

Report No.:18260LC20056801 Page 1 of 16

# **Test Report**

Meferi Technologies Co.,Ltd. Client Name

4501, 45th Floor, Building A, No. 530, Middle

Tianfu Avenue, High-tech Zone, Chengdu, **Client Address** 

China

**Product Name** : HANDHELD TERMINAL

**Report Date** 2023-02-28

Compliance Laborate Shenzhen Anbotek Carbotek jance Laboratory Limited \* Approved \*





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## **TEST REPORT**

IEC 62471:2006

Photobiological Safety of Lamps and Lamp Systems

Xander Yuan

Report Reference No.....: 18260LC20056801

Tested by Xander Yuan

(printed name + signature).....:

Supervised by

(printed name + signature)...... Jeff Zhu

Testing Laboratory...... Shenzhen Anbotek Compliance Laboratory Limited

Guangdong, China.

Testing location.....: Same as above

Applicant's Name...... Meferi Technologies Co.,Ltd.

4501, 45th Floor, Building A, No. 530, Middle Tianfu Avenue, High-

tech Zone, Chengdu, China

Test Specification:

Standard.....: IEC 62471:2006
Test procedure....: Type Test

Non-standard test method.....: N/A

Test Item Description...... HANDHELD TERMINAL

Trade Mark...... MEFERI

Manufacturer......Dongguan Unicair Communication Tec. Co., Ltd.

City, Guangdong Province, China

ME40L, ME41K, ME40S, ME40P

Ratings...... 220VAC,50Hz,18W

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 Compliance Laboratory Limited. The test results presented in this report relate only to the object tested.





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Summary of Testing:				
Tests performed (name of test and test clause):	Testing location:			
This appliance complies with IEC 62471:2006 standards requirements.  The EUTs passed relevant tests.	Tech Industrial Park, Huangtian, Hangcheng Street,			
Summary of Compliance with National Difference	S:  Dotek Anbotek			
Copy of Marking Plate:				
N/A Anborek Anbourek				





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Test Item Particulars:	
Tested lamp:	
Tested lamp system	
Lamp classification group	☐ RG0 Exempt
And otek Anbotek Anbot Ak hotek	☐ RG1 Low Risk
Anbo. A. botek Anbote Ans	□ RG2 Moderate Risk
tek Anbore Ans	☐ RG3 High Risk
Lamp cap	N/A Andores Andores
Test item description	HANDHELD TERMINAL
Test model	ME40K
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:	
Test inputs	220VAC,50Hz
Sample size for tested:	1pcs Andrek Anborek Anbor
Date of receipt of test item:	2022-12-27
Date (s) of performance of tests	2022-12-27
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.

