

# Test Report

|              |                                  |
|--------------|----------------------------------|
| Product Name | Peplink Pepwave Wireless Product |
| Model No     | AP Pro AX, APP-AX-IP67           |
| FCC ID       | U8G-P1PROAX                      |

|           |                                                                                                       |
|-----------|-------------------------------------------------------------------------------------------------------|
| Applicant | PISMO LABS TECHNOLOGY LIMITED                                                                         |
| Address   | A8, 5/F, HK Spinners Industrial Building, Phase 6, 481<br>Castle Peak Road, Cheung Sha Wan, Hong Kong |

|                 |                     |
|-----------------|---------------------|
| Date of Receipt | Nov. 29, 2022       |
| Issue Date      | Mar. 02, 2023       |
| Report No.      | 22B1024R-RFUSV01S-A |
| Report Version  | V3.0                |



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.


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Measurement uncertainties evaluated for each testing system and associated connections are given here to provide the system information for reference. Compliance determinations do not take into account measurement uncertainties for each testing system, but are based on the results of the compliance measurement.

# Test Report



|                     |                                                                                                       |
|---------------------|-------------------------------------------------------------------------------------------------------|
| Product Name        | Peplink Pepwave Wireless Product                                                                      |
| Applicant           | PISMO LABS TECHNOLOGY LIMITED                                                                         |
| Address             | A8, 5/F, HK Spinners Industrial Building, Phase 6, 481 Castle Peak Road,<br>Cheung Sha Wan, Hong Kong |
| Manufacturer        | PISMO LABS TECHNOLOGY LIMITED                                                                         |
| Model No.           | AP Pro AX, APP-AX-IP67                                                                                |
| FCC ID              | U8G-P1PROAX                                                                                           |
| EUT Rated Voltage   | DC 12 V (by Power Adapter) or 802.3at PoE                                                             |
| EUT Test Voltage    | DC 12 V (by Power Adapter) or 802.3at PoE                                                             |
| Trade Name          |  PEPWAVE           |
| Applicable Standard | FCC CFR Title 47 Part 15 Subpart C<br>ANSI C63.4: 2014, ANSI C63.10: 2013                             |
| Test Result         | Complied                                                                                              |

Documented By : Jinn Chen  
( Supervisor / Jinn Chen )

Tested By : Ivan Chuang  
( Senior Engineer / Ivan Chuang )

Approved By : Alan Chen  
( Senior Engineer / Alan Chen )

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Appendix 1: EUT Test Photographs


Appendix 2: Product Photos-Please refer to the file: 22B1024R-Product Photos

## Revision History

| Report No.          | Version | Description               | Issued Date   |
|---------------------|---------|---------------------------|---------------|
| 22B1024R-RFUSV01S-A | V1.0    | Initial issue of report.  | Jan. 16, 2023 |
| 22B1024R-RFUSV01S-A | V2.0    | Add antenna photo.        | Jan. 31, 2023 |
| 22B1024R-RFUSV01S-A | V3.0    | Corrected to full report. | Mar. 02, 2023 |

## 1. General Information

### 1.1. EUT Description

|                    |                                                                                                  |
|--------------------|--------------------------------------------------------------------------------------------------|
| Product Name       | Peplink Pepwave Wireless Product                                                                 |
| Trade Name         |  <b>PEPWAVE</b> |
| Model No.          | AP Pro AX, APP-AX-IP67                                                                           |
| FCC ID             | U8G-P1PROAX                                                                                      |
| Frequency Range    | 802.11b/g/n/ac/ax-20 MHz: 2412-2462 MHz<br>802.11n/ac/ax-40 MHz: 2422-2452 MHz                   |
| Number of Channels | 802.11b/g/n/ac/ax-20 MHz: 11CH, 802.11n/ac/ax-40 MHz: 7CH                                        |
| Data Speed         | 802.11b: 1-11 Mbps, 802.11g: 6-54 Mbps, 802.11n: up to 300 Mbps<br>802.11ax: up to 573.6 Mbps    |
| Type of Modulation | DSSS, OFDM, OFDMA                                                                                |
| Channel Control    | Auto                                                                                             |

#### For Without Sell Accessories Information

|               |                                                                                                  |
|---------------|--------------------------------------------------------------------------------------------------|
| Power Adapter | Brand: JG, M/N: ZZU1588-150120-2A<br>Input: AC 100-240V~50-60Hz, 1.5A<br>Output: 12V---1.5A      |
| PoE           | Brand: BILLION, M/N: BP035-560054QAX<br>Input: AC 100-240V~50-60Hz, 0.8A<br>Output: 56V---0.536A |

#### Antenna List\_ Without Sell Accessories

| No. | Manufacturer                | Part No.    | Antenna Type     | Peak Gain             |
|-----|-----------------------------|-------------|------------------|-----------------------|
| 1   | WHA YU INDUSTRIAL CO., LTD. | SRF20171227 | Omni-directional | 3.36 dBi for 2400 MHz |

Note: The antenna of EUT is conforming to FCC 15.203.

802.11b/g/n/ac/ax-20 MHz Center Frequency of Each Channel:

| Channel | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
|---------|-----------|---------|-----------|---------|-----------|---------|-----------|
| 01      | 2412      | 02      | 2417      | 03      | 2422      | 04      | 2427      |
| 05      | 2432      | 06      | 2437      | 07      | 2442      | 08      | 2447      |
| 09      | 2452      | 10      | 2457      | 11      | 2462      | --      | --        |

802.11n/ac/ax-40 MHz Center Frequency of Each Channel:

| Channel | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
|---------|-----------|---------|-----------|---------|-----------|---------|-----------|
| 03      | 2422      | 04      | 2427      | 05      | 2432      | 06      | 2437      |
| 07      | 2442      | 08      | 2447      | 09      | 2452      | --      | --        |

Note:

1. The EUT is a Peplink Pepwave Wireless Product with a built-in WLAN transceiver, this report for 2.4GHz WLAN.
2. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test. The other channels are for reference only.
3. Lowest data rates are tested in each mode. Only worst case is shown in the report. (802.11b is 1Mbps, 802.11g is 6Mbps, 802.11ax-20MHz/40MHz is MCS0)
4. These tests are conducted on a sample for the purpose of demonstrating compliance of 802.11b/g/n/ac/ax transmitter with Part 15 Subpart C Paragraph 15.247 of spread spectrum devices.

|           |        |                            |
|-----------|--------|----------------------------|
| Test Mode | Mode 1 | Transmit (802.11b)         |
|           |        | Transmit (802.11g)         |
|           |        | Transmit (802.11n-20 MHz)  |
|           |        | Transmit (802.11n-40 MHz)  |
|           |        | Transmit (802.11ac-20 MHz) |
|           |        | Transmit (802.11ac-40 MHz) |
|           |        | Transmit (802.11ax-20 MHz) |
|           |        | Transmit (802.11ax-40 MHz) |

1.2. Tested System Details

The types for all equipment, plus descriptions of all cables used in the tested system (including inserted cards) are:

PoE Mode:

| Product         | Brand   | Model No.       | Serial No.       | Power Cord |
|-----------------|---------|-----------------|------------------|------------|
| 1   Notebook PC | ASUS    | P5430U          | G8NXCVC07J11032C | N/A        |
| 2   PoE         | BILLION | BP035-560054QAX | N/A              | N/A        |

| Cable Type    | Cable Description |
|---------------|-------------------|
| A   LAN Cable | Non-shielded, 2m  |
| B   LAN Cable | Non-shielded, 3m  |

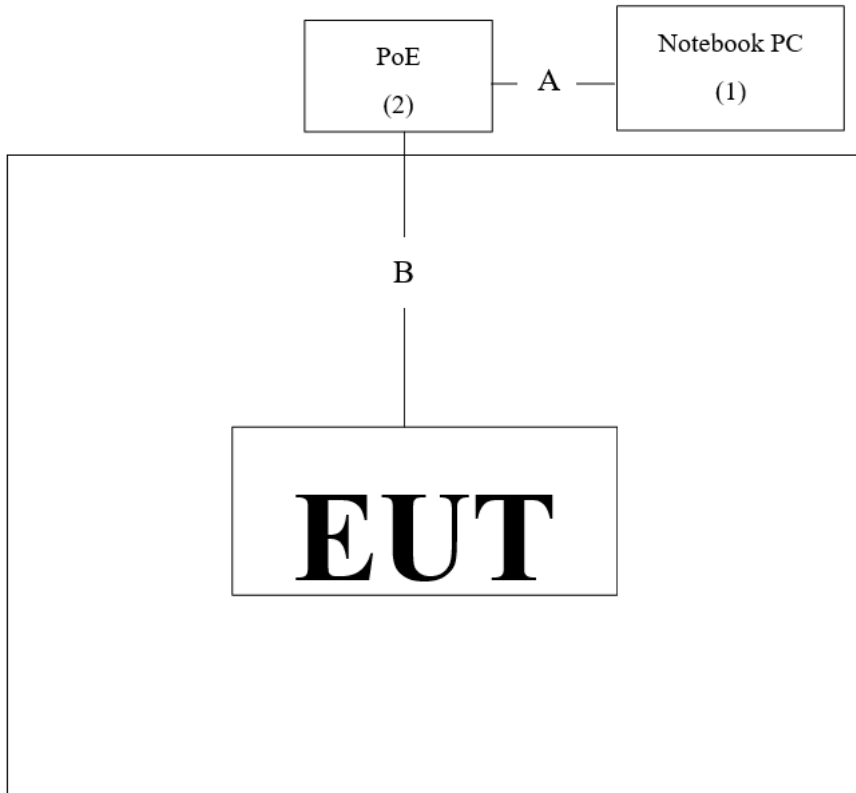
Adapter Mode:

| Product           | Brand | Model No.         | Serial No.       | Power Cord |
|-------------------|-------|-------------------|------------------|------------|
| 1   Power Adapter | JG    | ZZU1588-150120-2A | N/A              | N/A        |
| 2   Notebook PC   | ASUS  | P5430U            | G8NXCVC07J11032C | N/A        |

| Cable Type      | Cable Description  |
|-----------------|--------------------|
| A   Power Cable | Non-shielded, 1.5m |
| B   LAN Cable   | Non-shielded, 3m   |

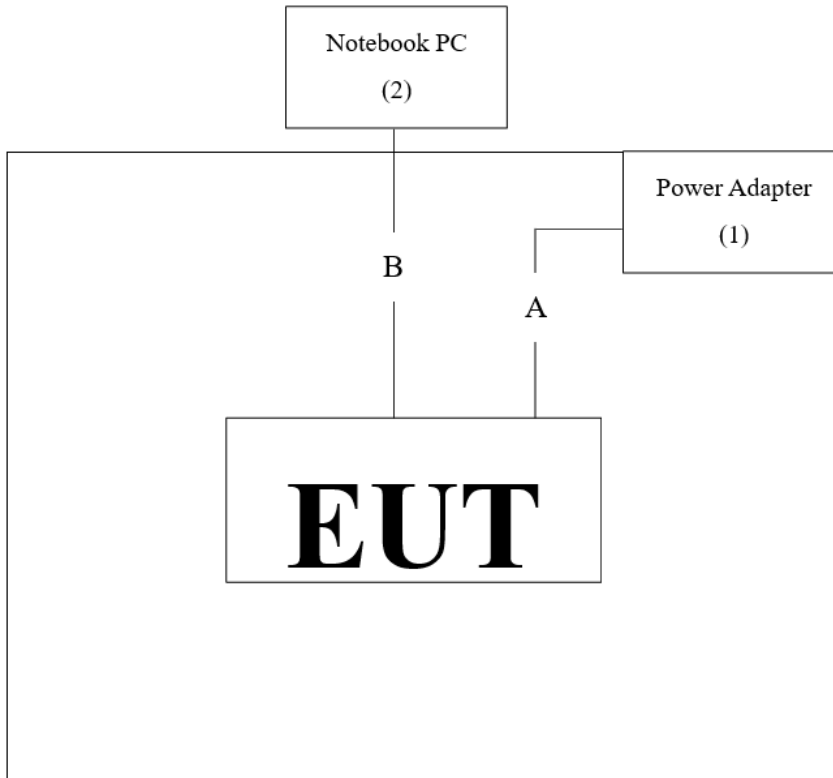
1.3. Configuration of Tested System

PoE Mode:





Adapter Mode:



#### 1.4. EUT Exercise Software

1. Setup the EUT as shown in Section 1.3.
2. Execute software "QSPR Version 5.0-00197" on the Notebook PC.
3. Configure the test mode, the test channel, and the data rate.
4. Press "OK" to start the continuous transmit.
5. Verify that the EUT works properly.

## 1.5. Test Facility

Ambient conditions in the laboratory:

| Performed Item     | Items            | Required | Actual  |
|--------------------|------------------|----------|---------|
| Conducted Emission | Temperature (°C) | 10~40 °C | 21.5 °C |
|                    | Humidity (%RH)   | 10~90 %  | 47.6 %  |
| Radiated Emission  | Temperature (°C) | 10~40 °C | 22.3 °C |
|                    | Humidity (%RH)   | 10~90 %  | 33.1 %  |
| Conductive         | Temperature (°C) | 10~40 °C | 22.0 °C |
|                    | Humidity (%RH)   | 10~90 %  | 55.0 %  |

USA : FCC Registration Number: TW0033

Canada : CAB Identifier Number: TW3023 / Company Number: 26930

Site Description : Accredited by TAF  
Accredited Number: 3023

Test Laboratory : DEKRA Testing and Certification Co., Ltd  
 Address : No. 5-22, Ruishukeng Linkou District, New Taipei City, 24451, Taiwan  
 Performed Location : No. 26, Huaya 1st Rd., Guishan Dist., Taoyuan City 333411, Taiwan, R.O.C.  
 Phone Number : +886-3-275-7255  
 Fax Number : +886-3-327-8031  
 Email Address : [info.tw@dekra.com](mailto:info.tw@dekra.com)  
 Website : <http://www.dekra.com.tw>

## 1.6. List of Test Item and Equipment

**For Conduction Measurements /HY-SR01**

|   | Equipment          | Manufacturer | Model No. | Serial No. | Cal. Date  | Due Date   |
|---|--------------------|--------------|-----------|------------|------------|------------|
| V | EMI Test Receiver  | R&S          | ESR7      | 101601     | 2022/06/23 | 2023/06/22 |
| V | Two-Line V-Network | R&S          | ENV216    | 101306     | 2022/05/23 | 2023/05/22 |
| V | Two-Line V-Network | R&S          | ENV216    | 101307     | 2022/07/04 | 2023/07/03 |
| V | Coaxial Cable      | SUHNER       | RG400_BNC | RF001      | 2022/05/24 | 2023/05/23 |

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked with “V” are used to measure the final test results.
3. Test Software Version: E3 210616 dekra V9.

**For Conducted Measurements / HY-SR02**

|   | Equipment           | Manufacturer | Model No. | Serial No. | Cal. Date  | Due Date   |
|---|---------------------|--------------|-----------|------------|------------|------------|
| V | Spectrum Analyzer   | R&S          | FSV30     | 103467     | 2022/04/26 | 2023/04/25 |
| V | Peak Power Analyzer | KEYSIGHT     | 8990B     | MY51000539 | 2022/05/27 | 2023/05/26 |
| V | Power Sensor        | KEYSIGHT     | N1923A    | MY59240002 | 2022/05/19 | 2023/05/18 |
| V | Power Sensor        | KEYSIGHT     | N1923A    | MY59240003 | 2022/05/19 | 2023/05/18 |

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked with “V” are used to measure the final test results.
3. Test Software version: RF Conducted Test Tools R3 V3.0.1.14.

**For Radiated Measurements / HY-CB03**

|   | Equipment         | Manufacturer  | Model No.         | Serial No.   | Cal. Date  | Due Date   |
|---|-------------------|---------------|-------------------|--------------|------------|------------|
| V | Loop Antenna      | AMETEK        | HLA6121           | 49611        | 2022/03/18 | 2023/03/17 |
| V | Bi-Log Antenna    | SCHWARZBECK   | VULB9168          | 9168-675     | 2021/08/11 | 2023/08/10 |
| V | Horn Antenna      | RF SPIN       | DRH18-E           | 210508A18ES  | 2022/06/08 | 2023/06/07 |
| V | Horn Antenna      | Com-Power     | AH-840            | 101100       | 2021/10/04 | 2023/10/03 |
| V | Pre-Amplifier     | SGH           | SGH0301-9         | 20211007-10  | 2022/02/22 | 2023/02/21 |
| V | Pre-Amplifier     | SGH           | PRAMP118          | 20200701     | 2022/07/28 | 2023/07/27 |
| V | Pre-Amplifier     | EMCI          | EMC05820SE        | 980310       | 2023/01/10 | 2024/01/09 |
| V | Pre-Amplifier     | EMCI          | EMC184045SE       | 980369       | 2022/05/12 | 2023/05/11 |
|   | Coaxial Cable     | EMCI          | EMC102-KM-KM-600  | 1160314      |            |            |
|   | Coaxial Cable     | EMCI          | EMC102-KM-KM-7000 | 170242       |            |            |
| V | Filter            | MICRO TRONICS | BRM50702          | G269         | 2022/07/31 | 2023/07/30 |
|   | Filter            | MICRO TRONICS | BRM50716          | G196         | 2022/07/27 | 2023/07/26 |
| V | EMI Test Receiver | R&S           | ESR3              | 102793       | 2022/12/05 | 2023/12/04 |
| V | Spectrum Analyzer | R&S           | FSV3044           | 101114       | 2023/02/16 | 2024/02/15 |
| V | Coaxial Cable     | SGH           | SGH18             | 2021005-1    | 2023/01/10 | 2024/01/09 |
|   | Coaxial Cable     | SGH           | SGH18             | 202108-4     |            |            |
|   | Coaxial Cable     | SGH           | SGH18             | GD20110223-1 |            |            |
|   | Coaxial Cable     | SGH           | HA800             | GD20110222-3 |            |            |

Note:

1. Bi-Log Antenna and Horn Antenna(AH-840) is calibrated every two years, the other equipments are calibrated every one year.
2. The test instruments marked with “V” are used to measure the final test results.
3. Test Software version: E3 210616 dekra V9.

### 1.7. Uncertainty

Uncertainties have been calculated according to the DEKRA internal document.

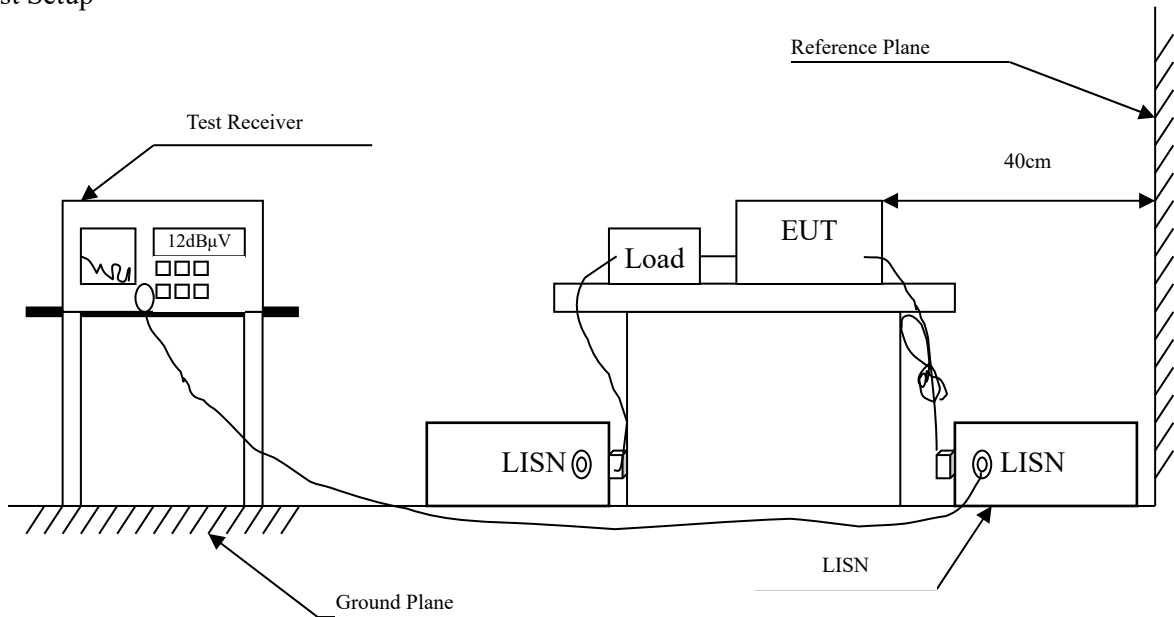
The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor of  $k=2$ , providing a level of confidence of approximately 95%.

Measurement uncertainties evaluated for each testing system and associated connections are given here to provide the system information for reference. Compliance determinations do not take into account measurement uncertainties for each testing system, but are based on the results of the compliance measurement.

| <b>Test Item</b>          | <b>Uncertainty</b>      |                         |
|---------------------------|-------------------------|-------------------------|
| Conducted Emission        | ±3.42 dB                |                         |
| Maximum Power Output      | ±0.89 dB                |                         |
| Radiated Emission         | Under 1 GHz<br>±4.05 dB | Above 1 GHz<br>±3.73 dB |
| RF Antenna Conducted Test | ±2.06 dB                |                         |
| Band Edge                 | Under 1 GHz<br>±4.05 dB | Above 1 GHz<br>±3.73 dB |
| 6dB Bandwidth             | ±1544.74 Hz             |                         |
| Power Density             | ±2.06 dB                |                         |
| Duty Cycle                | ±2.31 ms                |                         |

## 2. Conducted Emission

### 2.1. Test Setup



### 2.2. Limits

| FCC Part 15 Subpart C Paragraph 15.207 (dBμV) Limit |        |       |
|-----------------------------------------------------|--------|-------|
| Frequency<br>MHz                                    | Limits |       |
|                                                     | QP     | AVG   |
| 0.15 - 0.50                                         | 66-56  | 56-46 |
| 0.50 - 5.0                                          | 56     | 46    |
| 5.0 - 30                                            | 60     | 50    |

### 2.3. Test Procedure

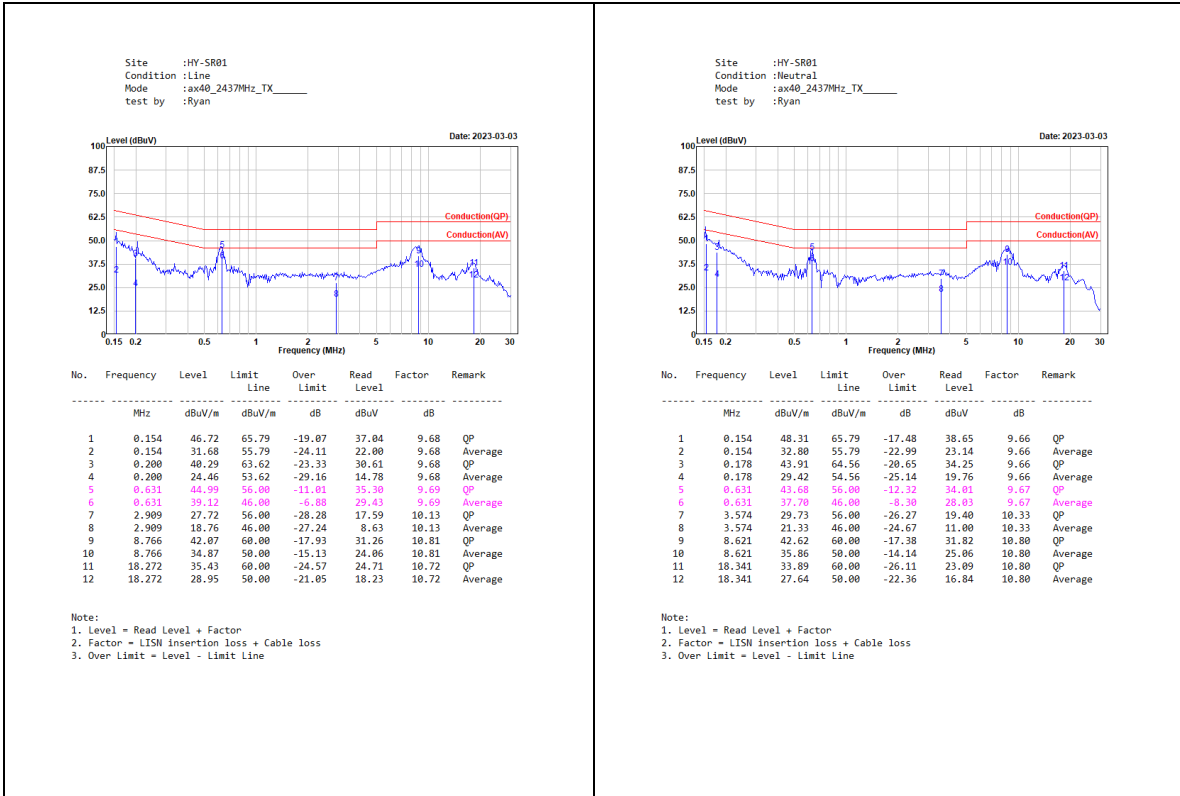
The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm / 50 μH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50 ohm /50 μH coupling impedance with 50 ohm termination. (Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4: 2014 on conducted measurement.

