TEST REPORT

Flip Chip COB

Test Model: Ti32528-080-1321-A5770-000

Additional Models: See at model list

Report Number	:	LCSB06116043S001
Applicant	:	Shenzhen Licone Optoelectronics Co., Ltd.
Address	:	No. 511, Building 17, Yifenghua Innovation Industrial Park, Xinshi Community, Dalang Street, Longhua District, Shenzhen City.
Manufacturer	:	Shenzhen Licone Optoelectronics Co., Ltd.
Address	:	No. 511, Building 17, Yifenghua Innovation Industrial Park, Xinshi Community, Dalang Street, Longhua District, Shenzhen City.
Prepared by	:	Shenzhen Southern LCS Compliance Testing Co., Ltd.
Address	:	101-201, Building 39, Xialang Industrial Zone, Heshuikou Community, Matian Street, Guangming District, Shenzhen, China
Date of receipt sample	:	July 01, 2026
Date of test	:	July 04, 2026
Date of issue	:	July 22, 2026

Remarks:
The results shown in this test report refer only to the sample(s) tested, this test report cannot be reproduced, except in full. without prior written permission of the company, The report would be invalid without specific stamp of test institute and the signatures of approver.

TEST REPORT

Testing Laboratory.....:	Shenzhen Southern LCS Compliance Testing Co., Ltd. 101-201, Building 39, Xialang Industrial Zone, Heshuikou Community, Matian Street, Guangming District, Shenzhen, China	
Test Specification: **Standard.....:**	IEC TR 62778:2014: Application of IEC 62471 for the assessment of blue light hazard to light sources and luminaires	
Test item description.....:	Flip Chip COB	
Trademark..... :	TiCHIPS	
Test Model/Type.....:	Ti32528-080-1321-A5770-000	
Rating..... :	DC32.9-38.9V, 2000mA, 80W	
Test Results .....:	Please see the following test data	
Prepare by..... :	Zero Huang (Project Engineer)	
Check by..... :	Ian Luo (Director)	
Approved by ..... :	Jesse Liu (Manager)	
Test Report Form No.....:	TRF-4-S-117 A/0	
TRF Originator.....:	Shenzhen Southern LCS Compliance Testing Co., Ltd.	
Master TRF..... :	/	

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Test case verdicts

Test case does not apply to the test object : N(N/A)

Test item does meet the requirement .....: P(Pass)

Test item does not meet the requirement ...: F(Fail)

Testing

Date of receipt of test item .....: July 01, 2026

Date(s) of performance of test.....: July 04, 2026

Test item particulars:

Product evaluated.....: ☐ LED package
☒ LED module
☐ Lamp
☐ Luminaire
☐ Others

- Rated voltage (V) .....: DC32.9-38.9V
- Rated CCT (K).....: 5700K
- Rated Luminance (Mcd/m2).....: N/A
- Component report data used.....: ☒ Not applicable
☐ LED package
☐ LED module
☐ Lamp
Report number:--

Attachments:

The test report includes: Attachment 1: 1 page of product photos

Remark:

Modified Information

Version	Report No.	Revision Data	Summary
000	LCSB06116043S	/	Original Version
001	LCSB06116043S001	July 22, 2026	Add Trademark

At customer request, Add Trademark.

Other information remains unchanged, the original report (LCSB06116043S) is invalid.

General remarks

The test results presented in this report relate only to the object tested.

This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

"(see Enclosure #)" refers to additional information appended to the report.

"(see appended table)" refers to a table appended to the report.

Throughout this report a comma (point) is used as the decimal separator.

The general information of applicant and manufacturer (such as the name and address), product name, model/type reference, trademark and other similar information contained in this report are all provided by the applicant, the laboratory is not responsible for verifying its authenticity.

Unless otherwise specified, the model Ti32528-080-1321-A5770-000 was chosen as representative model to perform all test.

