

# ELECTROMAGNETIC EMISSIONS COMPLIANCE REPORT



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**FCC Manufacturer:** Murata Manufacturing Co., Ltd.  
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**ISED Applicant:** Murata Manufacturing Co., Ltd.  
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**ISED Manufacturer:** Murata Manufacturing Co., Ltd.  
1-10-1, Higashikotari, Nagaokakyo-shi, Kyoto 617-8555 Japan

**Product Name:** Communication Module

**Brand Name:** muRata

**Model No.:** LBEE5ZZ1XL, LBEE5ZZ2XS

**Model Difference:** Refer to section 1.10

**Report Number:** E2/2022/10039

**FCC ID** VPYLBEE5ZZ1XL

**IC:** 772C-LBEE5ZZ1XL

**Date of EUT Received:** January 11, 2022

**Date of Test:** January 19, 2022~June 14, 2022

**Issue Date:** June 30, 2022

Approved By

Jay Lin

## We hereby certify that:

The above equipment was tested by SGS Taiwan Ltd. Central RF Lab. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10:2013 and the energy emitted by the sample EUT comply with FCC rule part §15.407, ISED RSS-247.

The results of this report relate only to the sample identified in this report.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only.

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## Revision History

| Report Number | Revision | Description        | Issue Date    | Revised By | Remark |
|---------------|----------|--------------------|---------------|------------|--------|
| E2/2022/10039 | 00       | Original.          | June 22, 2022 | Yami Kuo   | *      |
| E2/2022/10039 | 01       | Revised chapter 9. | June 30, 2022 | Yami Kuo   | *      |
|               |          |                    |               |            |        |
|               |          |                    |               |            |        |
|               |          |                    |               |            |        |
|               |          |                    |               |            |        |
|               |          |                    |               |            |        |

**Note:**

- 1、The remark "\*" indicates modification of the report upon requests from certification body.
- 2、Variant information of model numbers is provided by the applicant, please refer to section 1.10 of this report for details.  
Test results of this report are applicable to the sample EUT(s) received and variant models are assessed as electrically identical, no further tests are required for the variant.

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## 1 GENERAL INFORMATION

### 1.1 Product Description

|                                 |                                          |
|---------------------------------|------------------------------------------|
| Product Name:                   | Communication Module                     |
| Brand Name:                     | muRata                                   |
| Model No.:                      | LBEE5ZZ1XL, LBEE5ZZ2XS                   |
| Model Difference:               | Refer to section 1.10                    |
| Hardware Version:               | 1                                        |
| Firmware Version:               | 17.80.200.204                            |
| EUT Series No.:                 | 1XL: Sample. No2                         |
| Power Supply:                   | 3.3Vdc, 1.8Vdc                           |
| Test Software<br>(Name/Version) | Tera Term V4.105 / Dut labtool v2.0.0.85 |

### 1.2 Modulation & Data Rate

|                  |                                                                         |
|------------------|-------------------------------------------------------------------------|
| Modulation type: | 64QAM, 16QAM, QPSK and BPSK for OFDM in 802.11a and 802.11n             |
|                  | 256QAM, 64QAM, 16QAM, QPSK and BPSK for OFDM in 802.11ac                |
|                  | 1024QAM, 256QAM, 64QAM, 16QAM, QPSK and BPSK for OFDMA in 802.11ax only |
| Transition Rate: | 802.11 a: 6 - 54 Mbps                                                   |
|                  | 802.11 n_20MHz: 6.5 - 144.4 Mbps                                        |
|                  | 802.11 n_40MHz: 13.5 - 300 Mbps                                         |
|                  | 802.11 ac_20MHz: 6.5 - 173.3Mbps                                        |
|                  | 802.11 ac_40MHz: 13.5 - 400 Mbps                                        |
|                  | 802.11 ac_80MHz: 29.3 - 866.7Mbps                                       |
|                  | 802.11 ax_20MHz: 0.4 - 286.8Mbps                                        |
|                  | 802.11 ax_40MHz: 0.4 - 573.5Mbps                                        |
|                  | 802.11 ax_80MHz: 0.4 - 1201Mbps                                         |

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### 1.3 Antenna Designation

| Antenna Type | Freq. (MHz) | Peak Antenna Gain (dBi) | Directional Gain (dBi) |
|--------------|-------------|-------------------------|------------------------|
| Dipole       | 5150~5250   | 4.25                    | 7.26                   |
|              | 5250~5350   | 4.25                    | 7.26                   |
|              | 5475~5725   | 4.25                    | 7.26                   |
|              | 5725~5850   | 4.25                    | 7.26                   |

**Note:**

1. Pre-scanned was done on the above antennas, measurements were demonstrated by using the antenna with the highest gain as the worst case scenarios.
2. Antenna information is provided by the applicant.

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## 1.4 FCC

| Wi-Fi                                  | Frequency Range | Channels | Rated Power(Avg)<br>(dBm) (Worst Case) | Modulation<br>Technology |
|----------------------------------------|-----------------|----------|----------------------------------------|--------------------------|
| a/<br>n_HT/<br>ac_VHT/<br>ax_HE<br>20M | 5180~5240       | 4        | 20.93 dBm                              | OFDM                     |
|                                        | 5260~5320       | 4        | 21.42 dBm                              | OFDM                     |
|                                        | 5500~5720       | 12       | 19.87 dBm                              | OFDMA                    |
|                                        | 5745-5825       | 5        | 21.84 dBm                              | OFDM                     |
| n_HT<br>ac_VHT/<br>ax_HE<br>40M        | 5190~5230       | 2        | 20.88 dBm                              | OFDMA                    |
|                                        | 5270~5310       | 2        | 20.88 dBm                              | OFDM                     |
|                                        | 5510~5710       | 6        | 20.88 dBm                              | OFDM                     |
|                                        | 5755-5795       | 2        | 20.92 dBm                              | OFDMA                    |
| ac_VHT/<br>ax_HE<br>80M                | 5210            | 1        | 13.84 dBm                              | OFDMA                    |
|                                        | 5290            | 1        | 13.91 dBm                              | OFDMA                    |
|                                        | 5530~5690       | 3        | 19.91 dBm                              | OFDM                     |
|                                        | 5775            | 1        | 19.87 dBm                              | OFDMA                    |

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## 1.5 ISED

| Wi-Fi                                  | Frequency Range | Channels | EIRP/Avg | Rated Power(EIRP/Avg)<br>(dBm) (Worst Case) |     | Modulation<br>Technology |
|----------------------------------------|-----------------|----------|----------|---------------------------------------------|-----|--------------------------|
| a/<br>n_HT/<br>ac_VHT/<br>ax_HE<br>20M | 5180~5240       | 4        | EIRP     | 22.04                                       | dBm | OFDM                     |
|                                        | 5260~5320       | 4        | Avg      | 21.42                                       | dBm | OFDM                     |
|                                        | 5500~5700       | 8        | Avg      | 19.87                                       | dBm | OFDMA                    |
|                                        | 5720 (U-NII 2C) | 1        | Avg      | 19.48                                       | dBm | OFDM                     |
|                                        | 5720 (U-NII 3)  | 1        | Avg      | 15.16                                       | dBm | OFDMA                    |
|                                        | 5745-5825       | 5        | Avg      | 21.84                                       | dBm | OFDM                     |
| n_HT<br>ac_VHT/<br>ax_HE<br>40M        | 5190~5230       | 2        | EIRP     | 22.97                                       | dBm | OFDMA                    |
|                                        | 5270~5310       | 2        | Avg      | 20.94                                       | dBm | OFDMA                    |
|                                        | 5510~5670       | 3        | Avg      | 20.88                                       | dBm | OFDM                     |
|                                        | 5710 (U-NII 2C) | 1        | Avg      | 20.17                                       | dBm | OFDMA                    |
|                                        | 5710 (U-NII 3)  | 1        | Avg      | 13.50                                       | dBm | OFDM                     |
|                                        | 5755-5795       | 2        | Avg      | 20.93                                       | dBm | OFDMA                    |
| ac_VHT/<br>ax_HE<br>80M                | 5210            | 1        | EIRP     | 21.10                                       | dBm | OFDMA                    |
|                                        | 5290            | 1        | Avg      | 13.91                                       | dBm | OFDMA                    |
|                                        | 5530            | 1        | Avg      | 19.91                                       | dBm | OFDM                     |
|                                        | 5690 (U-NII 2C) | 1        | Avg      | 19.47                                       | dBm | OFDMA                    |
|                                        | 5690 (U-NII 3)  | 1        | Avg      | 10.68                                       | dBm | OFDM                     |
|                                        | 5775            | 1        | Avg      | 19.87                                       | dBm | OFDMA                    |

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## 1.6 Test Methodology of Applied Standards

FCC Part 15, Subpart E §15.407

FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01

FCC KDB 662911 D01 Multiple Transmitter Output v02r01

FCC KDB 291074 D02 EMC Measurement v01

RSS-247 issue 2 Feb. 2017

RSS-Gen, Issue 5 (Amendment 2, February 2021)

ANSI C63.10:2013

## 1.7 Test Facility

| Laboratory                                            | Test Site Address                                                                         | Test Site Name | FCC Designation number | IC CAB identifier |
|-------------------------------------------------------|-------------------------------------------------------------------------------------------|----------------|------------------------|-------------------|
| SGS Taiwan Ltd.<br>Central RF Lab.<br>(TAF code 3702) | No.134, Wu Kung Road, New Taipei Industrial Park, Wuku District, New Taipei City, Taiwan. | SAC 1          | TW0027                 | TW3702            |
|                                                       |                                                                                           | SAC 3          |                        |                   |
|                                                       |                                                                                           | Conduction 1   |                        |                   |
|                                                       |                                                                                           | Conducted 1    |                        |                   |
|                                                       |                                                                                           | Conducted 2    |                        |                   |
|                                                       |                                                                                           | Conducted 3    |                        |                   |
|                                                       |                                                                                           | Conducted 4    |                        |                   |
|                                                       |                                                                                           | Conducted 5    |                        |                   |
|                                                       |                                                                                           | Conducted 6    |                        |                   |
|                                                       | No.2, Keji 1st Rd., Guishan District, Taoyuan City, Taiwan 333                            | Conduction C   | TW0028                 |                   |
|                                                       |                                                                                           | SAC C          |                        |                   |
|                                                       |                                                                                           | SAC D          |                        |                   |
|                                                       |                                                                                           | SAC G          |                        |                   |
|                                                       |                                                                                           | Conducted A    |                        |                   |
|                                                       |                                                                                           | Conducted B    |                        |                   |
|                                                       |                                                                                           | Conducted C    |                        |                   |
|                                                       |                                                                                           | Conducted D    |                        |                   |
|                                                       |                                                                                           | Conducted E    |                        |                   |
|                                                       |                                                                                           | Conducted F    |                        |                   |
|                                                       |                                                                                           | Conducted G    |                        |                   |

**Note:** Test site name is remarked on the equipment list in each section of this report as an indication where measurements occurred in specific test site and address.

## 1.8 Special Accessories

There are no special accessories used while test was conducted.

## 1.9 Equipment Modifications

There was no modification incorporated into the EUT.

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### 1.10 Model difference

LBEE5ZZ1XL has a dedicated antenna port for BT.

LBEE5ZZ2XS BT shares same antenna port with WLAN.

Some passive components are different between models as below

| LBEE5ZZ1XL       | LBEE5ZZ2XS      |
|------------------|-----------------|
| C 336 No mounted | C336 mounted    |
| C337 mounted     | C337 No mounted |
| L310 mounted     | L310 Nomounted  |

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## 2 SYSTEM TEST CONFIGURATION

### 2.1 EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner which intends to maximize its emission characteristics in a continuous normal application.

### 2.2 EUT Exercise

An engineering test mode (software/firmware) that applicant provided was utilized to manipulate the EUT into transmit, selection of the test channel, and modulation scheme.

### 2.3 Test Procedure

#### 2.3.1 Conducted Emissions

The EUT is placed on a table which is 0.8 m above ground plane. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz. The CISPR Quasi-Peak and Average detector mode is employed. The two LISNs provide 50uH/50 ohm of coupling impedance for the measuring instrument. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

#### 2.3.2 Conducted Test (RF)

The active antenna port of the unlicensed wireless device is connected to the spectrum analyzer with attenuator to protect the instrumentation. If a second antenna port is available, it is tested at one operating frequency, with other port(s) appropriately terminated, to verify it has similar output characteristics as the fully tested port.

#### 2.3.3 Radiated Emissions

The EUT is placed on a turn table. For emissions testing at or below 1 GHz, the table height shall be 0.8 m above the reference ground plane. For emission measurements above 1 GHz, the table height shall be 1.5 m. The turn table shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this transmitter (EUT) was rotated through three orthogonal axes and measurement procedures for electric field radiated emissions above 1 GHz the EUT measurement is to be made "while keeping the antenna in the 'cone of radiation' from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response." is still within the 3dB illumination BW of the measurement antenna.

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## 2.4 Measurement Results Explanation Example

### 2.4.1 Radiated Emission Test Sites For Measurements From 9 kHz To 30 MHz

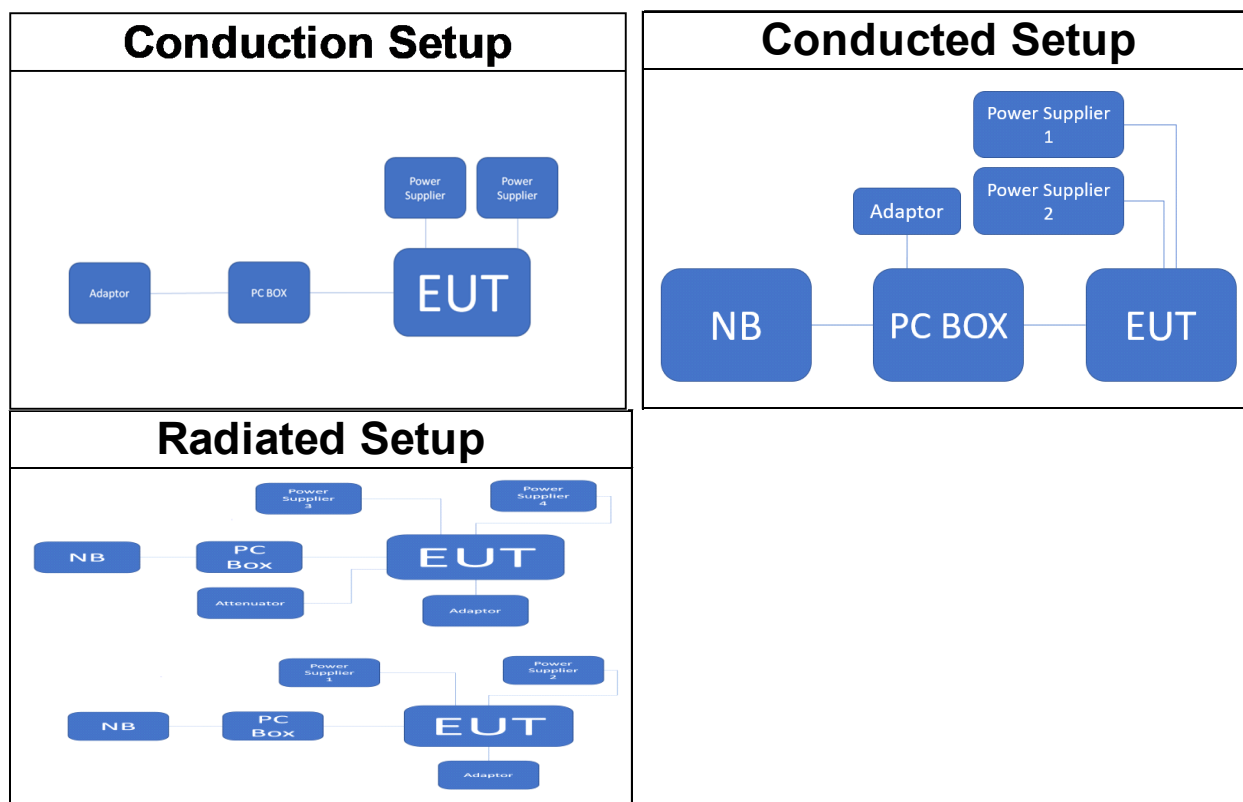
Radiated emission below 30MHz is measured in a 9m\*6m\*6m semi-anechoic chamber, the measurements correspond to those obtained at an open-field test site.

There is a comparison data of both open-field test site and semi-Anechoic chamber, and the result came out very similar.

### 2.4.2 For all conducted test items:

The offset level is set in the spectrum analyzer to compensate the RF cable loss and attenuation factor between EUT conducted port and spectrum analyzer. With the offset compensation, the spectrum analyzer reading level is exactly EUT RF output level.

