

# FCC RADIO TEST REPORT

Applicant..... : Unfolded Circle ApS

Address..... : Nordre Fasanvej 124a 1tv Frederiksberg, 2000 Denmark

Manufacturer..... : Unfolded Circle ApS

Address..... : Nordre Fasanvej 124a 1tv Frederiksberg, 2000 Denmark

Factory..... : Unfolded Circle ApS

Address..... : Nordre Fasanvej 124a 1tv Frederiksberg, 2000 Denmark

Product Name..... : Unfolded Circle Remote 3

Brand Name..... : Unfolded Circle

Model No. .... : UCR3

FCC ID..... : 2BAA9-UCR3

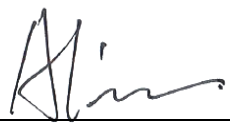
Measurement Standard.... : 47 CFR FCC PART 15 Subpart E (section 407)

Receipt Date of Samples.... : January 02, 2025

Date of Tested..... : January 08, 2025 to May 16, 2025

Date of Report..... : May 16, 2025

This report shows that above equipment is technically compliant with the requirements of the standards above. All test results in this report apply only to the tested sample(s). Without prior written approval of Dongguan Nore Testing Center Co., Ltd, this report shall not be reproduced except in full.



Prepared by

Alina Guo / Project Engineer



Approved by

Iori Fan / Authorized Signatory

## Table of Contents

|                                                                        |     |
|------------------------------------------------------------------------|-----|
| 1. Summary of Test Result.....                                         | 4   |
| 2. General Description of EUT .....                                    | 5   |
| 3. Test Channels and Modes Detail .....                                | 9   |
| 4. Configuration of EUT .....                                          | 10  |
| 5. Modification of EUT .....                                           | 10  |
| 6. Description of Support Device.....                                  | 11  |
| 7. Test Facility and Location .....                                    | 13  |
| 8. Applicable Standards and References.....                            | 14  |
| 9. Deviations and Abnormalities from Standard Conditions .....         | 14  |
| 10. Test Conditions .....                                              | 15  |
| 11. Measurement Uncertainty .....                                      | 16  |
| 12. Sample Calculations .....                                          | 17  |
| 13. Test Items and Results .....                                       | 23  |
| 13.1 Conducted Emissions Measurement .....                             | 23  |
| 13.2 Maximum Conducted Output Power Measurement.....                   | 27  |
| 13.3 6dB Bandwidth Measurement.....                                    | 33  |
| 13.4 26dB Bandwidth & 99% Occupied Bandwidth .....                     | 38  |
| 13.5 Power Spectral Density.....                                       | 52  |
| 13.6 Band Edge.....                                                    | 70  |
| 13.7 Frequency Stability.....                                          | 80  |
| 13.8 Radiated Spurious Emissions and Restricted Bands Measurement..... | 85  |
| 13.9 Antenna Requirement .....                                         | 106 |
| 14. Test Equipment List.....                                           | 107 |

**Revision History**

| Report Number  | Description   | Issued Date |
|----------------|---------------|-------------|
| NTC2501045FV00 | Initial Issue | 2025-05-16  |
|                |               |             |
|                |               |             |
|                |               |             |
|                |               |             |
|                |               |             |
|                |               |             |
|                |               |             |
|                |               |             |
|                |               |             |
|                |               |             |
|                |               |             |
|                |               |             |
|                |               |             |
|                |               |             |
|                |               |             |
|                |               |             |
|                |               |             |
|                |               |             |
|                |               |             |
|                |               |             |
|                |               |             |

## 1. Summary of Test Result

| FCC Rules          | Description of Test                                | Result | Remarks |
|--------------------|----------------------------------------------------|--------|---------|
| §15.207 (a)        | AC Power Conducted Emission                        | PASS   | ---     |
| §15.407(a)         | Max. Conducted Output Power                        | PASS   | ---     |
| §15.407(a)         | 26dB Spectrum Bandwidth and 99% Occupied Bandwidth | PASS   | ---     |
| §15.407(e)         | 6dB Bandwidth                                      | PASS   | ---     |
| §15.407(a)         | Power Spectral Density                             | PASS   | ---     |
| §15.407(b) §15.205 | Radiated Emissions                                 | PASS   | ---     |
| §15.407(b)         | Band Edge Emissions                                | PASS   | ---     |
| §15.407(g)         | Frequency Stability                                | PASS   | ---     |
| §15.203            | Antenna Requirement                                | PASS   | ---     |
| §15.407(h)         | Dynamic Frequency Selection                        | PASS   | ---     |

## 2. General Description of EUT

| Product Information     |                                                                                                                                |
|-------------------------|--------------------------------------------------------------------------------------------------------------------------------|
| Product Name:           | Unfolded Circle Remote 3                                                                                                       |
| Main Model Name:        | UCR3                                                                                                                           |
| Additional Model Name:  | N/A                                                                                                                            |
| Model difference:       | N/A                                                                                                                            |
| S/N:                    | 2409-5262                                                                                                                      |
| Brand Name:             | Unfolded Circle                                                                                                                |
| Hardware Version:       | V01                                                                                                                            |
| Software Version:       | V01                                                                                                                            |
| Rating:                 | DC 3.7V internal li-ion battery<br>DC 5V come from charging dock<br>DC 5V come from wireless charger                           |
| Typical Arrangement:    | Tabletop                                                                                                                       |
| I/O Port:               | Refer to the user manual                                                                                                       |
| Accessories Information |                                                                                                                                |
| Adapter:                | N/A                                                                                                                            |
| Cable:                  | N/A                                                                                                                            |
| Other:                  | N/A                                                                                                                            |
| Additional Information  |                                                                                                                                |
| Note:                   | The EUT consists of remote unit and charging dock unit, this report only applies for remote unit.                              |
| Remark:                 | All the information above are provided by the manufacturer. More detailed feature of the EUT please refers to the user manual. |

| Technical Specification                                       |                                                                                                                                                                                                                                                                                                                                                                                                             |
|---------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Frequency Range:                                              | 5180-5240MHz<br>5260-5320MHz,<br>5500-5700MHz,<br>5745-5825MHz                                                                                                                                                                                                                                                                                                                                              |
| Modulation Technology:                                        | DSSS, OFDM                                                                                                                                                                                                                                                                                                                                                                                                  |
| Modulation Type:                                              | BPSK, QPSK for 802.11a<br>1024QAM, 256QAM, 64QAM, 16QAM, QPSK, BPSK for 802.11n/ac                                                                                                                                                                                                                                                                                                                          |
| Number of Channel:                                            | U-NII-1, U-NII-2A:<br>4 Channel for 802.11a/n(HT20)/ac(VHT20)<br>2 Channel for 802.11n(HT40)/ac(VHT40)<br>1 Channel for 802.11ac(VHT80)<br>U-NII-2C:<br>11 Channel for 802.11a/n(HT20)/ac(VHT20)<br>5 Channel for 802.11n(HT40)/ac(VHT40)<br>2 Channel for 802.11ac(VHT80)<br>U-NII-3:<br>5 Channel for 802.11a/n(HT20)/ac(VHT20)<br>2 Channel for 802.11n(HT40)/ac(VHT40)<br>1 Channel for 802.11ac(VHT80) |
| Antenna Type:                                                 | Embedded Ceramic Antenna                                                                                                                                                                                                                                                                                                                                                                                    |
| Number of Antenna:                                            | 1                                                                                                                                                                                                                                                                                                                                                                                                           |
| Antenna Gain:                                                 | 2.6 dBi (Declared by the manufacturer)                                                                                                                                                                                                                                                                                                                                                                      |
| Beamforming Gain:                                             | Not support                                                                                                                                                                                                                                                                                                                                                                                                 |
| Type:                                                         | Client without Radar detection.                                                                                                                                                                                                                                                                                                                                                                             |
| Note: This report only replies to 5G WIFI feature of the EUT. |                                                                                                                                                                                                                                                                                                                                                                                                             |

| Channel List                   |               |                              |               |                        |               |
|--------------------------------|---------------|------------------------------|---------------|------------------------|---------------|
| U-NII-1 Band 5180~5240MHz      |               |                              |               |                        |               |
| IEEE 802.11a/n(HT20)/ac(VHT20) |               | IEEE 802.11n(HT40)/ac(VHT40) |               | IEEE 802.11 ac (VHT80) |               |
| Channel                        | Frequency MHz | Channel                      | Frequency MHz | Channel                | Frequency MHz |
| 36                             | 5180          | 38                           | 5190          | 42                     | 5210          |
| 40                             | 5200          | 46                           | 5230          | -                      | -             |
| 44                             | 5220          | -                            | -             | -                      | -             |
| 48                             | 5240          | -                            | -             | -                      | -             |
| U-NII-2A Band 5260-5320MHz     |               |                              |               |                        |               |
| 52                             | 5260          | 54                           | 5270          | 58                     | 5290          |
| 56                             | 5280          | 62                           | 5310          | -                      | -             |
| 60                             | 5300          | -                            | -             | -                      | -             |
| 64                             | 5320          | -                            | -             | -                      | -             |
| U-NII-2C Band 5500-5700MHz     |               |                              |               |                        |               |
| 100                            | 5500          | 102                          | 5510          | 106                    | 5530          |
| 104                            | 5520          | 110                          | 5550          | 122                    | 5610          |
| 108                            | 5540          | 118                          | 5590          | -                      | -             |
| 112                            | 5560          | 126                          | 5630          | -                      | -             |
| 116                            | 5580          | 134                          | 5670          | -                      | -             |
| 132                            | 5660          | -                            | -             | -                      | -             |
| 136                            | 5680          | -                            | -             | -                      | -             |
| 140                            | 5700          | -                            | -             | -                      | -             |

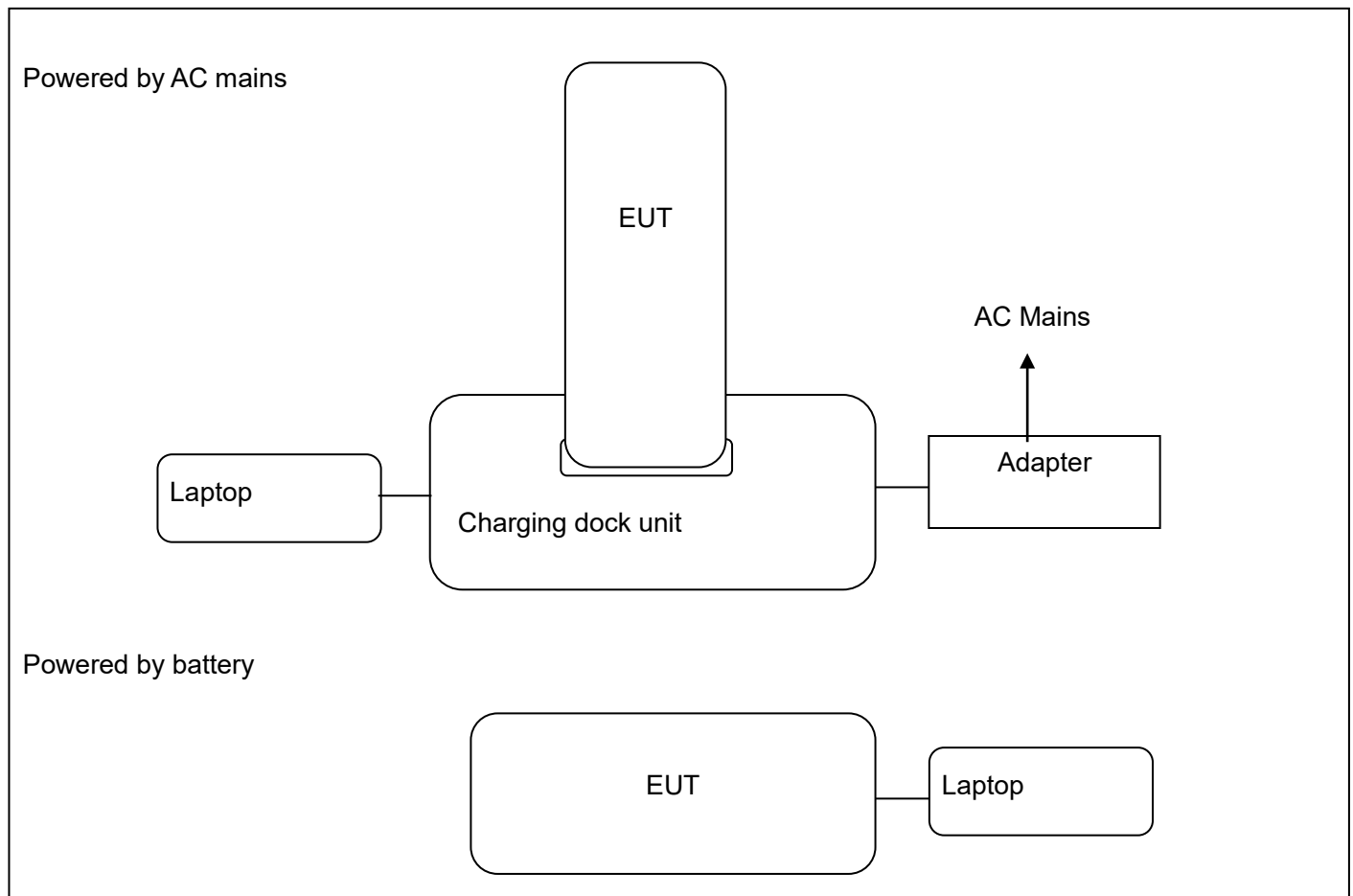
| U-NII-3 Band 5745~5825MHz      |               |                              |               |                        |               |
|--------------------------------|---------------|------------------------------|---------------|------------------------|---------------|
| IEEE 802.11a/n(HT20)/ac(VHT20) |               | IEEE 802.11n(HT40)/ac(VHT40) |               | IEEE 802.11 ac (VHT80) |               |
| Channel                        | Frequency MHz | Channel                      | Frequency MHz | Channel                | Frequency MHz |
| 149                            | 5745          | 151                          | 5755          | 155                    | 5775          |
| 153                            | 5765          | 159                          | 5795          | -                      | -             |
| 157                            | 5785          | -                            | -             |                        |               |
| 161                            | 5805          | -                            | -             |                        |               |
| 165                            | 5825          | -                            | -             |                        |               |

