IEC IECEE CB SCHEME	Ref. Certif. No.
	DE 2-026254

IEC SYSTEM FOR MUTUAL RECOGNITION OF TEST CERTIFICATES FOR ELECTRICAL EQUIPMENT (IECEE) CB SCHEME

CB TEST CERTIFICATE

Product	LED Flood Light
Name and address of the applicant	MIC Optoelectronic Co.,Ltd 3rd floor, D building, 12# Jinyuan first road Heao, Henggang, Longgang district, Shenzhen, China
Name and address of the manufacturer	MIC Optoelectronic Co.,Ltd 3rd floor, D building, 12# Jinyuan first road Heao, Henggang, Longgang district, Shenzhen, China
Name and address of the factory	MIC Optoelectronic Co.,Ltd 3rd floor, D building, 12# Jinyuan first road Heao, Henggang, Longgang district, Shenzhen, China
Ratings and principal characteristics	AC 100-240V; 50/60Hz; IP65; Class I; For other ratings, refer to the test report.
Trademark (if any)	MIC
Customer's Testing Facility (CTF) Stage used	N/A
Model / Type Ref.	MFL-G120; MFL-G240; MFL-G360; MFL-G480; MFL-G720; MFL-G960; MFL-G1200; MFL-G1440
Additional information (if necessary may also be reported on page 2)	-see also test report 50306801 001.
A sample of the product was tested and found to be in conformity with	IEC 60598-2-5:2015 IEC 60598-1:2014+A1
As shown in the Test Report Ref. No. which forms part of this Certificate	50306801 001

This CB Test Certificate is issued by the National Certification Body

TÜVRheinland®

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TÜV Rheinland LGA Products GmbH TÜVRheinland Zertifizierungsstelle

Date: 08.11.2019

Signature: Dipl.-Ing. Univ. S. O. Steinke

TÜV Rheinland (China) Ltd.
Member of TÜV Rheinland Group

TÜVRheinland®
Precisely Right.

MIC Optoelectronic Co., Ltd
3rd floor, D building ,12# Jinyuan
first road, Heao, Henggang, Longgang
district, Shenzhen, China

Date : 2019-11-08
Our ref. : awa ZD
Your ref.: 0168137029

Ref : CB Certificate Germany

Type of Equipment: LED Flood Light
Model Designation: See Certificate
Certificate No. : DE 2-026254
Report No. : 50306801 001

Dear Ladies and Gentlemen,

Thank you very much for your interest in our services.

Please find enclosed your certification documents.

We appreciate your support and would like to offer our assistance in the approval of your future products though our extensive range of technical services. Please feel free to contact us whatever your requirements may be.

With kind regards,

Certification Body

Dipl.-Ing. Univ. S. O. Steinke

Enclosure

TÜV Rheinland (China) Ltd.
莱茵检测认证服务（中国）有限公司
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Test Report issued under the responsibility of:

TÜVRheinland®

TEST REPORT
IEC 60598-2-5
Luminaires
Part 2: Particular requirements
Section 5: Floodlights

Report Number. .....:	50306801 001
Date of issue.....:	06-11-2019
Total number of pages .....:	39 pages
Name of Testing Laboratory preparing the Report.....:	**TÜV Rheinland (Shenzhen) Co., Ltd.**
Applicant's name .....:	**MIC Optoelectronic Co., Ltd**
Address.....:	3rd floor, D building ,12# Jinyuan first road, Heao, Henggang, Longgang district, Shenzhen, China
Test specification:	
Standard.....:	IEC 60598-2-5:2015 used in conjunction with IEC 60598-1:2014, AMD1:2017
Test procedure .....:	CB Scheme
Non-standard test method .....:	N/A
Test Report Form No. .....:	IEC60598_2_5F
Test Report Form(s) Originator ....:	Intertek Semko AB
Master TRF.....:	Dated 2018-04-06

If this Test Report Form is used by non-IECEE members, the IECEE/IEC logo and the reference to the CB Scheme procedure shall be removed.

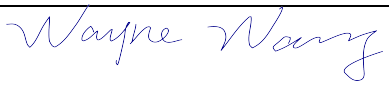
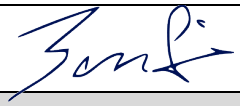
This report is not valid as a CB Test Report unless signed by an approved CB Testing Laboratory and appended to a CB Test Certificate issued by an NCB in accordance with IECEE 02.

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 Flood Light
Trade Mark ..... :	
Manufacturer ..... :	Same as applicant
Model/Type reference ..... :	MFL-G120, MFL-G240, MFL-G360, MFL-G480, MFL-G720, MFL-G960, MFL-G1200, MFL-G1440
Ratings ..... :	AC 100-240V, 50/60Hz, ta: 50°C, IP65, Class I (details see “general product information”)

Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):

☒	**CB Testing Laboratory:**	TÜV Rheinland (Shenzhen) Co., Ltd.	
Testing location/ address ..... :		East of F/1, F/2~F/4, Building 1, Cybio Technology Building No. 6 Langshan No.2 Road, North Hi-tech Industry Park 518057 Shenzhen Nanshan District CHINA	
Tested by (name, function, signature) ..... :		Wayne Wang	
Approved by (name, function, signature)... :		Jack Li	
☐	**Testing procedure: CTF Stage 1:**		
Testing location/ address ..... :		N/A	
Tested by (name, function, signature) ..... :		N/A	
Approved by (name, function, signature)... :		N/A	
☐	**Testing procedure: CTF Stage 2:**		
Testing location/ address ..... :		N/A	
Tested by (name + signature) ..... :		N/A	
Witnessed by (name, function, signature) . :		N/A	
Approved by (name, function, signature)... :		N/A	
☐	**Testing procedure: CTF Stage 3:**		
☐	**Testing procedure: CTF Stage 4:**		
Testing location/ address ..... :		N/A	
Tested by (name, function, signature) ..... :		N/A	
Witnessed by (name, function, signature) . :		N/A	
Approved by (name, function, signature)... :		N/A	
Supervised by (name, function, signature) :		N/A	

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

Attachment 1: Tests according to IEC 62031:2008+A1:2012+A2:2014(1 pages)

Attachment 2: Photobiological safety of lamps and lamp systems were according to standard IEC TR 62778:2014.(1 pages)

Attachment 3: photo document.(5 pages)

Summary of testing:

Tests performed (name of test and test clause):

Clause(s)	Test(s)
IEC 60598-1:2014+A1:2017	
3.4	Rubbing test
4.12.1	Screw torque test
4.12.5	Torque test on screw gland
4.13.1	Impact test
4.13.3	Straight unjointed test finger
4.14.1	Test for mechanical suspensions
5.2.10.3	Pull and torque test on cord anchorage
7.2.3	Earth resistance test
8.2.5	Protection against electric shock test
8.2.6	Covers reliably secured
8.2.7	Capacitor discharge
9.2	Tests for ingress of dust, solid objects and moisture
9.3.1	Humidity test
10.2.1	Insulation resistance test
10.2.2	Electric strength test
10.3	Touch current test and protective conductor current test
12.3.1	Endurance test
12.4	Thermal test (normal operation)
13.2	Ball pressure test
13.3.1	Needle-flame test
13.3.2	Glow-wire test
IEC 60598-2-5:2015	
5.6.5	Static load test

Full test were performed on MFL-G1440, Partial tests were performed on other models.

Testing location:

TÜV Rheinland (Shenzhen) Co., Ltd.
East of F/1, F/2~F/4, Building 1, Cybio Technology Building No. 6 Langshan No.2 Road, North Hi-tech Industry Park 518057 Shenzhen Nanshan District CHINA

Summary of compliance with National Differences:

List of countries addressed

N/A

☐ **The product fulfils the requirements of _____ (insert standard number and edition and delete the text in parenthesis, leave it blank or delete the whole sentence, if not applicable)**

Copy of marking plate:

The artwork below may be only a draft. The use of certification marks on a product must be authorized by the respective NCBs that own these marks.

LED Flood Light
Model: MFL-G1440
100-240V~, 50/60Hz, 1440W

IP65 **ta 50°C 6500K**

MIC Optoelectronic Co., Ltd
3rd floor, D building ,12# Jinyuan first road, Heao, Henggang, Longgang district, Shenzhen, China
Importer: XXXXXXX
Address: XXXXXXX

MADE IN CHINA

Note: above labels are only representative, other model labels are the same design, except model name and rating correspondingly.

Test item particulars.....:	
Classification of installation and use.....:	LED floodlight for indoor and outdoor use
Supply Connection.....:	Supply cord
.....:	
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 .....:	08-10-2019
Date (s) of performance of tests.....:	08-10-2019 to 22-10-2019

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.

Clause numbers between brackets refer to clauses in IEC 60598-1

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 applicant's name and address

General product information:

Product: LED Flood Light

Rating: AC 100-240V, 50/60Hz, ta: 50°C, IP65, Class I, and used with approved SELV LED drivers, suitable for direct mounting on normally flammable surfaces, suitable for indoor and outdoor use.

1. All models have similar construction, but different size, power and LED driver.
2. All models use same type LED chip with CCT 2700K-6500K.
3. The CB report is for IECEE registration only.