## 2.5 Test Configuration



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## 2.6 Control Unit(s)

| Conducted Emission Test Site: Conducted D |        |              |               |           |          |
|-------------------------------------------|--------|--------------|---------------|-----------|----------|
| EQUIPMENT TYPE                            | MFR    | MODEL NUMBER | SERIAL NUMBER | LAST CAL. | CAL DUE. |
| Notebook                                  | Lenovo | T420         | S0012599      | N/A       | N/A      |
| Notebook                                  | Lenovo | L420         | S0011721      | N/A       | N/A      |

| Radiated Emission Test Site: SAC D |        |              |               |           |          |
|------------------------------------|--------|--------------|---------------|-----------|----------|
| EQUIPMENT TYPE                     | MFR    | MODEL NUMBER | SERIAL NUMBER | LAST CAL. | CAL DUE. |
| LAN Cable                          | 向聯     | VPH-02       | 1500021123    | N.C.R     | N.C.R    |
| LAN Cable                          | INVAX  | IVX011       | N/A           | N.C.R     | N.C.R    |
| Notebook                           | Lenovo | T470         | P0001293      | N/A       | N/A      |
| Notebook                           | Lenovo | T420         | S0012599      | N/A       | N/A      |
| Adapter                            | APD    | NB-65B19     | N/A           | N/A       | N/A      |
| Adapter                            | FSP    | FSP065-REBN2 | H6081012364   | N.C.R     | N.C.R    |

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### 3 SUMMARY OF TEST RESULT

| FCC Rules                        | ISED Rules                       | Description Of Test                            | Result    |
|----------------------------------|----------------------------------|------------------------------------------------|-----------|
| §15.207                          | RSS-Gen §8.8                     | AC Power Line Conducted Emission               | Compliant |
| §15.407(e)                       | RSS-Gen §6.7<br>RSS-247 §6.2.4.1 | Emission Bandwidth                             | Compliant |
| §15.407(a)                       | RSS-247 §6.2.1~ 4 (1)            | Maximum Conducted Output Power                 | Compliant |
| §15.407(a)                       | RSS-247 §6.2.1~ 4 (1)            | Power Spectral Density                         | Compliant |
| §15.205<br>§15.209<br>§15.407(b) | RSS-247 §6.2.1~ 4 (2)            | Undesirable Radiated Emissions                 | Compliant |
| §15.407(c)                       | RSS-247 §6.4                     | Transmission in case of Absence of Information | Compliant |
| §15.203                          | N/A                              | Antenna Requirement                            | Compliant |

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## 4 DESCRIPTION OF TEST MODES

### 4.1 Operating Frequencies

Operated band in 5150 MHz ~5250 MHz:

| 20 M |            | 40 M |            | 80 M |            |
|------|------------|------|------------|------|------------|
| CH   | Freq (MHz) | CH   | Freq (MHz) | CH   | Freq (MHz) |
| 36   | 5180       | 38   | 5190       | 42   | 5210       |
| 40   | 5200       | 46   | 5230       |      |            |
| 44   | 5220       |      |            |      |            |
| 48   | 5240       |      |            |      |            |

Operated band in 5250 MHz ~5350 MHz:

| 20 M |            | 40 M |            | 80 M |            |
|------|------------|------|------------|------|------------|
| CH   | Freq (MHz) | CH   | Freq (MHz) | CH   | Freq (MHz) |
| 52   | 5260       | 54   | 5270       | 58   | 5290       |
| 56   | 5280       | 62   | 5310       |      |            |
| 60   | 5300       |      |            |      |            |
| 64   | 5320       |      |            |      |            |

Operated band in 5470 MHz ~5725 MHz:

| 20 M |            | 40 M |            | 80 M |            |
|------|------------|------|------------|------|------------|
| CH   | Freq (MHz) | CH   | Freq (MHz) | CH   | Freq (MHz) |
| 100  | 5500       | 102  | 5510       | 106  | 5530       |
| 104  | 5520       | 110  | 5550       | 122  | 5610       |
| 108  | 5540       | 118  | 5590       | 138  | 5690       |
| 112  | 5560       | 126  | 5630       |      |            |
| 116  | 5580       | 134  | 5670       |      |            |
| 120  | 5600       | 142  | 5710       |      |            |
| 124  | 5620       |      |            |      |            |
| 128  | 5640       |      |            |      |            |
| 132  | 5660       |      |            |      |            |
| 136  | 5680       |      |            |      |            |
| 140  | 5700       |      |            |      |            |
| 144  | 5720       |      |            |      |            |

Operated band in 5725 MHz ~5850 MHz:

| 20 M |            | 40 M |            | 80 M |            |
|------|------------|------|------------|------|------------|
| CH   | Freq (MHz) | CH   | Freq (MHz) | CH   | Freq (MHz) |
| 149  | 5745       | 151  | 5755       | 155  | 5775       |
| 153  | 5765       | 159  | 5795       |      |            |
| 157  | 5785       |      |            |      |            |
| 161  | 5805       |      |            |      |            |
| 165  | 5825       |      |            |      |            |

### 4.2 The Worst Test Modes and Channel Details

1. The EUT has been tested under operating condition.
2. Test program used to control the EUT for staying in continuous transmitting mode is programmed.
3. Investigation has been done on all the possible configurations for searching the worst case. The given UE is pre-scanned among below modes.

| Modulation |           | Transmission Chain |     |   |     |  |     |  |     | Single Transmission Spatial |      | Multiple Transmission Spatial |      |
|------------|-----------|--------------------|-----|---|-----|--|-----|--|-----|-----------------------------|------|-------------------------------|------|
| v          | 802.11 a  | v                  | Ch0 | v | Ch1 |  | Ch2 |  | Ch3 |                             | 1TX  | v                             | 2TX  |
| v          | 802.11 n  | v                  | Ch0 | v | Ch1 |  | Ch2 |  | Ch3 |                             | SISO | v                             | MIMO |
| v          | 802.11 ac | v                  | Ch0 | v | Ch1 |  | Ch2 |  | Ch3 |                             | SISO | v                             | MIMO |
| v          | 802.11 ax | v                  | Ch0 | v | Ch1 |  | Ch2 |  | Ch3 |                             | SISO | v                             | MIMO |

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4. Observations have been done for 802.11 ax available RU configurations below and found that the lowest, heighest and Full RU results higher emissions.  
Only one RU can be enabled at any given time.

| 802.11ax                      |      | 20MHz            |             |                    |                               | 802.11ax |              | 40MHz       |                    |            |  |
|-------------------------------|------|------------------|-------------|--------------------|-------------------------------|----------|--------------|-------------|--------------------|------------|--|
| RU type                       |      | 26-tone RU       |             | 52-tone RU         |                               | RU type  |              | 26-tone RU  |                    | 52-tone RU |  |
| RU index and subcarrier range | RU0  | [-121: -96]      | RU37        | [-121: -70]        | RU index and subcarrier range | RU0      | [-243: -218] | RU37        | [-243: -192]       |            |  |
|                               | RU1  | [-95: -70]       | RU38        | [-68: -17]         |                               | RU1      | [-217: -192] | RU38        | [-189: -138]       |            |  |
|                               | RU2  | [-68: -43]       | RU39        | [17: 68]           |                               | RU2      | [-189: -164] | RU39        | [-109: -58]        |            |  |
|                               | RU3  | [-42: -17]       | RU40        | [70: 121]          |                               | RU3      | [-163: -138] | RU40        | [-55: -4]          |            |  |
|                               | RU4  | [-16: -4, 4: 16] | RU41        | N/A                |                               | RU4      | [-136: -111] | RU41        | [4: 55]            |            |  |
|                               | RU5  | [17: 42]         | RU42        | N/A                |                               | RU5      | [-109: -84]  | RU42        | [58: 109]          |            |  |
|                               | RU6  | [43: 68]         | RU43        | N/A                |                               | RU6      | [-83: -58]   | RU43        | [138: 189]         |            |  |
|                               | RU7  | [70: 95]         | RU44        | N/A                |                               | RU7      | [-55: -30]   | RU44        | [192: 243]         |            |  |
|                               | RU8  | [96: 121]        | RU45        | N/A                |                               | RU8      | [-29: -4]    | RU45        | N/A                |            |  |
|                               | RU9  | N/A              | RU46        | N/A                |                               | RU9      | [4: 29]      | RU46        | N/A                |            |  |
|                               | RU10 | N/A              | RU47        | N/A                |                               | RU10     | [30: 55]     | RU47        | N/A                |            |  |
|                               | RU11 | N/A              | RU48        | N/A                |                               | RU11     | [58: 83]     | RU48        | N/A                |            |  |
|                               | RU12 | N/A              | RU49        | N/A                |                               | RU12     | [84: 109]    | RU49        | N/A                |            |  |
|                               | RU13 | N/A              | RU50        | N/A                |                               | RU13     | [111: 136]   | RU50        | N/A                |            |  |
|                               | RU14 | N/A              | RU51        | N/A                |                               | RU14     | [138: 163]   | RU51        | N/A                |            |  |
|                               | RU15 | N/A              | RU52        | N/A                |                               | RU15     | [164: 189]   | RU52        | N/A                |            |  |
|                               | RU16 | N/A              |             |                    |                               | RU16     | [192: 217]   |             |                    |            |  |
|                               | RU17 | N/A              | 106-tone RU |                    |                               | RU17     | [218: 243]   | 106-tone RU |                    |            |  |
|                               | RU18 | N/A              | RU53        | [-122: -17]        |                               | RU18     | N/A          | RU53        | [-243: -138]       |            |  |
|                               | RU19 | N/A              | RU54        | [17: 122]          |                               | RU19     | N/A          | RU54        | [-109: -4]         |            |  |
|                               | RU20 | N/A              | RU55        | N/A                |                               | RU20     | N/A          | RU55        | [4: 109]           |            |  |
|                               | RU21 | N/A              | RU56        | N/A                |                               | RU21     | N/A          | RU56        | [138: 243]         |            |  |
|                               | RU22 | N/A              | RU57        | N/A                |                               | RU22     | N/A          | RU57        | N/A                |            |  |
|                               | RU23 | N/A              | RU58        | N/A                |                               | RU23     | N/A          | RU58        | N/A                |            |  |
|                               | RU24 | N/A              | RU59        | N/A                |                               | RU24     | N/A          | RU59        | N/A                |            |  |
|                               | RU25 | N/A              | RU60        | N/A                |                               | RU25     | N/A          | RU60        | N/A                |            |  |
|                               | RU26 | N/A              |             |                    |                               | RU26     | N/A          |             |                    |            |  |
|                               | RU27 | N/A              | 242-tone RU |                    |                               | RU27     | N/A          | 242-tone RU |                    |            |  |
|                               | RU28 | N/A              | RU61        | [-122: -2, 2: 122] |                               | RU28     | N/A          | RU61        | [-244: -3]         |            |  |
|                               | RU29 | N/A              | RU62        | N/A                |                               | RU29     | N/A          | RU62        | [3: 244]           |            |  |
|                               | RU30 | N/A              | RU63        | N/A                |                               | RU30     | N/A          | RU63        | N/A                |            |  |
|                               | RU31 | N/A              | RU64        | N/A                |                               | RU31     | N/A          | RU64        | N/A                |            |  |
|                               | RU32 | N/A              |             |                    |                               | RU32     | N/A          |             |                    |            |  |
|                               | RU33 | N/A              |             |                    |                               | RU33     | N/A          | 484-tone RU |                    |            |  |
|                               | RU34 | N/A              |             |                    |                               | RU34     | N/A          | RU65        | [-244: -3, 3: 244] |            |  |
|                               | RU35 | N/A              |             |                    |                               | RU35     | N/A          | RU66        | N/A                |            |  |
| RU36                          | N/A  |                  |             | RU36               | N/A                           |          |              |             |                    |            |  |

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| 802.11ax                      | 80MHz      |                  |             |                    |
|-------------------------------|------------|------------------|-------------|--------------------|
| RU type                       | 26-tone RU |                  | 52-tone RU  |                    |
| RU index and subcarrier range | RU0        | [-499: -474]     | RU37        | [-499: -448]       |
|                               | RU1        | [-473: -448]     | RU38        | [-445: -394]       |
|                               | RU2        | [-445: -420]     | RU39        | [-365: -314]       |
|                               | RU3        | [-419: -394]     | RU40        | [-311: -260]       |
|                               | RU4        | [-392: -367]     | RU41        | [-257: -206]       |
|                               | RU5        | [-365: -340]     | RU42        | [-203: -152]       |
|                               | RU6        | [-339: -314]     | RU43        | [-123: -72]        |
|                               | RU7        | [-311: -286]     | RU44        | [-69: -18]         |
|                               | RU8        | [-285: -260]     | RU45        | [18: 69]           |
|                               | RU9        | [-257: -232]     | RU46        | [72: 123]          |
|                               | RU10       | [-231: -206]     | RU47        | [152: 203]         |
|                               | RU11       | [-203: -178]     | RU48        | [206: 257]         |
|                               | RU12       | [-177: -152]     | RU49        | [260: 311]         |
|                               | RU13       | [-150: -125]     | RU50        | [314: 365]         |
|                               | RU14       | [-123: -98]      | RU51        | [394: 445]         |
|                               | RU15       | [-97: -72]       | RU52        | [448: 499]         |
|                               | RU16       | [-69: -44]       | 106-tone RU |                    |
|                               | RU17       | [-43: -18]       | RU53        | [-499: -394]       |
|                               | RU18       | [-16: -4, 4: 16] | RU54        | [-365: -260]       |
|                               | RU19       | [18: 43]         | RU55        | [-257: -152]       |
|                               | RU20       | [44: 69]         | RU56        | [-123: -18]        |
|                               | RU21       | [72: 97]         | RU57        | [18: 123]          |
|                               | RU22       | [98: 123]        | RU58        | [152: 257]         |
|                               | RU23       | [125: 150]       | RU59        | [260: 365]         |
|                               | RU24       | [152: 177]       | RU60        | [394: 499]         |
|                               | RU25       | [178: 203]       | 242-tone RU |                    |
|                               | RU26       | [206: 231]       | RU61        | [-500: -259]       |
|                               | RU27       | [232: 257]       | RU62        | [-258: -17]        |
|                               | RU28       | [260: 285]       | RU63        | [17: 258]          |
|                               | RU29       | [286: 311]       | RU64        | [259: 500]         |
|                               | RU30       | [314: 339]       | 484-tone RU |                    |
|                               | RU31       | [340: 365]       | RU65        | [-500: -17]        |
|                               | RU32       | [367: 392]       | RU66        | [17: 500]          |
|                               | RU33       | [394: 419]       | 996-tone RU |                    |
|                               | RU34       | [420: 445]       | RU67        | [-500: -3, 3: 500] |
|                               | RU35       | [448: 473]       |             |                    |
|                               | RU36       | [474: 499]       |             |                    |

5. Therefore, below summary is the modes of test configuration that yield the highest reading and generate the highest emission chosen to carry out the relevantly mandatory test items.

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| RADIATED EMISSION TEST (BELOW 1 GHz) |                      |                   |                |            |                  |              |
|--------------------------------------|----------------------|-------------------|----------------|------------|------------------|--------------|
| MODE                                 | FREQUENCY BAND (MHz) | AVAILABLE CHANNEL | TESTED CHANNEL | MODULATION | DATA RATE (Mbps) | ANTENNA PORT |
| 802.11a                              | 5180~5240            | 36 to 48          | 44             | OFDM       | 6                | 2TX          |
|                                      | 5260~5320            | 52 to 64          | 60             |            |                  |              |
|                                      | 5500~5720            | 100 to 144        | 116            |            |                  |              |
|                                      | 5745~5825            | 149 to 165        | 161            |            |                  |              |
| 802.11ax_HE80                        | 5210                 | 42                | 42             | OFDMA      | MCS0             | MIMO         |
|                                      | 5290                 | 58                | 58             |            |                  |              |
|                                      | 5530~5610            | 106 to 138        | 122            |            |                  |              |
|                                      | 5775                 | 155               | 155            |            |                  |              |

| RADIATED EMISSION TEST (ABOVE 1 GHz) |                      |                   |                 |            |                  |              |
|--------------------------------------|----------------------|-------------------|-----------------|------------|------------------|--------------|
| MODE                                 | FREQUENCY BAND (MHz) | AVAILABLE CHANNEL | TESTED CHANNEL  | MODULATION | DATA RATE (Mbps) | ANTENNA PORT |
| 802.11a                              | 5180~5240            | 36 to 48          | 36,44,48        | OFDM       | 6                | 2TX          |
|                                      | 5260~5320            | 52 to 64          | 52,60,64        |            |                  |              |
|                                      | 5500~5720            | 100 to 144        | 100,116,140,144 |            |                  |              |
|                                      | 5745~5825            | 149 to 165        | 149,161,165     |            |                  |              |
| 802.11n_HT20                         | 5180~5240            | 36 to 48          | 36,44,48        | OFDM       | MCS8             | MIMO         |
|                                      | 5260~5320            | 52 to 64          | 52,60,64        |            |                  |              |
|                                      | 5500~5720            | 100 to 144        | 100,116,140,144 |            |                  |              |
|                                      | 5745~5825            | 149 to 165        | 149,161,165     |            |                  |              |
| 802.11n_HT40                         | 5190~5230            | 38 to 46          | 38,46           | OFDM       | MCS8             | MIMO         |
|                                      | 5270~5310            | 54 to 62          | 54,62           |            |                  |              |
|                                      | 5510~5670            | 102 to 142        | 102,110,134,142 |            |                  |              |
|                                      | 5755~5795            | 151 to 159        | 151,159         |            |                  |              |
| 802.11ac_VHT80                       | 5210                 | 42                | 42              | OFDM       | MCS0             | MIMO         |
|                                      | 5290                 | 58                | 58              |            |                  |              |
|                                      | 5530~5610            | 106 to 138        | 106,122,138     |            |                  |              |
|                                      | 5775                 | 155               | 155             |            |                  |              |

| RADIATED EMISSION TEST (ABOVE 1 GHz) |                      |                   |                 |            |                                                      |                  |              |
|--------------------------------------|----------------------|-------------------|-----------------|------------|------------------------------------------------------|------------------|--------------|
| MODE                                 | FREQUENCY BAND (MHz) | AVAILABLE CHANNEL | TESTED CHANNEL  | MODULATION | RU CONFIGURATIO                                      | DATA RATE (Mbps) | ANTENNA PORT |
| 802.11ax_HE20                        | 5180~5240            | 36 to 48          | 36,44,48        | OFDMA      | FULL RU<br>26/0,26/8<br>52/37,52/40<br>106/53,106/54 | MCS0             | MIMO         |
|                                      | 5260~5320            | 52 to 64          | 52,60,64        |            |                                                      |                  |              |
|                                      | 5500~5720            | 100 to 144        | 100,116,140,144 |            |                                                      |                  |              |
|                                      | 5745~5825            | 149 to 165        | 149,161,165     |            |                                                      |                  |              |
| 802.11ax_HE40                        | 5190~5230            | 38 to 46          | 38,46           | OFDMA      | FULL RU<br>242/61,242/62                             | MCS0             | MIMO         |
|                                      | 5270~5310            | 54 to 62          | 54,62           |            |                                                      |                  |              |
|                                      | 5510~5670            | 102 to 142        | 102,110,134,142 |            |                                                      |                  |              |
|                                      | 5755~5795            | 151 to 159        | 151,159         |            |                                                      |                  |              |
| 802.11ax_HE80                        | 5210                 | 42                | 42              | OFDMA      | FULL RU<br>484/65,484/66                             | MCS0             | MIMO         |
|                                      | 5290                 | 58                | 58              |            |                                                      |                  |              |
|                                      | 5530~5610            | 106 to 138        | 106,122,138     |            |                                                      |                  |              |
|                                      | 5775                 | 155               | 155             |            |                                                      |                  |              |