### 3. Test Channels and Modes Detail

| No. | Mode        | Channel | Frequency (MHz) | Remark                         |
|-----|-------------|---------|-----------------|--------------------------------|
| 1   | TX          | 36      | 5180            | IEEE 802.11a/n(HT20)/ac(HT20)  |
|     |             | 40      | 5200            | IEEE 802.11a/n(HT20)/ac(HT20)  |
|     |             | 48      | 5240            | IEEE 802.11a/n(HT20) /ac(HT20) |
|     |             | 52      | 5260            | IEEE 802.11a/n(HT20) /ac(HT20) |
|     |             | 60      | 5300            | IEEE 802.11a/n(HT20) /ac(HT20) |
|     |             | 64      | 5320            | IEEE 802.11a/n(HT20) /ac(HT20) |
|     |             | 100     | 5500            | IEEE 802.11a/n(HT20) /ac(HT20) |
|     |             | 116     | 5580            | IEEE 802.11a/n(HT20) /ac(HT20) |
|     |             | 140     | 5700            | IEEE 802.11a/n(HT20) /ac(HT20) |
|     |             | 149     | 5745            | IEEE 802.11a/n(HT20) /ac(HT20) |
|     |             | 157     | 5785            | IEEE 802.11a/n(HT20) /ac(HT20) |
|     |             | 165     | 5825            | IEEE 802.11a/n(HT20) /ac(HT20) |
|     |             | 38      | 5190            | IEEE 802.11n(HT40) /ac(VHT40)  |
|     |             | 46      | 5230            | IEEE 802.11n(HT40) /ac(VHT40)  |
|     |             | 54      | 5270            | IEEE 802.11n(HT40) /ac(VHT40)  |
|     |             | 62      | 5310            | IEEE 802.11n(HT40) /ac(VHT40)  |
|     |             | 102     | 5510            | IEEE 802.11n(HT40) /ac(VHT40)  |
|     |             | 134     | 5670            | IEEE 802.11n(HT40) /ac(VHT40)  |
|     |             | 151     | 5755            | IEEE 802.11n(HT40) /ac(VHT40)  |
|     |             | 159     | 5795            | IEEE 802.11n(HT40) /ac(VHT40)  |
|     |             | 42      | 5210            | IEEE 802.11ac(VHT80)           |
|     |             | 58      | 5290            | IEEE 802.11ac(VHT80)           |
|     |             | 122     | 5610            | IEEE 802.11ac(VHT80)           |
|     |             | 155     | 5775            | IEEE 802.11ac(VHT80)           |
| 2.  | Normal Mode | ---     | ---             | ---                            |

Note: TX mode means that the EUT was programmed to be in continuously transmitting mode.

## 4. Configuration of EUT



## 5. Modification of EUT

No modifications are made to the EUT during all test items.

## 6. Description of Support Device

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

| No. | Equipment               | Brand     | M/N                 | S/N        | Specification                                                                    | Remarks                                                 |
|-----|-------------------------|-----------|---------------------|------------|----------------------------------------------------------------------------------|---------------------------------------------------------|
| 1.  | Laptop                  | DELL      | VOSTR0<br>3400      | H3K2XA01   | I/P: AC 100-240V<br>50-60Hz, 1.3A<br>O/P: DC 19.5V 2.31A<br>45W                  | Provided by the Lab                                     |
| 2.  | Adapter<br>(For Laptop) | DELL      | HA45NM<br>140       | ZBH18436   | AC Line: 1.13m<br>unshielded<br>DC Line: 1.15m<br>unshielded with a core         | Provided by the Lab                                     |
| 3.  | Test fixture            | ---       | ---                 | ---        | ---                                                                              | Provide by the<br>manufacturer                          |
| 4.  | Router                  | LINKSYS   | WRT320<br>0ACM      | 060A621419 | FCC ID:<br>Q87-WRT3200ACM<br>IC:<br>3839A-WRT3200ACM                             | Provided by the Lab                                     |
| 5.  | Adapter<br>(for router) | LINKSYS   | Mu42-31<br>20300-A1 | 2A5C142    | 1.50m unshielded                                                                 | Input: AC 100-240V<br>50/60Hz 1.5A<br>Output: DC 12V 3A |
| 6.  | Charging<br>dock        | Unfolded  | UCD3                | 2409-5261  | ---                                                                              | Provided by the<br>Manufacturer.                        |
| 7.  | Adapter                 | Tongtaike | DT-WC3<br>0         | BSA21402   | Input AC100-240V<br>50/60Hz, 1.5A Output:<br>DC 5V3A DC 9V3A DC<br>15V3A 65W Max | Provided by the Lab.                                    |

| No. | Test Software          | Modulation           | Power Setting |
|-----|------------------------|----------------------|---------------|
| 1.  | System default (Tests) | IEEE 802.11a         | Default       |
| 2.  |                        | IEEE 802.11n(HT20)   | Default       |
| 3.  |                        | IEEE 802.11ac(VHT20) | Default       |
| 4.  |                        | IEEE 802.11n(HT40)   | Default       |
| 5.  |                        | IEEE 802.11ac(VHT40) | Default       |
| 6.  |                        | IEEE 802.11ac(VHT80) | Default       |

## 7. Test Facility and Location

|                                   |   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|-----------------------------------|---|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Site                         | : | Dongguan Nore Testing Center Co., Ltd. (Dongguan NTC Co., Ltd.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Accreditations and Authorizations | : | <p>The Laboratory has been assessed and proved to be in compliance with CNAS/CL01</p> <p>Listed by CNAS, August 13, 2018</p> <p>The Certificate Registration Number is L5795.</p> <p>The Certificate is valid until August 13, 2030</p><br><p>The Laboratory has been assessed and proved to be in compliance with ISO17025</p> <p>Listed by A2LA, November 01, 2017</p> <p>The Certificate Registration Number is 4429.01</p> <p>The Certificate is valid until December 31, 2025</p><br><p>Listed by FCC, November 06, 2017</p> <p>Test Firm Registration Number: 907417</p><br><p>Listed by ISED, June 08, 2017</p> <p>The Certificate Registration Number. Is 46405-9743A</p> <p>The CAB identifier number: CN0015</p> |
| Test Site Location                | : | Building D, Gaosheng Science and Technology Park, Hongtu Road, Nancheng District, Dongguan City, Guangdong Province, China                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |

---

## 8. Applicable Standards and References

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

### Test Standards:

47 CFR Part 15, Subpart E, 15.407

ANSI C63.10-2013

### References Test Guidance:

KDB 789033 D02 v02r01

KDB 905462 D03 v01r02

KDB 905462 D02 v02

## 9. Deviations and Abnormalities from Standard Conditions

No additions, deviations and exclusions from the standard.

## 10. Test Conditions

| No. | Test Item                                             | Test Mode | Test Voltage            | Tested by | Remarks      |
|-----|-------------------------------------------------------|-----------|-------------------------|-----------|--------------|
| 1.  | AC Power Conducted Emission                           | 1-2       | AC 120V 60Hz            | Sean      | See note 1   |
| 2.  | Max. Conducted Output Power                           | 1         | DC 3.7V                 | Sean      | See note 1   |
| 3.  | 26dB Spectrum Bandwidth and<br>99% Occupied Bandwidth | 1         | DC 3.7V                 | Sean      | See note 1   |
| 4.  | 6dB Bandwidth                                         | 1         | DC 3.7V                 | Sean      | See note 1   |
| 5.  | Power Spectral Density                                | 1         | DC 3.7V                 | Sean      | See note 1   |
| 6.  | Radiated Emissions                                    | 1, 2      | AC 120V 60Hz<br>DC 3.7V | Sean      | See note 1,3 |
| 7.  | Band Edge Emissions                                   | 1         | DC 3.7V                 | Sean      | See note 1   |
| 8.  | Frequency Stability                                   | 1         | DC 3.7V                 | Sean      | See note 1   |
| 9.  | Antenna Requirement                                   | ---       | ---                     | ---       | See note 1   |
| 10. | Dynamic Frequency Selection                           | 1         | DC 3.7V                 | Sean      | See note 1   |

**Note:**

1. The testing climatic conditions for temperature, humidity, and atmospheric pressure are within: 15~35°C, 30~70%, 86~106kPa
2. For test voltage AC 120V 60Hz come from adapter; DC 3.7V come from internal li-ion battery.
3. Only the worst case was recorded in the report.
4. As the EUT can be operated multiple positions, all X,Y,Z axis were considered during the test and only the worst case X was recorded.

## 11. Measurement Uncertainty

| No. | Test Item                    | Frequency      | Uncertainty          | Remarks |
|-----|------------------------------|----------------|----------------------|---------|
| 1.  | Conducted Emission           | 150KHz ~ 30MHz | ±2.52 dB             | ---     |
| 2.  | Radiated Emission Test       | 9kHz ~ 30MHz   | ±5.60 dB             | ---     |
|     |                              | 30MHz ~ 1GHz   | ±5.60 dB             | ---     |
|     |                              | 1GHz ~ 18GHz   | ±5.22 dB             | ---     |
|     |                              | 18GHz ~ 40GHz  | ±5.22 dB             | ---     |
| 3.  | Conducted Spurious Emissions | 10Hz ~ 40GHz   | ±1.02 dB             | ---     |
| 4.  | RF Output Power              | 10Hz ~ 40GHz   | ±1.08 dB             | ---     |
| 5.  | Power Spectral Density       | 10Hz ~ 40GHz   | ±1.08 dB             | ---     |
| 6.  | Occupied Channel Bandwidth   | ---            | ±1.05%               | ---     |
| 7.  | Time                         | ---            | ±5%                  | ---     |
| 8.  | Radio Frequency              | ---            | 0.8*10 <sup>-7</sup> | ---     |

**Note:**

1. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
2. The measurement uncertainty levels above are estimated and calculated according to CISPR 16-4-2.
3. The conformity assessment statement in this report is based solely on the test results, measurement uncertainty is excluded.

## 12. Sample Calculations

| Conducted Emission                                                                                                                                                                                                                                                                                                                                                                                   |                      |                     |                    |              |           |          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|---------------------|--------------------|--------------|-----------|----------|
| Freq. (MHz)                                                                                                                                                                                                                                                                                                                                                                                          | Reading Level (dBuV) | Correct Factor (dB) | Measurement (dBuV) | Limit (dBuV) | Over (dB) | Detector |
| 0.1900                                                                                                                                                                                                                                                                                                                                                                                               | 30.10                | 10.60               | 40.70              | 79.00        | -38.30    | QP       |
| <p>Where,</p> <p>Freq. = Emission frequency in MHz</p> <p>Reading Level = Spectrum Analyzer/Receiver reading</p> <p>Corrector Factor = Insertion loss of LISN + Cable Loss + RF Switching Unit attenuation</p> <p>Measurement = Reading + Corrector Factor</p> <p>Limit = Limit stated in standard</p> <p>Margin = Measurement - Limit</p> <p>Detector = Reading for Quasi-Peak / Average / Peak</p> |                      |                     |                    |              |           |          |

| Radiated Spurious Emissions and Restricted Bands                                                                                                                                                                                                                                                                                                                                                       |                      |                       |                      |                |           |          |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------|-----------------------|----------------------|----------------|-----------|----------|
| Freq. (MHz)                                                                                                                                                                                                                                                                                                                                                                                            | Reading Level (dBuV) | Correct Factor (dB/m) | Measurement (dBuV/m) | Limit (dBuV/m) | Over (dB) | Detector |
| 60.0700                                                                                                                                                                                                                                                                                                                                                                                                | 45.88                | -18.38                | 27.50                | 49.00          | -21.50    | QP       |
| <p>Where,</p> <p>Freq. = Emission frequency in MHz</p> <p>Reading Level = Spectrum Analyzer/Receiver reading</p> <p>Corrector Factor = Antenna Factor + Cable Loss - Pre-amplifier</p> <p>Measurement = Reading + Corrector Factor</p> <p>Limit = Limit stated in standard</p> <p>Over = Margin, which calculated by Measurement - Limit</p> <p>Detector = Reading for Quasi-Peak / Average / Peak</p> |                      |                       |                      |                |           |          |

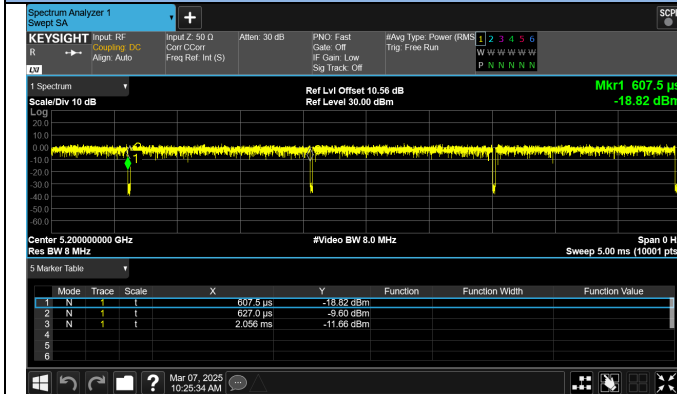
Note: For all conducted test items, the spectrum analyzer offset or transducer is derived from RF cable loss and attenuator factor. The offset or transducer is equal to the RF cable loss plus attenuator factor.

