



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: Digital Transmission System (DTS)
FCC Rule Part(s): Part 15 Subpart C (Section 15.247)
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 ANSI C63.10-2013. 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-U2	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

<input checked="" type="checkbox"/>	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			
<input checked="" type="checkbox"/>	Laboratory Accreditations			
	A2LA: 3628.01		CNAS: L10551	
	FCC: CN1166		ISED: CN0001	
	VCCI:	<input type="checkbox"/> R-20025	<input type="checkbox"/> G-20034	<input type="checkbox"/> C-20020
		<input type="checkbox"/> R-20141	<input type="checkbox"/> G-20134	<input type="checkbox"/> C-20103
<input type="checkbox"/>	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	
<input type="checkbox"/>	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	
<input type="checkbox"/>	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	802.11b/g/n-HT20/ax-HE20: 2412 ~ 2462MHz 802.11n-HT40/ax-HE40: 2422 ~ 2452MHz	
Channel Number	802.11b/g/n-HT20/ax-HE20: 11 802.11n-HT40/ax-HE40: 7	
Type of Modulation	802.11b: DSSS 802.11g/n: OFDM 802.11ax: OFDMA	
Data Rate	802.11b: 1/2/5.5/11Mbps 802.11g: 6/9/12/18/24/36/48/54Mbps 802.11n: up to 300Mbps 802.11ax: up to 574Mbps	
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

802.11b/g/n-HT20/ax-HE20

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

802.11n-HT40/ax-HE40

Channel	Frequency	Channel	Frequency	Channel	Frequency
03	2422 MHz	04	2427 MHz	05	2432 MHz
06	2437 MHz	07	2442 MHz	08	2447 MHz
09	2452 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 802.11b _N _{SS} =1 (1Mbps)
Mode 2: Transmit by 802.11g _N _{SS} =1 (6Mbps)
Mode 3: Transmit by 802.11n-HT20 _N _{SS} =1 (MCS0)
Mode 4: Transmit by 802.11n-HT40 _N _{SS} =1 (MCS0)
Mode 5: Transmit by 802.11ax-HE20 _N _{SS} =1 (MCS0)
Mode 6: Transmit by 802.11ax-HE40 _N _{SS} =1 (MCS0)
Notes: 1. For CDD mode, this device supports 2 N _{SS} and power level is the same of spatial multiplexing. The worst case is N _{SS} =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 15.247
- KDB 558074 D01v05r02
- 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
15.247(b)(3)	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

The maximum output power shall be less 1 Watt (30dBm).

The conducted output power limit specified in paragraph FCC Part 15.247(b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs FCC Part 15.247(b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

6.2.2. Test Procedure

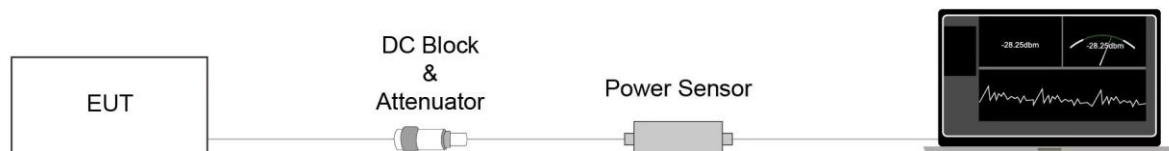
ANSI C63.10 - 2013 - Section 11.9.2.3.2

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

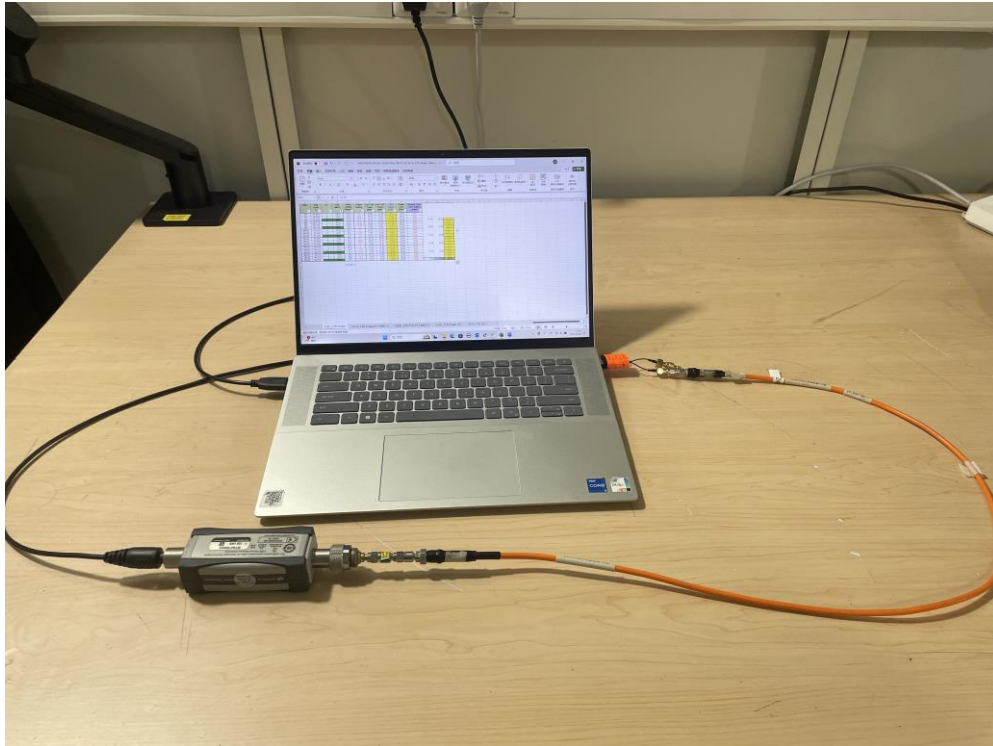
Test Site	WZ-SR5	Test Engineer	Luis Yang
Test Date	2024-10-24		

Test Mode	Data Rate / MCS	Channel No.	Freq. (MHz)	Average Power (dBm)		Total Average Power (dBm)	Limit (dBm)
				Ant 1	Ant 2		
11b	1Mbps	11	2462	14.02	14.33	17.19	≤ 30.00
11g	6Mbps	11	2462	13.50	14.12	16.83	≤ 30.00
11n-HT20	MCS0	11	2462	13.55	13.88	16.73	≤ 30.00
11n-HT40	MCS0	09	2452	13.46	14.12	16.81	≤ 30.00
11ax-HE20	MCS0	11	2462	13.65	13.98	16.83	≤ 30.00
11ax-HE40	MCS0	09	2452	13.44	14.16	16.83	≤ 30.00

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

Appendix B - Test Setup Photograph

Description: Output Power Test Setup



Appendix C - EUT Photograph

Refer to “2409RSU042-UE” file.

_____ The End _____