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Test Model: DAP-2720

Received Date: Mar. 16, 2019

Test Date: July 08, 2019

Issued Date: Dec. 25, 2019

Applicant: D-Link Corporation

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**FCC Registration /
Designation Number:** 723255 / TW2022

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Table of Contents

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

Release Control Record

Issue No.	Description	Date Issued
SA190514E01	Original release.	Dec. 25, 2019

1 Certificate of Conformity

Product: Nuclias Connect AC2200 Wave2 Tri Band Access Point

Brand: D-Link

Test Model: DAP-2720

Sample Status: ENGINEERING SAMPLE

Applicant: D-Link Corporation

Test Date: July 08, 2019

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.

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Approved by : Clark Lin , **Date:** Dec. 25, 2019
Clark Lin / Technical 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 28cm away from the body of the user.
So, this device is classified as **Mobile Device**.

2.4 Antenna Gain

Ant. No.	Chain No.	Brand	Model	Antenna Net Gain (dBi)	Frequency range (GHz)	Antenna Type	Connector Type
2.4G-1	Chain 1	Donggun RF Electronic Technology Co.,Ltd	RF11C02064S	2.91	2.4~2.4835	PIFA	i-pex(MHF)
2.4G-2	Chain 0	Donggun RF Electronic Technology Co.,Ltd	RF11C02064S	2.75	2.4~2.4835	PIFA	i-pex(MHF)
5G-1	Chain 1	Donggun RF Electronic Technology Co.,Ltd	RF11C02064S	2.96	5.15~5.35	PIFA	i-pex(MHF)
5G-2	Chain 0	Donggun RF Electronic Technology Co.,Ltd	RF11C02064S	2.96	5.15~5.35	PIFA	i-pex(MHF)
5G-3	Chain 1	Donggun RF Electronic Technology Co.,Ltd	RF11C02064S	2.78	5.47~5.85	PIFA	i-pex(MHF)
5G-4	Chain 0	Donggun RF Electronic Technology Co.,Ltd	RF11C02064S	2.85	5.47~5.85	PIFA	i-pex(MHF)

2.5 Calculation Result of Maximum Conducted Power

Operation Mode	Evaluation Frequency (MHz)	Max Power (mW)	Antenna Gain (dBi)	Distance (cm)	Power Density (mW/cm ²)	Limit (mW/cm ²)
WLAN 2.4GHz	2462	552.262	5.84	28	0.21509	1
WLAN 5GHz (U-NII-1)	5200	861.054	5.97	28	0.34554	1
WLAN 5GHz (U-NII-3)	5795	791.834	5.83	28	0.30769	1

NOTE:

- Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
- 2.4GHz: Directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 5.84\text{dBi}$
5GHz:
U-NII-1: Directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 5.97\text{dBi}$
U-NII-3: Directional gain = $10 \log[(10^{G0/20} + 10^{G1/20})^2 / 2] = 5.83\text{dBi}$

Conclusion:

The formula of calculated the MPE is:

$$\text{CPD1} / \text{LPD1} + \text{CPD2} / \text{LPD2} + \dots \text{etc.} < 1$$

CPD = Calculation power density

LPD = Limit of power density

$$\text{WLAN 2.4GHz} + \text{WLAN 5GHz (low band)} + \text{WLAN 5GHz (high band)} = 0.21509 / 1 + 0.34554 / 1 + 0.30769 / 1 = 0.86832$$

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

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