Model list

Model	Rating	CCT.
Ti32528-080-1321-A5770-000	DC32.9-38.9V, 2000mA, 80W	5700K
Ti1**13-***-0601-*****-**	≤80W	≤5700K
Ti1**13-***-0701-*****-**	≤80W	≤5700K
Ti1**13-***-0801-*****-**	≤80W	≤5700K
Ti1**13-***-1201-*****-**	≤80W	≤5700K
Ti1**13-***-0602-*****-**	≤80W	≤5700K
Ti1**13-***-1202-*****-**	≤80W	≤5700K
Ti1**13-***-0604-*****-**	≤80W	≤5700K
Ti1**13-***-1203-*****-**	≤80W	≤5700K
Ti1**13-***-0606-*****-**	≤80W	≤5700K
Ti1**13-***-1204-*****-**	≤80W	≤5700K
Ti1**13-***-0608-*****-**	≤80W	≤5700K
Ti1**13-***-1205-*****-**	≤80W	≤5700K
Ti1**13-***-1206-*****-**	≤80W	≤5700K
Ti1**13-***-13**-*****-**	≤80W	≤5700K
Ti1**15-***-0601-*****-**	≤80W	≤5700K
Ti1**15-***-0701-*****-**	≤80W	≤5700K
Ti1**15-***-0801-*****-**	≤80W	≤5700K
Ti1**15-***-1201-*****-**	≤80W	≤5700K
Ti1**15-***-0602-*****-**	≤80W	≤5700K
Ti1**15-***-1202-*****-**	≤80W	≤5700K
Ti1**15-***-0604-*****-**	≤80W	≤5700K

Model	Rating	CCT.
Ti1**15-***-1203-*****-**	≤80W	≤5700K
Ti1**15-***-0606-*****-**	≤80W	≤5700K
Ti1**15-***-1204-*****-**	≤80W	≤5700K
Ti1**15-***-0608-*****-**	≤80W	≤5700K
Ti1**15-***-1205-*****-**	≤80W	≤5700K
Ti1**15-***-1206-*****-**	≤80W	≤5700K
Ti1**15-***-13**-*****-**	≤80W	≤5700K
Ti1**18-***-1203-*****-**	≤80W	≤5700K
Ti1**18-***-0606-*****-**	≤80W	≤5700K
Ti1**18-***-1204-*****-**	≤80W	≤5700K
Ti1**18-***-0608-*****-**	≤80W	≤5700K
Ti1**18-***-12**-*****-**	≤80W	≤5700K
Ti1**18-***-13**-*****-**	≤80W	≤5700K
Ti1**19-***-1203-*****-**	≤80W	≤5700K
Ti1**19-***-0606-*****-**	≤80W	≤5700K
Ti1**19-***-1204-*****-**	≤80W	≤5700K
Ti1**19-***-0608-*****-**	≤80W	≤5700K
Ti1**19-***-12**-*****-**	≤80W	≤5700K
Ti1**19-***-13**-*****-**	≤80W	≤5700K
Ti1**24-***-12**-*****-**	≤80W	≤5700K
Ti1**24-***-13**-*****-**	≤80W	≤5700K
Ti1**28-***-12**-*****-**	≤80W	≤5700K
Ti1**28-***-13**-*****-**	≤80W	≤5700K
Ti1**28-***-1812-*****-**	≤80W	≤5700K
Ti2**13-***-0601-*****-**	≤80W	≤5700K
Ti2**13-***-0701-*****-**	≤80W	≤5700K
Ti2**13-***-0801-*****-**	≤80W	≤5700K
Ti2**13-***-1201-*****-**	≤80W	≤5700K
Ti2**13-***-0602-*****-**	≤80W	≤5700K
Ti2**13-***-1202-*****-**	≤80W	≤5700K
Ti2**13-***-0604-*****-**	≤80W	≤5700K
Ti2**13-***-1203-*****-**	≤80W	≤5700K
Ti2**13-***-0606-*****-**	≤80W	≤5700K
Ti2**13-***-1204-*****-**	≤80W	≤5700K
Ti2**13-***-0608-*****-**	≤80W	≤5700K