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| CONDUCTED TEST |                      |                   |                 |            |                  |              |
|----------------|----------------------|-------------------|-----------------|------------|------------------|--------------|
| MODE           | FREQUENCY BAND (MHz) | AVAILABLE CHANNEL | TESTED CHANNEL  | MODULATION | DATA RATE (Mbps) | ANTENNA PORT |
| 802.11a        | 5180~5240            | 36 to 48          | 36,44,48        | OFDM       | 6                | 2TX          |
|                | 5260~5320            | 52 to 64          | 52,60,64        |            |                  |              |
|                | 5500~5720            | 100 to 144        | 100,116,140,144 |            |                  |              |
|                | 5745~5825            | 149 to 165        | 149,161,165     |            |                  |              |
| 802.11n_HT20   | 5180~5240            | 36 to 48          | 36,44,48        | OFDM       | MCS8             | MIMO         |
|                | 5260~5320            | 52 to 64          | 52,60,64        |            |                  |              |
|                | 5500~5720            | 100 to 144        | 100,116,140,144 |            |                  |              |
|                | 5745~5825            | 149 to 165        | 149,161,165     |            |                  |              |
| 802.11n_HT40   | 5190~5230            | 38 to 46          | 38,46           | OFDM       | MCS8             | MIMO         |
|                | 5270~5310            | 54 to 62          | 54,62           |            |                  |              |
|                | 5510~5670            | 102 to 142        | 102,110,134,142 |            |                  |              |
|                | 5755~5795            | 151 to 159        | 151,159         |            |                  |              |
| 802.11ac_VHT80 | 5210                 | 42                | 42              | OFDM       | MCS0             | MIMO         |
|                | 5290                 | 58                | 58              |            |                  |              |
|                | 5530~5610            | 106 to 138        | 106,122,138     |            |                  |              |
|                | 5775                 | 155               | 155             |            |                  |              |

| CONDUCTED TEST |                      |                   |                 |            |                                                      |                  |              |
|----------------|----------------------|-------------------|-----------------|------------|------------------------------------------------------|------------------|--------------|
| MODE           | FREQUENCY BAND (MHz) | AVAILABLE CHANNEL | TESTED CHANNEL  | MODULATION | RU CONFIGURATION                                     | DATA RATE (Mbps) | ANTENNA PORT |
| 802.11ax_HE20  | 5180~5240            | 36 to 48          | 36,44,48        | OFDMA      | FULL RU<br>26/0,26/8<br>52/37,52/40<br>106/53,106/54 | MCS0             | MIMO         |
|                | 5260~5320            | 52 to 64          | 52,60,64        |            |                                                      |                  |              |
|                | 5500~5720            | 100 to 144        | 100,116,140,144 |            |                                                      |                  |              |
|                | 5745~5825            | 149 to 165        | 149,161,165     |            |                                                      |                  |              |
| 802.11ax_HE40  | 5190~5230            | 38 to 46          | 38,46           | OFDMA      | FULL RU<br>242/61,242/62                             | MCS0             | MIMO         |
|                | 5270~5310            | 54 to 62          | 54,62           |            |                                                      |                  |              |
|                | 5510~5670            | 102 to 142        | 102,110,134,142 |            |                                                      |                  |              |
|                | 5755~5795            | 151 to 159        | 151,159         |            |                                                      |                  |              |
| 802.11ax_HE80  | 5210                 | 42                | 42              | OFDMA      | FULL RU<br>484/65,484/66                             | MCS0             | MIMO         |
|                | 5290                 | 58                | 58              |            |                                                      |                  |              |
|                | 5530~5610            | 106 to 138        | 106,122,138     |            |                                                      |                  |              |
|                | 5775                 | 155               | 155             |            |                                                      |                  |              |

### Note:

The field strength of radiated emission was measured as the EUT positioned in different orthogonal planes (E1/E2/H) based on actual usage of the EUT to pre-scan the emissions for determining the worst case scenario.

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## 5 MEASUREMENT UNCERTAINTY

| Test Items                                 | Uncertainty |
|--------------------------------------------|-------------|
| AC Power Line Conducted Emission           | +/- 2.34 dB |
| Output Power measurement                   | +/- 1 dB    |
| Emission Bandwidth                         | +/- 1.53 Hz |
| Undesignable radiated emission measurement | +/- 1.68 dB |
| Peak Power Density                         | +/- 1.62 dB |
| Temperature                                | +/- 0.4 °C  |
| Humidity                                   | +/- 3.5 %   |
| DC / AC Power Source                       | +/- 1 %     |

| Radiated Spurious Emission Measurement Uncertainty |     |         |                 |
|----------------------------------------------------|-----|---------|-----------------|
| Polarization: Vertical                             | +/- | 2.57 dB | 9kHz~30MHz      |
|                                                    | +/- | 4.85 dB | 30MHz - 1000MHz |
|                                                    | +/- | 4.45 dB | 1GHz - 18GHz    |
|                                                    | +/- | 4.24 dB | 18GHz - 40GHz   |
| Polarization: Horizontal                           | +/- | 2.57 dB | 9kHz~30MHz      |
|                                                    | +/- | 4.37 dB | 30MHz - 1000MHz |
|                                                    | +/- | 4.45 dB | 1GHz - 18GHz    |
|                                                    | +/- | 4.24 dB | 18GHz - 40GHz   |

### Note:

1. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.
2. The conformity assessment statement in this report is based solely on the test results, measurement uncertainty is excluded.

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## 6 MEASUREMENT EQUIPMENT USED

### 6.1 Emission from AC power line

| AC Power-Line Conducted Emission Test Site: Conduction C |                                    |                   |                             |            |            |
|----------------------------------------------------------|------------------------------------|-------------------|-----------------------------|------------|------------|
| EQUIPMENT TYPE                                           | MFR                                | MODEL NUMBER      | SERIAL NUMBER               | LAST CAL.  | CAL DUE.   |
| LISN                                                     | SCHWARZBECK<br>Mess-<br>Elektronik | NSLK8127          | 974                         | 04/19/2021 | 04/18/2022 |
| LISN                                                     | SCHWARZBECK<br>Mess-<br>Elektronik | NSLK8127          | 974                         | 04/13/2022 | 04/12/2023 |
| EMI Test Receiver                                        | R&S                                | ESCI              | 101342                      | 04/28/2021 | 04/27/2022 |
| EMI Test Receiver                                        | R&S                                | ESCI              | 101342                      | 04/25/2022 | 04/24/2023 |
| DC Power Supply                                          | Gwinstek                           | SPS-3610          | GEV856769                   | 08/04/2021 | 08/03/2022 |
| DC Power Supply                                          | DHA                                | DPS-3003          | 9411005787                  | 08/20/2021 | 08/19/2022 |
| Coaxial Cable                                            | EC Lab                             | RF-HY-CAB-<br>250 | RF-HY-CAB-<br>250-01        | 03/27/2022 | 03/26/2023 |
| Pulse Limiter                                            | EC Lab                             | VTSD 9561F-<br>N  | 04/29/1901                  | 03/27/2022 | 03/26/2023 |
| Test Software                                            | audix                              | e3                | E3 20923 SGS<br>Ver.9 ( C ) | N.C.R      | N.C.R      |

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## 6.2 Conducted Measurement

| Conducted Emission Test Site: Conducted D |                       |                |               |            |            |
|-------------------------------------------|-----------------------|----------------|---------------|------------|------------|
| EQUIPMENT TYPE                            | MFR                   | MODEL NUMBER   | SERIAL NUMBER | LAST CAL.  | CAL DUE.   |
| Spectrum Analyzer                         | KEYSIGHT              | N9010B         | MY59071574    | 06/25/2021 | 06/24/2022 |
| Power Meter                               | Anritsu               | ML2496A        | 1512003       | 07/27/2021 | 07/26/2022 |
| Power Sensor                              | Anritsu               | MA2411B        | 1339378       | 07/27/2021 | 07/26/2022 |
| Power Sensor                              | Anritsu               | MA2411B        | 1339379       | 07/27/2021 | 07/26/2022 |
| DC Power Supply                           | Agilent               | E3640A         | MY53130054    | 09/30/2021 | 09/29/2022 |
| DC Power Supply                           | Agilent               | E3640A         | MY53140006    | 05/28/2021 | 05/27/2022 |
| DC Power Supply                           | Agilent               | E3640A         | MY53140006    | 05/16/2022 | 05/15/2023 |
| DC Power Supply                           | HOLA                  | DP-3003        | D7070035      | 05/28/2021 | 05/27/2022 |
| DC Power Supply                           | HOLA                  | DP-3003        | D7070035      | 06/09/2022 | 06/08/2023 |
| DC Power Supply                           | Gwinstek              | SPS-3610       | GEV856767     | 09/29/2021 | 09/28/2022 |
| Attenuator                                | Marvelous             | MVE2213-10     | RF13          | 11/18/2021 | 11/17/2022 |
| Attenuator                                | Marvelous             | WATT-218FS-10  | RF15          | 11/18/2021 | 11/17/2022 |
| Attenuator                                | KEYSIGHT              | 8494B          | TH60075424    | 05/07/2021 | 05/06/2022 |
| Attenuator                                | KEYSIGHT              | 8494B          | TH60075424    | 05/06/2022 | 05/05/2023 |
| Coupler                                   | narda                 | MDC2044-20     | RF36          | 11/18/2021 | 11/17/2022 |
| DC Block                                  | PASTERNAK             | PE8210         | RF158         | 11/18/2021 | 11/17/2022 |
| Splitter                                  | Marvelous Microwave   | MVE8576        | RF256         | 11/18/2021 | 11/17/2022 |
| RF Switch                                 | E-INSTRUMENT TECH LTD | ETF-1801       | EC2100175     | 09/10/2021 | 09/09/2022 |
| Coaxial Cables                            | Woken                 | 00100A1F2A196C | RF62          | 11/18/2021 | 11/17/2022 |
| Coaxial Cables                            | Woken                 | 00100A1F2A196C | RF64          | 11/18/2021 | 11/17/2022 |
| Coaxial Cables                            | Woken                 | 00100A1F1A185C | RF71          | 11/18/2021 | 11/17/2022 |

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## 6.3 Radiated Measurement

| Radiated Emission Test Site: SAC D |                 |                   |                          |            |            |
|------------------------------------|-----------------|-------------------|--------------------------|------------|------------|
| EQUIPMENT TYPE                     | MFR             | MODEL NUMBER      | SERIAL NUMBER            | LAST CAL.  | CAL DUE.   |
| Broadband Antenna                  | SCHWAZBECK      | VULB 9168         | 9168-617                 | 11/12/2021 | 11/11/2022 |
| Horn Antenna                       | Schwarzbeck     | BBHA9170          | 185                      | 08/06/2021 | 08/05/2022 |
| Horn Antenna                       | Schwarzbeck     | BBHA9120D         | 1341                     | 06/04/2021 | 06/03/2022 |
| Loop Antenna                       | ETS.LINDGREN    | 6502              | 143303                   | 05/07/2021 | 05/06/2022 |
| Loop Antenna                       | ETS.LINDGREN    | 6502              | 148045                   | 09/29/2021 | 09/28/2022 |
| 3m Site NSA                        | SGS             | 966 chamber D     | N/A                      | 07/12/2021 | 07/11/2022 |
| Test Software                      | audix           | e3                | E3 20923 SGS Ver.9 ( C ) | N.C.R      | N.C.R      |
| Spectrum Analyzer                  | KEYSIGHT        | N9010A            | MY57120200               | 03/24/2021 | 03/23/2022 |
| Spectrum Analyzer                  | KEYSIGHT        | N9010A            | MY57120200               | 03/24/2022 | 03/23/2023 |
| Attenuator                         | KEYSIGHT        | 8494B             | TH60075424               | 05/07/2021 | 05/06/2022 |
| Attenuator                         | KEYSIGHT        | 8494B             | TH60075424               | 05/07/2022 | 05/06/2023 |
| DC Power Supply                    | Gwinstek        | SPS-3610          | GEV856769                | 08/04/2021 | 08/03/2022 |
| DC Power Supply                    | DHA             | DPS-3003          | 9411005787               | 08/20/2021 | 08/19/2022 |
| DC Power Supply                    | Agilent         | E3640A            | MY53140006               | 05/28/2021 | 05/27/2022 |
| DC Power Supply                    | Agilent         | E3640A            | MY53140006               | 05/28/2022 | 05/27/2023 |
| DC Power Supply                    | Agilent         | E3640A            | MY53170008               | 09/18/2021 | 09/17/2022 |
| Pre-Amplifier                      | EMC Instruments | EMC184045B        | 980135                   | 10/27/2021 | 10/26/2022 |
| Pre-Amplifier                      | EMC Instruments | EMC9135           | 980234                   | 11/18/2021 | 11/17/2022 |
| Pre-Amplifier                      | EMC Instruments | EMC12630SE        | 980273                   | 11/18/2021 | 11/17/2022 |
| Coaxial Cable                      | Huber+Suhner    | RG 214/U          | W21.01                   | 11/18/2021 | 11/17/2022 |
| Coaxial Cable                      | Huber Suhner    | EMC106-SM-SM-7200 | 150703                   | 11/18/2021 | 11/17/2022 |
| Coaxial Cable                      | Huber Suhner    | SUCOFLEX 104      | MY17413/4                | 11/18/2021 | 11/17/2022 |
| Attenuator                         | Marvelous       | WATT-218FS-10     | RF17                     | 11/18/2021 | 11/17/2022 |

**NOTE:** N.C.R refers to Not Calibrated Required.

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## 7 CONDUCTED EMISSION TEST

### 7.1 Standard Applicable

Frequency range within 150 kHz to 30 MHz shall not exceed the Limit table as below.

| Frequency range<br>MHz | Limits<br>(dBuV) |          |
|------------------------|------------------|----------|
|                        | Quasi-peak       | Average  |
| 0.15 to 0.50           | 66 to 56         | 56 to 46 |
| 0.50 to 5              | 56               | 46       |
| 5 to 30                | 60               | 50       |

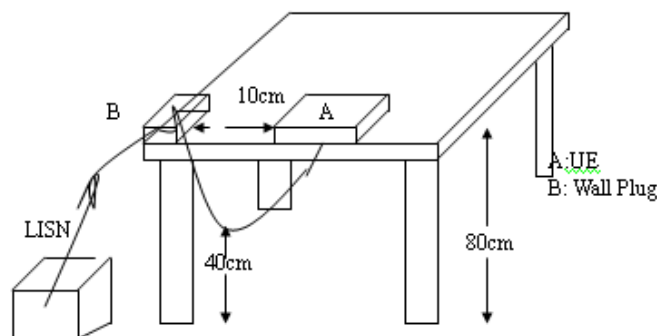
Note

1. The lower limit shall apply at the transition frequencies
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz.

### 7.2 EUT Setup

1. The conducted emission tests were performed in the test site, using the setup in accordance with the ANSI C63.10:2013.
2. The AC/DC Power adaptor of EUT was plug-in LISN. The rear of the EUT and peripherals were placed flushed with the rear of the tabletop.
3. The LISN was connected with 120Vac/60Hz power source.

### 7.3 Test SET-UP



### 7.4 Measurement Procedure

1. The EUT was placed on a table which is 0.8m above ground plane.
2. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
3. Repeat above procedures until all phases of power being supplied by given UE are completed.

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## 7.5 Measurement Result

Note: Refer to next page for measurement data and plots.

Note2: The \* reveals the worst-case results that closet to the limit.