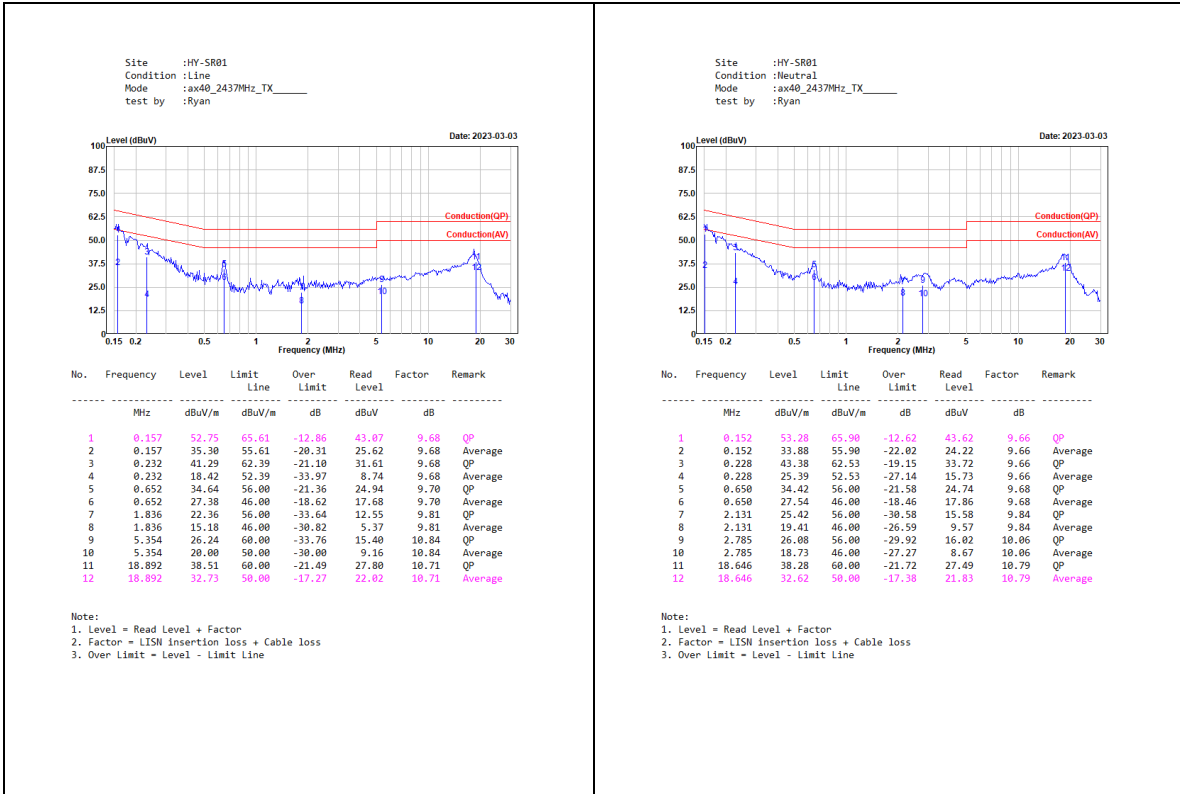
Conducted emissions were invested over the frequency range from 0.15 MHz to 30 MHz using a receiver bandwidth of 9 kHz.

## 2.4. Test Result of Conducted Emission

### PoE Mode

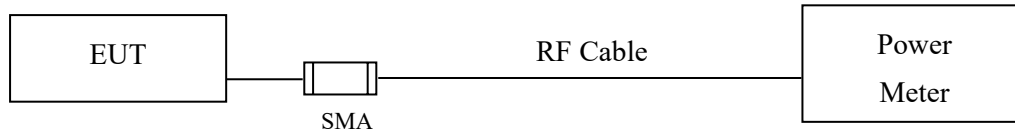


### Adapter Mode



### 3. Maximum Power Output

#### 3.1. Test Setup



#### 3.2. Limits

The maximum peak power shall be less 1 Watt.

#### 3.3. Test Procedure

The EUT was tested according to C63.10:2013 for compliance to FCC 47CFR 15.247 requirements. The maximum peak conducted output power using C63.10:2013 Section 11.9.1.3 PKPM1 Peak power meter method. The maximum average conducted output power using C63.10:2013 Section 11.9.2.3 Measurement using a power meter (PM). (Measurement using a gated RF average-reading power meter). The maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

## 3.4. Test Result of Maximum Power Output

Product : Peplink Pepwave Wireless Product  
 Test Item : Maximum Power Output Data  
 Test Mode : Transmit (802.11b)  
 Test Date : 2022/12/29

## Average Power

| Channel No. | Frequency (MHz) | Data Rate (Mbps) | Chain A Power (dBm) | Chain B Power (dBm) | Chain A+B Power (dBm) | Limit (dBm) | Result |
|-------------|-----------------|------------------|---------------------|---------------------|-----------------------|-------------|--------|
| 01          | 2412            | 1                | 20.61               | 20.57               | 23.60                 | <30         | Pass   |
| 06          | 2437            | 1                | 20.74               | 21.13               | 23.95                 | <30         | Pass   |
| 11          | 2462            | 1                | 19.96               | 20.03               | 23.01                 | <30         | Pass   |

Note: Output Power Value (dBm) = 10\*LOG (Chain A (mW) + Chain B (mW))



Product : Peplink Pepwave Wireless Product  
Test Item : Maximum Power Output Data  
Test Mode : Transmit (802.11g)  
Test Date : 2022/12/29

## Average Power

| Channel No. | Frequency (MHz) | Data Rate (Mbps) | Chain A Power (dBm) | Chain B Power (dBm) | Chain A+B Power (dBm) | Limit (dBm) | Result |
|-------------|-----------------|------------------|---------------------|---------------------|-----------------------|-------------|--------|
| 01          | 2412            | 6                | 18.88               | 18.80               | 21.85                 | <30         | Pass   |
| 06          | 2437            | 6                | 20.51               | 20.84               | 23.69                 | <30         | Pass   |
| 11          | 2462            | 6                | 17.70               | 17.55               | 20.64                 | <30         | Pass   |

Note: Output Power Value (dBm) = 10\*LOG (Chain A (mW) + Chain B (mW))

Product : Peplink Pepwave Wireless Product  
Test Item : Maximum Power Output Data  
Test Mode : Transmit (802.11n-20 MHz)  
Test Date : 2022/12/29

## Average Power

| Channel No. | Frequency (MHz) | Data Rate | Chain A Power (dBm) | Chain B Power (dBm) | Chain A+B Power (dBm) | Limit (dBm) | Result |
|-------------|-----------------|-----------|---------------------|---------------------|-----------------------|-------------|--------|
| 01          | 2412            | MCS0      | 18.73               | 18.81               | 21.78                 | <30         | Pass   |
| 06          | 2437            | MCS0      | 19.29               | 19.34               | 22.33                 | <30         | Pass   |
| 11          | 2462            | MCS0      | 15.27               | 15.35               | 18.32                 | <30         | Pass   |

Note: Output Power Value (dBm) = 10\*LOG (Chain A (mW) + Chain B (mW))

Product : Peplink Pepwave Wireless Product  
Test Item : Maximum Power Output Data  
Test Mode : Transmit (802.11n-40 MHz)  
Test Date : 2022/12/29

**Average Power**

| Channel No. | Frequency (MHz) | Data Rate | Chain A Power (dBm) | Chain B Power (dBm) | Chain A+B Power (dBm) | Limit (dBm) | Result |
|-------------|-----------------|-----------|---------------------|---------------------|-----------------------|-------------|--------|
| 03          | 2422            | MCS0      | 13.49               | 13.61               | 16.56                 | <30         | Pass   |
| 06          | 2437            | MCS0      | 15.76               | 15.93               | 18.86                 | <30         | Pass   |
| 09          | 2452            | MCS0      | 12.53               | 12.33               | 15.44                 | <30         | Pass   |

Note: Output Power Value (dBm) = 10\*LOG (Chain A (mW) + Chain B (mW))

Product : Peplink Pepwave Wireless Product  
Test Item : Maximum Power Output Data  
Test Mode : Transmit (802.11ac-20 MHz)  
Test Date : 2022/12/29

## Average Power

| Channel No. | Frequency (MHz) | Data Rate | Chain A Power (dBm) | Chain B Power (dBm) | Chain A+B Power (dBm) | Limit (dBm) | Result |
|-------------|-----------------|-----------|---------------------|---------------------|-----------------------|-------------|--------|
| 01          | 2412            | MCS0      | 18.78               | 18.85               | 21.83                 | <30         | Pass   |
| 06          | 2437            | MCS0      | 20.73               | 20.79               | 23.77                 | <30         | Pass   |
| 11          | 2462            | MCS0      | 15.38               | 15.41               | 18.41                 | <30         | Pass   |

Note: Output Power Value (dBm) = 10\*LOG (Chain A (mW) + Chain B (mW))

Product : Peplink Pepwave Wireless Product  
Test Item : Maximum Power Output Data  
Test Mode : Transmit (802.11ac-40 MHz)  
Test Date : 2022/12/29

**Average Power**

| Channel No. | Frequency (MHz) | Data Rate | Chain A Power (dBm) | Chain B Power (dBm) | Chain A+B Power (dBm) | Limit (dBm) | Result |
|-------------|-----------------|-----------|---------------------|---------------------|-----------------------|-------------|--------|
| 03          | 2422            | MCS0      | 13.53               | 13.66               | 16.61                 | <30         | Pass   |
| 06          | 2437            | MCS0      | 20.65               | 20.98               | 23.83                 | <30         | Pass   |
| 09          | 2452            | MCS0      | 12.66               | 12.43               | 15.56                 | <30         | Pass   |

Note: Output Power Value (dBm) = 10\*LOG (Chain A (mW) + Chain B (mW))

Product : Peplink Pepwave Wireless Product  
Test Item : Maximum Power Output Data  
Test Mode : Transmit (802.11ax-20 MHz)  
Test Date : 2022/12/29

## Average Power

| Channel No. | Frequency (MHz) | Data Rate | Chain A Power (dBm) | Chain B Power (dBm) | Chain A+B Power (dBm) | Limit (dBm) | Result |
|-------------|-----------------|-----------|---------------------|---------------------|-----------------------|-------------|--------|
| 01          | 2412            | MCS0      | 18.85               | 18.90               | 21.89                 | <30         | Pass   |
| 06          | 2437            | MCS0      | 20.78               | 20.83               | 23.82                 | <30         | Pass   |
| 11          | 2462            | MCS0      | 15.42               | 15.47               | 18.46                 | <30         | Pass   |

Note: Output Power Value (dBm) =  $10 \cdot \text{LOG}(\text{Chain A (mW)} + \text{Chain B (mW)})$

Product : Peplink Pepwave Wireless Product  
Test Item : Maximum Power Output Data  
Test Mode : Transmit (802.11ax-40 MHz)  
Test Date : 2022/12/29

## Average Power

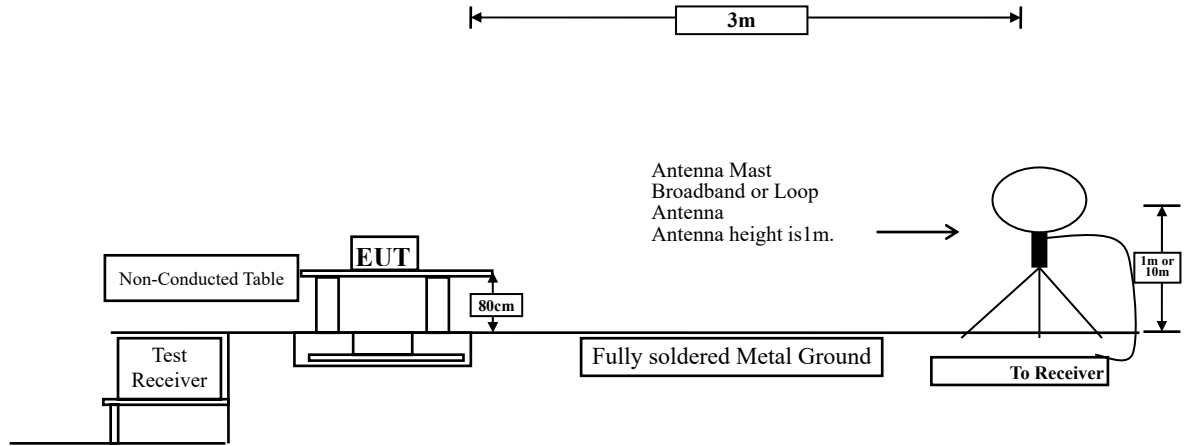
| Channel No. | Frequency (MHz) | Data Rate | Chain A Power (dBm) | Chain B Power (dBm) | Chain A+B Power (dBm) | Limit (dBm) | Result |
|-------------|-----------------|-----------|---------------------|---------------------|-----------------------|-------------|--------|
| 03          | 2422            | MCS0      | 13.63               | 13.75               | 16.70                 | <30         | Pass   |
| 06          | 2437            | MCS0      | 20.71               | 21.04               | 23.89                 | <30         | Pass   |
| 09          | 2452            | MCS0      | 12.74               | 12.54               | 15.65                 | <30         | Pass   |

Note: Output Power Value (dBm) = 10\*LOG (Chain A (mW) + Chain B (mW))

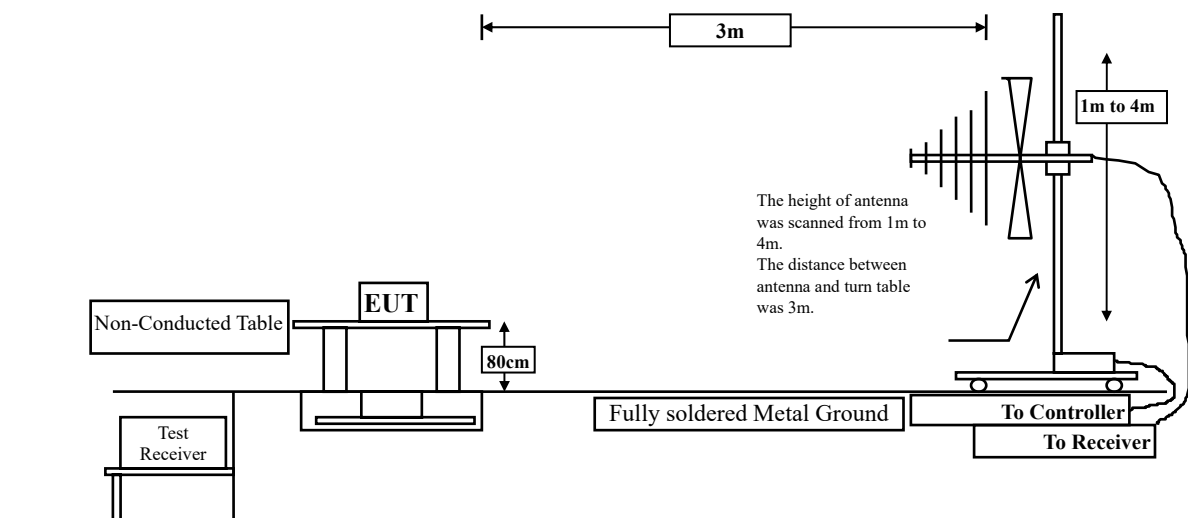
## 4. Radiated Emission

### 4.1. Test Setup

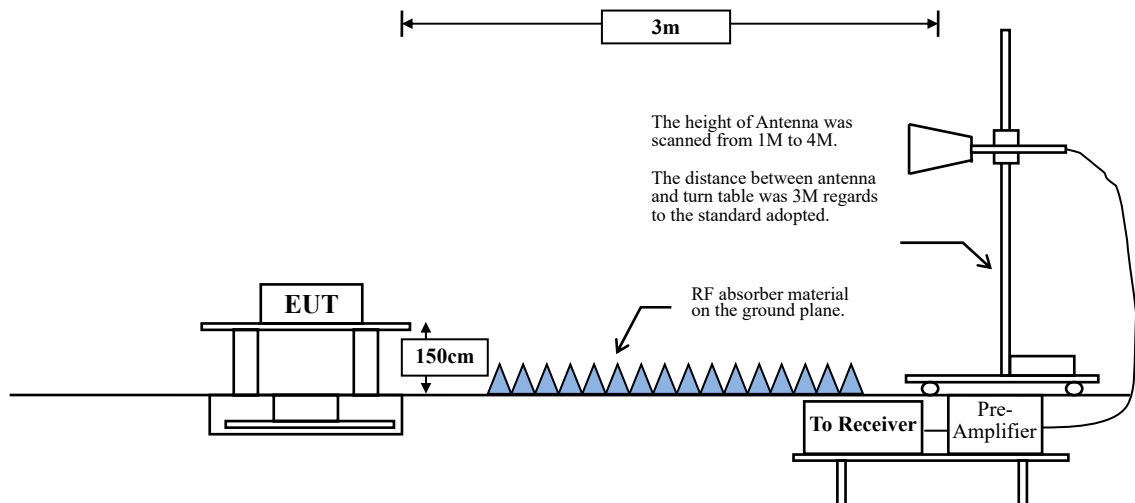
#### Radiated Emission Under 30 MHz



#### Radiated Emission Below 1 GHz



#### Radiated Emission Above 1 GHz





## 4.2. Limits

### ➤ General Radiated Emission Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in paragraph 15.209, whichever is the lesser attenuation.

| FCC Part 15 Subpart C Paragraph 15.209 Limits |                                      |                                 |
|-----------------------------------------------|--------------------------------------|---------------------------------|
| Frequency<br>MHz                              | Field strength<br>(microvolts/meter) | Measurement distance<br>(meter) |
| 0.009-0.490                                   | 2400/F(kHz)                          | 300                             |
| 0.490-1.705                                   | 24000/F(kHz)                         | 30                              |
| 1.705-30                                      | 30                                   | 30                              |
| 30-88                                         | 100                                  | 3                               |
| 88-216                                        | 150                                  | 3                               |
| 216-960                                       | 200                                  | 3                               |
| Above 960                                     | 500                                  | 3                               |

Remarks:

1. RF Voltage (dB $\mu$ V) = 20 log RF Voltage ( $\mu$ V)
2. In the Above Table, the tighter limit applies at the band edges.
3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

#### 4.3. Test Procedure

The EUT was setup according to ANSI C63.10: 2013 and tested according to C63.10:2013 Section 11.12.1 for compliance to FCC 47CFR 15.247 requirements.

Measuring the frequency range below 1GHz, the EUT is placed on a turn table which is 0.8 meter above ground, when measuring the frequency range above 1GHz, the EUT is placed on a turn table which is 1.5 meter above ground.

The turn table is rotated 360 degrees to determine the position of the maximum emission level.

The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned between 1 meter and 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10: 2013 on radiated measurement.

The resolution bandwidth below 30MHz setting on the field strength meter is 9kHz and 30MHz~1GHz is 120kHz and above 1GHz is 1MHz.

Radiated emission measurements below 30MHz are made using Loop Antenna and 30MHz~1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna.

The measurement frequency range from 9kHz - 10th Harmonic of fundamental was investigated.

**RBW and VBW Parameter setting:**

According to C63.10 Section 11.12.2.4 Peak measurement procedure.

RBW = as specified in Table 1.

VBW  $\geq$  3 x RBW.

**Table 1 - RBW as a function of frequency**

| Frequency   | RBW         |
|-------------|-------------|
| 9-150 kHz   | 200-300 Hz  |
| 0.15-30 MHz | 9-10 kHz    |
| 30-1000 MHz | 100-120 kHz |
| > 1000 MHz  | 1 MHz       |

According to C63.10 Section 11.12.2.5 Average measurement procedure.

RBW = 1MHz.

VBW = 10Hz, when duty cycle  $\geq$  98 %

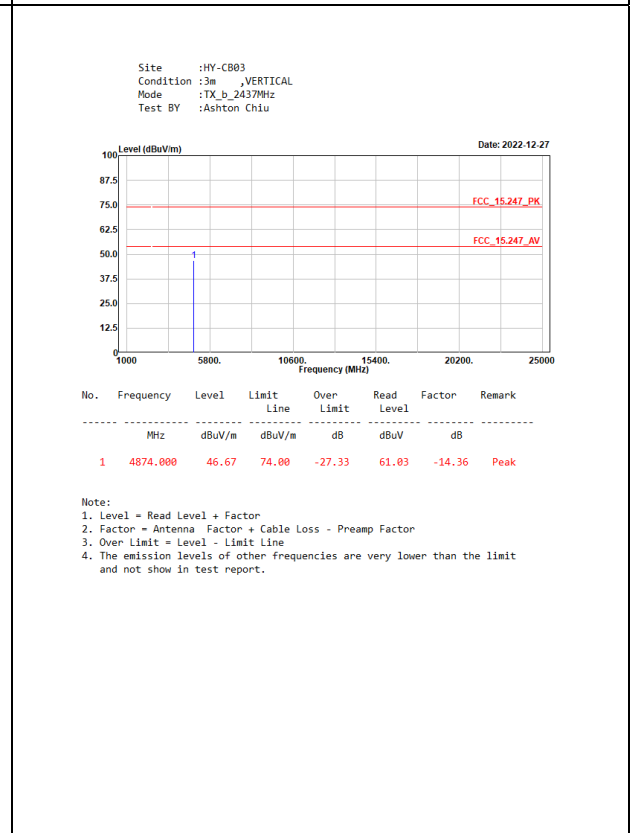
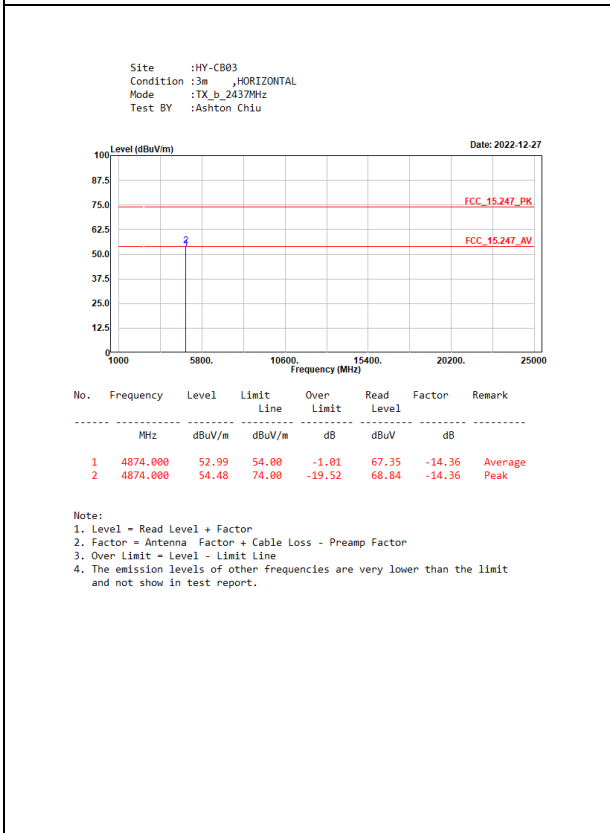
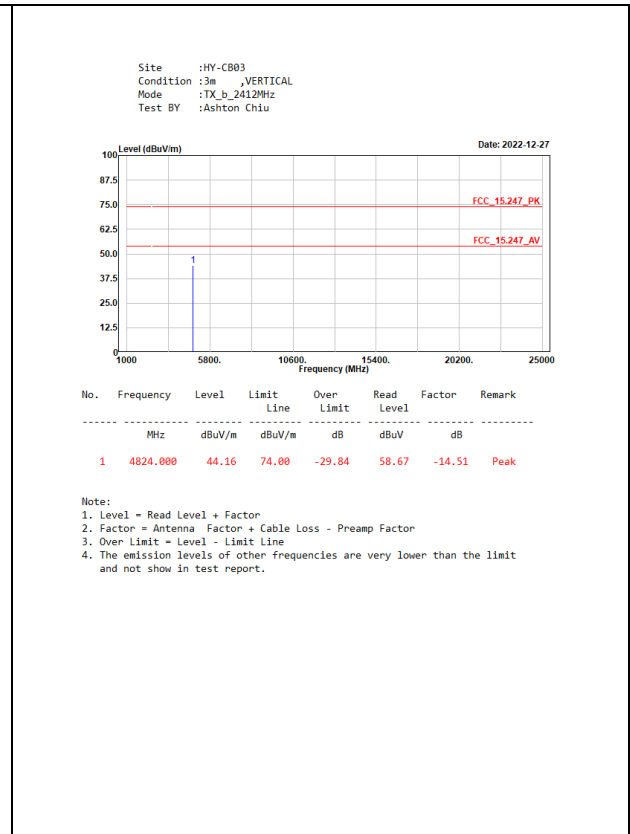
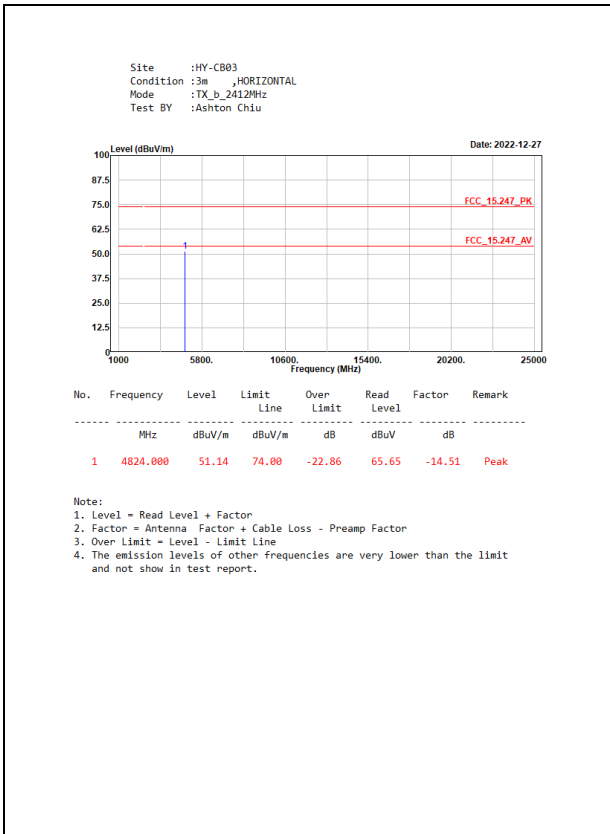
VBW  $\geq$  1/T, when duty cycle < 98 %