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	IEC 62471:2006		
Clause	Requirement + Test	Result – Remark	Verdict
4	EXPOSURE LIMITS	Antes stek and	P
4.100 <sup>tex</sup>	General	poter Anbo.	· · · · · · · · · · · · · · · · · · ·
Par rel	The exposure limits in this standard is not less than	Arthur above	Anbo P K
	0,01 ms and not more than any 8-hour period and	er Aupor Air	anboten
	should be used as guides in the control of exposure	ok botek Anbo.	br.
Vien	Detailed spectral data of a light source are generally	object Am.	N/A
	required only if the luminance of the source exceeds	hotek Anbors Ali	14
V	10 <sup>4</sup> cd.m <sup>-2</sup>	Anbo,	b.
.3	Hazard exposure limits	And And	otek P
.3.1	Actinic UV hazard exposure limit for the skin and	Anbore An	P
nbo odn	eye	Ando	nboro
	The exposure limit for effective radiant exposure is	Anborer Anb	Pek
br.	30 J.m <sup>-2</sup> within any 8-hour period	by, tek spoke,	AUD
	To protect against injury of the eye or skin from	dek Anbo. A. dek	Poot
	ultraviolet radiation exposure produced by a	tek abotek Anbo	, P.
	broadband source, the effective integrated spectral	Apore An tek abore	V.
	irradiance, ES, of the light source shall not exceed	Pupor Vin	*ek
- 26	the levels defined by:	And Andrew Andrew	
	$E_{s} \cdot t = \sum_{i}^{400} \sum_{j} E_{j}(\lambda, t) \cdot S_{11V}(\lambda) \cdot \Delta t \cdot \Delta \lambda \le 30$ J·m <sup>-2</sup>	Anbores And	Pore
	$E_{s} \cdot t = \sum_{200} \sum_{t} E_{\lambda}(\lambda, t) \cdot S_{UV}(\lambda) \cdot \Delta t \cdot \Delta \lambda \le 30$ J·m <sup>-2</sup>	A stek anbote P	Ur
Pupo	200 1	Aupo Karak	Aupore
	The permissible time for exposure to ultraviolet	ek aboten Anbe	P. P.
	radiation incident upon the unprotected eye or skin	of Ali	Aupa
DU	shall be computed by:	potek Anbor Ar	D.O
	$t_{\text{max}} = \frac{30}{2}$ s $t_{\text{max}} = \frac{30}{2}$	no ok botek Anbo.	P <sub>ru</sub>
	Es Anbo	Anbore Ant she	rek
.3.2	Near-UV hazard exposure limit for eye	hotek Anbor Al	, P
	For the spectral region 315 nm to 400 nm (UV-A)	And ak abotek At	₩ P
	the total radiant exposure to the eye shall not	Anbore And	potek
	exceed 10000 J.m <sup>-2</sup> for exposure times less than	k hotek Anbore	VI.
	1000 s. For exposure times greater than 1000 s	And K hotek	Aupo,
	(approximately 16 minutes) the UV-A irradiance for	stek anboter And	
	the unprotected eye, EUVA, shall not exceed 10	hoo. A. Otek Anbote.	Dur
3/4	W.m <sup>-2</sup> .	Pupo, N.	elt _
	The permissible time for exposure to ultraviolet	Arr. Andrew Andrew	Р
	radiation incident upon the unprotected eye for time	Anbo, Ar.	Do <sub>fer</sub>
hotek	less than 1000 s, shall be computed by:	polsk Bupo, by	~o¹P
	$t_{\text{max}} \leq \frac{10000}{\Gamma}$ s s	Aug polek	Aupo P
	EUVA OTOR AMBO	tek Aupore Au	pote
3.3	Retinal blue light hazard exposure limit	lek botek Anbor	P
Pire	To protect against retinal photochemical injury from	hore All stek apporter	Pup
	chronic blue-light exposure, the integrated spectral	abotek Anbo	N. Y.
	radiance of the light source weighted against the	tek abotek Anbo	-\/-
	blue-light hazard function, $B(\lambda)$ , i.e., the blue-light	Aupor Air	oter
	weighted radiance, LB, shall not exceed the levels	hotek Anbor Ar	-xek
	defined by:	And work	Vupo.
Vupa <sub>ts</sub> ,	700	er vupore yun	-\p
	$L_{\rm B} \cdot t = \sum_{\lambda} \sum_{\lambda} L_{\lambda}(\lambda, t) \cdot B(\lambda) \cdot \Delta t \cdot \Delta \lambda \le 10^6 \qquad \text{J} \cdot \text{m}^{-2} \cdot \text{sr}^{-1}$	V nek noots	Vien
	300 t	otek Anbo Arek	Anbo
	abliter And Andrew Andrew	cek shotek Anbo	V
	West Nupo W.	pore Arre	E 61

