

FCC RF EXPOSURE REPORT

FCC ID: TE7A6

Project No. : 1808C223
Equipment : AC1200 Wireless MU-MIMO Gigabit Router
Test Model : Archer A6
Series Model : Archer C6
Applicant : TP-Link Technologies Co., Ltd.
Address : Building 24 (floors 1,3,4,5) and 28 (floors1-4)
Central Science and Technology Park,Shennan
Rd, Nanshan, Shenzhen,China

According: : FCC Guidelines for Human Exposure IEEE C95.1
& FCC Part 2.1091

B T L I N C .

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1. CERTIFICATION

Equipment : AC1200 Wireless MU-MIMO Gigabit Router
Brand Name : tp-link
Test Model : Archer A6
Series Model : Archer C6
Applicant : TP-Link Technologies Co., Ltd.
Manufacturer : TP-Link Technologies Co., Ltd.
Address : Building 24 (floors 1,3,4,5) and 28 (floors1-4) Central Science and Technology Park,Shennan Rd, Nanshan, Shenzhen,China
Date of Test : Oct. 08, 2018 ~ Oct. 23, 2018
Test Sample : Engineering Sample No.: D180807213
Standards : 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.

The test data, data evaluation, and equipment configuration contained in our test report (Ref No. BTL-FCCP-3-1808C223) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of A2LA according to the ISO-17025 quality assessment standard and technical standard(s).

2. 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

Table for Filed Antenna:



For 2.4G

Ant.	Brand	P/N	Antenna Type	Connector	Gain(dBi)
1		3101502122	Dipole	Weld	4.65
2		3101502035	Dipole	Weld	4.71
3		3101502129	Dipole	Weld	4.71

Note:

This EUT supports MIMO 3X3, any transmit signals are correlated with each other, so Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N]$ dBi, that is Directional gain = $10\log[(10^{4.65/20} + 10^{4.71/20} + 10^{4.71/20})^2 / 3]$ dBi = 9.46. So, the average out power limit is 30-9.46+6=26.54, the power density limit is 8-9.46+6=4.54.

For 5G

Ant.	Brand	P/N	Antenna Type	Connector	Gain(dBi)
1		3101501992	Dipole	I-PEX	4.95
2		3101502128	Dipole	I-PEX	4.95

Note:

This EUT supports MIMO 2X2, any transmit signals are correlated with each other, so Directional gain = $G_{ANT} + 10\log(N)$ dBi, that is Directional gain = 4.95 + 10log(2) dBi = 7.96; So, the UNII-1, UNII-3 output power limit is 30-7.96+6=28.04. The UNII-1 power density limit is 17-7.96+6=15.04, the UNII-3 power density limit is 30-7.96+6=28.04.

3. TEST RESULTS

2.4G WIFI

Directional Gain (dBi)	Directional Gain (numeric)	AVG Output Power (dBm)	AVG Output Power (mW)	Power Density (S) (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
9.46	8.8308	24.65	291.7427	0.51280	1	Complies

5G Band 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
7.96	6.2517	24.57	286.4178	0.35641	1	Complies

5G Band 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
7.96	6.2517	25.09	322.8494	0.40174	1	Complies

For the max simultaneous transmission MPE:

Power Density (S) (mW/cm ²)	Power Density (S) (mW/cm ²)	Total (mW/cm ²)	Limit of Power Density (S) (mW/cm ²)	Test Result
2.4G	5G			
0.51280	0.40174	0.91454	1	Complies

Note: the calculated distance is 20 cm.

End of Test Report