Model list:

Model name	Input current (A)	Power (W)	LED Driver	Dimension (LxWxH)/ Weight	Max. project area (m^2)	Maximum mounting height(m)
MFL-G120	1,2	120	ELG-150-48A	W310xL116xH 132mm/2,8kg	0,036	8
MFL-G240	2,4	240	ELG-240-48A	W362xL343xL 132mm/5,6kg	0,124	12
MFL-G360	3,6	360	ELG-200-48A x 2pcs	W362xL475xL 132mmm/7,25 kg	0,172	16
MFL-G480	4,8	480	ELG-240-48A x 2pcs	W362xL597xH 132mm/11kg	0,216	18
MFL-G720	7,2	720	ELG-240-48A x 3pcs	W649xL475xH 132mm/16,8kg	0,297	22
MFL-G960	9,6	960	ELG-240-48A x 4pcs	W649xL597xH 132mm/18kg	0,387	25
MFL-G1200	12	1200	ELG-240-48A x 5pcs	W649xL729xH 132mm/27,2kg	0,473	30
MFL-G1440	14,4	1440	ELG-240-48A x 6pcs	W649xL861xH 132mm/33,6kg	0,559	35

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict

5.4 (0+2)	**CLASSIFICATION OF LUMINAIRES**		P
5.4 (0)	**General requirements and tests**		—
5.4 (0.3)	More sections applicable ..... :	Yes ☐ No ☒ Section/s:	—
5.4 (0.5)	Components	(see Annex 1)	—
5.4 (0.7)	Information for luminaire design in light sources standards		—
5.4 (0.7.2)	Light source safety standard ..... :	IEC 62031	—
	Luminaire design in the light source safety standard		—
5.4 (2)	**Classification of luminaires**		—
5.4 (2.2)	Type of protection ..... :	Class I	P
5.4 (2.3)	Degree of protection ..... :	IP65	—
5.4 (2.4)	Luminaire suitable for direct mounting on normally flammable surfaces ..... :	Yes ☒ No ☐	—
5.4 (2.5)	Luminaire for normal use ..... :	Yes ☒ No ☐	—
	Luminaire for rough service ..... :	Yes ☐ No ☒	—

5.5 (3)	**MARKING**		P
5.5 (3.2)	Mandatory markings		P
	Position of the marking		P
	Format of symbols/text		P
5.5 (3.3)	Additional information		P
	Language of instructions	English	P
5.5 (3.3.1)	Combination luminaires		N/A
5.5 (3.3.2)	Nominal frequency in Hz	50/60Hz	P
5.5 (3.3.3)	Operating temperature		N/A
5.5 (3.3.5)	Wiring diagram		N/A
5.5 (3.3.6)	Special conditions		N/A
5.5 (3.3.7)	Metal halide lamp luminaire – warning		N/A
5.5 (3.3.8)	Limitation for semi-luminaires		N/A
5.5 (3.3.9)	Power factor and supply current		N/A
5.5 (3.3.10)	Suitability for use indoors		P
5.5 (3.3.11)	Luminaires with remote control		N/A
5.5 (3.3.12)	Clip-mounted luminaire – warning		N/A
5.5 (3.3.13)	Specifications of protective shields		N/A

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
5.5 (3.3.14)	Symbol for nature of supply	~	P
5.5 (3.3.15)	Rated current of socket outlet		N/A
5.5 (3.3.16)	Rough service luminaire		N/A
5.5 (3.3.17)	Mounting instruction for type Y, type Z and some type X attachments	Type Y	P
5.5 (3.3.18)	Non-ordinary luminaires with PVC cable		N/A
5.5 (3.3.19)	Protective conductor current in instruction if applicable		N/A
5.5 (3.3.20)	Provided with information if not intended to be mounted within arm's reach		N/A
5.5 (3.3.21)	Non-replaceable and non-user replaceable light sources information provided	Non-user replaceable	P
5.5 (3.3.22)	Controllable luminaires, classification of insulation provided		N/A
5.5 (3.3.23)	Luminaire without controlgear provided with necessary information for selection of appropriate component		N/A
5.5 (3.3.24)	If not supplied with terminal block, information on the packaging		N/A
5.5 (3.4)	Test with water	15s	P
	Test with hexane	15s	P
	Legible after test		P
	Label attached		P
5.5 (-)	Additional information if applicable		P
	a) Operation position		N/A
	b) Weight and dimensions		P
	c) Maximum protected area		P
	d) Limitation of use indoors and/or outdoor		P
	e) Maximum mounting height if ≤ 5 m		N/A
5.6 (4)	**CONSTRUCTION**		P
5.6 (4.2)	Components replaceable without difficulty		N/A
5.6 (4.3)	Wireways smooth and free from sharp edges		P
5.6 (4.4)	**Lampholders**		**N/A**
5.6 (4.4.1)	Integral lampholder		N/A
5.6 (4.4.2)	Wiring connection		N/A
5.6 (4.4.3)	Lampholder for end-to-end mounting		N/A

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
5.6 (4.4.4)	Positioning		N/A
	- pressure test (N) ..... :		—
	After test the lampholder comply with relevant standard sheets and show no damage		N/A
	After test on single-capped lampholder the lampholder have not moved from its position and show no permanent deformation		N/A
	- bending test (N) ..... :		—
	After test the lampholder have not moved from its position and show no permanent deformation		N/A
5.6 (4.4.5)	Peak pulse voltage		N/A
5.6 (4.4.6)	Centre contact		N/A
5.6 (4.4.7)	Parts in rough service luminaires resistant to tracking		N/A
5.6 (4.4.8)	Lamp connectors		N/A
5.6 (4.4.9)	Caps and bases correctly used		N/A
5.6 (4.4.10)	Light source for lampholder or connection according IEC 60061 not connected another way		N/A
5.6 (4.5)	**Starter holders**		N/A
	Starter holder in luminaires other than class II		N/A
	Starter holder class II construction		N/A
5.6 (4.6)	**Terminal blocks**		N/A
	Tails		N/A
	Unsecured blocks		N/A
5.6 (4.7)	**Terminals and supply connections**		**P**
5.6 (4.7.1)	Contact to metal parts		N/A
5.6 (4.7.2)	Test 8 mm live conductor		N/A
	Test 8 mm earth conductor		N/A
5.6 (4.7.3)	Terminals for supply conductors		P
5.6 (4.7.3.1)	Welded method and material		N/A
	- stranded or solid conductor		N/A
	- spot welding		N/A
	- welding between wires		N/A
	- Type Z attachment		N/A
	- mechanical test according to 15.6.2		N/A
	- electrical test according to 15.6.3		N/A

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
	- heat test according to 15.6.3.2.3 and 15.6.3.2.4		N/A
5.6 (4.7.4)	Terminals other than supply connection		N/A
5.6 (4.7.5)	Heat-resistant wiring/sleeves		N/A
5.6 (4.7.6)	Multi-pole plug		N/A
	- test at 30 N		N/A
5.6 (4.8)	**Switches**		**N/A**
	- adequate rating		N/A
	- adequate fixing		N/A
	- polarized supply		N/A
	- compliance with IEC 61058-1 for electronic switches		N/A
5.6 (4.9)	**Insulating lining and sleeves**		**N/A**
5.6 (4.9.1)	Retainment		N/A
	Method of fixing ..... :		N/A
5.6 (4.9.2)	Insulated linings and sleeves:		N/A
	Resistant to a temperature > 20 °C to the wire temperature or		N/A
	a) & c) Insulation resistance and electric strength		N/A
	b) Ageing test. Temperature (°C) ..... :		N/A
5.6 (4.10)	**Double or reinforced insulation**		**N/A**
5.6 (4.10.1)	No contact, mounting surface – accessible metal parts – wiring of basic insulation		N/A
	Safe installation fixed luminaires		N/A
	Capacitors and switches		N/A
	Interference suppression capacitors according to IEC 60384-14		N/A
5.6 (4.10.2)	Assembly gaps:		N/A
	- not coincidental		N/A
	- no straight access with test probe		N/A
5.6 (4.10.3)	Retainment of insulation:		N/A
	- fixed		N/A
	- unable to be replaced; luminaire inoperative		N/A
	- sleeves retained in position		N/A
	- lining in lampholder		N/A
5.6 (4.10.4)	Protective impedance device		N/A

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
	Double or reinforced insulation bridged by appropriate and at least two resistors or two Y2 capacitors or one Y1 capacitor		N/A
	Y1 or Y2 capacitors comply with IEC 60384-14		N/A
	Resistors comply with test (a) in 14.1 of IEC 60065		N/A
5.6 (4.11)	**Electrical connections and current-carrying parts**		**P**
5.6 (4.11.1)	Contact pressure		P
5.6 (4.11.2)	Screws:		N/A
	- self-tapping screws		N/A
	- thread-cutting screws		N/A
5.6 (4.11.3)	Screw locking:		N/A
	- spring washer		N/A
	- rivets		N/A
5.6 (4.11.4)	Material of current-carrying parts		P
5.6 (4.11.5)	No contact to wood or mounting surface		P
5.6 (4.11.6)	Electro-mechanical contact systems		N/A
5.6 (4.12)	**Screws and connections (mechanical) and glands**		**P**
5.6 (4.12.1)	Screws not made of soft metal		P
	Screws of insulating material		N/A
	Torque test: torque (Nm); part..... :	Fixed LED driver: 1,2Nm	P
	Torque test: torque (Nm); part..... :	Fixed plastic lens: 0,6Nm	P
	Torque test: torque (Nm); part..... :	Fixed LED PCB: 0,6Nm	P
5.6 (4.12.2)	Screws with diameter < 3 mm screwed into metal		N/A
5.6 (4.12.4)	Locked connections:		N/A
	- fixed arms; torque (Nm) ..... :		N/A
	- lampholder; torque (Nm) ..... :		N/A
	- push-button switches; torque 0,8 Nm ..... :		N/A
5.6 (4.12.5)	Screwed glands; force (Nm)..... :	Metal gland: 6,25Nm	P
5.6 (4.13)	**Mechanical strength**		**P**
5.6 (4.13.1)	Impact tests:		P
	- fragile parts; energy (Nm) ..... :		N/A
	- other parts; energy (Nm)..... :	Metal enclosure and plastic lens: 0,7Nm	P
	1) live parts		P
	2) linings		N/A

