FCC RF EXPOSURE REPORT

FCC ID: TE7C60V3

Project No.	:	**1906C116**
Equipment	:	**AC1350 Wireless Dual Band Router**
Model Name	:	**Archer C60**
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**
According	:	**FCC Guidelines for Human Exposure IEEE C95.1 & FCC Part 2.1091**

BTL INC.

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

TEL: +86-769-8318-3000 FAX: +86-769-8319-6000

Certificate #5123.02

REPORT ISSUED HISTORY

Report Version	Description	Issued Date
R00	Original Issue	Aug. 22, 2019
R01	Updated the 2.4G Average Output Power test result.	Aug. 28, 2019
R02	Updated the 5G Average Output Power test result.	Aug. 30, 2019

1. GENERAL SUMMARY

Equipment	:	AC1350 Wireless Dual Band Router
Brand Name	:	tp-link
Test Model	:	Archer C60
Series Model	:	N/A
Applicant	:	TP-Link Technologies Co., Ltd.
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 Test	:	Jun. 21, 2019 ~ Aug. 12, 2019
Test Sample	:	Engineering Sample No.: DG19062092
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-3-1906C116) were obtained utilizing the test procedures, test instruments, test sites that has been accredited by the Authority of A2LA according to the ISO/IEC 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

Antenna Specification:
For 2.4GHz:

Ant.	Brand	P/N	Antenna Type	Connector	Gain(dBi)
1	TP-LINK	3101502333	Dipole	Weld	1.25
2	TP-LINK	3101502332	Dipole	Weld	1.25
3	TP-LINK	3101502334	Dipole	Weld	1.32

Note: This EUT supports CDD, and antenna gains are not equal, so Directional gain= $10\log[(10^{G1/20}+10^{G2/20}+...10^{GN/20})^2/N]$dBi, that is Directional gain= $10\log[(10^{1.25/20}+10^{1.25/20}+10^{1.32/20})^2/2]$dBi =6.04. So, the output power limit is 30-6.04+6=29.96, the power spectral density limit is 8-6.04+6=7.96.

For 5GHz:

Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)	Note
1	TP-LINK	3101502331	Dipole	Weld	1.98	UNII-1
2	TP-LINK	3101502330	Dipole	Weld	1.98	UNII-1
1	TP-LINK	3101502331	Dipole	Weld	0.78	UNII-3
2	TP-LINK	3101502330	Dipole	Weld	0.78	UNII-3

Note:
This EUT supports CDD, and all antennas have the same gain for UNII-1 and UNII-3, so
(1) For Non Beamforming Function:
For UNII-1:
a) power spectral density measurements, N_{ANT} = 2, N_{SS} = 1.
So Directional gain = G_{ANT} + Array Gain =10 log (N_{ANT}/ N_{SS}) dB =1.98+10log(2/1)dBi=4.99.
b) Power measurements, Array Gain = 0 dB ($N_{ANT} \leq 4$), so the Directional gain=1.98.
For UNII-3:
c) power spectral density measurements, N_{ANT} = 2, N_{SS} = 1.
So Directional gain = G_{ANT} + Array Gain =10 log (N_{ANT}/ N_{SS}) dB =0.78+10log(2/1)dBi=3.79.
d) Power measurements, Array Gain = 0 dB ($N_{ANT} \leq 4$), so the Directional gain=0.78.
(2) For With Beamforming Function:
Beamforming Gain: 3 dB. So UNII-1Directional gain = 1.98+3=4.98, UNII-3 Directional gain = 0.78+3=3.78.

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
6.04	4.0179	22.50	177.8279	0.14222	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
1.98	1.5776	24.24	265.4606	0.08336	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
0.78	1.1967	24.74	297.8516	0.07095	1	Complies

For 5GHz UNII-1 With 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
4.98	3.1477	24.41	276.0578	0.17296	1	Complies

For 5GHz UNII-3 With 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
3.78	2.3878	24.67	293.0893	0.13930	1	Complies

For the max simultaneous transmission MPE:

Power Density (S) (mW/cm^2) 2.4GHz	Power Density (S) (mW/cm^2) 5GHz	Total	Limit of Power Density (S) (mW/cm^2)	Test Result
0.14222	0.17296	0.31518	1	Complies

Note: The calculated distance is 20 cm.

End of Test Report