Prüfbericht - Produkte
Test Report - Products

TÜVRheinland®

Prüfbericht-Nr.: *Test report no.:*	CN22SSYC 001	**Auftrags-Nr.:** *Order no.*:	168368724	**Seite 1 von 64** *Page 1 of 64*
Kunden-Referenz-Nr.: *Client reference no.:*	N/A	**Auftragsdatum:** *Order date:*	2022-04-09	
Auftraggeber: *Client:*	**Shenzhen Meantop Optoelectronics Co., Ltd** Floor 3rd, Building 11 North, Changxing Science & Industrial Park, Changzhen Community, Yutang Street, Guangming District, Shenzhen			
Prüfgegenstand: *Test item:*	LED Strip			
Bezeichnung / Typ-Nr.: *Identification / Type no.:*	MT-FaQbVdZ-Wx (Details see product information)			
Auftrags-Inhalt: *Order content*:	Type test			
Prüfgrundlage: *Test specification:*	EN 62471:2008 IEC 62471:2006			

Wareneingangsdatum: *Date of sample receipt:*	2022-05-25	See photo document
Prüfmuster-Nr.: *Test sample no:*	B220525001-001-016	
Prüfzeitraum: *Testing period:*	2022-05-25-2022-06-09	
Ort der Prüfung: *Place of testing:*	**See page 3**	
Prüflaboratorium: *Testing laboratory:*	**TÜV Rheinland (Shenzhen) Co., Ltd.**	
Prüfergebnis*: *Test result*:*	Pass	

geprüft von: *tested by:*	Duffe Zhong	**genehmigt von:** authorized by:	plus Liu
Datum: *Date:* 2022-06-20		**Ausstellatum:** *Issue date:* 2022-06-20	
Stellung / *Position:*	Duffe Zhong/Engineer	**Stellung** / *Position:*	Phill Liu/Reviewer

Sonstiges / *Other:*
1. Optical output testing based on Photobiological safety: RG0 or RG1.
2. Other safety hazard have not been considered during test.

Zustand des Prüfgegenstandes bei Anlieferung: Prüfmuster vollständig und unbeschädigt
Condition of the test item at delivery: *Test item complete and undamaged*

* Legende:	1 = sehr gut	2 = gut	3 = befriedigend	4 = ausreichend	5 = mangelhaft
	P(ass) = entspricht o.g. Prüfgrundlage(n)		F(ail) = entspricht nicht o.g. Prüfgrundlage(n)	N/A = nicht anwendbar	N/T = nicht getestet
* *Legend:*	*1 = very good*	*2 = good*	*3 = satisfactory*	*4 = sufficient*	*5 = poor*
	P(ass) = passed a.m. test specification(s)		*F(ail) = failed a.m. test specification(s)*	*N/A = not applicable*	*N/T = not tested*

V05

TEST REPORT
IEC 62471
Photobiological safety of lamps and lamp systems

Report Reference No..... :	See cover page
Date of issue ..... :	See cover page
Total number of pages ..... :	See cover page
Name of Testing Laboratory preparing the Report..... :	**TUV Rheinland (Shenzhen) Co., Ltd.**
Applicant's name ..... :	See cover page
Address ..... :	See cover page
Test specification:	
Standard ..... :	IEC 62471:2006
Test procedure..... :	Test report
Non-standard test method.....:	N/A
Test Report Form No..... :	IEC62471B
TRF Originator ..... :	VDE Testing and Certification Institute
Master TRF ..... :	Dated 2018-08-16

This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

General disclaimer:

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 CB Testing Laboratory. The authenticity of this Test Report and its contents can be verified by contacting the NCB, responsible for this Test Report.

Test item description ..... :	LED Strip
Trade Mark..... :	N/A
Manufacturer ..... :	Same as Applicant name and address
Model/Type reference ..... :	MT-FaQbVdZ-Wx (Details see product information)
Ratings ..... :	See page 5

List of Attachments (including a total number of pages in each attachment):
N/A

Summary of testing:

Test conditions:

1. Ambient temperature: 25,5°C; Humidity: 53,0%;
2. Aperture stop: 7mm;
3. Measurement distance: See test result;
4. Angular subtends: See test result

Conclusion: The tested is considered as RG0 or RG1.

Tests performed (name of test and test clause):	**Testing location:**
All applicable tests as described in Test Case and Measurement Sections were performed.	**Shenzhen LCS Compliance Testing Laboratory Ltd.** 101-201, No.39 Building, Xialang Industrial Zone, Heshuikou Community, Matian Street, Guangming District, Shenzhen, China

Summary of compliance with National Differences (List of countries addressed):
EU Group Differences

☒ **The product fulfils the requirements of EN 62471:2008.**

Copy of marking plate:
N/A

Test item particulars ..... :	
Tested lamp ..... :	☒ continuous wave lamps ☐ pulsed lamps
Tested lamp system..... :	N/A
Lamp classification group..... :	☒ exempt ☒ risk 1 ☐ risk 2 ☐ risk 3
Lamp cap ..... :	N/A
Bulb ..... :	LED
Rated of the lamp ..... :	N/A
Furthermore marking on the lamp..... :	N/A
Seasoning of lamps according IEC standard ..... :	N/A
Used measurement instrument ..... :	See equipment list
Temperature by measurement..... :	25.5°C
Information for safety use ..... :	N/A
Possible test case verdicts:	
– **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)
Testing:	
Date of receipt of test item..... :	See cover page
Date (s) of performance of tests..... :	See cover page
General remarks:	
"(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 ☒ comma / ☐ point is used as the decimal separator.**	
Manufacturer's Declaration per sub-clause 4.2.5 of IECEE 02:	
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 ..... :	☐ **Yes** ☒ **Not applicable**
When differences exist; they shall be identified in the General product information section.	
Name and address of factory (ies) .....: Same as manufacturer	

General product information and other remarks:

Product：LED Strip

Moder：MT-FaQbVdZ-Wx

MT, means company name: Meantop.

“F” means Flexible LED Strip.

“a” Digital number: 1-16.

“a” means the type of LED Chips: 1=Type 3030, 2=Type 2835, 3=Type 3528, 4=Type 3014, 5= type 5050, 6=type 5630, 7=type 2216, 8=type 3535, 9=type 4014, 10=type 335, 11=type 4040, 12=type 4020, 13=type 2110, 14=type 4713, 15=type 2022, 16=COB.

“b” Digital number.

“Qb” means quantities of LED chips and the “b” means the quantities of led chips per meter can be 3,8,10,12,14,16,18,22,30,36,42,48,54,60,64,70,72,80,84,90,96,108,112,120,126,128,140,144,168,176,182 ,192,204,224,238,240,266,288,300,360,400,420,480,700 etc. (range from 3-1000 led chips quantity)

“d” Digital number: 5,12, 24,36,48.

‘Vd’ means input voltage of LED strip, for examples, ‘5’ means DC 5V, ‘24’ means DC 24V.

“Z” means the color of led strip and some special features, it can be C1-C11 or C1f-C11f; C1=Red, C2=Green, C3=Blue, C4=Yellow, C5=White, C6=Warm White, C7=Natural White, C8=RGB, C9=RGBW, C10=RGBWWW, C11=other special color, “f” means some special features of led strip, it can be CC, A, CT; CC means constant current; A means addressable, CT means color temperature tunable.

“x” Digital number 2:IP20, 4:IP54, 5:IP65, 6:IP66, 7:IP67, 8:IP68.

‘Wx’ indicates waterproof level of LED strip, for examples, ‘W2’ means IP20, ‘W8’ means IP68.

Model list for test:

Model No.	Rated voltage	Max power	LED Quantity for eatch meter	Color/CCT
MT-F1Q240V24C5-W2	DC24V	21.6W	240	6500K
MT-F2Q240V24C5-W2	DC24V	24W	240	20000K
MT-F3Q240V24C5-W2	DC24V	19.2W	240	20000K
MT-F4Q240V24C5-W2	DC24V	19.2W	240	20000K
MT-F5Q96V24C8-W2	DC24V	23W	96	RGB
MT-F6Q112V24C5-W2	DC24V	23W	112	20000K
MT-F7Q420V24C5-W2	DC24V	21.6W	420	6500K
MT-F8Q120V24C8-W2	DC24V	28.8W	120	RGB
MT-F9Q240V24C5-W2	DC24V	19.2W	240	6500K
MT-F10Q120V24C5-W2	DC24V	9.6W	120	6500K
MT-F11Q120V24C8-W2	DC24V	28.8W	120	RGB
MT-F12Q112V24C5-W2	DC24V	11.5W	112	6500K
MT-F13Q700V24C5-W2	DC24V	24W	700	6500K
MT-F14Q60V24C8-W2	DC24V	14.4W	60	RGB
MT-F15Q400V24C5-W2	DC24V	24W	400	6500K
MT-F16Q840V24C8-W2	DC24V	15W	840	RGB

Information of LED chip:

Type fo LED	LED chip Model	LED Rating	LED Manufacturer
3030	LA-D3030J935E-6H2-00100	IF:150mA, Vf:6V, 1W	
2835	LA-D2835C930-3E1-00366	IF:60mA, Vf:3V, 0.2W	
3528	LA-D3528U931-3B1-****	IF:20mA, Vf:3V, 0.06W	
3014	LA-D3014Y863-3C1-00100	IF:30mA, Vf:3V, 0.1W	
5050	LA-D5050H9YG7-3E3-00100	IF:60mA, Vf:3V, 0.2W	
5630	LA-D5730C8YH7-3H1-00100	IF:150mA, Vf:3V, 0.5W	

2216	RF-XXTI16DS-EE-Y	IF:20mA,VF:2.8-3.3	
3535	YLL-T3535RGB-3-BJ-02	IF:100mA R:2.0-2.4V G:3.0-3.4V B:3.0-3.4V	
4014	LA-D4014C8YH7-3E1-00100	IF:60mA, Vf:3V, 0.2W	
335	01..JT..CB002LA--R8	IF:30mA, Vf:5V,	
4040	YLL-T4040GRB-3-AJ-01(1.55)	IF:100mA R:2.0-2.4V G:3.0-3.4V B:3.0-3.4V	
4020	FP-4020OPW03F4PAF	IF:45mA, Vf:2.7-2.9V,	
2110	RF-**TK10DS-EC-F-Y	IF:30mA, Vf:2.7-3.5V,	
4713	YLL-T4713GRB-3-BJ	IF:20mA R:2.0-2.4V G:3.0-3.4V B:3.0-3.4V	
2022	HB20229***-3E1-A0***	IF:60mA, Vf:3V, 0.2W	
COB	MT-FCQ504V24C6-W2	24V DC, 15W/m	

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		P
	Detailed spectral data of a light source are generally required only if the luminance of the source exceeds 10^4 cd·m^{-2}	see clause 4.3	N/A
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		P
	To protect against injury of the eye or skin from ultraviolet radiation exposure produced by a broad-band source, the effective integrated spectral irradiance , E_S, of the light source shall not exceed the levels defined by:		P
	$E_s \cdot t = \sum_{200}^{400} \sum_{t} E_\lambda(\lambda,t) \cdot S_{UV}(\lambda) \cdot \Delta t \cdot \Delta\lambda \le 30$ J·m^{-2}		P
	The permissible time for exposure to ultraviolet radiation incident upon the unprotected eye or skin shall be computed by:		P
	$t_{max} = \frac{30}{E_s}$ s		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 1000 s. 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:		N/A
	$t_{max} \le \frac{10\,000}{E_{UVA}}$ s		N/A
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 , L_B, shall not exceed the levels defined by:		P
	$L_B \cdot t = \sum_{300}^{700} \sum_{t} L_\lambda(\lambda,t) \cdot B(\lambda) \cdot \Delta t \cdot \Delta\lambda \le 10^6$ J · m^{-2} · sr^{-1}	for t ≤ 10^4 s $t_{max} = \frac{10^6}{L_B}$	N/A

	$L_B = \sum_{300}^{700} L_\lambda \cdot B(\lambda) \cdot \Delta\lambda \le 100$ $W \cdot m^{-2} \cdot sr^{-1}$	for t > 10^4 s	P
4.3.4	Retinal blue light hazard exposure limit - small source		P
	Thus the spectral irradiance at the eye E_λ, weighted against the blue-light hazard function B(λ) shall not exceed the levels defined by:	see table 4.2	P
	$E_B \cdot t = \sum_{300}^{700} \sum_{t} E_\lambda(\lambda,t) \cdot B(\lambda) \cdot \Delta t \cdot \Delta\lambda \le 100$ $J \cdot m^{-2}$	for t ≤ 100 s	N/A
	$E_B = \sum_{300}^{700} E_\lambda \cdot B(\lambda) \cdot \Delta\lambda \le 1$ $W \cdot m^{-2}$	for t > 100 s	P
4.3.5	Retinal thermal hazard exposure limit		P
	To protect against retinal thermal injury, the integrated spectral radiance of the light source, L_λ, 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
	$L_R = \sum_{380}^{1400} L_\lambda \cdot R(\lambda) \cdot \Delta\lambda \le \frac{50\,000}{\alpha \cdot t^{0,25}}$ $W \cdot m^{-2} \cdot sr^{-1}$	(10 µs ≤ t ≤ 10 s)	P
4.3.6	Retinal thermal hazard exposure limit – weak visual stimulus		P
	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, L_{IR}, as viewed by the eye for exposure times greater than 10 s shall be limited to:		P
	$L_{IR} = \sum_{780}^{1400} L_\lambda \cdot R(\lambda) \cdot \Delta\lambda \le \frac{6\,000}{\alpha}$ $W \cdot m^{-2} \cdot sr^{-1}$	t > 10 s	P
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, E_{IR}, over the wavelength range 780 nm to 3000 nm, for times less than 1000 s, shall not exceed:		N/A
	$E_{IR} = \sum_{780}^{3\,000} E_\lambda \cdot \Delta\lambda \le 18\,000 \cdot t^{-0,75}$ $W \cdot m^{-2}$	t ≤ 1000 s	N/A
	For times greater than 1000 s the limit becomes:		P
	$E_{IR} = \sum_{780}^{3\,000} E_\lambda \cdot \Delta\lambda \le 100$ $W \cdot m^{-2}$	t > 1000 s	P
4.3.8	Thermal hazard exposure limit for the skin		P
	Visible and infrared radiant exposure (380 nm to 3000 nm) of the skin shall be limited to:		P