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
	3) protection		P
	4) covers		P
5.6 (4.13.2)	Metal parts have adequate mechanical strength		P
5.6 (4.13.3)	Straight test finger		P
5.6 (4.13.4)	Rough service luminaires		N/A
	- IP54 or higher		N/A
	a) fixed		N/A
	b) hand-held		N/A
	c) delivered with a stand		N/A
	d) for temporary installations and suitable for mounting on a stand		N/A
5.6 (4.13.6)	Tumbling barrel		N/A
5.6 (4.14)	**Suspensions, fixings and means of adjusting**		**P**
5.6 (4.14.1)	Mechanical load:		P
	A) four times the weight	For model MFL-G1440: 4x33,6Kg=134,4Kg For model MFL-G480: 4x33,6Kg=134,4Kg	P
	B) torque 2,5 Nm		N/A
	C) bracket arm; bending moment (Nm)..... :	For model MFL-G1440: 289,3 (33,6Kgx10N/kgx0,861m) For model MFL-G480: 65,67 (11Kgx10N/kgx0,597m)	P
	D) load track-mounted luminaires		N/A
	E) clip-mounted luminaires, glass-shelve. Thickness (mm) ..... :		N/A
	Metal rod. diameter (mm) ..... :		N/A
	Fixed luminaire or independent control gear without fixing devices		N/A
5.6 (4.14.2)	Load to flexible cables		N/A
	Mass (kg) ..... :		—
	Stress in conductors (N/mm²) ..... :		N/A
	Mass (kg) of semi-luminaire ..... :		N/A
	Bending moment (Nm) of semi-luminaire ..... :		N/A
5.6 (4.14.3)	Adjusting devices:		P
	- flexing test; number of cycles..... :	45 cycles	P
	- strands broken ..... :	No broken	P

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
	- electric strength test afterwards		P
5.6 (4.14.4)	Telescopic tubes: cords not fixed to tube; no strain on conductors		N/A
5.6 (4.14.5)	Guide pulleys		N/A
5.6 (4.14.6)	Strain on socket-outlets		N/A
5.6 (4.15)	**Flammable materials**		**P**
	- glow-wire test 650°C ..... :	See Test Table 5.15 (13.3.2)	P
	- spacing ≥30 mm		N/A
	- screen withstanding test of 13.3.1		N/A
	- screen dimensions		N/A
	- no fiercely burning material		P
	- thermal protection		N/A
	- electronic circuits exempted		N/A
5.6 (4.15.2)	Luminaires made of thermoplastic material with lamp control gear		N/A
	a) construction		N/A
	b) temperature sensing control		N/A
	c) surface temperature		N/A
5.6 (4.16)	**Luminaires for mounting on normally flammable surfaces**		**P**
	No lamp control gear ..... :	(compliance with Section 12)	N/A
	Provided with adaptor for a track meet the requirements for direct mounting on normally flammable surfaces		N/A
5.6 (4.16.1)	Lamp control gear spacing:		P
	- spacing 35 mm		N/A
	- spacing 10 mm		P
5.6 (4.16.2)	Thermal protection:		N/A
	- in lamp control gear		N/A
	- external		N/A
	- fixed position		N/A
	- temperature marked lamp control gear		N/A
5.6 (4.16.3)	Design to satisfy the test of 12.6	(see clause 12.6)	N/A
5.6 (4.17)	**Drain holes**		N/A
	Clearance at least 5 mm		N/A
5.6 (4.18)	**Resistance to corrosion**		**P**
5.6 (4.18.1)	- rust-resistance		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.6 (4.18.2)	- season cracking in copper		N/A
5.6 (4.18.3)	- corrosion of aluminium		P
5.6 (4.19)	Ignitors compatible with ballast		N/A
5.6 (4.20)	Rough service vibration		N/A
5.6 (4.21)	**Protective shield**		**N/A**
5.6 (4.21.1)	Shield fitted if tungsten halogen lamps or metal halide lamps		N/A
	Shield of glass if tungsten halogen lamps		N/A
5.6 (4.21.2)	Particles from a shattering lamp not impair safety		N/A
5.6 (4.21.3)	No direct path		N/A
5.6 (4.21.4)	Impact test on shield		N/A
	Glow-wire test on lamp compartment..... :	See Test Table 5.15 (13.3.2)	N/A
5.6 (4.22)	Attachments to lamps not cause overheating or damage		N/A
5.6 (4.23)	Semi-luminaires comply Class II		N/A
5.6 (4.24)	**Photobiological hazards**		**P**
5.6 (4.24.1)	No excessive UV radiation if tungsten halogen lamps and metal halide lamps (Annex P)		N/A
5.6 (4.24.2)	Retinal blue light hazard		P
	Class of risk group assessed according to IEC/TR 62778 ..... :	RG1: 6521 W/(m^2•sr^1)	—
	Luminaires with E_{thr} :		N/A
	a) Fixed luminaires		N/A
	- distance x m, borderline between RG1 and RG2 .. :		N/A
	- marking and instruction according 3.2.23		N/A
	b) Portable and handheld luminaires		N/A
	- marking according 3.2.23 if RG1 exceeded at 200 mm according to IEC/TR 62778		N/A
	Portable luminaires for children IEC 60598-2-10 and Mains socket outlet nightlights IEC 60598-2-12 not exceed RG1 at 200 mm according to IEC/62778		N/A
5.6 (4.25)	**Mechanical hazard**		**P**
	No sharp point or edges		P
5.6 (4.26)	**Short-circuit protection**		**N/A**
5.6 (4.26.1)	Adequate means of uninsulated accessible SELV parts		N/A
5.6 (4.26.2)	Short-circuit test with test chain according 4.26.3		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	Test chain not melt through		N/A
	Test sample not exceed values of Table 12.1 and 12.2		N/A
5.6 (4.27)	**Terminal blocks with integrated screwless earthing contacts**		**N/A**
	Test according Annex V		N/A
	Pull test of terminal fixing (20 N)		N/A
	After test, resistance < 0,05 Ω		N/A
	Pull test of mechanical connection (50 N)		N/A
	After test, resistance < 0,05 Ω		N/A
	Voltage drop test, resistance < 0,05 Ω		N/A
5.6 (4.28)	**Fixing of thermal sensing control**		N/A
	Not plug-in or easily replaceable type		N/A
	Reliably kept in position		N/A
	No adhesive fixing if UV radiations from a lamp can degrade the fixing		N/A
	Not outside the luminaire enclosure		N/A
	Test of adhesive fixing:		N/A
	Max. temperature on adhesive material (°C) ..... :		—
	100 cycles between t min and t max		N/A
	Temperature sensing control still in position		N/A
5.6 (4.29)	**Luminaires with non-replaceable light source**		N/A
	Not possible to replace light source		N/A
	Live part not accessible after parts have been opened by hand or tools		N/A
5.6 (4.30)	**Luminaires with non-user replaceable light source**		**P**
	If protective cover provide protection against electric shock and marked with “caution, electric shock risk” symbol:		N/A
	Minimum two fixing means		P
5.6 (4.31)	**Insulation between circuits**		**P**
	Circuits insulated from LV supply fulfil requirements according 4.31.1 – 4.31.3		P
	Controllable luminaires requiring same level of insulation for all components, the insulation between control terminals and LV supply fulfil requirements according 4.31.1 – 4.31.3		N/A
5.6 (4.31.1)	SELV circuits		P
	Used SELV source		P

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Clause	Requirement + Test	Result - Remark	Verdict
	Voltage ≤ ELV		P
	Insulating of SELV circuits from LV supply		P
	Insulating of SELV circuits from other non SELV circuits		P
	Insulating of SELV circuits from FELV		N/A
	Insulating of SELV circuits from other SELV circuits		N/A
	SELV circuits insulated from accessible parts according Table X.1		P
	Plugs not able to enter socket-outlets of other voltage systems		N/A
	Socket outlets does not admit plugs of other voltage systems		N/A
	Plugs and socket-outlets does not have protective conductor contact		N/A
5.6 (4.31.2)	FELV circuits		N/A
	Used FELV source		N/A
	Voltage ≤ ELV		N/A
	Insulating of FELV circuits from LV supply		N/A
	FELV circuits insulated from accessible parts according Table X.1		N/A
	Plugs not able to enter socket-outlets of other voltage systems		N/A
	Socket outlets does not admit plugs of other voltage systems		N/A
	Socket-outlets does not have protective conductor contact		N/A
5.6 (4.31.3)	Other circuits		P
	Other circuits insulated from accessible parts according Table X.1		P
	Class II construction with equipotential bonding for protection against indirect contacts with live parts:		N/A
	- conductive parts are connected together		N/A
	- test according 7.2.3		N/A
	- conductive part not cause an electric shock in case of an insulation fault		N/A
	- equipotential bonding in master/slave applications		N/A
	- master luminaire provided with terminal for accessible conductive parts of slave luminaires		N/A
	- slave luminaire constructed as class I		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

