



## RF MEASUREMENT REPORT

---

**FCC ID:** 2BCGWTX35UPLUS

**Applicant:** TP-LINK CORPORATION PTE. LTD.

**Product:** AX1800 High Gain Wireless USB Adapter

**Model No.:** Archer TX35U Plus

**Brand Name:** tp-link

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

**FCC Rule Part(s):** Part 15 Subpart E (Section 15.407)

**Result:** Complies

**Received Date:** 2024-09-23

**Test Date:** 2024-10-24

**Reviewed By:**

Kevin Guo

**Approved By:**

Robin Wu



The test results relate only to the samples tested.

This equipment has been shown to be capable of compliance with the applicable technical standards as indicated in the measurement report and was tested in accordance with the measurement procedures specified in KDB789033. Test results reported herein relate only to the item(s) tested.

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

### Revision History

| Report No.    | Version | Description    | Issue Date | Note  |
|---------------|---------|----------------|------------|-------|
| 2409RSU042-U3 | V01     | Initial Report | 2024-11-05 | Valid |
|               |         |                |            |       |

Note: This report is prepared for FCC Class II permissive change supplement based on the FCC ID: 2BCGWTX35UPLUS, original grant date: 06/26/2024 to do some changes (Details refer to the section 2.1 of this report).

---

## CONTENTS

| Description                                                | Page      |
|------------------------------------------------------------|-----------|
| <b>1. General Information .....</b>                        | <b>4</b>  |
| 1.1. Applicant .....                                       | 4         |
| 1.2. Manufacturer .....                                    | 4         |
| 1.3. Testing Facility .....                                | 4         |
| 1.4. Product Information .....                             | 5         |
| 1.5. Radio Specification under Test .....                  | 5         |
| 1.6. Working Frequencies .....                             | 6         |
| 1.7. Antenna Details .....                                 | 7         |
| <b>2. Test Configuration .....</b>                         | <b>8</b>  |
| 2.1. Test Details for Class II Perssive Change .....       | 8         |
| 2.2. Test Mode .....                                       | 8         |
| 2.3. Test Software .....                                   | 8         |
| 2.4. Applied Standards .....                               | 8         |
| 2.5. Test Environment Condition .....                      | 9         |
| <b>3. Antenna Requirements .....</b>                       | <b>10</b> |
| <b>4. Measuring Instrument .....</b>                       | <b>11</b> |
| <b>5. Decision Rules and Measurement Uncertainty .....</b> | <b>12</b> |
| 5.1. Decision Rules .....                                  | 12        |
| 5.2. Measurement Uncertainty .....                         | 12        |
| <b>6. Test Result .....</b>                                | <b>13</b> |
| 6.1. Summary .....                                         | 13        |
| 6.2. Output Power Measurement .....                        | 14        |
| 6.2.1. Test Limit .....                                    | 14        |
| 6.2.2. Test Procedure .....                                | 14        |
| 6.2.3. Test Setting .....                                  | 14        |
| 6.2.4. Test Setup .....                                    | 14        |
| 6.2.5. Test Result .....                                   | 14        |
| <b>Appendix A - Test Result .....</b>                      | <b>15</b> |
| A.1 Output Power Test Result .....                         | 15        |
| <b>Appendix B - Test Setup Photograph .....</b>            | <b>17</b> |
| <b>Appendix C - EUT Photograph .....</b>                   | <b>18</b> |

## 1. General Information

### 1.1. Applicant

TP-LINK CORPORATION PTE. LTD.

7 Temasek Boulevard #29-03 Suntec Tower One, Singapore 038987

### 1.2. Manufacturer

TP-LINK CORPORATION PTE. LTD.

