

<b>TEST REPORT</b> <b>IEC TR 62778</b> <b>Application of IEC 62471 for the assessment of blue light hazard to light sources and luminaires</b>	
Report reference No .....	RSZ171228551-03
Compiled by (+ signature) .....	Test Engineer: Youyou Huang <i>Youyou Huang</i>
Approved by (+ signature) .....	Team Leader: Harrison Huang <i>Harrison Huang</i>
Date of issue .....	2018-01-03
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.
Address .....	No.1, Xianke Yi Road, Huadong Town, Huadu District, Guangzhou, China
Standard .....	IEC TR 62778:2014
Test sample(s) received.....	2018-01-02
Test in period.....	2018-01-03
Procedure deviation .....	N.A.
Non-standard test method .....	N.A.
<b>Note:</b> 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-S1-08-HR3
Manufacturer.....	Hongli Zhihui Group Co.,Ltd. No.1, Xianke Yi Road, Huadong Town, Huadu District, Guangzhou, China
Rating .....	Input: 2.8-3.4Vdc, 150mA
Copy of marking plate:	None
<b>Test item particulars .....</b>	

<b>Product evaluated</b> .....	<input checked="" type="checkbox"/> <b>LED package</b>
	<input type="checkbox"/> <b>LED module</b>
	<input type="checkbox"/> <b>Lamp</b>
	<input type="checkbox"/> <b>Luminaire</b>
<b>Rated voltage (V)</b> .....	See rating
<b>Rated current (mA)</b> .....	See rating
<b>Rated CCT (K)</b> .....	See test result
<b>Rated Luminance (Mcd/m<sup>2</sup>)</b> .....	Not specified
<b>Component report data used</b> .....	<input checked="" type="checkbox"/> <b>Not applicable</b>
	<input type="checkbox"/> <b>LED package</b>
	<input type="checkbox"/> <b>LED module</b>
	<input type="checkbox"/> <b>Lamp</b>
	Report number:

**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:**

- This product is a LED package and manufactured by "Hongli Zihui Group Co.,Ltd.", Test model is HL-A-2835DW-S1-08-HR3, rated input 2.8-3.4Vdc, 150mA.

IEC TR 62778			
Clause	Requirement + Test	Result - Remark	Verdict
<b>7</b>	<b>MEASUREMENT INFORMATION FLOW</b>		<b>P</b>
<b>7.1</b>	<b>Basic flow</b>		<b>P</b>
	'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
<b>7.2</b>	<b>Conditions for the radiance measurement</b>		<b>P</b>
	Standard condition applied (200mm distance, 0,011rad field of view)		P
	Non-standard condition applied		N
<b>7.3</b>	<b>Special cases (I): Replacement by a lamp or LED module of another type</b>		<b>N</b>
	Light source is a white light source		N
	Evaluation done based on highest luminance		N
	Evaluation done based on CCT value		N
<b>7.4</b>	<b>Special cases (II): Arrays and clusters of primary light sources</b>		<b>N</b>
	LED package is evaluated as ..... : <input type="checkbox"/> RG0 unlimited <input type="checkbox"/> RG1 unlimited <input type="checkbox"/> RG2 unlimited		N
	$E_{thr}$ of LED package applies to array		N
<b>8</b>	<b>RISK GROUP CLASSIFICATION</b>		<b>P</b>
	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) :	1111 lx 131 mm	P

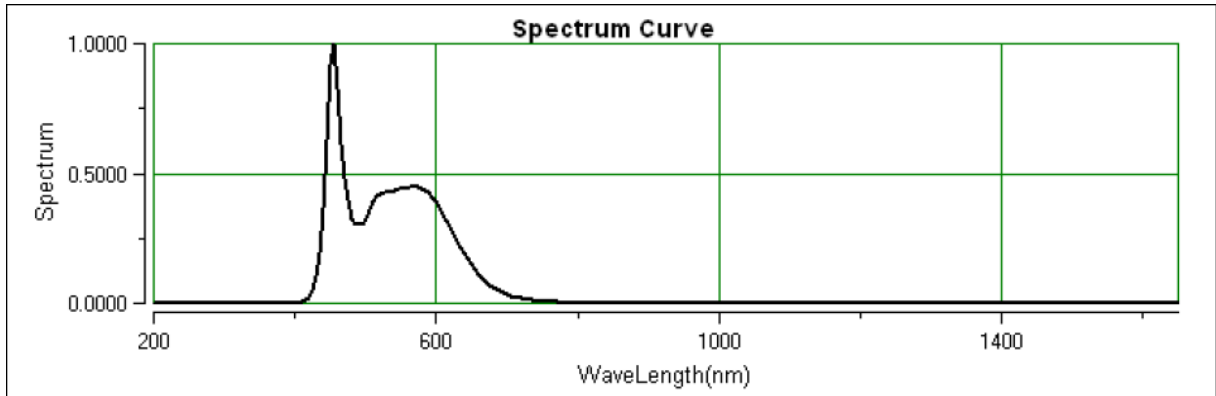
IEC TR 62778			
Clause	Requirement + Test	Result - Remark	Verdict