	$E_H \cdot t = \sum_{380}^{3\,000} \sum_{t} E_\lambda(\lambda,t) \cdot \Delta t \cdot \Delta\lambda \le 20\,000 \cdot t^{0,25}$ J · m^{-2}		P
5	**MEASUREMENT OF LAMPS AND LAMP SYSTEMS**		P
5.1	Measurement conditions		P
	Measurement conditions shall be reported as part of the evaluation against the exposure limits and the assignment of risk classification.		P
5.1.1	Lamp ageing (seasoning)		N/A
	Seasoning of lamps shall be done as stated in the appropriate IEC lamp standard.		N/A
5.1.2	Test environment		P
	For specific test conditions, see the appropriate IEC lamp standard or in absence of such standards, the appropriate national standards or manufacturer's recommendations.		P
5.1.3	Extraneous radiation		P
	Careful checks should be made to ensure that extraneous sources of radiation and reflections do not add significantly to the measurement results.		P
5.1.4	Lamp operation		N/A
	Operation of the test lamp shall be provided in accordance with:		N/A
	– the appropriate IEC lamp standard, or		N/A
	– the manufacturer' s recommendation		N/A
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 IEC standard, or		N/A
	– 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/A
	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/A
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/A
	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.		N/A
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.	see Annex C in the norm	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	For RGB model	P
6.1	Continuous wave lamps		P
6.1.1	Exempt Group		P
	In the exempt 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 (E_S) within 8-hours exposure (30000 s), nor		P
	– a near-UV hazard (E_{UVA}) within 1000 s, (about 16 min), nor		P

	– a retinal blue-light hazard (L_B) within 10000 s (about 2,8 h), nor		P
	– a retinal thermal hazard (L_R) within 10 s, nor		P
	– an infrared radiation hazard for the eye (E_{IR}) within 1000 s		P
6.1.2	Risk Group 1 (Low-Risk)		P
	In this group are lamps, which exceeds the limits for the except group but that does not pose:		P
	– an actinic ultraviolet hazard (E_S) within 10000 s, nor		N/A
	– a near ultraviolet hazard (E_{UVA}) within 300 s, nor		N/A
	– a retinal blue-light hazard (L_B) within 100 s, nor		P
	– a retinal thermal hazard (L_R) within 10 s, nor		N/A
	– an infrared radiation hazard for the eye (E_{IR}) within 100 s		N/A
	Lamps that emit infrared radiation without a strong visual stimulus and do not pose a near-infrared retinal hazard (L_{IR}), within 100 s are in Risk Group 1.		N/A
6.1.3	Risk Group 2 (Moderate-Risk)		N/A
	This requirement is met by any lamp that exceeds the limits for Risk Group 1, but that does not pose:		N/A
	– an actinic ultraviolet hazard (E_S) within 1000 s exposure, nor		N/A
	– a near ultraviolet hazard (E_{UVA}) within 100 s, nor		N/A
	– a retinal blue-light hazard (L_B) within 0,25 s (aversion response), nor		N/A
	– a retinal thermal hazard (L_R) within 0,25 s (aversion response), nor		N/A
	– an infrared radiation hazard for the eye (E_{IR}) within 10 s		N/A
	Lamps that emit infrared radiation without a strong visual stimulus and do not pose a near-infrared retinal hazard (L_{IR}), within 10 s are in Risk Group 2.		N/A
6.1.4	Risk Group 3 (High-Risk)		N/A
	Lamps which exceed the limits for Risk Group 2 are in Group 3.		N/A
6.2	Pulsed lamps		N/A
	Pulse lamp criteria shall apply to a single pulse and to any group of pulses within 0,25 s.		N/A
	A pulsed lamp shall be evaluated at the highest nominal energy loading as specified by the manufacturer.		N/A
	The risk group determination of the lamp being tested shall be made as follows:		N/A

	– a lamp that exceeds the exposure limit shall be classified as belonging to Risk Group 3 (High-Risk)		N/A
	– 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/A
	– 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/A

Table 4.1	Spectral weighting function for assessing ultraviolet hazards for skin and eye	P

Wavelength[1] λ, nm	**UV hazard function $S_{uv}(\lambda)$**	**Wavelength λ, nm**	**UV hazard function $S_{uv}(\lambda)$**
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	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

[1] Wavelengths chosen are representative: other values should be obtained by logarithmic interpolation at 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		$10^{[(700-\lambda)/500]}$
1050-1150		0,2
1150-1200		$0{,}2 \cdot 10^{0{,}02(1150-\lambda)}$
1200-1400		0,02

Table 5.4	Summary of the ELs for the surface of the skin or cornea (irradiance based values)	P

Hazard Name	**Relevant equation**	**Wavelength range nm**	**Exposure duration sec**	**Limiting aperture rad (deg)**	**EL in terms of constant irradiance $W \cdot m^{-2}$**
Actinic UV skin & eye	$E_S = \sum E_\lambda \cdot S(\lambda) \cdot \Delta\lambda$	200 – 400	< 30000	1,4 (80)	30/t
Eye UV-A	$E_{UVA} = \sum E_\lambda \cdot \Delta\lambda$	315 – 400	≤1000 >1000	1,4 (80)	10000/t 10
Blue-light small source	$E_B = \sum E_\lambda \cdot B(\lambda) \cdot \Delta\lambda$	300 – 700	≤100 >100	< 0,011	100/t 1,0
Eye IR	$E_{IR} = \sum E_\lambda \cdot \Delta\lambda$	780 –3000	≤1000 >1000	1,4 (80)	$18000/t^{0,75}$ 100
Skin thermal	$E_H = \sum E_\lambda \cdot \Delta\lambda$	380 – 3000	< 10	2π sr	$20000/t^{0,75}$

Table 5.5	Summary of the ELs for the retina (radiance based values)	P

Hazard Name	**Relevant equation**	**Wavelength range nm**	**Exposure duration sec**	**Field of view radians**	**EL in terms of constant radiance $W \cdot m^{-2} \cdot sr^{-1}$)**
Blue light	$L_B = \sum L_\lambda \cdot B(\lambda) \cdot \Delta\lambda$	300 – 700	0,25 – 10 10-100 100-10000 ≥ 10000	$0,011 \cdot \sqrt{(t/10)}$ 0,011 $0,0011 \cdot \sqrt{t}$ 0,1	$10^6/t$ $10^6/t$ $10^6/t$ 100
Retinal thermal	$L_R = \sum L_\lambda \cdot R(\lambda) \cdot \Delta\lambda$	380 – 1400	< 0,25 0,25 – 10	0,0017 $0,011 \cdot \sqrt{(t/10)}$	$50000/(\alpha \cdot t^{0,25})$ $50000/(\alpha \cdot t^{0,25})$
Retinal thermal (weak visual stimulus)	$L_{IR} = \sum L_\lambda \cdot R(\lambda) \cdot \Delta\lambda$	780 – 1400	> 10	0,011	6000/α

Table 6.1	Emission limits for risk groups of continuous wave lamps (Model: MT-F1Q240V24C5-W2, measurement distance: 1680mm, α=0,0238 rad, RG1)								P
Risk	Action spectrum	Symbol	Units	Emission Measurement					
				Exempt		Low risk		Mod risk	
				Limit	Result	Limit	Result	Limit	Result
Actinic UV	$S_{UV}(\lambda)$	E_s	$W \cdot m^{-2}$	0,001	2,1E-04	0,003	--	0,03	--
Near UV		E_{UVA}	$W \cdot m^{-2}$	10	1,2E-04	33	--	100	--
Blue light	B(λ)	L_B	$W \cdot m^{-2} \cdot sr^{-1}$	100	--	10000	3,08E+02	4000000	--
Blue light, small source	B(λ)	E_B	$W \cdot m^{-2}$	1,0*	--	1,0	--	400	--
Retinal thermal	R(λ)	L_R	$W \cdot m^{-2} \cdot sr^{-1}$	28000/α	3,7E+03	28000/α	--	71000/α	--
Retinal thermal, weak visual stimulus**	R(λ)	L_{IR}	$W \cdot m^{-2} \cdot sr^{-1}$	6000/α	4,6E+00	6000/α	--	6000/α	--
IR radiation, eye		E_{IR}	$W \cdot m^{-2}$	100	1,5E-03	570	--	3200	--

* 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

Table 6.1	Emission limits for risk groups of continuous wave lamps (Model: MT-F2Q240V24C5-W2, measurement distance: 1348mm, α=0,0297 rad, RG1)								P
Risk	Action spectrum	Symbol	Units	Emission Measurement					
				Exempt		Low risk		Mod risk	
				Limit	Result	Limit	Result	Limit	Result
Actinic UV	$S_{UV}(\lambda)$	E_S	$W \cdot m^{-2}$	0,001	7,9E-09	0,003	--	0,03	--
Near UV		E_{UVA}	$W \cdot m^{-2}$	10	4,1-E05	33	--	100	--
Blue light	B(λ)	L_B	$W \cdot m^{-2} \cdot sr^{-1}$	100	--	10000	9.77+E02	4000000	--
Blue light, small source	B(λ)	E_B	$W \cdot m^{-2}$	1,0*	--	1,0	--	400	--
Retinal thermal	R(λ)	L_R	$W \cdot m^{-2} \cdot sr^{-1}$	28000/α	1.1E+04	28000/α	--	71000/α	--
Retinal thermal, weak visual stimulus**	R(λ)	L_{IR}	$W \cdot m^{-2} \cdot sr^{-1}$	6000/α	3,3E+00	6000/α	--	6000/α	--
IR radiation, eye		E_{IR}	$W \cdot m^{-2}$	100	8,6E-01	570	--	3200	--

* 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

Table 6.1	Emission limits for risk groups of continuous wave lamps (Model: MT-F3Q240V24C5-W2 , measurement distance: 728mm, α=0,0549 rad, RG1)								P
Risk	Action spectrum	Symbol	Units	Emission Measurement					
				Exempt		Low risk		Mod risk	
				Limit	Result	Limit	Result	Limit	Result
Actinic UV	$S_{UV}(\lambda)$	E_S	$W \cdot m^{-2}$	0,001	6,5E-05	0,003	--	0,03	--
Near UV		E_{UVA}	$W \cdot m^{-2}$	10	1,3E-04	33	--	100	--
Blue light	B(λ)	L_B	$W \cdot m^{-2} \cdot sr^{-1}$	100	--	10000	7,18E+02	4000000	--
Blue light, small source	B(λ)	E_B	$W \cdot m^{-2}$	1,0*	--	1,0	--	400	--
Retinal thermal	R(λ)	L_R	$W \cdot m^{-2} \cdot sr^{-1}$	28000/α	8,0E+03	28000/α	--	71000/α	--
Retinal thermal, weak visual stimulus**	R(λ)	L_{IR}	$W \cdot m^{-2} \cdot sr^{-1}$	6000/α	4,4E+00	6000/α	--	6000/α	--
IR radiation, eye		E_{IR}	$W \cdot m^{-2}$	100	9,8E-01	570	--	3200	--

* 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

Table 6.1	Emission limits for risk groups of continuous wave lamps (Model: MT-F4Q240V24C5-W2, measurement distance: 875mm, α=0,0457rad, RG1)								P
Risk	Action spectrum	Symbol	Units	Emission Measurement					
				Exempt		Low risk		Mod risk	
				Limit	Result	Limit	Result	Limit	Result
Actinic UV	$S_{UV}(\lambda)$	E_S	$W \cdot m^{-2}$	0,001	1,8E-04	0,003	--	0,03	--
Near UV		E_{UVA}	$W \cdot m^{-2}$	10	1,9E-04	33	--	100	--
Blue light	B(λ)	L_B	$W \cdot m^{-2} \cdot sr^{-1}$	100	--	10000	1,15E+03	4000000	--
Blue light, small source	B(λ)	E_B	$W \cdot m^{-2}$	1,0*	--	1,0	--	400	--
Retinal thermal	R(λ)	L_R	$W \cdot m^{-2} \cdot sr^{-1}$	28000/α	1,3E+04	28000/α	--	71000/α	--
Retinal thermal, weak visual stimulus**	R(λ)	L_{IR}	$W \cdot m^{-2} \cdot sr^{-1}$	6000/α	1,4E+01	6000/α	--	6000/α	--
IR radiation, eye		E_{IR}	$W \cdot m^{-2}$	100	1,1E+00	570	--	3200	--

* 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

Table 6.1	Emission limits for risk groups of continuous wave lamps (Model: MT-F5Q96V24C8-W2, Test mode: RGB light at the same time, measurement distance: 200mm, α=0,100rad, RG1)	P

Risk	Action spectrum	Symbol	Units	Emission Measurement					
				Exempt		Low risk		Mod risk	
				Limit	Result	Limit	Result	Limit	Result
Actinic UV	$S_{UV}(\lambda)$	E_S	$W \cdot m^{-2}$	0,001	1,3E-06	0,003	--	0,03	--
Near UV		E_{UVA}	$W \cdot m^{-2}$	10	9,6E-06	33	--	100	--
Blue light	B(λ)	L_B	$W \cdot m^{-2} \cdot sr^{-1}$	100	--	10000	1,37E+03	4000000	--
Blue light, small source	B(λ)	E_B	$W \cdot m^{-2}$	1,0*	--	1,0	--	400	--
Retinal thermal	R(λ)	L_R	$W \cdot m^{-2} \cdot sr^{-1}$	28000/α	1,5E+04	28000/α	--	71000/α	--
Retinal thermal, weak visual stimulus**	R(λ)	L_{IR}	$W \cdot m^{-2} \cdot sr^{-1}$	6000/α	1,2E+02	6000/α	--	6000/α	--
IR radiation, eye		E_{IR}	$W \cdot m^{-2}$	100	1,2E+00	570	--	3200	--