5.6 (4.32)	**Overvoltage protective devices**		N/A
	Comply with IEC 61643-11		N/A
	External to controlgear and connected to earth:		N/A
	- only in fixed luminaires		N/A
	- only connected to protective earth		N/A
5.6.1 (-)	At least IPX3 if for outdoor use		P
5.6.2 (-)	Lampholder brackets and lamp supports		N/A
5.6.3 (-)	Adjusting means		P
5.6.4 (-)	Controlling components		N/A
5.6.5 (-)	Fixing device		P
	Wind force test	For model MFL-G1440: Test Force: 1341,09N, 0,1°; no failure (0,861x0,649x2,4 KN/m^2) For model MFL-G480: Test Force: 518,7N, 0,1°; no failure (0,597x0,362x2,4 KN/m^2)	P
5.6.6 (-)	Locking of angular adjustment		P
5.6.7 (-)	Vibration resistance		P
5.6.8 (-)	Requirement on glass cover if mounting height > 5 m		N/A
	Method of protection .....:	Plastic cover	—

5.7 (11)	**CREEPAGE DISTANCES AND CLEARANCES**		N/A
5.7 (11.2.1)	Impulse withstand category (Normal category II)	Category II ☐ Category III ☐	—
	Category III according Annex U		N/A
	Protected against pollution, reduced creepage and clearance according Annex P of IEC 61347-1		N/A
5.7 (11.2.2)	Creepage distances for frequency up to 30 kHz	See Test Table 5.7 (11.2) I	N/A
	Creepage distances for frequency over 30 kHz:		N/A
	- Controlgear marked with $\hat{U}_{OUT}$ and f_{UOUT} according IEC 61347-1, clause 7.1, item w	See Test Table 5.7 (11.2) II	N/A
	- Requirements according IEC 60664-4 for controlgear not covered by IEC 61347	See Test Table 5.7 (11.2) II	N/A
5.7 (11.2.3)	Clearances for frequency up to 30 kHz	See Test Table 5.7 (11.2) I	N/A
	Clearances distances for frequency over 30 kHz:		N/A
	- Controlgear marked with U_P	See Test Table 5.7 (11.2) II	N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- Requirements according IEC 60664-4 for controlgear not covered by IEC 61347	See Test Table 5.7 (11.2) II	N/A
5.8 (7)	**PROVISION FOR EARTHING**		P
5.8 (7.2.1 + 7.2.3)	Accessible metal parts		P
	Metal parts in contact with supporting surface		P
	Resistance < 0,5 Ω..... :	For model MFL-G1440: Max 0,05 Ω< 0,5 Ω	P
	Self-tapping screws used		N/A
	Thread-forming screws		N/A
	Thread-forming screw used in a grove		N/A
	Earth makes contact first		P
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N/A
	Protective earthing of the luminaire not via built-in control gear		N/A
5.8 (7.2.2 + 7.2.3)	Earth continuity in joints, etc.		N/A
5.8 (7.2.4)	Locking of clamping means		P
	Compliance with 4.7.3		P
	Terminal blocks with integrated screwless earthing contacts tested according Annex V		N/A
5.8 (7.2.5)	Earth terminal integral part of connector socket		N/A
5.8 (7.2.6)	Earth terminal adjacent to mains terminals		N/A
5.8 (7.2.7)	Electrolytic corrosion of the earth terminal		N/A
5.8 (7.2.8)	Material of earth terminal		P
	Contact surface bare metal		P
5.8 (7.2.10)	Class II luminaire for looping-in		N/A
	Double or reinforced insulation to functional earth		N/A
5.8 (7.2.11)	Earthing core coloured green-yellow		P
	Length of earth conductor		P
5.9 (14)	**SCREW TERMINALS**		N/A
	Separately approved; component list	(see Annex 1)	N/A
	Part of the luminaire	(see Annex 3)	N/A

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Clause	Requirement + Test	Result - Remark	Verdict

5.9 (15)	**SCREWLESS TERMINALS AND ELECTRICAL CONNECTIONS**		P
	Separately approved; component list..... :	(see Annex 1)	P
	Part of the luminaire ..... :	(see Annex 4)	N/A

5.10 (5)	**EXTERNAL AND INTERNAL WIRING**		P
5.10 (5.2)	**Supply connection and external wiring**		**P**
5.10 (5.2.1)	Means of connection ..... :	Supply cord	P
	Outdoor luminaire has not PVC insulated external wiring if not class III or SELV ≤ 25 V a.c./60 V d.c. or protected from outdoor environment		N/A
5.10 (5.2.2)	Type of cable..... :	H05RN-F	P
	Nominal cross-sectional area (mm²) ..... :	3x1,0mm²	P
	Cables equal to IEC 60227 or IEC 60245		P
5.10 (5.2.3)	Type of attachment, X, Y or Z	Type Y	P
5.10 (5.2.5)	Type Z not connected to screws		N/A
5.10 (5.2.6)	Cable entries:		P
	- suitable for introduction		P
	- adequate degree of protection		P
5.10 (5.2.7)	Cable entries through rigid material have rounded edges		P
5.10 (5.2.8)	Insulating bushings:		N/A
	- suitably fixed		N/A
	- material in bushings		N/A
	- material not likely to deteriorate		N/A
	- tubes or guards made of insulating material		N/A
5.10 (5.2.9)	Locking of screwed bushings		N/A
5.10 (5.2.10)	Cord anchorage:		P
	- covering protected from abrasion		P
	- clear how to be effective		P
	- no mechanical or thermal stress		P
	- no tying of cables into knots etc.		P
	- insulating material or lining		N/A
5.10 (5.2.10.1)	Cord anchorage for type X attachment:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	a) at least one part fixed		N/A
	b) types of cable		N/A
	c) no damaging of the cable		N/A
	d) whole cable can be mounted		N/A
	e) no touching of clamping screws		N/A
	f) metal screw not directly on cable		N/A
	g) replacement without special tool		N/A
	Glands not used as anchorage		N/A
	Labyrinth type anchorages		N/A
5.10 (5.2.10.2)	Adequate cord anchorage for type Y and type Z attachment		P
5.10 (5.2.10.3)	Tests:		P
	- impossible to push cable; unsafe		P
	- pull test: 25 times; pull (N) ..... :	60	P
	- torque test: torque (Nm) ..... :	0,25	P
	- displacement ≤ 2 mm	Max 0,5mm	P
	- no movement of conductors		P
	- no damage of cable or cord		P
	- function independent of electrical connection		P
5.10 (5.2.11)	External wiring passing into luminaire		P
5.10 (5.2.12)	Looping-in terminals		N/A
5.10 (5.2.13)	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		P
5.10 (5.2.14)	Mains plug same protection		N/A
	Class III luminaire plug		N/A
	No unsafe compatibility		N/A
5.10 (5.2.16)	Appliance inlets (IEC 60320)		N/A
	Installation couplers (IEC 61535)		N/A
	Other appliance inlet or connector according relevant IEC standard		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
5.10 (5.2.17)	No standardized interconnecting cables properly assembled		N/A
5.10 (5.2.18)	Used plug in accordance with		N/A
	- IEC 60083		N/A
	- other standard		N/A
5.10 (5.3)	**Internal wiring**		**P**
5.10 (5.3.1)	Internal wiring of suitable size and type		P
	Through wiring		N/A
	- not delivered/ mounting instruction		N/A
	- factory assembled		N/A
	- socket outlet loaded (A) ..... :		N/A
	- temperatures ..... :	(see Annex 2)	N/A
	Green-yellow for earth only		N/A
5.10 (5.3.1.1)	Internal wiring connected directly to fixed wiring		P
	Cross-sectional area (mm²)..... :	See Annex 1	P
	Insulation thickness (mm) ..... :		P
	Extra insulation added where necessary		N/A
5.10 (5.3.1.2)	Internal wiring connected to fixed wiring via internal current-limiting device		P
	Cross-sectional area (mm²)..... :	See Annex 1	P
5.10 (5.3.1.3)	Double or reinforced insulation for class II		N/A
5.10 (5.3.1.4)	Conductors without insulation		N/A
5.10 (5.3.1.5)	SELV current-carrying parts		P
5.10 (5.3.1.6)	Insulation thickness other than PVC or rubber		N/A
5.10 (5.3.2)	Sharp edges etc.		P
	No moving parts of switches etc.		N/A
	Joints, raising/lowering devices		N/A
	Telescopic tubes etc.		N/A
	No twisting over 360°		P
5.10 (5.3.3)	Insulating bushings:		N/A
	- suitable fixed		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- material in bushings		N/A
	- material not likely to deteriorate		N/A
	- cables with protective sheath		N/A
5.10 (5.3.4)	Joints and junctions effectively insulated		N/A
5.10 (5.3.5)	Strain on internal wiring		N/A
5.10 (5.3.6)	Wire carriers		N/A
5.10 (5.3.7)	Wire ends not tinned		N/A
	Wire ends tinned: no cold flow		P
5.10 (5.4)	**Test to determine suitability of conductors having a reduced cross-sectional area**		N/A
	Under test the temperature of the luminaire wiring insulation not exceed the limits stated in Table 12.2	(see Annex 2)	N/A
	No damage to luminaire wiring after test		N/A
5.11 (8)	**PROTECTION AGAINST ELECTRIC SHOCK**		P
5.11 (8.2.1)	Live parts not accessible		P
	Basic insulated parts not used on the outer surface without appropriate protection		P
	Basic insulated parts not accessible with standard test finger on portable, settable and adjustable luminaires		P
	Basic insulated parts not accessible with Ø 50 mm probe from outside, other types of luminaires		P
	Lamp and starterholders in portable and adjustable luminaires comply with double or reinforced insulation requirements		N/A
	Basic insulation only accessible under lamp or starter replacement		N/A
	Protection in any position		P
	Double-ended tungsten filament lamp		N/A
	Insulation lacquer not reliable		P
	Double-ended high-pressure discharge lamp		N/A
	Relevant warning according to 3.2.18 fitted to the luminaire		N/A
5.11 (8.2.2)	Portable luminaire adjusted in most unfavourable position		N/A
5.11 (8.2.3.a)	Class II luminaire:		N/A

