FCC RF EXPOSURE REPORT

FCC ID: 2BH7FER605WV2

Project No.	:	2502G005
Equipment	:	AC1200 Gigabit VPN Gateway
Brand Name	:	tp-link
Test Model	:	ER605W
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. 12, 2025
Date of Test	:	Feb. 14, 2025 ~ Jun. 10, 2025
Issued Date	:	Jun. 24, 2025
Report Version	:	R00
Test Sample	:	Engineering Sample No.: SSL2025021245
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-3-2502G005	R00	Original Report.	Jun. 24, 2025	Valid

1. MPE CALCULATION METHOD

Calculation Method of RF Safety Distance:

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

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 2.4GHz:

Ant.	Manufacturer	P/N	Antenna Type	Connector	Gain (dBi)
1	TP-Link Systems Inc.	3101507460	Dipole	N/A	2.76
2	TP-Link Systems Inc.	3101507459	Dipole	N/A	3.22

Note:
1) This EUT supports CDD, and all antennas have the same gain, Directional gain = G_{ANT}+Array Gain.
For power measurements, Array Gain=0dB (N_{ANT}≤4), so the Directional gain=3.22.
For power spectral density measurements, Directional gain(each angle)=
$10\log[(10^{G1/20}+10^{G2/20}+...10^{GN/20})^2/N]$dBi=$10\log[(10^{0.23/20}+10^{3.22/20})^2/2]$=4.857.
2) The antenna gain is provided by the manufacturer.

For 5GHz:

Antenna P/N		3101504478	3101507461
Antenna Manufacturer		TP-Link Systems Inc.	
Ant. Type		Dipole	
Ant. Connector		N/A	
Antenna No.		1	2
5G Wifi	5150~5250MHz	2.20	2.21
	5725~5850MHz	2.83	1.59
Beamforming Gain		3	

Note:
1) This EUT supports CDD, and all antenna gains are not equal, Directional gain = G_{ANT}+Array Gain.
For power measurements, Array Gain=0dB ($N_{ANT}\leqslant 4$), so the UNII-1 Directional gain=2.21, the UNII-3 Directional gain=2.83.
For power spectral density measurements, Directional gain(each angle)
$=10\log[(10^{G1/20}+10^{G2/20}+...10^{GN/20})^2/N]$dBi
For the UNII-1 Directional gain(each angle)=$10\log[(10^{2.2/20}+10^{1.8/20})^2/2]$=5.01.
For the UNII-3 Directional gain(each angle)=$10\log[(10^{2.83/20}+10^{0.98/20})^2/2]$=4.962.
2) Beamforming Gain: 3 dB. So the UNII-1 Directional gain=2.21+3=5.51, the UNII-3 Directional gain=2.83+3=5.83.
3) The antenna gain is provided by the manufacturer.

3. CALCULATED RESULT

For 2.4GHz:

Directional Gain (dBi)	Directional 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
3.22	2.0989	23.99	250.6109	0.10470	1	Complies

For 5GHz UNII-1:

Directional Gain (dBi)	Directional 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
2.21	1.6634	24.79	301.3006	0.09976	1	Complies

For 5GHz UNII-3:

Directional Gain (dBi)	Directional 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
2.83	1.9187	28.02	633.8697	0.24208	1	Complies

For the max simultaneous transmission MPE:

Ratio		Total	Limit of Ratio	Test Result
2.4GHz	5GHz			
0.10470	0.24208	0.34678	1	Complies

Note:
(1) The calculated distance is 20 cm.
(2) Ratio=Power Density (S) (mW/cm^2)/Limit of Power Density (S) (mW/cm^2)

End of Test Report