

# RF Exposure Evaluation Report

Product Name : AX3200 SMART ROUTER

Model No. : R32

Applicant : D-Link Corporation

Address : 14420 Myford Road Suite 100 Irvine California 92606 United States

Date of Receipt : Nov. 15, 2021

Date of Declaration : May. 04, 2022

Date of Report No. : 21B0548R-RFUSMPEV02-B

Report Version : V1.0



The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration report of the equipment and evaluated measurement uncertainty herein.

This report must not be used to claim product endorsement by TAF or any agency of the government.

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Measurement uncertainties evaluated for each testing system and associated connections are given here to provide the system information for reference. Compliance determinations do not take into account measurement uncertainties for each testing system, but are based on the results of the compliance measurement.

Issued Date: May. 04, 2022  
 Report No.: 21B0548R-RFUSMPEV02-B



Product Name	AX3200 SMART ROUTER	
Applicant	D-Link Corporation	
Address	14420 Myford Road Suite 100 Irvine California 92606 United States	
Manufacturer	D-Link Corporation	
Model No.	R32	
FCC ID.	KA2R32A1	
EUT Rated Voltage	AC 100-240V, 50-60Hz	
EUT Test Voltage	AC 120V/60Hz	
Trade Name	D-Link	
Applicable Standard	KDB 447498 D01 v06	<input checked="" type="checkbox"/> Minimum test separation distance $\geq$ 20 cm <input type="checkbox"/> For low power devices
Test Result	Complied	

Documented By : April Chen  
 ( Senior Project Specialist / April Chen )

Tested By : Jack Hsu  
 ( Senior Engineer / Jack Hsu )

Approved By : Tim Sung  
 ( Manager / Tim Sung )

## Revision History

Report No.	Version	Description	Issued Date
21B0548R-RFUSMPEV02-B	V1.0	Initial issue of report.	May. 04, 2022

## 1. GENERAL INFORMATION

### 1.1. EUT Description

Product Name	AX3200 SMART ROUTER
Trade Name	D-Link
Model No.	R32
FCC ID.	KA2R32A1
Frequency Range	802.11b/g/n-20: 2412-2462MHz, 802.11n-40: 2422-2452MHz 802.11a/n/ac/ax-20: 5180-5320MHz, 5500-5700MHz, 5745-5825MHz 802.11n/ac/ax-40: 5190-5310MHz, 5510-5670MHz, 5755-5795MHz 802.11ac/ax-20: 5720MHz, 802.11ac/ax-40: 5710MHz 802.11ac/ax-80: 5210-5290MHz, 5530-5610MHz, 5775MHz
Number of Channels	802.11b/g/n-20: 11CH, 802.11n-40: 7CH 802.11a/n/ac/ax-20: 24CH, 802.11n/ac/ax-40: 11CH, 802.11ac/ax-20: 1CH, 802.11ac/ax-40: 1CH, 802.11ac/ax-80: 6CH
Data Rate	802.11b: 1-11Mbps, 802.11g: 6-54Mbps, 802.11n: up to 800Mbps 802.11a: 6 - 54Mbps 802.11n: up to 800Mbps 802.11ac: up to 1733.3Mbps 802.11ax: up to 2402Mbps
Type of Modulation	802.11b: DSSS (DBPSK, DQPSK, CCK) 802.11g/n: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM) 802.11a/n/ac/ax: OFDM, OFDMA, BPSK, QPSK, 16QAM, 64QAM, 256QAM, 1024QAM
Antenna Type	Dipole antenna
Antenna Gain	Refer to the table "Antenna List"
Channel Control	Auto

### 1.2. Antenna List :

No.	Manufacturer	Part No.	Antenna Type	Peak Gain	Directional Gain
1	LYNwave	AOX21X-221051-00	Dipole antenna	5.1dBi for 2.4 GHz 5.3dBi for 5 GHz	11.12dBi for 2.4 GHz 11.32dBi for 5GHz
2	LYNwave	AOX21X-221051-00	Dipole antenna	5.1dBi for 2.4 GHz 5.3dBi for 5 GHz	
3	LYNwave	AOX21X-221051-00	Dipole antenna	5.1dBi for 2.4 GHz 5.3dBi for 5 GHz	
4	LYNwave	AOX21X-221051-00	Dipole antenna	5.1dBi for 2.4 GHz 5.3dBi for 5 GHz	

Note: Only the higher gain antenna was tested and recorded in this report.

