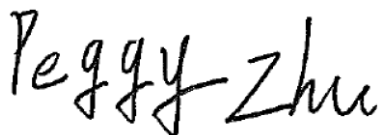


FCC RF EXPOSURE REPORT

FCC ID: 2AXJ4A54

Project No. : 2008C144
Equipment : AC1200 Dual Band Wi-Fi Router
Brand Name : tp-link
Test Model : Archer A54
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 : Aug. 24, 2020
Date of Test : Oct. 10, 2020 ~ Nov. 19, 2020
Issued Date : Dec. 03, 2020
Report Version : R00
Test Sample : Engineering Sample No.: DG2020082754
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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Approved by : Ethan Ma



Certificate #5123.02

Add: No.3, Jinshagang 1st Road, Shixia, Dalang Town, Dongguan, Guangdong, China.

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REPORT ISSUED HISTORY

Report Version	Description	Issued Date
R00	Original Issue	Dec. 03, 2020

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	Model Name	Antenna Type	Connector	Gain (dBi)
1		3101501031	Internal	Weld	1
2		3101503220	Internal	Weld	1

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=1.00.

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

Operating Mode	2TX
TX Mode	
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:

Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)
1		3101502502	Internal	Weld	1
2		3101503221	Internal	Weld	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.

For Non Beamforming:

Operating Mode	TX Mode	2TX
	IEEE 802.11a	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:

Directional Gain (dBi)	Directional 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
4.01	2.5177	22.75	188.3649	0.09440	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 ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
4.01	2.5177	23.69	233.8837	0.11721	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 ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
4.00	2.5119	23.40	218.7762	0.10938	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 ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
4.01	2.5177	24.69	294.4422	0.14755	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 ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
4.00	2.4434	24.41	276.0578	0.13802	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			
0.09440	0.14755	0.24195	1	Complies

Note: The calculated distance is 20 cm.

End of Test Report