

TEST REPORT IEC TR 62778 Application of IEC 62471 for the assessment of blue light hazard to light sources and luminaires	
Report reference No	RSZ160901555-03
Compiled by (+ signature)	Youyou Huang <i>Youyou Huang</i>
Approved by (+ signature)	Harrison Huang <i>Harrison Huang</i>
Date of issue	2016-09-06
Testing laboratory	Bay Area Compliance Laboratories Corp. (Dongguan)
Address	No.69 Pulong Village Puxinhu Industry Zone Tangxia,Dongguan, China.
Testing location	Same as above
Applicant	Hongli Zihui Group Co.,Ltd.
Address	No.1, Xianke Yi Road, Huadong Town, Huadu District, Guangzhou, China
Standard	IEC TR 62778:2014 (Second Edition)
Test sample(s) received.....	2016-09-05
Test in period.....	2016-09-05
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
Trademark	N.A.

Model/type reference	A2835W6H4-D01-8D2AA1
	Multiple Models :
	A2835W1H4-D01-8D2AA1, A2835W2H4-D01-8D2AA1, A2835W3H4-D01-8D2AA1, A2835W4H4-D01-8D2AA1, A2835W5H4-D01-8D2AA1, A2835W6H4-D01-8D2AA1, A2835W7H4-D01-8D2AA1, A2835W8H4-D01-8D2AA1, A2835W9H4-D01-8D2AA1, A2835W1H2-D01-8D2AA1, A2835W2H2-D01-8D2AA1, A2835W3H2-D01-8D2AA1, A2835W4H2-D01-8D2AA1, A2835W5H2-D01-8D2AA1, A2835W6H2-D01-8D2AA1, A2835W7H2-D01-8D2AA1, A2835W8H2-D01-8D2AA1, A2835W9H2-D01-8D2AA1, A2835W1H3-D01-8D2AA1, A2835W2H3-D01-8D2AA1, A2835W3H3-D01-8D2AA1, A2835W4H3-D01-8D2AA1, A2835W5H3-D01-8D2AA1, A2835W6H3-D01-8D2AA1, A2835W7H3-D01-8D2AA1, A2835W8H3-D01-8D2AA1, A2835W9H3-D01-8D2AA1, A2835W1H5-D01-8D2AA1, A2835W2H5-D01-8D2AA1, A2835W3H5-D01-8D2AA1, A2835W4H5-D01-8D2AA1, A2835W5H5-D01-8D2AA1, A2835W6H5-D01-8D2AA1, A2835W7H5-D01-8D2AA1, A2835W8H5-D01-8D2AA1, A2835W9H5-D01-8D2AA1, A2835W1H2-D01-7D2AA1, A2835W2H2-D01-7D2AA1, A2835W3H2-D01-7D2AA1, A2835W4H2-D01-7D2AA1, A2835W5H2-D01-7D2AA1, A2835W6H2-D01-7D2AA1, A2835W7H2-D01-7D2AA1, A2835W8H2-D01-7D2AA1, A2835W9H2-D01-7D2AA1, A2835W1H3-D01-7D2AA1, A2835W2H3-D01-7D2AA1, A2835W3H3-D01-7D2AA1, A2835W4H3-D01-7D2AA1, A2835W5H3-D01-7D2AA1, A2835W6H3-D01-7D2AA1, A2835W7H3-D01-7D2AA1, A2835W8H3-D01-7D2AA1, A2835W9H3-D01-7D2AA1 A2835W1H4-D01-7D2AA1, A2835W2H4-D01-7D2AA1, A2835W3H4-D01-7D2AA1, A2835W4H4-D01-7D2AA1, A2835W5H4-D01-7D2AA1, A2835W6H4-D01-7D2AA1, A2835W7H4-D01-7D2AA1, A2835W8H4-D01-7D2AA1, A2835W9H4-D01-7D2AA1, A2835W1H5-D01-7D2AA1, A2835W2H5-D01-7D2AA1, A2835W3H5-D01-7D2AA1, A2835W4H5-D01-7D2AA1, A2835W5H5-D01-7D2AA1, A2835W6H5-D01-7D2AA1, A2835W7H5-D01-7D2AA1, A2835W8H5-D01-7D2AA1, A2835W9H5-D01-7D2AA1

Manufacturer.....:	Hongli Zihui Group Co.,Ltd. No.1, Xianke Yi Road, Huadong Town, Huadu District, Guangzhou, China
Rating	Input: 5Vdc, 150mA
Copy of marking plate:	None