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	IEC 62471:2006		
Clause	Requirement + Test	Result – Remark	Verdict
Anbotek Anbotek	$L_{\rm B} = \sum_{300}^{700} L_{\lambda} \cdot B(\lambda) \cdot \Delta \lambda \le 100 \qquad \qquad W \cdot m^{-2} \cdot sr^{-1}$	Anbotek Anbotek An	Ambotek
4.3.4	Detinal blue light hazard avacques limit, amall course	K hotek Arhoter	VIVV FOR
rek Anb	Retinal blue light hazard exposure limit - small source 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	Upotek Vupotek Vupotek	N/A N/A
Aupolek	$E_{B} \cdot t = \sum_{300}^{700} \sum_{t} E_{\lambda}(\lambda, t) \cdot B(\lambda) \cdot \Delta t \cdot \Delta \lambda \le 100 \qquad J \cdot m^{-2}$	Anbotek Anbotek Ant	N/A
Anbore	$E_{\rm B} = \sum_{300}^{700} E_{\lambda} \cdot B(\lambda) \cdot \Delta \lambda \le 1 \qquad \qquad W \cdot m^{-2}$	tek Anbotek Anbotek	N/A
4.3.5	Retinal thermal hazard exposure limit	niek mhořem And	P
Anbotek Anbotek	To protect against retinal thermal injury, the integrated spectral radiance of the light source, L $\lambda$ , weighted by the burn hazard weighting function R( $\lambda$ ) (from Figure 4.2 and Table 4.2), i.e., the burn hazard weighted radiance, shall not exceed the levels defined by:	Anbotek Anbotek Anbotek Anbotek	PAnti stek Ant hotek
ok Pupotek	$L_{\rm R} = \sum_{380}^{1400} L_{\lambda} \cdot R(\lambda) \cdot \Delta \lambda \le \frac{50000}{\alpha \cdot t^{0.25}}$ W · m <sup>-2</sup> · sr <sup>-1</sup>	ek abotek Anbo	Aupotek Variotek
4.3.6	Retinal thermal hazard exposure limit – weak visual s	stimulus	Arr
Anbotek Anbotek Anbotek	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:	Anbotek Anbotek Anbotek  Anbotek Anbotek Anbotek A	hotek Anbotek
k Aupot	$L_{\rm IR} = \sum_{780}^{1400} L_{\lambda} \cdot R(\lambda) \cdot \Delta \lambda \le \frac{6000}{\alpha} \qquad W \cdot m^{-2} \cdot \text{sr}^{-1}$	botek Anbotek Anbotek	Anbotek Anbotek
4.3.7	Infrared radiation hazard exposure limits for the eye	aboten Anb	ek P anbo
Anbotek Anbotek	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:	Anbotek Anbotek Anbotek Anbotek	potek P Ar Anbotek Anbotek
otek Aupo	$E_{\text{IR}} = \sum_{780}^{3000} E_{\lambda} \cdot \Delta \lambda \le 18000 \cdot t^{-0.75}$ W·m <sup>-2</sup>	otek Anbotek Anbotek	ek Anbo
potek	For times greater than 1000 s the limit becomes:	potek Aupo, Ai	» P
Aupotek	$E_{\rm IR} = \sum_{780}^{3000} E_{\lambda} \cdot \Delta \lambda \le 100 \qquad \qquad \mathbf{W} \cdot \mathbf{m}^{-2}$	Anbotek Anbotek An	Yupotek
4.3.8	Thermal hazard exposure limit for the skin		Nup P

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	IEC 62471:2006		
Clause	Requirement + Test	Result – Remark	Verdict
Anbotek	Visible and infrared radiant exposure (380 nm to 3000 nm) of the skin shall be limited to:	Anbotek Anbotek An	otek
Anbotek	Anbotek Anbotek Anbotek Anbote	Anbotek Anbotek	Aupotek -
ek Aupo	$E_{H} \cdot t = \sum_{380}^{3000} \sum_{t} E_{\lambda}(\lambda, t) \cdot \Delta t \cdot \Delta \lambda \le 20000 \cdot t^{0.25}$ J · m <sup>-2</sup>	stek Aupolek Aupolek	Phoofe
5	MEASUREMENT OF LAMPS AND LAMP SYSTEMS	Spo. Stek Mode	P ₽n
5.1	Measurement conditions	boten Anbe	otek P
Anbotek	Measurement conditions shall be reported as part of the evaluation against the exposure limits and the assignment of risk classification.	Anbotek Anbotek An	inbotek P
5.1.1	Lamp ageing (seasoning)	And ok botek	N/A
Anbore	Seasoning of lamps shall be done as stated in the appropriate IEC lamp standard.	tek Anbore Ans	N/A
5.1.2	Test environment	bote. And	PAnbo
	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 Anb	otek P An
	recommendations.	Anbo. A. Arek	upote.
5.1.3	Extraneous radiation	upores And	~oP <sup>™</sup>
Anborek	Careful checks should be made to ensure that extraneous sources of radiation and reflections do not add significantly to the measurement results.	ek Aupotek Aupotek	Anbotek Anbotek
5.1.4	Lamp operation	poter And ak hotel	Bylipo,
Josek Ar	Operation of the test lamp shall be provided in accordance with:	Anbotek Anbotek Anb	rek P Ant
Aupor	the appropriate IEC lamp standard, or	Auport Air.	N/A
Anbore	the manufacturer's recommendation	Anbore Am borek	Anbo'P"
5.1.5	Lamp system operation	ok anbore Am	Potek
k Anbot	The power source for operation of the test lamp shall be provided in accordance with:	lotek Anbotek Anbote	Anbore Anbore
otek An	<ul> <li>the appropriate IEC standard, or</li> </ul>	shotek Anbote And	N/A
hotek	- the manufacturer's recommendation	All hotek Anbotek Anbo	P P
5.2	Measurement procedure	VII. TOK Spores VI	P '
5.2.1	Irradiance measurements	Anbo, Al.	- NootP
hotek	Minimum aperture diameter 7mm.	k botek Anbo.	P. Prek
Vier	Maximum aperture diameter 50 mm.	An potek	ANP.
Anbor	The measurement shall be made in that position of the beam giving the maximum reading.	otek Anbors Anbotek	P <sub>hbote</sub>
yer An	The measurement instrument is adequate calibrated.	inbotek Anbotek Anbot	ek P Anb
5.2.2	Radiance measurements	Anbo. A. stek and	over P
5.2.2.1	Standard method	Polsk Vipo, William	, deP
All.	The measurements made with an optical system.	Ar. botek	YUDO P
Anbore	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.	nek Anbotek Anbotek	Anbotek Anbotek

