

Page 1 of 16

Test Report

Client Name : ShenZhen Runlite Technology Co.,Ltd

Address

Building A15,Tantou the 4th Industrial Estate,SongGang Town,Baoan District,ShenZhen,China

Product Name : SMD LED

Date : 2019-11-01

Shenzhen Anbotek Pengcheng Compliance Laboratory Limited

Shenzhen Anbotek Pengcheng Compliance Laboratory Limited

Address: Zone B, 1/F., Building 2, Hengchangrong High–Tech Industrial Park, Huangtian, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China Tel:(86) 755–26066440 Fax: (86) 755–26014772 Email: service@anbotek.com





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TEST REPORT

EN 62471:2008

Photobiological Safety of Lamps and Lamp Systems

stek anbor A	ak hoter Ann stek add
Report Reference No	PCANL191022013-01 Ocean Deng Diang Diang
Tested by	Anbotek
(printed name + signature)	Ocean Deng Dian Dang
aboten Anbe ak hotek	
Supervised by	: Flora Zhang Flora Zhang
(printed name + signature)	Flora Zhang Hora Zhang
Anbor An ook b	Arr a ster and a ster ab
Testing Laboratory	Shenzhen Anbotek Pengcheng Compliance Laboratory Limited
	Zone B, 1/F., Building 2, Hengchangrong High-
Address	Tech Industrial Park, Huangtian, Hangcheng Street, Bao'an District
- usk upotek Anbo	Shenzhen, Guangdong, China.
Testing location	
Applicant's Name	ShenZhen Runlite Technology Co.,Ltd
Address	Building A15, Tantou the 4th Industrial Estate, SongGang Town, Baoar District, ShenZhen, China
Test Specification:	pole And ak bolek Anbo , otek M
Standard	EN 62471:2008
Test procedure	Type Test
Non-standard test method	: N/A And tek poter And the potek
Test Item Description	SMD LED
Trade Mark	N/A model product product product
Manufacturer	ShenZhen Runlite Technology Co.,Ltd
Address	Building A15,Tantou the 4th Industrial Estate,SongGang Town,Baoar District,ShenZhen,China
Model/Type reference	X2835X-W64SXXXXDXXXX-XXXX
Ratings	6VDC, 0.9W

Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or use in part without prior written consent from Shenzhen Anbotek Pengcheng Compliance Laboratory Limited.

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Summary of Testing:			
Testing location:			
Shenzhen Anbotek Pengcheng Compliance Laboratory Limited			
Zone B, 1/F., Building 2, Hengchangrong High- Tech Industrial Park, Huangtian, Hangcheng Street, Bao'an District, Shenzhen, Guangdong, China.			

Summary of Compliance with National Differences:

Report No.: PCANL191022013-01

N/A

N/A

Copy of Marking Plate:

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Report No.: PCANL191022013-01	Page 4 of 16
Test Item Particulars:	
Tested lamp	
Tested lamp system	N/A met protect protect protect
Lamp classification group:	RG0 Exempt
	RG1 Low Risk
	RG2 Moderate Risk
All hotek Anboten Anbo	RG3 High Risk
Lamp cap	N/A
Test item description	SMD LED
Rated of the lamp	6VDC, 0.9W
Possible Test Case Verdicts:	
Test case does not apply to the test object	N/A (Not Applicable)
Test object does meet the requirement:	P (Pass)
Test object does not meet the requirement	: F (Fail)
Testing:	
Ambient temperature of tested	25.1°C
Test inputs	6 VDC
Sample size for tested	1pcs hotek Antioter Antio
Date of receipt of test item	2019-10-22
Date (s) of performance of tests	
General Remarks:	
The test results presented in this report relate only to	
This report shall not be reproduced, except in full, wir laboratory.	thout the written approval of the issuing testing
"(See Enclosure #)" refers to additional information a	ppended to the report.
"(See appended table)" refers to a table appended to	the report.
Throughout this report a point is used as the decimal	NOT PIT AND ACT ADP
List of test equipment must be kept on file and availa	ble for review.
General Product Information:	
X2835X-W64SXXXXDXXXX-XXXX and X2835X-WX	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx
correlated color temperature, It can be any integer from	it can be D,E,F,H or I which states 70,75,80,90 or 95

