FCC RF EXPOSURE REPORT

FCC ID: 2AXJ4AX73V2

Project No.	:	2204C236
Equipment	:	AX5400 Wi-Fi 6 Router
Brand Name	:	tp-link
Test Model	:	Archer AX73
Series Model	:	N/A
Applicant	:	TP-Link Corporation Limited
Address	:	Room 901, 9/F. , New East Ocean Centre, 9 Science Museum Road, Tsim Sha Tsui, Kowloon, Hong Kong
Manufacturer	:	TP-Link Corporation Limited
Address	:	Room 901, 9/F. , New East Ocean Centre, 9 Science Museum Road, Tsim Sha Tsui, Kowloon, Hong Kong
Date of Receipt	:	Apr. 25, 2022
Date of Test	:	Apr. 27, 2022 ~ Jun. 21, 2022
Issued Date	:	Jul. 28, 2022
Report Version	:	R00
Test Sample	:	Engineering Sample No.: DG2022042675
Standard(s)	:	FCC Guidelines for Human Exposure IEEE C95.1 & FCC Part 2.1091 FCC Title 47 Part 2.1091

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

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TESTING CERT #5123.02

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REPORT ISSUED HISTORY

Report No.	Version	Description	Issued Date	Note
BTL-FCCP-4-2204C236	R00	Original Report	Jul. 28, 2022	Valid

1. TEST FACILITY

The test facilities used to collect the test data in this report is at the location of No. 3 Jinshagang 1st Rd. Shixia, Dalang Town Dongguan City, Guangdong 523792 People's Republic of China.
BTL's Registration Number for FCC: 357015
BTL's Designation Number for FCC: CN1240

2. 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

For 2.4GHz:
Antenna Specification:

Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)
1	tp-link	3101503773	Dipole	I-PEX	2
2	tp-link	3101503775	Dipole	I-PEX	2

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 ($N_{ANT} \leqslant 4$), so the Directional gain=2 dBi.
For power spectral density measurements, N_{ANT}=2, N_{SS} = 1.
So the Directional gain=G_{ANT}+Array Gain=G_{ANT}+10log(N_{ANT}/ N_{SS})dBi=2+10log(2/1)dBi=5.01 dBi.
2) Beamforming Gain: 3 dB. So the Directional gain=3+2=5 dBi.
3) The antenna gain and beamforming gain are provided by the manufacturer.

Table for Antenna Configuration:
For Non Beamforming:

Operating Mode / TX Mode	2TX
IEEE 802.11b	V(Ant. 1 + Ant. 2)
IEEE 802.11g	V(Ant. 1 + Ant. 2)
IEEE 802.11n(HT20)	V(Ant. 1 + Ant. 2)
IEEE 802.11n(HT40)	V(Ant. 1 + Ant. 2)
IEEE 802.11ax(HE20)	V(Ant. 1 + Ant. 2)
IEEE 802.11ax(HE40)	V(Ant. 1 + Ant. 2)

For Beamforming:

Operating Mode / TX Mode	2TX
IEEE 802.11n(HT20)	V(Ant. 1 + Ant. 2)
IEEE 802.11n(HT40)	V(Ant. 1 + Ant. 2)
IEEE 802.11ax(HE20)	V(Ant. 1 + Ant. 2)
IEEE 802.11ax(HE40)	V(Ant. 1 + Ant. 2)

For 5GHz:
Antenna Specification:

Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)	Note
1	tp-link	3101503772	Dipole	I-PEX	1.95	UNII-1
2	tp-link	3101503774	Dipole	I-PEX		
3	tp-link	3101503772	Dipole	I-PEX		
4	tp-link	3101503776	Dipole	I-PEX		
1	tp-link	3101503772	Dipole	I-PEX	1.76	UNII-2A
2	tp-link	3101503774	Dipole	I-PEX		
3	tp-link	3101503772	Dipole	I-PEX		
4	tp-link	3101503776	Dipole	I-PEX		
1	tp-link	3101503772	Dipole	I-PEX	2.50	UNII-2C
2	tp-link	3101503774	Dipole	I-PEX		
3	tp-link	3101503772	Dipole	I-PEX		
4	tp-link	3101503776	Dipole	I-PEX		
1	tp-link	3101503772	Dipole	I-PEX	2.38	UNII-3
2	tp-link	3101503774	Dipole	I-PEX		
3	tp-link	3101503772	Dipole	I-PEX		
4	tp-link	3101503776	Dipole	I-PEX		

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 ($N_{ANT} \leqslant 4$), so the UNII-1 Directional gain=1.95 dBi, the UNII-2A Directional gain=1.76 dBi, the UNII-2C Directional gain=2.50 dBi, the UNII-3 Directional gain=2.38 dBi.
For power spectral density measurements, N_{ANT}=4, N_{SS} = 1.
Then, the Directional gain=G_{ANT}+Array Gain=G_{ANT}+10log(N_{ANT}/ N_{SS})dBi.
So,
For UNII-1: The Directional gain=1.95+10log(4/1)dBi=7.97dBi.
For UNII-2A: The Directional gain=1.76+10log(4/1)dBi=7.78dBi.
For UNII-2C: The UNII-2C Directional gain=2.50+10log(4/1)dBi=8.52dBi.
For UNII-3: The UNII-3 Directional gain =2.38+10log(4/1)dBi=8.40dBi.
2) Beamforming Gain: 6dB. Then,
For UNII-1: The Directional gain=6+1.95=7.95dBi.
For UNII-2A: The Directional gain=6+1.76=7.76dBi.
For UNII-2C: The Directional gain=6+2.50=8.50dBi.
For UNII-3: The Directional gain=6+2.38=8.38dBi.
3) The antenna gain and beamforming gain are provided by the manufacturer.

Table for Antenna Configuration:
For Non Beamforming:

Operating Mode / TX Mode	4TX
IEEE 802.11a	V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11n(HT20)	V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11n(HT40)	V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11ac(VHT20)	V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11ac(VHT40)	V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11ac(VHT80)	V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11ac(VHT160)	V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11ax(HE20)	V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11ax(HE40)	V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11ax(HE80)	V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11ax(HE160)	V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)

For Beamforming:

Operating Mode / TX Mode	4TX
IEEE 802.11n(HT20)	V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11n(HT40)	V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11ac(VHT20)	V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11ac(VHT40)	V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11ac(VHT80)	V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11ac(VHT160)	V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11ax(HE20)	V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11ax(HE40)	V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11ax(HE80)	V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)
IEEE 802.11ax(HE160)	V (Ant. 1 + Ant. 2 + Ant. 3 + Ant. 4)

3. TEST RESULTS

For 2.4GHz Non Beamforming:

Directional Gain (dBi)	Directional Gain (numeric)	Max. Average Output Power (dBm)	Max. Average Output Power (mW)	Power Density (S) (mW/cm^2)	Limit of Power Density (S) (mW/cm^2)	Test Result
2	1.5849	29.99	997.7001	0.20143	1	Complies

For 2.4GHz Beamforming:

Directional Gain (dBi)	Directional Gain (numeric)	Max. Average Output Power (dBm)	Max. Average Output Power (mW)	Power Density (S) (mW/cm^2)	Limit of Power Density (S) (mW/cm^2)	Test Result
5	3.1623	28.88	772.6806	0.31127	1	Complies

For 5GHz Non Beamforming:

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
2.38	1.7298	29.71	935.4057	0.20612	1	Complies

For 5GHz Beamforming:

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
8.38	6.8865	27.61	576.7665	0.50598	1	Complies

For the max simultaneous transmission MPE:

Ratio		Total	Limit of Ratio	Test Result
2.4GHz	5GHz			
0.31127	0.50598	0.81725	1	Complies

Note: The calculated distance is 25 cm.

End of Test Report