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	IEC 62471:2006		
Clause	Requirement + Test	Result – Remark	Verdict
5.2.2.2	Alternative method	Anbotek Anbotek An	N/A
Anbore Anb	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.	otek Anbotek Anbotek	N/A
5.2.3	Measurement of source size	aboter And	otek P
Anbotek	The determination of $\alpha$ , the angle subtended by a source, requires the determination of the 50% emission points of the source.	Vipotek Vipotek Vi	inbotel P
5.2.4	Pulse width measurement for pulsed sources	Aug.	N/A
** Aupote	The determination of $\Delta t$ , the nominal pulse duration of a source, requires the determination of the time during which the emission is > 50% of its peak value.	tek Anbotek Anbotek botek Anbotek Anbotek	N/A
5.3	Analysis methods	Aupon Art tek	oge P
5.3.1	Weighting curve interpolations	botek Anbo	<sub>Ne</sub> P
Anbotek Anbotek	To standardize interpolated values, use linear interpolation on the log of given values to obtain intermediate points at the wavelength intervals desired.	ek Anbotek Anbotek Anbotek	Anbotek Anbotek
5.3.2	Calculations	sak above And	Р.,
otek Ar	The calculation of source hazard values shall be performed by weighting the spectral scan by the appropriate function and calculating the total weighted energy.	Vipotek Vipotek Vipotek	iek bu
5.3.3	Measurement uncertainty	VI. Sek Spoiet V	P
Anbor	The quality of all measurement results must be quantified by an analysis of the uncertainty.	anbotek Anbotek	Anbo'P
6	Lamp Classification	Anboret Anboret	AUD.
rek an	For the purposes of this standard it was decided that the values shall be reported as follows:	otek Anbotek Anbotek	P <sub>upo</sub> ,
Anbotek Anbotek	- 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	Anbotek Anbotek Anbotek Anbotek Anbotek Anbotek	N/A
tek Aupog	<ul> <li>for all other light sources, including pulsed lamp sources, the hazard values shall be reported at a distance of 200 mm</li> </ul>	otek Anbotek Anbotek	P Anbore
6.1%	Continuous wave lamps	tek uporen And	<sub>A</sub> P
6.1.1	Risk Group 0 (Exempt)	Anbour Mark An	P
Anbotek	In the except group are lamps, which does not pose any photobiological hazard. The requirement is met by any lamp that does not pose:	Anbotek Anbotek	hupotek Vupotek
ek Anbore	an actinic ultraviolet hazard (ES) within 8-hours exposure (30000 s), nor	ntek Anbotek Anbotek	P Anbotel