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Clause	Requirement + Test	Result - Remark	Verdict
	- basic insulated metal parts not accessible during starter or lamp replacement		N/A
	- basic insulation not accessible other than during starter or lamp replacement		N/A
	- glass protective shields not used as supplementary insulation		N/A
5.11 (8.2.3.b)	BC lampholder of metal in class I luminaires shall be earthed		N/A
5.11 (8.2.3.c)	SELV circuits with exposed current carrying parts:		N/A
	Ordinary luminaire:		N/A
	- voltage under load (V)..... :		N/A
	- no-load voltage (V)..... :		N/A
	- touch current if applicable (mA) ..... :		N/A
	One conductive part insulated if required		N/A
	Other than ordinary luminaire:		N/A
	- nominal voltage (V) ..... :		N/A
	Class III luminaire only for connection to SELV		N/A
	Class III luminaire not provided with means for protective earthing		N/A
5.11 (8.2.4)	Portable luminaire has protection independent of supporting surface		N/A
5.11 (8.2.5)	Compliance with the standard test finger or relevant probe		P
5.11 (8.2.6)	Covers reliably secured		P
5.11 (8.2.7)	Luminaire other than below with capacitor > 0,5 μF not exceed 50 V 1 min after disconnection	4V	P
	Portable luminaire with capacitor > 0,1 μF (0.25) not exceed 34 V 1 s after disconnection		N/A
	Other luminaires with capacitor > 0,1 μF (0.25) with plug and track adaptors not exceed 60 V 5 s after disconnection		N/A

5.12 (12)	**ENDURANCE TEST AND THERMAL TEST**		P
5.12.2 (-)	If IP > IP 20 relevant test of (12.4), (12.5) and (12.6) after (9.2) before (9.3) specified in 5.13		—
5.12 (12.2)	**Selection of lamps and ballasts**		**—**
	Lamp used according Annex B	(Lamp used see Annex 2)	—
	Controlgear if separate and not supplied	(Controlgear used see Annex 2)	—

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Clause	Requirement + Test	Result - Remark	Verdict

5.12 (12.3)	**Endurance test**		**P**
	a) mounting-position ..... :	Normal use mounting	—
	b) test temperature (°C) ..... :	60	—
	c) total duration (h) ..... :	240	—
	d) supply voltage (V) ..... :	264	—
	d) if not equipped with controlgear, constant voltage/current (V) or (A) ..... :	--	—
	e) luminaire ceases to operate	--	—
5.12 (12.3.2)	After endurance test:		P
	- no part unserviceable		P
	- luminaire not unsafe		P
	- no damage to track system		N/A
	- marking legible		P
	- no cracks, deformation etc.		P
5.12 (12.4)	**Thermal test (normal operation)**	(see Annex 2)	P
5.12 (12.5)	**Thermal test (abnormal operation)**	(see Annex 2)	N/A
5.12 (12.6)	**Thermal test (failed lamp control gear condition):**		**N/A**
5.12 (12.6.1)	Through wiring or looping-in wiring loaded by a current of (A) ..... :		—
	- case of abnormal conditions ..... :		—
	- electronic lamp control gear		N/A
	- measured winding temperature (°C): at 1,1 Un .... :		—
	- measured mounting surface temperature (°C) at 1,1 Un ..... :		N/A
	- calculated mounting surface temperature (°C) ..... :		N/A
	- track-mounted luminaires		N/A
5.12 (12.6.2)	Temperature sensing control		N/A
	- case of abnormal conditions ..... :		—
	- thermal link		N/A
	- manual reset cut-out		N/A
	- auto reset cut-out		N/A
	- measured mounting surface temperature (°C) ..... :		N/A
	- track-mounted luminaires		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

5.12 (12.7)	**Thermal test (failed lamp control gear in plastic luminaires):**		**N/A**
5.12 (12.7.1)	Luminaire without temperature sensing control		N/A
5.12 (12.7.1.1)	Luminaire with fluorescent lamp ≤ 70W		N/A
	Test method 12.7.1.1 or Annex W ..... :		—
	Test according to 12.7.1.1:		N/A
	- case of abnormal conditions ..... :		—
	- Ballast failure at supply voltage (V) ..... :		—
	- Components retained in place after the test		N/A
	- Test with standard test finger after the test		N/A
	Test according to Annex W:		N/A
	- case of abnormal conditions ..... :		—
	- measured winding temperature (°C): at 1,1 Un ..... :		—
	- measured temperature of fixing point/exposed part (°C): at 1,1 Un ..... :		—
	- calculated temperature of fixing point/exposed part (°C) ..... :		—
	Ball-pressure test .....:	See Test Table 5.15 (13.2.1)	N/A
5.12 (12.7.1.2)	Luminaire with discharge lamp, fluorescent lamp > 70W, transformer > 10 VA		N/A
	- case of abnormal conditions ..... :		—
	- measured winding temperature (°C): at 1,1 Un ..... :		—
	- measured temperature of fixing point/exposed part (°C): at 1,1 Un ..... :		—
	- calculated temperature of fixing point/exposed part (°C) ..... :		—
	Ball-pressure test ..... :	See Test Table 5.15 (13.2.1)	N/A
5.12 (12.7.1.3)	Luminaire with short circuit proof transformers ≤ 10 VA		N/A
	- case of abnormal conditions ..... :		—
	- Components retained in place after the test		N/A
	- Test with standard test finger after the test		N/A
5.12 (12.7.2)	Luminaire with temperature sensing control		N/A
	- thermal link..... :	Yes ☐ No ☐	—
	- manual reset cut-out ..... :	Yes ☐ No ☐	—

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Clause	Requirement + Test	Result - Remark	Verdict
	- auto reset cut-out ..... :	Yes ☐ No ☐	—
	- case of abnormal conditions ..... :		—
	- highest measured temperature of fixing point/ exposed part (°C): ..... :		—
	Ball-pressure test: ..... :	See Test Table 5.15 (13.2.1)	N/A
5.12.1 (-)	Reduction 10 °C of measured temperatures if for outdoor use		—
5.12.2 (-)	Glass covers used within the thermal limits		N/A

5.13 (9)	**RESISTANCE TO DUST AND MOISTURE**		P
5.13.1 (-)	If IP > IP 20 the order of tests as specified in clause 5.12		P
5.13 (9.2)	Tests for ingress of dust, solid objects and moisture:		P
	- classification according to IP..... :	IP65	—
	- mounting position during test ..... :	Normal use mounting	—
	- fixing screws tightened; torque (Nm) ..... :	Metal gland: 4,2Nm; plastic lens: 0,4Nm	—
	- tests according to clauses..... :	Clause 9.2.2 and 9.2.6	—
	- electric strength test afterwards		P
	a) no deposit in dust-proof luminaire		N/A
	b) no talcum in dust-tight luminaire		P
	c) no trace of water on current-carrying parts or on insulation where it could become a hazard		P
	c.1) For luminaires without drain holes – no water entry		P
	c.2) For luminaires with drain holes – no hazardous water entry		N/A
	d) no water in watertight or pressure watertight luminaire		N/A
	e) no contact with live parts (IP 2X)		N/A
	e) no entry into enclosure (IP 3X and IP 4X)		N/A
	e) no contact with live parts through drain holes and ventilation slots (IP3X and IP4X)		N/A
	f) no trace of water on part of lamp requiring protection from splashing water		P
	g) no damage of protective shield or glass envelope		P
5.13 (9.3)	Humidity test 48 h	25,0°C, 93%RH	P

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
5.14 (10)	**INSULATION RESISTANCE AND ELECTRIC STRENGTH**		P
5.14 (10.2.1)	Insulation resistance test		P
	Cable or cord covered by metal foil or replaced by a metal rod of mm Ø ..... :	Supply covered by metal foil	—
	Insulation resistance (MΩ) ..... :	See below	—
	SELV		P
	- between current-carrying parts of different polarity :		N/A
	- between current-carrying parts and mounting surface..... :	100MΩ＞1MΩ	P
	- between current-carrying parts and metal parts of the luminaire..... :	100MΩ＞1MΩ	P
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts..... :		N/A
	- Insulation bushings as described in Section 5 ..... :		N/A
	Other than SELV		P
	- between live parts of different polarity ..... :	LED driver approved	N/A
	- between live parts and mounting surface ..... :	100MΩ＞2MΩ	P
	- between live parts and metal parts ..... :	100MΩ＞2MΩ	P
	- between live parts of different polarity through action of a switch..... :		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts..... :	100MΩ＞2MΩ	P
	- Insulation bushings as described in Section 5 .....:		N/A
5.14 (10.2.2)	Electric strength test		P
	Dummy lamp		N/A
	Luminaires with ignitors after 24 h test		N/A
	Luminaires with manual ignitors		N/A
	Test voltage (V) ..... :	See below	P
	SELV		P
	- between current-carrying parts of different polarity :		N/A
	- between current-carrying parts and mounting surface..... :	500V	P
	- between current-carrying parts and metal parts of the luminaire..... :	500V	P

