# RF Exposure Report

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|---|---|
| **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 |
| **Address:** | No. 289, Sinhu 3rd Rd.,Neihu District, Taipei City, 114, Taiwan |
| **Issued By:** | Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch<br>Lin Kou Laboratories |
| **Lab Address:** | No. 47-2, 14th Ling, Chia Pau Vil., Lin Kou Dist., New Taipei City, Taiwan |
| **Test Location:** | No. 19, Hwa Ya 2nd Rd., Wen Hwa Vil., Kwei Shan Dist., Taoyuan City 33383, TAIWAN |
| **FCC Registration / Designation Number:** | 788550 / TW0003 |

## Table of Contents

## 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<br>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 :** Shelly Hsueh , **Date:** Oct. 30, 2020

Shelly Hsueh / Specialist

**Approved by :** , **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

$Pd = (Pout*G) / (4*pi*r^2)$

where

Pd = power density in $mW/cm^2$

Pout = output power to antenna in mW

G = gain of antenna in linear scale

pi = 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:

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

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

**Conclusion:**

The formula of calculated the MPE is:

CPD1 / LPD1 + CPD2 / LPD2 + ……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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