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	EN 62471:2008		
Clause	Requirement + Test	Result – Remark	Verdict
4 wotek	EXPOSURE LIMITS	k hotek Anbor	P .et
Pun	Contents of the whole Clause 4 of IEC 62471:2006	And ak horek	p.200
anborr	moved into a new informative Annex ZB	stek subotes And	201
100	Clause 4 replaced by the following:	the stek subor	PART
PUL	Limits of the Artificial Optical Radiation Directive	aboten Anbo	otek P M
	(2006/25/EC) have been applied instead of those	An tek photen And	No
12	fixed in IEC 62471:2006	Anbo, Ar, alek	abote
4.1	General	potek Anbo	Per
	The exposure limits in this standard is not less than	An rek aboter	Aup P
	0,01 ms and not more than any 8-hour period and	ek Anboir Air sek	aboter
, note	should be used as guides in the control of exposure	hotek pabo	par-
	Detailed spectral data of a light source are generally	ofter Ann ok botel	N/A
	required only if the luminance of the source exceeds 10 ⁴ cd.m ⁻²	stek unbote Ani	dk.
4.3		LODO K LOTOK AND	P
4.3.1	Hazard exposure limits Actinic UV hazard exposure limit for the skin and	aboter Anot	NOT P
+.3.1	eye	A. stek suboter A	10 F
100-	The exposure limit for effective radiant exposure is	Anbo	Anbote.
	30 J.m^2 within any 8-hour period	is aboten Anbo	-otek
p.i.	To protect against injury of the eye or skin from	All tek appoint	P
	ultraviolet radiation exposure produced by a	stek Anbor Ar tek	nobot
	broadband source, the effective integrated spectral	ok botek Anbo	pe.
	irradiance, ES, of the light source shall not exceed	poto Ant ok	ler bu
	the levels defined by:	Lotek Anbore An	-04
N.	400	Ant hotek Ar	P
	$E_{\rm s} \cdot t = \sum \sum E_{\lambda}(\lambda, t) \cdot S_{\rm UV}(\lambda) \cdot \Delta t \cdot \Delta \lambda \le 30 \qquad \qquad \text{J} \cdot \text{m}^{-2}$	Anbore, And	hotek
Market	200 t	A stek pabote	Ann
	The permissible time for exposure to ultraviolet	Anbo k hotek	anPre
	radiation incident upon the unprotected eye or skin	rek aboten And	hote
Pre	shall be computed by:	or Ar otek sphoter	Anb
	$t_{\text{max}} = \frac{30}{5}$ s model in the	hotek Anbor An	ex P
	Es prover	lek abotek Anbo	14
4.3.2	Near-UV hazard exposure limit for eye	Anbo' Ar tek	poter P
otek	For the spectral region 315 nm to 400 nm (UV-A)	hotek Anbo	P
	the total radiant exposure to the eye shall not	Ant wet abotek	Anbo
	exceed 10000 J.m ⁻² for exposure times less than	Anbore Ant Lok	oboten
	1000 s. For exposure times greater than 1000 s	k hotek Anboi	Prive
	(approximately 16 minutes) the UV-A irradiance for	ter Anu k hotek	Anbo.
	the unprotected eye, EUVA, shall not exceed 10	stek unbote. And	14
	W.m ⁻² .	opor n. otok pribon	P
	The permissible time for exposure to ultraviolet radiation incident upon the unprotected eye for time	aboten Anbo	otek P
	less than 1000 s, shall be computed by:	An Ant Ant	N.
0*		Antoo Ar	knooten P
	$t_{\text{max}} \leq \frac{10000}{5}$ s and the set	botek Anbo	Hetek
	EUVA	An- botek	Anbo
4.3.3	Retinal blue light hazard exposure limit	lek Aupon Au	N/A
			Priv

