FCC RF Exposure Result

Applicant	:	D-Link Corporation
Address	:	No. 289, Sinhu 3rd., Neihu District, Taipei City 114, Taiwan, R.O.C.
Tel	:	886-2-66000123
Fax	:	886-2-55509988
Equipment	:	Unified AC Concurrent Dual-band PoE Access Point
Model No.	:	DWL-6610APE
Trade Name	:	D-Link
FCC ID.	:	KA2WL6610APEB1

I HEREBY CERTIFY THAT :

The sample was received on Mar. 22, 2017 and the testing was carried out on Mar. 22, 2017 at Cerpass Technology Corp. The test result refers exclusively to the test presented test model / sample. Without written approval of Cerpass Technology Corp., the test report shall not be reproduced except in full.

Approved by:

Mark Liao / Assistant Manager

Tested by:

Spree Yei / Engineer

Laboratory Accreditation:

Cerpass Technology Corporation Test Laboratory

Radio Frequency Exposure

Applicable Standards

The measurements shown in this test report were made in accordance with the procedures given in FCC Part 2 (Section 2.1091)
KDB 447498

EUT Specification

EUT	Unified AC Concurrent Dual-band PoE Access Point
Frequency band (Operating)	☒ WLAN: 2412MHz ~ 2462MHz ☒ WLAN: 5150MHz ~ 5250MHz ☐ WLAN: 5250MHz ~ 5350MHz ☐ WLAN: 5470MHz ~ 5725MHz ☒ WLAN: 5725MHz ~ 5850MHz ☐ Bluetooth: 2402MHz ~ 2480MHz
Device category	☐ Portable (<20cm separation) ☒ Mobile (>20cm separation)
Exposure classification	☐ Occupational/Controlled exposure (S = 5mW/cm^2) ☒ General Population/Uncontrolled exposure (S=1mW/cm^2)
Antenna diversity	☐ Single antenna ☒ Multiple antennas ☐ Tx diversity ☐ Rx diversity ☒ Tx/Rx diversity
Max. output power	Band: 2412MHz ~ 2462MHz 802.11b: 27.11dBm (514.04mW) 802.11g: 29.55dBm (901.45mW) 802.11n HT20: 29.47dBm (885.14mW) 802.11n HT40: 26.33dBm (429.17mW) Band: 5150MHz ~ 5250MHz 802.11a: 25.03dBm (318.28mW) 802.11an HT20: 24.52dBm (282.98mW) 802.11an HT40: 22.61dBm (182.42mW) 802.11ac VHT20: 24.59dBm (287.92mW) 802.11ac VHT40: 22.70dBm (186.13mW) 802.11ac VHT80: 17.08dBm (51.04mW) Band: 5725MHz ~ 5850MHz 802.11a: 25.08dBm (321.92mW) 802.11an HT20: 25.21dBm (332.02mW) 802.11an HT40: 24.94dBm (311.82mW) 802.11ac VHT20: 25.29dBm (338.24mW) 802.11ac VHT40: 25.04dBm (318.79mW) 802.11ac VHT80: 21.41dBm (138.28mW)

	Beamforming Band: 5150MHz ~ 5250MHz 802.11ac VHT20: 24.96dBm (313.22mW) 802.11ac VHT40: 22.50dBm (177.71mW) 802.11ac VHT80: 17.18dBm (52.22mW) Band: 5725MHz ~ 5850MHz 802.11ac VHT20: 25.40dBm (346.44mW) 802.11ac VHT40: 25.18dBm (329.72mW) 802.11ac VHT80: 21.82dBm (152.07mW)
Antenna gain (Max)	2.4G: ANT 1: 3dBi; ANT 2: 3dBi 5G: ANT 1: 4dBi; ANT 2: 4dBi
Evaluation applied	☒ MPE Evaluation* ☐ SAR Evaluation ☐ N/A
Remark: *1. The maximum output power is 29.55dBm (901.45mW) at 2437MHz (with numeric 3 antenna gain.)* *2. DTS device is not subject to routine RF evaluation; MPE estimate is used to justify the compliance.* *3. For mobile or fixed location transmitters, no SAR consideration applied. The maximum power density is 1.0 mW/cm^2 even if the calculation indicates that the power density would be larger.*	

TEST RESULTS

No non-compliance noted.

