



## **OrthAlign**

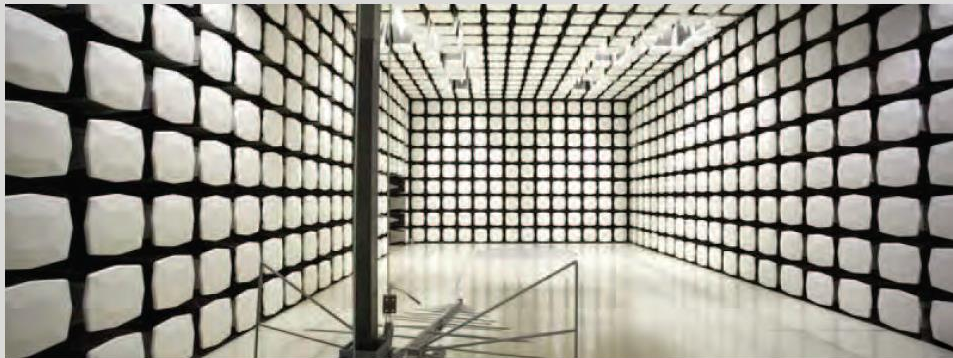
**Lantern Reusable Navigation Unit**

**FCC 15.407:2024**

**FCC 15.205:2024**

**Wi-Fi 802.11 a/n/ac SISO Radio**

**Report: ORTH0035.3 Rev. 1, Issue Date: January 8, 2025**



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# CERTIFICATE OF TEST

**Last Date of Test: December 16, 2024**  
**OrthAlign**  
**EUT: Lantern Reusable Navigation Unit**

## Radio Equipment Testing

### Standards

| Specification   | Method           |
|-----------------|------------------|
| FCC 15.205:2024 | ANSI C63.10:2013 |
| FCC 15.407:2024 |                  |

### Guidance

|                            |
|----------------------------|
| FCC KDB 558074 v05r02:2019 |
|----------------------------|

### Results

| Test Description                            | Result | Specification Section(s)           | Method Section(s) | Comments                                                      |
|---------------------------------------------|--------|------------------------------------|-------------------|---------------------------------------------------------------|
| Powerline Conducted Emissions               | N/A    | 15.407 (b)(6)                      | 6.2               | Not required for a battery powered EUT.                       |
| Frequency Stability                         | N/A    | 15.407 (g)                         | 6.8               | Not required to show compliance of the module in the host.    |
| Emission Bandwidth 5.8 GHz                  | N/A    | 15.407(e), KDB 789033 -C2          | 6.9.2             | Not required to show compliance of the module in the host.    |
| Duty Cycle                                  | Pass   | 15.407 KDB 789033 -B               | 12.2              |                                                               |
| Maximum Conducted Output Power              | Pass   | 15.407(a)(1)-(4), KDB 789033 -E2.d | 12.3.2.4          |                                                               |
| Equivalent Isotropic Radiated Power (EIRP)  | Pass   | 15.407(a)(1)-(4), KDB 789033 -E2.d | 12.3.2.4          |                                                               |
| Emission Bandwidth                          | N/A    | 15.407(a), KDB 789033 -C1          | 12.4.1            | Not required to show compliance of the module in the host.    |
| Occupied Bandwidth                          | Pass   | KDB 789033 -D                      | 12.4.2            |                                                               |
| Band Edge                                   | N/A    | 15.407(h)(2)                       | 12.4.2            | Not required to show compliance of the module in the host.    |
| Maximum Power Spectral Density              | N/A    | 15.407(a)(1)-(5), KDB 789033 -F    | 12.5              | Not required to show compliance of the module in the host.    |
| Spurious Radiated Emissions                 | Pass   | 15.407 (b)(1)-(7), KDB 789033 -G   | 12.7, 6.5, 6.6    |                                                               |
| Measurement of Emission at Elevation Angles | N/A    | KDB 789033 -H                      | KDB 789033 -H     | Not required unless the EUT is a Master device used outdoors. |

*Product compliance is the responsibility of the client; therefore, the tests and equipment modes of operation represented in this report were agreed upon by the client, prior to testing. The results of this test pertain only to the sample(s) tested. The specific description is noted in each of the individual sections of the test report supporting this certificate of test. This report reflects only those tests from the referenced standards shown in the certificate of test. It does not include inspection or verification of labels, identification, marking or user information. As indicated in the Statement of Work sent with the quotation, Element's standard process is to always use the latest published version of the test methods even when earlier versions are cited in the test specification. Issuance of a purchase order was de facto acceptance of this approach. Otherwise, the client would have advised Element in writing of the specific version of the test methods they wanted applied to the subject testing.*

# CERTIFICATE OF TEST

## Deviations From Test Standards

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None

## Approved By:



Johnny Candelas, Operations Manager  
Signed for and on behalf of Element

*Product compliance is the responsibility of the client; therefore, the tests and equipment modes of operation represented in this report were agreed upon by the client, prior to testing. The results of this test pertain only to the sample(s) tested. The specific description is noted in each of the individual sections of the test report supporting this certificate of test. This report reflects only those tests from the referenced standards shown in the certificate of test. It does not include inspection or verification of labels, identification, marking or user information. As indicated in the Statement of Work sent with the quotation, Element's standard process is to always use the latest published version of the test methods even when earlier versions are cited in the test specification. Issuance of a purchase order was de facto acceptance of this approach. Otherwise, the client would have advised Element in writing of the specific version of the test methods they wanted applied to the subject testing.*

# REVISION HISTORY



| Revision Number | Description                                                                                                                                                                                    | Date<br>(yyyy-mm-dd) | Page Number                                                            |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|------------------------------------------------------------------------|
| 01              | Antenna gain updated from 5.5 to 6.5 dBi.<br>Software version added per Test Plan: VP0769<br>EMC Test Plan for Lantern Reusable Navigation Unit Rev A.pdf. (dBm) units added to power setting. | 2024-12-20           | 13                                                                     |
|                 | Comments added to direct connect modules                                                                                                                                                       | 2024-12-20           | 17-98                                                                  |
|                 | SN: 2401016 replaced instances of SN: "See Configurations" in all applicable data modules                                                                                                      | 2024-12-20           | 18, 32, 46, 55, 64, 73, 82, 91, 101, 104, 111, 114, 116, 118, 120, 122 |
|                 | Limit for U-NII-1 Band updated to 24 dBm<br>Limit for U-NII-3 Band updated to 30 dBm                                                                                                           | 2024-12-20           | 34, 39                                                                 |
|                 | Retested with proper RBW                                                                                                                                                                       | 2024-12-20           | 40, 50, 56, 57, 62                                                     |
|                 | Recalculated EIRP with 6.5 dBi antenna gain for U-NII-1 and U-NII-3 bands<br>EIRP Limit updated to 29.5 dBm for U-NII-1 band and 35.5 for U-NII-3 band                                         | 2024-12-20           | 44, 49                                                                 |
|                 | Retested SRE. WC DCCF per signal BW.                                                                                                                                                           | 2024-12-20           | 99-126                                                                 |
|                 | Updated test dates                                                                                                                                                                             | 2025-01-02           | 3, 12, 16                                                              |
|                 | Updated EUT name                                                                                                                                                                               | 2025-01-02           | 18, 32, 46, 55, 64, 73, 82, 91, 101, 104, 111, 114, 116, 118, 120, 122 |
| 02              | Added SRE data for -27dBm/MHz limit for both UNII bands.                                                                                                                                       | 2025-01-07           | 99-130                                                                 |

# ACCREDITATIONS AND AUTHORIZATIONS



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## United States

**FCC** - Designated by the FCC as a Telecommunications Certification Body (TCB). Certification chambers, Open Area Test Sites, and conducted measurement facilities are listed with the FCC.

**A2LA** - Each laboratory is accredited by A2LA to ISO / IEC 17025, and as a product certifier to ISO / IEC 17065 which allows Element to certify transmitters to FCC and IC specifications.

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## Canada

**ISED** - Recognized by Innovation, Science and Economic Development Canada as a Certification Body (CB) and as a CAB for the acceptance of test data.

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## European Union

**European Commission** – Recognized as an EU Notified Body validated for the EMCD and RED Directives.

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## United Kingdom

**BEIS** – Recognized by the UK as an Approved Body under the UK Radio Equipment and UK EMC Regulations.

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## Australia/New Zealand

**ACMA** - Recognized by ACMA as a CAB for the acceptance of test data.

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## Korea

**MSIT / RRA** - Recognized by KCC's RRA as a CAB for the acceptance of test data.

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## Japan

**VCCI** - Associate Member of the VCCI. Conducted and radiated measurement facilities are registered.

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## Taiwan

**BSMI** – Recognized by BSMI as a CAB for the acceptance of test data.

**NCC** - Recognized by NCC as a CAB for the acceptance of test data.

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## Singapore

**IDA** – Recognized by IDA as a CAB for the acceptance of test data.

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## Israel

**MOC** – Recognized by MOC as a CAB for the acceptance of test data.

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## Hong Kong

**OFCA** – Recognized by OFCA as a CAB for the acceptance of test data.

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## Vietnam

**MIC** – Recognized by MIC as a CAB for the acceptance of test data.

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## SCOPE

For details on the Scopes of our Accreditations, please visit:

[California](#)

[Minnesota](#)

[Oregon](#)

[Texas](#)

[Washington](#)

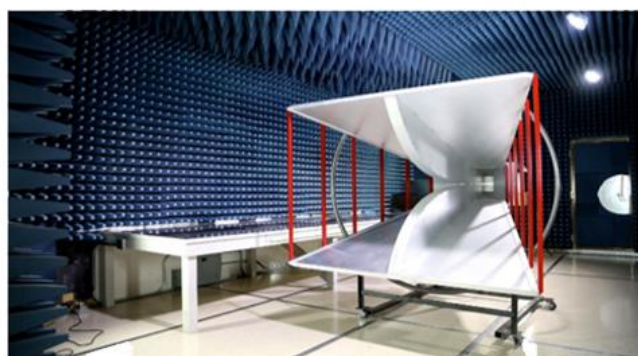
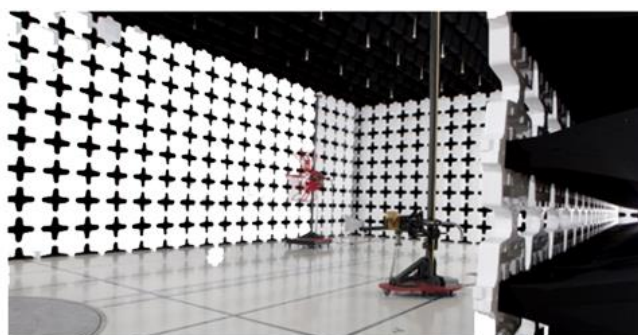
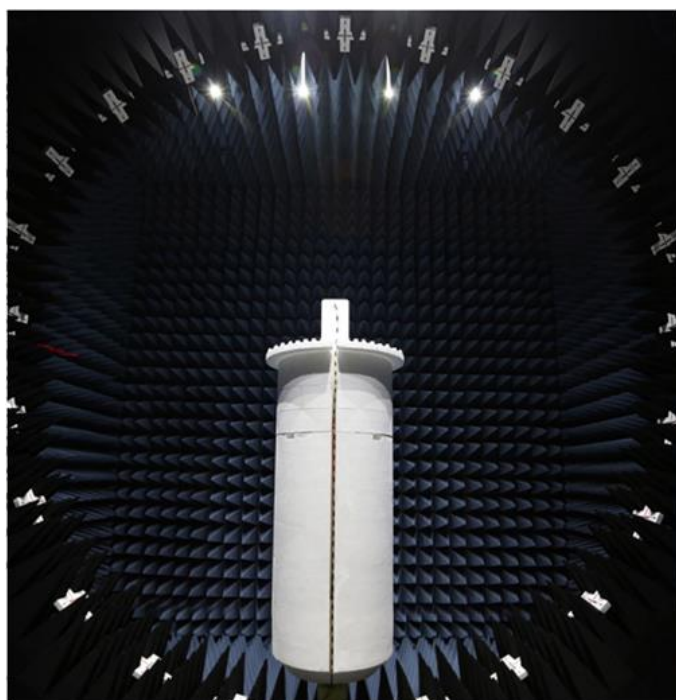
# FACILITIES

Testing was performed at the following location(s)

|                                     | Location    | Labs <sup>(1)</sup> | Address                                                              | A2LA <sup>(2)</sup> | ISED <sup>(3)</sup> | BSMI <sup>(4)</sup> | VCCI <sup>(5)</sup> | CAB <sup>(6)</sup> | FDA <sup>(7)</sup> |
|-------------------------------------|-------------|---------------------|----------------------------------------------------------------------|---------------------|---------------------|---------------------|---------------------|--------------------|--------------------|
| <input checked="" type="checkbox"/> | California  | OC01-17             | 41 Tesla<br>Irvine, CA 92618<br>(949) 861-8918                       | 3310.04             | 2834B               | SL2-IN-E-1154R      | A-0029              | US0158             | TL-55              |
| <input type="checkbox"/>            | Minnesota   | MN01-11             | 9349 W Broadway Ave.<br>Brooklyn Park, MN 55445<br>(612) 638-5136    | 3310.05             | 2834E               | SL2-IN-E-1152R      | A-0109              | US0175             | TL-57              |
| <input type="checkbox"/>            | Oregon      | EV01-12             | 6775 NE Evergreen Pkwy #400<br>Hillsboro, OR 97124<br>(503) 844-4066 | 3310.02             | 2834D               | SL2-IN-E-1017       | A-0108              | US0017             | TL-56              |
| <input type="checkbox"/>            | Plano Texas | PT01-15             | 1701 E Plano Pkwy, Ste 150<br>Plano, TX 75074<br>(972) 509-2566      | 214.19              | 32637               | SL2-IN-E-057R       | A-0426              | US0054             | TL-137             |
| <input type="checkbox"/>            | Washington  | NC01-05             | 19201 120th Ave NE<br>Bothell, WA 98011<br>(425) 984-6600            | 3310.06             | 2834F               | SL2-IN-E-1153R      | A-0110              | US0157             | TL-67              |
| <input type="checkbox"/>            | Offsite     | N/A                 | See Product Description                                              | N/A                 | N/A                 | N/A                 | N/A                 | N/A                | N/A                |

See data sheets for specific labs

- (1) The lab designations denote individual rooms within each location. (OC01, OC02, OC03, etc.)
- (2) A2LA Certificate No.
- (3) ISED Company No.
- (4) BSMI No.
- (5) VCCI Site Filing No.
- (6) CAB Identifier. Recognized Phase I CAB for ISED, ACMA, BSMI, IDA, KCC/RRA, MIC, MOC, NCC, OFCA
- (7) FDA ASCA No.





# MEASUREMENT UNCERTAINTY

## Measurement Uncertainty

When a measurement is made, the result will be different from the true or theoretically correct value. The difference is the result of tolerances in the measurement system that cannot be completely eliminated. To the extent that technology allows us, it has been our aim to minimize this error. Measurement uncertainty is a statistical expression of measurement error qualified by a probability distribution.

A measurement uncertainty estimation has been performed for each test per our internal quality document QM205.4.6. The estimation is used to compare the measured result with its "true" or theoretically correct value. The expanded measurement uncertainty ( $k=2$ ) can be found in the table below. A lab specific value may also be found in the applicable test description section. Our measurement data meets or exceeds the measurement uncertainty requirements of the applicable specification; therefore, the test data can be compared directly to the specification limit to determine compliance. The calculations for estimating measurement uncertainty are based upon ETSI TR 100 028 (or CISPR 16-4-2 as applicable) and are available upon request.

The following table represents the Measurement Uncertainty (MU) budgets for each of the tests that may be contained in this report.

### Various Measurements

| Test                                 | All Labs<br>(+/-) |
|--------------------------------------|-------------------|
| Frequency Accuracy (%)               | 0.0007            |
| Amplitude Accuracy (dB)              | 1.2               |
| Conducted Power (dB)                 | 1.2               |
| Radiated Power via Substitution (dB) | 0.7               |
| Temperature (degrees C)              | 0.7               |
| Humidity (% RH)                      | 2.5               |
| Voltage (AC) (%)                     | 1                 |
| Voltage (DC) (%)                     | 0.7               |

### Field Strength Measurements (dB)

| Range         | OC10<br>(+/-) |
|---------------|---------------|
| 10kHz-30MHz   | 1.8           |
| 30MHz-1GHz 3m | 4.6           |
| 1GHz-6GHz     | 5             |
| 6GHz-40GHz    | 5.1           |



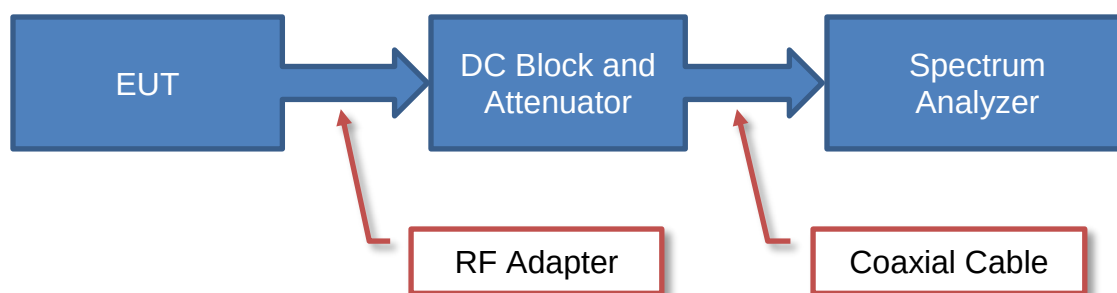
# TEST SETUP BLOCK DIAGRAMS

## Measurement Bandwidths

| Frequency Range (MHz) | Peak Data (kHz) | Quasi-Peak Data (kHz) | Average Data (kHz) |
|-----------------------|-----------------|-----------------------|--------------------|
| 0.01 - 0.15           | 1.0             | 0.2                   | 0.2                |
| 0.15 - 30.0           | 10.0            | 9.0                   | 9.0                |
| 30.0 - 1000           | 100.0           | 120.0                 | 120.0              |
| Above 1000            | 1000.0          | N/A                   | 1000.0             |

Unless otherwise stated, measurements were made using the bandwidths and detectors specified. No video filter was used.

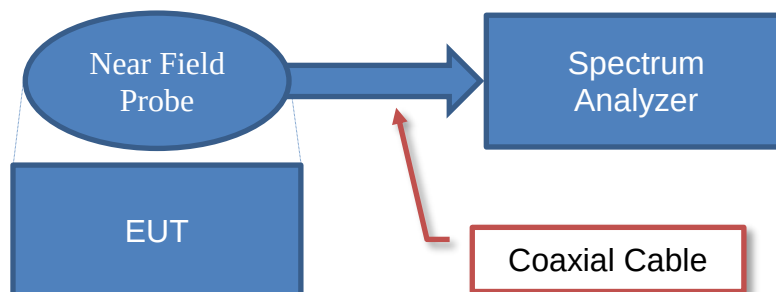
## Antenna Port Conducted Measurements



### Sample Calculation (logarithmic units)

|                |   |                |   |                        |
|----------------|---|----------------|---|------------------------|
| Measured Value |   | Measured Level |   | Reference Level Offset |
| 71.2           | = | 42.6           | + | 28.6                   |

## Near Field Test Fixture Measurements

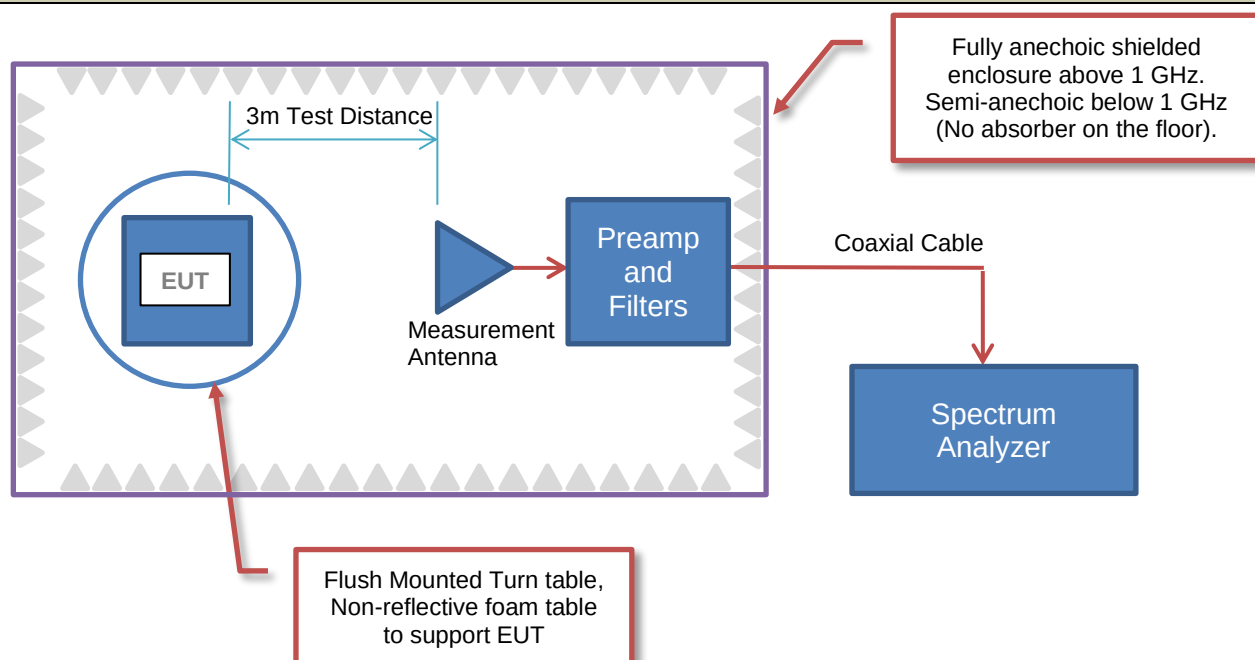


### Sample Calculation (logarithmic units)

|                |   |                |   |                        |
|----------------|---|----------------|---|------------------------|
| Measured Value |   | Measured Level |   | Reference Level Offset |
| 71.2           | = | 42.6           | + | 28.6                   |

# TEST SETUP BLOCK DIAGRAMS

## Emissions Measurements



## Sample Calculation (logarithmic units)

### Radiated Emissions:

| Measured Level<br>(Amplitude) | Factor         |              |                | Distance Adjustment Factor | External Attenuation | Field Strength |
|-------------------------------|----------------|--------------|----------------|----------------------------|----------------------|----------------|
|                               | Antenna Factor | Cable Factor | Amplifier Gain |                            |                      |                |
| 42.6                          | 28.6           | 3.1          | 40.8           | 0.0                        | 0.0                  | 33.5           |

### Conducted Emissions:

| Measured Level<br>(Amplitude) | Factor            |              | External Attenuation | Adjusted Level |
|-------------------------------|-------------------|--------------|----------------------|----------------|
|                               | Transducer Factor | Cable Factor |                      |                |
| 26.7                          | 0.3               | 0.1          | 20.0                 | 47.1           |

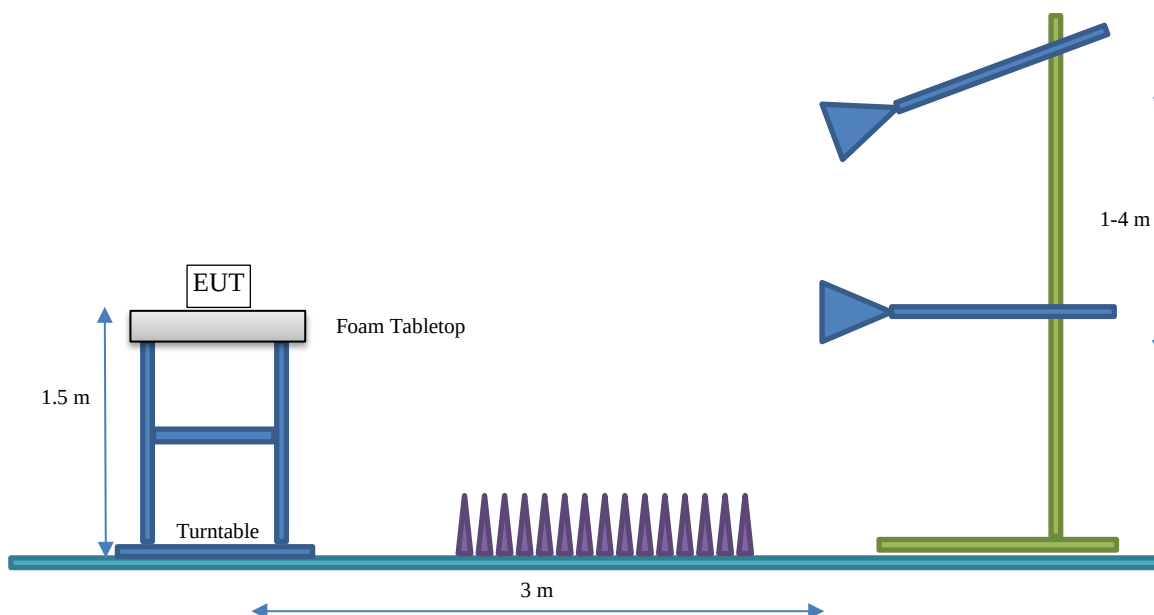
### Radiated Power (ERP/EIRP) – Substitution Method:

| Measured Level into Substitution Antenna<br>(Amplitude dBm) | Substitution Antenna Factor<br>(dBi) | EIRP to ERP<br>(if applicable) | Measured power<br>(dBm ERP/EIRP) |
|-------------------------------------------------------------|--------------------------------------|--------------------------------|----------------------------------|
| 10.0                                                        | 6.0                                  | 2.15                           | 13.9/16.0                        |

# TEST SETUP BLOCK DIAGRAMS

## Bore Sighting (>1GHz)

The diameter of the illumination area is the dimension of the line tangent to the EUT formed by 3 dB beamwidth of the measurement antenna at the measurement distance. At a 3 meter test distance, the diameter of the illumination area was 3.8 meters at 1 GHz and greater than 2.1 meters up to 6 GHz. Above 1 GHz, when required by the measurement standard, the antenna is pointed for both azimuth and elevation to maintain the receive antenna within the cone of radiation from the EUT. The specified measurement detectors were used for comparison of the emissions to the peak and average specification limits.



# PRODUCT DESCRIPTION

## Client and Equipment under Test (EUT) Information

|                          |                                  |
|--------------------------|----------------------------------|
| Company Name:            | OrthAlign                        |
| Address:                 | 153 Technology Dr, Suite 100     |
| City, State, Zip:        | Irvine, CA 92618                 |
| Test Requested By:       | Kian Gholizadeh                  |
| EUT:                     | Lantern Reusable Navigation Unit |
| First Date of Test:      | October 22, 2024                 |
| Last Date of Test:       | December 16, 2024                |
| Receipt Date of Samples: | October 22, 2024                 |
| Equipment Design Stage:  | Prototype                        |
| Equipment Condition:     | No Damage                        |
| Purchase Authorization:  | Verified                         |

## Information Provided by the Party Requesting the Test

### Functional Description of the EUT:

Surgical navigation device containing Wi-fi and Bluetooth Low Energy transmitter and receiver.

### Testing Objective:

To demonstrate compliance of the Wi-Fi 802.11 a/n/ac SISO radio under FCC 15.407 for operation in the 5.2 GHz and 5.8 GHz band(s).

# POWER SETTINGS AND ANTENNAS



The power settings, antenna gain value(s) and cable loss (if applicable) used for the testing contained in this report were provided by the customer and will affect the validity of the results. Element assumes no responsibility for the accuracy of this information. The power settings below reflect the maximum power that the EUT is allowed to transmit at during normal operation.

## ANTENNA GAIN (dBi)

| Type        | Provided by:          | Frequency Range | Gain (dBi) |
|-------------|-----------------------|-----------------|------------|
| FPC Antenna | Pulse/Larsen Antennas | 5.x GHz radios  | 6.5        |

The EUT was tested using the power settings provided by the manufacturer which were based upon:

- ☒ Test software settings      Software/firmware used for testing: Qualcomm Atheros Radio Control Toolkit v3.0.197.0
- ☐ Rated power settings

## SETTINGS FOR ALL TESTS IN THIS REPORT

| Modulation Types         | Channel Bandwidths (MHz) | Band    | Channel # | Frequency (MHz) | Power Setting (dBm) |
|--------------------------|--------------------------|---------|-----------|-----------------|---------------------|
| 6 Mbps, 36 Mbps, 54 Mbps | 20                       | U-NII-1 | 36        | 5180            | 11                  |
|                          |                          |         | 44        | 5220            | 13                  |
|                          |                          |         | 48        | 5240            | 14                  |
| MCS0, MCS7               | 20                       | U-NII-1 | 36        | 5180            | 10                  |
|                          |                          |         | 44        | 5220            | 13                  |
|                          |                          |         | 48        | 5240            | 14                  |
| MCS0, MCS7               | 40                       | U-NII-1 | 38        | 5190            | 11                  |
|                          |                          |         | 46        | 5230            | 18                  |
| MCS0, MCS9               | 80                       | U-NII-1 | 42        | 5210            | 8                   |
| 6 Mbps, 36 Mbps, 54 Mbps | 20                       | U-NII-3 | 149       | 5745            | 9                   |
|                          |                          |         | 157       | 5785            | 11                  |
|                          |                          |         | 165       | 5825            | 10                  |
| MCS0, MCS7               | 20                       | U-NII-3 | 149       | 5745            | 9                   |
|                          |                          |         | 157       | 5785            | 11                  |
|                          |                          |         | 165       | 5825            | 11                  |
| MCS0, MCS7               | 40                       | U-NII-3 | 151       | 5755            | 10                  |
|                          |                          |         | 159       | 5795            | 11                  |
| MCS0, MCS9               | 80                       | U-NII-3 | 155       | 5775            | 7                   |

# CONFIGURATIONS

## Configuration ORTH0035-1

| Software/Firmware Running During Test |          |
|---------------------------------------|----------|
| Description                           | Version  |
| tn-image-fcc-qca-pico-imx7            | 0.0.0.32 |

| EUT                                         |              |                   |               |
|---------------------------------------------|--------------|-------------------|---------------|
| Description                                 | Manufacturer | Model/Part Number | Serial Number |
| Lantern Reusable Navigation Unit (Radiated) | OrthAlign    | 407002            | 2401016       |

| Peripherals in Test Setup Boundary |              |                   |                              |
|------------------------------------|--------------|-------------------|------------------------------|
| Description                        | Manufacturer | Model/Part Number | Serial Number                |
| Laptop PC                          | Dell Inc.    | Precision M4800   | JPC1J72                      |
| DC Power Supply                    | Dell Inc.    | DA180PM111        | CN-0WW4XY-48661-5A6-4MZU-A05 |

| Cables                        |        |            |         |                                  |                                  |
|-------------------------------|--------|------------|---------|----------------------------------|----------------------------------|
| Cable Type                    | Shield | Length (m) | Ferrite | Connection 1                     | Connection 2                     |
| USB to Ethernet Adapter Cable | Yes    | 10cm       | No      | Lantern Reusable Navigation Unit | Ethernet Cat 5 Cable             |
| Ethernet Cat 5 Cable          | No     | 10m        | No      | USB to Ethernet Adapter Cable    | Laptop PC                        |
| DC Power Cables               | No     | 10m        | No      | DC Power Supply                  | Lantern Reusable Navigation Unit |
| AC Cable                      | No     | 1m         | No      | DC Power Supply                  | AC Mains                         |
| DC Cable                      | No     | 2m         | No      | Lantern Reusable Navigation Unit | DC Power Supply                  |

# CONFIGURATIONS

## Configuration ORTH0035-2

| Software/Firmware Running During Test |          |
|---------------------------------------|----------|
| Description                           | Version  |
| tn-image-fcc-qca-pico-imx7            | 0.0.0.32 |

| EUT                                          |              |                   |               |
|----------------------------------------------|--------------|-------------------|---------------|
| Description                                  | Manufacturer | Model/Part Number | Serial Number |
| Lantern Reusable Navigation Unit (Conducted) | OrthAlign    | 407002            | R213200116    |

| Peripherals in Test Setup Boundary |              |                   |               |
|------------------------------------|--------------|-------------------|---------------|
| Description                        | Manufacturer | Model/Part Number | Serial Number |
| Laptop PC                          | Dell         | Precision 3520    | F8STZM2       |
| DC Power Supply                    | OrthAlign    | DCP3010D          | 2019015178    |

| Cables                        |        |            |         |                                  |                                  |
|-------------------------------|--------|------------|---------|----------------------------------|----------------------------------|
| Cable Type                    | Shield | Length (m) | Ferrite | Connection 1                     | Connection 2                     |
| USB to Ethernet Adapter Cable | Yes    | 10cm       | No      | Lantern Reusable Navigation Unit | Ethernet Cat 5 Cable             |
| Ethernet Cat 5 Cable          | No     | 10m        | No      | USB to Ethernet Adapter Cable    | Laptop PC                        |
| DC Power Cables               | No     | 10m        | No      | DC Power Supply                  | Lantern Reusable Navigation Unit |
| AC Cable                      | No     | 1m         | No      | DC Power Supply                  | AC Mains                         |
| DC Cable                      | No     | 2m         | No      | Lantern Reusable Navigation Unit | DC Power Supply                  |



# MODIFICATIONS

## Equipment Modifications

| Item | Date       | Test                                       | Modification                         | Note                                                                | Disposition of EUT                          |
|------|------------|--------------------------------------------|--------------------------------------|---------------------------------------------------------------------|---------------------------------------------|
| 1    | 2024-10-22 | Spurious Radiated Emissions                | Tested as delivered to test Station. | No EMI suppression devices were added or modified during this test. | EUT remained at Element following the test. |
| 2    | 2024-12-16 | Equivalent Isotropic Radiated Power (EIRP) | Tested as delivered to test Station. | No EMI suppression devices were added or modified during this test. | EUT remained at Element following the test. |
| 3    | 2024-12-16 | Occupied Bandwidth                         | Tested as delivered to test Station. | No EMI suppression devices were added or modified during this test. | EUT remained at Element following the test. |
| 4    | 2024-12-16 | Maximum Conducted Output Power             | Tested as delivered to test Station. | No EMI suppression devices were added or modified during this test. | EUT remained at Element following the test. |
| 5    | 2024-12-16 | Duty Cycle                                 | Tested as delivered to test Station. | No EMI suppression devices were added or modified during this test. | Scheduled testing was completed.            |

# DUTY CYCLE

## U-NII-1

### TEST DESCRIPTION

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.

Per ANSI C63.10:2013, all measurements are to be performed with the EUT operating at 100% duty cycle at its maximum power level. In the event the EUT cannot be operated at 100% duty cycle, the transmission pulse duration (T) and Duty Cycle (x) are required to be measured for each of the EUT operating modes.

The measurements were made using a zero span on the spectrum analyzer to see the pulses in the time domain. The transmit power was set to its default maximum.

The duty cycle was calculated by dividing the transmission pulse duration (T) by the total period of a single on and total off time.

If the transmit duty cycle < 98 percent, a duty cycle correction factor in dB can be calculated to add to power measurements if required in the test method guidance using the following formula

$$10 * \text{LOG} (1/D) = \text{dB}$$

Where D is duty cycle of the radio transmissions

### TEST EQUIPMENT

| Description                  | Manufacturer       | Model                 | ID  | Last Cal.  | Cal. Due   |
|------------------------------|--------------------|-----------------------|-----|------------|------------|
| Analyzer - Spectrum Analyzer | Agilent            | E4443A                | AAR | 2024-11-07 | 2025-11-07 |
| Block - DC                   | Fairview Microwave | SD3379                | ANG | 2024-10-03 | 2025-10-03 |
| Attenuator                   | Fairview Microwave | SA18H-20              | UAX | 2024-07-11 | 2025-07-11 |
| Cable                        | Micro-Coax         | UFD150A-1-0720-200200 | OCA | 2024-10-02 | 2025-10-02 |
| Generator - Signal           | Agilent            | E8257D                | TGU | 2023-11-08 | 2026-11-08 |
| Meter - Multimeter           | Fluke              | 107                   | MBF | 2024-04-12 | 2025-04-12 |

# DUTY CYCLE

## U-NII-1



|                   |                                    |                       |            |
|-------------------|------------------------------------|-----------------------|------------|
| EUT:              | Lantern Reusable Navigation Unit   | Work Order:           | ORTH0035   |
| Serial Number:    | R213200116                         | Date:                 | 2024-12-16 |
| Customer:         | OrthAlign                          | Temperature:          | 20.2°C     |
| Attendees:        | Steven Devinentis, Kian Gholizadeh | Relative Humidity:    | 40.8%      |
| Customer Project: | None                               | Bar. Pressure (PMSL): | 1018 mbar  |
| Tested By:        | Nolan De Ramos                     | Job Site:             | OC13       |
| Power:            | 5VDC                               | Configuration:        | ORTH0035-2 |

### TEST SPECIFICATIONS

|                 |                  |
|-----------------|------------------|
| Specification:  | Method:          |
| FCC 15.407:2024 | ANSI C63.10:2013 |

### COMMENTS

None

### DEVIATIONS FROM TEST STANDARD

None

### CONCLUSION

N/A

Tested By

### TEST RESULTS

|                         | Pulse Width | Period   | Number of Pulses | Value (%) | Limit N/A (N/A) | Results |
|-------------------------|-------------|----------|------------------|-----------|-----------------|---------|
| U-NII-1 Band (20MHz BW) |             |          |                  |           |                 |         |
| Ch 36 - 5180 MHz        |             |          |                  |           |                 |         |
| 802.11(a) 6 Mbps        | 2.029 ms    | 2.126 ms | 1                | 95.4      | N/A             | N/A     |
|                         | N/A         | N/A      | 5                | N/A       | N/A             | N/A     |
| 802.11(a) 36 Mbps       | 356.6 us    | 480.4 us | 1                | 74.2      | N/A             | N/A     |
|                         | N/A         | N/A      | 5                | N/A       | N/A             | N/A     |
| 802.11(a) 54 Mbps       | 244.7 us    | 386.4 us | 1                | 63.3      | N/A             | N/A     |
|                         | N/A         | N/A      | 5                | N/A       | N/A             | N/A     |
| 802.11(n) MCS0          | 1.341 ms    | 1.473 ms | 1                | 91        | N/A             | N/A     |
|                         | N/A         | N/A      | 5                | N/A       | N/A             | N/A     |
| 802.11(n) MCS7          | 224.6 us    | 348.3 us | 1                | 64.5      | N/A             | N/A     |
|                         | N/A         | N/A      | 5                | N/A       | N/A             | N/A     |
| Ch 44 - 5220 MHz        |             |          |                  |           |                 |         |
| 802.11(a) 6 Mbps        | 1.432 ms    | 1.547 ms | 1                | 92.6      | N/A             | N/A     |
|                         | N/A         | N/A      | 5                | N/A       | N/A             | N/A     |
| 802.11(a) 36 Mbps       | 256.6 us    | 344.4 us | 1                | 74.5      | N/A             | N/A     |
|                         | N/A         | N/A      | 5                | N/A       | N/A             | N/A     |
| 802.11(a) 54 Mbps       | 180.6 us    | 268.5 us | 1                | 67.3      | N/A             | N/A     |
|                         | N/A         | N/A      | 5                | N/A       | N/A             | N/A     |
| 802.11(n) MCS0          | 1.34 ms     | 1.455 ms | 1                | 92.1      | N/A             | N/A     |
|                         | N/A         | N/A      | 5                | N/A       | N/A             | N/A     |
| 802.11(n) MCS7          | 168.6 us    | 256.4 us | 1                | 65.8      | N/A             | N/A     |
|                         | N/A         | N/A      | 5                | N/A       | N/A             | N/A     |

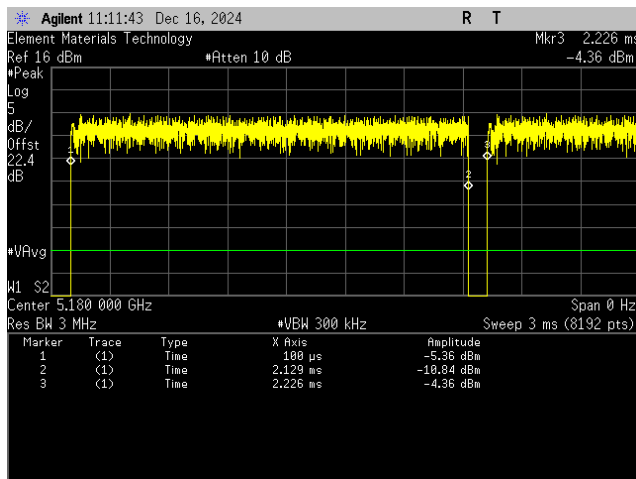
# DUTY CYCLE

## U-NII-1

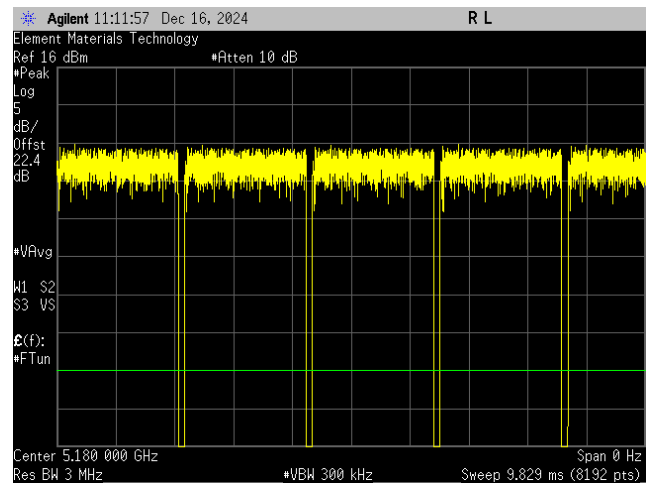
|                         | Pulse Width | Period   | Number of Pulses | Value (%) | Limit N/A (N/A) | Results |
|-------------------------|-------------|----------|------------------|-----------|-----------------|---------|
| Ch 48 - 5240 MHz        |             |          |                  |           |                 |         |
| 802.11(a) 6 Mbps        | 2.029 ms    | 2.165 ms | 1                | 93.7      | N/A             | N/A     |
|                         | N/A         | N/A      | 5                | N/A       | N/A             | N/A     |
| 802.11(a) 36 Mbps       | 356.5 us    | 507.4 us | 1                | 70.3      | N/A             | N/A     |
|                         | N/A         | N/A      | 5                | N/A       | N/A             | N/A     |
| 802.11(a) 54 Mbps       | 244.7 us    | 377.4 us | 1                | 64.8      | N/A             | N/A     |
|                         | N/A         | N/A      | 5                | N/A       | N/A             | N/A     |
| 802.11(n) MCS0          | 1.341 ms    | 1.438 ms | 1                | 93.3      | N/A             | N/A     |
|                         | N/A         | N/A      | 5                | N/A       | N/A             | N/A     |
| 802.11(n) MCS7          | 168.6 us    | 319.4 us | 1                | 52.8      | N/A             | N/A     |
|                         | N/A         | N/A      | 5                | N/A       | N/A             | N/A     |
| U-NII-1 Band (40MHz BW) |             |          |                  |           |                 |         |
| Ch 38 - 5190 MHz        |             |          |                  |           |                 |         |
| 802.11(n) MCS0          | 929.1 us    | 1.043 ms | 1                | 89        | N/A             | N/A     |
|                         | N/A         | N/A      | 5                | N/A       | N/A             | N/A     |
| 802.11(n) MCS7          | 129.1 us    | 225.2 us | 1                | 57.3      | N/A             | N/A     |
|                         | N/A         | N/A      | 5                | N/A       | N/A             | N/A     |
| Ch 46 - 5230 MHz        |             |          |                  |           |                 |         |
| 802.11(n) MCS0          | 928.6 us    | 1.043 ms | 1                | 89        | N/A             | N/A     |
|                         | N/A         | N/A      | 5                | N/A       | N/A             | N/A     |
| 802.11(n) MCS7          | 129.1 us    | 234.2 us | 1                | 55.1      | N/A             | N/A     |
|                         | N/A         | N/A      | 5                | N/A       | N/A             | N/A     |
| U-NII-1 Band (80MHz BW) |             |          |                  |           |                 |         |
| Ch 42 - 5210 MHz        |             |          |                  |           |                 |         |
| 802.11(ac) MCS0         | 456.8 us    | 598.2 us | 1                | 76.4      | N/A             | N/A     |
|                         | N/A         | N/A      | 5                | N/A       | N/A             | N/A     |
| 802.11(ac) MCS9         | 73.1 us     | 241 us   | 1                | 30.3      | N/A             | N/A     |
|                         | N/A         | N/A      | 5                | N/A       | N/A             | N/A     |

# DUTY CYCLE

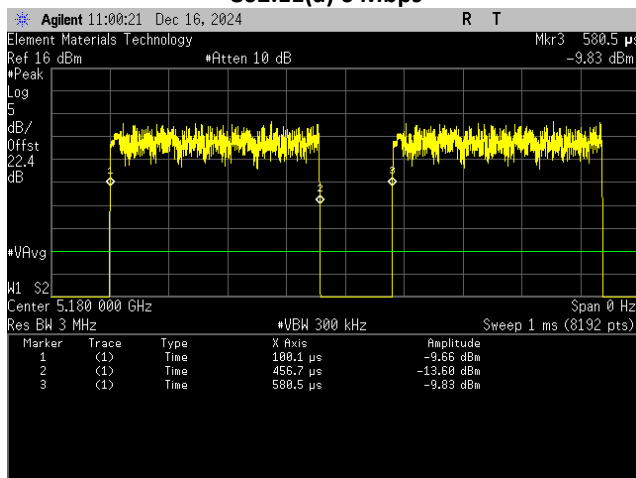
## U-NII-1



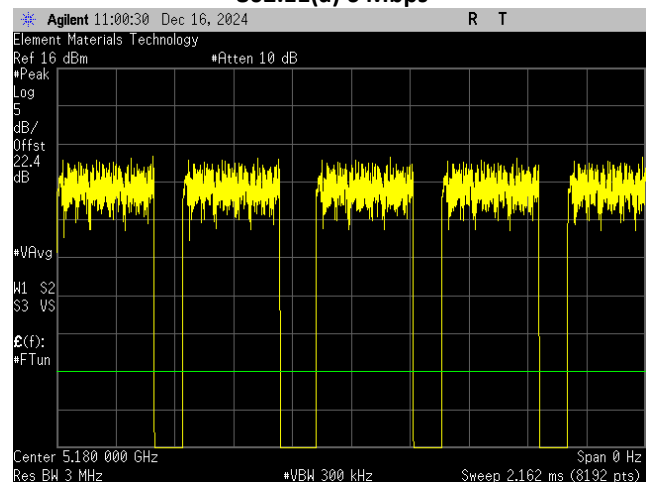
**U-NII-1 Band (20MHz BW)**  
**Ch 36 - 5180 MHz**  
**802.11(a) 6 Mbps**



**U-NII-1 Band (20MHz BW)**  
**Ch 36 - 5180 MHz**  
**802.11(a) 6 Mbps**



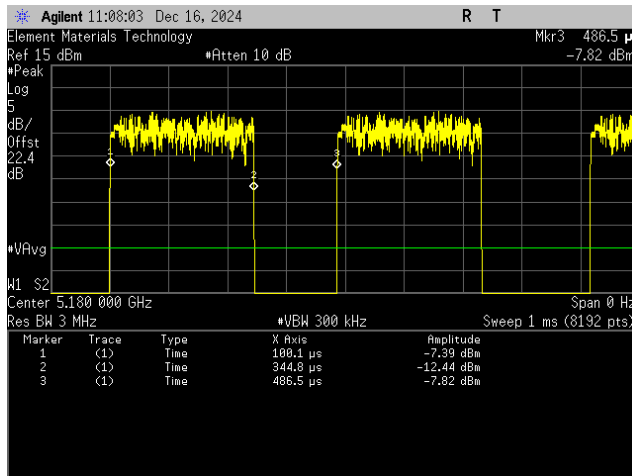
**U-NII-1 Band (20MHz BW)**  
**Ch 36 - 5180 MHz**  
**802.11(a) 36 Mbps**



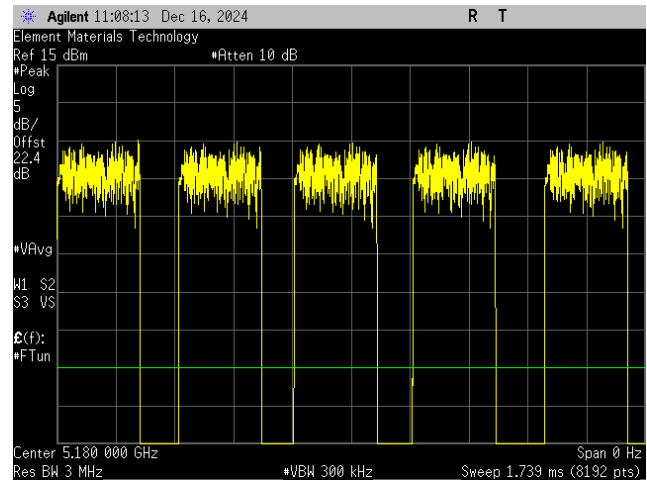
**U-NII-1 Band (20MHz BW)**  
**Ch 36 - 5180 MHz**  
**802.11(a) 36 Mbps**

# DUTY CYCLE

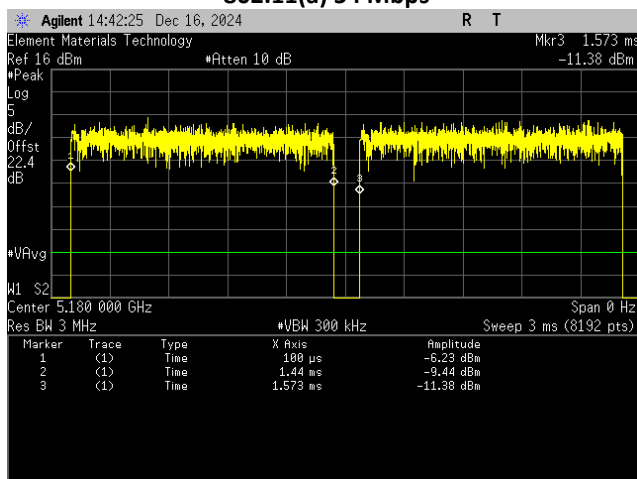
## U-NII-1



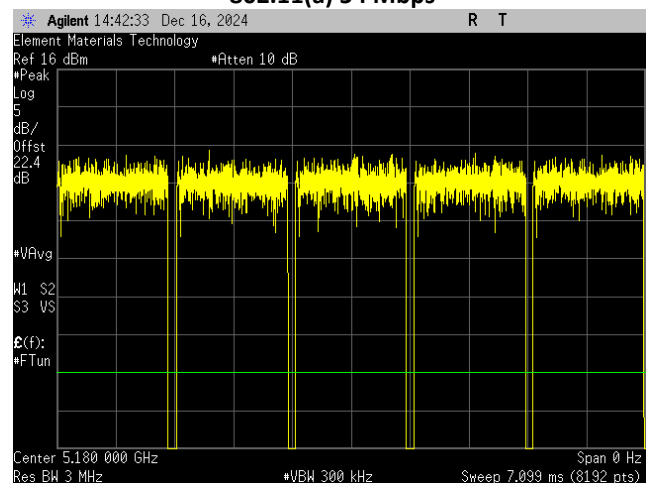
**U-NII-1 Band (20MHz BW)**  
**Ch 36 - 5180 MHz**  
**802.11(a) 54 Mbps**



**U-NII-1 Band (20MHz BW)**  
**Ch 36 - 5180 MHz**  
**802.11(a) 54 Mbps**



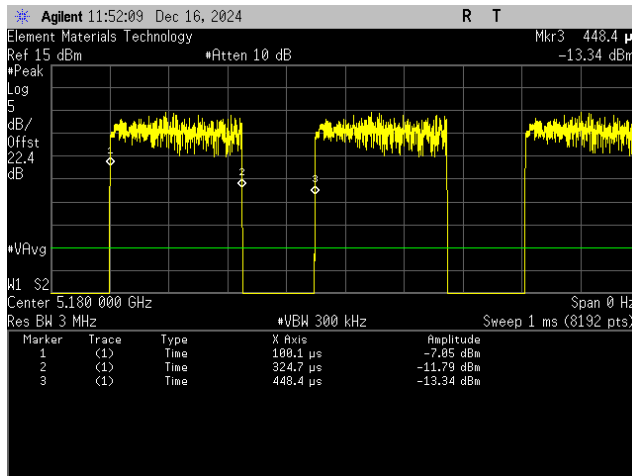
**U-NII-1 Band (20MHz BW)**  
**Ch 36 - 5180 MHz**  
**802.11(n) MCS0**



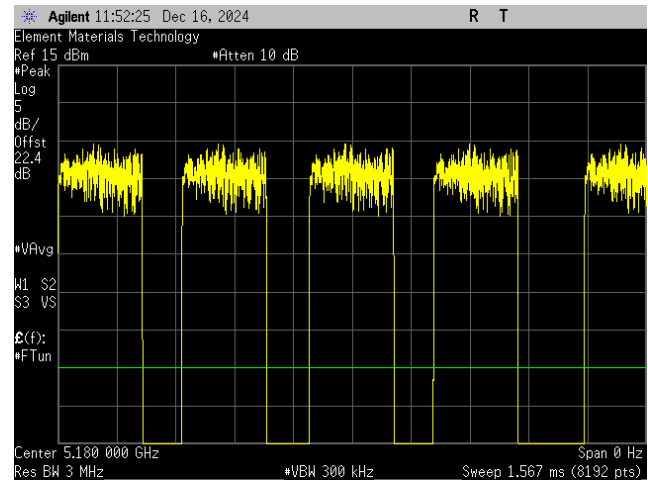
**U-NII-1 Band (20MHz BW)**  
**Ch 36 - 5180 MHz**  
**802.11(n) MCS0**

# DUTY CYCLE

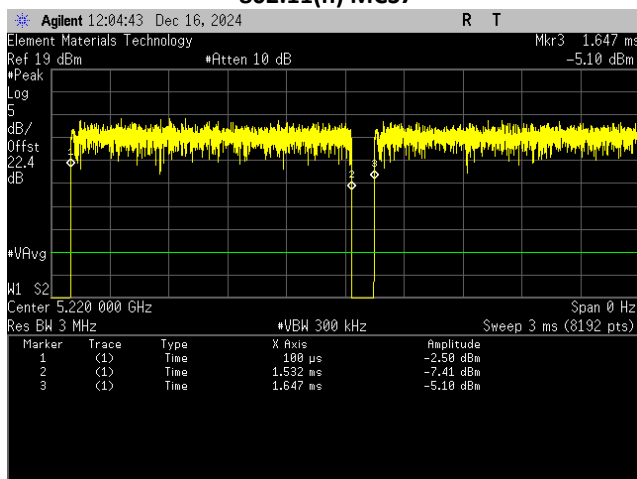
## U-NII-1



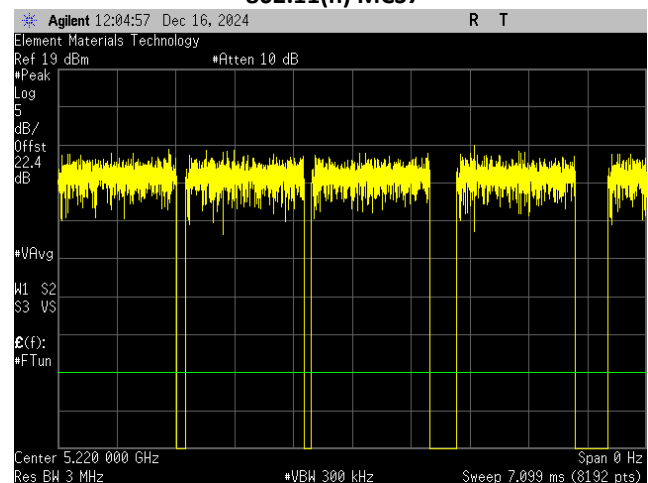
**U-NII-1 Band (20MHz BW)**  
**Ch 36 - 5180 MHz**  
**802.11(n) MCS7**



**U-NII-1 Band (20MHz BW)**  
**Ch 36 - 5180 MHz**  
**802.11(n) MCS7**



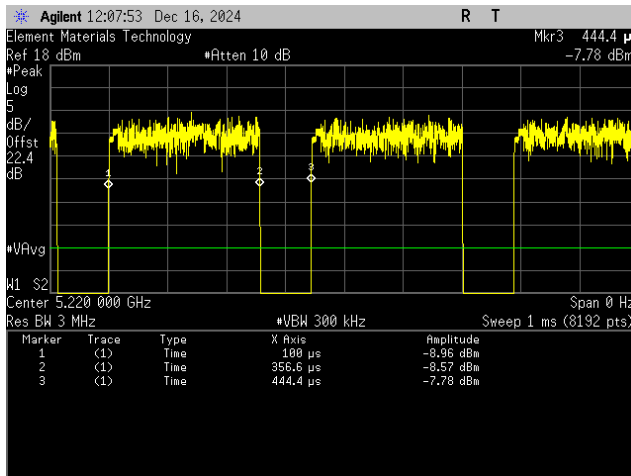
**U-NII-1 Band (20MHz BW)**  
**Ch 44 - 5220 MHz**  
**802.11(a) 6 Mbps**