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	EN 62471:2008		
lause	Requirement + Test	Result – Remark	Verdict
Anbotek	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, $B(\lambda)$, i.e., the blue-light	Anbotek Anbotek Anbotek Anbotek	N/A
Anb	weighted radiance, LB, shall not exceed the levels defined by:	poter Anto Antotek Antote	Ant Ant
ek A	$L_{B} \cdot t = \sum_{\substack{300 \ t}}^{700} \sum_{t} L_{\lambda}(\lambda, t) \cdot B(\lambda) \cdot \Delta t \cdot \Delta \lambda \le 10^6 \qquad J \cdot m^{-2} \cdot sr^{-1}$	Anborek Anborek Anb	N/A
potek	$L_{\rm B} = \sum_{300} L_{\lambda} \cdot B(\lambda) \cdot \Delta \lambda \le 100 \qquad \qquad {\rm W} \cdot {\rm m}^{-2} \cdot {\rm sr}^{-1}$	Anbotek Anbotek	N/A
.3.4	Retinal blue light hazard exposure limit - small source	K unbote Ant	Pot
Anbotek	Thus the spectral irradiance at the eye $E\lambda$, weighted against the blue-light hazard function $B(\lambda)$ shall not exceed the levels defined by:100s	otek Anbotek Anbotek	PP
k pr	$E_{\rm B} \cdot t = \sum_{300}^{700} \sum_{t} E_{\lambda}(\lambda, t) \cdot B(\lambda) \cdot \Delta t \cdot \Delta \lambda \le 100 \qquad \rm J \cdot m^{-2}$	Anbotek Anbotek Anbo	len P
oter	$E_{\rm B} = \sum_{300}^{700} E_{\lambda} \cdot B(\lambda) \cdot \Delta \lambda \le 1 \qquad \qquad {\rm W} \cdot {\rm m}^{-2} {\rm even}^{100}$	Anboten Anbotek	Anbolek
3.5	Retinal thermal hazard exposure limit	otek pabore	P
Anbo	To protect against retinal thermal injury, the integrated spectral radiance of the light source, $L\lambda$, weighted by the burn hazard weighting function $R(\lambda)$	botek Anbotek Anbotek	Pint
	(from Figure 4.2 and Table 4.2), i.e., the burn hazard weighted radiance, shall not exceed the levels defined by:	Anbotek Anbotek Anbo	potek
nbotek	$L_{\rm R} = \sum_{380}^{1400} L_{\lambda} \cdot R(\lambda) \cdot \Delta \lambda \le \frac{50000}{\alpha \cdot t^{0,25}} \qquad \qquad {\rm W} \cdot {\rm m}^{-2} \cdot {\rm sr}^{-1}$	Antotek Anbotek	Anbore Anbore
3.6	Retinal thermal hazard exposure limit - weak visual s	stimulus	Pab
	For an infrared heat lamp or any near-infrared source where a weak visual stimulus is inadequate	botek Anboten Anbo	P P
	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	Anbotek Anborek An	otek
botok	limited to:	Amborok Amborok	Pet
Anbotek	$L_{\rm IR} = \sum_{780}^{1400} L_{\lambda} \cdot R(\lambda) \cdot \Delta \lambda \le \frac{6000}{\alpha} \qquad \qquad W \cdot m^{-2} \cdot {\rm sr}^{-1}$	ek Anbotek Anbote	Ant
3.7	Infrared radiation hazard exposure limits for the eye	alek anboten Anbo	Р
	The avoid thermal injury of the cornea and possible delayed effects upon the lens of the eye	nbotek Anbotek Anbote	otek
	(cataractogenesis), ocular exposure to infrared radiation, EIR, over the wavelength range 780 nm to 3000 nm, for times less than 1000 s, shall not	Anbotek Anbotek Ant	inbotek
Anbotek	exceed: $E_{\text{IR}} = \sum_{\lambda}^{3000} E_{\lambda} \cdot \Delta \lambda \le 18000 \cdot t^{-0.75} \qquad \text{W} \cdot \text{m}^{-2}$	Anbotek Anbotek	P
	780	sek aboten Anbo	. Ker