### 13. Duty cycle

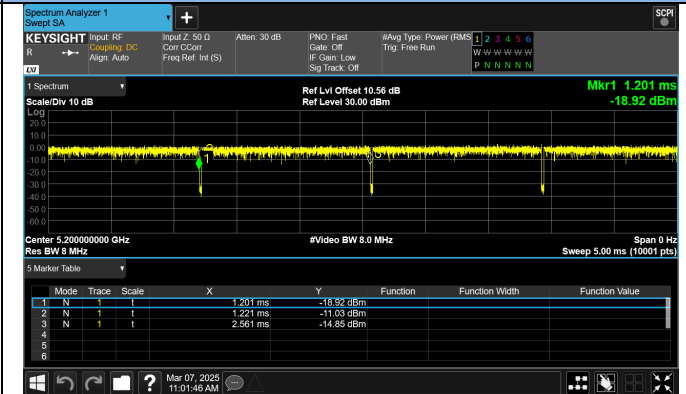
| Operation Band (MHz)                                                               | Mode            | Ton (ms) | Ton+off (ms) | Duty Cycle (%) | 1/T minimum VBW (kHz) | Duty Cycle Factor (dB) |
|------------------------------------------------------------------------------------|-----------------|----------|--------------|----------------|-----------------------|------------------------|
| U-NII-1                                                                            | 802.11a         | 1.4290   | 1.4485       | 98.65%         | 0.70                  | 0.0590                 |
|                                                                                    | 802.11n(HT20)   | 1.3400   | 1.3600       | 98.53%         | 0.75                  | 0.0640                 |
|                                                                                    | 802.11n(HT40)   | 0.6640   | 0.6845       | 97.01%         | 1.51                  | 0.1320                 |
|                                                                                    | 802.11ac(VHT20) | 1.3410   | 1.3610       | 98.53%         | 0.75                  | 0.0640                 |
|                                                                                    | 802.11ac(VHT40) | 0.6645   | 0.6850       | 97.01%         | 1.50                  | 0.1320                 |
|                                                                                    | 802.11ac(VHT80) | 0.3320   | 0.3525       | 94.18%         | 3.01                  | 0.2600                 |
| U-NII-2A                                                                           | 802.11a         | 1.4285   | 1.4480       | 98.65%         | 0.70                  | 0.0590                 |
|                                                                                    | 802.11n(HT20)   | 1.3405   | 1.3610       | 98.49%         | 0.75                  | 0.0660                 |
|                                                                                    | 802.11n(HT40)   | 0.6650   | 0.6840       | 97.22%         | 1.50                  | 0.1220                 |
|                                                                                    | 802.11ac(VHT20) | 1.3410   | 1.3610       | 98.53%         | 0.75                  | 0.0640                 |
|                                                                                    | 802.11ac(VHT40) | 0.6640   | 0.6830       | 97.22%         | 1.51                  | 0.1220                 |
|                                                                                    | 802.11ac(VHT80) | 0.3320   | 0.3500       | 94.86%         | 3.01                  | 0.2290                 |
| U-NII-2C                                                                           | 802.11a         | 1.4290   | 1.4490       | 98.62%         | 0.70                  | 0.0600                 |
|                                                                                    | 802.11n(HT20)   | 1.3405   | 1.3605       | 98.53%         | 0.75                  | 0.0640                 |
|                                                                                    | 802.11n(HT40)   | 0.6660   | 0.6850       | 97.23%         | 1.50                  | 0.1220                 |
|                                                                                    | 802.11ac(VHT20) | 1.3405   | 1.3605       | 98.53%         | 0.75                  | 0.0640                 |
|                                                                                    | 802.11ac(VHT40) | 0.6640   | 0.6845       | 97.01%         | 1.51                  | 0.1320                 |
|                                                                                    | 802.11ac(VHT80) | 0.3320   | 0.3525       | 94.18%         | 3.01                  | 0.2600                 |
| U-NII-3                                                                            | 802.11a         | 1.4290   | 1.4490       | 98.62%         | 0.70                  | 0.0600                 |
|                                                                                    | 802.11n(HT20)   | 1.3410   | 1.3610       | 98.53%         | 0.75                  | 0.0640                 |
|                                                                                    | 802.11n(HT40)   | 0.6660   | 0.6850       | 97.23%         | 1.50                  | 0.1220                 |
|                                                                                    | 802.11ac(VHT20) | 1.3410   | 1.3615       | 98.49%         | 0.75                  | 0.0660                 |
|                                                                                    | 802.11ac(VHT40) | 0.6650   | 0.6850       | 97.08%         | 1.50                  | 0.1290                 |
|                                                                                    | 802.11ac(VHT80) | 0.3320   | 0.3510       | 94.59%         | 3.01                  | 0.2420                 |
| Remark: Duty Cycle= (Ton/ Ton+off)*100%<br>Duty Cycle factor=10*log(1/ Duty cycle) |                 |          |              |                |                       |                        |

## U-NII-1 Band

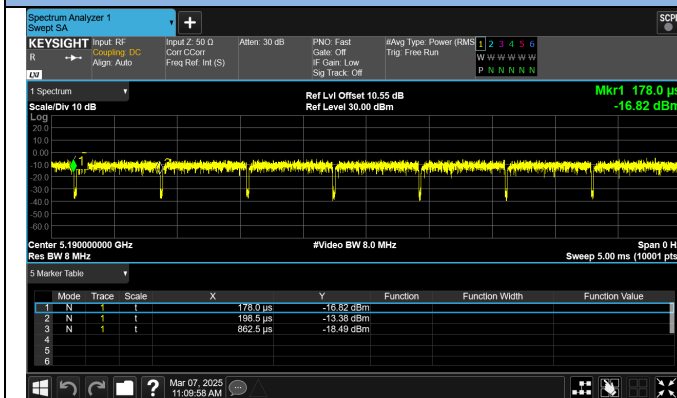
### IEEE 802.11a



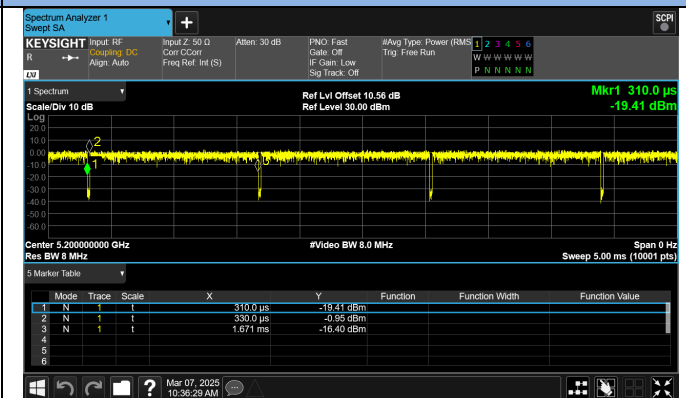
### IEEE 802.11n(HT20)



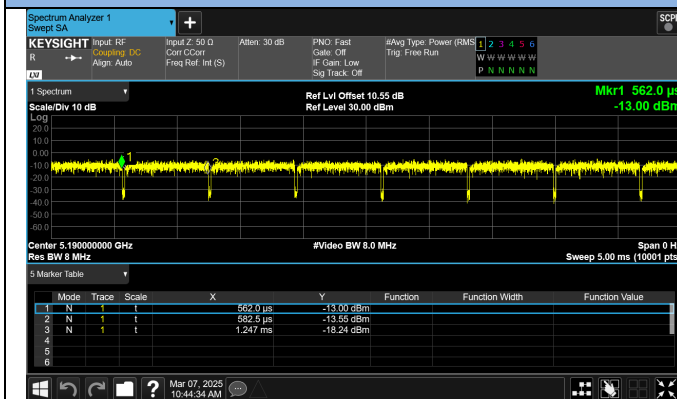
### IEEE 802.11n(HT40)



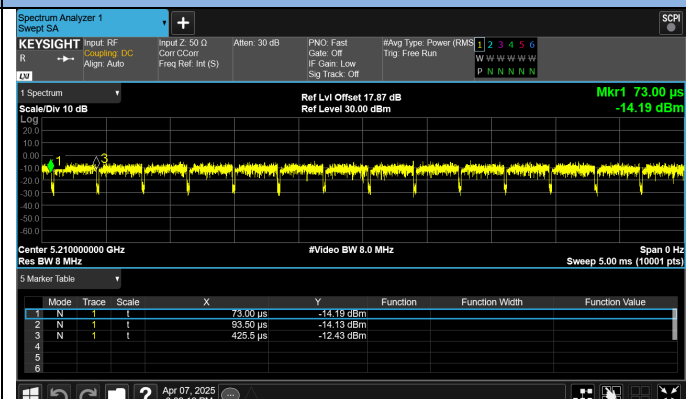
### IEEE 802.11ac(VHT20)



### IEEE 802.11ac(VHT40)

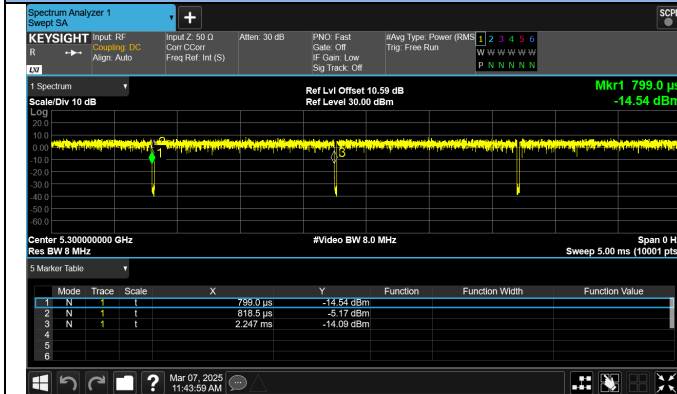


### IEEE 802.11ac(VHT80)

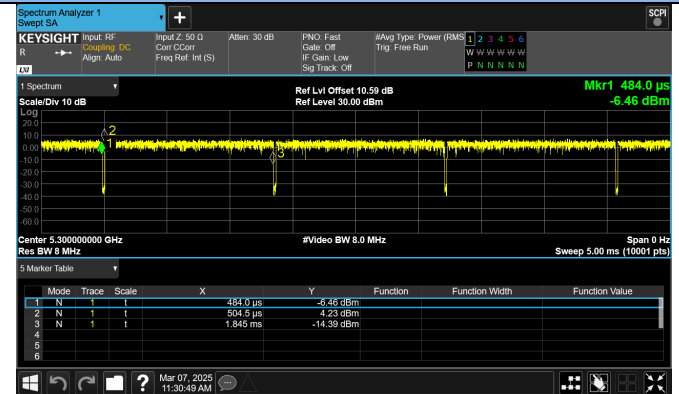


## U-NII-2A Band

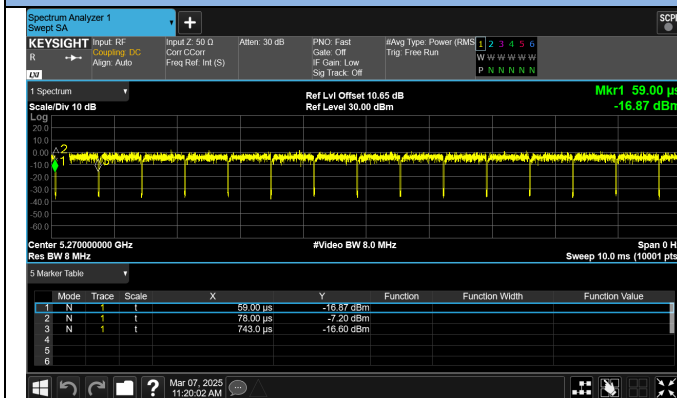
### IEEE 802.11a



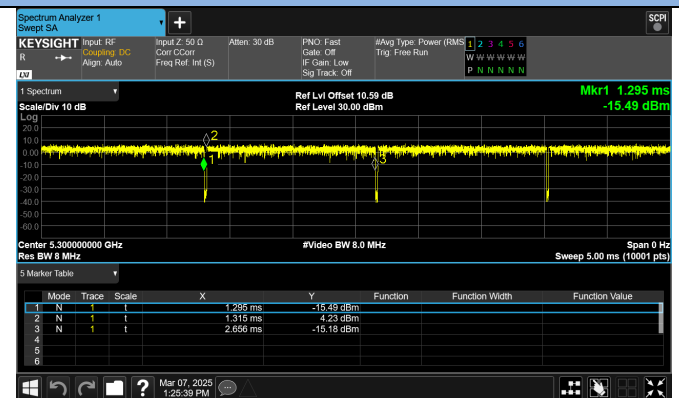
### IEEE 802.11n(HT20)



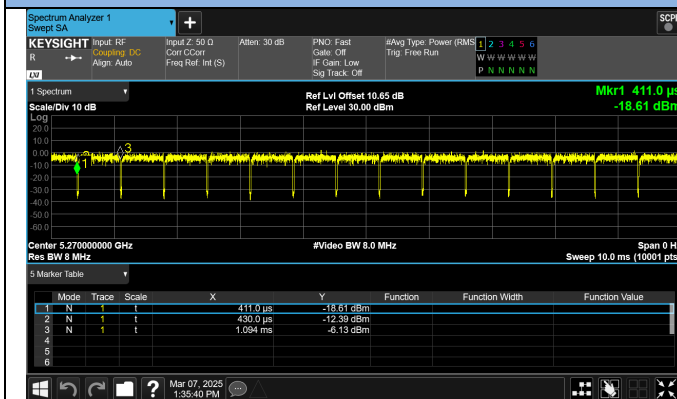
### IEEE 802.11n(HT40)



