

|                 |                  |
|-----------------|------------------|
| Specification:  | Method:          |
| FCC 15.407:2022 | ANSI C63.10:2013 |

## TEST PARAMETERS

|        |     |                    |   |                     |           |
|--------|-----|--------------------|---|---------------------|-----------|
| Run #: | 144 | Test Distance (m): | 3 | Ant. Height(s) (m): | 1 to 4(m) |
|--------|-----|--------------------|---|---------------------|-----------|

## COMMENTS

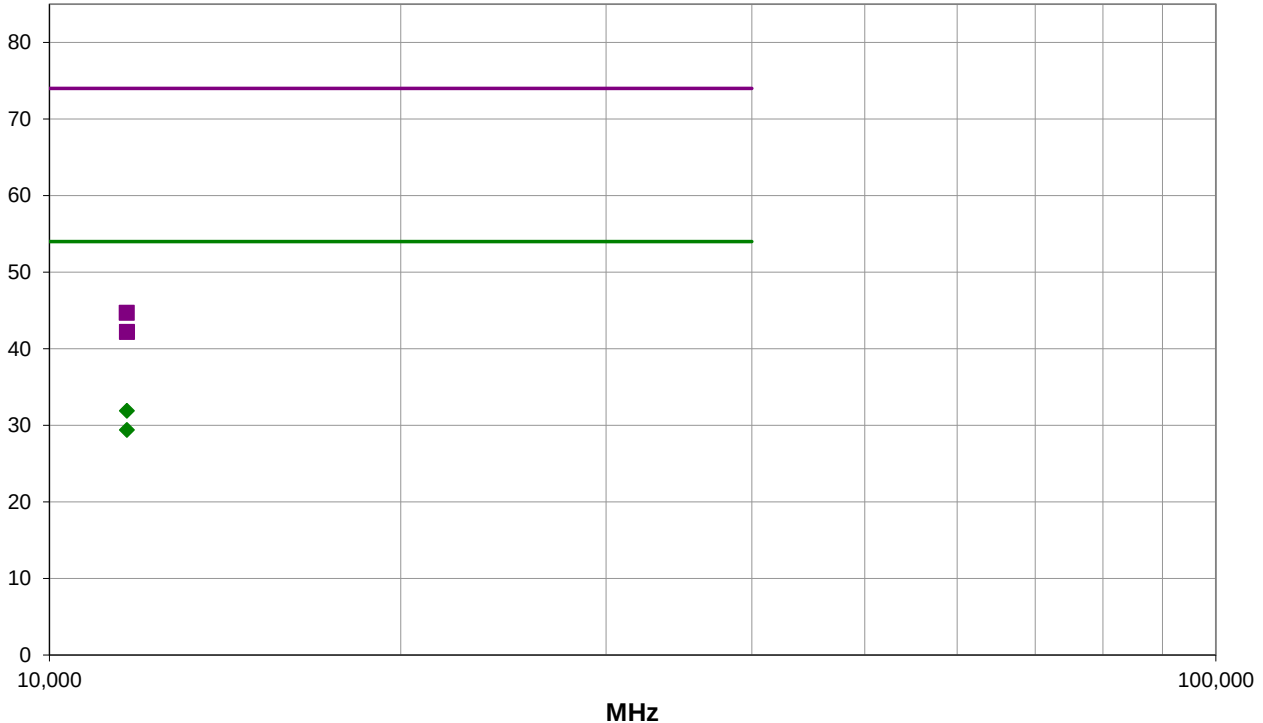
Spot check worst case 20 MHz wide emissions in the 5.8 GHz Band due to reduction in power settings. Please reference data comments below for EUT orientation.

## EUT OPERATING MODES

Tx - 802.11ac/an, Ch. 165 = 5825 MHz, 36 Mbps, Power setting = 9 dBm.

