



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).

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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

☒	Test Site – MRT Suzhou Laboratory Laboratory Location (Suzhou - Wuzhong) D8 Building, No.2 Tian'edang Rd., Wuzhong Economic Development Zone, Suzhou, China Laboratory Location (Suzhou - SIP) 4b Building, Liando U Valley, No.200 Xingpu Rd., Shengpu Town, Suzhou Industrial Park, China Laboratory Location (Suzhou - Wujiang) Building 1, No.1 Xingdong Road, Wujiang, Suzhou, Jiangsu, People's Republic of China Laboratory Accreditations A2LA: 3628.01 CNAS: L10551 FCC: CN1166 ISED: CN0001 VCCI: ☐ R-20025 ☐ G-20034 ☐ C-20020 ☐ T-20020 ☐ R-20141 ☐ G-20134 ☐ C-20103 ☐ T-20104
☐	Test Site – MRT Shenzhen Laboratory Laboratory Location (Shenzhen) 1G, Building A, Junxiangda Building, Zhongshanyuan Road West, Nanshan District, Shenzhen, China Laboratory Accreditations A2LA: 3628.02 CNAS: L10551 FCC: CN1284 ISED: CN0105
☐	Test Site – MRT Taiwan Laboratory Laboratory Location (Taiwan) No. 38, Fuxing 2nd Rd., Guishan Dist., Taoyuan City 333, Taiwan (R.O.C.) Laboratory Accreditations TAF: 3261 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
Remark: The information of EUT was provided by the manufacturer, and the accuracy of the information shall be the responsibility of the manufacturer.	

1.5. Radio Specification under Test

Frequency Range	For 802.11a/n-HT20/ac-VHT20/ax-HE20: 5180~5240MHz, 5260~5320MHz, 5500~5720MHz, 5745~5825MHz For 802.11n-HT40/ac-VHT40/ax-HE40: 5190~5230MHz, 5270~5310MHz, 5510~5710MHz, 5755~5795MHz For 802.11ac-VHT80/ax-HE80: 5210MHz, 5290MHz, 5530MHz, 5610 MHz, 5690MHz, 5775MHz	
Type of Modulation	802.11a/n/ac: OFDM 802.11ax: OFDMA	
Data Rate	802.11a: 6/9/12/18/24/36/48/54Mbps 802.11n: up to 300Mbps 802.11ac: up to 866.7Mbps 802.11ax: up to 1201Mbps	
Channel Puncturing Function	☐ Supported	☒ Unsupported
Support RU	☒ Full RU	☐ 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 2. Delete the USB differential pair filtering 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: 1. For CDD mode, this device supports 2 Nss and power level is the same of spatial multiplexing. The worst case is Nss=1. 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% ($U=2U_c(y)$): 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

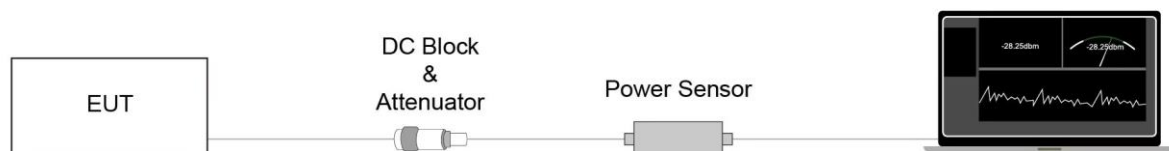
KDB 789033D02v02r01- Section II(E)3)b) Method PM-G

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/ MCS	Channel No.	Freq. (MHz)	Ant 1 Average Power (dBm)	Ant 2 Average Power (dBm)	Total Average Power (dBm)	Power Limit (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) = $10 \cdot \log \{10^{(\text{Ant 1 Average Power} / 10)} + 10^{(\text{Ant 2 Average Power} / 10)}\}$.

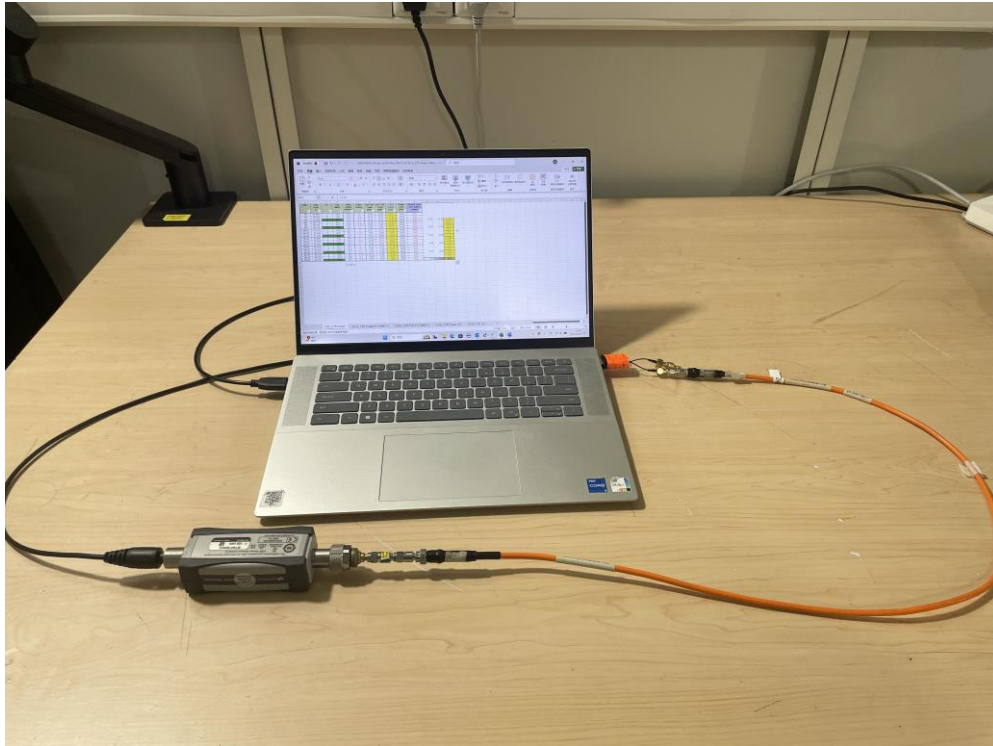
Note 2:

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