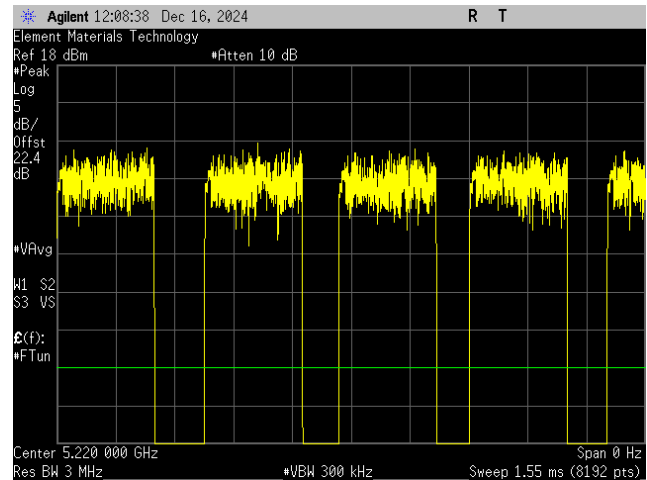
**U-NII-1 Band (20MHz BW)**  
**Ch 44 - 5220 MHz**  
**802.11(a) 6 Mbps**

# DUTY CYCLE

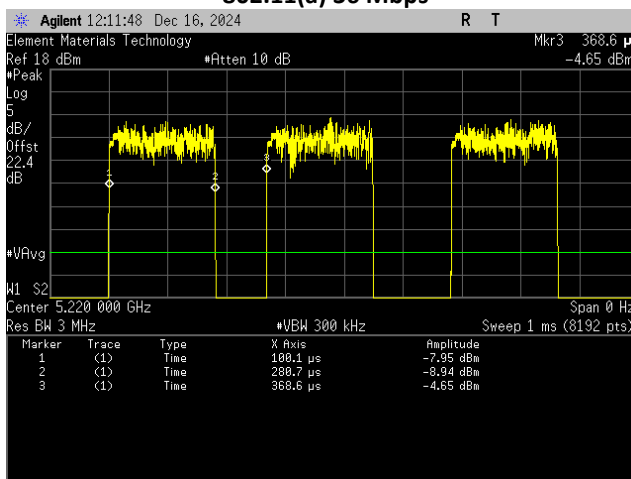
## U-NII-1



**U-NII-1 Band (20MHz BW)**  
**Ch 44 - 5220 MHz**  
**802.11(a) 36 Mbps**



**U-NII-1 Band (20MHz BW)**  
**Ch 44 - 5220 MHz**  
**802.11(a) 36 Mbps**



**U-NII-1 Band (20MHz BW)**  
**Ch 44 - 5220 MHz**  
**802.11(a) 54 Mbps**

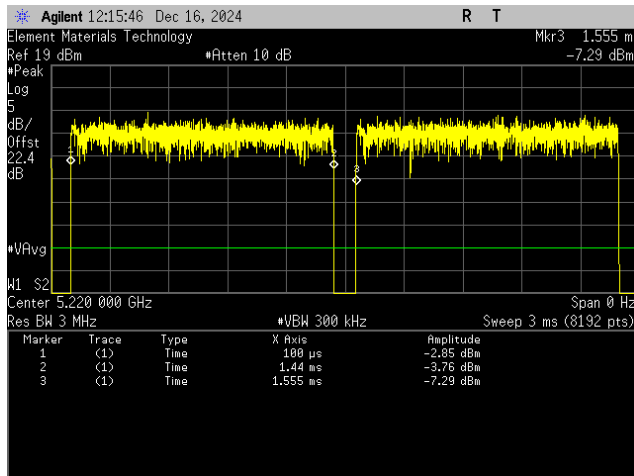


**U-NII-1 Band (20MHz BW)**  
**Ch 44 - 5220 MHz**  
**802.11(a) 54 Mbps**

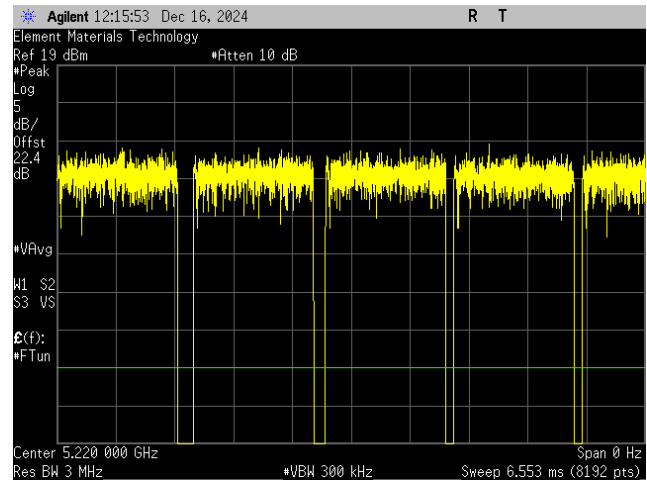


# DUTY CYCLE

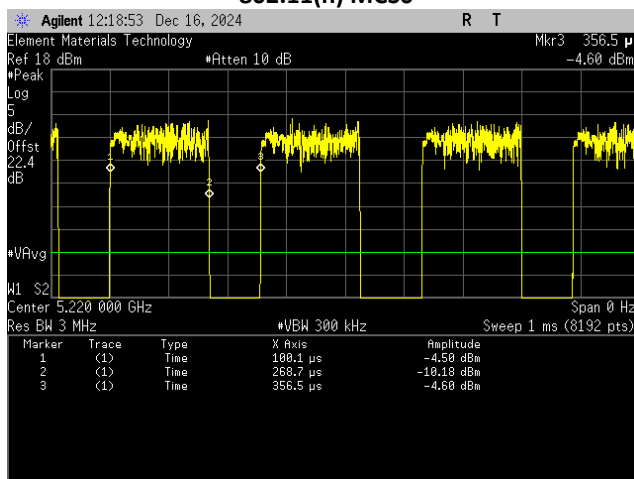
## U-NII-1



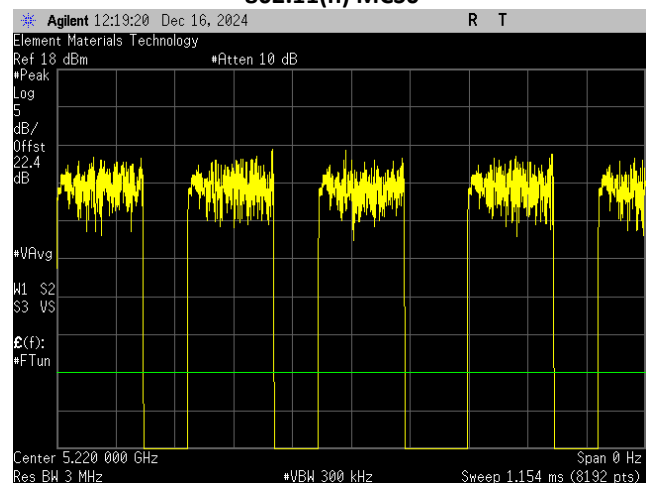
U-NII-1 Band (20MHz BW)  
Ch 44 - 5220 MHz  
802.11(n) MCS0



U-NII-1 Band (20MHz BW)  
Ch 44 - 5220 MHz  
802.11(n) MCS0



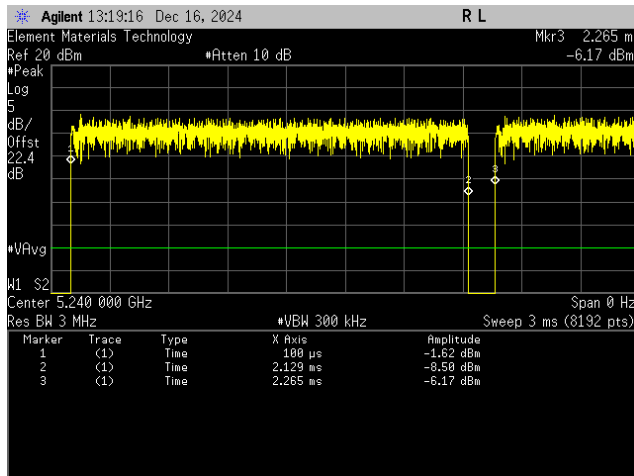
U-NII-1 Band (20MHz BW)  
Ch 44 - 5220 MHz  
802.11(n) MCS7



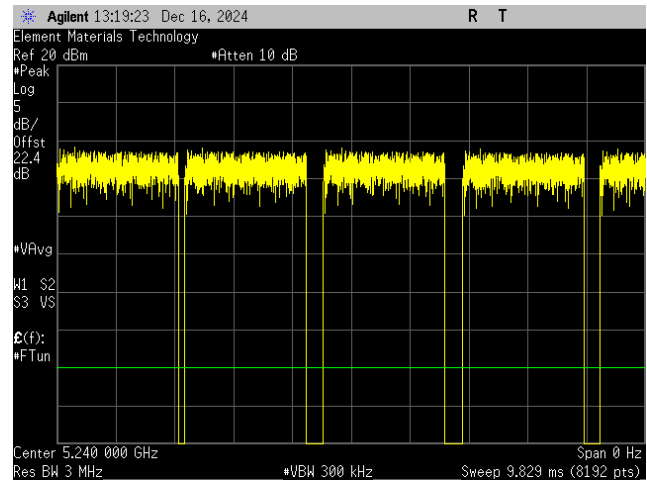
U-NII-1 Band (20MHz BW)  
Ch 44 - 5220 MHz  
802.11(n) MCS7

# DUTY CYCLE

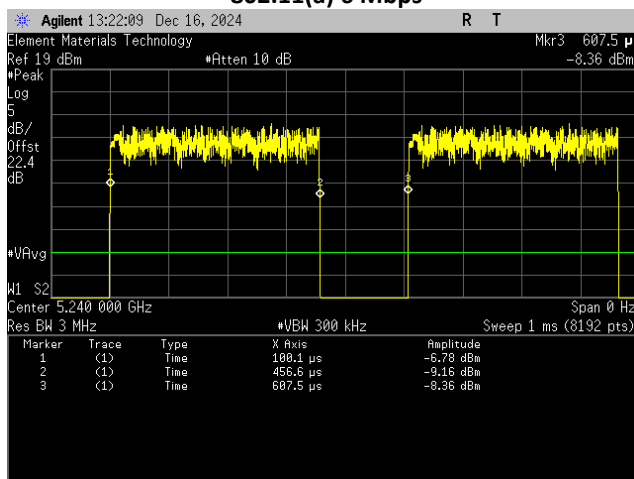
## U-NII-1



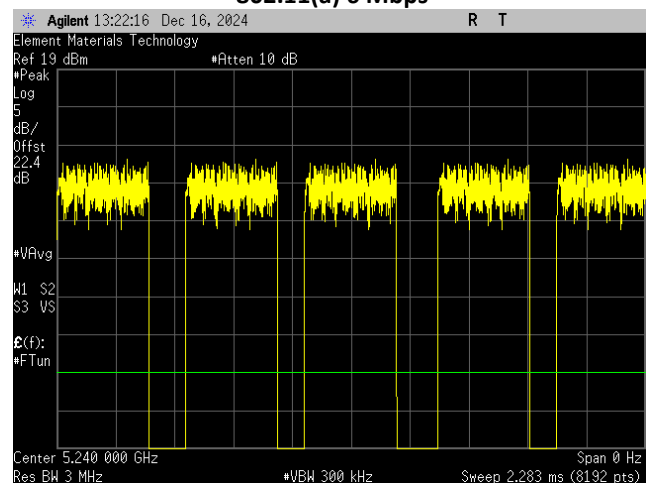
**U-NII-1 Band (20MHz BW)**  
**Ch 48 - 5240 MHz**  
**802.11(a) 6 Mbps**



**U-NII-1 Band (20MHz BW)**  
**Ch 48 - 5240 MHz**  
**802.11(a) 6 Mbps**



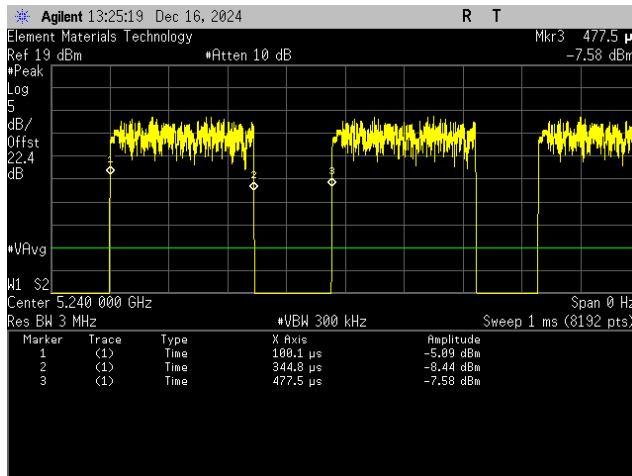
**U-NII-1 Band (20MHz BW)**  
**Ch 48 - 5240 MHz**  
**802.11(a) 36 Mbps**



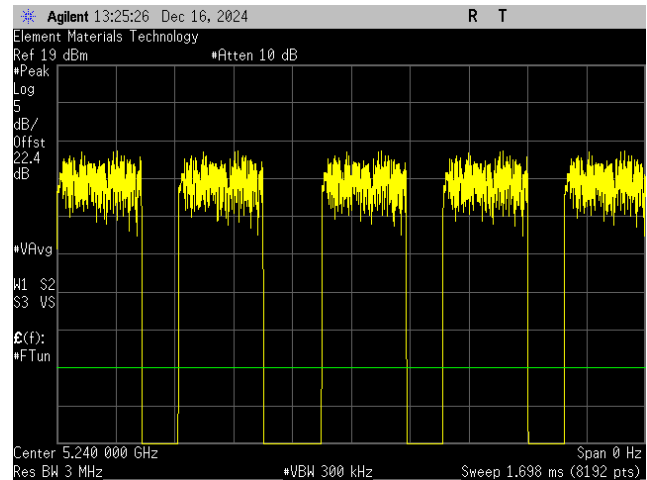
**U-NII-1 Band (20MHz BW)**  
**Ch 48 - 5240 MHz**  
**802.11(a) 36 Mbps**

# DUTY CYCLE

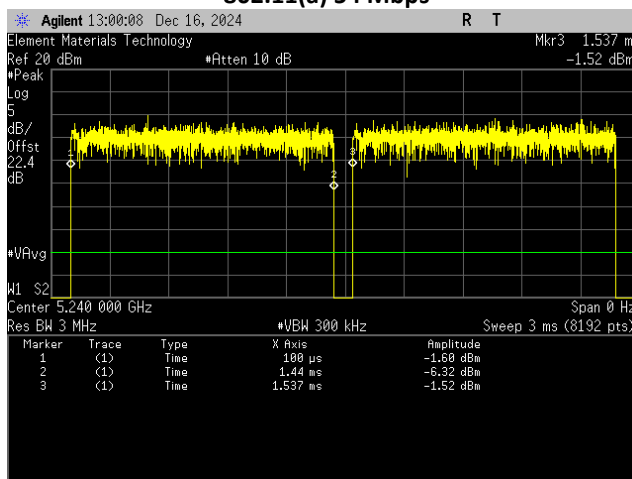
## U-NII-1



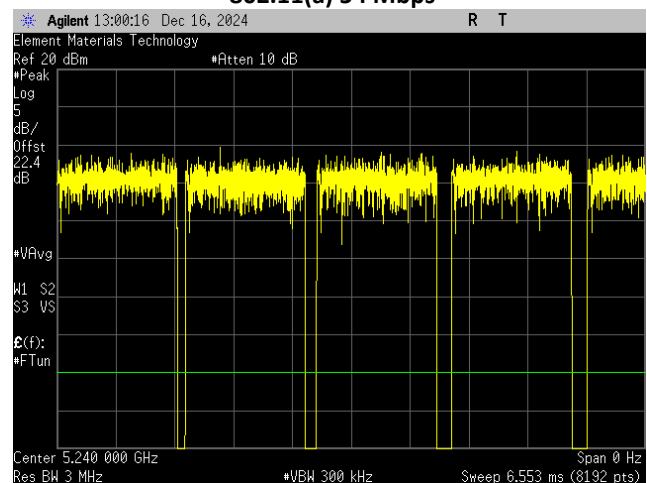
**U-NII-1 Band (20MHz BW)**  
**Ch 48 - 5240 MHz**  
**802.11(a) 54 Mbps**



**U-NII-1 Band (20MHz BW)**  
**Ch 48 - 5240 MHz**  
**802.11(a) 54 Mbps**



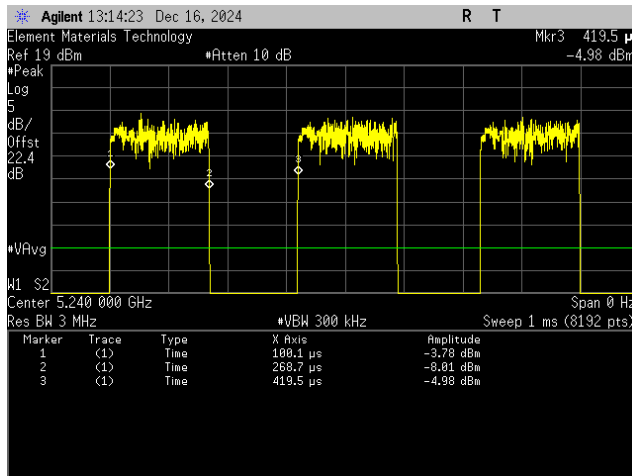
**U-NII-1 Band (20MHz BW)**  
**Ch 48 - 5240 MHz**  
**802.11(n) MCS0**



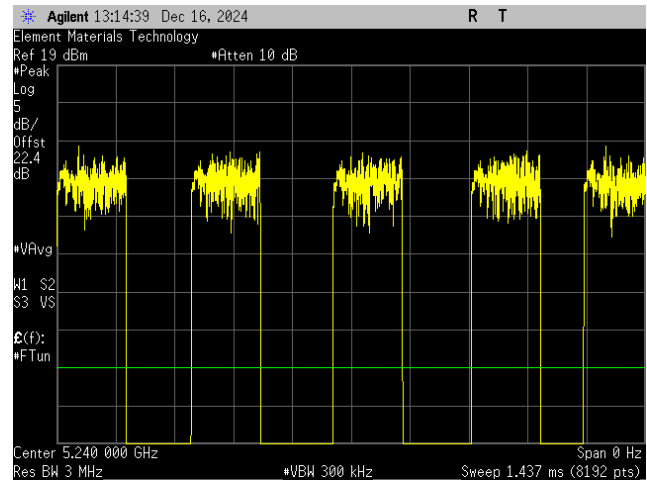
**U-NII-1 Band (20MHz BW)**  
**Ch 48 - 5240 MHz**  
**802.11(n) MCS0**

# DUTY CYCLE

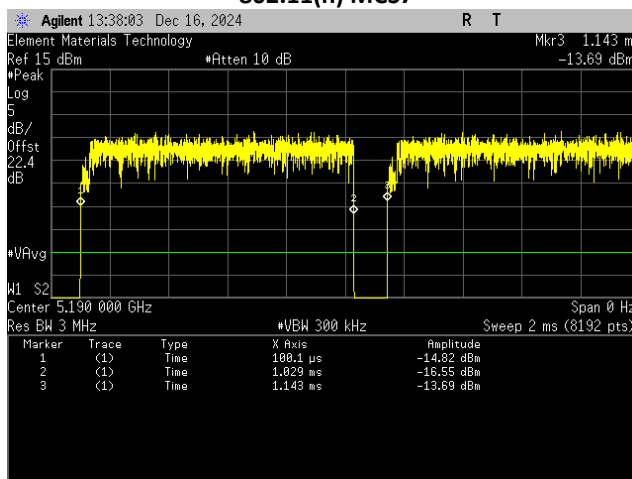
## U-NII-1



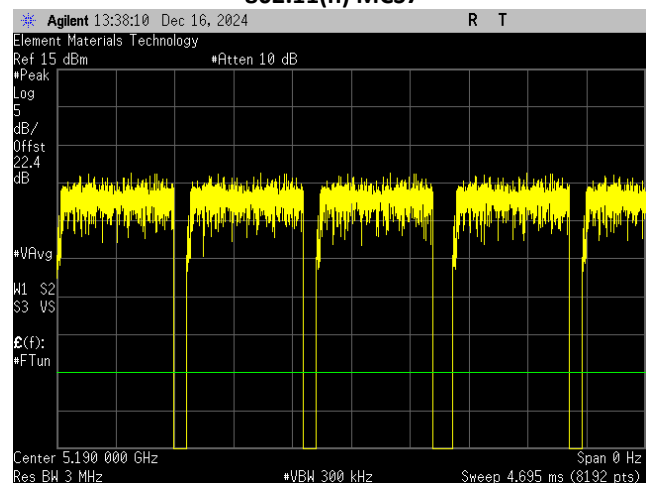
**U-NII-1 Band (20MHz BW)**  
**Ch 48 - 5240 MHz**  
**802.11(n) MCS7**



**U-NII-1 Band (20MHz BW)**  
**Ch 48 - 5240 MHz**  
**802.11(n) MCS7**



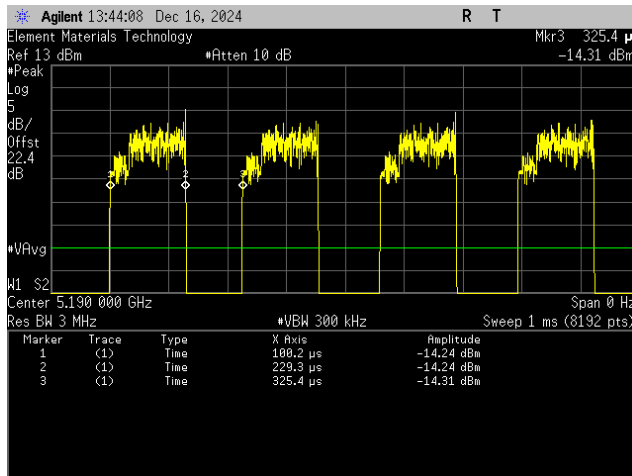
**U-NII-1 Band (40MHz BW)**  
**Ch 38 - 5190 MHz**  
**802.11(n) MCS0**



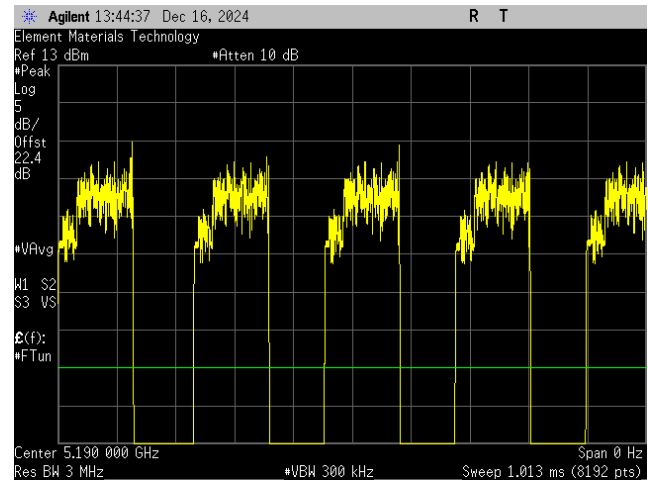
**U-NII-1 Band (40MHz BW)**  
**Ch 38 - 5190 MHz**  
**802.11(n) MCS0**

# DUTY CYCLE

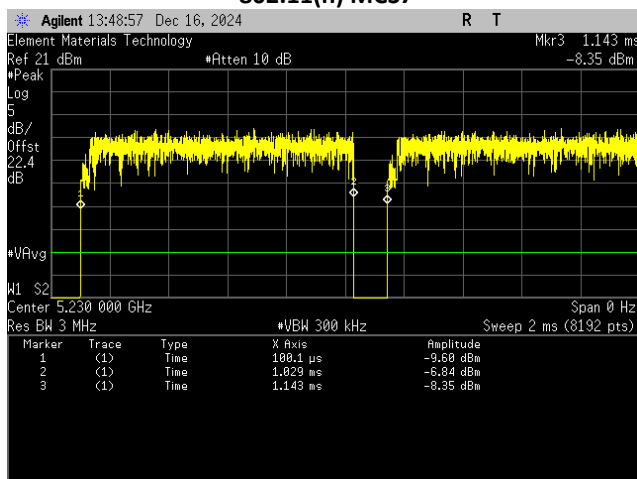
## U-NII-1



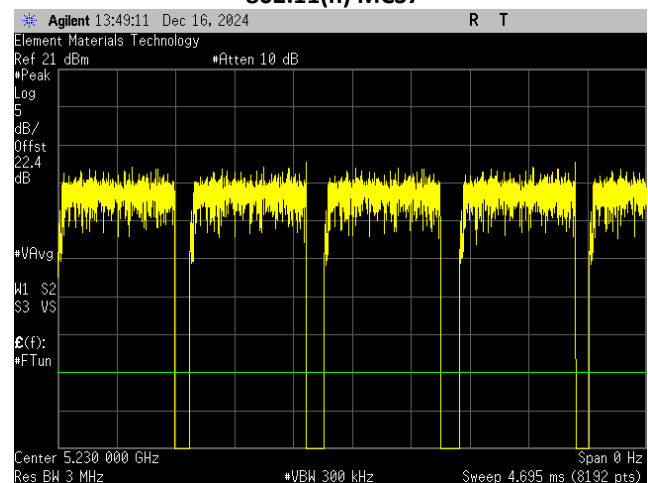
**U-NII-1 Band (40MHz BW)**  
**Ch 38 - 5190 MHz**  
**802.11(n) MCS7**



**U-NII-1 Band (40MHz BW)**  
**Ch 38 - 5190 MHz**  
**802.11(n) MCS7**



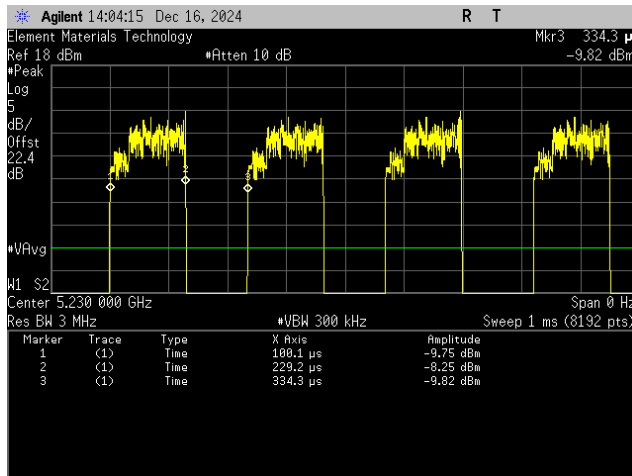
**U-NII-1 Band (40MHz BW)**  
**Ch 46 - 5230 MHz**  
**802.11(n) MCS0**



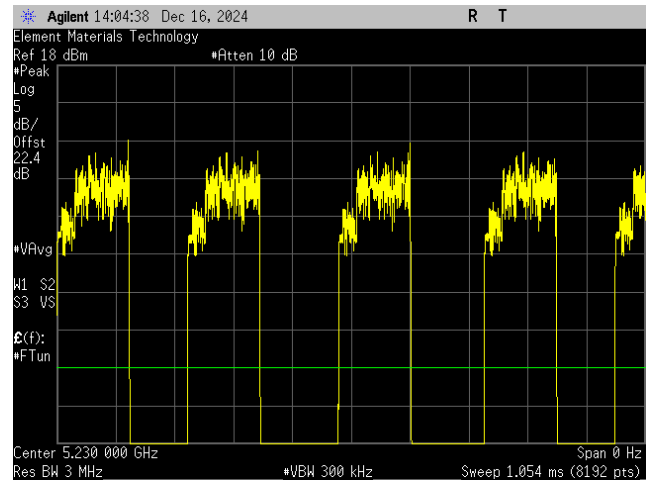
**U-NII-1 Band (40MHz BW)**  
**Ch 46 - 5230 MHz**  
**802.11(n) MCS0**

# DUTY CYCLE

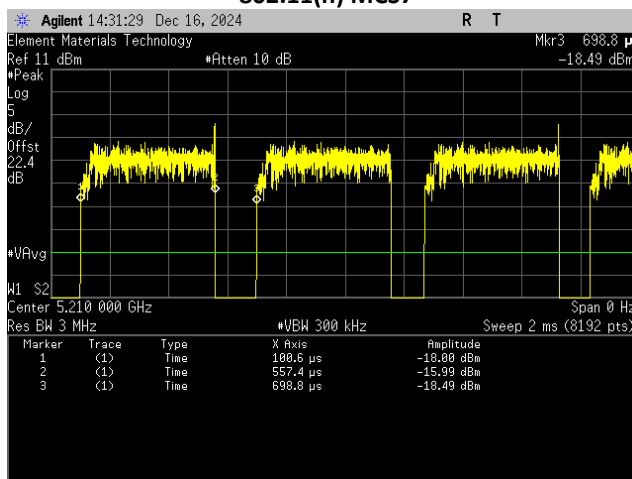
## U-NII-1



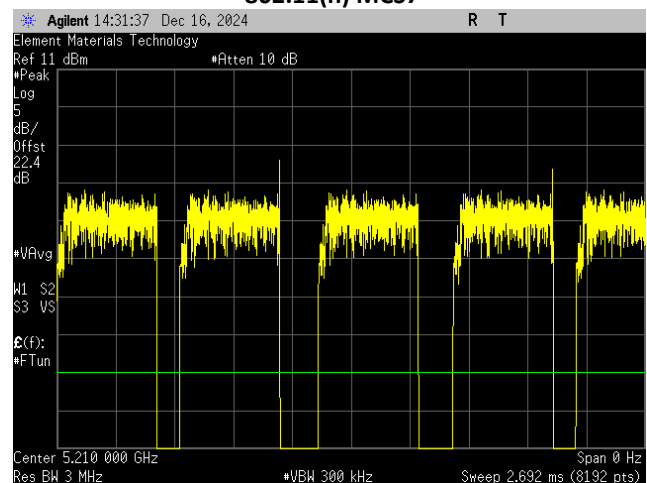
**U-NII-1 Band (40MHz BW)**  
**Ch 46 - 5230 MHz**  
**802.11(n) MCS7**



**U-NII-1 Band (40MHz BW)**  
**Ch 46 - 5230 MHz**  
**802.11(n) MCS7**



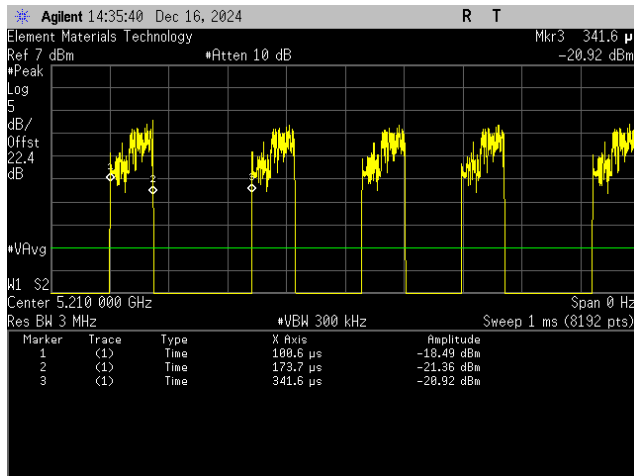
**U-NII-1 Band (80MHz BW)**  
**Ch 42 - 5210 MHz**  
**802.11(ac) MCS0**



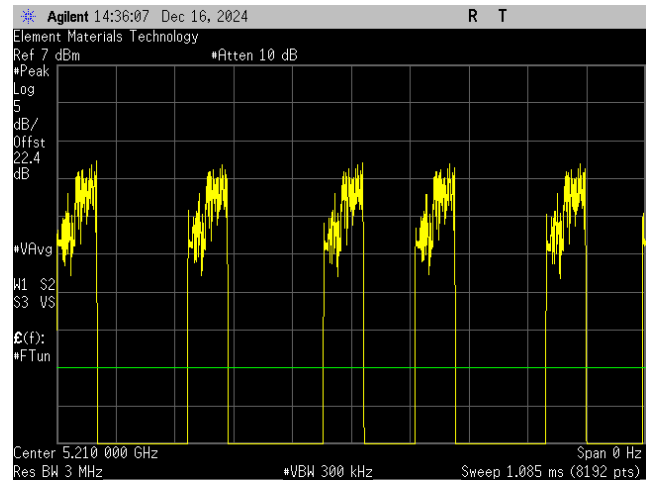
**U-NII-1 Band (80MHz BW)**  
**Ch 42 - 5210 MHz**  
**802.11(ac) MCS0**

# DUTY CYCLE

## U-NII-1



**U-NII-1 Band (80MHz BW)**  
**Ch 42 - 5210 MHz**  
**802.11(ac) MCS9**



**U-NII-1 Band (80MHz BW)**  
**Ch 42 - 5210 MHz**  
**802.11(ac) MCS9**

# DUTY CYCLE

## U-NII-3



### TEST DESCRIPTION

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.

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

Per ANSI C63.10:2013, all measurements are to be performed with the EUT operating at 100% duty cycle at its maximum power level. In the event the EUT cannot be operated at 100% duty cycle, the transmission pulse duration (T) and Duty Cycle (x) are required to be measured for each of the EUT operating modes.

The measurements were made using a zero span on the spectrum analyzer to see the pulses in the time domain. The transmit power was set to its default maximum.

The duty cycle was calculated by dividing the transmission pulse duration (T) by the total period of a single on and total off time.

If the transmit duty cycle < 98 percent, a duty cycle correction factor in dB can be calculated to add to power measurements if required in the test method guidance using the following formula

$$10 * \text{LOG} (1/D) = \text{dB}$$

Where D is duty cycle of the radio transmissions

### TEST EQUIPMENT

| Description                  | Manufacturer       | Model                 | ID  | Last Cal.  | Cal. Due   |
|------------------------------|--------------------|-----------------------|-----|------------|------------|
| Analyzer - Spectrum Analyzer | Agilent            | E4443A                | AAR | 2024-11-07 | 2025-11-07 |
| Block - DC                   | Fairview Microwave | SD3379                | ANG | 2024-10-03 | 2025-10-03 |
| Attenuator                   | Fairview Microwave | SA18H-20              | UAX | 2024-07-11 | 2025-07-11 |
| Cable                        | Micro-Coax         | UFD150A-1-0720-200200 | OCA | 2024-10-02 | 2025-10-02 |
| Generator - Signal           | Agilent            | E8257D                | TGU | 2023-11-08 | 2026-11-08 |
| Meter - Multimeter           | Fluke              | 107                   | MBF | 2024-04-12 | 2025-04-12 |



# DUTY CYCLE

## U-NII-3



|                   |                                    |                       |            |
|-------------------|------------------------------------|-----------------------|------------|
| EUT:              | Lantern Reusable Navigation Unit   | Work Order:           | ORTH0035   |
| Serial Number:    | R213200116                         | Date:                 | 2024-12-16 |
| Customer:         | OrthAlign                          | Temperature:          | 20.2°C     |
| Attendees:        | Steven Devinentis, Kian Gholizadeh | Relative Humidity:    | 40.8%      |
| Customer Project: | None                               | Bar. Pressure (PMSL): | 1018 mbar  |
| Tested By:        | Nolan De Ramos                     | Job Site:             | OC13       |
| Power:            | 5VDC                               | Configuration:        | ORTH0035-2 |

### TEST SPECIFICATIONS

|                 |                  |
|-----------------|------------------|
| Specification:  | Method:          |
| FCC 15.407:2024 | ANSI C63.10:2013 |

### COMMENTS

None

### DEVIATIONS FROM TEST STANDARD

None

### CONCLUSION

N/A

Tested By

### TEST RESULTS

|                         | Pulse Width | Period     | Number of Pulses | Value (%) | Limit (%) | Results |
|-------------------------|-------------|------------|------------------|-----------|-----------|---------|
| U-NII-3 Band (20MHz BW) |             |            |                  |           |           |         |
| Ch 149 - 5745 MHz       |             |            |                  |           |           |         |
| 802.11(a) 6 Mbps        | 2.029 ms    | 2.198 ms   | 1                | 92.3      | N/A       | N/A     |
|                         | N/A         | N/A        | 5                | N/A       | N/A       | N/A     |
| 802.11(a) 36 Mbps       | 356.5 us    | 471.4 us   | 1                | 75.6      | N/A       | N/A     |
|                         | N/A         | N/A        | 5                | N/A       | N/A       | N/A     |
| 802.11(a) 54 Mbps       | 244.7 us    | 377.4 us   | 1                | 64.8      | N/A       | N/A     |
|                         | N/A         | N/A        | 5                | N/A       | N/A       | N/A     |
| 802.11(n) MCS0          | 1.341 ms    | 1.501 ms   | 1                | 89.3      | N/A       | N/A     |
|                         | N/A         | N/A        | 5                | N/A       | N/A       | N/A     |
| 802.11(n) MCS7          | 224.7 us    | 330.5 us   | 1                | 68        | N/A       | N/A     |
|                         | N/A         | N/A        | 5                | N/A       | N/A       | N/A     |
| Ch 157 - 5785 MHz       |             |            |                  |           |           |         |
| 802.11(a) 6 Mbps        | 2.028 ms    | 2.18 ms    | 1                | 93.1      | N/A       | N/A     |
|                         | N/A         | N/A        | 5                | N/A       | N/A       | N/A     |
| 802.11(a) 36 Mbps       | 256.234 us  | 344.423 us | 1                | 74.4      | N/A       | N/A     |
|                         | N/A         | N/A        | 5                | N/A       | N/A       | N/A     |
| 802.11(a) 54 Mbps       | 180.6 us    | 304.4 us   | 1                | 59.3      | N/A       | N/A     |
|                         | N/A         | N/A        | 5                | N/A       | N/A       | N/A     |
| 802.11(n) MCS0          | 1.341 ms    | 1.435 ms   | 1                | 93.4      | N/A       | N/A     |
|                         | N/A         | N/A        | 5                | N/A       | N/A       | N/A     |
| 802.11(n) MCS7          | 168.6 us    | 265.4 us   | 1                | 63.5      | N/A       | N/A     |
|                         | N/A         | N/A        | 5                | N/A       | N/A       | N/A     |

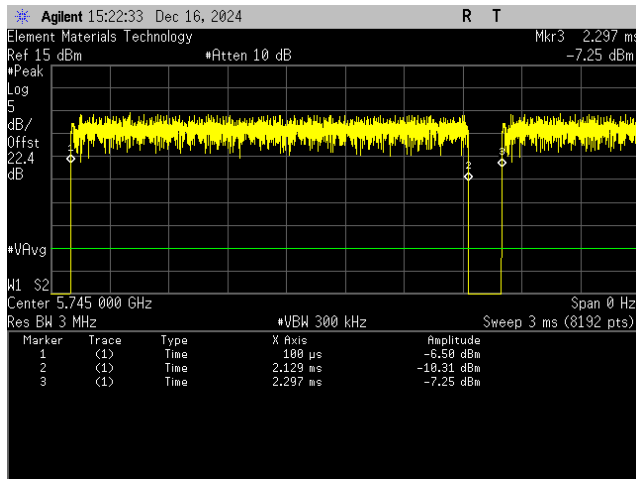
# DUTY CYCLE

## U-NII-3

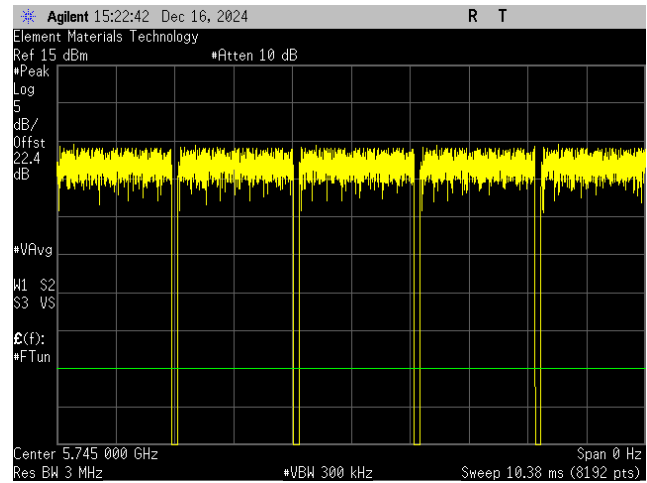
|                         | Pulse Width | Period     | Number of Pulses | Value (%) | Limit (%) | Results |
|-------------------------|-------------|------------|------------------|-----------|-----------|---------|
| Ch 165 - 5825 MHz       |             |            |                  |           |           |         |
| 802.11(a) 6 Mbps        | 2.029 ms    | 2.189 ms   | 1                | 92.7      | N/A       | N/A     |
|                         | N/A         | N/A        | 5                | N/A       | N/A       | N/A     |
| 802.11(a) 36 Mbps       | 356.7 us    | 462.3 us   | 1                | 77.2      | N/A       | N/A     |
|                         | N/A         | N/A        | 5                | N/A       | N/A       | N/A     |
| 802.11(a) 54 Mbps       | 244.434 us  | 341.344 us | 1                | 71.6      | N/A       | N/A     |
|                         | N/A         | N/A        | 5                | N/A       | N/A       | N/A     |
| 802.11(n) MCS0          | 1.34 ms     | 1.595 ms   | 1                | 84        | N/A       | N/A     |
|                         | N/A         | N/A        | 5                | N/A       | N/A       | N/A     |
| 802.11(n) MCS7          | 168.362 us  | 287.725 us | 1                | 58.5      | N/A       | N/A     |
|                         | N/A         | N/A        | 5                | N/A       | N/A       | N/A     |
| U-NII-3 Band (40MHz BW) |             |            |                  |           |           |         |
| Ch 151 - 5755 MHz       |             |            |                  |           |           |         |
| 802.11(n) MCS0          | 664.8 us    | 770.1 us   | 1                | 86.3      | N/A       | N/A     |
|                         | N/A         | N/A        | 5                | N/A       | N/A       | N/A     |
| 802.11(n) MCS7          | 100.711 us  | 188.173 us | 1                | 53.5      | N/A       | N/A     |
|                         | N/A         | N/A        | 5                | N/A       | N/A       | N/A     |
| Ch 159 - 5795 MHz       |             |            |                  |           |           |         |
| 802.11(n) MCS0          | 672.9 us    | 850.2 us   | 1                | 79.1      | N/A       | N/A     |
|                         | N/A         | N/A        | 5                | N/A       | N/A       | N/A     |
| 802.11(n) MCS7          | 104.9 us    | 192.2 us   | 1                | 54.6      | N/A       | N/A     |
|                         | N/A         | N/A        | 5                | N/A       | N/A       | N/A     |
| U-NII-3 Band (80MHz BW) |             |            |                  |           |           |         |
| Ch 155 - 5775 MHz       |             |            |                  |           |           |         |
| 802.11(ac) MCS0         | 333.2 us    | 438.1 us   | 1                | 76.1      | N/A       | N/A     |
|                         | N/A         | N/A        | 5                | N/A       | N/A       | N/A     |
| 802.11(ac) MCS9         | 64.9 us     | 197 us     | 1                | 32.9      | N/A       | N/A     |
|                         | N/A         | N/A        | 5                | N/A       | N/A       | N/A     |

# DUTY CYCLE

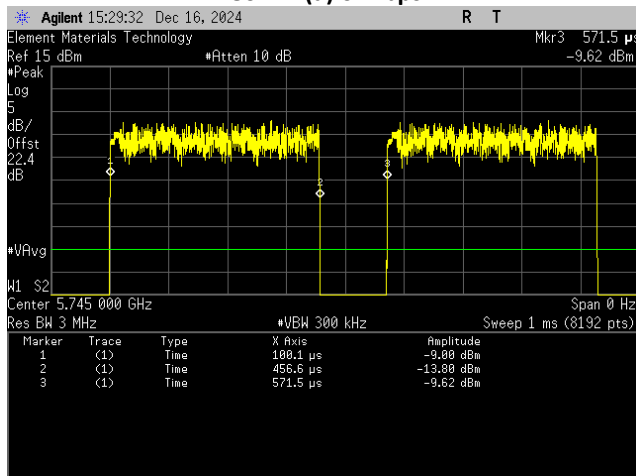
## U-NII-3



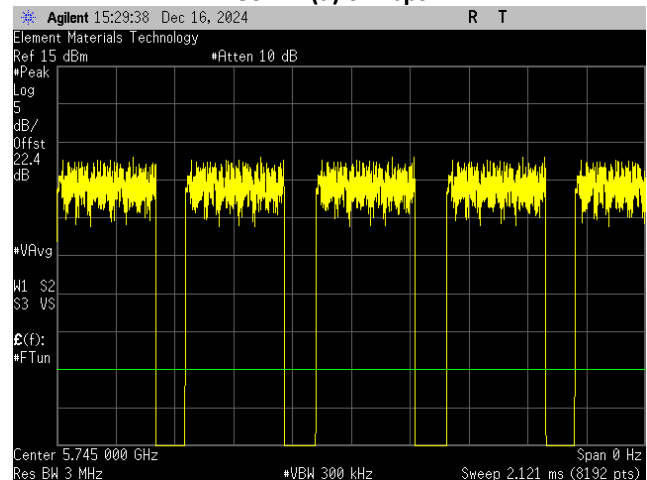
**U-NII-3 Band (20MHz BW)**  
**Ch 149 - 5745 MHz**  
**802.11(a) 6 Mbps**



**U-NII-3 Band (20MHz BW)**  
**Ch 149 - 5745 MHz**  
**802.11(a) 6 Mbps**



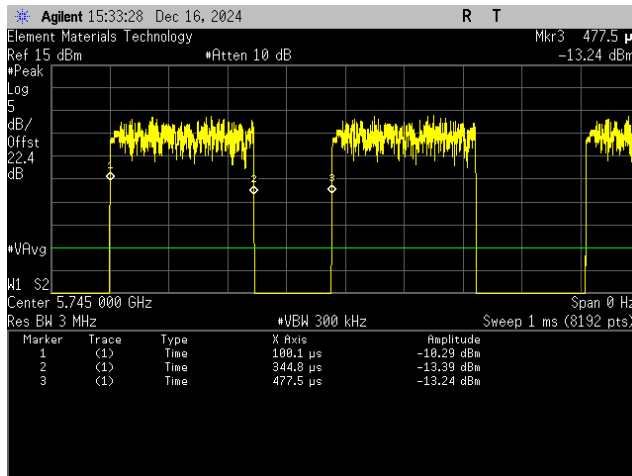
**U-NII-3 Band (20MHz BW)**  
**Ch 149 - 5745 MHz**  
**802.11(a) 36 Mbps**



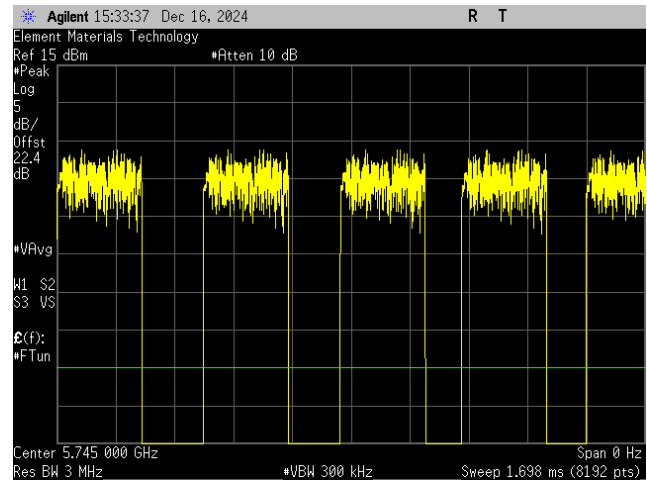
**U-NII-3 Band (20MHz BW)**  
**Ch 149 - 5745 MHz**  
**802.11(a) 36 Mbps**

# DUTY CYCLE

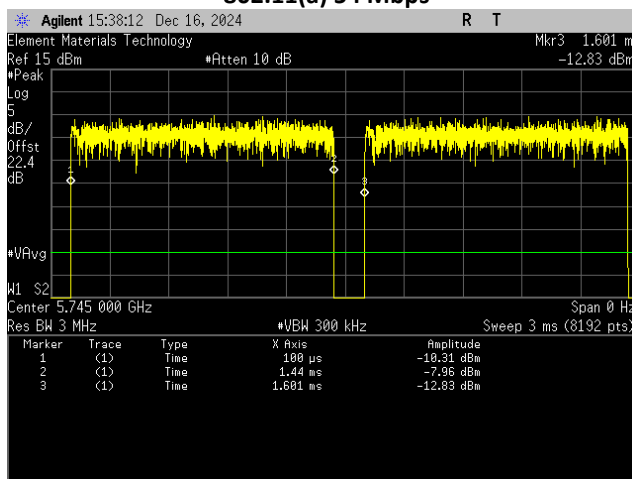
## U-NII-3



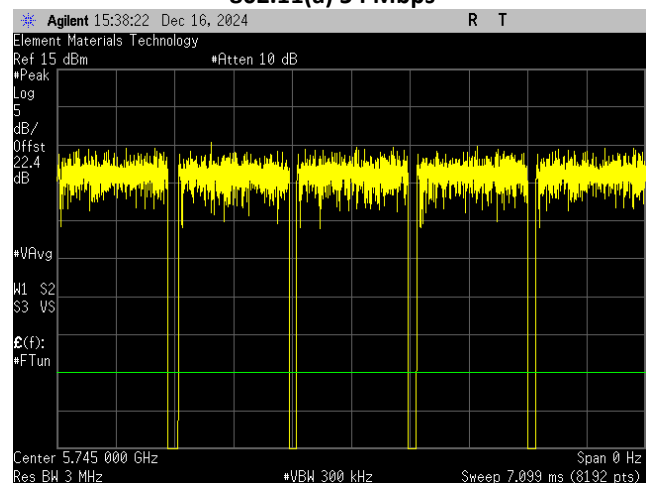
**U-NII-3 Band (20MHz BW)**  
**Ch 149 - 5745 MHz**  
**802.11(a) 54 Mbps**



**U-NII-3 Band (20MHz BW)**  
**Ch 149 - 5745 MHz**  
**802.11(a) 54 Mbps**



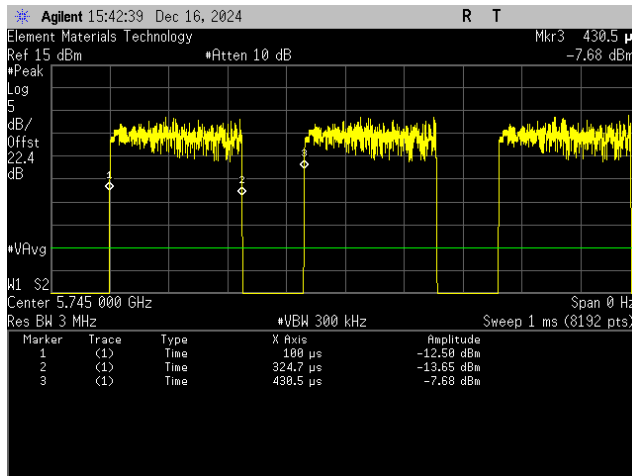
**U-NII-3 Band (20MHz BW)**  
**Ch 149 - 5745 MHz**  
**802.11(n) MCS0**



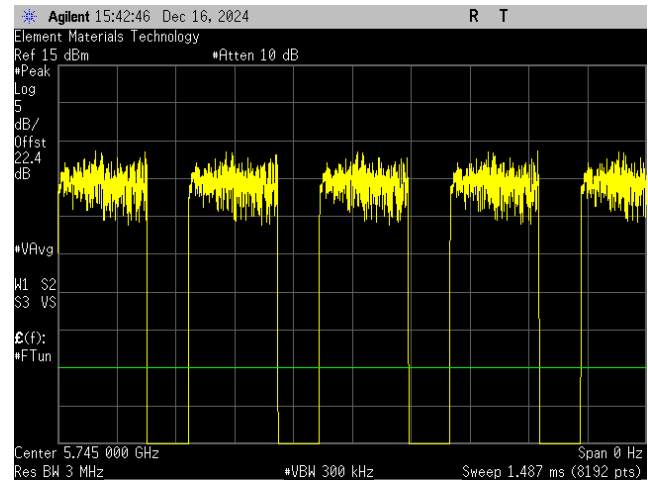
**U-NII-3 Band (20MHz BW)**  
**Ch 149 - 5745 MHz**  
**802.11(n) MCS0**

# DUTY CYCLE

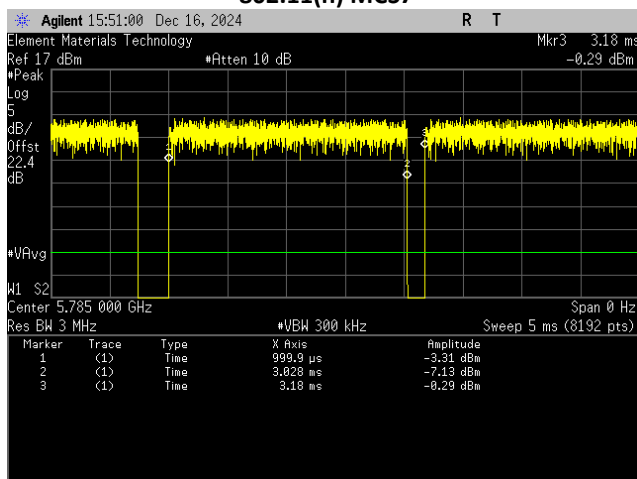
## U-NII-3



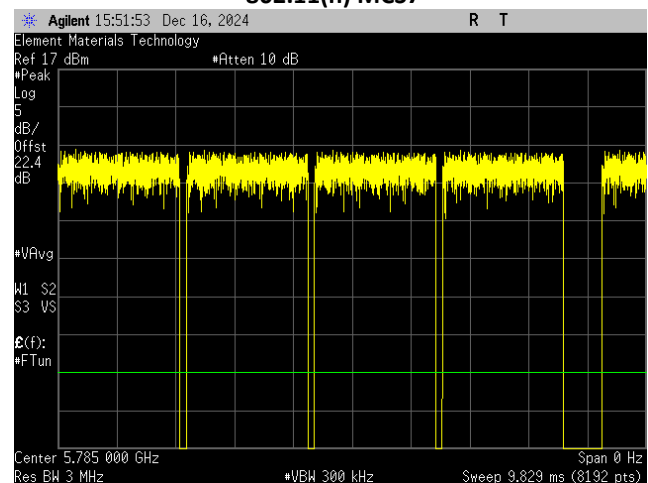
**U-NII-3 Band (20MHz BW)**  
**Ch 149 - 5745 MHz**  
**802.11(n) MCS7**



**U-NII-3 Band (20MHz BW)**  
**Ch 149 - 5745 MHz**  
**802.11(n) MCS7**



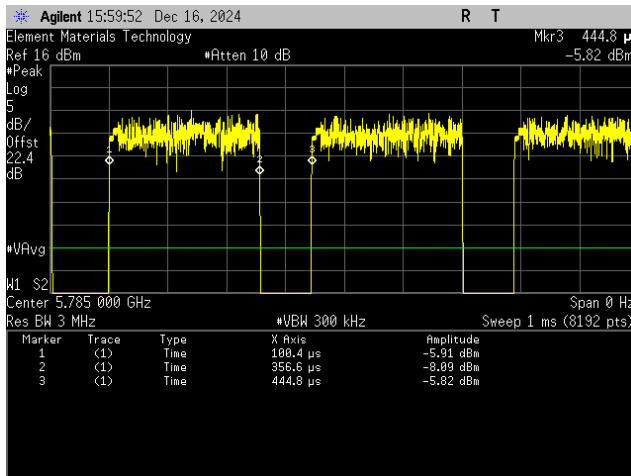
**U-NII-3 Band (20MHz BW)**  
**Ch 157 - 5785 MHz**  
**802.11(a) 6 Mbps**



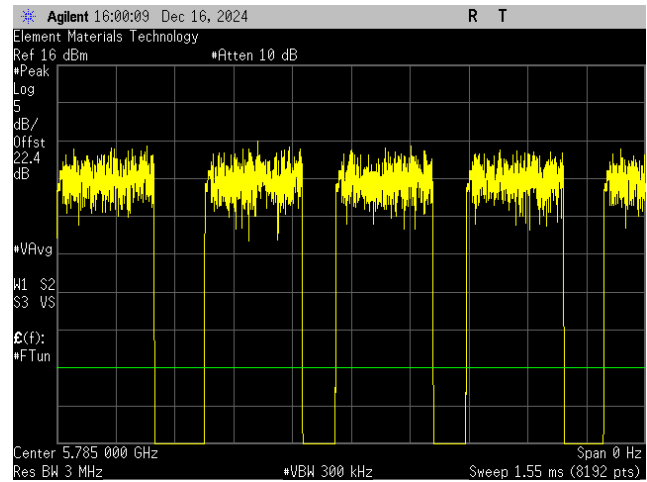
**U-NII-3 Band (20MHz BW)**  
**Ch 157 - 5785 MHz**  
**802.11(a) 6 Mbps**