Model	Rating	CCT.
Ti2**13-***-13**-*****-**	⩽80W	⩽5700K
Ti2**15-***-0601-*****-**	⩽80W	⩽5700K
Ti2**15-***-0701-*****-**	⩽80W	⩽5700K
Ti2**15-***-0801-*****-**	⩽80W	⩽5700K
Ti2**15-***-1201-*****-**	⩽80W	⩽5700K
Ti2**15-***-0602-*****-**	⩽80W	⩽5700K
Ti2**15-***-1202-*****-**	⩽80W	⩽5700K
Ti2**15-***-0604-*****-**	⩽80W	⩽5700K
Ti2**15-***-1203-*****-**	⩽80W	⩽5700K
Ti2**15-***-0606-*****-**	⩽80W	⩽5700K
Ti2**15-***-1204-*****-**	⩽80W	⩽5700K
Ti2**15-***-0608-*****-**	⩽80W	⩽5700K
Ti2**15-***-13**-*****-**	⩽80W	⩽5700K
Ti2**18-***-1203-*****-**	⩽80W	⩽5700K
Ti2**18-***-0606-*****-**	⩽80W	⩽5700K
Ti2**18-***-1204-*****-**	⩽80W	⩽5700K
Ti2**18-***-0608-*****-**	⩽80W	⩽5700K
Ti2**18-***-12**-*****-**	⩽80W	⩽5700K
Ti2**18-***-13**-*****-**	⩽80W	⩽5700K
Ti2**19-***-1203-*****-**	⩽80W	⩽5700K
Ti2**19-***-0606-*****-**	⩽80W	⩽5700K
Ti2**19-***-1204-*****-**	⩽80W	⩽5700K
Ti2**19-***-0608-*****-**	⩽80W	⩽5700K
Ti2**19-***-12**-*****-**	⩽80W	⩽5700K
Ti2**19-***-13**-*****-**	⩽80W	⩽5700K
Ti2**24-***-12**-*****-**	⩽80W	⩽5700K
Ti2**24-***-13**-*****-**	⩽80W	⩽5700K
Ti2**28-***-12**-*****-**	⩽80W	⩽5700K
Ti2**28-***-13**-*****-**	⩽80W	⩽5700K
Ti2**28-***-1812-*****-**	⩽80W	⩽5700K
Ti0**13-***-0601-*****-**	⩽80W	⩽5700K
Ti0**13-***-0701-*****-**	⩽80W	⩽5700K
Ti0**13-***-0801-*****-**	⩽80W	⩽5700K
Ti0**13-***-1201-*****-**	⩽80W	⩽5700K
Ti0**13-***-0602-*****-**	⩽80W	⩽5700K

Model	Rating	CCT.
Ti0**13-***-1202-*****-**	≤80W	≤5700K
Ti0**13-***-0604-*****-**	≤80W	≤5700K
Ti0**13-***-1203-*****-**	≤80W	≤5700K
Ti0**13-***-0606-*****-**	≤80W	≤5700K
Ti0**13-***-1204-*****-**	≤80W	≤5700K
Ti0**13-***-0608-*****-**	≤80W	≤5700K
Ti0**13-***-1205-*****-**	≤80W	≤5700K
Ti0**13-***-1206-*****-**	≤80W	≤5700K
Ti0**13-***-13**-*****-**	≤80W	≤5700K
Ti0**15-***-0601-*****-**	≤80W	≤5700K
Ti0**15-***-0701-*****-**	≤80W	≤5700K
Ti0**15-***-0801-*****-**	≤80W	≤5700K
Ti0**15-***-1201-*****-**	≤80W	≤5700K
Ti0**15-***-0602-*****-**	≤80W	≤5700K
Ti0**15-***-1202-*****-**	≤80W	≤5700K
Ti0**15-***-0604-*****-**	≤80W	≤5700K
Ti0**15-***-1203-*****-**	≤80W	≤5700K
Ti0**15-***-0606-*****-**	≤80W	≤5700K
Ti0**15-***-1204-*****-**	≤80W	≤5700K
Ti0**15-***-0608-*****-**	≤80W	≤5700K
Ti0**15-***-1205-*****-**	≤80W	≤5700K
Ti0**15-***-1206-*****-**	≤80W	≤5700K
Ti0**15-***-13**-*****-**	≤80W	≤5700K
Ti0**18-***-1203-*****-**	≤80W	≤5700K
Ti0**18-***-0606-*****-**	≤80W	≤5700K
Ti0**18-***-1204-*****-**	≤80W	≤5700K
Ti0**18-***-0608-*****-**	≤80W	≤5700K
Ti0**18-***-12**-*****-**	≤80W	≤5700K
Ti0**18-***-13**-*****-**	≤80W	≤5700K
Ti0**19-***-1203-*****-**	≤80W	≤5700K
Ti0**19-***-0606-*****-**	≤80W	≤5700K
Ti0**19-***-1204-*****-**	≤80W	≤5700K
Ti0**19-***-0608-*****-**	≤80W	≤5700K
Ti0**19-***-12**-*****-**	≤80W	≤5700K
Ti0**19-***-13**-*****-**	≤80W	≤5700K