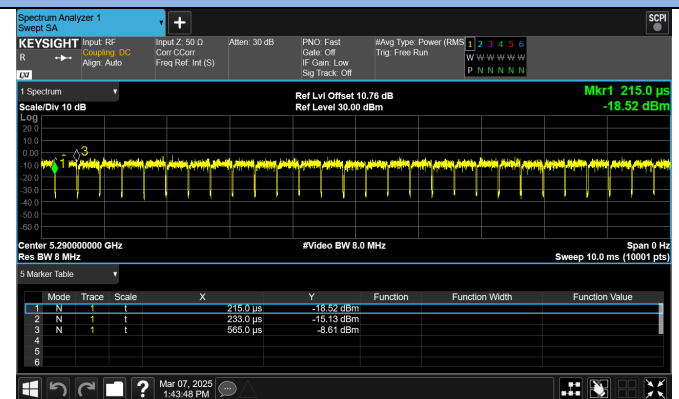
### IEEE 802.11ac(VHT20)



### IEEE 802.11ac(VHT40)

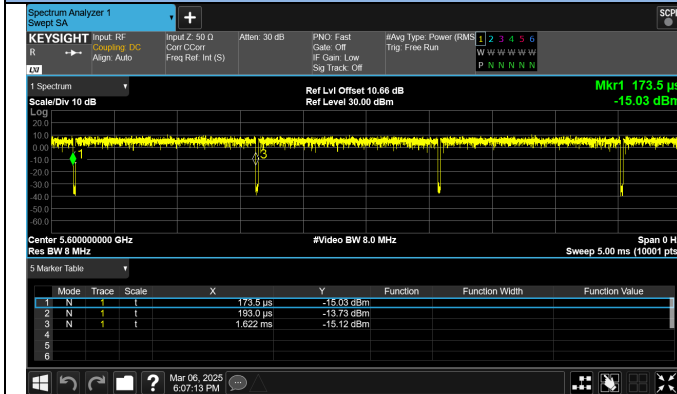


### IEEE 802.11ac(VHT80)

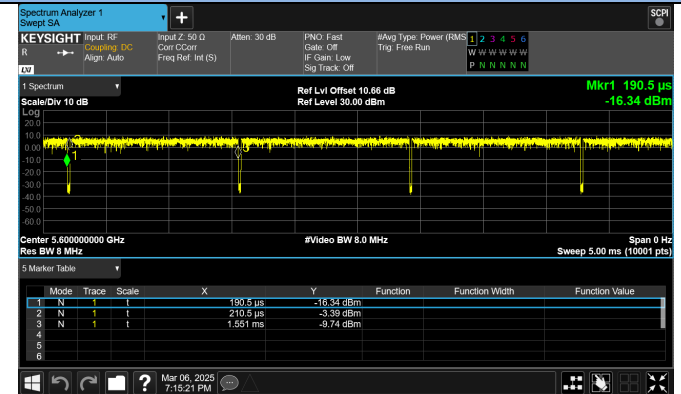


## U-NII-2C Band

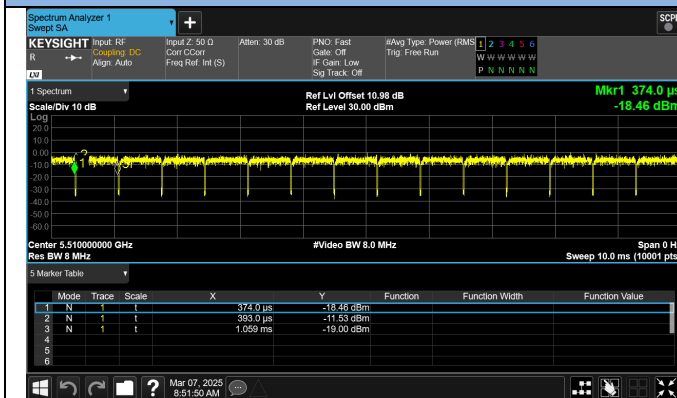
### IEEE 802.11a



### IEEE 802.11n(HT20)



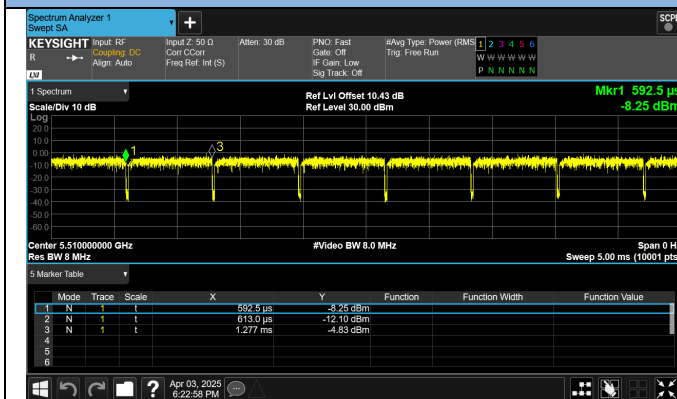
### IEEE 802.11n(HT40)



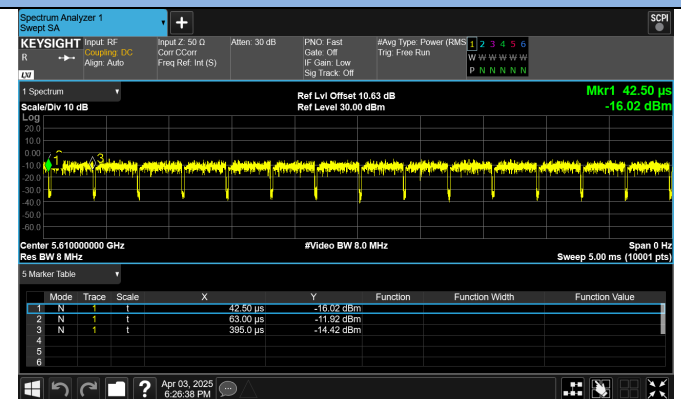
### IEEE 802.11ac(VHT20)



### IEEE 802.11ac(VHT40)

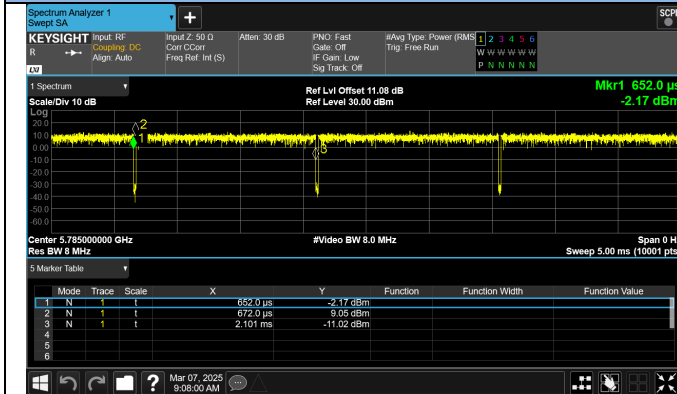


### IEEE 802.11ac(VHT80)

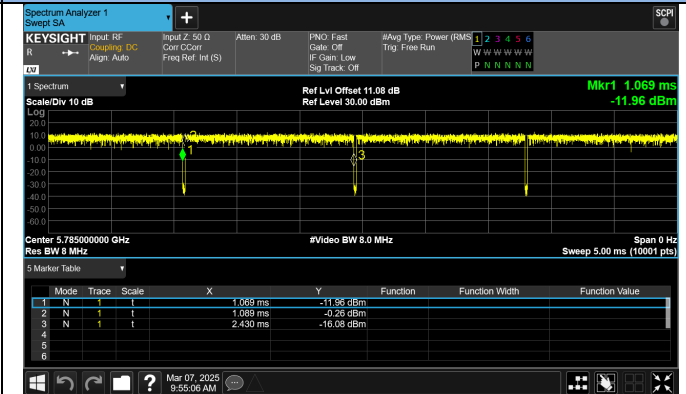


## U-NII-3 Band

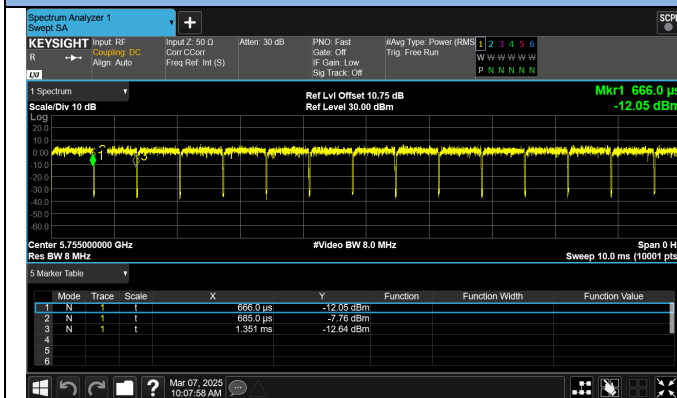
### IEEE 802.11a



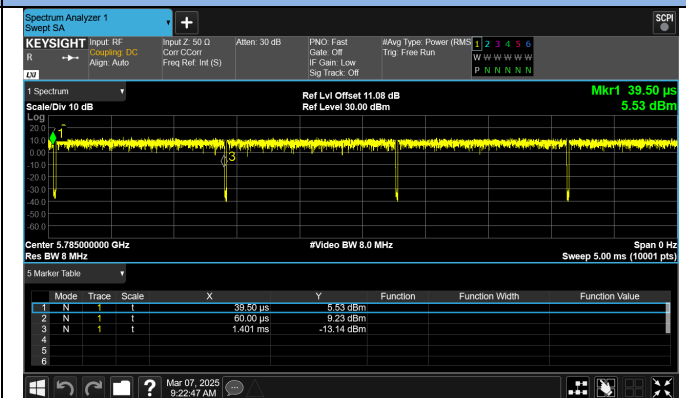
### IEEE 802.11n(HT20)



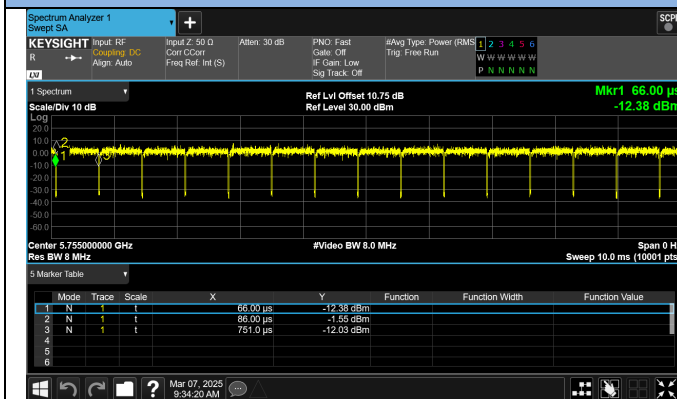
### IEEE 802.11n(HT40)



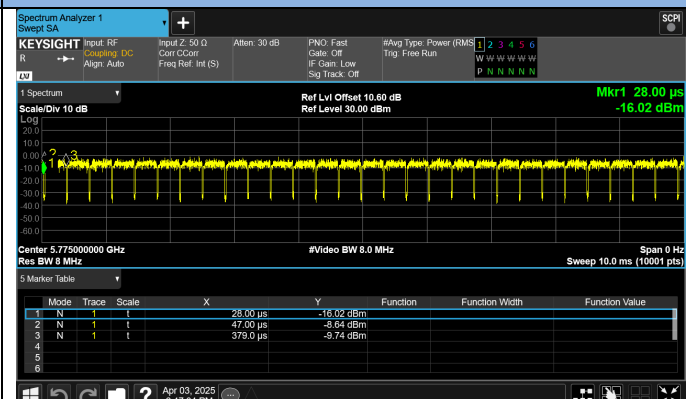
### IEEE 802.11ac(VHT20)



### IEEE 802.11ac(VHT40)



### IEEE 802.11ac(VHT80)



## 14. Test Items and Results

### 14.1 Conducted Emissions Measurement

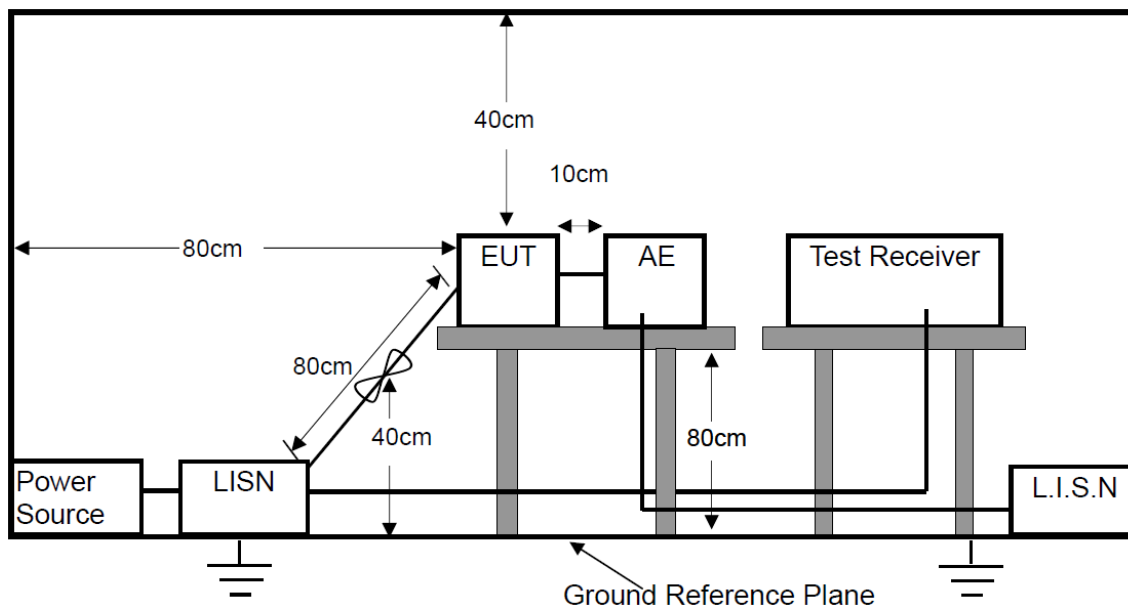
#### LIMITS

According to the requirements of FCC PART 15.207, the limits are as follows:

| Frequency (MHz) | Quasi-peak | Average  |
|-----------------|------------|----------|
| 0.15 to 0.5     | 66 to 56   | 56 to 46 |
| 0.5 to 5        | 56         | 46       |
| 5 to 30         | 60         | 50       |

- Note:
1. If the limits for the average detector are met when using the quasi-peak detector, then the limits for the measurements with the average detector are considered to be met.
  2. The lower limit shall apply at the transition frequencies.
  3. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5MHz.