7 Temasek Boulevard #29-03 Suntec Tower One, Singapore 038987

### 1.3. Testing Facility

|                                     |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> | <b>Test Site – MRT Suzhou Laboratory</b><br><b>Laboratory Location (Suzhou - Wuzhong)</b><br>D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China<br><b>Laboratory Location (Suzhou - SIP)</b><br>4b Building, Liando U Valley, No.200 Xingpu Rd., Shengpu Town, Suzhou Industrial Park, China<br><b>Laboratory Location (Suzhou - Wujiang)</b><br>Building 1, No.1 Xingdong Road, Wujiang, Suzhou, Jiangsu, People's Republic of China<br><b>Laboratory Accreditations</b><br>A2LA: 3628.01 CNAS: L10551<br>FCC: CN1166 ISED: CN0001<br>VCCI: <input type="checkbox"/> R-20025 <input type="checkbox"/> G-20034 <input type="checkbox"/> C-20020 <input type="checkbox"/> T-20020<br><input type="checkbox"/> R-20141 <input type="checkbox"/> G-20134 <input type="checkbox"/> C-20103 <input type="checkbox"/> T-20104 |
| <input type="checkbox"/>            | <b>Test Site – MRT Shenzhen Laboratory</b><br><b>Laboratory Location (Shenzhen)</b><br>1G, Building A, Junxiangda Building, Zhongshanyuan Road West, Nanshan District, Shenzhen, China<br><b>Laboratory Accreditations</b><br>A2LA: 3628.02 CNAS: L10551<br>FCC: CN1284 ISED: CN0105                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <input type="checkbox"/>            | <b>Test Site – MRT Taiwan Laboratory</b><br><b>Laboratory Location (Taiwan)</b><br>No. 38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.)<br><b>Laboratory Accreditations</b><br>TAF: 3261<br>FCC: 291082, TW3261 ISED: TW3261                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

#### 1.4. Product Information

|                                                                                                                                                                     |                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| Product Name                                                                                                                                                        | AX1800 High Gain Wireless USB Adapter |
| Model No.                                                                                                                                                           | Archer TX35U Plus                     |
| EUT Identification No.                                                                                                                                              | 20240923Sample#10                     |
| Wi-Fi Specification                                                                                                                                                 | 802.11a/b/g/n/ac/ax                   |
| Antenna Information                                                                                                                                                 | Refer to section 1.7                  |
| Power Type                                                                                                                                                          | By USB Port                           |
| <p>Remark:</p> <p>The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.</p> |                                       |

#### 1.5. Radio Specification under Test

|                             |                                                                                                                                                                                                                                                                                                                   |                                                 |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------|
| Frequency Range             | <p>For 802.11a/n-HT20/ac-VHT20/ax-HE20:</p> <p>5180~5240MHz, 5260~5320MHz, 5500~5720MHz, 5745~5825MHz</p> <p>For 802.11n-HT40/ac-VHT40/ax-HE40:</p> <p>5190~5230MHz, 5270~5310MHz, 5510~5710MHz, 5755~5795MHz</p> <p>For 802.11ac-VHT80/ax-HE80:</p> <p>5210MHz, 5290MHz, 5530MHz, 5610 MHz, 5690MHz, 5775MHz</p> |                                                 |
| Type of Modulation          | <p>802.11a/n/ac: OFDM</p> <p>802.11ax: OFDMA</p>                                                                                                                                                                                                                                                                  |                                                 |
| Data Rate                   | <p>802.11a: 6/9/12/18/24/36/48/54Mbps</p> <p>802.11n: up to 300Mbps</p> <p>802.11ac: up to 866.7Mbps</p> <p>802.11ax: up to 1201Mbps</p>                                                                                                                                                                          |                                                 |
| Channel Puncturing Function | <input type="checkbox"/> Supported                                                                                                                                                                                                                                                                                | <input checked="" type="checkbox"/> Unsupported |
| Support RU                  | <input checked="" type="checkbox"/> Full RU                                                                                                                                                                                                                                                                       | <input type="checkbox"/> Partial RU             |

## 1.6. Working Frequencies

### 802.11a/n-HT20/ac-VHT20/ax-HE20

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

### 802.11n-HT40/ac-VHT40/ax-HE40

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

### 802.11ac-VHT80/ax-HE80

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

### 1.7. Antenna Details

| Antenna Type | Frequency Band (MHz) | Tx Paths | Number of spatial streams | Max Antenna Gain (dBi) | CDD Directional Gain (dBi) |         |
|--------------|----------------------|----------|---------------------------|------------------------|----------------------------|---------|
|              |                      |          |                           |                        | For Power                  | For PSD |
| Dipole       | 2412 ~ 2462          | 2        | 1                         | 1.00                   | 1.00                       | 4.01    |
|              | 5150 ~ 5850          | 2        | 1                         | 2.00                   | 2.00                       | 5.01    |

Remark:

- The EUT supports Cyclic Delay Diversity (CDD) mode, and CDD signals are correlated.

If all antennas have the same gain,  $G_{ANT}$ , Directional gain =  $G_{ANT}$  + Array Gain, where Array Gain is as follows.

- For power spectral density (PSD) measurements on all devices,

Array Gain =  $10 \log (N_{ANT} / N_{SS})$  dB;

- For power measurements on IEEE 802.11 devices,

Array Gain = 0 dB for  $N_{ANT} \leq 4$ ;

- All information as above is from the AUT report.