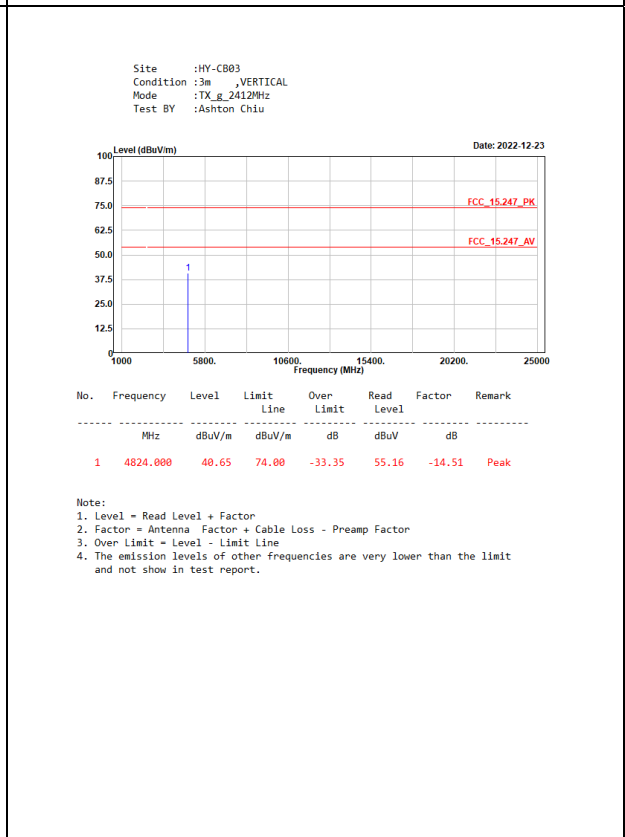
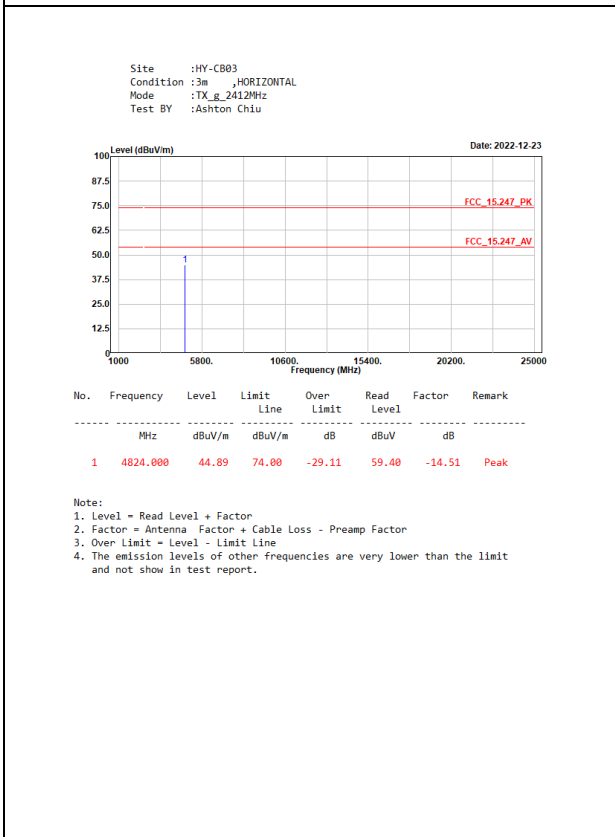
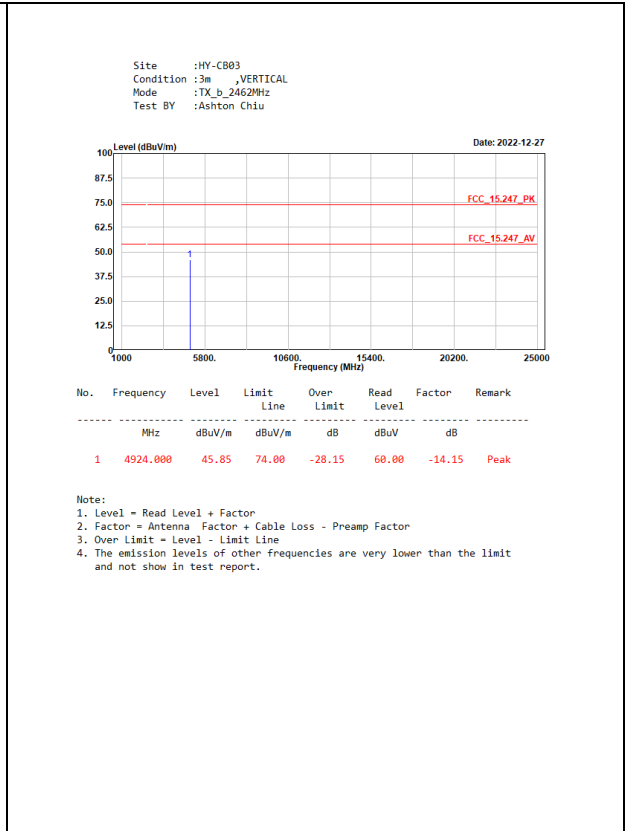
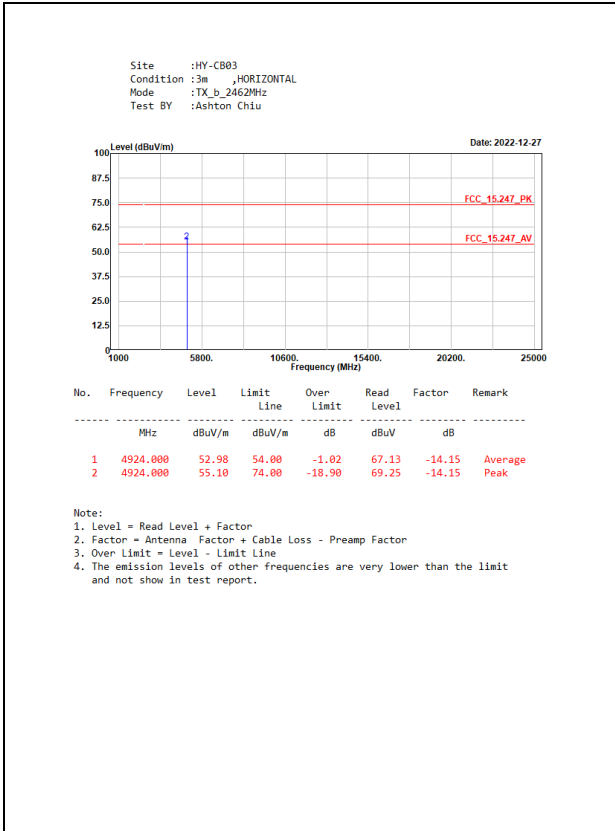
(T refers to the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.)

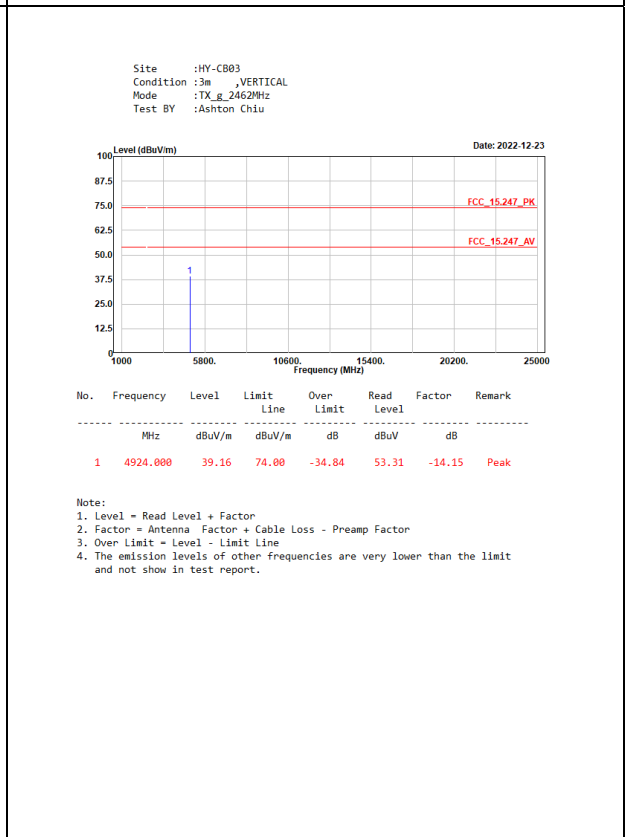
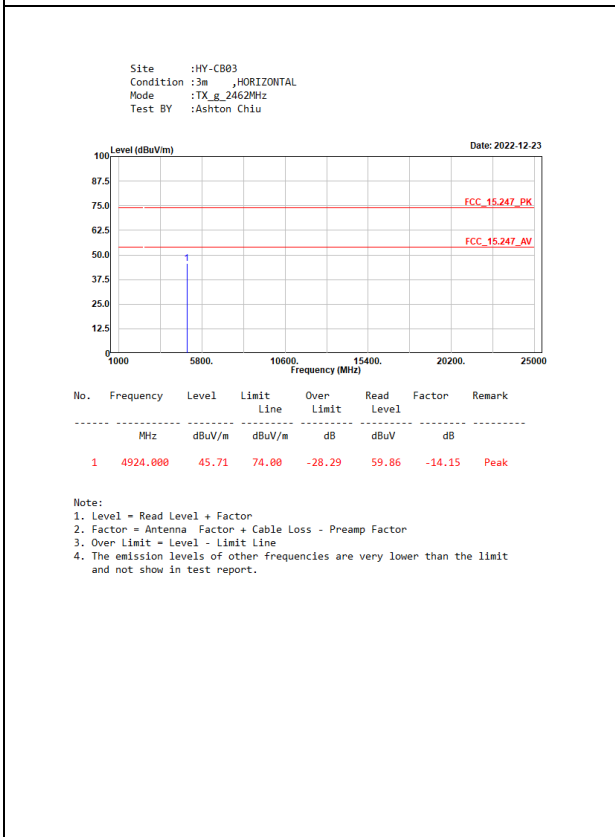
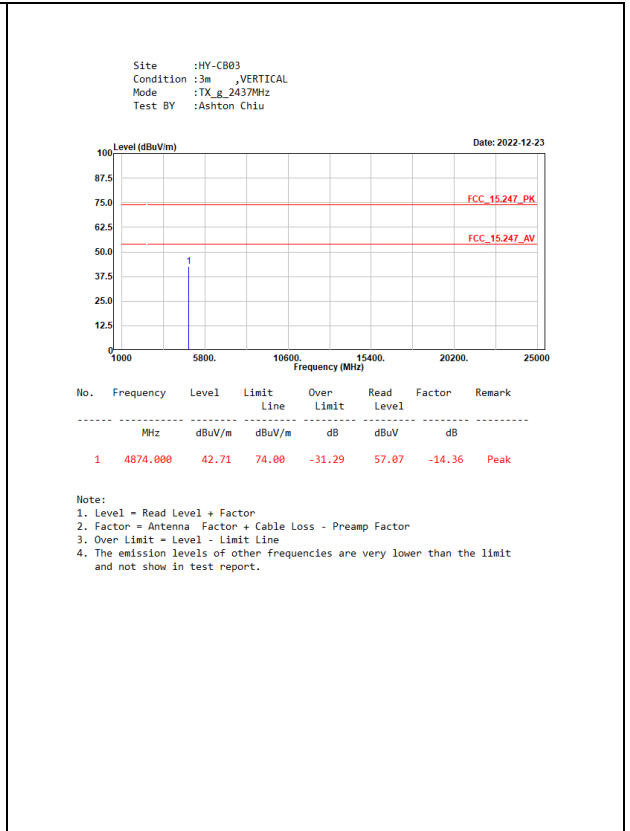
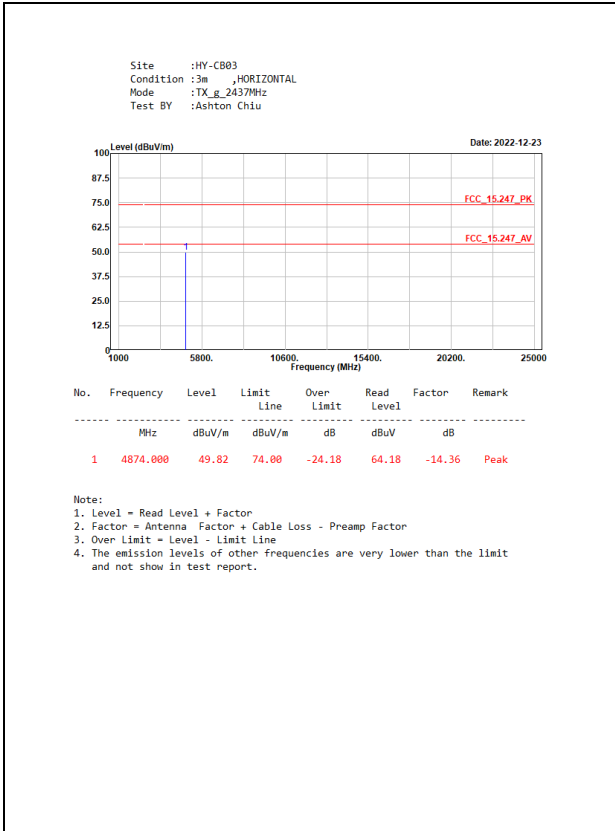
| 2.4GHz band     | Duty Cycle (%) | T (ms) | 1/T (Hz) | VBW (Hz) |
|-----------------|----------------|--------|----------|----------|
| 802.11b         | 72.00          | 1.5300 | 654      | 1000     |
| 802.11g         | 88.82          | 1.4300 | 699      | 1000     |
| 802.11ax-20 MHz | 94.10          | 5.4200 | 185      | 200      |
| 802.11ax-40 MHz | 94.76          | 5.4200 | 185      | 200      |

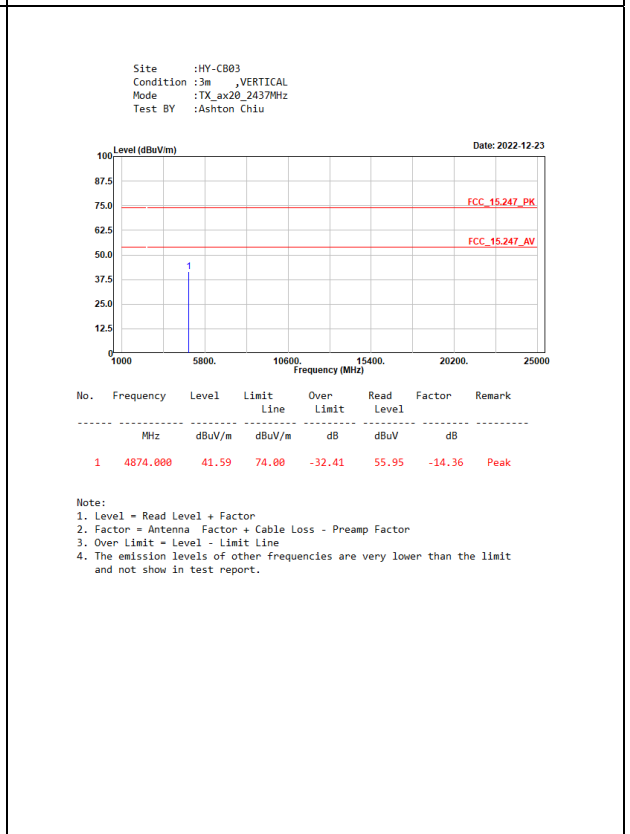
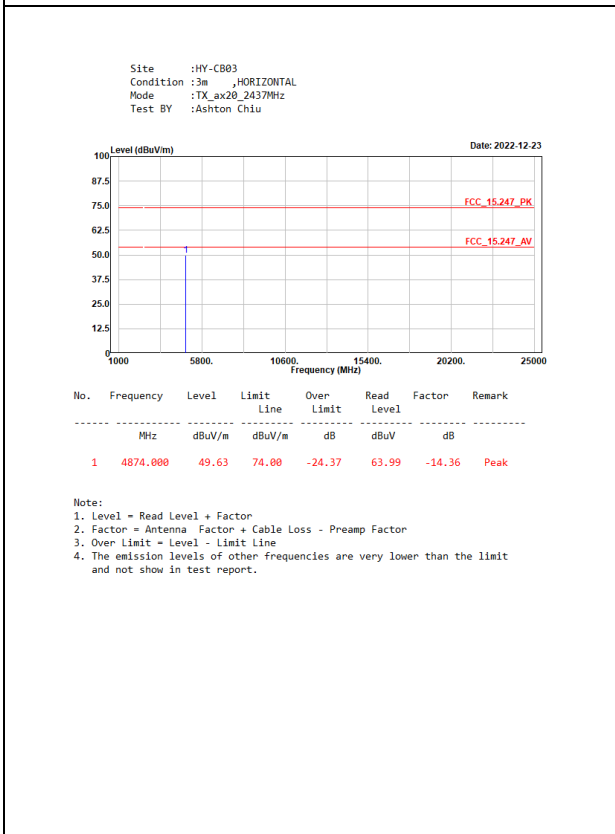
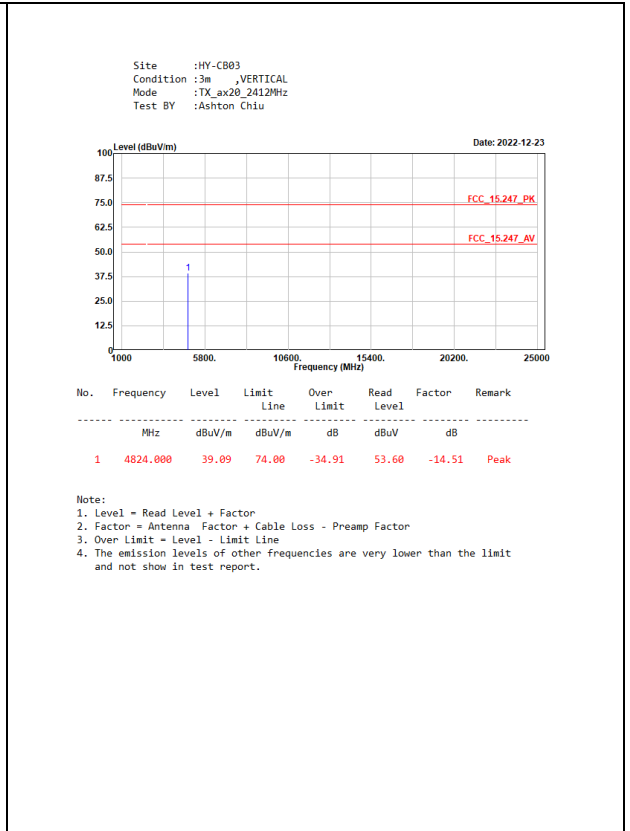
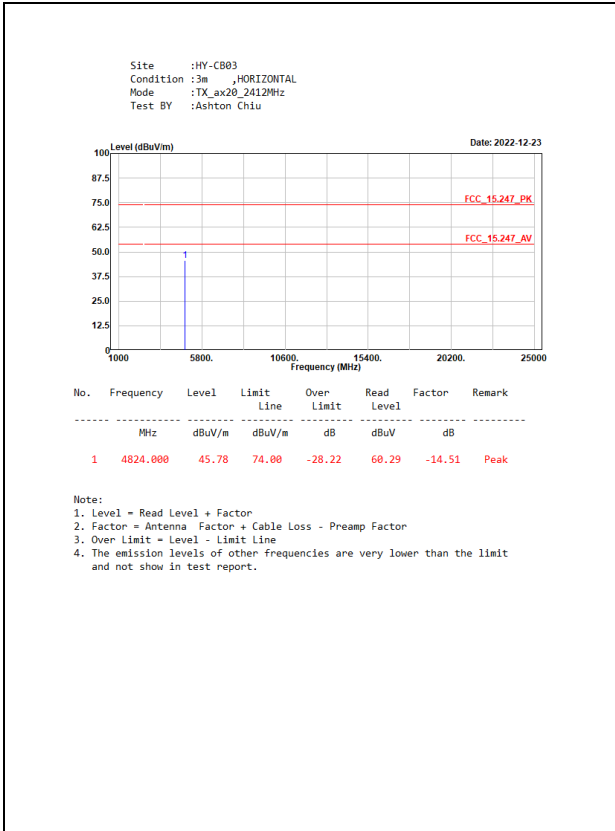
Note: Duty Cycle Refer to Section 9.

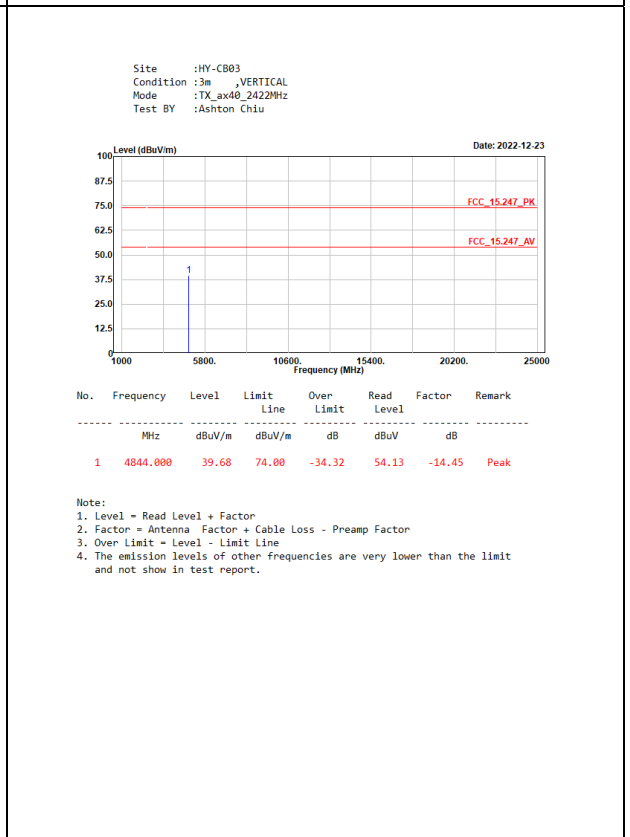
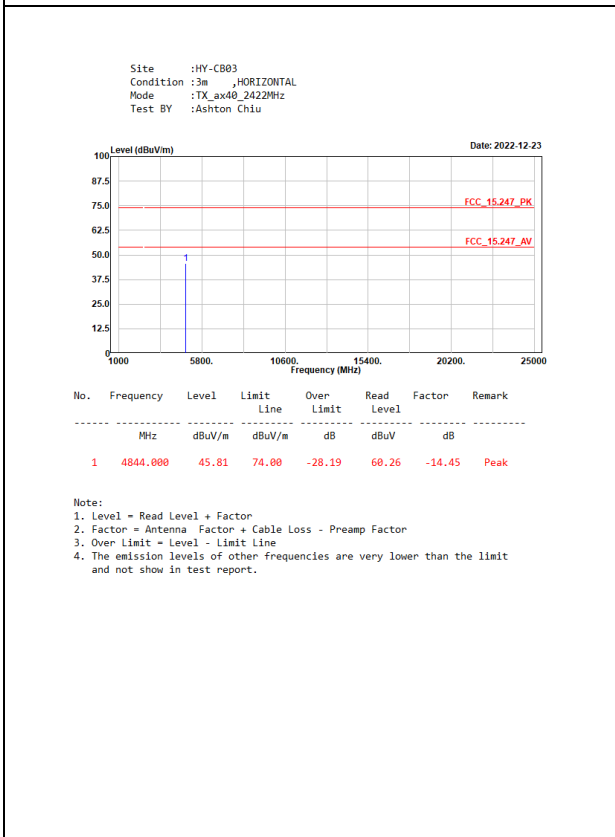
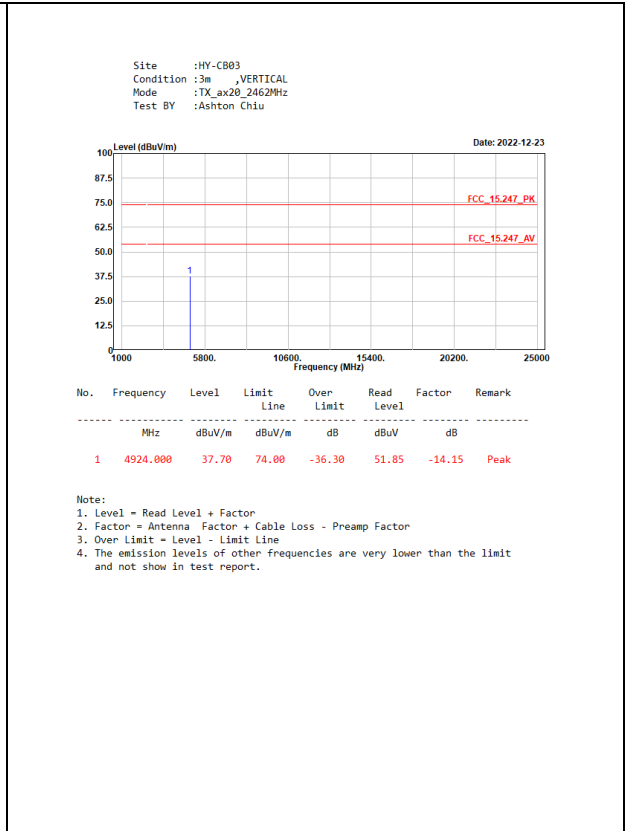
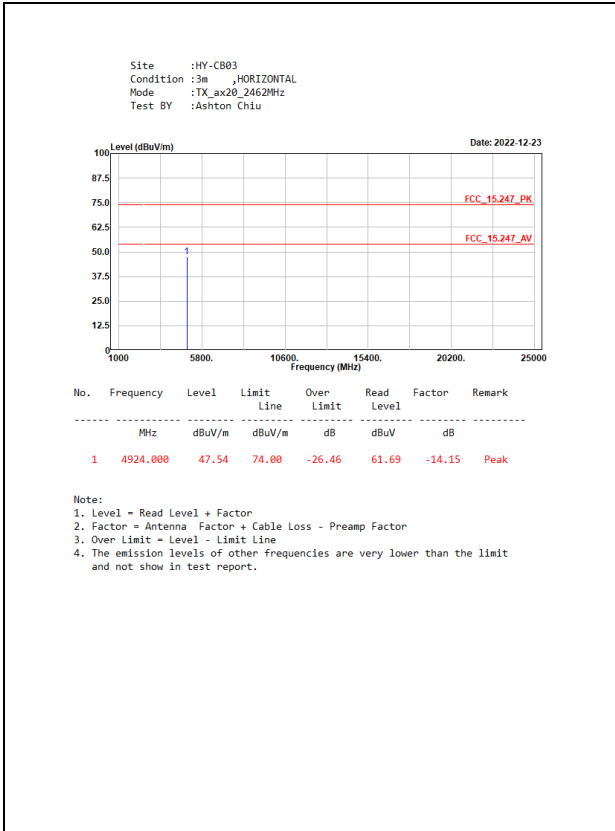
4.4. Test Result of Radiated Emission



