BLUEVIEW ELEC-OPTIC TECH CO.,LTD

CE LVD REPORT

Prepared For:	BLUEVIEW ELEC-OPTIC TECH CO.,LTD No.1000, Section 2, 2nd Konggang Road, Southwest Aviation Industrial Development Zone, Chengdu,Sichuan,China
Product Name	LED LIGHTING
Model :	BPS2, BQ5-A, (X)YDX-X, (X)BPS-X-X, RGBW-YD8, HX-XXX (X)means connection way, the first X means LED type, the second X means LED qty or bar length;XXX: means LED color
Prepared By :	BST Testing (Shenzhen) Co.,Ltd.
	No.7, New Era Industrial Zone, Guantian, Bao'an District, Shenzhen, Guangdong, China
Test Date:	Dec 23, 2019-Jan. 03, 2020
Date of Report :	Jan. 03, 2020
Report No.:	BSTXD200113663902SR

TEST REPORT

EN 62031

LED modules for general lighting - Safety specifications &EN 62471

Assessment of lighting equipment related to human exposure to electromagnetic fields

Testing Laboratory Name .....:	BST Testing (Shenzhen) Co.,Ltd .
Address .....:	No.7, New Era Industrial Zone, Guantian, Bao'an District, Shenzhen, Guangdong, China
Testing location .....:	BST Testing (Shenzhen) Co.,Ltd .
Applicant's Name .....:	BLUEVIEW ELEC-OPTIC TECH CO.,LTD
Address .....:	No.1000, Section 2, 2nd Konggang Road, Southwest Aviation Industrial Development Zone, Chengdu,Sichuan,China
Manufacturer ....:	BLUEVIEW ELEC-OPTIC TECH CO.,LTD
Address .... :	No.1000, Section 2, 2nd Konggang Road, Southwest Aviation Industrial Development Zone, Chengdu,Sichuan,China
Test specification	
Standard .....:	EN 62031:2008+A1:2013+A2:2015 EN 62471:2008
Procedure deviation .....:	N/A
Non-standard test method .....:	N/A
Test item description .....:	LED LIGHTING
Trademark .....:	蓝景 BLUEVIEW
Model and/or type reference .....:	See Page 1
Rating(s) .....:	DC24V,40W
Test case verdicts	
Test case does not apply to the test object ...:	N/A
Test item does meet the requirement .....:	P(ass)
Test item does not meet the requirement .....:	F(ail)

General remarks

This report shall not be reproduced except in full without the written approval of the testing laboratory.

The test results presented in this report relate only to the item(s) tested.

”(see remark #)" refers to a remark appended to the report.

"(see Annex #)" refers to an annex appended to the report.

Brief description of the test sample:

Copy of marking plate:

Name and address of the testing laboratory : BST Testing (Shenzhen) Co.,Ltd.

No.7, New Era Industrial Zone, Guantian, Bao'an District, Shenzhen, Guangdong, China

Test by : Apple Li — Jan. 03, 2020

Signature — Date

Technician

Title

Review by : — Jan. 03, 2020

Signature — Date

Project Engineer

Title

Approved by : — Jan. 03, 2020

Signature — Date

Andy Yan/ Manager

Name and Title

EN 62031			
Cl.	Requirement – Test	Result	Verdict
3	Terms and definitions		P
3.10	rated maximum temperature.....		--

4	General requirements		P
4.1	Modules shall be so designed and constructed that in normal use they operate without danger to the user or surroundings	(see manufacturer's instruction)	P
4.2	All electrical measurements shall be carried out		P
	at voltage limits (min/max)	24V	--
	Current limits (min/max)		--
	Power limits (min/max)		--
	Minimum frequency		--
	In a draught-free room at the temperature limits		--
4.3	self-ballasted LED modules, the electrical measurements shall be carried out at the tolerance limit values of the marked supply voltage.		N
4.4	Integral modules not having their own enclosure shall be treated as integral components of luminaires as defined in EN 60598-1, Clause 0.5.		P
4.5	Independent modules shall comply with the requirements of relevant clauses of EN 60598-1, where these requirements are not already covered in this standard.		N
4.6	If the module is a factory sealed unit, it shall not be opened for any tests.		P
	In the case of doubt based on the inspection of the module.		N

5	General test requirements		P
5.1	Tests according to this standard shall be type tests.		P
5.2	Unless otherwise specified, the tests shall be carried out at an ambient temperature of 10 °C to 30 °C.		P
5.3	Type test shall be carried out on one sample consisting of one or more items submitted for the purpose of the type test		P