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	IEC 62471:2006		
Clause	Requirement + Test	Result – Remark	Verdict
Anbotek	<ul> <li>a near-UV hazard (EUVA) within 1000 s, (about 16 min), nor</li> </ul>	Anbotek Anbotek An	Aupotek
ek Anbor	a retinal blue-light hazard (LB) within 10000 s     (about 2,8 h), nor	stek Anbotek Anbotek	Anbore Anbore
orek	- a retinal thermal hazard (LR) within 10 s, nor	sotek Anbotek Anbe	P P
Anbotek	<ul> <li>an infrared radiation hazard for the eye (EIR) within 1000 s</li> </ul>	Anbotek Anbotek An	unbotek P
3.1.2	Risk Group 1 (Low-Risk)	K Vuposon Vupo	N/A
Anbote	In this group are lamps, which exceeds the limits for the except group but that does not pose:	tek Anbotek Anbotek	N/A
k Aup	an actinic ultraviolet hazard (ES) within 10000 s, nor	lbotek Anbotek Anbote	N/A
unbotek .	<ul> <li>a near ultraviolet hazard (EUVA) within 300 s, nor</li> </ul>	Anbotek Anbotek Ant	N/A
	a retinal blue-light hazard (LB) within 100 s, nor	. nbotek Anbor	N/A
abotel	a retinal thermal hazard (LR) within 10 s, nor	ek społek Aupole	N/A
Anb	<ul> <li>an infrared radiation hazard for the eye (EIR) within 100 s</li> </ul>	ootek Anbotek Anbotek	N/A
nbotek nbotek	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.	Anbotek Anbotek Anb	N/A M
6.1.3	Risk Group 2 (Moderate-Risk)	And stek antotek	N/A
Aupo,	This requirement is met by any lamp that exceeds the limits for Risk Group 1, but that does not pose:	ek Anbor Anborek	N/A
	an actinic ultraviolet hazard (ES) within 1000 s     exposure, nor	botek Anbotek Anbotek	N/A
ipotek K	a near ultraviolet hazard (EUVA) within 100 s, nor	Aupotek Vilpotek Vil	N/A
Anborek	a retinal blue-light hazard (LB) within 0,25 s (aversion response), nor	Vupojek Vupojek	N/A
Anbo	a retinal thermal hazard (LR) within 0,25 s (aversion response), nor	otek Anbotek Anbotek	N/A Anbore
ek An	an infrared radiation hazard for the eye (EIR)     within 10 s	Inbotek Anbotek Anbot	N/A <sub>Anb</sub>
Aupotek	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.	Anbotek Anbotek An	N/A
6.1.4	Risk Group 3 (High-Risk)	the Pupor by	N/A
Anbot.	Lamps which exceed the limits for Risk Group 2 are in Group 3.	otek Aupoter Aupotek	N/A
6.2	Pulsed lamps	Sotek Anbo. A.	N/A

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	IEC 62471:2006		
Clause	Requirement + Test	Result – Remark	Verdict
Anbotek Anbotek	Pulse lamp criteria shall apply to a single pulse and to any group of pulses within 0,25 s.	Anbotek Anbotek An	N/A
tek Aup	A pulsed lamp shall be evaluated at the highest nominal energy loading as specified by the manufacturer.	Upotek Aupotek Aupotek	N/A
potek	The risk group determination of the lamp being tested shall be made as follows:	Pupotek Vupotek Vu	N/A
	<ul> <li>a lamp that exceeds the exposure limit shall be classified as belonging to Risk Group 3 (High- Risk)</li> </ul>	Anbotek Anbotek	N/A
ootek Anbr	<ul> <li>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</li> </ul>	Anbotek Anbotek Anbote Anbotek Anbote	N/A
Anbotek Anbotek Anbotek	<ul> <li>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</li> </ul>	Anbotek Anbotek Anbotek  Anbotek Anbotek  Anbotek Anbotek	N/A