## DEVIATIONS FROM TEST STANDARD

None



Run #: 144

■ PK    ◆ AV    ● QP



# SPURIOUS RADIATED EMISSIONS – 5.3GHz, 5.6GHz, 5.8GHz BANDS

## RESULTS - Run #144

| Freq (MHz) | Amplitude (dBuV) | Factor (dB/m) | Antenna Height (meters) | Azimuth (degrees) | Duty Cycle Correction Factor (dB) | External Attenuation (dB) | Polarity/Transducer Type | Detector | Distance Adjustment (dB) | Adjusted (dBuV/m) | Spec. Limit (dBuV/m) | Compared to Spec. (dB) | Comments    |
|------------|------------------|---------------|-------------------------|-------------------|-----------------------------------|---------------------------|--------------------------|----------|--------------------------|-------------------|----------------------|------------------------|-------------|
| 11650.000  | 32.8             | -1.2          | 1.0                     | 332.0             | 0.3                               | 0.0                       | Horz                     | AV       | 0.0                      | 31.9              | 54.0                 | -22.1                  | EUT on Side |
| 11650.050  | 30.3             | -1.2          | 3.3                     | 30.0              | 0.3                               | 0.0                       | Vert                     | AV       | 0.0                      | 29.4              | 54.0                 | -24.6                  | EUT on Side |
| 11646.280  | 45.9             | -1.2          | 1.0                     | 332.0             | 0.0                               | 0.0                       | Horz                     | PK       | 0.0                      | 44.7              | 74.0                 | -29.3                  | EUT on Side |
| 11650.820  | 43.4             | -1.2          | 3.3                     | 30.0              | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 42.2              | 74.0                 | -31.8                  | EUT on Side |

## CONCLUSION

Pass



Tested By

# SPURIOUS RADIATED EMISSIONS – 5.3GHz, 5.6GHz, 5.8GHz BANDS



|                   |                         |                       |            |
|-------------------|-------------------------|-----------------------|------------|
| EUT:              | 43.0536.00              | Work Order:           | A-DE0170   |
| Serial Number:    | SN001 00004             | Date:                 | 2022-02-13 |
| Customer:         | A-dec, Inc.             | Temperature:          | 19.4°C     |
| Attendees:        | None                    | Relative Humidity:    | 34.7%      |
| Customer Project: | None                    | Bar. Pressure (PMSL): | 1027 mb    |
| Tested By:        | Jeff Alcock             | Job Site:             | EV01       |
| Power:            | 3.3 VDC via 110VAC/60Hz | Configuration:        | A-DE0170-2 |

## TEST SPECIFICATIONS

|                 |                  |
|-----------------|------------------|
| Specification:  | Method:          |
| FCC 15.407:2022 | ANSI C63.10:2013 |

## TEST PARAMETERS

|        |     |                    |   |                     |           |
|--------|-----|--------------------|---|---------------------|-----------|
| Run #: | 145 | Test Distance (m): | 3 | Ant. Height(s) (m): | 1 to 4(m) |
|--------|-----|--------------------|---|---------------------|-----------|

## COMMENTS

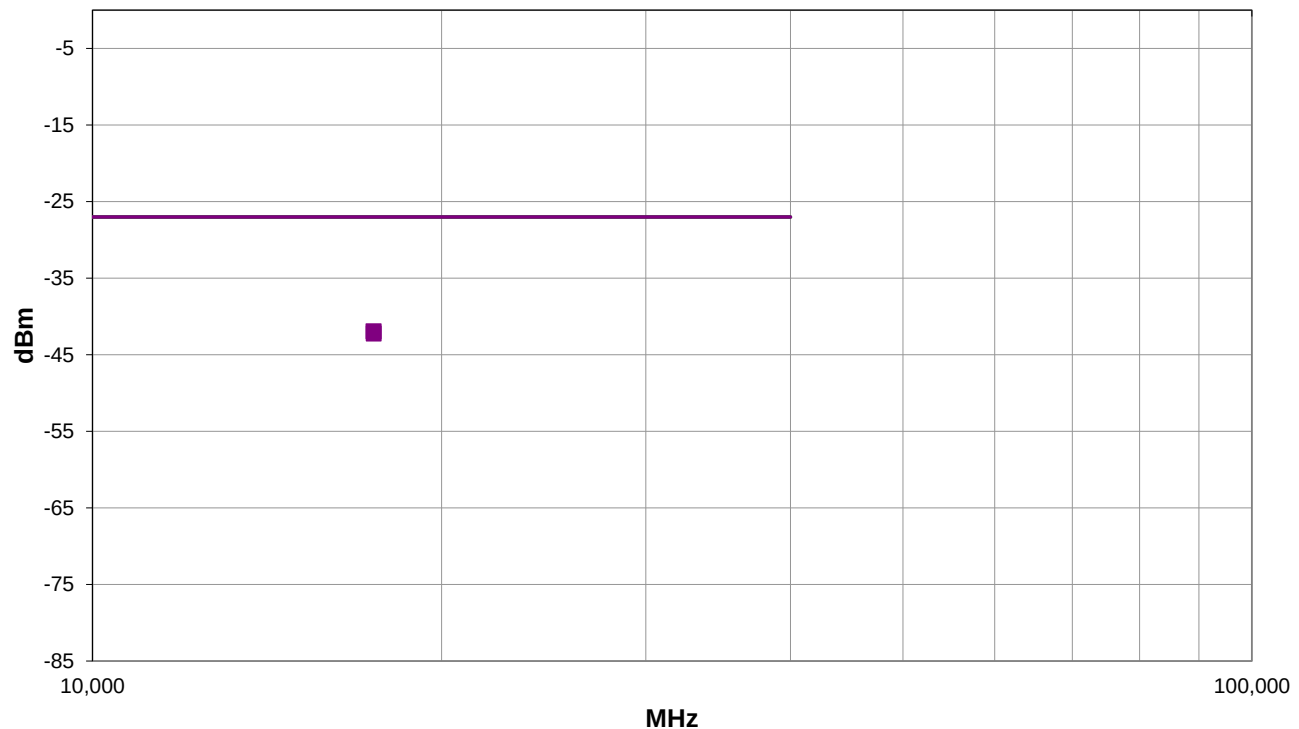
Spot check worst case 20 MHz wide emissions in the 5.8 GHz Band due to reduction in power settings. Please reference data comments below for EUT orientation.