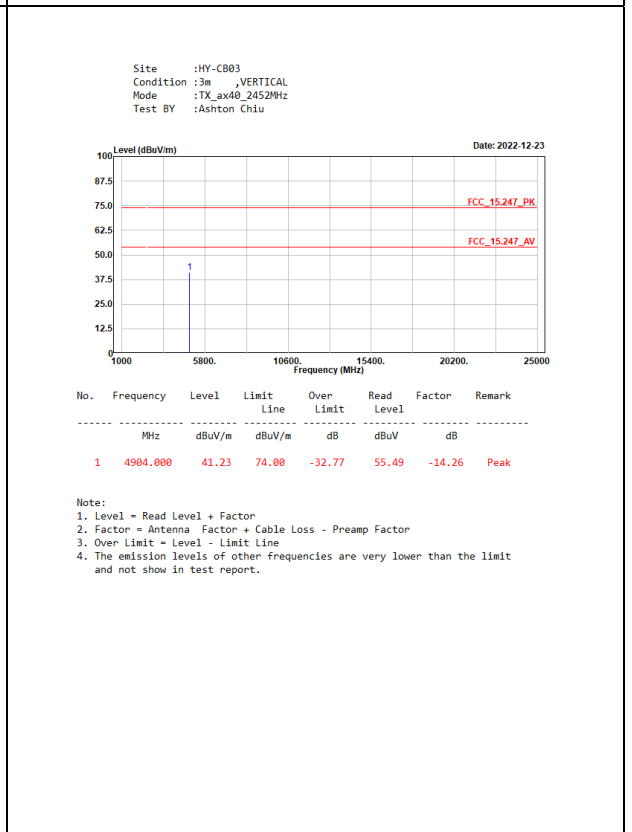
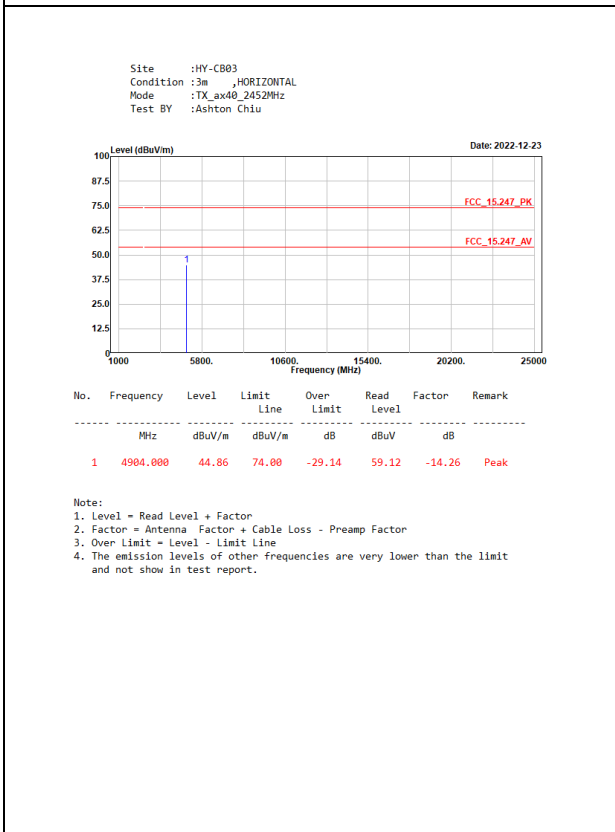
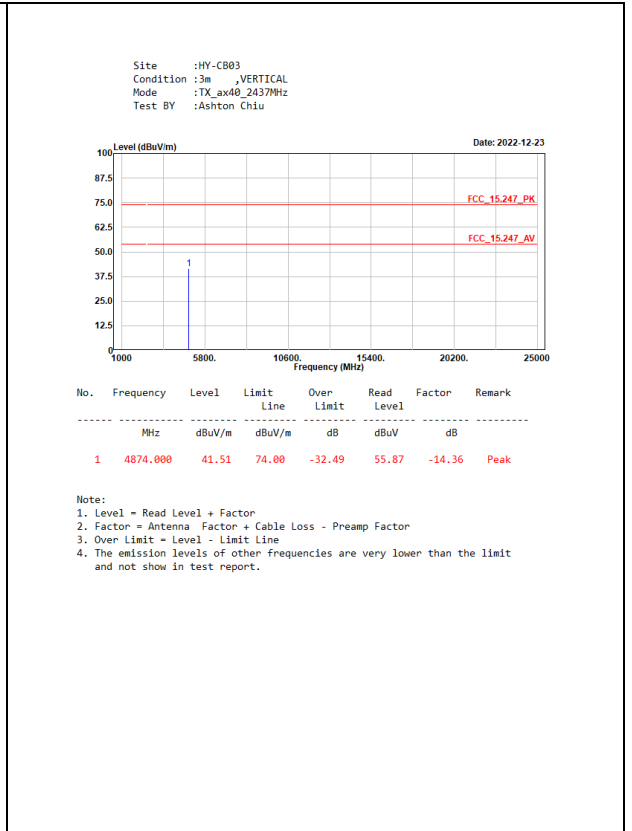
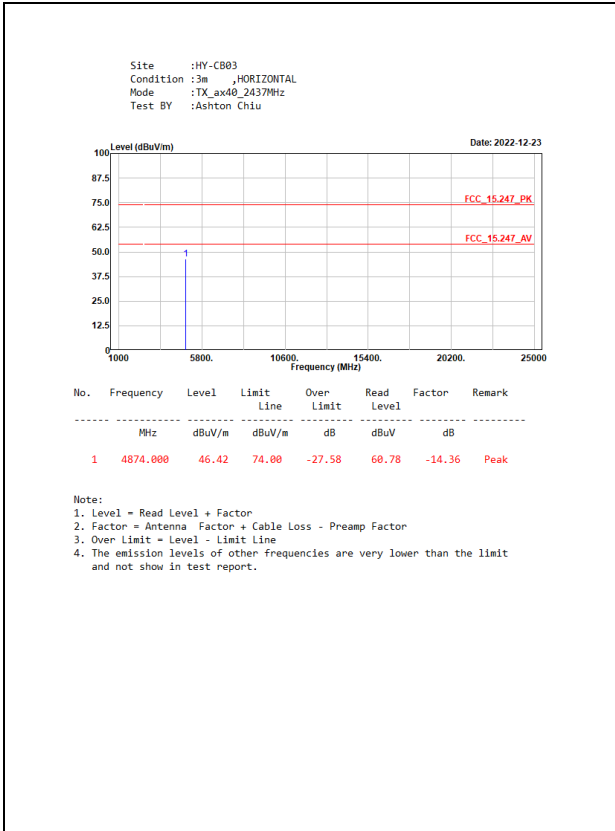




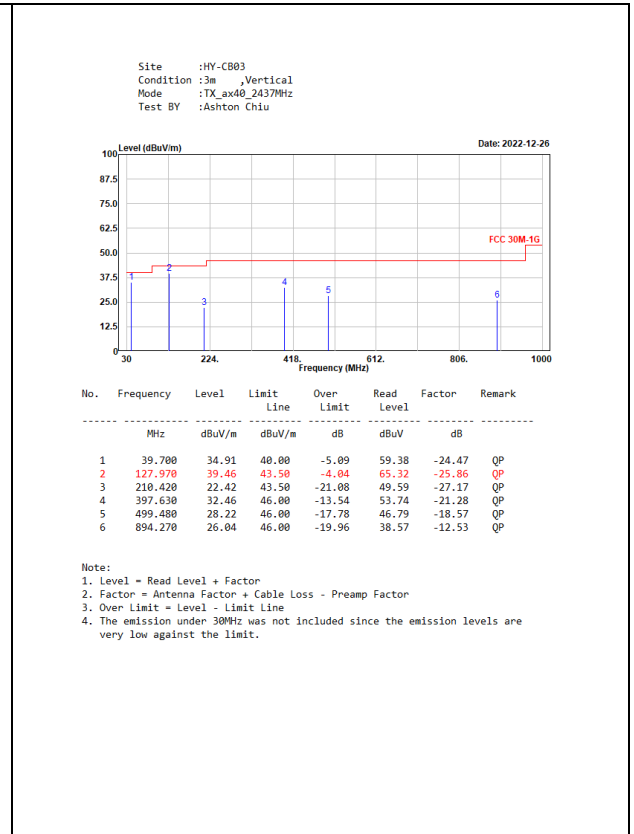
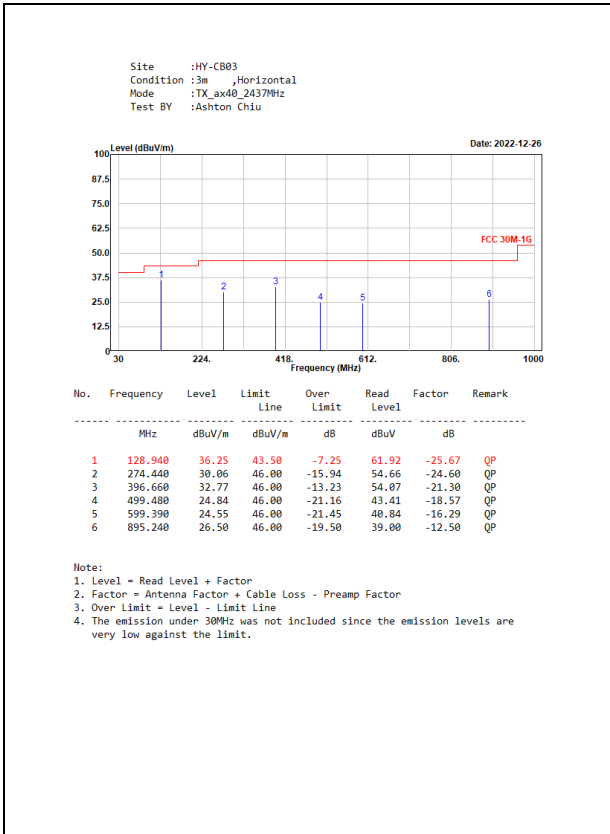




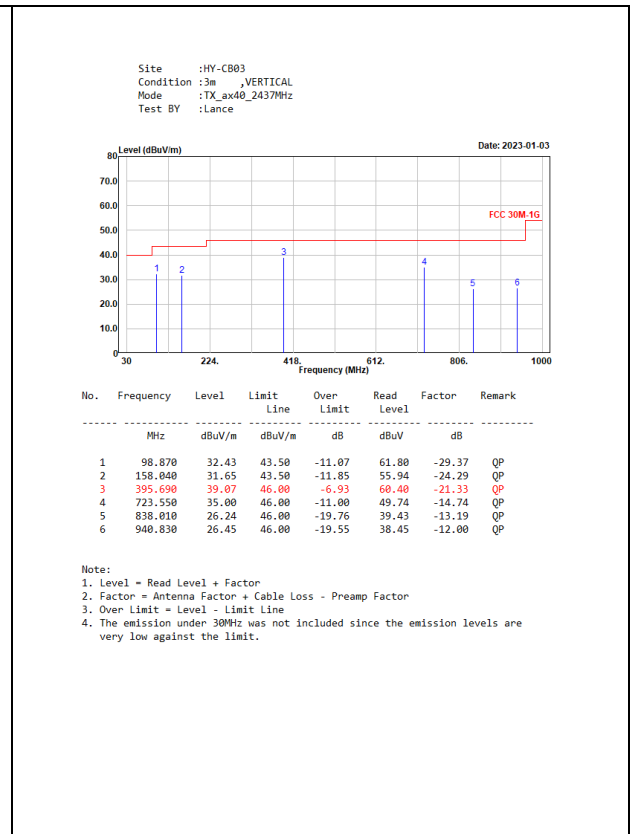
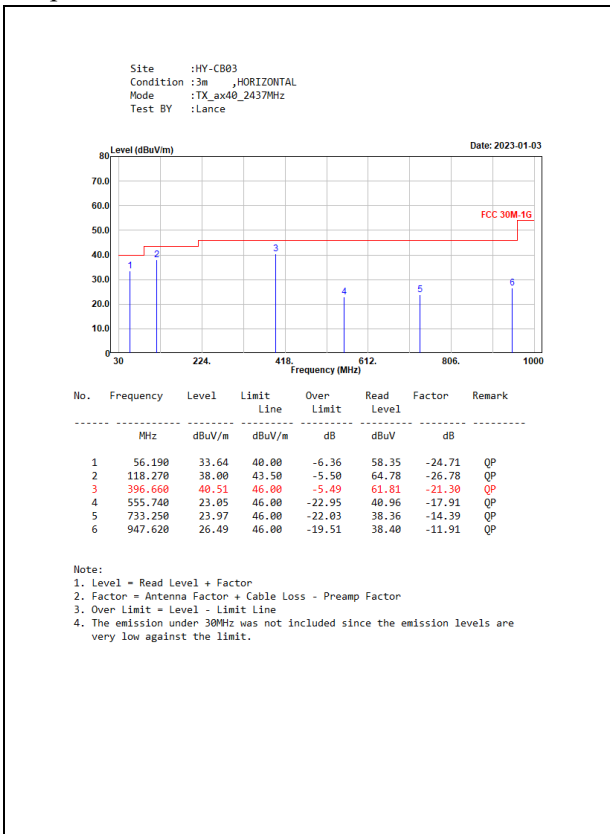




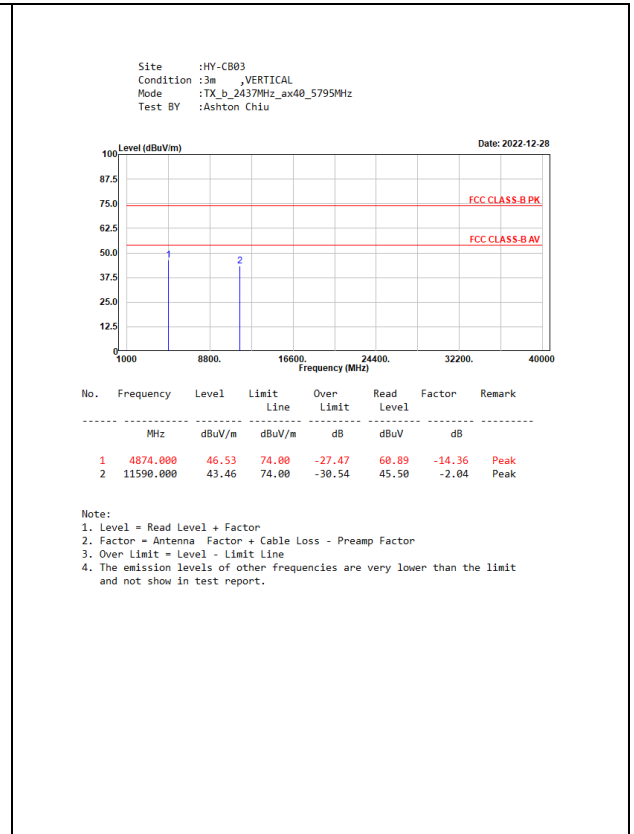
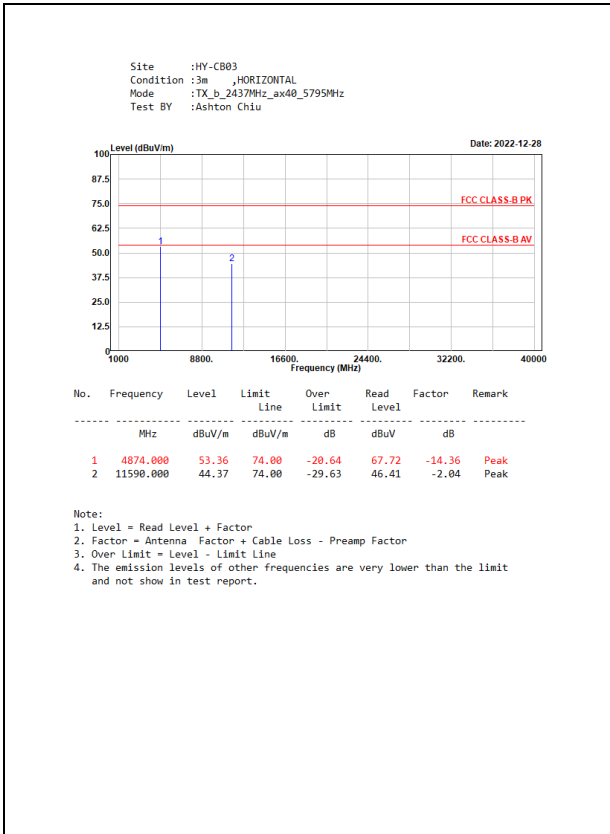
PoE Mode



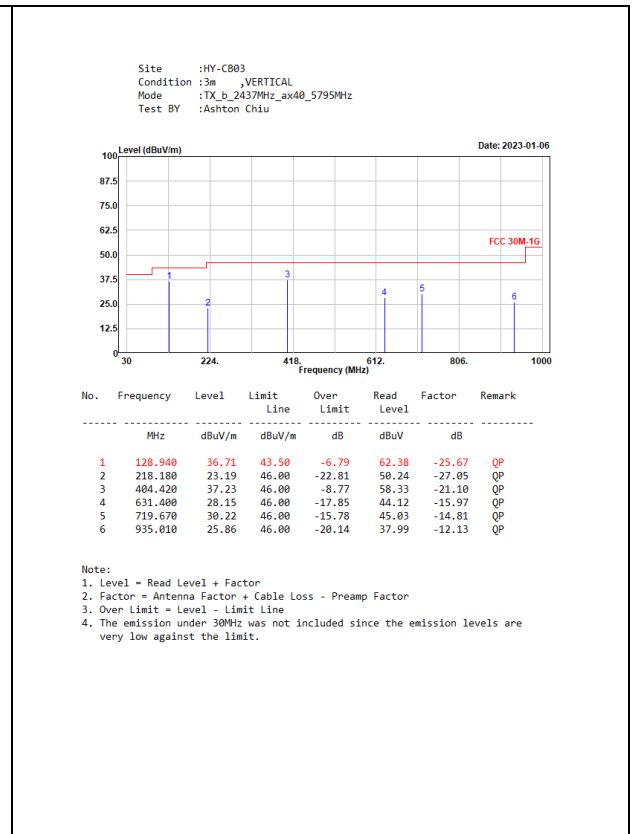
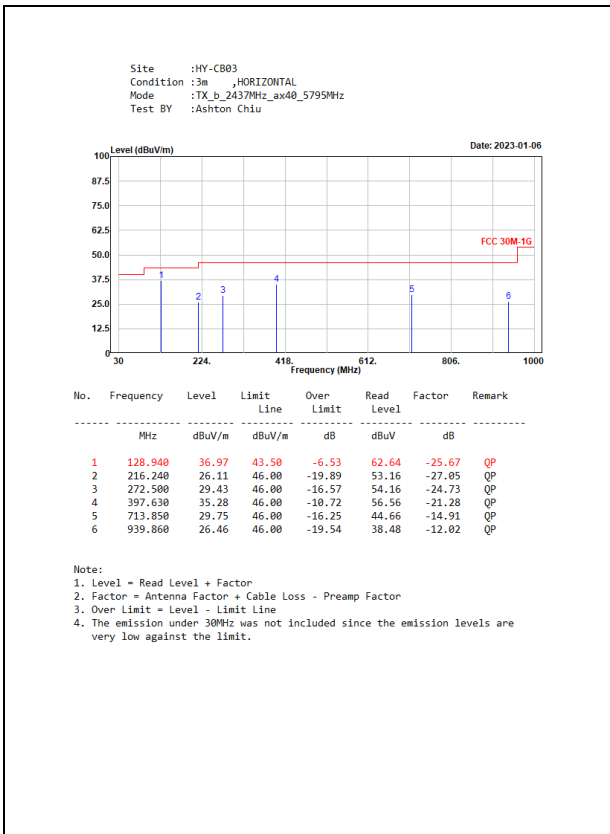
Adapter Mode



Co-location



PoE Mode



### Adapter Mode

Site :HY-CB03  
 Condition :3m ,HORIZONTAL  
 Mode :TX\_b\_2437MHz\_ax40\_5795MHz  
 Test BY :Ashton Chiu

Date: 2023-01-03

| No. | Frequency | Level  | Limit  | Over   | Read  | Factor | Remark |
|-----|-----------|--------|--------|--------|-------|--------|--------|
|     | Mhz       | dBuV/m | dBuV/m | dB     | dBuV  | dB     |        |
| 1   | 51.340    | 30.61  | 40.00  | -9.39  | 54.96 | -24.35 | QP     |
| 2   | 99.840    | 34.92  | 43.50  | -8.58  | 64.11 | -29.19 | QP     |
| 3   | 166.770   | 31.74  | 43.50  | -11.76 | 56.12 | -24.38 | QP     |
| 4   | 406.360   | 34.94  | 46.00  | -11.06 | 56.03 | -21.09 | QP     |
| 5   | 527.610   | 20.85  | 46.00  | -25.15 | 39.13 | -18.28 | QP     |
| 6   | 879.720   | 24.74  | 46.00  | -21.26 | 37.59 | -12.85 | QP     |

Note:  
 1. Level = Read Level + Factor  
 2. Factor = Antenna Factor + Cable Loss - Preamp Factor  
 3. Over Limit = Level - Limit Line  
 4. The emission under 30MHz was not included since the emission levels are very low against the limit.

Site :HY-CB03  
 Condition :3m ,VERTICAL  
 Mode :TX\_b\_2437MHz\_ax40\_5795MHz  
 Test BY :Ashton Chiu

Date: 2023-01-03

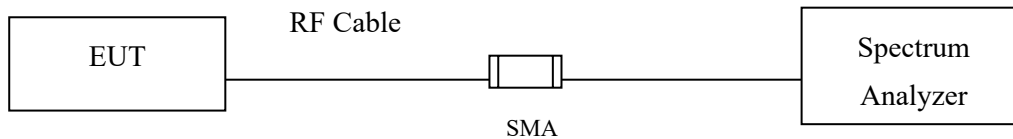
| No. | Frequency | Level  | Limit  | Over   | Read  | Factor | Remark |
|-----|-----------|--------|--------|--------|-------|--------|--------|
|     | Mhz       | dBuV/m | dBuV/m | dB     | dBuV  | dB     |        |
| 1   | 80.440    | 30.98  | 40.00  | -9.02  | 60.27 | -29.29 | QP     |
| 2   | 121.180   | 33.29  | 43.50  | -10.21 | 59.77 | -26.48 | QP     |
| 3   | 167.740   | 28.66  | 43.50  | -14.84 | 53.12 | -24.46 | QP     |
| 4   | 406.360   | 31.63  | 46.00  | -14.37 | 52.72 | -21.09 | QP     |
| 5   | 639.160   | 22.36  | 46.00  | -23.64 | 38.17 | -15.81 | QP     |
| 6   | 895.240   | 25.18  | 46.00  | -20.82 | 37.68 | -12.50 | QP     |

Note:  
 1. Level = Read Level + Factor  
 2. Factor = Antenna Factor + Cable Loss - Preamp Factor  
 3. Over Limit = Level - Limit Line  
 4. The emission under 30MHz was not included since the emission levels are very low against the limit.

## 5. RF Antenna Conducted Test

### 5.1. Test Setup

RF antenna Conducted Measurement:



### 5.2. Limits

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

### 5.3. Test Procedure

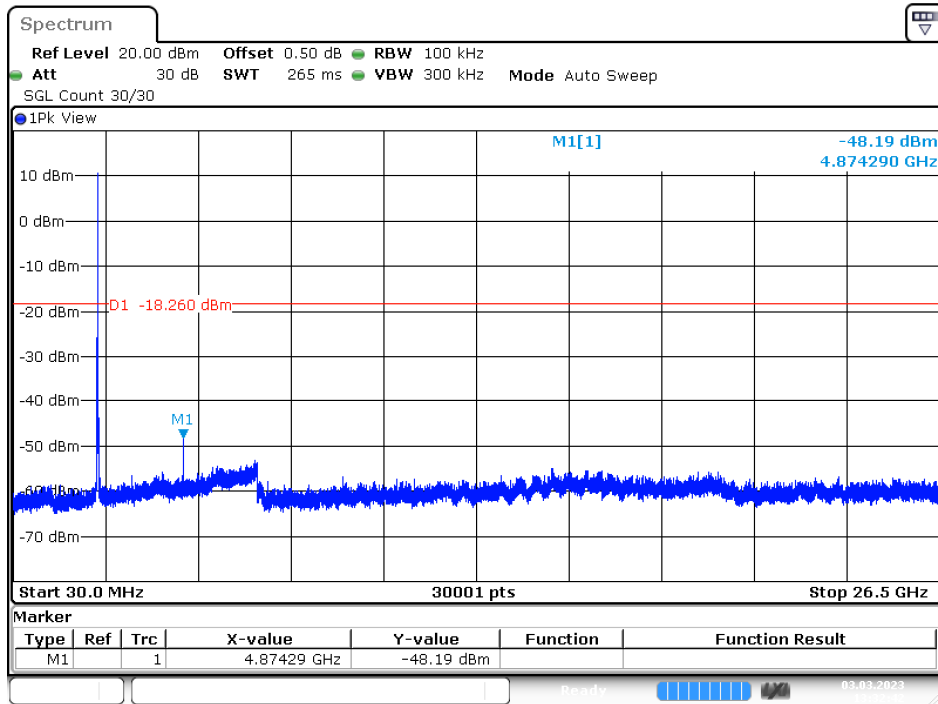
The EUT was tested according to C63.10:2013 Section 11.11 for compliance to FCC 47CFR 15.247 requirements.

