



<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>	
<b>Report Number</b> .....	GZES170601035231
<b>Date of issue</b> .....	2017-06-28
<b>Total number of pages</b> .....	8
<b>Name of Testing Laboratory preparing the Report</b> .....	SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch 198 Kezhu Road, Science City, Economic & Technology Development Area, Guangzhou, Guangdong, China
<b>Applicant's name</b> .....	Blueview Elec-optic Tech Co., Ltd.
<b>Address</b> .....	No. 1000, Section 2, 2 <sup>nd</sup> Konggang Road, Southwest Aviation Industrial Development, Chengdu, Sichuan, China.
<b>Test specification:</b>	
<b>Standard</b> .....	IEC TR 62778:2014 (Second Edition)
<b>Test procedure</b> .....	Test Report
<b>Non-standard test method</b> .....	N/A
<b>Test Report Form No.</b> .....	IEC62778A
<b>Test Report Form(s) Originator</b> .....	TÜV SÜD Product Service GmbH
<b>Master TRF</b> .....	Dated 2016-02
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<b>Test item description</b> .....	Strip
<b>Trade Mark</b> .....	Blueview
<b>Manufacturer</b> .....	Same as applicant
<b>Model/Type reference</b> .....	FX-3528-X-X-X series
<b>Ratings</b> .....	FX-3528-X-12-X series: 12 V d.c. FX-3528-X-24-X series: 24 V d.c.



<b>Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):</b>	
<input checked="" type="checkbox"/> <b>Testing Laboratory:</b>	SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch
<b>Testing location/ address.....:</b>	198 Kezhu Road, Science City, Economic & Technology Development Area, Guangzhou, Guangdong, China
<input type="checkbox"/> <b>Associated CB Testing Laboratory:</b>	
<b>Testing location/ address.....:</b>	
<b>Tested by (name, function, signature).....:</b>	Alex Tan <i>Alex Tan</i>
<b>Approved by (name, function, signature)....:</b>	Karen Xie <i>Karen Xie</i>
<input type="checkbox"/> <b>Testing procedure: CTF Stage 1:</b>	N/A
<b>Testing location/ address.....:</b>	
<b>Tested by (name, function, signature).....:</b>	
<b>Approved by (name, function, signature)....:</b>	
<input type="checkbox"/> <b>Testing procedure: CTF Stage 2:</b>	N/A
<b>Testing location/ address.....:</b>	
<b>Tested by (name + signature) .....</b>	
<b>Witnessed by (name, function, signature) .:</b>	
<b>Approved by (name, function, signature)....:</b>	
<input type="checkbox"/> <b>Testing procedure: CTF Stage 3:</b>	N/A
<input type="checkbox"/> <b>Testing procedure: CTF Stage 4:</b>	N/A
<b>Testing location/ address.....:</b>	
<b>Tested by (name, function, signature).....:</b>	
<b>Witnessed by (name, function, signature) .:</b>	
<b>Approved by (name, function, signature)....:</b>	
<b>Supervised by (name, function, signature) :</b>	



<p><b>List of Attachments (including a total number of pages in each attachment):</b> Attachment 1: Photo documentation (total 1 page).</p>	
<p><b>Summary of testing:</b> The tests were conducted under 24 V which powered by DC power source. After review, FN-3528-120-24-5000K was selected for testing as representative.</p>	
<p><b>Tests performed (name of test and test clause):</b> All applicable test items.</p>	<p><b>Testing location:</b> Refer to page 1</p>
<p><b>Summary of compliance with National Differences (List of countries addressed):</b> N/A</p> <p><input type="checkbox"/> The product fulfils the requirements of _____ (insert standard number and edition and delete the text in parenthesis, leave it blank or delete the whole sentence, if not applicable)</p>	
<p><b>Copy of marking plate:</b> N/A</p>	

<b>Test item particulars.....:</b>	
<b>Product evaluated.....:</b>	<input type="checkbox"/> LED package <input type="checkbox"/> LED module <input type="checkbox"/> Lamp <input checked="" type="checkbox"/> Luminaire
<b>Rated voltage (V) .....</b>	24 V d.c.
<b>Rated current (mA) .....</b>	—
<b>Rated CCT (K).....</b>	—
<b>Rated Luminance (Mcd/m<sup>2</sup>) .....</b>	—
<b>Component report data used .....</b>	<input checked="" type="checkbox"/> Not applicable <input type="checkbox"/> LED package <input type="checkbox"/> LED module <input type="checkbox"/> Lamp Report number:
<b>Possible test case verdicts:</b>	
- test case does not apply to the test object..... : N/A	
- test object does meet the requirement..... : P (Pass)	
- test object does not meet the requirement..... : F (Fail)	
<b>Testing.....:</b>	
<b>Date of receipt of test item .....</b>	2017-06-27
<b>Date (s) of performance of tests.....</b>	2017-06-27 to 2017-06-28
<b>General remarks:</b>	
<p>"(See Enclosure #)" refers to additional information appended to the report.          "(See appended table)" refers to a table appended to the report.</p> <p><b>Throughout this report a <input checked="" type="checkbox"/> comma / <input type="checkbox"/> point is used as the decimal separator.</b>          When determining for test conclusion, measurement uncertainty of tests has been considered.</p> <p>This document is issued by the Company subject to its General Conditions of Service, available on request or accessible at <a href="http://www.sgs.com/en/Terms-and-Conditions.aspx">http://www.sgs.com/en/Terms-and-Conditions.aspx</a> and, for electronic format documents, subject to Terms and Conditions for Electronic Documents at <a href="http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx">http://www.sgs.com/en/Terms-and-Conditions/Terms-e-Document.aspx</a>. Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for 30 days only.</p>	

