TEST REPORT

IEC TR 62778

Application of IEC TR 62778 for the assessment of blue light hazard to light sources and luminaires

Report reference No .....:	RSZ190514552-SF
Compiled by (+ signature) .....:	Test Engineer: Taylor Chen
Approved by (+ signature) .....:	Project Engineer: Harrison Huang
Date of issue .....:	2019-05-20
Testing laboratory .....:	Bay Area Compliance Laboratories Corp.(Dongguan)
Address .....:	No.69, Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China
Testing location .....:	Same as above
Applicant .....:	Hongli Zhihui Group Co.,Ltd. Guangzhou Branch
Address .....:	Room 316, Building 2, No.1, Xianke Yi Road, Huadong Town, Huadu District, Guangzhou, China
Standard .....:	IEC TR 62778:2014
Test sample(s) received.....:	2019-05-15
Test in period.....:	2019-05-16
Procedure deviation .....:	N.A.
Non-standard test method .....:	N.A.

Note: The test data was only valid for the test sample(s). This test report is prepared for the customer shown above and for the specific product described herein. It must not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (Dongguan).

Type of test object .....:	LED package
Trademark .....:	N.A.
Model/type reference .....:	HL-A-2835DW-2-S1-08L-HR3
Manufacturer..... .....:	Hongli Zhihui Group Co.,Ltd. Guangzhou Branch Room 316, Building 2, No.1, Xianke Yi Road, Huadong Town, Huadu District, Guangzhou, China
Rating .....:	Input: 2.6~3.0Vdc,60mA

Copy of marking plate:

None

Test item particulars .....:

Product evaluated .....:	☒ **LED package** ☐ **LED module** ☐ **Lamp** ☐ **Luminaire**
Rated voltage (V) .....:	See rating
Rated current (mA).....:	See rating
Rated Luminance (Mcd/m^2).....:	Not specified
Component report data used .....:	☒ **Not applicable** ☐ **LED package** ☐ **LED module** ☐ **Lamp**

Possible test case verdicts:

-test case does not apply to the test object.....:N(.A.)

-test object does meet the requirement.....:P(ass)

-test object does not meet the requirement.....:F(ail)

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.

Remark:

This report consists of 7 pages and following appendixes:
Appendix A EUT photos
Appendix B Test equipment list

General product information:

"EUT" as referred in this report is LED package.

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		N
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 ☐ RG2 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 .....(mm) :	1510 71	P

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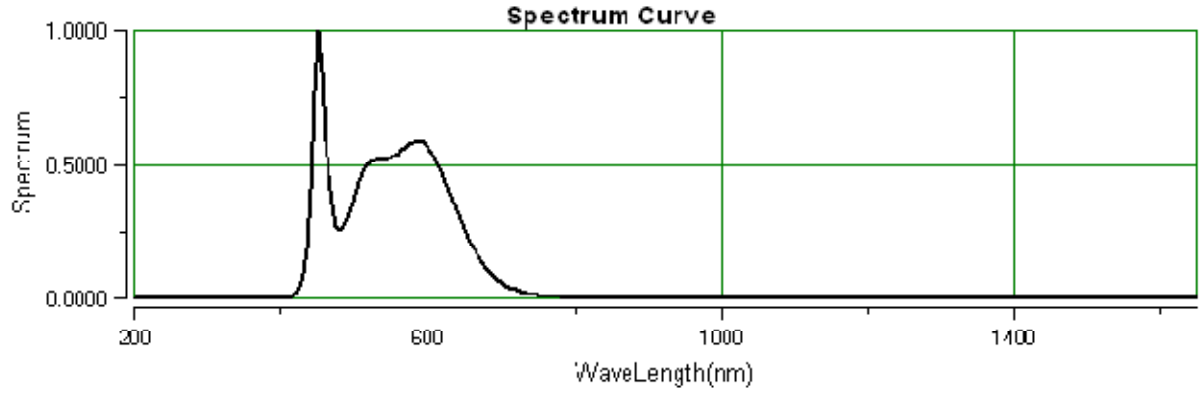
Clause	Requirement + Test	Result - Remark	Verdict

	TABLE: Spectroradiometric measurement		**P**
	Measurement performed on:	☒ **LED package** ☐ **LED module** ☐ **Lamp** ☐ **Luminaire**	—
	Model number	HL-A-2835DW-2-S1-08L-HR3	—
	Test voltage (V)	2.6~3.0Vdc	—
	Test current (mA)	60m A	—
	Test frequency (Hz)	--	—
	Ambient, t (°C)	25.1℃	—
	Measurement distance	☒ 20 cm ☐ ... cm	—
	Source size	☐ Non-small: mm ☒ Small: 1.4 mm	—
	Field of view	☐ 100 mrad ☒ 11 mrad ☐ 1,7 mrad (for small sources)	—