FEMVAL

Test item particulars	
Product evaluated	<input checked="" type="checkbox"/> LED package <input type="checkbox"/> LED module <input type="checkbox"/> Lamp <input type="checkbox"/> Luminaire
Rated voltage (V)	See rating
Rated current (mA)	See rating
Rated CCT (K)	6500K
Rated Luminance (Mcd/m²)	Not specified
Component report data used	<input checked="" type="checkbox"/> Not applicable <input type="checkbox"/> LED package <input type="checkbox"/> LED module <input type="checkbox"/> Lamp 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:	
<p>The test results presented in this report relate only to the object tested.</p> <p>This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.</p> <p>"(See Enclosure #)" refers to additional information appended to the report.</p> <p>"(See appended table)" refers to a table appended to the report.</p> <p>Throughout this report a point is used as the decimal separator.</p> <p>List of test equipment must be kept on file and available for review.</p> <p>Remark:</p> <p>This report consists of 12 pages and following appendixes:</p> <p>Appendix A EUT photos</p> <p>Appendix B Test equipment list</p>	
General product information:	
<p>This product is a LED, test model is A2835W6H4-D01-8D2AA1. Rated input is 5Vdc,150mA.</p> <p>Multiple Models have the same or similar appearance, structure, PCB, Material and function to the testing products .</p> <p>Products with CCT 2200-6500K,CRI 80Ra or 70Ra.</p> <p>Unless otherwise specified, CCT 6500K were chosen as the representative models to perform all tests.</p> <p>Hereby declare that there are some differences between our Multiple Models and testing products.</p> <p>Details as below:</p>	

Products Description	Name	LED package	
	Brand	/	
	Manufacturer	Hongli Zhihui Group Co.,Ltd.	
	Project No.	/	
Differences Description			
Testing Products	Multiple Models	Differences Items	Details
A2835W6H4-D01-8D2AA1	A2835W1H4-D01-8D2AA1	Just in CCT	CCT:2700K ; Ra:80 ; Chip name: H4
	A2835W2H4-D01-8D2AA1		CCT:3000K ; Ra: 80 ; Chip name: H4
	A2835W3H4-D01-8D2AA1		CCT:4000K ; Ra: 80 ; Chip name: H4
	A2835W4H4-D01-8D2AA1		CCT:5000K ; Ra: 80 ; Chip name: H4
	A2835W5H4-D01-8D2AA1		CCT:6000K ; Ra: 80 ; Chip name: H4
	A2835W6H4-D01-8D2AA1		CCT:6500K ; Ra: 80 ; Chip name: H4
	A2835W7H4-D01-8D2AA1		CCT:2200K ; Ra: 80 ; Chip name: H4
	A2835W8H4-D01-8D2AA1		CCT:3500K ; Ra: 80 ; Chip name: H4
	A2835W9H4-D01-8D2AA1		CCT:5350K ; Ra: 80 ; Chip name: H4
	A2835W1H2-D01-8D2AA1		Just in CCT and Chip name change
	A2835W2H2-D01-8D2AA1	CCT:3000K ; Ra: 80 ; Chip name:H2	
	A2835W3H2-D01-8D2AA1	CCT:4000K ; Ra: 80 ; Chip name:H2	
	A2835W4H2-D01-8D2AA1	CCT:5000K ; Ra: 80 ; Chip name: H2	
	A2835W5H2-D01-8D2AA1	CCT:6000K ; Ra: 80 ; Chip name: H2	
	A2835W6H2-D01-8D2AA1	CCT:6500K ; Ra: 80 ; Chip name: H2	
	A2835W7H2-D01-8D2AA1	CCT:2200K ; Ra: 80 ; Chip name: H2	
	A2835W8H2-D01-8D2AA1	CCT:3500K ; Ra: 80 ; Chip name: H2	
	A2835W9H2-D01-8D2AA1	CCT:5350K ; Ra: 80 ; Chip name: H2	
	A2835W1H3-D01-8D2AA1	Just in CCT and Chip name change	
	A2835W2H3-D01-8D2AA1		CCT:3000K ; Ra: 80 ; Chip name: H3
	A2835W3H3-D01-8D2AA1		CCT:4000K ; Ra: 80 ; Chip name: H3
	A2835W4H3-D01-8D2AA1		CCT:5000K ; Ra: 80 ; Chip name: H3
	A2835W5H3-D01-8D2AA1		CCT:6000K ; Ra: 80 ; Chip name: H3
	A2835W6H3-D01-		CCT:6500K ; Ra: 80 ;