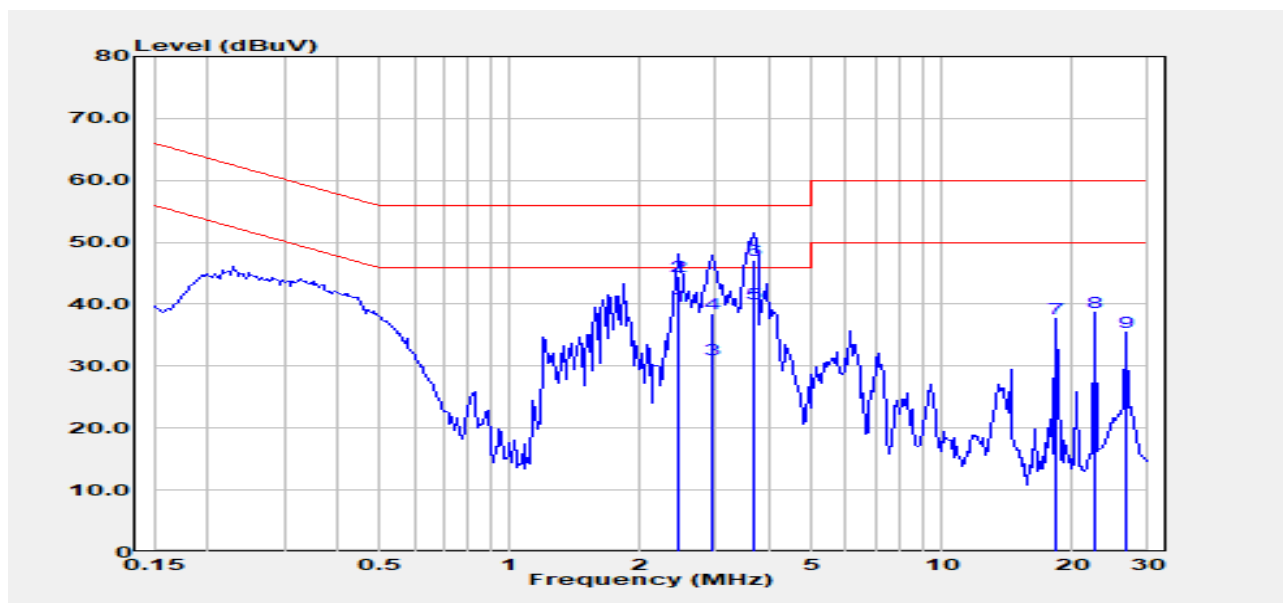
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## AC POWER LINE CONDUCTED EMISSION TEST DATA

Report Number :E2/2022/10039 Test Site :Conduction C  
Test Mode :5G Test Date :2022-06-14  
Power :120V/60Hz Temp./Humi. :20.6/64  
Probe :L1 Engineer :Howard Huang  
Note: :Adapter:FSP0065-REBN2



| Freq.<br>MHz | Detector<br>Mode<br>PK/QP/AV | Spectrum<br>Reading Level<br>dBμV | Factor<br>dB | Actual<br>FS<br>dBμV | Limit<br>dBμV | Margin<br>dB |
|--------------|------------------------------|-----------------------------------|--------------|----------------------|---------------|--------------|
| 2.461        | Average                      | 28.70                             | 11.03        | 39.73                | 46.00         | -6.27        |
| 2.461        | QP                           | 33.40                             | 11.03        | 44.43                | 56.00         | -11.57       |
| 2.946        | Average                      | 20.10                             | 10.90        | 31.00                | 46.00         | -15.00       |
| 2.946        | QP                           | 27.60                             | 10.90        | 38.50                | 56.00         | -17.50       |
| 3.681        | Average                      | 29.40                             | 10.74        | 40.14                | 46.00         | -5.86        |
| 3.681        | QP                           | 36.40                             | 10.74        | 47.14                | 56.00         | -8.86        |
| 18.426       | Peak                         | 26.95                             | 10.85        | 37.79                | 60.00         | -22.21       |
| 22.535       | Peak                         | 27.84                             | 10.94        | 38.78                | 60.00         | -21.22       |
| 26.699       | Peak                         | 24.53                             | 11.04        | 35.57                | 60.00         | -24.43       |

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Report Number :E2/2022/10039

Test Site :Conduction C

Test Mode :5G

Test Date :2022-06-14

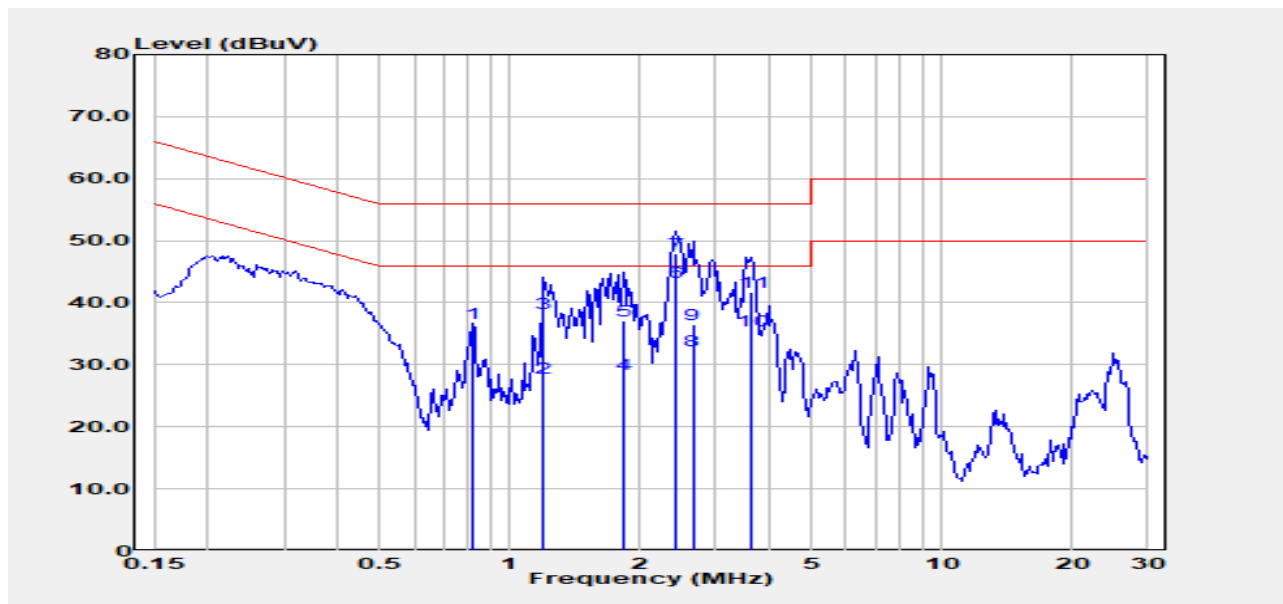
Power :120V/60Hz

Temp./Humi. :20.6/64

Probe :N

Engineer :Howard Huang

Note: :Adapter:FSP0065-REBN2



| Freq.<br>MHz | Detector<br>Mode<br>PK/QP/AV | Spectrum<br>Reading Level<br>dB $\mu$ V | Factor<br>dB | Actual<br>FS<br>dB $\mu$ V | Limit<br>dB $\mu$ V | Margin<br>dB |
|--------------|------------------------------|-----------------------------------------|--------------|----------------------------|---------------------|--------------|
| 0.817        | Peak                         | 26.41                                   | 10.33        | 36.74                      | 56.00               | -19.26       |
| 1.197        | Average                      | 17.40                                   | 10.55        | 27.95                      | 46.00               | -18.05       |
| 1.197        | QP                           | 27.80                                   | 10.55        | 38.35                      | 56.00               | -17.65       |
| 1.829        | Average                      | 17.40                                   | 11.04        | 28.44                      | 46.00               | -17.56       |
| 1.829        | QP                           | 26.10                                   | 11.04        | 37.14                      | 56.00               | -18.86       |
| 2.409        | Average                      | 32.40                                   | 11.01        | 43.41                      | 46.00               | -2.59        |
| 2.409        | QP                           | 36.90                                   | 11.01        | 47.91                      | 56.00               | -8.09        |
| 2.650        | Average                      | 21.30                                   | 10.94        | 32.24                      | 46.00               | -13.76       |
| 2.650        | QP                           | 25.60                                   | 10.94        | 36.54                      | 56.00               | -19.46       |
| 3.642        | Average                      | 24.70                                   | 10.71        | 35.41                      | 46.00               | -10.59       |
| 3.642        | QP                           | 31.00                                   | 10.71        | 41.71                      | 56.00               | -14.29       |

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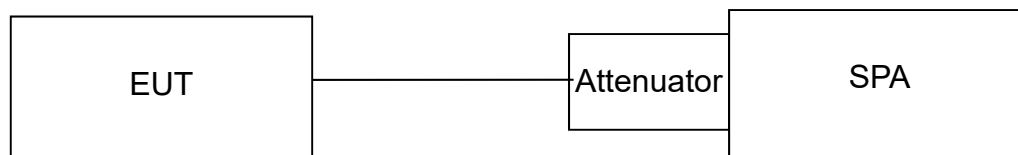
## 8 EMISSION BANDWIDTH MEASUREMENT

### 8.1 Standard Applicable

There is no limit bandwidth for U-NII-1, U-NII-2-A and U-NII-2-C.

The minimum of 6dB Bandwidth measurement is 0.5 MHz for U-NII-3.

### 8.2 Test Setup



### 8.3 Measurement Procedure

1. Place the EUT on the table and set it in transmitting mode.
2. The testing follows FCC KDB 789033 D02 General UNII Test Procedures New Rules.
3. Remove the antenna from the EUT and then connect a low loss RF cable from the Antenna port to the spectrum analyzer.
  - 3.a. 26dB Band width Measurement: Set the spectrum analyzer as 1% of emission BW Sweep=auto, Detector = Peak, Trace Mode = Max Hold, Manually readjust RBW until the RBW/EBW ratio is 1% based on EBW as observed on the result of pre-sequence measurement.
  - 3.b. Mark the peak frequency and -26dB (upper and lower) frequency.
4. Repeat the procedures as list above until all test default channels (low, middle, and high) are completed.
5. Minimum Emission Bandwidth for the band 5.725-5.850GHz.
  - a. Set the spectrum analyzer as RBW = 100 kHz, VBW = 3\*RBW, Span = large enough to capture all products of the modulation process, Detector=Peak, Sweep=auto
  - b. Mark the peak frequency and -6dB (upper and lower) frequency.
6. For 99% Bandwidth: Set the spectrum analyzer as RBW = 1%, VBW = 3\*RBW, Span = large enough to capture all products of the modulation process, Detector=Sample, Sweep=auto.
7. Turn on the 99% bandwidth function, max reading.
8. Repeat above procedures until all frequency of interest measured was complete.

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## 8.4 Measurement Result

### 8.4.1 FCC Occupied Bandwidth

802.11a\_Ch0

| Freq.<br>(MHz) | 26dB<br>BW<br>(MHz) | 10 Log (B)<br>(dB) |
|----------------|---------------------|--------------------|
| 5180           | 19.30               | 12.860             |
| 5200           | 19.79               | 12.960             |
| 5240           | 24.77               | 13.940             |
| 5260           | 20.93               | 13.210             |
| 5300           | 20.82               | 13.180             |
| 5320           | 19.41               | 12.880             |
| 5500           | 19.46               | 12.890             |
| 5580           | 19.48               | 12.900             |
| 5700           | 26.38               | 14.210             |
| 5720(U-NII 2C) | 14.89               | 11.730             |
| 5720(U-NII 3)  | 4.89                | 6.890              |

802.11a\_Ch0

| Freq.<br>(MHz) | 6dB<br>BW<br>(MHz) | 10 Log (B)<br>(dB) |
|----------------|--------------------|--------------------|
| 5745           | 16.38              | 12.140             |
| 5805           | 16.37              | 12.140             |
| 5825           | 16.38              | 12.140             |

802.11a\_Ch0

| Freq.<br>(MHz) | Measured<br>Freq.<br>(MHz) | Limit<br>(MHz) |
|----------------|----------------------------|----------------|
| 5240           | 5248.29                    | < 5250         |
| 5745           | 5736.76                    | > 5725         |

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## 802.11a\_Ch1

| Freq.<br>(MHz) | 26dB<br>BW<br>(MHz) | 10 Log (B)<br>(dB) |
|----------------|---------------------|--------------------|
| 5180           | 19.47               | 12.890             |
| 5200           | 19.40               | 12.880             |
| 5240           | 19.21               | 12.840             |
| 5260           | 19.35               | 12.870             |
| 5300           | 19.53               | 12.910             |
| 5320           | 19.28               | 12.850             |
| 5500           | 19.37               | 12.870             |
| 5580           | 21.14               | 13.250             |
| 5700           | 24.27               | 13.850             |
| 5720(U-NII 2C) | 17.38               | 12.400             |
| 5720(U-NII 3)  | 7.38                | 8.680              |

## 802.11a\_Ch1

| Freq.<br>(MHz) | 6dB<br>BW<br>(MHz) | 10 Log (B)<br>(dB) |
|----------------|--------------------|--------------------|
| 5745           | 16.38              | 12.140             |
| 5805           | 16.37              | 12.140             |
| 5825           | 16.50              | 12.170             |

## 802.11a\_Ch1

| Freq.<br>(MHz) | Measured<br>Freq.<br>(MHz) | Limit<br>(MHz) |
|----------------|----------------------------|----------------|
| 5240           | 5248.28                    | < 5250         |
| 5745           | 5736.76                    | > 5725         |

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## 802.11n\_HT20\_Ch0

| Freq.<br>(MHz) | 26dB<br>BW<br>(MHz) | 10 Log (B)<br>(dB) |
|----------------|---------------------|--------------------|
| 5180           | 19.88               | 12.980             |
| 5200           | 19.95               | 13.000             |
| 5240           | 26.80               | 14.280             |
| <b>5260</b>    | 21.29               | 13.280             |
| 5300           | 20.39               | 13.090             |
| 5320           | 19.93               | 13.000             |
| 5500           | 19.95               | 13.000             |
| <b>5580</b>    | 21.08               | 13.240             |
| 5700           | 25.14               | 14.000             |
| 5720(U-NII 2C) | 14.84               | 11.710             |
| 5720(U-NII 3)  | 4.84                | 6.850              |

## 802.11n\_HT20\_Ch0

| Freq.<br>(MHz) | 6dB<br>BW<br>(MHz) | 10 Log (B)<br>(dB) |
|----------------|--------------------|--------------------|
| 5745           | 16.67              | 12.220             |
| 5805           | 16.92              | 12.280             |
| 5825           | 17.03              | 12.310             |

## 802.11n\_HT20\_Ch0

| Freq.<br>(MHz) | Measured<br>Freq.<br>(MHz) | Limit<br>(MHz) |
|----------------|----------------------------|----------------|
| 5240           | 5248.84                    | < 5250         |
| 5745           | 5736.21                    | > 5725         |

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## 802.11n\_HT20\_Ch1

| Freq.<br>(MHz) | 26dB<br>BW<br>(MHz) | 10 Log (B)<br>(dB) |
|----------------|---------------------|--------------------|
| 5180           | 19.90               | 12.990             |
| 5200           | 19.86               | 12.980             |
| 5240           | 19.63               | 12.930             |
| <b>5260</b>    | 19.51               | 12.900             |
| 5300           | 19.55               | 12.910             |
| 5320           | 19.48               | 12.900             |
| 5500           | 19.87               | 12.980             |
| <b>5580</b>    | 22.47               | 13.520             |
| 5700           | 24.84               | 13.950             |
| 5720(U-NII 2C) | 16.65               | 12.220             |
| 5720(U-NII 3)  | 6.65                | 8.230              |

## 802.11n\_HT20\_Ch1

| Freq.<br>(MHz) | 6dB<br>BW<br>(MHz) | 10 Log (B)<br>(dB) |
|----------------|--------------------|--------------------|
| 5745           | 17.54              | 12.440             |
| 5805           | 17.19              | 12.350             |
| 5825           | 17.59              | 12.450             |

## 802.11n\_HT20\_Ch1

| Freq.<br>(MHz) | Measured<br>Freq.<br>(MHz) | Limit<br>(MHz) |
|----------------|----------------------------|----------------|
| 5240           | 5248.80                    | < 5250         |
| 5745           | 5736.21                    | > 5725         |

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## 802.11n\_HT40\_Ch0

| Freq.<br>(MHz) | 26dB<br>BW<br>(MHz) | 10 Log (B)<br>(dB) |
|----------------|---------------------|--------------------|
| 5190           | 40.70               | 16.100             |
| 5230           | 44.05               | 16.440             |
| 5270           | 40.44               | 16.070             |
| <b>5310</b>    | 40.23               | 16.050             |
| 5510           | 40.68               | 16.090             |
| 5550           | <b>40.24</b>        | 16.050             |
| 5670           | 49.99               | 16.990             |
| 5710(U-NII 2C) | 39.76               | 15.990             |
| 5710(U-NII 3)  | 9.76                | 9.890              |

## 802.11n\_HT40\_Ch0

| Freq.<br>(MHz) | 6dB<br>BW<br>(MHz) | 10 Log (B)<br>(dB) |
|----------------|--------------------|--------------------|
| 5755           | 35.11              | 15.450             |
| 5795           | 35.21              | 15.470             |

## 802.11n\_HT40\_Ch0

| Freq.<br>(MHz) | Measured<br>Freq.<br>(MHz) | Limit<br>(MHz) |
|----------------|----------------------------|----------------|
| 5230           | 5248.03                    | < 5250         |
| 5755           | 5737.01                    | > 5725         |

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## 802.11n\_HT40\_Ch1

| Freq.<br>(MHz) | 26dB<br>BW<br>(MHz) | 10 Log (B)<br>(dB) |
|----------------|---------------------|--------------------|
| 5190           | 39.65               | 15.980             |
| 5230           | 40.65               | 16.090             |
| 5270           | 39.50               | 15.970             |
| <b>5310</b>    | 39.69               | 15.990             |
| 5510           | 40.01               | 16.020             |
| 5550           | <b>39.98</b>        | 16.020             |
| 5670           | 49.23               | 16.920             |
| 5710(U-NII 2C) | 37.33               | 15.720             |
| 5710(U-NII 3)  | 7.33                | 8.650              |

## 802.11n\_HT40\_Ch1

| Freq.<br>(MHz) | 6dB<br>BW<br>(MHz) | 10 Log (B)<br>(dB) |
|----------------|--------------------|--------------------|
| 5755           | 35.13              | 15.460             |
| 5795           | 35.37              | 15.490             |