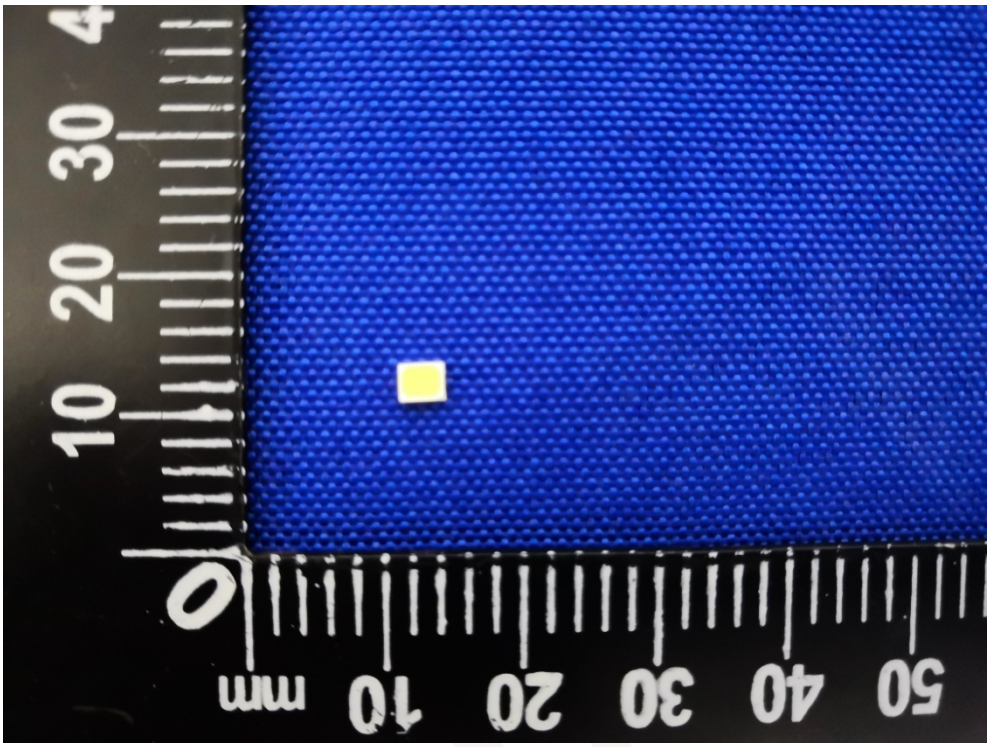
Item	Symbol	Units	Result	Remark
Correlated colour temperature	CCT	K	5152	--
x/y colour coordinates	x/y		0.3414/0.3546	--
Blue light hazard radiance	L_B	$W/(m^2 \cdot sr^1)$	1218	--
Blue light hazard irradiance	E_B	W/m^2	1.243×10^{-1}	--
Luminance	L	cd/m^2	1.839×10^6	--
Illuminance	E	lx	188	--
Supplementary information: NA				

	TABLE: Angular light distribution	



Appendix A - EUT Photos

The overall view of EUT



Appendix B Test equipment list

Equipment Description	Model No	BACL#	Manufacturer	Last Cal	Cal Due
UV-VIS-near IR Spectrophotocolorimeter	PMS-2000	T-08-SF213	EVERFINE	2018-09-03	2019-09-03
Imaging luminance meter	CX-2K	T-08-SF213-1	EVERFINE	2018-09-03	2019-09-03
Radiation illuminance meter	RD-2000	T-08-SF213-2	EVERFINE	2018-09-03	2019-09-03
Radiation illuminance meter	RD-2000	T-08-SF213-3	EVERFINE	2018-09-03	2019-09-03
High Accuracy Array	HAAS-2000	T-08-SF213-4	EVERFINE	2018-09-03	2019-09-03
80mm sample integrating sphere	SMS-300	T-08-SF213-5	EVERFINE	2018-09-03	2019-09-03
Hygrothermograph	VC230	T-08-QA015	VICTOR	2019-03-17	2020-03-17
Steel tape	5m×19mm	T-08-SF197	B&Q	2016-02-25	2021-02-23
High power LED aging dc power supply	B12005	T-08-SF205	BACL	2019-03-26	2020-03-26
AC power supply	HPA-1103	F-08-SF129	EVERFINE	2018-07-23	2019-07-23

***** End of report *****