* 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

Table 6.1	Emission limits for risk groups of continuous wave lamps (Model: MT-F6Q112V24C5-W2, measurement distance: 1287mm, α=0,031rad, RG1)								P
Risk	Action spectrum	Symbol	Units	Emission Measurement					
				Exempt		Low risk		Mod risk	
				Limit	Result	Limit	Result	Limit	Result
Actinic UV	$S_{UV}(\lambda)$	E_S	$W \cdot m^{-2}$	0,001	4,3E-09	0,003	--	0,03	--
Near UV		E_{UVA}	$W \cdot m^{-2}$	10	9,6E-05	33	--	100	--
Blue light	B(λ)	L_B	$W \cdot m^{-2} \cdot sr^{-1}$	100	--	10000	8,95E+02	4000000	--
Blue light, small source	B(λ)	E_B	$W \cdot m^{-2}$	1,0*	--	1,0	--	400	--
Retinal thermal	R(λ)	L_R	$W \cdot m^{-2} \cdot sr^{-1}$	28000/α	1,0E+04	28000/α	--	71000/α	--
Retinal thermal, weak visual stimulus**	R(λ)	L_{IR}	$W \cdot m^{-2} \cdot sr^{-1}$	6000/α	7,7E+00	6000/α	--	6000/α	--
IR radiation, eye		E_{IR}	$W \cdot m^{-2}$	100	7,5E-01	570	--	3200	--

* 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

Table 6.1	Emission limits for risk groups of continuous wave lamps (Model: MT-F7Q420V24C5-W2, measurement distance: 893mm, α=0,0448rad, Exempt Group)								P
Risk	Action spectrum	Symbol	Units	Emission Measurement					
				Exempt		Low risk		Mod risk	
				Limit	Result	Limit	Result	Limit	Result
Actinic UV	$S_{UV}(\lambda)$	E_S	$W \cdot m^{-2}$	0,001	3,9E-05	0,003	--	0,03	--
Near UV		E_{UVA}	$W \cdot m^{-2}$	10	3,6E-05	33	--	100	--
Blue light	B(λ)	L_B	$W \cdot m^{-2} \cdot sr^{-1}$	100	8,04E+01	10000	--	4000000	--
Blue light, small source	B(λ)	E_B	$W \cdot m^{-2}$	1,0*	--	1,0	--	400	--
Retinal thermal	R(λ)	L_R	$W \cdot m^{-2} \cdot sr^{-1}$	28000/α	7,2E+02	28000/α	--	71000/α	--
Retinal thermal, weak visual stimulus**	R(λ)	L_{IR}	$W \cdot m^{-2} \cdot sr^{-1}$	6000/α	1,2E+01	6000/α	--	6000/α	--
IR radiation, eye		E_{IR}	$W \cdot m^{-2}$	100	5,9E-03	570	--	3200	--

* 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

Table 6.1	Emission limits for risk groups of continuous wave lamps (Model: MT-F8Q120V24C8-W2, Test mode: RGB light at the same time, measurement distance: 200mm, α=0,100rad, RG1)	P

Risk	Action spectrum	Symbol	Units	Emission Measurement					
				Exempt		Low risk		Mod risk	
				Limit	Result	Limit	Result	Limit	Result
Actinic UV	$S_{UV}(\lambda)$	E_S	$W \cdot m^{-2}$	0,001	9,1E-04	0,003	--	0,03	--
Near UV		E_{UVA}	$W \cdot m^{-2}$	10	5,3E-04	33	--	100	--
Blue light	B(λ)	L_B	$W \cdot m^{-2} \cdot sr^{-1}$	100	--	10000	3,12E+03	4000000	--
Blue light, small source	B(λ)	E_B	$W \cdot m^{-2}$	1,0*	--	1,0	--	400	--
Retinal thermal	R(λ)	L_R	$W \cdot m^{-2} \cdot sr^{-1}$	28000/α	3,4E+04	28000/α	--	71000/α	--
Retinal thermal, weak visual stimulus**	R(λ)	L_{IR}	$W \cdot m^{-2} \cdot sr^{-1}$	6000/α	8,9E+01	6000/α	--	6000/α	--
IR radiation, eye		E_{IR}	$W \cdot m^{-2}$	100	1,2E+00	570	--	3200	--

* 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

Table 6.1	Emission limits for risk groups of continuous wave lamps (Model: MT-F9Q240V24C5-W2, measurement distance:978mm, α=0,0409rad, RG1)								P
Risk	Action spectrum	Symbol	Units	Emission Measurement					
				Exempt		Low risk		Mod risk	
				Limit	Result	Limit	Result	Limit	Result
Actinic UV	$S_{UV}(\lambda)$	E_S	$W \cdot m^{-2}$	0,001	1,2E-04	0,003	--	0,03	--
Near UV		E_{UVA}	$W \cdot m^{-2}$	10	8,6E-05	33	--	100	--
Blue light	B(λ)	L_B	$W \cdot m^{-2} \cdot sr^{-1}$	100	--	10000	4,02E+02	4000000	--
Blue light, small source	B(λ)	E_B	$W \cdot m^{-2}$	1,0*	--	1,0	--	400	--
Retinal thermal	R(λ)	L_R	$W \cdot m^{-2} \cdot sr^{-1}$	28000/α	4,9E+03	28000/α	--	71000/α	--
Retinal thermal, weak visual stimulus**	R(λ)	L_{IR}	$W \cdot m^{-2} \cdot sr^{-1}$	6000/α	3,5E+00	6000/α	--	6000/α	--
IR radiation, eye		E_{IR}	$W \cdot m^{-2}$	100	4,5E-01	570	--	3200	--

* 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

Table 6.1	Emission limits for risk groups of continuous wave lamps (Model: MT-F10Q120V24C5-W2, measurement distance:390mm, α=0,100rad, Exempt Group)								P
Risk	Action spectrum	Symbol	Units	Emission Measurement					
				Exempt		Low risk		Mod risk	
				Limit	Result	Limit	Result	Limit	Result
Actinic UV	$S_{UV}(\lambda)$	E_S	$W \cdot m^{-2}$	0,001	9,3E-05	0,003	--	0,03	--
Near UV		E_{UVA}	$W \cdot m^{-2}$	10	6,5E-05	33	--	100	--
Blue light	B(λ)	L_B	$W \cdot m^{-2} \cdot sr^{-1}$	100	7,43E+01	10000	--	4000000	--
Blue light, small source	B(λ)	E_B	$W \cdot m^{-2}$	1,0*	--	1,0	--	400	--
Retinal thermal	R(λ)	L_R	$W \cdot m^{-2} \cdot sr^{-1}$	28000/α	7,3E+02	28000/α	--	71000/α	--
Retinal thermal, weak visual stimulus**	R(λ)	L_{IR}	$W \cdot m^{-2} \cdot sr^{-1}$	6000/α	8,4E+01	6000/α	--	6000/α	--
IR radiation, eye		E_{IR}	$W \cdot m^{-2}$	100	2,2E-02	570	--	3200	--

* 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

Table 6.1	Emission limits for risk groups of continuous wave lamps (Model: MT-F11Q120V24C8-W2, Test mode: RGB light at the same time, measurement distance:200mm, α=0,100rad,RG1)	P

Risk	Action spectrum	Symbol	Units	Emission Measurement					
				Exempt		Low risk		Mod risk	
				Limit	Result	Limit	Result	Limit	Result
Actinic UV	$S_{UV}(\lambda)$	E_S	$W \cdot m^{-2}$	0,001	8,6E-03	0,003	--	0,03	--
Near UV		E_{UVA}	$W \cdot m^{-2}$	10	5,2E-05	33	--	100	--
Blue light	B(λ)	L_B	$W \cdot m^{-2} \cdot sr^{-1}$	100	--	10000	2,68E+03	4000000	--
Blue light, small source	B(λ)	E_B	$W \cdot m^{-2}$	1,0*	--	1,0	--	400	--
Retinal thermal	R(λ)	L_R	$W \cdot m^{-2} \cdot sr^{-1}$	28000/α	3,0E+04	28000/α	--	71000/α	--
Retinal thermal, weak visual stimulus**	R(λ)	L_{IR}	$W \cdot m^{-2} \cdot sr^{-1}$	6000/α	9.2E+01	6000/α	--	6000/α	--
IR radiation, eye		E_{IR}	$W \cdot m^{-2}$	100	1,2E+00	570	--	3200	--

* 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

Table 6.1	Emission limits for risk groups of continuous wave lamps (Model: MT-F12Q112V24C5-W2, measurement distance:215mm, α=0,100rad,Exempt Group)								P
Risk	Action spectrum	Symbol	Units	Emission Measurement					
				Exempt		Low risk		Mod risk	
				Limit	Result	Limit	Result	Limit	Result
Actinic UV	$S_{UV}(\lambda)$	E_S	$W \cdot m^{-2}$	0,001	3,0E-08	0,003	--	0,03	--
Near UV		E_{UVA}	$W \cdot m^{-2}$	10	5,2E-05	33	--	100	--
Blue light	B(λ)	L_B	$W \cdot m^{-2} \cdot sr^{-1}$	100	7,86E+01	10000	--	4000000	--
Blue light, small source	B(λ)	E_B	$W \cdot m^{-2}$	1,0*	--	1,0	--	400	--
Retinal thermal	R(λ)	L_R	$W \cdot m^{-2} \cdot sr^{-1}$	28000/α	7,6E+02	28000/α	--	71000/α	--
Retinal thermal, weak visual stimulus**	R(λ)	L_{IR}	$W \cdot m^{-2} \cdot sr^{-1}$	6000/α	3,0E+00	6000/α	--	6000/α	--
IR radiation, eye		E_{IR}	$W \cdot m^{-2}$	100	1,1E-01	570	--	3200	--

* 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

Table 6.1	Emission limits for risk groups of continuous wave lamps (Model: MT-F13Q700V24C5-W2, measurement distance:492mm, α=0,0813rad,RG1)								P
Risk	Action spectrum	Symbol	Units	Emission Measurement					
				Exempt		Low risk		Mod risk	
				Limit	Result	Limit	Result	Limit	Result
Actinic UV	$S_{UV}(\lambda)$	E_S	$W \cdot m^{-2}$	0,001	9,8E-07	0,003	--	0,03	--
Near UV		E_{UVA}	$W \cdot m^{-2}$	10	1,9E-05	33	--	100	--
Blue light	B(λ)	L_B	$W \cdot m^{-2} \cdot sr^{-1}$	100	--	10000	2,19E+02	4000000	--
Blue light, small source	B(λ)	E_B	$W \cdot m^{-2}$	1,0*	--	1,0	--	400	--
Retinal thermal	R(λ)	L_R	$W \cdot m^{-2} \cdot sr^{-1}$	28000/α	2,8E+03	28000/α	--	71000/α	--
Retinal thermal, weak visual stimulus**	R(λ)	L_{IR}	$W \cdot m^{-2} \cdot sr^{-1}$	6000/α	2,2E+01	6000/α	--	6000/α	--
IR radiation, eye		E_{IR}	$W \cdot m^{-2}$	100	1,1E-02	570	--	3200	--

* 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

Table 6.1	Emission limits for risk groups of continuous wave lamps (Model: MT-F14Q60V24C8-W2, Test mode: RGB light at the same time, measurement distance:200mm, α=0,100rad, RG1)	P

Risk	Action spectrum	Symbol	Units	Emission Measurement					
				Exempt		Low risk		Mod risk	
				Limit	Result	Limit	Result	Limit	Result
Actinic UV	$S_{UV}(\lambda)$	E_S	$W \cdot m^{-2}$	0,001	8,9E-05	0,003	--	0,03	--
Near UV		E_{UVA}	$W \cdot m^{-2}$	10	4,3E-05	33	--	100	--
Blue light	B(λ)	L_B	$W \cdot m^{-2} \cdot sr^{-1}$	100	--	10000	8,05E+02	4000000	--
Blue light, small source	B(λ)	E_B	$W \cdot m^{-2}$	1,0*	--	1,0	--	400	--
Retinal thermal	R(λ)	L_R	$W \cdot m^{-2} \cdot sr^{-1}$	28000/α	9,3E+03	28000/α	--	71000/α	--
Retinal thermal, weak visual stimulus**	R(λ)	L_{IR}	$W \cdot m^{-2} \cdot sr^{-1}$	6000/α	1,0E+02	6000/α	--	6000/α	--
IR radiation, eye		E_{IR}	$W \cdot m^{-2}$	100	1,1E+00	570	--	3200	--

* 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

Table 6.1	Emission limits for risk groups of continuous wave lamps (Model: MT-F15Q400V24C5-W2, measurement distance:1208mm, α=0,0331rad, RG1)								P
Risk	Action spectrum	Symbol	Units	Emission Measurement					
				Exempt		Low risk		Mod risk	
				Limit	Result	Limit	Result	Limit	Result
Actinic UV	$S_{UV}(\lambda)$	E_S	$W \cdot m^{-2}$	0,001	1,2E-04	0,003	--	0,03	--
Near UV		E_{UVA}	$W \cdot m^{-2}$	10	5,4E-05	33	--	100	--
Blue light	B(λ)	L_B	$W \cdot m^{-2} \cdot sr^{-1}$	100	--	10000	3,40E+02	4000000	--
Blue light, small source	B(λ)	E_B	$W \cdot m^{-2}$	1,0*	--	1,0	--	400	--
Retinal thermal	R(λ)	L_R	$W \cdot m^{-2} \cdot sr^{-1}$	28000/α	4,1E+03	28000/α	--	71000/α	--
Retinal thermal, weak visual stimulus**	R(λ)	L_{IR}	$W \cdot m^{-2} \cdot sr^{-1}$	6000/α	1,5E+00	6000/α	--	6000/α	--
IR radiation, eye		E_{IR}	$W \cdot m^{-2}$	100	2,6E-01	570	--	3200	--

* 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

Table 6.1	Emission limits for risk groups of continuous wave lamps (Model: MT-F16Q840V24C8-W2, Test mode: RGB light at the same time, measurement distance:200mm, α=0,100rad, Exempt Group)	P

Risk	Action spectrum	Symbol	Units	Emission Measurement					
				Exempt		Low risk		Mod risk	
				Limit	Result	Limit	Result	Limit	Result
Actinic UV	$S_{UV}(\lambda)$	E_S	$W \cdot m^{-2}$	0,001	1,5E-04	0,003	--	0,03	--
Near UV		E_{UVA}	$W \cdot m^{-2}$	10	8,1E-05	33	--	100	--
Blue light	B(λ)	L_B	$W \cdot m^{-2} \cdot sr^{-1}$	100	5,01E+01	10000	--	4000000	--
Blue light, small source	B(λ)	E_B	$W \cdot m^{-2}$	1,0*	--	1,0	--	400	--
Retinal thermal	R(λ)	L_R	$W \cdot m^{-2} \cdot sr^{-1}$	28000/α	2,1E+03	28000/α	--	71000/α	--
Retinal thermal, weak visual stimulus**	R(λ)	L_{IR}	$W \cdot m^{-2} \cdot sr^{-1}$	6000/α	4,5E+00	6000/α	--	6000/α	--
IR radiation, eye		E_{IR}	$W \cdot m^{-2}$	100	1,1E+00	570	--	3200	--