## 2. Test Configuration

### 2.1. Test Details for Class II Perssive Change

| C2PC Change List                                                                                                                                             | Verified Test Item | Remark               |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|----------------------|
| 1. Add decoupling capacitor for power supply<br>2. Delete the USB differential pair filtering<br>3. Fine-tune the PCB layout of non-radio frequency circuits | Output Power       | Verified power only. |

Note: This product is an extension based on the FCC ID: 2BCGWTX35UPLUS, original grant date: 06/26/2024, the changes and verified item refer to the table as above.

### 2.2. Test Mode

| CDD Mode                                                                                                                                                                                                                                                                 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Mode 1: Transmit by 802.11a_Nss=1 (6Mbps)                                                                                                                                                                                                                                |
| Mode 2: Transmit by 802.11ac-VHT20_Nss=1 (MCS0)                                                                                                                                                                                                                          |
| Mode 3: Transmit by 802.11ac-VHT40_Nss=1 (MCS0)                                                                                                                                                                                                                          |
| Mode 4: Transmit by 802.11ac-VHT80_Nss=1 (MCS0)                                                                                                                                                                                                                          |
| Mode 5: Transmit by 802.11ax-HE20_Nss=1 (MCS0)                                                                                                                                                                                                                           |
| Mode 6: Transmit by 802.11ax-HE40_Nss=1 (MCS0)                                                                                                                                                                                                                           |
| Mode 7: Transmit by 802.11ax-HE80_Nss=1 (MCS0)                                                                                                                                                                                                                           |
| Notes:<br>1. For CDD mode, this device supports 2 Nss and power level is the same of spatial multiplexing. The worst case is Nss=1.<br>2. As Designated by manufacturer, the lowest data rate was the worst condition, so all the tests were done with lowest data rate. |

### 2.3. Test Software

The test utility software used during testing was "AX Series MP Toolkit", the version is ver1.1.18.

### 2.4. Applied Standards

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

- FCC Part 15.407
- KDB 789033 D02v02r01
- KDB 662911 D01v02r01
- ANSI C63.10-2013



**2.5. Test Environment Condition**

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

### 3. Antenna Requirements

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

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

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

#### **Conclusion:**

The unit complies with the requirement of §15.203.

#### 4. Measuring Instrument

| Instrument       | Manufacturer | Model No. | Asset No.   | Cali. Interval | Cali. Due Date | Test Site |
|------------------|--------------|-----------|-------------|----------------|----------------|-----------|
| Thermohygrometer | testo        | 608-H1    | MRTSUE06402 | 1 year         | 2025-05-12     | WZ-SR5    |
| Shielding Room   | HUAMING      | WZ-SR5    | MRTSUE06442 | N/A            | N/A            | WZ-SR5    |
| USB Power Sensor | Keysight     | U2021XA   | MRTSUE06446 | 1 year         | 2025-05-08     | WZ-SR5    |
| Attenuator       | MVE          | MVE2213   | MRTSUE11090 | 1 year         | 2025-06-05     | WZ        |
| Attenuator       | MVE          | MVE2213   | MRTSUE11081 | 1 year         | 2025-06-05     | WZ        |

| Software             | Version | Function |
|----------------------|---------|----------|
| BenchVue Power Meter | 2018.1  | Power    |

## 5. Decision Rules and Measurement Uncertainty

### 5.1. Decision Rules

The Decision Rule is based on Simple Acceptance in accordance with ISO Guide 98-4: 2012 Clause 8.2.  
(Measurement uncertainty is not taken into account when stating conformity with a specified requirement.)

### 5.2. Measurement Uncertainty

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

| Output Power                                                                     |
|----------------------------------------------------------------------------------|
| Measuring Uncertainty for a Level of Confidence of 95% ( $U=2U_c(y)$ ):<br>1.3dB |

## 6. Test Result

### 6.1. Summary

| FCC Section(s)                | Test Description               | Test Condition | Verdict |
|-------------------------------|--------------------------------|----------------|---------|
| 15.407(a)(1)(ii), (2), (3)(i) | Maximum Conducted Output Power | Conducted      | Pass    |

**Note:**

The analyzer plots shown in this section were all taken with a correction table loaded into the analyzer. The correction table was used to account for the losses of the cables and attenuators used as part of the system to connect the EUT to the analyzer at all frequencies of interest.

## 6.2. Output Power Measurement

### 6.2.1. Test Limit

For the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi.

For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or  $11 \text{ dBm} + 10 \log B$ , where B is the 26 dB emission bandwidth in megahertz.

For the band 5.725-5.85 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W (30dBm).