	8D2AA1		Chip name: H3	
	A2835W7H3-D01-8D2AA1		CCT:2200K ; Ra: 80 ; Chip name: H3	
	A2835W8H3-D01-8D2AA1		CCT:3500K ; Ra: 80 ; Chip name: H3	
	A2835W9H3-D01-8D2AA1		CCT:5350K ; Ra: 80 ; Chip name: H3	
	A2835W1H5-D01-8D2AA1	Just in CCT and Chip name change	CCT:2700K ; Ra:80 ; Chip name: H5	
	A2835W2H5-D01-8D2AA1		CCT:3000K ; Ra: 80 ; Chip name: H5	
	A2835W3H5-D01-8D2AA1		CCT:4000K ; Ra: 80 ; Chip name: H5	
	A2835W4H5-D01-8D2AA1		CCT:5000K ; Ra: 80 ; Chip name: H5	
	A2835W5H5-D01-8D2AA1		CCT:6000K ; Ra: 80 ; Chip name: H5	
	A2835W6H5-D01-8D2AA1		CCT:6500K ; Ra: 80 ; Chip name: H5	
	A2835W7H5-D01-8D2AA1		CCT:2200K ; Ra: 80 ; Chip name: H5	
	A2835W8H5-D01-8D2AA1		CCT:3500K ; Ra: 80 ; Chip name: H5	
	A2835W9H5-D01-8D2AA1		CCT:5350K ; Ra: 80 ; Chip name: H5	
	A2835W1H2-D01-7D2AA1		Just in CCT , Ra and Chip name change	CCT:2700K ; Ra:70 ; Chip name:H2
	A2835W2H2-D01-7D2AA1			CCT:3000K ; Ra:70 ; Chip name:H2
	A2835W3H2-D01-7D2AA1			CCT:4000K ; Ra:70 ; Chip name:H2
	A2835W4H2-D01-7D2AA1	CCT:5000K ; Ra:70 ; Chip name: H2		
	A2835W5H2-D01-7D2AA1	CCT:6000K ; Ra: 70 ; Chip name: H2		
	A2835W6H2-D01-7D2AA1	CCT:6500K ; Ra: 70 ; Chip name: H2		
	A2835W7H2-D01-7D2AA1	CCT:2200K ; Ra: 70 ; Chip name: H2		
	A2835W8H2-D01-7D2AA1	CCT:3500K ; Ra: 70 ; Chip name: H2		
	A2835W9H2-D01-7D2AA1	CCT:5350K ; Ra: 70 ; Chip name: H2		
	A2835W1H3-D01-7D2AA1	Just in CCT , Ra and Chip name change	CCT:2700K ; Ra: 70 ; Chip name: H3	
	A2835W2H3-D01-7D2AA1		CCT:3000K ; Ra: 70 ; Chip name: H3	
	A2835W3H3-D01-7D2AA1		CCT:4000K ; Ra: 70 ; Chip name: H3	
	A2835W4H3-D01-7D2AA1		CCT:5000K ; Ra: 70 ; Chip name: H3	
	A2835W5H3-D01-7D2AA1		CCT:6000K ; Ra: 70 ; Chip name: H3	

	A2835W6H3-D01-7D2AA1		CCT:6500K ; Ra: 70 ; Chip name: H3
	A2835W7H3-D01-7D2AA1		CCT:2200K ; Ra: 70 ; Chip name: H3
	A2835W8H3-D01-7D2AA1		CCT:3500K ; Ra: 70 ; Chip name: H3
	A2835W9H3-D01-7D2AA1		CCT:5350K ; Ra: 70 ; Chip name: H3
	A2835W1H4-D01-7D2AA1	Just in CCT \ Ra and Chip name change	CCT:2700K ; Ra: 70 ; Chip name: H4
	A2835W2H4-D01-7D2AA1		CCT:3000K ; Ra: 70 ; Chip name: H4
	A2835W3H4-D01-7D2AA1		CCT:4000K ; Ra: 70 ; Chip name: H4
	A2835W4H4-D01-7D2AA1		CCT:5000K ; Ra: 70 ; Chip name: H4
	A2835W5H4-D01-7D2AA1		CCT:6000K ; Ra: 70 ; Chip name: H4
	A2835W6H4-D01-7D2AA1		CCT:6500K ; Ra: 70 ; Chip name: H4
	A2835W7H4-D01-7D2AA1		CCT:2200K ; Ra: 70 ; Chip name: H4
	A2835W8H4-D01-7D2AA1		CCT:3500K ; Ra: 70 ; Chip name: H4
	A2835W9H4-D01-7D2AA1		CCT:5350K ; Ra: 70 ; Chip name: H4
	A2835W1H5-D01-7D2AA1		Just in CCT \ Ra and Chip name change
	A2835W2H5-D01-7D2AA1	CCT:3000K ; Ra: 70 ; Chip name: H5	
	A2835W3H5-D01-7D2AA1	CCT:4000K ; Ra: 70 ; Chip name: H5	
	A2835W4H5-D01-7D2AA1	CCT:5000K ; Ra: 70 ; Chip name: H5	
	A2835W5H5-D01-7D2AA1	CCT:6000K ; Ra: 70 ; Chip name: H5	
	A2835W6H5-D01-7D2AA1	CCT:6500K ; Ra: 70 ; Chip name: H5	
	A2835W7H5-D01-7D2AA1	CCT:2200K ; Ra: 70 ; Chip name: H5	
	A2835W8H5-D01-7D2AA1	CCT:3500K ; Ra: 70 ; Chip name: H5	
	A2835W9H5-D01-7D2AA1	CCT:5350K ; Ra: 70 ; Chip name: H5	