### 1.3. Test Facility

**USA : FCC Registration Number: TW0033**

**Canada : IC Registration Number: 26930**

Site Description : Accredited by TAF  
Accredited Number: 3023

Test Laboratory : DEKRA Testing and Certification Co., Ltd  
Address : No. 5-22, Ruishukeng Linkou District, New Taipei City,  
24451, Taiwan

Performed Location : No. 26, Huaya 1st Rd., Guishan Dist., Taoyuan City  
333411, Taiwan, R.O.C.

Phone number : +886-3-275-7255

Fax number : +866-3-327-8031

Email address : [info.tw@dekra.com](mailto:info.tw@dekra.com)

Website : <http://www.dekra.com.tw>

## 2. RF Exposure Evaluation

### 2.1. Standard Applicable

According to KDB 447498 D01 (7.1), A minimum test separation distance  $\geq 20$  cm is required between the antenna and radiating structures of the device and nearby persons to apply mobile device exposure limits.

### 2.2. Limits

According to FCC 1.1310: The criteria listed in the following table shall be used to evaluate the environment impact of human exposure to radio frequency (RF) radiation as specified in 1.1307(b)

#### 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)
(A) Limits for Occupational/ Control Exposures				
300-1500	--	--	F/300	6
1500-100,000	--	--	5	6
(B) Limits for General Population/ Uncontrolled Exposures				
300-1500	--	--	F/1500	6
1500-100,000	--	--	1	30

F= Frequency in MHz

Friis Formula

Friis transmission 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. Test Result of RF Exposure Evaluation

Product : AX3200 SMART ROUTER  
 Test Item : RF Exposure Evaluation

#### WLAN 2.4G Peak Gain: 5.1dBi

Band	Frequency	Conducted AV Power (dBm)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	Pass/Fail
WLAN 2.4G	2457	29.87	970.510	0.6248	1	Pass

Note: The conducted output power is refer to report No.: 21B0548R-REICWL2V01-A from the DEKRA.

#### WLAN Beamforming 2.4G Peak Gain: 11.12dBi

Band	Frequency	Conducted AV Power (dBm)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	Pass/Fail
WLAN 2.4G	2437	22.11	162.555	0.4185	1	Pass

Note: The conducted output power is refer to report No.: 21B0548R-REICWL2V01-A from the DEKRA.

#### WLAN 5G Peak Gain: 5.3dBi

Band	Frequency	Conducted AV Power (dBm)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	Pass/Fail
WLAN 5G	5795	26.67	464.515	0.3131	1	Pass

Note: The conducted output power is refer to report No.: 21B0548R-RFICWL5V01-A from the DEKRA.

#### WLAN Beamforming 5G Peak Gain: 11.32dBi

Band	Frequency	Conducted AV Power (dBm)	Output Power to Antenna (mW)	Power Density at R = 20 cm (mW/cm <sup>2</sup> )	Limit (mW/cm <sup>2</sup> )	Pass/Fail
WLAN 5G	5795	20.65	116.145	0.3131	1	Pass

Note: The conducted output power is refer to report No.: 21B0548R-RFICWL5V01-A from the DEKRA.

### 2.4. Calculations for Multi-Transmitter

Mode	Ratios	result	Limit
2.4G	0.6248	0.9379	1
5G	0.3131		
Beamforming 2.4G	0.4185	0.7316	1
Beamforming 5G	0.3131		

Ratios = Power Density / Power Density Limit

Results	PASS
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