Test Report

Client Name	:	ShenZhen Runlite Technology Co.,Ltd
Address	:	Building A15,Tantou the 4th Industrial Estate,SongGang Town,Baoan District,ShenZhen,China
Product Name	:	SMD LED
Date	:	2019-11-01

Shenzhen Anbotek Pengcheng Compliance Laboratory Limited

TEST REPORT

IEC TR 62778:2014

Application of IEC 62471 for the Assessment of Blue Light Hazard to Light Sources and Luminaires

Report Reference No. ..... :	PCANL191022008-01
Tested by (printed name + signature)..... :	Ocean Deng
Supervised by (printed name + signature)..... :	Flora Zhang
Testing Laboratory ..... :	Shenzhen Anbotek Pengcheng Compliance Laboratory Limited
Address ..... :	Zone B, 1/F., Building 2, Hengchangrong High-Tech Industrial Park, Huangtian, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China.
Testing location ..... :	Same as above
Applicant's Name ..... :	ShenZhen Runlite Technology Co.,Ltd
Address ..... :	Building A15,Tantou the 4th Industrial Estate,SongGang Town,Baoan District,ShenZhen,China
Test Specification:	
Standard ..... :	IEC TR 62778:2014
Test procedure ..... :	Type Test
Non-standard test method..... :	N/A
Test Item Description ..... :	SMD LED
Trade Mark ..... :	N/A
Manufacturer ..... :	ShenZhen Runlite Technology Co.,Ltd
Address ..... :	Building A15,Tantou the 4th Industrial Estate,SongGang Town,Baoan District,ShenZhen,China
Model/Type reference ..... :	X2835X-W64SXXXXDXXXX-XXXX
Ratings ..... :	9VDC, 0.9W

Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or use in part without prior written consent from Shenzhen Anbotek Pengcheng Compliance Laboratory Limited.

Summary of Testing:	
Tests performed (name of test and test clause):	**Testing location:**
This appliance complies with IEC TR 62778:2014 standards requirements. The EUTs passed relevant tests.	Shenzhen Anbotek Pengcheng Compliance Laboratory Limited Zone B, 1/F., Building 2, Hengchangrong High-Tech Industrial Park, Huangtian, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China.
Summary of Compliance with National Differences:	
N/A	
Copy of Marking Plate:	
N/A	

Test Item Particulars:	
Product evaluated.....:	☒ LED Package ☐ LED Module ☐ Lamp ☐ Luminaire
Product description.....:	SMD LED
Rated voltage.....:	9VDC
Rated frequency.....:	N/A
Rated power.....:	0.9W
Classification Group:	
	☒ RG0 Exempt ☐ RG1 Low Risk ☐ RG2 Moderate Risk
Possible Test Case Verdicts:	
Test case does not apply to the test object.....:	N/A (Not Applicable)
Test object does meet the requirement.....:	P (Pass)
Test object does not meet the requirement.....:	F (Fail)
Testing:	
Ambient temperature of tested.....:	25.1°C
Test inputs.....:	9VDC
Test model.....:	X2835X-W64SXXXXDXXXX-XXXX
Sample size for tested.....:	1pcs
Date of receipt of test item.....:	2019-10-22
Date (s) of performance of tests.....:	2019-10-23

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 point is used as the decimal separator.

List of test equipment must be kept on file and available for review.

General Product Information:

X2835X-W64SXXXXDXXXX-XXXX and X2835X-WXXXXXXXXXXXX-XXXX .

Remark for series models X2835X-WXXXXXXXXXXXX-XXXX: The third ”X” and the fourth”X”indicates the correlated color temperature, It can be any integer from 16 to 65, which states from 1600K to 6500K respectively ,The tenth ”X” indicates the color index, it can be D,E,F,H or I which states 70,75,80,90 or 95 respectively, others ”X”are fixed letters and numbers

IEC TR 62778:2014			
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/A
7.3	Special cases (I): Replacement by a lamp or LED module of another type		N/A
	Light source is a white light source		N/A
	Evaluation done based on highest luminance		N/A
	Evaluation done based on CCT value		N/A
7.4	Special cases (II): Arrays and clusters of primary light sources		P
	LED package is evaluated as……..:		P
	E_{thr} of LED package applies to array		P
8	**RISK GROUP CLASSIFICATION**		**P**
	Risk group achieved:		P
	-...Risk Group 0 unlimited		P
	-...Risk Group 1 unlimited		N/A
	- E_{thr} …… (lx): Distance to reach RG1……..…… (m):		N/A
	-...Risk Group 2 unlimited		N/A
	- E_{thr} …… (lx): Distance to reach RG2……..…… (m):		N/A

Risk Group Number	Risk Group Name	Corresponding t_{max} range (s)	Blue light hazard L_B (W/m^2.sr)
RG0	Exempt	>10000	<100
RG1	Low Risk	100-10000	100-10000
RG2	Moderate Risk	0.25-100	10000-4000000
RG3	High Risk	<0.25	>4000000

IEC TR 62778:2014			
Clause	Requirement + Test	Result – Remark	Verdict
TABLE	**SPECTRORADIOMETRIC MEASUREMENT**		**P**