EN 62031			
Cl.	Requirement – Test	Result	Verdict
5.4	If the light output has detectably changed, the module shall not be used for further tests.		P
5.5	For SELV-operated LED modules, the requirements of IEC 61347-2-13, Annex I, apply additionally.		N
	General conditions for tests are given in Annex A.		N

6	Classification		**P**
	According to the method of installation		P
	– built-in,		N
	– independent,		N
	– integral.		N
	For integral modules, the NOTE to 1.2.1 in IEC 60598-1 applies.		P

7	Marking		**P**
7.1	Mandatory marking for built-in or independent modules		N
	a) Mark of origin (trade mark, manufacturer's name or name of the responsible vendor/supplier).		P
	b) Model number or type reference of the manufacturer.	see page 2	P
	c) Either the ● rated supply voltage(s), or voltage range, supply frequency or/and ● rated supply current(s) or current range, supply frequency (the supply current may be given in the manufacturer's literature) or/and ● rated input power, or power range.		P
	d) Nominal power.		P
	e) Indication of position and purpose of the connections where it is necessary for safety. In case of connecting wires, a clear indication shall be given in a wiring diagram.		P
	f) Value of t_c. If this relates to a certain place on the LED module, this place shall be indicated or specified in the manufacturer's literature.		P
	g) For eye protection, see requirements of IEC 62471.		P

EN 62031			
Cl.	Requirement – Test	Result	Verdict
	h) Built-in modules shall be marked in order to separate them from independent modules.		N
	The mark shall be located on the packaging or on the module itself.		P
7.2	Location of marking		P
7.3	Durability and legibility of marking		--
	the marking by rubbing the area lightly by hand for 15 s with a piece of smooth cloth, dampened with water.		P
	Marking shall be durable and legible.		P

8	Terminals		N
	For screw terminals, the requirements of IEC 60598-1, Section 14, shall be used, if applicable.		N
	For screwless terminals, the requirements of EN 60598-1, Section 15, shall be used, if applicable.		N
	For connectors, the requirements of EN 60838-2-2 shall be used, if applicable		N

9	Provisions for protective earthing		N
	The requirements of IEC 61347-1, Clause 9, apply.		N

10	Protection against accidental contact with live parts		N
	The requirements of IEC 61347-1, Clause 10, apply.		N
11	Moisture resistance and insulation		N
	The requirements of IEC 61347-1, Clause 11, apply.		N

12	Electric strength		N
	The requirements of IEC 61347-1, Clause 12, apply		N
13	Fault conditions		P
13.1	General		--
	The module shall not impair safety when operated under fault conditions		P
	The requirements of IEC 61347-1, Clause 14, apply.		P

13.2	Overpower condition		P
	Annex A		P
	150 % of the rated voltage		P
	The test shall be continued until the module is thermally stabilised		P
	After finalising the overpower mode, the module is operated under normal conditions until thermally being stable.		P
	A module fails safe if no fire, smoke or flammable gas is produced and if the 15 min overpower condition has been withstood		P
	A tissue paper, as specified in 4.187 of ISO 4046-4, spread below the module shall not ignite.		P

14	Conformity testing during manufacture	P

15	Construction		P
	Wood, cotton, silk, paper and similar fibrous material shall not be used as insulation. Compliance is checked by inspection.		P

16	Creepage distances and clearances		N
	The requirements of EN 60598-1, Section 11, apply		N

17	Screws, current-carrying parts and connections		N
	The requirements of IEC 61347-1, Clause 17, apply.		N

18	Resistance to heat, fire and tracking		N
	The requirements of IEC 61347-1, Clause 18, apply.		N

19	Resistance to corrosion		N
	The requirements of IEC 61347-1, Clause 19, apply.		N

EN 62031			
Cl.	Requirement – Test	Result	Verdict
Annex A	Tests		P

Annex B	Overview of systems composed of LED modules and control gear	P

Annex C	Conformity testing during manufacture	P

ANNEX 1: components					P
object/part No.	manufacturer/ trademark	type/model	technical data	standard	mark(s) of conformity
LED	(YUANLEI) ELECTRONICS CO LTD	FM-P3030	VF=DC8.5-9.6V,IF=250mA 3500-6500K	-	-
PCB	(TIANMU) ELECTRONICS CO LTD	AL	V-0,105℃	UL E336407	UL E336407
WIRE	SHENZHEN LONGSHENGDA WIRE& CALBE CO.LTD	UL 3239	MIN.24AWG 200℃，3000V	-	UL E472430