## 802.11n\_HT40\_Ch1

| Freq.<br>(MHz) | Measured<br>Freq.<br>(MHz) | Limit<br>(MHz) |
|----------------|----------------------------|----------------|
| 5230           | 5248.06                    | < 5250         |
| 5755           | 5737.02                    | > 5725         |

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## 802.11ac\_VHT80\_Ch0

| Freq.<br>(MHz) | 26dB<br>BW<br>(MHz) | 10 Log (B)<br>(dB) |
|----------------|---------------------|--------------------|
| 5210           | 81.72               | 19.120             |
| 5290           | 81.74               | 19.120             |
| <b>5530</b>    | 81.43               | 19.110             |
| 5610           | 81.26               | 19.100             |
| 5690(U-NII 2C) | 84.56               | 19.270             |
| 5690(U-NII 3)  | 14.56               | 11.630             |

## 802.11ac\_VHT80\_Ch0

| Freq.<br>(MHz) | 49.51 | 10 Log (B)<br>(dB) |
|----------------|-------|--------------------|
| 5775           | 76.31 | 18.830             |

## 802.11ac\_VHT80\_Ch0

| Freq.<br>(MHz) | Measured<br>Freq.<br>(MHz) | Limit<br>(MHz) |
|----------------|----------------------------|----------------|
| 5210           | 5248.04                    | < 5250         |
| 5775           | 5737.16                    | > 5725         |

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## 802.11ac\_VHT80\_Ch1

| Freq.<br>(MHz) | 26dB<br>BW<br>(MHz) | 10 Log (B)<br>(dB) |
|----------------|---------------------|--------------------|
| 5210           | 81.65               | 19.120             |
| 5290           | 81.68               | 19.120             |
| <b>5530</b>    | 81.34               | 19.100             |
| 5610           | 81.13               | 19.090             |
| 5690(U-NII 2C) | 78.03               | 18.920             |
| 5690(U-NII 3)  | 8.03                | 9.050              |

## 802.11ac\_VHT80\_Ch1

| Freq.<br>(MHz) | 49.93 | 10 Log (B)<br>(dB) |
|----------------|-------|--------------------|
| 5775           | 76.39 | 18.830             |

## 802.11ac\_VHT80\_Ch1

| Freq.<br>(MHz) | Measured<br>Freq.<br>(MHz) | Limit<br>(MHz) |
|----------------|----------------------------|----------------|
| 5210           | 5248.01                    | < 5250         |
| 5775           | 5737.16                    | > 5725         |

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## 802.11ax\_HE20\_Ch0

| Freq.<br>(MHz)     | RU config | 26dB<br>BW<br>(MHz) | 10 Log (B)<br>(dB) |
|--------------------|-----------|---------------------|--------------------|
| 5180               | full      | 20.27               | 13.070             |
| 5200               | full      | 20.29               | 13.070             |
| 5240               | full      | 20.21               | 13.060             |
| 5260               | full      | 20.23               | 13.060             |
| 5300               | full      | 20.41               | 13.100             |
| 5320               | full      | 20.32               | 13.080             |
| 5500               | full      | 20.52               | 13.120             |
| 5580               | full      | 20.21               | 13.060             |
| 5700               | full      | 24.60               | 13.910             |
| 5720<br>(U-NII 2C) | full      | 15.15               | 11.800             |
| 5720<br>(U-NII 3)  | full      | 5.15                | 7.110              |

## 802.11ax\_HE20\_Ch0

| Freq.<br>(MHz) | RU config | 6dB<br>BW<br>(MHz) | 10 Log (B)<br>(dB) |
|----------------|-----------|--------------------|--------------------|
| 5745           | full      | 17.77              | 12.500             |
| 5805           | full      | 17.55              | 12.440             |
| 5825           | full      | 18.12              | 12.580             |

## 802.11ax\_HE20\_Ch0

| Freq.<br>(MHz) | Measured<br>Freq.<br>(MHz) | Limit<br>(MHz) |
|----------------|----------------------------|----------------|
| 5240           | 5249.38                    | < 5250         |
| 5745           | 5735.64                    | > 5725         |

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## 802.11ax\_HE20\_Ch1

| Freq.<br>(MHz)     | RU config | 26dB<br>BW<br>(MHz) | 10 Log (B)<br>(dB) |
|--------------------|-----------|---------------------|--------------------|
| 5180               | full      | 19.91               | 12.990             |
| 5200               | full      | 20.36               | 13.090             |
| 5240               | full      | 21.00               | 13.220             |
| 5260               | full      | 20.31               | 13.080             |
| 5300               | full      | 20.13               | 13.040             |
| 5320               | full      | 20.16               | 13.040             |
| 5500               | full      | 20.27               | 13.070             |
| 5580               | full      | 20.26               | 13.070             |
| 5700               | full      | 20.25               | 13.060             |
| 5720<br>(U-NII 2C) | full      | 17.02               | 12.310             |
| 5720<br>(U-NII 3)  | full      | 7.02                | 8.470              |

## 802.11ax\_HE20\_Ch1

| Freq.<br>(MHz) | RU config | 6dB<br>BW<br>(MHz) | 10 Log (B)<br>(dB) |
|----------------|-----------|--------------------|--------------------|
| 5745           | full      | 17.51              | 12.430             |
| 5805           | full      | 17.82              | 12.510             |
| 5825           | full      | 17.84              | 12.510             |

## 802.11ax\_HE20\_Ch1

| Freq.<br>(MHz) | Measured<br>Freq.<br>(MHz) | Limit<br>(MHz) |
|----------------|----------------------------|----------------|
| 5240           | 5249.37                    | < 5250         |
| 5745           | 5735.64                    | > 5725         |

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## 802.11ax\_HE40\_Ch0

| Freq.<br>(MHz)     | RU config | 26dB<br>BW<br>(MHz) | 10 Log (B)<br>(dB) |
|--------------------|-----------|---------------------|--------------------|
| 5190               | full      | 40.02               | 16.020             |
| 5230               | full      | 49.51               | 16.950             |
| 5270               | full      | 48.03               | 16.820             |
| 5310               | full      | 40.79               | 16.110             |
| 5510               | full      | 39.93               | 16.010             |
| 5550               | full      | <b>40.43</b>        | 16.070             |
| 5670               | full      | 49.35               | 16.930             |
| 5710<br>(U-NII 2C) | full      | 36.80               | 15.660             |
| 5710<br>(U-NII 3)  | full      | 6.80                | 8.320              |

## 802.11ax\_HE40\_Ch0

| Freq.<br>(MHz) | RU config | 6dB<br>BW<br>(MHz) | 10 Log (B)<br>(dB) |
|----------------|-----------|--------------------|--------------------|
| 5755           | full      | 35.43              | 15.490             |
| 5795           | full      | 35.90              | 15.550             |

## 802.11ax\_HE40\_Ch0

| Freq.<br>(MHz) | Measured<br>Freq.<br>(MHz) | Limit<br>(MHz) |
|----------------|----------------------------|----------------|
| 5230           | 5248.80                    | < 5250         |
| 5755           | 5736.31                    | > 5725         |

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## 802.11ax\_HE40\_Ch1

| Freq.<br>(MHz)     | RU config | 26dB<br>BW<br>(MHz) | 10 Log (B)<br>(dB) |
|--------------------|-----------|---------------------|--------------------|
| 5190               | full      | 40.04               | 16.020             |
| 5230               | full      | 49.93               | 16.980             |
| 5270               | full      | 45.07               | 16.540             |
| 5310               | full      | 40.15               | 16.040             |
| 5510               | full      | 40.24               | 16.050             |
| 5550               | full      | <b>40.10</b>        | 16.030             |
| 5670               | full      | 48.53               | 16.860             |
| 5710<br>(U-NII 2C) | full      | 35.10               | 15.450             |
| 5710<br>(U-NII 3)  | full      | 5.10                | 7.070              |

## 802.11ax\_HE40\_Ch1

| Freq.<br>(MHz) | RU config | 6dB<br>BW<br>(MHz) | 10 Log (B)<br>(dB) |
|----------------|-----------|--------------------|--------------------|
| 5755           | full      | 35.73              | 15.530             |
| 5795           | full      | 36.10              | 15.580             |

## 802.11ax\_HE40\_Ch1

| Freq.<br>(MHz) | Measured<br>Freq.<br>(MHz) | Limit<br>(MHz) |
|----------------|----------------------------|----------------|
| 5230           | 5248.70                    | < 5250         |
| 5755           | 5736.34                    | > 5725         |

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## 802.11ax\_HE80\_Ch0

| Freq.<br>(MHz)     | RU config | 26dB<br>BW<br>(MHz) | 10 Log (B)<br>(dB) |
|--------------------|-----------|---------------------|--------------------|
| 5210               | full      | 80.05               | 19.030             |
| 5290               | full      | 80.67               | 19.070             |
| 5530               | full      | 80.14               | 19.040             |
| 5610               | full      | 80.17               | 19.040             |
| 5690<br>(U-NII 2C) | full      | 80.08               | 19.040             |
| 5690<br>(U-NII 3)  | full      | 10.08               | 10.030             |

## 802.11ax\_HE80\_Ch0

| Freq.<br>(MHz) | RU config | 6dB<br>BW<br>(MHz) | 10 Log (B)<br>(dB) |
|----------------|-----------|--------------------|--------------------|
| 5775           | full      | 77.73              | 18.910             |

## 802.11ax\_HE80\_Ch0

| Freq.<br>(MHz) | Measured<br>Freq.<br>(MHz) | Limit<br>(MHz) |
|----------------|----------------------------|----------------|
| 5210           | 5248.69                    | < 5250         |
| 5775           | 5736.24                    | > 5725         |

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## 802.11ax\_HE80\_Ch1

| Freq.<br>(MHz)     | RU config | 26dB<br>BW<br>(MHz) | 10 Log (B)<br>(dB) |
|--------------------|-----------|---------------------|--------------------|
| 5210               | full      | 80.37               | 19.050             |
| 5290               | full      | 80.26               | 19.040             |
| 5530               | full      | 80.39               | 19.050             |
| 5610               | full      | 80.39               | 19.050             |
| 5690<br>(U-NII 2C) | full      | 77.86               | 18.910             |
| 5690<br>(U-NII 3)  | full      | 7.86                | 8.950              |

## 802.11ax\_HE80\_Ch1

| Freq.<br>(MHz) | RU config | 6dB<br>BW<br>(MHz) | 10 Log (B)<br>(dB) |
|----------------|-----------|--------------------|--------------------|
| 5775           | full      | 77.87              | 18.910             |

## 802.11ax\_HE80\_Ch1

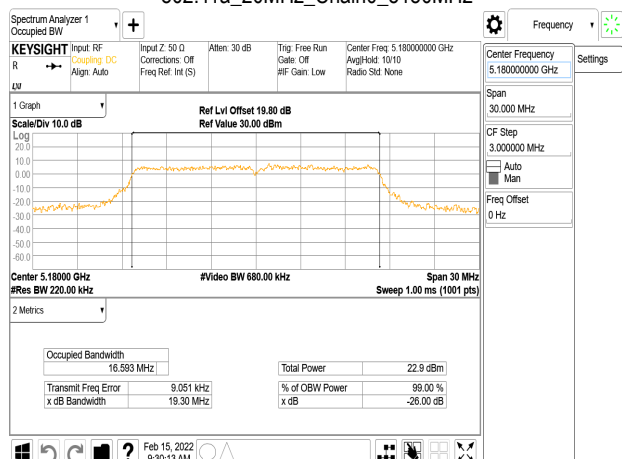
| Freq.<br>(MHz) | Measured<br>Freq.<br>(MHz) | Limit<br>(MHz) |
|----------------|----------------------------|----------------|
| 5210           | 5248.86                    | < 5250         |
| 5775           | 5736.27                    | > 5725         |

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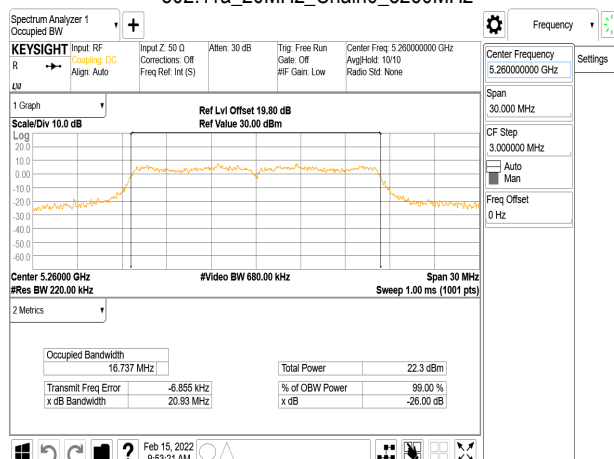
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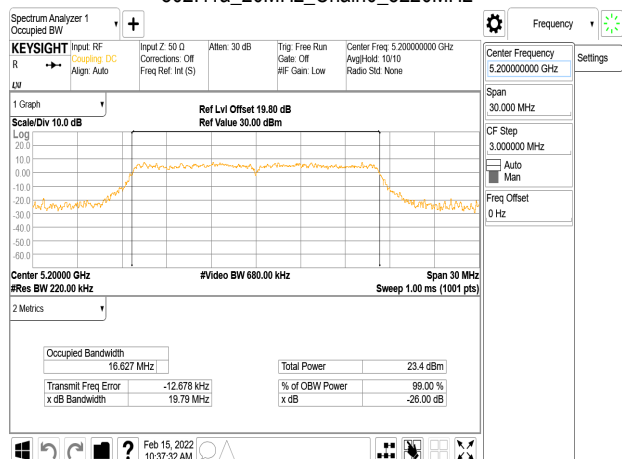
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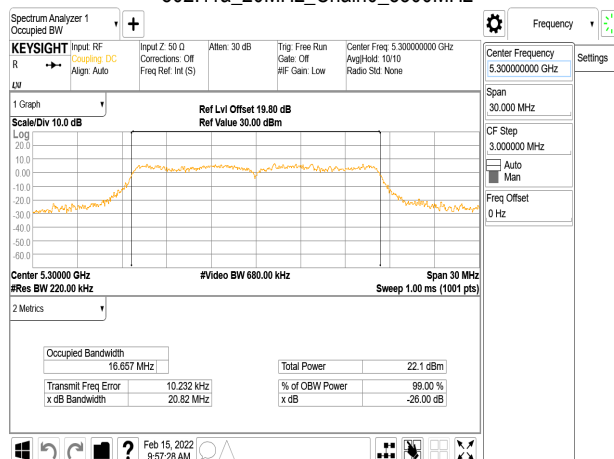
802.11a\_20MHz\_Chain0\_5260MHz



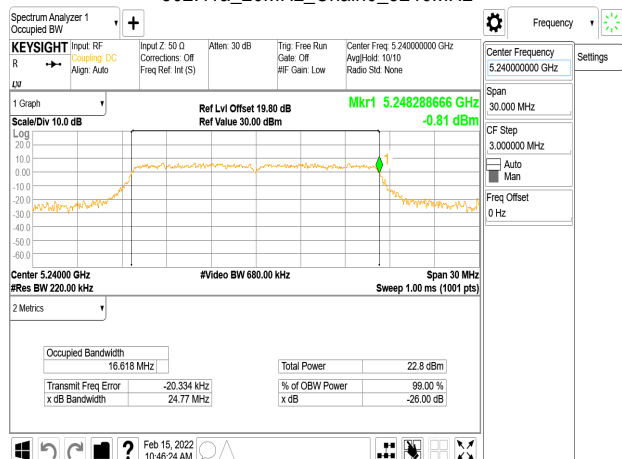
802.11a\_20MHz\_Chain0\_5220MHz



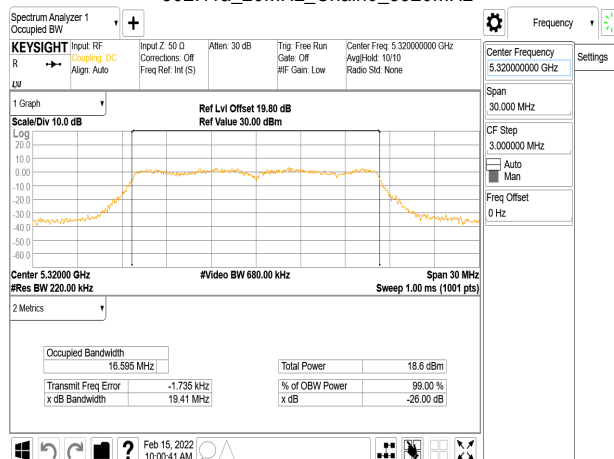
802.11a\_20MHz\_Chain0\_5300MHz



802.11a\_20MHz\_Chain0\_5240MHz



802.11a\_20MHz\_Chain0\_5320MHz

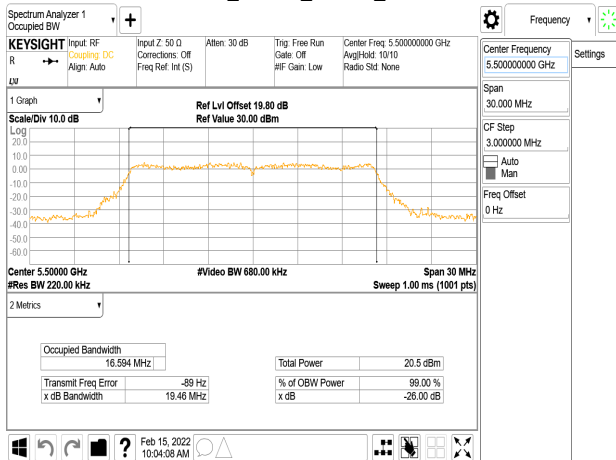


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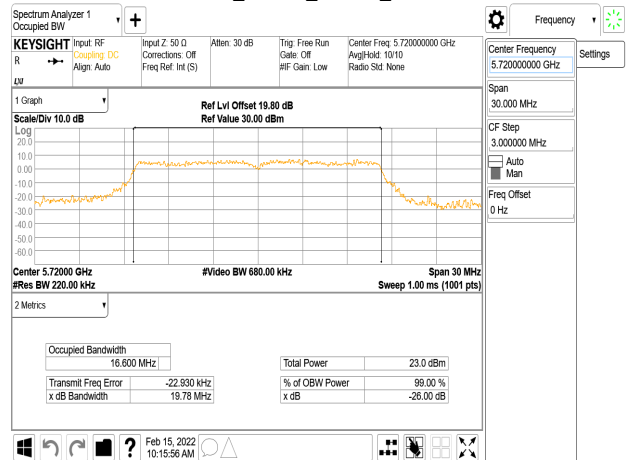
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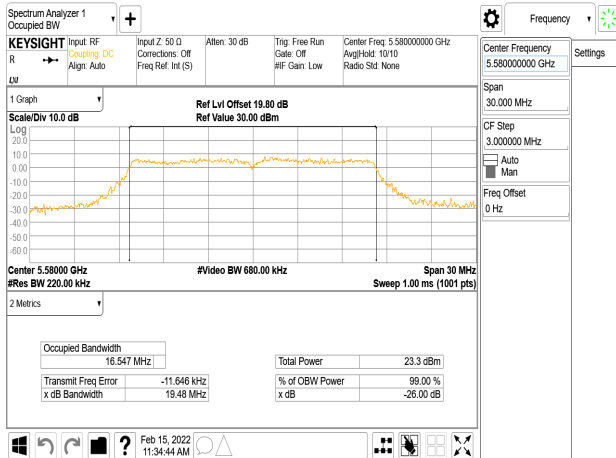
802.11a\_20MHz\_Chain0\_5500MHz