* 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

IEC62471B - ATTACHMENT			
Clause	Requirement + Test	Result - Remark	Verdict

ATTACHMENT TO TEST REPORT IEC 62471 **EUROPEAN GROUP DIFFERENCES AND NATIONAL DIFFERENCES** Photobiological safety of lamps and lamps systems	
Differences according to.....:	EN 62471:2008
Attachment Form No. .....:	EU_GD_IEC62471B

	CENELEC COMMON MODIFICATIONS (EN)		P
4	**EXPOSURE LIMITS**		P
	Contents of the whole Clause 4 of IEC 62471:2006 moved into a new informative Annex ZB		--
	Clause 4 replaced by the following:		P
	Limits of the Artificial Optical Radiation Directive (2006/25/EC) have been applied instead of those fixed in IEC 62471:2006	See appended Table 6.1	P
4.1	General		P
	First paragraph deleted		--

Table 6.1	Emission limits for risk groups of continuous wave lamps (based on EU Directive 2006/25/EC)								P
(Model: MT-F1Q240V24C5-W2, measurement distance: 1680mm, α=0,0238 rad, RG1)									
Risk	Action spectrum	Symbol	Units	Emission Measurement					
				Exempt		Low risk		Mod risk	
				Limit	Result	Limit	Result	Limit	Result
Actinic UV	$S_{UV}(\lambda)$	E_S	$W \cdot m^{-2}$	0,001	2,1E-04	--	--	--	--
Near UV		E_{UVA}	$W \cdot m^{-2}$	10	1,2E-04	--	--	--	--
Blue light	B(λ)	L_B	$W \cdot m^{-2} \cdot sr^{-1}$	100	--	10000	3,08E+02	4000000	--
Blue light, small source	B(λ)	E_B	$W \cdot m^{-2}$	0,01*	--	1,0	--	400	--
Retinal thermal	R(λ)	L_R	$W \cdot m^{-2} \cdot sr^{-1}$	28000/α	3,7E+03	28000/α	--	71000/α	--
Retinal thermal, weak visual stimulus**	R(λ)	L_{IR}	$W \cdot m^{-2} \cdot sr^{-1}$	6000/α 0,0017≤ α ≤ 0,011	--				
				6000/α 0,011≤ α ≤ 0,1	4,6E+00				
IR radiation, eye		E_{IR}	$W \cdot m^{-2}$	100	1,5E-01	570	--	3200	--
* 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									

Table 6.1	Emission limits for risk groups of continuous wave lamps (based on EU Directive 2006/25/EC)								P
(Model: MT-F2Q240V24C5-W2, measurement distance: 1348mm, α=0,0297 rad, RG1)									
Risk	Action spectrum	Symbol	Units	Emission Measurement					
				Exempt		Low risk		Mod risk	
				Limit	Result	Limit	Result	Limit	Result
Actinic UV	$S_{UV}(\lambda)$	E_S	$W \cdot m^{-2}$	0,001	7,9E-09	--	--	--	--
Near UV		E_{UVA}	$W \cdot m^{-2}$	10	4,1-E05	--	--	--	--
Blue light	B(λ)	L_B	$W \cdot m^{-2} \cdot sr^{-1}$	100	--	10000	9.77+E02	4000000	--
Blue light, small source	B(λ)	E_B	$W \cdot m^{-2}$	0,01*	--	1,0	1,479-E02	400	--
Retinal thermal	R(λ)	L_R	$W \cdot m^{-2} \cdot sr^{-1}$	28000/α	1.1E+04	28000/α	--	71000/α	--
Retinal thermal, weak visual stimulus**	R(λ)	L_{IR}	$W \cdot m^{-2} \cdot sr^{-1}$	6000/α 0,0017≤ α ≤ 0,011	--				
				6000/α 0,011≤ α ≤ 0,1	3,3E+00				
IR radiation, eye		E_{IR}	$W \cdot m^{-2}$	100	8,6E-01	570	--	3200	--
* 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									

Table 6.1	Emission limits for risk groups of continuous wave lamps (based on EU Directive 2006/25/EC)								P
(Model: MT-F3Q240V24C5-W2 , measurement distance: 728mm, α=0,0549 rad, RG1)									
Risk	Action spectrum	Symbol	Units	Emission Measurement					
				Exempt		Low risk		Mod risk	
				Limit	Result	Limit	Result	Limit	Result
Actinic UV	$S_{UV}(\lambda)$	E_S	$W \cdot m^{-2}$	0,001	6,5E-05	--	--	--	--
Near UV		E_{UVA}	$W \cdot m^{-2}$	10	1,3E-04	--	--	--	--
Blue light	B(λ)	L_B	$W \cdot m^{-2} \cdot sr^{-1}$	100	--	10000	7,87E+02	4000000	--
Blue light, small source	B(λ)	E_B	$W \cdot m^{-2}$	0,01*	--	1,0	--	400	--
Retinal thermal	R(λ)	L_R	$W \cdot m^{-2} \cdot sr^{-1}$	28000/α	8,0E+03	28000/α	--	71000/α	--
Retinal thermal, weak visual stimulus**	R(λ)	L_{IR}	$W \cdot m^{-2} \cdot sr^{-1}$	6000/α 0,0017≤ α ≤ 0,011	--				
				6000/α 0,011≤ α ≤ 0,1	4,4E+00				
IR radiation, eye		E_{IR}	$W \cdot m^{-2}$	100	9,8E-01	570	--	3200	--
* 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									

Table 6.1	Emission limits for risk groups of continuous wave lamps (based on EU Directive 2006/25/EC)								P
(Model: MT-F4Q240V24C5-W2, measurement distance: 875mm, α=0,0457rad, RG1)									
Risk	Action spectrum	Symbol	Units	Emission Measurement					
				Exempt		Low risk		Mod risk	
				Limit	Result	Limit	Result	Limit	Result
Actinic UV	$S_{UV}(\lambda)$	E_S	$W \cdot m^{-2}$	0,001	1,8E-04	--	--	--	--
Near UV		E_{UVA}	$W \cdot m^{-2}$	10	1,9E-04	--	--	--	--
Blue light	B(λ)	L_B	$W \cdot m^{-2} \cdot sr^{-1}$	100	--	10000	1,15E+03	4000000	--
Blue light, small source	B(λ)	E_B	$W \cdot m^{-2}$	0,01*	--	1,0	--	400	--
Retinal thermal	R(λ)	L_R	$W \cdot m^{-2} \cdot sr^{-1}$	28000/α	1,3E+04	28000/α	--	71000/α	--
Retinal thermal, weak visual stimulus**	R(λ)	L_{IR}	$W \cdot m^{-2} \cdot sr^{-1}$	6000/α 0,0017≤ α ≤ 0,011	--				
				6000/α 0,011≤ α ≤ 0,1	1,4E+01				
IR radiation, eye		E_{IR}	$W \cdot m^{-2}$	100	1,1E+00	570	--	3200	--
* 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									

Table 6.1	Emission limits for risk groups of continuous wave lamps (based on EU Directive 2006/25/EC)								P
(Model: MT-F5Q96V24C8-W2, Test mode: RGB light at the same time, measurement distance: 200mm, α=0,100rad, RG1)									
Risk	Action spectrum	Symbol	Units	Emission Measurement					
				Exempt		Low risk		Mod risk	
				Limit	Result	Limit	Result	Limit	Result
Actinic UV	$S_{UV}(\lambda)$	E_S	$W \cdot m^{-2}$	0,001	1,3E-06	--	--	--	--
Near UV		E_{UVA}	$W \cdot m^{-2}$	10	9,6E-06	--	--	--	--
Blue light	B(λ)	L_B	$W \cdot m^{-2} \cdot sr^{-1}$	100	--	10000	1,37E+03	4000000	--
Blue light, small source	B(λ)	E_B	$W \cdot m^{-2}$	0,01*	--	1,0	--	400	--
Retinal thermal	R(λ)	L_R	$W \cdot m^{-2} \cdot sr^{-1}$	28000/α	1,5E+04	28000/α	--	71000/α	--
Retinal thermal, weak visual stimulus**	R(λ)	L_{IR}	$W \cdot m^{-2} \cdot sr^{-1}$	6000/α 0,0017≤ α ≤ 0,011	--				
				6000/α 0,011≤ α ≤ 0,1	1,2E+02				
IR radiation, eye		E_{IR}	$W \cdot m^{-2}$	100	1,2E+00	570	--	3200	--
* 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									

Table 6.1	Emission limits for risk groups of continuous wave lamps (based on EU Directive 2006/25/EC)								P
(Model: MT-F6Q112V24C5-W2, measurement distance: 1287mm, α=0,031rad, RG1)									
Risk	Action spectrum	Symbol	Units	Emission Measurement					
				Exempt		Low risk		Mod risk	
				Limit	Result	Limit	Result	Limit	Result
Actinic UV	$S_{UV}(\lambda)$	E_S	$W \cdot m^{-2}$	0,001	4,3E-09	--	--	--	--
Near UV		E_{UVA}	$W \cdot m^{-2}$	10	9,6E-05	--	--	--	--
Blue light	B(λ)	L_B	$W \cdot m^{-2} \cdot sr^{-1}$	100	--	10000	8,95E+02	4000000	--
Blue light, small source	B(λ)	E_B	$W \cdot m^{-2}$	0,01*	--	1,0	--	400	--
Retinal thermal	R(λ)	L_R	$W \cdot m^{-2} \cdot sr^{-1}$	28000/α	1,0E+04	28000/α	--	71000/α	--
Retinal thermal, weak visual stimulus**	R(λ)	L_{IR}	$W \cdot m^{-2} \cdot sr^{-1}$	6000/α 0,0017≤ α ≤ 0,011	--				
				6000/α 0,011≤ α ≤ 0,1	7,7E+00				
IR radiation, eye		E_{IR}	$W \cdot m^{-2}$	100	7,5E-01	570	--	3200	--
* 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									

Table 6.1	Emission limits for risk groups of continuous wave lamps (based on EU Directive 2006/25/EC)								P
(Model: MT-F7Q420V24C5-W2, measurement distance: 893mm, α=0,0448rad, Exempt Group)									
Risk	Action spectrum	Symbol	Units	Emission Measurement					
				Exempt		Low risk		Mod risk	
				Limit	Result	Limit	Result	Limit	Result
Actinic UV	$S_{UV}(\lambda)$	E_S	$W \cdot m^{-2}$	0,001	3,9E-05	--	--	--	--
Near UV		E_{UVA}	$W \cdot m^{-2}$	10	3,6E-05	--	--	--	--
Blue light	B(λ)	L_B	$W \cdot m^{-2} \cdot sr^{-1}$	100	8,04E+01	10000	8,95E+02	4000000	--
Blue light, small source	B(λ)	E_B	$W \cdot m^{-2}$	0,01*	--	1,0	--	400	--
Retinal thermal	R(λ)	L_R	$W \cdot m^{-2} \cdot sr^{-1}$	28000/α	7,2E+02	28000/α	--	71000/α	--
Retinal thermal, weak visual stimulus**	R(λ)	L_{IR}	$W \cdot m^{-2} \cdot sr^{-1}$	6000/α 0,0017≤ α ≤ 0,011	--				
				6000/α 0,011≤ α ≤ 0,1	1,2E+01				
IR radiation, eye		E_{IR}	$W \cdot m^{-2}$	100	5,9E-03	570	--	3200	--
* 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									

Table 6.1	Emission limits for risk groups of continuous wave lamps (based on EU Directive 2006/25/EC)								P
(Model: MT-F8Q120V24C8-W2, Test mode: RGB light at the same time, measurement distance: 200mm, α=0,100rad, RG1)									
Risk	Action spectrum	Symbol	Units	Emission Measurement					
				Exempt		Low risk		Mod risk	
				Limit	Result	Limit	Result	Limit	Result
Actinic UV	$S_{UV}(\lambda)$	E_S	$W \cdot m^{-2}$	0,001	9,1E-04	--	--	--	--
Near UV		E_{UVA}	$W \cdot m^{-2}$	10	5,3E-04	--	--	--	--
Blue light	B(λ)	L_B	$W \cdot m^{-2} \cdot sr^{-1}$	100	--	10000	3,12E+03	4000000	--
Blue light, small source	B(λ)	E_B	$W \cdot m^{-2}$	0,01*	--	1,0	--	400	--
Retinal thermal	R(λ)	L_R	$W \cdot m^{-2} \cdot sr^{-1}$	28000/α	3,4E+04	28000/α	--	71000/α	--
Retinal thermal, weak visual stimulus**	R(λ)	L_{IR}	$W \cdot m^{-2} \cdot sr^{-1}$	6000/α 0,0017≤ α ≤ 0,011	--				
				6000/α 0,011≤ α ≤ 0,1	8,9E+01				
IR radiation, eye		E_{IR}	$W \cdot m^{-2}$	100	1,2E+00	570	--	3200	--
* 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									

Table 6.1	Emission limits for risk groups of continuous wave lamps (based on EU Directive 2006/25/EC)								P
(Model: MT-F9Q240V24C5-W2, measurement distance:978mm, α=0,0409rad, RG1)									
Risk	Action spectrum	Symbol	Units	Emission Measurement					
				Exempt		Low risk		Mod risk	
				Limit	Result	Limit	Result	Limit	Result
Actinic UV	$S_{UV}(\lambda)$	E_S	$W \cdot m^{-2}$	0,001	1,2E-04	--	--	--	--
Near UV		E_{UVA}	$W \cdot m^{-2}$	10	8,6E-05	--	--	--	--
Blue light	B(λ)	L_B	$W \cdot m^{-2} \cdot sr^{-1}$	100	--	10000	4,02E+02	4000000	--
Blue light, small source	B(λ)	E_B	$W \cdot m^{-2}$	0,01*	--	1,0	--	400	--
Retinal thermal	R(λ)	L_R	$W \cdot m^{-2} \cdot sr^{-1}$	28000/α	4,9E+03	28000/α	--	71000/α	--
Retinal thermal, weak visual stimulus**	R(λ)	L_{IR}	$W \cdot m^{-2} \cdot sr^{-1}$	6000/α 0,0017≤ α ≤ 0,011	--				
				6000/α 0,011≤ α ≤ 0,1	3,5E+00				
IR radiation, eye		E_{IR}	$W \cdot m^{-2}$	100	4,5E-01	570	--	3200	--
* 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									