#### BLOCK DIAGRAM OF TEST SETUP



---

## TEST PROCEDURES

- a. The EUT was placed on a wooden table 0.8m height from the metal ground plan and 0.4m from the conducting wall of the shielding room and it was kept at 0.8m from any other grounded conducting surface.
- b. All I/O cables and support devices were positioned as per ANSI C63.10.
- c. Connect mains power port of the EUT to a line impedance stabilization network (LISN).
- d. Connect all support devices to the other LISN and AAN, if needed.
- e. Scan the frequency range from 150KHz to 30MHz at both sides of AC line for maximum conducted interference checking and record the test data.

## TEST RESULTS

PASS

Please refer to the following pages.

M/N: UCR3

Testing Voltage: AC 120V/60Hz

Phase: L1

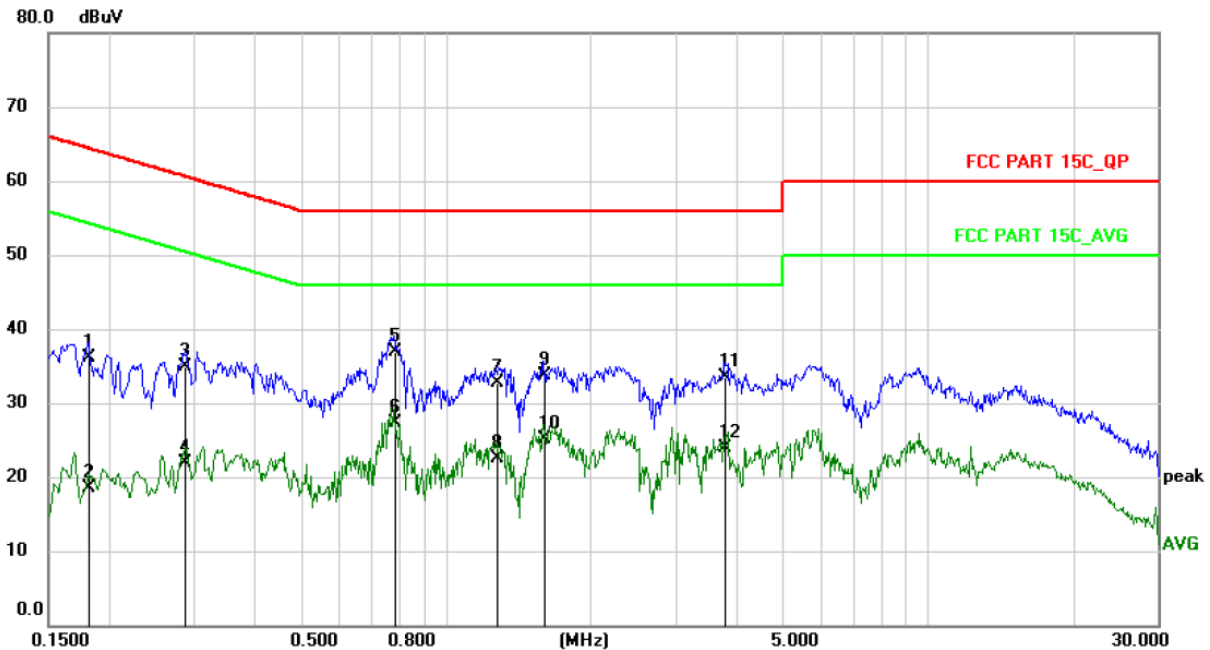
Detector: QP & AVG

Test Mode: 2

## Conducted Emission Measurement

Date: 2025/4/1

Time: 15:26:54



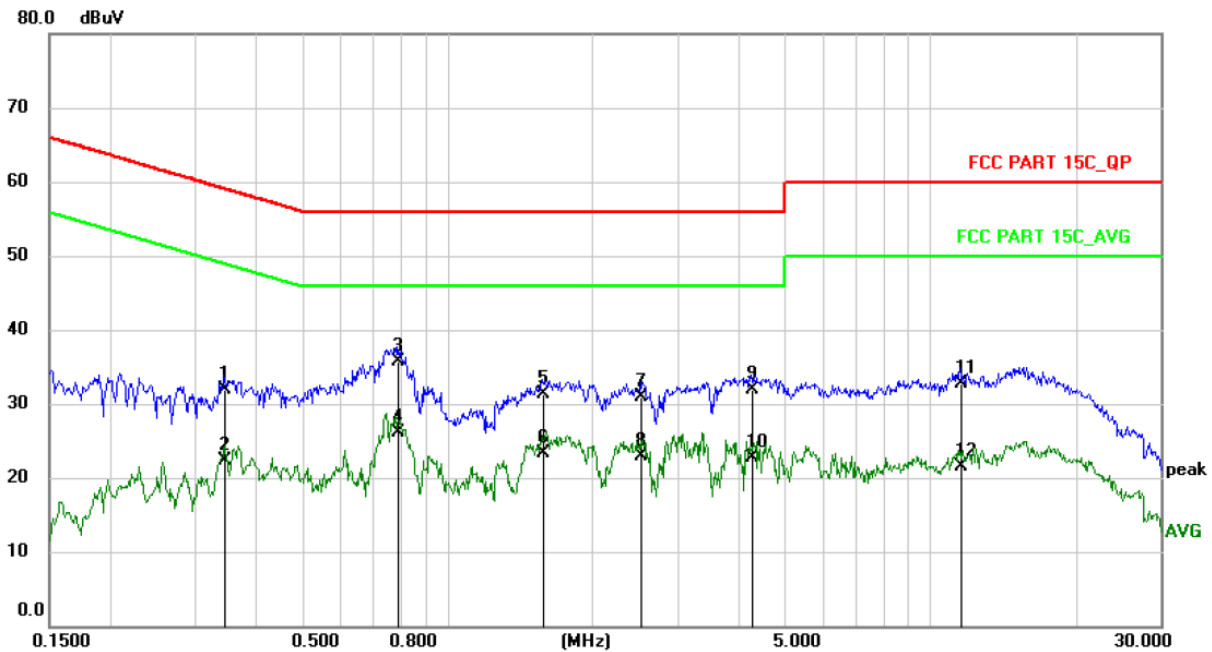
| No. Mk. | Freq.  | Reading Level | Correct Factor | Measurement | Limit | Over   | Detector | Comment |
|---------|--------|---------------|----------------|-------------|-------|--------|----------|---------|
|         | MHz    | dBuV          | dB             | dBuV        | dBuV  | dB     |          |         |
| 1       | 0.1819 | 26.20         | 10.00          | 36.20       | 64.40 | -28.20 | QP       |         |
| 2       | 0.1819 | 8.50          | 10.00          | 18.50       | 54.40 | -35.90 | AVG      |         |
| 3       | 0.2878 | 24.95         | 10.05          | 35.00       | 60.59 | -25.59 | QP       |         |
| 4       | 0.2878 | 11.95         | 10.05          | 22.00       | 50.59 | -28.59 | AVG      |         |
| 5       | 0.7820 | 26.98         | 10.02          | 37.00       | 56.00 | -19.00 | QP       |         |
| 6 *     | 0.7820 | 17.38         | 10.02          | 27.40       | 46.00 | -18.60 | AVG      |         |
| 7       | 1.2740 | 22.80         | 10.00          | 32.80       | 56.00 | -23.20 | QP       |         |
| 8       | 1.2740 | 12.50         | 10.00          | 22.50       | 46.00 | -23.50 | AVG      |         |
| 9       | 1.5980 | 23.69         | 10.01          | 33.70       | 56.00 | -22.30 | QP       |         |
| 10      | 1.5980 | 15.09         | 10.01          | 25.10       | 46.00 | -20.90 | AVG      |         |
| 11      | 3.7940 | 23.45         | 10.05          | 33.50       | 56.00 | -22.50 | QP       |         |
| 12      | 3.7940 | 13.95         | 10.05          | 24.00       | 46.00 | -22.00 | AVG      |         |

|              |                               |
|--------------|-------------------------------|
| M/N: UCR3    | Testing Voltage: AC 120V/60Hz |
| Phase: N     | Detector: QP & AVG            |
| Test Mode: 2 |                               |

## Conducted Emission Measurement

Date: 2025/4/1

Time: 15:32:22



| No. Mk. | Freq.   | Reading Level | Correct Factor | Measurement | Limit | Over   | Detector | Comment |
|---------|---------|---------------|----------------|-------------|-------|--------|----------|---------|
|         | MHz     | dBuV          | dB             | dBuV        | dBuV  | dB     |          |         |
| 1       | 0.3457  | 21.88         | 10.02          | 31.90       | 59.07 | -27.17 | QP       |         |
| 2       | 0.3457  | 12.28         | 10.02          | 22.30       | 49.07 | -26.77 | AVG      |         |
| 3       | 0.7900  | 25.73         | 9.97           | 35.70       | 56.00 | -20.30 | QP       |         |
| 4 *     | 0.7900  | 16.23         | 9.97           | 26.20       | 46.00 | -19.80 | AVG      |         |
| 5       | 1.5700  | 21.33         | 9.97           | 31.30       | 56.00 | -24.70 | QP       |         |
| 6       | 1.5700  | 13.43         | 9.97           | 23.40       | 46.00 | -22.60 | AVG      |         |
| 7       | 2.5219  | 20.92         | 9.98           | 30.90       | 56.00 | -25.10 | QP       |         |
| 8       | 2.5219  | 13.02         | 9.98           | 23.00       | 46.00 | -23.00 | AVG      |         |
| 9       | 4.2579  | 21.98         | 10.02          | 32.00       | 56.00 | -24.00 | QP       |         |
| 10      | 4.2579  | 12.78         | 10.02          | 22.80       | 46.00 | -23.20 | AVG      |         |
| 11      | 11.5014 | 22.67         | 10.13          | 32.80       | 60.00 | -27.20 | QP       |         |
| 12      | 11.5014 | 11.47         | 10.13          | 21.60       | 50.00 | -28.40 | AVG      |         |

## 14.2 Maximum Conducted Output Power Measurement

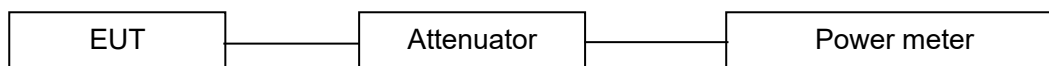
### LIMITS

| Operation Band | EUT category                                               | Limit                                                                                                                      |
|----------------|------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------|
| ☒5180~5240MHz  | <input type="checkbox"/> Outdoor Access Point              | 1 Watt (30dBm)<br>(Max. e.i.r.p $\leq$ 125mW( 21dBm) at any elevation angle above 30 degrees as measured from the horizon) |
|                | <input type="checkbox"/> Fixed point-to-point Access Point | 1 Watt (30dBm)                                                                                                             |
|                | <input type="checkbox"/> Indoor Access Point               | 1 Watt (30dBm) <sup>see note 1</sup>                                                                                       |
|                | ☒Mobile and Portable client device                         | 250mW (24dBm) <sup>see note 2</sup>                                                                                        |
| ☒5260~5320MHz  | -                                                          | 250mW (24dBm) or $(11+10\log10B^*)$ dBm whichever power is less.                                                           |
| ☒5500~5700MHz  | -                                                          | 250mW (24dBm) or $(11+10\log10B^*)$ dBm whichever power is less.                                                           |
| ☒5745~5825MHz  | -                                                          | 1 Watt (30dBm)                                                                                                             |

Note:

- For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional the antenna exceeds 6 dBi.
- For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. In addition, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.
- \*Where B is the 99% emission bandwidth in megahertz.

### BLOCK DIAGRAM OF TEST SETUP



---

## TEST PROCEDURES

1. The transmitter output (antenna port) was connected to the power meter.
2. Test was performed in accordance with KDB789033 v02r01 for compliance testing of Unlicensed National Information Infrastructure (U-NII) Device -section (E) Maximum conducted output power.
3. Measurement using a power meter (PM) =b Method PM-G (Measurement using a gated RF average power meter).