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		P
	LED package is evaluated as : <input type="checkbox"/> RG0 unlimited <input checked="" type="checkbox"/> RG1 unlimited		P
	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
	- E_{thr} (lx) : Distance to reach RG1 (m) :		N

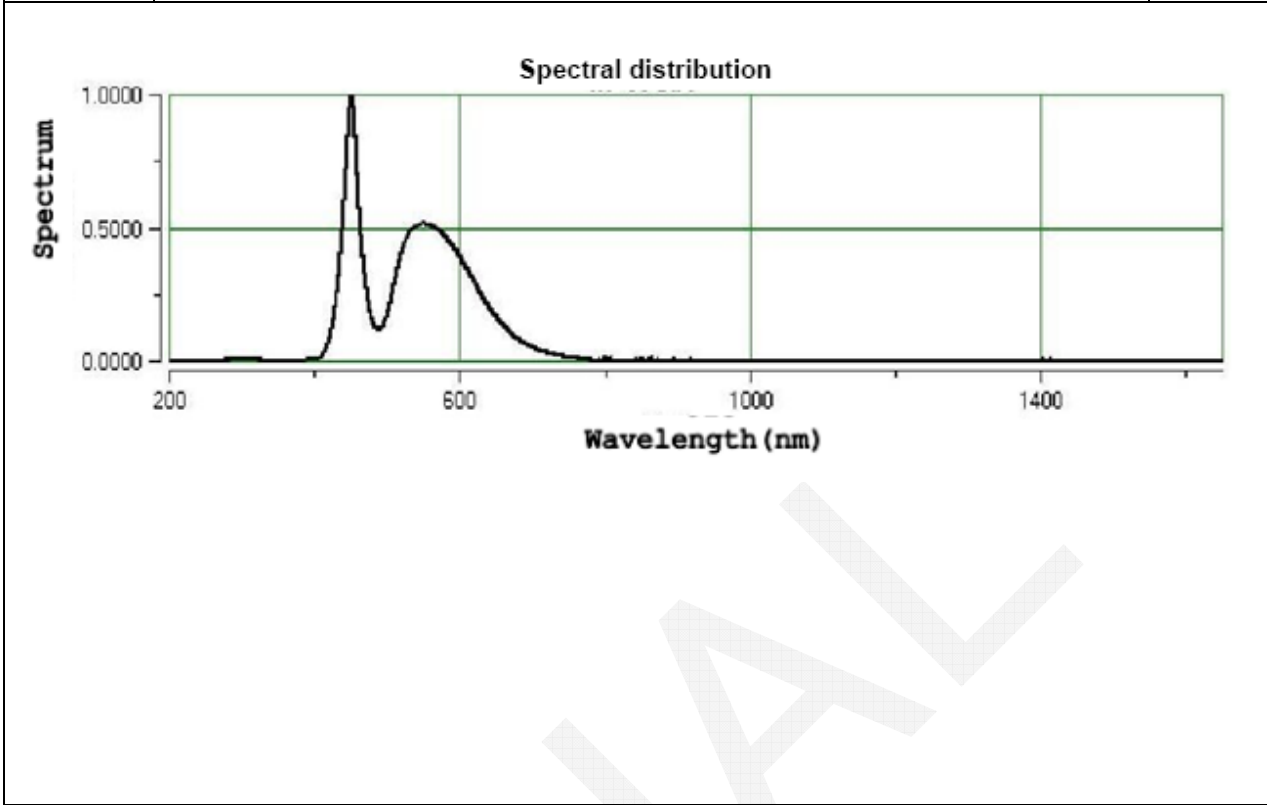
IEC TR 62778			
Clause	Requirement + Test	Result - Remark	Verdict