# DUTY CYCLE

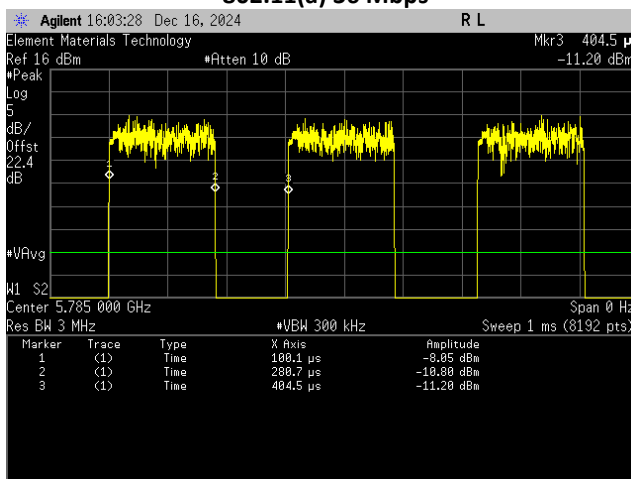
## U-NII-3



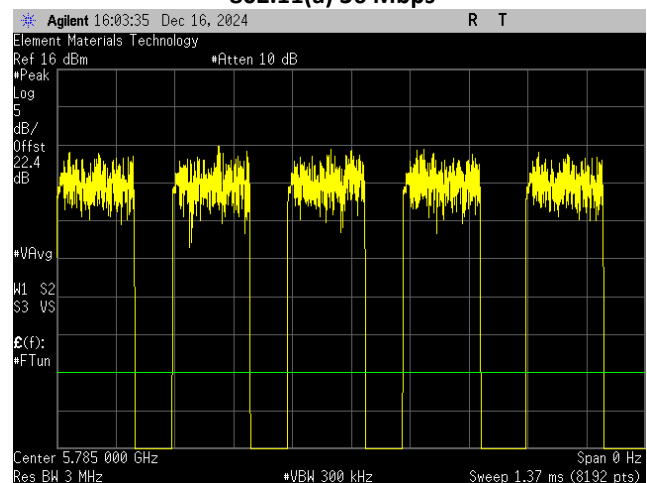
U-NII-3 Band (20MHz BW)  
Ch 157 - 5785 MHz  
802.11(a) 36 Mbps



U-NII-3 Band (20MHz BW)  
Ch 157 - 5785 MHz  
802.11(a) 36 Mbps



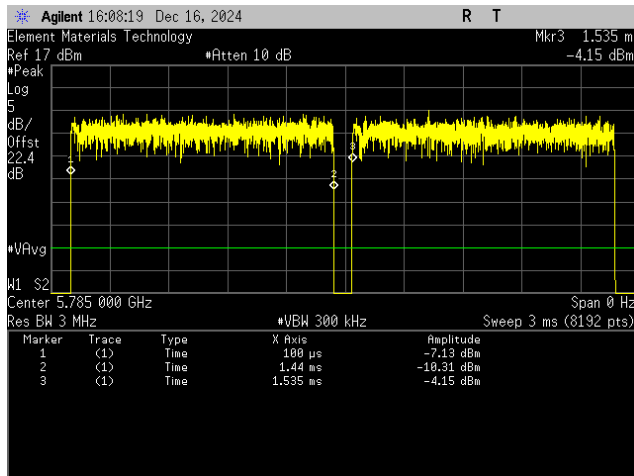
U-NII-3 Band (20MHz BW)  
Ch 157 - 5785 MHz  
802.11(a) 54 Mbps



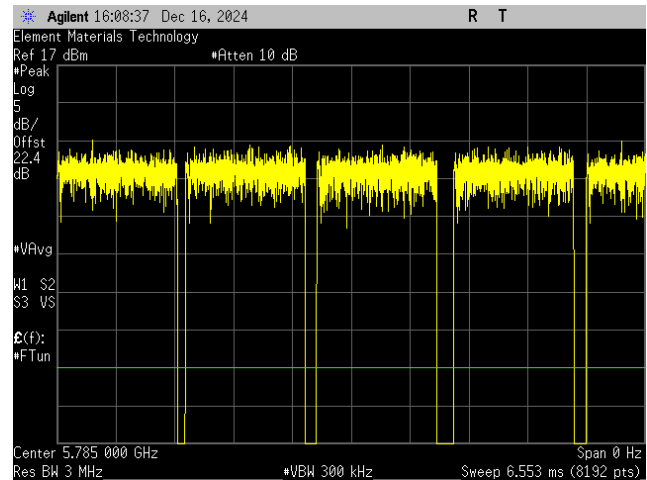
U-NII-3 Band (20MHz BW)  
Ch 157 - 5785 MHz  
802.11(a) 54 Mbps

# DUTY CYCLE

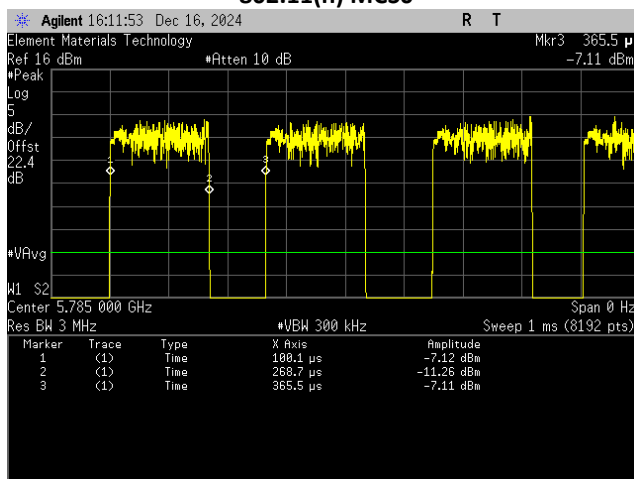
## U-NII-3



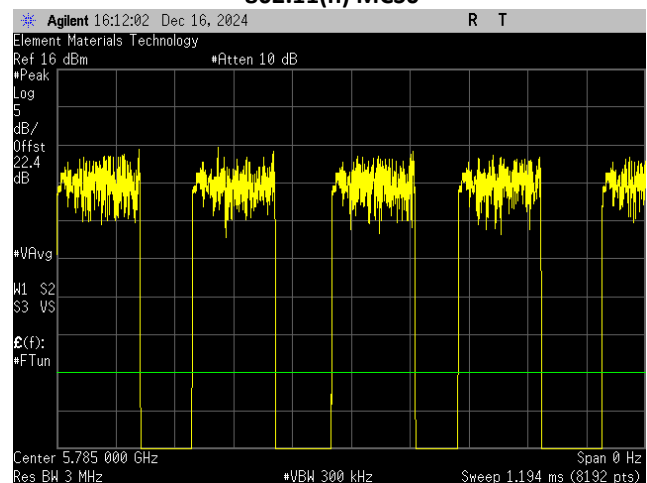
**U-NII-3 Band (20MHz BW)**  
**Ch 157 - 5785 MHz**  
**802.11(n) MCS0**



**U-NII-3 Band (20MHz BW)**  
**Ch 157 - 5785 MHz**  
**802.11(n) MCS0**



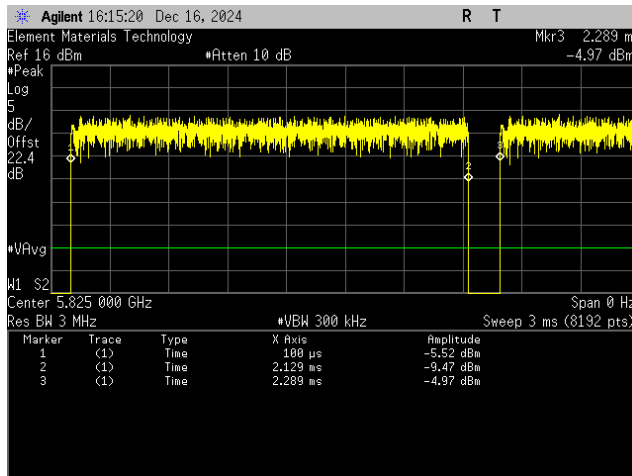
**U-NII-3 Band (20MHz BW)**  
**Ch 157 - 5785 MHz**  
**802.11(n) MCS7**



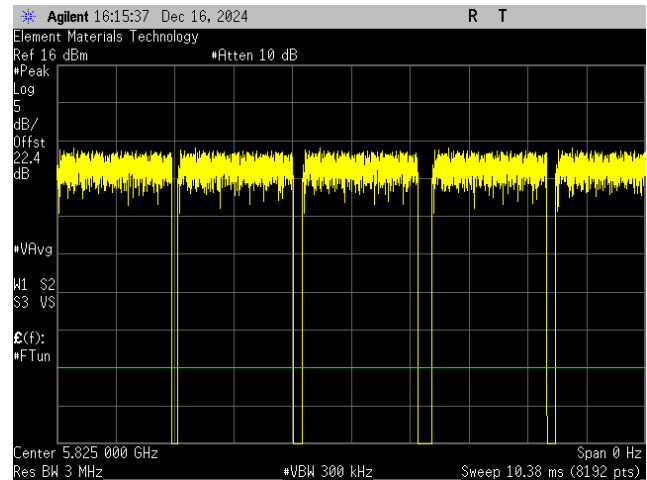
**U-NII-3 Band (20MHz BW)**  
**Ch 157 - 5785 MHz**  
**802.11(n) MCS7**

# DUTY CYCLE

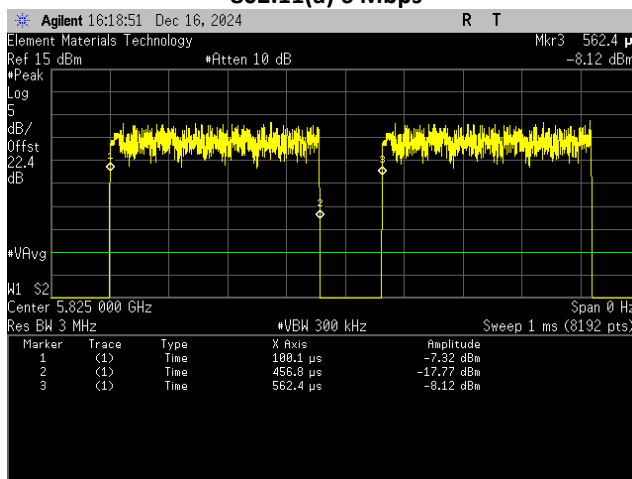
## U-NII-3



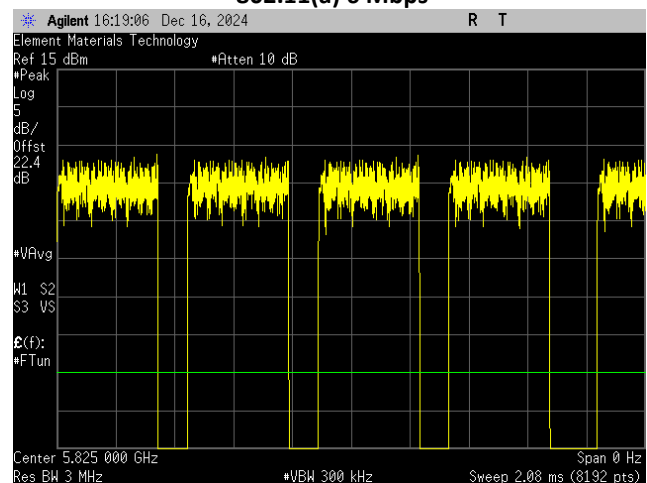
**U-NII-3 Band (20MHz BW)**  
**Ch 165 - 5825 MHz**  
**802.11(a) 6 Mbps**



**U-NII-3 Band (20MHz BW)**  
**Ch 165 - 5825 MHz**  
**802.11(a) 6 Mbps**



**U-NII-3 Band (20MHz BW)**  
**Ch 165 - 5825 MHz**  
**802.11(a) 36 Mbps**

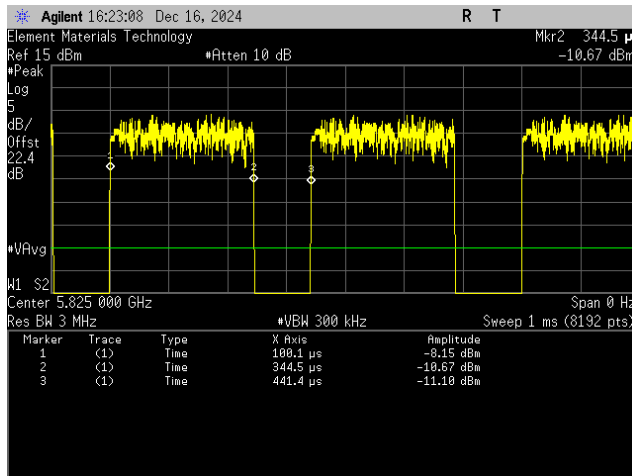


**U-NII-3 Band (20MHz BW)**  
**Ch 165 - 5825 MHz**  
**802.11(a) 36 Mbps**

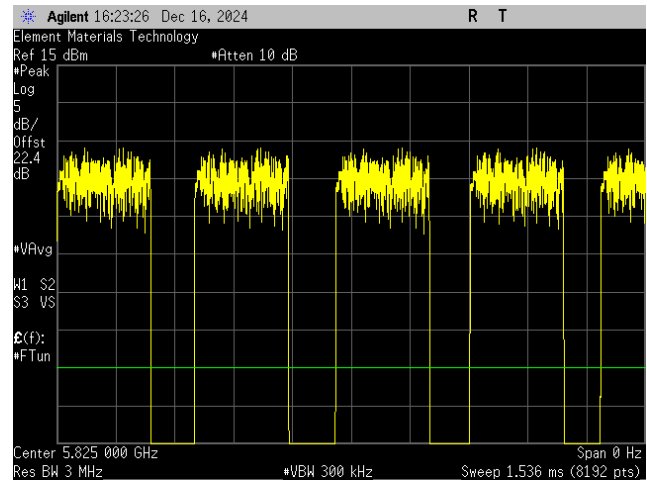


# DUTY CYCLE

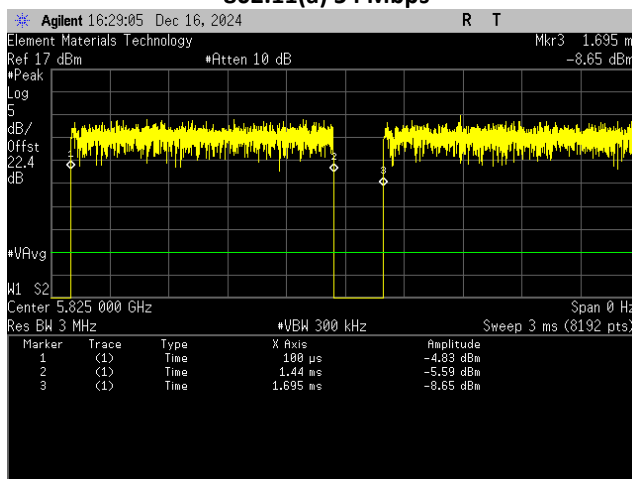
## U-NII-3



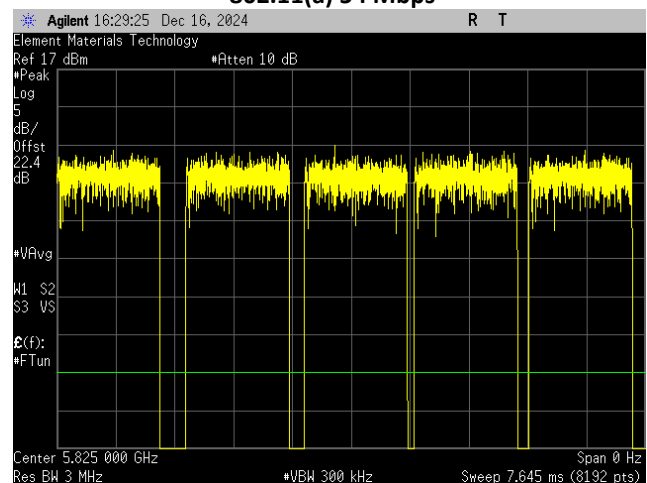
**U-NII-3 Band (20MHz BW)**  
**Ch 165 - 5825 MHz**  
**802.11(a) 54 Mbps**



**U-NII-3 Band (20MHz BW)**  
**Ch 165 - 5825 MHz**  
**802.11(a) 54 Mbps**



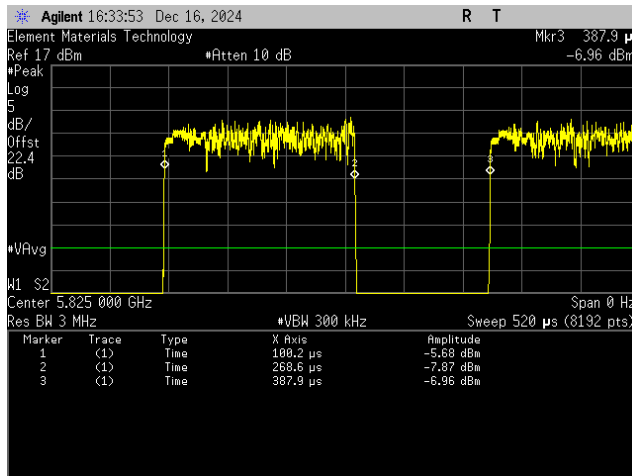
**U-NII-3 Band (20MHz BW)**  
**Ch 165 - 5825 MHz**  
**802.11(n) MCS0**



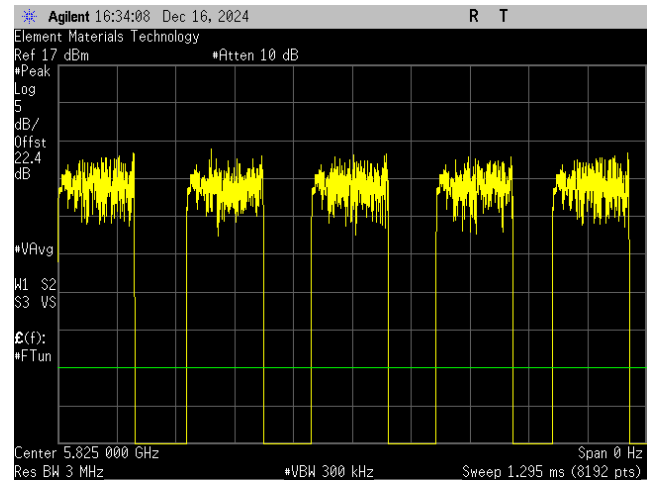
**U-NII-3 Band (20MHz BW)**  
**Ch 165 - 5825 MHz**  
**802.11(n) MCS0**

# DUTY CYCLE

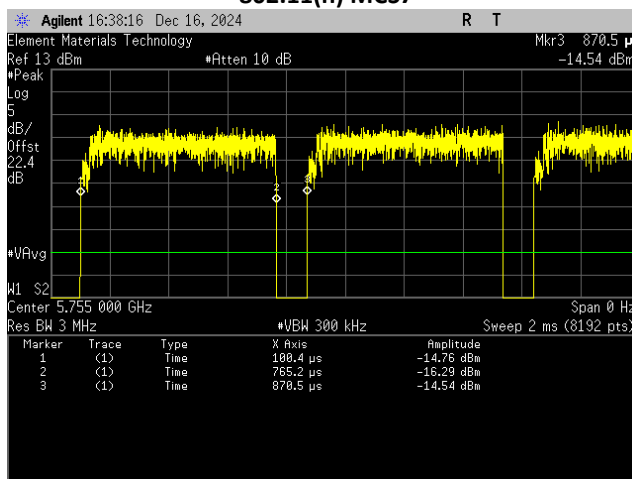
## U-NII-3



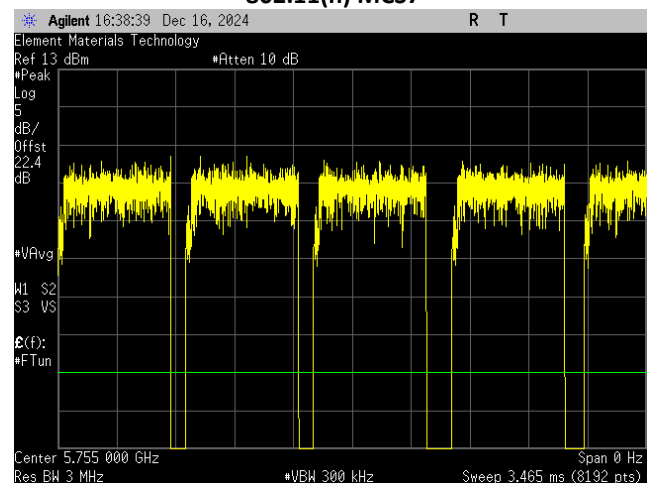
**U-NII-3 Band (20MHz BW)**  
**Ch 165 - 5825 MHz**  
**802.11(n) MCS7**



**U-NII-3 Band (20MHz BW)**  
**Ch 165 - 5825 MHz**  
**802.11(n) MCS7**



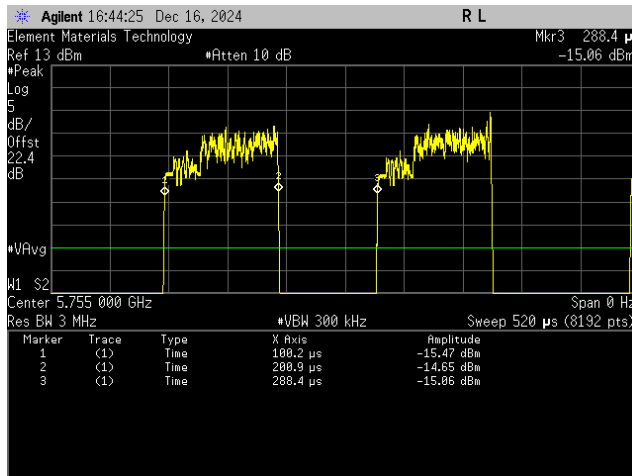
**U-NII-3 Band (40MHz BW)**  
**Ch 151 - 5755 MHz**  
**802.11(n) MCS0**



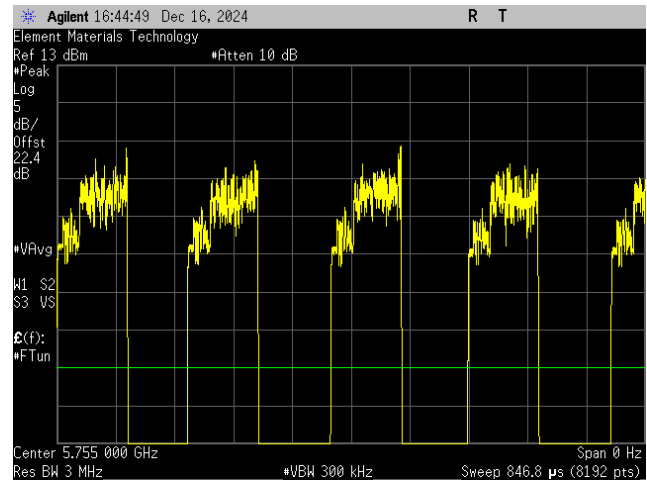
**U-NII-3 Band (40MHz BW)**  
**Ch 151 - 5755 MHz**  
**802.11(n) MCS0**

# DUTY CYCLE

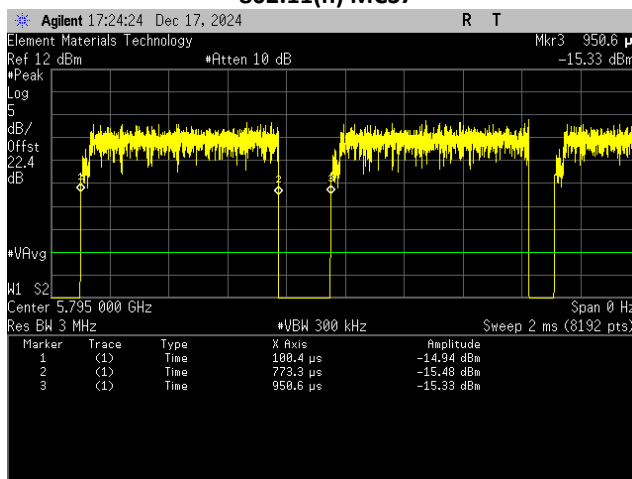
## U-NII-3



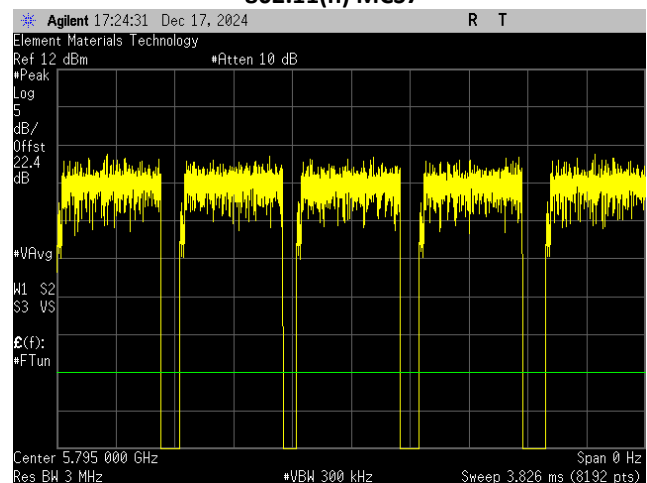
**U-NII-3 Band (40MHz BW)**  
**Ch 151 - 5755 MHz**  
**802.11(n) MCS7**



**U-NII-3 Band (40MHz BW)**  
**Ch 151 - 5755 MHz**  
**802.11(n) MCS7**



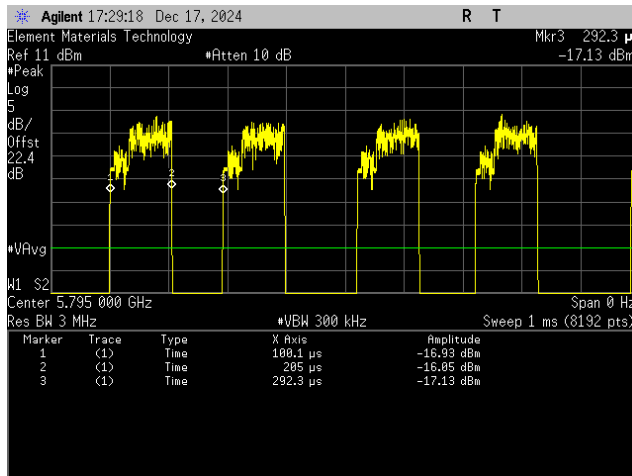
**U-NII-3 Band (40MHz BW)**  
**Ch 159 - 5795 MHz**  
**802.11(n) MCS0**



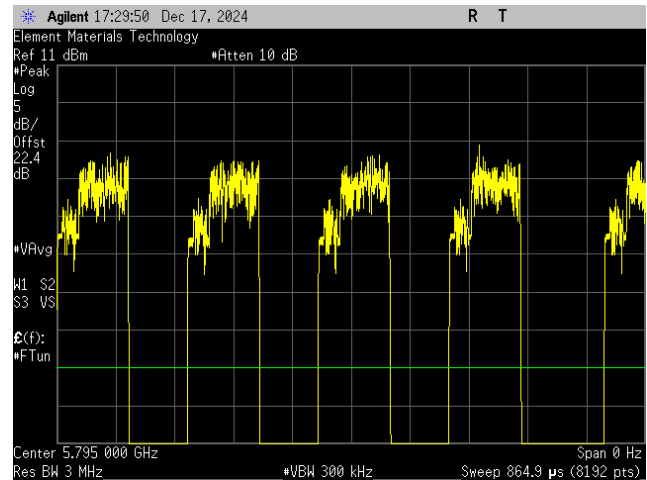
**U-NII-3 Band (40MHz BW)**  
**Ch 159 - 5795 MHz**  
**802.11(n) MCS0**

# DUTY CYCLE

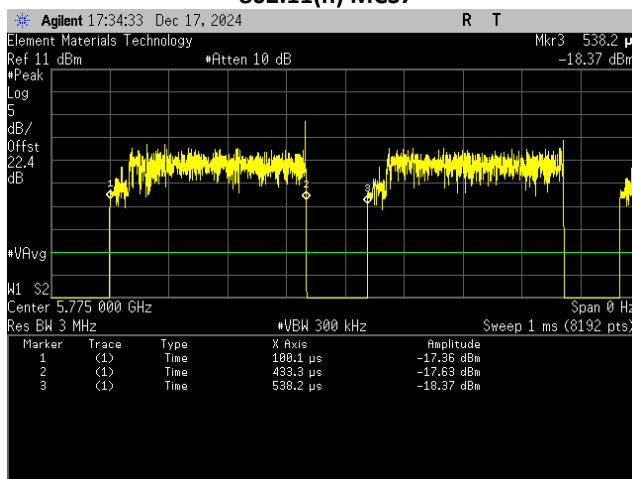
## U-NII-3



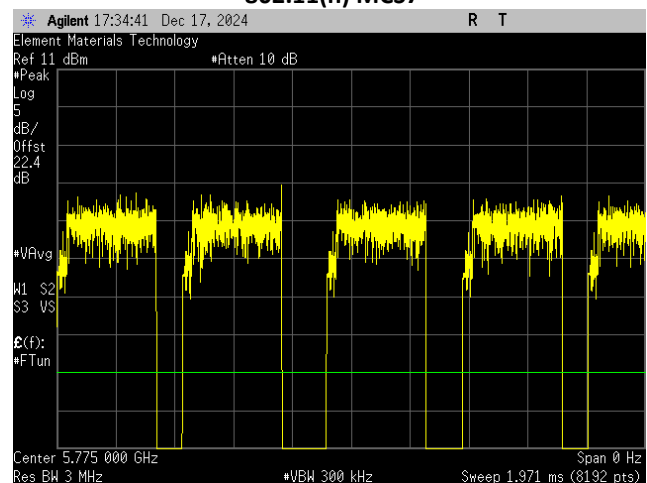
**U-NII-3 Band (40MHz BW)**  
**Ch 159 - 5795 MHz**  
**802.11(n) MCS7**



**U-NII-3 Band (40MHz BW)**  
**Ch 159 - 5795 MHz**  
**802.11(n) MCS7**



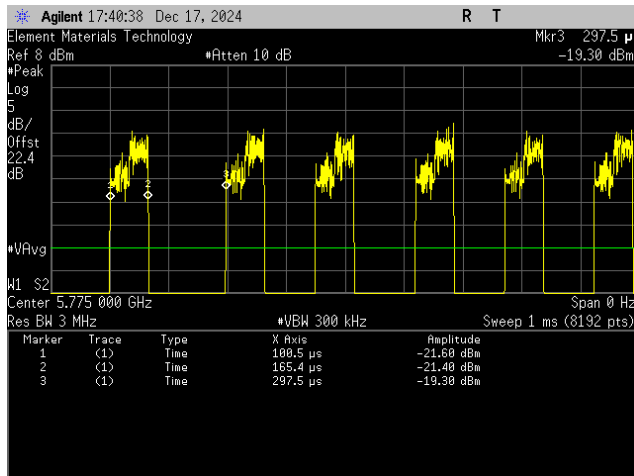
**U-NII-3 Band (80MHz BW)**  
**Ch 155 - 5775 MHz**  
**802.11(ac) MCS0**



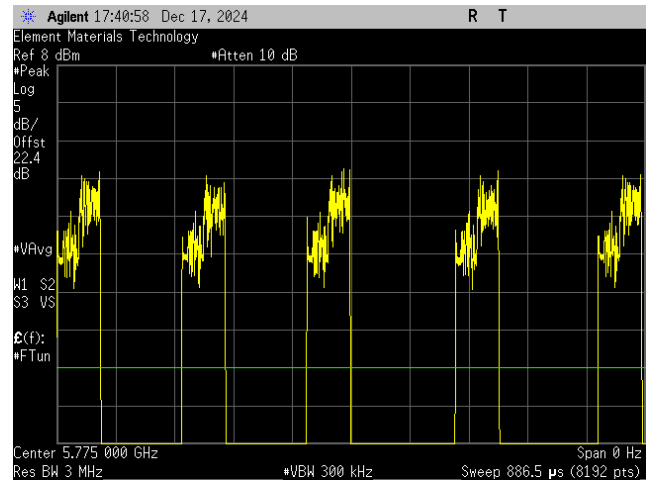
**U-NII-3 Band (80MHz BW)**  
**Ch 155 - 5775 MHz**  
**802.11(ac) MCS0**

# DUTY CYCLE

## U-NII-3



**U-NII-3 Band (80MHz BW)**  
**Ch 155 - 5775 MHz**  
**802.11(ac) MCS9**



**U-NII-3 Band (80MHz BW)**  
**Ch 155 - 5775 MHz**  
**802.11(ac) MCS9**

# MAXIMUM CONDUCTED OUTPUT POWER

## U-NII-1



### TEST DESCRIPTION

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.

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 transmit power; the 99% occupied bandwidth (OBW) and the duty cycle (D) were measured. The method of measuring the emission bandwidth and the associated data are found elsewhere in this test report.

The maximum conducted output power was measured using ANSI C63.10:2013, Clause 12.3.2.4, 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).

The spectrum analyzer settings were set per the guidance as well as the following specifics:

- RMS Detector
- Trace average 100 traces in power averaging mode.
- Power was integrated across "OBW", by using the channel power function of the analyzer.

Equivalent Isotropic Radiated Power (EIRP) = Max Measured Power + Antenna gain (dBi).

The worst case (most stringent) limits are shown on the following datasheet based on the limits below where B is the bandwidth in terms of 99% for ISED and 26dB for the FCC.

- In the 5.15 – 5.25GHz band, the maximum e.i.r.p. shall not exceed the lesser of
  - o 250 mW (24.0 dBm) + 6 dBi = 30 dBm EIRP for the FCC
  - o 200 mW EIRP or  $10 + 10 \log_{10} B$  dBm EIRP for ISED
- In the 5.25 – 5.35GHz band, the maximum permissible e.i.r.p. shall not exceed the lesser of 1.0 W or  $17 + 10 \log_{10} B$  dBm EIRP.
- In the 5.47 – 5.725GHz band, the maximum permissible e.i.r.p. shall not exceed the lesser of 1.0 W or  $17 + 10 \log_{10} B$ , dBm EIRP.
- In the 5.725 – 5.850GHz band, the maximum permissible e.i.r.p. is 36 dBm EIRP.

### TEST EQUIPMENT

| Description                  | Manufacturer       | Model                 | ID  | Last Cal.  | Cal. Due   |
|------------------------------|--------------------|-----------------------|-----|------------|------------|
| Analyzer - Spectrum Analyzer | Agilent            | E4443A                | AAR | 2024-11-07 | 2025-11-07 |
| Block - DC                   | Fairview Microwave | SD3379                | ANG | 2024-10-03 | 2025-10-03 |
| Attenuator                   | Fairview Microwave | SA18H-20              | UAX | 2024-07-11 | 2025-07-11 |
| Cable                        | Micro-Coax         | UFD150A-1-0720-200200 | OCA | 2024-10-02 | 2025-10-02 |
| Generator - Signal           | Agilent            | E8257D                | TGU | 2023-11-08 | 2026-11-08 |
| Meter - Multimeter           | Fluke              | 107                   | MBF | 2024-04-12 | 2025-04-12 |

# MAXIMUM CONDUCTED OUTPUT POWER

## U-NII-1



|                   |                                    |                       |            |
|-------------------|------------------------------------|-----------------------|------------|
| EUT:              | Lantern Reusable Navigation Unit   | Work Order:           | ORTH0035   |
| Serial Number:    | R213200116                         | Date:                 | 2024-12-16 |
| Customer:         | OrthAlign                          | Temperature:          | 20.2°C     |
| Attendees:        | Steven Devinentis, Kian Gholizadeh | Relative Humidity:    | 40.8%      |
| Customer Project: | None                               | Bar. Pressure (PMSL): | 1018 mbar  |
| Tested By:        | Nolan De Ramos                     | Job Site:             | OC13       |
| Power:            | 5VDC                               | Configuration:        | ORTH0035-2 |

### TEST SPECIFICATIONS

|                 |                  |
|-----------------|------------------|
| Specification:  | Method:          |
| FCC 15.407:2024 | ANSI C63.10:2013 |

### COMMENTS

None

### DEVIATIONS FROM TEST STANDARD

None

### CONCLUSION

Pass

Tested By

# MAXIMUM CONDUCTED OUTPUT POWER

## U-NII-1

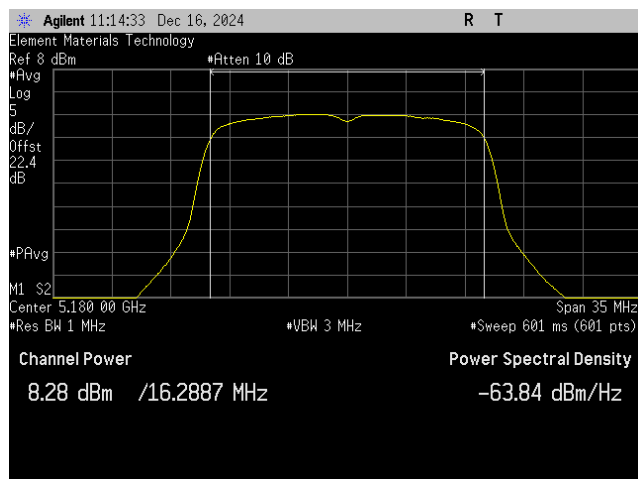
### TEST RESULTS

|                         |                   | Avg Cond Pwr<br>(dBm) | Duty Cycle<br>Factor (dB) | Out Pwr<br>(dBm) | Limit<br>(dBm) | Result |
|-------------------------|-------------------|-----------------------|---------------------------|------------------|----------------|--------|
| U-NII-1 Band (20MHz BW) |                   |                       |                           |                  |                |        |
| Ch 36 - 5180 MHz        |                   |                       |                           |                  |                |        |
|                         | 802.11(a) 6 Mbps  | 8.276                 | 0.2                       | 8.5              | 24             | Pass   |
|                         | 802.11(a) 36 Mbps | 7.522                 | 1.3                       | 8.8              | 24             | Pass   |
|                         | 802.11(a) 54 Mbps | 7.091                 | 2                         | 9.1              | 24             | Pass   |
|                         | 802.11(n) MCS0    | 7.207                 | 0.4                       | 7.6              | 24             | Pass   |
|                         | 802.11(n) MCS7    | 7.237                 | 1.9                       | 9.1              | 24             | Pass   |
| Ch 44 - 5220 MHz        |                   |                       |                           |                  |                |        |
|                         | 802.11(a) 6 Mbps  | 10.542                | 0.3                       | 10.8             | 24             | Pass   |
|                         | 802.11(a) 36 Mbps | 9.399                 | 1.3                       | 10.7             | 24             | Pass   |
|                         | 802.11(a) 54 Mbps | 9.038                 | 1.7                       | 10.7             | 24             | Pass   |
|                         | 802.11(n) MCS0    | 10.479                | 0.4                       | 10.9             | 24             | Pass   |
|                         | 802.11(n) MCS7    | 8.932                 | 1.8                       | 10.7             | 24             | Pass   |
| Ch 48 - 5240 MHz        |                   |                       |                           |                  |                |        |
|                         | 802.11(a) 6 Mbps  | 11.119                | 0.3                       | 11.4             | 24             | Pass   |
|                         | 802.11(a) 36 Mbps | 10.689                | 1.5                       | 12.2             | 24             | Pass   |
|                         | 802.11(a) 54 Mbps | 10.187                | 1.9                       | 12.1             | 24             | Pass   |
|                         | 802.11(n) MCS0    | 10.953                | 0.3                       | 11.3             | 24             | Pass   |
|                         | 802.11(n) MCS7    | 10.047                | 2.8                       | 12.8             | 24             | Pass   |
| U-NII-1 Band (40MHz BW) |                   |                       |                           |                  |                |        |
| Ch 38 - 5190 MHz        |                   |                       |                           |                  |                |        |
|                         | 802.11(n) MCS0    | 8.275                 | 0.5                       | 8.8              | 24             | Pass   |
|                         | 802.11(n) MCS7    | 6.43                  | 2.4                       | 8.8              | 24             | Pass   |
| Ch 46 - 5230 MHz        |                   |                       |                           |                  |                |        |
|                         | 802.11(n) MCS0    | 14.801                | 0.5                       | 15.3             | 24             | Pass   |
|                         | 802.11(n) MCS7    | 12.419                | 2.6                       | 15               | 24             | Pass   |
| U-NII-1 Band (80MHz BW) |                   |                       |                           |                  |                |        |
| Ch 42 - 5210 MHz        |                   |                       |                           |                  |                |        |
|                         | 802.11(ac) MCS0   | 4.681                 | 1.2                       | 5.9              | 24             | Pass   |
|                         | 802.11(ac) MCS9   | 1.897                 | 5.2                       | 7.1              | 24             | Pass   |

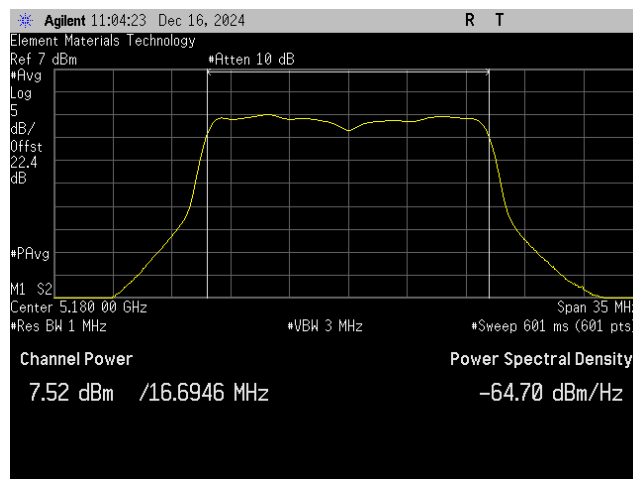


# MAXIMUM CONDUCTED OUTPUT POWER

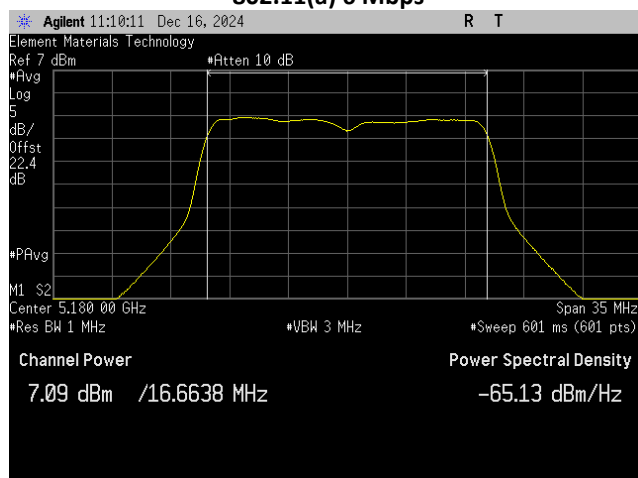
## U-NII-1



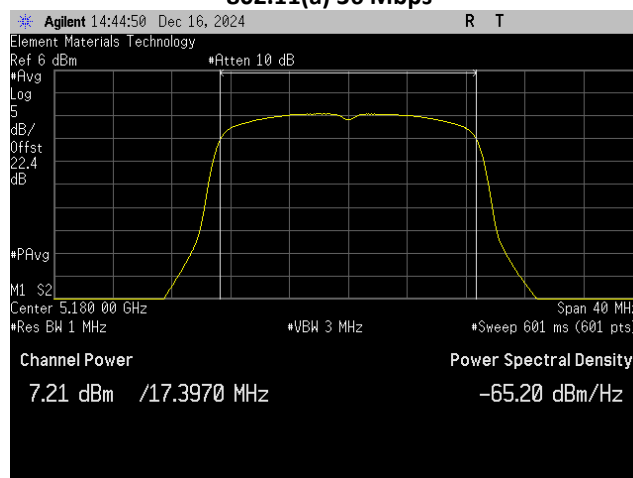
U-NII-1 Band (20MHz BW)  
Ch 36 - 5180 MHz  
802.11(a) 6 Mbps



U-NII-1 Band (20MHz BW)  
Ch 36 - 5180 MHz  
802.11(a) 36 Mbps



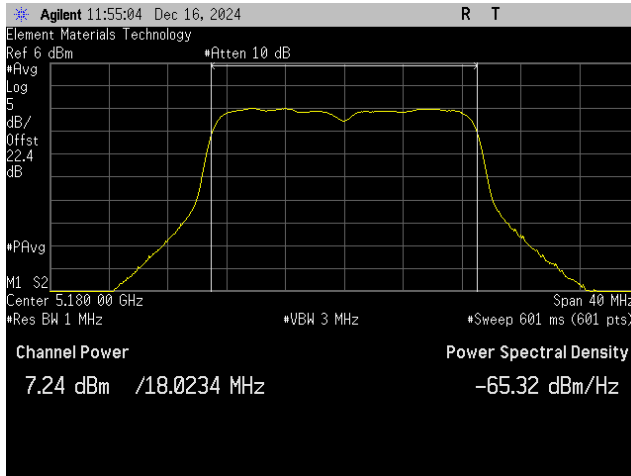
U-NII-1 Band (20MHz BW)  
Ch 36 - 5180 MHz  
802.11(a) 54 Mbps



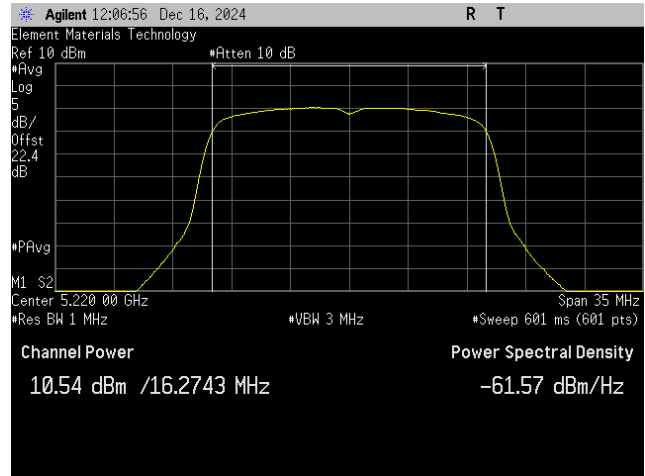
U-NII-1 Band (20MHz BW)  
Ch 36 - 5180 MHz  
802.11(n) MCS0

# MAXIMUM CONDUCTED OUTPUT POWER

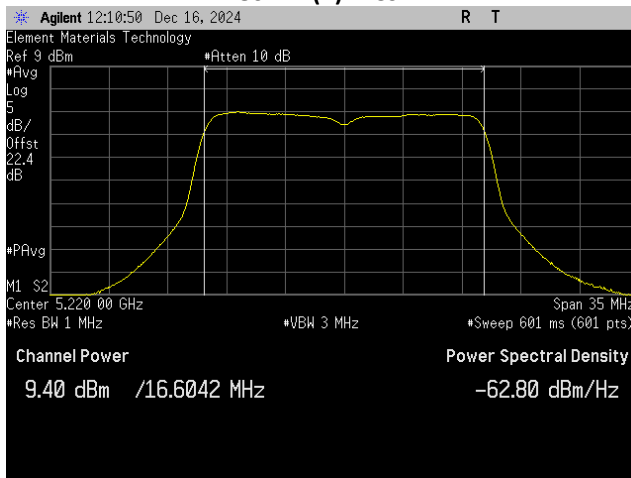
## U-NII-1



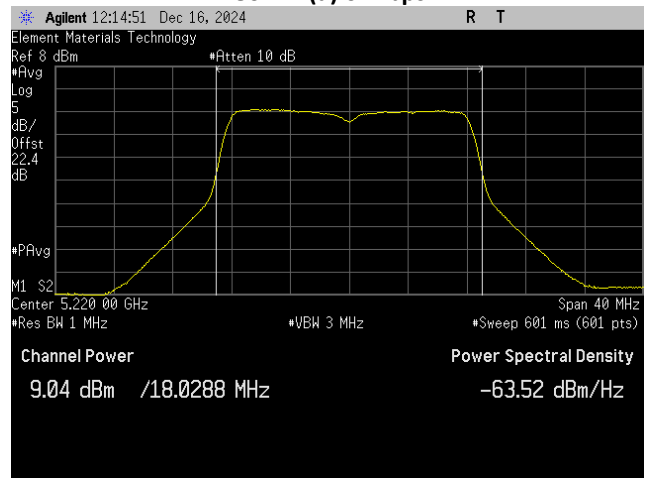
U-NII-1 Band (20MHz BW)  
Ch 36 - 5180 MHz  
802.11(n) MCS7



U-NII-1 Band (20MHz BW)  
Ch 44 - 5220 MHz  
802.11(a) 6 Mbps



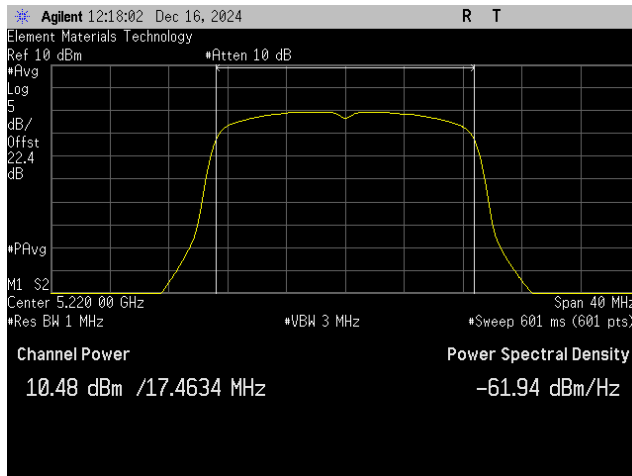
U-NII-1 Band (20MHz BW)  
Ch 44 - 5220 MHz  
802.11(a) 36 Mbps



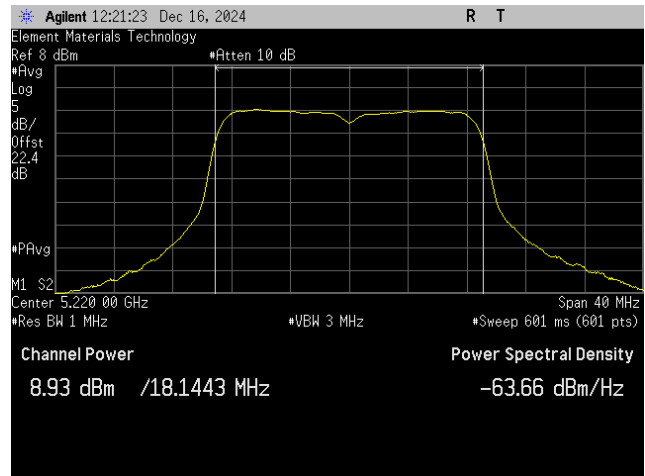
U-NII-1 Band (20MHz BW)  
Ch 44 - 5220 MHz  
802.11(a) 54 Mbps

# MAXIMUM CONDUCTED OUTPUT POWER

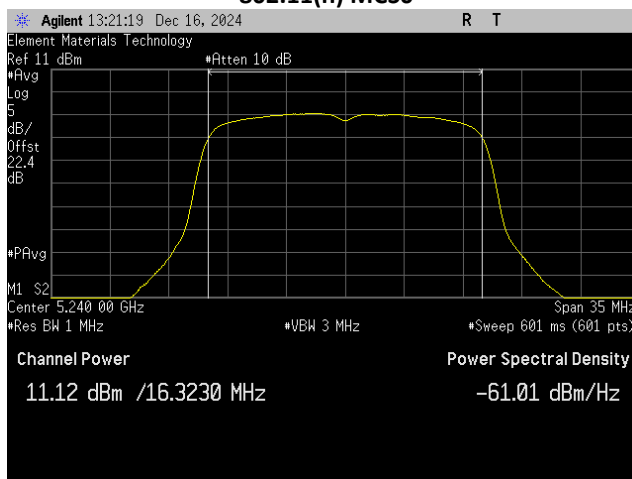
## U-NII-1



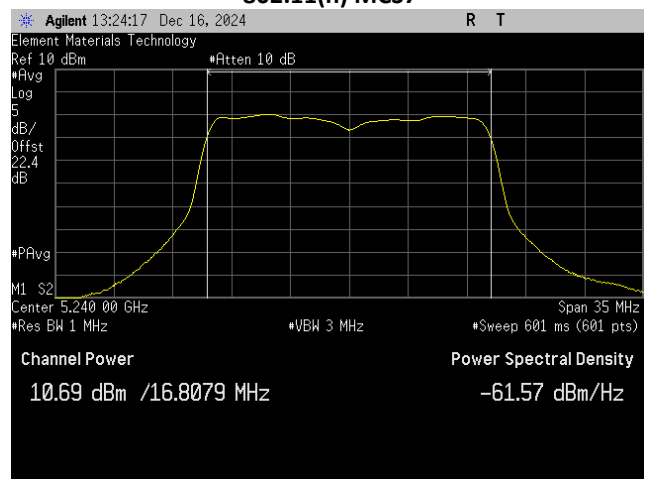
U-NII-1 Band (20MHz BW)  
Ch 44 - 5220 MHz  
802.11(n) MCS0



U-NII-1 Band (20MHz BW)  
Ch 44 - 5220 MHz  
802.11(n) MCS7



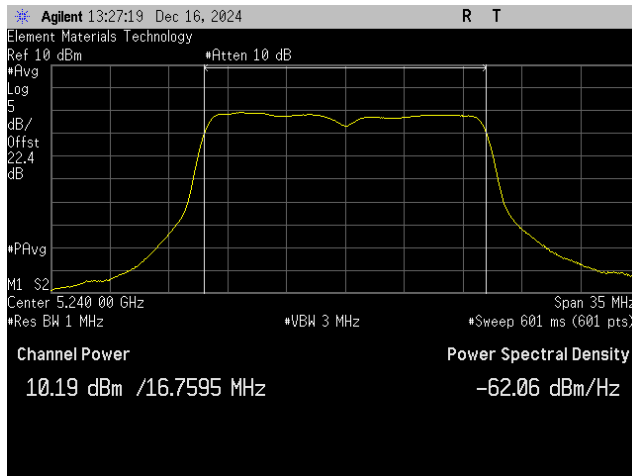
U-NII-1 Band (20MHz BW)  
Ch 48 - 5240 MHz  
802.11(a) 6 Mbps



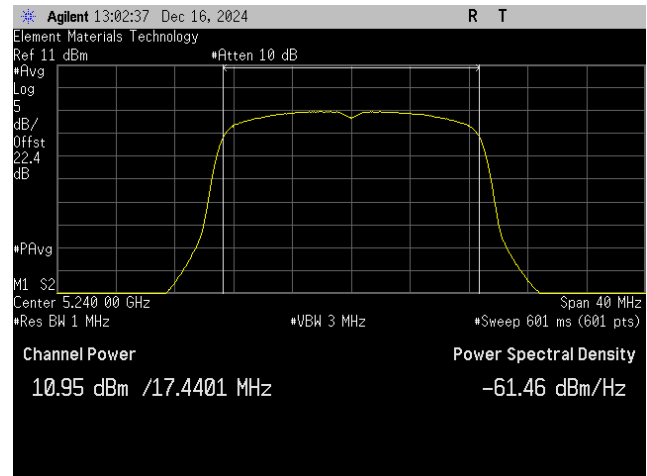
U-NII-1 Band (20MHz BW)  
Ch 48 - 5240 MHz  
802.11(a) 36 Mbps

# MAXIMUM CONDUCTED OUTPUT POWER

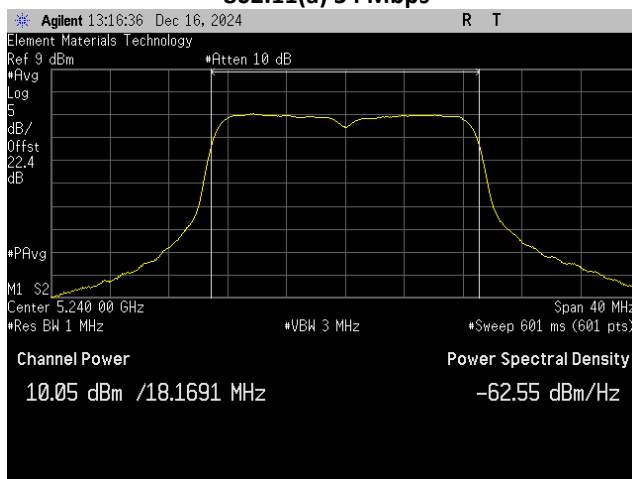
## U-NII-1



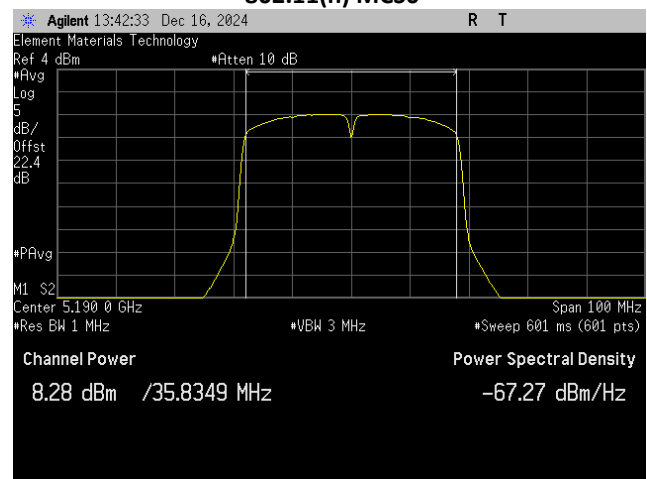
**U-NII-1 Band (20MHz BW)**  
**Ch 48 - 5240 MHz**  
**802.11(a) 54 Mbps**



**U-NII-1 Band (20MHz BW)**  
**Ch 48 - 5240 MHz**  
**802.11(n) MCS0**



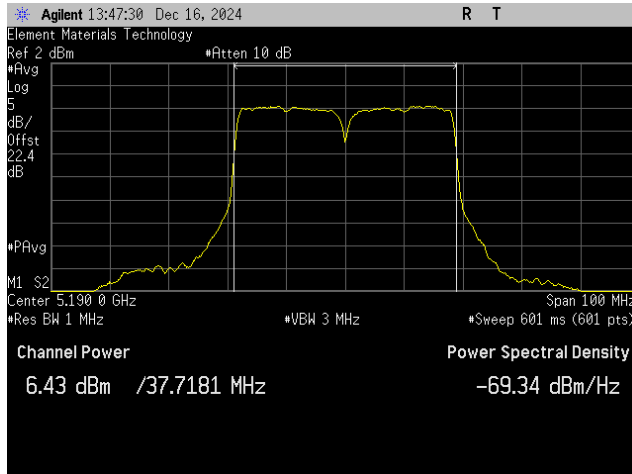
**U-NII-1 Band (20MHz BW)**  
**Ch 48 - 5240 MHz**  
**802.11(n) MCS7**



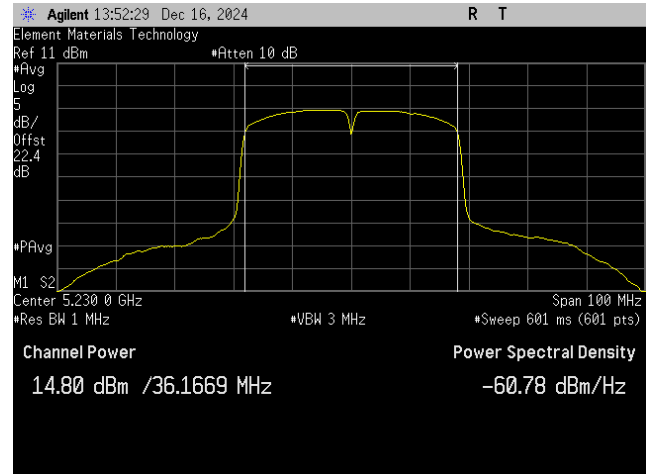
**U-NII-1 Band (40MHz BW)**  
**Ch 38 - 5190 MHz**  
**802.11(n) MCS0**

# MAXIMUM CONDUCTED OUTPUT POWER

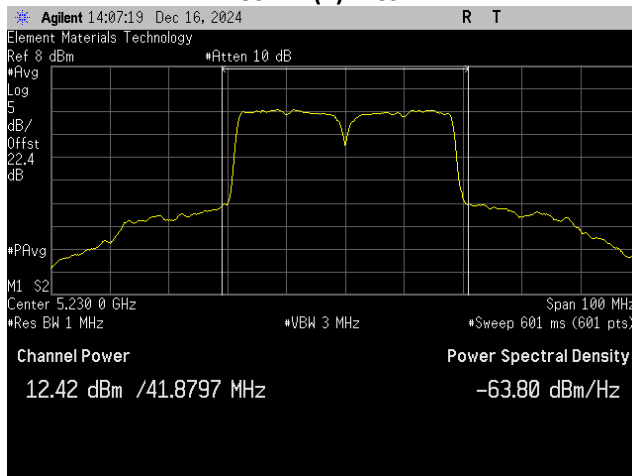
## U-NII-1



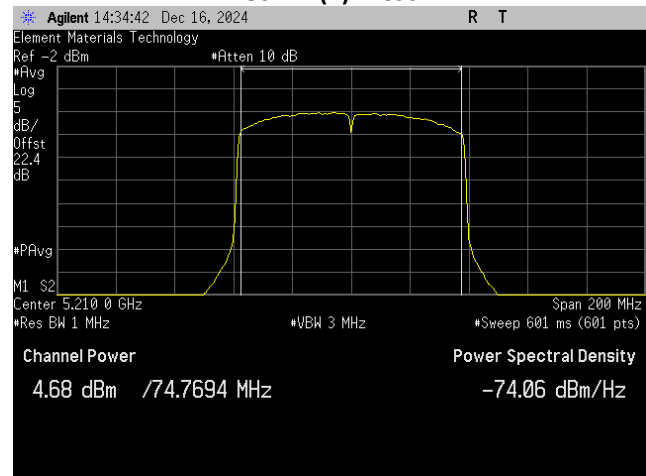
**U-NII-1 Band (40MHz BW)**  
**Ch 38 - 5190 MHz**  
**802.11(n) MCS7**



**U-NII-1 Band (40MHz BW)**  
**Ch 46 - 5230 MHz**  
**802.11(n) MCS0**



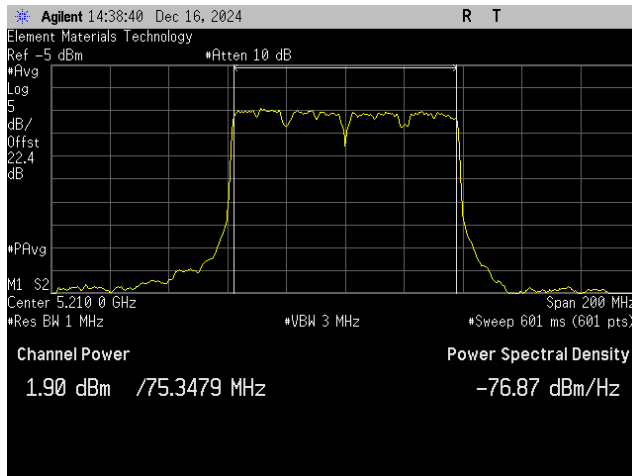
**U-NII-1 Band (40MHz BW)**  
**Ch 46 - 5230 MHz**  
**802.11(n) MCS7**



**U-NII-1 Band (80MHz BW)**  
**Ch 42 - 5210 MHz**  
**802.11(ac) MCS0**

# MAXIMUM CONDUCTED OUTPUT POWER

## U-NII-1



U-NII-1 Band (80MHz BW)  
Ch 42 - 5210 MHz  
802.11(ac) MCS9

# MAXIMUM CONDUCTED OUTPUT POWER

## U-NII-3



### TEST DESCRIPTION

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.