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	EN 62471:2008		
Clause	Requirement + Test	Result – Remark	Verdict
unbotek	$E_{\rm IR} = \sum_{780}^{3000} E_{\lambda} \cdot \Delta \lambda \le 100 \qquad W \cdot m^{-2}$	Anbotek Anbotek	Anbotek
4.3.8	Thermal hazard exposure limit for the skin	an problem in moter	P
Anbus Anb	Visible and infrared radiant exposure (380 nm to 3000 nm) of the skin shall be limited to:	potek Anbotek Anbotek Anbotek	PAN
stek p	$E_{H} \cdot t = \sum_{380}^{3000} \sum_{t} E_{\lambda}(\lambda, t) \cdot \Delta t \cdot \Delta \lambda \le 20000 \cdot t^{0,25} \qquad J \cdot m^{-2}$	Anboten Anbotek	nbotek
5	MEASUREMENT OF LAMPS AND LAMP SYSTEM	S Ant v otek	Nob P
5.1	Measurement conditions	ak aboten Anto	Pot
Anbotel	Measurement conditions shall be reported as part of the evaluation against the exposure limits and the assignment of risk classification.	otek Anbotek Anbotek	AP Anb
5.1.1	Lamp ageing (seasoning)	abor Arr	N/A
ICK P	Seasoning of lamps shall be done as stated in the appropriate IEC lamp standard.	Anbotek Anbo, A.	N/A
5.1.2	Test environment	mboten And	P
	For specific test conditions, see the appropriate IEC lamp standard or in absence of such standards, the appropriate national standards or manufacturer's	Anbotek Anbotek	Ante P Anbote
	recommendations.	Her Anbo k notek	ant
5.1.3	Extraneous radiation	Hek poter And	P P
ak pr	Careful checks should be made to ensure that extraneous sources of radiation and reflections do not add significantly to the measurement results.	Anbotek Anbotek Anbo	o ^{otek}
5.1.4	Lamp operation	abore And	
Anbotek	Operation of the test lamp shall be provided in accordance with:	Anbotek Anbotek	And Pel
aboten	 the appropriate IEC lamp standard, or 	ek anboten Anbo	N/A
Anbot	 the manufacturer's recommendation 	hotek Anbolek Anbote	P
5.1.5	Lamp system operation	alk botek Anbo	Р
stek An	The power source for operation of the test lamp shall be provided in accordance with:	Anboro Ann	poten P
- Ne	 the appropriate IEC standard, or 	And ok hotek	N/A
nbote	- the manufacturer's recommendation	Anbore An-	AntProt
5.2	Measurement procedure	rek Anbo	Place
5.2.1	Irradiance measurements	ak boten Anbo	Р
Pur	Minimum aperture diameter 7mm.	por Ann solt spot	PN
ing .	Maximum aperture diameter 50 mm.	potek Anboi Air	Nex P
hek.	The measurement shall be made in that position of the beam giving the maximum reading.	An-	P P
nbotek	The measurement instrument is adequate calibrated.	Anbotek Anboten	Ant Pek
5.2.2	Radiance measurements	A potek Anbo	Р
5.2.2.1	Standard method	All sole sooten	P
1001	The measurements made with an optical system.	sek abor pri	P

