

# FCC RF EXPOSURE REPORT

## FCC ID: 2BCGWF52WALL

**Project No.** : 2405G119  
**Equipment** : AC1200 Wireless MU-MIMO Gigabit Wall Plate Access Point  
**Brand Name** : tp-link  
**Test Model** : Festa F52-Wall  
**Series Model** : N/A  
**Applicant** : TP-LINK CORPORATION PTE. LTD.  
**Address** : 7 Temasek Boulevard #29-03 Suntec Tower One, Singapore 038987  
**Manufacturer** : TP-LINK CORPORATION PTE. LTD.  
**Address** : 7 Temasek Boulevard #29-03 Suntec Tower One, Singapore 038987  
**Issued Date** : May 29, 2024  
**Report Version** : R00  
**Standard(s)** : FCC Guidelines for Human Exposure IEEE C95.1 & FCC Part 2.1091  
FCC Title 47 Part 2.1091 & KDB 447498 D01 v06

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 No.	Version	Description	Issued Date	Note
BTL-FCCP-3-2405G119	R00	This is a copy report which referencing test data are provided from the original test report (BTL-FCCP-3-1909C126) Change the signal transformer of the network port which does not affect the test results, the rest are kept the same.	May 29, 2024	Valid

## 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

## 2. ANTENNA SPECIFICATION

Table for Filed Antenna:

For 2.4GHz:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	N/A	N/A	PCB	N/A	2.68
2	N/A	N/A	PCB	N/A	2.83

Note:

- 1) This EUT supports CDD, and antenna gains are not equal, so Directional gain =  $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N]$  dBi, that is Directional gain =  $10\log[(10^{2.68/20} + 10^{2.83/20})^2 / 2]$  dBi = 5.77.

For 5GHz:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	N/A	N/A	PCB	N/A	2.44
2	N/A	N/A	PCB	N/A	2.94

Note:

- 1) This EUT supports CDD, and antenna gains are not equal, so Directional gain =  $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N]$  dBi, that is Directional gain =  $10\log[(10^{2.44/20} + 10^{2.94/20})^2 / 2]$  dBi = 5.70.
- 2) Beamforming Gain: 3 dB. So Directional gain = 2.94 + 3 = 5.94.

### 3. 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)

For 5GHz:

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)

#### 4. CALCULATED RESULT

For 2.4GHz:

Antenna Gain (dBi)	Antenna 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
5.77	3.7757	23.30	213.7962	0.16068	1	Complies

For 5GHz UNII-1 Non Beamforming:

Antenna Gain (dBi)	Antenna 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
5.70	3.7154	23.90	245.4709	0.18153	1	Complies

For 5GHz UNII-3 Non Beamforming:

Antenna Gain (dBi)	Antenna 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
5.70	3.7154	23.90	245.4709	0.18153	1	Complies

For 5GHz UNII-1 Beamforming:

Antenna Gain (dBi)	Antenna 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
5.94	3.9264	23.86	243.2204	0.19009	1	Complies

For 5GHz UNII-3 Beamforming:

Antenna Gain (dBi)	Antenna 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
5.94	3.9264	23.85	242.6610	0.18965	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			
0.16068	0.19009	0.35077	1	Complies

Note:

- 1) The calculated distance is 20 cm.
- 2) The test results reference to report which is provided by the manufacturer. (Report No.: BTL-FCCP-3-1909C126)

**End of Test Report**