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts..... :		N/A
	- Insulation bushings as described in Section 5 ..... :		N/A
	Other than SELV		P
	- between live parts of different polarity ..... :	LED driver approved	N/A
	- between live parts and mounting surface ..... :	1480V	P
	- between live parts and metal parts ..... :	1480V	P
	- between live parts of different polarity through action of a switch..... :		N/A
	- between the outer surface of a flexible cord or cable where it is clamped in a cord anchorage and accessible metal parts..... :	1480V	P
	- Insulation bushings as described in Section 5 ..... :		N/A
5.14 (10.3)	Touch current or protective conductor current (mA).:	Protective conductor current: For model MFL-G1440: Max 0,5mA<3,5mA	P
5.15 (13)	**RESISTANCE TO HEAT, FIRE AND TRACKING**		P
5.15 (13.2.1)	Ball-pressure test .....:	See Test Table 5.15 (13.2.1)	P
5.15 (13.3.1)	Needle-flame test (10 s).....:	See Test Table 5.15 (13.3.1)	P
5.15 (13.3.2)	Glow-wire test (650°C) .....:	See Test Table 5.15 (13.3.2)	P
5.15 (13.4)	Proof tracking test (IEC 60112).....:	See Test Table 5.15 (13.4)	N/A

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict

5.7 (11.2)	**TABLE I: Creepage distances and clearances**						**N/A**
	Minimum distances (mm) for a.c. up to 30 kHz sinusoidal voltages						**N/A**
	Applicable part of IEC 60598-1 Table 11.1.A*, 11.1.B* and 11.2*						**N/A**
	Insulation type **	**Measured clearance**	**Required**		**Measured creepage**	**Required**	
			clearance	***Table**		**creepage**	***Table**
Distance 1:	--	--	--	--	--	--	--
Working voltage (V) .....:					--		—
PTI .....:					< 600 ☐ ≥ 600 ☐		—
Pulse voltage or U_P if applicable (kV) .....:					--		—
Supplementary information: Trace of LED board to accessible metal parts							
Distance 2:	--	--	--	--	--	--	--
Working voltage (V) .....:					--		—
PTI .....:					< 600 ☐ ≥ 600 ☐		—
Pulse voltage or U_P if applicable (kV) .....:					--		—
Supplementary information: --							
Distance 3:	--	--	--	--	--	--	--
Working voltage (V) .....:					--		—
PTI .....:					< 600 ☐ ≥ 600 ☐		—
Pulse voltage or U_P if applicable (kV) .....:					--		—
Supplementary information: --							

** Insulation type: B – Basic; S – Supplementary; R – Reinforced. See also IEC 60598-1 Annex M.

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict

5.7 (11.2)	**TABLE II: Creepage distances and clearances**							**N/A**
Minimum distances (mm) for a.c. higher than 30 kHz sinusoidal voltages								
Applicable part of IEC 61347-1 Table 7 and 8* or IEC 60664-4 Table 1 and 2								
Distances	**Insulation type ****	**Measured clearance**	**Required**		**Measured creepage**	**Required**		
			clearance	***Table**		**creepage**	***Table**	
Distance 1:								
Working voltage (V) .....:								—
Frequency if applicable (kHz) .....:								—
PTI .....:					< 600 ☐	≥ 600 ☐		—
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV) .....:								—
Supplementary information:								
Distance 2:								
Working voltage (V) .....:								—
Frequency if applicable (kHz) .....:								—
PTI .....:					< 600 ☐	≥ 600 ☐		—
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV) .....:								—
Supplementary information:								
Distance 3:								
Working voltage (V) .....:								—
Frequency if applicable (kHz) .....:								—
PTI .....:					< 600 ☐	≥ 600 ☐		—
Peak value of the working voltage $\hat{U}_{out}$ if applicable (kV) .....:								—
Supplementary information:								

** Insulation type: B – Basic; S – Supplementary; R – Reinforced.

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict

5.15 (13.2.1)	TABLE: Ball Pressure Test of Thermoplastics			P
Allowed impression diameter (mm) ..... :		2		—
Object/ Part No./ Material	Manufacturer/ trademark	Test temperature (°C)	Impression diameter (mm)	
plastic lens	See Annex 1	108	0,6	
Supplementary information:				

5.15 (13.3.1)	TABLE: Needle-flame test (IEC 60695-11-5)				P
Object/ Part No./ Material	Manufacturer/ trademark	Duration of application of test flame (ta); (s)	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
AC waterproof connector	See Annex 1	10	No	0	P
DC waterproof connector	See Annex 1	10	No	0	P
Supplementary information:					

5.15 (13.3.2)	TABLE: Glow-wire test (IEC 60695-2-11)			P
Glow wire temperature ..... :		650°C		—
Object/ Part No./ Material	Manufacturer/ trademark	Ignition of specified layer Yes/No	Duration of burning (tb) (s)	Verdict
plastic lens	See Annex 1	No	0	P
AC waterproof connector	See Annex 1	No	0	P
DC waterproof connector	See Annex 1	No	0	P
Supplementary information:				

5.15 (13.4)	TABLE: Proof tracking test (IEC 60112)				N/A
Test voltage PTI ..... :		175 V			—
Object/ Part No./ Material	Manufacturer/ trademark	Withstand 50 drops without failure on three places or on three specimens			Verdict
--	--	--	--	--	--
Supplementary information:					

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 1	TABLE: Critical components information					P
Object / part No.	**Code**	**Manufacturer/ trademark**	**Type / model**	**Technical data**	**Standard**	**Mark(s) of conformity[1)]**
Supply cord	B	**Ningbo Dabu Electric Appliance Co.,Ltd.**	H05RN-F	300/500V, 3X1,0mm^2	DIN EN 50525-2-21	VDE 40030691
Output cord	B	**Queshan Yuqiang Cable Co.,Ltd.**	H05RN-F	300/500V, 2X1,0mm^2	DIN EN 50525-2-21	VDE 40044073
-Alt	D	Guangdong Rifeng Electrical Cable Co.,Ltd	H07RN-F	300/500V, 2X1,0mm^2	DIN EN 50525-2-21	VDE 40015999
plastic lens	C	SABIC JAPAN L LC	LUX7632C(f1)(gg*)	V-0, 125°C	IEC 60598-1 IEC 60598-2-5	UL E207780 Test with appliance
AC waterproof connector	B	ShenZhen Lilutong Electronic Technology Co.,Ltd	LTT-L20-25003L001	20A, 380V, IP68	EN 60998-1 EN 60998-2-1	TUV SUD SG-IT-00149
DC waterproof connector	B	ShenZhen Lilutong Electronic Technology Co.,Ltd	LTT-L20-25002L001	20A, 380V, IP68	EN 60998-1 EN 60998-2-1	TUV SUD SG-IT-00149
LED PCB	B	DONGGUAN CITY SHIMAO ELECTRONICS CO LTD	SM-1	V-0, 105°C	IEC 60598-1 IEC 60598-2-5	UL E365107 Test with appliance
LED	C	Fujian Lightning Optoelectronic Co.,Ltd.	5050	If=200mA, Vf=24VDC CCT. 2700K-6500K	IEC TR 62778	Test with appliance
LED driver	B	MEAN WELL Enterprises Co., Ltd.	ELG-200-48A	Input: AC 100-240V, 50/60Hz, 1,8A, 277V, 50/60Hz, 1,0A Output: 48VDC, 199,68W, 4,16A, (Input: AC 200-240V, 277V) 149,76W, 3,12A, (Input: AC 100-200V) ta.50ºC tc.90ºC Constant voltage, Class I, SELV, Independent	IEC 61347-1; IEC 61347-2-13	TUV Rh CB DE 2-023141

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict

LED driver	B	MEAN WELL Enterprises Co., Ltd.	ELG-150-48A	Input: AC 100-240V, 50/60Hz, 1,7A, 277V, 50/60Hz, 0,7A Output: 48VDC, 150,2W, 3,13A, (Input: AC 200-240V, 277V) 105W, 2,19A, (Input: AC 100-200V) ta.55ºC tc.90ºC Constant voltage, Class I, SELV, Independent	IEC 61347-1; IEC 61347-2-13	DEKRA CB NL-51177
LED driver	B	MEAN WELL Enterprises Co., Ltd.	ELG-240-48A	Input: AC 100-240V, 50/60Hz, 2,2A, 277V, 50/60Hz, 1,2A Output: 48VDC, 240W, 5,0A, (Input: AC 200-240V, 277V) 180W, 3,75A, (Input: AC 100-200V) ta.50ºC tc.90ºC Constant voltage, Class I, SELV, Independent	IEC 61347-1; IEC 61347-2-13	TUV Rh CB DE 2-023141

Supplementary information:

[1)] Provided evidence ensures the agreed level of compliance. See OD-CB2039.