Set RBW = 100 kHz, Set VBW > RBW, scan up through 10th harmonic.

5.4. Test Result of RF antenna conducted test

Product : Peplink Pepwave Wireless Product  
 Test Item : RF antenna conducted test  
 Test Mode : Transmit (802.11b)  
 Test Date : 2023/02/22

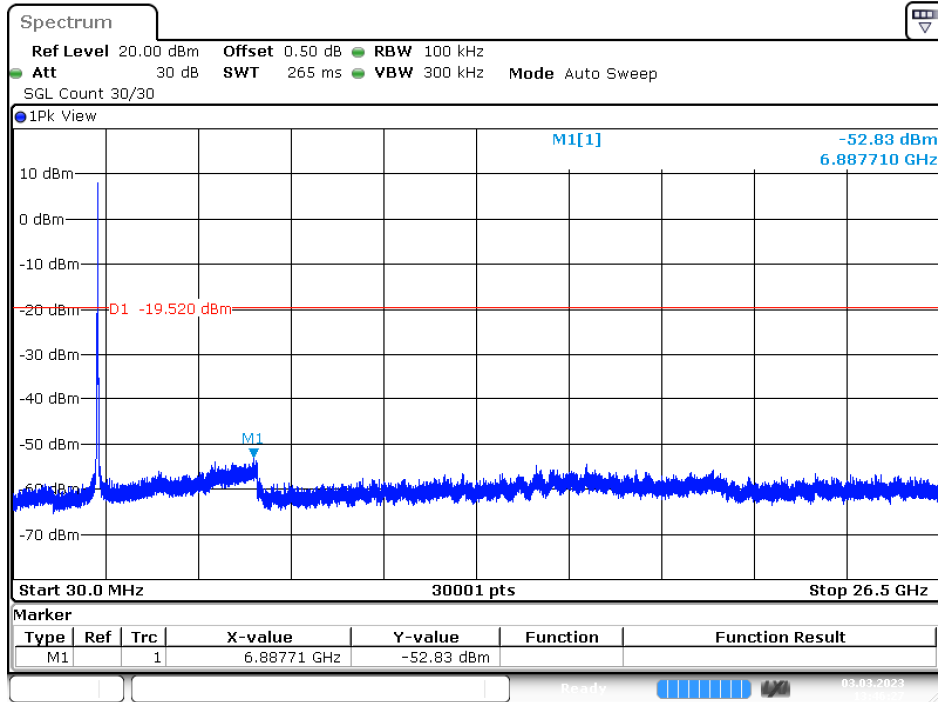
Channel 06 (2437 MHz)



Date: 3.MAR.2023 13:32:43

Product : Peplink Pepwave Wireless Product  
 Test Item : RF Antenna Conducted Spurious  
 Test Mode : Transmit (802.11g)  
 Test Date : 2023/02/22

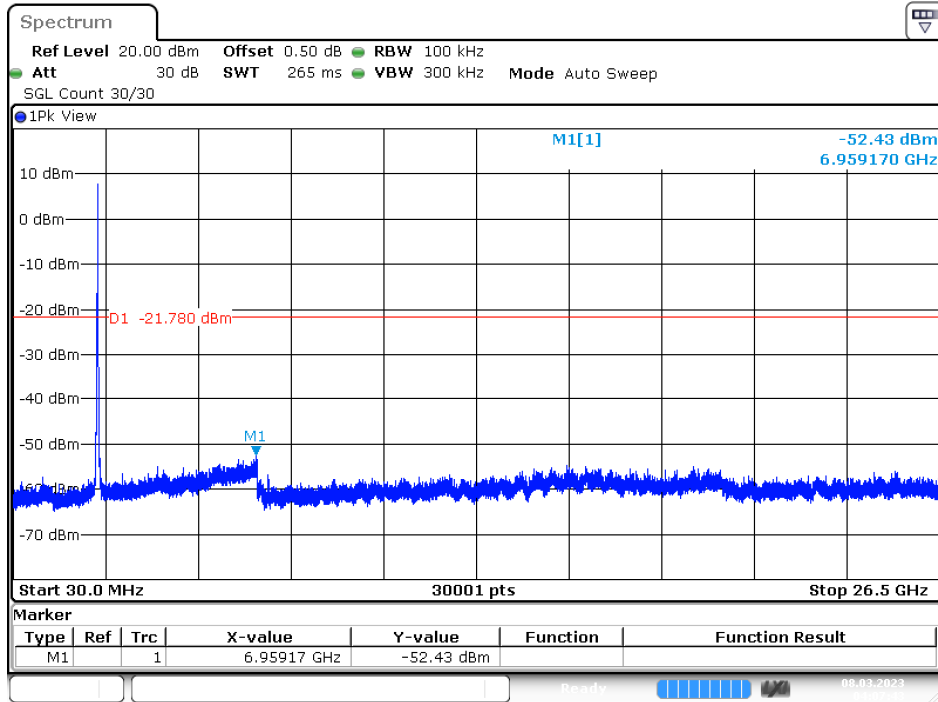
**Channel 06 (2437MHz)**



Date: 3.MAR.2023 13:46:27

Product : Peplink Pepwave Wireless Product  
 Test Item : RF Antenna Conducted Spurious  
 Test Mode : Transmit (802.11ax-20 MHz)  
 Test Date : 2023/02/23

**Channel 06 (2437MHz)**

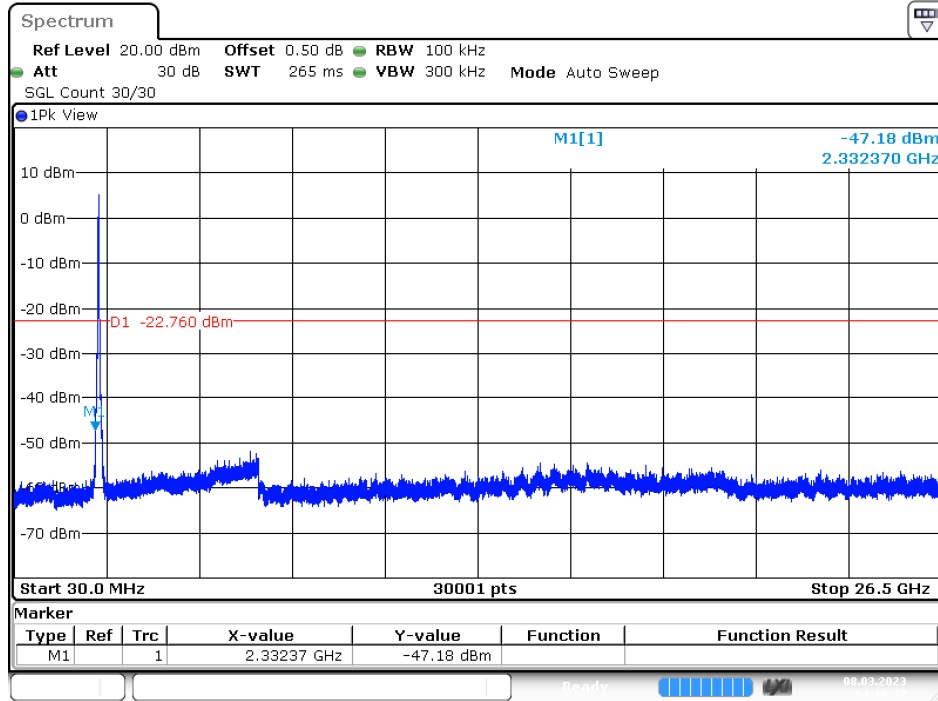


Date: 8.MAR.2023 04:07:43



Product : Peplink Pepwave Wireless Product  
 Test Item : RF Antenna Conducted Spurious  
 Test Mode : Transmit (802.11ax-40 MHz)  
 Test Date : 2023/02/23

**Channel 06 (2437MHz)**

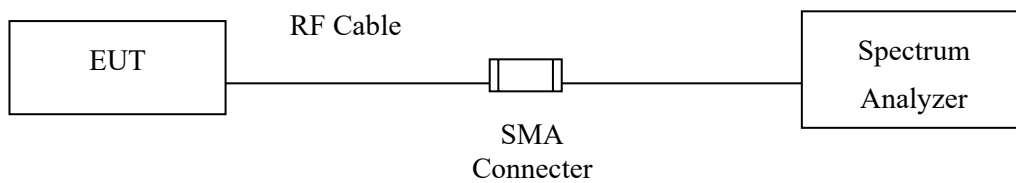


Date: 8.MAR.2023 04:16:38

## 6. Band Edge

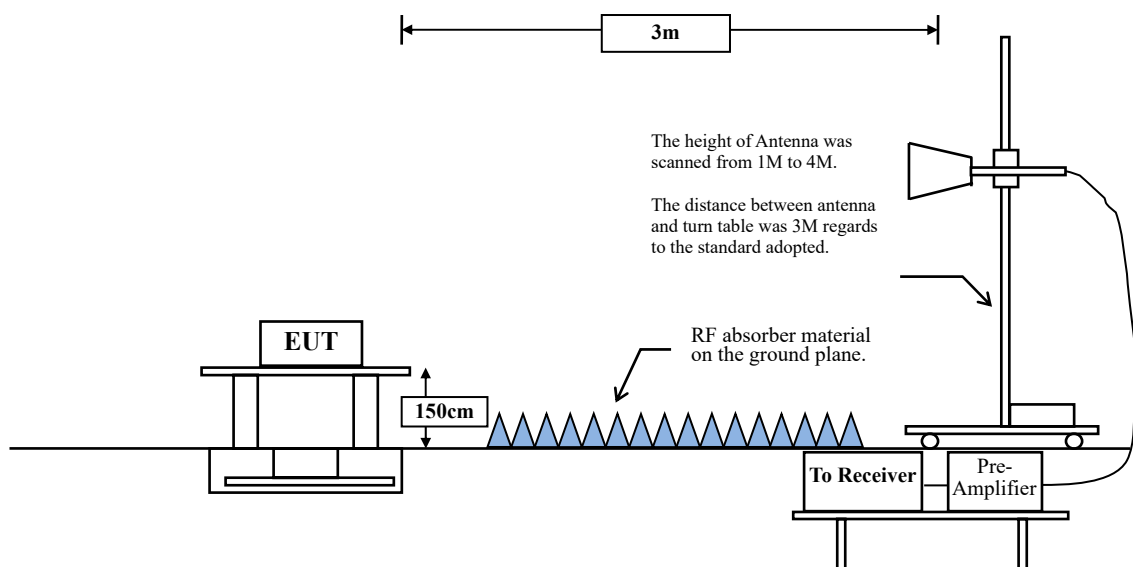
### 6.1. Test Setup

RF Conducted Measurement



RF Radiated Measurement:

Above 1GHz



## 6.2. Limits

According to FCC Section 15.247(d). In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

## 6.3. Test Procedure

The EUT was setup according to ANSI C63.10, 2013 and tested according to C63.10:2013 Section 11.12.1 for compliance to FCC 47CFR 15.247 requirements.

The EUT is placed on a turn table which is 1.5 meter above ground. The turn table is rotated 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10:2013 on radiated measurement.

**RBW and VBW Parameter setting:**

According to C63.10 Section 11.12.2.4 Peak measurement procedure.

RBW = as specified in Table 1.

VBW  $\geq$  3 x RBW.

**Table 1 - RBW as a function of frequency**

| Frequency   | RBW         |
|-------------|-------------|
| 9-150 kHz   | 200-300 Hz  |
| 0.15-30 MHz | 9-10 kHz    |
| 30-1000 MHz | 100-120 kHz |
| > 1000 MHz  | 1 MHz       |

According to C63.10 Section 11.12.2.5 Average measurement procedure.

RBW = 1MHz.

VBW = 10Hz, when duty cycle  $\geq$  98 %

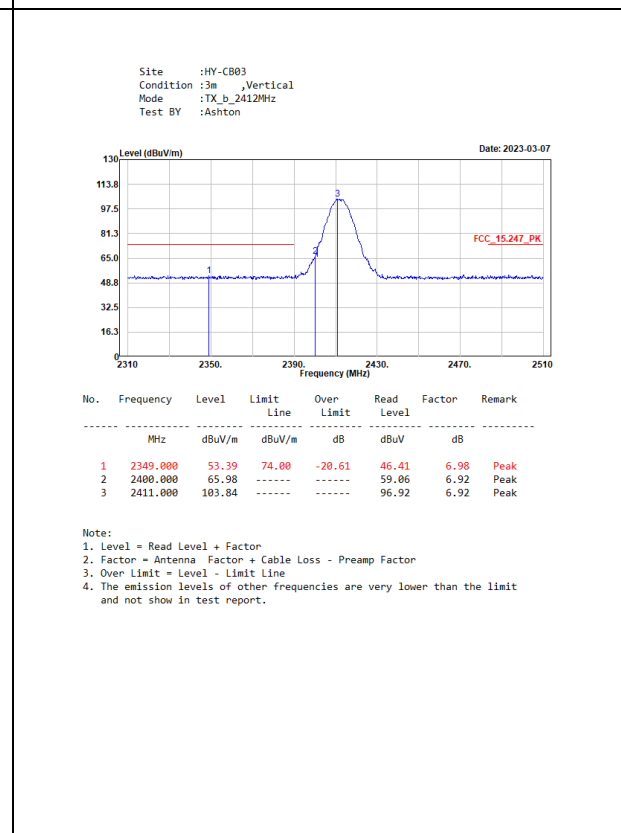
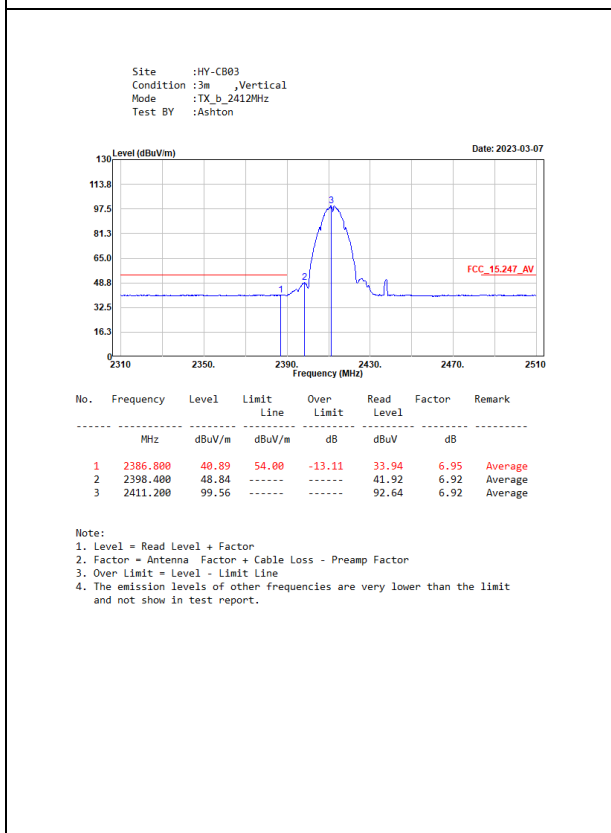
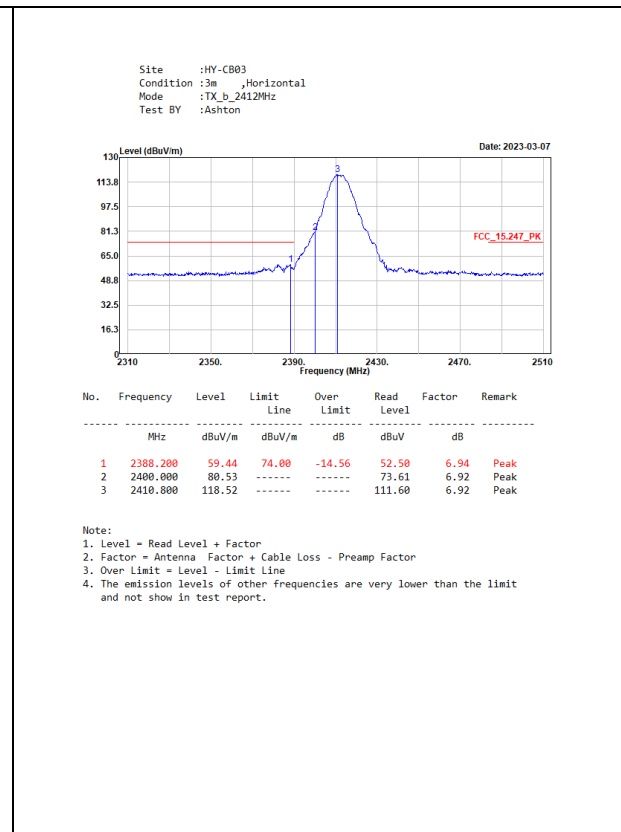
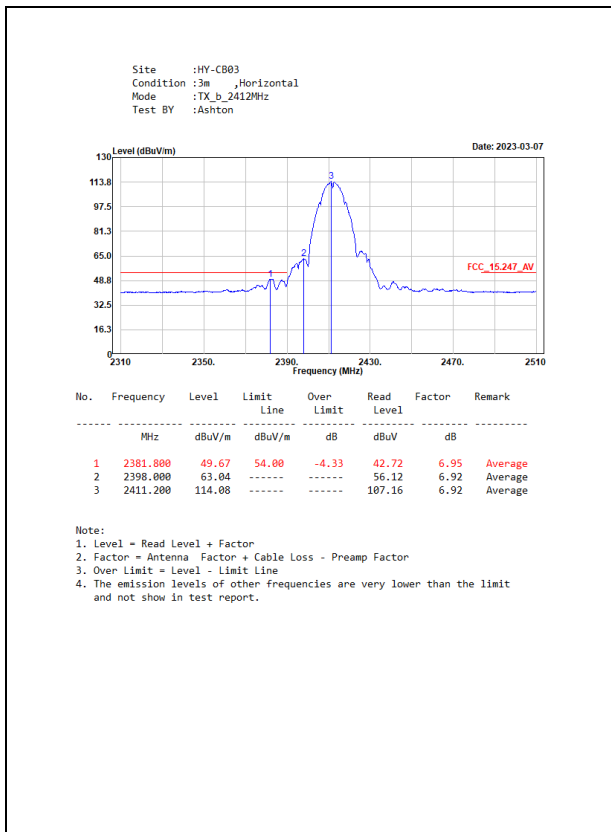
VBW  $\geq$  1/T, when duty cycle < 98 %

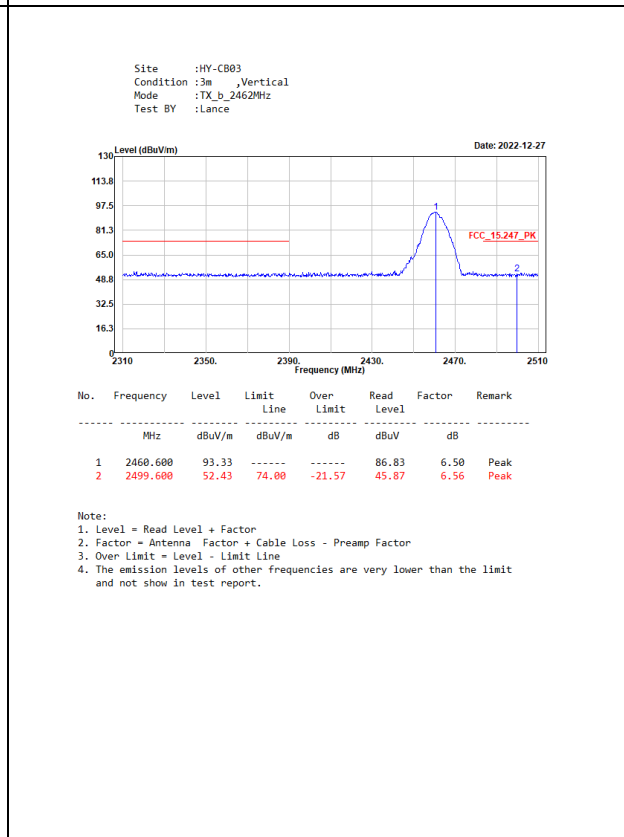
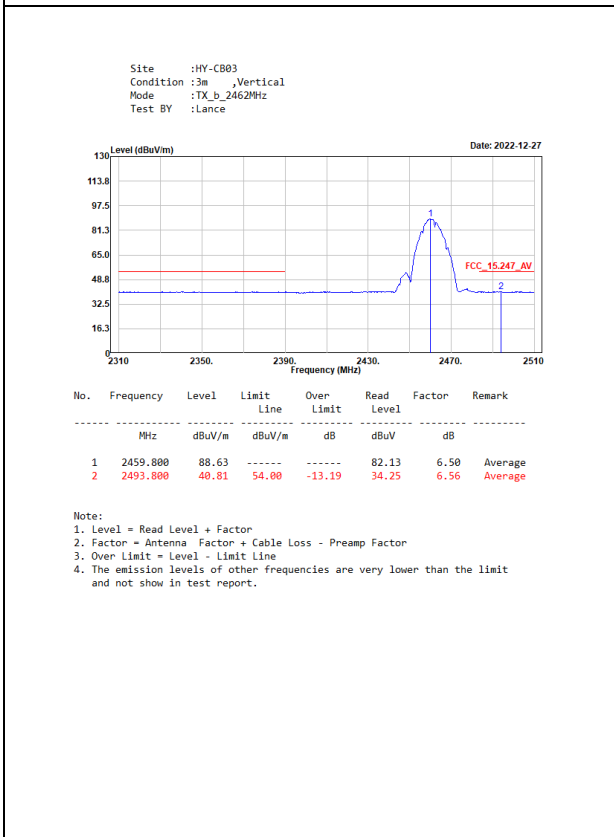
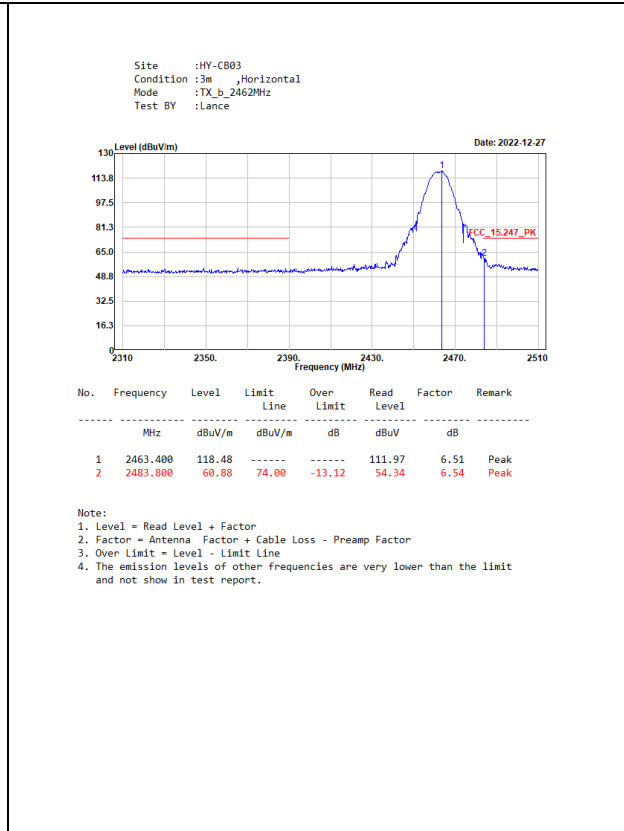
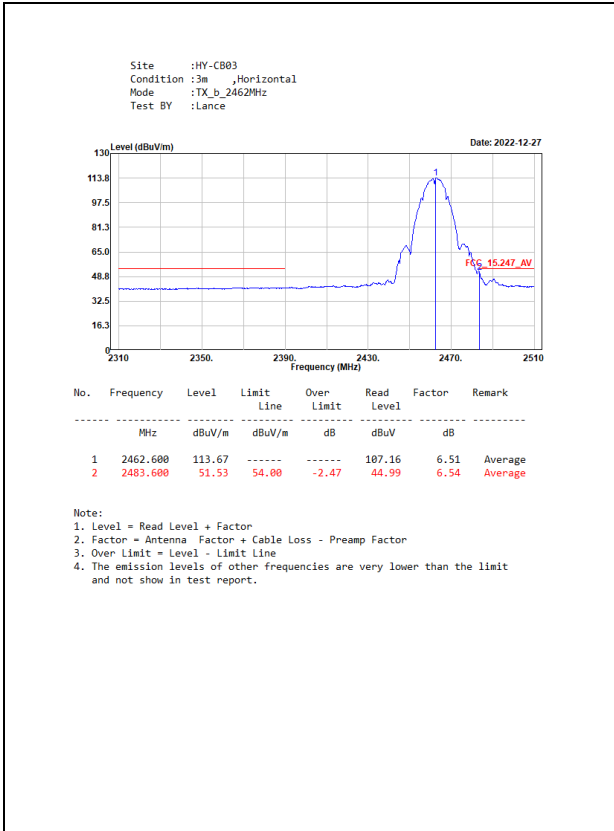
(T refers to the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.)

