

# MEASUREMENT REPORT

## FCC PART 15.407 / WLAN 802.11a/n/ac

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**FCC ID:** HD5-EDA520

**Applicant:** Honeywell International Inc  
Honeywell Safety and Productivity Solutions

**Application Type:** Certification

**Product:** Mobile Computer

**Model No.:** EDA52-0

**Brand Name:** Honeywell

**FCC Classification:** Unlicensed National Information Infrastructure (NII)

**FCC Rule Part(s):** Part15 Subpart E (Section 15.407)

**Test Procedure(s):** ANSI C63.10-2013, KDB 789033 D02v02r01

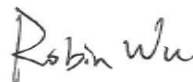
**Test Date:** March 18 ~ June 04, 2021

**Reviewed By:**



Jame Yuan

**Approved By:**



Robin Wu



The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in KDB 789033 D02v02r01. Test results reported herein relate only to the item(s) tested.

The test report shall not be reproduced except in full without the written approval of MRT Technology (Suzhou) Co., Ltd.

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## Revision History

| Report No.    | Version | Description    | Issue Date | Note  |
|---------------|---------|----------------|------------|-------|
| 2102RSU043-U4 | Rev. 01 | Initial Report | 06-04-2021 | Valid |
|               |         |                |            |       |

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## 1. General Information

### 1.1. Applicant

Honeywell International Inc  
Honeywell Safety and Productivity Solutions  
9680 Old Bailes Road, Fort Mill, SC 29707 United States

## 1.2. Manufacturer

Honeywell International Inc  
Honeywell Safety and Productivity Solutions  
9680 Old Bailes Road, Fort Mill, SC 29707 United States

### 1.3. Testing Facility

|                                     |                                                                                                                                           |
|-------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> | <b>Test Site – MRT Suzhou Laboratory</b>                                                                                                  |
|                                     | <b>Laboratory Location (Suzhou – Wuzhong)</b><br>D8 Building, No.2 Tian’edang Rd., Wuzhong Economic Development Zone, Suzhou, China       |
|                                     | <b>Laboratory Location (Suzhou – SIP)</b><br>4b Building, Liando U Valley, No.200 Xingpu Rd., Shengpu Town, Suzhou Industrial Park, China |
|                                     | <b>Laboratory Accreditations</b>                                                                                                          |
|                                     | A2LA: 3628.01<br>FCC: CN1166<br>VCCI: R-20025, G-20034, C-20020, T-20020                                                                  |
|                                     | CNAS: L10551<br>ISED: CN0001                                                                                                              |
| <input type="checkbox"/>            | <b>Test Site – MRT Shenzhen Laboratory</b>                                                                                                |
|                                     | <b>Laboratory Location (Shenzhen)</b><br>1G, Building A, Junxiangda Building, Zhongshanyuan Road West, Nanshan District, Shenzhen, China  |
|                                     | <b>Laboratory Accreditations</b>                                                                                                          |
|                                     | A2LA: 3628.02<br>FCC: CN1284                                                                                                              |
| CNAS: L10551<br>ISED: CN0105        |                                                                                                                                           |
| <input type="checkbox"/>            | <b>Test Site – MRT Taiwan Laboratory</b>                                                                                                  |
|                                     | <b>Laboratory Location (Taiwan)</b><br>No. 38, Fuxing 2 <sup>nd</sup> Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)               |
|                                     | <b>Laboratory Accreditations</b>                                                                                                          |
|                                     | TAF: L3261-190725<br>FCC: 291082, TW3261                                                                                                  |
| CNAS: L3261<br>ISED: TW3261         |                                                                                                                                           |

## 2. PRODUCT INFORMATION

### 2.1. Equipment Description

|                             |                                              |
|-----------------------------|----------------------------------------------|
| Product Name                | Mobile Computer                              |
| Model No.                   | EDA52-0                                      |
| Test Device Label No.       | Conducted Sample: 20210209Sample#01          |
|                             | Radiated Sample: 20210209Sample#02           |
| Wi-Fi Specification         | 802.11a/b/g/n/ac                             |
| Bluetooth Version           | v5.0 dual mode                               |
| NFC Specification           | Active, 13.56MHz                             |
| Accessories                 |                                              |
| USB Adapter                 | Model No.: ADS-12B-06 05010E                 |
|                             | Input Power: 100 - 240V ~ 50/60Hz, Max. 0.3A |
|                             | Output Power: 5VDC 2.0A                      |
| Rechargeable Li-ion Battery | Model No.: BAT-EDA52                         |
|                             | Capacitance: 4500mAh                         |
|                             | Rated Voltage: 3.8V                          |

### 2.2. Radio Specification

|                    |                                                                                                                                                                                                                                                               |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Frequency Range    | For 802.11a/n-HT20/ac-VHT20:<br>5180~5240MHz, 5260~5320MHz, 5500~5720MHz, 5745~5825MHz<br>For 802.11n-HT40/ac-VHT40:<br>5190~5230MHz, 5270~5310MHz, 5510~5710MHz, 5755~5795MHz<br>For 802.11ac-VHT80:<br>5210MHz, 5290MHz, 5530MHz, 5610MHz, 5690MHz, 5775MHz |
| Type of Modulation | 802.11a/n/ac: OFDM                                                                                                                                                                                                                                            |
| Data Rate          | 802.11a: 6/9/12/18/24/36/48/54Mbps<br>802.11n: up to 150Mbps<br>802.11ac: up to 433.3Mbps                                                                                                                                                                     |
| Antenna Type       | FPC Antenna                                                                                                                                                                                                                                                   |
| Antenna Gain       | 3.53dBi                                                                                                                                                                                                                                                       |

Note 1: For other features of this EUT, test report will be issued separately.

Note 2: All product information is provided by the manufacturer.

## 2.3. Working Frequencies

802.11a /n-HT20 / ac-VHT20

| Channel | Frequency | Channel | Frequency | Channel | Frequency |
|---------|-----------|---------|-----------|---------|-----------|
| 36      | 5180 MHz  | 40      | 5200 MHz  | 44      | 5220 MHz  |
| 48      | 5240 MHz  | 52      | 5260 MHz  | 56      | 5280 MHz  |
| 60      | 5300 MHz  | 64      | 5320 MHz  | 100     | 5500 MHz  |
| 104     | 5520 MHz  | 108     | 5540 MHz  | 112     | 5560 MHz  |
| 116     | 5580 MHz  | 120     | 5600 MHz  | 124     | 5620 MHz  |
| 128     | 5640 MHz  | 132     | 5660 MHz  | 136     | 5680 MHz  |
| 140     | 5700 MHz  | 144     | 5720 MHz  | 149     | 5745 MHz  |
| 153     | 5765 MHz  | 157     | 5785 MHz  | 161     | 5805 MHz  |
| 165     | 5825 MHz  | --      | --        | --      | --        |

802.11ac-VHT40/ n-HT40

| Channel | Frequency | Channel | Frequency | Channel | Frequency |
|---------|-----------|---------|-----------|---------|-----------|
| 38      | 5190 MHz  | 46      | 5230 MHz  | 54      | 5270 MHz  |
| 62      | 5310 MHz  | 102     | 5510 MHz  | 110     | 5550 MHz  |
| 118     | 5590 MHz  | 126     | 5630 MHz  | 134     | 5670 MHz  |
| 142     | 5710 MHz  | 151     | 5755 MHz  | 159     | 5795 MHz  |

802.11ac-VHT80

| Channel | Frequency | Channel | Frequency | Channel | Frequency |
|---------|-----------|---------|-----------|---------|-----------|
| 42      | 5210 MHz  | 58      | 5290 MHz  | 106     | 5530 MHz  |
| 122     | 5610 MHz  | 138     | 5690 MHz  | 155     | 5775 MHz  |

## 2.4. Test Mode

|           |                                           |
|-----------|-------------------------------------------|
| Test Mode | Mode 1: Transmit by 802.11a (6Mbps)       |
|           | Mode 2: Transmit by 802.11n-HT20 (MCS0)   |
|           | Mode 3: Transmit by 802.11n-HT40 (MCS0)   |
|           | Mode 4: Transmit by 802.11ac-VHT20 (MCS0) |
|           | Mode 5: Transmit by 802.11ac-VHT40 (MCS0) |
|           | Mode 6: Transmit by 802.11ac-VHT80 (MCS0) |

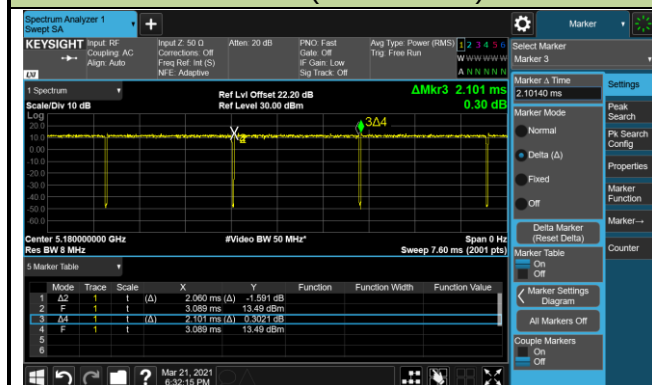
## 2.5. Duty Cycle

5GHz (NII) operation is possible in 20MHz, 40MHz and 80MHz channel bandwidths. The maximum achievable duty cycles for all modes were determined based on measurements performed on a spectrum analyzer in zero-span mode with RBW = 8MHz, VBW = 50MHz. The RBW and VBW were both greater than 50/T, where T is the minimum transmission duration, and the number of sweep points across T was greater than 100. The duty cycles are as follows:

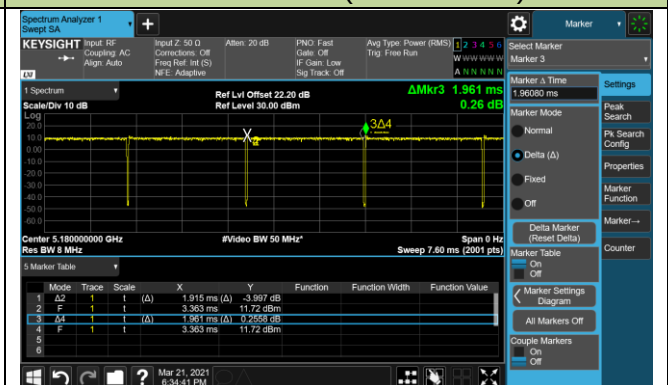
| Test Mode      | Duty Cycle |
|----------------|------------|
| 802.11a        | 98.05%     |
| 802.11n-HT20   | 97.65%     |
| 802.11n-HT40   | 96.11%     |
| 802.11ac-VHT20 | 97.71%     |
| 802.11ac-VHT40 | 95.66%     |
| 802.11ac-VHT80 | 92.42%     |

### Duty Cycle (T = Transmission Duration)

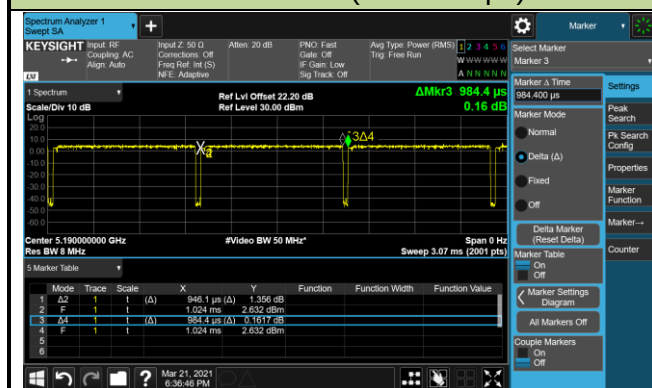
802.11a (T = 2.060ms)



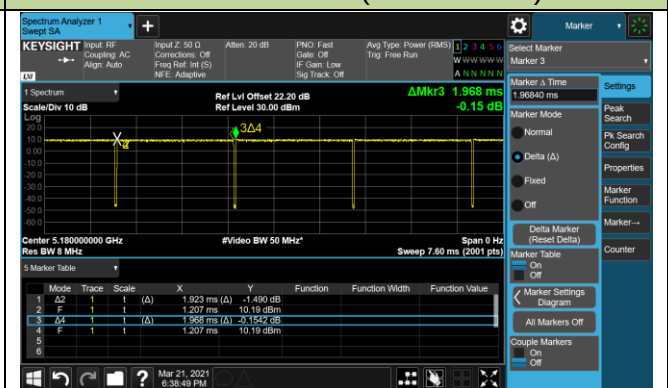
802.11n-HT20 (T = 1.915ms)



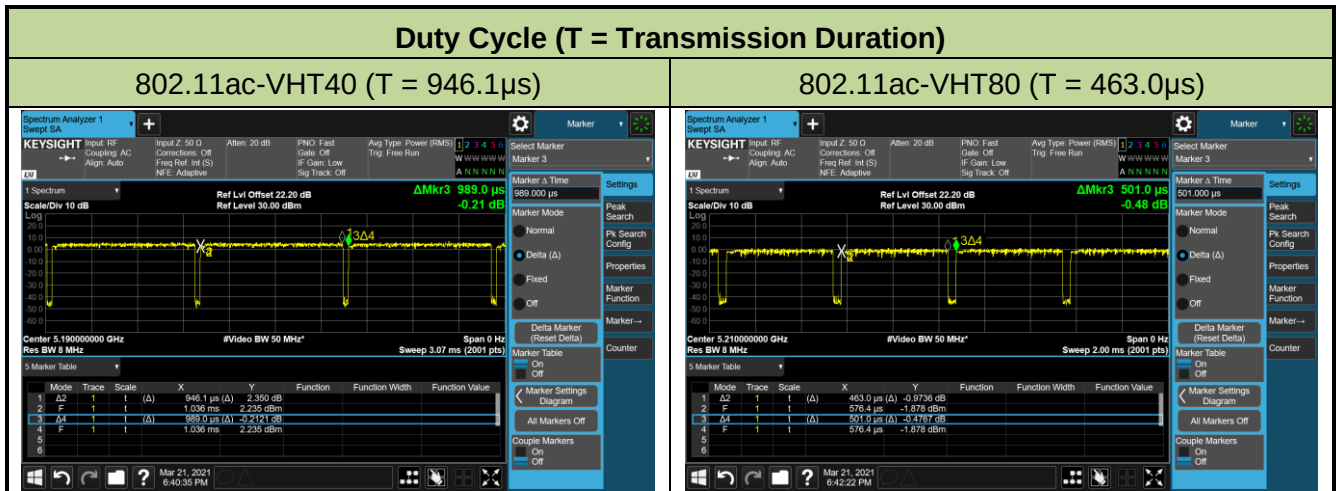
802.11n-HT40 (T = 946.1μs)



802.11ac-VHT20 (T = 1.923ms)

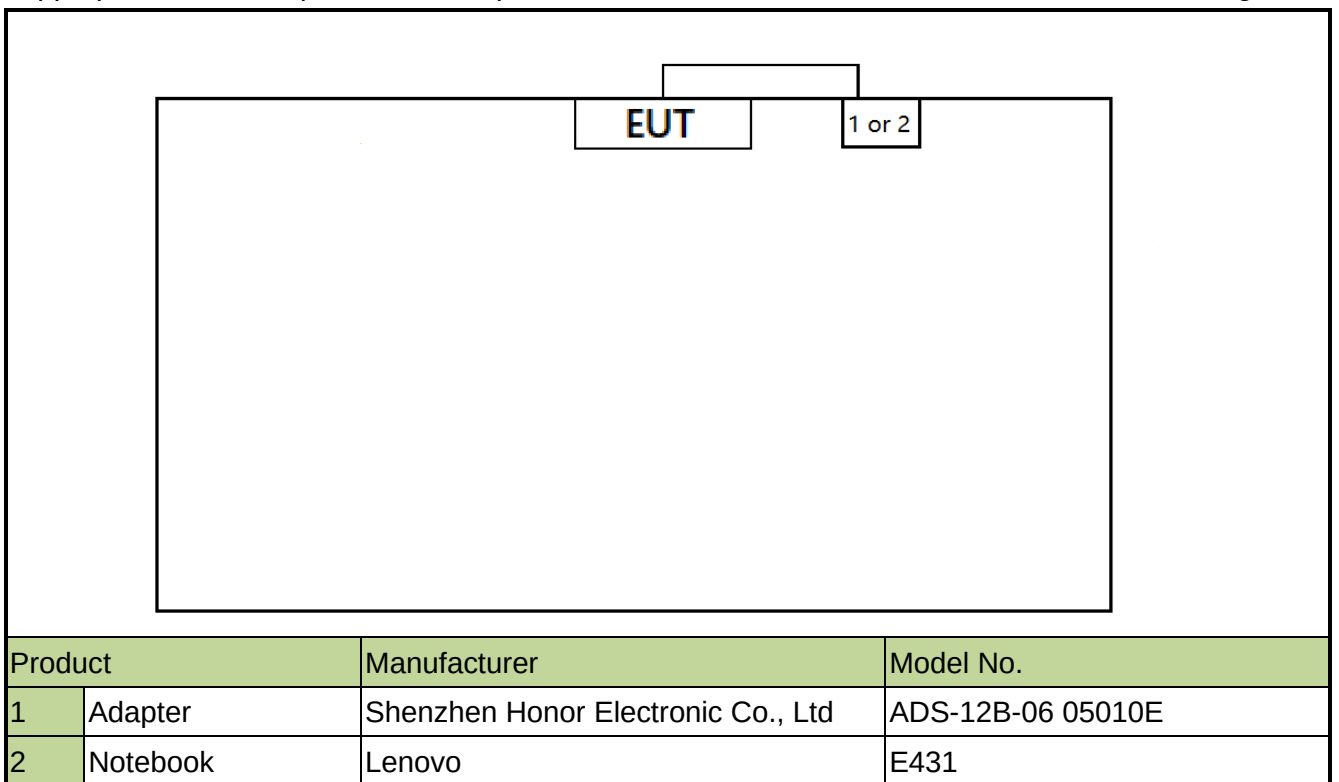






## 2.6. Test Configuration and Software

The device was tested per the guidance ANSI C63.10-2013 that was used to reference the appropriate EUT setup for radiated spurious emissions and AC line conducted emission testing.



Note 1: The test utility software used during testing was “QRCT”, and the version was 3.0.268.0.

Note 2: Detail power setting refer to operation description.

**2.7. EMI Suppression Device(s)/Modifications**

No EMI suppression device(s) were added and/or no modifications were made during testing.

**2.8. Test Environment Condition**

|                     |             |
|---------------------|-------------|
| Ambient Temperature | 15 ~ 35 °C  |
| Relative Humidity   | 20 ~ 75 %RH |

### 3. ANTENNA REQUIREMENTS

**Excerpt from §15.203 of the FCC Rules/Regulations:**

“An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.”

- The antenna of the device is **permanently attached**.
- There are no provisions for connection to an external antenna.