The codes above have the following meaning:

A - The component is replaceable with another one, also certified, with equivalent characteristics

B - The component is replaceable if authorised by the test house

C - Integrated component tested together with the appliance

D - Alternative component

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 2	TABLE: Thermal tests of Section 12		P
1/3	Type reference ..... :	MFL-G1440	—
	Lamp used..... :	LED model	—
	Lamp control gear used..... :	ELG-240-48A*6pcs	—
	Mounting position of luminaire ..... :	Normal use mounting	—
	Supply wattage (W) ..... :	1448	—
	Supply current (A) ..... :	5,8	—
	Temperatures in test 1 - 4 below are corrected for ta (°C) ..... :	50	—
	- abnormal operating mode ..... :	--	—
1.12 (12.4)	- test 1: rated voltage ..... :	240V	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current ..... :	254,4V	—
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage ..... :	--	—
	Through wiring or looping-in wiring loaded by a current of A during the test ..... :	--	—
1.12 (12.5)	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current ..... :	--	—

Temperature measurements (°C)

Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Supply cord	50,0	--	62,0	--	90	--	--
Tc of LED driver	50,0	80,9	--	--	90	--	--
AC waterproof connector	50,0	--	65,7	--	90	--	--
DC waterproof connector	50,0	--	67,5	--	90	--	--
Internal wire	50,0	--	82,1	--	90	--	--
plastic lens	50,0	--	82,3	--	Ref.	--	--
LED PCB	50,0	--	80,5	--	Ref.	--	--
Metal enclosure	50,0	--	72,4	--	Ref.	--	--
Mounting surface	50,0	--	53,3	--	90	--	--
Lighting surface (10cm)	50,0	--	55,5	--	90	--	--
Supplementary information:							

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 2	TABLE: Thermal tests of Section 12		P
2/3	Type reference ..... :	MFL-G360	—
	Lamp used..... :	LED model	—
	Lamp control gear used..... :	ELG-200-48A*2pcs	—
	Mounting position of luminaire ..... :	Normal use mounting	—
	Supply wattage (W) ..... :	365	—
	Supply current (A) ..... :	1,46	—
	Temperatures in test 1 - 4 below are corrected for ta (°C) ..... :	50	—
	- abnormal operating mode ..... :	--	—
1.12 (12.4)	- test 1: rated voltage ..... :	240V	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current ..... :	254,4V	—
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage ..... :	--	—
	Through wiring or looping-in wiring loaded by a current of A during the test ..... :	--	—
1.12 (12.5)	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current ..... :	--	—

Temperature measurements (°C)

Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Supply cord	50,0	--	59,0	--	90	--	--
Tc of LED driver	50,0	77,9	--	--	90	--	--
AC waterproof connector	50,0	--	62,7	--	90	--	--
DC waterproof connector	50,0	--	64,5	--	90	--	--
Internal wire	50,0	--	79,1	--	90	--	--
plastic lens	50,0	--	79,3	--	Ref.	--	--
LED PCB	50,0	--	77,5	--	Ref.	--	--
Metal enclosure	50,0	--	69,4	--	Ref.	--	--
Mounting surface	50,0	--	52,3	--	90	--	--
Lighting surface (10cm)	50,0	--	56,5	--	90	--	--
Supplementary information:							

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 2	TABLE: Thermal tests of Section 12		P
3/3	Type reference ..... :	MFL-G120	—
	Lamp used..... :	LED model	—
	Lamp control gear used..... :	ELG-150-48A	—
	Mounting position of luminaire ..... :	Normal use mounting	—
	Supply wattage (W) ..... :	153	—
	Supply current (A) ..... :	0,61	—
	Temperatures in test 1 - 4 below are corrected for ta (°C) ..... :	50	—
	- abnormal operating mode ..... :	--	—
1.12 (12.4)	- test 1: rated voltage ..... :	240V	—
	- test 2: 1,06 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current ..... :	254,4V	—
	- test 3: Load on wiring to socket-outlet, 1,06 times voltage or 1,05 times wattage ..... :	--	—
	Through wiring or looping-in wiring loaded by a current of A during the test ..... :	--	—
1.12 (12.5)	- test 4: 1,1 times rated voltage or 1,05 times rated wattage or 1,1 times constant voltage/current ..... :	--	—

Temperature measurements (°C)

Part	Ambient	Cl. 12.4 – normal				Cl. 12.5 – abnormal	
		test 1	test 2	test 3	limit	test 4	limit
Supply cord	50,0	--	55,0	--	90	--	--
Tc of LED driver	50,0	73,9	--	--	90	--	--
AC waterproof connector	50,0	--	58,7	--	90	--	--
DC waterproof connector	50,0	--	60,5	--	90	--	--
Internal wire	50,0	--	75,1	--	90	--	--
plastic lens	50,0	--	75,3	--	Ref.	--	--
LED PCB	50,0	--	73,5	--	Ref.	--	--
Metal enclosure	50,0	--	65,4	--	Ref.	--	--
Mounting surface	50,0	--	53,3	--	90	--	--
Lighting surface (10cm)	50,0	--	55,5	--	90	--	--
Supplementary information:							

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 3	**Screw terminals (part of the luminaire)**		N/A
(14)	**SCREW TERMINALS**		N/A
(14.2)	Type of terminal.....:		—
	Rated current (A).....:		—
(14.3.2.1)	One or more conductors		N/A
(14.3.2.2)	Special preparation		N/A
(14.3.2.3)	Terminal size		N/A
	Cross-sectional area (mm²).....:		—
(14.3.3)	Conductor space (mm).....:		N/A
(14.4)	Mechanical tests		N/A
(14.4.1)	Minimum distance		N/A
(14.4.2)	Cannot slip out		N/A
(14.4.3)	Special preparation		N/A
(14.4.4)	Nominal diameter of thread (metric ISO thread) .....:		N/A
	External wiring		N/A
	No soft metal		N/A
(14.4.5)	Corrosion		N/A
(14.4.6)	Nominal diameter of thread (mm) .....:		N/A
	Torque (Nm).....:		N/A
(14.4.7)	Between metal surfaces		N/A
	Lug terminal		N/A
	Mantle terminal		N/A
	Pull test; pull (N).....:		N/A
(14.4.8)	Without undue damage		N/A

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Clause	Requirement + Test	Result - Remark	Verdict

ANNEX 4	**Screwless terminals (part of the luminaire)**		N/A
(15)	**SCREWLESS TERMINALS**		N/A
(15.2)	Type of terminal.....:		—
	Rated current (A).....:		—
(15.3.1)	Material		N/A
(15.3.2)	Clamping		N/A
(15.3.3)	Stop		N/A
(15.3.4)	Unprepared conductors		N/A
(15.3.5)	Pressure on insulating material		N/A
(15.3.6)	Clear connection method		N/A
(15.3.7)	Clamping independently		N/A
(15.3.8)	Fixed in position		N/A
(15.3.10)	Conductor size		N/A
	Type of conductor		N/A
(15.5)	Terminals and connections for internal wiring		N/A
(15.5.1)	Mechanical tests		N/A
(15.5.1.1.1)	Pull test spring-type terminals (4 N, 4 samples) .....:		N/A
(15.5.1.1.2)	Pull test pin or tab terminals (4 N, 4 samples) .....:		N/A
	Insertion force not exceeding 50 N		N/A
(15.5.1.2)	Permanent connections: pull-off test (20 N)		N/A
(15.5.2)	Electrical tests		N/A
	Voltage drop (mV) after 1 h (4 samples).....:		N/A
	Voltage drop of two inseparable joints		N/A
	Number of cycles:		—
	Voltage drop (mV) after 10th alt. 25th cycle (4 samples).....:		N/A
	Voltage drop (mV) after 50th alt. 100th cycle (4 samples).....:		N/A
	After ageing, voltage drop (mV) after 10th alt. 25th cycle (4 samples) .....:		N/A
	After ageing, voltage drop (mV) after 50th alt. 100th cycle (4 samples) .....:		N/A
(15.6)	Terminals and connections for external wiring		N/A
(15.6.1)	Conductors		N/A

IEC 60598-2-5			
Clause	Requirement + Test	Result - Remark	Verdict

	Terminal size and rating		N/A
15.6.2	Mechanical tests		N/A
(15.6.2.1)	Pull test spring-type terminals or welded connections (4 samples); pull (N) .....:		N/A
(15.6.2.2)	Pull test pin or tab terminals (4 samples); pull (N) .....:		N/A
(15.6.3)	Electrical tests		N/A
	Tests according 15.6.3.1 + 15.6.3.2 in IEC 60598-1		N/A

(15.6.3.1) (15.6.3.2)	**TABLE: Contact resistance test / Heating tests**									N/A
	Voltage drop (mV) after 1 h									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
	Voltage drop of two inseparable joints									
	Voltage drop after 10th alt. 25th cycle									
	Max. allowed voltage drop (mV) ..... :									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
	Voltage drop after 50th alt. 100th cycle									
	Max. allowed voltage drop (mV) ..... :									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
	Continued ageing: voltage drop after 10th alt. 25th cycle									
	Max. allowed voltage drop (mV) ..... :									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
	Continued ageing: voltage drop after 50th alt. 100th cycle									
	Max. allowed voltage drop (mV) ..... :									—
terminal	1	2	3	4	5	6	7	8	9	10
voltage drop (mV)										
Supplementary information:										

ATTACHMENT 1: Tests according to IEC 62031:2008+A1:2012+A2:2014			
Clause	Requirement + Test	Result - Remark	Verdict

12	**FAULT CONDITIONS**		**P**
12.2	**Overpower condition**		**P**
	Module withstands overpower condition >15 min.		P
	Module with automatic protective device or power limiter, test performed 15 min. at limit.		P
	No fire, smoke or flammable gas is produced		P
	Molten material does not ignite tissue paper, spread below the module		P

22	**PHOTOBIOLOGICAL SAFETY**		**P**
22.1	**UV radiation**		**N/A**
	Luminous radiation not exceed 2mW/klm		N/A
22.2	**Blue light hazard**		**P**
	Assessed according to IEC TR 62778	RG1	P
22.3	**Infrared radiation**		**N/A**
	Requirements for infrared radiation when required		N/A