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Clause	Requirement + Test	Result – Remark	Verdict
Anbotek Anbotek	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.	Anborek Anborek	Anborek Anborek
5.2.2.2	Alternative method	otek anbo h	N/A
otek p	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.	Anborek Anborek Anb	N/A
5.2.3	Measurement of source size	K abote And	Pote
Anbotek	The determination of α , the angle subtended by a source, requires the determination of the 50% emission points of the source.	otek Anbotek Anbote	AP Anb
5.2.4	Pulse width measurement for pulsed sources	aboron Arribe	N/A
hbotek Ar	The determination of Δt , the nominal pulse duration of a source, requires the determination of the time during which the emission is > 50% of its peak value.	Anbotek Anbotek An	N/A
5.3	Analysis methods	k Nuporen pro	Rote
5.3.1	Weighting curve interpolations	y watek anbor	P
Anti- Anbot	To standardize interpolated values, use linear interpolation on the log of given values to obtain intermediate points at the wavelength intervals desired.	nbotek Anbotek Anbotek Anbotek	Pin ^{lo}
5.3.2	Calculations	Arry boten Ar	P
Anbotek Anbotek	The calculation of source hazard values shall be performed by weighting the spectral scan by the appropriate function and calculating the total weighted energy.	Anborek Anborek	AnbotP
5.3.3	Measurement uncertainty	Ar pak aboter	Pupt
Anbor	The quality of all measurement results must be quantified by an analysis of the uncertainty.	botek Anbor An	e ^x P _№
6 An	Lamp Classification		ootek P
poter	For the purposes of this standard it was decided that the values shall be reported as follows:	Anbotek Anbot At	AnbottP
Anbotek Anbotek Anbote	 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 	Distance=304mm	Ant P lex Anbot
otek p	 for all other light sources, including pulsed lamp sources, the hazard values shall be reported at a distance of 200 mm 	Anborek Anborek Ant	N/A
6.1	Continuous wave lamps	Anbo	Nupp
6.1.1	Risk Group 0 (Exempt)	ek oboten Anbo	P
Anbotel	In the except group are lamps, which does not pose any photobiological hazard. The requirement is met by any lamp that does not pose:	otek Anbotek Anbote	PP

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Clause	Requirement + Test	Result – Remark	Verdict	
Anbotek	 an actinic ultraviolet hazard (ES) within 8-hours exposure (30000 s), nor 	Anbotek Anbotek Anbotek Anbotek	Anbotek	
Anbote Anb	 a near-UV hazard (EUVA) within 1000 s, (about 16 min), nor 	botek Anbotek Anbotek Anbote Anbotek Anbotek Anbote	P Anbr	
otek I	 a retinal blue-light hazard (LB) within 10000 s (about 2,8 h), nor 	Anbotek Anbotek Anbotek	hbotelP Anbotek	
Anbore	- a retinal thermal hazard (LR) within 10 s, nor	ek Anboro Ann otek	Poter	
Anbore	 an infrared radiation hazard for the eye (EIR) within 1000 s 	otek Anbotek Anbotek	PAnbo	
6.1.2	Risk Group 1 (Low-Risk)	Anborn Ann tek nb	N/A 🕅	
stek p	In this group are lamps, which exceeds the limits for the except group but that does not pose:	Anbotek Anbor H.	N/A	
nbore	 an actinic ultraviolet hazard (ES) within 10000 s, nor 	Anborek Anborek	N/A	
Anbotek	 a near ultraviolet hazard (EUVA) within 300 s, nor 	ntek Anbotek Anbotek	N/A	
Anbo	- a retinal blue-light hazard (LB) within 100 s, nor	botek Anbor An	N/A N/A	
tek Al	– a retinal thermal hazard (LR) within 10 s, nor	botek Anboten And	N/A	
ibotek	 an infrared radiation hazard for the eye (EIR) within 100 s 	Anbotek Anbotek A	N/A	
Anborek	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	pek Anbotek Anbotek	N/A	
6.1.3	Risk Group 2 (Moderate-Risk)	nboten pnb	N/A	
ien pr	This requirement is met by any lamp that exceeds the limits for Risk Group 1, but that does not pose:	Anbotek Anbotek An	N/A	
portek.	 an actinic ultraviolet hazard (ES) within 1000 s exposure, nor 	Anbotek Anbotek	N/A	
Anbotek	 a near ultraviolet hazard (EUVA) within 100 s, nor 	ek Anbotek Anboto	N/A	
Anbor	 a retinal blue-light hazard (LB) within 0,25 s (aversion response), nor 	potek Anborek Anbol	N/A	
potek	 a retinal thermal hazard (LR) within 0,25 s (aversion response), nor 	Anbotek Anbotek An	N/A	
Anbotek	 an infrared radiation hazard for the eye (EIR) within 10 s 	Anbotek Anbotek	N/A	
Anbote	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.	potek Anbotek Anbotek	N/A	
6.1.4	Risk Group 3 (High-Risk)	boten Anbu	N/A	