## TEST RESULTS

PASS

Please refer to the following tables.

| U-NII-1                                                 |                |                          |           |
|---------------------------------------------------------|----------------|--------------------------|-----------|
| Frequency MHz                                           | Data Rate Mbps | Average Output Power dBm | Limit dBm |
| IEEE 802.11a Mode (OFDM, Antenna Gain=2.6dBi)           |                |                          |           |
| Channel: 5180                                           | 6              | -3.451                   | 24.00     |
| Channel: 5200                                           | 6              | -3.194                   | 24.00     |
| Channel: 5240                                           | 6              | -0.829                   | 24.00     |
| IEEE 802.11n(HT20) Mode (OFDM, Antenna Gain=2.6dBi)     |                |                          |           |
| Channel: 5180                                           | MCS 8          | -3.660                   | 24.00     |
| Channel: 5200                                           | MCS 8          | -3.351                   | 24.00     |
| Channel: 5240                                           | MCS 8          | -0.910                   | 24.00     |
| IEEE 802.11n(HT40) Mode (OFDM, Antenna Gain=2.6dBi)     |                |                          |           |
| Channel: 5190                                           | MCS 8          | -7.411                   | 24.00     |
| Channel: 5230                                           | MCS 8          | -3.091                   | 24.00     |
| IEEE 802.11ac (VHT20) Mode (OFDM, Antenna Gain=2.6dBi)  |                |                          |           |
| Channel: 5180                                           | MCS 8          | -3.706                   | 24.00     |
| Channel: 5200                                           | MCS 8          | -3.347                   | 24.00     |
| Channel: 5240                                           | MCS 8          | -0.855                   | 24.00     |
| IEEE 802.11ac (VHT40) Mode (OFDM, Antenna Gain=2.6dBi)  |                |                          |           |
| Channel: 5190                                           | MCS 8          | -7.479                   | 24.00     |
| Channel: 5230                                           | MCS 8          | -3.011                   | 24.00     |
| IEEE 802.11ac (VHT80) Mode (OFDM, Antenna Gain=2.6dBi)  |                |                          |           |
| Channel: 5210                                           | MCS 8          | -6.302                   | 24.00     |
| Note: Duty Cycle Factor was considered during the test. |                |                          |           |

| U-NII-2A                                                |                |                          |           |
|---------------------------------------------------------|----------------|--------------------------|-----------|
| Frequency MHz                                           | Data Rate Mbps | Average Output Power dBm | Limit dBm |
| IEEE 802.11a Mode (OFDM, Antenna Gain=2.6dBi)           |                |                          |           |
| Channel: 5260                                           | 6              | -0.228                   | 24.00     |
| Channel: 5300                                           | 6              | 1.759                    | 24.00     |
| Channel: 5320                                           | 6              | 1.438                    | 24.00     |
| IEEE 802.11n(HT20) Mode (OFDM, Antenna Gain=2.6dBi)     |                |                          |           |
| Channel: 5260                                           | MCS 8          | -0.362                   | 24.00     |
| Channel: 5300                                           | MCS 8          | 1.668                    | 24.00     |
| Channel: 5320                                           | MCS 8          | 1.241                    | 24.00     |
| IEEE 802.11n(HT40) Mode (OFDM, Antenna Gain=2.6dBi)     |                |                          |           |
| Channel: 5270                                           | MCS 8          | -1.710                   | 24.00     |
| Channel: 5310                                           | MCS 8          | -3.413                   | 24.00     |
| IEEE 802.11ac (VHT20) Mode (OFDM, Antenna Gain=2.6dBi)  |                |                          |           |
| Channel: 5260                                           | MCS 8          | -0.19                    | 24.00     |
| Channel: 5300                                           | MCS 8          | 1.628                    | 24.00     |
| Channel: 5320                                           | MCS 8          | 1.515                    | 24.00     |
| IEEE 802.11ac (VHT40) Mode (OFDM, Antenna Gain=2.6dBi)  |                |                          |           |
| Channel: 5270                                           | MCS 8          | -1.732                   | 24.00     |
| Channel: 5310                                           | MCS 8          | 0.000                    | 24.00     |
| IEEE 802.11ac (VHT80) Mode (OFDM, Antenna Gain=2.6dBi)  |                |                          |           |
| Channel: 5290                                           | MCS 8          | -3.546                   | 24.00     |
| Note: Duty Cycle Factor was considered during the test. |                |                          |           |

| U-NII-2C                                                |                   |                             |              |
|---------------------------------------------------------|-------------------|-----------------------------|--------------|
| Frequency<br>MHz                                        | Data Rate<br>Mbps | Average Output Power<br>dBm | Limit<br>dBm |
| IEEE 802.11a Mode (OFDM, Antenna Gain=2.6dBi)           |                   |                             |              |
| Channel: 5500                                           | 6                 | 1.277                       | 24.00        |
| Channel: 5580                                           | 6                 | 4.125                       | 24.00        |
| Channel: 5700                                           | 6                 | 3.918                       | 24.00        |
| IEEE 802.11n(HT20) Mode (OFDM, Antenna Gain=2.6dBi)     |                   |                             |              |
| Channel: 5500                                           | MCS 8             | 0.362                       | 24.00        |
| Channel: 5580                                           | MCS 8             | 3.997                       | 24.00        |
| Channel: 5700                                           | MCS 8             | 2.926                       | 24.00        |
| IEEE 802.11n(HT40) Mode (OFDM, Antenna Gain=2.6dBi)     |                   |                             |              |
| Channel: 5510                                           | MCS 8             | -4.836                      | 24.00        |
| Channel: 5670                                           | MCS 8             | -1.916                      | 24.00        |
| IEEE 802.11ac (VHT20) Mode (OFDM, Antenna Gain=2.6dBi)  |                   |                             |              |
| Channel: 5500                                           | MCS 8             | 0.545                       | 24.00        |
| Channel: 5580                                           | MCS 8             | 4.041                       | 24.00        |
| Channel: 5700                                           | MCS 8             | 3.260                       | 24.00        |
| IEEE 802.11ac (VHT40) Mode (OFDM, Antenna Gain=2.6dBi)  |                   |                             |              |
| Channel: 5510                                           | MCS 8             | -2.061                      | 24.00        |
| Channel: 5670                                           | MCS 8             | 0.388                       | 24.00        |
| IEEE 802.11ac (VHT80) Mode (OFDM, Antenna Gain=2.6dBi)  |                   |                             |              |
| Channel: 5610                                           | MCS 8             | -0.561                      | 24.00        |
| Note: Duty Cycle Factor was considered during the test. |                   |                             |              |

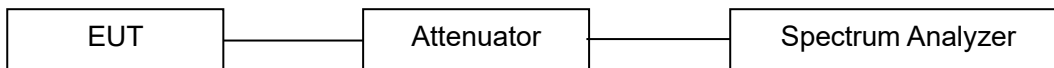
| U-NII-3                                                 |                   |                             |              |
|---------------------------------------------------------|-------------------|-----------------------------|--------------|
| Frequency<br>MHz                                        | Data Rate<br>Mbps | Average Output Power<br>dBm | Limit<br>dBm |
| IEEE 802.11a Mode (OFDM, Antenna Gain=2.6dBi)           |                   |                             |              |
| Channel: 5745                                           | 6                 | 4.947                       | 30.00        |
| Channel: 5785                                           | 6                 | 7.144                       | 30.00        |
| Channel: 5825                                           | 6                 | 8.008                       | 30.00        |
| IEEE 802.11n(HT20) Mode (OFDM, Antenna Gain=2.6dBi)     |                   |                             |              |
| Channel: 5745                                           | MCS 8             | 4.886                       | 30.00        |
| Channel: 5785                                           | MCS 8             | 7.033                       | 30.00        |
| Channel: 5825                                           | MCS 8             | 7.880                       | 30.00        |
| IEEE 802.11n(HT40) Mode (OFDM, Antenna Gain=2.6dBi)     |                   |                             |              |
| Channel: 5755                                           | MCS 8             | 4.186                       | 30.00        |
| Channel: 5795                                           | MCS 8             | 5.694                       | 30.00        |
| IEEE 802.11ac (VHT20) Mode (OFDM, Antenna Gain=2.6dBi)  |                   |                             |              |
| Channel: 5745                                           | MCS 8             | 5.057                       | 30.00        |
| Channel: 5785                                           | MCS 8             | 7.068                       | 30.00        |
| Channel: 5825                                           | MCS 8             | 7.961                       | 30.00        |
| IEEE 802.11ac (VHT40) Mode (OFDM, Antenna Gain=2.6dBi)  |                   |                             |              |
| Channel: 5755                                           | MCS 8             | 4.184                       | 30.00        |
| Channel: 5795                                           | MCS 8             | 5.772                       | 30.00        |
| IEEE 802.11ac (VHT80) Mode (OFDM, Antenna Gain=2.6dBi)  |                   |                             |              |
| Channel: 5775                                           | MCS 8             | 2.065                       | 30.00        |
| Note: Duty Cycle Factor was considered during the test. |                   |                             |              |

## 14.3 6dB Bandwidth Measurement

### LIMITS

The minimum 6dB bandwidth shall be at least 500 kHz

### BLOCK DIAGRAM OF TEST SETUP



### TEST PROCEDURES

The antenna port of the EUT was connected to the input of a spectrum analyzer. Analyzer was set as below according to ANSI C63.10 clause 11.8.1:

- Set the RBW = 100KHz.
- Set the VBW  $\geq 3 \times$  RBW
- Set the Detector = peak.
- Set the Sweep time = auto couple.
- Set the Trace mode = max hold.
- Allow trace to fully stabilize.
- Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

### TEST RESULTS

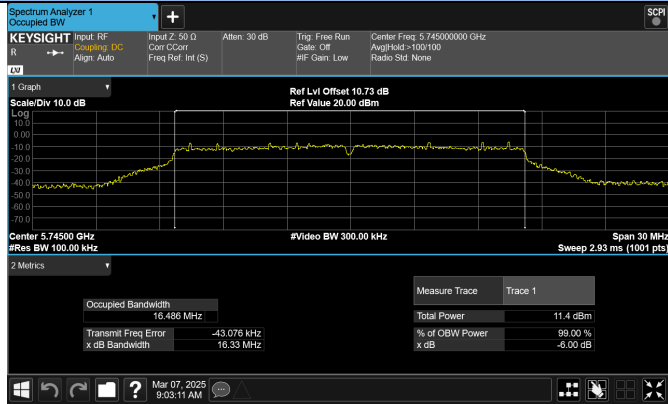
PASS

Please refer to the following tables.

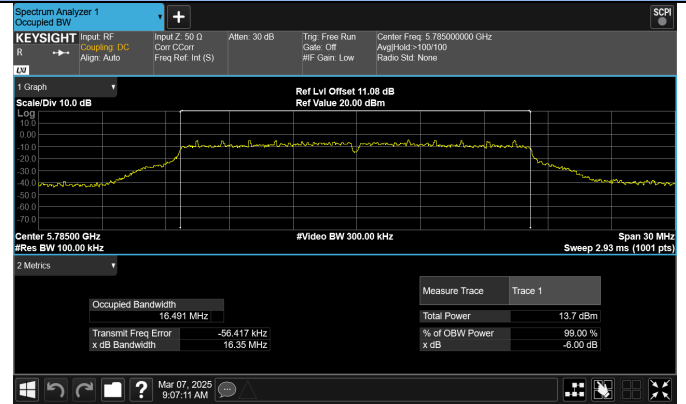
| U-NII-3 Band                      |                   |                      |         |
|-----------------------------------|-------------------|----------------------|---------|
| Frequency<br>MHz                  | Data Rate<br>Mbps | 6dB Bandwidth<br>MHz | Limit   |
| IEEE 802.11a Mode (OFDM)          |                   |                      |         |
| Channel: 5745                     | 6                 | 16.33                | >500KHz |
| Channel: 5785                     | 6                 | 16.35                | >500KHz |
| Channel: 5825                     | 6                 | 15.71                | >500KHz |
| IEEE 802.11n(HT20) Mode (OFDM)    |                   |                      |         |
| Channel: 5745                     | MCS0              | 17.35                | >500KHz |
| Channel: 5785                     | MCS0              | 17.54                | >500KHz |
| Channel: 5825                     | MCS0              | 17.29                | >500KHz |
| IEEE 802.11n(HT40) Mode (OFDM)    |                   |                      |         |
| Channel: 5755                     | MCS0              | 36.36                | >500KHz |
| Channel: 5795                     | MCS0              | 36.38                | >500KHz |
| IEEE 802.11ac (VHT20) Mode (OFDM) |                   |                      |         |
| Channel: 5745                     | MCS0              | 16.87                | >500KHz |
| Channel: 5785                     | MCS0              | 17.58                | >500KHz |
| Channel: 5825                     | MCS0              | 17.29                | >500KHz |
| IEEE 802.11ac (VHT40) Mode (OFDM) |                   |                      |         |
| Channel: 5755                     | MCS0              | 36.34                | >500KHz |
| Channel: 5795                     | MCS0              | 36.37                | >500KHz |
| IEEE 802.11ac (VHT80) Mode (OFDM) |                   |                      |         |
| Channel: 5775                     | MCS0              | 75.51                | >500KHz |

