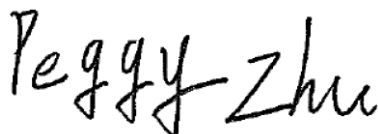


# FCC RF EXPOSURE REPORT

## FCC ID: 2AXJ4A54

**Project No.** : 2012C041  
**Equipment** : AC1200 Whole Home Mesh Wi-Fi System  
**Brand Name** : tp-link  
**Test Model** : Deco E4R  
**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** : Dec. 08, 2020  
**Date of Test** : Dec. 18, 2020 ~ Jan. 18, 2021  
**Issued Date** : Feb. 03, 2021  
**Report Version** : R00  
**Test Sample** : Engineering Sample No.: DG2020120822  
**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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Certificate #5123.02

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**REPORT ISSUED HISTORY**

Report Version	Description	Issued Date
R00	Original Issue	Feb. 03, 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:

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

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

Table for Filed Antenna:

For 2.4GHz:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	TP-LINK	N/A	Monopole	N/A	1.5
2	TP-LINK	N/A	Monopole	N/A	1.5

Note:

- This EUT supports CDD, and all antennas have the same gain, Directional gain =  $G_{ANT} + \text{Array Gain}$ .  
For power measurements, Array Gain = 0 dB ( $N_{ANT} \leq 4$ ), so the Directional gain=1.5.  
For power spectral density measurements,  $N_{ANT} = 2$ ,  $N_{SS} = 1.5$ . So Directional gain =  
 $G_{ANT} + \text{Array Gain} = G_{ANT} + 10\log(N_{ANT}/N_{SS})$  dB =  $1.5 + 10\log(2/1.5)$  dBi=4.51
- The antenna gain is provided by the manufacturer.

Table for Antenna Configuration:

Operating Mode	2TX
TX Mode	
IEEE 802.11b	V (Ant. 1 + Ant. 2)
IEEE 802.11g	V (Ant. 1 + Ant. 2)
IEEE 802.11n(20 MHz)	V (Ant. 1 + Ant. 2)
IEEE 802.11n(40 MHz)	V (Ant. 1 + Ant. 2)

For 5GHz:

Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)
1	TP-LINK	N/A	Monopole	N/A	1
2	TP-LINK	N/A	Monopole	N/A	1

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 = 0 dB ( $N_{ANT} \leq 4$ ), so the Directional gain=1.00.  
 For power spectral density measurements,  $N_{ANT} = 2$ ,  $N_{SS} = 1$ .  
 So Directional gain =  $G_{ANT} + \text{Array Gain} = G_{ANT} + 10\log(N_{ANT}/N_{SS})$  dB =  $1.00 + 10\log(2/1)$  dBi = 4.01
- 2) Beamforming Gain: 3.00 dB, the Directional gain=3.00+1.00=4.00.
- 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 802.11a	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)

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 802.11ac (VHT20)	V (Ant. 1 + Ant. 2)
	IEEE 802.11ac (VHT40)	V (Ant. 1 + Ant. 2)
	IEEE 802.11ac (VHT80)	V (Ant. 1 + Ant. 2)

### 3. TEST RESULTS

For 2.4GHz:

Directional Gain (dBi)	Directional Gain (numeric)	Max. Average Output Power (dBm)	Max. Average Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
4.51	2.8249	23.80	239.8833	0.13488	1	Complies

For 5GHz UNII-1 Non Beamforming:

Directional Gain (dBi)	Directional Gain (numeric)	Max. Output Power (dBm)	Max. Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
4.01	2.5177	23.42	219.7860	0.11014	1	Complies

For 5GHz UNII-3 Non Beamforming:

Directional Gain (dBi)	Directional Gain (numeric)	Max. Output Power (dBm)	Max. Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
4.01	2.5177	23.19	208.4491	0.10446	1	Complies

For 5GHz UNII-1 Beamforming:

Directional Gain (dBi)	Directional Gain (numeric)	Max. Output Power (dBm)	Max. Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
4.00	2.5119	22.83	191.8669	0.09593	1	Complies

For 5GHz UNII-3 Beamforming:

Directional Gain (dBi)	Directional Gain (numeric)	Max. Output Power (dBm)	Max. Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
4.00	2.5119	22.44	175.3881	0.08769	1	Complies

**For the max simultaneous transmission MPE:**

Power Density (S) (mW/cm <sup>2</sup> )	Power Density (S) (mW/cm <sup>2</sup> )	Total	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
2.4GHz	5GHz			
0.13488	0.11014	0.24502	1	Complies

Note: The calculated distance is 20 cm.

**End of Test Report**