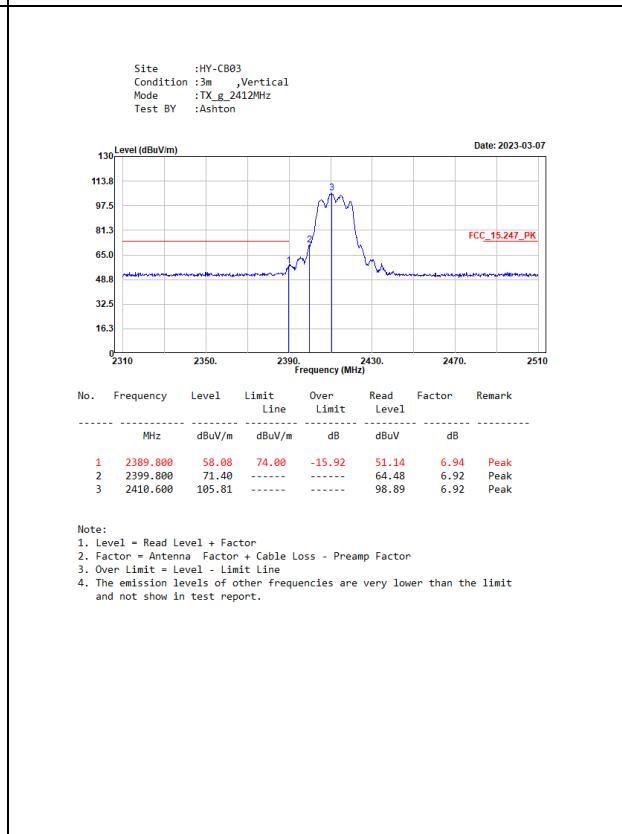
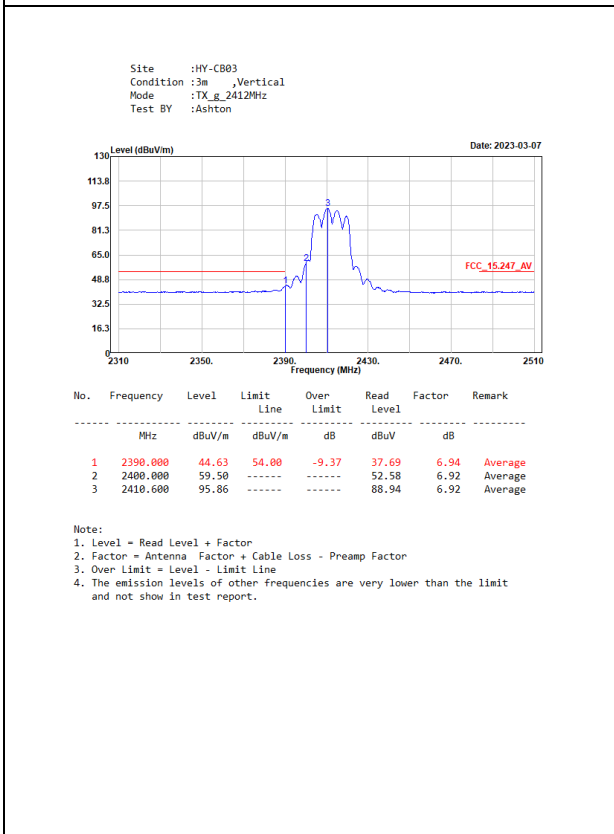
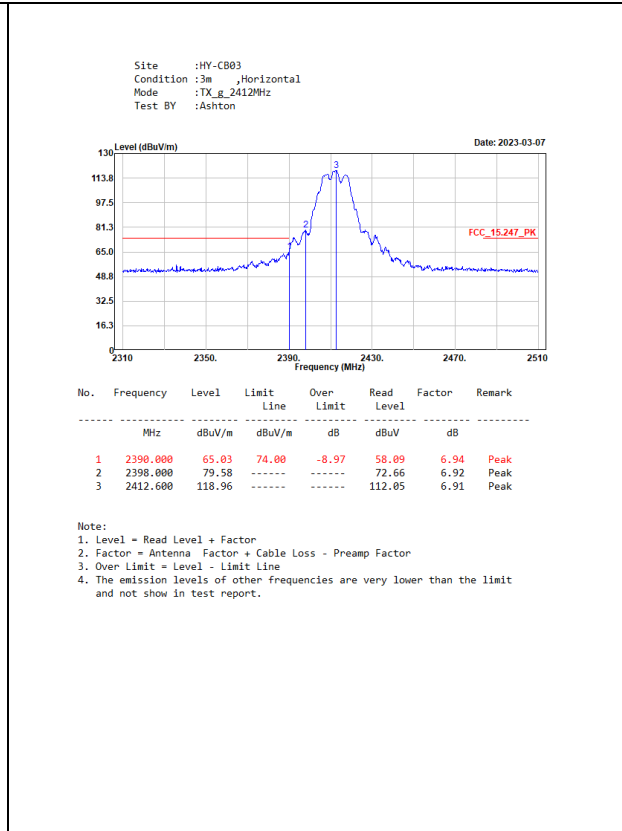
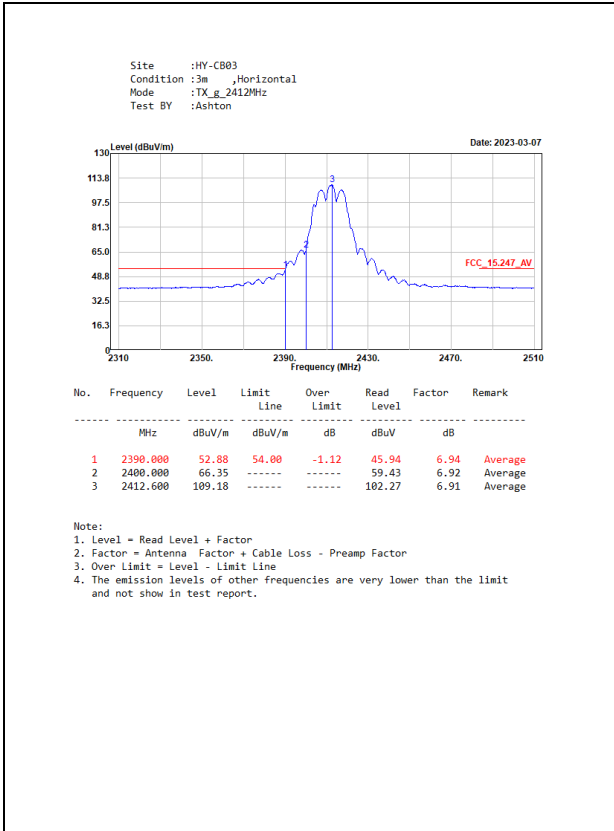
| 2.4GHz band     | Duty Cycle (%) | T (ms) | 1/T (Hz) | VBW (Hz) |
|-----------------|----------------|--------|----------|----------|
| 802.11b         | 72.00          | 1.530  | 654      | 1000     |
| 802.11g         | 88.82          | 1.430  | 699      | 1000     |
| 802.11ax-20 MHz | 94.10          | 5.420  | 185      | 200      |
| 802.11ax-40 MHz | 94.76          | 5.4200 | 185      | 200      |

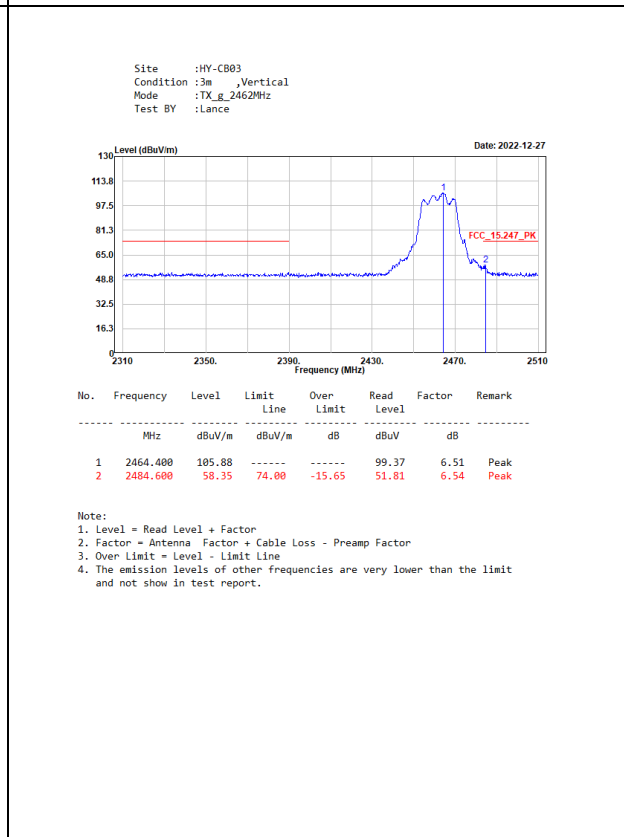
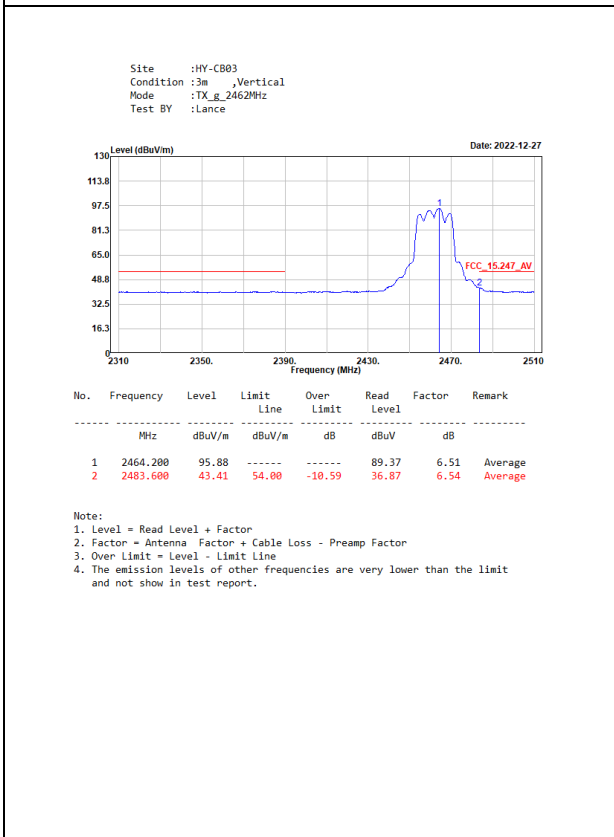
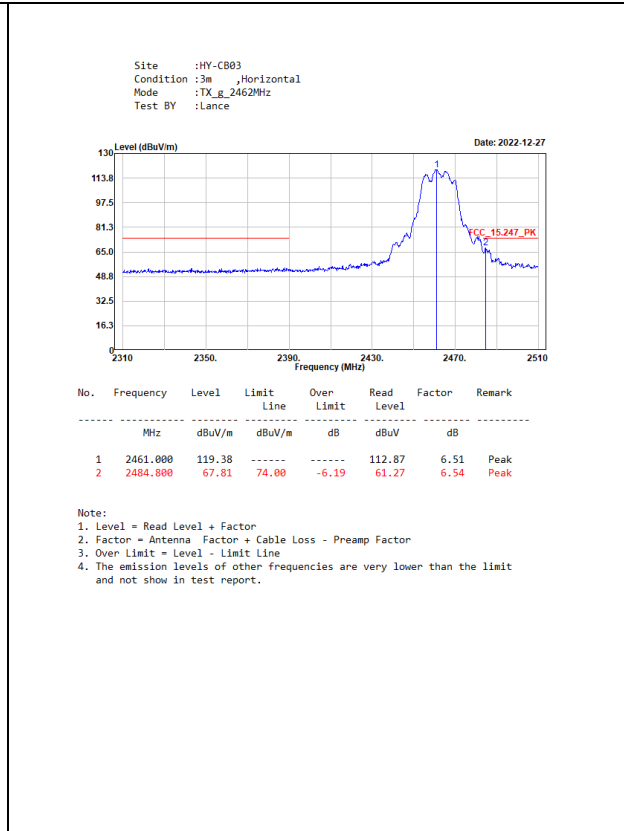
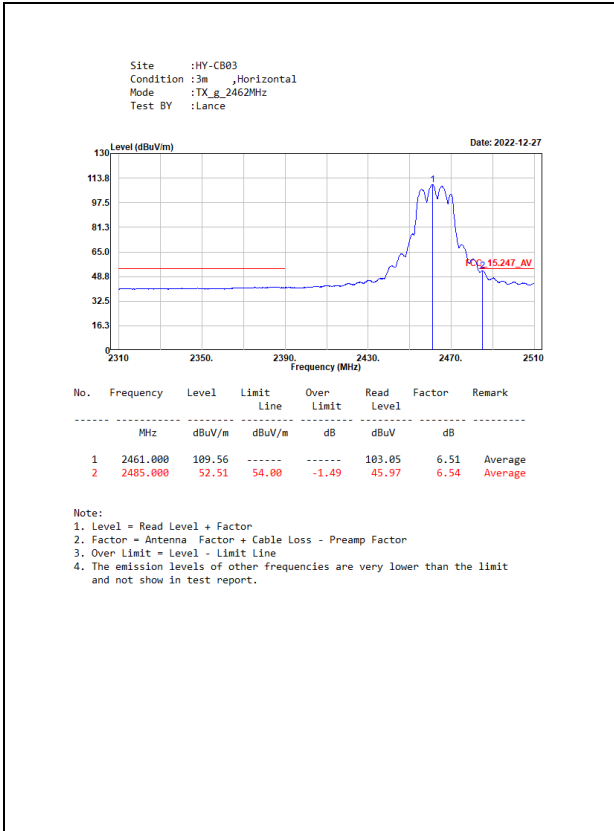
Note: Duty Cycle Refer to Section 9.

### 6.4. Test Result of Band Edge

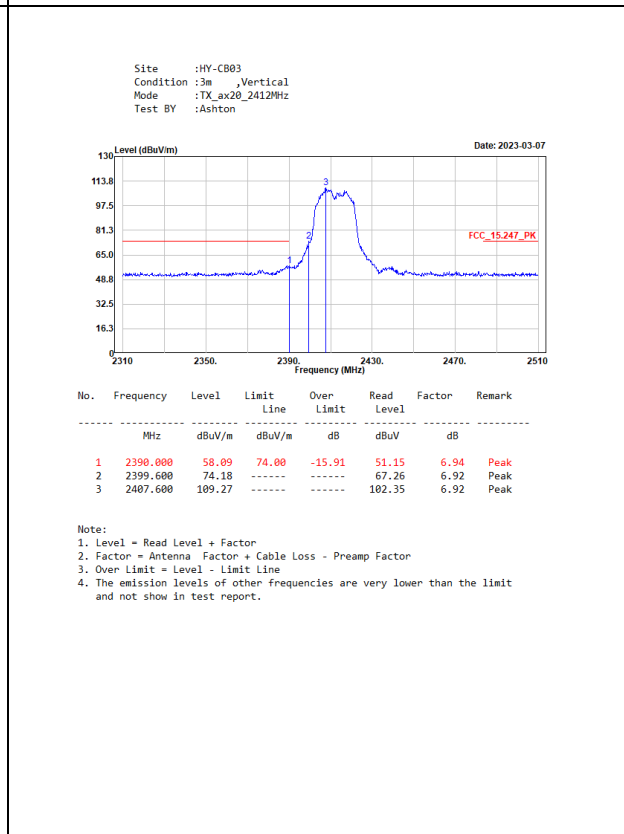
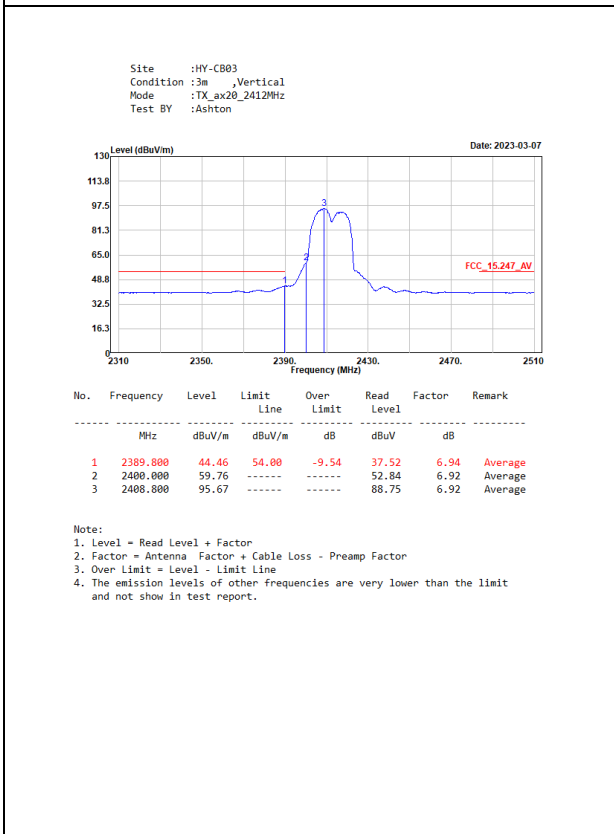
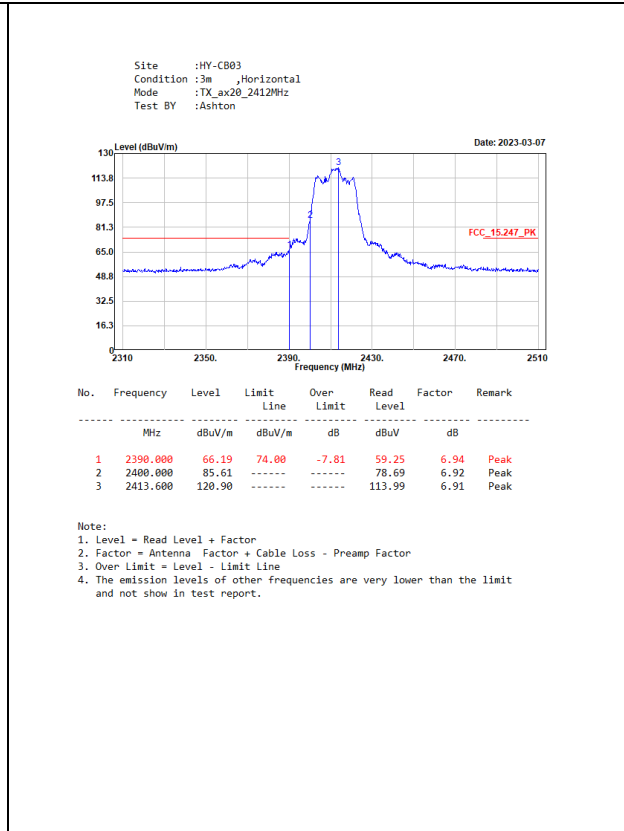
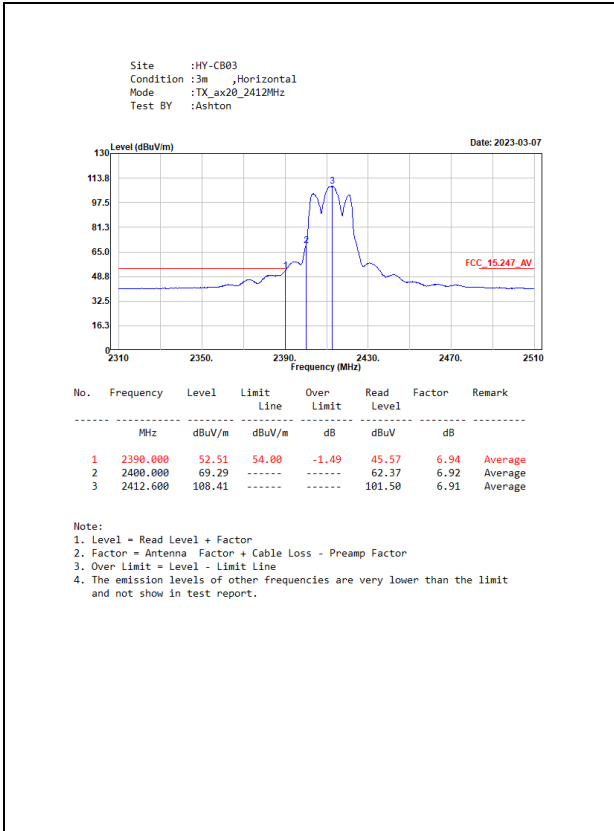


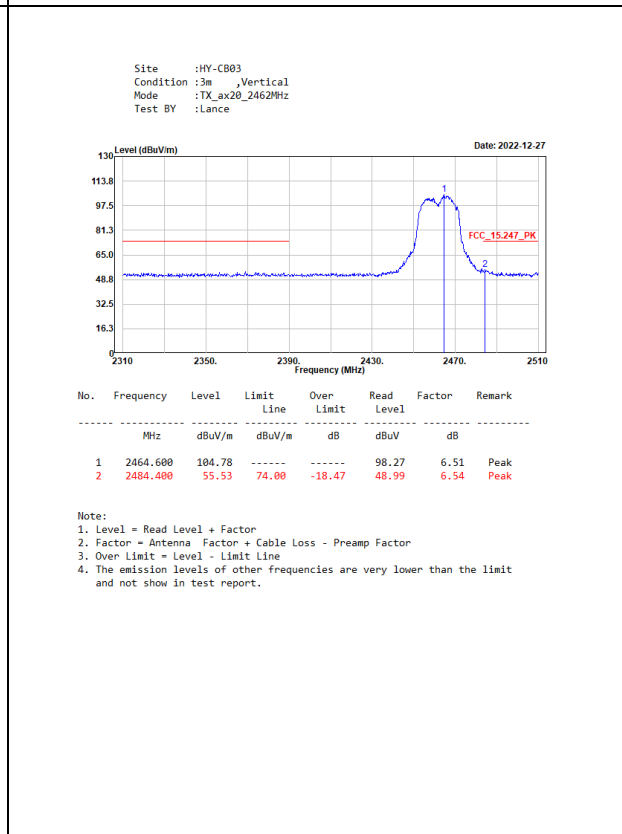
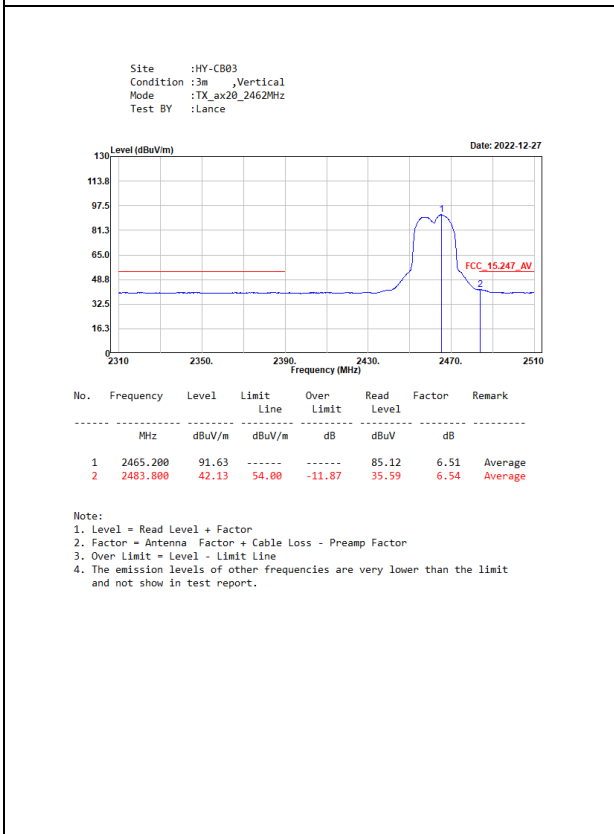
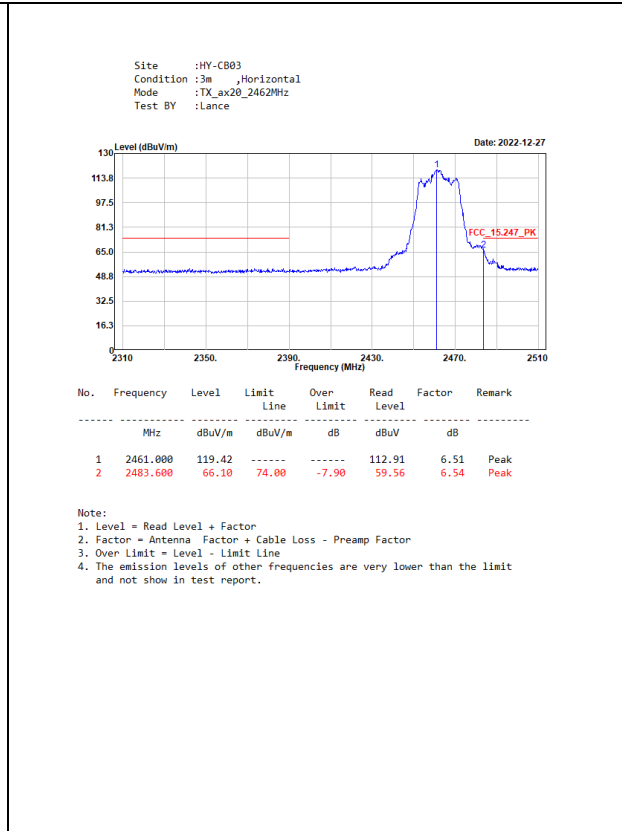
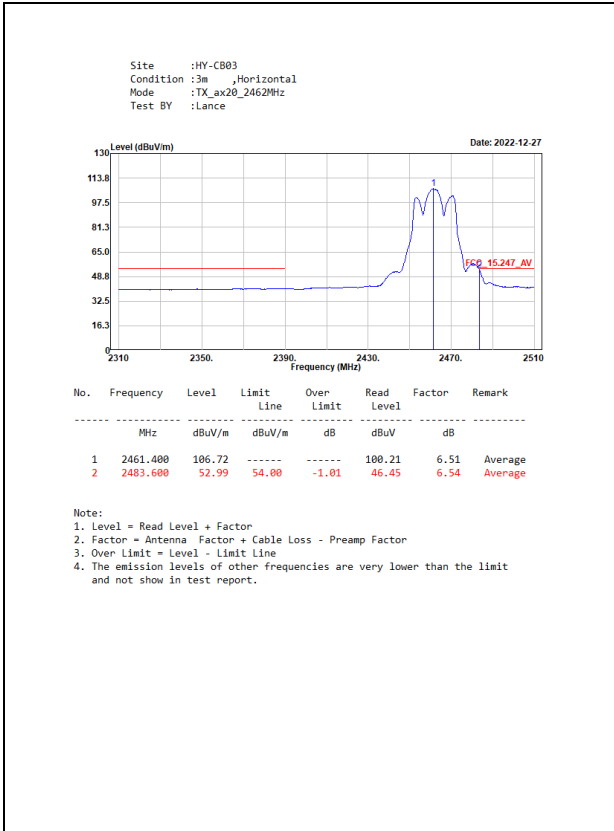