<b>Manufacturer's Declaration per sub-clause 4.2.5 of IEC 60900:</b>	
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided .....	<input type="checkbox"/> <b>Yes</b> <input checked="" type="checkbox"/> <b>Not applicable</b>
<b>When differences exist; they shall be identified in the General product information section.</b>	
<b>Name and address of factory (ies) .....</b>	Same as manufacturer
<p><b>General product information:</b></p> <p>The product can emit white light when powered.</p> <p>FX-3528-X-X-X series</p> <p>The 1<sup>st</sup> "x" in the type designation can be WS, WT and N, indicating the waterproof grade.</p> <p>The 2<sup>st</sup> "x" in the type designation can be 1 to 500, indicating the quantity of LED.</p> <p>The 3<sup>st</sup> "x" in the type designation can be 12 or 24, indicating the input voltage in Volts.</p> <p>The 4<sup>st</sup> "x" in the type designation can be 2200K to 5000K, indicating the CCT of LED.</p> <p>All models are identical in circuit design, PCB layout, component used except for model number and CCT.</p>	

IEC TR 62778			
Clause	Requirement + Test	Result - Remark	Verdict

<b>7</b>	<b>MEASUREMENT INFORMATION FLOW</b>		
<b>7.1</b>	<b>Basic flow</b>		—
	'Law of conservation of luminance' applied		N/A
	Use of only true luminance/radiance values		N/A
	In case of luminaire: The light source is operated in the luminaire under similar conditions as when tested as a component		N/A
	In case $E_{thr}$ value for RG2 was established the peak value was derived from angular light distribution		N/A
<b>7.2</b>	<b>Conditions for the radiance measurement</b>		—
	Standard condition applied (200mm distance, 0,011rad field of view)		P
	Non-standard condition applied		N/A
<b>7.3</b>	<b>Special cases (I): Replacement by a lamp or LED module of another type</b>		—
	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
<b>7.4</b>	<b>Special cases (II): Arrays and clusters of primary light sources</b>		—
	LED package is evaluated as .....	<input type="checkbox"/> RG0 unlimited <input type="checkbox"/> RG1 unlimited	N/A
	$E_{thr}$ of LED package applies to array		N/A
<b>8</b>	<b>RISK GROUP CLASSIFICATION</b>		—
	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

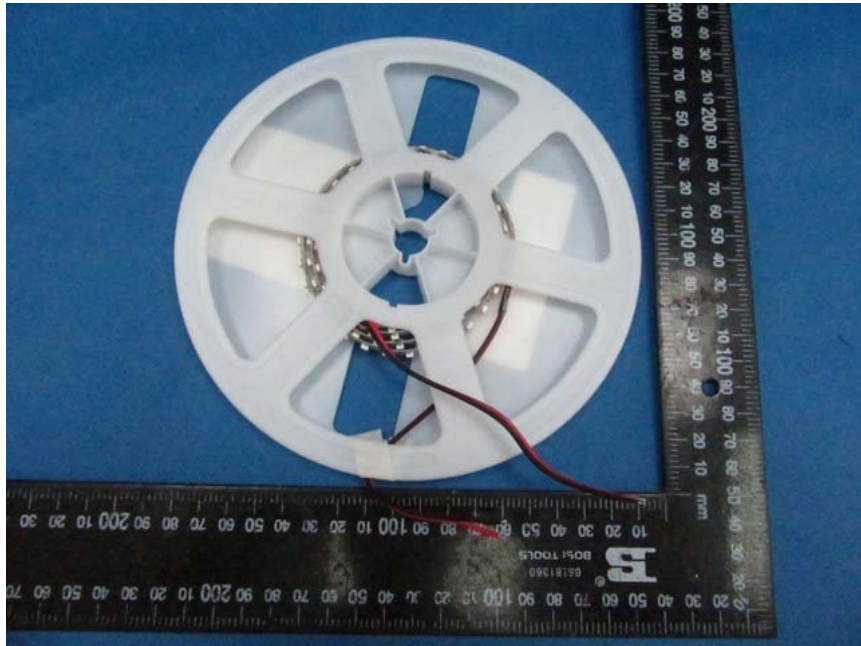
TABLE: Spectroradiometric measurement					P
Measurement performed on:		<input type="checkbox"/> LED package <input type="checkbox"/> LED module <input type="checkbox"/> Lamp <input checked="" type="checkbox"/> Luminaire			
Model number.....		FN-3528-120-24-5000K			
Test voltage (V) .....		24 V			—
Test current (mA) .....		—			—
Test frequency (Hz).....		DC			—
Ambient, t (°C).....		25			—
Measurement distance .....		<input checked="" type="checkbox"/> 20 cm <input type="checkbox"/> ... cm			—
Source size .....		<input checked="" type="checkbox"/> Non-small <input type="checkbox"/> Small : .... 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	5650	—	
x/y colour coordinates			0,3291 / 0,3299	—	
Blue light hazard radiance	L <sub>B</sub>	W/(m <sup>2</sup> •sr <sup>1</sup> )	65,7	—	
Blue light hazard irradiance	E <sub>B</sub>	W/m <sup>2</sup>	—	—	
Luminance	L	kcd/m <sup>2</sup>	73843	—	
Illuminance	E	lx	—	—	
Supplementary information:					
—					

Attachment 1: Photo documentation

Details of: General view for the product

View:

- general
- front
- rear
- right
- left
- top
- bottom
- internal



Details of: View for the LED

View:

- general
- front
- rear
- right
- left
- top
- bottom
- internal



— End of report —