

**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 .....: RSZ190415553-SF  
 Compiled by (+ signature) .....: Test Engineer: Taylor Chen *Taylor Chen*  
 Approved by (+ signature) .....: Project Engineer: Harrison Huang *Harrison Huang*  
 Date of issue .....: 2019-04-19

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.....: 2019-04-17  
 Test in period.....: 2019-04-18  
 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 .....: PS2835W\*H6-D01-\*D2A\*

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: 3Vdc,120mA

Copy of marking plate:  
None

**Test item particulars.....:**

<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 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>

**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, all models have the same circuits and structures except different color temperature, color rendering index, and production serial number. The difference between them are shown as below for details:  
 For model PS2835W\*H6-D01-\*D2A\* :

The first symbol "\*" behind the "W" is an arabic numeral which stand for color temperature. 1 means 2600-2800K, 2 means 2800-3100K, 3 means 3800-4250K, 4 means 4750-5300K, 5 means 5700-6500K, 6 means 6000-7000K, 8 means 3200-3800K,9 means 5050-5650K.

The secend symbol "\*" before the "D" is a number from 8 to 9 which stand for color rendering index. 8 means 80-90, 9 means above 90.

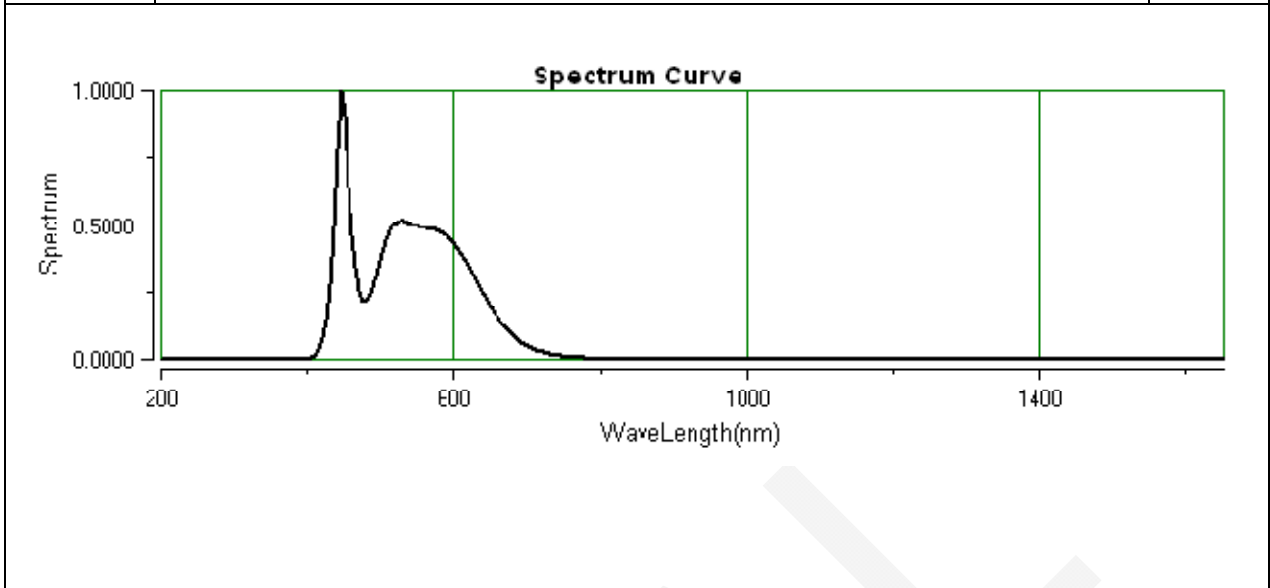
The third symbol "\*" behind the "A" is a production serial number from 1 to 9.

Unless otherwise specified, model PS2835W6H6-D01-8D2A1 was chosen as the representative model to perform all tests.

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) :	1169	P
	Distance to reach RG1 .....(mm) :	98	

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 .....	PS2835W6H6-D01-8D2A1		—
	Test voltage (V).....	3Vdc		—
	Test current (mA) .....	120m A		—
	Test frequency (Hz).....	--		—
	Ambient, t (°C).....	25.1°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: 0.59 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	Symbol	Units	Result	Remark
Correlated colour temperature	CCT	K	6527	--
x/y colour coordinates	x/y		0.3115/0.3344	--
Blue light hazard radiance	L <sub>B</sub>	W/(m <sup>2</sup> •sr <sup>1</sup> )	2534	--
Blue light hazard irradiance	E <sub>B</sub>	W/m <sup>2</sup>	2.41 x10 <sup>-1</sup>	--
Luminance	L	cd/m <sup>2</sup>	2.963x10 <sup>6</sup>	--
Illuminance	E	lx	282	--
Supplementary information: NA				

TABLE: Angular light distribution



**Appendix A - EUT Photos**

The overall view of EUT



**Appendix B Test equipment list**

<b>Equipment Description</b>	<b>Model No</b>	<b>BACL#</b>	<b>Manufacturer</b>	<b>Last Cal</b>	<b>Cal Due</b>
UV-VIS-near IR Spectrophotometer	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 \*\*\***