**Conclusion:**

The unit complies with the requirement of §15.203.

#### 4. TEST EQUIPMENT CALIBRATION DATE

##### Conducted Emission (WZ-SR2)

| Instrument         | Manufacturer | Type No.    | Asset No.   | Cali. Interval | Cali. Due Date |
|--------------------|--------------|-------------|-------------|----------------|----------------|
| EMI Test Receiver  | R&S          | ESR3        | MRTSUE06185 | 1 year         | 2022/01/12     |
| Two-Line V-Network | R&S          | ENV216      | MRTSUE06002 | 1 year         | 2021/09/09     |
| Thermal Hygrometer | testo        | 608-H1      | MRTSUE06404 | 1 year         | 2021/07/26     |
| Shielding Room     | MIX-BEP      | Chamber-SR2 | MRTSUE06215 | N/A            | N/A            |

##### Conducted Emission (SIP-SR2)

| Instrument         | Manufacturer | Type No. | Asset No.   | Cali. Interval | Cali. Due Date |
|--------------------|--------------|----------|-------------|----------------|----------------|
| EMI Test Receiver  | R&S          | ESR3     | MRTSUE06613 | 1 year         | 2021/07/02     |
| Two-Line V-Network | R&S          | ENV216   | MRTSUE06003 | 1 year         | 2021/09/09     |
| Thermal Hygrometer | testo        | 608-H1   | MRTSUE06621 | 1 year         | 2021/12/03     |

##### Radiated Emission (WZ-AC1)

| Instrument                 | Manufacturer    | Type No.    | Asset No.   | Cali. Interval | Cali. Due Date |
|----------------------------|-----------------|-------------|-------------|----------------|----------------|
| EMI Test Receiver          | R&S             | ESR7        | MRTSUE06001 | 1 year         | 2022/01/12     |
| PXA Signal Analyzer        | Keysight        | N9030B      | MRTSUE06395 | 1 year         | 2021/08/30     |
| Loop Antenna               | Schwarzbeck     | FMZB 1519   | MRTSUE06025 | 1 year         | 2021/10/22     |
| Bilog Period Antenna       | Schwarzbeck     | VULB 9168   | MRTSUE06172 | 1 year         | 2021/08/08     |
| Horn Antenna               | Schwarzbeck     | BBHA 9120D  | MRTSUE06023 | 1 year         | 2021/09/27     |
| Horn Antenna               | Schwarzbeck     | BBHA9170    | MRTSUE06597 | 1 year         | 2021/12/14     |
| Microwave System Amplifier | Agilent         | 83017A      | MRTSUE06076 | 1 year         | 2021/11/14     |
| Preamplifier               | Schwarzbeck     | BBV 9721    | MRTSUE06121 | 1 year         | 2021/06/11     |
| EMC Cable                  | HUBER<br>SUHNER | SF106       | MRTSUE11034 | 1 year         | 2021/12/12     |
| Thermal Hygrometer         | testo           | 608-H1      | MRTSUE06403 | 1 year         | 2021/07/26     |
| Anechoic Chamber           | TDK             | Chamber-AC1 | MRTSUE06212 | 1 year         | 2021/04/30     |
|                            |                 |             |             | 1 year         | 2022/04/29     |

## Radiated Emission (WZ-AC2)

| Instrument                     | Manufacturer | Type No.    | Asset No.   | Cali. Interval | Cali. Due Date |
|--------------------------------|--------------|-------------|-------------|----------------|----------------|
| MXE EMI Receiver               | Keysight     | N9038A      | MRTSUE06125 | 1 year         | 2021/07/02     |
| Loop Antenna                   | Schwarzbeck  | FMZB 1519   | MRTSUE06025 | 1 year         | 2021/10/22     |
| Bilog Period Antenna           | Schwarzbeck  | VULB 9162   | MRTSUE06022 | 1 year         | 2021/05/26     |
| Broad-Band Horn Antenna        | Schwarzbeck  | BBHA 9120D  | MRTSUE06171 | 1 year         | 2021/10/25     |
| Horn Antenna                   | Schwarzbeck  | BBHA9170    | MRTSUE06597 | 1 year         | 2021/12/14     |
| Broadband Coaxial Preamplifier | Schwarzbeck  | BBV 9718    | MRTSUE06176 | 1 year         | 2021/11/14     |
| Preamplifier                   | Schwarzbeck  | BBV 9721    | MRTSUE06121 | 1 year         | 2021/06/11     |
| Thermal Hygrometer             | Minggao      | ETH529      | MRTSUE06170 | 1 year         | 2021/12/08     |
| Anechoic Chamber               | RIKEN        | Chamber-AC2 | MRTSUE06213 | 1 year         | 2021/04/30     |
|                                |              |             |             | 1 year         | 2022/04/29     |

## Radiated Emission (SIP-AC1)

| Instrument                 | Manufacturer | Type No.    | Asset No.   | Cali. Interval | Cali. Due Date |
|----------------------------|--------------|-------------|-------------|----------------|----------------|
| EMI Test Receiver          | R&S          | ESR3        | MRTSUE06612 | 1 year         | 2021/07/02     |
| EXA Signal Analyzer        | Keysight     | N9010B      | MRTSUE06559 | 1 year         | 2021/07/23     |
| Loop Antenna               | Schwarzbeck  | FMZB 1519   | MRTSUE06025 | 1 year         | 2021/10/22     |
| Bilog Period Antenna       | Schwarzbeck  | VULB9168    | MRTSUE06645 | 1 year         | 2021/08/30     |
| Double Ridged Horn Antenna | R&S          | HF907       | MRTSUE06610 | 1 year         | 2021/08/30     |
| Preamplifier               | EMCI         | EMC051845SE | MRTSUE06600 | 1 year         | 2021/11/09     |
| Thermal Hygrometer         | testo        | 608-H1      | MRTSUE06620 | 1 year         | 2021/12/03     |
| Anechoic Chamber           | RIKEN        | SIP-SIP-AC1 | MRTSUE06554 | 1 year         | 2021/12/24     |

## Radiated Emission (SIP-AC2)

| Instrument           | Manufacturer | Type No.    | Asset No.   | Cali. Interval | Cali. Due Date |
|----------------------|--------------|-------------|-------------|----------------|----------------|
| EMI Test Receiver    | R&S          | ESR3        | MRTSUE06613 | 1 year         | 2021/07/02     |
| MXA Signal Analyzer  | Keysight     | N9020B      | MRTSUE06604 | 1 year         | 2021/09/26     |
| Loop Antenna         | Schwarzbeck  | FMZB 1519   | MRTSUE06025 | 1 year         | 2021/10/22     |
| Bilog Period Antenna | Schwarzbeck  | VULB9168    | MRTSUE06646 | 1 year         | 2021/08/30     |
| Horn Antenna         | Schwarzbeck  | BBHA9120D   | MRTSUE06648 | 1 year         | 2021/11/26     |
| Horn Antenna         | Schwarzbeck  | BBHA9170    | MRTSUE06599 | 1 year         | 2021/11/26     |
| Preamplifier         | EMCI         | EMC051845SE | MRTSUE06644 | 1 year         | 2021/11/09     |
| Preamplifier         | EMCI         | EMC184045SE | MRTSUE06602 | 1 year         | 2021/10/12     |
| Thermal Hygrometer   | testo        | 608-H1      | MRTSUE06624 | 1 year         | 2021/12/03     |
| Anechoic Chamber     | RIKEN        | SIP-AC2     | MRTSUE06781 | 1 year         | 2021/12/24     |

## Radiated Emission (SIP-AC3)

| Instrument                 | Manufacturer | Type No.    | Asset No.   | Cali. Interval | Cali. Due Date |
|----------------------------|--------------|-------------|-------------|----------------|----------------|
| EMI Test Receiver          | R&S          | ESR3        | MRTSUE06612 | 1 year         | 2021/07/02     |
| EXA Signal Analyzer        | Keysight     | N9010B      | MRTSUE06559 | 1 year         | 2021/07/23     |
| Loop Antenna               | Schwarzbeck  | FMZB 1519   | MRTSUE06025 | 1 year         | 2021/10/22     |
| Bilog Period Antenna       | Schwarzbeck  | VULB9168    | MRTSUE06647 | 1 year         | 2021/08/08     |
| Double Ridged Horn Antenna | R&S          | HF907       | MRTSUE06611 | 1 year         | 2021/09/13     |
| Horn Antenna               | Schwarzbeck  | BBHA9170    | MRTSUE06598 | 1 year         | 2021/11/26     |
| Preamplifier               | EMCI         | EMC012645SE | MRTSUE06642 | 1 year         | 2022/01/15     |
| Preamplifier               | EMCI         | EMC184045SE | MRTSUE06641 | 1 year         | 2022/01/15     |
| Thermal Hygrometer         | testo        | 608-H1      | MRTSUE06622 | 1 year         | 2021/12/03     |
| Anechoic Chamber           | RIKEN        | SIP-AC3     | MRTSUE06782 | 1 year         | 2021/12/24     |