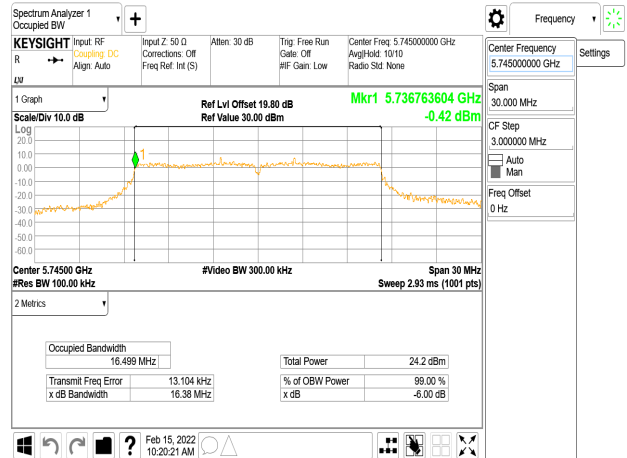
802.11a\_20MHz\_Chain0\_5720MHz



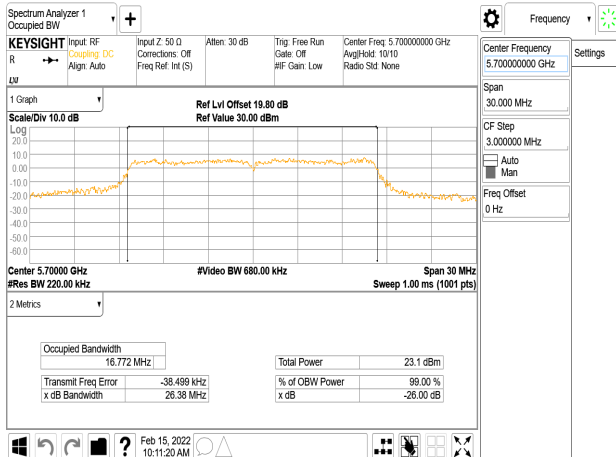
802.11a\_20MHz\_Chain0\_5580MHz



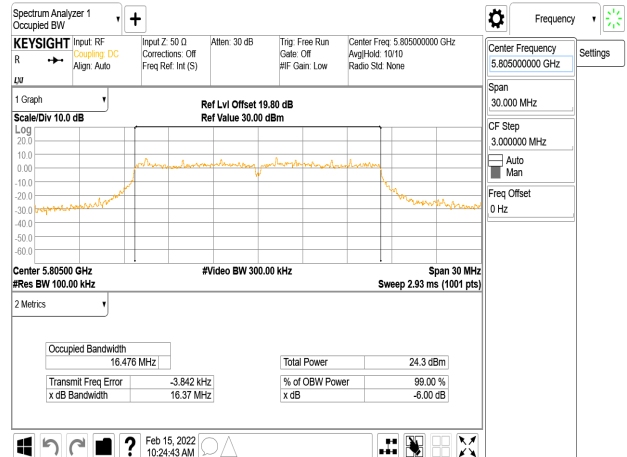
802.11a\_20MHz\_Chain0\_5745MHz



802.11a\_20MHz\_Chain0\_5700MHz



802.11a\_20MHz\_Chain0\_5805MHz

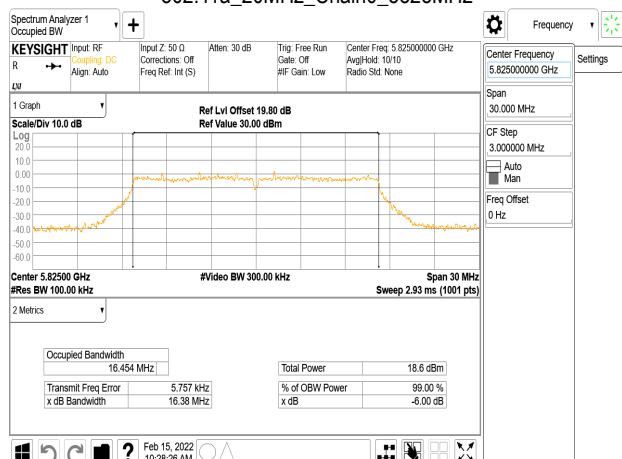


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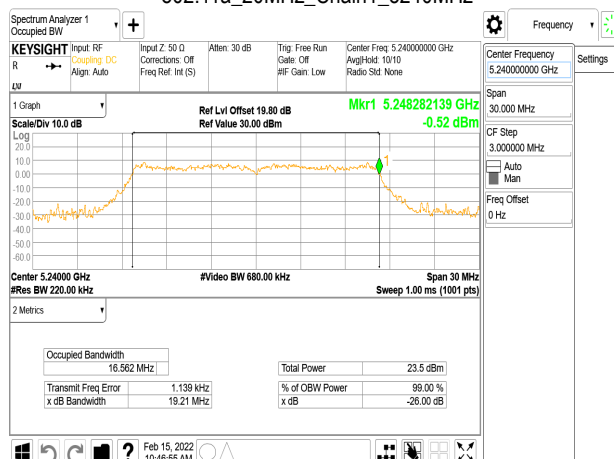
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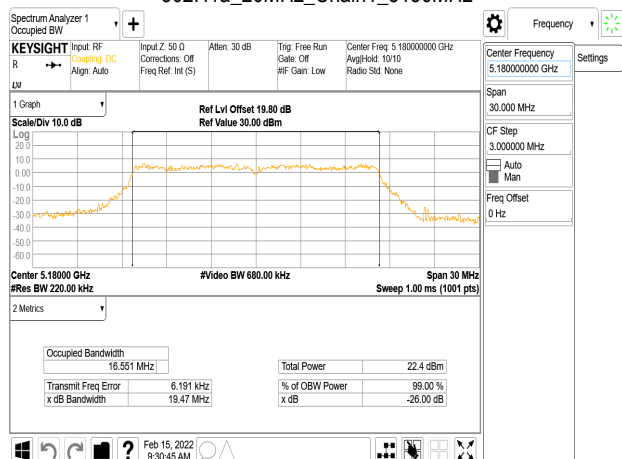
802.11a\_20MHz\_Chain0\_5825MHz



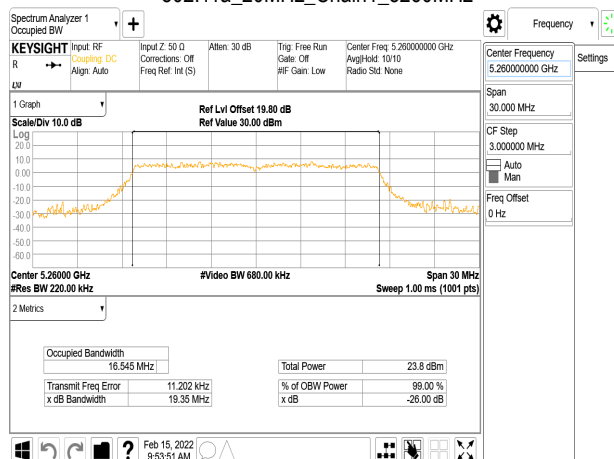
802.11a\_20MHz\_Chain1\_5240MHz



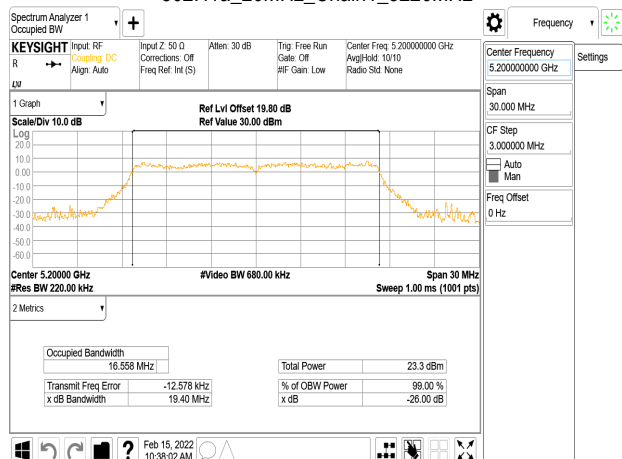
802.11a\_20MHz\_Chain1\_5180MHz



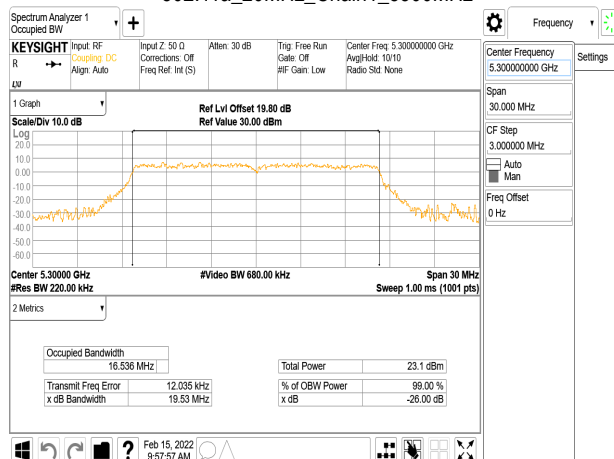
802.11a\_20MHz\_Chain1\_5260MHz



802.11a\_20MHz\_Chain1\_5220MHz



802.11a\_20MHz\_Chain1\_5300MHz

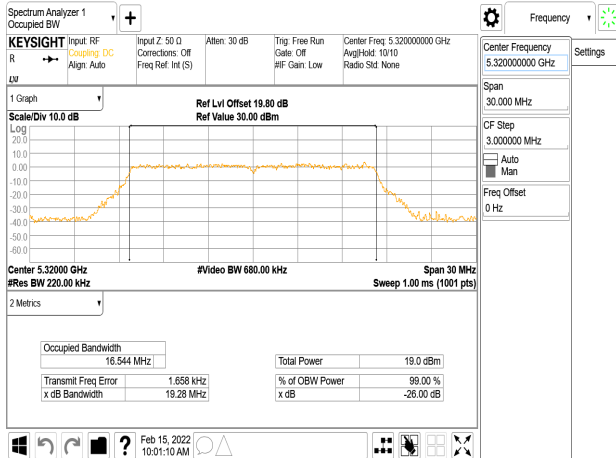


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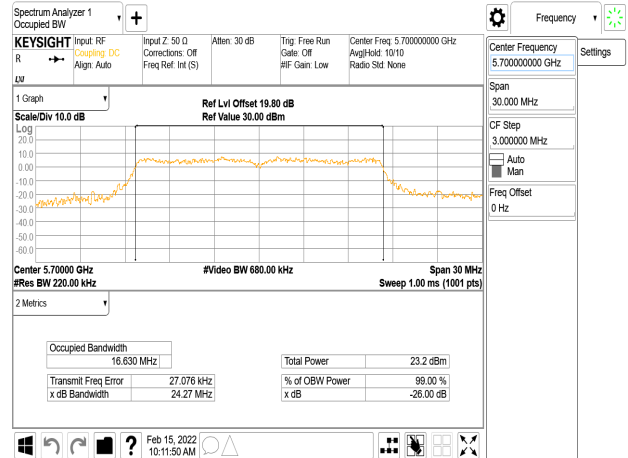
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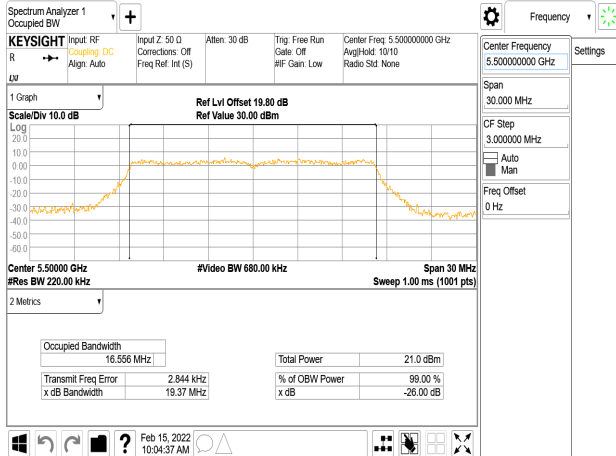
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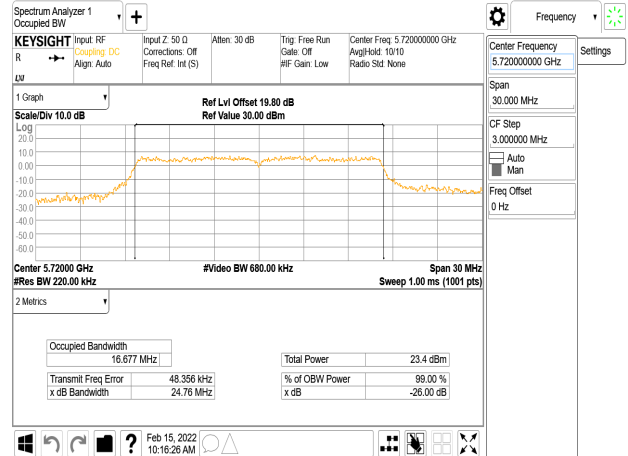
802.11a\_20MHz\_Chain1\_5700MHz



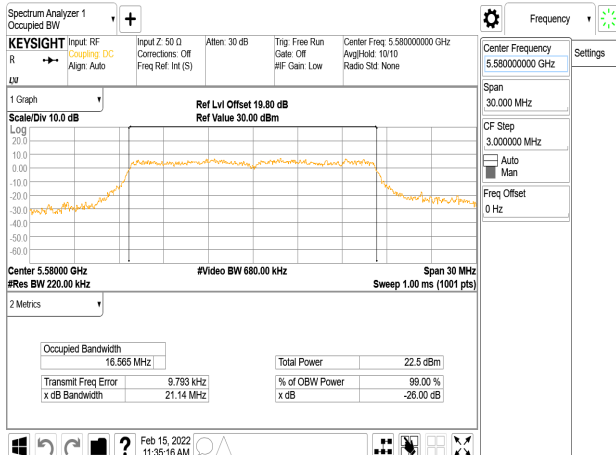
802.11a\_20MHz\_Chain1\_5500MHz



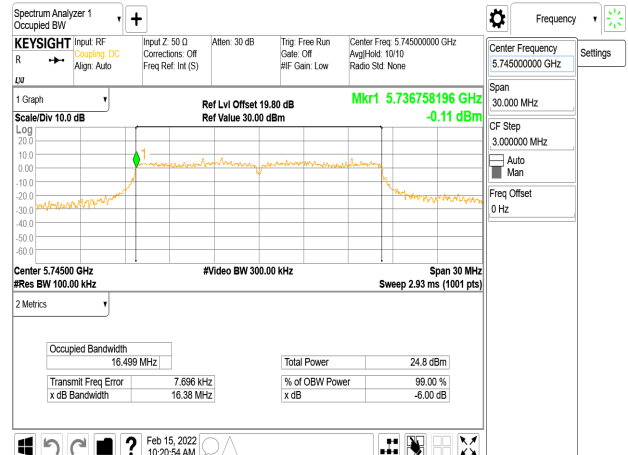
802.11a\_20MHz\_Chain1\_5720MHz



802.11a\_20MHz\_Chain1\_5580MHz



802.11a\_20MHz\_Chain1\_5745MHz

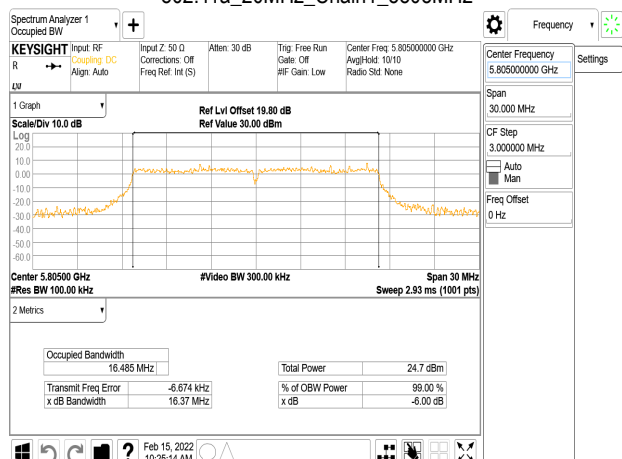


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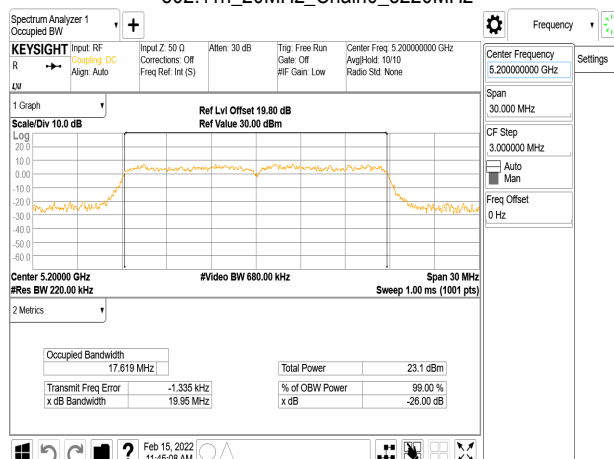
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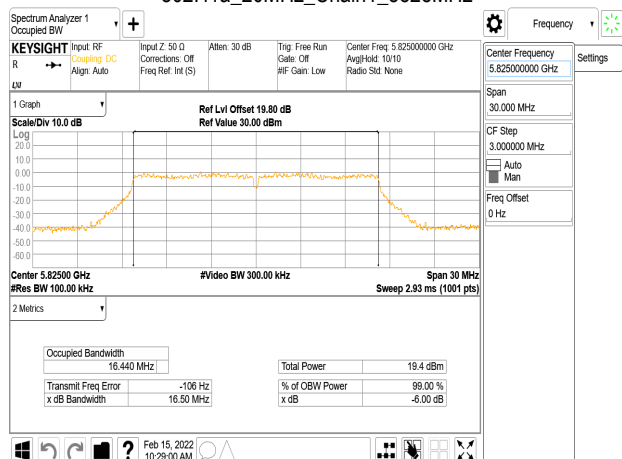
802.11a\_20MHz\_Chain1\_5805MHz