EN 62471			
Cl.	Requirement – Test	Result	Verdict
4	EXPOSURE LIMITS		P
4.1	General		P
	The exposure limits in this standard is not less than 0,01 ms and not more than any 8-hour period and should be used as guides in the control of exposure	Conform	P
	Detailed spectral data of a light source are generally required only if the luminance of the source exceeds 104 $cd.m^{-2}$	See clause 4.3	P
4.3	Hazard exposure limits		P
4.3.1	Actinic UV hazard exposure limit for the skin and eye		P
	The exposure limit for effective radiant exposure is 30 J.m-2 within any 8-hour period	Conform	P
	To protect against injury of the eye or skin from ultraviolet radiation exposure produced by a broadband source, the effective integrated spectral irradiance, Es, of the light source shall not exceed the levels defined by:		P
	$E_S \cdot t = \sum_{200}^{400} \sum_{t} E_\lambda(\lambda,t) \cdot s_{uv}(\lambda) \cdot \triangle t \cdot \triangle \lambda \leq 30 \quad J \cdot m^{-2}$		P
	The permissible time for exposure to ultraviolet radiation incident upon the unprotected eye or skin shall be computed by:		P
	$t_{max}=30/E_s \geq 30000s$		P
4.3.2	Near-UV hazard exposure limit for eye		P
	For the spectral region 315 nm to 400 nm (UV-A) the total radiant exposure to the eye shall not exceed 10000 $J.m^{-2}$ for exposure times less than 1000s. For exposure times greater than 1000 s (approximately 16 minutes) the UV-A irradiance for the unprotected eye, E_{UVA}, shall not exceed 10 $W.m^{-2}$		P
	The permissible time for exposure to ultraviolet radiation incident upon the unprotected eye for time less than 1000 s, shall be computed by:		P
	$t_{max} \leq 10000/E_{UVA}$ s		P
4.3.3	Retinal blue light hazard exposure limit		P

	To protect against retinal photochemical injury from chronic blue-light exposure, the integrated spectral radiance of the light source weighted against the blue-light hazard function, B(λ), i.e., the blue-light weighted radiance , LB, shall not exceed the levels defined by:		P
	$L_{B,t}=\sum_{300}^{700}\sum_{t}L_{\lambda}(\lambda,t)\cdot B(\lambda)\cdot\triangle t\cdot\triangle\lambda\leq 10^{6}$ J·m^{-2}·sr^{-1}		P
	$L_{B}=\sum_{300}^{700}L_{\lambda}\cdot B(\lambda)\cdot\triangle\lambda\leq 100$ W·m^{-2}·sr^{-1}		N
4.3.4	Retinal blue light hazard exposure limit - small source		N
	Thus the spectral irradiance at the eye Eλ, weighted against the blue-light hazard function B(λ) shall not exceed the levels defined by: see table 4.2	See table 4.2	N
	$E_{B,t}=\sum_{300}^{700}\sum_{t}E_{\lambda}(\lambda,t)\cdot B(\lambda)\cdot\triangle t\cdot\triangle\lambda\leq 100$ J·m^{-2}		N
	$E_{B}=\sum_{300}^{700}E_{\lambda}\cdot B(\lambda)\cdot\triangle\lambda\leq 1$ W·m^{-2}		N
4.3.5	Retinal thermal hazard exposure limit		P
	To protect against retinal thermal injury, the integrated spectral radiance of the light source, Lλ, weighted by the burn hazard weighting function R(λ) (from Figure 4.2 and Table 4.2), i.e., the burn hazard weighted radiance, shall not exceed the levels defined by:		P
	$L_{R}=\sum_{380}^{1400}L_{\lambda}\cdot R(\lambda)\cdot\Delta\lambda\leq\frac{50000}{\alpha\cdot t^{0,25}}$ W·m^{-2}·sr^{-1}		P
4.3.6	Retinal thermal hazard exposure limit – weak visual stimulus		N
	For an infrared heat lamp or any near-infrared source where a weak visual stimulus is inadequate to activate the aversion response, the near infrared (780 nm to 1400 nm) radiance, LIR, as viewed by the eye for exposure times greater than 10 s shall be limited to:		N
	$L_{IR}=\sum_{780}^{1400}L_{\lambda}\cdot R(\lambda)\cdot\Delta\lambda\leq\frac{6000}{\alpha}$ W·m^{-2}·sr^{-1}		N
4.3.7	Infrared radiation hazard exposure limits for the eye		P