## Conducted Test Equipment (WZ-TR3)

| Instrument                             | Manufacturer | Type No.    | Asset No.   | Cali. Interval | Cali. Due Date |
|----------------------------------------|--------------|-------------|-------------|----------------|----------------|
| EXA Signal Analyzer                    | Agilent      | N9020A      | MRTSUE06106 | 1 year         | 2022/04/13     |
| EXA Signal Analyzer                    | Keysight     | N9010B      | MRTSUE06607 | 1 year         | 2022/01/07     |
| Signal Analyzer                        | R&S          | FSV40       | MRTSUE06218 | 1 year         | 2022/04/13     |
| Power Meter                            | Agilent      | U2021XA     | MRTSUE06030 | 1 year         | 2021/10/22     |
| USB wideband power sensor              | Keysight     | U2021XA     | MRTSUE06446 | 1 year         | 2021/08/30     |
| USB wideband power sensor              | Keysight     | U2021XA     | MRTSUE06447 | 1 year         | 2021/08/08     |
| Bluetooth Test Set                     | Anritsu      | MT8852B-042 | MRTSUE06389 | 1 year         | 2021/06/11     |
| Audio Analyzer                         | Agilent      | U8903B      | MRTSUE06143 | 1 year         | 2021/06/11     |
| Modulation Analyzer                    | HP           | HP8901A     | MRTSUE06098 | 1 year         | 2021/09/26     |
| Wideband Radio<br>Communication Tester | R&S          | CMW 500     | MRTSUE06243 | 1 year         | 2021/10/20     |
| DC Power Supply                        | GWINSTEK     | DPS-3303C   | MRTSUE06064 | N/A            | N/A            |
| Temperature & Humidity<br>Chamber      | BAOYT        | BYH-150CL   | MRTSUE06051 | 1 year         | 2021/10/22     |
| Thermal Hygrometer                     | testo        | 608-H1      | MRTSUE06401 | 1 year         | 2021/07/26     |
| Attenuator                             | MVE          | 6dB         | MRTSUE06534 | 1 year         | N/A            |
| Attenuator                             | MVE          | 10dB        | MRTSUE06543 | 1 year         | N/A            |

## Conducted Test Equipment (SIP-SR5)

| Instrument                             | Manufacturer | Type No.    | Asset No.   | Cali. Interval | Cali. Due Date |
|----------------------------------------|--------------|-------------|-------------|----------------|----------------|
| Signal Analyzer                        | R&S          | FSV40       | MRTSUE06218 | 1 year         | 2022/04/13     |
| PXA Signal Analyzer                    | Keysight     | N9030B      | MRTSUE06395 | 1 year         | 2021/08/30     |
| USB wideband power sensor              | Agilent      | U2021XA     | MRTSUE06595 | 1 year         | 2021/09/26     |
| USB wideband power sensor              | Agilent      | U2021XA     | MRTSUE06596 | 1 year         | 2021/09/26     |
| Wideband Radio<br>Communication Tester | R&S          | CMW 500     | MRTSUE06243 | 1 year         | 2021/10/20     |
| Bluetooth Test Set                     | Anritsu      | MT8852B-042 | MRTSUE06389 | 1 year         | 2021/06/11     |
| Temperature Chamber                    | BAOYT        | BYG-408CS   | MRTSUE06847 | 1 year         | 2022/02/23     |
| Thermal Hygrometer                     | testo        | 622         | MRTSUE06629 | 1 year         | 2021/11/25     |

| Software     | Version | Function          |
|--------------|---------|-------------------|
| EMI Software | V3      | EMI Test Software |

## 5. MEASUREMENT UNCERTAINTY

Where relevant, the following test uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of  $k = 2$ .

|                                                                                                                                                                                                                                                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>AC Conducted Emission Measurement</b>                                                                                                                                                                                                       |
| Measurement Uncertainty for a Level of Confidence of 95% ( $U=2Uc(y)$ ):<br>9kHz~150kHz: 3.74dB<br>150kHz~30MHz: 3.44dB                                                                                                                        |
| <b>Radiated Disturbance</b>                                                                                                                                                                                                                    |
| Measurement Uncertainty for a Level of Confidence of 95% ( $U=2Uc(y)$ ):<br>Horizontal:<br>30MHz~300MHz: 5.04dB<br>300MHz~1GHz: 4.95dB<br>1GHz~40GHz: 6.40dB<br>Vertical:<br>30MHz~300MHz: 5.24dB<br>300MHz~1GHz: 6.03dB<br>1GHz~40GHz: 6.40dB |
| <b>Spurious Emissions, Conducted</b>                                                                                                                                                                                                           |
| Measuring Uncertainty for a Level of Confidence of 95% ( $U=2Uc(y)$ ):<br>0.78dB                                                                                                                                                               |
| <b>Output Power</b>                                                                                                                                                                                                                            |
| Measuring Uncertainty for a Level of Confidence of 95% ( $U=2Uc(y)$ ):<br>1.13dB                                                                                                                                                               |
| <b>Power Spectrum Density</b>                                                                                                                                                                                                                  |
| Measuring Uncertainty for a Level of Confidence of 95% ( $U=2Uc(y)$ ):<br>1.15dB                                                                                                                                                               |
| <b>Occupied Bandwidth</b>                                                                                                                                                                                                                      |
| Measuring Uncertainty for a Level of Confidence of 95% ( $U=2Uc(y)$ ):<br>0.28%                                                                                                                                                                |



## 6. TEST RESULT

### 6.1. Summary

| FCC Section(s)                           | Test Description                                                | Test Limit                                                                                                                     | Test Condition | Test Result | Reference                  |
|------------------------------------------|-----------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------|----------------|-------------|----------------------------|
| 15.407(a)                                | 26dB Bandwidth                                                  | N/A                                                                                                                            | Conducted      | Pass        | Section 6.2                |
| 15.407(e)                                | 6dB Bandwidth                                                   | $\geq 500\text{kHz}$                                                                                                           |                | Pass        | Section 6.3                |
| 15.407(a)(1)(iv), (2), (3)               | Maximum Conducted Output Power                                  | U-NII-1: $\leq 250\text{mW}$<br>U-NII-2: $\leq 250\text{mW}$ or $11\text{dBm}$<br>$+10\log_{10}B$<br>U-NII-3: $\leq 1\text{W}$ |                | Pass        | Section 6.4                |
| 15.407(h)(1)                             | Transmit Power Control                                          | $\leq 24\text{dBm}$                                                                                                            |                | N/A         | Section 6.5                |
| 15.407(a)(1)(iv), (2), (3), (12)         | Power Spectral Density                                          | U-NII-1& U-NII-2: $\leq 11\text{dBm/MHz}$<br>U-NII-3: $\leq 30\text{dBm/500kHz}$                                               |                | Pass        | Section 6.6                |
| 15.407(g)                                | Frequency Stability                                             | N/A                                                                                                                            |                | Pass        | Section 6.7                |
| 15.407(b)(1), (2), (3), (4)(i)           | Undesirable Emissions                                           | $\leq -27\text{dBm/MHz}$ EIRP<br>Detail see section 6.9                                                                        | Radiated       | Pass        | Section 6.8<br>Section 6.9 |
| 15.205, 15.209<br>15.407(b)(7), (8), (9) | General Field Strength (Restricted Bands and Radiated Emission) | Emissions in restricted bands must meet the radiated limits detailed in 15.209                                                 |                | Pass        |                            |
| 15.207                                   | AC Conducted Emissions<br>150kHz-30MHz                          | < FCC 15.207 limits                                                                                                            | Line Conducted | Pass        | Section 6.10               |

#### Notes:

- 1) The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.
- 2) All modes of operation and data rates were investigated. For radiated emission test, every axis (X, Y, Z) was also verified. The test results shown in the following sections represent the worst case emissions.
- 3) "N/A" means that the test item is not applicable, and the details refer to relevant section.

## 6.2. Emission Bandwidth Measurement

### 6.2.1. Test Limit

N/A

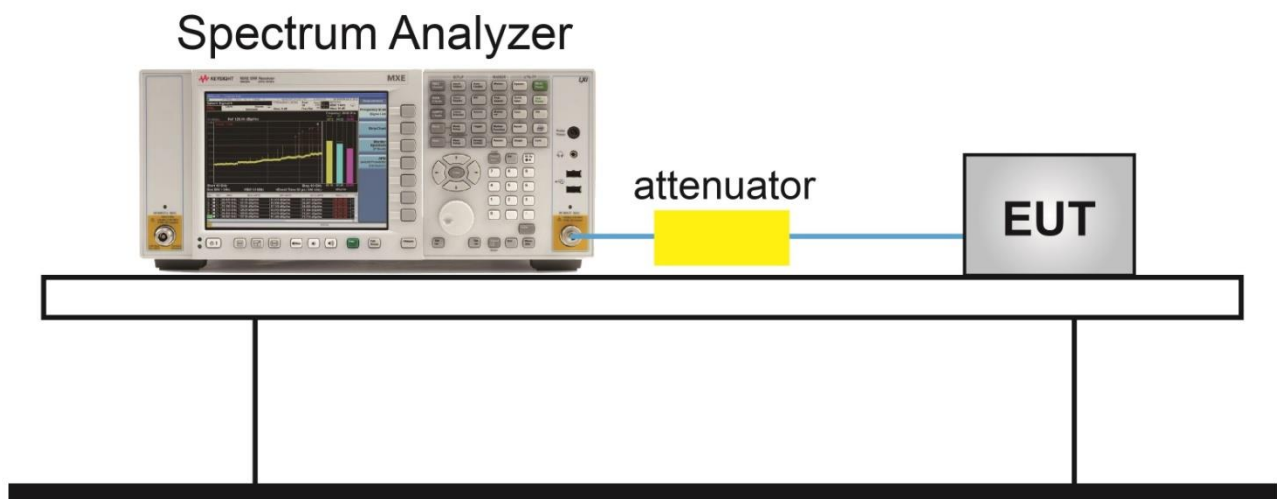
### 6.2.2. Test Procedure Used

KDB 789033 D02v02r01 -Section C.1

### 6.2.3. Test Setting

1. Set RBW = approximately 1% of the emission bandwidth.
2. Set the VBW > RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Measure the maximum width of the emission that is 26 dB down from the maximum of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

