FCC RF EXPOSURE REPORT

FCC ID: TE7M5V3

Project No.	:	1907C037
Equipment	:	AC1300 Whole Home Mesh Wi-Fi System
Brand Name	:	tp-link
Test Model	:	Deco M5R
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	:	Jul. 03, 2019
Date of Test	:	Jul. 05, 2019 ~ Sep. 24, 2019
Issued Date	:	Oct. 24, 2019
Report Version	:	R00
Test Sample	:	Engineering Sample No.: DG190703114
Standard(s)	:	FCC Guidelines for Human Exposure IEEE C95.1 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.

Prepared by : Kai Xu

Approved by : Ethan Ma

Certificate #5123.02

Add: No.3, Jinshagang 1st Road, Shixia, Dalang Town,Dongguan, Guangdong, China.
Tel: +86-769-8318-3000
Web: www.newbtl.com

REPORT ISSUED HISTORY

Report Version	Description	Issued Date
R00	Original Issue	Oct. 24, 2019

1. 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 BT LE:

Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)
1	TP-LINK	N/A	Internal	N/A	1.40

For 2.4GHz:

Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)
1	TP-LINK	3101502591	Internal	Weld	1.30
2	TP-LINK	3101502592	Internal	Weld	1.30

Note:
(1) This EUT supports CDD, and all antennas have the same gain.
So, the directional gain = G_{ANT}+Array Gain.
For power Directional gain=1.30.
For power spectral density measurements, Array Gain=10log (N_{ANT}/N_{SS}) dB, that is Directional gain = 1.30+10log(2/1)dBi=4.31
(2) For Beamforming Gain: 3.00 dB. So the Directional gain = 3.0+1.30=4.30.

For 5GHz:

Ant.	Brand	P/N	Antenna Type	Connector	Gain (dBi)
1	TP-LINK	3101502593	Internal	I-PEX	0.64
2	TP-LINK	3101502594	Internal	I-PEX	0.64

Note: This EUT supports CDD, and all antennas have the same gain,
Directional gain = G_{ANT}+Array Gain, where Array Gain is as follows:

(1) For power Directional gain=0.64.
For power spectral density measurements, N_{ANT} = 2, N_{SS} = 1.
So Directional gain = G_{ANT} + Array Gain =10 log (N_{ANT}/ N_{SS}) dB =0.64+10log(2/1)dBi =3.65 dB.

(2) For Beamforming Gain: 3.00 dB. So the Directional gain = 3.0+0.64=3.64.

2. TEST RESULTS

For BT LE:

Antenna Gain (dBi)	Antenna 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
1.40	1.3804	8.76	7.5162	0.00207	1	Complies

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^2)	Limit of Power Density (S) (mW/cm^2)	Test Result
1.30	1.3490	26.06	403.6454	0.10838	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^2)	Limit of Power Density (S) (mW/cm^2)	Test Result
4.30	2.6915	25.54	358.0964	0.19184	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
0.64	1.1588	27.32	539.5106	0.12444	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
0.64	1.1588	26.07	404.5759	0.09331	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
3.64	2.3121	25.48	353.1832	0.16254	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
3.64	2.3121	25.07	321.3661	0.14789	1	Complies

For the max simultaneous transmission MPE:

Power Density (S) (mW/cm^2)	Power Density (S) (mW/cm^2)	Power Density (S) (mW/cm^2)	Total	Limit of Power Density (S) (mW/cm^2)	Test Result
BT LE	2.4GHz	5GHz			
0.00207	0.19184	0.16254	0.35645	1	Complies

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

End of Test Report