	The avoid thermal injury of the cornea and possible delayed effects upon the lens of the eye (cataractogenesis),ocular exposure to infrared radiation, EIR,over the wavelength range 780 nm to 3000 nm, for times less than 1000 s, shall not exceed:		P
	$E_{IR} = \sum_{780}^{3000} E_\lambda \cdot \Delta\lambda \le 18000 \cdot t^{-0,75}$ $W \cdot m^{-2}$		P
	For times greater than 1000 s the limit becomes:		N
	$E_{IR} = \sum_{780}^{3000} E_\lambda \cdot \Delta\lambda \le 100$ $W \cdot m^{-2}$		N
4.3.8	Thermal hazard exposure limit for the skin		N
	Visible and infrared radiant exposure (380 nm to 3000 nm) of the skin shall be limited to:		N
	$E_H \cdot t = \sum_{380}^{3000} \sum_{t} E_\lambda(\lambda,t) \cdot \Delta t \cdot \Delta\lambda \le 20000 \cdot t^{0,25}$ $J \cdot m^{-2}$		N

5	MEASUREMENT OF LAMPS AND LAMP SYSTEMS		P
5.1	Measurement conditions	Seasoned for 24h before measurement	P
	Measurement conditions shall be reported as part of the evaluation against the exposure limits and the assignment of risk classification.	See above	P
5.1.1	Lamp ageing (seasoning)	See above	P
	Seasoning of lamps shall be done as stated in the Appropriate EN lamp standard.	Under maunfacture's recommendation	P
5.1.2	Test environment	Under maunfacture's recommendation	P
	For specific test conditions, see the appropriate EN lamp standard or in absence of such standards, the appropriate national standards or manufacturer's recommendations.	Under maunfacture's recommendation	P
5.1.3	Extraneous radiation	Considered	P
	Careful checks should be made to ensure that extraneous sources of radiation and reflections do not add significantly to the measurement results.	Considered	P
5.1.4	Lamp operation	Under maunfacture's recommendation	P
	Operation of the test lamp shall be provided in accordance with:		P

	– the appropriate EN lamp standard, or		N
	– the manufacturer' s recommendation		P
5.1.5	Lamp system operation		P
	The power source for operation of the test lamp shall be provided in accordance with:		P
	– the appropriate EN standard, or		N
	– the manufacturer' s recommendation		P
5.2	Measurement procedure		P
5.2.1	Irradiance measurements		P
	Minimum aperture diameter 7mm.		P
	Maximum aperture diameter 50 mm.		P
	The measurement shall be made in that position of the beam giving the maximum reading.		P
	The measurement instrument is adequate calibrated.		P
5.2.2	Radiance measurements		P
5.2.2.1	Standard method		P
	The measurements made with an optical system.		P
	The instrument shall be calibrated to read in absolute radiant power per unit receiving area and per unit solid angle to acceptance averaged over the field of view of the instrument.		P
5.2.2.2	Alternative method		N
	Alternatively to an imaging radiance set-up, an irradiance measurement set-up with a circular field stop placed at the source can be used to perform radiance measurements.		N
5.2.3	Measurement of source size		P
	The determination of α, the angle subtended by a source, requires the determination of the 50% emission points of the source.		P
5.2.4	Pulse width measurement for pulsed sources		N
	The determination of △t, the nominal pulse duration of a source, requires the determination of the time during which the emission is > 50% of its peak value.		N
5.3	Analysis methods		P
5.3.1	Weighting curve interpolations		P
	To standardize interpolated values, use linear interpolation on the log of given values to obtain intermediate points at the wavelength intervals desired.	see table 4.1	P
5.3.2	Calculations		P
	The calculation of source hazard values shall be performed by weighting the spectral scan by the appropriate function and calculating the total weighted energy.		P

5.3.3	Measurement uncertainty		P
	The quality of all measurement results must be quantified by an analysis of the uncertainty.		P