### 6.2.4. Test Setup



### 6.2.5. Test Result

|           |                       |               |           |
|-----------|-----------------------|---------------|-----------|
| Test Site | WZ-TR3                | Test Engineer | Luis Yang |
| Test Date | 2021/03/19~2021/04/29 |               |           |

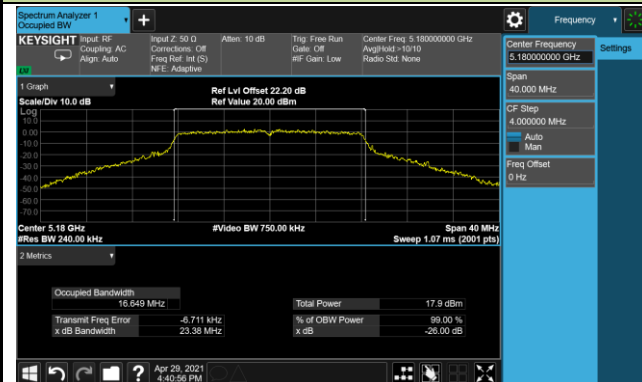
| Test Mode    | Data Rate/<br>MCS | Channel No. | Frequency<br>(MHz) | 26dB Bandwidth<br>(MHz) |
|--------------|-------------------|-------------|--------------------|-------------------------|
| 802.11a      | 6Mbps             | 36          | 5180               | 23.38                   |
| 802.11a      | 6Mbps             | 44          | 5220               | 22.13                   |
| 802.11a      | 6Mbps             | 48          | 5240               | 23.21                   |
| 802.11a      | 6Mbps             | 52          | 5260               | 22.81                   |
| 802.11a      | 6Mbps             | 60          | 5300               | 22.52                   |
| 802.11a      | 6Mbps             | 64          | 5320               | 22.69                   |
| 802.11a      | 6Mbps             | 100         | 5500               | 23.01                   |
| 802.11a      | 6Mbps             | 116         | 5580               | 22.84                   |
| 802.11a      | 6Mbps             | 120         | 5600               | 22.67                   |
| 802.11a      | 6Mbps             | 140         | 5700               | 23.59                   |
| 802.11a      | 6Mbps             | 144         | 5720               | 23.05                   |
| 802.11a      | 6Mbps             | 149         | 5745               | 22.60                   |
| 802.11a      | 6Mbps             | 157         | 5785               | 23.71                   |
| 802.11a      | 6Mbps             | 165         | 5825               | 23.78                   |
| 802.11n-HT20 | MCS0              | 36          | 5180               | 22.84                   |
| 802.11n-HT20 | MCS0              | 44          | 5220               | 23.14                   |
| 802.11n-HT20 | MCS0              | 48          | 5240               | 22.46                   |
| 802.11n-HT20 | MCS0              | 52          | 5260               | 23.42                   |
| 802.11n-HT20 | MCS0              | 60          | 5300               | 22.68                   |
| 802.11n-HT20 | MCS0              | 64          | 5320               | 23.14                   |
| 802.11n-HT20 | MCS0              | 100         | 5500               | 23.16                   |
| 802.11n-HT20 | MCS0              | 116         | 5580               | 23.20                   |
| 802.11n-HT20 | MCS0              | 120         | 5600               | 23.10                   |
| 802.11n-HT20 | MCS0              | 140         | 5700               | 23.10                   |
| 802.11n-HT20 | MCS0              | 144         | 5720               | 23.25                   |
| 802.11n-HT20 | MCS0              | 149         | 5745               | 22.88                   |
| 802.11n-HT20 | MCS0              | 157         | 5785               | 22.86                   |
| 802.11n-HT20 | MCS0              | 165         | 5825               | 22.63                   |

| Test Mode      | Data Rate/<br>MCS | Channel No. | Frequency<br>(MHz) | 26dB Bandwidth<br>(MHz) |
|----------------|-------------------|-------------|--------------------|-------------------------|
| 802.11n-HT40   | MCS0              | 38          | 5190               | 41.57                   |
| 802.11n-HT40   | MCS0              | 46          | 5230               | 41.10                   |
| 802.11n-HT40   | MCS0              | 54          | 5270               | 41.19                   |
| 802.11n-HT40   | MCS0              | 62          | 5310               | 41.12                   |
| 802.11n-HT40   | MCS0              | 102         | 5510               | 41.17                   |
| 802.11n-HT40   | MCS0              | 110         | 5550               | 41.57                   |
| 802.11n-HT40   | MCS0              | 118         | 5590               | 40.90                   |
| 802.11n-HT40   | MCS0              | 134         | 5670               | 41.18                   |
| 802.11n-HT40   | MCS0              | 142         | 5710               | 40.93                   |
| 802.11n-HT40   | MCS0              | 151         | 5755               | 41.19                   |
| 802.11n-HT40   | MCS0              | 159         | 5795               | 41.01                   |
| 802.11ac-VHT20 | MCS0              | 36          | 5180               | 22.64                   |
| 802.11ac-VHT20 | MCS0              | 44          | 5220               | 22.91                   |
| 802.11ac-VHT20 | MCS0              | 48          | 5240               | 23.11                   |
| 802.11ac-VHT20 | MCS0              | 52          | 5260               | 22.41                   |
| 802.11ac-VHT20 | MCS0              | 60          | 5300               | 22.99                   |
| 802.11ac-VHT20 | MCS0              | 64          | 5320               | 23.08                   |
| 802.11ac-VHT20 | MCS0              | 100         | 5500               | 23.30                   |
| 802.11ac-VHT20 | MCS0              | 116         | 5580               | 23.04                   |
| 802.11ac-VHT20 | MCS0              | 120         | 5600               | 23.42                   |
| 802.11ac-VHT20 | MCS0              | 140         | 5700               | 23.71                   |
| 802.11ac-VHT20 | MCS0              | 144         | 5720               | 23.17                   |
| 802.11ac-VHT20 | MCS0              | 149         | 5745               | 22.57                   |
| 802.11ac-VHT20 | MCS0              | 157         | 5785               | 23.19                   |
| 802.11ac-VHT20 | MCS0              | 165         | 5825               | 23.10                   |

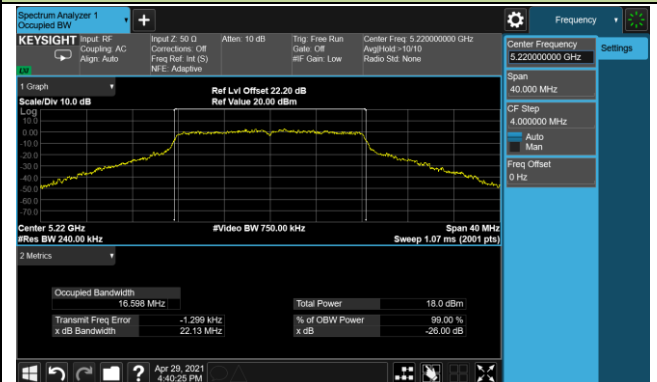
| Test Mode      | Data Rate/<br>MCS | Channel No. | Frequency<br>(MHz) | 26dB Bandwidth<br>(MHz) |
|----------------|-------------------|-------------|--------------------|-------------------------|
| 802.11ac-VHT40 | MCS0              | 38          | 5190               | 41.31                   |
| 802.11ac-VHT40 | MCS0              | 46          | 5230               | 41.21                   |
| 802.11ac-VHT40 | MCS0              | 54          | 5270               | 40.77                   |
| 802.11ac-VHT40 | MCS0              | 62          | 5310               | 40.83                   |
| 802.11ac-VHT40 | MCS0              | 102         | 5510               | 40.65                   |
| 802.11ac-VHT40 | MCS0              | 110         | 5550               | 40.78                   |
| 802.11ac-VHT40 | MCS0              | 118         | 5590               | 41.19                   |
| 802.11ac-VHT40 | MCS0              | 134         | 5670               | 41.02                   |
| 802.11ac-VHT40 | MCS0              | 142         | 5710               | 40.93                   |
| 802.11ac-VHT40 | MCS0              | 151         | 5755               | 41.38                   |
| 802.11ac-VHT40 | MCS0              | 159         | 5795               | 40.74                   |
| 802.11ac-VHT80 | MCS0              | 42          | 5210               | 82.54                   |
| 802.11ac-VHT80 | MCS0              | 58          | 5290               | 82.94                   |
| 802.11ac-VHT80 | MCS0              | 106         | 5530               | 82.26                   |
| 802.11ac-VHT80 | MCS0              | 122         | 5610               | 82.36                   |
| 802.11ac-VHT80 | MCS0              | 138         | 5690               | 83.26                   |
| 802.11ac-VHT80 | MCS0              | 155         | 5775               | 82.74                   |