Model	Rating	CCT.
Ti0**24-***-12**-*****-**	⩽80W	⩽5700K
Ti0**24-***-13**-*****-**	⩽80W	⩽5700K
Ti0**28-***-12**-*****-**	⩽80W	⩽5700K
Ti0**28-***-13**-*****-**	⩽80W	⩽5700K
Ti0**28-***-1812-*****-**	⩽80W	⩽5700K

Ti1**[1]13-***[2]-****[3]-*[4]**[5]**[6]-**[7]
[1] Variations in substrate dimensions among manufacturers;
[2] Differences in power ratings;
[3] Number of chip strings and parallel connections (e.g., "1321", where "13" denotes 13 chip strings and "21" denotes 21 parallel chips);
[4] Color standards (may range from A to Z, representing ANSI, IEC, RED, BRIGHTEEN, NATURTEEN, or custom standards, primarily used to distinguish different xy coordinates with identical color temperatures [as identical color temperatures may have varying xy values on isothermal curves];
[5] Color temperature value (e.g., "57" indicates "5700 K");
[6] Luminance index (e.g., "70" represents "Ra 70");
[7] Version number – the serial identifier for product versions, covering details such as substrate gap positions/dimensions, TC point locations/sizes, pad positions/sizes, mirror diameters, and other specifications not affecting product performance; variations are indicated by serial numbers 01,02,03,..., 99.

The applicant statement:All models are only different power, CCT, model name, CRI, size, everything else is the same.

IEC TR 62778			
Clause	Requirement + Test	Result - Remark	Verdict
7	**MEASUREMENT INFORMATION FLOW**		**P**
7.1	**Basic flow**		**P**
	'Law of conservation of luminance' applied		P
	Use of only true luminance/radiance values		P
	In case of luminaire: The light source is operated in the luminaire under similar conditions as when tested as a component		P
	In case E_{thr} value for RG2 was established the peak value was derived from angular light distribution		P
7.2	**Conditions for the radiance measurement**		**P**
	Standard condition applied (200mm distance, 0,011rad field of view)		P
	Non-standard condition applied		N
7.3	**Special cases (I): Replacement by a lamp or LED module of another type**		**N**
	Light source is a white light source		N
	Evaluation done based on highest luminance		N
	Evaluation done based on CCT value		N
7.4	**Special cases (II): Arrays and clusters of primary light sources**		**N**
	LED package is evaluated as ..... :	☐ RG0 unlimited ☐ RG1 unlimited	N
	E_{thr} of LED package applies to array		N
8	**RISK GROUP CLASSIFICATION**		**P**
	Risk group achieved:		P
	-... Risk Group 0 unlimited		N
	-... Risk Group 1 unlimited		P
	-... Risk Group 2 unlimited		N
	- E_{thr} ..... (lx) : Distance to reach RG1..... (m) :	E_{thr} = ... lx d= ... mm	N

