

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 ²)	Limit of Power Density (S) (mW/cm ²)	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 ²)	Limit of Power Density (S) (mW/cm ²)	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 ²)	Limit of Power Density (S) (mW/cm ²)	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 ²)	Limit of Power Density (S) (mW/cm ²)	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 ²)	Limit of Power Density (S) (mW/cm ²)	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 ²)	Power Density (S) (mW/cm ²)	Total	Limit of Power Density (S) (mW/cm ²)	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