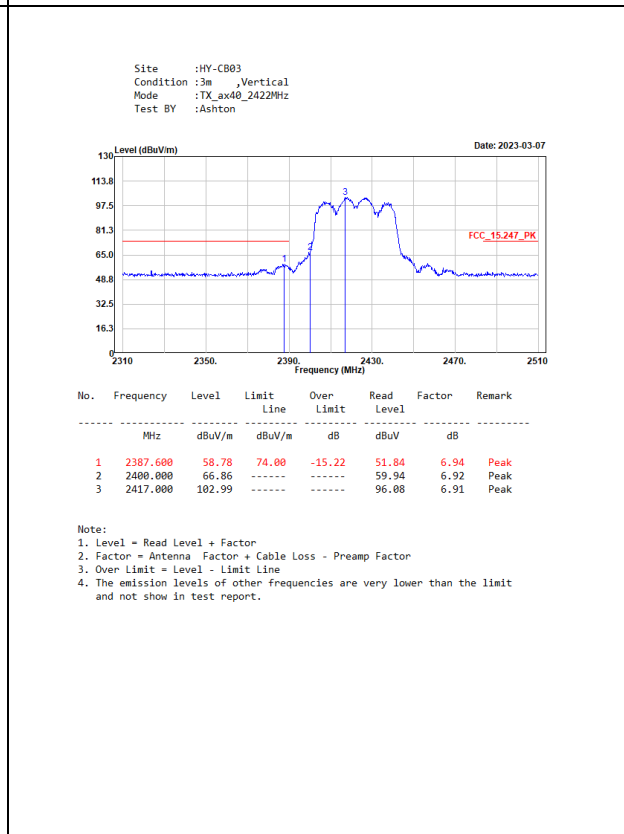
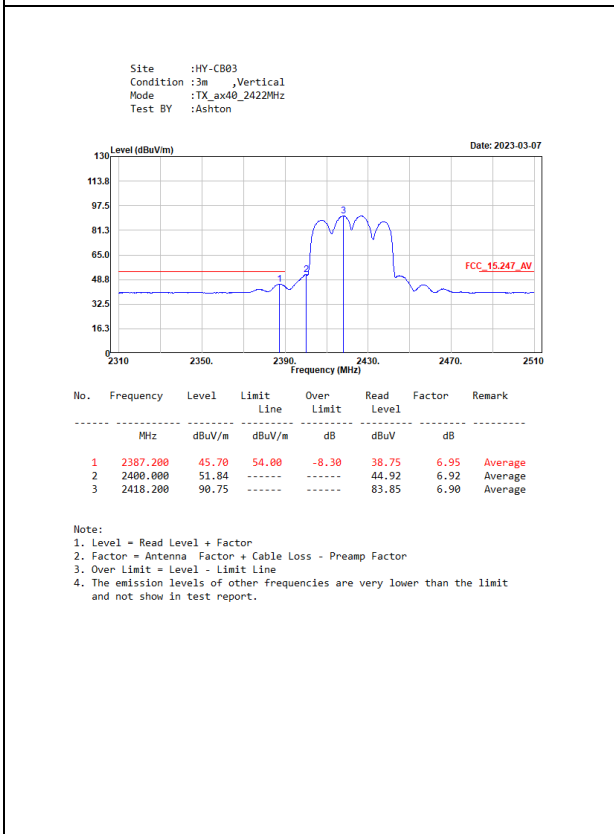
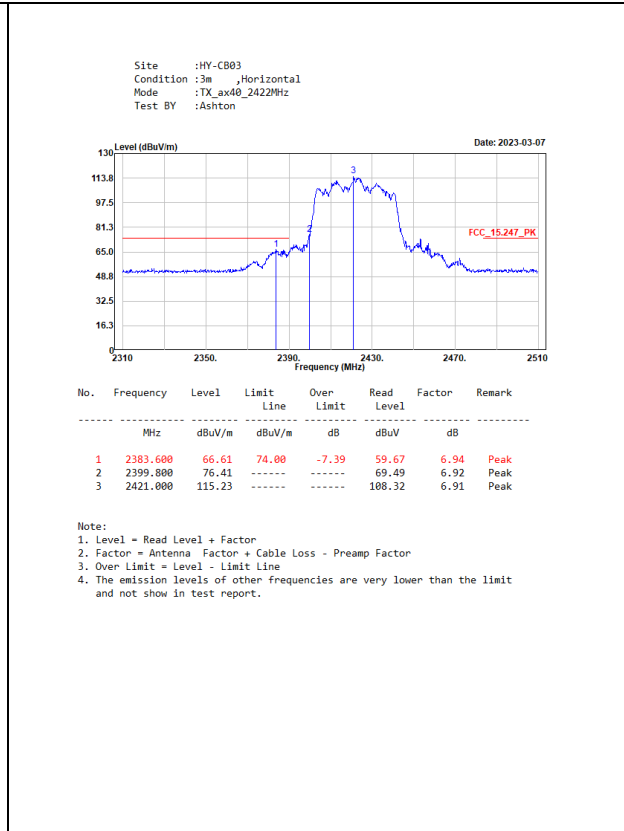
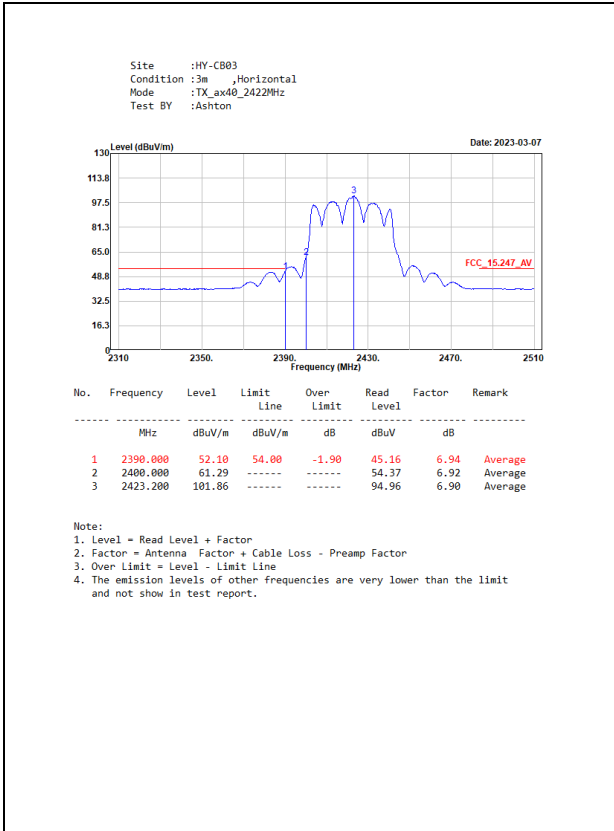


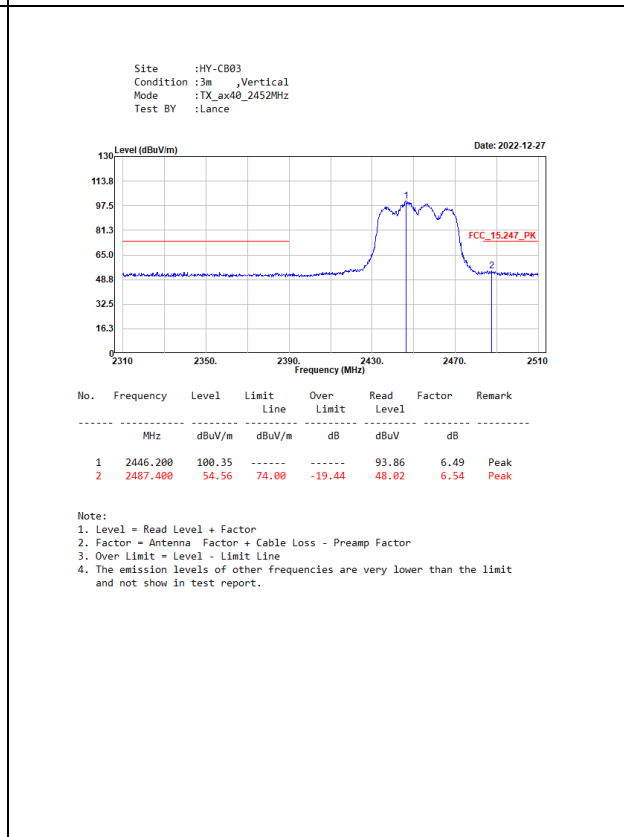
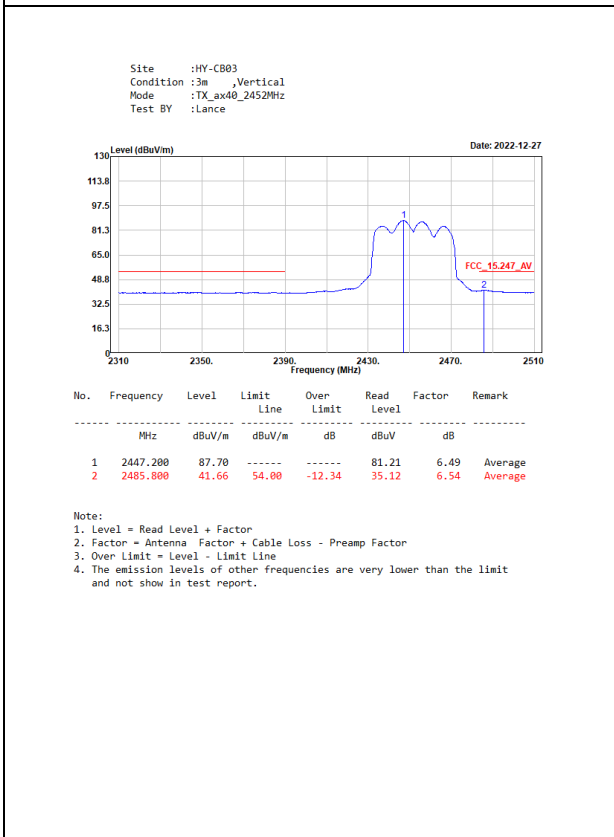
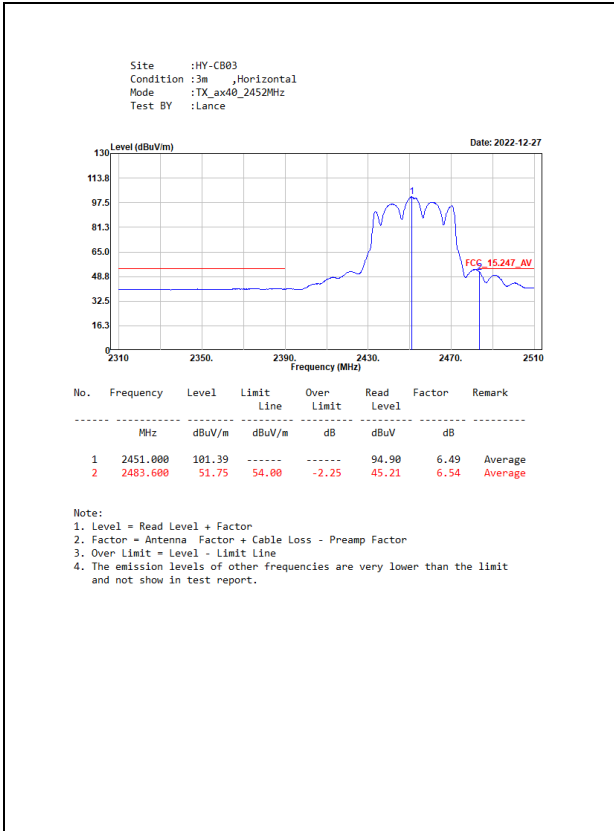






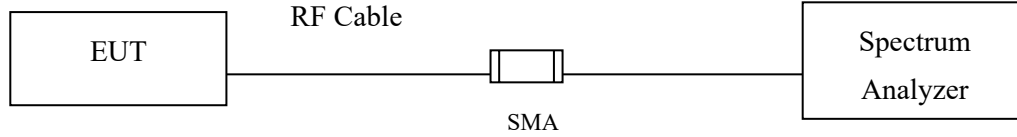






## 7. 6dB Bandwidth

### 7.1. Test Setup



### 7.2. Limits

The minimum bandwidth shall be at least 500 kHz.

### 7.3. Test Procedure

The EUT was setup according to ANSI C63.4, 2014; tested according to ANSI C63.10 Section 11.8 for compliance to FCC 47CFR 15.247 requirements.

7.4. Test Result of 6dB Bandwidth

Product : Peplink Pepwave Wireless Product  
 Test Item : 6dB Bandwidth Data  
 Test Mode : Transmit (802.11b)

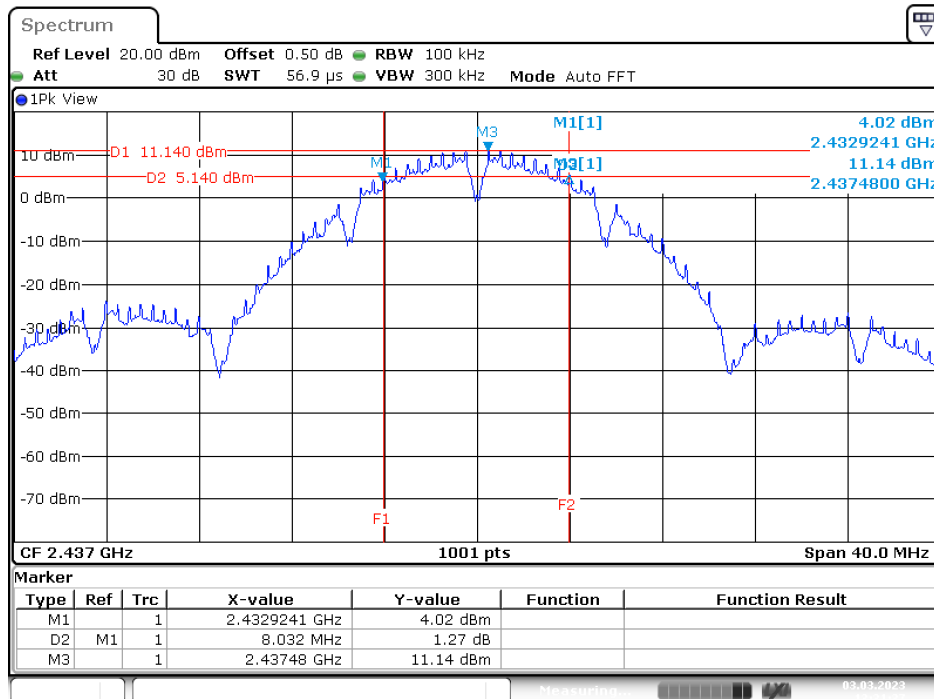
Chain A

| Channel No. | Frequency (MHz) | Measurement Level (kHz) | Required Limit (kHz) | Result |
|-------------|-----------------|-------------------------|----------------------|--------|
| 01          | 2412            | 8032                    | >500                 | Pass   |
| 06          | 2437            | 8032                    | >500                 | Pass   |
| 11          | 2462            | 7073                    | >500                 | Pass   |

Chain B

| Channel No. | Frequency (MHz) | Measurement Level (kHz) | Required Limit (kHz) | Result |
|-------------|-----------------|-------------------------|----------------------|--------|
| 01          | 2412            | 8032                    | >500                 | Pass   |
| 06          | 2437            | 8032                    | >500                 | Pass   |
| 11          | 2462            | 7073                    | >500                 | Pass   |

Figure Channel 01:



Date: 3.MAR.2023 13:31:38

Product : Peplink Pepwave Wireless Product  
 Test Item : 6dB Bandwidth Data  
 Test Mode : Transmit (802.11g)

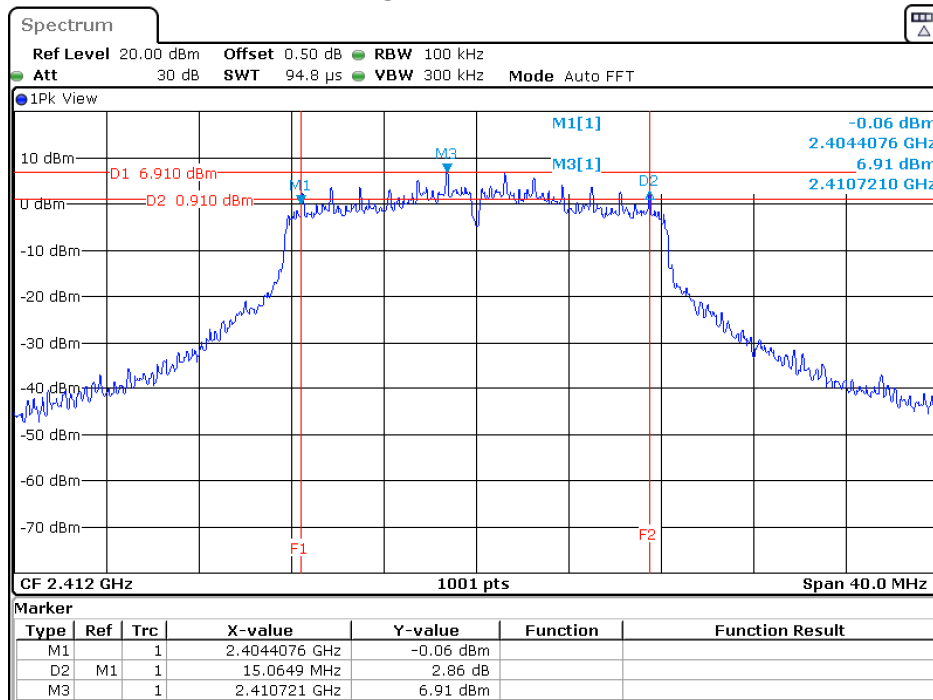
Chain A

| Channel No. | Frequency (MHz) | Measurement Level (kHz) | Required Limit (kHz) | Result |
|-------------|-----------------|-------------------------|----------------------|--------|
| 01          | 2412            | 15065                   | >500                 | Pass   |
| 06          | 2437            | 15065                   | >500                 | Pass   |
| 11          | 2462            | 15065                   | >500                 | Pass   |

Chain B

| Channel No. | Frequency (MHz) | Measurement Level (kHz) | Required Limit (kHz) | Result |
|-------------|-----------------|-------------------------|----------------------|--------|
| 01          | 2412            | 15065                   | >500                 | Pass   |
| 06          | 2437            | 15065                   | >500                 | Pass   |
| 11          | 2462            | 15065                   | >500                 | Pass   |

Figure Channel 01:



Date: 23.FEB.2023 13:03:33

Product : Peplink Pepwave Wireless Product  
 Test Item : 6dB Bandwidth Data  
 Test Mode : Transmit (802.11ax-20 MHz)

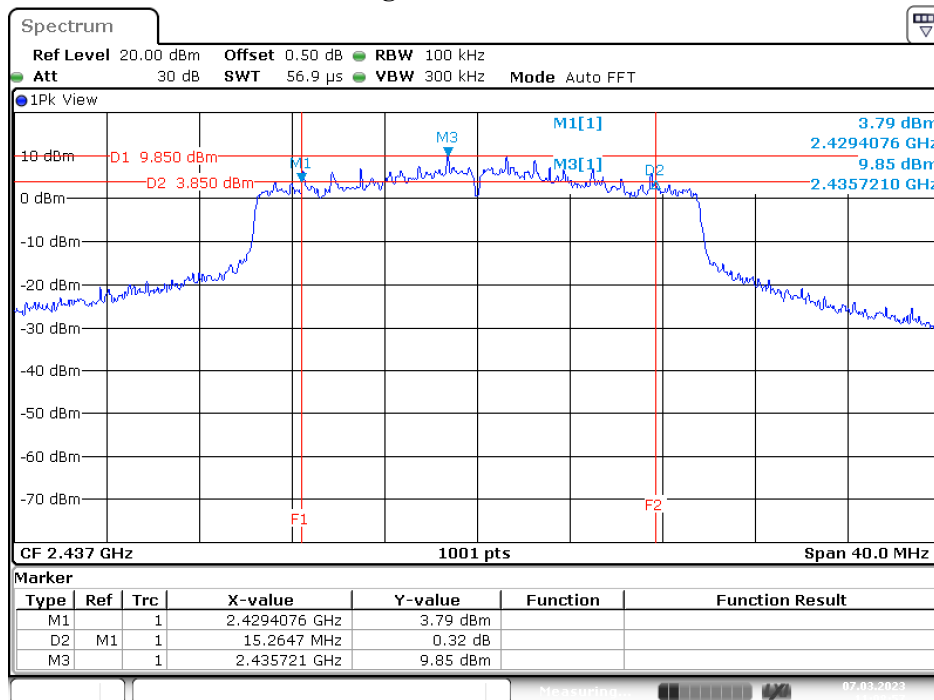
Chain A

| Channel No. | Frequency (MHz) | Measurement Level (kHz) | Required Limit (kHz) | Result |
|-------------|-----------------|-------------------------|----------------------|--------|
| 01          | 2412            | 13786                   | >500                 | Pass   |
| 06          | 2437            | 15265                   | >500                 | Pass   |
| 11          | 2462            | 13826                   | >500                 | Pass   |

Chain B

| Channel No. | Frequency (MHz) | Measurement Level (kHz) | Required Limit (kHz) | Result |
|-------------|-----------------|-------------------------|----------------------|--------|
| 01          | 2412            | 14985                   | >500                 | Pass   |
| 06          | 2437            | 13826                   | >500                 | Pass   |
| 11          | 2462            | 15065                   | >500                 | Pass   |

Figure Channel 01:



Date: 7.MAR.2023 11:08:58



Product : Peplink Pepwave Wireless Product  
 Test Item : 6dB Bandwidth Data  
 Test Mode : Transmit (802.11ax-40 MHz)

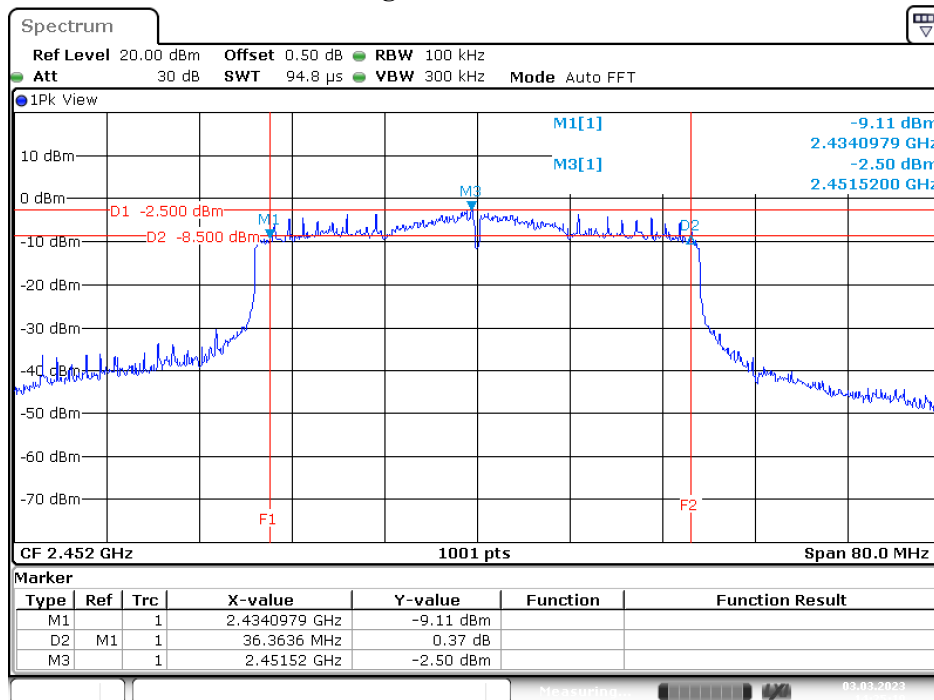
Chain A

| Channel No. | Frequency (MHz) | Measurement Level (kHz) | Required Limit (kHz) | Result |
|-------------|-----------------|-------------------------|----------------------|--------|
| 03          | 2422            | 32528                   | >500                 | Pass   |
| 06          | 2437            | 34126                   | >500                 | Pass   |
| 09          | 2452            | 36364                   | >500                 | Pass   |

Chain B

| Channel No. | Frequency (MHz) | Measurement Level (kHz) | Required Limit (kHz) | Result |
|-------------|-----------------|-------------------------|----------------------|--------|
| 03          | 2422            | 35085                   | >500                 | Pass   |
| 06          | 2437            | 35085                   | >500                 | Pass   |
| 09          | 2452            | 35405                   | >500                 | Pass   |

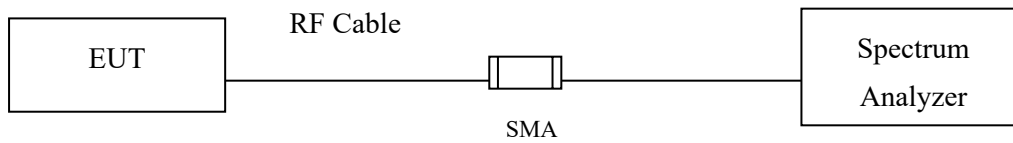
Figure Channel 03:



Date: 3.MAR.2023 14:25:19

## 8. Power Density

### 8.1. Test Setup



### 8.2. Limits

The transmitted power density averaged over any 1 second interval shall not be greater +8 dBm in any 3 kHz bandwidth.