Table 6.1	Emission limits for risk groups of continuous wave lamps (based on EU Directive 2006/25/EC)								P
(Model: MT-F10Q120V24C5-W2, measurement distance:390mm, α=0,100rad, Exempt Group)									
Risk	Action spectrum	Symbol	Units	Emission Measurement					
				Exempt		Low risk		Mod risk	
				Limit	Result	Limit	Result	Limit	Result
Actinic UV	$S_{UV}(\lambda)$	E_S	$W \cdot m^{-2}$	0,001	9,3E-05	--	--	--	--
Near UV		E_{UVA}	$W \cdot m^{-2}$	10	6,5E-05	--	--	--	--
Blue light	B(λ)	L_B	$W \cdot m^{-2} \cdot sr^{-1}$	100	7,43E+01	10000	--	4000000	--
Blue light, small source	B(λ)	E_B	$W \cdot m^{-2}$	0,01*	--	1,0	--	400	--
Retinal thermal	R(λ)	L_R	$W \cdot m^{-2} \cdot sr^{-1}$	28000/α	7,3E+02	28000/α	--	71000/α	--
Retinal thermal, weak visual stimulus**	R(λ)	L_{IR}	$W \cdot m^{-2} \cdot sr^{-1}$	6000/α 0,0017≤ α ≤ 0,011	--				
				6000/α 0,011≤ α ≤ 0,1	8,4E+01				
IR radiation, eye		E_{IR}	$W \cdot m^{-2}$	100	2,2E-02	570	--	3200	--
* 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									

Table 6.1	Emission limits for risk groups of continuous wave lamps (based on EU Directive 2006/25/EC)								P
(Model: MT-F11Q120V24C8-W2, Test mode: RGB light at the same time, measurement distance:200mm, α=0,100rad, RG1)									
Risk	Action spectrum	Symbol	Units	Emission Measurement					
				Exempt		Low risk		Mod risk	
				Limit	Result	Limit	Result	Limit	Result
Actinic UV	$S_{UV}(\lambda)$	E_S	$W \cdot m^{-2}$	0,001	8,6E-03	--	--	--	--
Near UV		E_{UVA}	$W \cdot m^{-2}$	10	5,2E-05	--	--	--	--
Blue light	B(λ)	L_B	$W \cdot m^{-2} \cdot sr^{-1}$	100	--	10000	2,68E+03	4000000	--
Blue light, small source	B(λ)	E_B	$W \cdot m^{-2}$	0,01*	--	1,0	--	400	--
Retinal thermal	R(λ)	L_R	$W \cdot m^{-2} \cdot sr^{-1}$	28000/α	3,0E+04	28000/α	--	71000/α	--
Retinal thermal, weak visual stimulus**	R(λ)	L_{IR}	$W \cdot m^{-2} \cdot sr^{-1}$	6000/α 0,0017≤ α ≤ 0,011	--				
				6000/α 0,011≤ α ≤ 0,1	9.2E+01				
IR radiation, eye		E_{IR}	$W \cdot m^{-2}$	100	1,2E+00	570	--	3200	--
* 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									

Table 6.1	Emission limits for risk groups of continuous wave lamps (based on EU Directive 2006/25/EC)								P
(Model: MT-F12Q112V24C5-W2, measurement distance:215mm, α=0,100rad,Exempt Group)									
Risk	Action spectrum	Symbol	Units	Emission Measurement					
				Exempt		Low risk		Mod risk	
				Limit	Result	Limit	Result	Limit	Result
Actinic UV	$S_{UV}(\lambda)$	E_S	$W \cdot m^{-2}$	0,001	3,0E-08	--	--	--	--
Near UV		E_{UVA}	$W \cdot m^{-2}$	10	5,2E-05	--	--	--	--
Blue light	B(λ)	L_B	$W \cdot m^{-2} \cdot sr^{-1}$	100	7,86E+01	10000	--	4000000	--
Blue light, small source	B(λ)	E_B	$W \cdot m^{-2}$	0,01*	--	1,0	--	400	--
Retinal thermal	R(λ)	L_R	$W \cdot m^{-2} \cdot sr^{-1}$	28000/α	7,6E+02	28000/α	--	71000/α	--
Retinal thermal, weak visual stimulus**	R(λ)	L_{IR}	$W \cdot m^{-2} \cdot sr^{-1}$	6000/α 0,0017≤ α ≤ 0,011	--				
				6000/α 0,011≤ α ≤ 0,1	3,0E+00				
IR radiation, eye		E_{IR}	$W \cdot m^{-2}$	100	1,1E-01	570	--	3200	--
* 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									

Table 6.1	Emission limits for risk groups of continuous wave lamps (based on EU Directive 2006/25/EC)								P
(Model: MT-F13Q700V24C5-W2, measurement distance:492mm, α=0,0813rad,RG1)									
Risk	Action spectrum	Symbol	Units	Emission Measurement					
				Exempt		Low risk		Mod risk	
				Limit	Result	Limit	Result	Limit	Result
Actinic UV	$S_{UV}(\lambda)$	E_S	$W \cdot m^{-2}$	0,001	9,8E-07	--	--	--	--
Near UV		E_{UVA}	$W \cdot m^{-2}$	10	1,9E-05	--	--	--	--
Blue light	B(λ)	L_B	$W \cdot m^{-2} \cdot sr^{-1}$	100	--	10000	2,19E+02	4000000	--
Blue light, small source	B(λ)	E_B	$W \cdot m^{-2}$	0,01*	--	1,0	--	400	--
Retinal thermal	R(λ)	L_R	$W \cdot m^{-2} \cdot sr^{-1}$	28000/α	2,8E+03	28000/α	--	71000/α	--
Retinal thermal, weak visual stimulus**	R(λ)	L_{IR}	$W \cdot m^{-2} \cdot sr^{-1}$	6000/α 0,0017≤ α ≤ 0,011	--				
				6000/α 0,011≤ α ≤ 0,1	2,2E+01				
IR radiation, eye		E_{IR}	$W \cdot m^{-2}$	100	1,1E-02	570	--	3200	--
* 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									

Table 6.1	Emission limits for risk groups of continuous wave lamps (based on EU Directive 2006/25/EC)								P
(Model: MT-F14Q60V24C8-W2, Test mode: RGB light at the same time, measurement distance:200mm, α=0,100rad,RG1)									
Risk	Action spectrum	Symbol	Units	Emission Measurement					
				Exempt		Low risk		Mod risk	
				Limit	Result	Limit	Result	Limit	Result
Actinic UV	$S_{UV}(\lambda)$	E_S	$W \cdot m^{-2}$	0,001	8,9E-05	--	--	--	--
Near UV		E_{UVA}	$W \cdot m^{-2}$	10	4,3E-05	--	--	--	--
Blue light	B(λ)	L_B	$W \cdot m^{-2} \cdot sr^{-1}$	100	--	10000	8,05E+02	4000000	--
Blue light, small source	B(λ)	E_B	$W \cdot m^{-2}$	0,01*	--	1,0	--	400	--
Retinal thermal	R(λ)	L_R	$W \cdot m^{-2} \cdot sr^{-1}$	28000/α	9,3E+03	28000/α	--	71000/α	--
Retinal thermal, weak visual stimulus**	R(λ)	L_{IR}	$W \cdot m^{-2} \cdot sr^{-1}$	6000/α 0,0017≤ α ≤ 0,011	--				
				6000/α 0,011≤ α ≤ 0,1	1,0E+02				
IR radiation, eye		E_{IR}	$W \cdot m^{-2}$	100	1,1E+00	570	--	3200	--
* 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									

Table 6.1	Emission limits for risk groups of continuous wave lamps (based on EU Directive 2006/25/EC)								P
(Model: MT-F15Q400V24C5-W2, measurement distance:1208mm, α=0,0331rad, RG1)									
Risk	Action spectrum	Symbol	Units	Emission Measurement					
				Exempt		Low risk		Mod risk	
				Limit	Result	Limit	Result	Limit	Result
Actinic UV	$S_{UV}(\lambda)$	E_S	$W \cdot m^{-2}$	0,001	1,2E-04	--	--	--	--
Near UV		E_{UVA}	$W \cdot m^{-2}$	10	5,4E-05	--	--	--	--
Blue light	B(λ)	L_B	$W \cdot m^{-2} \cdot sr^{-1}$	100	--	10000	3,40E+02	4000000	--
Blue light, small source	B(λ)	E_B	$W \cdot m^{-2}$	0,01*	--	1,0	--	400	--
Retinal thermal	R(λ)	L_R	$W \cdot m^{-2} \cdot sr^{-1}$	28000/α	4,1E+03	28000/α	--	71000/α	--
Retinal thermal, weak visual stimulus**	R(λ)	L_{IR}	$W \cdot m^{-2} \cdot sr^{-1}$	6000/α 0,0017≤ α ≤ 0,011	--				
				6000/α 0,011≤ α ≤ 0,1	1,5E+00				
IR radiation, eye		E_{IR}	$W \cdot m^{-2}$	100	2,6E-01	570	--	3200	--

* 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

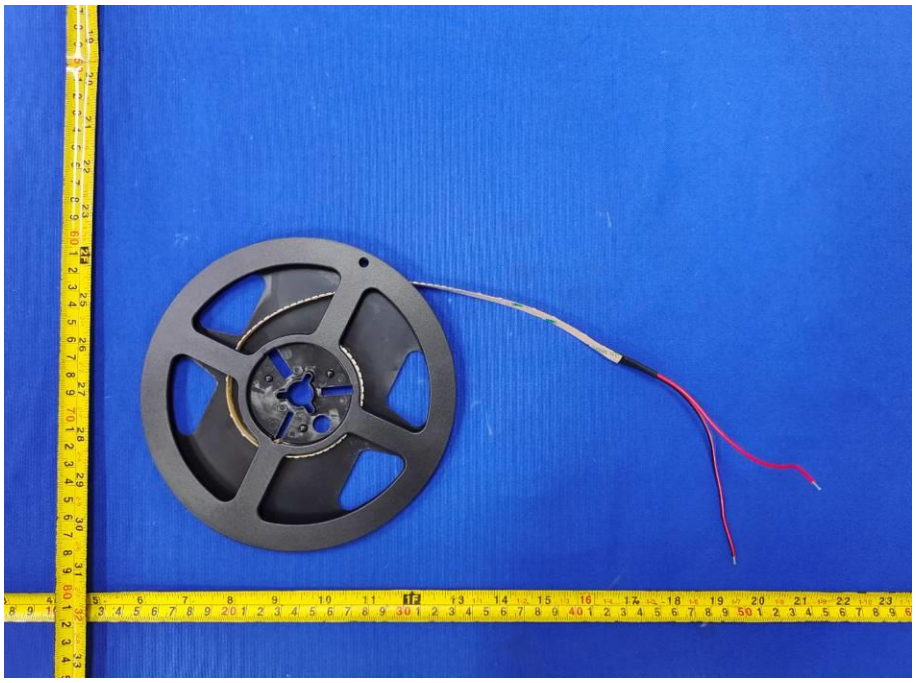
Table 6.1	Emission limits for risk groups of continuous wave lamps (based on EU Directive 2006/25/EC)	P

(Model: MT-F16Q840V24C8-W2, Test mode: RGB light at the same time, measurement distance:200mm, α=0,100rad, Exempt Group)

Risk	Action spectrum	Symbol	Units	Emission Measurement					
				Exempt		Low risk		Mod risk	
				Limit	Result	Limit	Result	Limit	Result
Actinic UV	$S_{UV}(\lambda)$	E_S	$W \cdot m^{-2}$	0,001	1,5E-04	--	--	--	--
Near UV		E_{UVA}	$W \cdot m^{-2}$	10	8,1E-05	--	--	--	--
Blue light	B(λ)	L_B	$W \cdot m^{-2} \cdot sr^{-1}$	100	5,01E+01	10000	--	4000000	--
Blue light, small source	B(λ)	E_B	$W \cdot m^{-2}$	0,01*	--	1,0	--	400	--
Retinal thermal	R(λ)	L_R	$W \cdot m^{-2} \cdot sr^{-1}$	28000/α	2,1E+03	28000/α	--	71000/α	--
Retinal thermal, weak visual stimulus**	R(λ)	L_{IR}	$W \cdot m^{-2} \cdot sr^{-1}$	6000/α 0,0017≤ α ≤ 0,011	--				
				6000/α 0,011≤ α ≤ 0,1	4,5E+00				
IR radiation, eye		E_{IR}	$W \cdot m^{-2}$	100	1,1E+00	570	--	3200	--

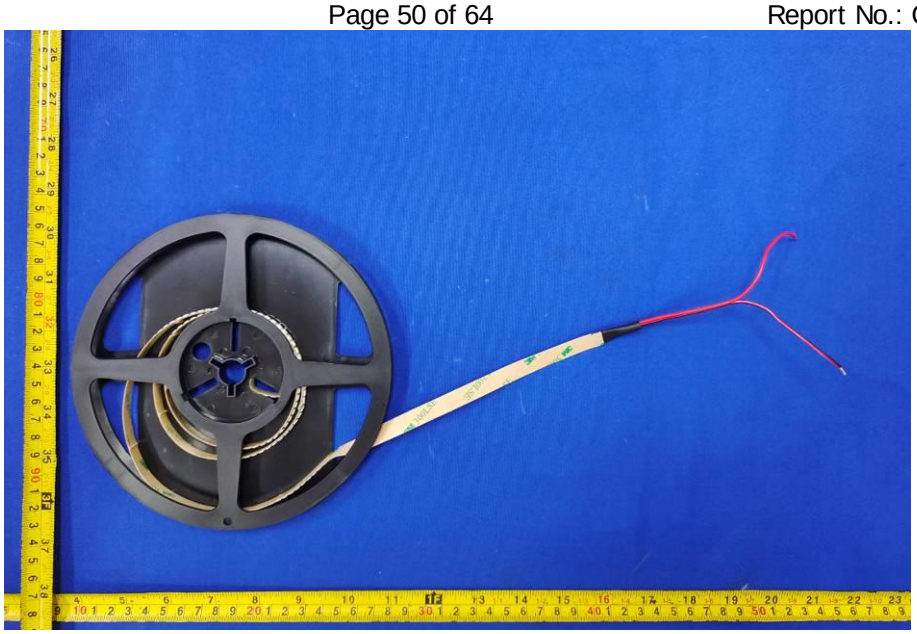
* Small source defined as one with α < 0,011 radian. Averaging field of view at 10000 s is 0,1 radian.
** Involves evaluation of non-GLS source