Calculation

Given $E = \frac{\sqrt{30 \times P \times G}}{d}$ & $S = \frac{E^2}{3770}$

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:

$$S = \frac{30 \times P \times G}{3770 d^2}$$

Changing to units of mW and cm, using:

P (mW) = P (W) / 1000 and
d (cm) = d(m) / 100

Yields

$$S = \frac{30 \times (P/1000) \times G}{3770 \times (d/100)^2} = 0.0796 \times \frac{P \times G}{d^2}$$ ***Equation 1***

Where *d = Distance in cm*
P = Power in mW
G = Numeric antenna gain
S = Power density in mW / cm^2

Maximum Permissible Exposure

Modulation Mode	Frequency band (MHz)	Max. Conducted output power(dBm)	Antenna gain (dBi)	Distance (cm)	Power density (mW/cm2)	Limit (mW/cm2)
802.11b	2412-2462	27.11	3	20	0.2040	1
802.11g	2412-2462	29.55	3	20	0.3578	1
802.11n HT20	2412-2462	29.47	3	20	0.3514	1
802.11n HT40	2412-2462	26.33	3	20	0.1704	1
802.11a	5150-5250	25.03	4	20	0.1591	1
802.11a	5725-5850	25.08	4	20	0.1609	1
802.11an HT20	5150-5250	24.52	4	20	0.1414	1
802.11an HT20	5725-5850	25.21	4	20	0.1659	1
802.11an HT40	5150-5250	22.61	4	20	0.0912	1
802.11an HT40	5725-5850	24.94	4	20	0.1558	1
802.11ac VHT20	5150-5250	24.59	4	20	0.1439	1
802.11ac VHT20	5725-5850	25.29	4	20	0.1690	1
802.11ac VHT40	5150-5250	22.70	4	20	0.0930	1
802.11ac VHT40	5725-5850	25.04	4	20	0.1593	1
802.11ac VHT80	5150-5250	17.08	4	20	0.0255	1
802.11ac VHT80	5725-5850	21.41	4	20	0.0691	1

Beamforming

Modulation Mode	Frequency band (MHz)	Max. Conducted output power(dBm)	Antenna gain (dBi)	Distance (cm)	Power density (mW/cm2)	Limit (mW/cm2)
802.11ac VHT20	5150-5250	24.96	7.01	20	0.3130	1
802.11ac VHT20	5725-5850	25.40	7.01	20	0.3462	1
802.11ac VHT40	5150-5250	22.50	7.01	20	0.1776	1
802.11ac VHT40	5725-5850	25.18	7.01	20	0.3295	1
802.11ac VHT80	5150-5250	17.18	7.01	20	0.0522	1
802.11ac VHT80	5725-5850	21.82	7.01	20	0.1520	1

Maximum Permissible Exposure(Co-location)

Modulation Mode	Frequency band (MHz)	Max. Conducted output power (dBm)	Antenna Gain(dBi)	Distance (cm)	Power Density (mW/cm^2)
2.4G 11g	2412-2462	29.55	3	20	0.3578
5G 11ac VHT20	5725-5850	25.29	4	20	0.1690
Co-location Total					0.5268
Maximum Permissible Exposure Limit					1

Beamforming

Modulation Mode	Frequency band (MHz)	Max. Conducted output power (dBm)	Antenna Gain(dBi)	Distance (cm)	Power Density (mW/cm^2)
2.4G 11g	2412-2462	29.55	3	20	0.3578
5G 11ac VHT20	5725-5850	25.40	7.01	20	0.3462
Co-location Total					0.7040
Maximum Permissible Exposure Limit					1

NOTE:

Total (Chain0+Chain1) , the formula of calculated the MPE is:

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

CPD = Calculation power density

LPD = Limit of power density