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RF Exposure Evaluation Report

Application No.:	KSCR2403000387AT
FCC ID:	2BF56-TRFK345S0066
Applicant:	Toplight Sensor Technology (Xiamen) Co., Ltd.
Address of Applicant:	Unit 301, No. 52, Huli Industrial Park, Meixi Road, Tongan District, Xiamen, Fujian, China.
Manufacturer:	Toplight Sensor Technology (Xiamen) Co., Ltd.
Address of Manufacturer:	Unit 301, No. 52, Huli Industrial Park, Meixi Road, Tongan District, Xiamen, Fujian, China.
Factory:	Toplight Sensor Technology (Xiamen) Co., Ltd.
Address of Factory:	Unit 301, No. 52, Huli Industrial Park, Meixi Road, Tongan District, Xiamen, Fujian, China.
Equipment Under Test (EUT):	
EUT Name:	24GHz radar module
Model No.:	TRFK345S0066
Standard(s) :	FCC Rules 47 CFR §2.1091 KDB 447498 D01 interim General RF Exposure Guidance v06 RSS-102 Issue 5 Amendment 1 (February 2, 2021)
Date of Receipt:	2024-03-12
Date of Test:	2024-03-27 to 2024-03-29
Date of Issue:	2024-03-29
Test Result:	**Pass***

* In the configuration tested, the EUT complied with the standards specified above.

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Revision Record			
Version	**Description**	**Date**	**Remark**
00	Original	2024-03-29	/

Authorized for issue by:				
Tested By		*Damon zhou*		
		Damon_Zhou/Project Engineer		
Approved By		*Terry Hou*		
		Terry Hou /Reviewer		

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3   General Information

3.1   General Description of E.U.T.

Power supply:	DC 5V

3.2   Details of E.U.T.

Operation Frequency Range:	24.00GHz to 24.25GHz
Modulation：	FSK
Antenna type：	PCB Antenna
Antenna Gain:	5.8dBi

3.3   Test Location

All tests were performed at:

Compliance Certification Services (Kunshan) Inc.

No.10 Weiye Rd, Innovation park, Eco&Tec, Development Zone, Kunshan City, Jiangsu, China.

Tel: +86 512 5735 5888   Fax: +86 512 5737 0818

No tests were sub-contracted.

Note:

1.SGS is not responsible for wrong test results due to incorrect information (e.g. max. clock frequency, highest internal frequency, antenna gain, cable loss, etc) is provided by the applicant. (if applicable).

2.SGS is not responsible for the authenticity, integrity and the validity of the conclusion based on results of the data provided by applicant. (if applicable).

3. Sample source: sent by customer.

3.4   Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

• A2LA

Compliance Certification Services (Kunshan) Inc. is accredited by the American Association for Laboratory Accreditation (A2LA). Certificate No. 2541.01.

• FCC

Compliance Certification Services (Kunshan) Inc. has been recognized as an accredited testing laboratory. Designation Number: CN1172.

• ISED

Compliance Certification Services (Kunshan) Inc. has been recognized by Innovation, Science and Economic Development Canada (ISED) as an accredited testing laboratory. Company Number: 2324E

• VCCI

The 3m and 10m Semi-anechoic chamber and Shielded Room of Compliance Certification Services (Kunshan) Inc. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-20134, R-11600, C-11707, T-11499, G-10216 respectively.

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CCSEM-TRF-001 Rev. 02 Sep 01, 2023

4   FCC Radiofrequency radiation exposure limits

According to§1.1310, the limit for general population/uncontrolled exposures

Frequency	Power density(mW/cm^2)	Averaging time(minutes)
300MHz~1.5GHz	f/1500	30
1.5GHz~100GHz	1.0	30

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5 Measurement and Calculation

5.1 Maximum transmit power

The Power Data is based on the RF Test Report KSCR240300038701

Test Mode	Test Channel	dBuV/m@3m	AV E.I.R.P. [dBm]	AV E.I.R.P. [mW]
mmWave	24.0825GHz	86.14	-9.06	0.12

Remark: Eirp(dBm)=E(dBuV/m) +20log[d(m)] - 104.77

For d=3m, Eirp(dBm)=E(dBuV/m) -95.2

5.2   RF Exposure Calculation

According to the formula S=PG/4πR², we can calculate S which is MPE.

Note:

1)   P (mW)

2)   G (Antenna gain in numeric)

3)   R = distance to the center of radiation of antenna (in meter) = 20cm

4)   MPE limit = 1mW/cm²

For Omnidirectional radar:

$$S= \frac{PG}{4R^2\pi}$$ =0.12/(4x400x3.14)=0.0000239mW/cm²<1mW/cm²

So, the device is to qualify for SAR test exemption, the exemption report is in lieu of the SAR report

--End of the Report--