# RF Exposure Report

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| **Report No.:** | SA180227E06 |
| **FCC ID:** | KA2IR2680A1 |
| **Test Model:** | DIR-2680 |
| **Received Date:** | Feb. 27, 2018 |
| **Test Date:** | Mar. 22 to 24, 2018 |
| **Issued Date:** | Apr. 26, 2018 |
| **Applicant:** | D-Link Corporation |
| **Address:** | 17595 Mt. Herrmann, Fountain Valley, California United States |
| **Issued By:** | Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch Hsin Chu Laboratory |
| **Lab Address:** | E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C. |
| **Test Location :** | E-2, No.1, Li Hsin 1st Road, Hsinchu Science Park, Hsinchu City 300, Taiwan R.O.C. |
| **FCC Registration / Designation Number:** | 723255 / TW2022 |

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## Release Control Record

| Issue No. | Description | Date Issued |
|---|---|---|
| SA180227E06 | Original release. | Apr. 26, 2018 |

## 1 Certificate of Conformity

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|---|---|
| **Product:** | D-Fend AC2600 Wi-Fi Router |
| **Brand:** | D-Link Corporation |
| **Test Model:** | DIR-2680 |
| **Sample Status:** | ENGINEERING SAMPLE |
| **Applicant:** | D-Link Corporation |
| **Test Date:** | Mar. 22 to 24, 2018 |
| **Standards:** | FCC Part 2 (Section 2.1091)<br>KDB 447498 D01 General RF Exposure Guidance v06<br>IEEE C95.1-1992 |

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.

**Prepared by :** Wendy Wu , **Date:** Apr. 26, 2018

Wendy Wu / Specialist

**Approved by :** , **Date:** Apr. 26, 2018

May Chen / 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

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

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 50cm away from the body of the user. So, this device is classified as **Mobile Device**.

### 2.4 Antenna Gain

| Ant No. | PCB No. | Brand | Model | Antenna Gain (dBi) | Frequency rang (MHz) | Antenna type | Connector type |
|---|---|---|---|---|---|---|---|
| 1 | AJ5 (2.4GHz_5GHz_1) | Whayu | C641-510203-A | 3.6 | 2400~2500 | Dipole | i-pex(MHF) |
| | | | | 4.9 | 5150~5825 | | |
| 2 | AJ6 (2.4GHz_5GHz_2) | Whayu | C641-510204-A | 3.8 | 2400~2500 | Dipole | i-pex(MHF) |
| | | | | 4.6 | 5150~5825 | | |
| 3 | AJ7 (2.4GHz_5GHz_3) | Whayu | C641-510205-A | 3.9 | 2400~2500 | Dipole | i-pex(MHF) |
| | | | | 4.9 | 5150~5825 | | |
| 4 | AJ8 (2.4GHz_5GHz_4) | Whayu | C641-510206-A | 3.9 | 2400~2500 | Dipole | i-pex(MHF) |
| | | | | 4.8 | 5150~5825 | | |

2.5 Calculation Result of Maximum Conducted Power

| Frequency Band (MHz) | Max. Power (mW) | Antenna Gain (dBi) | Distance (cm) | Power Density ($mW/cm^2$) | Limit ($mW/cm^2$) |
|---|---|---|---|---|---|
| 2412-2462 | 993.019 | 9.82 | 50 | 0.30325 | 1 |
| 5180-5240 | 650.182 | 10.82 | 50 | 0.24997 | 1 |
| 5745-5825 | 988.682 | 10.82 | 50 | 0.38011 | 1 |

NOTE:
2.4GHz: Directional gain = $10 \log[(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 4] = 9.82$dBi
5GHz: Directional gain = $10 \log[(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 4] = 10.82$dBi

**Conclusion:**

The formula of calculated the MPE is:

CPD1 / LPD1 + CPD2 / LPD2 + ……etc. < 1

CPD = Calculation power density

LPD = Limit of power density

WLAN 2.4GHz + WLAN 5GHz = 0.30325 / 1 + 0.38011 / 1 = 0.68336

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

**--- END ---**