

FCC RF EXPOSURE REPORT

FCC ID: TE7WA1201V2

Project No. : 1911C182
Equipment : AC1200 Wireless Gigabit Access Point
Brand Name : tp-link
Test Model : TL-WA1201
Series Model : N/A
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 : Dec. 09, 2020
Date of Test : Dec. 09, 2020 ~ Jan. 22, 2020
Issued Date : Feb. 17, 2020
Report Version : R00
Test Sample : Engineering Sample No.: DG2019112826
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	Feb. 17, 2020

1. 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

Antenna Specification:

For 2.4GHz:

Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)
1		3101502315	Dipole	Weld	4.40
2		3101502316	Dipole	Weld	5.32





Note:

This EUT supports CDD, and antenna gains are not equal,

so Directional gain= $10\log [(10^{G1/20}+10^{G2/20}+...+10^{GN/20})^2/N]$ =7.88dBi,

So the output power limit is $30-(7.88-6)=28.12$, the power spectral density limit is $8-(7.88-6)=6.12$.

For 5GHz:

Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)	Note
1		3101502313	Dipole	I-PEX	4.12	UNII-1
2		3101502314	Dipole	I-PEX	4.73	UNII-1
1		3101502313	Dipole	I-PEX	5.33	UNII-3
2		3101502314	Dipole	I-PEX	5.91	UNII-3

Note:

This EUT supports CDD, and antenna gains are not equal, so Directional gain=

$10\log [(10^{G1/20}+10^{G2/20}+...+10^{GN/20})^2/N]$ dBi.

For UNII-1:

Directional gain= $10\log [(10^{G1/20}+10^{G2/20}+...+10^{GN/20})^2/N]$ dBi=7.44

So, the UNII-1 output power limit is $30-(7.44-6)=28.56$

the UNII-1 power spectral density limit is $17-(7.44-6)=15.56$

For UNII-3:

Directional gain= $10\log [(10^{G1/20}+10^{G2/20}+...+10^{GN/20})^2/N]$ dBi=8.64

So, the UNII-3 output power limit is $30-(8.64-6)=27.36$

the UNII-3 power spectral density limit is $30-(8.64-6)=27.36$

Table for Antenna Configuration:

For 2.4GHz:

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

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
7.88	6.1376	26.50	446.6836	0.54570	1	Complies

For 5GHz UNII-1:

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
7.44	5.5463	23.33	215.2782	0.23766	1	Complies

For 5GHz UNII-3:

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
8.64	7.3114	23.18	207.9697	0.30266	1	Complies

For the max simultaneous transmission MPE:

2.4G+5G

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			
0.58878	0.30266	0.89144	1	Complies

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

End of Test Report