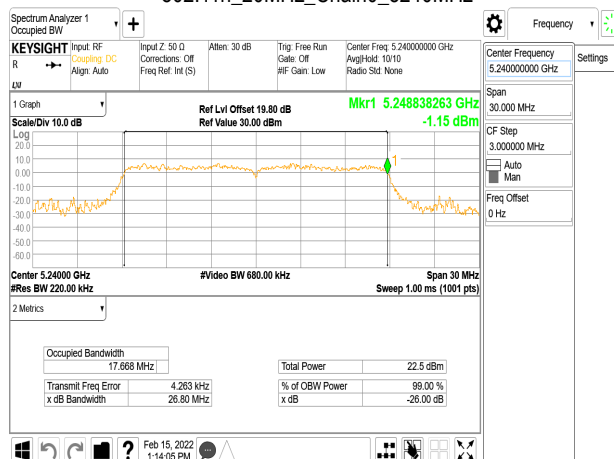
802.11n\_20MHz\_Chain0\_5220MHz



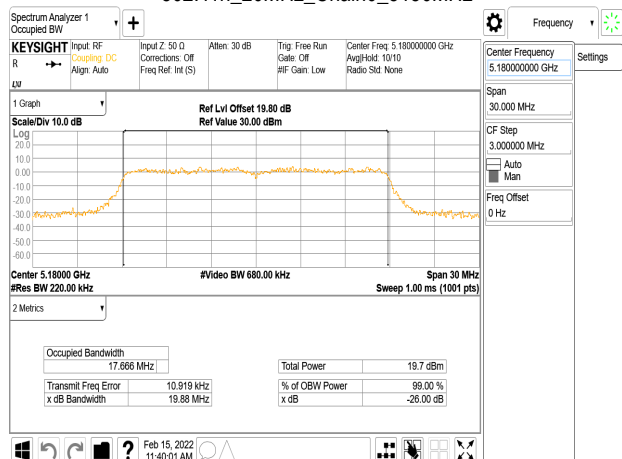
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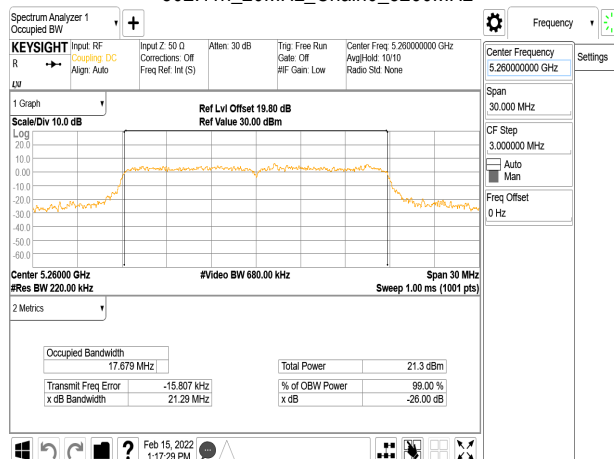
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802.11n\_20MHz\_Chain0\_5180MHz



802.11n\_20MHz\_Chain0\_5260MHz

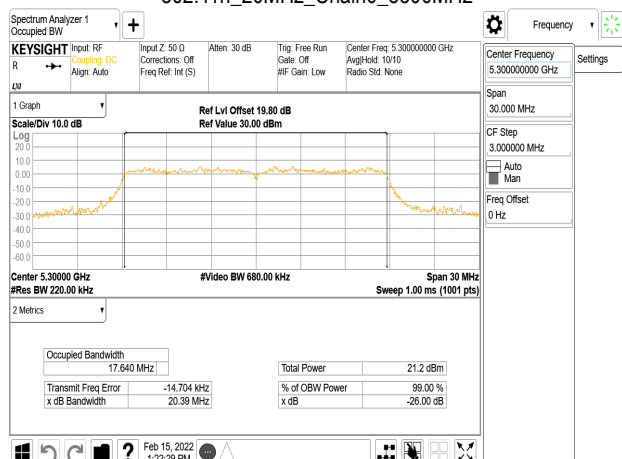


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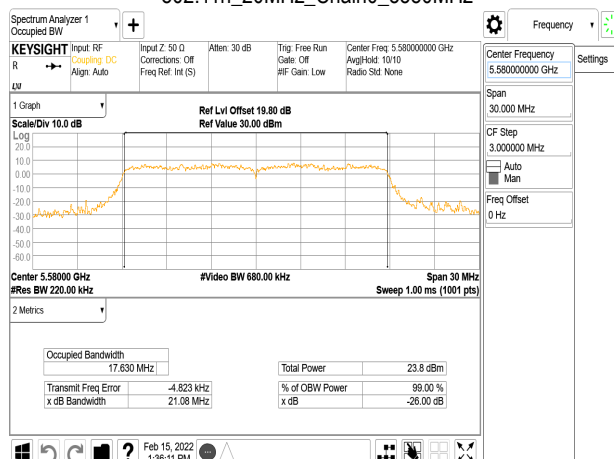
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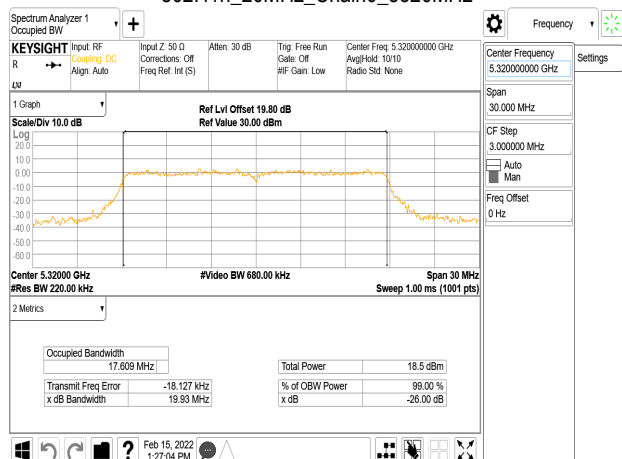
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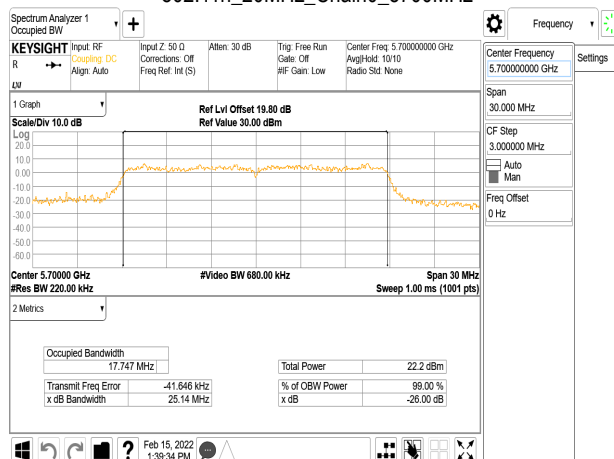
802.11n\_20MHz\_Chain0\_5580MHz



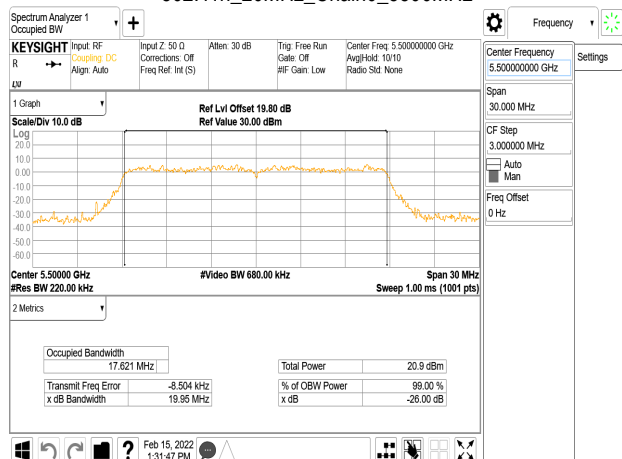
802.11n\_20MHz\_Chain0\_5320MHz



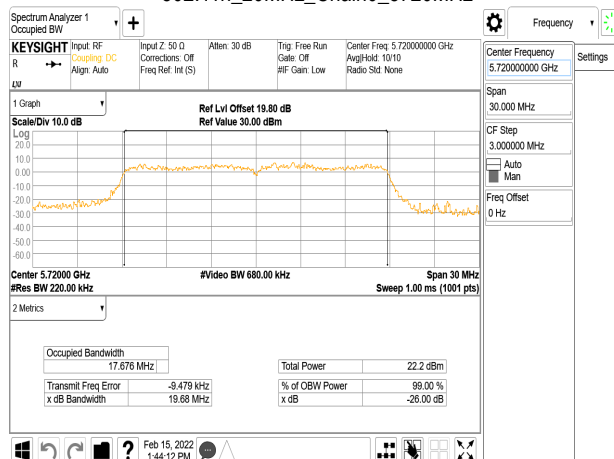
802.11n\_20MHz\_Chain0\_5700MHz



802.11n\_20MHz\_Chain0\_5500MHz



802.11n\_20MHz\_Chain0\_5720MHz

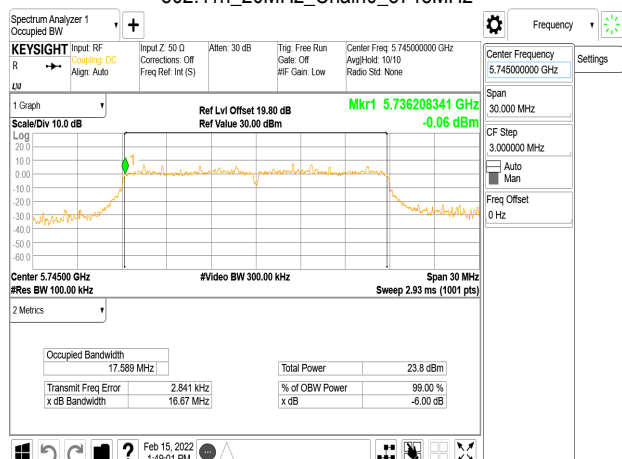


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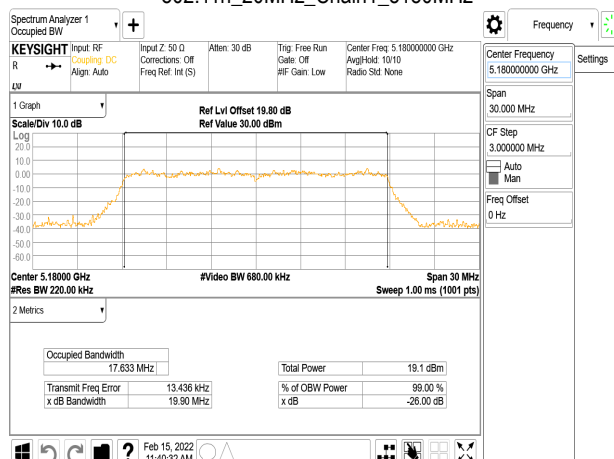
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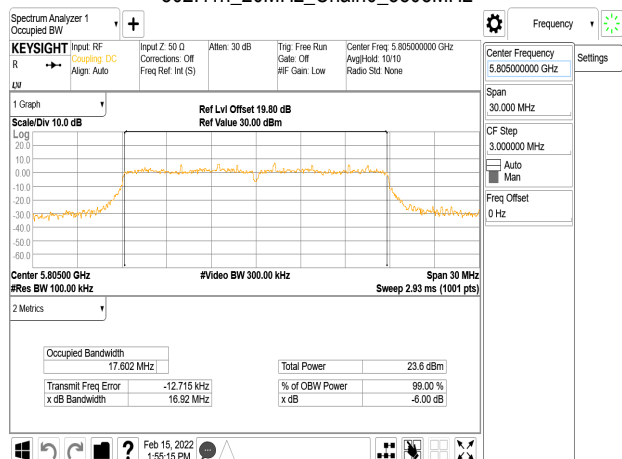
802.11n\_20MHz\_Chain0\_5745MHz