6	LAMP CLASSIFICATION		P
	For the purposes of this standard it was decided that the values shall be reported as follows:	see table 6.1	P
	– for lamps intended for general lighting service, the hazard values shall be reported as either irradiance or radiance values at a distance which produces an illuminance of 500 lux, but not at a distance less than 200 mm		P
	– for all other light sources, including pulsed lamp sources, the hazard values shall be reported at a distance of 200 mm		P
6.1	Continuous wave lamps		P
6.1.1	Exempt Group		P
	In the except group are lamps, which does not pose any photobiological hazard. The requirement is met by any lamp that does not pose:		P
	– an actinic ultraviolet hazard (ES) within 8-hours exposure (30000 s), nor		P
	– a near-UV hazard (EUVA) within 1000 s, (about 16 min), nor		P
	– a retinal blue-light hazard (LB) within 10000 s (about 2,8 h), nor		P
	– a retinal thermal hazard (LR) within 10 s, nor		P
	– an infrared radiation hazard for the eye (EIR) within 1000 s		P
6.1.2	Risk Group 1 (Low-Risk)	Exempt Group provided	N
	In this group are lamps, which exceeds the limits for the except group but that does not pose:		N
	– an actinic ultraviolet hazard (ES) within 10000 s, nor		N
	– a near ultraviolet hazard (EUVA) within 300 s, nor		N
	– a retinal blue-light hazard (LB) within 100 s, nor		N
	– a retinal thermal hazard (LR) within 10 s, nor		N
	– an infrared radiation hazard for the eye (EIR) within 100 s		N
	Lamps that emit infrared radiation without a strong visual stimulus and do not pose a near-infrared retinal hazard (LIR), within 100 s are in Risk Group 1.		N
6.1.3	Risk Group 2 (Moderate-Risk)	Exempt Group provided	N
	This requirement is met by any lamp that exceeds the limits for Risk Group 1, but that does not pose:		N
	– an actinic ultraviolet hazard (ES) within 1000 s exposure, nor		N
	– a near ultraviolet hazard (EUVA) within 100 s, nor		N
	– a retinal blue-light hazard (LB) within 0,25 s (aversion response), nor		N

	– a retinal thermal hazard (LR) within 0,25 s (aversion response), nor		N
	– an infrared radiation hazard for the eye (EIR) within 10 s		N
	Lamps that emit infrared radiation without a strong visual stimulus and do not pose a near-infrared retinal hazard (LIR), within 10 s are in Risk Group 2.		N
6.1.4	Risk Group 3 (High-Risk)	Exempt Group provided	N
	Lamps which exceed the limits for Risk Group 2 are in Group 3.		N
6.2	Pulsed lamps		N
	Pulse lamp criteria shall apply to a single pulse and to any group of pulses within 0,25 s.		N
	A pulsed lamp shall be evaluated at the highest nominal energy loading as specified by the manufacturer.		N
	The risk group determination of the lamp being tested shall be made as follows:		N
	– a lamp that exceeds the exposure limit shall be classified as belonging to Risk Group 3 (High-Risk)		N
	– for single pulsed lamps, a lamp whose weighted radiant exposure or weighted radiance does is below the EL shall be classified as belonging to the Exempt Group		N
	– for repetitively pulsed lamps, a lamp whose weighted radiant exposure or weighted radiance dose is below the EL, shall be evaluated using the continuous wave risk criteria discussed in clause 6.1, using time averaged values of the pulsed emission		N

Table 4.1	Spectral weighting function for assessing ultraviolet hazards for skin and eye		P
Wavelength1 λ, nm	UV hazard function $S_{UV}(\lambda)$	Wavelength λ, nm	UV hazard function $S_{UV}(\lambda)$
200 0	0.030	313* 0	0.006
205 0	0.051	315 0	0.003
210 0	0.075	316 0	0.0024
215 0	0.095	317 0	0.0020
220 0	0.120	318 0	0.0016
225 0	0.150	319 0	0.0012
230 0	0.190	320 0	0.0010
235 0	0.240	322 0	0.00067
245 0	0.360	325 0	0.00050
250 0	0.430	328 0	0.00044
254* 0	0.500	330 0	0.00041
255 0	0.520	333* 0	0.00037
260 0	0.650	335 0	0.00034
265 0	0.810	340 0	0.00028
270 1	0.000	345 0	0.00024
275 0	0.960	350 0	0.00020
280* 0	0.880	355 0	0.00016

285 0	0.770	360 0	0.00013
290 0	0.640	365* 0	0.00011
295 0	0.540	370 0	0.000093
297* 0	0.460	375 0	0.000077
300 0	0.300	380 0	0.000064
303* 0	0.120	385 0	0.000053
305 0	0.060	390 0	0.000044
308 0	0.026	395 0	0.000036
310 0	0.015	400 0	0.000030

* Wavelengths chosen are representative: other values should be obtained by logarithmic interpolationat intermediate wavelengths.
* Emission lines of a mercury discharge spectrum.

