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KDB 447498 D03 47 C.F.R. Part 1, Subpart I, Section 1.1310 47 C.F.R. Part 2, Subpart J, Section 2.1091

RF EXPOSURE REPORT

For

(1) AX1500 Wi-Fi 6 Al Range Extender (2) AX1500 Mesh Range Extender

Model: E15

Trade Name: D-Link

Issued to

D-Link Corporation
14420 Myford Road Suite 100, Irvine, California 92606, United States

Issued by

Compliance Certification Services Inc.
Wugu Laboratory
No.11, Wugong 6th Rd., Wugu Dist.,

New Taipei City, Taiwan. (R.O.C.) Issue Date: August 10, 2021

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Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 90 days only. 除非另有說明,此報告結果僅對測試之樣品負責,同時此樣品僅保留90天。本報告未經本公司書面許可,不可部份複製。

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Revision History

Rev.	Issue Date	Revisions	Effect Page	Revised By
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1. TEST RESULT CERTIFICATION

We hereby certify that:

The above equipment was tested by Compliance Certification Services Inc. The test data, data evaluation, test procedures, and equipment configurations shown in this report were made in accordance with the procedures given in ANSI C63.10: 2013 and the energy emitted by the sample EUT tested as described in this report is in compliance with the requirements of FCC Rules Part 15.207, 15.209, 15.247.

The test results of this report relate only to the tested sample EUT identified in this report.

APPLICABLE STANDARDS							
STANDARD	TEST RESULT						
KDB 447498 D03 47 C.F.R. Part 1, Subpart I, Section 1.1310 47 C.F.R. Part 2, Subpart J, Section 2.1091	No non-compliance noted						
Statements of Cor	formity						
Determination of compliance is based on the res not taking into account measurement i							

Approved by:

Kevin Tsai

Deputy Manager

Compliance Certification Services Inc.

Konil Tyni



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2. LIMIT

According to §15.247(i), systems operating under the provisions of this section shall be operated in a manner that ensures that the public is not exposed to radio frequency energy levels in excess of the Commission's guidelines. See § 1.1307(b)(1) of this chapter.

§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), except in the case of portable devices which shall be evaluated according to the provisions of FCC part 2.1093 of the chapter.

TABLE 1 - LIMITS FOR MAXIMUM PERMISSIBLE EXPOSURE (MPE)

			· • · • · • · • · • · • · · · · · · · ·	<u> </u>				
Frequency range (MHz)	Electric field strength (V/m)	Magnetic field strength (A/m)	Power density (mW/cm²)	Averaging time (minutes)				
(A) Limits for Occupational/Controlled Exposure								
0.3-3.0	614	1.63	* 100	6				
3.0-30	1842/f	4.89/f	* 900/f ²	6				
30-300	61.4	0.163	1.0	6				
300-1,500			f/300	6				
1,500-100,000			5	6				
(E	3) Limits for Gene	ral Population/Und	controlled Exposur	re				
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				
300-1,500			f/1500	30				
1,500-100,000			1.0	30				

f = frequency in MHz

Note 1 to Table 1: Occupational/controlled exposure limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when a person is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

Note 2 to Table 2: General population/uncontrolled exposure limits apply in situations in which the general public may be exposed, or in which persons who are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

^{* =} Plane-wave equivalent power density



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3. EUT SPECIFICATION

EUT	(1) AX1500 Wi-Fi 6 AI Range Extender (2) AX1500 Mesh Range Extender							
Model	E15							
Model Discrepancy	N/A							
Frequency band (Operating)	□ Bluetooth: 2402MHz-2480MHz □ 802.11b/g/n HT20: 2412MHz ~ 2462 MHz □ 802.11n HT40: 2422MHz ~ 2452MHz □ 802.11a/n HT20: 5180MHz ~ 5240MHz / 5745MHz ~ 5825MHz □ 802.11ax 20: 5180MHz ~ 5240MHz / 5745MHz ~ 5825MHz □ 802.11n HT40: 5190MHz ~ 5230MHz / 5755MHz ~ 5795MHz □ 802.11ax 40: 5190MHz ~ 5230MHz / 5755MHz ~ 5795MHz □ 802.11ax 80: 5210MHz / 5775MHz □ Others							
Device category	☐ Portable (<20cm separation) ☐ Mobile (>20cm separation) ☐ Others							
Exposure classification	☐ Occupational/Controlled exposure (S = 5mW/cm²) ☐ General Population/Uncontrolled exposure (S=1mW/cm²)							
Antenna Specification	embedded Antenna WIFI 2.4GHz: Chain 0: 3.1 dBi Chain 1: 3.1 dBi Power direction gain: 6.11 dBi WIFI 5GHz: Chain 0: 3.1 dBi Chain 1: 3.3 dBi Power direction gain: 6.21 dBi 2.4GHz: Direction Gain: 6.11 dBi (Numeric gain: 4.08) Worst 5GHz: Direction Gain: 6.21 dBi (Numeric gain: 4.18)							