IEC TR 62778			
Clause	Requirement + Test	Result - Remark	Verdict

	TABLE: Spectroradiometric measurement		
	Measurement performed on:	☐ **LED package** ☒ **LED module** ☐ **Lamp** ☐ **Luminaire** ☐ **Other**	
	Model number.....:	Ti32528-080-1321-A5770-000	
	Test voltage (V).....:	DC32.8V	—
	Test current (mA).....:	2000mA	—
	Test frequency (Hz).....:	--	—
	Ambient, t (°C).....:	25.3	—
	Measurement distance.....:	☒ 20 cm ☐ ... cm	—
	Source size .....:	☒ Non-small ☐ Small : ... mm	—
	Field of view .....:	☐ 100 mrad ☒ 11 mrad ☐ 1,7 mrad (for small sources)	—

Item	Symbol	Units	Result	Remark
Correlated colour temperature	CCT	K	6246	—
x/y colour coordinates	--	--	0.3180/0.3244	—
Blue light hazard radiance	L_B	$W/(m^2 \cdot sr^1)$	9094	—
Blue light hazard irradiance	E_B	W/m^2	8.084e+001	—
Luminance	L	cd/m^2	1.033e+007	—
Illuminance	E	lx	91807	—

Supplementary information:

Risk Group	Lb W/m2/sr	classification
RG0	< 100	
RG1	< 10000	√
RG2	< 4M	

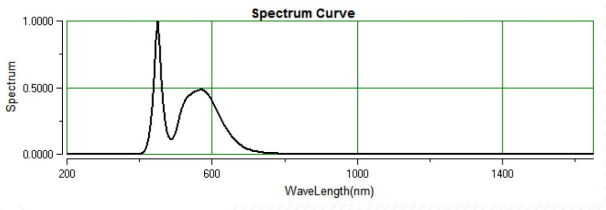
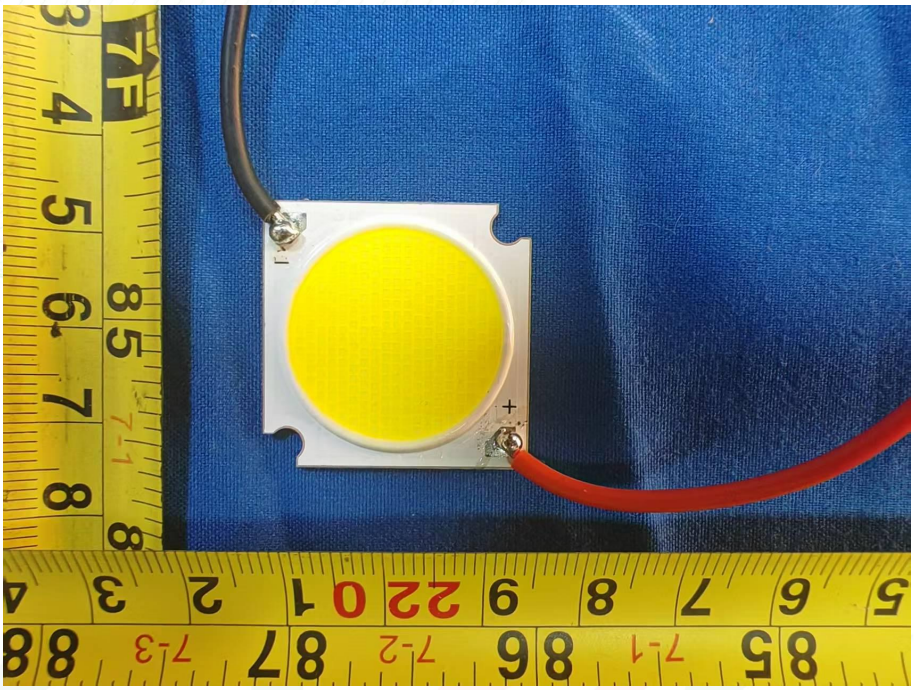


Photo document

Photos of Ti32528-080-1321-A5770-000



----- End of test report-----