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Clause	Requirement + Test	Result – Remark	Verdict
Anbotek	Lamps which exceed the limits for Risk Group 2 are in Group 3.	Anbotek Anboi	N/A
6.2	Pulsed lamps	ek Anboten Anb	N/A
Anbotes	Pulse lamp criteria shall apply to a single pulse and to any group of pulses within 0,25 s.	potek Anbotek Anbotek Anbotek	N/A
nbotek A	A pulsed lamp shall be evaluated at the highest nominal energy loading as specified by the manufacturer.	Anbotek Anbotek A	N/A
Anboren	The risk group determination of the lamp being tested shall be made as follows:	k Anboren Ano	N/A
Anbo	 a lamp that exceeds the exposure limit shall be classified as belonging to Risk Group 3 (High- Risk) 	otek Anbotek Anbotek	N/A
hotek	 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 	Anborov And Anborek Anborek A Anborek Anborek	N/A
Anbotek Anbot lek An	 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 	orek Anbotek Anbotek Anbotek Obotek Anbotek Anbotek Anbotek Anbotek Anbo	N/A

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EN 62471:2008					
Clause Requiremer		Result – Remark			
Table 4.1 Spectral weighting function for assessing Wavelength ¹ UV hazard function λ, nm S _{uv} (λ)		ultraviolet hazards for skin Wavelength λ, nm	and eye P UV hazard function S _w (λ)		
200	0,030	313*	0,006		
205	0,051	315	0,003		
210	0,075	316	0,0024		
215	0,095	317	0,0020		
220	0,120	318	0,0016		
225	0,150	319	0,0012		
230	0,190	320	0,0010		
235	0,240	322	0,00067		
240	0,300	323	0,00054		
245	0,360	325	0,00050		
250	0,430	328	0,00044		
254*	0,500	330	0,00041		
255	0,520	333*	0,00037		
260	0,650	335	0,00034		
265	0,810	340	0,00028		
270	1,000	345	0,00024		
275	0,960	350	0,00020		
280*	0,880	355 Anboten	0,00016		
285	0,770	360	0,00013		
290	0,640	365*	0,00011		
295	0,540	370	0,000093		
297*	0,460	375	0,000077		
300	0,300	380	0,000064		
303*	0,120	385	0,000053		
305	0,060	390	0,000044		
308	0,026	395	0,000036		
310	0,015	400	0,000030		

Wavelengths chosen are representative: other values should be obtained by logarithmic interpolation at intermediate wavelengths.

Emission lines of a mercury discharge spectrum.