## 802.11a 26dB Bandwidth

## Channel 36 (5180MHz)



## Channel 44 (5220MHz)



## Channel 48 (5240MHz)



## Channel 52 (5260MHz)



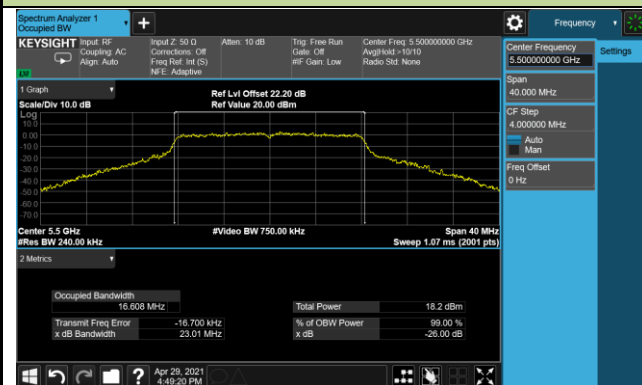
## Channel 60 (5300MHz)



## Channel 64 (5320MHz)



## Channel 100 (5500MHz)



## Channel 116 (5580MHz)



## 802.11a 26dB Bandwidth

## Channel 120 (5600MHz)



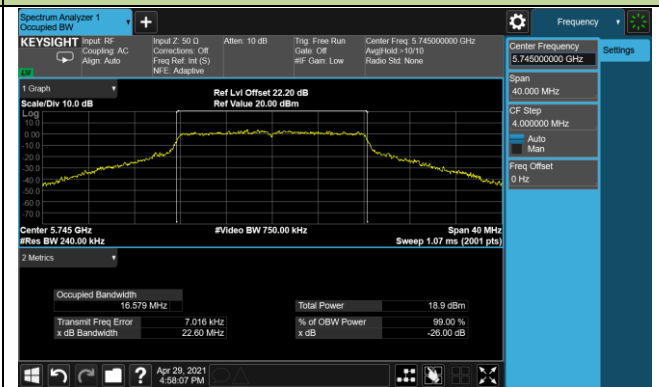
## Channel 140 (5700MHz)



## Channel 144 (5720MHz)



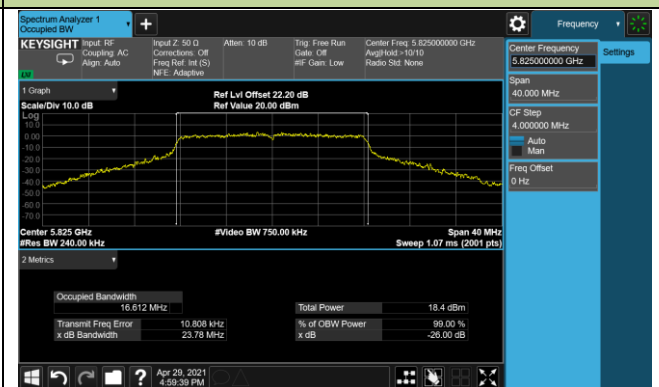
## Channel 149 (5745MHz)



## Channel 157 (5785MHz)

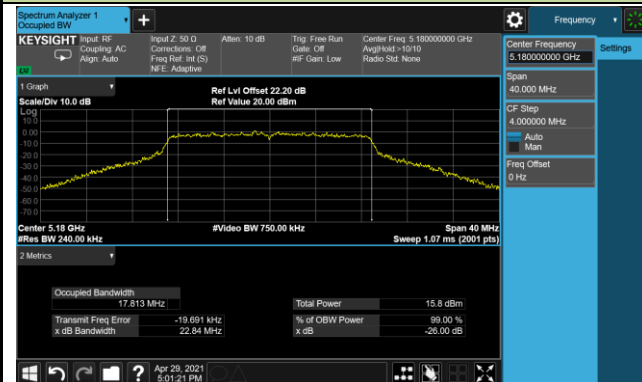


## Channel 165 (5825MHz)



## 802.11n-HT20 26dB Bandwidth

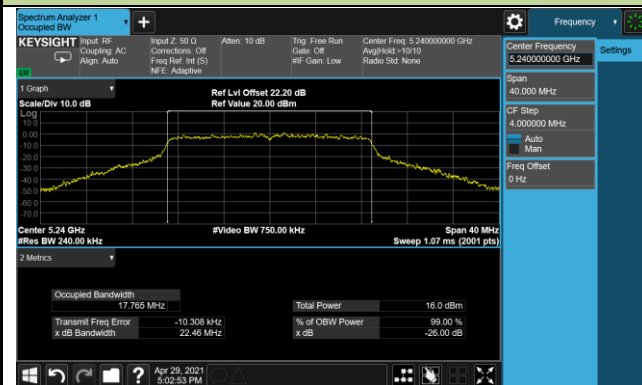
## Channel 36 (5180MHz)



## Channel 44 (5220MHz)



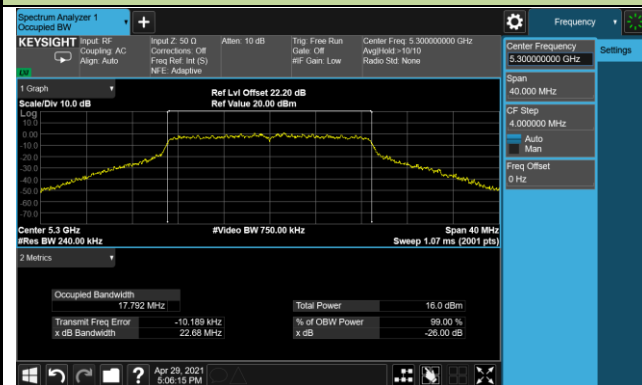
## Channel 48 (5240MHz)



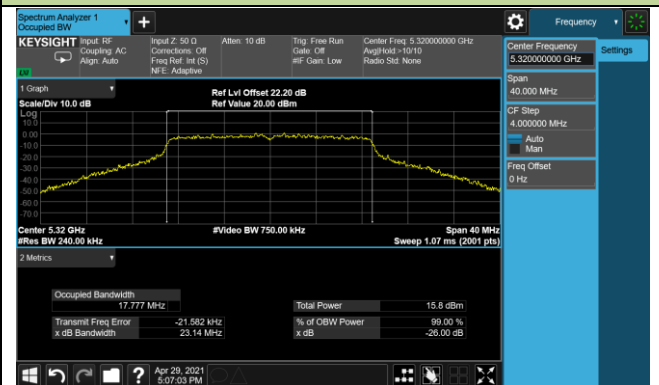
## Channel 52 (5260MHz)



## Channel 60 (5300MHz)



## Channel 64 (5320MHz)



## Channel 100 (5500MHz)



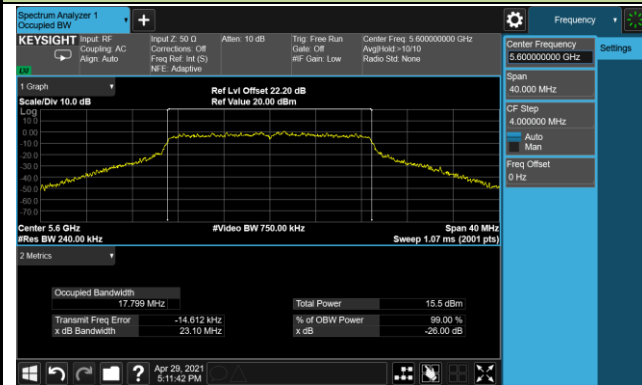
## Channel 116 (5580MHz)





## 802.11n-HT20 26dB Bandwidth

## Channel 120 (5600MHz)



## Channel 140 (5700MHz)



## Channel 144 (5720MHz)



## Channel 149 (5745MHz)



## Channel 157 (5785MHz)

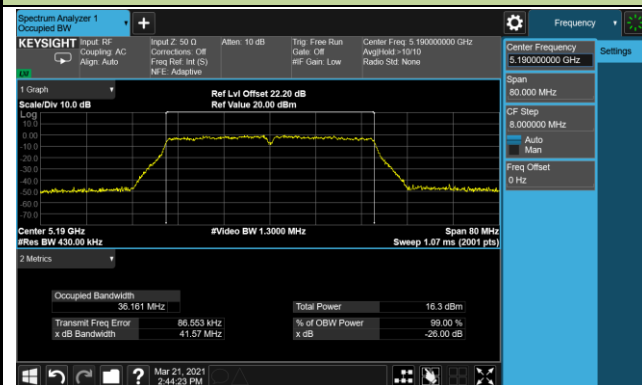


## Channel 165 (5825MHz)

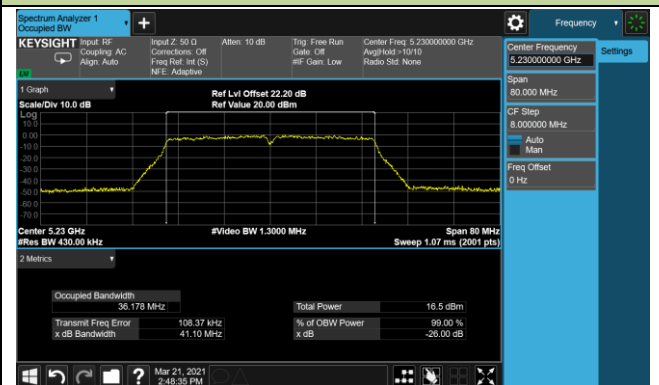


## 802.11n-HT40 26dB Bandwidth

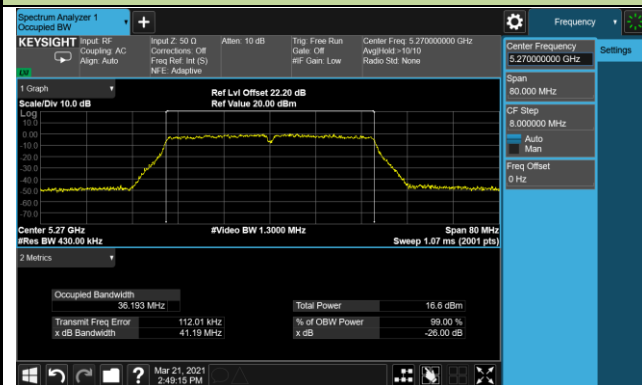
## Channel 38 (5190MHz)