## EUT OPERATING MODES

Tx - 802.11ac/an, Ch. 165 = 5825 MHz, 6 Mbps, Power setting = 9 dBm

## DEVIATIONS FROM TEST STANDARD

None



Run #: 145

■ PK    ◆ AV    ● QP

# SPURIOUS RADIATED EMISSIONS – 5.3GHz, 5.6GHz, 5.8GHz BANDS

## RESULTS - Run #145

| Freq<br>(MHz) | Antenna Height<br>(meters) | Azimuth<br>(degrees) | Polarity/<br>Transducer<br>Type | Detector | EIRP<br>(Watts) | EIRP<br>(dBm) | Spec. Limit<br>(dBm) | Compared to<br>Spec.<br>(dB) | Comments    |
|---------------|----------------------------|----------------------|---------------------------------|----------|-----------------|---------------|----------------------|------------------------------|-------------|
| 17474.500     | 1.57                       | 44.0                 | Horz                            | PK       | 64.1E-9         | -41.9         | -27.0                | -14.9                        | EUT on Side |
| 17478.270     | 1.5                        | 46.0                 | Vert                            | PK       | 59.9E-9         | -42.2         | -27.0                | -15.2                        | EUT on Side |

## CONCLUSION

Pass



Tested By

# SPURIOUS RADIATED EMISSIONS – 5.3GHz, 5.6GHz, 5.8GHz BANDS



|                   |                         |                       |            |
|-------------------|-------------------------|-----------------------|------------|
| EUT:              | 43.0536.00              | Work Order:           | A-DE0170   |
| Serial Number:    | SN001 00004             | Date:                 | 2022-02-13 |
| Customer:         | A-dec, Inc.             | Temperature:          | 19.4°C     |
| Attendees:        | None                    | Relative Humidity:    | 34.7%      |
| Customer Project: | None                    | Bar. Pressure (PMSL): | 1027 mb    |
| Tested By:        | Jeff Alcock             | Job Site:             | EV01       |
| Power:            | 3.3 VDC via 110VAC/60Hz | Configuration:        | A-DE0170-2 |

## TEST SPECIFICATIONS

|                 |                  |
|-----------------|------------------|
| Specification:  | Method:          |
| FCC 15.407:2022 | ANSI C63.10:2013 |

## TEST PARAMETERS

|        |     |                    |   |                     |          |
|--------|-----|--------------------|---|---------------------|----------|
| Run #: | 146 | Test Distance (m): | 1 | Ant. Height(s) (m): | 1.25 (m) |
|--------|-----|--------------------|---|---------------------|----------|