Table 4.2	Spectral weighting functions for assessing retinal hazards from broadband optical sources	-

Wavelength nm	**Blue-light hazard function B(λ)**	**Burn hazard function R(λ)**
300	0,01	-
305	0,01	-
310	0,01	-
315	0,01	-
320	0,01	-
325	0,01	-
330	0,01	-
335	0,01	-
340	0,01	-
345	0,01	-
350	0,01	-
355	0,01	-
360	0,01	-
365	0,01	-
370	0,01	-
375	0,01	-
380	0,01	0,1
385	0,013	0,13
390	0,025	0,25
395	0,05	0,5
400	0,10	1,0
405	0,20	2,0
410	0,40	4,0
415	0,80	8,0
420	0,90	9,0
425	0,95	9,5
430	0,98	9,8
435	1,00	10,0
440	1,00	10,0
445	0,97	9,7
450	0,94	9,4
455	0,90	9,0
460	0,80	8,0
465	0,70	7,0
470	0,62	6,2
475	0,55	5,5

480	0,45	4,5
485	0,40	4,0
490	0,22	2,2
495	0,16	1,6
500-600	$10^{[(450-\lambda)/50]}$	1,0
600-700	0,001	1,0
700-1050	0,013	$10^{[(700-\lambda)/500]}$
1050-1150	0,025	0,2
1150-1200	0,05	$0,2.^{100.02(1150-\lambda)}$
1200-1400	0,10	0,02

* 1 Wavelengths chosen are representative: other values should be obtained by logarithmic interpolationat intermediate wavelengths.
* Emission lines of a mercury discharge spectrum.

Table 5.4	Summary of the ELs for the surface of the skin or cornea (irradiance based values)				**-**
Hazard Name	**Relevant equation**	**Wavelength Range nm**	**Explosure aperture rad(deg)**	**Limiting aperture rad(deg)**	**EL in items of constant irradiance $W.m^{-2}$**
Actinic UV skin & eye	$E_S = \sum E_\lambda \cdot S(\lambda)$	200 – 400	< 30000	1,4 (80)	30/t
Eye UV-A	$E_{UVA} = \sum E \cdot \triangle\lambda$	315 – 400	1000 >1000	1,4 (80)	10000/t 10
Blue-light small source	$E_B = \sum E \cdot B(\lambda) \cdot \triangle\lambda$	300 – 700	100 >100	< 0,011	100/t 1,0
Eye IR	$E_{IR} = \sum E \cdot \triangle\lambda$	780-3000	1000 >1000	1,4 (80)	$18000/t^{0.75}$ 100
Skin thermal	$E_H = \sum E \cdot \triangle\lambda$	380-3000	<10	2 sr	$20000/t^{0.75}$

Table 5.5	Summary of the ELs for the retina (radiance based values)				
Hazard Name	**Relevant equation**	**Wavelength Range nm**	**Explosure duration Sec**	**Field of view radians**	**EL in terms of constant radiance $W.m^{-2}.sr^{-1}$)**
Blue light	$LB = \sum L_\lambda \cdot B(\lambda) \cdot \triangle\lambda$	300-700	0.25-10 10-100 100-10000 10000	0.011.(t/10) 0.011 0.0011.t 0.1	$10^6/t$ $10^6/t$ $10^6/t$ 100
Retinal thermal	$LR = \sum L_\lambda \cdot R(\lambda) \cdot \triangle\lambda$	380-1400	<0.25 0.25-10	0.0017 0.011.(t/10)	$50000/(.t^{0.25})$ $50000/(.t^{0.25})$
Retinal termal(weak visual stimulus)	$LIR = \sum L_\lambda \cdot R(\lambda) \cdot \triangle\lambda$	780-1400	>10	0.011	6000/

Table 6.1	Emission limits for risk groups of continuous wave lamps	P

Risk	Action spectrum	Units	Symbol	Exempt		Low risk		Mod risk	
				Limit	Result	Limit	Result	Limit	Result
Actinic UV	Suv(λ)	$W.m^{-2}$	E_S	0.001	2.71e-08	0.003	0.00e+00	0.03	0.00e+00
Near UV		$W.m^{-2}$	E_{UVA}	0.3	0	31.0	0	100.0	0
Blue light	B(λ)	$W.m^{-2}.sr^{-1}$	L_B	100	1.96e+01	10000		4000000	
Blue light,small sourc	B(λ)	$W.m^{-2}$	E_B	-		-	-	-	-
Retinal thermal	R(λ)	$W.m^{-2}.sr^{-1}$	L_R	2.80e+05	3.35e+02	2.70e+05	0.00e+00	7.10e+05	0.00e+00
Retinal thermal, Weak visual stimulus**	R(λ)	$W.m^{-2}.sr^{-1}$	L_{IR}	6.00e+04	0.00e+00	6.00e+05	0.00e+00	6.00e+04	0.00e+00
IR radiation Eye		$W.m^{-2}$	E_{IR}	100.0	0.00e+00	530.0	0.00e+00	3200.0	0.00e+00
* Small source defined as one withα < 0,011 radian. Averaging field of view at 10000 s is 0,1 radian. ** Involves evaluation of non-GLS source									