## U-NII-3

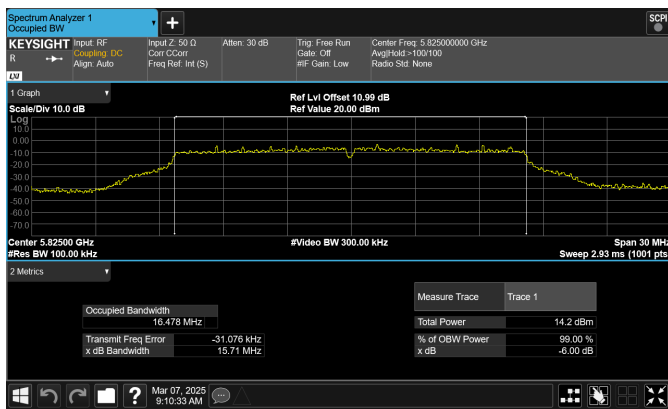
### IEEE 802.11a Low Channel



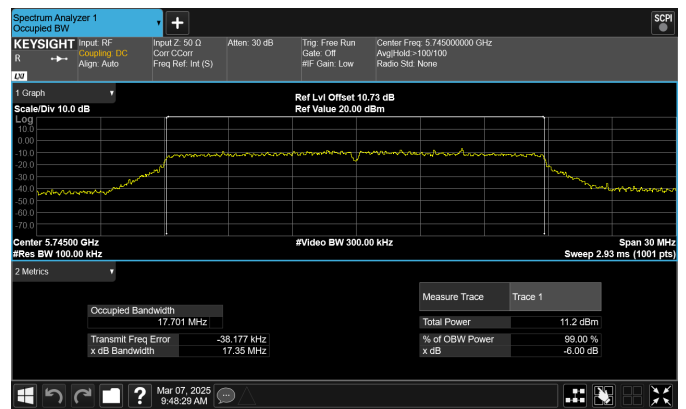
### IEEE 802.11a Middle Channel



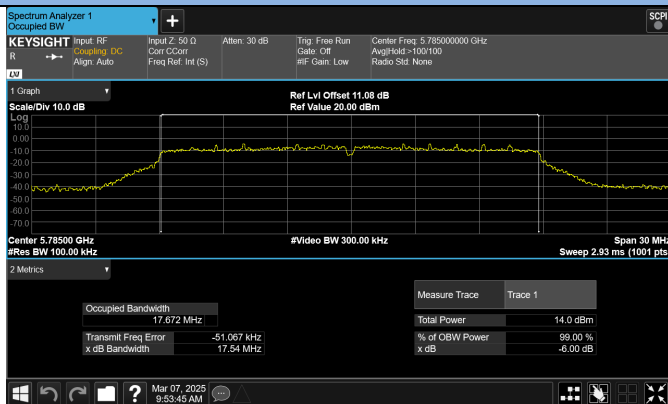
### IEEE 802.11a High Channel



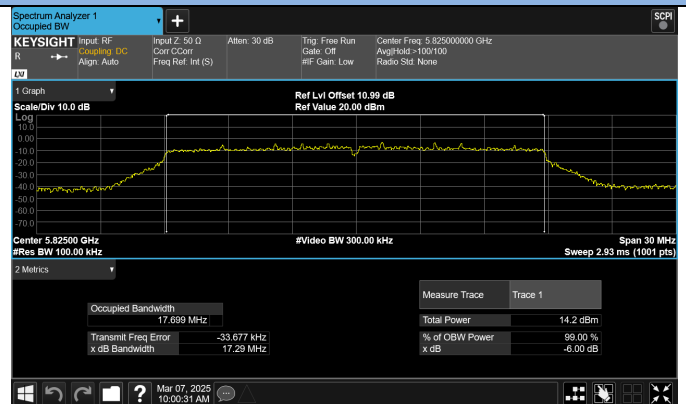
### IEEE 802.11n(HT20) Low Channel



### IEEE 802.11n(HT20) Middle Channel

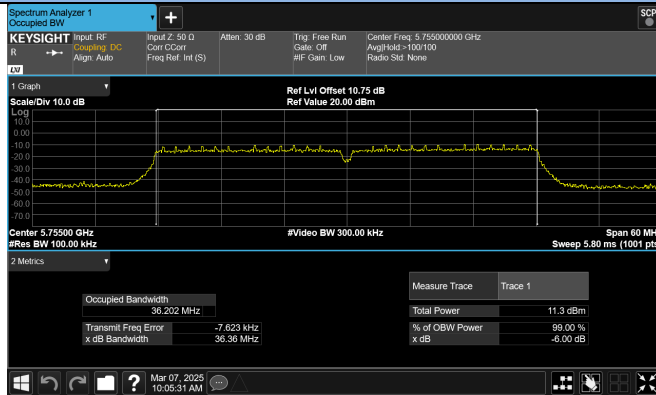


### IEEE 802.11n(HT20) High Channel

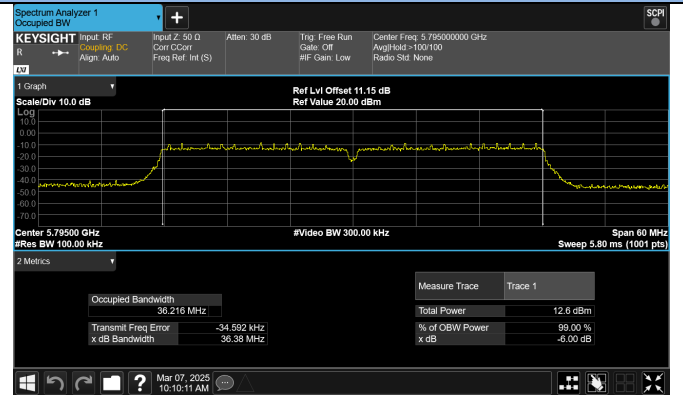


## U-NII-3

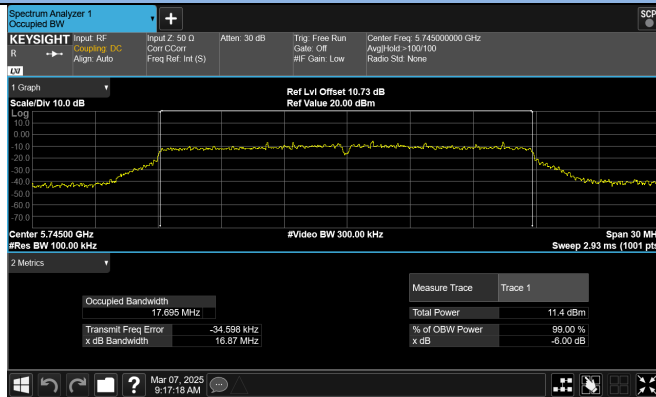
### IEEE 802.11n(HT40) Low Channel



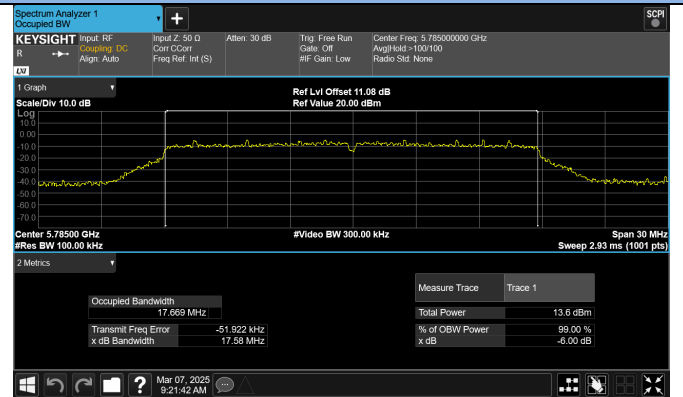
### IEEE 802.11n(HT40) High Channel



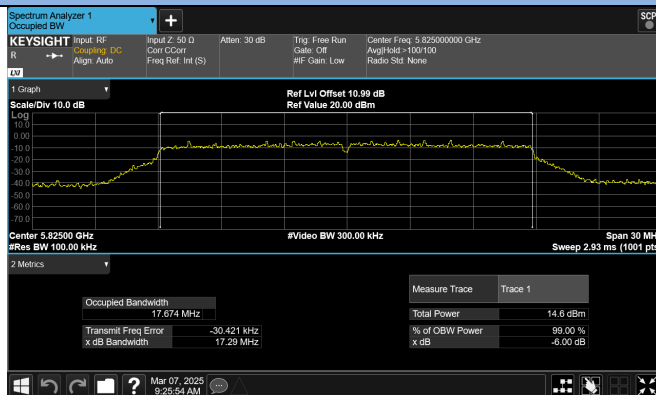
### IEEE 802.11ac(VHT20) Low Channel



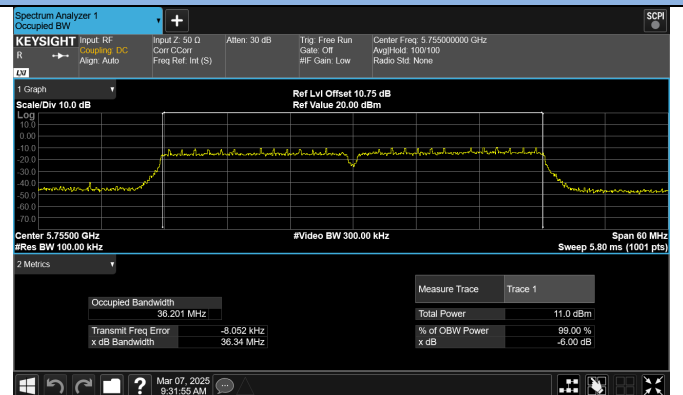
### IEEE 802.11ac(VHT20) Middle Channel



### IEEE 802.11ac(VHT20) High Channel



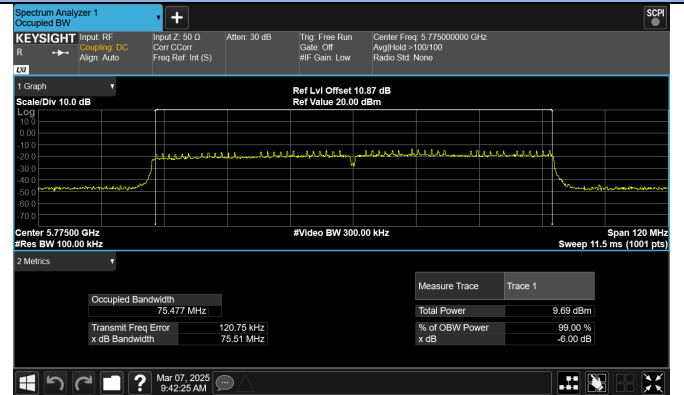
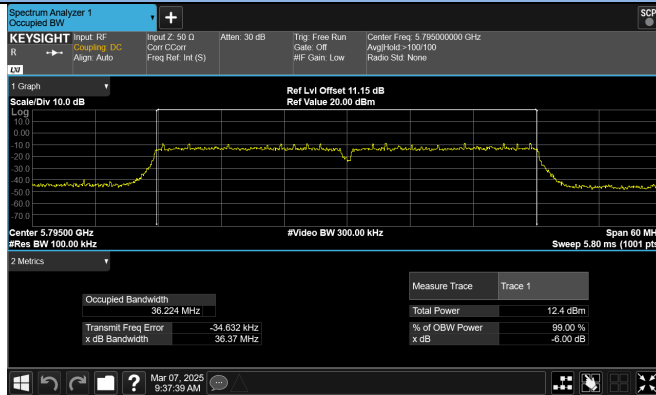
### IEEE 802.11ac(VHT40) Low Channel



**U-NII-3**

**IEEE 802.11ac(VHT40) High Channel**

**IEEE 802.11ac(VHT80)**

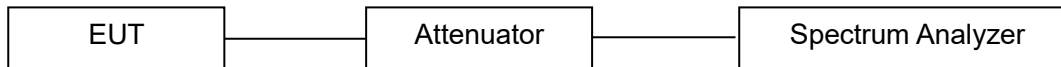


## 14.4 26dB Bandwidth & 99% Occupied Bandwidth

### LIMITS

No restriction limits.

### BLOCK DIAGRAM OF TEST SETUP



### TEST PROCEDURES

The antenna port of the EUT was connected to the input of a spectrum analyzer.

Analyzer was set as below according to FCC KDB789033(v02r01):

- a. For 26dB bandwidth, Set the RBW = Approximately 1% of the emission bandwidth
  - b. Set the VBW  $>$  RBW
  - c. Detector = peak.
  - d. Sweep time = auto couple.
  - e. Trace mode = max hold.
  - f. Allow trace to fully stabilize.
  - g. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 26 dB relative to the maximum level measured in the fundamental emission.
- 
1. For 99% occupied bandwidth, Set the RBW = 1% to 5% of the OBW
  2. Set the VBW  $\geq 3 \times$  RBW
  3. Detector = peak.
  4. Span = 1.5 times to 5.0 times the OBW
  5. Sweep time = auto couple.
  6. Trace mode = max hold. Allow trace to fully stabilize.
  7. Use the 99% power bandwidth function of the spectrum analyzer measure the occupied bandwidth.

---

## TEST RESULTS

PASS

Please refer to the following tables.