	TABLE: Spectroradiometric measurement		P
	Measurement performed on:	<input checked="" type="checkbox"/> LED package <input type="checkbox"/> LED module <input type="checkbox"/> Lamp <input type="checkbox"/> Luminaire	—
	Model number	A2835W6H4-D01-8D2AA1	—
	Test voltage (V).....	5Vdc	—
	Test current (mA)	150mA	—
	Test frequency (Hz).....	-	—
	Ambient, t (°C).....	25.3°C	—
	Measurement distance	<input checked="" type="checkbox"/> 20 cm <input type="checkbox"/> ... cm	—
	Source size	<input type="checkbox"/> Non-small <input checked="" type="checkbox"/> Small : 0.89mm	—
	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	6703	
x/y colour coordinates			/	
Blue light hazard radiance	L _B	W/(m ² •sr ¹)	3201	RG1
Blue light hazard irradiance	E _B	W/m ²	6.124e-001	
Luminance	L	cd/m ²	3.583e+006	
Illuminance	E	lx	367	

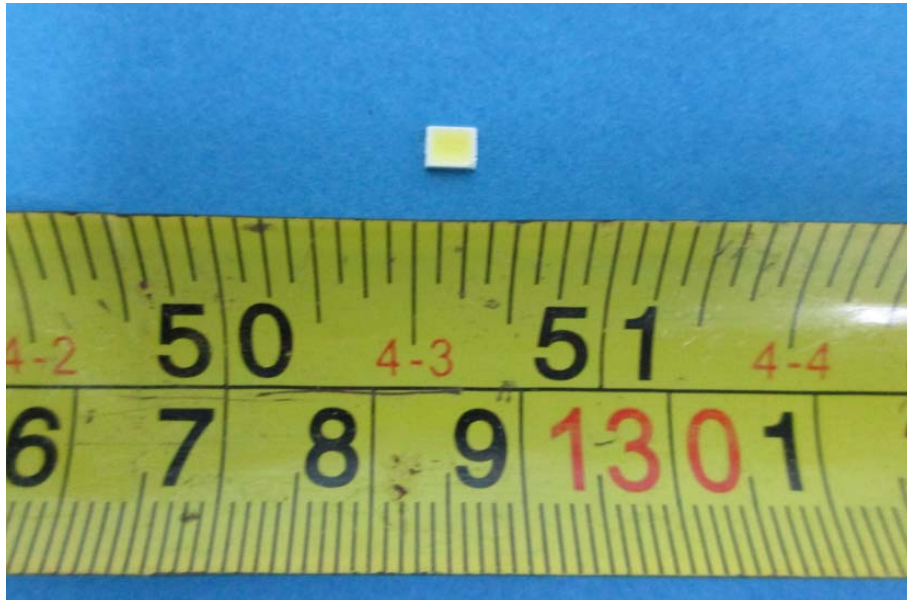
Supplementary information:

TABLE: Angular light distribution



Appendix A - EUT Photos

The front view of EUT



The back view of EUT



Appendix B Test equipment list

Equipment Description	Model No	BACL#	Manufacturer	Last Cal	Cal Due
UV light leakage spectrum of biological safety systems	PMS-2000	T-08-SF140	EVERFINE	2014-12-30	2016-12-29
Imaging luminance meter	CX-2K	T-08-SF140-1	EVERFINE	2014-12-30	2016-12-29
Radiation illuminance meter	RD-2000	T-08-SF140-2	EVERFINE	2014-12-30	2016-12-29
Radiation illuminance meter	RD-2000	T-08-SF140-3	EVERFINE	2014-12-30	2016-12-29
High Accuracy Array	HAAS-2000	T-08-SF140-4	EVERFINE	2014-12-30	2016-12-29
Hygrothermograph	PWS280	T-08-QA026	N/A	2016-3-21	2017-3-21
Standard power spectral UV radiation-specific	UVS-8003	T-08-EE048	EVERFINE	2016-3-21	2017-3-21
80mm sample integrating sphere	SMS-300	F-08-SF130	EVERFINE	2014-12-26	2016-12-25
Steel tape	HILOCK-19	T-08-SF100	TAJIMA	2013-4-18	2018-4-17
Digital CC&CV DC Power Supply	WY305	T-08-EE098	EVERFINE	2016-3-4	2017-3-4

*** End of report ***