

RF Exposure Report

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

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)

KDB 447498 D01 General RF Exposure Guidance v06

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 :



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

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

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 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_4 5GHz_1)	Whayu	C641-510203-A	3.6	2400~2500	Dipole	i-pex(MHF)
				4.9	5150~5825		
2	AJ6 (2.4GHz_3 5GHz_2)	Whayu	C641-510204-A	3.8	2400~2500	Dipole	i-pex(MHF)
				4.6	5150~5825		
3	AJ7 (2.4GHz_2 5GHz_3)	Whayu	C641-510205-A	3.9	2400~2500	Dipole	i-pex(MHF)
				4.9	5150~5825		
4	AJ8 (2.4GHz_1 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 = $10 \log[(10^{G0/20} + 10^{G1/20} + 10^{G2/20} + 10^{G3/20})^2 / 4] = 9.82\text{dBi}$

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

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

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.

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