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 transmit power; the 99% occupied bandwidth (OBW) and the duty cycle (D) were measured. The method of measuring the emission bandwidth and the associated data are found elsewhere in this test report.

The maximum conducted output power was measured using ANSI C63.10:2013, Clause 12.3.2.4, 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).

The spectrum analyzer settings were set per the guidance as well as the following specifics:

- RMS Detector
- Trace average 100 traces in power averaging mode.
- Power was integrated across "OBW", by using the channel power function of the analyzer.

Equivalent Isotropic Radiated Power (EIRP) = Max Measured Power + Antenna gain (dBi).

The worst case (most stringent) limits are shown on the following datasheet based on the limits below where B is the bandwidth in terms of 99% for ISED and 26dB for the FCC.

- In the 5.15 – 5.25GHz band, the maximum e.i.r.p. shall not exceed the lesser of
  - o 250 mW (24.0 dBm) + 6 dBi = 30 dBm EIRP for the FCC
  - o 200 mW EIRP or  $10 + 10 \log_{10} B$  dBm EIRP for ISED
- In the 5.25 – 5.35GHz band, the maximum permissible e.i.r.p. shall not exceed the lesser of 1.0 W or  $17 + 10 \log_{10} B$  dBm EIRP.
- In the 5.47 – 5.725GHz band, the maximum permissible e.i.r.p. shall not exceed the lesser of 1.0 W or  $17 + 10 \log_{10} B$ , dBm EIRP.
- In the 5.725 – 5.850GHz band, the maximum permissible e.i.r.p. is 36 dBm EIRP.

### TEST EQUIPMENT

| Description                  | Manufacturer       | Model                 | ID  | Last Cal.  | Cal. Due   |
|------------------------------|--------------------|-----------------------|-----|------------|------------|
| Analyzer - Spectrum Analyzer | Agilent            | E4443A                | AAR | 2024-11-07 | 2025-11-07 |
| Block - DC                   | Fairview Microwave | SD3379                | ANG | 2024-10-03 | 2025-10-03 |
| Attenuator                   | Fairview Microwave | SA18H-20              | UAX | 2024-07-11 | 2025-07-11 |
| Cable                        | Micro-Coax         | UFD150A-1-0720-200200 | OCA | 2024-10-02 | 2025-10-02 |
| Generator - Signal           | Agilent            | E8257D                | TGU | 2023-11-08 | 2026-11-08 |
| Meter - Multimeter           | Fluke              | 107                   | MBF | 2024-04-12 | 2025-04-12 |

# MAXIMUM CONDUCTED OUTPUT POWER

## U-NII-3



|                   |                                    |                       |            |
|-------------------|------------------------------------|-----------------------|------------|
| EUT:              | Lantern Reusable Navigation Unit   | Work Order:           | ORTH0035   |
| Serial Number:    | R213200116                         | Date:                 | 2024-12-16 |
| Customer:         | OrthAlign                          | Temperature:          | 20.2°C     |
| Attendees:        | Steven Devinentis, Kian Gholizadeh | Relative Humidity:    | 40.8%      |
| Customer Project: | None                               | Bar. Pressure (PMSL): | 1018 mbar  |
| Tested By:        | Nolan De Ramos                     | Job Site:             | OC13       |
| Power:            | 5VDC                               | Configuration:        | ORTH0035-2 |

### TEST SPECIFICATIONS

|                 |                  |
|-----------------|------------------|
| Specification:  | Method:          |
| FCC 15.407:2024 | ANSI C63.10:2013 |

### COMMENTS

None

### DEVIATIONS FROM TEST STANDARD

None

### CONCLUSION

Pass

Tested By



# MAXIMUM CONDUCTED OUTPUT POWER

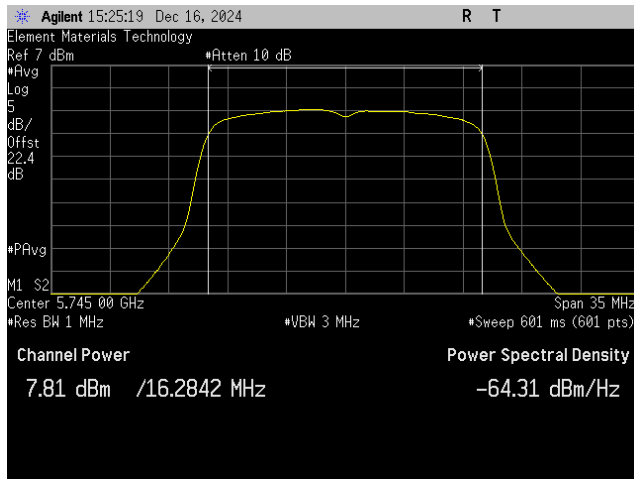
## U-NII-3

### TEST RESULTS

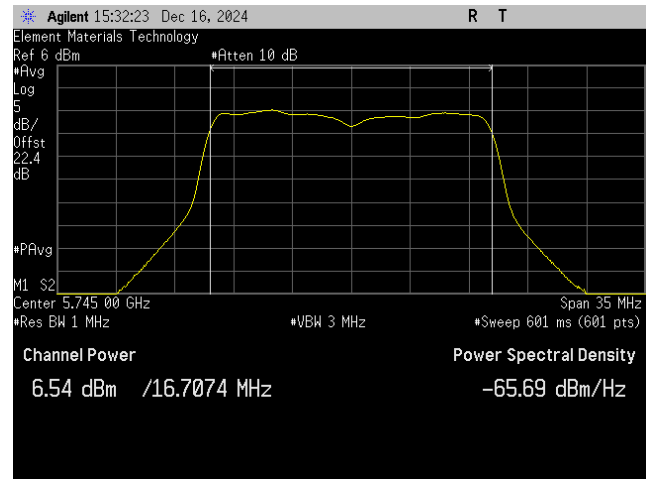
|                         | Avg Cond Pwr<br>(dBm) | Duty Cycle<br>Factor (dB) | Out Pwr<br>(dBm) | Limit<br>(dBm) | Result |
|-------------------------|-----------------------|---------------------------|------------------|----------------|--------|
| U-NII-3 Band (20MHz BW) |                       |                           |                  |                |        |
| Ch 149 - 5745 MHz       |                       |                           |                  |                |        |
| 802.11(a) 6 Mbps        | 7.807                 | 0.3                       | 8.1              | 30             | Pass   |
| 802.11(a) 36 Mbps       | 6.535                 | 1.2                       | 7.7              | 30             | Pass   |
| 802.11(a) 54 Mbps       | 6.241                 | 1.9                       | 8.1              | 30             | Pass   |
| 802.11(n) MCS0          | 7.499                 | 0.5                       | 8                | 30             | Pass   |
| 802.11(n) MCS7          | 5.811                 | 1.7                       | 7.5              | 30             | Pass   |
| Ch 157 - 5785 MHz       |                       |                           |                  |                |        |
| 802.11(a) 6 Mbps        | 7.35                  | 0.3                       | 7.7              | 30             | Pass   |
| 802.11(a) 36 Mbps       | 7.776                 | 1.3                       | 9.1              | 30             | Pass   |
| 802.11(a) 54 Mbps       | 7.242                 | 2.3                       | 9.5              | 30             | Pass   |
| 802.11(n) MCS0          | 8.096                 | 0.3                       | 8.4              | 30             | Pass   |
| 802.11(n) MCS7          | 7.401                 | 2                         | 9.4              | 30             | Pass   |
| Ch 165 - 5825 MHz       |                       |                           |                  |                |        |
| 802.11(a) 6 Mbps        | 6.871                 | 0.3                       | 7.2              | 30             | Pass   |
| 802.11(a) 36 Mbps       | 6.31                  | 1.1                       | 7.4              | 30             | Pass   |
| 802.11(a) 54 Mbps       | 6.592                 | 1.5                       | 8.1              | 30             | Pass   |
| 802.11(n) MCS0          | 8.698                 | 0.8                       | 9.5              | 30             | Pass   |
| 802.11(n) MCS7          | 6.525                 | 2.3                       | 8.8              | 30             | Pass   |
| U-NII-3 Band (40MHz BW) |                       |                           |                  |                |        |
| Ch 151 - 5755 MHz       |                       |                           |                  |                |        |
| 802.11(n) MCS0          | 7.682                 | 0.6                       | 8.3              | 30             | Pass   |
| 802.11(n) MCS7          | 5.481                 | 2.7                       | 8.2              | 30             | Pass   |
| Ch 159 - 5795 MHz       |                       |                           |                  |                |        |
| 802.11(n) MCS0          | 7.112                 | 1                         | 8.1              | 30             | Pass   |
| 802.11(n) MCS7          | 4.998                 | 2.6                       | 7.6              | 30             | Pass   |
| U-NII-3 Band (80MHz BW) |                       |                           |                  |                |        |
| Ch 155 - 5775 MHz       |                       |                           |                  |                |        |
| 802.11(ac) MCS0         | 3.903                 | 1.2                       | 5.1              | 30             | Pass   |
| 802.11(ac) MCS9         | 1.01                  | 4.8                       | 5.8              | 30             | Pass   |

# MAXIMUM CONDUCTED OUTPUT POWER

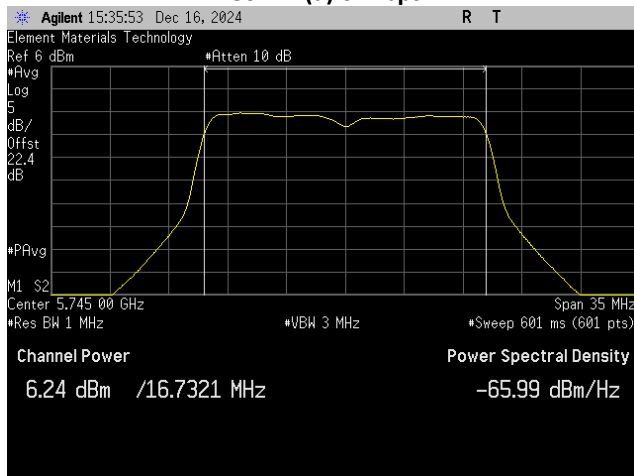
## U-NII-3



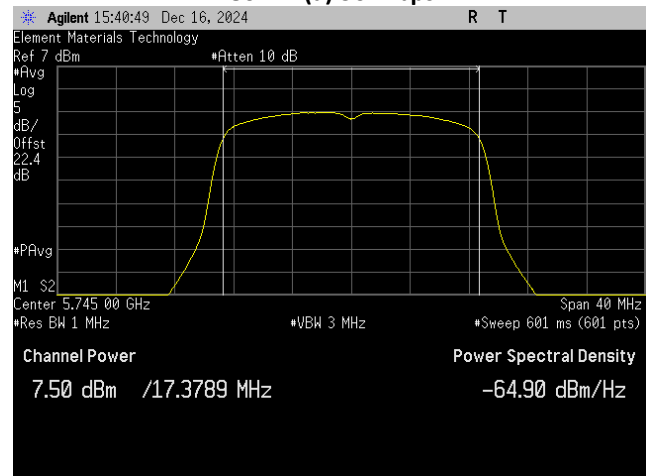
U-NII-3 Band (20MHz BW)  
Ch 149 - 5745 MHz  
802.11(a) 6 Mbps



U-NII-3 Band (20MHz BW)  
Ch 149 - 5745 MHz  
802.11(a) 36 Mbps



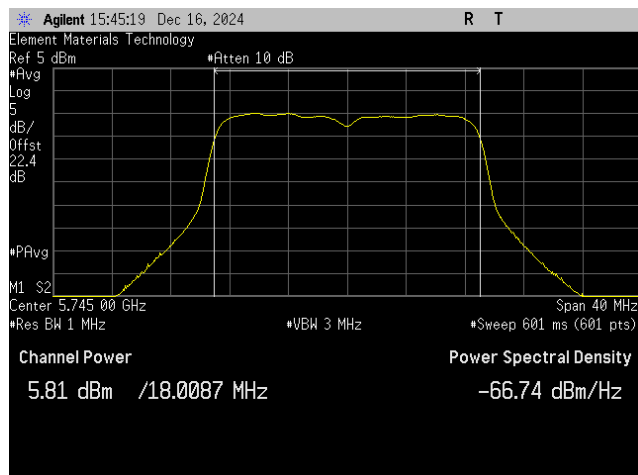
U-NII-3 Band (20MHz BW)  
Ch 149 - 5745 MHz  
802.11(a) 54 Mbps



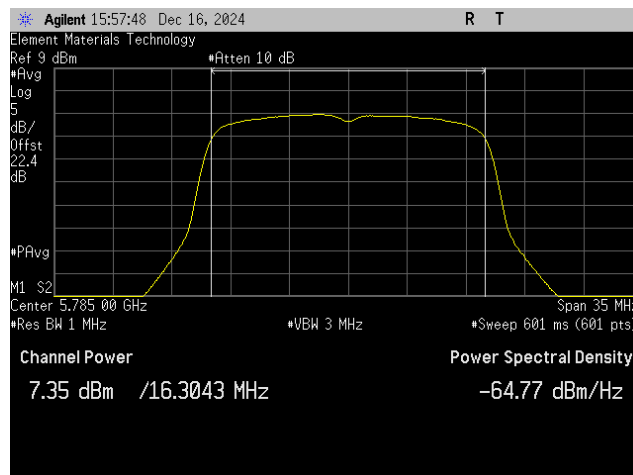
U-NII-3 Band (20MHz BW)  
Ch 149 - 5745 MHz  
802.11(n) MCS0

# MAXIMUM CONDUCTED OUTPUT POWER

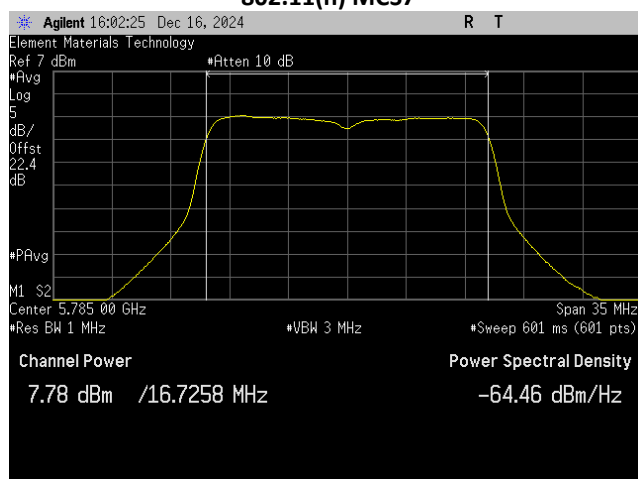
## U-NII-3



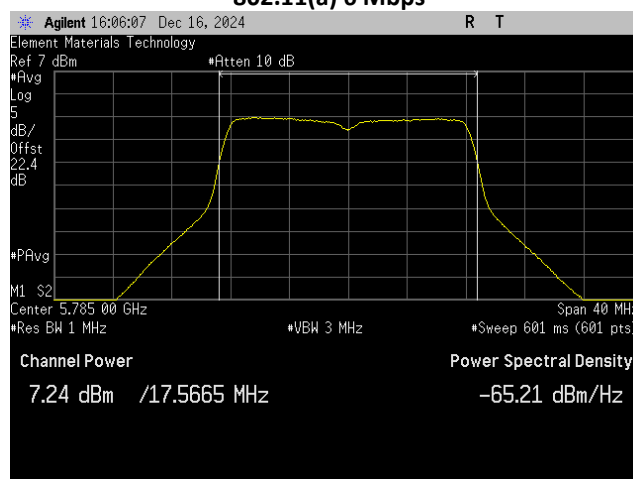
U-NII-3 Band (20MHz BW)  
Ch 149 - 5745 MHz  
802.11(n) MCS7



U-NII-3 Band (20MHz BW)  
Ch 157 - 5785 MHz  
802.11(a) 6 Mbps



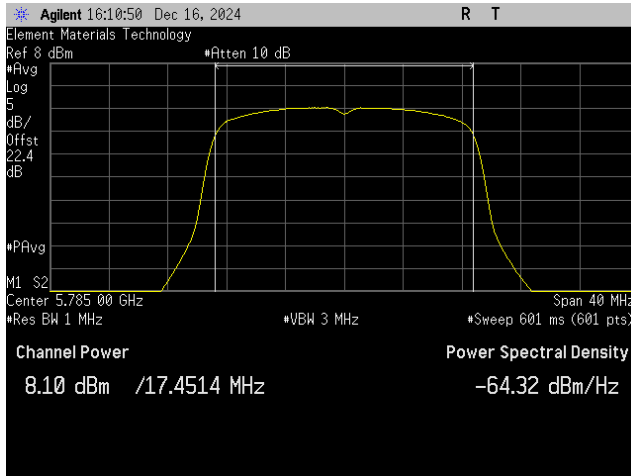
U-NII-3 Band (20MHz BW)  
Ch 157 - 5785 MHz  
802.11(a) 36 Mbps



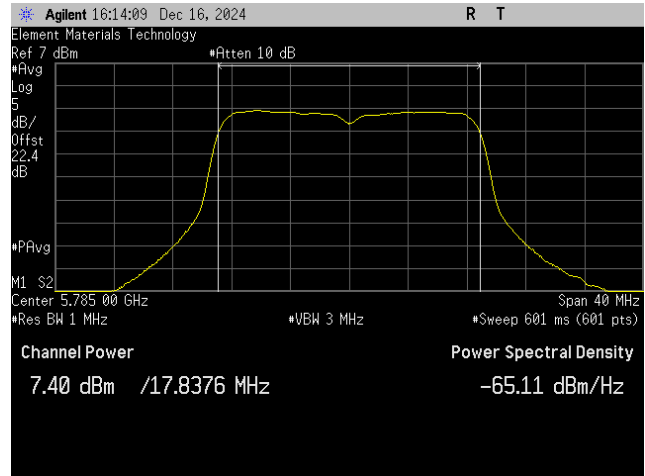
U-NII-3 Band (20MHz BW)  
Ch 157 - 5785 MHz  
802.11(a) 54 Mbps

# MAXIMUM CONDUCTED OUTPUT POWER

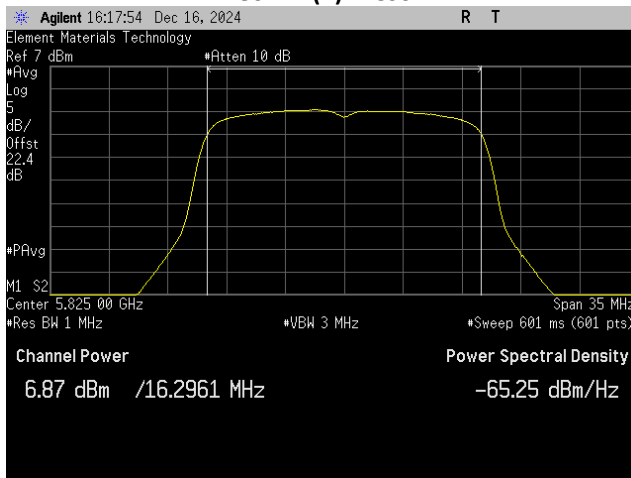
## U-NII-3



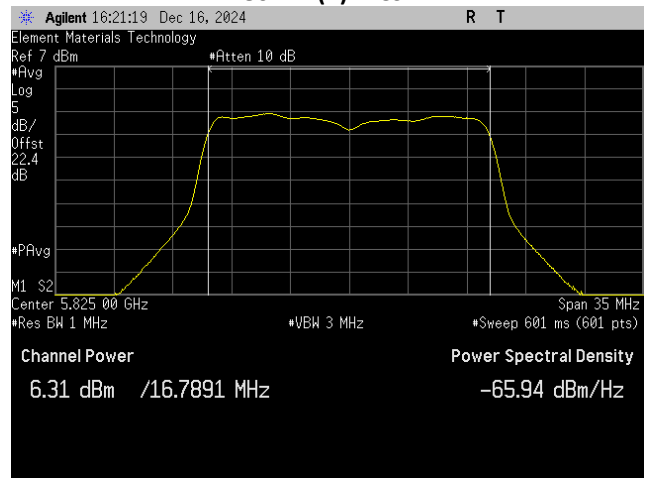
U-NII-3 Band (20MHz BW)  
Ch 157 - 5785 MHz  
802.11(n) MCS0



U-NII-3 Band (20MHz BW)  
Ch 157 - 5785 MHz  
802.11(n) MCS7



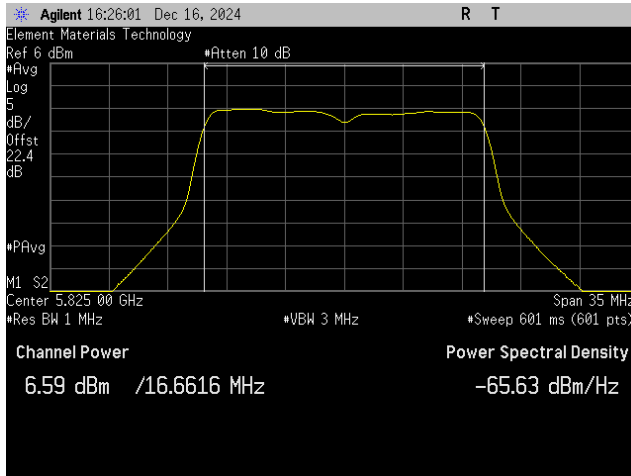
U-NII-3 Band (20MHz BW)  
Ch 165 - 5825 MHz  
802.11(a) 6 Mbps



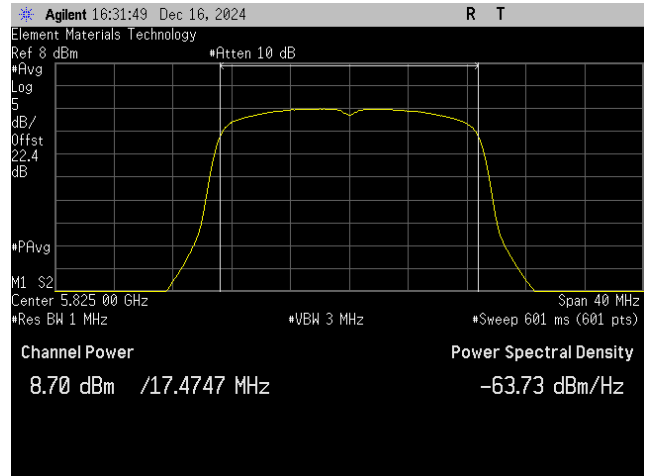
U-NII-3 Band (20MHz BW)  
Ch 165 - 5825 MHz  
802.11(a) 36 Mbps

# MAXIMUM CONDUCTED OUTPUT POWER

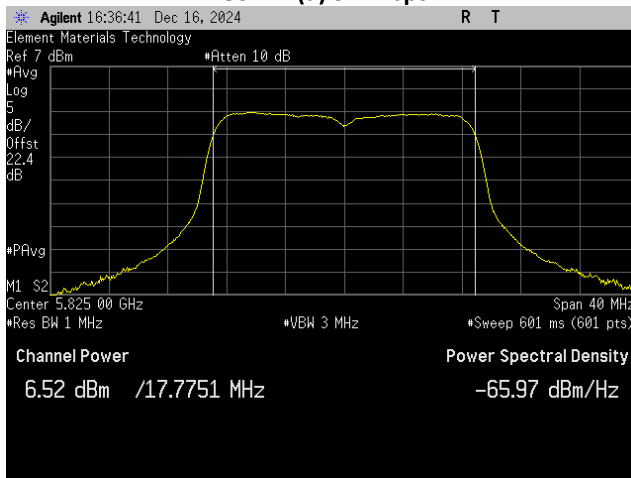
## U-NII-3



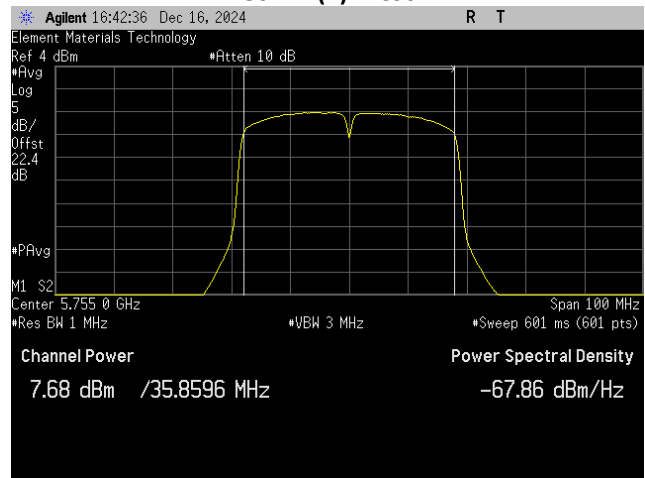
U-NII-3 Band (20MHz BW)  
Ch 165 - 5825 MHz  
802.11(a) 54 Mbps



U-NII-3 Band (20MHz BW)  
Ch 165 - 5825 MHz  
802.11(n) MCS0



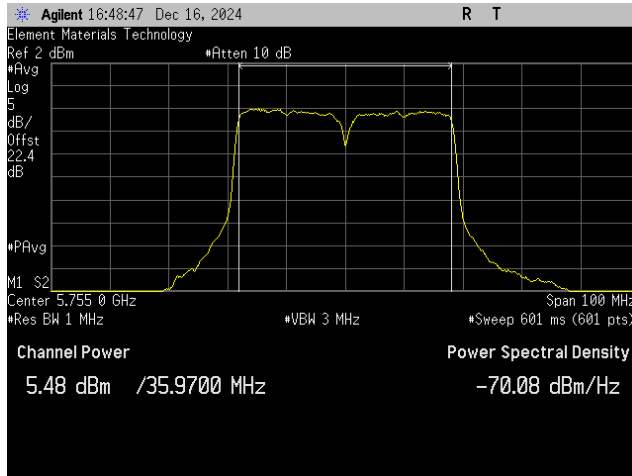
U-NII-3 Band (20MHz BW)  
Ch 165 - 5825 MHz  
802.11(n) MCS7



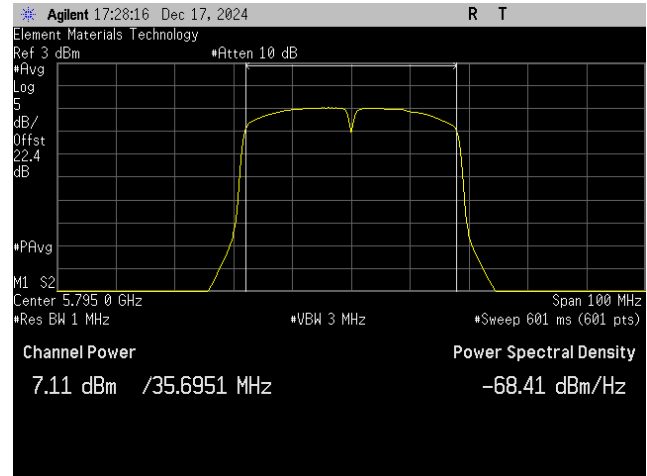
U-NII-3 Band (40MHz BW)  
Ch 151 - 5755 MHz  
802.11(n) MCS0

# MAXIMUM CONDUCTED OUTPUT POWER

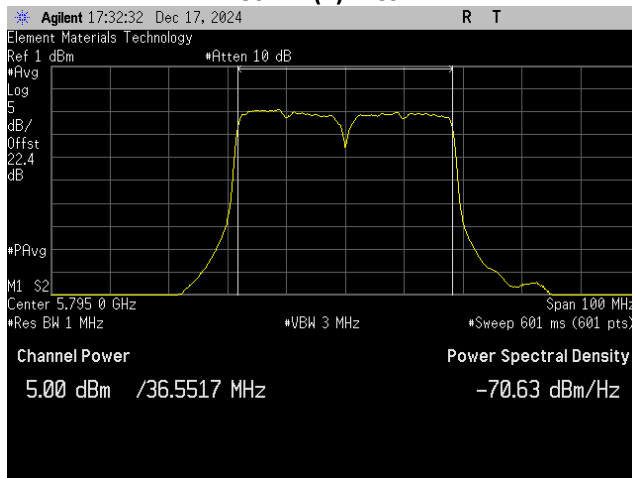
## U-NII-3



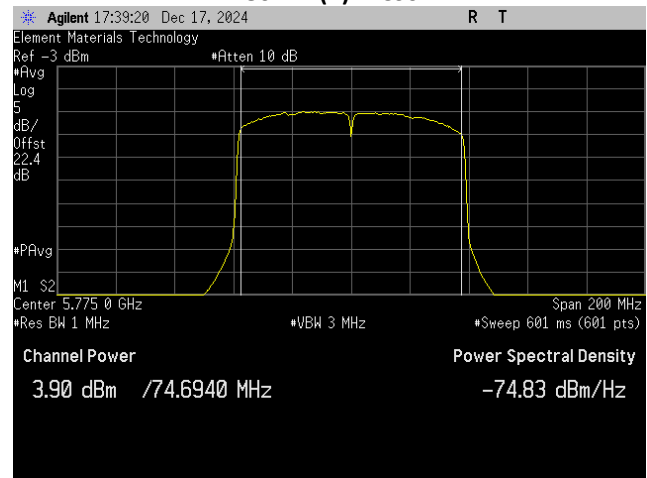
U-NII-3 Band (40MHz BW)  
Ch 151 - 5755 MHz  
802.11(n) MCS7



U-NII-3 Band (40MHz BW)  
Ch 159 - 5795 MHz  
802.11(n) MCS0



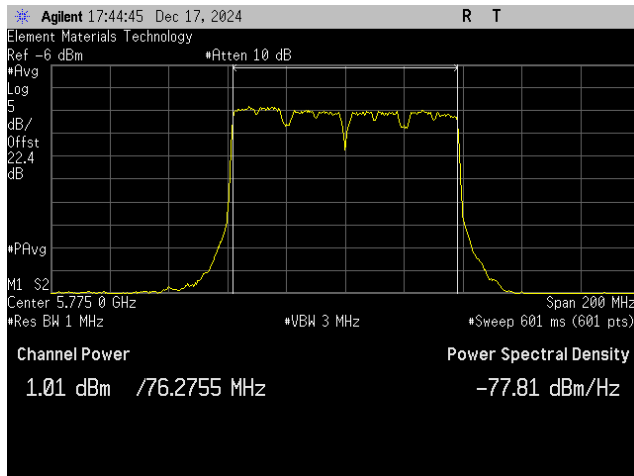
U-NII-3 Band (40MHz BW)  
Ch 159 - 5795 MHz  
802.11(n) MCS7



U-NII-3 Band (80MHz BW)  
Ch 155 - 5775 MHz  
802.11(ac) MCS0

# MAXIMUM CONDUCTED OUTPUT POWER

## U-NII-3



U-NII-3 Band (80MHz BW)

Ch 155 - 5775 MHz

802.11(ac) MCS9

# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

## U-NII-1



### TEST DESCRIPTION

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.

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 transmit power; the 99% occupied bandwidth (OBW) and the duty cycle (D) were measured. The method of measuring the emission bandwidth and the associated data are found elsewhere in this test report.

The maximum conducted output power was measured using ANSI C63.10:2013, Clause 12.3.2.4, 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).

The spectrum analyzer settings were set per the guidance as well as the following specifics:

- RMS Detector
- Trace average 100 traces in power averaging mode.
- Power was integrated across "OBW", by using the channel power function of the analyzer.

Equivalent Isotropic Radiated Power (EIRP) = Max Measured Power + Antenna gain (dBi).

The worst case (most stringent) limits are shown on the following datasheet based on the limits below where B is the bandwidth in terms of 99% for ISED and 26dB for the FCC.

- In the 5.15 – 5.25GHz band, the maximum e.i.r.p. shall not exceed the lesser of
  - o 250 mW (24.0 dBm) + 6 dBi = 30 dBm EIRP for the FCC
  - o 200 mW EIRP or  $10 + 10 \log_{10} B$  dBm EIRP for ISED
- In the 5.25 – 5.35GHz band, the maximum permissible e.i.r.p. shall not exceed the lesser of 1.0 W or  $17 + 10 \log_{10} B$  dBm EIRP.
- In the 5.47 – 5.725GHz band, the maximum permissible e.i.r.p. shall not exceed the lesser of 1.0 W or  $17 + 10 \log_{10} B$ , dBm EIRP.
- In the 5.725 – 5.850GHz band, the maximum permissible e.i.r.p. is 36 dBm EIRP.

### TEST EQUIPMENT

| Description                  | Manufacturer       | Model                 | ID  | Last Cal.  | Cal. Due   |
|------------------------------|--------------------|-----------------------|-----|------------|------------|
| Analyzer - Spectrum Analyzer | Agilent            | E4443A                | AAR | 2024-11-07 | 2025-11-07 |
| Block - DC                   | Fairview Microwave | SD3379                | ANG | 2024-10-03 | 2025-10-03 |
| Attenuator                   | Fairview Microwave | SA18H-20              | UAX | 2024-07-11 | 2025-07-11 |
| Cable                        | Micro-Coax         | UFD150A-1-0720-200200 | OCA | 2024-10-02 | 2025-10-02 |
| Generator - Signal           | Agilent            | E8257D                | TGU | 2023-11-08 | 2026-11-08 |
| Meter - Multimeter           | Fluke              | 107                   | MBF | 2024-04-12 | 2025-04-12 |



# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP) U-NII-1



|                   |                                    |                       |            |
|-------------------|------------------------------------|-----------------------|------------|
| EUT:              | Lantern Reusable Navigation Unit   | Work Order:           | ORTH0035   |
| Serial Number:    | R213200116                         | Date:                 | 2024-12-16 |
| Customer:         | OrthAlign                          | Temperature:          | 20.2°C     |
| Attendees:        | Steven Devinentis, Kian Gholizadeh | Relative Humidity:    | 40.8%      |
| Customer Project: | None                               | Bar. Pressure (PMSL): | 1018 mbar  |
| Tested By:        | Nolan De Ramos                     | Job Site:             | OC13       |
| Power:            | 5VDC                               | Configuration:        | ORTH0035-2 |

## TEST SPECIFICATIONS

|                 |                  |
|-----------------|------------------|
| Specification:  | Method:          |
| FCC 15.407:2024 | ANSI C63.10:2013 |

## COMMENTS

None

## DEVIATIONS FROM TEST STANDARD

None

## CONCLUSION

Pass

Tested By

# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP) U-NII-1

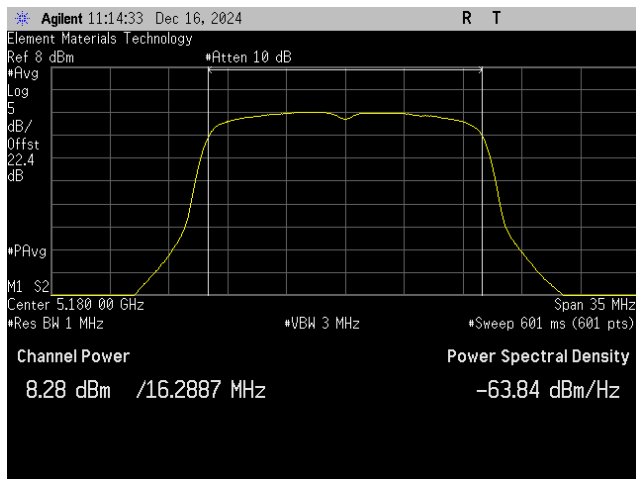


## TEST RESULTS

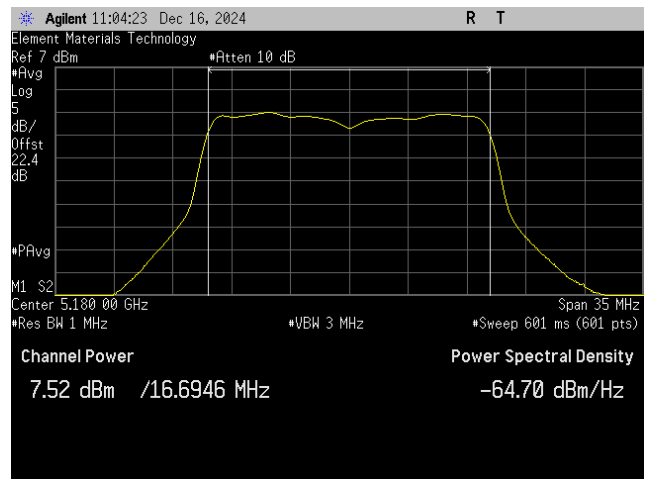
|                         | Avg Cond Pwr<br>(dBm) | Duty Cycle<br>Factor (dB) | Out Pwr<br>(dBm) | Antenna<br>Gain (dBi) | EIRP<br>(dBm) | EIRP Limit<br>(dBm) | Result |
|-------------------------|-----------------------|---------------------------|------------------|-----------------------|---------------|---------------------|--------|
| U-NII-1 Band (20MHz BW) |                       |                           |                  |                       |               |                     |        |
| Ch 36 - 5180 MHz        |                       |                           |                  |                       |               |                     |        |
| 802.11(a) 6 Mbps        | 8.276                 | 0.2                       | 8.5              | 6.5                   | 15            | 29.5                | Pass   |
| 802.11(a) 36 Mbps       | 7.522                 | 1.3                       | 8.8              | 6.5                   | 15.3          | 29.5                | Pass   |
| 802.11(a) 54 Mbps       | 7.091                 | 2                         | 9.1              | 6.5                   | 15.6          | 29.5                | Pass   |
| 802.11(n) MCS0          | 7.207                 | 0.4                       | 7.6              | 6.5                   | 14.1          | 29.5                | Pass   |
| 802.11(n) MCS7          | 7.237                 | 1.9                       | 9.1              | 6.5                   | 15.6          | 29.5                | Pass   |
| Ch 44 - 5220 MHz        |                       |                           |                  |                       |               |                     |        |
| 802.11(a) 6 Mbps        | 10.542                | 0.3                       | 10.8             | 6.5                   | 17.3          | 29.5                | Pass   |
| 802.11(a) 36 Mbps       | 9.399                 | 1.3                       | 10.7             | 6.5                   | 17.2          | 29.5                | Pass   |
| 802.11(a) 54 Mbps       | 9.038                 | 1.7                       | 10.7             | 6.5                   | 17.2          | 29.5                | Pass   |
| 802.11(n) MCS0          | 10.479                | 0.4                       | 10.9             | 6.5                   | 17.4          | 29.5                | Pass   |
| 802.11(n) MCS7          | 8.932                 | 1.8                       | 10.7             | 6.5                   | 17.2          | 29.5                | Pass   |
| Ch 48 - 5240 MHz        |                       |                           |                  |                       |               |                     |        |
| 802.11(a) 6 Mbps        | 11.119                | 0.3                       | 11.4             | 6.5                   | 17.9          | 29.5                | Pass   |
| 802.11(a) 36 Mbps       | 10.689                | 1.5                       | 12.2             | 6.5                   | 18.7          | 29.5                | Pass   |
| 802.11(a) 54 Mbps       | 10.187                | 1.9                       | 12.1             | 6.5                   | 18.6          | 29.5                | Pass   |
| 802.11(n) MCS0          | 10.953                | 0.3                       | 11.3             | 6.5                   | 17.8          | 29.5                | Pass   |
| 802.11(n) MCS7          | 10.047                | 2.8                       | 12.8             | 6.5                   | 19.3          | 29.5                | Pass   |
| U-NII-1 Band (40MHz BW) |                       |                           |                  |                       |               |                     |        |
| Ch 38 - 5190 MHz        |                       |                           |                  |                       |               |                     |        |
| 802.11(n) MCS0          | 8.275                 | 0.5                       | 8.8              | 6.5                   | 15.3          | 29.5                | Pass   |
| 802.11(n) MCS7          | 6.43                  | 2.4                       | 8.8              | 6.5                   | 15.3          | 29.5                | Pass   |
| Ch 46 - 5230 MHz        |                       |                           |                  |                       |               |                     |        |
| 802.11(n) MCS0          | 14.801                | 0.5                       | 15.3             | 6.5                   | 21.8          | 29.5                | Pass   |
| 802.11(n) MCS7          | 12.419                | 2.6                       | 15               | 6.5                   | 21.5          | 29.5                | Pass   |
| U-NII-1 Band (80MHz BW) |                       |                           |                  |                       |               |                     |        |
| Ch 42 - 5210 MHz        |                       |                           |                  |                       |               |                     |        |
| 802.11(ac) MCS0         | 4.681                 | 1.2                       | 5.9              | 6.5                   | 12.4          | 29.5                | Pass   |
| 802.11(ac) MCS9         | 1.897                 | 5.2                       | 7.1              | 6.5                   | 13.6          | 29.5                | Pass   |

# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

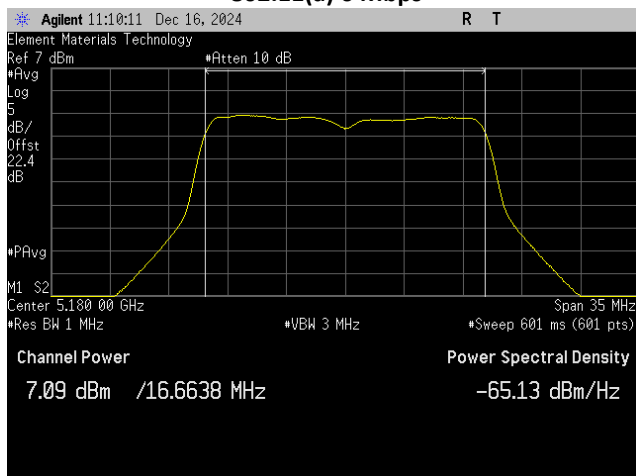
## U-NII-1



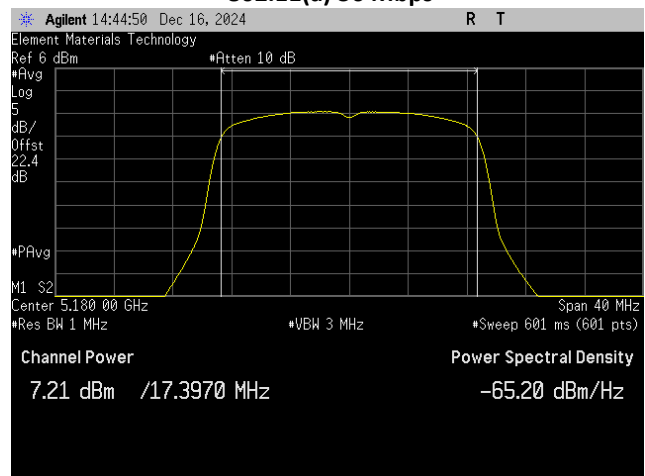
**U-NII-1 Band (20MHz BW)**  
**Ch 36 - 5180 MHz**  
**802.11(a) 6 Mbps**



**U-NII-1 Band (20MHz BW)**  
**Ch 36 - 5180 MHz**  
**802.11(a) 36 Mbps**



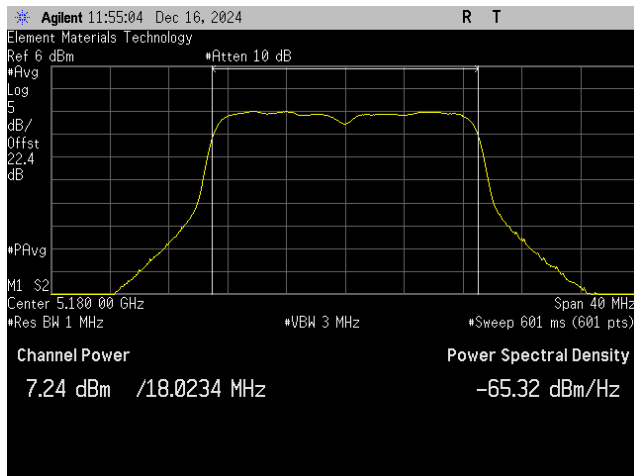
**U-NII-1 Band (20MHz BW)**  
**Ch 36 - 5180 MHz**  
**802.11(a) 54 Mbps**



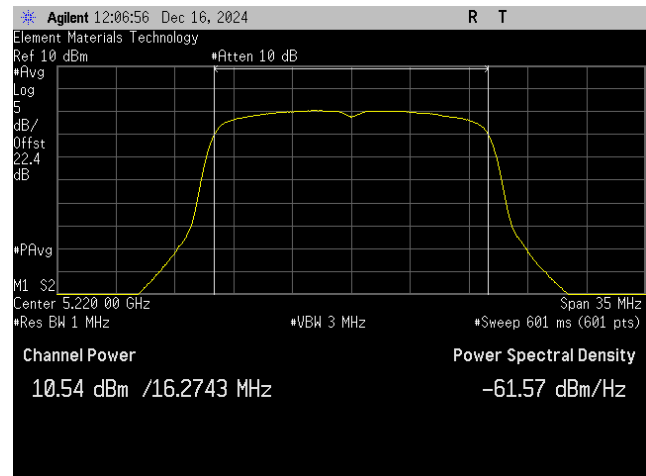
**U-NII-1 Band (20MHz BW)**  
**Ch 36 - 5180 MHz**  
**802.11(n) MCS0**

# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

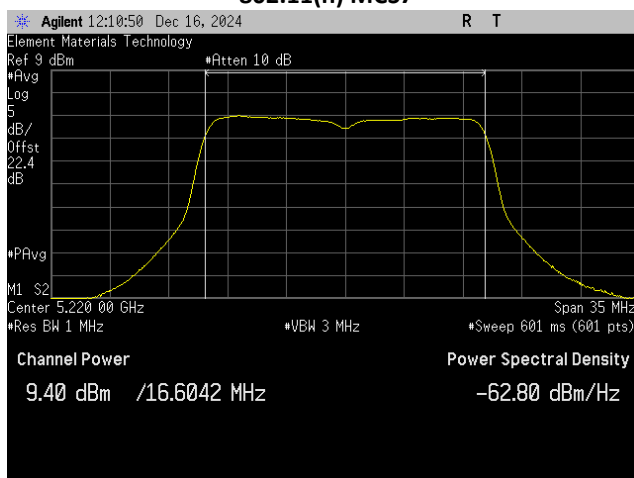
## U-NII-1



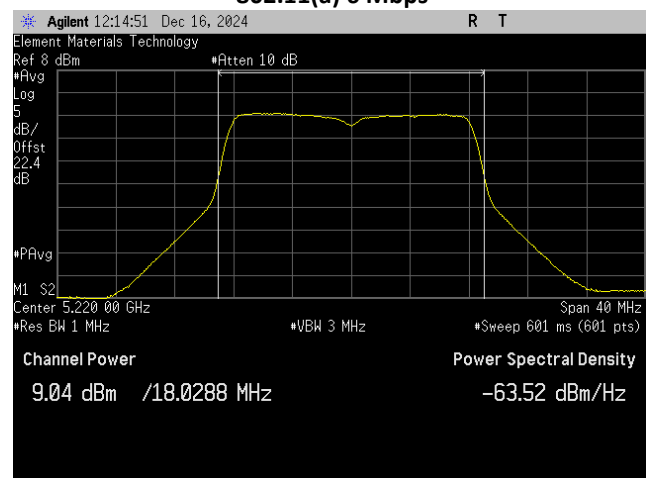
**U-NII-1 Band (20MHz BW)**  
**Ch 36 - 5180 MHz**  
**802.11(n) MCS7**



**U-NII-1 Band (20MHz BW)**  
**Ch 44 - 5220 MHz**  
**802.11(a) 6 Mbps**



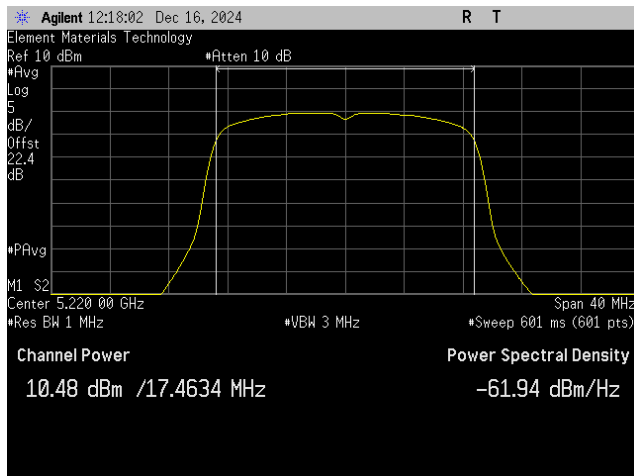
**U-NII-1 Band (20MHz BW)**  
**Ch 44 - 5220 MHz**  
**802.11(a) 36 Mbps**



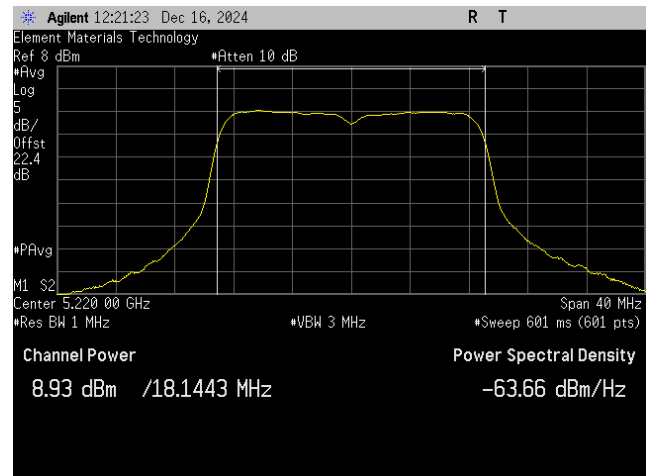
**U-NII-1 Band (20MHz BW)**  
**Ch 44 - 5220 MHz**  
**802.11(a) 54 Mbps**

# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

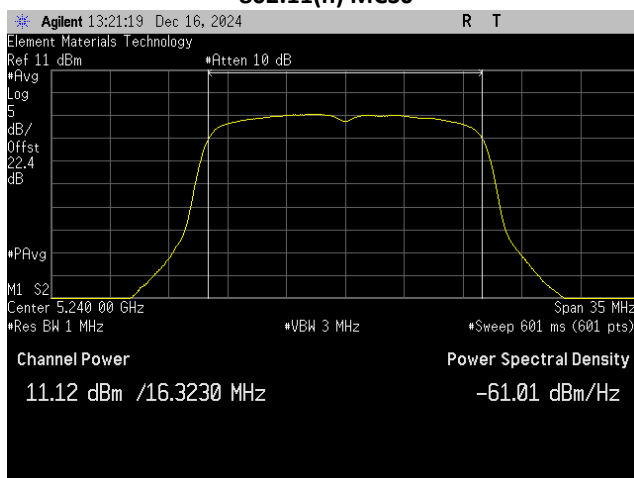
## U-NII-1



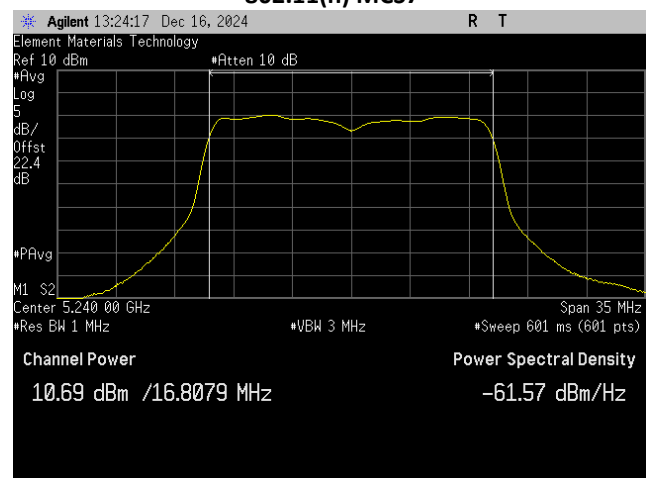
U-NII-1 Band (20MHz BW)  
Ch 44 - 5220 MHz  
802.11(n) MCS0