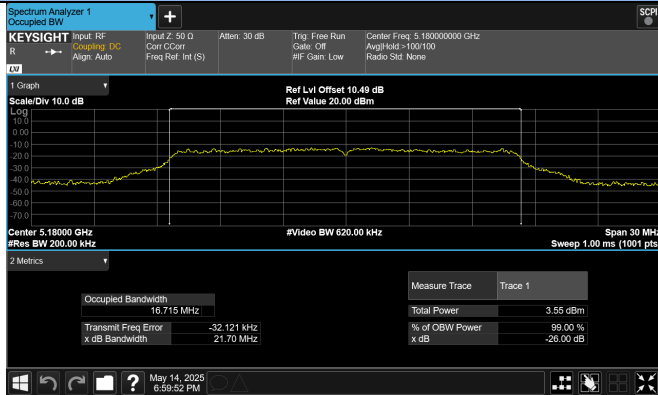
| U-NII-1 Band                      |                   |                       |                               |
|-----------------------------------|-------------------|-----------------------|-------------------------------|
| Frequency<br>MHz                  | Data Rate<br>Mbps | 26dB Bandwidth<br>MHz | 99% Occupied Bandwidth<br>MHz |
| IEEE 802.11a Mode (OFDM)          |                   |                       |                               |
| Channel: 5180                     | 6                 | 21.70                 | ---                           |
| Channel: 5200                     | 6                 | 21.18                 | ---                           |
| Channel: 5240                     | 6                 | 21.62                 | ---                           |
| IEEE 802.11n(HT20) Mode (OFDM)    |                   |                       |                               |
| Channel: 5180                     | MCS0              | 21.60                 | ---                           |
| Channel: 5200                     | MCS0              | 21.39                 | ---                           |
| Channel: 5240                     | MCS0              | 21.62                 | ---                           |
| IEEE 802.11n(HT40) Mode (OFDM)    |                   |                       |                               |
| Channel: 5190                     | MCS0              | 46.23                 | ---                           |
| Channel: 5230                     | MCS0              | 40.42                 | ---                           |
| IEEE 802.11ac (VHT20) Mode (OFDM) |                   |                       |                               |
| Channel: 5180                     | MCS0              | 21.52                 | ---                           |
| Channel: 5200                     | MCS0              | 21.37                 | ---                           |
| Channel: 5240                     | MCS0              | 21.56                 | ---                           |
| IEEE 802.11ac (VHT40) Mode (OFDM) |                   |                       |                               |
| Channel: 5190                     | MCS0              | 43.12                 | ---                           |
| Channel: 5230                     | MCS0              | 40.44                 | ---                           |
| IEEE 802.11ac (VHT80) Mode (OFDM) |                   |                       |                               |
| Channel: 5210                     | MCS0              | 118.70                | ---                           |

| U-NII-2A Band                     |                   |                       |                               |
|-----------------------------------|-------------------|-----------------------|-------------------------------|
| Frequency<br>MHz                  | Data Rate<br>Mbps | 26dB Bandwidth<br>MHz | 99% Occupied Bandwidth<br>MHz |
| IEEE 802.11a Mode (OFDM)          |                   |                       |                               |
| Channel: 5260                     | 6                 | 21.36                 | ---                           |
| Channel: 5300                     | 6                 | 21.46                 | ---                           |
| Channel: 5320                     | 6                 | 21.15                 | ---                           |
| IEEE 802.11n(HT20) Mode (OFDM)    |                   |                       |                               |
| Channel: 5260                     | MCS0              | 21.47                 | ---                           |
| Channel: 5300                     | MCS0              | 21.55                 | ---                           |
| Channel: 5320                     | MCS0              | 21.39                 | ---                           |
| IEEE 802.11n(HT40) Mode (OFDM)    |                   |                       |                               |
| Channel: 5270                     | MCS0              | 39.93                 | ---                           |
| Channel: 5310                     | MCS0              | 40.09                 | ---                           |
| IEEE 802.11ac (VHT20) Mode (OFDM) |                   |                       |                               |
| Channel: 5260                     | MCS0              | 21.60                 | ---                           |
| Channel: 5300                     | MCS0              | 21.40                 | ---                           |
| Channel: 5320                     | MCS0              | 21.52                 | ---                           |
| IEEE 802.11ac (VHT40) Mode (OFDM) |                   |                       |                               |
| Channel: 5270                     | MCS0              | 40.03                 | ---                           |
| Channel: 5310                     | MCS0              | 40.28                 | ---                           |
| IEEE 802.11ac (VHT80) Mode (OFDM) |                   |                       |                               |
| Channel:5290                      | MCS0              | 81.65                 | ---                           |

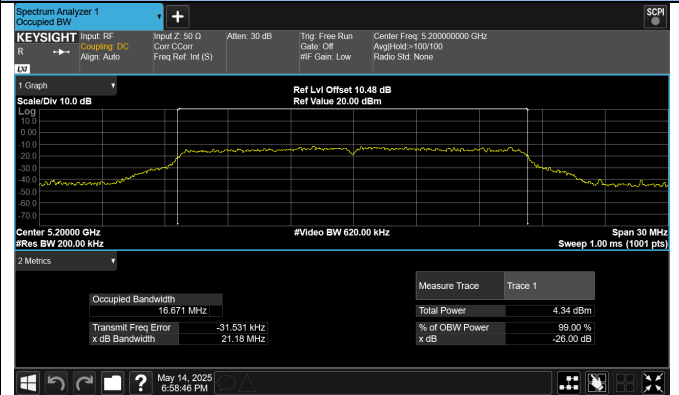
| U-NII-2C Band                     |                   |                       |                               |
|-----------------------------------|-------------------|-----------------------|-------------------------------|
| Frequency<br>MHz                  | Data Rate<br>Mbps | 26dB Bandwidth<br>MHz | 99% Occupied Bandwidth<br>MHz |
| IEEE 802.11a Mode (OFDM)          |                   |                       |                               |
| Channel: 5500                     | 6                 | 21.15                 | ---                           |
| Channel: 5580                     | 6                 | 21.50                 | ---                           |
| Channel: 5700                     | 6                 | 21.16                 | ---                           |
| IEEE 802.11n(HT20) Mode (OFDM)    |                   |                       |                               |
| Channel: 5500                     | MCS0              | 21.72                 | ---                           |
| Channel: 5580                     | MCS0              | 21.36                 | ---                           |
| Channel: 5700                     | MCS0              | 21.38                 | ---                           |
| IEEE 802.11n(HT40) Mode (OFDM)    |                   |                       |                               |
| Channel: 5510                     | MCS0              | 39.94                 | ---                           |
| Channel: 5670                     | MCS0              | 40.27                 | ---                           |
| IEEE 802.11ac (VHT20) Mode (OFDM) |                   |                       |                               |
| Channel: 5500                     | MCS0              | 21.46                 | ---                           |
| Channel: 5580                     | MCS0              | 21.69                 | ---                           |
| Channel: 5700                     | MCS0              | 21.37                 | ---                           |
| IEEE 802.11ac (VHT40) Mode (OFDM) |                   |                       |                               |
| Channel: 5510                     | MCS0              | 39.97                 | ---                           |
| Channel: 5670                     | MCS0              | 40.13                 | ---                           |
| IEEE 802.11ac (VHT80) Mode (OFDM) |                   |                       |                               |
| Channel: 5610                     | MCS0              | 80.94                 | ---                           |

## U-NII-1 Band 26dB Bandwidth

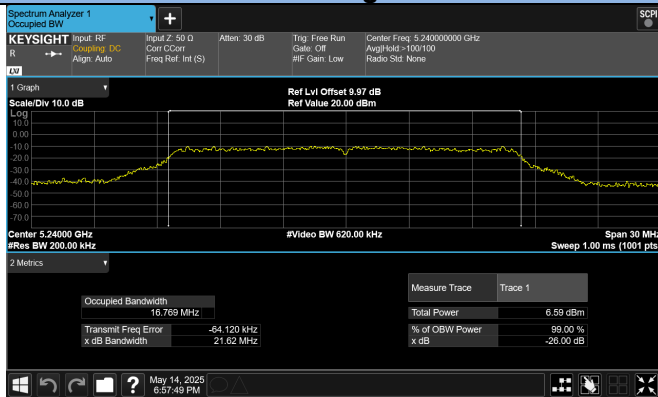
### IEEE 802.11a Low Channel



### IEEE 802.11a Middle Channel



### IEEE 802.11a High Channel



### IEEE 802.11n(HT20) Low Channel



### IEEE 802.11n(HT20) Middle Channel

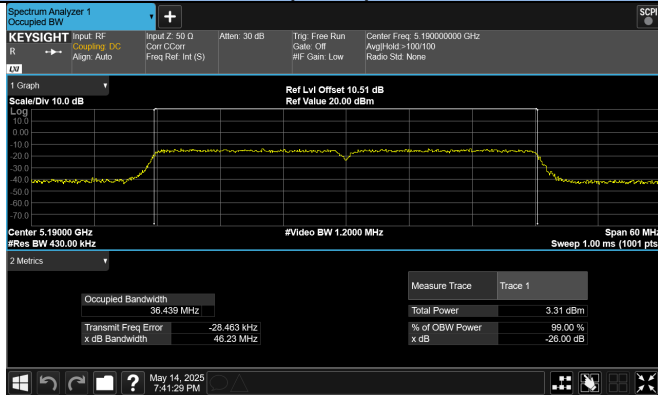


### IEEE 802.11n(HT20) High Channel

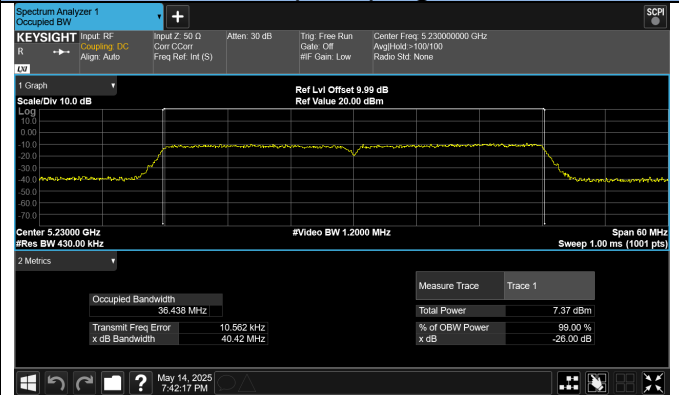


## U-NII-1 Band 26dB Bandwidth

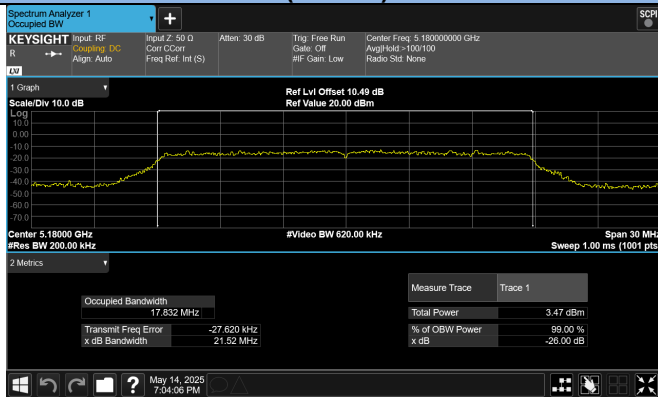
### IEEE 802.11n(HT40) Low Channel



### IEEE 802.11n(HT40) High Channel



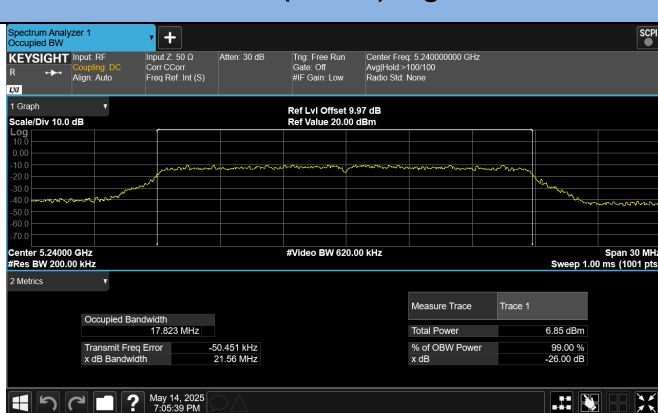
### IEEE 802.11ac(VHT20) Low Channel



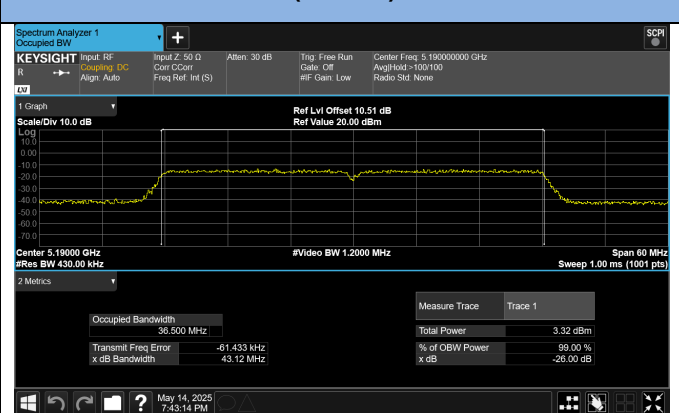
### IEEE 802.11ac(VHT20) Middle Channel



### IEEE 802.11ac(VHT20) High Channel

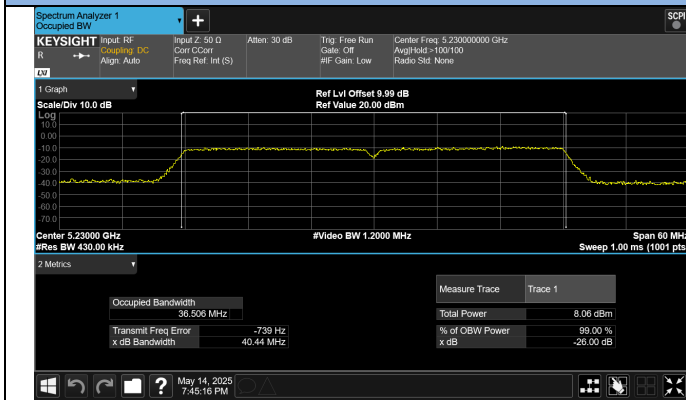


### IEEE 802.11ac(VHT40) Low Channel



## U-NII-1 Band 26dB Bandwidth

### IEEE 802.11ac(VHT40) High Channel



### IEEE 802.11ac(VHT80)