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		IEC 624	71:2006	
Clause	Requirement		Result – Remark	560
able 4.1			ultraviolet hazards for skin	
	elength¹ , nm	UV hazard function Sω(λ)	Wavelength λ, nm	UV hazard function S <sub>w</sub> (λ)
Ar.	200 Anbore	0,030	313*	0,006
K VI	205 <sub>Minb</sub> ote	0,051	315	0,003
V. VIII	210	0,075	316	0,0024
OTO P	215	0,095	aborek 317°	0,0020
"upose"	220	0,120	318	0,0016
Anbore	225	0,150	abotek 319 Anbote	0,0012
Anbore	230	0,190	320 Anbore	0,0010
Anbe	235	0,240	322	0,00067
stek A	240	0,300	323	0,00054
-otek	245	0,360	325	0,00050
, otek	250 No. 10 No.	0,430	328	0,00044
Anb	254* Noote	0,500	Aug 330 March	0,00041
VUP	255	0,520	333*	0,00037
Anb	260	0,650	335	0,00034
PL.	265	0,810	340	0,00028
botek	270	1,000	345	0,00024
Aupotek	275	0,960	350 Andrew	0,00020
Anbotek	280*	0,880	355	0,00016
anbot	285	0,770	360	0,00013
sk m	290	0,640	365*	0,00011
rek	295	0,540	370	0,000093
otek 2	297*	0,460	375	0,000077
Anbo rek	300	0,300	380	0,000064
Anbo	303*	0,120	385	0,000053
Aupon	305	0,060	390	0,000044
k Vul	308	0,026	395	0,000036
otek	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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	No.:18260LC2005	IEC 62471:2	2006		
Clause	Requirement + Test	VII.		– Remark	Verdict
Table 4.2		nctions for assessing re		from broadband optical	P
V	sources	notione for decodering to	and Hazardo	A Sole Price	100,
Wavelength nm		Blue-light hazard Β (λ)	function	Burn hazard fund R (λ)	tion
bu.	x 300 boten Anti	0,01	Vupo,	In abover	Ano-
Aupo,	305	0,01	i otek	Vupose Yun	200
'K N	otek 310 Ande	0,01	Vinn	botek Anbox	
Nu	315	0,01	Anborra	And Lek abot	ek Ar
otek D	anbo 320 March	0,01 And	- V 1031	Sir William Ville	*ek
- N	325	0,01	S. Vill	ak botek An	00,
Tupo,	330 × 100 ×	0,01	otek ant	Day Bu	abotek
POJEK	335	0,01	, V	hotek Anbor	P. rek
Vu.	340 ATT	0,01	Vupo <sub>to</sub>	but potek	Aupa.
Vupo.s.	345	0,01	Lotek	Aupor Au	abo <sup>†</sup>
6 60	350	0,01	VIII.	hotek Anbert	P.1.
Pu.o.	355	0,01	Vupore	Dun Pak Phole	N. Vu
otek a	360	0,01	v wore	k Auport Aur	*ek
No.	365	0,01	Min	ok hotek Ant	,0
upot.	370 × 3001	0,01	otek nob	dr. bus	boles
POJEK	375	0,01	.V	botek Anboro	- tek
Dun	380 otel Anti-	0,01	upoter P	0,1	AUDO,
Vupor	385	0,013	- Otek	0,13	nbo <sup>†</sup>
- no	390	0,025	Aribo	0,25	P. (1)
bru,	395 Notes	0,05	Vupote	0,5	PU.
rek ar	400	0,10	v indie	1,0	rek-
-V-	405	0,20	Bug	2,0	01
100101	410	0,40	riek nob	4,0	-porek
- otek	415	0,80	V /	8,0	rek
Dug.	420	0,90	upoter A	9,0	Aupole
Vupote,	425	0,95	o'ek	9,5	-pore
	430	0,98	Vupo.	9,8	AUL
Pulo.	435	1,00	aborer	10,0	And
ek m	440	1,00	Ar.	10,0	· ok
V	445	0,97	VIII0	9,7	1
poter	450	0,94	itek Anbo	9,4	hotel
Note	455	0,90	), by	9,0	or ex
Pupo.	460	0,80	potek Ar	8,0	Aupolo
Vupo, er	465	0,70	S.C.K.	7,0	hotel
by.	470	0,62	VIIIO.	6,2	PUL
Pupo.	475	0,55	" upotek	5,5	Anbe
k ak	480	0,45	Di.	4,5	a\forall
by.	485	0,40	Pupo.	4,0	4
10,01	490	0,40	ek abot	2,2	workey.
*ek	495	0,22	D11.	1,6	N. K.
Zupo,	500-600	10 <sup>[(450-λ)/50]</sup>	porck An	1,0	Aupole.
"potek	600-700	0,001	No.	1,0	" Ofek
Mr.		0,001	VII.PO.	1,0 10 <sup>[(700-λ)/500]</sup>	PUPP
Pupo,	700-1050	upote, Mun	-potek	0,2	AUPO
100	1050-1150	Potek Wipote.	An	0,2·10 <sup>0,02</sup> (1150	
VIII	1150-1200	YUD OF POICK	Anboro		6, 70
rek.	1200-1400	hote. And		0,02	- AV