	<b>TABLE: Spectroradiometric measurement</b>		<b>P</b>
	Measurement performed on:	<input checked="" type="checkbox"/> LED package <input type="checkbox"/> LED module <input type="checkbox"/> Lamp <input type="checkbox"/> Luminaire	—
	Model number.....:	HL-A-2835DW-S1-08-HR3	—
	Test voltage (V) .....	2.8-3.4Vdc	—
	Test current (mA) .....	150mA	—
	Test frequency (Hz).....:	-	—
	Ambient, t (°C).....:	25.5°C	—
	Measurement distance .....	<input checked="" type="checkbox"/> 20 cm <input type="checkbox"/> cm	—
	Source size .....	<input type="checkbox"/> Non-small: mm <input checked="" type="checkbox"/> Small : 0.87 mm	—
	Field of view .....	<input type="checkbox"/> 100 mrad <input checked="" type="checkbox"/> 11 mrad <input type="checkbox"/> 1,7 mrad (for small sources)	—

Item	Symb ol	Units	Result	Remark
Correlated colour temperature	CCT	K	7225	
x/y colour coordinates			0.3017/0.3214	
Blue light hazard radiance	L <sub>B</sub>	W/(m <sup>2</sup> •sr <sup>1</sup> )	5005	
Blue light hazard irradiance	E <sub>B</sub>	W/m <sup>2</sup>	0.4322	
Luminance	L	cd/m <sup>2</sup>	5.561e+006	
Illuminance	E	lx	480	

Supplementary information:

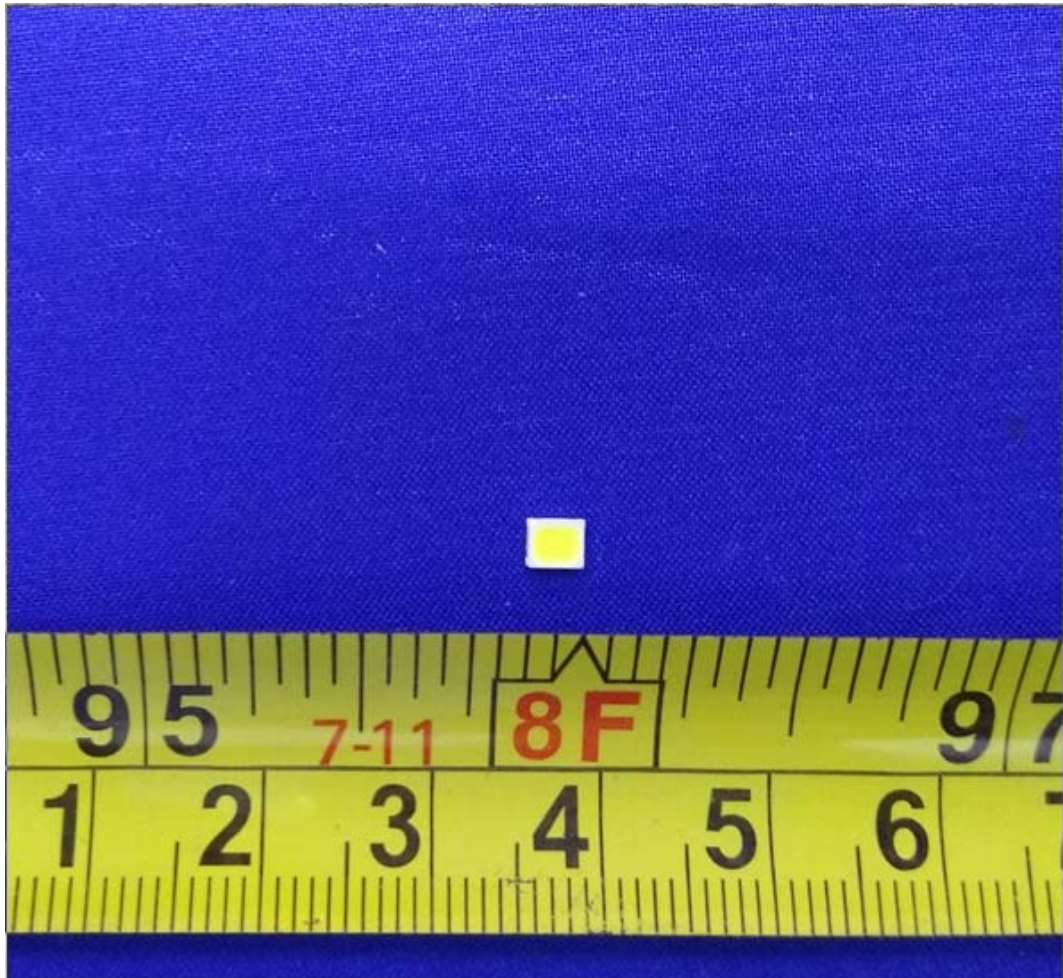
TABLE: Angular light distribution



FEMVA

## Appendix A - EUT Photos

### The Whole 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	2017-08-08	2018-08-07
Imaging luminance meter	CX-2K	T-08-SF140-1	EVERFINE	2017-08-08	2018-08-07
Radiation illuminance meter	RD-2000	T-08-SF140-2	EVERFINE	2017-08-08	2018-08-07
Radiation illuminance meter	RD-2000	T-08-SF140-3	EVERFINE	2017-08-08	2018-08-07
High Accuracy Array	HAAS-2000	T-08-SF140-4	EVERFINE	2017-08-08	2018-08-07
Hygrothermograph	PWS280	T-08-QA026	N/A	2017-03-21	2018-03-20
Standard power spectral UV radiation-specific	UVS-8003	T-08-EE048	EVERFINE	2017-03-21	2018-03-20
80mm sample integrating sphere	SMS-300	F-08-SF130	EVERFINE	2016-12-26	2018-12-25
Steel tape	HILOCK-19	T-08-SF100	TAJIMA	2013-04-18	2018-04-17
Digital CC&CV DC Power Supply	WY305	T-08-EE098	EVERFINE	2017-03-04	2018-03-04

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