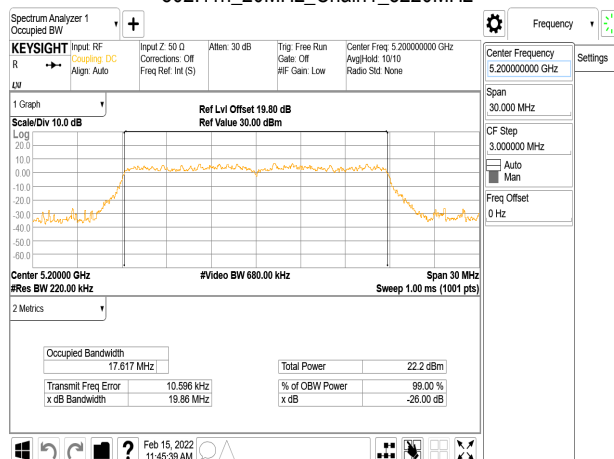
802.11n\_20MHz\_Chain1\_5180MHz



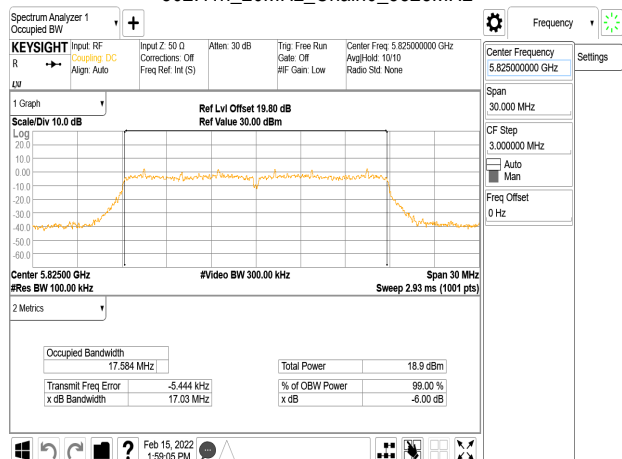
802.11n\_20MHz\_Chain0\_5805MHz



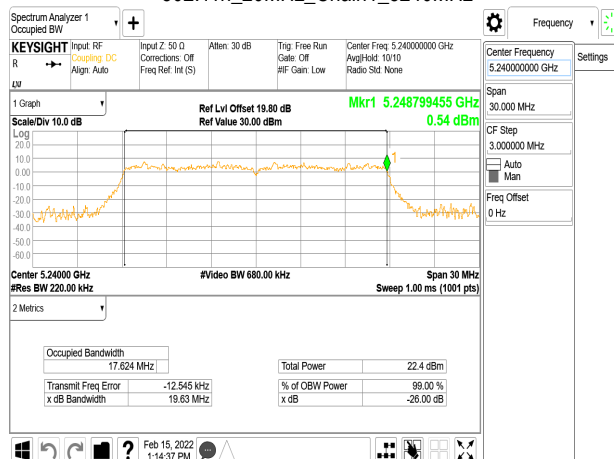
802.11n\_20MHz\_Chain1\_5220MHz



802.11n\_20MHz\_Chain0\_5825MHz



802.11n\_20MHz\_Chain1\_5240MHz

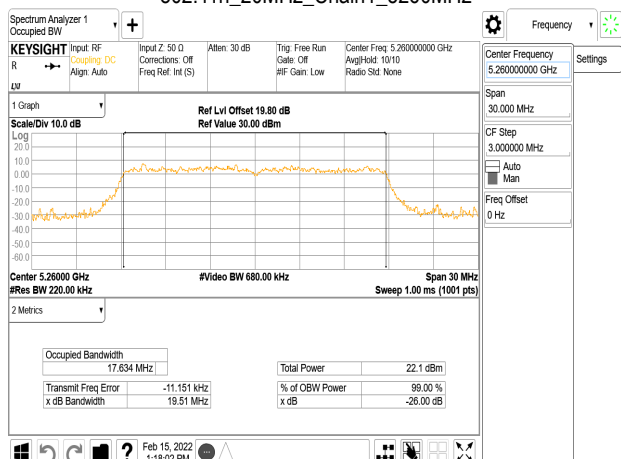


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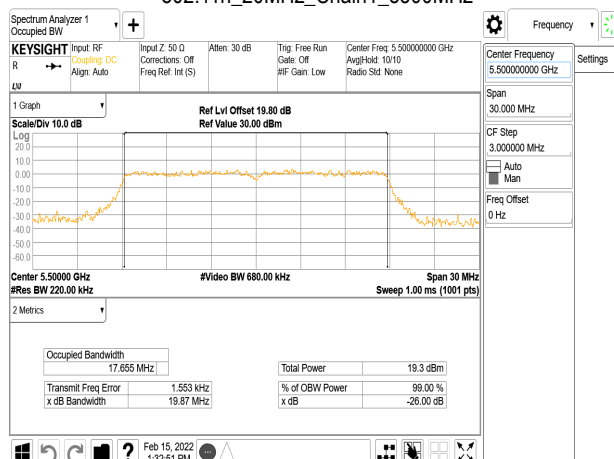
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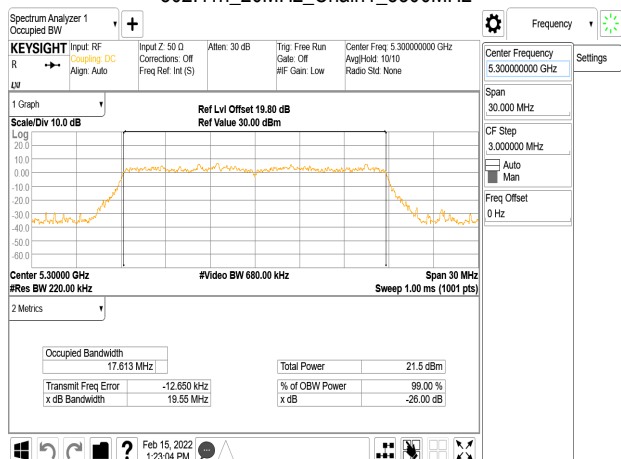
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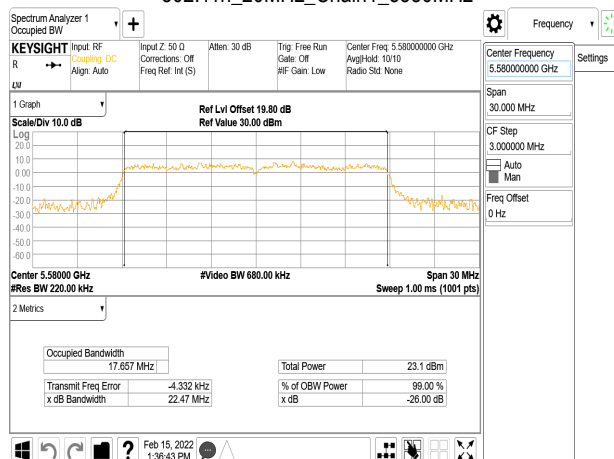
802.11n\_20MHz\_Chain1\_5500MHz



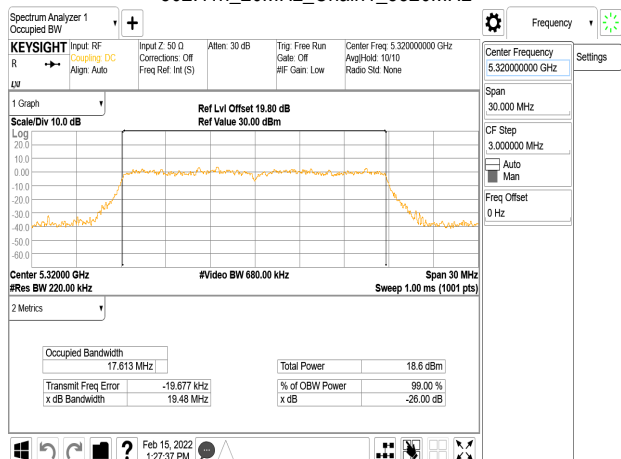
802.11n\_20MHz\_Chain1\_5300MHz



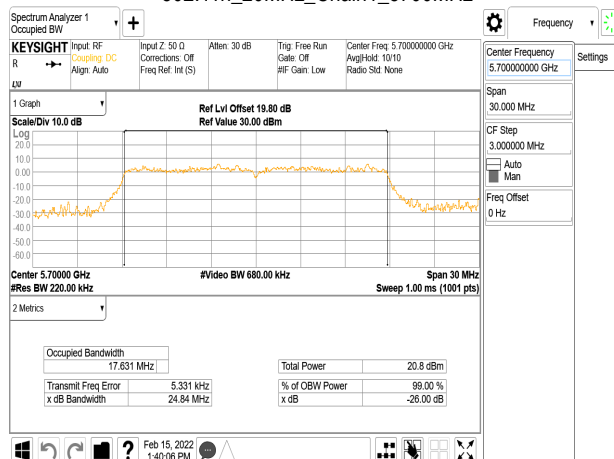
802.11n\_20MHz\_Chain1\_5580MHz



802.11n\_20MHz\_Chain1\_5320MHz



802.11n\_20MHz\_Chain1\_5700MHz

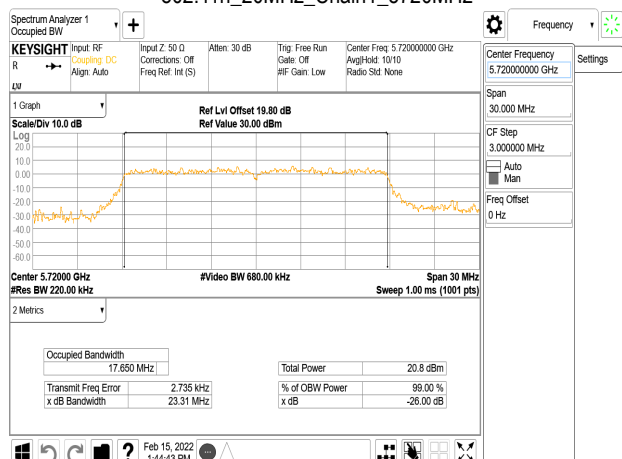


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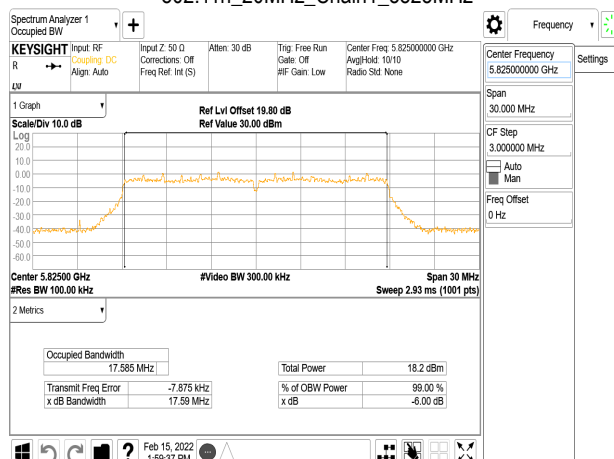
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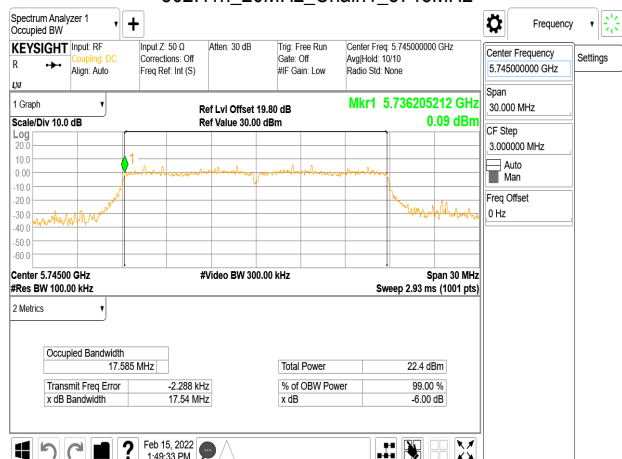
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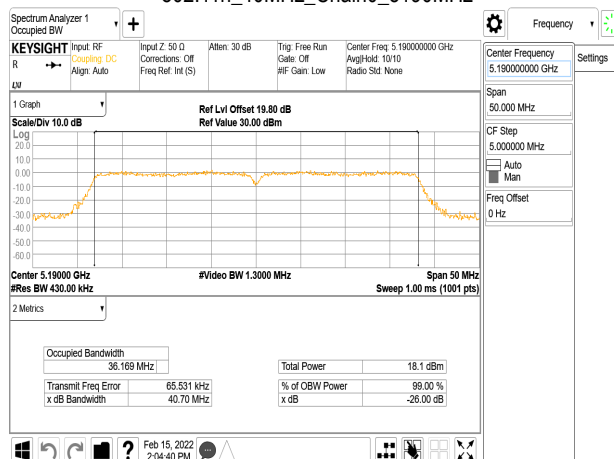
802.11n\_20MHz\_Chain1\_5825MHz



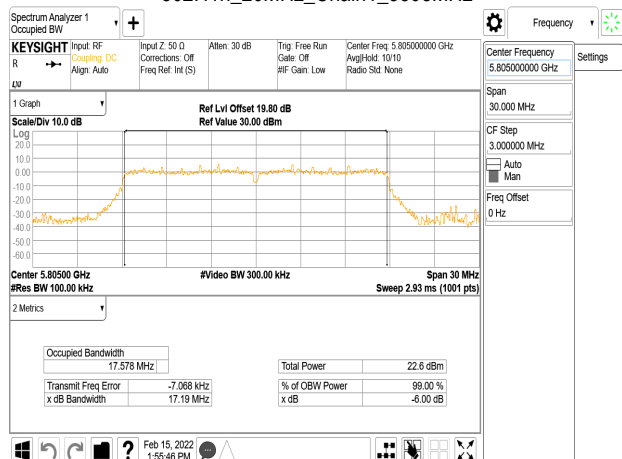
802.11n\_20MHz\_Chain1\_5745MHz



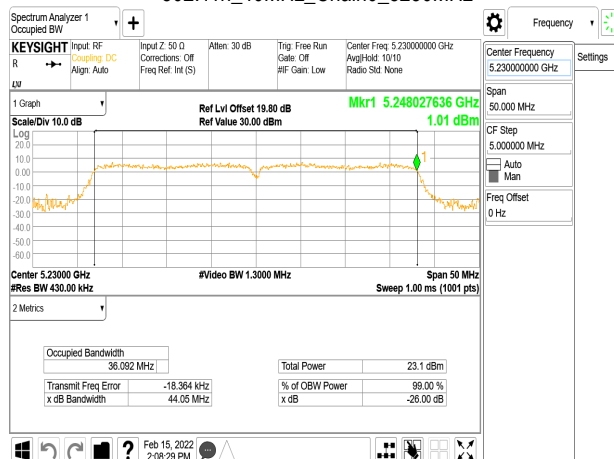
802.11n\_40MHz\_Chain0\_5190MHz



802.11n\_20MHz\_Chain1\_5805MHz



802.11n\_40MHz\_Chain0\_5230MHz

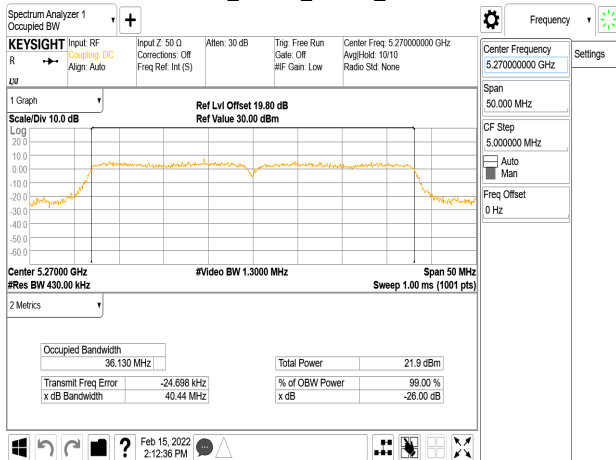


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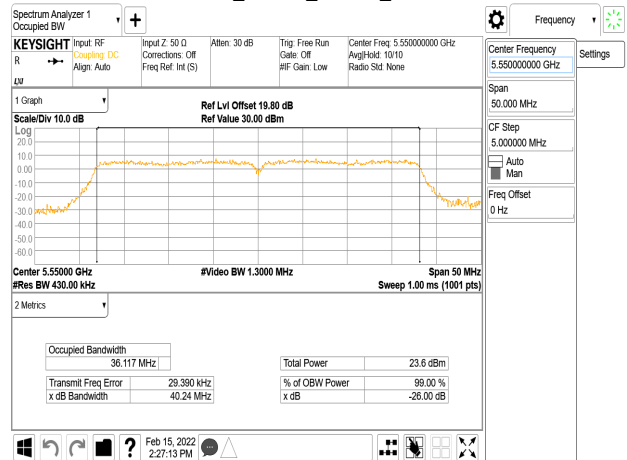
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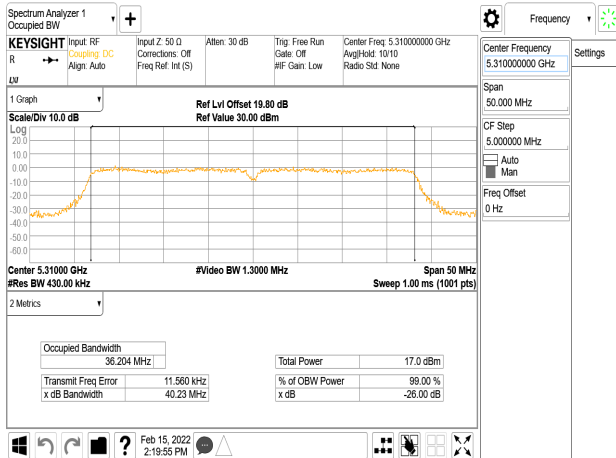
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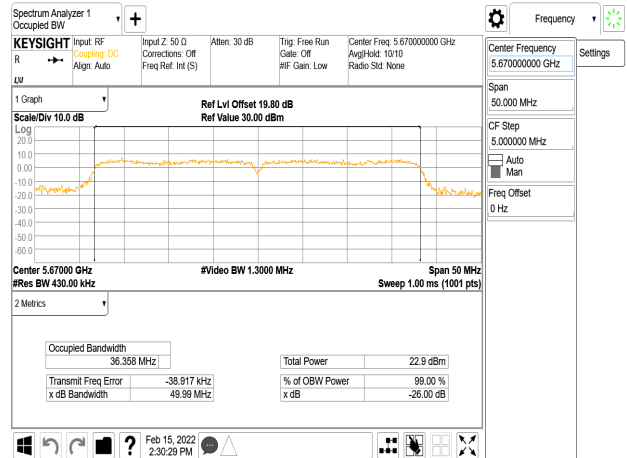
802.11n\_40MHz\_Chain0\_5550MHz



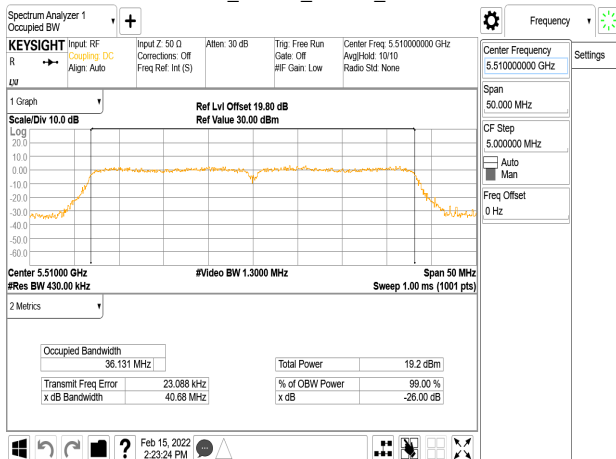
802.11n\_40MHz\_Chain0\_5310MHz



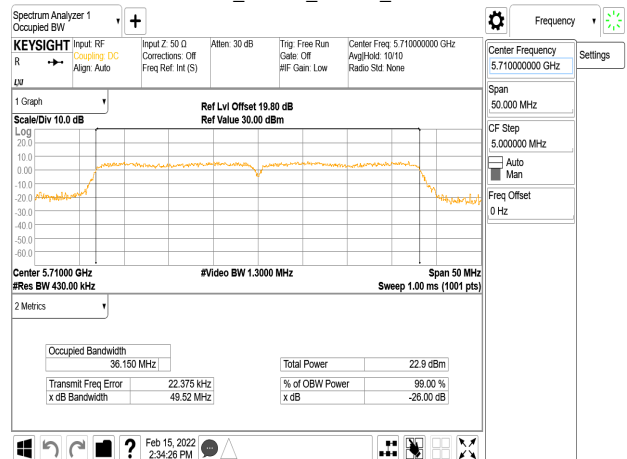
802.11n\_40MHz\_Chain0\_5670MHz



802.11n\_40MHz\_Chain0\_5510MHz



802.11n\_40MHz\_Chain0\_5710MHz



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