U-NII-1 Band (20MHz BW)  
Ch 44 - 5220 MHz  
802.11(n) MCS7



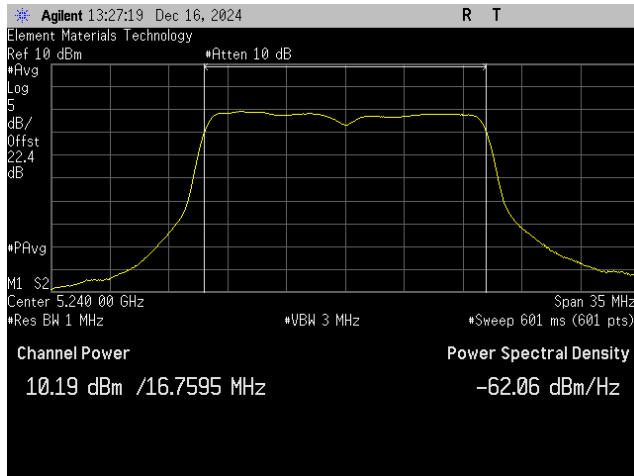
U-NII-1 Band (20MHz BW)  
Ch 48 - 5240 MHz  
802.11(a) 6 Mbps



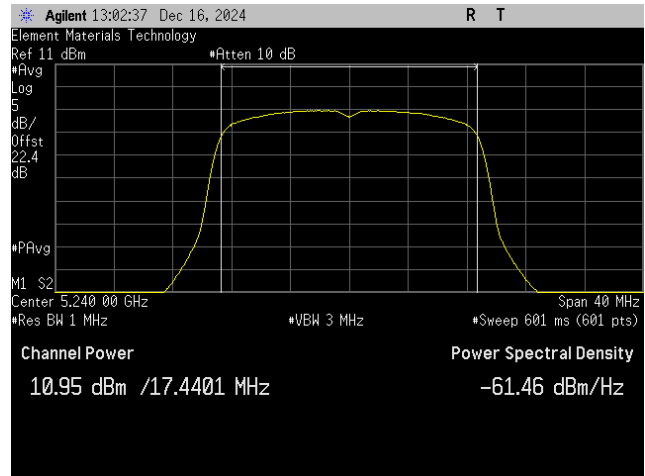
U-NII-1 Band (20MHz BW)  
Ch 48 - 5240 MHz  
802.11(a) 36 Mbps

# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

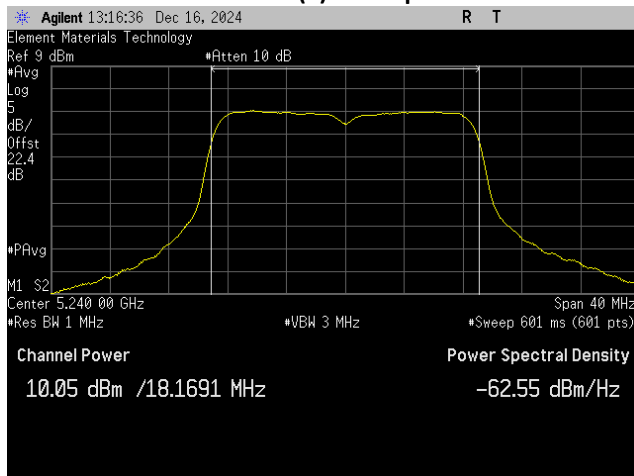
## U-NII-1



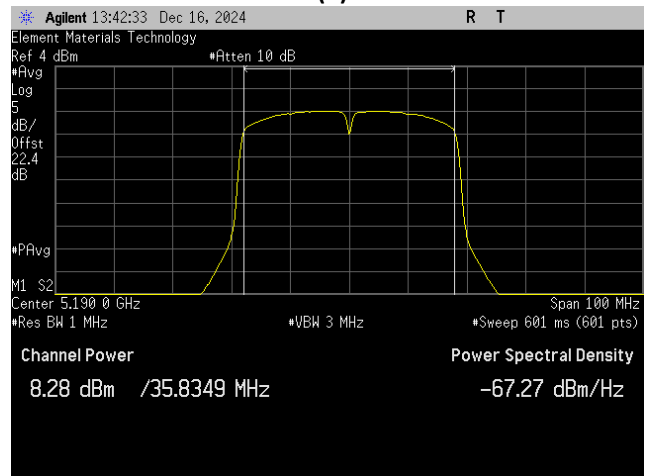
**U-NII-1 Band (20MHz BW)**  
**Ch 48 - 5240 MHz**  
**802.11(a) 54 Mbps**



**U-NII-1 Band (20MHz BW)**  
**Ch 48 - 5240 MHz**  
**802.11(n) MCS0**

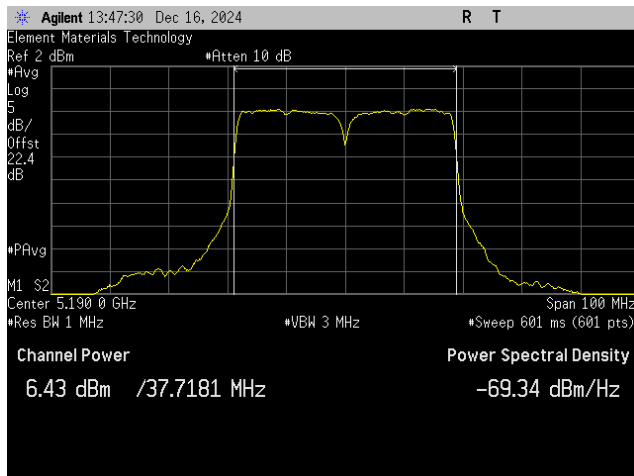


**U-NII-1 Band (20MHz BW)**  
**Ch 48 - 5240 MHz**  
**802.11(n) MCS7**

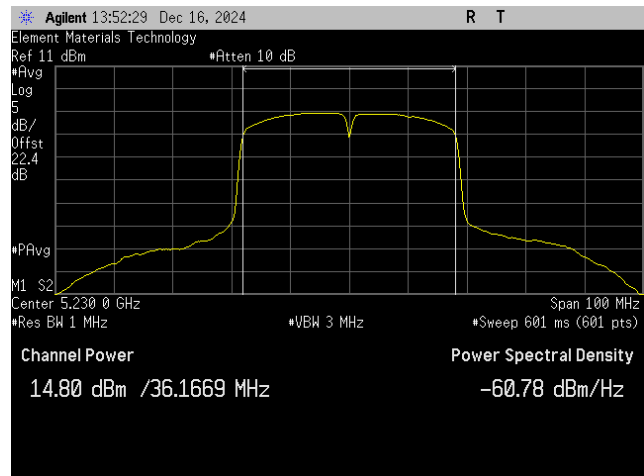


**U-NII-1 Band (40MHz BW)**  
**Ch 38 - 5190 MHz**  
**802.11(n) MCS0**

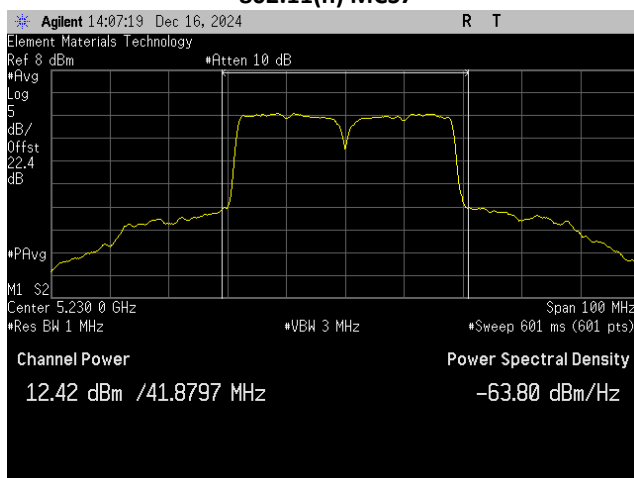
# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP) U-NII-1



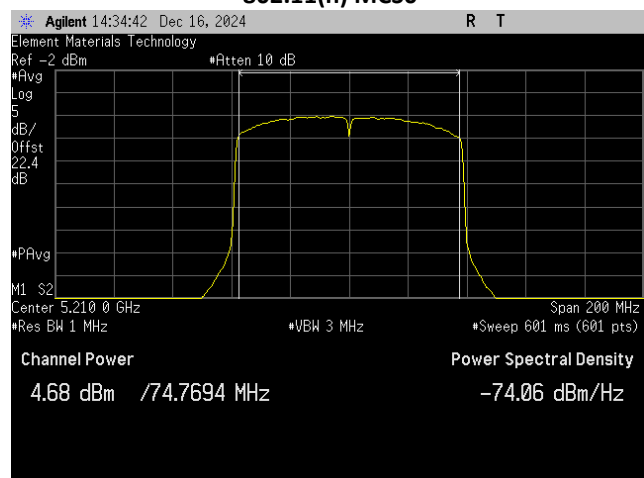
**U-NII-1 Band (40MHz BW)  
Ch 38 - 5190 MHz  
802.11(n) MCS7**



**U-NII-1 Band (40MHz BW)  
Ch 46 - 5230 MHz  
802.11(n) MCS0**

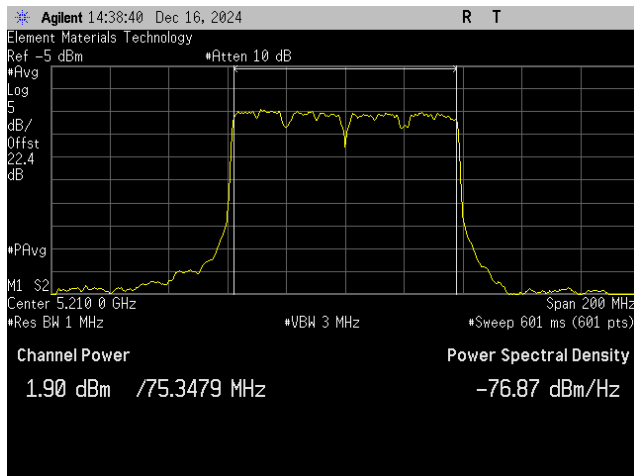


**U-NII-1 Band (40MHz BW)  
Ch 46 - 5230 MHz  
802.11(n) MCS7**



**U-NII-1 Band (80MHz BW)  
Ch 42 - 5210 MHz  
802.11(ac) MCS0**

# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP) U-NII-1



U-NII-1 Band (80MHz BW)

Ch 42 - 5210 MHz

802.11(ac) MCS9



# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

## U-NII-3



### TEST DESCRIPTION

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.

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 transmit power; the 99% occupied bandwidth (OBW) and the duty cycle (D) were measured. The method of measuring the emission bandwidth and the associated data are found elsewhere in this test report.

The maximum conducted output power was measured using ANSI C63.10:2013, Clause 12.3.2.4, 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).

The spectrum analyzer settings were set per the guidance as well as the following specifics:

- RMS Detector
- Trace average 100 traces in power averaging mode.
- Power was integrated across "OBW", by using the channel power function of the analyzer.

Equivalent Isotropic Radiated Power (EIRP) = Max Measured Power + Antenna gain (dBi).

The worst case (most stringent) limits are shown on the following datasheet based on the limits below where B is the bandwidth in terms of 99% for ISED and 26dB for the FCC.

- In the 5.15 – 5.25GHz band, the maximum e.i.r.p. shall not exceed the lesser of
  - o 250 mW (24.0 dBm) + 6 dBi = 30 dBm EIRP for the FCC
  - o 200 mW EIRP or  $10 + 10 \log_{10} B$  dBm EIRP for ISED
- In the 5.25 – 5.35GHz band, the maximum permissible e.i.r.p. shall not exceed the lesser of 1.0 W or  $17 + 10 \log_{10} B$  dBm EIRP.
- In the 5.47 – 5.725GHz band, the maximum permissible e.i.r.p. shall not exceed the lesser of 1.0 W or  $17 + 10 \log_{10} B$ , dBm EIRP.
- In the 5.725 – 5.850GHz band, the maximum permissible e.i.r.p. is 36 dBm EIRP.

### TEST EQUIPMENT

| Description                  | Manufacturer       | Model                 | ID  | Last Cal.  | Cal. Due   |
|------------------------------|--------------------|-----------------------|-----|------------|------------|
| Analyzer - Spectrum Analyzer | Agilent            | E4443A                | AAR | 2024-11-07 | 2025-11-07 |
| Block - DC                   | Fairview Microwave | SD3379                | ANG | 2024-10-03 | 2025-10-03 |
| Attenuator                   | Fairview Microwave | SA18H-20              | UAX | 2024-07-11 | 2025-07-11 |
| Cable                        | Micro-Coax         | UFD150A-1-0720-200200 | OCA | 2024-10-02 | 2025-10-02 |
| Generator - Signal           | Agilent            | E8257D                | TGU | 2023-11-08 | 2026-11-08 |
| Meter - Multimeter           | Fluke              | 107                   | MBF | 2024-04-12 | 2025-04-12 |

# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP) U-NII-3



|                   |                                    |                       |            |
|-------------------|------------------------------------|-----------------------|------------|
| EUT:              | Lantern Reusable Navigation Unit   | Work Order:           | ORTH0035   |
| Serial Number:    | R213200116                         | Date:                 | 2024-12-16 |
| Customer:         | OrthAlign                          | Temperature:          | 20.2°C     |
| Attendees:        | Steven Devinentis, Kian Gholizadeh | Relative Humidity:    | 40.8%      |
| Customer Project: | None                               | Bar. Pressure (PMSL): | 1018 mbar  |
| Tested By:        | Nolan De Ramos                     | Job Site:             | OC13       |
| Power:            | 5VDC                               | Configuration:        | ORTH0035-2 |

## TEST SPECIFICATIONS

|                 |                  |
|-----------------|------------------|
| Specification:  | Method:          |
| FCC 15.407:2024 | ANSI C63.10:2013 |

## COMMENTS

None

## DEVIATIONS FROM TEST STANDARD

None

## CONCLUSION

Pass

Tested By

# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

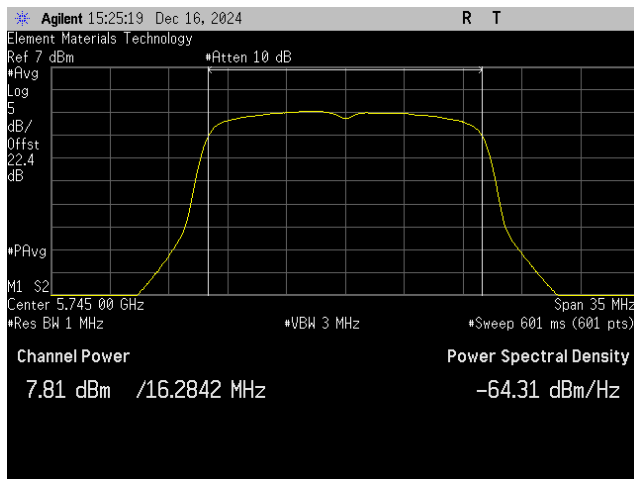
## U-NII-3

### TEST RESULTS

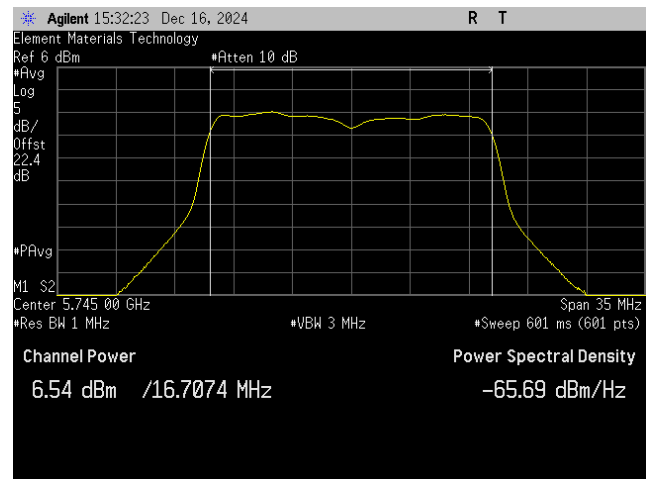
|                         | Avg Cond Pwr<br>(dBm) | Duty Cycle<br>Factor (dB) | Out Pwr<br>(dBm) | Antenna<br>Gain (dBi) | EIRP<br>(dBm) | EIRP Limit<br>(dBm) | Result |
|-------------------------|-----------------------|---------------------------|------------------|-----------------------|---------------|---------------------|--------|
| U-NII-3 Band (20MHz BW) |                       |                           |                  |                       |               |                     |        |
| Ch 149 - 5745 MHz       |                       |                           |                  |                       |               |                     |        |
| 802.11(a) 6 Mbps        | 7.807                 | 0.3                       | 8.1              | 6.5                   | 14.6          | 35.5                | Pass   |
| 802.11(a) 36 Mbps       | 6.535                 | 1.2                       | 7.7              | 6.5                   | 14.2          | 35.5                | Pass   |
| 802.11(a) 54 Mbps       | 6.241                 | 1.9                       | 8.1              | 6.5                   | 14.6          | 35.5                | Pass   |
| 802.11(n) MCS0          | 7.499                 | 0.5                       | 8                | 6.5                   | 14.5          | 35.5                | Pass   |
| 802.11(n) MCS7          | 5.811                 | 1.7                       | 7.5              | 6.5                   | 14            | 35.5                | Pass   |
| Ch 157 - 5785 MHz       |                       |                           |                  |                       |               |                     |        |
| 802.11(a) 6 Mbps        | 7.35                  | 0.3                       | 7.7              | 6.5                   | 14.2          | 35.5                | Pass   |
| 802.11(a) 36 Mbps       | 7.776                 | 1.3                       | 9.1              | 6.5                   | 15.6          | 35.5                | Pass   |
| 802.11(a) 54 Mbps       | 7.242                 | 2.3                       | 9.5              | 6.5                   | 16            | 35.5                | Pass   |
| 802.11(n) MCS0          | 8.096                 | 0.3                       | 8.4              | 6.5                   | 14.9          | 35.5                | Pass   |
| 802.11(n) MCS7          | 7.401                 | 2                         | 9.4              | 6.5                   | 15.9          | 35.5                | Pass   |
| Ch 165 - 5825 MHz       |                       |                           |                  |                       |               |                     |        |
| 802.11(a) 6 Mbps        | 6.871                 | 0.3                       | 7.2              | 6.5                   | 13.7          | 35.5                | Pass   |
| 802.11(a) 36 Mbps       | 6.31                  | 1.1                       | 7.4              | 6.5                   | 13.9          | 35.5                | Pass   |
| 802.11(a) 54 Mbps       | 6.592                 | 1.5                       | 8.1              | 6.5                   | 14.6          | 35.5                | Pass   |
| 802.11(n) MCS0          | 8.698                 | 0.8                       | 9.5              | 6.5                   | 16            | 35.5                | Pass   |
| 802.11(n) MCS7          | 6.525                 | 2.3                       | 8.8              | 6.5                   | 15.3          | 35.5                | Pass   |
| U-NII-3 Band (40MHz BW) |                       |                           |                  |                       |               |                     |        |
| Ch 151 - 5755 MHz       |                       |                           |                  |                       |               |                     |        |
| 802.11(n) MCS0          | 7.682                 | 0.6                       | 8.3              | 6.5                   | 14.8          | 35.5                | Pass   |
| 802.11(n) MCS7          | 5.481                 | 2.7                       | 8.2              | 6.5                   | 14.7          | 35.5                | Pass   |
| Ch 159 - 5795 MHz       |                       |                           |                  |                       |               |                     |        |
| 802.11(n) MCS0          | 7.112                 | 1                         | 8.1              | 6.5                   | 14.6          | 35.5                | Pass   |
| 802.11(n) MCS7          | 4.998                 | 2.6                       | 7.6              | 6.5                   | 14.1          | 35.5                | Pass   |
| U-NII-3 Band (80MHz BW) |                       |                           |                  |                       |               |                     |        |
| Ch 155 - 5775 MHz       |                       |                           |                  |                       |               |                     |        |
| 802.11(ac) MCS0         | 3.903                 | 1.2                       | 5.1              | 6.5                   | 11.6          | 35.5                | Pass   |
| 802.11(ac) MCS9         | 1.01                  | 4.8                       | 5.81             | 6.5                   | 12.31         | 35.5                | Pass   |

# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

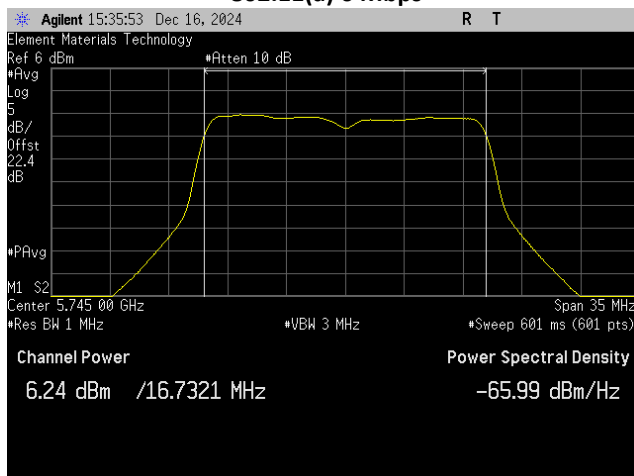
## U-NII-3



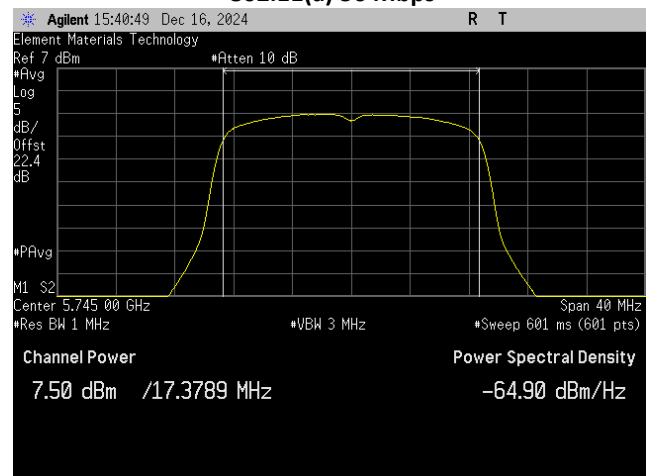
**U-NII-3 Band (20MHz BW)**  
**Ch 149 - 5745 MHz**  
**802.11(a) 6 Mbps**



**U-NII-3 Band (20MHz BW)**  
**Ch 149 - 5745 MHz**  
**802.11(a) 36 Mbps**



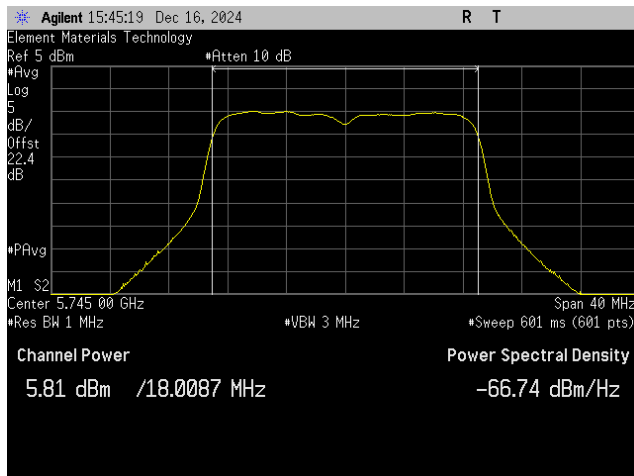
**U-NII-3 Band (20MHz BW)**  
**Ch 149 - 5745 MHz**  
**802.11(a) 54 Mbps**



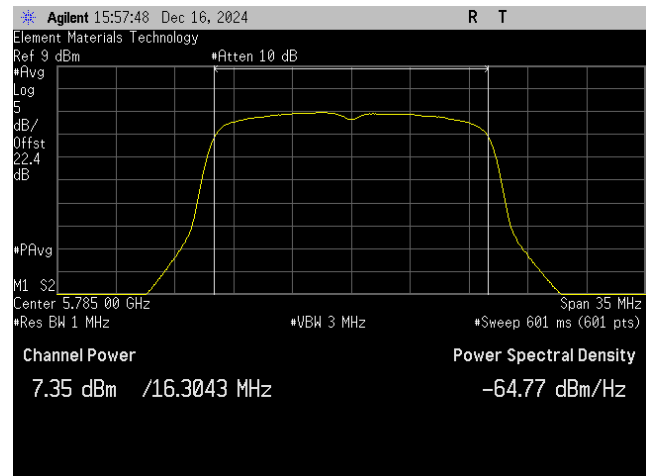
**U-NII-3 Band (20MHz BW)**  
**Ch 149 - 5745 MHz**  
**802.11(n) MCS0**

# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

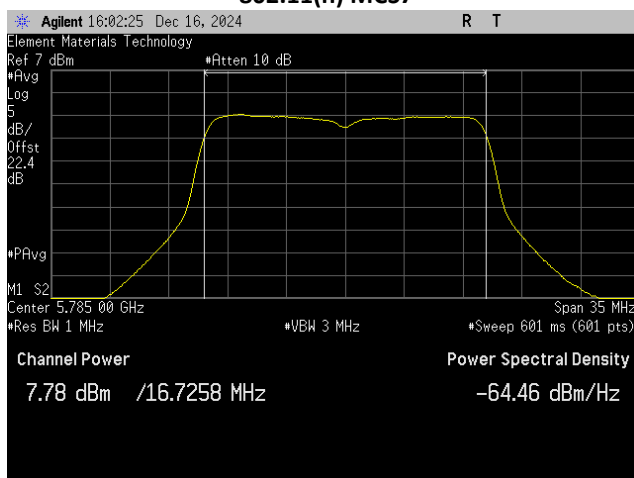
## U-NII-3



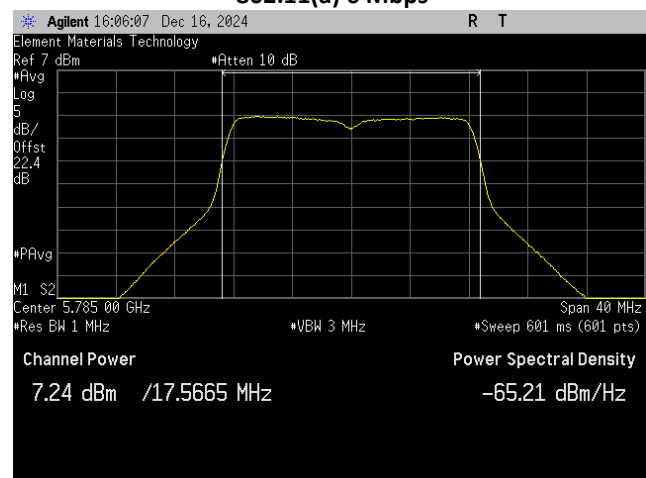
**U-NII-3 Band (20MHz BW)**  
**Ch 149 - 5745 MHz**  
**802.11(n) MCS7**



**U-NII-3 Band (20MHz BW)**  
**Ch 157 - 5785 MHz**  
**802.11(a) 6 Mbps**



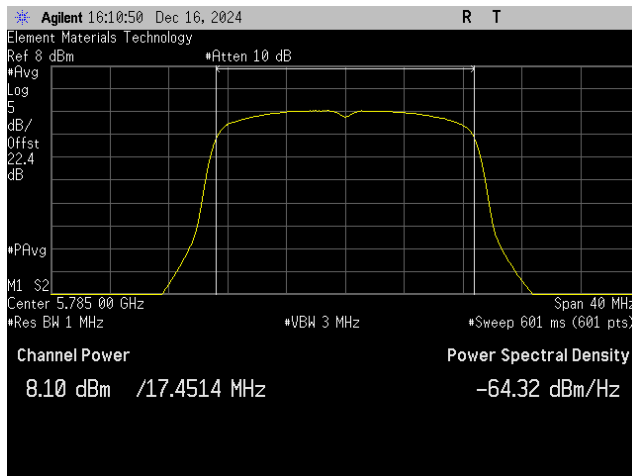
**U-NII-3 Band (20MHz BW)**  
**Ch 157 - 5785 MHz**  
**802.11(a) 36 Mbps**



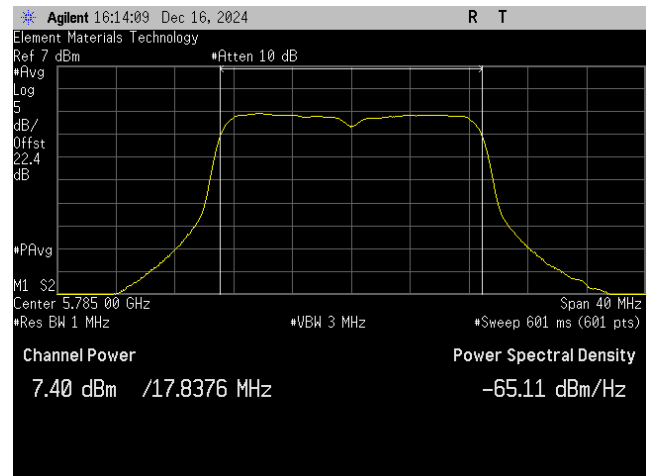
**U-NII-3 Band (20MHz BW)**  
**Ch 157 - 5785 MHz**  
**802.11(a) 54 Mbps**

# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

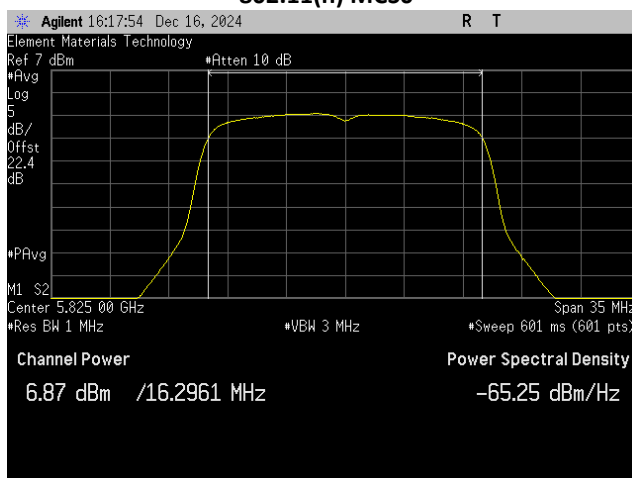
## U-NII-3



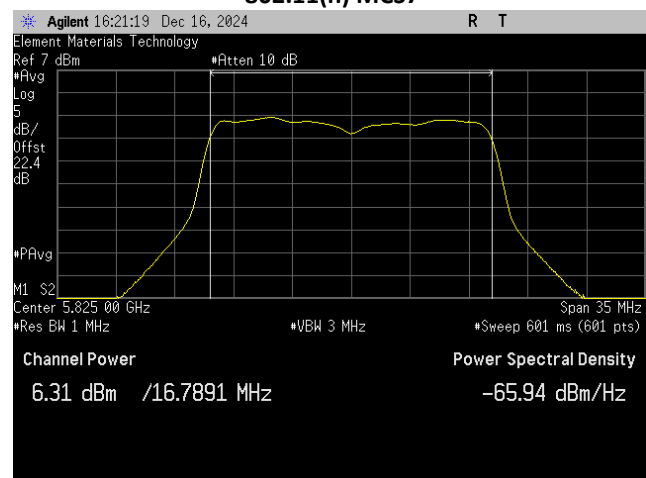
**U-NII-3 Band (20MHz BW)**  
**Ch 157 - 5785 MHz**  
**802.11(n) MCS0**



**U-NII-3 Band (20MHz BW)**  
**Ch 157 - 5785 MHz**  
**802.11(n) MCS7**



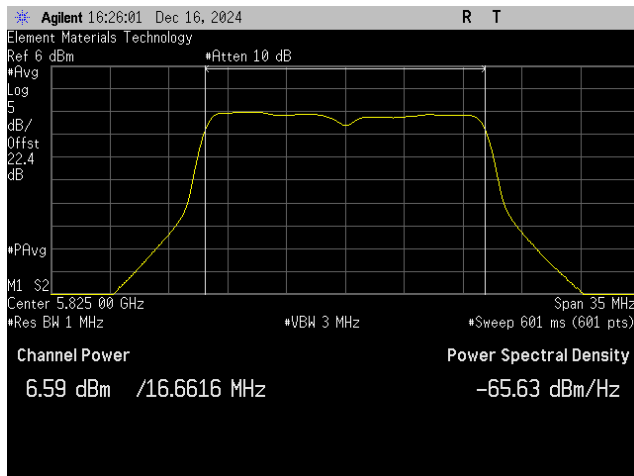
**U-NII-3 Band (20MHz BW)**  
**Ch 165 - 5825 MHz**  
**802.11(a) 6 Mbps**



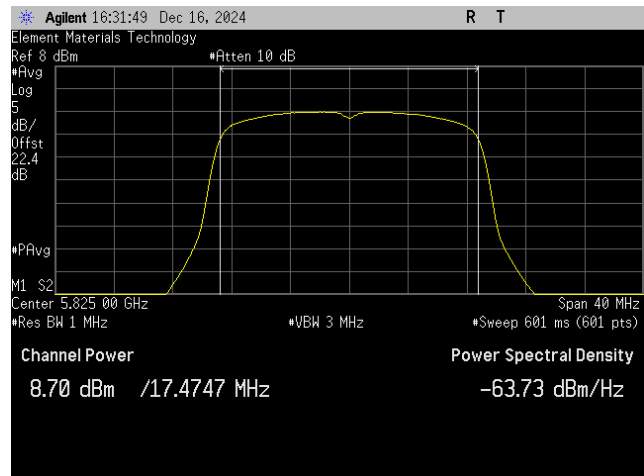
**U-NII-3 Band (20MHz BW)**  
**Ch 165 - 5825 MHz**  
**802.11(a) 36 Mbps**

# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

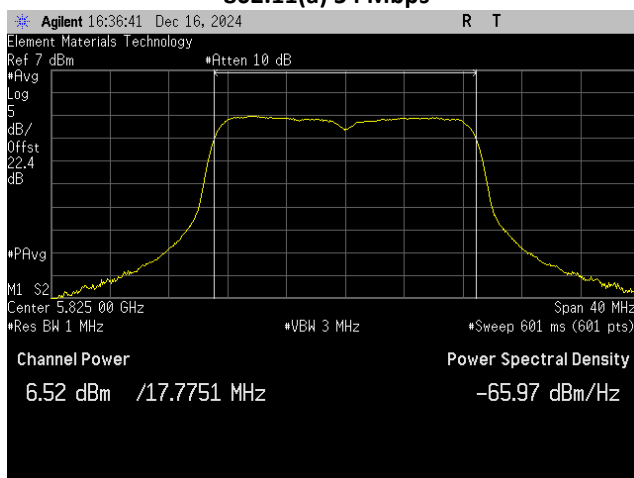
## U-NII-3



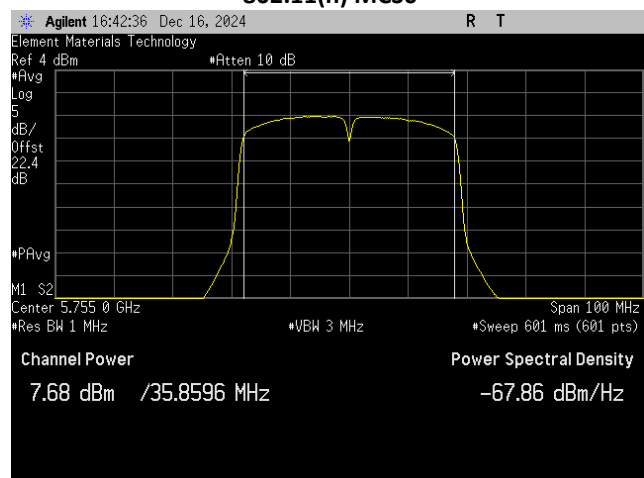
**U-NII-3 Band (20MHz BW)**  
**Ch 165 - 5825 MHz**  
**802.11(a) 54 Mbps**



**U-NII-3 Band (20MHz BW)**  
**Ch 165 - 5825 MHz**  
**802.11(n) MCS0**



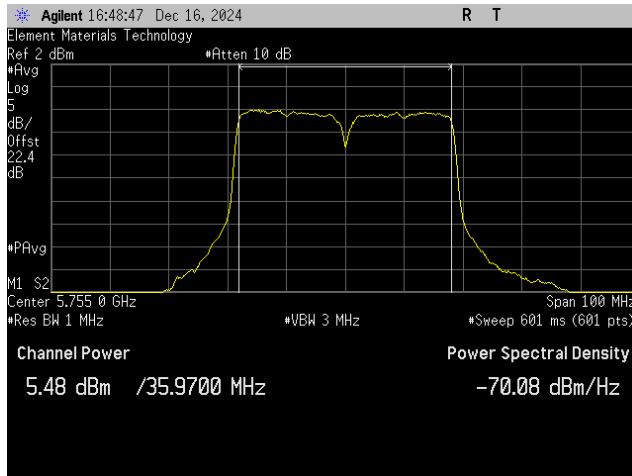
**U-NII-3 Band (20MHz BW)**  
**Ch 165 - 5825 MHz**  
**802.11(n) MCS7**



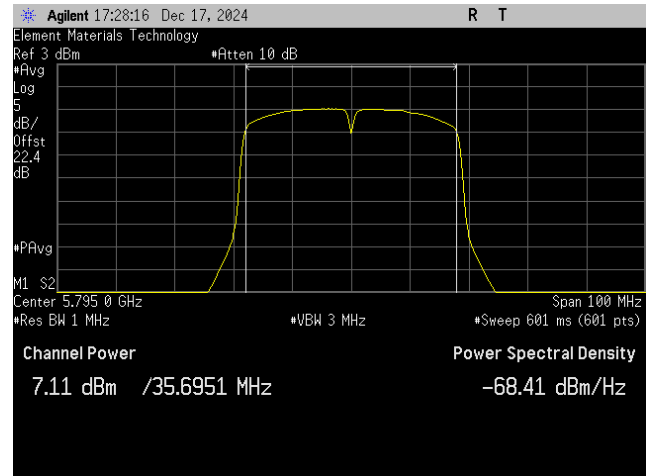
**U-NII-3 Band (40MHz BW)**  
**Ch 151 - 5755 MHz**  
**802.11(n) MCS0**

# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

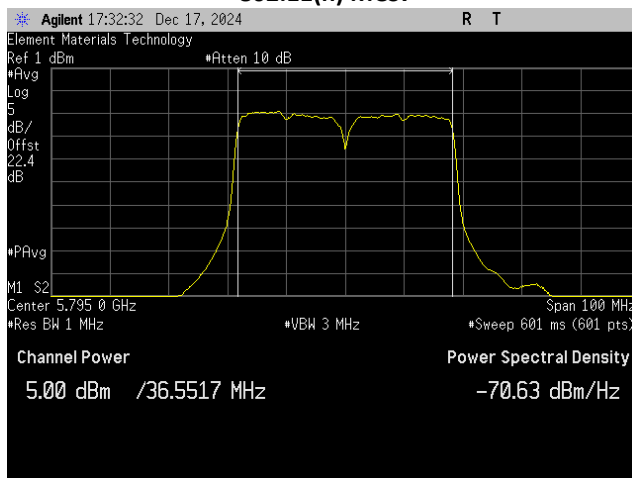
## U-NII-3



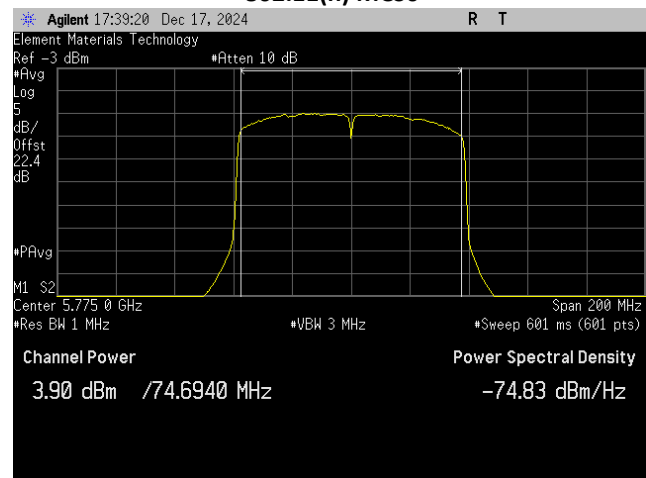
**U-NII-3 Band (40MHz BW)**  
**Ch 151 - 5755 MHz**  
**802.11(n) MCS7**



**U-NII-3 Band (40MHz BW)**  
**Ch 159 - 5795 MHz**  
**802.11(n) MCS0**



**U-NII-3 Band (40MHz BW)**  
**Ch 159 - 5795 MHz**  
**802.11(n) MCS7**

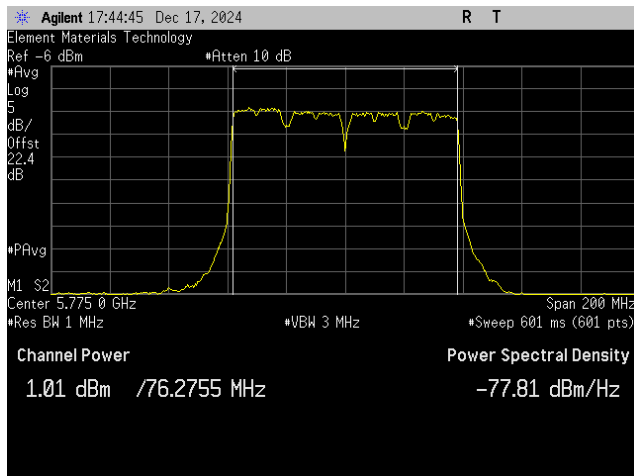


**U-NII-3 Band (80MHz BW)**  
**Ch 155 - 5775 MHz**  
**802.11(ac) MCS0**



# EQUIVALENT ISOTROPIC RADIATED POWER (EIRP)

## U-NII-3



U-NII-3 Band (80MHz BW)

Ch 155 - 5775 MHz

802.11(ac) MCS9

# OCCUPIED BANDWIDTH

## U-NII-1



### TEST DESCRIPTION

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.

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

When the occupied bandwidth limit is not stated in the applicable RSS or reference measurement method, the transmitted signal bandwidth shall be reported as the 99% emission bandwidth as defined in RSS-Gen Clause 6.7. This value is also used to set the integration bandwidth for output power as allowed per ANSI C63.10 section 12.3.

The 99% occupied bandwidth was measured with the EUT configured for continuous modulated operation.

The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts.

The resolution bandwidth (RBW) of the spectrum analyzer was set to the range of 1% to 5% of the occupied bandwidth (OBW) and video bandwidth (VBW) bandwidth was set to at least 3 times the resolution bandwidth. The analyzer sweep time was set to auto to prevent video filtering or averaging. A sample detector was used unless the device was not able to be operated in a continuous transmit mode, in which case a peak detector was used.

The spectrum analyzer occupied bandwidth measurement function was used to sum the power of the transmission in linear terms to obtain the 99% bandwidth.

### TEST EQUIPMENT

| Description                  | Manufacturer       | Model                 | ID  | Last Cal.  | Cal. Due   |
|------------------------------|--------------------|-----------------------|-----|------------|------------|
| Analyzer - Spectrum Analyzer | Agilent            | E4443A                | AAR | 2024-11-07 | 2025-11-07 |
| Block - DC                   | Fairview Microwave | SD3379                | ANG | 2024-10-03 | 2025-10-03 |
| Attenuator                   | Fairview Microwave | SA18H-20              | UAX | 2024-07-11 | 2025-07-11 |
| Cable                        | Micro-Coax         | UFD150A-1-0720-200200 | OCA | 2024-10-02 | 2025-10-02 |
| Generator - Signal           | Agilent            | E8257D                | TGU | 2023-11-08 | 2026-11-08 |
| Meter - Multimeter           | Fluke              | 107                   | MBF | 2024-04-12 | 2025-04-12 |

# OCCUPIED BANDWIDTH

## U-NII-1



|                   |                                    |                       |            |
|-------------------|------------------------------------|-----------------------|------------|
| EUT:              | Lantern Reusable Navigation Unit   | Work Order:           | ORTH0035   |
| Serial Number:    | R213200116                         | Date:                 | 2024-12-16 |
| Customer:         | OrthAlign                          | Temperature:          | 20.2°C     |
| Attendees:        | Steven Devinentis, Kian Gholizadeh | Relative Humidity:    | 40.8%      |
| Customer Project: | None                               | Bar. Pressure (PMSL): | 1018 mbar  |
| Tested By:        | Nolan De Ramos                     | Job Site:             | OC13       |
| Power:            | 5VDC                               | Configuration:        | ORTH0035-2 |

### TEST SPECIFICATIONS

|                 |                  |
|-----------------|------------------|
| Specification:  | Method:          |
| FCC 15.407:2024 | ANSI C63.10:2013 |

### COMMENTS

None

### DEVIATIONS FROM TEST STANDARD

None

### CONCLUSION

N/A

Tested By

# OCCUPIED BANDWIDTH

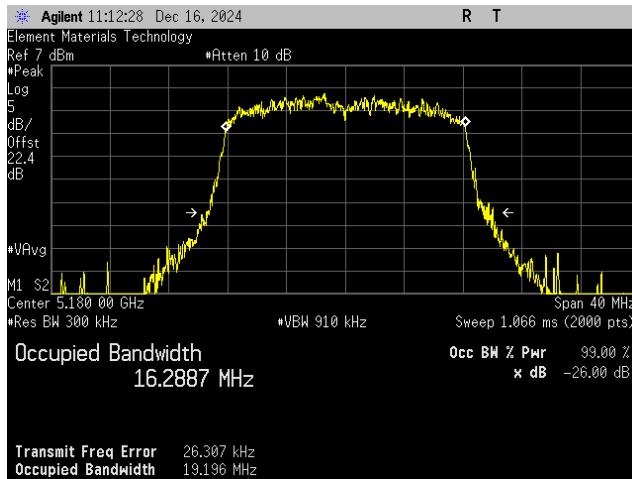
## U-NII-1

### TEST RESULTS

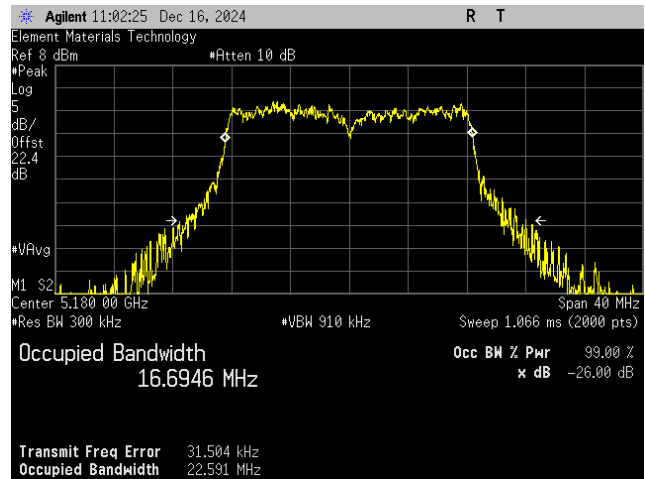
|                         |                   | Value      | Limit | Result |
|-------------------------|-------------------|------------|-------|--------|
| U-NII-1 Band (20MHz BW) |                   |            |       |        |
| Ch 36 - 5180 MHz        |                   |            |       |        |
|                         | 802.11(a) 6 Mbps  | 16.289 MHz | N/A   | N/A    |
|                         | 802.11(a) 36 Mbps | 16.695 MHz | N/A   | N/A    |
|                         | 802.11(a) 54 Mbps | 16.664 MHz | N/A   | N/A    |
|                         | 802.11(n) MCS0    | 17.397 MHz | N/A   | N/A    |
|                         | 802.11(n) MCS7    | 18.023 MHz | N/A   | N/A    |
| Ch 44 - 5220 MHz        |                   |            |       |        |
|                         | 802.11(a) 6 Mbps  | 16.274 MHz | N/A   | N/A    |
|                         | 802.11(a) 36 Mbps | 16.604 MHz | N/A   | N/A    |
|                         | 802.11(a) 54 Mbps | 18.029 MHz | N/A   | N/A    |
|                         | 802.11(n) MCS0    | 17.463 MHz | N/A   | N/A    |
|                         | 802.11(n) MCS7    | 18.144 MHz | N/A   | N/A    |
| Ch 48 - 5240 MHz        |                   |            |       |        |
|                         | 802.11(a) 6 Mbps  | 16.323 MHz | N/A   | N/A    |
|                         | 802.11(a) 36 Mbps | 16.808 MHz | N/A   | N/A    |
|                         | 802.11(a) 54 Mbps | 16.76 MHz  | N/A   | N/A    |
|                         | 802.11(n) MCS0    | 17.44 MHz  | N/A   | N/A    |
|                         | 802.11(n) MCS7    | 18.169 MHz | N/A   | N/A    |
| U-NII-1 Band (40MHz BW) |                   |            |       |        |
| Ch 38 - 5190 MHz        |                   |            |       |        |
|                         | 802.11(n) MCS0    | 35.835 MHz | N/A   | N/A    |
|                         | 802.11(n) MCS7    | 37.718 MHz | N/A   | N/A    |
| Ch 46 - 5230 MHz        |                   |            |       |        |
|                         | 802.11(n) MCS0    | 36.167 MHz | N/A   | N/A    |
|                         | 802.11(n) MCS7    | 41.88 MHz  | N/A   | N/A    |
| U-NII-1 Band (80MHz BW) |                   |            |       |        |
| Ch 42 - 5210 MHz        |                   |            |       |        |
|                         | 802.11(ac) MCS0   | 74.769 MHz | N/A   | N/A    |
|                         | 802.11(ac) MCS9   | 75.348 MHz | N/A   | N/A    |

# OCCUPIED BANDWIDTH

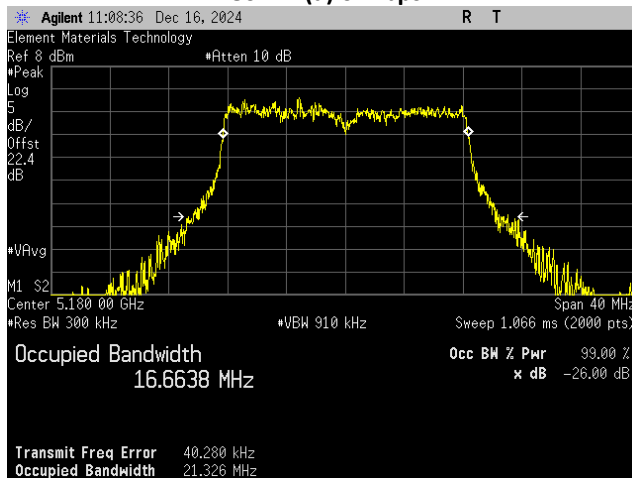
## U-NII-1



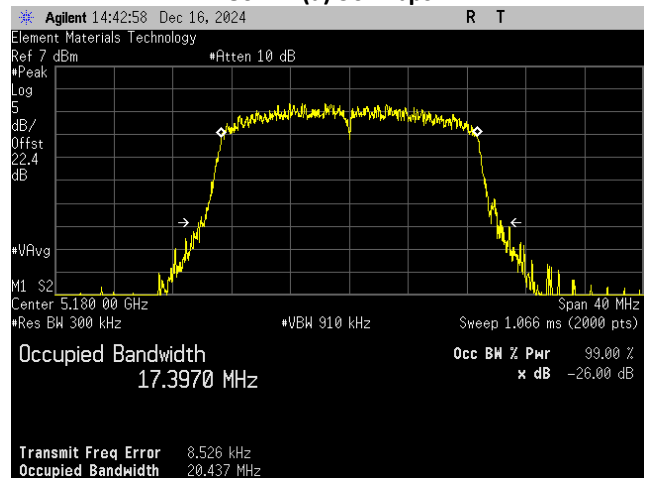
U-NII-1 Band (20MHz BW)  
Ch 36 - 5180 MHz  
802.11(a) 6 Mbps



U-NII-1 Band (20MHz BW)  
Ch 36 - 5180 MHz  
802.11(a) 36 Mbps



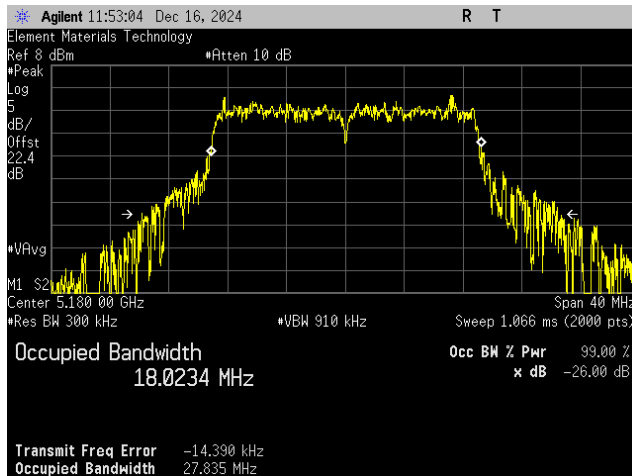
U-NII-1 Band (20MHz BW)  
Ch 36 - 5180 MHz  
802.11(a) 54 Mbps



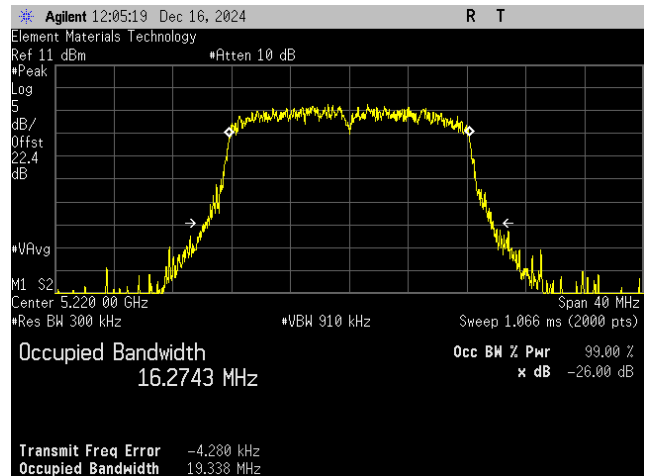
U-NII-1 Band (20MHz BW)  
Ch 36 - 5180 MHz  
802.11(n) MCS0

# OCCUPIED BANDWIDTH

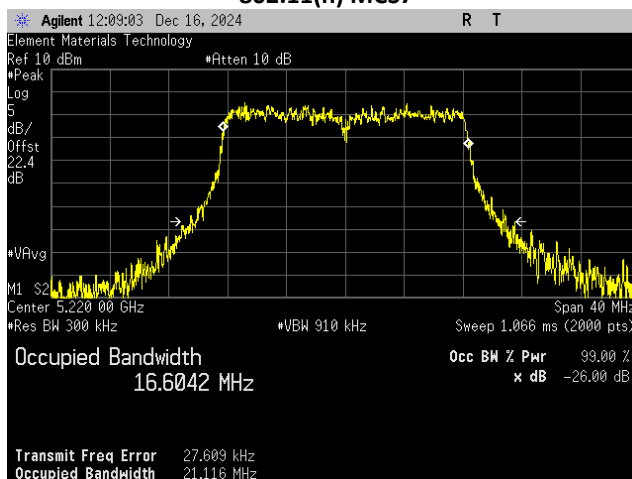
## U-NII-1



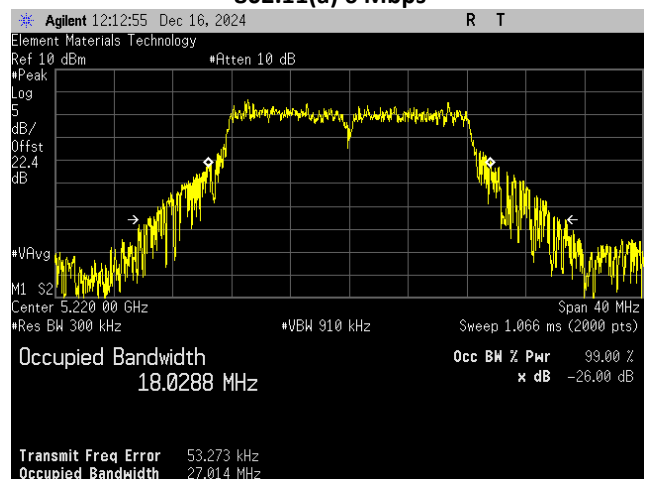
**U-NII-1 Band (20MHz BW)**  
**Ch 36 - 5180 MHz**  
**802.11(n) MCS7**



**U-NII-1 Band (20MHz BW)**  
**Ch 44 - 5220 MHz**  
**802.11(a) 6 Mbps**



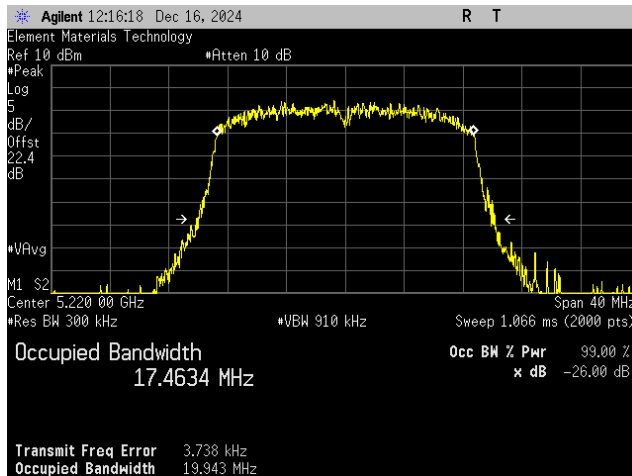
**U-NII-1 Band (20MHz BW)**  
**Ch 44 - 5220 MHz**  
**802.11(a) 36 Mbps**



