

FCC RF EXPOSURE REPORT

FCC ID: KA2IRLX1870A2

Project No. : 2005H044A
Equipment : 1) AX1800 Whole Home Mesh Wi-Fi 6 Router
 2) AX1800 Whole Home Mesh Wi-Fi 6 System
Brand Name : D-Link
Test Model : COVR-X1870
Series Model : COVR-X1872, COVR-X1873, DIR-LX1870, DIR-LX1872, DIR-LX1873
Applicant : D-Link Corporation
Address : 17595 Mt. Herrmann, Fountain Valley, California United State 92708
Manufacturer : D-Link Corporation
Address : 17595 Mt. Herrmann, Fountain Valley, California United State 92708
Date of Receipt : Jul. 31, 2020
Date of Test : Jul. 31, 2020~Sep. 4, 2020
Issued Date : Sep.28, 2020
Report Version : R00
Test Sample : Engineering Sample No.: SH2020052550,
 SH2020052550-1, SH20200609295-2
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	Sep.28, 2020

1. 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 5G and 2.4G:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	Note
1	N/A	N/A	PCB	N/A	3	N/A
2	N/A	N/A	PCB	N/A	3	N/A

Note:

(1) Beamforming:

All antennas have the same gain, Directional gain = $G_{ANT} + 10 \log(N_{ANT})$ dBi,

that is Directional gain = $3 + 10 \log(2)$ dBi = 6.01;

So output power limit is $24 - 6.01 + 6 = 23.99$, the UNII-2A power density limit is $11 - (6.01 - 6) = 10.99$. the UNII-2C power density limit is $24 - 6.01 + 6 = 23.99$.

(2) Non-Beamforming:

All antennas have the same gain, Directional gain = $G_{ANT} + \text{Array Gain}$,

For power spectral density measurements, $N_{ANT} = 2$, $N_{SS} = 1$. So Directional gain = $G_{ANT} + \text{Array Gain}$

= $10 \log(N_{ANT}/N_{SS})$ dB = $3 + 10 \log(2/1)$ dBi = 6.01. Then, the UNII-2A power density limit is

$11 - (6.01 - 6) = 10.99$. the UNII-2C power density limit is $24 - 6.01 + 6 = 23.99$

For power measurements, Array Gain = 0 dB ($N_{ANT} \leq 4$), so the Directional gain = 3.

For 2.4G:

Operating Mode TX Mode	Ant. 1	Ant. 2	Ant. 1 + Ant. 2
802.11b	✓	✓	✗
802.11g	✓	✓	✗
802.11n(20 MHz)	✓	✓	✓
802.11n(40 MHz)	✓	✓	✓

For 5G:

Operating Mode TX Mode	Ant. 1	Ant. 2	Ant. 1 + Ant. 2
IEEE 802.11a	✓	✓	✗
IEEE 802.11n (HT20)	✓	✓	✓
IEEE 802.11n (HT40)	✓	✓	✓
IEEE 802.11ac (VHT20)	✓	✓	✓
IEEE 802.11ac (VHT40)	✓	✓	✓
IEEE 802.11ac (VHT80)	✓	✓	✓
IEEE 802.11ax (HE20)	✓	✓	✓
IEEE 802.11ax (HE40)	✓	✓	✓
IEEE 802.11ax (HE80)	✓	✓	✓

2. TEST RESULTS

For 2.4GHz :

Antenna Gain (dBi)	Antenna 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
6.01	3.9902	26.00	398.1072	0.2612	1	Complies

For 5GHz :

Antenna Gain (dBi)	Antenna 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
6.01	3.9902	30.00	1000	0.6561	1	Complies

For the max simultaneous transmission MPE:

2.4G+5G

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			
0.2612	0.6561	0.9172	1	Complies

Note: The calculated distance is 22 cm.
Output power including tune up tolerance

End of Test Report