## COMMENTS

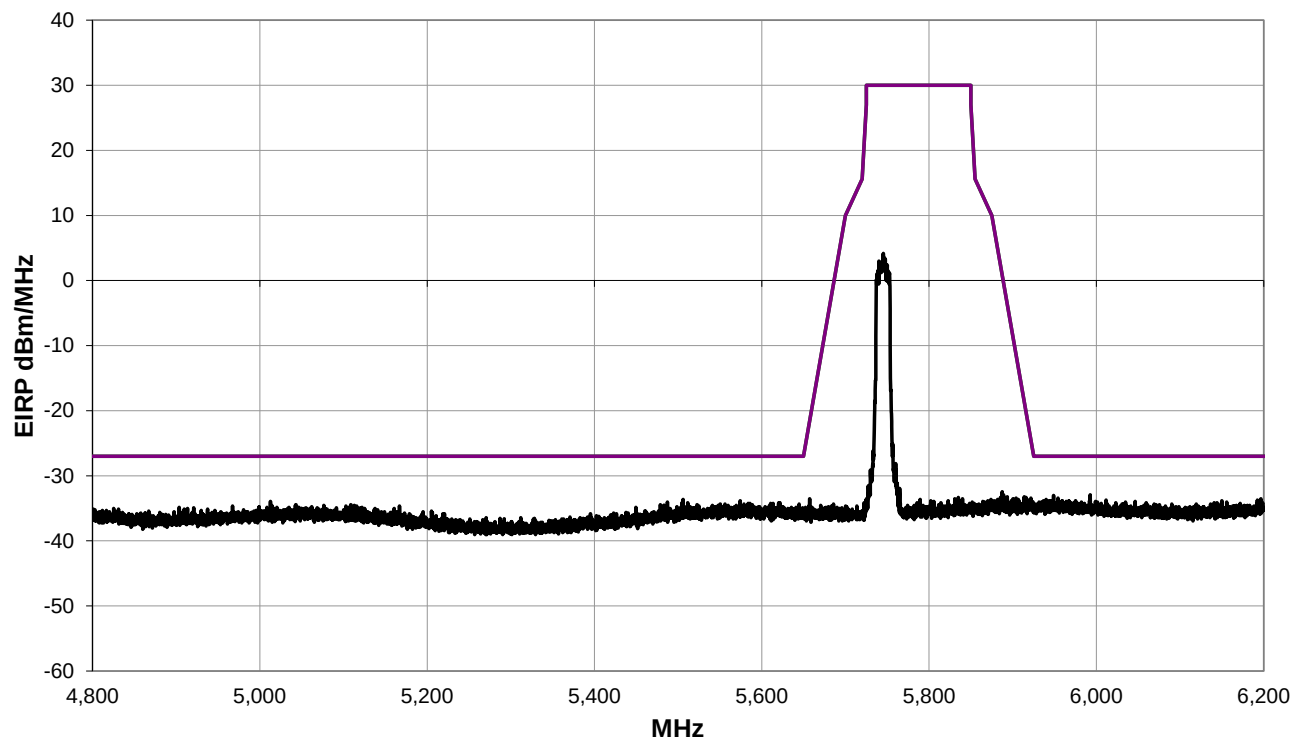
Spot check worst case 20 MHz wide emissions in the 5.8 GHz Band due to reduction in power settings. Please reference data comments below for EUT orientation.

## EUT OPERATING MODES

Tx - 802.11ac/an, Ch. 149 = 5754 MHz, 6 Mbps, Power setting = 9 dBm

## DEVIATIONS FROM TEST STANDARD

None



Run #: 146

■ PK ◆ AV ● QP

# SPURIOUS RADIATED EMISSIONS – 5.3GHz, 5.6GHz, 5.8GHz BANDS

## RESULTS - Run #146

All emissions were below the limit (see graph above).

## CONCLUSION

Pass



Tested By

# SPURIOUS RADIATED EMISSIONS – 5.3GHz, 5.6GHz, 5.8GHz BANDS



|                   |                         |                       |            |
|-------------------|-------------------------|-----------------------|------------|
| EUT:              | 43.0536.00              | Work Order:           | A-DE0170   |
| Serial Number:    | SN001 00004             | Date:                 | 2022-02-13 |
| Customer:         | A-dec, Inc.             | Temperature:          | 19.4°C     |
| Attendees:        | None                    | Relative Humidity:    | 34.7%      |
| Customer Project: | None                    | Bar. Pressure (PMSL): | 1027 mb    |
| Tested By:        | Jeff Alcock             | Job Site:             | EV01       |
| Power:            | 3.3 VDC via 110VAC/60Hz | Configuration:        | A-DE0170-2 |

