

FCC RF EXPOSURE REPORT

FCC ID: TE7E4

Project No. : 1812C106
Equipment : AC1200 Whole Home Mesh Wi-Fi System
Test Model : Deco E4R
Series Model : Deco W2400
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

According: : FCC Guidelines for Human Exposure IEEE
C95.1 & FCC Part 2.1091

B T L I N C .

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Certificate #5123.02

1. GENERAL SUMMARY

Equipment : AC1200 Whole Home Mesh Wi-Fi System
Brand Name : tp-link
Test Model : Deco E4R
Series Model : Deco W2400
Applicant : TP-Link Technologies Co., Ltd.
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
Factory : 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 Test : Dec. 18, 2018 ~ Jan. 10, 2019
Test Sample : Engineering Sample No.: D181211652
Standards : 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.

The test data, data evaluation, and equipment configuration contained in our test report (Ref No. BTL-FCCP-3-1812C106) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of A2LA according to the ISO/IEC 17025 quality assessment standard and technical standard(s).

2. 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

Table for Filed Antenna:

For WLAN 2.4G:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1		N/A	PCB	N/A	1.47
2		N/A	PCB	N/A	1.47

Note:

This EUT supports CDD, and all antennas have the same gain, so Directional gain = $G_{ANT} + 10\log(N_{ANT}/N_{SS})$ dB = $1.47 + 10\log(2/1) = 4.48$.

For RLAN 5G:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1		N/A	PCB	N/A	0.89
2		N/A	PCB	N/A	0.96

Note:

This EUT supports MIMO 2X2, 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. Then, Directional gain = $10\log[(10^{0.89/20} + 10^{0.96/20})^2 / 2]$ dBi = 3.94.

3. TEST RESULTS

WLAN 2.4G:

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
4.48	2.8054	22.94	196.7886	0.10989	1	Complies

5G Band UNII-1:

Directional gain (dBi)	Directional gain (numeric)	Max Conducted Output Power (dBm)	Max Conducted Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
3.94	2.4774	22.90	194.9845	0.09615	1	Complies

5G Band UNII-3:

Directional gain (dBi)	Directional gain (numeric)	Max Conducted Output Power (dBm)	Max Conducted Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
3.94	2.4774	22.83	191.8669	0.09461	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
2.4G	5G			
0.10989	0.09615	0.20604	1	Complies

Note: the calculated distance is 20 cm.

End of Test Report