

# FCC RF EXPOSURE REPORT

## FCC ID: KA2CS8635LHA1

**Project No.** : 2103H005  
**Equipment** : 2K QHD Pan & Zoom Outdoor Wi-Fi Camera  
**Brand Name** : D-Link  
**Test Model** : DCS-8635LH  
**Series Model** : N/A  
**Applicant** : D-Link Corporation  
**Address** : 14420 Myford Road Suite 100 Irvine California United States 92606  
**Manufacturer** : D-Link Corporation  
**Address** : 14420 Myford Road Suite 100 Irvine California United States 92606  
**Date of Receipt** : Mar. 09, 2021  
**Date of Test** : Mar. 09, 2021~Apr. 15, 2021  
**Issued Date** : May 19, 2021  
**Report Version** : R01  
**Test Sample** : Engineering Sample No.: SH2021030889 for radiation; SH2021030888 for conducted; SH2021030887-5 for adapter  
**Standard(s)** : FCC Guidelines for Human Exposure IEEE C95.1 & FCC Part 2.1091

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

*Maker Qi*

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**REPORT ISSUED HISTORY**

Report Version	Description	Issued Date
R00	Original Issue.	May 13, 2021
R01	Revised report to address TCB's comments.	May 19, 2021

## 1. 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 Filed Antenna

For BLE:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	N/A	N/A	PCB	N/A	2.85

Note: The antenna gain provided by the manufacturer

For 2.4G:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	Note
1	N/A	N/A	IFA	N/A	3.14	N/A
2	N/A	N/A	IFA	N/A	4.16	N/A

Note:

- This EUT supports CDD, all antennas have unequal gains, any transmit signals are correlated with each other, so  
 For power spectral density measurements, the Directional gain= $10\log[(10^{G1/20}+10^{G2/20}+\dots+10^{GN/20})^2/N_{ANT}]$ dBi,  
 that is Directional gain= $10\log[(10^{G1/20}+10^{G2/20}+\dots+10^{GN/20})^2/N_{ANT}]$ dBi =6.68;  
 Then, the power spectral density limited is 8-6.68+6=7.32,  
 For power measurements, Directional gain=  $G_{ANT MAX.}+Array$  Gain.  
 Array Gain=0dB( $N_{ANT}\leq 4$ ), so the Directional gain=4.16
- The antenna gain is provided by the manufacturer.

For 5G:

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	Note
1	N/A	N/A	IFA	N/A	3.87	N/A
2	N/A	N/A	IFA	N/A	3.16	N/A

Note:

- This EUT supports CDD, all antennas have unequal gains, any transmit signals are correlated with each other, so  
 For power spectral density measurements, the Directional gain= $10\log[(10^{G1/20}+10^{G2/20}+\dots+10^{GN/20})^2/N_{ANT}]dBi$ ,  
 that is Directional gain= $10\log[(10^{G1/20}+10^{G2/20}+\dots+10^{GN/20})^2/N_{ANT}]dBi=6.53$ ;  
 Then, the UNII-1 power spectral density limited is  $17-6.53+6=16.47$ , UNII-2A, UNII-2C power spectral density limit is  $11-6.53+6=10.47$ , the UNII-3 power spectral density limit is  $30-6.53+6=29.47$ .  
 For power measurements, Directional gain=  $G_{ANT MAX.}+Array Gain$ . Array Gain=0dB( $N_{ANT}\leq 4$ ), so the Directional gain=3.87
- The antenna gain is provided by the manufacturer.

Table for Antenna Configuration:

For 2.4G:

Operating Mode / TX Mode	Ant. 1	Ant. 2	Ant. 1+2
802.11b	✓	✓	✗
802.11g	✓	✓	✗
802.11n(20 MHz)	✓	✓	✓
802.11n(40 MHz)	✓	✓	✓

For 5G:

Operating Mode / TX Mode	Ant. 1	Ant. 2	Ant. 1+2
IEEE 802.11a	✓	✓	✗
IEEE 802.11n (HT20)	✓	✓	✓
IEEE 802.11n (HT40)	✓	✓	✓
IEEE 802.11ac (VHT20)	✓	✓	✓
IEEE 802.11ac (VHT40)	✓	✓	✓
IEEE 802.11ac (VHT80)	✓	✓	✓

## 2. TEST RESULTS

For BLE:

Antenna Gain (dBi)	Antenna Gain (numeric)	Max. Output Power (dBm)	Max. Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
2.85	1.9275	-2.5	0.5623	0.00022	1	Complies

For 2.4GHz:

Antenna Gain (dBi)	Antenna Gain (numeric)	Max. Output Power (dBm)	Max. Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
4.16	2.6062	22	158.4893	0.08217	1	Complies

For 5GHz:

Antenna Gain (dBi)	Antenna Gain (numeric)	Max. Output Power (dBm)	Max. Output Power (mW)	Power Density (S) (mW/cm <sup>2</sup> )	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
3.87	2.4378	22	158.4893	0.07687	1	Complies

**For the max simultaneous transmission MPE:**

BLE+2.4G+5G

Power Density (S) (mW/cm <sup>2</sup> )	Power Density (S) (mW/cm <sup>2</sup> )	Power Density (S) (mW/cm <sup>2</sup> )	Total	Limit of Power Density (S) (mW/cm <sup>2</sup> )	Test Result
BLE	2.4GHz	5GHz			
0.00022	0.08217	0.07687	0.15925	1	Complies

Note: The calculated distance is 20 cm.  
Output power including tune up tolerance.

**End of Test Report**