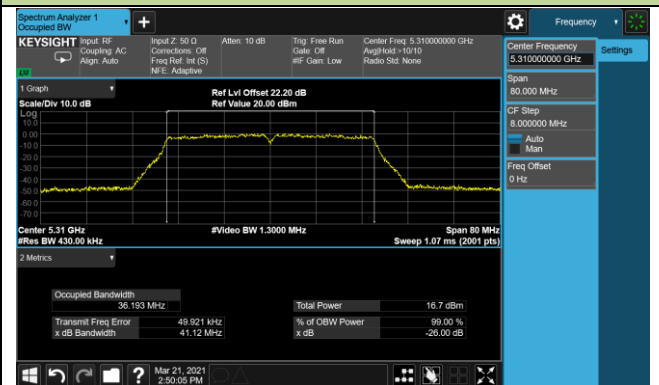
## Channel 46 (5230MHz)



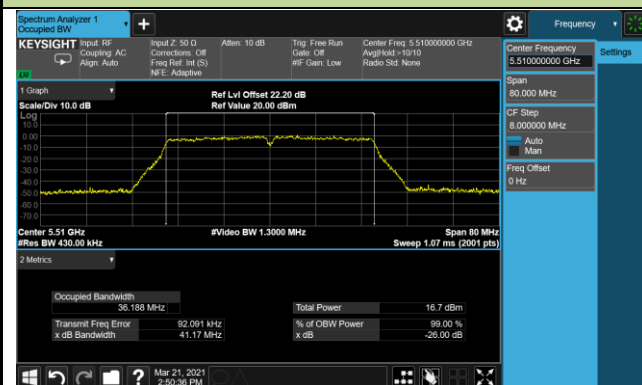
## Channel 54 (5270MHz)



## Channel 62 (5310MHz)



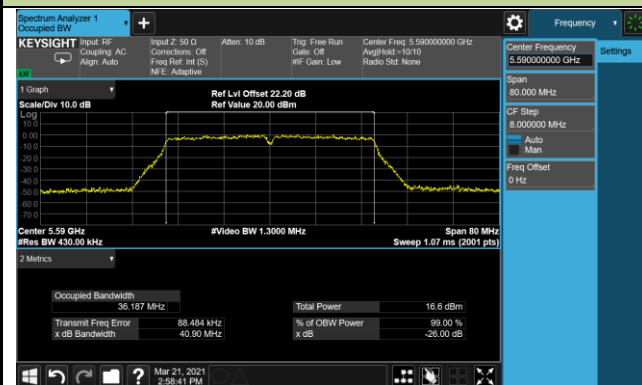
## Channel 102 (5510MHz)



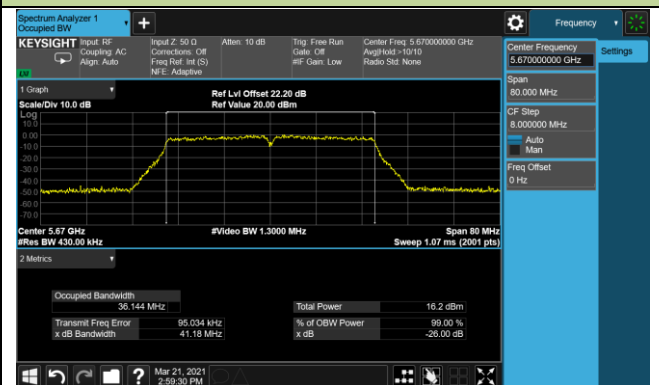
## Channel 110 (5550MHz)



## Channel 118 (5590MHz)

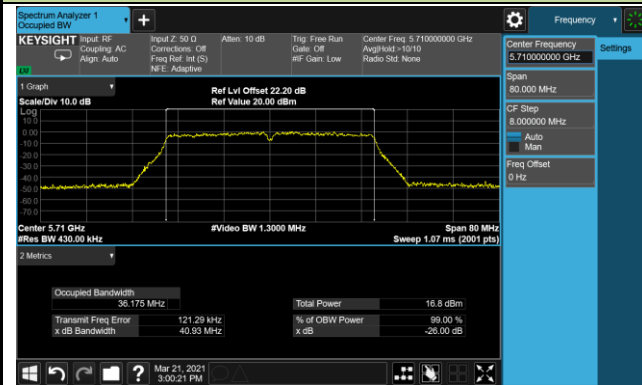


## Channel 134 (5670MHz)

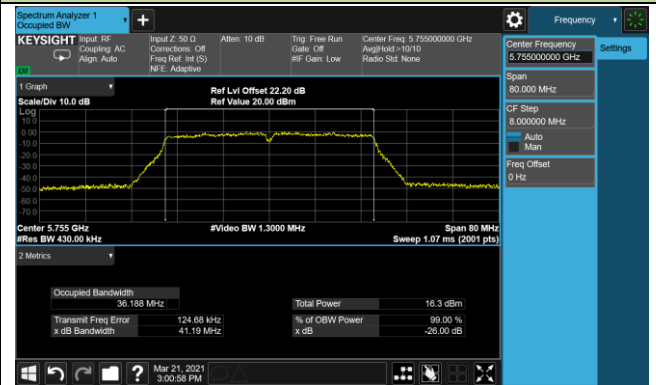


## 802.11n-HT40 26dB Bandwidth

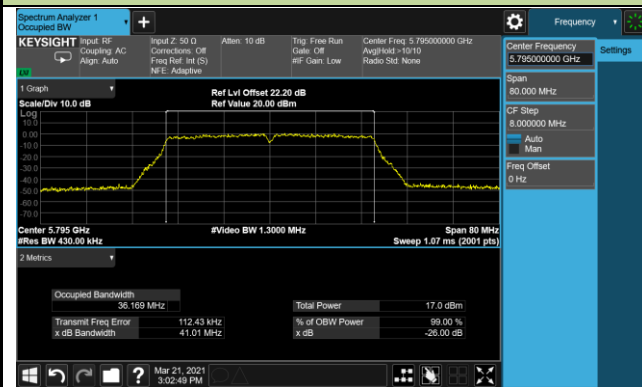
## Channel 142 (5710MHz)



## Channel 151 (5755MHz)

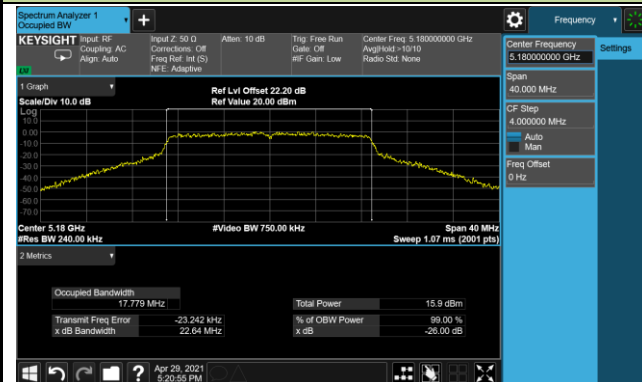


## Channel 159 (5795MHz)



## 802.11ac-VHT20 26dB Bandwidth

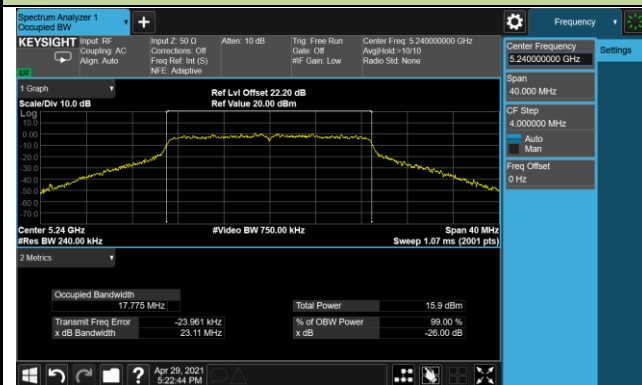
## Channel 36 (5180MHz)



## Channel 44 (5220MHz)



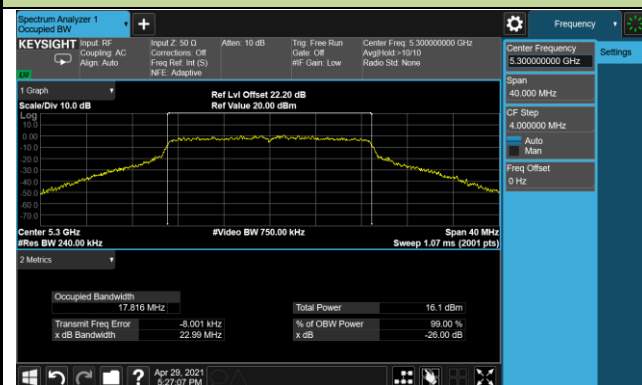
## Channel 48 (5240MHz)



## Channel 52 (5260MHz)



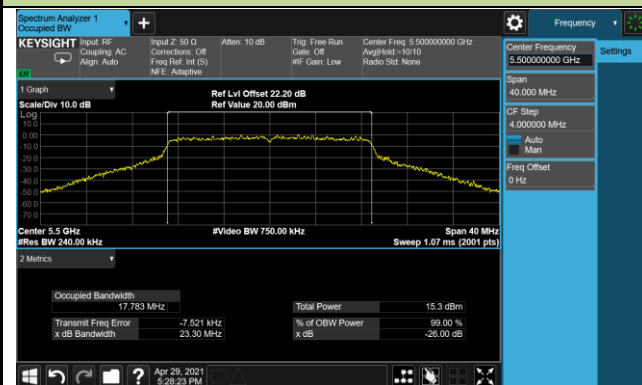
## Channel 60 (5300MHz)



