

Maximum Permissible Exposure Report

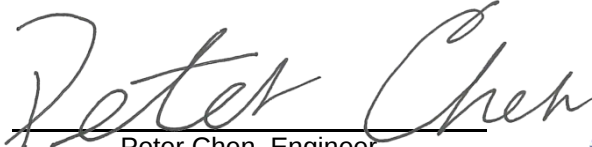
FCC ID: KA2WL8630APA1

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

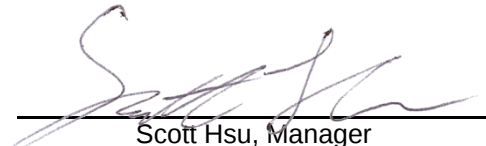
FCC Rule Part(s) : FCC Guidelines for Human Exposure IEEE C95.1

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.

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REPORT ISSUED HISTORY

Report Version	Description	Issued Date
R00	Original Issue.	2020/4/21

MPE CALCULATION METHOD:

Calculation Method of RF Safety Distance:

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

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 Filed Antenna:

For 2.4G WLAN:

Group I: Built-in antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	 www.whayu.com	DWL-8630AP	PIFA	I-PEX	3.24
2	 www.whayu.com	DWL-8630AP	PIFA	I-PEX	3.52
3	 www.whayu.com	DWL-8630AP	PIFA	I-PEX	3.58
4	 www.whayu.com	DWL-8630AP	PIFA	I-PEX	3.50

Group II: External antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	 www.whayu.com	DWL-8630APE	Dipole	RP-SMA	3.10
2	 www.whayu.com	DWL-8630APE	Dipole	RP-SMA	3.10
3	 www.whayu.com	DWL-8630APE	Dipole	RP-SMA	3.10
4	 www.whayu.com	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 = $10\log [(10^{G1/20} + 10^{G2/20} + \dots + 10^{Gn/20})^2 / N_{ANT}] = 9.48 \text{ dBi} > 6\text{dBi}$.

(c) For Output Power
For $N_{ANT} = 2 < 5$,
Direction gain = $G_{ANT} + 0 = 3.58 + 0 = 3.58 \text{ dBi}$.

(d) For Beamforming mode
Directional Gain = $10\log [(10^{G1/20} + 10^{G2/20} + \dots + 10^{Gn/20})^2 / N_{ANT}] = 9.48 \text{ dBi} > 6\text{dBi}$.
Beamforming gain is 5.10 dBi.

For 5G RLAN:
Group I: Built-in antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	 www.whayu.com	DWL-8630AP	PIFA	I-PEX	4.41
2	 www.whayu.com	DWL-8630AP	PIFA	I-PEX	4.41
3	 www.whayu.com	DWL-8630AP	PIFA	I-PEX	4.34
4	 www.whayu.com	DWL-8630AP	PIFA	I-PEX	4.34

Group II: External antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	 www.whayu.com	DWL-8630APE	Dipole	RP-SMA	4.20
2	 www.whayu.com	DWL-8630APE	Dipole	RP-SMA	4.20
3	 www.whayu.com	DWL-8630APE	Dipole	RP-SMA	4.20
4	 www.whayu.com	DWL-8630APE	Dipole	RP-SMA	4.20

NOTE:

- 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.
- For Power Spectral Density

$$\text{Directional Gain} = 10\log [(10^{G1/20} + 10^{G2/20} + \dots + 10^{Gn/20})^2 / N_{\text{ANT}}] = 10.40 \text{ dBi} > 6\text{dBi}.$$
- For Output Power
For $N_{\text{ANT}} = 2 < 5$,
Direction gain = $G_{\text{ANT}} + 0 = 4.41 + 0 = 4.41 \text{ dBi}$.
- For Beamforming mode

$$\text{Directional Gain} = 10\log [(10^{G1/20} + 10^{G2/20} + \dots + 10^{Gn/20})^2 / N_{\text{ANT}}] = 10.40 \text{ dBi} > 6\text{dBi}.$$
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 ²)	Limit of Power Density (S) (mW/cm ²)	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 ²)	Limit of Power Density (S) (mW/cm ²)	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 ²)	Limit of Power Density (S) (mW/cm ²)	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 ²)	Limit of Power Density (S) (mW/cm ²)	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