Tested model number……:	X2835X-W64SXXXXDXXXX-XXXX
Tested voltage……:	9.06 VDC
Tested current……:	100 mA
Tested frequency……:	--
Ambient temperature……:	25.1°C
Measurement distance……:	200mm
Source size……:	☒ Non-small source ☐ Small source
Field of view……:	☐ 100 mrad ☒ 11 mrad ☐ 1.7 mrad
Blue light hazard radiance (L_B)……:	5.32e+01 W/(m^2•sr)
Blue light hazard irradiance(E_B)……:	--
Luminance (L)……:	94483.8 cd/m^2
Illuminance (E_{thr})……:	1349.1 lx
Calculate distance (d_{min})……:	0.023 m

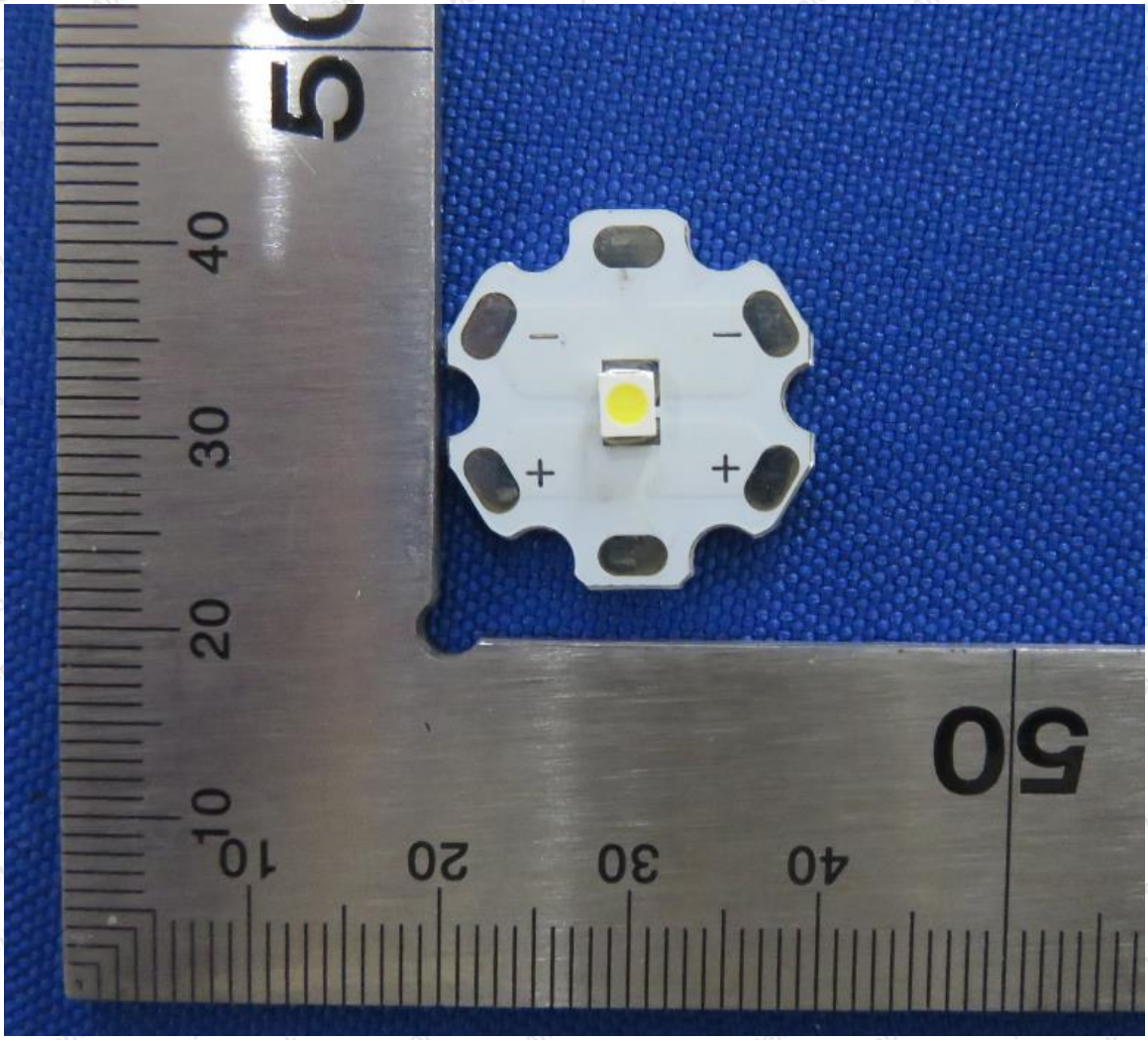
Measurement Uncertainty Statement:

EB, Urel=2.52% (k=2)
LB, Urel=2.84% (k=2)
LR, Urel=2.84% (k=2)

Test Equipment

Equipment Name	Manufacturer	Model No.	Reference No.	Calibration Due Date
Light Radiation Safety Test System	LINKCOLOR	LRS-104	SE-1164	2020-05-06
AC power source	LINKCOLOR	LCP-500R	SE-1192	2020-05-06
DC power supply	LINKCOLOR	M8874	SE-1193	2020-05-06
Digital Power Meter	YOKOGAMA	WT310	SE-1194	2020-05-06
Temperature & Humidity meter	Zhengzhou Boyang	HTC-1	SE-423	2020-05-06
Illuminance Standard Lamp	LINKCOLOR	LCL-100	SE-1195	2020-05-06
Brightness Standard Lamp	LINKCOLOR	LCL-200	SE-1196	2020-05-06
Deuterium Lamp	LINKCOLOR	LCL-300	SE-1197	2020-05-06
Illuminometer	LINKCOLOR	ST-80C	SE-1198	2020-05-06

Attachment A – Product Photo



*****END OF TEST REPORT*****