

RF Exposure Report

Report No.: SADLK-WTW-P20080511

FCC ID: KA2IS2650APA1

Test Model: DIS-2650AP

Received Date: Aug. 26, 2020

Date of Evaluation: Oct. 27, 2020

Issued Date: Oct. 30, 2020

Applicant: D-Link Corporation

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FCC Registration /
Designation Number: 788550 / TW0003



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Release Control Record

Issue No.	Description	Date Issued
SADLK-WTW-P20080511	Original Release	Oct. 30, 2020

1 Certificate of Conformity

Product: Wireless AC1200 Wave 2 Industrial indoor access point

Brand: D-Link

Test Model: DIS-2650AP

Sample Status: Engineering Sample

Applicant: D-Link Corporation

Date of Evaluation: Oct. 27, 2020

Standards: FCC Part 2 (Section 2.1091)

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

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Approved by : Dylan Chiou , **Date:** Oct. 30, 2020
Dylan Chiou / 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				
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

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

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 20cm away from the body of the user.
So, this device is classified as **Mobile Device**.

2.4 Calculation Result of Maximum Conducted Power

CCD Mode:

Band	Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
WLAN	2412-2462	19.73	4.11	20	0.048	1.00
	5180-5240	24.77	4.33	20	0.162	1.00
	5745-5825	25.65	5.74	20	0.274	1.00

Note:

- Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
- 2.4GHz: Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 4.11$ dBi
5180-5240 MHz: Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 4.33$ dBi
5745-5825 MHz: Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 5.74$ dBi

Beamforming Mode:

Band	Frequency Band (MHz)	Max Power (dBm)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
WLAN	2412-2462	19.72	7.12	20	0.096	1.00
	5180-5240	24.63	7.34	20	0.313	1.00
	5745-5825	25.65	8.75	20	0.548	1.00

Note:

- Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
- 2.4GHz: Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 7.12$ dBi
5180-5240 MHz: Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 7.34$ dBi
5745-5825 MHz: Directional gain = $10\log[(10^{G1/20} + 10^{G2/20} + \dots + 10^{GN/20})^2 / N_{ANT}] = 8.75$ dBi

Conclusion:

The formula of calculated the MPE is:

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

CPD = Calculation power density

LPD = Limit of power density

CCD Mode:

$$WLAN\ 2.4GHz + WLAN\ 5GHz = 0.048/1 + 0.274/1 = 0.322$$

Beamforming Mode:

$$WLAN\ 2.4GHz + WLAN\ 5GHz = 0.096/1 + 0.548/1 = 0.644$$

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

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