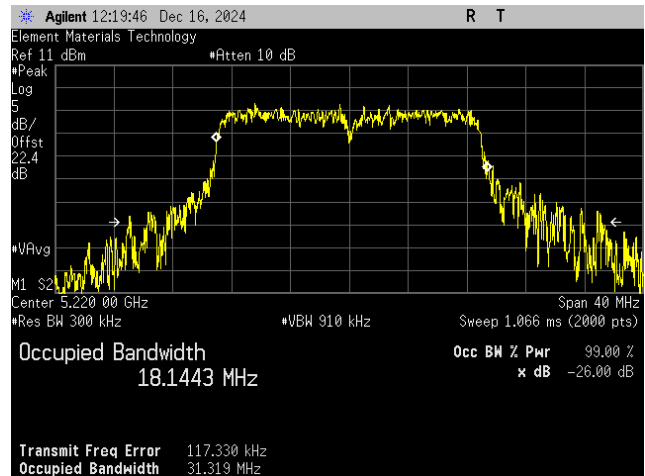
**U-NII-1 Band (20MHz BW)**  
**Ch 44 - 5220 MHz**  
**802.11(a) 54 Mbps**

# OCCUPIED BANDWIDTH

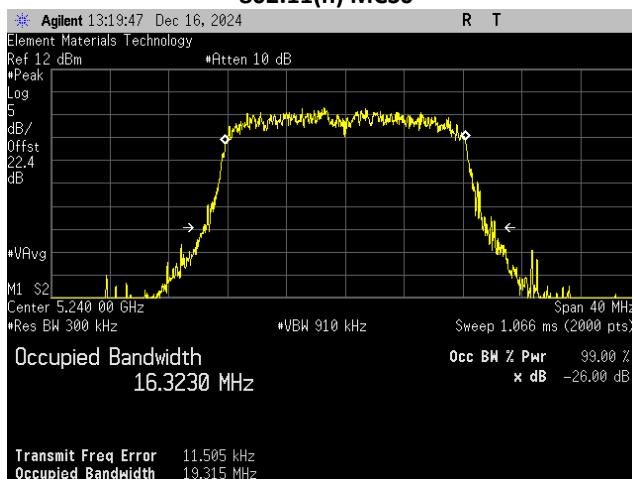
## U-NII-1



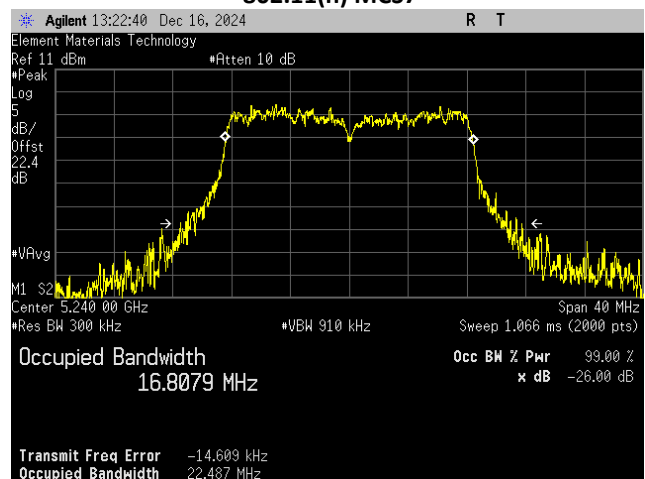
**U-NII-1 Band (20MHz BW)**  
**Ch 44 - 5220 MHz**  
**802.11(n) MCS0**



**U-NII-1 Band (20MHz BW)**  
**Ch 44 - 5220 MHz**  
**802.11(n) MCS7**



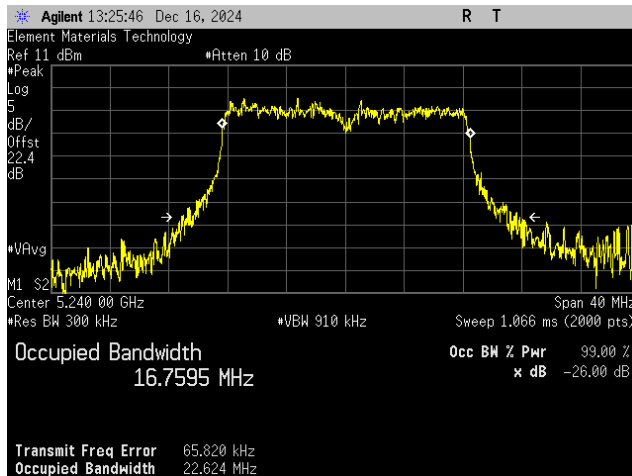
**U-NII-1 Band (20MHz BW)**  
**Ch 48 - 5240 MHz**  
**802.11(a) 6 Mbps**



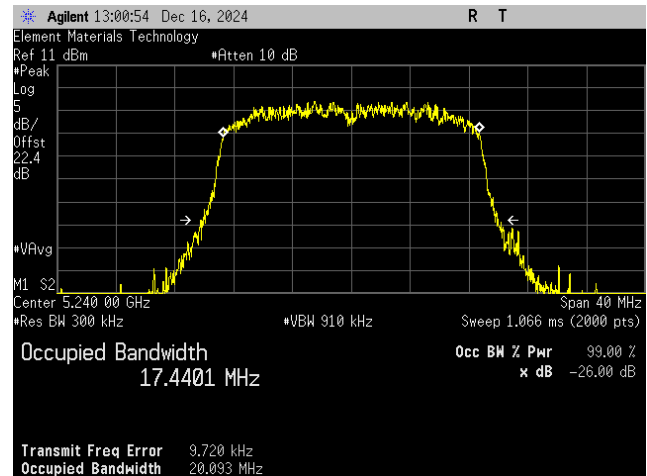
**U-NII-1 Band (20MHz BW)**  
**Ch 48 - 5240 MHz**  
**802.11(a) 36 Mbps**

# OCCUPIED BANDWIDTH

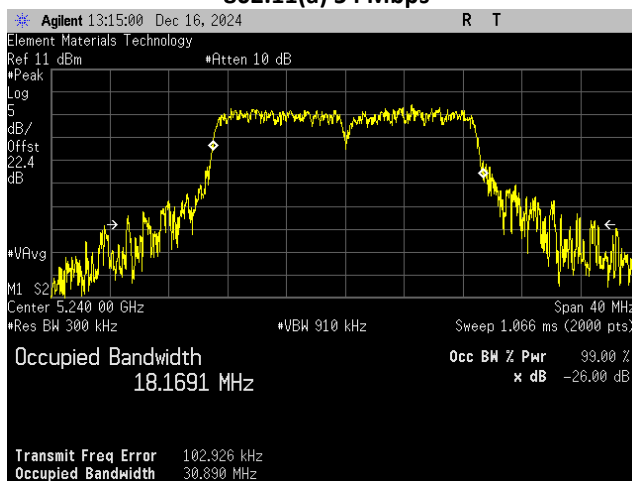
## U-NII-1



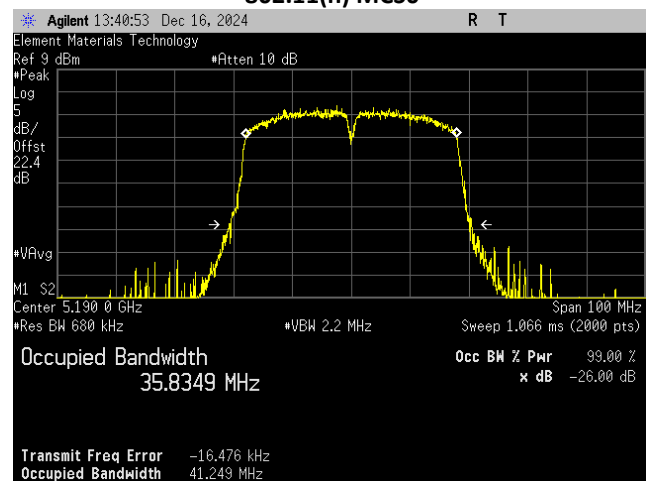
**U-NII-1 Band (20MHz BW)**  
**Ch 48 - 5240 MHz**  
**802.11(a) 54 Mbps**



**U-NII-1 Band (20MHz BW)**  
**Ch 48 - 5240 MHz**  
**802.11(n) MCS0**



**U-NII-1 Band (20MHz BW)**  
**Ch 48 - 5240 MHz**  
**802.11(n) MCS7**

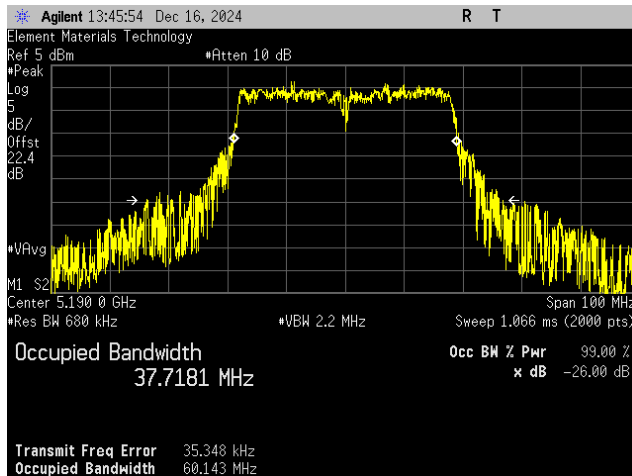


**U-NII-1 Band (40MHz BW)**  
**Ch 38 - 5190 MHz**  
**802.11(n) MCS0**

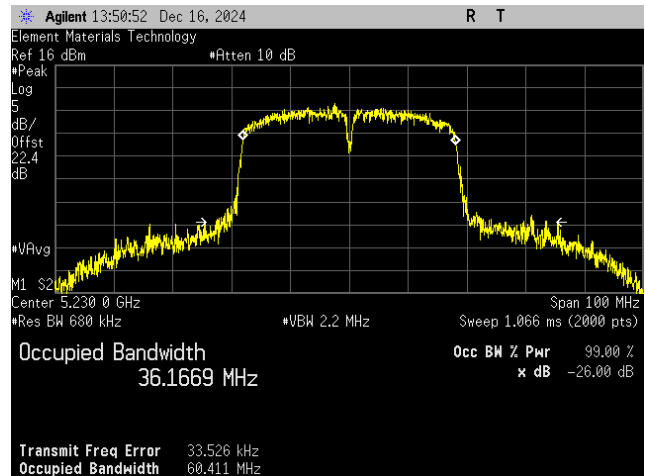


# OCCUPIED BANDWIDTH

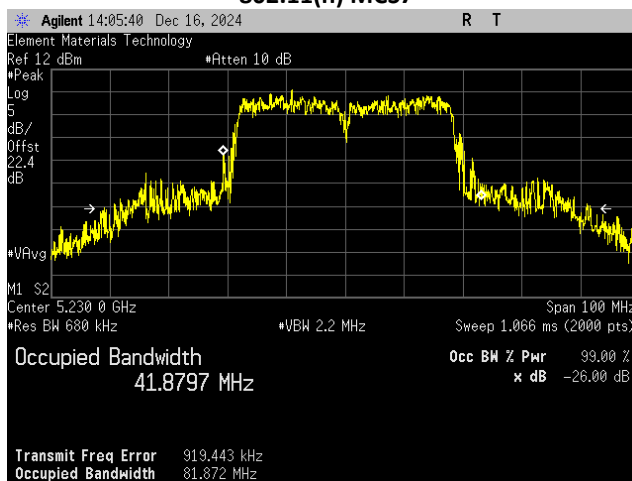
## U-NII-1



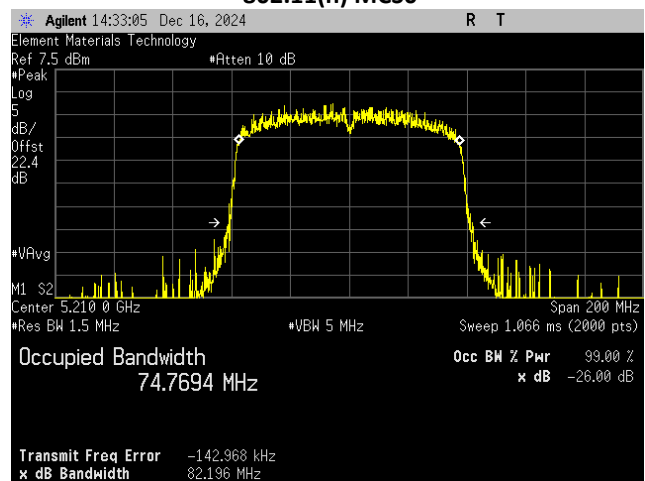
**U-NII-1 Band (40MHz BW)**  
**Ch 38 - 5190 MHz**  
**802.11(n) MCS7**



**U-NII-1 Band (40MHz BW)**  
**Ch 46 - 5230 MHz**  
**802.11(n) MCS0**



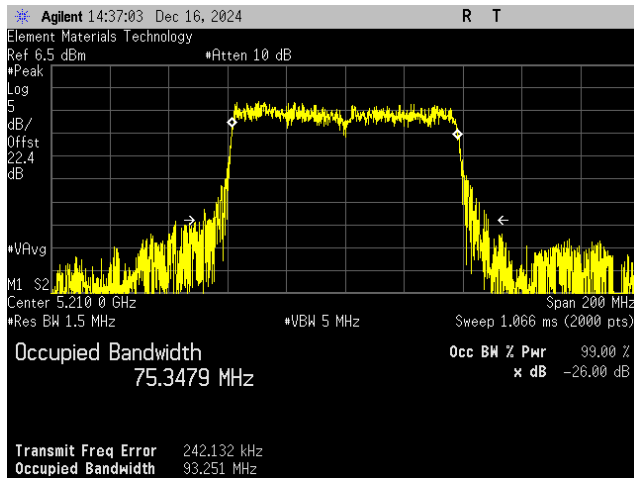
**U-NII-1 Band (40MHz BW)**  
**Ch 46 - 5230 MHz**  
**802.11(n) MCS7**



**U-NII-1 Band (80MHz BW)**  
**Ch 42 - 5210 MHz**  
**802.11(ac) MCS0**

# OCCUPIED BANDWIDTH

## U-NII-1



U-NII-1 Band (80MHz BW)

Ch 42 - 5210 MHz

802.11(ac) MCS9

# OCCUPIED BANDWIDTH

## U-NII-3



### TEST DESCRIPTION

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.

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

When the occupied bandwidth limit is not stated in the applicable RSS or reference measurement method, the transmitted signal bandwidth shall be reported as the 99% emission bandwidth as defined in RSS-Gen Clause 6.7. This value is also used to set the integration bandwidth for output power as allowed per ANSI C63.10 section 12.3.

The 99% occupied bandwidth was measured with the EUT configured for continuous modulated operation.

The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts.

The resolution bandwidth (RBW) of the spectrum analyzer was set to the range of 1% to 5% of the occupied bandwidth (OBW) and video bandwidth (VBW) bandwidth was set to at least 3 times the resolution bandwidth. The analyzer sweep time was set to auto to prevent video filtering or averaging. A sample detector was used unless the device was not able to be operated in a continuous transmit mode, in which case a peak detector was used.

The spectrum analyzer occupied bandwidth measurement function was used to sum the power of the transmission in linear terms to obtain the 99% bandwidth.

### TEST EQUIPMENT

| Description                  | Manufacturer       | Model                 | ID  | Last Cal.  | Cal. Due   |
|------------------------------|--------------------|-----------------------|-----|------------|------------|
| Analyzer - Spectrum Analyzer | Agilent            | E4443A                | AAR | 2024-11-07 | 2025-11-07 |
| Block - DC                   | Fairview Microwave | SD3379                | ANG | 2024-10-03 | 2025-10-03 |
| Attenuator                   | Fairview Microwave | SA18H-20              | UAX | 2024-07-11 | 2025-07-11 |
| Cable                        | Micro-Coax         | UFD150A-1-0720-200200 | OCA | 2024-10-02 | 2025-10-02 |
| Generator - Signal           | Agilent            | E8257D                | TGU | 2023-11-08 | 2026-11-08 |
| Meter - Multimeter           | Fluke              | 107                   | MBF | 2024-04-12 | 2025-04-12 |

# OCCUPIED BANDWIDTH U-NII-3



|                   |                                    |                       |            |
|-------------------|------------------------------------|-----------------------|------------|
| EUT:              | Lantern Reusable Navigation Unit   | Work Order:           | ORTH0035   |
| Serial Number:    | R213200116                         | Date:                 | 2024-12-16 |
| Customer:         | OrthAlign                          | Temperature:          | 20.2°C     |
| Attendees:        | Steven Devinentis, Kian Gholizadeh | Relative Humidity:    | 40.8%      |
| Customer Project: | None                               | Bar. Pressure (PMSL): | 1018 mbar  |
| Tested By:        | Nolan De Ramos                     | Job Site:             | OC13       |
| Power:            | 5VDC                               | Configuration:        | ORTH0035-2 |

## TEST SPECIFICATIONS

|                 |                  |
|-----------------|------------------|
| Specification:  | Method:          |
| FCC 15.407:2024 | ANSI C63.10:2013 |

## COMMENTS

None

## DEVIATIONS FROM TEST STANDARD

None

## CONCLUSION

N/A

Tested By

# OCCUPIED BANDWIDTH

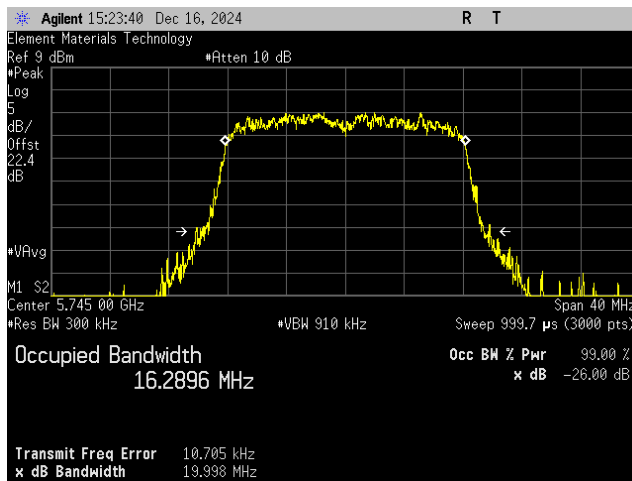
## U-NII-3

### TEST RESULTS

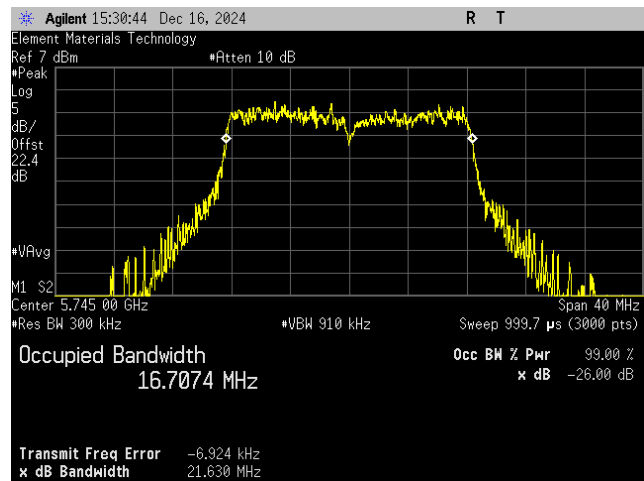
|                         |                   | Value      | Limit | Result |
|-------------------------|-------------------|------------|-------|--------|
| U-NII-3 Band (20MHz BW) |                   |            |       |        |
| Ch 149 - 5745 MHz       |                   |            |       |        |
|                         | 802.11(a) 6 Mbps  | 16.284 MHz | N/A   | N/A    |
|                         | 802.11(a) 36 Mbps | 16.707 MHz | N/A   | N/A    |
|                         | 802.11(a) 54 Mbps | 16.732 MHz | N/A   | N/A    |
|                         | 802.11(n) MCS0    | 17.379 MHz | N/A   | N/A    |
|                         | 802.11(n) MCS7    | 18.009 MHz | N/A   | N/A    |
| Ch 157 - 5785 MHz       |                   |            |       |        |
|                         | 802.11(a) 6 Mbps  | 16.304 MHz | N/A   | N/A    |
|                         | 802.11(a) 36 Mbps | 16.726 MHz | N/A   | N/A    |
|                         | 802.11(a) 54 Mbps | 17.567 MHz | N/A   | N/A    |
|                         | 802.11(n) MCS0    | 17.451 MHz | N/A   | N/A    |
|                         | 802.11(n) MCS7    | 17.838 MHz | N/A   | N/A    |
| Ch 165 - 5825 MHz       |                   |            |       |        |
|                         | 802.11(a) 6 Mbps  | 16.296 MHz | N/A   | N/A    |
|                         | 802.11(a) 36 Mbps | 16.789 MHz | N/A   | N/A    |
|                         | 802.11(a) 54 Mbps | 16.662 MHz | N/A   | N/A    |
|                         | 802.11(n) MCS0    | 17.475 MHz | N/A   | N/A    |
|                         | 802.11(n) MCS7    | 17.775 MHz | N/A   | N/A    |
| U-NII-3 Band (40MHz BW) |                   |            |       |        |
| Ch 151 - 5755 MHz       |                   |            |       |        |
|                         | 802.11(n) MCS0    | 35.86 MHz  | N/A   | N/A    |
|                         | 802.11(n) MCS7    | 35.97 MHz  | N/A   | N/A    |
| Ch 159 - 5795 MHz       |                   |            |       |        |
|                         | 802.11(n) MCS0    | 35.695 MHz | N/A   | N/A    |
|                         | 802.11(n) MCS7    | 36.552 MHz | N/A   | N/A    |
| U-NII-3 Band (80MHz BW) |                   |            |       |        |
| Ch 155 - 5775 MHz       |                   |            |       |        |
|                         | 802.11(ac) MCS0   | 74.694 MHz | N/A   | N/A    |
|                         | 802.11(ac) MCS9   | 76.276 MHz | N/A   | N/A    |

# OCCUPIED BANDWIDTH

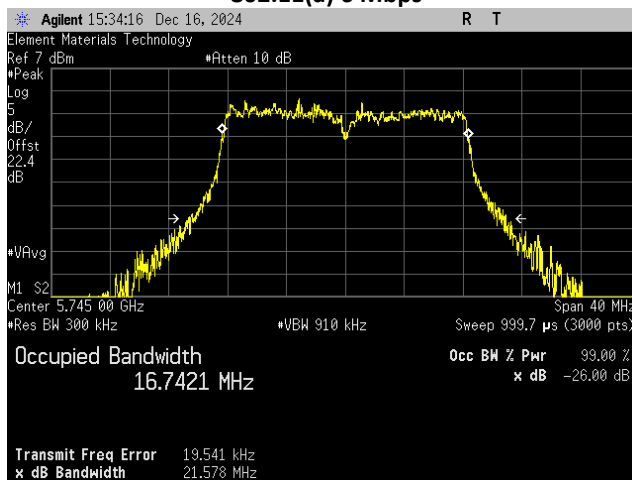
## U-NII-3



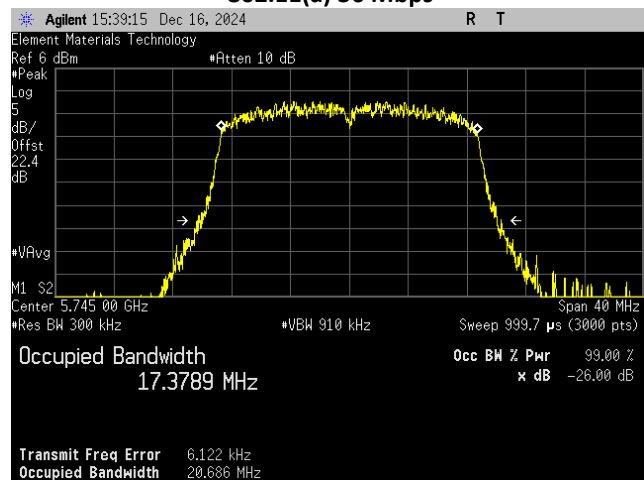
**U-NII-3 Band (20MHz BW)**  
**Ch 149 - 5745 MHz**  
**802.11(a) 6 Mbps**



**U-NII-3 Band (20MHz BW)**  
**Ch 149 - 5745 MHz**  
**802.11(a) 36 Mbps**



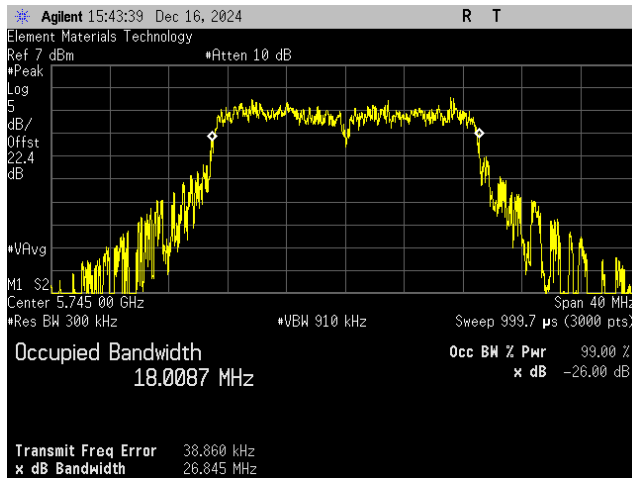
**U-NII-3 Band (20MHz BW)**  
**Ch 149 - 5745 MHz**  
**802.11(a) 54 Mbps**



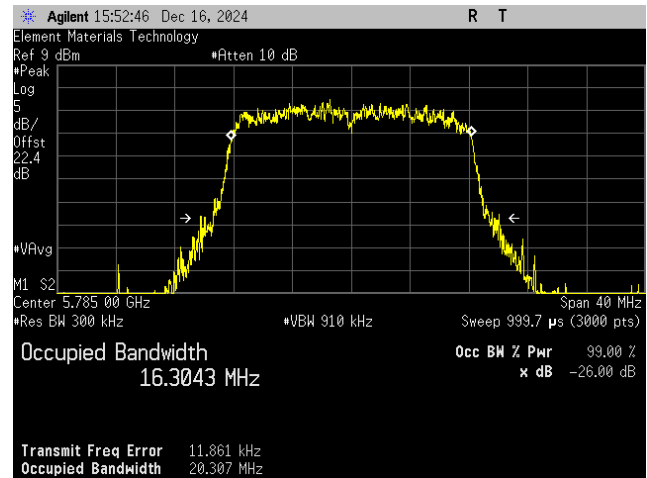
**U-NII-3 Band (20MHz BW)**  
**Ch 149 - 5745 MHz**  
**802.11(n) MCS0**

# OCCUPIED BANDWIDTH

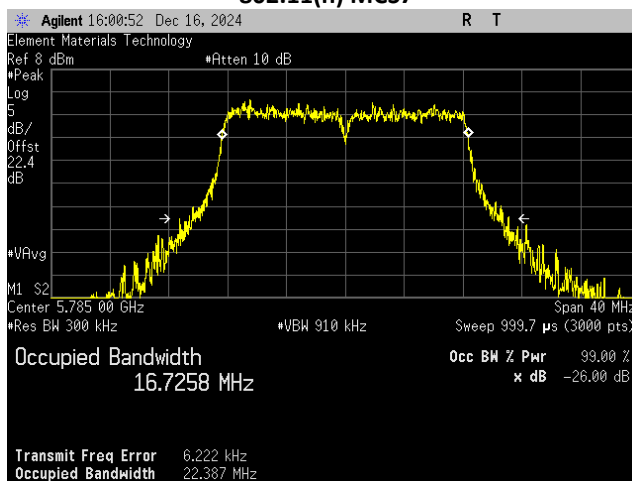
## U-NII-3



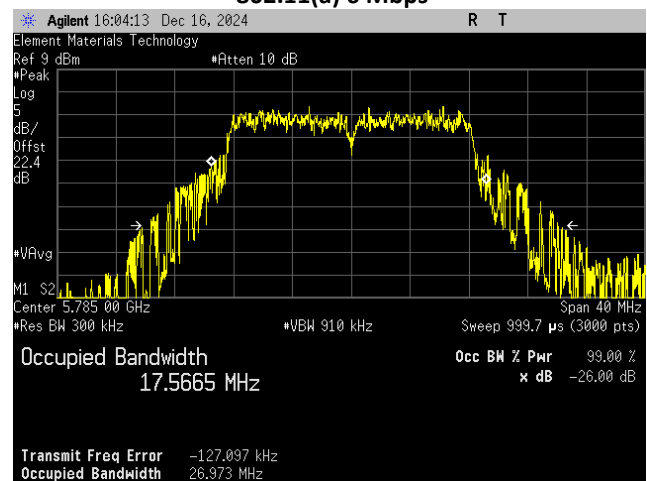
**U-NII-3 Band (20MHz BW)**  
**Ch 149 - 5745 MHz**  
**802.11(n) MCS7**



**U-NII-3 Band (20MHz BW)**  
**Ch 157 - 5785 MHz**  
**802.11(a) 6 Mbps**



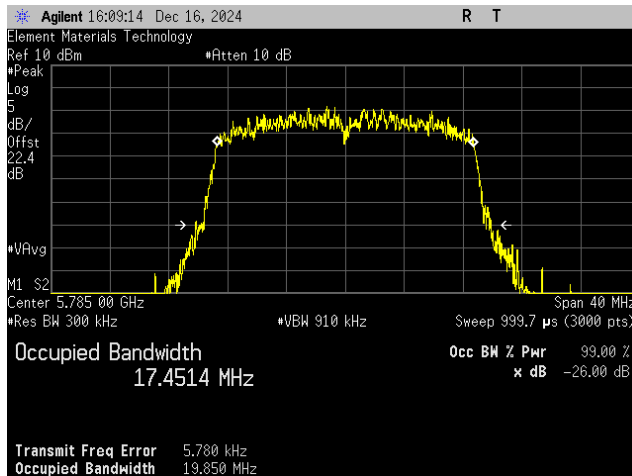
**U-NII-3 Band (20MHz BW)**  
**Ch 157 - 5785 MHz**  
**802.11(a) 36 Mbps**



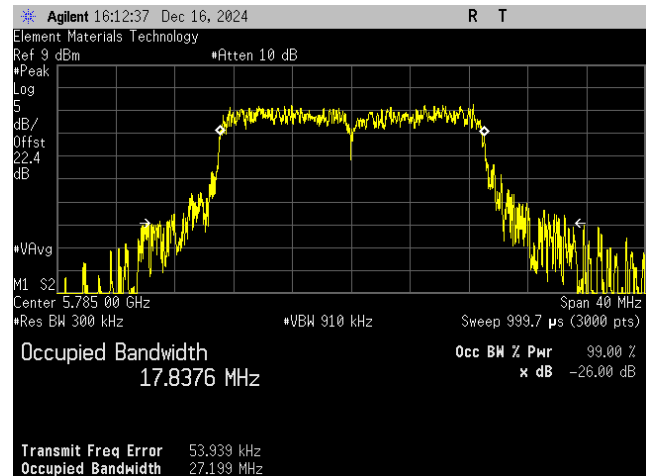
**U-NII-3 Band (20MHz BW)**  
**Ch 157 - 5785 MHz**  
**802.11(a) 54 Mbps**

# OCCUPIED BANDWIDTH

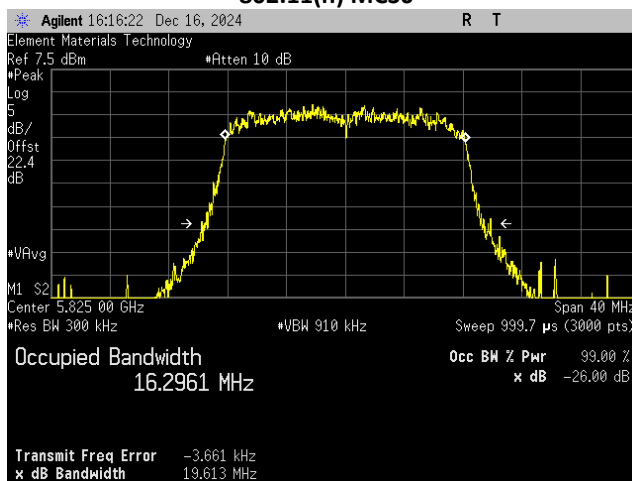
## U-NII-3



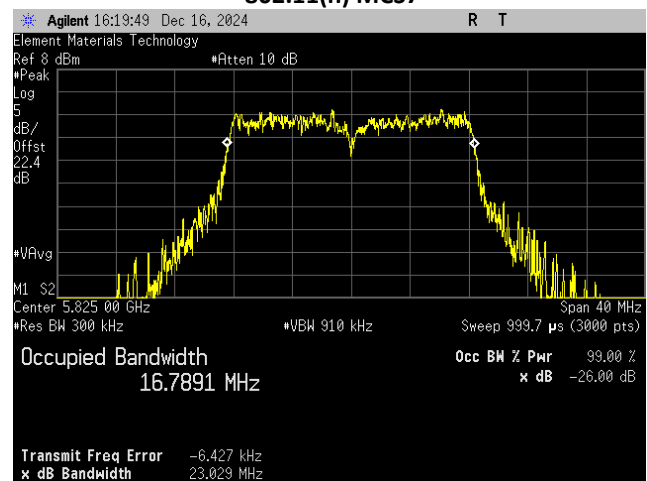
**U-NII-3 Band (20MHz BW)**  
**Ch 157 - 5785 MHz**  
**802.11(n) MCS0**



**U-NII-3 Band (20MHz BW)**  
**Ch 157 - 5785 MHz**  
**802.11(n) MCS7**



**U-NII-3 Band (20MHz BW)**  
**Ch 165 - 5825 MHz**  
**802.11(a) 6 Mbps**

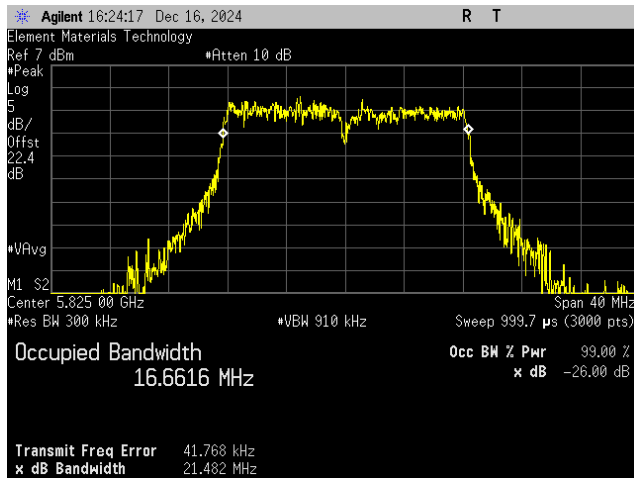


**U-NII-3 Band (20MHz BW)**  
**Ch 165 - 5825 MHz**  
**802.11(a) 36 Mbps**

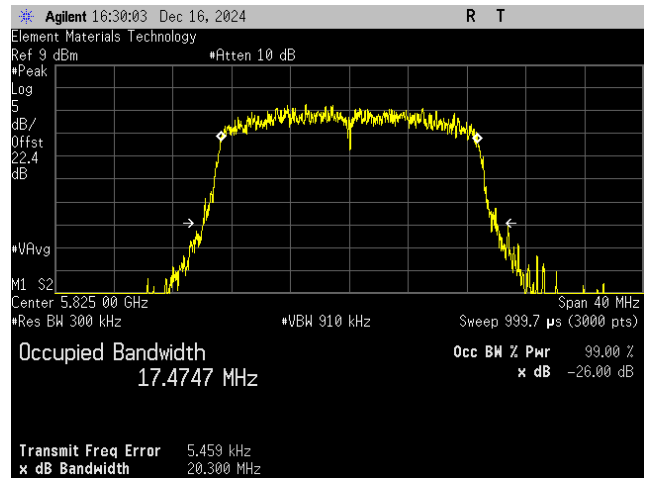


# OCCUPIED BANDWIDTH

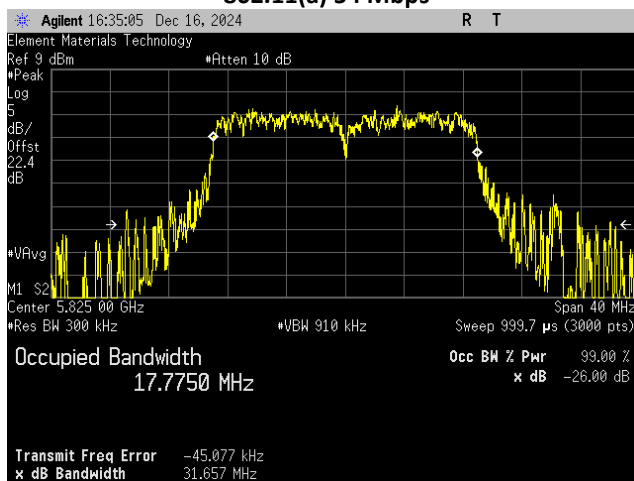
## U-NII-3



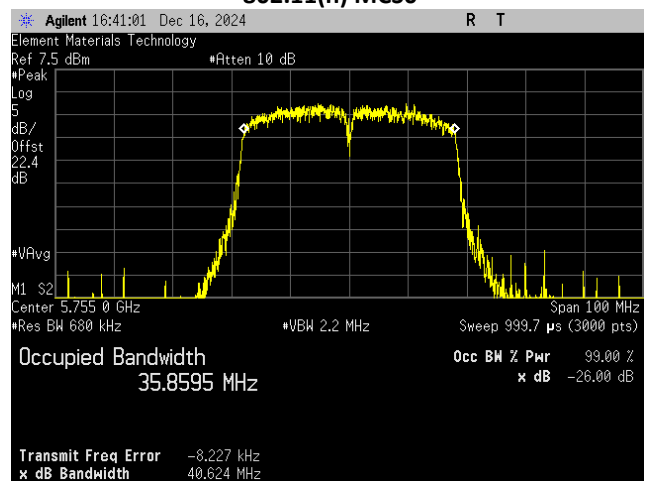
**U-NII-3 Band (20MHz BW)**  
**Ch 165 - 5825 MHz**  
**802.11(a) 54 Mbps**



**U-NII-3 Band (20MHz BW)**  
**Ch 165 - 5825 MHz**  
**802.11(n) MCS0**



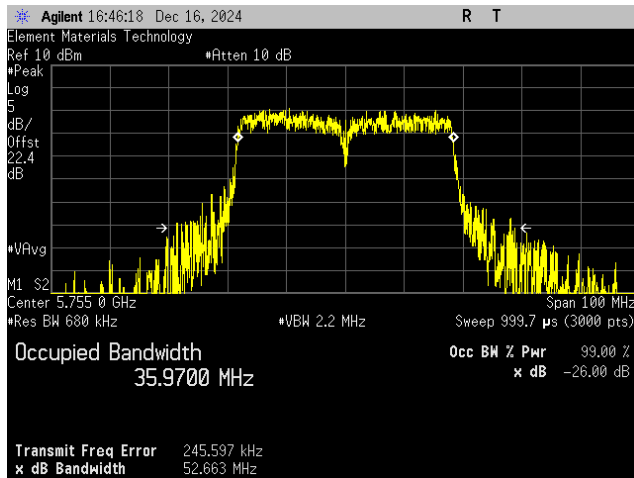
**U-NII-3 Band (20MHz BW)**  
**Ch 165 - 5825 MHz**  
**802.11(n) MCS7**



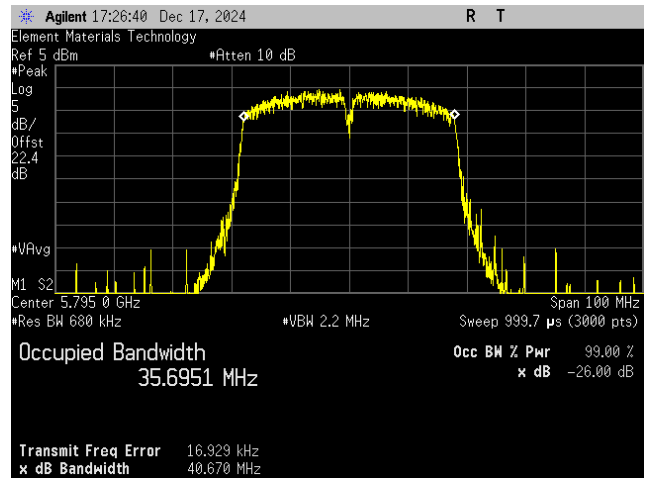
**U-NII-3 Band (40MHz BW)**  
**Ch 151 - 5755 MHz**  
**802.11(n) MCS0**

# OCCUPIED BANDWIDTH

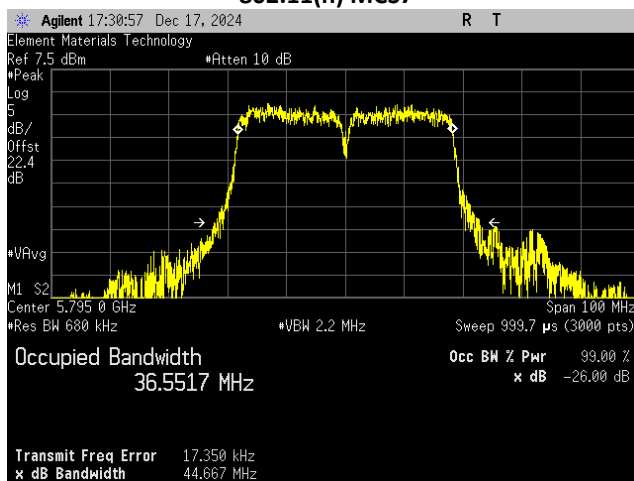
## U-NII-3



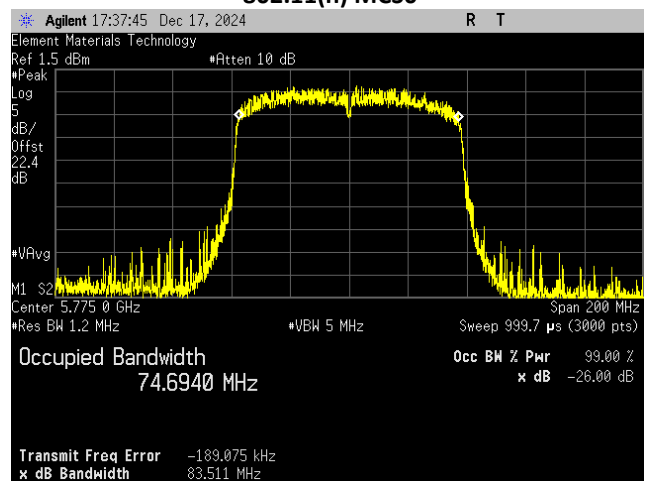
**U-NII-3 Band (40MHz BW)**  
**Ch 151 - 5755 MHz**  
**802.11(n) MCS7**



**U-NII-3 Band (40MHz BW)**  
**Ch 159 - 5795 MHz**  
**802.11(n) MCS0**



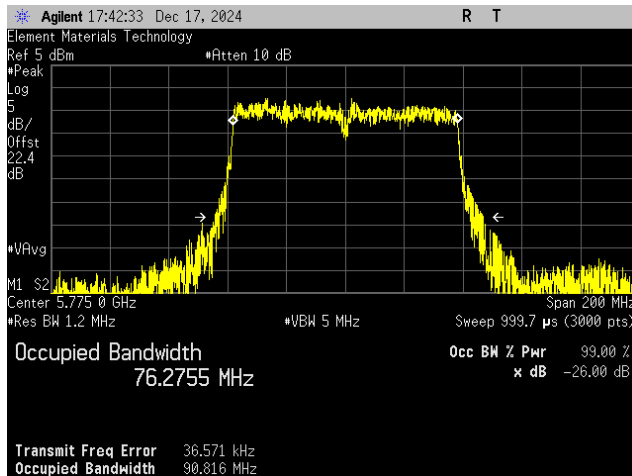
**U-NII-3 Band (40MHz BW)**  
**Ch 159 - 5795 MHz**  
**802.11(n) MCS7**



**U-NII-3 Band (80MHz BW)**  
**Ch 155 - 5775 MHz**  
**802.11(ac) MCS0**

# OCCUPIED BANDWIDTH

## U-NII-3



U-NII-3 Band (80MHz BW)

Ch 155 - 5775 MHz

802.11(ac) MCS9

# SPURIOUS RADIATED EMISSIONS U-NII-1

## 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 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. A reference preview scan (pre-scan) is 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 within 2 MHz of the allowable band may have been taken using the integration method from ANSI C63.10 clause 11.13.3. This procedure uses the channel power feature of the spectrum analyzer to integrate the power of the emission within a 1 MHz bandwidth.

Where the radio test software does not provide for a duty cycle at continuous transmit conditions (> 98%) and the RMS (power average) measurements were made across the on and off times of the EUT transmissions, a duty cycle correction is added to the measurements using the formula of  $10 \cdot \log(1/dc)$ .

## TEST EQUIPMENT

| Description                  | Manufacturer    | Model                  | ID  | Last Cal.  | Cal. Due   |
|------------------------------|-----------------|------------------------|-----|------------|------------|
| Antenna - Double Ridge       | ETS Lindgren    | 3115                   | AIR | 2024-07-23 | 2026-07-23 |
| Cable                        | Northwest EMC   | 1-8GHz RE Cables       | OCJ | 2024-05-08 | 2025-05-08 |
| Amplifier - Pre-Amplifier    | Cernex          | CBL01084020-xx         | PAX | 2024-05-08 | 2025-05-08 |
| Filter - Band Pass/Notch     | Micro-Tronics   | BRC50703               | HHQ | 2024-05-08 | 2025-05-08 |
| Analyzer - Spectrum Analyzer | Agilent         | E4446A                 | AAY | 2024-01-25 | 2025-01-25 |
| Antenna - Standard Gain      | ETS Lindgren    | 3160-07                | AHR | NCR        | NCR        |
| Cable                        | Northwest EMC   | 8-18GHz RE Cables      | OCO | 2024-03-19 | 2025-03-19 |
| Amplifier - Pre-Amplifier    | Miteq           | AMF-6F-08001200-30-10P | AOE | 2024-03-19 | 2025-03-19 |
| Antenna - Standard Gain      | ETS Lindgren    | 3160-08                | AHT | NCR        | NCR        |
| Amplifier - Pre-Amplifier    | Miteq           | AMF-6F-12001800-30-10P | AOF | 2024-03-19 | 2025-03-19 |
| Antenna - Standard Gain      | ETS Lindgren    | 3160-09                | AHN | NCR        | NCR        |
| Cable                        | Northwest EMC   | 18-26GHz RE Cables     | OCH | 2023-12-15 | 2024-12-15 |
| Amplifier - Pre-Amplifier    | Miteq           | AMF-6F-18002650-25-10P | AOI | 2023-12-15 | 2024-12-15 |
| Antenna - Standard Gain      | ETS Lindgren    | 3160-10                | AIX | NCR        | NCR        |
| Cable                        | ESM Cable Corp. | TTBJ141-KMKM-72        | OC1 | 2023-12-18 | 2024-12-18 |
| Amplifier - Pre-Amplifier    | Miteq           | JSW45-26004000-40-5P   | AVQ | 2023-12-18 | 2024-12-18 |
| Antenna - Loop               | EMCO            | 6502                   | AZB | 2023-09-06 | 2025-09-06 |
| Cable                        | Northwest EMC   | 10kHz-1GHz RE Cables   | OCH | 2024-05-09 | 2025-05-09 |

# SPURIOUS RADIATED EMISSIONS U-NII-1

## FREQUENCY RANGE INVESTIGATED

9 kHz TO 40 GHz

## POWER INVESTIGATED

5VDC

## CONFIGURATIONS INVESTIGATED

ORTH0035-1

## MODES INVESTIGATED

Transmitting Wi-Fi U-NII-1, IEEE

- 802.11a, 20 MHz BW Ch: 36, 44, & 48, Data Rate: 6, 36, 54 Mbps
- 802.11n, 20 MHz BW Ch: 36, 44, & 48, 40 MHz BW Ch: 38 & 46, Data Rate: MCS0, MCS7
- 802.11ac, 80 MHz BW Ch: 42, Data Rate: MCS0, MCS9

Transmitting Wi-Fi U-NII-1, IEEE

- 802.11a, 20 MHz BW Ch: 36, Data Rate: 6, 36, 54 Mbps
- 802.11n, 20 MHz BW Ch: 36, 40 MHz BW Ch: 38, Data Rate: MCS0, MCS7
- 802.11ac, 80 MHz BW Ch: 42, Data Rate: MCS0, MCS9

# SPURIOUS RADIATED EMISSIONS U-NII-1

|                   |                                     |                       |            |
|-------------------|-------------------------------------|-----------------------|------------|
| EUT:              | Lantern Reusable Navigation Unit    | Work Order:           | ORTH0035   |
| Serial Number:    | 2401016                             | Date:                 | 2024-10-23 |
| Customer:         | OrthAlign                           | Temperature:          | 20.8°C     |
| Attendees:        | Steven Devincentis, Kian Gholizadeh | Relative Humidity:    | 46.2%      |
| Customer Project: | None                                | Bar. Pressure (PMSL): | 1017 mb    |
| Tested By:        | Nolan De Ramos                      | Job Site:             | OC10       |
| Power:            | 5VDC                                | Configuration:        | ORTH0035-1 |

## TEST SPECIFICATIONS

|                 |                  |
|-----------------|------------------|
| Specification:  | Method:          |
| FCC 15.407:2024 | ANSI C63.10:2013 |

## TEST PARAMETERS

|        |    |                    |   |                     |           |
|--------|----|--------------------|---|---------------------|-----------|
| Run #: | 55 | Test Distance (m): | 3 | Ant. Height(s) (m): | 1 to 4(m) |
|--------|----|--------------------|---|---------------------|-----------|

## COMMENTS

None

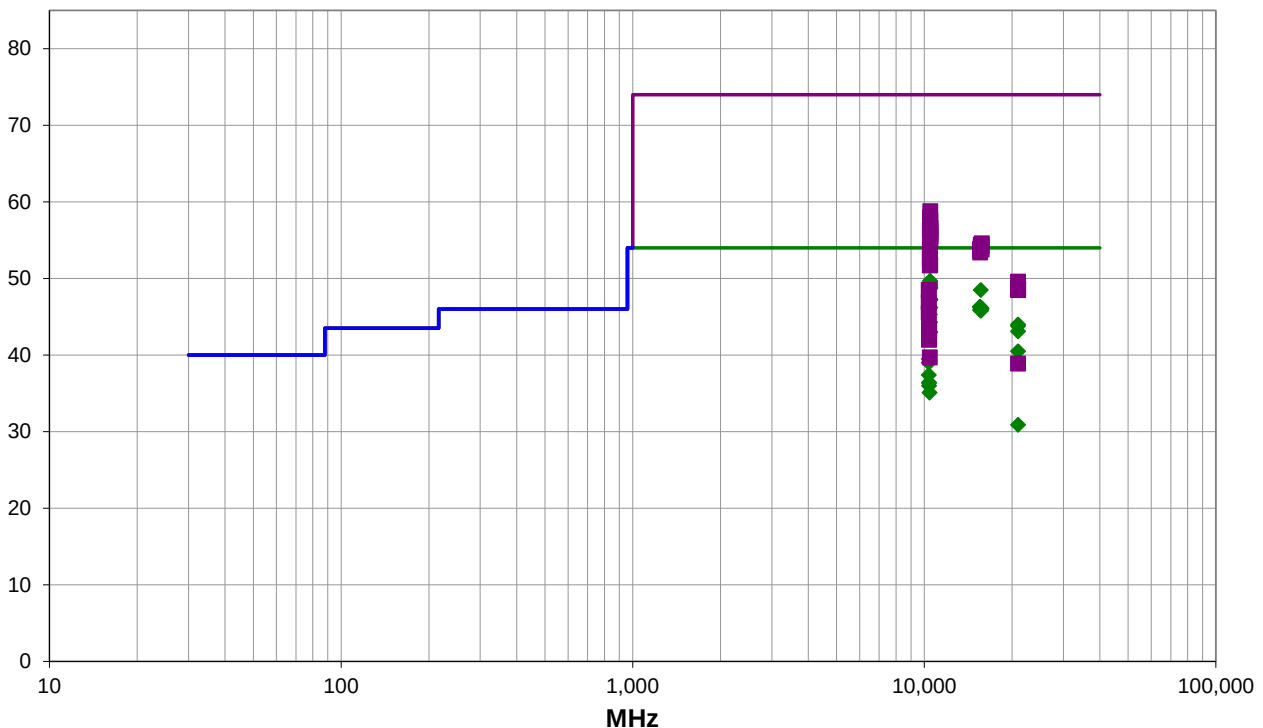
## EUT OPERATING MODES

Transmitting Wi-Fi U-NII-1, IEEE

- 802.11a, 20 MHz BW Ch: 36, 44, & 48, Data Rate: 6, 36, 54 Mbps
- 802.11n, 20 MHz BW Ch: 36, 44, & 48, 40 MHz BW Ch: 38 & 46, Data Rate: MCS0, MCS7
- 802.11ac, 80 MHz BW Ch: 42, Data Rate: MCS0, MCS9

