

RF Exposure Report

Report No.: SADLK-WTW-P20070355

FCC ID: KA2APX1860A1

Test Model: DAP-X1860

Received Date: July 16, 2020

Test Date: Sep. 03, 2020

Issued Date: Oct. 30, 2020

Applicant: D-Link Corporation

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Issued By: Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch
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**FCC Registration /
Designation Number:** 723255 / TW2022

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Release Control Record

Issue No.	Description	Date Issued
SADLK-WTW-P20070355	Original release.	Oct. 30, 2020

1 Certificate of Conformity

Product: AX1800 Mesh Wi-Fi 6 Range Extender

Brand: D-Link

Test Model: DAP-X1860

Sample Status: ENGINEERING SAMPLE

Applicant: D-Link Corporation

Test Date: Sep. 03, 2020

Standards: FCC Part 2 (Section 2.1091)
IEEE C95.3-2002

References Test Guidance: KDB 447498 D01 General RF Exposure Guidance v06

The above equipment has been tested by **Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

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Cherry Chuo / Specialist

Approved by : Clark Lin , **Date:** Oct. 30, 2020
Clark Lin / Technical Manager

2 RF Exposure

2.1 Limits for Maximum Permissible Exposure (MPE)

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm ²)	Average Time (minutes)
Limits For General Population / Uncontrolled Exposure				
0.3-1.34	614	1.63	(100)*	30
1.34-30	824/f	2.19/f	(180/f ²)*	30
30-300	27.5	0.073	0.2	30
300-1500	f/1500	30
1500-100,000	1.0	30

f = Frequency in MHz ; *Plane-wave equivalent power density

2.2 MPE Calculation Formula

$$P_d = (P_{out} \cdot G) / (4 \cdot \pi \cdot r^2)$$

where

P_d = power density in mW/cm²

P_{out} = output power to antenna in mW

G = gain of antenna in linear scale

π = 3.1416

R = distance between observation point and center of the radiator in cm

2.3 Classification

The antenna of this product, under normal use condition, is at least 24 cm away from the body of the user. So, this device is classified as **Mobile Device**.

2.4 Antenna Gain

Antenna No.	RF Chain No.	Brand	Antenna Net Gain (dBi)	Frequency Range (GHz)	Antenna Type	Connector Type
1	Chain0	Lynwave	3	2.4~2.4835	Dipole	i-pex(MHF)
			4.6	5.15~5.25		
			4.6	5.25~5.35		
			4.9	5.47~5.725		
			4.9	5.725~5.85		
2	Chain1	Lynwave	3.9	2.4~2.4835	Dipole	i-pex(MHF)
			4.9	5.15~5.25		
			4.9	5.25~5.35		
			5	5.47~5.725		
			4.8	5.725~5.85		

*The above Antenna information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications, the laboratory shall not be held responsible.

2.5 Calculation Result

Operation Mode	Evaluation Frequency (MHz)	Max Average Power (mW)	Antennal Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
WLAN 2.4GHz	2412-2462	667.709	6.47	24	0.40922	1
WLAN 5GHz (U-NII-1)	5180-5240	277.825	7.76	24	0.22916	1
WLAN 5GHz (U-NII-3)	5745-5825	526.791	7.86	24	0.44464	1

Note:

- Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
- 2.4GHz: $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 6.47\text{dBi}$
5GHz:
For U-NII-1: $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 7.76 \text{ dBi}$
For U-NII-3: $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 7.86\text{dBi}$

Conclusion:

The formula of calculated the MPE is:

$$\text{CPD1} / \text{LPD1} + \text{CPD2} / \text{LPD2} + \dots \text{etc.} < 1$$

CPD = Calculation power density

LPD = Limit of power density

$$\text{WLAN 2.4GHz} + \text{WLAN 5GHz} = 0.40922 / 1 + 0.44464 / 1 = 0.85386$$

Therefore the maximum calculations of above situations are less than the “1” limit.

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