### 8.3. Test Procedure

The EUT was setup according to ANSI C63.10, 2013; tested according to DTS test procedure of KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

The maximum power spectral density using C63.10 Section 11.10.2

8.4. Test Result of Power Density

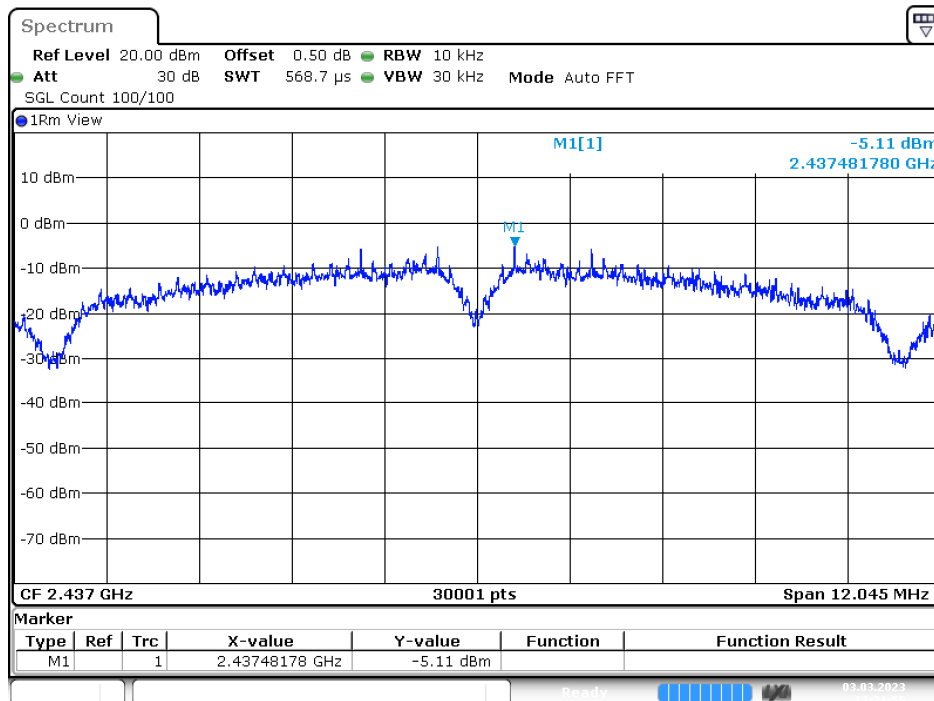
Product : Peplink Pepwave Wireless Product  
 Test Item : Power Density Data  
 Test Mode : Transmit (802.11b)

| Channel No. | Frequency (MHz) | Data Rate (Mbps) | Chain | PPSD/MHz (dBm) | Duty factor (dBm) | Total PPSD/MHz (dBm) | Limit (dBm) | Result |
|-------------|-----------------|------------------|-------|----------------|-------------------|----------------------|-------------|--------|
| 01          | 2412            | 1                | A     | -6.80          | 1.43              | -2.36                | 8           | Pass   |
|             |                 |                  | B     | -7.64          |                   | -3.20                |             |        |
| 06          | 2437            | 1                | A     | -5.11          | 1.43              | -0.67                | 8           | Pass   |
|             |                 |                  | B     | -6.72          |                   | -2.28                |             |        |
| 11          | 2462            | 1                | A     | -5.58          | 1.43              | -1.14                | 8           | Pass   |
|             |                 |                  | B     | -6.57          |                   | -2.13                |             |        |

Note:

1. Total PPSD/MHz = PPSD/MHz + 10\*log 2 (two antennas)+ Duty factor.
2. The quantity 10\*log 2 (two antennas) is added to the spectrum peak value according to document 662911 D01.

Figure Channel 06:



Date: 3.MAR.2023 13:31:55

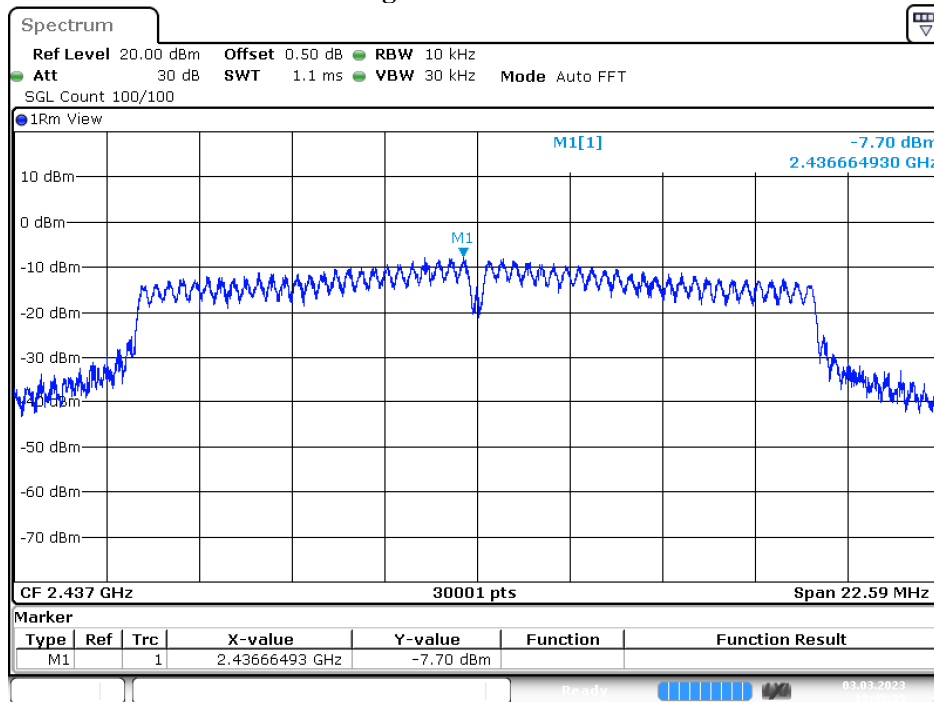
Product : Peplink Pepwave Wireless Product  
 Test Item : Power Density Data  
 Test Mode : Transmit (802.11g)

| Channel No. | Frequency (MHz) | Data Rate (Mbps) | Chain | PPSD/MHz (dBm) | Duty factor (dBm) | Total PPSD/MHz (dBm) | Limit (dBm) | Result |
|-------------|-----------------|------------------|-------|----------------|-------------------|----------------------|-------------|--------|
| 01          | 2412            | 6                | A     | -9.50          | 0.51              | -5.97                | 8           | Pass   |
|             |                 |                  | B     | -9.60          |                   | -6.07                |             |        |
| 06          | 2437            | 6                | A     | -8.11          | 0.51              | -4.58                | 8           | Pass   |
|             |                 |                  | B     | -7.70          |                   | -4.17                |             |        |
| 11          | 2462            | 6                | A     | -10.27         | 0.51              | -6.74                | 8           | Pass   |
|             |                 |                  | B     | -10.98         |                   | -7.45                |             |        |

Note:

1. Total PPSD/MHz = PPSD/MHz + 10\*log 2 (two antennas)+ Duty factor.
2. The quantity 10\*log 2 (two antennas) is added to the spectrum peak value according to document 662911 D01.

Figure Channel 06:



Date: 3.MAR.2023 13:45:39

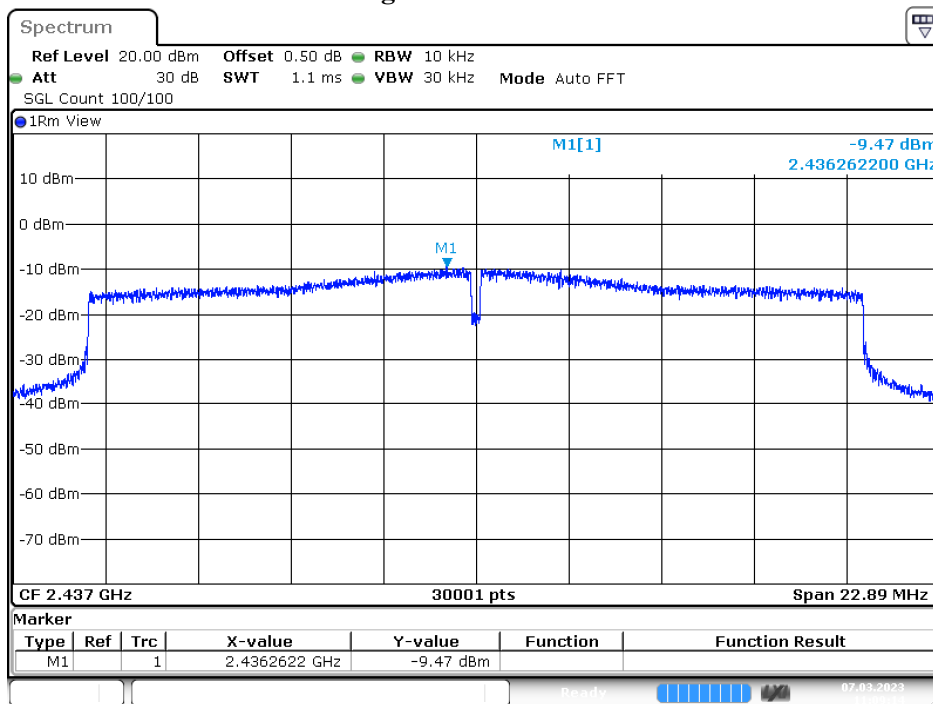
Product : Peplink Pepwave Wireless Product  
 Test Item : Power Density Data  
 Test Mode : Transmit (802.11ax-20 MHz)

| Channel No. | Frequency (MHz) | Data Rate | Chain | PPSD/MHz (dBm) | Duty factor (dBm) | Total PPSD/MHz (dBm) | Limit (dBm) | Result |
|-------------|-----------------|-----------|-------|----------------|-------------------|----------------------|-------------|--------|
| 01          | 2412            | MCS0      | A     | -11.16         | 0.26              | -7.89                | 8           | Pass   |
|             |                 |           | B     | -11.02         |                   | -7.75                |             |        |
| 06          | 2437            | MCS0      | A     | -9.47          | 0.26              | -6.20                | 8           | Pass   |
|             |                 |           | B     | -9.86          |                   | -6.59                |             |        |
| 11          | 2462            | MCS0      | A     | -14.46         | 0.26              | -11.19               | 8           | Pass   |
|             |                 |           | B     | -14.67         |                   | -11.40               |             |        |

Note:

- Total PPSD/MHz = PPSD/MHz + 10\*log 2 (two antennas) + Duty factor.
- The quantity 10\*log 2 (two antennas) is added to the spectrum peak value according to document 662911 D01.

Figure Channel 06:



Date: 7.MAR.2023 11:09:15

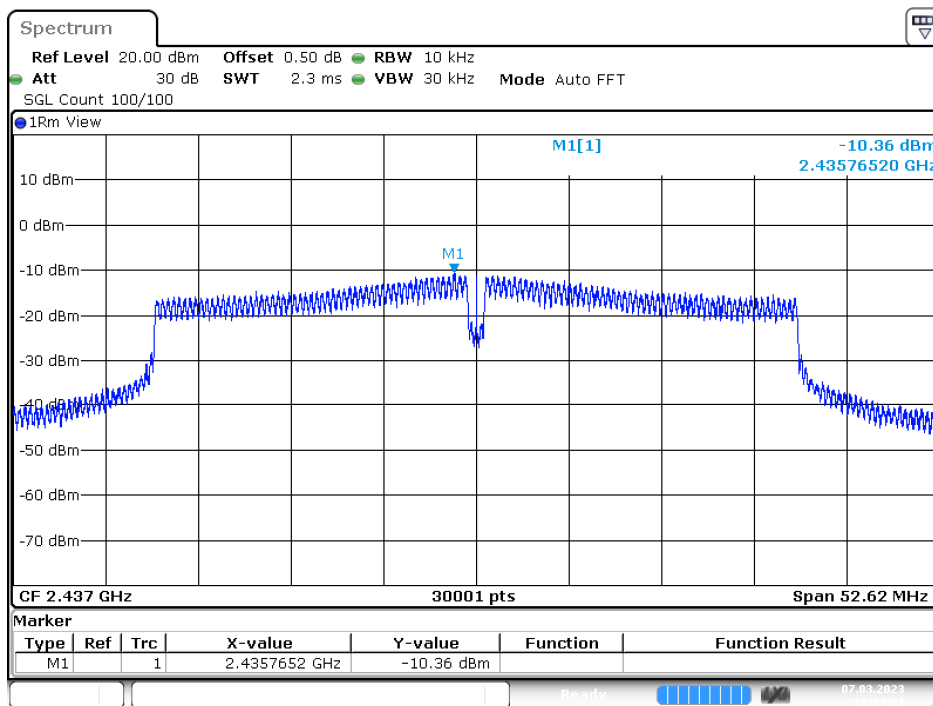
Product : Peplink Pepwave Wireless Product  
 Test Item : Power Density Data  
 Test Mode : Transmit (802.11ax-40 MHz)

| Channel No. | Frequency (MHz) | Data Rate | Chain | PPSD/MHz (dBm) | Duty factor (dBm) | Total PPSD/MHz (dBm) | Limit (dBm) | Result |
|-------------|-----------------|-----------|-------|----------------|-------------------|----------------------|-------------|--------|
| 03          | 2422            | MCS0      | A     | -19.05         | 0.23              | -15.81               | 8           | Pass   |
|             |                 |           | B     | -18.89         |                   | -15.65               |             |        |
| 06          | 2437            | MCS0      | A     | -10.76         | 0.23              | -7.52                | 8           | Pass   |
|             |                 |           | B     | -10.36         |                   | -7.12                |             |        |
| 09          | 2452            | MCS0      | A     | -20.17         | 0.23              | -16.93               | 8           | Pass   |
|             |                 |           | B     | -20.60         |                   | -17.36               |             |        |

Note:

1. Total PPSD/MHz = PPSD/MHz + 10\*log 2 (two antennas)+ Duty factor.
2. The quantity 10\*log 2 (two antennas) is added to the spectrum peak value according to document 662911 D01.

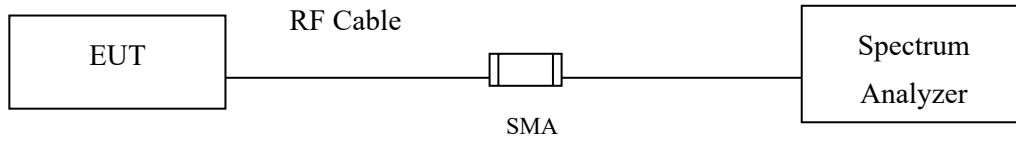
Figure Channel 06:



Date: 7.MAR.2023 11:14:20

## 9. Duty Cycle

### 9.1. Test Setup



### 9.2. Test Procedure

The EUT was setup according to ANSI C63.10 2013; tested according to ANSI C63.10 2013 for compliance to FCC 47CFR 15.247 requirements.

### 9.3. Test Result of Duty Cycle

Product : Peplink Pepwave Wireless Product  
Test Item : Duty Cycle  
Test Mode : Transmit

Duty Cycle Formula:

Duty Cycle = Ton / (Ton + Toff)

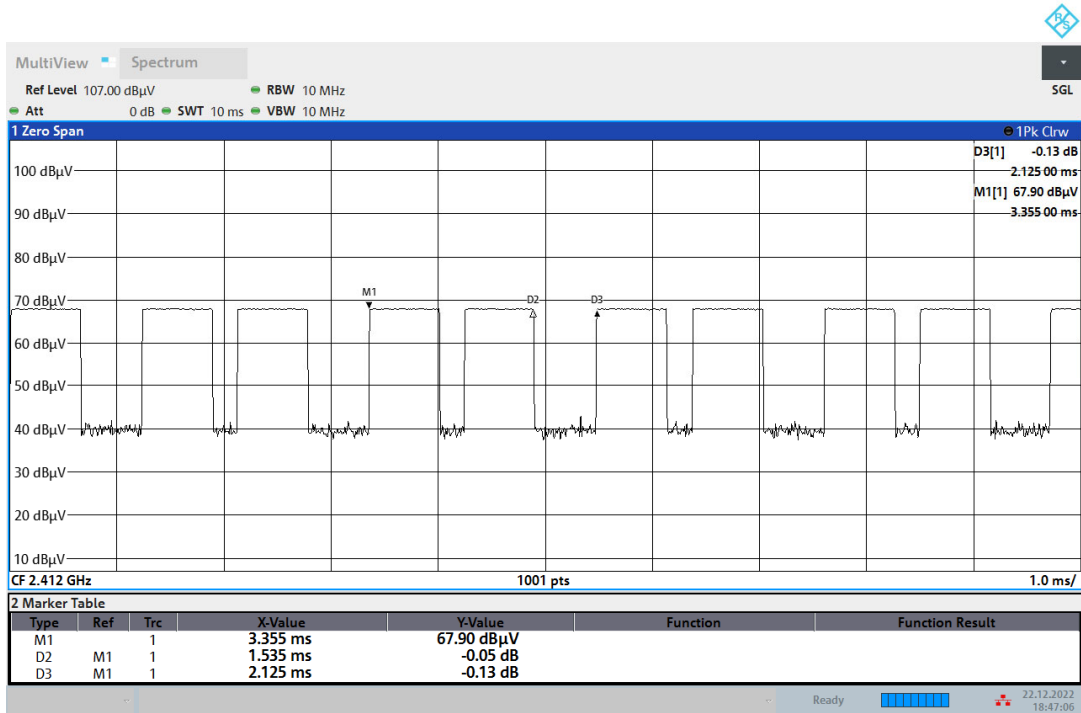
Duty Factor = 10 Log (1/Duty Cycle)

Results:

| 2.4GHz band     | Ton<br>(ms) | Ton + Toff<br>(ms) | Duty Cycle<br>(%) | Duty Factor<br>(dB) |
|-----------------|-------------|--------------------|-------------------|---------------------|
| 802.11b         | 1.530       | 2.125              | 72.00             | 1.43                |
| 802.11g         | 1.430       | 1.610              | 88.82             | 0.51                |
| 802.11ax-20 MHz | 5.420       | 5.760              | 94.10             | 0.26                |
| 802.11ax-40 MHz | 5.420       | 5.720              | 94.76             | 0.23                |

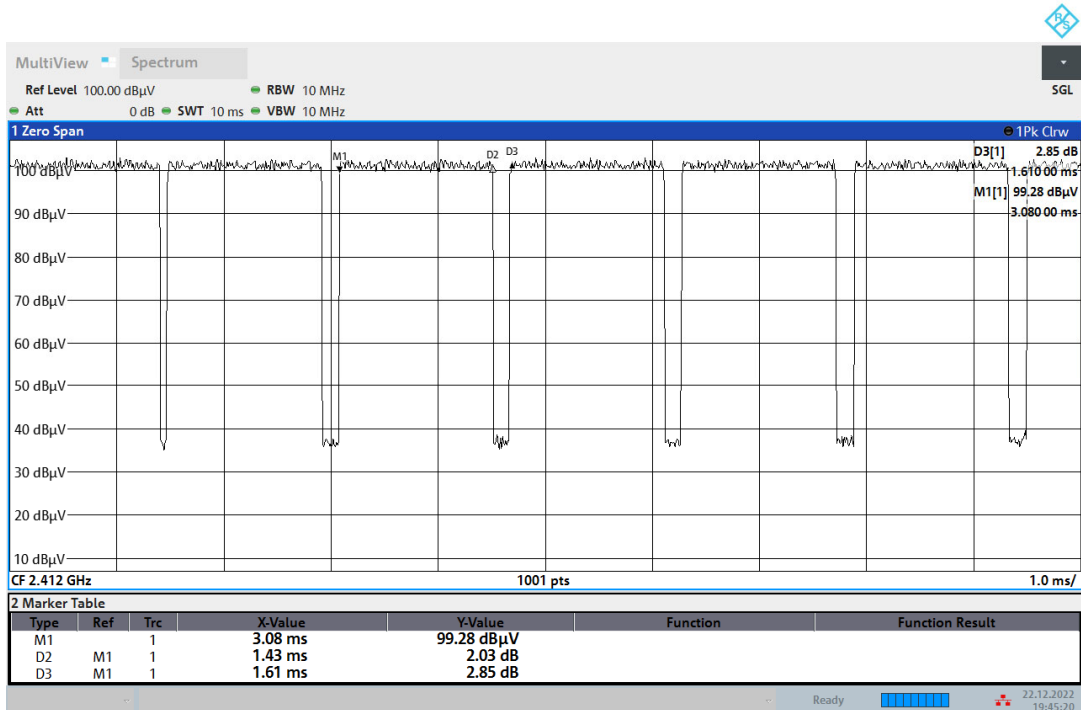


### 802.11b



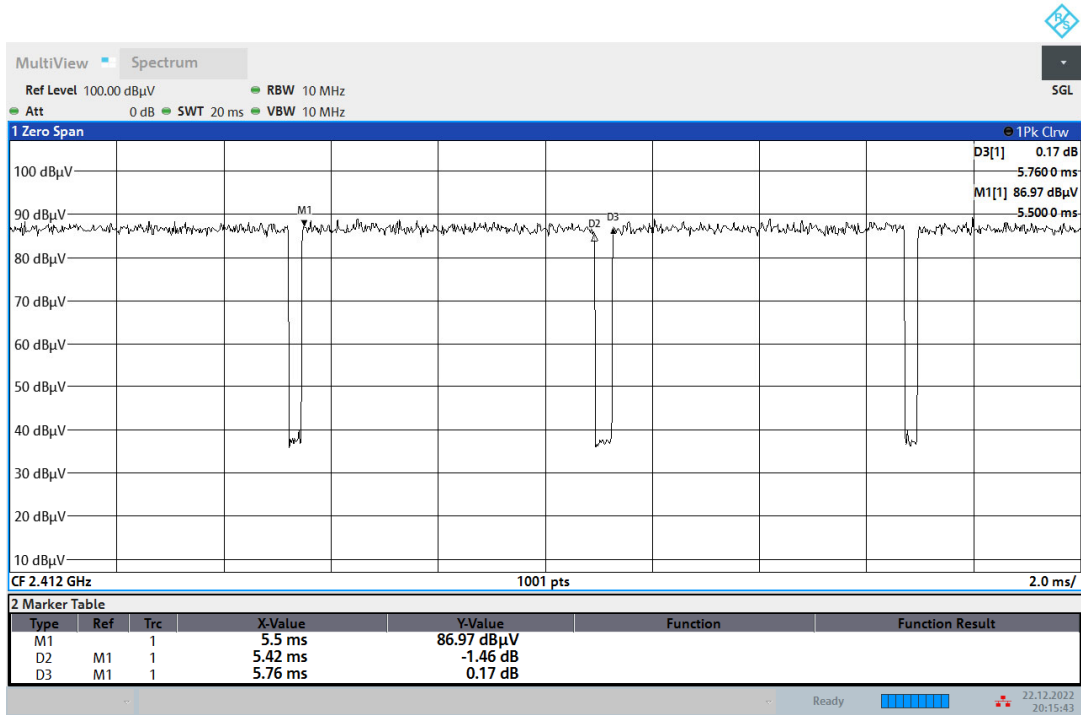
18:47:07 22.12.2022

### 802.11g



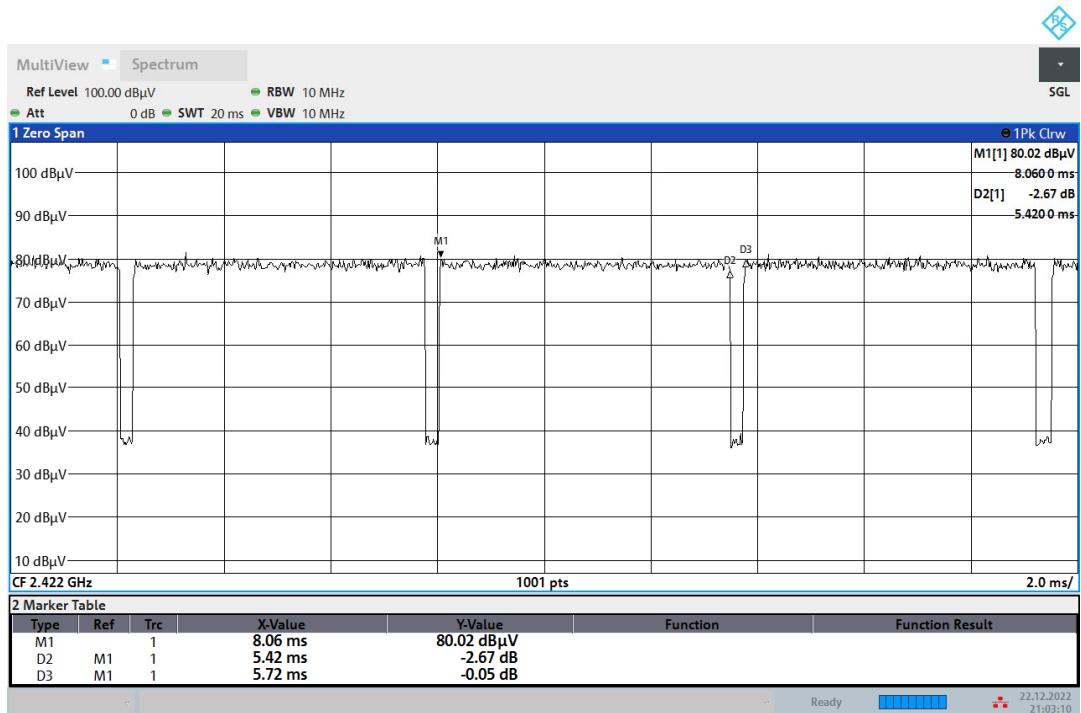
19:45:20 22.12.2022

### 802.11ax-20 MHz



20:15:44 22.12.2022

### 802.11ax-40 MHz



21:03:11 22.12.2022