

RF Exposure Report

Report No.: SA191203C33

FCC ID: KA2AP1955A1

Test Model: DAP-1950

Series Model: DAP-1955

Received Date: Dec. 04, 2019

Test Date: Dec. 27, 2019 ~ Jan. 11, 2020

Issued Date: Jan. 17, 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 / 788550 / TW0003
Designation Number:



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Release Control Record

Issue No.	Description	Date Issued
SA191203C33	Original release	Jan. 17, 2020

1 Certificate of Conformity

Product: AC1900 High Performance Mesh Wi-Fi Range Extender, AC1900 Gigabit Dualband
3*3 11AC MU-MIMO Wi-Fi Range Extender

Brand: D-Link

Test Model: DAP-1950

Series Model: DAP-1955

Sample Status: Engineering sample

Applicant: D-Link Corporation

Test Date: Dec. 27, 2019 ~ Jan. 11, 2020

Standards: FCC Part 2 (Section 2.1091)

References Test KDB 447498 D01 General RF Exposure Guidance v06

Guidance: IEEE C95.3 -2002

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 RF characteristics under the conditions specified in this report.

Prepared by : Polly Chien, **Date:** Jan. 17, 2020
Polly Chien / Specialist

Approved by : Bruce Chen, **Date:** Jan. 17, 2020
Bruce Chen / Senior Project Engineer

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				
300-1500	F/1500	30
1500-100,000	1.0	30

F = Frequency in MHz

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 27cm away from the body of the user. So, this device is classified as **Mobile Device**.

3 Calculation Result of Maximum Conducted Power

Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
CDD Mode					
2412-2462	28.56	7.42	27	0.433	1
5180-5240	22.72	9.07	27	0.165	1
5745-5825	27.89	9.07	27	0.542	1
Beamforming Mode					
2412-2462	26.45	7.42	27	0.266	1
5180-5240	22.72	9.07	27	0.165	1
5745-5825	26.89	9.07	27	0.431	1

*Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

Note:

1. Directional gain:

2.4GHz Band: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/3] = 7.42\text{dBi}$

5GHz Band: Directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2/3] = 9.07\text{dBi}$

2. The above Max Power is Tune-up Power which client declared.

Conclusion:

2.4GHz & 5GHz Band 1 or 2.4GHz & 5GHz Band 4 can transmit at same time.

The formula of calculated the MPE is:

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

CPD = Calculation power density

LPD = Limit of power density

1. WLAN 2.4GHz + WLAN 5GHz Band 1 = $0.433 / 1 + 0.165 / 1 = 0.598$

2. WLAN 2.4GHz + WLAN 5GHz Band 4 = $0.433 / 1 + 0.542 / 1 = 0.975$

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

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