

FCC RF EXPOSURE REPORT

FCC ID: TE7X20

Project No. : 1910C060
Equipment : AX1800 Whole Home Mesh Wi-Fi System
Brand Name : tp-link
Test Model : Deco X20
Series Model : Deco W3600
Applicant : TP-Link Technologies Co., Ltd.
Address : Building 24(floors1,3,4,5) and 28(floors1-4) Central Science and Technology Park, Shennan Rd, Nanshan, Shenzhen, China
Manufacturer : TP-Link Technologies Co., Ltd.
Address : Building 24(floors1,3,4,5) and 28(floors1-4) Central Science and Technology Park, Shennan Rd, Nanshan, Shenzhen, China
Date of Receipt : Oct. 14, 2019
Date of Test : Oct. 15, 2019 ~ Nov. 15, 2019
Issued Date : Jan. 02, 2020
Report Version : R00
Test Sample : Engineering Sample No.: DG2019101528
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	Jan. 02, 2020

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

Antenna Specification:



For 2.4GHz:

Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)
1		3101502752	PCB	I-PEX	1.95
2		3101502753	PCB	I-PEX	1.97

Note:

This EUT supports CDD, any transmit signals are correlated with each other, so Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N]$ dBi, that is Directional gain = $10\log[(10^{1.95/20} + 10^{1.97/20})^2 / 2]$ dBi = 4.97.

For 5GHz:

Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)
1		3101502754	PCB	I-PEX	0.76
2		3101502755	PCB	I-PEX	0.80

Note:

This EUT supports CDD, any transmit signals are correlated with each other, so Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N]$ dBi, that is Directional gain = $10\log[(10^{0.76/20} + 10^{0.80/20})^2 / 2]$ dBi = 3.79.

Table for Antenna Configuration:

For 2.4GHz:

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(HEW20)		V (Ant. 1+ Ant. 2)
IEEE 802.11ax(HEW40)		V (Ant. 1+ Ant. 2)

For 5GHz:

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 (HEW20)		V (Ant. 1 + Ant. 2)
IEEE 802.11ax (HEW40)		V (Ant. 1 + Ant. 2)
IEEE 802.11ax (HEW80)		V (Ant. 1 + Ant. 2)

2. TEST RESULTS

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
4.97	3.1405	28.78	755.0922	0.47201	1	Complies

For 5GHz:

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
3.79	2.3933	28.25	668.3439	0.31838	1	Complies

For the max simultaneous transmission MPE:

Power Density (S) (mW/cm ²) 2.4GHz	Power Density (S) (mW/cm ²) 5GHz	Total	Limit of Power Density (S) (mW/cm ²)	Test Result
0.47201	0.31838	0.79039	1	Complies

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

End of Test Report