Product picture



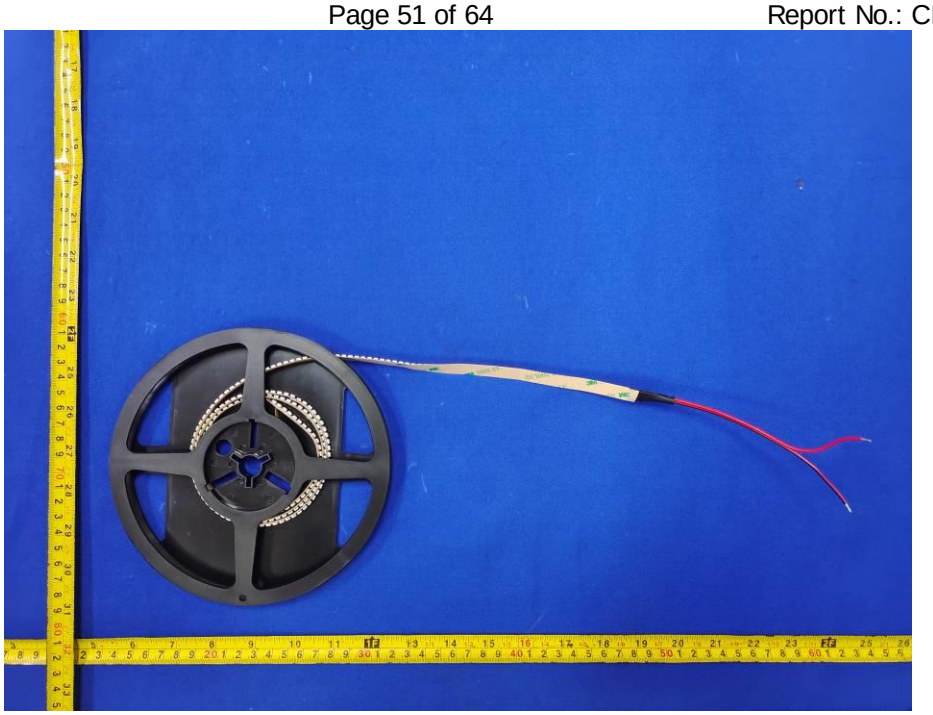
Picture 1view of MT-F1Q240V24C5-W2

Picture 2 LED view of MT-F1Q240V24C5-W2



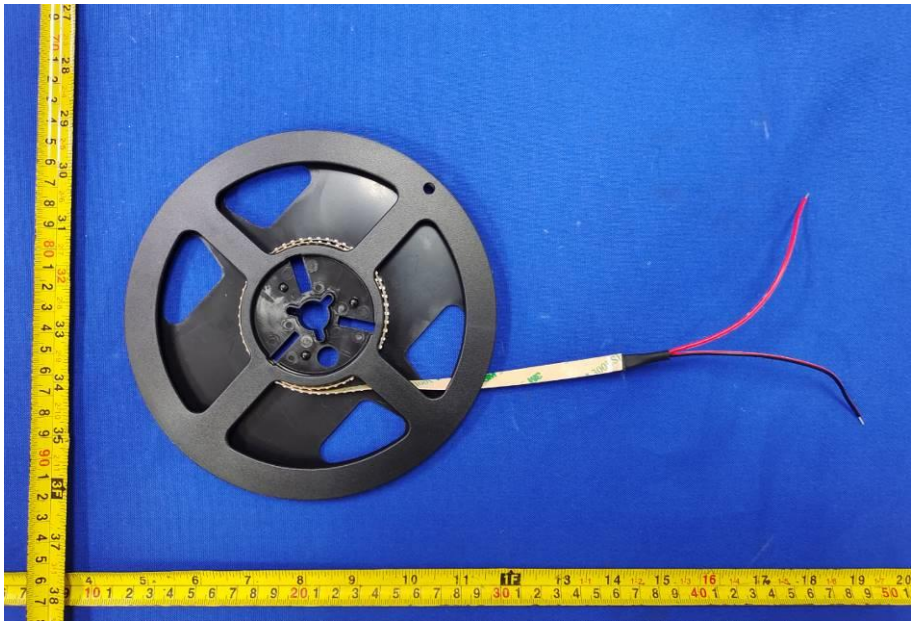
Picture 3 view of MT-F2Q240V24C5-W2

Picture 4 LED view of MT-F2Q240V24C5-W2



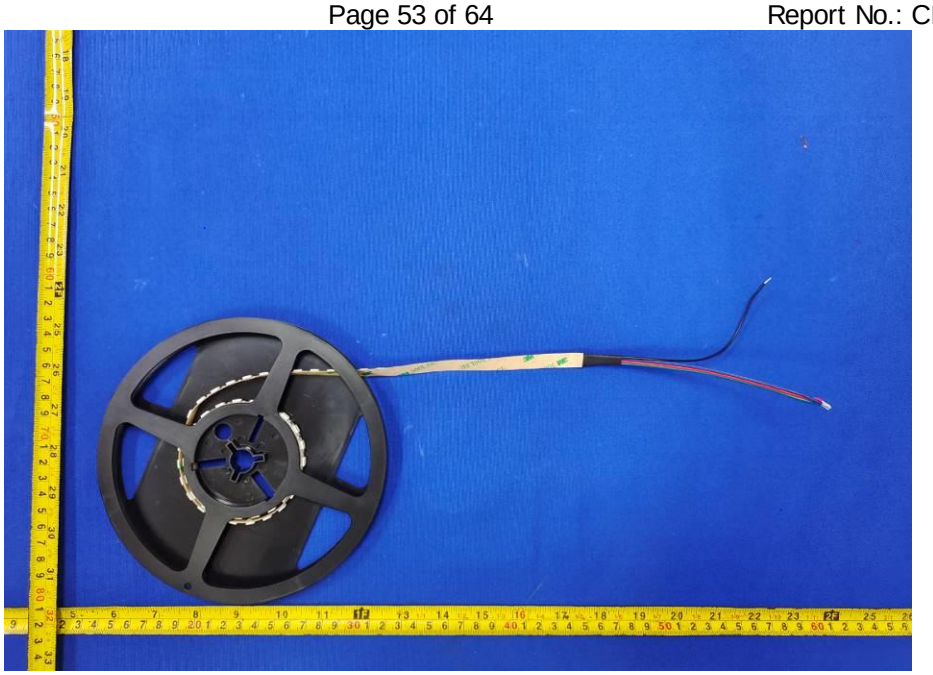
Picture 5 view of MT-F3Q240V24C5-W2

Picture 6 LED view of MT-F3Q240V24C5-W2

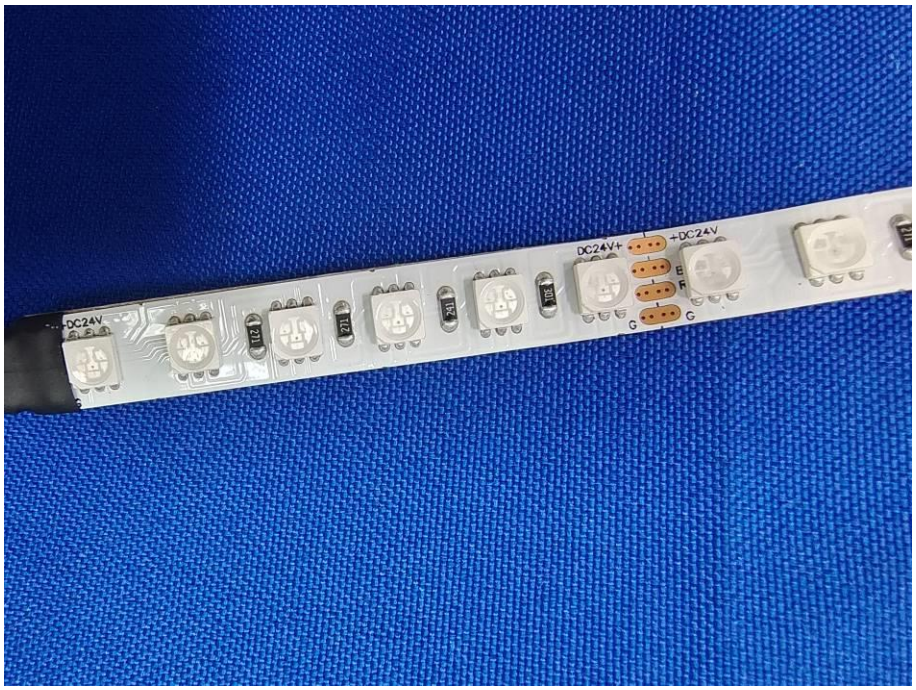


Picture 7 view of MT-F4Q240V24C5-W2

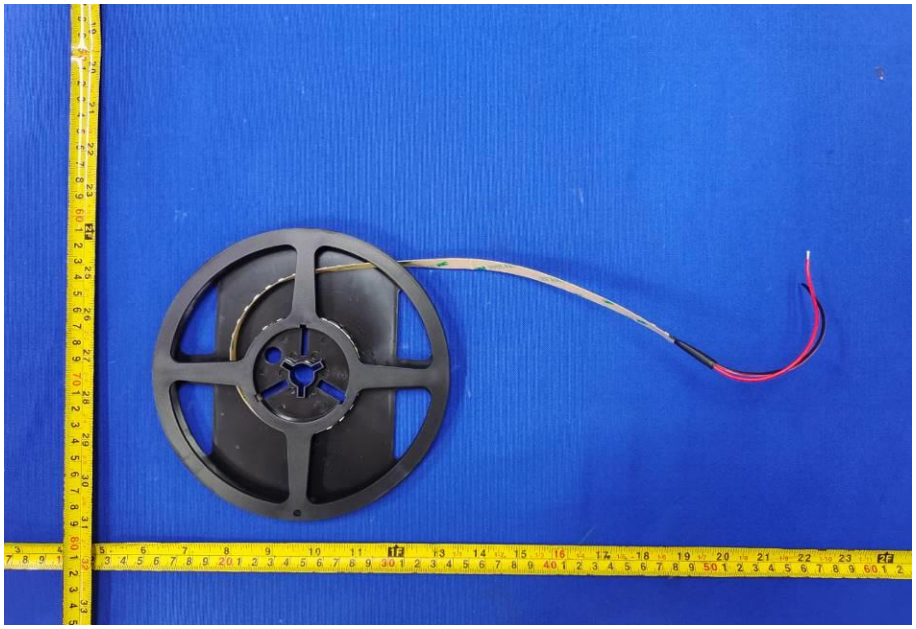
Picture 8 LED view of MT-F4Q240V24C5-W2



Picture 9 view of MT-F5Q96V24C8-W2

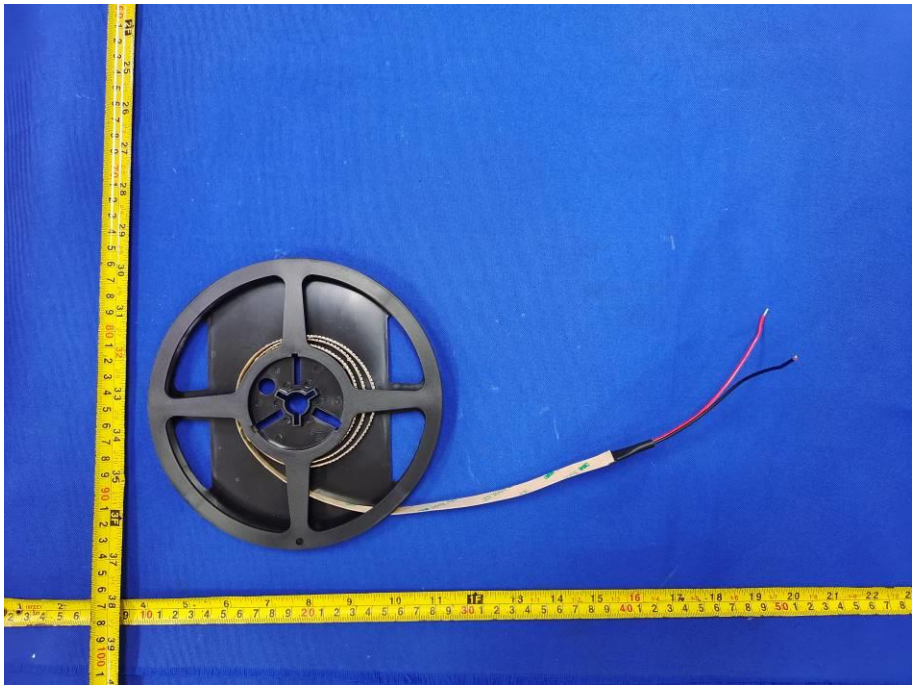


Picture 10 LED view of MT-F5Q96V24C8-W2

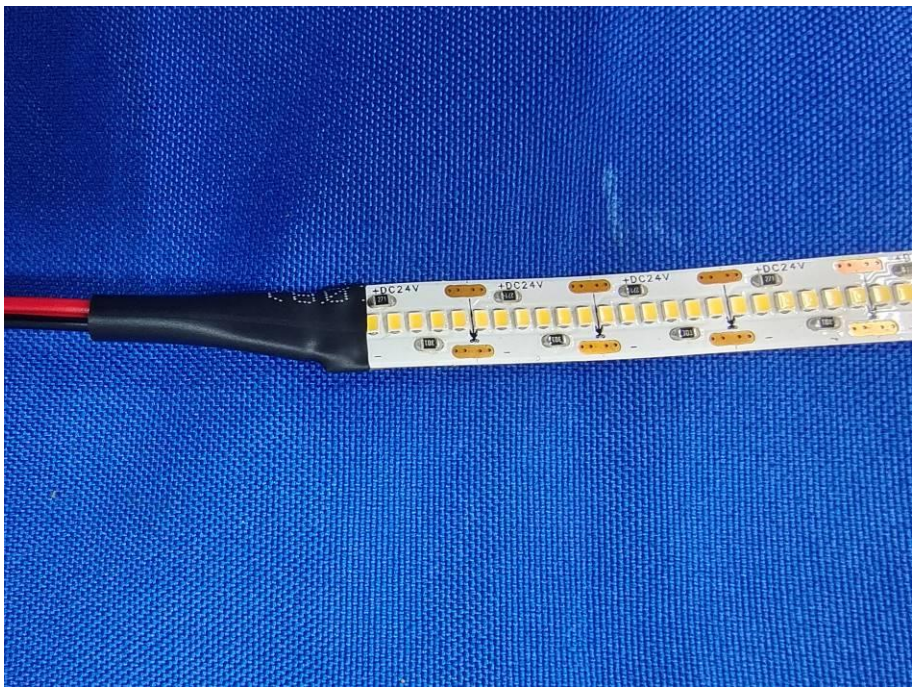


