

## RF Exposure Report

**Report No.:** SA170116E03

**FCC ID:** KA2IR882A1

**Test Model:** DIR-882

**Received Date:** Jan. 16, 2017

**Test Date:** Mar. 16, 2017

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

**Applicant:** D-Link Corporation

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**Issued By:** Bureau Veritas Consumer Products Services (H.K.) Ltd., Taoyuan Branch  
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### Release Control Record

Issue No.	Description	Date Issued
SA170116E03	Original release.	Mar. 29, 2017

## 1 Certificate of Conformity

**Product:** AC2600 MU-MIMO Wi-Fi Gigabit Router

**Brand:** D-Link

**Test Model:** DIR-882

**Sample Status:** ENGINEERING SAMPLE

**Applicant:** D-Link Corporation

**Test Date:** Mar. 16, 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 :** Midoli Peng , **Date:** Mar. 29, 2017  
Midoli Peng / Specialist

**Approved by :** May Chen , **Date:** Mar. 29, 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

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

where

Pd = power density in mW/cm<sup>2</sup>

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 38cm away from the body of the user.

So, this device is classified as **Mobile Device**.

## 2.4 Antenna Gain

The antennas provided to the EUT, please refer to the following table:

Set 1 Antenna				
Chain No.	Antenna Gain (dBi)	Frequency range (GHz)	Antenna Type	Connector Type
Chain 0	2	2.4~2.4835	Dipole	i-pex (MHF)
	2	5.15~5.85		
Chain 1	2	2.4~2.4835	Dipole	i-pex (MHF)
	2	5.15~5.85		
Chain 2	2	2.4~2.4835	Dipole	i-pex (MHF)
	2	5.15~5.85		
Chain 3	2	2.4~2.4835	Dipole	i-pex (MHF)
	2	5.15~5.85		
Set 2 Antenna				
Chain No.	Antenna Gain (dBi)	Frequency range (GHz)	Antenna Type	Connector Type
Chain 0	5	2.4~2.4835	Dipole	i-pex (MHF)
	5	5.15~5.85		
Chain 1	5	2.4~2.4835	Dipole	i-pex (MHF)
	5	5.15~5.85		
Chain 2	5	2.4~2.4835	Dipole	i-pex (MHF)
	5	5.15~5.85		
Chain 3	5	2.4~2.4835	Dipole	i-pex (MHF)
	5	5.15~5.85		

The Directional gain table:

Frequency (MHz)	Max Gain (dBi)
2412-2462	7.39 (for Set 1 Antenna) 10.06 (for Set 2 Antenna)
5180-5825	7.75 (for Set 1 Antenna) 10.90 (for Set 2 Antenna)

Note:

1. Non-TxBF mode & TxBF mode antenna gain refer to KDB 662911 F 2) f) (ii)

$$DirectionalGain = 10 \cdot \log \left[ \frac{\sum_{j=1}^{N_{SS}} \left\{ \sum_{k=1}^{N_{ANT}} g_{j,k} \right\}^2}{N_{ANT}} \right]$$

where

Each antenna is driven by no more than one spatial stream;

$N_{SS}$  = the number of independent spatial streams of data;

$N_{ANT}$  = the total number of antennas

$g_{j,k} = 10^{G_k/20}$  if the  $k$ th antenna is being fed by spatial stream  $j$ , or zero if it is not;

$G_k$  is the gain in dBi of the  $k$ th antenna.

2. Above directional gain were calculated from actual measurement data.

## 2.5 Calculation Result of Maximum Conducted Power

### For Antenna set 1

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2412-2462	788.724	7.39	38	0.23831	1
5180-5240 5745-5825	995.277	7.75	38	0.32671	1

### For Antenna set 2

Frequency Band (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )
2412-2462	788.724	10.06	38	0.44070	1
5180-5240 5745-5825	655.424	10.90	38	0.44437	1

NOTE:

#### For Antenna set 1

2.4GHz: Directional gain =7.39dBi

5GHz: Directional gain = 7.75dBi

#### For Antenna set 2

2.4GHz: Directional gain =10.06dBi

5GHz: Directional gain = 10.9dBi

### 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

#### For Antenna set 1

WLAN 2.4GHz + WLAN 5GHz =  $0.23831/1 + 0.32671/1 = 0.56502$

#### For Antenna set 2

WLAN 2.4GHz + WLAN 5GHz =  $0.44070/1 + 0.44437/1 = 0.88507$

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

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