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	2 404-	T	
	2.4GHz IEEE 802.11b Mode:	25.43 dBm	(349.140 mW)
	IEEE 802.11g Mode:	24.73 dBm	(297.167 mW)
	IEEE 802.11n HT 20 Mode:	24.44 dBm 24.72 dBm	(277.971 mW)
Maximum	IEEE 802.11n HT 40 Mode: 5GHz	24.72 QBIII	(296.483 mW)
Measurement	IEEE 802.11a Mode:	25.26 dBm	(225 404 m\/\)
Average Power	IEEE 802.11n HT 20 Mode:	24.53 dBm	(335.401 mW)
•	IEEE 802.1111 HT 20 Mode:	23.72 dBm	(283.846 mW) (235.573 mW)
	IEEE 802.1111 HT 40 Mode.	22.09 dBm	(161.880 mW)
	IEEE 802.11ac V11 80 Mode.	24.45 dBm	(278.916 mW)
	IEEE 802.11ax 40 Mode:	24.51 dBm	(282.370 mW)
	IEEE 802.11ax 40 Mode:	25.26 dBm	(335.883 mW)
	ILLE 602.11ax 60 Wode.	25.20 dbiii	1(333.003 11144)
		_	
	2.4GHz		
	IEEE 802.11b Mode:	26.00 dBm	(398.107 mW)
	IEEE 802.11g Mode:	25.50 dBm	(354.813 mW)
	IEEE 802.11n HT 20 Mode:	25.00 dBm	(316.228 mW)
	IEEE 802.11n HT 40 Mode:	25.50 dBm	(354.813 mW)
Maximum	5GHz		
tune up power	IEEE 802.11a Mode:	26.00 dBm	(398.107 mW)
	IEEE 802.11n HT 20 Mode:	25.50 dBm	(354.813 mW)
	IEEE 802.11n HT 40 Mode:	24.50 dBm	(281.838 mW)
	IEEE 802.11ac VHT 80 Mode:	23.00 dBm	(199.526 mW)
	IEEE 802.11ax 20 Mode:	25.00 dBm	(316.228 mW)
	IEEE 802.11ax 40 Mode:	25.50 dBm	(354.813 mW)
	IEEE 802.11ax 80 Mode:	26.00 dBm	(398.107 mW)
	TEEE GOETT TAX GO TITOGO.		
	MPE Evaluation*		
Evaluation applied		•	

Remark

- 1. For more details, please refer to the User's manual of the EUT.
- 2. Disclaimer: Antenna information is provided by the applicant, test results of this report are applicable to the sample EUT received.
- 3. The tune up power referred the AVG power of the test report T210319W02-RP1, T210319W02-RP2 for RF Exposure assessment purpose.



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4. TEST RESULTS

No non-compliance noted.

Calculation

Given

$$E = \frac{\sqrt{30 \times P \times G}}{d} \quad \& \quad S = \frac{E^2}{377}$$

Where E = Field strength in Volts / meter

P = Power in Watts

G = Numeric antenna gain

d = Distance in meters

S = Power density in milliwatts / square centimeter

Combining equations and re-arranging the terms to express the distance as a function of the remaining variables yields:

$$S = \frac{30 \times P \times G}{377d^2}$$

Changing to units of mW and cm, using:

$$P(mW) = P(W) / 1000$$
 and

$$d(cm) = d(m) / 100$$

Yields

$$S = \frac{30 \times (P/1000) \times G}{377 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2}$$
 Equation 1

Where d = Distance in cm

P = Power in mW

G = Numeric antenna gain

S = Power density in mW / cm²



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5. MAXIMUM PERMISSIBLE EXPOSURE

Substituting the MPE safe distance using d = 20 cm into Equation 1:

 $S = 0.000199 \times P \times G$

Where P = Power in mW

G = Numeric antenna gain

 $S = Power density in mW / cm^2$

IEEE 802.11b mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
1	2412	398.107	4.08	20	0.3232	1

IEEE 802.11g mode:

	Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
I	6	2437	354.813	4.08	20	0.2881	1

IEEE 802.11n HT20 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
6	2437	316.228	4.08	20	0.2568	1

IEEE 802.11n HT40 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
6	2437	354.813	4.08	20	0.2881	1



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IEEE 802.11a mode:

ĺ	Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
Ī	44	5220	398.108	4.18	20	0.3312	1

IEEE 802.11n HT20 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
44	5220	354.813	4.18	20	0.2951	1

IEEE 802.11n HT40 mode:

Ĭ	Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
	46	5230	281.838	4.18	20	0.2344	1

IEEE 802.11ac VHT80 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
155	5775	199.526	4.18	20	0.1660	1

IEEE 802.11ax 20 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
36	5180	316.228	4.18	20	0.2630	1

IEEE 802.11ax 40 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
38	5190	354.813	4.18	20	0.2951	1

IEEE 802.11ax 80 mode:

Ch.	Frq.(MHz)	P (mW)	Gain (num.)	D (cm)	Power density in mW / cm ²	Limit (mW/cm2)
42	5210	398.107	4.18	20	0.3312	1



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6. SIMULTANEOUS TRANSMISSION SAR ANALYSIS

Both of the WiFi 2.4GHz and WiFi 5GHz can transmit simultaneously, the formula of calculated the MPE is:

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

CPD = Calculation power density

LPD = Limit of power density

WiFi 2.4GHz + WiFi 5GHz

Therefore, the worst-case situation is 0.3232 / 1 + 0.3312 / 1 = 0.6544, which is less than "1".

-- End of Report--