If transmitting antennas of directional gain greater than 6dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

### 6.2.2. Test Procedure

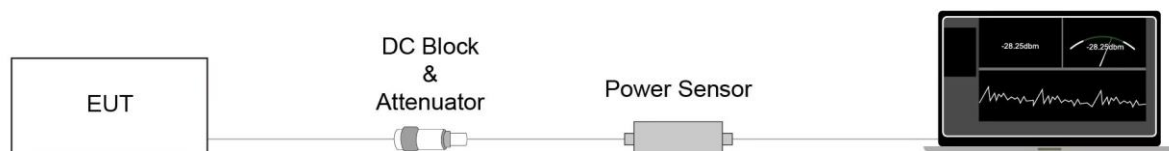
KDB 789033D02v02r01- Section II(E)3)b) Method PM-G

### 6.2.3. Test Setting

#### Average Power Measurement

Average power measurements were performed only when the EUT was transmitting at its maximum power control level using a broadband power meter with a pulse sensor. The power meter implemented triggering and gating capabilities which were set up such that power measurements were recorded only during the ON time of the transmitter.

### 6.2.4. Test Setup



### 6.2.5. Test Result

Refer to Appendix A.1.

## Appendix A - Test Result

### A.1 Output Power Test Result

|           |            |               |           |
|-----------|------------|---------------|-----------|
| Test Site | WZ-SR5     | Test Engineer | Luis Yang |
| Test Date | 2024-10-24 |               |           |

| Test Mode  | Data Rate/<br>MCS | Channel<br>No. | Freq.<br>(MHz) | Ant 1<br>Average<br>Power<br>(dBm) | Ant 2<br>Average<br>Power<br>(dBm) | Total<br>Average<br>Power<br>(dBm) | Power Limit<br>(dBm) | Result |
|------------|-------------------|----------------|----------------|------------------------------------|------------------------------------|------------------------------------|----------------------|--------|
| 11a        | 6Mbps             | 36             | 5180           | 13.31                              | 13.53                              | 16.43                              | ≤ 23.98              | Pass   |
| 11a        | 6Mbps             | 52             | 5260           | 13.42                              | 13.02                              | 16.23                              | ≤ 23.98              | Pass   |
| 11a        | 6Mbps             | 144            | 5720           | 12.65                              | 13.43                              | 16.07                              | ≤ 22.93              | Pass   |
| 11a        | 6Mbps             | 165            | 5825           | 13.33                              | 13.28                              | 16.32                              | ≤ 30.00              | Pass   |
| 11ac-VHT20 | MCS0              | 40             | 5200           | 13.29                              | 13.35                              | 16.33                              | ≤ 23.98              | Pass   |
| 11ac-VHT20 | MCS0              | 64             | 5320           | 12.91                              | 13.12                              | 16.03                              | ≤ 23.98              | Pass   |
| 11ac-VHT20 | MCS0              | 144            | 5720           | 12.92                              | 13.35                              | 16.15                              | ≤ 23.01              | Pass   |
| 11ac-VHT20 | MCS0              | 165            | 5825           | 13.37                              | 13.02                              | 16.21                              | ≤ 30.00              | Pass   |
| 11ac-VHT40 | MCS0              | 46             | 5230           | 13.33                              | 13.33                              | 16.34                              | ≤ 23.98              | Pass   |
| 11ac-VHT40 | MCS0              | 54             | 5270           | 13.51                              | 13.15                              | 16.34                              | ≤ 23.98              | Pass   |
| 11ac-VHT40 | MCS0              | 142            | 5710           | 12.98                              | 13.20                              | 16.10                              | ≤ 23.98              | Pass   |
| 11ac-VHT40 | MCS0              | 159            | 5795           | 13.59                              | 13.20                              | 16.41                              | ≤ 30.00              | Pass   |
| 11ac-VHT80 | MCS0              | 42             | 5210           | 13.28                              | 13.20                              | 16.25                              | ≤ 23.98              | Pass   |
| 11ac-VHT80 | MCS0              | 58             | 5290           | 13.31                              | 13.41                              | 16.37                              | ≤ 23.98              | Pass   |
| 11ac-VHT80 | MCS0              | 106            | 5530           | 12.78                              | 13.85                              | 16.36                              | ≤ 23.98              | Pass   |
| 11ac-VHT80 | MCS0              | 155            | 5775           | 13.16                              | 13.22                              | 16.20                              | ≤ 30.00              | Pass   |
| 11ax-HE20  | MCS0              | 36             | 5180           | 13.12                              | 13.53                              | 16.34                              | ≤ 23.98              | Pass   |
| 11ax-HE20  | MCS0              | 52             | 5260           | 13.23                              | 13.29                              | 16.27                              | ≤ 23.98              | Pass   |
| 11ax-HE20  | MCS0              | 144            | 5720           | 13.21                              | 13.20                              | 16.22                              | ≤ 23.10              | Pass   |
| 11ax-HE20  | MCS0              | 149            | 5745           | 13.40                              | 13.25                              | 16.34                              | ≤ 30.00              | Pass   |
| 11ax-HE40  | MCS0              | 38             | 5190           | 13.12                              | 13.46                              | 16.30                              | ≤ 23.98              | Pass   |
| 11ax-HE40  | MCS0              | 62             | 5310           | 13.26                              | 13.07                              | 16.18                              | ≤ 23.98              | Pass   |
| 11ax-HE40  | MCS0              | 102            | 5510           | 12.70                              | 13.32                              | 16.03                              | ≤ 23.98              | Pass   |
| 11ax-HE40  | MCS0              | 159            | 5795           | 13.45                              | 13.22                              | 16.35                              | ≤ 30.00              | Pass   |
| 11ax-HE80  | MCS0              | 42             | 5210           | 13.15                              | 13.42                              | 16.30                              | ≤ 23.98              | Pass   |
| 11ax-HE80  | MCS0              | 58             | 5290           | 13.22                              | 13.12                              | 16.18                              | ≤ 23.98              | Pass   |
| 11ax-HE80  | MCS0              | 106            | 5530           | 13.07                              | 13.65                              | 16.38                              | ≤ 23.98              | Pass   |
| 11ax-HE80  | MCS0              | 155            | 5775           | 13.35                              | 13.22                              | 16.30                              | ≤ 30.00              | Pass   |