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IEC 62471:2006								
Clause	Requirement + Test	aboter	Res	ult – Remark	Verdict			
Table 5.4	Summary of the ELs for values)	r the surface of th	e skin or corne	a (irradiance base	ed 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 $E_S = \sum E_{\lambda} \cdot S(\lambda) \cdot \Delta$		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 <sup>0,75</sup> 100			
Skin thermal	$E_H = \sum E_\lambda \bullet \Delta \lambda$	380 – 3000	< 10	2π sr	20000/t <sup>0,75</sup>			

Table 5.5	able 5.5 Summary of the ELs for the retina (radiance based values)					
Hazard Name	I Relevant editation I range I ditration I		Field of view radians	EL in terms of constant radiance (W•m <sup>-2</sup> •sr <sup>-1</sup> )		
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 <sup>6</sup> /t 10 <sup>6</sup> /t 10 <sup>6</sup> /t 100	
Retinal thermal	$L_{R} = \sum L_{\lambda} \cdot R(\lambda) \cdot \Delta \lambda$	380 – 1400	< 0,25 0,25 – 10	0,0017 0,011•√(t/10)	50000/(α•t <sup>0,25</sup> ) 50000/(α•t <sup>0,25</sup> )	
Retinal thermal (weak visual stimulus)	$L_{IR} = \sum L_{\lambda} \cdot R(\lambda) \cdot \Delta \lambda$	780 – 1400	> 10	0,011	6000/α	





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			IE	C 62471:	2006				
Clause	Requiremen	t + Test	polek	Anbo	Re	sult – Ren	nark	Vier	Verdict
Γable 6.1	Emission limits for risk groups of continuous wave lamps (α=57.7 mrad)  Lamp classification group: ⊠ RG0 □ RG1 □ RG2 □ RG3								
Risk	Action spectrum	Symbol	Units	Emission Measurement					
				Exempt		Low risk		Mod risk	
				Limit	Result	Limit	Result	Limit	Result
Actinic UV	SUV(λ)	A/Es	W•m⁻²	0.001	1.12e-02	0.003	1.12e-02	0.03	1.12e-02
Near UV	Pupoten	EUVA	W•m <sup>-2</sup>	0.33	1.09e-02	33 Amb	1.09e-02	100	1.09e-02
Blue light	Β(λ)	otek LB A	W•m <sup>-2</sup> •sr <sup>-1</sup>	100	7.80e-01	10000	1.12e+01	4000000	1.17e+01
Blue light, small source	Β(λ)	inbotek EB	W•m⁻²	k Pupok	otek Ar	Anborek	And Anbotel	Fek Tup	nbotek .
Retinal thermal	R(λ)	LR <sup>ootek</sup>	W•m <sup>-2</sup> •sr <sup>-1</sup>	4.85e+05	1.32e+02	4.85e+05	1.38e+02	1.23e+06	1.38e+02
Retinal thermal, weak visual stimulus**	R(\lambda)	LIR AF	W•m⁻²•sr¹	1.04e+05	9.90e-01	1.04e+05	9.90e-01	1.04e+05	9.90e-01
IR radiation, eye	Anbotek anbotek	EIR	W•m <sup>-2</sup>	100	1.81e-03	570	1.81e-03	3200	1.81e-03
Skin thermal	Anborek	Eh <sup>hnbot</sup>	W·m-2	3.56e+03	6.75e-02	k Anbo	potek_	Aupotek Tupotek	Anbore

<sup>\*</sup> Small source defined as one with  $\alpha$  < 0.011 radian. Averaging field of view at 10000 s is 0.1 radian.

#### **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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<sup>\*\*</sup> Involves evaluation of non-GLS source.



**Test Equipment** 

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Equipment Name	Manufacturer	Model No.	Reference No.	Calibration Due Date
Light Radiation Safety Test System	LINKCOLOR	LRS-104	SE-1164	2023-04-26
AC power source	LINKCOLOR	LCP-500R	SE-1192	2023-04-23
DC power supply	LINKCOLOR	M8874	SE-1193	2023-04-23
Temperature & Humidity meter	Zhengzhou Boyang	HTC-1	SE-423	2023-05-08
Illuminance Standard Lamp	LINKCOLOR	LCL-100	SE-1195	2023-04-26
Brightness Standard Lamp	LINKCOLOR	LCL-200	SE-1196	2023-04-26
Deuterium Lamp	LINKCOLOR	LCL-300	SE-1197	2023-04-26
Illuminometer	LINKCOLOR	ST-80C	SE-1198	2023-05-09







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## Attachment A - Product Photo





\*END OF TEST REPORT

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