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FCC RF Exposure

Applicant	:	zhong shan haideng Optoelectronic Technology Co., Ltd
Address	:	2nd Floor, No. 10 Fuheng East Middle, Henglan Town, Zhongshan City, Guangdong Province
Product Name	:	Aquarium Light
Brand Mark	:	N/A
Model	:	YG-300
Series model	:	YG-500, YG-700, YG-900, YG-1200, YG-1500
FCC ID	:	2BOON-YG300
Report Number	:	BLA-EMC-202504-A2402
Date of Receipt	:	Apr. 14, 2025
Date of Test	:	Apr. 14, 2025 to Apr. 28, 2025
Test Standard	:	47 CFR Part 15, Part1.1307 47 CFR Part 15, Part2.1093 KDB447498D04 General RF Exposure Guidance v01
Test Result	:	Pass

Compiled by: Mark Chen **Review by:** Xavier **Approved by:** Blue Zheng

Issued Date: Apr. 29, 2025

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Revise Record

Version No.	Date	Description
01	Apr. 29, 2025	Original

1 General information

1.1 General information

Applicant	zhong shan haideng Optoelectronic Technology Co., Ltd
Address	2nd Floor, No. 10 Fuheng East Middle, Henglan Town, Zhongshan City, Guangdong Province
Manufacturer	zhong shan haideng Optoelectronic Technology Co., Ltd
Address	2nd Floor, No. 10 Fuheng East Middle, Henglan Town, Zhongshan City, Guangdong Province
Factory	zhong shan haideng Optoelectronic Technology Co., Ltd
Address	2nd Floor, No. 10 Fuheng East Middle, Henglan Town, Zhongshan City, Guangdong Province

1.2 General description of EUT

Product name	Aquarium Light	
Model no.	YG-300	
Series Model No.	YG-300, YG-500, YG-700, YG-900, YG-1200, YG-1500	
Differences of Series model	The above models are identical in PCB layout, internal structure and components, only model name and the size of appearance are different.	
Operation Frequency	2402MHz-2480MHz	
Modulation Type	GFSK	
Number of Channels	40	
Rate data	1Mbps, 2Mbps	
Antenna Type	Wire antenna	
Antenna Gain	2.79dBi (Provided by customer)	
Power supply	Adapter	Model: CT-0020V04-00001 Input: 100-240VAC 50/60Hz Output: DC 20V/1200mA
Test Voltage	AC 120V	
Hardware Version	N/A	
Software Version	N/A	

2 RF Exposure Compliance Requirement

2.1 Standard Requirement

According to 447498 D04 Interim General RF Exposure Guidance v01

Standalone SAR test exclusion considerations

Unless specifically required by the published RF exposure KDB procedures, standalone 1-g head or body and 10-g extremity SAR evaluation for general population exposure conditions, by measurement or numerical simulation, is not required when the corresponding SAR Exclusion Threshold condition, listed below, is satisfied.

2.2 Limits

$$P_{\text{th}}\ (\text{mW}) = \begin{cases} ERP_{20\ \text{cm}}(d/20\ \text{cm})^{x} & d \le 20\ \text{cm} \\ ERP_{20\ \text{cm}} & 20\ \text{cm} < d \le 40\ \text{cm} \end{cases} \quad \text{(B.2)}$$

where

$$x = -\log_{10}\left(\frac{60}{ERP_{20\ \text{cm}}\sqrt{f}}\right)$$

and f is in GHz, d is the separation distance (cm), and $ERP_{20\text{cm}}$ is per Formula (B.1).

Example values shown in Table B.2 are for illustration only.

Table B.2—Example Power Thresholds (mW)

Frequency (MHz)	Distance (mm)									
	5	10	15	20	25	30	35	40	45	50
300	39	65	88	110	129	148	166	184	201	217
450	22	44	67	89	112	135	158	180	203	226
835	9	25	44	66	90	116	145	175	207	240
1900	3	12	26	44	66	92	122	157	195	236
2450	3	10	22	38	59	83	111	143	179	219
3600	2	8	18	32	49	71	96	125	158	195
5800	1	6	14	25	40	58	80	106	136	169

$$P_{\text{th}}\ (\text{mW}) = ERP_{20\ \text{cm}}\ (\text{mW}) = \begin{cases} 2040f & 0.3\ \text{GHz} \le f < 1.5\ \text{GHz} \\ 3060 & 1.5\ \text{GHz} \le f \le 6\ \text{GHz} \end{cases} \quad \text{(B.1)}$$

2.3 Result

EIRP = pt x gt = (E X d)2/30

Where:

pt = transmitter output power in watts,

gt = numeric gain of the transmitting antenna (unitless),

E = electric field strength in V/m,

d = measurement distance in meters (m)

Spot = (EXd)2/30 x gt
Separation distance= 20cm

Ant gain = 2.79dBi

For BLE 2M(Worst):

Max Output power = -0.73dBm @ 2402MHz
EIRP = -0.73dBm+2.79dBi=2.06dBm,
So, ERP = 2.06-2.15= -0.09dBm=0.979 mW< 3060 mW
Comply with RF exposure exemption limit.

----END OF REPORT----