ANNEX A:

Photo-documentation

Photo 1 General appearance of EUT

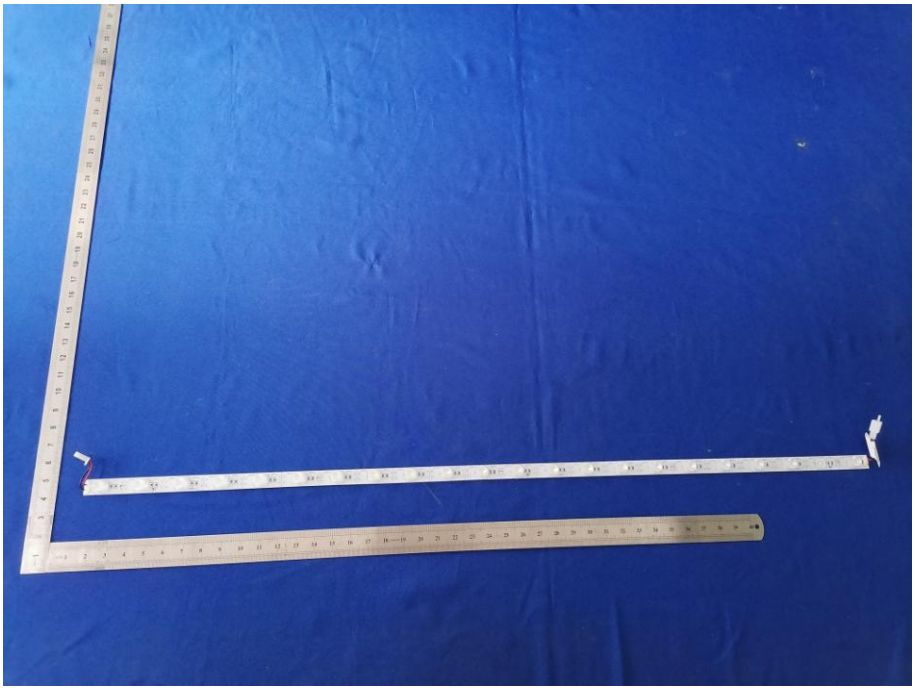

Photo 2 General appearance of EUT

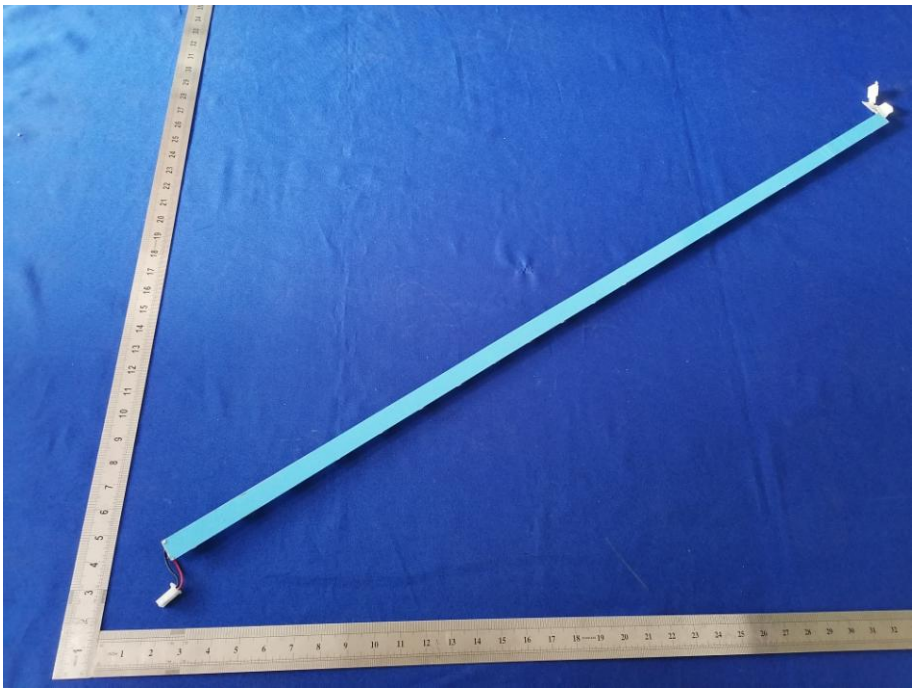

