

## RF Exposure Report

**Report No.:** SA170315E05A

**FCC ID:** KA2IR842C1

**Test Model:** DIR-842

**Series Model:** DIR-843

**Received Date:** Mar.15, 2017

**Test Date:** Mar. 29, 2017

**Issued Date:** June 21, 2017

**Applicant:** D-Link Corporation

**Address:** No.289, Sinhu 3rd Rd., Neihu District, Taipei City 114, Taiwan, R.O.C.

**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.

This report is for your exclusive use. Any copying or replication of this report to or for any other person or entity, or use of our name or trademark, is permitted only with our prior written permission. This report sets forth our findings solely with respect to the test samples identified herein. The results set forth in this report are not indicative or representative of the quality or characteristics of the lot from which a test sample was taken or any similar or identical product unless specifically and expressly noted. Our report includes all of the tests requested by you and the results thereof based upon the information that you provided to us. You have 60 days from date of issuance of this report to notify us of any material error or omission caused by our negligence, provided, however, that such notice shall be in writing and shall specifically address the issue you wish to raise. A failure to raise such issue within the prescribed time shall constitute your unqualified acceptance of the completeness of this report, the tests conducted and the correctness of the report contents. Unless specific mention, the uncertainty of measurement has been explicitly taken into account to declare the compliance or non-compliance to the specification. The report must not be used by the client to claim product certification, approval, or endorsement by TAF or any government agencies.

## Table of Contents

<b>Release Control Record</b> .....	<b>3</b>
<b>1 Certificate of Conformity</b> .....	<b>4</b>
<b>2 RF Exposure</b> .....	<b>5</b>
2.1 Limits For Maximum Permissible Exposure (MPE) .....	5
2.2 MPE Calculation Formula .....	5
2.3 Classification .....	5
2.4 Antenna Gain .....	5
2.5 Calculation Result Of Maximum Conducted Power .....	6

### Release Control Record

Issue No.	Description	Date Issued
SA170315E05A	Original release.	June 21, 2017

## 1 Certificate of Conformity

**Product:** AC1200 Wi-Fi Gigabit Router

**Brand:** D-Link

**Test Model:** DIR-842

**Series Model:** DIR-843

**Sample Status:** ENGINEERING SAMPLE

**Applicant:** D-Link Corporation

**Test Date:** Mar.29, 2017

**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 :**

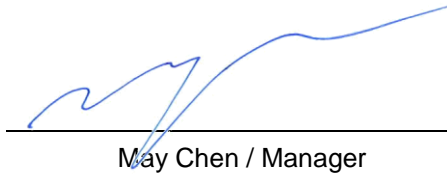


**Date:**

June 21, 2017

Cindy Hsin / Specialist

**Approved by :**



**Date:**

June 21, 2017

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 <sup>2</sup> )	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 <sup>2</sup> )*	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/cm<sup>2</sup>

$P_{out}$  = 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 Antenna Gain

Antenna Set.	Brand	Model	Antenna Net. Gain(dBi)	Frequency range (GHz)	Antenna Type	Connector Type
1	Dongguan RF electronic Co.,Ltd	RF21C02241A	3	5.15 ~ 5.85	Dipole	NA
		RF21C02242A	3	5.15 ~ 5.85		
		RF21C02243A	2	2.4 ~ 2.4835		
		RF21C02244A	2	2.4 ~ 2.4835		
Antenna Set.	Brand	Model	Antenna Net. Gain(dBi)	Frequency range (GHz)	Antenna Type	Connector Type
2	HONGBO WIRELESS COMMUNICATION TECHNOLOGY CO., LTD	290-20305	2	2.4 ~ 2.4835	Dipole	NA
		290-20306	2	2.4 ~ 2.4835		
		290-20307	3	5.15 ~ 5.85		
		290-20308	3	5.15 ~ 5.85		

**Note:** 1. This report chose the Antenna Set 1 to do final test.

## 2.5 Calculation Result of Maximum Conducted Power

Frequency (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2412-2462	902.536	5.01	20	0.56911	1
5180-5240	389.523	6.01	20	0.30922	1
5745-5825	280.182	6.01	20	0.22242	1

**NOTE:**

2.4GHz: Directional gain = 2dBi + 10log(2) = 5.01dBi

5.GHz:

UNII-1 & UNII-3 Directional gain = 3dBi + 10log(2) = 6.01dBi

**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 =  $0.56911/1 + 0.30922/1 = 0.87833$

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

--- END ---