

# FCC RF EXPOSURE REPORT

## FCC ID: 2AXJ4C64

**Project No.** : 2101C253A  
**Equipment** : AC1200 MU-MIMO Wi-Fi Router  
**Brand Name** : tp-link  
**Test Model** : Archer C64  
**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, Hongkong  
**Manufacturer** : TP-Link Corporation Limited  
**Address** : Room 901, 9/F. , New East Ocean Centre, 9 Science Museum Road,  
Tsim Sha Tsui, Kowloon, Hongkong  
**Date of Receipt** : Mar. 03, 2021  
**Date of Test** : Mar. 03, 2021 ~ Mar. 25, 2021  
**Issued Date** : Apr. 02, 2021  
**Report Version** : R00  
**Test Sample** : Engineering Sample No.: DG2021030349  
**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	Apr. 02, 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:

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

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 2.4GHz:

Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)
1	tp-link	3101506673	Dipole	Weld	3.78
2	tp-link	3101506674	Dipole	Weld	3.78

Note:

- This EUT supports CDD, and all antennas have the same gain, Directional gain =  $G_{ANT} + \text{Array Gain}$ . For power measurements, Array Gain=0dB ( $N_{ANT} \leq 4$ ), so the Directional gain=3.78. For power spectral density measurements,  $N_{ANT}=2$ ,  $N_{SS} = 1$ . So the Directional gain= $G_{ANT} + \text{Array Gain} = G_{ANT} + 10\log(N_{ANT}/N_{SS})\text{dBi} = 3.78 + 10\log(2/1)\text{dBi} = 6.79$ . Then, the power spectral density limit is  $8 - (6.79 - 6) = 7.21$ .
- Beamforming Gain: 3dB. So Directional gain= $3 + 3.78 = 6.78$ . So power limit is  $30 - (6.78 - 6) = 29.22$ .
- The antenna gain and beamforming gain are provided by the manufacturer.

For Non Beamforming:

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 Beamforming:

Operating Mode	TX Mode	2TX
IEEE 802.11n(HT20)		V (Ant. 1 + Ant. 2)
IEEE 802.11n(HT40)		V (Ant. 1 + Ant. 2)

For 5GHz:

Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)	Note
1	tp-link	3101506675	Dipole	Weld	4.38	UNII-1
2	tp-link	3101506676	Dipole	Weld	4.38	
1	tp-link	3101506675	Dipole	Weld	5.24	UNII-3
2	tp-link	3101506676	Dipole	Weld	5.24	

Note:

- This EUT supports CDD, and all antennas have the same gain, Directional gain =  $G_{ANT} + \text{Array Gain}$ .  
 For power measurements, Array Gain=0dB ( $N_{ANT} \leq 4$ ), so the UNII-1 Directional gain=4.38, the UNII-3 Directional gain=5.24.  
 For power spectral density measurements,  $N_{ANT}=2$ ,  $N_{SS} = 1$ .  
 So the UNII-1 Directional gain= $G_{ANT} + \text{Array Gain} = G_{ANT} + 10\log(N_{ANT}/N_{SS})\text{dBi} = 4.38 + 10\log(2/1)\text{dBi} = 7.39$ , the UNII-3 Directional gain= $G_{ANT} + \text{Array Gain} = G_{ANT} + 10\log(N_{ANT}/N_{SS})\text{dBi} = 5.24 + 10\log(2/1)\text{dBi} = 8.25$ .  
 Then, the UNII-1 power spectral density limit is  $17 - (7.39 - 6) = 15.61$ , the UNII-3 power spectral density limit is  $30 - (8.25 - 6) = 27.75$ .
- Beamforming Gain: 3dB. So the UNII-1 Directional gain= $3 + 4.38 = 7.38$ , the UNII-3 Directional gain= $3 + 5.24 = 8.24$ . So the UNII-1 power limit is  $30 - (7.38 - 6) = 28.62$ , the UNII-3 power limit is  $30 - (8.24 - 6) = 27.76$ .
- The antenna gain and beamforming gain are provided by the manufacturer.

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 802.11ac (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 Non Beamforming:

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
3.78	2.3878	24.12	258.2260	0.12273	1	Complies

For 2.4GHz Beamforming:

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
6.78	4.7643	23.51	224.3882	0.21279	1	Complies

For 5GHz 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
5.24	3.3420	23.51	224.3882	0.14926	1	Complies

For 5GHz 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
8.24	6.6681	23.47	222.3310	0.29509	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			
0.21279	0.29509	0.50788	1	Complies

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

**End of Test Report**