ATTACHMENT 2: Photobiological safety of lamps and lamp systems were according to standard IEC TR 62778:2014			
Clause	Requirement + Test	Result - Remark	Verdict

	Measurement performed on:	☐ **LED package** ☐ **LED module** ☐ **Lamp** ☒ **Luminaire**	
	Model number	MFL-G1440	
	Test voltage (V)	240	—
	Test current (mA)	--	—
	Test frequency (Hz)	50	—
	Ambient, t (°C)	25,0	—
	Measurement distance	☒ 20 cm ☐ ... cm	—
	Source size	☒ Non-small ☐ Small : .... mm	—
	Field of view	☐ 100 mrad ☒ 11 mrad ☐ 1,7 mrad (for small sources)	—

Item	Symbol	Units	Result	Remark
Correlated colour temperature	CCT	K	--	--
x/y colour coordinates	--	--	--	--
Blue light hazard radiance	L_B	$W/(m^2 \cdot sr^1)$	6521	RG1
Blue light hazard irradiance	E_B	W/m^2	--	--
Luminance	L	cd/m^2	7,406E+06	--
Illuminance	E	lx	--	--

ATTACHMENT 3: Photo document

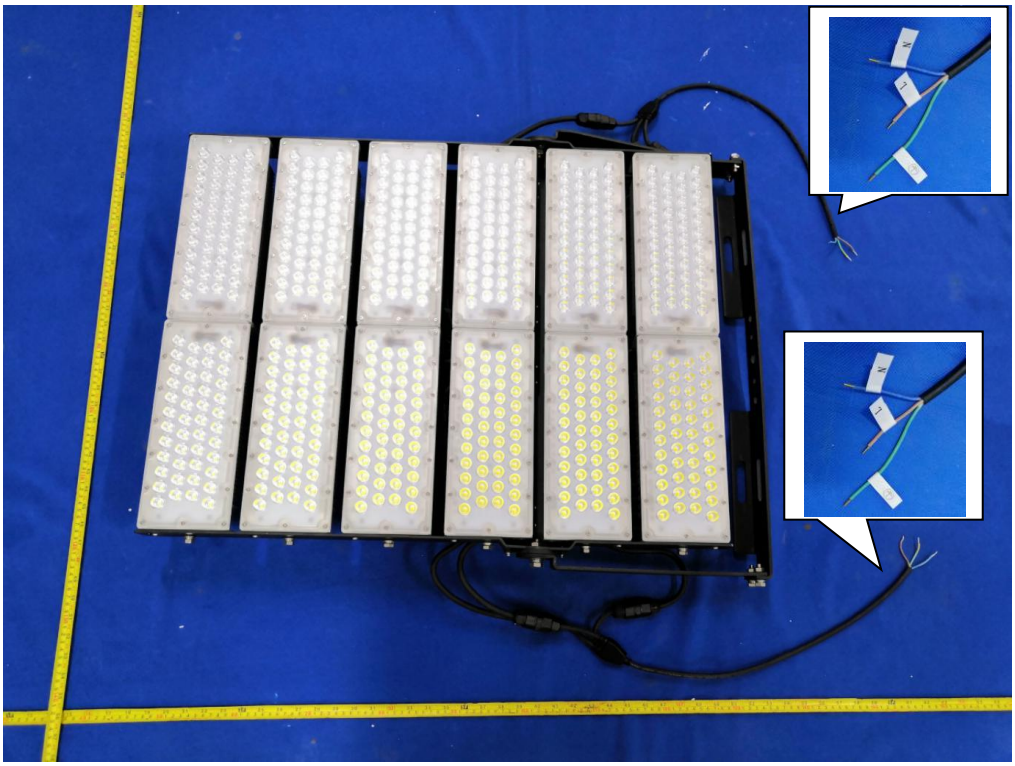

Figure 1: Overview of model MFL-G1440

Figure 2: Overview of model MFL-G1440

ATTACHMENT 3: Photo document

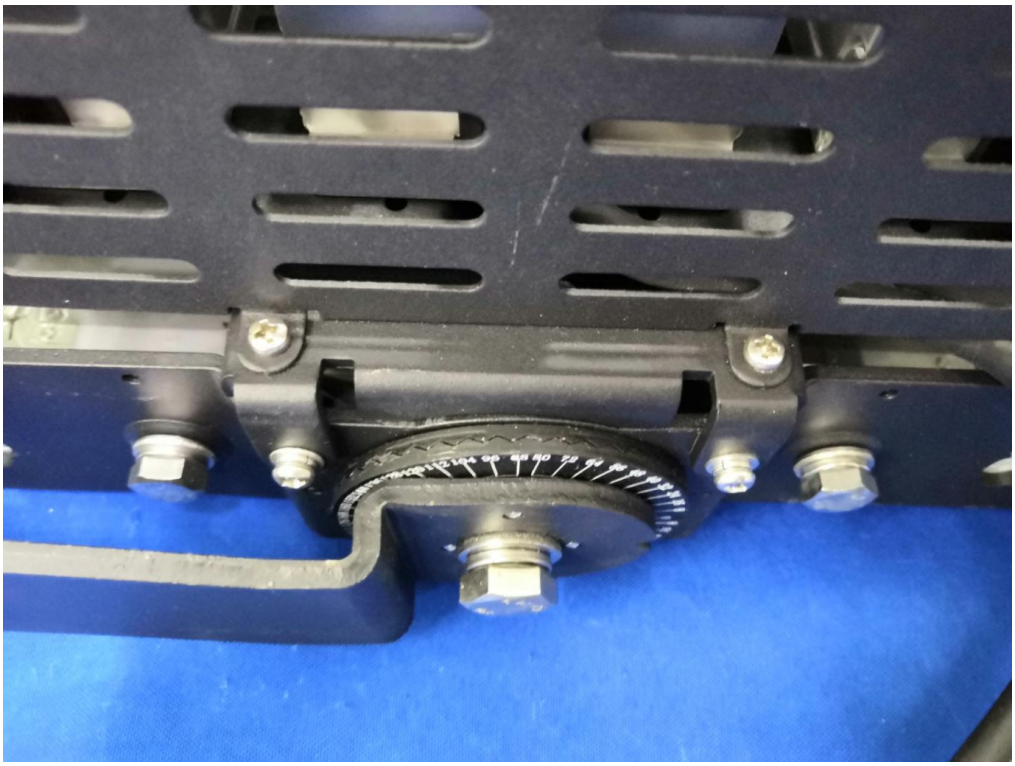

Figure 3: Mounting bracket of model MFL-G1440

Figure 4: Internal view of model MFL-G1440

ATTACHMENT 3: Photo document

Figure 5: LED module of SMD 5050

Figure 6: LED driver of model ELG-240-48A

ATTACHMENT 3: Photo document

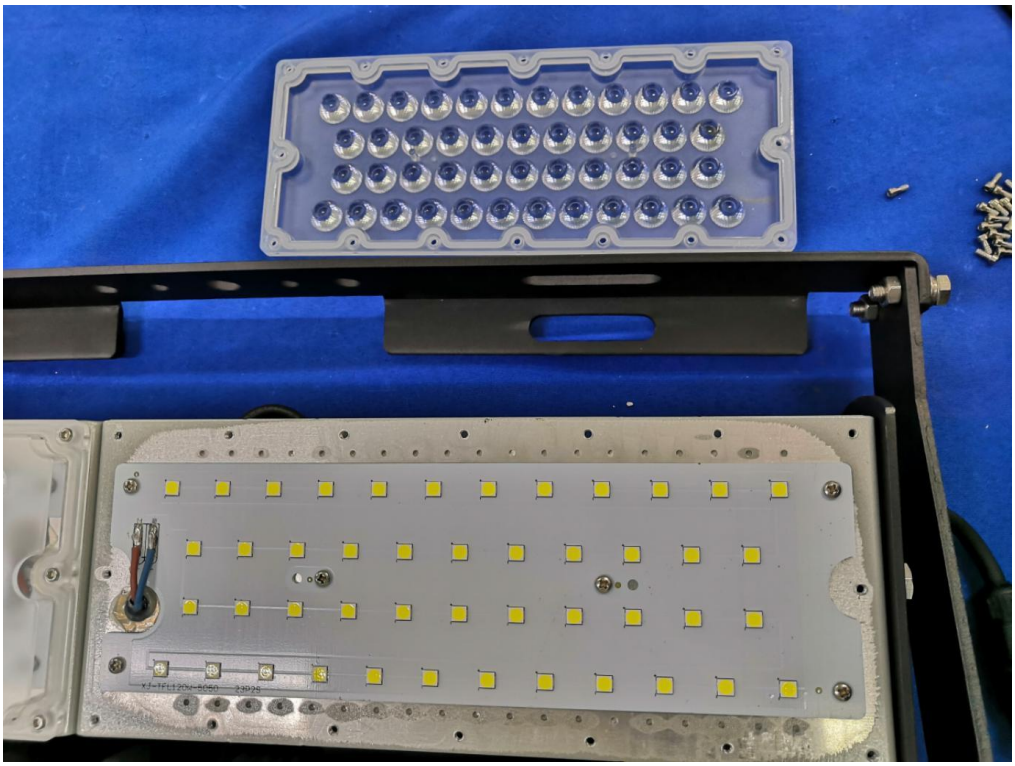

Figure 7: LED module

Figure 8: LED driver of model ELG-200-48A

ATTACHMENT 3: Photo document

Figure 9: LED driver of model ELG-150-48A

Figure 10: Overview of model MFL-G120

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