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Clause	Requirement + Test	Result	t – Remark Verdict
able 4.2		ctions for assessing retinal hazards	
	Wavelength nm	Blue-light hazard function Β (λ)	Burn hazard function R (λ)
aboter	300	0,01	aboten Ann
P	305 100	0,01	he stek subore An
AUDA	310	0,01	Anbu
1	315	0,01	wet aboten And
	320	0,01	stek spore
boten	325	0,01	boten Anbr
.ek	330	0,01	tek aboten Ano
Aupo,	335	0,01	Anbo A pote
hotek	340	0,01	boten Anb
bu.	345	0,01	All all aboten And
Anbo	350	0,01	Anbon An rek
N- A	355	0,01	k hotek Anbo
be.	360	0,01	Ann ok boten
otek	365	0,01	otek anborn Ann ek
N.	370	0,01	nt potek Anbo
nboten	375	0,01	inboto Att hotel
Hek	380	0,01	0,1
Ano	385	0,013	0,13
- abor	390	0,025	0,25
- P.V.	395	0,05	0,5
An	400	0,10	1,0
Net.	405	0,20	2,0
0,2	410	0,40	4,0
hoter	415	0,80	8,0
Mar No.	420	0,90	9,0
Auport	425	0,95	9,5
hote	430	0,98	9,8
POP	435	1,00 Lotek Another	10,0
and	440	1,00	10,0
N	445	0,97	9,7
pres.	450	0,94	9,4
- otek	455	0,90	9,0
(CROV	460	0,80	8,0
NUPOter.	465	0,70	7,0
A. stel	470	0,62	6,2
Prior	475	0,55	5,5
- abc	480	0,45	4,5
po.	485	0,40	4,0
10K A	490	0,22	2,2
*eK	495	0,16	1,6
1001	500-600	10 ^[(450-λ)/50]	1,0
chotek	600-700	0,001	AM 10 4
An	700-1050	0,001	10 ^[(700-λ)/500]
Anbore	1050-1150	oter hall work	0.2
	1150-1200	ster subster sup-	0,2 0,2 ⁻ 10 ^{0,02(1150-λ)}
NOV	1200-1400	Anhor Ar hotely Anbote	0,02

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PC-EE-01-a

EN 62471:2008					
Clause	Requirement + Test	Ann	Res	ult – Remark	Verdict
Table 5.4	Summary of the ELs for values)	the surface of th	e skin or corne	ea (irradiance bas	sed P
Hazard Name	Relevant equation	Wavelength range (nm)	Exposure duration (sec)	Limiting aperture rad (deg)	EL in terms of constant irradiance (W•m ⁻²)
Actinic UV skin & eye	$E_{S} = \sum E_{\lambda} \bullet S(\lambda) \bullet \Delta \lambda$	200 – 400	< 30000	1,4 (80)	30/t
Eye UV-A	$E_{UVA} = \sum E_{\lambda} \bullet \Delta \lambda$	315 – 400	≤ 1000 > 1000	1,4 (80)	10000/t 10
Blue-light small source	$E_{B} = \sum E_{\lambda} \bullet B(\lambda) \bullet \Delta \lambda$	300 – 700	≤ 100 > 100	< 0,011	100/t 1,0
Eye IR	$E_{IR} = \sum E_{\lambda} \bullet \Delta \lambda$	780 –3000	≤ 1000 > 1000	1,4 (80)	18000/t ^{0,75} 100
Skin thermal	$E_{H} = \sum E_{\lambda} \bullet \Delta \lambda$	380 – 3000	< 10	2π sr	20000/t ^{0,75}

Table 5.5	Summary of the ELs for	the retina (radiar	nce based valu	es)	Net P N	
Hazard Name	Relevant equation	Wavelength range (nm)	Exposure duration (sec)	Field of view radians	EL in terms of constant radiance (W•m ⁻² •sr ⁻¹)	
Blue light	$L_{B} = \sum L_{\lambda} \cdot B(\lambda) \cdot \Delta \lambda$	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	$L_{R} = \sum L_{\lambda} \bullet R(\lambda) \bullet \Delta \lambda$	380 – 1400	< 0,25 0,25 – 10	0,0017 0,011•√(t/10)	50000/(α•t ^{0,25}) 50000/(α•t ^{0,25})	
Retinal thermal (weak visual stimulus)	$L_{IR} = \sum L_{\lambda} \bullet R(\lambda) \bullet \Delta \lambda$	780 – 1400	> 10	0,011	6000/α	

