

FCC RF EXPOSURE REPORT

FCC ID: 2AXJ4EAP620HDV2

Project No. : 2102C267
Equipment : AX1800 Ceiling Mount Wi-Fi 6 Access Point
Brand Name : tp-link
Test Model : EAP620 HD
Series Model : N/A
HVIN : EAP620 HDV2
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 : Feb. 10, 2021
Date of Test : Feb. 25, 2021 ~ Mar. 24, 2021
Issued Date : Apr. 08, 2021
Report Version : R00
Test Sample : Engineering Sample No.: DG20210225114
Standard(s) : FCC Guidelines for Human Exposure IEEE C95.1 & FCC Part 2.1091
FCC Title 47 Part 2.1091, OET Bulletin 65 Supplement C

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

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REPORT ISSUED HISTORY

Report Version	Description	Issued Date
R00	Original Issue	Apr. 08, 2021

1. TEST FACILITY

The test facilities used to collect the test data in this report is at the location of No.3,Jinshagang 1st Road, Shixia, Dalang Town, Dongguan, Guangdong, China.

BTL's Test Firm Registration Number for FCC: 357015

BTL's Designation Number for FCC: CN1240

2. MPE CALCULATION METHOD

Calculation Method of RF Safety Distance:

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

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

Table for Filed Antenna:

For 2.4GHz:

Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)
1	tp-link	EAP1800(EU)1.0	PIFA	I-PEX	3
2	tp-link	EAP1800(EU)1.0	PIFA	I-PEX	3

Note:

- 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=3. For power spectral density measurements, $N_{ANT}=2$, $N_{SS} = 1$. So the Directional gain= $G_{ANT} + \text{Array Gain} = G_{ANT} + 10\log(N_{ANT}/N_{SS})\text{dBi} = 3 + 10\log(2/1)\text{dBi} = 6.01$. Then, the power spectral density limit is $8 - (6.01 - 6) = 7.99$.
- Beamforming Gain: 3dB. So Directional gain=3+3=6.
- The antenna gain and beamforming gain are provided by the manufacturer.

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 802.11ax(HE20)		V (Ant. 1 + Ant. 2)
IEEE 802.11ax(HE40)		V (Ant. 1 + Ant. 2)

For 5GHz:

Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)
1	tp-link	EAP1800(EU)1.0	PIFA	I-PEX	3
2	tp-link	EAP1800(EU)1.0	PIFA	I-PEX	3

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=3.
 For power spectral density measurements, $N_{ANT}=2$, $N_{SS} = 1$.
 So the Directional gain= $G_{ANT} + \text{Array Gain} = G_{ANT} + 10\log(N_{ANT}/N_{SS})\text{dBi} = 3 + 10\log(2/1)\text{dBi} = 6.01$.
 Then, the UNII-1 power spectral density limit is $17 - (6.01 - 6) = 16.99$, the UNII-3 power spectral density limit is $30 - (6.01 - 6) = 29.99$.
- 2) Beamforming Gain: 3dB. So Directional gain=3+3=6.
- 3) The antenna gain and beamforming gain are provided by the manufacturer.

For Non Beamforming:

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

For Beamforming:

Operating Mode / TX Mode	2TX
IEEE 802.11ac (VHT20)	V (Ant. 1 + Ant. 2)
IEEE 802.11ac (VHT40)	V (Ant. 1 + Ant. 2)
IEEE 802.11ac (VHT80)	V (Ant. 1 + Ant. 2)
IEEE 802.11ax (HE20)	V (Ant. 1 + Ant. 2)
IEEE 802.11ax (HE40)	V (Ant. 1 + Ant. 2)
IEEE 802.11ax (HE80)	V (Ant. 1 + Ant. 2)

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
3	1.9953	26.58	454.9881	0.18070	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
6	3.9811	25.37	344.3499	0.27287	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
3	1.9953	25.65	367.2823	0.14586	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
6	3.9811	24.75	298.5383	0.23656	1	Complies

For the max simultaneous transmission MPE:

Power Density (S) (mW/cm ²)	Power Density (S) (mW/cm ²)	Total	Limit of Power Density (S) (mW/cm ²)	Test Result
2.4GHz	5GHz			
0.27287	0.23656	0.50943	1	Complies

Note: The calculated distance is 20 cm.
Output power including tune up tolerance.

End of Test Report