Picture 11 view of MT-F6Q112V24C5-W2

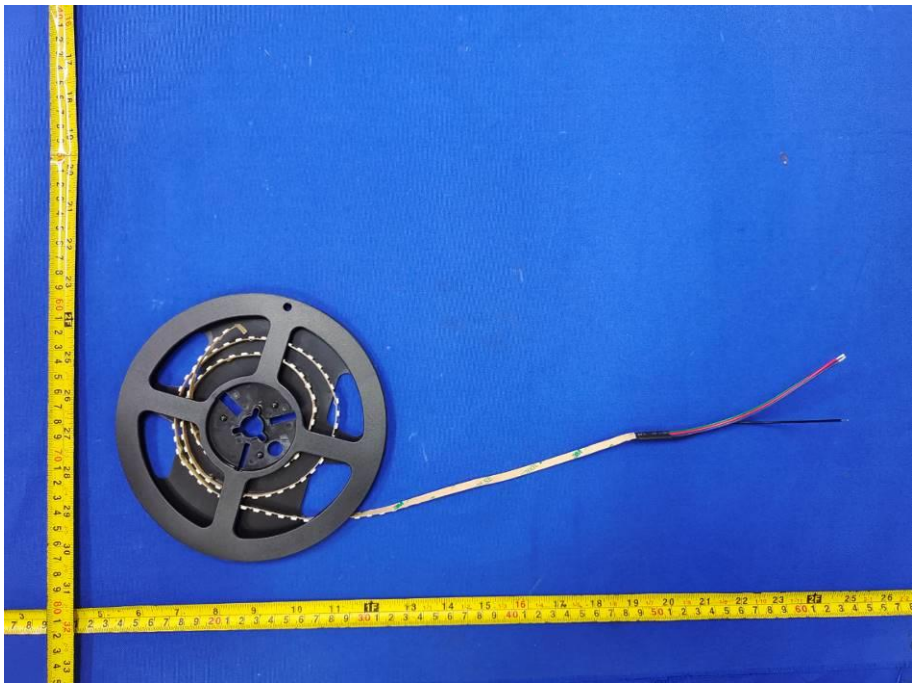
Picture 12 LED view of MT-F6Q112V24C5-W2



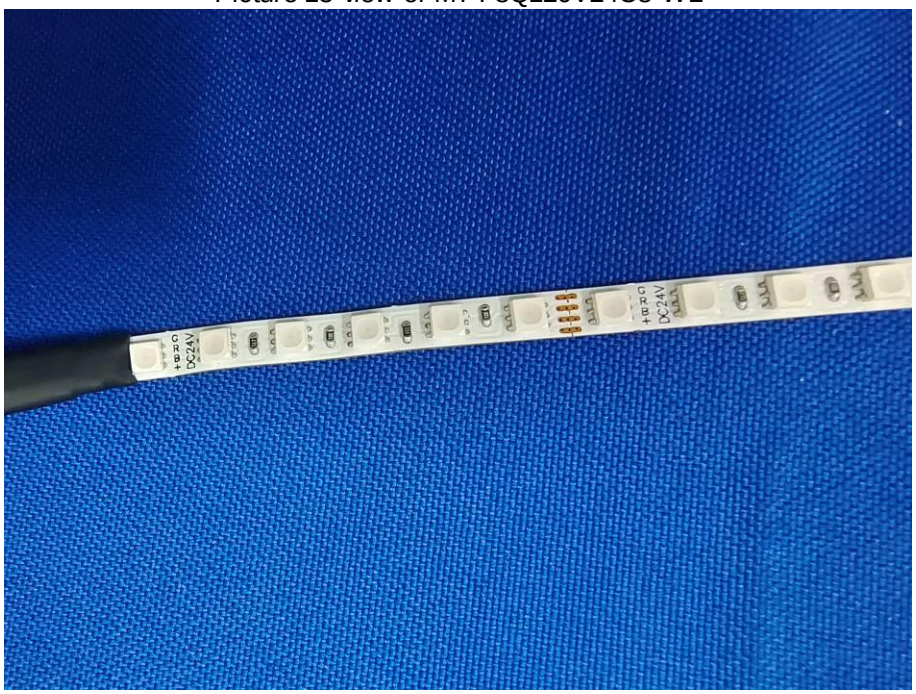
Picture 13 view of MT-F7Q420V24C5-W2



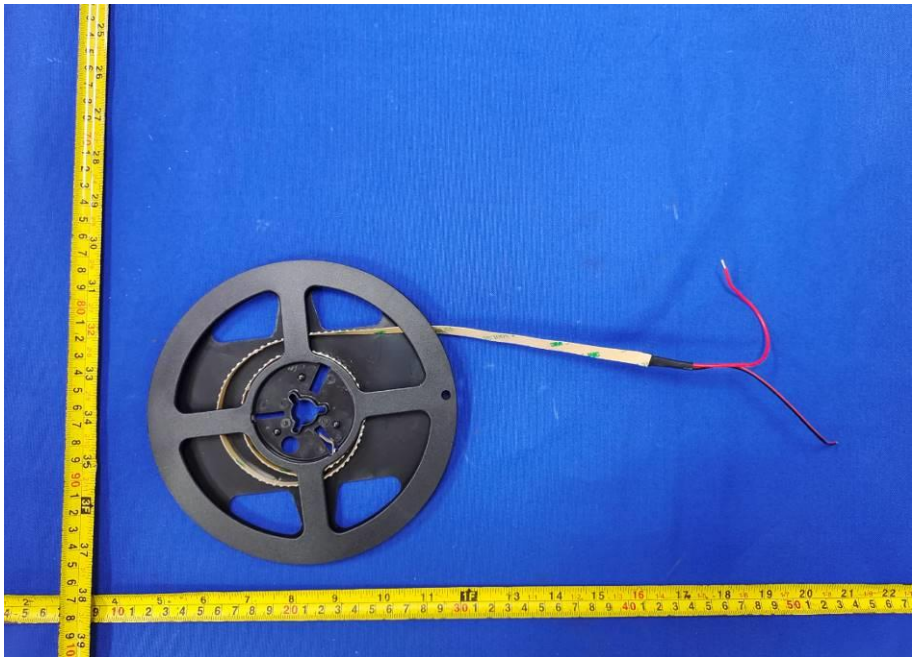
Picture 14 LED view of MT-F7Q420V24C5-W2



Picture 15 view of MT-F8Q120V24C8-W2

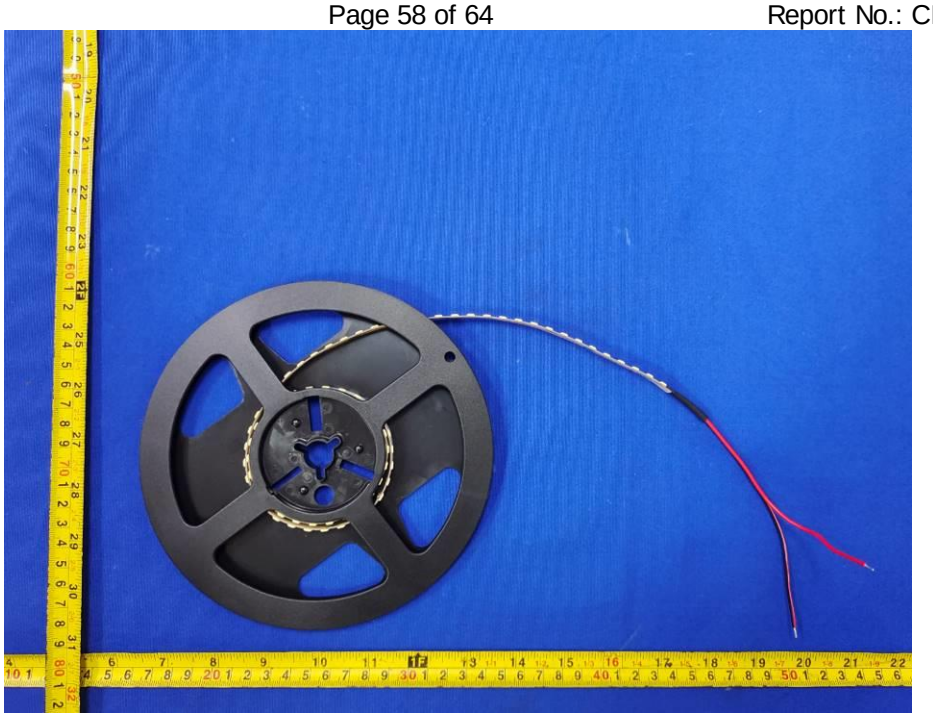


Picture 16 LED view of MT-F8Q120V24C8-W2



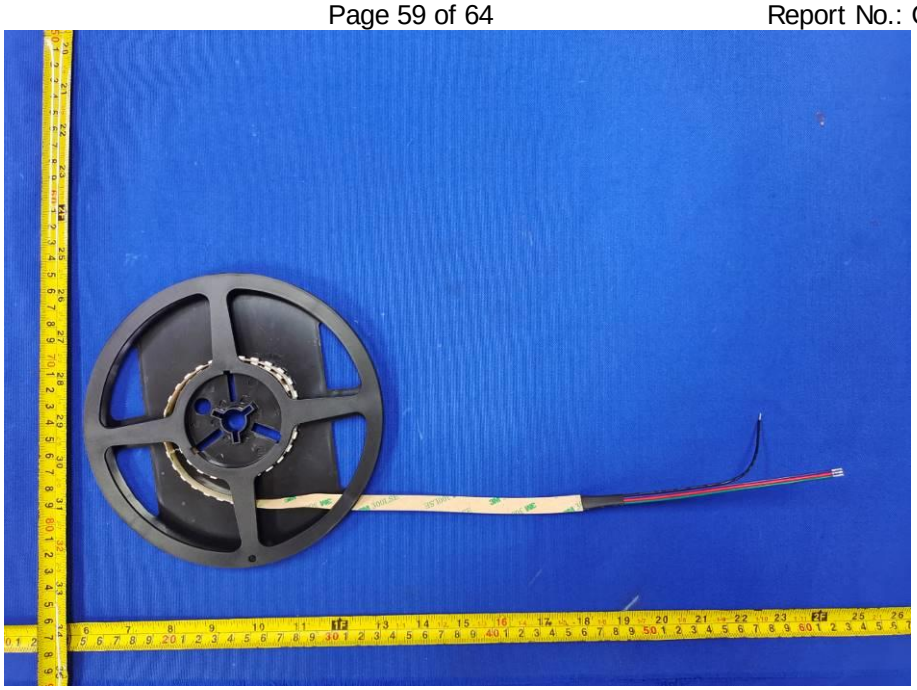
Picture 17 view of MT-F9Q240V24C5-W2

Picture 18 LED view of MT-F9Q240V24C5-W2

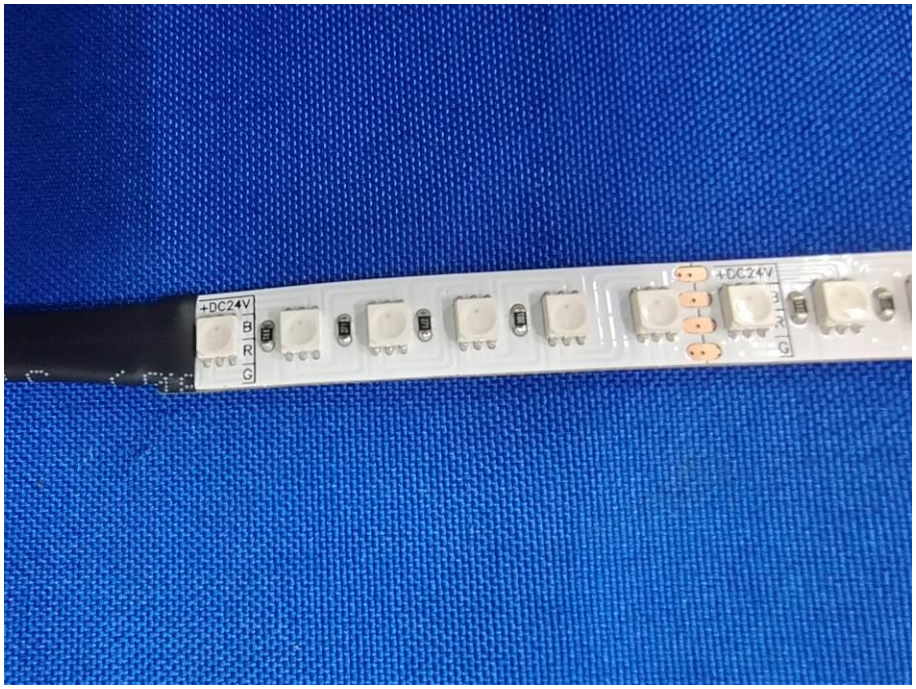


Picture 19 view of MT-F10Q120V24C5-W2

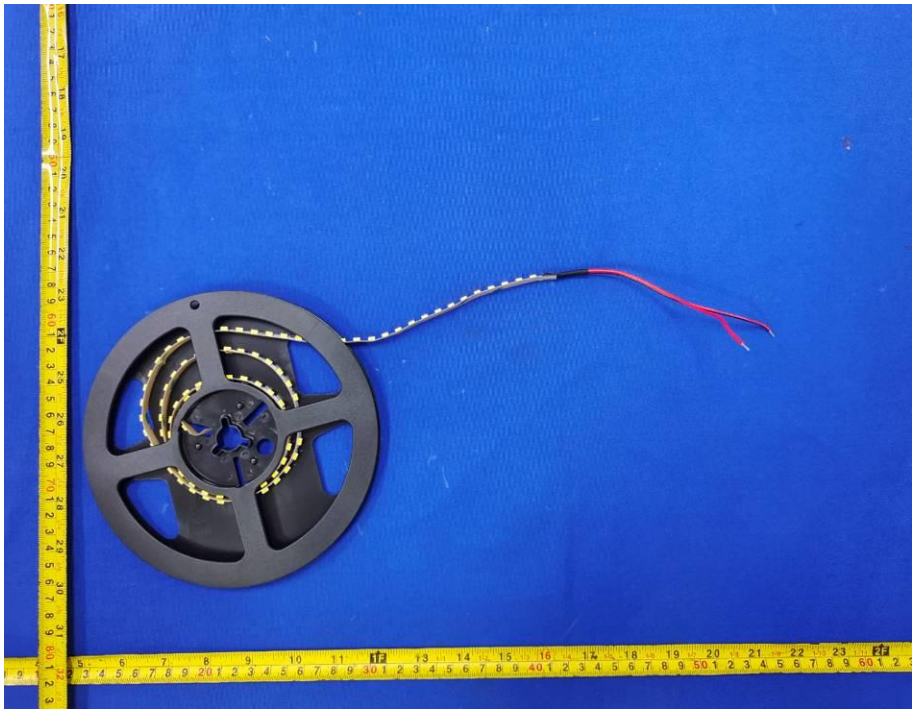
Picture 20 LED view of MT-F10Q120V24C5-W2



