

# **Maximum Permissible Exposure Report**

# FCC ID: KA2WL8630APA1

Report No.	:	BTL-FCCP-3-1909H044
Equipment	:	Unified AX Dual-Band PoE Access Point
Model Name	:	DWL-8630AP, DWL-8630APE, DWL-X8630AP, DWL-X8630APE
Brand Name	:	D-Link Corporation
Applicant	:	D-Link Corporation
Address	:	17595 Mt. Herrmann, Fountain Valley, California United State 92708
FCC Rule Part(s)	:	FCC Guidelines for Human Exposure IEEE C95.1
Date of Receipt	•	2019/9/30
Date of Test	÷	2019/9/30 ~ 2020/3/16
Issued Date	:	2020/4/21

The above equipment has been tested and found in compliance with the requirement of the above standards by BTL Inc.

Prepared by Peter Chen, Engineer **ac-MRA** Testing Laboratory 0659 Approved by Scott Hsu, Manager BTL Inc. No.18, Ln. 171, Sec. 2, Jiuzong Rd., Neihu Dist., Taipei City 114, Taiwan Tel: +886-2-2657-3299 Fax: +886-2-2657-3331 Web: www.newbtl.com



## **REPORT ISSUED HISTORY**

Report Version	Description	Issued Date
R00	Original Issue.	2020/4/21
Project No.: 1909H044	Page 2 of 5	Report Version: R00



# MPE CALCULATION METHOD:

Calculation Method of RF Safety Distance:

$$S = \frac{PG}{4\pi r^2} = \frac{EIRP}{4\pi r^2}$$

where:

- S = power density
- P = power input to the antenna
- G = power gain of the antenna in the direction of interest relative to an isotropic radiator

R = distance to the center of radiation of the antenna

Table for For 2.4	or Filed Antenna: <b>G WLAN:</b> : Built-in antenna				
Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	M.gear	DWL-8630AP	PIFA	I-PEX	3.24
2	Megear www.whayu.com	DWL-8630AP	PIFA	I-PEX	3.52
3	Megear www.whayu.com	DWL-8630AP	PIFA	I-PEX	3.58
4	Megear www.whayu.com	DWL-8630AP	PIFA	I-PEX	3.50
Group I	I: External antenna				
Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	Megear www.whayu.com	DWL-8630APE	Dipole	RP-SMA	3.10
2	Megear www.whayu.com	DWL-8630APE	Dipole	RP-SMA	3.10
3	Megear www.whayu.com	DWL-8630APE	Dipole	RP-SMA	3.10
4	M. gear	DWL-8630APE	Dipole	RP-SMA	3.10

NOTE:

- (a) The EUT incorporates a MIMO function. Physically, the EUT provides two completed transmitters and receivers (4T4R). 2.4 GHz and 5GHz can transmit simultaneously.
- (b) For Power Spectral Density Directional Gain =  $10\log [(10^{G1/20} + 10^{G2/20} + ... + 10^{Gn/20})^2/N_{ANT}] = 9.48 \text{ dBi} > 6\text{dBi}.$ (c) For Output Power
- (c) For Output Power For N<sub>ANT</sub> = 2 < 5, Direction gain = G<sub>ANT</sub> + 0 = 3.58 + 0 = 3.58 dBi . (d) For Beamforming mode
- Directional Gain = 10log  $[(10^{G1/20} + 10^{G2/20} + ... + 10^{Gn/20})^2/N_{ANT}] = 9.48 \text{ dBi} > 6\text{dBi}.$ Beamforming gain is 5.10 dBi.

#### For 5G RLAN:

Group	I:	Built-in	antenna
Oroup	•••	Dunt III	unciniu

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	M.gear	DWL-8630AP	PIFA	I-PEX	4.41
2	M.gear	DWL-8630AP	PIFA	I-PEX	4.41
3	M.gear www.whayu.com	DWL-8630AP	PIFA	I-PEX	4.34
4	Megear www.whayu.com	DWL-8630AP	PIFA	I-PEX	4.34
Group I	I: External antenna				
Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	Megear www.whayu.com	DWL-8630APE	Dipole	RP-SMA	4.20
2	Megear www.whayu.com	DWL-8630APE	Dipole	RP-SMA	4.20
3	Megear www.whayu.com	DWL-8630APE	Dipole	RP-SMA	4.20
4	M.gear	DWL-8630APE	Dipole	RP-SMA	4.20

NOTE:

- (a) The EUT incorporates a MIMO function. Physically, the EUT provides two/four completed transmitters and receivers (2T2R/4T4R). 2.4 GHz and 5GHz can transmit simultaneously.
- (b) For Power Spectral Density Directional Gain =  $10\log [(10^{G1/20} + 10^{G2/20} + ... + 10^{Gn/20})^2/N_{ANT}] = 10.40 \text{ dBi} > 6\text{dBi}.$
- (c) For Output Power For  $N_{ANT} = 2 < 5$ , Direction gain =  $G_{ANT}$  + 0 = 4.41 + 0 = 4.41 dBi .
- (d) For Beamforming mode Directional Gain =  $10\log [(10^{G1/20} + 10^{G2/20} + ... + 10^{Gn/20})^2/N_{ANT}] = 10.40 \text{ dBi} > 6\text{dBi}.$ Beamforming gain is 5.10 dBi.



## **TEST RESULTS**

#### No-Beamforming mode:

For 2.4G WLAN:	
----------------	--

Antenna Gain (dBi)	Antenna Gain (numeric)	Max. Peak Output Power (dBm)	Max. Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
3.58	2.28	29.91	979.4900	0.4444	1	Complies

#### For 5G RLAN:

Antenna Gain (dBi)	Antenna Gain (numeric)	Max. Peak Output Power (dBm)	Max. Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
4.41	2.76	28.57	719.4490	0.3951	1	Complies

#### Beamforming mode: For 2.4G WLAN:

Antenna Gain (dBi)	Antenna Gain (numeric)	Max. Peak Output Power (dBm)	Max. Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result	
5.10	3.24	23.89	244.9063	0.1577	1	Complies	

#### For 5G RLAN:

Antenna Gain (dBi)	Antenna Gain (numeric)	Max. Peak Output Power (dBm)	Max. Peak Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
5.10	3.24	22.55	179.8871	0.1158	1	Complies

Note:

1. The calculated distance is 20 cm.

#### COLLOCATED POWER DENSITY CACULATIONS

So for simultaneous transmission: 0.4444/1+0.3951/1=0.8395 < 1.

End of Test Report