Photo 3 General appearance of EUT

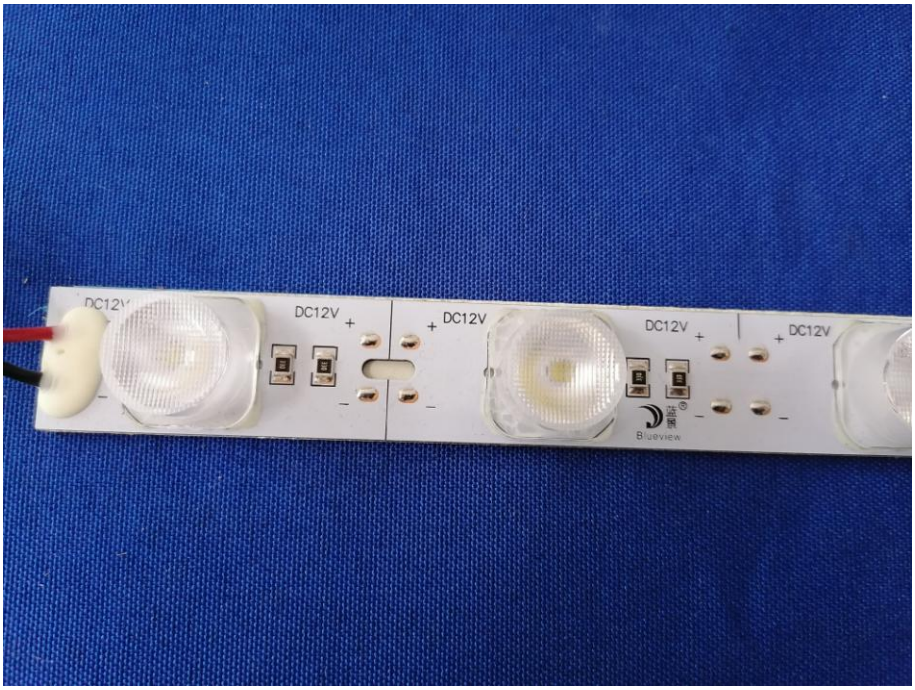

Photo 4 General appearance of EUT(YD8 3.0)

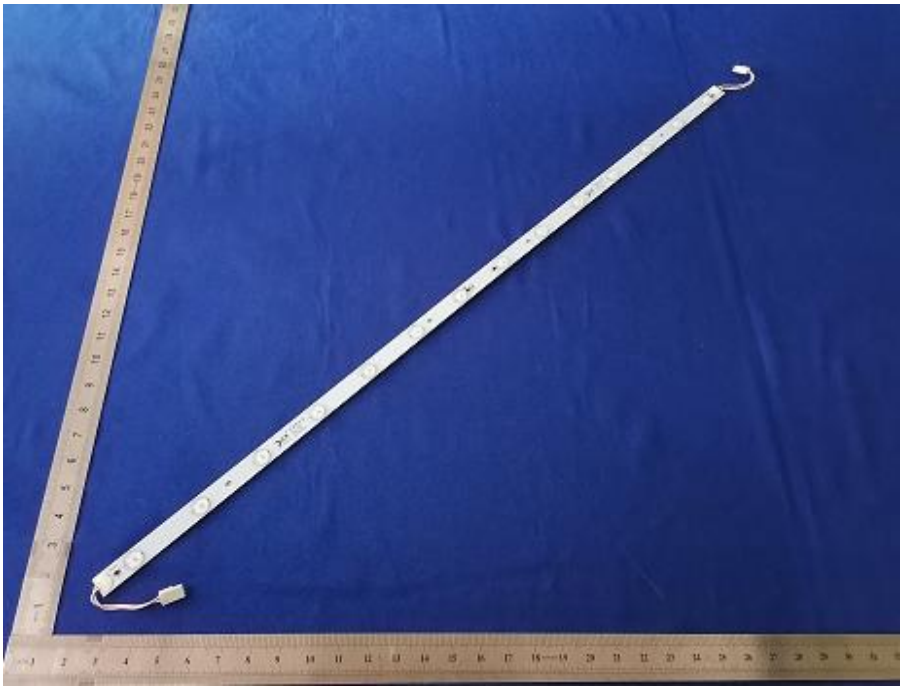

Photo 5 General appearance of EUT (YD8 3.0)