

# Maximum Permissible Exposure Report

**FCC ID: 2ATYCHMX04**

**Report No.** : BTL-FCCP-6-2101T111  
**Equipment** : HIPCAM  
**Model Name** : Outdoor Spotlight Camera Max  
**Brand Name** : HIPCAM  
**Applicant** : Hipcam Global LLC  
**Address** : 112 Capitol Trail, Newark, Delaware, 19711 United States  
**Manufacturer** : Goldtek Technology Co., Ltd.  
**Address** : 16F., No.166, Jian 1st Rd., Zhonghe Dist., New Taipei City 235, Taiwan (R.O.C.)

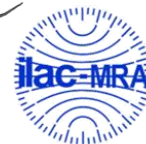
**FCC Rule Part(s)** : FCC CFR Title 47, Part 2 (2.1091)  
FCC Guidelines for Human Exposure IEEE C95.1


**Date of Receipt** : 2021/2/2  
**Date of Test** : 2021/2/2 ~ 2021/3/17  
**Issued Date** : 2021/4/16

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

**Prepared by** :

  
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**BTL Inc.**

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**REVISION HISTORY**


Report No.	Version	Description	Issued Date
BTL-FCCP-6-2101T111	R00	Original Report.	2021/4/9
BTL-FCCP-6-2101T111	R01	Revised report to address TCB's comments.	2021/4/16

## Table for Filed Antenna


For LoRa:

Ant.	Manufacture	Product	Type	Connector	Frequency Range (MHz)	Gain (dBi)
1		Lora US915	FPCB	N/A	902-928	0.29


For BLE:

Ant.	Manufacture	Product	Type	Connector	Frequency Range (MHz)	Gain (dBi)
1		Wi-Fi Ant.	PCB	N/A	2400-2500	3.86

For 2.4GHz WLAN:

Ant.	Manufacture	Product	Type	Connector	Frequency Range (MHz)	Gain (dBi)
1		Wi-Fi Ant.	PCB	N/A	2400-2500	3.86

For 5GHz RLAN:

Ant.	Manufacture	Product	Type	Connector	Frequency Range (MHz)	Gain (dBi)
1		Wi-Fi Ant.	PCB	N/A	5150-5250	4.67
					5250-5350	5.38
					5470-5725	5.23
					5725-5850	5.23

**Maximum RF OUTPUT POWER**

Mode		Maximum Average Power (dBm)
WLAN 2.4 GHz	IEEE 802.11b	17.95
	IEEE 802.11g	21.93
	IEEE 802.11n (HT20)	22.28
RLAN 5 GHz	IEEE 802.11a	13.49
	IEEE 802.11n (HT20)	13.07
	IEEE 802.11n (HT40)	10.40
BLE		4.97
Lora		17.46

## 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

## 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
3.86	2.4322	4.97	3.1405	0.00152037	1	Complies

For 2.4G WLAN:

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
3.86	2.4322	22.28	169.0441	0.08183713	1	Complies

For 5G RLAN:

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
5.38	3.4514	13.49	22.3357	0.01534442	1	Complies

Note:

1. The calculated distance is 20 cm.

**For LoRa :**

**Limit**

Frequency Range (MHz)	Power Density (mW /cm <sup>2</sup> )	Averaging Time (minutes)
300~1500	F/1500	30
1500~100000	1.0	30

**MPE EVALUATION FORMULA**

$$Pd = \frac{Pt}{4 * Pi * R^2}$$

where:  
 Pd= Power density in mW/cm<sup>2</sup>  
 Pt= EIRP in Mw  
 Pi= 3.1416  
 R= Measurement distance

**RESULTS**

Frequency (MHz)	Maximum Output Power (dBm)	Maximum Output Power (mW)	Antenna gain (dBi)	Distance (cm)	Power Density (mW/cm <sup>2</sup> )	Power Density Limit (mW/cm <sup>2</sup> )
902.3	17.46	55.719	0.29	20.0	0.012	0.602

**Simultaneous Transmission:**

Both of the Lora, Bluetooth and Wi-Fi can transmit simultaneously, the formula of calculated the MPE is:  
 CPD1 / LPD1 + CPD2 / LPD2 + .....etc. <1

CPD: Calculation power density  
 LPD: Limit of power density

Therefore, the worst –case situation calculated as below, which the result is less than “1”.  
 0.00152037/1+ 0.08183713/1 + 0.01534442/1 + 0.012/1= 0.11070192 < 1

**End of Test Report**