

FCC RF EXPOSURE REPORT

FCC ID: 2BH7FEAP603OD

Project No. : 2501G023
Equipment : AX1800 Indoor/Outdoor Wi-Fi 6 Access Point
Brand Name : tp-link
Test Model : EAP603-Outdoor
Series Model : N/A
Applicant : TP-Link Systems Inc.
Address : 10 Mauchly, Irvine, CA 92618
Manufacturer : TP-Link Systems Inc.
Address : 10 Mauchly, Irvine, CA 92618
Date of Receipt : Feb. 28, 2025
Date of Test : Mar. 05, 2025 ~ Jul. 17, 2025
Issued Date : Jul. 30, 2025
Test Sample : Engineering Sample No.: DG2025022823
Standard(s) : FCC Guidelines for Human Exposure IEEE C95.1 & FCC Part 2.1091
 FCC Title 47 Part 2.1091 & KDB 447498 D01 v06

The above equipment has been tested and found compliance with the requirement of the relative standards by BTL Inc. (Dongguan).

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REPORT ISSUED HISTORY

Report No.	Version	Description	Issued Date	Note
BTL-FCCP-4-2501G023	R00	Original Report.	Jul. 18, 2025	Invalid
BTL-FCCP-4-2501G023	R01	In this report: 1. Modified the brand name in page 1. 2. Modified the antenna connection method in chapter 2. It is a revision of the report BTL-FCCP-4-2501G023 R00. This is a newly released report, replacing the BTL-FCCP-4-2501G023 R00 report.	Jul. 29, 2025	Invalid
BTL-FCCP-4-2501G023	R02	This report modified the antenna connection method in chapter 2. It is a revision of the report BTL-FCCP-4-2501G023 R01. This is a newly released report, replacing the BTL-FCCP-4-2501G023 R01 report.	Jul. 30, 2025	Valid

1. MPE CALCULATION METHOD

Calculation Method of RF Safety Distance:

$$S = \frac{PG}{4\pi^2} = \frac{EIRP}{4\pi^2}$$

where:

S = power density

P = power input to the antenna

G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna

2. ANTENNA SPECIFICATION

For LE:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	TP-Link Systems Inc.	N/A	Dipole	N/A	3.66

Note:

- 1) This antenna gain is provided by the manufacturer.

For 2.4GHz:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	TP-Link Systems Inc.	N/A	Dipole	RP-SMA	4.08
2	TP-Link Systems Inc.	N/A	Dipole	RP-SMA	4.08

Note:

- 1) This EUT supports CDD, and all antennas have the same gain, Directional gain = $G_{ANT} + \text{Array Gain}$.
For power measurements, Array Gain=0dB ($N_{ANT} \leq 4$), so the Directional gain=4.08.
For power spectral density measurements,
Directional gain(each angle)= $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/N]$ dBi.
So the Directional gain(each angle)= $10\log[(10^{4.05/20} + 10^{4.44/20})^2/2]$ dBi=7.26.
Then, the power spectral density limit is $8 - (7.26 - 6) = 6.74$.
- 2) Beamforming gain: 3dBi.
- 3) The antenna gain and beamforming gain are provided by the manufacturer.

For 5GHz:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	Note
1	TP-Link Systems Inc.	N/A	Dipole	RP-SMA	4.07	UNII-1
2	TP-Link Systems Inc.	N/A	Dipole	RP-SMA	4.07	
3	TP-Link Systems Inc.	N/A	Dipole	N/A	4.68	
1	TP-Link Systems Inc.	N/A	Dipole	RP-SMA	4.11	UNII-2A
2	TP-Link Systems Inc.	N/A	Dipole	RP-SMA	4.11	
3	TP-Link Systems Inc.	N/A	Dipole	N/A	4.68	
1	TP-Link Systems Inc.	N/A	Dipole	RP-SMA	5.14	UNII-2C
2	TP-Link Systems Inc.	N/A	Dipole	RP-SMA	5.14	
3	TP-Link Systems Inc.	N/A	Dipole	N/A	4.39	
1	TP-Link Systems Inc.	N/A	Dipole	RP-SMA	4.50	UNII-3
2	TP-Link Systems Inc.	N/A	Dipole	RP-SMA	4.50	
3	TP-Link Systems Inc.	N/A	Dipole	N/A	4.47	

Note:

- 1) This EUT supports CDD, and all antenna gains are not equal, Directional gain = $G_{ANT} + \text{Array Gain}$.
For power measurements, Array Gain=0dB ($N_{ANT} \leq 4$), so the UNII-1 Directional gain=4.68, the UNII-2A Directional gain=4.68, the UNII-2C Directional gain=5.14, the UNII-3 Directional gain=4.50.
For power spectral density measurements, Directional gain(each angle)= $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/N]$ dBi.
So the UNII-1 Directional gain(each angle)= $10\log[(10^{3.93/20} + 10^{4.26/20} + 10^{-5.57/20})^2/3]$ dBi=6.67,
the UNII-2A Directional gain(each angle)= $10\log[(10^{1.11/20} + 10^{4.30/20} + 10^{0.60/20})^2/3]$ dBi=6.93,
the UNII-2C Directional gain(each angle)= $10\log[(10^{3.04/20} + 10^{2.97/20} + 10^{0.13/20})^2/3]$ dBi=6.92,
the UNII-3 Directional gain(each angle)= $10\log[(10^{2.78/20} + 10^{-0.32/20} + 10^{1.65/20})^2/3]$ dBi=6.23.
- 2) The maximum direction gain at any elevation angle above 30 degrees as measured from the horizon is -7.34 dBi.
- 3) Beamforming Gain: 5 dB.
- 4) The antenna gain and beamforming gain are provided by the manufacturer.

3. CALCULATED RESULT

For LE:

Antenna Gain (dBi)	Antenna Gain (numeric)	Max. Output Power (dBm)	Max. Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
3.66	2.3227	17.41	55.0808	0.02547	1	Complies

For 2.4GHz:

Antenna Gain (dBi)	Antenna Gain (numeric)	Max. Output Power (dBm)	Max. Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
4.08	2.5586	25.79	379.3150	0.19317	1	Complies

For 5GHz:

Antenna Gain (dBi)	Antenna Gain (numeric)	Max. Output Power (dBm)	Max. Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
4.68	2.9376	27.63	579.4287	0.33881	1	Complies

For the max simultaneous transmission MPE:

Ratio			Total	Limit of Ratio	Test Result
LE	2.4GHz	5GHz			
0.02547	0.19317	0.33881	0.55745	1	Complies

Note:

(1) The calculated distance is 20 cm.

(2) Ratio=Power Density (S) (mW/cm²)/Limit of Power Density (S) (mW/cm²)

End of Test Report