Note 1:

The Total Average Power (dBm) =  $10 \cdot \log \{10^{(\text{Ant 1 Average Power} / 10)} + 10^{(\text{Ant 2 Average Power} / 10)}\}$ .

Note 2:

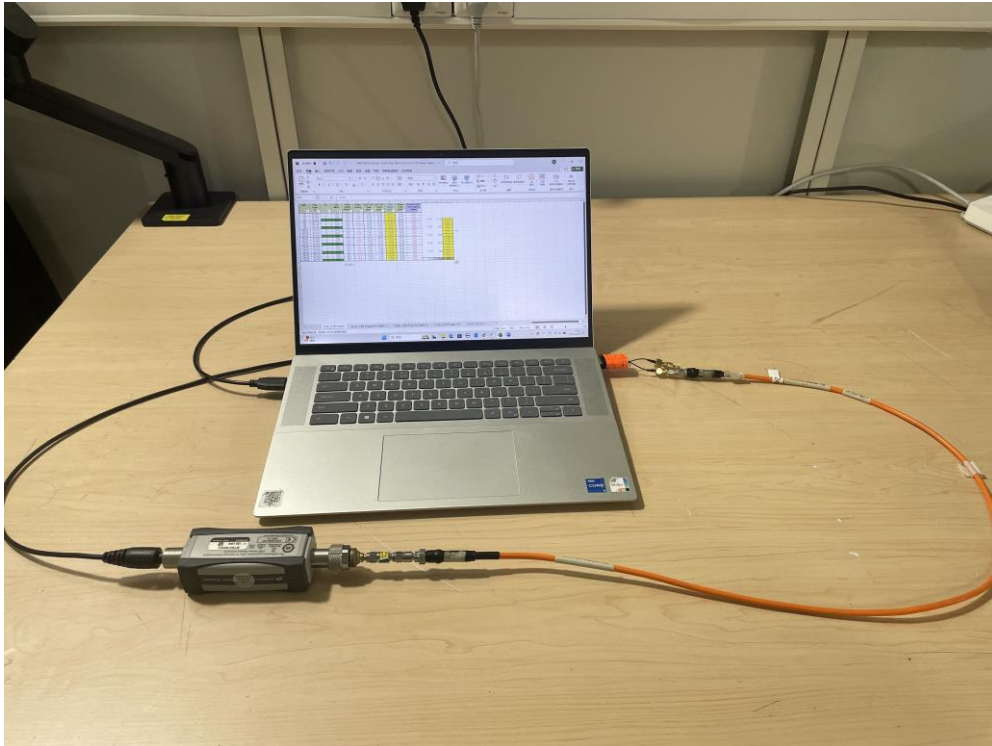
For 5250- 5350MHz and 5470 - 5725MHz Band: Average Power Limit (dBm) = 23.98 dBm.

For 5150 - 5250MHz and 5725 - 5850MHz Bands: Average Power Limit (dBm) = 30 dBm.



## Appendix B - Test Setup Photograph

Description: Output Power Test Setup



## **Appendix C - EUT Photograph**

Refer to “2409RSU042-UE” file.

---

The End

---