## DEVIATIONS FROM TEST STANDARD

None



Run #: 55

PK AV QP

# SPURIOUS RADIATED EMISSIONS U-NII-1

## RESULTS - Run #55

| 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                                     |
|------------|------------------|---------------|-------------------------|-------------------|-----------------------------------|---------------------------|--------------------------|----------|--------------------------|-------------------|----------------------|------------------------|----------------------------------------------|
| 10461.000  | 52.2             | -5.3          | 1.7                     | 2.0               | 2.8                               | 0.0                       | Vert                     | AV       | 0.0                      | 49.7              | 54.0                 | -4.3                   | Tx Ch 48, MCS7, Pwr 14, EUT Vert             |
| 10478.870  | 52.1             | -5.3          | 1.7                     | 360.0             | 2.8                               | 0.0                       | Vert                     | AV       | 0.0                      | 49.6              | 54.0                 | -4.4                   | Tx Ch 48, 6 Mbps, Pwr 14, EUT Vert           |
| 10461.300  | 52.1             | -5.3          | 1.7                     | 2.0               | 2.6                               | 0.0                       | Vert                     | AV       | 0.0                      | 49.4              | 54.0                 | -4.6                   | Tx Ch 46 (40 MHz BW), MCS0, Pwr 18, EUT Vert |
| 10480.870  | 51.7             | -5.3          | 2.2                     | 359.0             | 2.8                               | 0.0                       | Vert                     | AV       | 0.0                      | 49.2              | 54.0                 | -4.8                   | Tx Ch 48, 54 Mbps, Pwr 14, EUT Vert          |
| 10479.670  | 51.5             | -5.3          | 2.2                     | 359.0             | 2.8                               | 0.0                       | Vert                     | AV       | 0.0                      | 49.0              | 54.0                 | -5.0                   | Tx Ch 48, 36 Mbps, Pwr 14, EUT Vert          |
| 10481.930  | 51.4             | -5.3          | 2.2                     | 359.0             | 2.8                               | 0.0                       | Vert                     | AV       | 0.0                      | 48.9              | 54.0                 | -5.1                   | Tx Ch 48, MCS0, Pwr 14, EUT Vert             |
| 10479.000  | 51.3             | -5.3          | 1.9                     | 346.0             | 2.8                               | 0.0                       | Horz                     | AV       | 0.0                      | 48.8              | 54.0                 | -5.2                   | Tx Ch 48, 6 Mbps, Pwr 14, EUT on Side        |
| 10481.400  | 51.2             | -5.3          | 2.2                     | 359.0             | 2.8                               | 0.0                       | Vert                     | AV       | 0.0                      | 48.7              | 54.0                 | -5.3                   | Tx Ch 48, MCS7, Pwr 14, EUT Vert             |
| 15613.800  | 28.9             | 14.4          | 3.0                     | 90.0              | 5.2                               | 0.0                       | Vert                     | AV       | 0.0                      | 48.5              | 54.0                 | -5.5                   | Tx Ch 42 (80 MHz BW), MCS9, Pwr 8, EUT Vert  |
| 10482.470  | 49.8             | -5.3          | 2.2                     | 309.0             | 2.8                               | 0.0                       | Vert                     | AV       | 0.0                      | 47.3              | 54.0                 | -6.7                   | Tx Ch 48, 6 Mbps, Pwr 14, EUT on Side        |
| 10482.400  | 49.7             | -5.3          | 1.8                     | 9.0               | 2.8                               | 0.0                       | Horz                     | AV       | 0.0                      | 47.2              | 54.0                 | -6.8                   | Tx Ch 48, 6 Mbps, Pwr 14, EUT Vert           |
| 15518.250  | 29.4             | 14.1          | 1.5                     | 151.0             | 2.8                               | 0.0                       | Vert                     | AV       | 0.0                      | 46.3              | 54.0                 | -7.7                   | Tx Ch 36, 6 Mbps, Pwr 11, EUT Vert           |
| 15517.250  | 29.4             | 14.1          | 1.5                     | 151.0             | 2.8                               | 0.0                       | Vert                     | AV       | 0.0                      | 46.3              | 54.0                 | -7.7                   | Tx Ch 36, MCS0, Pwr 10, EUT Vert             |
| 15643.000  | 28.8             | 14.6          | 1.3                     | 114.0             | 2.8                               | 0.0                       | Vert                     | AV       | 0.0                      | 46.2              | 54.0                 | -7.8                   | Tx Ch 44, 6 Mbps, Pwr 13, EUT Vert           |
| 10479.130  | 48.7             | -5.3          | 3.6                     | 106.0             | 2.8                               | 0.0                       | Vert                     | AV       | 0.0                      | 46.2              | 54.0                 | -7.8                   | Tx Ch 48, 6 Mbps, Pwr 14, EUT Horz           |
| 15613.830  | 28.9             | 14.4          | 1.5                     | 203.0             | 2.8                               | 0.0                       | Vert                     | AV       | 0.0                      | 46.1              | 54.0                 | -7.9                   | Tx Ch 44, MCS0, Pwr 13, EUT Vert             |
| 15697.080  | 28.4             | 14.9          | 1.5                     | 0.0               | 2.8                               | 0.0                       | Vert                     | AV       | 0.0                      | 46.1              | 54.0                 | -7.9                   | Tx Ch 48, 6 Mbps, Pwr 14, EUT Vert           |
| 15674.670  | 28.5             | 14.7          | 1.5                     | 84.0              | 2.8                               | 0.0                       | Vert                     | AV       | 0.0                      | 46.0              | 54.0                 | -8.0                   | Tx Ch 48, MCS0, Pwr 14, EUT Vert             |
| 15522.500  | 29.2             | 14.1          | 1.5                     | 327.0             | 2.6                               | 0.0                       | Vert                     | AV       | 0.0                      | 45.9              | 54.0                 | -8.1                   | Tx Ch 38 (40 MHz BW), MCS0, Pwr 11, EUT Vert |
| 15641.000  | 28.6             | 14.6          | 1.7                     | 257.0             | 2.6                               | 0.0                       | Vert                     | AV       | 0.0                      | 45.8              | 54.0                 | -8.2                   | Tx Ch 46 (40 MHz BW), MCS0, Pwr 18, EUT Vert |
| 10442.470  | 47.9             | -5.4          | 1.7                     | 341.0             | 2.8                               | 0.0                       | Vert                     | AV       | 0.0                      | 45.3              | 54.0                 | -8.7                   | Tx Ch 44, 6 Mbps, Pwr 13, EUT Vert           |
| 10441.130  | 46.9             | -5.4          | 2.2                     | 359.0             | 2.8                               | 0.0                       | Vert                     | AV       | 0.0                      | 44.3              | 54.0                 | -9.7                   | Tx Ch 44, MCS0, Pwr 13, EUT Vert             |
| 10442.330  | 46.9             | -5.4          | 2.5                     | 341.0             | 2.8                               | 0.0                       | Vert                     | AV       | 0.0                      | 44.3              | 54.0                 | -9.7                   | Tx Ch 44, MCS0, Pwr 13, EUT Vert             |
| 20960.120  | 40.1             | 1.1           | 1.2                     | 304.0             | 2.8                               | 0.0                       | Horz                     | AV       | 0.0                      | 44.0              | 54.0                 | -10.0                  | Tx Ch 48, 6 Mbps, Pwr 14, EUT on Side        |
| 20960.120  | 39.9             | 1.1           | 1.2                     | 337.0             | 2.8                               | 0.0                       | Vert                     | AV       | 0.0                      | 43.8              | 54.0                 | -10.2                  | Tx Ch 48, 6 Mbps, Pwr 14, EUT Vert           |
| 20960.080  | 39.2             | 1.1           | 1.2                     | 1.0               | 2.8                               | 0.0                       | Horz                     | AV       | 0.0                      | 43.1              | 54.0                 | -10.9                  | Tx Ch 48, 6 Mbps, Pwr 14, EUT Vert           |
| 10480.670  | 45.5             | -5.3          | 3.2                     | 192.0             | 2.8                               | 0.0                       | Horz                     | AV       | 0.0                      | 43.0              | 54.0                 | -11.0                  | Tx Ch 48, 6 Mbps, Pwr 14, EUT Horz           |
| 20960.330  | 36.6             | 1.1           | 1.2                     | 67.0              | 2.8                               | 0.0                       | Vert                     | AV       | 0.0                      | 40.5              | 54.0                 | -13.5                  | Tx Ch 48, 6 Mbps, Pwr 14, EUT on Side        |
| 10362.470  | 42.3             | -5.6          | 2.5                     | 351.0             | 2.8                               | 0.0                       | Vert                     | AV       | 0.0                      | 39.5              | 54.0                 | -14.5                  | Tx Ch 36, 6 Mbps, Pwr 11, EUT Vert           |
| 10362.470  | 41.8             | -5.6          | 1.7                     | 341.0             | 2.8                               | 0.0                       | Vert                     | AV       | 0.0                      | 39.0              | 54.0                 | -15.0                  | Tx Ch 36, 6 Mbps, Pwr 11, EUT Vert           |
| 10477.600  | 64.1             | -5.3          | 1.7                     | 360.0             | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 58.8              | 74.0                 | -15.2                  | Tx Ch 48, 6 Mbps, Pwr 14, EUT Vert           |
| 10460.700  | 63.3             | -5.3          | 1.7                     | 2.0               | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 58.0              | 74.0                 | -16.0                  | Tx Ch 48, MCS7, Pwr 14, EUT Vert             |
| 10477.870  | 63.0             | -5.3          | 1.9                     | 346.0             | 0.0                               | 0.0                       | Horz                     | PK       | 0.0                      | 57.7              | 74.0                 | -16.3                  | Tx Ch 48, 6 Mbps, Pwr 14, EUT on Side        |
| 10359.730  | 40.2             | -5.6          | 2.5                     | 351.0             | 2.8                               | 0.0                       | Vert                     | AV       | 0.0                      | 37.4              | 54.0                 | -16.6                  | Tx Ch 36, MCS0, Pwr 10, EUT Vert             |
| 10479.930  | 62.7             | -5.3          | 2.2                     | 359.0             | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 57.4              | 74.0                 | -16.6                  | Tx Ch 48, 54 Mbps, Pwr 14, EUT Vert          |
| 10480.870  | 62.0             | -5.3          | 2.2                     | 359.0             | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 56.7              | 74.0                 | -17.3                  | Tx Ch 48, MCS0, Pwr 14, EUT Vert             |
| 10482.000  | 61.9             | -5.3          | 2.2                     | 359.0             | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 56.6              | 74.0                 | -17.4                  | Tx Ch 48, MCS7, Pwr 14, EUT Vert             |
| 10378.700  | 36.7             | -5.5          | 2.3                     | 351.0             | 5.2                               | 0.0                       | Vert                     | AV       | 0.0                      | 36.4              | 54.0                 | -17.6                  | Tx Ch 42 (80 MHz BW), MCS8, Pwr 8, EUT Vert  |
| 10379.000  | 36.7             | -5.5          | 2.3                     | 351.0             | 5.2                               | 0.0                       | Vert                     | AV       | 0.0                      | 36.4              | 54.0                 | -17.6                  | Tx Ch 42 (80 MHz BW), MCS9, Pwr 8, EUT Vert  |
| 10456.700  | 61.6             | -5.3          | 1.7                     | 2.0               | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 56.3              | 74.0                 | -17.7                  | Tx Ch 46 (40 MHz BW), MCS0, Pwr 18, EUT Vert |

# SPURIOUS RADIATED EMISSIONS U-NII-1

| 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                                     |
|------------|------------------|---------------|-------------------------|-------------------|-----------------------------------|---------------------------|--------------------------|----------|--------------------------|-------------------|----------------------|------------------------|----------------------------------------------|
| 10480.670  | 61.5             | -5.3          | 2.2                     | 359.0             | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 56.2              | 74.0                 | -17.8                  | Tx Ch 48, 36 Mbps, Pwr 14, EUT Vert          |
| 10381.300  | 38.9             | -5.5          | 2.0                     | 14.0              | 2.6                               | 0.0                       | Vert                     | AV       | 0.0                      | 36.0              | 54.0                 | -18.0                  | Tx Ch 38 (40 MHz BW), MCS0, Pwr 11, EUT Vert |
| 10486.130  | 61.1             | -5.3          | 2.2                     | 309.0             | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 55.8              | 74.0                 | -18.2                  | Tx Ch 48, 6 Mbps, Pwr 14, EUT on Side        |
| 10485.800  | 60.8             | -5.3          | 1.8                     | 9.0               | 0.0                               | 0.0                       | Horz                     | PK       | 0.0                      | 55.5              | 74.0                 | -18.5                  | Tx Ch 48, 6 Mbps, Pwr 14, EUT Vert           |
| 10419.700  | 35.4             | -5.5          | 2.3                     | 351.0             | 5.2                               | 0.0                       | Vert                     | AV       | 0.0                      | 35.1              | 54.0                 | -18.9                  | Tx Ch 42 (80 MHz BW), MCS0, Pwr 8, EUT Vert  |
| 10486.200  | 60.3             | -5.3          | 3.6                     | 106.0             | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 55.0              | 74.0                 | -19.0                  | Tx Ch 48, 6 Mbps, Pwr 14, EUT Horz           |
| 15727.580  | 39.6             | 15.0          | 1.5                     | 0.0               | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 54.6              | 74.0                 | -19.4                  | Tx Ch 48, 6 Mbps, Pwr 14, EUT Vert           |
| 15635.420  | 39.9             | 14.5          | 1.3                     | 114.0             | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 54.4              | 74.0                 | -19.6                  | Tx Ch 44, 6 Mbps, Pwr 13, EUT Vert           |
| 15699.000  | 39.4             | 14.9          | 1.5                     | 203.0             | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 54.3              | 74.0                 | -19.7                  | Tx Ch 44, MCS0, Pwr 13, EUT Vert             |
| 15707.000  | 39.3             | 14.9          | 1.5                     | 84.0              | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 54.2              | 74.0                 | -19.8                  | Tx Ch 48, MCS0, Pwr 14, EUT Vert             |
| 15566.330  | 39.7             | 14.2          | 1.5                     | 327.0             | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 53.9              | 74.0                 | -20.1                  | Tx Ch 38 (40 MHz BW), MCS0, Pwr 11, EUT Vert |
| 15520.580  | 39.7             | 14.1          | 1.5                     | 151.0             | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 53.8              | 74.0                 | -20.2                  | Tx Ch 36, 6 Mbps, Pwr 11, EUT Vert           |
| 15621.000  | 39.3             | 14.5          | 3.0                     | 90.0              | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 53.8              | 74.0                 | -20.2                  | Tx Ch 42 (80 MHz BW), MCS9, Pwr 8, EUT Vert  |
| 10446.000  | 59.2             | -5.4          | 1.7                     | 341.0             | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 53.8              | 74.0                 | -20.2                  | Tx Ch 44, 6 Mbps, Pwr 13, EUT Vert           |
| 15715.670  | 38.9             | 14.9          | 1.7                     | 257.0             | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 53.8              | 74.0                 | -20.2                  | Tx Ch 46 (40 MHz BW), MCS0, Pwr 18, EUT Vert |
| 15533.500  | 39.3             | 14.1          | 1.5                     | 151.0             | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 53.4              | 74.0                 | -20.6                  | Tx Ch 36, MCS0, Pwr 10, EUT Vert             |
| 10440.530  | 58.0             | -5.4          | 2.5                     | 341.0             | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 52.6              | 74.0                 | -21.4                  | Tx Ch 44, MCS0, Pwr 13, EUT Vert             |
| 10477.270  | 57.1             | -5.3          | 3.2                     | 192.0             | 0.0                               | 0.0                       | Horz                     | PK       | 0.0                      | 51.8              | 74.0                 | -22.2                  | Tx Ch 48, 6 Mbps, Pwr 14, EUT Horz           |
| 10443.270  | 57.1             | -5.4          | 2.2                     | 359.0             | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 51.7              | 74.0                 | -22.3                  | Tx Ch 44, MCS0, Pwr 13, EUT Vert             |
| 20958.730  | 27.0             | 1.1           | 1.2                     | 297.0             | 2.8                               | 0.0                       | Vert                     | AV       | 0.0                      | 30.9              | 54.0                 | -23.1                  | Tx Ch 48, MCS7, Pwr 14, EUT Vert             |
| 20960.170  | 48.5             | 1.1           | 1.2                     | 304.0             | 0.0                               | 0.0                       | Horz                     | PK       | 0.0                      | 49.6              | 74.0                 | -24.4                  | Tx Ch 48, 6 Mbps, Pwr 14, EUT on Side        |
| 20966.080  | 47.6             | 1.1           | 1.2                     | 67.0              | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 48.7              | 74.0                 | -25.3                  | Tx Ch 48, 6 Mbps, Pwr 14, EUT on Side        |
| 20959.540  | 47.5             | 1.1           | 1.2                     | 1.0               | 0.0                               | 0.0                       | Horz                     | PK       | 0.0                      | 48.6              | 74.0                 | -25.4                  | Tx Ch 48, 6 Mbps, Pwr 14, EUT Vert           |
| 10357.470  | 54.1             | -5.6          | 2.5                     | 351.0             | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 48.5              | 74.0                 | -25.5                  | Tx Ch 36, 6 Mbps, Pwr 11, EUT Vert           |
| 20960.210  | 47.4             | 1.1           | 1.2                     | 337.0             | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 48.5              | 74.0                 | -25.5                  | Tx Ch 48, 6 Mbps, Pwr 14, EUT Vert           |
| 10366.130  | 52.5             | -5.6          | 1.7                     | 341.0             | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 46.9              | 74.0                 | -27.1                  | Tx Ch 36, 6 Mbps, Pwr 11, EUT Vert           |
| 10365.470  | 51.1             | -5.6          | 2.5                     | 351.0             | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 45.5              | 74.0                 | -28.5                  | Tx Ch 36, MCS0, Pwr 10, EUT Vert             |
| 10381.000  | 48.9             | -5.5          | 2.3                     | 351.0             | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 43.4              | 74.0                 | -30.6                  | Tx Ch 42 (80 MHz BW), MCS9, Pwr 8, EUT Vert  |
| 10375.700  | 47.8             | -5.5          | 2.0                     | 14.0              | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 42.3              | 74.0                 | -31.7                  | Tx Ch 38 (40 MHz BW), MCS0, Pwr 11, EUT Vert |
| 10384.700  | 47.5             | -5.5          | 2.3                     | 351.0             | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 42.0              | 74.0                 | -32.0                  | Tx Ch 42 (80 MHz BW), MCS8, Pwr 8, EUT Vert  |
| 10445.000  | 45.1             | -5.4          | 2.3                     | 351.0             | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 39.7              | 74.0                 | -34.3                  | Tx Ch 42 (80 MHz BW), MCS0, Pwr 8, EUT Vert  |
| 20960.330  | 37.8             | 1.1           | 1.2                     | 297.0             | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 38.9              | 74.0                 | -35.1                  | Tx Ch 48, MCS7, Pwr 14, EUT Vert             |

## CONCLUSION

Pass



Tested By



# SPURIOUS RADIATED EMISSIONS U-NII-1

|                   |                                     |                       |            |
|-------------------|-------------------------------------|-----------------------|------------|
| EUT:              | Lantern Surgical Assistant Reusable | Work Order:           | ORTH0035   |
| Serial Number:    | See Configurations                  | Date:                 | 2024-10-23 |
| Customer:         | OrthAlign                           | Temperature:          | 20.8°C     |
| Attendees:        | Steven Devincentis, Kian Gholizadeh | Relative Humidity:    | 46.2%      |
| Customer Project: | None                                | Bar. Pressure (PMSL): | 1017 mb    |
| Tested By:        | Nolan De Ramos                      | Job Site:             | OC10       |
| Power:            | 5VDC                                | Configuration:        | ORTH0035-1 |

## TEST SPECIFICATIONS

|                 |                  |
|-----------------|------------------|
| Specification:  | Method:          |
| FCC 15.407:2024 | ANSI C63.10:2013 |

## TEST PARAMETERS

|        |    |                    |   |                     |           |
|--------|----|--------------------|---|---------------------|-----------|
| Run #: | 55 | Test Distance (m): | 3 | Ant. Height(s) (m): | 1 to 4(m) |
|--------|----|--------------------|---|---------------------|-----------|

## COMMENTS

None

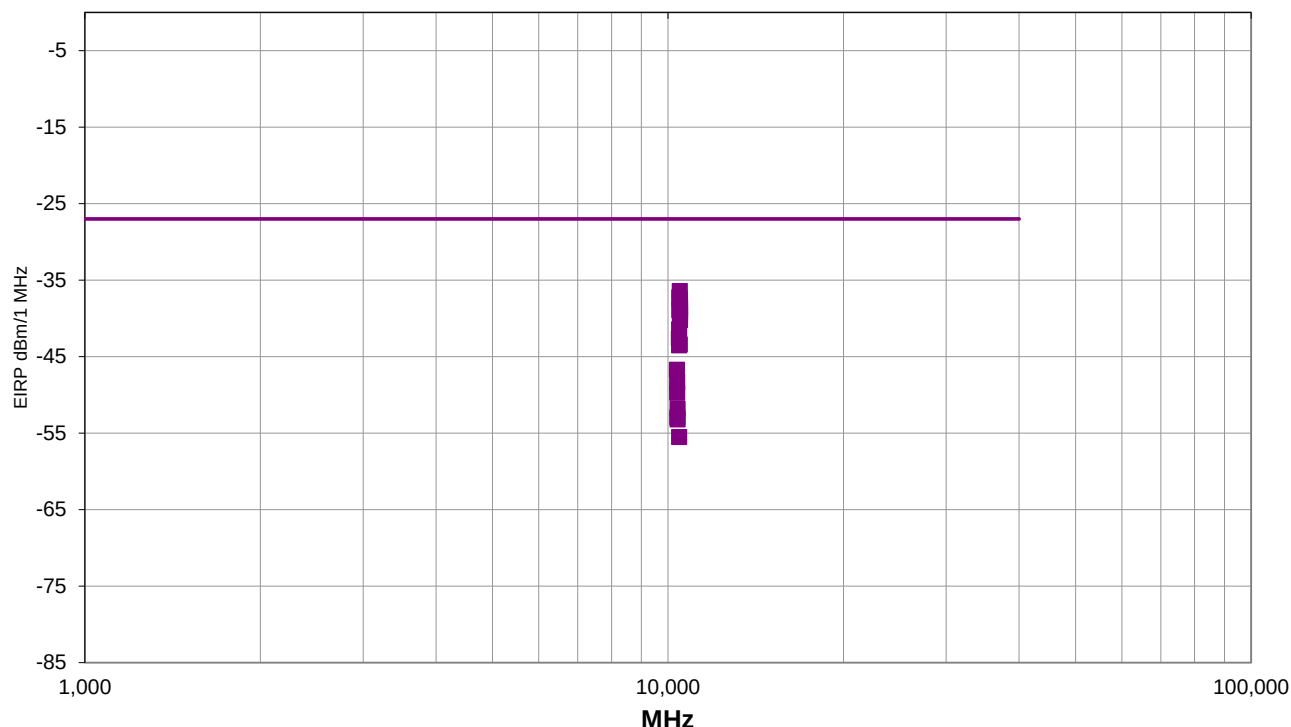
## EUT OPERATING MODES

Transmitting Wi-Fi U-NII-1, IEEE

- 802.11a, 20 MHz BW Ch: 36, 44, & 48, Data Rate: 6, 36, 54 Mbps
- 802.11n, 20 MHz BW Ch: 36, 44, & 48, 40 MHz BW Ch: 38 & 46, Data Rate: MCS0, MCS7
- 802.11ac, 80 MHz BW Ch: 42, Data Rate: MCS0, MCS9

## DEVIATIONS FROM TEST STANDARD

None



Run #: 55

PK AV QP

# SPURIOUS RADIATED EMISSIONS U-NII-1

## RESULTS - Run #55

| Freq (MHz) | Antenna Height (meters) | Azimuth (degrees) | Polarity/Transducer Type | Detector | EIRP (Watts) | EIRP (dBm) | Spec. Limit (dBm) | Compared to Spec. (dB) | Comments                                     |
|------------|-------------------------|-------------------|--------------------------|----------|--------------|------------|-------------------|------------------------|----------------------------------------------|
| 10477.600  | 1.7                     | 360.0             | Vert                     | PK       | 227.6E-9     | -36.4      | -27.0             | -9.4                   | Tx Ch 48, 6 Mbps, Pwr 14, EUT Vert           |
| 10460.700  | 1.7                     | 2.0               | Vert                     | PK       | 189.3E-9     | -37.2      | -27.0             | -10.2                  | Tx Ch 48, MCS7, Pwr 14, EUT Vert             |
| 10477.870  | 1.9                     | 346.0             | Horz                     | PK       | 176.7E-9     | -37.5      | -27.0             | -10.5                  | Tx Ch 48, 6 Mbps, Pwr 14, EUT on Side        |
| 10479.930  | 2.2                     | 359.0             | Vert                     | PK       | 164.9E-9     | -37.8      | -27.0             | -10.8                  | Tx Ch 48, 54 Mbps, Pwr 14, EUT Vert          |
| 10480.870  | 2.2                     | 359.0             | Vert                     | PK       | 140.3E-9     | -38.5      | -27.0             | -11.5                  | Tx Ch 48, MCS0, Pwr 14, EUT Vert             |
| 10482.000  | 2.2                     | 359.0             | Vert                     | PK       | 137.1E-9     | -38.6      | -27.0             | -11.6                  | Tx Ch 48, MCS7, Pwr 14, EUT Vert             |
| 10456.700  | 1.7                     | 2.0               | Vert                     | PK       | 128.0E-9     | -38.9      | -27.0             | -11.9                  | Tx Ch 46 (40 MHz BW), MCS0, Pwr 18, EUT Vert |
| 10480.670  | 2.2                     | 359.0             | Vert                     | PK       | 125.1E-9     | -39.0      | -27.0             | -12.0                  | Tx Ch 48, 36 Mbps, Pwr 14, EUT Vert          |
| 10486.130  | 2.2                     | 309.0             | Vert                     | PK       | 114.1E-9     | -39.4      | -27.0             | -12.4                  | Tx Ch 48, 6 Mbps, Pwr 14, EUT on Side        |
| 10485.800  | 1.8                     | 9.0               | Horz                     | PK       | 106.4E-9     | -39.7      | -27.0             | -12.7                  | Tx Ch 48, 6 Mbps, Pwr 14, EUT Vert           |
| 10486.200  | 3.6                     | 106.0             | Vert                     | PK       | 94.9E-9      | -40.2      | -27.0             | -13.2                  | Tx Ch 48, 6 Mbps, Pwr 14, EUT Horz           |
| 10446.000  | 1.7                     | 341.0             | Vert                     | PK       | 72.0E-9      | -41.4      | -27.0             | -14.4                  | Tx Ch 44, 6 Mbps, Pwr 13, EUT Vert           |
| 10440.530  | 2.5                     | 341.0             | Vert                     | PK       | 54.6E-9      | -42.6      | -27.0             | -15.6                  | Tx Ch 44, MCS0, Pwr 13, EUT Vert             |
| 10477.270  | 3.2                     | 192.0             | Horz                     | PK       | 45.4E-9      | -43.4      | -27.0             | -16.4                  | Tx Ch 48, 6 Mbps, Pwr 14, EUT Horz           |
| 10443.270  | 2.2                     | 359.0             | Vert                     | PK       | 44.4E-9      | -43.5      | -27.0             | -16.5                  | Tx Ch 44, MCS0, Pwr 13, EUT Vert             |
| 10357.470  | 2.5                     | 351.0             | Vert                     | PK       | 21.2E-9      | -46.7      | -27.0             | -19.7                  | Tx Ch 36, 6 Mbps, Pwr 11, EUT Vert           |
| 10366.130  | 1.7                     | 341.0             | Vert                     | PK       | 14.7E-9      | -48.3      | -27.0             | -21.3                  | Tx Ch 36, 6 Mbps, Pwr 11, EUT Vert           |
| 10365.470  | 2.5                     | 351.0             | Vert                     | PK       | 10.6E-9      | -49.7      | -27.0             | -22.7                  | Tx Ch 36, MCS0, Pwr 10, EUT Vert             |
| 10381.000  | 2.3                     | 351.0             | Vert                     | PK       | 6.6E-9       | -51.8      | -27.0             | -24.8                  | Tx Ch 42 (80 MHz BW), MCS9, Pwr 8, EUT Vert  |
| 10375.700  | 2.0                     | 14.0              | Vert                     | PK       | 5.1E-9       | -52.9      | -27.0             | -25.9                  | Tx Ch 38 (40 MHz BW), MCS0, Pwr 11, EUT Vert |
| 10384.700  | 2.3                     | 351.0             | Vert                     | PK       | 4.8E-9       | -53.2      | -27.0             | -26.2                  | Tx Ch 42 (80 MHz BW), MCS8, Pwr 8, EUT Vert  |
| 10445.000  | 2.3                     | 351.0             | Vert                     | PK       | 2.8E-9       | -55.5      | -27.0             | -28.5                  | Tx Ch 42 (80 MHz BW), MCS0, Pwr 8, EUT Vert  |

## CONCLUSION

Pass



Tested By

# SPURIOUS RADIATED EMISSIONS U-NII-1

|                   |                                     |                       |            |
|-------------------|-------------------------------------|-----------------------|------------|
| EUT:              | Lantern Reusable Navigation Unit    | Work Order:           | ORTH0035   |
| Serial Number:    | 2401016                             | Date:                 | 2024-10-23 |
| Customer:         | OrthAlign                           | Temperature:          | 20.8°C     |
| Attendees:        | Steven Devincentis, Kian Gholizadeh | Relative Humidity:    | 46.2%      |
| Customer Project: | None                                | Bar. Pressure (PMSL): | 1017 mb    |
| Tested By:        | Nolan De Ramos                      | Job Site:             | OC10       |
| Power:            | 5VDC                                | Configuration:        | ORTH0035-1 |

## TEST SPECIFICATIONS

|                                  |                  |
|----------------------------------|------------------|
| Specification:                   | Method:          |
| FCC 15.407:2024, FCC 15.205:2024 | ANSI C63.10:2013 |

## TEST PARAMETERS

|        |    |                    |   |                     |           |
|--------|----|--------------------|---|---------------------|-----------|
| Run #: | 57 | Test Distance (m): | 3 | Ant. Height(s) (m): | 1 to 4(m) |
|--------|----|--------------------|---|---------------------|-----------|

## COMMENTS

A duty cycle correction is added to the measurements using the formula of  $10 \cdot \log(1/dc)$  using worst case duty cycle (dc): 0.731

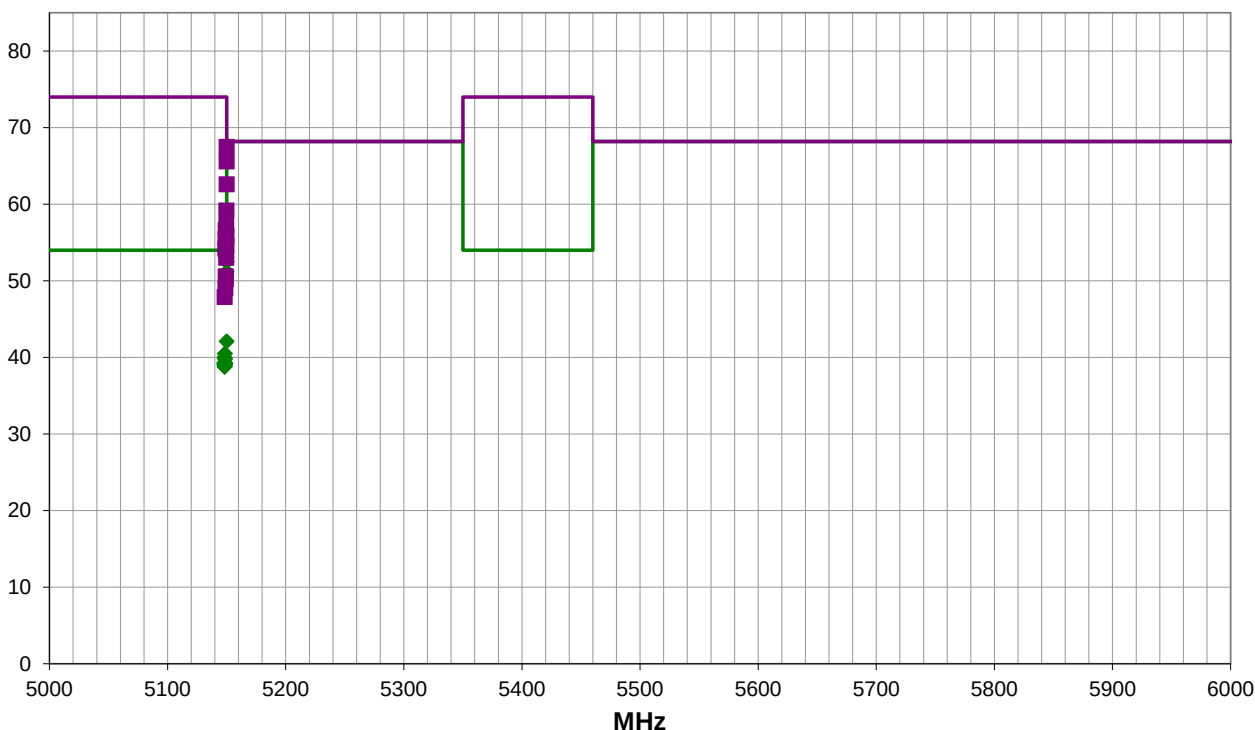
## EUT OPERATING MODES

Transmitting Wi-Fi U-NII-1, IEEE

- 802.11a, 20 MHz BW Ch: 36, Data Rate: 6, 36, 54 Mbps
- 802.11n, 20 MHz BW Ch: 36, 40 MHz BW Ch: 38, Data Rate: MCS0, MCS7
- 802.11ac, 80 MHz BW Ch: 42, Data Rate: MCS0, MCS9

## DEVIATIONS FROM TEST STANDARD

None



Run #: 57

PK AV QP

# SPURIOUS RADIATED EMISSIONS U-NII-1

## RESULTS - Run #57

| 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                                     |
|------------|------------------|---------------|-------------------------|-------------------|-----------------------------------|---------------------------|--------------------------|----------|--------------------------|-------------------|----------------------|------------------------|----------------------------------------------|
| 5149.943   | 51.5             | -3.6          | 1.5                     | 285.0             | 5.2                               | 0.0                       | Horz                     | AV       | 0.0                      | 53.1              | 54.0                 | -0.9                   | Tx Ch 42 (80 MHz BW), MCS9, Pwr 8, EUT Vert  |
| 5149.990   | 50.9             | -3.6          | 1.5                     | 285.0             | 5.2                               | 0.0                       | Horz                     | AV       | 0.0                      | 52.5              | 54.0                 | -1.5                   | Tx Ch 42 (80 MHz BW), MCS8, Pwr 8, EUT Vert  |
| 5150.000   | 49.6             | -3.6          | 1.5                     | 285.0             | 5.2                               | 0.0                       | Horz                     | AV       | 0.0                      | 51.2              | 54.0                 | -2.8                   | Tx Ch 42 (80 MHz BW), MCS0, Pwr 8, EUT Vert  |
| 5149.973   | 71.1             | -3.6          | 1.5                     | 285.0             | 0.0                               | 0.0                       | Horz                     | PK       | 0.0                      | 67.5              | 74.0                 | -6.5                   | Tx Ch 42 (80 MHz BW), MCS8, Pwr 8, EUT Vert  |
| 5149.947   | 69.2             | -3.6          | 1.5                     | 285.0             | 0.0                               | 0.0                       | Horz                     | PK       | 0.0                      | 65.6              | 74.0                 | -8.4                   | Tx Ch 42 (80 MHz BW), MCS9, Pwr 8, EUT Vert  |
| 5149.983   | 66.2             | -3.6          | 1.5                     | 285.0             | 0.0                               | 0.0                       | Horz                     | PK       | 0.0                      | 62.6              | 74.0                 | -11.4                  | Tx Ch 42 (80 MHz BW), MCS0, Pwr 8, EUT Vert  |
| 5149.990   | 43.1             | -3.6          | 1.5                     | 285.0             | 2.6                               | 0.0                       | Horz                     | AV       | 0.0                      | 42.1              | 54.0                 | -11.9                  | Tx Ch 38 (40 MHz BW), MCS7, Pwr 11, EUT Vert |
| 5148.510   | 41.3             | -3.6          | 1.3                     | 49.0              | 2.8                               | 0.0                       | Horz                     | AV       | 0.0                      | 40.5              | 54.0                 | -13.5                  | Tx Ch 36, 6 Mbps, Pwr 11, EUT Vert           |
| 5148.250   | 40.8             | -3.6          | 2.7                     | 70.0              | 2.8                               | 0.0                       | Horz                     | AV       | 0.0                      | 40.0              | 54.0                 | -14.0                  | Tx Ch 36, 6 Mbps, Pwr 11, EUT Horz           |
| 5148.640   | 40.6             | -3.6          | 1.2                     | 331.0             | 2.8                               | 0.0                       | Vert                     | AV       | 0.0                      | 39.8              | 54.0                 | -14.2                  | Tx Ch 36, 6 Mbps, Pwr 11, EUT on Side        |
| 5148.167   | 40.1             | -3.6          | 1.5                     | 285.0             | 2.8                               | 0.0                       | Horz                     | AV       | 0.0                      | 39.3              | 54.0                 | -14.7                  | Tx Ch 36, 36 Mbps, Pwr 11, EUT Vert          |
| 5148.457   | 40.1             | -3.6          | 1.5                     | 105.0             | 2.8                               | 0.0                       | Vert                     | AV       | 0.0                      | 39.3              | 54.0                 | -14.7                  | Tx Ch 36, 6 Mbps, Pwr 11, EUT Vert           |
| 5149.737   | 62.8             | -3.6          | 1.5                     | 285.0             | 0.0                               | 0.0                       | Horz                     | PK       | 0.0                      | 59.2              | 74.0                 | -14.8                  | Tx Ch 38 (40 MHz BW), MCS7, Pwr 11, EUT Vert |
| 5148.140   | 40.0             | -3.6          | 1.5                     | 285.0             | 2.8                               | 0.0                       | Horz                     | AV       | 0.0                      | 39.2              | 54.0                 | -14.8                  | Tx Ch 36, 54 Mbps, Pwr 11, EUT Vert          |
| 5148.777   | 40.0             | -3.6          | 1.5                     | 285.0             | 2.8                               | 0.0                       | Horz                     | AV       | 0.0                      | 39.2              | 54.0                 | -14.8                  | Tx Ch 36, MCS7, Pwr 10, EUT Vert             |
| 5148.457   | 40.1             | -3.6          | 1.5                     | 285.0             | 2.6                               | 0.0                       | Horz                     | AV       | 0.0                      | 39.1              | 54.0                 | -14.9                  | Tx Ch 38 (40 MHz BW), MCS0, Pwr 11, EUT Vert |
| 5148.103   | 39.9             | -3.6          | 1.5                     | 326.0             | 2.8                               | 0.0                       | Vert                     | AV       | 0.0                      | 39.1              | 54.0                 | -14.9                  | Tx Ch 36, 6 Mbps, Pwr 11, EUT Horz           |
| 5148.370   | 39.8             | -3.6          | 1.5                     | 285.0             | 2.8                               | 0.0                       | Horz                     | AV       | 0.0                      | 39.0              | 54.0                 | -15.0                  | Tx Ch 36, ac, MCS0, Pwr 10, EUT Vert         |
| 5148.213   | 39.6             | -3.6          | 1.5                     | 28.0              | 2.8                               | 0.0                       | Horz                     | AV       | 0.0                      | 38.8              | 54.0                 | -15.2                  | Tx Ch 36, 6 Mbps, Pwr 11, EUT on Side        |
| 5148.303   | 39.6             | -3.6          | 1.5                     | 285.0             | 2.8                               | 0.0                       | Horz                     | AV       | 0.0                      | 38.8              | 54.0                 | -15.2                  | Tx Ch 36, MCS0, Pwr 10, EUT Vert             |
| 5149.693   | 60.8             | -3.6          | 2.7                     | 70.0              | 0.0                               | 0.0                       | Horz                     | PK       | 0.0                      | 57.2              | 74.0                 | -16.8                  | Tx Ch 36, 6 Mbps, Pwr 11, EUT Horz           |
| 5149.097   | 60.3             | -3.6          | 1.3                     | 49.0              | 0.0                               | 0.0                       | Horz                     | PK       | 0.0                      | 56.7              | 74.0                 | -17.3                  | Tx Ch 36, 6 Mbps, Pwr 11, EUT Vert           |
| 5149.827   | 59.5             | -3.6          | 1.2                     | 331.0             | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 55.9              | 74.0                 | -18.1                  | Tx Ch 36, 6 Mbps, Pwr 11, EUT on Side        |
| 5149.027   | 59.1             | -3.6          | 1.5                     | 285.0             | 0.0                               | 0.0                       | Horz                     | PK       | 0.0                      | 55.5              | 74.0                 | -18.5                  | Tx Ch 38 (40 MHz BW), MCS0, Pwr 11, EUT Vert |
| 5149.813   | 58.2             | -3.6          | 1.5                     | 326.0             | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 54.6              | 74.0                 | -19.4                  | Tx Ch 36, 6 Mbps, Pwr 11, EUT Horz           |
| 5148.827   | 57.8             | -3.6          | 1.5                     | 105.0             | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 54.2              | 74.0                 | -19.8                  | Tx Ch 36, 6 Mbps, Pwr 11, EUT Vert           |
| 5149.307   | 57.6             | -3.6          | 1.5                     | 285.0             | 0.0                               | 0.0                       | Horz                     | PK       | 0.0                      | 54.0              | 74.0                 | -20.0                  | Tx Ch 36, MCS0, Pwr 10, EUT Vert             |
| 5149.557   | 56.6             | -3.6          | 1.5                     | 28.0              | 0.0                               | 0.0                       | Horz                     | PK       | 0.0                      | 53.0              | 74.0                 | -21.0                  | Tx Ch 36, 6 Mbps, Pwr 11, EUT on Side        |
| 5149.237   | 54.2             | -3.6          | 1.5                     | 285.0             | 0.0                               | 0.0                       | Horz                     | PK       | 0.0                      | 50.6              | 74.0                 | -23.4                  | Tx Ch 36, MCS7, Pwr 10, EUT Vert             |
| 5149.333   | 53.8             | -3.6          | 1.5                     | 285.0             | 0.0                               | 0.0                       | Horz                     | PK       | 0.0                      | 50.2              | 74.0                 | -23.8                  | Tx Ch 36, ac, MCS0, Pwr 10, EUT Vert         |
| 5148.927   | 52.6             | -3.6          | 1.5                     | 285.0             | 0.0                               | 0.0                       | Horz                     | PK       | 0.0                      | 49.0              | 74.0                 | -25.0                  | Tx Ch 36, 36 Mbps, Pwr 11, EUT Vert          |
| 5148.320   | 51.5             | -3.6          | 1.5                     | 285.0             | 0.0                               | 0.0                       | Horz                     | PK       | 0.0                      | 47.9              | 74.0                 | -26.1                  | Tx Ch 36, 54 Mbps, Pwr 11, EUT Vert          |

## CONCLUSION

Pass

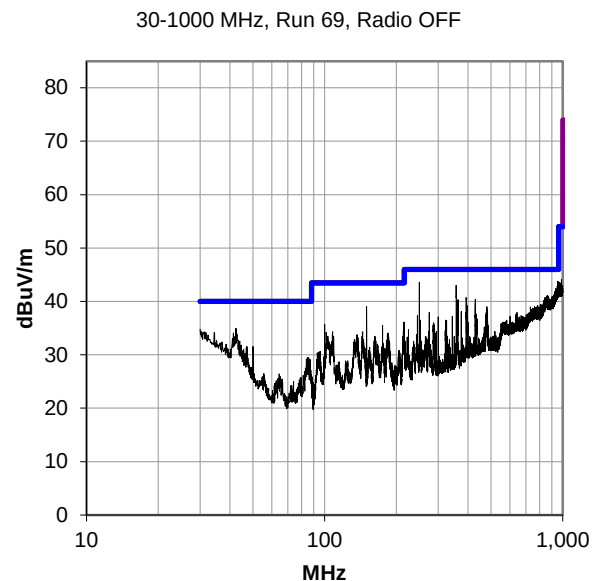
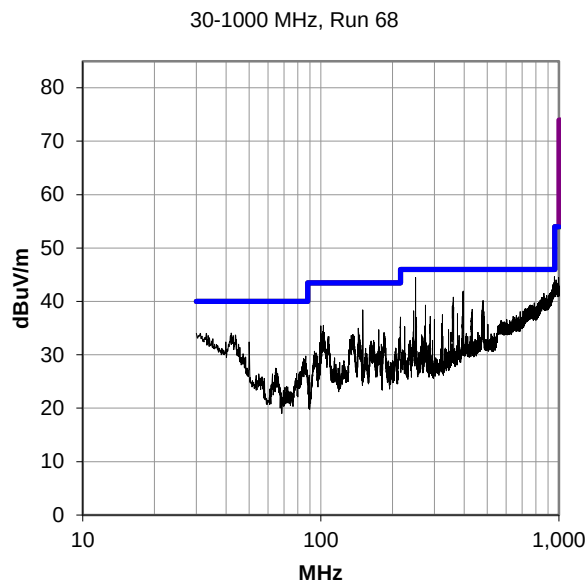
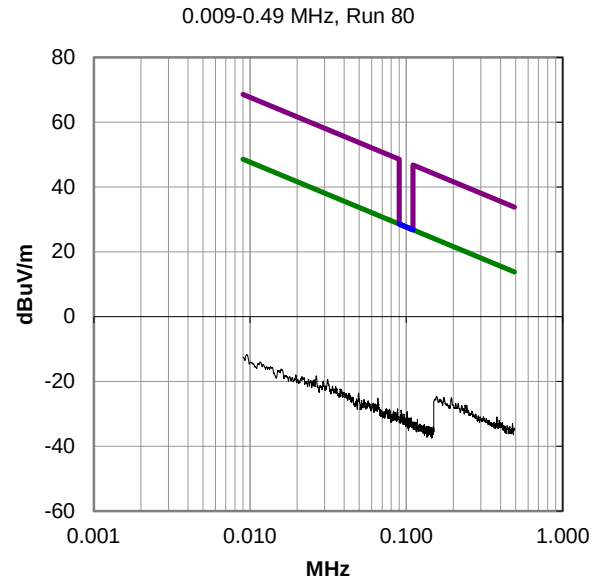
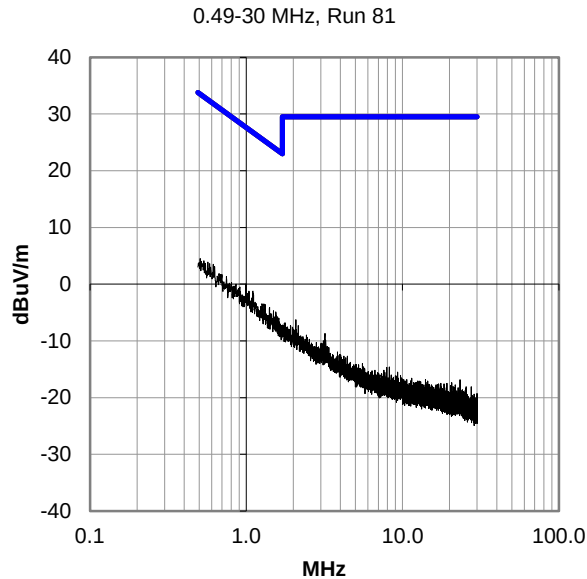


Tested By

# SPURIOUS RADIATED EMISSIONS U-NII-1

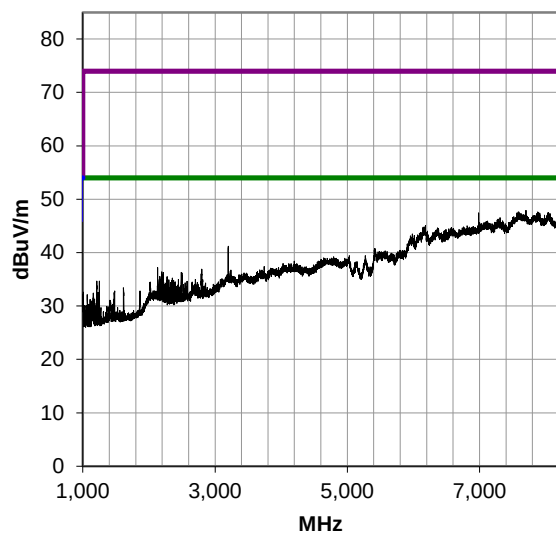
## PRESCAN DATA

Radiated spurious emissions from the EUT are initially reviewed with Pre-scans (Preview scans). Pre-scans are performed, with the EUT transmitting on the lowest applicable data rate, for both vertical and horizontal polarizations. The Pre-scan plots below are shown with a peak detector and RBW for the following frequency ranges: 9 kHz RBW (< 30 MHz); 120 kHz RBW (30 - 1000 MHz); 1 MHz RBW (> 1 GHz). In the case where unintentional emissions are observed, an ambient or idle pre-scan with the radio off, will be shown for comparison.

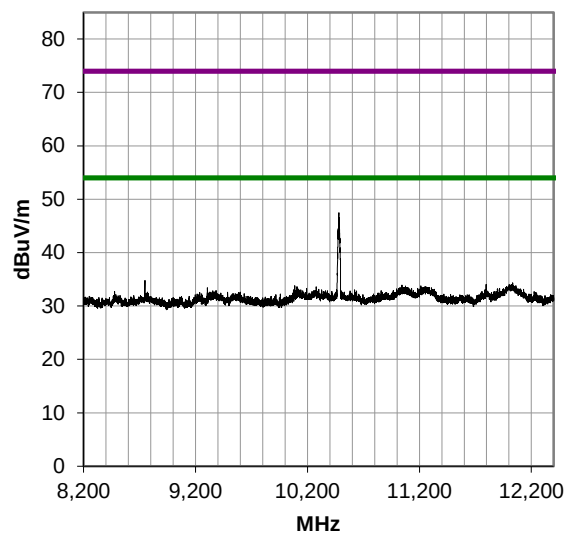


# SPURIOUS RADIATED EMISSIONS U-NII-1

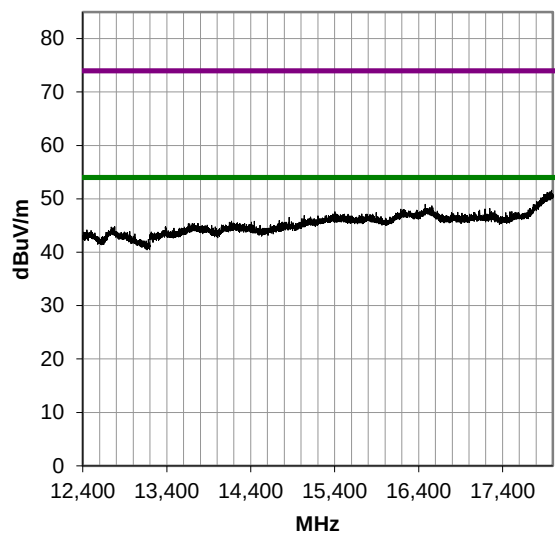
1000-8200 MHz, Run 36



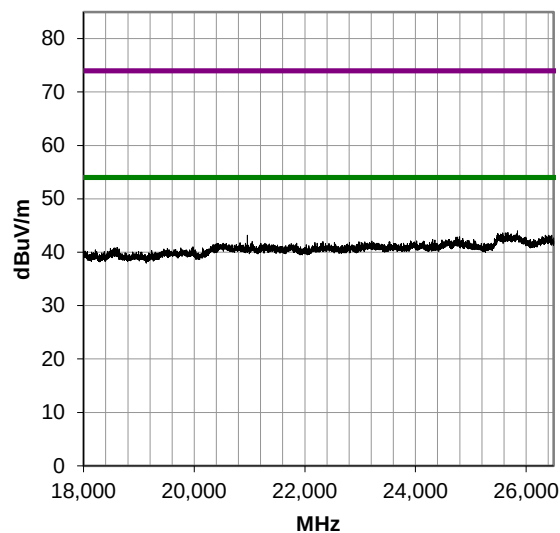
8200-12400 MHz, Run 55



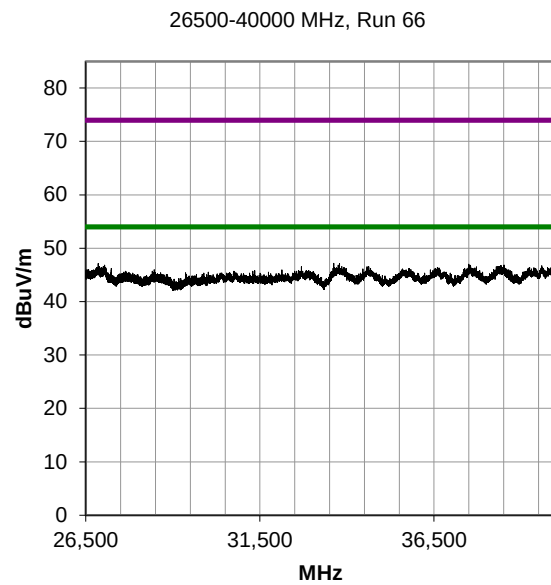
12400-18000 MHz, Run 38



18000-26500 MHz, Run 65



# SPURIOUS RADIATED EMISSIONS U-NII-1



# SPURIOUS RADIATED EMISSIONS U-NII-3

## 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 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. A reference preview scan (pre-scan) is 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 within 2 MHz of the allowable band may have been taken using the integration method from ANSI C63.10 clause 11.13.3. This procedure uses the channel power feature of the spectrum analyzer to integrate the power of the emission within a 1 MHz bandwidth.

Where the radio test software does not provide for a duty cycle at continuous transmit conditions (> 98%) and the RMS (power average) measurements were made across the on and off times of the EUT transmissions, a duty cycle correction is added to the measurements using the formula of  $10 \cdot \log(1/dc)$ .