## TEST SPECIFICATIONS

|                 |                  |
|-----------------|------------------|
| Specification:  | Method:          |
| FCC 15.407:2022 | ANSI C63.10:2013 |

## TEST PARAMETERS

|        |     |                    |   |                     |          |
|--------|-----|--------------------|---|---------------------|----------|
| Run #: | 147 | Test Distance (m): | 1 | Ant. Height(s) (m): | 1.25 (m) |
|--------|-----|--------------------|---|---------------------|----------|

## COMMENTS

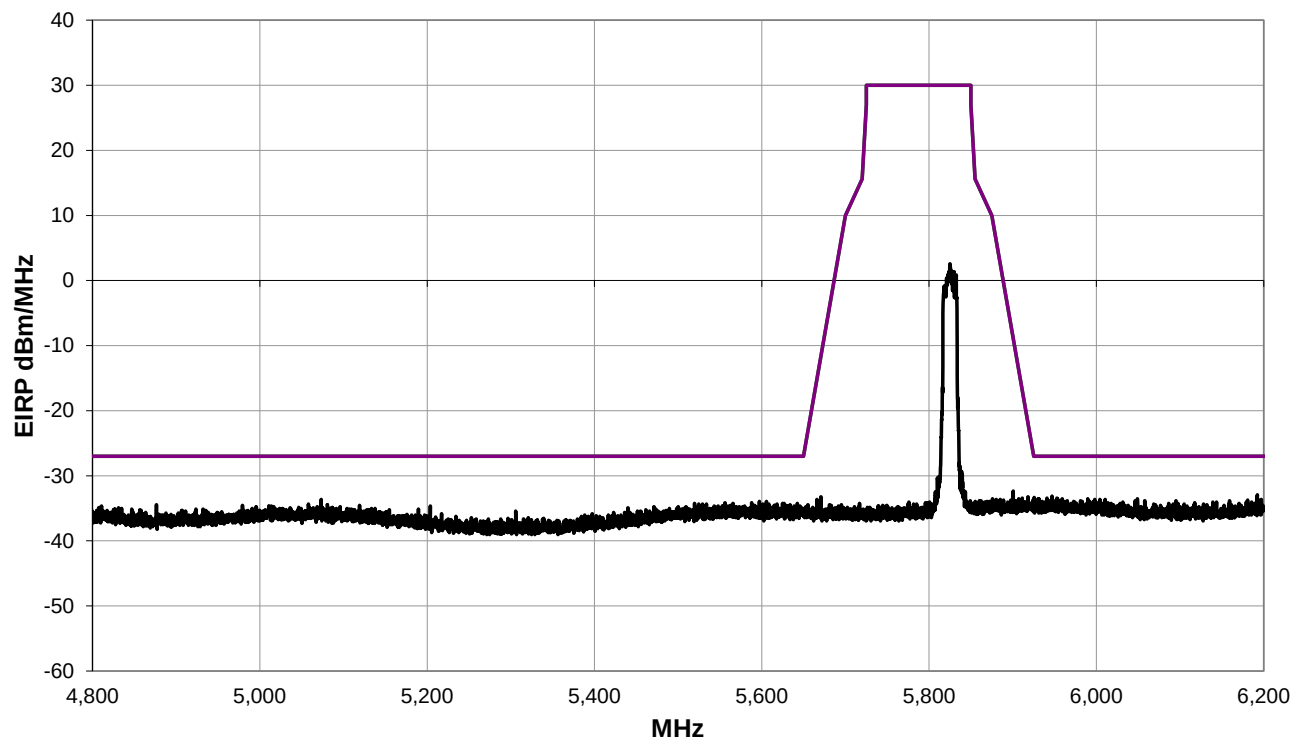
Spot check worst case 20 MHz wide emissions in the 5.8 GHz Band due to reduction in power settings. Please reference data comments below for EUT orientation.

## EUT OPERATING MODES

Tx - 802.11ac/an, Ch. 165 = 5825 MHz, 6 Mbps, Power setting = 9 dBm

## DEVIATIONS FROM TEST STANDARD

None



Run #: 147

■ PK ◆ AV ● QP

# SPURIOUS RADIATED EMISSIONS – 5.3GHz, 5.6GHz, 5.8GHz BANDS

## RESULTS - Run #147

All emissions were below the limit (see graph above).

## CONCLUSION

Pass



Tested By

End of Test Report