Picture 21 view of MT-F11Q120V24C8-W2

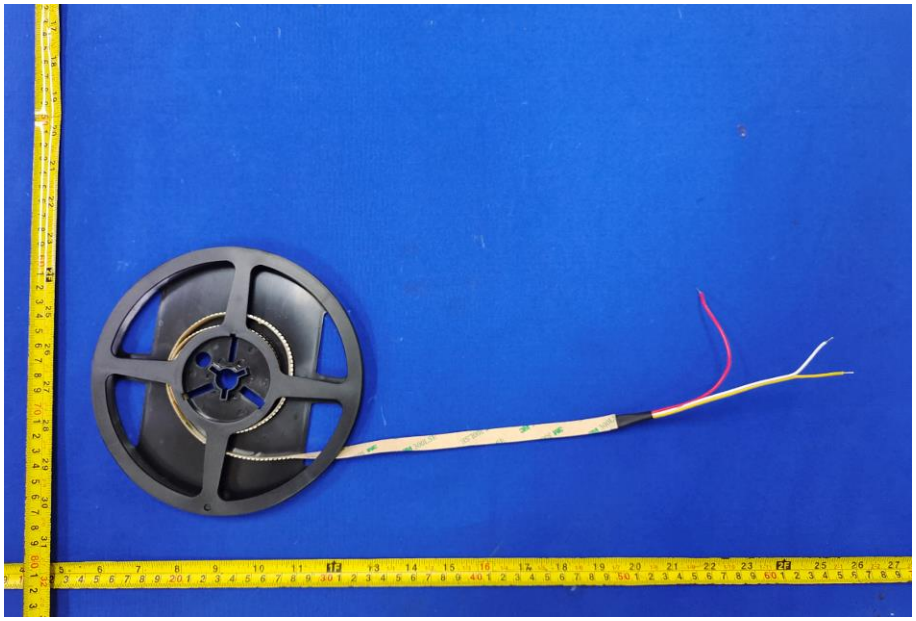


Picture 22 LED view of MT-F11Q120V24C8-W2

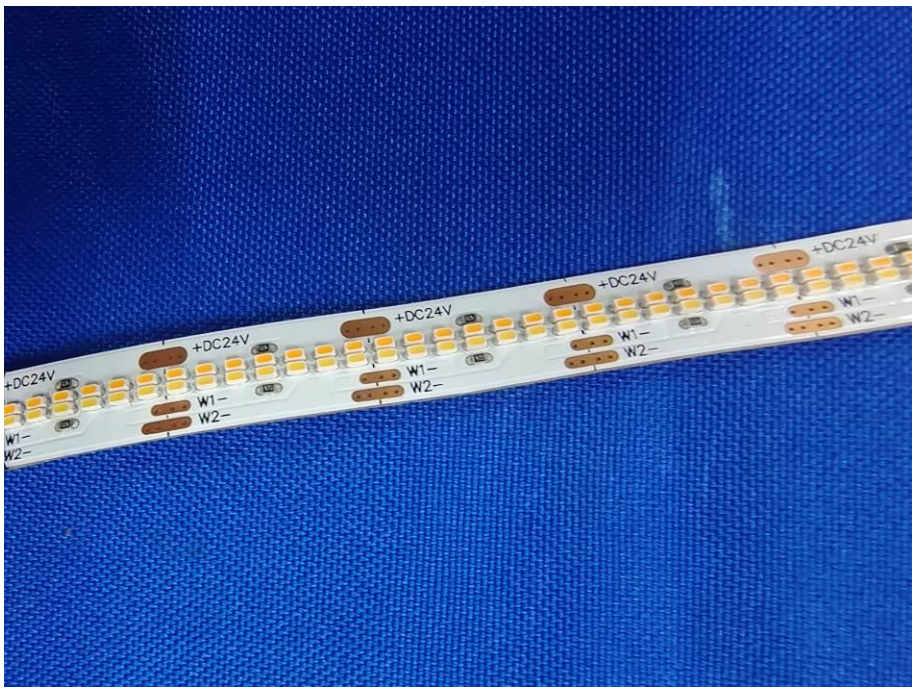


Picture 23 view of MT-F12Q112V24C5-W2

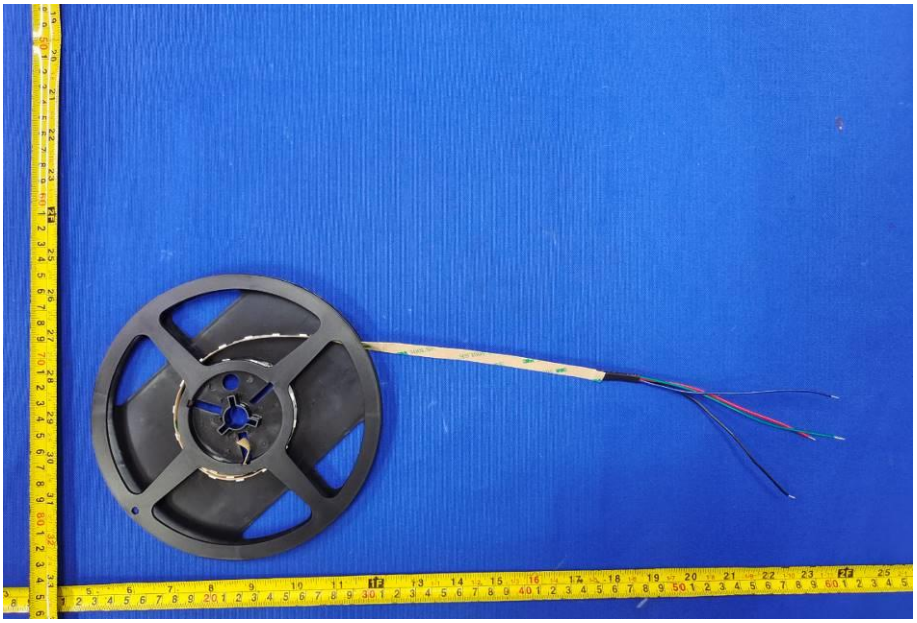
Picture 24 LED view of MT-F12Q112V24C5-W2



Picture 25 view of MT-F13Q700V24C5-W2

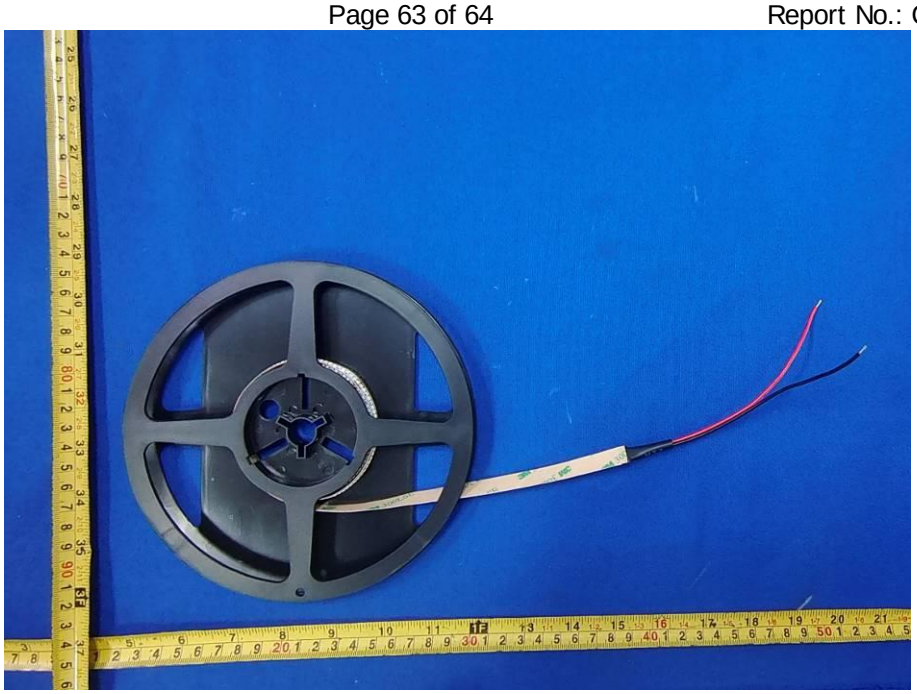


Picture 26 LED view of MT-F13Q700V24C5-W2



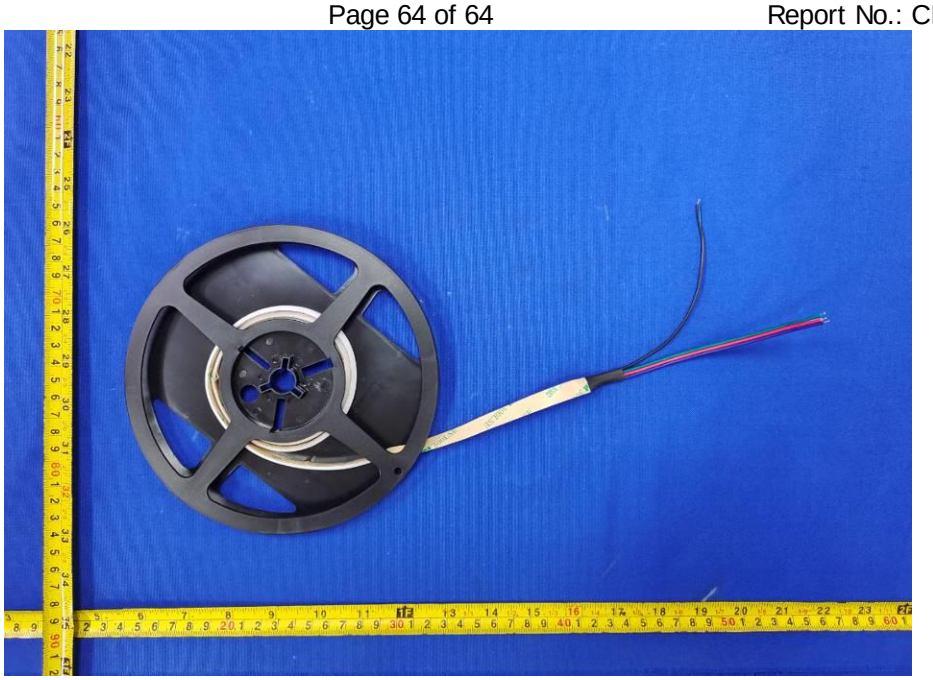
Picture 27 view of MT-F14Q60V24C8-W2

Picture 28 LED view of MT-F14Q60V24C8-W2

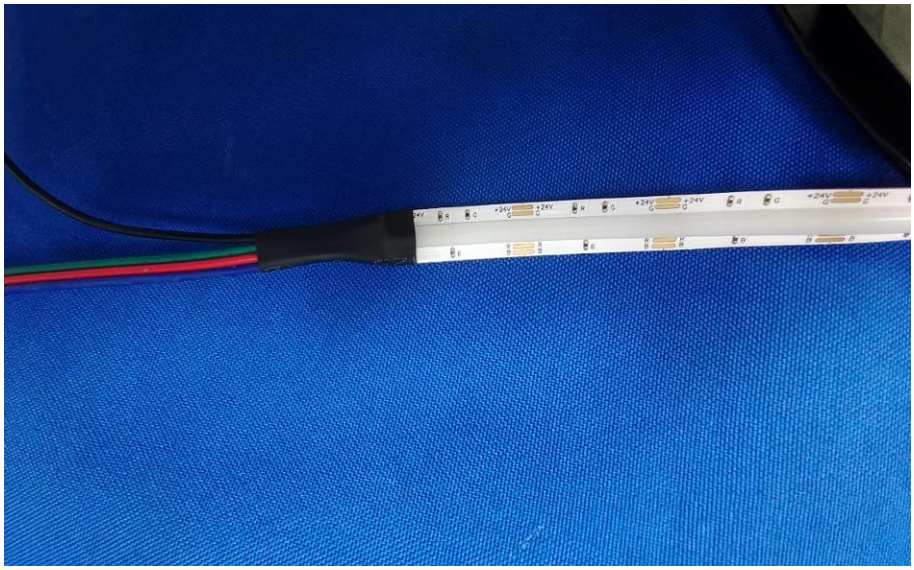


Picture 29 view of MT-F15Q400V24C5-W2

Picture 30 LED view of MT-F15Q400V24C5-W2



Picture 31 view of MT-F16Q840V24C8-W2



Picture 32 LED view of MT-F16Q840V24C8-W2

--End of Report--