## Channel 64 (5320MHz)



## Channel 100 (5500MHz)



## Channel 116 (5580MHz)



## 802.11ac-VHT20 26dB Bandwidth

## Channel 120 (5600MHz)



## Channel 140 (5700MHz)



## Channel 144 (5720MHz)



## Channel 149 (5745MHz)



## Channel 157 (5785MHz)

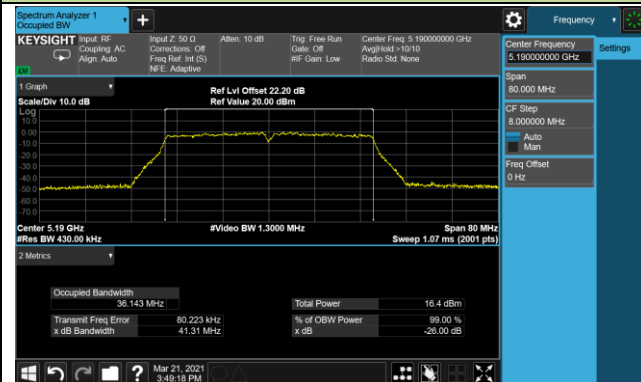


## Channel 165 (5825MHz)

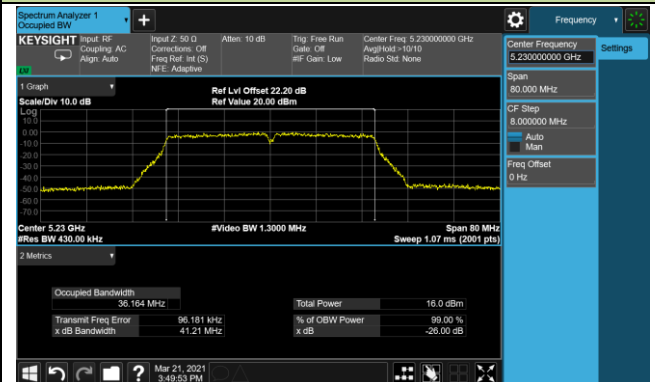


## 802.11ac-VHT40 26dB Bandwidth

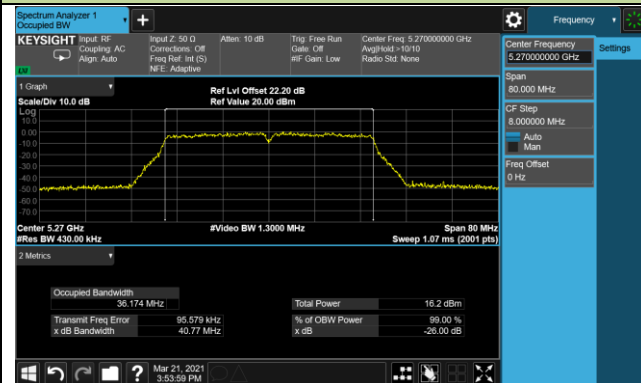
## Channel 38 (5190MHz)



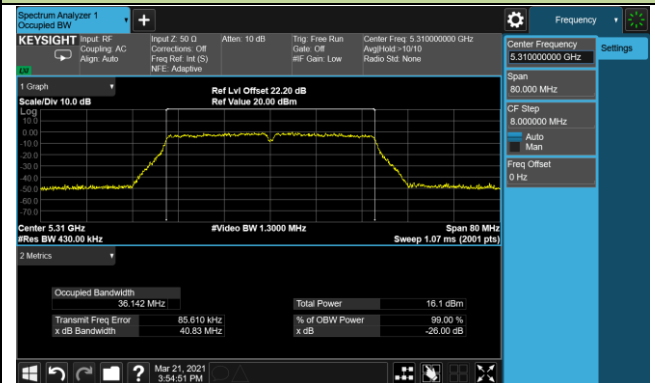
## Channel 46 (5230MHz)



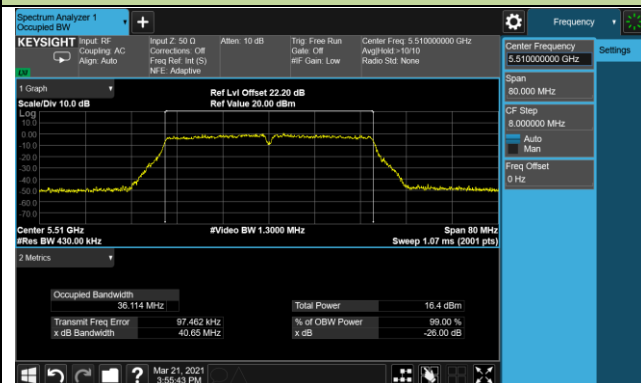
## Channel 54 (5270MHz)



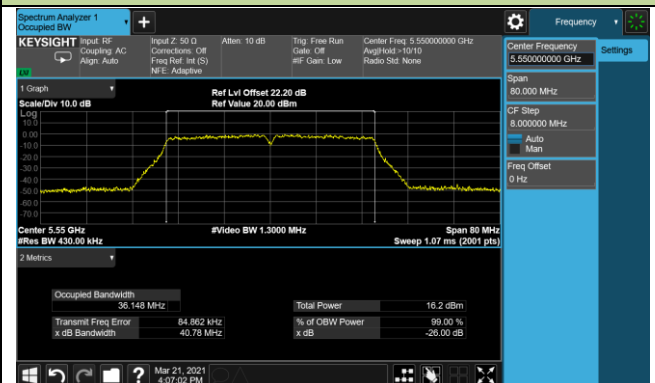
## Channel 62 (5310MHz)



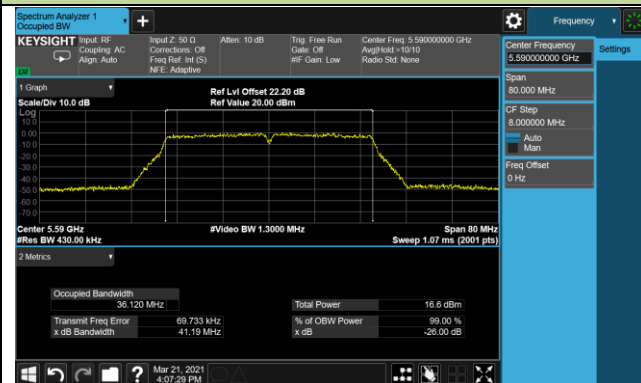
## Channel 102 (5510MHz)



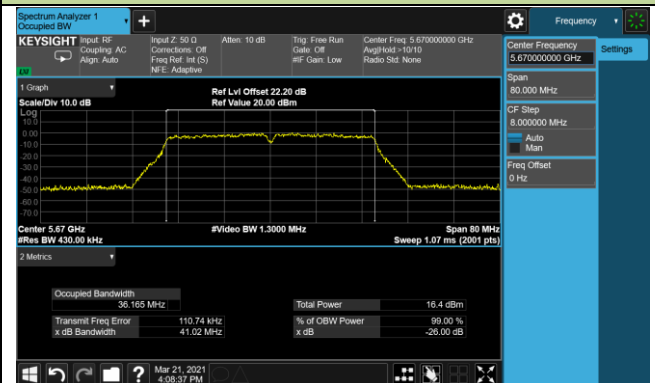
## Channel 110 (5550MHz)



## Channel 118 (5590MHz)



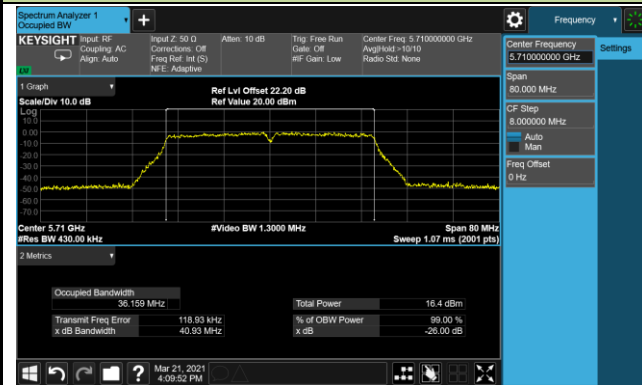
## Channel 134 (5670MHz)



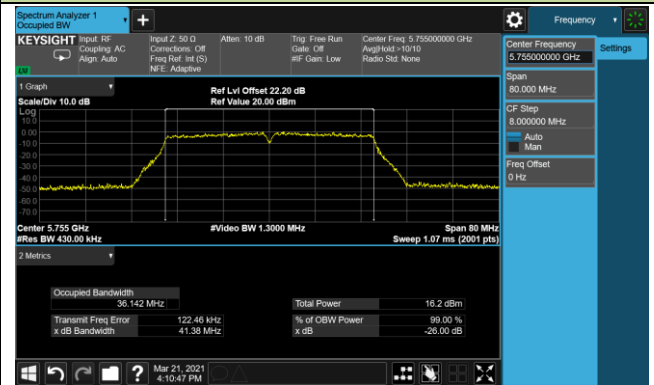


## 802.11ac-VHT40 26dB Bandwidth

## Channel 142 (5710MHz)



## Channel 151 (5755MHz)



## Channel 159 (5795MHz)