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	Doguiromon	t i Teet		12	N. Do	sult – Rer	norl		Verdict
Clause	Requiremen	P.U.	Pil		10 ·	19 V	S 62	orek	Verdict
Table 6.1	Emission limits for risk groups of continuous wave lamps (α=7.9 mrad) Lamp classification group: RG0 RG1 RG2 RG3 P								
Risk	Action spectrum	Symbol	Units	Emission Measurement					
				Exempt		Low risk		Mod risk	
				Limit	Result	Limit	Result	Limit	Result
Actinic UV	SUV(λ)	Anboi Es	W•m ⁻²	0.001	0.00e+00	0.003	0.00e+00	0.03	0.00e+00
Near UV	Anboi Anboi	EUVA	W•m ⁻²	0.33	0.00e+00	33	0.00e+00	100	0.00e+00
Blue light	Β(λ)	o ^{kek} LB	W•m⁻²•sr⁻¹	Ano	- Ant	otek_	Anbo	Anb	o ^{tek} - 1
Blue light, small source	Β(λ)	EB	W•m⁻²	0.01	5.20e-04	Anbotek	3.49e-02	400	3.49e-02
Retinal thermal	R(λ)	LR	W•m ⁻² •sr ⁻¹	3.54e+06	4.28e+03	3.54e+06	9.41e+03	8.98e+06	9.41e+03
Retinal thermal, weak visual stimulus**	R(λ)	LIR	W•m ⁻² •sr ⁻¹	5.45e+05	0.00e+00	5.45e+05	0.00e+00	5.45e+05	0.00e+00
IR radiation, eye	Anbotek	EIRotek	W•m ⁻²	100	0.00e+00	570	0.00e+00	3200	0.00e+00
Skin thermal	Anbotek	Ehanboi	W∙m-2	3.56e+03	2.00e-01	Anb	abotelt	Arbotek	Anbo

* Small source defined as one with α < 0.011 radian. Averaging field of view at 10000 s is 0.1 radian. ** Involves evaluation of non-GLS source.

Measurement Uncertainty Statement:

EB, Urel=2.52% (k=2) EUVA, Urel=2.52% (k=2) EIR, Urel=2.52% (k=2) Eh, Urel=2.52% (k=2) Es, Urel=15.14% (k=2) LB, Urel=2.84% (k=2) LR, Urel=2.84% (k=2) LIR, Urel=2.84% (k=2)

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Equipment Name	Manufacturer	Model No.	Reference No.	Calibration Due Date
Light Radiation Safety Test System	LINKCOLOR	LRS-104	SE-1164	2020-05-06
AC power source	LINKCOLOR	LCP-500R	SE-1192	2020-05-06
DC power supply	LINKCOLOR	M8874	SE-1193	2020-05-06
Digital Power Meter	YOKOGAMA	WT310	SE-1194	2020-05-06
Temperature & Humidity meter	Zhengzhou Boyang	HTC-1	SE-423	2020-05-06
Illuminance Standard Lamp	LINKCOLOR	LCL-100	SE-1195	2020-05-06
Brightness Standard Lamp	LINKCOLOR	LCL-200	SE-1196	2020-05-06
Deuterium Lamp	LINKCOLOR	LCL-300	SE-1197	2020-05-06
Illuminometer	LINKCOLOR	ST-80C	SE-1198	2020-05-06

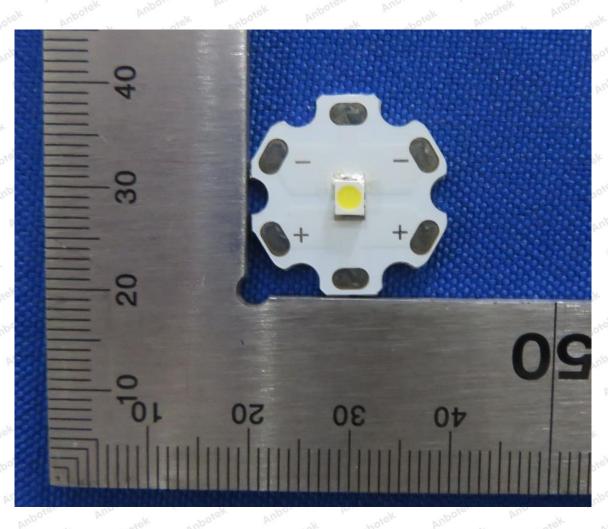
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Report No.: PCANL191022013-01 Attachment A – Product Photo



****END OF TEST REPORT****

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