# SPURIOUS RADIATED EMISSIONS U-NII-3

## TEST EQUIPMENT

| Description                  | Manufacturer    | Model                  | ID  | Last Cal.  | Cal. Due   |
|------------------------------|-----------------|------------------------|-----|------------|------------|
| Antenna - Double Ridge       | ETS Lindgren    | 3115                   | AIR | 2024-07-23 | 2026-07-23 |
| Cable                        | Northwest EMC   | 1-8GHz RE Cables       | OCJ | 2024-05-08 | 2025-05-08 |
| Amplifier - Pre-Amplifier    | Cernex          | CBL01084020-xx         | PAX | 2024-05-08 | 2025-05-08 |
| Filter - Band Pass/Notch     | Micro-Tronics   | BRC50703               | HHQ | 2024-05-08 | 2025-05-08 |
| Analyzer - Spectrum Analyzer | Agilent         | E4446A                 | AAY | 2024-01-25 | 2025-01-25 |
| Antenna - Standard Gain      | ETS Lindgren    | 3160-07                | AHR | NCR        | NCR        |
| Cable                        | Northwest EMC   | 8-18GHz RE Cables      | OCO | 2024-03-19 | 2025-03-19 |
| Amplifier - Pre-Amplifier    | Miteq           | AMF-6F-08001200-30-10P | AOE | 2024-03-19 | 2025-03-19 |
| Antenna - Standard Gain      | ETS Lindgren    | 3160-08                | AHT | NCR        | NCR        |
| Amplifier - Pre-Amplifier    | Miteq           | AMF-6F-12001800-30-10P | AOF | 2024-03-19 | 2025-03-19 |
| Antenna - Standard Gain      | ETS Lindgren    | 3160-09                | AHN | NCR        | NCR        |
| Cable                        | Northwest EMC   | 18-26GHz RE Cables     | OCK | 2023-12-15 | 2024-12-15 |
| Amplifier - Pre-Amplifier    | Miteq           | AMF-6F-18002650-25-10P | AOI | 2023-12-15 | 2024-12-15 |
| Antenna - Standard Gain      | ETS Lindgren    | 3160-10                | AIX | NCR        | NCR        |
| Cable                        | ESM Cable Corp. | TTBJ141-KMKM-72        | OC1 | 2023-12-18 | 2024-12-18 |
| Amplifier - Pre-Amplifier    | Miteq           | JSW45-26004000-40-5P   | AVQ | 2023-12-18 | 2024-12-18 |
| Antenna - Loop               | EMCO            | 6502                   | AZB | 2023-09-06 | 2025-09-06 |
| Cable                        | Northwest EMC   | 10kHz-1GHz RE Cables   | OCH | 2024-05-09 | 2025-05-09 |
| Antenna - Double Ridge       | EMCO            | 3115                   | AHE | 2024-09-11 | 2026-09-11 |
| Power Sensor                 | Agilent         | E4412A                 | SQE | 2024-12-04 | 2025-12-04 |
| Meter - Power                | Hewlett Packard | E4418A                 | SPA | 2024-12-04 | 2025-12-04 |

## FREQUENCY RANGE INVESTIGATED

9 kHz TO 40 GHz

## POWER INVESTIGATED

5VDC

## CONFIGURATIONS INVESTIGATED

ORTH0035-1

## MODES INVESTIGATED

Transmitting Wi-Fi U-NII-3, IEEE

- 802.11a, 20 MHz BW Ch: 149, 157, & 165, Data Rate: 6, 36, 54 Mbps
- 802.11n, 20 MHz BW Ch: 149, 157, & 165, 40 MHz BW Ch: 151, & 159, Data Rate: MCS0, MCS7
- 802.11ac, 80 MHz BW Ch: 155, Data Rate: MCS0, MCS9

Transmitting Wi-Fi U-NII-3, IEEE 802.11a, Ch 149, 5745 MHz, 6 Mbps

Transmitting Wi-Fi U-NII-3, IEEE 802.11a, Ch 165, 5825 MHz, 6 Mbps

Transmitting Wi-Fi U-NII-3, IEEE 802.11ac, Ch 155 (80 MHz BW), 5775 MHz, MCS7

Transmitting Wi-Fi U-NII-3, IEEE 802.11n, Ch 151 (40 MHz BW), 5755 MHz, MCS7

Transmitting Wi-Fi U-NII-3, IEEE 802.11n, Ch 159 (40 MHz BW), 5795 MHz, MCS7

# SPURIOUS RADIATED EMISSIONS U-NII-3



|                   |                                     |                       |            |
|-------------------|-------------------------------------|-----------------------|------------|
| EUT:              | Lantern Reusable Navigation Unit    | Work Order:           | ORTH0035   |
| Serial Number:    | 2401016                             | Date:                 | 2024-10-22 |
| Customer:         | OrthAlign                           | Temperature:          | 21°C       |
| Attendees:        | Steven Devincentis, Kian Gholizadeh | Relative Humidity:    | 44.7%      |
| Customer Project: | None                                | Bar. Pressure (PMSL): | 1017 mb    |
| Tested By:        | Nolan De Ramos                      | Job Site:             | OC10       |
| Power:            | 5VDC                                | Configuration:        | ORTH0035-1 |

## TEST SPECIFICATIONS

|                 |                  |
|-----------------|------------------|
| Specification:  | Method:          |
| FCC 15.407:2024 | ANSI C63.10:2013 |

## TEST PARAMETERS

|        |    |                    |   |                     |           |
|--------|----|--------------------|---|---------------------|-----------|
| Run #: | 48 | Test Distance (m): | 3 | Ant. Height(s) (m): | 1 to 4(m) |
|--------|----|--------------------|---|---------------------|-----------|

## COMMENTS

None

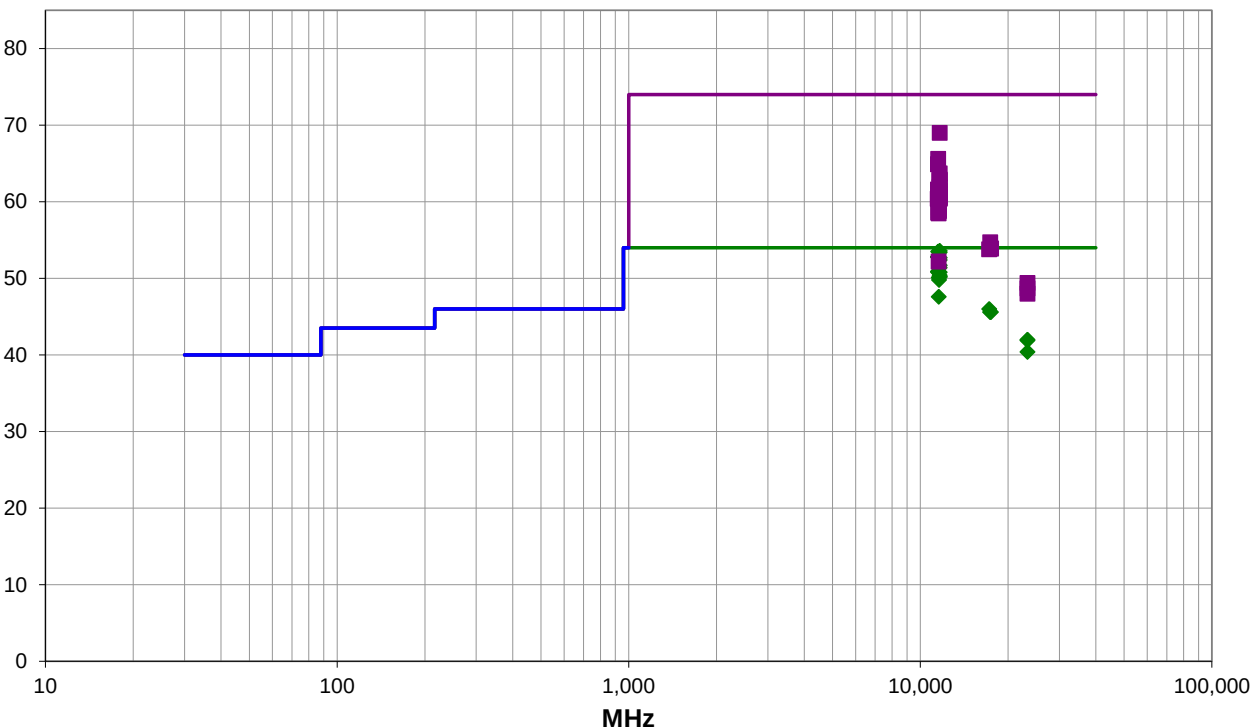
## EUT OPERATING MODES

Transmitting Wi-Fi U-NII-3, IEEE

- 802.11a, 20 MHz BW Ch: 149, 157, & 165, Data Rate: 6, 36, 54 Mbps
- 802.11n, 20 MHz BW Ch: 149, 157, & 165, 40 MHz BW Ch: 151, & 159, Data Rate: MCS0, MCS7
- 802.11ac, 80 MHz BW Ch: 155, Data Rate: MCS0, MCS9

## DEVIATIONS FROM TEST STANDARD

None



Run #: 48

PK AV QP

# SPURIOUS RADIATED EMISSIONS U-NII-3

## RESULTS - Run #48

| 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                                         |
|------------|------------------|---------------|-------------------------|-------------------|-----------------------------------|---------------------------|--------------------------|----------|--------------------------|-------------------|----------------------|------------------------|--------------------------------------------------|
| 11649.880  | 56.2             | -4.9          | 3.1                     | 29.0              | 2.3                               | 0.0                       | Vert                     | AV       | 0.0                      | 53.6              | 54.0                 | -0.4                   | Tx Ch 165, MCS0, Pwr 11, EUT on Side             |
| 11511.170  | 55.9             | -5.1          | 2.0                     | 40.0              | 2.7                               | 0.0                       | Vert                     | AV       | 0.0                      | 53.5              | 54.0                 | -0.5                   | Tx Ch 151 (40 MHz BW), MCS7, Pwr 10, EUT on Side |
| 11651.580  | 56.0             | -4.9          | 3.1                     | 29.0              | 2.3                               | 0.0                       | Vert                     | AV       | 0.0                      | 53.4              | 54.0                 | -0.6                   | Tx Ch 165, MCS7, Pwr 11, EUT on Side             |
| 11489.870  | 55.9             | -5.4          | 2.0                     | 41.0              | 2.3                               | 0.0                       | Vert                     | AV       | 0.0                      | 52.8              | 54.0                 | -1.2                   | Tx Ch 149, MCS0, Pwr 9, EUT on Side              |
| 11491.330  | 55.9             | -5.4          | 2.0                     | 41.0              | 2.3                               | 0.0                       | Vert                     | AV       | 0.0                      | 52.8              | 54.0                 | -1.2                   | Tx Ch 149, MCS7, Pwr 9, EUT on Side              |
| 11652.600  | 55.3             | -4.9          | 3.0                     | 44.0              | 2.3                               | 0.0                       | Vert                     | AV       | 0.0                      | 52.7              | 54.0                 | -1.3                   | Tx Ch 165, 6 Mbps, Pwr 10, EUT on Side           |
| 11651.290  | 55.0             | -4.9          | 3.1                     | 29.0              | 2.3                               | 0.0                       | Vert                     | AV       | 0.0                      | 52.4              | 54.0                 | -1.6                   | Tx Ch 165, 54 Mbps, Pwr 10, EUT on Side          |
| 11591.330  | 53.7             | -4.7          | 3.1                     | 29.0              | 2.7                               | 0.0                       | Vert                     | AV       | 0.0                      | 51.7              | 54.0                 | -2.3                   | Tx Ch 159 (40 MHz BW), MCS7, Pwr 11, EUT on Side |
| 11652.550  | 54.3             | -4.9          | 3.6                     | 13.0              | 2.3                               | 0.0                       | Horz                     | AV       | 0.0                      | 51.7              | 54.0                 | -2.3                   | Tx Ch 165, 6 Mbps, Pwr 10, EUT Horz              |
| 11649.710  | 54.0             | -4.9          | 3.1                     | 29.0              | 2.3                               | 0.0                       | Vert                     | AV       | 0.0                      | 51.4              | 54.0                 | -2.6                   | Tx Ch 165, 36 Mbps, Pwr 10, EUT on Side          |
| 11492.460  | 54.0             | -5.4          | 1.9                     | 29.0              | 2.3                               | 0.0                       | Vert                     | AV       | 0.0                      | 50.9              | 54.0                 | -3.1                   | Tx Ch 149, 6 Mbps, Pwr 9, EUT on Side            |
| 11511.170  | 53.2             | -5.1          | 2.0                     | 40.0              | 2.7                               | 0.0                       | Vert                     | AV       | 0.0                      | 50.8              | 54.0                 | -3.2                   | Tx Ch 151 (40 MHz BW), MCS0, Pwr 10, EUT on Side |
| 11569.000  | 53.0             | -4.5          | 1.5                     | 110.0             | 2.3                               | 0.0                       | Vert                     | AV       | 0.0                      | 50.8              | 54.0                 | -3.2                   | Tx Ch 157, 6 Mbps, Pwr 11, EUT on Side           |
| 11652.550  | 53.4             | -4.9          | 1.9                     | 49.0              | 2.3                               | 0.0                       | Horz                     | AV       | 0.0                      | 50.8              | 54.0                 | -3.2                   | Tx Ch 165, 6 Mbps, Pwr 10, EUT on Side           |
| 11649.000  | 53.0             | -4.9          | 2.4                     | 329.0             | 2.3                               | 0.0                       | Vert                     | AV       | 0.0                      | 50.4              | 54.0                 | -3.6                   | Tx Ch 165, 6 Mbps, Pwr 10, EUT Vert              |
| 11652.600  | 52.8             | -4.9          | 3.5                     | 313.0             | 2.3                               | 0.0                       | Vert                     | AV       | 0.0                      | 50.2              | 54.0                 | -3.8                   | Tx Ch 165, 6 Mbps, Pwr 10, EUT Horz              |
| 11652.550  | 52.8             | -4.9          | 4.0                     | 307.0             | 2.3                               | 0.0                       | Horz                     | AV       | 0.0                      | 50.2              | 54.0                 | -3.8                   | Tx Ch 165, 6 Mbps, Pwr 10, EUT Vert              |
| 11564.300  | 49.8             | -4.5          | 2.0                     | 42.0              | 4.8                               | 0.0                       | Vert                     | AV       | 0.0                      | 50.1              | 54.0                 | -3.9                   | Tx Ch 155 (80 MHz BW), MCS0, Pwr 7, EUT on Side  |
| 11591.170  | 51.8             | -4.7          | 3.1                     | 29.0              | 2.7                               | 0.0                       | Vert                     | AV       | 0.0                      | 49.8              | 54.0                 | -4.2                   | Tx Ch 159 (40 MHz BW), MCS0, Pwr 11, EUT on Side |
| 11650.710  | 73.9             | -4.9          | 3.1                     | 29.0              | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 69.0              | 74.0                 | -5.0                   | Tx Ch 165, MCS0, Pwr 15, EUT on Side             |
| 11564.300  | 47.3             | -4.5          | 2.0                     | 42.0              | 4.8                               | 0.0                       | Vert                     | AV       | 0.0                      | 47.6              | 54.0                 | -6.4                   | Tx Ch 155 (80 MHz BW), MCS9, Pwr 7, EUT on Side  |
| 17225.540  | 27.8             | 15.9          | 1.5                     | 24.0              | 2.3                               | 0.0                       | Vert                     | AV       | 0.0                      | 46.0              | 54.0                 | -8.0                   | Tx Ch 149, 6 Mbps, Pwr 9, EUT on Side            |
| 17345.330  | 27.1             | 16.2          | 1.5                     | 201.0             | 2.3                               | 0.0                       | Vert                     | AV       | 0.0                      | 45.6              | 54.0                 | -8.4                   | Tx Ch 157, 6 Mbps, Pwr 11, EUT on Side           |
| 17462.750  | 26.6             | 16.7          | 1.5                     | 52.0              | 2.3                               | 0.0                       | Vert                     | AV       | 0.0                      | 45.6              | 54.0                 | -8.4                   | Tx Ch 165, 6 Mbps, Pwr 10, EUT on Side           |
| 11510.500  | 70.8             | -5.2          | 2.0                     | 40.0              | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 65.6              | 74.0                 | -8.4                   | Tx Ch 151 (40 MHz BW), MCS7, Pwr 10, EUT on Side |
| 11490.500  | 70.3             | -5.4          | 2.0                     | 41.0              | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 64.9              | 74.0                 | -9.1                   | Tx Ch 149, MCS7, Pwr 9, EUT on Side              |
| 11649.040  | 68.6             | -4.9          | 3.1                     | 29.0              | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 63.7              | 74.0                 | -10.3                  | Tx Ch 165, MCS7, Pwr 11, EUT on Side             |
| 11653.790  | 67.8             | -4.9          | 3.1                     | 29.0              | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 62.9              | 74.0                 | -11.1                  | Tx Ch 165, MCS0, Pwr 11, EUT on Side             |
| 11647.850  | 67.7             | -4.9          | 3.0                     | 44.0              | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 62.8              | 74.0                 | -11.2                  | Tx Ch 165, 6 Mbps, Pwr 10, EUT on Side           |
| 23300.140  | 39.1             | 0.6           | 1.2                     | 19.0              | 2.3                               | 0.0                       | Vert                     | AV       | 0.0                      | 42.0              | 54.0                 | -12.0                  | Tx Ch 165, MCS7, Pwr 11, EUT on Side             |
| 23300.110  | 39.0             | 0.6           | 1.2                     | 19.0              | 2.3                               | 0.0                       | Vert                     | AV       | 0.0                      | 41.9              | 54.0                 | -12.1                  | Tx Ch 165, 6 Mbps, Pwr 10, EUT on Side           |
| 11647.450  | 66.8             | -4.9          | 3.6                     | 13.0              | 0.0                               | 0.0                       | Horz                     | PK       | 0.0                      | 61.9              | 74.0                 | -12.1                  | Tx Ch 165, 6 Mbps, Pwr 10, EUT Horz              |
| 11495.530  | 67.0             | -5.4          | 2.0                     | 41.0              | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 61.6              | 74.0                 | -12.4                  | Tx Ch 149, MCS0, Pwr 9, EUT on Side              |
| 11649.580  | 66.3             | -4.9          | 3.1                     | 29.0              | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 61.4              | 74.0                 | -12.6                  | Tx Ch 165, 54 Mbps, Pwr 10, EUT on Side          |
| 11647.600  | 65.9             | -4.9          | 1.9                     | 49.0              | 0.0                               | 0.0                       | Horz                     | PK       | 0.0                      | 61.0              | 74.0                 | -13.0                  | Tx Ch 165, 6 Mbps, Pwr 10, EUT on Side           |
| 11647.750  | 65.7             | -4.9          | 2.4                     | 329.0             | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 60.8              | 74.0                 | -13.2                  | Tx Ch 165, 6 Mbps, Pwr 10, EUT Vert              |
| 11654.120  | 65.4             | -4.9          | 3.1                     | 29.0              | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 60.5              | 74.0                 | -13.5                  | Tx Ch 165, 36 Mbps, Pwr 10, EUT on Side          |
| 11647.500  | 65.4             | -4.9          | 3.5                     | 313.0             | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 60.5              | 74.0                 | -13.5                  | Tx Ch 165, 6 Mbps, Pwr 10, EUT Horz              |
| 23300.310  | 37.5             | 0.6           | 1.2                     | 151.0             | 2.3                               | 0.0                       | Horz                     | AV       | 0.0                      | 40.4              | 54.0                 | -13.6                  | Tx Ch 165, 6 Mbps, Pwr 10, EUT on Side           |

# SPURIOUS RADIATED EMISSIONS U-NII-3

| 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                                         |
|------------|------------------|---------------|-------------------------|-------------------|-----------------------------------|---------------------------|--------------------------|----------|--------------------------|-------------------|----------------------|------------------------|--------------------------------------------------|
| 11487.460  | 65.8             | -5.4          | 1.9                     | 29.0              | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 60.4              | 74.0                 | -13.6                  | Tx Ch 149, 6 Mbps, Pwr 9, EUT on Side            |
| 11647.600  | 65.3             | -4.9          | 4.0                     | 307.0             | 0.0                               | 0.0                       | Horz                     | PK       | 0.0                      | 60.4              | 74.0                 | -13.6                  | Tx Ch 165, 6 Mbps, Pwr 10, EUT Vert              |
| 11588.670  | 64.8             | -4.6          | 3.1                     | 29.0              | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 60.2              | 74.0                 | -13.8                  | Tx Ch 159 (40 MHz BW), MCS7, Pwr 11, EUT on Side |
| 11569.440  | 63.7             | -4.5          | 1.5                     | 110.0             | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 59.2              | 74.0                 | -14.8                  | Tx Ch 157, 6 Mbps, Pwr 11, EUT on Side           |
| 11588.670  | 63.4             | -4.6          | 3.1                     | 29.0              | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 58.8              | 74.0                 | -15.2                  | Tx Ch 159 (40 MHz BW), MCS0, Pwr 11, EUT on Side |
| 11510.500  | 63.8             | -5.2          | 2.0                     | 40.0              | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 58.6              | 74.0                 | -15.4                  | Tx Ch 151 (40 MHz BW), MCS0, Pwr 10, EUT on Side |
| 11551.000  | 63.1             | -4.6          | 2.0                     | 42.0              | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 58.5              | 74.0                 | -15.5                  | Tx Ch 155 (80 MHz BW), MCS0, Pwr 7, EUT on Side  |
| 17365.080  | 38.4             | 16.3          | 1.5                     | 201.0             | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 54.7              | 74.0                 | -19.3                  | Tx Ch 157, 6 Mbps, Pwr 11, EUT on Side           |
| 17484.620  | 37.1             | 16.8          | 1.5                     | 52.0              | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 53.9              | 74.0                 | -20.1                  | Tx Ch 165, 6 Mbps, Pwr 10, EUT on Side           |
| 17230.750  | 37.9             | 15.9          | 1.5                     | 24.0              | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 53.8              | 74.0                 | -20.2                  | Tx Ch 149, 6 Mbps, Pwr 9, EUT on Side            |
| 11551.000  | 56.8             | -4.6          | 2.0                     | 42.0              | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 52.2              | 74.0                 | -21.8                  | Tx Ch 155 (80 MHz BW), MCS9, Pwr 7, EUT on Side  |
| 23299.930  | 48.8             | 0.6           | 1.2                     | 19.0              | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 49.4              | 74.0                 | -24.6                  | Tx Ch 165, MCS7, Pwr 11, EUT on Side             |
| 23299.860  | 48.1             | 0.6           | 1.2                     | 19.0              | 0.0                               | 0.0                       | Vert                     | PK       | 0.0                      | 48.7              | 74.0                 | -25.3                  | Tx Ch 165, 6 Mbps, Pwr 10, EUT on Side           |
| 23301.520  | 47.4             | 0.6           | 1.2                     | 151.0             | 0.0                               | 0.0                       | Horz                     | PK       | 0.0                      | 48.0              | 74.0                 | -26.0                  | Tx Ch 165, 6 Mbps, Pwr 10, EUT on Side           |

## CONCLUSION

Pass



Tested By

# SPURIOUS RADIATED EMISSIONS U-NII-3



|                   |                                     |                       |            |
|-------------------|-------------------------------------|-----------------------|------------|
| EUT:              | Lantern Surgical Assistant Reusable | Work Order:           | ORTH0035   |
| Serial Number:    | See Configurations                  | Date:                 | 2024-10-22 |
| Customer:         | OrthAlign                           | Temperature:          | 21°C       |
| Attendees:        | Steven Devincentis, Kian Gholizadeh | Relative Humidity:    | 44.7%      |
| Customer Project: | None                                | Bar. Pressure (PMSL): | 1017 mb    |
| Tested By:        | Nolan De Ramos                      | Job Site:             | OC10       |
| Power:            | 5VDC                                | Configuration:        | ORTH0035-1 |

## TEST PARAMETERS

|        |    |                    |   |                     |           |
|--------|----|--------------------|---|---------------------|-----------|
| Run #: | 48 | Test Distance (m): | 3 | Ant. Height(s) (m): | 1 to 4(m) |
|--------|----|--------------------|---|---------------------|-----------|

## COMMENTS

None

## EUT OPERATING MODES

Transmitting Wi-Fi U-NII-3, IEEE

- 802.11a, 20 MHz BW Ch: 149, 157, & 165, Data Rate: 6, 36, 54 Mbps
- 802.11n, 20 MHz BW Ch: 149, 157, & 165, 40 MHz BW Ch: 151, & 159, Data Rate: MCS0, MCS7
- 802.11ac, 80 MHz BW Ch: 155, Data Rate: MCS0, MCS9

## DEVIATIONS FROM TEST STANDARD

None



Run #: 48

■ PK ◆ AV ● QP

# SPURIOUS RADIATED EMISSIONS U-NII-3

## RESULTS - Run #48

| Freq (MHz) | Antenna Height (meters) | Azimuth (degrees) | Polarity/Transducer Type | Detector | EIRP (Watts) | EIRP (dBm) | Spec. Limit (dBm) | Compared to Spec. (dB) | Comments                                         |
|------------|-------------------------|-------------------|--------------------------|----------|--------------|------------|-------------------|------------------------|--------------------------------------------------|
| 11510.500  | 2.0                     | 40.0              | Vert                     | PK       | 1.1E-6       | -29.6      | -27.0             | -2.6                   | Tx Ch 151 (40 MHz BW), MCS7, Pwr 10, EUT on Side |
| 11490.500  | 2.0                     | 41.0              | Vert                     | PK       | 927.1E-9     | -30.3      | -27.0             | -3.3                   | Tx Ch 149, MCS7, Pwr 9, EUT on Side              |
| 11649.040  | 3.1                     | 29.0              | Vert                     | PK       | 703.3E-9     | -31.5      | -27.0             | -4.5                   | Tx Ch 165, MCS7, Pwr 11, EUT on Side             |
| 11653.790  | 3.1                     | 29.0              | Vert                     | PK       | 585.0E-9     | -32.3      | -27.0             | -5.3                   | Tx Ch 165, MCS0, Pwr 11, EUT on Side             |
| 11647.850  | 3.0                     | 44.0              | Vert                     | PK       | 571.6E-9     | -32.4      | -27.0             | -5.4                   | Tx Ch 165, 6 Mbps, Pwr 10, EUT on Side           |
| 11647.450  | 3.6                     | 13.0              | Horz                     | PK       | 464.6E-9     | -33.3      | -27.0             | -6.3                   | Tx Ch 165, 6 Mbps, Pwr 10, EUT Horz              |
| 11495.530  | 2.0                     | 41.0              | Vert                     | PK       | 433.6E-9     | -33.6      | -27.0             | -6.6                   | Tx Ch 149, MCS0, Pwr 9, EUT on Side              |
| 11649.580  | 3.1                     | 29.0              | Vert                     | PK       | 414.1E-9     | -33.8      | -27.0             | -6.8                   | Tx Ch 165, 54 Mbps, Pwr 10, EUT on Side          |
| 11647.600  | 1.9                     | 49.0              | Horz                     | PK       | 377.7E-9     | -34.2      | -27.0             | -7.2                   | Tx Ch 165, 6 Mbps, Pwr 10, EUT on Side           |
| 11647.750  | 2.4                     | 329.0             | Vert                     | PK       | 360.7E-9     | -34.4      | -27.0             | -7.4                   | Tx Ch 165, 6 Mbps, Pwr 10, EUT Vert              |
| 11647.500  | 3.5                     | 313.0             | Vert                     | PK       | 336.6E-9     | -34.7      | -27.0             | -7.7                   | Tx Ch 165, 6 Mbps, Pwr 10, EUT Horz              |
| 11654.120  | 3.1                     | 29.0              | Vert                     | PK       | 336.6E-9     | -34.7      | -27.0             | -7.7                   | Tx Ch 165, 36 Mbps, Pwr 10, EUT on Side          |
| 11487.460  | 1.9                     | 29.0              | Vert                     | PK       | 328.9E-9     | -34.8      | -27.0             | -7.8                   | Tx Ch 149, 6 Mbps, Pwr 9, EUT on Side            |
| 11647.600  | 4.0                     | 307.0             | Horz                     | PK       | 328.9E-9     | -34.8      | -27.0             | -7.8                   | Tx Ch 165, 6 Mbps, Pwr 10, EUT Vert              |
| 11588.670  | 3.1                     | 29.0              | Vert                     | PK       | 314.1E-9     | -35.0      | -27.0             | -8.0                   | Tx Ch 159 (40 MHz BW), MCS7, Pwr 11, EUT on Side |
| 11569.440  | 1.5                     | 110.0             | Vert                     | PK       | 249.5E-9     | -36.0      | -27.0             | -9.0                   | Tx Ch 157, 6 Mbps, Pwr 11, EUT on Side           |
| 11588.670  | 3.1                     | 29.0              | Vert                     | PK       | 227.6E-9     | -36.4      | -27.0             | -9.4                   | Tx Ch 159 (40 MHz BW), MCS0, Pwr 11, EUT on Side |
| 11510.500  | 2.0                     | 40.0              | Vert                     | PK       | 217.3E-9     | -36.6      | -27.0             | -9.6                   | Tx Ch 151 (40 MHz BW), MCS0, Pwr 10, EUT on Side |
| 11551.000  | 2.0                     | 42.0              | Vert                     | PK       | 212.4E-9     | -36.7      | -27.0             | -9.7                   | Tx Ch 155 (80 MHz BW), MCS0, Pwr 7, EUT on Side  |
| 17365.080  | 1.5                     | 201.0             | Vert                     | PK       | 88.5E-9      | -40.5      | -27.0             | -13.5                  | Tx Ch 157, 6 Mbps, Pwr 11, EUT on Side           |
| 17484.620  | 1.5                     | 52.0              | Vert                     | PK       | 73.6E-9      | -41.3      | -27.0             | -14.3                  | Tx Ch 165, 6 Mbps, Pwr 10, EUT on Side           |
| 17230.750  | 1.5                     | 24.0              | Vert                     | PK       | 72.0E-9      | -41.4      | -27.0             | -14.4                  | Tx Ch 149, 6 Mbps, Pwr 9, EUT on Side            |
| 11551.000  | 2.0                     | 42.0              | Vert                     | PK       | 49.8E-9      | -43.0      | -27.0             | -16.0                  | Tx Ch 155 (80 MHz BW), MCS9, Pwr 7, EUT on Side  |
| 23299.930  | 1.2                     | 19.0              | Vert                     | PK       | 26.1E-9      | -45.8      | -27.0             | -18.8                  | Tx Ch 165, MCS7, Pwr 11, EUT on Side             |
| 23299.860  | 1.2                     | 19.0              | Vert                     | PK       | 22.2E-9      | -46.5      | -27.0             | -19.5                  | Tx Ch 165, 6 Mbps, Pwr 10, EUT on Side           |
| 23301.520  | 1.2                     | 151.0             | Horz                     | PK       | 18.9E-9      | -47.2      | -27.0             | -20.2                  | Tx Ch 165, 6 Mbps, Pwr 10, EUT on Side           |

## CONCLUSION

Pass



Tested By

# SPURIOUS RADIATED EMISSIONS U-NII-3

|                   |                                     |                       |            |
|-------------------|-------------------------------------|-----------------------|------------|
| EUT:              | Lantern Reusable Navigation Unit    | Work Order:           | ORTH0035   |
| Serial Number:    | 2401016                             | Date:                 | 2024-10-24 |
| Customer:         | OrthAlign                           | Temperature:          | 20.7°C     |
| Attendees:        | Steven Devincentis, Kian Gholizadeh | Relative Humidity:    | 46.7%      |
| Customer Project: | None                                | Bar. Pressure (PMSL): | 1014 mb    |
| Tested By:        | Nolan De Ramos                      | Job Site:             | OC10       |
| Power:            | 5VDC                                | Configuration:        | ORTH0035-1 |

## TEST SPECIFICATIONS

|                 |                  |
|-----------------|------------------|
| Specification:  | Method:          |
| FCC 15.407:2024 | ANSI C63.10:2013 |

## TEST PARAMETERS

|        |    |                    |   |                     |         |
|--------|----|--------------------|---|---------------------|---------|
| Run #: | 60 | Test Distance (m): | 1 | Ant. Height(s) (m): | 1.2 (m) |
|--------|----|--------------------|---|---------------------|---------|

## COMMENTS

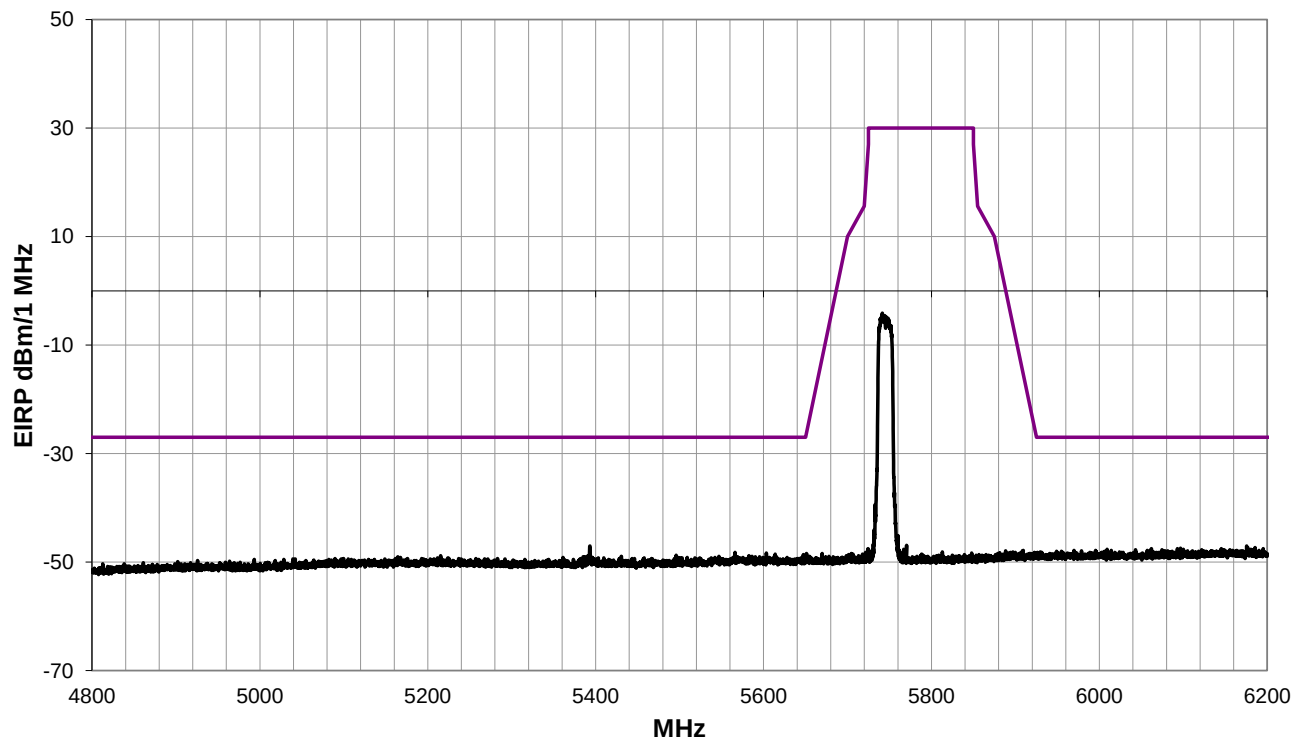
None

## EUT OPERATING MODES

Transmitting Wi-Fi U-NII-3, IEEE 802.11a, Ch 149, 5745 MHz, 6 Mbps

## DEVIATIONS FROM TEST STANDARD

None



Run #: 60

■ PK ◆ AV ● QP

# SPURIOUS RADIATED EMISSIONS U-NII-3

## RESULTS - Run #60

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

## CONCLUSION

Evaluation



Tested By



# SPURIOUS RADIATED EMISSIONS U-NII-3

|                   |                                     |                       |            |
|-------------------|-------------------------------------|-----------------------|------------|
| EUT:              | Lantern Reusable Navigation Unit    | Work Order:           | ORTH0035   |
| Serial Number:    | 2401016                             | Date:                 | 2024-10-24 |
| Customer:         | OrthAlign                           | Temperature:          | 20.7°C     |
| Attendees:        | Steven Devincentis, Kian Gholizadeh | Relative Humidity:    | 46.7%      |
| Customer Project: | None                                | Bar. Pressure (PMSL): | 1014 mb    |
| Tested By:        | Nolan De Ramos                      | Job Site:             | OC10       |
| Power:            | 5VDC                                | Configuration:        | ORTH0035-1 |

## TEST SPECIFICATIONS

|                 |                  |
|-----------------|------------------|
| Specification:  | Method:          |
| FCC 15.407:2024 | ANSI C63.10:2013 |

## TEST PARAMETERS

|        |    |                    |   |                     |         |
|--------|----|--------------------|---|---------------------|---------|
| Run #: | 61 | Test Distance (m): | 1 | Ant. Height(s) (m): | 1.2 (m) |
|--------|----|--------------------|---|---------------------|---------|

## COMMENTS

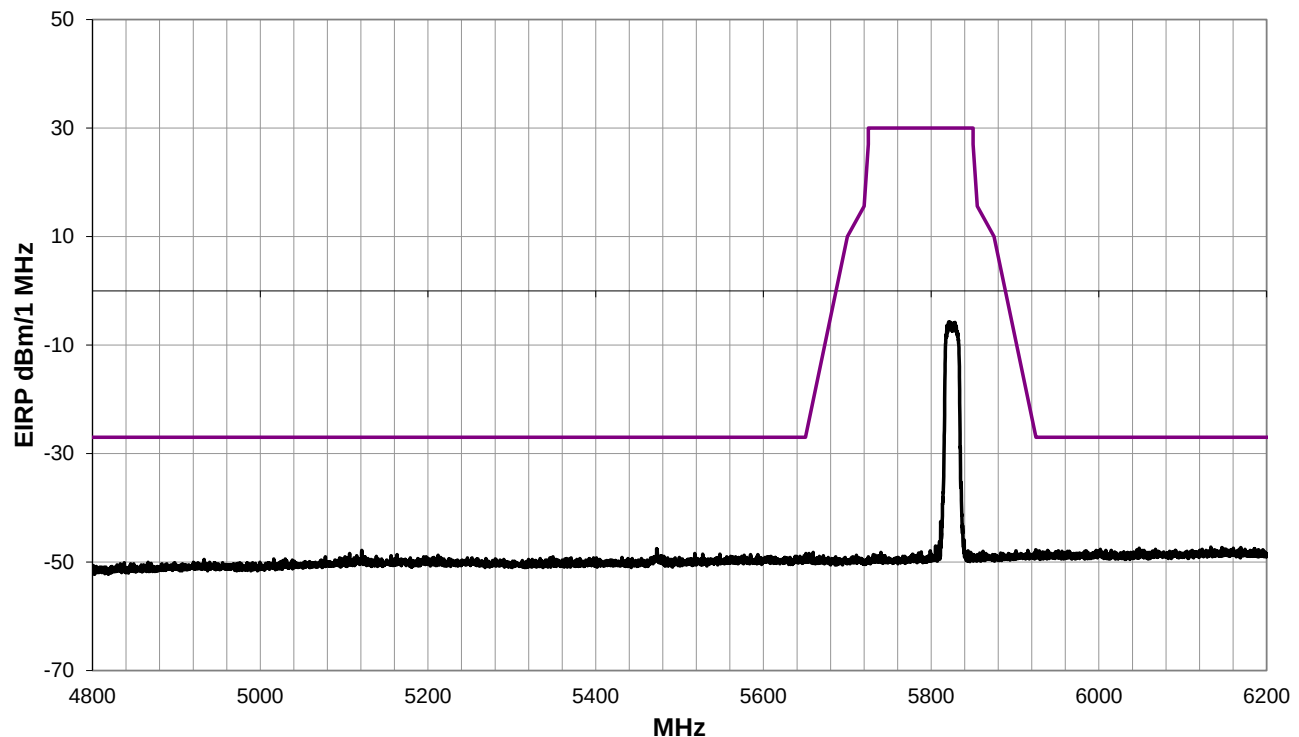
None

## EUT OPERATING MODES

Transmitting Wi-Fi U-NII-3, IEEE 802.11a, Ch 165, 5825 MHz, 6 Mbps

## DEVIATIONS FROM TEST STANDARD

None



Run #: 61

PK AV QP

# SPURIOUS RADIATED EMISSIONS U-NII-3

## RESULTS - Run #61

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

## CONCLUSION

Evaluation



Tested By

# SPURIOUS RADIATED EMISSIONS U-NII-3

|                   |                                     |                       |            |
|-------------------|-------------------------------------|-----------------------|------------|
| EUT:              | Lantern Reusable Navigation Unit    | Work Order:           | ORTH0035   |
| Serial Number:    | 2401016                             | Date:                 | 2024-10-24 |
| Customer:         | OrthAlign                           | Temperature:          | 20.7°C     |
| Attendees:        | Steven Devincentis, Kian Gholizadeh | Relative Humidity:    | 46.7%      |
| Customer Project: | None                                | Bar. Pressure (PMSL): | 1014 mb    |
| Tested By:        | Nolan De Ramos                      | Job Site:             | OC10       |
| Power:            | 5VDC                                | Configuration:        | ORTH0035-1 |

## TEST SPECIFICATIONS

|                 |                  |
|-----------------|------------------|
| Specification:  | Method:          |
| FCC 15.407:2024 | ANSI C63.10:2013 |

## TEST PARAMETERS

|        |    |                    |   |                     |         |
|--------|----|--------------------|---|---------------------|---------|
| Run #: | 62 | Test Distance (m): | 1 | Ant. Height(s) (m): | 1.2 (m) |
|--------|----|--------------------|---|---------------------|---------|

## COMMENTS

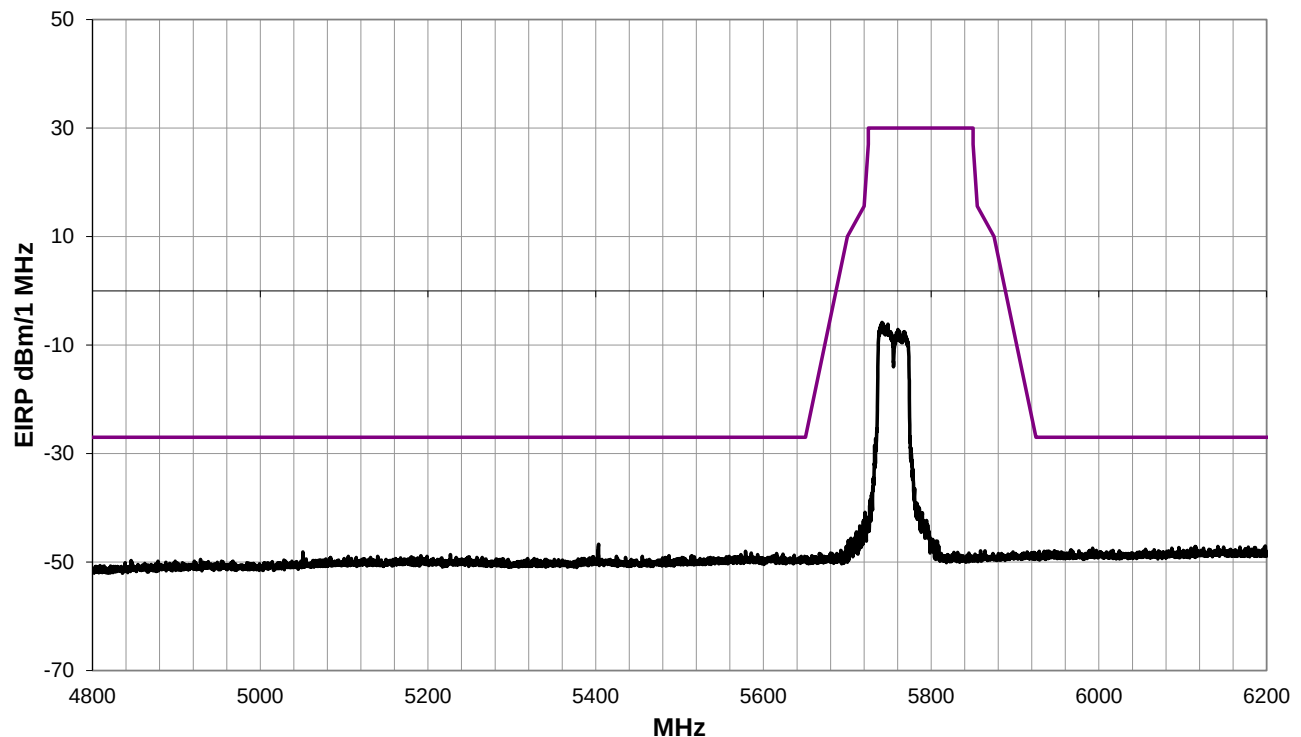
None

## EUT OPERATING MODES

Transmitting Wi-Fi U-NII-3, IEEE 802.11n, Ch 151 (40 MHz BW), 5755 MHz, MCS7

## DEVIATIONS FROM TEST STANDARD

None



Run #: 62

PK AV QP

# SPURIOUS RADIATED EMISSIONS U-NII-3

## RESULTS - Run #62

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

## CONCLUSION

Evaluation



Tested By

# SPURIOUS RADIATED EMISSIONS U-NII-3



|                   |                                     |                       |            |
|-------------------|-------------------------------------|-----------------------|------------|
| EUT:              | Lantern Reusable Navigation Unit    | Work Order:           | ORTH0035   |
| Serial Number:    | 2401016                             | Date:                 | 2024-10-24 |
| Customer:         | OrthAlign                           | Temperature:          | 20.7°C     |
| Attendees:        | Steven Devincentis, Kian Gholizadeh | Relative Humidity:    | 46.7%      |
| Customer Project: | None                                | Bar. Pressure (PMSL): | 1014 mb    |
| Tested By:        | Nolan De Ramos                      | Job Site:             | OC10       |
| Power:            | 5VDC                                | Configuration:        | ORTH0035-1 |

## TEST SPECIFICATIONS

|                 |                  |
|-----------------|------------------|
| Specification:  | Method:          |
| FCC 15.407:2024 | ANSI C63.10:2013 |

## TEST PARAMETERS

|        |    |                    |   |                     |         |
|--------|----|--------------------|---|---------------------|---------|
| Run #: | 63 | Test Distance (m): | 1 | Ant. Height(s) (m): | 1.2 (m) |
|--------|----|--------------------|---|---------------------|---------|

## COMMENTS

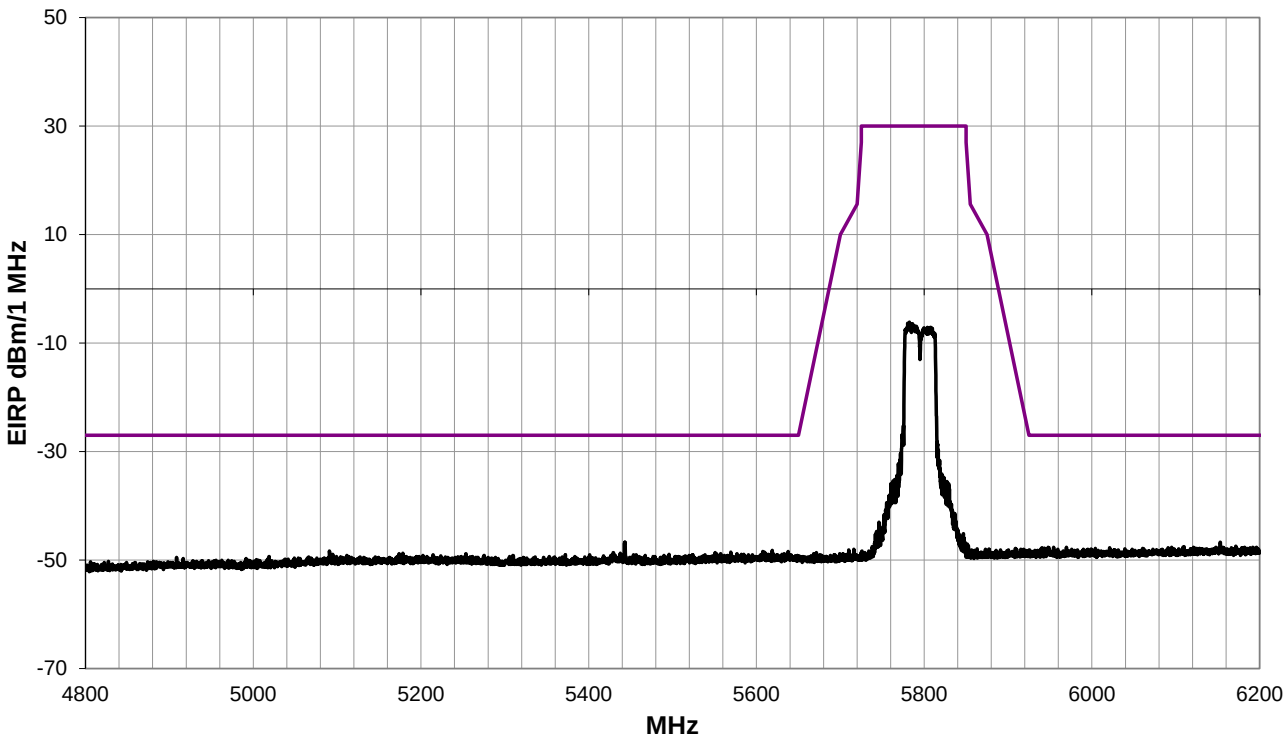
None

## EUT OPERATING MODES

Transmitting Wi-Fi U-NII-3, IEEE 802.11n, Ch 159 (40 MHz BW), 5795 MHz, MCS7

## DEVIATIONS FROM TEST STANDARD

None



Run #: 63

PK AV QP

# SPURIOUS RADIATED EMISSIONS U-NII-3

## RESULTS - Run #63

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

## CONCLUSION

Evaluation



Tested By

# SPURIOUS RADIATED EMISSIONS U-NII-3



|                   |                                     |                       |            |
|-------------------|-------------------------------------|-----------------------|------------|
| EUT:              | Lantern Reusable Navigation Unit    | Work Order:           | ORTH0035   |
| Serial Number:    | 2401016                             | Date:                 | 2024-10-24 |
| Customer:         | OrthAlign                           | Temperature:          | 20.7°C     |
| Attendees:        | Steven Devincentis, Kian Gholizadeh | Relative Humidity:    | 46.7%      |
| Customer Project: | None                                | Bar. Pressure (PMSL): | 1014 mb    |
| Tested By:        | Nolan De Ramos                      | Job Site:             | OC10       |
| Power:            | 5VDC                                | Configuration:        | ORTH0035-1 |

## TEST SPECIFICATIONS

|                 |                  |
|-----------------|------------------|
| Specification:  | Method:          |
| FCC 15.407:2024 | ANSI C63.10:2013 |

## TEST PARAMETERS

|        |    |                    |   |                     |         |
|--------|----|--------------------|---|---------------------|---------|
| Run #: | 64 | Test Distance (m): | 1 | Ant. Height(s) (m): | 1.2 (m) |
|--------|----|--------------------|---|---------------------|---------|

## COMMENTS

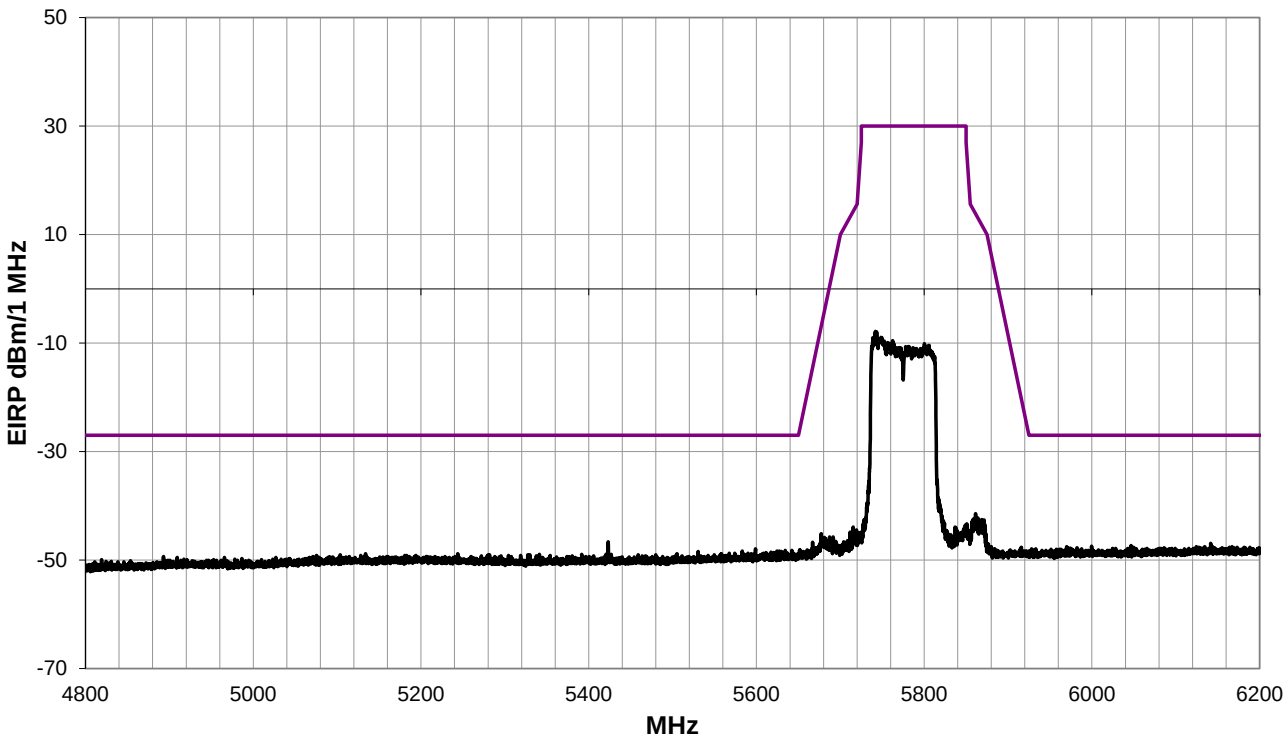
None

## EUT OPERATING MODES

Transmitting Wi-Fi U-NII-3, IEEE 802.11ac, Ch 155 (80 MHz BW), 5775 MHz, MCS7

## DEVIATIONS FROM TEST STANDARD

None



Run #: 64

■ PK ◆ AV ● QP

# SPURIOUS RADIATED EMISSIONS U-NII-3

## RESULTS - Run #64

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

## CONCLUSION

Evaluation



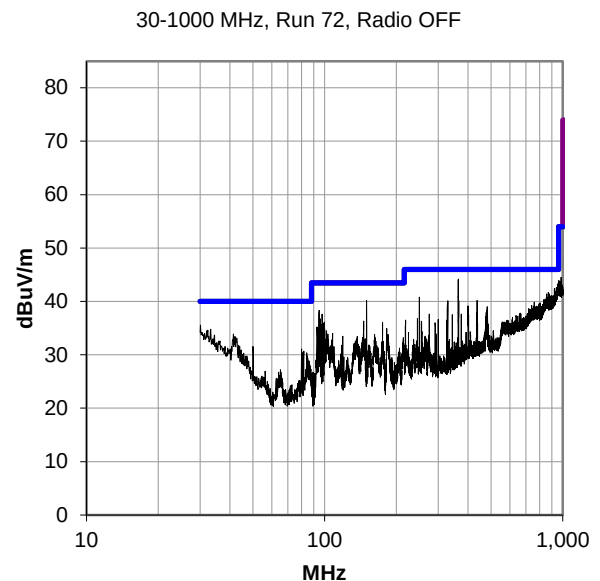
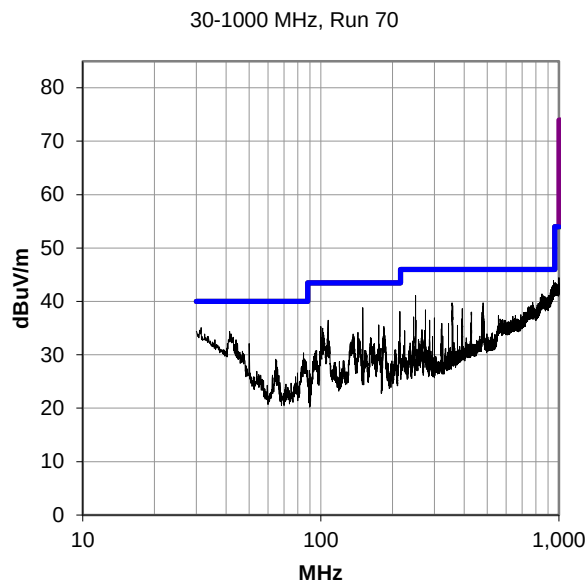
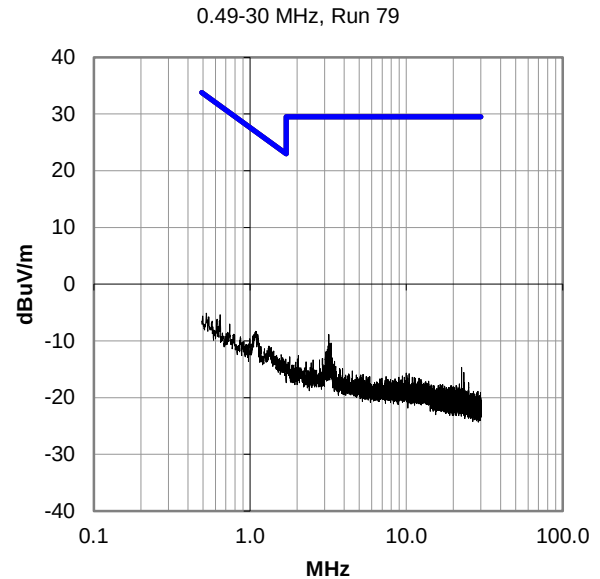
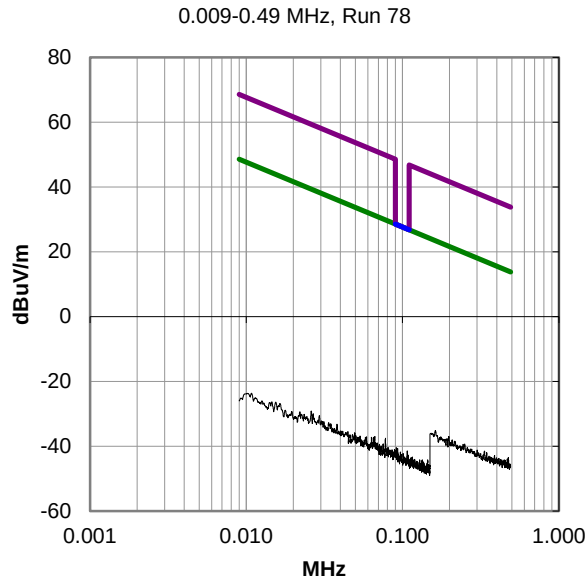
Tested By



# SPURIOUS RADIATED EMISSIONS U-NII-3

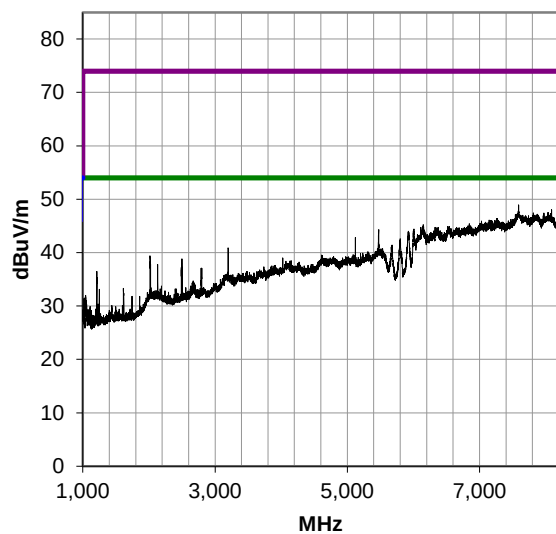
## PRESCAN DATA

Radiated spurious emissions from the EUT are initially reviewed with Pre-scans (Preview scans). Pre-scans are performed, with the EUT transmitting on the lowest applicable data rate, for both vertical and horizontal polarizations. The Pre-scan plots below are shown with a peak detector and RBW for the following frequency ranges: 9 kHz RBW (< 30 MHz); 120 kHz RBW (30 - 1000 MHz); 1 MHz RBW (> 1 GHz). In the case where unintentional emissions are observed, an ambient or idle pre-scan with the radio off, will be shown for comparison.

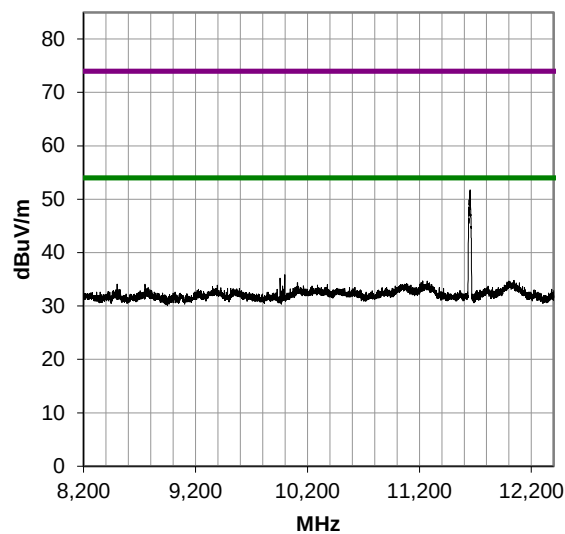


# SPURIOUS RADIATED EMISSIONS U-NII-3

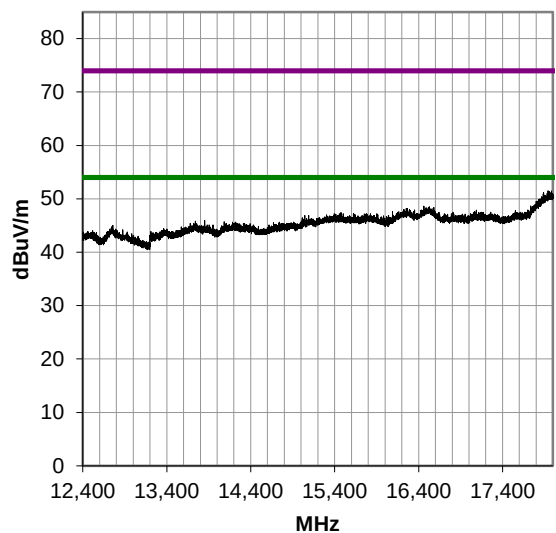
1000-8200 MHz, Run 45



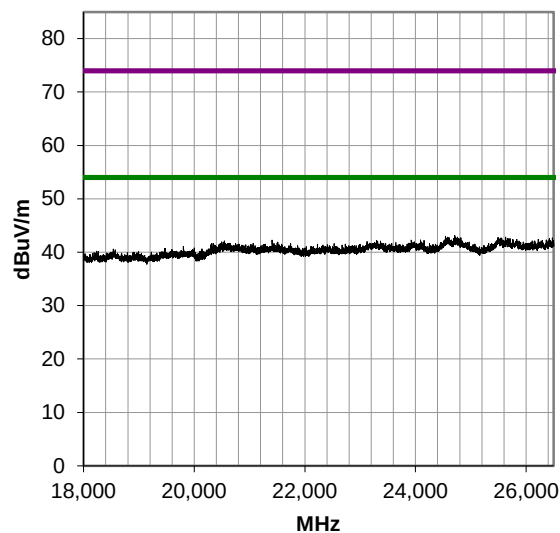
8200-12400 MHz, Run 47



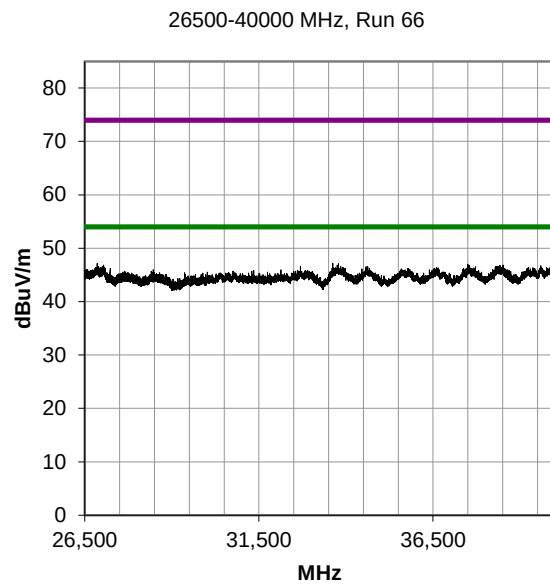
12400-18000 MHz, Run 48



18000-26500 MHz, Run 67



# SPURIOUS RADIATED EMISSIONS U-NII-3



End of Test Report